PERMIT-TO-INSTALL APPLICATION
OHIO RIVER CLEAN FUELS FACILITY
VILLAGE OF WELLSVILLE, COLUMBIANA AND JEFFERSON COUNTIES, OHIO

SUBMITTED TO:

OHIO ENVIRONMENTAL PROTECTION AGENCY

SUBMITTED BY:

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CEC PROJECT 061-933.0024

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MODULE 3

1.0 PROCESS DESCRIPTION

This section describes activities associated with the gasification process. Figure 10 is a block flow diagram of this process (see Attachment 3A).

Feedstock will be delivered from the coal and biomass bunkers described in Module 2 (Feedstock Processing) to six identical gasifiers. Each gasifier will consist of a pressure vessel with a gasification chamber inside. A membrane water wall will enclose the gasification zone. The inner gasifier wall temperature will be controlled by circulating water through the tubes in the membrane water wall to generate saturated steam.

Gasification involves exposure of feedstock to sub-stoichiometric quantities of oxygen at elevated temperature and pressure. Pressurized feedstock, high purity oxygen, and steam enter the gasifier. Gasifier throughput will be determined by the gasifier load controllers, which will set the oxygen flow per burner. Gasifier throughput will be changed by the operator on the basis of demand requested by the Fischer-Tropsch Plant (Module 6). The startup burners will be water-cooled oxygen/natural gas burners. The ignition burners will be air/natural gas burners (not cooled). The startup and ignition burner systems will only be operated during startup of the gasifiers.

The product of the gasification process is synthesis gas (syngas) consisting primarily of carbon monoxide and hydrogen along with carbon dioxide and water. Hot, raw syngas and traces of entrained fly ash will exit from the top of the gasifier where cooled, recycled syngas will be used to quench the exit gas temperature to approximately 1,650 °F. The recycled syngas will be pressurized by a quench gas compressor for injection into the quenching zone. The quenched raw syngas product gas leaving the gasifier will enter the syngas cooler. The steam pressure will be maintained higher than the syngas pressure in order to maximize safety. Saturated steam will be exported from the gasification trains.

By-products of the gasification process include slag and ash. Liquid slag will flow downward along the vertical walls through slag taps in the conical bottom of each gasifier into water baths where it will solidify and scatter into small granules. Ash will be removed in the dry solids removal unit (see Module 4 – Material Handling).

During normal operation, there will be no air emissions from this process. As discussed above, the syngas stream will undergo by-product removal and additional cleaning before being converted to liquid fuel (see Module 6 – Fischer-Tropsch & Product Upgrade).

During startup and shutdown of a gasifier, it will be necessary to temporarily exhaust syngas from the gasifiers to a high pressure flare. Flaring of syngas during these events will occur after syngas passes through particulate filtration (see Module 5 – Syngas Cleanup). The high pressure flare will be equipped with multiple natural gas-fired pilot burners with a combined nominal rated capacity of 0.55 MMBtu/hr to sustain combustion of vented gases. Flare pilots will burn

continuously and will automatically ignite flammable gases from the gasifiers. Burner failure sensors will be installed to ensure that pilots remain lit.

For base load operation after several years of operation, gasifier startups and shutdowns are assumed to occur about 36 times per year (one gasifier being started or shutdown for each event). For purposes of this application, it is assumed that a startup or shutdown will occur 52 times per year during the initial years of operation (i.e., on average, one gasifier will be either started up or shut down each week). The duration of each startup or shutdown is assumed to be one hour.

Upset and emergency conditions may require that a gasifier be depressurized directly to the flare without passing gases through the cleanup stages. These events are expected to be infrequent and of short duration.

2.0 AIR EMISSIONS INVENTORY

The gasification process will not be a source of atmospheric emissions under normal operating conditions. Under normal operating conditions the product of the gasification process (syngas) will be contained and directed to downstream processing modules.

During startup and shutdown of the gasifiers and during emergencies or process upsets, it will be necessary to direct gasifier products to the high pressure flare. Flare emissions will include combustion emissions from burning syngas and natural gas as well as non-combustible feed stream constituents.

2.1 High Pressure Flare Pilot Burner

One or more natural gas-fired pilot burners are assumed to operate continually in the high pressure flare. The burner(s) will be rated at 0.55 MMBtu/hr heat input.

Emission estimates for pilot burner(s) operation have been based on AP-42 emission factors for natural gas combustion. Emission factors for small boilers (< 100 MMBtu/hr heat input) have been used. Detailed calculations are shown in the Supporting Calculations in Attachment 3B.

2.2 High Pressure Flare Emissions During Gasifier Startup or Shutdown Events

Estimates for high pressure flare emissions during gasifier startup or shutdown are based on the following assumptions:

- 52 startups or shutdowns will occur per year
- The duration of each startup or shutdown will be one hour
- Engineering design estimates of principal pollutant emissions have been developed on a lb/MMBtu basis. The assumed heating value of syngas vented to the flare is 3,140 MMBtu/hr.
- Hourly emission rates are provided as both "maximum" and "annual average." Maximum values are based on the one-hour flare venting duration. Annual average values reflect an average emission rate assuming steady state exhaust over a period of 8,760 hours per year.
- The flare will achieve a 98% destruction efficiency for VOC emissions

Emission estimates for gasifier venting are presented in Attachment 3B - Supporting Calculations. References and documentation are provided in Attachment 3C.

3.0 APPLICABLE REGULATIONS

This section presents information concerning module-specific applicable state and federal regulations as well as specific exemptions, as appropriate. State regulatory references are to the Ohio Administrative Code (OAC), unless otherwise noted. Facility-wide applicable regulations are addressed in Section 5 of the PTI Application, Introduction.

3.1 State Regulations

3.1.1 Control of Visible Particulate Emissions from Stationary Sources (3745-17-07)

The high pressure flare that will control startup, shutdown, and process upset emissions from the gasification process will be a stationary source of particulate matter. Stationary sources are subject to Chapter 3745-17-07(A)(1)(a) which limits visible particulate emissions to less than 20% opacity as a six-minute average. Chapter 3745-17-07(A)(1)(b) further states that the 20% opacity limit may not be exceeded for more than six consecutive minutes in any sixty minutes and never shall the opacity exceed 60% as a 6-minute average.

3.1.2 Restrictions on Particulate Emissions from Fuel Burning Equipment (3745-17-10)

This rule applies to sources using fuel combustion for the primary purpose of producing heat or power by indirect heat transfer. The chemical reaction occurring in the gasifiers does not occur for the primary purpose of producing heat or power by indirect heat transfer. Therefore, this regulation does not apply to the ORCF project.

3.1.3 Control of Emissions of Organic Materials from Stationary Sources (3745-21-07)

This regulation is applicable to all new sources of organic materials. The rule requires sources of photochemically reactive materials to minimize such emissions through the use of the latest available control techniques and operating practices in accordance with best current technology. The use of the high pressure flare to combust volatile organic materials emitted from the gasifiers is determined to be the best current technology.

3.1.4 Control of Carbon Monoxide Emissions from Stationary Sources (3745-21-08)

This regulation applies to carbon monoxide emissions from grey iron cupola, blast furnace, basic oxygen steel furnaces, or the waste gas stream from catalyst regeneration of petroleum cracking systems, petroleum fluid cokers, or other petroleum processes. Consequently, this rule is not applicable to sources presented in Module 3.

3.1.5 Permits to Install New Sources (3745-31)

Gasification will generate criteria pollutants from the incomplete combustion of feedstock materials. The gasifier emission units are part of a major stationary source. Because the major stationary source is located within an attainment area for all criteria pollutants, according to 3745-31-12(A), each emissions unit is subject to an evaluation of best available control technology (BACT). The BACT analysis for these emission units is provided in Section 4. In accordance with 3745-31-05(A)(3), sources are also required to employ best available technology (BAT). Because all sources and pollutants are addressed in the BACT analysis, BAT is assumed to have been achieved for affected emission units.

3.2 Federal Regulations

No federal regulations have been identified that regulate emissions from this Module. The gasification process is not considered to be a part of ORCF's petroleum refining facilities. This process converts solid coal into its gaseous constituents (carbon monoxide and hydrogen). Consequently, ORCF believes that the NSPS for petroleum refineries (Subpart J and Subpart Ja) are not applicable to the emission units described in this module.

The requirements of 40 CFR 60.18 (General Control Device Requirements) apply to control devices that are used to achieve compliance with other applicable Subparts of 40 CFR 60 and 61. While operation of the flare is not subject to those regulations, because prior BACT determinations have referenced them, they are presented here.

- Flares shall be designed for and operated with no visible emissions except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.
- Flares shall be operated with a flame present at all times.
- An option is provided for adhering with a heat content specification (minimum 300 Btu/scf for steam- or air-assisted, 200 Btu/scf if nonassisted) and a maximum tip velocity depending on the type of flare, or specific stack dimensions for nonassisted flares.

The engineering design for the high pressure flare will incorporate these provisions.

4.0 BACT ANALYSIS

The gasification process will not be a source of air emissions during normal operation because the product of the gasification reaction is captured for additional processing in downstream modules. During startup and shutdown of a gasifier, it will be necessary to exhaust syngas from the gasifiers to a high pressure flare. Flaring of syngas during these events will occur after syngas passes through particulate filtration and the acid gas removal unit (see Module 5 – Syngas Cleanup).

The high pressure flare will emit criteria pollutants as well as hazardous air pollutants that are products of combustion. The high pressure flare is not a candidate for add-on pollution abatement systems. It is generally recognized in the chemical process industries that adoption of add-on control can impede the ability of a flare to respond to unexpected upset conditions. For plant safety, the flare must provide a "fail-safe" that is available regardless of the functioning of pollution control devices.

4.1 Particulate Matter

The high pressure flare will be a source of particulate matter emissions although the carbon content of gases reaching the flare will be reduced by the high pressure high temperature filter of the dry solids removal system (see Module 5 – Syngas Cleanup). This section presents the BACT analysis for particulate matter emissions from the high pressure flare.

4.1.1 Available Control Technologies – Particulate Matter

A search of RBLC for Process Type 19.3 – Flares and Process Type 50.008 – Petroleum Refining Flares and Incinerators (except acid gas/SRU incinerators – 50.006), located several BACT determinations for particulate matter (see Attachment 3C). BACT determinations referenced the following controls:

- Proper equipment design and operation
- Use of gaseous fuels
- Proper maintenance and monitoring
- Smokeless design and operation.

4.1.2 Technically Infeasible Options – Particulate Matter

All of the technologies listed above are technically feasible for particulate matter control from the high pressure flare.

4.1.3 Technology Ranking – Particulate Matter

Smokeless design with use of gaseous fuels and properly operated and maintained equipment are the only feasible control strategies that have been identified for particulate matter emissions from the high pressure flare.

4.1.4 Evaluate Most Effective Controls – Particulate Matter

A properly designed, operated, and maintained smokeless flare has been selected as BACT for control of particulate matter emissions from the high pressure flare.

4.1.5 Proposed BACT Limits and Control Options – Particulate Matter

A properly designed and operated smokeless flare has been selected as BACT for potential particulate emissions. The proposed BACT limit of 0.003 lb/MMBtu is based on the projected emissions (9.4 lb/hr) and the maximum flare heat input (3,140 MMBtu/hr).

4.2 Carbon Monoxide

The high pressure flare will be a source of carbon monoxide (CO) emissions. This section presents the BACT analysis for CO emissions from that source.

4.2.1 Available Control Technologies – Carbon Monoxide

Carbon monoxide emissions are due to incomplete combustion that typically results from inadequate air and fuel mixing, a lack of available oxygen, or low temperatures in the combustion zone. Fuel quality and good combustion practices can limit CO emissions. A search of RBLC for Process Type 19.3 – Flares and Process Type 50.008 – Petroleum Refining Flares and Incinerators (except acid gas/SRU incinerators – 50.006), located several BACT determinations for carbon monoxide, as listed below (see Attachment 3C).

- Limited operating hours
- Follow requirements of 40 CFR 60.18
- Good combustion practice
- Good design and proper operating practices, comply with 40 CFR 60.18
- Proper maintenance including monitoring for the presence of a flame.

4.2.2 Technically Infeasible Options – Carbon Monoxide

Limiting the operating hours of the flare is technically infeasible. The duration and frequency of process upsets and emergencies cannot be anticipated.

The requirements of 40 CFR 60.18 apply to control devices that are used to achieve compliance with other applicable subparts of 40 CFR 60 and 61. While operation of the flare is not subject to these guidelines, because prior BACT determinations have referenced them, they are presented here:

- Flares shall be designed for and operated with no visible emissions except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.
- Flares shall be operated with a flame present at all times.
- An option is provided for adhering with a heat content specification (minimum 300 Btu/scf for steam- or air-assisted, 200 Btu/scf if nonassisted) and a maximum tip velocity depending on the type of flare, or specific stack dimensions for nonassisted flares.

Because engineering details of the final flare design have not been developed at this time, the feasibility of adherence to the 40 CFR 60.18 guidelines cannot be determined.

4.2.3 Technology Ranking – Carbon Monoxide

Good design and combustion practices are the only feasible control strategies that have been identified. Good combustion practice has historically been selected as BACT for CO emissions from flares.

4.2.4 Evaluate Most Effective Controls – Carbon Monoxide

A combination of good design and combustion practices is selected as BACT for CO emissions from the high pressure flare.

4.2.5 Proposed BACT Limits and Control Options – Carbon Monoxide

The use of good design and good combustion practices has been selected as BACT for potential CO emissions from the high pressure flare. The proposed BACT limit of 0.8 lb/MMBtu is based on the maximum hourly projected emissions (2,522 lb/hr) and the maximum flare heat input (3,140 MMBtu/hr).

4.3 Nitrogen Oxides

The high pressure flare will be a source of nitrogen oxide (NO_x) emissions. This section presents the BACT analysis for NO_x emissions from that source.

4.3.1 Available Control Technologies – Nitrogen Oxides

A search of RBLC for Process Type 19.3 – Flares and Process Type 50.008 – Petroleum Refining Flares and Incinerators (except acid gas/SRU incinerators – 50.006), located several BACT determinations for nitrogen oxides, as listed below (see also Attachment 3C).

- Limited operating hours
- Follow requirements of 40 CFR 60.18
- Good combustion practice
- Good design and proper operating practices, comply with 40 CFR 60.18
- Proper maintenance including monitoring for the presence of a flame.

4.3.2 Technically Infeasible Options – Nitrogen Oxides

Limiting the operating hours of the flare is technically infeasible. The duration and frequency of process upsets and emergencies cannot be anticipated.

The requirements of 40 CFR 60.18 apply to control devices that are used to achieve compliance with other applicable subparts of 40 CFR 60 and 61, as discussed above in Section 4.2.2. Because engineering details of the final flare design have not been developed at this time, the feasibility of adherence to the 40 CFR 60.18 guidelines can not be determined.

4.3.3 Technology Ranking – Nitrogen Oxides

Good design and combustion practices are the only feasible control strategies that have been identified. Good combustion practice has historically been selected as BACT for NO_x emissions from flares.

4.3.4 Evaluate Most Effective Controls – Nitrogen Oxides

A combination of good design and combustion practices is selected as BACT for NO_x emissions from the high pressure flare.

4.3.5 Proposed BACT Limits and Control Options – Nitrogen Oxides

The use of good design and good combustion practices has been selected as BACT for potential NO_x emissions from the high pressure flare. The proposed BACT limit of 0.12 lb/MMBtu is based on the maximum hourly projected emissions (377 lb/hr) and the maximum flare heat input (3,140 MMBtu/hr).

4.4 Volatile Organic Compounds

The high pressure flare will be a source of volatile organic compound (VOC) emissions. This section presents the BACT analysis for VOC emissions from that source.

4.4.1 Available Control Technologies – Volatile Organic Compounds

Volatile Organic Compound (VOC) emissions are due to incomplete combustion that typically results from inadequate air and fuel mixing, a lack of available oxygen, or low temperatures in

the combustion zone. Fuel quality and good combustion practices can limit VOC emissions. A review of the RBLC database for Process Type 19.3 – Flares and Process Type 50.008 – Petroleum Refining Flares and Incinerators (except acid gas/SRU incinerators – 50.006), located BACT determinations for VOC as follow (see also Attachment 3C):

- Flare is VOC control (i.e., the flare was indicated as BACT for the process)
- Good combustion practice
- Limited operation.

4.4.2 Technically Infeasible Options – Volatile Organic Compounds

Limiting the operating hours of the flare is technically infeasible. The duration and frequency of process upsets and emergencies cannot be anticipated.

4.4.3 Technology Ranking – Volatile Organic Compounds

Good design and combustion practices are the only feasible control strategies that have been identified. Good combustion practice has historically been selected as BACT for VOC emissions from flares.

4.4.4 Evaluate Most Effective Controls – Volatile Organic Compounds

A combination of good design and combustion practices is selected as BACT for VOC emissions from the high pressure flare.

4.4.5 Proposed BACT Limits and Control Options – Volatile Organic Compounds

The use of good design and good combustion practices has been selected as BACT for potential VOC emissions from the high pressure flare. The proposed BACT limit of 0.05 lb/MMBtu is based on the maximum hourly projected emissions (157 lb/hr) and the maximum flare heat input (3,140 MMBtu/hr).

4.5 Sulfur Dioxide

The high pressure flare will be a source of sulfur dioxide (SO_2) emissions. This section presents the BACT analysis for SO_2 emissions from that source.

4.5.1 Available Control Technologies – Sulfur Dioxide

Sulfur dioxide (SO_2) emissions are due to combustion of sulfur present in fuel. The control of SO_2 emissions is most directly related to using low sulfur fuel. A review of the RBLC database for Process Type 19.3 – Flares and Process Type 50.008 – Petroleum Refining Flares and

Incinerators (except acid gas/SRU incinerators – 50.006), located BACT determinations for SO_2 as follow (see also Attachment 3C):

- Various fuel sulfur limits (%)
- Follow requirements of 40 CFR 60.18
- Good combustion practice
- Good design and proper operating practices, comply with 40 CFR 60.18
- Proper maintenance including monitoring for the presence of a flame.

4.5.2 Technically Infeasible Options – Sulfur Dioxide

It is technically infeasible to limit the sulfur content of gases vented to the high pressure flare to a specific sulfur percentage. The ORCF design includes processing of vented gases through the particulate and acid gas removal cleanup stages prior to it being delivered to the flare. As such, regulated contaminants, including sulfur species, will be controlled prior to combustion in the flare.

As discussed in Section 4.2.2., because engineering details of the final flare design have not been developed at this time, the feasibility of adherence to the 40 CFR 60.18 guidelines can not be determined.

4.5.3 Technology Ranking – Sulfur Dioxide

Good combustion practices including good design of the flare and proper maintenance are determined to be the only feasible technologies for control of sulfur dioxide emissions from the high pressure flare.

4.5.4 Evaluate Most Effective Controls – Sulfur Dioxide

A combination of good design, good combustion practices, and proper maintenance is selected as BACT for SO_2 emissions from the high pressure flare.

4.5.5 Proposed BACT Limits and Control Options – Sulfur Dioxide

The use of good design and good combustion practices has been selected as BACT for potential SO_2 emissions from the high pressure flare. The proposed BACT limit of 9 lb/MMBtu is based on the maximum hourly projected emissions (28,166 lb/hr) and the maximum flare heat input (3,140 MMBtu/hr).

4.6 Hydrogen Sulfide (H_2S)

Emissions of H_2S will be produced during the intermittent startup and shutdown of individual gasifiers.

4.6.1 Available Control Technologies – H_2S

A review of the RBLC database found no matches for the process "gasifier" and hydrogen sulfide emissions. A search under the keywords "gasifier" and "all pollutants" located the Homeland Energy Solutions, LLC plant in Chickasaw County, Iowa that will produce methanol from syngas produced through gasification of either corn or coal. BACT for H_2S emissions from that facility is not included in the permit (see RBLC ID #IA-0089, 6/6/2008). Based on the BACT review prepared for H_2S emissions discussed in Module 5, the only available technology for H_2S from this process is:

- Thermal oxidizer

4.6.2 Technically Infeasible Options – H_2S

Thermal oxidization of H_2S produced by gasifier venting during startups and shutdowns is considered to be technically feasible.

4.6.3 Technology Ranking – H_2S

Thermal oxidization is believed to be the only technically feasible control technology for hydrogen sulfide emissions from gasifier venting during startups and shutdowns. The high pressure flare is considered to be the best available technology for this application due to the intermittent nature of the startup and shutdown events.

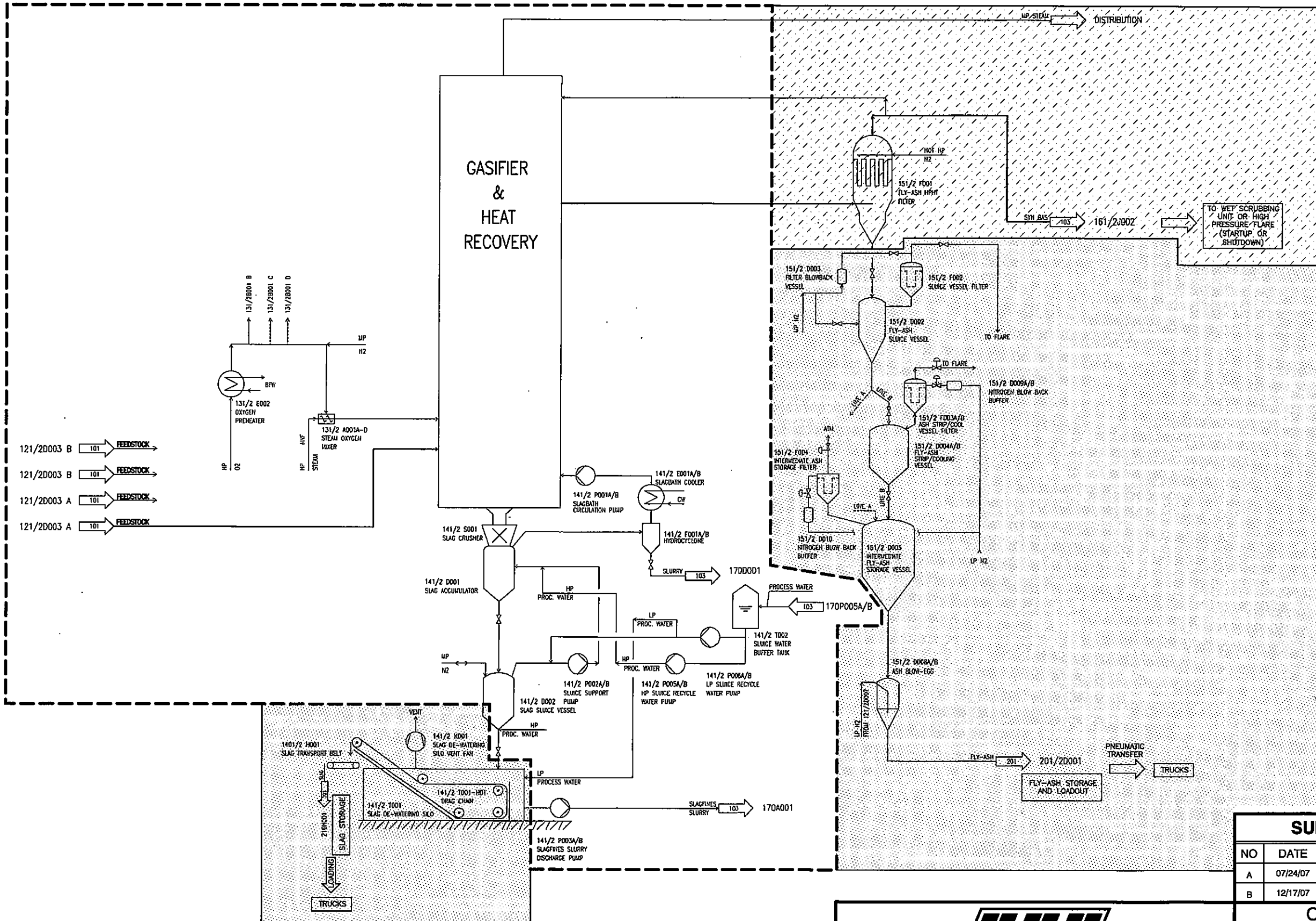
4.6.4 Evaluate Most Effective Controls – H_2S

The use of the high pressure flare is believed to be the most effective technically feasible control technology for hydrogen sulfide emissions from gasifier venting during startups and shutdowns.

4.6.5 Proposed BACT Limits and Control Options – H_2S

The proposed H_2S BACT limit of 0.02 lb/MMBtu is based on the maximum hourly projected emissions (69.1 lb/hr) and the maximum flare heat input (3,140 MMBtu/hr).

ATTACHMENT 3A
MODULE 3
FIGURES



LEGEND

- MODULE 3
- MODULE 4
- MODULE 5

REFERENCE:

COMPANY: UHDE CORPORATION OF AMERICA
DWG NAME: PROCESS FLOW DIAGRAM NO. 102
GASIFICATION SLAG REMOVAL DRY SOLIDS REMOVAL
DATE: 5/4/06
DRWN BY: LIADIS

SUBMITTAL & REVISION RECORD

NO	DATE	DESCRIPTION
A	07/24/07	DRAFT SUBMISSION
B	12/17/07	AIR PERMIT APPLICATION

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OHIO RIVER CLEAN FUELS, LLC
PROPOSED COAL TO LIQUID FUEL PLANT
COLUMBIANA AND JEFFERSON COUNTY
WELLSVILLE, OHIO

MODULE 3
GASIFICATION

APPROVED:				PROJECT NO: 061-933.0002	FIGURE NO: 10
DRAWN BY: DWD/LKC	CHKD BY: DJL	DWG SCALE: N.T.S.		DATE: 12/12/07	

\\SVR-PITT\CADD\PROJECTS\2006\061-933\DWG\061933-ENV4-3.DWG {FIG 10} (LCOLAIZZI) - DEC 13, 2007 - 10:35:32

ATTACHMENT 3B
MODULE 3
SUPPORTING CALCULATIONS

Supporting Calculations

High Pressure Flare Pilot Burner Emissions

Assumptions

0.55 MMBtu/hr HHV of natural gas for pilot burners

98 % flare destruction efficiency of VOC emissions

Assume LHV of natural gas is 950 Btu/scf

Emissions Calculations

AP-42 Section 1.4 (natural gas combustion) emission factors have been used below to estimate emissions from natural gas combustion in the pilot flame burner. This burner is assumed to operate 8,760 hr/yr.

	Emission Factor	Actual Emissions (Controlled)		Potential Emissions (Uncontrolled)	
Pollutant	(lb/MMscf)	lb/hr	TPY	lb/hr	TPY
Carbon Monoxide	84	4.86E-02	2.13E-01	4.86E-02	2.13E-01
Sulfur Dioxide	0.6	3.47E-04	1.52E-03	3.47E-04	1.52E-03
Nitrogen Oxides	100	5.79E-02	2.54E-01	5.79E-02	2.54E-01
Lead	0.0005	2.89E-07	1.27E-06	2.89E-07	1.27E-06
PE, PM10	7.6	4.40E-03	1.93E-02	4.40E-03	1.93E-02
VOC	5.5	3.18E-03	1.39E-02	3.18E-03	1.39E-02
HAPs					
Total POM	8.80E-05	5.09E-08	2.23E-07	5.09E-08	2.23E-07
benzene	2.10E-03	1.22E-06	5.33E-06	1.22E-06	5.33E-06
dichlorobenzene	1.20E-03	6.95E-07	3.04E-06	6.95E-07	3.04E-06
formaldehyde	7.50E-02	4.34E-05	1.90E-04	4.34E-05	1.90E-04
hexane	1.80E+00	1.04E-03	4.56E-03	1.04E-03	4.56E-03
naphthalene	6.10E-04	3.53E-07	1.55E-06	3.53E-07	1.55E-06
toluene	3.40E-03	1.97E-06	8.62E-06	1.97E-06	8.62E-06
arsenic	2.00E-04	1.16E-07	5.07E-07	1.16E-07	5.07E-07
beryllium	1.20E-05	6.95E-09	3.04E-08	6.95E-09	3.04E-08
cadmium	1.10E-03	6.37E-07	2.79E-06	6.37E-07	2.79E-06
chromium	1.40E-03	8.11E-07	3.55E-06	8.11E-07	3.55E-06
cobalt	8.40E-05	4.86E-08	2.13E-07	4.86E-08	2.13E-07
manganese	3.80E-04	2.20E-07	9.64E-07	2.20E-07	9.64E-07
mercury	2.60E-04	1.51E-07	6.59E-07	1.51E-07	6.59E-07
nickel	2.10E-03	1.22E-06	5.33E-06	1.22E-06	5.33E-06
selenium	2.40E-05	1.39E-08	6.09E-08	1.39E-08	6.09E-08
Total HAPs		**1.09E-03**	**4.79E-03**	**1.09E-03**	**4.79E-03**

Supporting Calculations

High Pressure Flare Emissions

Assumptions

3,140 MMBtu/hr flared gas HHV for single gasifier (per engineering design)
487.5 HHV of raw syngas to flare (Btu/scf)
98 % flare destruction efficiency of VOC emissions
Annual emissions based on a total of 52 startups or shutdowns per year: worst-case scenario
1 hour per startup or shutdown event
Potential VOC emissions are uncontrolled.
Actual emissions of VOC assume 98% destruction efficiency of the flare, no other controls apply.

Emissions Calculations

Flare emission factors are based on the engineering design of the system and characteristics of flared syngas.
Maximum hourly emission rates assume that one event occurs in one hour.
Annual average (lb/hr) emission estimates assume that the total annual emissions occur continously for 8,760 hr/yr.

	Emission Factor	Actual Emissions (Controlled)			Potential Emissions (Uncontrolled)		
Pollutant	(lb/MMBtu)	Maximum lb/hr	Annual Avg. (lb/hr)	TPY	Maximum lb/hr	Annual Avg. (lb/hr)	TPY
Carbon Monoxide	0.803	2,521.42	14.97	65.56	2,521.42	14.97	65.56
Sulfur Dioxide	8.97	28,165.80	167.19	732.31	28,165.80	167.19	732.31
Nitrogen Oxides	0.12	376.80	2.24	9.80	376.80	2.24	9.80
Lead (no data available)							
PE, PM10	0.003	9.42	0.06	0.24	9.42	0.06	0.24
VOC	0.05	157.00	0.93	4.08	7,850.00	46.60	204.10
Toxic Air Contaminants (TAC)							
Ammonia	9.55E-05	0.30	0.00	0.01	0.30	0.00	0.01
Hydrogen Sulfide	0.022	69.08	0.41	1.80	69.08	0.41	1.80
Carbonyl Sulfide (also HAP)	0.0042	13.19	0.08	0.34	13.19	0.08	0.34
Total TACs		82.57	0.49	2.15	82.57	0.49	2.15

Exhaust flow rate calculation:

3,140 MMBtu/hr = flared syngas maximum
487.5 Btu/cf = flared gas (syngas) HHV
107,350 cfm = flared gas flow rate
5.9 assumed ratio of syngas combustion products to syngas fuel combustion (unitless, aka F-factor)
633,368 cfm = exhaust flow rate from flare (assume 650,000)

Supporting Calculations

Summary: Combined Actual and Potential High Pressure Flare Emissions

Pilot Burner and Gasifier Venting Emissions (Combined)

	Actual Emissions (Controlled)			Potential Emissions (Uncontrolled)		
Pollutant	Maximum lb/hr	Annual Avg. (lb/hr)	TPY	Maximum lb/hr	Annual Avg. (lb/hr)	TPY
Carbon Monoxide	2,521.5	15.02	65.8	2,521.5	15.02	65.8
Sulfur Dioxide	28,165.8	167.19	732.3	28,165.8	167.19	732.3
Nitrogen Oxides	376.9	2.29	10.1	376.9	2.29	10.1
Lead	0.0	0.00	0.0	0.0	0.00	0.0
PE, PM10	9.4	0.06	0.3	9.4	0.06	0.3
VOC	157.0	0.94	4.1	7,850.0	46.60	204.1
Toxic Air Contaminants						
Ammonia	0.3	0.00	0.0	0.3	0.00	0.0
Hydrogen Sulfide	69.1	0.41	1.8	69.1	0.41	1.8
Carbonyl Sulfide	13.2	0.08	0.3	13.2	0.08	0.3
Total TACs	82.6	0.5	2.1	82.6	0.5	2.1
HAPs						
Carbonyl Sulfide	1.32E+01	8.00E-02	3.00E-01	1.32E+01	8.00E-02	3.00E-01
Total POM	5.09E-08	5.09E-08	2.23E-07	5.09E-08	5.09E-08	2.23E-07
benzene	1.22E-06	1.22E-06	5.33E-06	1.22E-06	1.22E-06	5.33E-06
dichlorobenzene	6.95E-07	6.95E-07	3.04E-06	6.95E-07	6.95E-07	3.04E-06
formaldehyde	4.34E-05	4.34E-05	1.90E-04	4.34E-05	4.34E-05	1.90E-04
hexane	1.04E-03	1.04E-03	4.56E-03	1.04E-03	1.04E-03	4.56E-03
naphthalene	3.53E-07	3.53E-07	1.55E-06	3.53E-07	3.53E-07	1.55E-06
toluene	1.97E-06	1.97E-06	8.62E-06	1.97E-06	1.97E-06	8.62E-06
arsenic	1.16E-07	1.16E-07	5.07E-07	1.16E-07	1.16E-07	5.07E-07
beryllium	6.95E-09	6.95E-09	3.04E-08	6.95E-09	6.95E-09	3.04E-08
cadmium	6.37E-07	6.37E-07	2.79E-06	6.37E-07	6.37E-07	2.79E-06
chromium	8.11E-07	8.11E-07	3.55E-06	8.11E-07	8.11E-07	3.55E-06
cobalt	4.86E-08	4.86E-08	2.13E-07	4.86E-08	4.86E-08	2.13E-07
manganese	2.20E-07	2.20E-07	9.64E-07	2.20E-07	2.20E-07	9.64E-07
mercury	1.51E-07	1.51E-07	6.59E-07	1.51E-07	1.51E-07	6.59E-07
nickel	1.22E-06	1.22E-06	5.33E-06	1.22E-06	1.22E-06	5.33E-06
selenium	1.39E-08	1.39E-08	6.09E-08	1.39E-08	1.39E-08	6.09E-08
Total HAPs	**13.20**	**0.08**	**0.30**	**13.20**	**0.08**	**0.30**

ATTACHMENT 3C
MODULE 3
DOCUMENTATION

LIST OF REFERENCES

- U.S. EPA, AP-42 Section 1.4 – Natural Gas Combustion, July 1998.
- U.S. EPA, RACT/BACT/LAER Clearinghouse (RBLC), http://cfpub.epa.gov/RBLC

RBLC Matching Facilities for Search Criteria:
Permit Date Between 1/1/1997 And 11/13/2007
And Process Type Contains "19.300" Flares or "50.008": Petroleum Refining Flares and Incinerators (except acid gas/SRU incinerators - 50.006)
Pollutant: Particulate Matter

RBLCID	FACILITY NAME	PROCESS NAME	PROC TYPE	THRUPUT	THRUPUT UNIT	PROCESS NOTES	CTRLDESC	EMIS LIMIT1	EMIS LIMIT1 UNIT	EMIS LIMIT1 AVG TIME CONDITION
*IA-0089	HOMELAND ENERGY SOLUTIONS, LLC, PN 06-672	STARTUP AND SHUTDOWN FLARES 1, 2, AND 3, EP33A, EP33B, AND EP33C (07-A-967P, 07-A-968P, AND 07-A-969P)	19.31	25	MM BTU / hr	PERMIT NUMBERS OF 07-A-967P, 07-A-968P, AND 07-A-969P. THE MAXIMUM CAPACITY IS 166.67 MM BTU / HR. THE UNIT CAN ONLY OPERATE AT 25 MM BTU / HR DUE TO THE INHERENT PROCESS. ALL THREE UNITS ARE THE SAME AND ALL THREE UNITS COMBINED CAN ONLY OPERATE FOR 146 TOTAL HOURS PER ROLLING 12-MONTH PERIOD.	FLARE	0.008	LB/ MMBTU	BACT
*IA-0089	HOMELAND ENERGY SOLUTIONS, LLC, PN 06-672	BIOMETHANATOR FLARE, EP11 (07-A-957P)	19.31	6.4	MM BTU / H	USED TO CONTORL METHANATOR ODORS AND ONLY USED WHEN DRYERS AND THERMAL OXIDIZERS ARE NOT OPERATING.		0.002	LB/ MMBTU	BACT
WI-0204	UWGP - FUEL GRADE ETHANOL PLANT	BYPASS FLARE, BIOMETHANATOR - P11	19.32	6.4	MMBTU/H	FLARE USED TO CONSUME ANEROBIC DIGESTION BYPRODUCTS WHEN DDGS DRYER IS NOT IN OPERATION.		0.06	LB/H	
AK-0047	MILNE POINT PRODUCTION FACILITY	FLARE	19.33	83	MMSCF/D	THE MAXIMUM RATE/CAPACITY OF THE FLARE IS 83 MMSCF/D. THE NOMINAL CAPACITY IS 0.34 MMSCF/D.		0.05	GR /DSCF	3 H AV, STANDARD CONDITIONS
LA-0208	IVANHOE CARBON BLACK PLANT	FLARE, UNIT 4	19.39					1.28	LB/H	HOURLY MAXIMUM (NATURAL GAS-FIRED)
LA-0208	IVANHOE CARBON BLACK PLANT	FLARE, UNIT 5	19.39					1.28	LB/H	HOURLY MAXIMUM (NATURAL GAS-FIRED)
LA-0208	IVANHOE CARBON BLACK PLANT	FLARE, UNIT 2	19.39					1.56	LB/H	HOURLY MAXIMUM (NATURAL GAS-FIRED)
LA-0208	IVANHOE CARBON BLACK PLANT	FLARE, UNIT 3	19.39					2.13	LB/H	HOURLY MAXIMUM (NATURAL GAS-FIRED)

