San Diego County Air Pollution Control District

COUNTY OF SAN DIEGO, AIR POLLUTION CONTROL DISTRICT
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Sectors: 5, S
Site Record ID: APCD2010-SITE-00471
Application Record ID: APCD2018-APP-005536

Startup Authorization Expires:
No Date Entered

Pio Pico Energy Center, LLC
Plant Manager Jason King
7363 Calzada de la Fuente
San Diego CA 92154

EQUIPMENT ADDRESS
Pio Pico Energy Center, LLC
Plant Manager Jason King
7363 Calzada de la Fuente
San Diego CA 92154

STARTUP AUTHORIZATION

After examination of your Application APCD2018-APP-005536 for an Air Pollution Control District (hereinafter referred to as "the District") Authority to Construct and Permit to Operate for equipment located at 7363 Calzada de la Fuente San Diego CA 92154 in San Diego County, the District has decided on the following actions:

This Startup Authorization is granted pursuant to Rule 21 of the Air Pollution Control District Rules and Regulations for equipment to consist of:

Turbine No. 1: A natural-gas-fired, simple-cycle, intercooled GE LMS100 PA combustion turbine generator rated at 1000 MMBtu/hr (HHV) heat input and 106.4 MW, Serial Number 7244965, equipped with an evaporative cooler for the inlet air; a compressor intercooler utilizing a heat exchanger and a shared partial dry cooling system with a wet surface air cooler; a continuous emission monitoring system (CEMS) for NOx, O2, and CO; a data acquisition and handling system (DAHS) to record key operational parameters; water injection; a selective catalytic reduction system (SCR); an ammonia vaporization system, and an oxidation catalyst.

Turbine No. 2: A natural-gas-fired, simple-cycle, intercooled GE LMS100 PA combustion turbine generator rated at 1000 MMBtu/hr (HHV) heat input and 106.4 MW, Serial Number 7244966, equipped with an evaporative cooler for the inlet air; a compressor intercooler utilizing a heat exchanger and a shared partial dry cooling system with a wet surface air cooler; a continuous emission monitoring system (CEMS) for NOx, O2, and CO; a data acquisition and handling system (DAHS) to record key operational parameters; water injection; a selective catalytic reduction system (SCR); an ammonia vaporization system, and an oxidation catalyst.

Turbine No. 3: A natural-gas-fired, simple-cycle, intercooled GE LMS100 PA combustion turbine generator rated at 1000 MMBtu/hr (HHV) heat input and 106.4 MW, Serial Number 7244967, equipped with an evaporative cooler for the inlet air; a compressor intercooler utilizing a heat exchanger and a shared partial dry cooling system with a wet surface air cooler; a continuous emission monitoring system (CEMS) for NOx, O2, and CO; a data acquisition and handling system (DAHS) to record key operational parameters; water injection; a selective catalytic reduction system (SCR); an ammonia vaporization system, and an oxidation catalyst.

This Startup Authorization is issued with the following conditions:

1. This equipment shall be properly maintained and kept in good operating condition at all times, and, to the extent practicable, the owner or operator shall maintain and operate the equipment and any associated air pollution control equipment in a manner consistent with good air pollution control practices for minimizing emissions. [Rule 21 and/or 40 CFR §60.11]
2. A rolling 12-calendar-month period is one of a series of successive consecutive 12-calendar-month periods. The initial 12-month-calendar period of such a series shall begin on the first day of the month in which the applicable beginning date for that series occurs as specified in this permit. [Rule 20.3(d)(1), Rule 20.3(d)(3), Rule 21].
3. The permittee shall comply with all the applicable provisions of 40 CFR 73, including requirements to offset, hold and retire SO2 allowances. [40 CFR Part 73]

