



10 CSR 10-6.390 Control of NO_x Emissions From Large Stationary Internal Combustion Engines

(1) Applicability.

(A) This rule applies to any large stationary internal combustion engine **greater than one thousand three hundred (1,300) horsepower** located in the counties of Bollinger, Butler, Cape Girardeau, Carter, Clark, Crawford, Dent, Dunklin, Franklin, Gasconade, Iron, Jefferson, Lewis, Lincoln, Madison, Marion, Mississippi, Montgomery, New Madrid, Oregon, Pemiscot, Perry, Pike, Ralls, Reynolds, Ripley, St. Charles, St. Francois, St. Louis, Ste. Genevieve, Scott, Shannon, Stoddard, Warren, Washington, and Wayne [~~counties~~] and the City of St. Louis [~~greater than one thousand three hundred (1,300) horsepower~~] that—

[~~(A)~~] 1. Emitted greater than one (1) ton per day of **oxides of nitrogen (NO_x)** on average during the period from May 1 through September 30 of 1995, 1996, or 1997; or

[~~(B)~~] 2. [~~Begins~~] **Began** operation after September 30, 1997.

(B) **Exemptions.**

[~~(C)~~] 1. Any stationary internal combustion engine that meets the definition of emergency standby engine in [~~subsection (2)(C) of this rule~~] **10 CSR 10-6.020** is exempt from this rule.

[~~(D)~~] 2. Any compression ignited **or spark-ignited** stationary internal combustion engine that [~~begins~~] **began** operation after September 30, 1997, and emits twenty-five (25) tons or less of NO_x during the period from May 1 through September 30 is exempt from [~~the requirements in subparagraphs (3)(B)3. and (3)(B)4.~~] **section (3) and subsection (5)(A)** of this rule [~~but subject to the record keeping and reporting requirements in section (4) of this rule~~]. **The owner or operator of an exempt large stationary internal combustion engine must demonstrate compliance with the twenty-five (25) ton exemption threshold using one (1) of the methods in subsection (5)(B) of this rule.** This exemption will be based on the previous year NO_x emissions during the period from May 1 through September 30. If the exemption limit is exceeded, for any reason, the engine will be required to meet the applicable [~~limits~~] **requirements** in subsections (3)(B), (3)(D), (3)(E), and (3)(F) of this rule each year thereafter.

(2) Definitions. Definitions of certain terms used in this rule may be found in 10 CSR 10-6.020.

(3) General Provisions.

(A) **Emission Requirements.**

1. **For engines emitting more than one (1) ton per day of NO_x on average during the period from May 1 through September 30 in 1995, 1996, or 1997—**

~~[(A)]~~ **A.** An owner or operator of a large stationary internal combustion engine ~~[meeting the applicability of subsection (1)(A) of this rule shall calculate]~~ **must use the following calculation to determine** the allowable NO_x emission rate for each applicable engine **and not exceed this emission rate limit for any ozone season thereafter** using:

$$ER = (NO_{x \text{ act}}/UR) \times 1.102 \times 10^{-6} \times 0.1$$

where,

ER = the allowable emission rate for each engine in grams per horsepower-hour;

NO_{x act} = the highest actual NO_x emissions, reported in tons per control period, for the period from May 1 through September 30 for one of the years 1995, 1996, or 1997 based on the best available emission information for each engine; and

UR = the utilization rate in horsepower-hours during the same period as NO_{x act}

~~[(B)]~~ An owner or operator of a large stationary internal combustion engine meeting the applicability of subsection (1)(B) of this rule shall not operate an engine to exceed the permitted emission rate or the following emission rate, whichever is more stringent:

- ~~1.~~ For rich burn SI engines 3.0 grams per horsepower hour;
- ~~2.~~ For lean burn SI engines 3.0 grams per horsepower hour;
- ~~3.~~ For diesel engines 2.3 grams per horsepower hour; or
- ~~4.~~ For dual fuel engines 1.5 grams per horsepower hour;

~~[(C)]~~ **B.** **In lieu of subparagraph (3)(A)1.A. of this rule,** [A]an owner or operator of a large stationary internal combustion engine may choose to establish a facility-wide NO_x emissions cap ~~[in lieu of compliance with subsection (3)(A) of this rule. If the owner or operator elects to comply with the requirements of subsection (3)(A), the owner or operator shall submit a commitment in writing no later than May 1, 2005, to the director stating the intent to comply with that subsection].~~ If the owner or operator commits to comply with this ~~[subsection (3)(A)]~~ **subparagraph** rather than ~~[subsection]~~ **subparagraph (3)(A)1.A.** of this rule, the owner or operator ~~[shall]~~ **must** submit the following to the director.

