

# Gas Quality Reports

LS496 - Welda 26" at Ottawa  
7/12/2017 - 10/12/2017

Gas Day	Gross Heating Value (HHV) (Btu/scf)	Net Heating Value (LHV) (Btu/scf)	Specific Gravity	Wobbe Index	Hydrocarbon Dewpoint (HC DP) (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%)
07/12/2017	1,030.2	1,012.2	.597	1,333.63	-68.66	2.119	.580	92.561	4.017	.578	.031	.083	.010	.012	.009
07/13/2017	1,030.8	1,012.8	.598	1,333.29	-69.75	2.176	.581	92.333	4.191	.581	.030	.079	.009	.011	.008
07/14/2017	1,031.2	1,013.3	.599	1,332.52	-70.62	2.264	.581	92.049	4.399	.575	.028	.076	.009	.011	.008
07/15/2017	1,030.9	1,013.0	.599	1,332.13	-71.59	2.284	.580	92.029	4.416	.564	.028	.073	.008	.010	.008
07/16/2017	1,029.5	1,011.6	.598	1,330.96	-77.05	2.348	.556	92.078	4.362	.536	.026	.069	.008	.010	.007
07/17/2017	1,019.6	1,001.8	.593	1,323.59	-148.98	2.730	.393	92.663	3.722	.401	.021	.051	.006	.007	.006
07/18/2017	1,023.6	1,005.8	.595	1,327.22	-78.84	2.441	.513	92.717	3.686	.515	.028	.073	.009	.010	.008
07/19/2017	1,019.8	1,002.0	.594	1,322.92	-148.05	2.782	.402	92.558	3.716	.439	.023	.059	.007	.008	.006
07/20/2017	1,022.8	1,005.0	.595	1,326.29	-147.04	2.578	.447	92.469	4.012	.399	.021	.052	.006	.008	.006
07/21/2017	1,023.6	1,005.8	.595	1,327.07	-146.51	2.526	.466	92.452	4.052	.408	.021	.054	.007	.008	.006
07/22/2017	1,023.6	1,005.8	.595	1,327.09	-146.53	2.525	.465	92.456	4.050	.408	.021	.054	.007	.008	.006
07/23/2017	1,024.5	1,006.6	.595	1,327.88	-146.01	2.478	.480	92.436	4.093	.415	.021	.055	.007	.008	.006
07/24/2017	1,029.8	1,011.9	.596	1,334.37	-143.61	2.093	.546	92.478	4.371	.413	.021	.055	.007	.008	.007
07/25/2017	1,030.5	1,012.6	.596	1,335.25	-143.38	2.066	.539	92.449	4.452	.399	.021	.053	.007	.008	.007
07/26/2017	1,030.4	1,012.4	.595	1,335.21	-143.62	2.061	.538	92.472	4.445	.390	.020	.052	.007	.008	.007
07/27/2017	1,029.6	1,011.7	.597	1,332.98	-143.26	2.221	.532	92.223	4.524	.407	.020	.052	.007	.008	.006
07/28/2017	1,029.1	1,011.2	.598	1,330.49	-142.52	2.427	.520	91.848	4.687	.428	.020	.051	.006	.007	.005
07/29/2017	1,029.2	1,011.2	.598	1,330.37	-142.40	2.436	.521	91.827	4.692	.432	.021	.052	.006	.007	.005
07/30/2017	1,029.2	1,011.3	.598	1,330.44	-142.36	2.433	.522	91.828	4.693	.433	.021	.052	.006	.007	.006
07/31/2017	1,030.0	1,012.1	.598	1,331.66	-142.00	2.385	.512	91.881	4.675	.451	.022	.055	.006	.008	.005
08/01/2017	1,032.5	1,014.5	.598	1,335.40	-140.82	2.253	.469	92.064	4.592	.512	.025	.064	.007	.009	.006
