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

6/19/2013

Certified Mail

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

Normand Paquette
LINDE GAS NORTH AMERICA, LLC
2226 NAVARRE RD
Oregon, OH 43616

RE: FINALAIR POLLUTION PERMIT-TO-INSTALL
Facility ID: 0448020085
Permit Number: P0114385
Permit Type: Administrative Modification
County: Lucas

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

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

Please complete a survey at 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 by clicking the "Search for Permits" link under the Permitting topic on the Programs tab.

If you have any questions, please contact Toledo Department of Environmental Services at (419)936-3015 or the Office of Compliance Assistance and Pollution Prevention at (614) 644-3469.

Sincerely,

Michael W. Ahern

Michael W. Ahern, Manager
Permit Issuance and Data Management Section, DAPC

Cc: U.S. EPA
TDES; Michigan; Indiana; Canada

# FINAL

# Division of Air Pollution Control
# Permit-to-Install
for
LINDE GAS NORTH AMERICA, LLC

| | |
|---|---|
| Facility ID: | 0448020085 |
| Permit Number: | P0114385 |
| Permit Type: | Administrative Modification |
| Issued: | 6/19/2013 |
| Effective: | 6/19/2013 |

**Division of Air Pollution Control**
**Permit-to-Install**
for
LINDE GAS NORTH AMERICA, LLC

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# Authorization

| | |
|---|---|
| Facility ID: | 0448020085 |
| Facility Description: | Hydrogen Plant |
| Application Number(s): | M0002179 |
| Permit Number: | P0114385 |
| Permit Description: | Administrative Modification to change permit terms and conditions for the ammonia to NOx ratio to an upper limit shown to demonstrate compliance with the emission limit of 10 ppm of ammonia from compliance tests at various operating rates. |
| Permit Type: | Administrative Modification |
| Permit Fee: | $0.00 |
| Issue Date: | 6/19/2013 |
| Effective Date: | 6/19/2013 |

This document constitutes issuance to:

LINDE GAS NORTH AMERICA, LLC
2226 NAVARRE RD
Oregon, OH 43616

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:

Toledo Department of Environmental Services
348 South Erie Street
Toledo, OH 43604
(419)936-3015

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: P0114385
Permit Description: Administrative Modification to change permit terms and conditions for the ammonia to NOx ratio to an upper limit shown to demonstrate compliance with the emission limit of 10 ppm of ammonia from compliance tests at various operating rates.

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

**Group Name: Hydrogen Reformer Grp: P001&P002**

| | |
|---|---|
| **Emissions Unit ID:** | **P001** |
| Company Equipment ID: | Hydrogen Plant |
| Superseded Permit Number: | P0111011 |
| General Permit Category andType: | Not Applicable |
| **Emissions Unit ID:** | **P002** |
| Company Equipment ID: | Hydrogen Plant |
| Superseded Permit Number: | P0111011 |
| General Permit Category andType: | 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 Toledo Department of Environmental Services.

(2) Quarterly written reports of (i) any deviations from federally enforceable emissionlimitations, operationalrestrictions, andcontroldeviceoperatingparameterlimitations, 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 Toledo Department of Environmental Services. 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, andreportingrequirements contained in this permit shall be submitted (i.e., postmarked) to the Toledo Department of Environmental Services 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 Toledo Department of Environmental Services 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 Toledo Department of Environmental Services 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 Toledo Department of Environmental Services.

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 Toledo Department of Environmental Services. 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 enteredupon 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.

# C. Emissions Unit Terms and Conditions

**1. Emissions Unit Group -Hydrogen Reformer Grp: P001&P002: P001,P002,**

| EU ID | Operations, Property and/or Equipment Description |
|---|---|
| P001 | P001- Hydrogen Reformer Train 1 - 514 mmBtu/hr (Higher Heating Value (HHV) basis) methane steam reformer train with low NOx burners and selective catalytic reduction (SCR), NOx continuous emission monitor (CEM), burning refinery fuel gas, natural gas and PSA off-gas and a deaerator with vents |
| P002 | P002- Hydrogen Reformer Train 2 - 514 mmBtu/hr (Higher Heating Value (HHV) basis) methane steam reformer train with low NOx burners and selective catalytic reduction (SCR), NOx continuous emission monitor (CEM), burning refinery fuel gas, natural gas and PSA off-gas and a deaerator with vents |

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) d)(14), d)(15), d)(16), d)(17) and e)(8).

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 |
|---|---|---|
| *Stack Emissions* | | |
| a. | OAC rule 3745-17-07(A)(1) | Visible particulate emissions from any stack shall not exceed 20% opacity as a six-minute average, unless otherwise specified by the rule |
| b. | OAC rule 3745-17-11(B)(1) | See b)(2)a. |
| c. | OAC rule 3745-18-06(E)(2) | See b)(2)a. |
| d. | OAC rule 3745-31-05(A)(3) | 3.39 lb/hr nitrogen oxides (NOx) measured as $NO_2$ corrected to 3% $O_2$ in flue gas, on a dry basis, and 14.87 tons per year;<br><br>5.49 lb/hr carbon monoxide (CO) and 24.07 tons per year;<br><br>3.56 lb/hr volatile organic compounds (VOC) and 15.59 tons per year; |

| | Applicable Rules/Requirements | Applicable Emissions Limitations/Control Measures |
|---|---|---|
| | | 3.56 lb/hr particulate matter less than 10 microns ($PM_{10}$) and 15.59 tons per year;<br><br>2.97 lb/hr sulfur dioxide ($SO_2$); and<br><br>10 ppmv ammonia corrected to 15% oxygen on a dry basis and 11.39 tons per year.<br><br>See b)(2)b., b)(2)c,b)(2)d. and b)(2)e. |
| e. | OAC rule 3745-31-05(F) | 2.76 tons per year of $SO_2$<br><br>See c)(3). |
| *deaerator vent emissions* | | |
| f. | OAC rule 3745-31-05(A)(3) | 1.83 lb/hr and 8.00 TPY CO;<br><br>0.51 lb/hr and 2.22 TPY VOC (as methanol);<br><br>0.34 lb/hr and 1.50 TPY ammonia<br><br>See b)(2)c. |

