Mullins, Robert A <robert.a.mullins@wv.gov>

RE: [EXTERNAL] Pre-Draft R30-10300042-2022

1 message

Juarez, Allie <AJuarez@marathonpetroleum.com> Tue, Jan 18, 2022 at 1:53 PM
To: "Mullins, Robert A" <robert.a.mullins@wv.gov>, "Kelley, Christopher G." <CGKelley@marathonpetroleum.com>

Robert,

MarkWest has no comments on the draft permit.

Thank you,

Allie

From: Mullins, Robert A <robert.a.mullins@wv.gov>
Sent: Tuesday, January 4, 2022 9:18 AM
To: Kelley, Christopher G. <CGKelley@marathonpetroleum.com>; Juarez, Allie <AJuarez@marathonpetroleum.com>
Subject: [EXTERNAL] Pre-Draft R30-10300042-2022

Attached is the Title V minor modification R30-10300042-2016(MM04) combined with the Title V permit renewal for the Mobley Gas Plant R30-10300042-2022. Please review the permit and Factsheet and respond with any questions or comments by January 18, 2022 so that I can address questions/comments before sending the permit to Notice.

--

Robert Mullins

WV Department of Environmental Protection

Division of Air Quality

601 57th Street, SE

Charleston, WV 25304

Phone: (304)926-0499 ext. 41286

Mullins, Robert A <robert.a.mullins@wv.gov>

Pre-Draft R30-10300042-2022

1 message

Mullins, Robert A <robert.a.mullins@wv.gov> Tue, Jan 4, 2022 at 9:17 AM
To: CGKelley@marathonpetroleum.com, AJuarez@marathonpetroleum.com

Attached is the Title V minor modification R30-10300042-2016(MM04) combined with the Title V permit renewal for the Mobley Gas Plant R30-10300042-2022. Please review the permit and Factsheet and respond with any questions or comments by January 18, 2022 so that I can address questions/comments before sending the permit to Notice.

--

Robert Mullins

WV Department of Environmental Protection

Division of Air Quality

601 57th Street, SE

Charleston, WV 25304

Phone: (304)926-0499 ext. 41286

2 attachments

Pre-DPPermit_R30-10300042-2022.docx
304K

Pre-DPFactSheet_R30-10300042-2022.docx
95K

Mullins, Robert A <robert.a.mullins@wv.gov>

RE: [EXTERNAL] R30-10300042-2022

1 message

Juarez, Allie <AJuarez@marathonpetroleum.com> Thu, Nov 25, 2021 at 9:54 AM
To: "Mullins, Robert A" <robert.a.mullins@wv.gov>, "Kelley, Christopher G." <CGKelley@marathonpetroleum.com>

Robert,

Please see the appended current PTE and 2020 actual emissions for Mobley. The HAPs MarkWest has been calculating and reporting over the years are included in the actuals attached. We don't have calculations at this time for any of the HAPs emitted in smaller amounts. Please let me know if you require additional information.

Thank you,

Allie

From: Mullins, Robert A <robert.a.mullins@wv.gov>
Sent: Monday, November 22, 2021 1:55 PM
To: Kelley, Christopher G. <CGKelley@marathonpetroleum.com>; Juarez, Allie <AJuarez@marathonpetroleum.com>
Subject: [EXTERNAL] R30-10300042-2022

I'm working on the Title V Permit renewal for the Mobley Gas Plant and Minor Modification R30-10300042-2016(MM04) as one combined permitting action. For my Renewal Factsheet I need to include the Facility-Wide Emissions both Potential and Actual. I'm not entirely sure how the issuance of R13-2828H affected the facility's PTEs since the emission summary in the Engineering Evaluation for R13-2828H and the Attachment S for the corresponding Minor Modification differ. Can you supply me with a current Facility-Wide PTE Emission Summary for both Criteria Pollutants and HAPs. Also if i could get the 2020 Actual emissions that would be great, the SLEIS Data does not have all the HAPs or Total HAPs.

--

Robert Mullins

WV Department of Environmental Protection

Division of Air Quality

601 57th Street, SE

Charleston, WV 25304

Phone: (304)926-0499 ext. 41286

2 attachments

2021-1124_Mobley PTE.pdf

1197K

Mobley 2020 Actuals.pdf
220K

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

Summary of Potential Emissions

Criteria Pollutant Potential Emissions

Process/Facility		Potential Emissions											
		NOx		CO		VOC		SO_2		PM[1]		HAPs	
		lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Waukesha P9390GSI Compressor	CM-1002	0.71	3.61	1.13	5.31	0.39	1.71	0.01	0.04	0.30	0.67	0.11	0.50
Waukesha P9390GSI Compressor	CM-1003	0.71	3.61	1.13	5.31	0.39	1.71	0.01	0.04	0.30	0.67	0.11	0.50
Waukesha P9390GSI Compressor	CM-1004	0.71	3.61	1.13	5.31	0.39	1.71	0.01	0.04	0.30	0.67	0.11	0.50
Waukesha P9390GSI Compressor	CM-1005	0.71	3.61	1.13	5.31	0.39	1.71	0.01	0.04	0.30	0.67	0.11	0.50
Waukesha P9390GSI Compressor	CM-1006	0.71	3.61	1.13	5.31	0.39	1.71	0.01	0.04	0.30	0.67	0.11	0.50
CAT 3616 Compressor	C-102	5.22	22.86	1.80	8.13	2.19	9.64	0.02	0.09	0.35	1.55	0.72	3.15
CAT 3616 Compressor	C-103	5.22	22.86	1.80	8.13	2.19	9.64	0.02	0.09	0.35	1.55	0.72	3.15
Regeneration Heater (9.60 MMBtu/hr)	H-2741	0.51	2.23	0.39	1.72	0.05	0.21	0.01	0.02	0.06	0.28	0.02	0.07
Hot Medium Oil Heater (26.32 MMBtu/hr)	H-2781	2.34	10.26	1.97	8.62	0.13	0.56	0.01	0.06	0.18	0.78	0.04	0.19
Regeneration Heater (7.96 MMBtu/hr)	H-1741	0.42	1.85	0.33	1.43	0.04	0.17	4.25E-03	0.02	0.05	0.24	0.01	0.06
Hot Medium Oil Heater (17.80 MMBtu/hr)	H-1781	1.58	6.94	1.33	5.83	0.09	0.38	0.01	0.04	0.12	0.53	0.03	0.13
Regeneration Heaters (9.60 MMBtu/hr)	H-3741	0.85	3.74	0.72	3.15	0.05	0.21	0.01	0.02	0.06	0.28	0.02	0.08
Regeneration Heaters (9.60 MMBtu/hr)	H-4741	0.85	3.74	0.72	3.15	0.05	0.21	0.01	0.02	0.06	0.28	0.02	0.08
Hot Medium Oil Heater (26.32 MMBtu/hr)	H-3781	2.34	10.26	1.97	8.62	0.13	0.56	0.01	0.06	0.18	0.78	0.05	0.21
Regeneration Heaters (9.60 MMBtu/hr)	H-5741	0.85	3.74	0.72	3.15	0.05	0.21	0.01	0.02	0.06	0.28	0.02	0.08
Regeneration Heater (62.99 MMBtu/hr)	H-5782	3.05	13.36	2.52	11.04	0.31	1.35	0.03	0.15	0.43	1.87	0.12	0.51
Blowdowns	--	--	--	--	--	--	3.94	--	--	--	--	--	0.15
Process Flare	FL-991	--	4.98	--	25.04	--	10.79	--	2.67E-03	--	0.03	--	--
Fugitives	--	--	--	--	--	3.99	17.50	--	--	--	--	0.07	0.29
Rod Packing Emissions	--	--	--	--	--	6.58	28.83	--	--	--	--	0.21	0.92
Crankcase Emissions	--	0.42	1.91	0.28	1.29	0.19	0.84	0.00	0.01	0.07	0.19	0.06	0.26
Pneumatic Emissions	--	--	--	--	--	0.44	1.94	--	--	--	--	0.02	0.08
Emergency Generator Generac MMG45	G-1	0.41	0.10	0.43	0.11	0.41	0.10	0.11	0.03	2.57E-03	6.43E-04	1.56E-03	3.91E-04
Emergency Generator Kohler 40ERES (Permanently Removed from Service)	G-2	--	--	--	--	--	--	--	--	--	--	--	--
Emergency Generator Generac MMG45IF4	G-3	0.45	0.11	0.47	0.12	0.45	0.11	0.12	0.03	2.80E-03	7.00E-04	1.56E-03	3.91E-04
Emergency Generator Generac MMG45IF4	G-4	0.45	0.11	0.47	0.12	0.45	0.11	0.12	0.03	2.80E-03	7.00E-04	1.56E-03	3.91E-04
Methanol Emissions	--	--	--	--	--	0.01	0.06	--	--	--	--	0.01	0.06
Future Site-Wide Emissions (lb/hr)		**28.52**	**127.14**	**21.59**	**116.21**	**19.72**	**95.90**	**0.53**	**0.90**	**3.50**	**12.01**	**2.69**	**11.97**

[1] PM = PM_{10} = $PM_{2.5}$

Hazardous Air Pollutant Potential Emissions

Process/Facility		HAPs - Potential Emissions (lb/hr)								
		Acetaldehyde	**Acrolein**	**Benzene**	**E-Benzene**	**HCHO**	**Methanol**	**n-Hexane**	**Toluene**	**Xylenes**
Waukesha P9390GSI Compressor	CM-1002	1.72E-02	1.62E-02	9.75E-03	1.53E-04	4.00E-02	1.89E-02	--	3.44E-03	1.20E-03
Waukesha P9390GSI Compressor	CM-1003	1.72E-02	1.62E-02	9.75E-03	1.53E-04	4.00E-02	1.89E-02	--	3.44E-03	1.20E-03
Waukesha P9390GSI Compressor	CM-1004	1.72E-02	1.62E-02	9.75E-03	1.53E-04	4.00E-02	1.89E-02	--	3.44E-03	1.20E-03
Waukesha P9390GSI Compressor	CM-1005	1.72E-02	1.62E-02	9.75E-03	1.53E-04	4.00E-02	1.89E-02	--	3.44E-03	1.20E-03
Waukesha P9390GSI Compressor	CM-1006	1.72E-02	1.62E-02	9.75E-03	1.53E-04	4.00E-02	1.89E-02	--	3.44E-03	1.20E-03
CAT 3616 Compressor	C-102	7.43E-02	4.57E-02	3.91E-03	3.53E-04	5.43E-01	2.22E-02	9.86E-03	3.62E-03	1.63E-03
CAT 3616 Compressor	C-103	7.43E-02	4.57E-02	3.91E-03	3.53E-04	5.43E-01	2.22E-02	9.86E-03	3.62E-03	1.63E-03
Regeneration Heater (9.60 MMBtu/hr)	H-2741	--	--	1.80E-05	--	6.41E-04	--	1.54E-02	2.91E-05	--
Hot Medium Oil Heater (26.32 MMBtu/hr)	H-2781	--	--	4.92E-05	--	1.76E-03	--	4.22E-02	7.97E-05	--
Regeneration Heater (7.96 MMBtu/hr)	H-1741	--	--	1.49E-05	--	5.31E-04	--	1.28E-02	2.41E-05	--
Hot Medium Oil Heater (17.80 MMBtu/hr)	H-1781	--	--	3.33E-05	--	1.19E-03	--	2.85E-02	5.39E-05	--
Regeneration Heaters (9.60 MMBtu/hr)	H-3741	--	--	1.98E-05	--	7.06E-04	--	1.69E-02	3.20E-05	--
Regeneration Heaters (9.60 MMBtu/hr)	H-4741	--	--	1.98E-05	--	7.06E-04	--	1.69E-02	3.20E-05	--
Hot Medium Oil Heater (26.32 MMBtu/hr)	H-3781	--	--	5.42E-05	--	1.94E-03	--	4.64E-02	8.77E-05	--
Regeneration Heaters (9.60 MMBtu/hr)	H-5741	--	--	1.98E-05	--	7.06E-04	--	1.69E-02	3.20E-05	--
Regeneration Heater (62.99 MMBtu/hr)	H-5782	--	--	1.30E-04	--	4.63E-03	--	1.11E-01	2.10E-04	--
Blowdowns	--	--	--	--	--	--	--	--	--	--
Process Flare	FL-991	--	--	--	--	--	--	--	--	--
Fugitives	--	--	--	--	--	--	--	--	--	--
Rod Packing Emissions	--	--	--	3.83E-03	5.21E-03	--	--	1.92E-01	4.52E-03	5.21E-03
Crankcase Emissions	--	7.04E-03	5.17E-03	1.70E-03	4.41E-05	3.86E-02	4.17E-03	1.60E-03	7.34E-04	2.79E-04
Pneumatic Emissions	--	--	--	2.78E-05	3.78E-05	--	--	4.35E-03	3.28E-05	3.78E-05
Emergency Generator Generac MMG45	G-1	3.16E-04	3.81E-05	3.85E-04	--	4.86E-04	--	--	1.69E-04	1.17E-04
Emergency Generator Kohler 40ERES (Permanently Removed from Service)	*G-2*	--	--	--	--	--	--	--	--	--
Emergency Generator Generac MMG45IF4	G-3	3.16E-04	3.81E-05	3.85E-04	--	4.86E-04	--	--	1.69E-04	1.17E-04
Emergency Generator Generac MMG45IF4	G-4	3.16E-04	3.81E-05	3.85E-04	--	4.86E-04	--	--	1.69E-04	1.17E-04
Methanol Tanks	--	--	--	--	--	--	1.39E-02	--	--	--
Future Site-Wide Emissions (lb/hr)		**0.24**	**0.18**	**0.06**	**0.01**	**1.34**	**0.16**	**0.52**	**0.03**	**0.02**

Process/Facility		HAPs - Potential Emissions (tpy)								
		Acetaldehyde	**Acrolein**	**Benzene**	**E-Benzene**	**HCHO**	**Methanol**	**n-Hexane**	**Toluene**	**Xylenes**
Waukesha P9390GSI Compressor	CM-1002	7.54E-02	7.11E-02	4.27E-02	6.70E-04	0.18	8.27E-02	--	1.51E-02	5.27E-03
Waukesha P9390GSI Compressor	CM-1003	7.54E-02	7.11E-02	4.27E-02	6.70E-04	0.18	8.27E-02	--	1.51E-02	5.27E-03
Waukesha P9390GSI Compressor	CM-1004	7.54E-02	7.11E-02	4.27E-02	6.70E-04	0.18	8.27E-02	--	1.51E-02	5.27E-03
Waukesha P9390GSI Compressor	CM-1005	7.54E-02	7.11E-02	4.27E-02	6.70E-04	0.18	8.27E-02	--	1.51E-02	5.27E-03
Waukesha P9390GSI Compressor	CM-1006	7.54E-02	7.11E-02	4.27E-02	6.70E-04	0.18	8.27E-02	--	1.51E-02	5.27E-03
CAT 3616 Compressor	C-102	3.25E-01	2.00E-01	1.71E-02	1.54E-03	2.40	9.73E-02	4.32E-02	1.59E-02	7.16E-03
CAT 3616 Compressor	C-103	3.25E-01	2.00E-01	1.71E-02	1.54E-03	2.40	9.73E-02	4.32E-02	1.59E-02	7.16E-03
Regeneration Heater (9.60 MMBtu/hr)	H-2741	--	--	7.86E-05	--	2.81E-03	--	6.74E-02	1.27E-04	--
Hot Medium Oil Heater (26.32 MMBtu/hr)	H-2781	--	--	2.15E-04	--	7.70E-03	--	1.85E-01	3.49E-04	--
Regeneration Heater (7.96 MMBtu/hr)	H-1741	--	--	6.52E-05	--	2.33E-03	--	5.59E-02	1.06E-04	--
Hot Medium Oil Heater (17.80 MMBtu/hr)	H-1781	--	--	1.46E-04	--	5.21E-03	--	1.25E-01	2.36E-04	--
Regeneration Heaters (9.60 MMBtu/hr)	H-3741	--	--	8.66E-05	--	3.09E-03	--	7.42E-02	1.40E-04	--
Regeneration Heaters (9.60 MMBtu/hr)	H-4741	--	--	8.66E-05	--	3.09E-03	--	7.42E-02	1.40E-04	--
Hot Medium Oil Heater (26.32 MMBtu/hr)	H-3781	--	--	2.37E-04	--	8.48E-03	--	2.03E-01	3.84E-04	--
Regeneration Heaters (9.60 MMBtu/hr)	H-5741	--	--	8.66E-05	--	3.09E-03	--	7.42E-02	1.40E-04	
Regeneration Heater (62.99 MMBtu/hr)	H-5782			5.68E-04	--	2.03E-02	--	4.87E-01	9.20E-04	--
Blowdowns	--	--	--	--	--	--	--	--	--	--
Process Flare	FL-991	--	--	--	--	--	--	--	--	--
Fugitives	--	--	--	--	--	--	--	--	--	--
Rod Packing Emissions	--	--	--	1.68E-02	2.28E-02	--	--	8.40E-01	1.98E-02	2.28E-02
Crankcase Emissions	--	3.08E-02	2.27E-02	7.43E-03	1.93E-04	1.70E-01	1.82E-02	2.59E-03	3.21E-03	1.22E-03
Pneumatic Emissions	--	--	--	1.22E-04	1.65E-04	--	--	1.91E-02	1.44E-04	1.65E-04
Emergency Generator Generac MMG45	G-1	7.90E-05	9.53E-06	9.61E-05	--	1.22E-04	--	--	4.21E-05	2.94E-05
Emergency Generator Kohler 40ERES (Permanently Removed from Service)	*G-2*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*
Emergency Generator Generac MMG45IF4	G-3	7.90E-05	9.53E-06	9.61E-05	--	1.22E-04	--	--	4.21E-05	2.94E-05
Emergency Generator Generac MMG45IF4	G-4	7.90E-05	9.53E-06	9.61E-05	--	1.22E-04	--	--	4.21E-05	2.94E-05
Methanol Tanks	--	--	--	--	--	--	6.10E-02	--	--	--
Future Site-Wide Emissions (tpy)		**1.06**	**0.78**	**0.27**	**0.03**	**5.90**	**0.63**	**2.29**	**0.13**	**0.06**

Greenhouse Gas Potential Emissions

Process/Facility		GHG $CO_2(e)$ (lb/hr)	GHG $CO_2(e)$ (tpy)
Waukesha P9390GSI Compressor	CM-1002	2,531.75	11,089.05
Waukesha P9390GSI Compressor	CM-1003	2,531.75	11,089.05
Waukesha P9390GSI Compressor	CM-1004	2,531.75	11,089.05
Waukesha P9390GSI Compressor	CM-1005	2,531.75	11,089.05
Waukesha P9390GSI Compressor	CM-1006	2,531.75	11,089.05
CAT 3616 Compressor	C-102	4,161.22	18,226.14
CAT 3616 Compressor	C-103	4,161.22	18,226.14
Regeneration Heater (9.60 MMBtu/hr)	H-2741	1,123.74	4,921.98
Hot Medium Oil Heater (26.32 MMBtu/hr)	H-2781	3,079.55	13,488.43
Regeneration Heater (7.96 MMBtu/hr)	H-1741	931.52	4,080.06
Hot Medium Oil Heater (17.80 MMBtu/hr)	H-1781	2,083.06	9,123.81
Regeneration Heaters (9.60 MMBtu/hr)	H-3741	1,123.74	4,921.98
Regeneration Heaters (9.60 MMBtu/hr)	H-4741	1,123.74	4,921.98
Hot Medium Oil Heater (26.32 MMBtu/hr)	H-3781	3,079.55	13,488.43
Regeneration Heaters (9.60 MMBtu/hr)	H-5741	1,123.74	4,921.98
Regeneration Heater (62.99 MMBtu/hr)	H-5782	7,370.25	32,281.69
Blowdowns	--	239.21	1,047.73
Process Flare	FL-991	--	704,397.17
Fugitives	--	81.69	357.82
Rod Packing Emissions	--	1,618.61	7,089.53
Crankcase Emissions	--	629.43	2,756.93
Pneumatic Emissions	--	45.55	199.53
Emergency Generator Generac MMG45	G-1	67.43	16.86
Emergency Generator Kohler 40ERES (Permanently Removed from Service)	*G-2*	--	--
Emergency Generator Generac MMG45IF4	G-3	67.43	16.86
Emergency Generator Generac MMG45IF4	G-4	67.43	16.86
Site-Wide Emissions (tpy)		**44,836.84**	**899,947.12**

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

Compressor Engine Emissions (Per Engine)
Waukesha P9390GSI (5 engines)

Source Designation:	
Manufacturer:	Waukesha
Model No.:	P9390 GSI
Stroke Cycle:	4-stroke
Type of Burn:	Rich
Year Installed:	2012
Fuel Used:	Natural Gas
Fuel High Heating Value (HHV) (Btu/scf):	1,123
Rated Horsepower (bhp):	1,980
Specific Fuel Consumption (Btu/bhp-hr):	7,792
Maximum Fuel Consumption at 100% Load (scf/hr):	13,733
Heat Input (MMBtu/hr):	15.43

Operational Details:

Potential Annual Hours of Operation (hr/yr):	8,760
Potential Fuel Consumption (MMscf/yr):	120.30

Criteria and Manufacturer Specific Pollutant Emission Factors:

Pollutant	Emission Factors [a]	Units
NOx (uncontrolled)	13.00	g/bhp-hr
NOx	0.16	g/bhp-hr
CO (uncontrolled)	9.00	g/bhp-hr
CO	0.26	g/bhp-hr
SO_2	5.88E-04	lb/MMBtu
PM_{10} (Filterable)	9.50E-03	lb/MMBtu
$PM_{2.5}$ (Filterable)	7.71E-05	lb/MMBtu
PM Condensable	9.91E-03	lb/MMBtu
PM Total	1.94E-02	lb/MMBtu
VOC (uncontrolled, includes HCHO)	0.25	g/bhp-hr
VOC (includes HCHO)	0.09	g/bhp-hr
NMNEHC (uncontrolled)	0.20	g/bhp-hr
NMNEHC	0.08	g/bhp-hr
Formaldehyde (HCHO) (uncontrolled)	0.05	g/bhp-hr
Formaldehyde (HCHO)	0.01	g/bhp-hr
CO_2	493.00	g/bhp-hr
Methane (CH_4)	3.48	g/bhp-hr

Criteria and Manufacturer Specific Pollutant Emission Rates

Pollutant	Potential Emissions (lb/hr)[b]	(tons/yr)[c]
NOx (uncontrolled)	56.75	248.55
NOx	0.71	3.61
CO (uncontrolled)	39.29	172.07
CO	1.13	5.31
SO_2	0.01	0.04
PM_{10} (Filterable)	0.147	0.64
$PM_{2.5}$ (Filterable)	0.001	0.01
PM Condensable	0.15	0.67
PM Total	0.30	1.31
VOC (uncontrolled)*	1.07	4.70
VOC (includes HCHO)	0.39	1.71
NMNEHC (uncontrolled)	0.87	3.82
NMNEHC	0.35	1.53
Formaldehyde (HCHO) (uncontrolled)	0.20	0.88
Formaldehyde (HCHO)	0.04	0.18
CO_2	2,151.98	9,425.69
Methane (CH_4)	15.19	66.53

Hazardous Air Pollutant (HAP) Potential Emissions

Pollutant	Uncontrolled Emission Factor (lb/MMBtu)[a]	Controlled Emission Factor (lb/MMBtu)[d]	Potential Emissions (lb/hr)[b]	(tons/yr)[c]
HAPs:				
1,1,2,2-Tetrachloroethane	2.53E-05	1.01E-05	1.56E-04	6.84E-04
1,1,2-Trichloroethane	1.53E-05	6.12E-06	9.44E-05	4.14E-04
1,3-Butadiene	6.63E-04	2.65E-04	4.09E-03	1.79E-02
1,3-Dichloropropene	1.27E-05	5.08E-06	7.84E-05	3.43E-04
Acetaldehyde	2.79E-03	1.12E-03	1.72E-02	7.54E-02
Acrolein	2.63E-03	1.05E-03	1.62E-02	7.11E-02
Benzene	1.58E-03	6.32E-04	9.75E-03	4.27E-02
Carbon Tetrachloride	1.77E-05	7.08E-06	1.09E-04	4.78E-04
Chlorobenzene	1.29E-05	5.16E-06	7.96E-05	3.49E-04
Chloroform	1.37E-05	5.48E-06	8.45E-05	3.70E-04
Ethylbenzene	2.48E-05	9.92E-06	1.53E-04	6.70E-04
Ethylene Dibromide	2.13E-05	8.52E-06	1.31E-04	5.76E-04
Methanol	3.06E-03	1.22E-03	1.89E-02	8.27E-02
Methylene Chloride	4.12E-05	1.65E-05	2.54E-04	1.11E-03
Naphthalene	9.71E-05	3.88E-05	5.99E-04	2.62E-03
PAH	1.41E-04	5.64E-05	8.70E-04	3.81E-03
Styrene	1.19E-05	4.76E-06	7.34E-05	3.22E-04
Toluene	5.58E-04	2.23E-04	3.44E-03	1.51E-02
Vinyl Chloride	7.18E-06	2.87E-06	4.43E-05	1.94E-04
Xylene	1.95E-04	7.80E-05	1.20E-03	5.27E-03
Total HAP (Includes Formaldehyde)	**0.02**	**0.01**	**0.11**	**0.50**

[a] SO_2, PM, and HAP emission factors (excluding HCHO) from AP-42 Section 3.2, Table 3.2-3"Uncontrolled Emission Factors for 4-Stroke Rich-Burn Engines," Supplement F, August 2000.
NO_X, VOC, CO, and HCHO factors are based on historical performance test data and catalyst manufacturer's data.

[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, 8,760 hr/yr) × (1 ton/2000 lb).

[d] The NMNEHC reduction is applied to the HAPs to account for the catalyst's control.

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

Compressor Engine Emissions (Per Engine)
Caterpillar G3616 LE (2 engines)

Source Designation:	
Manufacturer:	Caterpillar
Model No.:	G3616 LE
Stroke Cycle:	4-stroke
Type of Burn:	Lean
Fuel Used:	Natural Gas
Fuel High Heating Value (HHV) (Btu/scf):	1,123
Rated Horsepower (bhp):	4,735
Specific Fuel Consumption (Btu/bhp-hr):	7,505
Maximum Fuel Consumption at 100% Load (scf/hr):	31,632
Heat Input (MMBtu/hr):	35.54

Operational Details:

Potential Annual Hours of Operation (hr/yr):	8,760
Potential Fuel Consumption (MMscf/yr):	277.09

Criteria and Manufacturer Specific Pollutant Emission Factors:

Pollutant	Emission Factors [a]	Units
NOx (uncontrolled)	0.50	g/bhp-hr
NOx	0.50	g/bhp-hr
CO (uncontrolled)	2.74	g/bhp-hr
CO	0.17	g/bhp-hr
SO_2	5.88E-04	lb/MMBtu
PM_{10} (Filterable)	7.71E-05	lb/MMBtu
$PM_{2.5}$ (Filterable)	7.71E-05	lb/MMBtu
PM Condensable	9.91E-03	lb/MMBtu
PM Total	9.99E-03	lb/MMBtu
VOC (uncontrolled, includes HCHO)	0.89	g/bhp-hr
VOC (includes HCHO)	0.21	g/bhp-hr
NMNEHC (uncontrolled)	0.63	g/bhp-hr
NMNEHC	0.16	g/bhp-hr
Formaldehyde (HCHO) (uncontrolled)	0.26	g/bhp-hr
Formaldehyde (HCHO)	0.05	g/bhp-hr
CO_2	53.06	kg/MMBtu
Methane (CH_4)	1.00E-03	kg/MMBtu
N_2O	1.00E-04	kg/MMBtu

Criteria and Manufacturer Specific Pollutant Emission Rates

Pollutant	Potential Emissions (lb/hr)[b]	(tons/yr)[c]
NOx (uncontrolled)	5.22	22.86
NOx	5.22	22.86
CO (uncontrolled)	28.60	125.28
CO	1.80	8.13
SO_2	0.02	0.09
PM_{10} (Filterable)	0.003	0.01
$PM_{2.5}$ (Filterable)	0.003	0.01
PM Condensable	0.35	1.54
PM Total	0.35	1.55
VOC (uncontrolled)*	9.29	40.69
VOC (includes HCHO)	2.19	9.64
NMNEHC (uncontrolled)	6.58	28.80
NMNEHC	1.64	7.25
Formaldehyde (HCHO) (uncontrolled)	2.71	11.89
Formaldehyde (HCHO)	0.54	2.40
CO_2	4156.92	18,207.33
Methane (CH_4)	0.08	0.34
N_2O	0.01	0.03

Hazardous Air Pollutant (HAP) Potential Emissions

Pollutant	Uncontrolled Emission Factor (lb/MMBtu)[a]	Controlled Emission Factor (lb/MMBtu)[d]	Potential Emissions (lb/hr)[b]	(tons/yr)[c]
HAPs:				
Acenaphthene	1.25E-06	3.13E-07	1.11E-05	4.86E-05
Acenaphthylene	5.53E-06	1.38E-06	4.91E-05	2.15E-04
Acetaldehyde	8.36E-03	2.09E-03	7.43E-02	3.25E-01
Acrolein	5.14E-03	1.29E-03	4.57E-02	2.00E-01
Benzene	4.40E-04	1.10E-04	3.91E-03	1.71E-02
Benzo(b)fluoranthene	1.66E-07	4.15E-08	1.47E-06	6.46E-06
Benzo(e)pyrene	4.15E-07	1.04E-07	3.69E-06	1.61E-05
Benzo(g,h,i)perlyene	4.14E-07	1.04E-07	3.68E-06	1.61E-05
Biphenyl	2.12E-04	5.30E-05	1.88E-03	8.25E-03
1,3-Butadiene	2.67E-04	6.68E-05	2.37E-03	1.04E-02
Carbon Tetrachloride	3.67E-05	9.18E-06	3.26E-04	1.43E-03
Chlorobenzene	3.04E-05	7.60E-06	2.70E-04	1.18E-03
Chloroform	2.85E-05	7.13E-06	2.53E-04	1.11E-03
Chrysene	6.93E-07	1.73E-07	6.16E-06	2.70E-05
1,3-Dichloropropene	2.64E-05	6.60E-06	2.35E-04	1.03E-03
Ethylbenzene	3.97E-05	9.93E-06	3.53E-04	1.54E-03
Ethylene Dibromide	4.43E-05	1.11E-05	3.94E-04	1.72E-03
Fluoranthene	1.11E-06	2.78E-07	9.86E-06	4.32E-05
Fluorene	5.67E-06	1.42E-06	5.04E-05	2.21E-04
Methanol	2.50E-03	6.25E-04	2.22E-02	9.73E-02
Methylene Chloride	2.00E-05	5.00E-06	1.78E-04	7.78E-04
n-Hexane	1.11E-03	2.78E-04	9.86E-03	4.32E-02
Phenanthrene	1.04E-05	2.60E-06	9.24E-05	4.05E-04
Phenol	2.40E-05	6.00E-06	2.13E-04	9.34E-04
Pyrene	1.36E-06	3.40E-07	1.21E-05	5.29E-05
Styrene	2.36E-05	5.90E-06	2.10E-04	9.18E-04
Toluene	4.08E-04	1.02E-04	3.62E-03	1.59E-02
1,1,2,2-Tetrachloroethane	4.00E-05	1.00E-05	3.55E-04	1.56E-03
Tetrachloroethane	2.48E-06	6.20E-07	2.20E-05	9.65E-05
1,1,2-Trichloroethane	3.18E-05	7.95E-06	2.83E-04	1.24E-03
2,2,4-Trimethylpentane	2.50E-04	6.25E-05	2.22E-03	9.73E-03
Vinyl Chloride	1.49E-05	3.73E-06	1.32E-04	5.80E-04
Xylene	1.84E-04	4.60E-05	1.63E-03	7.16E-03
Polycyclic Organic Matter:		0.00E+00	0.00E+00	0.00E+00
Naphthalene	7.44E-05	1.86E-05	6.61E-04	2.90E-03
2-Methylnaphthalene	3.32E-05	8.30E-06	2.95E-04	1.29E-03
PAH	2.69E-05	6.73E-06	2.39E-04	1.05E-03
Total HAP (Includes Formaldehyde)	**0.10**	**0.02**	**0.72**	**3.15**

[a] SO_2, PM, and HAP emission factors (excluding HCHO) from AP-42 Section 3.2, Table 3.2-2"Uncontrolled Emission Factors for 4-Stroke Lean-Burn Engines," Supplement F, August 2000.
NO_X, VOC, CO, and HCHO factors are based on manufacturer's data for the 4735 bhp engine. Emissions are conservatively based on the engine emission data from the CAT specifications and the reduction percentages provided in the catalyst specifications.