4. All records required by this permit shall be maintained on site for a minimum of five years and made available to the District upon request. [Rule 1421]
5. Unless otherwise defined for purposes of a specific condition, for purposes of determining compliance with the emission limits of this permit, a shutdown period is the 11-minute period preceding the moment at which fuel flow ceases. [Rule 20.3(d)(1)]
6. A startup period is the period of time that begins when fuel flows to the combustion turbine following a non-operational period. Unless otherwise defined for purposes of a specific condition, for purposes of determining compliance with the emission limits of this permit, the duration of a startup period shall not exceed 30 consecutive minutes. [Rule 20.3(d)(1)]
7. A non-operational period is any five-consecutive-minute period when fuel does not flow to the combustion turbine. [Rule 20.3(d)(1)]
8. A Continuous Emission Monitoring System (CEMS) protocol is a document approved in writing by the District that describes the methodology and quality assurance and quality control procedures for monitoring, calculating, and recording stack emissions from the combustion turbine that is monitored by the CEMS. [Rules 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, 40 CFR Part 60 Appendix B and F, and 40 CFR Part 75]
9. For each combustion turbine, a unit operating day, hour, and minute mean the following:
   a. A unit operating day means any calendar day in which the turbine combusts fuel.
   b. A unit operating hour means any clock hour in which the turbine combusts fuel.
   c. A unit operating minute means any clock minute in which the turbine combusts fuel.
   [Rule 21, 40 CFR Part 75, Rule 20.3(d)(1), 40 CFR Part 60 Subpart KKKK]
10. Tuning is defined as adjustments to the combustion or emission control system that involves operating the combustion turbine or emission control system in a manner such that the emissions control equipment may not be fully effective or operational. Only one gas turbine shall be tuned at any given time. Tuning events shall not exceed 720 unit operating minutes in a calendar day nor exceed 40 hours in a calendar year for each turbine. The District compliance division shall be notified at least 24 hours in advance of any tuning event. For purposes of this condition, the number of hours of tuning in a calendar year is defined as the total unit operating minutes of tuning during the calendar year divided by 60. [Rule 20.3(d)(1)]
11. The exhaust stacks for each combustion turbine shall be at least 100 feet in height above site base elevation and with an interior exhaust stack diameter of no more than 14.5 feet at the point of release unless it is demonstrated to the District that all requirements of District Rules 20.3 and 1200 are satisfied with a different stack configuration. [Rules 20.3(d)(2) and 1200]
12. The combustion turbines shall be fired on Public Utility Commission (PUC) quality natural gas. The permittee shall maintain, on site, quarterly records of the natural gas sulfur content expressed in units of grains of sulfur per 100 dscf of natural gas and hourly records of the higher heating values of the natural gas expressed in units of Btu/scf. These records shall be provided to District personnel upon request. Natural gas sulfur content records must be kept with a minimum reporting limit of 0.25 grains sulfur compounds per 100 dscf of natural gas. [Rule 20.3(d)(1)]
13. Unless otherwise specified in this permit, all continuous monitoring data shall be collected at least once every clock-minute. [Rules 69.3.1, and 20.3(d)(1)]
14. For purposes of determining compliance with emission limits based on source testing, the average of three subtests shall be used. For purposes of determining compliance with emission limits based on a Continuous Emission Monitoring System (CEMS), data collected in accordance with the CEMS protocol shall be used and the averages for averaging periods specified herein shall be calculated as specified in the CEMS protocol. [Rules 69.3.1, 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, 40 CFR Part 60 Appendix B and F, and 40 CFR Part 75]
15. For purposes of determining compliance with emission limits based on CEMS data, all CEMS calculations, averages, and aggregates shall be performed in accordance with the CEMS protocol approved in writing by the District. [Rules 69.3.1, 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, 40 CFR Part 60 Appendix B and F, and 40 CFR Part 75]
16. For each emission limit expressed as pounds, pounds per hour, or parts per million based on a one-hour or less averaging period or compliance period, compliance shall be based on using data collected at least once every

minute when compliance is based on CEMS data except as specified in the District-approved CEMS Protocol. [Rules 69.3.1, and 20.3(d)(1)]

17. When a combustion turbine is combusting fuel (operating), the emission concentration of oxides of nitrogen (NOx), calculated as nitrogen dioxide (NO2), shall not exceed 2.5 ppmvd corrected to 15% oxygen averaged over a one-clock-hour period, except during tuning, startup, and shutdown periods for that turbine. [Rule 20.3(d)(1)]
18. When a combustion turbine is operating, the emission concentration of carbon monoxide (CO) shall not exceed 4.0 ppmvd corrected to 15 % oxygen, averaged over a one-clock-hour period, except during tuning, startup, and shutdown periods for that turbine. [Rule 20.3(d)(1)]
19. When a combustion turbine is operating, the volatile organic compound (VOC) concentration, calculated as methane, measured in the exhaust stack, shall not exceed 2.0 ppmvd corrected to 15% oxygen, averaged over a 1 -clock-hour period, except during tuning operations, startup periods, and any clock minutes that are not excluded from shutdown periods for that turbine. For purposes of determining compliance based on source testing, an average of three subtests shall be used. [Rule 20.3(d)(1)]
20. When a combustion turbine is operating, the ammonia concentration (ammonia slip), shall not exceed 5.0 ppmvd corrected to 15 % oxygen and averaged over a one-clock-hour period, except during tuning, startup, and shutdown periods for that turbine. [Rule 1200]
21. When a combustion turbine is operating with post-combustion air pollution control equipment that controls oxides of nitrogen (NOx) emissions, the emission concentration NOx, calculated as nitrogen dioxide (NO2), shall not exceed 13.9 ppmvd averaged over each one-clock-hour period and corrected to 15% oxygen, except for startup and shutdown periods for that turbine, as defined in Rule 69.3.1. [Rule 69.3.1]
22. When a combustion turbine is operating without any post-combustion air pollution control equipment that controls oxides of nitrogen (NOx) emissions, the emission concentration of NOx calculated as nitrogen dioxide (NO2) from each turbine shall not exceed 23.2 ppmvd averaged over each one-clock-hour period and corrected to 15% oxygen, except for startup and shutdown periods for that turbine, as defined in Rule 69.3.1. [Rule 69.3.1]
23. For each rolling four-unit-operating-hour period, average emission concentration of oxides of nitrogen (NOx) for each turbine calculated as nitrogen dioxide (NO2) in parts per million by volume dry (ppmvd) corrected to 15% oxygen or, alternatively, as elected by the permittee, the average NOx emission rate in pounds per megawatt-hour (lb/MWh) shall not exceed an average emission limit calculated in accordance with 40 CFR Section 60.4380(b)(3). The emission concentration and emission rate averages shall be calculated in accordance with 40 CFR Section 60.4380(b)(1). The average emission concentration limit and emission rate limit shall be based on an average of hourly emission limits over the four-unit-operating-hour period including the operating-hour and three-unit-operating-hours immediately preceding. For any unit-operating-hour where multiple emission standards would apply based on load of the turbine, the applicable standard shall be the higher of the two limits. The hourly emission concentration limit and emission rate limit shall be as follows based on the load of the turbine over the four-unit-operating-hour period:

