west virginia department of environmental protection

Division of Air Quality
601 57th Street SE
Charleston, WV 25304
Phone (304) 926-0475 • FAX: (304) 926-0479

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

ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.:	R13-2826G
Plant ID No.:	051-00127
Applicant:	Williams Ohio Valley Midstream
Facility Name:	Fort Beeler Gas Processing Plant
Location:	Cameron, Marshall County
NAICS Code:	211112
Application Type:	Modification
Received Date:	August 27, 2012
Engineer Assigned:	Joe Kessler
Fee Amount:	$2,000
Date Received:	August 29, 2012 ($1,000) October 1, 2012 ($1,000)
Complete Date:	October 9, 2012
Due Date:	January 7, 2013
Applicant Ad Date:	August 22, 2012
Newspaper:	*The Moundsville Daily Echo*
UTM's:	Easting: 535.00 km Northing: 4,414.35 km Zone: 17
Description:	Removal from service of a Caterpillar G3516LE Engine (12S); reactivation of a Caterpillar G342NA Engine (previously designated as 4S); decrease of fuel usage limits on Engines 18S, 19S, and 20S; increase of Maximum Design Heat Inputs (MDHIs) on Process Heaters (14S, 21S, 22S, 23S, 29S, and 30S), addition of a new Condensate Stabilizer Heater (31S), and increase of flare (27S) purge-gas throughput.

On March 29, 2010, Permit Number R13-2826 was issued to Caiman Eastern Midstream, LLC (CEM) for the construction and operation of Fort Beeler Station - a natural gas processing facility. Since that time, the facility has been the subject of additional permitting actions. Each of these will be summarized below.

- On June 2, 2010, Permit Number R13-2841T was issued to CEM for temporary addition of a 1,085 HP natural gas-fired compressor engine and Joule-Thompson cooling unit (J-T Skid) to remove non-methane/ethane organics. The permit expired on June 2, 2011.

- On August 17, 2010, Permit Application R13-2826A was withdrawn.

- On October 17, 2010, Permit Number R13-2826B was issued to CEM for addition of two (2) generator engines, a mole sieve regeneration heater, a hot oil heater, a methanol tank, a cryogenic plant, three (3) residue gas compression engines, and expanded truck loading of natural gas liquids (NGL).

- On June 30, 2011, Permit Application R13-2826C was withdrawn.

- On August 9, 2011, Permit Number R13-2826D was issued to CEM for addition of a second cryogenic unit to allow processing up to 200 mmcf/day, elimination of one of the two generator engines (13S), and replacement of one of the other engines (3S) with a slightly larger engine (26S).

- On January 30, 2012, Permit Number R13-2826E was issued to CEM to increase the size and hours of operation of the medium heater (23S), installation of a flare for management of gas during certain anticipated maintenance activities, and the removal of a hot oil heater (5S).

- On May 2, 2012, Permit Number R13-2826F was issued to CEM to install a third cryogenic plant. In addition, two (2) engines (2S, 4S) and the J-T Skid (9S) were removed from the permit.

Additionally, on May 15, 2012, CEM changed its name to Williams Ohio Valley Midstream (OVM).

DESCRIPTION OF PROCESS/MODIFICATIONS

Existing Source

The Fort Beeler Gas Processing Plant currently receives natural gas from local production wells and processes this gas through cryogenic processes, removing natural gas liquids from the inlet gas. The facility has the capacity to process 520 mmscf/day of raw natural gas through one (1) 120 mmscf/day cryogenic plant (Plant 1) and two (2) 200 mmscf/day cryogenic plants (Plant 2 and Plant 3).

The cryogenic process effects the removal of natural gas liquids by lowering the temperature of the inlet gas to approximately -120° Fahrenheit. Use of an expansion turbine is then used to rapidly expand the chilled gases, causing the temperature to drop even further. This rapid temperature drop condenses much of the ethane (C_2H_6) and most of the other hydrocarbons (primarily propane (C_3H_8) and butane (C_4H_{10}), with de-minimis amounts of hexane, benzene, toluene, ethyl-benzene, xylene, etc. (together C5+)), while maintaining methane (CH_4) in a gaseous form. As this is a totally enclosed system, the only emissions are fugitives from piping and equipment leak losses. These emissions are mitigated by implementation of a leak detection and repair (LDAR) program.

