

Engineer	Jerry Williams, P.E.
Email Address	jerry.williams@wv.gov
Company Name	MarkWest Liberty Midstream & Resources L.L.C.
Company ID	103-00042
Facility Name	Mobley Gas Plant
Permit Number	R13-2878E
County	Wetzel
Newspaper	<i>The Wetzel Chronicle</i> <i>OK to publish</i>
Company Email and "Attention To:"	Leanne Meyer lmeyer@markwest.com
Environmental Contact Email Address	Nathan Wheldon nwheldon@markwest.com Wade Janecek wade.janecek@markwest.com
Regional Office (if applicable)	None
New or Modified Source?	modified
Construction, Modification, or Relocation?	modification
Type of Facility	natural gas processing facility
"Located" or "To Be Located"?	located
Place where I can find electronic versions of your notice, engineering evaluation, and draft permit	Q:\AIR_QUALITY\Willi\Permit Applications Under Review\MarkWest Liberty Midstream & Resources, LLC\R13-2878E Mobley Gas Plant

Wed June 28 2017

Fri July 28 2017

INTERNAL PERMITTING DOCUMENT TRACKING MANIFEST

Company Name Mark West Liberty Midstream & Resources LLC

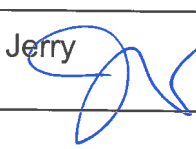
Permitting Action Number R13-2878E Total Days 111 DAQ Days 69

Permitting Action:

- | | | |
|---|------------------------------------|---|
| <input type="radio"/> Permit Determination | <input type="radio"/> Temporary | <input checked="" type="radio"/> Modification |
| <input type="radio"/> General Permit | <input type="radio"/> Relocation | <input type="radio"/> PSD (Rule 14) |
| <input type="radio"/> Administrative Update | <input type="radio"/> Construction | <input type="radio"/> NNSR (Rule 19) |

Documents Attached:

- | | |
|--|--|
| <input checked="" type="radio"/> Engineering Evaluation/Memo | <input type="radio"/> Completed Database Sheet |
| <input checked="" type="radio"/> Draft Permit | <input type="radio"/> Withdrawal |
| <input type="radio"/> Notice | <input type="radio"/> Letter |
| <input type="radio"/> Denial | <input type="radio"/> Other (specify) _____ |
| <input type="radio"/> Final Permit/General Permit Registration | _____ |

Date	From	To	Action Requested
6/19/2017	Jerry 	Bev	Please review for notice
6/19	Bev	Jerry	Go to Notice
6/19	Jerry	SANDIE	APPROVED FOR NOTICE

NOTE: Retain a copy of this manifest for your records when transmitting your document(s).



Permit / Application Information Sheet
Division of Environmental Protection
West Virginia Office of Air Quality

Company:	MarkWest Liberty Midstream & Resources LLC	Facility:	Mobley Gas Plant
Region:	2	Plant ID:	103-00042
Engineer:	Williams, Jerry	Application #:	13-2878E
Physical Address:	14624 N.Fork Rd Smithfield WV 26437	Category:	SIC: [2819] CHEMICALS AND ALLIED PRODUCTS - INDUSTRIAL INORGANIC CHEMICALS NAICS: [211112] Natural Gas Liquid Extraction
County:	Wetzel		
Other Parties:	ENV ENG - Janecek, Wade 303-542-1212		

Information Needed for Database and AIRS
 1. Need valid physical West Virginia address with zip

Regulated Pollutants

Summary from this Permit 13-2878E		
Air Programs	Applicable Regulations	
NSPS	02 10 13 16 30 60 JJJJ 60 OOOO	
TITLE V	63 ZZZZ	
Title V/Major		
Fee Program	Fee	Application Type
8D	\$2,000.00	MODIFICATION

Notes from Database
 Permit MM Note: Modification application to correct heater size and naming, addition of generators, correct fugitive component counts, add rod packing and crankcase emissions, emission updates to flare and removal of one (1) engine.

Activity Dates

APPLICATION RECIEVED	02/28/2017 no cd
APPLICATION FEE PAID	03/02/2017
ASSIGNED DATE	03/02/2017
ADDITIONAL INFO RECEIVED	03/23/2017
APPLICATION INCOMPLETE	03/24/2017
APPLICANT PUBLISHED LEGAL AD	03/29/2017
ADDITIONAL INFO RECEIVED	04/05/2017
APPLICATION DEEMED COMPLETE	04/11/2017
ADDITIONAL INFO RECEIVED	05/15/2017
ADDITIONAL INFO RECEIVED	06/16/2017

NON-CONFIDENTIAL

Please note, this information sheet is not a substitute for file research and is limited to data entered into the AIRTRAX database.

Company ID: 103-00042
 Company: MarkWest Liberty Midstream & R
 Printed: 06/19/2017
 Engineer: Williams, Jerry

AIR QUALITY PERMIT NOTICE

Notice of Intent to Approve

On February 28, 2017, MarkWest Liberty Midstream & Resources, LLC applied to the WV Department of Environmental Protection, Division of Air Quality (DAQ) for a permit to modify a natural gas processing facility (Mobley Gas Plant) located at 14624 North Fork Road, Smithfield, Wetzel County, WV at latitude 39.55367 and longitude -80.55654. A preliminary evaluation has determined that all State and Federal air quality requirements will be met by the proposed facility. The DAQ is providing notice to the public of its preliminary determination to issue the permit as R13-2878E.

The following increase in potential emissions will be authorized by this permit action: Oxides of Nitrogen, 9.93 tons per year (TPY); Carbon Monoxide, 22.14 TPY; Volatile Organic Compounds, 27.51 TPY; Sulfur Dioxide, 0.08 TPY; Carbon Dioxide Equivalents, 9,713 TPY.

The following decrease in potential emissions will be authorized by this permit action: Total Hazardous Air Pollutants, 0.35 TPY; Particulate Matter less than 10 microns in diameter, 0.08 TPY.

Written comments or requests for a public meeting must be received by the DAQ before 5:00 p.m. on (Day of Week, Month, Day, Year). A public meeting may be held if the Director of the DAQ determines that significant public interest has been expressed, in writing, or when the Director deems it appropriate.

The purpose of the DAQ's permitting process is to make a preliminary determination if the proposed modification will meet all state and federal air quality requirements. The purpose of the public review process is to accept public comments on air quality issues relevant to this determination. Only written comments received at the address noted below within the specified time frame, or comments presented orally at a scheduled public meeting, will be considered prior to final action on the permit. All such comments will become part of the public record.

Jerry Williams, P.E.
WV Department of Environmental Protection
Division of Air Quality
601 57th Street, SE
Charleston, WV 25304
Telephone: 304/926-0499, ext. 1223
FAX: 304/926-0478

Additional information, including copies of the draft permit, application and all other supporting materials relevant to the permit decision may be obtained by contacting the engineer listed above. The draft permit and engineering evaluation can be downloaded at:

www.dep.wv.gov/daq/Pages/NSRPermitsforReview.aspx



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

Jim Justice, Governor
Austin Caperton, Cabinet Secretary
www.dep.wv.gov

ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.: R13-2878E
Plant ID No.: 103-00042
Applicant: Mark West Liberty Midstream & Resources L.L.C. (Mark West)
Facility Name: Mobley Gas Plant
Location: Smithfield, Wetzel County
NAICS Code: 211112
SIC Code: 1321
Application Type: Modification
Received Date: February 28, 2017
Engineer Assigned: Jerry Williams, P.E.
Fee Amount: \$2,000.00
Date Received: March 2, 2017
Complete Date: April 11, 2017
Due Date: July 10, 2017
Applicant Ad Date: March 29, 2017
Newspaper: *Wetzel Chronicle*
UTM's: Easting: 538.098 km Northing: 4,378.315 km Zone: 17
Description: Modification application to correct heater size and naming, addition of generators, correct fugitive component counts, add rod packing and crankcase emissions, emission updates to flare and removal of one (1) engine.

DESCRIPTION OF PROCESS

The following process description was taken from Permit Application R13-2878E:

Mobley Gas Plants I-V are natural gas processing plants for gas wells throughout West Virginia. The natural gas enters one or more molecular sieve(s), designed to remove liquids from the gas stream through contact. Heaters are employed to regenerate the molecular sieve(s) on a regular basis. After passing through the molecular sieve(s) the gas is cooled through a cryogenic plant with mechanical refrigeration, which serves to remove propane and heavier hydrocarbons known as natural gas liquids (NGLs) in the gas stream. Dependent upon several market conditions and

Promoting a healthy environment.

contractual obligations a portion or all of the recovered liquids pass through a deethanization tower, which removes ethane as a purity product from the liquid stream by adding heat and driving the ethane into a gaseous phase. The ethane is transferred off-site via pipeline to market. The remaining NGLs are transported via pipeline to another facility; therefore, there are no on-site liquids storage tanks or loading facilities. The remaining residue gas stream is ready for compression prior to entering the downstream pipeline for transmission/distribution. A flare may be used to burn vapors released from emergency and/or upset conditions at the facility.

SITE INSPECTION

The facility was last inspected on September 21, 2016 by Jamie Jarrett of the DAQs Enforcement Section. The facility was found out of compliance based on flare pilot records, LDAR component monitoring, and heater capacity.

Latitude: 39.55367
Longitude: -80.55654



ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Emissions associated with this modification application consist of the emissions from four (4) emergency generators (G-1, G-2, G-3, G-4), one (1) heater (H-5781), six (6) methanol tanks and two (2) closed drain tanks. This application also addresses updates to fugitive equipment leaks, compressor blowdowns, facility blowdowns, rod packing emissions and crankcase blowby emissions.

The following table indicates which methodology was used in the emissions determination:

Emission Unit ID#	Emission Point ID#	Process Equipment	Calculation Methodology
G-1	G-1	53 hp Emergency Generator	EPA AP-42 Emission Factors / Vendor Data
G-2	G-2	75 hp Emergency Generator	EPA AP-42 Emission Factors / Vendor Data
G-3	G-3	58 hp Emergency Generator	EPA AP-42 Emission Factors / Vendor Data
G-4	G-4	58 hp Emergency Generator	EPA AP-42 Emission Factors / Vendor Data
H-5781	H-5781	50.78 MMBTU/hr Hot Medium Oil Heater	EPA AP-42 Emission Factors
TK-087	TK-087	520 gal Methanol Storage Tank	Negligible emissions
TK-2609	TK-2609	520 gal Methanol Storage Tank	Negligible emissions
TK-3410	TK-3410	520 gal Methanol Storage Tank	Negligible emissions
TK-3829	TK-3829	520 gal Methanol Storage Tank	Negligible emissions
TK-4220	TK-4220	520 gal Methanol Storage Tank	Negligible emissions
TK-4410	TK-4410	520 gal Methanol Storage Tank	Negligible emissions
TK-1824	TK-1824	4,265 gal Closed Drain Tank	Negligible emissions
TK-4824	TK-4824	4,533 gal Closed Drain Tank	Negligible emissions

The total PTE after this proposed modification (including fugitives) is shown in the following table:

Pollutant	Maximum Pre-Modification Annual Facility Wide Emissions (tons/year)	Maximum Post-Modification Annual Facility Wide Emissions (tons/year)	Net Facility Wide Emissions Changes (tons/year)
Nitrogen Oxides	108.60	118.53	9.93
Carbon Monoxide	73.98	96.12	22.14
Volatile Organic Compounds	46.14	73.65	27.51
Particulate Matter-10/2.5	14.65	14.57	-0.08
Sulfur Dioxide	0.75	0.83	0.08
Total HAPs	15.01	14.66	-0.35
Greenhouse Gas (CO ₂ e)	163,245	172,958	9,713

Maximum detailed controlled point source emissions were calculated by MarkWest and checked for accuracy by the writer and are summarized in the table on the next page.

MarkWest Liberty Midstream & Resources, L.L.C – Mobley Gas Plant (R13-2878E)

Emission Point ID#	Source	NO _x		CO		VOC		PM-10/2.5		SO ₂		Total HAPs		CO ₂ e ton/year
		lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year	
CM-1001	1,980 hp Compressor Engine	0.87	3.83	1.14	4.99	0.52	2.29	0.30	1.31	0.01	0.04	0.21	0.92	8697
CM-1003	1,980 hp Compressor Engine	0.87	3.83	1.14	4.99	0.52	2.29	0.30	1.31	0.01	0.04	0.21	0.92	8697
CM-1004	1,980 hp Compressor Engine	0.87	3.83	1.14	4.99	0.52	2.29	0.30	1.31	0.01	0.04	0.21	0.92	8697
CM-1005	1,980 hp Compressor Engine	0.87	3.83	1.14	4.99	0.52	2.29	0.30	1.31	0.01	0.04	0.21	0.92	8697
CM-1006	1,980 hp Compressor Engine	0.87	3.83	1.14	4.99	0.52	2.29	0.30	1.31	0.01	0.04	0.21	0.92	8697
C-102	4,735 hp Compressor Engine	5.22	22.86	1.44	6.29	2.63	11.52	0.35	1.55	0.02	0.09	0.88	3.84	19785
C-103	4,735 hp Compressor Engine	5.22	22.86	1.44	6.29	2.63	11.52	0.35	1.55	0.02	0.09	0.88	3.84	19785
G-1	53 hp Diesel Generator	0.41	0.10	0.43	0.11	0.41	0.10	<0.01	<0.01	0.11	0.03	<0.01	<0.01	17
G-2	75 hp NG Generator	0.33	0.08	0.50	0.12	0.17	0.04	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	7
G-3	58 hp Diesel Generator	0.45	0.11	0.47	0.12	0.45	0.11	<0.01	<0.01	0.12	0.03	<0.01	<0.01	17
G-4	58 hp Diesel Generator	0.45	0.11	0.47	0.12	0.45	0.11	<0.01	<0.01	0.12	0.03	<0.01	<0.01	17
H-741	6.84 MMBTU/hr Regen Heater	0.36	1.59	0.28	1.23	0.03	0.15	0.05	0.20	<0.01	0.02	0.01	0.05	3856
H-781	18.05 MMBTU/hr Heat Med Oil Heater	1.61	7.03	1.35	5.91	0.09	0.39	0.12	0.53	0.01	0.04	0.03	0.13	10174
H-1741	8.12 MMBTU/hr Regen Heater	0.43	1.88	0.33	1.46	0.05	0.18	0.05	0.20	<0.01	0.02	0.01	0.05	4577
H-1781	26.0 MMBTU/hr Heat Med Oil Heater	2.31	10.13	1.94	8.51	0.13	0.56	0.18	0.77	0.01	0.06	0.04	0.19	14825
FL-991	Process Flare	0.90	3.95	4.81	21.05	0.01	0.04	0.01	0.04	0.01	0.04	0.08	0.35	1B, 2B
H-3741	7.69 MMBTU/hr Regen Heater	0.41	1.79	0.32	1.38	0.04	0.18	0.06	0.25	<0.01	0.02	0.01	0.06	4777
H-4741	7.69 MMBTU/hr Regen Heater	0.41	1.79	0.32	1.38	0.04	0.18	0.06	0.25	<0.01	0.02	0.01	0.06	4777
H-3781	16.07 MMBTU/hr Heat Med Oil Heater	1.58	6.90	1.32	5.80	0.09	0.38	0.12	0.52	0.01	0.04	0.03	0.13	9983
H-5741	7.69 MMBTU/hr Regen Heater	0.41	1.79	0.32	1.38	0.04	0.18	0.06	0.25	<0.01	0.02	0.01	0.06	4339
H-5781	50.78 MMBTU/hr Heat Med Oil Heater	3.30	14.46	2.03	8.90	0.61	2.67	0.41	1.78	0.03	0.13	0.09	0.41	28650
1B	Compressor Blowdowns	0	0	0	0	NA	1.20	0	0	0	0	NA	0.02	110
2B	Facility Blowdowns	0	0	0	0	NA	6.87	0	0	0	0	NA	0.09	719
RP	Rod Packing Emissions	0	0	0	0	0.09	0.40	0	0	0	0	<0.01	0.01	37
CBB	Crankcase Blowby Emissions	0.44	1.95	0.26	1.13	0.24	1.03	0.07	0.29	<0.01	0.01	0.08	0.37	2492
* Flare emissions are those emissions that exist under routine/planned activities.														
Total Point Source Emissions		28.58	118.53	23.72	96.12	10.76	49.08	3.38	14.57	0.52	0.83	3.21	14.26	172429
FUG-004	Fugitive Equipment Leaks	0	0	0	0	5.61	24.57	0	0	0	0	0.09	0.40	529
Total Fugitive Emissions		0	0	0	0	5.61	24.57	0	0	0	0	0.09	0.40	529
Facility Wide Emissions		28.58	118.53	23.72	96.12	16.37	73.65	3.38	14.57	0.52	0.83	3.30	14.66	172958

REGULATORY APPLICABILITY

The following rules apply to this modification:

45CSR2 (Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers)

The purpose of 45CSR2 (Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers) is to establish emission limitations for smoke and particulate matter which are discharged from fuel burning units.

The existing gas plant and proposed changes calls for the use of heaters. Boilers or indirect heat exchangers are affected units under 45CSR2 and 40CFR60 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.

The hot oil heater (H-5781) has a maximum design heat input of greater than 10 MMBtu/hr. Therefore, this heater is subject to the visible emission and PM standards of Rule 2. This heater was designed and constructed to burn natural gas and 45 CSR §2-8.4.b. excludes them from the visible emission testing and monitoring of Section 8 of Rule 2. This heater is excluded from the emission standards of Subpart Dc due to being capable of burning natural gas.

45CSR10 (To Prevent and Control Air Pollution from the Emissions of Sulfur Oxides)

The purpose of this rule is to establish standards for emissions of sulfur oxides from fuel burning units, manufacturing operations and combustion of refinery or process gas streams.

45CSR10 has the same definition of “process heater” as 45CSR2, and 40CFR60 Subpart Dc. Therefore, 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. The hot oil heater (H-5781) is subject to the 2,000 ppm sulfur dioxide allowable in 45 CSR §10-4.1. The proposed SO₂ emissions from this unit are negligible.

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)

45CSR13 applies to this source because MarkWest’s proposed modification exceeds the regulatory emission threshold for criteria pollutants of 6 lb/hr and 10 ton/year, and they are also subject to a substantive requirement of an emission control rule promulgated by the Secretary (40CFR60 Subparts III and JJJ).

MarkWest paid the appropriate application fee and published the required legal advertisement for this modification application.

45CSR16 (Standards of Performance for New Stationary Sources Pursuant to 40 CFR Part 60)

45CSR16 applies to this facility by reference of 40CFR60, Subparts IIII, JJJJ and OOOO.

45CSR30 (Requirements for Operating Permits)

MarkWest is subject to 45CSR30. Changes authorized by this permit must also be incorporated into the facility's Title V operating permit. Commencement of the operations authorized by this permit shall be determined by the appropriate timing limitations associated with Title V permit revisions per 45CSR30.

40CFR60 Subpart IIII (Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (CI ICE))

The 53 hp Generac MMG45 diesel fired generator (G-1) is an USEPA certified stationary compression ignition engine according to 40CFR60 Subpart IIII. The two (2) 58 hp Generac MMG45 diesel fired generators (G-3, G-4) are USEPA certified stationary compression ignition engines according to 40CFR60 Subpart IIII.

Therefore, MarkWest will not be required to conduct an initial performance test and conduct subsequent performance testing every 8,760 hours or three (3) years, whichever comes first, to demonstrate compliance, as long as the engine is operated in a certified manner.

40CFR60 Subpart JJJJ (Standards of Performance for Stationary Spark Ignition Internal Combustion Engines (SI ICE))

40CFR60 Subpart JJJJ establishes emission standards for applicable SI ICE.

The 75 hp Kohler 40ERES natural gas fired generator (G-2) was manufactured after January 1, 2009. The engine must comply with the emission standards in Table 1 of 40CFR60 Subpart JJJJ.

The 75 hp Kohler 40ERES natural gas fired generator (G-2) will be subject to the following emission limits: NO_x + HC– 10.0 g/hp-hr (2.0 g/hp-hr from Kohler); CO – 387 g/hp-hr (3.0 g/hr-hr from Kohler). Based on the manufacturer's specifications for this engine, the emission standards will be met.

The 75 hp Kohler 40ERES natural gas fired generator (G-2) is not certified by the manufacturer to meet the emission standards listed in 40CFR60 Subpart JJJJ. Therefore, MarkWest will be required to conduct an initial performance test to demonstrate compliance.

40CFR60 Subpart OOOO (Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution)

EPA published in the Federal Register new source performance standards (NSPS) and air toxics rules for the oil and gas sector on August 16, 2012. 40CFR60 Subpart OOOO establishes emission standards and compliance schedules for the control of volatile organic compounds (VOC) and sulfur dioxide (SO₂) emissions from affected facilities that commence construction, modification or reconstruction after August 23, 2011. The following affected sources which commence construction, modification or reconstruction after August 23, 2011 and on or before September 18, 2015 are subject to the applicable provisions of this subpart:

- a. The group of all equipment, except compressors, within a process unit is an affected facility.
 - Addition or replacement of equipment for the purpose of process improvement that is accomplished without a capital expenditure shall not by itself be considered a modification under this subpart.
 - Equipment associated with a compressor station, dehydration unit, sweetening unit, underground storage vessel, field gas gathering system, or liquefied natural gas unit is covered by §§60.5400, 60.5401, 60.5402, 60.5421 and 60.5422 of this subpart if it is located at an onshore natural gas processing plant. Equipment not located at the onshore natural gas processing plant site is exempt from the provisions of §§60.5400, 60.5401, 60.5402, 60.5421 and 60.5422 of this subpart.
 - The equipment within a process unit of an affected facility located at onshore natural gas processing plants and described in paragraph (f) of this section are exempt from this subpart if they are subject to and controlled according to subparts VVa, GGG or GGGa of this part.

The Mobley Gas Plant was constructed after August 23, 2011 and on or before September 18, 2015. Therefore, Leak Detection and Repair (LDAR) requirements for onshore natural gas processing plants would apply to this equipment.

40CFR63 Subpart ZZZZ (National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines)

Subpart ZZZZ establishes national emission limitations and operating limitations for HAPs emitted from stationary RICE located at major and area sources of HAP emissions. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and operating limitations. The generators (G-1, G-2) at the Mobley Gas Plant are subject to the area source requirements for non-emergency compression ignition engines.

The applicability requirements for new stationary RICEs located at an area source of HAPs, is the requirement to meet the standards of 40CFR60 Subparts IIII and JJJJ. These requirements were outlined above. The proposed engines meet these standards.

The following rules do not apply to this modification:

40CFR60 Subpart Dc (Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units)

40CFR60 Subpart Dc applies to steam generating units. The rule further defines a *steam generating unit* as a device that combusts any fuel and produces steam or heats water or any other heat transfer medium. However, this term does not include process heaters as defined in this subpart. *Process heater* is defined as a device that is primarily used to heat a material to initiate or promote a chemical reaction in which the material participates as a reactant or catalyst. The process heaters at the Mobley facility are dedicated to the removal and separation of NGLs from the gas stream. They do not serve any other purpose such as providing steam for the heating of buildings or for co-generation of electric power. Therefore this rule does not apply to the proposed process heaters.

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

40CFR60 Subpart KKK applies to onshore natural gas processing plants that commenced construction after January 20, 1984, and on or Before August 23, 2011. The Mobley Gas Plant was constructed after August 23, 2011 therefore, MarkWest would not be subject to this rule. MarkWest is subject to the requirements of 40CFR60 Subpart OOOO.

45CSR14 (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollutants)

45CSR19 (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution which Cause or Contribute to Nonattainment)

The Mobley Gas Plant is located in Wetzel County, whose attainment status is unclassified. Because Wetzel County is not classified as a non-attainment county, 45CSR19 does not apply to this facility.

As shown in the following table, MarkWest is not a major source subject to 45CSR14 or 45CSR19 review. According to 45CSR14 Section 2.43.e, fugitive emissions are not included in the major source determination because it is not listed as one of the source categories in Table 1. Therefore, the fugitive emissions are not included in the PTE on the following page.

Pollutant	PSD (45CSR14) Threshold (tpy)	NANSR (45CSR19) Threshold (tpy)	Mobley PTE (tpy)	45CSR14 or 45CSR19 Review Required?
Carbon Monoxide	250	NA	96.12	No
Nitrogen Oxides	250	NA	118.53	No
Sulfur Dioxide	250	NA	0.83	No
Particulate Matter 2.5	250	NA	14.57	No
Ozone (VOC)	250	NA	49.08	No

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 concentrations emitted, detailed toxicological information is not included in this evaluation.

AIR QUALITY IMPACT ANALYSIS

Modeling was not required of this source due to the facility not being subject to 45CSR14 (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollutants) as seen in the table listed in the Regulatory Discussion Section.

SOURCE AGGREGATION

“Building, structure, facility, or installation” is defined as all the pollutant emitting activities which belong to the same industrial grouping, are located on one or more contiguous and adjacent properties, and are under the control of the same person.

The Source Determination Rule for the oil and gas industry was published in the Federal Register on June 3, 2016 and became effective on August 2, 2016. EPA defined the term “adjacent” and stated that equipment and activities in the oil and gas sector that are under common control will be considered part of the same source if they are located on the same site or on sites that share equipment and are within ¼ mile of each other.

