



Certificate of Analysis  
Number: 2500-16100002-001A

Windsor Laboratory  
208 Main Street – Unit A  
Windsor, CO 80550

Amanda Graves  
Sandridge  
123 Robert Skerr Ave.  
Oklahoma City, OK 73102

Nov. 07, 2016

Station Name: Castle  
Station Number: 0780 1-17H20  
Sample Point: Separator  
Cylinder No: 1030-01307  
Analyzed: 10/31/2016 13:23:25 by AH

Sampled By: Andy Hartman  
Sample Of: Gas Spot  
Sample Date: 10/27/2016 11:50  
Sample Conditions: 60 psig, @ 90 °F  
Method: GPA 2286

Analytical Data

Components	Mol. %	Wt. %	GPM at 14.73 psia		
Nitrogen	0.742	0.733		GPM TOTAL C2+	10.916
Carbon Dioxide	1.711	2.656		GPM TOTAL C3+	7.825
Methane	61.224	34.640		GPM TOTAL iC5+	2.204
Ethane	11.478	12.172	3.091		
Propane	12.199	18.972	3.384		
Iso-butane	1.562	3.202	0.514		
n-Butane	5.429	11.129	1.723		
Iso-pentane	1.334	3.394	0.491		
n-Pentane	1.575	4.008	0.575		
Hexanes Plus	2.746	9.094	1.138		
	100.000	100.000	10.916		

<b>Calculated Physical Properties</b>	<b>Total</b>	<b>C6+</b>
Relative Density Real Gas	0.9852	3.2276
Calculated Molecular Weight	28.35	93.48
Compressibility Factor	0.9929	
<b>GPA 2172-09 Calculation:</b>		
<b>Calculated Gross BTU per ft<sup>3</sup> @ 14.73 psia &amp; 60°F</b>		
Real Gas Dry BTU	1627	5055
Water Sat. Gas Base BTU	1598	4967
VOC Weight Fraction	0.4980	

**Comments:** H<sub>2</sub>O Mol% : 1.740 ; Wt% : 1.113  
H<sub>2</sub>S 0 ppm

Hydrocarbon Laboratory Manager

Quality Assurance:

The above analyses are performed in accordance with ASTM, UOP, GPA guidelines for quality assurance, unless otherwise stated.



Certificate of Analysis  
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Nov. 07, 2016

Station Name: Castle  
Station Number: 0780 1-17H20  
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Sample Of: Gas Spot  
Sample Date: 10/27/2016 11:50  
Sample Conditions: 60 psig, @ 90 °F  
Method: GPA 2286

Analytical Data

Components	Mol. %	Wt. %	GPM at 14.73 psia		
Nitrogen	0.734	0.710		GPM TOTAL C2+	11.349
Carbon Dioxide	1.693	2.574		GPM TOTAL C3+	8.258
Methane	60.581	33.570		GPM TOTAL iC5+	2.637
Ethane	11.357	11.796	3.091		
Propane	12.071	18.386	3.384		
Iso-Butane	1.546	3.103	0.514		
n-Butane	5.372	10.785	1.723		
Iso-Pentane	1.320	3.289	0.491		
n-Pentane	1.558	3.884	0.575		
Hexanes	1.051	3.089	0.433		
Heptanes Plus	1.666	5.725	0.705		
	98.949	96.911	10.916		

Calculated Physical Properties

	Total	C7+
Relative Density Real Gas	0.9852	3.4159
Calculated Molecular Weight	28.35	98.93
Compressibility Factor	0.9929	

GPA 2172-09 Calculation:

Calculated Gross BTU per ft<sup>3</sup> @ 14.73 psia & 60°F

Real Gas Dry BTU	1627	5291
Water Sat. Gas Base BTU	1598	5199
VOC Weight Fraction	0.5135	

Comments: H<sub>2</sub>O Mol% : 1.740 ; Wt% : 1.090  
H<sub>2</sub>S 0 ppm

Hydrocarbon Laboratory Manager

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208 Main Street – Unit A  
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Nov. 07, 2016

Station Name: Castle  
Station Number: 0780 1-17H20  
Sample Point: Separator  
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Sample Conditions: 60 psig, @ 90 °F  
Method: GPA 2286

