



John R. Kasich, Governor  
Mary Taylor, Lt. Governor  
Scott J. Nally, Director

5/21/2013

Certified Mail

Scott Kingston  
East Ohio Gas - Columbiana Compressor Station  
501 Martindale St.  
Pittsburgh, PA 15212

RE: FINALAIR POLLUTION PERMIT-TO-INSTALL  
Facility ID: 0215000182  
Permit Number: P0113464  
Permit Type: Initial Installation  
County: Columbiana

|     |                                    |
|-----|------------------------------------|
| No  | TOXIC REVIEW                       |
| No  | PSD                                |
| No  | SYNTHETIC MINOR TO AVOID MAJOR NSR |
| No  | CEMS                               |
| Yes | MACT/GACT                          |
| Yes | NSPS                               |
| No  | NESHAPS                            |
| No  | NETTING                            |
| No  | MAJOR NON-ATTAINMENT               |
| No  | MODELING SUBMITTED                 |
| No  | MAJOR GHG                          |
| No  | SYNTHETIC MINOR TO AVOID MAJOR GHG |

Dear Permit Holder:

Enclosed please find a final Ohio Environmental Protection Agency (EPA) Air Pollution Permit-to-Install (PTI) which will allow you to install or modify the described emissions unit(s) in a manner indicated in the permit. Because this permit contains several conditions and restrictions, we urge you to read it carefully. Because this permit contains conditions and restrictions, please read it very carefully. In this letter you will find the information on the following topics:

- **How to appeal this permit**
- **How to save money, reduce pollution and reduce energy consumption**
- **How to give us feedback on your permitting experience**
- **How to get an electronic copy of your permit**

**How to appeal this permit**

The issuance of this PTI is a final action of the Director and may be appealed to the Environmental Review Appeals Commission pursuant to Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. The appeal must be filed with the Commission within thirty (30) days after notice of the Director's action. The appeal must be accompanied by a filing fee of \$70.00, made payable to "Ohio Treasurer Josh Mandel," which the Commission, in its discretion, may reduce if by affidavit you demonstrate that payment of the full amount of the fee would cause extreme hardship. Notice of the filing of the appeal shall be filed with the Director within three (3) days of filing with the Commission. Ohio EPA requests that a copy of the appeal be served upon the Ohio Attorney General's Office, Environmental Enforcement Section. An appeal may be filed with the Environmental Review Appeals Commission at the following address:

Environmental Review Appeals Commission  
77 South High Street, 17th Floor  
Columbus, OH 43215

## **How to save money, reduce pollution and reduce energy consumption**

The Ohio EPA is encouraging companies to investigate pollution prevention and energy conservation. Not only will this reduce pollution and energy consumption, but it can also save you money. If you would like to learn ways you can save money while protecting the environment, please contact our Office of Compliance Assistance and Pollution Prevention at (614) 644-3469. Additionally, all or a portion of the capital expenditures related to installing air pollution control equipment under this permit may be eligible for financing and State tax exemptions through the Ohio Air Quality Development Authority (OAQDA) under Ohio Revised Code Section 3706. For more information, see the OAQDA website: [www.ohioairquality.org/clean\\_air](http://www.ohioairquality.org/clean_air)

## **How to give us feedback on your permitting experience**

Please complete a survey at [www.epa.ohio.gov/dapc/permitsurvey.aspx](http://www.epa.ohio.gov/dapc/permitsurvey.aspx) and give us feedback on your permitting experience. We value your opinion.

## **How to get an electronic copy of your permit**

This permit can be accessed electronically via the eBusiness Center: Air Services in Microsoft Word format or in Adobe PDF on the Division of Air Pollution Control (DAPC) Web page, [www.epa.ohio.gov/dapc](http://www.epa.ohio.gov/dapc) by clicking the "Search for Permits" link under the Permitting topic on the Programs tab.

If you have any questions, please contact Ohio EPA DAPC, Northeast District Office at (330)425-9171 or the Office of Compliance Assistance and Pollution Prevention at (614) 644-3469.

Sincerely,



Michael W. Ahern, Manager

Permit Issuance and Data Management Section, DAPC

Cc: U.S. EPA  
Ohio EPA-NEDO; Pennsylvania; West Virginia



## Response to Comments

|  |  |
|--|--|
| Facility ID:   | 0215000182   |
| Facility Name:   | East Ohio Gas - Columbiana Compressor Station  |
| Facility Description:  | Compressor Station, 27842 Hartley Rd.  |
| Facility Address:  | 27842 Hartley Road<br>Half a mile east of Stanley road<br>Knox Twp., OH 44619<br>Columbiana County |
| Permit:  | P0113464, Permit-To-Install - Initial Installation   |
| A public notice for the draft permit issuance was published in the Ohio EPA Weekly Review and appeared in the The Morning Journal on 04/18/2013. The comment period ended on 05/18/2013. |  |
| Hearing date (if held)   |  |
| Hearing Public Notice Date (if different from draft public notice)   |  |

The following comments were received during the comment period specified. Ohio EPA reviewed and considered all comments received during the public comment period. By law, Ohio EPA has authority to consider specific issues related to protection of the environment and public health. Often, public concerns fall outside the scope of that authority. For example, concerns about zoning issues are addressed at the local level. Ohio EPA may respond to those concerns in this document by identifying another government agency with more direct authority over the issue.

In an effort to help you review this document, the questions are grouped by topic and organized in a consistent format. PDF copies of the original comments in the format submitted are available upon request.

**1. Topic: None**

- a. Comment: None
- b. Response: None





**FINAL**

**Division of Air Pollution Control**  
**Permit-to-Install**  
for  
East Ohio Gas - Columbiana Compressor Station

|                |                      |
|----------------|----------------------|
| Facility ID:   | 0215000182           |
| Permit Number: | P0113464             |
| Permit Type:   | Initial Installation |
| Issued:        | 5/21/2013            |
| Effective:     | 5/21/2013            |





**Division of Air Pollution Control**  
**Permit-to-Install**  
for  
East Ohio Gas - Columbiana Compressor Station

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## Authorization

Facility ID: 0215000182  
 Facility Description: Compressor Station, 27842 Hartley Rd.  
 Application Number(s): A0047201  
 Permit Number: P0113464  
 Permit Description: Initial Installation of two (2) new natural gas compressor engines and a natural gas dehydration unit. In addition, the facility will be removing the two existing engines as part of this project. This will put the facility under the Title V threshold. Once the project is complete, the facility will request the current Title V permit to be rescinded and then convert this PTI to a PTIO.

Permit Type: Initial Installation  
 Permit Fee: \$800.00  
 Issue Date: 5/21/2013  
 Effective Date: 5/21/2013

This document constitutes issuance to:

East Ohio Gas - Columbiana Compressor Station  
 27842 Hartley Road  
 Half a mile east of Stanley road  
 Knox Twp., OH 44619

of a Permit-to-Install for the emissions unit(s) identified on the following page.

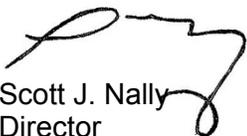
Ohio Environmental Protection Agency (EPA) District Office or local air agency responsible for processing and administering your permit:

Ohio EPA DAPC, Northeast District Office  
 2110 East Aurora Road  
 Twinsburg, OH 44087  
 (330)425-9171

The above named entity is hereby granted a Permit-to-Install for the emissions unit(s) listed in this section pursuant to Chapter 3745-31 of the Ohio Administrative Code. Issuance of this permit does not constitute expressed or implied approval or agreement that, if constructed or modified in accordance with the plans included in the application, the emissions unit(s) of environmental pollutants will operate in compliance with applicable State and Federal laws and regulations, and does not constitute expressed or implied assurance that if constructed or modified in accordance with those plans and specifications, the above described emissions unit(s) of pollutants will be granted the necessary permits to operate (air) or NPDES permits as applicable.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency

  
 Scott J. Nally  
 Director



## Authorization (continued)

Permit Number: P0113464  
 Permit Description: Initial Installation of two (2) new natural gas compressor engines and a natural gas dehydration unit. In addition, the facility will be removing the two existing engines as part of this project. This will put the facility under the Title V threshold. Once the project is complete, the facility will request the current Title V permit to be rescinded and then convert this PTI to a PTIO.

Permits for the following Emissions Unit(s) or groups of Emissions Units are in this document as indicated below:

|  |  |
|--|--|
| <b>Emissions Unit ID:</b><br>Company Equipment ID:<br>Superseded Permit Number:<br>General Permit Category and Type: | <b>B004</b><br>Engine 3<br>Not Applicable                |
| <b>Emissions Unit ID:</b><br>Company Equipment ID:<br>Superseded Permit Number:<br>General Permit Category and Type: | <b>B005</b><br>Engine 4<br>Not Applicable                |
| <b>Emissions Unit ID:</b><br>Company Equipment ID:<br>Superseded Permit Number:<br>General Permit Category and Type: | <b>P001</b><br>Glycol Dehydration Unit<br>Not Applicable |



## **A. Standard Terms and Conditions**



## **1. Federally Enforceable Standard Terms and Conditions**

- a) All Standard Terms and Conditions are federally enforceable, with the exception of those listed below which are enforceable under State law only:
  - (1) Standard Term and Condition A.2.a), Severability Clause
  - (2) Standard Term and Condition A.3.c) through A. 3.e) General Requirements
  - (3) Standard Term and Condition A.6.c) and A. 6.d), Compliance Requirements
  - (4) Standard Term and Condition A.9., Reporting Requirements
  - (5) Standard Term and Condition A.10., Applicability
  - (6) Standard Term and Condition A.11.b) through A.11.e), Construction of New Source(s) and Authorization to Install
  - (7) Standard Term and Condition A.14., Public Disclosure
  - (8) Standard Term and Condition A.15., Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations
  - (9) Standard Term and Condition A.16., Fees
  - (10) Standard Term and Condition A.17., Permit Transfers

## **2. Severability Clause**

- a) A determination that any term or condition of this permit is invalid shall not invalidate the force or effect of any other term or condition thereof, except to the extent that any other term or condition depends in whole or in part for its operation or implementation upon the term or condition declared invalid.
- b) All terms and conditions designated in parts B and C of this permit are federally enforceable as a practical matter, if they are required under the Act, or any of its applicable requirements, including relevant provisions designed to limit the potential to emit of a source, are enforceable by the Administrator of the U.S. EPA and the State and by citizens (to the extent allowed by section 304 of the Act) under the Act. Terms and conditions in parts B and C of this permit shall not be federally enforceable and shall be enforceable under State law only, only if specifically identified in this permit as such.

