



Department of the Environment

TECHNICAL SUPPORT DOCUMENT

FOR

COMAR 26.11.29 – Control of NO_x Emissions from Natural Gas Pipeline Compression Stations



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PREPARED BY:

MARYLAND DEPARTMENT OF THE ENVIRONMENT

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I. Purpose of the Action

The purpose of this action is to maintain and consolidate NO_x emission requirements for internal combustion engines used to compress natural gas located at natural gas pipeline compression stations. These NO_x emission requirements were established under the NO_x SIP Call for affected non-trading sources.

This action will be submitted to the U.S. Environmental Protection Agency (EPA) for approval as part of Maryland's State Implementation Plan.

II. Facts for Proposal

A. Background

In order to consolidate NO_x emission requirements for internal combustion engines used to compress natural gas located at natural gas pipeline compression stations, the Department proposes to repeal the existing chapter 29 and replace the chapter with requirements specific to natural gas pipeline compression stations. The new chapter 29, titled Control of NO_x Emissions from Natural Gas Pipeline Compression Stations, requires the affected facilities to continue to meet the maximum hourly NO_x emission limits and the NO_x emission concentration requirements. There are no additional requirements established at this time.

B. Sources Affected and Location

This action affects two Natural Gas Compression facilities in Maryland. Texas Eastern Transmission, L.P. (Texas Eastern) is located in Garrett County and operates two natural gas compressors. Transcontinental Gas Pipeline Company, LLC (Transco) is located in Howard County and employs 12 natural gas compressors. Both facilities are currently in compliance with all regulatory requirements.

Texas Eastern transports natural gas via underground pipelines from the Gulf Coast region of the United States to the Northeast and mid-Atlantic region. Texas Eastern owns and operates a natural gas compressor station located in Accident, Garrett County, MD. The station contains two 5,500 HP reciprocating internal combustion engines to inject and withdraw natural gas from the transmission pipeline into or from an adjacent storage field. Two emergency generators are maintained on site and are used to generate emergency power in the event of a loss of electrical grid power.

Transco owns and operates an interstate natural gas pipeline system which extends from production fields in the Gulf Coast region to market areas in northeastern United States. They own and operate Compressor Station 190, which is used for compression purposes in order to keep gas flowing through the system, in Ellicott City, Howard County, MD. The facility employs 12 natural gas compressors, each driven by natural gas-fired reciprocating stationary internal combustion engines. The two larger Clark TCV-16 and Clark TCV-10 engines, rated at 5,500 BHP and 3,400 BHP respectively have been subject to Maryland's NOx Reduction Requirements for Non-Electric Generating Units, regulations COMAR 26.11.29.01-.05 since May 1, 2002. The remaining 10 Clark HBA-8T and Clark HBA-8T engines are currently, subject only to the facility-wide cap on NOx emissions of 566 pounds per hour from regulation COMAR 26.11.09.08I(3). One emergency electric power generator is maintained on site and is used to generate emergency power in the event of a loss of electrical grid power.

Historic emissions from the facilities can range based on capacity factors. Both facilities are major sources of criteria air pollutants and therefore are required to have a Part 70 (Title V) Operating Permit. The total annual NOx emissions for the years 2011 through 2013 for each facility are listed below:

| <u>Texas Eastern</u> | | <u>Transco</u> | |
|-----------------------------|-----------------------------|-----------------------|-----------------------------|
| Year | NOx emissions (tons) | Year | NOx emissions (tons) |
| 2011 | 25 | 2011 | 1,270 |
| 2012 | 18 | 2012 | 1,078 |
| 2013 | 38 | 2013 | 336 |

C. Requirements

This action proposes to repeal existing chapter 29 titled "NOx Reduction Requirements for Non-Electric Generating Units". The Department proposes new regulations .01 - .05 under COMAR 26.11.29 now titled "Control of NOx Emissions from Natural Gas Pipeline Compression Stations" which will keep the existing NOx emission standards for internal combustion engines located at natural gas pipeline compression stations from the repealed regulation.05 under chapter 29. This action further clarifies the monitoring, compliance demonstration and record keeping requirements for internal combustion engines located at natural gas pipeline compression stations. There are no additional requirements resulting from this action.

D. Comparison to Federal Standards

There is a corresponding federal standard to this proposed regulation, but the proposed regulation is not more restrictive or stringent. The NOx SIP Call for internal combustion engines located at natural gas pipeline compression stations required larger engines to be modified or controlled to meet a specific NOx emission concentration based upon engine

type and size. The NOx SIP Call Rule (63 FR 57356, October 27, 1998 and 69 FR 21604, April 21, 2004), was developed to address the interstate transport of ozone. Although the NOx SIP Call has been replaced with more recent regulations designed to reduce transport from electric generating units, the requirements of the NOx SIP Call for affected non-trading sources of NOx such as natural gas compression stations continue to apply.

E. Expected Emission Reductions

There are no expected emission reductions from this regulation.

