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California Energy Commission
DOCKETED
03-AFC-2C
TN 71691
JUL 22 2013

DATE: July 22, 2013

TO: Interested Parties

FROM: Craig Hoffman, Compliance Project Manager

SUBJECT: LOS ESTEROS CRITICAL ENERGY FACILITY PHASE 2 (03-AFC-2C) Staff Analysis of Proposed Air Quality Amendments, Including Monitoring, Initial Source Testing, and Other Administrative Conditions

On November 28, 2012, Los Esteros Critical Energy Facility, L.L.C., filed a petition with the California Energy Commission requesting to modify the Energy Commission Final Decision for the Los Esteros Critical Energy Facility Phase 2 project (LECEP2). The project owner is requesting revisions to the Air Quality Conditions of Certification to amend the monitoring and initial source testing conditions and make other administrative changes which will ensure that the latest Authority to Construct (ATC) issued by the Bay Area Air Quality Management District (BAAQMD) is consistent with the Energy Commission Conditions of Certification..The BAAQMD will not approve the revisions to the ATC until the Energy Commission issues an Order approving this amendment.

The applicant is not proposing any changes to emission limits or controls.

The LECEP2 project is a 320-megawatt combined cycle facility, certified by the Energy Commission on January 2, 2011. The LECEP 2 project is finishing construction and commissioning activities. The project expects to go commercially active on August 1, 2013. The facility is located in the City of San Jose, in Santa Clara County.

Energy Commission staff (staff) reviewed the petition and assessed the impacts of this proposal on environmental quality and on public health and safety. Staff proposes modifications to Air Quality Conditions of Certification **AQ-11**, **19**, **20**, **21**, **22**, **24**, **25**, **26**, **27**, **44, 45**, and the addition of **AQ-48**. It is staff's opinion that, with the implementation of the revised conditions, the project would remain in compliance with applicable laws, ordinances, regulations, and standards (LORS), and the proposed changes to conditions of certification would not result in any significant adverse direct, indirect, or cumulative impacts to the environment (Cal. Code Regs., tit. 20, §1769).

This notice has been mailed to LECEP2 mail list no. 7101 and sent electronically to the Los Esteros list-serve. The petition and staff's analysis have been posted on the California Energy Commission's LECEP2 webpage at

http://www.energy.ca.gov/sitingcases/losesteros2/compliance_phase_1/index.html. Staff intends to recommend approval of the petition at the **August 27, 2013** Business Meeting of the Energy Commission. If the petition is approved, the Commission's order will also be posted on the webpage.

Any person may file written comments on the petition. All comments must be in writing and filed with the Energy Commission's Dockets Unit. Those who wish to provide comments on the petition are asked to file them prior to **August 22, 2013**. All written comments and all materials filed with the Dockets Unit will become part of the public record of the proceeding and may be posted on the Commission's webpage for the LECEP2 project.

Those submitting comments electronically should provide them as either a Microsoft Word document (.doc or .docx) or in Portable Document Format (.pdf) and include your name or your organization's name in the file name. Please e-mail electronic written comments to docket@energy.ca.gov and include the docket number 03-AFC-2C in the subject line of your e-mail. Those submitting non-electronic written comments should include the docket number 03-AFC-2C in the first paragraph and mail or hand-deliver the comments to:

California Energy Commission
Dockets Unit, MS-4
Docket No. 03-AFC-2C
1516 Ninth Street
Sacramento, CA 95814-5512

If you have any questions, please contact Craig Hoffman, Compliance Project Manager, at (916) 654-4781, or fax your questions to (916) 654-3882, or e-mail them to craig.hoffman@energy.ca.gov.

If you desire information on participating in the Energy Commission's review of the project, please contact the Energy Commission's Public Adviser at (916) 654-4489, or at (800) 822-6228 (toll free in California). The Public Adviser's Office can also be contacted via e-mail at publicadviser@energy.ca.gov. News media inquiries should be directed to the Energy Commission Media Office at (916) 654-4989, or by e-mail at mediaoffice@energy.ca.gov.

Mail List - LECEP2 Project 7101

List Serve - Los Esteros

LOS ESTEROS CRITICAL ENERGY FACILITY PHASE 2 (03-AFC-2C)

Proposed Air Quality Amendments, Including Monitoring, Initial Source Testing, and Other Administrative Conditions

EXECUTIVE SUMMARY
Prepared by Craig Hoffman
July, 2013

INTRODUCTION

On November 28, 2012, Los Esteros Critical Energy Facility, L.L.C., filed a petition with the California Energy Commission (Energy Commission) requesting to modify the Energy Commission Final Decision for the Los Esteros Critical Energy Facility Phase 2 project (LECEP2). The project owner is requesting revisions to the Air Quality Conditions of Certification to amend the monitoring and initial source testing conditions and make other administrative changes which will ensure that the latest Authority to Construct (ATC) issued by the Bay Area Air Quality Management District (BAAQMD) is consistent with the Energy Commission Conditions of Certification..The BAAQMD will not approve the revisions to the ATC until the Energy Commission issues an Order approving this amendment.

The project applicant is not requesting any changes to emissions limits for this project, and the proposed modifications would not result in increased air quality emissions.

The purpose of the Energy Commission's review process is to assess any impacts the proposed modifications would have on environmental quality and on public health and safety. The process includes an evaluation of the consistency of the proposed changes with the Energy Commission's Final Decision and an assessment of whether the project, as modified, would remain in compliance with applicable laws, ordinances, regulations, and standards (Cal. Code Regs., tit. 20, § 1769).

Energy Commission staff (staff) has completed its review of all materials received. The staff analysis below is staff's assessment of the applicant's proposal to amend monitoring and initial source testing conditions and make other administrative changes which will ensure that the latest ATC issued by the BAAQMD is consistent with the Energy Commission Conditions of Certification.

PROJECT LOCATION AND DESCRIPTION

The LECEP2 project is a 320-megawatt combined cycle facility, certified by the Energy Commission on January 2, 2011. The LECEP2 project is finishing construction and commissioning activities. The project expects to go commercially active on August 1, 2013. The facility is located in the City of San Jose, in Santa Clara County.

DESCRIPTION OF PROPOSED MODIFICATIONS

This petition requests changes to the Air Quality Conditions of Certification to clarify monitoring and testing requirements, but makes no change to any of the applicable emissions limits. The LECEP2 project owner is concurrently requesting that the BAAQMD modify the currently-effective Authority to Construct (ATC) permit conditions, to conform to the amended Conditions of Certification. Additional changes are requested to extend the timing for conducting initial source testing, make corrections to permit language, and otherwise assure consistency between the Energy Commission Air Quality Conditions of Certification and the BAAQMD ATC permit. None of the modifications being proposed affect the permitted limitations on emissions. As an example, the definition of "Gas Turbine Startup Mode" is being revised so that startup is complete when continuous emissions monitoring can show compliance with ammonia limits, as well as with limits for oxides of nitrogen (NOx) and carbon monoxide (CO). Additionally, the reference to precursor organic compounds (POC) has been struck because POCs are not subject to continuous emissions monitoring (CEM) and therefore cannot be used for determining when startup is complete.

