

RULE 3.22 **STATIONARY INTERNAL COMBUSTION ENGINES**

(Adopted 6/1/2009; Amended 10/6/2014, 08/3/2020)

A. APPLICABILITY

This rule applies to all stationary internal combustion engines with rated brake horsepower greater than or equal to fifty (≥ 50 bhp) used in industrial, institutional, and commercial operations that operate within the boundaries of the District.

B. EXEMPTIONS

B.1 The provisions of 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 non-resettable hour meter. Hours used specifically for emergencies shall not be limited by this rule;
- c. Non-emergency engines whose total annual hours of operation do not exceed 200 hours as determined by a non-resettable hour meter;
- d. Portable engines, as defined in California 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 to 50% of 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 **Date of Initial Start-up:** The date in which an engine is operated for the first time within the boundaries of the District.
- C.2 **Emergency Standby Engine:** As defined in the Airborne Toxic Control Measure for Stationary Compression Ignition Engines - CCR Title 17, §93115.
- C.3 **Emergency Use:** As defined in the Airborne Toxic Control Measure for Stationary Compression Ignition Engines - CCR Title 17, §93115.
- 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 **Natural Gas Powered Engine:** Any spark ignited internal combustion engine that is designed to operate on natural gas.
- 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:** Each engine shall not operate above the emission limitations according to the area of designation and fuel type, as shown in Tables 1, 2, and 3.

Table 1: North FRAQMD Emission Limits

	NOx (ppmv @ 15% O ₂)	VOC (ppmv @ 15% O ₂)	CO (ppmv @ 15% O ₂)
Spark Ignited Rich Burn	90	250	4,000
Spark Ignited Lean Burn	150	750	4,000
Compression Ignited	600	750	4,000

Table 2: South FRAQMD Emission Limits

	NOx (ppmv @ 15% O ₂)	VOC (ppmv @ 15% O ₂)	CO (ppmv @ 15% O ₂)
Spark Ignited Rich Burn	25	250	4,000
Spark Ignited Lean Burn	65	750	4,000
Compression Ignited	80	750	4,000

Table 3: Natural Gas Powered Engine Emission Limits Effective 12/31/2023*

	NOx (ppmv @ 15% O ₂)	VOC (ppmv @ 15% O ₂)	CO (ppmv @ 15% O ₂)
Spark Ignited Rich Burn	25	250	4,000
Spark Ignited Lean Burn	65	750	4,000

*Engines subject to Table 3 must comply with the emission limits specified in Table 1 and 2 until the 12/31/2023 cutoff.

- D.2 **INITIAL COMPLIANCE DEMONSTRATION:** Each engine 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 the engine as specified in Section E.1; or
 - b. Providing the District with support documentation which demonstrates that the engine is in compliance with the emission limits of this rule.
- D.3 **INITIAL COMPLIANCE TIMELINE:** Each engine shall demonstrate initial compliance no later than ninety (90) days after the date of initial startup.
- D.4 **ON-GOING COMPLIANCE PROGRAM:** Upon successful demonstration of initial compliance, the owner or operator shall demonstrate on-going compliance as followed:
- a. Each engine 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 engine shall be source tested no later than five (5) years after the date of initial startup.
 - b. Effective until December 30, 2023: during any calendar year in which a source test is not performed, the owner/operator shall use an emission analyzer to take

NO_x, CO, and O₂ readings from the engine 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 as 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.
- c. Effective December 31, 2023: during any calendar year in which a source test is not performed, the trained owner/operator shall use an emission analyzer to take NO_x, CO, and O₂ readings from the engine 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. All emission readings shall be taken with the engine operating either at the highest achievable continuous brake horsepower rating, or under the typical duty cycle or operational mode of the engine.
 3. 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.
 4. At least six (6) calendar weeks shall separate the date of the last emission reading taken or source test conducted in the previous calendar year quarter and the first emission reading taken in the subsequent calendar quarter in which a source test is not performed.
 5. An analyzer reading in excess of the limits specified in Section D.1 shall not be considered a violation as 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.

6. A trained operator is a person who has completed an appropriate training program in the operation of portable analyzers, and has received certification from the training program.

D.5 **COMPLIANCE INSPECTION:** For compliance demonstration purposes, the testing of emissions required in Section D.2.a and D.4.a shall be conducted in the presence of District staff unless previous authorization is provided by the District.

E. TEST METHODS AND PROCEDURES

E.1 **TEST METHODS:** Compliance with the emission limits in Tables 1,2, and 3 shall be determined using the following test methods or an equivalent method approved by EPA and/or CARB:

- 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 18, 25A, 25B or CARB Method 100.
- e. NOx emission limitations shall be expressed as nitrogen dioxide (NO₂).
- f. VOC emission limitations shall be referenced to methane.
- g. All ppmv emission limitations shall be referenced at 15% volume stack gas oxygen on a dry basis.
- h. 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.

F. RECORDKEEPING AND REPORTING REQUIREMENTS

F.1 **RECORDKEEPING REQUIREMENTS:** A record of the following information shall be maintained for five years and shall be made available to District personnel upon request:

- a. The monthly and annual hours of operation or quantity of fuel consumed for each engine;
- b. A testing log which includes, but is not limited to, initial and on-going emission source test results and

annual analyzer readings results to verify compliance;
and
c. Date(s) and type of maintenance performed.

F.2 **SOURCE TEST PROTOCOL AND REPORT:** A source test protocol shall be submitted to the District for review and approval at least thirty (30) days prior to any source test. The results from the source test shall be submitted to the District within thirty (30) days after testing.