



State of Ohio Environmental Protection Agency

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6/17/2009

Certified Mail

Bill Rupert  
BP-Husky Refining LLC  
4001 Cedar Point Road  
P.O. Box 696  
Oregon, OH 43697

RE: DRAFT AIR POLLUTION PERMIT-TO-INSTALL  
Facility ID: 0448020007  
Permit Number: P0103694  
Permit Type: Initial Installation  
County: Lucas

Yes	TOXIC REVIEW
Yes	PSD
No	SYNTHETIC MINOR
Yes	CEMS
Yes	MACT
Yes	NSPS
No	NESHAPS
Yes	NETTING
No	MAJOR NON-ATTAINMENT
Yes	MODELING SUBMITTED

Dear Permit Holder:

A draft of the Ohio Administrative Code (OAC) Chapter 3745-31 Air Pollution Permit-to-Install for the referenced facility has been issued for the emissions unit(s) listed in the Authorization section of 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 permit. A public notice will appear in the Ohio EPA Weekly Review and the local newspaper, Toledo Blade. A copy of the public notice and the draft permit are enclosed. This permit has been posted to the Division of Air Pollution Control (DAPC) Web page <http://www.epa.state.oh.us/dapc> in Microsoft Word and Adobe Acrobat format. Comments will be accepted as a marked-up copy of the draft permit or in narrative format. Any comments must be sent to the following:

Andrew Hall  
Permit Review/Development Section  
Ohio EPA, DAPC  
122 South Front Street  
Columbus, Ohio 43215

and Toledo Department of Environmental Services  
348 South Erie Street  
Toledo, OH 43604

Comments and/or a request for a public hearing will be accepted within 30 days of the date the notice is published in the newspaper. You will be notified in writing if a public hearing is scheduled. A decision on issuing a final permit-to-install will be made after consideration of comments received and oral testimony if a public hearing is conducted. Any permit fee that will be due upon issuance of a final Permit-to-Install is indicated in the Authorization section. Please do not submit any payment now. If you have any questions, please contact Toledo Department of Environmental Services at (419)936-3015.

Sincerely,

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

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

Ted Strickland, Governor  
Lee Fisher, Lieutenant Governor  
Chris Korleski, Director



**PUBLIC NOTICE**  
**OHIO ENVIRONMENTAL PROTECTION AGENCY**  
**ISSUANCE OF DRAFT PERMIT TO INSTALL**  
**SUBJECT TO PREVENTION OF SIGNIFICANT DETERIORATION REVIEW**  
**TO BP HUSKY - TOLEDO REFINERY**

Public Notice is hereby given that the Staff of the Ohio Environmental Protection Agency (EPA) has recommended to the Director that the Ohio EPA issue a draft action of a Permit to Install (PTI) to BP Husky Refinery LLC (BP) located in Lucas County, Ohio. The draft action (PTI no. P0103694) was issued on June 17, 2009.

This PTI is for an installation of a Reformer, a Process Heater, and a Benzene Saturation unit. BP-Husky Refining LLC (BP-Husky) is requesting this PTI to improve the Naphtha Reforming process. This permit involves netting for NOx and is PSD for PM10/PM2.5.

Due to the proposed modifications, increases in allowable air emissions of particulate matter will result as listed below:

Pollutant	Net Change	PSD Significance Level
PM <sub>10</sub>	+16.94 tons/year	15 tons/year
PM <sub>2.5</sub>	+16.94 tons/year	10 tons/year

This facility is subject to the applicable attainment provisions of the Ohio EPA permit to install requirements (OAC 3745-31).

U.S EPA allows sources to consume no more than the maximum available ambient PSD increments for each PSD pollutant. Ohio EPA allows sources to consume less than one half the available increment for PM<sub>10</sub>. BP Husky has demonstrated, through dispersion modeling, that the PM<sub>10</sub> impacts from the source will not exceed the Ohio Acceptable Incremental Impact levels. Proposed new sources also can not cause or significantly contribute to violations of the National Ambient Air Quality Standard (NAAQS). Based on the estimated significant impact for PM<sub>10</sub>, NAAQS analysis was not required. Based on the PSD and NAAQS analyses, BP Husky complies with both the Federal and State modeling requirement for PM<sub>10</sub>.

A public hearing on the draft air permit is scheduled at 6:30 p.m., July 23, 2009, at the Lake Erie Center, 6200 Bayshore Road, Oregon, OH 43618. A presiding officer will be present and may limit oral testimony to ensure that all parties are heard.

All interested persons are entitled to attend or be represented and give written or oral comments on the draft permit at the hearing. Written comments must be received by Ohio EPA/Toledo Division of Environmental Services by the close of business on August 4, 2009. Comments received after August 4, 2009 may not be considered to be a part of the official record. Written comments may be submitted at the hearing or sent to Peter Park, Toledo Division of Environmental Services, 348 South Erie Street, Toledo, Ohio, 43602. Fax number: (419) 936-3959.

Further information concerning this application, which is available for public inspection, may be secured from Peter Park, Toledo Division of Environmental Services at the above address during normal business hours. Telephone number: (419) 936-3936.



State of Ohio Environmental Protection Agency  
Division of Air Pollution Control

**Draft Permit-to-Install**  
**Permit Number:** P0103694  
**Facility ID:** 0448020007

**STAFF DETERMINATION FOR THE APPLICATION TO CONSTRUCT  
UNDER THE PREVENTION OF SIGNIFICANT DETERIORATION REGULATIONS  
FOR BP HUSKY REFINERY LLC  
OREGON, OHIO  
PTI NUMBER P0103694**

The Clean Air Act and regulations promulgated thereunder require that major air pollution sources undergoing construction or modification comply with all applicable Prevention of Significant Deterioration (PSD) provisions and nonattainment area New Source Review requirements. The federal PSD rules govern emission increases in attainment areas for major sources, which are sources with the potential to emit 250 tons per year or more of any pollutant regulated under the Clean Air Act, or 100 tons per year or more if the source is included in one of 28 source categories. In nonattainment areas, the definition of major source is one having at least 100 tons per year potential emissions. A major modification is one resulting in a contemporaneous increase in emissions which exceeds the significance level of one or more pollutants. Any changes in actual emissions within a five-year period are considered to be contemporaneous. In addition, Ohio now has incorporated the PSD and NSR requirements by rule under OAC 3745-31.

Both PSD and nonattainment rules require that certain analyses be performed before a facility can obtain a permit authorizing construction of a new source or major modification to a major source. The principal requirements of the PSD regulations are:

- 1) Best Available Control Technology (BACT) review - A detailed engineering review must be performed to ensure that BACT is being installed for the pollutants for which the new source is a major source.
- 2) Ambient Air Quality Review - An analysis must be completed to ensure the continued maintenance of the National Ambient Air Quality Standards (NAAQS) and that any increases in ambient air pollutant concentrations do not exceed the incremental values set pursuant to the Clean Air Act.

For nonattainment areas, the requirements are:

- 1) Lowest Achievable Emissions Rate (LAER) - New major sources must install controls that represent the lowest emission levels (highest control efficiency) that has been achieved in practice.
- 2) The emissions from the new major source must be offset by a reduction of existing emissions of the same pollutant by at least the same amount, and a demonstration must be made that the resulting air quality shows a net air quality benefit. This is more completely described in the Emission Offset Interpretative Ruling as found in Appendix S of 40 CFR Part 51.



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- 3) The facility must certify that all major sources owned or operated in the state by the same entity are either in compliance with the existing State Implementation Plan (SIP) or are on an approved schedule resulting in full compliance with the SIP.

For rural ozone nonattainment areas, the requirements are:

- 1) LAER - New major sources must install controls that represent the lowest emissions levels (highest control efficiency) that has been achieved in practice.
- 2) The facility must certify that all major sources owned or operated in the state by the same entity are either in compliance with the existing SIP or are on an approved schedule resulting in full compliance with the SIP.

Finally, New Source Performance Standards (NSPS), SIP emission standards and public participation requirements must be followed in all cases.

## **SITE DESCRIPTION**

BP Husky Refining LLC (BP) is located at 4001 Cedar Point Road in Oregon, Lucas county, Ohio. This area is classified as attainment or unclassifiable for all of the criteria pollutants, particulate matter less than 10 microns and 2.5 microns, sulfur dioxide, nitrogen oxides, carbon monoxide, volatile organic compounds (ozone) and lead.

## **FACILITY DESCRIPTION**

BP owns and operates a petroleum refinery in Oregon, Lucas County, Ohio (Toledo Refinery). The refinery processes crude oils into petroleum products including Gasoline, Liquefied Petroleum Gas, Diesel Fuel, Carbon Dioxide, Jet Turbine Fuel, Sulfur, Petroleum Coke, Propylene, Aviation Gasoline, Kerosene, Asphalt, and Heating Oil.

## **PROJECT DESCRIPTION**

The purpose of this project is to replace the existing naphtha reformers, reformer 1&2 (P019 and P020) with a new reformer (reformer 3). The Reformer 3 will also have a new refinery fuel gas fired heater. Its installation and startup will allow the shutdown of the existing Reformer 1 feed furnace and regenerator furnace (B014 & B013) and Reformer 2 furnace and regenerator furnace (B006 & B005). Also the existing Hydrogen Furnace (B001) will be shut down.

This project also includes a change of service of one existing tank: T-815 which is an existing external floating roof tank currently in crude oil service. This tank will be switched to reformer feed service (Naphtha splitter bottoms). Due to the lower vapor pressure of reformer feed versus crude oil, this change of service will not increase emissions. This service of change does not require any physical change to this tank.

The new Benzene saturation (BenSat) unit is a new process unit which will process naphtha stream from a new reformer 3 naphtha splitter. This unit will lower the benzene content of the gasoline component. This project is needed to meet a new requirement, beginning in 2011, to have no more than 0.62% benzene in gasoline (40 CFR 80 Subpart L). This will be a catalytic process with no fired heater. The BenSat unit consists of only fully enclosed and pressurized process equipment which will only have fugitive VOC emissions.



**NEW SOURCE REVIEW (NSR)/PSD APPLICABILITY**

This facility will generate significant levels of criteria pollutant emissions for PM<sub>10</sub> and PM<sub>2.5</sub>. For PSD purposes, the installation of this project makes BP a major facility. A PSD analysis is required for any increase in emissions of a pollutant exceeding the PSD threshold emissions level, or the significance levels. Non-Attainment New Source Review is not applicable, due to attainment status.

BP is subject to MACT. The facility is subject to 40 CFR Part 63 Subpart UUU and 40 CFR Part 63 Subpart CC.

Short term emissions from this Project are based upon worst case operating conditions. The annual emissions are based on pounds per hour emissions at average operating conditions at 8760 hours or synthetically limited through a throughput restriction.

Emissions from the proposed project are as follows:

Pollutant	Allowable Emissions	PSD Significance Level
PM <sub>10</sub> <sup>a</sup>	16.94	15
PM <sub>2.5</sub> <sup>a</sup>	16.94	10

<sup>a</sup> Includes fugitive and point emissions.

Based upon the above information, PSD review is required for PM<sub>10</sub>, and PM<sub>2.5</sub>.

**BACT REVIEW**

As part of the application for any source regulated under the PSD requirements, an analysis must be conducted that demonstrates that Best Available Control Technology will be employed by the source. In this specific case, the BACT analysis was conducted for particulate matter PM<sub>10</sub>, and PM<sub>2.5</sub>.

The application used a "top-down" approach to determine an appropriate level of control.

The basic steps to be followed are:

- Step 1 Identify all available potential control options;
- Step 2 Eliminate technically infeasible options;
- Step 3 Rank remaining technologies by control effectiveness;
- Step 4 Evaluate the feasible controls by performance and cost analysis; and
- Step 5 Select BACT

**Determination of BACT for PM<sub>10</sub>/ PM<sub>2.5</sub>**

BP has chosen not to net out of PSD review for PM<sub>10</sub>, so this permit is subject to PSD review for PM<sub>10</sub>. The only emissions unit contained in this permit emitting PM<sub>10</sub> is the Reformer 3 furnace



(B036). Particulate emissions from this emissions unit result from the combustion of refinery fuel gas or natural gas. For purposes of the BACT analyses, according to EPA policy, PM<sub>10</sub> is being used as a surrogate for PM<sub>2.5</sub>. Therefore any reference to PM<sub>10</sub> also includes PM<sub>2.5</sub>, and this BACT review satisfies the requirements for PM<sub>2.5</sub> as well.

No add on controls were determined to be reasonably cost-effective to control fine particulate emissions from this furnace.

As is presented in the following discussion, no additional add-on controls were determined to be reasonably cost-effective to control fine particulate emissions from this furnace. Many potential control strategies were considered, although most were discounted as either not feasible for this specific service or were determined to be suboptimal versus other options.

The three options considered to technically feasible were installation of a wet gas scrubber, a fabric filter (baghouse), and an electrostatic precipitator (ESP). Other particulate control devices such as cyclones are used in some material handling applications but are inferior to the above controls and would be ineffective for the fine particulate emitted by combustion sources. Cost-effectiveness estimates for these control technologies were generated, but none of the control options were judged to be reasonably cost-effective. The least expensive option considered had an approximate cost greater than \$24,600/ton PM<sub>10</sub> controlled.

The proposed project involves the installation of the 519 MMBtu/hr Reformer 3 furnace. The furnace is fired with refinery fuel gas, which has been treated to remove sulfur compounds compliant with the new NSPS Subpart Ja. The estimated particulate emission are 3.9 pounds per hour and 16.94 tons per year based on gaseous fuel and good combustion practices (no add-on controls).

### **Consideration of Process Improvements**

The first part of the BACT analysis is giving proper consideration to control options besides “add-on” controls. For example, sometimes process changes or pollution prevention measures can be very effective methods of control. Therefore, BP has taken a critical look at the Reformer 3 furnace from that perspective during the design. As a result of these efforts, and the cleaning of refinery fuel gas, the proposed furnace is already well-controlled. Because of the use of refinery fuel gas as the primary fuel for the furnace, it has a very low PM<sub>10</sub> emissions concentration (approximately 0.0053 gr/dscf). No further process improvement opportunities have been identified to further lower the inherent process emissions. Since no additional process improvement options were identified, the remainder of the BACT analysis looked at possible add-on controls to further lower the already low emissions rates.

### **Step 1 – Identify All available potential control options**

An evaluation of technically feasible add-on control technologies was conducted for the furnace included in the BACT analysis. This evaluation was conducted based on the following design parameters provided by BP: air flow rate (acfm), temperature, and PM<sub>10</sub> concentration in the exhaust stream. To identify potential BACT control options, the following sources of information were reviewed:

- EPA's RACT/BACT/LAER Clearinghouse (RBLCL1);
- USEPA NEET Clean Air Technologies Database2; and,
- Previous URS experience with control technology evaluations and BACT Analyses.



The RACT/BACT/LAER Clearinghouse and the NEET database were searched to identify control technology determinations that may apply to the BP reformer project. A search was conducted under the process category of “11.310 Large Boilers/Furnace Using Gaseous Fuel”. There were very few facilities identified under these categories that employed add-on control equipment for the control of PM<sub>10</sub>. The overwhelming majority of the database entries for gas fired sources estimated particulate emissions based on AP-42 factors and identified only “good combustion practices” as BACT. This is consistent with the previous experience and expectation. In fact, there were only three facilities identified in the RBLC query which indicated use of add-on controls. These are shown in Table 4-3 of the permit application. However, the vent streams from these processes do not appear to be simple gas fired sources similar to the vent stream of the BP Reformer, as described below. Nevertheless, we have evaluated listed controls (wet gas scrubbing) as a potentially feasible control option to consider in this BACT analysis.

