OZONE TRANSPORT COMMISSION

OTC Regulatory and Technical Guideline for Control of Nitrogen Oxides (NOx) Emissions from Natural Gas Pipeline Compressor Fuel-Fired Prime Movers

STATIONARY and AREA SOURCES COMMITTEE

Revised May 14, 2019

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OTC Regulatory and Technical Guideline for Control of Nitrogen Oxides (NOx) Emissions from Natural Gas Pipeline Compressor Fuel-Fired Prime Movers

This Guideline was developed by the Ozone Transport Commission (OTC) as part of a regional effort to attain and maintain the eight-hour ozone standard, and reduce eight-hour ozone levels.

Notes:

1. *States opting to promulgate rules based on this Guideline must comply with State specific administrative requirements and procedures.*
2. *The term <OTC STATE AGENCY> is a placeholder for individual State Agency names.*
3. *If the owner or operator of a natural gas fueled prime mover subject to this Guideline is unable to comply with the NOx emissions rate limitations or % NOx reduction from uncontrolled shown in specified Section 4 of this Guideline, the owner or operator shall submit an alternative NOx RACT determination, in accordance with Section 5 of this Guideline, for review and approval by the appropriate State Agency which will prepare a revised SIP submittal to the U.S. EPA as required.*

1. Purpose

The purpose of this Guideline is to provide NOx emissions limitations for existing natural gas fueled prime movers powering compressors used for pipeline transportation of natural gas, and to also provide NOx emissions limitations for existing natural gas fueled prime movers powering compressors used for the storage (injection and extraction) of natural gas. Control of NOx emissions from subject sources will help reduce the adverse impact of those emissions on public health, safety, and welfare.

2. Definitions

Note: The definitions used in this section are provided as examples for OTC state agency adoption as needed.

The following words and terms, when used in this Guideline, shall have the following meanings:

2.1 Combustion turbine means a device in which expanding gases from the combustion chamber(s) drive the blades of a turbine to generate mechanical energy in the form of a rotating shaft.

2.2 Compressor means a mechanical device (including, but not limited to reciprocating, axial flow, centrifugal, etc.) designed to increase the pressure of the natural gas in order to facilitate the movement of the natural gas through a pipeline.

2.3 Existing means the natural gas fueled compressor prime mover was in operation no later than MM-DD-YYYY in any location.

2.4 Field gathering means taking natural gas from the wellhead, and sometimes boosting the natural gas pressure from the wellhead pressure, and injecting the natural gas into field gathering pipelines to transport the natural gas to processing facilities and/or to inject the natural gas into the transport pipelines.

2.5 Four stroke (4S) means any type of engine which completes the power cycle in two crankshaft revolutions, with intake and compression strokes in the first revolution and power and exhaust strokes in the second revolution.

2.6 Lean burn (LB) means any two-stroke or four-stroke spark ignited reciprocating internal combustion engine that does not meet the definition of a rich burn engine.

2.7 Nameplate rating means: for reciprocating engine natural gas fueled compressor prime movers, the manufacturer's design maximum capacity in horsepower (hp) at the installation site conditions, and for combustion turbine natural gas fuel compressor prime movers, the manufacturer's design maximum capacity at International Organization for Standardization (ISO) 2533 conditions (59^{o} Fahrenheit or 288 Kelvin, 60% relative humidity, and 101.3 kilopascals of pressure). Starting from the completion of any physical change in the prime mover resulting in an increase in the maximum output (in hp) that the prime mover is capable of producing on a steady state basis and during continuous operation, such increased maximum output (at site location conditions for reciprocating prime movers and ISO conditions for combustion turbine prime movers) shall be as specified by the person conducting the physical change.

2.8 Natural gas means a naturally occurring mixture of hydrocarbon and non-hydrocarbon gases found in geologic formations beneath the Earth's surface, of which the principal constituent is methane. Natural gas may be field or pipeline quality.

2.9 Natural gas fueled means that ≥90% of the prime mover's heat input, excluding recirculated or recuperated exhaust heat, is derived from the combustion of natural gas.