Five (5) gas-fueled compressor engines are currently permitted for use in the plant processes. Each of the engines is equipped with emission control technology applicable to the operation. The rich-burn engine (26S) utilizes non-selective catalytic reduction (NSCR) and the lean-burn engines (12S, 18S, 19S, and 20S) utilize catalytic oxidation (also known as oxidation catalyst or OxCat).

Seven (7) gas-fueled heaters are used at the existing facility. The Regen Heaters (21S, 22S, and 29S) are used to regenerate the mole-sieves necessary to further dry the Inlet Gas and the Hot Oil Heater (14S) and Medium Heaters (23S and 30S) are used on the NGL de-methanizers.

The flare (27S) serves to safely combust natural gas and natural gas liquids (NGL) during *routine* depressurization of portions of the plant for maintenance purposes. The amount of gas routed to the flare during a given event may vary widely, depending upon what areas of the facility will need to be depressurized for a given maintenance activity. Under the existing permit, the flare is authorized to combust 1,400,000 mmscf/year.

Additionally, the existing facility utilizes fourteen (14) pressure vessels (08S), a Wastewater Tank (07S), and Methanol Tanks (16S and 25S).

Proposed Modifications

OVM is now proposing to modify the Fort Beeler Station by:

- Removing the 1,340 bhp Caterpillar G3516LE Compressor Engine (12S);
- Reactivating the previously removed 225 bhp Caterpillar G342NA Compressor Engine (04S) using NSCR;
- Lowering the permitted fuel usage limits on each Caterpillar G3612LE Engines (18S, 19S and 20S) from 26.022 scf/hr and 227.95 mmscf/yr to 23,284 scf/hr and 181.61 mmscf/yr;
- Increasing the MDHI ratings for the Process Heaters (14S, 21S, 22S, 23S, 29S and 30S) by the amounts given shown in Table 1 below;

Table 1: Increase in Process Heaters MDHIs

Source ID	Existing MDHI (mmBtu/hr)	Proposed MDHI (mmBtu/hr)
14S	8.40	10.00
21S	4.08	4.74
22S	5.61	6.60
23S	17.40	21.22
29S	5.61	6.60
30S	17.40	21.22

- Adding a new 9.00 mmBtu/hr Condensate Stabilizer Heater (31S);

- Increasing permitted annual flare combustion throughput from 1.4 mmscf/yr to 5.0 mm scf/yr; and

- Recalculation of process fugitive and storage tank emissions using "improved emission estimating protocols."

SITE INSPECTION

Due to the nature of the modification, the writer did not conduct a site inspection. According to information in the DAQ database, the last on-site inspection occurred on July 26, 2012 by Mr. Steven Sobutka of the Compliance/Enforcement Section. The facility was given a status code of "30 - In Compliance" as a result of the inspection.

AIR EMISSIONS AND CALCULATION METHODOLOGIES

The following will summarize the air emissions and calculation methodologies for the equipment/processes that are proposed for modification in this permitting action. OVM provided detailed calculations in Attachment N of the permit application for each new/modified emission unit including greenhouse gases (GHG). Generally, OVM used the lower or higher heat value of the gas fuel where applicable to produce the most conservative (highest) emissions.

Compressor Engines

As noted above, OVM is proposing to reactivate a previously removed engine (4S) and lower the permitted fuel-usage rates on three other engines (18S, 19S, and 20S). For each modified/new engine, potential emissions were based on emission factors provided by the engine or control device vendor (NO_x, CO, and VOCs), as given in AP-42 (AP-42 is a database of emission factors maintained by USEPA), Section 3.2 (other criteria pollutants and HAPs), and in 40 CFR 98 Table C-1 (for some greenhouse gases). Hourly emissions, where applicable, were based on the maximum design horsepower of the engine. Annual emissions were based on as-limited annual fuel usage rates. The control percentages applied to the modified/new engines are given in the following table:

