

Appendix G

Administrative Permit P0111328 (Issued 1/4/2013) and the TFO Project

Administrative Permit P0111328 and the TFO Project

As discussed in Section 4.2 of this application, BPH is planning to implement significant improvements to the treatment of the sulfur in the refinery fuel gas as part of the TFO project. However, due to practical project execution constraints, these improvements cannot be fully in place immediately upon startup of all of the elements of the TFO project. In order to maintain the TFO net emissions of SO₂ (i.e.: TFO Project emissions plus contemporaneous/creditable emissions changes) below the PSD significance level, BPH has permitted an interim multi-unit SO₂ limit which caps the total allowable emissions from the entire group of SO₂ emissions sources involved in the TFO netting analysis. This group limit was issued as part of OEPA's administrative permit P0111328, issued on January 4, 2013. This interim group limit caps the TFO project affected sources until the final improvements to reduce sulfur in refinery fuel gas are implemented.

As indicated in Table G-1, the interim multi-unit group SO₂ limit in P0111328 of 207.5 tons/yr is equal to the sum of (a) the total baseline actual emissions of all emission units modified by, affected by, or contemporaneous with the TFO Project, plus (b) the SO₂ emissions resulting from the projected incremental increase in steam usage resulting from the TFO project, plus (c) 38.2 tons/yr. As such, the group SO₂ limit restricts emissions increases to less than the PSD significance level of 40 tpy SO₂.

To keep related permit conditions together, BPH suggests that OEPA incorporate the emission limits contained in the administrative permit P0111328 directly into the TFO permit and specify that the TFO permit supersedes the administrative permit.

Additionally, BPH requests that the compliance determination language in the second paragraph of permit condition Section B(2)(e)(1)(c)(i) be revised to read as follows:

The total Alstom Boiler incremental firing rate for demonstration with the total combined SO₂ emissions from the emissions units listed in a)(2) shall be equal to 97 MMBtu/hr until the initial start-up of the proposed new Coker Gas Plant and equal to 151 MMBtu/hr thereafter.

Table G-1 Baseline Emissions and Interim Group SO₂ Limit

OEPA ID	Process Unit	RFG Drum Reference	Baseline ¹		Baseline SO ₂ Emissions tpy	
			(2004 - 2005) MMSCF/yr	Emission Factor lb/MMSCF		
Emissions Units Modified or Affected by the TFO Project						
B015	Crude 1 Heater (existing)	TIUMD	2.10E-01	39.71	36.56	
B031	Vacuum 1 Heater (existing)	TIUMD	6.47E-02	39.71	11.25	
TBD	New Crude Heater(s)	TIUMD	0	-	0	
TBD	New Vacuum 1 Heater	TIUMD	0	-	0	
B032	Coker 3 Heater	K3	1.53E-01	-	19.38	
B029	ADHT Heater	ESMD	7.03E-03	5.87	0.18	
P009	SRU1	NA	NA	NA	17.23	
P037	SRU 2&3	NA	NA	NA	16.44	
Emissions Units with SO₂ Decreased by TFO Project (firing rate and other pollutants not affected)						
B019	Crude/Vacuum 2 Heater	TIUMD	1.41E-01	39.71	21.02	
B017	Coker 2 Heater	TIUMD	2.74E-02	39.71	4.77	
B022	Naphtha Hydrotreater Heater	TIUMD	4.11E-02	39.71	7.15	
Emissions Units in TFO Project Contemporaneous Period						
B030	BGOT Heater	TIUMD	1.51E-02	39.71	2.62	
B033	East BGOT Heater	TIUMD	0	-	0	
B018	FCC Preheat Heater	TIUMD	2.03E-02	39.71	3.52	
B001	Hydrogen Plant Heater	ESMD	1.68E-01	5.87	4.32	
B013	Reformer 1 Regen Heater	TIUMD	1.38E-03	39.71	0.24	
B014	Reformer 1 Heater	TIUMD	1.10E-01	39.71	19.08	
B006	Reformer 2 Heater	ESMD	2.07E-01	5.87	5.32	
B005	Reformer 2 Regen Heater	ESMD	6.71E-03	5.87	0.17	
B036	Reformer 3 Heater	ESMD	0	-	0	
Sum of Baseline Emissions					169.3	SO₂, tpy
SO₂ Group Limit					207.5	SO₂, tpy
Increase above past baseline allowed by Group limit					38.2	SO₂, tpy

Emission Calculation Basis

¹ See Appendix A for SO₂ Emission Factor Basis based on RFG Drum and SRU 1 and SRU 2&3 baseline calculations
 Baseline value for B019 is limited its annual allowable emissions limits during the baseline period.
 Baseline value for B032 is limited by its hourly allowable emissions limit during the baseline period (see Appendix A)
 Baseline Fuel Flow rates are based on Fuel Flow data recorded by the BPH PI system and used for Emissions Fee Reporting

For reference, a copy of the full permit P0111328 terms and conditions is attached as Attachment G-1 of this appendix.

Attachment G-1

P0111328 (Issued 1/4/2013)

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

1/4/2013

Bill Rupert
BP-Husky Refining LLC
4001 Cedar Point Road
Oregon, OH 43616

RE: FINAL AIR POLLUTION PERMIT-TO-INSTALL
Facility ID: 0448020007
Permit Number: P0111328
Permit Type: Administrative Modification
County: Lucas

Certified Mail

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

Dear Permit Holder:

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

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

How to appeal this permit

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

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

How to save money, reduce pollution and reduce energy consumption

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

How to give us feedback on your permitting experience

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

How to get an electronic copy of your permit

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

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

Sincerely,



Michael W. Ahern, Manager

Permit Issuance and Data Management Section, DAPC

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



Response to Comments

Facility ID:	0448020007
Facility Name:	BP-Husky Refining LLC
Facility Description:	Toledo Refinery
Facility Address:	4001 Cedar Point Road P.O. Box 696 Oregon, OH 43697 Lucas County
Permit:	P0111328, Permit-To-Install - Administrative Modification
A public notice for the draft permit issuance was published in the Ohio EPA Weekly Review and appeared in the Toledo Blade on 11/09/2012. The comment period ended on 12/17/2012.	
Hearing date	12/12/2012
Hearing Public Notice Date	11/09/2012

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

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

Permit Concerns

Comment 1: How many permits Ohio EPA has issued for the BP Oregon refinery since they announced its \$2.5 billion expansion with Husky in 2007?

