

Gas Quality Reports

M - CPL

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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	1,038.8	1,020.8	0.573	1,371.92	-154.90	0.250	0.024	96.304	3.319	0.082	0.007	0.007	0.002	0.002	0.003
09/07/2019	1,048.1	1,029.9	0.579	1,377.22	-147.13	0.241	0.024	95.144	4.462	0.107	0.007	0.008	0.002	0.002	0.003
09/08/2019	1,060.6	1,042.2	0.587	1,384.29	-137.99	0.233	0.024	93.571	6.004	0.145	0.008	0.008	0.002	0.002	0.003
09/09/2019	1,057.2	1,038.8	0.585	1,382.36	-140.33	0.230	0.026	94.019	5.564	0.137	0.008	0.009	0.002	0.002	0.003
09/10/2019	1,052.4	1,034.1	0.582	1,379.80	-144.04	0.230	0.022	94.617	4.996	0.116	0.007	0.007	0.002	0.001	0.002
09/11/2019	1,052.9	1,034.6	0.582	1,380.15	-143.50	0.228	0.020	94.551	5.066	0.116	0.007	0.007	0.002	0.001	0.002
09/12/2019	1,051.0	1,032.7	0.581	1,379.14	-145.26	0.229	0.016	94.790	4.847	0.104	0.005	0.005	0.001	0.001	0.002
09/13/2019	1,051.5	1,033.2	0.581	1,379.49	-144.92	0.228	0.014	94.722	4.919	0.104	0.005	0.005	0.001	0	0.002
09/14/2019	1,051.5	1,033.2	0.581	1,379.56	-145.05	0.227	0.011	94.725	4.929	0.099	0.004	0.004	0	0	0.001
09/15/2019	1,051.8	1,033.5	0.581	1,379.58	-144.62	0.223	0.020	94.703	4.928	0.108	0.006	0.006	0.002	0.001	0.002
09/16/2019	1,051.8	1,033.5	0.581	1,379.53	-144.56	0.224	0.021	94.705	4.920	0.110	0.007	0.007	0.002	0.002	0.002
09/17/2019	1,051.7	1,033.4	0.581	1,379.56	-144.65	0.223	0.020	94.712	4.920	0.107	0.007	0.006	0.002	0.001	0.002
09/18/2019	1,051.7	1,033.4	0.581	1,379.56	-144.68	0.223	0.019	94.714	4.920	0.107	0.006	0.006	0.002	0.001	0.002
09/19/2019	1,051.7	1,033.4	0.581	1,379.56	-144.67	0.223	0.019	94.713	4.920	0.106	0.007	0.006	0.002	0.001	0.002
09/20/2019	1,052.7	1,034.3	0.582	1,379.32	-143.23	0.227	0.056	94.556	4.990	0.143	0.009	0.012	0.003	0.002	0.002
09/21/2019	1,060.9	1,042.5	0.590	1,380.83	-135.23	0.249	0.203	93.341	5.852	0.276	0.021	0.035	0.008	0.007	0.008
09/22/2019	1,058.4	1,039.9	0.586	1,383.03	-139.47	0.226	0.028	93.876	5.701	0.143	0.009	0.009	0.003	0.002	0.003
09/23/2019	1,058.7	1,040.3	0.586	1,383.26	-139.27	0.226	0.027	93.831	5.749	0.143	0.009	0.009	0.002	0.002	0.003
09/24/2019	1,067.0	1,048.4	0.595	1,382.74	-130.26	0.248	0.283	92.507	6.484	0.384	0.026	0.045	0.009	0.009	0.007
09/25/2019	1,069.1	1,050.5	0.597	1,383.61	-72.55	0.242	0.303	92.230	6.726	0.399	0.028	0.047	0.009	0.009	0.007
09/26/2019	1,077.3	1,058.6	0.606	1,384.40	-51.18	0.254	0.497	91.032	7.451	0.598	0.045	0.079	0.015	0.015	0.013
09/27/2019	1,071.0	1,052.4	0.598	1,384.83	-69.48	0.246	0.292	92.008	6.943	0.410	0.028	0.047	0.009	0.009	0.009
