



State of Ohio Environmental Protection Agency

Street Address:

Lazarus Gov. Center  
122 S. Front Street  
Columbus, OH 43215

TELE: (614) 644-3020 FAX: (614) 644-2329

Mailing Address:

Lazarus Gov. Center  
P.O. Box 1049  
Columbus, OH 43216-1049

**RE: DRAFT PERMIT TO INSTALL  
ALLEN COUNTY  
Application No: 03-13794**

**CERTIFIED MAIL**

	TOXIC REVIEW
	PSD
	SYNTHETIC MINOR
Y	CEMS
40 CFR 63 Subpart CC	MACT
40 CFR 60 Subpart A, J, GGG	NSPS
40 CFR 61 Subpart FF	NESHAPS
Y	NETTING
	MAJOR NON-ATTAINMENT
	MODELING SUBMITTED
	GASOLINE DISPENSING FACILITY

**DATE:** 12/24/2002

Premcor Refining Group, Inc.  
Gary Vonderembse  
1150 S. Metcalf Street  
Lima, OH 45804

You are hereby notified that the Ohio Environmental Protection Agency has made a draft action recommending that the Director issue a Permit to Install for the air contaminant source(s) [emissions unit(s)] shown on the enclosed draft permit. This draft action is not an authorization to begin construction or modification of your emissions unit(s). The purpose of this draft is to solicit public comments on the proposed installation. A public notice concerning the draft permit will appear in the Ohio EPA Weekly Review and the newspaper in the county where the facility will be located. Public comments will be accepted by the field office within 30 days of the date of publication in the newspaper. Any comments you have on the draft permit should be directed to the appropriate field office within the comment period. A copy of your comments should also be mailed to Robert Hodanbosi, Division of Air Pollution Control, Ohio EPA, P.O. Box 1049, Columbus, OH, 43266-0149.

A Permit to Install may be issued in proposed or final form based on the draft action, any written public comments received within 30 days of the public notice, or record of a public meeting if one is held. You will be notified in writing of a scheduled public meeting. Upon issuance of a final Permit to Install a fee of **\$4700** will be due. Please do not submit any payment now.

The Ohio EPA is urging 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 Pollution Prevention at (614) 644-3469. If you have any questions about this draft permit, please contact the field office where you submitted your application, or Mike Ahern, Field Operations & Permit Section at (614) 644-3631.

Very truly yours,

Michael W. Ahern, Supervisor  
Field Operations and Permit Section  
Division of Air Pollution Control

CC: USEPA

NWDO

Lima-Allen Regional Planning Commission

IN

Synthetic Minor Determination and/or  Netting Determination

Permit To Install **03-13794**

A. Source Description

Equipment to be installed as part of the proposed modification includes:

1. New catalytic gasoline hydrotreater (CGHT) to remove sulfur compounds, including a process heater.
2. New butane-butylene (B-B) Treater to remove sulfur from butane and butylene compounds
3. Addition of oxygen enrichment to the existing sulfur recovery unit (SRU) to increase the capacity to 80 long tons per day of sulfur, along with installation of a new tail gas incinerator on the SRU.
4. Removal of the current electrostatic precipitator (ESP) from the existing fluidized catalytic cracking unit, and replacement of the ESP with a flue gas scrubber to control sulfur oxides and particulate emissions. The new flue gas scrubber will also control sulfur oxides and particulate emissions from the SRU tail gas.
5. New flare to control vapor streams from the new CGHT and B-B Treater, as well to provide control for existing streams from the fluidized catalytic cracking unit flare such as the SRU, butane loading area and boiler house.
6. New cooling tower for the new CGHT and B-B Treater, and SRU modifications.
7. Replacement of existing burners on the crude heater with low nitrogen oxide burners.

The modification will not change the current crude oil processing capacity, and the amount of gasoline production capacity will remain the same.

B. Facility Emissions and Attainment Status

The Premcor Refining Group, Inc. is a major stationary source for PM, PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub>, CO and VOC. Allen County is in attainment status for the above pollutants.

C. Source Emissions

Net emissions increases for PM, PM<sub>10</sub>, SO<sub>2</sub>, and CO are below PSD significance levels. The permittee will apply netting to avoid PSD for NO<sub>x</sub> and VOC. As part of the emissions netting, the permittee is proposing to install low NO<sub>x</sub> burners on the existing crude II heater and on the new CGHT process heater. The permittee has requested federally enforceable limitations for NO<sub>x</sub> on the crude II heater to create additional netting credits.

The net emission increase for VOC from the proposed facility modification is above the PSD significance level of 40 tons per year. Therefore, the permittee has proposed to use VOC emissions credit from installation of the Trolumen compressor, which had a start-up date on September 12, 1998 (within the five year contemporaneous period). The VOC emissions credit will result in VOC emissions being below the PSD significance level.

Listed below are permitted increases and actual decreases of NO<sub>x</sub> and VOC during the five year contemporaneous period:

Contemporaneous Net Emission  
Change (tons/yr)

Date	PTI #	Emissions Unit	NO <sub>x</sub>	VOC
9/12/98	03-10450	Trolumen Compressor (P029)		-292.27
6/6/00	03-13474	Organic Liquid Storage Tank (T191)		+4.19
6/6/00	03-13474	Organic Liquid Storage Tank (T192)		+4.19
6/6/00	03-13474	Organic Liquid Storage Tank (T194)		+36.22
6/6/00	03-13474	Organic Liquid Storage Tank (T198)		+4.66
6/6/00	03-13474	Organic Liquid Storage Tank (T201)		+51.48
1/15/02	03-13669	Vacuum Bottoms Storage Tank (T222)		+14.10
5/7/02	03-13742	Organic Liquid Storage Tank (T196)		+2.44
2/2003	03-13794	B-B Treater Fugitive Equipment Leaks		+9.27
2/2003	03-13794	CGHT Process Heater (B028)	+3.42	+0.35
2/2003	03-13794	CGHT Fugitive Equipment Leaks		+26.75
2/2003	03-13794	Refinery Flare (P039)	+1.14	+2.32
2/2003		Cooling Tower for B-B Treater, CGHT and SRU		+0.63
Date	PTI #	Emissions Unit	NO <sub>x</sub>	VOC

2/2003	03-13794	SRU Oxygen Enrichment (P002, P011, P015)	+6.75	+0.35
2/2003		Riley Boiler (B009)	+123.09	+2.42
2/2003	03-13794	Crude II Heater (B004)	-279.79	
		<b>Total</b>	<b>-145.70</b>	<b>-132.90</b>

Calculation of Contemporaneous NO<sub>x</sub> Emission Change (tons/yr) Used in Netting Determination:

Emissions Unit	Permit Allowable NO <sub>x</sub> Emissions	2-year Average Actual NO <sub>x</sub> Emissions	New Actual NO <sub>x</sub> Emissions After Modification
CGHT Process Heater (B028)	3.42	0.00	
Refinery Flare (P039)	1.14	0.00	
SRU Oxygen Enrichment (P002, P011, P015)	6.75	3.25	
Riley Boiler (B009)		177.23	300.32
Crude II Heater (B004)	165.56	445.35	

Calculation of Contemporaneous VOC Emission Change (tons/yr) Used in Netting Determination:

Emissions Unit	Permit Allowable VOC Emissions	2-year Average Actual VOC Emissions	New Actual VOC Emissions After Modification
Trolumen Compressor (P029)	2.58	294.85	
Organic Liquid Storage Tank (T191)	5.19	1.00	
Organic Liquid Storage Tank (T192)	5.19	1.00	
Organic Liquid Storage Tank (T194)	37.80	1.58	
Organic Liquid Storage Tank (T198)	5.66	1.00	
Emissions Unit	Permit Allowable VOC Emissions	2-year Average Actual VOC Emissions	New Actual VOC Emissions After Modification

Organic Liquid Storage Tank (T201)	52.48	1.00	
Vacuum Bottoms Storage Tank (T222)	14.10	0.00	
Organic Liquid Storage Tank (T196)	3.44	1.00	
B-B Treater Fugitive Equipment Leaks		0.00	9.27
CGHT Process Heater (B028)	0.35	0.00	
CGHT Fugitive Equipment Leaks		0.00	26.75
Refinery Flare (P039)	2.32	0.00	
Cooling Tower for B-B Treater, CGHT and SRU		0.00	0.63
SRU Oxygen Enrichment (P002, P011, P015)	0.35	0.18	
Riley Boiler (B009)		3.53	5.95

The net emissions change in NO<sub>x</sub> and VOC over the 5-year contemporaneous time period will result in decreases of 145.70 tons/yr and 132.90 tons/yr respectively.

#### D. Conclusion

NO<sub>x</sub> and VOC emissions from the proposed refinery modification project to produce low sulfur gasoline and contemporaneous changes will result in net emission changes below PSD significance levels. Thus, the permittee will "net out" of PSD review requirements for NO<sub>x</sub> and VOC emissions.



**Permit To Install  
Terms and Conditions**

**Issue Date: To be entered upon final issuance  
Effective Date: To be entered upon final issuance**

**DRAFT PERMIT TO INSTALL 03-13794**

Application Number: 03-13794

APS Premise Number: 0302020012

Permit Fee: **To be entered upon final issuance**

Name of Facility: Premcor Refining Group, Inc.

Person to Contact: Gary Vonderembse

Address: 1150 S. Metcalf Street  
Lima, OH 45804

Location of proposed air contaminant source(s) [emissions unit(s)]:  
**1150 South Metcalf Street  
Lima, Ohio**

Description of proposed emissions unit(s):  
**modification of facility to meet federal tier II fuel standards to include new equipment installations along with modifications to equipment previously permitted.**

The above named entity is hereby granted a Permit to Install for the above described emissions unit(s) 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 above described 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

Director

## Part I - GENERAL TERMS AND CONDITIONS

### A. State and Federally Enforceable Permit To Install General Terms and Conditions

#### 1. Monitoring and Related Recordkeeping 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:
  - i. The date, place (as defined in the permit), and time of sampling or measurements.
  - ii. The date(s) analyses were performed.
  - iii. The company or entity that performed the analyses.
  - iv. The analytical techniques or methods used.
  - v. The results of such analyses.
  - vi. 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:
  - i. Reports of any required monitoring and/or recordkeeping of federally enforceable information shall be submitted to the appropriate Ohio EPA District Office or local air agency.
  - ii. 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 appropriate Ohio EPA District Office or local air agency. The written reports shall be submitted quarterly, i.e., by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. See B.9 below if no deviations occurred during the quarter.

- iii. Written reports, which identify any deviations from the federally enforceable monitoring, recordkeeping, and reporting requirements contained in this permit shall be submitted to the appropriate Ohio EPA District Office or local air agency every six months, i.e., 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.
- iv. 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.

## **2. 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 appropriate Ohio EPA District Office or local air agency 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).

## **3. 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.

## **4. 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.

## **5. Severability Clause**

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.

## **6. 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 reissuance, or modification, or for denial of a permit renewal application.
- 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, reopened, 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, reopening 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.

## **7. 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 this Permit To Install.

## **8. Federal and State Enforceability**

Only those terms and conditions designated in this permit as federally enforceable, that 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, the State, and citizens under the Act. All other terms and conditions of this permit shall not be federally enforceable and shall be enforceable under State law only.

## **9. Compliance Requirements**

- a. 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.

- b. 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:
  - i. 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.
  - ii. 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.
  - iii. Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit.
  - iv. 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.
- c. The permittee shall submit progress reports to the appropriate Ohio EPA District Office or local air agency 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:
  - i. Dates for achieving the activities, milestones, or compliance required in any schedule of compliance, and dates when such activities, milestones, or compliance were achieved.
  - ii. 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.

## 10. Permit To Operate Application

- a. If 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).
- b. If the permittee is required to apply for permit(s) pursuant to OAC Chapter 3745-35, the source(s) identified in this Permit To Install is (are) permitted to operate for a period of up to one year from the date the source(s) commenced operation. Permission to operate is

granted only if the facility complies with all requirements contained in this permit and all applicable air pollution laws, regulations, and policies. Pursuant to OAC Chapter 3745-35, the permittee shall submit a complete operating permit application within ninety (90) days after commencing operation of the source(s) covered by this permit.

**11. Best Available Technology**

As specified in OAC Rule 3745-31-05, all new sources must employ Best Available Technology (BAT). Compliance with the terms and conditions of this permit will fulfill this requirement.

**12. 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.

**B. State Only Enforceable Permit To Install General Terms and Conditions**

**1. Compliance Requirements**

The emissions unit(s) identified in this Permit to Install shall remain in full compliance with all applicable State laws and regulations and the terms and conditions of this permit.

**2. Reporting Requirements Related to Monitoring and Recordkeeping 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 appropriate Ohio EPA District Office or local air agency.
- 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 appropriate Ohio EPA District Office or local air agency. If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted quarterly, i.e., by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. (These quarterly reports shall exclude deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06.)

**3. Permit Transfers**

Any transferee of this permit shall assume the responsibilities of the prior permit holder. The appropriate Ohio EPA District Office or local air agency must be notified in writing of any transfer of this permit.

**4. Termination of Permit To Install**

This permit to install shall terminate within eighteen months of the effective date of the permit to install if the owner or operator has not undertaken a continuing program of installation or modification or has not entered into a binding contractual obligation to undertake and complete within a reasonable time a continuing program of installation or modification. 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.

