

Gas Quality Reports

LS265 - Superior Nebraska

11/25/2019 - 2/25/2020

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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%)
11/25/2019	1,098.3	1,079.2	0.625	1,388.90	-30.22	1.186	0.276	88.076	8.297	1.939	0.071	0.114	0.015	0.010	0.016
11/26/2019	1,092.5	1,073.4	0.623	1,383.81	-34.36	1.168	0.390	88.294	8.278	1.674	0.063	0.094	0.014	0.009	0.015
11/27/2019	1,093.2	1,074.2	0.622	1,385.74	-31.59	1.202	0.282	88.548	7.953	1.792	0.070	0.110	0.016	0.010	0.017
11/28/2019	1,094.3	1,075.2	0.624	1,385.59	-29.52	1.278	0.274	88.395	7.905	1.913	0.074	0.117	0.016	0.011	0.017
11/29/2019	1,091.2	1,072.2	0.622	1,383.51	-30.08	1.298	0.282	88.646	7.710	1.830	0.073	0.115	0.017	0.011	0.018
11/30/2019	1,099.6	1,080.5	0.629	1,386.07	-25.00	1.304	0.397	87.635	8.289	2.082	0.092	0.152	0.019	0.013	0.018
12/01/2019	1,093.2	1,074.2	0.625	1,383.07	-28.44	1.274	0.383	88.308	7.909	1.859	0.084	0.135	0.018	0.013	0.018
12/02/2019	1,090.6	1,071.6	0.622	1,382.35	-30.01	1.310	0.319	88.591	7.746	1.798	0.074	0.115	0.017	0.012	0.019
12/03/2019	1,103.4	1,084.2	0.632	1,388.38	-21.34	1.140	0.491	87.500	8.396	2.099	0.109	0.204	0.024	0.019	0.018
12/04/2019	1,097.3	1,078.2	0.627	1,386.11	-22.75	1.312	0.316	88.212	7.736	2.086	0.101	0.180	0.021	0.016	0.021
12/05/2019	1,089.9	1,070.9	0.621	1,382.49	-30.28	1.244	0.332	88.766	7.675	1.737	0.076	0.122	0.018	0.013	0.019
12/06/2019	1,091.2	1,072.2	0.623	1,382.95	-29.89	1.243	0.349	88.594	7.796	1.770	0.077	0.124	0.018	0.013	0.018
12/07/2019	1,091.9	1,072.9	0.624	1,382.33	-28.00	1.266	0.391	88.386	7.916	1.782	0.079	0.128	0.019	0.014	0.020
12/08/2019	1,105.5	1,086.3	0.633	1,389.87	-19.16	1.363	0.328	87.310	8.301	2.319	0.114	0.207	0.023	0.016	0.020
12/09/2019	1,079.4	1,060.6	0.616	1,375.64	-34.47	1.327	0.333	89.501	7.258	1.380	0.063	0.088	0.017	0.011	0.021
12/10/2019	1,090.7	1,071.7	0.622	1,383.01	-32.35	1.129	0.405	88.619	7.978	1.640	0.070	0.112	0.017	0.012	0.017
12/11/2019	1,090.3	1,071.4	0.622	1,382.89	-32.31	1.122	0.405	88.672	7.948	1.625	0.070	0.111	0.017	0.012	0.017
12/12/2019	1,083.4	1,064.6	0.619	1,377.50	-37.95	1.301	0.374	88.793	8.070	1.285	0.057	0.079	0.015	0.010	0.017
12/13/2019	1,075.4	1,056.7	0.614	1,372.12	-39.30	1.405	0.355	89.471	7.482	1.104	0.058	0.079	0.017	0.011	0.019
12/14/2019	1,085.5	1,066.6	0.621	1,378.01	-37.39	1.301	0.412	88.460	8.337	1.306	0.058	0.084	0.015	0.011	0.016
12/15/2019	1,080.9	1,062.1	0.618	1,375.26	-37.59	1.382	0.365	88.946	7.874	1.241	0.061	0.086	0.017	0.011	0.018
