

Gas Quality Reports

LS496 - Welda 26" at Ottawa

5/13/2020 - 8/13/2020

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%)
05/13/2020	1,046.0	1,027.8	0.601	1,349.02	-134.51	1.915	0.371	91.256	5.848	0.530	0.025	0.037	0.006	0.005	0.006
05/14/2020	1,050.2	1,031.9	0.601	1,354.49	-132.78	1.762	0.304	91.243	6.063	0.547	0.025	0.038	0.007	0.005	0.007
05/15/2020	1,050.1	1,031.8	0.601	1,354.88	-133.11	1.719	0.305	91.357	5.996	0.541	0.025	0.037	0.007	0.005	0.007
05/16/2020	1,049.6	1,031.3	0.600	1,354.68	-133.47	1.708	0.308	91.428	5.944	0.531	0.025	0.037	0.007	0.005	0.007
05/17/2020	1,047.8	1,029.5	0.600	1,353.07	-134.56	1.747	0.315	91.537	5.804	0.518	0.024	0.036	0.007	0.005	0.007
05/18/2020	1,054.2	1,035.8	0.605	1,354.97	-71.44	1.722	0.428	90.608	6.530	0.631	0.025	0.039	0.006	0.005	0.006
05/19/2020	1,056.7	1,038.3	0.606	1,357.11	-71.49	1.651	0.437	90.433	6.756	0.643	0.026	0.039	0.006	0.004	0.005
05/20/2020	1,052.9	1,034.5	0.606	1,352.62	-130.21	1.916	0.389	90.342	6.681	0.620	0.019	0.024	0.003	0.002	0.003
05/21/2020	1,048.2	1,029.9	0.603	1,350.13	-133.43	1.969	0.343	90.847	6.260	0.534	0.016	0.022	0.003	0.002	0.004
05/22/2020	1,047.8	1,029.6	0.602	1,350.69	-133.98	1.910	0.340	91.055	6.096	0.548	0.017	0.024	0.003	0.002	0.004
05/23/2020	1,047.6	1,029.3	0.602	1,350.59	-134.14	1.909	0.338	91.098	6.055	0.548	0.018	0.024	0.004	0.002	0.004
05/24/2020	1,047.6	1,029.4	0.602	1,350.64	-134.11	1.902	0.341	91.103	6.052	0.550	0.018	0.024	0.004	0.002	0.004
05/25/2020	1,047.7	1,029.4	0.602	1,350.65	-134.03	1.909	0.339	91.089	6.058	0.553	0.018	0.024	0.004	0.002	0.004
05/26/2020	1,049.5	1,031.2	0.602	1,352.56	-133.01	1.850	0.328	91.043	6.166	0.553	0.019	0.028	0.005	0.003	0.005
05/27/2020	1,052.2	1,033.8	0.602	1,355.60	-73.14	1.738	0.320	90.977	6.363	0.527	0.021	0.034	0.007	0.006	0.007
05/28/2020	1,052.1	1,033.7	0.602	1,355.61	-73.43	1.736	0.317	90.996	6.360	0.517	0.021	0.033	0.007	0.006	0.007
05/29/2020	1,052.3	1,034.0	0.602	1,355.78	-73.37	1.738	0.314	90.967	6.386	0.522	0.021	0.033	0.007	0.006	0.007
05/30/2020	1,052.2	1,033.9	0.602	1,355.80	-131.79	1.737	0.311	90.981	6.377	0.523	0.021	0.032	0.006	0.005	0.007
05/31/2020	1,052.4	1,034.1	0.602	1,355.97	-131.71	1.731	0.312	90.971	6.390	0.526	0.021	0.032	0.006	0.005	0.007
06/01/2020	1,052.2	1,033.8	0.602	1,355.89	-131.92	1.730	0.309	91.005	6.362	0.525	0.020	0.031	0.006	0.005	0.006
06/02/2020	1,049.5	1,031.2	0.600	1,355.13	-133.95	1.720	0.273	91.461	5.956	0.519	0.021	0.032	0.006	0.005	0.007