## **3. General Requirements**

- a) The permittee must comply with all terms and conditions of this permit. Any noncompliance with the federally enforceable terms and conditions of this permit constitutes a violation of the Act, and is grounds for enforcement action or for permit revocation, revocation and re-issuance, or modification.



- b) It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the federally enforceable terms and conditions of this permit.
- c) This permit may be modified, revoked, or revoked and reissued, for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or revocation, or of a notification of planned changes or anticipated noncompliance does not stay any term and condition of this permit.
- d) This permit does not convey any property rights of any sort, or any exclusive privilege.
- e) The permittee shall furnish to the Director of the Ohio EPA, or an authorized representative of the Director, upon receipt of a written request and within a reasonable time, any information that may be requested to determine whether cause exists for modifying or revoking this permit or to determine compliance with this permit. Upon request, the permittee shall also furnish to the Director or an authorized representative of the Director, copies of records required to be kept by this permit. For information claimed to be confidential in the submittal to the Director, if the Administrator of the U.S. EPA requests such information, the permittee may furnish such records directly to the Administrator along with a claim of confidentiality.

#### **4. Monitoring and Related Record Keeping and Reporting Requirements**

- a) Except as may otherwise be provided in the terms and conditions for a specific emissions unit, the permittee shall maintain records that include the following, where applicable, for any required monitoring under this permit:
  - (1) The date, place (as defined in the permit), and time of sampling or measurements.
  - (2) The date(s) analyses were performed.
  - (3) The company or entity that performed the analyses.
  - (4) The analytical techniques or methods used.
  - (5) The results of such analyses.
  - (6) The operating conditions existing at the time of sampling or measurement.
- b) Each record of any monitoring data, testing data, and support information required pursuant to this permit shall be retained for a period of five years from the date the record was created. Support information shall include, but not be limited to all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. Such records may be maintained in computerized form.
- c) Except as may otherwise be provided in the terms and conditions for a specific emissions unit, the permittee shall submit required reports in the following manner:
  - (1) Reports of any required monitoring and/or recordkeeping of federally enforceable information shall be submitted to the Ohio EPA DAPC, Northeast District Office.



- (2) Quarterly written reports of (i) any deviations from federally enforceable emission limitations, operational restrictions, and control device operating parameter limitations, excluding deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06, that have been detected by the testing, monitoring and recordkeeping requirements specified in this permit, (ii) the probable cause of such deviations, and (iii) any corrective actions or preventive measures taken, shall be made to the Ohio EPA DAPC, Northeast District Office. The written reports shall be submitted (i.e., postmarked) quarterly, by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. See A.15. below if no deviations occurred during the quarter.
  - (3) Written reports, which identify any deviations from the federally enforceable monitoring, recordkeeping, and reporting requirements contained in this permit shall be submitted (i.e., postmarked) to the Ohio EPA DAPC, Northeast District Office every six months, by January 31 and July 31 of each year for the previous six calendar months. If no deviations occurred during a six-month period, the permittee shall submit a semi-annual report, which states that no deviations occurred during that period.
  - (4) This permit is for an emissions unit located at a Title V facility. Each written report shall be signed by a responsible official certifying that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete.
- d) The permittee shall report actual emissions pursuant to OAC Chapter 3745-78 for the purpose of collecting Air Pollution Control Fees.

## 5. Scheduled Maintenance/Malfunction Reporting

Any scheduled maintenance of air pollution control equipment shall be performed in accordance with paragraph (A) of OAC rule 3745-15-06. The malfunction, i.e., upset, of any emissions units or any associated air pollution control system(s) shall be reported to the Ohio EPA DAPC, Northeast District Office in accordance with paragraph (B) of OAC rule 3745-15-06. (The definition of an upset condition shall be the same as that used in OAC rule 3745-15-06(B)(1) for a malfunction.) The verbal and written reports shall be submitted pursuant to OAC rule 3745-15-06.

Except as provided in that rule, any scheduled maintenance or malfunction necessitating the shutdown or bypassing of any air pollution control system(s) shall be accompanied by the shutdown of the emission unit(s) that is (are) served by such control system(s).

## 6. Compliance Requirements

- a) The emissions unit(s) identified in this Permit shall remain in full compliance with all applicable State laws and regulations and the terms and conditions of this permit.
- b) Any document (including reports) required to be submitted and required by a federally applicable requirement in this permit shall include a certification by a responsible official that, based on information and belief formed after reasonable inquiry, the statements in the document are true, accurate, and complete.



- c) Upon presentation of credentials and other documents as may be required by law, the permittee shall allow the Director of the Ohio EPA or an authorized representative of the Director to:
  - (1) At reasonable times, enter upon the permittee's premises where a source is located or the emissions-related activity is conducted, or where records must be kept under the conditions of this permit.
  - (2) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit, subject to the protection from disclosure to the public of confidential information consistent with ORC section 3704.08.
  - (3) Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit.
  - (4) As authorized by the Act, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit and applicable requirements.
- d) The permittee shall submit progress reports to the Ohio EPA DAPC, Northeast District Office concerning any schedule of compliance for meeting an applicable requirement. Progress reports shall be submitted semiannually or more frequently if specified in the applicable requirement or by the Director of the Ohio EPA. Progress reports shall contain the following:
  - (1) Dates for achieving the activities, milestones, or compliance required in any schedule of compliance, and dates when such activities, milestones, or compliance were achieved.
  - (2) An explanation of why any dates in any schedule of compliance were not or will not be met, and any preventive or corrective measures adopted.

## **7. Best Available Technology**

As specified in OAC Rule 3745-31-05, new sources that must employ Best Available Technology (BAT) shall comply with the Applicable Emission Limitations/Control Measures identified as BAT for each subject emissions unit.

## **8. Air Pollution Nuisance**

The air contaminants emitted by the emissions units covered by this permit shall not cause a public nuisance, in violation of OAC rule 3745-15-07.

## **9. Reporting Requirements**

The permittee shall submit required reports in the following manner:

- a) Reports of any required monitoring and/or recordkeeping of state-only enforceable information shall be submitted to the Ohio EPA DAPC, Northeast District Office.
- 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 state-only required 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 (c) any corrective actions or preventive measures which have been or will be taken, shall be submitted to the Ohio EPA DAPC, Northeast District Office. 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 (i.e., postmarked) quarterly, 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.)

## **10. Applicability**

This Permit-to-Install is applicable only to the emissions unit(s) identified in the Permit-to-Install. Separate application must be made to the Director for the installation or modification of any other emissions unit(s).

## **11. Construction of New Sources(s) and Authorization to Install**

- a) This permit does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. This permit does not constitute expressed or implied assurance that the proposed facility has been constructed in accordance with the application and terms and conditions of this permit. The action of beginning and/or completing construction prior to obtaining the Director's approval constitutes a violation of OAC rule 3745-31-02. Furthermore, issuance of this permit does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. Issuance of this permit is not to be construed as a waiver of any rights that the Ohio Environmental Protection Agency (or other persons) may have against the applicant for starting construction prior to the effective date of the permit. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed facilities cannot meet the requirements of this permit or cannot meet applicable standards.
- b) If applicable, authorization to install any new emissions unit included in this permit shall terminate within eighteen months of the effective date of the permit if the owner or operator has not undertaken a continuing program of installation or has not entered into a binding contractual obligation to undertake and complete within a reasonable time a continuing program of installation. This deadline may be extended by up to 12 months if application is made to the Director within a reasonable time before the termination date and the party shows good cause for any such extension.
- c) The permittee may notify Ohio EPA of any emissions unit that is permanently shut down (i.e., the emissions unit has been physically removed from service or has been altered in such a way that it can no longer operate without a subsequent "modification" or "installation" as defined in OAC Chapter 3745-31) by submitting a certification from the authorized official that identifies the date on which the emissions unit was permanently shut down. Authorization to operate the affected emissions unit shall cease upon the date certified by the authorized official that the emissions unit was permanently shut down. At a minimum, notification of permanent shut down shall be made or confirmed by marking the affected emissions unit(s) as "permanently shut down" in Ohio EPA's "Air Services" along with the date the emissions unit(s) was permanently removed and/or disabled. Submitting the facility profile update will constitute notifying of the permanent shutdown of the affected emissions unit(s).



- d) The provisions of this permit shall cease to be enforceable for each affected emissions unit after the date on which an emissions unit is permanently shut down (i.e., emissions unit has been physically removed from service or has been altered in such a way that it can no longer operate without a subsequent "modification" or "installation" as defined in OAC Chapter 3745-31). All records relating to any permanently shutdown emissions unit, generated while the emissions unit was in operation, must be maintained in accordance with law. All reports required by this permit must be submitted for any period an affected emissions unit operated prior to permanent shut down. At a minimum, the permit requirements must be evaluated as part of the reporting requirements identified in this permit covering the last period the emissions unit operated.

No emissions unit certified by the authorized official as being permanently shut down may resume operation without first applying for and obtaining a permit pursuant to OAC Chapter 3745-31.

- e) The permittee shall comply with any residual requirements related to this permit, such as the requirement to submit a deviation report, air fee emission report, or other any reporting required by this permit for the period the operating provisions of this permit were enforceable, or as required by regulation or law. All reports shall be submitted in a form and manner prescribed by the Director. All records relating to this permit must be maintained in accordance with law.

## **12. Permit-To-Operate Application**

The permittee is required to apply for a Title V permit pursuant to OAC Chapter 3745-77. The permittee shall submit a complete Title V permit application or a complete Title V permit modification application within twelve (12) months after commencing operation of the emissions units covered by this permit. However, if the proposed new or modified source(s) would be prohibited by the terms and conditions of an existing Title V permit, a Title V permit modification must be obtained before the operation of such new or modified source(s) pursuant to OAC rule 3745-77-04(D) and OAC rule 3745-77-08(C)(3)(d).