Table 2: Engine Control Device Control Percentages

Engine	Control Device	Control Percentages (%)			
		NO_x	CO	VOC	Formaldehyde
4S	Ox Cat	99.2	85.4	25.3	76.0
18S, 19S, 20S	Ox Cat	0.0	90.0	50.0	85.0
26S	NSCR	94.9	95.3	78.7	76.0

Process Heaters

Emissions from the natural gas-fired process heaters (14S, 21S, 22S, 23S, 29S, 30S, and 31S) were based on the emission factors provided for natural gas combustion as given in AP-42 Section 1.4 and in 40 CFR 98 Table C-1 (for some greenhouse gases). Hourly emissions were based on revised the MDHI of each heater and annual emissions were based on an annual operation of 8,760 hours.

Flare

The emissions from flaring are based on, where appropriate, emission factors obtained from sections of AP-42 (Section 13.5: NO_x and CO, Section 1.4: SO_2, particulate matter, and some speciated HAPs), on mass balance calculations using constituent gas properties obtained from a gas analysis (VOCs, Total HAPs, CH_4), and from 40 CFR 98 Table C-1 (for some greenhouse gases). A 98% destruction efficiency was applied to the uncontrolled emissions of organic compounds to determine VOC emissions. Hourly emissions were based on the maximum heat input combustion rate of the flare of 240 mmBtu/hr. Annual emissions were based on flaring a maximum of 5.0 mmscf/yr of waste gas. A waste gas higher-heating value (HHV) of 2,516.2 Btu/scf was used in the calculations.

Process Fugitives

OVM based their fugitive equipment leaks calculations on emission factors and control methodology effectiveness taken from the document EPA-453/R-95-017 - "Protocol for Equipment Leak Emission Estimates." Emission factors were taken from Table 2-1 and control methodology effectiveness from Table 5-2. Methane, VOC, and total HAP percentages were based on the gas analysis supplied in the permit application.

Greenhouse Gases

OVM provided a revised facility-wide post-modification greenhouse gas (GHG) analysis for all contributing emission units. A copy of that analysis is attached to this evaluation as Attachment A. As noted above, emission factors for the calculations were based on (where applicable): vendor data, 40 CFR 98 Table C-1 and C-2, and mass balance equations.

Emissions Summary

OVM provided a facility-wide per-emission unit annual PTE summary in Attachment N of the permit application. A copy of that analysis is attached to this evaluation as Attachment B. The facility-wide annual PTE change resulting from the proposed modifications evaluated herein is given in the following table:

Table 3: Post-Modification Change in PTE

Source	NO_x	CO	VOCs	SO_2	PM(1)	HCHO(2)	HAPs	CO_2e(3)
R13-2826F	95.32	52.03	64.54	0.31	5.72	4.51	11.98	n/a
R13-2826G	80.70	61.13	86.54	0.39	6.15	3.92	17.91	98,418
Change	***(14.62)***	***9.10***	***22.00***	***0.08***	***0.43***	***(0.59)***	***5.93***	***98,418***

(1) All particulate matter emitted is assumed to be $PM_{2.5}$ or less.
(2) HCHO = Formaldehyde; the HAP with the highest individual facility-wide emission rate.
(3) Based on multiplying the mass amount of emissions for each of the six greenhouse gases by the gas's associated global warming potential published at Table A-1 to Subpart A of 40 CFR Part 98 - Global Warming Potentials. Used to determine major source status of facilities under 45CSR14.

REGULATORY APPLICABILITY

This section will address the potential regulatory applicability/non-applicability of substantive state and federal air quality rules relevant to the new/modified equipment.

45CSR2: To Prevent and Control Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers

The process heaters (14S, 21S, 22S, 23S, 29S, 30S, and 31S) have been determined to meet the definition of a "fuel burning unit" under 45CSR2 and are, therefore, subject to the applicable requirements therein. Each substantive 45CSR2 requirement is discussed below.

45CSR2 Opacity Standard - Section 3.1

Pursuant to 45CSR2, Section 3.1, all process heaters are subject to an opacity limit of 10%. Proper maintenance and operation of the heaters (and the use of natural gas as fuel) should keep the opacity of the units well below 10% during normal operations.

