

**PROPOSED RULE 1179.1 NOX EMISSION REDUCTIONS FROM
COMBUSTION EQUIPMENT AT PUBLICLY
OWNED TREATMENT WORKS FACILITIES**

(a) Purpose

The purpose of this rule is to reduce emissions of Oxides of Nitrogen (NO_x) and Carbon Monoxide (CO) from boilers and turbines, and emissions of NO_x, CO, and Volatile Organic Compounds (VOCs) from engines, located at publicly owned treatment works (POTW) facilities.

(b) Applicability

This rule applies to the following equipment located at a POTW facility:

- (1) Boilers, steam generators and process heaters over 400,000 Btu/hr fueled by digester gas or a digester gas blend;
- (2) Turbines less than 0.3 MW fueled by digester gas or a digester gas blend and turbines greater than or equal to 0.3 MW fueled by natural gas, digester gas, or a digester gas blend; and
- (3) Engines over 50 rated brake horsepower fueled by digester gas or a digester gas blend.

(c) Definitions

- (1) ANNUAL HEAT INPUT is the total heat input to a unit during a calendar year.
- (2) BOILER or STEAM GENERATOR is any combustion equipment fired with a liquid or gaseous fuel and used to produce steam or to heat water, and that is not used exclusively to produce electricity for sale. Boiler or Steam Generator does not include any open heated tank, adsorption chiller unit, or waste heat combustion turbine or any unfired waste heat recovery boiler that is used to recover sensible heat from the exhaust of any combustion equipment.
- (3) COMBINED CYCLE TURBINE is a turbine that recovers heat from the gas turbine exhaust.
- (4) CONTINUOUS EMISSION MONITORING SYSTEM (CEMS) is the total combined unit and systems required to continuously determine air contaminants and diluent gas concentrations and/or mass emission rate of a

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source effluent (as applicable). The CEMS consist of three major subsystems: sampling interface, analyzer and data acquisition system.

- (5) **DIGESTER GAS** is gas that is produced by anaerobic decomposition of organic material.
- (6) **ENGINE** is any internal combustion equipment that is spark- or compression ignited and burns liquid and/or gaseous fuel to create heat that move pistons to do work.
- (7) **LEAN-BURN ENGINE** is an engine that operates with high levels of excess air and an exhaust oxygen concentration of greater than 4 percent.
- (8) **NATURAL GAS** is a mixture of gaseous hydrocarbons, with at least 80 percent methane by volume, and of pipeline quality, such as the gas sold or distributed by any utility company regulated by the California Public Utilities Commission.
- (9) **OXIDES OF NITROGEN (NO_x) EMISSIONS** is the sum of nitric oxides and nitrogen dioxides emitted, collectively expressed as nitrogen dioxide emissions.
- (10) **POST-COMBUSTION CONTROL** is any air pollution control equipment which eliminates, reduces, or controls the issuance of air contaminants after combustion.
- (11) **PROTOCOL** is the written documentation of source test procedures which includes; specified test conditions, test methods, specifications for test equipment, data collection/reporting, and quality assurance procedures.
- (12) **PUBLICLY OWNED TREATMENT WORKS FACILITY OR POTW FACILITY** is a wastewater treatment or reclamation plant owned or operated by a public entity, including all operations within the boundaries of the wastewater or sludge treatment plant.
- (13) **RATED BRAKE HORSEPOWER (bhp)** is the rating specified by the manufacturer, without regard to any derating, and listed on the engine nameplate.
- (14) **RATING OF A TURBINE** is the continuous MW (megawatt) rating or mechanical equivalent by a manufacturer for a turbine without including the increase in the turbine shaft output and/or the decrease in turbine fuel consumption by the addition of energy recovered from exhaust heat.
- (15) **RICH-BURN ENGINE** is an engine designed to operate near stoichiometric conditions.

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- (16) SELECTIVE CATALYTIC REDUCTION (SCR) is a post-combustion control that reduces NOx with catalyst and a reducing agent.
 - (17) SHUTDOWN is the time period that begins when an operator with the intent to shut down a unit reduces load and which ends in a period of zero fuel flow, unless otherwise defined in the South Coast AQMD permit to operate.
 - (18) SIMPLE CYCLE TURBINE is a turbine that does not recover heat from the combustion turbine exhaust gases to heat water or generate steam.
 - (19) STARTUP is the time period that begins when a unit combusts fuel after a period of zero fuel flow and which ends when the unit reaches stable operating conditions. Startup includes the commissioning of a new engine.
 - (20) TUNING is adjusting, optimizing, rebalancing, or other similar operations to a unit or an associated control device or otherwise as defined in the South Coast AQMD permit to operate. Tuning does not include normal operations to meet load fluctuations.
 - (21) TURBINE is any internal combustion equipment that burns liquid and/or gaseous fuel to create hot gas that expands to move a rotor assembly, with vanes or blades, to do work.
 - (22) UNIT is a boiler, turbine, or engine subject to this rule.
- (d) Emission Limits
- (1) On and after the compliance date specified in Table 1, an owner or operator shall not operate a unit in a manner that discharges NOx, CO, or VOC into the atmosphere in excess of the limits specified in Table 1, excluding start-up and shutdown periods as specified pursuant to paragraph (d)(4). Compliance shall be demonstrated with a source test conducted pursuant to subdivision (e), CEMS under subdivision (f), or a diagnostic emission check conducted pursuant to subdivision (h), if required.

