Williams Ohio Valley Midstream LLC
100 Teletech Drive, Suite 2
Moundsville, WV 26041
(304) 843-3103
(304) 843-3131 fax

November 6, 2014
(Via Federal Express)

William F. Durham
Director - Division of Air Quality
West Virginia Department of Environmental Protection
601 57th Street SE
Charleston, WV 25304-2345

Subject: **Application for Title V Operating Permit (45CSR30)**
Williams Ohio Valley Midstream LLC
MOUNDSVILLE FRACTIONATION PLANT
Marshall County, West Virginia

Dear Mr. Durham,

Williams Ohio Valley Midstream LLC (OVM) is submitting this Application for Title V Operating Permit (45CSR30) in accordance with the West Virginia Air Control Act and Title 45 Series 30 (45CSR30) for the Moundsville Fractionation Plant (Frac) in Marshall County.

The OVM Moundsville Frac is currently operating under West Virginia Department of Environmental Protection (WVDEP) Regulation 13 Permit No. R13-2892C, issued 05/28/13. The Title V (45CSR30) application is due within twelve (12) months after the date of the commencement of the operation of activities authorized by Permit R13-2892C or no later than February 27, 2015.

If you have any questions concerning this submittal or need additional information, please contact Bill Thompson at (304) 843-3103 or Bill.Thompson@williams.com.

Sincerely,

R. Danell Zawaski, P.E.
Environmental Specialist

Enclosures:
- Application for Title V Operating Permit (45CSR30) – Checklist
- Application for Title V Operating Permit (45CSR30) – General Forms
- Attachments A thru H
- Supplements 01 thru 08

TITLE V PERMIT APPLICATION CHECKLIST
FOR ADMINISTRATIVE COMPLETENESS

A complete application is demonstrated when all of the information required below is properly prepared, completed and attached. The items listed below are required information which must be submitted with a Title V permit application. Any submittal will be considered incomplete if the required information is not included.*

☒	Two signed copies of the application (at least one must contain the original "*Certification*" page signed and dated in blue ink) **(GENERAL FORM NO. 28)**
☒	Correct number of copies of the application on separate CDs or diskettes, (i.e. at least one disc per copy) **(TWO CDs, EACH WITH COPY OF PERMIT APPLICATION)**
☒	*Table of Contents (needs to be included but not for administrative completeness)
☒	Facility information **(GENERAL FORM NO. 12)**
☒	Description of process and products, including NAICS and SIC codes, and including alternative operating scenarios **(GENERAL FORM NO. 14 AND ADDENDUM 01)**
☒	ATTACHMENT A - Area map showing plant location **(ATTACHMENT A)**
☒	ATTACHMENT B - Plot plan showing buildings and process areas **(ATTACHMENT B)**
☒	ATTACHMENT C - Process flow diagram(s), showing all emission units, control equipment, emission points, and their relationships **(ATTACHMENT C)**
☒	Identification of all applicable requirements with a description of the compliance status **(GENERAL FORM NO. 20, ATTACHMENT E, AND ADDENDUM 02)**, the methods used for demonstrating compliance **(GENERAL FORM NO. 20, ATTACHMENT E, AND ADDENDUM 03)**, and a Schedule of Compliance Form **(ATTACHMENT F-NA)** for all requirements for which the source is not in compliance
☒	Listing of all active permits and consent orders (if applicable) **(GENERAL FORM NO. 21)**
☒	Facility-wide emissions summary **(GENERAL FORM NO 23 AND ADDENDUM 03)**
☒	Identification of Insignificant Activities **(GENERAL FORM NO. 24)**
☒	ATTACHMENT D - Title V Equipment Table **(ATTACHMENT D)** completed for all emission units at the facility except those designated as insignificant activities **(GENERAL FORM NO. 24)**
☒	ATTACHMENT E - Emission Unit Form **(ATTACHMENT E)** completed for each emission unit listed in the Title V Equipment Table **(ATTACHMENT D)**
☐	ATTACHMENT F - Schedule of Compliance Form **(ATTACHMENT F-NA)** for all requirements for which each emission unit is not in compliance **(NOT APPLICABLE)**
☒	ATTACHMENT G - Air Pollution Control Device Form **(ATTACHMENT G)** completed for each control device listed in the Title V Equipment Table **(ATTACHMENT D)**
☐	ATTACHMENT H - Compliance Assurance Monitoring (CAM) Form **(NOT APPLICABLE)** completed for each control device for which the "Is the device subject to CAM?" question is answered "Yes" on the Air Pollution Control Device Form **(ATTACHMENT G)**
☒	General Application Forms signed by a Responsible Official **(GENERAL FORM NO. 28)**
☐	Confidential Information submitted in accordance with 45CSR31 **(NOT APPLICABLE)**

APPLICATION FOR
TITLE V OPERATING PERMIT (45CSR30)

For the:

Williams Ohio Valley Midstream LLC (OVM)

MOUNDSVILLE FRACTIONATION PLANT (FRAC)

Marshall County, West Virginia

Submitted to:

WEST VIRGINIA
DIVISION OF AIR QUALITY
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Submitted by:

Williams Ohio Valley Midstream LLC
100 Teletech Drive, Suite 2
Moundsville, WV 26041

Prepared by:

EcoLogic Environmental Consultants, LLC
864 Windsor Court
Santa Barbara, CA 93111

November 2014

APPLICATION FOR
TITLE V OPERATING PERMIT (45CSR30)

Williams Ohio Valley Midstream LLC (OVM)
MOUNDSVILLE FRACTIONATION PLANT (FRAC)
Marshall County, West Virginia

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WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF AIR QUALITY
601 57th Street SE
Charleston, WV 25304
Phone: (304) 926-0475
www.dep.wv.gov/daq

INITIAL/RENEWAL TITLE V PERMIT APPLICATION - GENERAL FORMS

Section 1: General Information

1. Name of Applicant (As registered with the WV Secretary of State's Office):
Williams Ohio Valley Midstream LLC (OVM)

2. Facility Name or Location:
Moundsville Fractionation Plant (Frac)

3. DAQ Plant ID No.:
0 5 1 - 0 0 1 4 1

4. Federal Employer ID No. (FEIN):
2 7 - 0 8 5 6 7 0 7

5. Permit Application Type:
- ☑ Initial Permit
- ☐ Permit Renewal
- ☐ Update to Initial/Renewal Permit Application

When did operations commence? 02/27/14 (Frac2)
What is the expiration date of the existing permit?
na

6. Type of Business Entity:
☐ Corporation ☐ Government Agency ☑ LLC
☐ Partnership ☐ Limited Partnership

7. Is the Applicant the:
☐ Owner ☐ Operator ☑ Both
If the Applicant is not both the owner and operator, please provide the name and address of the other party.
na

8. Number of On-site Employees:
37

9. Governmental Code:
- ☑ Privately owned and operated; 0
- ☐ Federally owned and operated; 1
- ☐ State government owned and operated; 2
- ☐ County government owned and operated; 3
- ☐ Municipality government owned and operated; 4
- ☐ District government owned and operated; 5

10. Business Confidentiality Claims
Does this application include confidential information (per 45CSR31)? ☐ Yes ☑ No
If yes, identify each segment of information on each page that is submitted as confidential, and provide justification for each segment claimed confidential, including the criteria under 45CSR§31-4.1, and in accordance with the DAQ's "*PRECAUTIONARY NOTICE-CLAIMS OF CONFIDENTIALITY*" guidance.

11. Mailing Address

Street or P.O. Box:
Williams Ohio Valley Midstream LLC
100 Teletech Drive, Suite 2

City:	**State:**	**Zip:**
Moundsville	WV	26041
Telephone Number:	**Fax Number:**	
(304) 843-3103	(304) 843-3131	

12. Facility Location

Street:	**City:**	**County:**
200 Caiman Drive ~2 Miles South of Moundsville	Moundsville	Marshall
UTM Easting: 517.35 km	**UTM Northing:** 4,418.11 km	**Zone:** ☑ 17 ☐ 18

Directions:
From Moundsville, take State WV-2/Lafayette Ave South, then West, approximately 2 miles.
Site is on the right, at the site of the former Olin Facility in Round Bottom.

Portable Source?	☐ Yes	☑ No	
Is facility located w/in a nonattainment area?	☐ Yes	☑ No	**If yes, for what air pollutants?** na
Is facility located w/n 50 miles of another state?	☑ Yes	☐ No	**If yes, name the affected state(s).** Ohio and Pennsylvania
Is facility located w/in 100 km of a Class I Area[1]?	☐ Yes	☑ No	**If yes, name the area(s).**
If no, do emissions impact a Class I Area[1]?	☐ Yes	☑ No	na

[1] *Class I areas include Dolly Sods and Otter Creek Wilderness Areas in West Virginia, and Shenandoah National Park James River Face Wilderness Area in Virginia.*

13. Contact Information		
Responsible Official: Don Wicburg	**Title:** Vice President and General Manager	
Street or P.O. Box: Williams Ohio Valley Midstream LLC Park Place Corporate Center 2 2000 Commerce Drive		
City: Pittsburgh	**State:** PA	**Zip:** 15275
Telephone Number: (412) 787-4266	**Fax Number:** (412) 787-6002	
E-mail address: Don.Wicburg@Williams.com		
Environmental Contact: Bill Thompson	**Title:** Environmental Specialist	
Street or P.O. Box: Williams Ohio Valley Midstream LLC 100 Teletech Drive, Suite 2		
City: Moundsville	**State:** WV	**Zip:** 26041
Telephone Number: (304) 843-3103	**Fax Number:** (304) 843-3131	
E-mail address: Bill.Thompson@Williams.Com		
Application Preparer: Walter Konkel, III	**Title:** Principal Scientist	
Company: EcoLogic Environmental Consultants, LLC		
Street or P.O. Box: 864 Windsor Court		
City: Santa Barbara	**State:** CA	**Zip:** 93111
Telephone Number: (805) 964-7597	**Fax Number:** na	
E-mail address: WKonkel@ELogicllc.com		

14. Facility Description

List all processes, products, NAICS and SIC codes for normal operation, in order of priority. Also list any process, products, NAICS and SIC codes associated with any alternative operating scenarios if different from those listed for normal operation.

Process	Products	NAICS	SIC
Natural Gas Liquid (NGL) Fractionation	Propane, Butane, and Natural Gasoline	211112	1321
Finished Product Loading	Propane, Butane, and Natural Gasoline	211112	1321
Stabilized Condensate Loading	Stabilized Condensate	211112	1321

Provide a general description of operations.

Please reference SUPPLEMENT 01 – Process Description

The OVM Moundsville Fractionation Plant has the capacity to fractionate 42,500 barrels per day of raw, mixed, Natural Gas Liquids (NGL) into propane (C3), butanes (C4), and natural gasoline (C5+).

Emissions will include the following:

- Fractionation Plant (Frac1/1S and Frac2/1S) Fugitive Emissions
- Natural Gas Combustion for the Hot Oil Heaters (HTR-01 (1E) and HTR-02 (2E)
- Waste Gas Combustion in the Flare (FL-02/5S).

Note that there are no vents or other emission points in the fractionation process other than fugitive emissions from valves and fittings. Similarly, storage tanks and truck/rail loading are accomplished with totally enclosed systems with vapor return lines and no vents. (Except that emissions from two (2) 420,000 gal natural gasoline tanks, and from natural gasoline truck and rail load-out, are controlled by the flare (FL-02/5S).)

The hot oil heaters are fueled with commercially supplied natural gas.

The flare (FL-02/5S) is used for combustion of waste NGL and products associated with continuous and plant operations and periodic maintenance (e.g., blowdown) activities.

15. Provide an **Area Map** showing plant location as **ATTACHMENT A**.

16. Provide a Plot Plan(s), e.g. scaled map(s) and/or sketch(es) showing the location of the property on which the stationary source(s) is located as **ATTACHMENT B**. For instructions, refer to "Plot Plan - Guidelines."

17. Provide a detailed Process Flow Diagram(s) showing each process or emissions unit as **ATTACHMENT C**. Process Flow Diagrams should show all emission units, control equipment, emission points, and their relationships.

Section 2: Applicable Requirements

18. Applicable Requirements Summary	
Instructions: Mark all applicable requirements.	
☐ SIP	☐ FIP
☑ Minor source NSR (45CSR13)	☐ PSD (45CSR14)
☐ NESHAP (45CSR34)	☐ Nonattainment NSR (45CSR19)
☑ **Section 111 NSPS (A, Dc, Kb, and OOOO)**	☐ Section 112(d) MACT Standards
☐ Section 112(g) Case-by-case MACT	☑ **112(r) RMP**
☐ Section 112(i) Early Reduction of HAP	☐ Consumer/Commercial Prod. Reqts., Sect 183(e)
☐ Section 129 Standards/Reqts.	☐ Stratospheric Ozone (Title VI)
☐ Tank Vessel Reqt., Section 183(f)	☐ Emissions Cap 45CSR§30-2.6.2
☐ NAAQS, Increments or Visibility (temp. sources)	☐ 45CSR27 State Enforceable Only Rule (CPU)
☑ **45CSR4 State Enforceable Only Rule (Malodors)**	☐ Acid Rain (Title IV, 45CSR33)
☐ Emissions Trading and Banking (45CSR28)	☐ Compliance Assurance Monitoring (40CFR64)
☐ CAIR NOx Annual Trading Program (45CSR39)	☐ CAIR NOx O3 Trading Program (45CSR40)
☐ CAIR SO2 Trading Program (45CSR41)	

19. Non Applicability Determinations

List all requirements which the source has determined not applicable and for which a permit shield is requested. The listing shall also include the rule citation and the reason why the shield applies.

Please reference **SUPPLEMENT 02** – Regulatory Discussion

NEW SOURCE PERFORMANCE STANDARDS (NSPS)

NSPS D - No boiler greater than 250 MMBtu/hr (40CFR60.40(a)(1))
NSPS Da - No boiler greater than 250 MMBtu/hr (40CFR60.40a(a)(1))
NSPS Db - No boiler greater than 100 MMBtu/hr (40CFR60.40b(a))
NSPS K - No tank constructed prior to 05/19/78 (40CFR 60.110(a))
NSPS Ka - No tank constructed prior to 07/23/84 (40CFR60.110a(a))
NSPS GG - No stationary gas turbine (40CFR60.330(a))
NSPS LLL - No sweetening units on site (40CFR60.640(a))
NSPS IIII - No stationary compression ignition engine (§60.4200(a))
NSPS JJJJ - No stationary spark ignition engine (§60.4230(a))
NSPS KKKK - No stationary combustion turbine (§60.4300(a))

NATIONAL EMISSION STANDARDS FOR HAZAROUS AIR POLLUTANTS (NESHAP)

NESHAP HH - An area source with no triethylene glycol (TEG) dehydration unit (§63.760(b)(2))
NESHAP HHH - No natural gas transmission or storage prior to local distribution (§63.1270(a))
NESHAP YYYY - No stationary gas turbine (§63.6080(a))
NESHAP ZZZZ - No stationary reciprocating internal combustion engine.
NESHAP DDDDD - Not a major source of HAP (§63.7485(a))
NESHAP JJJJJJ - Only gas-fired boilers present at facility (§63.11195(e))

COMPLIANCE ASSURANCE MONITORING (CAM)

CAM - Although there are pollutant specific emission units subject to an emissions limitation, and a control device is used to achieve compliance, the potential pre-control emissions do not exceed 100 tpy.

WEST VIRGINIA AIR QUALITY REGULATIONS

45CSR14 - Permits for Major Sources - Not a Major Source as defined in §45-14-2.43.
45CSR19 - Permits for Major Sources - Does not cause or contribute to nonattainment as per §45-19-3.2.
45CSR21 - Control of VOCs - Not located in Putnam, Kanawha, Cabell, Wayne, or Wood County
45CSR27 - No surface coating or similar equipment utilizing a toxic air pollutant as a solvent or for other purposes.
45CSR28 - Voluntary Emission Trading Program - Applicant chooses not to participate
45CSR29 - Not in Putnam, Kanawha, Cabell, Wayne, or Wood County

☑ **Permit Shield**

20. Facility-Wide Applicable Requirements

List all facility-wide applicable requirements. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number.
(Note: Title V permit condition numbers alone are not the underlying applicable requirements) .

Permit R13-2892C includes the following facility-wide requirements:

3.1.1 Open burning [45CSR§6-3.1] - Open burning is prohibited.
3.1.3 Asbestos [45CSR§34] - Inspect prior to demolition or renovation.
3.1.4 Odors [45CSR§4-3.1] - No objectionable odors beyond the fence-line.
3.4.2 Odors [45CSR§4]- Maintain records of odor complaints and corrective actions.
3.5.4.1 Emissions Statement [45CSR§30] - Submit annual emissions statement and fees.
4.1.2 Minor Source of HAPs - HAP emissions from the facility shall not exceed:
10 tpy of any single HAP and 25 tpy total HAPs.
4.1.3 Operation and Maintenance of Air Pollution Control Equipment [45CSR§13-5.11] -
Install, maintain, and operate all APCE to minimize emissions and comply w/ limitations.

☑ **Permit Shield**

For all facility-wide applicable requirements listed above, provide monitoring/testing / recordkeeping / reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number and/or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

Permit R13-2892C requires following monitoring/testing/recordkeeping and reporting:

2.6. Furnish any information that the WVDEP may request.
2.7. Provide supplemental and corrected data as requisite.
3.4.1. Maintain records for a minimum of 5-yrs, with the recent 2-yrs maintained on-site.
3.4.2. Maintain records of all odor complaints and responsive actions.
3.5.1. All forms, reports, and certifications must be signed by a responsible official.
3.5.4.1. Submit certified emission statement and pay fees on an annual basis.
3.5.5. Prepare and submit an emission inventory as requested by WVDEP.
4.4.1. Keep records of monitoring information.
4.4.4. Keep records of malfunctions of air pollution control equipment.

Are you in compliance with all facility-wide applicable requirements? ☑ Yes ☐ No
If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**. **(Not Applicable)**

21. Active Permits/Consent Orders

Permit or Consent Order Number	Date of Issuance MM/DD/YYYY	List any Permit Determinations that Affect the Permit (if any)
R13-2892C	05/28/13	Slop Tanks are exempt w/ de-minimis emissions

22. Inactive Permits/Obsolete Permit Conditions

Permit or Consent Order Number	Date of Issuance MM/DD/YY	Permit Condition Number
R13-2892B	03/05/13	Superseded and Replaced by R13-2892C
R13-2892A	02/07/13	Superseded and Replaced by R13-2892B
R13-2892	12/28/11	Superseded and Replaced by R13-2892A

Section 3: Facility-Wide Emissions

23. Facility-Wide Emissions Summary [Tons per Year]	
Criteria Pollutants	**Potential Emissions Including Fugitives**
Carbon Monoxide (CO)	86.46
Nitrogen Oxides (NOX)	54.13
Lead (Pb)	---
Particulate Matter (PM2.5)[1]	5.37
Particulate Matter (PM10)[1]	5.37
Total Particulate Matter (TSP)	5.37
Sulfur Dioxide (SO2)	0.42
Volatile Organic Compounds (VOC)	114.60
Hazardous Air Pollutants[2]	**Potential Emissions Including Fugitives**
Benzene	0.05
Ethylbenzene	0.07
Formaldehyde (HCHO)	0.06
n-Hexane	7.21
Toluene	2.11
2,2,4-Trirmethylpentane	--
Xylenes	0.07
Other HAP (MeOH, i-Octane, etc.)	4.1E-03
Total HAP	9.57
Regulated Pollutants other than Criteria, HAP, and GHG	**Potential Emissions Including Fugitives**
na	---
Greenhouse Gases (GHGs)	**Potential Emissions Including Fugitives**
Carbon Dioxide (CO_2)	96,487
Nitrous Oxide (N_2O)	0.3
Methane (CH_4)	8
Hydrofluorocarbons (HFCs)	---
Perfluorocarbons (PFCs)	---
Sulfur hexafluoride (SF_6)	---
CO_2 equivalent (CO_2e)	96,776

[1] *PM2.5 and PM10 are components of TSP.*

[2] *For HAPs that are also considered PM or VOCs, emissions should be included in both the HAPs section and the Criteria Pollutants section.*

Section 4: Insignificant Activitiess

24. Insignificant Activities (Check all that apply)		
☑	1	Air compressors and pneumatically operated equipment, including hand tools.
☑	2	Air contaminant detectors or recorders, combustion controllers or shutoffs.
☑	3	Any consumer product used in the same manner as in normal consumer use, provided the use results in a duration and frequency of exposure which are not greater than those experienced by consumer, and which may include, but not be limited to, personal use items; janitorial cleaning supplies, office supplies and supplies to maintain copying equipment.
☑	4	Bathroom/toilet vent emissions.
☑	5	Batteries and battery charging stations, except at battery manufacturing plants.
☑	6	Bench-scale laboratory equipment used for physical or chemical analysis, but not lab fume hoods or vents. Many lab fume hoods or vents might qualify for treatment as insignificant (depending on the applicable SIP) or be grouped together for purposes of description.
☐	7	Blacksmith forges.
☐	8	Boiler water treatment operations, not including cooling towers.
☑	9	Brazing, soldering or welding equipment used as an auxiliary to the principal equipment at the source.
☐	10	CO2 lasers, used only on metals and other materials which do not emit HAP in the process.
☑	11	Combustion emissions from propulsion of mobile sources, except for vessel emissions from Outer Continental Shelf sources.
☑	12	Combustion units designed and used exclusively for comfort heating that use liquid petroleum gas or natural gas as fuel.
☑	13	Comfort air conditioning or ventilation systems not used to remove air contaminants generated by or released from specific units of equipment.
☐	14	Demineralized water tanks and demineralizer vents.
☐	15	Drop hammers or hydraulic presses for forging or metalworking.
☐	16	Electric or steam-heated drying ovens and autoclaves, but not the emissions from the articles or substances being processed in the ovens or autoclaves or the boilers delivering the steam.
☐	17	Emergency (backup) electrical generators at residential locations.
☐	18	Emergency road flares.
☑	19	Emission units which do not have any applicable requirements and which emit criteria pollutants (CO, NOx, SO2, VOC and PM) into the atmosphere at a rate of less than 1 pound per hour and less than 10,000 pounds per year aggregate total for each criteria pollutant from all emission units. Please specify all emission units for which this exemption applies along with the quantity of criteria pollutants emitted on an hourly and annual basis: Please see **SUPPLEMENT 07** - Storage Tank Data Sheet (Insignificant Emission Units)

24. Insignificant Activities (Check all that apply) (Continued)		
☑	20	Emission units which do not have any applicable requirements and which emit hazardous air pollutants into the atmosphere at a rate of less than 0.1 pounds per hour and less than 1,000 pounds per year aggregate total for all HAPs from all emission sources. This limitation cannot be used for any source which emits dioxin/furans nor for toxic air pollutants as per 45CSR27. Please specify all emission units for which this exemption applies along with the quantity of hazardous air pollutants emitted on an hourly and annual basis: Please see **SUPPLEMENT 07** - Storage Tank Data Sheet
☐	21	Environmental chambers not using hazardous air pollutant (HAP) gases.
☑	22	Equipment on the premises of industrial and manufacturing operations used solely for the purpose of preparing food for human consumption.
☐	23	Equipment used exclusively to slaughter animals, but not including other equipment at slaughterhouses, such as rendering cookers, boilers, heating plants, incinerators, and electrical power generating equipment.
☑	24	Equipment used for quality control/assurance or inspection purposes, including sampling equipment used to withdraw materials for analysis.
☑	25	Equipment used for surface coating, painting, dipping or spray operations, except those that will emit VOC or HAP.
☐	26	Fire suppression systems.
☑	27	Firefighting equipment and the equipment used to train firefighters.
☐	28	Flares used solely to indicate danger to the public.
☑	29	Fugitive emission related to movement of passenger vehicle provided the emissions are not counted for applicability purposes and any required fugitive dust control plan or its equivalent is submitted.
☐	30	Hand-held applicator equipment for hot melt adhesives with no VOC in the adhesive formulation.
☑	31	Hand-held equipment for buffing, polishing, cutting, drilling, sawing, grinding, turning or machining wood, metal or plastic.
☐	32	Humidity chambers.
☑	33	Hydraulic and hydrostatic testing equipment.
☑	34	Indoor or outdoor kerosene heaters.
☑	35	Internal combustion engines used for landscaping purposes.
☐	36	Laser trimmers using dust collection to prevent fugitive emissions.
☐	37	Laundry activities, except for dry-cleaning and steam boilers.
☐	38	Natural gas pressure regulator vents, excluding venting at oil and gas production facilities.
☐	39	Oxygen scavenging (de-aeration) of water.
☐	40	Ozone generators.

24. Insignificant Activities (Check all that apply) (Continued)		
☑	41	Plant maintenance and upkeep activities (e.g., grounds-keeping, general repairs, cleaning, painting, welding, plumbing, re-tarring roofs, installing insulation, and paving parking lots) provided these activities are not conducted as part of a manufacturing process, are not related to the source's primary business activity, and not otherwise triggering a permit modification. (Cleaning and painting activities qualify if they are not subject to VOC or HAP control requirements. Asphalt batch plant owners/operators must still get a permit if otherwise requested.)
☑	42	Portable electrical generators that can be moved by hand from one location to another. "Moved by Hand" means that it can be moved without the assistance of any motorized or non-motorized vehicle, conveyance, or device.
☐	43	Process water filtration systems and demineralizers.
☑	44	Repair or maintenance shop activities not related to the source's primary business activity, not including emissions from surface coating or de-greasing (solvent metal cleaning) activities, and not otherwise triggering a permit modification.
☑	45	Repairs or maintenance where no structural repairs are made and where no new air pollutant emitting facilities are installed or modified.
☑	46	Routing calibration and maintenance of laboratory equipment or other analytical instruments.
☐	47	Salt baths using nonvolatile salts that do not result in emissions of any regulated air pollutants. Shock chambers.
☐	48	Shock chambers.
☐	49	Solar simulators.
☑	50	Space heaters operating by direct heat transfer.
☑	51	Steam cleaning operations.
☐	52	Steam leaks.
☐	53	Steam sterilizers.
☐	54	Steam vents and safety relief valves.
☑	55	Storage tanks, reservoirs, and pumping and handling equipment of any size containing soaps, vegetable oil, grease, animal fat, and nonvolatile aqueous salt solutions, provided appropriate lids and covers are utilized.
☑	56	Storage tanks, vessels, and containers holding or storing liquid substances that will not emit any VOC or HAP. Exemptions for storage tanks containing petroleum liquids or other volatile organic liquids should be based on size limits such as storage tank capacity and vapor pressure of liquids stored and are not appropriate for this list.
☐	57	Such other sources or activities as the Director may determine.
☑	58	Tobacco smoking rooms and areas.
☑	59	Vents from continuous emissions monitors and other analyzers.

Section 5: Emission Units, Control Devices, and Emission Points

25. Equipment Table

Fill out the **Title V Equipment Table** and provide it as **ATTACHMENT D**.

26. Emission Units

For each emission unit listed in the **Title V Equipment Table**, fill out and provide an **Emission Unit Form** as **ATTACHMENT E**.

For each emission unit not in compliance with an applicable requirement, fill out a **Schedule of Compliance Form** as **ATTACHMENT F**. **(Not Applicable)**

27. Control Devices

For each control device listed in the **Title V Equipment Table**, fill out and provide an **Air Pollution Control Device Form** as **ATTACHMENT G**.

For any control device that is required on an emission unit in order to meet a standard or limitation for which the potential pre-control device emissions of an applicable regulated air pollutant is greater than or equal to the Title V Major Source Threshold Level, refer to the **Compliance Assurance Monitoring (CAM) Form(s)** for CAM applicability. Fill out and provide these forms, if applicable, for each Pollutant Specific Emission Unit (PSEU) as **ATTACHMENT H**. **(Not Applicable)**

Section 6: Certification of Information

28. Certification of Truth, Accuracy and Completeness and Certification of Compliance

Note: This Certification must be signed by a responsible official. The original, signed in blue ink, must be submitted with the application. Applications without an original signed certification will be considered as incomplete.

a. Certification of Truth, Accuracy and Completeness

I certify that I am a responsible official (as defined at 45CSR§30-2.38) and am accordingly authorized to make this submission on behalf of the owners or operators of the source described in this document and its attachments. I certify under penalty of law that I have personally examined and am familiar with the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine and/or imprisonment.

b. Compliance Certification

Except for requirements identified in the Title V Application for which compliance is not achieved, I, the undersigned hereby certify that, based on information and belief formed after reasonable inquiry, all air contaminant sources identified in this application are in compliance with all applicable requirements.

Responsible official (type or print)

Name:	**Title:**
Don Wicburg	Vice President and General Manager

Responsible official's signature:

Signature: Don Wicburg Signature Date: 11/5/2014

(Must be signed and dated in blue ink)

Note: Please check all applicable attachments included with this permit application:	
☑	ATTACHMENT A: Area Map
☑	ATTACHMENT B: Plot Plan(s)
☑	ATTACHMENT C: Process Flow Diagram(s)
☑	ATTACHMENT D: Equipment Table
☑	ATTACHMENT E: Emission Unit Form(s)
☐	ATTACHMENT F: Schedule of Compliance Form(s) **(Not Applicable)**
☑	ATTACHMENT G: Air Pollution Control Device Form(s)
☐	ATTACHMENT H: Compliance Assurance Monitoring (CAM) Form(s) **(Not Applicable)**

All of the required forms and additional information can be found and downloaded from, the DEP website at www.dep.wv.gov/daq, requested by phone (304) 926-0475, and/or obtained through the mail.

ATTACHMENT A

Area (Topographic) Map

Provide an Area Map showing plant location as ATTACHMENT A.

