

Louisville Metro Air Pollution Control Board Board Order

Texas Gas Transmission, LLC NO_x RACT Plan - Amendment 3

This amended Board Order is issued by the Louisville Metro Air Pollution Control Board pursuant to the authority granted in Kentucky Revised Statutes Chapter 77, Air Pollution Control.

Company: Texas Gas Transmission, LLC (Texas Gas)
10327 Gaslight Way
Jeffersontown, Kentucky 40299

Background and Discussion

Regulation 6.42, *Reasonably Available Control Technology Requirements for Major Volatile Organic Compound- and Nitrogen Oxides-Emitting Facilities*, requires the establishment and implementation of reasonably available control technology (RACT) for certain affected facilities that emit oxides of nitrogen (NO_x) and that are located at a major stationary source for NO_x. Section 4.4 of this regulation requires that each determination of RACT approved by the Air Pollution Control District of Jefferson County (District) be submitted to the U.S. Environmental Protection Agency (EPA) as a site-specific revision of the Kentucky State Implementation Plan (SIP).

The initial Board Order was approved by the Air Pollution Control Board of Jefferson County (Board) on November 8, 1999 as a site-specific revision of the Kentucky SIP. Subsequently, the EPA identified issues needing resolution before this NO_x RACT determination would be approved as a part of the Kentucky SIP.

Amendment 1 to the initial Board Order was written to address the issues identified by the EPA. A public hearing on Amendment 1 was held before the Board on November 15, 2000. Based on the evidence presented at that hearing, the Board determined that approval of the amended Board Order and submittal as a site-specific revision of the Kentucky SIP was appropriate.

Addition of Lean Emission Combustion (LEC) packages to nine internal-combustion compressor engines was undertaken at Texas Gas in 2002. In 2005, Texas Gas removed an old turbine compressor (T1) and installed a new turbine compressor (E22). Amendment 2 of this Board Order was prepared to incorporate emission requirements for the LEC modifications, to delete requirements for T1 and to add emission limits and testing and recordkeeping requirements for E22. A public hearing on Amendment 2 was held before the Board on June 17, 2009. Based on the evidence presented at that hearing, the Board determined that approval of the amended Board Order and submittal as a site-specific revision of the Kentucky SIP was appropriate.

Amendment 3 of this Board Order has been prepared to address several issues. First, since the last issuance of Texas Gas's operating permit (P-92-97-TV (R2)), 40 CFR 63, Subpart ZZZZ has been revised, bringing under regulation an engine (E28) that had previously been considered an Insignificant Activity. Second, testing history of the engines E1- E9 and E22 has shown that the emission levels are significantly less than regulatory limits. Finally, the requirements for the various emission points covered by the NO_x RACT plan were not clearly presented. This amendment introduces the emission limits and

work-practice standards for E28, as specified in 40 CFR 63, Subpart ZZZZ; modifies the emission testing schedule for E1 – E9 and E22 based on past performance; and clearly specifies the emission limits and testing, recordkeeping, and reporting requirements for each of the covered sources.

Now, therefore be it ordered that:

1. The attached NO_x RACT Plan – Amendment 3, applicable to Texas Gas Transmission, LLC, is approved by the District. Texas Gas shall comply with this plan.
2. Compliance with the attached NO_x RACT Plan – Amendment 3 shall be deemed compliance with the requirements of Regulation 6.42, section 1.2; section 1.3; section 2, as applicable; section 4.3; and section 5, to the extent that this section is applies to verification of compliance with the requirements of section 4.3.
3. This amended Board Order shall not be deemed or construed to be the result of any violation of any federal, state, or local statute, regulation, or ordinance for any purpose whatsoever.
4. Texas Gas has reviewed this amended Board Order and consents to all of its requirements and terms.
5. The initial Board Order was approved on November 8, 1999. Amendment 1 was approved on December 20, 2000. Amendment 2 was approved on June 17, 2009 and a subsequent revision to this amendment received approval on October 20, 2010.
6. The effective date of this amended Board Order is May 18, 2016. The amended Board Order – Amendment 2 (R1), approved October 20, 2010, shall remain in effect until May 18, 2016.

Dated this 18th day of May, 2016.