The Mobley Gas Plant will operate under the SIC code of 1321 (Natural Gas Liquid Extraction). There are other facilities operated by MarkWest that share the same two-digit major SIC code of 13. However, these facilities are not located on “contiguous or adjacent” property. Therefore, the emissions from this facility shall not be aggregated with other facilities for the purposes of making Title V and PSD determinations.

MONITORING OF OPERATIONS

MarkWest will be required to perform the following monitoring:

1. Monitor and record quantity of natural gas consumed for all combustion sources.
2. Monitor and record quantity of natural gas routed through the process flare.
3. Monitor the presence of the flare pilot flame with a thermocouple or equivalent.
4. Establish a Leak Detection and Repair (LDAR) program for all equipment in VOC or wet gas service according to 40CFR60 Subpart OOOO.
5. Monitor and record quantity of constituents transferred from the storage tanks.

MarkWest will be required to perform the following recordkeeping:

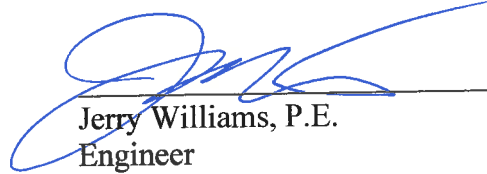
1. Maintain records of the amount of natural gas consumed and hours of operation for each heater.
2. Maintain records of the amount of constituents transferred from the storage tanks.
3. Maintain records of the flare design evaluation.
4. Maintain records of testing conducted in accordance with the permit. Said records shall be maintained on-site or in a readily accessible off-site location
5. Maintain the corresponding records specified by the on-going monitoring requirements of and testing requirements of the permit.
6. Maintain records of the visible emission opacity tests conducted per the permit.
7. Maintain a record of all potential to emit (PTE) HAP calculations for the entire facility. These records shall include the natural gas compressor engines and ancillary equipment.
8. The records shall be maintained on site or in a readily available off-site location maintained by MarkWest for a period of five (5) years.

CHANGES TO PERMIT R13-2878D

- Section 1.0 Addition of G-1 - G-4. Modified the MDHI of H-5781 to 50.79MMBTU/hr. Removed CM-1002. Added methanol and closed drain tanks.
- Section 1.1 Removed CM-1002.
- Section 4.0 Removed CM-1002.
- Section 5.1.1 Changed the MDHI of H-5781 from 22.92 MMBTU/hr and 200,866.80 MMBTU/yr to 50.78 MMBTU/hr and 444,832.80 MMBTU/yr. Changed the total MDHI from 1,257,673.20 MMBTU/yr to 1,501,639.20 MMBTU/yr. Corrected the Emission Unit ID#s.
- Section 5.1.2 Corrected the Emission Unit ID#s.
- Section 5.1.3 Updated the annual emission limits.
- Section 6.1.3 Updated permit condition to reflect a net heating value of 300 BTU/scf or greater. Updated maximum flow rate to the flare system and emission values. Updated permit condition to reflect non-assisted and air assisted flare tips, as well as the maximum permitted velocities.
- Section 6.0 Corrected all references to condition 8.x.x to 6.x.x.
- Section 7.0 Added section for diesel fired emergency generators (G-1, G-3, G-4).
- Section 8.0 Added section for natural gas fired emergency generator (G-2).

RECOMMENDATION TO DIRECTOR

The information provided in the permit application indicates that MarkWest meets all the requirements of applicable regulations. Therefore, impact on the surrounding area should be minimized and it is recommended that the Mobley Gas Plant should be granted a 45CSR13 modification permit for their facility.



Jerry Williams, P.E.
Engineer

JUN 19. 2017

Date

West Virginia Department of Environmental Protection
Jim Justice
Governor

Division of Air Quality

Austin Caperton
Cabinet Secretary

Permit to Modify



R13-2878E

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:

MarkWest Liberty Midstream & Resources LLC
Mobley Gas Plant
103-00042

William F. Durham
Director

Issued: Draft

This permit will supersede and replace Permit R13-2878D issued on January 7, 2016.

Facility Location: 14624 North Fork Rd., Smithfield, Wetzel County, West Virginia
Mailing Address: 1515 Arapahoe St. Tower 1 Suite 1600, Denver, CO 80202-2137
Facility Description: Natural Gas Processing Plant
NAICS Codes: 211112
UTM Coordinates: 538.099 km Easting • 4,378.31 km Northing • Zone 17
Permit Type: Modification
Description of Change: Modification to add generators, correct heater size and naming, correct fugitive component counts, addition of rod packing and crankcase emissions, emission updates to flare and removal of CM-1002.

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.

The source is subject to 45CSR30. The permittee has the duty to update the facility's Title V (45CSR30) permit application to reflect the changes permitted herein.

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DRAFT

1.0. Emission Units

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
CM-1001	CM-1001	Waukesha P9390 GSI Compressor Engine	2012	1,980 HP	NSCR
CM-1003	CM-1003	Waukesha P9390 GSI Compressor Engine	2012	1,980 HP	NSCR
CM-1004	CM-1004	Waukesha P9390 GSI Compressor Engine	2012	1,980 HP	NSCR
CM-1005	CM-1005	Waukesha P9390 GSI Compressor Engine	2012	1,980 HP	NSCR
CM-1006	CM-1006	Waukesha P9390 GSI Compressor Engine	2012	1,980 HP	NSCR
C-102	C-102	Caterpillar G3616 LE Engine	2012	4,735 HP	Oxid. Cat.
C-103	C-103	Caterpillar G3616 LE Engine	2012	4,735 HP	Oxid. Cat.
G-1	G-1	Generac MMG45 Generator	2012	53 HP	None
G-2	G-2	Kohler 40ERES Generator	2012	75 HP	None
G-3	G-3	Generac MMG45 Generator	2012	58 HP	None
G-4	G-4	Generac MMG45 Generator	2012	58 HP	None
H-741	H-741	Regeneration Gas Heater	2012	6.84 MMBtu/hr	None
H-781	H-781	Heat Medium Oil Heater	2012	18.05 MMBtu/hr	None
H-1741	H-1741	Regeneration Gas Heater	2012	8.12 MMBtu/hr	None
H-1781	H-1781	Heat Medium Oil Heater	2012	26.0 MMBtu/hr	None
FL-991	FL-991	Process Flare	2012	68,600 scf/hr	None
H-3741	H-3741	Regeneration Gas Heater	2013	7.69 MMBtu/hr	None
H-4741	H-4741	Regeneration Gas Heater	2014	7.69 MMBtu/hr	None
H-3781	H-3781	Heat Medium Oil Heater	2013	16.07 MMBtu/hr	None
H-5741	H-5741	Regeneration Gas Heater	2015	7.69 MMBTU/hr	None
H-5781	H-5781	Heat Medium Oil Heater	2015	50.78 MMBTU/hr	None
TK-087	TK-087	Methanol Tank	2012	520 gal	None
TK-2609	TK-2609	Methanol Tank	2012	520 gal	None
TK-3410	TK-3410	Methanol Tank	2012	520 gal	None
TK-3829	TK-3829	Methanol Tank	2012	520 gal	None
TK-4220	TK-4220	Methanol Tank	2012	520 gal	None

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
TK-4410	TK-4410	Methanol Tank	2012	520 gal	None
TK-1824	TK-1824	Closed Drain Tank	2012	4,265 gal	None
TK-4824	TK-4824	Closed Drain Tank	2012	4,533 gal	None

1.1. Control Devices

Emission Point ID	Control Device	Emission Unit	Pollutant	Control Efficiency
CM-1001 CM-1003 CM-1004 CM-1005 CM-1006	NSCR	Waukesha P9390 GSI Compressor Engine	Nitrogen Oxides	98%
Carbon Monoxide			97%	
Volatile Organic Compounds			60%	
Formaldehyde			80%	
C-102	Oxidation Catalyst	Caterpillar G3616 LE Compressor Engine	Carbon Monoxide	95%
Volatile Organic Compounds			75%	
Formaldehyde			90%	
FL-991	Flare	Emergency Use (Unit Blowdown and Maintenance Purposes)	Volatile Organic Compounds	98%
			Hazardous Air Pollutants	98%

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	PM₁₀	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	Ppmv 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	SO₂	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 Act 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 R13-2878D issued on January 7, 2016. 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 Applications R13-2878 – R13-2878E 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; and
- 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.]
- 3.1.7. The fuel gas (residue gas) for the facility shall not exceed the following:
- a. Total VOCs content greater than 1% by weight on a 12-month rolling basis.
 - b. Hydrogen sulfide or total sulfur compounds greater than 4 grains per 100 cubic feet of gas.

3.2. Monitoring Requirements

- 3.2.1. The permittee shall analyze the fuel gas for the facility once per month. Such analysis shall determine the net heating value, percentage of VOC in the fuel gas. Such analysis shall be maintained in accordance with Condition 3.4.1.
- 3.2.2. For the purpose of demonstrating compliance with Conditions 3.1.7, the permittee shall conduct gas sampling at a point that is representative of the incoming field gas and analyzing the sample to determine the hydrogen sulfide content of the sample. At the minimum, such sampling and analysis shall be conducted once per year and thereafter. Once per year shall mean between 11 months to 13 months from the previous gas sampling. Records of such monitoring shall be maintained in accordance with Condition 3.4.1. of this permit.
[45 CSR §10-8.3.a.]

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 or by private carrier with postage prepaid to the address(es), or submitted in electronic format by email as set forth below

or to such other person or address as the Secretary of the Department of Environmental Protection may designate:

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

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

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¹For all self-monitoring reports (MACT, GACT, NSPS, etc.), stack tests and protocols, Notice of Compliance Status Reports, Initial Notifications, etc.

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. Specific Requirements for the Compressor Engines

4.1. Limitations and Standards

- 4.1.1. The following conditions and requirements are specific to the internal combustion engines identified as CM-1001, CM-1003, CM-1004, CM-1005, and CM-1006; and the connected compressors:
- a. Emissions from each engine shall not exceed the following:
 - i. NO_x emissions from the engine shall not exceed 82 ppmvd at 15 percent O₂. The mass rate of NO_x emissions from each engine shall not exceed 0.87 pounds per hour and 3.83 tpy.
 - ii. CO emissions from engine shall not exceed 270 ppmvd at 15 percent O₂. The mass rate of CO emissions from each engine shall not exceed 1.14 pounds per hour and 4.99 tpy.
 - iii. VOC emissions from the engine shall not exceed 86 ppmvd at 15 percent O₂. Formaldehyde is excluded from this VOC limit. The mass rate of VOC emissions shall not exceed 0.52 pounds per hour and 2.29 tpy.
[40 CFR §60.4333(e) & Table 1 to Subpart JJJJ of Part 60—NO_x, CO, and VOC Emission Standards for Stationary Non-Emergency SI Engines ≥100 HP (Except Gasoline and Rich Burn LPG), Stationary SI Landfill/Digester Gas Engines, and Stationary Emergency Engines >25 HP]
 - iv. Formaldehyde emissions from each engine shall not exceed 0.04 pounds per hour and 0.19 tpy.
 - b. Each engine shall be equipped with a non-selective catalytic reduction (NSCR) air pollution control device.
 - c. Each engine shall be equipped with an air to fuel controller. The AFR controller must be maintained and operated appropriately in order to ensure proper operation of the engine and control device to minimize emissions at all times.
[40 CFR §60.4243(g)]
 - d. Each engine shall be equipped with a non-resettable hour meter.
 - e. The permittee shall replace the rod packing in each affected compressor once every 26,000 hours of operation.
[40 CFR §60.5385(a)(1)]
- 4.1.2. The following conditions and requirements are specific to the internal combustion engines identified as C-102 & C-103:
- a. Emissions from the engine shall not exceed the following:
 - i. NO_x emissions from the engine shall not exceed 82 ppmvd at 15 percent O₂. The mass rate of NO_x emissions shall not exceed 5.22 pounds per hour and 22.86 tpy.
 - ii. CO emissions from engine shall not exceed 270 ppmvd at 15 percent O₂. The mass rate of CO emissions shall not exceed 1.44 pounds per hour and 6.29 tpy
 - iii. VOC emissions from the engine shall not exceed 86 ppmvd at 15 percent O₂. Formaldehyde is excluded from this VOC limit. . The mass rate of VOC emissions shall not exceed 2.63 pounds per hour and 11.52 tpy.

[40 CFR §60.4333(e) & Table 1 to Subpart JJJJ of Part 60—NO_x, CO, and VOC Emission Standards for Stationary Non-Emergency SI Engines ≥100 HP (Except Gasoline and Rich Burn LPG), Stationary SI Landfill/Digester Gas Engines, and Stationary Emergency Engines >25 HP]

- iv. Formaldehyde emissions from each engine shall not exceed 0.27 pounds per hour and 1.19 tpy.
 - b. Each engine shall be equipped with an oxidation catalyst air pollution control device.
 - c. Each engine shall be equipped with an air to fuel controller. The AFR controller must be maintained and operated appropriately in order to ensure proper operation of the engine and control device to minimize emissions at all times.
[40CFR§60.4243(g)]
 - d. Each engine shall be equipped with a non-resettable hour meter.
 - e. The permittee shall replace the rod packing in each affected compressor once every 26,000 hours of operation.
[40 CFR §60.5385(a)(1)]
- 4.1.3. The permittee shall only operate these engines using fuel gas, except during emergency operation at which the permittee may operate them using propane for a maximum of 100 hours per year.
[40CFR§60.4243(e)]
- 4.1.4. Requirements for Use of Oxidization Catalysts
- a. Rich-burn natural gas-fired engine(s) equipped with non-selective catalytic reduction (NSCR) air pollution control devices shall be fitted with a closed-loop, automatic air/fuel ratio controller to ensure emissions of regulated pollutants do not exceed the emission limit listed in the General Permit Registration for any engine/NSCR combination under varying load. The closed-loop, automatic air/fuel ratio controller shall control a fuel metering valve to ensure a fuel-rich mixture and a resultant exhaust oxygen content of less than or equal to 2%.
 - b. Lean-burn natural gas engine(s) equipped with oxidation catalyst air pollution control devices shall be fitted with a closed-loop automatic air/fuel ratio feedback controller to ensure emissions of regulated pollutants do not exceed the emission limit listed in the General Permit Registration for any engine/oxidation catalyst combination under varying load. The closed-loop, automatic air/fuel ratio controller shall control a fuel metering valve to ensure a lean-rich mixture.
 - c. The automatic air/fuel ratio controller or closed-loop automatic feedback controller shall provide a warning or indication to the operator and/or be interlocked with the engine ignition system to cease engine operation in case of a masking, poisoning or overrich air/fuel ratio situation which results in performance degradation or failure of the catalyst element;
 - d. The permittee shall check the air/fuel ratio every 1,500 service hours and adjust in accordance to the manufacturer's specifications. The permittee shall maintain these records for five (5) years. The permittee shall monitor the temperature to the inlet of the catalyst and in accordance with manufacturer's specifications a high temperature alarm shall shut off the engine before thermal deactivation of the catalyst occurs. The permittee shall also inspect for thermal deactivation of the catalyst before restarting the engine;

- e. No person shall knowingly:
 1. Remove or render inoperative any air pollution or auxiliary air pollution control device installed subject to the requirements of this permit;
 2. Install any part or component when the principal effect of the part or component is to bypass, defeat or render inoperative any air pollution control device or auxiliary air pollution control device installed subject to the requirements of this permit; or
 3. Cause or allow engine exhaust gases to bypass any catalytic reduction device.

4.1.5. **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.]

4.2. Monitoring Requirements

- 4.2.1. The permittee shall maintain a maintenance plan of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions.
[40 CFR §60.4243(b)(2)(ii)]

4.3. Testing Requirements

- 4.3.1. The permittee must conduct performance testing on engines CM-1001, CM-1003, CM-1004, CM-1005, CM-1006, C-102, and C-103 once every 8,760 hours of operation or once every three years, whichever comes first. Such testing shall be conducted in accordance with the applicable procedures in 40 CFR §60.4244 and Condition 3.3.1. Records of such testing shall be maintained in accordance with Condition 3.4.1.
[40CFR§60.4243(b)]

4.4. Recordkeeping Requirements

- 4.4.1. **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.

- 4.4.2. **Record of Maintenance of Air Pollution Control Equipment.** For all pollution control equipment listed in Section 1.0, the permittee shall maintain accurate records of all required pollution control equipment inspection and/or preventative maintenance procedures.
- 4.4.3. **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.
- 4.4.4. For each compressor connected to Engines CM-1001, CM-1003, CM-1004, CM-1005, CM-1006, C-102, and C-103, the permittee shall maintain records of the following in accordance with Condition 3.4.1.
- i. Record the cumulative number of hours of operation since initial startup or the previous replacement of the reciprocating compressor rod packing, whichever is later
 - ii. Record of the date of the most recent replacement of the rod packing.
[40 CFR §60.5385(c)(3)]
- 4.4.5. The permittee shall maintain records of the monitoring as required in Condition 4.1.4. for each engine in accordance with Condition 3.4.1.

4.5. Reporting Requirements

- 4.5.1. The permittee shall submit annual compliance reports that indicates compliance with Conditions 4.1.1.e., 4.1.2.e. and 40 CFR §60.5385(a)(1) from the compressors connected to engines to the Director and Administrator in accordance with Conditions 3.5.1. and 3.5.3. The reporting period of such reports shall begin on October 15 and ends on October 14. Submission of reports must be made within 90 days from the end of the reporting period. The permittee may submit one report for multiple affected facilities under Subpart OOOO to Part 60. Such reports shall include the following information:
- 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 certifying 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.
- v. The records as required in Condition 4.4.4. for each affected compressor.
[40 CFR §60.5420(b) and (b)(4)(ii)]

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5.0. Specific Requirements Process Heaters

5.1. Limitations and Standards

- 5.1.1. Maximum Design Heat Input. The maximum design heat input (MDHI) for each of the heaters shall not exceed the following:

Emission Unit ID#	Heater Description	MDHI (MMBTU/hr)	Annual Heat Input (MMBtu/yr)
H-741	Mole Sieve Regeneration Heater ¹	8.12	71,131.20
H-781	Hot Oil Heater	26.00	227,760.00
H-1741	Mole Sieve Regeneration Heater ¹	6.84	59,918.40
H-1781	Hot Oil Heater	18.05	158,118.00
H-3741	Mole Sieve Regeneration Heater ¹	7.69	67,364.40
H-4741	Mole Sieve Regeneration Heater ¹	7.69	67,364.40
H-3781	Hot Oil Heater	16.07	140,773.2
H-5741	Mole Sieve Regeneration Heater ¹	7.69	67,364.40
H-5781	Hot Oil Heater	50.78	444,832.80
Total Maximum Design Heat Input		148.93	1,304,626.8

1 - Denotes the heater is a process heater per 45 CSR §2-26.

- 5.1.2. The following heaters shall not exhibit visible emissions greater than 10 percent opacity on a six minute block average: H-781, H-1781, H-3781, and H-5781.
[45CSR§2-3.1.]

- 5.1.3. The permittee shall not exceed the following limits of annual emissions from combined heaters listed in Table 6.1.1.

- a. Emissions of NO_x shall not exceed 47.35 tpy.
- b. Emissions of CO shall not exceed 35.95 tpy.
- c. Emissions of VOCs shall not exceed 4.73 tpy.

Compliance with these emissions limits shall be satisfied by complying with Conditions 5.1.4., 5.1.5., and 5.1.6.

- 5.1.4. All of the fuel burning units listed in Table 5.1.1. shall be limited to using residue gas that complies with the requirements of Condition 3.1.7. Complying with this condition satisfies compliance with Condition 5.1.2. The use of residue gas in these emission units satisfies compliance with the limitations of 45CSR§2-3.1., 45CSR§2-4.1.b., and 45CSR§10-3.1.e.
[45 CSR §2-8-4.b., 45CSR§2A-3.1.a., , 45CSR§10-10.3., and 45CSR§10A-3.1.b.]

- 5.1.5. The permittee shall conduct tune-up of all of the heaters that are listed in Table 5.1.1. that have a MDHI of 5.0 MMBtu/hr or greater once every three years in accordance with the following:

- a. As applicable, inspect the burner, and clean or replace any components of the burner as necessary (permittee may delay the burner inspection until the next scheduled unit shutdown). At units where entry into a piece of process equipment or into a storage vessel is required to complete the tune-up inspections, inspections are required only during planned entries into the storage vessel or process equipment;

- b. Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer's specifications, if available;
 - c. Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly (you may delay the inspection until the next scheduled unit shutdown);
 - d. Optimize total emissions of CO to a concentration not to exceed manufacturer's guaranteed concentration. This optimization should be consistent with the manufacturer's specifications, which includes the manufacturer's NO_x concentration specification of not to exceed manufacturer's guarantee or specified concentration.
 - e. Measure the concentrations in the effluent stream of NO_x and CO in parts per million, by volume, and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made). Measurements may be taken using a portable CO analyzer.
- 5.1.6. The annual heat input of each heater listed in Table 5.1.1. shall not exceed the value as listed in the table for the corresponding heater. Compliance with this limit shall be conducted on 12 month rolling total.

5.2. Monitoring Requirements

- 5.2.1. For each month, the permittee shall record the hours of operation and amount of fuel gas consumed by heaters listed in Table 5.1.1., and shall calculate the rolling yearly total of total heat input from the heaters. The permittee may record the total amount of fuel gas consumed by the heaters and other emission units on a combined basis. For other emission units not listed but fuel usage include on the fuel meter, the permittee shall monitor the hour of operation of these sources to account for their fuel usage as well. Such records shall be maintained in accordance with Condition 3.4.1. of this permit.
[40 CFR §60.48c(g)(2) and 45CSR§2-8.3.c.]

5.3. Testing Requirements

[Reserved]

5.4. Recordkeeping Requirements

- 5.4.1. The permittee shall keep the following records in accordance Condition 3.4.1. This includes but is not limited to the following information during the tune-up as required in Condition 5.1.5.:
- a. The concentrations of CO and NO_x in the effluent stream in parts per million by volume, and oxygen in volume percent, measured at high fire or typical operating load, before and after the tune-up of the boiler or process heater; and
 - b. A description of any corrective actions taken as a part of the tune-up.

5.5. Reporting Requirements

[Reserved]

6.0. Specific Requirements Gas Processing Units & LDAR Program

6.1. Limitations and Standards

- 6.1.1. All groups of equipment located within Mobley I through V Gas Processing Units, inlet area, wet gas compressors, and any other unit(s) that is in VOC service (i.e. NGL) are subject to the following except for compressors and components only in residue gas service:
- a. Each pneumatic controller at the facility must have a bleed rate of zero. Compliance with this requirement shall be satisfied by using only compressed air driven pneumatic controllers at the facility. Each pneumatic controller shall be tagged with the month and year of installation and identification information that allows traceability to the records for that pneumatic controller as required in Condition 6.4.4.
[40 CFR §60.5390(b)(1) & (b)(2)]
 - b. Each pressure relief device (PRD) in gas/vapor service shall be monitored quarterly and within 30 days after each pressure release to detect leaks by the methods specified in 40 CFR §60.485a(b) unless the PRD meets the criteria of sub item v. of this item.
 - i. If an instrument reading of 500 ppm or greater is measured, a leak is detected.
 - ii. 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 40 CFR §60.482-9a.
 - iii. A first attempt at repair must be made no later than 5 calendar days after each leak is detected.
 - iv. No pressure relief device shall not be operated for more than 30 days after a pressure release without being monitored for a leak.
 - v. Each pressure relief device in VOC gas/vapor service located at the facility that is piped into a closed vent system and routed to a control device in accordance with Condition 6.1.2. is exempt from the requirements of this item.
[40 CFR §§60.5401(b)(1) through (b)(4)]
 - c. All pumps in light liquid service, valves in gas/vapor or light liquid service, and connectors in gas/vapor or light liquid service shall not exhibit leaks as defined in the following.
[40 CFR §60.5400(a), §§60.482-2a, 7a, and 11a]
 - i. A leak for pumps in light liquid service is defined as a measured instrument reading of 2,000 ppm or greater using Method 21 or any visible emission that may otherwise be invisible to the naked eye using an optical gas imaging instrument (OGII).
[40 CFR §60.482-2a(b)(1) and §60.18(g)(3)]
 - ii. A leak for valves in gas/vapor or light liquid service is defined as a measured instrument reading of 500 ppm or greater using Method 21 or any visible emission that may otherwise be invisible to the naked eye using an OGII.
[40 CFR §60.482-7a(b) and §60.18(g)(3)]
 - iii. A leak for connector in gas/vapor or light liquid service is defined as a measured instrument reading of 500 ppm or greater using Method 21 or any visible emission that may otherwise be invisible to the naked eye using an OGII.
[40 CFR §60.482-11a(b)(2) and §60.18(g)(3)]

- d. Sampling connection systems are exempt from the requirements of §60.482-5a.
[40 CFR §60.5402(c)]
- e. Each open-ended valve or line shall be equipped with a cap, blind flange, plug, or a second valve except as noted in Sub-items iii and iv of this item.
 - i. The cap, blind flange, plug, or second valve shall seal the open end at all times except during operation requiring process fluid flow through the open-ended valve or line.
 - ii. Each open-ended line equipped with a second valve shall be operated in a manner such that the valve on the process fluid end is closed before the second valve is closed.
 - iii. When a double block-and-bleed system is being used, the bleed valve or line may remain open during operations that require venting the line between the block valves but shall comply with item e of this condition at all other times.
 - iv. Open-ended valves or lines in an emergency shutdown system which are designed to open automatically in the event of a process upset are exempt from the requirements of the above sub-items of item e of this condition.
[40 CFR §60.5400(a), §§60.482-6a]
- f. Any leaking component must be repaired as soon as practicable, but no later 15 calendar days after it is detected, except as provided in item h of this condition (40 CFR §60.482-9a).
 - i. A first attempt at repair must be made no later than 5 calendar days after each leak is detected.
- g. Delay of repair (DOR) of equipment for which leaks have been detected will be allowed if repair within 15 days is technically infeasible without a process shutdown. Repair of this equipment shall occur before the end of the next process unit shutdown. Monitoring to verify the repair must occur within 15 days after startup of the process unit.
[40 CFR §60.5400(a), §§60.482-9a(a)]
- h. Delay of repair (DOR) of equipment will be allowed for equipment which is isolated from the process and which does not remain in VOC service.
[40 CFR §60.5400(a), §§60.482-9a(b)]
- i. Delay of repair for valves and connectors will be allowed if:
 - i. The permittee demonstrates that the emissions of purged material resulting from immediate repair are greater than the fugitive emissions likely to result from the delay of repair; and
 - ii. When repair procedures are effected, the purged material is collected and destroyed or recovered in a control device complying with the requirements of Condition 6.1.3. (40 CFR §60.482-10a).
[40 CFR §60.5400(a), §§60.482-9a(b)]
- j. Delay of repair beyond a process unit shutdown is allowed for a valve, if valve assembly replacement is necessary during the process unit shutdown, valve assembly supplies have been depleted, and valve assembly supplies have been sufficiently stocked before the supplies were depleted. Delay of repair beyond the next process unit shutdown will not be allowed unless the next process unit shutdown occurs sooner than 6 months after the first process unit shutdown.
- k. When delay of repair is allowed for a leaking pump, valve, or connector that remains in service, the pump, valve or connector may be considered to be repaired and no longer subject to delay

of repair requirements if two consecutive monthly monitoring instrument readings are below the leak definition.