Response 1: The following is a list of permits to install (PTIs) issued to BP Products North America Inc. or BP-Husky Refining Inc. since January 1, 2008, the effective date of the BP-Husky Joint Venture (hereinafter "JV") related to the "2.5 Billion dollar deal" that was announced at the time the JV was formed:

Permit Number	Permit Description	Issuance Date	Additional information
04-01496	Construction of 14,037 bbl internal floating roof storage tank (T189 - tank 408) located at the refinery's marine dock.	1/10/2008	Construction of a replacement tank at the Marine Dock to take the place of a tank that was past its retirement age.



04-01496	(Correction to) Construction of 14,037 bbl internal floating roof storage tank (T189 - tank 408) located at the refinery's marine dock.	6/3/2008	See above.
P0104032	Chapter 31 modification to the Stormwater Diversion Chamber (P034) to add a third bay	3/20/2009	Modification of the refinery sewers to add a third bay to the stormwater diversion chamber.
P0103974	Installation of a new section of a sewer to run parallel to the existing sewer throughout the main section of the refinery (P025) - New Oily Water Sewer Project (only VOC emissions)	3/23/2009	New sewer to improve drainage and reduce periodic isolated flooding.
P0103694	Permit to upgrade the Naphtha reforming process - installation of Reformer 3, Reformer 3 heater and Bensat Unit	8/7/2009	Added a new more efficient Reformer to replace the current 2 reformers. No increase in reforming capacity at the refinery, one reformer to replace current two with new technology.
P0106190	Modification to an existing storage tank to upgrade the tank's level monitoring system by installing radar gauges (T084, tank 134) External Floating Roof tank.	6/24/2010	Added new roof fittings to an existing tank that slightly increased the emissions of the tank. No change in tank capacity or throughput.
P0107114	This PTI is for the installation of a 190,000 bbl fixed roof storage tank with conservation breather vent and nitrogen blanket identified as tank number PR-00218 (T190). It is classified as a group 2 storage vessel pursuant to 40 CFR 63.641.	2/28/2011	New storage tank to provide supplemental capacity to minimize the likelihood that process outages would create larger scale process disruptions.
P0105902	Administrative modification to PTI 04-01482 in order to incorporate new Nitrogen Oxides (NOx) emissions limits for FCCU pursuant to Paragraph 14 of the Consent Decree entered in United States and State of Indiana, et al. v. BP Exploration & Oil Co., et al., Civil No. 2:96 CV	5/18/2011	Permit to make consent decree limits enforceable.



	095 RL (ND Ind.).		
P0106444	Administrative modification to revise NOx limits for the Alstom Boilers (B034/ B035).	1/23/2012	Permit to update the NOx emissions limit to reflect post start-up actual performance of the new ultra-low NOx burners for the Alstom Boilers.
P0107122	Administrative modification of PTI 04-01290 to remove the Preventative Maintenance and Malfunction Abatement Plan (PMMAP) requirements from Hydrogen Plant Furnace (B001), Reformer 2 Furnace (B006), Coker 1 Furnace (B016), Crude Vac 2 Furnace (B019), SRU 1 (P009), and SRU 2&3 (P037).	1/23/2012	Permit to remove PMMAP requirements from the permits for a number of units. PMMAP requirements were no longer needed.
P0108950	Chapter 31 Modification to install a new recycle compressor in the B-Gas Oil Hydrotreater (BGOT) (P029)	5/4/2012	Permit to install a larger Recycle Gas Compressor on the BGOT unit to recover capacity lost when the clean fuels project was installed.
P0108887	Chapter 31 Modification to replace the existing refinery fuel gas-fired FCCU Preheater furnace (B018) with four (4) new shell and tube heat exchangers in the FCCU unit (P007)	5/4/2012	Permit to replace existing FCCU feed preheat furnace (which was at end-of-life) with heat exchangers.
P0107416	Administrative modification of PTI 04-708 to update tank emissions limits based on the recent vapor pressure testing data available. Revised VOC annual limits for T155 (Tank 172), T161 (Tank 003), and T164 (Tank 295).	5/8/2012	Correction to permit for storage tanks to correct the vapor pressure of material stored in tanks. No change to the capacity or throughput of the tanks.
P0110265	Administrative modification to allow for routing Crude/Vac 1 (P011) off gas to refinery main fuel gas system instead of burning in the Crude 1 furnace fire box (B015)	8/22/2012	Permit allows routing the Vac 1 off-gas to the fuel gas system for treatment instead of separate treatment and combustion in the Crude 1 heater. This is the same method that is used in the Crude/Vac 2 unit. No capacity increase or change in throughput.



P0110958	This PTI modification adds a miscellaneous term to the PTI P0110265 (issued 8/22/2012) that the terms and conditions contained in the Permit to Install for the emissions unit P011 supercede all requirements for P011 contained in PTI 04-1046.	9/11/2012	This PTI modification merely added "supercede" language to the recent P011 permit to clarify that it superceded the older PTI 04-1046.
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Comment 2: How many of these permits could be related to the anticipated \$2.5 billion expansion?

Response 2: Ohio EPA assumes the questioners are referring to a statement the by BP and Husky at the time of the announcement of their joint venture that they anticipated an investment of around \$2.5 billion to expand the refinery to process increased amounts of heavy crude oil and bitumen. None of the permits that were issued by Ohio EPA, listed in Response 1, are related to that anticipated expansion, and none of them improved or expanded the Toledo refinery’s ability to process different types of crudes.

Comment 3: If approved permits are not a part of the tar sands expansion, how did Ohio EPA determine this?

Response 3: Ohio EPA reviewed each of the permits to determine the purpose for obtaining the permit. None of the permits were related to the expanded use of tar sand crude.