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

[c] Annual Emissions $(tons/yr)_{Potential} = (lb/hr)_{Emissions} \times$ (Maximum Allowable Operating Hours, 8,760 hr/yr) × (1 ton/2000 lb).

[d] The NMNEHC reduction is applied to the HAPs to account for the catalyst's control.

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Source Designation:	
Manufacturer:	Callidus Technologies
Operating Hours: (hr/yr)	8,760
Destruction Efficiency	98%
Pilot + Purge Gas Heat Input (MMBtu/hr)	1.038
Pilot + Purge Gas Annual Fuel Use (mmscf/yr)	7.477
Pilot Fuel Consumption (Btu/hr)	85,000
Number of Pilots	6
Pilot Fuel Consumption (mmscf/hr):	4.20E-04
Purge Fuel Consumption (mmscf/hr):	4.34E-04
Fuel HHV (Btu/scf)	1,216

Pollutant	AP-42 Emission Factor (lb/mmscf)[a]	Corrected Factor (lb/mmscf)[a]
NO_X	100	119.2
CO	84	100.1
SO_2	0.6	0.7
PM Total	7.6	9.1
PM Condensable	5.7	6.8
PM_{10} (Filterable)	1.9	2.3
$PM_{2.5}$ (Filterable)	1.9	2.3

[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 $(tons/yr)_{Potential} = (lb/hr)_{Emissions} \times$ (Maximum Allowable Operating Hours, 8760 hr/yr) × (1 ton/2000 lb).

Combustion of Hydrocarbons

Source Designation:	
Maximum Design Flowrate (lb/hr)	480,700
Hourly Gas Flow (mmscf/hr)	8.15
Annual Gas Flow (mmscf/yr)	109.7
Heating value (btu/scf)	1,215.67
Maximum Heat Release of Flare (mmbtu/hr)	9903.0
Maximum Heat Release of Flare (mmbtu/yr)	133,316
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
Annual gas flow is based on averages from the flare meter and conservatively applies a factor of x1.2.

Total Emissions

Pollutant	lb/hr (max)	tpy	
NO_X	673.51	4.98	1.136598726
CO	3664.21	25.04	5.716376962
VOC	2168.76	10.79	2.463056995
SO_2	0.0006	0.0027	
PM Total	0.0077	0.0339	
PM Condensable	0.0058	0.0254	
PM_{10} (Filterable)	0.0019	0.0085	
$PM_{2.5}$ (Filterable)	0.0019	0.0085	

[a] Flare VOC emission estimates are based on the maximum volume to the flare and the inlet VOC weight percent with a conservative factor of 1.5 applied.

GHG Emissions

Pollutant	Emission Factor GHGs - (kg/mmbtu)[b]	Potential Emissions (lb/hr) (max)	Potential Emissions (tons/yr)
CO_2	53.02	1,157,666	703,670
CH_4	0.001	22	13.272
N_2O	0.0001	2	1.327
$CO_2(e)$	-	1158801.34	704397.17

[b] Emission factors for GHG pollutants from 40 CFR Part 98, Subpart C.

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Emergency Generator Engine Emissions (Per Engine)
(G-1)

Source Designation:	
Manufacturer:	Generac
Model No.:	MMG45
Stroke Cycle:	4-stroke
Type of Burn:	Diesel
Fuel Used:	Diesel
Fuel High Heating Value (HHV) (Btu/gal):	137,380
Rated Horsepower (bhp):	53
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

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

Emergency Generator Engine Emissions (Per Engine)
(G-1)

Criteria and Manufacturer Specific Pollutant Emission Rates

Pollutant	Potential Emissions (lb/hr)[b]	(tons/yr)[c]
NO_x	0.41	0.10
CO (uncontrolled)	0.43	0.11
CO (controlled)	0.43	0.11
SO_2	0.11	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)	0.41	0.10
VOC (controlled)	0.41	0.10

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 $(tons/yr)_{Potential} = (lb/hr)_{Emissions} \times$ (Maximum Allowable Operating Hours/yr) × (1 ton/2000 lb).

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.:	MMG45IF4
Stroke Cycle:	4-stroke
Type of Burn:	Diesel
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

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

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)	0.003	0.001
$PM_{2.5}$ (Filterable)	0.003	0.001
PM Condensable	0.003	0.001
PM Total	0.003	0.001
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		**0.002**	**0.000**

[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 $(tons/yr)_{Potential} = (lb/hr)_{Emissions} \times$ (Maximum Allowable Operating Hours/yr) × (1 ton/2000 lb).

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 (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)
CAT 3616 (C-1102 and C1103)	2	21,630	36	1,557,360	0	0.53	0.008	0.155	27.901	697.673
Waukesha 9390 (C-1002 to C-1006)	5	4,055	36	729,900	0	2.99	0.121	0.068	12.312	307.875
Miscellaneous Blowdowns	Varies	Varies	Varies	100,000	0	0.41	0.017	0.009	1.687	42.180
Blowdowns to Flare	Varies	Varies	Varies	109,664,640	0.98	8.99	0.365	0.203	36.998	18.702
Total						**3.94**	**0.15**	**0.23**	**41.90**	**1,047.73**

Notes:

1. Volumes vented per blowdown are based on maximum volumes reported historically.
2. Miscellaneous blowdowns capture maintenance activities, such as filter changes, pigging events, etc.
3. Plant blowdowns are routed to the facility flare. Emissions associated with plant blowdowns are metered at the flare and accounted for in the flare emission estimates.

Component	Service	Count	Emissions (lb/yr)
Connector	HL	2	0.22
Compressor	LL	19	413.06
Connector	LL	3605	8,591.83
Flange	LL	1072	533.03
Pressure Relief	LL	18	78.26
Pump	LL	22	834.34
Valve	LL	1594	2,041.26
Compressor	GV	29	262.74
Connector	GV	9922	11,168.78
Flange	GV	4842	4,085.22
Pressure Relief	GV	208	512.23
Pump	GV	22	80.69
Valve	GV	5615	6,389.53
		26970	34,991.20

*LIKE COLORS WERE GROUPED IN PAPERWORK

**Compressors were listed in "Other" for paperwork

MarkWest Liberty Midstream & Resources L.L.C.
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Fugitive Emissions

									Emissions				
Process Area	**Component Type**	**No. of Components[a]**	**Service**	**AP-42 Leak Factor (kg/hr/component)[b]**	**TCEQ Reduction[c]**	**Post-Control Emission Factor (kg/hr/component)**	**VOC Wt %[d]**	**HAP Wt %[d]**	**Total HC (lb/hr)**	**Total VOC (lb/hr)**	**Total VOC (tpy)**	**Total HAP (lb/hr)**	**Total HAP (tpy)**
DeEthanizer	Compressor	6	LL	7.50E-03	85%	1.13E-03	100.00%	1.26%	0.0149	0.0149	0.0652	0.0002	0.0008
	Compressor	5	GV	8.80E-03	85%	1.32E-03	15.00%	0.36%	0.0146	0.0022	0.0096	0.0001	0.0002
	Flange	38	LL	1.10E-04	75%	2.75E-05	100.00%	2.42%	0.0023	0.0023	0.0101	0.0001	0.0002
	Flange	104	GV	3.90E-04	75%	9.75E-05	55.00%	0.69%	0.0224	0.0123	0.0541	0.0002	0.0007
	Flange	484	GV	3.90E-04	75%	9.75E-05	100.00%	1.26%	0.1041	0.1041	0.4558	0.0013	0.0057
	Flange	217	GV	3.90E-04	75%	9.75E-05	15.00%	0.19%	0.0467	0.0070	0.0307	0.0001	0.0004
	Flange	37	GV	3.90E-04	75%	9.75E-05	0.50%	0.01%	0.0079	0.0000	0.0002	0.0000	0.0000
	Connector	2	LL	2.10E-04	30%	1.47E-04	55.00%	1.33%	0.0006	0.0003	0.0014	0.0000	0.0000
	Connector	253	LL	2.10E-04	30%	1.47E-04	100.00%	2.42%	0.0821	0.0821	0.3595	0.0020	0.0087
	Connector	128	GV	2.00E-04	30%	1.40E-04	0.50%	0.01%	0.0396	0.0002	0.0009	0.0000	0.0000
	Connector	278	GV	2.00E-04	30%	1.40E-04	55.00%	0.69%	0.0857	0.0471	0.2065	0.0006	0.0026
	Connector	785	GV	2.00E-04	30%	1.40E-04	15.00%	0.19%	0.2423	0.0364	0.1592	0.0005	0.0020
	Connector	1285	GV	2.00E-04	30%	1.40E-04	100.00%	1.26%	0.3970	0.3970	1.7389	0.0050	0.0219
	Pressure Relief	28	GV	8.80E-03	97%	2.64E-04	100.00%	1.26%	0.0163	0.0163	0.0714	0.0002	0.0009
	Pressure Relief	3	GV	8.80E-03	97%	2.64E-04	55.00%	0.69%	0.0017	0.0010	0.0042	0.0000	0.0001
	Pressure Relief	12	GV	8.80E-03	97%	2.64E-04	15.00%	0.19%	0.0070	0.0010	0.0046	0.0000	0.0001
	Pump	7	GV	2.40E-03	85%	3.60E-04	100.00%	1.26%	0.0056	0.0056	0.0243	0.0001	0.0003
	Valve	4	LL	2.50E-03	97%	7.50E-05	55.00%	1.33%	0.0007	0.0004	0.0017	0.0000	0.0000
	Valve	104	LL	2.50E-03	97%	7.50E-05	100.00%	2.42%	0.0173	0.0173	0.0756	0.0004	0.0018
	Valve	51	GV	4.50E-03	97%	1.35E-04	0.50%	0.01%	0.0150	0.0001	0.0003	0.0000	0.0000
	Valve	442	GV	4.50E-03	97%	1.35E-04	15.00%	0.19%	0.1316	0.0197	0.0864	0.0002	0.0011
	Valve	173	GV	4.50E-03	97%	1.35E-04	55.00%	0.69%	0.0515	0.0283	0.1242	0.0004	0.0016
	Valve	689	GV	4.50E-03	97%	1.35E-04	100.00%	1.26%	0.2052	0.2052	0.8988	0.0026	0.0113
DeEthanizer Total									**1.5122**	**1.0008**	**4.3836**	**0.0138**	**0.0605**
Inlet	Compressor	0	LL	7.50E-03	85%	1.13E-03	100.00%	2.42%	0.0000	0.0000	0.0000	0.0000	0.0000
	Compressor	0	GV	8.80E-03	85%	1.32E-03	0.50%	0.01%	0.0000	0.0000	0.0000	0.0000	0.0000
	Compressor	7	GV	8.80E-03	85%	1.32E-03	100.00%	1.26%	0.0204	0.0204	0.0893	0.0003	0.0011
	Flange	99	LL	1.10E-04	75%	2.75E-05	100.00%	2.42%	0.0060	0.0060	0.0263	0.0001	0.0006
	Flange	519	GV	3.90E-04	75%	9.75E-05	15.00%	0.19%	0.1116	0.0167	0.0733	0.0002	0.0009
	Flange	123	GV	3.90E-04	75%	9.75E-05	0.50%	0.01%	0.0265	0.0001	0.0006	0.0000	0.0000
	Connector	557	LL	2.10E-04	30%	1.47E-04	100.00%	2.42%	0.1806	0.1806	0.7912	0.0044	0.0191
	Connector	533	GV	2.00E-04	30%	1.40E-04	15.00%	0.19%	0.1646	0.0247	0.1081	0.0003	0.0014
	Connector	232	GV	2.00E-04	30%	1.40E-04	0.50%	0.01%	0.0717	0.0004	0.0016	0.0000	0.0000
	Pressure Relief	4	LL	7.50E-03	97%	2.25E-04	100.00%	2.42%	0.0020	0.0020	0.0087	0.0000	0.0002
	Pressure Relief	17	GV	8.80E-03	97%	2.64E-04	15.00%	0.19%	0.0099	0.0015	0.0065	0.0000	0.0001
	Pressure Relief	4	GV	8.80E-03	97%	2.64E-04	0.50%	0.01%	0.0023	0.0000	0.0001	0.0000	0.0000
	Valve	193	LL	2.50E-03	97%	7.50E-05	100.00%	2.42%	0.0320	0.0320	0.1402	0.0008	0.0034
	Valve	256	GV	4.50E-03	97%	1.35E-04	15.00%	0.19%	0.0762	0.0114	0.0500	0.0001	0.0006
	Valve	128	GV	4.50E-03	97%	1.35E-04	0.50%	0.01%	0.0381	0.0002	0.0008	0.0000	0.0000

Inlet Total								**0.7418**	**0.2960**	**1.2966**	**0.0063**	**0.0275**
Mobley 1	Compressor	2	LL	7.50E-03	85%	1.13E-03	100.00%	1.26%	0.0050	0.0050	0.0217	0.0001	0.0003
	Compressor	4	GV	8.80E-03	85%	1.32E-03	15.00%	0.19%	0.0116	0.0017	0.0077	0.0000	0.0001
	Flange	181	LL	1.10E-04	75%	2.75E-05	100.00%	2.42%	0.0110	0.0110	0.0482	0.0003	0.0012
	Flange	183	GV	3.90E-04	75%	9.75E-05	0.50%	0.01%	0.0394	0.0002	0.0009	0.0000	0.0000
	Flange	188	GV	3.90E-04	75%	9.75E-05	15.00%	0.19%	0.0403	0.0061	0.0265	0.0001	0.0003
	Flange	284	GV	3.90E-04	75%	9.75E-05	100.00%	1.26%	0.0611	0.0611	0.2676	0.0008	0.0034
	Connector	786	LL	2.10E-04	30%	1.47E-04	100.00%	2.42%	0.2547	0.2547	1.1158	0.0062	0.0270
	Connector	243	GV	2.00E-04	30%	1.40E-04	15.00%	0.19%	0.0751	0.0113	0.0493	0.0001	0.0006
	Connector	349	GV	2.00E-04	30%	1.40E-04	100.00%	1.26%	0.1079	0.1079	0.4725	0.0014	0.0059
	Connector	450	GV	2.00E-04	30%	1.40E-04	0.50%	0.01%	0.1390	0.0007	0.0030	0.0000	0.0000
	Pressure Relief	6	LL	7.50E-03	97%	2.25E-04	100.00%	2.42%	0.0030	0.0030	0.0130	0.0001	0.0003
	Pressure Relief	8	GV	8.80E-03	97%	2.64E-04	0.50%	0.01%	0.0047	0.0000	0.0001	0.0000	0.0000
	Pressure Relief	10	GV	8.80E-03	97%	2.64E-04	15.00%	0.19%	0.0058	0.0009	0.0038	0.0000	0.0000
	Pressure Relief	16	GV	8.80E-03	97%	2.64E-04	100.00%	1.26%	0.0093	0.0093	0.0408	0.0001	0.0005
	Pump	2	GV	2.40E-03	85%	3.60E-04	100.00%	1.26%	0.0019	0.0019	0.0081	0.0000	0.0001
	Pump	5	LL	1.30E-02	85%	1.95E-03	100.00%	2.42%	0.0201	0.0201	0.0879	0.0005	0.0021
	Valve	289	LL	2.50E-03	97%	7.50E-05	100.00%	2.42%	0.0478	0.0478	0.2096	0.0012	0.0051
	Valve	185	GV	4.50E-03	97%	1.35E-04	0.50%	0.01%	0.0551	0.0003	0.0012	0.0000	0.0000
	Valve	275	GV	4.50E-03	97%	1.35E-04	100.00%	1.26%	0.0820	0.0820	0.3590	0.0010	0.0045
	Valve	218	GV	4.50E-03	97%	1.35E-04	15.00%	0.19%	0.0648	0.0097	0.0426	0.0001	0.0005
Mobley 1 Total									**1.0395**	**0.6346**	**2.7794**	**0.0119**	**0.0521**
Mobley 2	Compressor	3	LL	7.50E-03	85%	1.13E-03	100.00%	2.42%	0.0074	0.0074	0.0326	0.0002	0.0008
	Compressor	4	GV	8.80E-03	85%	1.32E-03	15.00%	0.19%	0.0116	0.0017	0.0077	0.0000	0.0001
	Flange	250	GV	3.90E-04	75%	9.75E-05	100.00%	1.26%	0.0537	0.0537	0.2354	0.0007	0.0030
	Flange	545	GV	3.90E-04	75%	9.75E-05	15.00%	0.19%	0.1173	0.0176	0.0770	0.0002	0.0010
	Flange	26	GV	3.90E-04	75%	9.75E-05	0.50%	0.01%	0.0056	0.0000	0.0001	0.0000	0.0000
	Flange	248	LL	1.10E-04	75%	2.75E-05	100.00%	2.42%	0.0150	0.0150	0.0659	0.0004	0.0016
	Connector	328	GV	2.00E-04	30%	1.40E-04	100.00%	1.26%	0.1012	0.1012	0.4430	0.0013	0.0056
	Connector	1239	GV	2.00E-04	30%	1.40E-04	15.00%	0.19%	0.3826	0.0574	0.2514	0.0007	0.0032
	Connector	31	GV	2.00E-04	30%	1.40E-04	0.50%	0.01%	0.0097	0.0000	0.0002	0.0000	0.0000
	Connector	534	LL	2.10E-04	30%	1.47E-04	100.00%	2.42%	0.1730	0.1730	0.7579	0.0042	0.0183
	Connector	1	GV	2.00E-04	30%	1.40E-04	15.00%	0.19%	0.0005	0.0001	0.0003	0.0000	0.0000
	Pressure Relief	0	LL	7.50E-03	97%	2.25E-04	100.00%	2.42%	0.0000	0.0000	0.0000	0.0000	0.0000
	Pressure Relief	21	GV	8.80E-03	97%	2.64E-04	15.00%	0.19%	0.0122	0.0018	0.0080	0.0000	0.0001
	Pressure Relief	13	GV	8.80E-03	97%	2.64E-04	100.00%	1.26%	0.0076	0.0076	0.0332	0.0001	0.0004
	Pump	9	LL	1.30E-02	85%	1.95E-03	100.00%	2.42%	0.0400	0.0400	0.1754	0.0010	0.0042
	Pump	2	GV	2.40E-03	85%	3.60E-04	15.00%	0.19%	0.0013	0.0002	0.0009	0.0000	0.0000
	Valve	318	LL	2.50E-03	97%	7.50E-05	100.00%	2.42%	0.0526	0.0526	0.2306	0.0013	0.0056
	Valve	267	GV	4.50E-03	97%	1.35E-04	100.00%	1.26%	0.0795	0.0795	0.3484	0.0010	0.0044
	Valve	688	GV	4.50E-03	97%	1.35E-04	15.00%	0.19%	0.2050	0.0308	0.1347	0.0004	0.0017
	Valve	53	GV	4.50E-03	97%	1.35E-04	0.50%	0.01%	0.0158	0.0001	0.0003	0.0000	0.0000
	Valve	1	GV	4.50E-03	97%	1.35E-04	15.00%	0.19%	0.0003	0.0000	0.0002	0.0000	0.0000

Mobley 2 Total								**1.2923**	**0.6400**	**2.8033**	**0.0114**	**0.0500**
Mobley 3	Compressor	3	LL	7.50E-03	85%	1.13E-03	100.00%	1.26%	0.0074	0.0074	0.0326	0.0001	0.0004
	Compressor	4	GV	8.80E-03	85%	1.32E-03	15.00%	0.19%	0.0116	0.0017	0.0077	0.0000	0.0001
	Flange	35	LL	1.10E-04	75%	2.75E-05	0.50%	0.01%	0.0021	0.0000	0.0000	0.0000	0.0000
	Flange	39	LL	1.10E-04	75%	2.75E-05	100.00%	2.42%	0.0023	0.0023	0.0102	0.0001	0.0002
	Flange	403	GV	3.90E-04	75%	9.75E-05	0.50%	0.01%	0.0867	0.0004	0.0019	0.0000	0.0000
	Flange	196	GV	3.90E-04	75%	9.75E-05	15.00%	0.19%	0.0422	0.0063	0.0277	0.0001	0.0003
	Flange	229	GV	3.90E-04	75%	9.75E-05	100.00%	1.26%	0.0493	0.0493	0.2160	0.0006	0.0027
	Connector	2	HL	7.50E-06	30%	5.25E-06	100.00%	2.42%	0.0000	0.0000	0.0001	0.0000	0.0000
	Connector	224	LL	2.10E-04	30%	1.47E-04	0.50%	0.01%	0.0725	0.0004	0.0016	0.0000	0.0000
	Connector	176	LL	2.10E-04	30%	1.47E-04	100.00%	2.42%	0.0570	0.0570	0.2498	0.0014	0.0060
	Connector	811	GV	2.00E-04	30%	1.40E-04	0.50%	0.01%	0.2503	0.0013	0.0055	0.0000	0.0001
	Connector	593	GV	2.00E-04	30%	1.40E-04	100.00%	1.26%	0.1833	0.1833	0.8027	0.0023	0.0101
	Connector	318	GV	2.00E-04	30%	1.40E-04	15.00%	0.19%	0.0983	0.0148	0.0646	0.0002	0.0008
	Pressure Relief	0	LL	7.50E-03	97%	2.25E-04	100.00%	2.42%	0.0000	0.0000	0.0000	0.0000	0.0000
	Pressure Relief	15	GV	8.80E-03	97%	2.64E-04	0.50%	0.01%	0.0087	0.0000	0.0002	0.0000	0.0000
	Pressure Relief	9	GV	8.80E-03	97%	2.64E-04	100.00%	1.26%	0.0052	0.0052	0.0230	0.0001	0.0003
	Pressure Relief	9	GV	8.80E-03	97%	2.64E-04	15.00%	0.19%	0.0052	0.0008	0.0034	0.0000	0.0000
	Pump	5	GV	2.40E-03	85%	3.60E-04	0.50%	0.01%	0.0042	0.0000	0.0001	0.0000	0.0000
	Pump	3	LL	1.30E-02	85%	1.95E-03	100.00%	2.42%	0.0115	0.0115	0.0502	0.0003	0.0012
	Valve	72	LL	2.50E-03	97%	7.50E-05	0.50%	0.01%	0.0118	0.0001	0.0003	0.0000	0.0000
	Valve	98	LL	2.50E-03	97%	7.50E-05	100.00%	2.42%	0.0162	0.0162	0.0708	0.0004	0.0017
	Valve	374	GV	4.50E-03	97%	1.35E-04	0.50%	0.01%	0.1113	0.0006	0.0024	0.0000	0.0000
	Valve	278	GV	4.50E-03	97%	1.35E-04	15.00%	0.19%	0.0828	0.0124	0.0544	0.0002	0.0007
	Valve	297	GV	4.50E-03	97%	1.35E-04	100.00%	1.26%	0.0884	0.0884	0.3873	0.0011	0.0049
Mobley 3 Total									**1.2088**	**0.4595**	**2.0126**	**0.0068**	**0.0298**
Mobley 4	Compressor	5	LL	7.50E-03	85%	1.13E-03	100.00%	1.26%	0.0124	0.0124	0.0544	0.0002	0.0007
	Compressor	5	GV	8.80E-03	85%	1.32E-03	15.00%	0.19%	0.0146	0.0022	0.0096	0.0000	0.0001
	Compressor	0	GV	8.80E-03	85%	1.32E-03	100.00%	1.26%	0.0000	0.0000	0.0000	0.0000	0.0000
	Flange	35	LL	1.10E-04	75%	2.75E-05	0.50%	0.01%	0.0021	0.0000	0.0000	0.0000	0.0000
	Flange	398	LL	1.10E-04	75%	2.75E-05	100.00%	2.42%	0.0241	0.0241	0.1058	0.0006	0.0026
	Flange	197	GV	3.90E-04	75%	9.75E-05	0.50%	0.01%	0.0424	0.0002	0.0009	0.0000	0.0000
	Flange	291	GV	3.90E-04	75%	9.75E-05	15.00%	0.19%	0.0625	0.0094	0.0411	0.0001	0.0005
	Flange	566	GV	3.90E-04	75%	9.75E-05	100.00%	1.26%	0.1216	0.1216	0.5328	0.0015	0.0067
	Connector	359	LL	2.10E-04	30%	1.47E-04	0.50%	0.01%	0.1165	0.0006	0.0026	0.0000	0.0001
	Connector	715	LL	2.10E-04	30%	1.47E-04	100.00%	2.42%	0.2320	0.2320	1.0162	0.0056	0.0246
	Connector	939	GV	2.00E-04	30%	1.40E-04	0.50%	0.01%	0.2899	0.0014	0.0063	0.0000	0.0001
	Connector	516	GV	2.00E-04	30%	1.40E-04	15.00%	0.19%	0.1594	0.0239	0.1047	0.0003	0.0013
	Connector	862	GV	2.00E-04	30%	1.40E-04	100.00%	1.26%	0.2661	0.2661	1.1655	0.0034	0.0147
	Pressure Relief	8	LL	7.50E-03	97%	2.25E-04	100.00%	2.42%	0.0040	0.0040	0.0174	0.0001	0.0004
	Pressure Relief	8	GV	8.80E-03	97%	2.64E-04	15.00%	0.19%	0.0047	0.0007	0.0031	0.0000	0.0000
	Pressure Relief	21	GV	8.80E-03	97%	2.64E-04	100.00%	1.26%	0.0122	0.0122	0.0536	0.0002	0.0007
	Pressure Relief	14	GV	8.80E-03	97%	2.64E-04	0.50%	0.01%	0.0082	0.0000	0.0002	0.0000	0.0000
	Pump	6	LL	1.30E-02	85%	1.95E-03	100.00%	2.42%	0.0237	0.0237	0.1036	0.0006	0.0025
	Pump	3	GV	2.40E-03	85%	3.60E-04	0.50%	0.01%	0.0022	0.0000	0.0000	0.0000	0.0000
	Pump	1	GV	2.40E-03	85%	3.60E-04	15.00%	0.19%	0.0007	0.0001	0.0005	0.0000	0.0000
	Pump	2	GV	2.40E-03	85%	3.60E-04	100.00%	1.26%	0.0015	0.0015	0.0064	0.0000	0.0001
	Valve	113	LL	2.50E-03	97%	7.50E-05	0.50%	0.01%	0.0188	0.0001	0.0004	0.0000	0.0000
	Valve	402	LL	2.50E-03	97%	7.50E-05	100.00%	2.42%	0.0666	0.0666	0.2915	0.0016	0.0071
	Valve	424	GV	4.50E-03	97%	1.35E-04	0.50%	0.01%	0.1263	0.0006	0.0028	0.0000	0.0000
	Valve	328	GV	4.50E-03	97%	1.35E-04	15.00%	0.19%	0.0977	0.0146	0.0642	0.0002	0.0008
	Valve	488	GV	4.50E-03	97%	1.35E-04	100.00%	1.26%	0.1454	0.1454	0.6367	0.0018	0.0080
Mobley 4 Total									**1.8554**	**0.9635**	**4.2201**	**0.0162**	**0.0710**
Plant Wide Emissions									**7.6500**	**3.9944**	**17.4956**	**0.0664**	**0.2909**

[a] Component counts are based on a combination of counts from LeakDas and historical information.

[b] Table 2-4. Oil & Gas Production Operations Average Emission Factors, Protocol for Equipment Leak Emission Estimates, EPA 453/R-95-017, November 1995. Emission factors based on average measured TOC from component types indicated in gas or light oil service at O&G Production Operations.

[c] Table V: Control Efficiencies for LDAR for 28VHP programs, Air Permit Technical Guidance for Chemical Sources Fugitive Guidance, TCEQ (APDG 6422v2, Revised 06/2018).

[d] For components in vapor service areas in close drain, pipeline pump/rack, product pump, refrigeration, stabilizer, process skids, flare, heat exchanger, tankage were considered 100% VOC. For components in vapor service listed as less than 10% VOC service and meter skid was considered residue gas. For liquid service everything considered 100% VOC service except the charge pump skid and deethanizer exchange skid on the deethanizer considered NGL. HAP percentages are conservatively estimated using the ratio of HAP to VOC in the inlet gas and the Majorsville Y Grade inlet.

MarkWest Liberty Midstream & Resources L.L.C.
Mobley Gas Plant
Rod Packing Emissions

Rodpacking Emissions

Summary of Rodpacking Emissions

Pollutant	Total Emissions	
	lb/hr	tpy
VOC	**6.58**	**28.83**
Total HAPs	**0.21**	**0.92**
Benzene	**3.83E-03**	**0.02**
Toluene	**4.52E-03**	**0.02**
Ethylbenzene	**5.21E-03**	**0.02**
Xylene	**5.21E-03**	**0.02**
n-Hexane	**0.19**	**0.84**
Methane	**64.73**	**283.52**
CO2	**0.37**	**1.60**

[a] Rodpacking emissions are based on the average monitored leak rate reported for GHGs in 2018 for each type of compressor.

Residue Compressors

Number of Compressors 17

Total Emissions[a] 61.134 (lb/hr)

Pollutant	Mass %	Emissions	
		lb/hr	tpy
VOC	1.43%	0.87	3.82
Total HAPs	0.02%	0.01	0.06
Benzene	0.00%	0.00	0.01
Toluene	0.01%	0.00	0.01
Ethylbenzene	0.01%	0.00	0.02
Xylene	0.01%	0.00	0.02
n-Hexane	0.00%	0.00	0.00
Methane	74.38%	45.47	199.15
CO2	0.41%	0.25	1.11

Inlet Compressors

Number of Compressors 7

Total Emissions[a] 28.606 (lb/hr)

Pollutant	Mass %	Emissions	
		lb/hr	tpy
VOC	15.42%	4.41	19.32
Total HAPs	0.63%	0.18	0.78
Benzene	0.00%	0.00	0.00
Toluene	0.00%	0.00	0.01
Ethylbenzene	0.01%	0.00	0.01
Xylene	0.01%	0.00	0.01
n-Hexane	0.61%	0.17	0.76
Methane	63.46%	18.15	79.51
CO2	0.35%	0.10	0.44

Stabilizer Compressors

Number of Compressors 2

Total Emissions[a] 3.778 (lb/hr)

Pollutant	Mass %	Emissions	
		lb/hr	tpy
VOC	34.38%	1.30	5.69
Total HAPs	0.50%	0.02	0.08
Benzene	0.00%	0.00	0.00
Toluene	0.00%	0.00	0.00
Ethylbenzene	0.00%	0.00	0.00
Xylene	0.00%	0.00	0.00
n-Hexane	0.48%	0.02	0.08
Methane	29.32%	1.11	4.85
CO2	0.34%	0.01	0.06

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

Crankcase Blowby Percentage[1] 3%

Pollutant	Total Engine Emissions		Blowby Percentage	Blowby Emissions	
	lb/hr	tpy		lb/hr	tpy
NO_X	13.99	63.79	3%	0.42	1.91
CO	9.28	42.84		0.28	1.29
VOC	6.32	27.84		0.19	0.84
SO_2	0.09	0.38		0.00	0.01
PM	2.21	6.46		0.07	0.19
Benzene	0.06	0.25		0.00	0.01
Toluene	0.02	0.11		0.00	0.00
Ethylbenzene	0.00	0.01		0.00	0.00
Xylenes	0.01	0.04		0.00	0.00
n-Hexane	0.05	0.09		0.00	0.00
Formaldehyde	1.29	5.68		0.04	0.17
Total HAPs	2.00	8.80		0.06	0.26

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

Pneumatic Device Emissions

Source Information:	
Intermittent Pneumatic Emission Rate (scf/hr) [a]	13.5
Number of Intermittent Pneumatic Devices	4
Potential Annual Hours of Operation (hr/yr)	8,760
Potential Volume Emitted (scf/yr)	118,260

Pollutant	Per Device		Total	
	lb/hr	tpy	lb/hr	tpy
Carbon Dioxide	0.003	0.011	0.01	0.044
Methane	0.46	1.995	1.82	7.979
VOC	0.11	0.485	0.44	1.939
Benzene	2.78E-05	0.000	1.11E-04	0.000
Toluene	3.28E-05	0.000	1.31E-04	0.001
Ethylbenzene	3.78E-05	0.000	1.51E-04	0.001
Xylenes	3.78E-05	0.000	1.51E-04	0.001
n-Hexane	4.35E-03	0.019	0.02	0.076
Total HAPs	4.49E-03	0.020	0.02	0.079

[a] Emission factor from Table W-1A to Subpart W of Part 98.