Case	Emission Limit, ppmvd at 15% O2	Emission Limit, lb/MWh
i. All four hours at or above 75% Load	15	0.43
ii. All four hours below 75% Load	96	4.7
iii. Combination of hrs	(a x 15+b x 96)/4	(a x 0.43+b x 4.7)/4

Where: a = the number of unit operating hours in the four-hour period with all operation above 75% load and b = 4-a.

The averages shall include emissions during all times that the equipment is operating including, but not limited to, emissions during startup and shutdown periods. For each six-calendar-month period, emissions in excess of these limits and monitor downtime shall be identified in accordance with 40 CFR Sections 60.4350 and 60.4380(b)(2), except that Section 60.4350(c) shall not apply for identifying periods in excess of a NOx concentration limit. For

the purposes of this condition, unit-operating-hour shall have the meaning as defined in 40 CFR 60.4420. [40 CFR Part 60 Subpart KKKK]

24. The emissions of particulate matter less than or equal to 10 microns in diameter (PM10) from the exhaust stack of each combustion turbine shall not exceed 5.0 pounds per hour for each combustion turbine. Compliance with this limit shall be demonstrated based upon source testing and calculated as the average of three subtests. [Rule 20.3 (d)(1) and (d)(2)]

25. The emissions of particulate matter less than or equal to 10 microns in diameter (PM10) from the exhaust stacks of the combustion turbines shall not exceed 3.5 pounds per hour per turbine, calculated as the arithmetic average of the source test results from the six most recent sets of valid source tests performed on the three turbines. For the purpose of this condition, a valid source test is a source test for which the results have been approved by the District, and that included at least three subtests in the calculation of average emission rate. [Rule 20.3(d)(1) and (d)(2)]

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 (0.23 grams/dscm) corrected to 12% carbon dioxide by volume. The District may require periodic testing to verify compliance with this standard. [Rule 53]

27. Visible emissions from the lube oil vents and the exhaust stack of each combustion turbine shall not exceed 20% opacity for more than three (3) minutes in any period of 60 consecutive minutes. [Rule 50]

28. Mass emissions from each combustion turbine of oxides of nitrogen (NOx), calculated as NO2; carbon monoxide (CO); and volatile organic compounds (VOC), calculated as methane, shall not exceed the following limits, except during tuning, startup, and shutdown periods for that turbine. A one-clock-hour averaging period for these limits shall be used when compliance is determined using CEMS data.

Pollutant	Emission Limit, lb/hour
a. NOx	8.2
b. CO	8.0
c. VOC	2.3

[Rule 20.3(d)(2)]

29. Cumulative mass emissions from each combustion turbine of oxides of nitrogen (NOx), calculated as NO2; carbon monoxide (CO); and volatile organic compounds (VOC), calculated as methane, shall not exceed the following limits during each of that turbine's tuning operations.

Pollutant	Emission Limit, lbs/hr
a. NOx	45.6
b. CO	75.0

[Rule 20.3(d)(1)]

30. Excluding any minutes that are coincident with a shutdown period, cumulative mass emissions from each combustion turbine of oxides of nitrogen (NOx), calculated as NO2; carbon monoxide (CO); and volatile organic compounds (VOC), calculated as methane, shall not exceed the following limits during each of that turbine's startup periods.