Note that the Toledo refinery has been processing heavy sour crude oil since 1998. The term “sour crude” refers to oils that have a sulfur content of greater than 0.5 percent. Although the Toledo refinery has not been processing straight Canadian tar sands (one form of a heavy sour crude oil) they have run crudes that contain or originated from Canadian tar sands, and they have been processing other forms of heavy sour crude oil since 1998. The Toledo refinery began processing heavy sour crude oil after making changes to the refinery as part of the Toledo Repositioning Project (TRP) in 1998. The Toledo refinery obtained an air pollution permit-to-install prior to making the TRP changes.

This permit now under consideration does not allow the Toledo refinery to process more heavy sour crude. Instead, it just adds new, tighter air pollution emission limits to the existing permits.

The Toledo refinery has applied for another permit to make modifications to the refinery in order to allow it to process the crude oil from one particular field in Canada, the Sunrise field, which is owned by the BP-Husky JV. This is called the Toledo Feedstock Optimization (TFO) project. Ohio EPA has just begun reviewing this application. Based on our initial review, it is our understanding that the changes planned will not allow for the refinery to process materially greater quantities of heavy sour crude oils. Instead, most of the changes proposed involve changing vessel components with updated materials designed to be compatible with the somewhat higher acidity of the Sunrise crude oils. The project also includes the addition of new equipment that will significantly reduce sulfur compound emissions from several sources at the refinery.

Interested parties will have the opportunity to review and comment on the draft permit for the TFO project once Ohio EPA has completed its initial review and developed the draft permit.



Comment 4: Have Toledo Department Environmental Services (TDES) or Ohio EPA considered that BP may be engaged in a process of “piece-mealing” the larger \$2.5 billion project?

Response 4: Ohio EPA and TDES have evaluated every permit issued since the formation of the BP-Husky Joint Venture in 2008 in order to address public concern whether the Toledo refinery might be engaged in a process of “piece-mealing” the larger \$2.5 billion project to avoid major new source review. Based on our review of the information provided by the Toledo refinery, we have determined that none of the permits (listed in Response 1) are related to that project and none of them improved or expanded the refinery’s ability to process different types of crudes.

Comment 5: How many of the previously-approved projects/permits since 2007 could improve the refinery's ability to process different crude stocks, such as tar sands?

Response 5: See Response 2 and Response 3.

Comment 6: Will BP-Husky be filing for a PSD permit? Has Ohio EPA had discussions with BP-Husky about a possible PSD permit?

Response 6: The Toledo refinery has submitted a permit-to-install application to Ohio EPA for the Toledo Feedstock Optimization (TFO) project. Ohio EPA and TDES staff has just begun review of the application. Also included is a Prevention of Significant Deterioration (PSD) application for greenhouse gas (GHG) emissions as a part of the TFO project. Once our review is complete, we will develop a set of terms and conditions, then a draft permit for the TFO project will be issued and a public meeting scheduled to discuss the project in detail with the public and to solicit public comments.

Comment 7: Could BP-Husky be reducing their sulfur emissions to avoid the PSD permitting process? What is Ohio EPA doing to ensure this is not the case?

Response 7: The air pollution PSD rules apply to large new sources of air pollution. In order for PSD to apply, the project must result in increases in certain pollutants over certain trigger levels. For example, PSD applies, in some cases, if the emissions increase is greater than 40 tons of sulfur dioxide per year.

Companies can avoid the applicability of PSD if they can keep their emissions increase to less than the trigger levels. The approach of restricting the emissions to below PSD trigger levels is allowed by the rules. Since it is allowed by the rules, Ohio EPA cannot prevent the use of this approach.

However, even if PSD does not apply, many other applicable air pollution regulations typically do apply. For instance, Ohio has separate sulfur dioxide rules (OAC rule 3745-18) that apply even if PSD does not.

This particular permit modification would lower the overall allowable sulfur dioxide emissions. It will not allow the Toledo refinery to construct new emission sources or to increase refining capacity at the facility.

Comment 8: Given that tar sands crude carries higher amounts of sulfur, shouldn't BP-Husky be required to file for a PSD permit? If not, why not?

Response 8: See Response 6 and Response 7.



Comment 9: According to a recent study, refineries processing tar sands emit more sulfur. What steps is Ohio EPA taking to ensure that greater emissions than presently generated at the Oregon refinery will not occur?

Response 9: This particular permit simply reduces allowed emissions so it cannot result in higher emissions. The proposed TFO project will be evaluated at a later date in order to determine its impact on air emissions.

Also, see Response 6 and Response 7.

Comment 10: From Ohio EPA's own presentation on December 12, it is clear that the Toledo Feed Optimization project is related to, or actually is, the \$2.5 billion expansion. Is OEPA investigating this connection?

Response 10: Ohio EPA will evaluate the TFO project permit application at a later date. As part of that evaluation, we will evaluate whether the project is related to any other project at the refinery.

Also, see Response 6 and Response 7.

Comment 11: How many petroleum engineers does Ohio EPA have on staff?

Response 11: Ohio EPA does not maintain a listing of the number of petroleum engineers it has on staff. Although having a petroleum engineering degree can be helpful to staff who review and write permits when they are working on an air permit for a refinery, it is more important for them to have a detailed understanding of the air pollution rules and regulations. This is because most of our work involves understanding and applying air pollution rules and regulations. Our work does not involve the design and engineering of refinery equipment, similar to what a petroleum engineer might do.

Instead, we review the information provided by the applicant and information found from other similar sources (including information provided to us by citizens) to determine whether the proposed source would comply with all applicable air pollution requirements. If, based on this information, it appears that the proposed source would comply with all applicable air requirements, then Ohio EPA is required to issue a permit. For our review, what matters most is if the proposed source complies with all applicable air pollution requirements. If it does, then we know that the air pollution coming from the proposed source would not cause adverse health effects to citizens near the facility. Our goal with every permit is to make sure the proposed source complies with all air pollution requirements and that the permit is protective of public health.

Several Ohio EPA and TDES staff assigned to this project have more than 10 years of experience in writing and reviewing air pollution permits. They have also processed many air pollution permits for refinery operations.

Comment 12: Has OEPA reviewed tar sands expansion permits from other states?