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Pollutant: Particulate Matter

RBLCID	FACILITY NAME	PROCESS NAME	PROC TYPE	THRUPUT	THRUPUT UNIT	PROCESS NOTES	CTRLDESC	EMIS LIMIT1	EMIS LIMIT1 UNIT	EMIS LIMIT1 AVG TIME CONDITION
TX-0235	VALERO REFINING COMPANY-CORPUS CHRISTI REFINERY	SCRUBBER/SRU INCINERATOR	50.008			THE HOLDER OF THE PERMIT SHALL REPORT UNDER 30 TAC SECTIONS 101.6 OR 101.7 ANYTIME THE SRU IS NOT OPERATING PROPERLY. IF THE SRU TRAIN IS NOT OPERATING PROPERLY, THE ACID GAS FEED STREAM MAY BE ROUTED TO AN EMERGENCY FLARE FOR A PERIOD NOT TO EXCEED 12HRS. IF THE SULFTEN UNIT IS NOT OPERATING PROPERLY, SRU TAIL GAS SHALL BE INCINERATED, THEN ROUTED TO THE HOC FLUE GAS SCRUBBER UNLESS THE SCRUBBER STACK IS OUT OF SERVICE, IN WHICH CASE SRU TAIL GAS WILL BE ROUTED TO THE FLARE. THE INOPERABLE EQUIPMENT SHALL BE REPAIRED AND RESTORED TO SERVICE AS SOON AS POSSIBLE. THE PH OF THE HOC SCRUBBER CIRCULATING CAUSTIC SOLUTION SHALL BE CONTINUALLY MONITORED AND BE MAINTAINED AT A LEVEL BETWEEN 6.0 AND 9.0 BY THE ADDITITON OF FRESH CAUSTIC SOLUTION AS REQUIRED. THE PH SHALL BE RECORDED AT LEAST HOURLY, AND THE RECORDS MAINTAINED AT THE PLANT SITE FOR A PERIOD OF TWO YEARS. THESE RECORDS SHALL BE MADE AVAILABLE FOR INSPECTION BY THE EXECUTIVE DIRECTOR OF THE TNRCC OR HIS DESIGNATED REPRESENTATIVE.	THE COKE BURN-OFF PM EMISSIONS MAY NOT EXCEED 0.57 LB/1000 LBS COKE BURN-OFF. COMPLIANCE TESTING.	222.3	LB/H	
*IA-0089	HOMELAND ENERGY SOLUTIONS, LLC, PN 06-672	STARTUP AND SHUTDOWN FLARES 1, 2, AND 3, EP33A, EP33B, AND EP33C (07-A-967P, 07-A-968P, AND 07-A-969P)	19.31	25	MM BTU / hr	PERMIT NUMBERS OF 07-A-967P, 07-A-968P, AND 07-A-969P. THE MAXIMUM CAPACITY IS 166.67 MM BTU / HR. THE UNIT CAN ONLY OPERATE AT 25 MM BTU / HR DUE TO THE INHERENT PROCESS. ALL THREE UNITS ARE THE SAME AND ALL THREE UNITS COMBINED CAN ONLY OPERATE FOR 146 TOTAL HOURS PER ROLLING 12-MONTH PERIOD.	FLARE	0.008	LB/ MMBTU	BACT
TX-0347	CHOCOLATE BAYOU PLANT	DOCK FLARE, AM-1500	19.31				NONE INDICATED	0.01	LB/H	
LA-0120	GEISMAR PLANT	PLANT FLARE, #03-73	19.31	204	MMBTU/H	THE PLANT FLARE SYSTEM IS A STEAM ASSISTED FLARE USED TO CONTROL VOC EMISSIONS.	THE FLARE WILL BE OPERATED UNDER THE REQUIREMENTS OF 40 CFR PART 60 SUBPART A.	213.6	LB/H	
*IA-0089	HOMELAND ENERGY SOLUTIONS, LLC, PN 06-672	BIOMETHANATOR FLARE, EP11 (07-A-957P)	19.31	6.4	MM BTU / H	USED TO CONTORL METHANATOR ODORS AND ONLY USED WHEN DRYERS AND THERMAL OXIDIZERS ARE NOT OPERATING.		0.002	LB/ MMBTU	BACT
TX-0464	CONTINENTAL CARBON SUNRAY PLANT	PILOT PLANT FLARE	19.31			THE NEW FLARE IS THE PROPOSED CONTROL TECHNOLOGY WITH A 98% DESTRUCTION EFFICIENCY OF ALL VOCS. THE FLARE WILL ALSO REDUCE EMISSIONS OF H2S, CO, HCN, CS2, COS, AND PM10 EMITTED BY THE MBF. VOC CAN ALSO BE EMITTED FROM THE FEEDSTOCK OIL STORAGE TANKS. THE FIXED ROOF TANKS ARE CONSIDERED BACT DUE TO THE LOW VAPOR PRESSURE OF THE FEEDSTOCK OIL.		0.42	LB/H	

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Pollutant: Particulate Matter

RBLCID	FACILITY NAME	PROCESS NAME	PROC TYPE	THRUPUT	THRUPUT UNIT	PROCESS NOTES	CTRLDESC	EMIS LIMIT1	EMIS LIMIT1 UNIT	EMIS LIMIT1 AVG TIME CONDITION
VA-0294	ATLANTIC WASTE DISPOSAL LANDFILL	FLARES, 2500 SCFM LGF (2)	19.32	300000	scf/h	EMISSIONS ARE FOR 1 OF 2 FLARES	PROPER MAINTENANCE OF THE FLARE, INCLUDING MONITORING FOR THE PRESENCE OF A FLAME, LGF FLOW RATE, 0% OPACITY, MEASURING % METHANE IN LFG	1.6	LB/H	
VA-0294	ATLANTIC WASTE DISPOSAL LANDFILL	FLARES, 3500 SCFM LFG (3)	19.32	630000	scf/h	3 3500 SCFM LFG FLARES	PROPER MAINTENANCE OF THE FLARE, INCLUDING MONITORING FOR THE PRESENCE OF A FLAME, LGF FLOW RATE, 0% OPACITY, MEASURING % METHANE IN LFG	2.2	LB/H	
VA-0294	ATLANTIC WASTE DISPOSAL LANDFILL	FLARES, COMBINED	19.32	930000	scf/h	TOTAL EMISSIONS FOR ALL 5 FLARES: TWO 2500 SCFM AND THREE 3500 SCFM	PROPER MAINTENANCE OF THE FLARE, INCLUDING MONITORING FOR THE PRESENCE OF A FLAME, LGF FLOW RATE, 0% OPACITY, MEASURING % METHANE IN LFG-	41.6	T/YR	
*NH-0014	UNIVERSITY OF NEW HAMPSHIRE	UTILITY FLARE	19.32	125.4	MMBTU/HR	A SECOND LFG FLARE RATED AT 105.06 MMBTU/HR IS ALSO PERMITTED. BACT/LAER LIMITS ARE THE SAME FOR BOTH FLARES.		0.042	LB/ MMBTU	3-HOUR AVG
OK-0059	PONCA CITY REFINERY	FLARE	19.33	0.2	LB/MMBTU		SMOKELESS FLARE			SMOKELESS OPERATION
LA-0166	ORION REFINING CORP (NOW VALERO)	FLARE NO.1 (EMISSION PT. 15-77)	19.33	60.7	MMBTU/H			1	LB/H	
LA-0166	ORION REFINING CORP (NOW VALERO)	FLARE NO. 2 (EMISSION PT. 12-81)	19.33	60.7	MMBTU/H			1	LB/H	
TX-0494	FLINT HILLS RESOURCES INSTALLATION OF BOILERS	FLARES 5,6	19.33					130.3	LB/H	
AR-0055	NUCOR YAMATO STEEL (ARMOREL)	VTD HOTWELL FLARE	19.39	225	T/H	Degassing process, SN-36. Throughput is tons of steel per hour. BACT for CO and PM10 only.	STEAM INJECTION HOTWELL SCRUBBING	0.002	LB/T	of steel
*LA-0213	ST. CHARLES REFINERY	FLARE NOS. 3 & 4 (2004-5 & 2005-38)	50.008				PROPER EQUIPMENT DESIGN AND OPERATION, GOOD COMBUSTION PRACTICES, AND USE OF GASEOUS FUELS	0.33	LB/H	HOURLY MAXIMUM
*LA-0213	ST. CHARLES REFINERY	MVR THERMAL OXIDIZER NO. 2 (2005-41)	50.008	240	MM BTU/H		PROPER EQUIPMENT DESIGN AND OPERATION, GOOD COMBUSTION PRACTICES, AND USE OF GASEOUS FUELS	1.8	LB/H	HOURLY MAXIMUM
AZ-0046	ARIZONA CLEAN FUELS YUMA	TANK FARM THERMAL OXIDIZER	50.008			THE THERMAL OXIDIZER IS ONLY PERMITTED TO FIRE NATURAL GAS, REFINERY FUEL GAS, AND THE GASES VENTED FROM THE STORAGE TANKS.		0.008	LB/ MMBTU	3-HR AVERAGE
*OH-0308	SUNOCO, INC., TOLEDO REFINERY	FLARE, STEAM ASSISTED	50.008			FLARE, STEAM ASSISTED, TO CONTROL HYDROCARBON EMISSIONS FROM PROCESS VENTS		1.47	LB/H	

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Pollutant: Carbon Monoxide (CO)

RBLCID	FACILITY NAME	PROCESS NAME	PROC TYPE	THRUPUT	THRUPUT UNIT	PROCESS NOTES	CTRLDESC	EMIS LIMIT1	EMIS LIMIT1 UNIT	EMIS LIMIT1 AVG TIME CONDITION
*IA-0089	HOMELAND ENERGY SOLUTIONS, LLC, PN 06-672	STARTUP AND SHUTDOWN FLARES 1, 2, AND 3, EP33A, EP33B, AND EP33C (07-A-967P, 07-A-968P, AND 07-A-969P)	19.31	25	MM BTU / hr	PERMIT NUMBERS OF 07-A-967P, 07-A-968P, AND 07-A-969P. THE MAXIMUM CAPACITY IS 166.67 MM BTU / HR. THE UNIT CAN ONLY OPERATE AT 25 MM BTU / HR DUE TO THE INHERENT PROCESS. ALL THREE UNITS ARE THE SAME AND ALL THREE UNITS COMBINED CAN ONLY OPERATE FOR 146 TOTAL HOURS PER ROLLING 12-MONTH PERIOD.	FLARE	1.1	LB/ MMBTU	BACT
TX-0354	ATOFINA CHEMICALS INCORPORATED	FLARE, TOTAL HOURLY AND ANNUAL	19.31			EMISSIONS LISTED UNDER THIS ENTRY ARE FOR THE TOTAL HOURLY AND ANNUAL EMISSIONS FROM BOTH STEADY STATE AND SSM. 416 H/YR OPERATION AS THE BACKUP CONTROL DEVICE WHEN EPN SULFOX-TO IS NOT OPERATING. WASTE GAS STREAMS FROM THE SULFOX UNIT VENTS CANNOT GO TO EPN FLARE AND EPN SULFOX-TO AT THE SAME TIME. THE FLARE SHALL BE DESIGNED AND OPERATED WHERE THE COMBINED NATURAL GAS AND WASTE STREAM TO THE FLARE TIP SHALL MEET THE 40 CFR 60.18 SPECIFICATIONS FOR MINIMUM NET HEATING VALUE AND MAXIMUM TIP VELOCITY UNDER NORMAL AND SSM CONDITIONS. A FLAME IS PRESENT AT ALL TIMES AND HAS A CONSTANT PILOT FLAME. THE PILOT FLAME SHALL BE MONITORED BY A THERMOCOUPLE, AN ULTRAVIOLET MONITOR, AND INFRARED MONITOR, OR OTHER EQUIVALENT DEVICE.	FOLLOW REQUIREMENTS OF 40 CFR 60.18.	323	LB/H	
TX-0354	ATOFINA CHEMICALS INCORPORATED	FLARE, STEADY STATE OPERATION	19.31			416 H/YR OPERATION AS THE BACKUP CONTROL DEVICE WHEN EPN SULFOX-TO IS NOT OPERATING. WASTE GAS STREAMS FROM THE SULFOX UNIT VENTS CANNOT GO TO EPN FLARE AND EPN SULFOX-TO AT THE SAME TIME. THE FLARE SHALL BE DESIGNED AND OPERATED WHERE THE COMBINED NATURAL GAS AND WASTE STREAM TO THE FLARE TIP SHALL MEET THE 40 CFR 60.18 SPECIFICATIONS FOR MINIMUM NET HEATING VALUE AND MAXIMUM TIP VELOCITY UNDER NORMAL AND SSM CONDITIONS. A FLAME IS PRESENT AT ALL TIMES AND HAS A CONSTANT PILOT FLAME. THE PILOT FLAME SHALL BE MONITORED BY A THERMOCOUPLE, AN ULTRAVIOLET MONITOR, AND INFRARED MONITOR, OR OTHER EQUIVALENT DEVICE.	FOLLOW SPECIFICATIONS OF 40 CFR 60.18	323	LB/H	
TX-0449	UCC SEADRIFT OPERATIONS	STARTUP, SHUTDOWN, MAINTENANCE BEFORE THE RECYCLE PROJECT IS COMPLETE (5)	19.31				GOOD PRACTICES	380.8	LB/H	
TX-0449	UCC SEADRIFT OPERATIONS	STARTUP, SHUTDOWN, MAINTENANCE AFTER THE RECYCLE PROJECT IS COMPLETE (5)	19.31				GOOD PRACTICES	366.8	LB/H	
TX-0449	UCC SEADRIFT OPERATIONS	LARGE FLARE START-UP, SHUTDOWN, MAINTENANCE	19.31				GOOD PRACTICES DURING THESE EVENTS	280.6	LB/H	
TX-0449	UCC SEADRIFT OPERATIONS	SMALL FLARE	19.31				MEET HEATING VALUE AND VELOCITY REQUIREMENT	52.86	LB/H	

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Pollutant: Carbon Monoxide (CO)

RBLCID	FACILITY NAME	PROCESS NAME	PROC TYPE	THRUPUT	THRUPUT UNIT	PROCESS NOTES	CTRLDESC	EMIS LIMIT1	EMIS LIMIT1 UNIT	EMIS LIMIT1 AVG TIME CONDITION
TX-0354	ATOFINA CHEMICALS INCORPORATED	FLARE, SSM	19.31			POLLUTANT INFORMATION LISTED UNDER THIS ENTRY IS FOR THE FLARE DURING START-UP, SHUT-DOWN, AND MAINTENANCE PERIODS. THE FLARE IS LIMITED TO 416 H/YR OPERATION AS THE BACKUP CONTROL DEVICE WHEN EPN SULFOX-TO IS NOT OPERATING. WASTE GAS STREAMS FROM THE SULFOX UNIT VENTS CANNOT GO TO EPN FLARE AND EPN SULFOX-TO AT THE SAME TIME. THE FLARE SHALL BE DESIGNED AND OPERATED WHERE THE COMBINED NATURAL GAS AND WASTE STREAM TO THE FLARE TIP SHALL MEET THE 40 CFR 60.18 SPECIFICATIONS FOR MINIMUM NET HEATING VALUE AND MAXIMUM TIP VELOCITY UNDER NORMAL AND SSM CONDITIONS. A FLAME IS PRESENT AT ALL TIMES AND HAS A CONSTANT PILOT FLAME. THE PILOT FLAME SHALL BE MONITORED BY A THERMOCOUPLE, AN ULTRAVIOLET MONITOR, AND INFRARED MONITOR, OR OTHER EQUIVALENT DEVICE. IN THE EVENT THE FLARE SHUTS DOWN FOR MAINTENANCE PURPOSES DURING A PLANT SHUTDOWN, A TEMPORARY FLARE MEETING THE REQUIREMENTS OF SPECIAL CONDITION NO. 10 SHALL BE INSTALLED IN A LOCATION NEAR THE EXISTING FLARE. THE TEMPORARY FLARE SHALL BE OPERATED DURING THE TIME THE FLARE IS SHUT DOWN.	MEET THE REQUIREMENTS OF 40 CFR 60.18.	323	LB/H	
TX-0449	UCC SEADRIFT OPERATIONS	LARGE FLARE	19.31				MEETS HEATING VALUES AND VELOCITY REQ.	22.69	LB/H	
TX-0449	UCC SEADRIFT OPERATIONS	FLARE NATURAL GAS COMBUSTION (6)	19.31				MEETS HEATING VALUES AND VELOCITY REQ. AND BTU ANALYZERS	86.18	LB/H	
TX-0449	UCC SEADRIFT OPERATIONS	FLARE AFTER THE RECYCLE COMPRESSOR PROJECTS IS COMPLETE	19.31				MEETS HEATING VALUES AND VELOCITY REQ. AND BTU ANALYZERS	92.98	LB/H	
TX-0449	UCC SEADRIFT OPERATIONS	FLARE BEFOER THE RECYCLE COMPRESSOR PROJECTS IS COMPLETE	19.31				MEETS HEATING VALUES AND VELOCITY REQ. AND BTU ANALYZERS	100.8	LB/H	
TX-0378	LA PORTE POLYPROPYLENE PLANT	ALKYL FLARE	19.31				NONE INDICATED	0.11	LB/H	
TX-0378	LA PORTE POLYPROPYLENE PLANT	TRAIN NO. 8 FLARE	19.31				NONE INDICATED	0.19	LB/H	
TX-0347	CHOCOLATE BAYOU PLANT	DOCK FLARE, AM-1500	19.31				NONE INDICATED	0.19	LB/H	
TX-0378	LA PORTE POLYPROPYLENE PLANT	MONUMENT NO. 2 FLARE	19.31				NONE INDICATED	0.41	LB/H	

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Pollutant: Carbon Monoxide (CO)

RBLCID	FACILITY NAME	PROCESS NAME	PROC TYPE	THRUPUT	THRUPUT UNIT	PROCESS NOTES	CTRLDESC	EMIS LIMIT1	EMIS LIMIT1 UNIT	EMIS LIMIT1 AVG TIME CONDITION
TX-0353	NAFTA REGION OLEFINS COMPLEX	LOW PRESSURE FLARE, P-6	19.31			THE COMBINED ASSIST NATURAL GAS AND WASTE STREAM TO THE FLARE SHALL MEET THE 40 CFR 60.18 SPECIFICATIONS OF MINIMUM HEATING VALUE AND MAXIMUM TIP VELOCITY. THE FLARE SHALL BE OPERATED WITH A FLAME PRESENT AT ALL TIMES AND HAVE A CONSTANT PILOT FLAME. THE PILOT FLAME SHALL BE MONITORED BY A THERMOCOUPLE OR AN INFRARED MONITOR. A CONTINUOUS FLOW MONITOR AND AN ANALYZER THAT PROVIDE A RECORD OF THE VENT STREAM FLOW AND COMPOSITION TO THE FLARE SHALL BE INSTALLED.	NONE INDICATED	3.81	LB/H	
TX-0347	CHOCOLATE BAYOU PLANT	NO. 2 OLEFINS FLARE, DDM-3101	19.31				NONE INDICATED	72.24	LB/H	
TX-0353	NAFTA REGION OLEFINS COMPLEX	HIGH PRESSURE FLARE, P-7	19.31			THE COMBINED ASSIST NATURAL GAS AND WASTE STREAM TO THE FLARE SHALL MEET THE 40 CFR 60.18 SPECIFICATIONS OF MINIMUM HEATING VALUE AND MAXIMUM TIP VELOCITY. THE FLARE SHALL BE OPERATED WITH A FLAME PRESENT AT ALL TIMES AND HAVE A CONSTANT PILOT FLAME. THE PILOT FLAME SHALL BE MONITORED BY A THERMOCOUPLE OR AN INFRARED MONITOR. A CONTINUOUS FLOW MONITOR AND AN ANALYZER THAT PROVIDE A RECORD OF THE VENT STREAM FLOW AND COMPOSITION TO THE FLARE SHALL BE INSTALLED.	NONE INDICATED	72.5	LB/H	
TX-0347	CHOCOLATE BAYOU PLANT	NO. 1 OLEFINS FLARE, DM-1101	19.31				NONE INDICATED	88.74	LB/H	
TX-0380	SYNTHESIS GAS UNIT	FLARE, FS28	19.31			THE FLARE IS USED TO CONTROL TOTAL REDUCED SULFUR (TRS) AND CO.	NONE INDICATED	1981	LB/H	
LA-0120	GEISMAR PLANT	PLANT FLARE, #03-73	19.31	204	MMBTU/H	THE PLANT FLARE SYSTEM IS A STEAM ASSISTED FLARE USED TO CONTROL VOC EMISSIONS.	PLANT FLARE WILL BE OPERATED UNDER THE REQUIREMENTS OF 40 CFR PART 60 SUBPART A	1801	LB/H	
LA-0193	STYRENE MONOMER PLANT	FLARE GQ-2310	19.31				PROPER DESIGN AND MAINTENANCE PRACTICES	895.6	LB/H	HOURLY MAXIMUM
LA-0193	STYRENE MONOMER PLANT	FLARE GQ-304	19.31				PROPER DESIGN AND MAINTENANCE PRACTICES	1475	LB/H	HOURLY MAXIMUM
LA-0193	STYRENE MONOMER PLANT	FLARE GQ-1306	19.31				PROPER DESIGN AND MAINTENANCE PRACTICES	1562	LB/H	HOURLY MAXIMUM
TX-0288	AIR LIQUIDE- FREEPORT HYCO	FLARE STACK	19.31				SEE SPECIAL CONDITIONS FOR SPECIFIC DESIGN AND OPERATION STANDARDS INCLUDING CONTINUAL PILOT FLAME WITH A MONITOR.	305.9	LB/H	

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Pollutant: Carbon Monoxide (CO)

RBLCID	FACILITY NAME	PROCESS NAME	PROC TYPE	THRUPUT	THRUPUT UNIT	PROCESS NOTES	CTRLDESC	EMIS LIMIT1	EMIS LIMIT1 UNIT	EMIS LIMIT1 AVG TIME CONDITION
*TX-0526	AIR PRODUCTS HYDROGEN, STEAM, AND ELECTRICITY PRODUCTION	FLARE PILOTS ONLY	19.31			PLANT FLARE - THE FLARE CONSISTS OF A STAND-ALONE ELEVATED, SMOKELESS FLARE AND A NETWORK OF PIPING AND ANCILLARY EQUIPMENT CONNECTING ALL RELIEF DEVICES AND PROCESS VENTS IN COMBUSTIBLE GAS (VOC) SERVICE. THE FLARE WILL ACHIEVE A MINIMUM OF 98% DESTRUCTION AND REMOVAL OF VOCS. THE FLARE WILL PRIMARILY BE USED UNDER SARTUP/SHUTDOWN CONDITIONS OR DURING MAINTENANCE ACTIVITIES OR UPSETS.		0.043	LB/H	
AL-0190	GE PLASTICS	PHOSGENE PRODUCTION UNIT, FLARE	19.31	463	MMLB/YR	This unit has multiple flares, scrubbers, and a baghouse, each with different emission limits. This process entry is for limits set for emissions from the 2 flares, flare p17 & flare P18.		0.09	LB/H	P17
*IA-0089	HOMELAND ENERGY SOLUTIONS, LLC, PN 06-672	BIOMETHANATOR FLARE, EP11 (07-A-957P)	19.31	6.4	MM BTU / H	USED TO CONTORL METHANATOR ODORS AND ONLY USED WHEN DRYERS AND THERMAL OXIDIZERS ARE NOT OPERATING.		0.37	LB/ MMBTU	
TX-0277	BASF CORPORATION	CONTINUOUS FLARE (POINT NO. 4-2-4)	19.31			(1) THE VOC EMISSIONS DO NOT INCLUDE ACRYLIC ACID, THEREFORE EMISSIONS ARE ADDITIVE FOR TOTAL VOC ESTIMATE. (2) THE VOC EMISSIONS DO NOT INCLUDE BUTYL ACETATE; THEREFORE, EMISSIONS ARE ADDITIVE FOR A TOTAL VOC ESTIMATE. (3) NATURAL GAS AS SUPPLEMENTAL FUEL CAN CONTAIN NO MORE THAN 0.5 GR HYDROGEN SULFIDE PER 100 DSCF AND NO MORE THAN 20 GR TOTAL SULFUR/100 DSCF.		0.99	LB/H	
TX-0478	CITGO CORPUS CHRISTI REFINERY - WEST PLANT	ACID GAS FLARE	19.31			THE FLARES HAVE A MINIMUM DRE OF 98% AND ARE EQUIPPED WITH CONTINUOUS PILOTS		3.1	LB/H	
TX-0422	BP TEXAS CITY CHEMICAL PLANT B	FLARE, BDO UNIT	19.31			FUEL IS NATURAL GAS AND WASTE GAS		21.35	LB/H	
TX-0465	SALT CREEK GAS PLANT	FLARES (2)	19.31			INLET GAS COMPOSITION AND VOLUMES HAVE CHANGED OVER THE YEARS SINCE REINJECTION OF CO2 WAS STARTED. IN 1998 THE SO2 EMISSION WERE REDUCED FROM 1020 T/YR TO APPROXIMATELY 174 T/YR IN PERMIT 5037A DUE TO THE REINJECTION OF THE CO2 BUT THE OTHER EMISSIONS HAVE NEVER BEEN REPRESENTED PROPERLY. THIS AMENDMENT IS TO ACCURATELY REPRESENT THAT EITHER FLARE CAN BE USED AS A PROCESS FLARE AND TO USE 2001 ACTUAL GAS FLOWS TO PREDICT THE VOLUME OF GAS PROCESSED. CURRENT GAS ANALYSES WERE PROVIDED TO ACCURATELY REPRESENT THE CO2, H2S AND VOC CONTENT OF THE GAS STREAMS. CALCULATED INCREASE IN NOX, CO AND VOC ARE GREATER THAN THE PSD SIGNIFICANCE LEVEL AND RECALCULATED INCREASES IN H2S AND SO2 ARE LESS THAN SIGNIFICANCE.		37.2	LB/H	
TX-0478	CITGO CORPUS CHRISTI REFINERY - WEST PLANT	FLARE-COKE DRUM BLOWDOWN	19.31			THE COKER BLOWDOWN FLARE HANDLES A PROCESS STREAM FROM THE COKER UNIT AND NON-ROUTINE EMISSIONS.		43.2	LB/H	

RBLC Matching Facilities for Search Criteria:
Permit Date Between 1/1/1997 And 11/13/2007
And Process Type Contains "19.300" Flares or "50.008": Petroleum Refining Flares and Incinerators (except acid gas/SRU incinerators - 50.006)
Pollutant: Carbon Monoxide (CO)

RBLCID	FACILITY NAME	PROCESS NAME	PROC TYPE	THRUPUT	THRUPUT UNIT	PROCESS NOTES	CTRLDESC	EMIS LIMIT1	EMIS LIMIT1 UNIT	EMIS LIMIT1 AVG TIME CONDITION
TX-0464	CONTINENTAL CARBON SUNRAY PLANT	PILOT PLANT FLARE	19.31			THE NEW FLARE IS THE PROPOSED CONTROL TECHNOLOGY WITH A 98% DESTRUCTION EFFICIENCY OF ALL VOCS. THE FLARE WILL ALSO REDUCE EMISSIONS OF H2S, CO, HCN, CS2, COS, AND PM10 EMITTED BY THE MBF. VOC CAN ALSO BE EMITTED FROM THE FEEDSTOCK OIL STORAGE TANKS. THE FIXED ROOF TANKS ARE CONSIDERED BACT DUE TO THE LOW VAPOR PRESSURE OF THE FEEDSTOCK OIL.		159.6	LB/H	
*TX-0514	ENTERPRISE MONT BELVIEU COMPLEX	FLARE-START-UP, MAINTENANCE, AND SHUTDOWN	19.31					354.3	LB/HR	
*TX-0514	ENTERPRISE MONT BELVIEU COMPLEX	FLARE-NORMAL OPERATION	19.31					372.7	LB/HR	
TX-0487	ROHM AND HAAS CHEMICALS LLC LONE STAR PLANT	N5/6 FLARE	19.31			THE PROPOSED N-AREA PRODUCTION INCREASE WILL INCREASE THE FLOW INTO THESE EXISTING FLARES. THEREFORE, THE EMISSIONS FROM THESE FLARES ARE INCREASED DURING THIS AMENDMENT. THE FLARES WILL CONTINUE TO ACHIEVE 98% DESTRUCTION REMOVAL EFFICIENCY (DRE) FOR VOC. THE EMISSION FACTORS FOR LOW BTU STREAMS OF 0.0641 LB NOX/MMBTU AND 0.5496 LB CO/MMBTU ARE USED IN THE EMISSION CALCULATIONS FOR THE FLARES. THE FLARES WILL CONTINUE TO MEET THE BACT.		450.5	LB/H	
TX-0487	ROHM AND HAAS CHEMICALS LLC LONE STAR PLANT	N3/7 FEED AND EXIT GAS FLARE	19.31			THE PROPOSED N-AREA PRODUCTION INCREASE WILL INCREASE THE FLOW INTO THESE EXISTING FLARES. THEREFORE, THE EMISSIONS FROM THESE FLARES ARE INCREASED DURING THIS AMENDMENT. THE FLARES WILL CONTINUE TO ACHIEVE 98% DESTRUCTION REMOVAL EFFICIENCY (DRE) FOR VOC. THE EMISSION FACTORS FOR LOW BTU STREAMS OF 0.0641 LB NOX/MMBTU AND 0.5496 LB CO/MMBTU ARE USED IN THE EMISSION CALCULATIONS FOR THE FLARES. THE FLARES WILL CONTINUE TO MEET THE BACT.		699.1	LB/H	
TX-0481	AIR PRODUCTS BAYTOWN I I	FLARE (NORMAL OPERATION)	19.31					797.7	LB/H	
*TX-0526	AIR PRODUCTS HYDROGEN, STEAM, AND ELECTRICITY PRODUCTION	FLARE-MSS	19.31			PLANT FLARE - THE FLARE CONSISTS OF A STAND-ALONE ELEVATED, SMOKELESS FLARE AND A NETWORK OF PIPING AND ANCILLARY EQUIPMENT CONNECTING ALL RELIEF DEVICES AND PROCESS VENTS IN COMBUSTIBLE GAS (VOC) SERVICE. THE FLARE WILL ACHIEVE A MINIMUM OF 98% DESTRUCTION AND REMOVAL OF VOCS. THE FLARE WILL PRIMARILY BE USED UNDER SARTUP/SHUTDOWN CONDITIONS OR DURING MAINTENANCE ACTIVITIES OR UPSETS.		1654	LB/H	
*NH-0014	UNIVERSITY OF NEW HAMPSHIRE	UTILITY FLARE	19.32	125.4	MMBTU/HR	A SECOND LFG FLARE RATED AT 105.06 MMBTU/HR IS ALSO PERMITTED. BACT/LAER LIMITS ARE THE SAME FOR BOTH FLARES.	GOOD COMBUSTION PRACTICES	0.37	LB/MMBTU	3-HOUR AVG.
WI-0204	UWGP - FUEL GRADE ETHANOL PLANT	BYPASS FLARE, BIOMETHANATOR - P11	19.32	6.4	MMBTU/H	FLARE USED TO CONSUME ANEROBIC DIGESTION BYPRODUCTS WHEN DDGS DRYER IS NOT IN OPERATION.	OPERATION LIMIT: NO MORE THAN 5040 H/YR	2.4	LB/H	

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Pollutant: Carbon Monoxide (CO)

RBLCID	FACILITY NAME	PROCESS NAME	PROC TYPE	THRUPUT	THRUPUT UNIT	PROCESS NOTES	CTRLDESC	EMIS LIMIT1	EMIS LIMIT1 UNIT	EMIS LIMIT1 AVG TIME CONDITION
VA-0294	ATLANTIC WASTE DISPOSAL LANDFILL	FLARES, 2500 SCFM LGF (2)	19.32	300000	scf/h	EMISSIONS ARE FOR 1 OF 2 FLARES	PROPER MAINTENANCE OF THE FLARE, INCLUDING MONITORING FOR THE PRESENCE OF A FLAME, LGF FLOW RATE, 0% OPACITY, MEASURING % METHANE IN LFG	12.3	LB/H	
VA-0294	ATLANTIC WASTE DISPOSAL LANDFILL	FLARES, 3500 SCFM LFG (3)	19.32	630000	scf/h	3 3500 SCFM LFG FLARES	PROPER MAINTENANCE OF THE FLARE, INCLUDING MONITORING FOR THE PRESENCE OF A FLAME, LGF FLOW RATE, 0% OPACITY, MEASURING %METHANE IN LFG	17.3	LB/H	
VA-0294	ATLANTIC WASTE DISPOSAL LANDFILL	FLARES, COMBINED	19.32	930000	scf/h	TOTAL EMISSIONS FOR ALL 5 FLARES: TWO 2500 SCFM AND THREE 3500 SCFM	PROPER MAINTENANCE OF THE FLARE, INCLUDING MONITORING FOR THE PRESENCE OF A FLAME, LGF FLOW RATE, 0% OPACITY, MEASURING %METHANE IN LFG	334	T/YR	
AZ-0042	NORTHWEST REGIONAL LANDFILL	FLARE, ENCLOSED	19.32					0.13	LB/ MMBTU	
OK-0059	PONCA CITY REFINERY	FLARE	19.33	0.2	LB/MMBTU		GOOD COMBUSTION PRACTICE	0.37	LB/MMBTU	
TX-0364	SALT CREEK GAS PLANT	(2) FLARES, EPN 9 & 29	19.33			THIS AMENDMENT IS TO ACCURATELY REPRESENT THAT EITHER FLARE CAN BE USED AS A PROCESS FLARE AND TO USE 2001 ACTUAL GAS FLOWS TO PREDICT THE VOLUME OF GAS PROCESSED. CURRENT GAS ANALYSES WERE PROVIDED TO ACCURATELY REPRESENT THE CO2, H2S, AND VOC CONTENT OF THE GAS STREAMS.	NONE INDICATED	37.2	LB/H	EACH
TX-0346	WEST REFINERY	COMBUSTION SOURCES, FLARES & MISC	19.33			EMISSIONS MAY OCCUR FROM ANY OR ALL OF THESE EPNs: V-5 MAIN, V-5-AG, V-5-UF, V6 AND V7 MISC SOURCES LISTED FOR EACH POLLUTANT WHERE APPLICABLE.	NONE INDICATED	901.5	LB/H	INITIAL CAP (3/23/99-12/31/04)
TX-0492	VIRTEX PETROLEUM COMPANY DOERING RANCH GAS PLANT	FACILITY FLARE-AMINE UNIT STILL VENT	19.33	0.75	LTPD			1.66	LB/H	
TX-0478	CITGO CORPUS CHRISTI REFINERY - WEST PLANT	SOUR WATER STRIPPER FLARE	19.33			THE SOUR WATER STRIPPER FLARE AND AMINE FLARE WERE PREVIOUSLY LISTED AS FOR EMERGENCY USE ONLY. THE EMISSIONS FROM THESE FLARES WILL NOW REFLECT EMISSIONS FROM THE PILOTS. THE COKER BLOWDOWN FLARE HANDLES A PROCESS STREAM FROM THE COKER UNIT AND NON-ROUTINE EMISSIONS. THE CHANGES TO THESE FLARES ARE PART OF THE PERMIT AMENDMENT.		1.9	LB/H	
TX-0475	FORMOSA POINT COMFORT PLANT	FLARE	19.33					9.77	LB/H	
TX-0475	FORMOSA POINT COMFORT PLANT	FLARE (1087)	19.33					12.42	LB/H	
TX-0475	FORMOSA POINT COMFORT PLANT	FLARE (1067)	19.33					13.84	LB/H	
LA-0166	ORION REFINING CORP (NOW VALERO)	FLARE NO.1 (EMISSION PT. 15-77)	19.33	60.7	MMBTU/H			149	LB/H	