**5. Construction of New Sources(s)**

The proposed emissions unit(s) shall be constructed in strict accordance with the plans and application submitted for this permit to the Director of the Ohio Environmental Protection Agency. There may be no deviation from the approved plans without the express, written approval of the Agency. Any deviations from the approved plans or the above conditions may lead to such sanctions and penalties as provided under Ohio law. Approval of these plans does not constitute an assurance that the proposed facilities will operate in compliance with all Ohio laws and regulations. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed sources cannot meet the requirements of this permit or cannot meet applicable standards.

If the construction of the proposed emissions unit(s) has already begun or has been completed prior to the date the Director of the Environmental Protection Agency approves the permit application and plans, the approval does not constitute expressed or implied assurance that the proposed facility has been constructed in accordance with the approved plans. 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 the Permit to Install does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. Approval of the plans in any case is not to be construed as an approval of the facility as constructed and/or completed. Moreover, issuance of the Permit to Install 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.

**6. 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.

**7. 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).

**8. Construction Compliance Certification**

The applicant shall provide Ohio EPA with a written certification (see enclosed form) that the facility has been constructed in accordance with the Permit To Install application and the terms and conditions of the Permit to Install. The certification shall be provided to Ohio EPA upon completion of construction but prior to startup of the source.

**9. Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations (See Section A of This Permit)**

If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted quarterly, i.e., by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters.

### C. Permit To Install Summary of Allowable Emissions

The following information summarizes the total allowable emissions, by pollutant, based on the individual allowable emissions of each air contaminant source identified in this permit.

**SUMMARY (for informational purposes only)**  
**TOTAL PERMIT TO INSTALL ALLOWABLE EMISSIONS**

<u>Pollutant</u>	<u>Tons Per Year</u>
PE	400.47 *
SO <sub>2</sub>	2.01 *
NO <sub>x</sub>	176.87
CO	17.39
VOC	20.67

\* The annual allowable emissions totals in the above table do not include the following emissions units, since the emissions units are existing, State Implementation Plan (SIP) limits will remain in effect, and best available technology annual limitations were not required to be established under OAC rule 3745-31-05:

B004 - PE and SO<sub>2</sub>

P002 - SO<sub>2</sub>

P010 - SO<sub>2</sub>

P011 - SO<sub>2</sub>

P015 - SO<sub>2</sub>

## **Part II - FACILITY SPECIFIC TERMS AND CONDITIONS**

### **A. State and Federally Enforceable Permit To Install Facility Specific Terms and Conditions**

1. This PTI involves installation of a catalytic gasoline hydrotreater (CGHT) and butane-butylene treater (B-B Treater) to accommodate production of federally mandated Tier II fuels. The CGHT point source emissions are from the process heater, emissions unit B028. The remainder of the emissions from the CGHT, and all the emissions from the B-B Treater are fugitive VOC.

The permittee shall include the appropriate process equipment and regulated components for the CGHT and B-B Treater in the current site fugitive leak detection and repair (LDAR) program. The LDAR program shall comply with the appropriate provisions (includes operational restrictions, monitoring and record keeping, reporting, and testing) of OAC rule 3745-21-09(T) - Leaks from petroleum refinery equipment, OAC rule 3745-21-09(DD) - Leaks from process units that produce organic chemicals, 40 CFR 60 Subpart VV (Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry), 40 CFR 60 Subpart GGG (Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries, and 40 CFR 63 Subpart CC (Petroleum Refinery MACT Standards).

2. The permittee shall include the CGHT and B-B Treater in the current site benzene waste operations program. The program shall comply with the appropriate provisions (includes operational restrictions, monitoring and record keeping, reporting, and testing) of 40 CFR 61 Subpart FF.

### **B. State Only Enforceable Permit To Install Facility Specific Terms and Conditions**

None

**Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)****A. State and Federally Enforceable Section****I. Applicable Emissions Limitations and/or Control Requirements**

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
B004 - refinery fuel gas fired crude II heater, 630 million Btu/hr maximum heat input (Modification of existing emissions unit to reduce NOx emissions through the installation of low NOx burners)	OAC rule 3745-17-10(B)(1)	0.020 lb of particulate emissions (PE) per million Btu of actual heat input
	OAC rule 3745-17-07(A)	Visible PE shall not exceed 20% opacity, as a six-minute average, except as provided by rule
	OAC rule 3745-18-08(C)(2)	0.15 lb of sulfur dioxide (SO <sub>2</sub> ) per million Btu of actual heat input
	OAC rule 3745-23-06(B)	Minimize nitrogen oxide (NO <sub>x</sub> ) emissions by use of the latest available control techniques and operating practices in accordance with best current technology (see A.I.2.c)
	OAC rule 3745-31-05(A)(3)	0.06 lb of NO <sub>x</sub> per million Btu of actual heat input, 165.56 tons of NOx/yr  4.03 lbs of volatile organic compounds (VOC)/hr, 17.65 tons of VOC/yr  see A.I.2.b
	OAC rule 3745-31-05(D)	see A.I.2.a

## 2. Additional Terms and Conditions

- 2.a The permittee has requested a federally enforceable limitation for NO<sub>x</sub> of 0.06 lb per million Btu of actual heat input, 165.56 tons NO<sub>x</sub>/yr, 4.03 lbs VOC/hr, and 17.65 tons VOC/yr. The federally enforceable limitations shall be established in accordance with OAC rule 3745-31-05(A)(3). The permittee has requested federally enforceable NO<sub>x</sub> and VOC emission limitations for purposes of avoiding Prevention of Significant Deterioration (PSD) permitting by emissions netting (See Netting Determination).
- 2.b Best Available Technology (BAT) control requirements for this emissions unit has been determined to be use of low NO<sub>x</sub> burners.
- 2.c The permittee has satisfied the "latest available control techniques and operating practices required pursuant to OAC rule 3745-23-06(B) by committing to comply with the best available technology control requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit to install.

## II. Operational Restrictions

- 1. The permittee shall burn only refinery fuel gas in this emissions unit.

## III. Monitoring and/or Recordkeeping Requirements

- 1. Samples of refinery fuel gas burned in this emissions unit shall be obtained on a monthly basis, and analyzed for heat content, density and sulfur content. The following ASTM sampling and analysis methods shall be used to obtain data for use in calculating the SO<sub>2</sub> emission rate as outlined in section A.III.2.:
  - a. molar composition of refinery fuel gas - ASTM Method D2163; and
  - b. heat content of refinery fuel gas - ASTM Method D2421.
- 2. The permittee shall record on a monthly basis, the calculated SO<sub>2</sub> emission rate in pounds per million Btu. The SO<sub>2</sub> emission rate shall be calculated in accordance with OAC rule 3745-18-04(F)(3), as follows:

$$ER = (1 \times 10^6)/H \times D \times S \times 1.998$$

where: ER = the emission rate in pounds of sulfur dioxide per million Btu;  
H = the heat content of the gaseous fuel in Btu per standard cubic foot;  
D = the density of the gaseous fuel in pounds per standard cubic foot; and  
S = the decimal fraction of sulfur in the gaseous fuel.

- 3. For each day during which the permittee burns a fuel other than refinery fuel gas, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.

#### IV. Reporting Requirements

1. The permittee shall submit quarterly reports containing the results of the fuel gas sampling and emissions calculations listed in sections A.III.1. and A.III.2. above.
2. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than refinery fuel gas was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
3. All quarterly reports and deviation reports shall be submitted in accordance with Part I - General Terms and Conditions of this permit.

#### V. Testing Requirements

1. Compliance with the emissions limitations in section A.I.1. of the terms and conditions of this permit shall be determined in accordance with the following methods:

- a. Emission Limitation  
0.020 lb of PE per million Btu of actual heat input

Applicable Compliance Method

The permittee shall demonstrate compliance with this limitation by dividing the appropriate particulate emission factor of 7.6 pounds per million standard cubic feet, from AP-42 Chapter 1.4 (7/98), by the heat content of 853 Btu per standard cubic foot for the refinery fuel gas fired in this emissions unit. If required, the permittee shall demonstrate compliance with this emission limitation by conducting emission testing in accordance with the requirements specified in OAC rule 3745-17-03(B)(9).

- b. Emission Limitation  
Visible PE shall not exceed 20% opacity, as a six-minute average, except as provided by rule

Applicable Compliance Method

Compliance shall be demonstrated based upon the procedures specified in OAC rule 3745-17-03(B)(1).

- c. Emission Limitation  
0.15 lb of sulfur dioxide (SO<sub>2</sub>) per million Btu of actual heat input

Applicable Compliance Method

Compliance shall be demonstrated based upon the monitoring and record keeping requirements specified in section A.III.1. and A.III.2. If required, the permittee shall demonstrate compliance with this emission limitation by conducting emission testing in accordance with the requirements specified in OAC rule 3745-18-04(E)(1).

- d. Emission Limitation  
0.06 lb of NOx per million Btu of actual heat input

Applicable Compliance Method

The emission limitation is based on the burner manufacturer's emissions data for low NOx burners to be installed on this emissions unit. The permittee shall demonstrate compliance by conducting emission testing in accordance with the requirements in section A.V.2.

- e. Emission Limitation  
165.56 tons of NOx/yr

Applicable Compliance Method

The annual emission limitation was derived by multiplying the 0.06 lb of NOx per million Btu emission limitation times the maximum heat input capacity of 630 million Btu/hr for the crude II heater, then multiplying by 8,760 hrs/yr and dividing by 2,000 lbs/ton. Compliance with the annual limitation shall be shown as long as compliance with the 0.06 lb of NOx per million Btu emission limitation is maintained.

- f. Emission Limitation  
4.03 lbs of VOC/hr, 17.65 tons of VOC/yr

Applicable Compliance Method

The permittee shall demonstrate compliance with the hourly emission limitation by dividing the appropriate VOC emission factor of 5.5 pounds per million standard cubic feet, from AP-42 Chapter 1.4 (7/98), by the heat content of 853 Btu per standard cubic foot for the refinery fuel gas fired in this emissions unit. If required, the permittee shall demonstrate compliance with the hourly emission limitation by conducting emission testing in accordance with 40 CFR, Part 60, Appendix A, Methods 18, 25, or 25A, as appropriate.

The annual emission limitation was derived by multiplying the hourly emission limitation times 8,760 hrs/yr and dividing by 2,000 lbs/ton. Compliance with the annual limitation shall be shown as long as compliance with the hourly emission limitation is maintained.

2. The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:
- a. The emission testing shall be conducted within 180 days following start-up of the emissions unit with low NOx burners.
  - b. The emission testing shall be conducted to demonstrate compliance with the allowable mass emission rate of 0.06 lb of NOx per million Btu of actual heat input.
  - c. The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate:

NO<sub>x</sub>: Methods 1 through 4 and 7 of 40 CFR Part 60, Appendix A.

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

- d. The test(s) shall be conducted while the emissions unit is operating at its maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency.
3. 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).

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.

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).

## **VI. Miscellaneous Requirements**

None

**B. State Only Enforceable Section**

**I. Applicable Emissions Limitations and/or Control Requirements**

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
B004 - refinery fuel gas fired crude II heater, 630 million Btu/hr maximum heat input (Modification of existing emissions unit to reduce NOx emissions through the installation of low NOx burners)	None	None

2. **Additional Terms and Conditions**

None

**II. Operational Restrictions**

None

**III. Monitoring and/or Recordkeeping Requirements**

None

**IV. Reporting Requirements**

None

**V. Testing Requirements**

None

**VI. Miscellaneous Requirements**

None

**Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)**

**A. State and Federally Enforceable Section**

**I. Applicable Emissions Limitations and/or Control Requirements**

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
B028 - refinery fuel gas fired process heater for catalytic gasoline hydrotreating unit, equipped with low nitrogen oxide burners, 18.2 million Btu/hr maximum heat input	OAC rule 3745-17-10(B)(1)	0.020 lb of particulate emissions (PE) per million Btu of actual heat input
	OAC rule 3745-17-07(A)	Visible PE shall not exceed 20% opacity, as a six-minute average, except as provided by rule
	OAC rule 3745-23-06(B)	Minimize nitrogen oxide (NOx) emissions by use of the latest available control techniques and operating practices in accordance with best current technology (see A.I.2.c)
	OAC rule 3745-31-05(A)(3)	1.75 tons of sulfur dioxide (SO <sub>2</sub> )/yr  0.043 lb of NO <sub>x</sub> per million Btu of actual heat input (see A.I.2.a)  3.42 tons of NO <sub>x</sub> /yr  1.26 lbs of CO/hr, 5.52 tons of CO/yr  0.08 lb of volatile organic compounds (VOC)/hr, 0.35 ton of VOC/yr
	40 CFR 60.104(a)(1)	see A.I.2.b

## **2. Additional Terms and Conditions**

- 2.a** Best available technology (BAT) control requirements for this emissions unit has been determined to be use of low NOx burners meeting 0.043 lb NOx per million Btu of actual heat input.
- 2.b** The permittee shall not burn any refinery fuel gas in this emissions unit that contains hydrogen sulfide (H<sub>2</sub>S) in excess of 230 mg/dscm (0.10 grains/dscf).
- 2.c** The permittee has satisfied the "latest available control techniques and operating practices required pursuant to OAC rule 3745-23-06(B) by committing to comply with the best available technology control requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit to install.
- 2.d** The requirements of this rule also include compliance with the requirements of OAC rule 3745-17-10(B)(1), OAC rule 3745-17-07(A), and 40 CFR 60.104(a)(1).