(2) Additional Terms and Conditions

a. The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3)

b. The permittee shall not burn in any fuel gas combustion device, any fuel gas that contains hydrogen sulfide ( $H_2S$) in excess of 230 milligrams per dry standard cubic meter (0.10 grain per dry standard cubic foot or 159 ppmv at 14.7 psia and $60^oF$).

c. The pound per hour and ton per year emission limitations were established for PTI purposes to reflect the potential to emit for this emissions unit. Therefore, it is not necessary to develop record keeping and/or reporting requirements to ensure compliance with this limitation.

d. The permittee shall maintain a written quality assurance/quality control plan for the continuous NOx monitoring system, designed to ensure continuous valid and representative readings of NOx emissions in units of the applicable standard(s). The plan shall follow the requirements of 40 CFR Part 60, Appendix F. The quality assurance/quality control plan and a logbook dedicated to the continuous

NOx monitoring system must be kept on site and available for inspection during regular office hours.

The plan shall include the requirement to conduct quarterly cylinder gas audits or relative accuracy audits as required in 40 CFR Part 60; and to conduct relative accuracy test audits in units of the standard(s), in accordance with and at the frequencies required per 40 CFR Part 60.

e. The continuous emission monitoring system consists of all the equipment used to acquire data to provide a record of emissions and includes the sample extraction and transport hardware, sample conditioning hardware, analyzers, and data recording/processing hardware and software.

c) Operational Restrictions

(1) The permittee shall burn only refinery fuel gas, natural gas and/or process Pressure Swing Absorption (PSA) purge gas in this emissions unit.

(2) The quality of the refinery fuel gas burned in this emissions unit shall meet a hydrogen sulfide content which is sufficient to comply with a volume-weighted, daily average $H_2S$ concentration no greater than 230 milligrams per dry standard cubic meter (0.10 grain per dry standard cubic foot or 159 ppmv at 14.7 psia and 60$^o$F). The process Pressure Swing Absorption (PSA) purge gas burned in this emissions unit shall meet a hydrogen sulfide content of 0.20 ppmv.

(3) The maximum volumetric flow rate of refinery fuel gas and natural gas, for each emissions unit (P001 and P002), shall not exceed 963.6 mmscf/yr based upon a rolling 12-month summation of the monthly flow rate for refinery fuel gas and natural gas. The volumetric flow rates shall be measured by traceable orifice meters installed on the lines feeding purge gas and refinery fuel gas to the reformer burners. The natural gas meter to the reformer burners shall be used to track natural gas feed rates. To ensure enforceability during the first 12 calendar months of operation following the issuance of this permit, the permittee shall not exceed the maximum cumulative flow rate (in mmscf) as specified in the following table:

| Month(s) | Maximum Cumulative Refinery Fuel Gas & Natural Gas Flow Rate (in mmscf) |
|---|---|
| 1 | 81 |
| 1-2 | 162 |
| 1-3 | 243 |
| 1-4 | 324 |
| 1-5 | 405 |
| 1-6 | 486 |
| 1-7 | 567 |
| 1-8 | 648 |
| 1-9 | 729 |

| Month(s) | Maximum Cumulative Refinery Fuel Gas & Natural Gas Flow Rate (in mmscf) |
|---|---|
| 1-10 | 810 |
| 1-11 | 891 |
| 1-12 | 963.6 |

After the first 12 calendar months of operation following the startup of emissions unit P002, compliance with the maximum flow rate for refinery fuel gas and natural gas shall be based upon a rolling 12-month summation of the cumulative flow rate of the refinery fuel gas and natural gas (in mmscf).

(4) The permittee shall operate the selective catalytic reduction (SCR) unit whenever this emissions unit is in operation.

(5) The permittee shall not exceed the molar based ratio of ammonia to nitrogen oxides established during the most recent stack test during which compliance with the ammonia slip limitation was demonstrated: 1.4 for P001 and 1.6 for P002 as tested on March 5 and 6, 2013. Operation of the SCR at an ammonia to nitrogen oxides ratio greater than the ratio specified above does not by itself constitute a violation of the mass ammonia emissions limitation, but rather serves as an indicator of the need for additional stack testing and/or further investigation to establish compliance with the emission limitation.

d) Monitoring and/or Recordkeeping Requirements

(1) ALL FUELS COMBUSTED
For each day during which the permittee burns a fuel other than refinery fuel gas, natural gas and/or Pressure Swing Absorption (PSA) purge gas, the permittee shall maintain a record of the type, quantity, sulfur content in pound(s) of sulfur per mmdscf, and heating value in Btu/dscf of the fuel burned.

(2) REFINERY FUEL GAS TERMS
The permittee shall collect or require the refinery fuel gas supplier to collect daily a representative sample of the refinery fuel gas that is received for burning in this emissions unit. The permittee shall perform or require the supplier to perform analyses of each daily refinery fuel gas sample for sulfur content, heat content and density in accordance with the appropriate ASTM methods.

(3) The permittee shall maintain daily records of the density of the refinery fuel gas, the actual heating value of the refinery fuel gas, and the mass decimal fraction of sulfur in the refinery fuel gas as burned in this emissions unit.

