

**REGULATION 9
INORGANIC GASEOUS POLLUTANTS
RULE 8
NITROGEN OXIDES AND CARBON MONOXIDE
FROM STATIONARY INTERNAL COMBUSTION ENGINES**

INDEX

9-8-100 GENERAL

- 9-8-101 Description
- 9-8-110 Exemptions
- 9-8-111 Limited Exemption for Low Usage
- 9-8-112 Registered Portable Equipment

9-8-200 DEFINITIONS

- 9-8-201 Gaseous Fuels
- 9-8-202 Nitrogen Oxide Emissions
- 9-8-203 Rated Brake Horsepower
- 9-8-204 Stationary Internal Combustion Engine
- 9-8-205 Rich-Burn Engine
- 9-8-206 Lean-Burn Engine
- 9-8-230 Emergency Standby Engine
- 9-8-231 Emergency Use
- 9-8-232 Reliability-related Activities
- 9-8-233 Essential Public Service
- 9-8-234 Best Available Control Technology (BACT)
- 9-8-235 Dual-Fueled Pilot Compression-Ignited Engines
- 9-8-236 Portable
- 9-8-237 Unforeseeable

9-8-300 STANDARDS

- 9-8-301 Emission Limits – Spark-Ignited Engines Powered by Fossil Derived Fuels Gas
- 9-8-302 Emission Limits – Spark-Ignited Engines Powered by Waste Derived Fuels Gas
- 9-8-303 Emissions Limits – Delayed Compliance, Existing Spark-Ignited Engines, 51 to 250
bhp or Model Year 1996 or Later
- 9-8-304 Emission Limits – Compression-Ignited Engines
- 9-8-305 Emission Limits – Delayed Compliance, Existing Compression-Ignited Engines,
Model Year 1996 or Later
- 9-8-306 Emission Limits for Dual-Fueled Compression-Ignited Engines
- 9-8-330 Emergency Standby Engines, Hours of Operation
- 9-8-331 Essential Public Service, Hours of Operation

9-8-400 ADMINISTRATIVE REQUIREMENTS

- 9-8-401 Compliance Schedule
- 9-8-402 Reporting Requirements for Delayed Compliance

9-8-500 MONITORING AND RECORDS

- 9-8-501 Initial Demonstration of Compliance
- 9-8-502 Recordkeeping
- 9-8-503 Quarterly Demonstration of Compliance

9-8-530 Emergency Standby and Low Usage Engines, Monitoring and Recordkeeping

9-8-600 MANUAL OF PROCEDURES

9-8-601 Determination of Nitrogen Oxides

9-8-602 Determination of Carbon Monoxide and Stack Gas Oxygen

REGULATION 9
INORGANIC GASEOUS POLLUTANTS
RULE 8
NITROGEN OXIDES AND CARBON MONOXIDE
FROM STATIONARY INTERNAL COMBUSTION ENGINES

(Adopted January 20, 1993)

9-8-100 GENERAL

9-8-101 Description: This rule limits the emissions of nitrogen oxides and carbon monoxide from stationary internal combustion engines with an output rated by the manufacturer at more than 50 brake horsepower or more.

(Amended August 1, 2001)

9-8-110 Exemptions: The requirements of Sections 9-8-301, ~~302~~, through 305, and ~~502~~ 501 through 503 shall not apply to the following:

- 110.1 Until January 1, 2012, eEngines rated by the manufacturer at less than 250 brake horsepower output rating.
- 110.2 Engines rated by the manufacturer at 50 brake horsepower output rating or less. Effective January 1, 2012.
- 110.2 Until January 1, 2012, eEngines fired exclusively by liquid fuels including, but not limited to, diesel fuel, gasoline, and methanol.
- 110.3 Engines used directly and exclusively for the growing of crops or the raising of ~~few~~ or animals.
- 110.4 Emergency standby engines.

(Amended August 1, 2001)

9-8-111 Limited Exemption for Low Usage: The requirements of Sections 9-8-301, ~~and 302, 303, 304, and 305~~ shall not apply to the following low use operations provided the requirements of Sections 9-8-502.1 and 9-8-530 are met:

- 111.1 Until January 1, 2012, eEngines rated at, or below, 1000 brake horsepower ~~which~~ that operate less than 200 hours, exclusive of any emergency use, in any 12-consecutive-month period.
- 111.2 Until January 1, 2012, eEngines rated above 1000 brake horsepower ~~which~~ that operate less than 100 hours, exclusive of any emergency use, in any 12-consecutive-month period.
- 111.3 Effective January 1, 2012, engines that operate less than 100 hours, exclusive of any emergency use, in any 12-consecutive-month period

9-8-112 Registered Portable Equipment: The requirements of this section shall not apply to an internal combustion engine registered as portable pursuant to the Statewide Portable Engine and Equipment Registration Program, Sections 2450-2465, Article 5, Title 13, California Code of Regulations.

