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August 8, 2017

Subject: Permitting Analysis
Crestwood New Mexico Pipeline LLC
Laguna Grande Separator - Eddy County, New Mexico

Permitting Requirements:

Crestwood Midstream Partners LP (Crestwood), on behalf of Crestwood New Mexico Pipeline LLC, has reviewed the New Mexico permitting requirements and determined that the Laguna Grande Separator facility, located at 32.28724°N, 104.02848°W is not required to obtain an air permit based on guidance from the New Mexico Environmental Department (NMED) Air Quality Bureau. According to the NMED permitting requirements, a permit is not required if a facility has a potential emission rate (PER)[1] of no more than 10 pounds per hour (pph) or 10 tons per year (tpy) of any regulated pollutant, except greenhouse gas emissions and no more than 1 ton per year (tpy) of lead.

The Laguna Grande Separator site, pictured below, handles natural gas and consists of a separator vessel with associated piping and a storage tank which receives separated hydrocarbon liquids. The liquid separated from the natural gas is mostly produced water containing a small amount of hydrocarbons. The total PER for the site is below the NMED's permitting threshold, therefore, Crestwood is exempt from obtaining an air permit.

Please refer to Attachment 1 for the process description and a description of the calculation methods and Attachment 2 and 3 for calculations and supporting documentation.

[1] The Potential emission rate is defined as the worst-case emission rate of the facility without controls, unless the source or control equipment is subject to federally enforceable requirements. The Laguna Grande Separator has no emission control equipment onsite.

Attachment 1 – Process Description and Calculation Methodology

Natural gas enters the facility via pipeline and passes through a separator vessel. Separated produced water is routed to a 3,000-gallon vertical fixed roof storage tank. The produced water is loaded into trucks.

The potential emission rate (PER) is based on a maximum of 650 bbl of produced water throughput for the 3,000-gallon tanks, and a maximum of 650 bbl of produced water loading into trucks. The maximum rate of loading is assumed to be 210 bbl per hour, since the truck size is typically around 210 bbl and it takes about one hour to fill the truck. To be conservative, the produced water is assumed to contain 1 percent condensate by volume. E&P tanks is used to calculate the PER from the 3000 gallon tank (taking only 1% of the emissions since the product is 99% water), and AP-42 Chapter 5: 5.2-4 Equation 1 is used to calculate the PER from the produced water loading.

The site contains various gas and water/oil fugitive emission components. Natural gas component counts are conservatively estimated to the same as the natural gas service component counts at Crestwood's Black River Compressor Station. The water/oil component counts are conservatively assumed to be the same as the light oil service component counts at Black River Compressor Station. EPA Protocol for Equipment Leak Estimates (EPA-453/R-95-017), Table 2-4 is used to calculate the PER from the fugitive components.

Additionally, the there are two natural gas-driven, intermittent-bleed pneumatic controllers onsite. PER emissions are calculated for these based on an assumed emission rate in standard cubic feet per hour from 40 CFR Part 98 Subpart W, Table W-1A.

Attachment 2 – PER Calculations

Laguna Grande Separator

PER Emission Summary

Equipment	VOC Emissions	
	lb/hr	Ton/yr
Tank	4.54E-06	0.0091
Loadout	0.1747	0.0005
Fugitive	0.1201	0.5262
Pneumatic Devic Venting	0.0077	0.0338
Total	0.3025	0.5695

Laguna Grande Separator
70 BBL Tank PER Calculations

Estimated volumes

27300	Gallons per year
650	Barrels per year
1.78	Barrels per day
2940	Max Gallons per hour

7.75 diameter (ft)
8.75 Height (ft)

E&P Tanks Output:

Component	MW	LP Oil	Flash Oil	Sales Oil	Flash Gas	W&S Gas	Total Emission	Total Emission wt %
	lb/lbmol	mole %	mole %	mole %	mole %	mole %	mole %	wt %
H2S	34.80	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
O2	32.00	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CO2	44.01	0.0400	0.0097	0.0000	0.8014	0.0001	0.7150	0.9349
N2	28.01	0.0300	0.0009	0.0000	0.7613	0.0002	0.6793	0.5653
C1	16.04	2.3500	0.2687	0.0000	54.6945	0.0002	48.7974	23.2534
C2	30.07	1.0000	0.4511	0.0293	14.8050	4.6707	13.7123	12.2498
C3	44.10	2.0700	1.5878	0.7710	14.1963	32.7068	16.1921	21.2142
i-C4	58.12	0.7100	0.6446	0.4857	2.3548	8.3918	3.0057	5.1899
n-C4	58.12	2.2600	2.1404	1.7831	5.2678	20.7500	6.9371	11.9781
i-C5	72.15	1.7000	1.7027	1.6118	1.6310	7.3066	2.2429	4.8076
n-C5	72.15	2.7400	2.7707	2.6789	1.9683	9.0198	2.7285	5.8485
C6	84.00	3.4900	3.5974	3.6283	0.7893	3.7843	1.1123	2.7758
Benzene	78.11	0.1600	0.1653	0.1674	0.0273	0.1316	0.0385	0.0893
Toluene	92.14	1.9800	2.0549	2.1038	0.0960	0.4698	0.1363	0.3731
E-Benzene	106.17	0.2500	0.2598	0.2667	0.0041	0.0201	0.0058	0.0183
Xylenes	106.17	2.5800	2.6811	2.7530	0.0362	0.1789	0.0516	0.1628
n-C6	86.18	4.5700	4.7114	4.7533	1.0149	4.8794	1.4316	3.6653
224Trimethylp	114.24	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Pseudo Comp1	102.73	45.6400	47.3987	48.5982	1.4093	6.9781	2.0097	6.1336
Pseudo Comp2	121.00	16.1500	16.7869	17.2450	0.1322	0.6593	0.1890	0.6794
Pseudo Comp3	134.00	2.4772	2.5754	2.6468	0.0079	0.0395	0.0113	0.0450
Pseudo Comp4	147.00	1.9775	2.0560	2.1134	0.0025	0.0125	0.0036	0.0157
Pseudo Comp5	218.59	7.8253	8.1364	8.3643	0.0000	0.0002	0.0000	0.0000

	LP Oil	Flash Oil	Sales Oil	Flash Gas	W&S Gas	Total Emission	VOC emissions	VOC assuming 1% condensate
MW (lb/lbmol):	108.13	111.22	112.66	30.39	60.71	33.66		
Stream Mole Ratio:	1	0.9618	0.9571	0.0382	0.0046	0.0429		
Stream Weight Ratio:	108.13	106.97	107.83	1.16	0.28	1.44	0.91	0.01
Total Emission (ton):				0.882	0.213	1.095		
Heating Value (BTU/scf):				1742.4	3375.06	1918.43		
Gas Gravity (Gas/Air):				1.05	2.1	1.16		
Bubble Pt. @100F (psia):	94.31	17.59	4.43					
RVP @100F (psia):	157.02	56.96	27.51					
Spec. Gravity @100F:	0.74	0.75	0.75					

Laguna Grande Separator
Produced Water Loadout PER Calculations

Monthly Vapor Pressure approximation (Using Tanks 4.0.9D)

		Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp	Vapor Pressure (psia)				
Mixture/Component	Month	Avg.	Min.	Max.	(deg F)	Avg.	Min.	Max.	Vapor Molecular Weight. FROM E&P TANKS	Basis for Vapor Pressure Calculations
Gasoline (RVP 7)	Jan	57.97	48.17	67.77	63.48	3.3431	2.7234	4.0728	60.71	Option 4: RVP=7, ASTM Slope=3
Gasoline (RVP 7)	Feb	61.74	50.34	73.15	63.48	3.6102	2.8514	4.525	60.71	Option 4: RVP=7, ASTM Slope=3
Gasoline (RVP 7)	Mar	67.16	53.77	80.54	63.48	4.0236	3.0647	5.2116	60.71	Option 4: RVP=7, ASTM Slope=3
Gasoline (RVP 7)	Apr	73.08	57.95	88.2	63.48	4.5184	3.3418	6.0084	60.71	Option 4: RVP=7, ASTM Slope=3
Gasoline (RVP 7)	May	78.06	62.16	93.96	63.48	4.9727	3.6411	6.6708	60.71	Option 4: RVP=7, ASTM Slope=3
Gasoline (RVP 7)	Jun	82.38	65.56	99.19	63.48	5.3944	3.8981	7.3206	60.71	Option 4: RVP=7, ASTM Slope=3
Gasoline (RVP 7)	Jul	82.8	67.35	98.24	63.48	5.4367	4.0391	7.1986	60.71	Option 4: RVP=7, ASTM Slope=3
Gasoline (RVP 7)	Aug	80.85	66.41	95.28	63.48	5.2415	3.9647	6.8298	60.71	Option 4: RVP=7, ASTM Slope=3
Gasoline (RVP 7)	Sep	76.71	63.72	89.7	63.48	4.8458	3.7567	6.1759	60.71	Option 4: RVP=7, ASTM Slope=3
Gasoline (RVP 7)	Oct	70.27	58.32	82.23	63.48	4.2784	3.3669	5.3794	60.71	Option 4: RVP=7, ASTM Slope=3
Gasoline (RVP 7)	Nov	63.24	52.85	73.63	63.48	3.7208	3.0062	4.5672	60.71	Option 4: RVP=7, ASTM Slope=3
Gasoline (RVP 7)	Dec	58.09	48.55	67.62	63.48	3.351	2.7453	4.0609	60.71	Option 4: RVP=7, ASTM Slope=3
	Average:	71.03			Average:	4.39				