45CSR2 Weight Emission Standard - Section 4.1.b

Pursuant to the exemption given under §45-2-11, as the post-modification MDHI of 21S, 22S, 29S, and 31S are each individually less than 10 mmBtu/hr, these units are not subject to sections 4, 5, 6, 8 and 9 of 45CSR2.

The allowable particulate matter (non-condensable total PM) emission rate for the process heaters with an MDHI $\geq$ 10 mmBtu/hr (14S, 23S, and 30S), identified as Type "b" fuel burning units, per 45CSR2, Section 4.1.a, is the product of 0.09 and the "total design heat inputs" of the heaters in million Btu per hour. Pursuant to §45-2-2.13.b: "Total Design Heat Input (TDHI)" means the sum of the design heat inputs for all similar units located at one plant. The maximum aggregate total design heat inputs (short-term) of the applicable heaters are 52.44 mmBtu/hr. Using the above equation, the 45CSR2 facility-wide PM emission limit of the applicable heaters is 4.72 lb/hr. The

aggregate maximum potential hourly PM emissions (including condensables) from the applicable heaters is estimated to be 0.39 lb/hr. This emission rate is 8.26% of the 45CSR2 limit.

45CSR2 Control of Fugitive Particulate Matter- Section 5

Section 5 of 45CSR2 requires a fugitive particulate matter control system for any source of fugitive particulate matter associated with the fuel burning units. Using natural gas as the fuel of the applicable heaters will result in no substantive potential for fugitive emissions.

45CSR2 Testing, Monitoring, Record-keeping, & Reporting (TMR&R) - Section 8

Section 8 of Rule 2 requires testing for initial compliance with the limits therein, monitoring for continued compliance, and keeping records of that compliance. The TMR&R requirements are clarified under 45CSR2A and discussed below.

45CSR2A Applicability - Section 3

Pursuant to §45-2A-3, as individual applicable "fuel burning units" under 45CSR2 with an MDHI less than 100 mmBtu/hr, the process heaters are not subject to the Testing and MRR Requirements under 45CSR2A.

45CSR6: To Prevent and Control Particulate Air Pollution from Combustion of Refuse

OVM uses a flare to safely combust natural gas and natural gas liquids (NGL) during *routine* depressurization of portions of the plant for maintenance purposes. The flare (27S) meets the definition of an "incinerator" under 45CSR6 and is, therefore, subject to the requirements therein. The substantive requirements applicable to the flare are discussed below.

45CSR6 Emission Standards for Incinerators - Section 4.1

Section 4.1 limits PM emissions from incinerators to a value determined by the following formula:

Emissions (lb/hr) = F x Incinerator Capacity (tons/hr)

Where, the factor, F, is as indicated in Table I below:

Table I: Factor, F, for Determining Maximum Allowable Particulate Emissions

Incinerator Capacity	Factor F
A. Less than 15,000 lbs/hr	5.43
B. 15,000 lbs/hr or greater	2.72

Based on: (1) the flare's maximum heat input rating of 240 mmBtu/h, (2) the worst-case HHV of the waste gas of 2,516 Btu/scf, and (3) the inlet gas mass of 54,990 lb/mmscf (taken from the gas analysis), the maximum flare capacity can be calculated to be 5,245 lb/hr (or 2.62 tons/hour). Based on this calculated flare capacity, the particulate matter emission limit given under the above equation

is 14.22 lb/hr. The worst-case particulate matter rate from the flare was calculated to be 1.79 lb/hr, or 12.59% of the Rule 6 emission limit.

45CSR6 Opacity Limits for - Section 4.3, 4.4

Pursuant to Section 4.3, and subject to the exemptions under 4.4, the flare has a 20% limit on opacity during operation. The existing permit, under 9.1.3., essentially mandates the flare to meet the flare requirements under 40 CFR §60.18 - which requires much more stringent opacity requirements (no visible emissions, except for periods not to exceed a total of 5 minutes during any 2 consecutive hours). Therefore, compliance with 9.1.3. of the permit will show compliance with the opacity requirements under 45CSR6.

