



Air Pollution Control Board
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Air Pollution Control Officer
R. J. Sommerville

NOTICE OF WORKSHOP

TO DISCUSS THE PROPOSED ADOPTION OF NEW RULE 69.4 - STATIONARY RECIPROCATING INTERNAL COMBUSTION ENGINES

The San Diego County Air Pollution Control District will hold a public meeting to consider the adoption of Rule 69.4 - Stationary Reciprocating Internal Combustion Engines. Comments concerning this proposal may be submitted in writing before, or made at the workshop which is scheduled as follows:

DATE: July 25, 1994 - Monday
TIME: 1:00 - 3:00 p.m.
PLACE: Mental Health Services
San Diego Room
3851 Rosecrans Street
San Diego CA

Rule 69.4 is intended to reduce emissions of oxides of nitrogen (NOx) that react in the atmosphere to form ozone. San Diego County does not meet state or federal ambient air quality standards for ozone that have been established to protect public health. The Federal Clean Air Act (FCAA) requires the District to adopt rules reflecting reasonably available control technology (RACT) for major sources of NOx emissions, i.e. sources emitting 25 tons per year of NOx or more.

Rule 69.4 is a new rule designed to reduce NOx emissions from new and existing stationary internal combustion engines. The rule applies to stationary internal combustion engines in San Diego County with a brake horsepower rating greater than 50 bhp and located at major sources of NOx emissions. Rule 69.4 establishes separate NOx emissions standards for rich-burn and lean-burn engines operated on gaseous fuel or gasoline, and for engines operating on diesel fuel. Engines used exclusively in connection with a structure designed for and used as a dwelling for not more than four families, and engines used in agricultural operations are exempt from all rule requirements. Engines operating less than 200 hours per year and/or engines used exclusively for emergency purposes are exempted from the emissions standards provided that they keep specified records.

Specifically, the proposed rule will:

- Limit NOx emissions to 70 ppmv for rich-burn engines operating on a gaseous fuel or gasoline;
- Limit NOx emissions to 140 ppmv for lean-burn engines operating on fossil derived gaseous fuel;

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- Limit NOx emissions to 140 ppmv for engines operating on waste derived gaseous fuel;
- Limit NOx emissions 750 ppmv for engines operating on diesel fuel.
- Limit carbon monoxide emissions to 4500 ppmv for all engines subject to the rule.
- For all affected engines, require records of engine manufacturer's name and model number, manufacturer's recommended maintenance manual, horsepower rating, type of fuel used, method of combustion, and annual engine maintenance.
- Specify additional monitoring and recordkeeping requirements for rich-burn engines with add-on control equipment, lean-burn engines and diesel engines.
- Specify test methods for determining compliance with the rule.
- Specify that any existing engine at a major source of NOx emissions be in compliance with all provisions of the rule within eight months after adoption of the rule.

Many engines currently operating under a District Permit to Operate are already equipped to meet the emissions standards of the proposed rule. However, there are a number of engines in the District, mostly diesel engines, that are not yet required to have permits. Some of these engines may have to be retrofitted with combustion modifications to meet the NOx emissions standards of Rule 69.4.

If you would like a copy of proposed Rule 69.4, please call Juanita Ogata at (619) 694-8851. If you have any questions concerning the proposal, please call Jeff Chen at (619) 694-3413, or myself at (619) 694-3303.



RICHARD J. SMITH
Deputy Director

RJSm:ML:JC:jo
06/21/94

SAN DIEGO AIR POLLUTION CONTROL DISTRICT

RULE 69.4 STATIONARY RECIPROCATING INTERNAL COMBUSTION ENGINES

(a) APPLICABILITY

Except as provided in Section (b), this rule shall apply to stationary internal combustion engines with a brake horsepower output rating of 50 bhp or greater located at a major stationary source of oxides of nitrogen (NOx). An engine subject to this rule shall not be subject to Rule 68.

(b) EXEMPTIONS

(1) The provisions of this rule shall not apply to the following:

(i) Engines used exclusively in connection with a structure designed for and used as a dwelling for not more than four families.

