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DOCKET
08-AFC-4C
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STATE OF CALIFORNIA
ENERGY RESOURCES CONSERVATION
AND DEVELOPMENT COMMISSION

In the Matter of:	)	**Docket No. 08-AFC-4C**
ORANGE GROVE ENERGY PROJECT	)	**Order No.12-0314-1m**
ORANGE GROVE ENERGY, A LIMITED PARTNERSHIP	)	**ORDER APPROVING Petition to Amend the Orange Grove Energy Project**

On September 15, 2011, Orange Grove Energy, L.P., filed a petition with the California Energy Commission to amend the Energy Commission Decision for the Orange Grove Energy Project (OGEP) to allow OGEP to comply with San Diego County Air Pollution Control District's (SDAPCD) staff recommended changes to the Authority to Construct conditions, and to provide clarification on averaging periods and monitoring requirements for the continuous emission monitoring system (CEMs). The SDAPCD will adopt these changes pending the Energy Commission's approval of the amendment.

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 OGEP's petition to modify the OGEP and revise the following Conditions of Certification: AQ-5, AQ-6, AQ-10 through AQ-84

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 project will remain in compliance with all applicable laws, ordinances, regulations, and standards, subject to the provisions of Public Resources Code section 25525;

- The Change will be beneficial to the public and project owner because it will allow the project owner to comply with both SDAPCD and Commission air quality requirements and other applicable air quality LORS.

CONCLUSION AND ORDER

The California Energy Commission hereby adopts Staff's recommendations and approves the following changes to the Commission Decision for the Orange Grove Energy Project. New language is shown as **bold and underlined**, and deleted language is shown in ~~strikeout~~.

CONDITIONS OF CERTIFICATION

AQ-5 The exhaust stacks for the combustion turbine**s** shall be at least 80 feet in height above site base elevation.

Verification: The project owner shall submit to the CPM for review the exhaust stack specification at least 60 days before the installation of the stack.

AQ-6 The unit**s** shall be fired on Public Utility Commission (PUC) quality natural gas only. The project owner shall maintain, on site, quarterly records of sulfur content (grains of sulfur compounds per /100 dscf~~ of natural gas~~) and the higher and lower heating values (Btu/scf) of the natural gas; and provide such records to District personnel upon request.

Verification: The project owner shall submit the quarterly fuel sulfur content values in the in the Quarterly Operation Reports (**AQ-SC11**) and make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-10 The total combined ~~unit~~ operating hours for the combustion turbines of Permit No. ~~985708 and 985711~~**SDAPCD2011-PTO-000889 and SDAPCD2011-PTO-000890** shall not exceed 6,400 hours per calendar year.~~ Unit operating hour is defined in 40CFR 72.2. (NSR).~~

Verification: The project owner shall submit to the CPM and District the CTG annual operating data demonstrating compliance with this condition as part of the fourth quarter's Quarterly Operation Reports (**AQ-SC11**).

~~**AQ-11** The total combined operation of the combustion turbines under startup and shutdown conditions shall not exceed 400 hours per year.~~

~~**Verification**: The project owner shall submit to the CPM and District the CTG startup and shutdown operating data demonstrating compliance with this condition as part of the fourth quarter's Quarterly Operation Reports (**AQ-SC11**).~~

AQ-11~~12~~ The project owner shall comply with the applicable requirements in 40 CFR Parts 60, 72, 73, and 75.

Verification: The project owner shall submit to the CPM and District the CTG annual operating data demonstrating compliance with all applicable provisions of 40 CFR Parts 60, 72, 73, and 75 as part of the Quarterly Operation Reports (**AQSC11**).

~~**AQ-13** Power output (net MW) from each turbine generator of Permit No. 985708 and 985711 to the grid shall not exceed 49.8 MW. (NSR).~~

~~**Verification**: The project owner shall submit to the CPM and District the CTG net power data demonstrating compliance with this condition as part of the Quarterly Operation Reports (**AQ-SC11**).~~

AQ-12~~14~~ For purposes of determining compliance based on source testing, the average of three subtests shall be used. For purposes of determining compliance with emission limits based on the CEMS, data collected in accordance with the CEMS protocol shall be used and averaging periods shall be as specified herein.

Verification: The project owner shall provide the annual source test data to demonstrate compliance with this condition as part of the Quarterly Operation Reports (**AQ-SC11**), due in the quarter after the each year's source test report is completed. The project owner shall submit to the CPM for review and the District for approval a CEMS operating protocol at least 60 days prior to the operation the CEMS.

AQ-13~~15~~ For each emission limit expressed as pounds per hour or parts per million based on a ~~one~~ **clock**-hour averaging period, compliance shall be based on ~~each rolling continuous one-hour period using~~ continuous emission data collected at least once every 15 minutes.

Verification: CEMS data summaries shall be submitted to the CPM as part of the Quarterly Operation Reports (**AQ-SC11**).

AQ-14~~16~~ During startup **conditions**, the emissions from each turbine shall not exceed the following emission limits as determined by the continuous emission monitoring system (CEMs), ~~continuous monitor~~ and/or District approved emission testing. Compliance with each limit shall be based on ~~a 1-hour averaging~~ **the startup** period.

Pollutant	Limit, lbs/~~hour~~**event**
Oxides of Nitrogen (NOx), calculated as NO_2	~~15.4~~**13.25**
Carbon Monoxide (CO)	~~15.1~~**12.05**
Volatile Organic Compounds (VOC)	~~2.6~~**1.95**

Verification: The project owner shall submit to the CPM the CTG operating data demonstrating compliance with this condition as part of the Quarterly Operation Reports (**AQ-SC11**).

AQ-15~~17~~ During shutdown **conditions**, the emissions from each turbine shall not exceed the following emission limits as determined by the continuous emission monitoring system (CEMs), ~~continuous monitor~~ and/or District

approved emission testing. Compliance with each limit shall be based on ~~a 1-hour averaging~~ **the shutdown** period.