## **II. Operational Restrictions**

- 1. The permittee shall burn only refinery fuel gas in this emissions unit.

## **III. Monitoring and/or Recordkeeping Requirements**

- 1. For each day during which the permittee burns a fuel other than refinery fuel gas, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
- 2. The refinery fuel gas which will be burned in this emissions unit will be obtained from an existing fuel gas loop. The permittee has proposed to monitor the refinery fuel gas quality with existing continuous emission monitor equipment for hydrogen sulfide (H<sub>2</sub>S) for the existing fuel gas loop. Therefore, in order to demonstrate compliance with the emission limitation of 230 mg/dscm (0.10 grain/dscf) of H<sub>2</sub>S in the refinery fuel gas, the permittee shall operate and maintain existing equipment to continuously monitor and record the concentration (dry basis) of H<sub>2</sub>S in the refinery fuel gas before being burned in this emissions unit. The monitoring shall be conducted in accordance with 40 CFR 60.105(a)(4), as follows:
  - a. The span value for this instrument is 425 mg/dscm of H<sub>2</sub>S.
  - b. Fuel gas combustion devices having a common source of fuel gas may be monitored at only one location, if monitoring at this location accurately represents the concentration of H<sub>2</sub>S in the fuel gas being burned.
  - c. The performance evaluations for this H<sub>2</sub>S monitor under 40 CFR 60.13(c) shall use Performance Specification 7 of 40 CFR 60, Appendix B. The permittee shall conduct an annual relative accuracy test audit (RATA) for the H<sub>2</sub>S continuous emission monitoring equipment. Method 11 of 40 CFR Part 60, Appendix A, or other approved U.S. EPA methods shall be used for conducting the annual RATAs.

3. A statement of certification of the existing continuous H<sub>2</sub>S monitoring system shall be maintained on site and shall consist of a letter from the Ohio EPA detailing the results of an Agency review of the certification tests and a statement by the Agency that the system is considered certified in accordance with the requirements of 40 CFR Part 60, Appendix B, Performance Specification 7. Proof of certification shall be made available to the Director (the appropriate Ohio EPA District Office or local air agency) upon request.
4. The permittee shall maintain records of all data obtained by the continuous H<sub>2</sub>S monitoring system including, but not limited to parts per million H<sub>2</sub>S on an instantaneous (one-minute) basis, emissions of H<sub>2</sub>S in units of the applicable standard (grains/dscf) as a rolling, 3-hour average, results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.
5. Within one hundred eighty (180) days of the effective date of this permit, the permittee shall develop a written quality assurance/quality control plan for the refinery fuel gas H<sub>2</sub>S continuous emission monitor designed to ensure continuous valid and representative readings of H<sub>2</sub>S. The plan shall follow the requirements of 40 CFR Part 60, Appendix F. A logbook dedicated to the monitoring system must be kept on site and available for inspection during regular office hours.

#### **IV. Reporting Requirements**

1. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than refinery fuel gas was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
2. Pursuant to OAC rules 3745-15-04, ORC sections 3704.03(I) and 3704.031, and 40 CFR Parts 60.7 and 60.13(h), the permittee shall submit reports within thirty (30) days following the end of each calendar quarter. These reports shall contain the date; commencement and completion times; duration; all rolling, 3-hour periods where the H<sub>2</sub>S average concentration exceeded 230 mg/dscm (0.10 grain/dscf); and corrective actions taken (if any). The rolling, 3-hour average shall be determined as the arithmetic average of three contiguous 1-hour averages.
3. The permittee shall submit reports within thirty (30) days following the end of each calendar quarter documenting any continuous H<sub>2</sub>S monitoring system downtime while the emissions unit was on-line (date, time, duration and reason) along with any corrective action(s) taken. The permittee shall provide the emissions unit operating time during the reporting period and the date, time, reason and corrective action(s) taken for each time period of source and control equipment malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line shall be included in the quarterly report.
4. If there are no excess emissions during the calendar quarter, then the permittee shall submit a statement to that effect along with the emissions unit and monitor operating times. These reports shall address the data obtained during previous calendar quarters.
5. All quarterly reports and deviation reports shall be submitted in accordance with Part I - General Terms and Conditions of this permit.

## V. Testing Requirements

1. Compliance with the emissions limitations in section A.I.1. of the terms and conditions of this permit shall be determined in accordance with the following methods:

- a. Emission Limitation

0.020 lb of PE per million Btu of actual heat input

Applicable Compliance Method

The permittee shall demonstrate compliance with this limitation by dividing the appropriate particulate emission factor of 7.6 pounds per million standard cubic feet, from AP-42 Chapter 1.4 (7/98), by the heat content of 1,217 Btu per standard cubic foot for the refinery fuel gas fired in this emissions unit. If required, the permittee shall demonstrate compliance with this emission limitation by conducting emission testing in accordance with the requirements specified in OAC rule 3745-17-03(B)(9).

- b. Emission Limitation

Visible PE shall not exceed 20% opacity, as a six-minute average, except as provided by rule

Applicable Compliance Method

Compliance shall be demonstrated based upon the procedures specified in OAC rule 3745-17-03(B)(1).

- c. Emission Limitation

1.75 tons of SO<sub>2</sub>/yr

Applicable Compliance Method

The annual emission limitation was established in accordance with the following equation:

$$\text{Tons SO}_2/\text{yr} = (0.1 \text{ gr H}_2\text{S}/\text{scf})(\text{lb H}_2\text{S}/7,000 \text{ gr H}_2\text{S})(64.1 \text{ lb SO}_2/34.1 \text{ lb H}_2\text{S})(\text{scf}/1,217 \text{ Btu})(18,200,000 \text{ Btu}/\text{hr})(8760 \text{ hrs}/\text{yr})(\text{ton}/2000 \text{ lbs})$$

where:

(0.1 gr H<sub>2</sub>S/scf) = 40 CFR 60.104(a)(1) emission limitation

(scf/1,217 Btu) = high heating value for refinery fuel gas

(64.1 lb SO<sub>2</sub>/34.1 lb H<sub>2</sub>S) = conversion of hydrogen sulfide to sulfur dioxide  
assuming all H<sub>2</sub>S is converted to SO<sub>2</sub>

(18,200,000 Btu/hr) = maximum heat input

(8,760 hrs/yr) = maximum operating schedule

All other values are conversion factors

Compliance with the annual emission limitation will be shown as long as the permittee maintains compliance with the H<sub>2</sub>S emission limitation in 40 CFR 60.104(a)(1).

- d. Emission Limitation  
0.043 lb of NO<sub>x</sub> per million Btu of actual heat input

Applicable Compliance Method

The emission limitation is based on the burner manufacturer's emissions data for low NO<sub>x</sub> burners to be installed on this emissions unit. The permittee shall demonstrate compliance by conducting emission testing in accordance with the requirements in section A.V.2.

- e. Emission Limitation  
3.42 tons of NO<sub>x</sub>/yr

Applicable Compliance Method

The annual emission limitation was derived by multiplying the 0.043 lb of NO<sub>x</sub> per million Btu emission limitation times the maximum heat input capacity of 18.2 million Btu/hr for the process heater, then multiplying by 8,760 hrs/yr and dividing by 2,000 lbs/ton. Compliance with the annual limitation shall be shown as long as compliance with the 0.043 lb of NO<sub>x</sub> per million Btu emission limitation is maintained.

- f. Emission Limitation  
1.26 lbs of CO/hr, 5.52 tons of CO/yr

Applicable Compliance Method

The permittee shall demonstrate compliance with this limitation by dividing the appropriate CO emission factor of 84 pounds per million standard cubic feet, from AP-42 Chapter 1.4 (7/98), by the heat content of 1,217 Btu per standard cubic foot for the refinery fuel gas fired in this emissions unit. If required, the permittee shall demonstrate compliance with the hourly emission limitation by conducting emission testing in accordance with 40 CFR, Part 60, Appendix A, Methods 1 through 4, and 10.

The annual emission limitation was derived by multiplying the hourly emission limitation times 8,760 hrs/yr and dividing by 2,000 lbs/ton. Compliance with the annual limitation shall be shown as long as compliance with the hourly emission limitation is maintained.

- g. Emission Limitation  
0.08 lb of VOC/hr, 0.35 ton of VOC/yr

Applicable Compliance Method

The permittee shall demonstrate compliance with this limitation by dividing the appropriate VOC emission factor of 5.5 pounds per million standard cubic feet, from AP-42 Chapter 1.4 (7/98), by the heat content of 1,217 Btu per standard cubic foot for the refinery fuel gas fired in this emissions unit. If required, the permittee shall demonstrate compliance with the hourly emission limitation by conducting emission testing in accordance with 40 CFR, Part 60, Appendix A, Methods 18, 25, or 25A, as appropriate.

The annual emission limitation was derived by multiplying the hourly emission limitation times 8,760 hrs/yr and dividing by 2,000 lbs/ton. Compliance with the annual limitation shall be shown as long as compliance with the hourly emission limitation is maintained.

h. Emission Limitation

The permittee shall not burn any refinery fuel gas in this emissions unit that contains H<sub>2</sub>S in excess of 230 mg/dscm (0.10 grain/dscf).

Applicable Compliance Method

Compliance with this emission limitation shall be demonstrated in accordance with the continuous emission monitoring requirements specified in section A.III.2. through A.III.5.

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

a. The emission testing shall be conducted within 180 days following start-up of the emissions unit.

b. The emission testing shall be conducted to demonstrate compliance with the allowable mass emission rate of 0.043 lb of NO<sub>x</sub> per million Btu of actual heat input.

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

NO<sub>x</sub>: Methods 1 through 4 and 7 of 40 CFR Part 60, Appendix A.

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

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

3. 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).

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.

**Premcor Refining Group, Inc.**

**PTI Application: 03-13794**

**Issued: To be entered upon final issuance**

**Facility ID: 0302020012**

**Emissions Unit ID: B028**

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).

**VI. Miscellaneous Requirements**

None

**B. State Only Enforceable Section**

**I. Applicable Emissions Limitations and/or Control Requirements**

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
B028 - refinery fuel gas fired process heater for catalytic gasoline hydrotreating unit, equipped with low nitrogen oxide burners, 18.2 million Btu/hr maximum heat input	None	None

2. **Additional Terms and Conditions**

None

**II. Operational Restrictions**

None

**III. Monitoring and/or Recordkeeping Requirements**

None

**IV. Reporting Requirements**

None

**V. Testing Requirements**

None

**VI. Miscellaneous Requirements**

None

**Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)**

**A. State and Federally Enforceable Section**

**I. Applicable Emissions Limitations and/or Control Requirements**

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P002 - modification of Claus sulfur recovery unit, MEA unit gas amine contactor, LPG amine contactor and amine stripper to add oxygen enrichment and install new refinery fuel gas fired tail gas incinerator and new flue gas venturi scrubber (see A.I.2.a)	OAC rule 3745-18-08(C)(3)	100 lbs of sulfur dioxide (SO <sub>2</sub> )/1,000 lbs of sulfur processed at the Claus unit (see A.I.2.b)
	OAC rule 3745-31-05(A)(3)	Combustion emissions from tail gas incinerator:  0.12 lb of particulate emissions (PE)/hr, 0.53 ton of PE/yr (see A.I.2.b and A.I.2.c)  1.54 lbs of nitrogen oxides (NO <sub>x</sub> )/hr, 6.75 tons of NO <sub>x</sub> /yr (see A.I.2.b)  1.30 lbs of carbon monoxide (CO)/hr, 5.69 tons of CO/yr (see A.I.2.b)  0.08 lb of volatile organic compounds (VOC)/hr, 0.35 ton of VOC/yr (see A.I.2.b)  Visible PE from the flue gas venturi scrubber shall not exceed 20% opacity, as a six-minute average, except as provided by rule  see A.I.2.e  Emissions from flue gas venturi scrubber: 50 parts per million by volume of SO <sub>2</sub> from the flue gas scrubber exhaust stack (see A.I.2.b)  18.29 lbs of sulfur dioxide (SO <sub>2</sub> )/hr and 80.11 tons of SO <sub>2</sub> /yr (see A.I.2.b)

OAC rule 3745-17-11(B)(1)	none (see A.I.2.f)
OAC rule 3745-17-07(A)	none (see A.I.2.g)
40 CFR 60.104(a)(2)(i)	see A.I.2.d

## 2. Additional Terms and Conditions

- 2.a** The existing sulfur recovery unit consists of three emissions units: P002, P011 and P015. Upon completion of the modification to add oxygen enrichment, new tail gas incinerator and new flue gas scrubber, the sulfur recovery unit will have one common point source of emissions, the exhaust stack for the flue gas scrubber. Best available technology (BAT) control requirements for this emissions unit has been determined to be the use of a flue gas venturi scrubber.
- 2.b** The emissions limitations listed in A.I.1. are for emissions units P002, P011 and P015, combined.
- 2.c** It is assumed that all particulate emissions are  $PM_{10}$ .
- 2.d** The sulfur dioxide emission limitation specified by this rule is less stringent than the sulfur dioxide emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
- 2.e** The requirements of this rule include compliance with the requirements of OAC rule 3745-18-08(C)(3), OAC rule 3745-17-11(B), and OAC rule 3745-17-07(A).
- 2.f** The uncontrolled mass rate of particulate emissions (PE)\* from this emissions unit is less than 10 pounds/hour. Therefore, pursuant to OAC rule 3745-17-11(A)(2)(a)(ii), Figure II of OAC rule 3745-17-11 does not apply. In addition, Table I of OAC rule 3745-17-11 does not apply because the process weight rate is equal to zero. "Process weight" is defined in OAC rule 3745-17-01(B)(14).
- \* The burning of refinery fuel gas is the only source of PE from this emissions unit.
- 2.g** This emissions unit is exempt from the visible PE limitations specified in OAC rule 3745-17-07(A) pursuant to OAC rule 3745-17-07(A)(3)(h) because the emissions unit is not subject to the requirements of OAC rule 3745-17-11.