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Pollutant: Carbon Monoxide (CO)

RBLCID	FACILITY NAME	PROCESS NAME	PROC TYPE	THRUPUT	THRUPUT UNIT	PROCESS NOTES	CTRLDESC	EMIS LIMIT1	EMIS LIMIT1 UNIT	EMIS LIMIT1 AVG TIME CONDITION
LA-0166	ORION REFINING CORP (NOW VALERO)	FLARE NO. 2 (EMISSION PT. 12-81)	19.33	60.7	MMBTU/H			149	LB/H	
TX-0235	VALERO REFINING COMPANY-CORPUS CHRISTI REFINERY	MAIN FLARE	19.33			FLARES SHALL BE DESIGNED AND OPERATED IN ACCORDANCE WITH 40 CFR 60.18 INCLUDING SPECIFICATIONS OF MINIMUM HEATING VALUE OF THE WASTE GAS, MAXIMUM TIP VELOCITY, AND PILOT FLAME MONITORING. IF NECESSARY TO INSURE ADEQUATE COMBUSTION, SUFFICIENT FUEL GAS SHALL BE ADDED TO MAKE THE GASES COMBUSTIBLE. AN INFRARED MONITOR IS CONSIDERED EQUIVALENT TO A THERMOCOUPLE FOR FLAME MONITORING PURPOSES. EXCEPT AS PROVIDED FOR BY THIS PERMIT, ALL WASTE GAS FROM POINT SOURCES CONTAINING VOC AND/OR OTHER ORGANIC COMPOUNDS (HYDROCARBONS AND/OR HYDROCARBON DERIVATIVES EXCLUDING CARBON DIOXIDE [CO2]) SHALL BE ROUTED TO A FLARE. THE FLARE SHALL OPERATE WITH NO LESS THAN 98 % EFFICIENCY IN DISPOSING OFTHE CARBON COMPOUNDS CAPTURED BY THE COLLECTION SYSTEM. THE WASTE GAS STREAMS SHALL INCLUDE PROCESS VENTS, RELIEF VALVES NOT IN VACUUM SERVICE, ANALYZER VENTS, STEAM JET EXHAUSTS, UPSET EMISSIONS, START-UP AND SHUTDOWN-RELATED EMISSIONS OR PURGES, BLOWDOWNS, OR OTHER SYSTEM EMISSIONS OF WASTE GAS. STORAGE TANK VENTS, COOLING TOWER EXHAUST, AND PROCESS FUGITIVE		472	LB/H	
TX-0235	VALERO REFINING COMPANY-CORPUS CHRISTI REFINERY	GROUND FLARE	19.33			FLARES SHALL BE DESIGNED AND OPERATED IN ACCORDANCE WITH 40 CFR 60.18 INCLUDING SPECIFICATIONS OF MINIMUM HEATING VALUE OF THE WASTE GAS, MAXIMUM TIP VELOCITY, AND PILOT FLAME MONITORING. IF NECESSARY TO INSURE ADEQUATE COMBUSTION, SUFFICIENT FUEL GAS SHALL BE ADDED TO MAKE THE GASES COMBUSTIBLE. AN INFRARED MONITOR IS CONSIDERED EQUIVALENT TO A THERMOCOUPLE FOR FLAME MONITORING PURPOSES.		472	LB/H	
TX-0442	SHELL OIL DEER PARK	COKER FLARE	19.33					500	PPMV	
TX-0442	SHELL OIL DEER PARK	EAST PROPERTY FLARE	19.33					500	PPMV	
TX-0442	SHELL OIL DEER PARK	TWO FLARES	19.33					500	PPMV	
TX-0442	SHELL OIL DEER PARK	NORTH PROPERTY FLARE	19.33					500	PPMV	
TX-0442	SHELL OIL DEER PARK	CCU FLARE	19.33					500	PPMV	
TX-0442	SHELL OIL DEER PARK	WEST PROPERTY FLARE	19.33					500	PPMV	
TX-0494	FLINT HILLS RESOURCES INSTALLATION OF BOILERS	FLARES 5,6	19.33					884.6	LB/H	

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Pollutant: Carbon Monoxide (CO)

RBLCID	FACILITY NAME	PROCESS NAME	PROC TYPE	THRUPUT	THRUPUT UNIT	PROCESS NOTES	CTRLDESC	EMIS LIMIT1	EMIS LIMIT1 UNIT	EMIS LIMIT1 AVG TIME CONDITION
TX-0235	VALERO REFINING COMPANY-CORPUS CHRISTI REFINERY	ACID GAS FLARE EMERGENCY USE ONLY	19.33			FLARES SHALL BE DESIGNED AND OPERATED IN ACCORDANCE WITH 40 CFR 60.18 INCLUDING SPECIFICATIONS OF MINIMUM HEATING VALUE OF THE WASTE GAS, MAX TIP VELOCITY, AND PILOT FLAME MONITORING. IF NECESSARY TO INSURE ADEQUATE COMBUSTION, SUFFICIENT FUEL GAS SHALL BE ADDED TO MAKE THE GASES COMBUSTIBLE. AN INFRARED MONITOR IS CONSIDERED EQUIVALENT TO A THERMOCOUPLE FOR FLAME MONITORING PURPOSES. EXCEPT AS MAY BE PROVIDED FOR IN THIS PERMIT, ALL WASTE GAS FROM POINT SOURCES CONTAINING VOC AND/OR OTHER ORGANIC COMPOUNDS (HYDROCARBONS AND/OR HYDROCARBON DERIVATIVES EXCLUDING CARBON DIOXIDE) SHALL BE ROUTED TO A FLARE. THE FLARE SHALL OPERATE WITH NO LESS THAN 98 PERCENT EFFICIENCY IN DISPOSING OF THE CARBON COMPOUNDS CAPTURED BY THE COLLECTION SYSTEM. THE WASTE GAS STREAMS SHALL INCLUDE PROCESS VENTS, RELIEF VALVES NOT IN VACUUM SERVICE, ANALYZER VENTS, STEAM JET EXHAUSTS, UPSET EMISSIONS, START- UP AND SHUTDOWN-RELATED EMISSIONS OR PURGES, BLOWDOWNS, OR OTHER SYSTEM EMISSIONS OF WASTE GAS. STORAGE TANK VENTS, COOLING TOWER EXHAUST, AND PROCESS FUGITIVE EMISSIONS ARE EXCLUDED				see notes
LA-0141	DUKE ENERGY FIELD SERVICES - MINDEN	FLARE	19.39			EMISSION POINT 20-81		0.26	LB/H	
LA-0208	IVANHOE CARBON BLACK PLANT	FLARE, UNIT 4	19.39					64.6	LB/H	HOURLY MAXIMUM (NATURAL GAS-FIRED)
LA-0208	IVANHOE CARBON BLACK PLANT	FLARE, UNIT 5	19.39					64.6	LB/H	HOURLY MAXIMUM (NATURAL GAS-FIRED)
LA-0208	IVANHOE CARBON BLACK PLANT	FLARE, UNIT 2	19.39					79.03	LB/H	HOURLY MAXIMUM (NATURAL GAS-FIRED)
LA-0208	IVANHOE CARBON BLACK PLANT	FLARE, UNIT 3	19.39					107.9	LB/H	HOURLY MAXIMUM (NATURAL GAS-FIRED)

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Pollutant: Carbon Monoxide (CO)

RBLCID	FACILITY NAME	PROCESS NAME	PROC TYPE	THRUPUT	THRUPUT UNIT	PROCESS NOTES	CTRLDESC	EMIS LIMIT1	EMIS LIMIT1 UNIT	EMIS LIMIT1 AVG TIME CONDITION
TX-0235	VALERO REFINING COMPANY-CORPUS CHRISTI REFINERY	SCRUBBER/SRU INCINERATOR	50.008			THE HOLDER OF THE PERMIT SHALL REPORT UNDER 30 TAC SECTIONS 101.6 OR 101.7 ANYTIME THE SRU IS NOT OPERATING PROPERLY. IF THE SRU TRAIN IS NOT OPERATING PROPERLY, THE ACID GAS FEED STREAM MAY BE ROUTED TO AN EMERGENCY FLARE FOR A PERIOD NOT TO EXCEED 12HRS. IF THE SULFTEN UNIT IS NOT OPERATING PROPERLY, SRU TAIL GAS SHALL BE INCINERATED, THEN ROUTED TO THE HOC FLUE GAS SCRUBBER UNLESS THE SCRUBBER STACK IS OUT OF SERVICE, IN WHICH CASE SRU TAIL GAS WILL BE ROUTED TO THE FLARE. THE INOPERABLE EQUIPMENT SHALL BE REPAIRED AND RESTORED TO SERVICE AS SOON AS POSSIBLE. THE PH OF THE HOC SCRUBBER CIRCULATING CAUSTIC SOLUTION SHALL BE CONTINUALLY MONITORED AND BE MAINTAINED AT A LEVEL BETWEEN 6.0 AND 9.0 BY THE ADDITITON OF FRESH CAUSTIC SOLUTION AS REQUIRED. THE PH SHALL BE RECORDED AT LEAST HOURLY, AND THE RECORDS MAINTAINED AT THE PLANT SITE FOR A PERIOD OF TWO YEARS. THESE RECORDS SHALL BE MADE AVAILABLE FOR INSPECTION BY THE EXECUTIVE DIRECTOR OF THE TNRCC OR HIS DESIGNATED REPRESENTATIVE.	COMPLIANCE TESTING. INSTALL, CALIBRATE, AND MAINTAIN A CEMS TO MEASURE THE EXHAUST FROM CAUSTIC SCRUBBER TO SRU.	1190	LB/H	
*LA-0211	GARYVILLE REFINERY	HYDROGEN PLANT FLARE (52-08)	50.008	2472	MM BTU/H	H2 PLANT FEED GAS: 2472 MM BTU/HR PURGE GAS: 204.45 MM BTU/HR PROCESS VENT GAS: 61.2 MM BTU/HR	COMPLY WITH 40 CFR 60.18			
*LA-0213	ST. CHARLES REFINERY	MVR THERMAL OXIDIZER NO. 2 (2005-41)	50.008	240	MM BTU/H		PROPER EQUIPMENT DESIGN AND OPERATION, GOOD COMBUSTION PRACTICES, AND USE OF GASEOUS FUELS	19.8	LB/H	HOURLY MAXIMUM
*LA-0213	ST. CHARLES REFINERY	FLARE NOS. 3 & 4 (2004-5 & 2005-38)	50.008				PROPER EQUIPMENT DESIGN AND OPERATION, GOOD COMBUSTION PRACTICES, AND USE OF GASEOUS FUELS	56.1	LB/HR	HOURLY MAXIMUM
*OH-0308	SUNOCO, INC., TOLEDO REFINERY	FLARE, STEAM ASSISTED	50.008			FLARE, STEAM ASSISTED, TO CONTROL HYDROCARBON EMISSIONS FROM PROCESS VENTS		16.25	LB/H	

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Pollutant: Carbon Monoxide (CO)

RBLCID	FACILITY NAME	PROCESS NAME	PROC TYPE	THRUPUT	THRUPUT UNIT	PROCESS NOTES	CTRLDESC	EMIS LIMIT1	EMIS LIMIT1 UNIT	EMIS LIMIT1 AVG TIME CONDITION
*TX-0511	BASF ETHYLENE/PROPYLENE CRACKER	GROUND FLARE	50.008			THE GROUND FLARE CONSISTS OF A MULTIPOINT BURNER, STAGED PERFORMANCE HIGH PRESSURE FLARE SYSTEM. THIS FLARE WAS DESIGNED TO EFFICIENTLY CONTROL A VARIETY OF VENTING SCENARIOS FROM THIS PROCESS. THE HEATING VALUE OF STREAMS ROUTED TO THE FLARE CAN VARY FROM 10 TO OVER 38,000 MMBTU/HR. THE STREAMS ROUTED TO THE FLARE CAN INCREASE FROM A MINIMUM FLOW TO MAXIMUM FLOW IN ONLY A FEW SECONDS. RELATIVELY HIGH FLOW RATES TO THE FLARE CAN CONTINUE FOR MINUTES, HOURS, OR DAYS. PERIODS OF VERY LOW FLOW MAY CONTINUE FOR WEEKS AT A TIME. SINCE LARGE PORTIONS OF THE ETHYLENE CRACKER PROCESS ARE CHARACTERIZED BY "INTERMEDIATE" STREAMS IN THE GAS PHASE, A PARTICULARLY LARGE AMOUNT OF OPERATING EQUIPMENT AND ASSOCIATED PROCESS CONTROL SYSTEMS MUST WORK CONTINUOUSLY AND CLOSELY TOGETHER TO AVOID OPERATING SCENARIOS REQUIRING VENTING TO THE FLARE. A CERTAIN AMOUNT OF THIS TYPE OF FLARING IS INHERENT IN A WELL-RUN FACILITY OF THE SIZE, TYPE AND COMPLEXITY OF THE BFLP CRACKER.		15794	LB/H	

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Pollutant: Nitrogen Oxides (NO_x)

RBLCID	FACILITY NAME	PROCESS NAME	PROC TYPE	THRUPUT	THRUPUT UNIT	PROCESS NOTES	CTRLDESC	EMIS LIMIT1	EMIS LIMIT1 UNIT	EMIS LIMIT1 AVG TIME CONDITION
*IA-0089	HOMELAND ENERGY SOLUTIONS, LLC, PN 06-672	STARTUP AND SHUTDOWN FLARES 1, 2, AND 3, EP33A, EP33B, AND EP33C (07-A-967P, 07-A-968P, AND 07-A-969P)	19.31	25	MM BTU / hr	PERMIT NUMBERS OF 07-A-967P, 07-A-968P, AND 07-A 969P. THE MAXIMUM CAPACITY IS 166.67 MM BTU / HR. THE UNIT CAN ONLY OPERATE AT 25 MM BTU / HR DUE TO THE INHERENT PROCESS. ALL THREE UNITS ARE THE SAME AND ALL THREE UNITS COMBINED CAN ONLY OPERATE FOR 146 TOTAL HOURS PER ROLLING 12-MONTH PERIOD.	FLARE	0.2	LB/MMBTU	BACT
TX-0354	ATOFINA CHEMICALS INCORPORATED	FLARE, SSM	19.31			POLLUTANT INFORMATION LISTED UNDER THIS ENTRY IS FOR THE FLARE DURING START-UP, SHUT-DOWN, AND MAINTENANCE PERIODS. THE FLARE IS LIMITED TO 416 H/YR OPERATION AS THE BACKUP CONTROL DEVICE WHEN EPN SULFOX-TO IS NOT OPERATING. WASTE GAS STREAMS FROM THE SULFOX UNIT VENTS CANNOT GO TO EPN FLARE AND EPN SULFOX-TO AT THE SAME TIME. THE FLARE SHALL BE DESIGNED AND OPERATED WHERE THE COMBINED NATURAL GAS AND WASTE STREAM TO THE FLARE TIP SHALL MEET THE 40 CFR 60.18 SPECIFICATIONS FOR MINIMUM NET HEATING VALUE AND MAXIMUM TIP VELOCITY UNDER NORMAL AND SSM CONDITIONS. A FLAME IS PRESENT AT ALL TIMES AND HAS A CONSTANT PILOT FLAME. THE PILOT FLAME SHALL BE MONITORED BY A THERMOCOUPLE, AN ULTRAVIOLET MONITOR, AND INFRARED MONITOR, OR OTHER EQUIVALENT DEVICE. IN THE EVENT THE FLARE SHUTS DOWN FOR MAINTENANCE PURPOSES DURING A PLANT SHUTDOWN, A TEMPORARY FLARE MEETING THE REQUIREMENTS OF SPECIAL CONDITION NO. 10 SHALL BE INSTALLED IN A LOCATION NEAR THE EXISTING FLARE. THE TEMPORARY FLARE SHALL BE OPERATED DURING THE TIME THE FLARE IS SHUT DOWN.	FOLLOW REQUIREMENTS OF 40 CFR 60.18	37.67	LB/H	
TX-0354	ATOFINA CHEMICALS INCORPORATED	FLARE, STEADY STATE OPERATION	19.31			416 H/YR OPERATION AS THE BACKUP CONTROL DEVICE WHEN EPN SULFOX-TO IS NOT OPERATING. WASTE GAS STREAMS FROM THE SULFOX UNIT VENTS CANNOT GO TO EPN FLARE AND EPN SULFOX-TO AT THE SAME TIME. THE FLARE SHALL BE DESIGNED AND OPERATED WHERE THE COMBINED NATURAL GAS AND WASTE STREAM TO THE FLARE TIP SHALL MEET THE 40 CFR 60.18 SPECIFICATIONS FOR MINIMUM NET HEATING VALUE AND MAXIMUM TIP VELOCITY UNDER NORMAL AND SSM CONDITIONS. A FLAME IS PRESENT AT ALL TIMES AND HAS A CONSTANT PILOT FLAME. THE PILOT FLAME SHALL BE MONITORED BY A THERMOCOUPLE, AN ULTRAVIOLET MONITOR, AND INFRARED MONITOR, OR OTHER EQUIVALENT DEVICE.	FOLLOW SPECIFICATIONS OF 40 CFR 60.18	37.67	LB/H	

RBLC Matching Facilities for Search Criteria:
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Pollutant: Nitrogen Oxides (NO_x)

RBLCID	FACILITY NAME	PROCESS NAME	PROC TYPE	THRUPUT	THRUPUT UNIT	PROCESS NOTES	CTRLDESC	EMIS LIMIT1	EMIS LIMIT1 UNIT	EMIS LIMIT1 AVG TIME CONDITION
TX-0354	ATOFINA CHEMICALS INCORPORATED	FLARE, TOTAL HOURLY AND ANNUAL	19.31			EMISSIONS LISTED UNDER THIS ENTRY ARE FOR THE TOTAL HOURLY AND ANNUAL EMISSIONS FROM BOTH STEADY STATE AND SSM. 416 H/YR OPERATION AS THE BACKUP CONTROL DEVICE WHEN EPN SULFOX-TO IS NOT OPERATING. WASTE GAS STREAMS FROM THE SULFOX UNIT VENTS CANNOT GO TO EPN FLARE AND EPN SULFOX-TO AT THE SAME TIME. THE FLARE SHALL BE DESIGNED AND OPERATED WHERE THE COMBINED NATURAL GAS AND WASTE STREAM TO THE FLARE TIP SHALL MEET THE 40 CFR 60.18 SPECIFICATIONS FOR MINIMUM NET HEATING VALUE AND MAXIMUM TIP VELOCITY UNDER NORMAL AND SSM CONDITIONS. A FLAME IS PRESENT AT ALL TIMES AND HAS A CONSTANT PILOT FLAME. THE PILOT FLAME SHALL BE MONITORED BY A THERMOCOUPLE, AN ULTRAVIOLET MONITOR, AND INFRARED MONITOR, OR OTHER EQUIVALENT DEVICE.	FOLLOW THE REQUIREMENTS OF 40 CFR 60.18.	37.67	LB/H	
TX-0449	UCC SEADRIFT OPERATIONS	STARTUP, SHUTDOWN, MAINTENANCE BEFORE THE RECYCLE PROJECT IS COMPLETE (5)	19.31				GOOD PRACTICES	44.5	LB/H	
TX-0449	UCC SEADRIFT OPERATIONS	STARTUP, SHUTDOWN, MAINTENANCE AFTER THE RECYCLE PROJECT IS COMPLETE (5)	19.31				GOOD PRACTICES	45.2	LB/H	
TX-0449	UCC SEADRIFT OPERATIONS	LARGE FLARE START-UP, SHUTDOWN, MAINTENANCE	19.31				GOOD PRACTICES DURING THESE EVENTS	55.07	LB/H	
TX-0449	UCC SEADRIFT OPERATIONS	SMALL FLARE	19.31				MEET HEATING VALUE AND VELOCITY REQUIREMENT	17.08	LB/H	
TX-0449	UCC SEADRIFT OPERATIONS	LARGE FLARE	19.31				MEETS HEATING VALUES AND VELOCITY REQ.	4.45	LB/H	
TX-0449	UCC SEADRIFT OPERATIONS	FLARE NATURAL GAS COMBUSTION (6)	19.31				MEETS HEATING VALUES AND VELOCITY REQ. AND BTU ANALYZERS	10.05	LB/H	
TX-0449	UCC SEADRIFT OPERATIONS	FLARE AFTER THE RECYCLE COMPRESSOR PROJECTS IS COMPLETE	19.31				MEETS HEATING VALUES AND VELOCITY REQ. AND BTU ANALYZERS	11.16	LB/H	
TX-0449	UCC SEADRIFT OPERATIONS	FLARE BEFOER THE RECYCLE COMPRESSOR PROJECTS IS COMPLETE	19.31				MEETS HEATING VALUES AND VELOCITY REQ. AND BTU ANALYZERS	12.07	LB/H	
TX-0378	LA PORTE POLYPROPYLENE PLANT	TRAIN NO. 8 FLARE	19.31				NONE INDICATED	0.03	LB/H	
TX-0378	LA PORTE POLYPROPYLENE PLANT	ALKYL FLARE	19.31				NONE INDICATED	0.05	LB/H	
TX-0347	CHOCOLATE BAYOU PLANT	DOCK FLARE, AM-1500	19.31				NONE INDICATED	0.07	LB/H	
TX-0378	LA PORTE POLYPROPYLENE PLANT	MONUMENT NO. 2 FLARE	19.31				NONE INDICATED	0.08	LB/H	

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Pollutant: Nitrogen Oxides (NO_x)

RBLCID	FACILITY NAME	PROCESS NAME	PROC TYPE	THRUPUT	THRUPUT UNIT	PROCESS NOTES	CTRLDESC	EMIS LIMIT1	EMIS LIMIT1 UNIT	EMIS LIMIT1 AVG TIME CONDITION
TX-0353	NAFTA REGION OLEFINS COMPLEX	LOW PRESSURE FLARE, P-6	19.31			THE COMBINED ASSIST NATURAL GAS AND WASTE STREAM TO THE FLARE SHALL MEET THE 40 CFR 60.18 SPECIFICATIONS OF MINIMUM HEATING VALUE AND MAXIMUM TIP VELOCITY. THE FLARE SHALL BE OPERATED WITH A FLAME PRESENT AT ALL TIMES AND HAVE A CONSTANT PILOT FLAME. THE PILOT FLAME SHALL BE MONITORED BY A THERMOCOUPLE OR AN INFRARED MONITOR. A CONTINUOUS FLOW MONITOR AND AN ANALYZER THAT PROVIDE A RECORD OF THE VENT STREAM FLOW AND COMPOSITION TO THE FLARE SHALL BE INSTALLED.	NONE INDICATED	0.53	LB/H	
TX-0347	CHOCOLATE BAYOU PLANT	NO. 2 OLEFINS FLARE, DDM-3101	19.31				NONE INDICATED	14.18	LB/H	
TX-0353	NAFTA REGION OLEFINS COMPLEX	HIGH PRESSURE FLARE, P-7	19.31			THE COMBINED ASSIST NATURAL GAS AND WASTE STREAM TO THE FLARE SHALL MEET THE 40 CFR 60.18 SPECIFICATIONS OF MINIMUM HEATING VALUE AND MAXIMUM TIP VELOCITY. THE FLARE SHALL BE OPERATED WITH A FLAME PRESENT AT ALL TIMES AND HAVE A CONSTANT PILOT FLAME. THE PILOT FLAME SHALL BE MONITORED BY A THERMOCOUPLE OR AN INFRARED MONITOR. A CONTINUOUS FLOW MONITOR AND AN ANALYZER THAT PROVIDE A RECORD OF THE VENT STREAM FLOW AND COMPOSITION TO THE FLARE SHALL BE INSTALLED.	NONE INDICATED	14.23	LB/H	
TX-0347	CHOCOLATE BAYOU PLANT	NO. 1 OLEFINS FLARE, DM-1101	19.31				NONE INDICATED	17.42	LB/H	
TX-0380	SYNTHESIS GAS UNIT	FLARE, FS28	19.31			THE FLARE IS USED TO CONTROL TOTAL REDUCED SULFUR (TRS) AND CO.	NONE INDICATED	59.21	LB/H	
TX-0288	AIR LIQUIDE- FREEPORT HYCO	FLARE STACK	19.31				SEE SPECIAL CONDITIONS FOR SPECIFIC DESIGN AND OPERATION STANDARDS, INCLUDING CONTINUAL PILOT FLAME AND MONITOR.	38.73	LB/H	
LA-0120	GEISMAR PLANT	PLANT FLARE, #03-73	19.31	204	MMBTU/H	THE PLANT FLARE SYSTEM IS A STEAM ASSISTED FLARE USED TO CONTROL VOC EMISSIONS.	THE FLARE WILL BE OPERATED UNDER THE REQUIREMENTS OF NSPS SUBPART A.	325.2	LB/H	
*TX-0526	AIR PRODUCTS HYDROGEN, STEAM, AND ELECTRICITY PRODUCTION	FLARE PILOTS ONLY	19.31			PLANT FLARE - THE FLARE CONSISTS OF A STAND-ALONE ELEVATED, SMOKELESS FLARE AND A NETWORK OF PIPING AND ANCILLARY EQUIPMENT CONNECTING ALL RELIEF DEVICES AND PROCESS VENTS IN COMBUSTIBLE GAS (VOC) SERVICE. THE FLARE WILL ACHIEVE A MINIMUM OF 98% DESTRUCTION AND REMOVAL OF VOCS. THE FLARE WILL PRIMARILY BE USED UNDER SARTUP/SHUTDOWN CONDITIONS OR DURING MAINTENANCE ACTIVITIES OR UPSETS.		0.022	LB/H	
*IA-0089	HOMELAND ENERGY SOLUTIONS, LLC, PN 06-672	BIOMETHANATOR FLARE, EP11 (07-A-957P)	19.31	6.4	MM BTU / H	USED TO CONTORL METHANATOR ODORS AND ONLY USED WHEN DRYERS AND THERMAL OXIDIZERS ARE NOT OPERATING.		0.07	LB/MMBTU	

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TX-0277	BASF CORPORATION	CONTINUOUS FLARE (POINT NO. 4-2-4)	19.31			(1) THE VOC EMISSIONS DO NOT INCLUDE ACRYLIC ACID, THEREFORE EMISSIONS ARE ADDITIVE FOR TOTAL VOC ESTIMATE. (2) THE VOC EMISSIONS DO NOT INCLUDE BUTYL ACETATE; THEREFORE, EMISSIONS ARE ADDITIVE FOR A TOTAL VOC ESTIMATE. (3) NATURAL GAS AS SUPPLEMENTAL FUEL CAN CONTAIN NO MORE THAN 0.5 GR HYDROGEN SULFIDE PER 100 DSCF AND NO MORE THAN 20 GR TOTAL SULFUR/100 DSCF.		0.12	LB/H	
TX-0478	CITGO CORPUS CHRISTI REFINERY - WEST PLANT	ACID GAS FLARE	19.31			THE FLARES HAVE A MINIMUM DRE OF 98% AND ARE EQUIPPED WITH CONTINUOUS PILOTS		0.6	LB/H	
TX-0422	BP TEXAS CITY CHEMICAL PLANT B	FLARE, BDO UNIT	19.31			FUEL IS NATURAL GAS AND WASTE GAS		4.19	LB/H	
TX-0465	SALT CREEK GAS PLANT	FLARES (2)	19.31			INLET GAS COMPOSITION AND VOLUMES HAVE CHANGED OVER THE YEARS SINCE REINJECTION OF CO2 WAS STARTED. IN 1998 THE SO2 EMISSION WERE REDUCED FROM 1020 T/YR TO APPROXIMATELY 174 T/YR IN PERMIT 5037A DUE TO THE REINJECTION OF THE CO2 BUT THE OTHER EMISSIONS HAVE NEVER BEEN REPRESENTED PROPERLY. THIS AMENDMENT IS TO ACCURATELY REPRESENT THAT EITHER FLARE CAN BE USED AS A PROCESS FLARE AND TO USE 2001 ACTUAL GAS FLOWS TO PREDICT THE VOLUME OF GAS PROCESSED. CURRENT GAS ANALYSES WERE PROVIDED TO ACCURATELY REPRESENT THE CO2, H2S AND VOC CONTENT OF THE GAS STREAMS. CALCULATED INCREASE IN NOX, CO AND VOC ARE GREATER THAN THE PSD SIGNIFICANCE LEVEL AND RECALCULATED INCREASES IN H2S AND SO2 ARE LESS THAN SIGNIFICANCE.		4.37	LB/H	
TX-0478	CITGO CORPUS CHRISTI REFINERY - WEST PLANT	FLARE-COKE DRUM BLOWDOWN	19.31			THE COKER BLOWDOWN FLARE HANDLES A PROCESS STREAM FROM THE COKER UNIT AND NON-ROUTINE EMISSIONS.		8.5	LB/H	
TX-0481	AIR PRODUCTS BAYTOWN I I	FLARE (NORMAL OPERATION)	19.31					11.4	LB/H	
TX-0464	CONTINENTAL CARBON SUNRAY PLANT	PILOT PLANT FLARE	19.31			THE NEW FLARE IS THE PROPOSED CONTROL TECHNOLOGY WITH A 98% DESTRUCTION EFFICIENCY OF ALL VOCS. THE FLARE WILL ALSO REDUCE EMISSIONS OF H2S, CO, HCN, CS2, COS, AND PM10 EMITTED BY THE MBF. VOC CAN ALSO BE EMITTED FROM THE FEEDSTOCK OIL STORAGE TANKS. THE FIXED ROOF TANKS ARE CONSIDERED BACT DUE TO THE LOW VAPOR PRESSURE OF THE FEEDSTOCK OIL.		25.96	LB/H	

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TX-0487	ROHM AND HAAS CHEMICALS LLC LONE STAR PLANT	N3/7 FEED AND EXIT GAS FLARE	19.31			THE PROPOSED N-AREA PRODUCTION INCREASE WILL INCREASE THE FLOW INTO THESE EXISTING FLARES. THEREFORE, THE EMISSIONS FROM THESE FLARES ARE INCREASED DURING THIS AMENDMENT. THE FLARES WILL CONTINUE TO ACHIEVE 98% DESTRUCTION REMOVAL EFFICIENCY (DRE) FOR VOC. THE EMISSION FACTORS FOR LOW BTU STREAMS OF 0.0641 LB NOX/MMBTU AND 0.5496 LB CO/MMBTU ARE USED IN THE EMISSION CALCULATIONS FOR THE FLARES. THE FLARES WILL CONTINUE TO MEET THE BACT.		130.7	LB/H	
TX-0487	ROHM AND HAAS CHEMICALS LLC LONE STAR PLANT	N5/6 FLARE	19.31			THE PROPOSED N-AREA PRODUCTION INCREASE WILL INCREASE THE FLOW INTO THESE EXISTING FLARES. THEREFORE, THE EMISSIONS FROM THESE FLARES ARE INCREASED DURING THIS AMENDMENT. THE FLARES WILL CONTINUE TO ACHIEVE 98% DESTRUCTION REMOVAL EFFICIENCY (DRE) FOR VOC. THE EMISSION FACTORS FOR LOW BTU STREAMS OF 0.0641 LB NOX/MMBTU AND 0.5496 LB CO/MMBTU ARE USED IN THE EMISSION CALCULATIONS FOR THE FLARES. THE FLARES WILL CONTINUE TO MEET THE BACT.		152.1	LB/H	
*TX-0514	ENTERPRISE MONT BELVIEU COMPLEX	FLARE-START-UP, MAINTENANCE, AND SHUTDOWN	19.31					154.1	LB/HR	
*TX-0526	AIR PRODUCTS HYDROGEN, STEAM, AND ELECTRICITY PRODUCTION	FLARE-MSS	19.31			PLANT FLARE - THE FLARE CONSISTS OF A STAND-ALONE ELEVATED, SMOKELESS FLARE AND A NETWORK OF PIPING AND ANCILLARY EQUIPMENT CONNECTING ALL RELIEF DEVICES AND PROCESS VENTS IN COMBUSTIBLE GAS (VOC) SERVICE. THE FLARE WILL ACHIEVE A MINIMUM OF 98% DESTRUCTION AND REMOVAL OF VOCS. THE FLARE WILL PRIMARILY BE USED UNDER SARTUP/SHUTDOWN CONDITIONS OR DURING MAINTENANCE ACTIVITIES OR UPSETS.		160	LB/H	
*TX-0514	ENTERPRISE MONT BELVIEU COMPLEX	FLARE-NORMAL OPERATION	19.31					376.6	LB/HR	
*NH-0014	UNIVERSITY OF NEW HAMPSHIRE	UTILITY FLARE	19.32	125.4	MMBTU/HR	A SECOND LFG FLARE RATED AT 105.06 MMBTU/HR IS ALSO PERMITTED. BACT/LAER LIMITS ARE THE SAME FOR BOTH FLARES.	GOOD COMBUSTION PRACTICES	0.068	LB/MMBTU	3-HOUR AVG
VA-0294	ATLANTIC WASTE DISPOSAL LANDFILL	FLARES, 3500 SCFM LFG (3)	19.32	630000	scf/h	3 3500 SCFM LFG FLARES	PROPER MAINTENANCE OF THE FLARE, INCLUDING MONITORING FOR THE PRESENCE OF A FLAME, LGF FLOW RATE, 0% OPACITY, MEASURING % METHANE IN LFG	5.1	LB/H	

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VA-0294	ATLANTIC WASTE DISPOSAL LANDFILL	FLARES, COMBINED	19.32	930000	scf/h	TOTAL EMISSIONS FOR ALL 5 FLARES: TWO 2500 SCFM AND THREE 3500 SCFM	PROPER MAINTENANCE OF THE FLARE, INCLUDING MONITORING FOR THE PRESENCE OF A FLAME, LGF FLOW RATE, 0% OPACITY, MEASURING % METHANE IN LFG	97.8	T/YR	
VA-0294	ATLANTIC WASTE DISPOSAL LANDFILL	FLARES, 2500 SCFM LGF (2)	19.32	300000	scf/h	EMISSIONS ARE FOR 1 OF 2 FLARES	PROPER MAINTENANCE OF THE FLARE, INCLUDING MONITORING FOR THE PRESENCE OF A FLAME, LGF FLOW RATE, 0% OPACITY, MEASURING %METHANE IN LFG	3.6	LB/H	
AZ-0042	NORTHWEST REGIONAL LANDFILL	FLARE, ENCLOSED	19.32					0.041	LB/MMBTU	
OK-0059	PONCA CITY REFINERY	FLARE	19.33	0.2	LB/MMBTU		LIMIT FUEL TO PIPELINE GRADE NATURAL GAS	0.068	LB/MMBTU	
TX-0364	SALT CREEK GAS PLANT	(2) FLARES, EPN 9 & 29	19.33			THIS AMENDMENT IS TO ACCURATELY REPRESENT THAT EITHER FLARE CAN BE USED AS A PROCESS FLARE AND TO USE 2001 ACTUAL GAS FLOWS TO PREDICT THE VOLUME OF GAS PROCESSED. CURRENT GAS ANALYSES WERE PROVIDED TO ACCURATELY REPRESENT THE CO2, H2S, AND VOC CONTENT OF THE GAS STREAMS.	NONE INDICATED	4.37	LB/H	EACH
TX-0346	WEST REFINERY	COMBUSTION SOURCES, FLARES & MISC	19.33			EMISSIONS MAY OCCUR FROM ANY OR ALL OF THESE EPNs: V-5 MAIN, V-5-AG, V-5-UF, V6 AND V7 MISC SOURCES LISTED FOR EACH POLLUTANT WHERE APPLICABLE.	NONE INDICATED	1410	LB/H	INITIAL CAP 3/23/99-12/31/00
TX-0492	VIRTEX PETROLEUM COMPANY DOERING RANCH GAS PLANT	FACILITY FLARE-AMINE UNIT STILL VENT	19.33	0.75	LTPD			0.19	LB/H	
TX-0478	CITGO CORPUS CHRISTI REFINERY - WEST PLANT	SOUR WATER STRIPPER FLARE	19.33			THE SOUR WATER STRIPPER FLARE AND AMINE FLARE WERE PREVIOUSLY LISTED AS FOR EMERGENCY USE ONLY. THE EMISSIONS FROM THESE FLARES WILL NOW REFLECT EMISSIONS FROM THE PILOTS. THE COKER BLOWDOWN FLARE HANDLES A PROCESS STREAM FROM THE COKER UNIT AND NON-ROUTINE EMISSIONS. THE CHANGES TO THESE FLARES ARE PART OF THE PERMIT AMENDMENT.		0.36	LB/H	
TX-0475	FORMOSA POINT COMFORT PLANT	FLARE	19.33					1.14	LB/H	
TX-0475	FORMOSA POINT COMFORT PLANT	FLARE (1087)	19.33					1.45	LB/H	
TX-0475	FORMOSA POINT COMFORT PLANT	FLARE (1067)	19.33					1.92	LB/H	

