

**ADDITIONAL SPECIAL TERMS AND CONDITIONS**

**INTRODUCTION:**

This permit-to-install (PTI) is to allow the installation of two natural gas dehydrators and a line heater at Columbia Gas Transmission Corporation - Pavonia Compressor Station (hereinafter referred to as "permittee") located in Mansfield, Ohio. The facility's potential-to-emit exceeds 250 tons per year of Nitrogen Oxides and is therefore a major stationary source for Prevention of Significant Deterioration (PSD) purposes and are subject to Title V permitting requirements.

**A. APPLICABLE EMISSION LIMITATIONS and/or CONTROL REQUIREMENTS**

1. *The natural gas dehydrators, emission units P002 and P003 shall be controlled by connecting the process vents of emission units P002 and P003 through a closed-vent system to a thermal oxidizer that reduces the mass content of the VOCs and HAPs by 95% by weight.*

*The closed-vent system shall be designed and operated with no detectable emissions.*

2. The natural gas dehydrators, emission units P002 and P003 are subject to Ohio Administrative Code (OAC) 3745-31-28.

**B. OPERATIONAL RESTRICTIONS**

1. Thermal Incinerator Operational Restriction

The average combustion temperature within the thermal incinerator, for any 3-hour block of time when the emissions unit is in operation, shall not be less than 1200 degrees Fahrenheit.

2. The permittee shall prepare and follow written standard operating procedures that cover normal operation, system start-up, system shutdown, and system malfunction. The permittee shall prepare and follow written standard maintenance procedures. These procedures will be available for inspection and review by the Director or his authorized representative.
2. This permit allows the use of the materials specified by the permittee in the application for PTI number 03-13048. In conjunction with the best available technology requirements of OAC rule 3745-31-05, the Benzene and Toluene emission limitation(s) specified in this permit were established in accordance with the Ohio EPA's "Air Toxics Policy" and are based on the Gas

Research Institute's GRI Glycalc software, Version 3.0 and the design parameters of the emissions unit's exhaust system, as specified in the application. Compliance with the Ohio EPA's "Air Toxics Policy" was demonstrated for each pollutant based on the Screen 3 model and a comparison of the predicted 1 hour maximum ground-level concentration to the MAGLC. The following summarizes the results of the modeling for each pollutant:

**Pollutant: Benzene**

**TLV (ug/m3): 1.6**

**Maximum Hourly Emission Rate (lbs/hr): 0.95**

**Predicted 1 Hour Maximum Ground-Level Concentration at the Fence line (ug/m3): 38.1**

**Maximum Acceptable Ground-Level Concentration (MAGLC) (ug/m3): 760**

**Pollutant: Toluene**

**TLV (ug/m3): 188**

**Maximum Hourly Emission Rate (lbs/hr): 0.93**

**Predicted 1 Hour Maximum Ground-Level Concentration at the Fence line (ug/m3): 35.02**

**Maximum Acceptable Ground-Level Concentration (MAGLC) (ug/m3): 4500**

Any of the following changes may be deemed a "modification" to the emissions unit and, as such, prior notification to and approval from the appropriate Ohio EPA District Office or local air agency are required, including the possible issuance of modifications to PTI number 03-13048 and the operating permit:

- (a) Any changes in the composition of the materials, or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH)," than the lowest TLV value specified in the above table.
- (b) Any change to the emissions unit or its exhaust parameters (e.g., increased emission rate, reduction of exhaust gas flow rate, and decreased stack height) that would result in an exceedance of any MAGLC specified in the above table.
- (c) Any change to the emissions unit or its method of operation that would either require an increase in the emission limitation(s) established by this

permit or would otherwise be considered a "modification" as defined in OAC rule 3745-31-01.

- (e) Any change in the composition of the materials employed or use of new materials, that would result in the emission of any of the exempted organic compounds included in the definition of "VOC" [OAC rule 3745-21-01(B)(6)].
- (f) Any change in the composition of the process materials, or use of new materials, that would result in an increase in emissions of any "Hazardous Air Pollutants" (HAPS) as defined in OAC rule 3745-77-01(V).