The actual heating value (H) and density (D) of the refinery fuel gas shall be calculated as follows from the results of a daily refinery fuel gas compositional analysis using gas chromatography:

H = summation of ($h_i$ x $m_i$)

$m_i$ = the mass fraction of each chemical compound detected in the refinery fuel gas using chromatographic analysis; and

$h_i$ = the heat content of each chemical compound detected in the refinery fuel gas, in Btu per pound of chemical.

D = (P x M) / (10.73 x T)

where:

10.73 = ideal gas constant with units of psia - cubic feet/lb mole - degrees Rankine

P = the refinery fuel gas line pressure, in psia;

T = the refinery fuel gas line temperature, in degrees Rankine; and

M = the molecular weight of refinery fuel gas, in lb/lb mole.

The molecular weight of the gas shall be calculated as follows:

M = summation of ($MW_i$ x $f_i$)

where:

$MW_i$ = the molecular weight of each chemical component of the refinery fuel gas, in lb/lb mole; and

$f_i$ = the mole fraction of each chemical compound detected in the refinery fuel gas using gas chromatographic analysis.

As an alternative, the permittee may require the refinery fuel gas supplier to provide the above information.

(4) The permittee shall install a hydrogen sulfide continuous emission monitor or require the refinery fuel gas supplier to provide a volume-weighted 24 hour daily average of the hydrogen sulfide CEMS data, in ppm and identify the $H_2S$ CEM monitor. The CEMs data is only required when refinery fuel gas is used as a fuel to the reformer.

(5) When refinery fuel gas is used as a fuel, the permittee shall maintain daily records of the 24 hour daily average of the decimal (mass) fraction of sulfur in the refinery gas. The decimal (mass) fraction of sulfur shall be calculated as follows:

$S = (A_{H2S} / 1X10^6) \times 0.9408$

where:

$A_{H2S}$ = 24 hour daily average of the $H_2S$ CEMS data, in ppm; and

0.9408 = the pound of sulfur per pound of hydrogen sulfide

(6) When refinery fuel gas is used as a fuel, the permittee shall maintain daily records of the calculated, 24 hour daily $SO_2$ emission rate for the refinery fuel gas based upon the daily average of the sulfur content, daily heat content value, and daily density value of the refinery fuel gas. The $SO_2$ emission rate shall be calculated as follows, in accordance with OAC rule 3745-18-04(F)(3):

$ERG = (1x10^6/H) \times (D) \times (S) \times (1.998)$

where:

ERG = each 24 hour daily average $SO_2$ emission rate, in pounds of $SO_2$ per mmBtu;

H = the calculated daily average heat value of the fuel, in Btu/dscf of refinery fuel gas;

D = the density value of the fuel, in pounds per dscf of refinery fuel gas; and

S = each 24 hour daily average decimal (mass) fraction of sulfur in the refinery fuel gas

(7) The permittee shall monitor and record the hourly, daily, and monthly total flow rate of refinery fuel gas, process PSA purge gas, and natural gas, in terms of standard cubic feet per hour. The flow monitoring device shall be certified to have an accuracy of plus or minus 2% of the upper range value across the range of the fuel flow rate to be measured at the unit.

(8) PSA PURGE GAS
The permittee shall analyze the reformer feed gas at least once each month for the presence of hydrogen sulfide during normal operation in order to ensure the absence of sulfur in the PSA Purge Gas. If the analyses show that the hydrogen sulfide content is 0.20 ppmv or less for 6 consecutive calendar months of normal operation, the required frequency of analyses for the presence of hydrogen sulfide in the reformer feed gas may be reduced to quarterly (once every 3 calendar months, when the emissions unit is in operation). If a subsequent analysis by the permittee indicates the presence of hydrogen sulfide greater than 0.20 ppmv, the permittee shall calculate the potential sulfur dioxide emissions from the reformer furnace based on combustion of the process PSA purge gas at maximum capacity. The permittee shall also revert to testing for the presence of hydrogen sulfide in the reformer feed gas on a monthly basis until the hydrogen sulfide content is 0.20 ppmv or less for 6 consecutive calendar months of normal operation.

(9) SCR
The permittee shall maintain daily records that document any time periods when the SCR was not in service when the emissions unit was in operation.

(10) The permittee shall operate and maintain equipment to continuously monitor and record the molar based ratio of ammonia to nitrogen oxides in this emissions unit as a rolling, 3-hour average.

(11) NOx CEM
The permittee shall operate and maintain existing equipment to continuously monitor and record NOx emissions from this emissions unit in pound per million Btu of heat

input. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 60.13.

The permittee shall maintain records of all data obtained by the continuous NOx monitoring system including, but not limited to:

a. emissions of NOx in parts per million for each cycle time of the analyzer, with no resolution less than one data point per minute required;

b. emissions of NOx in pounds per hour and in units of the applicable standard(s) in the appropriate averaging period;

c. results of quarterly cylinder gas audits;

d. results of daily zero/span calibration checks and the magnitude of manual calibration adjustments;

e. results of required relative accuracy test audit(s), including results in units of the applicable standard(s);

f. hours of operation of the emissions unit, continuous NOx monitoring system, and control equipment;

g. the date, time, and hours of operation of the emissions unit without the control equipment and/or the continuous NOx monitoring system;

h. the date, time, and hours of operation of the emissions unit during any malfunction of the control equipment and/or the continuous NOx monitoring system; as well as,

i. the reason (if known) and the corrective actions taken (if any) for each such event in (g) and (h).

All valid data points generated and recorded by the continuous emission monitoring and data acquisition and handling system shall be used in the calculation of the pollutant concentration and/or emission rate over the appropriate averaging period.