AQ-11 currently calls on the project owner to analyze POCs for methane and ethane. The project owner is proposing deletion of the requirement that POCs be tested for methane and ethane because the project owner typically uses an U.S. Environmental Protection Agency methodology that makes monitoring for methane and ethane unnecessary, is more accurate, and has a lower detection limit than other testing methods. Changes proposed for **AQ-25** clarify that only CEM for CO is required to comply with rules for the New Source Performance Standards (40 C.F.R., part 60), while the CEM for NOx and oxygen (O_2) must meet the requirements of the acid rain program (40 C.F.R., part 75.)

The project owner is seeking an increase in the deadline for conducting source testing from 60 or 90 days to 120 days from start-up, which is considered to be first fire, because the timing sequence for commissioning activities is such that the project would not be finished with the work necessary to perform source testing within 90 days of first fire. Therefore, extending the source-testing deadline to 120 days from start-up allows the project to safely complete the necessary commissioning activities and results in no additional emissions or environmental impacts.

The addition of proposed Condition of Certification **AQ-48** would allow the facility to have a power turbine that could be substituted into any of the four trains at any time. The proposed condition would require the power train operating with the substitute turbine to comply with all applicable permit conditions and it would limit the project owner to operating only four turbines at any given time.

NECESSITY FOR THE PROPOSED MODIFICATIONS

Changes to the Air Quality Conditions of Certification are necessary to make minor clarifications in certain monitoring and testing requirements and assure consistency

between the project's Energy Commission decision and the conditions of the BAAQMD ATC permit. Certain administrative changes, e.g., clarification for how emissions limits are to be averaged or missing data treated, are needed to specify how monitoring and testing for compliance with the applicable emissions limits would be conducted. The necessity of these proposed changes did not arise until the data acquisition system, that would be used to monitor compliance, was being designed and its programming established by the construction contractor and equipment vendors. Other changes, such as the need for additional time to complete source testing, were not known until the sequencing of the commissioning process was established by the construction contractor.

STAFF'S ASSESSMENT OF THE PROPOSED PROJECT CHANGES

The technical area sections contained in this staff analysis include staff-recommended changes to the existing conditions of certification. The proposed changes do not result in increases to air quality emissions, and environmental impacts would remain at less than significant levels. Staff's conclusions in each technical area are summarized in **Executive Summary Table 1**, below.

Energy Commission technical staff reviewed the petition for potential environmental effects and consistency with applicable laws, ordinances, regulations, and standards (LORS). Staff has determined that the technical or environmental areas of Biological Resources, Cultural Resources, Geological Hazards and Resources, Facility Design, Noise and Vibration, Paleontological Resources, Public Health, Socioeconomics, Traffic and Transportation, Transmission Line Safety and Nuisance, Visual Resources, Waste Management, and Worker Safety and Fire Protection are not affected by the proposed changes, and no revisions or new conditions of certification are needed to ensure the project remains in compliance with all applicable LORS for these areas.

Staff determined, however, that the technical area of Air Quality would be affected by the proposed project changes and has proposed modifications to Conditions of Certification **AQ-11**, **19**, **20**, **21**, **22**, **24**, **25**, **26**, **27**, **44**, **45**, and the addition of **AQ-48** in order to assure compliance with LORS and to ensure that air emission remain at a less than significant level. The proposed, modified Conditions of Certification **AQ-11**, **19**, **20**, **21**, **22**, **24**, **25**, **26**, **27**, **44**, **45**, and the addition of **AQ-48** are provided in the Air Quality staff analysis section below.

Executive Summary Table 1
Summary of Impacts for Each Technical Area

TECHNICAL AREAS REVIEWED	STAFF RESPONSE			New or Revised Conditions of Certification Recommended
	Technical Area Not Affected	No Significant Environ-mental Impact*	Process As Amendment	
Air Quality			X	X
Biological Resources	X			
Cultural Resources	X			
Geological Hazards and Resources	X			
Hazardous Materials Management	X			
Facility Design	X			
Land Use	X			
Noise and Vibration	X			
Paleontological Resources	X			
Public Health	X			
Socioeconomics	X			
Soil and Water Resources	X			
Traffic and Transportation	X			
Transmission Line Safety and Nuisance	X			
Transmission System Engineering	X			
Visual Resources	X			
Waste Management	X			
Worker Safety and Fire Protection	X			

*There is no possibility that the proposed modifications would have a significant effect on the environment, and the modifications would not result in a change or deletion of a condition adopted by the Commission in the Final Decision or make changes that would cause the project not to comply with any applicable LORS (Cal. Code Regs., tit. 20, § 1769(a)(2)).

STAFF RECOMMENDATIONS AND CONCLUSIONS

Staff concludes that the following required findings, mandated by Title 20, California Code of Regulations, section 1769(a)(3), can be made and recommends approval of the petition by the Energy Commission:

A. The modification would not change the findings in the Energy Commission's Final Decision, pursuant to Title 20, California Code of Regulations, section 1755;

B. There would be no new or additional unmitigated, significant environmental impacts associated with the proposed changes;

C. The facility would remain in compliance with all applicable laws, ordinances, regulations, and standards;

D. The modification(s) proposed in the petition would not result in emission increases or violate any existing air quality standards;

E. There has been a substantial change in circumstances since the Energy Commission certification, thus justifying the changes.

LOS ESTEROS CRITICAL ENERGY FACILITY (03-AFC-2C)

Request to Amend Final Energy Commission Decision Air Quality Analysis

Nancy Fletcher

INTRODUCTION

On November 28, 2012, Los Esteros Critical Energy Facility, LLC (project owner), a wholly owned subsidiary of Calpine Corporation, filed a petition (LECEF 2012) with the California Energy Commission (Energy Commission) requesting minor amendments to the conditions of certification for the Los Esteros Critical Energy Facility 2 (LECEF 2). LECEF 2 is a natural gas-fired power plant located in the City of San Jose, in Santa Clara County. The facility consists of a 180-megawatt simple cycle power plant (LECEF Phase 1) that is currently being converted into a 320-megawatt combined-cycle plant (LECEF Phase 2). Los Esteros (01-AFC-12) was approved by the Energy commission on July 2, 2001 as a peaker power plant with a limited three-year period of operation. Due to the limited three-year operation period, the project owner submitted a new Application for Certification dated December 2003 (03-AFC-2). The new application included two phases, Phase 1 and Phase 2. Phase 1 was for the continued operation of the simple cycle facility and was approved on March 16, 2005. Phase 2 includes the conversion to a 320 MW combined-cycle facility and was approved in October, 2006.

