

**PROPOSED  
RULE 1110.3**

**EMISSIONS FROM LINEAR GENERATORS**

(a) Purpose

The purpose of this rule is to reduce emissions of Oxides of Nitrogen (NO<sub>x</sub>), Volatile Organic Compounds (VOCs), and Carbon Monoxide (CO) from linear generators.

(b) Applicability

All linear generators fueled solely by natural gas are subject to this rule.

(c) Definitions

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

- (1) EMERGENCY STANDBY UNIT means any Linear Generator which operates as a temporary replacement for primary power during periods of fuel or energy shortage or while the primary power supply is under repair.
- (2) FACILITY means any source or group of sources or other air contaminant emitting activities which are located on one or more contiguous properties within the South Coast AQMD, in actual physical contact or separated solely by a public roadway or other public right-of-way, and are owned or operated by the same person (or by persons under common control), or an outer continental shelf (OCS) source as determined in Section 55.2 of Title 40, Part 55 of the Code of Federal Regulations (40 CFR Part 55). Such above-described groups, if noncontiguous, but connected only by land carrying a pipeline, shall not be considered one facility. Sources or installations involved in crude oil and gas production in Southern California Coastal or OCS Waters and transport of such crude oil and gas in Southern California Coastal or OCS Waters shall be included in the same facility which is under the same ownership or use entitlement as the crude oil and gas production facility on-shore.
- (3) LINEAR GENERATOR means any power generation technology that uses a thermochemical reaction to create linear motion that is directly converted into electricity.
- (4) NATURAL GAS means a mixture of gaseous hydrocarbons, with at least 80 percent methane by volume, and of pipeline quality, such as the gas sold or

distributed by any utility company regulated by the California Public Utilities Commission.

- (5) OXIDES OF NITROGEN (NO<sub>x</sub>) means the sum of nitric oxides and nitrogen dioxides emitted, collectively expressed as nitrogen dioxide emissions.
- (6) TUNING means adjusting, optimizing, rebalancing, or other similar operations to a Unit or an associated control device or as otherwise defined in the Permit to Operate. Tuning does not include automatic adjustments made by a Unit’s control system or normal operations to meet load fluctuations.
- (7) UNIT means any single linear generator core.
- (8) VOLATILE ORGANIC COMPOUND (VOC) as defined in Rule 102 – Definition of Terms.

(d) Emission Limits

An owner or operator of a Unit with a Permit to Operate issued on or after [Date of Adoption] shall not operate the Unit in a manner that exceeds the NO<sub>x</sub>, CO, and VOC emission limits listed in Table 1.

**Table 1: Concentration Limits for Linear Generators  
Units with a Permit to Operate Issued on or after  
[Date of Adoption]**

Fuel Type	NO <sub>x</sub> (ppmv) <sup>1</sup>	CO (ppmv) <sup>1</sup>	VOC (ppmv) <sup>2</sup>
Natural Gas	2.5	12	10

<sup>1</sup> Parts per million by volume, corrected to 15% oxygen on a dry basis and averaged over 15 minutes.

<sup>2</sup> Parts per million by volume, measured as carbon, corrected to 15% oxygen on a dry basis, and averaged over the sampling time required by the test method.

(e) Maintenance Requirements

- (1) An owner or operator of a Unit shall perform maintenance per manufacturer’s recommendations as specified in the operating and maintenance manual.
- (2) An owner or operator of a Unit shall keep a copy of the manufacturer’s operating and maintenance manual and be made available to the Executive Officer within 48 hours upon request.

(f) Source Testing

- (1) An owner or operator of a non-pooled Unit shall conduct source testing for NO<sub>x</sub>, VOC reported as carbon, and CO concentrations (concentrations in ppm by volume, corrected to 15 percent oxygen on dry basis):
  - (A) Initially, within six months of installation of a Unit or within six months of not meeting the eligibility requirements for pooled source testing in paragraph (f)(10); and
  - (B) Subsequently, at least once every five years from the date of the previous source test, no later than the last day of the calendar month that the test is due, or every 24,000 operating hours, whichever occurs first.
- (2) An owner or operator of a Unit shall conduct the source test by using a contractor that is approved under the South Coast AQMD’s Laboratory Approval Program (LAP) for the test methods specified in Table 2, or any test methods approved by CARB and EPA, and authorized by the Executive Officer.