TABLE 1				
CONCENTRATION LIMITS				
BOILERS, STEAM GENERATORS, AND PROCESS HEATERS				
FIRED ON DIGESTER GAS OR DIGESTER GAS BLEND				
EQUIPMENT CATEGORY	NOx (ppm) ¹	CO (ppm) ¹	VOC (ppm)	COMPLIANCE DATE
Rated heat input capacity > 2 MMBtu/hr	15	400	N/A	On or before [<i>Date of Adoption</i>]

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Rated heat input capacity ≤ 2 MMBtu/hr	30			On or before [<i>Date of Adoption</i>]
TURBINES FIRED ON DIGESTER GAS, DIGESTER GAS BLEND, OR NATURAL GAS				
EQUIPMENT CATEGORY	NO _x (ppm) ²	CO (ppm) ²	VOC (ppm)	COMPLIANCE DATE
Rating ≥ 0.3 MW firing 40% natural gas or less	18.8	130	N/A	On or before [<i>Date of Adoption</i>]
Simple cycle with rating ≥ 0.3 MW firing more than 40% natural gas	5			On or before [<i>Date of Adoption</i>]
Combined cycle with rating ≥ 0.3 MW firing more than 40% natural gas	2			On or before [<i>Date of Adoption</i>]
Rating < 0.3 MW firing digester gas or digester gas with natural gas	9			On or before [<i>Date of Adoption</i>]
ENGINES FIRED ON DIGESTER GAS OR DIGESTER GAS BLEND				
EQUIPMENT CATEGORY	NO _x (ppm) ²	CO (ppm) ²	VOC (ppm) ³	COMPLIANCE DATE
Engines > 50 bhp	11	250	30	On or before [<i>Date of Adoption</i>]

¹ All parts per million (ppm) emission limits are referenced at 3% volume stack gas oxygen on a dry basis.

² All parts per million (ppm) emission limits are referenced at 15% volume stack gas oxygen on a dry basis.

³ Parts per million (ppm) by volume, measured as carbon, corrected to 15% oxygen on a dry basis.

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- (2) An owner or operator of a boiler firing digester gas and natural gas simultaneously shall comply with the digester gas emission limit specified in Table 1 when firing 10% natural gas or less. The natural gas percentage shall be calculated with the monthly natural gas and digester gas usage in the boiler, based on the higher heating values of the two fuels. If more than 10% natural gas is used, an owner or operator shall comply with the natural gas emission limits in Rule 1146 and Rule 1146.1, or a weighted average emission limit calculated by Equation 1 provided a non-resettable totalizing fuel flow meter is installed to measure the flow of each fuel used as approved by the Executive Officer.

$$\text{Weighted Average Limit} = \frac{(CL_A \times Q_A) + (CL_B \times Q_B)}{Q_A + Q_B} \quad (\text{Equation 1})$$

Where: CL_A = compliance limit for digester gas
 Q_A = heat input from digester gas
 CL_B = compliance limit for natural gas pursuant to Rule 1146 and Rule 1146.1
 Q_B = heat input from natural gas

- (3) Averaging Times for Units with CEMS
- (A) An owner or operator of a boiler shall meet the emission limits specified in Table 1 and paragraph (d)(2), if applicable, averaged over a fixed interval of 1 hour.
- (B) An owner or operator of a turbine shall meet emission limits specified in Table 1 averaged over a rolling period of 1 hour.
- (C) An owner or operator of an engine shall meet the emission limits specified in Table 1 averaged over one of the following interval periods:
- (i) A fixed interval of 1 hour;
 - (ii) A fixed interval of 24 hours when meeting the emission limits at or below 11 ppmvd for NOx and 250 ppmvd for CO (if CO is selected for averaging), each corrected to 15% oxygen, with the emission limits and averaging time specified in the permit to operate for the engine that was established on or before November 1, 2019; or
 - (iii) A fixed interval of 48 hours when meeting the emission limits at or below 9.9 ppmvd for NOx and 225 ppmvd for CO (if CO

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is selected for averaging), each corrected to 15% oxygen, with emission limits and averaging time specified in the permit to operate for the engine.