Pollutant	Limit, lbs/~~hour~~**event**
Oxides of Nitrogen (NOx), calculated as NO_2	~~5.9~~**2.68**
Carbon Monoxide (CO)	~~9~~**4.43**
Volatile Organic Compounds (VOC)	~~1.7~~**0.73**

Verification: The project owner shall submit to the CPM the CTG operating data demonstrating compliance with this condition as part of the Quarterly Operation Report (**AQ-SC11**).

~~**AQ-18** During an hour when both a startup and a shutdown occur, the emissions from each turbine shall not exceed the following emission limits as determined by the continuous emission monitoring system (CEMs), continuous monitor and/or District-approved emission testing. Compliance with each limit shall be based on a 1-hour averaging period.~~

~~Pollutant~~	~~Limit, lbs/hour~~
~~Oxides of Nitrogen (NOx), calculated as NO_2~~	~~16.1~~
~~Carbon Monoxide (CO)~~	~~16.8~~
~~Volatile Organic Compounds (VOC)~~	~~2.8~~

~~**Verification**: The project owner shall submit to the CPM the CTG operating data demonstrating compliance with this condition as part of the Quarterly Operation Report (**AQ-SC11**).~~

AQ-16~~19~~ The emissions concentration of oxides of Nitrogen (NOx) **from the unit exhaust stack**, calculated as nitrogen dioxide (NO_2), shall not exceed 2.5 parts per million by volume on a dry basis (ppmvd) corrected to 15 percent oxygen and averaged over ~~one~~ **a clock** hour period. Compliance with **this**~~these~~ limit~~s~~ shall be demonstrated continuously based on the CEMs data and ~~at the time of the initial~~ **based on** source test**ing** calculated as the average of three subtests. This limit shall not apply during ~~the initial commissioning period or~~ startup and shutdown **conditions** ~~periods~~ as defined herein.

Verification: The project owner shall provide the source test data to demonstrate compliance with this condition as part of the Quarterly Operation Reports (**AQ-SC11**), due in the quarter after the source test report is completed. The project owner shall provide CEMS emissions data to demonstrate compliance with this condition as part of the Quarterly Operation Reports (**AQSC11**).

AQ-17~~20~~ The emissions concentration of **carbon monoxide (**CO**)** from the unit exhaust stack shall not exceed 6**.0** parts per million volume on a dry basis (ppmvd) corrected to15 percent oxygen and averaged over one **a clock** hour period. Compliance with this limit shall be demonstrated at the time of the initial source test and continuously based on the CEMs data and based upon source testing calculated as the average of three subtests. This limit shall not

apply during ~~the initial commissioning period or~~ startup and shutdown **conditions as defined** herin ~~periods~~.

Verification: The project owner shall provide the source test data to demonstrate compliance with this condition as part of the Quarterly Operation Report (**AQ-SC11**), due in the quarter after the source test report is completed. The project owner shall provide emissions data to demonstrate compliance with this condition as part of the Quarterly Operation Reports (**AQ-SC11**).

AQ-18~~21~~ The **volatile organic compounds (**VOC**) emission** concentration **from the unit exhaust stack**, calculated as methane, measured in the exhaust stack, shall not exceed 2.0 **parts per million by volume on a dry basis (**ppmvd**)** corrected to 15 percent oxygen **and averaged over each clock-hour period**. Compliance with this limit shall be demonstrated ~~by~~ **continuously based on** source testing, calculated as the average of three subtests. At the time of the initial compliance test, a District-approved CO/VOC surrogate relationship shall be established. The CO/VOC surrogate relationship shall be verified and/or modified, if necessary, based on annual source testing. This limit shall not apply during ~~the initial commissioning period or~~ startup and shutdown periods **conditions as defined herin**.

Verification: The project owner shall provide the source test data to demonstrate compliance with this condition as part of the Quarterly Operation Reports (**AQ-SC11**), due in the quarter after the source test report is completed.

AQ-19~~22~~ The emissions from each turbine shall not exceed the following emission limits, except during ~~the initial commissioning period,~~ startup and shutdown conditions, as determined by the continuous emission monitoring system (CEMs), ~~continuous monitor~~ and/or District approved emission testing, calculated as the average of three subtests. Compliance with each limit shall be based on a ~~1~~**clock**-hour averaging period.

Pollutant	Limit, lbs/hour
Oxides of Nitrogen (NOx), calculated as NO_2	4.3
Carbon Monoxide (CO)	6.1
Volatile Organic Compounds (VOC)	1.3

Verification: The project owner shall submit to the CPM the CTG operating and/or source test data demonstrating compliance with this condition as part of the Quarterly Operation Reports (**AQ-SC11**).

AQ-20~~23~~ The emissions from each turbine shall not exceed the following emission limits, ~~except during the initial commissioning period,~~ as determined by the continuous emission monitoring system (CEMs), ~~continuous monitor~~ and/or District-approved emission testing, calculated as the average of three subtests. Compliance with each limit shall be based on a ~~1-hour~~ **calendar day** averaging period.

Pollutant	Limit, lbs/day

Oxides of Nitrogen (NOx), calculated as NO_2	141.2
Carbon Monoxide (CO)	182.2
Volatile Organic Compounds (VOC)	36.5

Verification: The project owner shall submit to the CPM the CTG operating data demonstrating compliance with this condition as part of the Quarterly Operation Reports (**AQ-SC11**).