Response 12: Because this permit is simply intended to reduce allowed emissions, it was not necessary to review other states' tar sand air permits. As part of the TFO project review, Ohio EPA will review similar permits from other states.



Comment 13: How many discussions, meetings and communications has OEPA had with BP-Husky about the \$2.5 billion expansion? When did these discussions or conversations take place?

Response 13: Ohio EPA has had several discussions with BP-Husky since the JV was formed concerning proposed or potential projects at the Refinery. However, the TFO permit that Ohio EPA is currently reviewing is the only permit application Ohio EPA has received to date that involves potential changes to the Refinery's existing crude slate.

Comment 14: How will the working relationship between Ohio EPA, U.S. EPA and BP-Husky work, given the lack of integrity and recent suspension of federal contracts of BP?

Response 14: U.S. EPA's press release on the suspension says, "The BP suspension will temporarily prevent the company and the named affiliates from getting new federal government contracts, grants or other covered transactions until the company can provide sufficient evidence to EPA demonstrating that it meets Federal business standards."

Based on this statement, our opinion is that the suspension does not affect our issuance of an air permit because, (1) the suspension includes agreements between U.S. EPA and BP, not between Ohio EPA and BP; and (2) the permit is not a contract, grant or other similar "agreement" document.

The Ohio EPA air program is required by law to issue the air permit if the director determines that the source will comply with all applicable air pollution rules and regulations. None of the applicable rules and regulations require that Ohio EPA evaluate any financial issues the applicant might have so we cannot, by law, consider any company financial issues in our review and decision.

If Ohio EPA has some concerns with a permittee's past air pollution program's performance, we can add requirements to address those issues into our permit terms and conditions. For example, if a company had periodic excess emissions from one of their sources, we could add additional monitoring, record keeping, reporting and/or testing requirements to more closely monitor that source. At this time we know of no such concerns.

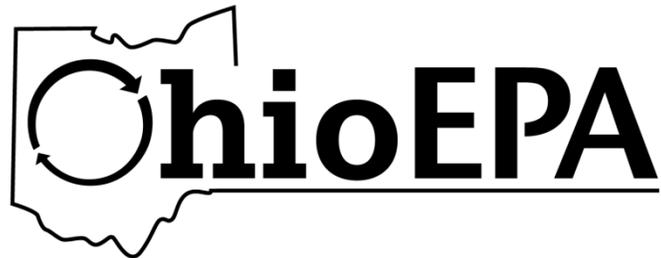
Comment 15: Are there any plans to review other BP and other facilities processing tar sands or bitumen type crude oil?

Response 15: Not for this permit. We will be reviewing other similar permits as part of our review of the TFO project permit.

Comment 16: Have you consulted with any outside petroleum engineers – whether private contractors, university or any other sources?

Response 16: No. See Response 11.

End of Response to Comments



FINAL

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

Facility ID:	0448020007
Permit Number:	P0111328
Permit Type:	Administrative Modification
Issued:	1/4/2013
Effective:	1/4/2013



Division of Air Pollution Control
Permit-to-Install
for
BP-Husky Refining LLC

Table of Contents

Authorization	1
A. Standard Terms and Conditions	3
1. Federally Enforceable Standard Terms and Conditions	4
2. Severability Clause	4
3. General Requirements	4
4. Monitoring and Related Record Keeping and Reporting Requirements.....	5
5. Scheduled Maintenance/Malfunction Reporting	6
6. Compliance Requirements	6
7. Best Available Technology	7
8. Air Pollution Nuisance	7
9. Reporting Requirements	7
10. Applicability	8
11. Construction of New Sources(s) and Authorization to Install	8
12. Permit-To-Operate Application	9
13. Construction Compliance Certification	9
14. Public Disclosure	9
15. Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations	9
16. Fees.....	10
17. Permit Transfers	10
18. Risk Management Plans	10
19. Title IV Provisions	10
B. Facility-Wide Terms and Conditions.....	11
C. Emissions Unit Terms and Conditions	18
1. B019, Crude/Vac 2 Furnace.....	19



Final Permit-to-Install
BP-Husky Refining LLC
Permit Number: P0111328
Facility ID: 0448020007
Effective Date: 1/4/2013

Authorization

Facility ID: 0448020007
Facility Description: Toledo Refinery
Application Number(s): M0001922, M0001980
Permit Number: P0111328
Permit Description: This administrative PTI modification is to establish federally enforceable voluntary reduced SO2 emission limits on the several process heaters and other emission units at the refinery.
Permit Type: Administrative Modification
Permit Fee: \$1,000.00
Issue Date: 1/4/2013
Effective Date: 1/4/2013

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.

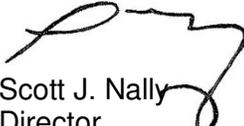
Ohio Environmental Protection Agency (EPA) District Office or local air agency responsible for processing and administering your permit:

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

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

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency


Scott J. Nally
Director



Final Permit-to-Install
BP-Husky Refining LLC
Permit Number: P0111328
Facility ID: 0448020007
Effective Date: 1/4/2013

Authorization (continued)

Permit Number: P0111328
Permit Description: This administrative PTI modification is to establish federally enforceable voluntary reduced SO2 emission limits on the several process heaters and other emission units at the refinery.

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

Emissions Unit ID:	B019
Company Equipment ID:	Crude/Vac 2 Furnace
Superseded Permit Number:	P0107122
General Permit Category and Type:	Not Applicable



Final Permit-to-Install
BP-Husky Refining LLC
Permit Number: P0111328
Facility ID: 0448020007
Effective Date: 1/4/2013

A. Standard Terms and Conditions



1. Federally Enforceable Standard Terms and Conditions

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

2. Severability Clause

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

3. General Requirements

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



Final Permit-to-Install
BP-Husky Refining LLC
Permit Number: P0111328
Facility ID: 0448020007
Effective Date: 1/4/2013

- 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



Final Permit-to-Install
BP-Husky Refining LLC
Permit Number: P0111328
Facility ID: 0448020007
Effective Date: 1/4/2013

Environmental Services. If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted (i.e., postmarked) quarterly, by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. (These quarterly reports shall exclude deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06.)