- **Address:**
  Williams Ohio Valley Midstream LLC
  MOUNDSVILLE FRACTIONATION PLANT
  200 Caiman Drive
  (WV-2/Lafayette Ave, ~2.0 Miles West of Moundsville)
  Moundsville, Marshall County, WV 26041

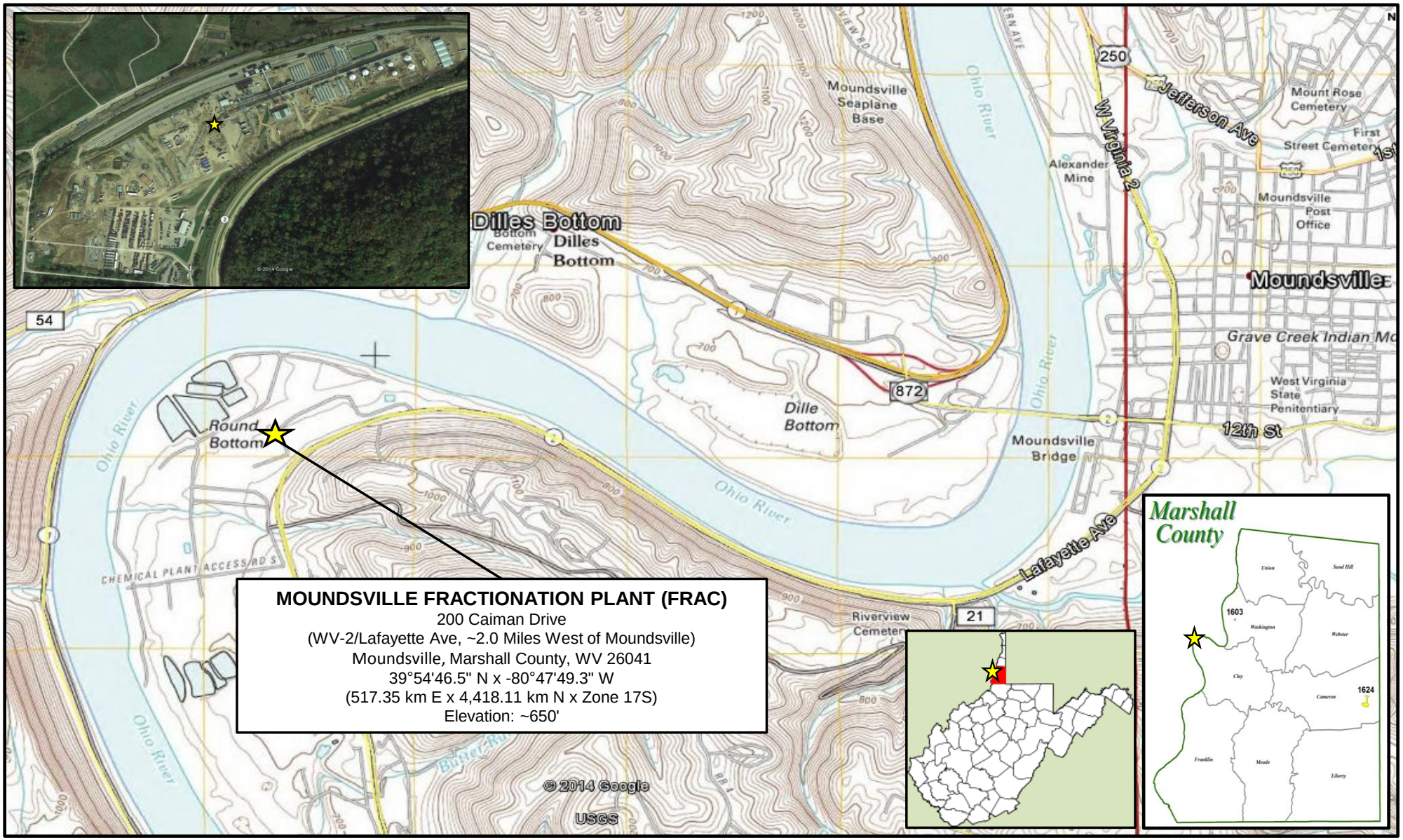
- **Latitude and Longitude:**
  39°54'46.5" N x -80°47'49.3" W
  (39.9129° N x -80.7970° W)

- **UTM Coordinates:**
  517.35 km E x 4,418.11 km N x Zone 17S

- **Elevation:**
  ~650’

- **USGS:**
  7.5 Minute Topographic – Businessburg, OH-WV – 2013

Attachment A - Area (Topographic) Map



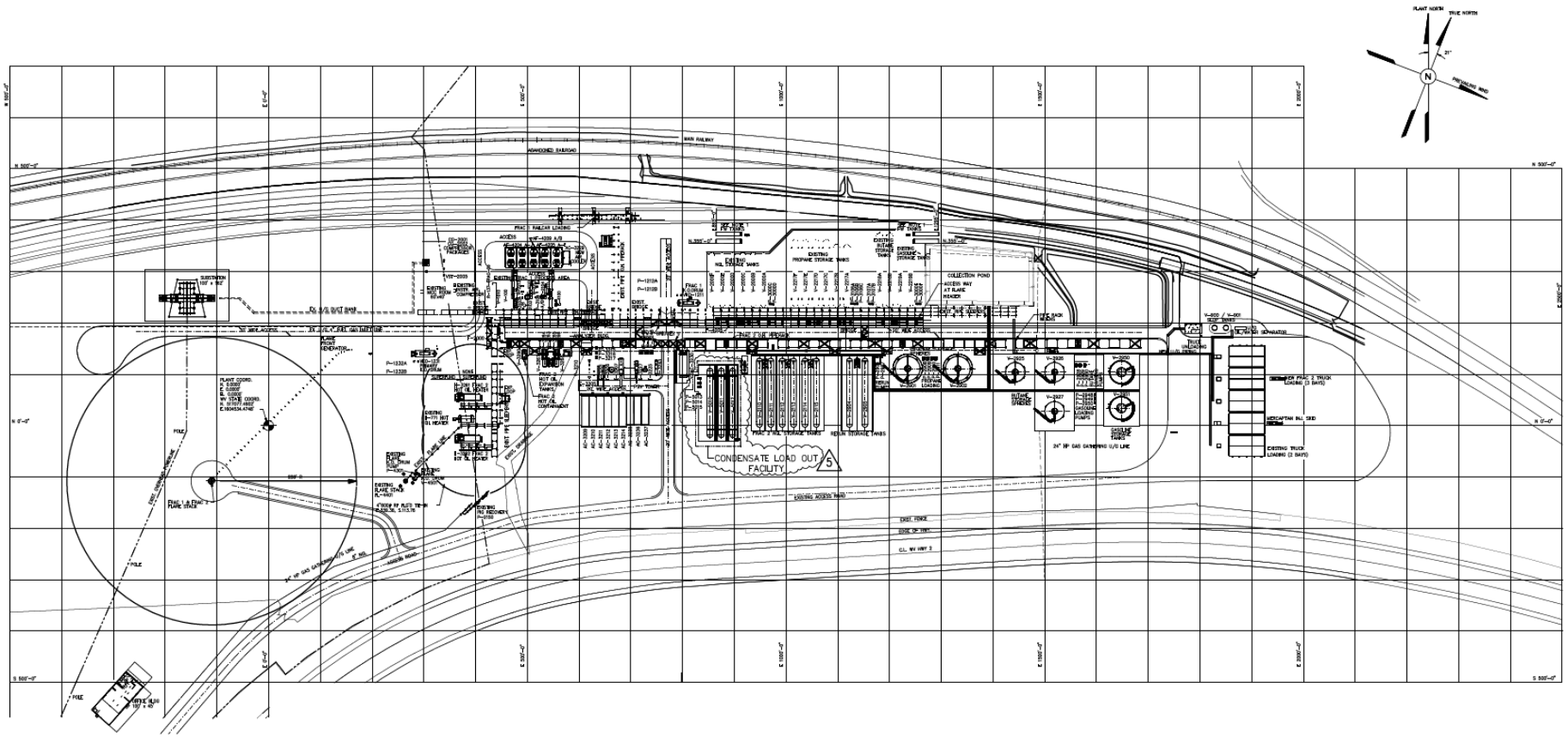
ATTACHMENT B

Plot Plans

Provide a Plot Plan(s), e.g. scaled map(s) and/or sketch(es) showing the location of the property on which the stationary source(s) is located as ATTACHMENT B.

- Plot Plan – OVM Moundsville Frac
- Aerial View – OVM Moundsville Frac

Attachment B - Plot Plan



1. FIRE WATER TANKS AND PUMPS ARE TO BE RELOCATED BY THE FIELD PRIOR TO INSTALLING THE NEW NGL AND RERUN STORAGE TANKS.
2. REMOVED COORDINATE LABELING, SEE EQUIPMENT LOCATION PLOT PLANS.
3. REMOVED EXITING UNDERGROUND DUCT BANK REFERENCES NEAR TRUCK LOADING. SEE CHAPMAN PLAN DRAWINGS.
4. REMOVED EXITING UNDERGROUND PIPE REFERENCES AT EAST END OF FRAC 1 PIPE RACK. SEE CHAPMAN PLAN DRAWINGS.

REF. DWG. NO.	REF. DWG. TITLE
MFP-P10-0002	KEY EQUIPMENT PLOT PLAN
CHAPMAN JJ-22	PLAN LAYOUT
CHAPMAN JJ-23	PLAN LAYOUT
CHAPMAN JJ-24	PLAN LAYOUT
CHAPMAN JJ-25	PLAN LAYOUT
CHAPMAN JJ-26	PLAN LAYOUT

REVISION APPROVAL RECORD — REV A

DISCIPLINE	BY	DATE	DISCIPLINE	BY	DATE
ARCH.			MECHANICAL		
CIVIL			NUCLEAR		
ELECTRICAL			PIPING		
ENVIRON.			PROCESS		
GEN. ARRANG.			QA / QC		
HVAC			STRUCTURAL		
I & C					

DRAWING STATUS

ISSUED	REV	DATE	SDE	PEM
PRELIMINARY	A	11-16-12		
APPROVED FOR CONSTRUCTION	0	2-11-13		

NOT APPROVED FOR CONSTRUCTION UNLESS SIGNED AND DATED. DESTROY ALL PRINTS BEARING AN EARLIER DATE AND/OR REV.NO.

13-P386

RIVER CONSULTING®
WWW.RIVERCONSULTING.COM

URS
7800 E. UNION AVE. #100
DENVER, CO 80237
303-841-2000
ENERGY & CONSTRUCTION, Inc.

URS PROJECT NUMBER: 30917

REV	DRAWN BY	DATE REVISED	CHECKED BY	PROJECT ENG.	APPROVED BY
5	RS	04-28-14	NM	DS	DS
	ISSUE FOR CONSTRUCTION				
4	RS	03-07-14	NM	DS	DS
	ISSUED FOR BID				
3	RS	2-11-14	NM	DS	DS
	ISSUED FOR CONDENSATE LOAD OUT APPROVAL				
2					
	ISSUED FOR CONSTRUCTION				
1	RWM	5-6-13	RWM	TEO	TEO
	ISSUED FOR CONSTRUCTION				

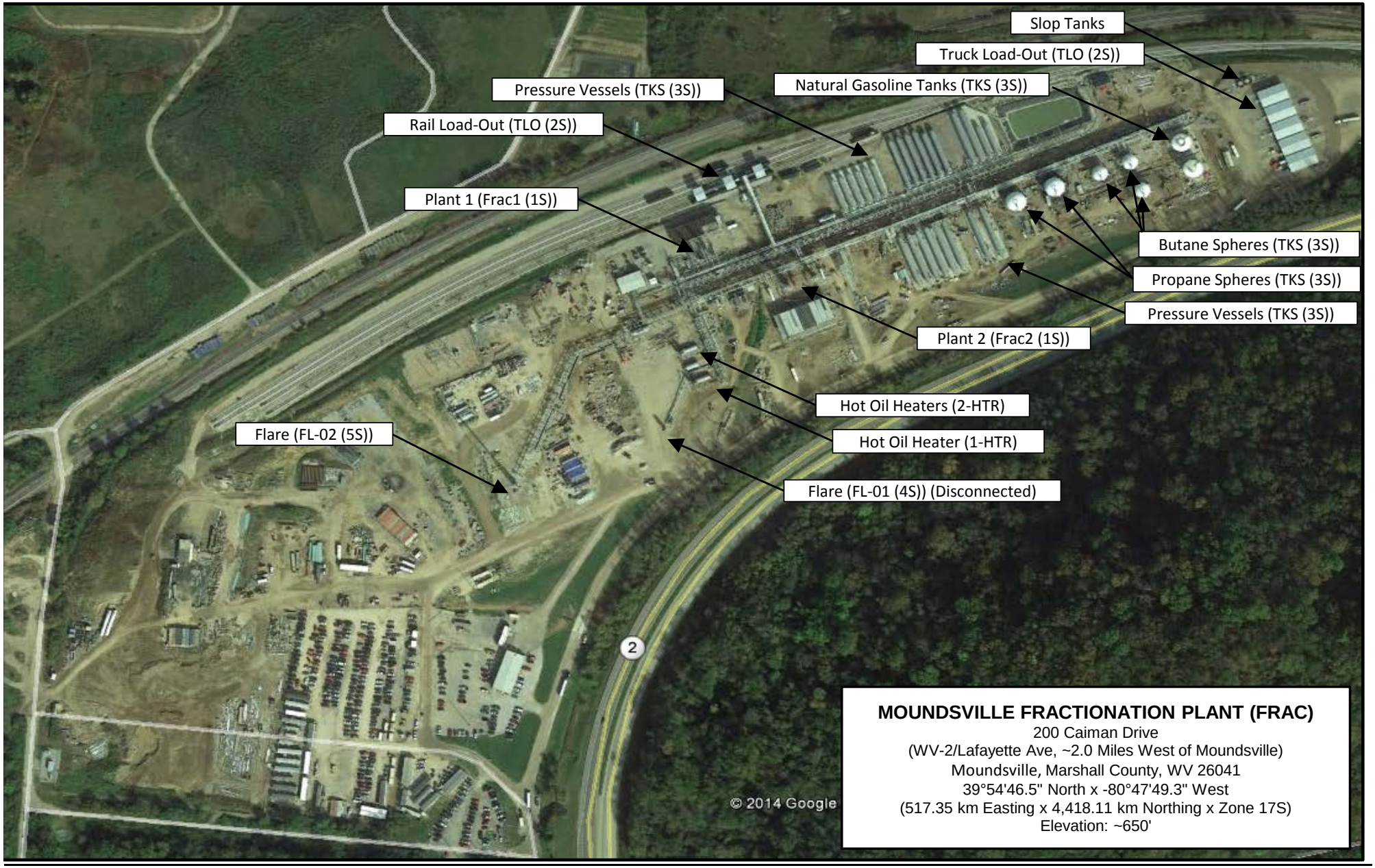
WILLIAMS
OHIO VALLEY MIDSTREAM LLC

MOUNDSVILLE FRACTIONATOR AND TERMINAL
PLOT PLAN
FRAC 1 & 2 UNITS, PRODUCT STORAGE

MARSHALL COUNTY — WEST VIRGINIA

DRAWN BY	TDW	SCALE: 1"=100'-0"	A.P.E.:
CHECKED BY	CAH	DRAWING NO.	
PROJECT ENG.		MFP-P10-1000	
APPROVED BY			
DATE ISSUED			5

Attachment B' - Aerial View



ATTACHMENT C

Process Flow Diagram (PFD)

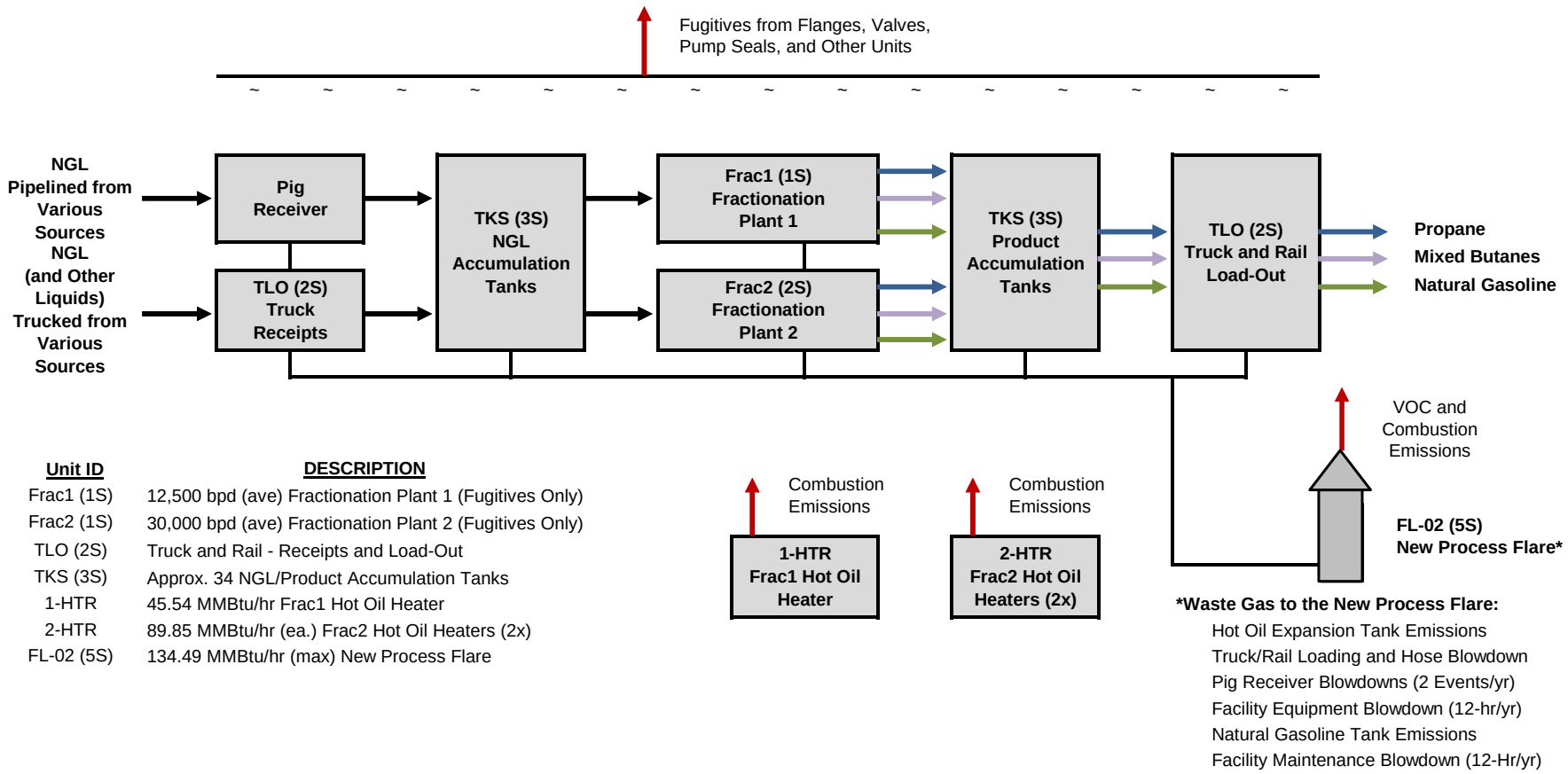
Provide a detailed Process Flow Diagram(s) showing each process or emissions unit as ATTACHMENT C. Process Flow Diagrams should show all emission units, control equipment, emission points, and their relationships.

Williams Ohio Valley Midstream LLC (OVM)

MOUNDSVILLE FRATIONATION PLANT (FRAC)

Application for Title V Operating Permit (45CSR30)

Attachment C - Process Flow Diagram (PFD)



Unit ID	DESCRIPTION
Frac1 (1S)	12,500 bpd (ave) Fractionation Plant 1 (Fugitives Only)
Frac2 (1S)	30,000 bpd (ave) Fractionation Plant 2 (Fugitives Only)
TLO (2S)	Truck and Rail - Receipts and Load-Out
TKS (3S)	Approx. 34 NGL/Product Accumulation Tanks
1-HTR	45.54 MMBtu/hr Frac1 Hot Oil Heater
2-HTR	89.85 MMBtu/hr (ea.) Frac2 Hot Oil Heaters (2x)
FL-02 (5S)	134.49 MMBtu/hr (max) New Process Flare

***Waste Gas to the New Process Flare:**

- Hot Oil Expansion Tank Emissions
- Truck/Rail Loading and Hose Blowdown
- Pig Receiver Blowdowns (2 Events/yr)
- Facility Equipment Blowdown (12-hr/yr)
- Natural Gasoline Tank Emissions
- Facility Maintenance Blowdown (12-Hr/yr)

ATTACHMENT D

Equipment Table

Fill out the Title V Equipment Table and provide it as ATTACHMENT D.

ATTACHMENT D - Title V Equipment Table

(includes all emission units at the facility except those designated as insignificant activities in Section 4, Item 24 of the General Forms)

Emission Point ID[1]	Control Device[1]	Emission Unit ID[1]	Emission Unit Description	Design Capacity	Installed/ Modified
Frac1	None	1S	Fractionation Plant 1 (Fugitives Only)	12,500 bpd (ave)	2011
Frac2			Fractionation Plant 2 (Fugitives Only)	30,000 bpd (ave)	2013
TLO	Flare	2S	Truck and Rail Loading/Unloading	12,500 bpd (ave)	2011
				30,000 bpd (ave)	2013
TKS	Pressure Vessels (Insignificant Emissions)	3S	NGL Accumulation Tanks	6 tanks @ 61,400 gals	2011
				6 tanks @ 90,000 gals	2013
			Propane Accumulation Tanks	4 tanks @ 90,000 gals	2011
				2 tanks @ 114,000 gals	2011
				1 tank @ 90,000 gals	2013
				2 tanks @ 420,000 gals	2013
			Butane Accumulation Tanks	2 tanks @ 140,000 gals	2011
				3 tanks @ 210,000 gals	2013
			Natural Gasoline Accumulation Tanks	2 tanks @ 60,000 gals	2011
				1 tank @ 90,000 gals	2013
			Stabilized Condensate Accumulation Tanks	3 tanks @ 90,000 gals	2013
TKS	Flare	3S	Natural Gasoline Accumulation Tanks	2 tanks @ 420,000 gals	2013
1E	None	1-HTR	Frac1 - Hot Oil Heater	45.54 MMBtu/hr	2011
2E		2-HTR	Frac2 - Hot Oil Heaters (2x)	89.85 MMBtu/hr (ea)	2013
5E		5S	Process Flare (FL-02) (99% Control)	134.49 MMBtu/hr (max)	2013

[1]For 45CSR13 permitted sources, the numbering system used for the emission points, control devices, and emission units should be consistent with the numbering system used in the 45CSR13 permit. For grandfathered sources, the numbering system should be consistent with registrations or emissions inventory previously submitted to DAQ. For emission points, control devices, and emissions units which have not been previously labeled, use the following 45CSR13 numbering system: 1S, 2S, 3S,... or other appropriate description for emission units; 1C, 2C, 3C,... or other appropriate designation for control devices; 1E, 2E, 3E, ... or other appropriate designation for emission points.

ATTACHMENT E

Emission Unit Forms

For each emission unit listed in the Title V Equipment Table, fill out and provide an Emission Unit Form as ATTACHMENT E.

- Fractionation Plant (Frac1 and Frac2 (1S) Fugitives Only)
- 45.54 MMBtu/hr (max) Frac1 Hot Oil Heater (1-HTR)
- 89.85 MMBtu/hr (max, each) Frac2 Hot Oil Heaters (2x) (2-HTR)
- 134.49 MMBtu/hr New Process Flare (FL-02 (5S)

ATTACHMENT E - Emission Unit Form

Emission Unit Description		**Frac1 and Frac2 (1S)**
Emission unit ID number: Frac1 and Frac2 (1S)	**Emission unit name:** Fugitive Emissions from Piping, Valves, Fittings, Etc	**List any control devices associated with this emission unit:** na

Provide a description of the emissions unit (type. Method of operation, design parameters, etc.):
Fugitive emissions from valves, flanges, connectors, relief valves, and pump seals.

Manufacturer:	**Model number:**	**Serial number(s):**
na	na	na
Construction date:	**Installation date:**	**Modification date(s):**
na	Frac1 = 2011; Frac2 = 2013	na

Design Capacity (examples: furnaces - tons/hr, tanks - gallons):
1,785,000 gal/day (Total Frac1 and Frac2)

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
74,375 gal/hr	651,525,000 gal/yr (total)	8,760 hrs/yr

Fuel Usage Data (fill out all applicable fields)

Does this emission unit combust fuel? ___Yes _X_No	**If yes, is it?** na ___ Indirect Fired ___Direct Fired
Maximum design heat input and/or maximum horsepower rating: na	**Type and Btu/hr rating of burners:** na

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
na

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max Sulfur Content	Max Ash Content	BTU Value
na			

Emission Data		**Frac1 and Frac2 (1S)**
Criteria Pollutants	**Pollutant Emissions**	
	PPH	**TPY**
Carbon Monoxide (CO)	---	---
Nitrogen Oxides (NOX)	---	---
Lead (Pb)	---	---
Particulate Matter (PM2.5)	---	---
Particulate Matter (PM10)	---	---
Total Particulate Matter (TSP)	---	---
Sulfur Dioxide (SO2)	---	---
Volatile Organic Compounds (VOC)	12.31	53.90
Hazardous Air Pollutants	**Pollutant Emissions**	
	PPH	**TPY**
Benzene	---	---
Ethylbenzene	---	---
Formaldehyde (HCHO)	---	---
n-Hexane	0.89	3.89
Toluene	---	---
2,2,4-Trimethylpentane	---	---
Xylenes	---	---
Other HAP	---	---
Total HAP	0.89	3.89
Regulated Pollutants other than Criteria and HAP	**Pollutant Emissions**	
	PPH	**TPY**
Carbon Dioxide (CO2)	---	---
Methane (CH4)	1	5
Nitrous Oxide (N2O)	---	---
CO2 Equivalent (CO2e)	30	131

List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).

EPA Protocol for Equipment Leak Emission Estimates, AP-42 and Mass Balance

Applicable Requirements **Frac1 and Frac2 (1S)**

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (Note: Title V permit condition numbers alone are not the underlying applicable requirements). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

Permit R13-2892C includes the following Fugitive Limitations and Standards:

7.1.1. The maximum NGL processed through the Fractionation Plant (1S) shall not exceed 1,785,000 gal/day and 651,525,000 gal/yr. (These values are the design capacity of the facility.)

7.1.3. Fugitive emissions of VOC from equipment at the facility shall not exceed 51.92 tpy.

7.1.3.' Component counts shall not exceed the following:

Service	Valves	Flanges	Connectors	Relief Valves	Pumps
Gas/Vapor	982	1,544	925	112	---
Liquid	2,770	3,328	2,498	130	78

7.1.4.a. Comply w/ 40CFR60.482-1(a), (b), and (d), 40.482-2a, and 60.482-4a through 60.482-11a.

7.1.4.d. Comply w/ 40CFR60.485a.

7.1.4.e. Comply w/ 40CFR60.486a and 60.487a.

7.1.4.f. Each piece of equipment is presumed to be in VOC service unless demonstrated otherwise.

Comply w/ applicable provisions of 40CFR60.5400 thru 60.5402 - Natural Gas Processing Plant

_X_ Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

Permit R13-2892C includes the following monitoring/testing/recordkeeping/reporting requirements:

7.5.1 Demonstrate compliance w/ 7.1.1 by maintaining records of liquids processed in the Product Loading Areas (TLO (2S)).

7.1.3.1. Continuous compliance w/ VOC requirements is demonstrated by compliance w/ 40CFR60.5400.

7.1.5.b.1. Each pressure relief device must be monitored quarterly and w/in 5 days of each pressure release.

7.1.5.b.3.i. Leaks shall be repaired as soon as practical, but in no case more than 15 days after leak detection.

7.1.5.b.3.ii. A first attempt at repair shall be made w/in 5 days after leak detection.

7.4.2. Submit annual reports containing information specified in the permit.

7.4.3.b. Maintain records of leaks of pressure relief devices as specified in the permit.

7.4.5. Submit semi-annual reports for pressure relief devices as specified in the permit.

7.5.1.' Required records shall be maintained for a period of 5 yrs.

7.5.1." Any record submitted to WVDEP shall be certified by a Responsible Official.

Comply w/ applicable provisions of 40CFR60.5415, 60.5420, and 60.5421 - Natural Gas Processing Plant

Are you in compliance with all applicable requirements for this emission unit? _X_Yes ___No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

ATTACHMENT E - Emission Unit Form

Emission Unit Descrption		1-HTR (1E)
Emission unit ID number: 1-HTR (1E)	**Emission unit name:** Frac1 - Hot Oil Heater	**List any control devices associated with this emission unit:** na

Provide a description of the emissions unit (type. Method of operation, design parameters, etc.):
45.54 MMBtu/hr Gas-Fired Hot Oil Heater (1-HTR (1E). Hot Oil provides heat requisite for the fractionation processes.)

Manufacturer:	**Model number:**	**Serial number(s):**
na	**na**	**na**
Construction date:	**Installation date:**	**Modification date(s):**
na	**2011**	**na**

Design Capacity (examples: furnaces - tons/hr, tanks - gallons):
45.54 MMBtu/hr

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
45,098 scf/hr	395.06 MMscf/yr	8,760 hrs/yr

Fuel Usage Data (fill out all applicable fields)

Does this emission unit combust fuel? _X_Yes ___No	**If yes, is it?** ___ Indirect Fired _X_Direct Fired
Maximum design heat input and/or maximum horsepower rating: 45.54 MMBtu/hr	**Type and Btu/hr rating of burners:** 45.54 MMBtu/hr

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
Commercially available natural gas. 45,098 scf/hr and 395.06 MMscf/yr

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max Sulfur Content	Max Ash Content	BTU Value
Natural Gas	0.2 grains/100 scf	negligible	1,020 Btu/scf

Emission Data		1-HTR (1E)
Criteria Pollutants	**Pollutant Emissions**	
	PPH	**TPY**
Carbon Monoxide (CO)	3.75	16.43
Nitrogen Oxides (NOX)	4.46	19.56
Lead (Pb)	---	---
Particulate Matter (PM2.5)	0.34	1.49
Particulate Matter (PM10)	0.34	1.49
Total Particulate Matter (TSP)	0.34	1.49
Sulfur Dioxide (SO2)	0.03	0.12
Volatile Organic Compounds (VOC)	0.25	1.08
Hazardous Air Pollutants	**Pollutant Emissions**	
	PPH	**TPY**
Benzene	9.4E-05	4.1E-04
Ethylbenzene	---	---
Formaldehyde (HCHO)	3.3E-03	0.01
n-Hexane	0.08	0.35
Toluene	1.5E-04	6.6E-04
2,2,4-Trimethylpentane	---	---
Xylenes	---	---
Other HAP	8.5E-05	3.7E-04
Total HAP	0.08	0.37
Regulated Pollutants other than Criteria and HAP	**Pollutant Emissions**	
	PPH	**TPY**
Carbon Dioxide (CO2)	5,327	23,333
Methane (CH4)	0.10	0.44
Nitrous Oxide (N2O)	0.01	0.04
CO2 Equivalent (CO2e)	5,333	23,357

List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).

AP-42

Applicable Requirements **1-HTR (1E)**

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (Note: Title V permit condition numbers alone are not the underlying applicable requirements). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

Permit R13-2892C includes the following Frac1 Hot Oil Heater (1-HTR) Limitations and Standards:

5.1.1. The design heat input for the Frac1 Hot Oil Heater (1-HTR) shall not exceed 45.54 MMBtu/hr.

5.1.2. Emissions from the Frac1 Hot Oil Heater (1-HTR) shall not exceed the following:

Pollutant	lb/hr	tpy
NOx	4.51	19.76
CO	3.79	16.60
VOC	0.25	1.09
CO2e	5,414	23,714

5.1.3. The quantity of gas consumed in Frac1 Hot Oil Heater (1-HTR) shall not exceed 45,098 scf/hr

5.1.4. The quantity of gas consumed in Frac1 Hot Oil Heater (1-HTR) shall not exceed 395.06 MMscf/yr

5.1.9. Opacity shall not exceed 10% based on a 6-min block average.

5.1.10. Comply w/ applicable provisions of 40CFR60, Subpart Dc.

_X_ Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

Permit R13-2892C includes the following monitoring/testing/recordkeeping/reporting requirements:

5.1.10. Comply w/ applicable provisions of 40CFR60.48c.

5.4.1. Maintain records of the monthly and rolling 12-month fuel consumption.

Are you in compliance with all applicable requirements for this emission unit? _X_Yes ___No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

ATTACHMENT E - Emission Unit Form

Emission Unit Description		2-HTR (2E)
Emission unit ID number: 2-HTR (2E) (2x)	**Emission unit name:** Frac2 - Hot Oil Heaters (2x)	**List any control devices associated with this emission unit:** na

Provide a description of the emissions unit (type. Method of operation, design parameters, etc.):
2 x 89.854 MMBtu/hr Gas-Fired Hot Oil Heaters (2-HTR (2E). (Hot Oil provides heat requisite for the fractionation processes.)