**Table 2: Testing Methods**

<b>Pollutant</b>	<b>Method</b>
NO <sub>x</sub>	South Coast AQMD Method 100.1
CO	South Coast AQMD Method 100.1
VOC	South Coast AQMD Method 25.1* or Method 25.3*

\*Excluding ethane and methane

- (3) An owner or operator of a Unit without an approved generic source test protocol shall submit a source test protocol to the Executive Officer for written approval at least 60 days before the scheduled date of the test. The source test protocol shall include, but not limited to the following:
  - (A) Name, address, and phone number of the Unit operator and a South Coast AQMD-approved source testing contractor that will conduct the test;
  - (B) All relevant application number(s), permit number(s), and emission limits;
  - (C) Description of the Unit(s) to be tested and the test methods and procedures to be used;
  - (D) Number of tests to be conducted and under what loads; and

- (E) Required minimum sampling time for the VOC test, based on the analytical detection limit and expected VOC levels.
- (4) An owner or operator of a Unit with an approved generic source test protocol or other valid approved source test protocol shall conduct the source test within 90 days after a written approval of the source test protocol by the Executive Officer is electronically distributed.
- (5) An owner or operator of a Unit with an approved generic protocol, or with a previously approved source test protocol, shall submit a subsequent protocol if the Unit has been altered in a manner that requires a permit modification, if emission limits for the Unit have changed since the previous source test, or if requested by the Executive Officer.
- (6) An owner or operator of a Unit shall provide the Executive Officer at least 30 days prior notice of any source test to afford the Executive Officer the opportunity to have an observer present. If, after the 30 days prior notice is given, there is a delay (due to operational problems, etc.) in conducting the scheduled source test, the owner or operator of a Unit shall notify the Executive Officer as soon as possible of any delay in the original test date, either by providing notice of the rescheduled date of the source test at least seven days prior, or by arranging a rescheduled date mutually agreed upon with the Executive Officer.
- (7) An owner or operator of a Unit shall provide source testing facilities as follows:
  - (A) Sampling ports adequate for the applicable test methods. This includes constructing the air pollution control system and stack or duct such that pollutant concentrations can be accurately determined by applicable test methods;
  - (B) Safe sampling platform(s), scaffolding or mechanical lifts, including safe access, that comply with California General Safety Orders; and
  - (C) Utilities for sampling and testing equipment.
- (8) The LAP contractor shall not conduct a source test within 40 operating hours of any Unit servicing or Tuning
- (9) The LAP contractor shall conduct source testing for at least 30 mins during normal operation (actual duty cycle). This test shall not be conducted under a steady-state condition unless it is the normal operation. The LAP contractor shall not conduct any pre-tests for compliance.

- (10) In lieu of meeting the requirements in paragraph (f)(1), an owner or operator of six or more identical Units located at the same Facility may elect to conduct pooled source testing for NO<sub>x</sub>, VOC reported as carbon, and CO concentrations (concentrations in ppm by volume, corrected to 15 percent oxygen on dry basis), pursuant to the following:
  - (A) At least one-third of the Units shall be source tested during the initial source test and all subsequent source testing shall be conducted on a different one-third Units. Source testing of pooled Units shall be conducted at least once every three years from the date of the previous source test, no later than the last day of the calendar month that the test is due;
  - (B) Identical Units installed after the initial source test has been performed shall be included with the Units subject to the pooled subsequent emissions testing pursuant to subparagraph (f)(10)(A);
  - (C) If any Unit subject to the pooled source testing exceeds any emissions standards in Table 1, the owner or operator shall repair the Unit that failed and repeat the source test and shall conduct source testing on an additional one-third Units; and
  - (D) All pooled Units at a Facility shall be source tested at least once every nine years.
  