10. Applicability

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

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

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



Final Permit-to-Install
BP-Husky Refining LLC
Permit Number: P0111328
Facility ID: 0448020007
Effective Date: 1/4/2013

without a subsequent "modification" or "installation" as defined in OAC Chapter 3745-31). All records relating to any permanently shutdown emissions unit, generated while the emissions unit was in operation, must be maintained in accordance with law. All reports required by this permit must be submitted for any period an affected emissions unit operated prior to permanent shut down. At a minimum, the permit requirements must be evaluated as part of the reporting requirements identified in this permit covering the last period the emissions unit operated.

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

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

12. Permit-To-Operate Application

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

13. Construction Compliance Certification

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

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

14. Public Disclosure

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

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

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



16. Fees

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

17. Permit Transfers

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

18. Risk Management Plans

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

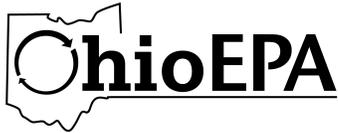
19. Title IV Provisions

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



Final Permit-to-Install
BP-Husky Refining LLC
Permit Number: P0111328
Facility ID: 0448020007
Effective Date: 1/4/2013

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 following terms and conditions are federally enforceable.
 - a) Applicable Emissions Limitations and/ or Control Requirements
 - (1) Interim SO₂ limit for B036, Reformer 3 heater
 Beginning on the effective date of this permit, and continuing until the earlier of (a) the initial startup of replacements for the Crude 1 and Vacuum 1 Heaters (B015 and B031) or (b) December 31, 2015, the sulfur dioxide (SO₂) emissions from the Reformer 3 heater (B036) shall not exceed 30 tons SO₂ per year as a rolling, 12-month summation of the monthly emissions. Thereafter, except as provided in paragraphs a)(2) and a)(3) below, the SO₂ emissions shall not exceed the level established in Permit to Install P0203694 issued on August 7, 2009.

 - (2) Interim Multi-Unit SO₂ Emission Limit
 Beginning on the date of initial startup of replacements for the Crude 1 and Vacuum 1 heaters (B015 and B031) and continuing until the later of (a) fifteen (15) months thereafter, or (b) the completion of construction and initial shakedown of the modifications to the Coker Gas Plant expected to be constructed as part of the upcoming Toledo Feedstock Optimization Project, the total combined SO₂ emissions from the units listed below shall not exceed 207.5 tons SO₂ per year as a rolling, 12-month summation of the monthly emissions.

B030	BGOT Heater
B033	East BGOT Heater
B015	Existing Crude 1 Heater
B031	Existing Vacuum 1 Heater
TBD	Replacement For Crude 1 Heater
TBD	Replacement Vacuum 1 Heater
B019	Crude Vacuum 2 Heaters
B017	Coker 2 Heater
B032	Coker 3 Heater
B022	Naphtha Hydrotreater Heater
B029	ADHT Heater
B034/B035	Alstom Boilers (Incremental Firing)
B036	Reformer 3 Heater
P009	SRU 1
P037	SRU 2&3

 - (3) Beginning the later of (a) fifteen (15) months after initial startup of the replacements for the Crude 1 and Vacuum 1 Heaters (B015 and B031), or (b) the completion of construction and initial shakedown of the modifications to the Coker Gas Plant expected to be constructed as part of the upcoming Toledo Feedstock Optimization Project, SO₂ emissions from the following heaters shall not exceed the limits included in Table 1.



Table 1 – Individual SO₂ Emissions Limits

Heater	Tons SO ₂ Per Rolling 12-month Period
B017 Coker 2 Heater	3.64
B019, Crude Vacuum 2 Heater	12.15
B022, Naphtha Hydrotreater Heater	3.64
B032, Coker 3 Heater	11.64
B036, Reformer 3 Heater	22.8

- (4) For purposes of clarity, the first month used in a 12-month rolling average compliance period is the calendar month in which the emission limitation becomes effective, and the first complete 12-month rolling average compliance period is 12 calendar months later (e.g., for a limit effective on January 15, the first month in the period is January and the first complete 12-month period ends on the 31st of the following December).
- b) Operational Restrictions
 - (1) The Crude 1 (B015) and Vacuum 1 (B031) heaters shall be permanently shut down 180 days after the initial startup of replacement units for those heaters.
- c) Monitoring and/or Recordkeeping Requirements
 - (1) By no later than the date of initial startup of replacements for the Crude 1 and Vacuum 1 Heaters (B015 and B031), the Permittee shall install, calibrate, operate, and maintain instrumentation to monitor and record the concentration by volume (dry basis) of total sulfur at a location or locations that accurately represent(s) the total sulfur concentration in the refinery fuel gas burned in each of the heaters and boilers listed in a)(2) (except for the Reformer 3 Heater (B036)). Data from the continuous total sulfur analyzer(s) shall be used to demonstrate and report compliance with the SO₂ emissions limitations in a)(1), a)(2), and a)(3).
 - (2) The permittee shall install, operate and maintain equipment to continuously monitor and record total sulfur from this emissions unit in units of the applicable standards. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Appendix B, Performance Specification 5, and operated in accordance with 40 CFR 60.13.

Each continuous monitoring system consists of all the equipment used to acquire data and includes the sample extraction and transport hardware, sample conditioning hardware, analyzers, and data recording/processing hardware and software.

The permittee shall maintain documentation from Ohio EPA that the continuous total sulfur monitoring system has been certified in accordance with test methods contained in 40 CFR Part 60, Appendix B, or other test methods as approved by Ohio EPA, Central Office. The letter of certification shall be made available to the Ohio EPA upon request.



The permittee shall maintain records of all data obtained by the continuous total sulfur monitoring system including, emissions of total sulfur in units of the applicable standards in the appropriate averaging period, results of daily zero/span calibration checks, and magnitudes of manual calibration adjustments.