06/03/2020	1,039.5	1,021.4	0.595	1,347.26	-139.42	1.930	0.253	92.298	4.967	0.470	0.023	0.036	0.008	0.007	0.009
06/04/2020	1,033.4	1,015.3	0.594	1,340.60	-142.62	2.122	0.296	92.499	4.587	0.418	0.021	0.034	0.008	0.007	0.009
06/05/2020	1,030.4	1,012.4	0.593	1,337.54	-144.51	2.200	0.319	92.618	4.395	0.393	0.020	0.033	0.007	0.007	0.009
06/06/2020	1,028.0	1,010.0	0.593	1,335.20	-146.09	2.230	0.350	92.758	4.225	0.365	0.019	0.031	0.007	0.006	0.009
06/07/2020	1,018.8	1,001.0	0.589	1,327.66	-153.35	2.190	0.497	93.547	3.474	0.236	0.012	0.022	0.006	0.006	0.010
06/08/2020	1,019.4	1,001.6	0.589	1,328.50	-153.10	2.170	0.482	93.559	3.494	0.240	0.012	0.022	0.006	0.006	0.010
06/09/2020	1,019.4	1,001.6	0.589	1,328.50	-153.10	2.170	0.482	93.559	3.494	0.240	0.012	0.022	0.006	0.006	0.010
06/10/2020	1,019.6	1,001.8	0.589	1,328.79	-152.95	2.184	0.466	93.533	3.516	0.245	0.013	0.023	0.006	0.006	0.009
06/11/2020	1,022.1	1,004.3	0.590	1,331.09	-151.01	2.152	0.439	93.388	3.685	0.275	0.014	0.024	0.006	0.006	0.010
06/12/2020	1,032.9	1,014.9	0.594	1,340.42	-73.07	2.059	0.331	92.704	4.350	0.465	0.030	0.035	0.008	0.006	0.011
06/13/2020	1,032.9	1,014.9	0.594	1,340.39	-73.00	2.060	0.334	92.696	4.348	0.470	0.031	0.036	0.008	0.006	0.011
06/14/2020	1,033.5	1,015.5	0.594	1,340.82	-73.17	2.056	0.332	92.639	4.403	0.478	0.031	0.037	0.008	0.006	0.011
06/15/2020	1,033.4	1,015.4	0.594	1,340.70	-73.57	2.059	0.332	92.647	4.392	0.477	0.031	0.037	0.008	0.006	0.011
06/16/2020	1,033.3	1,015.3	0.594	1,340.76	-74.73	2.048	0.334	92.667	4.385	0.473	0.031	0.037	0.007	0.006	0.011
06/17/2020	1,033.5	1,015.4	0.594	1,340.84	-77.27	2.037	0.341	92.643	4.427	0.465	0.029	0.036	0.007	0.005	0.010
06/18/2020	1,038.7	1,020.6	0.596	1,344.98	-139.52	1.878	0.386	92.213	4.970	0.472	0.025	0.036	0.007	0.006	0.008
06/19/2020	1,039.8	1,021.7	0.597	1,345.97	-138.99	1.844	0.388	92.150	5.065	0.474	0.024	0.036	0.007	0.006	0.008
06/20/2020	1,025.2	1,007.3	0.607	1,315.69	-53.53	4.001	0.187	90.028	4.827	0.769	0.049	0.092	0.017	0.016	0.013
06/21/2020	1,025.1	1,007.2	0.606	1,316.54	-54.18	3.958	0.162	90.158	4.807	0.738	0.046	0.086	0.016	0.015	0.013
06/22/2020	1,027.7	1,009.8	0.604	1,322.39	-56.35	3.581	0.166	90.602	4.799	0.692	0.042	0.076	0.015	0.014	0.013
06/23/2020	1,029.0	1,011.0	0.603	1,325.23	-57.24	3.399	0.168	90.817	4.787	0.675	0.040	0.073	0.014	0.013	0.013
06/24/2020	1,029.5	1,011.6	0.602	1,327.44	-58.51	3.234	0.171	91.077	4.726	0.646	0.038	0.068	0.013	0.012	0.013

