

## **Rule 3.22 Stationary Internal Combustion Engines**

(Adopted 06/01/2009)

### **A. APPLICABILITY**

Rule 3.22 applies to all internal combustion engines with rated break horsepower greater than or equal to fifty ( $\geq 50$  bhp) used in industrial, institutional, and commercial operations that operate within the boundaries of the District.

### **B. EXEMPTIONS**

B.1 This rule shall not apply to the following:

- a. The operation of any engine while being used to preserve or protect property, human life, or public health during the existence of a disaster or state of emergency, such as a fire or flood;
- b. Emergency standby engines whose total annual hours for maintenance and testing purposes do not exceed 100 hours as determined by a nonresettable hour meter. Hours used specifically for emergencies shall not be limited by this rule;
- c. Engines whose total annual hours of operation do not exceed 200 hours as determined by a nonresettable hour meter;
- d. Portable engines, as defined in Health and Safety Code, Section 41751;
- e. Engines used directly and exclusively for the growing of crops or the raising of animals. This exemption does not apply to any engine used at an agricultural source of air pollution that emits in any 12-month period air emissions greater than or equal the major source thresholds for regulated air pollutants and/or HAPs;
- f. Engines operated exclusively in research or testing programs;
- g. Gas turbine engines, and;
- h. Compression ignition engines with a permitted capacity factor of 15 percent or less.

### **C. DEFINITIONS**

- C.1 EMERGENCY STANDBY ENGINE: As defined in the Airborne Toxic Control Measure for Stationary Compression Ignition Engines §93115.4(a) (29).
- C.2 EMERGENCY USE: As defined in the Airborne Toxic Control Measure for Stationary Compression Ignition Engines §93115.4(a) (30).
- C.3 EXISTING ENGINE: A stationary internal combustion engine installed and operating within the Feather River Air Quality Management District before the date of District adoption of this Rule.
- C.4 LEAN-BURN ENGINE: Any spark or compression ignited internal combustion engine that is operated with an exhaust gas stream

oxygen concentration of four percent (4%) by volume, or greater. The exhaust gas oxygen content shall be determined from the uncontrolled exhaust gas stream.

- C.5 MAINTENANCE AND TESTING: The operation of an emergency standby engine to:
- a. Evaluate the ability of the engine or its supported equipment to perform during an emergency. "Supported Equipment" includes, but is not limited to, generators, pumps, transformers, switchgear, and breakers; or
  - b. Facilitate the training of personnel on emergency activities; or
  - c. Provide electrical power for the facility when the utility distribution company takes its power distribution equipment offline to service that equipment for any reason that does not qualify as an emergency use.
- C.6 NEW ENGINE: A stationary internal combustion engine installed and operating within the Feather River Air Quality Management District after the date of District adoption of this Rule.
- C.7 NORTH FRAQMD: The area of the Feather River Air Quality Management District which is north of a line connecting the northern border of Yolo County to the southwestern tip of Yuba County, and continuing along the Southern Yuba County border to Placer County.
- C.8 PERMITTED CAPACITY FACTOR: The annual permitted fuel use divided by the product of the manufacturer's specified maximum hourly fuel consumption times 8,760 hours per year.
- C.9 RATED BRAKE HORSEPOWER (bhp): The maximum rated brake horsepower specified for the engine by the manufacturer and listed on the nameplate for the unit, regardless of any derating, unless limited by the engine's Permit to Operate.
- C.10 RICH-BURN ENGINE: Any spark or compression ignited internal combustion engine that is operated with an exhaust gas stream oxygen concentration of less than four percent (4%) by volume. The exhaust gas oxygen content shall be determined from the uncontrolled exhaust gas stream.
- C.11 SOUTH FRAQMD: The area of the Feather River Air Quality Management District which is south of a line connecting the northern border of Yolo County to the southwestern tip of Yuba County, and continuing along the southern Yuba County border to Placer County.
- C.12 STATIONARY INTERNAL COMBUSTION ENGINE: Any spark or compression ignited internal combustion engine that is operated, or intended to be operated, at a specific site for more than twelve (12) consecutive months, is attached to a foundation at that site, or is determined to be stationary by the District.

**D. REQUIREMENTS**

D.1 Emission Limits: All new and existing internal combustion engines shall not operate above the emission limitations according to the area of designation and fuel type, as shown in Table 1 and 2.