## **13. Construction Compliance Certification**

The applicant shall identify the following dates in the online facility profile for each new emissions unit identified in this permit.

- a) Completion of initial installation date shall be entered upon completion of construction and prior to start-up.
- b) Commence operation after installation or latest modification date shall be entered within 90 days after commencing operation of the applicable emissions unit.

## **14. Public Disclosure**

The facility is hereby notified that this permit, and all agency records concerning the operation of this permitted source, are subject to public disclosure in accordance with OAC rule 3745-49-03.



**15. Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations**

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., postmarked), by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters.

**16. Fees**

The permittee shall pay fees to the Director of the Ohio EPA in accordance with ORC section 3745.11 and OAC Chapter 3745-78. The permittee shall pay all applicable permit-to-install fees within 30 days after the issuance of any permit-to-install. The permittee shall pay all applicable permit-to-operate fees within thirty days of the issuance of the invoice.

**17. Permit Transfers**

Any transferee of this permit shall assume the responsibilities of the prior permit holder. The new owner must update and submit the ownership information via the "Owner/Contact Change" functionality in Air Services once the transfer is legally completed. The change must be submitted through Air Services within thirty days of the ownership transfer date.

**18. Risk Management Plans**

If the permittee is required to develop and register a risk management plan pursuant to section 112(r) of the Clean Air Act, as amended, 42 U.S.C. 7401 et seq. ("Act"), the permittee shall comply with the requirement to register such a plan.

**19. Title IV Provisions**

If the permittee is subject to the requirements of 40 CFR Part 72 concerning acid rain, the permittee shall ensure that any affected emissions unit complies with those requirements. Emissions exceeding any allowances that are lawfully held under Title IV of the Act, or any regulations adopted thereunder, are prohibited.



## **B. Facility-Wide Terms and Conditions**



1. All the following facility-wide terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only:
  - a) None.
2. The Ohio EPA has determined that this facility is subject to the requirements of 40 CFR Part 63 Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines at Area Sources. Although Ohio EPA has determined that this Generally Available Control Technology NESHAP (GACT) applies, at this time Ohio EPA does not have the authority to enforce this standard. Instead, U.S. EPA has the authority to enforce this standard. Please be advised, that all requirements associated with this rule are in effect and shall be enforced by U.S. EPA. For more information on the area source rules, please refer to the following U.S. EPA website: <http://www.epa.gov/ttn/atw/area/arearules.html>.
3. The following emissions units contained in this permit are subject to 40 CFR Part 60, Subpart JJJJ, Standards of Performance for Stationary Spark Ignition Internal Combustion Engines: B004 and B005. The complete NSPS requirements may be accessed via the internet from the Electronic Code of Federal Regulations (e-CFR) website <http://ecfr.gpoaccess.gov> or by contacting the Ohio EPA Northeast District Office.



**Final Permit-to-Install**  
East Ohio Gas - Columbiana Compressor Station  
**Permit Number:** P0113464  
**Facility ID:** 0215000182  
**Effective Date:**5/21/2013

## **C. Emissions Unit Terms and Conditions**



**1. B004, Engine 3**

**Operations, Property and/or Equipment Description:**

1340 HP Caterpillar Model G3512TALE with a Miratech catalytic converter which is a Stationary spark ignition (SI), lean burn, internal combustion engine (ICE) greater than or equal to 500 HP and less than 1,350 HP, manufactured between 1/1/08 and 6/30/10, burning natural gas, and uncertified but will still meet the exhaust emission standards identified in Table 1 to Part 60, Subpart JJJJ.

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) None.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

|    | Applicable Rules/Requirements   | Applicable Emissions Limitations/Control Measures   |
|----|---|---|
| a. | 40 CFR Part 60, Subpart JJJJ<br>In accordance with 40 CFR 60.4230, this emissions unit is subject to the New Source Performance Standards (NSPS) for Stationary Spark Ignition (SI) Internal Combustion Engines (ICE).<br>40 CFR 60.4233(e)<br>40 CFR 60.4231(e)-mfg.<br>Table 1 to Part 60, Subpart JJJJ | The exhaust emissions from this engine shall not exceed:<br>2.0 grams of nitrogen oxides per horsepower hour (2.0 g NO <sub>x</sub> /HP-hr) or 160 ppmvd at 15% O <sub>2</sub> .<br>4.0 grams of carbon monoxide per horsepower hour (4.0 g CO/HP-hr) or 540 ppmvd at 15% O <sub>2</sub> .<br>1.0 grams of volatile organic compounds per horsepower hour (1.0 g VOC/HP-hr) or 86 ppmvd at 15% O <sub>2</sub> . |
| b. | OAC rule 3745-17-11(B)(5)   | Particulate emissions (PE) shall not exceed 0.062 lb/MMBtu of actual heat input from ICE greater than 600 HP.   |
| c. | OAC rule 3745-18-04(F)(4)   | The sulfur dioxide (SO <sub>2</sub> ) emission rate from natural gas shall be considered to be equal to 0.0 lb/MMBtu.   |



|    |   |  |
|----|---|--|
| d. | OAC rule 3745-17-07(A)(1)                               | Visible particulate emissions from the exhaust stack serving this emissions unit shall not exceed 20% opacity, as a six-minute average, except as specified by rule.   |
| e. | ORC 3704.03(T)  | Emissions of nitrogen oxides (NOx) shall not exceed 25.88 tons per year.   |
| f. | OAC rule 3745-31-05(A)(3), as effective 11/30/01        | <p>Compliance with the applicable requirements of 40 CFR Part 60, Subpart JJJJ</p> <p>Particulate emissions (PE) from this emissions unit shall not exceed 0.74pound per hour and 3.23tons per year.</p> <p>Emissions of carbon monoxide (CO) shall not exceed 0.89 pound per hour and 3.89 tons per year.</p> <p>Emissions of volatile organic compounds (VOC) shall not exceed 0.82 pounds per hour and 3.57 tons per year.</p> <p>Sulfur dioxide (SO<sub>2</sub>) emissions shall be estimated to be 0.03 ton per year based on the AP-42 emission factor for natural gas.</p> <p>See b)(2)a.</p> |
| g. | OAC rule 3745-31-05(A)(3)(a)(ii), as effective 12/01/06 | See b)(2)b.  |
| h. | 40 CFR 63 Subpart ZZZZ<br>40 CFR 63.6590(c)(1)          | A newor reconstructed area source operating in compliance with Part 60 Subpart JJJJ is the demonstration of compliance for 40 CFR 63 Subpart ZZZZ.   |

(2) Additional Terms and Conditions

- a. The permittee has satisfied the Best Available Technology (BAT) requirements pursuant to OAC paragraph 3745-31-05(A)(3), as effective November 30, 2001, in this permit. On December 1, 2006, paragraph (A)(3) of OAC rule 3745-31-05 was revised to conform to ORC changes effective August 3, 2006 (S.B. 265 changes), such that BAT is no longer required by State regulations for NAAQS pollutants less than ten tons per year. However, that rule revision has not yet



been approved by the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP). Therefore, until the SIP revision occurs and the U.S. EPA approves the revisions to the OAC rule 3745-31-05, the requirement to satisfy BAT still exists as part of the federally-approved SIP for Ohio. Once U.S. EPA approves the December 1, 2006, version of 3745-31-05, then these emission limits/control measures no longer apply: b)(1)f., b)(2)a., f)(2)b.ii., f)(2)d.ii., f)(2)e.ii., f)(2)f.

- b. This paragraph applies once U.S. EPA approves the December 1, 2006 version of OAC rule 3745-31-05, as part of the State Implementation Plan, (SIP).

The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the particulate emissions (PE), carbon monoxide (CO), and volatile organic compounds (VOC) from this emissions unit since the "controlled" potential to emit is less than ten tons per year.

- c. The stationary spark ignition (SI) internal combustion engine (ICE) is subject to and shall be operated in compliance with the requirements of 40 CFR Part 60, Subpart JJJJ, the standards of performance for stationary SI ICE.

[40 CFR 60.4230(a)]

- d. The stationary SI ICE has been or shall be purchased certified by the manufacturer to emission standards as stringent as those identified in 40 CFR 60.4233(e) and found in Table 1 of Part 60, Subpart JJJJ for lean burn, natural gas engines greater than or equal to 500 HP and less than 1,350 HP and manufactured on or after 1/1/08 and before 7/1/10.

[40 CFR 60.4233(e)] and [40 CFR 60.4231(e)]

c) Operational Restrictions

- (1) The stationary SI ICE shall be installed, operated, and maintained according to the manufacturer's specifications, written instructions, and procedures over the entire life of the engine. The permittee shall operate and maintain the stationary SI ICE to achieve the emission standards identified in 40 CFR 60.4233(e) and found in Table 1 of NSPS Subpart JJJJ over the entire life of the engine. The air-to-fuel ratio controllers shall be set by the manufacturer and/or according to the operations manual, to ensure proper operation of the engine and control device and to minimize emissions.

[40 CFR 60.4234], [40 CFR 60.4243(b)(1)], and [40 CFR 60.4243(g)]

- (2) During emergency conditions the permittee may operate this engine using propane for a maximum of 100 hours per year as an alternative fuel and if records are maintained for such use. If the engine is not certified to burn propane the permittee shall conduct a performance test to demonstrate compliance with the emission standards in 40 CFR 60.4233.

[40 CFR 60.4243(e)]



d) Monitoring and/or Recordkeeping Requirements

- (1) The permittee shall maintain the engine and catalytic converter manufacturers' warranty and/or emissions test data on site or at a central location for all facility engines and it shall be made available for review upon request. If the manufacturer's warranty and/or emissions test data is not kept on site, the permittee shall maintain a log for the location of each engine and it shall identify the agency-assigned emissions unit number, the manufacturer's identification number, and the emissions test data or warranty of emissions. The manufacturer's operations manual and maintenance records shall be maintained at the same location as the engine(s); or if the engine(s) is/are leased or serviced by personnel visiting (not stationed at) the site, these records shall be maintained by the facility or staff personnel who is responsible for maintaining the engine(s) to meet the manufacturer's emission-related operating instructions and settings. This information shall be made available to the Director or his/her representative upon request.

