

CALIFORNIA ENERGY COMMISSION

1516 NINTH STREET
SACRAMENTO, CA 95814-5512STATE OF CALIFORNIA
ENERGY RESOURCES CONSERVATION
AND DEVELOPMENT COMMISSION**DOCKET****03-AFC-2C**

DATE	FEB 02 2011
RECD.	FEB 08 2011

In the Matter of:) Docket No. 03-AFC-2C
)
 LOS ESTEROS CRITICAL ENERGY) Order No. 11-0202-6
 FACILITY)
) ORDER AMENDING THE ENERGY
 LOS ESTEROS CRITICAL ENERGY) COMMISSION DECISION
 FACILITY, LLC)
)

On October 30, 2009, Los Esteros Critical Energy Facility, LLC filed a petition with the California Energy Commission to amend the Energy Commission Decision for the Los Esteros Critical Energy Facility (LECEF) Project to use an underground interconnection, add a new breaker and reconductor, and update existing Air Quality Conditions of Certification to lower the emission limits for carbon monoxide (CO) and Precursor Organic Compounds (POC). Additional revisions have been updated to reflect the most recent Bay Area Air Quality Management District (BAAQMD) emission standards.

STAFF RECOMMENDATION

Energy Commission staff reviewed the petition and finds that it complies with the requirements of Title 20, Section 1769(a) of the California Code of Regulations and recommends approval of Los Esteros Critical Energy Facility, LLC's petition to modify the LECEF Project and amend related Conditions of Certification.

ENERGY COMMISSION FINDINGS

Based on staff's analysis, the Energy Commission concludes that the proposed changes will not result in any significant impact to public health and safety, or the environment. The Energy Commission finds that:

- The petition meets all the filing criteria of Title 20, section 1769(a) of the California Code of Regulations concerning post-certification project modifications;
- The modification will not change the findings in the Energy Commission's Final Decision pursuant to Title 20, section 1755;
- The proposed modifications to the Air Quality Conditions of Certification will result in a beneficial change by adopting emission limits substantially lower than those set in the previous 2006 Energy Commission Decision and is consistent with BAAQMD newer emission standards; and,
- There has been a substantial change in circumstances justifying the change in that the BAASCAQMD has made changes in the RECLAIM/Title V permit since the last Energy Commission amendment was approved on April 11, 2007.

- There has been a substantial change in circumstances since the Energy Commission certification justifying the change in that the proposed modifications relating to the undergrounding of a permanent transmission line are now necessary to allow continued reliable interconnection between LECEF Phase 2 and the PG&E transmission system. The Owner prefers that LECEF remain permanently connected to the Los Esteros Substation rather than to revise the point of connection to the Silicon Valley Power Substation, as authorized in the 2006 Decision. The circumstances of the PG&E system upgrades attributable to the project were not known at the time of the 2002 Decision. The proposed modifications to the Air Quality Conditions of Certification concerning CO and POC emission limits are necessary to achieve the current BACT standards.

CONCLUSION AND ORDER

The California Energy Commission hereby adopts staff's recommendations and approves revisions to the Decision, and the following changes to the LECEF Project Decision. Deleted text is in ~~strikethrough~~, new text is **bold double-underlined**.

AIR QUALITY

Changed Conditions of Certification:

AQ-SC7 The project shall surrender the emission offset credits listed below or a modified list, as allowed by this condition, at the time surrender is required by condition AQ-35 (district permit Part 35). The project owner may request CPM approval for any substitutions or modification of credits. The CPM, in consultation with the District, may approve any such change to the ERC list provided that the project remains in compliance with all applicable laws, ordinances, regulations, and standards, the requested change(s) clearly will not cause the project to result in a significant environmental impact, and each requested change is consistent with applicable federal and state laws and regulations.

Required Emission Reduction Credits

ERC Number	Source Location (City)	Date Banked	Source Type	NOx (TPY)	POC (TPY)
724	Palo Alto	3/13/96	Cardinal Cogen	7.100	
856	San Pablo	4/23/02	Myer Container		26.522
896	San Francisco	9/30/85	Potrero Power Plant	304.594	
<u>1201</u>					
Total ERCs Available				<u>304.594</u>	<u>26.522</u>
Los Esteros Phase 2 ERC Requirement				27.945	7.5
				<u>23.35</u>	

Verification: The project owner shall submit to the CPM a list of ERCs to be surrendered to the District at least 60 days prior to initial startup. If the CPM, in consultation with the District, approves a substitution or modification, the CPM shall file a statement of the approval with the commission docket and mail a copy of the statement to every person on the post-certification mailing list. The CPM shall maintain an updated list of approved ERCs for the project.