9-8-200 DEFINITIONS

9-8-201 Gaseous Fuels: For the purposes of this rule, gaseous fuels include, but are not limited to:

- 201.1 Fossil derived fuel gas such as natural gas, methane, ethane, propane, refinery fuel gas, and butane, including gases stored as liquids such as liquified petroleum gas (LPG).
- 201.2 Waste derived fuel gas such as sewage sludge digester gas or landfill gas.

9-8-202 Nitrogen Oxide (NO_x) Emissions: The sum of nitric oxide (NO) and nitrogen dioxide (NO₂) in the engine exhaust, collectively expressed as nitrogen dioxide.

9-8-203 Rated Brake Horsepower: The maximum brake horsepower rating at maximum revolutions per minute (RPM) specified for the engine by the manufacturer or indicated on the engine nameplate.

- 9-8-204 Stationary Internal Combustion Engine (Engine):** Any spark or compression ignited internal combustion engine that is operated, or intended to be operated, at a specific site for more than one year or is attached to a foundation at that site.
- 9-8-205 Rich-Burn Engine:** Any spark or compression ignited internal combustion engine that is designed to be operated with an exhaust stream oxygen concentration of less than 4 percent, by volume. The exhaust gas oxygen content shall be determined from the uncontrolled exhaust stream.
- 9-8-206 Lean-Burn Engine:** Any spark or compression ignited internal combustion engine that is designed to be operated with an exhaust stream oxygen concentration of 4 percent, by volume, or greater. The exhaust gas oxygen content shall be determined from the uncontrolled exhaust stream.
- 9-8-230 Emergency Standby Engine:** Any engine that is exclusively operated:
230.1 For emergency use; and
230.2 For reliability-related activities.
(Adopted August 1, 2001)
- 9-8-231 Emergency Use:** The use of an emergency standby or low usage engine during any of the following:
231.1 In the event of unforeseeable loss of regular natural gas supply;
231.2 In the event of unforeseeable failure of regular electric power supply;
231.3 Mitigation or prevention of an imminent flood mitigation;
231.4 Mitigation of or prevention of an imminent overflow of sewage or waste water overflow mitigation;
231.5 Fire or prevention of an imminent fire;
231.6 Failure or imminent failure of a primary motor or source of power, but only for such time as needed to repair or replace the primary motor or source of power.
231.7 Prevention of the imminent release of hazardous material.
(Adopted August 1, 2001)
- 9-8-232 Reliability-related Activities:** Either:
232.1 Operation of an emergency standby engine to test its ability to perform for an emergency use; or
232.2 Operation of an emergency standby engine during maintenance of a primary motor.
(Adopted August 1, 2001)
- 9-8-233 Essential Public Service:**
233.1 A sewage treatment facility, and associated collection system, which is publicly owned and operated;
233.2 Water treatment and delivery operations;
233.3 Public transit;
233.4 Police or fire fighting facility;
233.5 Airport runway lights; or
233.6 Hospital or other medical emergency facility.
(Adopted August 1, 2001)
- 9-8-234 Best Available Control Technology (BACT):** As defined in Regulation 2, Rule 2, Section 2-2-206
- 9-8-235 Dual Fuel Pilot Compression-Ignited Engine:** Any dual-fueled engine that uses diesel fuel as a pilot ignition source at an annual average ratio of less than 5 parts diesel fuel to 100 parts total fuel on an energy equivalent basis.
- 9-8-236 Portable:** Designed for and capable of being carried or moved from one location to another. Indications of portability include, but are not limited to, wheels, skids, carrying handles, dolly, trailer, or platform.
- 9-8-237 Unforeseeable:** Not able to be reasonably anticipated and demonstrated by the owner or operator to the satisfaction of the APCO to have been beyond the reasonable control of the owner or operator. The enforcement of a contractual obligation the owner or operator has with a third party or any other party is foreseeable.

9-8-300 STANDARDS

9-8-301 Emission Limits - Spark-Ignited Engines Powered by Fossil Derived Fuels-Gas: Effective January 1, 1997, a person shall not operate a stationary internal combustion engine fired exclusively on fossil derived fuels-gas, unless the following emission limits are met:

- 301.1 Rich-Burn Engines: Nitrogen oxide (NO_x) emissions shall not exceed 56 ppmv as corrected to 15% oxygen, dry basis. Effective January 1, 2012, nitrogen oxide (NO_x) emissions shall not exceed 25 ppmv as corrected to 15% oxygen, dry basis.
- 301.2 Lean-Burn Engines: Nitrogen oxide (NO_x) emissions shall not exceed 140 ppmv as corrected to 15% oxygen, dry basis. Effective January 1, 2012, nitrogen oxide (NO_x) emissions shall not exceed 65 ppmv as corrected to 15% oxygen, dry basis.
- 301.3 Carbon monoxide (CO) emissions shall not exceed 2000 ppmv as corrected to 15% oxygen, dry basis.

