

## Gas Quality Reports

LS195 - St. Joe 26" at Ottawa

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	1,017.8	1,000.1	0.584	1,331.92	-158.91	1.786	0.500	94.428	3.129	0.129	0.006	0.012	0.003	0.003	0.004
05/18/2019	1,016.7	999.0	0.584	1,330.10	-159.33	1.848	0.522	94.395	3.075	0.131	0.007	0.013	0.003	0.003	0.004
05/19/2019	1,017.8	1,000.1	0.585	1,330.18	-157.76	1.872	0.537	94.192	3.202	0.164	0.008	0.015	0.003	0.003	0.004
05/20/2019	1,016.6	998.9	0.586	1,328.32	-157.72	1.925	0.566	94.223	3.048	0.188	0.012	0.023	0.005	0.005	0.006
05/21/2019	1,015.5	997.8	0.586	1,326.33	-157.79	2.028	0.571	94.139	3.014	0.195	0.013	0.024	0.005	0.005	0.007
05/22/2019	1,016.9	999.2	0.587	1,327.15	-156.36	2.059	0.552	93.930	3.201	0.204	0.013	0.025	0.005	0.005	0.007
05/23/2019	1,015.2	997.5	0.585	1,327.82	-159.59	1.931	0.543	94.378	2.970	0.139	0.009	0.016	0.004	0.004	0.006
05/24/2019	1,014.0	996.3	0.584	1,326.36	-160.63	1.964	0.563	94.378	2.943	0.121	0.007	0.013	0.003	0.003	0.005
05/25/2019	1,013.6	996.0	0.585	1,325.55	-160.52	2.011	0.565	94.323	2.939	0.129	0.007	0.014	0.003	0.003	0.005
05/26/2019	1,016.0	998.3	0.586	1,327.16	-158.09	2.022	0.546	94.067	3.168	0.159	0.009	0.016	0.004	0.004	0.005
05/27/2019	1,020.1	1,002.3	0.587	1,331.61	-155.48	1.869	0.534	93.947	3.427	0.185	0.010	0.017	0.004	0.003	0.005
05/28/2019	1,013.0	995.4	0.585	1,324.96	-160.54	1.944	0.622	94.496	2.720	0.168	0.011	0.021	0.005	0.005	0.007
05/29/2019	1,015.9	998.2	0.586	1,327.36	-158.15	1.946	0.582	94.209	3.045	0.170	0.011	0.020	0.005	0.004	0.007
05/30/2019	1,013.5	995.9	0.584	1,326.00	-160.59	1.957	0.572	94.480	2.812	0.137	0.009	0.017	0.004	0.004	0.008
05/31/2019	1,012.9	995.3	0.584	1,325.55	-161.22	2.037	0.526	94.437	2.845	0.119	0.008	0.014	0.004	0.004	0.006
06/01/2019	1,011.7	994.1	0.584	1,324.11	-161.83	2.085	0.536	94.477	2.732	0.133	0.009	0.015	0.004	0.004	0.006
06/02/2019	1,012.0	994.4	0.583	1,325.59	-162.39	2.017	0.509	94.648	2.655	0.139	0.008	0.014	0.003	0.003	0.005
06/03/2019	1,015.4	997.7	0.584	1,328.54	-159.66	1.965	0.489	94.398	2.955	0.163	0.008	0.013	0.003	0.003	0.004
06/04/2019	1,043.7	1,025.5	0.604	1,342.53	-70.77	2.202	0.467	90.926	5.580	0.712	0.034	0.060	0.008	0.006	0.005
06/05/2019	1,053.3	1,035.0	0.611	1,347.17	-59.43	2.306	0.452	89.763	6.381	0.952	0.045	0.079	0.009	0.008	0.005
06/06/2019	1,051.1	1,032.8	0.610	1,346.36	-61.55	2.282	0.441	90.065	6.172	0.903	0.042	0.074	0.009	0.007	0.005
06/07/2019	1,053.0	1,034.7	0.608	1,350.10	-59.47	2.160	0.373	90.327	6.042	0.951	0.046	0.076	0.010	0.008	0.006