- (3) 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 total sulfur in the fuel gas being burned.
 - (4) The Permittee shall record and maintain records of (i) the daily average total sulfur concentration in the fuel gas burned in each of the heaters and boilers listed in a)(2), (ii) the daily total SO₂ emissions from each such heater, listed in a)(2), calculated in accordance with e)(1)b., and (iii) the total combined SO₂ emissions for all heaters and boilers listed in a)(2) for the calendar month and for the rolling, 12-month period.
 - (5) For purposes of calculating daily SO₂ emissions, the permittee shall monitor and record the following for each heater and boiler listed in a)(2):
 - a. The volume of fuel burned in standard cubic feet per day; and
 - b. The daily average total sulfur in fuel gas.
- d) Reporting Requirements
- (1) Unless other arrangements have been approved by the Director, all notifications and reports shall be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal.
 - (2) The permittee shall submit quarterly deviation (excursion) reports that identify the following:

all exceedances of the rolling, 12-month emission limitations for SO₂ specified in a) and, for the first 12 calendar months following the effective date of the emissions limitations specified in a), all exceedances of the maximum allowable cumulative emission levels in specified in a);

The quarterly deviation (excursion) reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit.
- e) Testing Requirements
- (1) Compliance with the emission limitation(s) in a)(1), a)(2), and a)(3) of these terms and conditions shall be determined in accordance with the following methods:
 - a. Emission Limitation

Reformer 3 Heater (B036) emissions shall not exceed 30 tons SO₂ per year as a rolling 12-month summation of the monthly emissions during the period specified in a)(1).

Applicable Compliance Method:



Calculate the daily Reformer 3 Heater SO₂ emissions (lbs SO₂/day) by multiplying the daily fuel used (mmscf) by the daily average concentration of the fuel total sulfur (ppmv) in scf sulfur / mmscf fuel, multiplying by the molecular weight of SO₂ (64 lbs/lbmole) and dividing by the conversion of 379 (scf/lbmole) which is based on standard conditions at 60° F and 14.7 psia.

Where:

Fuel total sulfur = Concentration of the H₂S measured in the fuel fired plus a 35 ppmv allowance for non-H₂S sulfur based on past testing at the BP-Husky refinery, or more recent test value if future testing is performed.

b. Emission Limitation

Reformer 3 Heater (B036) shall not exceed 22.8 tons SO₂ per year as a rolling 12-month summation of the monthly emissions during the period specified in a)(3).

Applicable Compliance Method:

Calculate the daily Reformer 3 Heater SO₂ emissions (lbs SO₂/day) by multiplying the daily fuel used (mmscf) by the daily average concentration of the fuel total sulfur (ppmv) in scf sulfur/mmscf fuel, multiplying by the molecular weight of SO₂ (64 lbs/lbmole) and dividing by the conversion of 379 (scf/lbmole) which is based on standard conditions at 60° F and 14.7 psia.

Where:

Fuel total sulfur = concentration of the H₂S measured in the fuel fired plus a 35 ppmv allowance for non-H₂S sulfur based on past testing at the BP-Husky refinery, or a more recent test value if future testing is performed.

c. Emission Limitation

The total combined SO₂ emissions from the emissions units listed in a)(2) shall not exceed 207.5 tons SO₂ per year as a rolling, 12-month summation of the monthly emissions during the period specified in a)(2).

Applicable Compliance Method:

i. Alstom Boiler (B034 & B035) incremental emissions of SO₂ shall be calculated by multiplying the Alstom boiler incremental firing rate (MMBtu/hr) by the number of hours of operation, dividing by the fuel heating value (btu/scf) multiplying by the daily average total sulfur in the fuel (ppmv) as recorded by the total sulfur continuous emissions monitoring system, dividing by the constant 379 (scf/lbmole), and multiplying by the molecular weight of SO₂ 64 lbs/lbmole.

The total Alstom Boiler incremental firing rate shall be equal to 31 MMBtu/hr until the initial start-up of the proposed new Coker Gas Plant and equal to 93 MMBtu/hr thereafter.



- ii. Calculate the Reformer 3 Heater (B036) SO₂ emissions by multiplying the daily average fuel used (mmscf) by the daily average concentration of the fuel total sulfur (ppmv) in (scf sulfur / mmscf fuel), multiplying by the molecular weight of SO₂ (64 lbs/lbmole) and dividing by the conversion of 379 (scf/lbmole) which is based on standard conditions at 60° F and 14.7 psia.

Where:

Fuel total sulfur = actual concentration of the H₂S in the fuel fired as measured by the H₂S continuous emissions monitoring system (CEMS) plus a 35 ppmv allowance for non-H₂S sulfur from past testing or more recent test value if future testing is performed.

35 ppmv non-H₂S sulfur is based on past testing at the BP-Husky refinery

- iii. For other Heaters listed in a)(2), SO₂ emissions shall be calculated by multiplying the daily average fuel use (mmscf) by the daily average concentration of the total sulfur in the fuel fired (scf sulfur/ mmscf fuel) as recorded by the total sulfur continuous emissions monitoring system divided by the constant 379 (scf/lbmole) and multiplied by the molecular weight of SO₂ 64 lbs/lbmole.
 - iv. SO₂ emissions from SRU1, 2, and 3 (P009 and P037) of a)(2) shall be calculated by using the monthly average SO₂ concentration from the CEMS and the calculated monthly total gas flow to determine the monthly total SO₂ emissions.
- d. Coker 2 heater (B017) shall not exceed 3.64 tons SO₂ per year as a rolling, 12-month summation of the monthly emissions beginning on the date specified in a.(3).

Applicable Compliance Method:

SO₂ emissions shall be calculated by multiplying the daily average fuel use (mmscf) by the daily average concentration of the total sulfur in the fuel fired (scf sulfur/ mmscf fuel) as recorded by the total sulfur continuous emissions monitoring system divided by the constant 379 (scf/lbmole) and multiplied by the molecular weight of SO₂ 64 lbs/lbmole.

- e. Emission Limitation

Naphtha Treater Heater (B022) emissions shall not exceed 3.64 tons per year as a SO₂ per rolling, 12-month summation of the monthly emissions beginning on the date specified in a.(3).