Pollutant	Emission Limit, lb/event
a. NOx	22.5
b. CO	17.9
c. VOC	4.7

[Rule 20.3(d)(1)]

31. Cumulative mass emissions from each combustion turbine of oxides of nitrogen (NOx), calculated as NO2; carbon monoxide (CO); and volatile organic compounds (VOC), calculated as methane, shall not exceed the following limits during each of that turbine's shutdown periods.

Pollutant	Emission Limit, lb/event
a. NOx	6.0
b. CO	47.0
c. VOC	3.0

[Rule 20.3(d)(1)]

32. The total aggregate oxides of nitrogen (NOx) emissions from all combustion turbines combined shall not exceed 150 pounds per hour, calculated as nitrogen dioxide and measured over each one-clock-hour period. This emission limit shall apply during all times one or more turbines are operating, including, but not limited to, emissions during tuning, startup, and shutdown periods. [Rule 20.3(d)(2)]

33. The carbon monoxide (CO) emissions from each combustion turbine shall not exceed 75 pounds per hour and total aggregate CO emissions from all combustion turbines combined shall not exceed 225 pounds per hour measured over each one-clock-hour period. This emission limit shall apply during all times that one or more turbines are operating, including, but not limited to emissions during tuning, startup, and shutdown periods. [Rule 20.3(d)(2)(i)]

34. Aggregate emissions of oxides of nitrogen (NOx), calculated as nitrogen dioxide (NO2); carbon monoxide (CO); volatile organic compounds (VOCs), calculated as methane; particulate matter less than or equal to 10 microns in diameter (PM10); and oxides of sulfur (SOx), calculated as sulfur dioxide (SO2), from the combustion turbines authorized to be constructed under this permit, except emissions from emission units excluded from the calculation of aggregate potential to emit as specified in Rule 20.1 (d) (1), as it exists on the date the permit to operate for this equipment is approved, shall not exceed the following limits for each rolling 12- calendar-month period:

Pollutant	Emission Limit, tons per year
a. NOx	70.4
b. CO	96.4
c. VOC	19.4
d. PM10	35.8
e. SOx	4.1

The aggregate emissions of each pollutant shall include emissions during all times that the equipment is operating including, but not limited to, emissions during tuning, startup, and shutdown periods. All calculations performed to show compliance with these limits shall be performed according to a protocol approved in advance in writing by the District. [Rules 20.3(d)(2), 20.3(d)(3), 20.3(d)(5), 20.3(d)(8) and 21]

35. The wet surface air cooler (WSAC) shall be equipped with a mist eliminator designed to achieve a drift rate of 0.001% or less. In addition, the maximum total dissolved solids (TDS) concentration of the air-side recirculating cooling water used in the WSAC shall not exceed 5,600 ppm. The TDS concentration shall be verified through calendar quarterly testing of the water by a certified lab using an EPA approved method. In addition, emissions of PM10 from the WSAC shall not exceed 1.46 tons for each rolling 12-calendar-month period. For each calendar month, PM10 emissions from the WSAC shall be calculated using a District approved protocol that is based on either the design maximum air-side recirculating cooling water flow to the WSAC or the measured total air-side recirculating water flow to the WSAC during the calendar month; the design maximum drift rate; the TDS concentration from the calendar quarterly measurement for the calendar quarter that contains the month; and the actual hours of operation of the WSAC fans during the calendar month. Except for the TDS concentration, for which the owner or operator shall maintain records not less frequently than a calendar quarterly basis, the owner or operator shall maintain records not less frequently than a calendar monthly basis of each variable parameter necessary to calculate the WSAC PM10 emissions with the District approved protocol methodology including, but not limited to, the recirculating air-side cooling water flow rate and actual hours of operation of the WSAC fans, if applicable. [Rule 20.3(d)(1)]

36. For each calendar month and each rolling 12-calendar-month period, the owner or operator shall maintain records, as applicable, on a calendar monthly basis, of mass emissions during each calendar month and rolling 12-calendar month period of NOx, calculated as NO2; CO; VOCs, calculated as methane; PM10; and SOx, calculated as SO2, in tons, from each emission unit located at this stationary source, except for emissions from emission

units excluded from the calculation of aggregate potential to emit as specified in Rule 20.1 (d) (1) as it exists on the date the permit to operate for this equipment is approved. These records shall be made available for inspection within 15 calendar days after the end of each calendar month. The recorded emissions shall be calculated in accordance with an emission calculation protocol approved by the District. Where applicable, this protocol may rely in whole or in part on the CEMS Protocol or other monitoring protocols required by this permit. [Rules 20.3(d)(3), 20.3(d)(8) and 21]