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

Regeneration Heater
(H-2741)

Source Designation:	
Manufacturer:	Heatec
Year Installed	TBD
Fuel Used:	Natural Gas
Higher Heating Value (HHV) (Btu/scf):	1,123
Heat Input (MMBtu/hr)	9.60
Fuel Consumption (mmscf/hr):	8.55E-03
Potential Annual Hours of Operation (hr/yr):	8,760

Criteria and Manufacturer Specific Pollutant Emission Rates

Pollutant	**Emission Factor (lb/MMscf)[a,b] GHGs - (kg/mmbtu)**	**Potential Emissions (lb/hr)[c]**	**(tons/yr)[d]**
NO_x	59.54	0.509	2.229
CO	46.06	0.394	1.725
SO_2	0.6	0.0051	0.0225
PM Total	7.6	0.0650	0.2846
PM Condensable	5.7	0.049	0.213
PM_{10} (Filterable)	1.9	0.016	0.071
$PM_{2.5}$ (Filterable)	1.9	0.016	0.071
VOC	5.5	0.047	0.206
CO_2	53.02	1,123	4,917
CH_4	0.001	0.021	0.093
N_2O	0.0001	0.002	0.009
$CO_2(e)$	-	1123.68	4921.98

Hazardous Air Pollutant (HAP) Potential Emissions

Pollutant	Emission Factor (lb/MMscf)[a]	Potential Emissions	
		(lb/hr)[c]	(tons/yr)[d]
HAPs:			
3-Methylchloranthrene	1.80E-06	1.54E-08	6.74E-08
7,12-Dimethylbenz(a)anthracene	1.60E-05	1.37E-07	5.99E-07
Acenaphthene	1.80E-06	1.54E-08	6.74E-08
Acenaphthylene	1.80E-06	1.54E-08	6.74E-08
Anthracene	2.40E-06	2.05E-08	8.99E-08
Benz(a)anthracene	1.80E-06	1.54E-08	6.74E-08
Benzene	2.10E-03	1.80E-05	7.86E-05
Benzo(a)pyrene	1.20E-06	1.03E-08	4.49E-08
Benzo(b)fluoranthene	1.80E-06	1.54E-08	6.74E-08
Benzo(g,h,i)perylene	1.20E-06	1.03E-08	4.49E-08
Benzo(k)fluoranthene	1.80E-06	1.54E-08	6.74E-08
Chrysene	1.80E-06	1.54E-08	6.74E-08
Dibenzo(a,h) anthracene	1.20E-06	1.03E-08	4.49E-08
Dichlorobenzene	1.20E-03	1.03E-05	4.49E-05
Fluoranthene	3.00E-06	2.56E-08	1.12E-07
Fluorene	2.80E-06	2.39E-08	1.05E-07
Formaldehyde	7.50E-02	6.41E-04	2.81E-03
Hexane	1.80E+00	1.54E-02	6.74E-02
Indo(1,2,3-cd)pyrene	1.80E-06	1.54E-08	6.74E-08
Phenanthrene	1.70E-05	1.45E-07	6.37E-07
Pyrene	5.00E-06	4.27E-08	1.87E-07
Toluene	3.40E-03	2.91E-05	1.27E-04
Arsenic	2.00E-04	1.71E-06	7.49E-06
Beryllium	1.20E-05	1.03E-07	4.49E-07
Cadmium	1.10E-03	9.40E-06	4.12E-05
Chromium	1.40E-03	1.20E-05	5.24E-05
Cobalt	8.40E-05	7.18E-07	3.15E-06
Lead	5.00E-04	4.27E-06	1.87E-05
Manganese	3.80E-04	3.25E-06	1.42E-05
Mercury	2.60E-04	2.22E-06	9.74E-06
Nickel	2.10E-03	1.80E-05	7.86E-05
Selenium	2.40E-05	2.05E-07	8.99E-07
Polycyclic Organic Matter:			
Methylnaphthalene (2-)	2.40E-05	2.05E-07	8.99E-07
Naphthalene	6.10E-04	5.21E-06	2.28E-05
Total HAP		**1.61E-02**	**7.07E-02**

[a] Emission factors from AP-42 Section 1.4 "Natural Gas Combustion" Tables 1.4-1, 1.4-2, & 1.4-3 (07/98) for all criteria and HAP pollutants. NOx and CO emission factors provided by the manufacturer.

[b] Emission factors for GHG pollutants from 40 CFR Part 98, Subpart C.

[c] Emission Rate (lb/hr) = Rated Capacity (MMscf/hr) × Emission Factor (lb/MMscf).

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

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

HMO Heater
(H-2781)

Source Designation:	
Manufacturer:	Heatec
Year Installed	TBD
Fuel Used:	Natural Gas
Higher Heating Value (HHV) (Btu/scf):	1,123
Heat Input (MMBtu/hr)	26.32
Fuel Consumption (mmscf/hr):	2.34E-02
Potential Annual Hours of Operation (hr/yr):	8,760

Criteria and Manufacturer Specific Pollutant Emission Rates

Pollutant	**Emission Factor (lb/MMscf)[a,b] GHGs - (kg/mmbtu)**	**Potential Emissions (lb/hr)[c]**	**(tons/yr)[d]**
NO_x	100	2.343	10.261
CO	84	1.968	8.619
SO_2	0.6	0.0141	0.0616
PM Total	7.6	0.1780	0.7798
PM Condensable	5.7	0.134	0.585
PM_{10} (Filterable)	1.9	0.045	0.195
$PM_{2.5}$ (Filterable)	1.9	0.045	0.195
VOC	5.5	0.129	0.564
CO_2	53.02	3,076	13,474
CH_4	0.001	0.058	0.254
N_2O	0.0001	0.006	0.025
$CO_2(e)$	-	3079.39	13488.43

Hazardous Air Pollutant (HAP) Potential Emissions

Pollutant	Emission Factor (lb/MMscf)[a]	Potential Emissions	
		(lb/hr)[c]	(tons/yr)[d]
HAPs:			
3-Methylchloranthrene	1.80E-06	4.22E-08	1.85E-07
7,12-Dimethylbenz(a)anthracene	1.60E-05	3.75E-07	1.64E-06
Acenaphthene	1.80E-06	4.22E-08	1.85E-07
Acenaphthylene	1.80E-06	4.22E-08	1.85E-07
Anthracene	2.40E-06	5.62E-08	2.46E-07
Benz(a)anthracene	1.80E-06	4.22E-08	1.85E-07
Benzene	2.10E-03	4.92E-05	2.15E-04
Benzo(a)pyrene	1.20E-06	2.81E-08	1.23E-07
Benzo(b)fluoranthene	1.80E-06	4.22E-08	1.85E-07
Benzo(g,h,i)perylene	1.20E-06	2.81E-08	1.23E-07
Benzo(k)fluoranthene	1.80E-06	4.22E-08	1.85E-07
Chrysene	1.80E-06	4.22E-08	1.85E-07
Dibenzo(a,h) anthracene	1.20E-06	2.81E-08	1.23E-07
Dichlorobenzene	1.20E-03	2.81E-05	1.23E-04
Fluoranthene	3.00E-06	7.03E-08	3.08E-07
Fluorene	2.80E-06	6.56E-08	2.87E-07
Formaldehyde	7.50E-02	1.76E-03	7.70E-03
Hexane	1.80E+00	4.22E-02	1.85E-01
Indo(1,2,3-cd)pyrene	1.80E-06	4.22E-08	1.85E-07
Phenanthrene	1.70E-05	3.98E-07	1.74E-06
Pyrene	5.00E-06	1.17E-07	5.13E-07
Toluene	3.40E-03	7.97E-05	3.49E-04
Arsenic	2.00E-04	4.69E-06	2.05E-05
Beryllium	1.20E-05	2.81E-07	1.23E-06
Cadmium	1.10E-03	2.58E-05	1.13E-04
Chromium	1.40E-03	3.28E-05	1.44E-04
Cobalt	8.40E-05	1.97E-06	8.62E-06
Lead	5.00E-04	1.17E-05	5.13E-05
Manganese	3.80E-04	8.90E-06	3.90E-05
Mercury	2.60E-04	6.09E-06	2.67E-05
Nickel	2.10E-03	4.92E-05	2.15E-04
Selenium	2.40E-05	5.62E-07	2.46E-06
Polycyclic Organic Matter:			
Methylnaphthalene (2-)	2.40E-05	5.62E-07	2.46E-06
Naphthalene	6.10E-04	1.43E-05	6.26E-05
Total HAP		**4.42E-02**	**1.94E-01**

[a] Emission factors from AP-42 Section 1.4 "Natural Gas Combustion" Tables 1.4-1, 1.4-2, & 1.4-3 (07/98) for all criteria and HAP pollutants.

[b] Emission factors for GHG pollutants from 40 CFR Part 98, Subpart C.

[c] Emission Rate (lb/hr) = Rated Capacity (MMscf/hr) × Emission Factor (lb/MMscf).

[d] Annual Emissions $(\text{tons/yr})_{\text{Potential}} = (\text{lb/hr})_{\text{Emissions}} \times$ (Maximum Allowable Operating Hours, 8760 hr/yr) × (1 ton/2000 lb).

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

Regeneration Heater
(H-1741)

Source Designation:	
Manufacturer:	Heatec
Year Installed	TBD
Fuel Used:	Natural Gas
Higher Heating Value (HHV) (Btu/scf):	1,123
Heat Input (MMBtu/hr)	7.96
Fuel Consumption (mmscf/hr):	7.09E-03
Potential Annual Hours of Operation (hr/yr):	8,760

Criteria and Manufacturer Specific Pollutant Emission Rates

Pollutant	**Emission Factor (lb/MMscf)[a,b] GHGs - (kg/mmbtu)**	**Potential Emissions (lb/hr)[c]**	**(tons/yr)[d]**
NO_x	59.54	0.422	1.848
CO	46.06	0.326	1.430
SO_2	0.6	0.0043	0.0186
PM Total	7.6	0.0539	0.2359
PM Condensable	5.7	0.040	0.177
PM_{10} (Filterable)	1.9	0.013	0.059
$PM_{2.5}$ (Filterable)	1.9	0.013	0.059
VOC	5.5	0.039	0.171
CO_2	53.02	931	4,076
CH_4	0.001	0.018	0.077
N_2O	0.0001	0.002	0.008
$CO_2(e)$	-	931.47	4080.06

Hazardous Air Pollutant (HAP) Potential Emissions

Pollutant	Emission Factor (lb/MMscf)[a]	Potential Emissions	
		(lb/hr)[c]	(tons/yr)[d]
HAPs:			
3-Methylchloranthrene	1.80E-06	1.28E-08	5.59E-08
7,12-Dimethylbenz(a)anthracene	1.60E-05	1.13E-07	4.97E-07
Acenaphthene	1.80E-06	1.28E-08	5.59E-08
Acenaphthylene	1.80E-06	1.28E-08	5.59E-08
Anthracene	2.40E-06	1.70E-08	7.45E-08
Benz(a)anthracene	1.80E-06	1.28E-08	5.59E-08
Benzene	2.10E-03	1.49E-05	6.52E-05
Benzo(a)pyrene	1.20E-06	8.50E-09	3.72E-08
Benzo(b)fluoranthene	1.80E-06	1.28E-08	5.59E-08
Benzo(g,h,i)perylene	1.20E-06	8.50E-09	3.72E-08
Benzo(k)fluoranthene	1.80E-06	1.28E-08	5.59E-08
Chrysene	1.80E-06	1.28E-08	5.59E-08
Dibenzo(a,h) anthracene	1.20E-06	8.50E-09	3.72E-08
Dichlorobenzene	1.20E-03	8.50E-06	3.72E-05
Fluoranthene	3.00E-06	2.13E-08	9.31E-08
Fluorene	2.80E-06	1.98E-08	8.69E-08
Formaldehyde	7.50E-02	5.31E-04	2.33E-03
Hexane	1.80E+00	1.28E-02	5.59E-02
Indo(1,2,3-cd)pyrene	1.80E-06	1.28E-08	5.59E-08
Phenanthrene	1.70E-05	1.20E-07	5.28E-07
Pyrene	5.00E-06	3.54E-08	1.55E-07
Toluene	3.40E-03	2.41E-05	1.06E-04
Arsenic	2.00E-04	1.42E-06	6.21E-06
Beryllium	1.20E-05	8.50E-08	3.72E-07
Cadmium	1.10E-03	7.80E-06	3.41E-05
Chromium	1.40E-03	9.92E-06	4.35E-05
Cobalt	8.40E-05	5.95E-07	2.61E-06
Lead	5.00E-04	3.54E-06	1.55E-05
Manganese	3.80E-04	2.69E-06	1.18E-05
Mercury	2.60E-04	1.84E-06	8.07E-06
Nickel	2.10E-03	1.49E-05	6.52E-05
Selenium	2.40E-05	1.70E-07	7.45E-07
Polycyclic Organic Matter:			
Methylnaphthalene (2-)	2.40E-05	1.70E-07	7.45E-07
Naphthalene	6.10E-04	4.32E-06	1.89E-05
Total HAP		**1.34E-02**	**5.86E-02**

[a] Emission factors from AP-42 Section 1.4 "Natural Gas Combustion" Tables 1.4-1, 1.4-2, & 1.4-3 (07/98) for criteria and HAP pollutants.

[b] NO_x and CO emission factors provided by the manufacturer.

[c] GHG emission factors from 40 CFR Part 98, Subpart C.

[d] Emission Rate (lb/hr) = Rated Capacity (MMscf/hr) × Emission Factor (lb/MMscf).

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

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

Regeneration Heater
(H-1781)

Source Designation:	
Manufacturer:	Heatec
Year Installed	TBD
Fuel Used:	Natural Gas
Higher Heating Value (HHV) (Btu/scf):	1,123
Heat Input (MMBtu/hr)	17.80
Fuel Consumption (mmscf/hr):	1.58E-02
Potential Annual Hours of Operation (hr/yr):	8,760

Criteria and Manufacturer Specific Pollutant Emission Rates

Pollutant	**Emission Factor (lb/MMscf)[a,b] GHGs - (kg/mmbtu)**	**Potential Emissions (lb/hr)[c]**	**(tons/yr)[d]**
NO_x	100	1.585	6.941
CO	84	1.331	5.830
SO_2	0.6	0.0095	0.0416
PM Total	7.6	0.1204	0.5275
PM Condensable	5.7	0.090	0.396
PM_{10} (Filterable)	1.9	0.030	0.132
$PM_{2.5}$ (Filterable)	1.9	0.030	0.132
VOC	5.5	0.087	0.382
CO_2	53.02	2,081	9,114
CH_4	0.001	0.039	0.172
N_2O	0.0001	0.004	0.017
$CO_2(e)$	-	2082.95	9123.81

Hazardous Air Pollutant (HAP) Potential Emissions

Pollutant	Emission Factor (lb/MMscf)[a]	Potential Emissions	
		(lb/hr)[c]	(tons/yr)[d]
HAPs:			
3-Methylchloranthrene	1.80E-06	2.85E-08	1.25E-07
7,12-Dimethylbenz(a)anthracene	1.60E-05	2.54E-07	1.11E-06
Acenaphthene	1.80E-06	2.85E-08	1.25E-07
Acenaphthylene	1.80E-06	2.85E-08	1.25E-07
Anthracene	2.40E-06	3.80E-08	1.67E-07
Benz(a)anthracene	1.80E-06	2.85E-08	1.25E-07
Benzene	2.10E-03	3.33E-05	1.46E-04
Benzo(a)pyrene	1.20E-06	1.90E-08	8.33E-08
Benzo(b)fluoranthene	1.80E-06	2.85E-08	1.25E-07
Benzo(g,h,i)perylene	1.20E-06	1.90E-08	8.33E-08
Benzo(k)fluoranthene	1.80E-06	2.85E-08	1.25E-07
Chrysene	1.80E-06	2.85E-08	1.25E-07
Dibenzo(a,h) anthracene	1.20E-06	1.90E-08	8.33E-08
Dichlorobenzene	1.20E-03	1.90E-05	8.33E-05
Fluoranthene	3.00E-06	4.75E-08	2.08E-07
Fluorene	2.80E-06	4.44E-08	1.94E-07
Formaldehyde	7.50E-02	1.19E-03	5.21E-03
Hexane	1.80E+00	2.85E-02	1.25E-01
Indo(1,2,3-cd)pyrene	1.80E-06	2.85E-08	1.25E-07
Phenanthrene	1.70E-05	2.69E-07	1.18E-06
Pyrene	5.00E-06	7.92E-08	3.47E-07
Toluene	3.40E-03	5.39E-05	2.36E-04
Arsenic	2.00E-04	3.17E-06	1.39E-05
Beryllium	1.20E-05	1.90E-07	8.33E-07
Cadmium	1.10E-03	1.74E-05	7.63E-05
Chromium	1.40E-03	2.22E-05	9.72E-05
Cobalt	8.40E-05	1.33E-06	5.83E-06
Lead	5.00E-04	7.92E-06	3.47E-05
Manganese	3.80E-04	6.02E-06	2.64E-05
Mercury	2.60E-04	4.12E-06	1.80E-05
Nickel	2.10E-03	3.33E-05	1.46E-04
Selenium	2.40E-05	3.80E-07	1.67E-06
Polycyclic Organic Matter:			
Methylnaphthalene (2-)	2.40E-05	3.80E-07	1.67E-06
Naphthalene	6.10E-04	9.67E-06	4.23E-05
Total HAP		**2.99E-02**	**1.31E-01**

[a] Emission factors from AP-42 Section 1.4 "Natural Gas Combustion" Tables 1.4-1, 1.4-2, & 1.4-3 (07/98) for all criteria and HAP pollutants.

[b] Emission factors for GHG pollutants from 40 CFR Part 98, Subpart C.

[c] Emission Rate (lb/hr) = Rated Capacity (MMscf/hr) × Emission Factor (lb/MMscf).

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

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

Regeneration Heaters
(H-3741, 4741)

Source Designation:	
Manufacturer:	Heatec
Year Installed	TBD
Fuel Used:	Natural Gas
Higher Heating Value (HHV) (Btu/scf):	1,123
Heat Input (MMBtu/hr)	9.60
Fuel Consumption (mmscf/hr):	8.55E-03
Potential Annual Hours of Operation (hr/yr):	8,760

Criteria and Manufacturer Specific Pollutant Emission Rates

Pollutant	**Emission Factor (lb/MMscf)[a,b] GHGs - (kg/mmbtu)**	**Potential Emissions (lb/hr)[c]**	**(tons/yr)[d]**
NO_x	100	0.855	3.744
CO	84	0.718	3.145
SO_2	0.6	0.0051	0.0225
PM Total	7.6	0.0650	0.2846
PM Condensable	5.7	0.049	0.213
PM_{10} (Filterable)	1.9	0.016	0.071
$PM_{2.5}$ (Filterable)	1.9	0.016	0.071
VOC	5.5	0.047	0.206
CO_2	53.02	1,123	4,917
CH_4	0.001	0.021	0.093
N_2O	0.0001	0.002	0.009
$CO_2(e)$	-	1123.68	4921.98

Hazardous Air Pollutant (HAP) Potential Emissions

Pollutant	Emission Factor (lb/MMscf)[a]	Potential Emissions	
		(lb/hr)[c]	(tons/yr)[d]
HAPs:			
3-Methylchloranthrene	1.98E-06	1.69E-08	7.42E-08
7,12-Dimethylbenz(a)anthracene	1.76E-05	1.51E-07	6.60E-07
Acenaphthene	1.98E-06	1.69E-08	7.42E-08
Acenaphthylene	1.98E-06	1.69E-08	7.42E-08
Anthracene	2.64E-06	2.26E-08	9.90E-08
Benz(a)anthracene	1.98E-06	1.69E-08	7.42E-08
Benzene	2.31E-03	1.98E-05	8.66E-05
Benzo(a)pyrene	1.32E-06	1.13E-08	4.95E-08
Benzo(b)fluoranthene	1.98E-06	1.69E-08	7.42E-08
Benzo(g,h,i)perylene	1.32E-06	1.13E-08	4.95E-08
Benzo(k)fluoranthene	1.98E-06	1.69E-08	7.42E-08
Chrysene	1.98E-06	1.69E-08	7.42E-08
Dibenzo(a,h) anthracene	1.32E-06	1.13E-08	4.95E-08
Dichlorobenzene	1.32E-03	1.13E-05	4.95E-05
Fluoranthene	3.30E-06	2.82E-08	1.24E-07
Fluorene	3.08E-06	2.64E-08	1.15E-07
Formaldehyde	8.26E-02	7.06E-04	3.09E-03
Hexane	1.98E+00	1.69E-02	7.42E-02
Indo(1,2,3-cd)pyrene	1.98E-06	1.69E-08	7.42E-08
Phenanthrene	1.87E-05	1.60E-07	7.01E-07
Pyrene	5.51E-06	4.71E-08	2.06E-07
Toluene	3.74E-03	3.20E-05	1.40E-04
Arsenic	2.20E-04	1.88E-06	8.25E-06
Beryllium	1.32E-05	1.13E-07	4.95E-07
Cadmium	1.21E-03	1.04E-05	4.54E-05
Chromium	1.54E-03	1.32E-05	5.77E-05
Cobalt	9.25E-05	7.91E-07	3.46E-06
Lead	5.51E-04	4.71E-06	2.06E-05
Manganese	4.19E-04	3.58E-06	1.57E-05
Mercury	2.86E-04	2.45E-06	1.07E-05
Nickel	2.31E-03	1.98E-05	8.66E-05
Selenium	2.64E-05	2.26E-07	9.90E-07
Polycyclic Organic Matter:			
Methylnaphthalene (2-)	2.64E-05	2.26E-07	9.90E-07
Naphthalene	6.72E-04	5.74E-06	2.52E-05
Total HAP		**1.78E-02**	**7.79E-02**

[a] Emission factors from AP-42 Section 1.4 "Natural Gas Combustion" Tables 1.4-1, 1.4-2, & 1.4-3 (07/98) for all criteria and HAP pollutants, corrected to site-specific gas heat content.

[b] Emission factors for GHG pollutants from 40 CFR Part 98, Subpart C and corrected to site-specific gas heat content.

[c] Emission Rate (lb/hr) = Rated Capacity (MMscf/hr) × Emission Factor (lb/MMscf).

[d] Annual Emissions $(\text{tons/yr})_{\text{Potential}} = (\text{lb/hr})_{\text{Emissions}} \times$ (Maximum Allowable Operating Hours, 8760 hr/yr) × (1 ton/2000 lb).

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

HMO Heater
(H-3781)

Source Designation:	
Manufacturer:	Heatec
Year Installed	TBD
Fuel Used:	Natural Gas
Higher Heating Value (HHV) (Btu/scf):	1,123
Heat Input (MMBtu/hr)	26.32
Fuel Consumption (mmscf/hr):	2.34E-02
Potential Annual Hours of Operation (hr/yr):	8,760

Criteria and Manufacturer Specific Pollutant Emission Rates

Pollutant	**Emission Factor (lb/MMscf)[a,b] GHGs - (kg/mmbtu)**	**Potential Emissions (lb/hr)[c]**	**(tons/yr)[d]**
NO_x	100	2.343	10.261
CO	84	1.968	8.619
SO_2	0.6	0.0141	0.0616
PM Total	7.6	0.1780	0.7798
PM Condensable	5.7	0.134	0.585
PM_{10} (Filterable)	1.9	0.045	0.195
$PM_{2.5}$ (Filterable)	1.9	0.045	0.195
VOC	5.5	0.129	0.564
CO_2	53.02	3,076	13,474
CH_4	0.001	0.058	0.254
N_2O	0.0001	0.006	0.025
$CO_2(e)$	-	3079.39	13488.43

Hazardous Air Pollutant (HAP) Potential Emissions

Pollutant	Emission Factor (lb/MMscf)[a]	Potential Emissions	
		(lb/hr)[c]	(tons/yr)[d]
HAPs:			
3-Methylchloranthrene	1.98E-06	4.64E-08	2.03E-07
7,12-Dimethylbenz(a)anthracene	1.76E-05	4.13E-07	1.81E-06
Acenaphthene	1.98E-06	4.64E-08	2.03E-07
Acenaphthylene	1.98E-06	4.64E-08	2.03E-07
Anthracene	2.64E-06	6.19E-08	2.71E-07
Benz(a)anthracene	1.98E-06	4.64E-08	2.03E-07
Benzene	2.31E-03	5.42E-05	2.37E-04
Benzo(a)pyrene	1.32E-06	3.10E-08	1.36E-07
Benzo(b)fluoranthene	1.98E-06	4.64E-08	2.03E-07
Benzo(g,h,i)perylene	1.32E-06	3.10E-08	1.36E-07
Benzo(k)fluoranthene	1.98E-06	4.64E-08	2.03E-07
Chrysene	1.98E-06	4.64E-08	2.03E-07
Dibenzo(a,h) anthracene	1.32E-06	3.10E-08	1.36E-07
Dichlorobenzene	1.32E-03	3.10E-05	1.36E-04
Fluoranthene	3.30E-06	7.74E-08	3.39E-07
Fluorene	3.08E-06	7.22E-08	3.16E-07
Formaldehyde	8.26E-02	1.94E-03	8.48E-03
Hexane	1.98E+00	4.64E-02	2.03E-01
Indo(1,2,3-cd)pyrene	1.98E-06	4.64E-08	2.03E-07
Phenanthrene	1.87E-05	4.39E-07	1.92E-06
Pyrene	5.51E-06	1.29E-07	5.65E-07
Toluene	3.74E-03	8.77E-05	3.84E-04
Arsenic	2.20E-04	5.16E-06	2.26E-05
Beryllium	1.32E-05	3.10E-07	1.36E-06
Cadmium	1.21E-03	2.84E-05	1.24E-04
Chromium	1.54E-03	3.61E-05	1.58E-04
Cobalt	9.25E-05	2.17E-06	9.49E-06
Lead	5.51E-04	1.29E-05	5.65E-05
Manganese	4.19E-04	9.81E-06	4.29E-05
Mercury	2.86E-04	6.71E-06	2.94E-05
Nickel	2.31E-03	5.42E-05	2.37E-04
Selenium	2.64E-05	6.19E-07	2.71E-06
Polycyclic Organic Matter:			
Methylnaphthalene (2-)	2.64E-05	6.19E-07	2.71E-06
Naphthalene	6.72E-04	1.57E-05	6.89E-05
Total HAP		**4.87E-02**	**2.13E-01**

[a] Emission factors from AP-42 Section 1.4 "Natural Gas Combustion" Tables 1.4-1, 1.4-2, & 1.4-3 (07/98) for all criteria and HAP pollutants, corrected to site-specific gas heat content.

[b] Emission factors for GHG pollutants from 40 CFR Part 98, Subpart C and corrected to site-specific gas heat content.

[c] Emission Rate (lb/hr) = Rated Capacity (MMscf/hr) × Emission Factor (lb/MMscf).

[d] Annual Emissions $(\text{tons/yr})_{\text{Potential}} = (\text{lb/hr})_{\text{Emissions}} \times$ (Maximum Allowable Operating Hours, 8760 hr/yr) × (1 ton/2000 lb).

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

HMO Heater
(H-5782)

Source Designation:	
Manufacturer:	Heatec
Year Installed	TBD
Fuel Used:	Natural Gas
Higher Heating Value (HHV) (Btu/scf):	1,123
HHV Input (MMBtu/hr)	62.99
Fuel Consumption (mmscf/hr):	5.61E-02
Potential Annual Hours of Operation (hr/yr):	8,760

Criteria and Manufacturer Specific Pollutant Emission Rates

Pollutant	**Emission Factor (lb/MMscf)[a,b] GHGs - (kg/mmbtu)**	**Potential Emissions (lb/hr)[c]**	**(tons/yr)[d]**
NO_x	54.40	3.05	13.36
CO	45.0	2.52	11.04
SO_2	0.6	0.03	0.15
PM Total	7.6	0.43	1.87
PM Condensable	5.7	0.32	1.40
PM_{10} (Filterable)	1.9	0.11	0.47
$PM_{2.5}$ (Filterable)	1.9	0.11	0.47
VOC	5.5	0.31	1.35
CO_2	53.02	7362.64	32248.36
CH_4	0.001	0.14	0.61
N_2O	0.0001	0.01	0.06
$CO_2(e)$	-	7369.86	32281.69

Hazardous Air Pollutant (HAP) Potential Emissions

Pollutant	Emission Factor (lb/MMscf)[a]	Potential Emissions	
		(lb/hr)[c]	(tons/yr)[d]
HAPs:			
3-Methylchloranthrene	1.98E-06	1.11E-07	4.87E-07
7,12-Dimethylbenz(a)anthracene	1.76E-05	9.88E-07	4.33E-06
Acenaphthene	1.98E-06	1.11E-07	4.87E-07
Acenaphthylene	1.98E-06	1.11E-07	4.87E-07
Anthracene	2.64E-06	1.48E-07	6.49E-07
Benz(a)anthracene	1.98E-06	1.11E-07	4.87E-07
Benzene	2.31E-03	1.30E-04	5.68E-04
Benzo(a)pyrene	1.32E-06	7.41E-08	3.25E-07
Benzo(b)fluoranthene	1.98E-06	1.11E-07	4.87E-07
Benzo(g,h,i)perylene	1.32E-06	7.41E-08	3.25E-07
Benzo(k)fluoranthene	1.98E-06	1.11E-07	4.87E-07
Chrysene	1.98E-06	1.11E-07	4.87E-07
Dibenzo(a,h) anthracene	1.32E-06	7.41E-08	3.25E-07
Dichlorobenzene	1.32E-03	7.41E-05	3.25E-04
Fluoranthene	3.30E-06	1.85E-07	8.11E-07
Fluorene	3.08E-06	1.73E-07	7.57E-07
Formaldehyde	8.26E-02	4.63E-03	2.03E-02
Hexane	1.98E+00	1.11E-01	4.87E-01
Indo(1,2,3-cd)pyrene	1.98E-06	1.11E-07	4.87E-07
Phenanthrene	1.87E-05	1.05E-06	4.60E-06
Pyrene	5.51E-06	3.09E-07	1.35E-06
Toluene	3.74E-03	2.10E-04	9.20E-04
Arsenic	2.20E-04	1.24E-05	5.41E-05
Beryllium	1.32E-05	7.41E-07	3.25E-06
Cadmium	1.21E-03	6.79E-05	2.98E-04
Chromium	1.54E-03	8.65E-05	3.79E-04
Cobalt	9.25E-05	5.19E-06	2.27E-05
Lead	5.51E-04	3.09E-05	1.35E-04
Manganese	4.19E-04	2.35E-05	1.03E-04
Mercury	2.86E-04	1.61E-05	7.03E-05
Nickel	2.31E-03	1.30E-04	5.68E-04
Selenium	2.64E-05	1.48E-06	6.49E-06
Polycyclic Organic Matter:			
Methylnaphthalene (2-)	2.64E-05	1.48E-06	6.49E-06
Naphthalene	6.72E-04	3.77E-05	1.65E-04
Total HAP		**1.17E-01**	**5.11E-01**

[a] Emission factors from AP-42 Section 1.4 "Natural Gas Combustion" Tables 1.4-1, 1.4-2, & 1.4-3 (07/98) for all criteria and HAP pollutants, corrected to site-specific gas heat content.