Laguna Grande Separator

Produced Water Loadout PER Calculations, Continued

Annual Emissions		Hourly Emissions	
LL (lb/1000 gal) =	12.46 * SPM/T	LL (lb/1000 gal) =	12.46 * SPM/T
S	0.6	S	0.6
P	4.3947	P	7.3206
M	60.7100	M	60.7100
T	71.0292	T	99.1900
LL (lb/1000 gal) =	3.7561	LL (lb/1000 gal) =	5.9418
1000 gallons/yr	27.3000	1000 gallons/hr	2.9400
lb/yr	102.5427	lb/hr	17.4688
ton/yr	0.0513		
ton/yr assuming 1% condensate	0.0005	lb/hr assuming 1% condensate	0.1747

Laguna Grande Separator
Fugitive Emissions PER Calculations

Gas Analysis

Southern Union Check	
1/25/2016	
Pressure - PSIA	71
Sample Temp F	40.5
Atmos Temp F	35

Compound	Mole %	Wt %	Wt % VOC of Total TOC
Hydrogen Sulfide	< 0.001	<0.001	
Nitrogen	1.624	2.357	
Carbon Dioxide	3.441	7.846	
Methane	86.705	72.050	
Ethane	4.77	7.431	
Propane	1.885	4.307	4.796
i-Butane	0.219	0.659	0.734
n-Butane	0.505	1.521	1.693
i-Pentane	0.135	0.505	0.562
n-pentane	0.13	0.486	0.541
Hexanes Plus	0.586	2.840	3.162

VOC weight percent for Fugitive PER	11.489
VOC weight percent with 5% safety factor	12.06

Component Counts:

Component counts are based on the component counts located at Black River Compressor Station. This is extremely conservative since Black River is a much larger facility.

Component	Count	
	Gas	Water/Oil
Connections	128	104
Flanges	200	56
Open-ended Lines	0	1
Pumps	0	0
Valves	32	26
Others	22	8

Total Emissions[1]	lb/hr	ton/yr
	0.120128	0.52617

1. See the NMED Calculation Form. This represents total TOC emissions.

Laguna Grande Separator
Fugitive Emissions PER Calculations, Continued

Equipment Type	Service	No. of Sources	EF lb/hr/source	Total TOC Emissions lb/hr	Total TOC Emissions ton/yr	VOC %	Total VOC Emissions lb/hr	Total VOC Emissions ton/yr
Valves	Gas	32	0.0099207	0.3175	1.3907	12.06	0.0383	0.1678
	Water/Oil	26	0.0002161	0.0056	0.0245	1.00	0.0001	0.0002
Pump Seals	Gas	0	0.005291	0	0	12.06	0.0000	0.0000
	Water/Oil	0	5.291E-05	0	0	1.00	0.0000	0.0000
Connectors	Gas	128	0.0004409	0.0564	0.247	12.06	0.0068	0.0298
	Water/Oil	104	0.0002425	0.0252	0.1104	1.00	0.0003	0.0011
Flanges	Gas	200	0.0008598	0.172	0.7534	12.06	0.0207	0.0909
	Water/Oil	56	6.39E-06	0.0004	0.0018	1.00	0.0000	0.0000
Open Ends	Gas	0	0.0044092	0	0	12.06	0.0000	0.0000
	Water/Oil	1	0.0005512	0.0006	0.0026	1.00	0.0000	0.0000
Others	Gas	22	0.0194005	0.4268	1.8694	12.06	0.0515	0.2255
	Water/Oil	8	0.0308644	0.2469	1.0814	1.00	0.0025	0.0108
			Totals	1.2514	5.4812		0.120128	0.52617