- 6.1.2. The closed vent system that is used to route any pressure relief devices in VOC service at the facility that is either routed to control device Flare FL-991 or back to a process shall be installed, maintained and operated in accordance with the following requirements:
- a. The closed vent system shall be constructed of hard piping;
[40 CFR §60.5400(a), §60.482-11a(f)(1)]
 - b. The closed vent system shall be free of leaks. A leaking component is defined as a measured instrument reading greater than 500 ppm above background or by visual inspection.
[40 CFR §60.5400(a), §60.482-11a(g)]
 - c. Detected leaks shall be repaired as soon as practicable with the first attempt at repair shall be made within 5 calendar days after detecting the leak. Repair shall be completed no later than 15 calendar days after the leak is detected.
[40 CFR §60.5400(a), §§60.482-11a(g)(1) & (g)(2)]
 - d. Delay of repair (DOR) of the closed vent system for which leaks have been detected is allowed if the repair is technically infeasible without a process shutdown or if the permittee determines that emissions resulting from the immediate repair would be greater than the fugitive emissions likely to result from the DOR. Repair of such equipment shall be complete by the end of the next process shutdown.
[40 CFR §60.5400(a), §60.482-11a(h)]
 - e. If the permittee determines any parts of the closed vent system as unsafe to monitor by exposing the monitoring personnel to an imminent or potential danger, the permittee shall develop and implement a plan that allows for the monitoring of such components during safe-to-inspect times.
 - f. Any parts of the closed vent system that are designated, as described in 40 CFR §60.482-10a(1)(2), as difficult to inspect are exempt from the inspection requirements of Condition 6.2.2. if the permittee complies with the requirements specified in the following:
 - i. The permittee determines that the equipment cannot be inspected without elevating the inspecting personnel more than 2 meters above a support surface;
 - ii. The process unit within which the closed vent system is located becomes an affected facility through §§60.14 or 60.15, or the permittee designates less than 3.0 percent of the total number of closed vent system equipment as difficult to inspect; and
 - iii. The permittee shall develop a written plan that requires inspection of difficult to inspect equipment at least once every 5 years.
 - g. Closed vent systems and control devices used to comply with provisions of Subpart OOOO to Part 60 shall be operated at all times when emissions may be vented to them.
[40 CFR §60.482-10a & §60.54009a)]
- 6.1.3. Flare FL-991 shall be designed and operated in accordance with the following:
- a. The flare shall be equipped with five (5) non-assisted flare tips and one (1) air-assisted flare tip.
[40 CFR §60.18(c)(6) & §60.482-10a(d)]

- b. The 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.
[40 CFR §60.18(c)(1)]
 - c. The flare shall be operated with a flame present at all times whenever emissions may be vented to them.
[40 CFR §60.18(c)(2)]
 - d. The net heating value of the effluent going to the flare shall be 300 Btu per scf or greater.
[40 CFR §§60.18(c)(3)(ii) & (c)(4)(ii)]
 - e. The exit velocity of each of the non-assisted flare tips shall not exceed 120.95 feet per second.
[40 CFR §60.18(c)(4)(ii)]
 - f. The exit velocity of the air-assisted flare tip shall not exceed 120.95 feet per second.
[40 CFR §60.485a(g)(3)]
 - g. The maximum flow rate to the flare system shall not exceed 94.71 MMscf per year.
 - h. The total emissions from the flare shall not exceed following limits:
 - i. Emissions of NO_x shall not exceed 0.90 pounds per hour and 3.95 tpy.
 - ii. Emissions of CO shall not exceed 4.81 pounds per hour and 21.05 tpy.
 - iii. Emissions of VOC shall not exceed 6.91 tpy.
- 6.1.4. **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.]

6.2. Monitoring Requirements

- 6.2.1. For the purpose of demonstrating continuous compliance with the emission requirements of Condition 6.1.1.e., the permittee shall conduct leak detection monitoring of all affected components at the facility in accordance with the following:
 - a. Each pump in light liquid service shall be checked by visual inspection each calendar week for indication of liquids dripping from the pump seal. Designate the visual indications of liquids dripping as a leak, and repair the leak using either the procedures in 40 CFR §60.482-2a(c) or by eliminating the visual indications of liquids dripping.
[40 CFR §60.482-2a(a)(2)]
 - b. Each pump and valve shall be monitored monthly to detect leaks by the methods specified in 40 CFR §60.485a(b).
[40 CFR §60.482-2a(a)(1) & §60.482-7a(a)(1)]
 - c. Each connector shall be monitored in accordance with the frequency prescribed in 40 CFR §60.482-11a(b)(3) to detect leaks by the methods specified in 40 CFR §60.485a(b). Connectors on new process units shall be monitoring in accordance with the frequency stipulated in this item 12 months after startup of the affecting process unit.

- d. Each connector of a new process unit at the facility shall be monitored within the initial 12 months after start-up of the process unit to detect leaks by methods specified in 40 CFR §60.485a(b).
 - e. The permittee may use the Alternative Work Practice (AWP) for monitoring equipment for leaks in lieu of the methods specified in 40 CFR §60.485a(b) (Method 21) as outlined in 40 CFR §§60.18(g), (h), and (i) (OGII). If the permittee elects to use the AWP, then the following items are in effect:
 - i. The frequency of monitoring for all affected components shall be bi-monthly or one of the other monitoring frequencies listed in Table 1 to Subpart A of Part 60.
 - ii. The detection sensitivity level shall be 60 grams per hour or the corresponding selected monitoring frequency in Table 1 to Subpart A of Part 60.
 - iii. The selected OGII must provide the operator with an image of the potential leak points for each piece of equipment at both the detection sensitivity level and within the distance used in the daily instrument check described in 40 CFR §60.18(i)(2) of this section. The detection sensitivity level depends upon the frequency at which leak monitoring is to be performed. The OGII must provide a date and time stamp for video records of every monitoring event.
 - iv. If the AWP is used to identify leaks, re-screening after an attempted repair of leaking equipment must be conducted using either AWP or the 40 CFR part 60, appendix A-7, Method 21 monitor at the leak definition required in the applicable subpart to which the equipment is subject.
 - v. The AWP shall not be used for equipment being monitored:
 - 1. Skip period leak detection and repair;
 - 2. Quality improvement plans; or
 - 3. Complying with standards for allowable percentage of valves and pumps to leak.
 - vi. All components shall be monitored annually using 40 CFR Part 60, appendix A-7, Method 21 monitor at the leak definition required in Condition 6.1.1.c. The permittee may choose the specific monitoring period (for example, first quarter) to conduct the annual monitoring. Subsequent monitoring must be conducted every 12 months from the initial period. The permittee must keep records of the annual Method 21 screening results, as specified in 40 CFR §60.18(i)(4)(vii).
 - f. Records of such monitoring shall be maintained in accordance with Section 6.4.and Condition 3.4.1.
[40 CFR §60.18(a)(2), §§60.18(g) through (i), §60.485a(b), §60.5410(f)]
- 6.2.2. For the purpose of demonstrating compliance with the requirements of the closed vent system in Condition 6.1.2., the permittee shall conduct the following:
- a. Conduct an initial inspection according to the procedures in 40 CFR §60.485a(b) (Method 21).
 - b. Conduct annual visual inspections for visible, audible, or olfactory indicators of leaks. The permittee may use an OGII if the distance to targeted components is within the distance used in the daily instrument check described in 40 CFR §60.18(i)(2) to satisfy the annual visual inspection requirement.

- c. Detected leaks shall be repaired in accordance with the timing stated in Condition 6.1.2.
 - d. Records of such inspections shall be maintained in accordance with Condition 6.4.6.
[40 CFR §60.482-10a(f1) & §60.5400(a)]
- 6.2.3. The permittee shall monitor and recorded the volumetric amount of effluent, which includes the purge gas, routed to Flare FL-991. Such records shall be maintained in accordance with Condition 3.4.1.
- 6.2.4. 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.
[40 CFR §60.18(f)(2)]
- 6.2.5. For the purpose of demonstrating proper operation of the flare (FL-991), the permittee shall conduct a visible emission observation using Section 11 of Method 22 for one hour once every calendar quarter. If during the first 30 minutes of the observation there were no visible emissions observed, the permittee may stop the observation.

If at the end of the observation, visible emission were observed for more than 2.5 minutes, then the permittee shall follow the manufacturer's repair instruction, if available or best combustion engineering practice as outlined in the unit inspection and maintenance plan. To return the flare to compliant operation, the permittee shall repeat the visible emission observation. Records of such monitoring and repair activities shall be maintained in accordance with Condition 3.4.1.

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 within 180 days after issuance of this permit. 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 180 days after initial startup. 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.
[40 CFR §60.18(f)(1)]

6.4. Recordkeeping Requirements

- 6.4.1. **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.

- 6.4.2. **Record of Maintenance of Air Pollution Control Equipment.** For all pollution control equipment listed in Section 1.0, the permittee shall maintain accurate records of all required pollution control equipment inspection and/or preventative maintenance procedures.
- 6.4.3. **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.
- 6.4.4. The permittee shall record the information specified in the following for each monitoring event required in Conditions 6.2.1. and 6.2.2.
- a. Monitoring instrument identification.
 - b. Operator identification.
 - c. Equipment identification.
 - d. Date of monitoring.
 - e. Instrument reading.
[40 CFR §60.486a(a)(3) & §60.5421]
- 6.4.5. The permittee shall record and maintain such records in accordance with Condition 3.4.1 for the following information as for the equipment of the closed vent system in Condition 6.1.2.
- a. Identification of all parts of the closed vent system that are designated as unsafe to inspect, an explanation of why the equipment is unsafe to inspect, and the plan for inspecting the equipment.
 - b. Identification of all parts of the closed vent system that are designated as difficult to inspect, an explanation of why the equipment is difficult to inspect, and the plan for inspecting the equipment.

- c. For each inspection during which a leak is detected, a record of the information specified in §60.486a(c).
 - d. For each inspection conducted in accordance with Condition 6.2.2. during which no leaks are detected, a record that the inspection was performed, the date of the inspection, and a statement that no leaks were detected.
 - e. For each visual inspection conducted as required in Condition 6.2.2. during which no leaks are detected, a record that the inspection was performed, the date of the inspection, and a statement that no leaks were detected.
 - f. The following information pertaining to the design requirements for closed vent systems and control devices described in Conditions 6.1.2. and 6.1.3. shall be recorded and kept in a readily accessible location:
 - i. Detailed schematics, design specifications, and piping and instrumentation diagrams.
 - ii. The dates and descriptions of any changes in the design specifications.
 - iii. Periods when the closed vent system and flare required in Conditions 6.1.2. and 6.1.3. are not operated as designed, including periods when a flare pilot light does not have a flame.
 - iv. Dates of startups and shutdowns of the closed vent systems and control devices.
[40 CFR §60.482-10a(l), §60.486a(d), §60.5400(a), & §60.5421(a)]
- 6.4.6. The permittee shall record the following for when each leak is detected as specified in Condition 6.1.1.c.
- a. A weatherproof and readily visible identification, marked with the equipment identification number, shall be attached to the leaking equipment.
 - b. The identification on a valve may be removed after it has been monitored for 2 successive months as specified in 40 CFR §60.482-7a(c) and no leak has been detected during those 2 months.
 - c. The identification on equipment, except on a valve or connector, may be removed after it has been repaired.
[40 CFR §60.486a(b) & §60.5421]
- 6.4.7. The permittee shall record the following information for when each leak is detected as specified in Condition 6.1.1.c. in a log and shall be kept for 2 years in a readily accessible location:
- a. The instrument and operator identification numbers and the equipment identification number, except when indications of liquids dripping from a pump are designated as a leak.
 - b. The date the leak was detected and the dates of each attempt to repair the leak.
 - c. Repair methods applied in each attempt to repair the leak.
 - d. Maximum instrument reading measured by Method 21 of appendix A-7 of this part at the time the leak is successfully repaired or determined to be non-repairable, except when a pump is repaired by eliminating indications of liquids dripping.
 - e. "Repair delayed" and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak.

- f. The signature of the permittee (or designate) whose decision it was that repair could not be effected without a process shutdown.
 - g. The expected date of successful repair of the leak if a leak is not repaired within 15 days.
 - h. Dates of process unit shutdowns that occur while the equipment is unrepaired.
 - i. The date of successful repair of the leak.
- [40 CFR §60.486a(c) & §60.5421(a)]**

6.4.8. The following information pertaining to all equipment subject to the requirements in Conditions 6.1.1. and 6.1.2. shall be recorded in a log that is kept in a readily accessible location:

- a. A list of identification numbers for equipment subject to the requirements of Conditions 6.1.1.c. and 6.1.2. (Subpart VVa Components).
- b. A list of identification numbers for equipment that are designated for no detectable emissions under the provisions of §§60.482-2a(e), 60.482-3a(i), and 60.482-7a(f).
- c. The designation of equipment as subject to the requirements of §60.482-2a(e), §60.482-3a(i), or §60.482-7a(f) shall be signed by the owner or operator. Alternatively, the owner or operator may establish a mechanism with their permitting authority that satisfies this requirement.
- d. The dates of each compliance test as required in §§60.482-2a(e), 60.482-3a(i), 60.482-4a, and 60.482-7a(f).
- e. The background level measured during each compliance test.
- f. The maximum instrument reading measured at the equipment during each compliance test.
- g. A list of identification numbers for equipment in vacuum service.
- h. The date and results of the weekly visual inspection for indications of liquids dripping from pumps in light liquid service.
- i. Records of the information specified in paragraphs (e)(8)(i) through (vi) of this section for monitoring instrument calibrations conducted according to sections 8.1.2 and 10 of Method 21 of appendix A-7 of this part and §60.485a(b).
- j. Date of calibration and initials of operator performing the calibration.
- k. Calibration gas cylinder identification, certification date, and certified concentration.
- l. Instrument scale(s) used.
- m. A description of any corrective action taken if the meter readout could not be adjusted to correspond to the calibration gas value in accordance with section 10.1 of Method 21 of appendix A-7 of this part.
- n. Results of each calibration drift assessment required by §60.485a(b)(2) (i.e., instrument reading for calibration at end of monitoring day and the calculated percent difference from the initial calibration value).
- o. If the permittee makes their own calibration gas, a description of the procedure used.

- p. The connector monitoring schedule for each process unit as specified in §60.482-11a(b)(3)(v). **[40 CFR §60.486a(e) & §60.5421(a)]**
- 6.4.10. The permittee must keep the following records when using the AWP for monitoring equipment leaks in Condition 6.2.1.:
- a. Identify equipment at the facility for which the permittee has chosen to use the AWP.
 - b. The detection sensitivity level selected from Table 1 to subpart A of this part for the optical gas imaging instrument.
 - c. The analysis to determine the piece of equipment in contact with the lowest mass fraction of chemicals that are detectable, as specified in 40 CFR §60.18(i)(2)(i)(A).
 - d. The technical basis for the mass fraction of detectable chemicals used in the equation in 40 CFR §60.18(i)(2)(i)(B).
 - e. The daily instrument check. Record the distance, per 40 CFR §60.18 (i)(2)(iv)(B), and the flow meter reading, per 40 CFR §60.18 (i)(2)(iv)(C), at which the leak was imaged. Keep a video record of the daily instrument check for each configuration of the optical gas imaging instrument used during the leak survey (for example, the daily instrument check must be conducted for each lens used). The video record must include a time and date stamp for each daily instrument check. The video record must be kept for 5 years.
 - f. A video record must be used to document the leak survey results. The video record must include a time and date stamp for each monitoring event. A video record can be used to meet the recordkeeping requirements of the applicable subparts if each piece of regulated equipment selected for this work practice can be identified in the video record. The video record must be kept for 5 years.
 - g. The results of the annual Method 21 screening required in Condition 6.1.1.e.vi. Records must be kept for all regulated equipment specified in item a of this condition. Records must identify the equipment screened, the screening value measured by Method 21, the time and date of the screening, and calibration information required in the 40 CFR §60.485a. **[40 CFR §60.18(i)(4)(i) though (i)(4)(vii) & §60.5421(a)]**

6.5. Reporting Requirements

- 6.5.1. The permittee shall submit the initial semiannual report to the Director within 9 months after start-up for each new process unit (i.e. Mobley VII, VIII, and IX) at the facility. Such report shall be in accordance with Condition 3.5.1. and included the following information:
- a. Process unit identification.
 - b. Number of valves subject to the requirements of Condition 6.1.1.c.ii.
 - c. Number of pumps subject to the requirements of Condition 6.1.1.c.i.
 - d. Number of connectors subject to the requirements of Condition 6.1.1.c.iii. **[40 CFR §60.5422(a)(b) and §§60.487a(a), (b)(1) though (b)(3) and (b)(5)]**
- 6.5.2. The permittee shall submit semiannual reports on or before September 15 for the reporting period January 1 to June 30 and on or before March 15 for the reporting period July 1 to December 31 to the Director in satisfying the requirements of 40 CFR §60.5422 and §60.487a(c) for the equipment

subject to Conditions 6.1.1c. Such report shall be in accordance with Condition 3.5.1 and included the following information summarized from the information required in Condition 6.4.9:

- a. Process unit identification.
 - b. For each month during the reporting period,
 - i. Number of valves for which leaks were detected as in Condition 6.1.1.c.ii.
 - ii. Number of valves for which leaks were not repaired as required in Condition 6.1.1.f.
 - iii. Number of pumps for which leaks were detected as in Condition 6.1.1.c.i.
 - iv. Number of pumps for which leaks were not repaired as required in Condition 6.1.1.f.
 - v. Number of connectors for which leaks were detected as in Condition 6.1.1.c.iii.
 - vi. Number of connectors for which leaks were not repaired as required in Condition 6.1.1.f.
 - vii. The fact that explains each delay of repair (DOR) and, where appropriate, why a process unit shutdown was technically infeasible.
 - c. Dates of process unit shutdown which occurred during the reporting period.
 - d. Revisions to items reported to Condition 6.5.1. (Initial semiannual report) if changes have occurred since the initial report or subsequent revisions to the initial report.
[40 CFR §60.5420(b), §60.5422(a) and §60.487a(c)]
- 6.5.3. The permittee shall submit records of annual Method 21 screening as required in Condition 6.2.1.e.vi. to the Administrator via email CCC_AWP@EPA.GOV. The permittee shall maintain records of such submittal in accordance with Condition 3.4.1.
[40 CFR §60.18(i)(5)]
- 6.5.4. The permittee shall notify the Director when electing to change monitoring procedure or frequency of monitoring for affected equipment subject to the monitoring required in Condition 6.2.1. Such notification shall be submitted 60 days prior to implementing the change.

7.0. Source-Specific Requirements (Emergency Generators (G-1, G-3, G-4))

7.1. Limitations and Standards

7.1.1. Emission Standards

Owners and operators of 2007 model year and later emergency stationary CI ICE with a displacement of less than 30 liters per cylinder that are not fire pump engines must comply with the emission standards for new nonroad CI engines in §60.4202, for all pollutants, for the same model year and maximum engine power for their 2007 model year and later emergency stationary CI ICE. [40CFR§60.4205d]

7.1.2. Owners and operators of stationary CI ICE must operate and maintain stationary CI ICE that achieve the emission standards as required in §§60.4204 and 60.4205 over the entire life of the engine. [40CFR§60.4206]

7.1.3. Fuel Requirements

Beginning October 1, 2010, owners and operators of stationary CI ICE subject to this subpart with a displacement of less than 30 liters per cylinder that use diesel fuel must use diesel fuel that meets the requirements of 40 CFR 80.510(b) for nonroad diesel fuel. [40CFR§60.4207b]

7.1.4. In addition to the requirements specified in §§60.4201, 60.4202, 60.4204, and 60.4205, it is prohibited to import stationary CI ICE with a displacement of less than 30 liters per cylinder that do not meet the applicable requirements specified in paragraphs (a) through (g) of this section after the dates specified in paragraphs (a) through (g) of this section. [40CFR§60.4208h]

7.1.5. If you are an owner or operator of an emergency stationary CI internal combustion engine that does not meet the standards applicable to non-emergency engines, you must install a non-resettable hour meter prior to startup of the engine. [40CFR§60.4209a]

7.1.6. If you are an owner or operator of a stationary CI internal combustion engine equipped with a diesel particulate filter to comply with the emission standards in §60.4204, the diesel particulate filter must be installed with a backpressure monitor that notifies the owner or operator when the high backpressure limit of the engine is approached. [40CFR§60.4209b]

7.1.7. If you are an owner or operator and must comply with the emission standards specified in this subpart, you must operate and maintain the stationary CI internal combustion engine and control device according to the manufacturer's written instructions or procedures developed by the owner or operator that are approved by the engine manufacturer. In addition, owners and operators may only change those settings that are permitted by the manufacturer. You must also meet the requirements of 40 CFR parts 89, 94 and/or 1068, as they apply to you. [40CFR§60.4211a]

7.1.8. If you are an owner or operator of a 2007 model year and later stationary CI internal combustion engine and must comply with the emission standards specified in §60.4204(b) or §60.4205(b), or if you are an owner or operator of a CI fire pump engine that is manufactured during or after the model year that applies to your fire pump engine power rating in table 3 to this subpart and must comply with the emission standards specified in §60.4205(c), you must comply by purchasing an engine certified to the emission standards in §60.4204(b), or §60.4205(b) or (c), as applicable, for the same model year and maximum (or in the case of fire pumps, NFPA nameplate) engine power. The engine must be installed and configured according to the manufacturer's specifications. [40CFR§60.4211c]

7.1.9. If you own or operate an emergency stationary ICE, you must operate the emergency stationary ICE according to the requirements in paragraphs (f)(1) through (3) of this section. In order for the engine to be considered an emergency stationary ICE under this subpart, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency situations for 50 hours per year, as described in paragraphs (f)(1) through (3) of this section, is prohibited. If you do not operate the engine according to the requirements in paragraphs

(f)(1) through (3) of this section, the engine will not be considered an emergency engine under this subpart and must meet all requirements for non-emergency engines. [40CFR§60.4211f]

7.1.10. If you do not install, configure, operate, and maintain your engine and control device according to the manufacturer's emission-related written instructions, or you change emission-related settings in a way that is not permitted by the manufacturer, you must demonstrate compliance as follows:

- (1) If you are an owner or operator of a stationary CI internal combustion engine with maximum engine power less than 100 HP, you must keep a maintenance plan and records of conducted maintenance to demonstrate compliance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, if you do not install and configure the engine and control device according to the manufacturer's emission-related written instructions, or you change the emission-related settings in a way that is not permitted by the manufacturer, you must conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of such action.
- (2) If you are an owner or operator of a stationary CI internal combustion engine greater than or equal to 100 HP and less than or equal to 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of startup, or within 1 year after an engine and control device is no longer installed, configured, operated, and maintained in accordance with the manufacturer's emission-related written instructions, or within 1 year after you change emission-related settings in a way that is not permitted by the manufacturer.