[40 CFR 60.4243(b)(1)] with [40 CFR 60.4242(f)]

- (2) The permittee shall maintain a record of the natural gas burned in this ICE during each calendar year. The natural gas usage can be calculated at the end of each year using the best method available to estimate the annual throughput, which might include but shall not be limited to: readings from the facility's natural gas meter, the facility's natural gas bill, the recorded or estimated hours of operation along with the manufacture's documentation on the maximum natural gas fuel flow rate.
- (3) The permittee of the uncertified lean burn spark ignition internal combustion engine, manufactured after January 1, 2008 (or after 7/1/07 if greater than or equal to 1,350 HP), shall demonstrate compliance as follows:
  - a. all notifications submitted to comply with and all documentation supporting compliance with Part 60 Subpart JJJJ;
  - b. keep a maintenance plan and the records of all maintenance conducted on the engine;
  - c. maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions; and
  - d. conduct an initial performance test, as specified in 40 CFR 60.4244, within 1 year of engine startup and conduct subsequent performance testing every 8,760 hours or 3 years, whichever comes first.
  - e. the information identified in 40 CFR parts 90, 1048, 1054, and/or 1060 that is required to be provided by the manufacturer to the operator/owner, as applicable to the model year and horsepower of the engine.

[40 CFR 60.4243(b)(2)] and [40 CFR 60.4233(d), (e), or (f)]



e) Reporting Requirements.

- (1) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA District Office or Local Air Agency by the due date identified in the Authorization section of this permit. The permit evaluation report shall cover a reporting period of no more than twelve months for each air contaminant source identified in this permit. It is recommended that the PER is submitted electronically through the Ohio EPA's "e-Business Center: Air Services" although PERs can be submitted via U.S. postal service or can be hand delivered.

[OAC rule 3745-15-03(B)(2)] and [OAC rule 3745-15-03(D)]

f) Testing Requirements

- (1) If the natural gas engine was purchased without an EPA certificate of conformity, the engine will need to meet the performance testing requirements of 40 CFR 60.4243(b)(2)(ii) and the permittee will be required to conduct an initial performance test and subsequent performance tests every 8,760 hours or 3 years whichever comes first, to demonstrate compliance with the emission limits from Part 60 Subpart JJJJ.

[60.4243(b)(1) and (2)]

- (2) Compliance with the emission limitations in b)(1) of these terms and conditions shall be determined in accordance with the following methods:

a. Opacity Limitation:

Visible particulate emissions from the exhaust stack serving this emissions unit shall not exceed 20% opacity, as a six-minute average, except as specified by rule.

Applicable Compliance Method:

If required, compliance shall be determined through visible emission observations performed in accordance with U.S. EPA Reference Method 9 in 40 CFR, Part 60, Appendix A.

[OAC rule 3745-17-07(A)(1)]

b. Emission Limitations:

i. 0.062lb PE/MMBtu from ICE greater than 600 HP

ii. 3.23 tons PE/year

Applicable Compliance Method:

The particulate emission limitation is from OAC rule 3745-17-11(B)(5) for stationary internal combustion engines.



Compliance with the ton per year PE emissions limitation shall be determined by the following calculation:

$$0.062 \text{ lb PE/MMBtu} \times 11.9 \text{ MMBtu/hr} = 0.74 \text{ lb PE/hr}$$

$$0.74 \text{ lb PE/hr} \times 8760 \text{ hours/year} \times 1 \text{ ton}/2000 \text{ lbs} = 3.23 \text{ tons PE/year}$$

If required, the permittee shall demonstrate compliance with the PE emission limitation through exhaust emission tests performed in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 5.

[OAC rule 3745-17-11(B)(5)]

c. Emission Limitations:

2.0 grams NO<sub>x</sub> /HP-hr or 160 ppmvd at 15% O<sub>2</sub>

25.88 tons NO<sub>x</sub>/year

Applicable Compliance Method:

Compliance with the emission limitations shall be based on the manufacturer's certification to the emission standards identified in 40 CFR 60.4231(e) and by maintaining the engine according to the manufacturer's specifications. The g/HP-hr limit is the emission limitation from Table 1 to Part 60 Subpart JJJJ, the exhaust emission standards for lean burn, natural gas engines greater than or equal to 500 HP and less than 1,350 HP, manufactured on/after 1/1/08 and before 7/1/10.

Compliance with the ton per year NO<sub>x</sub> emissions limitation shall be determined by the following calculation:

$$4.41 \text{E-}03 \text{ lb NO}_x/\text{HP-hr} \times 1340 \text{ HP} = 5.91 \text{ lb NO}_x/\text{hr}$$

$$5.91 \text{ lbs NO}_x/\text{hr} \times 8760 \text{ hours/year} \times 1 \text{ ton}/2000 \text{ lbs} = 25.88 \text{ tons NO}_x/\text{year}$$

Where there is no certificate of conformity, the permittee shall demonstrate compliance with the NO<sub>x</sub> limitation according to the requirements of 40 CFR 60.4244, using the applicable test methods in Table 2 to Part 60 Subpart JJJJ.

[40 CFR 60.4233(e)], [40 CFR 60.4244], and [Table 1 to Part 60 Subpart JJJJ]

d. Emission Limitations:

i. 4.0 grams CO/HP-hr or 540 ppmvd at 15% O<sub>2</sub>

ii. 3.89 tons CO/year



Applicable Compliance Method:

Compliance with the emission limitations shall be based on the manufacturer's certification to the emission standards identified in 40 CFR 60.4231(e) and by maintaining the engine according to the manufacturer's specifications. The g/HP-hr limit is the emission limitation from Table 1 to Part 60 Subpart JJJJ, the exhaust emission standards for lean burn, natural gas engines greater than or equal to 500 HP and less than 1,350 HP, manufactured on/after 1/1/08 and before 7/1/10.

Compliance with the ton per year CO emissions limitation shall be determined by the following calculation:

$$4.0 \text{ g CO/HP-hr} \times 1340 \text{ HP/hr} = 5360 \text{ g CO/hr} \times 1.66\text{E-}03 = 8.8976 \text{ lb/hr} \times .10^* = 0.89 \text{ lbs CO/hr}$$

\*Control equipment, per vendor data, is 90% efficient.

$$0.89 \text{ lbs CO/hr} \times 8760 \text{ hours/year} \times 1 \text{ ton/2000 lbs} = 3.89 \text{ tons CO/year}$$

Where there is no certificate of conformity, the permittee shall demonstrate compliance with the CO limitation according to the requirements of 40 CFR 60.4244, using the applicable test methods in Table 2 to Part 60 Subpart JJJJ.

[40 CFR 60.4233(e)], [40 CFR 60.4244], and [Table 1 to Part 60 Subpart JJJJ]

e. Emission Limitations:

i. 1.0 grams VOC/HP-hr or 86 ppmvd at 15% O<sub>2</sub>

ii. 3.57 tons VOC/year

Applicable Compliance Method:

Compliance with the emission limitations shall be based on the manufacturer's certification to the emission standards identified in 40 CFR 60.4231(e) and by maintaining the engine according to the manufacturer's specifications. The g/HP-hr limit is the emission limitation from Table 1 to Part 60 Subpart JJJJ, the exhaust emission standards for lean burn, natural gas engines greater than or equal to 500 HP and less than 1,350 HP, manufactured on/after 1/1/08 and before 7/1/10.

Compliance with the ton per year VOC emissions limitation shall be determined by the following calculation:

$$0.229 \text{ lb VOC/mm btu} \times 11.9 \text{ mm btu/hr} \times 0.3^* = 0.82 \text{ lb VOC/hr}$$

\*Control equipment, per vendor data, is 70% efficient.

$$0.82 \text{ lb VOC/hr} \times 8760 \text{ hours/year} \times 1 \text{ ton/2000 lbs} = 3.57 \text{ tons VOC/year}$$



Where there is no certificate of conformity, the permittee shall demonstrate compliance with the VOC limitation according to the requirements of 40 CFR 60.4244, using the applicable test methods in Table 2 to Part 60 Subpart JJJJ.

[40 CFR 60.4233(e)], [40 CFR 60.4244], and [Table 1 to Part 60 Subpart JJJJ]

f. Emission Limitations:

0.000588 lb SO<sub>2</sub>/MMBtu

0.03 tons of SO<sub>2</sub>/year

Applicable Compliance Method:

The SO<sub>2</sub> emissions limit is based on using the AP-42 emission factor of 0.000588 lb SO<sub>2</sub>/MMBtu from Chapter 3.2 for Natural Gas-fired Reciprocating Engines, Table 3.2-1 through 3, "Uncontrolled Emission Factors for all natural gas Engines".

Compliance with the ton per year SO<sub>2</sub> emissions limitation shall be determined by the following calculation:

$$0.000588 \text{ lb SO}_2/\text{MMBtu} \times 11.9 \text{ MMBtu/hr} = 0.007 \text{ lb SO}_2/\text{hr}$$

$$0.007 \text{ lb SO}_2/\text{hr} \times 8760 \text{ hours/year} \times 1 \text{ ton}/2000 \text{ lbs} = 0.03 \text{ tons SO}_2/\text{year}$$

\* The heating value of natural gas may be adjusted to that provided by the supplier.

(3) The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

- a. Three separate test runs for each performance test is required, as specified in 40 CFR 60.8(f) and each test run must last at least 1 hour.
- b. Each performance test must be conducted within 10 percent of 100 percent peak (or the highest achievable) load and according to the requirements in 40 CFR 60.8 and under the specific conditions that are specified by Table 2 to Part 60, Subpart JJJJ.
- c. Performance tests cannot be conducted during periods of startup, shutdown, or malfunction, as specified in 40 CFR 60.8(c).
- d. An initial performance test shall be conducted within 1 year of engine startup and subsequent performance testing shall be conducted every 8,760 hours or 3 years, whichever comes first, for engines greater than 500 horsepower.
- e. The emission testing shall be conducted to demonstrate compliance with the emission limitations for this engine identified in the Standards of Performance for Stationary Spark Ignition Internal Combustion Engines, Part 60, Subpart JJJJ.