9-8-302 Emission Limits - Spark-Ignited Engines Powered by Waste Derived Fuels-Gas: Effective January 1, 1997, a person shall not operate a spark-ignited stationary internal combustion engine fired on waste derived fuels-gas or any combination of waste- and fossil-derived gaseous fuels and liquid fuels unless the following emission limits are met:

- 302.1 Lean-Burn Engines: Nitrogen oxide (NO_x) emissions shall not exceed 140 ppmv as corrected to 15% oxygen, dry basis. Effective January 1, 2012, nitrogen oxide (NO_x) emissions shall not exceed 70 ppmv as corrected to 15% oxygen, dry basis.
- 302.2 Rich-Burn Engines: Nitrogen oxide (NO_x) emissions shall not exceed 210 ppmv as corrected to 15% oxygen, dry basis. Effective January 1, 2012, nitrogen oxide (NO_x) emissions shall not exceed 70 ppmv as corrected to 15% oxygen, dry basis.
- 302.3 Carbon monoxide (CO) emissions shall not exceed 2000 ppmv as corrected to 15% oxygen, dry basis.

9-8-303 Emissions Limits – Delayed Compliance, Existing Spark-Ignited Engines, 51 to 250 bhp or Model Year 1996 or Later: In lieu of compliance with Section 9-8-301 or 302, a person may operate a stationary internal combustion, spark-ignited engine until January 1, 2016 provided:

- 303.1 The brake horsepower rating of the engine is between 51 and 250 bhp or the model year of the engine is 1996 or later;
- 303.2 The requirements of Section 9-8-402 are met;
- 303.3 The engine complies with Best Available Control Technology requirements for a stationary internal combustion, spark-ignited engines no later than January 1, 2016.

9-8-304 Emission Limits – Compression-Ignited Engines: Effective January 1, 2012, a person shall not operate a stationary internal combustion compression-ignited engine unless one the applicable emission limit in ppmv corrected 15% oxygen, dry basis set forth below for NO_x and CO is met:

	<u>Existing Compression- Ignited Engine (bhp)</u>	<u>Emission Standards (ppmvd)</u>	
		<u>NO_x</u>	<u>CO</u>
<u>304.1</u>	<u>51 to 175</u>	<u>180</u>	<u>440</u>
<u>304.2</u>	<u>Greater than 175</u>	<u>110</u>	<u>310</u>

9-8-305 Emission Limits – Delayed Compliance, Existing Compression-Ignited Engines, Model Year 1996 or Later: In lieu of compliance with Section 9-8-304, a person may operate a stationary internal combustion compression-ignited engine of model

year 1996 or later provided the requirements of Section 9-8-402 are met and one the following conditions is met no later than January 1, 2016:

305.1 The NOx and CO emissions shall not exceed Best Available Control Technology limits for a stationary internal combustion, compression-ignited engines, or

305.2 the NOx emissions shall not exceed 22 ppmv corrected 15% oxygen, dry basis and the CO emissions shall not exceed 310 ppmv corrected 15% oxygen, dry basis.

9-8-306 Requirements for Dual Fuel Pilot Compression-Ignited Engines: Effective January 1, 2012, compression-ignited engines powered by diesel fuel and waste gas shall comply with spark-ignited waste-derived fuel emission limits in Section 9-8-302, provided the diesel fuel use does not exceed five percent on an energy basis of the total fuel consumption in any calendar year.

9-8-330 Emergency Standby Engines, Hours of Operation: A person may only operate an emergency standby engine under the following circumstances:

330.1 For emergency use for an unlimited number of hours; and

330.2 Until January 1, 2012, fFor reliability-related activities so long as total hours of operation for this purpose do not exceed 100 hours in a calendar year, or limitations contained in a District permit, whichever is lower.

330.3 Effective January 1, 2012, for reliability-related activities so long as total hours of operation for this purpose do not exceed 50 hours in a calendar year, or limitations contained in a District permit, whichever is lower.

(Adopted August 1, 2001)

9-8-331 Essential Public Service, Hours of Operation: An essential public service may only operate an emergency standby engine under the following circumstances:

331.1 For emergency use for an unlimited number of hours; and

331.2 Until January 1, 2012, fFor reliability-related activities so long as total hours of operation for this purpose do not exceed 200 hours per calendar year, or limitations contained in a District permit, whichever is lower.

331.2 Effective January 1, 2012, for reliability-related activities so long as total hours of operation for this purpose do not exceed 50 hours in a calendar year, or limitations contained in a District permit, whichever is lower.