The Energy Commission Decision for LECEF 2 was amended January 2, 2011 to update the Air Quality Conditions of Certification. The changes included lower allowable emission limits for carbon monoxide (CO) and precursor organic compounds (POCs) as well as other conforming changes. These changes met updated Bay Area Air Quality Management District (BAAQMD) Best Available Control Technology (BACT) standards.

The project owner is currently requesting several revisions to the monitoring conditions of certification and other administrative changes. On October 26, 2012, the project owner applied to BAAQMD to modify monitoring conditions and allow the installation of a different fire pump engine than the one originally approved. On March 27, 2013, the project owner submitted an additional proposal to permit use of a spare turbine that could substitute for an existing turbine when certain maintenance is required. The BAAQMD analyzed the proposals and determined the change to the fire pump and the addition of the substitute turbine, are approvable. BAAQMD also determined that most of the project owner's proposed changes to the monitoring conditions would be approvable. The project owner withdrew several items from consideration by the BAAQMD and worked with Energy Commission staff and the BAAQMD to develop proposed changes to the conditions of certification.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS COMPLIANCE

The BAAQMD reviewed the requested modifications and determined that the majority of the changes were acceptable and would comply with their regulations. The BAAQMD draft analysis includes a detailed proposal, including the acceptable changes that

comply with their regulations. The proposed changes to the conditions of certification are for various monitoring, recordkeeping, and reporting requirements and would not affect other applicable requirements or the emissions limits. The applicant submitted to Energy Commission staff for review BAAQMD's draft engineering evaluation of the proposed amendments. The BAAQMD analysis included both the changes proposed in the current petition, as well an additional request made to BAAQMD to permit a substitute turbine, as described more fully below in the Analysis subsection. **Air Quality Table 1** includes a summary of the air quality laws, ordinances, regulations and standards (LORS) applicable to LECEF 2. Prevention of Significant Deterioration (PSD) would not apply to this project because the changes would not result in an increase in emissions, and therefore there are no significant increases to any air pollutant defined in Title 40 Code of Federal Regulations (CFR), section 51.166(b)(23)(i) and (ii) The changes in conditions proposed are not considered significant revisions because there are no significant changes to or relaxation of any applicable monitoring, reporting or recordkeeping conditions. Therefore the proposed changes are considered minor revisions which would take effect when approved in accordance with BAAQMD Regulation 2-6-201. The BAAQMD will not approve the minor revisions until the Energy Commission issues an Order approving this amendment.

Air Quality Table 1
Laws, Ordinances, Regulations, and Standards

Applicable Law	*Description*
Federal	**U.S. Environmental Protection Agency**
Federal Clean Air Act Amendments of 1990 (FCAAA), Title 40 Code of Federal Regulations (CFR) Part 50	National Ambient Air Quality Standards (NAAQS).
40 CFR 60 Appendix B and 40 CFR 75 Appendix F	Established operating specifications and test procedures for continuous emission monitoring systems (CEMS) in stationary sources. Requires specifications, test procedures and continuous monitoring systems for Stationary Sources.
State	**California Air Resources Board and Energy Commission**
California Health & Safety Code (H&SC) §41700 (Nuisance Regulation)	Prohibits discharge of such quantities of air contaminants that cause injury, detriment, nuisance, or annoyance.
H&SC §41510	Permitting of source needs to be consistent with approved clean air plan. [BAAQMD Regulation 1-440, 1-441]
Airborne Toxic Control Measure for Stationary Compression Ignition Engines (ATCM, 17 CCR§93115)	Establishes operating requirements and emission standards for emergency standby diesel-fueled compression ignition (CI) engines [17 CCR 93115.6]. The emission standard is 0.15 g/bhp-hr diesel particulate matter for emergency engines (operated fewer than 50 hours per year for maintenance and engine testing).

Applicable Law	*Description*
Local	**Bay Area Air Quality Management District (BAAQMD)**
BAAQMD Regulation 1	General Provisions & Definitions - Limits releases of air contaminants to not "cause injury, detriment, nuisance or annoyance to any considerable number of persons or the public." Prohibits contaminants that may endanger "the comfort, repose, health or safety of any such persons or the public, or cause injury or damage to business or property."
BAAQMD Regulation 2, Rule 1	General Requirements – Specifies requirements for issuance or denial of permits, exemptions, and appeals against BAAQMD decisions. An Authority to Construct (ATC) is required for any non-exempt source. Natural gas-fired heaters with a heat input rate of less than 10 million Btu per hour are exempt, and stationary internal combustion engines and gas-fired combustion turbines with an output rating of less than 50 horsepower (hp) are exempt.
BAAQMD Regulation 2, Rule 2	New Source Review (NSR) – Requires preconstruction review including Best Available Control Technology (BACT) for sources with the potential to emit more than 10 pounds per day (NOx, POC, PM10, CO, or SO_2). Requires surrendering offsets for facilities with the potential to emit more than 35 tons per year of NOx or POC, or 100 tons per year of PM10 or SOx.
BAAQMD Regulation 2, Rule 5	NSR of Toxic Air Contaminants – Requires preconstruction review for new and modified sources of toxic air contaminants. Contains project health risk limits and requirements for Toxics BACT.
BAAQMD Regulation 2, Rule 6	Major Facility Review – Requires an application be submitted for the federal operating permit within 12 months after commencing operation, as specified by Title V federal Clean Air Act.
BAAQMD Regulation 2, Rule 7	Acid Rain – Requires monitoring, recordkeeping, and holding of allowances for pollutants that contribute to the formation of acid rain, as specified by Title IV of the federal Clean Air Act.
BAAQMD Regulation 6, Rule 1	Particulate Matter – Limits particulate matter and visible emissions to less than Ringlemann 1 and 20% opacity. Prohibits emissions from any activity for more than 3 minutes in any 1 hour that result in visible emissions as dark or darker than Number 1 on the Ringlemann Chart or greater than 20% opacity.
BAAQMD Regulation 9, Rule 9	Stationary Gas Turbines – Specifies emission limits of 9 parts per million by volume (ppmv) NOx or 0.43 pounds NOx per megawatt-hour (lb/MWh), applicable to the proposed combustion turbines.

SETTING

The project is located at the intersection of State Route 237 and Zanker Road, in the city of San Jose. San Jose is located in Santa Clara County and is part of the San Francisco Bay Area Air Basin. The BAAQMD has jurisdiction over the seven full counties and two partial counties that are within the San Francisco Bay Area Air Basin. For convenience, staff includes **Air Quality Table 2**, which summarizes the area's current attainment status for state and federal air quality standards for the BAAQMD.

