

Gas Quality Reports

LS180 - Topeka 20" at Ottawa X-Over

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	1,017.2	999.5	0.584	1,331.59	-159.65	1.782	0.501	94.501	3.077	0.115	0.006	0.011	0.002	0.002	0.003
05/18/2019	1,016.1	998.4	0.584	1,329.56	-159.87	1.861	0.523	94.425	3.042	0.121	0.006	0.012	0.003	0.003	0.004
05/19/2019	1,016.4	998.7	0.585	1,329.05	-159.10	1.896	0.538	94.285	3.114	0.139	0.006	0.012	0.003	0.003	0.004
05/20/2019	1,013.6	995.9	0.584	1,326.32	-160.85	1.951	0.562	94.492	2.824	0.131	0.009	0.017	0.004	0.004	0.006
05/21/2019	1,045.5	1,027.4	0.605	1,344.42	-57.57	2.010	0.548	91.038	5.553	0.690	0.043	0.080	0.014	0.013	0.011
05/22/2019	1,034.2	1,016.2	0.597	1,338.04	-141.08	2.062	0.503	92.100	4.800	0.446	0.025	0.044	0.007	0.007	0.006
05/23/2019	1,014.6	996.9	0.584	1,327.70	-160.44	1.922	0.537	94.470	2.913	0.124	0.008	0.014	0.004	0.003	0.006
05/24/2019	1,025.5	1,007.6	0.591	1,333.59	-148.67	2.036	0.488	93.165	3.916	0.326	0.018	0.032	0.006	0.006	0.007
05/25/2019	1,033.4	1,015.4	0.597	1,337.27	-73.93	2.176	0.445	92.161	4.621	0.491	0.028	0.052	0.009	0.008	0.009
05/26/2019	1,014.9	997.3	0.585	1,326.64	-159.41	1.998	0.556	94.208	3.070	0.135	0.008	0.014	0.003	0.003	0.005
05/27/2019	1,018.0	1,000.3	0.585	1,330.52	-157.82	1.848	0.541	94.192	3.246	0.142	0.007	0.012	0.003	0.003	0.005
05/28/2019	1,010.4	992.8	0.583	1,323.31	-163.59	1.940	0.630	94.770	2.499	0.121	0.009	0.016	0.004	0.004	0.007
05/29/2019	1,015.3	997.6	0.585	1,326.97	-158.80	1.947	0.583	94.275	2.991	0.160	0.010	0.019	0.005	0.004	0.007
05/30/2019	1,013.2	995.5	0.584	1,325.81	-160.97	1.957	0.572	94.512	2.788	0.129	0.009	0.016	0.004	0.004	0.008
05/31/2019	1,012.6	995.0	0.584	1,325.41	-161.55	2.036	0.526	94.470	2.819	0.114	0.008	0.014	0.004	0.004	0.006
06/01/2019	1,011.5	993.9	0.584	1,324.05	-162.11	2.081	0.535	94.504	2.716	0.127	0.008	0.015	0.004	0.003	0.006
06/02/2019	1,011.6	994.0	0.582	1,325.44	-163.04	2.007	0.509	94.718	2.608	0.127	0.007	0.013	0.003	0.003	0.005
06/03/2019	1,058.5	1,040.1	0.614	1,350.71	-54.40	2.293	0.428	89.390	6.591	1.134	0.050	0.090	0.010	0.008	0.005
06/04/2019	1,068.2	1,049.6	0.620	1,356.15	-50.78	2.515	0.289	88.085	7.663	1.281	0.053	0.094	0.010	0.008	0.003
06/05/2019	1,070.0	1,051.4	0.614	1,365.11	-46.43	1.975	0.197	89.402	6.956	1.254	0.073	0.107	0.016	0.011	0.008
06/06/2019	1,080.2	1,061.4	0.616	1,376.72	-34.71	1.479	0.196	89.626	6.882	1.574	0.080	0.115	0.018	0.013	0.017
06/07/2019	1,067.9	1,049.3	0.610	1,367.77	-47.77	1.724	0.149	90.284	6.418	1.257	0.055	0.082	0.012	0.008	0.011