## II. Operational Restrictions

1. The daily average pressure drop across the scrubber must not fall below the operating limit established during the most recent performance test while the emissions unit is in operation.
2. The daily average liquid-to-gas ratio must not fall below the operating limit established during the most recent performance test while the emissions unit is in operation.
3. The permittee shall burn only refinery fuel gas in the tail gas incinerator.

### **III. Monitoring and/or Recordkeeping Requirements**

1. The permittee shall properly install, operate and maintain equipment to continuously monitor the static pressure drop across the scrubber and liquid-to-gas ratio while the emissions unit is in operation. The monitoring devices and any recorders shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manuals.
2. The permittee shall collect and record the following information each day:
  - a. The pressure drop across the scrubber, in inches of water, on an hourly basis; and the daily average pressure drop across the scrubber.
  - b. The liquid-to-gas ratio, on an hourly basis; and the daily average liquid-to-gas ratio.
  - c. The operating times for the capture (collection) systems, control devices, monitoring equipment, and the associated emissions unit.
3. In order to demonstrate compliance with the emissions limitations of 100 lbs of SO<sub>2</sub>/1,000 lbs of sulfur processed at the Claus unit, and 50 parts per million by volume of SO<sub>2</sub>, for emissions units P002, P011 and P015, combined; the permittee shall operate and maintain equipment to continuously monitor and record SO<sub>2</sub> from this emissions unit in units of the applicable standards. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 60.13. The span value for this equipment is 125 percent of the applicable SO<sub>2</sub> emission limitation.

The permittee shall conduct an annual relative accuracy test audit (RATA) for the SO<sub>2</sub> continuous emission monitoring equipment. Method 6 of 40 CFR Part 60, Appendix A, or other approved U.S. EPA methods shall be used for conducting the annual RATAs.

4. Prior to the installation of the continuous SO<sub>2</sub> monitoring system, the permittee shall submit information detailing the proposed location of the sampling site in accordance with the siting requirements in 40 CFR Part 60, Appendix B, Performance Specification 2 for approval by the Ohio EPA, Central Office.

Within 180 days following start-up of the emissions unit with the new tail gas incinerator and flue gas venturi scrubber, the permittee shall conduct certification tests of the continuous SO<sub>2</sub> monitoring system pursuant to ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification Test 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 SO<sub>2</sub> 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 Test 2.

5. The permittee shall maintain records of all data obtained by the continuous SO<sub>2</sub> monitoring system including, but not limited to, parts per million SO<sub>2</sub> on an instantaneous (one-minute) basis, emissions of SO<sub>2</sub> in units of the applicable standard in the appropriate averaging period (12-hour), results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.
6. For each day during which the permittee burns a fuel other than refinery fuel gas in the tail gas incinerator, the permittee shall maintain a record of the type and quantity of fuel burned in the tail gas incinerator.

#### **IV. Reporting Requirements**

1. The permittee shall submit deviation (excursion) reports that identify all periods of time during which the following scrubber parameters were not maintained at or above the required levels specified in sections A.II.1. and A.II.2.:
  - a. The daily average pressure drop across the scrubber.
  - b. The daily average liquid-to-gas ratio.
2. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than refinery fuel gas was burned in the tail gas incinerator. Each report shall be submitted within 30 days after the deviation occurs.
3. Pursuant to OAC rules 3745-15-04, and ORC sections 3704.03(I) and 3704.031 and 40 CFR Parts 60.7 and 60.13(h), the permittee shall submit reports within 30 days following the end of each calendar quarter documenting the date, commencement and completion times, duration magnitude, reason (if known), and corrective actions taken (if any), of all instances of SO<sub>2</sub> values in excess of 100 lbs/1,000 lbs of sulfur processed at the Claus unit; and 50 parts per million by volume.
4. The permittee shall submit reports within 30 days following the end of each calendar quarter documenting any continuous SO<sub>2</sub> monitoring system downtime while the emissions unit was on line (date, time, duration and reason) along with any corrective action(s) taken. The permittee shall provide the emissions unit operating time during the reporting period and the date, time, reason and corrective action(s) taken for each time period of emissions unit and control equipment malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line shall also be included in the quarterly report.
5. If there are no excess emissions during the calendar quarter, the permittee shall submit a statement to that effect along with the emissions 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 reports shall address the data obtained during the previous calendar quarter.

6. Within 180 days of the effective date of this permit, the permittee shall develop a written quality assurance/quality control plan for the continuous SO<sub>2</sub> monitoring system designed to ensure continuous valid and representative readings of SO<sub>2</sub>. 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 SO<sub>2</sub> monitoring system must be kept on site and available for inspection during regular office hours.
7. All quarterly reports and deviation reports shall be submitted in accordance with Part I - General Terms and Conditions of this permit.

## V. Testing Requirements

1. Compliance with the emissions limitations in section A.I.1. of the terms and conditions of this permit shall be determined in accordance with the following methods:

- a. Emission Limitation  
100 lbs of SO<sub>2</sub>/1,000 lbs of sulfur processed at the Claus unit

Applicable Compliance Method

The permittee shall demonstrate compliance by conducting emission testing in accordance with the requirements in section A.V.2.

- b. Emission Limitation  
0.12 lb of PE/hr, 0.53 ton of PE/yr

Applicable Compliance Method

The permittee shall demonstrate compliance with this limitation by dividing the appropriate particulate emission factor of 7.6 pounds per million standard cubic feet, from AP-42 Chapter 1.4 (7/98), by the heat content of 1,217 Btu per standard cubic foot for the refinery fuel gas fired in this emissions unit. If required, the permittee shall demonstrate compliance with this emission limitation by conducting emission testing in accordance with the requirements specified in Methods 1 through 4, and 5 of 40 CFR Part 60, Appendix A.

The annual emission limitation was derived by multiplying the hourly emission limitation times 8,760 hrs/yr and dividing by 2,000 lbs/ton. Compliance with the annual limitation shall be shown as long as compliance with the hourly emission limitation is maintained.

- c. Emission Limitation  
1.54 lbs of NO<sub>x</sub>/hr, 6.75 tons of NO<sub>x</sub>/yr

Applicable Compliance Method

The permittee shall demonstrate compliance with this limitation by dividing the appropriate NO<sub>x</sub> emission factor of 100 pounds per million standard cubic feet, from AP-42 Chapter 1.4 (7/98), by the heat content of 1,217 Btu per standard cubic foot for the refinery fuel gas fired in this emissions unit. If required, the permittee shall demonstrate compliance with this emission limitation by conducting emission testing in accordance with the requirements specified in Method 7 of 40 CFR Part 60, Appendix A.

The annual emission limitation was derived by multiplying the hourly emission limitation times 8,760 hrs/yr and dividing by 2,000 lbs/ton. Compliance with the annual limitation shall be shown as long as compliance with the hourly emission limitation is maintained.

d. Emission Limitation

1.30 lbs of CO/hr, 5.69 tons of CO/yr

Applicable Compliance Method

The permittee shall demonstrate compliance with this limitation by dividing the appropriate CO emission factor of 84 pounds per million standard cubic feet, from AP-42 Chapter 1.4 (7/98), by the heat content of 1,217 Btu per standard cubic foot for the refinery fuel gas fired in this emissions unit. If required, the permittee shall demonstrate compliance with this emission limitation by conducting emission testing in accordance with the requirements specified in Method 10 of 40 CFR Part 60, Appendix A.

The annual emission limitation was derived by multiplying the hourly emission limitation times 8,760 hrs/yr and dividing by 2,000 lbs/ton. Compliance with the annual limitation shall be shown as long as compliance with the hourly emission limitation is maintained.

e. Emission Limitation

0.08 lb of VOC/hr, 0.35 ton of VOC/yr

Applicable Compliance Method

The permittee shall demonstrate compliance with this limitation by dividing the appropriate VOC emission factor of 5.5 pounds per million standard cubic feet, from AP-42 Chapter 1.4 (7/98), by the heat content of 1,217 Btu per standard cubic foot for the refinery fuel gas fired in this emissions unit. If required, the permittee shall demonstrate compliance with the hourly emission limitation by conducting emission testing in accordance with 40 CFR, Part 60, Appendix A, Methods 18, 25, or 25A, as appropriate.

The annual emission limitation was derived by multiplying the hourly emission limitation times 8,760 hrs/yr and dividing by 2,000 lbs/ton. Compliance with the annual limitation shall be shown as long as compliance with the hourly emission limitation is maintained.

f. Emission Limitation

Visible PE from the flue gas venturi scrubber shall not exceed 20% opacity, as a six-minute average, except as provided by rule

Applicable Compliance Method

Compliance shall be demonstrated based upon the procedures specified in OAC rule 3745-17-03(B)(1).

g. Emission Limitation

50 parts per million by volume of SO<sub>2</sub> from the flue gas scrubber exhaust stack

Applicable Compliance Method

The permittee shall demonstrate compliance by conducting emission testing in accordance with the requirements in section A.V.2.

- h. Emission Limitation  
18.29 lbs of SO<sub>2</sub>/hr

Applicable Compliance Method

The permittee shall demonstrate compliance by conducting emission testing in accordance with the requirements in section A.V.2.

- i. Emission Limitation  
80.11 tons of SO<sub>2</sub>/yr

Applicable Compliance Method

The annual emission limitation was derived by multiplying the hourly emission rate derived from the following equation times 8,760 hrs/yr and dividing by 2,000 lbs/ton.

$$(8.154 \times 10^{-6} \text{ lb SO}_2/\text{scf})(37,382 \text{ scf}/\text{min})(60 \text{ min}/\text{hr}) = 18.29 \text{ lbs SO}_2/\text{hr};$$

where:  $8.154 \times 10^{-6}$  lb SO<sub>2</sub>/scf is the emission factor supplied by the permittee, calculated from baseline conditions for the previous two year period,

37,382 scf/min is the baseline exhaust gas flow rate

Compliance with the annual limitation shall be shown as long as compliance with the hourly emission limitation is maintained.

2. The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:
- a. The emission testing shall be conducted within 180 days following start-up of the emissions unit with the new tail gas incinerator and flue gas venturi scrubber.
  - b. The emission testing shall be conducted to demonstrate compliance with the allowable mass emission rates of 100 lbs of SO<sub>2</sub>/1,000 lbs of sulfur processed at the Claus unit, 50 parts per million by volume of SO<sub>2</sub>, and 18.29 lbs of SO<sub>2</sub>/hr.
  - c. The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rates:

SO<sub>2</sub>: Methods 1 through 4, and 6 of 40 CFR Part 60, Appendix A.

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

- d. The test(s) shall be conducted while the emissions unit is operating at its maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency.
3. 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).

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.

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).

## **VI. Miscellaneous Requirements**

None

**B. State Only Enforceable Section**

**I. Applicable Emissions Limitations and/or Control Requirements**

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P002 - modification of Claus sulfur recovery unit, MEA unit gas amine contactor, LPG amine contactor and amine stripper to add oxygen enrichment and install new refinery fuel gas fired tail gas incinerator and new flue gas venturi scrubber (see A.I.2.a)	None	None

2. **Additional Terms and Conditions**

None

**II. Operational Restrictions**

None

**III. Monitoring and/or Recordkeeping Requirements**

None

**IV. Reporting Requirements**

None

**V. Testing Requirements**

None

**VI. Miscellaneous Requirements**

None

**Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)**

**A. State and Federally Enforceable Section**

**I. Applicable Emissions Limitations and/or Control Requirements**

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P010 - modification of fluid catalytic cracker and carbon monoxide boiler to include replacement of electrostatic precipitator with new flue gas venturi scrubber	OAC rule 3745-17-11(B)(1)	91.2 lbs of particulate emissions (PE)/hr (see A.I.2.a)
	OAC rule 3745-17-07(A)	Visible PE shall not exceed 20% opacity, as a six-minute average, except as provided by rule
	OAC rule 3745-18-08(C)(5)	See A.I.2.c
	OAC rule 3745-31-05(A)(3)	Emissions from flue gas venturi scrubber: 50 parts per million by volume of sulfur dioxide (SO <sub>2</sub> )(see A.I.2.b)
	OAC rule 3745-31-05(D)	72.05 lbs of SO <sub>2</sub> /hr and 315.58 tons of SO <sub>2</sub> /yr See A.I.2.b

**2. Additional Terms and Conditions**

- 2.a It is assumed that all particulate emissions are PM<sub>10</sub>.
- 2.b The permittee has requested a federally enforceable emission limitation of 50 parts per million by volume of SO<sub>2</sub>, 72.05 lbs of SO<sub>2</sub> per hour, and 315.58 tons of SO<sub>2</sub> per year from the flue gas venturi scrubber exhaust stack. The federally enforceable limitations shall be established in accordance with OAC rule 3745-31-05(A)(3). The permittee has requested federally enforceable limitations for purposes of avoiding Prevention of Significant Deterioration (PSD) permitting by emissions netting (see netting determination).
- 2.c The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(D).