AQ-SC12 **The project owner shall not operate S-5 Fire Pump Diesel Engine for testing to demonstrate compliance with a District, State, or Federal emission limit or for reliability-related activities (maintenance and other testing, but excluding emission testing) simultaneously with the operation of any gas turbine (S-1, S-2, S-3, or S-4) in start-up mode.**

Verification: **As part of the quarterly and annual compliance reports as required by AQ-34, the project owner shall include information on the date, time, and duration of any violation of this permit condition.**

AQ-SC13 **The project owner shall limit the operation of S-5 Fire Pump Diesel Engine to the hours between 8 a.m. and 5 p.m. for reliability-related activities (maintenance and other testing, but excluding emission testing or emergency operation).**

Verification: **As part of the quarterly and annual compliance reports as required by AQ-34, the project owner shall include information on the date, time, and duration of any violation of this permit condition.**

Commissioning Permit Conditions:

AQ-3 At the earliest feasible opportunity and in accordance with the recommendations of the equipment manufacturers and the construction contractor, the project owner shall install, adjust and operate the SCR Systems (A-2 **10**, A-4 **12**, A-6 **14** & A-8 **16**) and OC Systems (A-1 **9**, A-3 **11**, A-5 **13** & A-7 **15**) to minimize the emissions of nitrogen oxides and carbon monoxide from S-1, S-2, S-3 and S-4 Gas Turbines and S-7, S-8, S-9, and S-10 Heat Recovery Steam Generators. (Basis: cumulative increase.)

Verification: The project owner shall specifically demonstrate compliance with this Condition of Certification as part of the Commissioning Plan and Monthly Commissioning Emissions Reports required by AQ-5 and AQ-10 respectively.

AQ-4 Coincident with the steady-state operation of SCR Systems (A-2 **10**, A-4 **12**, A-6 **14** & A-8 **16**) and OC Systems (A-1 **9**, A-3 **11**, A-5 **13** & A-7 **15**) pursuant to AQ-3, the project owner shall operate the facility in such a manner that the Gas

Turbines (S-1, S-2, S-3 and S-4) comply with the NO_x and CO emission limitations specified in AQ-19a and AQ-19c. (Basis: BACT, offsets.)

Verification: The project owner shall specifically demonstrate compliance with this Condition of Certification as part of the Commissioning Plan and Monthly Commissioning Emissions Reports required by AQ-5 and AQ-10 respectively.

AQ-6 During the commissioning period, the project owner of the Los Esteros Critical Energy Facility shall demonstrate compliance with AQ-8 through AQ-10 through the use of properly operated and maintained continuous emission monitors and data recorders for the following parameters:

- a) firing hours
- b) fuel flow rates
- c). stack gas nitrogen oxide emission concentrations,
- d). stack gas carbon monoxide emission concentrations
- e) stack gas oxygen concentrations.

The monitored parameters shall be recorded at least once every 15 minutes (excluding normal calibration periods or when the monitored source is not in operation) for the S-1, S-2, S-3 and S-4 Gas Turbines and S-7, S-8, S-9, and S-10 Heat Recovery Steam Generators. The project owner shall use District-approved methods to calculate heat input rates, nitrogen dioxide mass emission rates, carbon monoxide mass emission rates, and NO_x and CO emission concentrations, summarized for each clock hour and each calendar day. All records shall be retained on site for at least 5 years from the date of entry and available to District personnel upon request. **If necessary to ensure that accurate data is collected at all times, the project owner shall install dual span emission monitors.** (Basis: cumulative increase.)

Verification: The project owner shall specifically demonstrate compliance with this Condition of Certification as part of the Commissioning Plan and Monthly Commissioning Emissions Reports required by AQ-5 and AQ-10 respectively.

AQ-7 The project owner shall install, calibrate and make operational the District-approved continuous monitors specified in AQ-6 prior to first firing of each turbine (S-1, S-2, S-3 and S-4 Gas Turbines) and HRSG (S-7, S-8, S-9, and S-10 Heat Recovery Steam Generators). After first firing of the turbine, the project owner shall adjust the detection range of these continuous emission monitors as necessary to accurately measure the resulting range of CO and NO_x emission concentrations. The type, specifications, and location of these monitors shall be subject to District review and approval. **If necessary to ensure accurate data is collected at all times, the project owner shall install dual-span monitors.** (Basis: BAAQMD 9-9-501, BACT, offsets.)

Verification: The project owner shall notify the District and CPM of the date of expected first fire at least 30 days prior to first fire and shall make the project site available for inspection if desired by either the District or CPM.