C. **MONITORING AND/OR RECORD KEEPING REQUIREMENTS**

1. **Thermal Incinerator Temperature Monitoring and Recordkeeping Requirements**

The permittee shall operate and maintain a continuous temperature monitor and recorder which measures and records the combustion temperature within the thermal incinerator when the emissions unit is in operation. Units shall be in degrees Fahrenheit. The monitoring and recording devices shall be capable of  $\pm 1\%$  accuracy measuring the desired parameter. The temperature monitor and recorder shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.

The permittee shall perform an initial inspection at startup of system components for visible emissions and leaks.

The permittee shall perform an annual inspection of system components for visible emissions and leaks.

*To visually inspect the system components which includes, but not limited to, the closed-vent system, the permittee shall view the entire length of ductwork, piping and connections to covers and control devices for evidence of visible defects (such as holes in ductwork or piping and loose connections) that may effect the ability of the system to operate with no detectable emissions. A visible hole, gap, tear, or split in the closed-vent system is defined as a leak which shall be repaired on the first attempt no later than 5 calendar days after detected. Repair of the leak shall be completed as soon as practicable, but no later than 15 calendar days after the leak is detected.*

The permittee shall collect and record the following information for each day:

- (a) All 3-hour blocks of time during which the average combustion temperature within the thermal incinerator, when the emissions unit was in operation, was less than 1200 degrees Fahrenheit.
- (b) A log of the downtime for the capture (collection) system, control device, and monitoring equipment, when the associated emissions unit was in operation.
- (c) A record of all startup, shutdown and malfunction events.

All records required shall be retained for a period of five years from the date the record was created. All records shall be made available to the Director, or any authorized representative of the Director, for review during normal business hours.

**D. REPORTING REQUIREMENTS**

The permittee shall submit required reports in the following manner:

- (a) Thermal Incinerator Temperature Reporting Requirements

The permittee shall submit deviation (excursion) reports which identify all 3-hour blocks of time during which the average combustion temperature within the thermal incinerator does not comply with the temperature limitation specified above.

- (b) Except as otherwise may be provided in the terms and conditions for a specific emissions unit, quarterly written reports of (a) any deviations (excursions) from emission limitations, operational restrictions, and control device operating parameter limitations that have been detected by the testing, monitoring, and recordkeeping requirements specified in this permit, (b) the probable cause of such deviations, and any corrective actions or preventive measures which have been or will be taken, shall be submitted to the appropriate Ohio EPA District Office or local air agency. If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted quarterly, i.e., by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. (These quarterly reports shall exclude deviations resulting from malfunctions reported in

accordance with OAC rule 3745-15-06.)

**E. TESTING REQUIREMENTS and COMPLIANCE METHOD DETERMINATIONS**

1. The permittee shall conduct, or have conducted, emission testing of emissions units P002 and P003 within 180 days of initial operation of the emission units. The emissions testing shall demonstrate that the thermal oxidizer reduces VOC emissions vented to it by 95 percent. Testing shall be conducted in accordance with the requirements below. An alternative means of demonstrating compliance is described in term E. 2. below.

- (a) The emission testing shall be conducted to demonstrate compliance with the allowable mass emission rate(s) for VOC and the thermal oxidizer destruction efficiency requirement for VOC.
- (b) The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s) for VOC:

Method 18, of 40 CFR Part 60, Appendix A.

Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.

*"As an alternative to the procedures detailed above the permittee may elect to use the procedures documented in the Gas Research Institute Report entitled "Atmospheric Rich/Lean Method for Determining Glycol Dehydrator Emissions," (GRI-95/0368.1) for determination of uncontrolled mass emissions at the inlet to the control device."*

- (c) The test(s) shall be conducted while the emissions unit is operating at its maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the appropriate Ohio EPA District Office or local air agency. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA District



lb/MMBTU dated 1/95 and a maximum heat input rate of 3.1 MMBTU/hr. If required, the permittee shall demonstrate compliance with the above emissions limit pursuant to Method 5 of 40 CFR Part 60, Appendix A. The annual limits are based on each emissions unit's potential to emit i.e., the hourly emission rates multiplied by 8760 hours of operation, and divided by 2000 lbs/ton.