(12) The permittee shall maintain records of all data obtained by the continuous NOx monitoring system including, but not limited to, parts per million NOx on an instantaneous (one-minute) basis, the hourly fuel flow rate and Fd-factor of the combined fuel being fired by the emissions unit, and the emissions of NOx in units of pound per million Btu of heat input in the appropriate averaging period (e.g., hourly) , results of daily zero/span calibration checks, and magnitude of manual calibration adjustments. The Fd-factor shall be determined through the use of an on-line gas chromatograph that is installed, operated and maintained according to the manufacturer's recommendations, and guidance using the applicable methodology provided in 40 CFR Part 60, Appendix A, Test Method 19, Section 12.

Additionally, a record of total hourly and total monthly heat input (in terms of million Btu) for this emissions unit shall be determined using term d)(7) required fuel-flow monitors and f-factors as determined above. The total monthly heat input shall be a sum of the hourly heat input records.

The permittee shall also maintain records of hourly NOx emissions in pounds per hour. The permittee shall multiply the hourly heat input in million Btu per hour (as recorded above) by the pound NOx per million Btu of heat input from the CEM to determine the NOx emissions in units of pounds per hour.

(13) ALL FUELS COMBUSTED RECORDKEEPING
The permittee shall maintain records of the following information:

a. The hourly feed rate (Q-factor) and Fd-factor (as defined in 40 CFR 60, Appendix A, Method 19, section 12) of the combined fuels shall be monitored and recorded. These are required for the calculation of the NOx emission rate.

(14) AIR TOXICS
The permit to install application for these emissions unit(s), P001 and P002, was evaluated based on the actual materials and the design parameters of the emissions unit's(s') exhaust system, as specified by the permittee. The "Toxic Air Contaminant Statute", ORC 3704.03(F), was applied to this/these emissions unit(s) for each toxic air contaminant listed in OAC rule 3745-114-01, using data from the permit application; and modeling was performed for each toxic air contaminant(s) emitted at over one ton per year using an air dispersion model such as SCREEN3, AERMOD, or ISCST3, or other Ohio EPA approved model. The predicted 1-hour maximum ground level concentration result(s) from the approved air dispersion model, was compared to the Maximum Acceptable Ground Level Concentration (MAGLC), calculated as described in the Ohio EPA guidance document entitled "Review of New Sources of Air Toxic Emissions, Option A", as follows:

a. the exposure limit, expressed as a time-weighted average concentration for a conventional 8-hour workday and a 40-hour workweek, for each toxic compound(s) emitted from the emissions unit(s), (as determined from the raw materials processed and/or coatings or other materials applied) has been documented from one of the following sources and in the following order of preference (TLV was and shall be used, if the chemical is listed):

i. threshold limit value (TLV) from the American Conference of Governmental Industrial Hygienists (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Indices"; or

ii. STEL (short term exposure limit) or the ceiling value from the American Conference of Governmental Industrial Hygienists (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Indices"; the STEL or ceiling value is multiplied by 0.737 to convert the 15-minute exposure limit to an equivalent 8-hour TLV.

b. The TLV is divided by ten to adjust the standard from the working population to the general public (TLV/10).

c. This standard was then adjusted to account for the duration of the exposure or the operating hours of the emissions unit(s), i.e., "24" hours per day and "7" days per week, from that of 8 hours per day and 5 days per week. The resulting calculation shall be used to determine the Maximum Acceptable Ground-Level Concentration (MAGLC):

TLV/10 x 8/24 x 5/7 = 4 TLV/168 = TLV/42 = MAGLC

d. The following summarizes the results of dispersion modeling for the significant toxic contaminants (emitted at 1 or more tons/year) or "worst case" toxic contaminant(s):

i. Toxic Contaminant: ammonia – 25.50 TPY (max) for P001 and P002.

TLV (mg/m$^3$): 17.413

Maximum Hourly Emission Rate (lbs/hr): 5.88 (combined)

Predicted 1-Hour Maximum Ground Level Concentration (ug/m$^3$): 0.004

MAGLC (ug/m$^3$): 0.415

ii. Toxic Contaminant: methanol – 4.44 TPY for P001 and P002.

TLV (mg/m$^3$): 262.1

Maximum Hourly Emission Rate (lbs/hr): 1.02 (combined)

Predicted 1-Hour Maximum Ground Level Concentration (ug/m$^3$): 0.054

MAGLC (ug/m$^3$): 6.240

The permittee, has demonstrated that emissions of ammonia and methanol, from emissions units P001 and P002, are calculated to be less than eighty per cent of the maximum acceptable ground level concentration (MAGLC); any new raw material or processing agent shall not be applied without evaluating each component toxic air contaminant in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F).

(15) Prior to making any physical changes to or changes in the method of operation of the emissions unit(s), that could impact the parameters or values that were used in the predicted 1-hour maximum ground level concentration, the permittee shall re-model the change(s) to demonstrate that the MAGLC has not been exceeded. Changes that can affect the parameters/values used in determining the 1-hour maximum ground-level concentration include, but are not limited to, the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a new toxic air contaminant with a lower Threshold Limit Value (TLV) than the lowest TLV previously modeled;

b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any toxic air contaminant listed in OAC rule 3745-114-01, that was modeled from the initial (or last) application; and

c. physical changes to the emissions unit(s) or its/their exhaust parameters (e.g., increased/ decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Toxic Air Contaminant Statute" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to a non-restrictive change to a parameter or process operation, where compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), has been documented. If the change(s) meet(s) the definition of a "modification", the permittee shall apply for and obtain a final PTI prior to the change. The Director may consider any significant departure from the operations of the emissions unit, described in the permit application, as a modification that results in greater emissions than the emissions rate modeled to determine the ground level concentration; and he/she may require the permittee to submit a permit application for the increased emissions.