Manufacturer:	**Model number:**	**Serial number(s):**
Heatec, Inc.	**na**	**na**
Construction date:	**Installation date:**	**Modification date(s):**
na	**2013**	**na**

Design Capacity (examples: furnaces - tons/hr, tanks - gallons):
89.85 MMBtu/hr (Each of 2 units)

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
90,392 scf/hr (Each of 2 units)	952 MMscf/yr (Total of 2 units)	8,760 hrs/yr

Fuel Usage Data (fill out all applicable fields)

Does this emission unit combust fuel? _X_Yes ___No	**If yes, is it?** ___ Indirect Fired _X_Direct Fired
Maximum design heat input and/or maximum horsepower rating: 108.00 MMBtu/hr (Total of 2 units)	**Type and Btu/hr rating of burners:** 89.85 MMBtu/hr (Each of 2 units)

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
Commercially available natural gas. 90,392 scf/hr (each) and 952 MMscf/yr (Total)

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max Sulfur Content	Max Ash Content	BTU Value
Natural Gas	0.2 grains/100 scf	negligible	1,020 Btu/scf

Emission Data	2-HTR (2E)	
Criteria Pollutants	**Pollutant Emissions**	
	PPH	**TPY**
Carbon Monoxide (CO)	6.65	35.00
Nitrogen Oxides (NOX)	3.23	17.03
Lead (Pb)	---	---
Particulate Matter (PM2.5)	0.67	3.52
Particulate Matter (PM10)	0.67	3.52
Total Particulate Matter (TSP)	0.67	3.52
Sulfur Dioxide (SO2)	0.05	0.28
Volatile Organic Compounds (VOC)	0.36	1.89
Hazardous Air Pollutants	**Pollutant Emissions**	
	PPH	**TPY**
Benzene	1.8E-04	9.7E-04
Ethylbenzene	---	---
Formaldehyde (HCHO)	6.6E-03	0.03
n-Hexane	0.16	0.83
Toluene	3.0E-04	1.6E-03
2,2,4-Trimethylpentane	---	---
Xylenes	---	---
Other HAP	6.7E-04	3.5E-03
Total HAP	0.17	0.88
Regulated Pollutants other than Criteria and HAP	**Pollutant Emissions**	
	PPH	**TPY**
Carbon Dioxide (CO2)	10,480	55,173
Methane (CH4)	0.2	1
Nitrous Oxide (N2O)	0.02	0.1
CO2 Equivalent (CO2e)	10,491	55,231

List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).

Vendor specifications and AP-42

Applicable Requirements **2-HTR (2E)**

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (Note: Title V permit condition numbers alone are not the underlying applicable requirements). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

Permit R13-2892C includes the following Frac2 Hot Oil Heaters (2-HTR) Limitations and Standards:

5.1.5. The design heat input for each Frac2 Hot Oil Heater (2-HTR) shall not exceed 89.85 MMBtu/hr.

5.1.6. Total emissions from the Frac2 Hot Oil Heaters (2-HTR) shall not exceed the following:

Pollutant	Maximum Hourly Emissions (lb/hr) - EACH UNIT	Maximum Annual Emissions (tpy) - BOTH UNITS COMBINED
NOx	3.23	17.03
CO	6.65	35.00
VOC	0.36	1.89
CO2e	10,491	55,231

5.1.7. The quantity of gas consumed in each Frac2 Hot Oil Heater (2-HTR) shall not exceed 90,392 scf/hr

5.1.8. Total quantity of gas consumed in Frac2 Hot Oil Heater (2-HTR) shall not exceed 952 MMscf/yr

5.1.9. Opacity shall not exceed 10% based on a 6-min block average.

5.1.10. Comply w/ applicable provisions of 40CFR60, Subpart Dc.

_X_ Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

Permit R13-2892C includes the following monitoring/testing/recordkeeping/reporting requirements:

5.1.10. Comply w/ applicable provisions of 40CFR60.48c.

5.4.1. Maintain records of the monthly and rolling 12-month fuel consumption.

Are you in compliance with all applicable requirements for this emission unit? _X_Yes ___No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

ATTACHMENT E - Emission Unit Form

Emission Unit Descrption **FL-02 (5S)**

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:**
FL-02 (5S)	New Process Flare	na

Provide a description of the emissions unit (type. Method of operation, design parameters, etc.):
The New Process Flare (FL-01 (5S) controls VOC emissions from the Natural Gasoline Tanks (3S), Hot Oil Expansion Tanks, Truck and Rail Car Loading (TLO), Blowdown of the Pig Reciever, and Purge Gas. The New Process Flare (FL-02 (5S) will also be used to control emissions from equipment blowdown for maintenance and repairs.

Manufacturer:	**Model number:**	**Serial number(s):**
Zeeco	AFTA-24/56	na
Construction date:	**Installation date:**	**Modification date(s):**
2013	2013	na

Design Capacity (examples: furnaces - tons/hr, tanks - gallons):
134.49 MMBtu/hr

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
50,517 scf/hr	95.52 MMscf/yr	8,760 hrs/yr

Fuel Usage Data (fill out all applicable fields)

Does this emission unit combust fuel? _X_Yes ___No (Pilot Gas and Waste Gas)	**If yes, is it?** ___ Indirect Fired _X_Direct Fired
Maximum design heat input and/or maximum horsepower rating: 134.49 MMBtu/hr	**Type and Btu/hr rating of burners:** Air assist, 134.49 MMBtu/hr

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
Natural Gas for the Pilot and Purge is Included in the Total Heat Input

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max Sulfur Content	Max Ash Content	BTU Value
Natural Gas	0.2 grains/100 scf	negligible	1,020 Btu/scf
Waste Gas	0.2 grains/100 scf	negligible	2,662 Btu/scf

Emission Data		FL-02 (5S)
Criteria Pollutants	**Pollutant Emissions**	
	PPH	**TPY**
Carbon Monoxide (CO)	8.00	35.03
Nitrogen Oxides (NOX)	4.01	17.55
Lead (Pb)	---	---
Particulate Matter (PM2.5)	0.08	0.36
Particulate Matter (PM10)	0.08	0.36
Total Particulate Matter (TSP)	0.08	0.36
Sulfur Dioxide (SO2)	0.01	0.03
Volatile Organic Compounds (VOC)	61.06	57.73
Hazardous Air Pollutants	**Pollutant Emissions**	
	PPH	**TPY**
Benzene	0.05	0.05
Ethylbenzene	0.07	0.07
Formaldehyde (HCHO)	0.00	0.01
n-Hexane	2.26	2.13
Toluene	2.23	2.11
2,2,4-Trimethylpentane	---	---
Xylenes	0.07	0.07
Other HAP	5.4E-05	2.4E-04
Total HAP	4.68	4.43
Regulated Pollutants other than Criteria and HAP	**Pollutant Emissions**	
	PPH	**TPY**
Carbon Dioxide (CO2)	4,105	17,980
Methane (CH4)	0.2	1
Nitrous Oxide (N2O)	0.04	0.2
CO2 Equivalent (CO2e)	4,121	18,057

List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).

Vendor data, Mass Balance, and AP-42

Applicable Requirements **FL-02 (5S)**

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (Note: Title V permit condition numbers alone are not the underlying applicable requirements). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

Permit R13-2892C includes the following Flare Limitations and Standards:

6.1.2. Emissions from the Flare (FL-02 (5S)) shall not exceed the following:

Pollutant	lb/hr	tpy
VOC	14.70	64.04
NOx	9.60	17.30
CO	19.21	34.60
CO2e	na	18,912

6.1.3.a Flare shall be air assisted.

6.1.3.b Flare shall be operated w/ no visible emissions, except for 5 min during any 2 hrs.

6.1.3.c Flare shall operated at all times, with a flame present at all times, except during SSM events.

6.1.3.d Waste gas is ≥ 300 Btu/scf

6.1.3.e Flare is designed and operated as per specification in the permit.

_X_ Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

Permit R13-2892C includes the following monitoring/testing/recordkeeping/reporting requirements:

6.2.1. Monitor the presence or absence of a flare pilot flame using a thermocouple or equivalent.

6.2.2. Monitor thruput to the flare on a monthly basis.

6.3.1. Conduct Method 22 opacity test w/in 1 yr of permit issuance

6.4.1. Maintain records of times and duration when pilot flame is absent.

6.4.2. Maintain records of the flare design evaluation.

6.4.3. Maintain records of the flare opacity testing.

6.4.4. Maintain records of the monthly thruput.

6.4.5. Maintain records of the flare opacity testing.

6.4.6. Required records shall be maintained for a period of 5 yrs.

6.4.6.' Any record submitted to WVDEP shall be certified by a Responsible Official.

6.5.2. Report any deviations from allowable visible emission requirements.

6.5.2. Report any deviations from the flare design and operation criteria.

Are you in compliance with all applicable requirements for this emission unit? _X_Yes ___No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

ATTACHMENT F

Schedule of Compliance Form

(Not Applicable)

For each emission unit not in compliance with an applicable requirement, fill out a Schedule of Compliance Form as ATTACHMENT F.

ATTACHMENT F - Schedule of Compliance Form

Complete this section if you indicated noncompliance with any of the applicable requirements identified in the permit application. For each emission unit which is not in compliance, identify the applicable requirement, the reason(s) for noncompliance, a description of how the source will achieve compliance, and a detailed schedule of compliance. If there is a consent order that applies to this requirement, attach a copy to this form.

1. Applicable Requierment:

na

Units:	**Applicable Requirement:**
na	na

NOT APPLICABLE

2. Reason for Noncompliance:

na

3. How will Compliance be Achieved?:

na

4. Consent Order Number (if applicable):

na

5. Schedule of Compliance. Provide a schedule of remedial measures, including an enforceable sequence of actions with milestones, leading to compliance, including a date for final compliance.

na

Remedial Measure or Action	Date to be Achieved
na	na

6. Submittal of Progress Reports.

na

Content of Progress Report:	**Report starting date:**
na	na
	Submittal frequency:
	na

ATTACHMENT G

Air Pollution Control Devices (APCD) Forms

For each control device listed in the Title V Equipment Table, fill out and provide an Air Pollution Control Device Form as ATTACHMENT G.

- 134.49 MMBtu/hr (max) New Process Flare (5S)

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number:	**List all emission units associated with this control device.**
FL-02 (5S)	The New Process Flare (FL-01 (5S) controls VOC emissions from the Natural Gasoline Tanks (3S), Hot Oil Expansion Tanks, Truck and Rail Car Loading (TLO (2S)), Blowdown of the Pig Reciever, and Purge Gas. The New Process Flare (FL-02 (5S) will also be used to control emissions from equipment blowdown for maintenance and repairs.

Manufacturer:	**Model number:**	**Installation date:**
Zeeco	AFTA-24/56	2013

Type of Air Pollution Control Device:

___ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multicyclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	**_X_ Flare**	___ Other (describe) _____
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutants	Capture Efficiency	Control Efficiency
VOC	100.0%	99.0%
Benzene	100.0%	99.0%
Ethylbenzene	100.0%	99.0%
n-Hexane	100.0%	99.0%
Toluene	100.0%	99.0%
Xylenes	100.0%	99.0%
Total HAP	100.0%	99.0%
CH4	100.0%	99.0%

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).

Minimum waste gas heating value > 300 Btu/scf.

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes _X_ No
If Yes, Complete ATTACHMENT H
If No, Provide justification.

Reference ATTACHMENT H

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Thermocouple (or equivalent) and auto-ignition of the pilot flame.

ATTACHMENT H

Compliance Assurance Monitoring (CAM) Form

(Not Applicable)

Fill out and provide Compliance Assurance Monitoring (CAM) Form(s), if applicable, for each Pollutant Specific Emission Unit (PSEU) as ATTACHMENT H.

ATTACHMENT H - Compliance Assurance Monitoring (CAM) Plan Form

For definitions and information about the CAM rule, please refer to 40 CFR Part 64. Additional information (including guidance documents) may also be found at http://www.epa.gov/ttn/emc/cam.html

CAM APPLICABILITY DETERMINATION

1) Does the facility have a PSEU (Pollutant-Specific Emissions Unit) considered separately with respect to **EACH** regulated air pollutant that is subject to CAM (40 CFR Part 64), which must be addressed in this CAM plan submittal?

☐ YES ☑ **NO**

To determine applicability, a PSEU must meet **all** of the following criteria.
(If No, then the remainder of this form need not be completed):

a. The PSEU is located at a major source that is required to obtain a Title V permit;

b. The PSEU is subject to an emission limitation or standard for the applicable regulated air pollutant that is NOT exempt;

[FACILITY IS *NOT* SUBJECT TO AN EMISSION LIMITATION OR STANDARD THAT IS NOT EXEMPT]

[FACILITY IS *NOT* SUBJECT TO AN EMISSION LIMITATION OR STANDARD THAT IS EXEMPT]

LIST OF EXEMPT EMISSION LIMITATIONS OR STANDARDS:

- NSPS (40 CFR Part 60) or NESHAP (40 CFR Parts 61 and 63) proposed after 11/15/1990.
- Stratospheric Ozone Protection Requirements.
- Acid Rain Program Requirements.
- Emission Limitations or Standards for which a WVDEP Division of Air Quality Title V permit specifies a continuous compliance determination method, as defined in 40 CFR §64.1.
- An emission cap that meets the requirements specified in 40 CFR §70.4(b)(12).

c. The PSEU uses an add-on control device (as defined in 40 CFR §64.1) to achieve compliance with an emission limitation or standard;

d. The PSEU has potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than the Title V Major Source Threshold Levels; AND

e. The PSEU is NOT an exempt backup utility power emissions unit that is municipally-owned.

NOT APPLICABLE

Continued - If Applicable

SUPPLEMENT 01

Process Description

A. Project Overview

B. Fractionation Process (Fugitives) (Frac1 (1S) and Frac2 (1S))

C. Truck/Rail Load-Out (TLO (2S))

D. Storage Tanks (TKS (3S))

E. Hot Oil Heaters (HTR-01 and HTR-02)

F. New Process Flare (FL-02 (5S))

SUPPLEMENT 01
Process Description

Williams Ohio Valley Midstream LLC (OVM)
MOUNDSVILLE FRACTIONATION PLANT (FRAC)
Application for Title V Operating Permit (45CSR30)

A. Project Overview

Williams Ohio Valley Midstream LLC owns and operates the Moundsville Fractionation Plant (Frac) located along WV Route 2, West of Moundsville, in Marshall County (See Appendix B – Site Location Map). The facility fractionates the raw NGL through a series of distillation processes (de-propanizers and de-butanizers) to generate three products: propane, mixed butanes, and heavier organic liquids identified as natural gasoline. Total plant capacity is 42,500 bbl/day of NGL.

B. Fractionation Process (Fugitives) (Frac1 and Frac2 (1S))

The fractionation process is totally enclosed; the only emissions are fugitives from piping and equipment. These emissions are controlled by implementation of a leak detection and repair (LDAR) program.

C. Truck Load-Out (TLO (2S))

There are emissions from the truck loading of produced water/oil (TLO). Loading of NGLs will be accomplished under pressure in a totally enclosed system resulting in no emissions to the atmosphere.

D. Storage Tanks (TKS (3S))

Incoming NGL is accumulated in twelve (12) horizontal pressure vessels with 61,400 gallon capacity (Frac1) and 90,000 gallon capacity (Frac2). The three products are accumulated in a series of seventeen (17) pressure vessels (horizontal or spherical) ranging from 60,000 to 420,000 gallons capacity. Additionally, there are three (3) 90,000 gallon horizontal pressure vessels used to store stabilized condensate. The pressure vessel operations are totally enclosed and do not generate emissions during routine facility operations.

There are also two (2) 420,000 gallon capacity, vertical, dome roof tanks for natural gasoline accumulation. These tanks that are subject to NSPS Kb regulations with emissions controlled by the new process flare (FL-02 (5S)).

Finally, there are the following storage tanks each of which is exempt from regulation with de-minimis emissions:

- Two (2) 8,820 gallon slop tanks
- One (1) 2,000 gallon and Two (2) 5,000 gallon hot oil expansion tanks
- One (1) 3,000 gallon mercaptan tank
- Two (2) 1,000 gallon mercaptan tanks
- One (1) 300 gallon methanol tank
- One (1) 520 gallon gasoline tank
- One (1) 520 gallon diesel tank

E. Hot Oil Heaters (1-HTR and 2-HTR)

A total of three (3) natural gas-fueled hot oil heaters are used at the facility. The hot oil is used as heat transfer medium in the fractionation plant. These heaters are subject to NSPS Dc because they are “steam generating units” that heat a transfer medium (i.e., oil). They are not “process heaters” because the hot oil is not used to initiate or promote a chemical reaction as a reactant or catalyst. (40CFR60.41c)

F. New Process Flare (FL-02 (5S))

The new process flare (FL-02 (5S)) will be used to combust natural gas and NGL released from numerous sources, including:

- Hot Oil Expansion Tanks
- Truck/Rail Loading and Hose Blowdown
- Natural Gasoline Tanks
- Pressurized Storage Tanks (Maintenance and Upset)
- Facility Equipment Blowdown (12-hr/yr)
- Continuous Flare Purge
- Continuous Flare Pilot

The amount of gas routed to the flare on a continuous basis will not exceed an average of 10,850 scf/hr. The total flow rate to the flare will not exceed 95.52 MMscf/yr.

The waste gas is predominately butane (C4) and lighter; accordingly, an estimated control efficiency of 99% is appropriate.

SUPPLEMENT 02

Regulatory Discussion

A. Applicability of New Source Review (NSR) Regulations

1. Prevention of Significant Deterioration (PSD)
2. Nonattainment New Source Review (NNSR)
3. Hazardous Air Pollutants (HAPs)
4. Title V Operating Permits (TVOP)

B. Applicability of Federal Regulations

1. New Source Performance Standards (NSPS) A – General Requirements
2. NSPS Dc – Steam Generating Units
3. NSPS Kb – Volatile Organic Liquid Storage Vessels
4. NSPS GG – Stationary Gas Turbines
5. NSPS KKK – Leaks from Natural Gas Processing Plants
6. NSPS LLL – Onshore Natural Gas Processing: SO2 Emissions
7. NSPS IIII – Compression Ignition Reciprocating Internal Combustion Engines (RICE)
8. NSPS JJJJ – Stationary Spark Ignition (SI) Internal Combustion Engines (ICE)
9. NSPS KKKK – Stationary Combustion Turbines
10. NSPS OOOO – Oil and Natural Gas Production, Transmission and Distribution
11. National Standards for Hazardous Air Pollutants (NESHAP) A – General Requirements
12. NESHAP HH – Oil and Natural Gas Production Facilities
13. NESHAP HHH – Natural Gas Transmission and Storage Facilities
14. NESHAP YYYY – Stationary Combustion Turbines
15. NESHAP ZZZZ – Stationary Reciprocating Internal Combustion Engines (RICE)
16. NESHAP DDDDD – Industrial-Commercial-Institutional Boilers and Process Heaters
17. NESHAP JJJJJ – Industrial-Commercial-Institutional Boilers and Process Heaters
18 RMP – Chemical Accident Prevention (and Risk Management Plan)
19. CAM – Compliance Assurance Monitoring
20. GHG – Mandatory Greenhouse Gases (GHG) Reporting

C. Applicability of Sources Aggregation

D. Applicability of State Regulations

1. Particulate Air Pollution from Combustion of Fuel
2. Prevent and Control of Objectionable Odors
3. Control of Air Pollution from Combustion of Refuse
4. Prevention and Control of Air Pollution – Sulfur Oxides
5. Permits for Construction, Modification, Relocation and Operation
6. Permits for Construction and Major Modifications of Major Sources
7. Standards of Performance for New Stationary Sources (40 CFR Part 60)
8. Permits for Construction and Modification (Nonattainment)
9. Regulation of Volatile Organic Compounds (VOC)
10. Air Quality Management Fees Program
11. Prevent and Control Emissions of Toxic Air Pollutants
12. Air Pollution Emissions Banking and Trading
13. Emission Statements for VOC and NOX
14. Requirements for Operating Permits
15. Emission Standards for Hazardous Air Pollutants (HAP)

SUPPLEMENT 02
Regulatory Discussion

Williams Ohio Valley Midstream LLC (OVM)
MOUNDSVILLE FRACTIONATION PLANT (FRAC)
Application for Title V Operating Permit (45CSR30)

A. Applicability of New Source Review (NSR) Regulations

The following New Source Review (NSR) regulations are potentially applicable to natural gas liquid (NGL) fractionation plants. Applicability to the subject facility has been determined as follows:

1. Prevention of Significant Deterioration (PSD) [Not Applicable]

This rule does not apply. The facility is a "PSD Minor Source" for each regulated pollutant, as follows:

- NOx: PSD Natural Minor Source with Pre-Controlled PTE < 250 tpy
- CO: PSD Natural Minor Source with Pre-Controlled PTE < 250 tpy
- VOC: PSD Synthetic Minor Source with Controlled PTE < 250 tpy
- SO2: PSD Natural Minor Source with Pre-Controlled PTE < 250 tpy
- PM10/2.5: PSD Natural Minor Source with Pre-Controlled PTE < 250 tpy

2. Non-Attainment New Source Review (NNSR) [Not Applicable]

This rule does not apply. The facility location is designated as either "Maintenance" or "Attainment/Unclassified" for all criteria pollutants.

3. Major Source of Hazardous Air Pollutants (HAPs) [Not Applicable]

This rule does not apply. The facility qualifies as a "HAP Area Source" as follows:

- Each HAP: HAP Area Source with Controlled Individual HAP PTE < 10 tpy
- Total HAPs: HAP Area Source with Controlled Total of All HAPs PTE < 25 tpy

4. Title V Operating Permit (TVOP) [Applicable]

This rule does apply. The facility is subject to Title V permit requirements because the potential to emit (PTE) volatile organic compounds (VOC) is ≥ 100 tpy (WVDEP requires fugitive emissions to be included at gas plants) as follows:

- NOx: TVOP Synthetic Minor Source with Controlled PTE < 100 tpy
- CO: TVOP Synthetic Minor Source with Controlled PTE < 100 tpy
- **VOC: TVOP Major Source with Controlled PTE ≥ 100 tpy**
- SO2: TVOP Natural Minor Source with Pre-Controlled PTE < 100 tpy
- PM10/2.5: TVOP Natural Minor Source with Pre-Controlled PTE < 100 tpy
- Each HAP: TVOP Synthetic Area Source with Controlled PTE < 10 tpy
- Total HAPs: TVOP Synthetic Area Source with Controlled PTE < 25 tpy

B. Applicability of Federal Regulations

The following federal regulations are potentially applicable to natural gas liquid (NGL) fractionation plants. Applicability to the facility has been determined as follows:

1. NSPS A, General Provisions

40CFR§60.1-§60.19 [Applicable]

This rule does apply to all sources subject to an NSPS (unless a specific provision is excluded within the source NSPS). Requirements include:

a. Notification (§60.7)
- Construction (or reconstruction) commenced – 30 days after
- Actual date of initial startup notice – 15 days after
- Modification notice – 60 days before, if possible
- Continuous Monitoring System (CMS) demonstration – 30 days prior
- Opacity measurement – 30 days prior
- Reconstruction – 60 days prior

b. Recordkeeping and Reporting (§60.7)
- Occurrence and duration of any startup, shutdown, or malfunction (SSM) of the affected unit, control device, or CMS.
- Semi-annual excess emission reports and CMS performance reports within 30 days of the end of the period
  - Magnitude and duration of excess emissions
  - Identification of source of the emissions (i.e., SSM)
  - Identify when CMS was not operative and why
  - If no excess emissions and no CMS down time, still must send in report

c. Retain all records for two years (or five years if subject to Title V Operating Permits) or otherwise indicated in an individual NSPS subpart

d. Source Testing (§60.8, §60.11)
- Perform and submit within 60 days of reaching maximum production, but no later than 180 days after startup
- Provide State with 30 days notice prior to performance tests (and seven days prior notice for a delay in scheduled test date)
- Provide State with report of stack tests results within 60 days of completion

e. Continuous Monitoring (§60.13)
- Must be operational for the initial source tests
- COMs must be certified prior to initial source testing if relied upon for initial opacity compliance demonstration
  - Provide certification to State 10 days prior to compliance test
  - Daily checks of zero and upscale calibration drifts
- Rule outlines the number of data points required for valid readings (§60.13(h))

f. Control Device Requirements (§60.18)
   - Requirements for control devices used to comply with applicable NSPS
   - Applies to facilities covered by subparts referring to this section
   - Flares
   - Alternative work practice for monitoring equipment leaks

2. NSPS Dc, Steam Generating Units
40CFR§60.40c-§60.48c [Applicable]

This rule does apply to the hot oil heaters (1-HTR and 2-HTR) because each has a maximum design heat input capacity ≥ 10 MMBtu/hr and ≤ 100 MMBtu/hr (§60.40c(a)).

Requirements include recording and maintaining records of the amount of each fuel combusted during each calendar month (§60.48c(g)(2)).

3. NSPS Kb, Volatile Organic Liquid Storage Vessels
40CFR§60.110b-§60.117b [Applicable]

This rule does apply to the two (2) 420,000 gal natural gasoline storage tanks. (This rule does not apply to any other storage vessel at the facility.)

4. NSPS GG, Stationary Gas Turbines
40CFR§60.330-§60.335 [Not Applicable]

This rule does not apply because there is no stationary gas turbine at the facility (§60.330).

5. NSPS KKK, Leaks from Natural Gas Processing Plants
40CFR§60.630-§60.636 [Not Applicable]

This rule does not apply because the plant construction commenced after 08/23/11 (§60.630).

6. NSPS LLL, Onshore Natural Gas Processing: SO2 Emissions
40CFR§60.640-§60.648 [Not Applicable]

This rule does not apply because there is no gas sweetening operation at the facility (§60.640(a)).

7. NSPS IIII, Compression Ignition Reciprocating Internal Combustion Engines
40CFR§60.4200-§60.4219 [Not Applicable]

This rule does not apply because there is no stationary compression ignition engine at the facility (§60.4200(a)).

8. NSPS JJJJ, Stationary Spark Ignition (SI) Internal Combustion Engines (ICE)
40CFR§60.4230-§60.4248 [Not Applicable]

This rule does not apply because there is no stationary spark ignition engine at the facility (§60.4230(a)).

9. NSPS KKKK, Stationary Combustion Turbines

40CFR§60.4300-§60.4420 [Not Applicable]

This rule does not apply because there is no stationary combustion turbine at the facility (§60.4300).

10. NSPS OOOO, Crude Oil and Natural Gas Production

40CFR§60.5360-§60.5430 [Applicable]

This rule does apply because the facility is a natural gas processing plant (including fractionators) constructed, reconstructed, or modified after August 23, 2011. Requirements include monitoring of valves, flanges, connectors, pumps, pressure relief devices and open-ended valves or lines. The equipment leak standards are specified in §60.5400.

11. NESHAP A, General Provisions

40CFR§63.1-§63.16 [Not Applicable]

This rule does not apply because the facility is not subject to any Subpart under 40CFR§63.

12. NESHAP HH, Oil and Natural Gas Production Facilities

40CFR§63.760-§63.779 [Not Applicable]

This rule does not apply because the facility is an area source of HAP and does not operate a triethylene glycol dehydration unit (§63.760(b)(2)).

13. NESHAP HHH, Natural Gas Transmission and Storage Facilities

40CFR§63.1270-§63.1289 [Not Applicable]

This rule does not apply because the facility is not a natural gas transmission or storage facility transporting or storing natural gas prior to local distribution (§63.1270(a)).

14. NESHAP YYYY, Stationary Combustion Turbines

40CFR§63.6080-§63.6175 [Not Applicable]

This rule does not apply because there is no stationary gas turbine at the facility (§63.6080).

15. NESHAP ZZZZ, Stationary Reciprocating Internal Combustion Engines (RICE)

40CFR§63.6580-§63.6675 [Not Applicable]

This rule does not apply because there is no stationary reciprocating internal combustion engine at the facility.

16. NESHAP DDDDD, Industrial, Commercial, and Institutional Boilers and Process Heaters – Major Sources

40CFR§63.7480 – §63.7575 [Not Applicable]

This rule does not apply because the facility is not a major source of HAP (§63.7485).

17. NESHAP JJJJJJ, Industrial, Commercial, and Institutional Boilers and Process Heaters – Area Sources

40CFR§63.11193 – §63.11237 [Not Applicable]

This rule does not apply because gas-fired boilers are not subject to the requirements of this subpart (§63.11195(e)). Specifically, "boiler" is defined as an enclosed device using controlled flame combustion in which water is heated to recover thermal energy in the form of steam and/or hot water.

18. Chemical Accident Prevention Provisions (RMP)

40CFR§68.1-§68.220 [Applicable]

This rule does apply because the facility stores more than a threshold quantity of regulated substance in a process (§68.115).

19. Compliance Assurance Monitoring (CAM)

40CFR§64.1-§64.10 [Not Applicable]

This rule does not apply because the facility is both NOT subject to an emission limitation or standard that is NOT exempt from CAM (truck/rail loading) and the facility is NOT subject to an emission limitation or standard for a source exempt from CAM (natural gasoline tanks) (§64(a)(1)).

20. Mandatory Greenhouse Gases (GHG) Reporting

40CFR§98.1-§98.9 [Applicable]

This rule does apply. The facility is a supplier that is listed in Table A-5 (Subpart NN). For suppliers, the GHGs reported are the quantity that would be emitted from combustion or use of the products supplied (§98.1(a)).

C. Applicability of Source Aggregation

For New Source Review (NSR) and Title V permitting, the three-part regulatory criteria to determine whether emissions from two or more facilities should be aggregated and treated as a single source are whether the activities:

i) Belong to the same industrial grouping;
ii) Are located on one or more contiguous or adjacent properties and meets the common sense notion of a plant; and
iii) Are under control of the same person (or persons under common control).

i) Same Industrial Grouping

The subject facility will operate under SIC code 1321 (Natural Gas Liquids). The upstream NGL production facilities operate under the same SIC code.

ii) Contiguous or Adjacent and "Plant"

The determination of whether two or more facilities are "contiguous" or "adjacent" is made on a case-by-case basis. This determination is both: a) proximity based and b) whether it meets the common sense notion of a plant. The functional interrelationship of the two or more facilities is not a relevant inquiry in determining whether the facilities are "contiguous" or "adjacent".