Air Quality Table 2
Current Federal and State Attainment Status Bay Area Air Quality Management District

Pollutant	Averaging Time	California Status	Federal Status
Ozone (O_3)	8 Hour	**Non-attainment**	**Non-attainment** [a]
	1 Hour	**Non-attainment**	N/A
Carbon Monoxide (CO)	8 Hour	Attainment	Attainment
	1 Hour	Attainment	Attainment
Nitrogen Dioxide (NO_2)	Annual	N/A	Attainment
	1 Hour	Attainment	Unclassified
Sulfur Dioxide (SO_2)	Annual	N/A	Attainment
	24 Hour	Attainment	Attainment
	1 Hour	Attainment	Attainment
PM10	Annual	**Non-attainment**	N/A
	24 Hour	**Non-attainment**	Unclassified
PM2.5	Annual	**Non-attainment**	Attainment
	24 Hour	N/A	**Non-attainment**

Source: http://hank.baaqmd.gov/pln/air_quality/ambient_air_quality.htm
[a] Federal designation reflects the 8-hr ozone standard. The national 1-hr ozone standard was revoked June 15, 2005.
Notes: Unclassified means the area is treated the same as attainment; N/A= no standard applies or not applicable.

ANALYSIS

The project owner filed a petition to amend the Energy Commission Decision to approve changes to the conditions of certification. The project owner has requested multiple changes to the operating and monitoring conditions that do not result in any change to an applicable emission limit. The requested changes were evaluated by the BAAQMD as 29separate requests. **Air Quality Table 3** includes a summary of each request and Energy Commission staff's recommendation based on staff's analysis.

Air Quality Table 3
Summary of Proposed Changes Including Recommendations

Proposal #1	The project owner requests a change of model for the fire pump engine. Additionally the project owner requests the language be modified to allow substitution of an unspecified equivalent engine (specific engines were later proposed; see discussion in Recommendation #1 below).
Recommendation #1	BAAQMD performs a risk screening assessment specific to the plume for each engine model when evaluating an engine for permitting. Subsequently, the project owner proposed two specific engines models for BAAQMD to evaluate to determine if the engines could be permitted for use in lieu of the model already specified in designation S-5. BAAQMD evaluated both engines and determined they were acceptable. The proposed change to the permitted equipment includes the addition of the two acceptable alternate engines listed in designation S-13. S-5 is currently installed at the facility; however the addition of proposed equipment designation S-13 would allow the owner to replace the S-5 engine with either of the two alternate engines approved by BAAQMD listed in designation S-13. The proposed engines were determined to be acceptable by BAAQMD; therefore it is recommended the language be revised as proposed in equipment designation S-13 to allow the substitution of the evaluated engines.
Proposal #2	The definition of Gas Turbine Startup Mode states a startup is the lesser of the first 120 minutes of continuous fuel flow to the gas turbine or the period of time from gas turbine fuel flow initiation until two consecutive continuous emission monitor (CEM) data points are in compliance with the emission concentration limits of Condition of Certification **AQ-19** subparts (a) and (c) and in compliance with the emission limits contained in subparts (a) through (d). The project owner requests to change the definition so the CEM data points include AQ-19 subpart (b) and the emission limits include the limit in AQ-19 subpart (b) but exclude the POC limit in 19(d).
Recommendation #2	The Decision includes a list of definitions preceding the numbered conditions of certification. These definitions are integral to the conditions of certification and are considered part of the decision. Condition of Certification **AQ-19** contains emission limits for oxides of nitrogen (NOx), ammonia, carbon monoxide (CO) and precursor organic compounds (POC) in .(a), (b), (c) and (d)respectively. The definition of startup currently includes the requirements for the two consecutive

	CEM data points for NOx and CO and requires compliance with the emission limits for NOx, ammonia, CO and POC. BAAQMD proposes to keep the same CEM data point compliance requirements and only require compliance with the emission limits for NOx and CO. Startup emissions for NOx and CO are monitored with CEMs. POC emissions during startup would only be measured during an initial source test. The ammonia limit contains a 3-hour averaging time whereas the maximum startup period is only 2 hours. The ammonia parametric monitoring system may not accurately measure when the concentration reaches 5 parts per million by volumetric dry (ppmvd) and remains steady. Therefore, it is recommended the startup definition exclude POC and ammonia emission limits.
Proposal #3 Recommendation #3	The project owner requests a correction to Condition of Certification **AQ-11**. Condition of Certification **AQ-11** refers to testing to comply with Condition of Certification **AQ-10**. The project owner requested to change the reference to Conditions of Certification **AQ-19** and **AQ-20**. Condition of Certification **AQ-11** contains source test requirements for startup and shutdown. Condition of Certification **AQ-19** contains emissions limits for normal operation excluding startup and shutdown. Condition of Certification **AQ-20** includes emission limits applicable to startup. Therefore it is recommended the reference in Condition of Certification **AQ-11** be corrected to refer to **AQ-20**.
Proposal #4 Recommendation #4	The project owner requested BAAQMD allow 120 days after startup of each turbine/HRSG to perform the required source tests. BAAQMD regulation 2-1-411 requires the Air Pollution Control Officer (APCO) to take final action to approve or disapprove a permit within 90 days of the date of the initial startup period for any new or modified source. The regulation does allow the time period to be extended if requested by the project owner and determined to be appropriate by the BAAQMD. However, the regulation requires the total initial startup period to not exceed 180 days. The BAAQMD deemed the request acceptable and is proposing to limit the time period for the submittal of the source test results to 165 days after initial startup. Therefore it is recommended the language in Condition of Certification **AQ-11** be modified to allow 120 days after startup instead of 60 days for the required source tests.
Proposal #5	The project owner requests the deletion of the requirement to