08/02/2017	1,031.4	1,013.4	.597	1,334.87	-141.76	2.275	.448	92.175	4.504	.493	.024	.061	.007	.008	.005
08/03/2017	1,031.6	1,013.7	.597	1,335.07	-141.57	2.258	.457	92.172	4.505	.501	.024	.062	.007	.008	.005
08/04/2017	1,027.2	1,009.3	.595	1,332.18	-145.00	2.238	.488	92.682	4.026	.461	.023	.059	.007	.008	.007
08/05/2017	1,015.1	997.5	.588	1,324.11	-155.65	2.283	.513	93.872	2.970	.282	.017	.041	.006	.007	.009
08/06/2017	1,020.0	1,002.2	.590	1,328.23	-152.22	2.240	.472	93.367	3.607	.249	.014	.033	.005	.006	.008
08/07/2017	1,020.6	1,002.9	.590	1,328.81	-151.81	2.228	.469	93.309	3.683	.247	.014	.032	.005	.006	.007
08/08/2017	1,021.0	1,003.2	.590	1,329.14	-151.61	2.223	.466	93.271	3.734	.243	.013	.032	.005	.005	.007
08/09/2017	1,021.7	1,003.9	.590	1,329.80	-151.28	2.201	.465	93.237	3.793	.242	.013	.031	.005	.005	.007
08/10/2017	1,026.8	1,008.9	.594	1,332.72	-146.46	2.199	.469	92.724	4.165	.360	.018	.045	.006	.007	.006
08/11/2017	1,029.4	1,011.5	.595	1,333.94	-143.66	2.219	.473	92.436	4.338	.437	.022	.056	.007	.008	.006
08/12/2017	1,028.2	1,010.3	.595	1,333.25	-144.92	2.231	.467	92.527	4.280	.405	.020	.051	.006	.007	.006
08/13/2017	1,028.1	1,010.2	.595	1,333.20	-145.10	2.230	.465	92.541	4.280	.396	.020	.050	.006	.007	.006
08/14/2017	1,028.0	1,010.1	.595	1,333.24	-145.23	2.224	.465	92.548	4.287	.389	.019	.049	.006	.007	.006
08/15/2017	1,027.9	1,010.0	.595	1,333.05	-145.27	2.237	.464	92.529	4.300	.385	.019	.048	.006	.007	.006
08/16/2017	1,029.6	1,011.7	.597	1,333.12	-142.43	2.276	.489	92.353	4.241	.527	.026	.066	.007	.009	.006
08/17/2017	1,027.6	1,009.8	.596	1,330.98	-143.47	2.376	.477	92.380	4.153	.502	.025	.064	.007	.009	.006
08/18/2017	1,027.3	1,009.4	.596	1,330.26	-143.53	2.419	.476	92.325	4.175	.493	.025	.063	.007	.009	.007

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08/19/2017	1,027.2	1,009.4	.597	1,329.95	-143.42	2.443	.477	92.268	4.212	.489	.025	.063	.008	.009	.007
08/20/2017	1,028.6	1,010.7	.596	1,331.88	-143.22	2.344	.479	92.282	4.326	.464	.023	.060	.007	.009	.007
08/21/2017	1,026.4	1,008.5	.593	1,333.08	-147.45	2.112	.495	92.851	4.155	.313	.016	.040	.005	.006	.006
08/22/2017	1,026.3	1,008.4	.593	1,332.50	-147.12	2.157	.494	92.792	4.148	.330	.017	.043	.006	.007	.006
08/23/2017	1,028.5	1,010.6	.595	1,333.64	-144.95	2.193	.478	92.526	4.338	.375	.020	.050	.007	.008	.007
08/24/2017	1,031.3	1,013.4	.596	1,335.39	-142.39	2.177	.483	92.239	4.585	.416	.022	.055	.007	.008	.007
08/25/2017	1,032.6	1,014.7	.597	1,336.19	-141.36	2.176	.482	92.101	4.703	.434	.022	.058	.007	.009	.007