Results for the NEET database search can be found in Table 4-4 of the permit application and are very general including control of PM<sub>10</sub> from any process vent. Listings in the NEET database do not necessarily indicate the actual commercial availability of any technology for any particular control application. Nevertheless, it is a source of ideas for control technologies for possible consideration in the BACT analysis.

PM<sub>10</sub> control technologies Identified in the NEET Database are as follows:

- Fabric Filter (baghouse)
- Electrostatic Precipitator (ESP)
- Wet Scrubber

*These results are from a search for commercially established stationary source emission control technologies for process vent gas treatment, for PM.*

Therefore, these technologies were identified for further consideration in this BACT analysis, as identified in the RACT/BACT/LAER Clearinghouse (RBLC) and NEET databases. Other particulate control devices such as cyclones are used in some material handling applications, but are inferior to the above controls and would be ineffective for the fine particulate emitted by combustion sources.

## **Step 2 – Eliminate Technically Infeasible Options**

Source specific design data to determine the technical feasibility of each of the alternatives listed above was evaluated including air flow rate, temperature, and pollutant concentration. Based on this review, all three of the potential add-on control technologies appear to be technically feasible for the new furnace.

## **Step 3 – Rank Control Technologies by Control Effectiveness**

The technically feasible control technologies include:

- Fabric Filter (baghouse);
- Electrostatic Precipitator (ESP); and,
- Wet scrubbing.



All of these technologies are capable of high control efficiencies for PM<sub>10</sub>. In fact, the control effectiveness achieved by each of these technologies for PM<sub>10</sub> control can be >99% in some applications (based on USEPA Fact Sheet data). Given the already very low concentration of particulate in the reformer stack, use of these controls is not expected to achieve 99% control. However, for the purposes of evaluating their potential cost effectiveness, we have used 99% control effectiveness for all these devices. Therefore, no ranking of control technologies is required. The cost effectiveness of these control technologies is further analyzed in the next step.

#### **Step 4 – Evaluate the Most Effective Controls**

Table 4-5 of the permit application lists the cost-effectiveness for each of the add-on control options considered to be technically feasible for PM<sub>10</sub> control. The costing methodology is based on cost ranges provided by USEPA in their Air Pollution Control Technology Fact Sheets for each of the three control options (see Appendix D of the permit application). The fact sheets provide a cost range for capital cost, O&M cost, annualized cost, and cost effectiveness based on a conventional design under typical operating conditions using the EPA cost estimating spreadsheets and guidelines presented in the OAQPS Control Cost Manual<sup>3</sup>. Capital costs generally include equipment, installation and freight charges. The annual operating costs generally include fuel costs and capital recovery to estimate the total annual investment. The cost-effectiveness results of the analysis are presented in terms of annual operating dollars per ton of pollutant removed.

As it is evident from the table 4-5 of the permit application, the lowest average cost effectiveness is \$24,604/ton of PM<sub>10</sub> controlled. Ohio EPA believes this cost effectiveness value is higher than would be considered reasonably cost-effective for requiring the installation of add-on controls. Additionally, there will be additional costs not included in this analysis. Auxiliary equipment not included in these estimates may be required such as additional electricity or a new fan to overcome the pressure drop associated with routing the gases to the control device. Also, these costs are based on 1998-2002 dollars and would be higher when escalated to 2008 dollars resulting in higher average cost effectiveness values. Additionally, as previously mentioned, the assumption of 99% control effectiveness is probably unrealistic given the low

inlet concentration. Therefore, no add-on controls are economically feasible for the Reformer 3 Furnace.

#### **Step 5 – Select BACT**

Based on the feasibility and economic analysis presented, none of the technically feasible add-on controls was found to be reasonably cost-effective. Consequently, BACT for the proposed new gas-fired source is determined to be good combustion practices, with an estimated emission rate of 0.0075 lb PM<sub>10</sub>/MMBtu (7.6 lb/mmscf of fuel gas burned).

#### **AMBIENT AIR QUALITY MONITORING REQUIREMENTS**

The county in which the BP Husky Toledo facility is located is attainment for all criteria pollutants. U.S. EPA regulations require the establishment of baseline air quality in the vicinity of the proposed project. This is normally accomplished using representative air quality monitoring data. Air quality monitoring can be utilized to demonstrate that the project will have less than a threshold impact. This threshold impact is identified as the PSD monitoring de minimus level. If the projected impact from the proposed project exceeds this level, ambient data must be



collected or existing representative data must be identified.

BP Husky has conducted ambient air quality modeling to determine the potential impact due to the proposed installation. The following are the projected impacts:

Pollutant	Averaging Period	Predicted Concentration	Monitoring De minimus Concentration
PM <sub>10</sub>	24-hour	0.1 ug/m <sup>3</sup>	10 ug/m <sup>3</sup>

Potential impacts for PM<sub>10</sub> do not exceeded the PSD monitoring de minimus concentration. Therefore, no monitoring is necessary.

### MODELING

Air quality dispersion modeling was conducted to assess the effect of this modification on the Ohio Acceptable Increments and PSD increments. SCREEN3 was used in the regulatory default, rural dispersion mode.

Predicted impacts of PM<sub>10</sub> were below their corresponding PSD significant impact increments so no additional modeling to demonstrate protection of both the NAAQS and PSD increments was required.

### SECONDARY IMPACT ANALYSIS

BP Husky has demonstrated that the predicted pollutant concentrations throughout the study area are below the secondary NAAQS thresholds. The secondary NAAQS are designed to limit the amount of pollutants in the ambient air to levels below those which could have an adverse impact on human welfare, soils and vegetation. The modeling analyses demonstrate that no

significant impacts on human welfare, soils or vegetation will occur from the proposed modification.

Soil and Vegetation: EPA Air Quality Criteria documents were reviewed for information on pollutants and adverse effects on the type of vegetation and soils in the area. No adverse impact upon soils or vegetation is expected. The modeled concentrations are below the primary and secondary NAAQS limits.

Visibility: The BP Husky facility is located nearly 300 kilometers from the closest class I area. Primary or secondary pollutants associated with this project are not anticipated to affect local or class I visibility.

### TOXICS ANALYSIS

The Ohio Air Toxics Policy requires evaluation of increases in air toxics above the one ton/year threshold. Emissions rates are modeled to determine whether they exceed the Maximum Acceptable Ground Level Concentration (MAGLC) which is defined under the Review of New Sources of Toxic Air Pollutants. The MAGLC applies to those toxic pollutants which have a Threshold Limit Value in the Association of American Congress of Governmental and Industrial Hygienists handbook and is not subject to a MACT or other federal requirement.



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Pollutant	Averaging Period	Predicted Concentration	MAGLC
Formaldehyde	1- hour	0.01 ug/m3	8.8 ug/m3
Hexane	1- hour	2.81 ug/m3	4188.0 ug/m3

Impacts of toxic pollutants subject to the modeling review met the MAGLC.

**CONCLUSION**

Based upon the review of the permit to install application and the supporting documentation provided by the applicant, the Ohio EPA staff has determined the installation will comply with all applicable State and Federal environmental regulations and that the requirements for BACT are satisfied. Therefore, the Ohio EPA staff recommends that a permit to install be issued to BP for the proposed project plant as described in the PTI # P0103694 permit recommendation.

**Netting Determination**

**1. Source Description:**

This PTI is for an installation of a Reformer, a Process Heater, and a Benzene Saturation unit. BP-Husky Refining LLC (BP-Husky) is requesting this PTI to improve the Naphtha Reforming process. This permit involves NOx netting and is PSD for PM10.

**2. Facility Emissions and Attainment Status:**

The existing facility is a major source for all criteria air pollutants and is a major source of HAPs.

<u>Pollutant</u>	<u>Significant Net Emission Increase Levels</u>	<u>Attainment Status</u>
PM <sub>10</sub>	15 TPY	unclassifiable
SO <sub>2</sub>	40 TPY	attainment
VOC	40 TPY	1-hr attainment
NOx	40 TPY	unclassifiable/attainment
CO	100 TPY	unclassifiable/attainment

**3. Source Emissions:**

Reformer 3 Furnace Emissions

CCR furnace Rating:	519 MMBtu/hr
Fuel Gas Heating Value:	900 Btu/scf (refinery average value)
Fuel Gas H <sub>2</sub> S Concentration (3 hr avg):	162 ppm (NSPS Subpart Ja Limit) short term average
Fuel Gas Annual Average Sulfur:	90.5 ppm (H <sub>2</sub> S and other sulfur species)
Exhaust Gas Flow:	11,394 lbmol/hr (corrected to 0% O <sub>2</sub> )
Hours of Operation:	8760 hrs/yr

$0.045 \text{ lb NO}_x/\text{MMBtu} * 519 \text{ MMBtu/hr} = 23.4 \text{ lb/hr NO}_x$



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162 ppm H<sub>2</sub>S\*1scf H<sub>2</sub>S/mmscf fuel\*lbmol/385 scf\*1 lbmol SO<sub>2</sub>/lbmol H<sub>2</sub>S\*64 lbs SO<sub>2</sub>/lbmol/900 Btu/scf\*519 MMBtu/hr = 15.52 lbs/hr SO<sub>2</sub>

Pollutant	Emission Factor	Units		Emissions	
				Lb/hr (max)	Tons/yr
NO <sub>x</sub>	0.035	lb/MMBtu	Annual Average, Ultra Low NO <sub>x</sub> burners	23.4	79.56
	0.045	lb/MMBtu	3-hr average for short term flexibility		
CO	0.0359	lb/MMBtu	Based on 50 ppmvd @ 3% O <sub>2</sub>	18.6	81.61
SO <sub>2</sub>	0.030	lb/MMBtu	Short Term	15.52	38.00
	0.017	lb/MMBtu	Long Term		
PM/PM <sub>10</sub>	0.0075	lb/MMBtu	AP-42 Table 1.4-2	3.9	16.94
VOC	0.0054	lb/MMBtu	Vendor Estimate	2.8	12.28

**Reformer 3 Regenerator Vent Emissions**  
(Based on Vendor Material Balance 05Mar08 with Engineering Firm Adjustments)

Pollutants	lb/hr**	Maximum lb/hr**	ton/yr
CO	0.690	1.10	4.82
NO <sub>x</sub>	0.011	0.018	0.08
VOC	0.10	0.16	0.70
SO <sub>2</sub>	0.16	0.16	0.70

\*\* The lb/hr emissions reflect the design emission rate for this emissions unit as an annual average based on a 5% coke burnoff rate. The applicant has indicated that there may be some instances of a slightly higher coke burnoff rate and has requested allowable emissions based on an 8% coke burnoff rate (lb/hr\*(8/5) = maximum lbs/hr).

**Fugitive Emissions from New Equipment**

Number of components in VOC service is based on the BP engineering design for each unit. Emission factors used are predominantly from table 2-2, 2-10, and 2-12 of the USEPA Protocol Document for Equipment Leaks (EPA-453/R-95-017, November 1995). Emissions from vapor and light liquid valves and pumps are based on conservative assumptions as to the % of these components that are leaking at any given time based on Toledo Refinery specific experience. Leaking components are conservatively assumed to leak at 10,000 ppmv and emissions are calculated based on EPA correlation equations (Table 2-10). Non-leakers are assumed to emit at the EPA default-zero leak rate (Table 2-12). Connectors, sampling connections, compressors and pressure relief valves are estimated using the EPA Refinery Average Emission Factor (Table 2-2), instead of assuming a certain leak rate. Heavy liquid components are estimated based on average HL factors from API Pub. 337, August 1996. Pressure relief valves vent to the flare, so the average PRV emission factors are reduced by a control efficiency of 98%. The hydrogen compressors are estimated to have a maximum of 10% VOC, so the average factors are multiplied by 10% to estimate the VOC emissions from hydrogen compressors.

1.5 % Valve Refinery Leak Rate and 2.5 Pump Leak Rate were used for the emission calculations.



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Refinery Fugitives by Process

Source	Estimated Component Number	Corr. Equation 10,000 ppmv Emission Rate lb/hr/component	Default-zero or Average Factor Emission Rate lb/hr/component	Potential Net Increase in Emissions Total Lb/hr ton/yr	
<b>New Reformer (Includes Naphtha Splitter and Debutanizer Columns)</b>					
<b>Valves</b>			Default-zero		
Vapor	734	4.87E-03	1.72E-05	0.07	0.29
Light Liquid	546	4.87E-03	1.72E-05	0.05	0.22
<b>Pumps</b>			Default-zero		
(L/L)	10	3.05E-02	5.29E-05	0.01	0.04
<b>Compressors</b>			10% of Refinery Avg Factor		
Gas	3		1.40E-01	0.42	1.84
<b>Connectors/flanges (Uncontrolled)</b>			Refinery Avg Factor		
Vapor	1693		5.51E-04	0.93	4.09
Light Liquid	1298		5.51E-04	0.72	3.13
<b>Heavy Liquid Components</b>			API Study Avg. HL Factors		
Valves	13		1.79E-04	0.00	0.01
Pumps	2		8.29E-03	0.02	0.07
Connectors	36		8.25E-05	0.00	0.01
<b>Pressure Relief Valves</b>			Refinery Avg Factor, 98% Control by flare		
Gas	26		7.05E-03	0.18	0.80
<b>Sampling Connections</b>			Refinery Avg Factor		
All	2		3.31E-02	0.07	0.29
<b>Totals</b>				<b>2.46</b>	<b>10.79</b>
<b>BenSat™</b>					
<b>Valves</b>			Default-zero		
Vapor	147	4.87E-03	1.72E-05	0.01	0.06
Light Liquid	109	4.87E-03	1.72E-05	0.01	0.04
<b>Pumps</b>			Default-zero		
(L/L)	2	3.05E-02	5.29E-05	0.00	0.01
<b>Connectors/flanges</b>			Refinery Avg Factor		
Vapor	339		5.51E-04	0.19	0.82
Light Liquid	260		5.51E-04	0.14	0.63
<b>Heavy Liquid Components</b>			API Study Avg. HL Factors		
Valves	0		1.79E-04	0.00	0.00
Pumps	0		8.29E-03	0.00	0.00
Connectors	7		8.25E-05	0.00	0.00
<b>Pressure Relief Valves</b>			Refinery Avg Factor, 98% Control by flare		
Gas	5		7.05E-03	0.04	0.16
<b>Sampling Connections</b>			Refinery Avg Factor		
All	0		3.31E-02	0.01	0.06
<b>Totals</b>				<b>0.40</b>	<b>1.77</b>



State of Ohio Environmental Protection Agency  
Division of Air Pollution Control

Draft Permit-to-Install  
Permit Number: P0103694  
Facility ID: 0448020007

### HAP Emission Estimates from New Equipment

Total VOC emissions from equipment components were multiplied by fraction of HAPs as estimated in a representative stream from the current operations at the Toledo refinery.