- (b) Emission Limitation: P002 Stack TO1 0.001 lb  
SO<sub>2</sub>/hr & 0.005 TPY  
P003 Stack TO1 0.001 lb  
SO<sub>2</sub>/hr & 0.005 TPY

Applicable Compliance Method:

Compliance shall be determined based on emission factors derived from natural gas sulfur content via material balance. The SO<sub>2</sub> emission factor 0.00071 lb SO<sub>2</sub>/MMBTu shall be based on 0.25 grains of sulfur per 100 standard cubic feet of natural gas. If required, the permittee shall demonstrate compliance with the above emissions limit pursuant to Method 6 of 40 CFR Part 60, Appendix A. The annual limits are based on each emissions unit's potential to emit i.e., the hourly emission rates multiplied by 8760 hours of operation, and divided by 2000 lbs/ton.

- (c) Emission Limitation: P002 Stack TO1 0.11 lb  
NO<sub>x</sub>/hr & 0.48 TPY  
P003 Stack TO1 0.11 lb  
NO<sub>x</sub>/hr & 0.48  
TPY

Applicable Compliance Method:

Compliance shall be determined based on emission factors derived from Radian's August 1995 test report on thermal oxidizers, "Performance Evaluation of the Thermal Oxidizer on Dehydrator #6 at Manlove Storage Facility." The NO<sub>x</sub> emission factor 0.071 lb NO<sub>x</sub>/MMBTu was based on test results of a similar 1400 degree Fahrenheit oxidizer which emitted 0.179 lb NO<sub>x</sub>/hr. If required, the permittee shall demonstrate compliance with the above emissions limit pursuant to Method 7 of 40 CFR Part 60, Appendix A. The annual limits are based on each emissions unit's potential to emit i.e., the hourly emission rates multiplied by 8760 hours of operation, and divided by 2000 lbs/ton.

- (d) Emission Limitation: P002 Stack TO1 0.59 lb  
CO<sub>x</sub>/hr & 2.58 TPY  
P003 Stack TO1 0.59 lb

COx/hr &

2.58 TPY

Applicable Compliance Method:

Compliance shall be determined based on emission factors derived from Radian's August 1995 test report on thermal oxidizers, "Performance Evaluation of the Thermal Oxidizer on Dehydrator #6 at Manlove Storage Facility." The CO emission factor 0.38 lb CO/MMBtu was based on test results of a similar 1400 degree ferhenheight oxidizer which emitted 0.967 lb CO/hr. If required, the permittee shall demonstrate compliance with the above emissions limit pursuant to Method 10 of 40 CFR Part 60, Appendix A. The annual limits are based on each emissions unit's potential to emit i.e., the hourly emission rates multiplied by 8760 hours of operation, and divided by 2000 lbs/ton.

- (e) Emission Limitation: P002 Stack TO1 1.14 lb  
VOC/hr & 5.0 TPY  
P003 Stack TO1 1.14 lb  
VOC/hr & 5.0  
TPY

Applicable Compliance Method:

Compliance shall be determined through use of through the use of emission estimates from the Gas Research Institutes GLYCalc (Version 3) software program run at 700 psig and 20 lbs water. If required, the permittee shall demonstrate compliance with the above emissions limit pursuant to Method 18, 25 or 25A of 40 CFR Part 60, Appendix A. The annual limits are based on each emissions unit's potential to emit i.e., the hourly emission rates multiplied by 8760 hours of operation, and divided by 2000 lbs/ton.

- (f) Emission Limitation: P002 Stack TO1 20  
percent opacity as a  
six minute average.  
P003 Stack TO1 20 percent  
opacity as a six minute  
average.