[b] Emission factors for GHG pollutants from 40 CFR Part 98, Subpart C and corrected to site-specific gas heat content.

[c] Emission Rate (lb/hr) = Rated Capacity (MMscf/hr) × Emission Factor (lb/MMscf).

[d] Annual Emissions $(\text{tons/yr})_{\text{Potential}} = (\text{lb/hr})_{\text{Emissions}} \times$ (Maximum Allowable Operating Hours, 8760 hr/yr) × (1 ton/2000 lb).

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

Methanol Tank

Source Information:	
Contents:	Methanol
Quantity:	7
Tank Orientation/Geometry:	Horizontal Cylinder
Approx. Length (ft):	5.0
Approx. Diameter (ft):	4.2
Volume (gal):	500
Turnovers per year:	6
Maximum Fill Level:	90%
Insulation:	None
Tank Color:	Red
Control Percentage:	0%

Contents	Site-Wide Throughput (gal/yr)	(bbl/day)
Methanol	21,000	1.370

Tank Working and Breathing Emissions Summary:

Pollutant	Uncontrolled Tank Losses		Controlled Tank Losses	
	lb/hr	tpy	lb/hr	tpy
Total VOC	0.014	0.061	0.014	0.061
Total HAP	0.014	0.061	0.014	0.061

Methanol emission estimates are conservatively based on 6 turnovers per year and modeled using ProMax 5.0.

Mobley Gas Plant - 2020 Actual Emissions

Pollutant Code	Pollutant Description	Total Emissions
SO2	Sulfur Dioxide	0.3169
NOX	Nitrogen Oxides	48.3592
VOC	Volatile Organic Compounds	16.97891
CO	Carbon Monoxide	45.0174
71432	Benzene	0.0194
100414	Ethyl Benzene	0
50000	Formaldehyde	0.326
110543	Hexane	1.2447
108883	Toluene	0.0136
1330207	Xylenes (Mixed Isomers)	0.00467605
PM-CON	PM Condensible	3.5633
PM-FIL	PM Filterable	0.8801

Mullins, Robert A <robert.a.mullins@wv.gov>

Fwd: WV Draft Permit R13-2878H for MarkWest Liberty Midstream and Resources, L.L.C.; Mobley Gas Plant

1 message

McCumbers, Carrie <carrie.mccumbers@wv.gov> Thu, Sep 2, 2021 at 2:16 PM
To: "Robert.A.Mullins@wv.gov" <robert.a.mullins@wv.gov>

---------- Forwarded message ---------
From: **Mink, Stephanie R** <stephanie.r.mink@wv.gov>
Date: Wed, Sep 1, 2021 at 9:11 AM
Subject: WV Draft Permit R13-2878H for MarkWest Liberty Midstream and Resources, L.L.C.; Mobley Gas Plant
To: Supplee, Gwendolyn <supplee.gwendolyn@epa.gov>, <Weinelt.Eva@epa.gov>, <wfuhl@marathonpetroleum.com>, <ajaurez@marathonpetroleum.com>
Cc: Crowder, Laura M <Laura.M.Crowder@wv.gov>, McKeone, Beverly D <Beverly.D.Mckeone@wv.gov>, McCumbers, Carrie <Carrie.McCumbers@wv.gov>, Hammonds, Stephanie E <Stephanie.E.Hammonds@wv.gov>, Williams, Jerry <jerry.williams@wv.gov>, Ernest, Nicole D <Nicole.D.Ernest@wv.gov>, Johnson, Rebecca H <Rebecca.H.Johnson@wv.gov>

Please find attached the Draft Permit R13-2878H, Engineering Evaluation and Public Notice for MarkWest Liberty Midstream and Resources, L.L.C.'s Mobley Gas Plant located in Wetzel County.

The public notice will be published in the *Wetzel Chronicle* on Wednesday, September 8, 2021 and the thirty day comment period will end on Friday, October 8, 2021.

Should you have any questions or comments, please contact the permit writer, Jerry Williams, at 304-926-0499 ext. 41913 or jerry.williams@wv.gov.

--

Stephanie Mink

Secretary 2

West Virginia Department of Environmental Protection

Division of Air Quality, Title V Permitting

601 57th Street SE

Charleston, WV 25304

Phone: 304-926-0499 x41281

3 attachments

R13-2878H_AirQualityPermitNotice.pdf
73K

103-00042_EVAL_13-2878H draft.pdf
371K

103-00042_PERM_13-2878H draft.pdf
499K

Mullins, Robert A <robert.a.mullins@wv.gov>

[External] RE: [EXTERNAL] R30-10300042-2016(MM04) Attachment S needed

1 message

Juarez, Allie <AJuarez@marathonpetroleum.com> Tue, Jul 6, 2021 at 1:47 PM
To: "Mullins, Robert A" <Robert.A.Mullins@wv.gov>
Cc: "Uhl, William F." <WFUhl@marathonpetroleum.com>

CAUTION: External email. Do not click links or open attachments unless you verify sender.

Robert,

Please see Attachment S and let me know if you require additional information.

Thank you,
Allie

Allie Juarez
G&P Engineer I
4600 J Barry Court, Suite 500
Canonsburg, PA 15317
Mobile: 412-815-8886
ajuarez@marathonpetroleum.com

From: Mullins, Robert A <Robert.A.Mullins@wv.gov>
Sent: Wednesday, June 30, 2021 12:44 PM
To: Juarez, Allie <AJuarez@marathonpetroleum.com>
Cc: Uhl, William F. <WFUhl@marathonpetroleum.com>
Subject: [EXTERNAL] R30-10300042-2016(MM04) Attachment S needed

The recent application for NSR modification for Mobley Gas Plant also requested that the Title V permit be update. This application will be processed as a Title Minor Modification R30-10300042-2016(MM04). For the Title V part of the Application to be completed I need you to submit a completed and signed Attachment S.

I will most likely roll this Title V minor modification into the Permit Renewal.

Robert Mullins

WV Department of Environmental Protection

Division of Air Quality

601 57th Street, SE

Charleston, WV 25304

Phone: (304)926-0499 ext. 41286

2021-0706_Attachment S_Signed.pdf
402K

Attachment S

Title V Permit Revision Information

1. New Applicable Requirements Summary	
Mark all applicable requirements associated with the changes involved with this permit revision:	
☐ SIP	☐ FIP
☒ Minor source NSR (45CSR13)	☐ PSD (45CSR14)
☐ NESHAP (45CSR15)	☐ Nonattainment NSR (45CSR19)
☐ Section 111 NSPS (Subpart(s)_____)	☐ Section 112(d) MACT standards (Subpart(s)_____)
☐ Section 112(g) Case-by-case MACT	☐ 112(r) RMP
☐ Section 112(i) Early reduction of HAP	☐ Consumer/commercial prod. reqts., section 183(e)
☐ Section 129 Standards/Reqts.	☐ Stratospheric ozone (Title VI)
☐ Tank vessel reqt., section 183(f)	☐ Emissions cap 45CSR§30-2.6.1
☐ NAAQS, increments or visibility (temp. sources)	☐ 45CSR27 State enforceable only rule
☐ 45CSR4 State enforceable only rule	☐ Acid Rain (Title IV, 45CSR33)
☐ Emissions Trading and Banking (45CSR28)	☐ Compliance Assurance Monitoring (40CFR64) (1)
☐ NO_x Budget Trading Program Non-EGUs (45CSR1)	☐ NO_x Budget Trading Program EGUs (45CSR26)

(1) If this box is checked, please include **Compliance Assurance Monitoring (CAM) Form(s)** for each Pollutants Specific Emission Unit (PSEU) (See Attachment H to Title V Application). If this box is not checked, please explain why **Compliance Assurance Monitoring** is not applicable:

There are no sources at Mobley Gas Plant with a pre-control potential to emit greater than major sources thresholds utilizing a control device to achieve compliance with an emission limit or standard.

2. Non Applicability Determinations
List all requirements, which the source has determined not applicable to this permit revision and for which a permit shield is requested. The listing shall also include the rule citation and a rationale for the determination.
☐ **Permit Shield Requested** *(not applicable to Minor Modifications)*

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

3. Suggested Title V Draft Permit Language

Are there any changes involved with this Title V Permit revision outside of the scope of the NSR Permit revision? ☐ Yes ☒ No If Yes, describe the changes below.

Also, please provide **Suggested Title V Draft Permit language** for the proposed Title V Permit revision (including all applicable requirements associated with the permit revision and any associated monitoring /recordkeeping/ reporting requirements), OR attach a marked up pages of current Title V Permit. Please include appropriate citations (Permit or Consent Order number, condition number and/or rule citation (e.g. 45CSR§7-4.1)) for those requirements being added / revised.

4. Active NSR Permits/Permit Determinations/Consent Orders Associated With This Permit Revision

Permit or Consent Order Number	Date of Issuance	Permit/Consent Order Condition Number
R30-10300042-2016	10/25/2016	Various
R13-2878G	10/12/2018	Various
3:18-cv-02526-JGC	01/08/2019	Consent decree language to be added to the permit (See Appendix A of the application) - V. Injunctive Relief Sections: • C. Pilot-Operated Modulation Pressure Relief Valves ("PORVs") • E. Fin Fan Units • J. Small Hot Oil Heaters Subject to NSPS Dc

5. Inactive NSR Permits/Obsolete Permit or Consent Orders Conditions Associated With This Revision

Permit or Consent Order Number	Date of Issuance	Permit/Consent Order Condition Number
R13-2878F	10/25/2017	All Conditions
R13-2878E	07/31/2017	All Conditions
R13-2878D	01/07/2016	All conditions
R13-2878C	12/3/2013	All Conditions
R13-2878B	12/20/2012	All conditions
R13-2878	8/8/2011	All conditions

6. Change in Potential Emissions	
Pollutant	Change in Potential Emissions (+ or -), TPY
Nitrogen Oxides (NOx)	+8.61
Carbon Monoxide (CO)	+20.68
Volatile Organic Compounds (VOC)	+30.53
Particulate Matter (PM)	-0.63
Sulfur Dioxide (SO2)	+2.08
Total HAPs	+5.21
All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.	

7. Certification For Use Of Minor Modification Procedures ***(Required Only for Minor Modification Requests)***

Note:	*This certification must be signed by a responsible official. Applications without a signed certification will be returned as incomplete. The criteria for allowing the use of Minor Modification Procedures are as follows:*

i. Proposed changes do not violate any applicable requirement;

ii. Proposed changes do not involve significant changes to existing monitoring, reporting, or recordkeeping requirements in the permit;

iii. Proposed changes do not require or change a case-by-case determination of an emission limitation or other standard, or a source-specific determination for temporary sources of ambient air quality impacts, or a visibility increment analysis;

iv. Proposed changes do not seek to establish or change a permit term or condition for which there is no underlying applicable requirement and which permit or condition has been used to avoid an applicable requirement to which the source would otherwise be subject (synthetic minor). Such terms and conditions include, but are not limited to a federally enforceable emissions cap used to avoid classification as a modification under any provision of Title I or any alternative emissions limit approved pursuant to regulations promulgated under § 112(j)(5) of the Clean Air Act;

v. Proposed changes do not involve preconstruction review under Title I of the Clean Air Act or 45CSR14 and 45CSR19;

vi. Proposed changes are not required under any rule of the Director to be processed as a significant modification;

Notwithstanding subparagraph 45CSR§30-6.5.a.1.A. (items i through vi above), minor permit modification procedures may be used for permit modifications involving the use of economic incentives, marketable permits, emissions trading, and other similar approaches, to the extent that such minor permit modification procedures are explicitly provided for in rules of the Director which are approved by the U.S. EPA as a part of the State Implementation Plan under the Clean Air Act, or which may be otherwise provided for in the Title V operating permit issued under 45CSR30.

Pursuant to 45CSR§30-6.5.a.2.C., the proposed modification contained herein meets the criteria for use of Minor permit modification procedures as set forth in Section 45CSR§30-6.5.a.1.A. The use of Minor permit modification procedures are hereby requested for processing of this application.

(Signed): _____ Date: 7 / 6 / 21
(Please use blue ink) *(Please use blue ink)*

Named (typed): *William F. Uhl* Title: *Region Manager*

Note: Please check if the following included (if applicable):

☐	Compliance Assurance Monitoring Form(s)
☒	Suggested Title V Draft Permit Language – *See Consent Decree Language Section under Appendix A.*

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

Mullins, Robert A <robert.a.mullins@wv.gov>

WV DAQ Title V Permit Application Status for MarkWest Liberty Midstream and Resources, L.L.C. - Mobley Gas Plant

1 message

Mink, Stephanie R <Stephanie.R.Mink@wv.gov> Wed, Jun 30, 2021 at 2:25 PM
To: "WFUhl@marathonpetroleum.com" <WFUhl@marathonpetroleum.com>, "AJuarez@marathonpetroleum.com" <AJuarez@marathonpetroleum.com>
Cc: "Mullins, Robert A" <Robert.A.Mullins@wv.gov>, "McCumbers, Carrie" <Carrie.McCumbers@wv.gov>

RE: Application Status

MarkWest Liberty Midstream and Resources, L.L.C

Mobley Gas Plant

Facility ID No. 103-00042

Application No. R30-10300042-2016 (MM04)

Dear Mr. Uhl,

Your application for a Title V Minor Modification Permit for MarkWest Liberty Midstream and Resources, L.L.C's Mobley Gas Plant was received by this Division on June 29, 2021, and was assigned to Robert "R.A." Mullins.

Should you have any questions, please contact the assigned permit writer, Robert "R.A." Mullins, at 304-926-0499, extension 41286, or Robert.A.Mullins@wv.gov.

Stephanie Mink

Secretary 2

West Virginia Department of Environmental Protection

Division of Air Quality, Title V Permitting

601 57th Street SE

Charleston, WV 25304

Phone: 304-926-0499 x41281

Mullins, Robert A <robert.a.mullins@wv.gov>

MarkWest-Mobley

1 message

Mink, Stephanie R <Stephanie.R.Mink@wv.gov> Wed, Jun 30, 2021 at 2:17 PM
To: "Mullins, Robert A" <Robert.A.Mullins@wv.gov>

I combined the application into one document and added a date stamp for your reference. Since that made it too large to email I placed a sub-folder within your folder on the Q drive with the info sheet. Here's the link so you can either rename it or just put it wherever you want it. I'm getting ready to index it in AX and send the confirmation email.

Q:\AIR_QUALITY\R_Mullins\MarkWest Mobley MM04

Stephanie Mink

Secretary 2

West Virginia Department of Environmental Protection

Division of Air Quality, Title V Permitting

601 57th Street SE

Charleston, WV 25304

Phone: 304-926-0499 x41281

Mullins, Robert A <robert.a.mullins@wv.gov>

R30-10300042-2016(MM04) Attachment S needed

1 message

Mullins, Robert A <Robert.A.Mullins@wv.gov> Wed, Jun 30, 2021 at 12:44 PM
To: "AJuarez@marathonpetroleum.com" <AJuarez@marathonpetroleum.com>
Cc: "WFUhl@marathonpetroleum.com" <WFUhl@marathonpetroleum.com>

The recent application for NSR modification for Mobley Gas Plant also requested that the Title V permit be update. This application will be processed as a Title Minor Modification R30-10300042-2016(MM04). For the Title V part of the Application to be completed I need you to submit a completed and signed Attachment S.

I will most likely roll this Title V minor modification into the Permit Renewal.

Robert Mullins

WV Department of Environmental Protection

Division of Air Quality

601 57th Street, SE

Charleston, WV 25304

Phone: (304)926-0499 ext. 41286

Mullins, Robert A <robert.a.mullins@wv.gov>

RE: FW: [External] MarkWest Liberty M&R LLC; Mobley Gas Plant (1 of 2)

1 message

Mink, Stephanie R <Stephanie.R.Mink@wv.gov> Wed, Jun 30, 2021 at 12:41 PM
To: "McCumbers, Carrie" <Carrie.McCumbers@wv.gov>, "Mullins, Robert A" <Robert.A.Mullins@wv.gov>
Cc: "McKeone, Beverly D" <Beverly.D.Mckeone@wv.gov>, "Williams, Jerry" <Jerry.Williams@wv.gov>

I'm working on this now. I can combine the two portions of the application into one document and if it is too large to forward to R.A. in an email I can place it on the Q drive and provide him with a link to find it.

Thanks
Stephanie

From: McCumbers, Carrie <carrie.mccumbers@wv.gov>
Sent: Wednesday, June 30, 2021 12:27 PM
To: Mink, Stephanie R <Stephanie.R.Mink@wv.gov>; Mullins, Robert A <Robert.A.Mullins@wv.gov>
Cc: McKeone, Beverly D <Beverly.D.Mckeone@wv.gov>; Williams, Jerry <Jerry.Williams@wv.gov>
Subject: Fwd: FW: [External] MarkWest Liberty M&R LLC; Mobley Gas Plant (1 of 2)

Stephanie,

Please assign this minor modification to R.A. as R30-10300042-2016 (MM04). This is Part 1 of 2. Part 2 of 2 will be forwarded in a separate email.

Thanks,

Carrie

---------- Forwarded message ---------
From: **DEP Air Quality Permitting** <DEPAirQualityPermitting@wv.gov>
Date: Wed, Jun 30, 2021 at 11:31 AM
Subject: FW: [External] MarkWest Liberty M&R LLC; Mobley Gas Plant (1 of 2)
To: Ernest, Nicole D <Nicole.D.Ernest@wv.gov>, Williams, Jerry <Jerry.Williams@wv.gov>
Cc: McKeone, Beverly D <Beverly.D.Mckeone@wv.gov>, McCumbers, Carrie <Carrie.McCumbers@wv.gov>

Nicole,

Please assign modification R13-2878E, 103-00042 from MarkWest Liberty Midstream, Mobley Gas Plant to Jerry Williams. Application is in two parts, I will forward part 2 shortly.

Application fee is $2000, Company must republish ad because they used the wrong DAQ phone number and left our the DAQ email address for comments.

Carrie, the application cover letter talks about title V renewal but there is no attachment S.

Bev

From: Juarez, Allie <AJuarez@marathonpetroleum.com>
Sent: Tuesday, June 29, 2021 2:25 PM
To: DEP Air Quality Permitting <DEPAirQualityPermitting@wv.gov>
Subject: [External] MarkWest Liberty M&R LLC; Mobley Gas Plant (1 of 2)

CAUTION: External email. Do not click links or open attachments unless you verify sender.

To Whom It May Concern:

Attached is the MarkWest Liberty Midstream and Resources LLC, Mobley Gas Plant, NSR application. Permitting fees will be provided via check upon receipt of the permit application number.

Thank you,

Allie

Alexandra M. Juarez
G&P Engineer I
4600 J Barry Court, Suite 500
Canonsburg, PA 15317
Mobile: 412-815-8886
ajuarez@marathonpetroleum.com

Mullins, Robert A <robert.a.mullins@wv.gov>

Fwd: FW: [External] RE: MarkWest Liberty M&R LLC; Mobley Gas Plant (2 of 2)

1 message

McCumbers, Carrie <carrie.mccumbers@wv.gov> Wed, Jun 30, 2021 at 12:27 PM
To: Stephanie R Mink <stephanie.r.mink@wv.gov>, "Robert.A.Mullins@wv.gov" <robert.a.mullins@wv.gov>

---------- Forwarded message ---------
From: **DEP Air Quality Permitting** <DEPAirQualityPermitting@wv.gov>
Date: Wed, Jun 30, 2021 at 11:32 AM
Subject: FW: [External] RE: MarkWest Liberty M&R LLC; Mobley Gas Plant (2 of 2)
To: Ernest, Nicole D <Nicole.D.Ernest@wv.gov>, Williams, Jerry <Jerry.Williams@wv.gov>
Cc: McKeone, Beverly D <Beverly.D.Mckeone@wv.gov>, McCumbers, Carrie <Carrie.McCumbers@wv.gov>

Part 2 of application.

From: Juarez, Allie <AJuarez@marathonpetroleum.com>
Sent: Tuesday, June 29, 2021 2:27 PM
To: DEP Air Quality Permitting <DEPAirQualityPermitting@wv.gov>
Subject: [External] RE: MarkWest Liberty M&R LLC; Mobley Gas Plant (2 of 2)

CAUTION: External email. Do not click links or open attachments unless you verify sender.

To Whom It May Concern:

Attached is the MarkWest Liberty Midstream and Resources LLC, Mobley Gas Plant, NSR application. Permitting fees will be provided via check upon receipt of the permit application number.

Thank you,

Allie

Alexandra M. Juarez
G&P Engineer I
4600 J Barry Court, Suite 500
Canonsburg, PA 15317
Mobile: 412-815-8886
ajuarez@marathonpetroleum.com

2021-0629_Mobley NSR Permit App - 2 of 2.pdf
24818K

Mullins, Robert A <robert.a.mullins@wv.gov>

Fwd: FW: [External] MarkWest Liberty M&R LLC; Mobley Gas Plant (1 of 2)

1 message

McCumbers, Carrie <carrie.mccumbers@wv.gov> Wed, Jun 30, 2021 at 12:27 PM
To: Stephanie R Mink <stephanie.r.mink@wv.gov>, "Robert.A.Mullins@wv.gov" <robert.a.mullins@wv.gov>
Cc: Beverly D McKeone <beverly.d.mckeone@wv.gov>, Jerry Williams <jerry.williams@wv.gov>

Stephanie,

Please assign this minor modification to R.A. as R30-10300042-2016 (MM04). This is Part 1 of 2. Part 2 of 2 will be forwarded in a separate email.

Thanks,
Carrie

---------- Forwarded message ---------
From: **DEP Air Quality Permitting** <DEPAirQualityPermitting@wv.gov>
Date: Wed, Jun 30, 2021 at 11:31 AM
Subject: FW: [External] MarkWest Liberty M&R LLC; Mobley Gas Plant (1 of 2)
To: Ernest, Nicole D <Nicole.D.Ernest@wv.gov>, Williams, Jerry <Jerry.Williams@wv.gov>
Cc: McKeone, Beverly D <Beverly.D.Mckeone@wv.gov>, McCumbers, Carrie <Carrie.McCumbers@wv.gov>

Nicole,

Please assign modification R13-2878E, 103-00042 from MarkWest Liberty Midstream, Mobley Gas Plant to Jerry Williams. Application is in two parts, I will forward part 2 shortly.

Application fee is $2000, Company must republish ad because they used the wrong DAQ phone number and left our the DAQ email address for comments.

Carrie, the application cover letter talks about title V renewal but there is no attachment S.

Bev

From: Juarez, Allie <AJuarez@marathonpetroleum.com>
Sent: Tuesday, June 29, 2021 2:25 PM
To: DEP Air Quality Permitting <DEPAirQualityPermitting@wv.gov>
Subject: [External] MarkWest Liberty M&R LLC; Mobley Gas Plant (1 of 2)

CAUTION: External email. Do not click links or open attachments unless you verify sender.

To Whom It May Concern:

Attached is the MarkWest Liberty Midstream and Resources LLC, Mobley Gas Plant, NSR application. Permitting fees will be provided via check upon receipt of the permit application number.

Thank you,

Allie

Alexandra M. Juarez
G&P Engineer I
4600 J Barry Court, Suite 500
Canonsburg, PA 15317
Mobile: 412-815-8886
ajuarez@marathonpetroleum.com

2021-0629_Mobley NSR Permit App - 1 of 2.pdf
14928K

Mullins, Robert A <robert.a.mullins@wv.gov>

RE: FW: [External] MarkWest Liberty M&R LLC; Mobley Gas Plant (1 of 2)

1 message

Mullins, Robert A <Robert.A.Mullins@wv.gov> Wed, Jun 30, 2021 at 12:27 PM
To: "McCumbers, Carrie" <carrie.mccumbers@wv.gov>

Sure. Is it just my permits or has there been a lot of mods in the last year without Attachments S's?

From: McCumbers, Carrie <carrie.mccumbers@wv.gov>
Sent: Wednesday, June 30, 2021 12:23 PM
To: Mullins, Robert A <Robert.A.Mullins@wv.gov>
Subject: Re: FW: [External] MarkWest Liberty M&R LLC; Mobley Gas Plant (1 of 2)

Will you contact the company and ask that they submit an Attachment S? I have Stephanie to assign the minor modification to you.

Thanks,

Carrie

On Wed, Jun 30, 2021 at 12:06 PM Mullins, Robert A <Robert.A.Mullins@wv.gov> wrote:

> Yea, they need to submit an Attachment S. They ask the Title V be updated in the cover letter. Though a good bit of the stuff they are changing has already been addressed in the Title V permit, other parts will need to be addressed.
>
> Thanks,
>
> R.A.
>
> ---
>
> **From:** McCumbers, Carrie <carrie.mccumbers@wv.gov>
> **Sent:** Wednesday, June 30, 2021 11:44 AM
> **To:** Mullins, Robert A <Robert.A.Mullins@wv.gov>
> **Cc:** McKeone, Beverly D <Beverly.D.Mckeone@wv.gov>; Williams, Jerry <Jerry.Williams@wv.gov>
> **Subject:** Fwd: FW: [External] MarkWest Liberty M&R LLC; Mobley Gas Plant (1 of 2)
>
> R.A.,
>
> Will you check on this application to see if they should submit an Attachment S for a minor modification? If they should, please let me know and I'll have Stephanie log the application into Airtrax and assign it to you since you currently have their renewal.

Thanks,

Carrie

---------- Forwarded message ---------
From: **DEP Air Quality Permitting** <DEPAirQualityPermitting@wv.gov>
Date: Wed, Jun 30, 2021 at 11:31 AM
Subject: FW: [External] MarkWest Liberty M&R LLC; Mobley Gas Plant (1 of 2)
To: Ernest, Nicole D <Nicole.D.Ernest@wv.gov>, Williams, Jerry <Jerry.Williams@wv.gov>
Cc: McKeone, Beverly D <Beverly.D.Mckeone@wv.gov>, McCumbers, Carrie <Carrie.McCumbers@wv.gov>

Nicole,

Please assign modification R13-2878E, 103-00042 from MarkWest Liberty Midstream, Mobley Gas Plant to Jerry Williams. Application is in two parts, I will forward part 2 shortly.

Application fee is $2000, Company must republish ad because they used the wrong DAQ phone number and left our the DAQ email address for comments.

Carrie, the application cover letter talks about title V renewal but there is no attachment S.

Bev

From: Juarez, Allie <AJuarez@marathonpetroleum.com>
Sent: Tuesday, June 29, 2021 2:25 PM
To: DEP Air Quality Permitting <DEPAirQualityPermitting@wv.gov>
Subject: [External] MarkWest Liberty M&R LLC; Mobley Gas Plant (1 of 2)

CAUTION: External email. Do not click links or open attachments unless you verify sender.

To Whom It May Concern:

Attached is the MarkWest Liberty Midstream and Resources LLC, Mobley Gas Plant, NSR application. Permitting fees will be provided via check upon receipt of the permit application number.

Thank you,

Allie

MPLX

Alexandra M. Juarez
G&P Engineer I
4600 J Barry Court, Suite 500
Canonsburg, PA 15317
Mobile: 412-815-8886
ajuarez@marathonpetroleum.com

Mullins, Robert A <robert.a.mullins@wv.gov>

Completeness Determination, Mobley Gas Plant, Application No.: R30-103000042-2021

1 message

Mullins, Robert A <Robert.A.Mullins@wv.gov> Fri, May 28, 2021 at 9:58 AM
To: "WFUhl@marathonpetroleum.com" <WFUhl@marathonpetroleum.com>, "AJuarez@marathonpetroleum.com" <AJuarez@marathonpetroleum.com>, "CGKelley@marathonpetroleum.com" <CGKelley@marathonpetroleum.com>

Your Title V renewal application for a permit to operate the above referenced facility was received by this Division on April 23, 2021. After review of said application, it has been determined that the application is administratively complete as submitted. Therefore, the above referenced facility qualifies for an Application Shield.

The applicant has the duty to supplement or correct the application. Any applicant who fails to submit any relevant facts or who has submitted incorrect information in a permit application shall, upon becoming aware of such failure or incorrect submittal, promptly submit such supplementary facts or corrected information. In addition, an applicant shall provide additional information as necessary to address any requirements that become applicable to the source after the date it filed a complete application but prior to release of a draft permit.

The submittal of a complete application shall not affect the requirement that any source have all **preconstruction permits** required under the rules of the Division.

If during the processing of this application it is determined that additional information is necessary to evaluate or take final action on this application, a request for such information will be made in writing with a reasonable deadline for a response. Until which time as your renewal permit is issued or denied, please continue to operate this facility in accordance with 45CSR30, section 6.3.c. which states: *If the Secretary fails to take final action to deny or approve a timely and complete permit application before the end of the term of the previous permit, the permit shall not expire until the renewal permit has been issued or denied, and any permit shield granted for the permit shall continue in effect during that time.* This protection shall cease to apply if, subsequent to the completeness determination made pursuant to paragraph 6.1.d. of 45CSR30 and as required by paragraph 4.1.b., the applicant fails to submit by the deadline specified in writing any additional information identified as being needed to process the application.

Please remember, **failure of the applicant to timely submit information required or requested to process the application may cause the Application Shield to be revoked.** Should you have any questions regarding this determination, please contact me.

Sincerely,

Robert Mullins

WV Department of Environmental Protection

Division of Air Quality

601 57th Street, SE

Charleston, WV 25304

Phone: (304)926-0499 ext. 41286

Mullins, Robert A <robert.a.mullins@wv.gov>

WV DAQ Title V Permit Application Status for MarkWest Liberty Midstream and Resources LLC, Mobley Gas Plant

1 message

Mink, Stephanie R <Stephanie.R.Mink@wv.gov> Mon, Apr 26, 2021 at 9:01 AM
To: "WFUhl@marathonpetroleum.com" <WFUhl@marathonpetroleum.com>, "AJuarez@marathonpetroleum.com" <AJuarez@marathonpetroleum.com>, "CGKelley@marathonpetroleum.com" <CGKelley@marathonpetroleum.com>
Cc: "Mullins, Robert A" <Robert.A.Mullins@wv.gov>, "McCumbers, Carrie" <Carrie.McCumbers@wv.gov>

RE: Application Status

MarkWest Liberty Midstream and Resources LLC

Mobley Gas Plant

Facility ID No. 103-00042

Application No. R30-10300042-2021

Dear Mr. Uhl,

Your application for a Title V Permit Renewal for MarkWest Liberty Midstream and Resources LLC's Mobley Gas Plant was received by this Division on April 23, 2021, and was assigned to Robert "R.A." Mullins.

Should you have any questions, please contact the assigned permit writer, Robert "R.A." Mullins, at 304-926-0499, extension 41286, or Robert.A.Mullins@wv.gov.

Stephanie Mink

Secretary 2

West Virginia Department of Environmental Protection

Division of Air Quality, Title V Permitting

601 57th Street SE

Charleston, WV 25304

Phone: 304-926-0499 x41281

Mullins, Robert A <robert.a.mullins@wv.gov>

MarkWest Mobley renewal

1 message

Mink, Stephanie R <Stephanie.R.Mink@wv.gov> Mon, Apr 26, 2021 at 9:00 AM
To: "Mullins, Robert A" <Robert.A.Mullins@wv.gov>

Here's the dated application and info sheet. This has been indexed in AX and I will be sending the confirmation email in a few minutes.

