

# Gas Quality Reports

LS260 - Grabham to Saginaw at Saginaw  
5/17/2019 - 8/17/2019

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%)
05/17/2019	1,022.9	1,005.1	0.588	1,333.51	-153.44	1.956	0.463	93.432	4.008	0.126	0.004	0.006	0.001	0.001	0.003
05/18/2019	1,022.9	1,005.1	0.588	1,333.51	-153.44	1.956	0.463	93.432	4.008	0.126	0.004	0.006	0.001	0.001	0.003
05/19/2019	1,022.9	1,005.1	0.588	1,333.51	-153.44	1.956	0.463	93.432	4.008	0.126	0.004	0.006	0.001	0.001	0.003
05/20/2019	1,022.9	1,005.1	0.588	1,333.51	-153.44	1.956	0.463	93.432	4.008	0.126	0.004	0.006	0.001	0.001	0.003
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05/27/2019	1,024.0	1,006.2	0.589	1,334.74	-151.94	1.897	0.470	93.503	3.930	0.158	0.009	0.017	0.004	0.004	0.008
05/28/2019	1,025.6	1,007.7	0.589	1,336.32	-151.08	1.878	0.446	93.389	4.088	0.165	0.007	0.013	0.003	0.003	0.007
05/29/2019	1,024.1	1,006.3	0.588	1,336.05	-152.74	1.895	0.404	93.596	3.940	0.139	0.006	0.010	0.003	0.002	0.006
05/30/2019	1,022.5	1,004.7	0.587	1,334.96	-154.59	1.949	0.377	93.705	3.827	0.122	0.005	0.008	0.002	0.002	0.004
05/31/2019	1,018.9	1,001.2	0.586	1,330.98	-156.57	2.052	0.412	93.878	3.493	0.141	0.006	0.010	0.002	0.002	0.004
06/01/2019	1,019.0	1,001.3	0.585	1,332.10	-157.23	1.999	0.388	94.026	3.430	0.140	0.004	0.007	0.001	0.001	0.003
06/02/2019	1,017.4	999.7	0.584	1,331.10	-158.68	2.001	0.390	94.231	3.224	0.134	0.005	0.009	0.001	0.001	0.003
06/03/2019	1,017.1	999.4	0.584	1,330.80	-158.56	2.032	0.378	94.244	3.170	0.152	0.006	0.011	0.002	0.002	0.003
06/04/2019	1,017.1	999.4	0.584	1,330.80	-158.56	2.032	0.378	94.244	3.170	0.152	0.006	0.011	0.002	0.002	0.003
06/05/2019	1,014.3	996.6	0.583	1,328.79	-161.37	2.040	0.391	94.520	2.920	0.109	0.005	0.008	0.002	0.002	0.004
06/06/2019	1,016.6	998.9	0.583	1,331.20	-159.76	1.897	0.429	94.480	3.043	0.129	0.005	0.009	0.002	0.002	0.004
06/07/2019	1,017.8	1,000.1	0.581	1,335.29	-161.02	1.615	0.429	94.951	2.884	0.102	0.004	0.008	0.002	0.001	0.004
06/08/2019	1,015.6	998.0	0.583	1,330.70	-161.25	1.876	0.438	94.581	2.996	0.097	0.003	0.005	0.001	0.001	0.003
06/09/2019	1,015.5	997.8	0.583	1,329.76	-161.15	1.890	0.476	94.470	3.064	0.093	0.002	0.003	0	0	0.002
06/10/2019	1,015.3	997.7	0.582	1,330.78	-161.65	1.813	0.465	94.730	2.861	0.114	0.004	0.007	0.001	0.001	0.003
06/11/2019	1,015.5	997.8	0.583	1,329.64	-160.57	1.925	0.459	94.481	2.994	0.125	0.004	0.006	0.001	0.001	0.004
06/12/2019	1,020.0	1,002.3	0.586	1,332.56	-156.18	1.924	0.444	94.000	3.409	0.207	0.005	0.007	0.001	0.001	0.003
06/13/2019	1,021.1	1,003.3	0.587	1,332.24	-154.95	1.979	0.459	93.657	3.731	0.155	0.005	0.009	0.001	0.002	0.003
06/14/2019	1,018.7	1,001.0	0.587	1,329.93	-157.01	2.028	0.479	93.730	3.649	0.106	0.003	0.003	0	0	0.002
06/15/2019	1,019.6	1,001.8	0.587	1,331.28	-156.69	1.979	0.465	93.772	3.663	0.113	0.003	0.004	0	0	0.002
06/16/2019	1,018.1	1,000.4	0.586	1,330.36	-157.97	1.965	0.477	93.972	3.462	0.114	0.003	0.005	0	0	0.002
06/17/2019	1,017.8	1,000.1	0.584	1,331.85	-159.06	1.857	0.458	94.316	3.238	0.117	0.004	0.006	0.001	0.001	0.003
06/18/2019	1,019.1	1,001.4	0.585	1,332.57	-157.84	1.868	0.453	94.127	3.419	0.120	0.003	0.006	0	0	0.002
06/19/2019	1,019.6	1,001.8	0.584	1,334.43	-158.28	1.761	0.436	94.371	3.297	0.121	0.004	0.007	0.001	0.001	0.003
06/20/2019	1,021.7	1,003.9	0.584	1,337.47	-157.51	1.604	0.442	94.433	3.393	0.116	0.003	0.006	0	0	0.002
06/21/2019	1,021.4	1,003.6	0.582	1,338.27	-158.20	1.565	0.413	94.652	3.222	0.133	0.004	0.008	0	0	0.002
06/22/2019	1,022.4	1,004.6	0.582	1,340.46	-158.55	1.415	0.426	94.793	3.258	0.099	0.003	0.004	0	0	0.002
06/23/2019	1,020.7	1,003.0	0.582	1,337.58	-158.89	1.549	0.442	94.668	3.228	0.103	0.003	0.005	0	0.001	0.002
06/24/2019	1,017.8	1,000.0	0.582	1,334.60	-160.79	1.684	0.420	94.795	2.989	0.097	0.003	0.006	0.001	0.001	0.002
06/25/2019	1,016.4	998.7	0.583	1,331.32	-160.48	1.920	0.401	94.456	3.114	0.100	0.003	0.004	0	0	0.002
06/26/2019	1,018.3	1,000.6	0.583	1,333.45	-159.35	1.830	0.405	94.418	3.230	0.108	0.003	0.005	0	0	0.002
06/27/2019	1,023.9	1,006.0	0.589	1,334.63	-151.19	1.966	0.425	93.584	3.735	0.222	0.015	0.031	0.006	0.007	0.008
06/28/2019	1,021.2	1,003.4	0.586	1,334.49	-155.12	1.868	0.412	94.108	3.390	0.172	0.011	0.022	0.005	0.005	0.007