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LA-0166	ORION REFINING CORP (NOW VALERO)	FLARE NO.1 (EMISSION PT. 15-77)	19.33	60.7	MMBTU/H			33.6	LB/H	
LA-0166	ORION REFINING CORP (NOW VALERO)	FLARE NO. 2 (EMISSION PT. 12-81)	19.33	60.7	MMBTU/H			33.6	LB/H	
TX-0235	VALERO REFINING COMPANY-CORPUS CHRISTI REFINERY	MAIN FLARE	19.33			FLARES SHALL BE DESIGNED AND OPERATED IN ACCORDANCE WITH 40 CFR 60.18 INCLUDING SPECIFICATIONS OF MINIMUM HEATING VALUE OF THE WASTE GAS, MAXIMUM TIP VELOCITY, AND PILOT FLAME MONITORING. IF NECESSARY TO INSURE ADEQUATE COMBUSTION, SUFFICIENT FUEL GAS SHALL BE ADDED TO MAKE THE GASES COMBUSTIBLE. AN INFRARED MONITOR IS CONSIDERED EQUIVALENT TO A THERMOCOUPLE FOR FLAME MONITORING PURPOSES. EXCEPT AS PROVIDED FOR BY THIS PERMIT, ALL WASTE GAS FROM POINT SOURCES CONTAINING VOC AND/OR OTHER ORGANIC COMPOUNDS (HYDROCARBONS AND/OR HYDROCARBON DERIVATIVES EXCLUDING CARBON DIOXIDE [CO2]) SHALL BE ROUTED TO A FLARE. THE FLARE SHALL OPERATE WITH NO LESS THAN 98 % EFFICIENCY IN DISPOSING OFTHE CARBON COMPOUNDS CAPTURED BY THE COLLECTION SYSTEM. THE WASTE GAS STREAMS SHALL INCLUDE PROCESS VENTS, RELIEF VALVES NOT IN VACUUM SERVICE, ANALYZER VENTS, STEAM JET EXHAUSTS, UPSET EMISSIONS, START-UP AND SHUTDOWN-RELATED EMISSIONS OR PURGES, BLOWDOWNS, OR OTHER SYSTEM EMISSIONS OF WASTE GAS. STORAGE TANK VENTS, COOLING TOWER EXHAUST, AND PROCESS FUGITIVE		75.8	LB/H	
TX-0235	VALERO REFINING COMPANY-CORPUS CHRISTI REFINERY	GROUND FLARE	19.33			FLARES SHALL BE DESIGNED AND OPERATED IN ACCORDANCE WITH 40 CFR 60.18 INCLUDING SPECIFICATIONS OF MINIMUM HEATING VALUE OF THE WASTE GAS, MAXIMUM TIP VELOCITY, AND PILOT FLAME MONITORING. IF NECESSARY TO INSURE ADEQUATE COMBUSTION, SUFFICIENT FUEL GAS SHALL BE ADDED TO MAKE THE GASES COMBUSTIBLE. AN INFRARED MONITOR IS CONSIDERED EQUIVALENT TO A THERMOCOUPLE FOR FLAME MONITORING PURPOSES.		75.8	LB/H	
TX-0494	FLINT HILLS RESOURCES INSTALLATION OF BOILERS	FLARES 5,6	19.33					1151	LB/H	
LA-0208	IVANHOE CARBON BLACK PLANT	FLARE, UNIT 4	19.39				GOOD COMBUSTION PRACTICES	37.93	LB/H	HOURLY MAXIMUM (NATURAL GAS-FIRED)
LA-0208	IVANHOE CARBON BLACK PLANT	FLARE, UNIT 5	19.39				GOOD COMBUSTION PRACTICES	37.93	LB/H	HOURLY MAXIMUM (NATURAL GAS-FIRED)

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LA-0208	IVANHOE CARBON BLACK PLANT	FLARE, UNIT 2	19.39				GOOD COMBUSTION PRACTICES	46.41	LB/H	HOURLY MAXIMUM (NATURAL GAS-FIRED)
LA-0208	IVANHOE CARBON BLACK PLANT	FLARE, UNIT 3	19.39				GOOD COMBUSTION PRACTICES	63.37	LB/H	HOURLY MAXIMUM (NATURAL GAS-FIRED)
IA-0074	ARCHER DANIELS MIDLAND CORN PROCESSING	FLARE, ETHANOL LOADOUT	19.39	27	mmbtu/h	TRUCK AND RAIL LOADOUT OF DENATURED ALCOHOL, 316.5 MMGAL/YR	LOW NOX BURNER ON FLARE	4.05	LB/H	
*LA-0211	GARYVILLE REFINERY	HYDROGEN PLANT FLARE (52-08)	50.008	2472	MM BTU/H	H2 PLANT FEED GAS: 2472 MM BTU/HR PURGE GAS: 204.45 MM BTU/HR PROCESS VENT GAS: 61.2 MM BTU/HR	COMPLY WITH 40 CFR 60.18			
TX-0235	VALERO REFINING COMPANY-CORPUS CHRISTI REFINERY	SCRUBBER/SRU INCINERATOR	50.008			THE HOLDER OF THE PERMIT SHALL REPORT UNDER 30 TAC SECTIONS 101.6 OR 101.7 ANYTIME THE SRU IS NOT OPERATING PROPERLY. IF THE SRU TRAIN IS NOT OPERATING PROPERLY, THE ACID GAS FEED STREAM MAY BE ROUTED TO AN EMERGENCY FLARE FOR A PERIOD NOT TO EXCEED 12HRS. IF THE SULFTEN UNIT IS NOT OPERATING PROPERLY, SRU TAIL GAS SHALL BE INCINERATED, THEN ROUTED TO THE HOC FLUE GAS SCRUBBER UNLESS THE SCRUBBER STACK IS OUT OF SERVICE, IN WHICH CASE SRU TAIL GAS WILL BE ROUTED TO THE FLARE. THE INOPERABLE EQUIPMENT SHALL BE REPAIRED AND RESTORED TO SERVICE AS SOON AS POSSIBLE. THE PH OF THE HOC SCRUBBER CIRCULATING CAUSTIC SOLUTION SHALL BE CONTINUALLY MONITORED AND BE MAINTAINED AT A LEVEL BETWEEN 6.0 AND 9.0 BY THE ADDITITON OF FRESH CAUSTIC SOLUTION AS REQUIRED. THE PH SHALL BE RECORDED AT LEAST HOURLY, AND THE RECORDS MAINTAINED AT THE PLANT SITE FOR A PERIOD OF TWO YEARS. THESE RECORDS SHALL BE MADE AVAILABLE FOR INSPECTION BY THE EXECUTIVE DIRECTOR OF THE TNRCC OR HIS DESIGNATED REPRESENTATIVE.	INSTALL, CALIBRATE, MAINTAIN A CEMS TO MEASURE AND RECORD THE IN-STACK CONCENTRATION OF NOX FROM THE CAUSTIC SCRUBBER AND SRU. MUST MEET REQUIREMENTS FOR CEMS IN PERMIT.	883	LB/H	
*LA-0213	ST. CHARLES REFINERY	MVR THERMAL OXIDIZER NO. 2 (2005-41)	50.008	240	MM BTU/H		PROPER EQUIPMENT DESIGN AND OPERATION, GOOD COMBUSTION PRACTICES, AND USE OF GASEOUS FUELS	23.5	LB/H	HOURLY MAXIMUM
*LA-0213	ST. CHARLES REFINERY	FLARE NOS. 3 & 4 (2004-5 & 2005-38)	50.008				PROPER EQUIPMENT DESIGN AND OPERATION, GOOD COMBUSTION PRACTICES, AND USE OF GASEOUS FUELS	25.9	LB/HR	HOURLY MAXIMUM
AZ-0046	ARIZONA CLEAN FUELS YUMA	TANK FARM THERMAL OXIDIZER	50.008			THE THERMAL OXIDIZER IS ONLY PERMITTED TO FIRE NATURAL GAS, REFINERY FUEL GAS, AND THE GASES VENTED FROM THE STORAGE TANKS.		0.04	LB/MMBTU	3-HR AVERAGE
*OH-0308	SUNOCO, INC., TOLEDO REFINERY	FLARE, STEAM ASSISTED	50.008			FLARE, STEAM ASSISTED, TO CONTROL HYDROCARBON EMISSIONS FROM PROCESS VENTS		19.34	LB/H	

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Permit Date Between 1/1/1997 And 11/13/2007
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Pollutant: Nitrogen Oxides (NO_x)

RBLCID	FACILITY NAME	PROCESS NAME	PROC TYPE	THRUPUT	THRUPUT UNIT	PROCESS NOTES	CTRLDESC	EMIS LIMIT1	EMIS LIMIT1 UNIT	EMIS LIMIT1 AVG TIME CONDITION
*TX-0511	BASF ETHYLENE/PROPYLENE CRACKER	GROUND FLARE	50.008			THE GROUND FLARE CONSISTS OF A MULTIPOINT BURNER, STAGED PERFORMANCE HIGH PRESSURE FLARE SYSTEM. THIS FLARE WAS DESIGNED TO EFFICIENTLY CONTROL A VARIETY OF VENTING SCENARIOS FROM THIS PROCESS. THE HEATING VALUE OF STREAMS ROUTED TO THE FLARE CAN VARY FROM 10 TO OVER 38,000 MMBTU/HR. THE STREAMS ROUTED TO THE FLARE CAN INCREASE FROM A MINIMUM FLOW TO MAXIMUM FLOW IN ONLY A FEW SECONDS. RELATIVELY HIGH FLOW RATES TO THE FLARE CAN CONTINUE FOR MINUTES, HOURS, OR DAYS. PERIODS OF VERY LOW FLOW MAY CONTINUE FOR WEEKS AT A TIME. SINCE LARGE PORTIONS OF THE ETHYLENE CRACKER PROCESS ARE CHARACTERIZED BY "INTERMEDIATE" STREAMS IN THE GAS PHASE, A PARTICULARLY LARGE AMOUNT OF OPERATING EQUIPMENT AND ASSOCIATED PROCESS CONTROL SYSTEMS MUST WORK CONTINUOUSLY AND CLOSELY TOGETHER TO AVOID OPERATING SCENARIOS REQUIRING VENTING TO THE FLARE. A CERTAIN AMOUNT OF THIS TYPE OF FLARING IS INHERENT IN A WELL-RUN FACILITY OF THE SIZE, TYPE AND COMPLEXITY OF THE BFLP CRACKER.		2220	LB/H	

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Pollutant: Volatile Organic Compounds (VOC)

RBLCID	FACILITY NAME	PROCESS NAME	PROC TYPE	THRUPUT	THRUPUT UNIT	PROCESS NOTES	CTRLDESC	EMIS LIMIT1	EMIS LIMIT1 UNIT	EMIS LIMIT1 AVG TIME CONDITION
*IA-0089	HOMELAND ENERGY SOLUTIONS, LLC, PN 06-672	STARTUP AND SHUTDOWN FLARES 1, 2, AND 3, EP33A, EP33B, AND EP33C (07-A-967P, 07-A-968P, AND 07-A-969P)	19.31	25	MM BTU / hr	PERMIT NUMBERS OF 07-A-967P, 07-A-968P, AND 07-A-969P. THE MAXIMUM CAPACITY IS 166.67 MM BTU / HR. THE UNIT CAN ONLY OPERATE AT 25 MM BTU / HR DUE TO THE INHERENT PROCESS. ALL THREE UNITS ARE THE SAME AND ALL THREE UNITS COMBINED CAN ONLY OPERATE FOR 146 TOTAL HOURS PER ROLLING 12-MONTH PERIOD.	FLARE	0.006	LB/MMBTU	BACT
WI-0204	UWGP - FUEL GRADE ETHANOL PLANT	LOADING RACK WITH FLARE, P50	19.31	50000000	GAL/YR		FLARE / VAPOR COLLECTION	1.4	LB/H	
TX-0354	ATOFINA CHEMICALS INCORPORATED	FLARE AREA FUGITIVES	19.31			EPN: FAREFUG. FUGITIVE EMISSIONS ARE AN ESTIMATE ONLY AND SHOULD NOT BE CONSIDERED AS A MAXIMUM ALLOWABLE EMISSION RATE.	FOLLOW PRACTICES OF GOOD ENGINEERING, LEAK DETECTION, ISOLATION, AND REPAIR.	0.01	LB/H	
TX-0449	UCC SEADRIFT OPERATIONS	STARTUP, SHUTDOWN, MAINTENANCE BEFORE THE RECYCLE PROJECT IS COMPLETE (5)	19.31				GOOD PRACTICES	319.9	LB/H	
TX-0449	UCC SEADRIFT OPERATIONS	STARTUP, SHUTDOWN, MAINTENANCE AFTER THE RECYCLE PROJECT IS COMPLETE (5)	19.31				GOOD PRACTICES	325.3	LB/H	
TX-0449	UCC SEADRIFT OPERATIONS	LARGE FLARE START-UP, SHUTDOWN, MAINTENANCE	19.31				GOOD PRACTICES	610	LB/H	
TX-0449	UCC SEADRIFT OPERATIONS	SMALL FLARE	19.31				MEETS HEATING VALUE AND VELOCITY REQUIREMENT	48.34	LB/H	
TX-0449	UCC SEADRIFT OPERATIONS	LARGE FLARE	19.31				MEETS HEATING VALUES AND VELOCITY REQ.	48.78	LB/H	
TX-0449	UCC SEADRIFT OPERATIONS	FLARE NATURAL GAS COMBUSTION (6)	19.31				MEETS HEATING VALUES AND VELOCITY REQ. AND BTU ANALYZERS	3	LB/H	
TX-0449	UCC SEADRIFT OPERATIONS	FLARE AFTER THE RECYCLE COMPRESSOR PROJECTS IS COMPLETE	19.31				MEETS HEATING VALUES AND VELOCITY REQ. AND BTU ANALYZERS	98.66	LB/H	
TX-0449	UCC SEADRIFT OPERATIONS	FLARE BEFOER THE RECYCLE COMPRESSOR PROJECTS IS COMPLETE	19.31				MEETS HEATING VALUES AND VELOCITY REQ. AND BTU ANALYZERS	105.6	LB/H	
TX-0380	SYNTHESIS GAS UNIT	FLARE, FS28	19.31			THE FLARE IS USED TO CONTROL TOTAL REDUCED SULFUR (TRS) AND CO.	NONE INDICATED	2.26	LB/H	
TX-0353	NAFTA REGION OLEFINS COMPLEX	LOW PRESSURE FLARE, P-6	19.31			THE COMBINED ASSIST NATURAL GAS AND WASTE STREAM TO THE FLARE SHALL MEET THE 40 CFR 60.18 SPECIFICATIONS OF MINIMUM HEATING VALUE AND MAXIMUM TIP VELOCITY. THE FLARE SHALL BE OPERATED WITH A FLAME PRESENT AT ALL TIMES AND HAVE A CONSTANT PILOT FLAME. THE PILOT FLAME SHALL BE MONITORED BY A THERMOCOUPLE OR AN INFRARED MONITOR. A CONTINUOUS FLOW MONITOR AND AN ANALYZER THAT PROVIDE A RECORD OF THE VENT STREAM FLOW AND COMPOSITION TO THE FLARE SHALL BE INSTALLED.	NONE INDICATED	9.75	LB/H	
TX-0288	AIR LIQUIDE- FREEPORT HYCO	FLARE STACK	19.31				SEE SPECIAL CONDITIONS FOR SPECIFIC DESIGN AND OPERATION STANDARDS INCLUDING CONTINUAL PILOT FLAME AND MONITOR.	30.21	LB/H	

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Pollutant: Volatile Organic Compounds (VOC)

RBLCID	FACILITY NAME	PROCESS NAME	PROC TYPE	THRUPUT	THRUPUT UNIT	PROCESS NOTES	CTRLDESC	EMIS LIMIT1	EMIS LIMIT1 UNIT	EMIS LIMIT1 AVG TIME CONDITION
TX-0378	LA PORTE POLYPROPYLENE PLANT	TRAIN NO. 6 FLARE	19.31				THE FLARE IS A VOC CONTROL	0.53	LB/H	
TX-0347	CHOCOLATE BAYOU PLANT	NO. 2 OLEFINS FLARE, DDM-3101	19.31				THE FLARE IS A VOC CONTROL	115.6	LB/H	
TX-0347	CHOCOLATE BAYOU PLANT	NO. 1 OLEFINS FLARE, DM-1101	19.31				THE FLARE IS A VOC CONTROL	151.4	LB/H	
TX-0378	LA PORTE POLYPROPYLENE PLANT	ALKYL FLARE	19.31				THE FLARE IS A VOC CONTROL DEVICE	0.41	LB/H	
TX-0378	LA PORTE POLYPROPYLENE PLANT	MONUMENT NO. 2 FLARE	19.31				THE FLARE IS A VOC CONTROL DEVICE	0.6	LB/H	
TX-0354	ATOFINA CHEMICALS INCORPORATED	FLARE, STEADY STATE OPERATION	19.31			416 H/YR OPERATION AS THE BACKUP CONTROL DEVICE WHEN EPN SULFOX-TO IS NOT OPERATING. WASTE GAS STREAMS FROM THE SULFOX UNIT VENTS CANNOT GO TO EPN FLARE AND EPN SULFOX-TO AT THE SAME TIME. THE FLARE SHALL BE DESIGNED AND OPERATED WHERE THE COMBINED NATURAL GAS AND WASTE STREAM TO THE FLARE TIP SHALL MEET THE 40 CFR 60.18 SPECIFICATIONS FOR MINIMUM NET HEATING VALUE AND MAXIMUM TIP VELOCITY UNDER NORMAL AND SSM CONDITIONS. A FLAME IS PRESENT AT ALL TIMES AND HAS A CONSTANT PILOT FLAME. THE PILOT FLAME SHALL BE MONITORED BY A THERMOCOUPLE, AN ULTRAVIOLET MONITOR, AND INFRARED MONITOR, OR OTHER EQUIVALENT DEVICE.	THE FLARE IS A VOC CONTROL DEVICE	32.33	LB/H	
TX-0354	ATOFINA CHEMICALS INCORPORATED	FLARE, SSM	19.31			POLLUTANT INFORMATION LISTED UNDER THIS ENTRY IS FOR THE FLARE DURING START-UP, SHUT-DOWN, AND MAINTENANCE PERIODS. THE FLARE IS LIMITED TO 416 H/YR OPERATION AS THE BACKUP CONTROL DEVICE WHEN EPN SULFOX-TO IS NOT OPERATING. WASTE GAS STREAMS FROM THE SULFOX UNIT VENTS CANNOT GO TO EPN FLARE AND EPN SULFOX-TO AT THE SAME TIME. THE FLARE SHALL BE DESIGNED AND OPERATED WHERE THE COMBINED NATURAL GAS AND WASTE STREAM TO THE FLARE TIP SHALL MEET THE 40 CFR 60.18 SPECIFICATIONS FOR MINIMUM NET HEATING VALUE AND MAXIMUM TIP VELOCITY UNDER NORMAL AND SSM CONDITIONS. A FLAME IS PRESENT AT ALL TIMES AND HAS A CONSTANT PILOT FLAME. THE PILOT FLAME SHALL BE MONITORED BY A THERMOCOUPLE, AN ULTRAVIOLET MONITOR, AND INFRARED MONITOR, OR OTHER EQUIVALENT DEVICE. IN THE EVENT THE FLARE SHUTS DOWN FOR MAINTENANCE PURPOSES DURING A PLANT SHUTDOWN, A TEMPORARY FLARE MEETING THE REQUIREMENTS OF SPECIAL CONDITION NO. 10 SHALL BE INSTALLED IN A LOCATION NEAR THE EXISTING FLARE. THE TEMPORARY FLARE SHALL BE OPERATED DURING THE TIME THE FLARE IS SHUT DOWN.	THE FLARE IS A VOC CONTROL DEVICE	32.38	LB/H	

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RBLCID	FACILITY NAME	PROCESS NAME	PROC TYPE	THRUPUT	THRUPUT UNIT	PROCESS NOTES	CTRLDESC	EMIS LIMIT1	EMIS LIMIT1 UNIT	EMIS LIMIT1 AVG TIME CONDITION
TX-0354	ATOFINA CHEMICALS INCORPORATED	FLARE, TOTAL HOURLY AND ANNUAL	19.31			EMISSIONS LISTED UNDER THIS ENTRY ARE FOR THE TOTAL HOURLY AND ANNUAL EMISSIONS FROM BOTH STEADY STATE AND SSM. 416 H/YR OPERATION AS THE BACKUP CONTROL DEVICE WHEN EPN SULFOX-TO IS NOT OPERATING. WASTE GAS STREAMS FROM THE SULFOX UNIT VENTS CANNOT GO TO EPN FLARE AND EPN SULFOX-TO AT THE SAME TIME. THE FLARE SHALL BE DESIGNED AND OPERATED WHERE THE COMBINED NATURAL GAS AND WASTE STREAM TO THE FLARE TIP SHALL MEET THE 40 CFR 60.18 SPECIFICATIONS FOR MINIMUM NET HEATING VALUE AND MAXIMUM TIP VELOCITY UNDER NORMAL AND SSM CONDITIONS. A FLAME IS PRESENT AT ALL TIMES AND HAS A CONSTANT PILOT FLAME. THE PILOT FLAME SHALL BE MONITORED BY A THERMOCOUPLE, AN ULTRAVIOLET MONITOR, AND INFRARED MONITOR, OR OTHER EQUIVALENT DEVICE.	THE FLARE IS A VOC CONTROL DEVICE	64.71	LB/H	
TX-0481	AIR PRODUCTS BAYTOWN II	FLARE (NORMAL OPERATION)	19.31					0.01	LB/H	
*TX-0526	AIR PRODUCTS HYDROGEN, STEAM, AND ELECTRICITY PRODUCTION	FLARE PILOTS ONLY	19.31			PLANT FLARE - THE FLARE CONSISTS OF A STAND-ALONE ELEVATED, SMOKELESS FLARE AND A NETWORK OF PIPING AND ANCILLARY EQUIPMENT CONNECTING ALL RELIEF DEVICES AND PROCESS VENTS IN COMBUSTIBLE GAS (VOC) SERVICE. THE FLARE WILL ACHIEVE A MINIMUM OF 98% DESTRUCTION AND REMOVAL OF VOCS. THE FLARE WILL PRIMARILY BE USED UNDER SARTUP/SHUTDOWN CONDITIONS OR DURING MAINTENANCE ACTIVITIES OR UPSETS.		0.031	LB/H	
*TX-0526	AIR PRODUCTS HYDROGEN, STEAM, AND ELECTRICITY PRODUCTION	FLARE-MSS	19.31			PLANT FLARE - THE FLARE CONSISTS OF A STAND-ALONE ELEVATED, SMOKELESS FLARE AND A NETWORK OF PIPING AND ANCILLARY EQUIPMENT CONNECTING ALL RELIEF DEVICES AND PROCESS VENTS IN COMBUSTIBLE GAS (VOC) SERVICE. THE FLARE WILL ACHIEVE A MINIMUM OF 98% DESTRUCTION AND REMOVAL OF VOCS. THE FLARE WILL PRIMARILY BE USED UNDER SARTUP/SHUTDOWN CONDITIONS OR DURING MAINTENANCE ACTIVITIES OR UPSETS.		0.2	LB/H	
TX-0487	ROHM AND HAAS CHEMICALS LLC LONE STAR PLANT	N3/7 FEED AND EXIT GAS FLARE	19.31			THE PROPOSED N-AREA PRODUCTION INCREASE WILL INCREASE THE FLOW INTO THESE EXISTING FLARES. THEREFORE, THE EMISSIONS FROM THESE FLARES ARE INCREASED DURING THIS AMENDMENT. THE FLARES WILL CONTINUE TO ACHIEVE 98% DESTRUCTION REMOVAL EFFICIENCY (DRE) FOR VOC. THE EMISSION FACTORS FOR LOW BTU STREAMS OF 0.0641 LB NOX/MMBTU AND 0.5496 LB CO/MMBTU ARE USED IN THE EMISSION CALCULATIONS FOR THE FLARES. THE FLARES WILL CONTINUE TO MEET THE BACT.		0.22	LB/H	

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RBLCID	FACILITY NAME	PROCESS NAME	PROC TYPE	THRUPUT	THRUPUT UNIT	PROCESS NOTES	CTRLDESC	EMIS LIMIT1	EMIS LIMIT1 UNIT	EMIS LIMIT1 AVG TIME CONDITION
TX-0277	BASF CORPORATION	CONTINUOUS FLARE (POINT NO. 4-2-4)	19.31			(1) THE VOC EMISSIONS DO NOT INCLUDE ACRYLIC ACID, THEREFORE EMISSIONS ARE ADDITIVE FOR TOTAL VOC ESTIMATE. (2) THE VOC EMISSIONS DO NOT INCLUDE BUTYL ACETATE; THEREFORE, EMISSIONS ARE ADDITIVE FOR A TOTAL VOC ESTIMATE. (3) NATURAL GAS AS SUPPLEMENTAL FUEL CAN CONTAIN NO MORE THAN 0.5 GR HYDROGEN SULFIDE PER 100 DSCF AND NO MORE THAN 20 GR TOTAL SULFUR/100 DSCF.		0.42	LB/H	
TX-0487	ROHM AND HAAS CHEMICALS LLC LONE STAR PLANT	N5/6 FLARE	19.31			THE PROPOSED N-AREA PRODUCTION INCREASE WILL INCREASE THE FLOW INTO THESE EXISTING FLARES. THEREFORE, THE EMISSIONS FROM THESE FLARES ARE INCREASED DURING THIS AMENDMENT. THE FLARES WILL CONTINUE TO ACHIEVE 98% DESTRUCTION REMOVAL EFFICIENCY (DRE) FOR VOC. THE EMISSION FACTORS FOR LOW BTU STREAMS OF 0.0641 LB NOX/MMBTU AND 0.5496 LB CO/MMBTU ARE USED IN THE EMISSION CALCULATIONS FOR THE FLARES. THE FLARES WILL CONTINUE TO MEET THE BACT.		2.13	LB/H	
TX-0478	CITGO CORPUS CHRISTI REFINERY - WEST PLANT	ACID GAS FLARE	19.31			THE FLARES HAVE A MINIMUM DRE OF 98% AND ARE EQUIPPED WITH CONTINUOUS PILOTS		3.6	LB/H	
TX-0422	BP TEXAS CITY CHEMICAL PLANT B	FLARE, BDO UNIT	19.31			FUEL IS NATURAL GAS AND WASTE GAS		15.08	LB/H	
TX-0478	CITGO CORPUS CHRISTI REFINERY - WEST PLANT	FLARE-COKE DRUM BLOWDOWN	19.31			THE COKER BLOWDOWN FLARE HANDLES A PROCESS STREAM FROM THE COKER UNIT AND NON-ROUTINE EMISSIONS.		27.9	LB/H	
TX-0465	SALT CREEK GAS PLANT	FLARES (2)	19.31			INLET GAS COMPOSITION AND VOLUMES HAVE CHANGED OVER THE YEARS SINCE REINJECTION OF CO2 WAS STARTED. IN 1998 THE SO2 EMISSION WERE REDUCED FROM 1020 T/YR TO APPROXIMATELY 174 T/YR IN PERMIT 5037A DUE TO THE REINJECTION OF THE CO2 BUT THE OTHER EMISSIONS HAVE NEVER BEEN REPRESENTED PROPERLY. THIS AMENDMENT IS TO ACCURATELY REPRESENT THAT EITHER FLARE CAN BE USED AS A PROCESS FLARE AND TO USE 2001 ACTUAL GAS FLOWS TO PREDICT THE VOLUME OF GAS PROCESSED. CURRENT GAS ANALYSES WERE PROVIDED TO ACCURATELY REPRESENT THE CO2, H2S AND VOC CONTENT OF THE GAS STREAMS. CALCULATED INCREASE IN NOX, CO AND VOC ARE GREATER THAN THE PSD SIGNIFICANCE LEVEL AND RECALCULATED INCREASES IN H2S AND SO2 ARE LESS THAN SIGNIFICANCE.		42.82	LB/H	
*TX-0514	ENTERPRISE MONT BELVIEU COMPLEX	FLARE-START-UP, MAINTENANCE, AND SHUTDOWN	19.31					63.7	LB/HR	

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TX-0353	NAFTA REGION OLEFINS COMPLEX	HIGH PRESSURE FLARE, P-7	19.31			THE COMBINED ASSIST NATURAL GAS AND WASTE STREAM TO THE FLARE SHALL MEET THE 40 CFR 60.18 SPECIFICATIONS OF MINIMUM HEATING VALUE AND MAXIMUM TIP VELOCITY. THE FLARE SHALL BE OPERATED WITH A FLAME PRESENT AT ALL TIMES AND HAVE A CONSTANT PILOT FLAME. THE PILOT FLAME SHALL BE MONITORED BY A THERMOCOUPLE OR AN INFRARED MONITOR. A CONTINUOUS FLOW MONITOR AND AN ANALYZER THAT PROVIDE A RECORD OF THE VENT STREAM FLOW AND COMPOSITION TO THE FLARE SHALL BE INSTALLED.		90.04	LB/H	
*IA-0089	HOMELAND ENERGY SOLUTIONS, LLC, PN 06-672	BIOMETHANATOR FLARE, EP11 (07-A-957P)	19.31	6.4	MM BTU / H	USED TO CONTORL METHANATOR ODORS AND ONLY USED WHEN DRYERS AND THERMAL OXIDIZERS ARE NOT OPERATING.		98	%	
LA-0199	NORCO CHEMICAL PLANT, M-UNIT	W.S. GROUND FLARE	19.31			CONTROLS EMISSIONS FROM SOLVENT TANK TRUCK LOADING, SOLVENT TANK CAR LOADING, AND MEK BARGE LOADING.		241.7	LB/H	HOURLY MAXIMUM
*TX-0514	ENTERPRISE MONT BELVIEU COMPLEX	FLARE-NORMAL OPERATION	19.31					468.1	LB/HR	
WI-0204	UWGP - FUEL GRADE ETHANOL PLANT	BYPASS FLARE, BIOMETHANATOR - P11	19.32	6.4	MMBTU/H	FLARE USED TO CONSUME ANEROBIC DIGESTION BYPRODUCTS WHEN DDGS DRYER IS NOT IN	OPERATION LIMIT: NO MORE THAN 5040 H/YR	0.3	LB/H	
VA-0294	ATLANTIC WASTE DISPOSAL LANDFILL	FLARES, 3500 SCFM LFG (3)	19.32	630000	scf/h	3 3500 SCFM LFG FLARES	PROPER MAINTENANCE OF THE FLARE, INCLUDING MONITORING FOR THE PRESENCE OF A FLAME, LGF FLOW RATE, 0% OPACITY, MEASURING % METHANE IN LFG	0.6	LB/H	
VA-0294	ATLANTIC WASTE DISPOSAL LANDFILL	FLARES, 2500 SCFM LGF (2)	19.32	300000	scf/h	EMISSIONS ARE FOR 1 OF 2 FLARES	PROPER MAINTENANCE OF THE FLARE, INCLUDING MONITORING FOR THE PRESENCE OF A FLAME, LGF FLOW RATE, 0% OPACITY, MEASURING % METHANE IN LFG	1	LB/H	NONMETHANE ORGANIC CARBON
VA-0294	ATLANTIC WASTE DISPOSAL LANDFILL	FLARES, 3500 SCFM LFG (3)	19.32	630000	scf/h	3 3500 SCFM LFG FLARES	PROPER MAINTENANCE OF THE FLARE, INCLUDING MONITORING FOR THE PRESENCE OF A FLAME, LGF FLOW RATE, 0% OPACITY, MEASURING % METHANE IN LFG	1.4	LB/H	NONMETHANE ORGANIC CARBON
VA-0294	ATLANTIC WASTE DISPOSAL LANDFILL	FLARES, COMBINED	19.32	930000	scf/h	TOTAL EMISSIONS FOR ALL 5 FLARES: TWO 2500 SCFM AND THREE 3500 SCFM	PROPER MAINTENANCE OF THE FLARE, INCLUDING MONITORING FOR THE PRESENCE OF A FLAME, LGF FLOW RATE, 0% OPACITY, MEASURING % METHANE IN LFG	26.5	T/YR	NONMETHANE ORGANIC CARBON
VA-0294	ATLANTIC WASTE DISPOSAL LANDFILL	FLARES, 2500 SCFM LGF (2)	19.32	300000	scf/h	EMISSIONS ARE FOR 1 OF 2 FLARES	PROPER MAINTENANCE OF THE FLARE, INCLUDING MONITORING FOR THE PRESENCE OF A FLAME, LGF FLOW RATE, 0% OPACITY, MEASURING % METHANE IN LFG	98	% REDUCTION	

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RBLCID	FACILITY NAME	PROCESS NAME	PROC TYPE	THRUPUT	THRUPUT UNIT	PROCESS NOTES	CTRLDESC	EMIS LIMIT1	EMIS LIMIT1 UNIT	EMIS LIMIT1 AVG TIME CONDITION
VA-0294	ATLANTIC WASTE DISPOSAL LANDFILL	FLARES, COMBINED	19.32	930000	scf/h	TOTAL EMISSIONS FOR ALL 5 FLARES: TWO 2500 SCFM AND THREE 3500 SCFM		10.2	T/YR	
LA-0166	ORION REFINING CORP (NOW VALERO)	FLARE NO.1 (EMISSION PT. 15-77)	19.33	60.7	MMBTU/H		98% OF VOC IN FLARE, FLARE IS CONTROL DEVICE.	25.4	LB/H	
LA-0166	ORION REFINING CORP (NOW VALERO)	FLARE NO. 2 (EMISSION PT. 12-81)	19.33	60.7	MMBTU/H		FLARE IS CONTROL DEVICE FOR VOC EMISSIONS. 98% DESTRUCTION OF VOC IN FLARE.	25.4	LB/H	
TX-0235	VALERO REFINING COMPANY-CORPUS CHRISTI REFINERY	FACILITIES VENTED TO MAIN FLARE-GROUP ONE	19.33			126 REFORMER PRESSURE SWING ABSORBER, CATALYTIC REFORMER UNIT FUEL GAS DRUM NO.2, CRUDE PREFLASH OH ACCUMULATOR, STABILIZER OH ACCUMULATOR, CRUDE TOWER OH ACCUMULATOR, AND PURGE GAS VENTED TO THE MAIN FLARE. FLARES SHALL BE DESIGNED AND OPERATED IN ACCORDANCE WITH 40 CFR 60.18 INCLUDING SPECIFICATIONS OF MINIMUM HEATNG VALUE OF THE WASTE GAS, MAXIMUM TIP VELOCITY, AND PILOT FLAME MONITORING. IF NECESSARY TO INSURE ADEQUATE COMBUSTION, SUFFICIENT FUEL GAS SHALL BE ADDED TO MAKE THE GASES COMBUSTIBLE. AN INFRARED MONITOR IS COSIDERED EQUIVALENT TO A THERMOCOUPLE FOR FLAME MONITORING PURPOSES.	FLARE. SEE POLLUTANT NOTES.	226	LB/H	
TX-0235	VALERO REFINING COMPANY-CORPUS CHRISTI REFINERY	FACILITIES VENTING TO MAIN FLARE-GROUP TWO	19.33			FACILITIES VENTING TO MAIN FLARE NOT COVERED IN GROUP ONE. FLARES SHALL BE DESIGNED AND OPERATED IN ACCORDANCE WITH 40 CFR 60.18 INCLUDING SPECIFICATIONS OF MINIMUM HEATING VALUE OF THE WASTE GAS, MAXIMUM TIP VELOCITY, AND PILOT FLAME MONITORING. IF NECESSARY TO INSURE ADEQUATE COMBUSTION, SUFFICIENT FUEL GAS SHALL BE ADDED TO MAKE THE GASES COMBUSTIBLE. AN INFRARED MONITOR IS CONSIDERED EQUIVALENT TO A THERMOCOUPLE FOR FLAME MONITORING PURPOSES.	FLARE. SEE POLLUTANT NOTES.	4013	LB/H	
OK-0059	PONCA CITY REFINERY	FLARE	19.33	0.2	LB/MMBTU		GOOD COMBUSTION PRACTICE	0.14	LB/ MMBTU	
TX-0346	WEST REFINERY	COMBUSTION SOURCES, FLARES & MISC	19.33			EMISSIONS MAY OCCUR FROM ANY OR ALL OF THESE EPNs: V-5 MAIN, V-5-AG, V-5-UF, V6 AND V7 MISC SOURCES LISTED FOR EACH POLLUTANT WHERE APPLICABLE.	NONE INDICATED	4036	LB/H	INITIAL CAP 3/23/99-12/31/00
TX-0359	LIMESTONE ELECTRIC GENERATING STATION	FCCU FLARE	19.33			FCCU IS LIMITED TO A FEED RATE OF 55,000 BAR/DAY OF GAS OIL FEEDSTOCK. FLARE SHALL BE DESIGNED AND OPERATED IN ACCORDANCE WITH 40 CFR 60.18.	THE F □			
TX-0364	SALT CREEK GAS PLANT	(2) FLARES, EPN 9 & 29	19.33			THIS AMENDMENT IS TO ACCURATELY REPRESENT THAT EITHER FLARE CAN BE USED AS A PROCESS FLARE AND TO USE 2001 ACTUAL GAS FLOWS TO PREDICT THE VOLUME OF GAS PROCESSED. CURRENT GAS ANALYSES WERE PROVIDED TO ACCURATELY REPRESENT THE CO2, H2S, AND VOC CONTENT OF THE GAS STREAMS.	THE FLARE IS A VOC CONTROL	42.82	LB/H	EACH