Stephanie Mink

Secretary 2

West Virginia Department of Environmental Protection

Division of Air Quality, Title V Permitting

601 57th Street SE

Charleston, WV 25304

Phone: 304-926-0499 x41281

2 attachments

R30-10300042-2021 renewal application.pdf
16344K

R30-10300042-2021 info sheet.pdf
69K

Mullins, Robert A <robert.a.mullins@wv.gov>

RE: [External] MarkWest Liberty M&R LLC; Mobley Gas Plant

1 message

Mink, Stephanie R <Stephanie.R.Mink@wv.gov> Mon, Apr 26, 2021 at 7:51 AM
To: "McCumbers, Carrie" <Carrie.McCumbers@wv.gov>
Cc: "Mullins, Robert A" <Robert.A.Mullins@wv.gov>

I'm working on this now and will have a dated application and info sheet to R.A. shortly.

Thanks

Stephanie

From: McCumbers, Carrie <Carrie.McCumbers@wv.gov>
Sent: Monday, April 26, 2021 7:44 AM
To: Mink, Stephanie R <Stephanie.R.Mink@wv.gov>
Cc: Mullins, Robert A <Robert.A.Mullins@wv.gov>
Subject: FW: [External] MarkWest Liberty M&R LLC; Mobley Gas Plant

Please assign this renewal to R.A. as R30-10300042-2021.

Thanks,

Carrie

From: Juarez, Allie <AJuarez@marathonpetroleum.com>
Sent: Friday, April 23, 2021 9:21 AM
To: DEP Air Quality Permitting <DEPAirQualityPermitting@wv.gov>
Cc: Uhl, William F. <WFUhl@marathonpetroleum.com>; Kelley, Christopher G. <CGKelley@marathonpetroleum.com>; Dieringer, David <DDieringer@marathonpetroleum.com>
Subject: [External] MarkWest Liberty M&R LLC; Mobley Gas Plant

CAUTION: External email. Do not click links or open attachments unless you verify sender.

To Whom It May Concern:

Attached is the MarkWest Liberty Midstream and Resources LLC, Mobley Gas Plant, Title V Permit Renewal application.

Please confirm receipt.

Thank you,

Allie

Allie Juarez
G&P Engineer I
4600 J Barry Court, Suite 500
Canonsburg, PA 15317
Mobile: 412-815-8886
ajuarez@marathonpetroleum.com

Mullins, Robert A <robert.a.mullins@wv.gov>

Fwd: MarkWest Mosley

1 message

McCumbers, Carrie <carrie.mccumbers@wv.gov> Mon, Apr 26, 2021 at 7:42 AM
To: "Robert.A.Mullins@wv.gov" <robert.a.mullins@wv.gov>

FYI

---------- Forwarded message ---------
From: **McCumbers, Carrie** <carrie.mccumbers@wv.gov>
Date: Tue, Apr 20, 2021 at 2:34 PM
Subject: Re: MarkWest Mosley
To: McDerment, Denton B <Denton.B.Mcderment@wv.gov>

What you told her seems like the best approach. She did try to call me, but I was on another call and couldn't answer. She didn't leave a message, but the number on the missed call is the same one you listed above. Thanks for giving her the information and for letting me know.

On Tue, Apr 20, 2021 at 2:26 PM McDerment, Denton B <Denton.B.Mcderment@wv.gov> wrote:

> Carrie,
>
> Alli Juarez with MarkWest (tel: 412-815-8886) called me this afternoon about submitting their Title V renewal application for Mosley Gas Plant. She said the application is due April 25th, and she plans for it to be delivered on April 23. But she said their PTEs have changed and they need to update the R13 permit. She asked if the renewal application should account for these changes, or should it exclude them. I told her the renewal must be submitted before the deadline, and be based on how the facility is currently permitted. I told her the renewal application cover letter should explain that they will follow up in 7-10 days with a combined NSR/Title V permit modification application to make changes to the permits and PTEs. I told her the Title V permit writer should be able to include the modification with the renewal in one review period. She told me they are planning to submit a modification application about a week after submitting the Title V renewal application.
>
> I told her this is how I think it's best to proceed. But I asked if she had tried to contact the last Title V permit writer or the Title V Program Manager. She said she called either you or R.A., but she said something like the person wasn't available due to being out for lunch, etc. (it wasn't clear). She said she works for Nathan Wheldon, and he told her to contact me. I suggested she contact you to be sure they get it right.
>
> I wanted you to be aware of this and hopefully I gave her good instructions.
>
> Regards,
>
> **Denton B. McDerment, PE**
>
> Compliance & Enforcement
>
> WVDEP – Division of Air Quality
>
> 601 57th Street, SE
>
> Charleston, WV 25304

T: 304-414-1279

F: 304-926-0478

Received
April 23, 2021
WV DEP/Div of Air Quality

Division of Air Quality Permit Application Submittal

Please find attached a permit application for : MarkWest Liberty Midstream and Resources, L.L.C./Mobley Gas Plant
[Company Name; Facility Location]

- DAQ Facility ID (for existing facilities only): 103-00042
- Current 45CSR13 and 45CSR30 (Title V) permits associated with this process (for existing facilities only): R30-10300042-2016, R13-2878G

- Type of NSR Application (check all that apply):
  - ☐ Construction
  - ☐ Modification
  - ☐ Class I Administrative Update
  - ☐ Class II Administrative Update
  - ☐ Relocation
  - ☐ Temporary
  - ☐ Permit Determination

- Type of 45CSR30 (TITLE V) Application:
  - ☐ Title V Initial
  - ☑ Title V Renewal
  - ☐ Administrative Amendment**
  - ☐ Minor Modification**
  - ☐ Significant Modification**
  - ☐ Off Permit Change

****If the box above is checked, include the Title V revision information as ATTACHMENT S to the combined NSR/Title V application.**

- Payment Type:
  - ☐ Credit Card (Instructions to pay by credit card will be sent in the Application Status email.)
  - ☐ Check (Make checks payable to: WVDEP – Division of Air Quality)
    Mail checks to:
    WVDEP – DAQ – Permitting
    Attn: NSR Permitting Secretary
    601 57th Street, SE
    Charleston, WV 25304

Please wait until DAQ emails you the Facility ID Number and Permit Application Number. Please add these identifiers to your check or cover letter with your check.

- If the permit writer has any questions, please contact (all that apply):
  - ☑ Responsible Official/Authorized Representative
    - Name: William F. Uhl
    - Email: WFUhl@marathonpetroleum.com
    - Phone Number: 724-514-4363
  - ☑ Company Contact
    - Name: Alexandra M. Juarez
    - Email: AJuarez@marathonpetroleum.com
    - Phone Number: 412-815-8886
  - ☐ Consultant
    - Name:
    - Email:
    - Phone Number:

MarkWest Liberty Midstream and Resources, L.L.C.
1515 Arapahoe Street
Tower 1, Suite 1600
Denver, CO 80202
(303) 925-9200

April 20, 2021

Ms. Carrie McCumbers
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 Ms. McCumbers:

MarkWest Liberty Midstream & Resources L.L.C. (MarkWest) hereby submits a Title V Operating Permit Renewal application for the Mobley Gas Plant (facility) located at 14624 North Fork Road, in Smithfield, Wetzel County, West Virginia. The facility began operations on December 1, 2012 and is currently operating under permit R13-2878G and Title V permit R30-10300042-2016.

Please note, MarkWest plans to follow up by May 7, 2021, with an NSR and Title V Operating Permit Revision application to update emission sources at the facility.

Should you have any questions about this Title V renewal application, please contact me at (412) 815-8886 or via email at ajuarez@marathonpetroleum.com.

Sincerely,

Alexandra M. Juarez
G&P Engineer I

TITLE V PERMIT APPLICATION CHECKLIST
FOR ADMINISTRATIVE COMPLETENESS

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

☑	A signed copy of the application ("Certification" page must be signed and dated by a Responsible Official as defined in 45CSR30)
☑	*Table of Contents (needs to be included but not for administrative completeness)
☑	Facility information
☑	Description of process and products, including NAICS and SIC codes, and including alternative operating scenarios
☑	Area map showing plant location
☑	Plot plan showing buildings and process areas
☑	Process flow diagram(s), showing all emission units, control equipment, emission points, and their relationships
☑	Identification of all applicable requirements with a description of the compliance status, the methods used for demonstrating compliance, and a Schedule of Compliance Form (ATTACHMENT F) for all requirements for which the source is not in compliance
☑	Listing of all active permits and consent orders (if applicable)
☑	Facility-wide emissions summary
☑	Identification of Insignificant Activities
☑	ATTACHMENT D – Title V Equipment Table completed for all emission units at the facility except those designated as insignificant activities
☑	ATTACHMENT E – Emission Unit Form completed for each emission unit listed in the Title V Equipment Table (ATTACHMENT D) and a Schedule of Compliance Form (ATTACHMENT F) for all requirements for which the emission unit is not in compliance
☑	ATTACHMENT G – Air Pollution Control Device Form completed for each control device listed in the Title V Equipment Table (ATTACHMENT D)
☐	ATTACHMENT H – Compliance Assurance Monitoring (CAM) Plan Form completed for each control device for which the "Is the device subject to CAM?" question is answered "Yes" on the Air Pollution Control Device Form (ATTACHMENT G)
☑	General Application Forms signed by a Responsible Official
☐	Confidential Information submitted in accordance with 45CSR31

Table of Contents

Section 1
Facility Information/Process Description

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF AIR QUALITY

601 57th Street SE

Charleston, WV 25304

Phone: (304) 926-0475

www.dep.wv.gov/daq

Received
April 23, 2021
WV DEP/Div of Air Quality

INITIAL/RENEWAL TITLE V PERMIT APPLICATION - GENERAL FORMS

Section 1: General Information

1. **Name of Applicant (As registered with the WV Secretary of State's Office):** MarkWest Liberty Midstream and Resources, L.L.C.	**2. Facility Name or Location:** Mobley Gas Plant
3. DAQ Plant ID No.: 103-00042	**4. Federal Employer ID No. (FEIN):** 30-0528059

5. **Permit Application Type:**

☐ Initial Permit — When did operations commence? 12/1/2012

☐ Permit Renewal — What is the expiration date of the existing permit? 10/25/2021

☒ Update to Initial/Renewal Permit Application

6. Type of Business Entity:

☐ Corporation ☐ Governmental Agency ☒ LLC
☐ Partnership ☐ Limited Partnership

8. Number of onsite employees:

19

7. Is the Applicant the:

☐ Owner ☐ Operator ☒ Both

If the Applicant is not both the owner and operator, please provide the name and address of the other party.

_____

_____

_____

9. Governmental Code:

☒ Privately owned and operated; 0
☐ Federally owned and operated; 1
☐ State government owned and operated; 2
☐ County government owned and operated; 3
☐ Municipality government owned and operated; 4
☐ District government owned and operated; 5

10. Business Confidentiality Claims

Does this application include confidential information (per 45CSR31)? ☐ Yes ☒ No

If yes, identify each segment of information on each page that is submitted as confidential, and provide justification for each segment claimed confidential, including the criteria under 45CSR§31-4.1, and in accordance with the DAQ's *"PRECAUTIONARY NOTICE-CLAIMS OF CONFIDENTIALITY"* guidance.

11. Mailing Address		
Street or P.O. Box: 1515 Arapahoe Street, Tower 1, Suite 1600		
City: Denver	**State:** CO	**Zip:** 80202-2137
Telephone Number: (303) 925-9200	**Fax Number:** (303) 290-8769	

12. Facility Location		
Street: 14624 North Fork Road	**City:** Smithfield	**County:** Wetzel
UTM Easting: 538.099 km	**UTM Northing:** 4,378.315 km	**Zone:** ☒ 17 or ☐ 18
Directions: Head northwest on WV-20 N toward Co Rd 7/8 (1.1 mi). Turn right onto Co Rd 7/8 (2.8 mi), continue onto Co Rd 80/Fallen Timber Rd/Shuman Hill (0.8 mi), turn left onto Sheep Run (0.4 mi), turn right to stay on Sheep Run, facility is on the right.		
Portable Source? ☐ Yes ☒ No		
Is facility located within a nonattainment area? ☐ Yes ☒ No		**If yes, for what air pollutants?**
Is facility located within 50 miles of another state? ☒ Yes ☐ No		**If yes, name the affected state(s).** Pennsylvania, Ohio
Is facility located within 100 km of a Class I Area[1]? ☒ Yes ☐ No **If no, do emissions impact a Class I Area[1]?** ☐ Yes ☐ No		**If yes, name the area(s).** Otter Creek Wilderness Area

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

13. Contact Information		
Responsible Official: William F. Uhl		**Title:** Region Manager
Street or P.O. Box: 4600 J. Barry Court, Suite 500		
City: Canonsburg	**State:** PA	**Zip:** 15317
Telephone Number: 724-514-4363	**Fax Number:** ( ) -	
E-mail address: WFUhl@marathonpetroleum.com		
Environmental Contact: Christopher G. Kelley		**Title:** Environmental Manager
Street or P.O. Box: 440 Hartman Road		
City: Evans City	**State:** PA	**Zip:** 16033
Telephone Number: 412-260-0294	**Fax Number:** ( ) -	
E-mail address: CGKelley@marathonpetroleum.com		
Application Preparer: Allie Juarez		**Title:** G&P Engineer I
Company: MarkWest Liberty Midstream and Resources, L.L.C.		
Street or P.O. Box: 4600 J. Barry Court, Suite 500		
City: Canonsburg	**State:** PA	**Zip:** 15317
Telephone Number: 412-815-8886	**Fax Number:** ( ) -	
E-mail address: AJuarez@marathonpetroleum.com		

14. Facility Description

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

Process	Products	NAICS	SIC
Natural Gas Processing	Pipeline grade natural gas and natural gas liquids	211112	1311

Provide a general description of operations.

Natural gas from surrounding area wells enters the facility and undergoes separation, filtration, and dehydration Separation serves to remove any free liquids entrained in the gas. Filtration serves to remove any impurities. Dehydration removes any additional moisture remaining in the gas prior to processing. The gas is subsequently sent through a cryogenic process and deethanization process which serves to remove any natural gas liquids (propane and heavier components) as well as ethane from the gas stream. At this point the gas is saleable and is compressed prior to leaving the facility via pipeline. The natural gas liquids are transported off site via pipeline.

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

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

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

Section 2
Applicable Requirements

Section 2: Applicable Requirements

18. Applicable Requirements Summary	
Instructions: Mark all applicable requirements.	
☐ SIP	☐ FIP
☒ Minor source NSR (45CSR13)	☐ PSD (45CSR14)
☒ NESHAP (45CSR34)	☐ Nonattainment NSR (45CSR19)
☒ Section 111 NSPS	☐ Section 112(d) MACT standards
☐ Section 112(g) Case-by-case MACT	☒ 112(r) RMP
☐ Section 112(i) Early reduction of HAP	☐ Consumer/commercial prod. reqts., section 183(e)
☐ Section 129 Standards/Reqts.	☐ Stratospheric ozone (Title VI)
☐ Tank vessel reqt., section 183(f)	☐ Emissions cap 45CSR§30-2.6.1
☐ NAAQS, increments or visibility (temp. sources)	☐ 45CSR27 State enforceable only rule
☒ 45CSR4 State enforceable only rule	☐ Acid Rain (Title IV, 45CSR33)
☐ Emissions Trading and Banking (45CSR28)	☐ **C**ompliance **A**ssurance **M**onitoring (40CFR64)
☐ CAIR NO_x Annual Trading Program (45CSR39)	☐ CAIR NO_x Ozone Season Trading Program (45CSR40)
☐ CAIR SO_2 Trading Program (45CSR41)	

19. Non Applicability Determinations

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

State Implementation Plan: This application does not involve a stationary source to be located in a non-attainment area subject to a SIP.

Federal Implementation Plan: No Federal Implementation Plan is in effect where this stationary source is located.

45 CSR 14 – Prevention of Significant Deterioration: The facility is not a major stationary source as defined by the PSD rule, and is therefore not subject to the provisions of this rule.

45 CSR 19 – Nonattainment New Source Review: The facility is not located in a non-attainment area, therefore this rule does apply.

45 CSR 27 – Toxic Air Pollutants: The facility is not a chemical process unit as defined in the rule, therefore this rule does not apply.

45 CSR 28 – Emissions Trading and Banking: MarkWest does not voluntarily choose to participate in an emission reduction credit trading program.

45 CSR 30-2.6.1: The facility is not subject to any emissions caps as provided by this rule.

45 CSR 33 – Acid Rain Program: The facility is not an affected source under the provisions of the Acid Rain Program, therefore this rule does not apply.

45 CSR 39 – CAIR NO_x Annual Trading Program: There are no CAIR NO_x Annual units present at the facility, therefore the requirements of this rule do not apply.

45 CSR 40 – CAIR NO_x Ozone Season Trading Program: There are no CAIR NO_x Ozone Season units present at the facility, therefore the requirements of this rule do not apply.

45 CSR 41 – CAIR SO_2 Annual Trading Program: There are no CAIR SO_2 Annual units present at the facility, therefore the requirements of this rule do not apply.

Section 112(d) MACT standards: The facility is not a major source of hazardous air pollutants, therefore this rule does not apply.

Section 112(g) MACT standards: The facility is not a major source of hazardous air pollutants, therefore this rule does not apply.

Section 112(i) MACT standards: The facility is not a major source of hazardous air pollutants, therefore this rule does not apply.

Section 183(e) Consumer/commercial Product Requirements: Operation of the facility does not involve the manufacture or sale of consumer or commercial products and will not be subject to this regulatory provision.

Section 129 Standards/Requirements: Operation of this facility does not involve solid waste combustion or incineration; therefore, this rule does not apply.

Section 183(f) – Tank Vessel Requirements: There are no marine tank vessels present at the facility, therefore this rule does not apply.

NAAQS, increment or visibility (temp. sources): There are no temporary sources present at the facility, therefore this rule does not apply.

Stratospheric Ozone (Title IV): The facility does not use Class I ozone-depleting substances (ODS) including chlorofluorocarbons (CFC) and Class II ODS, which are hydrochlorofluorcarbons (HCFC), so this provision does not apply.

☒ Permit Shield

20. Facility-Wide Applicable Requirements

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

Permit R13-2878C Conditions:

3.1.1 Open burning [45CSR§6-3.1]

3.1.2 Open burning exemptions [45CSR§6-3.2]

3.1.3 Asbestos [40CFR§61.145(b) and 45CSR§34]

3.1.4 Odor [45CSR§4-3.1]

3.1.5 Permanent shutdown [45CSR§13-10.5.]

3.1.6 Standby plan for reducing emissions [45CSR§11-5.2.]

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

3.4.1 Retention of Records

3.4.2 Odors [45CSR§4]

3.5.1 Responsible Official

3.5.2 Confidential Information [W.Va. Code § 22-5-10 and 45CSR31]

3.5.3 Correspondence

3.5.4 Operating Fee [45 CSR 30]

3.5.5 Emission Inventory

☒ Permit Shield

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

Section	**Monitoring**	**Testing**	**Recordkeeping**	**Reporting**	**Condition or Citation**
3.1.1	Presence of open burning	NA	NA	Notification	45CSR§6-3.1
3.1.2	NA	NA	NA	Notification	45CSR§6-3.2
3.1.3	NA	NA	Asbestos inspection	Notification	40CFR§61.145 (b), 45CSR§34
3.1.4	Odors	NA	NA	NA	45CSR§4-3.1
3.1.5	NA	NA	NA	Permit application as necessary	45CSR§13-10.5
3.1.6	NA	NA	Prepare standby plans when requested by the Secretary	NA	45CSR§11-5.2
3.3.1	NA	Stack testing	NA	Results of stack test	WV Code§22-5-4(a)(14-15), 45CSR§13
3.4.1	NA	Na	Maintain all required records for 5 years. Maintain most recent two years of records on site.	NA	3.4.1
3.4.2	NA	NA	Odor complaints	NA	45CSR§4
3.5.1	NA	NA	NA	Certification by responsible official for any application form, report, or compliance certification required by the permit	3.5.1
3.5.2	NA	NA	NA	May request confidential treatment for the submission of reports	WV Code§22-5-10 and 45CSR§31
3.5.3	NA	NA	NA	Submissions must be made in writing to the listed addresses for DAQ and US EPA	3.5.3
3.5.4	NA	NA	Emissions inventory receipt	Certified emissions statement	45CSR30
3.5.5	NA	NA	NA	Emission inventory	3.5.5

Are you in compliance with all facility-wide applicable requirements? ☒ Yes ☐ No

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

21. Active Permits/Consent Orders		
Permit or Consent Order Number	Date of Issuance MM/DD/YYYY	List any Permit Determinations that Affect the Permit *(if any)*
R13-2878G	10/12/2018	
R30-10300042-2016	10/25/2016	
3:18-cv-02526	01/08/2019	
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22. Inactive Permits/Obsolete Permit Conditions		
Permit Number	Date of Issuance	Permit Condition Number
R13-2878F	10/25/2017	All Conditions
R13-2878E	07/31/2017	All Conditions
R13-2878D	01/07/2016	All conditions
R13-2878C	12/3/2013	All Conditions
R13-2878B	12/20/2012	All conditions
R13-2878	8/8/2011	All conditions
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Section 3
Facility-Wide Emissions

Section 3: Facility-Wide Emissions

23. Facility-Wide Emissions Summary [Tons per Year]	
Criteria Pollutants	Potential Emissions
Carbon Monoxide (CO)	96.12
Nitrogen Oxides (NO_X)	118.53
Lead (Pb)	--
Particulate Matter ($PM_{2.5}$)[1]	14.57
Particulate Matter (PM_{10})[1]	14.57
Total Particulate Matter (TSP)	14.57
Sulfur Dioxide (SO_2)	0.83
Volatile Organic Compounds (VOC)	73.65
Hazardous Air Pollutants[2]	Potential Emissions
Acetaldehyde	0.83
Acrolein	0.58
Benzene	0.12
Formaldehyde	0.78
Methanol	0.44
n-Hexane	0.25
Total HAPS	14.28
Regulated Pollutants other than Criteria and HAP	Potential Emissions
CO2(e)	172,871.06

[1] $PM_{2.5}$ and PM_{10} are components of TSP.

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

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	--	--	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
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	3.27

[1] PM = PM_{10} = $PM_{2.5}$

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) (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	14.28

[1] PM = PM_{10} = $PM_{2.5}$

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	--	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	--	--	2.42E-05	0.00E+00	--	--	1.07E-03	2.85E-05	3.29E-05
Crankcase Emissions	2.40E-02	1.68E-02	3.30E-03	2.10E-03	2.22E-02	1.29E-02	--	2.10E-03	2.10E-03
Emergency Generator - G-1	3.16E-04	3.81E-05	3.85E-04	--	4.86E-04	--	--	1.69E-04	1.17E-04
Emergency Generator - G-2	4.98E-03	3.06E-03	2.62E-04	2.36E-05	1.52E-03	1.49E-03	--	2.43E-04	1.10E-04
Emergency Generator - G-3	3.16E-04	3.81E-05	3.85E-04	--	4.86E-04	--	--	1.69E-04	1.17E-04
Emergency Generator - G-4	3.16E-04	3.81E-05	3.85E-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

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) (New)	--	--	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	--	--	1.06E-04	0.00E+00	--	--	4.68E-03	1.25E-04	1.44E-04
Crankcase Emissions	1.07E-01	7.50E-02	2.07E-02	2.10E-03	9.99E-02	5.49E-02	--	9.60E-03	3.30E-03
Emergency Generator - G-1	7.90E-05	9.53E-06	9.61E-05	--	1.22E-04	--	--	4.21E-05	2.94E-05
Emergency Generator - G-2	1.24E-03	7.65E-04	6.55E-05	5.91E-06	3.80E-04	3.72E-04	--	6.08E-05	2.74E-05
Emergency Generator - G-3	7.90E-05	9.53E-06	9.61E-05	--	1.22E-04	--	--	4.21E-05	2.94E-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

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)	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

Section 4
Insignificant Activities

Section 4: Insignificant Activities

24. Insignificant Activities (Check all that apply)		
☒	1.	Air compressors and pneumatically operated equipment, including hand tools.
☒	2.	Air contaminant detectors or recorders, combustion controllers or shutoffs.
☒	3.	Any consumer product used in the same manner as in normal consumer use, provided the use results in a duration and frequency of exposure which are not greater than those experienced by consumer, and which may include, but not be limited to, personal use items; janitorial cleaning supplies, office supplies and supplies to maintain copying equipment.
☒	4.	Bathroom/toilet vent emissions.
☒	5.	Batteries and battery charging stations, except at battery manufacturing plants.
☒	6.	Bench-scale laboratory equipment used for physical or chemical analysis, but not lab fume hoods or vents. Many lab fume hoods or vents might qualify for treatment as insignificant (depending on the applicable SIP) or be grouped together for purposes of description.
☐	7.	Blacksmith forges.
☐	8.	Boiler water treatment operations, not including cooling towers.
☐	9.	Brazing, soldering or welding equipment used as an auxiliary to the principal equipment at the source.
☐	10.	CO_2 lasers, used only on metals and other materials which do not emit HAP in the process.
☐	11.	Combustion emissions from propulsion of mobile sources, except for vessel emissions from Outer Continental Shelf sources.
☒	12.	Combustion units designed and used exclusively for comfort heating that use liquid petroleum gas or natural gas as fuel.
☒	13.	Comfort air conditioning or ventilation systems not used to remove air contaminants generated by or released from specific units of equipment.
☐	14.	Demineralized water tanks and demineralizer vents.
☐	15.	Drop hammers or hydraulic presses for forging or metalworking.
☐	16.	Electric or steam-heated drying ovens and autoclaves, but not the emissions from the articles or substances being processed in the ovens or autoclaves or the boilers delivering the steam.
☐	17.	Emergency (backup) electrical generators at residential locations.
☐	18.	Emergency road flares.
☐	19.	Emission units which do not have any applicable requirements and which emit criteria pollutants (CO, NO_x, SO_2, VOC and PM) into the atmosphere at a rate of less than 1 pound per hour and less than 10,000 pounds per year aggregate total for each criteria pollutant from all emission units. Please specify all emission units for which this exemption applies along with the quantity of criteria pollutants emitted on an hourly and annual basis: _____ _____ _____ _____ _____ _____ _____ _____ _____

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

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

Section 5
Emission Units, Control Devices, and Emission Points

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

25. Equipment Table

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

Please See Attachment D

26. Emission Units

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

Please See Attachment E

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

Not Applicable

27. Control Devices

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

Please See Attachment G

For any control device that is required on an emission unit in order to meet a standard or limitation for which the potential pre-control device emissions of an applicable regulated air pollutant is greater than or equal to the Title V Major Source Threshold Level, refer to the **Compliance Assurance Monitoring (CAM) Form(s)** for CAM applicability. Fill out and provide these forms, if applicable, for each Pollutant Specific Emission Unit (PSEU) as **ATTACHMENT H**.

Not Applicable

Section 6
Certification of Information

Section 6: Certification of Information

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

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

a. Certification of Truth, Accuracy and Completeness

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

b. Compliance Certification

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

Responsible official (type or print)

Name: William F. Uhl

Title: Region Manager

Responsible official's signature:

Signature: _____ Signature Date: 4.22.21

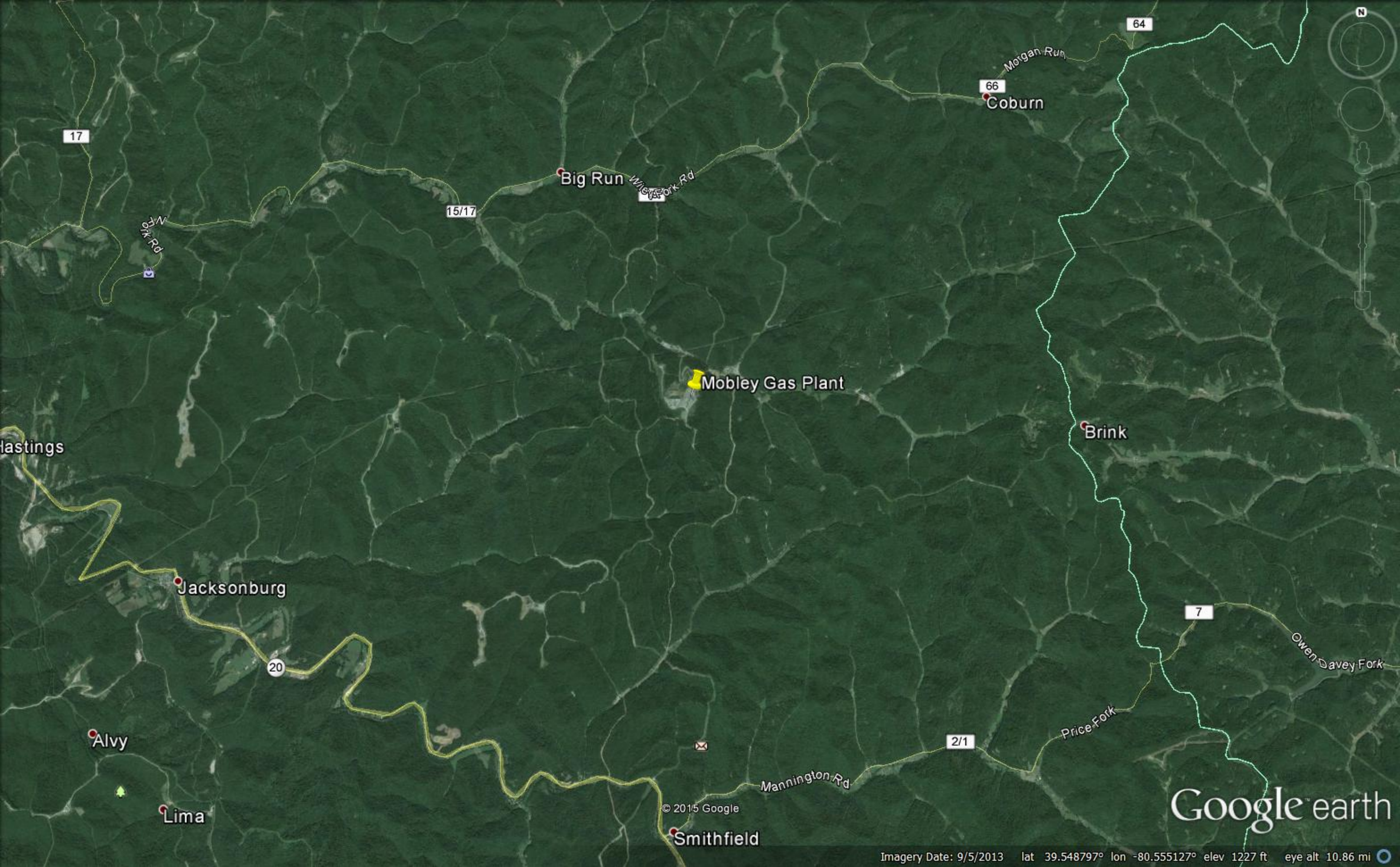
(Must be signed and dated in blue ink)