Applicable Compliance Method:

OAC 3745-17-03(B) (1)

- (g) Emission Limitation: P002 Stack BL3 0.02  
lb  
PE/MM  
BTU  
0.05 lb PE/hr &  
0.2 TPY  
P003 Stack BL4 0.02 lb

PE/MM BTU

0.05 lb PE/hr &  
0.2 TPY

Applicable Compliance Method:

Compliance with the emission limit of 0.02 lb Particulate/MM BTU heat input shall be determined in accordance with OAC 3745-17-03(B)(10). In the absence of Ohio EPA requiring such testing, compliance shall be determined using calculations based on AP-42 emission factor for natural gas combustion. The annual limits are based on each emissions unit's potential to emit i.e., the hourly emission rates multiplied by 8760 hours of operation, and divided by 2000 lbs/ton.

- (h) Emission Limitation: P002 Stack BL3 0.002 lb  
SO<sub>2</sub>/hr & 0.009 TPY  
P003 Stack BL4 0.002 lb  
SO<sub>2</sub>/hr & 0.009 TPY

Applicable Compliance Method:

Compliance shall be determined based on emission factors derived from natural gas sulfur content via material balance. The SO<sub>2</sub> emission factor 0.00071 lb SO<sub>2</sub>/MMBTu shall be based on 0.25 grains of sulfur per 100 standard cubic feet of natural gas. If required, the permittee shall demonstrate compliance with the above emissions limit pursuant to Method 6 of 40 CFR Part 60, Appendix A. The annual limits are based on each emissions unit's potential to emit i.e., the hourly emission rates multiplied by 8760 hours of operation, and divided by 2000 lbs/ton.

- (i) Emission Limitation: P002 Stack BL3 0.2 lb  
NO<sub>x</sub>/hr & 1.0 TPY  
P003 Stack BL4 0.2 lb  
NO<sub>x</sub>/hr & 1.0  
TPY

Applicable Compliance Method:

Compliance shall be determined through use of AP-42 emission factors from Section 1.4-2, (January 1995) Commercial boilers less than 10 MMBtu/hr. 0.1 lb NO<sub>x</sub>/MMBTU and a maximum heat input rate of 2.25 MMBTU/hr. If required, the permittee shall demonstrate compliance with the above emissions limit pursuant to Method 7 of 40 CFR Part 60, Appendix A. The annual limits are based on each emissions unit's potential to emit i.e., the hourly emission rates multiplied by 8760 hours of operation, and divided by 2000 lbs/ton.

- (j) Emission Limitation: P002 Stack BL3 0.047 lb  
COx/hr & 0.2 TPY  
P003 Stack BL4 0.047 lb  
COx/hr & 0.2 TPY

Applicable Compliance Method:

Compliance shall be determined through use of AP-42 emission factors from Section 1.4-2, (January 1995) Commercial boilers less than 10 MMBtu/hr. 0.021 lb CO/ MMBTU and a maximum heat input rate of 2.25 MMBTU/hr. If required, the permittee shall demonstrate compliance with the above emissions limit pursuant to Method 10 of 40 CFR Part 60, Appendix A. The annual limits are based on each emissions unit's potential to emit i.e., the hourly emission rates multiplied by 8760 hours of operation, and divided by 2000 lbs/ton.

- (k) Emission Limitation: P002 Stack BL3 0.012 lb  
VOC/hr & 0.05 TPY  
P003 Stack BL4 0.012 lb  
VOC/hr & 0.05 TPY

Applicable Compliance Method:

Compliance shall be determined through use of AP-42 emission factors from table 1.4-3, (January 1995) Commercial boilers less than 10 MMBtu/hr. An emission factor of 0.0053 lb VOC/ MMBTU and a maximum heat input rate of 2.25 MMBTU/hr. If required, the permittee shall demonstrate compliance with the above emissions limit pursuant to Method 18, 25 or 25A of 40 CFR Part 60, Appendix A. The annual limits are based on each emissions unit's potential to emit i.e., the hourly emission rates multiplied by 8760 hours of operation, and divided by 2000 lbs/ton.

- (l) Emission Limitation: P002 Stack BL3 20%  
Opacity as a six  
minute average.  
P003 Stack BL4 20% Opacity  
as a six minute  
average.