AQ-8 The project owner shall not operate the facility such that the number of firing hours of S-1, S-2, S-3 and S-4 Gas Turbines and/or S-7, S-8, S-9, and S-10 Heat Recovery Steam Generators without abatement by SCR or OC systems exceed 250 hours **for each power train** during the commissioning period. Such operation of the S-1, S-2, S-3 and S-4 Gas Turbines without abatement shall be limited to discrete commissioning activities that can only be properly executed without the SCR or OC system in place. Upon completion of these activities, the project owner shall provide written notice to the District Permit Services and Enforcement Divisions and the unused balance of the 250 firing hours without abatement shall expire. (Basis: offsets.)

Verification: The project owner shall provide written notice to the CPM and the District Permit Services & Enforcement Divisions within five business days of completion of all commissioning activities, at which time the unused balance of the 250 firing hours without abatement shall expire.

AQ-10 The project owner shall not operate the facility such that the pollutant mass emissions from each turbine (S-1, S-2, S-3, and S-4 Gas Turbines) and corresponding HRSG (S-7, S-8, S-9, and S-10 Heat Recovery Steam Generators) exceed the following limits during the commissioning period. These emission limits shall include emissions resulting from the start-up and shutdown of the S-1, S-2, S-3, and S-4 Gas Turbines.

	<u>Without Controls</u>	<u>With Controls</u>
a. NO _x (as NO ₂)	1464 lb/day 102 lb/hr	1464 lb/day 61 lb/hr
b. CO	1056 lb/day 88 lb/hr	984 lb/day 41 lb/hr
c. POC (as CH ₄)	288 lb/day	114 lb/day
d. PM₁₀	60 lb/day	60 lb/day
e. SO₂	53.6 lb/day	53.6 lb/day

(basis: cumulative increase)

Verification: The project owner shall submit to the CPM for approval, a Monthly Commissioning Emissions Report that includes fuel use, turbine operation, post combustion control operation, ammonia use and CEM readings on an hourly and daily basis.

Normal Operation Permit Conditions:

AQ-18 Visible Emissions: The project owner shall insure that no air contaminant is discharged from the LECEF into the atmosphere for a period or periods aggregating more than three minutes in any one hour, which is as dark or darker than Ringlemann 1 or equivalent 20% opacity. (Basis: BAAQMD 6-1-301; SIP 6-301)

Verification: The project owners shall make access available to the facility and records upon request as set forth in Condition of Certification AQ-15.

AQ-19 Emissions Limits: The project owner shall operate the facility such that none of the following limits are exceeded:

a. The emissions of oxides of nitrogen (as NO₂) from emission points P-1, P-2, P-3, and P-4 (combined exhaust of gas turbine/HRSG power trains S-1 & S-7, S-2 & S-8, S-3 & S-9, and S-4 & S-10, respectively) each shall not exceed 2.0 ppmvd @ 15% O₂ (1-hour rolling average), except during periods of gas turbine startup and shutdown **and shall not exceed 4.68 lb/hour (1-hour rolling average) except during periods of gas turbine startup as defined in this permit.** The NO_x emission concentration shall be verified by a District-approved continuous emission monitoring system (CEMS) and during any required source test. (Basis: BACT.)

b. Emissions of ammonia from emission points P-1, P-2, P-3, and P-4 (combined exhaust of gas turbine/HRSG power trains S-1 & S-7, S-2 & S-8, S-3 & S-9, and S-4 & S-10, respectively) each shall not exceed ~~10~~ **5** ppmvd @ 15% O₂ (3-hour rolling average), except during periods of start-up or shut-down as defined in this permit. The ammonia emission concentration shall be verified by the continuous recording of the ratio of the ammonia injection rate to the NO_x inlet rate into the SCR control system (molar ratio). The maximum allowable NH₃/NO_x molar ratio shall be determined during any required source test, and shall not be exceeded until reestablished through another valid source test. (Basis: ~~BAAQMD Toxics Risk~~ **Regulation 2-5**)

c. Emissions of carbon monoxide (CO) from emission points P-1, P-2, P-3, and P-4 (combined exhaust of gas turbine/HRSG power trains S-1 & S-7, S-2 & S-8, S-3 & S-9, and S-4 & S-10, respectively) each shall not exceed ~~92.0~~ **92.0** ppmvd @ 15 % O₂ (~~31~~ **31**-hour rolling average), except during periods of start-up or shut-down as defined in this permit; **and shall not exceed 2.85 lb/hr (1-hour rolling average) except during periods of start-up as defined in this permit.** The CO emission concentration shall be verified by a District-approved CEMS and during any required source test. (Basis: BACT.)

d. Emissions of precursor organic compounds (POC) from emission points P-1, P-2, P-3, and P-4 (combined exhaust of gas turbine/HRSG power trains S-1 & S-7, S-2 & S-8, S-3 & S-9, and S-4 & S-10, respectively) each shall not exceed ~~2.1~~ ppmvd @ 15% O₂ (~~31~~-hour rolling average), except during periods of gas turbine start-up or shut-down as defined in this permit; **and shall not exceed 0.81 lb/hr (1-hour rolling average) except during periods of start-up as defined in this permit.** The POC emission concentration shall be verified during any required source test. (Basis: BACT.)