AQ-21~~24~~ The emissions from each turbine shall not exceed the following emission limits, as determined by the continuous emission monitoring system (CEMs), ~~continuous monitor~~ and/or District-approved emission testing, calculated as the average of three subtests. Compliance with each limit shall be based on a ~~1~~-hour **rolling 12-calendar month** averaging period~~.~~**, updating once each calendar month. Records demonstrating compliance with these limits shall be available for inspection 30 days after the end of each calendar quarter.**

Pollutant	Limit, tons/year
Oxides of Nitrogen (NOx), calculated as NO_2	8.6
Carbon Monoxide (CO)	11.3
Volatile Organic Compounds (VOC)	2.3

Verification: The project owner shall submit to the CPM the CTG operating data demonstrating compliance with this condition as part of the fourth quarter's Quarterly Operation Reports (**AQ-SC11**).

AQ-22~~25~~ Emissions of particulate matter 10 microns or less (PM10) **from the unit exhaust stack** shall not exceed 3.0 lbs per hour. Compliance with this limit shall be demonstrated based upon **initial** source testing calculated as the average of three subtests. **The total PM and condensable PM measured using EPA Method 5 and 202 will be assumed to be PM10.**

Verification: The project owner shall provide the source test data to demonstrate compliance with this condition as part of the Quarterly Operation Reports (**AQ-SC11**), due in the quarter after the source test report is completed.

AQ-23~~26~~ The discharge of particulate matter from the exhaust stack of each combustion turbine shall not exceed 0.10 grains per dry standard cubic foot. The District may require periodic testing to verify compliance with this standard.

Verification: The project owner shall provide the source test data to demonstrate compliance with this condition as part of the Quarterly Operation Reports (**AQ-SC11**), due in the quarter after the source test report is completed.

AQ-24~~27~~ Ammonia emissions from each turbine shall not exceed 5 parts per million **by** volume on a dry basis (ppmvd) corrected to 15% oxygen**, averaged over a clock hour period**. This limit shall not apply during ~~the commissioning period or~~ startup and shutdown periods **conditions**. Compliance with this limit shall

be demonstrated through source testing calculated as the average of three subtests and utilizing one of the following procedures:

1) Calculate ~~daily~~ ammonia emissions using the following equation:
   NH_3 = ((a-(b*c/1,000,000))*(1,000,000/b))*d
   Where:
   a = ammonia injection rate (lbs/hour) / (17.0 lbs/lb-mole),
   b = exhaust flow rate at 15% oxygen / (29 lbs/lb-mole)
   c = change in measured NOx concentration (ppmvd @ 15% oxygen) across the catalyst,
   d = ratio of measured ammonia slip to calculate ammonia slip as derived during compliance testing.

2) ~~Other calculation method using measured surrogate parameters to determine the ammonia emissions in ppmvd @15% oxygen, as approved by the District.~~ **Calculate ammonia emissions using the following equation:**

   NH_3 = (((a/b)*1,000,000)-1.2c)*d
   Where:
   a = ammonia injection rate (lbs/hour) / (0.04478 lbs NH3/cft NH3),
   b = exhaust flow rate at 15% oxygen / (scft/hour)
   c = change in measured NOx concentration (ppmvd @ 15% oxygen) across the catalyst,
   d = ratio of measured ammonia slip to calculated ammonia slip as derived during compliance testing.

Verification: The project owner shall provide the estimated daily ammonia concentration and daily ammonia emissions based on the procedures given in this condition and provide the annual source test data to demonstrate compliance with this condition as part of the Quarterly Operation Reports (**AQ-SC11**), where the source test data is due in the quarter after the source test report is completed.

~~**AQ-28** When operating without SCR or oxidation catalyst during the initial commissioning period, the emissions from the turbine shall not exceed 50 pounds per hour and the combined emissions from both turbines shall not exceed 65.4 pounds per hour of oxides of nitrogen (NOx), calculated as nitrogen dioxide and measured over each clock hour period. (Rule 20.3(d)(2)(i)).~~

~~**Verification**: The project owner shall submit to the CPM the CTG operating and CEMS data demonstrating compliance with this condition as part of the Quarterly Operation Reports (**AQ-SC11**).~~

~~**AQ-29** When operating without SCR or oxidation catalyst during the initial commissioning period, the total emissions from the turbine shall not exceed 43.9 pounds per hour and the combined emissions from both turbines shall not exceed 59 pounds per hour of carbon monoxide (CO), measured over each clock hour period. (Rule 23(d)(2)(i))~~

~~**Verification**: The project owner shall submit to the CPM the CTG operating and CEMS data demonstrating compliance with this condition as part of the Quarterly Operation Reports (**AQ-SC11**).~~

AQ-25~~30~~ Visible emissions from the lube oil vents and the exhaust stack of the unit shall not exceed 20 percent opacity for more than three (3) minutes in any period of 60 consecutive minutes. (Rule 50)

Verification: The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-26~~31~~ Total aggregate emissions from all stationary emission units at this stationary source, except emissions or emission units excluded from the calculation of aggregate potential to emit as specified in Rule 20.1 (d) (1), shall not exceed the following limits in each rolling 12-calendar month period. The total aggregate emissions shall include emissions during all times that the equipment is operating, including but not limited to, emissions during periods of commissioning, startup, shutdown, and tuning. **Records demonstrating compliance with these limits shall be available for inspection 30 days after the end of each calendar quarter.**

1. Oxides of Nitrogen (NOx): 50 tons/year
2. Carbon Monoxide (CO): 100 tons/year
3. Volatile Organic Compounds (VOC): 50 tons/year
4. Oxides of Sulfur (SOx): 100 tons/year
5. **Particulate Matter (PM10): 100 tons/year**

Verification: The project owner shall submit to the CPM and District the facility annual operating and emissions data demonstrating compliance with this condition as part of the fourth quarter's Quarterly Operation Reports **(AQ-SC11)**.