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06/29/2019	1,021.9	1,004.1	0.585	1,336.07	-155.27	1.777	0.409	94.212	3.400	0.156	0.009	0.020	0.005	0.005	0.007
06/30/2019	1,022.1	1,004.3	0.584	1,337.13	-155.48	1.682	0.419	94.403	3.287	0.154	0.011	0.024	0.006	0.006	0.008
07/01/2019	1,021.6	1,003.8	0.584	1,336.95	-155.57	1.709	0.396	94.493	3.172	0.167	0.012	0.027	0.007	0.007	0.010
07/02/2019	1,023.0	1,005.2	0.586	1,336.82	-154.13	1.735	0.429	94.155	3.463	0.159	0.011	0.025	0.006	0.007	0.009
07/03/2019	1,026.4	1,008.6	0.588	1,338.45	-150.97	1.686	0.483	93.676	3.945	0.156	0.010	0.023	0.005	0.006	0.009
07/04/2019	1,024.6	1,006.8	0.586	1,338.94	-155.15	1.539	0.497	94.054	3.803	0.099	0.002	0.003	0	0	0.002
07/05/2019	1,015.0	997.3	0.592	1,319.39	-155.63	2.688	0.506	92.616	4.083	0.099	0.002	0.003	0	0	0.002
07/06/2019	1,025.5	1,007.7	0.586	1,339.87	-154.54	1.525	0.484	93.999	3.882	0.100	0.003	0.004	0	0	0.002
07/07/2019	1,025.3	1,007.5	0.586	1,339.95	-154.72	1.495	0.492	94.095	3.796	0.107	0.003	0.006	0.001	0.001	0.003
07/08/2019	1,024.5	1,006.7	0.586	1,338.01	-154.52	1.665	0.461	93.862	3.899	0.102	0.003	0.004	0.001	0.001	0.003
07/09/2019	1,026.2	1,008.4	0.587	1,338.92	-152.79	1.633	0.487	93.667	4.086	0.118	0.003	0.004	0	0	0.002
07/10/2019	1,028.5	1,010.6	0.589	1,339.68	-150.05	1.721	0.459	93.315	4.319	0.161	0.007	0.012	0.002	0.002	0.003
07/11/2019	1,036.0	1,018.0	0.595	1,343.01	-142.10	1.720	0.514	92.462	4.937	0.289	0.017	0.038	0.007	0.008	0.009
07/12/2019	1,036.4	1,018.3	0.595	1,343.54	-72.98	1.715	0.500	92.470	4.959	0.268	0.017	0.040	0.009	0.011	0.012
07/13/2019	1,032.1	1,014.1	0.591	1,342.30	-147.44	1.680	0.457	92.967	4.673	0.207	0.005	0.007	0	0.001	0.003
07/14/2019	1,034.4	1,016.4	0.593	1,342.76	-145.47	1.660	0.519	92.555	5.044	0.208	0.005	0.006	0	0	0.002
07/15/2019	1,035.4	1,017.4	0.594	1,343.25	-144.57	1.687	0.505	92.425	5.136	0.230	0.006	0.008	0	0	0.002
07/16/2019	1,036.6	1,018.6	0.595	1,344.25	-143.57	1.658	0.507	92.357	5.213	0.247	0.006	0.010	0	0	0.002
07/17/2019	1,035.7	1,017.7	0.595	1,343.27	-144.37	1.675	0.522	92.351	5.220	0.217	0.005	0.007	0	0	0.002
07/18/2019	1,035.0	1,017.0	0.592	1,344.64	-145.80	1.548	0.506	92.782	4.932	0.217	0.005	0.007	0	0	0.002
07/19/2019	1,033.2	1,015.2	0.593	1,341.72	-146.32	1.705	0.507	92.623	4.955	0.198	0.004	0.006	0	0	0.002
07/20/2019	1,034.4	1,016.4	0.592	1,343.84	-145.99	1.610	0.491	92.752	4.914	0.219	0.005	0.007	0	0	0.002
07/21/2019	1,034.4	1,016.4	0.592	1,344.81	-146.44	1.558	0.473	92.901	4.846	0.208	0.005	0.007	0	0	0.002
07/22/2019	1,034.3	1,016.3	0.592	1,343.73	-145.87	1.645	0.471	92.733	4.918	0.213	0.006	0.009	0.001	0.001	0.002