Applicable Compliance Method:

OAC 3745-17-03(B) (1)

- (m) Emission Limitation: B002 Stack H3 0.02 lb  
PE/MM BTU  
0.2 lb PE/hr &  
0.88 TPY

Applicable Compliance Method:

Compliance with the emission limit of 0.02 lb Particulate/MM BTU heat input shall be determined

in accordance with OAC 3745-17-03(B)(10). In the absence of Ohio EPA requiring such testing, compliance shall be determined using calculations based on AP-42 emission factor for natural gas combustion. The annual limits are based on each emissions unit's potential to emit i.e., the hourly emission rates multiplied by 8760 hours of operation, and divided by 2000 lbs/ton.

- (n) Emission Limitation: B002 Stack H3 0.007 lb  
SO<sub>2</sub>/hr & 0.03 TPY

Applicable Compliance Method:

Compliance shall be determined based on emission factors derived from natural gas sulfur content via material balance. The SO<sub>2</sub> emission factor 0.00071 lb SO<sub>2</sub>/MMBtu shall be based on 0.25 grains of sulfur per 100 standard cubic feet of natural gas. If required, the permittee shall demonstrate compliance with the above emissions limit pursuant to Method 6 of 40 CFR Part 60, Appendix A. The annual limits are based on each emissions unit's potential to emit i.e., the hourly emission rates multiplied by 8760 hours of operation, and divided by 2000 lbs/ton.

- (o) Emission Limitation: B002 Stack H3 1.0 lb  
NO<sub>x</sub>/hr & 4.4 TPY

Applicable Compliance Method:

Compliance shall be determined through use of AP-42 emission factors from Section 1.4-2, (January 1995) Commercial boilers less than 10 MMBtu/hr. 0.1 lb NO<sub>x</sub>/MMBTU and a maximum heat input rate of 10 MMBTU/hr. If required, the permittee shall demonstrate compliance with the above emissions limit pursuant to Method 7 of 40 CFR Part 60, Appendix A. The annual limits are based on each emissions unit's potential to emit i.e., the hourly emission rates multiplied by 8760 hours of operation, and divided by 2000 lbs/ton.

- (p) Emission Limitation: B002 Stack H3 0.2 lb  
CO/hr & 0.9 TPY

Applicable Compliance Method:

Compliance shall be determined through use of AP-42 emission factors from Section 1.4-2, (January 1995) Commercial boilers less than 10 MMBtu/hr. 0.021 lb CO/MMBTU and a maximum heat input rate of 10.0 MMBTU/hr. If required, the permittee shall demonstrate compliance with the above emissions limit pursuant to Method 10 of 40 CFR Part 60, Appendix A. The annual limits are based

on each emissions unit's potential to emit i.e., the hourly emission rates multiplied by 8760 hours of operation, and divided by 2000 lbs/ton.

- (q) Emission Limitation: B002 Stack H3 0.053 lb  
VOC/hr & 0.23 TPY

Applicable Compliance Method:

Compliance shall be determined through use of AP-42 emission factors from table 1.4-3, (January 1995) Commercial boilers less than 10 MMBtu/hr. An emission factor of 0.0053 lb VOC/ MMBTU and a maximum heat input rate of 2.25 MMBTU/hr. If required, the permittee shall demonstrate compliance with the above emissions limit pursuant to Method 18, 25 or 25A of 40 CFR Part 60, Appendix A. The annual limits are based on each emissions unit's potential to emit i.e., the hourly emission rates multiplied by 8760 hours of operation, and divided by 2000 lbs/ton.

- (r) Emission Limitation: B002 Stack H3 20%  
Opacity as a six minute  
average.

Applicable Compliance Method:

OAC 3745-17-03(B)(1)

- (s) *Monitor a closed-vent system for no detectable emissions, the permittee shall use Method 21, 40 CFR part 60, appendix A to test each closed-vent system joint, seam, or other connection. For annual leak detection monitoring after the initial leak detection monitoring, the permittee is not required to monitor those closed-vent system components which continuously operate at a pressure below atmospheric pressure or those closed-vent system joints, seams, or other connections that are permanently or semi-permanently sealed (e.g., a welded joint between two sections of metal pipe or a bolted and gasketed pipe flange.*

**E. MISCELLANEOUS REQUIREMENTS**

None