AQ-27~~32~~ The emissions of any single federal Hazardous Air Pollutant (HAP) shall not equal or exceed 10 tons, and the aggregate emissions of all federal HAPs shall not equal or exceed 25 tons in any rolling 12-calendar month period. Compliance with these single and aggregate HAP limits shall be based on a methodology approved by the District for the purpose of calculating HAP emissions for this permit. If emissions exceed these limits, the project owner shall apply to amend **this** permit to reflect applicable federal Maximum Achievable Control Technology (MACT) standards and requirements in accordance with applicable provisions (including timing requirements) of 40 CFR Part 63. **Records demonstrating compliance with these limits shall be available for inspection 30 days after the end of each calendar quarter.**

Verification: The project owner shall submit to the CPM and District the facility annual operating data demonstrating compliance with this condition as part of the fourth quarter's Quarterly Operation Reports **(AQ-SC11)**.

AMMONIA – SCR

~~AQ-33 At least 90 days prior to the start of construction, the project owner shall submit to the District the final selection, design parameters and details of the selective catalytic reduction (SCR) and oxidation catalyst emission control systems. Such information may be submitted to the District as trade secret and confidential pursuant to District Rules 175 and 176.~~

~~Verification: The project owner shall submit to the CPM for review and District for approval final selection, design parameters and details of the SCR and oxidation catalyst emission control systems at least 90 days prior to the start of construction.~~

AQ-28~~34~~ Before operating an SCR system, continuous monitors shall be installed on each SCR system to monitor or calculate, and record the ammonia injection rate (lbs/hour) and the SCR catalyst temperature (°F). The monitors shall be installed, calibrated and maintained in accordance with a District approved protocol. This protocol, which shall include the calculation methodology, shall be submitted to the District for written approval at least 60 days prior to initial startup of the gas turbines with the SCR system. The monitors shall be in full operation at all times when the turbine is in operation.

Verification: The project owner shall provide a protocol as required in the condition for the installation, calibration, and testing for the SCR system continuous monitors at least 60 days prior to SCR system use. The project owner shall submit to the CPM and District the SCR system operating data demonstrating compliance with this condition as part of the Quarterly Operation Reports **(AQ-SC11).**

AQ-29 Except during startup and shutdown conditions, the water injection system, the SCR and the oxidation catalyst control system, including the ammonia injection system serving the turbine, shall be in full operation at all times when the turbine is in operation.

Verification: The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-30~~35~~ Except during periods when the ammonia injection system is being tuned or one or more ammonia injection systems is in manual control (for compliance with applicable permits), the automatic ammonia injection system serving the SCR shall be in operation in accordance with manufacturer's specifications at all times when ammonia is being injected into the SCR. Manufacturer specifications shall be maintained on site and made available to district personnel upon request.

Verification: The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-31 In the event of a breakdown in the ammonia injection control system, a trained operator shall operate the system manually and the breakdown

shall be reported to the District Compliance Division pursuant to Rule 98(b)(1) and 98(e).

Verification: The project owner shall notify the District regarding any ammonia injection control system breakdown as required in this condition and shall document all such communications in each Quarterly Operation Report (AQ-SC11).

AQ-32~~36~~ The concentration of ammonia solution used in the ammonia injection system shall be less than 20 percent ammonia by weight. Records of ammonia solution concentration shall be maintained on site and made available to District personnel upon request.

Verification: The project owner shall maintain on site and provide on request of the CPM or District the ammonia delivery records that demonstrate compliance with this condition.

AQ-33~~37~~ For the purposes of this license, startup conditions shall be defined as the **period of** time **that begins when** fuel flow**s to the turbine** ~~begins until the time that the unit complies with the emission limits specified in Condition **AQ-22** but in no case exceeding 30 minutes per occurrence~~ **and shall continue for no longer than 30 consecutive minutes**. Shutdown conditions shall be defined as the **15 minute period** ~~time~~ preceding the moment at which fuel flow ceases ~~and during which the unit does not comply with the emission limits specified in Condition **AQ-22** but in no cases exceeding 30 minutes per occurrence~~. The Data Acquisition and Recording System (DAS), as required by 40 CFR75, shall record these events. This condition may be modified by the District based on field performance of the equipment.

Verification: The project owner shall submit to the CPM the CTG start-up and shut-down event duration data demonstrating compliance with this condition as part of the Quarterly Operation Reports (**AQ-SC11**).

AQ-34~~38~~ A CEMS protocol is a document approved in writing by the SDAPCD M&TS division that describes the Quality Assurance and Quality Control procedures for monitoring, calculating and recording stack emissions from the unit.

Verification: The project owner shall maintain a copy of the CEMS protocol on site and provide it for inspection on request of the CPM or District.

TESTING

AQ-35~~39~~ ~~At least 60 days prior to initial startup of the gas turbines, the project owner shall submit a source test protocol to the District for approval~~. **The permittee shall submit a source test protocol to the District for approval.** The source test protocol shall comply with the following requirements:

A. Measurements of NOx, CO, and O_2 emissions shall be conducted in accordance with U.S. Environmental Protection Agency (U.S. EPA)

methods 7E, 10, and 3A, respectively, and District Source Test, method 100, or alternative methods approved by the District~~ and U.S. EPA~~;

B. Measurement of VOC emissions shall be conducted in accordance with U.S. EPA Methods 25A and/or 18, or alternative methods approved by the District~~ and U.S. EPA~~;

C. Measurements of PM10 emissions shall be conducted in accordance with U.S. EPA Methods **5 and** 201A **or**~~and~~ 202**,** or alternative methods approved by the District~~ and U.S. EPA~~;

D. Measurements of ammonia emissions shall be conducted in accordance with Bay Area Air Quality Management District ST-1B or an alternative method approved by the District~~ and U.S. EPA~~;

E. Source testing shall be performed at the ~~most frequently used~~ **normal** load level, as specified in 40 CFR part 75 Appendix A Section 6.52.1.d, provided it is not less than 80% of the unit's rated load unless it is demonstrated to the satisfaction of the District that the unit cannot operate under these conditions. If the demonstration is accepted, then emissions source testing shall be performed at the highest achievable continuous level power level.