e. Emissions of particulate matter less than ten microns in diameter (PM₁₀) from emission points ~~P-1, P-2, P-3, and P-4 (combined exhaust of gas turbine/HRSG power trains S-1 & S-7, S-2 & S-8, S-3 & S-9, and S-4 & S-10, respectively)~~ each shall not exceed 2.5 pounds per hour. The PM₁₀ mass emission rate shall be verified during any required source test. (Basis: BACT & cumulative increase.)

f. Emissions of oxides of sulfur (as SO₂) from emission points ~~P-1, P-2, P-3, and P-4 (combined exhaust of gas turbine/HRSG power trains S-1 & S-7, S-2 & S-8, S-3 & S-9, and S-4 & S-10, respectively)~~ each shall not exceed 1.8 pounds per hour. The SO₂ emission rate shall be verified during any required source test. (Basis: BACT & cumulative increase.)

g. ~~Compliance with the hourly NO_x emission limitations specified in part 19(a), at emission points P-1, P-2, P-3, and P-4, shall not be required during short-term excursions, limited to a cumulative total of 320 hours per rolling 12 month period for all four sources combined. Short-term excursions are defined as 15-minute periods designated by the Project owner that are the direct result of transient load conditions, not to exceed four consecutive 15-minute periods, when the 15-minute average NO_x concentration exceeds 2.0 ppmv, dry @ 15% O₂. Examples of transient load conditions include, but are not limited to the following:~~

- ~~(1) Initiation/shutdown of combustion turbine inlet air cooling~~
- ~~(2) Initiation/shutdown of combustion turbine water mist or steam injection for power augmentation~~
- ~~(3) Rapid combustion turbine load changes~~
- ~~(4) Initiation/shutdown of HRSG duct burners~~
- ~~(5) Provision of ancillary services and automatic generation control at the direction of the California Independent System Operator (Cal ISO)~~

~~The maximum 1-hour average NO_x concentration for short-term excursions at emission points P-1, P-2, P-3, and P-4 each shall not exceed 5 ppmv, dry @ 15% O₂. All emissions during short-term all be included in all calculations of hourly, daily and annual mass emission rates as required by this permit.~~

Verification: The project owner shall verify compliance with this Condition of Certification in each quarterly report required by Condition of Certification AQ-34.

AQ-20 **Turbine Start-up: The project owner shall ensure that the regulated air pollutant mass emission rates from each of the Gas Turbines (S-1 & S-3) during a start-up does not exceed the limits established below. (Basis: Cumulative increase, BACT)**

	<u>Duration (Minutes)</u>	<u>NOx (lb/Event)</u>	<u>CO (lb/event)</u>	<u>POC (lb/event)</u>
<u>Start-Up</u>	<u>120</u>	<u>41</u>	<u>20</u>	<u>2</u>

The owner operator shall operate the gas turbines so that the duration of a startup is kept to a minimum, consistent with good engineering practice. The startup period begins with the turbine's initial firing and continues until the unit is in compliance with all applicable emission concentration limits. For purposes of this condition, a startup period of 240 minutes or less shall be considered kept to a minimum consistent with good engineering practice. Should it be determined that good engineering practice requires a different time period for a startup, the project owner may operate the gas turbines such that startups do not exceed that time period, as approved in writing by the APCO. (Basis: BACT.)

Verification: The project owner shall verify compliance with this Condition of Certification in each quarterly report required by Condition of Certification AQ-34.

AQ-21 **Turbine Shutdown: The project owner shall operate the gas turbines so that the duration of a shutdown does not exceed 30 minutes per event, or other time period based on good engineering practice that has been approved in advance by the BAAQMD. Shutdown begins with the initiation of the turbine shutdown sequence and ends with the cessation of turbine firing. (Basis: Cumulative increase)**

Turbine Shutdown: The owner operator shall operate the gas turbines so that the duration of a shutdown is kept to a minimum, consistent with good engineering practice. Shutdown begins with the initiation of the turbine shutdown sequence and ends with the cessation of turbine firing. For purposes of this condition, a shutdown period of 30 minutes or less shall be considered kept to a minimum consistent with good engineering practice. Should it be determined that good engineering practice requires a different time period for a shutdown, the project owner may operate the gas turbines such that shutdowns do not exceed that time period, as approved in writing by the APCO. (Basis: BACT.)

Verification: The project owner shall verify compliance with this Condition of Certification in each quarterly report required by Condition of Certification AQ-34.