2.10 Operator means any person who operates, controls, or supervises a natural gas fueled prime mover subject to this Guideline and shall include, but not be limited to, any holding company, utility system, or plant manager of such natural gas fueled prime mover.

2.11 Owner means any holder of any portion of the legal or equitable title in a natural gas fueled prime mover subject to this Guideline.

2.12 Pipeline transportation of natural gas means the movement of natural gas through an interconnected network of compressors and pipeline components, from field gathering networks near wellheads to end users, including:

a. The compressor and pipeline network used for field gathering of natural gas from the wellheads for delivery to either processing facilities or connections to pipelines used for intrastate or interstate transportation of the natural gas.

b. The compressor and pipeline network used to transport the natural gas from field gathering networks or processing facilities over a distance (intrastate or interstate) to and from storage facilities, to large natural gas end-users, and to distribution organizations that provide the natural gas to end-users.

2.13 Prime mover means a spark-ignited reciprocating internal combustion engine or combustion turbine.

2.14 Reasonably available control technology (RACT) means the lowest emission limit for NOx that a particular source is capable of meeting by the application of NOx emissions control technology that is reasonably available considering technological and economic feasibility.

2.15 Reciprocating internal combustion engine means a reciprocating engine in which power, produced by heat and/or pressure that is developed in the engine combustion chambers by the burning of a mixture of air and fuel, is subsequently converted to mechanical work.

2.16 Rich burn (RB) means any four-stroke spark ignited reciprocating internal combustion engine where the manufacturer's recommended operating air/fuel ratio divided by the stoichiometric air/fuel ratio at full load conditions is less than or equal to 1.1. Internal combustion engines originally manufactured as rich burn engines, but modified with passive emission control technology for NO_X (such as pre-combustion chambers) will be considered lean burn engines. Also, existing internal combustion engines where there are no manufacturer's recommendations regarding air/fuel ratio will be considered a rich burn engine if the excess oxygen content of the exhaust at full load conditions is less than or equal to 2 percent.

2.17 Spark ignited means a reciprocating internal combustion engine utilizing a spark plug (or other sparking device) to ignite the air/fuel mixture and with operating characteristics significantly similar to the theoretical Otto combustion cycle.

2.18 Shutdown means the period of unit operation between when the compressor prime mover has been unloaded to the minimum load and when the combustion of fuel in the prime mover has ceased.

2.19 Startup means the period of unit operation between when fuel combustion commences in the prime mover and when the compressor prime mover has been loaded to its minimum load.

2.20 Stoichiometric means the theoretical air-to-fuel ratio required for complete combustion.

2.21 Two stroke (2S) means a type of reciprocating internal combustion engine which completes the power cycle in a single crankshaft revolution by combining the intake and compression operations into one stroke (one-half revolution) and the power and exhaust operations into a second stroke. This system requires auxiliary exhaust scavenging of the combustion products and inherently runs lean (excess of air) of stoichiometry.

2.22 Uncontrolled means the full load (±25% of nameplate rating) NOx emissions rate of a natural gas fueled compressor prime mover prior to the installation of any NOx controls, including NOx controls installed during prior NOx reduction processes, as documented by Continuous Emission Monitoring Systems (CEMS), stack test, or other method or information approved by the <OTC STATE AGENCY>.

3. Applicability

This Guideline is applicable to existing natural gas fueled prime movers powering compressors used for pipeline transportation of natural gas and the underground storage of natural gas.

3.1 This Rule does not apply to:

3.1.1 Prime movers with nameplate horse-power ratings of <200 hp.

3.1.2 In accordance with the provisions of Section 7 of this Guideline, natural gas fueled compressor prime movers that operate less than 438 hours per year are exempt from the NOx emissions limitations and testing requirements of this Guideline provided they meet the applicable requirements of Section 7 of this Guideline.