- f. The following test method(s) shall be employed, in accordance with Table 2 of Subpart JJJJ of Part 60, to demonstrate compliance with the allowable mass emission rates:
- i. Method 1 or 1A of 40 CFR Part 60, Appendix A or ASTM Method D6522-00 to select the sampling port location and the number of traverse points.
  - ii. Method 2 of 40 CFR Part 60, Appendix A or Method 19 of 40 CFR Part 60, Appendix A to determine the exhaust flowrate of the engine.
  - iii. Method 3, 3A, or 3B of 40 CFR Part 60, Appendix A or ASTM Method D6522-00 to measure O<sub>2</sub> at the exhaust stack.
  - iv. Method 4 of 40 CFR Part 60, Appendix A; or Method 320 of 40 CFR Part 63, Appendix A; or ASTM D6348-03 to measure the moisture content at the exhaust stack.
  - v. Method 10 of 40 CFR Part 60, Appendix A; or Method 320 of 40 CFR Part 63, Appendix A; or ASTM Method D6522-00; or ASTM D 6348-03 to measure CO at the exhaust stack.
  - vi. Method 25A of 40 CFR Part 60, Appendix A; or Method 18 of 40 CFR Part 60, Appendix A; or ASTM D6348.03 to measure VOC at the exhaust stack.

Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA (alternative methods allowed per footnote to Table 2 of subpart).

- g. 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 Office's or local air agency's refusal to accept the results of the emission test(s).
- h. Personnel from the appropriate Ohio EPA District Office or local air agency shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.
- i. A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the appropriate Ohio EPA District Office or local air agency within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the appropriate Ohio EPA District Office or local air agency.



- (4) To determine compliance with the NO<sub>x</sub> mass per unit output emission limitation, the concentration of NO<sub>x</sub> in the engine exhaust (in ppmv) shall be converted to grams/horsepower-hour (g/HP-hr) using the following equation:

$$ER = (C_d \times 1.912 \times 10^{-3} \times Q \times T) / \text{HP-hr}$$

Where:

ER = Emission rate of NO<sub>x</sub> in g/HP-hr.

C<sub>d</sub> = Measured NO<sub>x</sub> concentration in parts per million by volume (ppmv).

1.912 × 10<sup>-3</sup> = Conversion constant for ppm NO<sub>x</sub> to grams per standard cubic meter at 20 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meter per hour, dry basis.

T = Time of test run, in hours.

HP-hr = Brake work of the engine, horsepower-hour (HP-hr).

- (5) To determine compliance with the CO mass per unit output emission limitation, the concentration of CO in the engine exhaust (in ppmv) shall be converted to g/HP-hr using the following equation:

$$ER = (C_d \times 1.164 \times 10^{-3} \times Q \times T) / \text{HP-hr}$$

Where:

ER = Emission rate of CO in g/HP-hr.

C<sub>d</sub> = Measured CO concentration in ppmv.

1.164 × 10<sup>-3</sup> = Conversion constant for ppm CO to grams per standard cubic meter at 20 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meters per hour, dry basis.

T = Time of test run, in hours.

HP-hr = Brake work of the engine, in HP-hr.

- (6) If using Method 25A, to determine compliance with the VOC mass per unit output emission limitation, the concentration of VOC in the engine exhaust (in ppmv) shall be converted to g/HP-hr using the following equation:

$$ER = (C_d \times 1.833 \times 10^{-3} \times Q \times T) / \text{HP-hr}$$

Where:

ER = Emission rate of VOC in g/HP-hr (emissions of formaldehyde should be excluded).



Cd= VOC concentration measured as propane in ppmv.

$1.833 \times 10^{-3}$  = Conversion constant for ppm VOC measured as propane, to grams per standard cubic meter at 20 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meters per hour, dry basis.

T = Time of test run, in hours.

HP-hr = Brake work of the engine, in HP-hr.

- (7) If using Method 18 Of Part 60 or Method 320 of Part 63, to determine compliance with the VOC mass per unit output emission limitation, the measured VOC emissions can be corrected to account for the potential differences in measured values between these methods and Method 25A.

The results from Method 18 can be corrected for response factor differences using the following equation:

$$RF_i = C_{Mi} / C_{Ai}$$

Where:

RF<sub>i</sub>= Response factor of compound i when measured with EPA Method 25A.

C<sub>Mi</sub> = Measured concentration of compound i in ppmv as carbon.

C<sub>Ai</sub> = True concentration of compound i in ppmv as carbon.

The results from Method 320 can be corrected for response factor differences using the following equation:

$$C_{i\text{corr}} = RF_i \times C_{i\text{meas}}$$

Where:

C<sub>i<sub>corr</sub></sub>= Concentration of compound i corrected to the value that would have been measured by EPA Method 25A, ppmv as carbon.

C<sub>i<sub>meas</sub></sub>= Concentration of compound i measured by EPA Method 320, ppmv as carbon.

The corrected VOC concentration can then be placed on a propane basis using the following equation:

$$C_{\text{Peq}} = 0.6098 \times C_{i\text{corr}}$$

Where:

C<sub>Peq</sub>= Concentration of compound i in mg of propane equivalent per DSCM.

[40 CFR 60.4244] and [40 CFR 60.4243(b)]



**Final Permit-to-Install**  
East Ohio Gas - Columbiana Compressor Station  
**Permit Number:** P0113464  
**Facility ID:** 0215000182  
**Effective Date:** 5/21/2013

g) Miscellaneous Requirements

(1) None.



**2. B005, Engine 4**

**Operations, Property and/or Equipment Description:**

690 HP Caterpillar Model G3508B with a Miratech catalytic converter which is a Stationary spark ignition (SI), lean burn, internal combustion engine (ICE) greater than or equal to 500 horse power (HP) and less than 1,350 HP, manufactured on or after 7/1/10, burning natural gas, and uncertified but will still meet the exhaust emission standards identified in Table 1 to Part 60, Subpart JJJJ.

- a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.
  - (1) None.
- b) Applicable Emissions Limitations and/or Control Requirements
  - (1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

|    | Applicable Rules/Requirements   | Applicable Emissions Limitations/Control Measures   |
|----|---|---|
| a. | 40 CFR Part 60, Subpart JJJJ<br><br>In accordance with 40 CFR 60.4230, this emissions unit is subject to the New Source Performance Standards (NSPS) for Stationary Spark Ignition (SI) Internal Combustion Engines (ICE).<br><br>40 CFR 60.4233(e)<br>40 CFR 60.4231(e)-mfg.<br>Table 1 to Part 60, Subpart JJJJ | The exhaust emissions from this engine shall not exceed:<br><br>1.0 grams of nitrogen oxides per horsepower hour (1.0 g NOx/HP-hr) or 82 ppmvd at 15% O <sub>2</sub> .<br><br>2.0 grams of carbon monoxide per horsepower hour (2.0 g CO/HP-hr) or 270 ppmvd at 15% O <sub>2</sub> .<br><br>0.7 grams of volatile organic compounds per horsepower hour (0.7 g VOC/HP-hr) or 60 ppmvd at 15% O <sub>2</sub> . |
| b. | OAC rule 3745-17-11(B)(5)   | Particulate emissions (PE) shall not exceed 0.062 lb/MMBtu of actual heat input from ICE greater than 600 HP.   |
| c. | OAC rule 3745-18-04(F)(4)   | The sulfur dioxide (SO <sub>2</sub> ) emission rate from natural gas shall be considered to be equal to 0.0 lb/MMBtu.   |



|    |   |   |
|----|---|---|
| d. | OAC rule 3745-17-07(A)(1)                               | Visible particulate emissions from the exhaust stack serving this emissions unit shall not exceed 20% opacity, as a six-minute average, except as specified by rule.  |
| e. | OAC rule 3745-31-05(A)(3), as effective 11/30/01        | <p>Compliance with the applicable requirements of 40 CFR Part 60, Subpart JJJJ</p> <p>Particulate emissions (PE) from this emissions unit shall not exceed 0.3pound per hour and 1.32tons per year.</p> <p>Emissions of nitrogen oxides (NOx) shall not exceed 1.52 pound per hour and 6.66 tons per year.</p> <p>Emissions of carbon monoxide (CO) shall not exceed 0.47 pound per hour and 2.07 tons per year.</p> <p>Emissions of volatile organic compounds (VOC) shall not exceed 0.20 pounds per hour and 0.87 tons per year.</p> <p>Sulfur dioxide (SO2) emissions shall be estimated to be 0.03 ton per year based on the AP-42 emission factor for natural gas.</p> <p>See b)(2)a.</p> |
| f. | OAC rule 3745-31-05(A)(3)(a)(ii), as effective 12/01/06 | See b)(2)b.   |
| g. | 40 CFR 63 Subpart ZZZZ<br>40 CFR 63.6590(c)(1)          | A newor reconstructed area source operating in compliance with Part 60 Subpart JJJJ is the demonstration of compliance for 40 CFR 63 Subpart ZZZZ.  |

(2) Additional Terms and Conditions

- a. The permittee has satisfied the Best Available Technology (BAT) requirements pursuant to OAC paragraph 3745-31-05(A)(3), as effective November 30, 2001, in this permit. On December 1, 2006, paragraph (A)(3) of OAC rule 3745-31-05 was revised to conform to ORC changes effective August 3, 2006 (S.B. 265 changes), such that BAT is no longer required by State regulations for NAAQS pollutants less than ten tons per year. However, that rule revision has not yet



been approved by the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP). Therefore, until the SIP revision occurs and the U.S. EPA approves the revisions to the OAC rule 3745-31-05, the requirement to satisfy BAT still exists as part of the federally-approved SIP for Ohio. Once U.S. EPA approves the December 1, 2006, version of 3745-31-05, then these emission limits/control measures no longer apply: b)(1)e., b)(2)a., f)(2)b.ii., f)(2)c.ii., f)(2)d.ii., f)(2)e.ii., f)(2)f.

- b. This paragraph applies once U.S. EPA approves the December 1, 2006 version of OAC rule 3745-31-05, as part of the State Implementation Plan, (SIP).