	analyze POC emissions for methane and ethane in Condition of Certification **AQ-11**. The project owner stated they did not believe the testing was necessary.
Recommendation #5	Condition of Certification **AQ-11** states the testing of methane and ethane is to account for the presence of unburned natural gas. BAAQMD approves the test method used to determine compliance. BAAQMD believes the testing is useful and does not want to change the requirement at this point. Condition of Certification **AQ-11** requires the testing once and does not include ongoing testing requirements for methane and ethane. Therefore the requirement is not considered to be unduly onerous and staff recommends this request be denied.
Proposal #6	The project owner requested to change the averaging provisions for the NOx and CO CEMs. The project owner requested to change the emissions averaging period from a rolling 60-minute average to a clock-hour average.
Recommendation #6	BAAQMD has reported the project owner has withdrawn the request. Therefore staff recommends that the Energy Commission not consider the request.
Proposal #7	The project owner requested the allowance of a BAAQMD approved ammonia slip method, or other method approved by the BAAQMD, instead of a molar ratio method for determining compliance with the ammonia concentration limit.
Recommendation #7	The BAAQMD proposes to incorporate language requiring the recording of the NOx inlet and outlet rate in pounds per hour (lb/hr) and fuel rate in million British thermal units per hour MMBtu/hr in addition to the ammonia injection rate and the use of a District approved ammonia slip calculation. It is recommended the language proposed by BAAQMD be adopted.
Proposal #8	The project owner is requesting to change the Condition of Certification **AQ-19(d)** requirement for a 1-hour rolling average to a 1-hour average for POC.
Recommendation #8	LECEF2 is not required to continuously monitor POC emissions. Compliance with the POC emission limits is determined from source testing based on three one-half hour runs. Therefore it is proposed the word rolling be deleted as an ongoing rolling average can not be determined and therefore a 1-hour average is more appropriate.
Proposal #9	The project owner is requesting Condition of Certification **AQ-20** include S2 and S4 turbines.

Recommendation #9	Condition of Certification **AQ-20** establishes mass emission rates for the turbines during startup events. These limits are intended for all of the turbines. Therefore it is appropriate to modify the language in Condition of Certification **AQ-20** to include each turbine, S1, S2, S3 and S4.
Proposal #10 Recommendation #10	The project owner is requesting the definition of shutdown be deleted from Condition of Certification **AQ-21**. The Decision includes a list of definitions preceding the numbered conditions of certification. These definitions are integral to the conditions of certification and are considered part of the decision. Gas Turbine Shutdown Mode is clearly defined in the definitions. Condition of Certification **AQ-21** limits the duration of a shutdown to 30 minutes. The condition also defines the initiation and finality of a shutdown. The definition included in Condition of Certification **AQ-21** for shutdown is not specific to the limitations with operation in Gas Turbine Shutdown Mode. Therefore it is appropriate to remove the definition of shutdown from Condition of Certification **AQ-21**. In addition the project owner is proposing (Proposal #11) to modify the language in Condition of Certification **AQ-21** to specify the limits for operation in Gas Turbine Shutdown Mode. This would provide consistency with the definitions.
Proposal #11 Recommendation #11	The project owner is requesting to clarify the language in Condition of Certification **AQ-21** so that it is consistent with the definition of Gas Turbine Shutdown Mode. See discussion above in Recommendation #10.
Proposal #12 Recommendation #12	The project owner is requesting to make several changes to the language in Condition of Certification **AQ-22**. They are proposing to delete calendar average, change the phrase “more than three consecutive hours” to “any entire clock hour”, replace the term “District approved alternate calculation method” with “missing data procedures,” change a year from “8,760 hour period ending on the last hour” with “12-calendar month period” and finally, clarifying how emissions of pollutants with monitoring based on annual source test are to be calculated. BAAQMD reviewed the requests and has agreed to many of the requested changes and is proposing additional clarifying language changes to ensure it is understood that NOx and CO emissions are based on CEM data, and PM10, SO_2 and POC emission estimates are based on emission rates determined during source tests. However, the BAAQMD wishes to retain

	the language “District approved alternative calculation method” instead of changing the language specifying the use of set facility missing data procedures for missing CEM data. Retaining the term “District approved alternative calculation method” would allow the flexibility needed to evaluate different approaches for determining the emissions during different situations of CEM or parametric monitoring inoperability. The best approach for determining the emission during a period of CEM or parametric monitor inoperability may vary depending on the specific circumstances. Every situation that can lead to a CEM or parametric monitor becoming inoperable cannot always be identified in advance, and therefore it is difficult to prescribe the method of emission determination in advance. Therefore, the BAAQMD is requesting to retain the ability to review and approve the emission calculation used and extend the language in Condition of Certification **AQ-22**. In addition, the BAAQMD is proposing to specify parametric monitoring requirements along with CEM because the requirement would apply to both. Staff recommends making the BAAQMD approved changes and retaining the language ‘District approved alternative calculation method.’
Proposal #13 Recommendation #13	The project owner is requesting the use of utility data to determine the natural gas sulfur content instead of requiring the project owner to perform monthly sampling and analysis. Condition of Certification **AQ-24(b)** requires the applicant to analyze the natural gas monthly to determine the fuel sulfur content. The utility analyzes natural gas on a daily basis. BAAQMD proposes to allow the sulfur content from the utility to be used as long as it is based on actual sampling. Staff recommends modifying Condition of Certification **AQ-24(b)** to allow the use of utility data to determine the natural gas sulfur content as long as the data is based on actual sampling. In addition staff is proposing to clarify in the Verification all utility data must indicate compliance with the 1.0 grains per one hundred standard cubic feet (gr/100 scf) sulfur content limit on the days the facility is in operation.
Proposal #14 Recommendation #14	The project owner is requesting to amend Condition of Certification **AQ-25(b)** to clarify that the accuracy and calibration requirements only apply to the flow meter and not to the injection pressure indicator. BAAQMD reviewed the request and finds it acceptable because pressure indicators do not have numerical outputs. Therefore staff recommends amending the language in Condition of Certification **AQ-24(b)** to clarify that only the flow

	meter requires annual calibration.
Proposal #15 Recommendation #15	The project owner is requesting to amend Condition of Certification **AQ-25(c)** to clarify which federal requirements apply to each pollutant. Condition of Certification **AQ-25(c)** requires the CEMs for NOx, CO and O_2 comply with the requirements of 40 CFR Part 60, Appendices B and F, and 40 CFR Part 75. 40 CFR Part 75 does not regulate CO. The language as written could be interpreted to mean that the CO CEM would have to comply with both requirements. In addition NOx and O_2 monitors are regulated through 40 CFR Part 75, and so, the requirements in 40 CFR Part 60 would be duplicative. Therefore, staff recommends amending the language to specify that the CO CEM must comply with the requirements of 40 CFR Part 60 Appendices B and F and the NOx and O_2 monitors must comply with the requirements of 40 CFR Part 75.
Proposal #16 Recommendation #16	The project owner is requesting to amend Condition of Certification **AQ-26** to require relative accuracy test audits (RATAs) every fourth operating quarter as defined in 40 CFR 72.2 instead of annually. A quality assurance (QA) operating quarter is defined in 40 CFR 72.2 as a calendar quarter in which there are at least 168 unit operating hours or 168 stack operating hours for common stacks. BAAQMD reviewed the request and is proposing to keep the annual requirement. The District's review stated that the project owner stated they would perform RATA tests when the source tests are conducted. The source test requirement is an annual requirement. The BAAQMD can set monitoring requirements that are more restrictive than federal requirements. Therefore, it is recommended to keep the language as proposed by BAAQMD.
Proposal #17 Recommendation #17	The project owner requested to amend the language in Condition of Certification **AQ-26** to require periodic source tests instead of annual source tests. BAAQMD reported this proposal was made by the project owner in error, therefore staff recommends the Energy Commission not consider this request.
Proposal #18 Recommendation #18	The project owner is requesting to amend Condition of Certification **AQ-26** to allow 60 days to submit source test results instead of 30 days. BAAQMD reviewed the request and finds it acceptable. Therefore it is recommended to extend the time period