Louisville Metro Air Pollution
Control Board

Texas Gas Transmission, LLC

By: _____

By: _____

Robert Powell
Chairman

Dave Perkins
VP, Environmental, Safety, &
Security

Louisville Metro Air Pollution
Control District

Approved as to form and legality:

By: _____

By: _____

Paul Aud
Air Pollution Control Officer

Stacy Fritze Dott
Assistant County Attorney

NOx RACT Plan - Amendment 3

Reciprocating Engines E1-E9 (U1 and U2)

1. The oxides of nitrogen (NO_x, expressed as NO₂) emissions from each engine shall not exceed 3 grams per brake-horsepower-hour (g/bhp-hr).
[Regulation 6.42, section 4.3]
2. Existing Lean Emission Combustion (LEC) equipment modifications to the engines, completed in October 2002 under construction permit 68-01-C, shall remain in place.
[Regulation 6.42, section 4.3]
3. For each engine, the following parameters shall be monitored continuously on a real time basis, but no regular interval recording shall be required. Engines will continue to be properly maintained and operated based on monitored parameters. Texas Gas shall record all periods when the required information in this Condition was not available, the reason for the loss of data, and any corrective actions taken to resolve the problem. Each record shall be maintained for a minimum of 5 years and made available upon request.
 - a. Engine speed,
 - b. Engine load,
 - c. Fuel gas flow,
 - d. Air manifold temperature,
 - e. Air manifold pressure,
 - f. Ignition timing,

Turbine Engine E22 (U21)

4. The oxides of nitrogen (NO_x, expressed as NO₂) emissions from the turbine shall not exceed 37.5 parts per million by volume on a dry gas basis corrected to 15% O₂, based on a one hour average.
[Regulation 6.42]
5. The turbine shall not discharge any gases into the atmosphere which contain nitrogen oxides in excess of 197 parts per million by volume on a dry gas basis corrected to 15% O₂, based on a one hour average.
[40 CFR 60.332 (a) (2)]
6. Texas Gas shall record all periods of time when the turbine is not operating in the SoLoNO_x mode, and startup and shutdown time periods. Each record shall be maintained for a minimum of 5 years and made available upon request.
7. The owner or operator shall continuously monitor the appropriate parameters to determine whether the lean premix stationary turbine is operating in the SoLoNO_x mode.
[40 CFR 60.334 (f)(2)]
8. The owner or operator shall develop and keep on-site a parameter monitoring plan which explains the procedures used to document proper operation of the NO_x emissions controls. The plan shall include the parameter(s) monitored and the acceptable ranges(s) of the parameter(s) as well as the basis for designating the parameters(s) and acceptable range(s).
[40 CFR 60.334(g)]

Emergency Generator Engine E20 (U21)

9. The oxides of nitrogen (NO_x expressed as NO₂) emissions from this engine shall not exceed 2.6 grams per brake horsepower-hour¹.
[Regulation 6.42, section 4.3]
10. Texas Gas shall record the monthly hours of operation. The twelve-consecutive-month period total hours of operation shall be calculated and recorded each month. These records shall be maintained for a minimum of 5 years and made available upon request.

Auxiliary Air Compressor E28 (U26)

11. This engine shall be operated in accordance with the work practice standards set forth in 40 CFR 63, Subpart ZZZZ:
[40 CFR 63.6602 and Table 2c, element 7]
 - a. Minimize the engine's time spent at idle;
 - b. Minimize the engine's startup time at startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes;
 - c. Change oil and filter every 1,440 hours of operation or annually, whichever comes first;²
 - d. Inspect spark plugs every 1,440 hours of operation or annually, whichever comes first, and replace as necessary;
 - e. Inspect all hoses and belts every 1440 hours of operation or annually, whichever comes first, and replace as necessary.
12. The oxides of nitrogen (NO_x, expressed as NO₂) emissions from each engine shall not exceed 2.21 lb/MMBtu.
[Regulation 6.42, section 4.3.2]
13. The owner or operator shall limit the operation of the auxiliary air compressor to one thousand hours in any twelve-consecutive-month period.
[Regulation 6.42, section 4.3.1]
14. Texas Gas shall record the monthly operating hours of operation and the cumulative hours of operation since the last engine servicing required by 40 CFR 63.6602 and Table 2c. These records shall be maintained for a minimum of 5 years and made available upon request.