Analytical Data

Components	Mol. %	Wt. %	GPM at 14.73 psia
Nitrogen	0.742	0.733	
Carbon Dioxide	1.711	2.656	
Methane	61.224	34.640	
Ethane	11.478	12.172	3.091
Propane	12.199	18.972	3.384
Iso-Butane	1.562	3.202	0.514
n-Butane	5.429	11.129	1.723
Iso-Pentane	1.334	3.394	0.491
n-Pentane	1.575	4.008	0.575
i-Hexanes	0.641	1.905	0.258
n-Hexane	0.421	1.282	0.175
Benzene	0.046	0.130	0.013
Cyclohexane	0.141	0.423	0.048
i-Heptanes	0.676	2.204	0.272
n-Heptane	0.151	0.534	0.071
Toluene	0.052	0.168	0.017
2,2,4-Trimethylpentane	0.008	0.028	0.004
i-Octanes	0.384	1.424	0.170
n-Octane	0.054	0.219	0.028
Ethylbenzene	0.010	0.036	0.004
Xylenes	0.021	0.071	0.008
i-Nonanes	0.083	0.353	0.039
n-Nonane	0.010	0.047	0.006
Decane Plus	0.048	0.270	0.025
	100.000	100.000	10.916

<b>Calculated Physical Properties</b>	<b>Total</b>	<b>C10+</b>
Calculated Molecular Weight	28.35	142.05
<b>GPA 2172-09 Calculation:</b>		
<b>Calculated Gross BTU per ft<sup>3</sup> @ 14.73 psia &amp; 60°F</b>		
Real Gas Dry BTU	1626.6	7381.5
Water Sat. Gas Base BTU	1598.3	7253.0
Relative Density Real Gas	0.9852	4.8875
Compressibility Factor	0.9929	
VOC Weight Fraction	0.4980	

Comments: H2S 0 ppm

Hydrocarbon Laboratory Manager

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Certificate of Analysis  
Number: 2500-16100002-002A

Windsor Laboratory  
208 Main Street – Unit A  
Windsor, CO 80550

Amanda Graves  
Sandridge  
123 Robert Skerr Ave.  
Oklahoma City, OK 73102

Nov. 07, 2016

Station Name: Castle  
Station Number: 0780 1-17H20  
Sample Point: Separator  
Cylinder No: 35305  
Analyzed: 11/01/2016 09:38:48 by AH

Sampled By: Andy Hartman  
Sample Of: Liquid Spot  
Sample Date: 10/27/2016 11:15  
Sample Conditions: 60 psig, @ 90 °F  
Method: GPA 2186

Analytical Data

Components	Mol. %	Wt. %	L.V. %
Nitrogen	0.226	0.066	0.059
Carbon Dioxide	0.123	0.056	0.049
Methane	2.046	0.341	0.813
Ethane	1.951	0.610	1.225
Propane	5.829	2.673	3.770
Iso-Butane	1.481	0.895	1.137
n-Butane	7.441	4.498	5.507
Iso-Pentane	3.749	2.813	3.218
n-Pentane	5.608	4.208	4.772
Hexanes Plus	71.546	83.840	79.450
	100.000	100.000	100.000

Calculated Physical Properties

	Total	C6+
Specific Gravity at 60°F	0.7152	0.7547
API Gravity at 60°F	66.3434	55.9868
Molecular Weight	96.142	112.658
Pounds per Gallon (in Vacuum)	5.963	6.292
Pounds per Gallon (in Air)	5.956	6.285
Cu. Ft. Vapor per Gallon @ 14.73 psia	23.482	21.146
Specific Gravity as a vapor	3.320	3.890
Calculated Vapor Pressure @ 100°F	156.60	27.31
BTU / GAL.	121565	127310
BTU / LB.	20349	20188

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208 Main Street – Unit A  
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Oklahoma City, OK 73102

Nov. 07, 2016

Station Name: Castle  
Station Number: 0780 1-17H20  
Sample Point: Separator  
Cylinder No: 35305  
Analyzed: 11/01/2016 09:38:48 by AH

Sampled By: Andy Hartman  
Sample Of: Liquid Spot  
Sample Date: 10/27/2016 11:15  
Sample Conditions: 60 psig, @ 90 °F  
Method: GPA 2186

Analytical Data

Components	Mol. %	Wt. %	L.V. %
Nitrogen	0.226	0.066	0.059
Carbon Dioxide	0.123	0.056	0.049
Methane	2.046	0.341	0.813
Ethane	1.951	0.610	1.225
Propane	5.829	2.673	3.770
Iso-Butane	1.481	0.895	1.137
n-Butane	7.441	4.498	5.507
Iso-Pentane	3.749	2.813	3.218
n-Pentane	5.608	4.208	4.772
Hexanes	8.773	7.767	8.320
Heptanes Plus	62.773	76.073	71.130
	100.000	100.000	100.000