09/28/2019	1,076.2	1,057.5	0.601	1,388.77	-72.07	0.239	0.241	91.400	7.654	0.381	0.024	0.039	0.008	0.008	0.007
09/29/2019	1,075.4	1,056.7	0.600	1,388.78	-126.24	0.244	0.212	91.498	7.621	0.355	0.020	0.032	0.006	0.006	0.005
09/30/2019	1,076.7	1,058.0	0.601	1,388.93	-71.54	0.243	0.244	91.339	7.689	0.399	0.026	0.039	0.008	0.007	0.007
10/01/2019	1,076.3	1,057.6	0.601	1,388.51	-72.62	0.241	0.256	91.347	7.686	0.386	0.024	0.038	0.008	0.007	0.006
10/02/2019	1,076.9	1,058.2	0.602	1,387.72	-69.72	0.256	0.306	91.178	7.743	0.426	0.026	0.043	0.008	0.008	0.007
10/03/2019	1,088.3	1,069.4	0.618	1,384.90	-41.81	0.317	0.765	89.105	8.817	0.790	0.055	0.100	0.018	0.019	0.014
10/04/2019	1,084.0	1,065.2	0.612	1,385.61	-49.04	0.286	0.615	89.866	8.414	0.650	0.045	0.083	0.015	0.015	0.012
10/05/2019	1,082.7	1,063.9	0.609	1,387.66	-53.19	0.273	0.471	90.337	8.127	0.645	0.041	0.070	0.013	0.013	0.010
10/06/2019	1,079.3	1,060.5	0.606	1,386.13	-59.91	0.270	0.454	90.668	7.950	0.536	0.033	0.058	0.011	0.011	0.008
10/07/2019	1,076.1	1,057.4	0.603	1,385.77	-65.70	0.262	0.383	91.159	7.625	0.464	0.029	0.050	0.010	0.010	0.008
10/08/2019	1,083.2	1,064.4	0.613	1,383.35	-48.45	0.285	0.714	89.824	8.287	0.712	0.046	0.089	0.016	0.017	0.011
10/09/2019	1,080.6	1,061.8	0.609	1,384.72	-53.57	0.270	0.569	90.373	8.027	0.611	0.038	0.074	0.014	0.015	0.010
10/10/2019	1,046.6	1,028.4	0.580	1,374.65	-147.08	0.237	0.116	95.245	4.195	0.164	0.012	0.019	0.004	0.004	0.004
10/11/2019	1,046.8	1,028.6	0.578	1,376.56	-148.10	0.237	0.023	95.335	4.262	0.121	0.008	0.008	0.002	0.002	0.002
10/12/2019	1,054.1	1,035.7	0.583	1,380.66	-142.44	0.229	0.026	94.444	5.125	0.151	0.010	0.010	0.002	0.002	0.002
10/13/2019	1,054.3	1,036.0	0.583	1,380.77	-142.31	0.226	0.029	94.390	5.193	0.137	0.009	0.009	0.002	0.002	0.002
10/14/2019	1,070.4	1,051.8	0.602	1,379.41	-61.55	0.275	0.545	91.625	6.895	0.524	0.035	0.067	0.013	0.013	0.008
10/15/2019	1,061.5	1,043.0	0.588	1,384.58	-136.97	0.239	0.028	93.541	5.932	0.226	0.014	0.012	0.002	0.002	0.003
10/16/2019	1,074.1	1,055.4	0.596	1,391.72	-128.84	0.236	0.024	91.981	7.419	0.307	0.014	0.012	0.002	0.002	0.002
10/17/2019	1,076.0	1,057.3	0.597	1,392.83	-127.97	0.237	0.020	91.690	7.762	0.268	0.010	0.008	0.002	0.001	0.002
10/18/2019	1,090.7	1,071.7	0.618	1,386.90	-46.79	0.290	0.746	88.825	9.178	0.784	0.049	0.088	0.016	0.016	0.009

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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%)
10/19/2019	1,104.8	1,085.6	0.638	1,383.10	-25.16	0.333	1.373	86.147	10.634	1.209	0.076	0.152	0.028	0.029	0.019