4. Emissions Limitations

Except as provided for in Section 5 of this Guideline, no later than MM-DD-YYYY, natural gas compressor prime movers subject to this Guideline shall not exceed the following NOx emissions limits:

4.1 For two-stroke lean burn internal combustion engines, the following NOx emissions limitations are applicable:

4.1.1 Output rating of 200 HP ≤ nameplate rating < 500 HP:

4.1.1.1 2.0 g/BHP-hr, or an emissions rate equivalent to 80% reduction from uncontrolled, whichever emissions rate is greater; or

4.1.1.2 An hourly NOx mass emissions no greater than the mass emissions calculated by multiplying the applicable NOx emissions

rate from Section 4.1.1.1 of this rule times the prime mover's nameplate rating.

4.1.2 Output rating of 500 HP ≤ nameplate rating < 2000 HP:

4.1.2.1 1.5 g/BHP-hr, or an emissions rate equivalent to 80% reduction from uncontrolled, whichever emissions rate is greater; or

4.1.2.2 An hourly NOx mass emissions no greater than the mass emissions calculated by multiplying the applicable NOx emissions rate from Section 4.1.2.1 of this rule times the prime mover's nameplate rating.

4.1.3 Nameplate rating of ≥2000 HP:

4.1.3.1 1.5 g/BHP-hr, or an emissions rate equivalent to 90% reduction from uncontrolled, whichever emissions rate is greater; or

4.1.3.2 An hourly NOx mass emissions no greater than the mass emissions calculated by multiplying the applicable NOx emissions rate from Section 4.1.3.1 of this rule times the prime mover's nameplate rating.

4.2 For four stroke lean burn internal combustion engines, the following NOx emissions limitations are applicable:

4.2.1 Output rating of 200 HP ≤ nameplate rating < 500 HP:

4.2.1.1 1.5 g/BHP-hr, or an emissions rate equivalent to 90% reduction from uncontrolled, whichever emissions rate is greater; or

4.2.1.2 An hourly NOx mass emissions no greater than the mass emissions calculated by multiplying the applicable NOx emissions rate from Section 4.2.1.1 of this rule times the prime mover's nameplate rating.

4.2.2 Output rating of 500 HP ≤ nameplate rating < 2000 HP:

4.2.2.1 1.5 g/BHP-hr, or an emissions rate equivalent to 90% reduction from uncontrolled, whichever emissions rate is greater; or

4.2.2.2 An hourly NOx mass emissions no greater than the mass emissions calculated by multiplying the applicable NOx emissions rate from Section 4.2.2.1 of this rule times the prime mover's nameplate rating.

4.2.3 Nameplate rating of 2000 HP or more:

4.2.3.1 1.5 g/BHP-hr, or an emissions rate equivalent to 90% reduction from uncontrolled, whichever emissions rate is greater; or

4.2.3.2 An hourly NOx mass emissions no greater than the mass emissions calculated by multiplying the applicable NOx emissions

rate from Section 4.2.3.1 of this rule times the prime mover's nameplate rating.

4.3 For four stroke rich burn internal combustion engines, the following NOx emissions limitations are applicable:

4.3.1 Output rating of 200 HP ≤ nameplate rating < 500 HP:

4.3.1.1 1.5 g/BHP-hr, or an emissions rate equivalent to 90% reduction from uncontrolled, whichever emissions rate is greater; or

4.3.1.2 An hourly NOx mass emissions no greater than the mass emissions calculated by multiplying the applicable NOx emissions rate from Section 4.3.1.1 of this rule times the prime mover's nameplate rating.

4.3.2 Output rating of 500 HP ≤ nameplate rating < 2000 HP:

4.3.2.1 1.5 g/BHP-hr, or an emissions rate equivalent to 90% reduction from uncontrolled, whichever emissions rate is greater; or

4.3.2.2 An hourly NOx mass emissions no greater than the mass emissions calculated by multiplying the applicable NOx emissions rate from Section 4.3.2.1 of this rule times the prime mover's nameplate rating.

4.3.3 Nameplate rating of ≥2000 HP:

4.3.3.1 1.0 g/BHP-hr, or an emissions rate equivalent to 95% reduction from uncontrolled, whichever emissions rate is greater; or

4.3.3.2 An hourly NOx mass emissions no greater than the mass emissions calculated by multiplying the applicable NOx emissions rate from Section 4.3.3.1 of this rule times the prime mover's nameplate rating.