(16) The permittee shall collect, record, and retain the following information for each toxic evaluation conducted to determine compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F):

a. a description of the parameters/values used in each compliance demonstration and the parameters or values changed for any re-evaluation of the toxic(s) modeled (the composition of materials, new toxic contaminants emitted, change in stack/exhaust parameters, etc.);

b. the Maximum Acceptable Ground Level Concentration (MAGLC) for each significant toxic contaminant or worst-case contaminant, calculated in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F);

c. a copy of the computer model run(s), that established the predicted 1-hour maximum ground level concentration that demonstrated the emissions unit(s) to be in compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), initially and for each change that requires re-evaluation of the toxic air contaminant emissions; and

d. the documentation of the initial evaluation of compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), and documentation of any determination that was conducted to re-evaluate compliance due to a change made to the emissions unit(s) or the materials applied.

(17) The permittee shall maintain a record of any change made to a parameter or value used in the dispersion model, used to demonstrate compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), through the predicted 1-hour maximum ground level concentration. The record shall include the date and reason(s) for the change and if the change would increase the ground-level concentration.

e) Reporting Requirements

(1) ALL FUELS COMBUSTED
The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than refinery fuel gas, natural gas and/or PSA purge gas was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.

(2) REFINERY FUEL GAS
The permittee shall submit quarterly deviation (excursion) reports that identify each 24 hour daily $SO_2$ emission rate, as calculated in d)(6) for refinery fuel gas combined with d)(8) for PSA purge gas, that exceeds the $SO_2$ emission limitation of 2.97 lb $SO_2$ per hour.

(3) The permittee shall submit quarterly deviation/excursion reports that identify each period in which the rolling, 12 month summation of the flow rates for refinery fuel gas and/or natural gas in c)(4) were exceeded.

(4) PSA PURGE GAS
The permittee shall notify the Toledo Division of Environmental Services in writing of any analysis of the process PSA purge gas that exceeded 0.20 ppmv of $H_2S$. The notification shall include a copy of such record and shall be sent to the Toledo Division of Environmental Services within 30 days after the event occurs.

(5) SCR
The permittee shall notify the Toledo Division of Environmental Services in writing of any daily record(s):

a. showing that the SCR was not in service when the emissions unit was in operation; and/or

b. showing that the molar based ratio of ammonia to nitrogen oxides as a 3-hour average exceeds the maximum ammonia slip limitation established during the most recent stack test which demonstrated compliance with the ammonia slip limitation.

The notification shall include a copy of such record and shall be sent to the Toledo Division of Environmental Services within 30 days after the event occurs.

(6) NOx CEM
The permittee shall comply with the following quarterly reporting requirements for the emissions unit and its continuous NOx monitoring system:

a. Pursuant to the monitoring, record keeping, and reporting requirements for continuous monitoring systems contained in 40 CFR 60.7 and 60.13(h) and the requirements established in this permit, the permittee shall submit reports within 30 days following the end of each calendar quarter to the appropriate Ohio EPA District Office or local air agency, documenting all instances of NOx emissions in excess of any applicable limit specified in this permit, 40 CFR Part 60, OAC Chapters 3745-14 and 3745-23, and any other applicable rules or regulations. The report shall document the date, commencement and completion times,

duration, and magnitude of each exceedance, as well as the reason (if known) and the corrective actions taken (if any) for each exceedance. Excess emissions shall be reported in units of the applicable standard(s).

b. These quarterly reports shall be submitted by January 30, April 30, July 30, and October 30 of each year and shall include the following:

i. the facility name and address;

ii. the manufacturer and model number of the continuous NOx and other associated monitors;

iii. a description of any change in the equipment that comprises the continuous emission monitoring system (CEMS), including any change to the hardware, changes to the software that may affect CEMS readings, and/or changes in the location of the CEMS sample probe;

iv. the excess emissions report (EER)*, i.e., a summary of any exceedances during the calendar quarter, as specified above;

v. the total NOx emissions for the calendar quarter (tons);

vi. the total operating time (hours) of the emissions unit;

vii. the total operating time of the continuous NOx monitoring system while the emissions unit was in operation;

viii. results and dates of quarterly cylinder gas audits;

ix. unless previously submitted, results and dates of the relative accuracy test audit(s), including results in units of the applicable standard(s), (during appropriate quarter(s));

x. unless previously submitted, the results of any relative accuracy test audit showing the continuous NOx monitor out-of-control and the compliant results following any corrective actions;

xi. the date, time, and duration of any/each malfunction** of the continuous NOx monitoring system, emissions unit, and/or control equipment;

xii. the date, time, and duration of any downtime** of the continuous NOx monitoring system and/or control equipment while the emissions unit was in operation; and

xiii. the reason (if known) and the corrective actions taken (if any) for each event in b.xi. and xii.

Each report shall address the operations conducted and data obtained during the previous calendar quarter.

* where no excess emissions have occurred or the continuous monitoring system(s) has/have not been inoperative, repaired, or adjusted during the calendar quarter, such information shall be documented in the EER quarterly report

** each downtime and malfunction event shall be reported regardless if there is an exceedance of any applicable limit

(7) If there are no excess NOx emissions during the calendar quarter, the permittee shall submit a statement to that effect along with the emissins unit operating time during the reporting period and the date, time, reason, and corrective action(s) taken for each time period of emissions unit, control equipment, and/or monitoring system malfunctions.

The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line also shall be included in the quarterly report. These quarterly excess emission reports shall be submitted by January 30, April 30, July 30, and October 30 of each year and shall address the data obtained during the previous calendar quarter.