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5/13/2020 - 8/13/2020

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%)
06/25/2020	1,016.9	999.2	0.584	1,330.47	-157.51	2.089	0.350	94.322	2.979	0.208	0.013	0.021	0.005	0.004	0.008
06/26/2020	1,016.2	998.4	0.584	1,329.25	-157.87	2.102	0.383	94.314	2.944	0.207	0.013	0.021	0.005	0.004	0.008
06/27/2020	1,016.1	998.4	0.584	1,329.11	-157.76	2.107	0.387	94.310	2.930	0.213	0.013	0.022	0.005	0.005	0.008
06/28/2020	1,015.3	997.6	0.585	1,327.97	-158.25	2.135	0.403	94.313	2.888	0.209	0.013	0.022	0.005	0.005	0.008
06/29/2020	1,015.0	997.3	0.585	1,327.50	-158.39	2.146	0.412	94.304	2.878	0.208	0.013	0.022	0.005	0.005	0.008
06/30/2020	1,014.7	997.0	0.585	1,327.10	-158.47	2.162	0.416	94.287	2.877	0.207	0.012	0.021	0.005	0.005	0.008
07/01/2020	1,017.0	999.3	0.586	1,329.09	-156.45	2.190	0.360	94.092	3.060	0.245	0.013	0.022	0.005	0.004	0.008
07/02/2020	1,027.7	1,009.8	0.588	1,340.75	-148.36	2.126	0.107	93.664	3.583	0.454	0.021	0.031	0.005	0.003	0.007
07/03/2020	1,027.9	1,010.0	0.588	1,340.50	-148.00	2.139	0.117	93.590	3.625	0.460	0.021	0.031	0.005	0.004	0.007
07/04/2020	1,027.4	1,009.5	0.588	1,339.77	-148.23	2.160	0.128	93.576	3.617	0.453	0.021	0.031	0.005	0.004	0.007
07/05/2020	1,026.5	1,008.6	0.588	1,338.78	-148.79	2.175	0.144	93.596	3.583	0.436	0.020	0.030	0.005	0.004	0.007
07/06/2020	1,025.8	1,007.9	0.588	1,337.85	-149.22	2.189	0.162	93.610	3.551	0.423	0.020	0.029	0.005	0.004	0.007
07/07/2020	1,028.2	1,010.2	0.589	1,339.73	-147.66	2.081	0.205	93.469	3.743	0.433	0.020	0.030	0.006	0.004	0.008
07/08/2020	1,036.3	1,018.2	0.592	1,346.66	-142.18	1.843	0.238	92.991	4.336	0.511	0.024	0.036	0.007	0.005	0.008
07/09/2020	1,036.1	1,018.0	0.592	1,346.50	-142.27	1.852	0.237	92.994	4.329	0.509	0.024	0.036	0.007	0.005	0.008
07/10/2020	1,036.2	1,018.2	0.592	1,346.65	-142.17	1.846	0.237	92.994	4.331	0.513	0.024	0.036	0.007	0.005	0.008
07/11/2020	1,036.0	1,017.9	0.592	1,346.36	-142.31	1.856	0.238	93.000	4.316	0.511	0.024	0.036	0.007	0.005	0.008
07/12/2020	1,033.2	1,015.2	0.591	1,343.52	-144.09	1.940	0.251	93.095	4.158	0.480	0.023	0.034	0.006	0.005	0.008
07/13/2020	1,027.7	1,009.8	0.589	1,339.31	-147.98	2.061	0.226	93.532	3.677	0.435	0.021	0.030	0.006	0.005	0.008
07/14/2020	1,018.3	1,000.5	0.586	1,330.33	-155.03	2.173	0.343	94.107	2.993	0.322	0.017	0.026	0.006	0.005	0.008
07/15/2020	1,016.4	998.6	0.586	1,328.14	-156.31	2.223	0.370	94.141	2.912	0.294	0.016	0.025	0.005	0.005	0.008
07/16/2020	1,015.2	997.5	0.586	1,326.24	-156.81	2.298	0.387	94.055	2.926	0.276	0.015	0.024	0.005	0.004	0.008
07/17/2020	1,019.8	1,002.0	0.588	1,330.31	-152.98	2.284	0.320	93.690	3.324	0.327	0.015	0.024	0.004	0.003	0.007
07/18/2020	1,020.8	1,003.0	0.588	1,331.01	-152.04	2.305	0.300	93.577	3.415	0.347	0.016	0.025	0.004	0.004	0.007
