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ENGINEERING EVALUATION/FACT SHEET

B BACKGROUND INFORMATION

Application No.:	R13-2878D
Plant ID No.:	103-00042
Applicant:	MarkWest Liberty Midstream & Resources LLC (MarkWest)
Facility Name:	Mobley Gas Plant
Location:	Smithfield
NAICS Code:	211112
Application Type:	Modification
Received Date:	May 5, 2015
Engineer Assigned:	Edward S. Andrews, P.E.
Fee Amount:	\$2,000.00
Date Received:	May 11, 2015
Complete Date:	November 12, 2015
Due Date:	February 10, 2015
Applicant Ad Date:	June 10, 2015
Newspaper:	<i>Wetzel Chronicle</i>
UTM's:	Easting: 538.10km Northing: 4,378.32 km Zone: 17
Description:	This action is the installation and operation of 5 th extraction unit (Mobley V) with a partial de-ethanizer unit.

DESCRIPTION OF PROCESS

MarkWest Liberty Midstream & Resources LLC (MarkWest) owns and operates the Mobley Gas Plant which is located nearest to Smithfield, West Virginia in Wetzel County. The Mobley Gas Plant is a gas processing plant and compressor station to process field gas from nearby wells.

The natural gas inlet stream from surrounding area wells enters the facility through an inlet separator prior to gas processing, which is designed to remove unwanted liquids from the gas stream.

High pressure natural gas enters one of four cryogenic plants and passes through a molecular sieve to remove excess water in the gas stream. The dry natural gas will be cooled through a cryogenic plant with mechanical refrigeration, which serves to remove propane and heavier hydrocarbons in the gas stream. At this point the gas is ready for compression and will pass through one of the natural gas fired compressor engines prior to entering the downstream pipeline to a distribution or processing company. Liquids will be transported via pipeline to another facility. An emergency flare is used to burn vapors released from the pressure relief valves in the plants in the event of an emergency or to safely perform maintenance related activities.

The Mobley Gas Plant is comprised of four cryogenic gas plants, Mobley I has a nameplate capacity for processing natural gas of 165 million (MM) standard cubic feet (scf) per day (d) with a maximum capacity and the other 3 units has a nameplate capacity for processing natural gas of 200 MMscfd of natural gas. This proposed expansion project includes one additional processing plant with the ability to process 200 MMscfd for total of five plants with the nominal processing rate up to 965 MMscfd for the entire facility. This new processing plant will be identified as Mobley V.

The additional cryogenic gas plant will include a regenerative heater for the molecular sieve unit, which requires a 7.69 MMBtu/hr heater to provide the necessary heat energy to regenerate the media in the molecular sieve.

The de-methanizer tower for Mobley V will be capable of operating in two different modes, which are rejection or recovery modes. Dependent upon market conditions and contractual obligations, a portion of the ethane in the processed natural gas will be stripped out or retained in the residue gas. In the recovery mode, the liquids from the de-methanizer are sent to a de-ethanizer column. The de-ethanizer column separates the light ethane at the top of the column from the heavier hydrocarbon at the bottom, which is the C3+ hydrocarbons (propane and heavier) and commonly referred to as natural gas liquids (NGL). In the rejection mode, the ethane is rejected back into the residue gas stream.

The pure ethane and the NGL are transmitted to other facilities via pipeline either for further processing or to an end user.

To accomplish the rejection and recovery mode for Mobley V, a 22.93 MMBtu/hr, Hot Median Oil heater will be used to provide the necessary heat energy for the de-ethanizer and other reboilers for the process plant. This heater and the regeneration heater will be fired with residue gas only.

SITE INSPECTION

On October 22, 2015, the writer conducted a site visit of the Mobley Gas Plant. The writer met with Mr. Perry Lydick, Mobley Plant Manager and Mr. Dale Gable, environmental

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compliance contact at the facility. The main purpose of this visit was to gather information on the existing emission units and understanding of the proposed expansion unit.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Emissions associated with this application consist of the combustion emissions from the mole sieve regeneration heater (H-5741), hot oil heater (H-5781), blowdown emissions and fugitive emissions from equipment leaks. The following table indicates which methodology was used in the emissions determination: The emissions change associated with this project is mainly combustion related emissions and fugitives from equipment leaks.

