

Gas Quality Reports

LS225 - C.V. to Saginaw at Saginaw

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	1,043.2	1,025.1	0.595	1,352.63	-55.65	1.409	0.420	92.485	5.299	0.333	0.009	0.015	0.003	0.003	0.024
09/07/2019	1,043.3	1,025.2	0.597	1,350.23	-138.45	1.547	0.463	91.980	5.661	0.304	0.009	0.015	0.003	0.004	0.013
09/08/2019	1,043.3	1,025.2	0.596	1,351.25	-138.81	1.478	0.454	92.199	5.482	0.336	0.011	0.020	0.004	0.005	0.011
09/09/2019	1,051.0	1,032.8	0.606	1,350.29	-41.42	1.929	0.451	90.726	6.100	0.629	0.037	0.070	0.016	0.017	0.025
09/10/2019	1,052.4	1,034.1	0.602	1,356.72	-60.81	1.457	0.450	91.289	6.249	0.478	0.019	0.030	0.006	0.006	0.016
09/11/2019	1,051.1	1,032.8	0.601	1,355.35	-59.75	1.478	0.472	91.344	6.179	0.438	0.020	0.034	0.009	0.009	0.016
09/12/2019	1,049.6	1,031.3	0.602	1,352.95	-59.45	1.562	0.500	91.305	6.088	0.450	0.022	0.038	0.009	0.009	0.016
09/13/2019	1,047.4	1,029.2	0.599	1,353.04	-62.01	1.482	0.481	91.697	5.904	0.348	0.019	0.035	0.009	0.009	0.016
09/14/2019	1,045.7	1,027.5	0.597	1,353.31	-138.00	1.441	0.439	91.903	5.944	0.227	0.009	0.017	0.004	0.005	0.011
09/15/2019	1,046.0	1,027.8	0.598	1,352.34	-69.84	1.473	0.479	91.808	5.906	0.250	0.016	0.037	0.009	0.009	0.013
09/16/2019	1,047.0	1,028.8	0.598	1,353.89	-63.33	1.462	0.434	91.750	6.065	0.218	0.013	0.026	0.007	0.008	0.017
09/17/2019	1,046.3	1,028.1	0.597	1,353.79	-138.02	1.448	0.427	91.769	6.132	0.191	0.007	0.012	0.003	0.003	0.009
09/18/2019	1,043.3	1,025.1	0.595	1,352.71	-140.58	1.385	0.434	92.258	5.718	0.175	0.007	0.011	0.003	0.003	0.007
09/19/2019	1,043.4	1,025.3	0.597	1,351.02	-139.69	1.533	0.435	91.876	5.969	0.158	0.006	0.011	0.003	0.003	0.008
09/20/2019	1,041.1	1,023.0	0.594	1,350.79	-141.79	1.416	0.450	92.425	5.520	0.155	0.007	0.013	0.003	0.003	0.008
09/21/2019	1,040.0	1,021.9	0.596	1,347.37	-140.76	1.553	0.511	92.184	5.532	0.165	0.008	0.020	0.006	0.007	0.014
09/22/2019	1,041.8	1,023.7	0.599	1,346.61	-138.39	1.699	0.515	91.688	5.796	0.232	0.017	0.027	0.007	0.007	0.012
09/23/2019	1,042.7	1,024.6	0.596	1,350.66	-61.66	1.469	0.472	92.241	5.513	0.218	0.017	0.033	0.009	0.009	0.018
09/24/2019	1,044.3	1,026.2	0.596	1,352.66	-139.09	1.435	0.437	92.038	5.874	0.172	0.009	0.014	0.004	0.004	0.013
09/25/2019	1,042.6	1,024.5	0.594	1,352.48	-141.23	1.338	0.456	92.380	5.643	0.154	0.006	0.010	0.002	0.002	0.008
09/26/2019	1,041.4	1,023.3	0.593	1,352.38	-142.80	1.284	0.461	92.591	5.509	0.142	0.004	0.004	0	0	0.005