(4) Startup and Shutdown

An owner or operator of a unit shall meet the following startup and shutdown requirements for that unit, if NO_x, CO, or VOC is discharged into the atmosphere in excess of the limits specified in Table 1:

- (A) An owner or operator shall not startup a boiler for a time period longer than is necessary for the proper operation of the emission control equipment. Startup or shutdown shall not exceed 6 six hours.
- (B) An owner or operator shall not startup a turbine for a time period longer than is necessary for the proper operation of the emission control equipment. Startup or shutdown shall not exceed 30 minutes for turbines without SCR and shall not exceed 1 hour for turbines with SCR.
- (C) An owner or operator of an engine shall meet the following startup and shutdown requirements:
 - (i) Startup shall not last longer than is necessary for the tuning of the engine or the proper operation of the emission control equipment. Startup or shutdown shall not exceed 30 minutes, unless the Executive Officer approves in writing a longer period, not exceeding 2 hours, and that period is specified by permit conditions;
 - (ii) Startup after an engine overhaul or major repair requiring removal of a cylinder head or for the installation or the replacement of catalytic emission control equipment shall not last longer than 4 operating hours; and
 - (iii) The commissioning of a new engine shall not exceed 150 operating hours.
 - (iv) The emission limits in Table 1 do not apply to the initial commissioning of a new engine for the period specified by permit conditions.

(5) An owner or operator of any turbine shall not burn liquid fuel.

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(e) Source Testing

An owner or operator of a unit without CEMS, or an alternative monitoring system, shall meet the following source test requirements:

- (1) An owner or operator of a unit shall conduct source tests for the following equipment and applicable pollutants in accordance with the schedule in Table 2.

TABLE 2 SOURCE TESTING SCHEDULE			
Equipment Category	Frequency	Pollutant	Required Operating Time Prior to Conducting Source Test¹
Boilers \geq 10 MMBtu/hr	Every 3 years from the date the previous source test was required	NO _x , CO	At least 250 operating hours or at least 30 days
Boilers < 10 MMBtu/hr and > 2 MMBtu/hr	Every 5 years from the date the previous source test was required		
Turbines emitting \geq 25 tons NO _x per year	Once every calendar year		None
Turbines emitting < 25 tons of NO _x per year	Every 3 years from the date the previous source test was required		
Engines	Every 2 years from the date the previous source test was required, no later than the last day of the calendar month that the test is due, or every 8,760 operating hours, whichever occurs first. ²	NO _x , CO, and VOC reported as carbon	At least 40 operating hours or at least 1 week

¹ Time that a unit must be in operation subsequent to any tuning or servicing, unless tuning or servicing is due to an unscheduled repair.

² Frequency may be reduced once every 3 years if the engine has operated less than 2,000 hours since the last source test. If the engine has not been operated before the date a source test is due, the source test shall be conducted by the end of 7 consecutive days or

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15 cumulative days of resumed operation. An owner or operator of the engine shall keep sufficient operating records to demonstrate that it meets the requirements for extension of the source testing deadlines.

- (2) No later than 60 days prior to a scheduled source test date, an owner or operator shall submit a source test protocol and receive written approval by the Executive Officer before conducting the test.
 - (A) If the scheduled source test cannot be conducted due to a delay in the approval of the source test protocol by the Executive Officer, the owner or operator shall conduct the source test within 90 days of the approval.
 - (B) An owner or operator shall submit subsequent protocols if an equipment alteration has resulted in a permit modification or emission limits have changed since the last source test, or at the request of the Executive Officer.
- (3) An owner or operator shall include in the protocol the name, address and phone number of the unit operator and the South Coast AQMD-approved source testing contractor that will conduct the test, the application and permit number(s), emission limits, a description of the unit(s) to be tested, the test methods and procedures to be used, the number of tests to be conducted and under what loads.
 - (A) For engines, an owner or operator shall also include in the protocol the required minimum sampling time for the VOC test, based on the analytical detection limit and expected VOC levels, and a description of the parameters to be measured in accordance with the I&M plan.
- (4) No later than 30 days prior to conducting a source test, an owner or operator shall notify the Executive Officer of the scheduled source test date. If a scheduled source test is delayed, an owner or operator shall notify the Executive Officer within 24 hours from the time that an owner or operator knew of the delay and provide a rescheduled date.
- (5) An owner or operator shall conduct the source testing using a South Coast AQMD approved contractor under the Laboratory Approval Program according to the procedures in Table 3.