Laguna Grande Separator
Pneumatic Device Venting PER Calculations

Gas Analysis

Southern Union Check	
1/25/2016	
Pressure - PSIA	71
Sample Temp F	40.5
Atmos Temp F	35
Molecular Weight lb/lbmole	19.3025

Compound	Mole %	Wt %
Hydrogen Sulfide	< 0.001	<0.001
Nitrogen	1.624	2.357
Carbon Dioxide	3.441	7.846
Methane	86.705	72.050
Ethane	4.77	7.431
Propane	1.885	4.307
i-Butane	0.219	0.659
n-Butane	0.505	1.521
i-Pentane	0.135	0.505
n-pentane	0.13	0.486
Hexanes Plus	0.586	2.840

VOC weight percent	10.317
VOC weight percent with 5% Safety factor	10.833

Pneumatic Devices

Type	Count	Emission Factor[1] scf/hr
High Bleed, Continuous	0	37.3
Low Bleed, Continuous	0	1.39
Intermittent Bleed	2	13.5

1. Emission Factors come from the 40 CFR Part 98 Subpart W, Table W-1A

lb/hr = count * scf/hr / scf/lbmole * lb/lbmole * VOC wt%
ton/yr = lb/hr / 2000 lb/ton* 8760 hr/yr

Constant - scf/lbmole	379.53
VOC emissions lb/hr:	0.008
VOC emissions ton/yr:	0.034

Project Setup Information

Project File	Untitled.Ept3
Flowsheet Selection	Oil Tank with Separator
Calculation Method	AP42
Control Efficiency	0.00%
Known Separator Stream	Geographical Region
Geographical Region	Southwest US
Entering Air Composition	No
Component Group	C10+
Filed Name	Laguna Grande Separator
Well Name	70 bbl Tank
Date	5/2/2017

Data Input

Separator Pressure (psia)	72.00
Separator Temperature (F)	80.0
C10+ SG	0.87
C10+ MW(lb/lbmol)	190.00

-- Low Pressure Oil ----------

No.	Component	Mole%	Wt%
1	H2S	0.0000	0.0000
2	O2	0.0000	0.0000
3	CO2	0.0400	0.0157
4	N2	0.0300	0.0075
5	C1	2.3500	0.3361
6	C2	1.0000	0.2681
7	C3	2.0700	0.8140
8	i-C4	0.7100	0.3680
9	n-C4	2.2600	1.1713
10	i-C5	1.7000	1.0938
11	n-C5	2.7400	1.7629
12	C6	3.4900	2.6814
13	C7	17.7300	15.8420
14	C8	27.9100	28.4298
15	C9	16.1500	18.4742
16	C10+	12.2800	20.8058
17	Benzene	0.1600	0.1114
18	Toluene	1.9800	1.6267
19	E-Benzene	0.2500	0.2367
20	Xylenes	2.5800	2.4426
21	n-C6	4.5700	3.5120
22	224Trimethylp	0.0000	0.0000

-- Sales Oil ----------

Production Rate (bbl/day)	: 1.78
Days of Annual Operation	: 365
API Gravity	: 63.00
Reid Vapor Pressure (psia)	: 7.00
Bulk Temperature	: 80.0

-- Tank and Shell Data ----------

Diameter (ft)	: 7.75
Shell Height (ft)	: 8.75
Cone Roof Slope	: 0.06
Average Liquid Height (ft)	: 5.00
Vent Pressure Range (psia)	: 0.06
Solar Absorbance	: 0.54

-- Meteorological Data ----------

City	: Roswell, NM
Min Ambient Temperature (F)	: 47.5
Max Ambient Temperature (F)	: 75.3
Total Solar Insolation (F)	: 1810.00
Ambient Pressure (psia)	: 14.70
Ambient Temperature (F)	: 80.0