HAP	Percent HAP Concentration	Estimated HAPs Total	
		lb/hr	Ton/yr
Benzene	2.75%	0.079	0.346
Toluene	3.46%	0.099	0.435
Ethylbenzene	1.41%	0.040	0.177
Xylenes	2.09%	0.060	0.263
Hexane	0.54%	0.015	0.068
<b>Total</b>		<b>0.294</b>	<b>1.288</b>

### Total Emissions Increase from Reformer 3 Project

Source	NOx (tpy)	CO (tpy)	SO2 (tpy)	PM <sub>10</sub> (tpy)	VOC (tpy)	Total
Reformer 3 Heater (519 MMBtu/hr)	79.56	81.61	38.0	16.94	12.28	228.39
Reformer 3 regenerator Exhaust	0.08	4.83	1.12	-	0.70	6.73
Reformer 3 Fugitives	-	-	-	-	10.79	10.79
BenSat™ Fugitives	-	-	-	-	1.77	1.77
New Sewer Emissions	-	-	-	-	2.91	2.91
Increased Tank Usage	-	-	-	-	0.21	0.21
<b>Total Project Increases</b>	<b>79.64</b>	<b>86.44</b>	<b>39.12</b>	<b>16.94</b>	<b>28.66</b>	<b>250.8</b>

### Total Emissions Reduction Due to the Project

Source	NOx (tpy)	CO (tpy)	SO2 (tpy)	PM <sub>10</sub> (tpy)	VOC (tpy)	Total
B001: Hydrogen Furnace	-64.29	-67.01	-1.40	-6.07	-4.50	-143.27
B014: Reformer 1 Furnace	-105.41	-55.94	-1.57	-5.06	-3.66	171.64
B013: Reformer 1 Regenerator	-1.14	-0.96	-0.02	-0.09	-0.06	-2.27
B006: Reformer 2 Furnace	-72.98	-86.63	-1.96	-7.84	-5.67	-175.08
B005: Reformer 2 Regenerator	-3.69	-3.10	-0.07	-0.28	-0.20	-7.34
B019: Reformer 1 Process					-1.74	
B020: Reformer 2 Process					-0.19	
<b>Total Emissions Reduction</b>	<b>-247.51</b>	<b>-213.64</b>	<b>-5.02</b>	<b>-19.34</b>	<b>-16.02</b>	<b>-501.53</b>
<b>Total Emissions Changes (Net)</b>	<b>-167.87</b>	<b>-127.2</b>	<b>34.1</b>	<b>-2.4</b>	<b>12.64</b>	<b>-250.73</b>

### NOx Netting Analysis

Source	Year of Change	NOx (tpy)
<b>Current Project Increases:</b> Reformer 3 & BenSat Project	2009-2011	79.64
<b>Current Project Decreases</b>		
Shutdown of Reformer 1 Furnace (B014)	2011	-105.41
Shutdown of Reformer 2 Furnace (B006)	2011	-73.0
Shutdown of Hydrogen Furnace (B001)	2012	-64.3
Shutdown of Reformer 1 Regenerator (B013)	2011	-1.14
Shutdown of Reformer 2 Regenerator (B005)	2011	-3.69
<b>Sum of Project Increases and Decreases</b>		<b>-167.9</b>
<b>Past Contemporaneous Project</b>		
Delta Valve Project (PTI 04-01471)	2007	35.88
Alstom Boilers (PTI 04-01394)	2006	33.90



State of Ohio Environmental Protection Agency  
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**Draft Permit-to-Install**  
**Permit Number:** P0103694  
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Toledo Clean Fuels/Sour Crude Projects (PTI 04-01346)	2005/2006	24.37
Possible Updates to B033, B034, and B035	Possible Future Change	7.0
<b>Sum of Contemporaneous Projects</b>		<b>101.15</b>
<b>Net Project and Contemporaneous Increases &amp; Decreases</b>		<b>-66.75</b>
PSD Significance Level		40.0
<b>Trigger PSD after Netting?</b>		<b>No</b>

**Conclusion:**

The net emission increase associated with this Permit to Install will not result in a significant net emissions increase of NOX, and is, therefore, not subject to PSD review for NOX. Modeling results indicate that the proposed installation will comply with PSD and state modeling impact criteria.

**4. Please provide additional notes or comments as necessary:**

None.

**5. Total Permit Allowable Emissions Summary (for informational purposes only):**

<u>Pollutant</u>	<u>Tons Per Year</u>
<u>NOx</u>	<u>79.61 (167.87 decrease)</u>
<u>CO</u>	<u>84.63 (127.2 decrease)</u>
<u>SO2</u>	<u>38.70 (34.1 increase)</u>
<u>PM/PM<sub>10</sub>/PM<sub>2.5</sub></u>	<u>16.94 (2.4 decrease)</u>
<u>VOC</u>	<u>28.40 (12.64 increase)</u>



**State of Ohio Environmental Protection Agency  
Division of Air Pollution Control**

**DRAFT**

**Air Pollution Permit-to-Install  
for  
BP-Husky Refining LLC**

Facility ID: 0448020007  
Permit Number: P0103694  
Permit Type: Initial Installation  
Issued: 6/17/2009  
Effective: To be entered upon final issuance





State of Ohio Environmental Protection Agency  
Division of Air Pollution Control

**Air Pollution Permit-to-Install**  
for  
BP-Husky Refining LLC

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State of Ohio Environmental Protection Agency  
Division of Air Pollution Control

**Draft Permit-to-Install**

**Permit Number:** P0103694

**Facility ID:** 0448020007

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

## Authorization

Facility ID: 0448020007  
Facility Description: Toledo Refinery  
Application Number(s): A0035619, A0037098  
Permit Number: P0103694  
Permit Description: Permit to upgrade the Naphtha reforming process  
Permit Type: Initial Installation  
Permit Fee: \$6,250.00 *DO NOT send payment at this time, subject to change before final issuance*  
Issue Date: 6/17/2009  
Effective Date: To be entered upon final issuance

This document constitutes issuance to:

BP-Husky Refining LLC  
4001 Cedar Point Road  
P.O. Box 696  
Oregon, OH 43697

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

Ohio EPA District Office or local air agency responsible for processing and administering your permit:

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

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

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency

Chris Korleski  
Director



## Authorization (continued)

Permit Number: P0103694

Permit Description: Permit to upgrade the Naphtha reforming process

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

<b>Emissions Unit ID:</b>	<b>B036</b>
Company Equipment ID:	Reformer 3 Heater
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
<b>Emissions Unit ID:</b>	<b>P803</b>
Company Equipment ID:	Reformer 3 Process U
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
<b>Emissions Unit ID:</b>	<b>P804</b>
Company Equipment ID:	BenSat Process Unit
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable



State of Ohio Environmental Protection Agency  
Division of Air Pollution Control

**Draft Permit-to-Install**

**Permit Number:** P0103694

**Facility ID:** 0448020007

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

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



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

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

## **2. Severability Clause**

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

## **3. General Requirements**

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



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

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

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



- (2) Quarterly written reports of (i) any deviations from federally enforceable 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 Toledo Department of Environmental Services. The written reports shall be submitted (i.e., postmarked) quarterly, by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. See A.15. below if no deviations occurred during the quarter.
- (3) Written reports, which identify any deviations from the federally enforceable monitoring, recordkeeping, and reporting requirements contained in this permit shall be submitted (i.e., postmarked) to the Toledo Department of Environmental Services every six months, by January 31 and July 31 of each year for the previous six calendar months. If no deviations occurred during a six-month period, the permittee shall submit a semi-annual report, which states that no deviations occurred during that period.
- (4) This permit is for an emissions unit located at a Title V facility. Each written report shall be signed by a responsible official certifying that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete.

d) The permittee shall report actual emissions pursuant to OAC Chapter 3745-78 for the purpose of collecting Air Pollution Control Fees.

## 5. **Scheduled Maintenance/Malfunction Reporting**

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

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

## 6. **Compliance Requirements**

- a) The emissions unit(s) identified in this Permit shall remain in full compliance with all applicable State laws and regulations and the terms and conditions of this permit.
- b) Any document (including reports) required to be submitted and required by a federally applicable requirement in this permit shall include a certification by a responsible official that, based on information and belief formed after reasonable inquiry, the statements in the document are true, accurate, and complete.
- c) Upon presentation of credentials and other documents as may be required by law, the permittee shall allow the Director of the Ohio EPA or an authorized representative of the Director to:



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

## **7. Best Available Technology**

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

## **8. Air Pollution Nuisance**

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

## **9. Reporting Requirements**

The permittee shall submit required reports in the following manner:

- a) Reports of any required monitoring and/or recordkeeping of state-only enforceable information shall be submitted to the Toledo Department of Environmental Services.
- b) Except as otherwise may be provided in the terms and conditions for a specific emissions unit, quarterly written reports of (a) any deviations (excursions) from state-only required emission limitations, operational restrictions, and control device operating parameter limitations that have been detected by the testing, monitoring, and recordkeeping requirements specified in this permit, (b) the probable cause of such deviations, and (c) any corrective actions or preventive measures which have been or will be taken, shall be submitted to the Toledo Department of Environmental Services. If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted



(i.e., postmarked) quarterly, by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. (These quarterly reports shall exclude deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06.)

**10. Applicability**

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

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

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



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

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

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

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

**13. Construction Compliance Certification**

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

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

**14. Public Disclosure**

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

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

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

**16. Fees**

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



State of Ohio Environmental Protection Agency  
Division of Air Pollution Control

**Draft Permit-to-Install**

**Permit Number:** P0103694

**Facility ID:** 0448020007

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

**17. Permit Transfers**

Any transferee of this permit shall assume the responsibilities of the prior permit holder. The Toledo Department of Environmental Services must be notified in writing of any transfer of this permit.

**18. Risk Management Plans**

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

**19. Title IV Provisions**

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



State of Ohio Environmental Protection Agency  
Division of Air Pollution Control

**Draft Permit-to-Install**

**Permit Number:** P0103694

**Facility ID:** 0448020007

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

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



1. All the following facility-wide terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only:

a) None

2. The permittee shall permanently shutdown Reformer 1 Furnace (B014), Reformer 1 Regenerator Furnace (B013), Reformer 1 Process Unit (P019), Reformer 2 Furnace (B006), Reformer 2 Regenerator Furnace (B005), and Reformer 2 Process Unit (P020) within 180 days after initial startup of Reformer 3 Heater (B036). Additionally, the permittee shall permanently shut down the Hydrogen Furnace (B001) within 365 days after initial start-up of the Reformer 3 Heater (B036). The shutdown credits from the Hydrogen Furnace (B036) are not needed for netting credits on this permit. The shutdown of these furnaces and units result in actual emission reductions shown in the table below.

<b>Emission Unit</b>	<b>NO<sub>x</sub> Emission Reduction (tpy)</b>	<b>CO Emission Reduction (tpy)</b>	<b>SO<sub>2</sub> Emission Reduction (tpy)</b>	<b>PM<sub>10</sub> Emission Reduction (tpy)</b>	<b>VOC Emission Reduction (tpy)</b>
B001: Hydrogen Furnace	64.29	67.01	1.40	6.07	4.50
B014: Reformer 1 Furnace	105.41	55.94	1.57	5.06	3.66
B013: Reformer 1 Regenerator Furnace	1.14	0.96	0.02	0.09	0.06
B006: Reformer 2 Furnace	72.98	86.63	1.96	7.84	5.67
B005: Reformer 2 Regenerator	3.69	3.10	0.07	0.28	0.20
P019 Reformer 1 Process					1.74
P020 Reformer 2 Process					0.19
<b>Total Reduction</b>	<b>247.5</b>	<b>213.6</b>	<b>5.0</b>	<b>19.3</b>	<b>16.0</b>

3. The individual drain system and aggregate facility for the reformer 3 waste water which includes the individual drain system together with the API separator and its ancillary equipment (e.g., separated oil handling) are affected facilities under NSPS Subpart QQQ-Standards of Performance for VOC Emissions From Petroleum Refinery Wastewater Systems. The permittee shall comply with the requirements of NSPS Subpart QQQ.

The waste water system is covered under emissions unit P025 in the Title V permit.



State of Ohio Environmental Protection Agency  
Division of Air Pollution Control

**Draft Permit-to-Install**

**Permit Number:** P0103694

**Facility ID:** 0448020007

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

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



**1. B036, Reformer 3 Heater**

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

519 mmBtu/hr Reformer 3 Heater fired with refinery fuel gas

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

(1) b)(1)(j), d)(16) through d)(19), and e)(9)

b) Applicable Emissions Limitations and/or Control Requirements

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

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a. OAC rule 3745-31-05(A)(3)	Carbon monoxide (CO) emissions shall not exceed 18.6 pounds per hour and 81.61 tons per rolling, 12-month period.  Nitrogen oxides (NO <sub>x</sub> ) emissions shall not exceed 23.40 pounds per hour and 79.56 tons per rolling, 12-month period.  Sulfur dioxide (SO <sub>2</sub> ) emissions shall not exceed 15.52 pound per hour and 38.00 tons per rolling, 12-month period.  Volatile organic compounds (VOC) emissions shall not exceed 2.8 pounds per hour and 12.28 tons per rolling, 12-month period.
b. OAC rule 3745-31-10 to 20	See b)(2)b. and b)(2)j. Particulate matter emissions less than 10 microns in diameter (PM <sub>10</sub> ) shall not exceed 7.6 pounds per million standard cubic feet of fuel gas burned, 3.9 pounds per hour, and 16.94 tons per rolling, 12-month period.
c. OAC rule 3745-17-07(A)	See b)(2)h. Visible particulate emissions (PE) shall not exceed 20% opacity as a 6-minute average, unless otherwise specified by the rule.
d. OAC rule 3745-17-10(B)	See b)(2)a.



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
e.	OAC rule 3745-18-54(W)(1)	See b)(2)i.
f.	OAC rule 3745-21-07(B)	See b)(2)d.
g.	OAC rule 3745-21-08(B)	See b)(2)e.
h.	40 CFR Part 60, Subpart Ja	See b)(2)c. and b)(2)g.
i.	40 CFR Part 63, Subpart DDDDD	See b)(2)f.
j.	ORC 3704.03(F)(4)(c)	See d)(16) through d)(19) and e)(9).

(2) Additional Terms and Conditions

- a. The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-10 through 20.
- b. The requirements of this rule also include compliance with the requirements of 40 CFR Part 60, Subpart Ja.
- c. In accordance with 40 CFR 60.102a(g)(1), the permittee shall comply with either b)(2)c.i. or c.ii. below.
  - i. The permittee shall not discharge or cause the discharge of any gases into the atmosphere that contain SO<sub>2</sub> in excess of 20 ppmv (dry basis, corrected to 0 percent excess air) determined hourly on a 3-hour rolling average basis and SO<sub>2</sub> in excess of 8 ppmv (dry basis, corrected to 0 percent excess air), determined daily on a 365 successive day rolling average basis [40 CFR 60.102a(g)(1)(i)]; or
  - ii. The permittee shall not burn in any fuel gas combustion device any fuel gas that contains H<sub>2</sub>S in excess of 162 ppmv determined hourly on 3-hour rolling average basis and H<sub>2</sub>S in excess of 60 ppmv determined daily on a 365 successive calendar day rolling average basis [40 CFR 60.102a(g)(1)(ii)].
  - iii. The Permittee plans to comply with SO<sub>2</sub> limits in permit condition c.i. per 60.102a(g)(1)(i). Therefore, the remaining monitoring and recordkeeping requirements in this permit are reflective of that compliance option. If the permittee decides to revise the compliance option at a later date as allowed by 40 CFR 60.102a(g)(1), this will be allowed upon notification to OEPA.
  - iv. On September 26, 2008, U.S. EPA stayed the effective date of these emission limitations (40 CFR Part 60.102a (g)) until December 25, 2008. On December 22, 2008, U.S. EPA issued two direct final rules staying the effective date of §60.102a(g) until February 24, 2009, (73 FR 78548) and until further notice (73 FR 78552) respectively. If the final 40 CFR Part 60.102.a(g) emission limitation is revised from the limitation stated in b)(2)(c), the permittee shall request for this PTI to be modified to incorporate the revised emission limitation.
- d. The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-21-07(B) by committing to comply



with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this Permit to Install.

On February 18, 2008, OAC rule 3745-21-07 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the State regulations. However, that rule revision has not yet been submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP). Therefore, until the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" still exists as part of the federally-approved SIP for Ohio.

- e. The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the State regulations. However, that rule revision has not yet been submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP). Therefore, until the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" still exists as part of the federally-approved SIP for Ohio.