(8) AIR TOXICS PROGRAM
The permittee shall submit annual reports that include any changes to any parameter or value used in the dispersion model used to demonstrate compliance with the “Toxic Air Contaminate Statute”, ORC 3704.03(F), through the predicted 1 hour maximum concentration. The report should include:

a. the original model input;

b. the updated model input;

c. the reason for the change(s) to the input parameter(s); and

d. a summary of the results of the updated modeling, including the input changes; and

e. a statement that the model results indicate that the 1-hour maximum ground-level concentration is less than 80% of the MAGLC.

If no changes to the emissions, emissions unit(s), or the exhaust stack have been made during the reporting period, then the report shall include a statement to that effect.

(9) Unless other arrangements have been approved by the Director, all notifications and reports shall be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal.

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:

*REFORMER STACK EMISSIONS*:

a. Emission Limitation:

20% opacity as a 6-minute average

Applicable Compliance Method:

If required, compliance shall be demonstrated based upon the procedures specified in 40 CFR Part 60, Appendix A, Method 9 and OAC rule 3745-17-03(B)(1).

b. Emission Limitation:

3.39 pounds per hour NOx

Applicable Compliance Method:

The NOx continuous emissions monitor (CEM) shall be used to demonstrate on-going compliance. The NOx CEM shall be certified in units of pounds of NOx per million Btu of heat input. The permittee shall calculate the NOx emissions in units of pounds of NOx per hour using the recorded process parameters in the calculation methodology of 40 CFR 60 Appendix A, Method 19, Section 12.

If required, compliance shall be demonstrated based upon the procedures specified in Methods 1 through 4 and 7 of 40 CFR Part 60, Appendix A. Alternative U.S. EPA-approved test methods can be used with prior approval from Ohio EPA.

c. Emission Limitation:

5.49 pounds per hour carbon monoxide (CO)

Applicable Compliance Method:

Multiply the manufacturer's supplied CO emission factor (0.0107 lb/mmBtu of fuel gas burned) by the daily average firing rate (mmBtu) per hour. If required, compliance shall be demonstrated based upon the procedures specified in Methods 1 through 4 and 10 of 40 CFR Part 60, Appendix A. Alternative U.S. EPA-approved test methods can be used with prior approval from Ohio EPA.

d. Emission Limitation:

3.56 pounds per hour volatile organic compounds (VOC)

Applicable Compliance Method:

Multiply the manufacturer's supplied VOC emission factor (0.0069 lb/mmBtu of fuel gas burned) by the daily average firing rate (mmBtu) per hour. If required, compliance shall be demonstrated based upon the procedures specified in

Methods 1 through 4 and 25 of 40 CFR Part 60, Appendix A. Alternative U.S. EPA-approved test methods can be used with prior approval from Ohio EPA.

e. Emission Limitation:

3.56 pound per hour $PM_{10}$ emissions

Applicable Compliance Method:

Multiply the manufacturer's supplied particulate matter emission factor (0.0069 lb/mmBtu of fuel gas burned) by the daily average firing rate (mmBtu) per hour. If required, compliance shall be demonstrated based upon the procedures specified in Methods 201 and 202 of 40 CFR Part 51, Appendix M, and the procedures specified in OAC rule 3745-17-03(B)(9). Alternative U.S. EPA-approved test methods can be used with prior approval from Ohio EPA.

f. Emission Limitation:

2.97 pound per hour $SO_2$, as 24 hour average

Applicable Compliance Method:

Compliance with the $SO_2$ hourly limitation shall be calculated as follows:

Calculate the sulfur dioxide emission rate for the RFG/natural gas and for the PSA purge gas, then add the two results together.

i.e. for the RFG and natural gas calculation:

(Conc $H_2S_{RFG\&NG}$ppmv $H_2S$) * (34.08 lb/385100000 ft3)/1 ppmv * ((64 lb $SO_2$/lb-mole)/(34.08 lb $H_2S$/lb-mole)) * ($FR_{RFG\&NG}$mmscf/hr) * (1000000 scf/mmscf) = pound per hour of $SO_2$ from RFG & NG

likewise for the PSA purge gas

(Conc $H_2S_{PSA}$ppmv $H_2S$) * (34.08 lb/385100000 $ft^3$)/1 ppmv * ((64 lb $SO_2$/lb-mole)/(34.08 lb $H_2S$/lb-mole)) * ($FR_{PSA}$mmscf/hr) * (1000000 scf/mmscf) = pound per hour of $SO_2$ from PSA gas

where:

MW $H_2S$=34.08 lb/lb-mole MW $SO_2$ = 64 lb/lb-mole

1 ppmv =MW/385,100,000 (lb/$ft^3$) [AP-42, Appendix A, Miscellaneous Data and Conversion Factors (9/85)]

$FR_{RFD\&NG}$ = actual flow rate for RGF and natural gas for the day (mmscf/hr) from term d)(7)

$FR_{PSA}$ = actual flow rate for PSA purge gas for the day (mmscf/hr) from term d)(7)

Conc $H_2S_{RFG\&NG}$ (ppmv) = the 24 hour daily average of the $H_2S$ concentration from term d)(4)

Conc $H_2S_{PSA}$ (ppmv) = the monthly average concentration of $H_2S$ from the purge gas (ppmv) from term d)(8)

If required, compliance shall be demonstrated based upon the procedures specified in Method 6 or 6C of 40 CFR Part 60, Appendix A. Alternative U.S. EPA approved test methods can be used with prior approval from Ohio EPA.

g. Emission Limitation:

14.87 tons NOx per rolling, 12-month period

Applicable Compliance Method:

The NOx continuous emissions monitoring system shall serve as demonstration of compliance with this emissions limit.