AQ-22

Mass Emission Limits: The project owner shall operate the LECEF so that the mass emissions from the S-1, S-2, S-3 & S-4 Gas Turbines and S-7, S-8, S-9, & S-10 HRSGs do not exceed the daily and annual mass emission limits specified below. The project owner shall implement process computer data logging that includes running emission totals to demonstrate compliance with these limits so that no further calculations are required.

Mass Emission Limits (Including Gas Turbine Start-ups and Shutdowns)

Pollutant	Each Turbine/HRSG Power Train (lb/day)	All 4 Turbine/HRSG Power Trains (lb/day)	All 4 Turbine/HRSG Power Trains (ton/yr)
NOx (as NO ₂)	252.4 <u>175.6</u>	1,009.6 <u>702.4</u>	9994.1
POC	80.2 <u>220.2</u>	320.8 <u>80.8</u>	28.3 <u>12.3</u>
CO	417.2 <u>97.0</u>	1,668.8 <u>388.0</u>	98.5 <u>53.4</u>
SOx (as SO ₂)	41.6	166.4	8.4 <u>86.43</u>
PM ₁₀	60	240	43.8 <u>38.5</u>
NH ₃	198 <u>104</u>	792 <u>416</u>	118 <u>56.9</u>

The daily mass limits are based upon calendar day per the definitions section of the permit conditions. ~~The annual mass limit is based upon a rolling 8,760-hour period ending on the last hour.~~ Compliance **with the daily limits** shall be based on calendar average one-hour readings through the use of process monitors (e.g., fuel use meters) CEMS, source test results, and the monitoring, record keeping and reporting conditions of this permit. If any part of the CEM involved in the mass emission calculations is inoperative for more than three consecutive hours of plant operation, the mass data for the period of inoperative shall be calculated using a District-approved alternate calculation method. **The annual mass limits are based upon a rolling 8,760-hour period ending on the last hour. Compliance with the annual limits for NOx, POC, and SOx shall be demonstrated in the same manner as for the daily limits. Compliance with the annual emissions limits for PM₁₀ and SO₂ from each gas turbine shall be calculated by multiplying turbine fuel usage times an emission factor determined by source testing of the turbine conducted in accordance with Part 26 of the BAAQMD permit. The emission factor for each turbine shall be based on the average of the emissions rates observed during the 4 most recent source tests on that turbine (or, prior to the completion of 4 source tests on a turbine, on the average of the emission rates observed during all source tests on the turbine).** (Basis: cumulative increase, record keeping.)

Verification: The project owner shall verify compliance with this Condition of Certification in each quarterly report required by Condition of Certification AQ-34.

AQ-23 Sulfuric Acid Mist Limit: The project owner shall operate the LECEF so that the sulfuric acid mist emissions (SAM) from S-1, S-2, S-3, S-4,S-7, S-8, S-9, and S-10 combined do not exceed 7 tons totaled over any consecutive four quarters.
(Basis: ~~PSD~~ Regulation 2-2-306)

Verification: The project owner shall verify compliance with this Condition of Certification in each quarterly report required by Condition of Certification AQ-34.

AQ-24 **Operational Limits:** In order to comply with the mass emission limits of this rule, the project owner shall operate the gas turbines and HRSGs so that they comply with the following operational limits:

a. Heat input limits (Higher Heating Value):

	Each Gas Turbine w/o Duct Burner	Each Gas Turbine w/Duct Burner
Hourly:	500 MM BTU/hr	639 MM BTU/hr
Daily:	12,000 MM BTU/day	15,336 MM BTU/day
Four Turbine/HRSG Power Trains combined:		18,215,000 MM BTU/year

b. Only PUC-Quality natural gas (General Order 58-a) shall be used to fire the gas turbines and HRSGs. The total sulfur content of the natural gas shall not exceed 1.0 gr/100 scf. **To demonstrate compliance with this sulfur content limit, the project owner shall sample and analyze the gas from each supply source at least monthly to determine the sulfur content of the gas, in addition to any monitoring requirements specified in condition 29. (Basis: BACT for SO₂ and PM₁₀.)**

c. The project owner of the gas turbines and HRSGs shall demonstrate compliance with the daily and annual NO_x and CO emission limits listed in AQ-22 by maintaining running mass emission totals based on CEM data.(Basis: Cumulative increase)

Verification: The project owner shall verify compliance with this Condition of Certification in each quarterly report required by Condition of Certification AQ-34.