## **II. Operational Restrictions**

1. The daily average pressure drop across the scrubber must not fall below the operating limit established during the most recent performance test while the emissions unit is in operation.
2. The daily average liquid-to-gas ratio must not fall below the operating limit established during the most recent performance test while the emissions unit is in operation.

## **III. Monitoring and/or Recordkeeping Requirements**

1. The permittee shall properly install, operate and maintain equipment to continuously monitor the static pressure drop across the scrubber and liquid-to-gas ratio while the emissions unit is in operation. The monitoring devices and any recorders shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manuals.
2. The permittee shall collect and record the following information each day:
  - a. The pressure drop across the scrubber, in inches of water, on an hourly basis; and the daily average pressure drop across the scrubber.
  - b. The liquid-to-gas ratio, on an hourly basis; and the daily average liquid-to-gas ratio.
  - c. The operating times for the capture (collection) systems, control devices, monitoring equipment, and the associated emissions unit.
3. In order to demonstrate compliance with the emission limitation of 50 parts per million by volume of SO<sub>2</sub>, the permittee shall operate and maintain equipment to continuously monitor and record SO<sub>2</sub> from this emissions unit in units of the applicable standards. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 60.13. The span value for this equipment is 125 percent of the applicable SO<sub>2</sub> emission limitation.

The permittee shall conduct an annual relative accuracy test audit (RATA) for the SO<sub>2</sub> continuous emission monitoring equipment. Method 6 of 40 CFR Part 60, Appendix A, or other approved U.S. EPA methods shall be used for conducting the annual RATAs.

4. Prior to the installation of the continuous SO<sub>2</sub> monitoring system, the permittee shall submit information detailing the proposed location of the sampling site in accordance with the siting requirements in 40 CFR Part 60, Appendix B, Performance Specification 2 for approval by the Ohio EPA, Central Office.

Within 180 days following start-up of the emissions unit with the new flue gas venturi scrubber, the permittee shall conduct certification tests of the continuous SO<sub>2</sub> monitoring system pursuant to ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification Test 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 SO<sub>2</sub> 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 Test 2.

5. The permittee shall maintain records of all data obtained by the continuous SO<sub>2</sub> monitoring system including, but not limited to, parts per million SO<sub>2</sub> on an instantaneous (one-minute) basis, emissions of SO<sub>2</sub> in units of the applicable standard in the appropriate averaging period (12-hour), results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.

#### **IV. Reporting Requirements**

1. The permittee shall submit deviation (excursion) reports that identify all periods of time during which the following scrubber parameters were not maintained at or above the required levels specified in sections A.II.1. and A.II.2.:
  - a. The daily average pressure drop across the scrubber.
  - b. The daily average liquid-to-gas ratio.
2. Pursuant to OAC rules 3745-15-04, and ORC sections 3704.03(I) and 3704.031 and 40 CFR Parts 60.7 and 60.13(h), the permittee shall submit reports within 30 days following the end of each calendar quarter documenting the date, commencement and completion times, duration magnitude, reason (if known), and corrective actions taken (if any), of all instances of SO<sub>2</sub> values in excess of 50 parts per million by volume.
3. The permittee shall submit reports within 30 days following the end of each calendar quarter documenting any continuous SO<sub>2</sub> monitoring system downtime while the emissions unit was on line (date, time, duration and reason) along with any corrective action(s) taken. The permittee shall provide the emissions unit operating time during the reporting period and the date, time, reason and corrective action(s) taken for each time period of emissions unit and control equipment malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line shall also be included in the quarterly report.

4. If there are no excess emissions during the calendar quarter, the permittee shall submit a statement to that effect along with the emissions 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 reports shall address the data obtained during the previous calendar quarter.
5. Within 180 days of the effective date of this permit, the permittee shall develop a written quality assurance/quality control plan for the continuous SO<sub>2</sub> monitoring system designed to ensure continuous valid and representative readings of SO<sub>2</sub>. 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 SO<sub>2</sub> monitoring system must be kept on site and available for inspection during regular office hours.
6. All quarterly reports and deviation reports shall be submitted in accordance with Part I - General Terms and Conditions of this permit.

## **V. Testing Requirements**

1. Compliance with the emissions limitations in section A.I.1. of the terms and conditions of this permit shall be determined in accordance with the following methods:
  - a. Emission Limitation  
91.2 lbs of PE/hr  
  
Applicable Compliance Method  
The permittee shall demonstrate compliance by conducting emission testing in accordance with the requirements in section A.V.2.
  - b. Emission Limitation  
Visible PE shall not exceed 20% opacity, as a six-minute average, except as provided by rule  
  
Applicable Compliance Method  
Compliance shall be demonstrated based upon the procedures specified in OAC rule 3745-17-03(B)(1).
  - c. Emission Limitation  
50 parts per million by volume of SO<sub>2</sub> from the flue gas venturi scrubber  
  
Applicable Compliance Method  
The permittee shall demonstrate compliance by conducting emission testing in accordance with the requirements in section A.V.2.

d. Emission Limitation

72.05 lbs of SO/hr

Applicable Compliance Method

The permittee shall demonstrate compliance by conducting emission testing in accordance with the requirements in section A.V.2.

e. Emission Limitation

315.58 tons of SO<sub>2</sub>/yr

Applicable Compliance Method

The annual emission limitation was derived by multiplying the hourly emission rate derived from the following equation times 8,760 hrs/yr and dividing by 2,000 lbs/ton.

$$(8.154 \times 10^{-6} \text{ lb SO}_2/\text{scf})(147,261 \text{ scf}/\text{min})(60 \text{ min}/\text{hr}) = 72.05 \text{ lbs SO}_2/\text{hr};$$

where:  $8.154 \times 10^{-6}$  lb SO<sub>2</sub>/scf is the emission factor supplied by the permittee, calculated from baseline conditions for the previous two year period,

147,261 scf/min is the baseline exhaust gas flow rate

Compliance with the annual limitation shall be shown as long as compliance with the hourly emission limitation is maintained.

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

a. The emission testing shall be conducted within 180 days following start-up of the emissions unit with the new flue gas venturi scrubber.

b. The emission testing shall be conducted to demonstrate compliance with the allowable mass emission rates of 91.2 lbs of PE/hr, 50 parts per million by volume of SO<sub>2</sub>, and 72.05 lbs of SO<sub>2</sub>/hr.

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

PE: Methods 1 through 4, and 5 of 40 CFR Part 60, Appendix A. The filterable and condensable fractions (front and back half of particulate sampling train) shall both be calculated during the test.

SO<sub>2</sub>: Method 6 of 40 CFR Part 60, Appendix A.

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

- d. The test(s) shall be conducted while the emissions unit is operating at its maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency.
3. 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).

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.

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).

## **VI. Miscellaneous Requirements**

None

**B. State Only Enforceable Section**

**I. Applicable Emissions Limitations and/or Control Requirements**

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P010 - modification of fluid catalytic cracker and carbon monoxide boiler to include replacement of electrostatic precipitator with new flue gas venturi scrubber	None	None

2. **Additional Terms and Conditions**

None

**II. Operational Restrictions**

None

**III. Monitoring and/or Recordkeeping Requirements**

None

**IV. Reporting Requirements**

None

**V. Testing Requirements**

None

**VI. Miscellaneous Requirements**

None

**Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)**

**A. State and Federally Enforceable Section**

**I. Applicable Emissions Limitations and/or Control Requirements**

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P011 - modification of Claus sulfur recovery unit foul condensate stripper to add oxygen enrichment and install new refinery fuel gas fired tail gas incinerator and new flue gas venturi scrubber (see A.I.2.a)	OAC rule 3745-18-08(C)(3)	100 lbs of sulfur dioxide (SO <sub>2</sub> )/1,000 lbs of sulfur processed at the Claus unit (see A.I.2.b)
	OAC rule 3745-31-05(A)(3)	Combustion emissions from tail gas incinerator:  0.12 lb of particulate emissions (PE)/hr, 0.53 ton of PE/yr (see A.I.2.b and A.I.2.c)  1.54 lbs of nitrogen oxides (NO <sub>x</sub> )/hr, 6.75 tons of NO <sub>x</sub> /yr (see A.I.2.b)  1.30 lbs of carbon monoxide (CO)/hr, 5.69 tons of CO/yr (see A.I.2.b)  0.08 lb of volatile organic compounds (VOC)/hr, 0.35 ton of VOC/yr (see A.I.2.b)  Visible PE from the flue gas venturi scrubber shall not exceed 20% opacity, as a six-minute average, except as provided by rule  see A.I.2.e  Emissions from flue gas venturi scrubber: 50 parts per million by volume of SO <sub>2</sub> from the flue gas scrubber exhaust stack (see A.I.2.b)  18.29 lbs of sulfur dioxide (SO <sub>2</sub> )/hr and 80.11 tons of SO <sub>2</sub> /yr (see A.I.2.b)

OAC rule 3745-17-11(B)(1)	none (see A.I.2.f)
OAC rule 3745-17-07(A)	none (see A.I.2.g)
40 CFR 60.104(a)(2)(i)	see A.I.2.d

## 2. Additional Terms and Conditions

- 2.a** The existing sulfur recovery unit consists of three emissions units: P002, P011 and P015. Upon completion of the modification to add oxygen enrichment, new tail gas incinerator and new flue gas scrubber, the sulfur recovery unit will have one common point source of emissions, the exhaust stack for the flue gas scrubber. Best available technology (BAT) control requirements for this emissions unit has been determined to be the use of a flue gas venturi scrubber.
- 2.b** The emissions limitations listed in A.I.1. are for emissions units P002, P011 and P015, combined.
- 2.c** It is assumed that all particulate emissions are PM<sub>10</sub>.
- 2.d** The sulfur dioxide emission limitation specified by this rule is less stringent than the sulfur dioxide emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
- 2.e** The requirements of this rule include compliance with the requirements of OAC rule 3745-18-08(C)(3), OAC rule 3745-17-11(B), and OAC rule 3745-17-07(A).
- 2.f** The uncontrolled mass rate of particulate emissions (PE)\* from this emissions unit is less than 10 pounds/hour. Therefore, pursuant to OAC rule 3745-17-11(A)(2)(a)(ii), Figure II of OAC rule 3745-17-11 does not apply. In addition, Table I of OAC rule 3745-17-11 does not apply because the process weight rate is equal to zero. "Process weight" is defined in OAC rule 3745-17-01(B)(14).
- \* The burning of refinery fuel gas is the only source of PE from this emissions unit.
- 2.g** This emissions unit is exempt from the visible PE limitations specified in OAC rule 3745-17-07(A) pursuant to OAC rule 3745-17-07(A)(3)(h) because the emissions unit is not subject to the requirements of OAC rule 3745-17-11.

## II. Operational Restrictions

1. The daily average pressure drop across the scrubber must not fall below the operating limit established during the most recent performance test while the emissions unit is in operation.
2. The daily average liquid-to-gas ratio must not fall below the operating limit established during the most recent performance test while the emissions unit is in operation.
3. The permittee shall burn only refinery fuel gas in the tail gas incinerator.

### **III. Monitoring and/or Recordkeeping Requirements**

1. The permittee shall properly install, operate and maintain equipment to continuously monitor the static pressure drop across the scrubber and liquid-to-gas ratio while the emissions unit is in operation. The monitoring devices and any recorders shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manuals.
2. The permittee shall collect and record the following information each day:
  - a. The pressure drop across the scrubber, in inches of water, on an hourly basis; and the daily average pressure drop across the scrubber.
  - b. The liquid-to-gas ratio, on an hourly basis; and the daily average liquid-to-gas ratio.
  - c. The operating times for the capture (collection) systems, control devices, monitoring equipment, and the associated emissions unit.
3. In order to demonstrate compliance with the emissions limitations of 100 lbs of SO<sub>2</sub>/1,000 lbs of sulfur processed at the Claus unit, and 50 parts per million by volume of SO<sub>2</sub>, for emissions units P002, P011 and P015, combined; the permittee shall operate and maintain equipment to continuously monitor and record SO<sub>2</sub> from this emissions unit in units of the applicable standards. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 60.13. The span value for this equipment is 125 percent of the applicable SO<sub>2</sub> emission limitation.

The permittee shall conduct an annual relative accuracy test audit (RATA) for the SO<sub>2</sub> continuous emission monitoring equipment. Method 6 of 40 CFR Part 60, Appendix A, or other approved U.S. EPA methods shall be used for conducting the annual RATAs.

4. Prior to the installation of the continuous SO<sub>2</sub> monitoring system, the permittee shall submit information detailing the proposed location of the sampling site in accordance with the siting requirements in 40 CFR Part 60, Appendix B, Performance Specification 2 for approval by the Ohio EPA, Central Office.