37. For each calendar month and each rolling 12-calendar-month period, the owner or operator shall maintain records, as applicable, on a calendar monthly basis, of mass emissions during each calendar month and rolling 12-calendar-month period of NOx calculated as NO2, CO, VOCs calculated as methane, PM10, and SOx calculated as SO2, in tons, from each emission unit located at this stationary source, except for emissions from emission units excluded from the calculation of aggregate potential to emit as specified in Rule 20.1 (d)(1) as it exists on the date the initial Permit to Operate for this equipment is approved. These records shall be made available for inspection within 15 calendar days after the end of each calendar month. [Rule 20.3(d)(1), Rule 20.3(d)(5), Rule 21]

38. The associated ammonia vaporizer system shall be operated and maintained in accordance with the manufacturer's instructions and shall begin operating as soon as feasible before a turbine startup period begins and be fully operational at all times when a combustion turbine is operating. [Rules 20.3(d)(1) and 21]

39. When a combustion turbine is operating, ammonia shall be injected at all times provided that all of the following are satisfied:
a. The associated selective catalytic reduction (SCR) system catalyst inlet temperature is 570 degrees Fahrenheit (°F) or greater;
b. The associated ammonia vaporizer system air heater exit temperature has attained 300 °F or greater after the beginning of the startup period and is greater than 250 °F during continuous operations;
c. The associated ammonia vaporizer system ammonia-air mixing header exit temperature has attained 275 °F or greater after the beginning of the startup period and is greater than 215 °F during continuous operations.
For purposes of this condition, the SCR inlet temperature shall be determined as the smallest of the temperatures measured by the SCR inlet temperature monitors including only those monitors that are fully operational and measuring temperature within their specified accuracy. [Rules 20.3(d)(1) and 21]

40. Continuous monitors shall be installed on each SCR system and associated ammonia vaporizer system to monitor or calculate, as applicable, and record each unit operating minute the ammonia solution injection rate in pounds per hour, the SCR inlet temperature at three points at the inlet to the SCR in degrees Fahrenheit (°F), the ammonia vaporizer system air heater exit temperature in °F, and ammonia-air mixing header exit temperature in °F. The monitors shall be calibrated, maintained, and operated in accordance with a District approved protocol, which may be part of the CEMS Protocol. If the District has not approved any protocol the monitors shall be calibrated, maintained, and operated in accordance with the manufacturer's instructions until the date that a District approved protocol is in effect. The monitors shall be in full operation at all times when the turbine is in operation. [Rules 20.3(d)(1)]

41. 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 permit conditions, the automatic ammonia injection system serving each SCR system shall be in operation in accordance with manufacturer's specifications at all times when ammonia is being injected into the SCR system. Manufacturer specifications shall be maintained on site and made available to District personnel upon request. [Rules 20.3(d)(1), 21]

42. The concentration of ammonia solution used in the ammonia injection system shall be less than 20% ammonia by weight. Records of ammonia solution concentration shall be maintained on site and made available to district personnel upon request

43. All source test or other tests required by this permit shall be performed by the District or performed by an independent contractor and witnessed and approved by the District. Unless otherwise specified in this permit or authorized in writing by the District, a proposed test protocol shall be submitted to the District for written approval at least 45 calendar days prior to source testing for all testing performed by an independent contractor. Additionally, the District shall be notified a minimum of 30 calendar days prior to the test so that observers may be present unless otherwise authorized in writing by the District. [Rules 20.2(d)(1) and 1200 and 40 CFR Part 60

Subpart GG and 40 CFR §60.8]

44. Within 30 days of the issuance of this Permit to Operate, the owner or operator of this equipment shall submit a source test protocol to measure concentrations and mass emissions of Volatile Organic Compounds (VOCs), including formaldehyde, during startup and shutdown conditions. Measurement of VOC emissions shall be conducted in accordance with EPA Method 18, or alternative methods approved by the District and EPA. Measurement of emissions of formaldehyde shall be conducted in accordance with EPA Method 316 or 323, or an alternative method approved by the District and EPA. This test shall be conducted on the same dates as the first renewal test performed for each turbine after the approval of the source test protocol and subsequently during the first permit year of each five-year Title V Permit renewal. [Rule 20.3]

45. Unless otherwise specified in this permit or authorized in writing by the District, within 45 days after completion of a source test or Relative Accuracy Test Audit (RATA) performed by an independent contractor, a final test report shall be submitted to the District for review and approval. [Rules 20.3(d)(1) and 1200 and 40 CFR Part 60 Subpart KKKK, 40 CFR §60.8, and 40 CFR Part 75]

46. A renewal source test and a NOx and CO Relative Accuracy Test Audit (RATA) shall be periodically conducted on each combustion turbine to demonstrate compliance with the NOx, CO, VOC, PM10, and ammonia emission standards of this permit and applicable relative accuracy requirements for the CEMS systems using District-approved methods. The renewal source test and the NOx and CO RATAs shall be conducted in accordance with the applicable RATA frequency requirements of 40 CFR 75, Appendix B, Sections 2.3.1 and 2.3.3. The renewal source test shall be conducted in accordance with a protocol complying with all the applicable requirements of the source test protocol for the Initial Emissions Source Test. [Rules 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