7.1.11. Maximum emissions from the 53 hp diesel fired emergency generator, Generac MMG45 (G-1) shall not exceed the following limits:

Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (ton/year)
Nitrogen Oxides	0.41	0.10
Carbon Monoxide	0.43	0.11
Volatile Organic Compounds	0.41	0.10

7.1.12. Maximum emissions from each of the 58 hp diesel fired emergency generators, Generac MMG45 (G-3, G-4) shall not exceed the following limits:

Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (ton/year)
Nitrogen Oxides	0.45	0.11
Carbon Monoxide	0.47	0.12
Volatile Organic Compounds	0.45	0.11

7.1.13. **Maximum Yearly Operation Limitation.** The maximum yearly hours of operation for each of the emergency generators (G-1, G-3, G-4) shall not exceed 500 hours per year. Compliance with the Maximum Yearly Operation Limitation shall be determined using a twelve month rolling total. A twelve month rolling total shall mean the sum of the hours of operation at any given time during the previous twelve consecutive calendar months.

7.2. Testing Requirements

7.2.1. Stack Testing

At the time a stationary source is alleged to be in compliance with an applicable emission standard and at reasonable times to be determined by the Secretary thereafter, appropriate tests consisting of visual determinations or conventional in-stack measurements or other tests the Secretary may specify shall be conducted to determine compliance. For cause, the Secretary may request the permittee to install such stack gas monitoring devices as the Secretary deems necessary to determine continuing compliance. The data from such devices shall be readily available for review on-site or such other reasonable location that the Secretary may specify. At the request of the Secretary, such data shall be made available for inspection or copying and the Secretary may require periodic submission of excess emission reports (45CSR13).

7.2.1.a. 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. [WV Code § 22-5-4(a)(15)]

7.2.2. Notification of Compliance Testing

For any compliance test to be conducted by the permittee as set forth in this section, a test protocol shall be submitted to the Secretary at least thirty (30) calendar days prior to the scheduled date of the test. Such compliance test protocol shall be subject to approval by the Secretary. The permittee shall notify the Secretary at least fifteen (15) calendar days in advance of actual compliance test dates and times during which the test (or tests) will be conducted.

7.2.3. Alternative Test Methods

The Secretary may require a different test method or approve an alternative method in light of any technology advancements that may occur and may conduct such other tests as may be deemed necessary to evaluate air pollution emissions.

7.2.4. Owners and operators of stationary CI ICE with a displacement of less than 30 liters per cylinder who conduct performance tests pursuant to this subpart must do so according to paragraphs (a) through (e) of this section. [40CFR§60.4212]

7.3. Recordkeeping and Reporting Requirements

7.3.1. Monitoring Information

The permittee shall keep the following records of monitoring information:

- a. The date, place as defined in this permit and time of sampling 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.

7.3.2. **Equipment Maintenance Records.** The permittee shall maintain maintenance records relating to failure and/or repair of the emergency generators. In the event of equipment or system failure, these records shall document the permittee's effort to maintain proper and effective operation of such equipment and/or systems.

7.3.3. Compliance Testing

The permittee shall submit written reports of the results of all performance tests conducted to demonstrate compliance with the standards set forth in Section 7.0.

7.3.4. If the stationary CI internal combustion engine is an emergency stationary internal combustion engine, the owner or operator is not required to submit an initial notification. Starting with the model years in table 5 to this subpart, if the emergency engine does not meet the standards applicable to non-emergency engines in the applicable model year, the owner or operator must keep records of the operation of the engine in emergency and non-emergency service that are recorded through the non-resettable hour meter. The owner must record the time of operation of the engine and the reason the engine was in operation during that time. [40CFR§60.4214b]

7.3.5. If the stationary CI internal combustion engine is equipped with a diesel particulate filter, the owner or operator must keep records of any corrective action taken after the backpressure monitor has notified the owner or operator that the high backpressure limit of the engine is approached. [40CFR§60.4214c]

7.3.6. To demonstrate compliance with section 7.13, the permittee shall maintain records of the hours of operation of the emergency generators (G-1, G-3, G-4). 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.

8.0. Source-Specific Requirements (Emergency Generator, G-2)

8.1. Limitations and Standards

8.1.1. The provisions of this subpart are applicable to owners, and operators of stationary spark ignition (SI) internal combustion engines (ICE) as specified below. For the purposes of this subpart, the date that construction commences is the date the engine is ordered by the owner or operator.

a. Owners and operators of stationary SI ICE that commence construction after June 12, 2006, where the stationary SI ICE are manufactured:

4. on or after January 1, 2009, for emergency engines with a maximum engine power greater than 19 KW (25 HP).

[40CFR§60.4230(a)]

8.1.2. Maximum emissions from the 75 hp natural gas fired emergency generator, Kohler 40ERES (G-2) shall not exceed the following limits:

Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (ton/year)
Nitrogen Oxides	0.33	0.08
Carbon Monoxide	0.50	0.12
Volatile Organic Compounds	0.17	0.04

8.1.3. **Maximum Yearly Operation Limitation.** The maximum yearly hours of operation for the emergency generator (G-2) shall not exceed 500 hours per year. Compliance with the Maximum Yearly Operation Limitation shall be determined using a twelve month rolling total. A twelve month rolling total shall mean the sum of the hours of operation at any given time during the previous twelve consecutive calendar months.

8.2. 40CFR60 Subpart JJJJ Emission Standards for Owners and Operators

- 8.2.1. Owners and operators of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) and less than 75 KW (100 HP) (except gasoline and rich burn engines that use LPG) must comply with the emission standards for field testing in 40 CFR 1048.101(c) for their non-emergency stationary SI ICE and with the emission standards in Table 1 to this subpart for their emergency stationary SI ICE. Owners and operators of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) and less than 75 KW (100 HP) manufactured prior to January 1, 2011, that were certified to the standards in Table 1 to this subpart applicable to engines with a maximum engine power greater than or equal to 100 HP and less than 500 HP, may optionally choose to meet those standards.
[40CFR§60.4233(d)]
- 8.2.2. For emergency stationary SI ICE with a maximum engine power of greater than 19 KW (25 HP), owners and operators may not install engines that do not meet the applicable requirements in §60.4233 after January 1, 2011.
[40CFR§60.4236(c)]
- 8.2.3. If you are an owner or operator of an emergency stationary SI internal combustion engine that is less than 130 HP, was built on or after July 1, 2008, and does not meet the standards applicable to non-emergency engines, you must install a non-resettable hour meter upon startup of your emergency engine.
[40CFR§60.4237(c)]
- 8.2.4. Owners and operators of stationary SI ICE must operate and maintain stationary SI ICE that achieve the emission standards as required in §60.4233 over the entire life of the engine.
[40CFR§60.4234]

8.3. Compliance Requirements for Owners and Operators

- 8.3.4. If you own or operate an emergency stationary ICE, you must operate the emergency stationary ICE according to the requirements in paragraphs (d)(1) through (3) of this section. In order for the engine to be considered an emergency stationary ICE under this subpart, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency situations for 50 hours per year, as described in paragraphs (d)(1) through (3) of this section, is prohibited. If you do not operate the engine according to the requirements in paragraphs (d)(1) through (3) of this section, the engine will not be considered an emergency engine under this subpart and must meet all requirements for non-emergency engines.
[40CFR§60.4243(d)]

8.4. Testing Requirements for Owners and Operators

- 8.4.1. If you are an owner or operator of a stationary SI internal combustion engine greater than 25 HP and less than or equal to 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test to demonstrate compliance.
[40CFR§60.4243(b)(2)(i)]
- 8.4.2. Owners and operators of stationary SI ICE who conduct performance tests must follow the procedures in paragraphs (a) through (f) of this section.
- a. Each performance test must be conducted within 10 percent of 100 percent peak (or the highest achievable) load and according to the requirements in §60.8 and under the specific conditions that are specified by Table 2 to this subpart. [40CFR§60.4244(a)]

- b. You may not conduct performance tests during periods of startup, shutdown, or malfunction, as specified in §60.8(c). If your stationary SI internal combustion engine is non-operational, you do not need to startup the engine solely to conduct a performance test; however, you must conduct the performance test immediately upon startup of the engine. [40CFR§60.4244(b)]
- c. You must conduct three separate test runs for each performance test required in this section, as specified in §60.8(f). Each test run must be conducted within 10 percent of 100 percent peak (or the highest achievable) load and last at least 1 hour. [40CFR§60.4244(c)]
- d. To determine compliance with the NO_x mass per unit output emission limitation, convert the concentration of NO_x in the engine exhaust using Equation 1 of this section:

$$ER = \frac{C_a \times 1.912 \times 10^{-3} \times Q \times T}{HP - hr} \quad (\text{Eq. 1})$$

Where:

ER = Emission rate of NO_x in g/HP-hr.

C_a = Measured NO_x concentration in parts per million by volume (ppmv).

1.912×10⁻³ = Conversion constant for ppm NO_x to grams per standard cubic meter at 20 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meter per hour, dry basis.

T = Time of test run, in hours.

HP-hr = Brake work of the engine, horsepower-hour (HP-hr).

[40CFR§60.4244(d)]

- d. To determine compliance with the CO mass per unit output emission limitation, convert the concentration of CO in the engine exhaust using Equation 2 of this section:

$$ER = \frac{C_a \times 1.164 \times 10^{-3} \times Q \times T}{HP - hr} \quad (\text{Eq. 2})$$

Where:

ER = Emission rate of CO in g/HP-hr.

C_a = Measured CO concentration in ppmv.

1.164×10⁻³ = Conversion constant for ppm CO to grams per standard cubic meter at 20 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meters per hour, dry basis.

T = Time of test run, in hours.

HP-hr = Brake work of the engine, in HP-hr.

[40CFR§60.4244(e)]

- e. For purposes of this subpart, when calculating emissions of VOC, emissions of formaldehyde should not be included. To determine compliance with the VOC mass per unit output emission limitation, convert the concentration of VOC in the engine exhaust using Equation 3 of this section:

$$ER = \frac{C_d \times 1.833 \times 10^{-3} \times Q \times T}{HP - hr} \quad (\text{Eq. 3})$$

Where:

ER = Emission rate of VOC in g/HP-hr.

C_d = VOC concentration measured as propane in ppmv.

1.833×10^{-3} = Conversion constant for ppm VOC measured as propane, to grams per standard cubic meter at 20 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meters per hour, dry basis.

T = Time of test run, in hours.

HP-hr = Brake work of the engine, in HP-hr.

[40CFR§60.4244(f)]

- f. If the owner/operator chooses to measure VOC emissions using either Method 18 of 40 CFR part 60, appendix A, or Method 320 of 40 CFR part 63, appendix A, then it has the option of correcting the measured VOC emissions to account for the potential differences in measured values between these methods and Method 25A. The results from Method 18 and Method 320 can be corrected for response factor differences using Equations 4 and 5 of this section. The corrected VOC concentration can then be placed on a propane basis using Equation 6 of this section.

$$RF_i = \frac{C}{C_{Ai}} \quad (\text{Eq. 4})$$

Where:

RF_i = Response factor of compound i when measured with EPA Method 25A.

C_M = Measured concentration of compound i in ppmv as carbon.

C_{Ai} = True concentration of compound i in ppmv as carbon.

$$C_{\text{corr}} = RF_i \times C_{\text{meas}} \quad (\text{Eq. 5})$$

Where:

C_{corr} = Concentration of compound i corrected to the value that would have been measured by EPA Method 25A, ppmv as carbon.

C_{meas} = Concentration of compound i measured by EPA Method 320, ppmv as carbon.

$$C_{\text{Pec}} = 0.6098 \times C_{\text{corr}} \quad (\text{Eq. 6})$$

Where:

C_{Pec} = Concentration of compound i in mg of propane equivalent per DSCM.

[40CFR§60.4244]

8.5. Notification, Reports, and Records for Owners and Operators

8.5.1. Owners or operators of stationary SI ICE must meet the following notification, reporting and recordkeeping requirements.

a. Owners and operators of all stationary SI ICE must keep records of the information in paragraphs (a)(1) through (4) of this section.

1. All notifications submitted to comply with this subpart and all documentation supporting any notification.
2. Maintenance conducted on the engine.
3. If the stationary SI internal combustion engine is a certified engine, documentation from the manufacturer that the engine is certified to meet the emission standards and information as required in 40 CFR parts 90 and 1048.
4. If the stationary SI internal combustion engine is not a certified engine or is a certified engine operating in a non-certified manner and subject to §60.4243(a)(2), documentation that the engine meets the emission standards.

[40CFR§60.4245(a)]

b. For all stationary SI emergency ICE greater than or equal to 500 HP manufactured on or after July 1, 2010, that do not meet the standards applicable to non-emergency engines, the owner or operator of must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. For all stationary SI emergency ICE greater than or equal to 130 HP and less than 500 HP manufactured on or after July 1, 2011 that do not meet the standards applicable to non-emergency engines, the owner or operator of must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. For all stationary SI emergency ICE greater than 25 HP and less than 130 HP manufactured on or after July 1, 2008, that do not meet the standards applicable to non-emergency engines, the owner or operator of must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. The owner or operator must document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation. **[40CFR§60.4245(b)]**

d. Owners and operators of stationary SI ICE that are subject to performance testing must submit a copy of each performance test as conducted in §60.4244 within 60 days after the test has been completed. **[40CFR§60.4245(d)]**

8.5.2. To demonstrate compliance with section 8.1, the permittee shall maintain records of the hours of operation of the emergency generator (G-2). 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.

9.0. Source-Specific Requirements (Blowdown Operations)

9.1. Limitations and Standards

9.1.1. The maximum number of facility blowdown events per year shall not exceed 365, with an estimated 254,675 scf per event (92,956,358 scf/year). Compliance shall be determined using a twelve month rolling total. A twelve month rolling total shall mean the sum of the blowdown events at any given time during the previous twelve consecutive calendar months.

- 9.1.2. The facility blowdown events shall be controlled by the process flare (FL-991). The flare shall reduce the volatile organic compounds and hazardous air pollutants emissions by 98%. The flare shall meet the operating requirements in permit conditions 6.1.2 and 6.1.3.
- 9.1.3. The maximum number of compressor (C-102, C-103) blowdown events per year shall not exceed 36, with an estimated 2,200 scf per event (158,400 scf/year). Compliance shall be determined using a twelve month rolling total. A twelve month rolling total shall mean the sum of the blowdown events at any given time during the previous twelve consecutive calendar months.
- 9.1.4. The maximum number of compressor (CM-1001, CM-1003, CM-1004, CM-1005, CM-1006) blowdown events per year shall not exceed 36, with an estimated 920 scf per event (165,600 scf/year). Compliance shall be determined using a twelve month rolling total. A twelve month rolling total shall mean the sum of the blowdown events at any given time during the previous twelve consecutive calendar months.
- 9.1.5. The total VOC emissions from the blowdown events shall not exceed following limits:
 - a. The combined blowdown events from C-102, C-103 shall not exceed 0.59 tons per year.
 - b. The combined blowdown events from CM-1001, CM-1003, CM-1004, CM-1005, CM-1006 shall not exceed 0.61 tons per year.
 - c. The facility blowdown events shall not exceed 7.82 tons per year.

9.2. Recordkeeping Requirements

- 9.2.1. All records required under section 9.2 of this permit shall be kept in accordance with permit condition 3.4.1.
- 9.2.2. To demonstrate compliance with permit conditions 9.1.1 – 9.1.5, the permittee shall maintain a record of the blowdown events and estimated volume per event (scf) on a monthly and rolling twelve month total.

9.3. Reporting Requirements

- 9.3.1. Any exceedance of permit conditions 9.1.1 – 9.1.5 must be reported in writing to the Director of the DAQ as soon as practicable, but within ten (10) calendar days, of the occurrence and shall include, at a minimum, the following information: the date of the exceedance, the estimate of VOC emissions released to the atmosphere as a result of the exceedance and any corrective measures taken or planned.

CERTIFICATION OF DATA ACCURACY

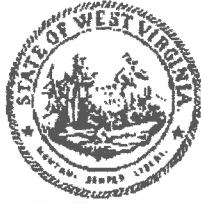
I, the undersigned, hereby certify that, based on information and belief formed after reasonable inquiry, all information contained in the attached _____, representing the period beginning _____ and ending _____, and any supporting documents appended hereto, is true, accurate, and complete.

Signature¹ _____
(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.



Permit / Application Information Sheet
Division of Environmental Protection
West Virginia Office of Air Quality

Company:	MarkWest Liberty Midstream & Resources LLC		Facility:	Mobley Gas Plant	
Region:	2	Plant ID:	103-00042	Application #:	13-2878E
Engineer:	Williams, Jerry		Category:		
Physical Address:	14624 N.Fork Rd Smithfield WV 26437		SIC: [2819] CHEMICALS AND ALLIED PRODUCTS - INDUSTRIAL INORGANIC CHEMICALS NAICS: [211112] Natural Gas Liquid Extraction		
County:	Wetzel				
Other Parties:	ENV ENG - Janecek, Wade 303-542-1212				

Information Needed for Database and AIRS
 1. Need valid physical West Virginia address with zip

Regulated Pollutants

Summary from this Permit 13-2878E		Applicable Regulations
Air Programs	Fee	Application Type
Fee Program	\$2,000.00	MODIFICATION

Notes from Database

Activity Dates
 APPLICATION RECIEVED 02/28/2017
 APPLICATION FEE PAID 03/02/2017
 ASSIGNED DATE 03/02/2017

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Please note, this information sheet is not a substitute for file research and is limited to data entered into the AIRTRAX database.

Company ID: 103-00042
 Company: MarkWest Liberty Midstream & R
 Printed: 03/02/2017
 Engineer: Williams, Jerry

Williams, Jerry

From: Wade Janecek <Wade.Janecek@markwest.com>
Sent: Friday, June 16, 2017 3:33 PM
To: Williams, Jerry; Nathan Wheldon
Subject: RE: Mobley
Attachments: Updated Emissions.pdf; Attachment I.pdf; Attachment J.pdf

Jerry,

Apologize for the delay. Here are the updated pages for the additional generators. Please let me know if you need anything else from me.

Wade Janecek
Senior Environmental Engineer
MarkWest Energy Partners, L.P.
1515 Arapahoe Street | Tower 1 - Suite 1600 | Denver, CO 80202
Direct: (303) 542-1212 Ext. 1512 | Cell: (970) 270-5584
Email: Wade.Janecek@MarkWest.com

-----Original Message-----

From: Williams, Jerry [mailto:Jerry.Williams@wv.gov]
Sent: Friday, June 16, 2017 11:22 AM
To: Wade Janecek; Nathan Wheldon
Subject: RE: Mobley

Wade,

Would you please give me an update on the generators that you wish to add.

Thanks
Jerry

-----Original Message-----

From: Wade Janecek [mailto:Wade.Janecek@markwest.com]
Sent: Friday, June 9, 2017 12:23 PM
To: Williams, Jerry <Jerry.Williams@wv.gov>; Nathan Wheldon <Nathan.Wheldon@markwest.com>
Subject: RE: Mobley

Jerry,

Please find our comments on the draft included below. Please let me know if you have any questions or concerns.

- On page 2 of the application "supersede" is misspelled in the sentence "This permit will supercede and replace Permit R13-2878D issued on January 7, 2016."
- The correct facility address is 14624 North Fork Road (the final 4 is omitted in the permit).
- Fugitives, blowdowns, rod packing, and crankcase emissions are not listed in Table 1.0.
- On page 13 Section 3.2.1 requires fuel gas analysis once per month; however, the facility should be exempt per the requirements of 45 CSR 10-10.3.

NON-CONFIDENTIAL

103-0042
 Reg R13-2878E
 Company MARKWEST
 Facility Mobley Initials WN

- . One page 18 Section 4.2.2 - The units at Mobley Gas Plant are not equipped to burn propane. MarkWest requests we remove this condition.
- . On page 21 Section 5.1.1 - The MDHI for units H-741 and H-1741 are reversed. Additionally, the MDHI for units H-781 and H-1781 are reversed. Finally, the total MDHI was not updated to reflect the heater size corrections. The value should be 148.93 MMBTU/hr rather than 121.08 MMBTU/hr.
- . Page 26 Section 6.1.3.h i - ii - The emissions represented in these two conditions correspond to the previous permit and should be updated to reflect the correct totals.
- . Page 31 Section 6.4.7 - 6.4.9 - The permit skips Section 6.4.8.
- . Page 32 - Section 6.5.1 - MarkWest requests 12 months after startup to submit the initial semi-annual report to allow for adequate time to tag the plant, perform monitoring, and prepare the required information.
- . Page 41 - Section 9.1.1 - The blowdown totals in the condition don't match those submitted by MarkWest.

Wade Janecek
 Senior Environmental Engineer
 MarkWest Energy Partners, L.P.
 1515 Arapahoe Street | Tower 1 - Suite 1600 | Denver, CO 80202
 Direct: (303) 542-1212 Ext. 1512 | Cell: (970) 270-5584
 Email: Wade.Janecek@MarkWest.com

-----Original Message-----

From: Williams, Jerry [mailto:Jerry.Williams@wv.gov]
 Sent: Thursday, June 01, 2017 9:50 AM
 To: Wade Janecek; Nathan Wheldon
 Cc: Andrews, Edward S
 Subject: RE: Mobley

Attached to this email is a pre-draft for Mobley. Please respond with any comments by Friday June 9. I will submit for approval to go to notice the following week. The following changes were made to the existing permit as a result of this application.

- Section 1.0 Addition of G-1 and G-2. Modified the MDHI of H-5781 to 50.79MMBTU/hr. Removed CM-1002. Added methanol and closed drain tanks.
- Section 1.1 Removed CM-1002.
- Section 4.0 Removed CM-1002.
- Section 5.1.1 Changed the MDHI of H-5781 from 22.92 MMBTU/hr and 200,866.80 to 50.78 MMBTU/hr and 444,832.80. Changes the total MDHI from 1,257,673.20 to 1,501,639.20. Corrected the Emission Unit ID#s.
- Section 5.1.2 Corrected the Emission Unit ID#s.
- Section 5.1.3 Updated the annual emission limits.
- Section 6.1.3 Updated permit condition to reflect a net heating value of 300 BTU/scf or greater.
 Updated maximum flow rate to the flare system and emission values. Updated permit condition to reflect non-assisted and air assisted flare tips, as well as the maximum permitted velocities.
- Section 6.0 Corrected all references to condition 8.x.x to 6.x.x.
- Section 7.0 Added section for diesel fired emergency generator (G-1).
- Section 8.0 Added section for natural gas fired emergency generator (G-2).

Thanks,
 Jerry

-----Original Message-----

From: Wade Janecek [mailto:Wade.Janecek@markwest.com]
 Sent: Friday, May 12, 2017 5:29 PM
 To: Williams, Jerry <Jerry.Williams@wv.gov>; Nathan Wheldon <Nathan.Wheldon@markwest.com>

Cc: Andrews, Edward S <Edward.S.Andrews@wv.gov>
Subject: RE: Mobley

Jerry,

I apologize for the delay getting this over to you. Please find attached the documentation you requested including updated blowdown emissions, updated attachment J, and attachment M for the flare. I've also dropped a copy in the mail that you should receive early next week. Please feel free to give me a call or shoot me an email if you have any additional questions or concerns.

Wade Janecek
Senior Environmental Engineer
MarkWest Energy Partners, L.P.
1515 Arapahoe Street | Tower 1 - Suite 1600 | Denver, CO 80202
Direct: (303) 542-1212 Ext. 1512 | Cell: (970) 270-5584
Email: Wade.Janecek@MarkWest.com

-----Original Message-----

From: Williams, Jerry [mailto:Jerry.Williams@wv.gov]
Sent: Monday, May 08, 2017 11:09 AM
To: Nathan Wheldon; Wade Janecek
Cc: Andrews, Edward S
Subject: RE: Mobley

Sounds good. Thanks Nathan.

-----Original Message-----

From: Nathan Wheldon [mailto:Nathan.Wheldon@markwest.com]
Sent: Monday, May 8, 2017 1:07 PM
To: Williams, Jerry <Jerry.Williams@wv.gov>; Wade Janecek <Wade.Janecek@markwest.com>
Cc: Andrews, Edward S <Edward.S.Andrews@wv.gov>
Subject: Re: Mobley

Jerry, wade got me all the updates late last week, I'm traveling today but can review tomorrow and if everything is ok well get it in Tuesday or Wednesday.

Sent from my Verizon, Samsung Galaxy smartphone

----- Original message -----

From: "Williams, Jerry" <Jerry.Williams@wv.gov>
Date: 5/8/17 10:48 AM (GMT-07:00)
To: Wade Janecek <Wade.Janecek@markwest.com>, Nathan Wheldon <Nathan.Wheldon@markwest.com>
Cc: "Andrews, Edward S" <Edward.S.Andrews@wv.gov>
Subject: Mobley

Nathan and Wade,

Would you please give me an update on the information requested from the April 27 phone call with myself and Ed Andrews regarding the flare at Mobley.