Calculated Physical Properties

	Total	C7+
Specific Gravity at 60°F	0.7152	0.7649
API Gravity at 60°F	66.3434	53.4848
Molecular Weight	96.142	116.507
Pounds per Gallon (in Vacuum)	5.963	6.377
Pounds per Gallon (in Air)	5.956	6.370
Cu. Ft. Vapor per Gallon @ 14.73 psia	23.482	20.724
BTU / GAL.	121565	128593
BTU / LB.	20349	20111

Hydrocarbon Laboratory Manager

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Nov. 07, 2016

Station Name: Castle  
Station Number: 0780 1-17H20  
Sample Point: Separator  
Cylinder No: 35305  
Analyzed: 11/01/2016 09:38:48 by AH

Sampled By: Andy Hartman  
Sample Of: Liquid Spot  
Sample Date: 10/27/2016 11:15  
Sample Conditions: 60 psig, @ 90 °F  
Method: GPA 2186

Analytical Data

Components	Mol. %	Wt. %	L.V. %
Nitrogen	0.226	0.066	0.059
Methane	2.046	0.341	0.813
Carbon Dioxide	0.123	0.056	0.049
Ethane	1.951	0.610	1.225
Propane	5.829	2.673	3.770
Iso-Butane	1.481	0.895	1.137
n-Butane	7.441	4.498	5.507
Iso-Pentane	3.749	2.813	3.218
n-Pentane	5.608	4.208	4.772
i-Hexanes	4.811	4.216	4.495
n-Hexane	3.962	3.551	3.825
Benzene	0.630	0.511	0.415
Cyclohexane	2.112	1.848	1.685
i-Heptanes	10.047	9.800	9.562
n-Heptane	3.149	3.281	3.409
Toluene	1.582	1.516	1.245
i-Octanes	11.903	13.301	12.688
n-Octane	2.931	3.482	3.524
Ethylbenzene	0.748	0.826	0.675
Xylenes	1.812	1.999	1.639
i-Nonanes	7.899	10.243	9.475
n-Nonane	2.023	2.698	2.670
i-Decanes	11.305	15.701	13.725
Decanes Plus	6.632	10.867	10.418
	100.000	100.000	100.000

Calculated Physical Properties

	Total	C10+
API Gravity at 60°F	66.3434	48.3780
Pounds per Gallon (in Air)	5.956	6.551
Pounds per Gallon (in Vacuum)	5.963	6.558
Cu. Ft. Vapor per Gallon @ 14.73 psia	23.482	17.440
Specific Gravity at 60°F	0.7152	0.7866
Molecular Weight	96.142	142.380
BTU / GAL.	121565	132000
BTU / LB.	20349	19975

Hydrocarbon Laboratory Manager

Quality Assurance:

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## Subcontract Analysis



# Certificate of Analysis

Houston Laboratories  
8820 Interchange Drive  
Houston, TX 77054  
Phone 713-660-0901

Amanda Graves  
Sandridge Energy  
123 Robert S Kerr Ave.  
Oklahoma City, OK 73102

Nov. 04, 2016

Station Name: Castle  
Station Number: 0780 1-17H2O  
Cylinder No: 103805  
Analyzed: 11/03/2016 14:19:42 by Patrick Weber

Sampled By: AH  
Sample Of: Liquid Spot  
Sample Date: 10/27/2016 11:35  
Sample Conditions: 60 psig, @ 90 °F  
Method: ASTM D-1946M/GPA-2286M

## Analytical Data

Components	Mol. %	Wt. %	GPM at 14.73 psia	
Carbon Monoxide	ND	ND		GPM TOTAL C2+
Hydrogen Sulfide	ND	ND		GPM TOTAL iC5+
Oxygen	6.471	6.535		7.557
Helium	ND	ND		1.607
Hydrogen	0.226	0.014		
Nitrogen	31.001	27.405		
Carbon Dioxide	9.432	13.100		
Methane	27.825	14.087		
Ethane	7.302	6.929	1.961	
Ethylene	ND	ND	ND	
Propane	7.382	10.273	2.042	
Propylene	ND	ND	ND	
Iso-Butane	1.200	2.201	0.395	
n-Butane	4.905	8.997	1.552	
Iso-Pentane	1.331	3.031	0.489	
n-Pentane	1.486	3.384	0.541	
Hexanes Plus	1.439	4.044	0.577	
	100.000	100.000	7.557	

### Calculated Physical Properties

	Total	C6+
Relative Density Real Gas	1.0983	3.0747
Calculated Molecular Weight	31.69	89.05
Compressibility Factor	0.9958	
Real Dry BTU at 14.73 Psia, 60°F	984	4839
Real Wet BTU at 14.73 Psia, 60°F	967	4754

Comments: Air Report

Hydrocarbon Laboratory Manager

Quality Assurance: The above analyses are performed in accordance with ASTM, UOP, GPA guidelines for quality assurance, unless otherwise stated.