F. Measurements of opacity shall be conducted in accordance with U.S. EPA Method 9 or an alternative method approved by the District**.**~~and U.S. EPA~~

G. Measurement of fuel flow shall be conducted in accordance with an approved test protocol.

Verification: The project owner shall submit to the CPM for review and the District for approval the initial source test protocol in compliance with requirements of this condition at least 60 days prior to the initial source test.

AQ-36~~40~~ Each turbine shall be equipped with continuous monitors to measure or calculate, and record, the following operational characteristics of each unit:

1. Hours of operation (hours),
2. Natural gas flow rate (scfh),
3. Heat input rate (MMBtu /hr),

~~4. Exhaust gas flow rate (dscfm),~~

4~~5~~. Exhaust gas temperature (ºF), and

5~~6~~. Power output (gross MW).

6~~7~~. Water (for NOx control) injection rate (~~lbs/hour~~ **gal/hour**) if equipped with water injection.

7. SCR inlet temperature (°F)

8. Ammonia injection rate (lbs/hour)

Verification: The project owner shall submit to the CPM for review and the District for approval a parametric monitoring protocol in compliance with this condition at least 60 days prior to the initial startup.

AQ-37~~41 At least 60 days prior to the initial startup of the gas turbines, t~~**T**he project owner shall submit a turbine operation monitoring protocol, which shall include relevant calculation methodologies to the District for written approval.

The monitors shall be installed, calibrated, and maintained in accordance with the protocol. The monitors should be in full operation at all times when the turbine is in operation. Calibration records for the continuous monitors shall be maintained on site and made available to the District upon request. The project owner shall make the site available for inspection of the turbine operation monitors and monitor maintenance records by representatives of the District, ARB, and the Energy Commission.

Verification: The project owner shall submit to the CPM for review and the District for approval a turbine operation monitoring protocol in compliance with this condition at least 60 days prior to the initial startup.

AQ-38~~42~~ The exhaust stacks for each turbine shall be equipped with source test ports and platforms to allow for the measurement and collection of stack gas samples consistent with all approved test protocols. The ports and platforms shall be constructed in accordance with District Method 3A, Figure 2, and approved by the District.

Verification: The project owner shall submit to the CPM for review and District for approval a stack test port and platform plan at least 60 days before the installation of the stack ports and platform.

AQ-39~~43~~ If source testing will be performed by an independent contractor and witnessed by the District, a source test protocol shall be submitted to the District for written approval at least 30 days prior to source testing.

Verification: The project owner shall submit to the CPM for review and District for approval, if necessary based on the condition requirements, a source test protocol at least 30 days prior to the source test.

AQ-40~~44~~ Within 45 days after completion of the source test or RATA, a final test report shall be submitted to the District for review and approval.

Verification: The project owner will submit all RATA or source test reports to the CPM for review and the District for approval within 45 days of the completion of those tests.

AQ-41~~45~~ ~~This turbine shall be source tested once each permit year (annual source test) to demonstrate compliance with the emission standards contained in this permit. For the purposes of this permit, a permit year is the 12-month period ending on the last day of the permit expiration month. It is the responsibility of the project owner to schedule the source test with the District. The source test shall be performed or witnessed by the District. Each annual source test shall be separated by at least 90 days. An annual CEMS RATA, where required, may be used to fulfill the annual source testing requirement for NOx and CO.~~ **These units shall be source tested to demonstrate compliance with the NOx, CO, VOC, PM and ammonia emission standards of this license using District approved methods.** The source test and the NOx and CO RATA tests shall be conducted in accordance with the RATA frequency

requirements of 40 CFR 75, Appendix B, Sections 2.3.1 and 2.3.3. ~~Test Audit (RATA) tests shall be conducted in accordance with the applicable RATA frequency requirements of 40 CFR75, appendix b, sections 2.3.1 and 2.3.3.~~

Verification: The results and field data collected during source tests required by this condition shall be submitted to the CPM for review and the District for approval within 45 days of testing.

CONTINUOUS EMISSION MONITORING SYSTEM (CEMS)

AQ-42~~46~~ The project owner shall comply with the continuous emission monitoring requirements of 40 CFR Part 75.

Verification: The project owner shall submit to the CPM for review and the District for approval a CEMS monitoring protocol at least 60 days prior to the operation the CEMS.

AQ-43~~47~~ At least 60 days prior to the operation of the ~~permanent~~ CEMs, the project owner shall submit a CEMs operating protocol to the District for written approval. The project owner shall make the site available for inspection of the CEMs and CEMs maintenance records by representatives of the District, ARB, and the Energy Commission.

Verification: The project owner shall submit to the CPM for review and the District for approval a CEMS operating protocol at least 60 days prior to the operation the ~~permanent~~ CEMS.

AQ-44~~48~~ A monitoring plan in conformance with 40 CFR 75.53 shall be submitted to U.S. EPA Region 9 and the District at least 45 days prior to the Relative Accuracy Test Audit test, as required in 40 CFR 75.62.

Verification: The project owner shall submit to the CPM for review and the District for approval a monitoring plan in compliance with this condition at least 45 days prior to the RATA test.

AQ-45~~49~~ ~~No later than 90 unit operating days or 180 calendar days after each unit commences commercial operation (defined for this condition as the instance when power is sold to the grid),~~ A Relative Accuracy Test Audit (RATA) and other required certification tests shall be performed and completed on the CEMs in accordance with 40 CFR Part 75 Appendix A Specifications and Test Procedures. At least 60 days prior to the test date, the project owner shall submit a test protocol to the District for written approval. Additionally, the District shall be notified a minimum of 21~~45~~ days prior to the test so that observers may be present. Within 30 days of completion of this test, a written test report shall be submitted to the District for approval.