47. Each combustion turbine shall be source tested to demonstrate compliance with the NOx, CO, VOC, PM10, and ammonia emission standards of this permit. The source test protocol shall comply with all of the following requirements:

    a. Measurements of NOx and CO concentrations and emissions and oxygen (O2) concentration shall be conducted in accordance with U.S. Environmental Protection Agency (EPA) methods 7E, 10, and 3A, respectively, and District source test Method 100, or alternative methods approved by the District and EPA;
    b. Measurement of VOC concentrations and emissions, except for formaldehyde, shall be conducted in accordance with EPA Method 18, or an alternative method approved by the District and EPA;
    c. Measurement of formaldehyde concentrations and emissions shall be conducted in accordance with EPA Method 316 or 323, as specified by the District, or an alternative method approved by the District and EPA;
    d. Total VOC concentrations and emissions shall be the sum of those concentrations and emissions determined using Method 18 and the formaldehyde concentrations and emissions;
    e. Measurements of ammonia concentrations shall be conducted in accordance with Bay Area Air Quality Management District Method ST-1B or an alternative method approved by the District and EPA;
    f. Measurements of PM10 emissions shall be conducted in accordance with EPA Methods 201A and 202, or EPA Methods 5 and 202 (reporting PM as PM10), or an alternative method approved by the District and EPA;
    g. Source testing shall be performed at the normal load level, as specified in 40 CFR Part 75 Appendix A Section 6.5.2.1 (d), provided it is not less than 80% of the combustion turbine's rated load unless it is demonstrated to the satisfaction of the District that the combustion turbine cannot operate under these conditions. If the demonstration is accepted, then emissions source testing shall be performed at the highest achievable continuous power level. The District may specify additional testing at different load levels or operational conditions to ensure compliance with the emission and concentration limits of this permit and District Rules and Regulations.
    h. Measurements of particulate matter emissions shall be conducted in accordance with SDAPCD Method 5 or an alternative method approved by the District and EPA; and
    i. Unless otherwise authorized in writing by the District, testing for NOx, CO, VOC, PM10, and ammonia concentrations and emissions, as applicable, shall be conducted concurrently with the NOx and CO continuous emission monitoring system (CEMS) Relative Accuracy Test Audit (RATA).
    [Rules 20.3(d)(1) and 1200]

48. Relative Accuracy Test Audits (RATAs) and all other required certification tests shall be performed and completed on the NOx CEMS in accordance with applicable provisions of 40 CFR Part 75 Appendix A and B and 40 CFR

§60.4405 and on the CO CEMS in accordance with applicable provisions of 40 CFR Part 60 Appendix B and F. In order to provide for a reasonable assurance of compliance with the permitted emission limits, the CP CEMS must meet one of the following performance criteria:
a. A Relative Accuracy of 10% when the average reference method value is used in the denominator of Equation 2-6 of 40 CFR 60, Performance Specification 2;
b. A Relative Accuracy of 5.0% when the applicable emission standard is used n the denominator of Equation 2-6 of 40 FR, Performance Specification 2;
c. 0.50 ppmvd corrected to 15% oxygen and 1.0 lb/hr when the RA is calculated as the absolute average difference between the RM and CEMS plus the 2.5 percent confidence coefficient.

[Rule 21, Rule 20.3 (d)(1), 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

49. 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. (40 CFR Part 75)

50. The District may require one or more of the following compounds, or additional compounds, to be quantified through source testing periodically to ensure compliance with Rule 1200 and other conditions of this permit and to quantify toxic emissions:
a. Acetaldehyde
b. Acrolein
c. Benzene
d. Formaldehyde
e. Toluene
f. Xylenes
If the District requires the permittee to perform this source testing, the District shall request the testing in writing a reasonable period of time prior to the testing date. [Rule 1200, California H&S Code §41510]

51. The higher heating value of the combustion turbine fuel shall be measured by ASTM D1826–94, Standard Test Method for Calorific Value of Gases in Natural Gas Range by Continuous Recording Calorimeter or ASTM D1945–96, Standard Method for Analysis of Natural Gas by Gas Chromatography or an alternative test method approved by the District and EPA. [Rules 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