The OVM Moundsville Fractionation Plant processes NGL from multiple upstream facilities located in northern West Virginia and Eastern Ohio. The Moundsville Fractionation Plant is located approximately 11 miles from the Fort Beeler Plant and six miles from the OVM Oak Grove Gas Plant. By common sense definitions, none of these properties can be considered to be contiguous or adjacent. Additionally, the facilities do not serve the same purpose, and are separate, independent pieces of the natural gas value chain, which can operate without one another. Therefore, they cannot be considered contiguous or adjacent.

iii) Common Control

Williams OVM operates under its parent company The Williams Companies, Inc. (Williams) and is the sole operator of the subject facility, the Fort Beeler Gas Plant and the Oak Grove Gas Plant. All of these facilities are therefore considered to be under common control.

Summary

The subject facility and the upstream gas plants (or other operations) should not be aggregated and treated as a single source of emissions because they are not contiguous or adjacent, and do not meet the common sense definition of a plant.

D. Applicability of State Regulations

The following State regulations are potentially applicable to natural gas liquid (NGL) fractionation plants. Applicability to the facility has been determined as follows:

1. Particulate Air Pollution from Combustion of Fuel
45CSR2 [Applicable]

This rule does apply to the hot oil heaters (1-HTR and 2-HTR); limiting opacity to 10% based on a six minute block average.

Because the heat input of these units is ≥ 10 MMBtu/hr they are also subject to Sections 4 (emission standard), 5 (control of fugitive particulate matter), 6 (registration), 8 (testing, monitoring, recordkeeping, reporting) and 9 (startups, shutdowns, malfunctions.

2. Prevent and Control of Objectionable Odors
45CSR4 [Applicable]

This rule does apply and states that an objectionable odor is an odor that is deemed objectionable when in the opinion of a duly authorized representative of the Air Pollution Control Commission (Division of Air Quality), based upon their investigations and complaints, such odor is objectionable. No odors have been deemed objectionable.

3. **Control of Air Pollution from Combustion of Refuse**
45CSR6 [Applicable]

This rule does apply to the flare (FL-02 (5S)) as 45CSR6 establishes emission standards for particulate matter and requirements for activities involving incineration of refuse. As the flare is required to be smokeless except for periods not to exceed a total of 5 minutes during any 2 consecutive hours, particulate matter emissions should be negligible and the flare will comply with the applicable emission standard. The facility will demonstrate compliance by maintaining records of the amount of waste gas consumed by the flare and the hours of operation. The facility will also monitor the flare pilot flame and record any malfunctions that may cause no flame to be present during facility operation.

4. **Prevent and Control Air Pollution – Sulfur Oxides**
45CSR10 [Applicable]

This rule does apply to the gas-fueled heaters w/ a Maximum Design Heat Input (MDHI) rating > 10 MMBtu/hr (1-HTR and 2-HTR) (§45-10-10.1). Requirements are specified in 45CSR10 Sections 3 (emission standard), 6 (registration), 7 (permits), and 8 (testing, monitoring, recordkeeping, reporting).

5. **Permits for Construction, Modification, Relocation and Operation**
45CSR13 [Applicable]

This rule does apply. Williams OVM has received a 45CSR13 Permit for the subject facility.

6. **Permits for Construction and Modification of Major Stationary Sources**
45CSR14 [Not Applicable]

The rule does not apply because the facility is neither a new major source of pollutants nor is the proposed modification a modification to an existing major source.

7. **Standards of Performance for New Stationary Sources (40 CFR Part 60)**
45CSR16 [Applicable]

This rule does apply to this source by reference of §40CFR60 Subparts Dc, Kb, and OOOO. Williams is subject to the recordkeeping, monitoring, and testing required of these Subparts.

8. **Permits for Construction and Modification (Nonattainment)**
45CSR19 [Not Applicable]

This rule does not apply because the facility is in an area designated as attainment for all regulated air pollutants.

9. **Regulation of Volatile Organic Compounds (VOC)**
45CSR21 [Not Applicable]

This rule does not apply because the facility is not located in Putnam County, Kanawha County, Cabell County, Wayne County, or Wood County

10. Air Quality Management Fees Program

45CSR22 [Applicable]

This rule does apply. It establishes a program to collect fees for certificates to operate and for permits to construct, modify or relocate sources of air pollution.

11. Prevent and Control Emissions of Toxic Air Pollutants

45CSR27 [Not Applicable]

This rule does not apply because the facility does not contain surface coating equipment or similar equipment utilizing a toxic air pollutant as a solvent or for other purposes (§45-22-2.4).

12. Air Pollution Emissions Banking and Trading

45CSR28 [Not Applicable]

This rule does not apply. The facility does not choose to participate in the voluntarily statewide air pollutant emissions trading program.

13. Emission Statements for VOC and NOX

45CSR29 [Not Applicable]

This rule does not apply because the facility is not located in Putnam, Kanawha, Cabell, Wayne, Wood, or Greenbrier Counties (§45-29-1).

14. Requirements for Operating Permits

45CSR30 [Applicable]

This rule does apply. The facility is subject to Title V permit requirements because the potential to emit (PTE) volatile organic compounds (VOC) is < 100 tpy (WVDEP requires fugitive emissions to be included at gas plants) as follows:

- NOx: TVOP Synthetic Minor Source with Controlled PTE < 100 tpy
- CO: TVOP Synthetic Minor Source with Controlled PTE < 100 tpy
- **VOC: TVOP Major Source with Controlled PTE ≥ 100 tpy**
- SO2: TVOP Natural Minor Source with Pre-Controlled PTE < 100 tpy
- PM10/2.5: TVOP Natural Minor Source with Pre-Controlled PTE < 100 tpy
- Each HAP: TVOP Synthetic Area Source with Controlled PTE < 10 tpy
- Total HAPs: TVOP Synthetic Area Source with Controlled PTE < 25 tpy

15. Emission Standards for Hazardous Air Pollutants (HAP)

45CSR34 [Not Applicable]

This rule does not apply. This rule adopts EPA National Emission Standards for Hazardous Air Pollutants (NESHAP) other regulatory requirements pursuant to 40 CFR Parts 61, 63 and section 112 of the federal Clean Air Act, as amended. However, the facility is an area source of HAPs and is otherwise exempt from each and all NESHAP subparts.

SUPPLEMENT 03

Emission Calculations

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§45-30-4.3.c.8 - The application forms shall include calculations or test data on which the information is based.

SUMMARIES:

- Criteria Pollutants - Controlled Emissions Summary
- Hazardous Air Pollutants - Controlled Emissions Summary
- Greenhouse Gas (GHG) - Controlled Emissions Summary
- Pre-Controlled Emissions Summary

UNIT SPECIFIC:

- Fractionation Plant 01 (Fugitives) (Frac1 (1S))
- Fractionation Plant 02 - (Fugitives) (Frac2 (1S))
- Frac1 Hot Oil Heater (1-HTR)
- Frac2 Hot Oil Heaters (2-HTR)
- Flare (5S)

AP-42 and GHG EMISSION FACTORS

Criteria Pollutants - Controlled Emissions Summary

Unit ID	Point ID	Description	Site Rating	NOX		CO		VOC		SO2		PM10/2.5		CO2e	
				lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
1S	Frac1	Fractionation Plant 1 (Fugitives Only)	12,500 bpd (ave)	---	---	---	---	7.01	30.70	---	---	---	---	23	102
1S	Frac2	Fractionation Plant 2 (Fugitives Only)	30,000 bpd (ave)	---	---	---	---	5.30	23.20	---	---	---	---	7	30
2S	TLO	Loading/Unloading - Pressure Vessels	42,500 bpd (ave)	No Emissions Except Fugitives (1S) and Hose Blowdown/Purge to Flare (5S)											
3S	TKS	NGL - Pressure Vessels	908,400 gals (total)	No Emissions Except Fugitives (1S)											
3S	TKS	Propane - Pressure Vessels	1,518,000 gals (total)	No Emissions Except Fugitives (1S)											
3S	TKS	Butane - Pressure Vessels	910,000 gals (total)	No Emissions Except Fugitives (1S)											
3S	TKS	Natural Gasoline - Tanks and Vessels	1,050,000 gals (total)	No Emissions Except Fugitives (1S) and Tank Losses to Flare (5S)											
3S	TKS	Stabilized Condensate - Pressure Vessels	270,000 gals (total)	No Emissions Except Fugitives (1S)											
1-HTR	1E	Fractionation Plant 1 Hot Oil Heater	45.54 MMBtu/hr	4.46	19.56	3.75	16.43	0.25	1.08	0.03	0.12	0.34	1.49	5,333	23,357
2-HTR	2E	Fractionation Plant 2 Hot Oil Heaters (2x)	89.85 MMBtu/hr (ea)	3.23	17.03	6.65	35.00	0.36	1.89	0.05	0.28	0.67	3.52	10,491	55,231
5S	5E	New Process Flare (FL-02)	134.49 MMBtu/hr (max)	4.01	17.55	8.00	35.03	61.06	57.73	0.01	0.03	0.08	0.36	4,121	18,057
		TOTAL PTE:		**11.71**	**54.13**	**18.40**	**86.46**	**73.97**	**114.60**	**0.09**	**0.42**	**1.09**	**5.37**	**19,975**	**96,777**
		NNSR/PSD Threshold:			**250**		**250**		**250**		**250**		**250**		**na**
		TVOP Threshold:			**100**		**100**		**100**		**100**		**100**		**100,000**

Notes: 1 - PM10/2.5 is filterable and condensable particulate matter; including PM10 and PM2.5.

2 - CO2e is aggregated Greenhouse Gas (GHG), comprised of carbon dioxide (CO2), methane (CH4) and nitrous oxide (N2O), as adjusted for Global Warming Potential (GWP).

3 - The PTE has been updated as follows: (Note that the changes are results of improved (or corrected) estimating protocols and are NOT the results of facility modifications.)

Unit ID	Point ID	Source	Site Rating	Comparison of "Permit" vs. "New" PTE Calculations (TPY)											
				NOx		CO		VOC		SO2		PM10/2.5		CO2e	
				Permit	New	Permit	New	Permit	New	Permit	New	Permit	New	Permit	New
1S	Frac1	Fractionation Plant 1 (Fugitives Only)	12,500 bpd (ave)	--	--	--	--	30.29	30.70	--	--	--	--	--	102
1S	Frac2	Fractionation Plant 2 (Fugitives Only)	30,000 bpd (ave)	--	--	--	--	21.63	23.20	--	--	--	--	--	30
1-HTR	1E	Fractionation Plant 1 Hot Oil Heater	45.54 MMBtu/hr	19.76	19.56	16.60	16.43	1.09	1.08	0.12	0.12	1.50	1.49	23,714	23,357
2-HTR	2E	Fractionation Plant 2 Hot Oil Heaters (2x)	89.85 MMBtu/hr (ea)	17.03	17.03	35.00	35.00	1.89	1.89	0.29	0.28	3.62	3.52	55,231	55,231
5S	5E	New Process Flare (FL-02)	134.49 MMBtu/hr (max)	17.30	17.55	34.60	35.03	64.04	57.73	0.00	0.03	0.36	0.36	18,912	18,057
				54.09	54.13	86.20	86.46	118.94	114.60	0.41	0.42	5.48	5.37	97,857	96,777

Hazardous Air Pollutants - Controlled Emissions Summary

Unit ID	Point ID	Description	Site Rating	Benzene		Ethylbenzene		HCHO		n-Hexane		Toluene		Xylenes		Other HAP		Total HAP	
				lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
1S	Frac1	Fractionation Plant 1 (Fugitives Only)	12,500 bpd (ave)	---	---	---	---	---	---	0.21	0.93	---	---	---	---	---	---	0.21	0.93
1S	Frac2	Fractionation Plant 2 (Fugitives Only)	30,000 bpd (ave)	---	---	---	---	---	---	0.68	2.96	---	---	---	---	---	---	0.68	2.96
2S	TLO	Loading/Unloading - Pressure Vessels	42,500	No Emissions Except Fugitives (1S) and Hose Blowdown/Purge to Flare (5S)															
3S	TKS	NGL - Pressure Vessels	908,400 gals (total)	No Emissions Except Fugitives (1S)															
3S	TKS	Propane - Pressure Vessels	1,518,000 gals (total)	No Emissions Except Fugitives (1S)															
3S	TKS	Butane - Pressure Vessels	910,000 gals (total)	No Emissions Except Fugitives (1S)															
3S	TKS	Natural Gasoline - Tanks and Vessels	1,050,000 gals (total)	No Emissions Except Fugitives (1S) and Tank Losses to Flare (5S)															
3S	TKS	Stabilized Condensate - Pressure Vessels	270,000 gals (total)	No Emissions Except Fugitives (1S)															
1-HTR	1E	Fractionation Plant 1 Hot Oil Heater	45.54 MMBtu/hr	9.4E-05	4.1E-04	---	---	3.3E-03	0.01	0.08	0.35	1.5E-04	6.6E-04	---	---	8.5E-05	3.7E-04	0.08	0.37
2-HTR	2E	Fractionation Plant 2 Hot Oil Heaters (2x)	89.85 MMBtu/hr (ea)	1.8E-04	9.7E-04	---	---	6.6E-03	0.03	0.16	0.83	3.0E-04	1.6E-03	---	---	6.7E-04	3.5E-03	0.17	0.88
5S	5E	New Process Flare (FL-02)	134.49 MMBtu/hr (max)	0.05	0.05	0.07	0.07	0.00	0.01	2.26	2.13	2.23	2.11	0.07	0.07	0.00	0.00	4.68	4.43
		TOTAL PTE:		**0.05**	**0.05**	**0.07**	**0.07**	**0.01**	**0.06**	**3.38**	**7.21**	**2.23**	**2.11**	**0.07**	**0.07**	**8.1E-04**	**4.1E-03**	**5.82**	**9.57**

Notes: 1 - Emissions are based on operation at 100% of rated load for 8,760 hrs/yr; except TLO and SSM emissions are intermittent (and infrequent).

2 - HCHO is formaldehyde; Other HAP includes, but not limited to, acetaldehyde, acrolein, methanol (MeOH) and 2,2,4-Trimethylpentane (i-Octane).

3 - Fugitive hazardous air pollutants (HAP) emissions (e.g., benzene, Total HAP) are included in major source determinations.

Greenhouse Gas (GHG) - Emissions Summary

Unit ID	Point ID	Description	Site Rating	Operating Hours	Heat Input LHV	Heat Input HHV	CO2 GWP: 1.00	CO2e	CH4 GWP: 25.00	CO2e	N2O GWP: 298.00	CO2e	TOTAL CO2e
				hr/yr	MMBtu/hr	MMBtu/hr	tpy	tpy	tpy	tpy	tpy	tpy	tpy
1S	Frac1	Fractionation Plant 1 (Fugitives Only)	12,500 bpd (ave)	8,760	---	---	---	---	4.08	101.97	---	---	**102**
1S	Frac2	Fractionation Plant 2 (Fugitives Only)	30,000 bpd (ave)	8,760	---	---	---	---	1.20	30.11	---	---	**30**
2S	TLO	Loading/Unloading - Pressure Vessels	42,500 bpd (ave)	No Emissions Except Fugitives (1S) and Hose Blowdown/Purge to Flare (5S)									
3S	TKS	NGL - Pressure Vessels	908,400 gals (total)	No Emissions Except Fugitives (1S)									
3S	TKS	Propane - Pressure Vessels	1,518,000 gals (total)	No Emissions Except Fugitives (1S)									
3S	TKS	Butane - Pressure Vessels	910,000 gals (total)	No Emissions Except Fugitives (1S)									
3S	TKS	Natural Gasoline - Tanks and Vessels	1,050,000 gals (total)	No Emissions Except Fugitives (1S) and Tank Losses to Flare (5S)									
3S	TKS	Stabilized Condensate - Pressure Vessels	270,000 gals (total)	No Emissions Except Fugitives (1S)									
1-HTR	1E	Fractionation Plant 1 Hot Oil Heater	45.54 MMBtu/hr	8,760	40.99	45.54	23,333	23,333	0.44	11	0.04	13	**23,357**
2-HTR	2E	Fractionation Plant 2 Hot Oil Heaters (2x)	89.85 MMBtu/hr (ea)	8,760	80.87	89.85	55,173	55,173	1.04	26	0.10	31	**55,231**
5S	5E	New Process Flare (FL-02)	29.03 MMBtu/hr (max)	8,760	26.13	29.03	17,980	17,980	0.84	21	0.19	56	**18,057**

TOTAL POINT-SOURCE PTE:	**96,487**		**8**		**0.3**			**96,777**
NNSR/PSD Threshold: (	**na**	**- OR -**	**na**	**- OR -**	**na**	**) - AND -**		**na**
TVOP Threshold:	**na**		**na**		**na**			**100,000**

Pre-Controlled Emissions Summary

Unit ID	Point ID	Description	Site Rating	NOX		CO		VOC		n-Hexane		Total HAP		CO2e	
				lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
1S	Frac1	Fractionation Plant 1 (Fugitives Only)	12,500 bpd (ave)	---	---	---	---	7.01	30.70	0.21	0.93	0.21	0.93	23	102
1S	Frac2	Fractionation Plant 2 (Fugitives Only)	30,000 bpd (ave)	---	---	---	---	23.12	101.25	2.86	12.52	2.86	12.52	33	145
2S	TLO	Loading/Unloading - Pressure Vessels	42,500 bpd (ave)	No Emissions Except Fugitives (1S) and Blowdown/Purge (5S)											
3S	TKS	NGL - Pressure Vessels	908,400 gals (total)	No Emissions Except Fugitives (1S)											
3S	TKS	Propane - Pressure Vessels	1,518,000 gals (total)	No Emissions Except Fugitives (1S)											
3S	TKS	Butane - Pressure Vessels	910,000 gals (total)	No Emissions Except Fugitives (1S)											
3S	TKS	Natural Gasoline - Tanks and Vessels	1,050,000 gals (total)	No Emissions Except Fugitives (1S) and Tank Losses to Flare (5S)											
3S	TKS	Stabilized Condensate - Pressure Vessels	270,000 gals (total)	No Emissions Except Fugitives (1S)											
1-HTR	1E	Fractionation Plant 1 Hot Oil Heater	45.54 MMBtu/hr	4.46	19.56	3.75	16.43	0.25	1.08	0.03	0.12	0.08	0.37	5,333	23,357
2-HTR	2E	Fractionation Plant 2 Hot Oil Heaters (2x)	89.85 MMBtu/hr (ea)	3.23	17.03	6.65	35.00	0.36	1.89	0.05	0.28	0.17	0.88	10,491	55,231
5S	5E	New Process Flare (FL-02)	---	---	---	---	---	6,106	5,773	225.72	213.41	468.00	442.47	4,121	18,057
		TOTAL POINT-SOURCE PTE:		**7.70**	**36.58**	**10.40**	**51.43**	**6,136.71**	**5,907.78**	**228.87**	**227.25**	**471.32**	**457.16**	**20,001**	**96,892**
		NNSR/PSD Threshold:			**250**		**250**		**250**		**na**		**na**		**na**
		TVOP Threshold:			**100**		**100**		**100**		**10**		**25**		**100,000**

Fractionation Plant 1 (Frac1 (1S)) - Process Piping Fugitive Emissions

FRAC1 (Fugitives (1S))		Vapor Service				Light Liquid Service			GRAND TOTAL
		NGL	C3 and C4	Fuel Gas	Sub-Total	NGL	C3 and C4	Sub-Total	
Valves	count	22	31	64	117	712	103	815	932
Emission Factor[1]	kg/hr/unit	4.5E-03			---	2.5E-03		---	---
TOC Emissions	Pre-Control - lb/hr	0.22	0.31	0.63	1.16	3.92	0.57	4.49	5.65
LDAR Credit[2]	Control%	0%			---	0%		---	---
TOC Emissions	Controlled - lb/hr	0.22	0.31	0.63	1.16	3.92	0.57	4.49	5.65
Flanges	count	33	65	78	176	744	57	801	977
Emission Factor[1]	kg/hr/unit	3.9E-04			---	1.1E-04		---	---
TOC Emissions	Pre-Control - lb/hr	0.03	0.06	0.07	0.15	0.18	0.01	0.19	0.35
LDAR Credit[2]	Control%	0%			---	0%		---	---
TOC Emissions	Controlled - lb/hr	0.03	0.06	0.07	0.15	0.18	0.01	0.19	0.35
Connectors	count	36	150	80	266	---	52	52	318
Emission Factor[1]	kg/hr/unit	2.0E-04			---	2.1E-04		---	---
TOC Emissions	Pre-Control - lb/hr	0.02	0.07	0.04	0.12	---	0.02	0.02	0.14
LDAR Credit[2]	Control%	0%			---	0%		---	---
TOC Emissions	Controlled - lb/hr	0.02	0.07	0.04	0.12	---	0.02	0.02	0.14
Relief Valves	count	9	9	10	28	50	---	50	78
Emission Factor[1]	kg/hr/unit	8.8E-03			---	7.5E-03		---	---
TOC Emissions	Pre-Control - lb/hr	0.17	0.17	0.19	0.54	0.83	---	0.83	1.37
LDAR Credit[2]	Control%	0%			---	0%		---	---
TOC Emissions	Controlled - lb/hr	0.17	0.17	0.19	0.54	0.83	---	0.83	1.37
Pump Seals	count					14	---	14	14
Emission Factor[1]	kg/hr/unit					1.3E-02		---	---
TOC Emissions	Pre-Control - lb/hr			---		0.40	---	0.40	0.40
LDAR Credit	Control%					0%		---	---
TOC Emissions	Controlled - lb/hr					0.40	---	0.40	0.40
VOC	Weight %	100.00%	100.00%	3.23%	---	100.00%	100.00%	---	---
	Pre-Control - lb/hr	0.44	0.60	3.0E-02	1.07	5.33	0.61	5.94	7.01
	Pre-Control - tpy	1.91	2.65	0.13	4.69	23.36	2.65	26.01	30.70
	Controlled - lb/hr	0.44	0.60	3.0E-02	1.07	5.33	0.61	5.94	7.01
	Controlled - tpy	**1.91**	**2.65**	**0.13**	**4.69**	**23.36**	**2.65**	**26.01**	**30.70**
Total HAP[3]	Weight %	3.94%		0.03%	---	3.94%		---	---
	Pre-Control - lb/hr	0.02		3.0E-04	0.02	0.19		0.19	0.21
	Pre-Control - tpy	0.08	---	0.00	0.08	0.85	---	0.85	0.93
	Controlled - lb/hr	0.02		3.0E-04	0.02	0.19		0.19	0.21
	Controlled - tpy	**0.08**		**0.00**	**0.08**	**0.85**		**0.85**	**0.93**
Methane (CH4)	Weight %			100.00%	---				---
	Pre-Control - lb/hr			0.93	0.93				0.93
	Pre-Control - tpy	---	---	4.08	4.08	---	---	---	4.08
	Controlled - lb/hr			0.93	0.93				0.93
	Controlled - tpy			**4.08**	**4.08**				**4.08**
								CO2e:	**101.97**

1. Table 2-4; Oil and Gas Production Operations Average Emission Factors (kg/hr/source) from *Protocol for Equipment Leak Emission Estimates*, EPA-453/R-95-017, November 1995
2. Table 4.2-2; *Preferred and Alternative Methods for Estimating Fugitive Emissions from Equipment Leaks*. *Volume II: Chapter 4*, November 1996
3. Hexane+ is used as a surrogate for HAPs

Fractionation Plant 2 (Frac2 (1S)) - Process Piping Fugitive Emissions

FRAC2 (Fugitives (1S))		Vapor Service						Light Liquid Service					TOTAL
		NGL	Propane	Butane	Nat. Gasoline	Fuel Gas	Sub-Total	NGL	Propane	Butane	Nat. Gasoline	Sub-Total	
Valves	count	219	215	245	72	114	865	745	330	365	515	1,955	2,819
Emission Factor[1]	kg/hr/unit	4.50E-03					---	2.50E-03				---	---
TOC Emissions	lb/hr	2.17	2.13	2.43	0.71	1.13	8.58	4.10	1.82	2.01	2.84	10.77	19.35
LDAR Credit[2]	Control%	87%					---	84%				---	---
TOC Emissions	lb/hr	0.28	0.28	0.32	0.09	0.15	1.12	0.66	0.29	0.32	0.45	1.72	2.84
Flanges	count	342	304	389	174	160	1,368	893	440	476	717	2,527	3,895
Emission Factor[1]	kg/hr/unit	3.90E-04					3.90E-04	1.10E-04					---
TOC Emissions	lb/hr	0.29	0.26	0.33	0.15	0.14	1.18	0.22	0.11	0.12	0.17	0.61	1.79
LDAR Credit[2]	Control%	33%					---	33%				---	---
TOC Emissions	lb/hr	0.20	0.17	0.22	0.10	0.09	0.79	0.15	0.07	0.08	0.12	0.41	1.20
Connectors	count	157	183	183	35	101	659	1,003	411	463	569	2,446	3,105
Emission Factor[1]	kg/hr/unit	2.00E-04					2.00E-04	2.10E-04					---
TOC Emissions	lb/hr	0.07	0.08	0.08	0.02	0.04	0.29	0.46	0.19	0.21	0.26	1.13	1.42
LDAR Credit[2]	Control%	33%					---	33%				---	---
TOC Emissions	lb/hr	0.05	0.05	0.05	0.01	0.03	0.19	0.31	0.13	0.14	0.18	0.76	0.95
Relief Valves	count	50	13	10	8	3	84	50	6	10	15	80	164
Emission Factor[1]	kg/hr/unit	1.40E-03					1.40E-03	8.80E-03					---
TOC Emissions	lb/hr	0.15	0.04	0.03	0.02	0.01	0.26	0.96	0.11	0.19	0.30	1.56	1.82
LDAR Credit[2]	Control%	44%					---	0%				---	---
TOC Emissions	lb/hr	0.09	0.02	0.02	0.01	0.01	0.14	0.96	0.11	0.19	0.30	1.56	1.70
Pump Seals	count							11	15	13	24	64	64
Emission Factor[1]	kg/hr/unit							1.30E-02					---
TOC Emissions	lb/hr				---			0.32	0.44	0.38	0.69	1.83	1.83
LDAR Credit	Control%							69%				---	---
TOC Emissions	lb/hr							0.10	0.14	0.12	0.22	0.57	0.57
VOC	Weight %	100.00%	100.00%	100.00%	100.00%	3.23%	---	100.00%	100.00%	100.00%	100.00%	---	---
	Pre-Control - lb/hr	2.54	2.47	2.85	0.87	0.04	8.77	5.10	2.56	2.72	3.97	14.35	23.12
	Pre-Control - tpy	11.10	10.82	12.48	3.83	0.19	38.41	22.34	11.20	11.92	17.38	62.84	101.25
	Controlled - lb/hr	0.53	0.51	0.59	0.20	0.009	1.837	1.21	0.63	0.66	0.96	3.46	5.30
	Controlled - tpy	**2.30**	**2.21**	**2.60**	**0.89**	**0.04**	**8.05**	**5.30**	**2.75**	**2.89**	**4.21**	**15.15**	**23.20**
Total HAP	Weight %	10.00%			50.00%	0.03%	---	10.00%			41.75%	---	---
	Pre-Control - lb/hr	0.25			0.44	0.00	0.69	0.51			1.66	2.17	2.86
	Pre-Control - tpy	1.11	---	---	1.91	0.00	3.03	2.23	---	---	7.26	9.49	12.52
	Controlled - lb/hr	0.05			0.10	0.00	0.15	0.12			0.40	0.52	0.68
	Controlled - tpy	**0.23**			**0.44**	**0.00**	**0.67**	**0.53**			**1.76**	**2.29**	**2.96**
Methane (CH4)	Weight %					100.00%	---					---	---
	Pre-Control - lb/hr					1.33	1.33					0.00	1.33
	Pre-Control - tpy	---	---	---	---	5.81	5.81	---	---	---	---	0.00	5.81
	Controlled - lb/hr					0.28	0.28					0.00	0.28
	Controlled - tpy					**1.20**	**1.20**					**0.00**	**1.20**
												CO2e:	**30.11**

1. Table 2-4; Oil and Gas Production Operations Average Emission Factors (kg/hr/source) from *Protocol for Equipment Leak Emission Estimates* , EPA-453/R-95-017, November 1995
2. Table 4.2-2; *Preferred and Alternative Methods for Estimating Fugitive Emissions from Equipment Leaks* . *Volume II: Chapter 4* , November 1996
3. Hexanes+ is used as a surrogate for HAPs

Hot Oil Heater - 45.54 MMBtu/hr (1-HTR (1E))

Unit ID (Point ID)	Description	Reference	Pollutant	Emission Factor		Pre-Controlled Emissions		Control Efficiency	Controlled Emissions	
				lb/MMscf	lb/MMBtu	lb/hr	tpy	%	lb/hr	tpy
1-HTR (1E)	**Hot Oil Heater** **45.54 MMBtu/hr** **8,760 hr/yr** 920 Btu/scf (LHV) 1,020 Btu/scf (HHV) 44,647 scf/hr 391.11 MMscf/yr	EPA AP-42 Table 1.4-1	NOX	100.0	0.10	4.46	19.56	na	**4.46**	**19.56**
		EPA AP-42 Table 1.4-1	CO	84.0	0.08	3.75	16.43	na	**3.75**	**16.43**
		EPA AP-42 Table 1.4-2	VOC	5.5	0.01	0.25	1.08	na	**0.25**	**1.08**
		EPA AP-42 Table 1.4-2	SO2	0.6	5.9E-04	0.03	0.12	na	**0.03**	**0.12**
		EPA AP-42 Table 1.4-2	PM10/2.5	7.6	0.01	0.34	1.49	na	**0.34**	**1.49**
		EPA AP-42 Table 1.4-3	Benzene	2.1E-03	2.06E-06	9.4E-05	4.1E-04	na	**9.4E-05**	**4.1E-04**
		EPA AP-42 Table 1.4-3	Ethylbenzene	---	---	---	---	---	**---**	**---**
		EPA AP-42 Table 1.4-3	HCHO	0.08	7.35E-05	3.3E-03	0.01	na	**3.3E-03**	**0.01**
		EPA AP-42 Table 1.4-3	n-Hexane	1.80	1.76E-03	0.08	0.35	na	**0.08**	**0.35**
		EPA AP-42 Table 1.4-3	Toluene	3.4E-03	3.33E-06	1.5E-04	6.6E-04	na	**1.5E-04**	**6.6E-04**
		EPA AP-42 Table 1.4-3	2,2,4-TMP	---	---	---	---	---	**---**	**---**
		EPA AP-42 Table 1.4-3	Xylenes	---	---	---	---	---	**---**	**---**
		EPA AP-42 Table 1.4-3/4	Other HAP	1.9E-03	1.86E-06	8.5E-05	3.7E-04	na	**8.5E-05**	**3.7E-04**
		SUM	Total HAP	1.88	1.85E-03	0.08	0.37	na	**0.08**	**0.37**
		40CFR98 - Table C-1	CO2	119,317	116.98	5,327	23,333	na	**5,327**	**23,333**
		40CFR98 - Table C-2	CH4	2.25	2.2E-03	0.10	0.44	na	**0.10**	**0.44**
		40CFR98 - Table C-2	N2O	0.22	2.2E-04	0.01	0.04	na	**0.01**	**0.04**
		40CFR98 - Table A-1	CO2e	119,440	117	5,333	23,357	---	**5,333**	**23,357**

Notes: 1 - The fuel heating value will vary, 920 Btu/scf (LHV) is at the low end of the range and results in a high (conservative) fuel consumption estimate.
2 - PM10/2.5 is filterable and condensable particulate matter; including PM10 and PM2.5.