Verification: The project owner shall submit to the CPM for review and the District for approval the RATA certification test protocol at least 60 days prior to the RATA test and shall submit to the CPM for review and the District for approval a copy of the written test report within 30 days after test completion The project owner shall also notify the CPM

and District of the RATA test date at least **21**~~45~~ days prior to conducting the RATA and other certification tests.

AQ-46~~**50**~~ The oxides of nitrogen (NOx) and oxygen (O_2) CEMS shall be certified and maintained in accordance with applicable Federal Regulations including the requirements of Sections 75.10 and 75.12 of Title 40, Code of Federal Regulations Part 75 (40 CFR 75), the performance specifications of Appendix A of 40 CFR 75, the quality assurance procedures of Appendix B of 40 CFR 75 and the CEMS protocol approved by the District. The carbon monoxide (CO) CEMS shall be certified and maintained in accordance with 40 CFR 60, Appendices B and F, unless otherwise specified in this permit.~~, and the CEMS protocol approved by the District.~~

Verification: The project owner shall submit to the CPM for review and the District for approval a CEMS operating protocol as required by **AQ-43**~~**47**~~. The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-47~~**51**~~ Continuous emission monitoring system (CEMS) shall be installed and properly maintained and calibrated to measure, calculate and record the following, in accordance with the District approved CEMS protocol:

A. Percent oxygen (O_2) in the exhaust gas (%);
B. Average concentration of oxides of nitrogen (NOx) for each ~~continuous rolling 1~~ **clock**-hour period, in parts per million (ppmv) corrected to 15% oxygen;
C. Average concentration of carbon monoxide (CO) for each ~~continuous rolling 1~~**clock**-hour period, in parts per million (ppmv) corrected to 15% oxygen;
D. ~~Annual mass emissions of oxides of nitrogen (NOx), in tons;~~**Averaged concentration of volatile organic compound (VOC) for each clock-hour period, in parts per million (ppmv) corrected to 15% oxygen, based on the CO/VOC surrogate relationship;**
E. ~~Annual mass emission of carbon monoxide (CO), in tons.~~**Clock hour mass emissions of oxides of nitrogen (NOx), in lbs/hour;**
F. ~~Natural gas flow rate to turbine in hscf/hr.~~**Clock hour mass emissions of carbon monoxide (CO), in lbs/hour;**
G. Clock hour mass emissions of volatile organic compound (VOC) in lbs/hour, based on the CO/VOC surrogate relationship;
H. Calendar day mass emissions of oxides of nitrogen (NOx) in lb/day;
I. Calendar day mass emissions of carbon monoxide (CO) in lb/day;
J. Calendar day mass emissions of volatile organic compound (VOC) in lb/day;
K. Rolling 12-calendar month mass emissions of oxides of nitrogen (NOx), in tons
L. Rolling 12-calendar month mass emissions of carbon monoxide (CO), in tons

M.Rolling 12-calendar month mass emission of volatile organic compound (VOC) in tons;
N. Natural gas flow rate to turbine in hscf/hr;
O. Average concentration of ammonia slip emission for each clock-hour period, in parts per million by volume (ppmv) corrected to 15 percent oxygen, calculated in accordance with Condition 24.

Verification: The project owner shall submit to the CPM for review and the District for approval a CEMS operating protocol as required by **AQ-43~~47~~**. The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-48~~52~~ The CEMS shall be in operation in accordance with the District approved CEMs monitoring protocol at all times when the turbine is in operation. A copy of the District approved CEMS monitoring protocol shall be maintained on site and made available to District personnel upon request.

Verification: The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-49~~53~~ When the CEMS is not recording data and the turbine is operating, hourly NOx emissions for the annual emission calculations shall be determined in accordance with 40 CFR 75 Subpart C. Additionally, hourly CO emissions for annual emission calculations shall be determined using CO emission factors to be determined from source test emission factors**, recorded CEMS data,** and fuel consumption data, in terms of pounds per hour of CO for the gas turbine. Emission calculations used to determine hourly emission rates shall be reviewed and approved by the District, in writing, before the hourly emission rates are incorporated into the CEMS emission data.

Verification: The project owner shall provide the District with all emission calculations required by this condition and shall provide notation of when such calculations are used in place of CEMS data as part of the Quarterly Operation Report (**AQ-SC11**).

AQ-50~~54~~ Any violation of any emission standard as indicated by the CEMS shall be reported to the District's compliance division within 96 hours after such occurrence (H&S Code).

Verification: The project owner shall notify the District regarding any emission standard violation as required in this condition and shall document all such occurrences in each Quarterly Operation Report (**AQ-SC11**).

AQ-51~~55~~ The CEMS shall be maintained and operated, and reports submitted, in accordance with the requirements of rule 19.2 Sections (d), (e), (f) (1), (f) (2), (f) (3), (f) (4) and (f) (5), and a CEMS protocol approved by the District.

Verification: The project owner shall submit to the District the CEMS reports as required in this condition and shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-52~~56~~ An operating log or data acquisition and handling system (DAHS) records shall be maintained either on site or at a District-approved alternate location to record actual times and durations of all startups and shut-downs, quantity of fuel used (**h**scf) **in each clock hour, calendar month and 12 calendar month period** ~~and energy generated (MW-hr), (monthly and annually by calendar year),~~ hours of daily operation and total cumulative hours of operation **during each calendar year**~~(monthly and, annually by calendar year)~~.