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Number: 1030-16110147-001A

Houston Laboratories  
8820 Interchange Drive  
Houston, TX 77054  
Phone 713-660-0901

Amanda Graves  
Sandridge Energy  
123 Robert S Kerr Ave.  
Oklahoma City, OK 73102

Nov. 04, 2016

Station Name: Castle  
Station Number: 0780 1-17H2O  
Cylinder No: 103805  
Analyzed: 11/03/2016 14:19:42 by Patrick Weber

Sampled By: AH  
Sample Of: Liquid Spot  
Sample Date: 10/27/2016 11:35  
Sample Conditions: 60 psig, @ 90 °F  
Method: ASTM D-1946M/GPA-2286M

Analytical Data

Components	Mol. %	Wt. %	GPM at 14.73 psia	
Carbon Monoxide	NIL	NIL		GPM TOTAL C2+
Hydrogen Sulfide	NIL	NIL		GPM TOTAL iC5+
Oxygen	6.471	6.535		7.557
Helium	NIL	NIL		1.607
Hydrogen	0.226	0.014		
Nitrogen	31.001	27.405		
Carbon Dioxide	9.432	13.100		
Methane	27.825	14.087		
Ethane	7.302	6.929	1.961	
Ethylene	NIL	NIL	NIL	
Propane	7.382	10.273	2.042	
Propylene	NIL	NIL	NIL	
Iso-Butane	1.200	2.201	0.395	
n-Butane	4.905	8.997	1.552	
Iso-Pentane	1.331	3.031	0.489	
n-Pentane	1.486	3.384	0.541	
Hexanes	0.767	2.037	0.307	
Heptanes Plus	0.672	2.007	0.270	
	100.000	100.000	7.557	

Calculated Physical Properties

	Total	C7+
Relative Density Real Gas	1.0983	3.2540
Calculated Molecular Weight	31.69	94.25
Compressibility Factor	0.9958	
Real Dry BTU at 14.73 Psia, 60°F	984	5045
Real Wet BTU at 14.73 Psia, 60°F	967	4957

Comments: Air Report

Hydrocarbon Laboratory Manager

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Nov. 04, 2016

Station Name: Castle  
Station Number: 0780 1-17H2O  
Cylinder No: 103805  
Analyzed: 11/03/2016 14:19:42 by Patrick Weber

Sampled By: AH  
Sample Of: Liquid Spot  
Sample Date: 10/27/2016 11:35  
Sample Conditions: 60 psig, @ 90 °F  
Method: ASTM D-1946M/GPA-2286M

Analytical Data

Components	Mol. %	Wt. %	GPM at 14.73 psia	
Carbon Monoxide	ND	ND		GPM TOTAL C2+
Hydrogen Sulfide	ND	ND		GPM TOTAL IC5+
Oxygen	6.471	6.535		7.557
Helium	ND	ND		1.607
Hydrogen	0.226	0.014		
Nitrogen	31.001	27.405		
Carbon Dioxide	9.432	13.100		
Methane	27.825	14.087		
Ethane	7.302	6.929	1.961	
Ethylene	ND	ND	ND	
Propane	7.382	10.273	2.042	
Propylene	ND	ND	ND	
Iso-Butane	1.200	2.201	0.395	
n-Butane	4.905	8.997	1.552	
Iso-Pentane	1.331	3.031	0.489	
n-Pentane	1.486	3.384	0.541	
i-Hexanes	0.503	1.323	0.198	
n-Hexane	0.264	0.714	0.109	
i-Heptanes	0.360	1.031	0.141	
n-Heptane	0.054	0.170	0.025	
Benzene	0.029	0.071	0.008	
Cyclohexane	0.076	0.203	0.026	
Toluene	0.016	0.047	0.005	
i-Octanes	0.101	0.342	0.046	
n-Octane	0.008	0.030	0.004	
Ethylbenzene	0.001	0.005	0.001	
Xylenes	0.003	0.012	0.001	
i-Nonanes	0.023	0.084	0.011	
n-Nonane	0.001	0.005	0.001	
i-Decanes	ND	0.007	0.001	
n-Decane	ND	ND	ND	
Undecanes Plus	ND	ND	ND	
	100.000	100.000	7.557	