07/23/2019	1,032.7	1,014.8	0.593	1,341.22	-146.48	1.766	0.480	92.606	4.942	0.195	0.004	0.006	0	0	0.002
07/24/2019	1,032.4	1,014.4	0.594	1,339.98	-146.24	1.814	0.506	92.474	5.006	0.186	0.004	0.007	0	0.001	0.002
07/25/2019	1,033.1	1,015.1	0.592	1,342.39	-146.61	1.692	0.475	92.756	4.857	0.208	0.004	0.006	0	0	0.002
07/26/2019	1,033.0	1,015.0	0.591	1,343.75	-147.32	1.578	0.472	93.062	4.649	0.226	0.005	0.006	0	0	0.002
07/27/2019	1,033.1	1,015.1	0.591	1,343.83	-147.31	1.574	0.472	93.055	4.666	0.219	0.005	0.007	0	0	0.002
07/28/2019	1,034.1	1,016.1	0.591	1,344.85	-146.45	1.532	0.476	93.068	4.648	0.251	0.009	0.011	0.001	0.001	0.003
07/29/2019	1,034.6	1,016.6	0.593	1,343.65	-145.52	1.632	0.493	92.704	4.915	0.239	0.006	0.009	0	0	0.002
07/30/2019	1,035.4	1,017.3	0.595	1,342.64	-144.08	1.731	0.508	92.370	5.111	0.255	0.007	0.012	0.001	0.001	0.003
07/31/2019	1,038.3	1,020.2	0.595	1,346.25	-142.71	1.574	0.505	92.362	5.271	0.269	0.006	0.009	0	0	0.003
08/01/2019	1,057.0	1,038.6	0.605	1,359.41	-55.23	1.417	0.469	91.721	4.869	1.432	0.034	0.046	0.001	0.001	0.011
08/02/2019	1,040.1	1,022.0	0.597	1,346.13	-140.60	1.671	0.506	91.938	5.566	0.287	0.009	0.016	0.002	0.002	0.003
08/03/2019	1,043.0	1,024.9	0.600	1,347.10	-138.23	1.661	0.552	91.506	5.935	0.311	0.011	0.017	0.002	0.002	0.003
08/04/2019	1,041.4	1,023.3	0.599	1,345.79	-139.36	1.709	0.542	91.583	5.852	0.291	0.008	0.011	0.001	0.001	0.003
08/05/2019	1,041.7	1,023.6	0.600	1,344.69	-138.77	1.877	0.502	91.201	6.143	0.263	0.005	0.007	0	0	0.002
08/06/2019	1,041.5	1,023.4	0.599	1,345.35	-139.28	1.817	0.498	91.367	6.047	0.257	0.005	0.006	0	0	0.002
08/07/2019	1,043.0	1,024.8	0.602	1,344.65	-137.53	1.934	0.506	90.910	6.356	0.279	0.005	0.007	0	0	0.002
08/08/2019	1,043.0	1,024.8	0.602	1,344.65	-137.53	1.934	0.506	90.910	6.356	0.279	0.005	0.007	0	0	0.002
08/09/2019	1,043.0	1,024.8	0.602	1,344.65	-137.53	1.934	0.506	90.910	6.356	0.279	0.005	0.007	0	0	0.002
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08/11/2019	1,043.0	1,024.8	0.602	1,344.65	-137.53	1.934	0.506	90.910	6.356	0.279	0.005	0.007	0	0	0.002
08/12/2019	1,043.0	1,024.8	0.602	1,344.65	-137.53	1.934	0.506	90.910	6.356	0.279	0.005	0.007	0	0	0.002
08/13/2019	1,043.0	1,024.8	0.602	1,344.65	-137.53	1.934	0.506	90.910	6.356	0.279	0.005	0.007	0	0	0.002
08/14/2019	1,043.0	1,024.8	0.602	1,344.65	-137.53	1.934	0.506	90.910	6.356	0.279	0.005	0.007	0	0	0.002
08/15/2019	1,039.8	1,021.7	0.598	1,344.84	-140.60	1.787	0.491	91.674	5.779	0.253	0.005	0.007	0	0	0.003

**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 = 53875