4.4 For combustion turbines, the following NOx emissions limitations are applicable:

4.4.1 Nameplate rating of less than 2000 HP:

4.4.1.1 150 ppmvd @ 15% O_2, or 80% reduction from uncontrolled, whichever emissions rate is greater; or

4.4.1.2 An hourly NOx mass emissions no greater than the mass emissions equivalent of the combustion turbine operating at its nameplate rating at the applicable NOx emissions rate from Section 4.4.1.1 of this rule.

4.4.2 Output rating of 2000 HP ≤ nameplate rating < 5000 HP:

4.4.2.1 50 ppmvd @ 15% O_2, or 80% reduction from uncontrolled, whichever emissions rate is greater; or

4.4.2.2 An hourly NOx mass emissions no greater than the mass emissions equivalent of the combustion turbine operating at its nameplate rating at the applicable NOx emissions rate from Section 4.4.2.1 of this rule.

4.4.3 Nameplate rating of 5000 HP or more:

4.4.3.1 25 ppmvd @ 15% O_2, or 80% reduction from uncontrolled, whichever emissions rate is greater; or

4.4.3.2 An hourly NOx mass emissions no greater than the mass emissions equivalent of the combustion turbine operating at its nameplate rating at the applicable NOx emissions rate from Section 4.4.3.1 of this rule.

Table 1 NOx LIMITS*

Two-Stroke Lean Burn ICE

Nameplate Rating (HP)	NOx Rate (g/BHP-hr) or (% Reduction)
200 - 499	2.0 (80%)
500 - 1999	1.5 (80%)
≥2000	1.5 (90%)

Four-Stroke Lean Burn ICE

Nameplate Rating (HP)	NOx Rate (g/BHP-hr) or (% Reduction)
200 - 499	1.5 (90%)
500 - 1999	1.5 (90%)
≥2000	1.5 (90%)

Four-Stroke Rich Burn ICE

Nameplate Rating (HP)	NOx Rate (g/BHP-hr) or (% Reduction)
200 - 499	1.5 (90%)
500 - 1999	1.5 (90%)
≥2000	1.0 (95%)

Combustion Turbines**

Nameplate Rating (HP) (MW)	NOx Rate (ppmvd @ 15% O_2)
≤2000 (1.5)	150.0 (6.0 lb/MWhr)
2000 - 4999 (1.5-3.7)	50.0 (2.0 lb/MWhr)
≥5000 (3.7)	25.0 (1.0 lb/MWhr)

Notes:

*If the owner or operator of a natural gas fueled prime mover subject to this Guideline is unable to comply with the NOx emissions rate limitations or % NOx reduction from uncontrolled shown in Table 1 above and specified Section 4 of this Guideline, the owner or operator shall submit an alternative NOx RACT determination, in accordance with Section 5 of this Guideline, for review and approval by the appropriate State Agency which will prepare a revised SIP submittal to the U.S. EPA as required.

**Combustion Turbine NOx rates are from 40 CFR 60 Subpart KKKK Table 1[1].

4.5 The emissions limitations of Sections 4.1 through 4.4 of this Guideline are applicable during all periods of natural gas fueled compressor prime mover operation, except:

4.5.1 Reserved.

4.5.2 Combustion turbine prime movers operating at ambient temperatures less than 0^{o} F.

4.5.3 Combustion turbine prime movers operating below the effective NOx control range of any installed low-NOx combustion controls.

4.5.4 Natural gas fueled compressor prime movers utilizing post-combustion NOx controls operating at loads below the effective NOx control range of the installed post-combustion controls.

4.4.5 During periods of operation covered by Sections 4.5.1 through 4.5.4 of this Guideline, hourly NOx mass emissions shall not exceed the hourly NOx mass emissions equivalent to the combustion turbine operating at its nameplate rating at the applicable NOx emissions rate from Sections 4.4.1.1, 4.4.2.1, or 4.4.3.1 of this rule.