AQ-27 Within 60 days of start-up of the LECEF in combined-cycle configuration and on a semi-annual basis thereafter, the project owner shall conduct a District approved source test on exhaust points P-1, P-2, P-3, and P-4 while each Gas Turbine/HRSG power train is operating at maximum load to demonstrate compliance with the SAM emission limit specified in AQ-23. The project owner shall test for (as a minimum) SO₂, SO₃ and SAM. After acquiring one year of source test data on

these units, the project owner may petition the District to switch to annual source testing if test variability is acceptably low as determined by the District. (Basis: ~~Regulation 2-2-306~~PSD Avoidance-SAM Periodic Monitoring)

Verification: The project owner shall verify compliance with this Condition of Certification in each quarterly report required by Condition of Certification AQ-34.

AQ-35 **Emissions Offsets:** The project owner shall provide ~~7.3 tons of valid POC emission reduction credits and 27.945~~**23.35** tons of valid NOx emission reduction credits prior to the issuance of the Authority to Construct. The project owner shall deliver the ERC certificates to the District Engineering Division at least ten days prior to the issuance of the Authority to Construct. (Basis: Offsets.)

Verification: At least 10 days prior to the issuance of the ATC, the project owner shall submit all necessary ERC certificates to the District and provide copies of all documentation to the CPM at the same time.

AQ-37 ~~**Title IV and Title V Permits:** The owner/operator must deliver applications for the Title IV and Title V permits to the District prior to first fire of the turbines. The owner/operator must cause the acid rain monitors (Title IV) to be certified within 90 days of first fire. (Basis: BAAQMD Regulation 2, Rules 6 & 7.)~~

~~**Verification:** The project owner/operator shall verify compliance with this Condition of Certification in each quarterly report required by Condition of Certification AQ-34.~~

AQ-39 **The project owner shall not operate S-5 Fire Pump Diesel Engine more than 50 hours per year for reliability-related activities. (Basis: "Stationary Diesel Engine ATCM" section 93115, title 17, CA Code of Regulations, subsection (e)(2)(A)(3) or (e)(2)(B)(3), offsets).** ~~The owner/operator shall insure that the S-5 Fire Pump Diesel Engine is fired exclusively on diesel fuel with a maximum sulfur content of 0.05% by weight. (Basis: TRMP, cumulative increase)~~

Verification: The project owner shall verify compliance with this Condition of Certification in each quarterly report required by Condition of Certification AQ-34.

AQ-40 **The project owner shall operate S-5 Fire Pump Diesel Engine only for the following purposes: to mitigate emergency conditions, for emission testing to demonstrate compliance with a District, State, or Federal emission limit, or for reliability-related activities (maintenance and other testing, but excluding emission testing). Operating hours while mitigating emergency conditions or while emission testing to show compliance with District, State, or Federal emission limits is not limited. (Basis: "Stationary Diesel Engine ATCM" section**

93115, title 17, CA Code of Regulations, subsection 9e)(2)(A)(3) or (e)(2)(B)(3)).~~The project owner shall operate the S-5 Fire Pump Diesel Engine for no more than 100 hours per year or 45 minutes per day for the purpose of reliability testing and non-emergency operation. (Basis: cumulative increase, Regulation 9-8-231 & 9-8-330)~~

Verification: The project owner shall verify compliance with this Condition of Certification in each quarterly report required by Condition of Certification AQ-34.

AQ-41 The project owner shall operate S-5 Fire Pump Diesel Engine only when a non-resettable totalizing meter (with a minimum display capability of 9,999 hours) that measures the hours of operation for the engine is installed, operated and properly maintained. (Basis: "Stationary Diesel Engine ATCM" section 93115, title 17, CA Code of Regulations, subsection (e)(4)(G)(1), cumulative increase).~~The project owner shall equip the S-5 Fire Pump Diesel Engine with a non-resettable totalizing counter that records hours of operation. (Basis: BACT)~~

Verification: The project owners shall make access available to the facility and records upon request as set forth in Condition of Certification AQ-15 and submit photos of the meter in quarterly reports.

AQ-42 Records: The project owner shall maintain the following monthly records in a District-approved log for at least 60 months from the date of entry. Log entries shall be retained on-site, either at a central location or at the engine's location, and made immediately available to the District staff upon request.

a. Hours of operation for reliability-related activities (maintenance and testing).

b. Hours of operation for emission testing to show compliance with emission limits.

c. Hours of operation (emergency).

d. For each emergency, the nature of the emergency condition.

e. Fuel usage for each engine(s).

(Basis:"Stationary Diesel Engine ATCM" section 93115, title 17, CA Code of Regulations, subsection (e)(4)(I), cumulative increase)~~The project owner shall maintain the following monthly records in a District approved log for at least 5 years and shall make such records and logs available to the District upon request:~~

~~a. Total number of hours of operation for S-5~~

~~b. Fuel usage at S-5~~

~~(Basis: BACT)~~

Verification: The project owners shall make access available to the facility and records upon request as set forth in Condition of Certification AQ-15.