52. The sulfur content of the combustion turbine fuel shall be sampled not less than once each calendar quarter in accordance with a protocol approved by the District and measured with ASTM D1072–90 (Reapproved 1994), Standard Test Method for Total Sulfur in Fuel Gases; ASTM D3246–05, Standard Test Method for Sulfur in Petroleum Gas by Oxidative Microcoulometry; ASTM D4468–85 (Reapproved 2000), Standard Test Method for Total Sulfur in Gaseous Fuels by Hydrogenolysis and Rateometric Colorimetry; ASTM D6228–98 (Reapproved 2003), Standard Test Method for Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Flame Photometric Detection; or ASTM D6667–04, Standard Test Method for Determination of Total Volatile Sulfur in Gaseous Hydrocarbons and Liquefied Petroleum Gases by Ultraviolet Fluorescence or an alternative test method approved by the District and EPA. [Rule 20.3(d)(1), Rule 21, and 40 CFR Part 75]

53. The permit holder shall comply with the applicable continuous emission monitoring requirements of 40 CFR Part 75 and 40 CFR Part 60. [40 CFR Part 75 and 40 CFR Part 60]

54. A continuous emission monitoring system (CEMS) shall be installed on each combustion turbine and properly maintained and calibrated to measure, calculate, and record the following, in accordance with the District-approved CEMS protocol:
a. Clock-hourly average concentration of oxides of nitrogen (NOx) in parts per million (ppmvd) both uncorrected and corrected to 15% oxygen;
b. Clock-hourly average concentration of carbon monoxide (CO) in parts per million (ppmvd) both uncorrected and corrected to 15% oxygen;
c. Percent oxygen (O2) in the exhaust gas for each unit operating minute;
d. Clock-hourly mass emissions of oxides of nitrogen (NOx) calculated as NO2, in pounds;
e. Cumulative mass emissions of oxides of nitrogen (NOx) calculated as NO2 in each tuning operation, and startup and shutdown period, in pounds;
f. Calendar daily mass emissions of oxides of nitrogen (NOx) calculated as NO2, in pounds;

g. Calendar monthly mass emissions of oxides of nitrogen (NOx) calculated as NO2, in pounds;
h. Rolling four-unit-operating-hour average concentration of oxides of nitrogen (NOx) in parts per million (ppmvd) corrected to 15% oxygen;
i. Rolling four-unit-operating-hour average emission rate of oxides of nitrogen (NOx), calculated as NO2, in pounds per megawatt-hour (lb/MWh);
j. Calendar quarter, calendar year, and rolling 12-calendar-month period mass emissions of oxides of nitrogen (NOx) calculated as NO2, in tons;
k. Cumulative mass emissions of carbon monoxide (CO) in each tuning operation, and startup and shutdown period, in pounds;
l. Clock-hourly mass emissions of carbon monoxide (CO), in pounds;
m. Calendar-daily mass emission of carbon monoxide (CO), in pounds;
n. Calendar-monthly mass emission of carbon monoxide (CO), in pounds;
o. Rolling 12-calendar-month period mass emission of carbon monoxide (CO), in tons;
p. Average concentration of oxides of nitrogen (NOx) and carbon monoxide (CO) in parts per million (ppmvd) both uncorrected and corrected to 15% oxygen during each unit operating minute; and
q. Average emission rate in pounds per hour of oxides of nitrogen (NOx) calculated as NO2 and carbon monoxide (CO) during each unit operating minute.
[Rules 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

55. The oxides of nitrogen (NOx) and oxygen (O2) components of the CEMS shall be certified and maintained in accordance with applicable federal regulations including the requirements of §§ 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) component of the CEMS shall be certified and maintained in accordance with District Rule 19, 40 CFR 60, appendices B and F and the CEMS Protocol approved by the District. (District Rules 69.3.1, 20.3 (d)(1); 40 CFR 60 Subpart KKKK; 40 CFR 60, appendices B and F; 40 CFR Part 75)

56. The CEMS shall be in operation in accordance with the District-approved CEMS Protocol at all times when the turbine is in operation. A copy of the District-approved CEMS Protocol shall be maintained on site and made available to District personnel upon request. (District Rules 69.3.1, and 20.3(d)(1); 40 CFR 60 Subpart KKKK; 40 CFR Part 75)

57. When the CEMS is not recording data and the combustion turbine is operating, hourly NOx emissions for purposes of calendar year and rolling 12-calendar-month period emission calculations shall be determined in accordance with 40 CFR 75 Subpart C. Additionally, hourly CO emissions for rolling 12-calendar-month period 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. [Rules 20.3(d)(3) and 21 and 40 CFR Part 75]

58. 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. (CA Health and Safety Code, Division 26, Part 4, Chapter 5 § 42706)

59. The CEMS shall be maintained and operated, and reports submitted, in accordance with the requirements of Rule 19.2 Sections (D), (E), (F)(2), (F)(3), (F)(4) and (F)(5) and CEMS Protocol approved by the District. [Rule 19.2]

60. Except for changes that are specified in the initial approved CEMS 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) calendar days prior to any planned changes made in the CEMS or Data Acquisition and Handling System (DAHS), including, but not limited to, 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 and any planned changes to the software that controls the ammonia flow to the SCR. Unplanned or emergency changes shall be reported within 96 hours. [Rules 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

61. Copies of the approved CEMS protocol and the District's written approval shall be maintained on site and made

available to District personnel upon request.