**Table 1: North FRAQMD Emission Limits**

	<b>NOx</b> (ppmv at 15% O2)	<b>VOC</b> (ppmv at 15% O2)	<b>CO</b> (ppmv at 15% O2)
<b>Spark Ignited Rich Burn</b>	90	250	4,000
<b>Spark Ignited Lean Burn</b>	150	750	4,000
<b>Compression Ignited</b>	600	750	4,000

**Table 2: South FRAQMD Emission Limits**

	<b>NOx</b> (ppmv at 15% O2)	<b>VOC</b> (ppmv at 15% O2)	<b>CO</b> (ppmv at 15% O2)
<b>Spark Ignited Rich Burn</b>	25	250	4,000
<b>Spark Ignited Lean Burn</b>	65	750	4,000
<b>Compression Ignited</b>	80	750	4,000

D.2 Alternative Option: In lieu of complying with the requirements of D.1, the owner/operator may choose to permanently remove an existing engine from service and electrify the source. To satisfy this requirement, the owner/operator will:

- a. Submit a statement to the Air Pollution Control Officer identifying the engine to be removed no later than six (6) months after District adoption of this rule, and;
- b. Have the engine removed and electrify the source no later than three (3) years after District adoption of this rule.

**E. ADMINISTRATIVE REQUIREMENTS**

E.1 No later than one (1) year after District adoption of this Rule, the owner or operator of one or more stationary internal combustion engines subject to meet the emission limits of D.1 shall submit an Authority to Construct Application.

**F. COMPLIANCE DETERMINATION**

F.1 Initial Compliance Demonstration: All engines subject to meet the emission limits of D.1 shall demonstrate initial compliance. Initial compliance can be achieved by:

- a. Conducting a source test on a unit, or;
- b. Providing the District with support documentation which demonstrates that the engine is in compliance with the emission limits of this Rule.

F.2 Initial Compliance Timeline: Initial compliance shall be demonstrated no later than:

- a. Two years after District adoption of this Rule for all existing engines, or;
- b. Ninety (90) days after the date of initial startup for all new engines.

F.3 On-going Compliance Program: Upon successful demonstration of initial compliance, the owner or operator shall demonstrate on-going compliance as followed:

- a. All units shall be source tested at least once every five (5) years, measured from the date of the last source test showing compliance. If initial compliance was satisfied without any source test data, the unit shall be source tested no later than five (5) years after the date of initial startup.
- b. During any calendar year in which a source test is not performed, the owner/operator shall use an emission analyzer to take NO<sub>x</sub>, CO, and O<sub>2</sub> readings to verify compliance with the applicable emission limits.
  - 1) The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations.
  - 2) Analyzer test data point intervals shall be no greater than five (5) minutes and data points shall be averaged over no less than fifteen (15) minutes of engine operation.
  - 3) An analyzer reading in excess of the limits specified in Section D.1 shall not be considered a violation so long as the problem is corrected and a follow-up emission reading is conducted within 15 days of the initial emission reading. If the problem cannot be corrected, the operator shall shutdown the engine and notify the District.

F.4 Compliance Inspection: For compliance demonstration purposes, the testing of emissions shall be conducted in the presence of District staff unless District staff is not available.

**G. TEST METHODS**

G.1 Test Methods: Compliance with the emission limits in Table 1 and 2 shall be determined using the following test procedures:

- a. Stack Gas Oxygen - EPA Method 3A or CARB Method 100.
- b. Oxides of Nitrogen - EPA Method 7E or CARB Method 100.
- c. Carbon Monoxide - EPA Method 10 or CARB Method 100.
- d. Volatile Organic Compounds - EPA Method 25A or 25B or CARB Method 100.
- e. NOx emission limitations shall be expressed as nitrogen dioxide (NO2). All ppmv emission limitations shall be referenced at 15% volume stack gas oxygen on a dry basis.
- f. 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.
- g. The APCO may authorize the use of specific portable analyzers for the measurement of oxides of nitrogen, carbon monoxide, and oxygen which do not meet the requirements of the test methods specified in this section provided that evidence accompanies each test report that instrument operation conformed to manufacturer's recommendations and that the instrument(s) used responded appropriately to calibration gases both before and after testing, and provided that measurements made by the methods specified in this section shall be recognized as more reliable in any dispute involving measurements made by different methods. Evidence of instrument response stability shall be provided if calibration checks are not performed at the test site immediately before and after testing.

#### **H. RECORDKEEPING AND REPORTING REQUIREMENTS**

- H.1 The facility shall maintain records for a period of five (5) years and shall be made available for inspection by any authorized personnel upon request. The facility shall maintain the following information:
  - a. The monthly and annual hours of operation or quantity of fuel consumed for each unit, and;
  - b. A testing log which includes, but is not limited to, initial and on-going emission test results to verify compliance, and;
  - c. Date(s) and type of maintenance performed.
- H.2 A source test protocol shall be submitted to the District for review and approval at least thirty (30) days prior to the source test. The results from the source test shall be submitted to the District within thirty (30) days after testing.
- H.3 The facility shall submit a report to the District demonstrating on-going compliance for each engine by March 31 every year.
- H.4 The APCO may include additional recordkeeping requirements to assure compliance of this rule for each unit.