~~[1-]~~ **(I)** The facility-wide NO_x emissions from the year of data that would be used in ~~[subsection (3)(A)]~~ **subparagraph**

- [2.] (II) ~~(3)(A)1.A.~~ of this rule on a unit-by-unit basis;
- [3.] (III) The number of tons of NO_x emission reductions that would be required in ~~[subsection (3)(A)]~~ **subparagraph (3)(A)1.A.** of this rule on a unit-by-unit basis;
- [A.] (a) A detailed inventory of all engines being used to comply with the NO_x emission cap including the:
 - [B.] (b) Uncontrolled emission rate of all engines at the facility;
 - [C.] (c) Controlled emission rate for all engines being controlled under the NO_x emissions cap;
 - [D.] (d) Capacity of each engine at the facility; and
 - [E.] (e) Utilization rate of each engine at the facility; and
- [4.] (IV) The controlled NO_x emissions from the facility during the control period, May 1 through September 30.

2. **For engines that began operation after September 1997. An owner or operator of a large stationary internal combustion engine must not operate an engine to exceed the permitted NO_x emission rate or the following NO_x emission rate, whichever is more stringent:**

- A. **For rich-burn spark-ignited (SI) engines 3.0 grams per horsepower-hour;**
- B. **For lean-burn SI engines 3.0 grams per horsepower-hour;**
- C. **For diesel engines 2.3 grams per horsepower-hour; or**
- D. **For dual fuel engines 1.5 grams per horsepower-hour;**

~~[(D)]~~ **(B) Reduced Energy Consumption Option.** To meet the requirements of ~~[subsection (3)(A)]~~ **subparagraph (3)(A)1.A. or paragraph [(3)(B)](3)(A)2.** of this rule, the owner or operator of a large stationary internal combustion engine may take into account as a portion of the required NO_x reductions, physical and quantifiable measures to increase energy efficiency, reduce energy demand, or increase use of renewable fuels **for a particular engine.**

~~[(E)]~~ **(C) Monitoring Requirements.** ~~The owner or operator of a large stationary internal combustion engine must monitor for compliance in accordance with subsection (5)(A) of this rule.~~

- [1.] Any owner or operator meeting the applicability of section (1) of this rule shall not operate such equipment unless it is equipped with one (1) of the following:
 - A. A continuous emissions monitoring system (CEMS), which meets the applicable requirements of 40 CFR 60, subpart A, Appendix B, and complies with the quality assurance procedures specified in 40 CFR 60, Appendix F. The CEMS shall be used to demonstrate compliance with the applicable emission limit; or
 - B. A calculational and record keeping procedure based upon actual NO_x emissions testing and correlations with operating parameters. The installation, implementation, and use of such an alternate calculational and record keeping procedure must be approved by the director and EPA and incorporated into the SIP in writing prior to implementation.

2. The CEMS or approved alternate monitoring procedure shall be operated and maintained in accordance with an on-site CEMS or alternate monitoring plan approved by the director.]

~~[(F)]~~(D) Excess Emissions During Start-Up, Shutdown, or Malfunction. If the owner or operator provides notice of excess emissions pursuant to state rule 10 CSR 10-6.050(3)(B), the director will determine whether the excess emissions are attributable to start-up, shutdown, or malfunction conditions, pursuant to rule 10 CSR 10-6.050(3)(C). [If the director determines that the excess emissions are attributable to such conditions, and if such excess emissions cause an engine to exceed the applicable emission limits in this rule, the director will determine whether enforcement action is warranted, as provided in rule 10 CSR 10-6.050(3)(C). If the director determines that the excess emissions are attributable to a start-up, shutdown, or malfunction condition and does not warrant enforcement action, those emissions would not be included in the calculation of ozone season NO_x emissions].

~~[(4)]~~ Reporting and Record Keeping.

(A) Reporting Requirements. The owner or operator subject to this rule or to the exemption in subsection (1)(D) of this rule shall comply with the following requirements:

1. The owner or operator shall submit to the director the identification number and type of each unit subject to this rule or to the exemption in subsection (1)(D) of this rule, the name and address of the plant where the unit is located, and the name and telephone number of the person responsible for demonstrating compliance with this rule before May 1, 2007;
2. The owner or operator shall submit an annual report documenting for each controlled unit or each unit subject to subsection (1)(D) of this rule the total NO_x emissions from May 1 through September 30 of each year to the director by November 1 of that year, beginning in 2007; and
3. The owner or operator of a unit subject to this rule or to the exemption in subsection (1)(D) of this rule and operating a CEMS shall submit an excess emissions monitoring systems performance report, in accordance with the requirements of 40 CFR 60.7(c) and 60.13.

