

Gas Quality Reports

LS265 - Superior Nebraska

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	1,101.0	1,081.8	0.628	1,389.84	-25.81	1.117	0.352	87.775	8.594	1.886	0.083	0.139	0.019	0.015	0.019
09/07/2019	1,096.9	1,077.8	0.629	1,382.85	-19.61	1.583	0.307	87.723	7.890	2.179	0.099	0.154	0.023	0.016	0.026
09/08/2019	1,123.2	1,103.6	0.642	1,401.24	-15.53	1.393	0.218	85.626	9.555	2.895	0.097	0.168	0.018	0.013	0.018
09/09/2019	1,091.0	1,072.0	0.624	1,381.42	-25.48	1.382	0.335	88.375	7.882	1.755	0.083	0.127	0.021	0.015	0.024
09/10/2019	1,095.3	1,076.2	0.625	1,385.60	-26.57	1.428	0.206	88.184	7.941	1.992	0.078	0.121	0.018	0.012	0.020
09/11/2019	1,074.9	1,056.2	0.610	1,376.02	-37.20	1.315	0.179	90.551	6.275	1.488	0.060	0.088	0.015	0.010	0.019
09/12/2019	1,079.0	1,060.3	0.613	1,377.85	-33.49	1.342	0.188	90.106	6.543	1.593	0.069	0.109	0.017	0.012	0.020
09/13/2019	1,079.0	1,060.3	0.613	1,377.85	-33.49	1.342	0.188	90.106	6.543	1.593	0.069	0.109	0.017	0.012	0.020
09/14/2019	1,079.0	1,060.3	0.613	1,377.85	-33.49	1.342	0.188	90.106	6.543	1.593	0.069	0.109	0.017	0.012	0.020
09/15/2019	1,079.0	1,060.3	0.613	1,377.85	-33.49	1.342	0.188	90.106	6.543	1.593	0.069	0.109	0.017	0.012	0.020
09/16/2019	1,079.0	1,060.3	0.613	1,377.85	-33.49	1.342	0.188	90.106	6.543	1.593	0.069	0.109	0.017	0.012	0.020
09/17/2019	1,079.0	1,060.3	0.613	1,377.85	-33.49	1.342	0.188	90.106	6.543	1.593	0.069	0.109	0.017	0.012	0.020
09/18/2019	1,106.7	1,087.5	0.633	1,390.98	-20.00	1.498	0.214	87.018	8.562	2.424	0.087	0.143	0.019	0.014	0.022
09/19/2019	1,117.5	1,098.1	0.642	1,394.79	-13.56	1.725	0.187	85.870	8.828	3.056	0.103	0.175	0.021	0.014	0.021
09/20/2019	1,106.4	1,087.2	0.634	1,389.51	-18.53	1.626	0.203	86.994	8.266	2.615	0.091	0.151	0.019	0.013	0.022
09/21/2019	1,100.2	1,081.1	0.634	1,382.05	-16.86	1.870	0.269	86.998	8.063	2.493	0.094	0.149	0.023	0.015	0.027
09/22/2019	1,115.1	1,095.7	0.638	1,395.52	-18.25	1.554	0.184	86.155	9.107	2.704	0.091	0.158	0.017	0.011	0.018
09/23/2019	1,074.2	1,055.5	0.606	1,380.25	-46.91	1.002	0.132	91.035	6.547	1.131	0.047	0.071	0.011	0.008	0.015
09/24/2019	1,076.0	1,057.3	0.609	1,378.66	-41.48	1.078	0.225	90.564	6.735	1.213	0.056	0.087	0.015	0.010	0.017
09/25/2019	1,075.4	1,056.6	0.610	1,376.83	-40.00	1.158	0.253	90.425	6.745	1.225	0.059	0.090	0.016	0.011	0.018
09/26/2019	1,090.6	1,071.6	0.619	1,385.59	-31.42	1.263	0.169	89.075	7.427	1.831	0.071	0.120	0.016	0.011	0.017