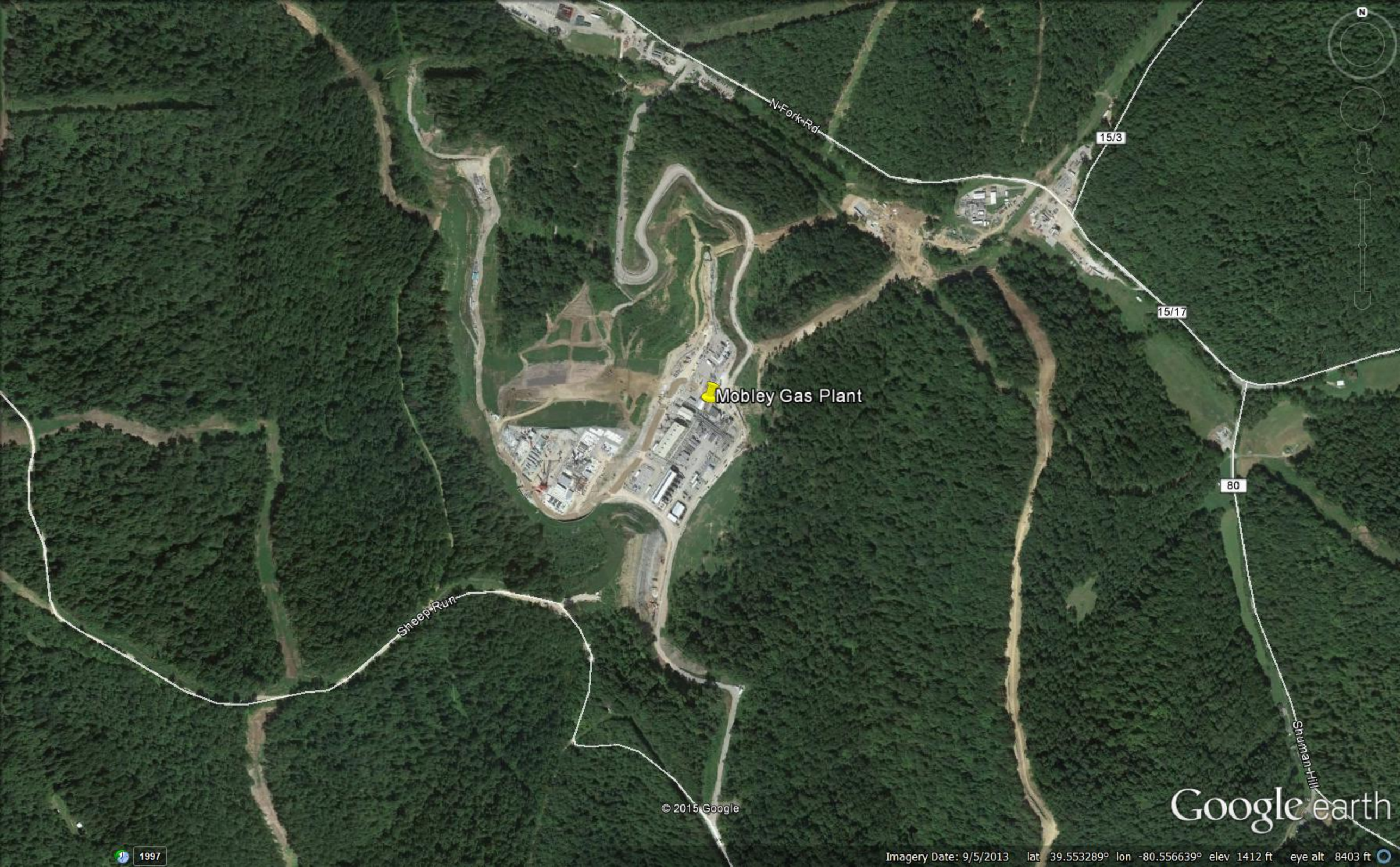
Note: Please check all applicable attachments included with this permit application:

☒	ATTACHMENT A: Area Map
☒	ATTACHMENT B: Plot Plan(s)
☒	ATTACHMENT C: Process Flow Diagram(s)
☒	ATTACHMENT D: Equipment Table
☒	ATTACHMENT E: Emission Unit Form(s)
☐	ATTACHMENT F: Schedule of Compliance Form(s) - Not Applicable
☒	ATTACHMENT G: Air Pollution Control Device Form(s)
☐	ATTACHMENT H: Compliance Assurance Monitoring (CAM) Form(s) - Not Applicable

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

Attachment A
Area Maps


64
Morgan Run
66
Coburn
17
Big Run
Wilgus Fork Rd
15/17
Mobley Gas Plant
Brink
Hastings
Jacksonburg
20
7
Owen Davey Fork
Alvy
Price Fork
2/1
Mannington Rd
Lima
© 2015 Google
Smithfield
Google earth
Imagery Date: 9/5/2013 lat 39.548797° lon -80.555127° elev 1227 ft eye alt 10.86 mi


N Fork Rd
15/3
15/17
Mobley Gas Plant
Sheep Run
80
Shuman Hill
© 2015 Google
Google earth
1997
Imagery Date: 9/5/2013 lat 39.553289° lon -80.556639° elev 1412 ft eye alt 8403 ft

Attachment B
Plot Plans

NORTH

PROPOSED MAGNUM HUNTER PIPELINE RIGHT-OF-WAY

PLANT 5

MCC

SUBSTATION

EXISTING MAGNUM HUNTER GAS LINE

CONCEPT NOTES:

1. CONCEPT VOLUME ESTIMATES:

CUT	=	162,300	CY
20% SWELL	=	32,500	CY
FILL	=	209,800	CY
NET	=	15,000	(FILL)

2. CUT WALL ESTIMATE: SURFACE FACE = 53,000 SF

3. FILL WALL ESTIMATE: SURFACE FACE = 76,000 SF

REFERENCE

1. EXISTING TOPOGRAPHY DEVELOPED BY MICHAEL BAKER CORPORATION IN APRIL 2011. PROVIDED TO CEC BY MARKWEST. PORTIONS OF EXISTING TOPOGRAPHY REVISED BY CEC.

2. ADDITIONAL EXISTING TOPOGRAPHY DEVELOPED FROM WV STATEWIDE DIGITAL ELEVATION MODELS (3-METER) 2003, CREATED BY USGS AND THE WV STATEWIDE ADDRESSING AND MAPPING BOARD.

3. STREAM LOCATIONS DELINEATED BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

PRELIMINARY
NOT FOR CONSTRUCTION

SCALE IN FEET
0 60 120

REVISION RECORD

NO	DATE	DESCRIPTION

CEC
Civil & Environmental Consultants, Inc.
333 Baldwin Road - Pittsburgh, PA 15205
412-429-2324 - 800-365-2324
www.cecinc.com

MARKWEST LIBERTY MIDSTREAM & RESOURCES, LLC.
MOBLEY GAS PLANT
MOBLEY, WEST VIRGINIA

MOBLEY PLANT 5
CONCEPTUAL GRADING PLAN

DATE:	JUNE 2014
DWG SCALE:	1" = 60'
PROJECT NO:	102-165.4000
APPROVED BY:	DRAFT
DRAWN BY:	JRK
CHECKED BY:	DRAFT

DRAWING NO.:
CP05A
SHEET 1 OF 1

P:\2010\102-165\4000\DWG\Plant 5 Task 4000\102165-CP05B.dwg[CP05A] LS(6/11/2014 - JRK) - LP: 6/11/2014 3:53 PM


Mobley I
Mobley II
Mobley III
Mobley IV
N

Attachment C
Process Flow Diagram

High Pressure Gas Inlet

High Pressure Slug Catcher

Rod Packing & Crankcase Emissions

Low Pressure Gas Inlet

Low Pressure Slug Catcher

Inlet Compression

Waukesha P9390GSI (CM-1002 to CM-1006)

Mol Sieve Dehydration

Regeneration Gas Heater

(H-2741)

Cryogenic Gas Processing (Mobley I)

Heat Medium Oil Heater

(H-2781)

Rod Packing & Crankcase Emissions

Residue Compression

CAT 3616 (C-102 & C-103)

Gas to Sales

Mol Sieve Dehydration

Regeneration Gas Heater

(H-1741)

Cryogenic Gas Processing (Mobley II)

Heat Medium Oil Heater

(H-1781)

Rod Packing Emissions

Residue Compression

(Electric)

Gas to Sales

Mol Sieve Dehydration

Regeneration Gas Heater

(H-3741)

Cryogenic Gas Processing (Mobley III)

Heat Medium Oil Heater

(H-4781)

Rod Packing Emissions

Residue Compression

(Electric)

Gas to Sales

Mol Sieve Dehydration

Regeneration Gas Heater

(H-4741)

Cryogenic Gas Processing (Mobley IV)

Heat Medium Oil Heater

(H-4781)

Rod Packing Emissions

Residue Compression

(Electric)

Gas to Sales

Mol Sieve Dehydration

Regeneration Gas Heater

(H-5741)

Cryogenic Gas Processing (Mobley V) and DeEthanizer

Heat Medium Oil Heater

(H-5782)

Rod Packing Emissions

Residue Compression

(Electric)

Gas to Sales

Blowdowns to Atmosphere

Venting/ Blowdowns

Blowdowns & Process Upsets

Emergency Flare (FL-991)

Combustion Emissions

Generac MMG45

(G-1)

Combustion Emissions

Generac MMG45lF4

(G-3)

Combustion Emissions

Generac MMG45lF4

(G-4)

Fugitives to Atmosphere

Plant Fugitives

Venting to Atmosphere

Pneumatic Devices

This Process Flow Diagram is intended to provide a high-level understanding of the facility processes and air emission sources. The actual facility design and process may vary.

Mobley Gas Plant

Process Flow Diagram

April 2021

Attachment D
Equipment Table

ATTACHMENT D - Title V Equipment Table

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

Emission Point ID[1]	Control Device[1]	Emission Unit ID[1]	Emission Unit Description	Design Capacity	Year Installed/ Modified
CM-1002	NSCR	CM-1002	Waukesha P9390 GSI Engine	1,980 hp	2012
CM-1003	NSCR	CM-1003	Waukesha P9390 GSI Engine	1,980 hp	2012
CM-1004	NSCR	CM-1004	Waukesha P9390 GSI Engine	1,980 hp	2012
CM-1005	NSCR	CM-1005	Waukesha P9390 GSI Engine	1,980 hp	2013
CM-1006	NSCR	CM-1006	Waukesha P9390 GSI Engine	1,980 hp	2012
C-102	Oxid. Cat.	C-102	Caterpillar G3616 LE Engine	4,735 hp	2012
C-103	Oxid. Cat.	C-103	Caterpillar G3616 LE Engine	4,735 hp	2012
G-1	N/A	G-1	Generac MMG45 Generator	53 hp	2012
G-2	N/A	G-2	Kohler 40ERES Generator	75 hp	2012
G-3	N/A	G-3	Generac MMG45IF4 Generator	58 hp	2012
G-4	N/A	G-4	Generac MMG45IF4 Generator	58 hp	2012
H-1741	N/A	H-1741	Regeneration Gas Heater	6.84 mmbtu/hr	2013
H-1781	N/A	H-1781	Heat Medium Oil Heater	18.05 mmbtu/hr	2013
H-2741	N/A	H-2741	Regeneration Gas Heater	8.12 mmbtu/hr	2012
H-2781	N/A	H-2781	Heat Medium Oil Heater	26.00 mmbtu/hr	2012
FL-991	N/A	FL-991	Emergency Flare	68,600 scf/min	2012
H-3741	N/A	H-3741	Regeneration Gas Heater	7.69 mmbtu/hr	2013
H-4741	N/A	H-4741	Regeneration Gas Heater	7.69 mmbtu/hr	2014
H-3781	N/A	H-3781	Heat Medium Oil Heater	16.07 mmbtu/hr	2014
H-5741	N/A	H-5741	Regeneration Gas Heater	7.69 mmbtu/hr	2015
H-5782	N/A	H-5782	Heat Medium Oil Heater	50.78 mmbtu/hr	2015
TK-087	N/A	TK-087	520 gal Methanol Tank	520 gal	2012
TK-2609	N/A	TK-2609	520 gal Methanol Tank	520 gal	2012
TK-3410	N/A	TK-3410	520 gal Methanol Tank	520 gal	2012
TK-3829	N/A	TK-3829	520 gal Methanol Tank	520 gal	2012
TK-4220	N/A	TK-4220	520 gal Methanol Tank	520 gal	2012
TK-4410	N/A	TK-4410	520 gal Methanol Tank	520 gal	2012
TK-1824	N/A	TK-1824	4,265 gal Closed Drain Tank	4,265 gal	2012

TK-4824	N/A	TK-4824	4,533 gal Closed Drain Tank	4,533 gal	2012
FUG-004	N/A	FUG-004	Fugitive Equipment Leaks	N/A	2012/2015
1B	N/A	1B	Compressor Blowdowns	N/A	2012/2015
2B	Flare	2B	Facility Blowdowns	N/A	2012/2015
RP	N/A	RP	Rod Packing Emissions	N/A	2012
CBB	N/A	CBB	Crankcase Blowby Emissions	N/A	2012

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

Attachment E
Emission Unit Forms

fATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:**
CM-1002	Waukesha P9390 GSI Compressor Engine	NSCR/ AFRC

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
1,980 hp natural gas fired 4-stroke rich-burn compressor engine

Manufacturer:	**Model number:**	**Serial number:**
Waukesha	P9390 GSI	5283701413

Construction date:	**Installation date:**	**Modification date(s):**
08/01/2011	11/28/2012	NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 1,980 hp

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
		8,760 hrs/year

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? _X__Yes ___ No	**If yes, is it?** ___ Indirect Fired _X_Direct Fired
Maximum design heat input and/or maximum horsepower rating: 15.43 mmbtu/hr 1,980 hp	**Type and Btu/hr rating of burners:** N/A

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
Natural Gas
13,726 scf/hr
120.2 mmscf/yr

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	0%	0%	1,124 btu/scf

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	1.14	4.99
Nitrogen Oxides (NO_X)	0.87	3.83
Lead (Pb)	0.00	0.00
Particulate Matter ($PM_{2.5}$)	0.30	1.31
Particulate Matter (PM_{10})	0.30	1.31
Total Particulate Matter (TSP)	0.30	1.31
Sulfur Dioxide (SO_2)	0.01	0.04
Volatile Organic Compounds (VOC)	0.52	2.29
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Acetaldehyde	0.04	0.19
Acrolein	0.04	0.18
Formaldehyde	0.04	0.19
Methanol	0.05	0.21
Total HAPs	0.21	0.92
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO2(e)	1,987.32	8,704.45

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

-NOx, CO, VOC, HCHO: Manufacturer specified emission factors (g/hp-hr) for engine and NSCR
-PM2.5, PM10, TSP, SO2, HAPs (excluding HCHO): AP-42 Table 3.2-3 Uncontrolled Emission Factors for 4-Stroke Rich-Burn Engines
-CO2(e): 40 CFR 98 Table C-1. Default CO2 Emission Factors and High Heat Values for Various Types of Fuel and Table C-2. Default CH4 and N2O Emission Factors for Various Types of Fuel

Applicable Requirements

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

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4.1.3[45CSR§13-5.11]
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7.1.2 [40CFR§60.5385, Reciprocating Compressor Engines]
7.2.1 [40CFR§60.5410]
7.3 [40CFR§60.5415]
7.4.1 [40 CFR§60.5385(d), 40 CFR§60.5420(a)]
7.4.2 [40 CFR§60.5420(b)(4) and (7)]
7.4.3[40 CFR§60.5420(c)(3)]
9.1 [40 CFR§60.4230(a)(b)(c)(d)(e)]
9.2 [40 CFR §60.4233(e)(f)(h), 40 CFR §60.4234]
9.3 [40CFR§60.4243(b)(c)(e)(g)(h)]
9.4 [40CFR§60.4244(a)(b)(c)(d)(e)(f)(g)]
9.5 [40CFR§60.4245(a)(b)(c)(d)]

__X__ Permit Shield

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

Section	Monitoring	Testing	Recordkeeping	Reporting	Condition or Citation
4.1.1	NA	NA	Records of monitoring	NA	4.1.1
4.1.2	NA	NA	Total HAP emission calculations	NA	4.1.2
4.1.3	Operate and maintain monitoring equipment in a manner consistent with safety and good air pollution control practices	NA	NA	NA	45CSR§13-5.11
4.1.4	NA	NA	Control equipment malfunction events during which excess emissions occurred	NA	4.1.4
4.1.5	NA	NA	Records of fuel usage	NA	4.2.1

5.1.1	NA	NA	Fuel consumption	NA	5.4
5.1.2	NA	Stack testing of NOx, CO, VOC, and HCHO	Records of stack testing and emission calculations	Notification of stack testing. Submit stack testing report	3.3, 5.3.1, 9.4, 40CSR§60, Subpart JJJJ, WV Code § 22-5-4(a)(14-15) and 45CSR13
5.1.5. a	Exhaust gas temperature and exhaust oxygen content	NA	NA	NA	5.1.5. a
5.1.5. c	Masking, poisoning or overrich air/fuel ratio	NA	NA	NA	5.1.5. c
5.1.5. d	Check air/fuel ratio every 1,500 service hours. Monitor temperature to inlet of catalyst. Inspect for thermal deactivation	NA	Records of checks and adjustments	NA	5.1.5. d
5.1.5. e	Monitor that catalyst is in operation continuously	NA	NA	NA	5.1.5. e
5.2	Regularly inspect catalytic reduction devices and auxiliary air pollution control devices	NA	NA	NA	5.2
5.3	NA	Testing in accordance with Section 3.3 and Section 9.4	NA	NA	5.3, 3.3, 9.4
5.4	NA	NA	Amount and type of fuel consumed and hours of operation	Make records available for inspection and review. Any records provided must be certified by a responsible official.	5.4.1
5.5	NA	NA	NA	Reporting in accordance with Section 3.5 and Section 9.5.	5.5, 3.5, 9.5
7.1.2	Monitor hours of operation. Replace rod packing every 26,000 hours or prior to 36 months.	NA	Hours of operation or number of months since last rod packing replacement. Date and time of each rod packing replacement. Deviations.	Notifications and Annual report	40CFR§60.5385, Reciprocating Compressor Engines
7.2.1	During initial compliance period continuously monitor hours of operation or track number of months since last rod packing replacement.	NA	Hours of operation or number of months since last rod packing replacement. Date and time of each rod packing replacement. Deviations.	Notifications. Initial annual report.	40CFR§60.5410
7.3	Continuously monitor number of hours of operation or track number of months since most recent rod packing replacement.	NA	Hours of operation or number of months since last rod packing replacement. Date and time of each rod packing replacement. Deviations.	Annual report	40CFR§60.5415
7.4.1	NA	NA	NA	Initial notification	40 CFR§60.5385(d), 40 CFR§60.5420(a)
7.4.2	NA	NA	NA	Annual report including recorded hours of operation since previous rod packing and any deviations that occurred during the reporting period.	40CFR§60.5420(b)(4)
7.4.3	NA	NA	Maintain the following records for 5 years: Hours of operation or number of months since last	NA	40CFR§60.5420(c)(3)

			rod packing replacement. Date and time of each rod packing replacement. Deviations.		
9.2	NA	Initial performance test and subsequent annual performance testing	NA	NA	9.3.1 b., 40CFR§60.4243(b)
9.3	NA	Initial performance test and subsequent annual performance testing. Performance test required if operating over 100 hours using propane fuel.	Keep a maintenance plan and records of conducted maintenance. Record operating hours when using propane fuel.	NA	40CFR§60.4243(c), 40CFR§60.4243(e), 40CFR§60.4243(g)
9.4	NA	NOx, CO, and VOC performance testing	NA	NA	40CFR§60.4244 (a),(b),(c),(d),(e),(f),(g)
9.5	NA	Notifications, maintenance, manufacturer certifications, emissions testing documentation	NA	Notification and testing reports	40CFR§60.4245 (a),(b),(c),(d)

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

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:**
CM-1003	Waukesha P9390 GSI Compressor Engine	NSCR/ AFRC

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
1,980 hp natural gas fired 4-stroke rich-burn compressor engine

Manufacturer:	**Model number:**	**Serial number:**
Waukesha	P9390 GSI	C-17736/1A

Construction date:	**Installation date:**	**Modification date(s):**
09/01/2011	07/18/2012	NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 1,980 hp

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
		8,760 hrs/year

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? _X__Yes ___ No	**If yes, is it?** ___ Indirect Fired _X_Direct Fired
Maximum design heat input and/or maximum horsepower rating: 15.43 mmbtu/hr 1,980 hp	**Type and Btu/hr rating of burners:** NA

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
Natural Gas
13,726 scf/hr
120.2 mmscf/yr

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	0%	0%	1,124 btu/scf

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	1.14	4.99
Nitrogen Oxides (NO_X)	0.87	3.83
Lead (Pb)	0.00	0.00
Particulate Matter ($PM_{2.5}$)	0.30	1.31
Particulate Matter (PM_{10})	0.30	1.31
Total Particulate Matter (TSP)	0.30	1.31
Sulfur Dioxide (SO_2)	0.01	0.04
Volatile Organic Compounds (VOC)	0.52	2.29
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Acetaldehyde	0.04	0.19
Acrolein	0.04	0.18
Formaldehyde	0.04	0.19
Methanol	0.05	0.21
Total HAPs	0.21	0.92
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO2(e)	1,987.32	8,704.45

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

-NOx, CO, VOC, HCHO: Manufacturer specified emission factors (g/hp-hr) for engine and NSCR
-PM2.5, PM10, TSP, SO2, HAPs (excluding HCHO): AP-42 Table 3.2-3 Uncontrolled Emission Factors for 4-Stroke Rich-Burn Engines
-CO2(e): 40 CFR 98 Table C-1. Default CO2 Emission Factors and High Heat Values for Various Types of Fuel and Table C-2. Default CH4 and N2O Emission Factors for Various Types of Fuel

Applicable Requirements

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

SEE APPLICABLE REQUIREMENTS LISTED FOR CM-1002

__X__ Permit Shield

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

SEE MONITORING/TESTING/RECORDKEEPING/REPORTING LISTED FOR CM-1002

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

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:**
CM-1004	Waukesha P9390 GSI Compressor Engine	NSCR/ AFRC

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
1,980 hp natural gas fired 4-stroke rich-burn compressor engine

Manufacturer:	**Model number:**	**Serial number:**
Waukesha	P9390 GSI	5283701414

Construction date:	**Installation date:**	**Modification date(s):**
09/01/2011	09/26/2012	NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 1,980 hp

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
		8,760 hrs/year

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? _X__Yes ___ No	**If yes, is it?** ___ Indirect Fired _X_Direct Fired
Maximum design heat input and/or maximum horsepower rating: 15.43 mmbtu/hr 1,980 hp	**Type and Btu/hr rating of burners:** NA

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
Natural Gas
13,726 scf/hr
120.2 mmscf/yr

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	0%	0%	1,124 btu/scf

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	1.14	4.99
Nitrogen Oxides (NO_X)	0.87	3.83
Lead (Pb)	0.00	0.00
Particulate Matter ($PM_{2.5}$)	0.30	1.31
Particulate Matter (PM_{10})	0.30	1.31
Total Particulate Matter (TSP)	0.30	1.31
Sulfur Dioxide (SO_2)	0.01	0.04
Volatile Organic Compounds (VOC)	0.52	2.29
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Acetaldehyde	0.04	0.19
Acrolein	0.04	0.18
Formaldehyde	0.04	0.19
Methanol	0.05	0.21
Total HAPs	0.21	0.92
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO2(e)	1,987.32	8,704.45

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

-NOx, CO, VOC, HCHO: Manufacturer specified emission factors (g/hp-hr) for engine and NSCR
-PM2.5, PM10, TSP, SO2, HAPs (excluding HCHO): AP-42 Table 3.2-3 Uncontrolled Emission Factors for 4-Stroke Rich-Burn Engines
-CO2(e): 40 CFR 98 Table C-1. Default CO2 Emission Factors and High Heat Values for Various Types of Fuel and Table C-2. Default CH4 and N2O Emission Factors for Various Types of Fuel

Applicable Requirements

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

SEE APPLICABLE REQUIREMENTS LISTED FOR CM-1002

__X__ Permit Shield

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

SEE MONITORING/TESTING/RECORDKEEPING/REPORTING LISTED FOR CM-1002

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

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:**
CM-1005	Waukesha P9390 GSI Compressor Engine	NSCR/ AFRC

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
1,980 hp natural gas fired 4-stroke rich-burn compressor engine

Manufacturer:	**Model number:**	**Serial number:**
Waukesha	P9390 GSI	C-10905/1

Construction date:	**Installation date:**	**Modification date(s):**
10/ /2014	03/07/2013	NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 1,980 hp

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
		8,760 hrs/year

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? _X__Yes ___ No	**If yes, is it?** ___ Indirect Fired _X_Direct Fired
Maximum design heat input and/or maximum horsepower rating: 15.43 mmbtu/hr 1,980 hp	**Type and Btu/hr rating of burners:** NA

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
Natural Gas
13,726 scf/hr
120.2 mmscf/yr

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	0%	0%	1,124 btu/scf

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	1.14	4.99
Nitrogen Oxides (NO_X)	0.87	3.83
Lead (Pb)	0.00	0.00
Particulate Matter ($PM_{2.5}$)	0.30	1.31
Particulate Matter (PM_{10})	0.30	1.31
Total Particulate Matter (TSP)	0.30	1.31
Sulfur Dioxide (SO_2)	0.01	0.04
Volatile Organic Compounds (VOC)	0.52	2.29
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Acetaldehyde	0.04	0.19
Acrolein	0.04	0.18
Formaldehyde	0.04	0.19
Methanol	0.05	0.21
Total HAPs	0.21	0.92
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO2(e)	1,987.32	8,704.45

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

-NOx, CO, VOC, HCHO: Manufacturer specified emission factors (g/hp-hr) for engine and NSCR
-PM2.5, PM10, TSP, SO2, HAPs (excluding HCHO): AP-42 Table 3.2-3 Uncontrolled Emission Factors for 4-Stroke Rich-Burn Engines
-CO2(e): 40 CFR 98 Table C-1. Default CO2 Emission Factors and High Heat Values for Various Types of Fuel and Table C-2. Default CH4 and N2O Emission Factors for Various Types of Fuel

Applicable Requirements

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

SEE APPLICABLE REQUIREMENTS LISTED FOR CM-1002

__X__ Permit Shield

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

SEE MONITORING/TESTING/RECORDKEEPING/REPORTING LISTED FOR CM-1002

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

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:**
CM-1006	Waukesha P9390 GSI Compressor Engine	NSCR/ AFRC

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
1,980 hp natural gas fired 4-stroke rich-burn compressor engine

Manufacturer:	**Model number:**	**Serial number:**
Waukesha	P9390 GSI	5283702043

Construction date:	**Installation date:**	**Modification date(s):**
06/01/2012	11/28/2012	NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 1,980 hp

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
		8,760 hrs/year

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? _X__Yes ___ No	**If yes, is it?** ___ Indirect Fired _X_Direct Fired
Maximum design heat input and/or maximum horsepower rating: 15.43 mmbtu/hr 1,980 hp	**Type and Btu/hr rating of burners:** NA

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
Natural Gas
13,726 scf/hr
120.2 mmscf/yr

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	0%	0%	1,124 btu/scf

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	1.14	4.99
Nitrogen Oxides (NO_X)	0.87	3.83
Lead (Pb)	0.00	0.00
Particulate Matter ($PM_{2.5}$)	0.30	1.31
Particulate Matter (PM_{10})	0.30	1.31
Total Particulate Matter (TSP)	0.30	1.31
Sulfur Dioxide (SO_2)	0.01	0.04
Volatile Organic Compounds (VOC)	0.52	2.29
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Acetaldehyde	0.04	0.19
Acrolein	0.04	0.18
Formaldehyde	0.04	0.19
Methanol	0.05	0.21
Total HAPs	0.21	0.92
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO2(e)	1,987.32	8,704.45

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

-NOx, CO, VOC, HCHO: Manufacturer specified emission factors (g/hp-hr) for engine and NSCR
-PM2.5, PM10, TSP, SO2, HAPs (excluding HCHO): AP-42 Table 3.2-3 Uncontrolled Emission Factors for 4-Stroke Rich-Burn Engines
-CO2(e): 40 CFR 98 Table C-1. Default CO2 Emission Factors and High Heat Values for Various Types of Fuel and Table C-2. Default CH4 and N2O Emission Factors for Various Types of Fuel

Applicable Requirements

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

SEE APPLICABLE REQUIREMENTS LISTED FOR CM-1002

__X__ Permit Shield

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

SEE MONITORING/TESTING/RECORDKEEPING/REPORTING LISTED FOR CM-1002

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

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:**
C-102	Caterpillar G3616 LE Compressor Engine	Oxidation Catalyst

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
4,735 hp natural gas fired 4-stroke lean-burn compressor engine

Manufacturer:	**Model number:**	**Serial number:**
Caterpillar	G3616 LE	BLB00724

Construction date:	**Installation date:**	**Modification date(s):**
07/07/2011	11/28/2012	NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 4,375 hp

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
		8,760 hrs/year

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? _X__Yes ___ No	**If yes, is it?** ___ Indirect Fired _X_Direct Fired
Maximum design heat input and/or maximum horsepower rating: 35.44 mmbtu/hr 4,735 hp	**Type and Btu/hr rating of burners:** NA

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
Natural Gas
31,527 scf/hr
276.2 mmscf/yr

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	0%	0%	1,124 btu/scf

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	1.44	6.29
Nitrogen Oxides (NO_X)	5.22	22.86
Lead (Pb)	0.00	0.00
Particulate Matter ($PM_{2.5}$)	0.35	1.55
Particulate Matter (PM_{10})	0.35	1.55
Total Particulate Matter (TSP)	0.35	1.55
Sulfur Dioxide (SO_2)	0.02	0.09
Volatile Organic Compounds (VOC)	2.63	11.52
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Acetaldehyde	0.30	1.30
Acrolein	0.18	0.80
Formaldehyde	0.27	1.19
Methanol	0.09	0.39
Total HAPs	0.88	3.84
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO2(e)	4,520.73	19,800.79

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

-NOx, CO, VOC, HCHO: Manufacture specified emission factors (g/hp-hr) for engine and NSCR
-PM2.5, PM10, TSP, SO2, HAPs (excluding HCHO): AP-42 Table 3.2-2 Uncontrolled Emission Factors for 4-Stroke Lean-Burn Engines
-CO2(e): 40 CFR 98 Table C-1. Default CO2 Emission Factors and High Heat Values for Various Types of Fuel and Table C-2. Default CH4 and N2O Emission Factors for Various Types of Fuel

Applicable Requirements

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

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4.1.3 [45CSR§13-5.11]
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7.1.2 [40CFR§60.5385, Reciprocating Compressor Engines]
7.2.1 [40CFR§60.5410]
7.3 [40CFR§60.5415]
7.4.1 [40 CFR§60.5385(d), 40 CFR§60.5420(a)]
7.4.2 [40 CFR§60.5420(b)(4) and (7)]
7.4.3 [40 CFR§60.5420(c)(3)]
9.1 [40 CFR§60.4230(a)(b)(c)(d)(e)]
9.2 [40 CFR §60.4233(e)(f)(h), 40 CFR §60.4234]
9.3 [40CFR§60.4243(b)(c)(e)(g)(h)]
9.4 [40CFR§60.4244(a)(b)(c)(d)(e)(f)(g)]
9.5 [40CFR§60.4245(a)(b)(c)(d)]

__X__ Permit Shield

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

Section	Monitoring	Testing	Recordkeeping	Reporting	Condition or Citation
4.1.1	NA	NA	Records of monitoring	NA	4.1.1
4.1.2	NA	NA	Total HAP emission calculations	NA	4.1.2
4.1.3	Operate and maintain monitoring equipment in a manner consistent with safety and good air pollution control practices	NA	NA	NA	45CSR§13-5.11
4.1.4	NA	NA	Control equipment malfunction events during which excess emissions occurred	NA	4.1.4
4.1.5	NA	NA	Records of fuel usage	NA	4.2.1
5.1.3	NA	NA	Fuel consumption	NA	5.4