Hot Oil Heater - 89.85 MMBtu/hr (2-HTR (2E))

Unit ID (Point ID)	Description	Reference	Pollutant	Emission Factor		Pre-Controlled Emissions		Control Efficiency	Controlled Emissions	
				lb/MMscf	lb/MMBtu	lb/hr	tpy	%	lb/hr	tpy
	Hot Oil Heaters	Vendor Data	NOX	36.7	0.036	3.23	17.03	na	**3.23**	**17.03**
		Vendor Data	CO	75.5	0.074	6.65	35.00	na	**6.65**	**35.00**
		Vendor Data	VOC	4.1	0.004	0.36	1.89	na	**0.36**	**1.89**
	89.85 MMBtu/hr (Max - Each)	EPA AP-42 Table 1.4-2	SO2	0.6	5.9E-04	0.05	0.28	na	**0.05**	**0.28**
	108.00 MMBtu/hr (Ave - Total)	EPA AP-42 Table 1.4-2	PM10/2.5	7.6	0.01	0.67	3.52	na	**0.67**	**3.52**
		EPA AP-42 Table 1.4-3	Benzene	2.1E-03	2.06E-06	1.8E-04	9.7E-04	na	**1.8E-04**	**9.7E-04**
	8,760 hr/yr	EPA AP-42 Table 1.4-3	Ethylbenzene	---	---	---	---	---	**---**	**---**
	920 Btu/scf (LHV)	EPA AP-42 Table 1.4-3	HCHO	0.08	7.35E-05	6.6E-03	0.03	na	**0.01**	**0.03**
2-HTR (2E)	1,020 Btu/scf (HHV)	EPA AP-42 Table 1.4-3	n-Hexane	1.80	1.76E-03	0.16	0.83	na	**0.16**	**0.83**
(Qty: 2)	88,088 scf/hr (Each)	EPA AP-42 Table 1.4-3	Toluene	3.4E-03	3.33E-06	3.0E-04	1.6E-03	na	**3.0E-04**	**1.6E-03**
	927.53 MMscf/yr	EPA AP-42 Table 1.4-3	2,2,4-TMP	---	---	---	---	---	**---**	**---**
		EPA AP-42 Table 1.4-3	Xylenes	---	---	---	---	---	**---**	**---**
		EPA AP-42 Table 1.4-3/4	Other HAP	0.01	7.44E-06	6.7E-04	3.5E-03	na	**6.7E-04**	**3.5E-03**
		SUM	Total HAP	1.89	1.85E-03	0.17	0.88	na	**0.17**	**0.88**
		40CFR98 - Table C-1	CO2	118,969	117	10,480	55,173	na	**10,480**	**55,173**
		40CFR98 - Table C-2	CH4	2.25	2.2E-03	0.20	1.04	na	**0.20**	**1.04**
		40CFR98 - Table C-2	N2O	0.22	2.2E-04	0.02	0.10	na	**0.02**	**0.10**
		40CFR98 - Table A-1	CO2e	119,092	117	10,491	55,231	---	**10,491**	**55,231**

Notes: 1 - The fuel heating value will vary, 920 Btu/scf (LHV) is at the low end of the range and results in a high (conservative) fuel consumption estimate.
2 - PM10/2.5 is filterable and condensable particulate matter; including PM10 and PM2.5.

New Process Flare (FL-02 (5S))

Unit ID (Point ID)	Description	Reference	Pollutant	Emission Factor		Pre-Controlled Emissions		Control Efficiency	Controlled Emissions	
				lb/MMscf	lb/MMBtu	lb/hr	tpy	%	lb/hr	tpy
Flare (5S)	**8,760 hr/yr (Total)**	EPA AP-42 Table 13.5-1	NOX	79.30	0.14	4.01	17.55	---	**4.01**	**17.55**
	50,517 scf/hr (Max)	EPA AP-42 Table 13.5-1	CO	158.32	0.28	8.00	35.03	---	**8.00**	**35.03**
	95.52 MMscf/yr (Total)	Mass Balance	VOC	Mass Balance		6,105.98	5,772.86	99.0%	**61.06**	**57.73**
	2,662 Btu/scf (Ave)	EPA AP-42 Table 1.4-2	SO2	0.60	2.25E-04	0.01	0.03	---	**0.01**	**0.03**
	29.03 MMBtu/hr (Ave)	EPA AP-42 Table 1.4-2	PM10/2.5	7.60	2.85E-03	0.08	0.36	---	**0.08**	**0.36**
	254,306 MMBtu/yr (Total)	Mass Balance	Benzene	Mass Balance		5.19	4.91	99.00%	**0.05**	**0.05**
	8,760 hr/yr (Continuous)	Mass Balance	Ethylbenzene	Mass Balance		7.06	6.67	99.00%	**0.07**	**0.07**
	10,850 scf/hr (Continuous)	EPA AP-42 Table 1.4-3	HCHO	0.04	7.35E-05	2.1E-03	0.01	---	**2.1E-03**	**0.01**
	95.05 MMscf/yr (Continuous)	Mass Balance	n-Hexane	Mass Balance		225.72	213.41	99.00%	**2.26**	**2.13**
	2,662 Btu/scf (Continuous)	Mass Balance	Toluene	Mass Balance		222.97	210.80	99.00%	**2.23**	**2.11**
	28.89 MMBtu/hr (Continuous)	EPA AP-42 Table 1.4-3	2,2,4-TMP	---	---	---	---	---	**---**	**---**
	253,039 MMBtu/yr (Continuous)	Mass Balance	Xylenes	Mass Balance		7.06	6.67	99.00%	**0.07**	**0.07**
	12 hr/yr (Maintenance)	EPA AP-42 Table 1.4-3	Other HAP	1.1E-03	1.86E-06	5.4E-05	2.4E-04	---	**5.4E-05**	**2.4E-04**
	39,667 scf/hr (Maintenance)	Mass Balance	Total HAP	Sum		468.00	442.47	99.00%	**4.68**	**4.43**
	0.48 MMscf/yr (Maintenance)	EPA GHG Emission Factors	CO2	81,262	141	4,105	17,980	---	**4,105**	**17,980**
	2,662 Btu/scf (Maintenance)	EPA GHG Emission Factors	CH4	4	0.01	0.19	0.84	---	**0.19**	**0.84**
	105.60 MMBtu/hr (Maintenance)	EPA GHG Emission Factors	N2O	1	1.3E-03	0.04	0.19	---	**0.04**	**0.19**
	1,267 MMBtu/yr (Maintenance)	40CFR98 - Table A-1	CO2e	81,584	142	4,121	18,057	---	**4,121**	**18,057**

Notes: 1 - The Total Waste Gas to Flare is estimated as follows:

Description		Heat Value	Flow Rate	Heat Input	Flow Rate	Heat Input
Hot Oil Expansion Tanks		2,662 Btu/scf	154 scf/hr (ave)	0.41 MMBtu/hr (ave)	1.35 MMscf/yr	3,592 MMBtu/yr
Truck/Rail Loading and Hose Blowdown		2,662 Btu/scf	3,823 scf/hr (ave)	10.18 MMBtu/hr (ave)	33.49 MMscf/yr	89,158 MMBtu/yr
Natural Gasoline Tanks		2,662 Btu/scf	4,320 scf/hr (ave)	11.50 MMBtu/hr (ave)	37.84 MMscf/yr	100,749 MMBtu/yr
Pig Receiver Blowdowns (2 Events/year)		2,662 Btu/scf	1 scf/hr (ave)	0.003 MMBtu/hr (ave)	0.01 MMscf/yr	23 MMBtu/yr
Other/Misc		2,662 Btu/scf	1,487 scf/hr (ave)	3.96 MMBtu/hr (ave)	13.03 MMscf/yr	34,679 MMBtu/yr
Continuous Flare Purge		2,662 Btu/scf	870 scf/hr (ave)	2.32 MMBtu/hr (ave)	7.62 MMscf/yr	20,290 MMBtu/yr
Continuous Flare Pilot		2,662 Btu/scf	195 scf/hr (ave)	0.52 MMBtu/hr (ave)	1.71 MMscf/yr	4,548 MMBtu/yr
TOTAL CONTINUOUS FLOW		2,662 Btu/scf	10,850 scf/hr (ave)	28.89 MMBtu/hr (ave)	95.05 MMscf/yr	253,039 MMBtu/yr
TOTAL MAINTENANCE FLOW	12 hr/yr	2,662 Btu/scf	39,667 scf/hr (max)	105.60 MMBtu/hr (max)	0.48 MMscf/yr	1,267 MMBtu/yr
GRAND TOTAL FLOW TO FLARE		**2,662 Btu/scf**	**10,904 scf/hr (ave)** **50,517 scf/hr (max)**	**29.03 MMBtu/hr (ave)** **134.49 MMBtu/hr (max)**	**95.52 MMscf/yr**	**254,306 MMBtu/yr**

2 - Waste gas composition (pre-controlled) is estimated as follows (see Supplement 05):

Total Flow - VOC	120,869.75 lb/MMscf	50,517 scf/hr (max)	6,105.98 lb/hr VOC	95.52 MMscf/yr	5,772.86 tpy VOC
Total Flow - Benzene	102.80 lb/MMscf		5.19 lb/hr Benzene		4.91 tpy Benzene
Total Flow - E-Benzene	139.71 lb/MMscf		7.06 lb/hr E-Benzene		6.67 tpy E-Benzene
Total Flow - n-Hexane	4,468.25 lb/MMscf		225.72 lb/hr n-Hexane		213.41 tpy n-Hexane
Total Flow - Toluene	4,413.67 lb/MMscf		222.97 lb/hr Toluene		210.80 tpy Toluene
Total Flow - Xylenes	139.71 lb/MMscf		7.06 lb/hr Xylenes		6.67 tpy Xylenes
Total Flow - 2,2,4-TMP	150.33 lb/MMscf		7.59 lb/hr 2,2,4-TMP		7.18 tpy 2,2,4-TMP
Total Flow - Total HAP	9,414.47 lb/MMscf		475.59 lb/hr Total HAP		449.64 tpy Total HAP

Potentially Applicable

AP-42 and GHG EMISSION FACTORS

(Preferentially use test data or vendor data where available)

	Pollutant	GAS-FIRED ENGINES			GAS-FIRED TURBINES		
		AP-42 Table 3.2-1; 3.2-2; 3.2-3 07/00			AP-42 Table 3.1-1; 3.1-2a; 3.1-3 04/00		
		2SLB lb/MMBtu	4SLB lb/MMBtu	4SRB lb/MMBtu	Uncontrolled lb/MMBtu	Water Injection lb/MMBtu	Lean Pre-Mix# lb/MMBtu
CRITERIA	NOX (≥ 90% Load)	3.17E+00	4.08E+00	2.21E+00	3.20E-01	1.30E-01	9.90E-02
	CO (≥ 90% Load)	3.86E-01	3.17E-01	3.72E+00	8.20E-02	3.00E-02	1.50E-02
	THC (TOC)	1.64E+00	1.47E+00	3.58E-01	1.10E-02	1.10E-02	1.10E-02
	NMHC (THC-CH4)	1.90E-01	2.20E-01	1.28E-01	2.40E-03	2.40E-03	2.40E-03
	NMNEHC (NMHC-C2H6)	1.19E-01	1.15E-01	5.76E-02	2.10E-03	2.10E-03	2.10E-03
	VOC	1.20E-01	1.18E-01	2.96E-02	2.10E-03	2.10E-03	2.10E-03
	SO2*** (2,000 gr-S/MMscf)	5.88E-04	5.88E-04	5.88E-04	5.88E-04	5.88E-04	5.88E-04
	PM10/2.5 (Filter+Cond)	4.83E-02	9.99E-03	1.94E-02	6.60E-03	6.60E-03	6.60E-03
HAPs	Benzene	1.94E-03	4.40E-04	1.58E-03	1.20E-05	1.20E-05	9.10E-07
	Ethylbenzene	1.08E-04	3.97E-05	2.48E-05	3.20E-05	3.20E-05	3.20E-05
	Formaldehyde (HCHO)	5.52E-02	5.28E-02	2.05E-02	7.10E-04	7.10E-04	2.00E-05
	n-Hexane	4.45E-04	1.11E-03	---	---	---	---
	Toluene	9.63E-04	4.08E-04	5.58E-04	1.30E-04	1.30E-04	1.30E-04
	2,2,4-Trimethylpentane	8.46E-04	2.50E-04	---	---	---	---
	Xylenes	2.68E-04	1.84E-04	1.95E-04	6.40E-05	6.40E-05	6.40E-05
	Other HAPs	1.96E-02	1.69E-02	9.42E-03	1.06E-04	1.06E-04	1.06E-04
GHG	CO2**** (GWP=1)	1.10E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02
	CH4 (GWP=25)	1.45E+00	1.25E+00	2.30E-01	8.60E-03	8.60E-03	8.60E-03
	N2O (GWP=298)	*2.20E-04*	*2.20E-04*	*2.20E-04*	3.00E-03	3.00E-03	3.00E-03
	CO2e	*1.46E+02*	*1.41E+02*	*1.16E+02*	*1.11E+02*	*1.11E+02*	*1.11E+02*

(#Lean Pre-Mix - aka: Dry Low Emissions (DLE or DLN) and SoLoNOx)

	Pollutant	GAS-FIRED EXTERNAL COMBUSTION			FLARES	DIESEL ENGINES
		AP-42 Table 1.4-1; 1.4-2; 1.4-3 (<100 MMBtu/hr) 07/98			13.5-1 01/95	3.3-1; 3.3-2 10/96
		Uncontrolled lb/MMBtu	LoNOx Burners lb/MMBtu	Flue Gas Recirc lb/MMBtu	(Combustion) lb/MMBtu	Uncontrolled lb/MMBtu
CRITERIA	NOX	9.80E-02	4.90E-02	3.14E-02	6.80E-02	4.41E+00
	CO	8.24E-02	8.24E-02	8.24E-02	3.70E-01	9.50E-01
	THC (TOC)	1.08E-02	1.08E-02	1.08E-02	1.40E-01	3.60E-01
	NMHC (THC-CH4)	8.53E-03	8.53E-03	8.53E-03	1.38E-01	3.53E-01
	NMNEHC (NMHC-C2H6)	5.49E-03	5.49E-03	5.49E-03	*5.49E-03*	3.50E-01
	VOC	5.39E-03	5.39E-03	5.39E-03	*5.39E-03*	3.60E-01
	SO2 (2,000 gr-S/MMscf)	5.88E-04	5.88E-04	5.88E-04	*5.88E-04*	2.90E-01
	PM10/2.5 (Filter+Condense)	7.45E-03	7.45E-03	7.45E-03	*7.45E-03*	3.10E-01
HAPs	Benzene	2.06E-06	2.06E-06	2.06E-06	*2.06E-06*	9.33E-04
	Ethylbenzene	---	---	---	---	---
	HCHO (Formaldehyde)	7.35E-05	7.35E-05	7.35E-05	*7.35E-05*	1.18E-03
	n-Hexane	1.76E-03	1.76E-03	1.76E-03	*1.76E-03*	---
	Toluene	3.33E-06	3.33E-06	3.33E-06	*3.33E-06*	4.09E-04
	2,2,4-Trimethylpentane	---	---	---	---	---
	Xylenes	---	---	---	---	2.85E-04
	Other HAPs	1.86E-06	1.86E-06	1.86E-06	*1.86E-06*	1.05E-03
GHG	CO2 (GWP=1)	1.18E+02	1.18E+02	1.18E+02	*1.18E+02*	1.64E+02
	CH4 (GWP=25)	2.25E-03	2.25E-03	2.25E-03	*2.25E-03*	*6.61E-03*
	N2O (GWP=298)	2.16E-03	6.27E-04	6.27E-04	*2.16E-03*	*1.32E-03*
	CO2e	*1.18E+02*	*1.18E+02*	*1.18E+02*	*1.18E+02*	*1.65E+02*

40 CFR 98 - DEFAULT EMISSION FACTORS				
Fuel Type	Table C-1 to Subpart C of Part 98		Table C-2 to Subpart C of Part 98	
	Default HHV	Carbon Dioxide lb CO2/MMBtu	Methane lb CH4/MMBtu	Nitrous Oxide lb N2O/MMBtu
Fuel Oil No. 2 (Diesel)	0.138 MMBtu/gal	1.61E+02	6.61E-03	1.32E-03
Natural Gas	1,028 MMBtu/scf	1.17E+02	2.20E-03	2.20E-04

Global Warming Potential (100 Yr) (GWP)		
Table A-1 to Subpart A of Part 98		
CO2	CH4*	N2O#
1	25	298

#Revised by EPA on 11/29/13

*Converted Ext Comb Emission Factors to lb/MMBtu by dividing lb/MMscf by the AP-42 default high heating value (HHV) of 1,020

**Converted GHG Emission Factors to lb/MMBtu by multiplying kg/MMBtu by 2.2046 lb/kg.

***Assumes 100% conversion of fuel sulfur to SO2 (2,000 gr/MMscf).

****Assumes 99.5% conversion of fuel carbon to CO2 for natural gas.

Conversion Factors

http://www.onlineconversion.com/

1.0 lb	=	453.5924 g
1.0 kg	=	2.2046 lb
1.0 hp	=	2,544.4332 Btu/hr
1.0 hp	=	745.6999 Watt
1.0 kW	=	3,412.1416 Btu/hr
1.0 kW-hr	=	1.3400 hp-hr
1.0 cf	=	7.4805 gal
1.0 gal H2O	=	8.3378 lb
1.0 cf H2O	=	62.3711 lb
1.0 m	=	3.2808 ft
1.0 km	=	0.6214 mi
1.0 acre	=	43,560.1742 ft2
1.0 ^{o}F	=	(^{o}C*9/5)+32
1.0 ^{o}R	=	^{o}F+459.67
1.0 %	=	10,000 ppm
1%	=	10,000 ppm
UGC (stp)	=	379.5 scf/lb-mol

Rev 08/22/14 - Moved 2,2,4-TMP (i-octane) from hidden rows.

Rev 12/30/13 - Revised Flare Emission Factors. Revised GWP Emission Factors. Rewrote the *Notes.

Rev 10/31/13 - Recalculated THC, NMHC, NMNEHC and VOC. Added "Other Pollutants" (Hidden Rows). Misc edits.

Rev 09/27/13 - Added NMHC and NMNEHC. Show only 6 primary HAPs. Converted units for Ext Comb and GHG to lb/MMBTU.

SUPPLEMENT 04

Modeling Results

(Not Applicable)

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§45-30-4.3.c.8 - The application forms shall include calculations or test data on which the information is based.

SUPPLEMENT 05

Liquid and Gas Analysis

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§45-30-4.3.c.8 - The application forms shall include calculations or test data on which the information is based.

- **FLARE GAS COMPOSITION**

Flare Gas Composition

From Moundsville Frac NSR Application

Compound	CAS	Formula	Molecular Weight (MW)	Mole % (M% = V%)	Mole Fraction (M%/Sum-M%)	Weighted Sum (MW*MF)	Weight % (WS/Sum-WS)	lb/MMscf (WS/UGC#)
Nitrogen	7727-37-9	N2	28.013	0.0026	0.002597	0.0727	0.1451	191.70
Hydrogen Sulfide	2148-87-8	H2S	34.086	---	---	---	---	---
Carbon Dioxide	124-38-9	CO2	44.010	0.0048	0.004794	0.2110	0.4210	556.00
Methane*	75-82-8	CH4	16.042	0.2358	0.235517	3.7783	7.5381	9,956.41
Ethane*	74-84-0	C2H6	30.069	0.0064	0.006392	0.1922	0.3835	506.51
Propane**	74-98-6	C3H8	44.096	0.0957	0.095585	4.2149	8.4092	11,106.96
i-Butane**	75-28-5	C4H10	58.122	0.4504	0.449860	26.1469	52.1663	68,901.46
n-Butane**	106-97-8	C4H10	58.122	---	---	---	---	---
Cyclopentane**	287-92-3	C5H10	70.100	---	---	---	---	---
i-Pentane**	78-78-4	C5H12	72.149	0.1656	0.165402	11.9335	23.8089	31,446.86
n-Pentane**	109-66-0	C5H12	72.149	---	---	---	---	---
Cyclohexane**	110-82-7	C6H12	84.159	---	---	---	---	---
Other Hexanes**	varies	C6H14	86.175	---	---	---	---	---
Methylcyclohexane**	varies	C7H14	98.186	---	---	---	---	---
Heptanes**	varies	C7H16	100.202	---	---	---	---	---
C8+ Heavies**	varies	C8+	128.861 est	---	---	---	---	---
n-Hexane***	110-54-3	C6H14	86.175	0.0197	0.019676	1.6956	3.3830	4,468.25
Benzene***	71-43-2	C6H6	78.112	0.0005	0.000499	0.0390	0.0778	102.80
Toluene***	108-88-3	C7H8	92.138	0.0182	0.018178	1.6749	3.3417	4,413.67
Ethylbenzene***	100-41-4	C8H10	106.165	0.0005	0.000499	0.0530	0.1058	139.71
Xylenes***	1330-20-7	C8H10	106.165	0.0005	0.000499	0.0530	0.1058	139.71
2,2,4-Trimethylpentane***	540-84-1	C8H18	114.229	0.0005	0.000499	0.0570	0.1138	150.33
Totals:				**1.00**	**1.0000**	**50.1221**	**100.00**	**132,080.37**
THC:				**0.99**	**0.9926**	**49.8384**	**99.43**	**131,332.67**
Total VOC:				**0.75**	**0.7507**	**45.8679**	**91.51**	**120,869.75**
Total HAP:				**0.040**	**0.03985**	**3.5726**	**7.13**	**9,414.47**

* = Hydrocarbon (HC) ** = also Volatile Organic Compound (EPA-VOC) *** = also Hazardous Air Pollutant (EPA-HAP)

#UGC (Universal Gas Constant) = 379.482 scf/lb-mol @ 60 ^{o}F and 14.696 psia. Pound "X"/scf = M% of "X" * MW of "X" / UGC

To be conservative, the following "worst-case" values were assumed:

Compound	CAS	Formula	Representative Gas Analysis			Same		
			Mole %	Wgt %	lb/MMscf	Mole %	Wgt %	lb/MMscf
Carbon Dioxide	124-38-9	CO2	0.005	0.421	556.00	0.005	0.421	556.00
Methane	75-82-8	CH4	0.236	7.538	9,956.41	0.236	7.538	9,956.41
Ethane	74-84-0	CH5	0.006	0.383	506.51	0.006	0.383	506.51
VOC	Various	C3+	0.752	91.512	120,869.75	0.7516	91.5123	120,869.75
n-Hexane	110-54-3	C6H14	0.0197	3.3830	4,468.25	0.0197	3.3830	4,468.25
Benzene	71-43-2	C6H6	0.0005	0.0778	102.80	0.0005	0.0778	102.80
Toluene	108-88-3	C7H8	0.0182	3.3417	4,413.67	0.0182	3.3417	4,413.67
Ethylbenzene	100-41-4	C8H10	0.0005	0.1058	139.71	0.0005	0.1058	139.71
Xylenes	1330-20-7	C8H10	0.0005	0.1058	139.71	0.0005	0.1058	139.71
2,2,4-Trimethylpentane	540-84-1	C8H18	0.0005	0.1138	150.33	0.0005	0.1138	150.33
Total HAP:	Various	C6 thru C8	0.0399	7.1278	9,414.47	0.0399	7.1278	9,414.47

SUPPLEMENT 06

Vendor Data

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§45-30-4.3.c.8 - The application forms shall include calculations or test data on which the information is based.

HEATER SPECIFICATIONS:

- Frac1 Hot Oil Heater (1-HTR)
- Frac2 Hot Oil Heaters (2-HTR)

FLARE SPECIFICATIONS:

- Process Flare (FL-02 (5S))

1-HTR - Frac1 Hot Oil Heater

2.0 PROCESS DESIGN CONDITIONS

2.1. Process Design (Coil)

Media	Therminol 59
Flow rate (Lb./Hr.)	313,400
Operating pressure (PSIA)	40
Inlet temperature (°F)	313
Outlet temperature (°F)	500
Coil Terminal size/type (IN.)	8" / 300# RF
Process Passes	Single
Design pressure (PSIG)	150
Design temperature (°F)	20 to 600
Size	8" Sch 40
Material (SMLS PIPE)	SA-106B
Calculated pressure drop (PSI)	9.3
Coil heat flux (BTU/HR-SQ.FT.)	Calc. 12,859
Net thermal eff. @ Design Duty	80.6 (w/ 2% setting loss)
Radiography: (Coil)	100%
Corr. Allow.	0.0625"
Coil Code	ASME Sect. 8

2.2 Heater

Heater duty (MMBTU/HR)	36.7
Calculated duty (MMBTU/HR)	36.7
Turndown	10:1

Heat Input = Duty / Efficiency
= 36.7 / 0.806
= 45.54 MMBtu/hr

2.3 Preliminary Instrument Set Points

Tag #	Set Point	Description
PCV-100	4-6 PSI	Fuel Gas Regulation
PCV-101	6-8"" W.C.	Pilot Gas Regulation
PCV-200	5 PSI	Blanket Gas Inlet
PCV-201	20 PSI	Blanket Gas Back-Pressure
PSV-200	65 PSI	Thermal Relief Valve
PSLL-100	15" W.C. (Dec.)	Low Fuel Gas Pressure
PSLL-101	14" WC (Dec.)	Low Comb. Air Pressure
PSHH-100	45" W.C. (Inc.)	High Fuel Gas Pressure
TSHH-101	515F	High Process Temp.
TSHH-102	975-1200F	High Exhaust Temp.
FALL-200	(By Others)	Process Low-Low Flow
TIC-200	4F	Process Temp. Control

These settings / readings are PRELIMINARY only, and are subject to change. Operating conditions may warrant changes after start-up, and again as atmospheric conditions change. Refer to vender literature for adjustment methods.

2-HTR - Frac2 Hot Oil Heater

Aleksa, Deborah M

From: Jeff Oliver [joliver@Heatec.com]
Sent: Wednesday, March 06, 2013 6:49 AM
To: Matthews, Jeff; Ferraro, Christopher
Cc: Aleksa, Deborah M; Johnson, Johnny
Subject: RE: Emissions info

Jeff,

HHV fired input

Sincerely,

Jeff Oliver
Southeast Regional Sales Manager
o: 423-821-5200
f: 423-821-7873
c: 423-667-2273
Email: joliver@heatec.com
www.heatec.com

From: Matthews, Jeff [mailto:jeff.matthews@urs.com]
Sent: Monday, March 04, 2013 4:52 PM
To: Jeff Oliver; Ferraro, Christopher
Cc: Aleksa, Deborah M; Johnson, Johnny
Subject: RE: Emissions info
Importance: High

Could you please let us know whether these emission rates are based on Absorbed, Fired (LHV), or Fired (HHV)?

Jeff Matthews, P.E.
Technology Manager
URS Corporation
Work: 303-843-3041
Cell: 720-648-7717
Email: Jeff.Matthews@urs.com
http://www.urscorp.com

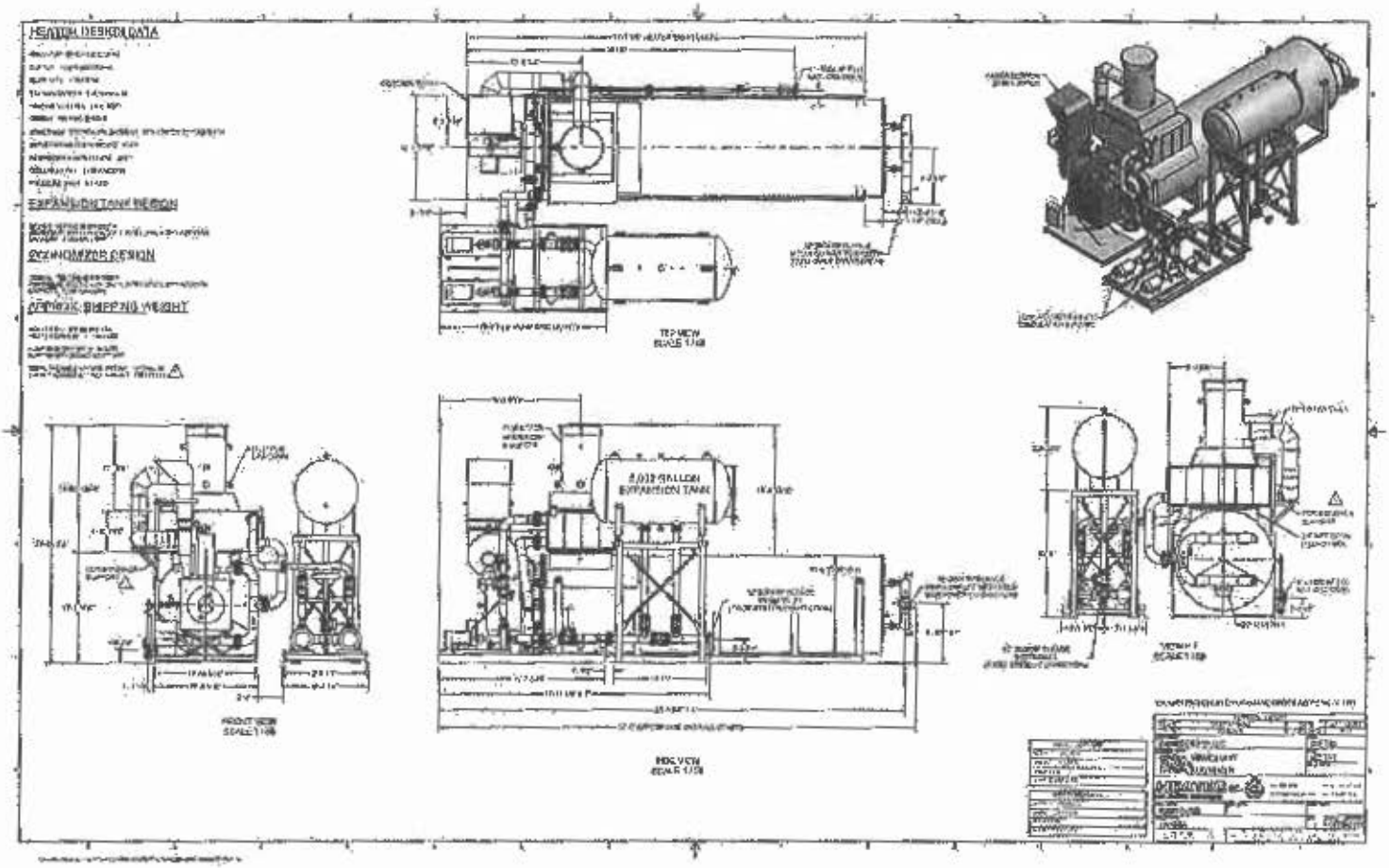
From: Jeff Oliver [mailto:joliver@heatec.com]
Sent: Tuesday, February 26, 2013 7:00 AM
To: Ferraro, Christopher
Cc: Matthews, Jeff; Aleksa, Deborah M; Johnson, Johnny
Subject: RE: Emissions info

Below are typical emission levels for a burner like this.

