

Gas Quality Reports

LS145 - South Glavin

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9/6/2019 - 12/6/2019

Gas Day	Gross Heating Value (HHV) (Btu/scf)	Net Heating Value (LHV) (Btu/scf)	Specific Gravity	Wobbe Index	Hydrocarbon Dewpoint (HCDP) (deg F)	N2 (mol%)	CO2 (mol%)	Methane (mol%)	Ethane (mol%)	Propane (mol%)	Isobutane (mol%)	N-Butane (mol%)	Isopentane (mol%)	N-Pentane (mol%)	C6 Plus (mol%)
09/06/2019	1,052.6	1,034.3	0.623	1,333.95	-8.79	2.571	0.999	89.597	5.002	1.001	0.300	0.300	0.100	0.100	0.030
09/07/2019	1,053.3	1,035.0	0.623	1,334.92	-8.48	2.518	1.001	89.638	5.007	1.003	0.301	0.301	0.101	0.101	0.030
09/08/2019	1,053.4	1,035.0	0.623	1,334.92	-8.37	2.519	1.001	89.631	5.009	1.004	0.301	0.302	0.101	0.101	0.030
09/09/2019	1,053.3	1,035.0	0.623	1,334.92	-8.46	2.518	1.000	89.639	5.007	1.003	0.301	0.301	0.100	0.100	0.030
09/10/2019	1,053.3	1,035.0	0.623	1,334.85	-8.40	2.521	1.001	89.633	5.009	1.003	0.301	0.301	0.100	0.100	0.030
09/11/2019	1,053.3	1,035.0	0.623	1,334.89	-8.41	2.520	1.001	89.633	5.009	1.004	0.300	0.302	0.100	0.100	0.030
09/12/2019	1,053.4	1,035.0	0.623	1,334.97	-8.35	2.517	1.001	89.637	5.007	1.003	0.301	0.301	0.101	0.101	0.030
09/13/2019	1,053.3	1,035.0	0.623	1,334.90	-8.36	2.519	1.001	89.635	5.007	1.003	0.301	0.301	0.100	0.101	0.030
09/14/2019	1,053.3	1,035.0	0.623	1,334.89	-8.40	2.520	1.001	89.631	5.010	1.003	0.302	0.301	0.100	0.100	0.030
09/15/2019	1,053.3	1,035.0	0.623	1,334.94	-8.37	2.517	1.001	89.637	5.008	1.003	0.301	0.301	0.101	0.100	0.030
09/16/2019	1,053.3	1,035.0	0.623	1,334.89	-8.36	2.519	1.002	89.634	5.007	1.003	0.301	0.302	0.101	0.101	0.030
09/17/2019	1,053.4	1,035.0	0.623	1,334.94	-8.35	2.518	1.001	89.635	5.007	1.004	0.301	0.302	0.101	0.101	0.030
09/18/2019	1,053.3	1,035.0	0.623	1,334.89	-8.39	2.519	1.001	89.636	5.007	1.002	0.301	0.302	0.101	0.101	0.030
09/19/2019	1,053.3	1,035.0	0.623	1,334.88	-8.38	2.520	1.001	89.635	5.007	1.002	0.301	0.301	0.100	0.101	0.030
09/20/2019	1,053.3	1,035.0	0.623	1,334.88	-8.50	2.520	1.001	89.634	5.009	1.003	0.301	0.301	0.100	0.100	0.030
09/21/2019	1,053.3	1,035.0	0.623	1,334.93	-8.32	2.518	1.001	89.637	5.007	1.003	0.301	0.301	0.100	0.101	0.031
09/22/2019	1,053.3	1,035.0	0.623	1,334.91	-8.33	2.519	1.001	89.634	5.007	1.003	0.301	0.301	0.101	0.101	0.030
09/23/2019	1,053.4	1,035.0	0.623	1,334.92	-8.36	2.519	1.002	89.632	5.009	1.005	0.301	0.301	0.101	0.101	0.030
09/24/2019	1,052.6	1,034.3	0.623	1,333.97	-8.87	2.570	0.998	89.601	5.001	1.000	0.300	0.300	0.100	0.099	0.030
09/25/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
09/26/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
09/27/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
09/28/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
09/29/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
09/30/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
10/01/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
10/02/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
10/03/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
10/04/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
10/05/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
10/06/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
10/07/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
10/08/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
10/09/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
10/10/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
10/11/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
10/12/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
10/13/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
10/14/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
10/15/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
10/16/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
10/17/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
10/18/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030

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Gas Day	Gross Heating Value (HHV) (Btu/scf)	Net Heating Value (LHV) (Btu/scf)	Specific Gravity	Wobbe Index	Hydrocarbon Dewpoint (HCDP) (deg F)	N2 (mol%)	CO2 (mol%)	Methane (mol%)	Ethane (mol%)	Propane (mol%)	Isobutane (mol%)	N-Butane (mol%)	Isopentane (mol%)	N-Pentane (mol%)	C6 Plus (mol%)
10/19/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
10/20/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
10/21/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
10/22/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
10/23/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
10/24/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
10/25/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
10/26/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
10/27/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
10/28/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
10/29/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
10/30/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
10/31/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
11/01/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
11/02/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
11/03/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
11/04/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
11/05/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
11/06/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
11/07/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
11/08/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
11/09/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
11/10/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
11/11/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
11/12/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
11/13/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
11/14/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
11/15/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
11/16/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
11/17/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
11/18/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
11/19/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
11/20/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
11/21/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
11/22/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
11/23/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
11/24/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
11/25/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
11/26/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
11/27/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
11/28/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
11/29/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
11/30/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030

TSP Name: Southern Star Central Gas Pipeline, Inc.

CSI048

TSP: 007906233

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Gas Quality Reports

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Gas Day	Gross Heating Value (HHV) (Btu/scf)	Net Heating Value (LHV) (Btu/scf)	Specific Gravity	Wobbe Index	Hydrocarbon Dewpoint (HCDP) (deg F)	N2 (mol%)	CO2 (mol%)	Methane (mol%)	Ethane (mol%)	Propane (mol%)	Isobutane (mol%)	N-Butane (mol%)	Isopentane (mol%)	N-Pentane (mol%)	C6 Plus (mol%)
12/01/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
12/02/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
12/03/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030
12/04/2019	1,052.6	1,034.3	0.623	1,333.95	-8.77	2.571	0.999	89.598	5.000	1.001	0.301	0.299	0.100	0.100	0.030

NOTES:

Wobbe Index: Interchangeability constant calculated using the Gross (or Higher) Heating Value (HHV) divided by the square root of the Specific Gravity

Hydrocarbon Dewpoint (HCDP): Theoretically determined value using the Redlich-Kwong equation of state (EOS)

Selection: Business Unit ID = 70; Analysis_Key = 53881