Within 180 days following start-up of the emissions unit with the new tail gas incinerator and flue gas venturi scrubber, the permittee shall conduct certification tests of the continuous SO<sub>2</sub> monitoring system pursuant to ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification Test 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 SO<sub>2</sub> 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 Test 2.

5. The permittee shall maintain records of all data obtained by the continuous SO<sub>2</sub> monitoring system including, but not limited to, parts per million SO<sub>2</sub> on an instantaneous (one-minute) basis, emissions of SO<sub>2</sub> in units of the applicable standard in the appropriate averaging period (12-hour), results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.
6. For each day during which the permittee burns a fuel other than refinery fuel gas in the tail gas incinerator, the permittee shall maintain a record of the type and quantity of fuel burned in the tail gas incinerator.

#### **IV. Reporting Requirements**

1. The permittee shall submit deviation (excursion) reports that identify all periods of time during which the following scrubber parameters were not maintained at or above the required levels specified in sections A.II.1. and A.II.2.:
  - a. The daily average pressure drop across the scrubber.
  - b. The daily average liquid-to-gas ratio.
2. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than refinery fuel gas was burned in the tail gas incinerator. Each report shall be submitted within 30 days after the deviation occurs.
3. Pursuant to OAC rules 3745-15-04, and ORC sections 3704.03(I) and 3704.031 and 40 CFR Parts 60.7 and 60.13(h), the permittee shall submit reports within 30 days following the end of each calendar quarter documenting the date, commencement and completion times, duration magnitude, reason (if known), and corrective actions taken (if any), of all instances of SO<sub>2</sub> values in excess of 100 lbs/1,000 lbs of sulfur processed at the Claus unit; and 50 parts per million by volume.
4. The permittee shall submit reports within 30 days following the end of each calendar quarter documenting any continuous SO<sub>2</sub> monitoring system downtime while the emissions unit was on line (date, time, duration and reason) along with any corrective action(s) taken. The permittee shall provide the emissions unit operating time during the reporting period and the date, time, reason and corrective action(s) taken for each time period of emissions unit and control equipment malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line shall also be included in the quarterly report.
5. If there are no excess emissions during the calendar quarter, the permittee shall submit a statement to that effect along with the emissions 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 reports shall address the data obtained during the previous calendar quarter.

6. Within 180 days of the effective date of this permit, the permittee shall develop a written quality assurance/quality control plan for the continuous SO<sub>2</sub> monitoring system designed to ensure continuous valid and representative readings of SO<sub>2</sub>. 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 SO<sub>2</sub> monitoring system must be kept on site and available for inspection during regular office hours.
7. All quarterly reports and deviation reports shall be submitted in accordance with Part I - General Terms and Conditions of this permit.

## V. Testing Requirements

1. Compliance with the emissions limitations in section A.I.1. of the terms and conditions of this permit shall be determined in accordance with the following methods:

- a. Emission Limitation

100 lbs of SO<sub>2</sub>/1,000 lbs of sulfur processed at the Claus unit

Applicable Compliance Method

The permittee shall demonstrate compliance by conducting emission testing in accordance with the requirements in section A.V.2.

- b. Emission Limitation

0.12 lb of PE/hr, 0.53 ton of PE/yr

Applicable Compliance Method

The permittee shall demonstrate compliance with this limitation by dividing the appropriate particulate emission factor of 7.6 pounds per million standard cubic feet, from AP-42 Chapter 1.4 (7/98), by the heat content of 1,217 Btu per standard cubic foot for the refinery fuel gas fired in this emissions unit. If required, the permittee shall demonstrate compliance with this emission limitation by conducting emission testing in accordance with the requirements specified in Methods 1 through 4, and 5 of 40 CFR Part 60, Appendix A.

The annual emission limitation was derived by multiplying the hourly emission limitation times 8,760 hrs/yr and dividing by 2,000 lbs/ton. Compliance with the annual limitation shall be shown as long as compliance with the hourly emission limitation is maintained.

- c. Emission Limitation

1.54 lbs of NO<sub>x</sub>/hr, 6.75 tons of NO<sub>x</sub>/yr

Applicable Compliance Method

The permittee shall demonstrate compliance with this limitation by dividing the appropriate NO<sub>x</sub> emission factor of 100 pounds per million standard cubic feet, from AP-42 Chapter 1.4 (7/98), by the heat content of 1,217 Btu per standard cubic foot for the refinery fuel gas fired

in this emissions unit. If required, the permittee shall demonstrate compliance with this emission limitation by conducting emission testing in accordance with the requirements specified in Method 7 of 40 CFR Part 60, Appendix A.

The annual emission limitation was derived by multiplying the hourly emission limitation times 8,760 hrs/yr and dividing by 2,000 lbs/ton. Compliance with the annual limitation shall be shown as long as compliance with the hourly emission limitation is maintained.

d. Emission Limitation

1.30 lbs of CO/hr, 5.69 tons of CO/yr

Applicable Compliance Method

The permittee shall demonstrate compliance with this limitation by dividing the appropriate CO emission factor of 84 pounds per million standard cubic feet, from AP-42 Chapter 1.4 (7/98), by the heat content of 1,217 Btu per standard cubic foot for the refinery fuel gas fired in this emissions unit. If required, the permittee shall demonstrate compliance with this emission limitation by conducting emission testing in accordance with the requirements specified in Method 10 of 40 CFR Part 60, Appendix A.

The annual emission limitation was derived by multiplying the hourly emission limitation times 8,760 hrs/yr and dividing by 2,000 lbs/ton. Compliance with the annual limitation shall be shown as long as compliance with the hourly emission limitation is maintained.

e. Emission Limitation

0.08 lb of VOC/hr, 0.35 ton of VOC/yr

Applicable Compliance Method

The permittee shall demonstrate compliance with this limitation by dividing the appropriate VOC emission factor of 5.5 pounds per million standard cubic feet, from AP-42 Chapter 1.4 (7/98), by the heat content of 1,217 Btu per standard cubic foot for the refinery fuel gas fired in this emissions unit. If required, the permittee shall demonstrate compliance with the hourly emission limitation by conducting emission testing in accordance with 40 CFR, Part 60, Appendix A, Methods 18, 25, or 25A, as appropriate.

The annual emission limitation was derived by multiplying the hourly emission limitation times 8,760 hrs/yr and dividing by 2,000 lbs/ton. Compliance with the annual limitation shall be shown as long as compliance with the hourly emission limitation is maintained.

f. Emission Limitation

Visible PE from the flue gas venturi scrubber shall not exceed 20% opacity, as a six-minute average, except as provided by rule

Applicable Compliance Method

Compliance shall be demonstrated based upon the procedures specified in OAC rule 3745-17-03(B)(1).

- g. Emission Limitation  
50 parts per million by volume of SO<sub>2</sub> from the flue gas scrubber exhaust stack

Applicable Compliance Method

The permittee shall demonstrate compliance by conducting emission testing in accordance with the requirements in section A.V.2.

- h. Emission Limitation  
18.29 lbs of SO<sub>2</sub>/hr

Applicable Compliance Method

The permittee shall demonstrate compliance by conducting emission testing in accordance with the requirements in section A.V.2.

- i. Emission Limitation  
80.11 tons of SO<sub>2</sub>/yr

Applicable Compliance Method

The annual emission limitation was derived by multiplying the hourly emission rate derived from the following equation times 8,760 hrs/yr and dividing by 2,000 lbs/ton.

$$(8.154 \times 10^{-6} \text{ lb SO}_2/\text{scf})(37,382 \text{ scf}/\text{min})(60 \text{ min}/\text{hr}) = 18.29 \text{ lbs SO}_2/\text{hr};$$

where:  $8.154 \times 10^{-6}$  lb SO<sub>2</sub>/scf is the emission factor supplied by the permittee, calculated from baseline conditions for the previous two year period,

37,382 scf/min is the baseline exhaust gas flow rate

Compliance with the annual limitation shall be shown as long as compliance with the hourly emission limitation is maintained.

2. The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:
- The emission testing shall be conducted within 180 days following start-up of the emissions unit with the new tail gas incinerator and flue gas venturi scrubber.
  - The emission testing shall be conducted to demonstrate compliance with the allowable mass emission rates of 100 lbs of SO<sub>2</sub>/1,000 lbs of sulfur processed at the Claus unit, 50 parts per million by volume of SO<sub>2</sub>, and 18.29 lbs of SO<sub>2</sub>/hr.
  - The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rates:

SO<sub>2</sub>: Methods 1 through 4, and 6 of 40 CFR Part 60, Appendix A.

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

- d. The test(s) shall be conducted while the emissions unit is operating at its maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency.
3. 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).

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.

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).

## **VI. Miscellaneous Requirements**

None

**B. State Only Enforceable Section**

**I. Applicable Emissions Limitations and/or Control Requirements**

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P011 - modification of Claus sulfur recovery unit foul condensate stripper to add oxygen enrichment and install new refinery fuel gas fired tail gas incinerator and new flue gas venturi scrubber (see A.I.2.a)	None	None

2. **Additional Terms and Conditions**

None

**II. Operational Restrictions**

None

**III. Monitoring and/or Recordkeeping Requirements**

None

**IV. Reporting Requirements**

None

**V. Testing Requirements**

None

**VI. Miscellaneous Requirements**

None

**Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)**

**A. State and Federally Enforceable Section**

**I. Applicable Emissions Limitations and/or Control Requirements**

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P015 - modification of Claus sulfur recovery unit DEA unit fuel gas absorber, propylene contactor and DEA regenerator to add oxygen enrichment and install new refinery fuel gas fired tail gas incinerator and new flue gas venturi scrubber (see A.I.2.a)	OAC rule 3745-18-08(C)(3)	100 lbs of sulfur dioxide (SO <sub>2</sub> )/1,000 lbs of sulfur processed at the Claus unit (see A.I.2.b)
	OAC rule 3745-31-05(A)(3)	Combustion emissions from tail gas incinerator:  0.12 lb of particulate emissions (PE)/hr, 0.53 ton of PE/yr (see A.I.2.b and A.I.2.c)  1.54 lbs of nitrogen oxides (NO <sub>x</sub> )/hr, 6.75 tons of NO <sub>x</sub> /yr (see A.I.2.b)  1.30 lbs of carbon monoxide (CO)/hr, 5.69 tons of CO/yr (see A.I.2.b)  0.08 lb of volatile organic compounds (VOC)/hr, 0.35 ton of VOC/yr (see A.I.2.b)  Visible PE from the flue gas venturi scrubber shall not exceed 20% opacity, as a six-minute average, except as provided by rule  see A.I.2.e  Emissions from flue gas venturi scrubber: 50 parts per million by volume of SO <sub>2</sub> from the flue gas scrubber exhaust stack (see A.I.2.b)  18.29 lbs of sulfur dioxide (SO <sub>2</sub> )/hr and 80.11 tons of SO <sub>2</sub> /yr (see A.I.2.b)

OAC rule 3745-17-11(B)(1)	none (see A.I.2.f)
OAC rule 3745-17-07(A)	none (see A.I.2.g)
40 CFR 60.104(a)(2)(i)	see A.I.2.d

## 2. Additional Terms and Conditions

- 2.a** The existing sulfur recovery unit consists of three emissions units: P002, P011 and P015. Upon completion of the modification to add oxygen enrichment, new tail gas incinerator and new flue gas scrubber, the sulfur recovery unit will have one common point source of emissions, the exhaust stack for the flue gas scrubber. Best available technology (BAT) control requirements for this emissions unit has been determined to be the use of a flue gas venturi scrubber.
- 2.b** The emissions limitations listed in A.I.1. are for emissions units P002, P011 and P015, combined.
- 2.c** It is assumed that all particulate emissions are  $PM_{10}$ .
- 2.d** The sulfur dioxide emission limitation specified by this rule is less stringent than the sulfur dioxide emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
- 2.e** The requirements of this rule include compliance with the requirements of OAC rule 3745-18-08(C)(3), OAC rule 3745-17-11(B), and OAC rule 3745-17-07(A).
- 2.f** The uncontrolled mass rate of particulate emissions (PE)\* from this emissions unit is less than 10 pounds/hour. Therefore, pursuant to OAC rule 3745-17-11(A)(2)(a)(ii), Figure II of OAC rule 3745-17-11 does not apply. In addition, Table I of OAC rule 3745-17-11 does not apply because the process weight rate is equal to zero. "Process weight" is defined in OAC rule 3745-17-01(B)(14).
- \* The burning of refinery fuel gas is the only source of PE from this emissions unit.
- 2.g** This emissions unit is exempt from the visible PE limitations specified in OAC rule 3745-17-07(A) pursuant to OAC rule 3745-17-07(A)(3)(h) because the emissions unit is not subject to the requirements of OAC rule 3745-17-11.

## II. Operational Restrictions

1. The daily average pressure drop across the scrubber must not fall below the operating limit established during the most recent performance test while the emissions unit is in operation.
2. The daily average liquid-to-gas ratio must not fall below the operating limit established during the most recent performance test while the emissions unit is in operation.
3. The permittee shall burn only refinery fuel gas in the tail gas incinerator.