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And Process Type Contains "19.300" Flares or "50.008": Petroleum Refining Flares and Incinerators (except acid gas/SRU incinerators - 50.006)
Pollutant: Volatile Organic Compounds (VOC)

RBLCID	FACILITY NAME	PROCESS NAME	PROC TYPE	THRUPUT	THRUPUT UNIT	PROCESS NOTES	CTRLDESC	EMIS LIMIT1	EMIS LIMIT1 UNIT	EMIS LIMIT1 AVG TIME CONDITION
TX-0235	VALERO REFINING COMPANY-CORPUS CHRISTI REFINERY	GROUND FLARE	19.33			FLARES SHALL BE DESIGNED AND OPERATED IN ACCORDANCE WITH 40 CFR 60.18 INCLUDING SPECIFICATIONS OF MINIMUM HEATING VALUE OF THE WASTE GAS, MAXIMUM TIP VELOCITY, AND PILOT FLAME MONITORING. IF NECESSARY TO INSURE ADEQUATE COMBUSTION, SUFFICIENT FUEL GAS SHALL BE ADDED TO MAKE THE GASES COMBUSTIBLE. AN INFRARED MONITOR IS CONSIDERED EQUIVALENT TO A THERMOCOUPLE FOR FLAME MONITORING PURPOSES.	TOTAL VOC VENTED TO GROUND FLARE FROM SPECIFIED FACILITIES (SEE PERMIT), SHALL NOT EXCEED 39.6 T/YR ON POST-CONTROL BASIS. IF THE WASTE STREAMS FROM SPECIFIED FACILITES ARE VENTED TO A FLARE, MUST MONITOR, SAMPLE/PER QUARTE	226	LB/H	
TX-0475	FORMOSA POINT COMFORT PLANT	FLARE (1087)	19.33					0.14	LB/H	
TX-0475	FORMOSA POINT COMFORT PLANT	FLARE	19.33					0.22	LB/H	
TX-0492	VIRTEX PETROLEUM COMPANY DOERING RANCH GAS PLANT	FACILITY FLARE-AMINE UNIT STILL VENT	19.33	0.75	LTPD			0.72	LB/H	
TX-0478	CITGO CORPUS CHRISTI REFINERY - WEST PLANT	SOUR WATER STRIPPER FLARE	19.33			THE SOUR WATER STRIPPER FLARE AND AMINE FLARE WERE PREVIOUSLY LISTED AS FOR EMERGENCY USE ONLY. THE EMISSIONS FROM THESE FLARES WILL NOW REFLECT EMISSIONS FROM THE PILOTS. THE COKER BLOWDOWN FLARE HANDLES A PROCESS STREAM FROM THE COKER UNIT AND NON-ROUTINE EMISSIONS. THE CHANGES TO THESE FLARES ARE PART OF THE PERMIT AMENDMENT.		1.1	LB/H	
TX-0475	FORMOSA POINT COMFORT PLANT	FLARE (1067)	19.33					7.55	LB/H	
LA-0141	DUKE ENERGY FIELD SERVICES - MINDEN	FLARE	19.39			EMISSION POINT 20-61		2.82	LB/H	
LA-0208	IVANHOE CARBON BLACK PLANT	FLARE, UNIT 4	19.39					6.79	LB/H	HOURLY MAXIMUM (NATURAL GAS-FIRED)
LA-0208	IVANHOE CARBON BLACK PLANT	FLARE, UNIT 5	19.39					6.79	LB/H	HOURLY MAXIMUM (NATURAL GAS-FIRED)
LA-0208	IVANHOE CARBON BLACK PLANT	FLARE, UNIT 2	19.39					8.31	LB/H	HOURLY MAXIMUM (NATURAL GAS-FIRED)
LA-0208	IVANHOE CARBON BLACK PLANT	FLARE, UNIT 3	19.39					11.35	LB/H	HOURLY MAXIMUM (NATURAL GAS-FIRED)
TX-0408	INDIAN ROCK GATHERING COMPANY LP	FLARE, HIGH PRESSURE	50.008				98% VOC DESTRUCTION OF FLARE MEETS 40 CFR 60.18. FLARE IS THE CONTROL.	1.08	LB/H	
TX-0408	INDIAN ROCK GATHERING COMPANY LP	FLARE, LOW PRESSURE	50.008				98% VOC DESTRUCTION OF FLARE MEETS 40 CFR 60.18. FLARE IS THE CONTROL.	3.82	LB/H	
*LA-0211	GARYVILLE REFINERY	HYDROGEN PLANT FLARE (52-08)	50.008	2472	MM BTU/H	H2 PLANT FEED GAS: 2472 MM BTU/HR PURGE GAS: 204.45 MM BTU/HR PROCESS VENT GAS: 61.2 MM BTU/HR	COMPLY WITH 40 CFR 60.18			

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*LA-0213	ST. CHARLES REFINERY	MVR THERMAL OXIDIZER NO. 2 (2005-41)	50.008	240	MM BTU/H		CONTROL DEVICE FOR LOADING ACTIVITIES. COMPLY WITH LAC 33:III.2108.	571	LB/H	HOURLY MAXIMUM
*OH-0308	SUNOCO, INC., TOLEDO REFINERY	FLARE, STEAM ASSISTED	50.008			FLARE, STEAM ASSISTED, TO CONTROL HYDROCARBON EMISSIONS FROM PROCESS VENTS	FLARE IS CONTROL FOR HYDROCARBONS	1.06	LB/H	
*LA-0213	ST. CHARLES REFINERY	FLARE NOS. 3 & 4 (2004-5 & 2005-38)	50.008				PROPER EQUIPMENT DESIGN AND OPERATION, GOOD COMBUSTION PRACTICES, AND USE OF GASEOUS FUELS	9.5	LB/H	HOURLY MAXIMUM
AZ-0046	ARIZONA CLEAN FUELS YUMA	TRUCK AND RAIL CAR LOADING RACK THERMAL OXIDIZERS	50.008	12.3	MMBTU/H	EQUIPMENT IDENTIFIED BY ID #S S-47200 AND S-46200		1.25	LB/MM GAL	FOR GASOLINE RACKS-SEE POLLUTANT NOTES
AZ-0046	ARIZONA CLEAN FUELS YUMA	TANK FARM THERMAL OXIDIZER	50.008			THE THERMAL OXIDIZER IS ONLY PERMITTED TO FIRE NATURAL GAS, REFINERY FUEL GAS, AND THE GASES VENTED FROM THE STORAGE TANKS.		99.9	% DESTRUCTION	THIS IS A DESIGN STANDARD
AZ-0046	ARIZONA CLEAN FUELS YUMA	WASTEWATER TREATMENT PLANT THERMAL OXIDIZER	50.008					99.9	% DESTRUCTION	DESIGN STANDARD
TX-0235	VALERO REFINING COMPANY-CORPUS CHRISTI REFINERY	SCRUBBER/SRU INCINERATOR	50.008			THE HOLDER OF THE PERMIT SHALL REPORT UNDER 30 TAC SECTIONS 101.6 OR 101.7 ANYTIME THE SRU IS NOT OPERATING PROPERLY. IF THE SRU TRAIN IS NOT OPERATING PROPERLY, THE ACID GAS FEED STREAM MAY BE ROUTED TO AN EMERGENCY FLARE FOR A PERIOD NOT TO EXCEED 12HRS. IF THE SULFTEN UNIT IS NOT OPERATING PROPERLY, SRU TAIL GAS SHALL BE INCINERATED, THEN ROUTED TO THE HOC FLUE GAS SCRUBBER UNLESS THE SCRUBBER STACK IS OUT OF SERVICE, IN WHICH CASE SRU TAIL GAS WILL BE ROUTED TO THE FLARE. THE INOPERABLE EQUIPMENT SHALL BE REPAIRED AND RESTORED TO SERVICE AS SOON AS POSSIBLE. THE PH OF THE HOC SCRUBBER CIRCULATING CAUSTIC SOLUTION SHALL BE CONTINUALLY MONITORED AND BE MAINTAINED AT A LEVEL BETWEEN 6.0 AND 9.0 BY THE ADDITITON OF FRESH CAUSTIC SOLUTION AS REQUIRED. THE PH SHALL BE RECORDED AT LEAST HOURLY, AND THE RECORDS MAINTAINED AT THE PLANT SITE FOR A PERIOD OF TWO YEARS. THESE RECORDS SHALL BE MADE AVAILABLE FOR INSPECTION BY THE EXECUTIVE DIRECTOR OF THE TNRCC OR HIS DESIGNATED REPRESENTATIVE.		4013	LB/H	

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Pollutant: Volatile Organic Compounds (VOC)

RBLCID	FACILITY NAME	PROCESS NAME	PROC TYPE	THRUPUT	THRUPUT UNIT	PROCESS NOTES	CTRLDESC	EMIS LIMIT1	EMIS LIMIT1 UNIT	EMIS LIMIT1 AVG TIME CONDITION
*TX-0511	BASF ETHYLENE/PROPYLENE CRACKER	GROUND FLARE	50.008			THE GROUND FLARE CONSISTS OF A MULTIPOINT BURNER, STAGED PERFORMANCE HIGH PRESSURE FLARE SYSTEM. THIS FLARE WAS DESIGNED TO EFFICIENTLY CONTROL A VARIETY OF VENTING SCENARIOS FROM THIS PROCESS. THE HEATING VALUE OF STREAMS ROUTED TO THE FLARE CAN VARY FROM 10 TO OVER 38,000 MMBTU/HR. THE STREAMS ROUTED TO THE FLARE CAN INCREASE FROM A MINIMUM FLOW TO MAXIMUM FLOW IN ONLY A FEW SECONDS. RELATIVELY HIGH FLOW RATES TO THE FLARE CAN CONTINUE FOR MINUTES, HOURS, OR DAYS. PERIODS OF VERY LOW FLOW MAY CONTINUE FOR WEEKS AT A TIME. SINCE LARGE PORTIONS OF THE ETHYLENE CRACKER PROCESS ARE CHARACTERIZED BY "INTERMEDIATE" STREAMS IN THE GAS PHASE, A PARTICULARLY LARGE AMOUNT OF OPERATING EQUIPMENT AND ASSOCIATED PROCESS CONTROL SYSTEMS MUST WORK CONTINUOUSLY AND CLOSELY TOGETHER TO AVOID OPERATING SCENARIOS REQUIRING VENTING TO THE FLARE. A CERTAIN AMOUNT OF THIS TYPE OF FLARING IS INHERENT IN A WELL-RUN FACILITY OF THE SIZE, TYPE AND COMPLEXITY OF THE BFLP CRACKER.		24418	LB/H	

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Pollutant: Sulfur Dioxide (SO_2)

RBLCID	FACILITY NAME	PROCESS NAME	PROC TYPE	THRUPUT	THRUPUT UNIT	PROCESS NOTES	CTRLDESC	EMIS LIMIT1	EMIS LIMIT1 UNIT	EMIS LIMIT1 AVG TIME CONDITION
*IA-0089	HOMELAND ENERGY SOLUTIONS, LLC, PN 06-672	STARTUP AND SHUTDOWN FLARES 1, 2, AND 3, EP33A, EP33B, AND EP33C (07-A-967P, 07-A-968P, AND 07-A-969P)	19.31	25	MM BTU / hr	PERMIT NUMBERS OF 07-A-967P, 07-A-968P, AND 07-A-969P. THE MAXIMUM CAPACITY IS 166.67 MM BTU / HR. THE UNIT CAN ONLY OPERATE AT 25 MM BTU / HR DUE TO THE INHERENT PROCESS. ALL THREE UNITS ARE THE SAME AND ALL THREE UNITS COMBINED CAN ONLY OPERATE FOR 146 TOTAL HOURS PER ROLLING 12-MONTH PERIOD.	FLARE	0.395	LB/ MMBTU	BACT
TX-0354	ATOFINA CHEMICALS INCORPORATED	FLARE, STEADY STATE OPERATION	19.31			416 H/YR OPERATION AS THE BACKUP CONTROL DEVICE WHEN EPN SULFOX-TO IS NOT OPERATING. WASTE GAS STREAMS FROM THE SULFOX UNIT VENTS CANNOT GO TO EPN FLARE AND EPN SULFOX-TO AT THE SAME TIME. THE FLARE SHALL BE DESIGNED AND OPERATED WHERE THE COMBINED NATURAL GAS AND WASTE STREAM TO THE FLARE TIP SHALL MEET THE 40 CFR 60.18 SPECIFICATIONS FOR MINIMUM NET HEATING VALUE AND MAXIMUM TIP VELOCITY UNDER NORMAL AND SSM CONDITIONS. A FLAME IS PRESENT AT ALL TIMES AND HAS A CONSTANT PILOT FLAME. THE PILOT FLAME SHALL BE MONITORED BY A THERMOCOUPLE, AN ULTRAVIOLET MONITOR, AND INFRARED MONITOR, OR OTHER EQUIVALENT DEVICE.	FOLLOW SPECIFICATIONS OF 40 CFR 60.18. SEE POLLUTANT NOTES.	3666	LB/H	
TX-0354	ATOFINA CHEMICALS INCORPORATED	FLARE, TOTAL HOURLY AND ANNUAL	19.31			EMISSIONS LISTED UNDER THIS ENTRY ARE FOR THE TOTAL HOURLY AND ANNUAL EMISSIONS FROM BOTH STEADY STATE AND SSM. 416 H/YR OPERATION AS THE BACKUP CONTROL DEVICE WHEN EPN SULFOX-TO IS NOT OPERATING. WASTE GAS STREAMS FROM THE SULFOX UNIT VENTS CANNOT GO TO EPN FLARE AND EPN SULFOX-TO AT THE SAME TIME. THE FLARE SHALL BE DESIGNED AND OPERATED WHERE THE COMBINED NATURAL GAS AND WASTE STREAM TO THE FLARE TIP SHALL MEET THE 40 CFR 60.18 SPECIFICATIONS FOR MINIMUM NET HEATING VALUE AND MAXIMUM TIP VELOCITY UNDER NORMAL AND SSM CONDITIONS. A FLAME IS PRESENT AT ALL TIMES AND HAS A CONSTANT PILOT FLAME. THE PILOT FLAME SHALL BE MONITORED BY A THERMOCOUPLE, AN ULTRAVIOLET MONITOR, AND INFRARED MONITOR, OR OTHER EQUIVALENT DEVICE.	FOLLOW THE REQUIREMENTS OF 40 CFR 60.18. SEE POLLUTANT NOTES.	6207	LB/H	
TX-0354	ATOFINA CHEMICALS INCORPORATED	FLARE, SSM	19.31			POLLUTANT INFORMATION LISTED UNDER THIS ENTRY IS FOR THE FLARE DURING START-UP, SHUT-DOWN, AND MAINTENANCE PERIODS. THE FLARE IS LIMITED TO 416 H/YR OPERATION AS THE BACKUP CONTROL DEVICE WHEN EPN SULFOX-TO IS NOT OPERATING. WASTE GAS STREAMS FROM THE SULFOX UNIT VENTS CANNOT GO TO EPN FLARE AND EPN SULFOX-TO AT THE SAME TIME. THE FLARE SHALL BE DESIGNED AND OPERATED WHERE THE COMBINED NATURAL GAS AND WASTE STREAM TO THE FLARE TIP SHALL MEET THE 40 CFR 60.18 SPECIFICATIONS FOR MINIMUM NET HEATING VALUE AND MAXIMUM TIP VELOCITY UNDER NORMAL AND SSM CONDITIONS. A FLAME IS PRESENT AT ALL TIMES AND HAS A CONSTANT PILOT FLAME. THE PILOT FLAME SHALL BE MONITORED BY A	FOLLOW THE REQUIREMENTS OF 40 CFR 60.18. SEE THE POLLUTANT NOTES.	2541	LB/H	

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Pollutant: Sulfur Dioxide (SO_2)

RBLCID	FACILITY NAME	PROCESS NAME	PROC TYPE	THRUPUT	THRUPUT UNIT	PROCESS NOTES	CTRLDESC	EMIS LIMIT1	EMIS LIMIT1 UNIT	EMIS LIMIT1 AVG TIME CONDITION
TX-0449	UCC SEADRIFT OPERATIONS	STARTUP, SHUTDOWN, MAINTENANCE BEFORE THE RECYCLE PROJECT IS COMPLETE (5)	19.31				GOOD PRACTICES	1.38	LB/H	
TX-0449	UCC SEADRIFT OPERATIONS	STARTUP, SHUTDOWN, MAINTENANCE AFTER THE RECYCLE PROJECT IS COMPLETE (5)	19.31				GOOD PRACTICES	1.38	LB/H	
TX-0449	UCC SEADRIFT OPERATIONS	FLARE NATURAL GAS COMBUSTION (6)	19.31				MEETS HEATING VALUES AND VELOCITY REQ. AND BTU ANALYZERS	0.5	LB/H	
TX-0449	UCC SEADRIFT OPERATIONS	FLARE BEFOER THE RECYCLE COMPRESSOR PROJECTS IS COMPLETE	19.31				MEETS HEATING VALUES AND VELOCITY REQ. AND BTU ANALYZERS	1.38	LB/H	
TX-0449	UCC SEADRIFT OPERATIONS	FLARE AFTER THE RECYCLE COMPRESSOR PROJECTS IS COMPLETE	19.31				MEETS HEATING VALUES AND VELOCITY REQ. AND BTU ANALYZERS	1.38	LB/H	
TX-0378	LA PORTE POLYPROPYLENE PLANT	MONUMENT NO. 2 FLARE	19.31				NONE INDICATED	0.01	LB/H	LESS THAN
TX-0378	LA PORTE POLYPROPYLENE PLANT	TRAIN NO. 8 FLARE	19.31				NONE INDICATED	0.01	LB/H	LESS THAN
TX-0378	LA PORTE POLYPROPYLENE PLANT	ALKYL FLARE	19.31				NONE INDICATED	0.01	LB/H	LESS THAN
TX-0347	CHOCOLATE BAYOU PLANT	NO. 1 OLEFINS FLARE, DM-1101	19.31				NONE INDICATED	0.01	LB/H	
TX-0347	CHOCOLATE BAYOU PLANT	NO. 2 OLEFINS FLARE, DDM-3101	19.31				NONE INDICATED	0.01	LB/H	
TX-0353	NAFTA REGION OLEFINS COMPLEX	LOW PRESSURE FLARE, P-6	19.31			THE COMBINED ASSIST NATURAL GAS AND WASTE STREAM TO THE FLARE SHALL MEET THE 40 CFR 60.18 SPECIFICATIONS OF MINIMUM HEATING VALUE AND MAXIMUM TIP VELOCITY. THE FLARE SHALL BE OPERATED WITH A FLAME PRESENT AT ALL TIMES AND HAVE A CONSTANT PILOT FLAME. THE PILOT FLAME SHALL BE MONITORED BY A THERMOCOUPLE OR AN INFRARED MONITOR. A CONTINUOUS FLOW MONITOR AND AN ANALYZER THAT PROVIDE A RECORD OF THE VENT STREAM FLOW AND COMPOSITION TO THE FLARE SHALL BE INSTALLED.	NONE INDICATED	0.01	LB/H	
TX-0353	NAFTA REGION OLEFINS COMPLEX	HIGH PRESSURE FLARE, P-7	19.31			THE COMBINED ASSIST NATURAL GAS AND WASTE STREAM TO THE FLARE SHALL MEET THE 40 CFR 60.18 SPECIFICATIONS OF MINIMUM HEATING VALUE AND MAXIMUM TIP VELOCITY. THE FLARE SHALL BE OPERATED WITH A FLAME PRESENT AT ALL TIMES AND HAVE A CONSTANT PILOT FLAME. THE PILOT FLAME SHALL BE MONITORED BY A THERMOCOUPLE OR AN INFRARED MONITOR. A CONTINUOUS FLOW MONITOR AND AN ANALYZER THAT PROVIDE A RECORD OF THE VENT STREAM FLOW AND COMPOSITION TO THE FLARE SHALL BE INSTALLED.	NONE INDICATED	14.13	LB/H	
TX-0380	SYNTHESIS GAS UNIT	FLARE, FS28	19.31			THE FLARE IS USED TO CONTROL TOTAL REDUCED SULFUR (TRS) AND CO.	NONE INDICATED	3338	LB/H	
*IA-0089	HOMELAND ENERGY SOLUTIONS, LLC, PN 06-672	BIOMETHANATOR FLARE, EP11 (07-A-957P)	19.31	6.4	MM BTU / H	USED TO CONTORL METHANATOR ODORS AND ONLY USED WHEN DRYERS AND THERMAL OXIDIZERS ARE NOT OPERATING.		7E-04	LB/MMBTU	

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Pollutant: Sulfur Dioxide (SO_2)

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*TX-0526	AIR PRODUCTS HYDROGEN, STEAM, AND ELECTRICITY PRODUCTION	FLARE PILOTS ONLY	19.31			PLANT FLARE - THE FLARE CONSISTS OF A STAND-ALONE ELEVATED, SMOKELESS FLARE AND A NETWORK OF PIPING AND ANCILLARY EQUIPMENT CONNECTING ALL RELIEF DEVICES AND PROCESS VENTS IN COMBUSTIBLE GAS (VOC) SERVICE. THE FLARE WILL ACHIEVE A MINIMUM OF 98% DESTRUCTION AND REMOVAL OF VOCS. THE FLARE WILL PRIMARILY BE USED UNDER SARTUP/SHUTDOWN CONDITIONS OR DURING MAINTENANCE ACTIVITIES OR UPSETS.		0.002	LB/H	
*TX-0526	AIR PRODUCTS HYDROGEN, STEAM, AND ELECTRICITY PRODUCTION	FLARE-MSS	19.31			PLANT FLARE - THE FLARE CONSISTS OF A STAND-ALONE ELEVATED, SMOKELESS FLARE AND A NETWORK OF PIPING AND ANCILLARY EQUIPMENT CONNECTING ALL RELIEF DEVICES AND PROCESS VENTS IN COMBUSTIBLE GAS (VOC) SERVICE. THE FLARE WILL ACHIEVE A MINIMUM OF 98% DESTRUCTION AND REMOVAL OF VOCS. THE FLARE WILL PRIMARILY BE USED UNDER SARTUP/SHUTDOWN CONDITIONS OR DURING MAINTENANCE ACTIVITIES OR UPSETS.		0.01	LB/H	
TX-0277	BASF CORPORATION	CONTINUOUS FLARE (POINT NO. 4-2-4)	19.31			(1) THE VOC EMISSIONS DO NOT INCLUDE ACRYLIC ACID, THEREFORE EMISSIONS ARE ADDITIVE FOR TOTAL VOC ESTIMATE. (2) THE VOC EMISSIONS DO NOT INCLUDE BUTYL ACETATE; THEREFORE, EMISSIONS ARE ADDITIVE FOR A TOTAL VOC ESTIMATE. (3) NATURAL GAS AS SUPPLEMENTAL FUEL CAN CONTAIN NO MORE THAN 0.5 GR HYDROGEN SULFIDE PER 100 DSCF AND NO MORE THAN 20 GR TOTAL SULFUR/100 DSCF.		0.01	LB/H	
TX-0481	AIR PRODUCTS BAYTOWN I I	FLARE (NORMAL OPERATION)	19.31					0.04	LB/H	
TX-0422	BP TEXAS CITY CHEMICAL PLANT B	FLARE, BDO UNIT	19.31			FUEL IS NATURAL GAS AND WASTE GAS		0.05	LB/H	
TX-0487	ROHM AND HAAS CHEMICALS LLC LONE STAR PLANT	N3/7 FEED AND EXIT GAS FLARE	19.31			THE PROPOSED N-AREA PRODUCTION INCREASE WILL INCREASE THE FLOW INTO THESE EXISTING FLARES. THEREFORE, THE EMISSIONS FROM THESE FLARES ARE INCREASED DURING THIS AMENDMENT. THE FLARES WILL CONTINUE TO ACHIEVE 98% DESTRUCTION REMOVAL EFFICIENCY (DRE) FOR VOC. THE EMISSION FACTORS FOR LOW BTU STREAMS OF 0.0641 LB NOX/MMBTU AND 0.5496 LB CO/MMBTU ARE USED IN THE EMISSION CALCULATIONS FOR THE FLARES. THE FLARES WILL CONTINUE TO MEET THE BACT.		0.11	LB/H	
TX-0487	ROHM AND HAAS CHEMICALS LLC LONE STAR PLANT	N5/6 FLARE	19.31			THE PROPOSED N-AREA PRODUCTION INCREASE WILL INCREASE THE FLOW INTO THESE EXISTING FLARES. THEREFORE, THE EMISSIONS FROM THESE FLARES ARE INCREASED DURING THIS AMENDMENT. THE FLARES WILL CONTINUE TO ACHIEVE 98% DESTRUCTION REMOVAL EFFICIENCY (DRE) FOR VOC. THE EMISSION FACTORS FOR LOW BTU STREAMS OF 0.0641 LB NOX/MMBTU AND 0.5496 LB CO/MMBTU ARE USED IN THE EMISSION CALCULATIONS FOR THE FLARES. THE FLARES WILL CONTINUE TO MEET THE BACT.		0.11	LB/H	
TX-0478	CITGO CORPUS CHRISTI REFINERY - WEST PLANT	ACID GAS FLARE	19.31			THE FLARES HAVE A MINIMUM DRE OF 98% AND ARE EQUIPPED WITH CONTINUOUS PILOTS		0.2	LB/H	

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Pollutant: Sulfur Dioxide (SO_2)

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*TX-0514	ENTERPRISE MONT BELVIEU COMPLEX	FLARE-NORMAL OPERATION	19.31					1.1	LB/HR	
TX-0465	SALT CREEK GAS PLANT	FLARES (2)	19.31			INLET GAS COMPOSITION AND VOLUMES HAVE CHANGED OVER THE YEARS SINCE REINJECTION OF CO2 WAS STARTED. IN 1998 THE SO2 EMISSION WERE REDUCED FROM 1020 T/YR TO APPROXIMATELY 174 T/YR IN PERMIT 5037A DUE TO THE REINJECTION OF THE CO2 BUT THE OTHER EMISSIONS HAVE NEVER BEEN REPRESENTED PROPERLY. THIS AMENDMENT IS TO ACCURATELY REPRESENT THAT EITHER FLARE CAN BE USED AS A PROCESS FLARE AND TO USE 2001 ACTUAL GAS FLOWS TO PREDICT THE VOLUME OF GAS PROCESSED. CURRENT GAS ANALYSES WERE PROVIDED TO ACCURATELY REPRESENT THE CO2, H2S AND VOC CONTENT OF THE GAS STREAMS. CALCULATED INCREASE IN NOX, CO AND VOC ARE GREATER THAN THE PSD SIGNIFICANCE LEVEL AND RECALCULATED INCREASES IN H2S AND SO2 ARE LESS THAN SIGNIFICANCE.		50.48	LB/H	
TX-0464	CONTINENTAL CARBON SUNRAY PLANT	PILOT PLANT FLARE	19.31			THE NEW FLARE IS THE PROPOSED CONTROL TECHNOLOGY WITH A 98% DESTRUCTION EFFICIENCY OF ALL VOCS. THE FLARE WILL ALSO REDUCE EMISSIONS OF H2S, CO, HCN, CS2, COS, AND PM10 EMITTED BY THE MBF. VOC CAN ALSO BE EMITTED FROM THE FEEDSTOCK OIL STORAGE TANKS. THE FIXED ROOF TANKS ARE CONSIDERED BACT DUE TO THE LOW VAPOR PRESSURE OF THE FEEDSTOCK OIL.		435.3	LB/H	
TX-0478	CITGO CORPUS CHRISTI REFINERY - WEST PLANT	FLARE-COKE DRUM BLOWDOWN	19.31			THE COKER BLOWDOWN FLARE HANDLES A PROCESS STREAM FROM THE COKER UNIT AND NON-ROUTINE EMISSIONS.		1056	LB/H	
VA-0294	ATLANTIC WASTE DISPOSAL LANDFILL	FLARES, 3500 SCFM LFG (3)	19.32	630000	scf/h	3 3500 SCFM LFG FLARES	PROPER MAINTENANCE OF THE FLARE, INCLUDING MONITORING FOR THE PRESENCE OF A FLAME, LGF FLOW RATE, 0% OPACITY, MEASURING % METHANE IN LFG	1.9	LB/H	
VA-0294	ATLANTIC WASTE DISPOSAL LANDFILL	FLARES, COMBINED	19.32	930000	scf/h	TOTAL EMISSIONS FOR ALL 5 FLARES: TWO 2500 SCFM AND THREE 3500 SCFM	PROPER MAINTENANCE OF THE FLARE, INCLUDING MONITORING FOR THE PRESENCE OF A FLAME, LGF FLOW RATE, 0% OPACITY, MEASURING % METHANE IN LFG	36.3	T/YR	
VA-0294	ATLANTIC WASTE DISPOSAL LANDFILL	FLARES, 2500 SCFM LGF (2)	19.32	300000	scf/h	EMISSIONS ARE FOR 1 OF 2 FLARES	PROPER MAINTENANCE OF THE FLARE, INCLUDING MONITORING FOR THE PRESENCE OF A FLAME, LGF FLOW RATE, 0% OPACITY, MEASURING %METHANE IN LFG	1.4	LB/H	

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Pollutant: Sulfur Dioxide (SO_2)

RBLCID	FACILITY NAME	PROCESS NAME	PROC TYPE	THRUPUT	THRUPUT UNIT	PROCESS NOTES	CTRLDESC	EMIS LIMIT1	EMIS LIMIT1 UNIT	EMIS LIMIT1 AVG TIME CONDITION
AK-0047	MILNE POINT PRODUCTION FACILITY	FLARE	19.33	83	MMSCF/D	THE MAXIMUM RATE/CAPACITY OF THE FLARE IS 83 MMSCF/D. THE NOMINAL CAPACITY IS 0.34 MMSCF/D.	BURN FUEL OIL WITH NO GREATER THAN 0.3% SULFUR BY WEIGHT AND NATURAL GAS WITH NO GREATER THAN 100 PPMVD H2S.	500	PPM	3 H AV
TX-0364	SALT CREEK GAS PLANT	(2) FLARES, EPN 9 & 29	19.33			THIS AMENDMENT IS TO ACCURATELY REPRESENT THAT EITHER FLARE CAN BE USED AS A PROCESS FLARE AND TO USE 2001 ACTUAL GAS FLOWS TO PREDICT THE VOLUME OF GAS PROCESSED. CURRENT GAS ANALYSES WERE PROVIDED TO ACCURATELY REPRESENT THE CO2, H2S, AND VOC CONTENT OF THE GAS STREAMS.	NONE INDICATED	50.48	LB/H	EACH
TX-0346	WEST REFINERY	COMBUSTION SOURCES, FLARES & MISC	19.33			EMISSIONS MAY OCCUR FROM ANY OR ALL OF THESE EPNs: V-5 MAIN, V-5-AG, V-5-UF, V6 AND V7 MISC SOURCES LISTED FOR EACH POLLUTANT WHERE APPLICABLE.	NONE INDICATED	962.1	LB/H	INITIAL CAP 3/23/99-12/31/04
OK-0059	PONCA CITY REFINERY	FLARE	19.33	0.2	LB/MMBTU		USE OF PIPELINE QUALITY NATURAL GAS	6E-04	LB/ MMBTU	
TX-0475	FORMOSA POINT COMFORT PLANT	FLARE (1067)	19.33					0.01	LB/H	
TX-0475	FORMOSA POINT COMFORT PLANT	FLARE	19.33					0.02	LB/H	
TX-0475	FORMOSA POINT COMFORT PLANT	FLARE (1067)	19.33					0.02	LB/H	
TX-0478	CITGO CORPUS CHRISTI REFINERY - WEST PLANT	SOUR WATER STRIPPER FLARE	19.33			THE SOUR WATER STRIPPER FLARE AND AMINE FLARE WERE PREVIOUSLY LISTED AS FOR EMERGENCY USE ONLY. THE EMISSIONS FROM THESE FLARES WILL NOW REFLECT EMISSIONS FROM THE PILOTS. THE COKER BLOWDOWN FLARE HANDLES A PROCESS STREAM FROM THE COKER UNIT AND NON-ROUTINE EMISSIONS. THE CHANGES TO THESE FLARES ARE PART OF THE PERMIT AMENDMENT.		0.19	LB/H	

RBLC Matching Facilities for Search Criteria:
Permit Date Between 1/1/1997 And 11/13/2007
And Process Type Contains "19.300" Flares or "50.008": Petroleum Refining Flares and Incinerators (except acid gas/SRU incinerators - 50.006)
Pollutant: Sulfur Dioxide (SO_2)

