

**RULE 412 STATIONARY INTERNAL COMBUSTION ENGINES  
LOCATED AT MAJOR STATIONARY SOURCES OF NO<sub>x</sub>  
Adopted 06-01-95**

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**100 GENERAL**

- 101 **PURPOSE:** To limit emissions of nitrogen oxides, carbon monoxide, and non-methane hydrocarbons from the operation of stationary internal combustion engines located at a major stationary source of nitrogen oxides.
- 102 **APPLICABILITY:** This rule applies to any stationary internal combustion engine in the District rated at more than 50 brake horsepower located at a major stationary source of nitrogen oxides.
- 110 **EXEMPTION, EMERGENCY STANDBY:** The provisions of Section 301, Section 302, Section 303 and Section 400 shall not apply to the operation of stationary internal combustion engines used for emergency standby.
- 111 **EXEMPTION, AGRICULTURAL OPERATIONS:** The provisions of this rule shall not apply to the operation of stationary internal combustion engines used directly and exclusively for agricultural operations necessary for the growing of crops or the raising of fowl or animals.
- 112 **EXEMPTION, TEST STANDS:** The provisions of this rule shall not apply to the operation of stationary internal combustion engines mounted on test stands used for evaluating engine performance.
- 113 **EXEMPTION, EMISSION CONTROL EVALUATION:** The provisions of Section 301, Section 302, Section 303, and Section 400 shall not apply to the operation of stationary internal combustion engines used exclusively for research, design and evaluation of emission control devices.
- 114 **EXEMPTION, NONROAD INTERNAL COMBUSTION ENGINE:** The provisions of this rule shall not apply to nonroad internal combustion engines.
- 115 **EXEMPTION, MOTOR VEHICLE ENGINES:** The provisions of this rule shall not apply to motor vehicle engines.
- 116 **EXEMPTION, FLIGHT LINE INTERNAL COMBUSTION ENGINE:** The provisions of this rule shall not apply to internal combustion engines used as support for flight line operations.

**200 DEFINITIONS**

- 201 **ACTUAL INTERRUPTIONS OF POWER:** When electrical service is interrupted by an unforeseeable event.
- 202 **ANNUAL HOURS OF OPERATION:** The hours a stationary internal combustion engine operates in a calendar year.
- 203 **BEST AVAILABLE RETROFIT CONTROL TECHNOLOGY (BARCT):** Best available retrofit control technology as defined in Section 40406 of the California Health and Safety Code is "an emission limitation that is based on the maximum degree of reduction achievable, taking into account environmental, energy, and economic impacts by each class or category of sources."
- 204 **EMERGENCY STANDBY ENGINE:** Any stationary internal combustion engine which does not exceed one hundred (100) hours per year of operation for maintenance purposes and operates under one or more of the following conditions:
- 204.1 The provision of emergency electrical power during actual interruptions of electrical power, or;
  - 204.2 The provision of emergency water pumping for flood control, or;
  - 204.3 The provision of emergency water pumping for fire control, or;

- 204.4 The provision of emergency electrical power for emergency incident response by specially trained personnel in law enforcement, medicine or hazardous material incident response.
- 205 **ENGINE RATING:** The output of a stationary internal combustion engine as determined by the engine manufacturer and listed on the nameplate of the unit.
- 206 **INTERNAL COMBUSTION ENGINE:** A heat engine in which the combustion that generates the heat takes place inside the engine proper instead of in a furnace.
- 207 **LEAN-BURN ENGINE:** Any internal combustion engine that is not a rich-burn engine.
- 208 **LOCATION:** Any single site at a building, structure, facility, or installation.
- 209 **MAJOR STATIONARY SOURCE OF NITROGEN OXIDES:** A stationary source whose potential to emit exceeds 25 tons per year of nitrogen oxides.
- 210 **MOTOR VEHICLE ENGINE:** Any internal combustion engine used to propel a motor vehicle.
- 211 **MOTOR VEHICLE:** Any device, self propelled by an internal combustion engine.
- 212 **NONROAD INTERNAL COMBUSTION ENGINE:** Any internal combustion engine that:
- 212.1 is not a motor vehicle engine; and
  - 212.2 is not regulated by a federal New Source Performance Standard promulgated under section 111 of the Federal Clean Air Act; and
  - 212.3 by itself or in or on a piece of equipment, is portable or transportable, meaning designed to be and capable of being carried or moved from one location to another. Indicia of transportability include, but are not limited to, wheels, skids, carrying handles, dolly, trailer, or platform; and
  - 212.4 does not remain at a location for more than 12 consecutive months. Any engine, such as a back-up or stand-by engine, that replaces an engine at a location and is intended to perform the same function as the engine being replaced will be included in calculating the consecutive time period. In that case, the cumulative time of both engines, including the time between the removal of the original engine and installation of the replacement engine, would be counted toward the consecutive residence time period. In addition, an engine that is moved from its location but does not need to be moved from its location to perform its function shall be deemed to have remained at a single location. or
  - 212.5 remains at a location less than 12 consecutive months where such a period represents the full length of normal annual source operations, such as a seasonal source.
- 213 **POTENTIAL TO EMIT:** The maximum physical and operational design capacity to emit a pollutant. Limitations on the physical or operational design capacity, including emissions control devices and limitations on hours of operation, may be considered only if such limitations are incorporated into the applicable authority to construct and permit to operate. Fugitive emissions associated with the emissions unit or stationary source shall not be included in the potential to emit of the emissions unit or stationary source unless the source belongs to one of the following categories of stationary sources:
- 213.1 Coal cleaning plants (with thermal dryers);
  - 213.2 Kraft pulp mills;
  - 213.3 Portland cement plants;
  - 213.4 Primary zinc smelters;
  - 213.5 Iron and steel mills;
  - 213.6 Primary aluminum ore reduction plants;
  - 213.7 Primary copper smelters;
  - 213.8 Municipal incinerators capable of charging more than 250 tons of refuse per day