5. Alternative RACT Emissions Limitation Determination

5.1 If the owner or operator of a natural gas fueled prime mover subject to this Guideline is unable to comply with the emissions rate limitations of Section 4 of this Guideline, the owner or operator shall submit an alternative NOx RACT determination, in accordance with Section 5 of this Guideline, for review and approval by the <OTC STATE AGENCY> and for the <OTC STATE AGENCY> to prepare a revised SIP submittal to the USEPA as required.

5.1.1 An alternative RACT proposal may address the NOx emissions from a specific, single natural gas fueled prime mover, or

5.1.2 An alternative RACT proposal may address NOx emissions averaging of multiple natural gas fueled prime movers under the control of a common

[1] 40 CFR Appendix Table 1 to Subpart KKKK of Part 60, Nitrogen Oxide Emission Limits for New Stationary Combustion Turbines. https://www.gpo.gov/fdsys/pkg/CFR-2014-title40-vol7/pdf/CFR-2014-title40-vol7-part60-subpartKKKK-app1.pdf

owner or operator at a single facility to achieve the same level of NOx reductions that would be achieved if all of the natural gas fueled prime movers at the location met the applicable NOx emissions limitations of Section 4 of this rule.

5.2 Alternative RACT determinations made pursuant to Section 5.1 of this Guideline shall be submitted to <OTC STATE AGENCY> no later than MM-DD-YYYY for review and approval.

5.3 An alternative NOx RACT determination submitted in accordance with Section 5.1 of this Guideline shall include, as a minimum, the following information:

5.3.1 The name and address of the owner and operator

5.3.2 The address of the subject natural gas compressor prime mover

5.3.3 Latitude and longitude coordinates of the subject natural gas compressor prime mover

5.3.4 Prime mover technical information including

5.3.4.1 Prime mover manufacturer

5.3.4.2 Prime mover model

5.3.4.3 Prime mover serial number

5.3.4.4 Prime mover configuration (combustion turbine, two stroke lean burn, four stoke lean burn, four stroke rich burn)

5.3.4.5 Prime mover original installation/startup date

5.3.4.6 Prime mover nameplate power rating

5.3.4.7 NOx emissions controls

5.3.4.8 Actual, if available, or estimated NOx emissions rate

5.3.5 Identification of the available NO_x control technologies, the projected effectiveness of the technologies considered, and the estimated costs for installation and operation for each of the technologies

5.3.6 If applicable, description and discussion of any previous NOx reduction modifications, changes in operating practices, etc

5.3.7 Identification of equipment or process modifications that are proposed as RACT for implementation on the subject natural gas fueled prime mover, including a technical evaluation and an economic evaluation supporting the selection of the proposed RACT

5.3.8 Expected NOx emission rate(s) for the range of normal operation of the subject natural gas fueled prime mover.

5.3.9 Proposed testing, monitoring, and reporting procedures

5.3.10 The NOx emission rates for the subject existing natural gas fueled prime movers, prior to implementation of the alternative RACT, established with

approved Continuous Emission Monitoring Systems (CEMS), stack test, or other method approved by the <OTC STATE AGENCY>.

5.3.11 Proposed implementation schedule.

5.3.12 Any other information requested by the <OTC STATE AGENCY>.

6. Testing Requirements

6.1 The owner or operator shall conduct an initial performance test to demonstrate compliance with the applicable NOx emissions limitations of Section 4 of this Guideline no later than MM-DD-YYYY.

6.1.1 The owner or operator shall submit a test protocol to the <OTC STATE AGENCY> at least 30 days prior to emissions testing.

6.2.2 The test methodology shall meet the applicable requirements of 40 CFR Part 60, Appendix A, and the guidance of 40 CFR Part 60 Subpart GG for combustion turbines and the guidance of 40 CFR Part 60 Subpart JJJJ for spark ignited internal combustion engines.

6.2.3 The owner or operator shall submit a compliance test report containing the results of the emissions test to the <OTC STATE AGENCY> no later than 60 days following completion of the emissions test.

6.2 The owner or operator of a natural gas compressor prime mover subject to an alternative RACT emissions limitation in accordance with the provisions of Section 5 of this Guideline shall conduct an initial performance test to demonstrate compliance with the provisions of the approved RACT determination.

6.2.1 The owner or operator shall submit a test protocol to the <OTC STATE AGENCY> at least 30 days prior to emissions testing.