(Adopted August 1, 2001)

9-8-400 ADMINISTRATIVE REQUIREMENTS

9-8-401 Compliance Schedule: A person subject to the requirements of Section 9-8-301, ~~or 302, 303, 304, 305 or 306~~ shall submit an application for any Authority to Construct, necessary to achieve compliance with such requirements, ~~by January 1, 1996 to, and be in compliance with all of the requirements of this rule by January 1, 1997~~ no later than one year prior to the applicable compliance date listed in Section 9-8-301, 302, 303, 304, 305 or 306.

9-8-402 Reporting Requirements for Delayed Compliance: A person opting to comply with one of the delayed compliance options set forth in Section 9-8-303 or 305 shall notify the APCO in writing no later than January 1, 2012 that the owner or operator of a stationary spark-ignited engine has elected to comply with requirements of Section 9-8-303 in lieu of Section 9-8-301 or 302, or to comply with the requirements of Section 9-8-305 in lieu of Section 9-8-304. The report shall include the following information about the engine: source number; plant number, name, contact, phone number, address; and engine make, model, model year, and size.

9-8-500 MONITORING AND RECORDS

9-8-501 Initial Demonstration of Compliance: A person who must modify existing sources or install new control equipment shall conduct a District approved source test, pursuant to Sections 9-8-601 and 602 ~~by March 31, 1997, for the purpose of demonstrating compliance with Section 9-8-301 or 302. Source test results shall be~~

submitted to the District by May 31, 1997; according to the schedule listed in the following table:

<u>Engines Operated to Comply with Section</u>	<u>Date that the Initial Source Test Must Be Completed</u>	<u>Date that the Initial Source Test Results Must Be Submitted to the District</u>
<u>9-8-301, 302, 304 or 306</u>	<u>March 31, 2012</u>	<u>May 31, 2012</u>
<u>9-8-303 or 305</u>	<u>March 31, 2016</u>	<u>May 31, 2016</u>

9-8-502 Recordkeeping: Any person who operates any engine subject to Section 9-8-300 shall comply with the following recordkeeping requirements:

502.1 Any person who operates any engines which are that is exempt from the requirements of Section 9-8-301, or 302, 303, or 304 by Section 9-8-110 or 111 shall keep records of the number of hours the engines are is fired on a monthly basis. Such records shall be retained for a minimum of 24 months from the date of entry and made available to District staff upon request.

502.2 Any person who operates a dual fuel pilot compression-ignited engines in accordance to Sections 9-8-306 shall keep records of fuel usage for each type of fuel used for a minimum of 24 months and make them available to the District staff upon request.

502.3 Any person who conducts either an initial demonstration of compliance according to Sections 9-8-501 and 9-8-601, 9-8-602, a quarterly demonstration of compliance according to Section 9-8-503, or an annual demonstration of compliance according to Sections 9-8-504 and 9-8-601 shall keep records of the compliance demonstration for a minimum of 24 months from the date of creation and made available to the District staff upon request.

502.4 Any person who operates an engine pursuant to Section 9-8-305 shall keep records verifying the certification of that engine for a minimum of 24 months.

9-8-503 Quarterly Demonstration of Compliance: Any person who must comply with Section 9-8-301, 302, 303, 304, 305, or 306 shall use a portable analyzer to take NOx and CO emission readings to verify compliance with the applicable emission limits in Sections 9-8-301 through 305 at least once during each calendar quarter in which a source test is not performed. All emission readings shall be taken with the engine operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations. NOx emission readings taken pursuant to this section shall be averaged over a consecutive 15-minute period.

9-8-530 Emergency Standby and Low Usage Engines, Monitoring and Recordkeeping: Each emergency standby and low usage engine shall be equipped with a non-resettable totalizing meter that measures hours of operation or fuel usage. All records shall be kept for at least two years, and shall be available for inspection by District staff upon request. The operator shall keep a monthly log of usage that shall indicate the following:

530.1 Hours of operation (total)

530.2 Hours of operation (emergency)

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

For low usage engines, these provisions become effective on January 1, 2012.

(Adopted August 1, 2001)

9-8-600 MANUAL OF PROCEDURES

9-8-601 Determination of Nitrogen Oxides: The methods by which samples of exhaust gases are collected and analyzed to determine concentrations of nitrogen oxides are set forth in the District's Manual of Procedures, Volume IV, ST-13 A-~~or B~~.

9-8-602 Determination of Carbon Monoxide and Stack Gas Oxygen: The methods by which samples of exhaust gases are collected and analyzed to determine concentrations of carbon monoxide and stack gas oxygen are set forth in the District's Manual of Procedures, Volume IV, ST-6 (carbon monoxide) and ST-14 (oxygen).