- f. This emissions unit is subject to a case-by-case MACT determination pursuant to section 112(j) of the Clean Air Act (CAA) due to the June 8, 2007 D.C. Circuit Court of Appeals decision to vacate the Boiler MACT (40 CFR Part 63, Subpart DDDDD).

If notified by the Ohio EPA or U.S. EPA, the permittee shall submit an application for a revision to this permit to install that meets the requirements of 40 CFR 63.52(a)(2) and 63.53(a) pertaining to case-by-case MACT determinations. The 30 day clock for submittal of a 112(j) application does not begin until such notification is made by Ohio EPA or U.S. EPA.

- g. The permittee shall not discharge to the atmosphere any emissions of NO<sub>x</sub> in excess of 40 ppmv (dry basis, corrected to 0 percent excess air) on a 24-hour rolling average basis [40 CFR 60.102a(g)(2)].

On September 26, 2008, U.S. EPA stayed the effective date of these emission limitations (40 CFR Part 60.102a (g)) until December 25, 2008. On December 22, 2008, U.S. EPA issued two direct final rules staying the effective date of §60.102a(g) until February 24, 2009, (73 FR 78548) and until further notice (73 FR 78552) respectively. If the final 40 CFR Part 60.102.a(g) emission limitation is revised from the limitation stated in b)(2)(c), the permittee shall request for this PTI to be modified to incorporate the revised emission limitation.

- h. All particulate emissions are assumed to be 10 microns or less in diameter (PM<sub>10</sub>).



- i. The emission limitation specified by OAC rule 3745-18-54(W)(1) of 0.29 lb SO<sub>2</sub>/MMBtu is less stringent than the limitation established by OAC rule 3745-31-05(A)(3).
  - j. The requirements of this rule also include compliance with the requirements of OAC rule 3745-31-10 through 20.
- c) Operational Restrictions
- (1) The permittee shall only burn natural gas and/or refinery fuel gas in this emissions unit.
- d) Monitoring and/or Recordkeeping Requirements
- (1) For each day during which the permittee burns a fuel other than refinery fuel gas or natural gas, the permittee shall maintain a record of the type, quantity, and heating value in Btu/dscf of the fuel burned.
  - (2) The permittee shall comply with either (2)a. or (2)b.
    - a. The permittee shall install, operate, calibrate, and maintain an instrument for continuously monitoring and recording the concentration (dry basis, 0 percent excess air) of SO<sub>2</sub> emissions into the atmosphere. The monitor must include an O<sub>2</sub> monitor for correcting the data for excess air [40 CFR 60.107a(a)(1)].
      - i. The permittee shall install, operate, and maintain each SO<sub>2</sub> monitor according to Performance Specification 2 of appendix B to part 60. The span value for the SO<sub>2</sub> monitor is 50 ppm SO<sub>2</sub> [40 CFR 60.107a(a)(1)(i)]
      - ii. The permittee shall conduct performance evaluations for the SO<sub>2</sub> monitor according to the requirements of §60.13(c) and Performance Specification 2 of appendix B to part 60. The permittee shall use Methods 6, 6A, or 6C of appendix A-4 to part 60 for conducting the relative accuracy evaluations. The method ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses," (incorporated by reference—see §60.17) is an acceptable alternative to EPA Method 6 or 6A of appendix A-4 to part 60. Samples taken by Method 6 of appendix A-4 to part 60 shall be taken at a flow rate of approximately 2 liters/min for at least 30 minutes. The relative accuracy limit shall be 20 percent or 4 ppm, whichever is greater, and the calibration drift limit shall be 5 percent of the established span value. [40 CFR 60.107a(a)(1)(ii)]
      - iii. The permittee shall install, operate, and maintain each O<sub>2</sub> monitor according to Performance Specification 3 of appendix B to part 60. The span value for the O<sub>2</sub> monitor must be selected between 10 and 25 percent, inclusive. [40 CFR 60.107a(a)(1)(iii)]
      - iv. The permittee shall conduct performance evaluations for the O<sub>2</sub> monitor according to the requirements of §60.13(c) and Performance Specification 3 of appendix B to part 60. The permittee shall use Methods 3, 3A, or 3B of appendix A-2 to part 60 for conducting the relative accuracy evaluations. The method ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses," (incorporated by reference—see §60.17) is

- an acceptable alternative to EPA Method 3B of appendix A–2 to part 60. [40 CFR 60.107a(a)(1)(iv)]
- v. The permittee shall comply with the applicable quality assurance procedures in appendix F to part 60, including quarterly accuracy determinations for SO<sub>2</sub> monitors, annual accuracy determinations for O<sub>2</sub> monitors, and daily calibration drift tests. [40 CFR 60.107a(a)(1)(v)]
  - vi. Fuel gas combustion devices having a common source of fuel gas may be monitored at only one location (i.e., after one of the combustion devices), if monitoring at this location accurately represents the SO<sub>2</sub> emissions into the atmosphere from each of the combustion devices. [40 CFR 60.107a(a)(1)(vi)]
- b. The permittee shall install, operate, calibrate, and maintain an instrument for continuously monitoring and recording the concentration by volume (dry basis) of H<sub>2</sub>S in the fuel gases before being burned in any fuel gas combustion device.
- i. The permittee shall install, operate, and maintain each H<sub>2</sub>S monitor according to Performance Specification 7 of appendix B to part 60. The span value for this instrument is 320 ppmv H<sub>2</sub>S.
  - ii. The permittee shall conduct performance evaluations for each H<sub>2</sub>S monitor according to the requirements of §60.13(c) and Performance Specification 7 of appendix B to part 60. The permittee shall use Method 11, 15, or 15A of appendix A–5 to part 60 or Method 16 of appendix A–6 to part 60 for conducting the relative accuracy evaluations. The method ANSI/ASME PTC 19.10–1981, “Flue and Exhaust Gas Analyses,” (incorporated by reference—see §60.17) is an acceptable alternative to EPA Method 15A of appendix A–5 to part 60.
  - iii. The permittee shall comply with the applicable quality assurance procedures in appendix F to part 60 for each H<sub>2</sub>S monitor. Q1
  - iv. 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 permittee is not required to comply with (2)a. or (2)b. for fuel gas streams that are exempt under §60.102a(h) and fuel gas streams combusted in a process heater or other fuel gas combustion device that are inherently low in sulfur content. Fuel gas streams meeting one of the following requirements will be considered inherently low in sulfur content. [40 CFR 60.107a(a)(3)]
- i. Pilot gas for heaters and flares.
  - ii. Fuel gas streams that meet a commercial-grade product specification for sulfur content of 30 ppmv or less. In the case of a liquefied petroleum gas (LPG) product specification in the pressurized liquid state, the gas phase sulfur content should be evaluated assuming complete vaporization of the LPG and sulfur containing-compounds at the product specification concentration.

- iii. Fuel gas streams produced in process units that are intolerant to sulfur contamination, such as fuel gas streams produced in the hydrogen plant, catalytic reforming unit, isomerization unit, and HF alkylation process units.
  - iv. Other fuel gas streams that an owner or operator demonstrates are low-sulfur according to the procedures in paragraph (b) of this section.
  - d. If the composition of an exempt fuel gas stream changes, the owner or operator must follow the procedures in d)(3)c.
- (3) The permittee may apply for an exemption from the H<sub>2</sub>S monitoring requirements in (2)b. for a fuel gas stream that is inherently low in sulfur content. A fuel gas stream that is demonstrated to be low-sulfur is exempt from the monitoring requirements of (2)a. and (2)b. until there are changes in operating conditions or stream composition.
- a. The permittee shall submit to Toledo Division of Environmental Services a written application for an exemption from monitoring. The application must contain the following information:
    - i. A description of the fuel gas stream/system to be considered, including submission of a portion of the appropriate piping diagrams indicating the boundaries of the fuel gas stream/system, and the affected fuel gas combustion device(s) to be considered;
    - ii. A statement that there are no crossover or entry points for sour gas (high H<sub>2</sub>S content) to be introduced into the fuel gas stream/system (this should be shown in the piping diagrams);
    - iii. An explanation of the conditions that ensure low amounts of sulfur in the fuel gas stream (i.e., control equipment or product specifications) at all times;
    - iv. The supporting test results from sampling the requested fuel gas stream/system demonstrating that the sulfur content is less than 5 ppm H<sub>2</sub>S. Sampling data must include, at minimum, 2 weeks of daily monitoring (14 grab samples) for frequently operated fuel gas streams/systems; for infrequently operated fuel gas streams/systems, seven grab samples must be collected unless other additional information would support reduced sampling. The permittee shall use detector tubes ("length-of-stain tube" type measurement) following the "Gas Processors Association Standard 2377-86, Test for Hydrogen Sulfide and Carbon Dioxide in Natural Gas Using Length of Stain Tubes," 1986 Revision (incorporated by reference—see §60.17), with ranges 0-10/0-100 ppm (N = 10/1) to test the applicant fuel gas stream for H<sub>2</sub>S; and
    - v. A description of how the 2 weeks (or seven samples for infrequently operated fuel gas streams/systems) of monitoring results compares to the typical range of H<sub>2</sub>S concentration (fuel quality) expected for the fuel gas stream/system going to the affected fuel gas combustion device (e.g., the 2 weeks of daily detector tube results for a frequently operated loading rack included the entire range of products loaded out, and, therefore,

should be representative of typical operating conditions affecting H<sub>2</sub>S content in the fuel gas stream going to the loading rack flare).

- b. The effective date of the exemption is the date of submission of the information required in (3)a.
  - c. No further action is required unless refinery operating conditions change in such a way that affects the exempt fuel gas stream/system (e.g., the stream composition changes). If such a change occurs, the permittee shall follow the procedures listed below.
    - i. If the operation change results in a sulfur content that is still within the range of concentrations included in the original application, the permittee shall conduct an H<sub>2</sub>S test on a grab sample and record the results as proof that the concentration is still within the range.
    - ii. If the operation change results in a sulfur content that is outside the range of concentrations included in the original application, the permittee may submit new information following the procedures of paragraph (b)(1) of this section within 60 days (or within 30 days after the seventh grab sample is tested for infrequently operated process units).
    - iii. If the operation change results in a sulfur content that is outside the range of concentrations included in the original application, and the permittee chooses not to submit new information to support an exemption, the permittee must begin H<sub>2</sub>S monitoring using daily stain sampling to demonstrate compliance. The permittee must begin monitoring according to the requirements in paragraphs (a)(1) or (a)(2) of this section as soon as practicable but in no case later than 180 days after the operation change. During daily stain tube sampling, a daily sample exceeding 162 ppmv is an exceedance of the 3-hour H<sub>2</sub>S concentration limit. The permittee must determine a rolling 365-day average using the stain sampling results; an average H<sub>2</sub>S concentration of 5 ppmv must be used for days prior to the operation change.
- (4) The permittee shall install, operate, calibrate, and maintain an instrument for continuously monitoring and recording the concentration (dry basis, 0 percent excess air) of NO<sub>x</sub> emissions into the atmosphere. The monitor must include an O<sub>2</sub> monitor for correcting the data for excess air. [40 CFR 60.107a(c) and 60.13]
- a. The permittee shall install, operate, and maintain each NO<sub>x</sub> monitor according to Performance Specification 2 of appendix B to part 60. The span value of this NO<sub>x</sub> monitor is 200 ppmv NO<sub>x</sub>. [40 CFR 60.107a(c)(1)]
  - b. The permittee shall conduct performance evaluations of each NO<sub>x</sub> monitor according to the requirements in §60.13(c) and Performance Specification 2 of appendix B to part 60. The owner or operator shall use Methods 7, 7A, 7C, 7D, or 7E of appendix A–4 to part 60 for conducting the relative accuracy evaluations. The method ANSI/ASME PTC 19.10–1981, “Flue and Exhaust Gas Analyses,” (incorporated by reference—see §60.17) is an acceptable alternative to EPA Method 7 or 7C of appendix A–4 to part 60. [40 CFR 60.107a(c)(2)]



- c. The permittee shall install, operate, and maintain each O<sub>2</sub> monitor according to Performance Specification 3 of appendix B to part 60. The span value of this O<sub>2</sub> monitor must be selected between 10 and 25 percent, inclusive. [40 CFR 60.107a(c)(3)]
  - d. The permittee shall conduct performance evaluations of each O<sub>2</sub> monitor according to the requirements in §60.13(c) and Performance Specification 3 of appendix B to part 60. Method 3, 3A, or 3B of appendix A–2 to part 60 shall be used for conducting the relative accuracy evaluations. The method ANSI/ASME PTC 19.10–1981, “Flue and Exhaust Gas Analyses,” (incorporated by reference—see §60.17) is an acceptable alternative to EPA Method 3B of appendix A–2 to part 60. [40 CFR 60.107a(c)(4)]
  - e. The permittee shall comply with the quality assurance requirements in Procedure 1 of appendix F to part 60 for each NO<sub>x</sub> and O<sub>2</sub> monitor, including quarterly accuracy determinations for NO<sub>x</sub> monitors, annual accuracy determinations for O<sub>2</sub> monitors, and daily calibration drift tests. [40 CFR 60.107a(c)(5)]
- (5) If the permittee chooses to install Continuous Hydrogen Sulfide Monitoring Systems, the permittee shall comply with the following requirements.
- a. Each continuous hydrogen sulfide monitoring system shall be certified to meet the requirements of 40 CFR Part 60, Appendix B, Performance Specification 7. At least 45 days before commencing certification testing of the continuous hydrogen sulfide monitoring system(s), the permittee shall develop and maintain a written quality assurance/quality control plan designed to ensure continuous valid and representative readings of hydrogen sulfide emissions from the continuous monitor(s), in units of the applicable standard(s). The plan shall follow the requirements of 40 CFR Part 60, Appendix F. The quality assurance/quality control plan and a logbook dedicated to the monitoring system must be kept on site and available for inspection during regular office hours.  
  
The plan shall include the requirement to conduct quarterly cylinder gas audits or relative accuracy audits as required in 40 CFR Part 60; and to conduct relative accuracy test audits in units of the standard(s), in accordance with and at the frequencies required per 40 CFR Part 60.
  - b. The continuous emission monitoring system consists of all the equipment used to acquire data to provide a record of emissions and includes the sample extraction and transport hardware, sample conditioning hardware, analyzers, and data recording/processing hardware and software.
  - c. Prior to the installation of the continuous hydrogen sulfide 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 7. The Ohio EPA, Central Office shall approve the proposed sampling site and certify that the continuous hydrogen sulfide monitoring system meets the requirements of Performance Specification 7. Once received, the letter/document of certification shall be maintained on-site and shall be made available to the Director (the appropriate Ohio EPA District Office or local air agency) upon request.



Each continuous monitoring system consists of all the equipment used to acquire and record data in units of all applicable standard(s), and includes the sample extraction and transport hardware, sample conditioning hardware, analyzers, and data processing hardware and software.

- d. The permittee shall operate and maintain equipment to continuously monitor and record hydrogen sulfide emissions from this emissions unit in units of the applicable standard(s). The continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 60.

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

- i. at least one valid record of the emissions of hydrogen sulfide in parts per million (excluding system breakdowns, repairs, calibration checks, and zero and span adjustments) for each successive 15-minute period [40 CFR 60.13(e)(2)];
- ii. emissions of hydrogen sulfide, in all units of the applicable standard(s) and in the appropriate averaging period;
- iii. results of quarterly cylinder gas audits;
- iv. results of daily zero/span calibration checks and the magnitude of manual calibration adjustments;
- v. of the applicable standard(s);
- vi. hours of operation of the emissions unit, continuous hydrogen sulfide monitoring system, and control equipment;
- vii. the date, time, and hours of operation of the emissions unit without the control equipment and/or the continuous hydrogen sulfide monitoring system;
- viii. the date, time, and hours of operation of the emissions unit during any malfunction of the control equipment and/or the continuous hydrogen sulfide monitoring system; as well as,
- ix. the reason (if known) and the corrective actions taken (if any) for each such event in (vii) and (viii).