- 213.9 Hydrofluoric, sulfuric, or nitric acid plant;
  - 213.10 Petroleum refineries;
  - 213.11 Lime plants;
  - 213.12 Phosphate rock processing plants;
  - 213.13 Coke oven batteries;
  - 213.14 Sulfur recovery plants;
  - 213.15 Carbon black plants (furnace process);
  - 213.16 Primary lead smelters;
  - 213.17 Fuel conversion plants;
  - 213.18 Sintering plants;
  - 213.19 Secondary metal production plants;
  - 213.20 Chemical process plants;
  - 213.21 Fossil-fuel boilers (or combination thereof) totaling more than 250 million British thermal units per hour heat input;
  - 213.22 Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels;
  - 213.23 Taconite ore processing plants;
  - 213.24 Glass fiber processing plants;
  - 213.25 Charcoal production plants;
  - 213.26 Fossil-fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input; or
  - 213.27 All other stationary source categories regulated by a standard promulgated under Section 111 or 112 (42 U.S.C. Section 7411 or 7412) of the Federal Clean Air Act, but only with respect to those air pollutants that have been regulated for that category.
- 214 **REASONABLY AVAILABLE CONTROL TECHNOLOGY (RACT):** The lowest emission limitation that a particular unit is capable of meeting by using measures that are reasonably available in terms of technological and economic feasibility.
- 215 **RETROFITTING:** Retrofitting is the addition of air pollution control equipment to the exhaust stream or physical modification to the combustion system excluding adjustment of an stationary internal combustion engine in order to meet the RACT standards contained in Section 301. Changes in the method of operation shall not be considered as retrofit.
- 216 **RICH-BURN ENGINE:** A two or four stroke spark-ignited internal combustion engine where the manufacturer's original recommended operating air/fuel ratio divided by the stoichiometric air/fuel ratio is less than or equal to 1.1.
- 217 **STATIONARY INTERNAL COMBUSTION ENGINE:** Any internal combustion engine that:
- 217.1 is not a motor vehicle engine; and
  - 217.2 is not a nonroad engine.
- 218 **STATIONARY SOURCE:** Any building, structure, facility, or emissions unit which emits or may emit any affected pollutant directly or as a fugitive emission.
- 218.1 Building, structure, facility, or emissions unit includes all pollutant emitting activities which:
    - a. belong to the same industrial grouping, and
    - b. are located on one property or on two or more contiguous properties, and
    - c. are under the same or common ownership, operation, or control or which are owned or operated by entities which are under common control.
  - 218.2 Pollutant emitting activities shall be considered as part of the same industrial grouping if:
    - a. they belong to the same two-digit standard industrial classification code, or
    - b. they are part of a common production process. (Common production process includes industrial processes, manufacturing processes and any connected processes involving a common material.)