RBLCID	FACILITY NAME	PROCESS NAME	PROC TYPE	THRUPUT	THRUPUT UNIT	PROCESS NOTES	CTRLDESC	EMIS LIMIT1	EMIS LIMIT1 UNIT	EMIS LIMIT1 AVG TIME CONDITION
TX-0235	VALERO REFINING COMPANY-CORPUS CHRISTI REFINERY	MAIN FLARE	19.33			FLARES SHALL BE DESIGNED AND OPERATED IN ACCORDANCE WITH 40 CFR 60.18 INCLUDING SPECIFICATIONS OF MINIMUM HEATING VALUE OF THE WASTE GAS, MAXIMUM TIP VELOCITY, AND PILOT FLAME MONITORING. IF NECESSARY TO INSURE ADEQUATE COMBUSTION, SUFFICIENT FUEL GAS SHALL BE ADDED TO MAKE THE GASES COMBUSTIBLE. AN INFRARED MONITOR IS CONSIDERED EQUIVALENT TO A THERMOCOUPLE FOR FLAME MONITORING PURPOSES. EXCEPT AS PROVIDED FOR BY THIS PERMIT, ALL WASTE GAS FROM POINT SOURCES CONTAINING VOC AND/OR OTHER ORGANIC COMPOUNDS (HYDROCARBONS AND/OR HYDROCARBON DERIVATIVES EXCLUDING CARBON DIOXIDE [CO2]) SHALL BE ROUTED TO A FLARE. THE FLARE SHALL OPERATE WITH NO LESS THAN 98 % EFFICIENCY IN DISPOSING OFTHE CARBON COMPOUNDS CAPTURED BY THE COLLECTION SYSTEM. THE WASTE GAS STREAMS SHALL INCLUDE PROCESS VENTS, RELIEF VALVES NOT IN VACUUM SERVICE, ANALYZER VENTS, STEAM JET EXHAUSTS, UPSET EMISSIONS, START-UP AND SHUTDOWN-RELATED EMISSIONS OR PURGES, BLOWDOWNS, OR OTHER SYSTEM EMISSIONS OF WASTE GAS. STORAGE TANK VENTS, COOLING TOWER EXHAUST, AND PROCESS FUGITIVE		51.1	LB/H	
TX-0235	VALERO REFINING COMPANY-CORPUS CHRISTI REFINERY	GROUND FLARE	19.33			FLARES SHALL BE DESIGNED AND OPERATED IN ACCORDANCE WITH 40 CFR 60.18 INCLUDING SPECIFICATIONS OF MINIMUM HEATING VALUE OF THE WASTE GAS, MAXIMUM TIP VELOCITY, AND PILOT FLAME MONITORING. IF NECESSARY TO INSURE ADEQUATE COMBUSTION, SUFFICIENT FUEL GAS SHALL BE ADDED TO MAKE THE GASES COMBUSTIBLE. AN INFRARED MONITOR IS CONSIDERED EQUIVALENT TO A THERMOCOUPLE FOR FLAME MONITORING PURPOSES.		51.1	LB/H	
LA-0166	ORION REFINING CORP (NOW VALERO)	FLARE NO.1 (EMISSION PT. 15-77)	19.33	60.7	MMBTU/H			133	LB/H	
LA-0166	ORION REFINING CORP (NOW VALERO)	FLARE NO. 2 (EMISSION PT. 12-81)	19.33	60.7	MMBTU/H			133	LB/H	
TX-0492	VIRTEX PETROLEUM COMPANY DOERING RANCH GAS PLANT	FACILITY FLARE-AMINE UNIT STILL VENT	19.33	0.75	LTPD			140.5	LB/H	
TX-0442	SHELL OIL DEER PARK	COKER FLARE	19.33					300	PPM	
TX-0442	SHELL OIL DEER PARK	EAST PROPERTY FLARE	19.33					300	PPM	
TX-0442	SHELL OIL DEER PARK	CCU FLARE	19.33					300	PPM	
TX-0442	SHELL OIL DEER PARK	WEST PROPERTY FLARE	19.33					300	PPM	

RBLC Matching Facilities for Search Criteria:
Permit Date Between 1/1/1997 And 11/13/2007
And Process Type Contains "19.300" Flares or "50.008": Petroleum Refining Flares and Incinerators (except acid gas/SRU incinerators - 50.006)
Pollutant: Sulfur Dioxide (SO_2)

RBLCID	FACILITY NAME	PROCESS NAME	PROC TYPE	THRUPUT	THRUPUT UNIT	PROCESS NOTES	CTRLDESC	EMIS LIMIT1	EMIS LIMIT1 UNIT	EMIS LIMIT1 AVG TIME CONDITION
TX-0442	SHELL OIL DEER PARK	THREE FLARES	19.33					300	PPM	
TX-0494	FLINT HILLS RESOURCES INSTALLATION OF BOILERS	FLARES 5,6	19.33					942.5	LB/H	
LA-0208	IVANHOE CARBON BLACK PLANT	FLARE, UNIT 4	19.39				LIMIT SULFUR CONTENT IN FEEDSTOCK TO <= 4% (ANNUAL AVERAGE).	37.93	LB/H	HOURLY MAXIMUM (NATURAL GAS-FIRED)
LA-0208	IVANHOE CARBON BLACK PLANT	FLARE, UNIT 5	19.39				LIMIT SULFUR CONTENT IN FEEDSTOCK TO <= 4% (ANNUAL AVERAGE).	312.9	LB/H	HOURLY MAXIMUM (NATURAL GAS-FIRED)
LA-0208	IVANHOE CARBON BLACK PLANT	FLARE, UNIT 2	19.39				LIMIT SULFUR CONTENT IN FEEDSTOCK TO <= 4% (ANNUAL AVERAGE).	383.9	LB/H	HOURLY MAXIMUM (NATURAL GAS-FIRED)
LA-0208	IVANHOE CARBON BLACK PLANT	FLARE, UNIT 3	19.39				LIMIT SULFUR CONTENT IN FEEDSTOCK TO <= 4% (ANNUAL AVERAGE).	522.7	LB/H	HOURLY MAXIMUM (NATURAL GAS-FIRED)
IA-0074	ARCHER DANIELS MIDLAND CORN PROCESSING	FLARE, ETHANOL LOADOUT	19.39	27	mmbtu/h	TRUCK AND RAIL LOADOUT OF DENATURED ALCOHOL, 316.5 MMGAL/YR	NATURAL GAS ONLY	0.02	LB/H	
AZ-0046	ARIZONA CLEAN FUELS YUMA	WASTEWATER TREATMENT PLANT THERMAL OXIDIZER	50.008				35 PPM SULFUR LIMIT IN FUEL.	35	PPMV	DAILY AVERAGE
*LA-0211	GARYVILLE REFINERY	HYDROGEN PLANT FLARE (52-08)	50.008	2472	MM BTU/H	H2 PLANT FEED GAS: 2472 MM BTU/HR PURGE GAS: 204.45 MM BTU/HR PROCESS VENT GAS: 61.2 MM BTU/HR	COMPLY WITH 40 CFR 60.18			
TX-0235	VALERO REFINING COMPANY-CORPUS CHRISTI REFINERY	SCRUBBER/SRU INCINERATOR	50.008			THE HOLDER OF THE PERMIT SHALL REPORT UNDER 30 TAC SECTIONS 101.6 OR 101.7 ANYTIME THE SRU IS NOT OPERATING PROPERLY. IF THE SRU TRAIN IS NOT OPERATING PROPERLY, THE ACID GAS FEED STREAM MAY BE ROUTED TO AN EMERGENCY FLARE FOR A PERIOD NOT TO EXCEED 12HRS. IF THE SULFTEN UNIT IS NOT OPERATING PROPERLY, SRU TAIL GAS SHALL BE INCINERATED, THEN ROUTED TO THE HOC FLUE GAS SCRUBBER UNLESS THE SCRUBBER STACK IS OUT OF SERVICE, IN WHICH CASE SRU TAIL GAS WILL BE ROUTED TO THE FLARE. THE INOPERABLE EQUIPMENT SHALL BE REPAIRED AND RESTORED TO SERVICE AS SOON AS POSSIBLE. THE PH OF THE HOC SCRUBBER CIRCULATING CAUSTIC SOLUTION SHALL BE CONTINUALLY MONITORED AND BE MAINTAINED AT A LEVEL BETWEEN 6.0 AND 9.0 BY THE ADDITITON OF FRESH CAUSTIC SOLUTION AS REQUIRED. THE PH SHALL BE RECORDED AT LEAST HOURLY, AND THE RECORDS MAINTAINED AT THE PLANT SITE FOR A PERIOD OF TWO YEARS. THESE RECORDS SHALL BE MADE AVAILABLE FOR INSPECTION BY THE EXECUTIVE DIRECTOR OF THE TNRCC OR HIS DESIGNATED REPRESENTATIVE.	SULFUR RECOVERY EFFICIENCY DETERMINED BY CALCULATION, EFFICIENCY= (S RECOVERED) * (100) (S ACID GAS) (SEE PERMIT FOR EXPLANATION). COMPLIANCE TESTING. INSTALL, CALIBRATE, & MAINTAIN A CEMS FOR SO2 EXHAUSTED TO SRU.	474	LB/H	

RBLC Matching Facilities for Search Criteria:
Permit Date Between 1/1/1997 And 11/13/2007
And Process Type Contains "19.300" Flares or "50.008": Petroleum Refining Flares and Incinerators (except acid gas/SRU incinerators - 50.006)
Pollutant: Sulfur Dioxide (SO_2)

RBLCID	FACILITY NAME	PROCESS NAME	PROC TYPE	THRUPUT	THRUPUT UNIT	PROCESS NOTES	CTRLDESC	EMIS LIMIT1	EMIS LIMIT1 UNIT	EMIS LIMIT1 AVG TIME CONDITION
*LA-0213	ST. CHARLES REFINERY	FLARE NOS. 3 & 4 (2004-5 & 2005-38)	50.008				USE OF PIPELINE QUALITY NATURAL GAS OR REFINERY FUEL GASES WITH AN H2S CONCENTRATION LESS THAN 100 PPMV (ANNUAL AVERAGE) AS FUELS AT FLARE TIP.	50	LB/HR	HOURLY MAXIMUM
*LA-0213	ST. CHARLES REFINERY	MVR THERMAL OXIDIZER NO. 2 (2005-41)	50.008	240	MM BTU/H		USE OF PIPELINE QUALITY NATURAL GAS OR REFINERY FUEL GASES WITH AN H2S CONCENTRATION LESS THAN 100 PPMV (ANNUAL AVERAGE).	3.3	LB/H	HOURLY MAXIMUM
*OH-0308	SUNOCO, INC., TOLEDO REFINERY	FLARE, STEAM ASSISTED	50.008			FLARE, STEAM ASSISTED, TO CONTROL HYDROCARBON EMISSIONS FROM PROCESS VENTS		5.33	LB/H	
AZ-0046	ARIZONA CLEAN FUELS YUMA	TANK FARM THERMAL OXIDIZER	50.008			THE THERMAL OXIDIZER IS ONLY PERMITTED TO FIRE NATURAL GAS, REFINERY FUEL GAS, AND THE GASES VENTED FROM THE STORAGE TANKS.		35	PPMV	DAILY AVERAGE
AZ-0046	ARIZONA CLEAN FUELS YUMA	TRUCK AND RAIL CAR LOADING RACK THERMAL OXIDIZERS	50.008	12.3	MMBTU/H	EQUIPMENT IDENTIFIED BY ID #S S-47200 AND S-46200		35	PPMV	DAILY AVERAGE
*TX-0511	BASF ETHYLENE/PROPYLENE CRACKER	GROUND FLARE	50.008			THE GROUND FLARE CONSISTS OF A MULTIPOINT BURNER, STAGED PERFORMANCE HIGH PRESSURE FLARE SYSTEM. THIS FLARE WAS DESIGNED TO EFFICIENTLY CONTROL A VARIETY OF VENTING SCENARIOS FROM THIS PROCESS. THE HEATING VALUE OF STREAMS ROUTED TO THE FLARE CAN VARY FROM 10 TO OVER 38,000 MMBTU/HR. THE STREAMS ROUTED TO THE FLARE CAN INCREASE FROM A MINIMUM FLOW TO MAXIMUM FLOW IN ONLY A FEW SECONDS. RELATIVELY HIGH FLOW RATES TO THE FLARE CAN CONTINUE FOR MINUTES, HOURS, OR DAYS. PERIODS OF VERY LOW FLOW MAY CONTINUE FOR WEEKS AT A TIME. SINCE LARGE PORTIONS OF THE ETHYLENE CRACKER PROCESS ARE CHARACTERIZED BY "INTERMEDIATE" STREAMS IN THE GAS PHASE, A PARTICULARLY		165.8	LB/H	

ATTACHMENT 3D
MODULE 3
OEPA APPLICATION FORMS

Section II - Specific Air Contaminant Source Information

NOTE: One copy of this section should be filled out for each air contaminant source covered by this PTI application. See the line by line PTI instructions for additional information.

1. Company identification (name for air contaminant source for which you are applying): GASIFICATION

2. List all equipment that are part of this air contaminant source: GASIFIER 1 VENTED TO COMMON HIGH PRESSURE FLARE

3. Air Contaminant Source Installation or Modification Schedule (must be completed regardless of date of installation or modification):

   When did/will you begin to install or modify the air contaminant source? (month/year) SECOND QUARTER 2008

   When did/will you begin to operate the air contaminant source? (month/year) THIRD QUARTER 2011 **OR** after issuance of PTI _____

4. Emissions Information: The following table requests information needed to determine the applicable requirements and the compliance status of this air contaminant source with those requirements. Suggestions for how to estimate emissions may be found in the instructions to the Emissions Activity Category (EAC) forms required with this application. If you need further assistance, contact your Ohio EPA permit representative.

   - If total potential emissions of HAPs or any Air Toxic is greater than 1 ton/yr, fill in the table for that (those) pollutant(s). For all other pollutants, if "Emissions before controls (max), lb/hr" multiplied by 24 hours/day is greater than 10 lb/day, fill in the table for that pollutant.
   - If you have no add-on control equipment, "Emissions before controls= will be the same as "Actual emissions"
   - Annual emissions should be based on operating 8760 hr/yr unless you are requesting operating restrictions to limit emissions in line # 8 or have described inherent limitations below.
   - If you use units other than lb/hr or ton/yr, specify the units used (e.g., gr/dscf, lb/ton charged, lb/MMBtu, ton/12-months).
   - Requested Allowable (ton/yr) is often equivalent to Potential to Emit (PTE) as defined in OAC rule 3745-31-01 and OAC rule 3745-77-01.

Pollutant	Emissions before controls (max) (lb/hr)	Actual emissions (lb/hr)	Actual emissions (ton/year)	Requested Allowable (lb/hr)	Requested Allowable (ton/year)
Particulate emissions (PE) (formerly particulate matter, PM)	0.06	0.06	0.3	9.4	0.3
PM_{10} (PM < 10 microns in diameter)	0.06	0.06	0.3	9.4	0.3
Sulfur dioxide (SO_2)	167	167	732.3	28,166	732.3
Nitrogen oxides (NO_x)	2.29	2.29	10.1	377	10.1
Carbon monoxide (CO)	15.0	15.0	65.8	2,522	65.8
Organic compounds (OC)	46.6	0.93	4.1	157	4.1
Volatile organic compounds (VOC)	46.6	0.93	4.1	157	4.1
Total HAPs	0.08	0.08	0.3	13.2	0.3
Highest single HAP: (COS)	0.08	0.08	0.3	13.2	0.3
Air Toxics (H2S)):	0.41	0.41	1.8	69.1	1.8

Provide your calculations as an attachment and explain how all process variables and emission factors were selected. Note the emissions factor(s) employed and document the origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.

Section II - Specific Air Contaminant Source Information

5. **Does this air contaminant source employ emissions control equipment?**

☒ **Yes** - fill out the applicable information below.

☐ **No** - proceed to item # 6.

Note: Pollutant abbreviations used below: Particulates = PE; Organic compounds = OC; Sulfur dioxide = SO_2; Nitrogen oxides = NOx; Carbon monoxide = CO

☐ **Cyclone/Multiclone**

Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%): _____ Basis for efficiency: _____
Design control efficiency (%): _____ Basis for efficiency: _____
Type: ☐ Cyclone ☐ Multiclone ☐ Rotoclone ☐ Other _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☐ **Fabric Filter/Baghouse**

Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other PM10
Estimated capture efficiency (%): _____ Basis for efficiency: _____
Design control efficiency (%): _____ Basis for efficiency: _____
Operating pressure drop range (inches of water): Minimum: _____ Maximum: _____
Pressure type: ☐ Negative pressure ☐ Positive pressure
Fabric cleaning mechanism: ☐ Reverse air ☐ Pulse jet ☐ Shaker ☐ Other _____
☐ Lime injection or fabric coating agent used: Type: _____ Feed rate: _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☐ **Wet Scrubber**

Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%): _____ Basis for efficiency: _____
Design control efficiency (%): _____ Basis for efficiency: _____
Type: ☐ Spray chamber ☐ Packed bed ☐ Impingement ☐ Venturi ☐ Other _____
Operating pressure drop range (inches of water): Minimum: _____ Maximum: _____
pH range for scrubbing liquid: Minimum: _____ Maximum: _____
Scrubbing liquid flow rate (gal/min): _____
Is scrubber liquid recirculated? ☐ Yes ☐ No
Water supply pressure (psig): _____ NOTE: This item for spray chambers only.
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☐ **Electrostatic Precipitator**

Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%): _____ Basis for efficiency: _____
Design control efficiency (%): _____ Basis for efficiency: _____

Section II - Specific Air Contaminant Source Information

Type: ☐ Plate-wire ☐ Flat-plate ☐ Tubular ☐ Wet ☐ Other _____
Number of operating fields: _____

☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☐ **Concentrator**
Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design regeneration cycle time (minutes): _____
Minimum desorption air stream temperature (°F): _____
Rotational rate (revolutions/hour): _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☐ **Catalytic Incinerator**
Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design control efficiency (%):_____ Basis for efficiency: _____
Minimum inlet gas temperature (°F): _____
Combustion chamber residence time (seconds): _____
Minimum temperature difference (°F) across catalyst during air contaminant source operation: _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☐ **Thermal Incinerator/Thermal Oxidizer**
Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design control efficiency (%):_____ Basis for efficiency: _____
Minimum operating temperature (°F) and location: _____ (See line by line instructions.)
Combustion chamber residence time (seconds): _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☒ **Flare**
Manufacturer: SELECTION PENDING Year installed: SECOND QUARTER 2008
What do you call this control equipment: HIGH PRESSURE FLARE
Pollutant(s) controlled: ☐ PE ☒ OC ☐ SO_2 ☐ NOx ☐ CO ☒ Other organic HAP
Estimated capture efficiency (%):100 Basis for efficiency: ENGINEERING DESIGN
Design control efficiency (%): 98 Basis for efficiency: ENGINEERING ESTIMATE
Type: ☐ Enclosed ☒ Elevated (open)
Ignition device: ☐ Electric arc ☒ Pilot flame
Flame presence sensor: ☒ Yes ☐ No
☒ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:

Section II - Specific Air Contaminant Source Information

☐ **Condenser**

Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design control efficiency (%):_____ Basis for efficiency: _____

Type: ☐ Indirect contact ☐ Direct contact
Maximum exhaust gas temperature (°F) during air contaminant source operation: _____
Coolant type: _____
Design coolant temperature (°F): Minimum _____ Maximum _____
Design coolant flow rate (gpm): _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☐ **Carbon Absorber**

Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design control efficiency (%):_____ Basis for efficiency: _____
Type: ☐ On-site regenerative ☐ Disposable
Maximum design outlet organic compound concentration (ppmv): _____
Carbon replacement frequency or regeneration cycle time (specify units): _____
Maximum temperature of the carbon bed, after regeneration (including any cooling cycle): _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☐ **Dry Scrubber**

Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design control efficiency (%):_____ Basis for efficiency: _____
Reagent(s) used: Type: _____ Injection rate(s): _____
Operating pressure drop range (inches of water): Minimum: _____ Maximum: _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☐ **Paint booth filter**

Type: ☐ Paper ☐ Fiberglass ☐ Water curtain ☐ Other _____
Design control efficiency (%):_____ Basis for efficiency: _____

☐ **Other**, describe

Manufacturer: Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other PM10
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design control efficiency (%):_____ Basis for efficiency: _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:

6. Attach a Process or Activity Flow Diagram to this application for each air contaminant source included in the application. The diagram should indicate their relationships to one another. See the line by line PTI instructions for additional information.

7. Emissions egress point(s) information: PTIs which allow total emissions in excess of the thresholds listed below will be subject to an air quality modeling analysis. This analysis is to assure that the impact from the requested project will not exceed Ohio=s Acceptable Incremental Impacts for criteria pollutants and/or Maximum Allowable Ground Level Concentrations (MAGLC) for air toxics. Permit requests that would have unacceptable impacts can not be approved as proposed. See the line by line PTI instructions for additional information.

   Complete the tables below if the requested allowable annual emission rate for this PTI exceeds any of the following:

   - Particulate Matter (PM10): 10 tons per year
   - Sulfur Dioxide (SO2): 25 tons per year
   - Nitrogen Oxides (NOx): 25 tons per year
   - Carbon Monoxide (CO): 100 tons per year
   - Air Toxic: 1 ton per year. An air toxic is any air pollutant for which the American Council of Governmental Industrial Hygienists (ACGIH) has established a Threshold Limit Value (TLV).

   Complete Table 7-A below for each stack emissions egress point. An egress point is a point at which emissions from an air contaminant source are released into the ambient (outside) air. List each individual egress point on a separate line.

Table 7-A, Stack Egress Point Information

Company Name or ID for the Egress Point (examples: Stack A; Boiler Stack; etc.)	Type Code*	Stack Egress Point Shape and Dimensions (in)(examples: round 10 inch ID; rectangular 14 X 16 inches; etc.)	Stack Egress Point Height from the Ground (ft)	Stack Temp. at Max. Capacity (F)	Stack Flow Rate at Max. Capacity (ACFM)	Minimum Distance to the Property Line (ft)
HIGH PRESSURE FLARE	A	ROUND 120-INCH ID	295	1,000 to 2,000	~533,000	600

*Type codes for stack egress points:

A. vertical stack (unobstructed): There are no obstructions to upward flow in or on the stack such as a rain cap.
B. vertical stack (obstructed): There are obstructions to the upward flow, such as a rain cap, which prevents or inhibits the air flow in a vertical direction.
C. non-vertical stack: The stack directs the air flow in a direction which is not directly upward.

Complete Table 7-B below for each fugitive emissions egress point. List each individual egress point on a separate line. Refer to the description of the fugitive egress point type codes below the table for use in completing the type code column of the table. For air contaminant sources like roadways and storage piles, only the first 5 columns need to be completed. For an air contaminant source with multiple fugitive emissions egress points, include only the primary egress points.

Table 7-B, Fugitive Egress Point Information

Company ID for the Egress Point (examples; Garage Door B, Building C; Roof Monitor; etc.)	Type Code*	Egress Point Description (examples: garage door, 12 X 30 feet, west wall; outside gravel storage piles; etc.)	Fugitive Egress Point Height from the Ground (ft)	Minimum Distance to the Property Line (ft)	Exit Gas Temp. (F)
NA					

Section II - Specific Air Contaminant Source Information

*Type codes for fugitive egress point:

D. door or window
E. other opening in the building without a duct
F. no stack and no building enclosing the air contaminant source (e.g., roadways)

Complete Table 7-C below for each Stack Egress Point identified in Table 7-A above. In each case, use the dimensions of the largest nearby building, building segment or structure. List each individual egress point on a separate line. Use the same Company Name or ID for the Egress Point in Table 7-C that was used in Table 7-A. See the line by line PTI instructions for additional information.

Table 7-C, Egress Point Additional Information (Add rows as necessary)

Company ID or Name for the Egress Point	Building Height (ft)	Building Width (ft)	Building Length (ft)
HIGH PRESSURE FLARE	580 (Cooling Tower)	240	240

8. Request for Federally Enforceable Limits

As part of this permit application, do you wish to propose voluntary restrictions to limit emissions in order to avoid specific requirements listed below, (i.e., are you requesting federally enforceable limits to obtain synthetic minor status)?

☐ yes
☒ no
☐ not sure - please contact me if this affects me

If yes, why are you requesting federally enforceable limits? Check all that apply.

a. ☐ to avoid being a major source (see OAC rule 3745-77-01)
b. ☐ to avoid being a major MACT source (see OAC rule 3745-31-01)
c. ☐ to avoid being a major modification (see OAC rule 3745-31-01)
d. ☐ to avoid being a major stationary source (see OAC rule 3745-31-01)
e. ☐ to avoid an air dispersion modeling requirement (see Engineering Guide # 69)
f. ☐ to avoid another requirement. Describe: _____

If you checked a., b. or d., please attach a facility-wide potential to emit (PTE) analysis (for each pollutant) and synthetic minor strategy to this application. (See line by line instructions for definition of PTE.) If you checked c., please attach a net emission change analysis to this application.

9. If this air contaminant source utilizes any continuous emissions monitoring equipment for indicating or demonstrating compliance, complete the following table. This does not include continuous parametric monitoring systems.

Company ID for Egress Point	Type of Monitor	Applicable performance specification (40 CFR 60, Appendix B)	Pollutant(s) Monitored
NA			

10. Do you wish to permit this air contaminant source as a portable source, allowing relocation within the state in accordance with OAC rule 3745-31-03 or OAC rule 3745-31-05?

☐ yes - Note: notification requirements in rules cited above must be followed.
☒ no

11. The appropriate Emissions Activity Category (EAC) form(s) must be completed and attached for each air contaminant source. At least one complete EAC form must be submitted for each air contaminant source for the application to be considered complete. Refer to the list attached to the PTI instructions.

FOR OHIO EPA USE
FACILITY ID:_____
EU ID: _____ PTI #:_____

EMISSIONS ACTIVITY CATEGORY FORM
GENERAL PROCESS OPERATION

This form is to be completed for each process operation when there is no specific emissions activity category (EAC) form applicable. If there is more than one end product for this process, copy and complete this form for each additional product (see instructions). Several State/Federal regulations which may apply to process operations are listed in the instructions. Note that there may be other regulations which apply to this emissions unit which are not included in this list.

1. Reason this form is being submitted (Check one)

☒ New Permit ☐ Renewal or Modification of Air Permit Number(s) (e.g. P001)_____

2. Maximum Operating Schedule: 24 hours per day ; 365 days per year

If the schedule is less than 24 hours/day or 365 days/year, what limits the schedule to less than maximum? See instructions for examples. _____

3. End product of this process: SYNGAS

4. Hourly production rates (indicate appropriate units). Please see the instructions for clarification of "Maximum" and "Average" for new versus existing operations:

Hourly	Rate	Units (e.g., widgets)
Average production	17.2 MMscf	SYNGAS
Maximum production	22.8 MMscf	SYNGAS

5. Annual production rates (indicate appropriate units) Please see the instructions for clarification of "Maximum" and "Actual" for new versus existing operations:

Annual	Rate	Units (e.g., widgets)
Actual production	150,000 scf	SYNGAS
Maximum production	200,000 scf	SYNGAS

6. Type of operation (please check one):

☒ Continuous
☐ Batch (please complete items below)

Minimum cycle* time (minutes): _____
Minimum time between cycles (minutes): _____
Maximum number of cycles per daily 24 hour period: _____
(Note: include cycle time and set up/clean up time.)

*"Cycle" refers to the time the equipment is in operation.

7. Materials used in process at maximum hourly production rate (add rows/pages as needed):

Material	Physical State at Standard Conditions	Principle Use	Amount**
COAL	SOLID	GASIFICATION	82 to 200 TPH
BIOMASS	SOLID	GASIFICATION	0 to 60 TPH
OXYGEN	GAS	GASIFICATION	83 to 167 TPH
STEAM	GAS	GASIFICATION	8 to 13 TPH

** Please indicate the amount **and** rate (e.g., lbs/hr, gallons/hr, lbs/cycle, etc.).

8. Please provide a narrative description of the process below (e.g., coating of metal parts using high VOC content coatings for the manufacture of widgets; emissions controlled by thermal oxidizer...):

FEEDSTOCK (COAL AND/OR BIOMASS), OXYGEN, STEAM, AND BOILER FEED WATER ARE FED INTO ONE OR MORE OF THE SIX GASIFICATION UNITS WHERE FEEDSTOCK IS CHEMICALLY REACTED IN SUB-STOICHIOMETIRIC CONDITIONS TO YIELD SYNGAS.

Section II - Specific Air Contaminant Source Information

NOTE: One copy of this section should be filled out for each air contaminant source covered by this PTI application. See the line by line PTI instructions for additional information.

1. Company identification (name for air contaminant source for which you are applying): GASIFICATION

2. List all equipment that are part of this air contaminant source: GASIFIER 2 VENTED TO COMMON HIGH PRESSURE FLARE

3. Air Contaminant Source Installation or Modification Schedule (must be completed regardless of date of installation or modification):

   When did/will you begin to install or modify the air contaminant source? (month/year) SECOND QUARTER 2008

   When did/will you begin to operate the air contaminant source? (month/year) THIRD QUARTER 2011 **OR** after issuance of PTI _____

4. Emissions Information: The following table requests information needed to determine the applicable requirements and the compliance status of this air contaminant source with those requirements. Suggestions for how to estimate emissions may be found in the instructions to the Emissions Activity Category (EAC) forms required with this application. If you need further assistance, contact your Ohio EPA permit representative.

   - If total potential emissions of HAPs or any Air Toxic is greater than 1 ton/yr, fill in the table for that (those) pollutant(s). For all other pollutants, if "Emissions before controls (max), lb/hr" multiplied by 24 hours/day is greater than 10 lb/day, fill in the table for that pollutant.
   - If you have no add-on control equipment, "Emissions before controls= will be the same as "Actual emissions"
   - Annual emissions should be based on operating 8760 hr/yr unless you are requesting operating restrictions to limit emissions in line # 8 or have described inherent limitations below.
   - If you use units other than lb/hr or ton/yr, specify the units used (e.g., gr/dscf, lb/ton charged, lb/MMBtu, ton/12-months).
   - Requested Allowable (ton/yr) is often equivalent to Potential to Emit (PTE) as defined in OAC rule 3745-31-01 and OAC rule 3745-77-01.

Pollutant	Emissions before controls (max) (lb/hr)	Actual emissions (lb/hr)	Actual emissions (ton/year)	Requested Allowable (lb/hr)	Requested Allowable (ton/year)
Particulate emissions (PE) (formerly particulate matter, PM)	0.06	0.06	0.3	9.4	0.3
PM_{10} (PM < 10 microns in diameter)	0.06	0.06	0.3	9.4	0.3
Sulfur dioxide (SO_2)	167	167	732.3	28,166	732.3
Nitrogen oxides (NO_x)	2.29	2.29	10.1	377	10.1
Carbon monoxide (CO)	15.0	15.0	65.8	2,522	65.8
Organic compounds (OC)	46.6	0.93	4.1	157	4.1
Volatile organic compounds (VOC)	46.6	0.93	4.1	157	4.1
Total HAPs	0.08	0.08	0.3	13.2	0.3
Highest single HAP: (COS)	0.08	0.08	0.3	13.2	0.3
Air Toxics (H2S)):	0.41	0.41	1.8	69.1	1.8

Provide your calculations as an attachment and explain how all process variables and emission factors were selected. Note the emissions factor(s) employed and document the origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.

Section II - Specific Air Contaminant Source Information

5. **Does this air contaminant source employ emissions control equipment?**

☒ **Yes** - fill out the applicable information below.

☐ **No** - proceed to item # 6.

Note: Pollutant abbreviations used below: Particulates = PE; Organic compounds = OC; Sulfur dioxide = SO_2; Nitrogen oxides = NOx; Carbon monoxide = CO

☐ **Cyclone/Multiclone**

Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%): _____ Basis for efficiency: _____
Design control efficiency (%): _____ Basis for efficiency: _____
Type: ☐ Cyclone ☐ Multiclone ☐ Rotoclone ☐ Other _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☐ **Fabric Filter/Baghouse**

Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other PM10
Estimated capture efficiency (%): _____ Basis for efficiency: _____
Design control efficiency (%): _____ Basis for efficiency: _____
Operating pressure drop range (inches of water): Minimum: _____ Maximum: _____
Pressure type: ☐ Negative pressure ☐ Positive pressure
Fabric cleaning mechanism: ☐ Reverse air ☐ Pulse jet ☐ Shaker ☐ Other _____
☐ Lime injection or fabric coating agent used: Type: _____ Feed rate: _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☐ **Wet Scrubber**

Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%): _____ Basis for efficiency: _____
Design control efficiency (%): _____ Basis for efficiency: _____
Type: ☐ Spray chamber ☐ Packed bed ☐ Impingement ☐ Venturi ☐ Other _____
Operating pressure drop range (inches of water): Minimum: _____ Maximum: _____
pH range for scrubbing liquid: Minimum: _____ Maximum: _____
Scrubbing liquid flow rate (gal/min): _____
Is scrubber liquid recirculated? ☐ Yes ☐ No
Water supply pressure (psig): _____ NOTE: This item for spray chambers only.
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☐ **Electrostatic Precipitator**

Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%): _____ Basis for efficiency: _____
Design control efficiency (%): _____ Basis for efficiency: _____

Section II - Specific Air Contaminant Source Information

Type: ☐ Plate-wire ☐ Flat-plate ☐ Tubular ☐ Wet ☐ Other _____
Number of operating fields: _____

☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☐ **Concentrator**
Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design regeneration cycle time (minutes): _____
Minimum desorption air stream temperature (°F): _____
Rotational rate (revolutions/hour): _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☐ **Catalytic Incinerator**
Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design control efficiency (%):_____ Basis for efficiency: _____
Minimum inlet gas temperature (°F): _____
Combustion chamber residence time (seconds): _____
Minimum temperature difference (°F) across catalyst during air contaminant source operation: _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☐ **Thermal Incinerator/Thermal Oxidizer**
Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design control efficiency (%):_____ Basis for efficiency: _____
Minimum operating temperature (°F) and location: _____ (See line by line instructions.)
Combustion chamber residence time (seconds): _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☒ **Flare**
Manufacturer: SELECTION PENDING Year installed: SECOND QUARTER 2008
What do you call this control equipment: HIGH PRESSURE FLARE
Pollutant(s) controlled: ☐ PE ☒ OC ☐ SO_2 ☐ NOx ☐ CO ☒ Other organic HAP
Estimated capture efficiency (%):100 Basis for efficiency: ENGINEERING DESIGN
Design control efficiency (%): 98 Basis for efficiency: ENGINEERING ESTIMATE
Type: ☐ Enclosed ☒ Elevated (open)
Ignition device: ☐ Electric arc ☒ Pilot flame
Flame presence sensor: ☒ Yes ☐ No
☒ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:

☐ **Condenser**

Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design control efficiency (%):_____ Basis for efficiency: _____

Type: ☐ Indirect contact ☐ Direct contact
Maximum exhaust gas temperature (°F) during air contaminant source operation: _____
Coolant type: _____
Design coolant temperature (°F): Minimum _____ Maximum _____
Design coolant flow rate (gpm): _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:

☐ **Carbon Absorber**

Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design control efficiency (%):_____ Basis for efficiency: _____
Type: ☐ On-site regenerative ☐ Disposable
Maximum design outlet organic compound concentration (ppmv): _____
Carbon replacement frequency or regeneration cycle time (specify units): _____
Maximum temperature of the carbon bed, after regeneration (including any cooling cycle): _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:

☐ **Dry Scrubber**

Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design control efficiency (%):_____ Basis for efficiency: _____
Reagent(s) used: Type: _____ Injection rate(s): _____
Operating pressure drop range (inches of water): Minimum: _____ Maximum: _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:

☐ **Paint booth filter**

Type: ☐ Paper ☐ Fiberglass ☐ Water curtain ☐ Other _____
Design control efficiency (%):_____ Basis for efficiency: _____

☐ **Other**, describe

Manufacturer: Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other PM10
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design control efficiency (%):_____ Basis for efficiency: _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:

6. Attach a Process or Activity Flow Diagram to this application for each air contaminant source included in the application. The diagram should indicate their relationships to one another. See the line by line PTI instructions for additional information.

7. Emissions egress point(s) information: PTIs which allow total emissions in excess of the thresholds listed below will be subject to an air quality modeling analysis. This analysis is to assure that the impact from the requested project will not exceed Ohio=s Acceptable Incremental Impacts for criteria pollutants and/or Maximum Allowable Ground Level Concentrations (MAGLC) for air toxics. Permit requests that would have unacceptable impacts can not be approved as proposed. See the line by line PTI instructions for additional information.

   Complete the tables below if the requested allowable annual emission rate for this PTI exceeds any of the following:

   - Particulate Matter (PM10): 10 tons per year
   - Sulfur Dioxide (SO2): 25 tons per year
   - Nitrogen Oxides (NOx): 25 tons per year
   - Carbon Monoxide (CO): 100 tons per year
   - Air Toxic: 1 ton per year. An air toxic is any air pollutant for which the American Council of Governmental Industrial Hygienists (ACGIH) has established a Threshold Limit Value (TLV).

   Complete Table 7-A below for each stack emissions egress point. An egress point is a point at which emissions from an air contaminant source are released into the ambient (outside) air. List each individual egress point on a separate line.

Table 7-A, Stack Egress Point Information

Company Name or ID for the Egress Point (examples: Stack A; Boiler Stack; etc.)	Type Code*	Stack Egress Point Shape and Dimensions (in)(examples: round 10 inch ID; rectangular 14 X 16 inches; etc.)	Stack Egress Point Height from the Ground (ft)	Stack Temp. at Max. Capacity (F)	Stack Flow Rate at Max. Capacity (ACFM)	Minimum Distance to the Property Line (ft)
HIGH PRESSURE FLARE	A	ROUND 120-INCH ID	295	1,000 to 2,000	~533,000	600

*Type codes for stack egress points:

A. vertical stack (unobstructed): There are no obstructions to upward flow in or on the stack such as a rain cap.
B. vertical stack (obstructed): There are obstructions to the upward flow, such as a rain cap, which prevents or inhibits the air flow in a vertical direction.
C. non-vertical stack: The stack directs the air flow in a direction which is not directly upward.