- (6) If the permittee chooses to install Continuous SO<sub>2</sub> Monitoring Systems, the permittee shall comply with the following requirements.

- a. Each continuous SO<sub>2</sub> monitoring system shall be certified to meet the requirements of 40 CFR Part 60, Appendix B, Performance Specifications 2 and 6. At least 45 days before commencing certification testing of the continuous SO<sub>2</sub> monitoring system(s), the permittee shall develop and maintain a written quality assurance/quality control plan designed to ensure continuous valid and representative readings of SO<sub>2</sub> emissions from the continuous monitor(s), in units of the applicable standard(s). The plan shall follow the requirements of 40 CFR



Part 60, Appendix F. The quality assurance/quality control plan and a logbook dedicated to the continuous SO<sub>2</sub> monitoring system must be kept on site and available for inspection during regular office hours.

The plan shall include the requirement to conduct quarterly cylinder gas audits or relative accuracy audits as required in 40 CFR Part 60; and to conduct relative accuracy test audits in units of the standard(s), in accordance with and at the frequencies required per 40 CFR Part 60. [40 CFR 60.13 and 40 CFR 60, Appendix F]

- b. The continuous emission monitoring system consists of all the equipment used to acquire data to provide a record of emissions and includes the sample extraction and transport hardware, sample conditioning hardware, analyzers, and data recording/processing hardware and software. [40 CFR 60.2 and 40 CFR Part 60 Appendix F]
- c. 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. The Ohio EPA, Central Office shall approve the proposed sampling site and certify that the continuous SO<sub>2</sub> monitoring system meets the requirements of Performance Specifications 2 and 6. Once received, the letter(s)/document(s) of certification shall be maintained on-site and shall be made available to the Director (the appropriate Ohio EPA District Office or local air agency) upon request.

Each continuous monitoring system consists of all the equipment used to acquire and record data in units of all applicable standard(s), and includes the sample extraction and transport hardware, sample conditioning hardware, analyzers, and data processing hardware and software. [40 CFR 60.13 and 40 CFR 60, Appendix B]

- d. The permittee shall install, operate, and maintain equipment to continuously monitor and record SO<sub>2</sub> emissions from this emissions unit in units of the applicable standard(s). The continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 60.

The permittee shall maintain records of data obtained by the continuous SO<sub>2</sub> monitoring system including, but not limited to:

- i. At least one valid record of the emissions of SO<sub>2</sub> in parts per million (excluding system breakdowns, repairs, calibration checks, and zero and span adjustments) for each successive 15-minute period [40 CFR 60.13(e)(2)];
- ii. Daily average emissions of SO<sub>2</sub> in pounds per hour and in all units of the applicable standard(s) in the appropriate averaging period;
- iii. results of quarterly cylinder gas audits;
- iv. results of daily zero/span calibration checks and the magnitude of manual calibration adjustments;



- v. results of required relative accuracy test audit(s), including results in units of the applicable standard(s);
  - vi. hours of operation of the emissions unit, continuous SO<sub>2</sub> monitoring system, and control equipment;
  - vii. the date, time, and hours of operation of the emissions unit without the control equipment and/or the continuous SO<sub>2</sub> monitoring system;
  - viii. the date, time, and hours of operation of the emissions unit during any malfunction of the control equipment and/or the continuous SO<sub>2</sub> monitoring system; as well as,
  - ix. the reason (if known) and the corrective actions taken (if any) for each such event in (vii) and (viii).
- (7) The permittee shall comply with the following requirements for the NO<sub>x</sub> continuous Monitoring Systems.
- a. Each continuous NO<sub>x</sub> monitoring system shall be certified to meet the requirements of 40 CFR Part 60, Appendix B, Performance Specifications 2 and 6. At least 45 days before commencing certification testing of the continuous NO<sub>x</sub> monitoring system(s), the permittee shall develop and maintain a written quality assurance/quality control plan designed to ensure continuous valid and representative readings of NO<sub>x</sub> emissions from the continuous monitor(s), in units of the applicable standard(s). The plan shall follow the requirements of 40 CFR Part 60, Appendix F. The quality assurance/quality control plan and a logbook dedicated to the continuous NO<sub>x</sub> monitoring system must be kept on site and available for inspection during regular office hours.  
  
The plan shall include the requirement to conduct quarterly cylinder gas audits or relative accuracy audits as required in 40 CFR Part 60; and to conduct relative accuracy test audits in units of the standard(s), in accordance with and at the frequencies required per 40 CFR Part 60. [40 CFR 60.13 and Part 60, Appendix F]
  - b. The continuous emission monitoring system consists of all the equipment used to acquire data to provide a record of emissions and includes the sample extraction and transport hardware, sample conditioning hardware, analyzers, and data recording/processing hardware and software. [40 CFR 60.2 and Part 60, Appendix F]
  - c. Prior to the installation of the continuous NO<sub>x</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. The Ohio EPA, Central Office shall approve the proposed sampling site and certify that the continuous NO<sub>x</sub> monitoring system meets the requirements of Performance Specifications 2 and 6. Once received, the letter(s)/document(s) of certification shall be maintained on-site and shall be made available to the Director (the appropriate Ohio EPA District Office or local air agency) upon request.



Each continuous monitoring system consists of all the equipment used to acquire and record data in units of all applicable standard(s), and includes the sample extraction and transport hardware, sample conditioning hardware, analyzers, and data processing hardware and software. [40 CFR 60.13 and Part 60, Appendix B]

- d. The permittee shall install, operate, and maintain equipment to continuously monitor and record NO<sub>x</sub> emissions from this emissions unit in units of the applicable standard(s). The continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 60.

The permittee shall maintain records of data obtained by the continuous NO<sub>x</sub> monitoring system including, but not limited to:

- i. At least one valid record of the emissions of NO<sub>x</sub> in parts per million (excluding system breakdowns, repairs, calibration checks, and zero and span adjustments) for each successive 15-minute period [40 CFR 60.13(e)(2)];
  - ii. Daily average emissions of NO<sub>x</sub> in pounds per hour and in all units of the applicable standard(s) in the appropriate averaging period;
  - iii. results of quarterly cylinder gas audits;
  - iv. results of daily zero/span calibration checks and the magnitude of manual calibration adjustments;
  - v. results of required relative accuracy test audit(s), including results in units of the applicable standard(s);
  - vi. hours of operation of the emissions unit, continuous NO<sub>x</sub> monitoring system, and control equipment;
  - vii. the date, time, and hours of operation of the emissions unit without the control equipment and/or the continuous NO<sub>x</sub> monitoring system;
  - viii. the date, time, and hours of operation of the emissions unit during any malfunction of the control equipment and/or the continuous NO<sub>x</sub> monitoring system; as well as,
  - ix. the reason (if known) and the corrective actions taken (if any) for each such event in (vii) and (viii).
- (8) The permittee shall calculate and maintain record of the rolling 12-month total NO<sub>x</sub> and SO<sub>2</sub> emission rates in units of tons per year in accordance with the procedures outlined in Section f).
  - (9) The permittee shall conduct a root cause analysis of any emission limit exceedance or process start-up, shutdown, upset, or malfunction that causes a discharge to the atmosphere in excess of 227 kilograms per day (kg/day) (500 lb per day (lb/day)) of SO<sub>2</sub>. For any root cause analysis performed, the owner or operator shall record the identification of the affected facility, the date and duration of the discharge, the results of



- the root cause analysis, and the action taken as a result of the root cause analysis. [40 CFR 60.103a(b)]
- (10) For each fuel gas stream to which one of the exemptions listed in §60.107a(a)(3) applies, records of the specific exemption determined to apply for each fuel stream. If the permittee applies for the exemption described in §60.107a(a)(3)(iv), the permittee must keep a copy of the application as well as the letter from the Administrator granting approval of the application. [40 CFR 60.108a(c)(5)]
  - (11) The owner or operator shall record and maintain records of discharges greater than 500 lb/day SO<sub>2</sub> from any affected fuel gas combustion device. These records shall include:[40 CFR 60.108a(c)(6)]
    - a. A description of the discharge.
    - b. For discharges greater than 500 lb/day SO<sub>2</sub>, the date and time the discharge was first identified and the duration of the discharge.
    - c. The measured or calculated cumulative quantity of gas discharged over the discharge duration. If the discharge duration exceeds 24 hours, record the discharge quantity for each 24-hour period. Engineering calculations are allowed for fuel gas combustion devices other than flares.
    - d. For discharges greater than 500 lb/day SO<sub>2</sub>, the measured or estimated concentration of H<sub>2</sub>S, TRS and SO<sub>2</sub> of the stream discharged. Process knowledge can be used to make these estimates for fuel gas combustion devices other than flares.
    - e. For discharges greater than 500 lb/day SO<sub>2</sub>, the cumulative quantity of H<sub>2</sub>S and SO<sub>2</sub> released into the atmosphere. For fuel gas combustion devices, assume 99 percent conversion of H<sub>2</sub>S to SO<sub>2</sub>.
    - f. Results of any root-cause analysis conducted as required in §60.103a(a)(4) and §60.103a(b).
  - (12) See 40 CFR Part 60, Subpart A.
  - (13) See 40 CFR Part 60, Subpart Ja.
  - (14) See 40 CFR Part 60, Appendix B.
  - (15) See 40 CFR Part 60, Appendix F.
  - (16) The Permit to Install application for this/these emissions unit(s), B036, was evaluated based on the actual materials and the design parameters of the emissions unit's(s') exhaust system, as specified by the permittee. The AToxic Air Contaminant Statute<sup>o</sup>, ORC 3704.03(F), was applied to this/these emissions unit(s) for each toxic air contaminant listed in OAC rule 3745-114-01, using data from the permit application; and modeling was performed for each toxic air contaminant(s) emitted at over one ton per year using an air dispersion model such as SCREEN3, AERMOD, or ISCST3, or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration result(s) from the approved air dispersion model, was compared to the Maximum



Acceptable Ground-Level Concentration (MAGLC), calculated as described in the Ohio EPA guidance document entitled "Review of New Sources of Air Toxic Emissions, Option A", as follows:

- a. the exposure limit, expressed as a time-weighted average concentration for a conventional 8-hour workday and a 40-hour workweek, for each toxic compound(s) emitted from the emissions unit(s), (as determined from the raw materials processed and/or coatings or other materials applied) has been documented from one of the following sources and in the following order of preference (TLV was and shall be used, if the chemical is listed):
  - i. threshold limit value (TLV) from the American Conference of Governmental Industrial Hygienists= (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Indices"; or
  - ii. STEL (short term exposure limit) or the ceiling value from the American Conference of Governmental Industrial Hygienists= (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Indices"; the STEL or ceiling value is multiplied by 0.737 to convert the 15-minute exposure limit to an equivalent 8-hour TLV.
- b. The TLV is divided by ten to adjust the standard from the working population to the general public (TLV/10).
- c. This standard is/was then adjusted to account for the duration of the exposure or the operating hours of the emissions unit(s), i.e., "X" hours per day and "Y" days per week, from that of 8 hours per day and 5 days per week. The resulting calculation was (and shall be) used to determine the Maximum Acceptable Ground-Level Concentration (MAGLC):

$$TLV/10 \times 8/X \times 5/Y = 4 TLV/XY = MAGLC$$

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

Toxic Contaminant: **Hexane**

TLV (mg/m3): 175.9

Maximum Hourly Emission Rate (lbs/hr): 0.92

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 0.29

MAGLC (ug/m3): **4188**

The permittee, has demonstrated that emissions of hexane, from emissions unit(s) B036, is calculated to be less than eighty per cent of the maximum acceptable ground level concentration (MAGLC); any new raw material or processing agent shall not be applied without evaluating each component toxic air contaminant in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F).

[ORC 3704.03(F)(3)(c) and F(4)], [OAC rule 3745-114-01], Option A, Engineering Guide #70

- (17) Prior to making any physical changes to or changes in the method of operation of the emissions unit(s), that could impact the parameters or values that were used in the predicted 1-hour maximum ground-level concentration<sup>6</sup>, the permittee shall re-model the change(s) to demonstrate that the MAGLC has not been exceeded. Changes that can affect the parameters/values used in determining the 1-hour maximum ground-level concentration include, but are not limited to, the following:
- a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a new toxic air contaminant with a lower Threshold Limit Value (TLV) than the lowest TLV previously modeled;
  - b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any toxic air contaminant listed in OAC rule 3745-114-01, that was modeled from the initial (or last) application; and
  - c. physical changes to the emissions unit(s) or its/their exhaust parameters (e.g., increased/ decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the <sup>6</sup>Toxic Air Contaminant Statute<sup>6</sup> will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to a non-restrictive change to a parameter or process operation, where compliance with the <sup>6</sup>Toxic Air Contaminant Statute<sup>6</sup>, ORC 3704.03(F), has been documented. If the change(s) meet(s) the definition of a "modification", the permittee shall apply for and obtain a final Permit to Install prior to the change. The Director may consider any significant departure from the operations of the emissions unit, described in the permit application, as a modification that results in greater emissions than the emissions rate modeled to determine the ground level concentration; and he/she may require the permittee to submit a permit application for the increased emissions.

[ORC 3704.03(F)(3)(c) and F(4)], [OAC rule 3745-114-01], Option A, Engineering Guide #70

- (18) The permittee shall collect, record, and retain the following information for each toxic evaluation conducted to determine compliance with the <sup>6</sup>Toxic Air Contaminant Statute<sup>6</sup>, ORC 3704.03(F):
- a. a description of the parameters/values used in each compliance demonstration and the parameters or values changed for any re-evaluation of the toxic(s) modeled (the composition of materials, new toxic contaminants emitted, change in stack/exhaust parameters, etc.);
  - b. the Maximum Acceptable Ground-Level Concentration (MAGLC) for each significant toxic contaminant or worst-case contaminant, calculated in accordance with the <sup>6</sup>Toxic Air Contaminant Statute<sup>6</sup>, ORC 3704.03(F);
  - c. a copy of the computer model run(s), that established the predicted 1-hour maximum ground-level concentration that demonstrated the emissions unit(s) to be in compliance with the <sup>6</sup>Toxic Air Contaminant Statute<sup>6</sup>, ORC 3704.03(F),



initially and for each change that requires re-evaluation of the toxic air contaminant emissions; and

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

[ORC 3704.03(F)(3)(c) and F(4)], [OAC rule 3745-114-01], Option A, Engineering Guide #70

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

[ORC 3704.03(F)(3)(c) and F(4)], [OAC rule 3745-114-01], Option A, Engineering Guide #70

e) Reporting Requirements

- (1) The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than refinery fuel gas and/or natural gas was burned in this emissions unit. Each report shall be submitted to the Toledo Division of Environmental Services within 30 days after the deviation occurs.
- (2) The permittee shall submit deviation (excursion) reports that identify each day when the NO<sub>x</sub> and/or SO<sub>2</sub> pound per hour and/or rolling, 12-month emission limitations specified under b)(1) were exceeded. The reports shall be submitted (i.e., postmarked) to the Toledo Division of Environmental Services quarterly, by January 30, April 30, July 30, and October 30 of each year and shall cover the previous calendar quarters. These reports may be combined with the Title V quarterly deviation reports submitted by the facility.
- (3) The permittee shall comply with the following quarterly reporting requirements for the emissions unit and its continuous hydrogen sulfide monitoring system:
  - a. Pursuant to the monitoring, record keeping, and reporting requirements for continuous monitoring systems contained in 40 CFR 60.7 and 60.13(h) and the requirements established in this permit, the permittee shall submit reports within 30 days following the end of each calendar quarter to the appropriate Ohio EPA District Office or local air agency, documenting all instances of hydrogen sulfide emissions in excess of any applicable limit specified in this permit, 40 CFR Part 60, and any other applicable rules or regulations. The report shall include the following:
    - i. the date, commencement and completion times, duration, and magnitude of each exceedance,
    - ii. the reason (if known) and the corrective actions taken (if any) for each exceedance.