6.2.2 The test methodology shall meet the applicable requirements of 40 CFR Part 60, Appendix A, and the guidance of 40 CFR Part 60 Subpart GG for combustion turbines and the guidance of 40 CFR Part 60 Subpart JJJJ for spark ignited internal combustion engines.

6.2.3 The owner or operator shall submit a compliance test report containing the results of the emissions test to the <OTC STATE AGENCY> no later than 60 days following completion of the emissions test.

6.3 Except as provided in Section 6.4, at least twice per year the owner or operator shall conduct periodic NOx emissions testing of subject natural gas fueled compressor prime movers to demonstrate compliance with the applicable NOx emissions limitations of Section 5 of this Guideline or the applicable alternative RACT NOx emission rate determined in accordance with Section 6 of this Guideline.

6.3.1 The use of reference method equivalent portable analyzers is acceptable provided the portable analyzer is certified using appropriate reference method procedures in 40 CFR Part 60, Appendix A.

6.3.2 The owner or operator shall submit a test protocol to the <OTC STATE AGENCY> for review and approval prior to the first NOx emission test conducted in compliance with Section 6.3 as follows:

6.3.2.1 Test protocols utilizing reference test methods shall be submitted at least 30 days prior to the conduct of the emissions testing.

6.3.2.2 Test protocols utilizing reference method equivalent analyzers shall be submitted at least 30 days prior to the conduct of the first periodic emissions test under Section 6.3 using the reference method equivalent analyzer.

6.3.2.3 Test protocols utilizing reference method equivalent analyzers for testing subsequent to the first periodic emissions test conducted under Section 6.3 utilizing reference method equivalent analyzers are not required to be submitted to the <OTC STATE AGENCY> provided no changes to the protocol have been made subsequent to the initial <OTC STATE AGENCY> approval of such first period emissions test.

6.3.3 The owner or operator shall submit a test report containing the results of the emissions test to the <OTC STATE AGENCY> no later than 30 days following the completion of the emissions test.

6.3.4 Following the conduct of an initial periodic performance test conducted in accordance with Section 6.3, subsequent period performance rests conducted in accordance with Section 6.3 shall be conducted no less than 90 days following the conduct of the most recent NOx emissions performance test.

6.3.5 NOx emissions testing in compliance with the requirements of Section 6.3 of this Guideline may be conducted at any normal operating load from 40% to 100% of the subject natural gas fueled compressor prime mover's nameplate rating.

6.3.6 Each compliance test must include three test runs where each run lasts at least one hour. Compliance is demonstrated by the average of the three 1-hour or longer test runs.

6.4 If a natural gas fueled compressor prime mover demonstrates compliance with the applicable NOx emission limit of Section 5 or Section 6 of this Guideline for three consecutive tests, the testing frequency requirements of Section 6.3 of this Guideline may be reduced from at least twice per year to at least once per year.

6.4.1 If a natural gas fueled compressor prime mover that has met the requirements to reduce testing in accordance with Section 6.4 of this Guideline fails to demonstrate compliance with applicable NOx emission limits in any subsequent emissions test, that natural gas compressor prime mover shall meet the testing frequency requirements of Section 6.3 of this Guideline.

6.4.1.1 If the compliance demonstration failure occurs during the first half of a calendar year, the testing frequency requirements of Section 6.3 become effective during that calendar year.

6.4.1.2 If the compliance demonstration failure occurs during the second half of a calendar year, the testing frequency requirements of Section 6.3 become effective during the subsequent calendar year.

6.4.2 All other testing requirements of Section 6.3 remain unchanged.

6.4.3 There are no limits on the number of time a natural gas fueled compressor prime mover may qualify for reduced testing frequency in accordance with Section 6.4 of this Guideline.

7. Exemptions

7.1 Natural gas fueled compressor prime movers that operate 438 or fewer hours per year are exempt from the emissions limitation requirements of Sections 4 and 5 of this Guideline and are exempt from the testing requirements of Section 6 of this Guideline.