Verification: The operating log or DAHS operating records will be provided as part of the Quarterly Operation Report (**AQ-SC11**). The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-53~~57~~ ~~Except for changes that are specified in the initial approved NOx monitoring protocol or a subsequent revision to that protocol that is approved in advance, in writing by the District, the District shall be notified in writing at least thirty (30) days prior to any planned changes made in the CEMS /DAHS (including the programmable logic controller) software which affects the value of data displayed on the CEMS / DAHS monitors with respect to the parameters measured by their respective sensing devices or any planned changes to the software that controls the ammonia flow to the SCR. Unplanned or emergency changes shall be reported within 96 hours.~~ **The District shall be notified at least two weeks prior to any changes made in the CEMS software that affect measurement, calculation or correction of data displayed and/or recorded by the CEMS.**

Verification: The project owner shall submit to the CPM for review and the District for approval any revision to the CEMS/DAHS software, as required by this condition, to be approved in advance at least **two weeks**~~30 days~~ before any planned changes are made.

AQ-54~~58~~ Fuel flow meters with an accuracy of +/- 2% shall be maintained to measure the volumetric flow rate corrected for temperature and pressure. Correction factors and constants shall be maintained on site and made available to the District upon request. The fuel flow meters shall meet the applicable quality assurance requirements of 40 CFR part 75, Appendix D, and Section 2.1.6.

Verification: The project owner shall submit to the CPM the natural gas usage data from the fuel flow meters as part of the Quarterly Operation Report (**AQSC11**).

~~**AQ-59** Beginning at initial startup of each turbine, a Commissioning Period for each turbine shall commence. The Commissioning Period shall end after not more than 200 hours of gas turbine operation. During the Commissioning Period, only the emission limits specified in Conditions 28 and 29 shall apply.~~

~~**Verification**: A log of the dates, times, and cumulative unit operating hours when fuel is being combusted during the commissioning period shall be maintained by the project owner. The project owner shall submit, commencing one month from the time of gas~~

~~turbine first fire, a monthly commissioning status report throughout the duration of the commissioning phase that demonstrates compliance with the requirements listed in this condition. The monthly commissioning status report shall be submitted to the CPM by the 10th of each month for the previous month, for all months with turbine commissioning activities following the turbine first fire date. The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.~~

~~**AQ-60** Within 200 hours of gas turbine operation, after initial startup of each turbine, the project owner shall install post-combustion air pollution control equipment to minimize emissions from this equipment. Once installed, the post-combustion air pollution control equipment shall be maintained in good condition and, with the exception of periods during startup and shutdown, shall be in full operation at all times when the turbine is in stable operation.~~

~~**Verification**: The project owner shall provide the CPM District records demonstrating compliance with this condition as part of the monthly commissioning status report (**AQ-59**).~~

~~**AQ-61** After the end of the Commissioning Period for each turbine, the project owner shall submit a written progress report to the District. This report shall include, at a minimum, the date the Commissioning Period ended, the periods of startup, the emissions of NOx and CO during startup, and the emissions of NOx and CO during steady state operation. NOx and CO emissions shall be reported in both ppmv at 15 percent O2 and lbs/hour. This report shall also detail any turbine or emission control equipment malfunction, upset, repairs, maintenance, modifications, or replacements affecting emissions of air contaminants that occurred during the Commissioning Period.~~

~~**Verification**: The project owner shall provide the CPM and the District records demonstrating compliance with this condition as part of the final monthly commissioning status report (**AQ-59**).~~

~~**AQ-62** Only one combustion turbine shall undergo commissioning at a time. Combustion turbine operation for commissioning shall only occur during the hours of 7:00 A.M. to 7:00 P.M.~~

~~**Verification**: The project owner shall provide the CPM CEMS data demonstrating compliance with this condition as part of the monthly commissioning status report (**AQ-59**).~~

GAS 965 BRAKE HORSEPOWER (BHP) CUMMINS GTA38-G2 NATURAL GAS FUELED BLACK START ENGINE, WITH CATALYTIC CONVERTER AND AIR TO FUEL RATIO CONTROLLER, DRIVING A 625 KILOWATT (KW) GENERATOR.

AQ-55~~63~~ Project owner shall provide access, facilities, utilities and any necessary safety equipment, with the exception of personal protective equipment

requiring individual fitting and specialized training, for source testing and inspection upon request of the District.

Verification: The project owner shall provide facilities, utilities, and safety equipment for source testing and inspections upon request of the District, ARB, and the Energy Commission.

AQ-56~~64~~ Gaseous fuel engines shall use only gaseous fuel which contains no more than 10 grains of sulfur compounds, calculated as hydrogen sulfide, per 100 cubic feet dry gaseous fuel at standards conditions. Gaseous fuels include natural gas, propane, liquefied petroleum gas (LPG), butane. Gasoline engines shall use only California Reformulated Gasoline. (Rule 62).

Verification: The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-57~~65~~ Visible emissions including crank case smoke shall comply with Rule 50. (Rule 50)

Verification: The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-58~~66~~ At no time shall the subject equipment described cause or contribute to a public nuisance. (Rule 51)

Verification: The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-59~~67~~ A non-resettable engine hour meter shall be installed on this engine, maintained in good working order, and used for recording engine operating hours. If a meter is replaced, the Air Pollution Control District's Compliance Division shall be notified in writing within 10 calendar days. The written notification shall include the following information:

A. Old meter's hour reading.
B. Replacement meter's manufacturer name, model, and serial number if available and current hour reading on replacement meter.
C. Copy of receipt of new meter or of installation work order. A copy of the meter replacement notification shall be maintained on site and made available to the Air Pollution Control District upon request. (Rule 69.4.1.)

Verification: The project owner shall provide notification to the District as required by this condition and shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-60~~68~~ The engine operation shall not exceed 0.5 hours per day and 52 hours per calendar year for non-emergency purposes (testing and maintenance). (NSR, Rule 69.4.1)

Verification: The project owner shall submit to the CPM the black-start engine operating data demonstrating compliance with this condition as part of the Quarterly Operation Report (**AQ-SC11**).