MarkWest used AP-42 emission factors and manufacturer’s emission data to estimate the emissions from the proposed new heaters for Mobley V Process Unit. For Hot Median Oil (HMO) Heater H-5781, the manufacturer’s data predicted the oxides of nitrogen (NO_x), carbon monoxide (CO), and volatile organic compounds (VOCs) emissions at 0.065 lb/MMBtu, 0.04 lb/MMBtu, 0.012 lb/MMBtu respectively. The emissions from the mole sieve heater and other pollutants for new HMO Heaters were estimated using emission factors published in AP-42 Chapter 1.4. The emissions for both of the heaters were based on a maximum design heat input rating with no operational limitation on use.

Table #1 Combustion Emissions From Mobley V					
Source	Regen. Heater H-5741		HMO Heater H-5781		Total
Pollutant	lb/hr	tpy	lb/hr	tpy	tpy
NO _x	0.41	1.79	1.49	6.53	8.32
CO	0.32	1.38	0.92	4.03	5.41
VOCs	0.04	0.18	0.28	1.23	1.41
Particulate Matter (PM)/PM less the 10 micros (PM ₁₀)/PM less than 2.5 micros (PM _{2.5})	0.06	0.26	0.18	0.79	1.05
Sulfur Dioxide (SO ₂)	0.0005	0.002	0.014	0.06	0.062
Total Hazardous Air Pollutants (HAPs)	0.014	0.06	0.043	0.19	0.25
Carbon Dioxide Eqvailants (CO ₂ e)	900.48	3,944.10	2,685.06	11,760.56	15,704.66

Fugitive emissions from this modification are mainly from equipment leaks. MarkWest used EPA's Protocol for Equipment Leaks Emission Estimates to predict VOC and HAPs emissions. The current facility is subject to the leak detection and repair requirements (LDAR) of Subpart OOOO and the proposed equipment will be subject to the same program. MarkWest accounted for the control effectiveness of this program when determining the equipment leak rate using EPA's protocol and the leak definition from Subpart OOOO, which refers to Subpart VVa to Part 60.

The fugitive potential of VOC emissions seems to be in question when comparing the project component counts with the facility's Semi-Annual Leak Detection Report for the first half of 2015. The following table lists the number of components being monitoring under the LDAR program to include Mobley IV.

Component		
Name	Code	Count*
Valve	VLV	4,817
Connector	CONN	23,814
Pressure Relief Device	PRD	163
Pump	PMP	31
Compressor	COMP	26
Total		28,851

* - Listed in the Semi-Annual LDAR Report for 2015 filed on July 28, 2015

Using the recently reported lists of components, the writer estimated the fugitive potential of the current facility to be 37 tons of VOC per year and 0.44 tons of HAPs per year. MarkWest listed the component list for Mobley IV which should be similar to Mobley V. The writer used this count to project the component count for Mobley V in this modification.

Component	Service Type	Projected Count	TOC Emission Factor kg/hr/component	VOC Emissions (tpy)	HAP Emissions (tpy)
Connector	Gas	9585	1.84E-04	1.96	0.031
Flanges	Gas	3767	3.90E-04	1.63	0.026
Compressor Seals	Gas	26	8.80E-03	0.25	0.004
Valves	Gas	2591	7.09E-04	2.04	0.032
Other	Gas	163	8.80E-03	1.59	0.025

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Connector	Light Oil	7533	1.84E-04	12.95	0.141
Flanges	Light Oil	2930	1.10E-04	3.01	0.033
Pump Seals	Light Oil	31	4.93E-03	1.43	0.015
Valves	Light Oil	2225	5.99E-04	12.45	0.135
Total		28,851		37.31	0.442

The estimated VOC and HAP emissions are based on the percentage of the gas or liquid stream that consists as VOCs and HAPs respectively. MarkWest has determined that the gas stream is made up of 11.48% of VOC and 0.18% of HAP. The light oil stream, which is Y grade NGL, contains 96.72% VOCs and 1.05% HAPs. The following table is the writer's estimate of potential VOC and HAPs emissions from equipment leaks from the Mobley V Gas Plant.