### **III. Monitoring and/or Recordkeeping Requirements**

1. The permittee shall properly install, operate and maintain equipment to continuously monitor the static pressure drop across the scrubber and liquid-to-gas ratio while the emissions unit is in operation. The monitoring devices and any recorders shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manuals.
2. The permittee shall collect and record the following information each day:
  - a. The pressure drop across the scrubber, in inches of water, on an hourly basis; and the daily average pressure drop across the scrubber.
  - b. The liquid-to-gas ratio, on an hourly basis; and the daily average liquid-to-gas ratio.
  - c. The operating times for the capture (collection) systems, control devices, monitoring equipment, and the associated emissions unit.
3. In order to demonstrate compliance with the emissions limitations of 100 lbs of SO<sub>2</sub>/1,000 lbs of sulfur processed at the Claus unit, and 50 parts per million by volume of SO<sub>2</sub>, for emissions units P002, P011 and P015, combined; the permittee shall operate and maintain equipment to continuously monitor and record SO<sub>2</sub> from this emissions unit in units of the applicable standards. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 60.13. The span value for this equipment is 125 percent of the applicable SO<sub>2</sub> emission limitation.

The permittee shall conduct an annual relative accuracy test audit (RATA) for the SO<sub>2</sub> continuous emission monitoring equipment. Method 6 of 40 CFR Part 60, Appendix A, or other approved U.S. EPA methods shall be used for conducting the annual RATAs.

4. Prior to the installation of the continuous SO<sub>2</sub> monitoring system, the permittee shall submit information detailing the proposed location of the sampling site in accordance with the siting requirements in 40 CFR Part 60, Appendix B, Performance Specification 2 for approval by the Ohio EPA, Central Office.

Within 180 days following start-up of the emissions unit with the new tail gas incinerator and flue gas venturi scrubber, the permittee shall conduct certification tests of the continuous SO<sub>2</sub> monitoring system pursuant to ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification Test 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 SO<sub>2</sub> 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 Test 2.

5. The permittee shall maintain records of all data obtained by the continuous SO<sub>2</sub> monitoring system including, but not limited to, parts per million SO<sub>2</sub> on an instantaneous (one-minute) basis, emissions of SO<sub>2</sub> in units of the applicable standard in the appropriate averaging period (12-hour), results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.
6. For each day during which the permittee burns a fuel other than refinery fuel gas in the tail gas incinerator, the permittee shall maintain a record of the type and quantity of fuel burned in the tail gas incinerator.

#### **IV. Reporting Requirements**

1. The permittee shall submit deviation (excursion) reports that identify all periods of time during which the following scrubber parameters were not maintained at or above the required levels specified in sections A.II.1. and A.II.2.:
  - a. The daily average pressure drop across the scrubber.
  - b. The daily average liquid-to-gas ratio.
2. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than refinery fuel gas was burned in the tail gas incinerator. Each report shall be submitted within 30 days after the deviation occurs.
3. Pursuant to OAC rules 3745-15-04, and ORC sections 3704.03(I) and 3704.031 and 40 CFR Parts 60.7 and 60.13(h), the permittee shall submit reports within 30 days following the end of each calendar quarter documenting the date, commencement and completion times, duration magnitude, reason (if known), and corrective actions taken (if any), of all instances of SO<sub>2</sub> values in excess of 100 lbs/1,000 lbs of sulfur processed at the Claus unit; and 50 parts per million by volume.
4. The permittee shall submit reports within 30 days following the end of each calendar quarter documenting any continuous SO<sub>2</sub> monitoring system downtime while the emissions unit was on line (date, time, duration and reason) along with any corrective action(s) taken. The permittee shall provide the emissions unit operating time during the reporting period and the date, time, reason and corrective action(s) taken for each time period of emissions unit and control equipment malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line shall also be included in the quarterly report.
5. If there are no excess emissions during the calendar quarter, the permittee shall submit a statement to that effect along with the emissions 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 reports shall address the data obtained during the previous calendar quarter.
6. Within 180 days of the effective date of this permit, the permittee shall develop a written quality assurance/quality control plan for the continuous SO<sub>2</sub> monitoring system designed to ensure

continuous valid and representative readings of SO<sub>2</sub>. 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 SO<sub>2</sub> monitoring system must be kept on site and available for inspection during regular office hours.

7. All quarterly reports and deviation reports shall be submitted in accordance with Part I - General Terms and Conditions of this permit.

## **V. Testing Requirements**

1. Compliance with the emissions limitations in section A.I.1. of the terms and conditions of this permit shall be determined in accordance with the following methods:

- a. Emission Limitation

100 lbs of SO<sub>2</sub>/1,000 lbs of sulfur processed at the Claus unit

Applicable Compliance Method

The permittee shall demonstrate compliance by conducting emission testing in accordance with the requirements in section A.V.2.

- b. Emission Limitation

0.12 lb of PE/hr, 0.53 ton of PE/yr

Applicable Compliance Method

The permittee shall demonstrate compliance with this limitation by dividing the appropriate particulate emission factor of 7.6 pounds per million standard cubic feet, from AP-42 Chapter 1.4 (7/98), by the heat content of 1,217 Btu per standard cubic foot for the refinery fuel gas fired in this emissions unit. If required, the permittee shall demonstrate compliance with this emission limitation by conducting emission testing in accordance with the requirements specified in Methods 1 through 4, and 5 of 40 CFR Part 60, Appendix A.

The annual emission limitation was derived by multiplying the hourly emission limitation times 8,760 hrs/yr and dividing by 2,000 lbs/ton. Compliance with the annual limitation shall be shown as long as compliance with the hourly emission limitation is maintained.

- c. Emission Limitation

1.54 lbs of NO<sub>x</sub>/hr, 6.75 tons of NO<sub>x</sub>/yr

Applicable Compliance Method

The permittee shall demonstrate compliance with this limitation by dividing the appropriate NO<sub>x</sub> emission factor of 100 pounds per million standard cubic feet, from AP-42 Chapter 1.4 (7/98), by the heat content of 1,217 Btu per standard cubic foot for the refinery fuel gas fired in this emissions unit. If required, the permittee shall demonstrate compliance with this emission limitation by conducting emission testing in accordance with the requirements specified in Method 7 of 40 CFR Part 60, Appendix A.

The annual emission limitation was derived by multiplying the hourly emission limitation times 8,760 hrs/yr and dividing by 2,000 lbs/ton. Compliance with the annual limitation shall be shown as long as compliance with the hourly emission limitation is maintained.

d. Emission Limitation

1.30 lbs of CO/hr, 5.69 tons of CO/yr

Applicable Compliance Method

The permittee shall demonstrate compliance with this limitation by dividing the appropriate CO emission factor of 84 pounds per million standard cubic feet, from AP-42 Chapter 1.4 (7/98), by the heat content of 1,217 Btu per standard cubic foot for the refinery fuel gas fired in this emissions unit. If required, the permittee shall demonstrate compliance with this emission limitation by conducting emission testing in accordance with the requirements specified in Method 10 of 40 CFR Part 60, Appendix A.

The annual emission limitation was derived by multiplying the hourly emission limitation times 8,760 hrs/yr and dividing by 2,000 lbs/ton. Compliance with the annual limitation shall be shown as long as compliance with the hourly emission limitation is maintained.

e. Emission Limitation

0.08 lb of VOC/hr, 0.35 ton of VOC/yr

Applicable Compliance Method

The permittee shall demonstrate compliance with this limitation by dividing the appropriate VOC emission factor of 5.5 pounds per million standard cubic feet, from AP-42 Chapter 1.4 (7/98), by the heat content of 1,217 Btu per standard cubic foot for the refinery fuel gas fired in this emissions unit. If required, the permittee shall demonstrate compliance with the hourly emission limitation by conducting emission testing in accordance with 40 CFR, Part 60, Appendix A, Methods 18, 25, or 25A, as appropriate.

The annual emission limitation was derived by multiplying the hourly emission limitation times 8,760 hrs/yr and dividing by 2,000 lbs/ton. Compliance with the annual limitation shall be shown as long as compliance with the hourly emission limitation is maintained.

f. Emission Limitation

Visible PE from the flue gas venturi scrubber shall not exceed 20% opacity, as a six-minute average, except as provided by rule

Applicable Compliance Method

Compliance shall be demonstrated based upon the procedures specified in OAC rule 3745-17-03(B)(1).

g. Emission Limitation

50 parts per million by volume of SO<sub>2</sub> from the flue gas scrubber exhaust stack

Applicable Compliance Method

The permittee shall demonstrate compliance by conducting emission testing in accordance with the requirements in section A.V.2.

- h. Emission Limitation  
18.29 lbs of SO<sub>2</sub>/hr

Applicable Compliance Method

The permittee shall demonstrate compliance by conducting emission testing in accordance with the requirements in section A.V.2.

- i. Emission Limitation  
80.11 tons of SO<sub>2</sub>/yr

Applicable Compliance Method

The annual emission limitation was derived by multiplying the hourly emission rate derived from the following equation times 8,760 hrs/yr and dividing by 2,000 lbs/ton.

$$(8.154 \times 10^{-6} \text{ lb SO}_2/\text{scf})(37,382 \text{ scf/min})(60 \text{ min/hr}) = 18.29 \text{ lbs SO}_2/\text{hr};$$

where:  $8.154 \times 10^{-6} \text{ lb SO}_2/\text{scf}$  is the emission factor supplied by the permittee, calculated from baseline conditions for the previous two year period,

37,382 scf/min is the baseline exhaust gas flow rate

Compliance with the annual limitation shall be shown as long as compliance with the hourly emission limitation is maintained.

- 2. The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:
  - a. The emission testing shall be conducted within 180 days following start-up of the emissions unit with the new tail gas incinerator and flue gas venturi scrubber.
  - b. The emission testing shall be conducted to demonstrate compliance with the allowable mass emission rates of 100 lbs of SO<sub>2</sub>/1,000 lbs of sulfur processed at the Claus unit, 50 parts per million by volume of SO<sub>2</sub>, and 18.29 lbs of SO<sub>2</sub>/hr.
  - c. The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rates:

SO<sub>2</sub>: Methods 1 through 4, and 6 of 40 CFR Part 60, Appendix A.

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

- d. The test(s) shall be conducted while the emissions unit is operating at its maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency.
3. 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).

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.

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).

## **VI. Miscellaneous Requirements**

None

**B. State Only Enforceable Section**

**I. Applicable Emissions Limitations and/or Control Requirements**

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P015 - modification of Claus sulfur recovery unit DEA unit fuel gas absorber, propylene contactor and DEA regenerator to add oxygen enrichment and install new refinery fuel gas fired tail gas incinerator and new flue gas venturi scrubber (see A.I.2.a)	None	None

2. **Additional Terms and Conditions**

None

**II. Operational Restrictions**

None

**III. Monitoring and/or Recordkeeping Requirements**

None

**IV. Reporting Requirements**

None

**V. Testing Requirements**

None

**VI. Miscellaneous Requirements**

None

**Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)**

**A. State and Federally Enforceable Section**

**I. Applicable Emissions Limitations and/or Control Requirements**

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P039 - steam assisted refinery flare	40 CFR 63.11(b)(3)	see A.II.1.
	40 CFR 63.11(b)(4)	No visible emissions, except for periods not to exceed a total of 5 minutes during any 2 hour period.
	40 CFR 63.11(b)(5)	see A.II.2.
	40 CFR 63.11(b)(6)	see A.II.3.
	40 CFR 63.11(b)(7)	see A.II.4.
	40 CFR 60.18(b) through 60.18(f)	see A.I.2.a
	40 CFR 60.104(a)(1)	see A.I.2.b
	40 CFR 60.105(a)(4)	see A.I.2.c
	OAC rule 3745-31-05(A)(3)	0.26 ton of sulfur dioxide (SO <sub>2</sub> )/yr  1.14 tons of nitrogen oxides (NO <sub>x</sub> )/yr  6.18 tons of carbon monoxide (CO)/yr  2.32 tons of volatile organic compounds (VOC)/yr

## 2. Additional Terms and Conditions

- 2.a The general control device requirements for flares listed in 40 CFR 60.18(b) through 60.18(f) are as stringent as the requirements listed in 40 CFR 63.11(b).
- 2.b The flare is considered a fuel combustion device, per 40 CFR 60.101(g). Therefore, the permittee shall not burn any refinery fuel gas in this emissions unit that contains hydrogen sulfide in excess of 230 mg/dscm (0.10 grains/dscf).
- 2.c The permittee will use existing hydrogen sulfide continuous emission monitoring equipment to monitor the concentration of hydrogen sulfide in the refinery fuel gas burned in this emissions unit. Therefore, the permittee shall comply with monitoring requirements listed in 40 CFR 60.105(a)(4) in place of the SO<sub>2</sub> monitoring requirements listed in 40 CFR 60.105(a)(3).

## II. Operational Restrictions

- 1. The flare shall be operated at all times when emissions may be vented to it.
- 2. The flare shall be operated with a pilot flame present at all times.
- 3. The gases that are combusted in the flare shall have a net heating value of 300 Btu/scf or greater.
- 4. The flare shall meet one of the following criteria:
  - a. the flare shall be designed and operated with an exit velocity of less than 60 ft/sec; or
  - b. the flare shall be designed and operated with an exit velocity equal to or greater than 60 ft/sec, but less than 400 ft/sec if the net heating value of the gas being combusted is greater than 1000 Btu/scf; or
  - c. the flare shall be designed and operated with an exit velocity less than the velocity,  $V_{MAX}$ , but less than 400 ft/sec. The equation for determining  $V_{MAX}$  is shown in section V.1.b.iii.