- iii. Whether the exceedance was concurrent with a startup, shutdown, or malfunction of an affected facility or control system; and
- iv. A root-cause summary report that provides the information described in paragraph (e)(6) of this section for all discharges for which a root-cause analysis was required by §60.103a(a)(4) and §60.103a(b).
- v. For any periods for which monitoring data are not available, any changes made in operation of the emission control system during the period of data unavailability which could affect the ability of the system to meet the applicable emission limit. Operations of the control system and affected facility during periods of data unavailability are to be compared with operation of the control system and affected facility before and following the period of data unavailability.
- vi. A written statement, signed by a responsible official, certifying the accuracy and completeness of the information contained in the report.

Excess emissions shall be reported in units of the applicable standard(s).

- b. the date, time, and duration of any/each malfunction\*\* of the continuous hydrogen sulfide monitoring system, emissions unit, and/or control equipment; These quarterly reports shall be submitted by January 30, April 30, July 30, and October 30 of each year and shall include the following:
  - i. the facility name and address;
  - ii. the manufacturer and model number of the continuous hydrogen sulfide and other associated monitors;
  - iii. a description of any change in the equipment that comprises the continuous emission monitoring system (CEMS), including any change to the hardware, changes to the software that may affect CEMS readings, and/or changes in the location of the CEMS sample probe;
  - iv. the excess emissions report (EER)\*, i.e., a summary of any exceedances during the calendar quarter, as specified above;
  - v. the total hydrogen sulfide emissions for the calendar quarter (tons);
  - vi. the total operating time (hours) of the emissions unit;
  - vii. the total operating time of the continuous hydrogen sulfide monitoring system while the emissions unit was in operation;
  - viii. unless previously submitted in the Quarterly Data Assessment Report (DAR), results and dates of quarterly cylinder gas audits;
  - ix. unless previously submitted in the Quarterly Data Assessment Report (DAR), results and dates of the relative accuracy test audit(s), including results in units of the applicable standard(s), (during appropriate quarter(s));



- x. unless previously submitted in the Quarterly Data Assessment Report (DAR), the results of any relative accuracy test audit showing the continuous hydrogen sulfide monitor out-of-control and the compliant results following any corrective actions;
- xi. the date, time, and duration of any/each malfunction\*\* of the continuous hydrogen sulfide monitoring system, emissions unit, and/or control equipment;
- xii. the date, time, and duration of any downtime\*\* of the continuous hydrogen sulfide monitoring system and/or control equipment while the emissions unit was in operation; and
- xiii. the reason (if known) and the corrective actions taken (if any) for each event in (b)(xi) and (xii).

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

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

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

- (4) The permittee shall comply with the following quarterly reporting requirements for the emissions unit and its continuous SO<sub>2</sub> monitoring system:
  - a. Pursuant to the monitoring, record keeping, and reporting requirements for continuous monitoring systems contained in 40 CFR Parts 60.7 and 60.13(h) and the requirements established in this permit, the permittee shall submit reports within 30 days following the end of each calendar quarter to the appropriate Ohio EPA District Office or local air agency, documenting all instances of SO<sub>2</sub> emissions in excess of any applicable limit specified in this permit, 40 CFR Part 60, OAC Chapter 3745-18, and any other applicable rules or regulations. The report shall include the following:
    - i. the date, commencement and completion times, duration, and magnitude of each exceedance,
    - ii. the reason (if known) and the corrective actions taken (if any) for each exceedance.
    - iii. Whether the exceedance was concurrent with a startup, shutdown, or malfunction of an affected facility or control system; and
    - iv. A root-cause summary report that provides the information described in paragraph (e)(6) of this section for all discharges for which a root-cause analysis was required by §60.103a(a)(4) and §60.103a(b).



- v. For any periods for which monitoring data are not available, any changes made in operation of the emission control system during the period of data unavailability which could affect the ability of the system to meet the applicable emission limit. Operations of the control system and affected facility during periods of data unavailability are to be compared with operation of the control system and affected facility before and following the period of data unavailability.
- vi. A written statement, signed by a responsible official, certifying the accuracy and completeness of the information contained in the report.

Excess emissions shall be reported in units of the applicable standard(s).

- b. These quarterly reports shall be submitted by January 30, April 30, July 30, and October 30 of each year and shall include the following:
  - i. the facility name and address;
  - ii. the manufacturer and model number of the continuous SO<sub>2</sub> and other associated monitors;
  - iii. a description of any change in the equipment that comprises the continuous emission monitoring system (CEMS), including any change to the hardware, changes to the software that may affect CEMS readings, and/or changes in the location of the CEMS sample probe;
  - iv. the excess emissions report (EER)\*, i.e., a summary of any exceedances during the calendar quarter, as specified above;
  - v. the total SO<sub>2</sub> emissions for the calendar quarter (tons);
  - vi. the total operating time (hours) of the emissions unit;
  - vii. the total operating time of the continuous SO<sub>2</sub> monitoring system while the emissions unit was in operation;
  - viii. unless previously submitted in the Quarterly Data Assessment Report (DAR) results and date of quarterly cylinder gas audits;
  - ix. unless previously submitted in the Quarterly Data Assessment Report (DAR), results and date of the relative accuracy test audit(s), including results in units of the applicable standard(s), (during appropriate quarter(s));
  - x. unless previously submitted in the Quarterly Data Assessment Report (DAR), the results of any relative accuracy test audit showing the continuous SO<sub>2</sub> monitor out-of-control and the compliant results following any corrective actions;
  - xi. the date, time, and duration of any/each malfunction\*\* of the continuous SO<sub>2</sub> monitoring system, emissions unit, and/or control equipment;



- xii. the date, time, and duration of any downtime\*\* of the continuous SO<sub>2</sub> monitoring system and/or control equipment while the emissions unit was in operation; and
- xiii. the reason (if known) and the corrective actions taken (if any) for each event in (b)(xi) and (xii).

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

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

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

(5) The permittee shall comply with the following quarterly reporting requirements for the emissions unit and its continuous NO<sub>x</sub> monitoring system:

a. Pursuant to the monitoring, record keeping, and reporting requirements for continuous monitoring systems contained in 40 CFR 60.7 and 60.13(h) and the requirements established in this permit, the permittee shall submit reports within 30 days following the end of each calendar quarter to the appropriate Ohio EPA District Office or local air agency, documenting all instances of NO<sub>x</sub> emissions in excess of any applicable limit specified in this permit, 40 CFR Part 60, OAC Chapters 3745-14 and 3745-23, and any other applicable rules or regulations. The report shall include the following:

- i. the date, commencement and completion times, duration, and magnitude of each exceedance,
- ii. the reason (if known) and the corrective actions taken (if any) for each exceedance.
- iii. Whether the exceedance was concurrent with a startup, shutdown, or malfunction of an affected facility or control system; and
- iv. A root-cause summary report that provides the information described in paragraph (e)(6) of this section for all discharges for which a root-cause analysis was required by §60.103a(a)(4) and §60.103a(b).
- v. For any periods for which monitoring data are not available, any changes made in operation of the emission control system during the period of data unavailability which could affect the ability of the system to meet the applicable emission limit. Operations of the control system and affected facility during periods of data unavailability are to be compared with operation of the control system and affected facility before and following the period of data unavailability.
- vi. A written statement, signed by a responsible official, certifying the accuracy and completeness of the information contained in the report.



Excess emissions shall be reported in units of the applicable standard(s).

- b. These quarterly reports shall be submitted by January 30, April 30, July 30, and October 30 of each year and shall include the following:
- i. the facility name and address;
  - ii. the manufacturer and model number of the continuous NO<sub>x</sub> and other associated monitors;
  - iii. a description of any change in the equipment that comprises the continuous emission monitoring system (CEMS), including any change to the hardware, changes to the software that may affect CEMS readings, and/or changes in the location of the CEMS sample probe;
  - iv. the excess emissions report (EER)\*, i.e., a summary of any exceedances during the calendar quarter, as specified above;
  - v. the total NO<sub>x</sub> emissions for the calendar quarter (tons);
  - vi. the total operating time (hours) of the emissions unit;
  - vii. the total operating time of the continuous NO<sub>x</sub> monitoring system while the emissions unit was in operation;
  - viii. unless previously submitted in the Quarterly Data Assessment Report (DAR) results and date of quarterly cylinder gas audits;
  - ix. unless previously submitted in the Quarterly Data Assessment Report (DAR), results and date of the relative accuracy test audit(s), including results in units of the applicable standard(s), (during appropriate quarter(s));
  - x. unless previously submitted in the Quarterly Data Assessment Report (DAR), the results of any relative accuracy test audit showing the continuous NO<sub>x</sub> monitor out-of-control and the compliant results following any corrective actions;
  - xi. the date, time, and duration of any/each malfunction\*\* of the continuous NO<sub>x</sub> monitoring system, emissions unit, and/or control equipment;
  - xii. the date, time, and duration of any downtime\*\* of the continuous NO<sub>x</sub> monitoring system and/or control equipment while the emissions unit was in operation; and
  - xiii. the reason (if known) and the corrective actions taken (if any) for each event in (b)(xi) and (xii).

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



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

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

- (6) This emissions unit is subject to the applicable provisions of Subpart Ja of the New Source Performance Standards (NSPS) as promulgated by the United States Environmental Protection Agency, 40 CFR Part 60. The application and enforcement of these standards are delegated to the Ohio EPA. The requirements of 40 CFR Part 60 are also federally enforceable.

Pursuant to the 40 CFR Part 60.7, the permittee is hereby advised of the requirement to report the following at the appropriate times:

- a. Construction date (no later than 30 days after such date);
- b. Anticipated start-up date (not more than 60 days or less than 30 days prior to such date);
- c. Actual start-up date (within 15 days after such date); and
- d. Date of performance testing (if required, at least 30 days prior to testing).

Reports are to be sent to:

Ohio Environmental Protection Agency  
DAPC - Permit Management Unit  
P. O. Box 163669  
Columbus, Ohio 43216-3669

and

Toledo Division of Environmental Services  
348 South Erie Street  
Toledo, Ohio 43604

- (7) See 40 CFR Part 60, Subpart A.
- (8) See 40 CFR Part 60, Subpart Ja.
- (9) The permittee shall include any changes made to a parameter or value used in the dispersion model, that was used to demonstrate compliance with the Toxic Air Contaminant Statute, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration, in the quarterly deviation (excursion) reports. If no changes to the emissions, emissions unit(s), or the exhaust stack have been made, then the report shall include a statement to this effect.

[ORC 3704.03(F)(3)(c) and F(4)], [OAC rule 3745-114-01], Option A, Engineering Guide #70



f) Testing Requirements

(1) Compliance with the emissions limitation(s) in b) of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitation:

20% opacity as a 6-minute average

Applicable Compliance Method:

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

b. Emission Limitation:

20 ppmv SO<sub>2</sub> dry basis, corrected to 0 percent excess air, determined hourly on a 3-hour rolling average basis.

Applicable Compliance Method:

Compliance shall be demonstrated based upon the monitoring and record keeping requirements of d). If required, compliance shall also be demonstrated based upon the methods and procedures of 40 CFR 60.104a(j).

c. Emission Limitation:

8 ppmv SO<sub>2</sub> dry basis, corrected to 0 percent excess air, determined daily on a 365 successive calendar day rolling average basis.

Applicable Compliance Method:

Compliance shall be demonstrated based upon the monitoring and record keeping requirements of d). If required, compliance shall also be demonstrated based upon the methods and procedures of 40 CFR 60.104a(i).

d. Emission Limitation:

15.52 pound per hour SO<sub>2</sub>

Applicable Compliance Method:

Sulfur dioxide emissions shall be determined using the "F factor" calculation methodology specified in 40 CFR 60 Appendix A, Method 19 which uses the furnace stack SO<sub>2</sub> and O<sub>2</sub> CEMS data along with fuel gas usage data to calculate pounds per hour emissions. If required, compliance shall be demonstrated according to Methods 1 through 4 and 6 of 40 CFR Part 60, Appendix A. Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA.

Allowable emissions are based on operation at maximum capacity with a maximum 20 ppmv SO<sub>2</sub> dry basis, adjusted to 0% excess air. Therefore



compliance with the 20 ppmv SO<sub>2</sub> dry basis, adjusted to 0% excess air, constitutes compliance with the hourly SO<sub>2</sub> emission limitation. If required, the permittee shall demonstrate compliance using the methods and procedures outlined in 40 CFR 60.104a(i).

e. Emission Limitation:

38.00 tons SO<sub>2</sub> per rolling, 12-month period

Applicable Compliance Method:

Compliance shall be based on CEM data collected under d). used to calculate the SO<sub>2</sub> emissions on a rolling 12-month average.

f. Emission Limitation:

18.63 pounds per hour CO

Applicable Compliance Method:

Multiply the vendor provided emission factor of 0.0359 lb/mmBtu times the average daily fuel gas burned in mmscf/hr times the daily average heating value in Btu/scf.

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

g. Emission Limitation:

81.61 tons CO per rolling, 12-month period

Applicable Compliance Method:

Compliance may be demonstrated by calculating annual emissions in tons based on the sum of the hourly emissions of CO over a 12-month rolling period.

h. Emission Limitation:

3.9 pounds per hour PM<sub>10</sub> emissions

Applicable Compliance Method:

Multiply the AP-42 section 1.4 PM<sub>10</sub> emission factor dated July 1998 of 7.6 lb/mmscf of fuel gas burned times the daily average fuel gas burned per hour times the fuel gas heating value correction factor. The heating value correction factor is equal to the ratio of the daily average fuel gas heat content to the AP-42 natural gas heat content of 1020 Btu/scf. If required, compliance shall be demonstrated based upon the procedures specified in Methods 201 and 202 of 40 CFR Part 51, Appendix M. Alternative U.S. EPA-approved test methods can be used with prior approval from Ohio EPA.



- i. Emission Limitation:  
  
16.94 tons PM<sub>10</sub> per rolling, 12-month period  
  
Applicable Compliance Method:  
  
Compliance may be demonstrated by calculating annual emissions in tons based on the sum of the hourly emissions of PM<sub>10</sub> over a 12-month rolling period.
  
- j. Emission Limitation:  
  
23.40 pound per hour NO<sub>x</sub>  
  
Applicable Compliance Method:  
  
The compliance shall be demonstrated based on upon the monitoring and recordkeeping requirements of d).  
  
If required, the permittee shall demonstrate compliance using Methods procedures outlined in 40 CFR 60.104a(i).
  
- k. Emission Limitation:  
  
40 ppmv NO<sub>x</sub> (dry basis, corrected to 0 percent excess air) on a 24-hour rolling average basis  
  
Applicable Compliance Method:  
  
Compliance shall be demonstrated based upon the monitoring and record keeping requirements of d).  
  
If required, compliance shall also be demonstrated based upon the methods and procedures outlined in 40 CFR 60.104a(i).
  
- l. Emission Limitation:  
  
102.5 tons NO<sub>x</sub> per rolling, 12-month period  
  
Applicable Compliance Method:  
  
Compliance may be demonstrated by the monitoring and record keeping requirements of d).
  