Component	Service Type	Current Component Count	TOC Emission Factor kg/hr/component	VOC Emissions (tpy)	HAP Emissions (tpy)
Connector	Gas	2827	1.84E-04	0.58	0.009
Flanges	Gas	1155	3.90E-04	0.50	0.008
Compressor Seals	Gas	12	8.80E-03	0.12	0.002
Valves	Gas	681	7.09E-04	0.54	0.008
Other	Gas	35	8.80E-03	0.34	0.005
Connector	Light Oil	2827	1.84E-04	4.86	0.053
Flanges	Light Oil	1154	1.10E-04	1.19	0.013
Pump Seals	Light Oil	9	4.93E-03	0.41	0.004
Valves	Light Oil	681	5.99E-04	3.81	0.041
Total		9382		12.35	0.143

MarkWest provided estimates for the blowdown emissions from the compressor engines and extraction units. The blowdown from the compressors would be vented in an uncontrolled manner, which results in 0.73 tpy of VOCs and 0.07 tpy of HAPs. All of the extraction units,

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which includes Mobley V, and the de-ethanizer would be vented to the flare. Thus, the blowdown emissions from the units are 0.49 tons of VOC per year and 0.024 tons of HAPs per year.

The following table illustrates the previous potential emissions from the facility as permitted in R13-2878C and compared with the changes in this modification to determine the net change in permitted emissions.

Table #5 Facility Potential			
Pollutant	Permitted Emission under R13-2878C(tpy)	New Potential (tpy)	Net Change (tpy)
NO _x	100.29	108.60	8.31
CO	68.59	73.98	5.39
SO ₂	0.63	0.75	0.12
PM/PM ₁₀ /PM _{2.5}	13.75	14.65	0.90
VOCs	49.97	90.94*	40.97
Total HAP	14.92	15.13	0.21
CO ₂ e	146,486	165,089.45	18,603.45

* Included the revised potential from equipment leaks.

REGULATORY APPLICABILITY

Currently, the Mobley Gas Extraction Plant is a non-major source under 45 CSR 14. The first step in determining applicability under PSD is to determine if the facility is a major source. In determining if the facility is major one must determine if the Mobley Gas Plant falls within any of the source categories listed in 45 CSR §14-2.43.a. The Mobley Gas Plant does not have a combination of design heat input from fossil fuel boilers more than 250 MMBtu/hr. Heaters meeting the definition of Process Heater in Subpart Dc are not included in this total heat input for the facility. The total heat input of boilers at the Mobley Plant is 60.12 MMBtu/hr. Thus, the Mobley Gas Plant would have to have a potential to emit of any criteria pollutant at or greater than 250 tons per year (45 CSR §14-2.43.b.) prior to the proposed project to be classified as a major source.

Next step is to determine if fugitive emissions are to be included in the facility's potential to emit. The Mobley Gas Plant does not fall within any of the source categories listed in Table 1 of 45 CSR §14-2.43.e. Therefore, only point source emissions are counted for major source applicability under PSD. The Mobley Gas Plant does not have the potential to emit more than 250 tons per year of any single criteria pollutant and thus is not a major source under PSD. No further review is required under 45 CSR 14.

With regards to the National Ambient Air Quality Standards, Wetzel County is classified as attainment for all pollutants. Thus, no further review of this application with regards to 45 CSR 19, the West Virginia Non-Attainment Permitting Rule is required.

MarkWest elected to seek a modification permit for the installation of Mobley V. Thus, the applicant filed a modification application, paid the filing and New Source Performance fees, and published a Class I Legal Ad in the *Wetzel Chronicle* on June 10, 2015.

The following discussion concerns existing applicable rules or regulations or potentially applicable rules the facility or proposed changes would be subject to:

45 CSR 2 (Rule 2) & Subpart Dc to Part 60 (Federal Regulations)

The existing gas plant and proposed changes calls for the use of heaters. Boilers or indirect heat exchangers are affected units under 45 CSR 2 and Subpart Dc. However, a process heater that is primarily used to heat a material to initiate or promote a chemical reaction in which the materials participates as a reactant or catalyst are excluded as affected units under these rules.

MarkWest claims that the mole sieve regeneration heaters (H-1741, H-2741, H-3741, H-4741, & H-5741) are excluded from these rules and regulations.

The mole sieves use an adsorbent to dehydrate the wet gas prior to processing. Once the adsorbent is saturated with water, the mole sieve adsorbent has to be regenerated. The regeneration heaters are used to provide process heat to regenerate the adsorbent, which could be considered as a catalyst bed. Thus, these mole sieve regeneration heaters are excluded from these rules and regulations.

