

Gas Quality Reports

LS455 - Springfield

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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	1,048.2	1,030.0	0.603	1,349.51	-133.46	1.780	0.505	90.836	6.398	0.420	0.017	0.029	0.004	0.004	0.007
09/07/2019	1,044.6	1,026.4	0.600	1,349.03	-137.31	1.645	0.505	91.474	6.012	0.330	0.009	0.015	0.002	0.002	0.006
09/08/2019	1,044.1	1,025.9	0.598	1,350.12	-138.18	1.562	0.483	91.800	5.772	0.344	0.010	0.017	0.003	0.002	0.005
09/09/2019	1,041.1	1,023.0	0.598	1,346.02	-139.55	1.697	0.526	91.702	5.765	0.276	0.009	0.015	0.002	0.002	0.005
09/10/2019	1,047.8	1,029.6	0.605	1,347.38	-69.24	1.907	0.527	90.627	6.402	0.452	0.021	0.039	0.007	0.007	0.010
09/11/2019	1,047.0	1,028.7	0.601	1,350.44	-135.21	1.612	0.525	91.302	6.126	0.380	0.015	0.024	0.005	0.005	0.008
09/12/2019	1,043.8	1,025.7	0.599	1,348.86	-137.69	1.599	0.520	91.677	5.826	0.331	0.012	0.019	0.004	0.004	0.008
09/13/2019	1,042.9	1,024.8	0.599	1,347.27	-138.16	1.662	0.539	91.554	5.902	0.308	0.009	0.014	0.003	0.003	0.006
09/14/2019	1,040.8	1,022.7	0.598	1,346.20	-139.72	1.680	0.517	91.837	5.635	0.291	0.010	0.017	0.003	0.003	0.006
09/15/2019	1,040.2	1,022.1	0.598	1,344.59	-139.62	1.776	0.525	91.653	5.726	0.282	0.010	0.017	0.003	0.003	0.005
09/16/2019	1,041.8	1,023.7	0.600	1,344.53	-138.37	1.867	0.519	91.195	6.141	0.250	0.007	0.012	0.002	0.002	0.005
09/17/2019	1,042.5	1,024.3	0.600	1,346.37	-138.31	1.768	0.505	91.379	6.080	0.229	0.010	0.016	0.003	0.003	0.007
09/18/2019	1,044.5	1,026.3	0.603	1,345.14	-136.43	1.960	0.512	90.576	6.725	0.209	0.005	0.008	0.001	0.001	0.004
09/19/2019	1,042.2	1,024.1	0.601	1,344.92	-138.36	1.883	0.501	91.094	6.288	0.213	0.006	0.009	0.001	0.001	0.004
09/20/2019	1,043.1	1,025.0	0.603	1,343.05	-136.77	2.079	0.506	90.506	6.671	0.225	0.004	0.007	0	0	0.004
09/21/2019	1,042.7	1,024.6	0.606	1,339.99	-135.67	2.306	0.515	90.027	6.896	0.237	0.005	0.009	0.001	0.001	0.003
09/22/2019	1,040.9	1,022.8	0.604	1,339.63	-137.24	2.211	0.538	90.425	6.574	0.233	0.005	0.009	0.001	0.001	0.004
09/23/2019	1,040.8	1,022.7	0.600	1,343.12	-137.62	1.924	0.528	91.328	5.863	0.277	0.020	0.033	0.009	0.009	0.010
09/24/2019	1,038.4	1,020.4	0.600	1,340.89	-139.65	1.977	0.541	91.341	5.873	0.228	0.009	0.016	0.003	0.003	0.008
09/25/2019	1,040.5	1,022.4	0.600	1,343.31	-139.29	1.896	0.526	91.227	6.125	0.204	0.006	0.009	0.001	0.001	0.005
09/26/2019	1,040.3	1,022.2	0.601	1,341.52	-138.49	2.054	0.517	90.907	6.291	0.204	0.007	0.011	0.002	0.002	0.006
09/27/2019	1,040.7	1,022.6	0.600	1,343.42	-139.18	1.905	0.522	91.181	6.152	0.224	0.005	0.006	0	0	0.004