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* Calculation Results *
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-- Emission Summary ----------

	Uncontrolled ton
Total HAPs	0.0470
Total HC	1.0780
VOCs, C2+	0.8240
VOCs, C3+	0.6900
CO2	0.0100
CH4	0.2550

Uncontrolled Recovery Information:

Vapor(mscfd):	0.0675
HC Vapor(mscfd):	0.0666
CO2(mscfd):	0.0000
CH4(mscfd):	0.0300
GOR(SCF/STB):	37.9382

-- Emission Composition ----------

NoComponent	Uncontrolled ton

1	H2S	0.0000
2	O2	0.0000
3	CO2	0.0100
4	N2	0.0060
5	C1	0.2550
6	C2	0.1340
7	C3	0.2320
8	i-C4	0.0570
9	n-C4	0.1310
10	i-C5	0.0530
11	n-C5	0.0640
12	C6	0.0300
13	Benzene	0.0010
14	Toluene	0.0040
15	E-Benzene	0.0000
16	Xylenes	0.0020
17	n-C6	0.0400
18	224Trimethylp	0.0000
19	Pseudo Comp1	0.0670
20	Pseudo Comp2	0.0070
21	Pseudo Comp3	0.0000
22	Pseudo Comp4	0.0000
23	Pseudo Comp5	0.0000
24	Total	1.0930

-- Stream Data ----------

No	Component	MW	LP Oil	Flash Oil	Sales Oil	Flash Gas	W&S Gas	Total Emission
		lb/lbmol	mole %	mole %	mole %	mole %	mole %	mole %
1	H2S	34.80	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	O2	32.00	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	CO2	44.01	0.0400	0.0097	0.0000	0.8014	0.0001	0.7150
4	N2	28.01	0.0300	0.0009	0.0000	0.7613	0.0002	0.6793
5	C1	16.04	2.3500	0.2687	0.0000	54.6945	0.0002	48.7974
6	C2	30.07	1.0000	0.4511	0.0293	14.8050	4.6707	13.7123

7	C3	44.10	2.0700	1.5878	0.7710	14.1963	32.7068	16.1921
8	i-C4	58.12	0.7100	0.6446	0.4857	2.3548	8.3918	3.0057
9	n-C4	58.12	2.2600	2.1404	1.7831	5.2678	20.7500	6.9371

10	i-C5	72.15	1.7000	1.7027	1.6118	1.6310	7.3066	2.2429
11	n-C5	72.15	2.7400	2.7707	2.6789	1.9683	9.0198	2.7285
12	C6	84.00	3.4900	3.5974	3.6283	0.7893	3.7843	1.1123
13	Benzene	78.11	0.1600	0.1653	0.1674	0.0273	0.1316	0.0385
14	Toluene	92.14	1.9800	2.0549	2.1038	0.0960	0.4698	0.1363
15	E-Benzene	106.17	0.2500	0.2598	0.2667	0.0041	0.0201	0.0058
16	Xylenes	106.17	2.5800	2.6811	2.7530	0.0362	0.1789	0.0516
17	n-C6	86.18	4.5700	4.7114	4.7533	1.0149	4.8794	1.4316
18	224Trimethylp	114.24	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	Pseudo Comp1	102.73	45.6400	47.3987	48.5982	1.4093	6.9781	2.0097
20	Pseudo Comp2	121.00	16.1500	16.7869	17.2450	0.1322	0.6593	0.1890
21	Pseudo Comp3	134.00	2.4772	2.5754	2.6468	0.0079	0.0395	0.0113
22	Pseudo Comp4	147.00	1.9775	2.0560	2.1134	0.0025	0.0125	0.0036
23	Pseudo Comp5	218.59	7.8253	8.1364	8.3643	0.0000	0.0002	0.0000

Emission	LP Oil	Flash Oil	Sales Oil	Flash Gas	W&S Gas	Total
MW (lb/lbmol):	108.13	111.22	112.66	30.39	60.71	33.66
Stream Mole Ratio:	1.0000	0.9618	0.9571	0.0382	0.0046	0.0429
Stream Weight Ratio:	108.13	106.97	107.83	1.16	0.28	1.44
Total Emission (ton):				0.882	0.213	1.095
Heating Value (BTU/scf):				1742.40	3375.06	1918.43
Gas Gravity (Gas/Air):				1.05	2.10	1.16
Bubble Pt. @100F (psia):	94.31	17.59	4.43			
RVP @100F (psia):	157.02	56.96	27.51			
Spec. Gravity @100F:	0.74	0.75	0.75			