06/08/2019	1,057.1	1,038.7	0.606	1,357.39	-55.15	2.041	0.175	90.554	6.112	0.986	0.042	0.063	0.011	0.007	0.011
06/09/2019	1,058.8	1,040.3	0.607	1,359.16	-54.24	1.971	0.176	90.543	6.150	1.014	0.045	0.072	0.010	0.007	0.010
06/10/2019	1,064.3	1,045.8	0.610	1,362.83	-45.55	1.836	0.237	90.120	6.564	1.073	0.050	0.080	0.014	0.010	0.015
06/11/2019	1,057.6	1,039.2	0.612	1,352.38	-45.04	2.374	0.254	89.550	6.732	0.926	0.044	0.076	0.014	0.012	0.017
06/12/2019	1,047.2	1,029.0	0.610	1,340.78	-65.80	2.932	0.201	89.442	6.544	0.773	0.033	0.056	0.008	0.007	0.005
06/13/2019	1,055.8	1,037.4	0.615	1,346.36	-58.71	2.604	0.382	88.988	6.850	1.025	0.048	0.083	0.009	0.008	0.003
06/14/2019	1,063.6	1,045.1	0.620	1,350.38	-49.34	2.484	0.486	88.258	7.413	1.156	0.062	0.112	0.013	0.011	0.005
06/15/2019	1,067.8	1,049.2	0.618	1,357.96	-44.65	2.187	0.391	88.683	7.314	1.238	0.056	0.097	0.014	0.012	0.010
06/16/2019	1,075.0	1,056.3	0.622	1,362.90	-44.38	2.038	0.442	88.022	8.013	1.295	0.059	0.100	0.013	0.011	0.008
06/17/2019	1,068.9	1,050.3	0.619	1,358.98	-44.58	1.980	0.503	88.784	7.307	1.216	0.063	0.110	0.015	0.013	0.009
06/18/2019	1,066.4	1,047.9	0.618	1,357.12	-48.32	2.036	0.493	88.883	7.237	1.172	0.055	0.093	0.013	0.011	0.008
06/19/2019	1,060.3	1,041.9	0.613	1,354.77	-51.09	2.198	0.322	89.515	6.783	1.021	0.048	0.080	0.012	0.010	0.010
06/20/2019	1,045.5	1,027.3	0.603	1,346.51	-65.20	2.037	0.414	91.252	5.422	0.759	0.036	0.056	0.009	0.007	0.009
06/21/2019	1,074.2	1,055.5	0.620	1,363.89	-47.88	2.107	0.315	88.228	7.863	1.322	0.053	0.089	0.010	0.008	0.006
06/22/2019	1,070.5	1,051.8	0.619	1,360.50	-46.44	2.148	0.358	88.517	7.518	1.277	0.056	0.095	0.013	0.010	0.008
06/23/2019	1,066.8	1,048.3	0.616	1,359.26	-47.86	2.136	0.318	89.071	7.072	1.212	0.059	0.100	0.014	0.011	0.008
06/24/2019	1,022.7	1,004.9	0.591	1,330.67	-149.75	1.946	0.619	93.580	3.325	0.449	0.023	0.039	0.007	0.005	0.008
06/25/2019	1,025.3	1,007.5	0.592	1,333.11	-148.19	1.966	0.554	93.325	3.640	0.439	0.021	0.036	0.006	0.005	0.007
06/26/2019	1,011.8	994.1	0.582	1,326.70	-164.50	1.895	0.519	94.896	2.554	0.111	0.005	0.010	0.002	0.002	0.004
06/27/2019	1,011.6	994.0	0.582	1,326.17	-164.23	1.966	0.496	94.824	2.567	0.122	0.006	0.011	0.003	0.002	0.004
06/28/2019	1,004.9	987.4	0.580	1,319.06	-169.51	1.986	0.657	95.308	1.889	0.120	0.009	0.016	0.004	0.004	0.007

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06/29/2019	1,010.9	993.3	0.584	1,323.22	-162.21	2.042	0.584	94.631	2.532	0.161	0.011	0.021	0.005	0.005	0.007