06/08/2019	1,056.7	1,038.3	0.608	1,355.46	-55.96	1.967	0.319	90.535	5.983	1.037	0.051	0.080	0.011	0.008	0.008
06/09/2019	1,055.3	1,036.9	0.607	1,354.86	-57.19	1.959	0.311	90.714	5.861	1.004	0.049	0.076	0.011	0.008	0.008
06/10/2019	1,050.7	1,032.4	0.603	1,352.63	-60.69	1.943	0.300	91.233	5.492	0.898	0.042	0.066	0.010	0.007	0.008
06/11/2019	1,048.4	1,030.2	0.602	1,350.77	-62.56	1.966	0.316	91.387	5.348	0.855	0.040	0.063	0.009	0.007	0.008
06/12/2019	1,064.6	1,046.1	0.610	1,362.78	-49.50	1.890	0.212	90.125	6.407	1.194	0.058	0.084	0.012	0.008	0.010
06/13/2019	1,069.2	1,050.6	0.612	1,366.42	-46.39	1.871	0.168	89.814	6.646	1.318	0.063	0.090	0.013	0.008	0.010
06/14/2019	1,068.9	1,050.3	0.612	1,366.02	-46.94	1.877	0.176	89.801	6.663	1.303	0.061	0.089	0.013	0.008	0.010
06/15/2019	1,021.6	1,003.8	0.591	1,329.19	-149.61	2.185	0.505	93.512	3.203	0.505	0.027	0.042	0.008	0.006	0.007
06/16/2019	999.1	981.7	0.581	1,310.24	-171.51	2.390	0.685	95.176	1.503	0.185	0.016	0.026	0.006	0.006	0.008
06/17/2019	992.5	975.2	0.576	1,307.39	-199.97	2.056	0.845	96.370	0.563	0.106	0.013	0.023	0.006	0.006	0.012
06/18/2019	1,001.4	984.0	0.580	1,314.66	-171.25	1.880	0.852	95.749	1.218	0.228	0.017	0.030	0.007	0.006	0.012
06/19/2019	986.7	969.6	0.576	1,300.24	-199.97	2.222	0.939	96.512	0.185	0.077	0.013	0.024	0.007	0.007	0.015
06/20/2019	997.2	979.9	0.577	1,312.94	-180.65	1.860	0.824	96.202	0.983	0.085	0.010	0.017	0.005	0.005	0.010
06/21/2019	1,002.0	984.6	0.581	1,315.11	-171.14	2.118	0.692	95.307	1.725	0.113	0.009	0.018	0.005	0.004	0.009
06/22/2019	1,001.7	984.3	0.581	1,314.59	-170.75	2.250	0.624	95.214	1.744	0.120	0.010	0.019	0.005	0.005	0.009
06/23/2019	1,012.4	994.8	0.582	1,327.66	-163.45	1.796	0.555	94.981	2.521	0.117	0.006	0.012	0.003	0.003	0.006
06/24/2019	996.7	979.4	0.578	1,311.32	-179.90	1.973	0.822	96.025	1.042	0.089	0.010	0.019	0.005	0.005	0.010
06/25/2019	1,000.8	983.4	0.580	1,314.64	-173.04	2.079	0.705	95.509	1.567	0.095	0.009	0.017	0.005	0.004	0.010
06/26/2019	1,011.1	993.5	0.581	1,326.31	-165.32	1.892	0.521	94.973	2.493	0.099	0.005	0.009	0.002	0.002	0.004
06/27/2019	1,010.6	993.0	0.581	1,325.55	-165.41	1.957	0.504	94.935	2.475	0.106	0.005	0.010	0.002	0.002	0.003
06/28/2019	1,003.9	986.4	0.580	1,318.41	-170.86	1.975	0.667	95.423	1.792	0.104	0.008	0.016	0.004	0.004	0.007

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06/29/2019	1,009.2	991.6	0.583	1,322.00	-164.55	2.042	0.596	94.797	2.379	0.139	0.010	0.020	0.005	0.005	0.007