The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the particulate emissions (PE), carbon monoxide (CO), and volatile organic compounds (VOC) from this emissions unit since the "controlled" potential to emit is less than ten tons per year.

- c. The stationary spark ignition (SI) internal combustion engine (ICE) is subject to and shall be operated in compliance with the requirements of 40 CFR Part 60, Subpart JJJJ, the standards of performance for stationary SI ICE.

[40 CFR 60.4230(a)]

- d. The stationary SI ICE has been or shall be purchased certified by the manufacturer to emission standards as stringent as those identified in 40 CFR 60.4233(e) and found in Table 1 of Part 60, Subpart JJJJ for lean burn, natural gas engines greater than or equal to 500 HP and less than 1,350 HP and manufactured on or after 7/1/10.

[40 CFR 60.4233(e)] and [40 CFR 60.4231(e)]

c) Operational Restrictions

- (1) The stationary SI ICE shall be installed, operated, and maintained according to the manufacturer's specifications, written instructions, and procedures over the entire life of the engine. The permittee shall operate and maintain the stationary SI ICE to achieve the emission standards identified in 40 CFR 60.4233(e) and found in Table 1 of NSPS Subpart JJJJ over the entire life of the engine. The air-to-fuel ratio controllers shall be set by the manufacturer and/or according to the operations manual, to ensure proper operation of the engine and control device and to minimize emissions.

[40 CFR 60.4234], [40 CFR 60.4243(b)(1)], and [40 CFR 60.4243(g)]

- (2) During emergency conditions the permittee may operate this engine using propane for a maximum of 100 hours per year as an alternative fuel and if records are maintained for such use. If the engine is not certified to burn propane the permittee shall conduct a performance test to demonstrate compliance with the emission standards in 40 CFR 60.4233.

[40 CFR 60.4243(e)]



d) Monitoring and/or Recordkeeping Requirements

- (1) The permittee shall maintain the engine and catalytic converter manufacturers' warranty and/or emissions test data on site or at a central location for all facility engines and it shall be made available for review upon request. If the manufacturer's warranty and/or emissions test data is not kept on site, the permittee shall maintain a log for the location of each engine and it shall identify the agency-assigned emissions unit number, the manufacturer's identification number, and the emissions test data or warranty of emissions. The manufacturer's operations manual and maintenance records shall be maintained at the same location as the engine(s); or if the engine(s) is/are leased or serviced by personnel visiting (not stationed at) the site, these records shall be maintained by the facility or staff personnel who is responsible for maintaining the engine(s) to meet the manufacturer's emission-related operating instructions and settings. This information shall be made available to the Director or his/her representative upon request.

[40 CFR 60.4243(b)(1)] with [40 CFR 60.4242(f)]

- (2) The permittee shall maintain a record of the natural gas burned in this ICE during each calendar year. The natural gas usage can be calculated at the end of each year using the best method available to estimate the annual throughput, which might include but shall not be limited to: readings from the facility's natural gas meter, the facility's natural gas bill, the recorded or estimated hours of operation along with the manufacture's documentation on the maximum natural gas fuel flow rate.
- (3) The permittee of the uncertified lean burn spark ignition internal combustion engine, manufactured after January 1, 2008 (or after 7/1/07 if greater than or equal to 1,350 HP), shall demonstrate compliance as follows:
  - a. all notifications submitted to comply with and all documentation supporting compliance with Part 60 Subpart JJJJ;
  - b. keep a maintenance plan and the records of all maintenance conducted on the engine;
  - c. maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions; and
  - d. conduct an initial performance test, as specified in 40 CFR 60.4244, within 1 year of engine startup and conduct subsequent performance testing every 8,760 hours or 3 years, whichever comes first.
  - e. the information identified in 40 CFR parts 90, 1048, 1054, and/or 1060 that is required to be provided by the manufacturer to the operator/owner, as applicable to the model year and horsepower of the engine.

[40 CFR 60.4243(b)(2)] and [40 CFR 60.4233(d), (e), or (f)]



e) Reporting Requirements.

- (1) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA District Office or Local Air Agency by the due date identified in the Authorization section of this permit. The permit evaluation report shall cover a reporting period of no more than twelve months for each air contaminant source identified in this permit. It is recommended that the PER is submitted electronically through the Ohio EPA's "e-Business Center: Air Services" although PERs can be submitted via U.S. postal service or can be hand delivered.

[OAC rule 3745-15-03(B)(2)] and [OAC rule 3745-15-03(D)]

f) Testing Requirements

- (1) If the natural gas engine was purchased without an EPA certificate of conformity, the engine will need to meet the performance testing requirements of 40 CFR 60.4243(b)(2)(ii) and the permittee will be required to conduct an initial performance test and subsequent performance tests every 8,760 hours of operation or 3 years whichever comes first, to demonstrate compliance with the emission limits from Part 60 Subpart JJJJ.

[60.4243(b)(1) and (2)]

- (2) Compliance with the emission limitations in b)(1) of these terms and conditions shall be determined in accordance with the following methods:

a. Opacity Limitation:

Visible particulate emissions from the exhaust stack serving this emissions unit shall not exceed 20% opacity, as a six-minute average, except as specified by rule.

Applicable Compliance Method:

If required, compliance shall be determined through visible emission observations performed in accordance with U.S. EPA Reference Method 9 in 40 CFR, Part 60, Appendix A.

[OAC rule 3745-17-07(A)(1)]

b. Emission Limitations:

- i. 0.062lb PE/MMBtu from ICE greater than 600 HP
- ii. 1.32 tons PE/year

Applicable Compliance Method:

The particulate emission limitation is from OAC rule 3745-17-11(B)(5) for stationary internal combustion engines.



Compliance with the ton per year PE emissions limitation shall be determined by the following calculation:

$$0.062 \text{ lb PE/MMBtu} \times 4.88 \text{ MMBtu/hr} = 0.30 \text{ lb PE/hr}$$

$$0.30 \text{ lb PE/hr} \times 8760 \text{ hours/year} \times 1 \text{ ton}/2000 \text{ lbs} = 1.32 \text{ tons PE/year}$$

If required, the permittee shall demonstrate compliance with the PE emission limitation through exhaust emission tests performed in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 5.

[OAC rule 3745-17-11(B)(5)]

c. Emission Limitations:

- i. 1.0 grams NO<sub>x</sub> /HP-hr or 82 ppmvd at 15% O<sub>2</sub>
- ii. 6.66 tons NO<sub>x</sub>/year

Applicable Compliance Method:

Compliance with the emission limitations shall be based on the manufacturer's certification to the emission standards identified in 40 CFR 60.4231(e) and by maintaining the engine according to the manufacturer's specifications. The g/HP-hr limit is the emission limitation from Table 1 to Part 60 Subpart JJJJ, the exhaust emission standards for lean burn, natural gas engines greater than or equal to 500 HP and less than 1,350 HP, manufactured on/after 7/1/10.

Compliance with the ton per year NO<sub>x</sub> emissions limitation shall be determined by the following calculation:

$$2.20 \text{E-}03 \text{ lb NO}_x/\text{HP-hr} \times 690 \text{ HP} = 1.52 \text{ lb NO}_x/\text{hr}$$

$$1.52 \text{ lbs NO}_x/\text{hr} \times 8760 \text{ hours/year} \times 1 \text{ ton}/2000 \text{ lbs} = 6.66 \text{ tons NO}_x/\text{year}$$

Where there is no certificate of conformity, the permittee shall demonstrate compliance with the NO<sub>x</sub> limitation according to the requirements of 40 CFR 60.4244, using the applicable test methods in Table 2 to Part 60 Subpart JJJJ.

[40 CFR 60.4233(e)], [40 CFR 60.4244], and [Table 1 to Part 60 Subpart JJJJ]

d. Emission Limitations:

- i. 2.0 grams CO/HP-hr or 270 ppmvd at 15% O<sub>2</sub>
- ii. 2.07 tons CO/year

Applicable Compliance Method:

Compliance with the emission limitations shall be based on the manufacturer's certification to the emission standards identified in 40 CFR 60.4231(e) and by



maintaining the engine according to the manufacturer's specifications. The g/HP-hr limits the emission limitation from Table 1 to Part 60 Subpart JJJJ, the exhaust emission standards for lean burn, natural gas engines greater than or equal to 500 HP and less than 1,350 HP, manufactured on/after 7/1/10.

Compliance with the ton per year CO emissions limitation shall be determined by the following calculation:

$$2.75 \text{ g CO/HP-hr} \times 690 \text{ HP/hr} = 1897.5 \text{ g CO/hr} \times 2.477\text{E-}03 = 4.7\text{lb/hr} \times .1^* = 0.47\text{lbs CO/hr}$$

\*Control equipment, per vendor data, is 90% efficient.

$$0.47\text{lbs CO/hr} \times 8760 \text{ hours/year} \times 1 \text{ ton}/2000 \text{ lbs} = 2.07 \text{ tons CO/year}$$

Where there is no certificate of conformity, the permittee shall demonstrate compliance with the CO limitation according to the requirements of 40 CFR 60.4244, using the applicable test methods in Table 2 to Part 60 Subpart JJJJ.

[40 CFR 60.4233(e)], [40 CFR 60.4244], and [Table 1 to Part 60 Subpart JJJJ]

e. Emission Limitations:

- i. 0.7 grams VOC/HP-hr or 60 ppmvd at 15% O<sub>2</sub>
- ii. 0.87 tons VOC/year

Applicable Compliance Method:

Compliance with the emission limitations shall be based on the manufacturer's certification to the emission standards identified in 40 CFR 60.4231(e) and by maintaining the engine according to the manufacturer's specifications. The g/HP-hr limits the emission limitation from Table 1 to Part 60 Subpart JJJJ, the exhaust emission standards for lean burn, natural gas engines greater than or equal to 500 HP and less than 1,350 HP, manufactured on/after 7/1/10.