- m. Emission Limitation:  
  
2.8 pound per hour VOC  
  
Applicable Compliance Method:  
  
Multiply the AP-42 section 1.4 VOC emission factor dated July 1998 of 5.5 lb/mmcf of fuel gas burned corrected for heating value by the average daily hourly fuel gas burned. The heating value correction factor is equal to the ratio of the daily average fuel gas heat content to the AP-42 natural gas heat content of 1020 Btu/scf.



If required, the permittee shall demonstrate compliance using Methods 1 through 4 and 25 of 40 CFR Part 60, Appendix A. Alternative U.S. EPA-approved test methods can be used with prior approval from Ohio EPA.

n. Emission Limitation:

12.28 tons VOC per rolling, 12-month period

Applicable Compliance Method:

Compliance may be demonstrated by calculating annual emissions based on the sum of the daily average hourly emissions of VOC over a 12-month rolling period.

- (2) The permittee shall conduct a performance test for this unit to demonstrate initial compliance with each applicable emissions limit in 40 CFR 60.102a according to the requirements of 40 CFR 60.8.
- (3) 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 60 days after achieving the maximum production rate at which the emissions unit will be operated, but not later than 180 days after initial startup of the emissions unit.
  - b. The emission testing shall be conducted to demonstrate compliance with the allowable mass emission rate(s) for NO<sub>x</sub> and SO<sub>2</sub>.
  - c. The permittee shall determine compliance with the SO<sub>2</sub> and NO<sub>x</sub> emissions limits in 40 CFR 60.102a(g) for a fuel gas combustion device according to the following test methods and procedures:
    - i. Method 1 of appendix A–1 to part 60 for sample and velocity traverses;
    - ii. Method 2 of appendix A–1 to part 60 for velocity and volumetric flow rate;
    - iii. Method 3, 3A, or 3B of appendix A–2 to part 60 for gas analysis. The method ANSI/ASME PTC 19.10–1981, “Flue and Exhaust Gas Analyses,” (incorporated by reference—see §60.17) is an acceptable alternative to EPA Method 3B of appendix A–2 to part 60;
    - iv. Method 6, 6A, or 6C of appendix A–4 to part 60 to determine the SO<sub>2</sub> concentration. The method ANSI/ASME PTC 19.10–1981, “Flue and Exhaust Gas Analyses,” (incorporated by reference—see §60.17) is an acceptable alternative to EPA Method 6 or 6A of appendix A–4 to part 60.
      - (a) The performance test consists of 3 valid test runs; the duration of each test run must be no less than 1 hour.
      - (b) If a single fuel gas combustion device having a common source of fuel gas is monitored as allowed under §60.107a(a)(1)(v), only one performance test is required. That is, performance tests are not required when a new affected fuel gas combustion device is



added to a common source of fuel gas that previously demonstrated compliance.

- v. Method 7, 7A, 7C, 7D, or 7E of appendix A-4 to part 60 for moisture content and for the concentration of NO<sub>x</sub> calculated as NO<sub>2</sub>; the duration of each test run must be no less than 4 hours. The method ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses," (incorporated by reference—see §60.17) is an acceptable alternative to EPA Method 7 or 7C of appendix A-4 to part 60.

Alternative 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 or near its maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency.
- e. 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).
- f. 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.
- g. A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to Toledo Division of Environmental Services within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the appropriate Ohio.

g) Miscellaneous Requirements

- (1) None



2. P803, Reformer 3 Process Unit

Operations, Property and/or Equipment Description:

Continuous Catalytic Regeneration Reformer with regeneration vent controlled by the Chlorsorb™ System and Catalytic Converter.

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

(1) None.

b) Applicable Emissions Limitations and/or Control Requirements

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

Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a. OAC rule 3745-31-05(A)(3)	Fugitive Volatile Organic Compound (VOC) emissions from equipment leaks shall not exceed 10.79 tons per year.
	VOC emissions from the regenerator vent shall not exceed 0.16 pound per hour and 0.70 tons per year.
b. OAC rule 3745-31-05(A)(3)(a)(ii)	See b)(2)h.
c. 40 CFR Part 60 Subpart Ja	See b)(2)c.
d. OAC rule 3745-21-07(B)	See b)(2)j.
e. OAV rule 3745-21-08(B)	See b)(2)i.
f. 40 CFR Part 63, Subpart UUU	During the initial catalyst depressuring and purging before coke burn-off reduce uncontrolled emissions of total organic compounds (TOC) or nonmethane TOC from the process vent by 98 percent by weight using a control device or to a concentration of 20 ppmv (dry basis as hexane), corrected to 3 percent oxygen, whichever is less stringent.
[In accordance with 40 CFR 63.1566(a) and 63.1567(a), this emissions unit is a Catalytic Reforming unit subject to the emissions limitations/control measures specified in this section]	During coke burn-off and catalyst regeneration, reduce uncontrolled emissions of HCl by 97 percent by weight or to a concentration of 10 ppmv (dry basis), corrected to 3 percent oxygen from the process vents associated with the coke burn-off and catalyst rejuvenation operations.



Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
g. 40 CFR Part 63, Subpart A	See b)(2)a. and b)(2)b. 40 CFR Part 63, Subpart A provides applicability provisions, definitions, and other general provisions that are pertinent to emissions units affected by 40 CFR Part 63. Table 6 to Subpart CC of 40 CFR Part 63 – General Provisions Applicability to Subpart CC and Table 44 to 40 CFR Part 63 Subpart UUU show which parts of the General Provisions in 40 CFR 63.1-15 apply.
h. 40 CFR Part 63, Subpart CC	See b)(2)d.
i. 40 CFR Part 60, Subpart GGGa	See b)(2)f.
j. 40 CFR Part 60, Subpart NNN	See b)(2)g.
k. OAC rule 3745-21-09(T)	See b)(2)e.

(2) Additional Terms and Conditions

- a. The permittee shall comply with the emissions limits in 40 CFR 63 Subpart UUU.

Subpart UUU Citation	Brief Description of Operational Requirements
63.1566(a)(1)(i)	Meet each emission limitation in Table 15 of Subpart UUU that applies to control organic HAPs during initial catalyst depressuring and catalyst purging operations.
63.1567(a)(1)	Meet each emission limitation in Table 22 of Subpart UUU that applies to you. These emission limitations apply to emissions from catalytic reforming unit process vents associated with the coke burn-off and catalyst rejuvenation operations during coke burn-off and catalyst regeneration.

- b. Per 40 CFR 63.1566(a)(3) and (4), the emission limitations in Tables 15 of 40 CFR 63 Subpart UUU do not apply to the coke burn-off, catalyst rejuvenation, reduction or activation vents, or to the control systems used for these vents. The emission limitations in Tables 15 and 16 of this subpart do not apply to emissions from process vents during depressuring and purging operations when the reactor vent pressure is 5 pounds per square inch gauge (psig) or less.
- c. This new unit will have new emergency relief vent piping and other connections to the refinery flare system. These connections may trigger the applicability of NSPS Subpart Ja to the refinery flares based on the definition of flare modification in the 40 CFR 60 Subpart Ja issued April 30, 2008. However, on September 26, 2008, U.S. EPA stayed the effective date of some of the provisions of the new rule including the language in 40 CFR 60.100a(c) and



60.101a which specifies that any piping connection to a flare header is considered a modification of the flare for the purpose of determining NSPS Ja applicability. On December 22, 2008, that stay was extended until further notice to allow EPA to reach a final decision on the issues (see 73 FR 78549 – 78552). If applicable, the permittee shall comply with the flare requirements of the final 40 CFR 60 Subpart Ja upon its promulgation in the Federal Register.

- d. The permittee subject to the provisions of 40 CFR 63, Subpart CC shall comply with the requirements in 40 CFR Part 63, Subpart CC for applicable equipment leak provisions referencing 40 CFR Part 60, Subpart VV and §63.648(b) except as provided in §63.648(a)(1), (a)(2), and §63.648(c) through (i).
- e. Consistent with the U.S.EPA streamlining policy, the permittee may elect to demonstrate compliance with OAC rule 3745-21-09(T) by demonstrating compliance with equipment leak standards in 40 CFR Part 63, Subpart CC for both equipment in organic HAP service and not in organic HAP service. The MACT level monitoring of 40 CFR Part 63, Subpart CC is generally more stringent than the LDAR requirements of OAC 3745-21-09(T).
- f. The permittee shall comply with the requirements in 40 CFR Part 60, Subpart GGGa for applicable equipment leak provisions referencing 40 CFR Part 60, Subpart VVa. Per 40 CFR 63.640(p), equipment leaks subject to 40 CFR 63 Subpart CC provision, and also subject to the provisions of 40 CFR parts 60 are required to comply only with the provisions of 40 CFR 63 Subpart CC.
- g. The permittee shall comply with the requirements in 40 CFR Part 60, Subpart NNN as they apply to the debutanizer tower unless US EPA approves alternative requirements. The permittee has indicated that a request to use an alternative monitoring plan will be submitted to U.S. EPA for the Reformer 3 debutanizer tower.
- h. The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the NO<sub>x</sub>, CO, and SO<sub>2</sub> emissions from this air contaminant source since the uncontrolled potentials to emit for NO<sub>x</sub>, CO, and SO<sub>2</sub> is less than ten tons per year.
- i. The permittee shall satisfy the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology (BAT) requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit to install. The design of the emissions unit and the technology associated with the current operating practices satisfy the BAT requirements.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the State regulations. On June 24, 2003, the rule revision was submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP); however, until the U.S. EPA approves the revision to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" still exists as part of the federally-approved SIP for Ohio.



- j. The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-21-07(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this Permit to Install.

On February 18, 2008, OAC rule 3745-21-07 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the State regulations. However, that rule revision has not yet been submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP). Therefore, until the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" still exists as part of the federally-approved SIP for Ohio.

c) Operational Restrictions

- (1) 40 CFR Part 63, Subpart UUU.

Subpart UUU Citation	Brief Description of Operational Requirements
63.1566(a)(2)	Comply with each site-specific operating limit in Table 16 of Subpart UUU that applies during initial catalyst depressuring and purging operations
63.1567(a)(2)	Meet each site-specific operating limit in Table 23 of this subpart that applies to you. These operating limits apply during coke burn-off and catalyst rejuvenation.

- (2) See 40 CFR Part 63, Subpart A.

Subpart A Citations	a) Brief Description Operational Requirements
40 CFR 63.1577	Table 44 of 40 CFR 63 Subpart UUU shows which parts of the General Provisions in §§ 63.1 through 63.15 apply
40 CFR 63 Subpart CC	Table 6 of 40 CFR Part 63, Subpart CC specifies the provisions of 40 CFR Part 63, Subpart A that apply and those that do not apply to emissions units subject to Subpart CC of 40 CFR Part 63.

- (3) 40 CFR Part 63, Subpart CC.

Part CC Citations	Description Operational Requirements
63.648(f)	Reciprocating pumps in light liquid service are exempt from §§63.163 and 60.482 if recasting the distance piece or reciprocating pump replacement is required.
63.648(g)	Compressors in hydrogen service are exempt from the requirements of paragraphs 63.648(a) and (c), if the permittee demonstrates that a compressor is in hydrogen service. (see 40 CFR 63.648(g)(2) for hydrogen service requirements)
63.648(i)	Reciprocating compressors are exempt from seal requirements if recasting the distance piece or compressor replacement is required.



- (4) 40 CFR Part 60 GGGa. (compliance demonstrated by Subpart CC LDAR requirements per 40 CFR 63.640(p))
- (5) 40 CFR Part 60, Subpart NNN.

<b>Subpart NNN Citations</b>	<b>Brief Description of Operational Requirements</b>
60.662	Standards

d) Monitoring and/or Recordkeeping Requirements

- (1) See 40 CFR Part 63, Subpart UUU.

<b>Subpart UUU Citations</b>	<b>Description of Monitoring and/or Record keeping Requirements</b>
63.1566(b)(1)	Install, operate, and maintain a continuous monitoring system(s) according to the requirements in §63.1572 and Table 17 of Subpart UUU.
63.1566(c)(1)	Demonstrate continuous compliance with Tables 15 and 16 of Subpart UUU according to the methods specified in Tables 20 and 21 of Subpart UUU.
63.1566(a)(5), 63.1567(a)(3), 63.1566(c)(2)	Prepare an operation, maintenance, and monitoring plan according to the requirements in §63.1574(f) and operate at all times according to the plan.
63.1567(b)(1)	Install, operate, and maintain a continuous monitoring system(s) according to the requirements in §63.1572 and Table 24 Subpart UUU.
63.1567(c)(1)	Demonstrate continuous compliance with Tables 22 and 23 of Subpart UUU according to the methods specified in Tables 27 and 28 of Subpart UUU.
63.1567(c)(2)	Demonstrate continuous compliance with 63.1537(a)(3) by maintaining records to document compliance with the procedures in the operation, maintenance and monitoring plan.
63.1570(a)	Comply with all of the non-opacity standards in this subpart during the times specified in §63.6(f)(1).
63.1570(c)	Operate and maintain the affected source, including air pollution control and monitoring equipment, according to the provisions in §63.6(e)(1)(i).
63.1570(d)	Develop a written startup, shutdown, and malfunction plan (SSMP) according to the provisions in §63.6(e)(3).
63.1570(g)	Consistent with §§63.6(e) and 63.7(e)(1), deviations that occur during a period of SSM are not violations if you demonstrate to the Administrator's satisfaction that you were operating in accordance with §63.6(e)(1).
63.1572(c)	Install, operate, and maintain each continuous parameter monitoring system according to the requirements in paragraphs 63.1572(c)(1) through (5).
63.1572(d)	Monitor and collect data according to the requirements in paragraphs 63.1572(d)(1) and (2) of this section.



<b>Subpart UUU Citations</b>	<b>Description of Monitoring and/or Record keeping Requirements</b>
63.1574(f)(2)	Each operation, maintenance, and monitoring plan must include, at a minimum, the information outlined in 63.15754(f)(2).
63.1576(a)	Keep the records specified 63.1576(a)(1) through (3).
63.1576(d)	Keep records required by Tables 20, 21, 27 and 28 of 40 CFR 63 Subpart UUU as applicable.
63.1576(e)	Maintain a current copy of the operation, maintenance, and monitoring plan onsite and available for inspection. Keep records to show continuous compliance with the procedures this plan.
63.1576(f)	Keep records of any changes that affect emission control system performance for this source.
63.1576(g)	Records must be maintained in a form suitable and readily available for expeditious review according to §63.10(b)(1).
63.1576(h)	Keep each record for 5 years following the date of when each record is created as specified in §63.10(b)(1)
63.1576(i)	Maintain each record on site for at least 2 years after the date the record was created according to §63.10(b)(1). You can keep the records offsite for the remaining 3 years.

(2) 40 CFR Part 63, Subpart A.

<b>Part A Citations</b>	<b>Description of Monitoring and/or Record keeping Requirements</b>
40 CFR 63.1577	Table 44 of 40 CFR 63 Subpart UUU shows which parts of the General Provisions in §§ 63.1 through 63.15 apply
40 CFR 63 Subpart CC	Table 6 of 40 CFR Part 63, Subpart CC specifies the provisions of 40 CFR Part 63, Subpart A that apply and those that do not apply to emissions units subject to Subpart CC of 40 CFR Part 63.

(3) 40 CFR Part 63, Subpart CC.