09/27/2019	1,083.5	1,064.7	0.616	1,381.12	-35.70	1.245	0.212	89.580	7.227	1.528	0.065	0.100	0.016	0.010	0.018
09/28/2019	1,086.7	1,067.8	0.619	1,381.06	-30.51	1.270	0.297	89.160	7.325	1.704	0.073	0.118	0.018	0.013	0.020
09/29/2019	1,087.9	1,069.0	0.621	1,380.98	-29.74	1.238	0.358	88.888	7.630	1.643	0.073	0.116	0.019	0.014	0.021
09/30/2019	1,102.8	1,083.6	0.629	1,390.24	-23.66	1.385	0.208	87.571	8.340	2.234	0.083	0.130	0.017	0.012	0.020
10/01/2019	1,090.4	1,071.4	0.622	1,382.54	-29.37	1.259	0.336	88.637	7.809	1.715	0.075	0.118	0.019	0.014	0.020
10/02/2019	1,086.1	1,067.2	0.619	1,380.48	-31.22	1.251	0.321	89.150	7.416	1.622	0.072	0.116	0.019	0.014	0.020
10/03/2019	1,084.5	1,065.7	0.617	1,380.44	-31.31	1.260	0.269	89.432	7.194	1.606	0.071	0.115	0.018	0.014	0.021
10/04/2019	1,083.2	1,064.4	0.617	1,379.18	-31.17	1.310	0.266	89.470	7.139	1.579	0.071	0.112	0.018	0.014	0.022
10/05/2019	1,081.1	1,062.3	0.621	1,371.82	-22.60	1.729	0.335	88.790	7.198	1.686	0.078	0.114	0.022	0.015	0.033
10/06/2019	1,084.7	1,065.8	0.618	1,379.47	-32.24	1.352	0.268	89.123	7.470	1.571	0.068	0.098	0.018	0.012	0.021
10/07/2019	1,084.7	1,065.8	0.618	1,379.47	-32.24	1.352	0.268	89.123	7.470	1.571	0.068	0.098	0.018	0.012	0.021
10/08/2019	1,085.4	1,066.5	0.619	1,380.06	-31.11	1.371	0.243	89.174	7.306	1.677	0.072	0.107	0.018	0.012	0.021
10/09/2019	1,099.2	1,080.1	0.627	1,387.63	-25.40	1.228	0.346	87.851	8.314	2.001	0.081	0.129	0.018	0.013	0.020
10/10/2019	1,100.2	1,081.0	0.627	1,388.92	-27.58	1.161	0.350	87.845	8.388	2.006	0.078	0.126	0.017	0.013	0.016
10/11/2019	1,088.0	1,069.0	0.620	1,381.86	-29.44	1.353	0.236	89.014	7.386	1.769	0.073	0.117	0.018	0.013	0.021
10/12/2019	1,088.4	1,069.5	0.620	1,382.33	-29.16	1.341	0.232	88.996	7.413	1.774	0.073	0.118	0.018	0.013	0.021
10/13/2019	1,087.8	1,068.9	0.620	1,382.06	-29.43	1.334	0.233	89.064	7.375	1.751	0.073	0.117	0.018	0.013	0.021
10/14/2019	1,076.2	1,057.5	0.614	1,373.08	-30.74	1.429	0.307	89.854	6.770	1.400	0.072	0.108	0.021	0.015	0.025
10/15/2019	1,079.4	1,060.6	0.618	1,372.80	-30.36	1.422	0.428	89.157	7.366	1.397	0.069	0.101	0.021	0.015	0.024
10/16/2019	1,084.5	1,065.6	0.619	1,378.54	-32.24	1.427	0.263	89.024	7.448	1.636	0.062	0.092	0.016	0.011	0.021
10/17/2019	1,082.2	1,063.4	0.618	1,376.66	-31.74	1.574	0.201	89.262	6.988	1.755	0.069	0.103	0.017	0.011	0.020
10/18/2019	1,107.0	1,087.8	0.633	1,391.63	-21.99	1.517	0.175	87.022	8.556	2.456	0.086	0.143	0.016	0.011	0.018