09/27/2019	1,042.3	1,024.1	0.595	1,351.11	-140.74	1.396	0.482	92.272	5.636	0.181	0.008	0.011	0.002	0.002	0.010
09/28/2019	1,044.4	1,026.2	0.597	1,351.44	-139.19	1.458	0.491	91.807	6.031	0.196	0.004	0.006	0.001	0.001	0.007
09/29/2019	1,042.9	1,024.8	0.595	1,351.65	-140.63	1.339	0.510	92.239	5.701	0.182	0.008	0.010	0.002	0.002	0.007
09/30/2019	1,049.2	1,030.9	0.611	1,341.87	-50.78	2.568	0.444	89.462	6.699	0.700	0.037	0.053	0.011	0.011	0.016
10/01/2019	1,046.6	1,028.4	0.601	1,349.97	-135.30	1.740	0.455	91.169	6.240	0.344	0.012	0.021	0.004	0.005	0.010
10/02/2019	1,039.5	1,021.4	0.593	1,349.85	-143.08	1.455	0.424	92.596	5.340	0.156	0.006	0.011	0.003	0.003	0.007
10/03/2019	1,029.6	1,011.7	0.587	1,344.08	-151.08	1.456	0.428	93.829	4.134	0.129	0.005	0.010	0.002	0.003	0.005
10/04/2019	1,029.6	1,011.7	0.587	1,344.47	-150.86	1.423	0.431	93.930	4.049	0.129	0.008	0.015	0.004	0.004	0.007
10/05/2019	1,033.6	1,015.6	0.591	1,344.17	-146.46	1.549	0.488	93.019	4.735	0.173	0.008	0.013	0.003	0.003	0.007
10/06/2019	1,029.6	1,011.6	0.587	1,343.87	-150.32	1.423	0.460	93.925	3.997	0.139	0.012	0.023	0.006	0.007	0.009
10/07/2019	1,041.5	1,023.3	0.610	1,333.52	-46.96	2.774	0.526	89.933	5.836	0.783	0.037	0.065	0.013	0.014	0.019
10/08/2019	1,053.5	1,035.2	0.609	1,350.35	-44.80	1.900	0.546	90.216	6.550	0.644	0.035	0.059	0.014	0.014	0.022
10/09/2019	1,056.4	1,038.0	0.613	1,349.51	-54.53	2.065	0.579	89.135	7.602	0.527	0.022	0.037	0.008	0.009	0.016
10/10/2019	1,053.4	1,035.0	0.617	1,340.50	-60.56	2.753	0.540	88.069	7.927	0.641	0.019	0.031	0.006	0.005	0.009
10/11/2019	1,047.1	1,028.9	0.606	1,345.20	-65.67	2.064	0.522	90.451	6.360	0.511	0.024	0.041	0.008	0.008	0.011
10/12/2019	1,036.1	1,018.1	0.592	1,346.40	-144.56	1.532	0.457	92.863	4.886	0.223	0.009	0.015	0.003	0.003	0.009
10/13/2019	1,038.3	1,020.2	0.594	1,347.51	-142.54	1.510	0.478	92.638	5.063	0.263	0.012	0.020	0.004	0.004	0.007
10/14/2019	1,043.2	1,025.1	0.598	1,348.54	-68.54	1.638	0.492	91.885	5.507	0.394	0.021	0.035	0.007	0.007	0.013
10/15/2019	1,034.2	1,016.2	0.591	1,345.34	-145.57	1.565	0.433	93.134	4.588	0.220	0.015	0.025	0.005	0.005	0.010
10/16/2019	1,033.4	1,015.4	0.591	1,344.57	-146.34	1.608	0.421	93.128	4.576	0.227	0.009	0.016	0.004	0.004	0.008
10/17/2019	1,046.4	1,028.2	0.597	1,354.17	-42.54	1.444	0.408	92.636	4.714	0.568	0.049	0.111	0.022	0.026	0.023
10/18/2019	1,033.8	1,015.8	0.589	1,347.45	-147.06	1.399	0.413	93.587	4.360	0.191	0.011	0.018	0.004	0.004	0.014