45CSR10: To Prevent and Control Air Pollution from the Emission of Sulfur Oxides (non-applicability)

45CSR10 has requirements limiting SO_2 emissions from "fuel burning units," limiting in-stack SO_2 concentrations of "manufacturing processes," and limiting H_2S concentrations in process gas streams. The OVM process heaters (14S, 21S, 22S, 23S, 29S, 30S, and 31S) are each defined as a "fuel burning unit" and subject to the applicable requirements discussed below.

45CSR10 Fuel Burning Units - Section 3

Pursuant to the exemption given under §45-10-10.1, as the post-modification MDHI of 21S, 22S, 29S, and 31S are each individually less than 10 mmBtu/hr, these units are not subject to section 3 of 45CSR10.

The allowable SO_2 emission rate for the process heaters with an MDHI $\geq$ 10 mmBtu/hr (14S, 23S, and 30S), identified as Type "b" fuel burning units, per 45CSR10, Section 3.2(c), is the product of 1.6 and the total design heat input of the applicable heaters in million Btu per hour. The maximum aggregate total design heat input (short-term) of the applicable heaters is 52.44 mmBtu/hr. Using the above equation, the 45CSR10 facility-wide SO_2 emission limit of the applicable heaters is 83.90 lb/hr. The maximum potential hourly SO_2 emissions from the applicable heaters is estimated to be 0.02 lb/hr. This emission rate is only a trace of the 45CSR10 limit.

45CSR10 Testing, Monitoring, Record-keeping, & Reporting (TMR&R) - Section 8

Section 8 of Rule 10 requires to test for initial compliance with the limits therein, monitor for continued compliance, and keep records of that compliance. The TMR&R requirements are clarified under 45CSR10A and discussed below.

45CSR10A Applicability - Section 3

Pursuant to §45-10A-3.1(b), as the applicable process heaters "combust natural gas, wood or distillate oil, alone or in combination," the heaters are not subject to the Testing and MRR Requirements under 45CSR10A.

45CSR13: Permits for Construction, Modification, Relocation and Operation of Stationary

Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, and Procedures for Evaluation

The proposed modifications at the existing Fort Beeler Compressor Station have the potential to emit a regulated pollutant (VOC) in excess of six (6) lbs/hour and ten (10) TPY that would, pursuant to §45-13-2.17, define the installation as a "modification" under 45CSR13. Pursuant to §45-13-5.1, "[n]o person shall cause, suffer, allow or permit the modification . . . and operation of any stationary source to be commenced without . . . obtaining a permit to construct." Therefore, OVM was required to obtain a permit under 45CSR13 for the modifications evaluated herein.

As required under §45-13-8.3 ("Notice Level A"), OVM placed a Class I legal advertisement in a "newspaper of general circulation in the area where the source is . . . located." The ad ran on August 22, 2012 in the *The Moundsville Daily Echo* and the affidavit of publication for this legal advertisement was submitted on September 6, 2012.

45CSR14/45CSR19 Major Modification Non-Applicability

The Fort Beeler Compressor Station is located in Marshall County, WV. Marshall County is currently designated as in "non-attainment" with the National Ambient Air Quality Standards for $PM_{2.5}$. Therefore, the major source threshold for $PM_{2.5}$ - and the precursors NO_x and SO_2 - is 100 TPY under 45CSR19. The major source threshold for the remaining pollutants is 250 TPY (100,000 TPY for CO_2e) under 45CSR14. The station, according to the PTE given in the facility-wide emissions summary in Permit Application R13-2826G, is an existing "minor stationary source" under both 45CSR14 and 45CSR19 - i.e., PTE of each regulated pollutant is less than 100 TPY. The post-modification facility-wide PTE (see Table 3 above) of each pollutant shall remain below 100 TPY (and 100,000 TPY of CO_2e) and, therefore, the proposed changes are not defined as a major modification (as the plant remains a minor source) under 45CSR14 or 45CSR19 and the provisions do not apply.

45CSR30: Requirements for Operating Permits

45CSR30 provides for the establishment of a comprehensive air quality permitting system consistent with the requirements of Title V of the Clean Air Act. Fort Beeler Station does not meet the definition of a "major source under § 112 of the Clean Air Act" as outlined under §45-30-2.26 and clarified (fugitive policy) under 45CSR30b. However, as the facility has process heaters subject to a New Source Performance Standard (NSPS) - 40 CFR 60, Subpart Dc - the facility is subject to Title V. Non-major sources subject to Title V, pursuant to DAQ policy, are deferred from having to submit a Title V application.