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9/6/2019 - 12/6/2019

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10/19/2019	1,094.8	1,075.8	0.625	1,384.91	-27.06	1.507	0.177	88.232	7.732	2.103	0.079	0.125	0.017	0.011	0.019
10/20/2019	1,085.4	1,066.5	0.620	1,378.34	-29.00	1.572	0.207	89.014	7.102	1.847	0.080	0.127	0.019	0.012	0.020
10/21/2019	1,094.3	1,075.2	0.625	1,383.75	-25.65	1.549	0.198	88.112	7.840	2.059	0.075	0.117	0.017	0.011	0.022
10/22/2019	1,078.5	1,059.8	0.614	1,376.63	-36.03	1.344	0.239	89.888	6.846	1.476	0.064	0.097	0.016	0.011	0.019
10/23/2019	1,089.0	1,070.0	0.621	1,382.01	-28.79	1.371	0.246	88.874	7.448	1.811	0.075	0.122	0.018	0.013	0.020
10/24/2019	1,091.1	1,072.1	0.623	1,382.45	-27.13	1.412	0.260	88.584	7.582	1.901	0.079	0.128	0.019	0.014	0.021
10/25/2019	1,094.2	1,075.2	0.626	1,382.91	-23.61	1.467	0.297	88.135	7.791	2.029	0.085	0.138	0.021	0.015	0.023
10/26/2019	1,094.7	1,075.6	0.626	1,383.04	-23.09	1.454	0.313	88.083	7.837	2.028	0.086	0.140	0.021	0.015	0.024
10/27/2019	1,094.8	1,075.7	0.627	1,383.01	-23.44	1.441	0.326	88.060	7.867	2.019	0.087	0.141	0.021	0.016	0.023
10/28/2019	1,092.9	1,073.9	0.626	1,381.82	-23.76	1.425	0.346	88.220	7.774	1.948	0.086	0.140	0.022	0.016	0.023
10/29/2019	1,091.2	1,072.2	0.625	1,380.74	-23.48	1.412	0.362	88.383	7.671	1.885	0.086	0.139	0.022	0.016	0.025
10/30/2019	1,090.2	1,071.3	0.624	1,380.25	-24.21	1.403	0.363	88.489	7.609	1.850	0.085	0.138	0.022	0.017	0.024
10/31/2019	1,092.4	1,073.4	0.626	1,381.09	-22.07	1.415	0.376	88.244	7.749	1.919	0.088	0.142	0.023	0.017	0.026
11/01/2019	1,102.2	1,083.0	0.633	1,385.28	-17.63	1.599	0.327	87.209	8.116	2.421	0.100	0.165	0.023	0.016	0.025
11/02/2019	1,092.3	1,073.3	0.626	1,381.15	-22.65	1.434	0.358	88.266	7.706	1.942	0.088	0.142	0.022	0.017	0.025
11/03/2019	1,091.6	1,072.6	0.625	1,380.91	-22.94	1.413	0.363	88.350	7.684	1.898	0.086	0.140	0.022	0.017	0.026
11/04/2019	1,091.4	1,072.4	0.625	1,380.82	-23.65	1.416	0.358	88.376	7.665	1.895	0.086	0.140	0.022	0.017	0.025
11/05/2019	1,090.2	1,071.2	0.624	1,380.53	-23.99	1.404	0.346	88.535	7.575	1.857	0.085	0.137	0.022	0.016	0.025
11/06/2019	1,093.8	1,074.7	0.627	1,381.11	-24.52	1.436	0.405	87.882	8.089	1.920	0.082	0.127	0.021	0.015	0.023
11/07/2019	1,086.7	1,067.7	0.621	1,378.86	-26.81	1.423	0.316	88.888	7.345	1.761	0.081	0.128	0.020	0.015	0.023
11/08/2019	1,097.6	1,078.5	0.626	1,386.99	-25.40	1.351	0.251	88.042	8.045	2.051	0.079	0.130	0.018	0.013	0.020
11/09/2019	1,093.6	1,074.6	0.622	1,386.85	-31.09	1.266	0.191	88.581	7.918	1.827	0.071	0.104	0.015	0.010	0.018
11/10/2019	1,086.2	1,067.3	0.614	1,386.46	-41.07	0.926	0.210	89.738	7.607	1.324	0.061	0.095	0.015	0.011	0.013
11/11/2019	1,084.2	1,065.3	0.614	1,384.10	-40.34	1.006	0.226	89.794	7.441	1.337	0.061	0.095	0.015	0.011	0.014
11/12/2019	1,094.0	1,075.0	0.621	1,388.37	-33.66	1.063	0.254	88.703	8.087	1.677	0.069	0.106	0.015	0.011	0.015
11/13/2019	1,091.7	1,072.7	0.620	1,386.39	-34.22	0.963	0.357	88.884	8.037	1.530	0.070	0.114	0.017	0.013	0.016
11/14/2019	1,090.5	1,071.5	0.620	1,385.38	-35.41	0.998	0.355	88.877	8.073	1.489	0.063	0.101	0.016	0.013	0.016
11/15/2019	1,088.4	1,069.5	0.619	1,383.99	-37.87	0.995	0.370	89.010	8.007	1.430	0.059	0.090	0.014	0.010	0.015
11/16/2019	1,088.9	1,070.0	0.618	1,385.00	-39.03	0.961	0.351	89.049	8.032	1.428	0.057	0.085	0.013	0.009	0.014
11/17/2019	1,090.5	1,071.6	0.619	1,385.66	-37.48	0.978	0.353	88.926	8.016	1.530	0.063	0.097	0.014	0.010	0.013
11/18/2019	1,093.0	1,074.0	0.623	1,385.22	-35.60	0.974	0.457	88.430	8.365	1.572	0.063	0.099	0.015	0.011	0.014
11/19/2019	1,098.1	1,078.9	0.628	1,386.16	-30.47	0.981	0.557	87.777	8.708	1.732	0.074	0.125	0.018	0.014	0.015
11/20/2019	1,098.4	1,079.3	0.628	1,385.85	-29.87	0.955	0.602	87.680	8.803	1.711	0.074	0.125	0.019	0.015	0.015
11/21/2019	1,088.9	1,069.9	0.623	1,380.03	-35.62	0.883	0.678	88.457	8.453	1.312	0.065	0.103	0.018	0.015	0.015
11/22/2019	1,089.7	1,070.8	0.622	1,381.33	-33.77	1.003	0.553	88.534	8.207	1.475	0.069	0.110	0.018	0.014	0.016
11/23/2019	1,086.3	1,067.4	0.620	1,380.09	-33.23	1.306	0.314	88.939	7.613	1.614	0.068	0.099	0.017	0.011	0.018
11/24/2019	1,091.9	1,072.9	0.624	1,382.04	-27.85	1.437	0.292	88.315	7.797	1.919	0.076	0.114	0.018	0.011	0.020
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

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	1,093.2	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

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