06/30/2019	1,016.8	999.2	0.585	1,329.79	-157.47	1.861	0.535	94.485	2.846	0.200	0.015	0.032	0.008	0.008	0.009
07/01/2019	1,013.4	995.8	0.582	1,328.38	-161.91	1.767	0.565	94.980	2.489	0.143	0.012	0.024	0.006	0.006	0.008
07/02/2019	1,025.2	1,007.4	0.589	1,335.99	-149.87	1.818	0.490	93.748	3.529	0.331	0.020	0.039	0.008	0.008	0.009
07/03/2019	1,018.0	1,000.3	0.585	1,331.22	-157.24	1.814	0.525	94.426	2.992	0.183	0.013	0.027	0.007	0.007	0.008
07/04/2019	1,049.0	1,030.7	0.604	1,350.06	-67.08	2.130	0.267	90.843	5.968	0.683	0.034	0.053	0.009	0.007	0.007
07/05/2019	1,064.9	1,046.4	0.614	1,359.54	-57.19	2.290	0.141	88.990	7.489	0.960	0.044	0.064	0.009	0.006	0.006
07/06/2019	1,049.5	1,031.3	0.606	1,348.62	-66.15	2.181	0.332	90.583	6.022	0.770	0.037	0.055	0.008	0.006	0.006
07/07/2019	1,058.0	1,039.6	0.609	1,355.61	-60.25	2.063	0.291	90.003	6.614	0.906	0.043	0.060	0.009	0.006	0.006
07/08/2019	1,066.0	1,047.5	0.613	1,361.65	-56.39	2.046	0.220	89.246	7.392	0.959	0.047	0.067	0.010	0.007	0.006
07/09/2019	1,063.8	1,045.3	0.613	1,358.24	-57.53	2.253	0.204	89.052	7.424	0.931	0.046	0.068	0.010	0.007	0.005
07/10/2019	1,049.1	1,030.8	0.604	1,349.59	-65.43	1.958	0.409	90.985	5.770	0.762	0.038	0.056	0.009	0.007	0.008
07/11/2019	1,061.0	1,042.6	0.609	1,359.26	-58.77	1.810	0.350	90.063	6.759	0.885	0.044	0.065	0.010	0.007	0.007
07/12/2019	1,064.1	1,045.6	0.611	1,360.88	-53.57	2.016	0.222	89.583	7.077	0.954	0.047	0.073	0.011	0.009	0.009
07/13/2019	1,060.1	1,041.7	0.610	1,357.30	-57.80	2.179	0.187	89.680	6.956	0.868	0.040	0.064	0.010	0.008	0.008
07/14/2019	1,063.3	1,044.8	0.614	1,357.36	-56.90	2.228	0.253	89.088	7.356	0.935	0.045	0.073	0.010	0.008	0.005
07/15/2019	1,059.8	1,041.4	0.612	1,355.19	-51.16	2.019	0.399	89.882	6.487	1.025	0.055	0.102	0.013	0.010	0.009
07/16/2019	1,069.6	1,051.0	0.614	1,364.45	-45.94	1.830	0.317	89.437	7.054	1.125	0.065	0.137	0.015	0.012	0.009
07/17/2019	1,066.3	1,047.8	0.613	1,361.56	-53.05	1.983	0.276	89.348	7.214	1.000	0.052	0.100	0.011	0.009	0.006
07/18/2019	1,020.6	1,002.9	0.590	1,329.23	-153.32	1.885	0.672	93.564	3.612	0.225	0.011	0.019	0.004	0.003	0.006
07/19/2019	1,025.5	1,007.7	0.589	1,336.70	-152.13	1.612	0.598	93.649	3.936	0.179	0.006	0.011	0.002	0.002	0.004
07/20/2019	1,023.0	1,005.2	0.589	1,333.22	-153.26	1.712	0.643	93.635	3.811	0.173	0.007	0.011	0.002	0.002	0.004
07/21/2019	1,020.6	1,002.8	0.588	1,330.47	-154.84	1.804	0.656	93.721	3.611	0.178	0.008	0.013	0.003	0.003	0.005
07/22/2019	1,024.5	1,006.7	0.589	1,335.47	-152.63	1.640	0.616	93.673	3.863	0.182	0.007	0.011	0.002	0.002	0.004