40 CFR 60, Subpart Dc: Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units

The process heaters with a revised MDHI $\geq$ 10 mmBtu/hr (14S, 23S, and 30S) are subject to 40 CFR 60, Subpart Dc under the applicability requirements of §60.40c(a). Subpart Dc does not have any emission standards for combusting only natural gas. However, the applicable heaters are subject to the record-keeping and reporting requirements given under §60.48c.

40CFR60 Subpart KKK (Standards of Performance for Equipment Leaks of VOC from Onshore Natural Gas Processing Plants)

Subpart KKK applies to onshore natural gas processing plants that commenced construction after January 20, 1984. The Fort Beeler Station is subject to this rule due to the three (3) cryogenic plants located at the facility. CEM must meet the Leak Detection and Repair (LDAR) requirements of Subpart KKK, which includes the provisions referenced in 40 CFR 60, Subpart VV. Substantively, Subpart VV defines a leak (and triggers repair procedures) when pollutant concentrations are detected in excess of 10,000 ppmv.

40 CFR 60 Subpart JJJJ: Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

The four (1) existing (18S, 19S, 20S, and 26S - excluding 12S which will be removed) and one (1) reactivated compressor engine (4S) compressor engines are defined under 40 CFR 60, Subpart JJJJ as stationary spark-ignition internal combustion engines (SI ICE). However, as the engines 4S and 26S were manufactured prior to June 12, 2006, these engines are not, pursuant to §60.4230(a)(4), subject to the requirements of Subpart JJJJ.

However, pursuant to §60.4230(a)(4)(i), 18S, 19S, and 20S (each a Caterpillar 3612 LE 3,550 hp engine) are subject to the applicable provisions of the rule (manufactured after July 1, 2007 and greater than 500 hp). A new compliance review of these engines is included here as a result of a slight change to the engines' emissions from lowering the fuel usage limits in the proposed permit.

Pursuant to §60.4233(c): "Owners and operators of stationary SI ICE with a maximum engine power greater than or equal to 75 KW (100 HP) (except gasoline and rich burn engines that use LPG) must comply with the emission standards in Table 1 to this subpart for their stationary SI ICE." Therefore, as the engines are greater than 100 HP, each engine must comply with the emission standards under Table 1 for Non-Emergency SI ICE $\geq$ 500 hp manufactured after July 1, 2007 but prior to July 1, 2010:" NO_x - 2.0 g/HP-hr, CO - 4.0 g/HP-hr, and VOC - 1.0 g/HP-hr. The emission standards and the proposed compliance therewith of the engines (each engine is the same model with the same emission characteristics) are given in the following table:

Table 4: Subpart JJJJ Compliance

Pollutant	Standard (g/HP-hr)	Uncontrolled Emissions (g/bhp)(1)	Control Percentage	Controlled Emissions (g/bhp)	JJJJ Compliant?
NO_x	2.0	0.50	0	0.50	Yes
CO	4.0	2.74	90%	0.27	Yes
VOC	1.0	0.64	50%	0.32	Yes

(1) Based on the G3612 Specification Sheet included in Attachment L of the permit application.

The G3612 specification sheet provided by Caterpillar states that the unit's emissions "[m]eets U.S. EPA Spark Ignited Stationary NSPS Emissions for 2010/2011 with the use of an oxidation catalyst." Therefore, it is assumed OVM will show continuing compliance with the above emission standards pursuant to §60.4243(b)(1) by showing proof of purchasing an engine certified to meet the emission standards under Subpart JJJJ.

40 CFR 60, Subpart OOOO: Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution

On April 27, 2012 the USEPA issued a final rule (Federal Register Date: August 16, 2012) that consists of federal air standards for natural gas wells that are hydraulically fractured, along with requirements for several other sources of pollution in the oil and gas industry that currently are not regulated at the federal level. As this is a new rule, all applicable requirements shall be discussed even those on equipment/processes not being modified as part of this permitting action.