Complete Table 7-B below for each fugitive emissions egress point. List each individual egress point on a separate line. Refer to the description of the fugitive egress point type codes below the table for use in completing the type code column of the table. For air contaminant sources like roadways and storage piles, only the first 5 columns need to be completed. For an air contaminant source with multiple fugitive emissions egress points, include only the primary egress points.

Table 7-B, Fugitive Egress Point Information

Company ID for the Egress Point (examples; Garage Door B, Building C; Roof Monitor; etc.)	Type Code*	Egress Point Description (examples: garage door, 12 X 30 feet, west wall; outside gravel storage piles; etc.)	Fugitive Egress Point Height from the Ground (ft)	Minimum Distance to the Property Line (ft)	Exit Gas Temp. (F)
NA					

Section II - Specific Air Contaminant Source Information

*Type codes for fugitive egress point:

D. door or window
E. other opening in the building without a duct
F. no stack and no building enclosing the air contaminant source (e.g., roadways)

Complete Table 7-C below for each Stack Egress Point identified in Table 7-A above. In each case, use the dimensions of the largest nearby building, building segment or structure. List each individual egress point on a separate line. Use the same Company Name or ID for the Egress Point in Table 7-C that was used in Table 7-A. See the line by line PTI instructions for additional information.

Table 7-C, Egress Point Additional Information (Add rows as necessary)

Company ID or Name for the Egress Point	Building Height (ft)	Building Width (ft)	Building Length (ft)
HIGH PRESSURE FLARE	580 (Cooling Tower)	240	240

8. Request for Federally Enforceable Limits

As part of this permit application, do you wish to propose voluntary restrictions to limit emissions in order to avoid specific requirements listed below, (i.e., are you requesting federally enforceable limits to obtain synthetic minor status)?

☐ yes
☒ no
☐ not sure - please contact me if this affects me

If yes, why are you requesting federally enforceable limits? Check all that apply.

a. ☐ to avoid being a major source (see OAC rule 3745-77-01)
b. ☐ to avoid being a major MACT source (see OAC rule 3745-31-01)
c. ☐ to avoid being a major modification (see OAC rule 3745-31-01)
d. ☐ to avoid being a major stationary source (see OAC rule 3745-31-01)
e. ☐ to avoid an air dispersion modeling requirement (see Engineering Guide # 69)
f. ☐ to avoid another requirement. Describe: _____

If you checked a., b. or d., please attach a facility-wide potential to emit (PTE) analysis (for each pollutant) and synthetic minor strategy to this application. (See line by line instructions for definition of PTE.) If you checked c., please attach a net emission change analysis to this application.

9. If this air contaminant source utilizes any continuous emissions monitoring equipment for indicating or demonstrating compliance, complete the following table. This does not include continuous parametric monitoring systems.

Company ID for Egress Point	Type of Monitor	Applicable performance specification (40 CFR 60, Appendix B)	Pollutant(s) Monitored
NA			

10. Do you wish to permit this air contaminant source as a portable source, allowing relocation within the state in accordance with OAC rule 3745-31-03 or OAC rule 3745-31-05?

☐ yes - Note: notification requirements in rules cited above must be followed.
☒ no

11. The appropriate Emissions Activity Category (EAC) form(s) must be completed and attached for each air contaminant source. At least one complete EAC form must be submitted for each air contaminant source for the application to be considered complete. Refer to the list attached to the PTI instructions.

FOR OHIO EPA USE
FACILITY ID:_____
EU ID: _____ PTI #:_____

EMISSIONS ACTIVITY CATEGORY FORM
GENERAL PROCESS OPERATION

This form is to be completed for each process operation when there is no specific emissions activity category (EAC) form applicable. If there is more than one end product for this process, copy and complete this form for each additional product (see instructions). Several State/Federal regulations which may apply to process operations are listed in the instructions. Note that there may be other regulations which apply to this emissions unit which are not included in this list.

1. Reason this form is being submitted (Check one)

☒ New Permit ☐ Renewal or Modification of Air Permit Number(s) (e.g. P001)_____

2. Maximum Operating Schedule: 24 hours per day ; 365 days per year

   If the schedule is less than 24 hours/day or 365 days/year, what limits the schedule to less than maximum? See instructions for examples. _____

3. End product of this process: SYNGAS

4. Hourly production rates (indicate appropriate units). Please see the instructions for clarification of "Maximum" and "Average" for new versus existing operations:

Hourly	Rate	Units (e.g., widgets)
Average production	17.2 MMscf	SYNGAS
Maximum production	22.8 MMscf	SYNGAS

5. Annual production rates (indicate appropriate units) Please see the instructions for clarification of "Maximum" and "Actual" for new versus existing operations:

Annual	Rate	Units (e.g., widgets)
Actual production	150,000 scf	SYNGAS
Maximum production	200,000 scf	SYNGAS

6. Type of operation (please check one):

☒ Continuous
☐ Batch (please complete items below)

Minimum cycle* time (minutes): _____
Minimum time between cycles (minutes): _____
Maximum number of cycles per daily 24 hour period: _____
(Note: include cycle time and set up/clean up time.)

*"Cycle" refers to the time the equipment is in operation.

7. Materials used in process at maximum hourly production rate (add rows/pages as needed):

Material	Physical State at Standard Conditions	Principle Use	Amount**
COAL	SOLID	GASIFICATION	82 to 200 TPH
BIOMASS	SOLID	GASIFICATION	0 to 60 TPH
OXYGEN	GAS	GASIFICATION	83 to 167 TPH
STEAM	GAS	GASIFICATION	8 to 13 TPH

** Please indicate the amount **and** rate (e.g., lbs/hr, gallons/hr, lbs/cycle, etc.).

8. Please provide a narrative description of the process below (e.g., coating of metal parts using high VOC content coatings for the manufacture of widgets; emissions controlled by thermal oxidizer...):

FEEDSTOCK (COAL AND/OR BIOMASS), OXYGEN, STEAM, AND BOILER FEED WATER ARE FED INTO ONE OR MORE OF THE SIX GASIFICATION UNITS WHERE FEEDSTOCK IS CHEMICALLY REACTED IN SUB-STOICHIOMETIRIC CONDITIONS TO YIELD SYNGAS.

Section II - Specific Air Contaminant Source Information

NOTE: One copy of this section should be filled out for each air contaminant source covered by this PTI application. See the line by line PTI instructions for additional information.

1. Company identification (name for air contaminant source for which you are applying): GASIFICATION

2. List all equipment that are part of this air contaminant source: GASIFIER 3 VENTED TO COMMON HIGH PRESSURE FLARE

3. Air Contaminant Source Installation or Modification Schedule (must be completed regardless of date of installation or modification):

   When did/will you begin to install or modify the air contaminant source? (month/year) SECOND QUARTER 2008

   When did/will you begin to operate the air contaminant source? (month/year) THIRD QUARTER 2011 **OR** after issuance of PTI _____

4. Emissions Information: The following table requests information needed to determine the applicable requirements and the compliance status of this air contaminant source with those requirements. Suggestions for how to estimate emissions may be found in the instructions to the Emissions Activity Category (EAC) forms required with this application. If you need further assistance, contact your Ohio EPA permit representative.

   - If total potential emissions of HAPs or any Air Toxic is greater than 1 ton/yr, fill in the table for that (those) pollutant(s). For all other pollutants, if "Emissions before controls (max), lb/hr" multiplied by 24 hours/day is greater than 10 lb/day, fill in the table for that pollutant.
   - If you have no add-on control equipment, "Emissions before controls= will be the same as "Actual emissions"
   - Annual emissions should be based on operating 8760 hr/yr unless you are requesting operating restrictions to limit emissions in line # 8 or have described inherent limitations below.
   - If you use units other than lb/hr or ton/yr, specify the units used (e.g., gr/dscf, lb/ton charged, lb/MMBtu, ton/12-months).
   - Requested Allowable (ton/yr) is often equivalent to Potential to Emit (PTE) as defined in OAC rule 3745-31-01 and OAC rule 3745-77-01.

Pollutant	Emissions before controls (max) (lb/hr)	Actual emissions (lb/hr)	Actual emissions (ton/year)	Requested Allowable (lb/hr)	Requested Allowable (ton/year)
Particulate emissions (PE) (formerly particulate matter, PM)	0.06	0.06	0.3	9.4	0.3
PM_{10} (PM < 10 microns in diameter)	0.06	0.06	0.3	9.4	0.3
Sulfur dioxide (SO_2)	167	167	732.3	28,166	732.3
Nitrogen oxides (NO_x)	2.29	2.29	10.1	377	10.1
Carbon monoxide (CO)	15.0	15.0	65.8	2,522	65.8
Organic compounds (OC)	46.6	0.93	4.1	157	4.1
Volatile organic compounds (VOC)	46.6	0.93	4.1	157	4.1
Total HAPs	0.08	0.08	0.3	13.2	0.3
Highest single HAP: (COS)	0.08	0.08	0.3	13.2	0.3
Air Toxics (H2S)):	0.41	0.41	1.8	69.1	1.8

Provide your calculations as an attachment and explain how all process variables and emission factors were selected. Note the emissions factor(s) employed and document the origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.

Section II - Specific Air Contaminant Source Information

5. **Does this air contaminant source employ emissions control equipment?**

☒ **Yes** - fill out the applicable information below.

☐ **No** - proceed to item # 6.

Note: Pollutant abbreviations used below: Particulates = PE; Organic compounds = OC; Sulfur dioxide = SO_2; Nitrogen oxides = NOx; Carbon monoxide = CO

☐ **Cyclone/Multiclone**

Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%): _____ Basis for efficiency: _____
Design control efficiency (%): _____ Basis for efficiency: _____
Type: ☐ Cyclone ☐ Multiclone ☐ Rotoclone ☐ Other _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☐ **Fabric Filter/Baghouse**

Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other PM10
Estimated capture efficiency (%): _____ Basis for efficiency: _____
Design control efficiency (%): _____ Basis for efficiency: _____
Operating pressure drop range (inches of water): Minimum: _____ Maximum: _____
Pressure type: ☐ Negative pressure ☐ Positive pressure
Fabric cleaning mechanism: ☐ Reverse air ☐ Pulse jet ☐ Shaker ☐ Other _____
☐ Lime injection or fabric coating agent used: Type: _____ Feed rate: _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☐ **Wet Scrubber**

Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%): _____ Basis for efficiency: _____
Design control efficiency (%): _____ Basis for efficiency: _____
Type: ☐ Spray chamber ☐ Packed bed ☐ Impingement ☐ Venturi ☐ Other _____
Operating pressure drop range (inches of water): Minimum: _____ Maximum: _____
pH range for scrubbing liquid: Minimum: _____ Maximum: _____
Scrubbing liquid flow rate (gal/min): _____
Is scrubber liquid recirculated? ☐ Yes ☐ No
Water supply pressure (psig): _____ NOTE: This item for spray chambers only.
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☐ **Electrostatic Precipitator**

Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%): _____ Basis for efficiency: _____
Design control efficiency (%): _____ Basis for efficiency: _____

Section II - Specific Air Contaminant Source Information

Type: ☐ Plate-wire ☐ Flat-plate ☐ Tubular ☐ Wet ☐ Other _____
Number of operating fields: _____

☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☐ **Concentrator**
Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design regeneration cycle time (minutes): _____
Minimum desorption air stream temperature (°F): _____
Rotational rate (revolutions/hour): _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☐ **Catalytic Incinerator**
Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design control efficiency (%):_____ Basis for efficiency: _____
Minimum inlet gas temperature (°F): _____
Combustion chamber residence time (seconds): _____
Minimum temperature difference (°F) across catalyst during air contaminant source operation: _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☐ **Thermal Incinerator/Thermal Oxidizer**
Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design control efficiency (%):_____ Basis for efficiency: _____
Minimum operating temperature (°F) and location: _____ (See line by line instructions.)
Combustion chamber residence time (seconds): _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☒ **Flare**
Manufacturer: SELECTION PENDING Year installed: SECOND QUARTER 2008
What do you call this control equipment: HIGH PRESSURE FLARE
Pollutant(s) controlled: ☐ PE ☒ OC ☐ SO_2 ☐ NOx ☐ CO ☒ Other organic HAP
Estimated capture efficiency (%):100 Basis for efficiency: ENGINEERING DESIGN
Design control efficiency (%): 98 Basis for efficiency: ENGINEERING ESTIMATE
Type: ☐ Enclosed ☒ Elevated (open)
Ignition device: ☐ Electric arc ☒ Pilot flame
Flame presence sensor: ☒ Yes ☐ No
☒ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:

☐ **Condenser**

Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design control efficiency (%):_____ Basis for efficiency: _____

Type: ☐ Indirect contact ☐ Direct contact
Maximum exhaust gas temperature (°F) during air contaminant source operation: _____
Coolant type: _____
Design coolant temperature (°F): Minimum _____ Maximum _____
Design coolant flow rate (gpm): _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☐ **Carbon Absorber**

Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design control efficiency (%):_____ Basis for efficiency: _____
Type: ☐ On-site regenerative ☐ Disposable
Maximum design outlet organic compound concentration (ppmv): _____
Carbon replacement frequency or regeneration cycle time (specify units): _____
Maximum temperature of the carbon bed, after regeneration (including any cooling cycle): _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☐ **Dry Scrubber**

Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design control efficiency (%):_____ Basis for efficiency: _____
Reagent(s) used: Type: _____ Injection rate(s): _____
Operating pressure drop range (inches of water): Minimum: _____ Maximum: _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☐ **Paint booth filter**

Type: ☐ Paper ☐ Fiberglass ☐ Water curtain ☐ Other _____
Design control efficiency (%):_____ Basis for efficiency: _____

☐ **Other**, describe

Manufacturer: Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other PM10
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design control efficiency (%):_____ Basis for efficiency: _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:

6. Attach a Process or Activity Flow Diagram to this application for each air contaminant source included in the application. The diagram should indicate their relationships to one another. See the line by line PTI instructions for additional information.

7. Emissions egress point(s) information: PTIs which allow total emissions in excess of the thresholds listed below will be subject to an air quality modeling analysis. This analysis is to assure that the impact from the requested project will not exceed Ohio=s Acceptable Incremental Impacts for criteria pollutants and/or Maximum Allowable Ground Level Concentrations (MAGLC) for air toxics. Permit requests that would have unacceptable impacts can not be approved as proposed. See the line by line PTI instructions for additional information.

   Complete the tables below if the requested allowable annual emission rate for this PTI exceeds any of the following:

   - Particulate Matter (PM10): 10 tons per year
   - Sulfur Dioxide (SO2): 25 tons per year
   - Nitrogen Oxides (NOx): 25 tons per year
   - Carbon Monoxide (CO): 100 tons per year
   - Air Toxic: 1 ton per year. An air toxic is any air pollutant for which the American Council of Governmental Industrial Hygienists (ACGIH) has established a Threshold Limit Value (TLV).

   Complete Table 7-A below for each stack emissions egress point. An egress point is a point at which emissions from an air contaminant source are released into the ambient (outside) air. List each individual egress point on a separate line.

Table 7-A, Stack Egress Point Information

Company Name or ID for the Egress Point (examples: Stack A; Boiler Stack; etc.)	Type Code*	Stack Egress Point Shape and Dimensions (in)(examples: round 10 inch ID; rectangular 14 X 16 inches; etc.)	Stack Egress Point Height from the Ground (ft)	Stack Temp. at Max. Capacity (F)	Stack Flow Rate at Max. Capacity (ACFM)	Minimum Distance to the Property Line (ft)
HIGH PRESSURE FLARE	A	ROUND 120-INCH ID	295	1,000 to 2,000	~533,000	600

*Type codes for stack egress points:

A. vertical stack (unobstructed): There are no obstructions to upward flow in or on the stack such as a rain cap.
B. vertical stack (obstructed): There are obstructions to the upward flow, such as a rain cap, which prevents or inhibits the air flow in a vertical direction.
C. non-vertical stack: The stack directs the air flow in a direction which is not directly upward.

Complete Table 7-B below for each fugitive emissions egress point. List each individual egress point on a separate line. Refer to the description of the fugitive egress point type codes below the table for use in completing the type code column of the table. For air contaminant sources like roadways and storage piles, only the first 5 columns need to be completed. For an air contaminant source with multiple fugitive emissions egress points, include only the primary egress points.

Table 7-B, Fugitive Egress Point Information

Company ID for the Egress Point (examples; Garage Door B, Building C; Roof Monitor; etc.)	Type Code*	Egress Point Description (examples: garage door, 12 X 30 feet, west wall; outside gravel storage piles; etc.)	Fugitive Egress Point Height from the Ground (ft)	Minimum Distance to the Property Line (ft)	Exit Gas Temp. (F)
NA					

Section II - Specific Air Contaminant Source Information

*Type codes for fugitive egress point:

D. door or window
E. other opening in the building without a duct
F. no stack and no building enclosing the air contaminant source (e.g., roadways)

Complete Table 7-C below for each Stack Egress Point identified in Table 7-A above. In each case, use the dimensions of the largest nearby building, building segment or structure. List each individual egress point on a separate line. Use the same Company Name or ID for the Egress Point in Table 7-C that was used in Table 7-A. See the line by line PTI instructions for additional information.

Table 7-C, Egress Point Additional Information (Add rows as necessary)			
Company ID or Name for the Egress Point	**Building Height (ft)**	**Building Width (ft)**	**Building Length (ft)**
HIGH PRESSURE FLARE	580 (Cooling Tower)	240	240

8. Request for Federally Enforceable Limits

As part of this permit application, do you wish to propose voluntary restrictions to limit emissions in order to avoid specific requirements listed below, (i.e., are you requesting federally enforceable limits to obtain synthetic minor status)?

☐ yes
☒ no
☐ not sure - please contact me if this affects me

If yes, why are you requesting federally enforceable limits? Check all that apply.

a. ☐ to avoid being a major source (see OAC rule 3745-77-01)
b. ☐ to avoid being a major MACT source (see OAC rule 3745-31-01)
c. ☐ to avoid being a major modification (see OAC rule 3745-31-01)
d. ☐ to avoid being a major stationary source (see OAC rule 3745-31-01)
e. ☐ to avoid an air dispersion modeling requirement (see Engineering Guide # 69)
f. ☐ to avoid another requirement. Describe: _____

If you checked a., b. or d., please attach a facility-wide potential to emit (PTE) analysis (for each pollutant) and synthetic minor strategy to this application. (See line by line instructions for definition of PTE.) If you checked c., please attach a net emission change analysis to this application.

9. If this air contaminant source utilizes any continuous emissions monitoring equipment for indicating or demonstrating compliance, complete the following table. This does not include continuous parametric monitoring systems.

Company ID for Egress Point	**Type of Monitor**	**Applicable performance specification (40 CFR 60, Appendix B)**	**Pollutant(s) Monitored**
NA			

10. Do you wish to permit this air contaminant source as a portable source, allowing relocation within the state in accordance with OAC rule 3745-31-03 or OAC rule 3745-31-05?

☐ yes - Note: notification requirements in rules cited above must be followed.
☒ no

11. The appropriate Emissions Activity Category (EAC) form(s) must be completed and attached for each air contaminant source. At least one complete EAC form must be submitted for each air contaminant source for the application to be considered complete. Refer to the list attached to the PTI instructions.

FOR OHIO EPA USE FACILITY ID:_____	
EU ID: _____	PTI #:_____

EMISSIONS ACTIVITY CATEGORY FORM
GENERAL PROCESS OPERATION

This form is to be completed for each process operation when there is no specific emissions activity category (EAC) form applicable. If there is more than one end product for this process, copy and complete this form for each additional product (see instructions). Several State/Federal regulations which may apply to process operations are listed in the instructions. Note that there may be other regulations which apply to this emissions unit which are not included in this list.

1. Reason this form is being submitted (Check one)

☒ New Permit ☐ Renewal or Modification of Air Permit Number(s) (e.g. P001)_____

2. Maximum Operating Schedule: 24 hours per day ; 365 days per year

   If the schedule is less than 24 hours/day or 365 days/year, what limits the schedule to less than maximum? See instructions for examples. _____

3. End product of this process: SYNGAS

4. Hourly production rates (indicate appropriate units). Please see the instructions for clarification of "Maximum" and "Average" for new versus existing operations:

Hourly	Rate	Units (e.g., widgets)
Average production	17.2 MMscf	SYNGAS
Maximum production	22.8 MMscf	SYNGAS

5. Annual production rates (indicate appropriate units) Please see the instructions for clarification of "Maximum" and "Actual" for new versus existing operations:

Annual	Rate	Units (e.g., widgets)
Actual production	150,000 scf	SYNGAS
Maximum production	200,000 scf	SYNGAS

6. Type of operation (please check one):

☒ Continuous
☐ Batch (please complete items below)

Minimum cycle* time (minutes): _____
Minimum time between cycles (minutes): _____
Maximum number of cycles per daily 24 hour period: _____
(Note: include cycle time and set up/clean up time.)

*"Cycle" refers to the time the equipment is in operation.

7. Materials used in process at maximum hourly production rate (add rows/pages as needed):

Material	Physical State at Standard Conditions	Principle Use	Amount**
COAL	SOLID	GASIFICATION	82 to 200 TPH
BIOMASS	SOLID	GASIFICATION	0 to 60 TPH
OXYGEN	GAS	GASIFICATION	83 to 167 TPH
STEAM	GAS	GASIFICATION	8 to 13 TPH

** Please indicate the amount **and** rate (e.g., lbs/hr, gallons/hr, lbs/cycle, etc.).

8. Please provide a narrative description of the process below (e.g., coating of metal parts using high VOC content coatings for the manufacture of widgets; emissions controlled by thermal oxidizer...):

FEEDSTOCK (COAL AND/OR BIOMASS), OXYGEN, STEAM, AND BOILER FEED WATER ARE FED INTO ONE OR MORE OF THE SIX GASIFICATION UNITS WHERE FEEDSTOCK IS CHEMICALLY REACTED IN SUB-STOICHIOMETIRIC CONDITIONS TO YIELD SYNGAS.

Section II - Specific Air Contaminant Source Information

NOTE: One copy of this section should be filled out for each air contaminant source covered by this PTI application. See the line by line PTI instructions for additional information.

1. Company identification (name for air contaminant source for which you are applying): GASIFICATION

2. List all equipment that are part of this air contaminant source: GASIFIER 4 VENTED TO COMMON HIGH PRESSURE FLARE

3. Air Contaminant Source Installation or Modification Schedule (must be completed regardless of date of installation or modification):

   When did/will you begin to install or modify the air contaminant source? (month/year) SECOND QUARTER 2008

   When did/will you begin to operate the air contaminant source? (month/year) THIRD QUARTER 2011 **OR** after issuance of PTI _____

4. Emissions Information: The following table requests information needed to determine the applicable requirements and the compliance status of this air contaminant source with those requirements. Suggestions for how to estimate emissions may be found in the instructions to the Emissions Activity Category (EAC) forms required with this application. If you need further assistance, contact your Ohio EPA permit representative.

   - If total potential emissions of HAPs or any Air Toxic is greater than 1 ton/yr, fill in the table for that (those) pollutant(s). For all other pollutants, if "Emissions before controls (max), lb/hr" multiplied by 24 hours/day is greater than 10 lb/day, fill in the table for that pollutant.
   - If you have no add-on control equipment, "Emissions before controls= will be the same as "Actual emissions"
   - Annual emissions should be based on operating 8760 hr/yr unless you are requesting operating restrictions to limit emissions in line # 8 or have described inherent limitations below.
   - If you use units other than lb/hr or ton/yr, specify the units used (e.g., gr/dscf, lb/ton charged, lb/MMBtu, ton/12-months).
   - Requested Allowable (ton/yr) is often equivalent to Potential to Emit (PTE) as defined in OAC rule 3745-31-01 and OAC rule 3745-77-01.

Pollutant	Emissions before controls (max) (lb/hr)	Actual emissions (lb/hr)	Actual emissions (ton/year)	Requested Allowable (lb/hr)	Requested Allowable (ton/year)
Particulate emissions (PE) (formerly particulate matter, PM)	0.06	0.06	0.3	9.4	0.3
PM_{10} (PM < 10 microns in diameter)	0.06	0.06	0.3	9.4	0.3
Sulfur dioxide (SO_2)	167	167	732.3	28,166	732.3
Nitrogen oxides (NO_x)	2.29	2.29	10.1	377	10.1
Carbon monoxide (CO)	15.0	15.0	65.8	2,522	65.8
Organic compounds (OC)	46.6	0.93	4.1	157	4.1
Volatile organic compounds (VOC)	46.6	0.93	4.1	157	4.1
Total HAPs	0.08	0.08	0.3	13.2	0.3
Highest single HAP: (COS)	0.08	0.08	0.3	13.2	0.3
Air Toxics (H2S)):	0.41	0.41	1.8	69.1	1.8

Provide your calculations as an attachment and explain how all process variables and emission factors were selected. Note the emissions factor(s) employed and document the origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.

Section II - Specific Air Contaminant Source Information

5. **Does this air contaminant source employ emissions control equipment?**

☒ **Yes** - fill out the applicable information below.

☐ **No** - proceed to item # 6.

Note: Pollutant abbreviations used below: Particulates = PE; Organic compounds = OC; Sulfur dioxide = SO_2; Nitrogen oxides = NOx; Carbon monoxide = CO

☐ **Cyclone/Multiclone**

Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%): _____ Basis for efficiency: _____
Design control efficiency (%): _____ Basis for efficiency: _____
Type: ☐ Cyclone ☐ Multiclone ☐ Rotoclone ☐ Other _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☐ **Fabric Filter/Baghouse**

Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other PM10
Estimated capture efficiency (%): _____ Basis for efficiency: _____
Design control efficiency (%): _____ Basis for efficiency: _____
Operating pressure drop range (inches of water): Minimum: _____ Maximum: _____
Pressure type: ☐ Negative pressure ☐ Positive pressure
Fabric cleaning mechanism: ☐ Reverse air ☐ Pulse jet ☐ Shaker ☐ Other _____
☐ Lime injection or fabric coating agent used: Type: _____ Feed rate: _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☐ **Wet Scrubber**

Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%): _____ Basis for efficiency: _____
Design control efficiency (%): _____ Basis for efficiency: _____
Type: ☐ Spray chamber ☐ Packed bed ☐ Impingement ☐ Venturi ☐ Other _____
Operating pressure drop range (inches of water): Minimum: _____ Maximum: _____
pH range for scrubbing liquid: Minimum: _____ Maximum: _____
Scrubbing liquid flow rate (gal/min): _____
Is scrubber liquid recirculated? ☐ Yes ☐ No
Water supply pressure (psig): _____ NOTE: This item for spray chambers only.
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☐ **Electrostatic Precipitator**

Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%): _____ Basis for efficiency: _____
Design control efficiency (%): _____ Basis for efficiency: _____

Section II - Specific Air Contaminant Source Information

Type: ☐ Plate-wire ☐ Flat-plate ☐ Tubular ☐ Wet ☐ Other _____
Number of operating fields: _____

☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☐ **Concentrator**
Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design regeneration cycle time (minutes): _____
Minimum desorption air stream temperature (°F): _____
Rotational rate (revolutions/hour): _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☐ **Catalytic Incinerator**
Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design control efficiency (%):_____ Basis for efficiency: _____
Minimum inlet gas temperature (°F): _____
Combustion chamber residence time (seconds): _____
Minimum temperature difference (°F) across catalyst during air contaminant source operation: _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☐ **Thermal Incinerator/Thermal Oxidizer**
Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design control efficiency (%):_____ Basis for efficiency: _____
Minimum operating temperature (°F) and location: _____ (See line by line instructions.)
Combustion chamber residence time (seconds): _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☒ **Flare**
Manufacturer: SELECTION PENDING Year installed: SECOND QUARTER 2008
What do you call this control equipment: HIGH PRESSURE FLARE
Pollutant(s) controlled: ☐ PE ☒ OC ☐ SO_2 ☐ NOx ☐ CO ☒ Other organic HAP
Estimated capture efficiency (%):100 Basis for efficiency: ENGINEERING DESIGN
Design control efficiency (%): 98 Basis for efficiency: ENGINEERING ESTIMATE
Type: ☐ Enclosed ☒ Elevated (open)
Ignition device: ☐ Electric arc ☒ Pilot flame
Flame presence sensor: ☒ Yes ☐ No
☒ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:

☐ **Condenser**

Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design control efficiency (%):_____ Basis for efficiency: _____

Type: ☐ Indirect contact ☐ Direct contact
Maximum exhaust gas temperature (°F) during air contaminant source operation: _____
Coolant type: _____
Design coolant temperature (°F): Minimum _____ Maximum _____
Design coolant flow rate (gpm): _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:

☐ **Carbon Absorber**

Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design control efficiency (%):_____ Basis for efficiency: _____
Type: ☐ On-site regenerative ☐ Disposable
Maximum design outlet organic compound concentration (ppmv): _____
Carbon replacement frequency or regeneration cycle time (specify units): _____
Maximum temperature of the carbon bed, after regeneration (including any cooling cycle): _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:

☐ **Dry Scrubber**

Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design control efficiency (%):_____ Basis for efficiency: _____
Reagent(s) used: Type: _____ Injection rate(s): _____
Operating pressure drop range (inches of water): Minimum: _____ Maximum: _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:

☐ **Paint booth filter**

Type: ☐ Paper ☐ Fiberglass ☐ Water curtain ☐ Other _____
Design control efficiency (%):_____ Basis for efficiency: _____

☐ **Other**, describe

Manufacturer: Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other PM10
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design control efficiency (%):_____ Basis for efficiency: _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:

6. Attach a Process or Activity Flow Diagram to this application for each air contaminant source included in the application. The diagram should indicate their relationships to one another. See the line by line PTI instructions for additional information.

7. Emissions egress point(s) information: PTIs which allow total emissions in excess of the thresholds listed below will be subject to an air quality modeling analysis. This analysis is to assure that the impact from the requested project will not exceed Ohio=s Acceptable Incremental Impacts for criteria pollutants and/or Maximum Allowable Ground Level Concentrations (MAGLC) for air toxics. Permit requests that would have unacceptable impacts can not be approved as proposed. See the line by line PTI instructions for additional information.

   Complete the tables below if the requested allowable annual emission rate for this PTI exceeds any of the following:

   - Particulate Matter (PM10): 10 tons per year
   - Sulfur Dioxide (SO2): 25 tons per year
   - Nitrogen Oxides (NOx): 25 tons per year
   - Carbon Monoxide (CO): 100 tons per year
   - Air Toxic: 1 ton per year. An air toxic is any air pollutant for which the American Council of Governmental Industrial Hygienists (ACGIH) has established a Threshold Limit Value (TLV).

   Complete Table 7-A below for each stack emissions egress point. An egress point is a point at which emissions from an air contaminant source are released into the ambient (outside) air. List each individual egress point on a separate line.

Table 7-A, Stack Egress Point Information

Company Name or ID for the Egress Point (examples: Stack A; Boiler Stack; etc.)	Type Code*	Stack Egress Point Shape and Dimensions (in)(examples: round 10 inch ID; rectangular 14 X 16 inches; etc.)	Stack Egress Point Height from the Ground (ft)	Stack Temp. at Max. Capacity (F)	Stack Flow Rate at Max. Capacity (ACFM)	Minimum Distance to the Property Line (ft)
HIGH PRESSURE FLARE	A	ROUND 120-INCH ID	295	1,000 to 2,000	~533,000	600

*Type codes for stack egress points:

A. vertical stack (unobstructed): There are no obstructions to upward flow in or on the stack such as a rain cap.
B. vertical stack (obstructed): There are obstructions to the upward flow, such as a rain cap, which prevents or inhibits the air flow in a vertical direction.
C. non-vertical stack: The stack directs the air flow in a direction which is not directly upward.

Complete Table 7-B below for each fugitive emissions egress point. List each individual egress point on a separate line. Refer to the description of the fugitive egress point type codes below the table for use in completing the type code column of the table. For air contaminant sources like roadways and storage piles, only the first 5 columns need to be completed. For an air contaminant source with multiple fugitive emissions egress points, include only the primary egress points.

Table 7-B, Fugitive Egress Point Information

Company ID for the Egress Point (examples; Garage Door B, Building C; Roof Monitor; etc.)	Type Code*	Egress Point Description (examples: garage door, 12 X 30 feet, west wall; outside gravel storage piles; etc.)	Fugitive Egress Point Height from the Ground (ft)	Minimum Distance to the Property Line (ft)	Exit Gas Temp. (F)
NA					

Section II - Specific Air Contaminant Source Information

*Type codes for fugitive egress point:

D. door or window
E. other opening in the building without a duct
F. no stack and no building enclosing the air contaminant source (e.g., roadways)

Complete Table 7-C below for each Stack Egress Point identified in Table 7-A above. In each case, use the dimensions of the largest nearby building, building segment or structure. List each individual egress point on a separate line. Use the same Company Name or ID for the Egress Point in Table 7-C that was used in Table 7-A. See the line by line PTI instructions for additional information.

Table 7-C, Egress Point Additional Information (Add rows as necessary)

Company ID or Name for the Egress Point	Building Height (ft)	Building Width (ft)	Building Length (ft)
HIGH PRESSURE FLARE	580 (Cooling Tower)	240	240

8. Request for Federally Enforceable Limits

As part of this permit application, do you wish to propose voluntary restrictions to limit emissions in order to avoid specific requirements listed below, (i.e., are you requesting federally enforceable limits to obtain synthetic minor status)?

☐ yes
☒ no
☐ not sure - please contact me if this affects me

If yes, why are you requesting federally enforceable limits? Check all that apply.

a. ☐ to avoid being a major source (see OAC rule 3745-77-01)
b. ☐ to avoid being a major MACT source (see OAC rule 3745-31-01)
c. ☐ to avoid being a major modification (see OAC rule 3745-31-01)
d. ☐ to avoid being a major stationary source (see OAC rule 3745-31-01)
e. ☐ to avoid an air dispersion modeling requirement (see Engineering Guide # 69)
f. ☐ to avoid another requirement. Describe: _____

If you checked a., b. or d., please attach a facility-wide potential to emit (PTE) analysis (for each pollutant) and synthetic minor strategy to this application. (See line by line instructions for definition of PTE.) If you checked c., please attach a net emission change analysis to this application.

9. If this air contaminant source utilizes any continuous emissions monitoring equipment for indicating or demonstrating compliance, complete the following table. This does not include continuous parametric monitoring systems.

Company ID for Egress Point	Type of Monitor	Applicable performance specification (40 CFR 60, Appendix B)	Pollutant(s) Monitored
NA			

10. Do you wish to permit this air contaminant source as a portable source, allowing relocation within the state in accordance with OAC rule 3745-31-03 or OAC rule 3745-31-05?

☐ yes - Note: notification requirements in rules cited above must be followed.
☒ no

11. The appropriate Emissions Activity Category (EAC) form(s) must be completed and attached for each air contaminant source. At least one complete EAC form must be submitted for each air contaminant source for the application to be considered complete. Refer to the list attached to the PTI instructions.

FOR OHIO EPA USE
FACILITY ID:_____
EU ID: _____ PTI #:_____

EMISSIONS ACTIVITY CATEGORY FORM
GENERAL PROCESS OPERATION

This form is to be completed for each process operation when there is no specific emissions activity category (EAC) form applicable. If there is more than one end product for this process, copy and complete this form for each additional product (see instructions). Several State/Federal regulations which may apply to process operations are listed in the instructions. Note that there may be other regulations which apply to this emissions unit which are not included in this list.

1. Reason this form is being submitted (Check one)

☒ New Permit ☐ Renewal or Modification of Air Permit Number(s) (e.g. P001)_____

2. Maximum Operating Schedule: 24 hours per day ; 365 days per year

   If the schedule is less than 24 hours/day or 365 days/year, what limits the schedule to less than maximum? See instructions for examples. _____

3. End product of this process: SYNGAS

4. Hourly production rates (indicate appropriate units). Please see the instructions for clarification of "Maximum" and "Average" for new versus existing operations:

Hourly	Rate	Units (e.g., widgets)
Average production	17.2 MMscf	SYNGAS
Maximum production	22.8 MMscf	SYNGAS

5. Annual production rates (indicate appropriate units) Please see the instructions for clarification of "Maximum" and "Actual" for new versus existing operations:

Annual	Rate	Units (e.g., widgets)
Actual production	150,000 scf	SYNGAS
Maximum production	200,000 scf	SYNGAS

6. Type of operation (please check one):

☒ Continuous
☐ Batch (please complete items below)

Minimum cycle* time (minutes): _____
Minimum time between cycles (minutes): _____
Maximum number of cycles per daily 24 hour period: _____
(Note: include cycle time and set up/clean up time.)