07/19/2020	1,019.0	1,001.2	0.589	1,327.21	-152.18	2.449	0.357	93.336	3.461	0.340	0.016	0.026	0.005	0.004	0.007
07/20/2020	1,011.6	993.9	0.589	1,318.21	-157.02	2.647	0.483	93.482	3.066	0.267	0.014	0.024	0.005	0.005	0.008
07/21/2020	1,026.6	1,008.7	0.593	1,332.71	-146.34	2.660	0.162	92.327	4.415	0.391	0.014	0.022	0.003	0.003	0.004
07/22/2020	1,026.6	1,008.7	0.593	1,332.67	-146.32	2.667	0.158	92.338	4.390	0.401	0.014	0.023	0.003	0.003	0.004
07/23/2020	1,026.7	1,008.8	0.593	1,332.98	-146.30	2.645	0.160	92.370	4.371	0.407	0.015	0.023	0.003	0.003	0.004
07/24/2020	1,026.3	1,008.4	0.593	1,332.59	-146.55	2.647	0.167	92.389	4.351	0.398	0.015	0.023	0.003	0.003	0.004
07/25/2020	1,026.0	1,008.1	0.593	1,332.55	-147.11	2.573	0.207	92.483	4.327	0.362	0.014	0.022	0.003	0.003	0.005
07/26/2020	1,026.3	1,008.4	0.593	1,333.14	-147.14	2.483	0.242	92.582	4.279	0.363	0.015	0.023	0.004	0.003	0.005
07/27/2020	1,026.4	1,008.5	0.593	1,333.21	-147.05	2.452	0.262	92.608	4.254	0.372	0.015	0.024	0.004	0.003	0.005
07/28/2020	1,026.7	1,008.8	0.593	1,333.70	-146.86	2.404	0.278	92.660	4.219	0.385	0.016	0.025	0.004	0.003	0.006
07/29/2020	1,031.2	1,013.2	0.595	1,337.37	-143.37	2.275	0.304	92.433	4.444	0.478	0.020	0.031	0.005	0.004	0.006
07/30/2020	1,035.8	1,017.7	0.596	1,341.35	-140.12	2.213	0.271	92.190	4.662	0.585	0.024	0.037	0.006	0.005	0.007
07/31/2020	1,034.0	1,016.0	0.595	1,340.13	-141.30	2.237	0.267	92.334	4.525	0.560	0.023	0.036	0.006	0.005	0.007
08/01/2020	1,033.3	1,015.2	0.595	1,339.47	-141.81	2.267	0.259	92.369	4.484	0.546	0.022	0.035	0.006	0.005	0.007
08/02/2020	1,033.1	1,015.1	0.595	1,339.37	-141.89	2.277	0.254	92.370	4.480	0.544	0.022	0.035	0.006	0.005	0.006
08/03/2020	1,031.9	1,013.9	0.595	1,338.15	-142.67	2.297	0.267	92.442	4.391	0.528	0.022	0.035	0.006	0.005	0.007
08/04/2020	1,029.0	1,011.1	0.594	1,335.46	-144.69	2.338	0.298	92.606	4.195	0.493	0.021	0.033	0.005	0.005	0.007
08/05/2020	1,008.6	991.0	0.583	1,321.38	-164.25	2.142	0.545	94.795	2.294	0.174	0.011	0.020	0.004	0.004	0.009
08/06/2020	1,013.3	995.6	0.586	1,323.41	-157.96	2.276	0.496	94.089	2.815	0.269	0.014	0.024	0.004	0.004	0.008

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%)
08/07/2020	1,015.1	997.4	0.587	1,324.41	-156.05	2.310	0.476	93.864	2.988	0.304	0.015	0.025	0.005	0.004	0.008
08/08/2020	1,016.2	998.5	0.588	1,325.18	-155.02	2.326	0.460	93.736	3.100	0.320	0.016	0.026	0.004	0.004	0.008
08/09/2020	1,016.5	998.8	0.588	1,325.42	-154.75	2.330	0.454	93.694	3.142	0.321	0.016	0.026	0.005	0.004	0.008
08/10/2020	1,017.4	999.6	0.589	1,325.82	-153.51	2.350	0.446	93.578	3.229	0.338	0.016	0.026	0.004	0.004	0.008
08/11/2020	1,016.5	998.7	0.590	1,323.36	-153.22	2.500	0.454	93.333	3.314	0.340	0.016	0.026	0.005	0.004	0.008

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 = 52761