12/16/2019	1,084.2	1,065.4	0.619	1,378.30	-34.84	1.262	0.379	88.989	7.717	1.442	0.065	0.099	0.017	0.012	0.018
12/17/2019	1,085.2	1,066.3	0.618	1,380.00	-34.32	1.186	0.365	89.127	7.617	1.488	0.067	0.104	0.017	0.012	0.018
12/18/2019	1,086.2	1,067.3	0.619	1,380.17	-34.85	1.164	0.400	88.940	7.814	1.470	0.065	0.101	0.016	0.012	0.017
12/19/2019	1,086.1	1,067.2	0.621	1,378.28	-38.59	1.078	0.562	88.393	8.637	1.152	0.055	0.080	0.015	0.012	0.016
12/20/2019	1,087.8	1,068.8	0.622	1,379.50	-34.32	1.138	0.505	88.509	8.213	1.418	0.071	0.100	0.016	0.012	0.017
12/21/2019	1,083.4	1,064.5	0.617	1,379.50	-41.35	1.177	0.344	89.007	8.139	1.164	0.054	0.077	0.014	0.010	0.015
12/22/2019	1,074.4	1,055.7	0.613	1,371.96	-41.22	1.322	0.386	89.664	7.384	1.077	0.053	0.070	0.015	0.010	0.018
12/23/2019	1,080.9	1,062.1	0.616	1,376.90	-40.39	1.291	0.336	89.117	7.899	1.182	0.055	0.080	0.015	0.010	0.016
12/24/2019	1,074.7	1,056.0	0.614	1,371.57	-39.89	1.300	0.430	89.590	7.439	1.062	0.056	0.076	0.017	0.011	0.019
12/25/2019	1,071.2	1,052.6	0.611	1,370.17	-41.10	1.402	0.334	89.993	7.066	1.026	0.057	0.076	0.017	0.011	0.019
12/26/2019	1,089.3	1,070.3	0.622	1,380.74	-35.91	1.524	0.230	88.033	8.549	1.492	0.056	0.079	0.014	0.009	0.016
12/27/2019	1,072.5	1,053.9	0.612	1,371.44	-41.10	1.350	0.337	89.929	7.179	1.028	0.055	0.075	0.016	0.011	0.019
12/28/2019	1,073.9	1,055.2	0.612	1,372.57	-41.91	1.331	0.331	89.778	7.384	1.005	0.054	0.072	0.016	0.011	0.018
12/29/2019	1,080.2	1,061.4	0.615	1,377.90	-41.74	1.191	0.323	89.389	7.820	1.108	0.052	0.074	0.015	0.011	0.016
12/30/2019	1,074.6	1,055.9	0.613	1,372.95	-41.72	1.315	0.342	89.725	7.415	1.030	0.054	0.074	0.016	0.011	0.018
12/31/2019	1,075.2	1,056.5	0.613	1,372.77	-40.77	1.292	0.386	89.645	7.431	1.068	0.056	0.077	0.016	0.011	0.018
01/01/2020	1,055.8	1,037.4	0.605	1,357.81	-38.17	1.577	0.415	91.193	5.890	0.713	0.064	0.082	0.023	0.016	0.026
01/02/2020	1,070.5	1,051.9	0.612	1,368.65	-35.90	1.449	0.365	90.000	6.942	1.023	0.064	0.096	0.022	0.017	0.023
01/03/2020	1,072.6	1,053.9	0.612	1,370.61	-37.61	1.373	0.370	89.857	7.153	1.055	0.059	0.078	0.019	0.013	0.022
01/04/2020	1,075.2	1,056.5	0.613	1,372.93	-40.62	1.278	0.387	89.678	7.401	1.077	0.055	0.077	0.016	0.011	0.018
01/05/2020	1,068.8	1,050.2	0.607	1,371.35	-42.88	1.254	0.290	90.553	6.881	0.861	0.050	0.064	0.016	0.010	0.021
01/06/2020	1,074.4	1,055.7	0.613	1,372.21	-39.97	1.291	0.394	89.748	7.309	1.076	0.057	0.079	0.016	0.011	0.019