Compliance with the ton per year VOC emissions limitation shall be determined by the following calculation:

$$0.118 \text{ lb VOC/mm btu} \times 4.99 \text{ mm btu/hr} \times 0.3^* = 0.20\text{lb VOC/hr}$$

\*Control equipment, per vendor data, is 70% efficient.

$$0.20\text{lb VOC/hr} \times 8760 \text{ hours/year} \times 1 \text{ ton}/2000 \text{ lbs} = 0.87 \text{ tons VOC/year}$$

Where there is no certificate of conformity, the permittee shall demonstrate compliance with the VOC limitation according to the requirements of 40 CFR 60.4244, using the applicable test methods in Table 2 to Part 60 Subpart JJJJ.

[40 CFR 60.4233(e)], [40 CFR 60.4244], and [Table 1 to Part 60 Subpart JJJJ]



f. Emission Limitations:

0.000588 lb SO<sub>2</sub>/MMBtu

0.01 tons of SO<sub>2</sub>/year

Applicable Compliance Method:

The SO<sub>2</sub> emissions limit is based on using the AP-42 emission factor of 0.000588 lb SO<sub>2</sub>/MMBtu from Chapter 3.2 for Natural Gas-fired Reciprocating Engines, Table 3.2-1 through 3, "Uncontrolled Emission Factors for all natural gas Engines".

Compliance with the ton per year SO<sub>2</sub> emissions limitation shall be determined by the following calculation:

$$0.000588 \text{ lb SO}_2/\text{MMBtu} \times 4.88 \text{ MMBtu/hr} = 0.003 \text{ lb SO}_2/\text{hr}$$

$$0.003 \text{ lb SO}_2/\text{hr} \times 8760 \text{ hours/year} \times 1 \text{ ton}/2000 \text{ lbs} = 0.01 \text{ tons SO}_2/\text{year}$$

\* The heating value of natural gas may be adjusted to that provided by the supplier.

(3) The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

- a. Three separate test runs for each performance test is required, as specified in 40 CFR 60.8(f) and each test run must last at least 1 hour.
- b. Each performance test must be conducted within 10 percent of 100 percent peak (or the highest achievable) load and according to the requirements in 40 CFR 60.8 and under the specific conditions that are specified by Table 2 to Part 60, Subpart JJJJ.
- c. Performance tests cannot be conducted during periods of startup, shutdown, or malfunction, as specified in 40 CFR 60.8(c).
- d. An initial performance test shall be conducted within 1 year of engine startup and subsequent performance testing shall be conducted every 8,760 hours or 3 years, whichever comes first, for engines greater than 500 horsepower.
- e. The emission testing shall be conducted to demonstrate compliance with the emission limitations for this engine identified in the Standards of Performance for Stationary Spark Ignition Internal Combustion Engines, Part 60, Subpart JJJJ.
- f. The following test method(s) shall be employed, in accordance with Table 2 of Subpart JJJJ of Part 60, to demonstrate compliance with the allowable mass emission rates:
  - i. Method 1 or 1A of 40 CFR Part 60, Appendix A or ASTM Method D6522-00 to select the sampling port location and the number of traverse points.



- ii. Method 2 of 40 CFR Part 60, Appendix A or Method 19 of 40 CFR Part 60, Appendix A to determine the exhaust flowrate of the engine.
- iii. Method 3, 3A, or 3B of 40 CFR Part 60, Appendix A or ASTM Method D6522-00 to measure O<sub>2</sub> at the exhaust stack.
- iv. Method 4 of 40 CFR Part 60, Appendix A; or Method 320 of 40 CFR Part 63, Appendix A; or ASTM D6348-03 to measure the moisture content at the exhaust stack.
- v. Method 10 of 40 CFR Part 60, Appendix A; or Method 320 of 40 CFR Part 63, Appendix A; or ASTM Method D6522-00; or ASTM D 6348-03 to measure CO at the exhaust stack.
- vi. Method 25A of 40 CFR Part 60, Appendix A; or Method 18 of 40 CFR Part 60, Appendix A; or ASTM D6348.03 to measure VOC at the exhaust stack.

Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA (alternative methods allowed per footnote to Table 2 of subpart).

- g. 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 Office's or local air agency's refusal to accept the results of the emission test(s).
  - h. Personnel from the appropriate Ohio EPA District Office or local air agency shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.
  - i. A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the appropriate Ohio EPA District Office or local air agency within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the appropriate Ohio EPA District Office or local air agency.
- (4) To determine compliance with the NO<sub>x</sub> mass per unit output emission limitation, the concentration of NO<sub>x</sub> in the engine exhaust (in ppmv) shall be converted to grams/horsepower-hour (g/HP-hr) using the following equation:



$$ER = (C_d \times 1.912 \times 10^{-3} \times Q \times T) / \text{HP-hr}$$

Where:

ER = Emission rate of NO<sub>x</sub> in g/HP-hr.

C<sub>d</sub> = Measured NO<sub>x</sub> concentration in parts per million by volume (ppmv).

1.912 × 10<sup>-3</sup> = Conversion constant for ppm NO<sub>x</sub> to grams per standard cubic meter at 20 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meter per hour, dry basis.

T = Time of test run, in hours.

HP-hr = Brake work of the engine, horsepower-hour (HP-hr).

- (5) To determine compliance with the CO mass per unit output emission limitation, the concentration of CO in the engine exhaust (in ppmv) shall be converted to g/HP-hr using the following equation:

$$ER = (C_d \times 1.164 \times 10^{-3} \times Q \times T) / \text{HP-hr}$$

Where:

ER = Emission rate of CO in g/HP-hr.

C<sub>d</sub> = Measured CO concentration in ppmv.

1.164 × 10<sup>-3</sup> = Conversion constant for ppm CO to grams per standard cubic meter at 20 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meters per hour, dry basis.

T = Time of test run, in hours.

HP-hr = Brake work of the engine, in HP-hr.

- (6) If using Method 25A, to determine compliance with the VOC mass per unit output emission limitation, the concentration of VOC in the engine exhaust (in ppmv) shall be converted to g/HP-hr using the following equation:

$$ER = (C_d \times 1.833 \times 10^{-3} \times Q \times T) / \text{HP-hr}$$

Where:

ER = Emission rate of VOC in g/HP-hr (emissions of formaldehyde should be excluded).

C<sub>d</sub> = VOC concentration measured as propane in ppmv.



$1.833 \times 10^{-3}$  = Conversion constant for ppm VOC measured as propane, to grams per standard cubic meter at 20 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meters per hour, dry basis.

T = Time of test run, in hours.

HP-hr = Brake work of the engine, in HP-hr.

- (7) If using Method 18 Of Part 60 or Method 320 of Part 63, to determine compliance with the VOC mass per unit output emission limitation, the measured VOC emissions can be corrected to account for the potential differences in measured values between these methods and Method 25A.

The results from Method 18 can be corrected for response factor differences using the following equation:

$$RF_i = C_{Mi} / C_{Ai}$$

Where:

RF<sub>i</sub> = Response factor of compound i when measured with EPA Method 25A.

C<sub>Mi</sub> = Measured concentration of compound i in ppmv as carbon.

C<sub>Ai</sub> = True concentration of compound i in ppmv as carbon.

The results from Method 320 can be corrected for response factor differences using the following equation:

$$C_{i\text{corr}} = RF_i \times C_{i\text{meas}}$$

Where:

C<sub>i<sub>corr</sub></sub> = Concentration of compound i corrected to the value that would have been measured by EPA Method 25A, ppmv as carbon.

C<sub>i<sub>meas</sub></sub> = Concentration of compound i measured by EPA Method 320, ppmv as carbon.

The corrected VOC concentration can then be placed on a propane basis using the following equation:

$$C_{Peq} = 0.6098 \times C_{i\text{corr}}$$

Where:

C<sub>Peq</sub> = Concentration of compound i in mg of propane equivalent per DSCM.

[40 CFR 60.4244] and [40 CFR 60.4243(b)]



**Final Permit-to-Install**  
East Ohio Gas - Columbiana Compressor Station  
**Permit Number:** P0113464  
**Facility ID:** 0215000182  
**Effective Date:**5/21/2013

g) Miscellaneous Requirements

(1) None.



**3. P001, Glycol Dehydration Unit**

**Operations, Property and/or Equipment Description:**

12 MMSCFD Glycol Dehydration Unit including a including a 0.5 mmBtu/hrreboiler (which is exempt from permitting per OAC rule 3745-31-03(A)(1)(a)) and controlled by a 2.0 mmBtu/hr thermal oxidizer

- a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.
  - (1) None.
- b) Applicable Emissions Limitations and/or Control Requirements
  - (1) The specific operation(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures are identified below. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

|    | Applicable Rules/Requirements                       | Applicable Emissions Limitations/Control Measures  |
|----|---|--|
| a. | OAC rule 3745-31-05(A)(3), as effective 11/30/01    | <p>Volatile organic compounds (VOC) emissions from the thermal oxidizer shall not exceed 0.89 pound per hour and 3.89 tons per year.</p> <p>Particulate emissions (PE) shall not exceed 0.04 pound per hour and 0.18 tons per year.</p> <p>See b)(2)a.</p> |
| b. | OAC rule 3745-31-05(A)(3)(b), as effective 12/01/06 | See b)(2)b.  |
| b. | OAC rule 3745-17-07(A)(1)                           | Visible PE from any stack shall not exceed 20% opacity, as a 6-minute average, except as provided by the rule.   |
| c. | OAC rule 3745-17-10(B)(1)                           | Particulate emissions (PE) from the exhaust stack shall not exceed 0.020 lb/mmBtu of actual heat input.  |

- (2) Additional Terms and Conditions
  - a. The permittee has satisfied the Best Available Technology (BAT) requirements pursuant to OAC paragraph 3745-31-05(A)(3), as effective November 30, 2001, in this permit. On December 1, 2006, paragraph (A)(3) of OAC rule 3745-31-05 was revised to conform to ORC changes effective August 3, 2006 (S.B. 265 changes), such that BAT is no longer required by State regulation for NAAQS



pollutant less than ten tons per year. However, that rule revision has not yet been approved by U.S. EPA as a revision to Ohio's State Implementation Plan (SIP). Therefore, until the SIP revision occurs and the U.S. EPA approves the revision to OAC rule 3745-31-05, the requirement to satisfy BAT still exists as part of the federally-approved SIP for Ohio. Once U.S. EPA approves the December 1, 2006 version of 3745-31-05, then these emission limits/control measures no longer apply :b)(1)a., b)(2)a., f)(1)a., f)(1)b.ii.