**STANDARDS**

- 301 **RACT EMISSION LIMITS:** After July 1, 1995, an owner or operator of any engine subject to this rule shall not operate the engine unless the engine meets the following emission limits. If retrofitting is required, the engine is exempt from the limits of this Section provided the owner or operator complies with Sections 302 and 401.3

ENGINE OPERATING CONDITIONS	EMISSIONS LIMIT (ppmv @ 15% O <sub>2</sub> )		
	NO <sub>x</sub>	CO	NMHC
Spark Ignited Rich Burn	50	4000	250
Spark Ignited Lean Burn	125	4000	750
Compression Ignited	700	4000	750

- 302 **BARCT EMISSION LIMITS:**

## 302.1 Spark Ignited Rich Burn:

- a. Except as provided in Table 2 of Section 302.1.b or Section 303 an owner or operator of any spark-ignited rich burn stationary internal combustion engine subject to Section 300 shall not operate the engine unless the engine meets the emission limits in Table 1:

TABLE 1: SPARK IGNITED RICH BURN EMISSION LIMITS EXPRESSED AS PPMV @ 15% O <sub>2</sub>		
NO <sub>x</sub>	CO	NMHC
25	4,000	250

- b. If a spark-ignited rich burn stationary internal combustion engine with an engine rating less than or equal to 525 horsepower is operated less than the hours listed in Table 2, the engine shall be exempt from the requirements of Section 302.1.a. If the hours of operation exceed the hours listed for any unit for any calendar year, then the unit must be operated in compliance with the applicable emissions limits in Section 302.1.a.

TABLE 2: SPARK IGNITED RICH BURN EXEMPTION FROM TABLE 1 EMISSION LIMITS		
If engine rating is greater than...	...but less than or equal to..	and the actual annual hours of operation are less than or equal to...
50 hp	75 hp	200 hours
75 hp	125 hp	120 hours
125 hp	155 hp	100 hours
155 hp	200 hp	80 hours
200 hp	300 hp	60 hours
300 hp	400 hp	45 hours
400 hp	525 hp	40 hours

- 302.2 Spark Ignited Lean Burn: Except as provided in Section 303 an owner or operator of any spark-ignited lean burn stationary internal combustion engine shall not operate the engine unless the engine meets the emission limits in Table 3:

TABLE 3: SPARK IGNITED LEAN BURN EMISSION LIMITS EXPRESSED AS PPMV @ 15% O <sub>2</sub>		
NO <sub>x</sub>	CO	NMHC
65	4,000	750

- 302.3 Compression Ignited Engine:
- a. Except as provided in Table 5 of Section 302.3.b or Section 303 an owner or operator of any compression ignited stationary internal combustion engine shall not operate the engine unless the engine meets the emission limits in Table 4:

TABLE 4: COMPRESSION IGNITED EMISSION LIMITS EXPRESSED AS PPMV @ 15% O <sub>2</sub>		
NO <sub>x</sub>	CO	NMHC
80	4,000	750

- b. If a compression ignited stationary internal combustion engine with an engine rating less than or equal to 525 horsepower is operated less than the hours listed in Table 5, the engine shall be exempt from the requirements of Section 302.3.a. If the hours of operation exceed the hours listed for any unit for any calendar year, then the unit must be operated in compliance with the applicable emissions limits in Section 302.3.a.

TABLE 5: COMPRESSION IGNITED EXEMPTION FROM TABLE 4 EMISSION LIMITS		
If engine rating is greater than...	...but less than or equal to...	and the actual annual hours of operation are less than or equal to...
50 hp	75 hp	1,435 hours
75 hp	125 hp	830 hours
125 hp	155 hp	565 hours
155 hp	200 hp	460 hours
200 hp	300 hp	365 hours
300 hp	400 hp	250 hours
400 hp	525 hp	200 hours

303 **ALTERNATIVE CONTROL REQUIREMENT:** As an alternative to the NO<sub>x</sub> emission limit specified in Section 302 a stationary internal combustion engine shall achieve and maintain a percent NO<sub>x</sub> reduction by volume limit specified below as measured concurrently across an emission control device. If internal modifications are made to an engine the percent reduction shall be calculated from source test data before and after internal modification.

303.1 Spark ignited rich burn 90 percent

303.2 Spark ignited lean burn 90 percent

303.3 Compression ignited 90 percent

304 **EQUIPMENT REQUIREMENT:** The owner or operator of any stationary internal combustion engine, except for those engines being removed from service under Section 401.5, subject to any provision of this rule shall install one of the following:

304.1 **HOUR METER:** A non-resetting totalizing hour meter on each engine by (12 months after date of adoption).

304.2 **COMPUTERIZED TRACKING:** A computerized tracking system that maintains a continuous daily record of hours of operation.

#### 400 **ADMINISTRATIVE REQUIREMENTS**

##### 401 **COMPLIANCE SCHEDULE:**

401.1 **RACT EMISSION LIMITS:** Any non-exempt stationary internal combustion engine that is subject to the rule and has operated in the District prior to (date of adoption) shall comply with the applicable limits by July 1, 1995 unless retrofitting is required. If retrofitting is required the engine shall comply with Section 401.3 and either Section 401.4 or Section 401.5.