Compressor Engines

Pursuant to §60.5365(c) each "[e]ach reciprocating compressor affected facility, which is a single reciprocating compressor located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment" that is constructed after August 23, 2011 is subject to the applicable provisions of Subpart OOOO. As the compressor engines are located at a natural gas processing plant, they are potentially applicable to Subpart OOOO. However, according to OVM's Subpart OOOO initial notification letter, the only engine that has been "constructed" after August 23, 2011 is 26S. The substantive requirements for this engine is given under §60.5385(a): the engines "rod packing" must replaced according to the given schedule and the engine must meet applicable MRR given under §60.5410(c), §60.5415(c), and §60.5420(b)(1).

Pneumatic Controllers

Pursuant to §60.5365(d)(1), "[f]or natural gas processing plants, each pneumatic controller affected facility, which is a single continuous bleed natural gas-driven pneumatic controller" that is constructed after August 23, 2011 is subject to the applicable provisions of Subpart OOOO. The substantive requirements for pneumatic controllers are given under §60.5395.

Storage Tanks

Pursuant to §60.5365(d)(1), for "[e]ach storage vessel affected facility, which is a single storage vessel, located in the oil and natural gas production segment, natural gas processing segment or natural gas transmission and storage segment" that is constructed after August 23, 2011 is subject to the applicable provisions of Subpart OOOO. It is unclear if any of the storage tanks at the facility were constructed after August 23, 2011. However, the potential emissions from each previously permitted storage tank have been calculated to be less than 6 TPY; therefore, the requirement under §60.5395(a) to "reduce VOC emissions by 95.0 percent" does not apply.

40 CFR 63 Subpart ZZZZ: Standards of Performance for Stationary Spark Ignition Internal Combustion Engines (non-delegation)

All of the compressor engines located at the facility appear to be subject to the area source (as shown above in Table 3, the individual and aggregate HAP emission rates of the facility define the proposed facility as an"area source" of HAPs) requirements of 40 CFR 63, Subpart ZZZZ. However, the DAQ has not been delegated authority from USEPA to enforce the area source requirements of this rule. Therefore, unless otherwise stated, DAQ did not formally determine whether the permittee is subject to an area source air toxics standard requiring Generally Achievable Control Technology (GACT) promulgated after January 1, 2007 pursuant to 40 CFR 63, including

the area source air toxics provisions of 40 CFR 63, Subpart ZZZZ.

TOXICITY ANALYSIS OF NON-CRITERIA REGULATED POLLUTANTS

This section provides an analysis for those regulated pollutants that may be emitted from the Fort Beeler Station and that are not classified as "criteria pollutants." Criteria pollutants are defined as Carbon Monoxide (CO), Lead (Pb), Oxides of Nitrogen (NO_x), Ozone, Particulate Matter (PM), Particulate Matter less than 10 microns (PM_{10}), Particulate Matter less than 2.5 microns ($PM_{2.5}$), and Sulfur Dioxide (SO_2). These pollutants have National Ambient Air Quality Standards (NAAQS) set for each that are designed to protect the public health and welfare. Other pollutants of concern, although designated as non-criteria and without national concentration standards, are regulated through various federal and programs designed to limit their emissions and public exposure. These programs include federal source-specific Hazardous Air Pollutants (HAPs) limits promulgated under 40 CFR 61 (NESHAPS) and 40 CFR 63 (MACT). Any potential applicability to these programs were discussed above under REGULATORY APPLICABILITY.

The majority of non-criteria regulated pollutants fall under the definition of HAPs which, with some revision since, were 188 compounds identified under Section 112(b) of the Clean Air Act (CAA) as pollutants or groups of pollutants that EPA knows or suspects may cause cancer or other serious human health effects. The modifications evaluated herein result in a quantifiable increase in two speciated HAPs: Hexane and Benzene. The following table lists each HAP's carcinogenic risk (as based on analysis provided in the Integrated Risk Information System (IRIS)):

Table 5: HAPs - Carcinogenic Risk

HAPs	Type	Known/Suspected Carcinogen	Classification
Hexane	VOC	No	Inadequate Data
Benzene	VOC	Yes	Category A - Known Human Carcinogen

All HAPs have other non-carcinogenic chronic and acute effects. These adverse health affects may be associated with a wide range of ambient concentrations and exposure times and are influenced by source-specific characteristics such as emission rates and local meteorological conditions. Health impacts are also dependent on multiple factors that affect variability in humans such as genetics, age, health status (e.g., the presence of pre-existing disease) and lifestyle. As stated previously, *there are no federal or state ambient air quality standards for these specific chemicals*. For a complete discussion of the known health effects of each compound refer to the IRIS database located at *www.epa.gov/iris*.