	Natural Gas	
	Lbs/MMBTU	PPM
NOx	0.036	30
CO	0.074	100
VOC	0.004	
Particulates	0.01	

Parts Per Million (PPM) @ 3% O2 Dry

2-HTR - Frac2 Hot Oil Heater



2-HTR - Frac2 Hot Oil Heater

Used 89.85 MMBTU/Hr
Capacity Each Heater

Provider of Quality Heating Equipment, Engineering, Service & Expertise since 1977

HEATEC, INC.
P.O. BOX 72760 • CHATTANOOGA, TN 37407
5200 WILSON ROAD • CHATTANOOGA, TN 37410

HEATEC

EQUIPMENT DESIGN DATA:

The equipment will be designed to meet the following criteria. (Values are per each heater & for the single triplex pump skid total.)

Heater Capacity (Btu/hr) (MW)	70,076,952	20.54
Heater Circulation Rate (Gal/min) (m^3/hr)	1,980	450
Heater Inlet Temperature (°F) (°C)	250	121
Heater Outlet Temperature (°F) (°C)	400	204
Minimum Allowable Circulation Rate (Gal/min) (m^3/hr) 80 %	1,584	360
Input (HHV) (Btu/hr) (MW)	88,366,653	25.90
Stack Temperature (°F) (°C)	542	283
Calculated Heater Efficiency % LHV [See Note 1]	88	88
Calculated Heater Efficiency % HHV [See Note 1]	79	79
User / Valve / Pipe ΔP (psid) (kPa) [See Note 2]	40	276
Heater Calculated ΔP (psid) (kPa) (Clean)	13	87
Pump Head Design (psid) (kPa)	53	363
Heater Volume (Gallons) (m^3)	2,675	10
Tank Cold Volume (Gallons) (m^3)	1,250	5
User Volume (Gallons) (m^3) [See Note 2]	4,901	19
Total Volume (Gallons) (m^3)	8,826	33
Tank Capacity (Gallons) (m^3)	5,000	19
Total Surface Area (ft^2) (m^2)	7,735	719
Overall Flux Rate (Btu/hr-ft^2) (kW/m^2)	9,059	29
Radiant Surface Area (ft^2) (m^2)	1,717	160
Average Radiant Flux Rate (Btu/hr-ft^2) (kW/m^2) AICHE	21,913	69
Maximum Radiant Flux Rate (Btu/hr-ft^2) (kW/m^2) AICHE	29,583	93
Maximum Metal Temperature (°F) (°C) AICHE	558	292
Maximum Film Temperature (°F) (°C) AICHE	533	278
Combustion Loading (Btu/hr-ft^3) (kW/m^3)	33,727	349
Average Flue Gas Velocity Across Insulation (ft/s) (m/s)	90	28
Average Oil Velocity (ft/s) (m/s)	8	3

Note 1: Based on HHV of typical natural gas. Guaranteed efficiency is 1% less.

Note 2: Customer to confirm their equipment volume and pressure drop, which are not in Heatec's scope of supply.

2-HTR - Frac2 Hot Oil Heater

Used 54.00 MMBTU/Hr
Average Each Heater

Provider of Quality Heating Equipment, Engineering, Service & Expertise since 1977

HEATEC, INC.
P.O. BOX 72760 • CHATTANOOGA, TN 37407
6700 WILSON ROAD • CHATTANOOGA, TN 37410

HEATEC®

	IP UNITS	SI UNITS
Heater Capacity (Btu/hr) (MW)	**43,200,000**	**12.66**
Heater Circulation Rate (Lb/hr) (kg/hr)	773,784	350,890
Heater Circulation Rate (Gal/min) (m^3/hr)	1,980	450
Heater Inlet Temperature (°F) (°C)	307	153
Heater Outlet Temperature (°F) (°C)	400	204
Minimum Allowable Circulation Rate (Gal/min) (m^3/hr) 80 %	1,584	360
Minimum Allowable Circulation Rate (Gal/min) (m^3/hr) 5 fps	1,247	283
Input (HHV) (Btu/hr) (MW)	53,189,496	15.59
Stack Temperature (°F) (°C)	448	231
Calculated Heater Efficiency % LHV [See Note 1]	**90**	**90**
Calculated Heater Efficiency % HHV [See Note 1]	81	81
User / Valve / Pipe ΔP (psid) (kPa) [See Note 2]	37	255
Heater Calculated ΔP (psid) (kPa) (Clean)	19	130
Pump Head Design (psid) (kPa)	56	385
Heater Volume (Gallons) (m^3)	2,606	10
Tank Cold Volume (Gallons) (m^3)	19	0
User Volume (Gallons) (m^3) [See Note 2]	4,901	19
Total Volume (Gallons) (m^3)	7,526	28
Tank Capacity (Gallons) (m^3)	75	0
Total Surface Area (ft^2) (m^2)	8,487	789
Overall Flux Rate (Btu/hr-ft^2) (kW/m^2)	5,090	16
Radiant Surface Area (ft^2) (m^2)	1,717	160
Average Radiant Flux Rate (Btu/hr-ft^2) (kW/m^2) AICHE	14,898	47
Maximum Radiant Flux Rate (Btu/hr-ft^2) (kW/m^2) AICHE	20,112	63
Maximum Metal Temperature (°F) (°C) AICHE	502	261
Maximum Film Temperature (°F) (°C) AICHE	485	252
Combustion Loading (Btu/hr-ft^3) (kW/m^3)	20,301	210
Average Film Coefficient (Btu/hr-ft^2-F) (W/m^2-K)	237	1,345
Average Reynolds Number	261,428	261,428
Average Flue Gas Velocity Across Insulation (ft/s) (m/s)	49	15
Average Oil Velocity (ft/s) (m/s)	8	2
Average Prandtl Number	23	23
H/W or L/D Ratio	4	4

URS

Moundsville Fractionator and Terminal

Flare

Mechanical Equipment Data Sheet Package for Permanent Flare

DOC. # 30917-40-15-07-210-001

REV.	DESCRIPTION	BY	CHKD	PRO/SDE/PEM	DATE
2	Updated Process Conditions	RMW	CJC	JSM/CJF/EMS	5/7/13
1	Added warehouse spare air assist blower	HDP	CJC	JSM/CJF/EMS	2/19/2013
0	Issued for Purchase	CJC	RMW	JSM/CJF/EMS	1/31/2013
B	Issued for Bid	CJC	HDP	RMW	11/8/2012
A	Issued for IDR	CJC		RMW	11/5/2012

Revisions

CLIENT:	Williams
PROJECT:	Moundsville Fractionator and Terminal
URS JOB NO.:	30917-40

					FLARE	DATASHEET NO.		REV
					API 537	**30917-40-15-07-210-001**		2
			NO.	BY	DATE	REVISION	SHEET	OF	DATE
			A	CJC	11/5/12	Issued for IDR	**1**	**12**	4/08/13
			B	CJC	11/8/12	Issued for Bid	BY	CHK'D	APPR
			0	CJC	1/31/13	Issued for Purchase			
			1	HDP	2/19/13	Added warehouse spare blower	P.O.		
			2	RMW	4/08/13	Updated Process Conditions	REQ		
1	TAG	**FL-1241**	SERVICE DESC	Permanent Flare			VENDOR		
2			MANUFACT'R	Zeeco			SIZE	By vendor	
3	PROJ	30811	MODEL NUM	AFTA-24/56					

4	**PURCHASER SUPPLIED - GENERAL INFORMATION**			
5		Note		REV
6	Purchaser		URS Energy and Construction	
7	Reference Number		N/A	
8	Plant Owner / Operator		Williams	0
9	Reference Number		N/A	
10	Vendor Reference Number		T24495F	0
11				
12				
13	Jobsite Location		Moundsville, WV	
14	Jobsite Climate		Humid Continental	
15	Unit Tag		N/A	
16	Equipment Number		FL-1241	2
17	Service		Permanent Flare	
18	Quantity Required		One	
19	Is Smokeless Required? (Yes/No)		Yes - Ringelmann 1, see sheet 4 for capacity	
20	Preferred Smokeless Method		Air assist	
21	Local Codes			B
22	Is P&ID Attached? (Yes/No)		No	
23				
24				
25	Ambient Conditions			
26	Maximum Recorded Temperature °F		99	
27	Minimum Recorded Temperature °F		-20	
28	Minimum Design Temperature (winterization) °F		-20	
29	Minimum Design Metal Temperature °F	9	-50	
30	Summer Max. Design Temperature (dry bulb) °F		100	
31	Relative Humidity %		100 max, 85 ave, 10 min	B
32	Wind Speed, Yearly mean mph	11	11.2	
33	Predominant Wind, (Y/N / Direction)		West	
34	Peak Solar Radiation Btu/h-ft^2	31	250	B
35	Include Solar w/ Flare Radiation (Yes/No)	31	Yes	B
36	Jobsite Elevation ft above sea level		696	
37	Average Barometric Pressure psia		14.33	
38				
39				
40	Structural code		IBC 2009 / ASCE 7-05	B
41	Wind			
42	Exposure Factor		C	
43	Occupancy Factor		III	
44	Structural designs wind speed (3 sec gust) mph		90	B
45	Importance Factor		1.0	
46				
47				
48	Seismic			
49	Site Class		D	B
50	Ocupancy Category		III	
51	Importance Factor		1.25	
52	S_s		10.2% g	
53	S_1		5.5% g	
54	F_a		1.6	
55	F_v		2.4	
56				
57				
58				
59				
60				
61				
62				

	TAG NO.	FL-1241	FLARE API 537	DATASHEET NO.	REV	SHT	OF	
				30917-40-15-07-210-001	2	2	12	
1	PURCHASER SUPPLIED - GENERAL INFORMATION (Continued)							
2			Note					REV
3	Minimum Flare Height	ft		190				0
4	Anticipated Flare Header Diameter	inch		24				0
5	Approx. Flare Header Length	ft		450				0
6	Flare Header Network Volume	ft^3		not available				
7	Plot Space Available, (Length/Width)			300 ft radius				
8	Aircraft Warning Lights Required? (Yes/No)			No (if height is under 200 feet)				
9								
10								
11	Welding Code			ASME BPVC, Section IX, Welding				
12	Weld Inspection			ASME BPVC, Section V, AWS D1.1, API 537				
13	Surface Prep. & Paint Requirements		14	See note				
14	Special Erection Requirements			By vendor				
15								
16	Flare Inlet Nozzle Location Above Grade	ft		25				0
17	Nozzle Loads on Flare Inlet							
18	Fx, Fy, Fz	lb		Per API 537				0
19	Mx, My, Mz	ft-lb		Per API 537				0
20	Special Piping Treatment							
21	Fireproofing			N/A				
22	Insulation			N/A				
23	Supports			pipe supports for all pilot, FFG, and electrical conduit on stack to be provided by Seller				
24	Covering			N/A				
25	Heat Tracing (Elec., Steam)			N/A				
26	Attached piping			Seller provides 2" and larger as prefabricated spools; smaller than 2" as random lengths. All within				
27				Top 10' of tip exit shall be stainless steel.				
28	Utilities Available (Design / Normal)							
29	Steam Pressure	psi (g)		N/A				
30	Steam Temperature	°F		N/A				
31	Location of Steam Conditions			N/A				
32	Blower Power, (Volts / Phase / Freq)			460V / 3 phase/ 60 Hz				
33	Instr. Power, (Volts / Phase / Freq)			120 / 1phase/ 60 Hz				
34	Electrical Classification, (Cl / Gp / Div)			Class I / Div 2 / Group C and D				1
35	Instrument Air	psi (g)		135 max, 60-100 normal				
36	Plant Air	psi (g)		135 max, 60-100 normal				
37	Nitrogen	psi (g)		N/A				
38	Fuel Gas, (psi (g) / Case #) (City gas)		28	See fuel gas composition, page 9				B
39	Purge Gas, (psi (g) / Case #) (City gas)		28	See fuel gas composition, page 9				B
40	Utility Costs			N/A				
41				N/A				
42								
43	Nearby Structures (Dist, Height)	ft		300 ft radius area is clear				
44	Other Active Flares			Maintenance flare				B
45	Direction from Current Flare			NW				B
46	Heat Release	Btu/h		TBD				B
47	Radiant Fraction			N/A				
48	Other Inactive Flares			N/A				
49	Cooling Towers			N/A				
50	Electrical Substations			N/A				
51	Property Line			N/A				
52								
53								
54								
55								
56								
64								
65								
66								
67								
68								

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PROCESS DESIGN CONDITIONS - PURCHASER

		Note	Alternate 0: Propane	Rev	Alternate 1: Butane	Rev	Alternate 2: Propane	Rev
Design Flare Capacity	lb/h		279,000		280,000		350,227	2
Smokeless Capacity (lb/h / opacity)			28,000/ Ringelmann 1		28,000/ Ringelmann 1		28,000/ Ringelmann 1	2
Gas Temperature	°F		73		38		84	2
Static Pressure at Flare Inlet	psi (g)		5		5		8	2
Flare Inlet Diameter	inch	30	24	0	24	0	24	2
Heat Release (LHV)	MM Btu/h		5,562		5,506	B	6,984	2
Duration @ Max. Rate	min		30		30		30	2
Relief Source			Depropanizer		Debutanizer		Depropanizer	2
Controlling Case For . . .			By vendor		By vendor		By vendor	2
GAS COMPOSITION (Mole%)								
Nitrogen			0.00%		0.00%		0.00%	2
CO2			0.00%		0.00%		0.00%	2
Methane			0.00%		0.00%		0.00%	2
Ethane			6.54%		0.00%		0.49%	2
Propane			91.90%		3.04%		97.99%	2
i-butane			1.31%		31.17%		1.37%	2
n-butane			0.25%		64.48%		0.15%	2
i-pentane			0.00%		1.18%		0.00%	2
n-pentane			0.00%		0.13%		0.00%	2
22-Mbutane			0.00%		0.00%		0.00%	2
2-Mpentane			0.00%		0.00%		0.00%	2
3-Mpentane			0.00%		0.00%		0.00%	2
n-hexane			0.00%		0.00%		0.00%	2
n-heptane			0.00%		0.00%		0.00%	2
n-Octane			0.00%		0.00%		0.00%	2
n-Nonane			0.00%		0.00%		0.00%	2
H20			0.00%		0.00%		0.00%	2
TOTAL (should be 100%)			100.00%		100.00%		100.00%	2
Molecular Weight			43.3		57.7		44.2	2
Lower Heating Value	Btu/lb		19,970		19,660		19,941	2
Ratio of Specific Heats	Cp/Cv		N/A		N/A		N/A	2
Viscosity	cP		N/A		N/A		N/A	2
Dew Point @ static inlet press.	°F		N/A		N/A		N/A	2
UEL	% in air		N/A		N/A		N/A	2
LEL	% in air		N/A		N/A		N/A	2

	TAG NO.	FL-1241	FLARE API 537	DATASHEET NO. 30917-40-15-07-210-001	REV 2	SHT 4	OF 12
1	PROCESS DESIGN CONDITIONS - PURCHASER						
2							
3		Note	Actual Seller Design	0			
4	Design Flare Capacity lb/h		350,227	2			
5	Smokeless Capacity (lb/h / opacity)		28000/ Ringelmann 1	0			
6	Gas Temperature °F		84	2			
7	Static Pressure at Flare Inlet psi (g)		8.0	2			
8	Flare Inlet Diameter inch	30	24	0			
9							
10	Heat Release (LHV) MM Btu/h		6,984	2			
11	Duration @ Max. Rate min		30	2			
12	Relief Source		Depropanizer	2			
13	Controlling Case For . . .		By vendor	2			
14							
15							
16	GAS COMPOSITION (Mole%)						
17	Nitrogen		0.00%	2			
18	CO2		0.00%	2			
19	Methane		0.00%	2			
20	Ethane		0.49%	2			
21	Propane		97.99%	2			
22	i-butane		1.37%	2			
23	n-butane		0.15%	2			
24	i-pentane		0.00%	2			
25	n-pentane		0.00%	2			
26	22-Mbutane		0.00%	2			
27	2-Mpentane		0.00%	2			
28	3-Mpentane		0.00%	2			
29	n-hexane		0.00%	2			
30	n-heptane		0.00%	2			
31	n-Octane		0.00%	2			
32	n-Nonane		0.00%	2			
33	H20		0.00%	2			
34							
35							
36							
37							
38							
39							
40							
41							
42							
43							
44							
45							
46							
47							
48							
49							
50							
51							
52							
53							
54							
55							
56							
57	TOTAL (should be 100%)		100.00%	2			
58							
59							
60							
61							
62	Molecular Weight		44.2	2			
63	Lower Heating Value Btu/lb		19,941	2			
64	Ratio of Specific Heats Cp/Cv		N/A	2			
65	Viscosity cP		N/A	2			
66	Dew Point @ static inlet press. °F		N/A	2			
67	UEL % in air		N/A	2			
68	LEL % in air		N/A	2			

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	REQUIRED SYSTEM PERFORMANCE - PURCHASER						
		Note	Specified	REV	Based on Case / Flow		REV
	FLOW PERFORMANCE						
	Hydraulic Capacity lb/h		Up to full flow conditions for each specified case				
	Static Inlet Pressure psi (g)		8 (allowable)	2			
	Peak Exit Velocity ft/s		By vendor		449 (Design Case)		0
	Peak Mach Number		0.75 (max)	0	0.60 (Design Case)		0
	RADIATION PERFORMANCE						
	Peak Radiation at Grade Btu/h-ft^2	31	1500 Btu/hr-ft2		All specified cases		B
	Distance to Peak Radiation ft		By vendor				
	Distance to **500** Btu/h-ft^2, ft	31	280	B	All specified cases		B
	NOISE PERFORMANCE						
	SPL at Flare Base dBA	4	85		Smokeless case		B
	SPL at ft from base dBA		N/A				
	SPL at ft from base dBA		N/A				
	SMOKELESS PERFORMANCE						
	Smokeless Capacity lb/h		28,000		28,000		0
	Smokeless Definition (R0 / R1 / R2)		R1		R1		0
	SMOKELESS STEAM CONSUMPTION						
	Primary Steam lb/h		N/A				
	Secondary Steam lb/h		N/A				
	Tertiary Steam lb/h		N/A				
	Max. Total Steam lb/h		N/A				
	Continuous Steam lb/h		N/A				
	S/HC ratio @ Design Smokeless Rate		N/A				
	SMOKELESS AIR REQUIREMENTS						
	Continuous (min.) hp		By vendor		75		0
	Second Stage hp		By vendor		N/A		0
	Third Stage hp		By vendor		N/A		0
	Max. Total Power hp		By vendor		75		0
	Design Air Capacity SCFM		By vendor				
	Design Blower Pressure in wc		By vendor				
	UTILITY CONSUMPTION						
	Purge Gas SCFH		By vendor		870		0
	Pilot Gas SCFH		By vendor		65 X 3		0
	Ignition Gas (Intermittent) SCFH		By vendor		110		0
	Ignition Air (Intermittent) SCFH		By vendor		1100		0
	Assist Gas (SCFH) / (lb/h waste)		By vendor				
	Supplemental Gas SCFH		By vendor				

	TAG NO.	FL-1241		FLARE API 537		DATASHEET NO. 30917-40-15-07-210-001	REV 2	SHT 6	OF 12
1	MECHANICAL DESIGN DATA (FLARE BURNER)								
2			Note	Purchaser - Specified	REV	Vendor - Proposed / Actual			REV
3	**FLARE BURNER BODY**								
4	Tip, (Type / Model)			By vendor		AFTA - 24/56			0
5	Quantity of Burners			By vendor		1			0
6	Smokeless Method			By vendor		Air Assist			0
7	Overall Length	ft		By vendor		10			0
8	Upper Section Length	ft		By vendor		5			0
9	Material / Diam. / Thickness	inch	9	310SS / By vendor / By vendor	0	310 SS / 24 / TBD			0
10	Lower Section Length	ft		By vendor		5			0
11	Material / Diam. / Thickness	inch		By vendor		SA 516 Gr. 60 / 24			0
12	Connection, (Type / Size)	inch		By vendor	0	BW / TBD			0
13	Lining Length	ft		By vendor		N/A			0
14	Material / Thickness	inch		By vendor		N/A			0
15	Muffler, (Length / Diameter)	ft/inch		By vendor					
16	Windshield, (Type / Material)			By vendor					
17	Flame Retention, (Y/N / Material)			By vendor		Y / 310 SS			0
18	Lifting lugs (on tip)			By vendor					
19									
20	**STEAM ASSIST EQUIPMENT**			N/A					
21	Primary Steam Material								
22	Connection (Type / Size)	inch							
23									
24	Secondary Steam Material								
25	Connection (Type / Size)	inch							
26									
27	Tertiary Steam Material								
28	Connection (Type / Size)	inch							
29									
30									
31	**AIR ASSIST EQUIPMENT**								
32	Air Plenum Length	ft		By vendor		160			0
33	Air Plenum Diameter	inch		By vendor		54			0
34	Connection Type / Size	inch		By vendor		Plate Flg/ 54"(bottom), 56" (top)			0
35									
36									
37	**PILOTS**								
38	Quantity			2 minimum	B	3			0
39	Rating - Each	Btu/h		By vendor		65000			0
40	Gas Pressure	psig		By vendor		15			0
41	Inspirator Type			By vendor					
42	Inspirator Material			By vendor					
43	Gas Orifice Size	inch		By vendor					
44	Strainer (Y/N)			By vendor					
45	Flame Monitors (per pilot / per flare)			By vendor		1/3			0
46	Flame Monitor Type			By vendor		Thermocouple			0
47	Pilot Fuel Connection (Type/Size)	inch		By vendor		FNPT / 3/4"			0
48	Fuel Gas Manifold (Y/N)			By vendor		Y			0
49	Manifold Connection (Type/Size)	inch		By vendor		FNPT / 3/4"			0
50	Ignition Connection (Type/Size)	inch		flanged at base	0	BW / 1"			0
51	Retractable Pilots (Y/N)			N					
52	Retractable Thermocouples (Y/N)			Y		Y			0
53									
54									
55	**IGNITION SYSTEM**								
56	Type (FFG / Electronic / Other)		15	FFG	0				
57	Distance from Stack	ft		400 (at KO drum)	0				
58	Automatic / Manual Ignition		21	Manual with automatic relight	B				
59	Electrical Classification (Cl / Gp / Div)			Class I / Group C & D / Div 2	0	Class I / Group C & D / Div 2			0
60	Remote Alarm Contacts - Quantity			By vendor					
61	Remote Ignition Contact (Y/N)			Y					
62	Pressure Regulators - Quantity			By vendor		2			0
63	Pressure Gauges - Quantity			By vendor		3			0
64	Pilot Selector Valves - Type / Quantity			By vendor		/3			1
65	Pilot Indicator Lights (Y/N)			Y		3			0
66	Piping connections			flanged at tip and base					
67									
68									

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	MECHANICAL DESIGN DATA (PURGE DEVICE / STACK)						
		Note	Purchaser - Specified	REV	Vendor - Proposed / Actual		REV
	PURGE CONSERVATION DEVICE						
	Type, (Buoyancy / Velocity / None)		Velocity		Velocity		0
	Outside Diameter inch		By vendor				
	Overall Length ft		By vendor				
	Material / Thickness		By vendor				
	Inlet, (Type / Size) inch		By vendor				
	Outlet, (Type / Size) inch		By vendor				
	Drain, (Type / Size) inch		N/A				
	Loop Seal Depth (ref 23251) inch		N/A				
	STACK						
	Overall Height ft		199		190		0
	Support Method		By vendor	0	Self-Supporting		0
	Design Pressure psi (g)			0	10 (riser), 2 (air plenum)		0
	Design Temperature °F	9	-50 to 550		-50 to 550		0
	Riser Material		Low temperature carbon steel	0	SA-516 Gr 60		0
	Upper Section Length ft		By vendor				
	Material / Diam. / Thickness inch		By vendor				
	Middle Section Length ft		By vendor				
	Material / Diam. / Thickness inch		By vendor				
	Lower Section Length ft		By vendor				
	Material / Diam. / Thickness inch		By vendor				
	Inlet, (Type / Size) inch		By vendor				
	Drain, (Type / Size) inch		By vendor				
	Derrick, Base (Shape / Size) ft		N/A				
	Guy Wire Dead Man Radius ft		N/A				
	Corrosion allowance in		1/16" min (carbon steel), 0" (SS)	1			
	Deflection in/100ft		By vendor				
	PIPING ON STACK						
	Pilot Gas Lines - Quantity		One per pilot		One with manifold at tip		0
	Material / Size, inch / Schedule		By vendor		SA-106 Gr. B/ 1" / 40		0
	Ignition Lines - Quantity		By vendor		3		0
	Material / Size, inch / Schedule		SS/By vendor/By vendor		304 SS/ 1" / 40		0
	Primary Steam - (Mat'l / Size, inch / Sched)		N/A				
	Secondary Steam - (Mat'l / Size, inch / Sched)		N/A				
	Tertiary Steam - (Mat'l / Size, inch / Sched)		N/A				
	Drain Line - (Mat'l / Size, inch / Sched)		None				
	Assist Gas Line - (Mat'l / Size, inch / Sched)		N/A				
	T/C Conduit - (Mat'l / Size, inch)		By vendor		316L / 1/2"		0
	Ignition / Power Conduit - (Mat'l / Size, inch)		By vendor		N/A		0
	ACWL Power Conduit - (Mat'l / Size, inch)		By vendor				
	Manway Access		By vendor		24" opening		1
	Skirt Access and Venting		Provide (2) 20" access openings at the bottom of the flare stack for external inspection of the flare riser.		24" opening and 2-4" vent holes		1

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	MECHANICAL DESIGN DATA (ANCILLARIES)					
		Note	Purchaser - Specified	REV	Vendor - Proposed / Actual	REV
	AIR ASSIST BLOWER SYSTEM		By vendor			
	Fan Quantity		By vendor	0	one installed, see note 37	1
	Fan, (Type / Material)		By vendor		Vane Axial / TBD	0
	Fan Location		Grade	B	In ductwork	0
	Damper Quantity		By vendor			
	Damper Control (Required / Included)		By vendor			
	Motor, (Type / Speed)		By vendor			
	Motor Enclosure		By vendor		TEAO	0
	Motor Namplate HP		By vendor		75	0
	Motor / Fan - Lubrication		By vendor			
	Max. Motor Current - Winter Amp		By vendor			
	Supplemental Requirements		By vendor		Inlet Bell & Bird Screen	0
	LADDERS & PLATFORMS				N/A	0
	Top Platform, (Deg. / Size, ft)			0		
	Step-off Platforms Quantity			0		
	Buoyancy Seal Access			0		
	Instrument Access Quantity			0		
	Ladders Type			0		
	Material / Finish			0		
	L&P Specification			0		
	AIRCRAFT WARNING SYSTEM		N/A (if height < 200 ft)	B	N/A	0
	Quantity					
	Location					
	Color / Type, (Strobe / Beacon / Paint)					
	Retractable					
	Painting Specification					
	EST. EQUIPMENT WEIGHTS, (lb)	10				
	Flare Tip		By vendor		4000 lb	0
	Purge Reduction Device		By vendor			
	Gas/Air Risers + Piping		By vendor			
	Support System		By vendor			
	Ladders & Platforms		By vendor			
	Liquid Seal		By vendor			
	Knockout Drum		N/A			
	Control Panels		By vendor			
	SMOKE SUPPRESSION CONTROL					
	Flare Gas Flow Detector		Optional	B	Not included	0
	Smoke Detector		Optional	B	Not included	0
	Control Strategy, (Auto / Manual)		Manual	B		
	CODES					
	API 521, Pressure Relieving & Depressuring Syst.		Yes			
	API 537, Flare Details		Yes			
	STS-1, Steel Stacks		Yes			
	ASME BPVC, Section II, Material		Yes			
	ASME BPVC, Section V, Inspection		Yes			
	ASME BPVC, Section IX, Welding		Yes			
	ASME B31.3 Piping		Yes			
	AWS D1.1 Structural Welding		Yes			
	IBC 2009/ ASCE 7-05		Yes			
	API 661, Pressure Relieving & Depressuring Syst.					B
	SCOPE OF SUPPLY					
	Required		Flare Burner, Pilot, Pilot Igniters,			
			Pilot Flame Detectors, Velocity Seal, Piping,			
			Wind Shields, Support Structure,			
			Heat Shields, Testing and Inspection,			
				0		B
	Optional		Smoke Suppression Control,			
			Air Assist (as required), Ladders and			
			Platforms			

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GENERAL NOTES

Page No.	Note No.		REV
	1	Zeeco to provide an air assisted flare that is a duplicate to the flare provided to Williams on PO 129923.	0
	2	(deleted)	0
	3	The stack shall be delivered to the field in 40 ft (minimum) lengths. All field butt weld ends over 30" diameter shall be bevelled for an external weld and shall include an internal support. The diameter tolerance shall be +- 1/8"	0
	4	The flare noise level shall not exceed 110 dBa at grade for the maximum flaring case	B
	5	The flow tip shall be a minimum of 10 ft long, and shall be stainless steel.	0
			0
	6	The flame front generator piping shall be stainless steel.	
	7	Spot RT of gas riser butt welds and of air riser T-section is required.	0
	8	The vendor shall provide a base anchor bolt template for the flare stack.	
	9	Flare gas riser and tip only.	B
	10	Flare total assembly weight is 88000 lbs.	
	11	Wind speed for radiation calculations shall be 20 mph in any direction.	
	12	The stack shall be designed to be field erected from the horizontal position in one piece.	
	13	(deleted)	
	14	Surface preparation and coating for external carbon steel surfaces shall be as follows: SSPC-SP10, inorganic zinc primer & polyamide epoxy finish.	0 0
	15	A manual flame front generating type ignition system shall be employed. Continuous burning pilot required.	0
	16	The vendor shall be responsible for the mechanical, thermal and structural design of the flare. The flare shall be designed for 98% destruction efficiency in all cases.	
	17	The vendor shall provide the design of all foundation loads, anchor bolts size as part of detailed design. Lifting diagrams shall be provided at detailed design.	2
	18	All pipes and electrical conduit up the flare stack shall be adequately supported and shall be designed to accommodate any thermal expansion.	
	19	The following shall be provided by the vendor:	
		Junction boxes at the base of flare for thermocouple wires; high temperature thermocouple wire to the flare base.	0
		Rigging attachment lugs shall be provided. Lifting eyes not permitted.	
	20	Pilot Ignition System (Design for continuous burning pilot):	
		The flare control panel shall be skid mounted. The skid will be located outdoors approximately 400 feet from the stack. The control panel shall	0
		include flame front generator controls, status lights, manual start switch, pilot relight controls, and output contacts.	1
			1
	21	Pilots shall be of a proven design, capable of remaining ignited during severe weather condition. Each pilot will be provided with a separate automatic ignition and flame sensing system (thermocouples). Flame sensing will monitor the pilot flame and automatically initiate a re-light procedure . Pilot failure will be alarmed and indicated at the control panel.	0 0
	22	Flare replacement will be required during the life of the facility. Plans for replacement shall be part of the flare design process.	
	23	Flare tip design shall be guaranteed for performance over the range design flare rates in regards to flame stability, radiation criteria and full destruction of flared gas, and smokeless burning.	
	24	(deleted)	0
	25	(deleted)	0

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GENERAL NOTES

Page No.	Note No.		REV
	26	(deleted)	0
	27	Each pilot shall have one simplex thermocouple for monitoring pilot flame. Thermocouples shall be Type "K".	1
	28	Fuel Gas is to be used for flare purge gas. The composition of the fuel gas is:	

Component	mol frac.
CO2	0.019
Nitrogen	0.011
Methane	0.945
Ethane	0.023
Propane	0.002
Molecular weight	17.13
LHV (Btu/lb)	20038
Operating Temp	70 F

			0
	29	(deleted)	0
	30	The flare inlet connection shall be Cl. 150 RF.	B
	31	Peak solar radiation shall be included for maximum ground level radiation determination. It shall be excluded from 500 Btu/hr (at 280 feet) isopleth	B
		determination.	B
	32	Vendor to provide required air flowrate, anticipated radiation at ground level (isopleth graph), and equipment size.	B
	33	(deleted)	0
	34	Relief rates to the Permanent Flare have been reduced based on fire-proof insulation, which meets API 521 crieria on all the Storage Vessels at	B
		at Moundsville, as well as installation and proper maintenance of triple redundant pressure transmitters on the Fractionation Train 2 Depropanizer	B
		with dual SDV's on the inlet line to the Frac 2 Depropanizer to eliminate blocked outlet and loss of reflux cases from the tower. The Frac 2	B
		Depropanizer will still have enough PSV orifice area to protect it from an overpressure event, however the secondary PSV will be directed to	B
		the atmosphere.	B
	35	(deleted)	1
			1
	36	This document was previously as document number FL-1018.	0
	37	Vendor to provide a warehouse spare air assist blower with motor (blower tag B-1242)	1
	38	Rev. 2 adds Process Conditions Alternate 2: Propane (Sheet 3 of 12). Zeeco shall provide radiation isopleths for this case as follows:	2
		Solar radiation: 1) 0 Btu/h.ft^2; 2) 250 Btu/h.ft^2	2
		Wind speed: 30 ft/s	2
		Relative humidity: 10%	2

SUPPLEMENT 07

Storage Tank Data Sheet

(Insignificant Emission Units)

General Form – 4.24.19: Emission units which do not have any applicable requirements and which emit criteria pollutants (CO, NOx, SO2, VOC and PM) into the atmosphere at a rate of less than 1 pound per hour and less than 10,000 pounds per year (5 tpy) aggregate total for each criteria pollutant from all emission units.