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Laguna Grande Separator - Vertical Fixed Roof Tank
Roswell, New Mexico

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Gasoline (RVP 7)	Jan	57.97	48.17	67.77	63.48	3.3431	2.7234	4.0728	68.0000			92.00	Option 4: RVP=7, ASTM Slope=3
Gasoline (RVP 7)	Feb	61.74	50.34	73.15	63.48	3.6102	2.8514	4.5250	68.0000			92.00	Option 4: RVP=7, ASTM Slope=3
Gasoline (RVP 7)	Mar	67.16	53.77	80.54	63.48	4.0236	3.0647	5.2116	68.0000			92.00	Option 4: RVP=7, ASTM Slope=3
Gasoline (RVP 7)	Apr	73.08	57.95	88.20	63.48	4.5184	3.3418	6.0084	68.0000			92.00	Option 4: RVP=7, ASTM Slope=3
Gasoline (RVP 7)	May	78.06	62.16	93.96	63.48	4.9727	3.6411	6.6708	68.0000			92.00	Option 4: RVP=7, ASTM Slope=3
Gasoline (RVP 7)	Jun	82.38	65.56	99.19	63.48	5.3944	3.8981	7.3206	68.0000			92.00	Option 4: RVP=7, ASTM Slope=3
Gasoline (RVP 7)	Jul	82.80	67.35	98.24	63.48	5.4367	4.0391	7.1986	68.0000			92.00	Option 4: RVP=7, ASTM Slope=3
Gasoline (RVP 7)	Aug	80.85	66.41	95.28	63.48	5.2415	3.9647	6.8298	68.0000			92.00	Option 4: RVP=7, ASTM Slope=3
Gasoline (RVP 7)	Sep	76.71	63.72	89.70	63.48	4.8458	3.7567	6.1759	68.0000			92.00	Option 4: RVP=7, ASTM Slope=3
Gasoline (RVP 7)	Oct	70.27	58.32	82.23	63.48	4.2784	3.3669	5.3794	68.0000			92.00	Option 4: RVP=7, ASTM Slope=3
Gasoline (RVP 7)	Nov	63.24	52.85	73.63	63.48	3.7208	3.0062	4.5672	68.0000			92.00	Option 4: RVP=7, ASTM Slope=3
Gasoline (RVP 7)	Dec	58.09	48.55	67.62	63.48	3.3510	2.7453	4.0609	68.0000			92.00	Option 4: RVP=7, ASTM Slope=3