AQ-43 The project owner shall operate the facility such that maximum calculated annual toxic air contaminant emissions (pursuant to part ~~485~~) from the gas turbines and HRSGs combined (S-1, S-2, S-3, S-4, S-7, S-8, S-9, and S-10) do not exceed the following limits:

6490 pounds of formaldehyde per year
3000 pounds of acetaldehyde per year
3.2 pounds of Specified polycyclic aromatic hydrocarbons (PAHs) per year
65.3 pounds of acrolein per year unless the following requirement is satisfied:

The project owner shall perform a health risk assessment using the emission rates determined by source test and the most current Bay Area Air Quality Management District approved procedures and unit risk factors in effect at the time of the analysis. This analysis shall be submitted to the District and the Energy Commission CPM within 60 days of the source test date. The project owner may request that the District and Energy Commission CPM revise the carcinogenic compound emission limits specified above. If the project owner demonstrates to the satisfaction of the APCO that these revised emission limits will result in a cancer risk of not more than 1.0 in one million, the District and Energy Commission CPM may, at their discretion, adjust the carcinogenic compound emission limits listed above. (Basis: ~~TRMP~~ Regulation 2-5)

Verification: See Condition of Certification AQ-44.

AQ-44 To demonstrate compliance with AQ-43, the project owner shall calculate and record on an annual basis the maximum projected annual emissions for the compounds specified in AQ-43 using the maximum heat input of 18,215,000 MMBtu/year and the highest emission factor (pound of pollutant per MMBtu) determined by any source test of the S-1, S-2, S-3 & S-4 Gas Turbines and S-7, S-8, S-9, and S-10 HRSGs. If this calculation method results in an unrealistic mass emission rate the applicant may use an alternate calculation, subject to District approval. (Basis: ~~TRMP~~ Regulation 2-5.)

Verification: Within 60 days of the completion of any health risk assessment, the project owner shall submit a complete report to the District and the CPM for review.

AQ-45 Within 60 days of start-up of the Los Esteros Critical Energy Facility and on a biennial (once every two years) thereafter, the project owner shall conduct a District-approved source test at exhaust point P-1, P-2, P-3, or P-4 while the Gas Turbines are at maximum allowable operating rates to demonstrate compliance

with Part ~~434~~. If three consecutive biennial source tests demonstrate that the annual emission rates for any of the compounds listed above calculated pursuant to part ~~435~~ are less than the BAAQMD Toxic Risk Management Policy trigger levels shown below, then the project owner may discontinue future testing for that pollutant.

Formaldehyde < 132 lb/yr
 Acetaldehyde < 288 lb/yr
 Specified PAHs < 0.18 lb/yr
 Acrolein < 15.6 lb/yr
 (Basis: BAAQMD 2-1-316, ~~TRMP~~ **Regulation 2-5**)

Verification: At least 20 days prior to the intended source test date, the project owner shall submit a source testing methodology to the District and CPM for review and approval. Within 30 days of the source testing date, all test results shall be submitted to the District and the Energy Commission CPM.

AQ-46 The project owner shall properly install and maintain the cooling towers to minimize drift losses. The project owner shall equip the cooling towers with high-efficiency mist eliminators with a maximum guaranteed drift rate of 0.0005%. The maximum total dissolved solids (TDS) measured at the base of the cooling towers or at the point of return to the wastewater facility shall not be higher than ~~10,000~~ **6,000** ppmw (mg/l). The project owner shall sample and test the cooling tower water at least once per day to verify compliance with this TDS limit. (Basis: BACT, cumulative increase.)

Verification: The project owner shall verify compliance with this Condition of Certification in each quarterly report required by Condition of Certification AQ-34.

DEFINITIONS

Clock Hour:	Any continuous 60-minute period beginning on the hour.
Calendar Day:	Any continuous 24-hour period beginning at 12:00 AM or 0000 hours.
Year:	Any consecutive twelve-month period of time.
Heat Input:	All heat inputs refer to the heat input at the higher heating value (HHV) of the fuel, in BTU/scf.
Firing Hours:	Period of time, during which fuel is flowing to a unit, measured in fifteen-minute increments.
MMBTU:	million British thermal units
Gas Turbine Start-up Mode:	<u>The lesser of the first 120 minutes of continuous fuel flow to the Gas Turbine after fuel flow is initiated or the period of time from Gas Turbine fuel flow initiation until the Gas Turbine achieves two consecutive CEM data points in compliance with the emission concentration limits of conditions 19(a) and 19(c) and is in compliance with the emission limits</u>