7.2 The owner or operator of a natural gas fueled compressor prime mover seeking exemption in accordance with Section 7.1 of this Guideline shall install a non-resettable operating hour metering device on the prime mover. Annual operating hours for the natural gas fueled compressor prime mover shall be monitored, recorded, and reported to <OTC STATE AGENCY> no later than March 31 of each subsequent calendar year in accordance with the reporting requirements of Section 9.3 of this Guideline.

7.3 A natural gas fueled compressor prime mover that was previously exempt in accordance with Section 7.1 of this Guideline shall permanently lose that exemption if the natural gas fueled compressor prime mover exceeds 438 hours per year of operation in any calendar year.

7.3.1 The owner or operator shall submit a plan for the natural gas compressor prime mover's compliance with all applicable requirements of this Guideline no later than March 31 of the year following the calendar year in

which the natural gas fueled compressor prime mover's exceeded 438 hours of annual operation.

7.3.2 Compliance with all applicable requirements of this Guideline shall be attained no later than December 31 of the year following the calendar year that the natural gas fueled compressor prime mover exceeded 438 hours of annual operation.

7.4 If a natural gas fueled compressor prime mover subject to this Guideline is required by state or federal regulation to monitor and report NOx emissions utilizing <OTC STATE AGENCY> approved CEMS, or the owner or operator of a natural gas fueled compressor prime mover subject to this Guideline elects to monitor and report NOx emissions utilizing <OTC STATE AGENCY> approved CEMS, the owner or operator of the subject natural gas fueled compressor prime mover may petition the <OTC STATE AGENCY> for exemption from the testing requirements of Section 6.3 of this Guideline.

8. Other Requirements

8.1 The owner or operator of a natural gas fueled compressor prime mover subject to this Guideline shall follow an inspection and maintenance plan, incorporating appropriate operating and maintenance experience and any applicable prime mover and emission control manufacturer recommendations, to ensure proper maintenance of the natural gas fueled compressor prime mover and related NOx emissions control equipment in a manner consistent with good air pollution control practices for minimizing emissions. Records and documentation supporting the inspection and maintenance plan shall be permanently maintained at the source facility. Records of inspections and maintenance performed shall be maintained as required by Section 9.1 of this Guideline.

8.2 The owner or operator shall follow operating practices and procedures for the natural gas fueled compressor prime mover and related emissions controls consistent with good air pollution control practices for minimizing NOx emissions across the entire load range of the natural gas fueled compressor prime mover, including, as much as practical, periods of startup, shutdown, and malfunction. Records and documentation supporting the subject operating practices and procedures shall be permanently maintained at the source facility.

8.3 If a natural gas fueled compressor prime mover requires major maintenance and natural gas system conditions require the temporary replacement of the natural gas fueled compressor prime mover, a temporary replacement prime mover may be installed as follows:

8.3.1 The temporary replacement natural gas fueled compressor prime mover shall be similar to the prime mover being temporarily replaced, with similar NOx emissions controls and expected NOx emissions characteristics.

8.3.2 If the temporary replacement natural gas fueled compressor prime mover remains installed for a period exceeding 3 months

8.3.2.1 The temporary replacement natural gas fueled compressor prime mover shall meet the applicable NOx emissions limits specified in Section 4 of this Guideline

8.3.2.2 Compliance with the applicable NOx emissions limitations shall be demonstrated by NOx emissions testing in accordance with the requirements of Section 6.1 of this Guideline, except the testing shall take place within 30 days of exceeding the 3 months temporary replacement period

8.3.3 The owner or operator of a natural gas fueled compressor prime mover shall notify the <OTC STATE AGENCY> of a temporary prime mover replacement within 5 working days of performing the temporary replacement.

8.3.4 The owner or operator of a natural gas fueled compressor prime mover that is being returned to service after temporary replacement shall:

8.3.4.1 Notify the <OTC STATE AGENCY> within 5 working days of the prime movers return to service

8.3.4.2 Demonstrate compliance with the applicable NOx emissions limitations by NOx emissions testing conducted in accordance with Section 6.1 of this Guideline, except the performance test shall be conducted within 30 days of the return to service date.