AQ-61~~69~~ The owner or operator shall conduct periodic maintenance of this engine and any add-on control equipment, as applicable, as recommended by the engine and control equipment manufacturer or as specified by any other maintenance procedure approved in writing by the District. The periodic maintenance shall be conducted at least once each calendar year. (Rule 69.4.1)

Verification: The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-62~~70~~ The owner or operator of the engine shall keep the following records: applicable fuel certification; manual of recommended maintenance provided by the manufacturer, or other maintenance procedure as approved in writing, in advance, by the District. These records shall be kept on site for at least the same period of time as the engine to which the records apply is located at the site. These records shall be made available to the District. (Rule 69.4.1)

Verification: The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-63~~71~~ The owner or operator of this engine shall maintain an operating log containing, at a minimum, the following: dates and times of engine operation, indicating whether the operation was for non- emergency purposes or during an emergency situation and the nature of the emergency, if available (these records are not required if the total engine operations for any purpose, including emergency situation, do not exceed 52 hours in a calendar year); total cumulative hours of operation per calendar year, based on actual readings of engine hour meter or fuel meter; records of periodic maintenance including the dates maintenance, calibration or replacement were performed. (Rule 69.4.1)

Verification: The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-64~~72~~ All operational and maintenance logs required by this permit shall be kept for a minimum of three years, unless otherwise indicated by the conditions of this permit, and these records shall be made available to the District upon request. (Rule 69.4.1)

Verification: The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

373 BHP CUMMINS CFP11E-F10 DIESEL FUELED EMERGENCY FIRE PUMP ENGINE.

AQ-65~~73~~ Project owner shall provide access, facilities, utilities and any necessary safety equipment, with the exception of personal protective equipment requiring individual fitting and specialized training, for source testing and inspection upon request of the District.

Verification: The project owner shall provide facilities, utilities, and safety equipment for source testing and inspections upon request of the District, ARB, and the Energy Commission.

AQ-66~~74~~ Engine operation for maintenance and testing purposes shall not exceed 0.5 hour per day and 50 hours per calendar year. (NSR) (17 CCR §93115) (ATCM reportable)

Verification: The project owner shall submit to the CPM the fire pump engine operating data demonstrating compliance with this condition as part of the Quarterly Operation Report (**AQ-SC11**).

AQ-67~~75~~ The engine shall only use ARB Diesel Fuel. (Rule 69.4.1, 17 CCR §93115)

Verification: The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-68~~76~~ Visible emissions including crankcase smoke shall comply with Air Pollution Control District Rule 50. (Rule 50)

Verification: The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-69~~77~~ The equipment described above shall not cause or contribute to public nuisance. (Rule 51)

Verification: The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-70~~78~~ This engine shall not operate for non-emergency use during the following periods, as applicable:

A. Whenever there is any school sponsored activity, if engine is located on school grounds, or
B. Between 7:30 and 3:30 PM on days when school is in session, if the engine is located within 500 feet of, but not on school grounds. This condition shall not apply to an engine located at or near any school grounds that also serve as the student's place of residence (17 CCR §93115) (ATCM reportable).

Verification: The project owner shall submit to the CPM the engine operating data demonstrating compliance with this condition on request and shall make the site

available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-71~~79~~ A non-resettable engine hour meter shall be installed on this engine, maintained in good working order, and used for recording engine operating hours. If a meter is replaced, the Air Pollution Control District's Compliance Division shall be notified in writing within 10 calendar days. The written notification shall include the following information:

A. Old meter's hour reading.
B. Replacement meter's manufacturer name, model, and serial number if available and current hour reading on replacement meter.
C. Copy of receipt of new meter or of installation work order.

A copy of the meter replacement notification shall be maintained on site and made available to the Air Pollution Control District upon request. (Rule 69.4.1) (17 CCR §93115)

Verification: The project owner shall provide notification to the District as required by this condition and shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-72~~80~~ The owner or operator shall conduct periodic maintenance of this engine and add-on control equipment, if any, as recommended by the engine and control equipment manufacturers or as specified by the engine servicing company's maintenance procedure. The periodic maintenance shall be conducted at least once each calendar year. (Rule 69.4.1)

Verification: The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-73~~81~~ The owner or operator of the engine shall maintain the following records on site for at least the same period of time as the engine to which the records apply is located at the site:

A. Documentation shall be maintained identifying the fuel as ARB diesel;
B. Manual of recommended maintenance provided by the manufacturer, or maintenance procedures specified by the engine servicing company; and
C. Records of annual engine maintenance, including the date the maintenance was performed. These records shall be made available to the Air Pollution Control District upon request. (Rule 69.4.1)

Verification: The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-74~~82~~ The owner or operator of this equipment shall maintain a monthly operating log containing, at a minimum, the following:

A. Dates and times of engine operation, indicating whether the operation was for maintenance and testing purposes or emergency use; and, the nature of the emergency, if known;
B. Hours of operation for all uses other than those specified above and identification of the nature of that use. (Rule 69.4.1) (17 CCR §93115)

Verification: The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-75~~83~~ All operational and maintenance logs required by this permit shall be kept a minimum of 36 months from their date of creation unless otherwise indicated by the conditions of this permit. The records shall be maintained onsite for a minimum of 24 months from their date of creation. Records for the last 24 months of operation shall be made available to the Air Pollution Control District upon request. Records for operation for the last 25 to 36 months shall be made available to the Air Pollution Control District within 5 working days of request.

Verification: The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-76~~84~~ All records required by these conditions shall be maintained on site for a minimum of five years and made available to the District upon request.

Verification: The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

IT IS SO ORDERED.

CERTIFICATION

The undersigned Secretariat to the Commission does hereby certify that the foregoing is a full, true, and correct copy of an Order duly and regularly adopted at a meeting of the California Energy Commission held on March 14, 2012.

AYE: Weisenmiller, Douglas, Peterman
NAY: None
ABSENT: None
ABSTAIN: None

Harriet Kallemeyn,
Secretariat