09/28/2019	1,039.4	1,021.3	0.599	1,343.17	-140.04	1.826	0.546	91.558	5.765	0.281	0.008	0.011	0.001	0.001	0.004
09/29/2019	1,041.9	1,023.8	0.600	1,344.95	-138.46	1.821	0.529	91.267	6.097	0.266	0.005	0.008	0.001	0.001	0.006
09/30/2019	1,041.1	1,023.0	0.600	1,343.97	-138.93	1.831	0.551	91.293	6.048	0.252	0.008	0.011	0.001	0.001	0.004
10/01/2019	1,040.8	1,022.7	0.599	1,345.06	-139.48	1.786	0.511	91.526	5.911	0.236	0.007	0.012	0.002	0.002	0.006
10/02/2019	1,042.4	1,024.3	0.601	1,344.67	-137.67	1.870	0.531	91.108	6.187	0.272	0.008	0.014	0.002	0.003	0.005
10/03/2019	1,041.5	1,023.3	0.598	1,346.76	-140.02	1.652	0.527	91.654	5.946	0.200	0.005	0.009	0.001	0.001	0.004
10/04/2019	1,035.4	1,017.4	0.595	1,342.62	-144.33	1.704	0.529	92.308	5.243	0.200	0.005	0.008	0	0	0.004
10/05/2019	1,036.1	1,018.1	0.595	1,342.94	-143.55	1.697	0.539	92.212	5.329	0.207	0.005	0.007	0	0	0.004
10/06/2019	1,038.0	1,020.0	0.597	1,343.04	-141.73	1.720	0.579	91.840	5.618	0.227	0.005	0.008	0	0	0.003
10/07/2019	1,036.1	1,018.1	0.596	1,342.07	-142.59	1.755	0.547	92.153	5.263	0.242	0.010	0.017	0.004	0.004	0.006
10/08/2019	1,038.6	1,020.5	0.598	1,343.34	-140.50	1.760	0.552	91.860	5.505	0.279	0.011	0.019	0.004	0.004	0.007
10/09/2019	1,040.6	1,022.5	0.599	1,344.33	-138.72	1.806	0.532	91.572	5.728	0.309	0.013	0.022	0.005	0.005	0.007
10/10/2019	1,038.3	1,020.3	0.597	1,343.59	-141.40	1.715	0.560	91.899	5.547	0.255	0.007	0.010	0.001	0.001	0.004
10/11/2019	1,038.3	1,020.3	0.599	1,341.39	-140.24	1.896	0.564	91.493	5.749	0.271	0.008	0.012	0.002	0.002	0.004
10/12/2019	1,038.7	1,020.7	0.597	1,344.28	-140.74	1.736	0.521	91.970	5.435	0.295	0.011	0.019	0.003	0.003	0.006
10/13/2019	1,033.4	1,015.5	0.593	1,342.23	-145.96	1.715	0.479	92.663	4.926	0.192	0.006	0.010	0.002	0.001	0.004
10/14/2019	1,034.6	1,016.6	0.595	1,340.87	-144.14	1.820	0.522	92.188	5.233	0.214	0.006	0.010	0.002	0.001	0.004
10/15/2019	1,038.3	1,020.2	0.599	1,342.09	-140.54	1.912	0.512	91.572	5.717	0.259	0.008	0.013	0.002	0.002	0.004
10/16/2019	1,035.6	1,017.6	0.596	1,341.76	-143.16	1.799	0.519	92.133	5.302	0.219	0.007	0.012	0.002	0.002	0.005
10/17/2019	1,037.7	1,019.6	0.593	1,347.01	-143.50	1.541	0.466	92.586	5.165	0.211	0.008	0.013	0.002	0.002	0.005
10/18/2019	1,040.1	1,022.0	0.595	1,348.64	-140.37	1.526	0.461	92.577	5.006	0.343	0.022	0.041	0.008	0.008	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	1,036.8	1,018.7	0.596	1,343.13	-141.47	1.778	0.493	92.288	5.060	0.303	0.021	0.036	0.007	0.006	0.008
10/20/2019	1,036.8	1,018.8	0.596	1,342.81	-142.12	1.760	0.525	92.130	5.273	0.267	0.014	0.021	0.003	0.003	0.005