1. Suggested flare throughput language
2. Flare throughput calculations
3. Flare air pollution control device sheet

Thanks
Jerry

MarkWest Liberty Midstream & Resources L.L.C.
Mobley Gas Plant - Phase V

Summary of Potential Emissions

Criteria Pollutant Potential Emissions

Process/Facility	Potential Emissions (lb/hr)						
	NOx	CO	VOC	SO ₂	PM ¹	HAPs	
Waukesha P9390GSI Compressor Engines (5) (Existing)	4.35	5.7	2.6	0.05	1.5	1.05	
CAT 3616 Compressor Engines (2) (Existing)	10.44	2.88	5.26	0.04	0.7	1.76	
Regeneration Heater H-741 (8.12 MMBtu/hr) (Existing)	0.43	0.33	0.04	0.00	0.05	0.01	
Hot Medium Oil Heater H-781 (26.0 MMBtu/hr) (Existing)	2.31	1.94	0.13	0.01	0.18	0.04	
Regeneration Heater H-1741 (6.84 MMBtu/hr) (Existing)	0.36	0.28	0.03	0.00	0.03	0.01	
Hot Medium Oil Heater H-1781 (18.05 MMBtu/hr) (Existing)	1.61	1.35	0.09	0.01	0.12	0.03	
Regeneration Heaters H-3741 and H-4741 (7.69 MMBtu/hr) (Existing)	0.82	0.63	0.08	0.01	0.11	0.03	
Hot Medium Oil Heater H-3781 (16.07 MMBtu/hr) (Existing)	1.58	1.32	0.09	0.01	0.12	0.03	
Regeneration Heaters H-5741 (7.69 MMBtu/hr) (New)	0.41	0.32	0.04	0.00	0.06	0.01	
Regeneration Heater H-5781 (50.78 MMBtu/hr) (New)	3.30	2.03	0.61	0.03	0.41	0.09	
Blowdowns	--	--	--	--	--	--	
Process Flare (Existing)	0.90	4.81	--	0.00	0.00	--	
Fugitives (Modified)	--	--	5.61	--	--	--	
Rod Packing Emissions	--	--	0.09	--	--	0.09	
Crankcase Emissions	0.44	0.26	0.24	0.00	0.07	0.08	
Emergency Generator - G-1	0.41	0.43	0.41	0.11	0.00	0.00	
Emergency Generator - G-2	0.33	0.50	0.17	0.00	0.01	0.01	
Emergency Generator - G-3	0.45	0.47	0.45	0.12	0.00	0.00	
Emergency Generator - G-4	0.45	0.47	0.45	0.12	0.00	0.00	
Future Site-Wide Emissions (lb/hr)	28.58	23.72	16.37	0.52	3.38	0.00	3.27

¹ PM = PM₁₀ = PM_{2.5}

Process/Facility	Potential Emissions (tpy)						
	NOx	CO	VOC	SO ₂	PM ¹	HAPs	
Waukesha P9390GSI Compressor Engines (5) (Existing)	19.15	24.95	11.45	0.2	6.55	4.6	
CAT 3616 Compressor Engines (2) (Existing)	45.72	12.58	23.04	0.18	3.1	7.68	
Regeneration Heater H-741 (8.12 MMBtu/hr) (Existing)	1.88	1.46	0.04	0.00	0.05	0.01	
Hot Medium Oil Heater H-781 (26.0 MMBtu/hr) (Existing)	10.13	8.51	0.56	0.06	0.77	0.19	
Regeneration Heater H-1741 (6.84 MMBtu/hr) (Existing)	1.59	1.23	0.15	0.02	0.20	0.05	
Hot Medium Oil Heater H-1781 (18.05 MMBtu/hr) (Existing)	7.03	5.91	0.39	0.04	0.53	0.13	
Regeneration Heaters H-3741 and H-4741 (7.69 MMBtu/hr) (Existing)	3.57	2.76	0.36	0.04	0.50	0.12	
Hot Medium Oil Heater H-3781 (16.07 MMBtu/hr) (Existing)	6.90	5.80	0.38	0.04	0.52	0.13	
Regeneration Heaters H-5741 (7.69 MMBtu/hr) (New)	1.79	1.38	0.18	0.02	0.25	0.06	
Regeneration Heater H-5781 (50.78 MMBtu/hr) (New)	14.46	8.90	2.67	0.13	1.78	0.41	
Blowdowns	--	--	8.07	--	--	0.10	
Process Flare (Existing)	3.95	21.05	--	0.00	0.01	--	
Fugitives (Modified)	--	--	24.57	--	--	0.40	
Rod Packing Emissions	--	--	0.40	--	--	0.01	
Crankcase Emissions	1.95	1.13	1.03	0.01	0.29	0.37	
Emergency Generator - G-1	0.10	0.11	0.10	0.03	0.00	0.00	
Emergency Generator - G-2	0.08	0.12	0.04	0.00	0.00	0.00	
Emergency Generator - G-3	0.11	0.12	0.11	0.03	0.00	0.00	
Emergency Generator - G-4	0.11	0.12	0.11	0.03	0.00	0.00	
Future Site-Wide Emissions (lb/hr)	118.53	96.12	73.65	0.83	14.57	0.00	14.28

¹ PM = PM₁₀ = PM_{2.5}

Hazardous Air Pollutant Potential Emissions

Process/Facility	HAPs - Potential Emissions (lb/hr)									
	Acetaldehyde	Acrolein	Benzene	Ethylbenzene	Formaldehyde	Methanol	n-Hexane	Toluene	Xylenes	
Waukesha P939GSI Compressor Engines (5) (Existing)	2.00E-01	2.00E-01	1.00E-01	5.00E-02	2.00E-01	2.50E-01	--	5.00E-02	5.00E-02	
CAT 3616 Compressor Engines (2) (Existing)	6.00E-01	3.60E-01	1.00E-02	2.00E-02	5.40E-01	1.80E-01	--	2.00E-02	2.00E-02	
Regeneration Heater H-741 (8.12 MMBtu/hr) (Existing)	--	--	1.52E-05	--	5.42E-04	--	--	2.46E-05	2.46E-05	
Hot Medium Oil Heater H-781 (26.0 MMBtu/hr) (Existing)	--	--	4.86E-05	--	1.73E-03	--	4.16E-02	7.86E-05	7.86E-05	
Regeneration Heater H-1741 (6.84 MMBtu/hr) (Existing)	--	--	1.28E-05	--	4.50E-04	--	1.10E-02	2.07E-05	2.07E-05	
Hot Medium Oil Heater H-1781 (18.05 MMBtu/hr) (Existing)	--	--	3.37E-05	--	1.20E-03	--	2.89E-02	5.46E-05	5.46E-05	
Regeneration Heaters H-3741 and H-4741 (7.69 MMBtu/hr) (Existing)	--	--	3.17E-05	--	1.13E-03	--	2.71E-02	5.13E-05	5.13E-05	
Hot Medium Oil Heater H-3781 (16.07 MMBtu/hr) (Existing)	--	--	3.31E-05	--	1.18E-03	--	2.84E-02	5.36E-05	5.36E-05	
Regeneration Heaters H-5741 (7.69 MMBtu/hr) (Existing)	--	--	1.58E-05	--	5.65E-04	--	1.36E-02	2.56E-05	2.56E-05	
Regeneration Heater H-5781 (50.78 MMBtu/hr) (New)	--	--	1.05E-04	--	3.73E-03	--	8.96E-02	1.69E-04	1.69E-04	
Blowdowns	--	--	--	--	--	--	--	--	--	
Process Flare (Existing)	--	--	--	--	--	--	--	--	--	
Fugitives (Modified)	--	--	--	--	--	--	--	--	--	
Rod Packing Emissions	--	--	--	--	--	--	--	--	--	
Crankcase Emissions	--	--	2.42E-05	0.00E+00	--	--	--	--	--	
Emergency Generator - G-1	2.40E-02	1.68E-02	3.30E-03	2.10E-03	2.22E-02	1.29E-02	1.07E-03	2.85E-05	3.29E-05	
Emergency Generator - G-2	3.16E-04	3.81E-05	3.85E-04	--	4.86E-04	--	--	2.10E-03	2.10E-03	
Emergency Generator - G-3	4.98E-03	3.06E-03	2.62E-04	2.36E-05	1.32E-03	1.49E-03	--	1.69E-04	1.17E-04	
Emergency Generator - G-4	3.16E-04	3.81E-05	3.83E-04	--	4.86E-04	--	--	2.43E-04	1.10E-04	
Emergency Generator - G-4	3.16E-04	3.81E-05	3.83E-04	--	4.86E-04	--	--	1.69E-04	1.17E-04	
Future Site-Wide Emissions (lb/hr)	0.83	0.58	0.12	0.07	0.78	0.44	0.25	0.07	0.07	0.07

Hazardous Air Pollutant Potential Emissions

Process/Facility	HAPs - Potential Emissions (tpy)									
	Acetaldehyde	Acrolein	Benzene	Ethylbenzene	Formaldehyde	Methanol	n-Hexane	Toluene	Xylenes	
Waukesha P939GSI Compressor Engines (5) (Existing)	9.50E-01	9.00E-01	5.50E-01	5.00E-02	9.50E-01	1.05E+00	--	2.00E-01	5.00E-02	
CAT 3616 Compressor Engines (2) (Existing)	2.60E+00	1.60E+00	1.40E-01	2.00E-02	2.38E+00	7.80E-01	--	1.20E-01	6.00E-02	
Regeneration Heater H-741 (8.12 MMBtu/hr) (Existing)	--	--	6.64E-05	--	2.37E-03	--	5.70E-02	1.08E-04	--	
Hot Medium Oil Heater H-781 (26.0 MMBtu/hr) (Existing)	--	--	2.13E-04	--	7.60E-03	--	1.82E-01	3.44E-04	--	
Regeneration Heater H-1741 (6.84 MMBtu/hr) (Existing)	--	--	5.60E-05	--	2.00E-03	--	4.80E-02	9.06E-05	--	
Hot Medium Oil Heater H-1781 (18.05 MMBtu/hr) (Existing)	--	--	1.48E-04	--	5.28E-03	--	1.27E-01	2.39E-04	--	
Regeneration Heaters H-3741 and H-4741 (7.69 MMBtu/hr) (Existing)	--	--	1.39E-04	--	4.95E-03	--	1.19E-01	2.25E-04	--	
Hot Medium Oil Heater H-3781 (16.07 MMBtu/hr) (Existing)	--	--	1.45E-04	--	5.18E-03	--	1.24E-01	2.35E-04	--	
Regeneration Heaters H-5741 (7.69 MMBtu/hr) (Existing)	--	--	6.93E-05	--	2.48E-03	--	5.94E-02	1.12E-04	--	
Regeneration Heater H-5781 (50.78 MMBtu/hr) (New)	--	--	4.58E-04	--	1.64E-02	--	3.93E-01	7.41E-04	--	
Blowdowns	--	--	--	--	--	--	--	--	--	
Process Flare (Existing)	--	--	--	--	--	--	--	--	--	
Fugitives (Modified)	--	--	--	--	--	--	--	--	--	
Rod Packing Emissions	--	--	--	--	--	--	--	--	--	
Crankcase Emissions	--	--	1.06E-04	0.00E+00	--	--	--	--	--	
Emergency Generator - G-1	1.07E-01	7.50E-02	2.07E-02	2.10E-03	9.99E-02	5.49E-02	4.68E-03	1.25E-04	1.44E-04	
Emergency Generator - G-2	7.90E-05	9.53E-06	9.61E-05	--	1.22E-04	--	--	9.60E-03	3.30E-03	
Emergency Generator - G-3	1.24E-03	7.65E-04	6.55E-05	5.91E-06	3.80E-04	3.72E-04	--	4.21E-05	2.94E-05	
Emergency Generator - G-4	7.90E-05	9.53E-06	9.61E-05	--	1.22E-04	--	--	6.08E-05	2.74E-05	
Emergency Generator - G-4	7.90E-05	9.53E-06	9.61E-05	--	1.22E-04	--	--	4.21E-05	2.94E-05	
Future Site-Wide Emissions (tpy)	3.66	2.58	0.71	0.07	3.48	1.89	1.11	0.33	0.11	0.11

Greenhouse Gas Potential Emissions

Process/Facility	GHG CO ₂ e (tpy)
Waukesha P9390GSI Compressor Engines (5) (Existing)	43487.4
CAT 3616 Compressor Engines (2) (Existing)	39569.86
Regeneration Heater H-741 (8.12 MMBtu/hr) (Existing)	4577.03
Hot Medium Oil Heater H-781 (26.0 MMBtu/hr) (Existing)	14824.60
Regeneration Heater H-1741 (6.84 MMBtu/hr) (Existing)	3855.52
Hot Medium Oil Heaters H-1781 (18.05 MMBtu/hr) (Existing)	10174.30
Regeneration Heaters H-3741 and H-4741 (7.69 MMBtu/hr) (Existing)	9553.98
Hot Medium Oil Heater H-3781 (16.07 MMBtu/hr) (Existing)	9982.61
Regeneration Heaters H-5741 (7.69 MMBtu/hr) (New)	4338.56
Regeneration Heater H-5781 (50.78 MMBtu/hr) (New)	28650.40
Process Flare (Existing)	741.55
Fugitives (Modified)	529.25
Rod Packing Emissions	36.87
Crankcase Emissions	2491.72
Emergency Generator - G-1	16.86
Emergency Generator - G-2	6.84
Emergency Generator - G-3	16.86
Emergency Generator - G-4	16.86
Future Site-Wide Emissions (lb/hr)	172871.06

MarkWest Liberty Midstream and Resources, L.L.C.
 Mobley Gas Plant

Emergency Generator Engine Emissions (Per Engine)
(G-3 and G-4)

Source Designation:	
Manufacturer:	Generac
Model No.:	MMG45
Stroke Cycle:	4-stroke
Type of Burn:	Diesel
Year Installed:	
Fuel Used:	Diesel
Fuel High Heating Value (HHV) (Btu/gal):	137,380
Rated Horsepower (bhp):	58
Specific Fuel Consumption (gal/hr):	3.0
Maximum Fuel Consumption at 100% Load (gal/hr):	3.0
Heat Input (MMBtu/hr)	0.41
Stack Designation:	

Operational Details:

Potential Annual Hours of Operation (hr/yr):	500
Potential Fuel Consumption (gal/yr):	1,500

Criteria and Manufacturer Specific Pollutant Emission Factors:

Pollutant	Emission Factors^a	Units
NOx	3.50	g/bhp-hr
CO (uncontrolled)	3.70	g/bhp-hr
CO (controlled)	3.70	g/bhp-hr
SO ₂	2.05E-03	g/bhp-hr
PM ₁₀ (Filterable)	2.20E-02	g/bhp-hr
PM _{2.5} (Filterable)	2.20E-02	g/bhp-hr
PM Condensable	2.20E-02	g/bhp-hr
PM Total	2.20E-02	g/bhp-hr
VOC (uncontrolled)	3.50	g/bhp-hr
VOC (controlled)	3.50	g/bhp-hr

Emergency Generator Engine Emissions (Per Engine)
(G-3 and G-4)

Criteria and Manufacturer Specific Pollutant Emission Rates

Pollutant	Potential Emissions	
	(lb/hr) ^b	(tons/yr) ^c
NO _x	0.45	0.11
CO (uncontrolled)	0.47	0.12
CO (controlled)	0.47	0.12
SO ₂	0.12	0.03
PM ₁₀ (Filterable)	0.00	0.00
PM _{2.5} (Filterable)	0.00	0.00
PM Condensable	0.00	0.00
PM Total	0.00	0.00
VOC (uncontrolled)	0.45	0.11
VOC (controlled)	0.45	0.11

Hazardous Air Pollutant (HAP) Potential Emissions

Pollutant	Emission Factor (lb/MMBtu) ^a	Potential Emissions	
		(lb/hr) ^b	(tons/yr) ^c
HAPs:			
Acetaldehyde	7.67E-04	0.0003	0.0001
Acrolein	9.25E-05	0.0000	0.0000
Benzene	9.33E-04	0.0004	0.0001
1,3-Butadiene	3.91E-05	0.0000	0.0000
Formaldehyde	1.18E-03	0.0005	0.0001
Toluene	4.09E-04	0.0002	0.0000
Xylene	2.85E-04	0.0001	0.0000
Polycyclic Organic Matter:			
Naphthalene	8.48E-05	0.0000	0.0000
Total HAP		0.00	0.00

^a HAP emission factors from AP-42 Section 3.2, Table 3.3-2 "Speciated Organic Compound Emission Factors for Uncontrolled Diesel Engines," Supplement F, October 1996. Criteria pollutant factors are based on EPA Tier IV standards.

^b Emission Rate (lb/hr) = Rated Capacity (MMBtu/hr or bhp) × Emission Factor (lb/MMBtu or lb/bhp-hr).

^c Annual Emissions (tons/yr)_{Potential} = (lb/hr)_{Emissions} × (Maximum Allowable Operating Hours/yr) × (1 ton/2000 lb).

Attachment I
Emission Units Table
(includes all emission units and air pollution control devices
that will be part of this permit application review, regardless of permitting status)

Emission Unit ID ¹	Emission Point ID ²	Emission Unit Description	Year Installed/ Modified	Design Capacity	Type ³ and Date of Change	Control Device ⁴
CM-1001	CM-1001	Waukesha P9390 GSI Engine	2012	1,980-hp	Existing	NSCR
CM-1003	CM-1003	Waukesha P9390 GSI Engine	2012	1,980-hp	Existing	NSCR
CM-1004	CM-1004	Waukesha P9390 GSI Engine	2012	1,980-hp	Existing	NSCR
CM-1005	CM-1005	Waukesha P9390 GSI Engine	2012	1,980-hp	Existing	NSCR
CM-1006	CM-1006	Waukesha P9390 GSI Engine	2012	1,980-hp	Existing	NSCR
C-102	C-102	Caterpillar G3616 LE Engine	2012	4,735-hp	Existing	Oxid. Cat.
C-103	C-103	Caterpillar G3616 LE Engine	2012	4,735-hp	Existing	Oxid. Cat.
G-1	G-1	Generac MMG45 Generator	2012	53 hp	New	None
G-2	G-2	Kohler 40ERES Generator	2012	75 hp	New	None
G-3	G-3	Generac MMG45 Generator	2012	58 hp	New	None
G-4	G-4	Generac MMG45 Generator	2012	58 hp	New	None
H-741	H-741	Regeneration Gas Heater	2012	6.84 mmBtu/hr	Existing	None
H-781	H-781	Heat Medium Oil Heater	2012	18.05 mmBtu/hr	Existing	None
H-1741	H-1741	Regeneration Gas Heater	2012	8.12 mmBtu/hr	Existing	None
H-1781	H-1781	Heat Medium Oil Heater	2012	26.0 mmBtu/hr	Existing	None
FL-991	FL-991	Process Flare	2012	10,611 scf/hr	Modification	None
H-3741	H-3741	Regeneration Gas Heater	2013	7.69 mmBtu/hr	Existing	None
H-4741	H-4741	Regeneration Gas Heater	2014	7.69 mmBtu/hr	Existing	None
H-3781	H-3781	Heat Medium Oil Heater	2013	16.07 mmBtu/hr	Existing	None

H-5741	H-5741	Regeneration Gas Heater	2015	7.69 mmBtu/hr	Existing	None
H-5781	H-5781	Heat Medium Oil Heater	2015	50.78 mmbtuh/hr	Modification	None
TK-087	TK-087	520 gal Methanol Tank	2012	520 gal	New	None
TK-2609	TK-2609	520 gal Methanol Tank	2012	520 gal	New	None
TK-3410	TK-3410	520 gal Methanol Tank	2012	520 gal	New	None
TK-3829	TK-3829	520 gal Methanol Tank	2012	520 gal	New	None
TK-4220	TK-4220	520 gal Methanol Tank	2012	520 gal	New	None
TK-4410	TK-4410	520 gal Methanol Tank	2012	520 gal	New	None
TK-1824	TK-1824	4,265 gal Closed Drain Tank	2012	4,265 gal	New	None
TK-4824	TK-4824	4,533 gal Closed Drain Tank	2012	4,533 gal	New	None
FUG-004	FUG-004	Fugitive Equipment Leaks	Proposed	N/A	Modification	None
1B	1B	Compressor Blowdowns	2012	N/A	Modification	None
2B	2B	Facility Blowdowns	2012	N/A	Modification	None
RP	RP	Rod Packing Emissions	2012	N/A	Modification	None
CBB	CBB	Crankcase Blowby Emissions	2012	N/A	Modification	None

¹ For Emission Units (or Sources) use the following numbering system: 1S, 2S, 3S,... or other appropriate designation.

² For Emission Points use the following numbering system: 1E, 2E, 3E, ... or other appropriate designation.

³ New, modification, removal

⁴ For Control Devices use the following numbering system: 1C, 2C, 3C,... or other appropriate designation.

EMISSION POINTS DATA SUMMARY SHEET

Table 1: Emissions Data

Emission Point ID No. (Must match Emission Units Table & Plot Plan)	Emission Point Type ¹	Emission Unit Vented Through This Point (Must match Emission Units Table & Plot Plan)		Air Pollution Control Device (Must match Emission Units Table & Plot Plan)		Vent Time for Emission Unit (chemical processes only)		All Regulated Pollutants - Chemical Name/CAS ³ (Speciate VOCs & HAPs)	Maximum Potential Uncontrolled Emissions ⁴		Maximum Potential Controlled Emissions ⁵		Emission Form or Phase (At exit conditions, Solid, Liquid or Gas/Vapor)	Est. Method Used ⁶	Emission Concentration (ppmv or mg/m ³)
		ID No.	Source	ID No.	Device Type	Short Term ²	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr			
H-5781	Upward Vertical Stack	H-5781	H-5781	N/A	None	N/A	N/A	NOX CO VOC PM ₁₀ HAP SO ₂	3.30 2.03 0.61 0.41 0.09 0.03	14.46 8.90 2.67 1.78 0.41 0.13	3.30 2.03 0.61 0.41 0.09 0.03	14.46 8.90 2.67 1.78 0.41 0.13	Gas/Vapor	AP-42	--
FUG-004	FUG-004	N/A	None	N/A	None	N/A	N/A	VOC HAP	5.61 0.09	24.57 0.40	5.61 0.09	24.57 0.40	Gas/Vapor	EPA 453/ R-95-017	--
G-1	Upward Vertical Stack	G-1	G-1	N/A	None	N/A	N/A	NOX CO VOC PM ₁₀ HAP SO ₂	0.41 0.43 0.41 0.00 0.00 0.11	0.10 0.11 0.10 0.00 0.00 0.03	0.41 0.43 0.41 0.00 0.00 0.11	0.10 0.11 0.10 0.00 0.00 0.03	Gas/Vapor	AP-42	--

G-2	Upward Vertical Stack	G-2	G-2	N/A	None	N/A	N/A	N/A	NOX CO VOC PM ₁₀ HAP SO ₂	0.33 0.50 0.17 0.01 0.01 0.00	0.08 0.12 0.04 0.00 0.00 0.00	0.33 0.50 0.17 0.01 0.01 0.00	0.08 0.12 0.04 0.00 0.00 0.00	Gas/Vapor	AP-42	--
G-3	Upward Vertical Stack	G-3	G-3	N/A	None	N/A	N/A	N/A	NOX CO VOC PM ₁₀ HAP SO ₂	0.45 0.47 0.45 <0.01 <0.01 0.12	0.11 0.12 0.11 <0.01 <0.01 0.03	0.45 0.47 0.45 <0.01 <0.01 0.12	0.11 0.12 0.11 <0.01 <0.01 0.03	Gas/Vapor	AP-42	--
G-4	Upward Vertical Stack	G-4	G-4	N/A	None	N/A	N/A	N/A	NOX CO VOC PM ₁₀ HAP SO ₂	0.45 0.47 0.45 <0.01 <0.01 0.12	0.11 0.12 0.11 <0.01 <0.01 0.03	0.45 0.47 0.45 <0.01 <0.01 0.12	0.11 0.12 0.11 <0.01 <0.01 0.03	Gas/Vapor	AP-42	--
1B	Upward Vertical Stack	1B	1B	N/A	None	N/A	N/A	N/A	VOC HAP	66.50 0.83	1.20 0.02	66.50 0.83	1.20 0.02	Gas/Vapor	Eng. Estimate	--
2B	Upward Vertical Stack	2B	2B	N/A	Flare	N/A	N/A	N/A	VOC HAP	78.41 0.99	343.4 4.32	1.57 0.02	6.87 0.09	Gas/Vapor	Eng. Estimate	--

RP	RP	N/A	None	N/A	None	N/A	N/A	N/A	VOC	0.09	0.40	0.09	0.40	0.40	Gas/Vapor	40 CFR Part 98	--
CBB	CBB	N/A	None	N/A	None	N/A	N/A	N/A	NOx	0.44	1.95	0.44	1.95	1.95	Gas/Vapor	Manufacturer Information	--
									CO	0.26	1.13	0.26	1.13	1.13			
									VOC	0.24	1.03	0.24	1.03	1.03			
									PM ₁₀	0.07	0.29	0.07	0.29	0.29			
									HAP	0.08	0.37	0.08	0.37	0.37			
									SO ₂	0.00	0.01	0.00	0.01	0.01			
FL-991	FLARE	1B/2B	1B/2B	N/A	None	N/A	N/A	N/A	NOx	0.90	3.95	0.90	3.95	3.95	Gas/Vapor	Manufacturer Information	--
									CO	4.81	21.05	4.81	21.05	21.05			
									PM ₁₀	0.00	0.01	0.00	0.01	0.01			
									SO ₂	0.00	0.00	0.00	0.00	0.00			

The EMISSION POINTS DATA SUMMARY SHEET provides a summation of emissions by emission unit. Note that uncaptured process emission unit emissions are not typically considered to be fugitive and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET. Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions). Please complete the FUGITIVE EMISSIONS DATA SUMMARY SHEET for fugitive emission activities.

- Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.
- Indicate by "C" if venting is continuous. Otherwise, specify the average short-term venting rate with units, for intermittent venting (ie., 15 min/hr). Indicate as many rates as needed to clarify frequency of venting (e.g., 5 min/day, 2 days/wk).
- List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. LIST Acids, CO, CS₂, VOCs, H₂S, Inorganics, Lead, Organics, O₃, NO, NO₂, SO₂, SO₃, all applicable Greenhouse Gases (including CO₂ and methane), etc. DO NOT LIST H₂, H₂O, N₂, O₂, and Noble Gases.
- Give maximum potential emission rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).
- Give maximum potential emission rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).
- Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).
- Provide for all pollutant emissions. Typically, the units of parts per million by volume (ppmv) are used. If the emission is a mineral acid (sulfuric, nitric, hydrochloric or phosphoric) use units of milligram per dry cubic meter (mg/m³) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is SO₂, use units of ppmv (See 45CSR10).

Attachment J
EMISSION POINTS DATA SUMMARY SHEET

Table 2: Release Parameter Data

Emission Point ID No. (Must match Emission Units Table)	Inner Diameter (ft.)	Temp. (°F)	Exit Gas		Velocity (fps)	Emission Point Elevation (ft)		UTM Coordinates (km)	
			Volumetric Flow ¹ (acfm) at operating conditions	Temp. (°F)		Ground Level (Height above mean sea level)	Stack Height ² (Release height of emissions above ground level)	Northing	Easting
H-5781	~3.0	730	32,237		76	1235	20	4378315.20	538098.82
FUG-004	N/A	Ambient	N/A		N/A	1235	NA	4378315.20	538098.82
G-1	~1.0	550	1,000		1	1235	5	4378315.20	538098.82
G-2	~1.0	550	1,000		1	1235	5	4378315.20	538098.82
G-3	~1.0	550	1,000		1	1235	5	4378315.20	538098.82
G-4	~1.0	550	1,000		1	1235	5	4378315.20	538098.82
1B	N/A	Ambient	N/A		N/A	1235	NA	4378315.20	538098.82
2B	N/A	Ambient	N/A		N/A	1235	NA	4378315.20	538098.82
RP	N/A	Ambient	N/A		N/A	1235	NA	4378315.20	538098.82
CBB	N/A	Ambient	N/A		N/A	1235	NA	4378315.20	538098.82

¹ Give at operating conditions. Include inerts.

² Release height of emissions above ground level.

Williams, Jerry

From: Andrews, Edward S
Sent: Thursday, June 1, 2017 9:13 AM
To: Williams, Jerry
Cc: Jarrett, James F
Subject: 103-00042_PERM_R13-2878E ed (003)
Attachments: 103-00042_PERM_R13-2878E ed (003).docx

Jerry:

I made some changes in Condition 6.1.3.a, e, and f.

Subpart VVa states that air-assisted flares shall have a maximum permitted exit velocity using the following equation:
(See 40 CFR 60.485a(g)(3))

$V_{max} = 28.56 \text{ ft/sec (which is } K_1 \text{ constant)} + 0.087 \text{ ft}^4/(\text{Btu-sec (which is } K_2 \text{ constant)}) * 1062 \text{ Btu/scf (which is Net Heat Value of gas being combusted - } H_t)$

$V_{max} = 120.95 \text{ ft/sec}$

Because there is no way to monitor the actual flows going to the individual flare tips, I suggest setting the V_{max} of the non-assisted to the same as air-assisted (V_{max} air-assisted to be used as the maximum exit velocity for both types of flare tips).

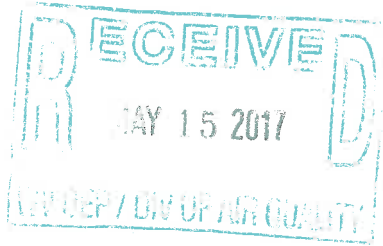
Ed

$$V_{MAX} = K_1 + K_2 H_7$$

$$K_1 = 28.56 \text{ ft/sec}$$

$$K_2 = 0.087 \text{ ft}^4/\text{BTU}_{sec}$$

$$H_7 = 1062 \text{ BTU/scf}$$



MarkWest Energy Appalachia, L.L.C.
 1515 Arapahoe Street
 Tower 1, Suite 1600
 Denver, CO 80202-2137
 (800) 730-8388
 (303) 290-8700
 (303) 825-0920 Fax

May 12, 2017

Mr. Jerry Williams
 West Virginia Department of Environmental Protection
 Division of Air Quality
 Charleston, WV 25304

**Re: MarkWest Liberty Midstream & Resources L.L.C.
 Mobley Gas Plant**

Dear Mr. Williams:

MarkWest Liberty Midstream & Resources L.L.C. (MarkWest) is submitting the enclosed information in response to questions posed by the agency regarding the flare at the Mobley Gas Plant. The flare was built by Callidus Technologies and utilizes five tips; four of which are of the Coanda design and one of which in an internal tube air-assisted design. With this submittal MarkWest is providing attachment M for the flare, updated blowdown calculations, and updated attachment J reflecting recent updates to blowdown emissions.

If you have any questions or comments, please call me (303) 542-1212 or e-mail wade.janecek@markwest.com at your earliest convenience.

Sincerely,

Wade Janecek, P.E.
 Senior Environmental Engineer

ID # 103-00042
 Reg R13-2878E
 Company MARKWEST
 Facility MOBLEY Initials WJ

NON-CONFIDENTIAL

MarkWest Liberty Midstream & Resources L.L.C.
Moble Gas Plant - Phase V

Summary of Potential Emissions

Criteria Pollutant Potential Emissions

Process/Facility	Potential Emissions (lb/hr)					
	NOx	CO	VOC	SO ₂	PM ¹	HAPs
Waukesha P939OGSI Compressor Engines (5) (Existing)	4.35	5.7	2.6	0.05	1.5	1.05
CAT 3616 Compressor Engines (2) (Existing)	10.44	2.88	5.26	0.04	0.7	1.76
Regeneration Heater H-741 (8.12 MMBtu/hr) (Existing)	0.43	0.33	0.04	0.00	0.05	0.01
Hot Medium Oil Heater H-781 (26.0 MMBtu/hr) (Existing)	2.31	1.94	0.13	0.01	0.18	0.04
Regeneration Heater H-1741 (6.84 MMBtu/hr) (Existing)	0.36	0.28	0.03	0.00	0.05	0.01
Hot Medium Oil Heater H-1781 (18.05 MMBtu/hr) (Existing)	1.61	1.35	0.09	0.01	0.12	0.03
Regeneration Heaters H-3741 and H-4741 (7.69 MMBtu/hr) (Existing)	0.82	0.63	0.08	0.01	0.11	0.03
Hot Medium Oil Heater H-3781 (16.07 MMBtu/hr) (Existing)	1.58	1.32	0.09	0.01	0.12	0.03
Regeneration Heaters H-5741 (7.69 MMBtu/hr) (New)	0.41	0.32	0.04	0.00	0.06	0.01
Regeneration Heater H-5781 (50.78 MMBtu/hr) (New)	3.30	2.03	0.61	0.03	0.41	0.09
Blowdowns	--	--	--	--	--	--
Process Flare (Existing)	0.90	4.81	--	0.00	0.00	--
Fugitives (Modified)	--	--	5.61	--	--	0.09
Rod Packing Emissions	--	--	0.09	--	--	0.00
Crankcase Emissions	0.44	0.26	0.24	0.00	0.07	0.08
Emergency Generator - G-1	0.41	0.43	0.41	0.11	0.00	0.00
Emergency Generator - G-2	0.33	0.50	0.17	0.00	0.01	0.01
Future Site-Wide Emissions (lb/hr)	27.69	22.78	15.48	0.29	3.37	3.27

¹ PM = PM₁₀ = PM_{2.5}

Process/Facility	Potential Emissions (tpy)					
	NOx	CO	VOC	SO ₂	PM ¹	HAPs
Waukesha P939OGSI Compressor Engines (5) (Existing)	19.15	24.95	11.45	0.2	6.55	4.6
CAT 3616 Compressor Engines (2) (Existing)	45.72	12.58	23.04	0.18	3.1	7.68
Regeneration Heater H-741 (8.12 MMBtu/hr) (Existing)	1.88	1.46	0.04	0.00	0.05	0.01
Hot Medium Oil Heater H-781 (26.0 MMBtu/hr) (Existing)	10.13	8.51	0.56	0.06	0.77	0.19
Regeneration Heater H-1741 (6.84 MMBtu/hr) (Existing)	1.59	1.23	0.15	0.02	0.20	0.05
Hot Medium Oil Heater H-1781 (18.05 MMBtu/hr) (Existing)	7.03	5.91	0.39	0.04	0.53	0.13
Regeneration Heaters H-3741 and H-4741 (7.69 MMBtu/hr) (Existing)	3.57	2.76	0.36	0.04	0.50	0.12
Hot Medium Oil Heater H-3781 (16.07 MMBtu/hr) (Existing)	6.90	5.80	0.38	0.04	0.52	0.13
Regeneration Heaters H-5741 (7.69 MMBtu/hr) (Existing)	1.79	1.38	0.18	0.02	0.25	0.06
Regeneration Heater H-5781 (50.78 MMBtu/hr) (New)	14.46	8.90	2.67	0.13	1.78	0.41
Blowdowns	--	--	8.07	--	--	0.10
Process Flare (Existing)	3.95	21.05	--	0.00	0.01	--
Fugitives (Modified)	--	--	24.57	--	--	0.40
Rod Packing Emissions	1.95	1.13	0.40	--	--	0.01
Crankcase Emissions	0.10	0.11	1.03	0.01	0.29	0.37
Emergency Generator - G-1	0.10	0.11	0.10	0.03	0.00	0.00
Emergency Generator - G-2	0.08	0.12	0.04	0.00	0.00	0.00
Future Site-Wide Emissions (lb/hr)	118.31	95.88	73.43	0.77	14.57	14.28

¹ PM = PM₁₀ = PM_{2.5}

Hazardous Air Pollutant Potential Emissions

Process/Facility	HAPs - Potential Emissions (lb/hr)									
	Acetaldehyde	Acrolein	Benzene	Ethylbenzene	Formaldehyde	Methanol	n-Hexane	Toluene	Xylenes	
Waukesha P939OGSI Compressor Engines (5) (Existing)	2.00E-01	2.00E-01	1.00E-01	5.00E-02	2.00E-01	2.50E-01	--	5.00E-02	5.00E-02	
CAT 3616 Compressor Engines (2) (Existing)	6.00E-01	3.60E-01	1.00E-02	2.00E-02	5.40E-01	1.80E-01	--	2.00E-02	2.00E-02	
Regeneration Heater H-741 (8.12 MMBtu/hr) (Existing)	--	--	1.52E-05	--	5.42E-04	--	--	2.46E-05	--	
Hot Medium Oil Heater H-781 (26.0 MMBtu/hr) (Existing)	--	--	4.86E-05	--	1.73E-03	--	1.30E-02	2.46E-05	--	
Regeneration Heater H-1741 (6.84 MMBtu/hr) (Existing)	--	--	1.28E-05	--	4.56E-04	--	4.16E-02	7.86E-05	--	
Hot Medium Oil Heater H-1781 (18.05 MMBtu/hr) (Existing)	--	--	3.37E-05	--	1.20E-03	--	1.10E-02	2.07E-05	--	
Regeneration Heaters H-3741 and H-4741 (7.69 MMBtu/hr) (Existing)	--	--	3.17E-05	--	1.13E-03	--	2.89E-02	5.46E-05	--	
Hot Medium Oil Heater H-3781 (16.07 MMBtu/hr) (Existing)	--	--	3.31E-05	--	1.18E-03	--	2.71E-02	5.13E-05	--	
Regeneration Heaters H-5741 (7.69 MMBtu/hr) (Existing)	--	--	1.58E-05	--	5.65E-04	--	2.84E-02	5.36E-05	--	
Regeneration Heater H-5781 (50.78 MMBtu/hr) (New)	--	--	1.05E-04	--	3.73E-03	--	1.36E-02	2.56E-05	--	
Blowdowns	--	--	--	--	--	--	8.96E-02	1.69E-04	--	
Process Flare (Existing)	--	--	--	--	--	--	--	--	--	
Fugitives (Modified)	--	--	--	--	--	--	--	--	--	
Rod Packing Emissions	--	--	--	--	--	--	--	--	--	
Crankcase Emissions	2.40E-02	1.68E-02	2.42E-05	0.00E+00	--	--	1.07E-03	2.85E-05	3.29E-05	
Emergency Generator - G-1	3.16E-04	3.81E-05	3.30E-03	2.10E-03	2.22E-02	1.29E-02	--	2.10E-03	2.10E-03	
Emergency Generator - G-2	4.98E-03	3.06E-03	3.85E-04	--	4.86E-04	--	--	1.69E-04	1.17E-04	
Future Site-Wide Emissions (lb/hr)	0.83	0.58	0.11	0.07	0.77	0.44	0.25	0.07	0.07	0.07

Hazardous Air Pollutant Potential Emissions

Process/Facility	HAPs - Potential Emissions (tpy)									
	Acetaldehyde	Acrolein	Benzene	Ethylbenzene	Formaldehyde	Methanol	n-Hexane	Toluene	Xylenes	
Waukesha P939OGSI Compressor Engines (5) (Existing)	9.50E-01	9.00E-01	5.50E-01	5.00E-02	9.50E-01	1.05E+00	--	2.00E-01	5.00E-02	
CAT 3616 Compressor Engines (2) (Existing)	2.60E+00	1.60E+00	1.40E-01	2.00E-02	2.38E+00	7.80E-01	--	1.20E-01	6.00E-02	
Regeneration Heater H-741 (8.12 MMBtu/hr) (Existing)	--	--	6.64E-05	--	2.37E-03	--	5.70E-02	1.08E-04	--	
Hot Medium Oil Heater H-781 (26.0 MMBtu/hr) (Existing)	--	--	2.13E-04	--	7.60E-03	--	1.82E-01	3.44E-04	--	
Regeneration Heater H-1741 (6.84 MMBtu/hr) (Existing)	--	--	5.60E-05	--	2.00E-03	--	4.80E-02	9.06E-05	--	
Hot Medium Oil Heater H-1781 (18.05 MMBtu/hr) (Existing)	--	--	1.48E-04	--	5.28E-03	--	1.27E-01	2.39E-04	--	
Regeneration Heaters H-3741 and H-4741 (7.69 MMBtu/hr) (Existing)	--	--	1.39E-04	--	4.95E-03	--	1.19E-01	2.25E-04	--	
Hot Medium Oil Heater H-3781 (16.07 MMBtu/hr) (Existing)	--	--	1.45E-04	--	5.18E-03	--	1.24E-01	2.35E-04	--	
Regeneration Heaters H-5741 (7.69 MMBtu/hr) (Existing)	--	--	6.93E-05	--	2.48E-03	--	5.94E-02	1.12E-04	--	
Regeneration Heater H-5781 (50.78 MMBtu/hr) (New)	--	--	4.58E-04	--	1.64E-02	--	3.93E-01	7.41E-04	--	
Blowdowns	--	--	--	--	--	--	--	--	--	
Process Flare (Existing)	--	--	--	--	--	--	--	--	--	
Fugitives (Modified)	--	--	--	--	--	--	--	--	--	
Rod Packing Emissions	--	--	--	--	--	--	--	--	--	
Crankcase Emissions	1.07E-01	7.50E-02	1.06E-04	0.00E+00	--	--	4.68E-03	1.25E-04	1.44E-04	
Emergency Generator - G-1	7.90E-05	9.53E-06	2.07E-02	2.10E-03	9.99E-02	5.49E-02	--	9.60E-03	3.30E-03	
Emergency Generator - G-2	1.24E-03	7.65E-04	9.61E-05	--	1.22E-04	--	--	4.21E-05	2.94E-05	
Future Site-Wide Emissions (tpy)	3.66	2.58	0.71	0.07	3.48	1.89	1.11	0.33	0.11	0.11

Greenhouse Gas Potential Emissions

Process/Facility	GHG CO ₂ e (tpy)
Waukesha P9390GSI Compressor Engines (5) (Existing)	43487.4
CAT 3616 Compressor Engines (2) (Existing)	39569.86
Regeneration Heater H-741 (8.12 MMBtu/hr) (Existing)	4577.03
Hot Medium Oil Heater H-781 (26.0 MMBtu/hr) (Existing)	14824.60
Regeneration Heater H-1741 (6.84 MMBtu/hr) (Existing)	3855.52
Hot Medium Oil Heater H-1781 (18.05 MMBtu/hr) (Existing)	10174.30
Regeneration Heaters H-3741 and H-4741 (7.69 MMBtu/hr) (Existing)	9553.98
Hot Medium Oil Heater H-3781 (16.07 MMBtu/hr) (Existing)	9982.61
Regeneration Heaters H-5741 (7.69 MMBtu/hr) (New)	4338.56
Regeneration Heater H-5781 (50.78 MMBtu/hr) (New)	28650.40
Process Flare (Existing)	741.55
Fugitives (Modified)	529.25
Rod Packing Emissions	36.87
Crankcase Emissions	2491.72
Emergency Generator - G-1	16.86
Emergency Generator - G-2	6.84
Future Site-Wide Emissions (lb/hr)	172837.34

**MarkWest Liberty Midstream and Resources, L.L.C.
Mobley Gas Plant**

Source Designation:	
Manufacturer:	
Operating Hours: (hr/yr)	8,760
Pilot + Purge Gas Heat Input (MMBtu/hr)	0.234
Pilot + Purge Gas Annual Fuel Use (mmscf/yr)	1.752
Pilot Fuel Consumption (mmscf/hr):	1.00E-04
Purge Fuel Consumption (mmscf/hr):	1.00E-04
Fuel HHV (Btu/scf)	1,168

Pollutant	AP-42 Emission Factor	
	Factor	Corrected Factor
	(lb/mmscf)^a	
NO _x	100	114.5
CO	84	96.2
SO ₂	0.6	0.7
PM Total	7.6	8.7
PM Condensable	5.7	6.5
PM ₁₀ (Filterable)	1.9	2.2
PM _{2.5} (Filterable)	1.9	2.2

^a Emission factors from AP-42 Section 1.4 "Natural Gas Combustion" Tables 1.4-1 corrected for site-specific gas heat content.

^b Emission Rate (lb/hr) = Rated Capacity (MMscf/hr) × Emission Factor (lb/MMscf).

^c Annual Emissions (tons/yr)_{Potential} = (lb/hr)_{Emissions} × (Maximum Allowable Operating Hours, 8760 hr/yr) × (1 ton/2000 lb).

Combustion of Hydrocarbons

Source Designation:	
Hourly Gas Flow (scf/hr)	10,611
Annual Gas Flow (mmscf/yr)	92.96
Heating value (btu/scf)	1,219.16
Maximum Heat Release of Flare (mmbtu/hr)	12.9
Maximum Heat Release of Flare (mmbtu/yr)	113,329
NO _x Emission Rate (lb/mmbtu)	0.068
CO Emission Rate (lb/mmbtu)	0.37

^a Emission factors from AP-42 Section 13.5 "Industrial Flares" Table 13.5-1

Total Emissions

Pollutant	lb/hr	tpy
NO _x	0.9026	3.9535
CO	4.8060	21.0501
SO ₂	0.0001	0.0006
PM Total	0.0017	0.0076
PM Condensable	0.0013	0.0057
PM ₁₀ (Filterable)	0.0004	0.0019
PM _{2.5} (Filterable)	0.0004	0.0019

MarkWest Liberty Midstream & Resources L.L.C.
 Mobley Gas Plant

Blowdowns

VOC and HAP Vented Blowdown Emissions

Blowdown Emissions Sources	Number of Units	Vented Gas Volume Per Blowdown Event (scf)	Number of Blowdown Events per year	Total Volume NG Emitted (scf/yr)	Flare Control Efficiency (%)	Potential VOC Emissions (tpy)	Potential HAP Emissions (tpy)	Potential CO ₂ Emissions (tpy)	Potential CH ₄ Emissions (tpy)	Potential CO ₂ (e) Emissions (tpy)
Engines	2	2,200	36	158,400	0	0.59	0.007	0.017	2.561	53.804
Engines	5	920	36	165,600	0	0.61	0.008	0.017	2.678	56.250
Plant Blowdowns	1	254,675	365	92,956,358	98	6.87	0.086	0.194	30.062	631.496
Total Compressor Blowdown Emissions						1.20	0.015	0.034	5.239	110.054
Total Plant Blowdown Emissions						6.87	0.086	0.194	30.062	631.496
Total						8.1	0.102	0.228	35.301	741.551

Density of natural gas: 0.05 lb/ft³ @ STP (www.engineeringtoolbox.com)

Attachment M
Air Pollution Control Device Sheet
 (FLARE SYSTEM)

Control Device ID No. (must match Emission Units Table):

Equipment Information

1. Manufacturer: Callidus Technologies Model No. Custom		2. Method: <input checked="" type="checkbox"/> Elevated flare <input type="checkbox"/> Ground flare <input type="checkbox"/> Other Describe	
3. Provide diagram(s) of unit describing capture system with duct arrangement and size of duct, air volume, capacity, horsepower of movers. If applicable, state hood face velocity and hood collection efficiency.			
4. Method of system used: <input type="checkbox"/> Steam-assisted <input checked="" type="checkbox"/> Air-assisted <input type="checkbox"/> Pressure-assisted <input type="checkbox"/> Non-assisted			
5. Maximum capacity of flare: 157,900 scf/min 9,474,015 scf/hr		6. Dimensions of stack: Diameter ft. Height 115 ft.	
7. Estimated combustion efficiency: (Waste gas destruction efficiency) Estimated: 98 % Minimum guaranteed: 98 %		8. Fuel used in burners: <input checked="" type="checkbox"/> Natural Gas <input type="checkbox"/> Fuel Oil, Number <input type="checkbox"/> Other, Specify:	
9. Number of burners: Rating: 10,061 (MM) BTU/hr		11. Describe method of controlling flame:	
10. Will preheat be used? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
12. Flare height: 115 ft		14. Natural gas flow rate to flare pilot flame per pilot light: 1.21 scf/min 72.77 scf/hr	
13. Flare tip inside diameter: ft			
15. Number of pilot lights: Total 5 @ 85,000 BTU/hr		16. Will automatic re-ignition be used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
17. If automatic re-ignition will be used, describe the method: The flare monitors the pilots via thermocouple. Should the thermocouple sense a loss of flame, the flame front generator panel will go to a re-light cycle and send a common trouble alarm to the plant DCS.			
18. Is pilot flame equipped with a monitor? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes, what type? <input checked="" type="checkbox"/> Thermocouple <input type="checkbox"/> Infra-Red <input type="checkbox"/> Ultra Violet <input type="checkbox"/> Camera with monitoring control room <input type="checkbox"/> Other, Describe:			
19. Hours of unit operation per year: 8,760 hours/yr			

Steam Injection

20. Will steam injection be used? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	21. Steam pressure Minimum Expected: _____ PSIG Design Maximum: _____
22. Total Steam flow rate: _____ LB/hr	23. Temperature: _____ °F
24. Velocity _____ ft/sec	25. Number of jet streams _____
26. Diameter of steam jets: _____ in	27. Design basis for steam injected: _____ LB steam/LB hydrocarbon
28. How will steam flow be controlled if steam injection is used?	

Characteristics of the Waste Gas Stream to be Burned

29.	Name	Quantity Grains of H ₂ S/100 ft ³	Quantity (LB/hr, ft ³ /hr, etc)	Source of Material
	Methane		Max 480,700 lb/hr	PSV-501
	Propane		Max 298,450 lb/hr	PSV-361
30. Estimate total combustible to flare: 480,700 LB/hr or ACF/hr (Maximum mass flow rate of waste gas) 157,900 scfm				
31. Estimated total flow rate to flare including materials to be burned, carrier gases, auxiliary fuel, etc.: 480,700 LB/hr or ACF/hr				
32. Give composition of carrier gases:				
33. Temperature of emission stream: _____ °F Heating value of emission stream: _____ BTU/ft ³ Mean molecular weight of emission stream: MW = 19.23 lb/lb-mole		34. Identify and describe all auxiliary fuels to be burned. N/A BTU/scf BTU/scf BTU/scf BTU/scf		
35. Temperature of flare gas: _____ °F		36. Flare gas flow rate: 157,900 scf/min		
37. Flare gas heat content: 1,062 BTU/ft ³		38. Flare gas exit velocity: _____ scf/min		
39. Maximum rate during emergency for one major piece of equipment or process unit: 157,900 scf/min				
40. Maximum rate during emergency for one major piece of equipment or process unit: 167 BTU/min				
41. Describe any air pollution control device inlet and outlet gas conditioning processes (e.g., gas cooling, gas reheating, gas humidification):				
42. Describe the collection material disposal system:				
43. Have you included Flare Control Device in the Emissions Points Data Summary Sheet?				