08/26/2017	1,031.4	1,013.5	.597	1,334.85	-141.68	2.249	.469	92.161	4.543	.470	.024	.061	.007	.009	.007
08/27/2017	1,031.7	1,013.8	.598	1,334.16	-70.83	2.292	.487	92.201	4.247	.636	.031	.079	.009	.010	.007
08/28/2017	1,033.6	1,015.6	.599	1,335.62	-70.94	2.269	.482	91.998	4.504	.613	.031	.078	.008	.010	.007
08/29/2017	1,033.5	1,015.6	.599	1,335.49	-70.19	2.279	.481	92.000	4.481	.622	.031	.080	.009	.010	.007
08/30/2017	1,033.3	1,015.3	.599	1,335.43	-69.97	2.277	.478	92.047	4.440	.621	.031	.080	.009	.010	.007
08/31/2017	1,032.9	1,014.9	.599	1,335.10	-69.98	2.290	.475	92.071	4.405	.621	.032	.080	.009	.010	.007
09/01/2017	1,032.7	1,014.8	.599	1,334.91	-68.21	2.297	.475	92.104	4.351	.629	.033	.083	.009	.011	.008
09/02/2017	1,044.2	1,026.1	.607	1,340.37	-22.13	2.498	.408	91.162	4.643	.903	.076	.195	.034	.044	.037
09/03/2017	1,052.4	1,034.1	.612	1,345.84	-9.48	2.391	.436	90.686	4.957	1.035	.094	.246	.045	.057	.052
09/04/2017	1,051.6	1,033.3	.611	1,345.27	-10.38	2.397	.437	90.729	4.936	1.015	.093	.241	.044	.056	.051
09/05/2017	1,049.7	1,031.4	.610	1,344.11	-13.30	2.409	.433	90.858	4.864	.979	.088	.228	.042	.052	.048
09/06/2017	1,047.5	1,029.3	.609	1,342.54	-14.63	2.444	.429	90.976	4.779	.937	.083	.216	.040	.050	.046
09/07/2017	1,042.1	1,024.0	.606	1,339.11	-22.58	2.450	.442	91.321	4.616	.817	.068	.175	.032	.040	.039
09/08/2017	1,035.5	1,017.5	.601	1,335.81	-37.51	2.322	.497	91.941	4.328	.667	.049	.123	.021	.026	.027
09/09/2017	1,031.9	1,014.0	.598	1,334.71	-51.55	2.118	.577	92.514	3.977	.622	.043	.099	.015	.018	.017
09/10/2017	1,035.9	1,017.9	.600	1,337.13	-45.69	2.144	.553	92.165	4.187	.726	.051	.117	.018	.020	.019
09/11/2017	1,038.4	1,020.3	.602	1,338.56	-43.13	2.164	.540	91.939	4.310	.801	.057	.129	.019	.022	.020
09/12/2017	1,043.3	1,025.2	.605	1,341.31	-35.35	2.205	.519	91.502	4.542	.931	.069	.157	.024	.027	.023
09/13/2017	1,043.3	1,025.1	.607	1,338.85	-28.03	2.570	.415	90.996	4.753	.940	.070	.165	.027	.033	.031
09/14/2017	1,038.7	1,020.7	.603	1,337.68	-48.88	2.238	.553	91.518	4.758	.736	.043	.104	.015	.018	.017
09/15/2017	1,038.9	1,020.8	.603	1,337.73	-46.54	2.241	.554	91.538	4.706	.745	.047	.114	.017	.020	.018
09/16/2017	1,039.7	1,021.7	.604	1,338.22	-41.51	2.318	.503	91.475	4.688	.766	.053	.130	.021	.025	.020
09/17/2017	1,033.3	1,015.3	.600	1,333.93	-54.64	2.591	.354	91.746	4.478	.650	.041	.093	.015	.017	.014
09/18/2017	1,024.8	1,007.0	.596	1,327.56	-76.81	2.611	.421	92.370	3.961	.515	.029	.066	.009	.010	.008