AIR QUALITY IMPACT ANALYSIS

The proposed modification does not meet the definition of a "major modification" pursuant to 45CSR14 or 45CSR19 and, therefore, an air quality impact (computer modeling) analysis was not required. Additionally, based on the nature of the proposed modification, modeling was not required

under 45CSR13, Section 7.

MONITORING, COMPLIANCE DEMONSTRATIONS, RECORD-KEEPING, AND REPORTING REQUIREMENTS

Comprehensive monitoring, compliance demonstration, and record-keeping, and reporting requirements were already present in the existing permit. However, the following additional requirements were added:

- To demonstrate compliance with sections 6.1.14-6.1.16 of the draft permit, OVM shall be required to maintain records of the amount of natural gas consumed in the 9.00 MMBtu/hr Condensate Stabilizer Heater (31S);

- OVM shall be required to, at a minimum, institute a quarterly leak detection monitoring program for all: (1) valves in gas/vapor service, (2) valves in light liquid service, and (3) pump seals in light liquid service in each Cryogenic Plant. Leaks shall be defined as pollutant concentrations in excess of 10,000 ppmv. When a leak is detected, the permittee shall take corrective action to repair the connector and retest the connector to verify the efficacy of the repair. Where more stringent, compliance with the applicable standards of 40 CFR 60, Subpart KKK shall determine compliance with 7.1.5.;

- 40 CFR 60, Subpart OOOO requirements applicable to engine 26S were added; and

- 40 CFR 60, Subpart JJJJ requirements applicable to engines 18S, 19S, 20S were added.

PERFORMANCE TESTING OF OPERATIONS

Performance testing requirements are already present in the existing permit. No new performance testing requirements were added as a part of this permitting action.

CHANGES TO PERMIT R13-2826F

The following substantive changes were made to Permit Number R13-2826F:

- The Emissions Units Table 1.0 and the Control Devices Table 1.1 were revised and updated to reflect the changes evaluated herein;

- Requirements under Section 5 of the proposed permit relating to the compressor engines were updated with the corrected emission limits and revised fuel usage rates;

- At the request of OVM, hours of operation limits were added for engines 18S through 20S in requirements 5.1.3., 5.1.5., and 5.1.7, respectively.

- Requirement 5.1.13 was added to require removal of existing engine 12S;
- 40 CFR 60, Subpart OOOO rod packing requirements applicable to engine 26S were added under 5.1.14;
- 40 CFR 60, Subpart JJJJ emission standards and compliance demonstration requirements applicable to engines 18S, 19S, and 20S were added under 5.1.15. and 5.1.16.;
- Requirements under Section 6 of the proposed permit relating to the existing process heaters were updated with the corrected MDHIs, emission limits, and fuel usage rates;
- Requirements 6.1.14 through 6.1.16 and 6.4.5. were added for the new process heater 31S.
- The Hot Oil Heater (14S) was added to the 40 CFR 60, Subpart Dc applicability requirements under Section 6 of the proposed permit;
- New LDAR requirements were added under 7.1.4. and 7.1.5. of the proposed permit;
- The flare gas combustion rate and emission limits were revised under Section 9 of the proposed permit; and
- CO_2 and Methane (where applicable) emission limits were added to combustion sources.

RECOMMENDATION TO DIRECTOR

The information provided in the permit application indicates that compliance with all applicable regulations will be achieved. Therefore, I recommend to the Director the issuance of a Permit Number R13-2826G to Williams Ohio Valley Midstream for the modifications discussed above at the Fort Beeler Compressor Station located near Cameron, Marshall County, WV.

Joe Kessler, PE
Engineer

Date