8.4 If a natural gas fueled compressor prime mover is replaced as part of a routine maintenance prime mover exchange program, a replacement prime mover may be installed as follows:

8.3.1 The replacement natural gas fueled compressor prime mover shall be similar to the prime mover being temporarily replaced, with similar NOx emissions controls and expected NOx emissions characteristics.

8.3.1.1 The replacement natural gas fueled compressor prime mover shall meet the applicable NOx emissions limits specified in Section 4 of this Guideline or alternative NOx RACT plan approved in accordance with Section 5 of this Guideline.

8.3.1.2 Compliance with the applicable NOx emissions limitations shall be demonstrated by NOx emissions testing in accordance with the requirements of Section 6.2 of this Guideline, except the testing

shall take place within 30 days of the replacement natural gas fueled compressor prime mover's initial startup after installation.

8.3.2 The owner or operator of a natural gas fueled compressor prime mover shall notify the <OTC STATE AGENCY> of a natural gas fueled compressor prime mover replacement within 5 working days of performing the replacement.

9. Recordkeeping and Reporting

9.1 The owner or operator of a natural gas fueled compressor prime mover subject to this Guideline shall maintain all records necessary for determining compliance with the provisions of this Guideline at the facility for a period of at least five years, unless otherwise specified in this Guideline.

9.2 No later than MM-DD-YYYY the owner or operator of a natural gas fueled compressor prime mover subject to this Guideline shall submit an initial compliance evaluation to the <OTC STATE AGENCY> for review and approval. The initial compliance evaluation shall include, as a minimum, the following information:

9.2.1 The name and address of the owner and operator

9.2.2 The address of the subject natural gas compressor prime mover

9.2.3 Longitude and latitude coordinates of the subject natural gas compressor prime mover

9.2.4 Prime mover technical information including

9.2.4.1 Prime mover manufacturer

9.2.4.2 Prime mover model

9.2.4.3 Prime mover serial number

9.2.4.4 Prime mover configuration (combustion turbine, two stroke lean burn, four stoke lean burn, four stroke rich burn)

9.2.4.5 Prime mover original installation/startup date

9.2.4.6 Prime mover nameplate power rating

9.2.4.7 NOx emissions controls

9.2.4.8 Actual, if available, or estimated NOx emissions rate

9.2.5 Plan for compliance with the requirements of this Guideline

9.2.5.1 Proposed compliance strategy or identification of proposed NOx controls

9.2.5.2 Estimated NOx emissions after installation of controls or strategy

9.2.5.3 Proposed compliance schedule

9.2.6 Any other information requested by the <OTC STATE AGENCY>.

9.2.7 An alternative RACT emission limitation determination submitted in compliance with the requirements of Section 5 of this Guideline shall fulfill the initial compliance evaluation submittal requirements of Section 9.2 of this Guideline.

9.3 Beginning on MM-DD-YYYY, on March 31 of each calendar year the owner or operator of a natural gas fueled compressor prime mover subject to this Guideline shall submit an annual report to the <OTC STATE AGENCY> containing the following information:

9.3.1 The name and address of the owner and operator

9.3.2 The address of the subject natural gas fueled compressor prime mover

9.3.3 Longitude and latitude coordinates of the subject natural gas compressor prime mover

9.3.4 Identification of the subject natural gas fueled compressor prime mover

9.3.5 Statement of compliance with the applicable emission rate limitations of this Guideline

9.3.6 Statement of compliance regarding the conduct of maintenance and operations in a manner consistent with good air pollution control practices for minimizing emissions, as established in accordance with Section 8 of this Guideline.

9.3.7 For subject natural gas fueled compressor prime movers seeking exemption for prime movers operating less than 438 hours per year in accordance with the requirements of Section 8 of this Guideline, provide applicable hour-meter readings and the calculated prime mover operating hours for the previous calendar year.

9.3.8 If applicable, a statement documenting any change in the operating characteristics of the subject natural gas fueled compressor prime mover.

9.3.9 A statement certifying that the information included in the annual report is complete and accurate.

9.3.10 The annual reports for multiple subject natural gas fueled compressor prime movers at a single source may be combined into a single annual report.