09/19/2017	1,023.1	1,005.3	.595	1,326.39	-78.13	2.637	.414	92.532	3.791	.507	.028	.064	.008	.009	.009
09/20/2017	1,028.6	1,010.7	.596	1,332.39	-68.83	2.111	.603	92.727	3.835	.584	.030	.079	.009	.011	.010
09/21/2017	1,031.0	1,013.0	.598	1,333.20	-67.28	2.158	.604	92.339	4.145	.611	.031	.081	.009	.011	.009
09/22/2017	1,030.8	1,012.8	.598	1,332.91	-67.44	2.178	.601	92.316	4.159	.604	.031	.080	.010	.011	.009
09/23/2017	1,030.6	1,012.7	.598	1,332.93	-67.25	2.173	.598	92.348	4.145	.595	.031	.079	.010	.011	.010
09/24/2017	1,016.5	998.9	.591	1,322.26	-151.20	2.847	.291	93.022	3.358	.388	.023	.049	.007	.008	.008
09/25/2017	1,005.2	987.7	.587	1,312.52	-160.65	3.421	.082	93.386	2.830	.231	.014	.024	.004	.004	.004

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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%)
09/26/2017	1,004.9	987.4	.586	1,312.23	-160.84	3.451	.070	93.373	2.833	.227	.014	.023	.004	.003	.004
09/27/2017	1,011.1	993.5	.587	1,319.67	-157.36	2.887	.230	93.621	2.905	.288	.018	.034	.006	.005	.006
09/28/2017	1,016.2	998.5	.585	1,328.60	-156.17	2.061	.447	94.481	2.585	.334	.022	.044	.008	.008	.011
09/29/2017	1,017.7	1,000.0	.587	1,328.08	-81.43	1.990	.571	94.206	2.776	.353	.023	.051	.009	.009	.012
09/30/2017	1,024.0	1,006.2	.592	1,330.91	-82.80	2.199	.481	93.125	3.709	.391	.022	.048	.008	.008	.011
10/01/2017	1,022.8	1,005.0	.591	1,330.32	-148.97	2.393	.347	93.083	3.719	.377	.020	.039	.006	.006	.008
10/02/2017	1,022.0	1,004.2	.591	1,329.80	-149.57	2.455	.310	93.123	3.658	.376	.021	.038	.006	.006	.007
10/03/2017	1,021.2	1,003.4	.590	1,329.12	-150.14	2.486	.300	93.179	3.583	.374	.021	.038	.006	.005	.007
10/04/2017	1,022.2	1,004.5	.591	1,329.96	-149.97	2.208	.470	93.276	3.618	.349	.020	.040	.006	.006	.007
10/05/2017	1,021.3	1,003.5	.591	1,328.76	-150.39	2.108	.572	93.424	3.456	.351	.020	.046	.007	.007	.009
10/06/2017	1,028.9	1,011.0	.594	1,335.45	-79.92	2.057	.481	92.911	3.982	.461	.027	.055	.009	.008	.009
10/07/2017	1,023.1	1,005.3	.594	1,327.62	-71.49	2.512	.428	92.773	3.689	.480	.030	.059	.010	.009	.011
10/08/2017	1,014.2	996.5	.601	1,308.62	-62.60	3.981	.232	91.122	3.951	.576	.037	.066	.012	.011	.013
10/09/2017	1,013.7	996.1	.601	1,308.06	-63.19	4.010	.228	91.123	3.922	.578	.037	.066	.012	.011	.012
10/10/2017	1,018.8	1,001.1	.596	1,319.83	-66.86	2.988	.407	92.361	3.581	.525	.036	.068	.012	.011	.012

**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: BusinessUnitID = 70; Analysis\_Key = 52761;