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

Laguna Grande Separator - Vertical Fixed Roof Tank
Roswell, New Mexico

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Standing Losses (lb):	29.0972	33.8721	50.9271	65.4855	81.8461	95.0294	91.1187	80.2733	61.9629	49.2681	34.2674	28.3763
Vapor Space Volume (cu ft):	180.7069	180.7069	180.7069	180.7069	180.7069	180.7069	180.7069	180.7069	180.7069	180.7069	180.7069	180.7069
Vapor Density (lb/cu ft):	0.0409	0.0439	0.0484	0.0537	0.0586	0.0631	0.0635	0.0614	0.0572	0.0512	0.0451	0.0410
Vapor Space Expansion Factor:	0.2131	0.2644	0.3413	0.4309	0.5010	0.5824	0.5388	0.4814	0.3961	0.3212	0.2461	0.2075
Vented Vapor Saturation Factor:	0.5957	0.5770	0.5504	0.5215	0.4976	0.4773	0.4753	0.4845	0.5041	0.5352	0.5697	0.5951
Tank Vapor Space Volume:												
Vapor Space Volume (cu ft):	180.7069	180.7069	180.7069	180.7069	180.7069	180.7069	180.7069	180.7069	180.7069	180.7069	180.7069	180.7069
Tank Diameter (ft):	7.7500	7.7500	7.7500	7.7500	7.7500	7.7500	7.7500	7.7500	7.7500	7.7500	7.7500	7.7500
Vapor Space Outage (ft):	3.8307	3.8307	3.8307	3.8307	3.8307	3.8307	3.8307	3.8307	3.8307	3.8307	3.8307	3.8307
Tank Shell Height (ft):	8.7500	8.7500	8.7500	8.7500	8.7500	8.7500	8.7500	8.7500	8.7500	8.7500	8.7500	8.7500
Average Liquid Height (ft):	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000
Roof Outage (ft):	0.0807	0.0807	0.0807	0.0807	0.0807	0.0807	0.0807	0.0807	0.0807	0.0807	0.0807	0.0807
Roof Outage (Cone Roof)												
Roof Outage (ft):	0.0807	0.0807	0.0807	0.0807	0.0807	0.0807	0.0807	0.0807	0.0807	0.0807	0.0807	0.0807
Roof Height (ft):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Roof Slope (ft/ft):	0.0625	0.0625	0.0625	0.0625	0.0625	0.0625	0.0625	0.0625	0.0625	0.0625	0.0625	0.0625
Shell Radius (ft):	3.8750	3.8750	3.8750	3.8750	3.8750	3.8750	3.8750	3.8750	3.8750	3.8750	3.8750	3.8750
Vapor Density												
Vapor Density (lb/cu ft):	0.0409	0.0439	0.0484	0.0537	0.0586	0.0631	0.0635	0.0614	0.0572	0.0512	0.0451	0.0410
Vapor Molecular Weight (lb/lb-mole):	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.3431	3.6102	4.0236	4.5184	4.9727	5.3944	5.4367	5.2415	4.8458	4.2784	3.7208	3.3510
Daily Avg. Liquid Surface Temp. (deg. R):	517.6424	521.4134	526.8269	532.7455	537.7349	542.0485	542.4661	540.5171	536.3797	529.9435	522.9092	517.7566
Daily Average Ambient Temp. (deg. F):	39.5000	44.5000	52.0500	61.0000	69.7000	77.8500	80.6500	78.4000	72.6000	62.2000	50.5500	40.8000
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731
Liquid Bulk Temperature (deg. R):	523.1467	523.1467	523.1467	523.1467	523.1467	523.1467	523.1467	523.1467	523.1467	523.1467	523.1467	523.1467
Tank Paint Solar Absorptance (Shell):	0.5400	0.5400	0.5400	0.5400	0.5400	0.5400	0.5400	0.5400	0.5400	0.5400	0.5400	0.5400
Tank Paint Solar Absorptance (Roof):	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800
Daily Total Solar Insulation Factor (Btu/sqft day):	1,047.0000	1,373.0000	1,807.0000	2,218.0000	2,459.0000	2,610.0000	2,441.0000	2,242.0000	1,913.0000	1,527.0000	1,131.0000	952.0000
Vapor Space Expansion Factor												
Vapor Space Expansion Factor:	0.2131	0.2644	0.3413	0.4309	0.5010	0.5824	0.5388	0.4814	0.3961	0.3212	0.2461	0.2075
Daily Vapor Temperature Range (deg. R):	39.1948	45.6268	53.5436	60.4914	63.5997	67.2588	61.7803	57.7334	51.9700	47.8252	41.5655	38.1482
Daily Vapor Pressure Range (psia):	1.3494	1.6735	2.1468	2.6666	3.0297	3.4224	3.1596	2.8651	2.4191	2.0125	1.5611	1.3156
Breather Vent Press. Setting Range(psia):	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.3431	3.6102	4.0236	4.5184	4.9727	5.3944	5.4367	5.2415	4.8458	4.2784	3.7208	3.3510
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	2.7234	2.8514	3.0647	3.3418	3.6411	3.8981	4.0391	3.9647	3.7567	3.3669	3.0062	2.7453
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	4.0728	4.5250	5.2116	6.0084	6.6708	7.3206	7.1986	6.8298	6.1759	5.3794	4.5672	4.0609
Daily Avg. Liquid Surface Temp. (deg R):	517.6424	521.4134	526.8269	532.7455	537.7349	542.0485	542.4661	540.5171	536.3797	529.9435	522.9092	517.7566
Daily Min. Liquid Surface Temp. (deg R):	507.8437	510.0067	513.4410	517.6226	521.8349	525.2338	527.0210	526.0838	523.3872	517.9873	512.5179	508.2196
Daily Max. Liquid Surface Temp. (deg R):	527.4411	532.8201	540.2128	547.8683	553.6348	558.8632	557.9112	554.9505	549.3722	541.8998	533.3006	527.2937
Daily Ambient Temp. Range (deg. R):	29.6000	30.8000	31.5000	31.4000	30.0000	31.5000	27.9000	27.0000	26.8000	30.2000	30.9000	30.4000
Vented Vapor Saturation Factor												
Vented Vapor Saturation Factor:	0.5957	0.5770	0.5504	0.5215	0.4976	0.4773	0.4753	0.4845	0.5041	0.5352	0.5697	0.5951
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	3.3431	3.6102	4.0236	4.5184	4.9727	5.3944	5.4367	5.2415	4.8458	4.2784	3.7208	3.3510
Vapor Space Outage (ft):	3.8307	3.8307	3.8307	3.8307	3.8307	3.8307	3.8307	3.8307	3.8307	3.8307	3.8307	3.8307
Working Losses (lb):	12.3139	13.2976	14.8201	16.6428	18.3161	19.8695	20.0253	19.3064	17.8488	15.7586	13.7050	12.3428
Vapor Molecular Weight (lb/lb-mole):	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.3431	3.6102	4.0236	4.5184	4.9727	5.3944	5.4367	5.2415	4.8458	4.2784	3.7208	3.3510
Net Throughput (gal/mo.):	2,275.0000	2,275.0000	2,275.0000	2,275.0000	2,275.0000	2,275.0000	2,275.0000	2,275.0000	2,275.0000	2,275.0000	2,275.0000	2,275.0000
Annual Turnovers:	9.6704	9.6704	9.6704	9.6704	9.6704	9.6704	9.6704	9.6704	9.6704	9.6704	9.6704	9.6704
Turnover Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Maximum Liquid Volume (gal):	2,823.0363	2,823.0363	2,823.0363	2,823.0363	2,823.0363	2,823.0363	2,823.0363	2,823.0363	2,823.0363	2,823.0363	2,823.0363	2,823.0363
Maximum Liquid Height (ft):	8.0000	8.0000	8.0000	8.0000	8.0000	8.0000	8.0000	8.0000	8.0000	8.0000	8.0000	8.0000
Tank Diameter (ft):	7.7500	7.7500	7.7500	7.7500	7.7500	7.7500	7.7500	7.7500	7.7500	7.7500	7.7500	7.7500
Working Loss Product Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total Losses (lb):	41.4111	47.1697	65.7472	82.1283	100.1622	114.8989	111.1441	99.5797	79.8117	65.0268	47.9724	40.7191