62. Fuel flowmeters shall be installed and maintained to measure the fuel flow rate, corrected for temperature and pressure, to each combustion turbine. Correction factors and constants shall be maintained on site and made available to the District upon request. The fuel flowmeters shall meet the applicable quality assurance requirements of 40 CFR Part 75, Appendix D, Section 2.1.6. [Rules 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

63. Each combustion turbine shall be equipped with continuous monitors to measure, calculate, and record unit operating days, hours, and minutes and the following operational characteristics:

    a. Date and time;
    b. Natural gas flow rate to the combustion turbine during each unit operating minute, in standard cubic feet per minute;
    c. Total heat input to the combustion turbine based the fuels higher heating value during each unit operating minute, in million British thermal units per hour (MMBtu/hr);
    d. Higher heating value of the fuel on an hourly basis, in British thermal units per standard cubic foot (Btu/scf);
    e. Gross electrical power output during each unit operating minute in megawatts (MW); and
    f. Water injection rate in gallons per minute (gpm) or pounds per hour (lb/hr).

    The values of these operational characteristics shall be recorded at least once each unit operating minute. The monitors shall be installed, calibrated, maintained, and operated in accordance with a turbine operation monitoring protocol, which may be part of the CEMS Protocol and which shall include any relevant calculation methodologies, which is approved, in advance, in writing, by the District. The monitors shall be in full operation at all times when the combustion turbine is in operation. Calibration records for the continuous monitors shall be maintained on site and made available to the District upon request. [Rules 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

64. Operating logs or Data Acquisition and Handling System (DAHS) records shall be maintained to record the beginning and end times and durations of all tuning periods, and startup and shutdown periods to the nearest minute, quantity of fuel used in each clock minute, clock hour, calendar month, and 12-calendar-month period in standard cubic feet; hours of operation each day; and hours of operation during each calendar year. For purposes of this condition, the hours of turbine operation is defined as the total minutes the turbine is combusting fuel during the calendar year divided by 60 rounded to the nearest hundredth of an hour. [Rules 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

65. The permittee shall file semiannual reports in accordance with 40 CFR § 60.4375. (40 CFR 60 Subpart KKKK § 60.4375(a))

66. Each semiannual report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31. Each such semiannual compliance report shall be postmarked or delivered no later than January 30 or July 30, whichever date is the first date following the end of the semiannual reporting period. (40 CFR 60 Subpart KKKK; Rule 21)

67. All semiannual compliance reports shall be submitted to the District Compliance Division. (40 CFR § 60.7)

68. Access, facilities, utilities and any necessary safety equipment for source testing and inspection shall be provided upon request of the Air Pollution Control District.

69. This Air Pollution Control District Permit does not relieve the holder from obtaining permits or authorizations required by other governmental agencies.

70. The permittee shall, upon determination of applicability and written notification by the District, comply with all applicable requirements of the Air Toxics "Hot Spots" Information and Assessment Act (California Health and Safety Code Section 44300 et seq.)

San Diego County Air Pollution Control District

COUNTY OF SAN DIEGO, AIR POLLUTION CONTROL DISTRICT
10124 OLD GROVE ROAD, SAN DIEGO, CA 92131
PHONE (858) 586-2600 Fax (858) 586-2601
www.sdapcd.org

Sectors: 5, S
Site Record ID: APCD2010-SITE-00471
Application Record ID: APCD2018-APP-005536

Startup Authorization Expires:
No Date Entered

This authorization is for temporary operation of the above-specified equipment. This temporary Permit to Operate will remain in effect, unless withdrawn or modified by the District or a Permit to Operate is granted or denied.

This Startup Authorization shall be posted on or within 25 feet of the described equipment or maintained readily available at all times on the operating premises.

This Startup Authorization does not relieve the holder from obtaining permits or authorizations, which may be required by other governmental agencies.This Startup Authorization is not an authorization to exceed any applicable emission standard established by this District or any other governmental agency. This authorization is subject to cancellation if any emission standard or condition is violated.

Within 30 days after receipt of this Startup Authorization, the applicant may petition the Hearing Board for a hearing on any conditions imposed herein in accordance with Rule 25.

This Startup Authorization will expire on No Date Entered, unless an extension is granted in writing.

If you have any questions regarding this action, please contact me at 858-997-5469 or via email at jim.swaney@sdapcd.org.

Jim Swaney

Senior Engineer

CC: Compliance Division