F. Estimate of Economic Impact

The proposed regulation has no economic impact.

i. Impact on Individuals with Disabilities

The proposed regulation has no impact on individuals with disabilities.

ii. Economic Impact on Small Businesses

The proposed regulation has minimal or no economic impact on small businesses.

III. Proposed Regulation

Title 26 DEPARTMENT OF THE ENVIRONMENT

Subtitle 11 AIR QUALITY

Chapter 29 [NO_x Reduction Requirements for Non-Electric Generating Units] *Control of NO_x Emissions from Natural Gas Pipeline Compression Stations*

Authority: Environment Article, §§1-101, 1-404, 2-101—2-103, and 2-301—2-303, Annotated Code of Maryland

Regulations .01—.05 repealed

ALL NEW MATTER

.01 Definitions.

A. In this chapter, the following terms have the meanings indicated.

B. Terms defined.

(1) “Natural gas pipeline compression station” means a main line natural gas transmission station, consisting of one or more internal combustion engines, used to compress natural gas there-by sustaining flow of natural gas through the pipeline.

(2) “Parametric Optimization” means the adjustment of an internal combustion engine, such as adjustment of the air to fuel ratio, that maximizes engine efficiency and minimizes emissions.

.02 Applicability and General Requirements.

A. *Applicability.* This chapter applies to stationary internal combustion engines used to compress natural gas located at natural gas pipeline compression stations.

B. *NO_x Emission Limits.* A person who owns or operates a stationary internal combustion engine to which this chapter applies shall perform either parametric optimization or engine re-build to meet the following NO_x emission limits:

(1) Facilities with five or less internal combustion engines shall meet a combined maximum hourly emission limit of 300 pounds per hour or less.

(2) Facilities with more than five engines shall meet a combined maximum hourly emission limit of 566 pounds per hour or less.

C. *NO_x Emission Rates.*

(1) The NO_x emission rates in §C(2) of this regulation apply to a stationary internal combustion engine used to compress natural gas at a natural gas pipeline compression station if the engine is one of the types and corresponding sizes identified in §C(2).

(2) *Emission Rates.*

| Type Engine percent oxygen) | Size (brake HP) | NO _x Emission Rate (15 |
|--------------------------------|--------------------|-----------------------------------|
| Spark ignited rich burn | 2400 HP or greater | 110 ppmv |
| Spark ignited lean burn | 2400 HP or greater | 125 ppmv |
| Diesel engines | 3100 HP or greater | 175 ppmv |
| Dual fuel engines | 4400 HP or greater | 125 ppmv |

(3) The NO_x emission rates in §C(2) of this regulation shall apply on and after May 1, 2003.

.03 Monitoring Requirements.

A. A person who owns or operates a stationary internal combustion engine subject to Regulation .02C shall:

- (1) Continuously monitor NOx emissions with a continuous emissions monitor ("CEM") certified in accordance with 40 CFR Part 60 or use an alternative method approved by the Department and the EPA;
- (2) On or before May 1, 2002, collect NOx emissions data that was obtained pursuant to §A(1) of this regulation; and
- (3) Submit emissions data collected pursuant to §A(2) of this regulation to the Department for the previous calendar year by April 1 of each year.

B. The NOx emissions data collected pursuant to §A(2) of this regulation shall be used to demonstrate compliance with the emission reduction requirements in Regulation .02C of this chapter.

.04 Demonstrating Compliance.

A. Internal combustion engines equipped with a CEM.

(1) The owner or operator of an internal combustion engine subject to this chapter that is equipped with a CEM shall demonstrate compliance with the NOx emissions limits and rates in Regulation .02B & C of this chapter using CEM data.

(2) The sum of the NOx emissions from all affected engines at the facility shall be used to demonstrate compliance with Regulation .02B.

B. Internal combustion engines not equipped with a CEM.

(1) The owner or operator of an internal combustion engine subject to this chapter that is not equipped with a CEM shall demonstrate compliance with the NOx emissions limits and rates in Regulation .02B & C of this chapter as follows:

(a) Compliance shall be established by stack tests using EPA Method 7 or other test methods approved by the Department and the EPA; or

(b) Compliance shall be established by an alternative emissions test approved by the Department.

(2) The results of the stack tests or alternative emissions test for each engine and fuel consumption records submitted to the Department pursuant to Regulation .05 shall be used to calculate NOx emissions for each affected engine.

(3) The sum of the NOx emissions from all of the stationary internal combustion engines at a natural gas pipeline compression station that are subject to this chapter shall be used to demonstrate compliance with Regulation .02B.

(4) Stack test schedule. The owner or operator of an internal combustion engine subject to this chapter that is not equipped with a CEM shall conduct a stack test or an alternative emissions test approved by the Department to determine NOx emissions for each affected engine not less than once each 12-month period.

.05 Maintaining Records. Results from the previous calendar year of the stack tests, emissions tests or CEM data and fuel consumption records for each internal combustion engine subject to this chapter shall be submitted to the Department as part of the annual emissions report due April 1 of each year.

END ALL NEW MATTER