h. Emission Limitation:

24.07 tons CO per rolling, 12-month period

Applicable Compliance Method:

The annual emission limitation was developed by multiplying the hourly allowable CO emission limitation (5.49 lbs/hr) by the maximum annual hours of operation (8760 hrs), and then dividing by 2000 lbs/ton. Therefore, if compliance is shown with the hourly limitation, compliance shall also be shown with the annual emission limitation.

i. GEmission Limitation:

15.59 tons VOC per rolling, 12-month period

Applicable Compliance Method:

The annual emission limitation was developed by multiplying the hourly allowable VOC emission limitation (3.56 lbs/hr) by the maximum annual hours of operation (8760 hrs), and then dividing by 2000 lbs/ton. Therefore, if compliance is shown with the hourly limitation, compliance shall also be shown with the annual emission limitation..

j. Emission Limitation:

15.59 tons $PM_{10}$ per rolling, 12-month period

Applicable Compliance Method:

The annual emission limitation was developed by multiplying the hourly allowable $PM_{10}$ emission limitation (3.56 lbs/hr) by the maximum annual hours of operation (8760 hrs), and then dividing by 2000 lbs/ton. Therefore, if compliance is shown with the hourly limitation, compliance shall also be shown with the annual emission limitation..

k. Emission Limitation:

2.76 tons per year of $SO_2$

Applicable Compliance Method:

Compliance with the annual $SO_2$ emission limitation shall be calculated using the following calculations and adding the two results together:

For the RFG and natural gas calculation:

ERG * H * (actual annual flow rate of RFG & NG) * (1 ton/2000 lbs) = TPY $SO_2$ from RFG & NG

ERG = the annual average $SO_2$ emission rate (lb $SO_2$/mmBtu) calculated using the 24-hour daily average values recorded in term d)(6)

H = the average annual heat content of the fuel (Btu/dscf) calculated using the values recorded in term d)(6).

Annual flow rate of RFG & NG from term c)(3) (mmscf/yr)

For the PSA purge gas:

$ERG_{PSA}$ * $H_{PSA}$ * (actual annual flow rate of PSA) * (1 ton/2000 lbs) = TPY $SO_2$ from PSA

$ERG_{PSA}$ = each 24-hour daily average $SO_2$ emission rate (lb $SO_2$/mmBtu)

$H_{PSA}$ = the average heat content of the PSA purge gas (Btu/dscf)

Annual flow rate of PSA is from the values recorded in term d)(7) (mmscf/yr)

l. Emission Limitation:

10 ppmv ammonia corrected to 15% oxygen in flue gas, on a dry basis and 11.39 TPY

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with the 10 ppmv ammonia emission limit using U.S. EPA Conditional Test Method (CTM) 027. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.

The annual emission limitation was based on the maximum stack gas flow rate of 175,000 acfm and the 10 ppmv. For example:

Ammonia TPY = (stack gas flow rate (cfm)) * (60 min/hr) * (24 hr/day) * (365 day/yr) * (10/1,000,000) * (17.03 lb $NH_3$/lb-mole) / (2000 lbs/ton) / (379.43 cf/lb-mole)

m. Emission Limitation:

0.10 grain $H_2S$ per dry standard cubic foot (159 ppmv at 14.7 psia and 60 degrees F) of refinery fuel gas burned as a volume-weighted, 24 hour daily average

Applicable Compliance Method:

Compliance shall be demonstrated based upon the monitoring and record keeping requirements of d). If required, compliance shall also be demonstrated based upon the following methods: Method 11, 15, 15A, or 16 of 40 CFR Part 60, Appendix A, shall be used to determine the $H_2S$ concentration. The gases entering the sampling train should be at about atmospheric pressure. If the pressure in the refinery fuel gas lines is relatively high, a flow control valve may be used to reduce the pressure. If the line pressure is high enough to operate the sampling train without a vacuum pump, the pump may be eliminated from the sampling train. The sample shall be drawn from a point near the centroid of the fuel gas line.

i. For Method 11, the sampling time and sample volume shall be at least 10 minutes and 0.010 dscm (0.35 dscf). Two samples of equal sampling times shall be taken at about 1-hour intervals. The arithmetic average of these two samples shall constitute a run. For most fuel gases, sampling times exceeding 20 minutes may result in depletion of the collection solution, although fuel gases containing low concentrations of $H_2S$ may necessitate sampling for longer periods of time.

ii. For Method 15 or 16, at least three injects over a 1-hour period shall constitute a run.

iii. For Method 15A, a 1-hour sample shall constitute a run.

n. Emission Limitation:

0.20 ppmv $H_2S$ from the process PSA purge gas

Applicable Compliance Method:

Compliance shall be demonstrated based upon the analysis of the process PSA purge gas and the recordkeeping requirements of d).

(2) DEAERATOR VENT EMISSIONS:

a. Emission Limitation:

1.83 pounds per hour and 8.00 TPY CO

Applicable Compliance Method:

A one-time calculation of the hourly potential to emit, based upon the worst case operating scenario using a mass balance and the design of the unit, shall be used to demonstrate compliance with this limitation. The basis for the calculation used a flow rate of 128.37 lb-mole/hr from the vent, a molecular weight of 28 lb CO/lb-mole, and assumed the CO emissions were 461 ppm and then added 10% for flexibility. For emission limits were calculated as follows:

(461/1,000,000)*(128.37 lb-mole/hr)*(28 lb CO/lb-mole) * 1.10 = 1.83 lb/hr

(1.83 lb/hr) * (8760 hr/yr) * (1 ton/2000 lb) = 8.00 TPY

If required, the permittee shall demonstrate compliance with the hourly emission limitation using Methods 1 through 4 and 10 of 40 CFR Part 60, Appendix A. Alternative U.S. EPA approved test methods may be used with prior approval from Ohio EPA.