TABLE 3	
SOURCE TESTING METHODS	
Pollutant	Test Methods

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NO _x	South Coast AQMD Test Methods 100.1 or 7.1
CO	South Coast AQMD Test Methods 100.1 or 10.1, or EPA Test Method 10
CO ₂ and O ₂	South Coast AQMD Test Method 3.1 or 100.1
VOC	South Coast AQMD Test Methods 25.1 or 25.3, excluding ethane and methane
Particulate Matter (PM)	South Coast AQMD Test Method 5.1, 5.2, or 5.3

- (6) The approved contractor conducting the source test shall make emissions determinations in the as-found operating condition, except no compliance determination shall be made during startup, shutdown, or under breakdown conditions.
 - (A) For engines, the approved contractor shall conduct source testing for at least 30 minutes during normal operation (actual duty cycle). This test shall not be conducted under a steady-state condition unless it is the normal operation. In addition, the approved contractor shall conduct source testing for NO_x and CO emissions for at least 15 minutes at: an engine's actual peak load, or the maximum load that can be practically achieved during the test; and at actual minimum load, excluding idle, or the minimum load that can be practically achieved during the test. These additional two tests are not required if the permit limits the engine to operating at one defined load, ± 10 percent. The approved contractor shall not conduct any pre-tests for compliance. If an emission exceedance is found during any of the three phases of the test, that phase shall be completed and reported. An operator shall correct the exceedance, and the source test shall be immediately resumed.
- (7) An owner or operator shall submit the completed source test to the Executive Officer within 60 days of completion.
- (8) In lieu of conducting a source test, an owner or operator of boilers shall conduct periodic monitoring or testing as required in a Title V permit pursuant to Regulation XXX.

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(f) CEMS

An owner or operator of the following equipment shall install, operate, and maintain in calibration a CEMS, or an equivalent verification system, that complies with Rules 218 and 218.1, or any applicable South Coast AQMD Rule for CEMS certification, operation, monitoring, reporting, and notification.

TABLE 4 UNITS REQUIRING CEMS		
Equipment Type	Threshold	Pollutant(s)
Boilers	Rated heat input capacity > 40 MMBtu/hr and an annual heat input > 200 x 10 ⁹ Btu per year	NO _x
Turbines	Output capacity rating ≥ 2.9 MW	NO _x
Engines	Output capacity rating ≥ 1000 bhp and operating more than 2 million bhp-hr per calendar year	NO _x , CO
	Combined output capacity rating ≥ 1500 bhp and a combined fuel usage of >16 x 10 ⁹ Btu per year (higher heating value) of engines at the same location ¹	

¹ Engines as of October 1, 2007, located within 75 feet of another engine (measured from engine block to engine block) are considered at the same location.

- (1) For turbines, the CEMS shall measure the flowrate of gases and the ratio of water or steam to fuel added to the combustion chamber or to the exhaust for the reduction of NO_x emissions, elapsed time of operation, and turbine output in MW.
- (2) Engines
 - (A) A CO CEMS shall not be required for lean-burn engines.
 - (B) The following engines shall not be counted towards the combined rating of 1500 bhp or greater and combined fuel usage of more than 16 x 10⁹ Btu per year (higher heating value) of engines at the same location:
 - (i) Engines rated at less than 500 bhp;
 - (ii) Standby engines that are limited by permit conditions to only operate when other primary engines are not operable;

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- (iii) Engines that are limited by and in compliance with permit conditions to operate less than 1000 hours per year or a fuel usage of less than 8×10^9 Btu per year (higher heating value of all fuels used);
 - (iv) Engines with an output capacity rating ≥ 1000 bhp and operating more than 2 million bhp-hr per calendar year required to have a CEMS; and
 - (v) Engines in compliance with permit conditions that limit the simultaneous use of the engines at the same location in a manner to limit the combined rating of all engines in simultaneous operation to less than 1500 bhp.
- (C) In lieu of complying with the requirements in Table 4, an owner or operator of an engine 1000 bhp and greater and less than 1200 bhp, may alternatively comply with the Inspection and Monitoring (I&M) Plan requirements, pursuant to subdivision (g), provided an owner or operator conducts diagnostic emission checks at least weekly or every 150 operating hours, whichever occurs later.
 - (i) Upon written approval by the Executive Officer, an owner or operator shall implement the I&M plan as approved.
 - (ii) If the engine is found to exceed an applicable NO_x or CO limit by a source test or a diagnostic emission check on 3 or more occasions in any 12-month period, an owner or operator shall comply with the CEMS requirements and shall submit a CEMS application to the Executive Officer within 6 months of the third exceedance and obtain final approval of the CEMS within 1 year of the initial approval.
- (D) If an engine was initially exempt from CEMS by the thresholds in Table 4, and later exceeds that threshold, an owner or operator shall install CEMS on that engine. An owner or operator shall submit an application 6 months after the conclusion of the first 12-month period for which the engines exceeded 2 million bhp-hr per year, and shall obtain final approval for the CEMS within 1 year from the initial approval.
- (E) An owner or operator may take an existing NO_x CEMS out of service for up to two weeks (cumulative) in order to modify the CEMS to add CO monitoring.