General Form – 4.24.20: Emission units which do not have any applicable requirements and which emit hazardous air pollutants (HAP) into the atmosphere at a rate of less than 0.1 pounds per hour and less than 1,000 pounds per year (0.5 tpy) aggregate total for all HAPs from all emission sources.

Please specify all emission units for which this exemption applies along with the quantity of pollutants emitted on an hourly and annual basis:

SUPPLEMENT 07 - Storage Tank Data Sheet (Insignificant Emissions Units)

Source ID	Contents	Orientation	Volume (gal)	Thru-Put (gal/yr)	VOC		HAP	
					lb/hr	tpy	lb/hr	tpy
V-2000A	Y-Grade NGL (Pressurized)	Horizontal	61,400	na	na	na	na	na
V-2000B	Y-Grade NGL (Pressurized)	Horizontal	61,400	na	na	na	na	na
V-2000C	Y-Grade NGL (Pressurized)	Horizontal	61,400	na	na	na	na	na
V-2000D	Y-Grade NGL (Pressurized)	Horizontal	61,400	na	na	na	na	na
V-2000E	Y-Grade NGL (Pressurized)	Horizontal	61,400	na	na	na	na	na
V-2000F	Y-Grade NGL (Pressurized)	Horizontal	61,400	na	na	na	na	na
V-2110	Y-Grade NGL (Pressurized)	Horizontal	90,000	na	na	na	na	na
V-2111	Y-Grade NGL (Pressurized)	Horizontal	90,000	na	na	na	na	na
V-2112	Y-Grade NGL (Pressurized)	Horizontal	90,000	na	na	na	na	na
V-2113	Y-Grade NGL (Pressurized)	Horizontal	90,000	na	na	na	na	na
V-2114	Y-Grade NGL (Pressurized)	Horizontal	90,000	na	na	na	na	na
V-2115	Y-Grade NGL (Pressurized)	Horizontal	90,000	na	na	na	na	na
V-2217A	Propane (Pressurized)	Horizontal	114,000	na	na	na	na	na
V-2217B	Propane (Pressurized)	Horizontal	114,000	na	na	na	na	na
V-2217C	Propane (Pressurized)	Horizontal	90,000	na	na	na	na	na
V-2217D	Propane (Pressurized)	Horizontal	90,000	na	na	na	na	na
V-2217E	Propane (Pressurized)	Horizontal	90,000	na	na	na	na	na
V-2217F	Propane (Pressurized)	Horizontal	90,000	na	na	na	na	na
V-2904	Propane (Pressurized)	Horizontal	90,000	na	na	na	na	na
V-2905	Propane (Pressurized)	Horizontal	90,000	na	na	na	na	na
V-2901	Propane (Pressurized)	Sphere	420,000	na	na	na	na	na
V-2902	Propane (Pressurized)	Sphere	420,000	na	na	na	na	na
V-2218A	Butane (Pressurized)	Horizontal	140,000	na	na	na	na	na
V-2218B	Butane (Pressurized)	Horizontal	140,000	na	na	na	na	na
V-2925	Butane (Pressurized)	Sphere	210,000	na	na	na	na	na
V-2926	Butane (Pressurized)	Sphere	210,000	na	na	na	na	na
V-2927	Butane (Pressurized)	Sphere	210,000	na	na	na	na	na
V-2219A	Natural Gasoline (Pressurized)	Horizontal	60,000	na	na	na	na	na
V-2219B	Natural Gasoline (Pressurized)	Horizontal	60,000	na	na	na	na	na
V-2950	Natural Gasoline	Vertical	420,000	4,630,286	See Flare (FL-02 (5S))			
V-2951	Natural Gasoline	Vertical	420,000	4,630,286	See Flare (FL-02 (5S))			
V-5010	Stabilized Condensate (Pressurized)	Horizontal	90,000	na	na	na	na	na
V-5011	Stabilized Condensate (Pressurized)	Horizontal	90,000	na	na	na	na	na
V-5012	Stabilized Condensate (Pressurized)	Horizontal	90,000	na	na	na	na	na
V-900	Slop Liquids	Vertical	8,820	82,715	0.01	0.02	neg	neg
V-901	Slop Liquids	Vertical	8,820	82,715	0.01	0.02	neg	neg
---	Diesel	Horizontal	520	6,240	neg	neg	neg	neg
---	Gasoline	Horizontal	520	6,240	0.07	0.32	neg	neg
---	Methanol	Horizontal	300	3,600	neg	0.01	neg	0.01
V-5800	Mercaptan - Truck Loading	Horizontal	1,000	12,000	0.09	0.41	---	---
V-7600	Mercaptan - Truck Loading	Horizontal	1,000	12,000	0.09	0.41	---	---
V-8000	Mercaptan - Rail Loading	Horizontal	3,000	36,000	0.19	0.85	---	---
				TOTAL:	**0.47**	**2.06**	**0.00**	**0.01**
				THRESHOLD:	**1.00**	**5.00**	**0.10**	**0.50**

SUPPLEMENT 08

Current Permit

Permit Type:	**Permit to Modify**
Permit No:	R13-2892C
	(Replaces and supersedes R13-2892B)
Issued to:	Williams Ohio Valley Midstream LLC
Site Name:	Moundsville Fractionation Plant
Description:	Natural Gas Liquid (NGL) Fractionation
Location:	200 Caiman Drive
	Moundsville, Marshall County, WV
UTM Coordinates:	517.35 km Easting x 4,418.11 km Northing x Zone 17S
Issued:	05/28/13

west virginia department of environmental protection

Division of Air Quality
601 57th Street SE
Charleston, WV 25304
Phone 304/926-0475

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

May 28, 2013

CERTIFIED MAIL
91 7199 9991 7032 6242 8208

Williams Ohio Valley Midstream, LLC
Jack Hamel
Park Place 2
2000 Commerce Drive
Pittsburgh, PA 15275

RE: Williams Ohio Valley Midstream, LLC
Moundsville Fractionation Plant
Permit Application No. R13-2892C
Plant ID No. 051-00141

Mr. Hamel:

Your application for a permit as required by Section 5 of 45CSR13 - "Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permit, General Permit, and Procedures for Evaluation" has been approved. The enclosed permit R13-2892C is hereby issued pursuant to Subsection 5.7 of 45CSR13. Please be aware of the notification requirements in the permit which pertain to commencement of construction, modification, or relocation activities; startup of operations; and suspension of operations.

As a result of the granting of this permit, the source is subject to 45CSR30. The Title V (45CSR30) application will be due within twelve (12) months after the date of the commencement of the operation or activity (activities) authorized by this permit, unless granted a deferral or exemption by the Director from such filing deadline pursuant to a request from the permittee.

In accordance with 45CSR30- Operating Permit Program, the permittee shall submit a certified emissions statement and pay fees on an annual basis in accordance with the submittal requirements of the Division of Air Quality. A receipt for the appropriate fee shall be maintained on the premises for which the receipt has been issued, and shall be made immediately available for inspection by the Secretary or his/her duly authorized representative.

Any person whose interest may be affected, including, but not necessarily limited to, the applicant and any person who participated in the public comment process, by a permit issued, modified or denied by the Secretary may appeal such action of the Secretary to the Air Quality Board pursuant to article one [§§22B-1-1 et seq.], Chapter 22B of the Code of West Virginia. West Virginia Code §§22-5-14.

Should you have any questions or comments, please contact me at (304) 926-0499, extension 1223.

Sincerely,

Jerry Williams, P.E.
Engineer

c: Joe McCay

West Virginia Department of Environmental Protection

Earl Ray Tomblin
Governor

Division of Air Quality

Randy C. Huffman
Cabinet Secretary

Permit to Modify

R13- 2892C

This permit is issued in accordance with the West Virginia Air Pollution Control Act (West Virginia Code §§22-5-1 et seq.) and 45 C.S.R. 13 – Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits and Procedures for Evaluation. The permittee identified at the above-referenced facility is authorized to construct the stationary sources of air pollutants identified herein in accordance with all terms and conditions of this permit.

Issued to:

Williams Ohio Valley Midstream, LLC
Moundsville Fractionation Plant
051-00141

John A. Benedict
Director

Issued: May 28, 2013 • Effective: May 28, 2013

This permit will supercede and replace R13-2892B issued on March 5, 2013.

Facility Location:	Moundsville, Marshall County, West Virginia
Mailing Address:	Park Place 2, 2000 Commerce Drive, Pittsburgh, PA 15275
Facility Description:	Natural Gas Extraction/Fractionation Facility
SIC Codes:	1321
NAICS Codes:	211112
UTM Coordinates:	517.347 km Easting • 4418.11 km Northing • Zone 17
Permit Type:	Modification
Description of Change:	Installation of a new fractionation train and flare and eliminate the existing flare.

Any person whose interest may be affected, including, but not necessarily limited to, the applicant and any person who participated in the public comment process, by a permit issued, modified or denied by the Secretary may appeal such action of the Secretary to the Air Quality Board pursuant to article one [§§22B-1-1 et seq.], Chapter 22B of the Code of West Virginia. West Virginia Code §§22-5-14.

As a result of the granting of this permit, the source is subject to 45CSR30. The Title V (45CSR30) application will be due within twelve (12) months after the date of the commencement of the operation or activity (activities) authorized by this permit, unless granted a deferral or exemption by the Director from such filing deadline pursuant to a request from the permittee.

Table of Contents

1.0. Emission Units

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed/ Modified	Design Capacity	Control Device
1S	-	Fractionation Plant	2011	12,500 BPD	None
			2013	30,000 BPD	
2S	-	Product Loading/Unloading	2011	12,500 BPD	Flare
			2013	30,000 BPD	
3S	-	NGL Accumulation Tanks	2011	6 tanks @ 61,400 gallons	Pressure Vessels
			2013	6 tanks @ 90,000 gallons	
3S	-	Propane Accumulation Tanks	2011	2 tanks @ 114,000 gallons 4 tanks @ 90,000 gallons	Pressure Vessels
			2013	2 tanks @ 420,000 gallons 1 tank @ 90,000 gallons	
3S	-	Butane Accumulation Tanks	2011	2 tanks @ 140,000 gallons	Pressure Vessels
			2013	3 tanks @ 210,000 gallons	
3S	-	Natural Gasoline Storage Tanks	2011	2 tanks @ 60,000 gallons	Pressure Vessels
			2013	2 tanks @ 420,000 gallons	Flare
				1 tank @ 90,0000 gallons	Pressure Vessel
1-HTR	1E	Hot Oil Heater	2011	45.54 MMBTU/hr	None
2-HTR	2E	Hot Oil Heaters (2)	2013	89.85 MMBTU/hr (each)	None
5S	5E	Flare	2013	0.18 MMBTU/hr (pilot)	None

1.1. Control Devices

Emission Unit	Pollutant	Control Device	Control Efficiency
Fractionation Plant Maintenance Liquids to Flare	Volatile Organic Compounds	Flare	99 %
	Total HAPS		99 %
Flare Header Blanket Gas Purge	Volatile Organic Compounds	Flare	99 %
	Total HAPs		99 %
Truck and Rail Loadout	Volatile Organic Compounds	Flare	99 %
	Total HAPs		99 %

2.0. General Conditions

2.1. Definitions

2.1.1. All references to the "West Virginia Air Pollution Control Act" or the "Air Pollution Control Act" mean those provisions contained in W.Va. Code §§ 22-5-1 to 22-5-18.

2.1.2. The "Clean Air Act" means those provisions contained in 42 U.S.C. §§ 7401 to 7671q, and regulations promulgated thereunder.

2.1.3. "Secretary" means the Secretary of the Department of Environmental Protection or such other person to whom the Secretary has delegated authority or duties pursuant to W.Va. Code §§ 22-1-6 or 22-1-8 (45CSR§30-2.12.). The Director of the Division of Air Quality is the Secretary's designated representative for the purposes of this permit.

2.2. Acronyms

CAAA	Clean Air Act Amendments	**NO_X**	Nitrogen Oxides
CBI	Confidential Business Information	**NSPS**	New Source Performance Standards
CEM	Continuous Emission Monitor	**PM**	Particulate Matter
CES	Certified Emission Statement	**$PM_{2.5}$**	Particulate Matter less than 2.5 µm in diameter
C.F.R. *or* CFR	Code of Federal Regulations	**PM_{10}**	Particulate Matter less than 10µm in diameter
CO	Carbon Monoxide	**Ppb**	Pounds per Batch
C.S.R. *or* CSR	Codes of State Rules	**Pph**	Pounds per Hour
DAQ	Division of Air Quality	**Ppm**	Parts per Million
DEP	Department of Environmental Protection	**Ppm_V or ppmv**	Parts per Million by Volume
dscm	Dry Standard Cubic Meter	**PSD**	Prevention of Significant Deterioration
FOIA	Freedom of Information Act	**Psi**	Pounds per Square Inch
HAP	Hazardous Air Pollutant	**SIC**	Standard Industrial Classification
HON	Hazardous Organic NESHAP	**SIP**	State Implementation Plan
HP	Horsepower	**SO_2**	Sulfur Dioxide
lbs/hr	Pounds per Hour	**TAP**	Toxic Air Pollutant
LDAR	Leak Detection and Repair	**TPY**	Tons per Year
M	Thousand	**TRS**	Total Reduced Sulfur
MACT	Maximum Achievable Control Technology	**TSP**	Total Suspended Particulate
MDHI	Maximum Design Heat Input	**USEPA**	United States Environmental Protection Agency
MM	Million	**UTM**	Universal Transverse Mercator
MMBtu/hr *or* mmbtu/hr	Million British Thermal Units per Hour	**VEE**	Visual Emissions Evaluation
MMCF/hr *or* mmcf/hr	Million Cubic Feet per Hour	**VOC**	Volatile Organic Compounds
NA	Not Applicable	**VOL**	Volatile Organic Liquids
NAAQS	National Ambient Air Quality Standards		
NESHAPS	National Emissions Standards for Hazardous Air Pollutants		

2.3. Authority

This permit is issued in accordance with West Virginia air pollution control law W.Va. Code §§ 22-5-1. et seq. and the following Legislative Rules promulgated thereunder:

2.3.1. 45CSR13 – *Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits and Procedures for Evaluation*;

2.4. Term and Renewal

2.4.1. This permit supersedes and replaces previously issued Permit R13-2892B. This Permit shall remain valid, continuous and in effect unless it is revised, suspended, revoked or otherwise changed under an applicable provision of 45CSR13 or any other applicable legislative rule;

2.5. Duty to Comply

2.5.1. The permitted facility shall be constructed and operated in accordance with the plans and specifications filed in Permit Application R13-2892, R13-2892A, R13-2892B, R13-2892C and any modifications, administrative updates, or amendments thereto. The Secretary may suspend or revoke a permit if the plans and specifications upon which the approval was based are not adhered to;
[45CSR§§13-5.11 and -10.3.]

2.5.2. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the West Virginia Code and the Clean Air Act and is grounds for enforcement action by the Secretary or USEPA;

2.5.3. Violations of any of the conditions contained in this permit, or incorporated herein by reference, may subject the permittee to civil and/or criminal penalties for each violation and further action or remedies as provided by West Virginia Code 22-5-6 and 22-5-7;

2.5.4. Approval of this permit does not relieve the permittee herein of the responsibility to apply for and obtain all other permits, licenses, and/or approvals from other agencies; i.e., local, state, and federal, which may have jurisdiction over the construction and/or operation of the source(s) and/or facility herein permitted.

2.6. Duty to Provide Information

The permittee shall furnish to the Secretary within a reasonable time any information the Secretary may request in writing to determine whether cause exists for administratively updating, modifying, revoking, or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the Secretary copies of records to be kept by the permittee. For information claimed to be confidential, the permittee shall furnish such records to the Secretary along with a claim of confidentiality in accordance with 45CSR31. If confidential information is to be sent to USEPA, the permittee shall directly provide such information to USEPA along with a claim of confidentiality in accordance with 40 C.F.R. Part 2.

2.7. Duty to Supplement and Correct Information

Upon becoming aware of a failure to submit any relevant facts or a submittal of incorrect information in any permit application, the permittee shall promptly submit to the Secretary such supplemental facts or corrected information.

2.8. Administrative Update

The permittee may request an administrative update to this permit as defined in and according to the procedures specified in 45CSR13.
[45CSR§13-4.]

2.9. Permit Modification

The permittee may request a minor modification to this permit as defined in and according to the procedures specified in 45CSR13.
[45CSR§13-5.4.]

2.10 Major Permit Modification

The permittee may request a major modification as defined in and according to the procedures specified in 45CSR14 or 45CSR19, as appropriate.
[45CSR§13-5.1]

2.11. Inspection and Entry

The permittee shall allow any authorized representative of the Secretary, upon the presentation of credentials and other documents as may be required by law, to perform the following:

a. At all reasonable times (including all times in which the facility is in operation) enter upon the permittee's premises where a source is located or emissions related activity is conducted, or where records must be kept under the conditions of this permit;

b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

c. Inspect at reasonable times (including all times in which the facility is in operation) any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit;

d. Sample or monitor at reasonable times substances or parameters to determine compliance with the permit or applicable requirements or ascertain the amounts and types of air pollutants discharged.

2.12. Emergency

2.12.1. An "emergency" means any situation arising from sudden and reasonable unforeseeable events beyond the control of the source, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission limitation under the permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.

2.12.2. Effect of any emergency. An emergency constitutes an affirmative defense to an action brought for noncompliance with such technology-based emission limitations if the conditions of Section 2.12.3 are met.

2.12.3. The affirmative defense of emergency shall be demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence that:

a. An emergency occurred and that the permittee can identify the cause(s) of the emergency;

b. The permitted facility was at the time being properly operated;

c. During the period of the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in the permit; and

d. The permittee submitted notice of the emergency to the Secretary within one (1) working day of the time when emission limitations were exceeded due to the emergency and made a request for variance, and as applicable rules provide. This notice must contain a detailed description of the emergency, any steps taken to mitigate emissions, and corrective actions taken.

2.12.4. In any enforcement proceeding, the permittee seeking to establish the occurrence of an emergency has the burden of proof.

2.12.5 The provisions of this section are in addition to any emergency or upset provision contained in any applicable requirement.

2.13. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a permittee in an enforcement action that it should have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. However, nothing in this paragraph shall be construed as precluding consideration of a need to halt or reduce activity as a mitigating factor in determining penalties for noncompliance if the health, safety, or environmental impacts of halting or reducing operations would be more serious than the impacts of continued operations.

2.14. Suspension of Activities

In the event the permittee should deem it necessary to suspend, for a period in excess of sixty (60) consecutive calendar days, the operations authorized by this permit, the permittee shall notify the Secretary, in writing, within two (2) calendar weeks of the passing of the sixtieth (60) day of the suspension period.

2.15. Property Rights

This permit does not convey any property rights of any sort or any exclusive privilege.

2.16. Severability

The provisions of this permit are severable and should any provision(s) be declared by a court of competent jurisdiction to be invalid or unenforceable, all other provisions shall remain in full force and effect.

2.17. Transferability

This permit is transferable in accordance with the requirements outlined in Section 10.1 of 45CSR13. **[45CSR§13-10.1.]**

2.18. Notification Requirements

The permittee shall notify the Secretary, in writing, no later than thirty (30) calendar days after the actual startup of the operations authorized under this permit.

2.19. Credible Evidence

Nothing in this permit shall alter or affect the ability of any person to establish compliance with, or a violation of, any applicable requirement through the use of credible evidence to the extent authorized by law. Nothing in this permit shall be construed to waive any defense otherwise available to the permittee including, but not limited to, any challenge to the credible evidence rule in the context of any future proceeding.

3.0. Facility-Wide Requirements

3.1. Limitations and Standards

3.1.1. **Open burning.** The open burning of refuse by any person, firm, corporation, association or public agency is prohibited except as noted in 45CSR§6-3.1.
[45CSR§6-3.1.]

3.1.2. **Open burning exemptions.** The exemptions listed in 45CSR§6-3.1 are subject to the following stipulation: Upon notification by the Secretary, no person shall cause, suffer, allow or permit any form of open burning during existing or predicted periods of atmospheric stagnation. Notification shall be made by such means as the Secretary may deem necessary and feasible.
[45CSR§6-3.2.]

3.1.3. **Asbestos.** The permittee is responsible for thoroughly inspecting the facility, or part of the facility, prior to commencement of demolition or renovation for the presence of asbestos and complying with 40 C.F.R. § 61.145, 40 C.F.R. § 61.148, and 40 C.F.R. § 61.150. The permittee, owner, or operator must notify the Secretary at least ten (10) working days prior to the commencement of any asbestos removal on the forms prescribed by the Secretary if the permittee is subject to the notification requirements of 40 C.F.R. § 61.145(b)(3)(i). The USEPA, the Division of Waste Management, and the Bureau for Public Health - Environmental Health require a copy of this notice to be sent to them.
[40CFR§61.145(b) and 45CSR§34]

3.1.4. **Odor.** No person shall cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor at any location occupied by the public.
[45CSR§4-3.1] ***[State Enforceable Only]***

3.1.5. **Permanent shutdown.** A source which has not operated at least 500 hours in one 12-month period within the previous five (5) year time period may be considered permanently shutdown, unless such source can provide to the Secretary, with reasonable specificity, information to the contrary. All permits may be modified or revoked and/or reapplication or application for new permits may be required for any source determined to be permanently shutdown.
[45CSR§13-10.5.]

3.1.6. **Standby plan for reducing emissions.** When requested by the Secretary, the permittee shall prepare standby plans for reducing the emissions of air pollutants in accordance with the objectives set forth in Tables I, II, and III of 45CSR11.
[45CSR§11-5.2.]

3.2. Monitoring Requirements

[Reserved]

3.3. Testing Requirements

3.3.1. **Stack testing.** As per provisions set forth in this permit or as otherwise required by the Secretary, in accordance with the West Virginia Code, underlying regulations, permits and orders, the permittee shall conduct test(s) to determine compliance with the emission limitations set forth in this permit and/or established or set forth in underlying documents. The Secretary, or his duly authorized representative, may at his option witness or conduct such test(s). Should the Secretary exercise his option to conduct such test(s), the operator shall provide all necessary sampling

connections and sampling ports to be located in such manner as the Secretary may require, power for test equipment and the required safety equipment, such as scaffolding, railings and ladders, to comply with generally accepted good safety practices. Such tests shall be conducted in accordance with the methods and procedures set forth in this permit or as otherwise approved or specified by the Secretary in accordance with the following:

a. The Secretary may on a source-specific basis approve or specify additional testing or alternative testing to the test methods specified in the permit for demonstrating compliance with 40 C.F.R. Parts 60, 61, and 63 in accordance with the Secretary's delegated authority and any established equivalency determination methods which are applicable. If a testing method is specified or approved which effectively replaces a test method specified in the permit, the permit may be revised in accordance with 45CSR§13-4. or 45CSR§13-5.4 as applicable.

b. The Secretary may on a source-specific basis approve or specify additional testing or alternative testing to the test methods specified in the permit for demonstrating compliance with applicable requirements which do not involve federal delegation. In specifying or approving such alternative testing to the test methods, the Secretary, to the extent possible, shall utilize the same equivalency criteria as would be used in approving such changes under Section 3.3.1.a. of this permit. If a testing method is specified or approved which effectively replaces a test method specified in the permit, the permit may be revised in accordance with 45CSR§13-4. or 45CSR§13-5.4 as applicable.

c. All periodic tests to determine mass emission limits from or air pollutant concentrations in discharge stacks and such other tests as specified in this permit shall be conducted in accordance with an approved test protocol. Unless previously approved, such protocols shall be submitted to the Secretary in writing at least thirty (30) days prior to any testing and shall contain the information set forth by the Secretary. In addition, the permittee shall notify the Secretary at least fifteen (15) days prior to any testing so the Secretary may have the opportunity to observe such tests. This notification shall include the actual date and time during which the test will be conducted and, if appropriate, verification that the tests will fully conform to a referenced protocol previously approved by the Secretary.

d. The permittee shall submit a report of the results of the stack test within sixty (60) days of completion of the test. The test report shall provide the information necessary to document the objectives of the test and to determine whether proper procedures were used to accomplish these objectives. The report shall include the following: the certification described in paragraph 3.5.1.; a statement of compliance status, also signed by a responsible official; and, a summary of conditions which form the basis for the compliance status evaluation. The summary of conditions shall include the following:

    1. The permit or rule evaluated, with the citation number and language;
    2. The result of the test for each permit or rule condition; and,
    3. A statement of compliance or noncompliance with each permit or rule condition.

[WV Code § 22-5-4(a)(14-15) and 45CSR13]

3.4. Recordkeeping Requirements

3.4.1. **Retention of records.** The permittee shall maintain records of all information (including monitoring data, support information, reports, and notifications) required by this permit recorded in a form suitable and readily available for expeditious inspection and review. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation. The files shall be maintained for at least five (5) years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. At a minimum, the most recent two (2) years of data shall be maintained on site. The remaining three (3) years of data may be maintained off site, but must remain accessible within a reasonable time. Where appropriate, the permittee may maintain records electronically (on a computer, on computer floppy disks, CDs, DVDs, or magnetic tape disks), on microfilm, or on microfiche.

3.4.2. **Odors.** For the purposes of 45CSR4, the permittee shall maintain a record of all odor complaints received, any investigation performed in response to such a complaint, and any responsive action(s) taken.
[45CSR§4. *State Enforceable Only.*]

3.5. Reporting Requirements

3.5.1. **Responsible official.** Any application form, report, or compliance certification required by this permit to be submitted to the DAQ and/or USEPA shall contain a certification by the responsible official that states that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

3.5.2. **Confidential information.** A permittee may request confidential treatment for the submission of reporting required by this permit pursuant to the limitations and procedures of W.Va. Code § 22-5-10 and 45CSR31.

3.5.3. **Correspondence.** All notices, requests, demands, submissions and other communications required or permitted to be made to the Secretary of DEP and/or USEPA shall be made in writing and shall be deemed to have been duly given when delivered by hand, or mailed first class with postage prepaid to the address(es) set forth below or to such other person or address as the Secretary of the Department of Environmental Protection may designate:

If to the DAQ:
Director
WVDEP
Division of Air Quality
601 57th Street
Charleston, WV 25304-2345

If to the US EPA:
Associate Director
Office of Air Enforcement and Compliance Assistance
(3AP20)
U.S. Environmental Protection Agency
Region III
1650 Arch Street
Philadelphia, PA 19103-2029

3.5.4. **Operating Fee**

3.5.4.1. In accordance with 45CSR30 – Operating Permit Program, the permittee shall submit a certified emissions statement and pay fees on an annual basis in accordance with the submittal requirements of the Division of Air Quality. A receipt for the appropriate fee shall be

maintained on the premises for which the receipt has been issued, and shall be made immediately available for inspection by the Secretary or his/her duly authorized representative.

3.5.5. **Emission inventory.** At such time(s) as the Secretary may designate, the permittee herein shall prepare and submit an emission inventory for the previous year, addressing the emissions from the facility and/or process(es) authorized herein, in accordance with the emission inventory submittal requirements of the Division of Air Quality. After the initial submittal, the Secretary may, based upon the type and quantity of the pollutants emitted, establish a frequency other than on an annual basis.

4.0. Source-Specific Requirements

4.1. Limitations and Standards

4.1.1. **Record of Monitoring.** The permittee shall keep records of monitoring information that include the following:

a. The date, place as defined in this permit, and time of sampling or measurements;
b. The date(s) analyses were performed;
c. The company or entity that performed the analyses;
d. The analytical techniques or methods used;
e. The results of the analyses; and
f. The operating conditions existing at the time of sampling or measurement.

4.1.2. **Minor Source of Hazardous Air Pollutants (HAP).** HAP emissions from the facility shall not exceed 10 tons/year of any single HAP and 25 tons/year of any combination of HAPs. Compliance with this Section shall ensure that the facility is a minor HAP source.

4.1.3. **Operation and Maintenance of Air Pollution Control Equipment.** The permittee shall, to the extent practicable, install, maintain, and operate all pollution control equipment listed in Section 1.0 and associated monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions, or comply with any more stringent limits set forth in this permit or as set forth by any State rule, Federal regulation, or alternative control plan approved by the Secretary.
[45CSR§13-5.11.]