(B) Record Keeping Requirements. Any owner or operator of a unit subject to this rule or to the exemption in subsection (1)(D) of this rule shall maintain all records necessary to demonstrate compliance with this rule for a period of five (5) years at the plant at which the subject unit is located. The records shall be made available to the director upon request. The owner or operator shall maintain records of the following information for each day of the control period the unit is operated:

1. The identification number of each unit and the name and address of the plant where the unit is located for each unit subject to the requirements of this rule or to the exemption in subsection (1)(D) of this rule;
2. The calendar date of record;
3. The number of hours the unit is operated during each day including

start-ups, shutdowns, malfunctions, and the type and duration of maintenance and repair;

4. The date and results of each emissions inspection;
5. A summary of any emissions corrective maintenance taken;
6. The results of all compliance tests; and
7. If a unit is equipped with a CEMS:
 - A. The identification of time periods during which NO_x standards are exceeded, the reason for the exceedance, and action taken to correct the exceedance and to prevent similar future exceedances; and
 - B. The identification of the time periods for which operating conditions and pollutant data were not obtained including reasons for not obtaining sufficient data and a description of corrective actions taken.]

(4) Reporting and Record Keeping. The owner or operator of a large stationary internal combustion engine subject to this rule or to the exemption in paragraph (1)(B)2. of this rule must comply with the following requirements in this section of the rule.

(A) Reporting Requirements.

1. Submit to the director the identification number and type of each engine subject to this rule or to the exemption in paragraph (1)(B)2. of this rule, the name and address of the plant where the engine is located, and the name and telephone number of the person responsible for demonstrating compliance with this rule;
2. Submit a report documenting for each engine the total NO_x emissions of the first full compliance period from May 1 through September 30 to the director by November 1 of that year; and
3. If an engine is equipped with a continuous emissions monitoring system (CEMS), submit an excess emissions monitoring systems performance report, in accordance with the requirements of 40 CFR 60.7(c) and 60.13; and

(B) Record-Keeping Requirements.

1. Maintain all records necessary to demonstrate compliance with this rule for a period of five (5) years at the plant at which the subject engine is located;
2. Make the records available to the director upon request; and
3. Maintain records of the following information for each day of the control period the engine is operated:
 - A. The identification number of each applicable engine and the name and address of the plant where the engine is located;
 - B. The calendar date of record;
 - C. The number of hours the engine is operated during each day including start-ups, shutdowns, malfunctions, and the type and duration of maintenance and repair;
 - D. Where applicable, the date and results of any inspection that

affect emissions;

E. Where applicable, a summary of any corrective maintenance taken that affect emissions;

F. Where applicable, the results of all compliance tests; and

G. If an engine is equipped with a CEMS—

(I) The identification of time periods during which NO_x standards are exceeded, the reason for the exceedance, and action taken to correct the exceedance and to prevent similar future exceedances; and

(II) The identification of the time periods for which operating conditions and pollutant data were not obtained including reasons for not obtaining sufficient data and a description of the corrective actions taken.

(5) Test Methods. [*Not Applicable*]

(A) The owner or operator of a large stationary internal combustion engine meeting the applicability requirements of subsection (1)(A) of this rule and not exempt under subsection (1)(B) of this rule, must not operate such equipment unless one (1) of the following is met:

1. A CEMS, which meets the applicable requirements of 40 CFR part 60, subpart A, Appendix B, and complies with the quality assurance procedures specified in 40 CFR part 60, Appendix F. The CEMS must be used to demonstrate compliance with the applicable emission limit and operated and maintained in accordance with the on-site CEMS requirements; or
2. An alternate monitoring method, consisting of a calculational and record keeping procedure based upon actual NO_x emissions testing and correlations with operating parameters. The installation, implementation and use of such an alternate monitoring method must be approved by the director and the U.S. Environmental Protection Agency (EPA); and incorporated into this rule and the state implementation plan (SIP) prior to implementation. The alternate monitoring method must be operated and maintained in accordance with the approved alternate monitoring plan.

(B) One (1) of the following emissions measurement approaches must be used to provide a demonstration of compliance with the twenty-five (25) ton exemption threshold for compression ignited and spark-ignited stationary internal combustion engines under paragraph (1)(B)2. of this rule:

1. Certificates of conformity for affected engines confirming compliance with 40 CFR 90, 40 CFR 1048, or 40 CFR 1054 and operating the engine according to the manufacturer's specifications;
2. Stack tests as specified in 10 CSR 10-6.030(7);
3. Engine manufacturer technical specification sheets for affected engines; or
4. Other methods, as approved by the director and the EPA; and incorporated into this rule and the SIP prior to implementation.

These may include fuel usage calculations, approved engineering calculations, other methods described in permits, or other EPA documentation.

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