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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%)
01/07/2020	1,076.4	1,057.7	0.614	1,373.75	-40.81	1.247	0.398	89.593	7.486	1.098	0.055	0.078	0.016	0.011	0.018
01/08/2020	1,076.9	1,058.2	0.614	1,374.21	-40.47	1.230	0.399	89.585	7.492	1.115	0.056	0.079	0.016	0.011	0.018
01/09/2020	1,076.8	1,058.0	0.614	1,374.07	-41.02	1.232	0.403	89.578	7.499	1.110	0.056	0.078	0.016	0.011	0.017
01/10/2020	1,077.9	1,059.1	0.615	1,374.88	-40.88	1.212	0.405	89.508	7.554	1.141	0.056	0.080	0.016	0.011	0.017
01/11/2020	1,083.0	1,064.2	0.617	1,378.44	-38.29	1.137	0.416	89.167	7.789	1.298	0.060	0.090	0.016	0.011	0.016
01/12/2020	1,086.2	1,067.3	0.619	1,380.87	-36.45	1.097	0.408	89.005	7.866	1.421	0.063	0.097	0.016	0.012	0.016
01/13/2020	1,086.9	1,068.0	0.619	1,381.79	-35.66	1.087	0.384	89.049	7.800	1.472	0.064	0.100	0.016	0.012	0.016
01/14/2020	1,094.6	1,075.6	0.628	1,381.45	-28.99	1.675	0.258	87.293	8.776	1.788	0.068	0.095	0.017	0.011	0.019
01/15/2020	1,079.1	1,060.3	0.620	1,370.51	-31.26	1.814	0.288	88.666	7.526	1.484	0.073	0.094	0.020	0.012	0.023
01/16/2020	1,084.3	1,065.4	0.621	1,375.66	-32.77	1.618	0.294	88.380	8.024	1.485	0.064	0.086	0.017	0.011	0.021
01/17/2020	1,095.7	1,076.6	0.627	1,384.29	-30.13	1.392	0.318	87.686	8.596	1.790	0.069	0.104	0.016	0.011	0.017
01/18/2020	1,091.2	1,072.3	0.622	1,383.36	-33.13	1.202	0.356	88.462	8.131	1.634	0.067	0.104	0.016	0.012	0.016
01/19/2020	1,088.9	1,069.9	0.620	1,382.60	-34.50	1.148	0.359	88.817	7.898	1.564	0.066	0.104	0.016	0.012	0.016
01/20/2020	1,087.5	1,068.6	0.619	1,382.28	-35.22	1.117	0.356	89.025	7.768	1.522	0.065	0.102	0.016	0.012	0.016
01/21/2020	1,086.2	1,067.3	0.618	1,381.75	-34.96	1.111	0.347	89.216	7.614	1.498	0.066	0.103	0.016	0.012	0.017
01/22/2020	1,086.2	1,067.3	0.618	1,381.78	-35.05	1.116	0.342	89.221	7.602	1.504	0.066	0.103	0.016	0.012	0.017
01/23/2020	1,085.9	1,067.0	0.618	1,381.67	-35.04	1.125	0.334	89.261	7.557	1.507	0.066	0.104	0.016	0.012	0.017
01/24/2020	1,085.2	1,066.3	0.617	1,381.13	-34.51	1.152	0.323	89.336	7.458	1.511	0.067	0.106	0.017	0.013	0.018
01/25/2020	1,085.0	1,066.1	0.617	1,380.82	-33.93	1.175	0.318	89.348	7.406	1.528	0.068	0.108	0.017	0.013	0.018
01/26/2020	1,084.5	1,065.6	0.617	1,380.44	-33.31	1.192	0.314	89.392	7.345	1.530	0.069	0.109	0.017	0.013	0.019
01/27/2020	1,083.8	1,064.9	0.617	1,379.98	-34.86	1.193	0.316	89.356	7.489	1.431	0.066	0.102	0.017	0.012	0.019
01/28/2020	1,081.2	1,062.4	0.615	1,378.18	-33.91	1.251	0.297	89.673	7.076	1.476	0.069	0.109	0.017	0.013	0.020
01/29/2020	1,080.9	1,062.1	0.616	1,377.69	-33.07	1.280	0.295	89.668	7.039	1.486	0.070	0.111	0.018	0.013	0.021
01/30/2020	1,080.2	1,061.4	0.615	1,377.17	-33.08	1.297	0.291	89.725	6.978	1.477	0.070	0.111	0.018	0.013	0.021