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---

Calculated Physical Properties	Total
Calculated Molecular Weight	31.69
<b>GPA 2172-09 Calculation:</b>	
Calculated Gross BTU per ft <sup>3</sup> @ 14.73 psia & 60°F	
Real Gas Dry BTU	984
Water Sat. Gas Base BTU	967
Relative Density Real Gas	1.0983
Compressibility Factor	0.9958
<b>Comments:</b> Air Report	

Hydrocarbon Laboratory Manager

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Method: ASTM D-1946M/GPA-2286M

Analytical Data

Components	Mol. %	Wt. %	GPM at 14.73 psia	
Carbon Monoxide	ND	ND		GPM TOTAL C2+
Hydrogen Sulfide	ND	ND		GPM TOTAL IC5+
Helium	ND	ND		
Hydrogen	0.327	0.020		
Nitrogen	9.521	8.093		
Carbon Dioxide	13.648	18.226		
Methane	40.264	19.599		
Ethane	10.566	9.640	2.846	
Ethylene	ND	ND	ND	
Propane	10.682	14.293	2.964	
Propylene	ND	ND	ND	
Iso-Butane	1.736	3.062	0.573	
n-Butane	7.098	12.518	2.254	
Iso-Pentane	1.926	4.216	0.710	
n-Pentane	2.150	4.707	0.785	
Hexanes Plus	2.082	5.626	0.836	
	100.000	100.000	10.968	

**Calculated Physical Properties**  
Relative Density Real Gas  
Calculated Molecular Weight  
Compressibility Factor  
Real Dry BTU at 14.73 Psia, 60°F  
Real Wet BTU at 14.73 Psia, 60°F  
**Comments:** Air Free Report

<b>Total</b>	<b>C6+</b>
1.1459	3.0747
32.96	89.05
0.9927	
1429	4839
1404	4754

Hydrocarbon Laboratory Manager

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Analytical Data

Components	Mol. %	Wt. %	GPM at 14.73 psia	
Carbon Monoxide	ND	ND		GPM TOTAL C2+
Hydrogen Sulfide	ND	ND		GPM TOTAL iC5+
Helium	ND	ND		
Hydrogen	0.327	0.020		
Nitrogen	9.521	8.093		
Carbon Dioxide	13.648	18.226		
Methane	40.264	19.599		
Ethane	10.566	9.640	2.846	
Ethylene	ND	ND	ND	
Propane	10.682	14.293	2.964	
Propylene	ND	ND	ND	
Iso-Butane	1.736	3.062	0.573	
n-Butane	7.098	12.518	2.254	
Iso-Pentane	1.926	4.216	0.710	
n-Pentane	2.150	4.707	0.785	
Hexanes	1.105	2.835	0.445	
Heptanes Plus	0.977	2.791	0.391	
	100.000	100.000	10.968	

Calculated Physical Properties

	Total	C7+
Relative Density Real Gas	1.1459	3.2540
Calculated Molecular Weight	32.96	94.25
Compressibility Factor	0.9927	
Real Dry BTU at 14.73 Psia, 60°F	1429	5045
Real Wet BTU at 14.73 Psia, 60°F	1404	4957

Comments: Air Free Report

Hydrocarbon Laboratory Manager

Quality Assurance:

The above analyses are performed in accordance with ASTM, UOP, GPA guidelines for quality assurance, unless otherwise stated.





Certificate of Analysis  
Number: 1030-16110147-001A

Houston Laboratories  
8820 Interchange Drive  
Houston, TX 77054  
Phone 713-660-0901

Amanda Graves  
Sandridge Energy  
123 Robert S Kerr Ave.  
Oklahoma City, OK 73102

Nov. 04, 2016

Station Name: Castle  
Station Number: 0780 1-17H2O  
Cylinder No: 103805  
Analyzed: 11/03/2016 14:19:42 by Patrick Weber

Sampled By: AH  
Sample Of: Liquid Spot  
Sample Date: 10/27/2016 11:35  
Sample Conditions: 60 psig, @ 90 °F  
Method: ASTM D-1946M/GPA-2286M