- b. This rule paragraph applies once U.S. EPA approves the December 1, 2006 version of OAC rule 3745-31-05 as part of the SIP.

The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the VOC and PE emissions from this air contaminant source since the controlled potential to emit for VOC and PE is less than 10 tons/yr.

- c. Maintenance of the operating temperature of the thermal oxidizer used to control VOC and HAPs will assure compliance with the hourly and annual limits. Additional monthly record keeping is not required since the annual limits are based on the emissions unit's potential to emit (at a throughput of 12 mmscf of natural gas/day and 99% destruction efficiency).

c) Operational Restrictions

- (1) All of the emissions from this emissions unit shall be captured and directed to a thermal oxidizer that shall meet the operational, monitoring, and record keeping requirements of this permit whenever the emissions unit is in operation.
- (2) The permittee shall burn only natural gas in this emissions unit.
- (3) In order to maintain compliance with the applicable emission limitation(s) contained in this permit, the acceptable average combustion temperature within the thermal oxidizer, for any 3-hour block of time when the emissions unit(s) controlled by the thermal oxidizer is/are in operation, shall not be more than 50 degrees Fahrenheit below 1450 degrees Fahrenheit (as determined by the manufacturer).
- (4) The permittee shall operate and maintain the thermal oxidizer in accordance with the manufacturer's recommendations and specifications and maintain records of all maintenance performed on the thermal oxidizer.

d) Monitoring and/or Recordkeeping Requirements

- (1) The permittee shall properly install, operate, and maintain a continuous temperature monitor and recorder that measures and records the combustion temperature within the thermal oxidizer when the emissions unit(s) is/are in operation, including periods of startup and shutdown. Units shall be in degrees Fahrenheit. The accuracy for each thermocouple, monitor, and recorder shall be guaranteed by the manufacturer to be within  $\pm 1$  percent of the temperature being measured or  $\pm 5$  degrees Fahrenheit, whichever is greater. The temperature monitor and recorder shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's



recommendations, instructions, and the operating manuals, with any modifications deemed necessary by the permittee. The permittee shall collect and record the following information each day the emissions unit(s) is/are in operation:

- a. all 3-hour blocks of time, when the emissions unit(s) controlled by the thermal oxidizer was/were in operation, during which the average combustion temperature within the thermal oxidizer was more than 50 degrees Fahrenheit below 1450 degrees Fahrenheit; and
- b. a log (date and total time) of the downtime or bypass of the capture (collection) system and thermal oxidizer, and/or downtime of the monitoring equipment, when the associated emissions unit(s) was/were in operation.

These records shall be maintained at the facility for a period of 5 years.

- (2) Whenever the monitored average combustion temperature within the thermal oxidizer deviates from the range or limit established in accordance with this permit, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:

- a. the date and time the deviation began;
- b. the magnitude of the deviation at that time;
- c. the date the investigation was conducted;
- d. the name(s) of the personnel who conducted the investigation; and
- e. the findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the operation of the control equipment within the acceptable range/limit specified in this permit, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:

- f. a description of the corrective action;
- g. the date corrective action was completed;
- h. the date and time the deviation ended;
- i. the total period of time (in minutes) during which there was a deviation;
- j. the temperature readings immediately after the corrective action was implemented; and
- k. the name(s) of the personnel who performed the work.



Investigation and records required by this paragraph do not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

The temperature range/limit is effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the Ohio EPA Northeast District Office. The permittee may request revisions to the permitted temperature range/limit based upon information obtained during future performance tests that demonstrate compliance with the allowable emission rate(s) for the controlled pollutant(s). In addition, approved revisions to the temperature range/limit will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of an administrative modification.

- (3) The permittee shall maintain records of each day a fuel other than natural gas is burned in this emissions unit and/or the thermal oxidizer.

e) Reporting Requirements

- (1) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA District Office or Local Air Agency by the due date identified in the Authorization section of this permit. The permit evaluation report shall cover a reporting period of no more than twelve months for each air contaminant source identified in this permit. It is recommended that the PER is submitted electronically through the Ohio EPA's "e-Business Center: Air Services" although PERs can be submitted via U.S. postal service or can be hand delivered.

[OAC rule 3745-15-03(B)(2)] and [OAC rule 3745-15-03(D)]

- (2) The permittee shall identify in the annual PER the following information concerning the operations of the thermal oxidizer during the 12-month reporting period for this/these emissions unit(s):
  - a. each period of time (start time and date, and end time and date) when the average combustion temperature within the thermal oxidizer was outside of the range specified by the manufacturer and/or outside of the acceptable range following any required compliance demonstration;
  - b. any period of time (start time and date, and end time and date) when the emissions unit(s) was/were in operation and the process emissions were not vented to the thermal oxidizer;
  - c. each incident of deviation described in "a" or "b" (above) where a prompt investigation was not conducted;
  - d. each incident of deviation described in "a" or "b" where prompt corrective action, that would bring the emissions unit(s) into compliance and/or the temperature within the thermal oxidizer into compliance with the acceptable range, was determined to be necessary and was not taken; and



- e. each incident of deviation described in “a” or “b” where proper records were not maintained for the investigation and/or the corrective action(s).

f) Testing Requirements

- (1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:

- a. Emission Limitation:

VOC emissions shall not exceed 0.89 lb/hr and 3.89 tons/year.

Applicable Compliance Method:

The permittee may determine the VOC emissions (excludes methane and ethane) using the GRI-GLYCalc™ model, Version 3.0 or higher, and the procedures presented in the associated GRI-GLYCalc™ Technical Reference Manual. Inputs to the model shall be representative of actual operating conditions of the glycol dehydration unit(s) and may be determined using the procedures documented in the Gas Research Institute (GRI) report entitled “Atmospheric Rich/Lean Method for Determining Glycol Dehydrator Emissions” (GRI-95/0368.1);

Compliance with the short term VOC emission limitation shall be demonstrated by the emission testing requirements specified in f)(2).

The annual emission limitation was developed by multiplying the short-term allowable VOC emission limitation (0.89lbs/hr) by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 lbs per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance is demonstrated with the annual emission limitation.

- b. Emission Limitation:

- i. 0.020lb PE/MMBtu

- ii. 0.18 tons PE/year

Applicable Compliance Method:

The particulate emission limitation is from OAC rule 3745-17-11(B)(5) for stationary internal combustion engines.

Compliance with the ton per year PE emissions limitation shall be determined by the following calculation:

$$0.020 \text{ lb PE/MMBtu} \times 2 \text{ MMBtu/hr} = 0.04 \text{ lb PE/hr}$$

$$0.04 \text{ lb PE/hr} \times 8760 \text{ hours/year} \times 1 \text{ ton}/2000 \text{ lbs} = 0.18 \text{ tons PE/year}$$



If required, the permittee shall demonstrate compliance with the PE emission limitation through exhaust emission tests performed in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 5.

[OAC rule 3745-17-11(B)(5)]

c. Emission Limitation:

Visible PE from any stack shall not exceed 20% opacity, as a 6-minute average, except as provided by the rule.

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance through visible particulate emission observations performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 9.

(2) The permittee shall conduct, or have conducted, emission testing for VOC emissions and total HAP emissions in accordance with the following requirements:

a. Performance testing shall be conducted no later than 180 days following the startup of this emission unit and at approximately 2.5 years following the date of issuance of this permit.

b. The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rates:

Method 1, Appendix A, Part 60 to select the sampling port locations and number of traverse points;

Method 2, 2F, or 2G, Appendix A, Part 60 to determine the velocity and volumetric flow-rate of the stack gases or an approved alternative;

Method 3A or 3B, Appendix A, Part 60, or an approved alternative method to determine the oxygen, excess air, and dry molecular weight of the stack gases;

Method 4, Appendix A, Part 60 or an approved alternative method to measure the moisture content of the stack gases;

Method 18, Appendix A, Part 60 or an approved alternative for total HAPs; and

Method 25 or 25A, Appendix A, Part 60 or an approved alternative for VOC emissions.

c. Each performance test shall consist of three separate runs using the applicable test method. Each run shall last at least one hour and shall be conducted under the conditions specified in the Method. The arithmetic mean of the results of the three runs shall be used for the purpose of determining compliance with the limitations in this permit.



- d. The test(s) shall be conducted while the dehydrator is operating at its maximum normal operating load, and the thermal oxidizer shall be maintained within 50 degrees of the manufacturer's recommended operating temperature of 1,400 degrees Fahrenheit as a 3-hour average. Operations during periods of startup, shutdown and malfunction shall not constitute representative conditions for the purpose of the performance test. The permittee shall make available to the Ohio EPA Northeast District Office, upon request, any records that may be necessary to determine the conditions of the performance tests.
  - e. The permittee shall notify the Ohio EPA Northeast District Office in writing and at least 30 calendar days before a performance test is initially scheduled to begin, of plans to conduct a performance test ("Intent to Test (ITT)"). The ITT notification shall describe in detail the proposed test methods and procedures, the monitored 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 Northeast District Office's refusal to accept the results of the emission test(s).
  - f. Personnel from the Ohio EPA Northeast District Office shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of each emissions unit and the testing procedures provide a valid characterization of the emissions from each emissions unit.
  - g. A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and shall be submitted to the Ohio EPA Northeast District Office within 30 days following completion of the test(s).
  - h. In the event the permittee is unable to conduct the performance test on the date specified in the notification requirement due to unforeseeable circumstances beyond control, the permittee shall notify the Ohio EPA Northeast District Office as soon as practicable and without delay prior to the scheduled performance test date and specify the date when the performance test is rescheduled. This notification of delay in conducting the performance test shall not relieve the permittee of legal responsibility for compliance with any other applicable provisions of this part or with any other applicable federal, State, or local requirement.
  - i. The permittee shall maintain performance test results and any other data needed to determine emissions from each emissions unit for a minimum of 5 years after the testing is conducted or after the data is collected. These records shall be made available for inspection by the Ohio EPA Northeast District Office, upon request.
- g) Miscellaneous Requirements
- (1) None.