- (g) Monitoring, Recordkeeping, and Reporting
  - (1) Monitoring
    - (A) An owner or operator of a Unit shall maintain an operational non-resettable totalizing time meter to determine the elapsed operating time of the Unit.
    - (B) An owner or operator of a Unit shall conduct diagnostic emission checks by a portable NO<sub>x</sub>, CO, and oxygen analyzer at least once every two years from the date of the previous emission check, no later than the last day of the calendar month that the test is due, or every 8,760 operating hours, whichever occurs first, and comply with the following requirements:
      - (i) No Unit or control system maintenance or Tuning may be conducted within 40 hours prior to the diagnostic emission check, unless it is an unscheduled, required repair;
      - (ii) The portable analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and

recommendations and in accordance with the South Coast AQMD's Combustion Gas Periodic Monitoring Protocol of Nitrogen Oxides, Carbon Monoxide, and Oxygen from Combustion Sources subject to South Coast Air Quality Management District Rules 1110.2, 1146, and 1146.1, or subsequent protocol approved by EPA and the Executive Officer;

- (iii) The portable analyzer tests required in subparagraph (g)(1)(B) shall only be conducted by a person who has completed an appropriate South Coast AQMD-approved training program in the operation of portable analyzers and has received a certification issued by South Coast AQMD; and
  - (iv) A source test pursuant to (f)(1) shall be an acceptable substitute diagnostic emission check to satisfy subparagraph (g)(1)(B).
- (C) If a diagnostic emission check results in finding emissions in excess of rule or permit limits, an owner or operator shall correct the exceedance as soon as possible and demonstrate compliance with another diagnostic emission check pursuant to (g)(1)(B).
- (D) An owner or operator of a Unit shall maintain a net output meter that meets ANSI C12.20 or an equivalent standard.
- (E) An owner or operator of a Unit shall maintain an operational parametric monitoring system including the associated components necessary to maintain a system that measures air-to-fuel ratio.
- (F) An owner or operator of a Unit shall inspect and maintain all sensors and meters used by the parametric monitoring system per manufacturer's recommendations as specified in the operating manual.
- (G) An owner or operator of a Unit shall develop and implement procedures for at least daily monitoring of the parametric monitoring system.
- (2) Recordkeeping
- An owner or operator of a Unit shall retain all data logs, source test reports, and other records required by this rule for at least five years and be made available to the Executive Officer upon request.
- (A) The owner or operator of a Unit shall maintain records, on a monthly basis, for the following parameters(s) or item(s):
    - (i) Total hours of operation;

- (ii) Quantity of fuel consumption (e.g. cubic feet of gas);
    - (iii) Date of last emissions test and cumulative hours of operation since the last emissions test required in subdivision (f) and subparagraph (g)(1)(B);
    - (iv) Megawatt-hours of electricity produced; and
    - (v) Air-to-Fuel system faults, alarms, and any other related emission control malfunctions.
  - (B) An owner or operator of a Unit shall keep records to demonstrate compliance with paragraphs (e)(1), (f)(1), (f)(8), (f)(10), and (g)(1).
  - (C) An owner or operator of a Unit shall keep operating records to demonstrate that it meets the requirements of the emissions testing deadlines, pursuant to paragraph (f)(1), (f)(10), and (g)(1)(B).
- (3) Reporting  
An owner or operator of a Unit shall submit all source test reports to the Executive Officer within 60 days of completion of the test.
- (h) Exemptions
  - (1) The provisions of subdivision (d) and subparagraph (g)(1)(B) shall not apply to Laboratory Units used for testing and research purposes.
  - (2) The provisions of subdivision (f) and subparagraph (g)(1)(B) shall not apply to Emergency Standby Units, Units used for fire-fighting and flood control, and any other emergency Unit approved by the Executive Officer, which have permit conditions that limit operation to 200 hours or less per year as determined by an operational non-resettable totalizing time meter.