5.1.4	NA	Stack testing of NOx, CO, VOC, and HCHO	Records of stack testing and emission calculations	Notification of stack testing. Submit stack testing report	3.3, 5.3.1, 9.4, 40CSR§60, Subpart JJJJ, WV Code § 22-5-4(a)(14-15) and 45CSR13
5.1.5. a	Exhaust gas temperature and exhaust oxygen content	NA	NA	NA	5.1.5. a
5.1.5. c	Masking, poisoning or overrich air/fuel ratio	NA	NA	NA	5.1.5. c
5.1.5. d	Check air/fuel ratio every 1,500 service hours. Monitor temperature to inlet of catalyst. Inspect for thermal deactivation	NA	Records of checks and adjustments	NA	5.1.5. d
5.1.5. e	Monitor that catalyst is in operation continuously	NA	NA	NA	5.1.5. e
5.2	Regularly inspect catalytic reduction devices and auxiliary air pollution control devices	NA	NA	NA	5.2
5.3	NA	Testing in accordance with Section 3.3 and Section 9.4	NA	NA	5.3, 3.3, 9.4
5.4	NA	NA	Amount and type of fuel consumed and hours of operation	Make records available for inspection and review. Any records provided must be certified by a responsible official.	5.4.1
5.5	NA	NA	NA	Reporting in accordance with Section 3.5 and Section 9.5.	5.5, 3.5, 9.5
7.1.2	Monitor hours of operation. Replace rod packing every 26,000 hours or prior to 36 months.	NA	Hours of operation or number of months since last rod packing replacement. Date and time of each rod packing replacement. Deviations.	Notifications and Annual report	40CFR§60.5385, Reciprocating Compressor Engines
7.2.1	During initial compliance period continuously monitor hours of operation or track number of months since last rod packing replacement.	NA	Hours of operation or number of months since last rod packing replacement. Date and time of each rod packing replacement. Deviations.	Notifications. Initial annual report.	40CFR§60.5410
7.3	Continuously monitor number of hours of operation or track number of months since most recent rod packing replacement.	NA	Hours of operation or number of months since last rod packing replacement. Date and time of each rod packing replacement. Deviations.	Annual report	40CFR§60.5415
7.4.1	NA	NA	NA	Initial notification	40 CFR§60.5385(d), 40 CFR§60.5420(a)
7.4.2	NA	NA	NA	Annual report including recorded hours of operation since previous rod packing and any deviations that occurred during the reporting period.	40CFR§60.5420(b)(4)
7.4.3	NA	NA	Maintain the following records for 5 years: Hours of operation or number of months since last rod packing replacement. Date	NA	40CFR§60.5420(c)(3)

			and time of each rod packing replacement. Deviations.		
9.2	NA	Initial performance test and subsequent annual performance testing	NA	NA	9.3.1 b., 40CFR§60.4243(b)
9.3	NA	Initial performance test and subsequent annual performance testing. Performance test required if operating over 100 hours using propane fuel.	Keep a maintenance plan and records of conducted maintenance. Record operating hours when using propane fuel.	NA	40CFR§60.4243(c), 40CFR§60.4243(e), 40CFR§60.4243(g)
9.4	NA	NOx, CO, and VOC performance testing	NA	NA	40CFR§60.4244 (a),(b),(c),(d),(e),(f),(g)
9.5	NA	Notifications, maintenance, manufacturer certifications, emissions testing documentation	NA	Notification and testing reports	40CFR§60.4245 (a),(b),(c),(d)

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

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:**
C-103	Caterpillar G3616 LE Compressor Engine	Oxidation Catalyst

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
4,735 hp natural gas fired 4-stroke lean-burn compressor engine

Manufacturer:	**Model number:**	**Serial number:**
Caterpillar	G3616 LE	BLB00725

Construction date:	**Installation date:**	**Modification date(s):**
07/06/2011	11/28/2012	NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 4,375 hp

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
		8,760 hrs/year

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? _X__Yes ___ No	**If yes, is it?** ___ Indirect Fired _X_Direct Fired
Maximum design heat input and/or maximum horsepower rating: 35.44 mmbtu/hr 4,735 hp	**Type and Btu/hr rating of burners:** NA

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
Natural Gas
31,527 scf/hr
276.2 mmscf/yr

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	0%	0%	1,124 btu/scf

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	1.44	6.29
Nitrogen Oxides (NO_X)	5.22	22.86
Lead (Pb)	0.00	0.00
Particulate Matter ($PM_{2.5}$)	0.35	1.55
Particulate Matter (PM_{10})	0.35	1.55
Total Particulate Matter (TSP)	0.35	1.55
Sulfur Dioxide (SO_2)	0.02	0.09
Volatile Organic Compounds (VOC)	2.63	11.52
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Acetaldehyde	0.30	1.30
Acrolein	0.18	0.80
Formaldehyde	0.27	1.19
Methanol	0.09	0.39
Total HAPs	0.88	3.84
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO2(e)	4,520.73	19,800.79

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

-NOx, CO, VOC, HCHO: Manufacture specified emission factors (g/hp-hr) for engine and NSCR
-PM2.5, PM10, TSP, SO2, HAPs (excluding HCHO): AP-42 Table 3.2-2 Uncontrolled Emission Factors for 4-Stroke Lean-Burn Engines
-CO2(e): 40 CFR 98 Table C-1. Default CO2 Emission Factors and High Heat Values for Various Types of Fuel and Table C-2. Default CH4 and N2O Emission Factors for Various Types of Fuel

Applicable Requirements

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

SEE APPLICABLE REQUIREMENTS LISTED FOR C-102

__X__ Permit Shield

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

SEE MONITORING/TESTING/RECORDKEEPING/REPORTING LISTED FOR C-102

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

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:**
G-1	Generac MMG45 Generator Engine	

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
53 horsepower diesel generator engine.

Manufacturer:	**Model number:**	**Serial number:**
Generac	MMG45	1308750

Construction date:	**Installation date:**	**Modification date(s):**
		NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 53 hp

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
		500 hrs/year

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? _X__Yes ___ No	**If yes, is it?** ___ Indirect Fired _X_Direct Fired
Maximum design heat input and/or maximum horsepower rating: 0.41 mmbtu/hr 53 hp	**Type and Btu/hr rating of burners:** NA

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
Diesel
3.0 gal/hr
1500 gal/yr

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Diesel	0%	0%	137,380 btu/gal

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	0.43	0.11
Nitrogen Oxides (NO_X)	0.41	0.10
Lead (Pb)	0.00	0.00
Particulate Matter ($PM_{2.5}$)	0.00	0.00
Particulate Matter (PM_{10})	0.00	0.00
Total Particulate Matter (TSP)	0.00	0.00
Sulfur Dioxide (SO_2)	0.11	0.03
Volatile Organic Compounds (VOC)	0.41	0.10
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Acetaldehyde	0.00	0.00
Acrolein	0.00	0.00
Formaldehyde	0.00	0.00
Methanol	0.00	0.00
Total HAPs	0.00	0.00
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO2(e)	67.42	16.86

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

-NOx, CO, VOC, HCHO: Manufacture specified emission factors (g/hp-hr) for engine
-PM2.5, PM10, TSP, SO2, HAPs (excluding HCHO): AP-42
-CO2(e): 40 CFR 98 Table C-1. Default CO2 Emission Factors and High Heat Values for Various Types of Fuel and Table C-2. Default CH4 and N2O Emission Factors for Various Types of Fuel

Applicable Requirements

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

SEE APPLICABLE REQUIREMENTS LISTED FOR C-102

__X__ Permit Shield

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

SEE MONITORING/TESTING/RECORDKEEPING/REPORTING LISTED FOR C-102

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

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:**
G-3	Generac Generator Engine	

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
58 hp generator engine

Manufacturer:	**Model number:**	**Serial number:**
Generac	MMG45IF4	1503402

Construction date:	**Installation date:**	**Modification date(s):**
		NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 58 hp

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
		500 hrs/year

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? _X__Yes ___ No	**If yes, is it?** ___ Indirect Fired _X_Direct Fired
Maximum design heat input and/or maximum horsepower rating: 0.41 mmbtu/hr 58 hp	**Type and Btu/hr rating of burners:** NA

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
Diesel
3 gal/hr
1500 gal/yr

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Diesel	0%	0%	137,380 btu/gal

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	0.47	0.12
Nitrogen Oxides (NO_X)	0.45	0.11
Lead (Pb)	0.00	0.00
Particulate Matter ($PM_{2.5}$)	0.003	0.001
Particulate Matter (PM_{10})	0.003	0.001
Total Particulate Matter (TSP)	0.003	0.001
Sulfur Dioxide (SO_2)	0.12	0.03
Volatile Organic Compounds (VOC)	0.45	0.11
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Acetaldehyde	0.00	0.00
Acrolein	0.00	0.00
Formaldehyde	0.00	0.00
Methanol	0.00	0.00
Total HAPs	0.002	0.00
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO2(e)	67.43	16.86

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

-NOx, CO, VOC, HCHO: Manufacture specified emission factors (g/hp-hr) for engine
-PM2.5, PM10, TSP, SO2, HAPs (excluding HCHO): AP-42
-CO2(e): 40 CFR 98 Table C-1. Default CO2 Emission Factors and High Heat Values for Various Types of Fuel and Table C-2. Default CH4 and N2O Emission Factors for Various Types of Fuel

Applicable Requirements

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

SEE APPLICABLE REQUIREMENTS LISTED FOR C-102

__X__ Permit Shield

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

Non-resettable hour meter

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

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:**
G-4	Generac Generator Engine	

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
58 hp generator engine

Manufacturer:	**Model number:**	**Serial number:**
Generac	MMG45IF4	1308750

Construction date:	**Installation date:**	**Modification date(s):**
		NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 58 hp

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
		500 hrs/year

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? _X__Yes ___ No	**If yes, is it?** ___ Indirect Fired _X_Direct Fired
Maximum design heat input and/or maximum horsepower rating: 0.41 mmbtu/hr 58 hp	**Type and Btu/hr rating of burners:** NA

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
Diesel
3 gal/hr
1500 gal/yr

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Diesel	0%	0%	137,380 btu/gal

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	0.47	0.12
Nitrogen Oxides (NO_X)	0.45	0.11
Lead (Pb)	0.00	0.00
Particulate Matter ($PM_{2.5}$)	0.003	0.001
Particulate Matter (PM_{10})	0.003	0.001
Total Particulate Matter (TSP)	0.003	0.001
Sulfur Dioxide (SO_2)	0.12	0.03
Volatile Organic Compounds (VOC)	0.45	0.11
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Acetaldehyde	0.00	0.00
Acrolein	0.00	0.00
Formaldehyde	0.00	0.00
Methanol	0.00	0.00
Total HAPs	0.002	0.00
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO2(e)	67.43	16.86

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

-NOx, CO, VOC, HCHO: Manufacture specified emission factors (g/hp-hr) for engine
-PM2.5, PM10, TSP, SO2, HAPs (excluding HCHO): AP-42
-CO2(e): 40 CFR 98 Table C-1. Default CO2 Emission Factors and High Heat Values for Various Types of Fuel and Table C-2. Default CH4 and N2O Emission Factors for Various Types of Fuel

Applicable Requirements

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

SEE APPLICABLE REQUIREMENTS LISTED FOR C-102

__X__ Permit Shield

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

Non-resettable hour meter

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

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:**
H-2741	Heatec Molecular Sieve Regeneration Heater	NA

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
8.12 mmbtu/hr natural gas-fired molecular sieve regeneration heater

Manufacturer:	**Model number:**	**Serial number:**
Heatec		

Construction date:	**Installation date:**	**Modification date(s):**
MM/DD/YYY	12/2012	NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 8.12 mmbtu/hr

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
		8,760 hrs/year

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? _X__Yes ___ No	**If yes, is it?** ___ Indirect Fired _X_Direct Fired
Maximum design heat input and/or maximum horsepower rating: 8.12 mmbtu/hr	**Type and Btu/hr rating of burners:** Helical coil 8.12 mmbtu/hr

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
Natural Gas
7,224.20 scf/hr
63.28 mmscf/yr

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	0%	0%	1,124 btu/scf

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	0.33	1.46
Nitrogen Oxides (NO_X)	0.43	1.89
Lead (Pb)	0.00	0.00
Particulate Matter ($PM_{2.5}$)	0.05	0.24
Particulate Matter (PM_{10})	0.05	0.24
Total Particulate Matter (TSP)	0.05	0.24
Sulfur Dioxide (SO_2)	0.00	0.02
Volatile Organic Compounds (VOC)	0.04	0.17
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Formaldehyde	0.00	0.00
n-Hexane	0.01	0.06
Total HAPs	0.01	0.06
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO2(e)	1,045.82	4,580.70

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

-NOx and CO: Manufacturer specified emission factors (lb/mmbtu)
-All other criteria pollutants and HAPs: AP-42 Table 1.4-2 Emission Factors for Criteria Pollutants and Greenhouse Gases from Natural Gas Combustion and Table 1.4-3 Emissions Factors for Speciated Organic Compounds from Natural Gas Combustion
-GHG: Table C-1 Default CO2 Emission Factors and High Heat Values for Various Types of Fuel and Table C-2 Default CH4 and N2O Emission Factors and High Heat Values for Various Types of Fuel

Applicable Requirements

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

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4.1.1
4.1.2
4.2
6.1.1
6.1.2
6.1.13
6.2 [40CFR60, Appendix A]
6.3 [45CSR§2-3.2.]
6.4.1
6.4.2
6.5

__X__ Permit Shield

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

Section	Monitoring	Testing	Recordkeeping	Reporting	Condition or Citation
4.1.1	NA	NA	Records of monitoring	NA	4.1.1
4.1.2	NA	NA	Total HAP emission calculations	NA	4.1.2
4.2	NA	NA	Monthly fuel usage records	NA	4.2
6.1.1	Natural gas consumption	NA	Natural gas consumption	NA	6.1.1
6.1.2	NA	NA	Emission calculations for NOx, CO, and PM	NA	6.1.2
6.1.13	Method 9	NA	Method 9 observations	NA	6.2
6.2	Method 9	NA	Method 9 observations	NA	40CFR60, Appendix A
6.3	NA	Method 9	NA	NA	45CSR§2-3.2.
6.4.1	NA	NA	Natural gas consumption	NA	6.4.1
6.4.2	NA	NA	Method 9 observations	NA	6.4.2
6.5	NA	NA	NA	Deviations	6.5

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

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:** NA
H-2781	Heatec Hot Oil Heater	

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
26.00 mmbtu/hr natural gas-fired hot oil heater

Manufacturer:	**Model number:**	**Serial number:**
Heatec		

Construction date:	**Installation date:**	**Modification date(s):**
MM/DD/YYY	12/2012	NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 26.00 mmbtu/hr

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
		8,760 hrs/year

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? _X__Yes ___ No	**If yes, is it?** ___ Indirect Fired _X_Direct Fired
Maximum design heat input and/or maximum horsepower rating: 26.00 mmbtu/hr	**Type and Btu/hr rating of burners:** Helical coil 26.00 mmbtu/hr

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
Natural Gas
23,131.67 scf/hr
202.63 mmscf/yr

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	0%	0%	1,124 btu/scf

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	1.94	8.51
Nitrogen Oxides (NO_X)	2.31	10.13
Lead (Pb)	0.00	0.00
Particulate Matter ($PM_{2.5}$)	0.18	0.77
Particulate Matter (PM_{10})	0.18	0.77
Total Particulate Matter (TSP)	0.18	0.77
Sulfur Dioxide (SO_2)	0.01	0.06
Volatile Organic Compounds (VOC)	0.13	0.56
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Formaldehyde	0.00	0.01
n-Hexane	0.04	0.18
Total HAPs	0.04	0.18
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO2(e)	3,348.69	14,667.25

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

-NOx and CO: AP-42 Table 1.4-1 Emission Factors for NOx and CO from Natural Gas Combustion
-All other criteria pollutants and HAPs: AP-42 Table 1.4-2 Emission Factors for Criteria Pollutants and Greenhouse Gases from Natural Gas Combustion and Table 1.4-3 Emissions Factors for Speciated Organic Compounds from Natural Gas Combustion
-GHG: Table C-1 Default CO2 Emission Factors and High Heat Values for Various Types of Fuel and Table C-2 Default CH4 and N2O Emission Factors and High Heat Values for Various Types of Fuel

Applicable Requirements

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

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4.1.1
4.1.2
4.2
6.1.3
6.1.4
6.1.13
6.2 [40CFR60, Appendix A]
6.3 [45CSR§2-3.2.]
6.4.1
6.4.2
6.5

__X__ Permit Shield

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

Section	**Monitoring**	**Testing**	**Recordkeeping**	**Reporting**	**Condition or Citation**
4.1.1	NA	NA	Records of monitoring	NA	4.1.1
4.1.2	NA	NA	Total HAP emission calculations	NA	4.1.2
4.2	NA	NA	Monthly fuel usage records	NA	4.2
6.1.3	Natural gas consumption	NA	Natural gas consumption	NA	6.1.1
6.1.4	NA	NA	Emission calculations for NOx, CO, and PM	NA	6.1.2
6.1.13	Method 9	NA	Method 9 observations	NA	6.1.13
6.2	Method 9	NA	Method 9 observations	NA	40CFR60, Appendix A
6.3	NA	Method 9	NA	NA	45CSR§2-3.2.
6.4.1	NA	NA	Natural gas consumption	NA	6.4.1
6.4.2	NA	NA	Method 9 observations	NA	6.4.2
6.5	NA	NA	NA	Deviations	6.5

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

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:** NA
H-1741	Heatec Molecular Sieve Regeneration Heater	

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
6.84 mmbtu/hr natural gas-fired molecular sieve regeneration heater

Manufacturer:	**Model number:**	**Serial number:**
Heatec		
Construction date:	**Installation date:**	**Modification date(s):**
MM/DD/YYY	2/2013	NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 6.84 mmbtu/hr

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
		8,760 hrs/year

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? _X__Yes ___ No	**If yes, is it?** ___ Indirect Fired _X_Direct Fired
Maximum design heat input and/or maximum horsepower rating: 6.84 mmbtu/hr	**Type and Btu/hr rating of burners:** Helical coil 6.84 mmbtu/hr

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
Natural Gas
6,085.41 scf/hr
53.31 mmscf/yr

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	0%	0%	1,124 btu/scf

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	0.28	1.23
Nitrogen Oxides (NO_X)	0.36	1.59
Lead (Pb)	0.00	0.00
Particulate Matter ($PM_{2.5}$)	0.05	0.20
Particulate Matter (PM_{10})	0.05	0.20
Total Particulate Matter (TSP)	0.05	0.20
Sulfur Dioxide (SO_2)	0.00	0.02
Volatile Organic Compounds (VOC)	0.03	0.15
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Formaldehyde	0.00	0.00
n-Hexane	0.01	0.05
Total HAPs	0.01	0.05
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO2(e)	880.96	3,858.62

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

-NOx and CO: Manufacturer specified emission factors (lb/mmbtu)
-All other criteria pollutants and HAPs: AP-42 Table 1.4-2 Emission Factors for Criteria Pollutants and Greenhouse Gases from Natural Gas Combustion and Table 1.4-3 Emissions Factors for Speciated Organic Compounds from Natural Gas Combustion
-GHG: Table C-1 Default CO2 Emission Factors and High Heat Values for Various Types of Fuel and Table C-2 Default CH4 and N2O Emission Factors and High Heat Values for Various Types of Fuel

Applicable Requirements

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

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4.2
6.1.5
6.1.6
6.1.13
6.2 [40CFR60, Appendix A]
6.3 [45CSR§2-3.2.]
6.4.1
6.4.2
6.5

__X__ Permit Shield

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

Section	Monitoring	Testing	Recordkeeping	Reporting	Condition or Citation
4.1.1	NA	NA	Records of monitoring	NA	4.1.1
4.1.2	NA	NA	Total HAP emission calculations	NA	4.1.2
4.2	NA	NA	Monthly fuel usage records	NA	4.2
6.1.5	NA	NA	Emission calculations for NOx, CO, and PM	NA	6.4.1
6.1.6	Natural gas consumption	NA	NA	NA	6.4.1
6.1.13	Method 9	NA	Monitoring data	Deviations	6.1.13
6.2	Method 9	NA	NA	NA	40CFR60, Appendix A
6.3	NA	Method 9	NA	NA	6.3
6.4.1	NA	NA	Natural gas consumption	NA	6.4.1
6.4.2	NA	NA	Method 9 observations	NA	6.4.2
6.5	NA	NA	NA	Deviations	6.5

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

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:** NA
H-1781	Heatec Hot Oil Heater	

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
18.05 mmbtu/hr natural gas-fired hot oil heater

Manufacturer:	**Model number:**	**Serial number:**
Heatec		

Construction date:	**Installation date:**	**Modification date(s):**
MM/DD/YYY	12/2013	NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 18.05 mmbtu/hr

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
		8,760 hrs/year

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? _X__Yes ___ No	**If yes, is it?** ___ Indirect Fired _X_Direct Fired
Maximum design heat input and/or maximum horsepower rating: 18.05 mmbtu/hr	**Type and Btu/hr rating of burners:** Helical coil 18.05 mbbtu/hr

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
Natural Gas
16,058.72 scf/hr
140.67 mmscf/yr

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	0%	0%	1,124 btu/scf

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	1.35	5.91
Nitrogen Oxides (NO_X)	1.61	7.03
Lead (Pb)	0.00	0.00
Particulate Matter ($PM_{2.5}$)	0.12	0.53
Particulate Matter (PM_{10})	0.12	0.53
Total Particulate Matter (TSP)	0.12	0.53
Sulfur Dioxide (SO_2)	0.01	0.04
Volatile Organic Compounds (VOC)	0.09	0.39
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Formaldehyde	0.00	0.01
n-Hexane	0.03	0.13
Total HAPs	0.03	0.13
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO2(e)	2,324.76	10,182.46

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

-NOx and CO: AP-42 Table 1.4-1 Emission Factors for NOx and CO from Natural Gas Combustion
-All other criteria pollutants and HAPs: AP-42 Table 1.4-2 Emission Factors for Criteria Pollutants and Greenhouse Gases from Natural Gas Combustion and Table 1.4-3 Emissions Factors for Speciated Organic Compounds from Natural Gas Combustion
-GHG: Table C-1 Default CO2 Emission Factors and High Heat Values for Various Types of Fuel and Table C-2 Default CH4 and N2O Emission Factors and High Heat Values for Various Types of Fuel

Applicable Requirements

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

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6.1.7
6.1.8
6.1.13
6.2 [40CFR60, Appendix A]
6.3 [45CSR§2-3.2.]
6.4.1
6.4.2
6.5

__X__ Permit Shield

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

Section	Monitoring	Testing	Recordkeeping	Reporting	Condition or Citation
4.1.1	NA	NA	Records of monitoring	NA	4.1.1
4.1.2	NA	NA	Total HAP emission calculations	NA	4.1.2
4.2	NA	NA	Monthly fuel usage records	NA	4.2
6.1.7	Natural gas consumption	NA	Natural gas consumption	NA	6.4.1
6.1.8	NA	NA	Emission calculations for NOx, CO, and PM	NA	6.4.1
6.1.13	Method 9	NA	Monitoring data	Deviations	6.1.13
6.2	Method 9	NA	NA	NA	40CFR60, Appendix A
6.3	NA	Method 9	NA	NA	6.3
6.4.1	NA	NA	Natural gas consumption	NA	6.4.1
6.4.2	NA	NA	Method 9 observations	NA	6.4.2
6.5	NA	NA	NA	Deviations	6.5

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

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:** NA
H-3741	Heatec Molecular Sieve Regeneration Heater	

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
7.69 mmbtu/hr natural gas-fired molecular sieve regeneration heater

Manufacturer:	**Model number:**	**Serial number:**
Heatec		
Construction date:	**Installation date:**	**Modification date(s):**
MM/DD/YYY	12/2013	NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 7.69 mmbtu/hr

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
		8,760 hrs/year

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? _X__Yes ___ No	**If yes, is it?** ___ Indirect Fired _X_Direct Fired
Maximum design heat input and/or maximum horsepower rating: 7.69 mmbtu/hr	**Type and Btu/hr rating of burners:** Helical coil 7.69 mbbtu/hr

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
Natural Gas
6,841.64 scf/hr
59.93 mmscf/yr

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	0%	0%	1,124 btu/scf

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	0.32	1.38
Nitrogen Oxides (NO_X)	0.41	1.79
Lead (Pb)	0.00	0.00
Particulate Matter ($PM_{2.5}$)	0.06	0.25
Particulate Matter (PM_{10})	0.06	0.25
Total Particulate Matter (TSP)	0.06	0.25
Sulfur Dioxide (SO_2)	0.00	0.02
Volatile Organic Compounds (VOC)	0.04	0.18
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Formaldehyde	0.00	0.00
n-Hexane	0.01	0.06
Total HAPs	0.01	0.06
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO2(e)	990.44	4,338.12

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

-NOx and CO: AP-42 Table 1.4-1 Emission Factors for NOx and CO from Natural Gas Combustion
-All other criteria pollutants and HAPs: AP-42 Table 1.4-2 Emission Factors for Criteria Pollutants and Greenhouse Gases from Natural Gas Combustion and Table 1.4-3 Emissions Factors for Speciated Organic Compounds from Natural Gas Combustion
-GHG: Table C-1 Default CO2 Emission Factors and High Heat Values for Various Types of Fuel and Table C-2 Default CH4 and N2O Emission Factors and High Heat Values for Various Types of Fuel

Applicable Requirements

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

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4.1.1
4.1.2
6.1.9
6.1.10
6.1.13
6.2 [40CFR60, Appendix A]
6.3 [45CSR§2-3.2.]
6.4.1
6.4.2
6.5

__X__ Permit Shield

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

Section	Monitoring	Testing	Recordkeeping	Reporting	Condition or Citation
4.1.1	NA	NA	Records of monitoring	NA	4.1.1
4.1.2	NA	NA	Total HAP emission calculations	NA	4.1.2
4.2	NA	NA	Monthly fuel usage records	NA	4.2
6.1.9	Natural gas consumption	NA	Natural gas consumption	NA	6.4.1
6.1.10	NA	NA	Emission calculations for NOx, CO, and PM	NA	6.4.1
6.1.13	Method 9	NA	Monitoring data	Deviations	6.1.13
6.2	Method 9	NA	NA	NA	40CFR60, Appendix A
6.3	NA	Method 9	NA	NA	6.3
6.4.1	NA	NA	Natural gas consumption	NA	6.4.1
6.4.2	NA	NA	Method 9 observations	NA	6.4.2
6.5	NA	NA	NA	Deviations	6.5

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

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:** NA
H-4741	Heatec Molecular Sieve Regeneration Heater	

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
7.69 mmbtu/hr natural gas-fired molecular sieve regeneration heater

Manufacturer:	**Model number:**	**Serial number:**
Heatec		
Construction date:	**Installation date:**	**Modification date(s):**
MM/DD/YYY	12/2014	NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 7.69 mmbtu/hr

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
7.69 mmbtu/hr		8,760 hrs/year

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? _X__Yes ___ No	**If yes, is it?** ___ Indirect Fired _X_Direct Fired
Maximum design heat input and/or maximum horsepower rating: 7.69 mmbtu/hr	**Type and Btu/hr rating of burners:** Helical coil 7.69 mmbtu/hr

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
Natural Gas
6,841.64 scf/hr
59.93 mmscf/yr

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	0%	0%	1,124 btu/scf

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	0.32	1.38
Nitrogen Oxides (NO_X)	0.41	1.79
Lead (Pb)	0.00	0.00
Particulate Matter ($PM_{2.5}$)	0.06	0.25
Particulate Matter (PM_{10})	0.06	0.25
Total Particulate Matter (TSP)	0.06	0.25
Sulfur Dioxide (SO_2)	0.00	0.02
Volatile Organic Compounds (VOC)	0.04	0.18
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Formaldehyde	0.00	0.01
n-Hexane	0.04	0.18
Total HAPs	0.04	0.19
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO2(e)	990.44	4,338.12

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

-NOx and CO: AP-42 Table 1.4-1 Emission Factors for NOx and CO from Natural Gas Combustion
-All other criteria pollutants and HAPs: AP-42 Table 1.4-2 Emission Factors for Criteria Pollutants and Greenhouse Gases from Natural Gas Combustion and Table 1.4-3 Emissions Factors for Speciated Organic Compounds from Natural Gas Combustion
-GHG: Table C-1 Default CO2 Emission Factors and High Heat Values for Various Types of Fuel and Table C-2 Default CH4 and N2O Emission Factors and High Heat Values for Various Types of Fuel

Applicable Requirements

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

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4.1.1
4.1.2
6.1.9
6.1.10
6.1.13
6.2 [40CFR60, Appendix A]
6.3 [45CSR§2-3.2.]
6.4.1
6.4.2
6.5

__X__ Permit Shield

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

Section	Monitoring	Testing	Recordkeeping	Reporting	Condition or Citation
4.1.1	NA	NA	Records of monitoring	NA	4.1.1
4.1.2	NA	NA	Total HAP emission calculations	NA	4.1.2
4.2	NA	NA	Monthly fuel usage records	NA	4.2
6.1.9	Natural gas consumption	NA	Natural gas consumption	NA	6.4.1
6.1.10	NA	NA	Emission calculations for NOx, CO, and PM	NA	6.4.1
6.1.13	Method 9	NA	Monitoring data	Deviations	6.1.13
6.2	Method 9	NA	NA	NA	40CFR60, Appendix A
6.3	NA	Method 9	NA	NA	6.3
6.4.1	NA	NA	Natural gas consumption	NA	6.4.1
6.4.2	NA	NA	Method 9 observations	NA	6.4.2
6.5	NA	NA	NA	Deviations	6.5

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

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:** NA
H-3781	Heatec Hot Medium Oil Heater	

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
16.07 mmbtu/hr natural gas-fired hot oil heater

Manufacturer:	**Model number:**	**Serial number:**
Heatec		

Construction date:	**Installation date:**	**Modification date(s):**
MM/DD/YYY	12/2014	NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 16.07 mmbtu/hr

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
		8,760 hrs/year

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? _X__Yes ___ No	**If yes, is it?** ___ Indirect Fired _X_Direct Fired
Maximum design heat input and/or maximum horsepower rating: 16.07 mmbtu/hr	**Type and Btu/hr rating of burners:** Helical coil 16.07 mmbtu/hr

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
Natural Gas
14,297.15 scf/hr
125.24 mmscf/yr

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	0%	0%	1,124 btu/scf

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	1.32	5.80
Nitrogen Oxides (NO_X)	1.58	6.90
Lead (Pb)	0.00	0.00
Particulate Matter ($PM_{2.5}$)	0.12	0.52
Particulate Matter (PM_{10})	0.12	0.52
Total Particulate Matter (TSP)	0.12	0.52
Sulfur Dioxide (SO_2)	0.01	0.04
Volatile Organic Compounds (VOC)	0.09	0.38
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Formaldehyde	0.00	0.01
n-Hexane	0.03	0.12
Total HAPs	0.03	0.13
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO2(e)	2,069.75	9,065.49

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

-NOx and CO: AP-42 Table 1.4-1 Emission Factors for NOx and CO from Natural Gas Combustion
-All other criteria pollutants and HAPs: AP-42 Table 1.4-2 Emission Factors for Criteria Pollutants and Greenhouse Gases from Natural Gas Combustion and Table 1.4-3 Emissions Factors for Speciated Organic Compounds from Natural Gas Combustion
-GHG: Table C-1 Default CO2 Emission Factors and High Heat Values for Various Types of Fuel and Table C-2 Default CH4 and N2O Emission Factors and High Heat Values for Various Types of Fuel

Applicable Requirements

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

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4.1.2
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6.1.11
6.1.12
6.1.13
6.2 [40CFR60, Appendix A]
6.3 [45CSR§2-3.2.]
6.4.1
6.4.2
6.5

__X__ Permit Shield

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

Section	Monitoring	Testing	Recordkeeping	Reporting	Condition or Citation
4.1.1	NA	NA	Records of monitoring	NA	4.1.1
4.1.2	NA	NA	Total HAP emission calculations	NA	4.1.2
4.2	NA	NA	Monthly fuel usage records	NA	4.2
6.1.11	Natural gas consumption	NA	Natural gas consumption	NA	6.4.1
6.1.12	NA	NA	Emission calculations for NOx, CO, and PM	NA	6.4.1
6.1.13	Method 9	NA	Monitoring data	Deviations	6.1.13
6.2	Method 9	NA	NA	NA	40CFR60, Appendix A
6.3	NA	Method 9	NA	NA	6.3
6.4.1	NA	NA	Natural gas consumption	NA	6.4.1
6.4.2	NA	NA	Method 9 observations	NA	6.4.2
6.5	NA	NA	NA	Deviations	6.5