The annual emission limitation was developed by multiplying the hourly allowable CO emission limitation (1.83 lbs/hr) by the maximum annual hours of operation (8760 hrs), and then dividing by 2000 lbs/ton. Therefore, if compliance is shown with the hourly limitation, compliance shall also be shown with the annual emission limitation

b. Emission Limitation:

0.51 pound per hour and 2.22 TPY volatile organic compounds (VOC) as methanol

Applicable Compliance Method:

A one-time calculation of the hourly potential to emit, based upon the worst case operating scenario using a mass balance and the design of the unit, shall be used to demonstrate compliance with this limitation. The basis for the calculation used a flow rate of 128.37 lb-mole/hr from the vent, a molecular weight of 32 lb VOC/lb-mole, and assumed the VOC emissions were 112 ppm and then added 10% for flexibility. The emission limits were calculated as follows:

(112/1,000,000)*(128.37 lb-mole/hr)*(32 lb VOC/lb-mole) * 1.10 = 0.51 lb/hr

(0.51 lb/hr) * (8760 hr/yr) * (1 ton/2000 lb) = 2.22 TPY

If required, the permittee shall demonstrate compliance with the hourly emission rate using Methods 1 through 4 of 40 CFR Part 60, Appendix A and Method 308 of 40 CFR Part 63, Appendix A. Alternative U.S. EPA-approved test methods can be used with prior approval from Ohio EPA.

The annual emission limitation was developed by multiplying the hourly allowable VOC emission limitation (0.51 lbs/hr) by the maximum annual hours of operation (8760 hrs), and then dividing by 2000 lbs/ton and, therefore, if compliance is shown with the hourly limitation, compliance shall also be shown with the annual emission limitation.

c. Emission Limitation:

0.34 pound per hour and 1.50 TPY ammonia

Applicable Compliance Method:

A one-time calculation of the hourly potential to emit, based upon the worst case operating scenario using a mass balance and the design of the unit, shall be used to demonstrate compliance with this limitation. The basis for the calculation used a flow rate of 128.37 lb-mole/hr from the vent, a molecular weight of 17 lb $NH_3$/lb-mole, and assumed the $NH_3$ emissions were 141 ppm and then added 10% for flexibility. The emission limits were calculated as follows:

(141/1,000,000)*(128.37 lb-mole/hr)*(17 lb $NH_3$/lb-mole) * 1.10 = 0.34 lb/hr

(0.34 lb/hr) * (8760 hr/yr) * (1 ton/2000 lb) = 1.50 TPY

If required, the permittee shall demonstrate compliance with the hourly emission limitation using U.S. EPA Conditional Test Method (CTM) 027. Alternative U.S. EPA approved test methods may be used with prior approval from Ohio EPA.

The annual emission limitation was developed by multiplying the hourly allowable ammonia emission limitation (0.34 lbs/hr) by the maximum annual hours of operation (8760 hrs), and then dividing by 2000 lbs/ton. Therefore, if compliance is shown with the hourly limitation, compliance shall also be shown with the annual emission limitation.

(3) Emission testing requirements:

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

i. The emission testing shall be conducted within 180 days of startup.

ii. The emission testing shall be conducted to demonstrate compliance with the allowable mass emission rate for NOX from the reformer stack and VOC emissions from the deaerator vent stack.

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

NOx: Methods 1 through 4 and 7 or 7E of 40 CFR Part 60, Appendix A. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

VOC: Methods 1 through 4 of 40 CFR Part 60, Appendix A and Method 308 of 40 CFR Part 63, Appendix A. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

ammonia: U.S. EPA Conditional Test Method (CTM) 027. The permittee shall record all the SCR operating parameters during the test, including the ammonia injection rate, every 15 minutes. Alternative U.S. EPA-approved test methods can be used with prior approval from Ohio EPA.

iv. The test(s) shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the Toledo Division of Environmental Services.

v. A relative accuracy test audit conducted within this time frame may be used in lieu of the requirements for NOx in section E.3.a.iii. procedures.

b. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Toledo Division of Environmental Services. 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 Toledo Division of Environmental Services's refusal to accept the results of the emission test(s).

c. Personnel from the Toledo Division of Environmental Services 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.

d. 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 Toledo Division of Environmental Services 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 Toledo Division of Environmental Services.

NOTE: the above tests were completed and are not required for this PTI modification.

(4) NOx CEM: Within 60 days of the plant startup, the permittee shall conduct certification tests of such equipment pursuant to ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 2. Personnel from the appropriate Ohio EPA District Office or local air agency shall be notified 30 days prior to initiation of the applicable tests and shall be permitted to examine equipment and witness the certification tests. In accordance with OAC rule 3745-15-04, all copies of the test results shall be submitted to the appropriate Ohio EPA District Office or local air agency within 30 days after the test is completed. Copies of the test results shall be sent to the appropriate Ohio EPA District Office or local air agency and the Ohio EPA, Central Office. Certification of the continuous NOx monitoring system shall be granted upon determination by the Ohio EPA, Central Office that the system meets all requirements of ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 2.

NOTE: The CEM is certified therefore recertification is not required.

(5) Ongoing compliance with the NOx emissions limitations contained in this permit, 40 CFR Part 60, and any other applicable standard(s) shall be demonstrated through the data collected as required in the Monitoring and Record keeping Section of this permit; and through demonstration of compliance with the quality assurance/quality control plan, which shall meet the testing and recertification requirements of 40 CFR Part 60.

g) Miscellaneous Requirements

(1) None.