4.1.4. **Record of Malfunctions of Air Pollution Control Equipment.** For all air pollution control equipment listed in Section 1.0, the permittee shall maintain records of the occurrence and duration of any malfunction or operational shutdown of the air pollution control equipment during which excess emissions occur. For each such case, the following information shall be recorded:

a. The equipment involved.
b. Steps taken to minimize emissions during the event.
c. The duration of the event.
d. The estimated increase in emissions during the event.

For each such case associated with an equipment malfunction, the additional information shall also be recorded:

e. The cause of the malfunction.
f. Steps taken to correct the malfunction.
g. Any changes or modifications to equipment or procedures that would help prevent future recurrences of the malfunction.

5.0. Source-Specific Requirements (Hot Oil Heater (1E), Hot Oil Heaters (2E))

5.1. Limitations and Standards

5.1.1. Maximum Design Heat Input. The maximum design heat input for the Hot Oil Heater (1E) shall not exceed 45.54 MMBTU/hr.

5.1.2. Maximum emissions from the 45.54 MMBTU/hr Hot Oil Heater (1E) shall not exceed the following limits:

Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (ton/year)
Nitrogen Oxides	4.51	19.76
Carbon Monoxide	3.79	16.60
Volatile Organic Compounds	0.25	1.09
Carbon Dioxide Equivalent	5,414	23,714

5.1.3. The hourly quantity of natural gas that shall be consumed in the 45.54 MMBTU/hr Hot Oil Heater (1E) shall not exceed 45,098 standard cubic feet per hour.

5.1.4. The annual quantity of natural gas that shall be consumed in the 45.54 MMBTU/hr Hot Oil Heater (1E) shall not exceed 395.06 x 10^6 standard cubic feet per year.

5.1.5. Maximum Design Heat Input. The maximum design heat input for each of the two (2) Hot Oil Heaters (2E) shall not exceed 89.85 MMBTU/hr.

5.1.6. Maximum emissions from the two (2) 89.85 MMBTU/hr Hot Oil Heaters (2E) shall not exceed the following limits:

Pollutant	Maximum Hourly Emissions (lb/hr) **EACH UNIT**	Maximum Annual Emissions (ton/year) **BOTH UNITS COMBINED**
Nitrogen Oxides	3.23	17.03
Carbon Monoxide	6.65	35.00
Volatile Organic Compounds	0.36	1.89
Carbon Dioxide Equivalent	10,491	55,231

5.1.7. The hourly quantity of natural gas that shall be consumed in each of the two (2) 89.85 MMBTU/hr Hot Oil Heaters (2E) shall not exceed 90,392 standard cubic feet per hour.

5.1.8. The annual quantity of natural gas that shall be consumed in both of the two (2) 89.85 MMBTU/hr Hot Oil Heaters (2E) shall not exceed 952 x 10^6 standard cubic feet per year.

5.1.9. No person shall cause, suffer, allow or permit emission of smoke and/or particulate matter into the open air from any fuel burning unit which is greater than ten (10) percent opacity based on a six minute block average.
[45CSR§2-3.1.]

5.1.10. The permitted facility shall comply with all applicable provisions of 40CFR60 Subpart Dc, provided that compliance with any more stringent limitation set forth under this permit shall also be demonstrated. Recordkeeping and reporting requirements shall be conducted in accordance with §60.48c. These reports shall be submitted in accordance with the time lines and in the order set forth in §60.48c and submitted to the addresses listed in Section 3.5.3.

5.2. Monitoring Requirements

5.2.1. At such reasonable times as the Secretary may designate, the permittee shall conduct Method 9 emission observations for the purpose of demonstrating compliance with Section 5.1.9. Method 9 shall be conducted in accordance with 40 CFR 60 Appendix A.

5.3. Testing Requirements

5.3.1. Compliance with the visible emission requirements of section 5.1.9 shall be determined in accordance with 40 CFR Part 60, Appendix A, Method 9 or by using measurements from continuous opacity monitoring systems approved by the Director. The Director may require the installation, calibration, maintenance and operation of continuous opacity monitoring systems and may establish policies for the evaluation of continuous opacity monitoring results and the determination of compliance with the visible emission requirements of section 5.1.9. Continuous opacity monitors shall not be required on fuel burning units which employ wet scrubbing systems for emission control.
[45CSR§2-3.2.]

5.4. Recordkeeping Requirements

5.4.1. To demonstrate compliance with sections 5.1.1-5.1.8, the permittee shall maintain a monthly record of the amount of natural gas consumed in the 45.54 MMBTU/hr Hot Oil Heater (1E) and the two (2) 89.85 MMBTU/hr Hot Oil Heaters (2E). Compliance with the maximum throughput limitation shall be determined using a twelve month rolling total. A twelve month rolling total shall mean the sum of the monthly throughput at any given time during the previous twelve consecutive calendar months. Said records shall be maintained on site or in a readily accessible off-site location maintained by the permittee for a period of five (5) years. Said records shall be readily available to the Director of the Division of Air Quality or his/her duly authorized representative for expeditious inspection and review. Any records submitted to the agency pursuant to a requirement of this permit or upon request by the Director shall be certified by a responsible official.

5.4.2. Except as provided under paragraphs (g)(2) and (g)(3) of this section, the owner or operator of each affected facility shall record and maintain records of the amount of each fuel combusted during each operating day.
[40CFR§60.48(c)(g)(1)]

5.4.3. As an alternative to meeting the requirements of paragraph (g)(1) of this section, the owner or operator of an affected facility that combusts only natural gas, wood, fuels using fuel certification in §60.48c(f) to demonstrate compliance with the SO_2 standard, fuels not subject to an emissions standard (excluding opacity), or a mixture of these fuels may elect to record and maintain records of the amount of each fuel combusted during each calendar month.
[40CFR§60.48 (c)(g)(2)]

5.4.4. As an alternative to meeting the requirements of paragraph (g)(1) of this section, the owner or operator of an affected facility or multiple affected facilities located on a contiguous property unit where the only fuels combusted in any steam generating unit (including steam generating units not

subject to this subpart) at that property are natural gas, wood, distillate oil meeting the most current requirements in §60.42C to use fuel certification to demonstrate compliance with the SO2standard, and/or fuels, excluding coal and residual oil, not subject to an emissions standard (excluding opacity) may elect to record and maintain records of the total amount of each steam generating unit fuel delivered to that property during each calendar month.
[40CFR§60.48(c)(g)(3)]

5.5. Reporting Requirements

5.5.1. The owner or operator of each affected facility shall submit notification of the date of construction or reconstruction and actual startup, as provided by §60.7 of this part. This notification shall include:

1. The design heat input capacity of the affected facility and identification of fuels to be combusted in the affected facility.

2. If applicable, a copy of any federally enforceable requirement that limits the annual capacity factor for any fuel or mixture of fuels under §60.42c, or §60.43c.

3. The annual capacity factor at which the owner or operator anticipates operating the affected facility based on all fuels fired and based on each individual fuel fired.

4. Notification if an emerging technology will be used for controlling SO_2 emissions. The Administrator will examine the description of the control device and will determine whether the technology qualifies as an emerging technology. In making this determination, the Administrator may require the owner or operator of the affected facility to submit additional information concerning the control device. The affected facility is subject to the provisions of §60.42c(a) or (b)(1), unless and until this determination is made by the Administrator.

[40CFR§60.48c(a)]

5.5.2. The reporting period for the reports required under this subpart is each six-month period. All reports shall be submitted to the Administrator and shall be postmarked by the 30th day following the end of the reporting period.
[40CFR§60.48c(j)]

6.0. Source-Specific Requirements (Flare Control Device, 5S)

6.1. Limitations and Standards

6.1.1. The permittee shall install a flare (5S) to control VOC emissions from Frac 2 Gasoline Tank Breathing, Hot Oil Expansion Tank Breathing, Frac 1 and Frac 2 Truck and Rail Car Loading Emissions, Blowdown of the Frac 1 Pig Receiver, Flare Pilot Gas, and Flare Header Purge Gas.

6.1.2. Maximum emissions from the Zeeco flare (5S) shall not exceed the following limits:

Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (ton/year)
Volatile Organic Compounds	14.70	64.04
Nitrogen Oxides	9.60	17.30
Carbon Monoxide	19.21	34.60
Carbon Dioxide Equivalent	NA	18,912

6.1.3. The flare (5S) shall be designed and operated in accordance with the following:

a. Flare shall be air-assisted.

b. Flare 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.

c. Flare shall be operated, with a flame present at all times whenever emissions may be vented to them, except during SSM (Startup, Shutdown, Malfunctions) events.

d. A flare shall be used only where the net heating value of the gas being combusted is 11.2 MJ/scm (300 Btu/scf) or greater if the flare is steam-assisted or air-assisted; or where the net heating value of the gas being combusted is 7.45 MJ/scm (200 Btu/scf) or greater if the flares is non-assisted. The net heating value of the gas being combusted in a flare shall be calculated using the following equation:

$$H_T = K\sum_{i=1}^{n} C_i H_i$$

Where:

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

K=Constant=

$$1.740\times10^{-7}\left(\frac{1}{ppmv}\right)\left(\frac{g\text{-mole}}{\text{scm}}\right)\left(\frac{MJ}{\text{kcal}}\right)$$

where the standard temperature for (g-mole/scm) is 20 °C.

C_i=Concentration of sample component i in ppmv on a wet basis, which may be measured for organics by Test Method 18, but is not required to be measured using Method 18 (unless designated by the Director).

H_i=Net heat of combustion of sample component i, kcal/g-mole at 25 °C and 760 mm Hg. The heats of combustion may be determined using ASTM D2382–76 or 88 or D4809–95 if published values are not available or cannot be calculated.
n=Number of sample components.

e. Air-assisted flares shall be designed and operated with an exit velocity less than the velocity V_{max}. The maximum permitted velocity, V_{max}, for air-assisted flares shall be determined by the following equation:

$$V_{max}=8.71 + 0.708(H_T)$$

Where:

V_{max}=Maximum permitted velocity, m/sec.
8.71=Constant.
0.708=Constant.
H_T=The net heating value as determined in 6.1.3.d.

6.1.4. The permittee is not required to conduct a flare compliance assessment for concentration of sample (i.e. Method 18) and tip velocity (i.e. Method 2) until such time as the Director requests a flare compliance assessment to be conducted in accordance with section 6.3.2, but the permittee is required to conduct a flare design evaluation in accordance with section 6.4.2. Alternatively, the permittee may elect to demonstrate compliance with the flare design criteria requirements of section 6.1.3 by complying with the compliance assessment testing requirements of section 6.3.2.

6.2. Monitoring Requirements

6.2.1. In order to demonstrate compliance with the requirements of 6.1.3.c, the permittee shall monitor the presence or absence of a flare pilot flame using a thermocouple or any other equivalent device, except during SSM events.

6.2.2. The permittee shall monitor the throughput to the flare (5S) on a monthly basis.

6.3. Testing Requirements

6.3.1. In order to demonstrate compliance with the flare opacity requirements of 6.1.3.b the permittee shall conduct a Method 22 opacity test for at least two hours. This test shall demonstrate no visible emissions are observed for more than a total of 5 minutes during any 2 consecutive hour period using 40CFR60 Appendix A Method 22. The permittee shall conduct this test within one (1) year of permit issuance or initial startup whichever is later. The visible emission checks shall determine the presence or absence of visible emissions. At a minimum, the observer must be trained and knowledgeable regarding the effects of background contrast, ambient lighting, observer position relative to lighting, wind, and the presence of uncombined water (condensing water vapor) on the visibility of emissions. This training may be obtained from written materials found in the References 1 and 2 from 40 CFR part 60, appendix A, Method 22 or from the lecture portion of 40 CFR part 60, appendix A, Method 9 certification course.

6.3.2. The Director may require the permittee to conduct a flare compliance assessment to demonstrate compliance with section 6.1.3. This compliance assessment testing shall be conducted in accordance with Test Method 18 for organics and Test Method 2, 2A, 2C, or 2D in appendix A to 40 CFR part 60, as appropriate, or other equivalent testing approved in writing by the Director. Also, Test Method 18 may require the permittee to conduct Test Method 4 in conjunction with Test Method 18.

6.4. Recordkeeping Requirements

6.4.1. For the purpose of demonstrating compliance with section 6.1.3.c and 6.2.1, the permittee shall maintain records of the times and duration of all periods which the pilot flame was absent.

6.4.2 For the purpose of demonstrating compliance with section 6.1.3 and 7.3.2, the permittee shall maintain a record of the flare design evaluation. The flare design evaluation shall include, net heat value calculations, exit (tip) velocity calculations, and all supporting concentration calculations and other related information requested by the Director.

6.4.3 For the purpose of demonstrating compliance with the requirements set forth in sections 6.1.3, the permittee shall maintain records of testing conducted in accordance with 6.3.2.

6.4.4. The permittee shall document and maintain the corresponding records specified by the on-going monitoring requirements of 6.2 and testing requirements of 6.3.

6.4.5. For the purpose of demonstrating compliance with section 6.1.3.b, the permittee shall maintain records of the visible emission opacity tests conducted per Section 6.3.1.

6.4.6. All records required under Section 6.3 shall be maintained on site or in a readily accessible off-site location maintained by the permittee for a period of five (5) years. Said records shall be readily available to the Director of the Division of Air Quality or his/her duly authorized representative for expeditious inspection and review. Any records submitted to the agency pursuant to a requirement of this permit or upon request by the Director shall be certified by a responsible official.

6.5. Reporting Requirements

6.5.1 If permittee is required by the Director to demonstrate compliance with section 6.3.2, then the permittee shall submit a testing protocol at least thirty (30) days prior to testing and shall submit a notification of the testing date at least fifteen (15) days prior to testing. The permittee shall submit the testing results within sixty (60) days of testing and provide all supporting calculations and testing data.

6.5.2. Any deviation(s) from the allowable visible emission requirement for any emission source discovered during observations using 40CFR Part 60, Appendix A, Method 9 or 22 shall be reported in writing to the Director of the Division of Air Quality as soon as practicable, but in any case within ten (10) calendar days of the occurrence and shall include at least the following information: the results of the visible determination of opacity of emissions, the cause or suspected cause of the violation(s), and any corrective measures taken or planned.

6.5.3. Any deviation(s) from the flare design and operation criteria in Section 6.1.3 shall be reported in writing to the Director of the Division of Air Quality as soon as practicable, but in any case within ten (10) calendar days of discovery of such deviation.

7.0. Source-Specific Requirements (40CFR60 Subpart OOOO Requirements, Gas Processing Plants)

7.1. Limitations and Standards

7.1.1. Maximum Throughput Limitation. The maximum NGL processed through the Fractionation Plant (1S) shall not exceed 1,785,000 gallons per day and 651,525,000 gallons per year.

7.1.2. The Product Loading area (1S) at the Fractionating Processing Plant shall be operated in accordance with the plans and specifications filed in Permit Application R13-2892C. The rail and truck loading area will route are vapors to the flare for combustion.

7.1.3. Fugitive emissions of VOCs from equipment leaks at the facility, as calculated from emissions factors taken from Table 2-4 of EPA-453/R-95-017 - "Protocol for Equipment Leak Emission Estimates," shall not exceed 51.92 TPY. Continuing compliance with this limit shall be determined by the following: The permittee shall not exceed the number and type of components (valves, pump seals, connectors, etc.) in gas/vapor or light liquid (as applicable) listed in Attachment N of Permit Application R13-2892C.

7.1.4. What equipment leak standards apply to affected facilities at an onshore natural gas processing plant?

This section applies to the group of all equipment, except compressors, within a process unit.

a. You must comply with the requirements of §§ 60.482-1a(a), (b), and (d), 60.482-2a, and 60.482-4a through 60.482-11a, except as provided in § 60.5401.

b. You may elect to comply with the requirements of §§ 60.483-1a and 60.483-2a, as an alternative.

c. You may apply to the Administrator for permission to use an alternative means of emission limitation that achieves a reduction in emissions of VOC at least equivalent to that achieved by the controls required in this subpart according to the requirements of § 60.5402 of this subpart.

d. You must comply with the provisions of § 60.485a of this part except as provided in paragraph (f) of this section.

e. You must comply with the provisions of §§ 60.486a and 60.487a of this part except as provided in §§ 60.5401, 60.5421, and 60.5422 of this part.

f. You must use the following provision instead of § 60.485a(d)(1): Each piece of equipment is presumed to be in VOC service or in wet gas service unless an owner or operator demonstrates that the piece of equipment is not in VOC service or in wet gas service. For a piece of equipment to be considered not in VOC service, it must be determined that the VOC content can be reasonably expected never to exceed 10.0 percent by weight. For a piece of equipment to be considered in wet gas service, it must be determined that it contains or contacts the field gas before the extraction step in the process. For purposes of determining the percent VOC content of the process fluid that is contained in or contacts a piece of equipment, procedures that conform to the methods described in ASTM E169-93, E168-92, or E260-96 (incorporated by reference as specified in § 60.17) must be used.

[40CFR§60.5400, Onshore Natural Gas Processing Plant]

7.1.5. What are the exceptions to the equipment leak standards for affected facilities at onshore natural gas processing plants?

a. You may comply with the following exceptions to the provisions of § 60.5400(a) and (b).

b. 1. Each pressure relief device in gas/vapor service may be monitored quarterly and within 5 days after each pressure release to detect leaks by the methods specified in § 60.485a(b) except as provided in § 60.5400(c) and in paragraph (b)(4) of this section, and § 60.482-4a(a) through (c) of subpart VVa.

2. If an instrument reading of 500 ppm or greater is measured, a leak is detected.

3. i. When a leak is detected, it must be repaired as soon as practicable, but no later than 15 calendar days after it is detected, except as provided in § 60.482-9a.

ii. A first attempt at repair must be made no later than 5 calendar days after each leak is detected.

4. i. Any pressure relief device that is located in a nonfractionating plant that is monitored only by non-plant personnel may be monitored after a pressure release the next time the monitoring personnel are on-site, instead of within 5 days as specified in paragraph (b)(1) of this section and § 60.482-4a(b)(1) of subpart VVa.

ii. No pressure relief device described in paragraph (b)(4)(i) of this section must be allowed to operate for more than 30 days after a pressure release without monitoring.

c. Sampling connection systems are exempt from the requirements of § 60.482-5a.

d. Pumps in light liquid service, valves in gas/vapor and light liquid service, and pressure relief devices in gas/vapor service that are located at a nonfractionating plant that does not have the design capacity to process 283,200 standard cubic meters per day (scmd) (10 million standard cubic feet per day) or more of field gas are exempt from the routine monitoring requirements of §§ 60.482-2a(a)(1) and 60.482-7a(a), and paragraph (b)(1) of this section.

e. Pumps in light liquid service, valves in gas/vapor and light liquid service, and pressure relief devices in gas/vapor service within a process unit that is located in the Alaskan North Slope are exempt from the routine monitoring requirements of §§ 60.482-2a(a)(1), 60.482-7a(a), and paragraph (b)(1) of this section.

f. An owner or operator may use the following provisions instead of § 60.485a(e):

1. Equipment is in heavy liquid service if the weight percent evaporated is 10 percent or less at 150 °C (302 °F) as determined by ASTM Method D86-96 (incorporated by reference as specified in § 60.17).

2. Equipment is in light liquid service if the weight percent evaporated is greater than 10 percent at 150 °C (302 °F) as determined by ASTM Method D86-96 (incorporated by reference as specified in § 60.17).

g. An owner or operator may use the following provisions instead of § 60.485a(b)(2): A calibration drift assessment shall be performed, at a minimum, at the end of each monitoring day. Check the instrument using the same calibration gas(es) that were used to calibrate the instrument before use. Follow the procedures specified in Method 21 of appendix A-7 of this part, Section 7.1, except do not adjust the meter readout to correspond to the calibration gas value. Record the instrument reading for each scale used as specified in § 60.486a(e)(8). Divide these readings by the initial calibration values for each scale and multiply by 100 to

express the calibration drift as a percentage. If any calibration drift assessment shows a negative drift of more than 10 percent from the initial calibration value, then all equipment monitored since the last calibration with instrument readings below the appropriate leak definition and above the leak definition multiplied by (100 minus the percent of negative drift/divided by 100) must be re-monitored. If any calibration drift assessment shows a positive drift of more than 10 percent from the initial calibration value, then, at the owner/operator's discretion, all equipment since the last calibration with instrument readings above the appropriate leak definition and below the leak definition multiplied by (100 plus the percent of positive drift/divided by 100) may be re-monitored.

[40CFR§60.5401, Onshore Natural Gas Processing Plant]

7.1.6. What are the alternative emission limitations for equipment leaks from onshore natural gas processing plants?

a. If, in the Administrator's judgment, an alternative means of emission limitation will achieve a reduction in VOC emissions at least equivalent to the reduction in VOC emissions achieved under any design, equipment, work practice or operational standard, the Administrator will publish, in the Federal Register, a notice permitting the use of that alternative means for the purpose of compliance with that standard. The notice may condition permission on requirements related to the operation and maintenance of the alternative means.

b. Any notice under paragraph (a) of this section must be published only after notice and an opportunity for a public hearing.

c. The Administrator will consider applications under this section from either owners or operators of affected facilities, or manufacturers of control equipment.

d. The Administrator will treat applications under this section according to the following criteria, except in cases where the Administrator concludes that other criteria are appropriate:

1. The applicant must collect, verify and submit test data, covering a period of at least 12 months, necessary to support the finding in paragraph (a) of this section.

2. If the applicant is an owner or operator of an affected facility, the applicant must commit in writing to operate and maintain the alternative means so as to achieve a reduction in VOC emissions at least equivalent to the reduction in VOC emissions achieved under the design, equipment, work practice or operational standard.

[40CFR§60.5402, Onshore Natural Gas Processing Plant]

7.2. Initial Compliance Demonstration

7.2.1. You must determine initial compliance with the standards for each affected facility using the requirements in paragraph (f) of this section. The initial compliance period begins on October 15, 2012 or upon initial startup, whichever is later, and ends no later than one year after the initial startup date for your affected facility or no later than one year after October 15, 2012. The initial compliance period may be less than one full year.

f. For affected facilities at onshore natural gas processing plants, initial compliance with the VOC requirements is demonstrated if you are in compliance with the requirements of § 60.5400.

[40CFR§60.5410]

7.3. Continuous Compliance Demonstration

7.3.1. For affected facilities at onshore natural gas processing plants, continuous compliance with VOC requirements is demonstrated if you are in compliance with the requirements of § 60.5400.

7.3.2. Affirmative defense for violations of emission standards during malfunction. In response to an action to enforce the standards set forth in §§ 60.5375, you may assert an affirmative defense to a claim for civil penalties for violations of such standards that are caused by malfunction, as defined at § 60.2. Appropriate penalties may be assessed, however, if you fail to meet your burden of proving all of the requirements in the affirmative defense. The affirmative defense shall not be available for claims for injunctive relief.

(1) To establish the affirmative defense in any action to enforce such a standard, you must timely meet the reporting requirements in § 60.5420(a), and must prove by a preponderance of evidence that:

(i) The violation:

(A) Was caused by a sudden, infrequent, and unavoidable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner; and

(B) Could not have been prevented through careful planning, proper design or better operation and maintenance practices; and

(C) Did not stem from any activity or event that could have been foreseen and avoided, or planned for; and

(D) Was not part of a recurring pattern indicative of inadequate design, operation, or maintenance; and

(ii) Repairs were made as expeditiously as possible when a violation occurred. Off-shift and overtime labor were used, to the extent practicable to make these repairs; and

(iii) The frequency, amount and duration of the violation (including any bypass) were minimized to the maximum extent practicable; and

(iv) If the violation resulted from a bypass of control equipment or a process, then the bypass was unavoidable to prevent loss of life, personal injury, or severe property damage; and

(v) All possible steps were taken to minimize the impact of the violation on ambient air quality, the environment and human health; and

(vi) All emissions monitoring and control systems were kept in operation if at all possible, consistent with safety and good air pollution control practices; and

(vii) All of the actions in response to the violation were documented by properly signed, contemporaneous operating logs; and

(viii) At all times, the affected source was operated in a manner consistent with good practices for minimizing emissions; and

(ix) A written root cause analysis has been prepared, the purpose of which is to determine, correct, and eliminate the primary causes of the malfunction and the violation resulting from the malfunction event at issue. The analysis shall also specify, using best monitoring methods and engineering judgment, the amount of any emissions that were the result of the malfunction.

(2) Report. The owner or operator seeking to assert an affirmative defense shall submit a written report to the Administrator with all necessary supporting documentation, that it has met the requirements set forth in paragraph (h)(1) of this section. This affirmative defense report shall be included in the first periodic compliance, deviation report or excess emission report otherwise required after the initial occurrence of the violation of the relevant standard (which may be the end of any applicable averaging period). If such compliance, deviation report or excess emission report is due less than 45 days after the initial occurrence of the violation, the affirmative defense report may be included in the second compliance, deviation report or excess emission report due after the initial occurrence of the violation of the relevant standard.
[40CFR§60.5415]

7.4. Notification, Recordkeeping and Reporting Requirements

7.4.1. You must submit the notifications required in § 60.7(a)(1) and (4), and according to the paragraph below, if you own or operate one or more of the affected facilities specified in § 60.5365 that was constructed, modified, or reconstructed during the reporting period.

(1) (i) If you own or operate a gas well affected facility, you must submit a notification to the Administrator no later than 2 days prior to the commencement of each well completion operation listing the anticipated date of the well completion operation. The notification shall include contact information for the owner or operator; the API well number, the latitude and longitude coordinates for each well in decimal degrees to an accuracy and precision of five (5) decimals of a degree using the North American Datum of 1983; and the planned date of the beginning of flowback. You may submit the notification in writing or in electronic format.

(ii) If you are subject to state regulations that require advance notification of well completions and you have met those notification requirements, then you are considered to have met the advance notification requirements of paragraph (a)(2)(i) of this section.

7.4.2. Reporting requirements. You must submit annual reports containing the information specified in paragraph (b)(1) of this section to the Administrator and performance test reports as specified in paragraph (b)(7) of this section. The initial annual report is due 30 days after the end of the initial compliance period as determined according to § 60.5410. Subsequent annual reports are due on the same date each year as the initial annual report. If you own or operate more than one affected facility, you may submit one report for multiple affected facilities provided the report contains all of the information required as specified in paragraphs (b)(1) through (6) of this section. Annual reports may coincide with title V reports as long as all the required elements of the annual report are included. You may arrange with the Administrator a common schedule on which reports required by this part may be submitted as long as the schedule does not extend the reporting period.

(1) The general information specified in paragraphs (b)(1)(i) through (iv) of this section.

(i) The company name and address of the affected facility.

(ii) An identification of each affected facility being included in the annual report.

(iii) Beginning and ending dates of the reporting period.

(iv) A certification by a responsible official of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

7.4.3. What are my additional recordkeeping requirements for my affected facility subject to VOC requirements for onshore natural gas processing plants?

a. You must comply with the requirements of paragraph (b) of this section in addition to the requirements of § 60.486a.

b. The following recordkeeping requirements apply to pressure relief devices subject to the requirements of § 60.5401(b)(1) of this subpart.

1. When each leak is detected as specified in § 60.5401(b)(2), a weatherproof and readily visible identification, marked with the equipment identification number, must be attached to the leaking equipment. The identification on the pressure relief device may be removed after it has been repaired.

2. When each leak is detected as specified in § 60.5401(b)(2), the following information must be recorded in a log and shall be kept for 2 years in a readily accessible location:
   i. The instrument and operator identification numbers and the equipment identification number.

   ii. The date the leak was detected and the dates of each attempt to repair the leak.

   iii. Repair methods applied in each attempt to repair the leak.

   iv. "Above 500 ppm" if the maximum instrument reading measured by the methods specified in paragraph (a) of this section after each repair attempt is 500 ppm or greater.

   v. "Repair delayed" and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak.

   vi. The signature of the owner or operator (or designate) whose decision it was that repair could not be effected without a process shutdown.

   vii. The expected date of successful repair of the leak if a leak is not repaired within 15 days.

   viii. Dates of process unit shutdowns that occur while the equipment is unrepaired.

   ix. The date of successful repair of the leak.

   x. A list of identification numbers for equipment that are designated for no detectable emissions under the provisions of § 60.482-4a(a). The designation of equipment subject to the provisions of § 60.482-4a(a) must be signed by the owner or operator.

[40CFR§60.5421, Onshore Natural Gas Processing Plant]

7.4.5. What are my additional reporting requirements for my affected facility subject to VOC requirements for onshore natural gas processing plants?

a. You must comply with the requirements of paragraphs (b) and (c) of this section in addition to the requirements of § 60.487a(a), (b), (c)(2)(i) through (iv), and (c)(2)(vii) through (viii).

b. An owner or operator must include the following information in the initial semiannual report in addition to the information required in § 60.487a(b)(1) through (4): Number of pressure relief devices subject to the requirements of § 60.5401(b) except for those pressure relief devices designated for no detectable emissions under the provisions of § 60.482-4a(a) and those pressure relief devices complying with § 60.482-4a(c).

c. An owner or operator must include the following information in all semiannual reports in addition to the information required in § 60.487a(c)(2)(i) through (vi):

1. Number of pressure relief devices for which leaks were detected as required in § 60.5401(b)(2); and

2. Number of pressure relief devices for which leaks were not repaired as required in § 60.5401(b)(3).

[40CFR§60.5422, Onshore Natural Gas Processing Plant]

7.5. Recordkeeping Requirements

7.5.1. To demonstrate compliance with section 7.1.1 the permittee shall maintain records of the amount of liquids processed in the Product Loading Area (1S) at the Fractionation Processing Plant. Said records required shall be maintained on site or in a readily accessible off-site location maintained by the permittee for a period of five (5) years. Said records shall be readily available to the Director of the Division of Air Quality or his/her duly authorized representative for expeditious inspection and review. Any records submitted to the agency pursuant to a requirement of this permit or upon request by the Director shall be certified by a responsible official.

CERTIFICATION OF DATA ACCURACY

I, the undersigned, hereby certify that, based on information and belief formed after reasonable inquiry, all information contained in the attached _____, representing the period beginning _____ and ending _____, and any supporting documents appended hereto, is true, accurate, and complete.

Signature[1] (please use blue ink) _____ Responsible Official or Authorized Representative _____ Date

Name & Title (please print or type) _____ Name _____ Title

Telephone No. _____ Fax No. _____

[1] This form shall be signed by a "Responsible Official." "Responsible Official" means one of the following:

a. For a corporation: The president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit and either:

(i) the facilities employ more than 250 persons or have a gross annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars), or

(ii) the delegation of authority to such representative is approved in advance by the Director;

b. For a partnership or sole proprietorship: a general partner or the proprietor, respectively;

c. For a municipality, State, Federal, or other public entity: either a principal executive officer or ranking elected official. For the purposes of this part, a principal executive officer of a Federal agency includes the chief executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., a Regional Administrator of U.S. EPA); or

d. The designated representative delegated with such authority and approved in advance by the Director.

***** End of Application for Title V Operating Permit (45CSR30) ****