	allowable for the source test results to be submitted from 60 to 90 days.
Proposal #19 Recommendation #19	The project owner is requesting to amend Condition of Certification **AQ-26** to add language clarifying that the source tests are intended to provide compliance verification for Condition of Certification **AQ-19** subparts (a), (b), (c) and (d). This projects owner's request clarifies the intent of the requirement and staff recommends this change.
Proposal #20 Recommendation #20	The project owner is requesting to amend Condition of Certification **AQ-26** subparts (a), (c) and (d) to add the term "lb/hour." BAAQMD reviewed the request and finds it acceptable because pressure indicators do not have numerical outputs. Therefore it is recommended to revise the language as proposed.
Proposal #21 Recommendation #21	The project owner is requesting to amend Condition of Certification **AQ-26** to allow the sulfur oxides (SOx) emissions testing to be based on the sulfur content of the fuel. The sulfur contained in natural gas forms SOx emissions when combusted. Most of the sulfur converts to sulfur dioxide (SO_2) when natural gas is combusted. Some of the SOx can convert to sulfur trioxide (SO_3) and further reacts to form H_2SO_4 (sulfuric mist). Assuming all the sulfur is emitted as SOx is a worst case assumption and therefore acceptable. BAAQMD reviewed the request and finds it acceptable. Staff recommends revising Condition of Certification **AQ-26** to allow the SOx emissions testing to be based on the sulfur content of the fuel.
Proposal #22 Recommendation #22	The project owner is requesting to amend Condition of Certification **AQ-27** to allow 120 days after startup to conduct the sulfuric acid mist source test. BAAQMD reviewed the request and finds the request acceptable. BAAQMD is proposing to limit the time period for the submittal of the source test results to 165 days after startup (see response #4 for the rationale for this). Staff recommends revising the language in Condition of Certification **AQ-27** to allow 120 days after startup instead of 60 days for the required source tests.
Proposal #23	The project owner is requesting to amend Condition of Certification **AQ-27** to delete the requirement to test for SO_2 and SO_3.

Recommendation #23	The BAAQMD reviewed the request and proposes to allow the facility to estimate SO_2 from the sulfur content of the natural gas as measured by the utility. Environmental Protection Agency (EPA) Test Method 8 separates and measures emissions of SO_2 and SO_3/H_2SO_4. The District is proposing to amend the condition to state that SO_3 would be evaluated as H_2SO_4. Sulfuric acid testing is required to determine compliance with the sulfuric acid mist limit in Condition of Certification **AQ-23**. Therefore, staff recommends deleting SO_2 and clarifying that SO_3 be evaluated as H_2SO_4 in Condition of Certification **AQ-27**
Proposal #24 Recommendation #24	The project owner is requesting to amend Condition of Certification **AQ-27** to allow for annual testing of sulfuric acid mist (SAM) rather than semi-annual testing. The BAAQMD reviewed the request and is proposing the applicant re-apply for a reduction in the monitoring frequency after the facility has completed three or more source tests for each turbine/HRSG set. The SAM limit in Condition of Certification **AQ-23** is totaled over any consecutive four quarters. Staff recommends retaining the semi-annual testing requirement until facility acquires more testing data per Condition of Certification **AQ-27**.
Proposal #25 Recommendation #25	The project owner is requesting to modify Condition of Certification **AQ-27** to delete the statement “the applicant could petition the District for a lower source test frequency.” The BAAQMD reported the project owner has withdrawn this request. Therefore, staff recommends the request not be considered.
Proposal #26 Recommendation #26	The project owner is requesting to modify Condition of Certification **AQ-32(f)** by changing performance testing to quarterly audits. The BAAQMD reviewed the request and determined the project owner requested reduced RATA frequency in accordance with 40 CFR 75, Appendix B Section 2.3.1.2. Staff recommends that relative test audits (RATA) should be added and performance testing of the CEMS should be removed.
Proposal #27 Recommendation #27	The project owner is requesting to modify Condition of Certification **AQ-34(g)** to delete the requirement to record the quarterly fuel analyses. The BAAQMD reviewed the request and determined the reporting of the quarterly fuel analysis is needed because Condition of Certification **AQ-25** requires quarterly fuel

	compositional analyses. Staff recommends the reporting requirement for the quarterly fuel analyses be retained in Condition of Certification **AQ-34(g)**.
Proposal #28 Recommendation #28	The project owner is requesting to modify Condition of Certification **AQ-44** by adding language specifying that the calculations should be performed after each source test is performed, pursuant to Part 45 (Condition of Certification **AQ-45**) to clarify the requirements. The BAAQMD reviewed the request and proposed to make the change. Staff recommends that the language be revised to clarify requirements.
Proposal #29 Recommendation #29	The project owner is requesting to modify Condition of Certification **AQ-45** to allow 120 days after the initial startup of each turbine/HRSG to perform the required initial source test. BAAQMD reviewed the request and finds the request acceptable. BAAQMD is proposing to limit the time period for the submittal of the initial source test results to 165 days after initial startup (see response #4 for the rationale for this). Staff recommends amending the language in Condition of Certification **AQ-27** to allow 120 days after startup instead of 60 days for the required source tests.

The project owner submitted an additional proposal to BAAQMD on March 27, 2013. The project owner is proposing to permit use of an additional power turbine as a substitute for an existing turbine that requires extended maintenance. When a turbine requires extended maintenance, the extra turbine would be substituted in place of the original power turbine until it is repaired and returned to service. The power turbines are all the same model General Electric (GE) LM6000 turbines. These are aeroderivative engines with modular attributes designed to accommodate this type of proposed usage. The emission controls and the rest of the train would remain in place. The emission profiles of all the GE LM600 power turbines are similar and the project owner would be limited to only operating four turbines at the same time. Emissions would still be abated through the same post-combustion control equipment and the same stack emission limits would apply, so there would be no emission increase with this proposal. The addition of proposed Condition of Certification **AQ-48** would allow the facility to have a power turbine that could be substituted into any of the four trains at any time. The proposed condition would require the power train operating with the substitute turbine to comply with all applicable permit conditions and it would limit the project owner to operating only four turbines at any given time.