*"Cycle" refers to the time the equipment is in operation.

7. Materials used in process at maximum hourly production rate (add rows/pages as needed):

Material	Physical State at Standard Conditions	Principle Use	Amount**
COAL	SOLID	GASIFICATION	82 to 200 TPH
BIOMASS	SOLID	GASIFICATION	0 to 60 TPH
OXYGEN	GAS	GASIFICATION	83 to 167 TPH
STEAM	GAS	GASIFICATION	8 to 13 TPH

** Please indicate the amount **and** rate (e.g., lbs/hr, gallons/hr, lbs/cycle, etc.).

8. Please provide a narrative description of the process below (e.g., coating of metal parts using high VOC content coatings for the manufacture of widgets; emissions controlled by thermal oxidizer...):

FEEDSTOCK (COAL AND/OR BIOMASS), OXYGEN, STEAM, AND BOILER FEED WATER ARE FED INTO ONE OR MORE OF THE SIX GASIFICATION UNITS WHERE FEEDSTOCK IS CHEMICALLY REACTED IN SUB-STOICHIOMETIRIC CONDITIONS TO YIELD SYNGAS.

Section II - Specific Air Contaminant Source Information

NOTE: One copy of this section should be filled out for each air contaminant source covered by this PTI application. See the line by line PTI instructions for additional information.

1. Company identification (name for air contaminant source for which you are applying): GASIFICATION

2. List all equipment that are part of this air contaminant source: GASIFIER 5 VENTED TO COMMON HIGH PRESSURE FLARE

3. Air Contaminant Source Installation or Modification Schedule (must be completed regardless of date of installation or modification):

   When did/will you begin to install or modify the air contaminant source? (month/year) SECOND QUARTER 2008

   When did/will you begin to operate the air contaminant source? (month/year) THIRD QUARTER 2011 **OR** after issuance of PTI _____

4. Emissions Information: The following table requests information needed to determine the applicable requirements and the compliance status of this air contaminant source with those requirements. Suggestions for how to estimate emissions may be found in the instructions to the Emissions Activity Category (EAC) forms required with this application. If you need further assistance, contact your Ohio EPA permit representative.

   - If total potential emissions of HAPs or any Air Toxic is greater than 1 ton/yr, fill in the table for that (those) pollutant(s). For all other pollutants, if "Emissions before controls (max), lb/hr" multiplied by 24 hours/day is greater than 10 lb/day, fill in the table for that pollutant.
   - If you have no add-on control equipment, "Emissions before controls= will be the same as "Actual emissions"
   - Annual emissions should be based on operating 8760 hr/yr unless you are requesting operating restrictions to limit emissions in line # 8 or have described inherent limitations below.
   - If you use units other than lb/hr or ton/yr, specify the units used (e.g., gr/dscf, lb/ton charged, lb/MMBtu, ton/12-months).
   - Requested Allowable (ton/yr) is often equivalent to Potential to Emit (PTE) as defined in OAC rule 3745-31-01 and OAC rule 3745-77-01.

Pollutant	Emissions before controls (max) (lb/hr)	Actual emissions (lb/hr)	Actual emissions (ton/year)	Requested Allowable (lb/hr)	Requested Allowable (ton/year)
Particulate emissions (PE) (formerly particulate matter, PM)	0.06	0.06	0.3	9.4	0.3
PM_{10} (PM < 10 microns in diameter)	0.06	0.06	0.3	9.4	0.3
Sulfur dioxide (SO_2)	167	167	732.3	28,166	732.3
Nitrogen oxides (NO_x)	2.29	2.29	10.1	377	10.1
Carbon monoxide (CO)	15.0	15.0	65.8	2,522	65.8
Organic compounds (OC)	46.6	0.93	4.1	157	4.1
Volatile organic compounds (VOC)	46.6	0.93	4.1	157	4.1
Total HAPs	0.08	0.08	0.3	13.2	0.3
Highest single HAP: (COS)	0.08	0.08	0.3	13.2	0.3
Air Toxics (H2S)):	0.41	0.41	1.8	69.1	1.8

Provide your calculations as an attachment and explain how all process variables and emission factors were selected. Note the emissions factor(s) employed and document the origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.

Section II - Specific Air Contaminant Source Information

5. **Does this air contaminant source employ emissions control equipment?**

☒ **Yes** - fill out the applicable information below.

☐ **No** - proceed to item # 6.

Note: Pollutant abbreviations used below: Particulates = PE; Organic compounds = OC; Sulfur dioxide = SO_2; Nitrogen oxides = NOx; Carbon monoxide = CO

☐ **Cyclone/Multiclone**

Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%): _____ Basis for efficiency: _____
Design control efficiency (%):_____ Basis for efficiency: _____
Type: ☐ Cyclone ☐ Multiclone ☐ Rotoclone ☐ Other _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☐ **Fabric Filter/Baghouse**

Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other PM10
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design control efficiency (%):_____ Basis for efficiency: _____
Operating pressure drop range (inches of water): Minimum: _____Maximum: _____
Pressure type: ☐ Negative pressure ☐ Positive pressure
Fabric cleaning mechanism: ☐ Reverse air ☐ Pulse jet ☐ Shaker ☐ Other _____
☐ Lime injection or fabric coating agent used: Type: _____ Feed rate: _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☐ **Wet Scrubber**

Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design control efficiency (%):_____ Basis for efficiency: _____
Type: ☐ Spray chamber ☐ Packed bed ☐ Impingement ☐ Venturi ☐ Other _____
Operating pressure drop range (inches of water): Minimum: _____ Maximum: _____
pH range for scrubbing liquid: Minimum: _____ Maximum: _____
Scrubbing liquid flow rate (gal/min): _____
Is scrubber liquid recirculated? ☐ Yes ☐ No
Water supply pressure (psig): _____ NOTE: This item for spray chambers only.
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☐ **Electrostatic Precipitator**

Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design control efficiency (%):_____ Basis for efficiency: _____

Section II - Specific Air Contaminant Source Information

Type: ☐ Plate-wire ☐ Flat-plate ☐ Tubular ☐ Wet ☐ Other _____
Number of operating fields: _____

☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:

_____

☐ **Concentrator**
Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design regeneration cycle time (minutes): _____
Minimum desorption air stream temperature (°F): _____
Rotational rate (revolutions/hour): _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:

_____

☐ **Catalytic Incinerator**
Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design control efficiency (%):_____ Basis for efficiency: _____
Minimum inlet gas temperature (°F): _____
Combustion chamber residence time (seconds): _____
Minimum temperature difference (°F) across catalyst during air contaminant source operation: _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:

_____

☐ **Thermal Incinerator/Thermal Oxidizer**
Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design control efficiency (%):_____ Basis for efficiency: _____
Minimum operating temperature (°F) and location: _____ (See line by line instructions.)
Combustion chamber residence time (seconds): _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:

_____

☒ **Flare**
Manufacturer: SELECTION PENDING Year installed: SECOND QUARTER 2008
What do you call this control equipment: HIGH PRESSURE FLARE
Pollutant(s) controlled: ☐ PE ☒ OC ☐ SO_2 ☐ NOx ☐ CO ☒ Other organic HAP
Estimated capture efficiency (%):100 Basis for efficiency: ENGINEERING DESIGN
Design control efficiency (%): 98 Basis for efficiency: ENGINEERING ESTIMATE
Type: ☐ Enclosed ☒ Elevated (open)
Ignition device: ☐ Electric arc ☒ Pilot flame
Flame presence sensor: ☒ Yes ☐ No
☒ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:

Section II - Specific Air Contaminant Source Information

☐ **Condenser**

Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design control efficiency (%):_____ Basis for efficiency: _____

Type: ☐ Indirect contact ☐ Direct contact
Maximum exhaust gas temperature (°F) during air contaminant source operation: _____
Coolant type: _____
Design coolant temperature (°F): Minimum _____ Maximum _____
Design coolant flow rate (gpm): _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☐ **Carbon Absorber**

Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design control efficiency (%):_____ Basis for efficiency: _____
Type: ☐ On-site regenerative ☐ Disposable
Maximum design outlet organic compound concentration (ppmv): _____
Carbon replacement frequency or regeneration cycle time (specify units): _____
Maximum temperature of the carbon bed, after regeneration (including any cooling cycle): _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☐ **Dry Scrubber**

Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design control efficiency (%):_____ Basis for efficiency: _____
Reagent(s) used: Type: _____ Injection rate(s): _____
Operating pressure drop range (inches of water): Minimum: _____ Maximum: _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☐ **Paint booth filter**

Type: ☐ Paper ☐ Fiberglass ☐ Water curtain ☐ Other _____
Design control efficiency (%):_____ Basis for efficiency: _____

☐ **Other**, describe

Manufacturer: Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other PM10
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design control efficiency (%):_____ Basis for efficiency: _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:

6. Attach a Process or Activity Flow Diagram to this application for each air contaminant source included in the application. The diagram should indicate their relationships to one another. See the line by line PTI instructions for additional information.

7. Emissions egress point(s) information: PTIs which allow total emissions in excess of the thresholds listed below will be subject to an air quality modeling analysis. This analysis is to assure that the impact from the requested project will not exceed Ohio=s Acceptable Incremental Impacts for criteria pollutants and/or Maximum Allowable Ground Level Concentrations (MAGLC) for air toxics. Permit requests that would have unacceptable impacts can not be approved as proposed. See the line by line PTI instructions for additional information.

   Complete the tables below if the requested allowable annual emission rate for this PTI exceeds any of the following:

   - Particulate Matter (PM10): 10 tons per year
   - Sulfur Dioxide (SO2): 25 tons per year
   - Nitrogen Oxides (NOx): 25 tons per year
   - Carbon Monoxide (CO): 100 tons per year
   - Air Toxic: 1 ton per year. An air toxic is any air pollutant for which the American Council of Governmental Industrial Hygienists (ACGIH) has established a Threshold Limit Value (TLV).

   Complete Table 7-A below for each stack emissions egress point. An egress point is a point at which emissions from an air contaminant source are released into the ambient (outside) air. List each individual egress point on a separate line.

Table 7-A, Stack Egress Point Information

Company Name or ID for the Egress Point (examples: Stack A; Boiler Stack; etc.)	Type Code*	Stack Egress Point Shape and Dimensions (in)(examples: round 10 inch ID; rectangular 14 X 16 inches; etc.)	Stack Egress Point Height from the Ground (ft)	Stack Temp. at Max. Capacity (F)	Stack Flow Rate at Max. Capacity (ACFM)	Minimum Distance to the Property Line (ft)
HIGH PRESSURE FLARE	A	ROUND 120-INCH ID	295	1,000 to 2,000	~533,000	600

*Type codes for stack egress points:

A. vertical stack (unobstructed): There are no obstructions to upward flow in or on the stack such as a rain cap.
B. vertical stack (obstructed): There are obstructions to the upward flow, such as a rain cap, which prevents or inhibits the air flow in a vertical direction.
C. non-vertical stack: The stack directs the air flow in a direction which is not directly upward.

Complete Table 7-B below for each fugitive emissions egress point. List each individual egress point on a separate line. Refer to the description of the fugitive egress point type codes below the table for use in completing the type code column of the table. For air contaminant sources like roadways and storage piles, only the first 5 columns need to be completed. For an air contaminant source with multiple fugitive emissions egress points, include only the primary egress points.

Table 7-B, Fugitive Egress Point Information

Company ID for the Egress Point (examples; Garage Door B, Building C; Roof Monitor; etc.)	Type Code*	Egress Point Description (examples: garage door, 12 X 30 feet, west wall; outside gravel storage piles; etc.)	Fugitive Egress Point Height from the Ground (ft)	Minimum Distance to the Property Line (ft)	Exit Gas Temp. (F)
NA					

Section II - Specific Air Contaminant Source Information

*Type codes for fugitive egress point:

D. door or window
E. other opening in the building without a duct
F. no stack and no building enclosing the air contaminant source (e.g., roadways)

Complete Table 7-C below for each Stack Egress Point identified in Table 7-A above. In each case, use the dimensions of the largest nearby building, building segment or structure. List each individual egress point on a separate line. Use the same Company Name or ID for the Egress Point in Table 7-C that was used in Table 7-A. See the line by line PTI instructions for additional information.

Table 7-C, Egress Point Additional Information (Add rows as necessary)

Company ID or Name for the Egress Point	Building Height (ft)	Building Width (ft)	Building Length (ft)
HIGH PRESSURE FLARE	580 (Cooling Tower)	240	240

8. Request for Federally Enforceable Limits

As part of this permit application, do you wish to propose voluntary restrictions to limit emissions in order to avoid specific requirements listed below, (i.e., are you requesting federally enforceable limits to obtain synthetic minor status)?

☐ yes
☒ no
☐ not sure - please contact me if this affects me

If yes, why are you requesting federally enforceable limits? Check all that apply.

a. ☐ to avoid being a major source (see OAC rule 3745-77-01)
b. ☐ to avoid being a major MACT source (see OAC rule 3745-31-01)
c. ☐ to avoid being a major modification (see OAC rule 3745-31-01)
d. ☐ to avoid being a major stationary source (see OAC rule 3745-31-01)
e. ☐ to avoid an air dispersion modeling requirement (see Engineering Guide # 69)
f. ☐ to avoid another requirement. Describe: _____

If you checked a., b. or d., please attach a facility-wide potential to emit (PTE) analysis (for each pollutant) and synthetic minor strategy to this application. (See line by line instructions for definition of PTE.) If you checked c., please attach a net emission change analysis to this application.

9. If this air contaminant source utilizes any continuous emissions monitoring equipment for indicating or demonstrating compliance, complete the following table. This does not include continuous parametric monitoring systems.

Company ID for Egress Point	Type of Monitor	Applicable performance specification (40 CFR 60, Appendix B)	Pollutant(s) Monitored
NA			

10. Do you wish to permit this air contaminant source as a portable source, allowing relocation within the state in accordance with OAC rule 3745-31-03 or OAC rule 3745-31-05?

☐ yes - Note: notification requirements in rules cited above must be followed.
☒ no

11. The appropriate Emissions Activity Category (EAC) form(s) must be completed and attached for each air contaminant source. At least one complete EAC form must be submitted for each air contaminant source for the application to be considered complete. Refer to the list attached to the PTI instructions.

FOR OHIO EPA USE
FACILITY ID:_____
EU ID: _____ PTI #:_____

EMISSIONS ACTIVITY CATEGORY FORM
GENERAL PROCESS OPERATION

This form is to be completed for each process operation when there is no specific emissions activity category (EAC) form applicable. If there is more than one end product for this process, copy and complete this form for each additional product (see instructions). Several State/Federal regulations which may apply to process operations are listed in the instructions. Note that there may be other regulations which apply to this emissions unit which are not included in this list.

1. Reason this form is being submitted (Check one)

☒ New Permit ☐ Renewal or Modification of Air Permit Number(s) (e.g. P001)_____

2. Maximum Operating Schedule: 24 hours per day ; 365 days per year

   If the schedule is less than 24 hours/day or 365 days/year, what limits the schedule to less than maximum? See instructions for examples. _____

3. End product of this process: SYNGAS

4. Hourly production rates (indicate appropriate units). Please see the instructions for clarification of "Maximum" and "Average" for new versus existing operations:

Hourly	Rate	Units (e.g., widgets)
Average production	17.2 MMscf	SYNGAS
Maximum production	22.8 MMscf	SYNGAS

5. Annual production rates (indicate appropriate units) Please see the instructions for clarification of "Maximum" and "Actual" for new versus existing operations:

Annual	Rate	Units (e.g., widgets)
Actual production	150,000 scf	SYNGAS
Maximum production	200,000 scf	SYNGAS

6. Type of operation (please check one):

☒ Continuous
☐ Batch (please complete items below)

Minimum cycle* time (minutes): _____
Minimum time between cycles (minutes): _____
Maximum number of cycles per daily 24 hour period: _____
(Note: include cycle time and set up/clean up time.)

*"Cycle" refers to the time the equipment is in operation.

7. Materials used in process at maximum hourly production rate (add rows/pages as needed):

Material	Physical State at Standard Conditions	Principle Use	Amount**
COAL	SOLID	GASIFICATION	82 to 200 TPH
BIOMASS	SOLID	GASIFICATION	0 to 60 TPH
OXYGEN	GAS	GASIFICATION	83 to 167 TPH
STEAM	GAS	GASIFICATION	8 to 13 TPH

** Please indicate the amount **and** rate (e.g., lbs/hr, gallons/hr, lbs/cycle, etc.).

8. Please provide a narrative description of the process below (e.g., coating of metal parts using high VOC content coatings for the manufacture of widgets; emissions controlled by thermal oxidizer...):

FEEDSTOCK (COAL AND/OR BIOMASS), OXYGEN, STEAM, AND BOILER FEED WATER ARE FED INTO ONE OR MORE OF THE SIX GASIFICATION UNITS WHERE FEEDSTOCK IS CHEMICALLY REACTED IN SUB-STOICHIOMETIRIC CONDITIONS TO YIELD SYNGAS.

Section II - Specific Air Contaminant Source Information

NOTE: One copy of this section should be filled out for each air contaminant source covered by this PTI application. See the line by line PTI instructions for additional information.

1. Company identification (name for air contaminant source for which you are applying): GASIFICATION

2. List all equipment that are part of this air contaminant source: GASIFIER 6 VENTED TO COMMON HIGH PRESSURE FLARE

3. Air Contaminant Source Installation or Modification Schedule (must be completed regardless of date of installation or modification):

   When did/will you begin to install or modify the air contaminant source? (month/year) SECOND QUARTER 2008

   When did/will you begin to operate the air contaminant source? (month/year) THIRD QUARTER 2011 **OR** after issuance of PTI _____

4. Emissions Information: The following table requests information needed to determine the applicable requirements and the compliance status of this air contaminant source with those requirements. Suggestions for how to estimate emissions may be found in the instructions to the Emissions Activity Category (EAC) forms required with this application. If you need further assistance, contact your Ohio EPA permit representative.

   - If total potential emissions of HAPs or any Air Toxic is greater than 1 ton/yr, fill in the table for that (those) pollutant(s). For all other pollutants, if "Emissions before controls (max), lb/hr" multiplied by 24 hours/day is greater than 10 lb/day, fill in the table for that pollutant.
   - If you have no add-on control equipment, "Emissions before controls= will be the same as "Actual emissions"
   - Annual emissions should be based on operating 8760 hr/yr unless you are requesting operating restrictions to limit emissions in line # 8 or have described inherent limitations below.
   - If you use units other than lb/hr or ton/yr, specify the units used (e.g., gr/dscf, lb/ton charged, lb/MMBtu, ton/12-months).
   - Requested Allowable (ton/yr) is often equivalent to Potential to Emit (PTE) as defined in OAC rule 3745-31-01 and OAC rule 3745-77-01.

Pollutant	Emissions before controls (max) (lb/hr)	Actual emissions (lb/hr)	Actual emissions (ton/year)	Requested Allowable (lb/hr)	Requested Allowable (ton/year)
Particulate emissions (PE) (formerly particulate matter, PM)	0.06	0.06	0.3	9.4	0.3
PM_{10} (PM < 10 microns in diameter)	0.06	0.06	0.3	9.4	0.3
Sulfur dioxide (SO_2)	167	167	732.3	28,166	732.3
Nitrogen oxides (NO_x)	2.29	2.29	10.1	377	10.1
Carbon monoxide (CO)	15.0	15.0	65.8	2,522	65.8
Organic compounds (OC)	46.6	0.93	4.1	157	4.1
Volatile organic compounds (VOC)	46.6	0.93	4.1	157	4.1
Total HAPs	0.08	0.08	0.3	13.2	0.3
Highest single HAP: (COS)	0.08	0.08	0.3	13.2	0.3
Air Toxics (H2S)):	0.41	0.41	1.8	69.1	1.8

Provide your calculations as an attachment and explain how all process variables and emission factors were selected. Note the emissions factor(s) employed and document the origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.

Section II - Specific Air Contaminant Source Information

5. **Does this air contaminant source employ emissions control equipment?**

☒ **Yes** - fill out the applicable information below.

☐ **No** - proceed to item # 6.

Note: Pollutant abbreviations used below: Particulates = PE; Organic compounds = OC; Sulfur dioxide = SO_2; Nitrogen oxides = NOx; Carbon monoxide = CO

☐ **Cyclone/Multiclone**

Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%): _____ Basis for efficiency: _____
Design control efficiency (%): _____ Basis for efficiency: _____
Type: ☐ Cyclone ☐ Multiclone ☐ Rotoclone ☐ Other _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☐ **Fabric Filter/Baghouse**

Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other PM10
Estimated capture efficiency (%): _____ Basis for efficiency: _____
Design control efficiency (%): _____ Basis for efficiency: _____
Operating pressure drop range (inches of water): Minimum: _____ Maximum: _____
Pressure type: ☐ Negative pressure ☐ Positive pressure
Fabric cleaning mechanism: ☐ Reverse air ☐ Pulse jet ☐ Shaker ☐ Other _____
☐ Lime injection or fabric coating agent used: Type: _____ Feed rate: _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☐ **Wet Scrubber**

Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%): _____ Basis for efficiency: _____
Design control efficiency (%): _____ Basis for efficiency: _____
Type: ☐ Spray chamber ☐ Packed bed ☐ Impingement ☐ Venturi ☐ Other _____
Operating pressure drop range (inches of water): Minimum: _____ Maximum: _____
pH range for scrubbing liquid: Minimum: _____ Maximum: _____
Scrubbing liquid flow rate (gal/min): _____
Is scrubber liquid recirculated? ☐ Yes ☐ No
Water supply pressure (psig): _____ NOTE: This item for spray chambers only.
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☐ **Electrostatic Precipitator**

Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%): _____ Basis for efficiency: _____
Design control efficiency (%): _____ Basis for efficiency: _____

Section II - Specific Air Contaminant Source Information

Type: ☐ Plate-wire ☐ Flat-plate ☐ Tubular ☐ Wet ☐ Other _____
Number of operating fields: _____

☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☐ **Concentrator**
Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design regeneration cycle time (minutes): _____
Minimum desorption air stream temperature (°F): _____
Rotational rate (revolutions/hour): _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☐ **Catalytic Incinerator**
Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design control efficiency (%):_____ Basis for efficiency: _____
Minimum inlet gas temperature (°F): _____
Combustion chamber residence time (seconds): _____
Minimum temperature difference (°F) across catalyst during air contaminant source operation: _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☐ **Thermal Incinerator/Thermal Oxidizer**
Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design control efficiency (%):_____ Basis for efficiency: _____
Minimum operating temperature (°F) and location: _____ (See line by line instructions.)
Combustion chamber residence time (seconds): _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:
_____

☒ **Flare**
Manufacturer: SELECTION PENDING Year installed: SECOND QUARTER 2008
What do you call this control equipment: HIGH PRESSURE FLARE
Pollutant(s) controlled: ☐ PE ☒ OC ☐ SO_2 ☐ NOx ☐ CO ☒ Other organic HAP
Estimated capture efficiency (%):100 Basis for efficiency: ENGINEERING DESIGN
Design control efficiency (%): 98 Basis for efficiency: ENGINEERING ESTIMATE
Type: ☐ Enclosed ☒ Elevated (open)
Ignition device: ☐ Electric arc ☒ Pilot flame
Flame presence sensor: ☒ Yes ☐ No
☒ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:

Section II - Specific Air Contaminant Source Information

☐ **Condenser**

Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design control efficiency (%):_____ Basis for efficiency: _____

Type: ☐ Indirect contact ☐ Direct contact
Maximum exhaust gas temperature (°F) during air contaminant source operation: _____
Coolant type: _____
Design coolant temperature (°F): Minimum _____ Maximum _____
Design coolant flow rate (gpm): _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:

_____

☐ **Carbon Absorber**

Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design control efficiency (%):_____ Basis for efficiency: _____
Type: ☐ On-site regenerative ☐ Disposable
Maximum design outlet organic compound concentration (ppmv): _____
Carbon replacement frequency or regeneration cycle time (specify units): _____
Maximum temperature of the carbon bed, after regeneration (including any cooling cycle): _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:

_____

☐ **Dry Scrubber**

Manufacturer: _____ Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other _____
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design control efficiency (%):_____ Basis for efficiency: _____
Reagent(s) used: Type: _____ Injection rate(s): _____
Operating pressure drop range (inches of water): Minimum: _____ Maximum: _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:

_____

☐ **Paint booth filter**

Type: ☐ Paper ☐ Fiberglass ☐ Water curtain ☐ Other _____
Design control efficiency (%):_____ Basis for efficiency: _____

☐ **Other**, describe

Manufacturer: Year installed: _____
What do you call this control equipment: _____
Pollutant(s) controlled: ☐ PE ☐ OC ☐ SO_2 ☐ NOx ☐ CO ☐ Other PM10
Estimated capture efficiency (%):_____ Basis for efficiency: _____
Design control efficiency (%):_____ Basis for efficiency: _____
☐ This is the only control equipment on this air contaminant source
If no, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel
List any other air contaminant sources that are also vented to this control equipment:

6. Attach a Process or Activity Flow Diagram to this application for each air contaminant source included in the application. The diagram should indicate their relationships to one another. See the line by line PTI instructions for additional information.

7. Emissions egress point(s) information: PTIs which allow total emissions in excess of the thresholds listed below will be subject to an air quality modeling analysis. This analysis is to assure that the impact from the requested project will not exceed Ohio=s Acceptable Incremental Impacts for criteria pollutants and/or Maximum Allowable Ground Level Concentrations (MAGLC) for air toxics. Permit requests that would have unacceptable impacts can not be approved as proposed. See the line by line PTI instructions for additional information.

   Complete the tables below if the requested allowable annual emission rate for this PTI exceeds any of the following:

   - Particulate Matter (PM10): 10 tons per year
   - Sulfur Dioxide (SO2): 25 tons per year
   - Nitrogen Oxides (NOx): 25 tons per year
   - Carbon Monoxide (CO): 100 tons per year
   - Air Toxic: 1 ton per year. An air toxic is any air pollutant for which the American Council of Governmental Industrial Hygienists (ACGIH) has established a Threshold Limit Value (TLV).

   Complete Table 7-A below for each stack emissions egress point. An egress point is a point at which emissions from an air contaminant source are released into the ambient (outside) air. List each individual egress point on a separate line.

Table 7-A, Stack Egress Point Information

Company Name or ID for the Egress Point (examples: Stack A; Boiler Stack; etc.)	Type Code*	Stack Egress Point Shape and Dimensions (in)(examples: round 10 inch ID; rectangular 14 X 16 inches; etc.)	Stack Egress Point Height from the Ground (ft)	Stack Temp. at Max. Capacity (F)	Stack Flow Rate at Max. Capacity (ACFM)	Minimum Distance to the Property Line (ft)
HIGH PRESSURE FLARE	A	ROUND 120-INCH ID	295	1,000 to 2,000	~533,000	600

*Type codes for stack egress points:

A. vertical stack (unobstructed): There are no obstructions to upward flow in or on the stack such as a rain cap.
B. vertical stack (obstructed): There are obstructions to the upward flow, such as a rain cap, which prevents or inhibits the air flow in a vertical direction.
C. non-vertical stack: The stack directs the air flow in a direction which is not directly upward.

Complete Table 7-B below for each fugitive emissions egress point. List each individual egress point on a separate line. Refer to the description of the fugitive egress point type codes below the table for use in completing the type code column of the table. For air contaminant sources like roadways and storage piles, only the first 5 columns need to be completed. For an air contaminant source with multiple fugitive emissions egress points, include only the primary egress points.

Table 7-B, Fugitive Egress Point Information

Company ID for the Egress Point (examples; Garage Door B, Building C; Roof Monitor; etc.)	Type Code*	Egress Point Description (examples: garage door, 12 X 30 feet, west wall; outside gravel storage piles; etc.)	Fugitive Egress Point Height from the Ground (ft)	Minimum Distance to the Property Line (ft)	Exit Gas Temp. (F)
NA					

Section II - Specific Air Contaminant Source Information

*Type codes for fugitive egress point:

D. door or window
E. other opening in the building without a duct
F. no stack and no building enclosing the air contaminant source (e.g., roadways)

Complete Table 7-C below for each Stack Egress Point identified in Table 7-A above. In each case, use the dimensions of the largest nearby building, building segment or structure. List each individual egress point on a separate line. Use the same Company Name or ID for the Egress Point in Table 7-C that was used in Table 7-A. See the line by line PTI instructions for additional information.

Table 7-C, Egress Point Additional Information (Add rows as necessary)

Company ID or Name for the Egress Point	Building Height (ft)	Building Width (ft)	Building Length (ft)
HIGH PRESSURE FLARE	580 (Cooling Tower)	240	240

8. Request for Federally Enforceable Limits

As part of this permit application, do you wish to propose voluntary restrictions to limit emissions in order to avoid specific requirements listed below, (i.e., are you requesting federally enforceable limits to obtain synthetic minor status)?

☐ yes
☒ no
☐ not sure - please contact me if this affects me

If yes, why are you requesting federally enforceable limits? Check all that apply.

a. ☐ to avoid being a major source (see OAC rule 3745-77-01)
b. ☐ to avoid being a major MACT source (see OAC rule 3745-31-01)
c. ☐ to avoid being a major modification (see OAC rule 3745-31-01)
d. ☐ to avoid being a major stationary source (see OAC rule 3745-31-01)
e. ☐ to avoid an air dispersion modeling requirement (see Engineering Guide # 69)
f. ☐ to avoid another requirement. Describe: _____

If you checked a., b. or d., please attach a facility-wide potential to emit (PTE) analysis (for each pollutant) and synthetic minor strategy to this application. (See line by line instructions for definition of PTE.) If you checked c., please attach a net emission change analysis to this application.

9. If this air contaminant source utilizes any continuous emissions monitoring equipment for indicating or demonstrating compliance, complete the following table. This does not include continuous parametric monitoring systems.

Company ID for Egress Point	Type of Monitor	Applicable performance specification (40 CFR 60, Appendix B)	Pollutant(s) Monitored
NA			

10. Do you wish to permit this air contaminant source as a portable source, allowing relocation within the state in accordance with OAC rule 3745-31-03 or OAC rule 3745-31-05?

☐ yes - Note: notification requirements in rules cited above must be followed.
☒ no

11. The appropriate Emissions Activity Category (EAC) form(s) must be completed and attached for each air contaminant source. At least one complete EAC form must be submitted for each air contaminant source for the application to be considered complete. Refer to the list attached to the PTI instructions.

FOR OHIO EPA USE
FACILITY ID:_____
EU ID: _____ PTI #:_____

EMISSIONS ACTIVITY CATEGORY FORM
GENERAL PROCESS OPERATION

This form is to be completed for each process operation when there is no specific emissions activity category (EAC) form applicable. If there is more than one end product for this process, copy and complete this form for each additional product (see instructions). Several State/Federal regulations which may apply to process operations are listed in the instructions. Note that there may be other regulations which apply to this emissions unit which are not included in this list.

1. Reason this form is being submitted (Check one)

☒ New Permit ☐ Renewal or Modification of Air Permit Number(s) (e.g. P001)_____

2. Maximum Operating Schedule: 24 hours per day ; 365 days per year

   If the schedule is less than 24 hours/day or 365 days/year, what limits the schedule to less than maximum? See instructions for examples. _____

3. End product of this process: SYNGAS

4. Hourly production rates (indicate appropriate units). Please see the instructions for clarification of "Maximum" and "Average" for new versus existing operations:

Hourly	Rate	Units (e.g., widgets)
Average production	17.2 MMscf	SYNGAS
Maximum production	22.8 MMscf	SYNGAS

5. Annual production rates (indicate appropriate units) Please see the instructions for clarification of "Maximum" and "Actual" for new versus existing operations:

Annual	Rate	Units (e.g., widgets)
Actual production	150,000 scf	SYNGAS
Maximum production	200,000 scf	SYNGAS

6. Type of operation (please check one):

☒ Continuous
☐ Batch (please complete items below)

Minimum cycle* time (minutes): _____
Minimum time between cycles (minutes): _____
Maximum number of cycles per daily 24 hour period: _____
(Note: include cycle time and set up/clean up time.)

*"Cycle" refers to the time the equipment is in operation.

7. Materials used in process at maximum hourly production rate (add rows/pages as needed):

Material	Physical State at Standard Conditions	Principle Use	Amount**
COAL	SOLID	GASIFICATION	82 to 200 TPH
BIOMASS	SOLID	GASIFICATION	0 to 60 TPH
OXYGEN	GAS	GASIFICATION	83 to 167 TPH
STEAM	GAS	GASIFICATION	8 to 13 TPH

** Please indicate the amount **and** rate (e.g., lbs/hr, gallons/hr, lbs/cycle, etc.).

8. Please provide a narrative description of the process below (e.g., coating of metal parts using high VOC content coatings for the manufacture of widgets; emissions controlled by thermal oxidizer...):

FEEDSTOCK (COAL AND/OR BIOMASS), OXYGEN, STEAM, AND BOILER FEED WATER ARE FED INTO ONE OR MORE OF THE SIX GASIFICATION UNITS WHERE FEEDSTOCK IS CHEMICALLY REACTED IN SUB-STOICHIOMETIRIC CONDITIONS TO YIELD SYNGAS.

FOR OHIO EPA USE
FACILITY ID: _____

EU ID: _____ PTI #: _____

EMISSIONS ACTIVITY CATEGORY FORM
FUEL BURNING OPERATION

This form is to be completed for each fuel burning operation. State/Federal regulations which may apply to fuel burning operations are listed in the instructions. Note that there may be other regulations which apply to this emissions unit which are not included in this list

1. Reason this form is being submitted (check one)

   ☒ New Permit ☐ Renewal or Modification of Air Permit Number(s) (e.g. B001) HIGH PRESSURE FLARE

2. Maximum Operating Schedule: __24_____hours per day; ___365_____days per year

   If the schedule is less than 24 hours/day or 365 days/year, what limits the schedule to less than maximum? See instructions for examples. _____

3. Input Capacity (million Btu/hr):

Rated *(Indicate units if other than mmBtu/hr)*	Maximum *(Indicate units if other than mmBtu/hr)*	Normal *(Indicate units if other than mmBtu/hr)*
TO BE DETERMINED	3,140	0.55

4. Output Capacity:

Rated *(lb steam/hr)*	Maximum *(lb steam/hr)*	Normal *(lb steam/hr)*

   ☒ Not applicable - operation does not produce steam.

5. Percent of Operating Time Used for:

   Process: 100 %
   Space Heat: 0 %

6. Type of Draft (check one):

   ☐ Natural ☐ Induced ☒ Forced

7. Type of combustion monitoring (check one):

   ☐ Fuel/Air Ratio ☐ Oxygen ☐ None
   ☒ Other (describe) FLAME

8. Type of Fuel Fired (complete all that apply):

Fuel*	Fired as...	Min. Heat Content (Btu/unit)	Max. % Ash	Max. % Sulfur	Max. Annual Fuel Use	Average Hourly Fuel Use	Maximum Hourly Fuel Use
Coal	☐ Primary ☐ Backup				tons	lbs	lbs
No. 2 Fuel Oil	☐ Primary ☐ Backup				gal	gal	gal
No. 6 Fuel Oil	☐ Primary ☐ Backup				gal	gal	gal
Other** Oil	☐ Primary ☐ Backup				gal	gal	gal
Natural Gas	☒ Primary ☐ Backup	950/SCF		NIL	5.1 MM ft^3	580 ft^3	580 ft^3
Wood	☐ Primary ☐ Backup				tons	lbs	lbs
LPG	☐ Primary ☐ Backup				gal	gal	gal
Other**	☐ Primary ☐ Backup						
Other**	☐ Primary ☐ Backup						

* Please identify all combinations of fuels that are co-fired: _____

** Identify other fuel(s): _____

Coal-Fired Units

9. Type of Coal Firing (check one):

☐ Pulverized-Wet Bottom ☐ Hand-Fired ☐ Chain Grate ☐ Traveling Grate
☐ Pulverized-Dry Bottom ☐ Cyclones ☐ Spreader Stoker ☐ Fluidized Bed
☐ Underfeed Stoker ☐ Other (describe) _____

10. Flyash Reinjection:

☐ Yes ☐ No

11. Overfire Air:

☐ Yes ☐ No

Oil-Fired Units

12. Oil Preheater:

☐ Yes - Indicate Temperature_____deg. F
☐ No