10/21/2019	1,035.5	1,017.5	0.596	1,340.84	-142.97	1.835	0.544	91.987	5.391	0.221	0.006	0.010	0.001	0.001	0.004
10/22/2019	1,037.8	1,019.7	0.598	1,342.40	-141.49	1.808	0.547	91.761	5.628	0.235	0.006	0.009	0.001	0.001	0.004
10/23/2019	1,042.5	1,024.4	0.598	1,347.72	-50.14	1.663	0.497	92.175	5.049	0.440	0.036	0.082	0.018	0.021	0.019
10/24/2019	1,043.1	1,025.0	0.600	1,346.49	-47.73	1.787	0.503	91.836	5.228	0.460	0.038	0.087	0.019	0.022	0.020
10/25/2019	1,038.2	1,020.1	0.598	1,342.59	-59.08	1.921	0.473	92.086	4.965	0.408	0.031	0.071	0.014	0.016	0.015
10/26/2019	1,035.9	1,017.8	0.599	1,338.29	-67.30	2.143	0.491	91.667	5.253	0.342	0.022	0.047	0.010	0.011	0.013
10/27/2019	1,030.0	1,012.1	0.597	1,332.81	-145.00	2.259	0.533	91.712	5.283	0.193	0.005	0.009	0.001	0.001	0.004
10/28/2019	1,035.7	1,017.7	0.600	1,336.66	-140.06	2.189	0.547	91.281	5.633	0.298	0.013	0.024	0.005	0.005	0.006
10/29/2019	1,036.4	1,018.4	0.595	1,343.27	-142.44	1.751	0.492	92.308	5.125	0.274	0.013	0.022	0.004	0.004	0.007
10/30/2019	1,039.7	1,021.6	0.597	1,345.07	-139.38	1.794	0.470	91.944	5.387	0.328	0.019	0.037	0.007	0.007	0.008
10/31/2019	1,039.8	1,021.7	0.596	1,346.87	-139.72	1.711	0.427	92.253	5.184	0.342	0.019	0.037	0.007	0.008	0.011
11/01/2019	1,037.3	1,019.3	0.594	1,345.34	-142.15	1.691	0.446	92.465	5.066	0.265	0.015	0.031	0.006	0.007	0.007
11/02/2019	1,035.5	1,017.5	0.598	1,339.51	-142.11	1.974	0.525	91.749	5.477	0.242	0.008	0.015	0.002	0.002	0.004
11/03/2019	1,032.7	1,014.7	0.595	1,338.99	-145.10	1.884	0.521	92.307	5.043	0.216	0.007	0.013	0.003	0.002	0.004
11/04/2019	1,034.4	1,016.4	0.597	1,339.10	-142.92	1.956	0.525	91.939	5.295	0.255	0.008	0.013	0.002	0.002	0.005
11/05/2019	1,034.3	1,016.3	0.595	1,340.35	-143.36	1.859	0.515	92.248	5.076	0.258	0.011	0.019	0.004	0.003	0.006
11/06/2019	1,037.9	1,019.9	0.595	1,346.00	-142.35	1.617	0.479	92.416	5.194	0.247	0.012	0.021	0.004	0.004	0.006
11/07/2019	1,033.2	1,015.3	0.593	1,341.45	-145.46	1.724	0.510	92.651	4.867	0.212	0.009	0.016	0.003	0.003	0.006
11/08/2019	1,039.2	1,021.1	0.595	1,346.78	-141.27	1.553	0.518	92.360	5.233	0.282	0.013	0.023	0.005	0.005	0.007
11/09/2019	1,039.8	1,021.7	0.593	1,349.83	-142.89	1.250	0.571	92.739	5.199	0.207	0.008	0.015	0.003	0.003	0.005
11/10/2019	1,031.0	1,013.1	0.590	1,342.22	-148.65	1.418	0.599	93.423	4.311	0.219	0.008	0.013	0.002	0.002	0.004
11/11/2019	1,035.8	1,017.8	0.593	1,345.37	-144.56	1.408	0.583	92.973	4.704	0.287	0.012	0.021	0.004	0.003	0.006
11/12/2019	1,044.2	1,026.1	0.596	1,352.84	-139.94	1.429	0.428	92.043	5.875	0.204	0.005	0.009	0.001	0.001	0.004