(ii) Engines used exclusively in agricultural operations for the growing of crops or the raising of fowl or animals.

(2) The provisions of Section (d) of this rule shall not apply to the following:

(i) Engines which operate less than 200 hours per calendar year.

(ii) Emergency standby engines operated either during emergency situations or for maintenance purposes, provided that the operations for maintenance purposes do not exceed 52 hours per calendar year.

(iii) Emergency standby engines at nuclear generating stations subject to the requirements of the Nuclear Regulatory Commission, either during emergency situations or for maintenance purposes, provided that the operations for maintenance purposes do not exceed 200 hours per calendar year.

An owner or operator of an engine who is claiming exemption pursuant to Subsection (b)(2) shall maintain records in accordance with Subsections (e)(1) and (e)(2).

(c) DEFINITIONS

For the purposes of this rule, the following definitions shall apply:

(1) **"Add-on Control Equipment"** means any technology that is used to reduce oxides of nitrogen emissions from the exhaust gas stream of an engine and is installed downstream of the engine.

(2) **"Brake Horsepower Output Rating, bhp"** means the maximum continuous brake horsepower output rating as specified by the engine manufacturer.

(3) **"Emergency Standby Engine"** means an engine used exclusively in emergency situations to drive an electrical generator, an air compressor or a water pump.

(4) **"Emergency Situation"** means any one of the following:

(i) an unforeseen electrical power failure from the serving utility or of on-site electrical transmission equipment;

(ii) an unforeseen flood or fire, or a life-threatening situation.

(iii) Operation of emergency generators for Federal Aviation Administration licensed airports for the purpose of providing power in anticipation of a power failure due to severe storm activity shall be considered an emergency situation.

Emergency situation shall not include operation for purposes of supplying power for distribution to an electrical grid, operation for training purposes, or other foreseeable events.

(5) **"Existing Engine"** means an engine which commenced operation on or before (*date of adoption*).

(6) **"Fossil Derived Gaseous Fuel "** means gaseous fuel including, but not limited to, natural gas, methane, ethane, propane, butane, and gases stored as liquids at high pressure such as liquefied petroleum gas, and excluding waste derived gaseous fuel.

(7) **"Lean-Burn Engine"** means an engine that is designed to operate with an air to fuel ratio that is more than 1.1 times the stoichiometric air to fuel ratio.

(8) **"Major Stationary Source of NOx"** means a stationary source that emits or has the potential to emit 25 tons or more of NOx per year. If the San Diego County Air Pollution Control District is reclassified to a "serious" ozone non-attainment area by the federal Environmental Protection Agency, then a major stationary source of NOx will mean a stationary source that emits or has the potential to emit 50 tons or more of NOx per year.

(9) **"New Engine"** means an engine which commenced operation after (*date of adoption*).

(10) **"Portable Emissions Unit"** means the same as defined in Rule 20.1.

(11) **"Rich-Burn Engine"** means an engine that is designed to operate with an air to fuel ratio less than or equal to 1.1 times the stoichiometric air to fuel ratio.

(12) **"Stationary Internal Combustion Engine" or "Engine"** means a spark or compression ignited, reciprocating internal combustion engine which is not a portable emissions unit.

(13) **"Stationary Source"** means the same as is defined in Rule 20.1.

(14) **"Stoichiometric Air to Fuel Ratio"** means the chemically balanced air to fuel ratio at which all fuel and all oxygen in the air and fuel mixture are theoretically consumed by combustion.

(15) **"Waste Derived Gaseous Fuel "** means gaseous fuel including, but not limited to, sewage sludge digester gas and landfill gas.