44. Proposed Monitoring, Recordkeeping, Reporting, and Testing

Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING:

Thermocouple monitors pilot

RECORDKEEPING:

None proposed

REPORTING:

As required

TESTING:

Not applicable

MONITORING:

Please list and describe the process parameters and ranges that are proposed to be monitored in order to demonstrate compliance with the operation of this process equipment or air control device.

RECORDKEEPING:

Please describe the proposed recordkeeping that will accompany the monitoring.

REPORTING:

Please describe any proposed emissions testing for this process equipment on air pollution control device.

TESTING:

Please describe any proposed emissions testing for this process equipment on air pollution control device.

45. Manufacturer's Guaranteed Capture Efficiency for each air pollutant.
98% VOC

46. Manufacturer's Guaranteed Control Efficiency for each air pollutant.
98% VOC

47. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty.

EMISSION POINTS DATA SUMMARY SHEET

Table 1: Emissions Data

Emission Point ID No. (Must match Emission Units Table & Plot Plan)	Emission Point Type ¹	Emission Unit Vented Through This Point (Must match Emission Units Table & Plot Plan)		Air Pollution Control Device (Must match Emission Units Table & Plot Plan)		Vent Time for Emission Unit (chemical processes only)		All Regulated Pollutants - Chemical Name/CAS ³ (Speciate VOCs & HAPS)	Maximum Potential Uncontrolled Emissions ⁴		Maximum Potential Controlled Emissions ⁵		Emission Form or Phase (At exit conditions, Solid, Liquid or Gas/Vapor)	Est. Method Used ⁶	Emission Concentration (ppmv or mg/m ³)
		ID No.	Source	ID No.	Device Type	Short Term ²	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr			
H-5781	Upward Vertical Stack	H-5781	H-5781	N/A	None	N/A	N/A	NOX CO VOC PM ₁₀ HAP SO ₂	3.30 2.03 0.61 0.41 0.09 0.03	14.46 8.90 2.67 1.78 0.41 0.13	3.30 2.03 0.61 0.41 0.09 0.03	14.46 8.90 2.67 1.78 0.41 0.13	Gas/Vapor	AP-42	--
FUG-004	FUG-004	N/A	None	N/A	None	N/A	N/A	VOC HAP	5.61 0.09	24.57 0.40	5.61 0.09	24.57 0.40	Gas/Vapor	EPA 453/ R-95-017	--
G-1	Upward Vertical Stack	G-1	G-1	N/A	None	N/A	N/A	NOX CO VOC PM ₁₀ HAP SO ₂	0.41 0.43 0.41 0.00 0.00 0.11	0.10 0.11 0.10 0.00 0.00 0.03	0.41 0.43 0.41 0.00 0.00 0.11	0.10 0.11 0.10 0.00 0.00 0.03	Gas/Vapor	AP-42	--

G-2	Upward Vertical Stack	G-2	N/A	None	N/A	N/A	NOx CO VOC PM ₁₀ HAP SO ₂	0.33 0.50 0.17 0.01 0.01 0.00	0.08 0.12 0.04 0.00 0.00 0.00	0.33 0.50 0.17 0.01 0.01 0.00	0.08 0.12 0.04 0.00 0.00 0.00	Gas/Vapor	AP-42	--
1B	Upward Vertical Stack	1B	N/A	None	N/A	N/A	VOC HAP	66.50 0.83	1.20 0.02	66.50 0.83	1.20 0.02	Gas/Vapor	Eng. Estimate	--
2B	Upward Vertical Stack	2B	FL-991	Flare	N/A	N/A	VOC HAP	78.41 0.99	343.4 4.32	1.57 0.02	6.87 0.09	Gas/Vapor	Eng. Estimate	--
RP	RP	N/A	N/A	None	N/A	N/A	VOC HAP	0.09 0.00	0.40 0.01	0.09 0.00	0.40 0.01	Gas/Vapor	40 CFR Part 98	--
CBB	CBB	N/A	N/A	None	N/A	N/A	NOx CO VOC PM ₁₀ HAP SO ₂	0.44 0.26 0.24 0.07 0.08 0.00	1.95 1.13 1.03 0.29 0.37 0.01	0.44 0.26 0.24 0.07 0.08 0.00	1.95 1.13 1.03 0.29 0.37 0.01	Gas/Vapor	Manufacturer Information	--
FL-991	FLARE	1B/2B	N/A	None	N/A	N/A	NOx CO PM ₁₀ SO ₂	0.90 4.81 0.00 0.00	3.95 21.05 0.01 0.00	0.90 4.81 0.00 0.00	3.95 21.05 0.01 0.00	Gas/Vapor	Manufacturer Information	--

The EMISSION POINTS DATA SUMMARY SHEET provides a summation of emissions by emission unit. Note that uncaptured process emission unit emissions are not typically considered to be fugitive and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET. Please note that total emissions from the

source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions). Please complete the FUGITIVE EMISSIONS DATA SUMMARY SHEET for fugitive emission activities.

- 1 Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.
- 2 Indicate by "C" if venting is continuous. Otherwise, specify the average short-term venting rate with units, for intermittent venting (ie., 15 min/hr). Indicate as many rates as needed to clarify frequency of venting (e.g., 5 min/day, 2 days/wk).
- 3 List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. LIST Acids, CO, CS₂, VOCs, H₂S, Inorganics, Lead, Organics, O₃, NO, NO₂, SO₂, SO₃, all applicable Greenhouse Gases (including CO₂ and methane), etc. DO NOT LIST H₂, H₂O, N₂, O₂, and Noble Gases.
- 4 Give maximum potential emission rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).
- 5 Give maximum potential emission rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).
- 6 Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).
- 7 Provide for all pollutant emissions. Typically, the units of parts per million by volume (ppmv) are used. If the emission is a mineral acid (sulfuric, nitric, hydrochloric or phosphoric) use units of milligram per dry cubic meter (mg/m³) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is SO₂, use units of ppmv (See 45CSR10).

Attachment J EMISSION POINTS DATA SUMMARY SHEET

Table 2: Release Parameter Data

Emission Point ID No. (Must match Emission Units Table)	Inner Diameter (ft.)	Exit Gas		Emission Point Elevation (ft)			UTM Coordinates (km)	
		Temp. (°F)	Volumetric Flow ¹ (acfm) at operating conditions	Velocity (fps)	Ground Level (Height above mean sea level)	Stack Height ² (Release height of emissions above ground level)	Northing	Easting
H-5781	~3.0	730	32,237	76	1235	20	4378315.20	538098.82
FUG-004	N/A	Ambient	N/A	N/A	1235	NA	4378315.20	538098.82
G-1	~1.0	550	1,000	1	1235	5	4378315.20	538098.82
G-2	~1.0	550	1,000	1	1235	5	4378315.20	538098.82
1B	N/A	Ambient	N/A	N/A	1235	NA	4378315.20	538098.82
2B	N/A	Ambient	N/A	N/A	1235	NA	4378315.20	538098.82

RP	N/A	Ambient	N/A	N/A	1235	NA	4378315.20	538098.82
CBB	N/A	Ambient	N/A	N/A	1235	NA	4378315.20	538098.82

¹ Give at operating conditions. Include inerts.

² Release height of emissions above ground level.



Williams, Jerry

From: Williams, Jerry
Sent: Tuesday, April 11, 2017 8:04 AM
To: 'lmeyer@markwest.com'; 'Wade Janecek'; 'Nathan Wheldon (NWheldon@markwest.com)'
Cc: McKeone, Beverly D
Subject: WV DAQ NSR Permit Application Complete for MarkWest - Mobley Gas Plant

**RE: Application Status: Complete
MarkWest - Mobley Gas Plant
Permit Application R13-2878E
Plant ID No. 103-00042**

Ms. Meyer,

Your application for a modification permit for a natural gas processing facility was received by this Division on February 28, 2017 and assigned to the writer for review. Upon review of said application, it was determined that the application was incomplete and additional information was requested. The requested information has been received, therefore, the statutory review period commenced on April 11, 2017.

In the case of this application, the agency believes it will take approximately 90 days to make a final permit determination.

This determination of completeness shall not relieve the permit applicant of the requirement to subsequently submit, in a timely manner, any additional or corrected information deemed necessary for a final permit determination.

Should you have any questions, please contact Jerry Williams at (304) 926-0499 ext. 1223 or reply to this email.

Jerry Williams, P.E.
Engineer
WVDEP – Division of Air Quality
601 57th Street, SE
Charleston, WV 25304
(304) 926-0499 ext. 1223
jerry.williams@wv.gov



 Please consider the environment before printing this email.

NON-CONFIDENTIAL

Williams, Jerry

From: Wade Janecek <Wade.Janecek@markwest.com>
Sent: Wednesday, April 5, 2017 10:48 AM
To: Williams, Jerry
Subject: RE: WV DAQ Permit Application Incomplete for MarkWest - Mobley Gas Plant
Attachments: Wetzel Chronicle Affidavit.PDF; Generac MMG45IF4 Spec Sheet.pdf

Jerry,

I've included responses to your requests below. Please feel free to let me know if you have any further questions or concerns.

1. Failure to publish Class I legal advertisement.
Please find the class 1 legal advertisement affidavit attached. Notice was published on March 29th 2017 in the Wetzel Chronicle.
2. Please provide GHG emission calculations for the flare.
GHG emissions from the flare have been accounted for under the plant blowdowns and are included in the site-wide totals most recently submitted.
3. Please indicate whether or not the emergency generators (G-1, G-2) possess an EPA Certificate of Conformity. If so, please submit the certificate.
Please find attached a manufacturer specification sheet for unit G-1 indicating the unit complies with EPA Tier 4 requirements. The second generator (G-2) is a natural gas fired unit.

Wade Janecek

Senior Environmental Engineer

MarkWest Energy Partners, L.P.

1515 Arapahoe Street | Tower 1 - Suite 1600 | Denver, CO 80202

Direct: (303) 542-1212 Ext. 1512 | Cell: (970) 270-5584

Email: Wade.Janecek@MarkWest.com

From: Williams, Jerry [mailto:Jerry.Williams@wv.gov]
Sent: Friday, March 24, 2017 6:03 AM
To: Leanne Meyer; Wade Janecek; Nathan Wheldon
Cc: McKeone, Beverly D
Subject: WV DAQ Permit Application Incomplete for MarkWest - Mobley Gas Plant

RE: Application Status: Incomplete
MarkWest - Mobley Gas Plant
Permit Application No. R13-2878E
Plant ID No. 103-00042

Ms. Meyer,

Your application for a modification permit for a natural gas processing facility was received by this Division on February 28, 2017 and assigned to the writer for review. Upon initial review of said application, it has been determined that the application as submitted is incomplete based on the following items:

1. Failure to publish Class I legal advertisement.

2. Please provide GHG emission calculations for the flare.
3. Please indicate whether or not the emergency generators (G-1, G-2) possess an EPA Certificate of Conformity. If so, please submit the certificate.

Please address the above deficiencies in writing within fifteen (15) days of the receipt of this email. Application review will not commence until the application has been deemed to be technically complete. Failure to respond to this request in a timely manner may result in the denial of the application.

Should you have any questions, please contact Jerry Williams at (304) 926-0499 ext. 1223 or reply to this email.

Jerry Williams, P.E.
Engineer
WVDEP – Division of Air Quality
601 57th Street, SE
Charleston, WV 25304
(304) 926-0499 ext. 1223
jerry.williams@wv.gov



 Please consider the environment before printing this email.

WETZEL CHRONICLE

AIR QUALITY PERMIT NOTICE Notice of Application

Notice is given that MarkWest Liberty Midstream & Resources L.L.C. has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, to modify a New Source Review (45 CSR 13) construction permit for a modification to a natural gas processing plant (Mobley Gas Plant) located at 14,624 North Fork Road, Smithfield, West Virginia, 26437. (Permit R13-2878D). The site is located at Latitude N 39° 33' 08" and Longitude W 80° 32' 26". The latitude and longitude coordinates in decimal degrees are 39.5522° N and 80.54056° W.

The modification will result in changes to the potential to emit of the following Regulated Air Pollutants as follows:

Nitrogen Oxides (NOx)	9.71 tons/yr
Carbon Monoxide (CO)	21.90 tons/yr
Volatile Organic Compounds (VOC)	28.24 tons/yr
Particulate Matter (PM)	-0.08 tons/yr
Sulfur Dioxide (SO2)	0.02 tons/yr
Total HAPs	-0.72 tons/yr

Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57th Street, SE, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice. Any questions regarding this permit application should be directed to the DAQ at (304) 926-0499, extension 1250, during normal business hours.

Dated the 28th of March 2017

By:
MarkWest Liberty Midstream & Resources L.L.C.
Leanne Meyer
VP of EH&S
1515 Arapahoe Street
Tower 1, Suite 1600
Denver, CO 80202-213
WC 3-29 13310

New Martinsville, WV March 29, 2017

State of West Virginia, County of Wetzel:

Personally appeared before the undersigned, a Notary Public,

Brian Clutter who, being duly sworn,

states that he is the manager of the Wetzel Chronicle, a weekly

newspaper of general circulation, published at New Martinsville,

county of Wetzel, State of West Virginia, and that a copy of the

notice attached hereto was published for 1 successive

weeks in the Wetzel Chronicle, beginning on the 29 day

March, 2017 and ending on the 29 day

March, 2017.

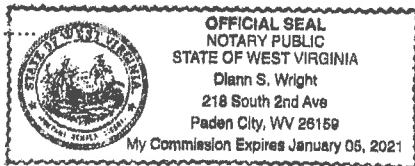
[Signature]
Manager, Wetzel Chronicle

Subscribed and sworn to before me, a Notary Public of said
County, on this 29 day of March, 2017.

[Signature] Notary Public

My commission expires on the 5th day of January, 2021.

Printers Fee.....



ENGINE

- Isuzu® 4LE2XAGV01 - turbocharged, aftercooled diesel engine
 - Prime – 57 hp, 42.8kWm @ 1800 rpm
 - Standby – 63.7 hp, 47.5 kWm @ 1800 rpm
 - 4 cylinder
 - 2.2 L displacement
 - EPA Final Tier 4 approved
 - **Engine and generator performance are dependent upon 70 hours of break in.*
- Polyethylene, single wall fuel tank
 - 100 gal. (378.5 L) capacity
 - 27 hr. run time – full load
 - Fuel tank built into skid of generator set
 - 120% Containment
- Cooling system capable of operating at 120°F (49°C) ambient
- Radiator and oil drains plumbed to exterior
- Rubber vibration dampers isolate engine/generator from frame
- Disposable air filter - paper element
- Air cleaner restriction indicator
- 60 Hz engine/generator
- Electronic isochronous governing
- Idle switch

GENERATOR

- Marathon Electric® SUPERSTART™
 - Brushless
 - 4 pole
 - Class H insulation
- Voltage regulation +/- 0.5% with Magnum PM600 Voltage Regulator

SYSTEM OUTPUTS

- 3 position selector switch
 - Single phase – 120 / 240V Zig Zag
 - Three phase – 120 / 208V Low Wye
 - Three phase – 277 / 480V High Wye
- 33 kW / 33 kVA – standby, single phase
- 30 kW / 30 kVA – prime, single phase
- 40 kW / 50 kVA – standby, three phase
- 36 kW / 45 kVA – prime, three phase

SYSTEM CONTROLS

- Power Zone® controller and display
 - Backlit, 800 x 480 pixel resolution color display
 - -40°F to 185°F (-40°C to 85°C) operating temperature range
 - Automatic coarse voltage adjustment
 - Integrated fine voltage adjustment
 - PLC functionality
- Push buttons for easy operation
 - Manual or Auto Start
 - Engine Start
 - Engine Stop/Reset
 - Alarm Mute
 - Operator Screens
 - Home
 - Engine
 - Generator
 - Voltage Adjust
 - Scrolling Arrows for Diagnostic Information
 - Engine diagnostic display
 - Oil pressure
 - Engine temperature
 - Fuel level
 - Battery
 - After treatment inlet/outlet temperature
 - Ash/soot levels
 - Generator diagnostic display
 - System kW output display
 - Line output & frequency display
 - Alarms
 - Warning
 - Shutdown
 - Electrical Trip
 - Engine
 - Alarm list – warnings / shutdowns; 250 event history log – date/time stamp
 - Fuel level: warning – 15%; shutdown – 5%
 - Over speed protection: shutdown – 115%
 - Oil pressure: warning – 25 psi; shutdown – 20 psi
 - Coolant temperature: warning – 220°F (104°C); shutdown – 230°F (110°C)
 - Battery voltage: over – 15VDC; under – 11VDC
 - Generator over voltage: warning – 110%; electrical trip – 111%
 - Generator under voltage: warning – 87%; electrical trip – 86%
 - Generator over frequency: warning – 105%; electrical trip – 110%
 - Generator under frequency: warning – 95%; electrical trip – 90%

SYSTEM CONTROLS (continued)

- Inputs/Outputs
- Auto Schedule
- Status
- Configuration of controller, firmware and connections

ELECTRICAL CONTROLS

- Remote start / stop contacts located in lug box
- Lockable control box door with diagnostics window
- Lockable lug box with safety switch
 - Trips main breaker when door is opened
 - Disables voltage regulator
- Output ground connection lug inside lug box
- 225A main breaker with shunt trip
- Convenience receptacles with individual breakers (restricted use in high wye mode)
 - (2) 120V 20 Amp GFCI duplex outlets – (NEMA 5-20R type)
 - (3) 125 / 250V 50 Amp, 3 pole, 4 wire Twistlock (Non-NEMA 6369)
- Voltage adjustment integrated into Power Zone controller, +/- 10%
- 720 CCA wet cell battery
- Battery disconnect
- Panel lighting for breakers, lugs, and selector switch

ENCLOSURE

- Aluminum, sound attenuated enclosure
 - UV & fade resistant, high temperature cured, white polyester powder paint
 - Insulated and baffled
 - 65 dB(A) at 23 ft. (7 m) – prime power
- Fully lockable enclosure including doors and fuel fill
- Emergency stop switch located on outside of enclosure
- Central lifting point
- Multi-lingual operating/safety decals
- Document holder with operating manual including AC/DC wiring diagrams
- Interior Cabinet lighting

TRAILER

- DOT approved tail, side, brake, and directional lights - LED
- Transportation tie downs
- Safety chains with spring loaded safety hooks
- 2 in. (50.8 mm) ball hitch
- 5000 lb. (2268 kg) axle
- 2000 lb. (907 kg) tongue jack with footplate
- P225/75 R15 tubeless tires – 6 ply

WEIGHT & DIMENSIONS

- Skid mounted
 - Dry weight: 2843 lbs (1290 kg)
 - Operating weight: 3580 lbs (1624 kg)
 - 95 x 39 x 65 in (2.41 x 0.99 x 1.65 m)
- Trailer mounted
 - Dry weight: 3363 lbs (1525 kg)
 - Operating weight: 4100 lbs (1860 kg)
 - 152 x 58 x 83 in (3.81 x 1.45 x 2.11 m)

WARRANTY

2 Years / 2000 Hours

CERTIFICATIONS

CSA Certified

Williams, Jerry

From: Williams, Jerry
Sent: Friday, March 24, 2017 8:03 AM
To: 'Imeyer@markwest.com'; 'Wade Janecek'; 'Nathan Wheldon (NWheldon@markwest.com)'
Cc: McKeone, Beverly D
Subject: WV DAQ Permit Application Incomplete for MarkWest - Mobley Gas Plant

**RE: Application Status: Incomplete
MarkWest - Mobley Gas Plant
Permit Application No. R13-2878E
Plant ID No. 103-00042**

Ms. Meyer,

Your application for a modification permit for a natural gas processing facility was received by this Division on February 28, 2017 and assigned to the writer for review. Upon initial review of said application, it has been determined that the application as submitted is incomplete based on the following items:

1. Failure to publish Class I legal advertisement.
2. Please provide GHG emission calculations for the flare.
3. Please indicate whether or not the emergency generators (G-1, G-2) possess an EPA Certificate of Conformity. If so, please submit the certificate.

Please address the above deficiencies in writing within fifteen (15) days of the receipt of this email. Application review will not commence until the application has been deemed to be technically complete. Failure to respond to this request in a timely manner may result in the denial of the application.

Should you have any questions, please contact Jerry Williams at (304) 926-0499 ext. 1223 or reply to this email.

Jerry Williams, P.E.
Engineer
WVDEP – Division of Air Quality
601 57th Street, SE
Charleston, WV 25304
(304) 926-0499 ext. 1223
jerry.williams@wv.gov



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Williams, Jerry

From: Wade Janecek <Wade.Janecek@markwest.com>
Sent: Thursday, March 23, 2017 6:13 PM
To: Williams, Jerry
Subject: Mobley Updates
Attachments: Emissions Summary.pdf; Flare Emissions.pdf; Attachment I.pdf; Attachment J.pdf

Jerry,

As a follow-up to the voicemail I left you I've attached documentation to update emissions from the flare at Mobley with this action. Please let me know if I'm missing anything or if you have any questions. I submitted the legal notice to the Wetzel Chronicle and it should run next week. I'll send the legal affidavit when I get it. Thanks for all the help.

Wade Janecek

Senior Environmental Engineer

MarkWest Energy Partners, L.P.

1515 Arapahoe Street | Tower 1 - Suite 1600 | Denver, CO 80202

Direct: (303) 542-1212 Ext. 1512 | Cell: (970) 270-5584

Email: Wade.Janecek@MarkWest.com

ID # 103-02042
Reg 1213-2878E
Company MARKWEST
Facility MOBLEY Initials WJ

NON-CONFIDENTIAL

MarkWest Liberty Midstream & Resources L.L.C.
Mobley Gas Plant - Phase V

Summary of Potential Emissions

Criteria Pollutant Potential Emissions

Process/Facility	Potential Emissions (lb/hr)						
	NOx	CO	VOC	SO ₂	PM ¹	HAPs	
Waukesha P939OGSI Compressor Engines (5) (Existing)	4.35	5.7	2.6	0.05	1.5	1.05	
CAT 3616 Compressor Engines (2) (Existing)	10.44	2.88	5.26	0.04	0.7	1.76	
Regeneration Heater H-741 (8.12 MMBtu/hr) (Existing)	0.43	0.33	0.04	0.00	0.05	0.01	
Hot Medium Oil Heater H-781 (26.0 MMBtu/hr) (Existing)	2.31	1.94	0.13	0.01	0.18	0.04	
Regeneration Heater H-1741 (6.84 MMBtu/hr) (Existing)	0.36	0.28	0.03	0.00	0.05	0.01	
Hot Medium Oil Heater H-1781 (18.05 MMBtu/hr) (Existing)	1.61	1.35	0.09	0.01	0.12	0.03	
Regeneration Heaters H-3741 and H-4741 (7.69 MMBtu/hr) (Existing)	0.82	0.63	0.08	0.01	0.11	0.03	
Hot Medium Oil Heater H-3781 (16.07 MMBtu/hr) (Existing)	1.58	1.32	0.09	0.01	0.12	0.03	
Regeneration Heaters H-5741 (7.69 MMBtu/hr) (New)	0.41	0.32	0.04	0.00	0.06	0.01	
Regeneration Heater H-5781 (50.78 MMBtu/hr) (New)	3.30	2.03	0.61	0.03	0.41	0.09	
Blowdowns	--	--	--	--	--	--	
Process Flare (Existing)	0.90	4.81	--	0.00	0.00	--	
Fugitives (Modified)	--	--	5.61	--	--	--	
Rod Packing Emissions	--	--	0.09	--	--	0.09	
Crankcase Emissions	0.44	0.26	0.24	0.00	0.07	0.08	
Emergency Generator - G-1	0.41	0.43	0.41	0.11	0.00	0.00	
Emergency Generator - G-2	0.33	0.50	0.17	0.00	0.01	0.01	
Future Site-Wide Emissions (lb/hr)	27.69	22.78	15.48	0.29	3.37	3.27	