Periodic Testing Requirements

15. Texas Gas shall conduct NO_x performance tests for the equipment identified in this Condition according to the following schedule:
 - a. Reciprocating Compressor Engines E1 – E9
 - i. Each of the engines E1-E9 must be tested periodically according to the procedures specified in Condition 16 of this Plan. These tests must be repeated for each engine at an interval of not more than 72 calendar months since the last test that demonstrated compliance with the standards set forth in Conditions 1 and 2 of this Plan. Any engine that

¹ This emission limit is provided as a manufacturer's guarantee.

² Sources have the option to utilize an oil analysis program as described in § 63.6625(i) or (j) in order to extend the specified oil change requirement.

- has exceeded the 72-month test limit shall not be operated for normal pipeline operations until testing that demonstrates compliance with the established standards has been demonstrated. Operation of such an engine beyond the 72-month testing window for purposes of compliance testing shall be allowed.
- ii. If any engine E1 - E9 does not demonstrate compliance with the standards set forth in Conditions 1 and 2 of this plan at any time, that engine shall be taken out of service until maintenance intended to bring the engine back into compliance with the relevant standards has been performed. Any such non-compliant engine shall be re-tested and must demonstrate compliance with the established standards before it may be operated in normal pipeline operations. A second compliance test shall be performed within 15 calendar months of the first test. After satisfactory completion of two consecutive annual tests, Texas Gas may resume testing of the engine on a 72-month cycle as described in Condition 15a.
 - iii. If any of the engines E1 – E9 has undergone a major power-side overhaul, it shall not be operated during the ozone season until performance testing as described in Condition 16 of this plan has been successfully completed. (A ‘major power-side overhaul’ shall be defined as the removal of all of the power heads for diagnostic and/or maintenance purposes.)
- b. Turbine Compressor E22
- i. The turbine E22 must be tested periodically according to the procedures specified in Condition 16 of this Plan. These tests must be repeated at an interval of not more than 72 calendar months since the last test that demonstrated compliance with the standards set forth in Conditions 4 and 5 of this Plan. If the turbine has exceeded the 72-month test limit it shall not be operated for normal pipeline operations until testing that demonstrates compliance with the established standards has been demonstrated. Operation of the turbine beyond the 72-month test window for purposes of compliance testing shall be allowed.
 - ii. If the turbine E22 does not demonstrate compliance with the standard set forth in Conditions 4 and 5 of this plan at any time, the turbine shall be taken out of service until maintenance intended to bring the turbine back into compliance with the relevant standards has been performed. The turbine shall be re-tested and must demonstrate compliance with the established standards before it may be operated in normal pipeline operations. A second compliance test shall be performed within 15 calendar months of the first test. After satisfactory completion of two consecutive annual tests, Texas Gas may resume testing of the turbine on a 72-month cycle as described in Condition 15d.
 - iii. If the turbine E22 has been disassembled for a major overhaul, it shall not be operated during the ozone season until performance testing as described in Condition 16 of this plan has been successfully completed.
16. Performance testing shall meet the following requirements:
- a. Emissions concentrations and the mass determinations shall be obtained using Reference Methods of 40 CFR Part 60 Appendix A. The following methods shall be used:
 - i. Method 1 or 1A, which furnishes guidance in site and traverse selection for sampling velocity at traverse points in stationary sources,
 - ii. Method 2, 2A, 2B, 2C, 2D, 2E, 2F, 2G, or 2H, which applies to measurements of gas volumetric flow rates,
 - iii. Method 3, 3A, 3B, or 3C, which is applicable for determining the concentrations of one or more of the following gases: carbon dioxide (CO₂), oxygen (O₂), carbon monoxide (CO), nitrogen, and methane,
 - iv. Method 4, which determines the moisture content in stack gases, and
 - v. Method 7, 7A, 7B, 7C, 7D, or 7E, which provides the analytical method for determining the concentration of NO_x emissions from stationary sources.