06/30/2019	1,015.0	997.3	0.583	1,328.77	-159.48	1.847	0.541	94.703	2.678	0.161	0.014	0.031	0.008	0.008	0.009
07/01/2019	1,013.1	995.5	0.582	1,328.37	-162.38	1.754	0.564	95.045	2.447	0.134	0.011	0.024	0.006	0.006	0.008
07/02/2019	1,015.8	998.2	0.583	1,330.95	-159.27	1.723	0.530	94.953	2.537	0.174	0.017	0.037	0.009	0.010	0.011
07/03/2019	1,016.0	998.3	0.584	1,329.95	-159.29	1.799	0.541	94.637	2.820	0.146	0.012	0.025	0.006	0.007	0.008
07/04/2019	1,019.2	1,001.5	0.586	1,330.91	-155.62	1.824	0.575	94.119	3.246	0.170	0.014	0.029	0.007	0.007	0.009
07/05/2019	1,015.4	997.8	0.585	1,327.77	-159.05	1.863	0.600	94.411	2.930	0.143	0.011	0.023	0.006	0.006	0.008
07/06/2019	1,000.7	983.3	0.580	1,313.85	-172.83	1.982	0.808	95.552	1.497	0.104	0.012	0.023	0.006	0.006	0.011
07/07/2019	989.4	972.2	0.580	1,299.29	-183.23	2.508	0.892	95.649	0.772	0.106	0.015	0.029	0.008	0.007	0.014
07/08/2019	1,012.7	995.1	0.583	1,326.37	-162.62	1.767	0.651	94.784	2.668	0.097	0.007	0.012	0.003	0.003	0.008
07/09/2019	1,051.7	1,033.4	0.604	1,352.80	-66.96	1.893	0.357	90.874	6.029	0.738	0.036	0.052	0.008	0.006	0.007
07/10/2019	1,009.3	991.8	0.585	1,320.13	-162.19	1.971	0.750	94.724	2.254	0.238	0.016	0.026	0.006	0.005	0.010
07/11/2019	1,012.7	995.1	0.585	1,324.47	-161.39	1.882	0.680	94.477	2.801	0.123	0.008	0.015	0.004	0.003	0.007
07/12/2019	1,027.7	1,009.8	0.593	1,334.70	-55.99	1.793	0.655	93.336	3.682	0.368	0.034	0.080	0.016	0.018	0.018
07/13/2019	1,027.8	1,009.9	0.592	1,335.91	-55.22	1.721	0.639	93.504	3.628	0.351	0.031	0.072	0.016	0.018	0.019
07/14/2019	1,024.8	1,007.0	0.591	1,333.00	-51.23	1.815	0.641	93.701	3.319	0.357	0.033	0.076	0.017	0.019	0.022
07/15/2019	1,012.8	995.2	0.585	1,324.01	-160.86	1.888	0.705	94.422	2.803	0.145	0.008	0.015	0.004	0.004	0.008
07/16/2019	1,024.3	1,006.5	0.590	1,334.04	-151.97	1.722	0.632	93.507	3.909	0.198	0.008	0.014	0.003	0.002	0.004
07/17/2019	1,015.1	997.5	0.587	1,324.90	-158.34	1.915	0.713	94.061	3.100	0.174	0.009	0.016	0.004	0.003	0.006
07/18/2019	1,018.8	1,001.0	0.589	1,327.72	-155.44	1.895	0.689	93.681	3.524	0.177	0.008	0.014	0.003	0.003	0.006
07/19/2019	1,026.3	1,008.4	0.589	1,337.37	-151.55	1.606	0.591	93.585	4.006	0.188	0.007	0.011	0.002	0.002	0.003
07/20/2019	1,022.7	1,004.9	0.589	1,332.59	-153.25	1.739	0.649	93.614	3.790	0.180	0.007	0.012	0.003	0.002	0.004
07/21/2019	1,021.3	1,003.6	0.589	1,331.22	-154.38	1.787	0.649	93.683	3.669	0.182	0.008	0.013	0.003	0.002	0.004
07/22/2019	1,024.6	1,006.7	0.589	1,335.55	-152.64	1.639	0.613	93.682	3.858	0.182	0.007	0.011	0.002	0.002	0.004