(d) **STANDARDS**

(1) A person shall not operate a stationary internal combustion engine subject to this rule unless its emissions of oxides of nitrogen (NO_x), calculated in parts per million by volume (ppmv) as nitrogen dioxide at 15% oxygen on a dry basis, are not greater than the following:

<u>Engine Category</u>	<u>Concentration of NO_x (ppmv)</u>
Rich-burn engines using exclusively fossil derived gaseous fuel or gasoline	70
Lean-burn engines using exclusively fossil derived gaseous fuel	140
Engines using waste derived gaseous fuel	140
Engines using diesel fuel	750

(2) For all engines subject to this rule, emissions of carbon monoxide, calculated in parts per million by volume (ppmv) at 15% oxygen on a dry basis, shall not exceed 4500 ppmv.

(e) MONITORING AND RECORDKEEPING REQUIREMENTS

(1) An owner or operator of an engine subject to this rule shall keep the following records:

- (i) engine manufacturer name and model number;
- (ii) brake horsepower output rating;
- (iii) combustion method (i.e. rich-burn or lean-burn);
- (iv) fuel type;
- (v) a manual of recommended maintenance as provided by the engine manufacturer; and
- (vi) records of annual engine maintenance.

(2) In addition to the records required by Subsection (e)(1), an owner or operator of an engine exempt from the requirements of Section (d) shall maintain an operating log containing, at a minimum, the following:

- (i) Dates and times of engine operation indicating, if applicable, whether the operation was during emergency situations or for maintenance purposes;
- (ii) Total cumulative annual hours of operation.

(3) In addition to the records required by Subsection (e)(1), an owner or operator of a rich-burn engine subject to the requirements of Section (d) using add-on control equipment shall keep the following monthly records:

- (i) temperature of the inlet and outlet of the control device, and
- (ii) engine air-to-fuel ratio, and
- (iii) engine inlet manifold temperature and pressure.

(4) In addition to the records required by Subsection (e)(1), an owner or operator of a lean-burn engines using exclusively gaseous fuel subject to the requirements of Section (d) shall also keep the following monthly records:

(i) engine air-to-fuel ratio and automatic air-to-fuel ratio control signal voltage, and

(ii) engine exhaust temperature, and

(iii) engine inlet manifold temperature and pressure.

(5) In addition to the records required by Subsection (e)(1), an owner or operator of an engine using diesel fuel subject to the requirements of Section (d) shall also keep monthly records of operating parameters that are necessary to demonstrate continuous compliance, such as:

(i) engine air-to-fuel ratio, and

(ii) engine exhaust temperature, and

(iii) engine inlet manifold temperature and pressure.

All records required by Section (e) shall be retained on site for at least three years and made available to the District upon request.

(f) TEST METHODS

(1) To determine compliance with Section (d), measurement of oxides of nitrogen, carbon monoxide, and stack-gas oxygen content shall be conducted in accordance with San Diego Air Pollution Control District Method 20 as approved by the U.S. Environmental Protection Agency (EPA), and a source test protocol approved in writing by the Air Pollution Control Officer.

(2) The averaging period to calculate NO_x and carbon monoxide emissions concentrations and to determine compliance shall be at least thirty minutes and not more than 60 minutes.

(3) Emissions source testing, if applicable, shall be performed at no less than 80 percent of the brake horsepower output rating. If an owner or operator of an existing engine demonstrates to the satisfaction of the Air Pollution Control Officer that the engine cannot operate at these conditions, then emissions source testing shall be performed at the highest achievable continuous horsepower rating.

(g) **COMPLIANCE SCHEDULE**

The owner or operator of an engine subject to the requirements of Section (d) of this rule shall meet the following increments of progress:

(1) For an existing engine which does not need modification and/or add-on control equipment, submit documentation showing that the engine is in compliance with all applicable rule requirements not later than *(12 months after date of adoption)*.

(2) For an existing engine which requires modification and/or add-on control equipment:

(i) By *(four months after date of adoption)*, submit to the Air Pollution Control Officer an application for Authority to Construct and Permit to Operate a modified engine or add-on control equipment as necessary to comply with the applicable requirements of Section (d).

(ii) By *(eight months after date of adoption)*, modify the engine or install add-on control equipment as necessary to comply with the applicable requirements of Section (d).

(3) For a new engine, comply with the applicable requirements of Section (d) upon installation and startup.