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9/6/2019 - 12/6/2019

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10/19/2019	1,031.9	1,014.0	0.587	1,346.31	-149.12	1.393	0.421	93.758	4.228	0.157	0.010	0.017	0.004	0.004	0.008
10/20/2019	1,031.8	1,013.9	0.588	1,346.13	-148.83	1.397	0.425	93.787	4.173	0.166	0.012	0.020	0.005	0.005	0.010
10/21/2019	1,030.5	1,012.6	0.587	1,344.91	-150.24	1.433	0.426	93.793	4.184	0.132	0.007	0.011	0.003	0.003	0.008
10/22/2019	1,049.9	1,031.6	0.599	1,356.81	-31.70	1.356	0.430	92.606	4.647	0.650	0.064	0.147	0.033	0.038	0.029
10/23/2019	1,049.9	1,031.6	0.599	1,356.81	-31.70	1.356	0.430	92.606	4.647	0.650	0.064	0.147	0.033	0.038	0.029
10/24/2019	1,049.9	1,031.6	0.599	1,356.81	-31.70	1.356	0.430	92.606	4.647	0.650	0.064	0.147	0.033	0.038	0.029
10/25/2019	1,049.9	1,031.6	0.599	1,356.81	-31.70	1.356	0.430	92.606	4.647	0.650	0.064	0.147	0.033	0.038	0.029
10/26/2019	1,049.9	1,031.6	0.599	1,356.81	-31.70	1.356	0.430	92.606	4.647	0.650	0.064	0.147	0.033	0.038	0.029
10/27/2019	1,049.9	1,031.6	0.599	1,356.81	-31.70	1.356	0.430	92.606	4.647	0.650	0.064	0.147	0.033	0.038	0.029
10/28/2019	1,049.9	1,031.6	0.599	1,356.81	-31.70	1.356	0.430	92.606	4.647	0.650	0.064	0.147	0.033	0.038	0.029
10/29/2019	1,026.0	1,008.2	0.599	1,325.38	-13.76	2.845	0.428	91.659	4.632	0.278	0.030	0.031	0.014	0.009	0.074
10/30/2019	1,038.1	1,020.0	0.601	1,339.49	-10.28	2.296	0.393	91.830	4.746	0.497	0.042	0.088	0.015	0.017	0.076
10/31/2019	1,056.3	1,038.0	0.594	1,370.99	-6.89	0.513	0.414	93.538	4.839	0.458	0.038	0.081	0.016	0.020	0.084
11/01/2019	1,056.3	1,038.0	0.594	1,370.99	-6.89	0.513	0.414	93.538	4.839	0.458	0.038	0.081	0.016	0.020	0.084
11/02/2019	1,056.3	1,038.0	0.594	1,370.99	-6.89	0.513	0.414	93.538	4.839	0.458	0.038	0.081	0.016	0.020	0.084
11/03/2019	1,056.3	1,038.0	0.594	1,370.99	-6.89	0.513	0.414	93.538	4.839	0.458	0.038	0.081	0.016	0.020	0.084
11/04/2019	1,056.3	1,038.0	0.594	1,370.99	-6.89	0.513	0.414	93.538	4.839	0.458	0.038	0.081	0.016	0.020	0.084
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11/06/2019	1,056.3	1,038.0	0.594	1,370.99	-6.89	0.513	0.414	93.538	4.839	0.458	0.038	0.081	0.016	0.020	0.084
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TSP Name: Southern Star Central Gas Pipeline, Inc.

CSI048

TSP: 007906233

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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	1,056.3	1,038.0	0.594	1,370.99	-6.89	0.513	0.414	93.538	4.839	0.458	0.038	0.081	0.016	0.020	0.084
12/02/2019	1,056.3	1,038.0	0.594	1,370.99	-6.89	0.513	0.414	93.538	4.839	0.458	0.038	0.081	0.016	0.020	0.084
12/03/2019	1,056.3	1,038.0	0.594	1,370.99	-6.89	0.513	0.414	93.538	4.839	0.458	0.038	0.081	0.016	0.020	0.084
12/04/2019	1,056.3	1,038.0	0.594	1,370.99	-6.89	0.513	0.414	93.538	4.839	0.458	0.038	0.081	0.016	0.020	0.084

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 = 53874