<b>Part CC Citations</b>	<b>Description of Monitoring and/or Record keeping Requirements</b>
60.482-1	Standards: General
60.482-2	Standards: Pumps in light liquid service
60.482-3	Standards: Compressors
60.482-4	Standards: Pressure relief devices in gas/vapor service.
60.482-5	Standards: Sampling connection systems.
60.482-6	Standards: Open-ended valves or lines.
60.482-7	Standards: Valves in gas/vapor service and in light liquid service.
60.482-8	Standards: Pumps and valves in heavy liquid service, pressure relief



Part CC Citations	Description of Monitoring and/or Record keeping Requirements
	devices in light liquid or heavy liquid service, and connectors.
60.482-9	Standards: Delay of repair.
60.482-10	Standards: Closed vent systems and control devices.
60.483-1	Alternative standards for valves--allowable percentage of valves leaking.
60.483-2	Alternative standards for valves--skip period leak detection and repair.
60.486	Recordkeeping requirements.

(4) 40 CFR Part 60 Subpart GGGa. (compliance demonstrated by Subpart CC LDAR requirements per 40 CFR 63.640(p))

(5) 40 CFR Part 60, Subpart NNN

Subpart NNN Citations	Brief Description of Monitoring and/or Record keeping Requirements
60.663	Monitoring of emissions and standards
60.663(f)	The permittee can request alternative controls by providing the Administrator information describing the operation of the control device or recovery device and the process parameter(s) which would indicate proper operation and maintenance of the device.
60.665	Reporting and Record keeping requirements

e) Reporting Requirements

(1) See 40 CFR Part 63, Subpart UUU.

Part UUU Citations	Description of Reporting Requirements
63.1566(b)(7), 63.1567(b)(6)	Demonstrate initial compliance with 63.1566(a)(3), and (a)(5) by submitting the operation, maintenance, and monitoring plan to your permitting authority as part of your Notification of Compliance Status.
63.1566(b)(8), 63.1567(b)(7)	Submit the Notification of Compliance Status containing the results of the initial compliance demonstration according to the requirements in §63.1574.
63.1570(f)	Report each deviation from an emission limitation, work practice standard, and operating limit per §63.1575. This includes periods of startup, shutdown, and malfunction.
63.1574(a)	Except as allowed in this paragraph, you must submit all of the notifications in §§63.6(h), 63.7(b) and (c), 63.8(e), 63.8(f)(4), 63.8(f)(6), and 63.9(b) through (h) that apply by the dates specified.
63.1574(d)	Include the information in Table 42 of Subpart UUU in your notification of compliance status.
63.1574(f)(1)	Submit the operation, maintenance, and monitoring plan to TDES for



Part UUU Citations	Description of Reporting Requirements
	review and approval along with your notification of compliance status. Submit any changes to TDES for review and approval and comply with the plan until the change is approved.
63.1575(a)	Submit each report in Table 43 of Subpart UUU as applicable.
63.1575(b)	Unless the Administrator has approved a different schedule, submit each report by the date in Table 43 of Subpart UUU and according to the requirements in 63.1575(b)(1) through (5).
63.1575(c)	The compliance report must contain the information required in 63.1575 (c)(1) through (4).
63.1575(d)	For each deviation that occurs where you are not using a continuous emission monitoring system to comply with a standard in Subpart UUU, the compliance report must contain the information in 63.1575(c)(1) through (3) and the information in 63.1575(d)(1) through (3).
63.1575(f)	Include the information required in 63.1575 (f)(1) through (2) in each compliance report, if applicable.
63.1575(h)	The reporting requirements in 63.1575 (h)(1) and (2) apply to startups, shutdowns, and malfunctions.

(2) 40 CFR Part 63, Subpart A.

Part A Citations	Description of Reporting Requirements
40 CFR 63.1577	Table 44 of 40 CFR 63 Subpart UUU shows which parts of the General Provisions in §§ 63.1 through 63.15 apply
40 CFR 63 Subpart CC	Table 6 of 40 CFR Part 63, Subpart CC specifies the provisions of 40 CFR Part 63, Subpart A that apply and those that do not apply to emissions units subject to Subpart CC of 40 CFR Part 63.

(3) 40 CFR Part 63, Subpart CC.

Part CC Citations	Description of Reporting Requirements
60.487	Reporting Requirements
63.654(d)	Reporting requirements

(4) 40 CFR Part 60 Subpart GGGa. (compliance demonstrated by Subpart CC LDAR requirements per 40 CFR 63.640(p))

(5) 40 CFR Part 60, Subpart NNN

Subpart NNN Citations	Brief Description of Reporting Requirements
60.655	Reporting and Record keeping requirements



f) Testing Requirements

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

a. Emission Limitation:

VOC emissions from the regenerator vent stack shall not exceed 0.16 pound per hour.

Applicable Compliance Methods:

This emission limitation is based on vendor material balance.

If required, the permittee shall demonstrate compliance using the methods and procedures specified in OAC rule 3745-21-10(C). Alternative U.S. EPA approved methods may be used with prior approval from Ohio EPA.

b. Emission Limitation:

VOC emission from the regeneration vent stack shall not exceed 0.70 ton per year.

Applicable Compliance Method:

Compliance may be demonstrated by multiplying the hourly emission limitation (0.16 lb/hr) by 8,760 hrs/yr and dividing by 2,000 pounds per ton.

c. Emission Limitation:

Fugitive VOC emissions from equipment leaks shall not exceed 2.46 pound per hour.

Applicable Compliance Method:

The leak detection and repair monitoring, recordkeeping and reporting requirements of c), d), and e). shall serve as demonstration of compliance with this emission limitation. This emission limitation was calculated based on the following method. The percent of the leaking vapor and light liquid valves and pumps are based on from Toledo Refinery's past experience. The leaking components were assumed to leak at 10,000 ppm. Emissions are calculated based on EPA correlation equations (Table 2-10 of the U.S. EPA Protocol document for Equipment Leaks). Non-leakers are assumed to emit at the EPA default-zero leak rate (Table 2-12 of the U.S. EPA Protocol document for Equipment Leaks). Heavy liquid components are estimated based on average HL factors from API Publication 337, August 1996. Pressure relief valves vent to the flare and the average emission factors are reduced by 98%. The emission factors for hydrogen compressors are multiplied by 10% to estimate the VOC emissions from hydrogen compressors assuming the hydrogen compressors have a maximum of 10% VOC.



Emission Limitation:

Fugitive VOC emission from equipment leaks shall not exceed 10.79 tons per year.

Applicable Compliance Method:

Compliance may be demonstrated by multiplying the hourly emission limitation (2.46 lbs/hr) by 8,760 hrs/yr and dividing by 2,000 pounds per ton.

(2) See 40 CFR Part 63 Subpart UUU.

Part UUU Citations	Description of Testing Requirements
63.1566(b)(2), 63.1567(b)(2)	Conduct each performance test for a catalytic reforming unit according to the requirements in §63.1571 and under the conditions specified in Tables 18 and 25 of Subpart UUU.
63.1566(b)(3), 63.1567(b)(3)	Establish each site-specific operating limit in Tables 16 and 23 of Subpart UUU that applies according to the procedures in Tables 18 and 25 of Subpart UUU respectively.
63.1566(b)(6)	Demonstrate initial compliance with each emission limitation that applies according to Table 19 of Subpart UUU.
63.1567(b)(4)	Use the equations in 63.1567 (b)(4)(i) through (iv) to determine initial compliance with the emission limitations
63.1567(b)(5)	Demonstrate initial compliance with each emission limitation that applies according to Table 26 Subpart UUU.
63.1571(a)	Conduct performance tests and report the results by no later than 150 days after the compliance date specified in §63.1563 and according to the provisions in §63.7(a)(2). If you are required to do a performance evaluation or test for a semi-regenerative catalytic reforming unit catalyst regenerator vent, you may do them at the first regeneration cycle after your compliance date and report the results in a followup Notification of Compliance Status report due no later than 150 days after the test.
63.1571(b)(1)	Conduct each performance test according to the requirements in §63.7(e)(1)
63.1571(b)(2)	Conduct three separate test runs for each performance test as specified in §63.7(e)(3). Each test run must last at least 1 hour.
63.1571(b)(3)	Conduct each performance evaluation according to the requirements in §63.8(e).
63.1571(b)(4)	Do not conduct performance tests during periods of startup, shutdown, or malfunction, as specified in §63.7(e)(1).
63.1571(b)(5)	Calculate the average emission rate for the performance test by calculating the emission rate for each individual test run in the units of the applicable emission limitation using Equation 2, 5, or 8 of §63.1564, and determining the arithmetic average of the calculated



Part UUU Citations	Description of Testing Requirements
	emission rates.

- (3) 40 CFR Part 63, Subpart A

Subpart A Citations	Brief Description of Testing Requirements
40 CFR 63.1577	Table 44 of 40 CFR 63 Subpart UUU shows which parts of the General Provisions in §§ 63.1 through 63.15 apply
40 CFR 63 Subpart CC	Table 6 of 40 CFR Part 63, Subpart CC specifies the provisions of 40 CFR Part 63, Subpart A that apply and those that do not apply to emissions units subject to Subpart CC of 40 CFR Part 63.

See 40 CFR Part 63, Subpart CC.

Part CC Citations	Description of Testing Requirements
60.485	Subpart VV test methods and procedures

- (5) See 40 CFR Part 60, Subpart GGGa (compliance demonstrated by Subpart CC LDAR requirements per 40 CFR 63.640(p))

- (6) See 40 CFR Part 60, Subpart NNN

Part NNN Citations	Description of Testing Requirements
60.664	Testing Methods and Procedures

- g) Miscellaneous Requirements

- (1) None.



**3. P804, BenSat Process Unit**

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

Benzene Saturation Unit :176,880 Lb/hr fully enclosed catalytic process with no fired heater

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

(1) None.

b) Applicable Emissions Limitations and/or Control Requirements

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

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3)(a)(ii)	See b)(2)d.
b.	40 CFR Part 63, Subpart A	40 CFR Part 63, Subpart A provides applicability provisions, definitions, and other general provisions that are pertinent to emissions units affected by 40 CFR Part 63. Table 6 to Subpart CC of 40 CFR Part 63 – General Provisions Applicability to Subpart CC shows which parts of the General Provisions in 40 CFR 63.1-15 apply.
c.	40 CFR Part 63, Subpart CC	See b)(2)a.
d.	40 CFR Part 60, Subpart GGa	See b)(2)c.
e.	OAC rule 3745-21-09(T)	See b)(2)b.
f.	40 CFR Part 60, Subpart A	See b)(2)c.

(2) Additional Terms and Conditions

a. The permittee subject to the provisions of 40 CFR 63, Subpart CC shall comply with the provisions of 40 CFR part 60 subpart VV and §63.648(b) except as provided in §63.648(a)(1), (a)(2), and §63.648(c) through (i).

b. Consistent with the U.S.EPA streamlining policy, the permittee may elect to demonstrate compliance with OAC rule 3745-21-09(T) by demonstrating compliance with equipment leak standards in 40 CFR Part 63, Subpart CC for both equipment in organic HAP service and not in organic HAP service. The MACT level monitoring of 40 CFR Part 63, Subpart CC is generally more stringent than the LDAR requirements of OAC 3745-21-09(T).



- c. This unit is subject to the requirements in 40 CFR Part 60, Subpart GGGa for applicable equipment leak provisions referencing 40 CFR Part 60, Subpart VVa. Per 40 CFR 63.640(p), equipment leaks subject to 40 CFR 63 Subpart CC provision, and also subject to the provisions of 40 CFR parts 60 are required to comply only with the provisions of 40 CFR 63 Subpart CC.
- d. The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the fugitive VOC emissions from this air contaminant source since the uncontrolled potential to emit for VOC is less than ten tons per year.

c) Operational Restrictions

- (1) See 40 CFR Part 63, Subpart A.

Subpart A Citations	Brief Description Operational Requirements
40 CFR 63 Subpart CC	Table 6 of 40 CFR Part 63, Subpart CC specifies the provisions of 40 CFR Part 63, Subpart A that apply and those that do not apply to emissions units subject to Subpart CC of 40 CFR Part 63.

- (2) 40 CFR Part 63, Subpart CC

Subpart CC Citations	Brief Description Operational Requirements
63.648(f)	Reciprocating pumps in light liquid service are exempt from §§63.163 and 60.482 if recasting the distance piece or reciprocating pump replacement is required.
63.648(g)	Compressors in hydrogen service are exempt from the requirements of paragraphs 63.648(a) and (c), if the permittee demonstrates that a compressor is in hydrogen service. (see 40 CFR 63.648(g)(2) for hydrogen service requirements)
63.648(i)	Reciprocating compressors are exempt from seal requirements if recasting the distance piece or compressor replacement is required.

- (3) 40 CFR Part 60 Subpart GGGa (compliance demonstrated by Subpart CC LDAR requirements per 40 CFR 63.640(p)).

d) Monitoring and/or Recordkeeping Requirements

- (1) 40 CFR Part 63, Subpart A.

Subpart A Citations	Brief Description of Monitoring and/or Record keeping Requirements
40 CFR 63 Subpart CC	Table 6 of 40 CFR Part 63, Subpart CC specifies the provisions of 40 CFR Part 63, Subpart A that apply and those that do not apply to emissions units subject to Subpart CC of 40 CFR Part 63.

- (2) 40 CFR Part 63, Subpart CC.



<b>Subpart CC Citations</b>	<b>Brief Description of Monitoring and/or Record keeping Requirements</b>
60.482-1	Standards: General
60.482-2	Standards: Pumps in light liquid service
60.482-3	Standards: Compressors
60.482-4	Standards: Pressure relief devices in gas/vapor service.
60.482-5	Standards: Sampling connection systems.
60.482-6	Standards: Open-ended valves or lines.
60.482-7	Standards: Valves in gas/vapor service and in light liquid service.
60.482-8	Standards: Pumps and valves in heavy liquid service, pressure relief devices in light liquid or heavy liquid service, and connectors.
60.482-9	Standards: Delay of repair.
60.482-10	Standards: Closed vent systems and control devices.
60.483-1	Alternative standards for valves--allowable percentage of valves leaking.
60.483-2	Alternative standards for valves--skip period leak detection and repair.
60.486	Recordkeeping requirements.

- (3) 40 CFR Part 60 Subpart GGGa (compliance demonstrated by Subpart CC LDAR requirements per 40 CFR 63.640(p).

e) Reporting Requirements

- (1) 40 CFR Part 63, Subpart A.

<b>Subpart A Citations</b>	<b>Brief Description of Reporting Requirements</b>
40 CFR 63 Subpart CC	Table 6 of 40 CFR Part 63, Subpart CC specifies the provisions of 40 CFR Part 63, Subpart A that apply and those that do not apply to emissions units subject to Subpart CC of 40 CFR Part 63.

- (2) 40 CFR Part 63, Subpart CC.

<b>Subpart CC Citations</b>	<b>Brief Description of Reporting Requirements</b>
60.487	Reporting Requirements
63.654(d)	Reporting requirements

- (3) 40 CFR Part 60 Subpart GGGa (compliance demonstrated by Subpart CC LDAR requirements per 40 CFR 63.640(p).

f) Testing Requirements

- (1) 40 CFR Part 63, Subpart A.



Subpart A Citations	Brief Description of Testing Requirements
40 CFR 63 Subpart CC	Table 6 of 40 CFR Part 63, Subpart CC specifies the provisions of 40 CFR Part 63, Subpart A that apply and those that do not apply to emissions units subject to Subpart CC of 40 CFR Part 63.

- (2) 40 CFR Part 63, Subpart CC.

Subpart CC Citations	Brief Description of Testing Requirements
60.485	Subpart VV test methods and procedures

- (3) 40 CFR Part 60 Subpart GGGa (compliance demonstrated by Subpart CC LDAR requirements per 40 CFR 63.640(p).

g) Miscellaneous Requirements

- (1) None.