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- (F) Notwithstanding the requirements of Rules 218 and 218.1, an owner or operator of an engine required to install a CEMS may:
 - (i) Store data electronically without a strip chart recorder, but there shall be redundant data storage capability for at least 15 days of data. An operator shall demonstrate that both sets of data are equivalent.
 - (ii) Conduct relative accuracy testing, as required by Rule 218.1 or 40 CFR Part 75 Subpart E, on the same schedule for source testing, as specified in Table 2, instead of annually. The minimum sampling time for each test is 15 minutes.
 - (G) An owner or operator of a new engine shall not install an engine farther than 75 feet from another engine unless the owner or operator demonstrates to the Executive Officer that operational needs or space limitations require it.
 - (H) An owner or operator of any new stationary engine issued a permit to construct after [*Date of Adoption*] shall comply with the applicable CEMS requirements of this subdivision or I&M plan requirements of subdivision (g) when operation commences. If applicable, an owner or operator shall provide the required information in the I&M plan to the Executive Officer prior to the issuance of the permit to construct so that the I&M procedures can be included. A separate I&M plan application is not required.
- (g) An owner or operator of an engine shall comply with the following requirements for submitting Inspection and Monitoring (I&M) plans:
- (1) An owner or operator of an engine without a NO_x or CO CEMS shall submit to the Executive Officer an I&M plan for approval. One plan application is required for each facility that does not have a NO_x and CO CEMS for each engine. If an engine has a NO_x CEMS and does not have a CO CEMS, it is subject to this subdivision as it pertains to CO only. The I&M plan shall include all items listed in Attachment 1. An owner or operator may request an alternative item(s) in Attachment 1 that is determined by the Executive Officer to be equivalent in meeting the same objectives.
 - (A) Upon written approval by the Executive Officer, an owner or operator shall implement the I&M plan as approved.

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- (B) An owner or operator shall submit an I&M plan for approval to the Executive Officer for a plan revision before any change in I&M plan operations can be implemented. The operator shall apply for a plan revision prior to any change in emission limits or control equipment.
 - (C) An owner or operator of an engine subject to this rule shall submit an I&M plan within 3 months from [*Date of Adoption*].
- (h) Diagnostic Emission Checks for Boilers and Engines

An owner or operator shall perform diagnostic emissions checks of NO_x and CO emissions for pollutants not monitored by a CEMS, with a portable NO_x, CO, and oxygen analyzer that is calibrated, maintained and operated in accordance with manufacturers specifications and recommendations and the South Coast AQMD Combustion Gas Periodic Monitoring Protocol for the Periodic Monitoring of Nitrogen Oxides, Carbon Monoxide, and Oxygen from Combustion Sources Subject to Rules 1110.2, 1146 and 1146.1. The portable analyzer diagnostic emission checks shall only be conducted by a person who has completed an appropriate South Coast AQMD-approved training program in the operation of portable analyzers and has received a certification issued by South Coast AQMD.

 - (1) Boilers
 - (A) For boilers greater than or equal to 5 MMBtu/hr, an owner or operator shall perform checks at least monthly or every 750 boiler operating hours, whichever occurs later. If a boiler is in compliance for 3 consecutive diagnostic emission checks, without any adjustments to the oxygen sensor set points, then the boiler may be checked quarterly or every 2,000 boiler operating hours, whichever occurs later, until the resulting diagnostic emission check exceeds the applicable limit.
 - (B) For boilers less than 5 MMBtu/hr and greater than 2 MMBtu/hr, an owner or operator shall perform checks at least quarterly or every 2,000 boiler operating hours, whichever occurs later. If a boiler is in compliance for 4 consecutive required diagnostic emission checks, without any adjustments to the oxygen sensor set points, then the boiler may be checked semi-annually or every 4,000 unit operating hours, whichever occurs later, until the diagnostic emission check exceeds the applicable limit.

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(C) A diagnostic emission check that finds the emissions in excess of those allowed by this rule or a permit condition shall not constitute a violation of this rule if an owner or operator corrects the problem and demonstrates compliance with another emission check within 72 hours from the time an owner or operator knew of excess emissions, or reasonably should have known, or shutdown the boiler by the end of an operating cycle, whichever is sooner. Any diagnostic emission check conducted by South Coast AQMD staff that finds emissions in excess of those allowed by this rule or a permit condition is a violation.

(2) Engines

An owner or operator shall perform diagnostic emission checks at least weekly or every 150 hours, whichever occurs later. No engine or control system, maintenance or tuning, may be conducted within 72 hours prior to the diagnostic emission check, unless it is an unscheduled, required repair.

(A) If an engine is in compliance for 3 consecutive diagnostic emission checks, without any adjustments to the oxygen sensor set points, then the engine may be checked monthly or every 750 engine operating hours, whichever occurs later, until there is a noncompliant diagnostic emission check or, for rich-burn engines with a catalytic control device that simultaneously reduces emissions of NO_x, CO, and VOC, until the oxygen sensor is replaced. When making adjustments to the oxygen sensor set points that are not within 72 hours prior to the diagnostic emission check, returning to a more frequent diagnostic emission check schedule is not required if the engine is in compliance with the applicable emission limits prior to and after the set point adjustments.