CONCLUSIONS AND RECOMMENDATIONS

Staff recommends modifying 11 Air Quality Conditions of Certification as recommended in **Table 3,** and the addition of new Air Quality Condition of Certification **AQ-48** for

clarity and consistency with BAAQMD requirements. Specific changes to each condition have been outlined in the **Table 3,** above. In addition, staff is proposing typographical corrections and language clarification as needed to the conditions of certification that would be revised. The requested changes are mostly administrative in nature and will conform with the applicable LORS related to air quality and will not result in significant air quality impacts or any increases to the facility's emissions profile. The requested changes have already been reviewed and approved by BAAQMD staff.

PROPOSED AND AMENDED CONDITIONS OF CERTIFICATION

Staff recommends the modification of the following existing air quality conditions of certification and the addition of Air Quality Condition of Certification **AQ-48**. **Bold underline** is used to indicate new language. ~~Strikethrough~~ is used to indicate deleted language.

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:	The lesser of the first 120 minutes of continuous fuel flow to the **g**~~G~~as ~~T~~**t**urbine after fuel flow is initiated or the period of time from **g**~~G~~as ~~T~~**t**urbine fuel flow initiation until the **g**~~G~~as **t**~~T~~urbine achieves two consecutive CEM data points in compliance with the emission concentration limits of ~~c~~**C**onditions **of Certification AQ-19 subparts** ~~19(a)~~ and ~~19(c)~~ and is in compliance with the emission limits contained in **subparts** ~~19(a) through~~ and ~~19(dc)~~.
Gas Turbine Shutdown Mode:	The lesser of the 30 minute period immediately prior to the termination of fuel flow to the **g**~~G~~as ~~T~~**t**urbine or the period of time from non-compliance with any requirement listed in **Conditions of Certification AQ-**19 **subparts** ~~(a)~~ through ~~19(d)~~ until termination of fuel flow to the **g**~~G~~as ~~T~~**t**urbine.
Corrected Concentration:	The concentration of any pollutant (generally NOx, CO or NH_3) corrected to a standard stack gas oxygen concentration. For a **g**~~G~~as ~~T~~**t**urbine emission point, the standard stack gas oxygen concentration is 15% O_2 by volume on a dry basis.
Commissioning Activities **(initial startup):**	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 **(during initial startup):**	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 of power to the grid. The **c**~~C~~ommissioning **p**~~P~~eriod 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

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-9 Oxidation Catalyst and A-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-11 Oxidation Catalyst and A-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-13 Oxidation Catalyst and A-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-15 Oxidation Catalyst and A-16 Selective Catalytic Reduction System.

S-5 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-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-11 Oxidation Catalyst and A-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-13 Oxidation Catalyst and A-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-15 Oxidation Catalyst and A-16 Selective Catalytic Reduction System.

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

S-13 Fire Pump Engine, 282hp, 2012 or later model year, John Deere Family CJDXL13.5103 or Cummins Family ACEXL0540AAB, which Los Esteros may construct at its option to replace existing S-5, Fire Pump Engine

AQ-11 Within ~~sixty~~ **one hundred and twenty** (~~60~~**120**) days of startup, the owner/operator shall conduct a District approved source test using external continuous emission monitors to determine compliance with part ~~1~~**2**0. The source test shall determine NOx, CO and POC emissions during start-up and shutdown of the gas turbines. **The results of the source test must be submitted within 165 days of initial startup.** The POC emissions shall be analyzed for methane and ethane to account for the presence of unburned natural gas. The source test shall include a minimum of three start-up and three shutdown periods. Thirty (30) days before the execution of the source tests, the owner/operator shall submit to the District a detailed source test plan designed to satisfy the requirements of this part. The owner/operator shall be notified of any necessary modifications to the plan within twenty (20) working days of receipt of the plan; otherwise, the plan shall be deemed approved. The Owner/Operator shall incorporate the District comments into the test plan. The owner/operator shall notify the District within ten (10) days prior to the planned source testing date. Source test results shall be submitted to the District within sixty (60) days of the source testing date. These results can be used to satisfy applicable source testing requirements in **AQ-26** below (Basis: offsets.)

Verification: The project owner/operator shall submit the source test plan and results as required in the time frames indicated in this Condition of Certification.

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 NO_2) 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% O_2 (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 5 ppmvd @ 15% O_2 (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~~ **emissions** into the SCR control system**, the NOx outlet rate at the stack, and the total heat input of the combustion turbine and duct burner, using a District-approved ammonia slip calculation** ~~(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: 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 2.0 ppmvd @ 15 % O_2 (1-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 1 ppmvd @ 15% O2 (1-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.)

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-2,** ~~&~~ S-3**, and S-4**) during a start-up do not exceed the limits established below. (Basis: Cumulative increase, BACT)

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

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)

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)	175.6	702.4	94.1
POC	20.2	80.8	12.3
CO	97.0	388.0	53.4
SOx (as SO_2)			6.43
PM_{10}			38.5
NH_3	104	416	56.9

The daily mass limits are based upon calendar day per the definitions section of the permit conditions. 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~~ **a** CEM **or parametric monitor** involved in the mass emission calculations is inoperative for more than **a clock hour** ~~three consecutive hours~~ of plant operation, the mass data for the ~~period of~~ inoperative **period** shall be calculated using a District-approved alternate calculation method. The annual mass limits are based upon a rolling ~~8,760-hour~~ 12 **calendar month** period ~~ending on the last~~

~~hour~~. Compliance with the annual limits for NOx, POC, and **CO**~~SOx~~ shall be demonstrated in the same manner as for the daily limits. **Compliance with the daily and annual emissions limits for POC from each gas turbine/HRSG train shall be calculated by multiplying turbine and HRSG fuel usage times and an emission factor determined by source testing of the turbine/HRSG conducted in accordance with AQ-26**. Compliance with the annual emissions limits for PM_{10} and SO_2 from each gas turbine**/HRSG** shall be calculated by multiplying turbine fuel usage times an emission factor determined by source testing of the turbine**/HRSG** conducted in accordance with Part 26 **(AQ-26)** of the BAAQMD permit. The emission factor for each turbine**/HRSG** shall be based on the average of the emissions rates observed during the 4 most recent source tests on that turbine**/HRSG** (or, prior to the completion of 4 source tests on a turbine**/HRSG**, on the average of the emission rates observed during all source tests on the turbine**/HRSG**). (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-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~~ **AQ-29**. **The owner/operator may obtain the data from each source of natural gas monthly. In this case, the data must be real data based on actual sulfur analyses performed by the supplier of natural gas and not assurances that the natural gas meets all specifications.** (Basis: BACT for SO_2 and PM_{10}.)