Applicable Compliance Method:

SO₂ emissions shall be calculated by multiplying the daily average fuel use (mmscf) by the daily average concentration of the total sulfur in the fuel fired (scf sulfur/ mmscf fuel) as recorded by the total sulfur continuous emissions



monitoring system divided by the constant 379 (scf/lbmole) and multiplied by the molecular weight of SO₂ 64 lbs/lbmole.

f. Emission Limitation

Crude Vac 2 (B019) emissions shall not exceed 12.15 tons per year SO₂ as a rolling 12-month summation of the monthly emissions beginning on the date specified in a.(3).

Applicable Compliance Method:

SO₂ emissions shall be calculated by multiplying the daily average fuel use (mmscf) by the daily average concentration of the total sulfur in the fuel fired (scf sulfur/ mmscf fuel) as recorded by the total sulfur continuous emissions monitoring system divided by the constant 379 (scf/lbmole) and multiplied by the molecular weight of SO₂ 64 lbs/lbmole.

g. Emission Limitation

Coker 3 Heater (B032) shall not exceed 11.64 tons SO₂ per rolling, 12-months period, beginning on the date specified in a.(3).

Applicable Compliance Method:

SO₂ emissions shall be calculated by multiplying the daily average fuel use (mmscf) by the daily average concentration of the total sulfur in the fuel fired (scf sulfur/ mmscf fuel) as recorded by the total sulfur continuous emissions monitoring system divided by the constant 379 (scf/lbmole) and multiplied by the molecular weight of SO₂ 64 lbs/lbmole.

3. The following emissions unit contained in section C. of this permit is subject to 40 CFR Part 60 Subpart J: B019. The complete NSPS requirements, including the NSPS General Provisions may be accessed via the internet from the electronic Code of Federal Regulations (e-CFR) website <http://ecfr.gpoaccess.gov> or by contacting the appropriate Ohio EPA district or local air agency.



Final Permit-to-Install
BP-Husky Refining LLC
Permit Number: P0111328
Facility ID: 0448020007
Effective Date: 1/4/2013

C. Emissions Unit Terms and Conditions



1. B019, Crude/Vac 2 Furnace

Operations, Property and/or Equipment Description:

Crude Vac 2 Furnace 240 MMBtu per hr

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

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(D)	262.8 tons per year NO _x based on a rolling, 12-month summation of the monthly emissions; 21.02 tons per year SO ₂ based on a rolling, 12-month summation of the monthly emissions See b)(2)a. and b)(2)c Also see B.2.a), c), d), & e)
b.	OAC rule 3745-17-07(A)	Visible particulate emissions shall not exceed 20% opacity as a six-minute average, unless otherwise specified by the rule
c.	OAC rule 3745-17-10(B)(1)	0.020 pound of particulate emissions per million Btu of heat input
d.	OAC rule 3745-18-54(W)(1)	See b)(2)d.
e.	40 CFR Part 60, Subpart J (40 CFR 60.100-109) [In accordance with 40 CFR 60.104(a)(1) this emissions unit is a fuel gas combustion device and subject to the emissions limitations/	See b)(2)b.



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
	control measures specified in this section]	
f.	40 CFR 60.1-19	See b)(2)e.
g.	40 CFR Part 63, Subpart DDDDD	See b)(2)h.

(2) Additional Terms and Conditions

- a. This permit to install incorporates the emission limits and schedules set out in paragraphs 14-18 and 21 of the Consent Decree (United States of America, et al., v. BP Exploration & Oil Co., et al., Civil Action No. 2:96CV095 RL).
- b. The permittee shall not burn in this emissions unit any refinery fuel gas that has a volume-weighted, rolling 3-hour average H₂S concentration greater than 0.10 grain per dry standard cubic foot, except during periods of startup, shutdown or malfunction of the refinery fuel gas amine systems provided that BP shall to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practices for minimizing emissions. Until September 30, 2003, the Vacuum 2 Unit vent gas currently burned in this emissions unit is excluded from this requirement.
- c. By no later than September 30, 2003, this emissions unit shall be considered an affected facility for purposes of 40 CFR Part 60, Subpart J, and shall comply with all requirements of 40 CFR 60, Subparts A and J as those subparts apply to fuel gas combustion devices.
- d. The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(D).
- e. 40 CFR Part 60, Subpart A provides applicability provisions, definitions, and other general provisions that are pertinent to emissions units affected by 40 CFR Part 60.
- f. The permittee shall maintain a written quality assurance/quality control plan for the continuous hydrogen sulfide monitoring system, designed to ensure continuous valid and representative readings of hydrogen sulfide emissions in units of the applicable standard(s). The plan shall follow the requirements of 40 CFR Part 60, Appendix F. The quality assurance/quality control plan and a logbook dedicated to the 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 Part 60, Appendix F]



- g. 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.
- h. On May 16, 2011, U.S. EPA decided to Stay the Boiler MACT (40 CFR Part 63, Subpart DDDDD). This delay of effectiveness will remain in place until the proceedings for judicial review are completed or U.S. EPA completes its reconsideration of the rules, whichever is earlier, and the Agency publishes a notice in the Federal Register announcing that the rules are in effect. Upon being effective, this emissions unit will be subject to 40 CFR Part 63, Subpart DDDDD.

[40 CFR 60.2] and/or [40 CFR 63.2] and [Appendix F to 40 CFR Part 60]

c) Operational Restrictions

- (1) The permittee shall only burn natural gas, LP gas and/or refinery fuel gas in this emissions unit.
- (2) The quality of the natural gas, LP gas and/or refinery fuel gas burned in this emissions unit shall meet, on an "as burned" basis, a sulfur content that is sufficient to comply with the allowable hydrogen sulfide emission limitation of 0.10 grain per dry standard cubic foot as a volume-weighted, rolling 3-hour average.

d) Monitoring and/or Recordkeeping Requirements

- (1) For each day during which the permittee burns a fuel other than refinery fuel gas, LP 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 monitor and record the hourly, daily and monthly average firing rate in terms of standard cubic feet per hour. From this data, the permittee shall calculate and maintain records of the monthly and rolling, 12-month total SO₂ and NO_x emission rates in units of tons per month and tons per year in accordance with the procedure outlined in f).
- (3) The permittee shall calibrate, maintain and operate a continuous monitoring system for measurement of the H₂S content in the fuel gas before being burned in this fuel gas combustion device.
 - a. The H₂S monitoring device shall continuously monitor and record the concentration (dry basis) of H₂S in fuel gases before being burned in any fuel gas combustion device.
 - b. The span value for this instrument is 425 mg/dscm H₂S.
 - c. 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 H₂S in the fuel gas being burned.