(B) For lean-burn engines that have a NO_x CEMS, and that are subject to a CO limit more stringent than the 2000 ppmvd limit of Table 1, an owner or operator shall perform a CO diagnostic emission check at least quarterly, or every 2,000 engine operating hours, whichever occurs later.

(C) For lean-burn engines that have a NO_x CEMS and that are not subject to a CO limit more stringent than the 2000 ppmvd limit of Table 1, diagnostic emission checks are not required.

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- (D) A diagnostic emission check that finds the emissions in excess of those allowed by this rule or a permit condition shall meet the requirements in subparagraph (k)(1)(A).
- (i) Recordkeeping

An owner or operator shall keep all data monitoring records, including CEMS, source tests, and diagnostic emission checks, and all maintenance, service and tuning records on-site for 5 years. Records shall be made available to the Executive Officer upon request.

 - (1) Boilers
 - (A) An owner or operator shall maintain a daily operating log of the total hours of operation.
 - (B) An owner or operator of a boiler and using a weighted average emission limit as specified in paragraph (d)(2) shall maintain an operating log of the non-resettable totalizing fuel meter readings of digester gas and natural gas (cubic feet of gas). Records shall include the percentage of digester gas and natural gas usage, based on the higher heating value of the fuels used, on a monthly basis.
 - (2) Turbines
 - (A) An owner or operator shall maintain an operating log that includes total hours of operation, type of fuel used, fuel consumption (cubic feet of gas), cumulative hours of operation to date for the calendar year, and the actual start-up and shut-down times on a daily basis.
 - (B) For emission control systems used to comply with this rule, an owner or operator shall maintain daily records of system operation and maintenance that demonstrates continuous operation and compliance of an emission control device during periods of emission producing activities.
 - (3) An owner or operator of any engine shall maintain a monthly operating log that includes total hours of operation, type of fuel used, fuel consumption (cubic feet of gas), and cumulative hours of operation since the last source test.
- (j) Other Requirements for Boilers
 - (1) An owner or operator shall not lower the rated heat input capacity of a boiler to less than or equal to 2 MMBtu/hr. The lowered rated heat input capacity

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shall be based on manufacturer's identification or rating plate or permit condition.

- (2) Boilers \leq 2 MMBtu/hr
 - (A) An owner or operator shall perform maintenance in accordance with the manufacturer's schedule and specifications as identified in a manual and other written materials supplied by the manufacturer or distributor. The owner or operator shall maintain on site a copy of the manufacturer's and/or distributor's written instructions and retain a record of the maintenance activity for a period of 3 years.
 - (B) An owner or operator shall maintain on site a copy of all documents identifying the boiler's rated heat input capacity. The rated heat input capacity shall be identified by a manufacturer's or distributor's manual or invoice. The documentation of rated heat input capacity for modified boilers shall include a description of all modifications, the dates the boiler was modified and calculation of rated heat input capacity. All documentation shall be signed by the licensed person modifying the boiler.
 - (i) If a boiler is modified, the rated heat input capacity is the gross heat input, calculated by the maximum fuel input corrected for fuel heat content, temperature, and pressure.
- (k) Other Requirements for Engines
 - (1) Requirements for responding to, diagnosing and correcting breakdowns, faults, malfunctions, alarms, diagnostic emission checks finding emissions in excess of rule or permit limits, and parameters out-of-range.
 - (A) For any diagnostic emission check or breakdown that results in emissions in excess of those allowed by this rule or a permit condition, an owner or operator shall correct the problem as soon as possible and demonstrate compliance with another diagnostic emission check, or shutdown an engine by the end of an operating cycle, or within 24 hours from the time the owner or operator knew of the breakdown or excess emissions, or reasonably should have known, whichever is sooner.

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- (B) For excess emissions due to breakdowns that result in NOx or CO emissions greater than the concentrations specified in Table 5, an owner or operator shall not be considered in violation of this rule if the operator demonstrates the all of the following: (1) compliance with subparagraph (k)(1)(A), (2) compliance with the reporting requirements of paragraph (k)(3), and (3) the engine with excess emissions has no more than 3 incidences of breakdowns with emissions exceeding Table 5 limits in the calendar quarter.

TABLE 5		
EXCESS EMISSION CONCENTRATION THRESHOLDS FOR BREAKDOWNS		
Equipment Category	NOx (ppmvd) ¹	CO (ppmvd) ¹
Lean-Burn Engines	45	250
Rich-Burn Engines	150	2000
Biogas Engines ²	185	2000

¹ Corrected to 15% oxygen

² Effective up to the time of compliance with the limits specified in Table 1, after which the thresholds revert to the applicable lean- or rich-burn engine limits.