Emission Unit ID#	Heater Description	MDHI (MMBTU/hr)
H-1741	Mole Sieve Regeneration Heater*	6.84
H-1781	Hot Median Oil Heater (HMO)	18.05
H-2741	Mole Sieve Regeneration Heater*	8.12
H2781	HMO Heater	26.00
H-3741	Mole Sieve Regeneration Heater*	7.69
H-4741	Mole Sieve Regeneration Heater*	7.69
H-4781	HMO Heater	16.07
H-5741	Mole Sieve Regeneration Heater*	7.69
H-5781	Hot Oil Heater	22.93
Total Maximum Design Heat Input		121.08

Each of the rest of the heaters (H-1781, H-2781, H-4781, & H-5781) has a maximum design heat input of greater than 10 MMBtu/hr. Thus, these heaters are subject to the visible emission and PM standards of Rule 2. These heaters are designed and constructed to burn

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natural gas and 45 CSR §2-8.4.b. excludes them from the visible emission testing and monitoring of Section 8 of Rule 2. These heaters are excluded from the emission standards of Subpart Dc due to being capable of burning natural gas.

45 CSR 10 (Rule 10)

This rule establishes maximum allowable sulfur dioxide limits for indirect heat exchangers (boilers), manufacturing process source operations, and combustion of refinery or process gas streams. The facility is basically subject to all three of the allowable standards in this rule. Rule 10 has the same definition of “process heater” as Rule 2, and Subpart Dc. Thus, the heaters that meet the definition of “process heater” are not considered as fuel burning units (boilers) in this rule. However, the heaters are considered part of a manufacturing process (45 CSR §10-2.11.) because they are equipment used in connection with the process. Thus, these heaters are subject to the 2,000 ppm sulfur dioxide allowable in 45 CSR §10-4.1. MarkWest has estimated the SO₂ emissions from these heaters to be 5.34×10^{-4} lb of SO₂ per MMBtu, which equates to 0.37 ppmvd of SO₂ using Method 19 to back calculate the concentration of sulfur dioxide. Thus, the heaters are capable of achieving compliance with this standard without the use of any add-on control device(s).

The heaters that are not “process heater”, which are heaters H-1781, H-2781, H-4781, & H-5781, are considered as fuel burning units and are subject to 45 CSR §10-3.3.f. This provision limits the discharge of sulfur dioxide to 3.2 lb of SO₂ per MMBtu of heat input. MarkWest has estimated the potential to emit of SO₂ emission at a rate of 5.34×10^{-4} lb SO₂ per MMBtu, which equates to less than two hundredths of one percent of the allowable. Due to the fuel restriction being limited to residual gas (natural gas), no add-on controls will be required for this unit to meet the allowable SO₂ limit of 45 CSR §10-3.1.

Subpart OOOO to Part 60 (Federal Regulations)

The Mobley Gas Plant is currently subject to several provisions of Subpart OOOO, which are listed in the following standards established in Subpart OOOO:

- §60.5385 – For Reciprocating Compressors
- §60.5390 – For Pneumatic Controllers
- §60.5400 – For Equipment Leaks at Onshore Natural Gas Processing Plant (LDAR)
- §60.5401 – Exemptions For Equipment Leaks at Onshore Natural Gas Processing Plant (Pressure Relief Devices venting to Control Device)

The proposed changes to the facility would only add additional affected units subject to these provisions §60.5390, §60.5400, and §60.5401. MarkWest plans on only installing instrument air driven pneumatic controllers, which would meet the requirements of the zero bleed rate standard of §60.5390(b)(1).

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MarkWest would have to conduct the initial leak detection survey of the new process units within 180 days of initial start-up of the process unit to comply with the Leak Detection And Repair requirements of §60.5400, which is prescribed in Subpart VVa to Part 60.

Most of the pressure relief devices (PRDs) in VOC service at the Mobley Gas Plant are vented into a closed vent system which routes any releases to Flare FL-991. MarkWest plans on venting any new pressure relief device that is needed on these new process units to Flare FL-991. §60.5400, which references to 40 CFR §60.482-4a(c), allows pressure relief device to be excluded from the LDAR requirements of §60.482-4a and §60.5401(b) if following is satisfied:

- The pressure relief device that routed to a process or fuel gas system or equipped with a closed vent system capable of capturing and transporting leakage through the pressure relief device to a control device.
- The closed vent system shall be constructed of hard-piping.
 - The system shall be free of leaks, which are defined as Method 21 instrument reading of greater than 500 ppm above background.
- The flare must meet the requirements of §60.18.