10/20/2019	1,094.8	1,075.7	0.628	1,381.88	-41.67	0.316	1.136	87.407	10.083	0.901	0.044	0.077	0.013	0.013	0.012
10/21/2019	1,105.1	1,085.9	0.640	1,381.44	-26.26	0.341	1.473	85.882	10.755	1.248	0.077	0.153	0.027	0.027	0.016
10/22/2019	1,109.5	1,090.2	0.651	1,375.36	-21.02	0.365	1.953	84.355	11.570	1.452	0.081	0.154	0.026	0.026	0.019
10/23/2019	1,111.1	1,091.7	0.651	1,376.83	-20.80	0.372	1.914	84.334	11.544	1.502	0.088	0.173	0.029	0.028	0.016
10/24/2019	1,113.5	1,094.1	0.652	1,379.05	-15.37	0.379	1.858	84.345	11.456	1.561	0.101	0.206	0.036	0.035	0.022
10/25/2019	1,102.9	1,083.8	0.637	1,382.27	-26.21	0.346	1.352	86.359	10.471	1.179	0.075	0.148	0.026	0.026	0.019
10/26/2019	1,084.6	1,065.8	0.608	1,391.15	-61.11	0.275	0.340	90.198	8.533	0.545	0.033	0.051	0.009	0.008	0.007
10/27/2019	1,077.3	1,058.6	0.598	1,393.55	-127.28	0.252	0.011	91.485	7.968	0.267	0.009	0.006	0	0	0.001
10/28/2019	1,077.3	1,058.5	0.598	1,393.50	-127.07	0.243	0.017	91.569	7.827	0.320	0.012	0.009	0.001	0.001	0.001
10/29/2019	1,093.0	1,074.0	0.625	1,382.63	-41.24	0.368	1.003	87.984	9.472	0.965	0.057	0.105	0.018	0.018	0.010
10/30/2019	1,082.5	1,063.6	0.609	1,387.63	-57.91	0.317	0.437	90.264	8.238	0.624	0.037	0.055	0.010	0.009	0.008
10/31/2019	1,078.0	1,059.2	0.598	1,393.57	-126.33	0.276	0.013	91.462	7.852	0.367	0.015	0.011	0.001	0	0.002
11/01/2019	1,075.8	1,057.0	0.597	1,392.59	-127.77	0.236	0.026	91.801	7.558	0.349	0.014	0.011	0.002	0.001	0.002
11/02/2019	1,074.0	1,055.3	0.596	1,391.62	-128.68	0.228	0.030	92.064	7.283	0.358	0.015	0.013	0.003	0.002	0.003
11/03/2019	1,078.8	1,060.0	0.603	1,389.03	-123.89	0.253	0.295	90.880	8.071	0.456	0.018	0.019	0.003	0.002	0.002
11/04/2019	1,078.1	1,059.4	0.604	1,387.71	-123.57	0.264	0.338	90.916	7.931	0.489	0.022	0.027	0.005	0.004	0.004
11/05/2019	1,079.7	1,061.0	0.600	1,394.24	-124.32	0.251	0.044	91.500	7.576	0.555	0.034	0.030	0.005	0.003	0.002
11/06/2019	1,078.9	1,060.1	0.599	1,393.75	-124.75	0.249	0.047	91.592	7.524	0.497	0.038	0.039	0.007	0.005	0.003
11/07/2019	1,070.2	1,051.6	0.594	1,388.16	-130.92	0.245	0.093	92.247	7.134	0.251	0.011	0.012	0.002	0.002	0.002
11/08/2019	1,078.1	1,059.3	0.603	1,387.97	-72.02	0.264	0.323	90.997	7.856	0.475	0.027	0.041	0.007	0.007	0.004
11/09/2019	1,080.1	1,061.3	0.606	1,387.82	-67.39	0.268	0.389	90.632	8.104	0.510	0.028	0.047	0.009	0.009	0.005
11/10/2019	1,080.3	1,061.5	0.606	1,388.08	-65.98	0.265	0.383	90.669	8.038	0.538	0.031	0.051	0.009	0.009	0.005
11/11/2019	1,080.0	1,061.2	0.606	1,387.83	-65.99	0.266	0.387	90.698	8.008	0.534	0.033	0.051	0.009	0.009	0.006
11/12/2019	1,080.1	1,061.3	0.606	1,387.48	-63.42	0.268	0.407	90.640	8.036	0.547	0.031	0.048	0.009	0.009	0.006