- (C) Any emission check conducted by South Coast AQMD staff that finds excess emissions will be treated as a violation.
 - (D) For other problems, such as parameters out-of-range, an owner or operator shall correct the problem and demonstrate compliance with another diagnostic emission check within 48 hours of the owner or operator first knowing of the problem.
- (2) An owner or operator shall maintain an operational non-resettable totalizing time meter to determine the engine elapsed operating time.
 - (3) An owner or operator of a spark-ignited engine without a Rule 218-approved CEMS shall maintain the air-to-fuel ratio controller and oxygen sensor and feedback control system, or other equivalent technology approved by the Executive Officer, CARB, and EPA.
 - (4) Reporting Requirements
 - (A) An owner or operator shall report to the Executive Officer, by telephone (1-800-CUT-SMOG or 1-800-288-7664) or other South

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Coast AQMD-approved method, any breakdown resulting in emissions in excess of rule or permit emission limits within 1 hour of such noncompliance or within 1 hour of the time the owner or operator knew or reasonably should have known of its occurrence. Such report shall identify the time, specific location, equipment involved, responsible party to contact for further information, and to the extent known, the causes of the noncompliance, and the estimated time for repairs. In the case of emergencies that prevent a person from reporting all required information within the 1-hour limit, the Executive Officer may extend the time for the reporting of required information provided the owner or operator has notified the Executive Officer of the noncompliance within the 1-hour limit.

- (B) Within 7 calendar days after the reported breakdown has been corrected, but no later than 30 calendar days from the initial date of the breakdown, unless an extension has been approved in writing by the Executive Officer, an owner or operator shall submit a written breakdown report to the Executive Officer which includes:
- (i) An identification of the equipment involved in causing, or suspected of having caused, or having been affected by the breakdown;
 - (ii) The duration of the breakdown;
 - (iii) The date of correction and information demonstrating that compliance is achieved;
 - (iv) An identification of the types of excess emissions, if any, resulting from the breakdown;
 - (v) A quantification of the excess emissions, if any, resulting from the breakdown and the basis used to quantify the emissions;
 - (vi) Information substantiating whether the breakdown resulted from operator error, neglect or improper operation or maintenance procedures;
 - (vii) Information substantiating that steps were immediately taken to correct the condition causing the breakdown, and to minimize the emissions, if any, resulting from the breakdown;
 - (viii) A description of the corrective measures undertaken and/or to be undertaken to avoid such a breakdown in the future; and

Proposed Rule 1179.1 (Cont.)

- (ix) Pictures of any equipment which failed, if available.
 - (C) Within 15 days of the end of each calendar quarter, an owner or operator shall submit to the Executive Officer a report that lists each occurrence of a breakdown, fault, malfunction, alarm, engine or control system operating parameter out of the acceptable range established by an I&M plan or permit condition, or a diagnostic emission check that finds excess emissions. Such report shall be in a South Coast AQMD-approved format, and for each incident shall identify the time of the incident, the time the operator learned of the incident, specific location, equipment involved, responsible party to contact for further information, to the extent known the causes of the event, the time and description of corrective actions, including shutting an engine down, and the results of all portable analyzer NO_x and CO emissions checks done before or after the corrective actions. An owner or operator shall also report if no incidents occurred.
- (1) Exemptions
- (1) The emission limits in Table 1 of this rule do not apply to any boiler 5 MMBtu/hr or greater in operation prior to September 5, 2008 with an annual heat input of less than or equal to 9.0×10^9 Btu per year. An owner or operator of such boiler shall comply with the applicable provisions in Rule 1146 – Emissions of Oxides of Nitrogen from Industrial, Institutional and Commercial Boilers, Steam Generators, and Process Heaters.
 - (2) An owner or operator of any turbine ≥ 0.3 MW claiming any of the following exemptions shall provide verification of meeting the applicable criteria. All records shall be kept on-site for 5 years and made available to South Coast AQMD staff upon request.
 - (A) The provisions of this rule shall not apply to turbines operated exclusively for firefighting and/or flood control.
 - (B) A turbine that operates only as a power source for a facility when the primary power source has been rendered inoperable, except it may not be used for power interruption pursuant to an interruptible power supply agreement, shall not be subject to the provisions of this rule, provided that an owner or operator:
 - (i) Installs and maintains in proper operation a non-resettable engine hour meter;

Proposed Rule 1179.1 (Cont.)