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

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:** NA
H-5741	Heatec Molecular Sieve Regeneration Heater	

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
7.69 mmbtu/hr natural gas-fired molecular sieve regeneration heater

Manufacturer:	**Model number:**	**Serial number:**
Heatec		
Construction date:	**Installation date:**	**Modification date(s):**
MM/DD/YYY	2015	NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 7.69 mmbtu/hr

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
7.69 mmbtu/hr		8,760 hrs/year

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? _X__Yes ___ No	**If yes, is it?** ___ Indirect Fired _X_Direct Fired
Maximum design heat input and/or maximum horsepower rating: 7.69 mmbtu/hr	**Type and Btu/hr rating of burners:** Helical coil 7.69 mmbtu/hr

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
Natural Gas
6,841.64 scf/hr
59.93 mmscf/yr

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	0%	0%	1,124 btu/scf

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	0.32	1.38
Nitrogen Oxides (NO_X)	0.41	1.79
Lead (Pb)	0.00	0.00
Particulate Matter ($PM_{2.5}$)	0.06	0.25
Particulate Matter (PM_{10})	0.06	0.25
Total Particulate Matter (TSP)	0.06	0.25
Sulfur Dioxide (SO_2)	0.00	0.02
Volatile Organic Compounds (VOC)	0.04	0.18
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Formaldehyde	0.00	0.01
n-Hexane	0.04	0.18
Total HAPs	0.04	0.19
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO2(e)	990.44	4,338.12

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

-NOx and CO: AP-42 Table 1.4-1 Emission Factors for NOx and CO from Natural Gas Combustion
-All other criteria pollutants and HAPs: AP-42 Table 1.4-2 Emission Factors for Criteria Pollutants and Greenhouse Gases from Natural Gas Combustion and Table 1.4-3 Emissions Factors for Speciated Organic Compounds from Natural Gas Combustion
-GHG: Table C-1 Default CO2 Emission Factors and High Heat Values for Various Types of Fuel and Table C-2 Default CH4 and N2O Emission Factors and High Heat Values for Various Types of Fuel

Applicable Requirements

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

Permit R13-2878C
4.1.1
4.1.2
6.1.9
6.1.10
6.1.13
6.2 [40CFR60, Appendix A]
6.3 [45CSR§2-3.2.]
6.4.1
6.4.2
6.5

__X__ Permit Shield

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

Section	Monitoring	Testing	Recordkeeping	Reporting	Condition or Citation
4.1.1	NA	NA	Records of monitoring	NA	4.1.1
4.1.2	NA	NA	Total HAP emission calculations	NA	4.1.2
4.2	NA	NA	Monthly fuel usage records	NA	4.2
6.1.9	Natural gas consumption	NA	Natural gas consumption	NA	6.4.1
6.1.10	NA	NA	Emission calculations for NOx, CO, and PM	NA	6.4.1
6.1.13	Method 9	NA	Monitoring data	Deviations	6.1.13
6.2	Method 9	NA	NA	NA	40CFR60, Appendix A
6.3	NA	Method 9	NA	NA	6.3
6.4.1	NA	NA	Natural gas consumption	NA	6.4.1
6.4.2	NA	NA	Method 9 observations	NA	6.4.2
6.5	NA	NA	NA	Deviations	6.5

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

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:** NA
H-5782	Heatec Hot Medium Oil Heater	

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
50.78 mmbtu/hr natural gas-fired hot oil heater

Manufacturer:	**Model number:**	**Serial number:**
Heatec		

Construction date:	**Installation date:**	**Modification date(s):**
MM/DD/YYY	2015	NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 41.00 mmbtu/hr

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
		8,760 hrs/year

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? _X__Yes ___ No	**If yes, is it?** ___ Indirect Fired _X_Direct Fired
Maximum design heat input and/or maximum horsepower rating: 50.78 mmbtu/hr	**Type and Btu/hr rating of burners:** Helical coil 50.78 mmbtu/hr

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
Natural Gas
45,179.93 scf/hr
395.78 mmscf/yr

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	0%	0%	1,124 btu/scf

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	2.03	8.90
Nitrogen Oxides (NO_X)	3.30	14.46
Lead (Pb)	0.00	0.00
Particulate Matter ($PM_{2.5}$)	0.41	1.78
Particulate Matter (PM_{10})	0.41	1.78
Total Particulate Matter (TSP)	0.41	1.78
Sulfur Dioxide (SO_2)	0.03	0.13
Volatile Organic Compounds (VOC)	0.61	2.67
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Formaldehyde	0.00	0.01
n-Hexane	0.09	0.39
Total HAPs	0.09	0.41
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO2(e)	6,541.19	28,680.40

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

-NOx and CO: AP-42 Table 1.4-1 Emission Factors for NOx and CO from Natural Gas Combustion
-All other criteria pollutants and HAPs: AP-42 Table 1.4-2 Emission Factors for Criteria Pollutants and Greenhouse Gases from Natural Gas Combustion and Table 1.4-3 Emissions Factors for Speciated Organic Compounds from Natural Gas Combustion
-GHG: Table C-1 Default CO2 Emission Factors and High Heat Values for Various Types of Fuel and Table C-2 Default CH4 and N2O Emission Factors and High Heat Values for Various Types of Fuel

Applicable Requirements

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

Permit R13-2878C
4.1.1
4.1.2
4.2
6.1.11
6.1.12
6.1.13
6.2 [40CFR60, Appendix A]
6.3 [45CSR§2-3.2.]
6.4.1
6.4.2
6.5

__X__ Permit Shield

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

Section	Monitoring	Testing	Recordkeeping	Reporting	Condition or Citation
4.1.1	NA	NA	Records of monitoring	NA	4.1.1
4.1.2	NA	NA	Total HAP emission calculations	NA	4.1.2
4.2	NA	NA	Monthly fuel usage records	NA	4.2
6.1.11	Natural gas consumption	NA	Natural gas consumption	NA	6.4.1
6.1.12	NA	NA	Emission calculations for NOx, CO, and PM	NA	6.4.1
6.1.13	Method 9	NA	Monitoring data	Deviations	6.1.13
6.2	Method 9	NA	NA	NA	40CFR60, Appendix A
6.3	NA	Method 9	NA	NA	6.3
6.4.1	NA	NA	Natural gas consumption	NA	6.4.1
6.4.2	NA	NA	Method 9 observations	NA	6.4.2
6.5	NA	NA	NA	Deviations	6.5

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

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:** NA
FL-991	Flare	

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
Flare pilot and purge gas combustion

Manufacturer:	**Model number:**	**Serial number:**
Callidus		

Construction date:	**Installation date:**	**Modification date(s):**
MM/DD/YYY	12/2012	NA

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

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
4.18 mmscf/hr	36,073.68 mmscf/yr	8,760 hrs/year

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? _X__Yes ___ No	**If yes, is it?** ___ Indirect Fired _X_Direct Fired
Maximum design heat input and/or maximum horsepower rating:	**Type and Btu/hr rating of burners:** 9,883 btu/hr

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
Natural Gas (Pilot + purge gas)
1,095.60 scf/hr
9.60 mmscf/yr

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	0%	0%	1,124 btu/scf

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	0.09	0.39
Nitrogen Oxides (NO_X)	0.11	0.48
Lead (Pb)	0.00	0.00
Particulate Matter ($PM_{2.5}$)	0.01	0.04
Particulate Matter (PM_{10})	0.01	0.04
Total Particulate Matter (TSP)	0.01	0.04
Sulfur Dioxide (SO_2)	< 0.01	< 0.01
Volatile Organic Compounds (VOC)	0.01	< 0.03
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO2(e)	170.34	746.08

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

-NOx and CO: AP-42 Table 1.4-1 Emission Factors for NOx and CO from Natural Gas Combustion
-All other criteria pollutants: AP-42 Table 1.4-2 Emission Factors for Criteria Pollutants and Greenhouse Gases from Natural Gas Combustion
-GHG: Table C-1 Default CO2 Emission Factors and High Heat Values for Various Types of Fuel and Table C-2 Default CH4 and N2O Emission Factors and High Heat Values for Various Types of Fuel

Applicable Requirements

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

Permit R13-2878C
4.1.1
4.1.2
4.1.3 [45CSR§13-5.11]
4.1.4
4.1.5
4.2
8.1.1
8.1.2
8.1.3
8.1.4
8.1.5
8.1.6[45CSR§6-4.3.]
8.1.7[45CSR§6-4.4.]
8.1.8[45CSR§6-4.6.]
8.2.1
8.2.2
8.3.1
8.3.2
8.4.1
8.4.2
8.4.3
8.4.4
8.4.5
8.4.6
8.4.7
8.5.1
8.5.2
8.5.3

__X__ Permit Shield

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

Section	**Monitoring**	**Testing**	**Recordkeeping**	**Reporting**	**Condition or Citation**
4.1.1	NA	NA	Records of monitoring	NA	4.1.1
4.1.2	NA	NA	Total HAP emission calculations	NA	4.1.2
4.1.3	NA	NA	NA	NA	45CSR§13-5.11
4.1.4	NA	NA	Control equipment malfunction events	NA	4.1.4
4.1.5	Fuel usage	NA	NA	NA	4.1.5
4.2	NA	NA	Fuel usage	NA	4.2
8.1.1	Control VOC for emergency situations only	NA	NA	NA	8.1.1

8.1.2	Maximum hourly and annual emissions of NOx and CO	NA	NA	NA	8.1.2
8.1.3	NA	NA	HAP Emissions	NA	40CFR63, Subpart HH
8.1.4	Presence of a flare pilot flame	NA	NA	NA	8.1.4
8.1.5	NA	NA	NA	As requested by the Director	8.1.5
8.1.6	Opacity	NA	NA	NA	8.1.6, 45CSR§6-4.3
8.1.7	Opacity	NA	NA	NA	8.1.7, 45CSR§6-4.4
8.1.8	NA	NA	NA	NA	8.1.8, 45CSR§6-4.6
8.2.1	Presence or absence of a flame using thermocouple	NA	NA	NA	8.2.1
8.2.2	Monthly throughput of wet natural gas	NA	NA	NA	8.2.2
8.3.1	NA	Method 22	NA	NA	8.3.1, 40 CFR 60 Appendix A
8.3.2	NA	Compliance test as requested by the Director	NA	NA	8.3.2
8.4.1	NA	NA	Times and duration when pilot flame was absent	NA	8.4.1
8.4.2	NA	NA	Flare design evaluation	NA	8.4.2
8.4.3	NA	NA	Records of all monitoring required by 8.2 and 8.3	NA	8.4.3
8.4.4	NA	NA	Opacity tests	NA	8.4.4
8.4.5	NA	NA	PTE HAP calculations	NA	8.4.5
8.4.6	NA	NA	Maintain records on site or in readily accessible off-site location for five years.	Records submitted to the agency that are requested by the Director shall be certified by a responsible official	8.4.6
8.4.7	NA	NA	Wet natural gas throughput to the flare	Records submitted to the agency that are requested by the Director shall be certified by a responsible official	8.4.7
8.5.1	NA	Compliance demonstrations as requested by the Director	NA	Testing protocol, notification, and testing report	8.5.1
8.5.2	NA	NA	NA	Deviations	8.5.2
8.5.3	NA	NA	NA	Deviations	8.5.3

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

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:** NA
FUG-004	Fugitive Equipment Leaks	

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
Fugitive equipment leaks from valves, connectors, flanges, pump seals, and other equipment.

Manufacturer:	**Model number:**	**Serial number:**
N/A		
Construction date:	**Installation date:**	**Modification date(s):**
Various per plant.	2012	2014

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

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
		8,760 hrs/year

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? ___Yes _X_ No	**If yes, is it?** ___ Indirect Fired __Direct Fired
Maximum design heat input and/or maximum horsepower rating:	**Type and Btu/hr rating of burners:** NA

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

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)		
Nitrogen Oxides (NO_X)		
Lead (Pb)		
Particulate Matter ($PM_{2.5}$)		
Particulate Matter (PM_{10})		
Total Particulate Matter (TSP)		
Sulfur Dioxide (SO_2)		
Volatile Organic Compounds (VOC)	5.61	24.57
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Total HAPs	0.09	0.40
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO2(e)	120.83	529.25

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

Table 2-4: Oil & Gas Production Operations Average Emission Factors, Protocol for Equipment Leak Emission Estimates, EPA 453/R-95-017, November 1995. Emission factors based on average measured TOC from component types indicated in gas service at O&G Production Operations. A control factor is applied to the leak rates of valves in gas and light liquid service as well as pumps in light liquid service to account for LDAR program as per NSPS OOOO

Applicable Requirements

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

Permit R13-2878C
4.1.1
4.1.2
4.1.3 [45CSR§13-5.11]
4.1.4
7.1.1
7.1.3 [40CFR§60.5400, Onshore Natural Gas Processing Plant]
7.1.4 [40CFR§60.5401, Onshore Natural Gas Processing Plant]
7.1.5 [40CFR§60.5402, Onshore Natural Gas Processing Plant]
7.2.1 f. [40CFR§60.5400]
7.3.2
7.3.3 [40CFR§60.5415]
7.4.1 [40CFR§60.5420]
7.4.2 [40CFR§60.5420]
7.4.3 [40CFR§60.5420]
7.4.4 [40CFR§60.5421, Onshore Natural Gas Processing Plant]
7.4.5 [40CFR§60.5422, Onshore Natural Gas Processing Plant]
7.5

__X__ Permit Shield

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

Section	Monitoring	Testing	Recordkeeping	Reporting	Condition or Citation
4.1.1	NA	NA	Records of monitoring	NA	4.1.1
4.1.2	NA	NA	Total HAP emission calculations	NA	4.1.2
4.1.3	NA	NA	NA	NA	45CSR§13-5.11
4.1.4	NA	NA	Control equipment malfunction events	NA	4.1.4
7.1.1	Wet natural gas throughput	NA	NA	NA	7.1.1
7.1.3	NA	NA	NA	NA	7.1.3, 40 CFR §60.5400 Onshore Natural Gas Processing Plant
7.1.4	NA	Exception to equipment leak standards	NA	NA	7.1.4, 40CFR§65.5401
7.1.5	NA	Alternative emission limitations			7.1.5, 40CFR§65.5402
7.2.1 f.	NA	Per 40CFR§60.5400	Per 40CFR§60.5400	Per 40CFR§60.5400	40CFR§60.5400

7.3.2	NA	Per 40CFR§60.5400	Per 40CFR§60.5400	Per 40CFR§60.5400	40CFR§60.5400
7.3.3	NA	NA	NA	If seeking to assert affirmative defense, submit affirmative defense report	40CFR§60.5415
7.4.1	NA	NA	NA	Notification	40CFR§60.5420
7.4.2	NA	NA	NA	Annual report	40CFR§60.5420
7.4.4	NA	NA	Leak detection and repair program	NA	40CFR§60.5421, Onshore Natural Gas Processing Plant
7.4.5	NA	NA	NA	Semiannual report	40CFR§60.5422, Onshore Natural Gas Processing Plant
7.5	NA	NA	Amount of natural gas processed	As requested by the Director	7.5

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

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:** NA
1B	Compressor Blowdowns	

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
Gas venting to atmosphere resulting from compressor blowdowns

Manufacturer:	**Model number:**	**Serial number:**
N/A		
Construction date:	**Installation date:**	**Modification date(s):**
MM/DD/YYY	2012	

Design Capacity (examples: furnaces - tons/hr, tanks - gallons):
Compressor volumes (scf): 920 (CM-1002 to CM-1006), 2,200 (C-1102 & C-1103)

Maximum Hourly Throughput	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
N/A	165,600 scf/compressor/yr (CM-1002 to CM-1006) 158,400 scf/compressor/yr (C-1102 & C-1103)	36 events/compressor/yr (CM-1002 to CM-1006) 36 events/compressor/yr (C-1102 & C-1103)

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? ___Yes _X_ No	**If yes, is it?** ___ Indirect Fired __Direct Fired
Maximum design heat input and/or maximum horsepower rating:	**Type and Btu/hr rating of burners:** NA

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

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)		
Nitrogen Oxides (NO_X)		
Lead (Pb)		
Particulate Matter ($PM_{2.5}$)		
Particulate Matter (PM_{10})		
Total Particulate Matter (TSP)		
Sulfur Dioxide (SO_2)		
Volatile Organic Compounds (VOC)		1.20
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Total HAPs		0.02
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO2(e)		110.054

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

Engineering estimation

Applicable Requirements
List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or <u>construction permit</u> with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.
__X__ Permit Shield
For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)
Are you in compliance with all applicable requirements for this emission unit? <u>X</u> Yes ___No If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:** NA
2B	Facility Blowdowns	

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
Gas venting to atmosphere resulting from facility blowdowns

Manufacturer:	**Model number:**	**Serial number:**
N/A		
Construction date:	**Installation date:**	**Modification date(s):**
MM/DD/YYY	2012	

Design Capacity (examples: furnaces - tons/hr, tanks - gallons):
Blowdown Volume: 289,840 scf/event

Maximum Hourly Throughput	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
N/A	105,791,600 scf/yr	365 events per year

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? ___Yes _X_ No	**If yes, is it?** ___ Indirect Fired __Direct Fired
Maximum design heat input and/or maximum horsepower rating:	**Type and Btu/hr rating of burners:** NA

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

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)		
Nitrogen Oxides (NO_X)		
Lead (Pb)		
Particulate Matter ($PM_{2.5}$)		
Particulate Matter (PM_{10})		
Total Particulate Matter (TSP)		
Sulfur Dioxide (SO_2)		
Volatile Organic Compounds (VOC)		7.82
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Total HAPs		0.098
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO2(e)		718.692

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

Engineering estimation

Applicable Requirements
List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or <u>construction permit</u> with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.
__X__ Permit Shield
For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)
Are you in compliance with all applicable requirements for this emission unit? __X_Yes ___No If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:** NA
Rod Packing	Rod Packing Emissions	

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
Gas venting to atmosphere resulting from rod packing.

Manufacturer:	**Model number:**	**Serial number:**
N/A		
Construction date:	**Installation date:**	**Modification date(s):**
MM/DD/YYY		

Design Capacity (examples: furnaces - tons/hr, tanks - gallons):
0.02 scf/min/compressor

Maximum Hourly Throughput	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
N/A	82,240 scf/yr	8,760 hr/yr

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? ___Yes _X_ No	**If yes, is it?** ___ Indirect Fired __Direct Fired
Maximum design heat input and/or maximum horsepower rating:	**Type and Btu/hr rating of burners:** NA

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

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)		
Nitrogen Oxides (NO_X)		
Lead (Pb)		
Particulate Matter ($PM_{2.5}$)		
Particulate Matter (PM_{10})		
Total Particulate Matter (TSP)		
Sulfur Dioxide (SO_2)		
Volatile Organic Compounds (VOC)	0.09	0.40
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Total HAPs	0.00	0.01
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO2(e)		36.87

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

Engineering estimation

Applicable Requirements
List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or <u>construction permit</u> with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.
__X__ Permit Shield
For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)
Are you in compliance with all applicable requirements for this emission unit? _X__Yes ___No If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:** NA
Crankcase Emissions	Crankcase Emissions	

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
Gas venting to atmosphere resulting from engine crankcase vents.

Manufacturer:	**Model number:**	**Serial number:**
N/A		
Construction date:	**Installation date:**	**Modification date(s):**
MM/DD/YYY		

Design Capacity (examples: furnaces - tons/hr, tanks - gallons):
3% Crankcase blowby

Maximum Hourly Throughput	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
N/A		8,760 hours/year

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? ___Yes _X_ No	**If yes, is it?** ___ Indirect Fired __Direct Fired
Maximum design heat input and/or maximum horsepower rating:	**Type and Btu/hr rating of burners:** NA

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

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	0.26	1.13
Nitrogen Oxides (NO_X)	0.44	1.95
Lead (Pb)	0.00	0.00
Particulate Matter ($PM_{2.5}$)	0.07	0.29
Particulate Matter (PM_{10})	0.07	0.29
Total Particulate Matter (TSP)	0.07	0.29
Sulfur Dioxide (SO_2)	0.00	0.01
Volatile Organic Compounds (VOC)	0.24	1.03
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Total HAPs	0.08	0.37
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO2(e)		2,491.72

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

Engineering estimation

Applicable Requirements
List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or <u>construction permit</u> with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.
__X__ Permit Shield
For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)
Are you in compliance with all applicable requirements for this emission unit? __X_Yes ___No If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

Attachment F

Schedule of Compliance Forms

(Not Applicable)

Attachment G
Air Pollution Control Device Forms

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: C-1002	**List all emission units associated with this control device.** CM-1002	
Manufacturer: Johnson Matthey	**Model number:**	**Installation date:** 11/28/2012

Type of Air Pollution Control Device:

___ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	___ Flare	_X_ Other (describe): Non-Selective Catalytic Reduction
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

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

Pollutant	Capture Efficiency	Control Efficiency
NOx		98.8%
CO		94.4%
VOC		60%
HCHO		80%

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

Catalyst inlet temperature: 850 ºF
Maximum exhaust flow rate: 13,713 lb/hr

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes _X__ No

If Yes, **Complete ATTACHMENT H**

If No**, Provide justification.** Compressor engine is subject to the emission limitations of 40 CFR 60 Subpart JJJJ.

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

-Exhaust gas temperature and exhaust oxygen content
-Masking, poisoning or overrich air/fuel ratio situation which results in performance degradation or failure of the catalyst element
-Check air/fuel ratio every 1,500 service hours and adjust in accordance to the manufacturer's specifications
-Monitor the temperature to the catalyst inlet, and in accordance with manufacturer's specifications a high temperature alarm shall shut off the engine before thermal deactivation of the catalyst occurs.
Inspect for thermal deactivation before restarting the engine.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: C-1003	**List all emission units associated with this control device.** CM-1003	
Manufacturer: Johnson Matthey	**Model number:**	**Installation date:** 7/8/2012

Type of Air Pollution Control Device:

___ Baghouse/Fabric Filter
___ Carbon Bed Adsorber
___ Carbon Drum(s)
___ Catalytic Incinerator
___ Thermal Incinerator
___ Wet Plate Electrostatic Precipitator
___ Venturi Scrubber
___ Packed Tower Scrubber
___ Other Wet Scrubber
___ Condenser
___ Flare
___ Multiclone
___ Single Cyclone
___ Cyclone Bank
___ Settling Chamber
_X_ Other (describe): Non-Selective Catalytic Reduction (NSCR)
___ Dry Plate Electrostatic Precipitator

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

Pollutant	Capture Efficiency	Control Efficiency
NOx		98.8%
CO		94.4%
VOC		60%
HCHO		80%

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

Catalyst inlet temperature: 850 ºF
Maximum exhaust flow rate: 13,713 lb/hr

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes _X__ No

If Yes, **Complete ATTACHMENT H**

If No**, Provide justification.** Compressor engine is subject to the emission limitations of 40 CFR 60 Subpart JJJJ.

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

-Exhaust gas temperature and exhaust oxygen content
-Masking, poisoning or overrich air/fuel ratio situation which results in performance degradation or failure of the catalyst element
-Check air/fuel ratio every 1,500 service hours and adjust in accordance to the manufacturer's specifications
-Monitor the temperature to the catalyst inlet, and in accordance with manufacturer's specifications a high temperature alarm shall shut off the engine before thermal deactivation of the catalyst occurs.
Inspect for thermal deactivation before restarting the engine.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: C-1004	**List all emission units associated with this control device.** CM-1004	
Manufacturer: Johnson Matthey	**Model number:**	**Installation date:** 9/26/2012

Type of Air Pollution Control Device:

___ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	___ Flare	_X_ Other (describe): Non-Selective Catalytic Reduction (NSCR)
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

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

Pollutant	Capture Efficiency	Control Efficiency
NOx		98.8%
CO		94.4%
VOC		60%
HCHO		80%

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

Catalyst inlet temperature: 850 ºF
Maximum exhaust flow rate: 13,713 lb/hr

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes _X__ No

If Yes, **Complete ATTACHMENT H**

If No**, Provide justification.** Compressor engine is subject to the emission limitations of 40 CFR 60 Subpart JJJJ.

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

-Exhaust gas temperature and exhaust oxygen content
-Masking, poisoning or overrich air/fuel ratio situation which results in performance degradation or failure of the catalyst element
-Check air/fuel ratio every 1,500 service hours and adjust in accordance to the manufacturer's specifications
-Monitor the temperature to the catalyst inlet, and in accordance with manufacturer's specifications a high temperature alarm shall shut off the engine before thermal deactivation of the catalyst occurs.
Inspect for thermal deactivation before restarting the engine.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: C-1005	**List all emission units associated with this control device.** CM-1005	
Manufacturer: Johnson Matthey	**Model number:**	**Installation date:** 3/7/2013

Type of Air Pollution Control Device:

___ Baghouse/Fabric Filter
___ Carbon Bed Adsorber
___ Carbon Drum(s)
___ Catalytic Incinerator
___ Thermal Incinerator
___ Wet Plate Electrostatic Precipitator
___ Venturi Scrubber
___ Packed Tower Scrubber
___ Other Wet Scrubber
___ Condenser
___ Flare
___ Multiclone
___ Single Cyclone
___ Cyclone Bank
___ Settling Chamber
_X_ Other (describe): Non-Selective Catalytic Reduction (NSCR)
___ Dry Plate Electrostatic Precipitator

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

Pollutant	Capture Efficiency	Control Efficiency
NOx		98.8%
CO		94.4%
VOC		60%
HCHO		80%

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

Catalyst inlet temperature: 850 ºF
Maximum exhaust flow rate: 13,713 lb/hr

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes _X__ No

If Yes, **Complete ATTACHMENT H**

If No**, Provide justification.** Compressor engine is subject to the emission limitations of 40 CFR 60 Subpart JJJJ.

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

-Exhaust gas temperature and exhaust oxygen content
-Masking, poisoning or overrich air/fuel ratio situation which results in performance degradation or failure of the catalyst element
-Check air/fuel ratio every 1,500 service hours and adjust in accordance to the manufacturer's specifications
-Monitor the temperature to the catalyst inlet, and in accordance with manufacturer's specifications a high temperature alarm shall shut off the engine before thermal deactivation of the catalyst occurs.
Inspect for thermal deactivation before restarting the engine.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: C-1006	**List all emission units associated with this control device.** CM-1006	
Manufacturer: Johnson Matthey	**Model number:**	**Installation date:** 11/28/2012

Type of Air Pollution Control Device:

___ Baghouse/Fabric Filter
___ Carbon Bed Adsorber
___ Carbon Drum(s)
___ Catalytic Incinerator
___ Thermal Incinerator
___ Wet Plate Electrostatic Precipitator
___ Venturi Scrubber
___ Packed Tower Scrubber
___ Other Wet Scrubber
___ Condenser
___ Flare
___ Multiclone
___ Single Cyclone
___ Cyclone Bank
___ Settling Chamber
_X_ Other (describe): Non-Selective Catalytic Reduction (NSCR)
___ Dry Plate Electrostatic Precipitator

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

Pollutant	Capture Efficiency	Control Efficiency
NOx		98.8%
CO		94.4%
VOC		60%
HCHO		80%

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

Catalyst inlet temperature: 850 ºF
Maximum exhaust flow rate: 13,713 lb/hr

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes _X__ No

If Yes, **Complete ATTACHMENT H**

If No**, Provide justification.** Compressor engine is subject to the emission limitations of 40 CFR 60 Subpart JJJJ.

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

-Exhaust gas temperature and exhaust oxygen content
-Masking, poisoning or overrich air/fuel ratio situation which results in performance degradation or failure of the catalyst element
-Check air/fuel ratio every 1,500 service hours and adjust in accordance to the manufacturer's specifications
-Monitor the temperature to the catalyst inlet, and in accordance with manufacturer's specifications a high temperature alarm shall shut off the engine before thermal deactivation of the catalyst occurs.
Inspect for thermal deactivation before restarting the engine.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: C-102	**List all emission units associated with this control device.** CM-102	
Manufacturer: Miratech	**Model number:** SP-RHSIGA-72S3624x61-20x2/30-XH4B2	**Installation date:** 11/28/2012

Type of Air Pollution Control Device:

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

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

Pollutant	Capture Efficiency	Control Efficiency
NOx		N/A
CO		95%
VOC		75%
HCHO		90%

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

Catalyst inlet temperature: 550 – 1250 ºF
Catalyst outlet temperature: 1350 ºF
Exhaust flow rate: 32,008 acfm
Exhaust temperature: 856 ºF
Pressure drop: 6.0 in. of WC

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes _X__ No

If Yes, **Complete ATTACHMENT H**

If No**, Provide justification.** Compressor engine is subject to the emission limitations of 40 CFR 60 Subpart JJJJ.

Describe the parameters monitored and/or methods used to indicate performance of this control device.
5.2.1 a.The permittee shall regularly inspect, properly maintain and/or replace catalytic reduction devices and auxiliary air pollution control devices to ensure functional and effective operation of the engine's physical and operational design. The permittee shall ensure proper operation, maintenance and performance of catalytic reduction devices and auxiliary air pollution control devices by:
1. Maintaining proper operation of the automatic air/fuel ratio controller or automatic feedback controller.
2. Following operating and maintenance recommendations of the catalyst element manufacturer.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: C-103	**List all emission units associated with this control device.** CM-103	
Manufacturer: Miratech	**Model number:** SP-RHSIGA-72S3624x61-20x2/30-XH4B2	**Installation date:** 11/28/2012

Type of Air Pollution Control Device:

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

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

Pollutant	Capture Efficiency	Control Efficiency
NOx		N/A
CO		95%
VOC		75%
HCHO		90%

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

Catalyst inlet temperature: 550 – 1250 ºF
Catalyst outlet temperature: 1350 ºF
Exhaust flow rate: 32,008 acfm
Exhaust temperature: 856 ºF
Pressure drop: 6.0 in. of WC

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes _X__ No

If Yes, **Complete ATTACHMENT H**

If No**, Provide justification.** Compressor engine is subject to the emission limitations of 40 CFR 60 Subpart JJJJ.

Describe the parameters monitored and/or methods used to indicate performance of this control device.
5.2.1 a.The permittee shall regularly inspect, properly maintain and/or replace catalytic reduction devices and auxiliary air pollution control devices to ensure functional and effective operation of the engine's physical and operational design. The permittee shall ensure proper operation, maintenance and performance of catalytic reduction devices and auxiliary air pollution control devices by:
1. Maintaining proper operation of the automatic air/fuel ratio controller or automatic feedback controller.
2. Following operating and maintenance recommendations of the catalyst element manufacturer.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: FL-991	**List all emission units associated with this control device.** 2B	
Manufacturer: Callidus	**Model number:**	**Installation date:** 12/2012

Type of Air Pollution Control Device:

___ Baghouse/Fabric Filter ___ Venturi Scrubber ___ Multiclone

___ Carbon Bed Adsorber ___ Packed Tower Scrubber ___ Single Cyclone

___ Carbon Drum(s) ___ Other Wet Scrubber ___ Cyclone Bank

___ Catalytic Incinerator ___ Condenser ___ Settling Chamber

___ Thermal Incinerator _X__ Flare __ Other (describe):

___ Wet Plate Electrostatic Precipitator ___ Dry Plate Electrostatic Precipitator

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

Pollutant	Capture Efficiency	Control Efficiency
VOC		98%
HAPs		98%

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

Air-assisted elevated flare.
Maximum volumetric flowrate: 68,600 scf/min
Six pilot lights at 85,000 btu/hr per pilot

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes _X__ No

If Yes, **Complete ATTACHMENT H**

If No**, Provide justification.** Flare is subject to the general requirements of NSPS Subpart A

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

Flare is operated with a continuous pilot light. Presence of a pilot light is monitored via thermocouple. Should the thermocouple sense a loss of flame, the flame front generator will initiate a re-light cycle and send a common trouble alarm to the plant control system.

Attachment H
Compliance Assurance Monitoring Forms
(Not Applicable)