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**. **If the owner/operator uses data obtained from the source of the natural gas, then the data must demonstrate that the sulfur content is below 1.0 gr/100 scf for each day of the month the facility is in operation.**

AQ-25 Monitoring Requirements: The owner/operator shall ensure that each gas turbine/HRSG power train complies with the following monitoring requirements:

a. The gas turbine/HRSG exhaust stack shall be equipped with permanent fixtures to enable the collection of stack gas samples consistent with EPA test methods.

b. The ammonia injection system shall be equipped with an operational ammonia flow meter ~~and injection pressure indicator~~ accurate to plus or minus five percent at full scale and shall be calibrated at least once every twelve months **and an injection pressure indicator**.

c. The gas turbine/HRSG exhaust stacks shall be equipped with continuously recording emissions monitor(s) for NOx, CO and O_2. Continuous emissions monitors **for CO** shall comply with the requirements of 40 CFR Part 60, Appendices B and F**.**~~, and~~ **Continuous emissions monitors for NOx and O_2 shall comply with the requirements of** 40 CFR Part 75**.**~~, and~~ **All CO, NOx and O_2 monitors** shall be capable of monitoring concentrations and mass emissions during normal operating conditions and during gas turbine startups and shutdowns.

d. The fuel heat input rate shall be continuously recorded using District-approved fuel flow meters along with quarterly fuel compositional analyses for the fuel's higher heating value (wet basis).

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

AQ-26 ~~Source Testing~~/RATA: Within **one hundred and twenty** ~~ninety~~ (~~90~~**120**) days of the **initial** startup **of** the gas turbines and HRSGs, and at a minimum on an annual basis thereafter, the owner/operator shall perform a relative accuracy test audit (RATA) on the **CO** CEMS in accordance with 40 CFR Part 60 Appendix B**,** Performance Specifications**, and on the NOx and O_2 CEMs in accordance with 40 CFR Part 75.**and

Source Testing: ~~a~~**A** source test shall be performed **on an annual basis**. Additional source testing may be required at the discretion of the District to

address or ascertain compliance with the requirements of this permit. The written test results of the source tests shall be provided to the District within ~~thirty~~**sixty** days after testing. A complete protocol shall be submitted to the District no later than 30 days prior to testing, and notification to the District at least ten days prior to the actual date of testing shall be provided so that a District observer may be present. The source test protocol shall comply with the following measurements of NOx, CO, POC, and stack gas oxygen content shall be conducted in accordance with ARB Test Method 100; measurements of PM10 shall be conducted in accordance with ARB Test Method 5; and measurements of ammonia shall be conducted in accordance with Bay Area Air Quality Management District test method ST-1B. Alternative test methods, and source testing scope, may also be used to address the source testing requirements of the permit if approved in advance by the District. The initial and **periodic** ~~annual~~ source tests shall **be conducted to show compliance with Conditions 19(a), 19(b), a9(c) and 19(d), and shall** include those parameters specified in the approved test protocol, and shall at a minimum include the following:

a. NOx – ppmvd at 15% O_2, ~~and~~ lb/MMBtu **and lb/hr** (as NO_2)

b. Ammonia – ppmvd at 15% O_2 (Exhaust)

c. CO – ppmvd at 15% O_2, ~~and~~ lb/MMBtu **and lb/hr** (Exhaust)

d. POC – ppmvd at 15% O_2, ~~and~~ lb/MMBtu **and lb/hr** (Exhaust)

e. PM10 – lb/hr (Exhaust)

f. SOx– lb/hr (~~Exhaust~~**Based on sulfur content of fuel as measured by utility**)

g. Natural gas consumption, fuel High Heating Value (HHV), and total fuel sulfur content

h. Turbine load in megawatts

i. Stack gas flow rate (DSCFM) calculated according to procedurs in U.S. EPA Method 19

j. Exhaust gas temperature (˚F)

k. Ammonia injection rate (lb/hr or moles/hr)

l. Water injection rate for each turbine at S-1, S-2, S-3, & S-4

(Basis: source test requirements & monitoring)

Verification: At least 30 days prior to the date of each source test, the owner/operator shall submit a source test protocol to the District and the CPM for approval. At least 10 days prior to the testing date, the owner/operator shall notify the District and the CPM of the date of the source test. NO more than 30 days after the date of the source test, the owner/operator shall submit the results of the RATA and source test to the District and the CPM for approval.

AQ-27 Within **120** ~~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 results of the initial source test must be submitted within 165 days of startup. Subsequent source test must be submitted within 60 days of the date of the source test.** The project owner shall test for ~~(as a minimum)~~ ~~SO_2,~~ SO_3 **evaluated as H_2SO_4** and **sulfuric acid mist (**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 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-44 To demonstrate compliance with **AQ-43,after each source test performed pursuant to 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~~120 days of **initial** start-up of the Los Esteros Critical Energy Facility and on a biennial (once every two years) **basis** 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~~**AQ-44**. **The results of the initial source test must be submitted within 165 days of initial startup. Subsequent source test results must be submitted within 60 days of the date of the source test.** If three consecutive biennial source tests demonstrate that the annual emission rates for any of the compounds listed above calculated pursuant to part ~~43~~5 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, 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-48 S14 is a GE LM6000 turbine that is equivalent to the four existing gas turbines and is brought in as a substitute while one of the existing turbines is being maintained. The owner/operator may substitute S-14, Combustion Gas Turbine #5 into any of the four power trains at any time (S-1/S-7, S-2/S-8, S-3/S-9 and S-4/S-10).The owner/operator shall ensure that the power train operating with S-14 complies with all permit conditions for that power train. The owner/operator shall operate no more than four turbines at any time. (Basis: Cumulative Increase)

Verification: The project owner shall include in each quarterly report required by Condition of Certification AQ-34 a log including each day when S-14 is used, documentation on which turbine S-14 is replacing, a statement certifying that the turbine being replaced is not in operation at the same time S-14 is in operation, and the duration of the time period that S14 is fired.

REFERENCES

BAAQMD 2013—Bay Area Air Quality Management District, Los Esteros Critical Energy Facility, Draft Evaluation Report, May 8, 2013.

CEC 2012—California Energy Commission, Los Esteros Critical Energy Facility, Order Amending the Energy Commission Decision, February 2, 2011.

CEC 2012b—California Energy Commission, Los Esteros Critical Energy Facility, Staff Analysis of Proposed Project Modifications, December 17, 2010.

CEC 2006—California Energy Commission, Los Esteros Critical Energy Facility, Phase 2, Final Commission Decision, October 19, 2006.

LECEF 2012—Los Esteros Critical Energy Facility, Phase 2, Amendment #5. November 28, 2012.