- d. The performance evaluations for this H₂S monitor shall use Performance Specification 7. Method 11, 15, 15A, or 16 shall be used for conducting the relative accuracy evaluations.
- (4) The permittee shall maintain on-site, the document of certification received from the U.S. EPA or the Ohio EPA's Central Office documenting that the continuous hydrogen sulfide monitoring system has been certified to meet the requirements of 40 CFR Part 60, Appendix B, Performance Specification 7. The letter/document of certification 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 Part 60, Appendix B]

- (5) 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:

- a. emissions of hydrogen sulfide in parts per million for each cycle time of the analyzer, with no resolution less than one data point per minute required;
- b. emissions of hydrogen sulfide, in all units of the applicable standard(s) and in the appropriate averaging period;
- c. results of quarterly cylinder gas audits;
- d. results of daily zero/span calibration checks and the magnitude of manual calibration adjustments;
- e. results of required relative accuracy test audit(s), including results in units of the applicable standard(s);
- f. hours of operation of the emissions unit, continuous hydrogen sulfide monitoring system, and control equipment;
- g. the date, time, and hours of operation of the emissions unit without the control equipment and/or the continuous hydrogen sulfide monitoring system;
- h. the date, time, and hours of operation of the emissions unit during any malfunction of the control equipment and/or the continuous hydrogen sulfide monitoring system; as well as,
- i. the reason (if known) and the corrective actions taken (if any) for each such event in (g) and (h).



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

[40 CFR 60.13] and [40 CFR Part 60, Appendices B & F]

The permittee shall maintain records of the monthly average net H₂S of the fuel burned in this emissions unit.

e) Reporting Requirements

- (1) The permittee shall submit deviation (excursion) reports that identify each month when the NO_x emissions exceed 262.8 tons/yr based on a rolling, 12-month summation of the monthly emissions. The permittee shall submit deviation (excursion) reports that identify each month when the SO₂ emissions exceed 21.02 tons/yr based on a rolling, 12-month summation of the monthly emissions.
- (2) The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than refinery fuel gas, LP gas, and/or natural gas was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
- (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 document the date, commencement and completion times, duration, and magnitude of each exceedance, as well as, the reason (if known) and the corrective actions taken (if any) for each exceedance. Excess emissions shall be reported in units of the applicable standard(s).
 - b. These quarterly reports shall be submitted by January 30, April 30, July 30, and October 30 of each year and shall include the following:
 - i. the facility name and address;
 - ii. the manufacturer and model number of the continuous 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. results and dates of quarterly cylinder gas audits;
- ix. unless previously submitted, results and dates of the relative accuracy test audit(s), including results in units of the applicable standard(s), (during appropriate quarter(s));
- x. unless previously submitted, the results of any relative accuracy test audit showing the continuous 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

[40 CFR 60.7]

- (4) Unless otherwise specified above, the reports required to be submitted under e). shall be submitted in accordance with the Standard Terms and Conditions of Section A.

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



f) Testing Requirements

(1) Compliance with the emissions limitation(s) in b)(1) 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:

0.020 pound of particulate emissions per million Btu of heat input

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance using the methods and procedures specified in OAC rule 3745-17-03(B)(9).

c. Emission Limitation:

0.10 grain H₂S per dry standard cubic foot of fuel gas burned as a volume-weighted, rolling 3-hour average

Applicable Compliance Method:

Compliance shall be demonstrated based upon the monitoring and record keeping requirements of d). If required, compliance shall also be demonstrated based upon the methods and procedures of 40 CFR 60.106(e)(1).

d. Emission Limitation:

262.8 tons per year NO_x based on a rolling, 12-month summation of the monthly emissions

Applicable Compliance Method:

If required, the permittee shall establish a new NO_x emission factor in units of pounds NO_x per million Btu of heat input using Methods 3A, 7E and 19 of 40 CFR Part 60. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA. Multiply the stack test derived emission factor (lb/mmBtu) by the monthly average hourly fuel gas burned (mmscf/month), multiplied by the monthly average heating value of fuel burned (mmBtu/mmscf) to determine the monthly total NO_x emissions. Add the monthly total NO_x emissions to the total NO_x emissions for the previous 11 months to determine the rolling 12-month total NO_x emissions.



e. Emission Limitation:

21.02 tons per year SO₂ based on a rolling, 12-month summation of the monthly emissions

Applicable Compliance Method:

Multiply the monthly average net H₂S concentration by the monthly total gas flow to determine the lbs H₂S per month. Convert H₂S to SO₂ at a rate of 34 pounds H₂S to 64 pounds SO₂ emissions. Add the monthly total to the total for the previous 11 calendar months to determine the rolling 12-month total SO₂ emissions.

- (2) Ongoing compliance with the hydrogen sulfide emission limitation(s) contained in this permit, 40 CFR Part 60, and any other applicable standard(s) shall be demonstrated through the data collected as required in the Monitoring and Record keeping Section of this permit; and through demonstration of compliance with the quality assurance/quality control plan, which shall meet the requirements of 40 CFR Part 60.

[40 CFR 60.13] and [40 CFR Part 60, Appendices B & F]

g) Miscellaneous Requirements

- (1) Excessive Audit Inaccuracy. If the RA, using the RATA, CGA, or RAA exceeds the criteria in section 5.2.3 of 40 CFR Part 60, Appendix F Procedure 1, the CEMS is out-of-control. If the CEMS is out-of-control, take necessary corrective action to eliminate the problem. Following corrective action, the source permittee must audit the CEMS with a RATA, CGA, or RAA to determine if the CEMS is operating within the specifications. A RATA must always be used following an out-of-control period resulting from a RATA. The audit following corrective action does not require analysis of USEPA performance audit samples. If audit results show the CEMS to be out-of-control, the CEMS operator shall report both the audit showing the CEMS to be out-of-control and the results of the audit following corrective action showing the CEMS to be operating within specifications.