01/31/2020	1,080.1	1,061.3	0.615	1,377.02	-37.57	1.260	0.324	89.402	7.603	1.214	0.060	0.090	0.016	0.011	0.019
02/01/2020	1,072.2	1,053.5	0.611	1,371.92	-40.55	1.289	0.340	90.061	7.170	0.956	0.056	0.080	0.016	0.012	0.020
02/02/2020	1,070.8	1,052.2	0.611	1,370.24	-44.64	1.333	0.364	89.881	7.450	0.810	0.052	0.066	0.016	0.010	0.018
02/03/2020	1,051.8	1,033.5	0.606	1,351.57	-33.73	1.895	0.425	91.017	5.702	0.730	0.072	0.087	0.025	0.016	0.031
02/04/2020	1,069.4	1,050.8	0.611	1,367.83	-38.46	1.497	0.344	90.004	6.951	1.005	0.062	0.085	0.018	0.012	0.022
02/05/2020	1,078.0	1,059.2	0.614	1,375.94	-34.85	1.298	0.291	89.916	6.873	1.397	0.068	0.107	0.017	0.013	0.020
02/06/2020	1,078.9	1,060.2	0.614	1,376.57	-33.33	1.296	0.287	89.864	6.880	1.443	0.069	0.109	0.018	0.014	0.021
02/07/2020	1,078.8	1,060.0	0.614	1,376.53	-33.93	1.295	0.284	89.888	6.858	1.445	0.069	0.109	0.018	0.013	0.020
02/08/2020	1,079.1	1,060.3	0.614	1,376.96	-33.71	1.290	0.274	89.857	6.928	1.425	0.068	0.107	0.017	0.013	0.021
02/09/2020	1,078.1	1,059.4	0.613	1,376.80	-40.21	1.351	0.214	89.662	7.385	1.212	0.058	0.076	0.015	0.010	0.017
02/10/2020	1,076.9	1,058.2	0.613	1,375.51	-34.59	1.310	0.274	90.070	6.719	1.401	0.068	0.108	0.017	0.013	0.021
02/11/2020	1,077.9	1,059.2	0.614	1,376.12	-34.01	1.301	0.277	89.986	6.779	1.428	0.069	0.109	0.018	0.013	0.021
02/12/2020	1,077.1	1,058.4	0.613	1,375.80	-34.96	1.298	0.271	90.082	6.714	1.408	0.068	0.108	0.017	0.013	0.020
02/13/2020	1,076.3	1,057.6	0.612	1,375.40	-34.76	1.300	0.267	90.175	6.645	1.388	0.068	0.107	0.017	0.013	0.021
02/14/2020	1,074.8	1,056.1	0.611	1,374.57	-34.81	1.310	0.260	90.320	6.537	1.349	0.067	0.105	0.017	0.013	0.022
02/15/2020	1,086.5	1,067.6	0.617	1,383.32	-36.61	1.249	0.180	89.114	7.849	1.420	0.060	0.088	0.014	0.010	0.018
02/16/2020	1,080.2	1,061.4	0.612	1,381.14	-42.99	1.163	0.164	89.800	7.605	1.111	0.052	0.068	0.013	0.009	0.016
02/17/2020	1,081.2	1,062.4	0.612	1,381.78	-44.28	1.161	0.162	89.626	7.822	1.080	0.049	0.064	0.012	0.008	0.015
02/18/2020	1,078.0	1,059.2	0.612	1,378.03	-41.36	1.262	0.201	89.850	7.360	1.153	0.055	0.077	0.014	0.010	0.017

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%)
02/19/2020	1,073.3	1,054.6	0.611	1,373.61	-37.05	1.330	0.252	90.426	6.479	1.297	0.065	0.102	0.017	0.013	0.020
02/20/2020	1,074.2	1,055.5	0.611	1,374.44	-36.22	1.297	0.256	90.420	6.477	1.331	0.066	0.104	0.017	0.013	0.020
02/21/2020	1,072.4	1,053.8	0.610	1,373.63	-36.90	1.300	0.245	90.609	6.345	1.285	0.064	0.102	0.017	0.013	0.021
02/22/2020	1,082.1	1,063.3	0.616	1,378.79	-35.77	1.371	0.213	89.270	7.605	1.350	0.060	0.086	0.015	0.010	0.020
02/23/2020	1,086.6	1,067.6	0.617	1,383.11	-40.38	1.230	0.206	88.925	8.164	1.307	0.054	0.078	0.013	0.008	0.015

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 = 52911