The proposed flare to replace the existing FL-991 is an air assisted flare with a piggy-back flare that is a non-assisted flare. §60.18 establish criteria for air assisted and non-assisted flares which are used as control devices to meet the requirements of any regulation in 40 CFR 60. The following are the requirements for the proposed flare system:

- §60.18(c)(1) Designed and operated with no visible emissions;
- §60.18(c)(2) Operated with a flame present at all times;
- §60.18(c)(4)(ii) The exit velocity of non-assisted piggy-back flare with gas stream being combusted having a heating value of greater than 1000 Btu per standard cubic foot between 60 feet per second and 400 feet per second.
- §60.18(c)(5) The exit velocity of the air assisted shall not exceed V_{max} as determined in §60.18(f)(6), which is 253.5 feet per second;
- §60.18(c)(3)(ii) & (c)(4)(ii) The effluent going to the flare system shall have a heat content greater than 1,000 Btu per cubic foot.

The proposed flare system to replace Flare FL-991 will meet that above criteria. Thus, the pressure relief devices can be excluded from the LDAR of §60.482-4a and §60.5401(b). To meet the closed vent system requirement of §60.482-10a, MarkWest shall implement the LDAR requirements of §§60.482-10a(f) & (g), which an initial inspection of the closed vent system and annual inspection thereafter.

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MarkWest believes there is some PRDs at the facility that vent straight to atmosphere. Subpart OOOO requires monitoring of PRDs in VOC service quarterly and within 5 days of a pressurized release unless the facility is a non-fractionation plant that uses non-plant personnel to conduct leak monitoring. PRDs at non-fractionation facilities after a pressurized release are required to be monitored at the next schedule but not to remain in service for a period of greater than 30 days without being monitored (40 CFR §60.5401(4)). The Mobley Plant is a non-fractionating plant and currently uses a third party contractor to conduct the leak surveys at the facility. Thus, the exception in §60.5401(4) would be applicable to the PRDs at the Mobley Plant.

45 CSR 30 – Requirements For Operating Permit

The Mobley gas Plant is subject to 45 CSR 30 and is required to submit an Title V Operating Permit Application by December 14, 2015, which is 12 month after start-up of Mobley III & IV. This modification will not change the status as a a major source under 45 CSR 30 – Operating Permit Program for NO_x.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

There will be small amounts of various non-criteria regulated pollutants emitted from the combustion of natural gas. However, due to the small concentrations emitted, detailed toxicological information is not included in this evaluation. The modification will only increase the HAP emissions by less than half a ton per year. The facility will still be classified as an area-source of HAPs with a potential to emit of total HAP of less than 16 tons per year.

AIR QUALITY IMPACT ANALYSIS

The writer deemed that an air dispersion modeling study or analysis was not necessary, because the proposed change does not meet the definition of a major source as defined in 45CSR14.

MONITORING OF OPERATIONS

The main source of emissions from the proposed new processing unit (Mobley V) will be equipment leaks. Under Subpart OOOO, MarkWest is required to implement a Leak Detection and Repair as outline in Subpart VVa. 40 CFR §60.482-1a(a) requires MarkWest to demonstrate compliance within 180 days of initial startup of the new processing unit,.

Subpart VVa outlines the follow-up frequency of monitoring for equipment using Method 21. However, MarkWest has elected to use the alternative work practice method as prescribed in 40 CFR §§60.18(g) through (i), which uses optical gas imaging instrument (OGII) in lieu of Method 21. Based on the detection sensitivity of the selected instrument and Table 1 to

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A of Part 60 – Detection Sensitivity Levels, MarkWest has chosen bi-monthly monitoring frequency of conducting leak survey at the Mobley Gas Plant. The alternative work practice standard requires that Method 21 would be used in lieu of the OGII once per year for one of the bi-monthly monitoring surveys.

While using this alternative work practice method, the following are not applicable for the equipment being monitoring, which would be allowed under Subpart VVa using Method 21:

- Skip period detection and repair;
- Quality improvement Plans; or
- Complying with standards for allowable percentage of valves and pumps to leaks.

The ethane stream exiting the De-ethanization unit is not in VOC service because the stream will have less than 10% VOCs (40 CFR §60.5400(f)). Methane and ethane are excluded as VOCs in the Clean Air Act. These two compounds accounts for over 90% of residual gas going to the unit.

The other main focus is monitoring the residual gas (fuel gas) that is combusted in the heaters at the facility and conducting tune-up of the burner for these heaters. MarkWest uses a small percentage of residual gas, which is natural gas going to be introduced into a pipeline system, fuel for the heaters at the facility. This residual gas is not technically pipeline quality because it has not been introduce to a pipeline system. MarkWest currently analyze the residual gas to determinate basis properties and molar content of the components once per month and hydrogen sulfide once per year. Typically the VOC content of the residual gas is less than 1% by weight and incoming gas has a contractual requirement not to exceed 4 grains of H₂S.