07/23/2019	1,022.4	1,004.6	0.588	1,333.63	-154.28	1.687	0.616	93.869	3.603	0.190	0.009	0.015	0.003	0.003	0.004
07/24/2019	1,025.2	1,007.4	0.591	1,333.48	-150.00	1.859	0.602	93.231	4.002	0.261	0.012	0.021	0.004	0.004	0.005
07/25/2019	1,071.6	1,053.0	0.619	1,362.26	-49.16	2.071	0.348	88.437	7.795	1.187	0.052	0.084	0.011	0.008	0.007
07/26/2019	1,071.6	1,052.9	0.616	1,364.93	-51.42	2.047	0.212	88.728	7.743	1.115	0.051	0.079	0.010	0.008	0.006
07/27/2019	1,066.8	1,048.3	0.615	1,360.42	-49.22	2.268	0.168	88.908	7.429	1.066	0.050	0.078	0.012	0.009	0.010
07/28/2019	1,065.0	1,046.4	0.612	1,361.24	-56.80	2.033	0.218	89.398	7.266	0.956	0.041	0.065	0.010	0.007	0.006
07/29/2019	1,004.4	987.0	0.583	1,315.40	-167.52	2.163	0.725	94.833	2.100	0.132	0.010	0.018	0.005	0.004	0.009
07/30/2019	1,027.0	1,009.1	0.590	1,336.98	-150.27	1.741	0.546	93.301	4.183	0.203	0.007	0.012	0.002	0.002	0.004
07/31/2019	1,026.2	1,008.3	0.591	1,334.77	-150.12	1.849	0.569	93.107	4.243	0.204	0.008	0.012	0.002	0.002	0.003
08/01/2019	1,022.6	1,004.8	0.589	1,332.34	-152.76	1.780	0.631	93.638	3.690	0.222	0.010	0.017	0.003	0.003	0.005
08/02/2019	1,030.3	1,012.3	0.590	1,341.85	-148.94	1.474	0.558	93.545	4.125	0.263	0.010	0.016	0.003	0.002	0.004
08/03/2019	1,031.5	1,013.5	0.594	1,338.13	-145.75	1.773	0.604	92.600	4.720	0.258	0.012	0.022	0.004	0.003	0.004
08/04/2019	1,033.0	1,015.0	0.596	1,338.41	-144.53	1.780	0.633	92.292	5.009	0.251	0.010	0.016	0.003	0.003	0.004
08/05/2019	1,032.0	1,014.1	0.595	1,337.51	-145.16	1.866	0.595	92.288	4.977	0.246	0.008	0.013	0.002	0.002	0.003
08/06/2019	1,034.5	1,016.5	0.597	1,338.85	-143.22	1.901	0.577	91.892	5.381	0.227	0.007	0.010	0.002	0.002	0.002
08/07/2019	1,031.6	1,013.7	0.595	1,337.31	-145.56	1.892	0.576	92.292	4.991	0.223	0.007	0.011	0.002	0.002	0.003
08/08/2019	1,033.0	1,015.0	0.597	1,336.65	-143.55	1.994	0.590	91.862	5.290	0.237	0.007	0.011	0.002	0.002	0.003
08/09/2019	1,029.5	1,011.5	0.595	1,334.27	-145.85	2.029	0.584	92.306	4.790	0.250	0.010	0.018	0.004	0.004	0.005
08/10/2019	1,031.0	1,013.1	0.594	1,337.83	-146.02	1.853	0.553	92.585	4.708	0.263	0.011	0.017	0.003	0.003	0.004

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08/11/2019	1,030.7	1,012.7	0.595	1,335.63	-145.50	1.965	0.590	92.269	4.887	0.257	0.009	0.014	0.003	0.002	0.004
08/14/2019	1,030.7	1,012.7	0.595	1,335.63	-145.50	1.965	0.590	92.269	4.887	0.257	0.009	0.014	0.003	0.002	0.004
08/15/2019	1,030.7	1,012.7	0.595	1,335.63	-145.50	1.965	0.590	92.269	4.887	0.257	0.009	0.014	0.003	0.002	0.004

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 = 52764