- (ii) Maintains an operating log that includes, on a daily basis, the total hours of operation, type and quantity of fuel used, cumulative hours of operation to date for the calendar year, and the actual startup and shutdown times; and
 - (iii) Demonstrates a usage of less than 200 hours of operation per calendar year.
 - (C) If the hour-per-year limit in clause (1)(2)(B)(iii) is exceeded, the exemption shall be automatically and permanently withdrawn, and the owner or operator shall:
 - (i) Notify the Executive Officer within 7 days of the date the hour-per-year limit is exceeded; and
 - (ii) Within 30 days after the date the hour-per-year limit is exceeded, submit a permit application for modification to equipment to meet the applicable compliance limit within 24 months of the date the hour-per-year limit is exceeded. Included with this permit application, an owner or operator shall submit an emission control plan including a schedule of increments of progress for the installation of the required control equipment. This plan shall be subject to the review and approval of the Executive Officer.
- (3) An owner or operator of a boiler or engine firing 100 percent natural gas, shall comply with the following rules:
 - (A) For boilers, Rule 1146 – Emissions of Oxides of Nitrogen from Industrial, Institutional and Commercial Boilers, Steam Generators, and Process Heaters, Rule 1146.1 – Emissions of Oxides of Nitrogen from Small Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters, and Rule 1146.2 – Emission of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters.
 - (B) For engines, Rule 1110.2 – Emission from Gaseous- and Liquid-Fueled Engines
- (4) This rule does not apply to engines that operate 200 hours or less per year provided that an owner or operator:
 - (A) Installs and maintains in proper operation a non-resettable engine hour meter; and

Proposed Rule 1179.1 (Cont.)

- (B) Maintains an operating log that includes cumulative hours of operation to date for the calendar year.
- (5) This rule does not apply to any turbine < 0.3 MW that was in operation prior to May 3, 2013.
- (6) The emission limits in Table 1 do not apply to any boiler \leq 2 MMBtu/hr without a NO_x concentration limitation specified in the permit.

ATTACHMENT 1

An I&M Plan submitted to the Executive Officer for approval and implementation shall include:

- A. Identification of engine and control equipment operating parameters necessary to maintain pollutant concentrations within the rule and permit limits. This shall include, but not be limited to:
1. Procedures for using a portable NO_x, CO and oxygen analyzer to establish the set points of the air-to-fuel ratio controller (AFRC) at 25%, 60% and 95% load (or fuel flow rate), $\pm 5\%$, or the minimum, midpoint and maximum loads that actually occur during normal operation, $\pm 5\%$, or at any one load within the $\pm 10\%$ range that an engine permit is limited to in accordance with (h)(2)(C)(ii) of the rule;
 2. Procedures for verifying that the AFRC is controlling the engine to the set point during the daily monitoring required by subdivision D of this attachment;
 3. Procedures for reestablishing all AFRC set points with a portable NO_x, CO and oxygen analyzer whenever a set point must be readjusted, within 24 hours of an oxygen sensor replacement, and, for rich-burn engines with a catalytic control device that simultaneously reduces emissions of NO_x, CO, and VOC, between 100 and 150 engine operating hours after an oxygen sensor replacement;
 4. For engines with catalysts, the maximum allowed exhaust temperature at the catalyst inlet, based on catalyst manufacturer specifications;
 5. For lean-burn engines with SCR, the minimum exhaust temperature at the catalyst inlet required for reactant flow (ammonia or urea), and procedures for using portable NO_x and oxygen analyzer to establish the acceptable range of reactant flow rate, as a function of load.

Parameter monitoring is not required for diesel engines without exhaust gas recirculation and catalytic exhaust control devices.

Proposed Rule 1179.1 (Cont.)

- B. Procedures for alerting the operator to emission control malfunctions. Engine control systems, such as air-to-fuel ratio controllers, shall have a malfunction indicator light and audible alarm.
- C. Procedures for diagnostic emission checks conducted by a portable NO_x, CO, and oxygen analyzer per the requirements of clause (h)(2)(D)(ii) of the rule.
- D. Procedures for at least daily monitoring, inspection and recordkeeping of:
 - 1. engine load or fuel flow rate;
 - 2. the set point, maximums and acceptable ranges of the parameters identified by subdivision A of this attachment, and the actual values of the same parameters;
 - 3. the engine elapsed time meter operating hours;
 - 4. the operating hours since the last diagnostic emission check required by clause (h)(2)(D)(ii) of the rule;
 - 5. for rich-burn engines with three-way catalysts, the difference of the exhaust temperatures (ΔT) at the inlet and outlet of the catalyst (changes in the ΔT can indicate changes in the effectiveness of the catalyst);
 - 6. engine control system and AFRC system faults or alarms that affect emissions.

The daily monitoring and recordkeeping may be done in person by the operator, or by remote monitoring.

- E. Procedures for responding to, diagnosing and correcting breakdowns, faults, malfunctions, alarms, diagnostic emission checks finding emissions in excess of rule or permit limits, and parameters out-of-range, per the requirements of clause (h)(2)(D)(iii) of the rule.
- F. Procedures and schedules for preventative and corrective maintenance.
- G. Procedures for reporting noncompliance to the Executive Officer in accordance with subparagraph (h)(2)(H) of the rule.
- H. Procedures and format for the recordkeeping of monitoring and other actions required by the plan.