11/13/2019	1,079.1	1,060.3	0.605	1,386.86	-72.88	0.263	0.415	90.649	8.094	0.511	0.024	0.032	0.005	0.004	0.004
11/14/2019	1,079.0	1,060.2	0.605	1,387.46	-72.65	0.264	0.377	90.746	8.043	0.497	0.025	0.034	0.006	0.005	0.004
11/15/2019	1,079.3	1,060.5	0.606	1,386.91	-70.21	0.264	0.415	90.686	8.013	0.536	0.028	0.041	0.007	0.006	0.004
11/16/2019	1,086.1	1,067.2	0.615	1,385.35	-57.18	0.297	0.686	89.334	8.853	0.709	0.036	0.060	0.010	0.009	0.005
11/17/2019	1,090.8	1,071.8	0.619	1,386.50	-48.49	0.278	0.780	88.800	9.123	0.852	0.048	0.085	0.014	0.014	0.007
11/18/2019	1,091.3	1,072.3	0.619	1,386.70	-47.05	0.275	0.785	88.767	9.124	0.872	0.050	0.089	0.015	0.015	0.008
11/19/2019	1,077.9	1,059.2	0.604	1,386.82	-70.23	0.263	0.380	90.952	7.783	0.531	0.028	0.044	0.007	0.007	0.004
11/20/2019	1,075.8	1,057.1	0.601	1,387.41	-125.49	0.263	0.285	91.293	7.652	0.448	0.021	0.027	0.004	0.003	0.003
11/21/2019	1,077.5	1,058.7	0.602	1,388.55	-124.67	0.252	0.281	91.090	7.883	0.442	0.019	0.023	0.004	0.003	0.003
11/22/2019	1,083.8	1,064.9	0.611	1,386.14	-62.21	0.281	0.582	89.828	8.541	0.668	0.032	0.050	0.008	0.007	0.004
11/23/2019	1,085.0	1,066.1	0.612	1,386.86	-57.84	0.277	0.581	89.775	8.546	0.697	0.037	0.062	0.010	0.010	0.005
11/24/2019	1,080.7	1,061.9	0.607	1,387.24	-69.06	0.274	0.434	90.454	8.190	0.561	0.027	0.042	0.007	0.006	0.004
11/25/2019	1,083.1	1,064.2	0.610	1,386.68	-66.41	0.280	0.533	89.964	8.515	0.623	0.027	0.042	0.007	0.006	0.004
11/26/2019	1,089.1	1,070.1	0.618	1,385.00	-54.83	0.307	0.790	88.777	9.201	0.804	0.036	0.061	0.010	0.009	0.005
11/27/2019	1,084.7	1,065.8	0.613	1,385.31	-55.91	0.314	0.634	89.624	8.584	0.719	0.037	0.061	0.011	0.010	0.007
11/28/2019	1,082.8	1,063.9	0.611	1,384.84	-58.53	0.319	0.598	89.879	8.409	0.684	0.035	0.052	0.009	0.008	0.007
11/29/2019	1,080.5	1,061.7	0.609	1,385.11	-63.54	0.308	0.523	90.228	8.268	0.580	0.029	0.044	0.008	0.007	0.005
11/30/2019	1,080.2	1,061.4	0.608	1,384.87	-63.64	0.309	0.525	90.265	8.229	0.577	0.030	0.045	0.008	0.007	0.005

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	1,082.3	1,063.5	0.609	1,386.78	-61.97	0.289	0.498	90.147	8.355	0.610	0.031	0.048	0.008	0.008	0.005
12/02/2019	1,083.5	1,064.6	0.611	1,386.06	-61.82	0.292	0.571	89.817	8.602	0.622	0.030	0.046	0.008	0.007	0.005
12/03/2019	1,070.3	1,051.6	0.594	1,389.10	-131.04	0.242	0.046	92.399	7.000	0.280	0.014	0.012	0.003	0.002	0.002
12/04/2019	1,068.9	1,050.3	0.593	1,388.64	-132.01	0.238	0.035	92.580	6.859	0.256	0.013	0.012	0.003	0.002	0.002

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 = 48752