- vi. Method 19, which is acceptable for determine the exhaust flow rate.
- b. The use of other Reference Methods that are added to 40 CFR Part 60 Appendix A, alternative tests, or modifications to the Reference Methods listed in NOx RACT Plan paragraph 13(a) may be proposed by Texas Gas as part of the testing protocol required by paragraph 13(d). Such methods may be used if approved in writing by the Louisville Metro Air Pollution Control District (District).
- c. Performance testing shall meet the requirements of Regulation 1.04 *Performance Tests* that are not addressed in this Condition. All testing shall be conducted at 90% or greater of the maximum rated heat input capacity of the equipment.
- d. A test protocol shall be submitted to the District at least 25 working days in advance of the projected starting date for the performance test. The protocol shall include the proposed test methods to be used.
- e. If a pre-test conference to discuss the proposed test methods is deemed necessary by the District, a pre-test conference shall be arranged by District personnel.
- f. At least 10 working days' prior notice of the scheduled starting date for the performance test shall be provided to the District.
- g. A performance test report shall be submitted to the District within 60 days of completion of performance testing. The report shall include the calculations used to determine emissions. The NOx emission rate for each engine E1 – E9 for which performance testing is required in paragraph 12(a), (b), and (e) shall be expressed in pounds-per-hour and grams-per-brake-horsepower-hour. The NOx emission rate for the turbine E22 shall be expressed in parts-per-million by volume on a dry gas basis, corrected to 15% O₂ when testing is required by Condition 12(c), (d), or (e). The raw data shall be retained by Texas Gas for a minimum of 12 years and made available upon request. Selected portions of the raw data used to calculate the emissions shall be included in the report in a format provided by the District.

Reporting Requirements

- 17. Texas Gas shall keep a record identifying all deviations from the requirements of this NOx RACT Plan and shall submit to the District a written report of all deviations that occurred during the preceding semi-annual period. Semi-annual periods shall run from January 1 to June 30 and July 1 to December 31. If no deviation occurred during the semi-annual period, the report shall contain a negative declaration. Each report shall be submitted within 60 days following the end of the semi-annual period. The report shall contain the following information:
 - a. The equipment designation;
 - b. The beginning and ending date of the reporting period;
 - c. The cumulative operating hours since the maintenance operations specified in 11c-e were last performed for E28 and the last date of performance testing for each of the engines E1 – E9 and turbine E22;
 - d. Identification of all periods during which a deviation occurred, including the loss of data as required by paragraphs 3, 7, 10, and 14;
 - e. A description, including the magnitude, of the deviation;
 - f. If known, the cause of the deviation;
 - g. A description of all corrective actions taken to abate the deviation.

Modification to NOx RACT Plan

18. In lieu of the requirements in this NOx RACT Plan, Texas Gas may comply with alternative requirements regarding emission limitations, equipment operation, test methods, monitoring, record keeping, or reporting, provided the following conditions are met:
 - a. The alternative requirements are established and incorporated into an operating permit pursuant to a Title V Operating Permit issuance, renewal, or significant permit revision process as established in Regulation 2.16 *Title V Operating Permits*,
 - b. The alternative requirements are consistent with the streamlining procedures and guidelines set forth in section II.A. of *White Paper Number 2 for Improved Implementation of the Part 70 Operating Permits Program*, March 5, 1996, U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards. The overall effect of compliance with alternative requirements shall consider the effect on an intrinsic basis, such as grams per brake horsepower-hour,
 - c. The U.S. Environmental Protection Agency (EPA) has not objected to the issuance, renewal, or revision of the Title V Operating Permit, and either:
 - i. If the public comment period preceded the EPA review period, then the District had transmitted any public comments concerning the alternative requirements to EPA with the proposed permit, or
 - ii. If the EPA and public comment periods ran concurrently, then the District had transmitted any public comments concerning the alternative requirements to EPA no later than 5 working days after the end of the public comment period.

The District's determination of approval of any alternative requirements is not binding on EPA. Noncompliance with any alternative requirement established pursuant to the Title V Operating Permit process constitutes a violation of this NOx RACT Plan.

History:	Approved:	11-8-99;	effective 1-1-00:
	amended:	a1/12-20-00;	effective 01-01-01;
		a2/06-17-09;	effective 06-17-09;
		a2(R1)/10-20-10	effective 10-20-10;
		a3/ date TBD	effective date TBD