The writer recommends using these parameters to establish a fuel quality for the residual gas. Because this residual gas is used in the compressor engines, heaters, and purge gas for FL-991, these residual gas requirements should be in Section 3.0 Facility-Wide Requirement of the permit.

The design heat input of the heater as a result of this modification has increased by 164%. To minimize emissions of CO and NO_x, MarkWest has selected Low-NO_x Burners. The writer recommends requiring tune-up once every 3 years for heaters over 5 MMBtu/hr to optimize NO_x emissions while minimizing the formation of CO based on the manufacturer's guaranteed concentrations.

All of these heaters are gas fired units. So, monitoring visible emissions from these units is not a valuable indicator of compliance with these gas fired units. In additona, 45 CSR §2-8.4.b. exempt natural gas fired units from the visible emission testing of 45 CSR §2-8.1a. and the monitoring section of 45 CSR §2-8.2., which includes monitoring of visible emission. Thus, this

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writer recommends tracking fuel usage to use to determine actual heat input and establishing heat input limit that is linked to annual emission limits for NO_x, CO, and VOCs.

CHANGES TO PERMIT R13-2878C

The changes between the Permit R13-2878C and the proposed draft permit were focused on the following points:

- Organization – Permit R13-2878D was revised to establish sections by equipment rather than by rule.

The writer recommends establishing specific sections by emission unit types (engines/compressors, heaters, flare, and LDAR). This approach linked several existing sections into one. Such as the engines/compressors are combined into Section 4.0 which included Sections 5.0, 9.0 and part of 7.0, while omitting Section 10.0 (Rice MACT) totally. The engines are subject to the NSPS Subpart JJJJ and the compressors that are connected to these engines are subject to the rod packing requirement of Subpart OOOO. These engines are subject to Subpart JJJJ which satisfies the requirements of the Rice MACT (40 CFR §63.6590(c)). The engines are controlled and are tested every 8,760 hours service or once every 3 years. The writer recommends omitting tracking of fuel usage for these engines. Hours of operation, which is required by Subpart JJJJ and OOOO, is used to determine when emissions testing are to be conducted and maintenance to be performed (rod packing replaced, air/fuel ratio controller).

The changes to the requirement for the heaters were discussed in the Monitoring Section of this evaluation, which focus on conduct tune-ups and total fuel consumption.

The writer established one section in the draft permit (Section 6.0) to cover the gas processing units and LDAR program for the facility. Permit R13-2878C has establish Section 8.0 to cover Flare FL-991 and Section 7.0 for the LDAR of Subpart OOOO. Conditions 4.1.5. through 4.1.7. established maximum wet gas throughput, number of components limits for the whole facility and a generalized LDAR requirement. The writer believes these requirements are no longer sufficient. The purpose of the LDAR requirements of Subpart OOOO is to reduce VOC emissions from equipment leaks at natural gas processing plants. These are applicable regardless of the number of components or amount of gas processed. Second, 40 CFR §60.5365(f)(2) defines that all associated equipment with the gas processing at gas processing plants as affect units subject to the LDAR requirements of Subpart OOOO, which includes components at the inlet of the facility and wet gas compressor stations. Also, Subpart OOOO notes that the equipment in wet gas service or makes contact with a process system that contains 10% or more of VOCs is subject to the LDAR requirements. Thus, the generalized LDAR is really only covering equipment after the extraction process. The writer recommends having Section 6.0 focus on the applicable LDAR requirements of Subpart OOOO which refers to the LDAR of Subpart VVa. This LDAR program does cover process units PRDs that vent to a

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control device. Thus, the writer recommends including the closed vent system that the PRDs vent to which is routed to Flare FL-991, which includes Flare FL-991 itself.

RECOMMENDATION TO DIRECTOR

The information provided in the permit application indicates the proposed changes of the facility will meet all the requirements of the application rules and regulations when operated in accordance with the permit application. Therefore, the writer recommends granting MarkWest Liberty Midstream & Resources LLC a Rule 13 a modification permit for the proposal expansion at the Mobley Gas Extraction Plant located near Smithfield, WV.



Edward S. Andrews, P.E.
Engineer

November 25, 2015
Date

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