	contained in 19(a) through 19(d). The time beginning with the introduction of continuous fuel flow to the Gas Turbine until the requirements listed in AQ-19 are satisfied. In no case shall the duration of a startup exceed 240 minutes.
Gas Turbine Shutdown Mode:	<u>The lesser of the 30 minute period immediately prior to the termination of fuel flow to the Gas Turbine or the period of time from non-compliance with any requirement listed in Conditions 19(a) through 19(d) until termination of fuel flow to the Gas Turbine.</u> The time from non-compliance with any requirement listed in AQ-19 until termination of fuel flow to the Gas Turbine, but not to exceed 30 minutes.
Corrected Concentration:	The concentration of any pollutant (generally NO _x , CO or NH ₃) corrected to a standard stack gas oxygen concentration. For an Gas Turbine emission point (exhaust of a Gas Turbine) , the standard stack gas oxygen concentration is 15% O ₂ by volume on a dry basis.
Commissioning Activities:	All testing, adjustment, tuning, and calibration activities recommended by the equipment manufacturers and the construction contractor to insure safe and reliable steady state operation of the gas turbines, heat recovery steam generators, steam turbine, and associated electrical delivery systems.
Commissioning Period	The Period shall commence when all mechanical, electrical, and control systems are installed and individual system completed, or when a gas turbine is first fired following the installation of the duct burners and associated equipment, whichever occurs first. The period shall terminate when the plant has completed performance testing, is available for commercial operation, and has initiated sales to the of power to the grid exchange . The Commissioning Period shall not exceed 180 days under any circumstances.
Alternate Calculation:	A District approved calculation used to calculate mass emission data during a period when the CEM or other monitoring system is not capable of calculating mass emissions.
Precursor Organic Compounds (POCs):	Any compound of carbon, excluding methane, ethane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate.

Equipment Description Changes

S-1 Combustion Gas Turbine #1 with Water Injection and high efficiency inlet air filter, General Electric LM6000PC Sprint, natural gas fired, 49.4 MW, 500 MM Btu/hr (HHV) maximum heat input rating; abated by A ~~1-9~~ Oxidation Catalyst and A-~~2~~ **10** Selective Catalytic Reduction System

S-2 Combustion Gas Turbine #2 with Water Injection and high efficiency inlet air filter, General Electric LM6000PC Sprint, natural gas fired, 49.4 MW, 500 MM Btu/hr

(HHV) maximum heat input rating; abated by A- ~~3~~ 11 Oxidation Catalyst and A- ~~4~~ 12 Selective Catalytic Reduction System

S-3 Combustion Gas Turbine #3 with Water Injection and high efficiency inlet air filter, General Electric LM6000PC Sprint, natural gas fired, 49.4 MW, 500 MM Btu/hr (HHV) maximum heat input rating; abated by A-~~5~~ 13 Oxidation Catalyst and A- ~~6~~ 14 Selective Catalytic Reduction System

S-4 Combustion Gas Turbine #4 with Water Injection and high efficiency inlet air filter, General Electric LM6000PC Sprint, natural gas fired, 49.4 MW, 500 MM Btu/hr (HHV) maximum heat input rating; abated by A- ~~7~~ 15 Oxidation Catalyst and A- ~~8~~ 16 Selective Catalytic Reduction System

S-5 ~~Fire Pump Diesel Engine, John Deere Model JDFP-06WR, 290 bhp, 13.5 gal/hr.~~ Fire Pump Diesel Engine, Clarke Model JW6H-UF40, 300 BHP, 14.5 gal/hr fuel consumption rate.

S-7 Heat Recovery Steam Generator #1, equipped with low-NOx Duct Burners, 139 MM Btu/hr (HHV) abated by A ~~1~~ 9 Oxidation Catalyst and A-~~2~~ 10 Selective Catalytic Reduction System

S-8 Heat Recovery Steam Generator #2, equipped with low-NOx Duct Burners, 139 MM Btu/hr (HHV) abated by A-11 Oxidation Catalyst, and A- ~~3~~ 11 Oxidation Catalyst and A- ~~4~~ 12 Selective Catalytic Reduction System

S-9 Heat Recovery Steam Generator #3, equipped with low-NOx Duct Burners, 139 MM Btu/hr (HHV) abated by A-~~5~~ 13 Oxidation Catalyst and A- ~~6~~ 14 Selective Catalytic Reduction System

S-10 Heat Recovery Steam Generator #4, equipped with low-NOx Duct Burners, 139 MM Btu/hr (HHV) abated by A- ~~7~~ 15 Oxidation Catalyst and A- ~~8~~ 16 Selective Catalytic Reduction System

S-11 Six-Cell Cooling Tower, 73,000 gallons per minute with drift eliminator of 0.005% removal efficiency

IT IS SO ORDERED.

Date: January 2, 2011

STATE OF CALIFORNIA
ENERGY RESOURCES CONSERVATION
AND DEVELOPMENT COMMISSION

/Signature/
KAREN DOUGLAS, Chairman