¹ PM = PM₁₀ = PM_{2.5}

Process/Facility	Potential Emissions (tpy)						
	NOx	CO	VOC	SO ₂	PM ¹	HAPs	
Waukesha P939OGSI Compressor Engines (5) (Existing)	19.15	24.95	11.45	0.2	6.55	4.6	
CAT 3616 Compressor Engines (2) (Existing)	45.72	12.58	23.04	0.18	3.1	7.68	
Regeneration Heater H-741 (8.12 MMBtu/hr) (Existing)	1.88	1.46	0.04	0.00	0.05	0.01	
Hot Medium Oil Heater H-781 (26.0 MMBtu/hr) (Existing)	10.13	8.51	0.56	0.06	0.77	0.19	
Regeneration Heater H-1741 (6.84 MMBtu/hr) (Existing)	1.59	1.23	0.15	0.02	0.20	0.05	
Hot Medium Oil Heater H-1781 (18.05 MMBtu/hr) (Existing)	7.03	5.91	0.39	0.04	0.53	0.13	
Regeneration Heaters H-3741 and H-4741 (7.69 MMBtu/hr) (Existing)	3.57	2.76	0.36	0.04	0.50	0.12	
Hot Medium Oil Heater H-3781 (16.07 MMBtu/hr) (Existing)	6.90	5.80	0.38	0.04	0.52	0.13	
Regeneration Heaters H-5741 (7.69 MMBtu/hr) (Existing)	1.79	1.38	0.18	0.02	0.25	0.06	
Regeneration Heater H-5781 (50.78 MMBtu/hr) (New)	14.46	8.90	2.67	0.13	1.78	0.41	
Blowdowns	--	--	9.01	--	--	0.11	
Process Flare (Existing)	3.95	21.05	--	0.00	0.01	--	
Fugitives (Modified)	--	--	24.57	--	--	0.40	
Rod Packing Emissions	--	--	0.40	--	--	0.01	
Crankcase Emissions	1.95	1.13	1.03	0.01	0.29	0.37	
Emergency Generator - G-1	0.10	0.11	0.10	0.03	0.00	0.00	
Emergency Generator - G-2	0.08	0.12	0.04	0.00	0.00	0.00	
Future Site-Wide Emissions (lb/hr)	118.31	95.88	74.38	0.77	14.57	14.29	

¹ PM = PM₁₀ = PM_{2.5}

Hazardous Air Pollutant Potential Emissions

Process/Facility	HAPs - Potential Emissions (lb/hr)									
	Acetaldehyde	Acrolein	Benzene	Ethylbenzene	Formaldehyde	Methanol	n-Hexane	Toluene	Xylenes	
Waukesha P939OGSI Compressor Engines (5) (Existing)	2.00E-01	2.00E-01	1.00E-01	5.00E-02	2.00E-01	2.50E-01	--	5.00E-02	5.00E-02	
CAT 3616 Compressor Engines (2) (Existing)	6.00E-01	3.60E-01	1.00E-02	2.00E-02	5.42E-04	1.80E-01	--	2.00E-02	2.00E-02	
Regeneration Heater H-741 (8.12 MMBtu/hr) (Existing)	--	--	1.52E-05	--	5.42E-04	--	1.30E-02	2.46E-05	--	
Hot Medium Oil Heater H-781 (26.0 MMBtu/hr) (Existing)	--	--	4.86E-05	--	1.73E-03	--	4.16E-02	7.86E-05	--	
Regeneration Heater H-1741 (6.84 MMBtu/hr) (Existing)	--	--	1.28E-05	--	4.56E-04	--	1.10E-02	2.07E-05	--	
Hot Medium Oil Heater H-1781 (18.05 MMBtu/hr) (Existing)	--	--	3.37E-05	--	1.20E-03	--	2.89E-02	5.46E-05	--	
Regeneration Heaters H-3741 and H-4741 (7.69 MMBtu/hr) (Existing)	--	--	3.17E-05	--	1.13E-03	--	2.71E-02	5.13E-05	--	
Hot Medium Oil Heater H-3781 (16.07 MMBtu/hr) (Existing)	--	--	3.31E-05	--	1.18E-03	--	2.84E-02	5.36E-05	--	
Regeneration Heaters H-5741 (7.69 MMBtu/hr) (New)	--	--	1.58E-05	--	5.65E-04	--	1.36E-02	2.56E-05	--	
Regeneration Heater H-5781 (50.78 MMBtu/hr) (New)	--	--	1.05E-04	--	3.73E-03	--	8.96E-02	1.69E-04	--	
Blowdowns	--	--	--	--	--	--	--	--	--	
Process Flare (Existing)	--	--	--	--	--	--	--	--	--	
Fugitives (Modified)	--	--	--	--	--	--	--	--	--	
Rod Packing Emissions	--	--	--	--	--	--	--	--	--	
Crankcase Emissions	--	--	--	--	--	--	--	--	--	
Emergency Generator - G-1	2.40E-02	1.68E-02	2.42E-05	0.00E+00	2.22E-02	1.29E-02	1.07E-03	2.85E-05	3.29E-05	
Emergency Generator - G-2	3.16E-04	3.81E-05	3.30E-03	2.10E-03	4.86E-04	--	--	2.10E-03	2.10E-03	
Emergency Generator - G-2	4.98E-03	3.06E-03	2.62E-04	2.36E-05	1.52E-03	1.49E-03	--	1.69E-04	1.17E-04	
Future Site-Wide Emissions (lb/hr)	0.83	0.58	0.11	0.07	0.77	0.44	0.25	0.07	1.10E-04	0.07

Process/Facility	HAPs - Potential Emissions (tpy)									
	Acetaldehyde	Acrolein	Benzene	Ethylbenzene	Formaldehyde	Methanol	n-Hexane	Toluene	Xylenes	
Waukesha P939OGSI Compressor Engines (5) (Existing)	9.50E-01	9.00E-01	5.50E-01	5.00E-02	9.50E-01	1.05E+00	--	2.00E-01	5.00E-02	
CAT 3616 Compressor Engines (2) (Existing)	2.60E+00	1.60E+00	1.40E-01	2.00E-02	2.38E+00	7.80E-01	--	1.20E-01	6.00E-02	
Regeneration Heater H-741 (8.12 MMBtu/hr) (Existing)	--	--	6.64E-05	--	2.37E-03	--	5.70E-02	1.08E-04	--	
Hot Medium Oil Heater H-781 (26.0 MMBtu/hr) (Existing)	--	--	2.13E-04	--	7.60E-03	--	1.82E-01	3.44E-04	--	
Regeneration Heater H-1741 (6.84 MMBtu/hr) (Existing)	--	--	5.60E-05	--	2.00E-03	--	4.80E-02	9.06E-05	--	
Hot Medium Oil Heater H-1781 (18.05 MMBtu/hr) (Existing)	--	--	1.48E-04	--	5.28E-03	--	1.27E-01	2.39E-04	--	
Regeneration Heaters H-3741 and H-4741 (7.69 MMBtu/hr) (Existing)	--	--	1.39E-04	--	4.95E-03	--	1.19E-01	2.25E-04	--	
Hot Medium Oil Heater H-3781 (16.07 MMBtu/hr) (Existing)	--	--	1.45E-04	--	5.18E-03	--	1.24E-01	2.35E-04	--	
Regeneration Heaters H-5741 (7.69 MMBtu/hr) (Existing)	--	--	6.93E-05	--	2.48E-03	--	5.94E-02	1.12E-04	--	
Regeneration Heater H-5781 (50.78 MMBtu/hr) (New)	--	--	4.58E-04	--	1.64E-02	--	3.93E-01	7.41E-04	--	
Blowdowns	--	--	--	--	--	--	--	--	--	
Process Flare (Existing)	--	--	--	--	--	--	--	--	--	
Fugitives (Modified)	--	--	--	--	--	--	--	--	--	
Rod Packing Emissions	--	--	--	--	--	--	--	--	--	
Crankcase Emissions	--	--	--	--	--	--	--	--	--	
Emergency Generator - G-1	1.07E-01	7.50E-02	1.06E-04	0.00E+00	9.99E-02	5.49E-02	4.68E-03	1.25E-04	1.44E-04	
Emergency Generator - G-2	7.90E-05	9.53E-06	2.07E-02	2.10E-03	1.22E-04	--	--	9.60E-03	3.30E-03	
Emergency Generator - G-2	1.24E-03	7.65E-04	6.55E-05	5.91E-06	3.80E-04	3.72E-04	--	4.21E-05	2.94E-05	
Future Site-Wide Emissions (tpy)	3.66	2.58	0.71	0.07	3.48	1.89	1.11	0.33	0.11	0.07

Greenhouse Gas Potential Emissions

Process/Facility	GHG	
	CO ₂ e (tpy)	
Waukesha P939OGSI Compressor Engines (5) (Existing)	43487.4	
CAT 3616 Compressor Engines (2) (Existing)	39569.86	
Regeneration Heater H-741 (8.12 MMBtu/hr) (Existing)	4577.03	
Hot Medium Oil Heater H-781 (26.0 MMBtu/hr) (Existing)	14824.60	
Regeneration Heater H-1741 (6.84 MMBtu/hr) (Existing)	3855.52	
Hot Medium Oil Heater H-1781 (18.05 MMBtu/hr) (Existing)	10174.30	
Regeneration Heaters H-3741 and H-4741 (7.69 MMBtu/hr) (Existing)	9553.98	
Hot Medium Oil Heater H-3781 (16.07 MMBtu/hr) (Existing)	9982.61	
Regeneration Heaters H-5741 (7.69 MMBtu/hr) (New)	4338.56	
Regeneration Heater H-5781 (50.78 MMBtu/hr) (New)	28650.40	
Process Flare (Existing)	828.75	
Fugitives (Modified)	529.25	
Rod Packing Emissions	36.87	
Crankcase Emissions	2491.72	
Emergency Generator - G-1	16.86	
Emergency Generator - G-2	6.84	
Future Site-Wide Emissions (lb/hr)	172924.54	

**MarkWest Liberty Midstream and Resources, L.L.C.
Mobley Gas Plant**

Source Designation:	
Manufacturer:	
Operating Hours: (hr/yr)	8,760
Pilot + Purge Gas Heat Input (MMBtu/hr)	0.234
Pilot + Purge Gas Annual Fuel Use (mmscf/yr)	1.752
Pilot Fuel Consumption (mmscf/hr):	1.00E-04
Purge Fuel Consumption (mmscf/hr):	1.00E-04
Fuel HHV (Btu/scf)	1,168

Pollutant	AP-42 Emission Factor	
	Factor	Corrected Factor
	(lb/mmscf)^a	
NO _x	100	114.5
CO	84	96.2
SO ₂	0.6	0.7
PM Total	7.6	8.7
PM Condensable	5.7	6.5
PM ₁₀ (Filterable)	1.9	2.2
PM _{2.5} (Filterable)	1.9	2.2

^a Emission factors from AP-42 Section 1.4 "Natural Gas Combustion" Tables 1.4-1 corrected for site-specific gas heat content.

^b Emission Rate (lb/hr) = Rated Capacity (MMscf/hr) × Emission Factor (lb/MMscf).

^c Annual Emissions (tons/yr)_{Potential} = (lb/hr)_{Emissions} × (Maximum Allowable Operating Hours, 8760 hr/yr) × (1 ton/2000 lb).

Combustion of Hydrocarbons

Source Designation:	
Hourly Gas Flow (scf/hr)	10,611
Annual Gas Flow (mmscf/yr)	92.96
Heating value (btu/scf)	1,219.16
Maximum Heat Release of Flare (mmbtu/hr)	12.9
Maximum Heat Release of Flare (mmbtu/yr)	113,329
NO _x Emission Rate (lb/mmbtu)	0.068
CO Emission Rate (lb/mmbtu)	0.37

^a Emission factors from AP-42 Section 13.5 "Industrial Flares" Table 13.5-1

Total Emissions

Pollutant	lb/hr	tpy
NO _x	0.9026	3.9535
CO	4.8060	21.0501
SO ₂	0.0001	0.0006
PM Total	0.0017	0.0076
PM Condensable	0.0013	0.0057
PM ₁₀ (Filterable)	0.0004	0.0019
PM _{2.5} (Filterable)	0.0004	0.0019

Attachment I
Emission Units Table
(includes all emission units and air pollution control devices
that will be part of this permit application review, regardless of permitting status)

Emission Unit ID ¹	Emission Point ID ²	Emission Unit Description	Year Installed/ Modified	Design Capacity	Type ³ and Date of Change	Control Device ⁴
CM-1001	CM-1001	Waukesha P9390 GSI Engine	2012	1,980-hp	Existing	NSCR
CM-1003	CM-1003	Waukesha P9390 GSI Engine	2012	1,980-hp	Existing	NSCR
CM-1004	CM-1004	Waukesha P9390 GSI Engine	2012	1,980-hp	Existing	NSCR
CM-1005	CM-1005	Waukesha P9390 GSI Engine	2012	1,980-hp	Existing	NSCR
CM-1006	CM-1006	Waukesha P9390 GSI Engine	2012	1,980-hp	Existing	NSCR
C-102	C-102	Caterpillar G3616 LE Engine	2012	4,735-hp	Existing	Oxid. Cat.
C-103	C-103	Caterpillar G3616 LE Engine	2012	4,735-hp	Existing	Oxid. Cat.
G-1	G-1	Generac MMG45 Generator	2012	53 hp	New	None
G-2	G-2	Kohler 40ERES Generator	2012	75 hp	New	None
H-741	H-741	Regeneration Gas Heater	2012	6.84 mmBtu/hr	Existing	None
H-781	H-781	Heat Medium Oil Heater	2012	18.05 mmBtu/hr	Existing	None
H-1741	H-1741	Regeneration Gas Heater	2012	8.12 mmBtu/hr	Existing	None
H-1781	H-1781	Heat Medium Oil Heater	2012	26.0 mmBtu/hr	Existing	None
FL-991	FL-991	Process Flare	2012	10,611 scf/hr	Modification	None
H-3741	H-3741	Regeneration Gas Heater	2013	7.69 mmBtu/hr	Existing	None
H-4741	H-4741	Regeneration Gas Heater	2014	7.69 mmBtu/hr	Existing	None
H-3781	H-3781	Heat Medium Oil Heater	2013	16.07 mmBtu/hr	Existing	None
H-5741	H-5741	Regeneration Gas Heater	2015	7.69 mmBtu/hr	Existing	None
H-5781	H-5781	Heat Medium Oil Heater	2015	50.78 mmBtu/hr	Modification	None

TK-087	TK-087	520 gal Methanol Tank	2012	520 gal	New	None
TK-2609	TK-2609	520 gal Methanol Tank	2012	520 gal	New	None
TK-3410	TK-3410	520 gal Methanol Tank	2012	520 gal	New	None
TK-3829	TK-3829	520 gal Methanol Tank	2012	520 gal	New	None
TK-4220	TK-4220	520 gal Methanol Tank	2012	520 gal	New	None
TK-4410	TK-4410	520 gal Methanol Tank	2012	520 gal	New	None
TK-1824	TK-1824	4,265 gal Closed Drain Tank	2012	4,265 gal	New	None
TK-4824	TK-4824	4,533 gal Closed Drain Tank	2012	4,533 gal	New	None
FUG-004	FUG-004	Fugitive Equipment Leaks	Proposed	N/A	Modification	None
1B	1B	Compressor Blowdowns	2012	N/A	Modification	None
2B	2B	Facility Blowdowns	2012	N/A	Modification	None
RP	RP	Rod Packing Emissions	2012	N/A	Modification	None
CBB	CBB	Crankcase Blowby Emissions	2012	N/A	Modification	None

¹ For Emission Units (or Sources) use the following numbering system: 1S, 2S, 3S,... or other appropriate designation.

² For Emission Points use the following numbering system: 1E, 2E, 3E, ... or other appropriate designation.

³ New, modification, removal

⁴ For Control Devices use the following numbering system: 1C, 2C, 3C,... or other appropriate designation.

EMISSION POINTS DATA SUMMARY SHEET

Table 1: Emissions Data															
Emission Point ID No. (Must match Emission Units Table & Plot Plan)	Emission Point Type ¹	Emission Unit Vented Through This Point (Must match Emission Units Table & Plot Plan)		Air Pollution Control Device (Must match Emission Units Table & Plot Plan)		Vent Time for Emission Unit (chemical processes only)		All Regulated Pollutants - Chemical Name/CAS ³ (Speciate VOCs & HAPS)	Maximum Potential Uncontrolled Emissions ⁴		Maximum Potential Controlled Emissions ⁵		Emission Form or Phase (At exit conditions, Solid, Liquid or Gas/Vapor)	Est. Method Used ⁶	Emission Concentration (ppmv or mg/m ⁴)
		ID No.	Source	ID No.	Device Type	Short Term ²	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr			
H-5781	Upward Vertical Stack	H-5781	H-5781	N/A	None	N/A	N/A	NOX CO VOC PM ₁₀ HAP SO ₂	3.30 2.03 0.61 0.41 0.09 0.03	14.46 8.90 2.67 1.78 0.41 0.13	3.30 2.03 0.61 0.41 0.09 0.03	14.46 8.90 2.67 1.78 0.41 0.13	Gas/Vapor	AP-42	--
FUG-004	FUG-004	N/A	None	N/A	None	N/A	N/A	VOC HAP	5.61 0.09	24.57 0.40	15.91 0.26	69.69 1.15	Gas/Vapor	EPA 453/ R-95-017	--
G-1	Upward Vertical Stack	G-1	G-1	N/A	None	N/A	N/A	NOx CO VOC PM ₁₀ HAP SO ₂	0.41 0.43 0.41 0.00 0.00 0.11	0.10 0.11 0.10 0.00 0.00 0.03	0.41 0.43 0.41 0.00 0.00 0.11	0.10 0.11 0.10 0.00 0.00 0.03	Gas/Vapor	AP-42	--

G-2	Upward Vertical Stack	G-2	G-2	N/A	None	N/A	N/A	N/A	NOx CO VOC PM ₁₀ HAP SO ₂	0.33 0.50 0.17 0.01 0.01 0.00	0.08 0.12 0.04 0.00 0.00 0.00	0.33 0.50 0.17 0.01 0.01 0.00	0.08 0.12 0.04 0.00 0.00 0.00	Gas/Vapor	AP-42	--
1B	Upward Vertical Stack	1B	1B	N/A	None	N/A	N/A	N/A	VOC HAP	66.50 0.83	1.20 0.02	66.50 0.83	1.20 0.02	Gas/Vapor	Eng. Estimate	--
2B	Upward Vertical Stack	2B	2B	FL-991	Flare	N/A	N/A	N/A	VOC HAP	89.23 1.12	390.9 4.92	1.79 0.02	7.82 0.10	Gas/Vapor	Eng. Estimate	--
RP	RP	N/A	None	N/A	None	N/A	N/A	N/A	VOC HAP	0.09 0.00	0.40 0.01	0.09 0.00	0.40 0.01	Gas/Vapor	40 CFR Part 98	--
CBB	CBB	N/A	None	N/A	None	N/A	N/A	N/A	NOx CO VOC PM ₁₀ HAP SO ₂	0.44 0.26 0.24 0.07 0.08 0.00	1.95 1.13 1.03 0.29 0.37 0.01	0.44 0.26 0.24 0.07 0.08 0.00	1.95 1.13 1.03 0.29 0.37 0.01	Gas/Vapor	Manufacturer Information	--
FL-991	FLARE	1B/2B	1B/2B	N/A	None	N/A	N/A	N/A	NOx CO PM ₁₀ SO ₂	0.90 4.81 0.00 0.00	3.95 21.05 0.01 0.00	0.90 4.81 0.00 0.00	3.95 21.05 0.01 0.00	Gas/Vapor	Manufacturer Information	--

The EMISSION POINTS DATA SUMMARY SHEET provides a summation of emissions by emission unit. Note that uncaptured process emission unit emissions are not typically considered to be fugitive and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET. Please note that total emissions from the

source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions). Please complete the FUGITIVE EMISSIONS DATA SUMMARY SHEET for fugitive emission activities.

- 1 Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.
- 2 Indicate by "C" if venting is continuous. Otherwise, specify the average short-term venting rate with units, for intermittent venting (ie., 15 min/hr). Indicate as many rates as needed to clarify frequency of venting (e.g., 5 min/day, 2 days/wk).
- 3 List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. **LIST** Acids, CO, CS₂, VOCs, H₂S, Inorganics, Lead, Organics, O₃, NO, NO₂, SO₂, SO₃, all applicable Greenhouse Gases (including CO₂ and methane), etc. **DO NOT LIST** H₂, H₂O, N₂, O₂, and Noble Gases.
- 4 Give maximum potential emission rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).
- 5 Give maximum potential emission rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).
- 6 Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).
- 7 Provide for all pollutant emissions. Typically, the units of parts per million by volume (ppmv) are used. If the emission is a mineral acid (sulfuric, nitric, hydrochloric or phosphoric) use units of milligram per dry cubic meter (mg/m³) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is SO₂, use units of ppmv (See 45CSR10).

Attachment J EMISSION POINTS DATA SUMMARY SHEET

Table 2: Release Parameter Data

Emission Point ID No. (Must match Emission Units Table)	Inner Diameter (ft.)	Temp. (°F)	Exit Gas		Emission Point Elevation (ft)			UTM Coordinates (km)	
			Volumetric Flow ¹ (acfm) at operating conditions	Velocity (fps)	Ground Level (Height above mean sea level)	Stack Height ² (Release height of emissions above ground level)	Northing	Easting	
H-5781	~3.0	730	32,237	76	1235	20		4378315.20	538098.82
FUG-004	N/A	Ambient	N/A	N/A	1235	NA		4378315.20	538098.82
G-1	~1.0	550	1,000	1	1235	5		4378315.20	538098.82
G-2	~1.0	550	1,000	1	1235	5		4378315.20	538098.82
IB	N/A	Ambient	N/A	N/A	1235	NA		4378315.20	538098.82
2B	N/A	Ambient	N/A	N/A	1235	NA		4378315.20	538098.82

RP	N/A	Ambient	N/A	N/A	1235	NA	4378315.20	538098.82
CBB	N/A	Ambient	N/A	N/A	1235	NA	4378315.20	538098.82

¹ Give at operating conditions. Include inerts.

² Release height of emissions above ground level.

Williams, Jerry

From: Ward, Beth A
Sent: Friday, March 3, 2017 2:46 PM
To: Williams, Jerry
Subject: MARKWEST LIBERTY MIDSTREAM & RESOURCES LLC PERMIT APPLICATION FEE

This is the receipt for payment received from:

MARKWEST LIBERTY MIDSTREAM & RESOURCES LLC, MOBLEY GAS PLANT, CK# 043077, CK DATE 02/23/2017, \$2,000.00
R13-2878E ID 103-00042

OASIS Deposit CR 1700095479

Thank You!

Beth Ward

**WV DEPARTMENT OF ENVIRONMENTAL PROTECTION
BTO FISCAL
601 57TH STREET SE
CHARLESTON, WV 25304
(304) 926-0499 EXT 1846
beth.a.ward@wv.gov**

NON-CONFIDENTIAL

Adkins, Sandra K

From: Adkins, Sandra K
Sent: Thursday, March 2, 2017 10:40 AM
To: 'lmeyer@markwest.com'; 'nwheldon@markwest.com'; 'wade.janecek@markwest.com'
Cc: McKeone, Beverly D; Williams, Jerry
Subject: WV DAQ Permit Application Status for MarkWest Liberty Midstream & Resources LLC; Mobley Gas Plant

DO NOT include copies of checks in electronic and/or paper submittals. Please be aware submitted documents (paper and electronic) are publicly available once received by our office.

**RE: Application Status
MarkWest Liberty Midstream & Resources LLC
Mobley Gas Plant
Facility ID No. 103-00042
Application No. R13-2878E**

Ms. Meyer,

Your application for a modification permit for the Mobley Gas Plant was received by this Division on February 28, 2017, and was assigned to Jerry Williams. The following item was not included in the initial application submittal:

Original affidavit for Class I legal advertisement not submitted.
Please use telephone extension 1250 in legal advertisements

This item is necessary for the assigned permit writer to continue the 30-day completeness review.

Within 30 days, you should receive a letter from Jerry stating the status of the permit application and, if complete, given an estimated time frame for the agency's final action on the permit.

Any determination of completeness shall not relieve the permit applicant of the requirement to subsequently submit, in a timely manner, any additional or corrected information deemed necessary for a final permit decision.

Should you have any questions, please contact the assigned engineer, Jerry Williams, at 304-926-0499, extension 1223.

NON-CONFIDENTIAL

R13-2878E

modification

103-00042

Jeny

**45CSR13 Administrative Update, Construction, Modification, Relocation,
Temporary Permit or General Permit Registration Incomplete Application**

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 45CSR13 permit application. Any submittal will be considered incomplete if the required information is not included. The applicant must submit a complete application in order to receive a 45CSR13 permit.

- Class I legal advertisement not published in a newspaper certified to accept legal advertisements and original affidavit submitted. *X1250*
- Application fee AND/OR additional application fees not included:
- \$250 Class I General Permit
 - \$300 Class II Administrative Update
 - \$1,000 Construction, Modification, Relocation or Temporary Permit
 - \$500 Class II General Permit
 - \$1,000 NSPS
 - \$2,500 NESHAP
 - \$2,500 45CSR27 Pollutant
 - \$5,000 Major Modification
 - \$10,000 Major Construction
- Original and two (2) copies of the application not submitted.
- File organization – application pages are not numbered or in correct order, application is not bound in some way, etc.
- Confidential Business Information is not properly identified.
- General application forms not completed and signed by a responsible official.
- Authority of Corporation form not included – required if application is signed by someone other than a responsible official.
- Applicant is not registered with the West Virginia Secretary of State's Office.
- Copy of current Business Registration Certificate not included.
- Process description, including equipment and emission point identification numbers, not submitted.
- Process flow diagram, including equipment and emission point identification numbers, not submitted.
- Plot plan, including equipment and emission point identification numbers, not submitted.
- Applicable technical forms not completed and submitted:
- Emission Point Data Summary Sheets
 - Air Pollution Control Device Sheets
 - Emission Unit Data Sheets
 - Equipment List Form
- Emission calculations not included – emission factors, references, source identification numbers, etc.
- Electronic submittal diskette not included.