## III. Monitoring and/or Recordkeeping Requirements

- 1. The permittee shall operate and maintain a device (including, but not limited to, a thermocouple, an ultraviolet beam sensor, or an infrared sensor) capable of continuously detecting the presence of a flare pilot flame. All monitoring equipment shall be calibrated, maintained, and operated according to manufacturer's specifications.
- 2. The permittee shall record the following information each day:
  - a. all periods during which the flare was not operating and emissions were vented to it;
  - b. all periods during which there was no pilot flame;

- c. the operating times for the flare and the continuous monitoring for flame presence; and
  - d. all periods during which there were visible emissions from the flare, except for periods not to exceed a total of 5 minutes in any consecutive 2-hour period.
3. The permittee shall perform daily checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall record visible emissions, using Method 22, for at least 10 consecutive minutes and shall also note the following in the operations log:
  - a. the color of the emissions;
  - b. whether the emissions are representative of normal operations;
  - c. if the emissions are not representative of normal operations, the cause of the abnormal emissions;
  - d. the total duration of any visible emission incident; and
  - e. any corrective actions taken to eliminate the visible emissions.
4. The permittee shall keep up-to-date records of the following information:
  - a. flare design (i.e., steam-assisted, air-assisted, or non-assisted); and
  - b. all visible emission readings, heat content determinations, flow rate measurements, and exit velocity determinations made during any compliance determinations.
5. In order to demonstrate compliance with the emission limitation of 230 mg/dscm (0.10 grain/dscf) of H<sub>2</sub>S in the refinery fuel gas used in this emissions unit, the permittee shall operate and maintain existing equipment to continuously monitor and record the concentration (dry basis) of H<sub>2</sub>S in the refinery fuel gas before being burned in this emissions unit. The monitoring shall be conducted in accordance with 40 CFR 60.105(a)(4), as follows:
  - a. The span value for this instrument is 425 mg/dscm of H<sub>2</sub>S.
  - b. Fuel gas combustion devices having a common source of fuel gas may be monitored at only one location, if monitoring at this location accurately represents the concentration of H<sub>2</sub>S in the fuel gas being burned.
  - c. The performance evaluations for this H<sub>2</sub>S monitor under 40 CFR 60.13(c) shall use Performance Specification 7 of 40 CFR 60, Appendix B. Method 11 of 40 CFR Part 60, Appendix A, or other approved USEPA methods shall be used for conducting the relative accuracy evaluations.
6. A statement of certification of the existing continuous H<sub>2</sub>S monitoring system shall be maintained on site and shall consist of a letter from the Ohio EPA detailing the results of an Agency review of the certification tests and a statement by the Agency that the system is considered certified in accordance with the requirements of 40 CFR Part 60, Appendix B, Performance Specification 7.

Proof of certification shall be made available to the Director (the appropriate Ohio EPA District Office or local air agency) upon request.

7. The permittee shall maintain records of all data obtained by the continuous H<sub>2</sub>S monitoring system including, but not limited to parts per million H<sub>2</sub>S on an instantaneous (one-minute) basis, emissions of H<sub>2</sub>S in units of the applicable standard (grains/dscf) as a rolling, 3-hour average, results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.
8. Within one hundred eighty (180) days of the effective date of this permit, the permittee shall develop a written quality assurance/quality control plan for the refinery fuel gas H<sub>2</sub>S continuous emission monitor designed to ensure continuous valid and representative readings of H<sub>2</sub>S. The plan shall follow the requirements of 40 CFR Part 60, Appendix F. A logbook dedicated to the monitoring system must be kept on site and available for inspection during regular office hours.

#### **IV. Reporting Requirements**

1. The permittee shall submit deviation (excursion) reports that identify all periods during which the flare pilot flame was not functioning properly or the flare had visible emissions exceeding a total of 5 minutes in any consecutive 2-hour period. The reports shall include the date, time, and duration of each such period, as well as reasons for each such deviation.
2. The permittee shall submit semiannual written reports which (a) identify all days during which any visible particulate emissions were observed from the flare and (b) describe any corrective actions taken to eliminate the visible particulate emissions. These reports shall be submitted to the Director (the appropriate Ohio EPA District Office or local air agency) by January 31 and July 31 of each year and shall cover the previous 6-month period.
3. Pursuant to OAC rules 3745-15-04, and ORC sections 3704.03(I) and 3704.031 and 40 CFR Parts 60.7 and 60.13(h), the permittee shall submit reports within thirty (30) days following the end of each calendar quarter. These reports shall contain the date; commencement and completion times; duration; all rolling, 3-hour periods where the H<sub>2</sub>S average concentration exceeded 230 mg/dscm (0.10 grain/dscf); and corrective actions taken (if any). The rolling, 3-hour average shall be determined as the arithmetic average of three contiguous 1-hour averages.
4. The permittee shall submit reports within thirty (30) days following the end of each calendar quarter documenting any continuous H<sub>2</sub>S monitoring system downtime while the emissions unit was on-line (date, time, duration and reason) along with any corrective action(s) taken. The permittee shall provide the emissions unit operating time during the reporting period and the date, time, reason and corrective action(s) taken for each time period of source and control equipment malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line shall be included in the quarterly report.
5. If there are no excess emissions during the calendar quarter, then the permittee shall submit a statement to that effect along with the emissions unit and monitor operating times. These reports shall address the data obtained during previous calendar quarters.

6. All quarterly reports and deviation reports shall be submitted in accordance with Part I - General Terms and Conditions of this permit.

## **V. Testing Requirements**

1. Compliance with the emissions limitations and the operational restrictions in sections A.I.1., A.II.3. and A.II.4. of the terms and conditions of this permit shall be determined in accordance with the following methods:

- a. Emission Limitation

No visible emissions, except for periods not to exceed a total of 5 minutes during any 2 hour period.

Applicable Compliance Method

The test method employed to demonstrate compliance with the emission limitation shall be Method 22, 40 CFR Part 60, Appendix A.

- b. Emission Limitation

0.26 ton of SO<sub>2</sub>/yr

Applicable Compliance Method

The annual emission limitation was derived from the H<sub>2</sub>S emission limitation in 40 CFR 60.104(a)(1), and a high heating value for refinery fuel gas used in the flare of 1,700 Btu/scf, with a resultant emission factor of 0.0158 lb of SO<sub>2</sub>/million Btu, multiplied by the maximum heat input capacity of 3.8 million Btu/hr; then multiplying by 8,760 hrs/yr and dividing by 2,000 lbs/ton.

Compliance shall be demonstrated by ensuring the flare operates at the proper efficiency through monitoring and recordkeeping specified in section A.III.1., A.III.2. and A.III.4.; and testing specified in section A.V.2.

- c. Emission Limitation

1.14 tons of NO<sub>x</sub>/yr

Applicable Compliance Method

The annual emission limitation was derived from an emission factor of 0.068 lb/million Btu in AP-42, Section 13.5, Table 13.5-1 (9/91) multiplied by the maximum heat input capacity of 3.8 million Btu/hr; then multiplying by 8,760 hrs/yr and dividing by 2,000 lbs/ton.

Compliance shall be demonstrated by ensuring the flare operates at the proper efficiency through monitoring and recordkeeping specified in section A.III.1., A.III.2. and A.III.4.; and testing specified in section A.V.2.

- d. Emission Limitation  
6.18 tons of CO/yr

Applicable Compliance Method

The annual emission limitation was derived from an emission factor of 0.37 lb/million Btu in AP-42, Section 13.5, Table 13.5-1 (9/91) multiplied by the maximum heat input capacity of 3.8 million Btu/hr; then multiplying by 8,760 hrs/yr and dividing by 2,000 lbs/ton.

Compliance shall be demonstrated by ensuring the flare operates at the proper efficiency through monitoring and recordkeeping specified in section A.III.1., A.III.2. and A.III.4.; and testing specified in section A.V.2.

- e. Emission Limitation  
2.32 tons of VOC/yr

Applicable Compliance Method

The annual emission limitation was derived from an emission factor of 0.14 lb/million Btu in AP-42, Section 13.5, Table 13.5-1 (9/91) multiplied by the maximum heat input capacity of 3.8 million Btu/hr; then multiplying by 8,760 hrs/yr and dividing by 2,000 lbs/ton.

Compliance shall be demonstrated by ensuring the flare operates at the proper efficiency through monitoring and recordkeeping specified in section A.III.1., A.III.2. and A.III.4.; and testing specified in section A.V.2.

- f. Operational Restriction

The gases that are combusted in the flare shall have a net heating value of 300 Btu/scf or greater.

Applicable Compliance Method

The net heating value of the gas being combusted in the flare shall be calculated using the following equation:

$$H_T \text{ (MJ/scm}^*) = K \text{ (Sum)}$$

where:

$H_T$  = net heating value of the sample, MJ/scm; where the net enthalpy per mole of off gas is based on combustion at 25 degrees Celsius and 760 mm Hg, but the standard temperature for determining the volume corresponding to one mole is 20 degrees Celsius;

$K$  = constant =  $1.740 \times 10^{-7}$  (1/ppmv)(g-mole/scm)(MJ/kcal); and

Sum = the summation from  $i=1$  to  $i=n$  of the gas being combusted ( $C_i$ )( $H_i$ )

where:

the standard temperature for (g-mole/scm) is 20 degrees Celsius;

n = number of sample components;

C<sub>i</sub> = concentration of sample component i in ppmv on a wet basis, as measured for organics by Test Method 18 and measured for hydrogen and carbon monoxide by American Society for Testing and Materials (ASTM) D1946-77 or 90 (reapproved 1994)(incorporated by reference as specified in 40 CFR Part 63.14); and

H<sub>i</sub> = Net heat of combustion of sample component i, kcal/g-mole at 25 degrees Celsius and 760 mm Hg. The heats of combustion may be determined using ASTM D2382-76 or 88 or D4809-95 (incorporated by reference as specified in 40 CFR Part 63.14) if published values are not available or cannot be calculated.

\* 1 MJ/scm = 26.81 BTU/scf

If required, the permittee shall determine the net heating value of the gas being combusted in the flare using the methods and procedures specified in 40 CFR Part 63.11(b)(6).

g. Operational Restriction

The flare shall be designed and operated with an exit velocity of less than 60 ft/sec. (one of three possible operational restrictions for a steam-assisted flare; compliance with section A.V.1.g, A.V.1.h, or A.V.1.i is required)

Applicable Compliance Method

The actual exit velocity of the flare shall be determined by dividing the volumetric flow rate of gas being combusted (in units of emission standard temperature and pressure), as determined by Test Method 2, 2A, 2C, or 2D in 40 CFR Part 60, Appendix A, by the unobstructed (free) cross-sectional area of the flare tip. If required, the permittee shall determine the actual exit velocity of the flare using the methods and procedures specified in 40 CFR Part 63.11(b)(7).

h. Operational Restriction

The flare shall be designed and operated with an exit velocity equal to or greater than 60 ft/sec, but less than 400 ft/sec if the net heating value of the gas being combusted is greater than 1000 Btu/scf. (one of three possible operational restrictions for a steam-assisted flare; compliance with section A.V.1.g, A.V.1.h, or A.V.1.i is required)

Applicable Compliance Method

The actual exit velocity of the flare shall be determined by dividing the volumetric flow rate of gas being combusted (in units of emission standard temperature and pressure), as determined by Test Method 2, 2A, 2C, or 2D in 40 CFR Part 60, Appendix A, by the unobstructed (free) cross-sectional area of the flare tip. If required, the permittee shall determine the actual exit velocity of the flare using the methods and procedures specified in 40 CFR Part 63.11(b)(7).

i. Operational Restriction

The flare shall be designed and operated with an exit velocity less than the velocity,  $V_{MAX}$ , but less than 400 ft/sec. (one of three possible operational restrictions for a steam-assisted flare; compliance with section A.V.1.g, A.V.1.h, or A.V.1.i is required)

Applicable Compliance Method

The maximum permitted velocity,  $V_{MAX}$ , shall be determined by the following equation:

$$\text{Log } 10(V_{MAX}) = (HT + 28.8)/31.7$$

where:

$V_{MAX}$  = maximum permitted velocity, m/sec

HT = the net heating value of the sample, MJ/scm; where the net enthalpy per mole of offgas is based on combustion at 25 degrees Celsius and 760 mm Hg, but the standard temperature for determining the volume corresponding to one mole is 20 degrees Celsius

28.8 = Constant

31.7 = Constant

If required, the permittee shall determine the actual exit velocity of the flare using the methods and procedures specified in 40 CFR Part 63.11(b)(7).

j. Emission Limitation

The permittee shall not burn any refinery fuel gas in this emissions unit that contains H<sub>2</sub>S in excess of 230 mg/dscm (0.10 grain/dscf).

Applicable Compliance Method

Compliance with this emission limitation shall be demonstrated in accordance with the continuous emission monitoring requirements specified in section A.III.5. through A.III.8.

**VI. Miscellaneous Requirements**

None

**B. State Only Enforceable Section**

**I. Applicable Emissions Limitations and/or Control Requirements**

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P039 - steam assisted refinery flare	None	None

**2. Additional Terms and Conditions**

None

**II. Operational Restrictions**

None

**III. Monitoring and/or Recordkeeping Requirements**

None

**IV. Reporting Requirements**

None

**V. Testing Requirements**

None

**VI. Miscellaneous Requirements**

None