11/13/2019	1,041.1	1,023.0	0.594	1,350.37	-141.72	1.439	0.458	92.377	5.488	0.209	0.007	0.013	0.002	0.002	0.004
11/14/2019	1,038.1	1,020.0	0.594	1,347.19	-143.38	1.443	0.535	92.594	5.180	0.221	0.007	0.012	0.002	0.001	0.004
11/15/2019	1,036.3	1,018.3	0.593	1,345.82	-144.62	1.421	0.568	92.822	4.927	0.229	0.008	0.014	0.003	0.002	0.005
11/16/2019	1,034.5	1,016.5	0.595	1,341.40	-144.43	1.649	0.603	92.450	5.027	0.241	0.008	0.013	0.002	0.002	0.005
11/17/2019	1,035.5	1,017.5	0.592	1,345.56	-145.62	1.270	0.654	93.072	4.754	0.217	0.008	0.014	0.002	0.002	0.006
11/18/2019	1,032.8	1,014.8	0.592	1,342.81	-147.22	1.405	0.632	93.128	4.605	0.206	0.007	0.010	0.002	0.001	0.005
11/19/2019	1,040.2	1,022.1	0.597	1,345.77	-71.34	1.631	0.553	92.227	5.055	0.431	0.026	0.051	0.008	0.008	0.011
11/20/2019	1,038.6	1,020.6	0.594	1,347.54	-142.28	1.354	0.589	92.754	4.941	0.308	0.014	0.026	0.004	0.003	0.007
11/21/2019	1,037.6	1,019.6	0.594	1,346.85	-143.46	1.441	0.539	92.665	5.108	0.211	0.008	0.015	0.003	0.003	0.007
11/22/2019	1,033.4	1,015.4	0.593	1,342.00	-146.33	1.577	0.581	92.731	4.911	0.184	0.005	0.007	0	0	0.004
11/23/2019	1,038.7	1,020.7	0.595	1,346.97	-142.79	1.429	0.575	92.431	5.334	0.207	0.006	0.009	0.002	0.001	0.005
11/24/2019	1,038.1	1,020.1	0.594	1,346.78	-143.55	1.320	0.638	92.613	5.199	0.210	0.006	0.009	0.001	0	0.004
11/25/2019	1,037.2	1,019.1	0.592	1,348.49	-145.13	1.126	0.643	93.244	4.713	0.236	0.010	0.017	0.003	0.002	0.006
11/26/2019	1,034.5	1,016.5	0.592	1,344.04	-145.22	1.420	0.609	93.030	4.639	0.251	0.013	0.023	0.004	0.003	0.008
11/27/2019	1,032.4	1,014.5	0.592	1,342.24	-147.14	1.426	0.637	93.143	4.545	0.218	0.008	0.013	0.003	0.002	0.006
11/28/2019	1,035.7	1,017.7	0.598	1,339.27	-141.91	2.010	0.522	91.617	5.594	0.235	0.006	0.010	0.001	0.001	0.004
11/29/2019	1,033.9	1,015.9	0.595	1,340.10	-144.38	1.852	0.522	92.229	5.132	0.242	0.007	0.011	0.001	0.001	0.004
11/30/2019	1,034.1	1,016.1	0.595	1,341.14	-144.49	1.778	0.519	92.401	5.025	0.247	0.008	0.014	0.002	0.001	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	1,035.7	1,017.7	0.593	1,345.21	-144.87	1.466	0.550	92.854	4.862	0.231	0.010	0.016	0.003	0.002	0.006
12/02/2019	1,036.4	1,018.4	0.594	1,345.01	-144.10	1.552	0.529	92.610	5.030	0.249	0.009	0.015	0.002	0.001	0.004
12/03/2019	1,037.6	1,019.6	0.595	1,345.20	-142.88	1.601	0.524	92.312	5.314	0.224	0.007	0.011	0.002	0.001	0.004
12/04/2019	1,036.5	1,018.4	0.596	1,342.35	-142.76	1.749	0.547	92.059	5.391	0.233	0.005	0.009	0.001	0.001	0.004

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 = 58191