401.2 **BARCT EMISSION LIMITS:** Any non-exempt stationary internal combustion engine that is subject to the emission limits of Section 302 shall comply with the applicable limits by May 31, 1997 in accordance with Section 401.3 and either Section 401.4 or Section 401.5

401.3 **CURRENT EMISSION LEVEL:** The owner or operator of any non-exempt stationary internal combustion engine subject to Section 401.1 or Section 401.2 must comply with the following requirements by July 1, 1995:

a. Submit a current emission level for each engine to the Air Pollution Control Officer.

b. A description of the method used to determine the current emission level.

401.4 **INCREMENTS OF PROGRESS:** The owner or operator of any stationary internal combustion engine subject to Section 302 must comply with the following requirements:

a. By July 1, 1995 submit a compliance plan to the Air Pollution Control Officer for each unit which includes the following information:

1. The retrofitting required to meet the limits of Section 302 or Section 303.

2. A schedule demonstrating compliance with the emission limits of Section 302 or Section 303 and the remaining increments of this Section

b. By January 31, 1996 submit a complete application for an Authority to Construct for the modifications or equipment necessary to meet the applicable emission limits contained in Section 302 or Section 303 to the Air Pollution Control Officer.

c. By November 30, 1996 begin construction.

d. By March 31, 1997 complete construction.

e. By May 31, 1997 comply with the emission limits of Section 302 or Section 303. This shall include the submittal of a complete source test report indicating compliance.

401.5 **REMOVAL FROM SERVICE:** The owner or operator of any stationary internal combustion engine operated in the District prior to (date of adoption) that is expected to be removed from service by May 31, 1999 shall comply with the following:



- a. By July 1, 1995, submit to the Air Pollution Control Officer a petition (a petition form can be obtained from the District) requesting an exemption from the requirements of Section 301 through 303.
- b. By January 31, 1996, submit to the Air Pollution Control Officer a compliance plan containing the following information:
  1. A complete application for an Authority to Construct for modification of the Permit to Operate.
- c. By May 31, 1999, discontinue operation of the stationary internal combustion engine unit, disconnect fuel supply line(s), and notify the Air Pollution Control Officer, in writing, of the removal from service.

402 **SOURCE TESTING FREQUENCY:** The owner or operator of any stationary internal combustion engine subject to the requirements of Sections 301 through 303 shall conduct source testing every eight thousand seven hundred sixty (8,760) hours of operation or five (5) years which ever is the shorter time period.

## 500 MONITORING AND RECORDS

### 501 RECORDKEEPING REQUIREMENTS:

- 501.1 The owner or operator of any stationary internal combustion engine subject to any provision of this rule shall maintain an operation record containing, at a minimum, the following data:
- a. Permit number of each stationary internal combustion engine.
  - b. Manufacturer, model number and rating in horsepower of each stationary internal combustion engine.
  - c. Actual quarterly hours of operation of each stationary internal combustion engine.
  - d. Maintain copies of most recent emission tests including date and results reported as ppmv @ 15% O<sub>2</sub> of NO<sub>x</sub> and pounds per unit time of NO<sub>x</sub>.
- 501.2 The owner or operator of any stationary internal combustion engine subject to any provision of this rule shall maintain the operation record for a period of five (5) years. The records shall be available for inspection by the Air Pollution Control Officer upon request.

502 **TESTING PROCEDURES:** Demonstration of compliance with the emission limits specified in Sections 301 through 303 shall be determined using the test methods specified below averaged over three consecutive test runs.

#### 502.1 OXIDES OF NITROGEN:

- a. Emissions of oxides of nitrogen from spark ignited engines shall be determined using ARB Test Method 100.
- b. Emissions of oxides of nitrogen from compression ignited engines shall be determined using EPA Test Method 7E.

#### 502.2 CARBON MONOXIDE:

- a. Emissions of carbon monoxide from spark ignited engines shall be determined using ARB Test Method 100.
- b. Emissions of carbon monoxide from compression ignited engines shall be determined using EPA Test Method 10.

#### 502.3 OXYGEN CONTENT:

- a. Oxygen content of exhaust from spark ignited engines shall be determined using ARB Test Method 100..
- b. Oxygen content of exhaust from compression ignited engines shall be determined using EPA Test Method 3A.

#### 502.4 NONMETHANE HYDROCARBONS:

- a. Nonmethane hydrocarbon emissions shall be determined using EPA Test Method 25 or 25A. If EPA Test Method 25A is used, EPA Test Method 18 shall be used to determine methane content.

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