Analytical Data

Components	Mol. %	Wt. %	GPM at 14.73 psia	
Carbon Monoxide	ND	ND		GPM TOTAL C2+
Hydrogen Sulfide	ND	ND		GPM TOTAL IC5+
Helium	ND	ND		
Hydrogen	0.327	0.020		
Nitrogen	9.521	8.093		
Carbon Dioxide	13.648	18.226		
Methane	40.264	19.599		
Ethane	10.566	9.640	2.846	
Ethylene	ND	ND	ND	
Propane	10.682	14.293	2.964	
Propylene	ND	ND	ND	
Iso-Butane	1.736	3.062	0.573	
n-Butane	7.098	12.518	2.254	
Iso-Pentane	1.926	4.216	0.710	
n-Pentane	2.150	4.707	0.785	
i-Hexanes	0.725	1.840	0.287	
n-Hexane	0.380	0.995	0.158	
i-Heptanes	0.518	1.431	0.204	
n-Heptane	0.078	0.237	0.036	
Benzene	0.042	0.099	0.012	
Cyclohexane	0.110	0.282	0.037	
Toluene	0.023	0.065	0.008	
i-Octanes	0.149	0.474	0.067	
n-Octane	0.012	0.042	0.006	
Ethylbenzene	0.002	0.007	0.001	
Xylenes	0.005	0.017	0.002	
i-Nonanes	0.034	0.119	0.016	
n-Nonane	0.002	0.007	0.001	
i-Decanes	0.002	0.011	0.001	
n-Decane	ND	ND	ND	
Undecanes Plus	ND	ND	ND	
	100.000	100.000	10.968	



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Calculated Physical Properties	Total
Calculated Molecular Weight	32.96
<b>GPA 2172-09 Calculation:</b>	
Calculated Gross BTU per ft <sup>3</sup> @ 14.73 psia & 60°F	
Real Gas Dry BTU	1429
Water Sat. Gas Base BTU	1404
Relative Density Real Gas	1.1459
Compressibility Factor	0.9927
<b>Comments:</b> Air Free Report	

Hydrocarbon Laboratory Manager

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Nov. 04, 2016

Station Name: Castle  
Station Number: 0780 1-17H2O  
Cylinder No: 103805  
Analyzed: 11/03/2016 by TB

Sampled By: AH  
Sample Of: Liquid Spot  
Sample Date: 10/27/2016 11:35  
Sample Conditions: 60 psig, @ 90 °F  
Method: ASTM D-5504

Sulfur Analysis

SULFIDES	ppmw	MERCAPTANS	ppmw	DISULFIDES	ppmw
Hydrogen	ND	Methyl	ND	Carbon	ND
Carbonyl	0.6	Ethyl	0.7	Dimethyl	0.7
Dimethyl	11.0	Isopropyl	ND	Methyl Ethyl	0.3
Methyl Ethyl	ND	n-Propyl	0.4	Diethyl	0.1
Diethyl	ND	Isobutyl	0.1	Di-iso-Propyl	ND
Di-iso-Propyl	ND	sec-Butyl	ND	Di-n-Propyl	ND
Di-n-Propyl	ND	tert-Butyl	ND	Di-iso-Butyl	ND
Di-iso-Butyl	ND	n-Butyl	ND	Di-sec-Butyl	ND
Di-sec-Butyl	ND	Isoamyl	ND	Di-tert-Butyl	ND
Di-tert-Butyl	ND	pri-Amyl	ND	Di-n-Butyl	ND
Di-n-Butyl	ND	n-Amyl	ND		
OTHER	ppmw	OTHER	ppmw	OTHER	ppmw
Misc. Sulfurs	ND	Thiophene	ND	Thiophene	ND
Sulfur Dioxide	ND				

Comments: ND = Not Detected

Hydrocarbon Laboratory Manager

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Station Name: Castle  
Station Number: 0780 1-17H2O  
Cylinder No: 103805

Sampled By: AH  
Sample Of: Liquid Spot  
Sample Date: 10/27/2016 11:35  
Sample Conditions: 60 psig, @ 90 °F

Analytical Data

Test	Method	Result	Units	Detection Limit	Lab Tech.	Analysis Date
Flash Gas	Proprietary	0.64	Cu.Ft./STBbl.		MES	11/04/2016
Flash Gas (Air Free)	Proprietary	0.45	Cu.Ft./STBbl.		MES	11/04/2016

Hydrocarbon Laboratory Manager

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