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

Laguna Grande Separator - Vertical Fixed Roof Tank
Roswell, New Mexico

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Gasoline (RVP 7)	194.25	701.52	895.77

LABORATORY SERVICES
Natural Gas Analysis

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575.397.3713 2609 W Marland Hobbs NM 88240

For:	Crestwood Midstream, LP Two Brush Creek Blvd., Ste. 200 Kansas City, MO 64112	Sample: Identification: Company: Lease: Plant:	Sta. # LG5-0001 Southern Union Check Crestwood Midstream, LP

Sample Data:	Date Sampled	1/25/2016		
	Analysis Date	1/27/2016		
	Pressure-PSIA	71	Sampled by:	M. Martinez
	Sample Temp F	40.5	Analysis by:	Vicki McDaniel
	Atmos Temp F	35		

H2S = 0.1 PPM

Component Analysis

		Mol Percent	GPM AT 14.73
Hydrogen Sulfide	H2S		
Nitrogen	N2	1.6240	
Carbon Dioxide	CO2	3.4410	
Methane	C1	86.7050	
Ethane	C2	4.7700	1.275
Propane	C3	1.8850	0.519
I-Butane	IC4	0.2190	0.072
N-Butane	NC4	0.5050	0.159
I-Pentane	IC5	0.1350	0.049
N-Pentane	NC5	0.1300	0.047
Hexanes Plus	C6+	0.5860	0.254
		100.0000	2.376

REAL BTU/CU.FT.		Specific Gravity	
At 14.65 DRY	1071.4	Calculated	0.6665
At 14.65 WET	1052.7		
At 14.696 DRY	1074.7		
At 14.696 WET	1056.4	Molecular Weight	19.3025
At 14.73 DRY	1077.2		
At 14.73 Wet	1058.6		