07/23/2019	1,024.8	1,007.0	0.589	1,335.32	-151.67	1.689	0.600	93.645	3.795	0.229	0.011	0.020	0.004	0.004	0.004
07/24/2019	1,025.8	1,008.0	0.592	1,333.74	-149.41	1.893	0.585	93.115	4.100	0.264	0.011	0.020	0.004	0.004	0.005
07/25/2019	1,071.3	1,052.7	0.619	1,362.12	-49.53	2.075	0.342	88.471	7.773	1.178	0.052	0.083	0.011	0.008	0.007
07/26/2019	1,069.9	1,051.3	0.616	1,363.36	-52.92	2.128	0.194	88.748	7.701	1.082	0.049	0.076	0.010	0.007	0.006
07/27/2019	1,065.3	1,046.8	0.614	1,359.22	-49.74	2.289	0.173	89.007	7.345	1.029	0.050	0.076	0.012	0.009	0.010
07/28/2019	1,063.6	1,045.0	0.612	1,359.92	-56.98	2.071	0.221	89.475	7.163	0.940	0.041	0.065	0.010	0.008	0.007
07/29/2019	1,005.8	988.3	0.583	1,316.71	-166.30	2.135	0.715	94.758	2.203	0.143	0.010	0.018	0.005	0.004	0.009
07/30/2019	1,028.0	1,010.1	0.591	1,337.52	-149.43	1.760	0.534	93.173	4.290	0.215	0.008	0.012	0.002	0.002	0.004
07/31/2019	1,024.5	1,006.7	0.590	1,333.23	-151.14	1.870	0.586	93.256	4.046	0.210	0.009	0.014	0.003	0.002	0.004
08/01/2019	1,023.8	1,006.0	0.589	1,333.92	-152.13	1.723	0.623	93.634	3.752	0.231	0.010	0.017	0.003	0.003	0.005
08/02/2019	1,030.5	1,012.6	0.590	1,341.87	-148.66	1.486	0.558	93.479	4.180	0.262	0.010	0.016	0.002	0.002	0.003
08/03/2019	1,031.6	1,013.6	0.594	1,338.16	-145.73	1.773	0.605	92.579	4.746	0.255	0.012	0.020	0.003	0.003	0.004
08/04/2019	1,032.9	1,014.9	0.596	1,338.32	-144.64	1.791	0.626	92.303	4.994	0.252	0.010	0.015	0.003	0.003	0.004
08/05/2019	1,032.3	1,014.3	0.595	1,337.75	-145.04	1.865	0.590	92.268	5.004	0.245	0.008	0.012	0.002	0.002	0.003
08/06/2019	1,034.3	1,016.3	0.597	1,338.75	-143.34	1.902	0.576	91.919	5.351	0.229	0.007	0.010	0.002	0.002	0.002
08/07/2019	1,032.0	1,014.0	0.595	1,337.41	-145.17	1.904	0.574	92.231	5.034	0.230	0.007	0.011	0.002	0.002	0.003
08/08/2019	1,033.7	1,015.8	0.597	1,337.45	-143.09	1.976	0.581	91.846	5.320	0.250	0.008	0.012	0.002	0.002	0.003
08/09/2019	1,029.9	1,012.0	0.595	1,334.95	-145.70	1.999	0.580	92.340	4.784	0.255	0.011	0.019	0.004	0.004	0.005
08/10/2019	1,031.2	1,013.3	0.594	1,337.98	-145.82	1.853	0.551	92.583	4.699	0.274	0.011	0.018	0.004	0.003	0.004

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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%)
08/11/2019	1,031.0	1,013.0	0.596	1,335.74	-145.07	1.980	0.583	92.239	4.884	0.279	0.010	0.016	0.003	0.003	0.004
08/14/2019	1,031.0	1,013.0	0.596	1,335.74	-145.07	1.980	0.583	92.239	4.884	0.279	0.010	0.016	0.003	0.003	0.004
08/15/2019	1,031.0	1,013.0	0.596	1,335.74	-145.07	1.980	0.583	92.239	4.884	0.279	0.010	0.016	0.003	0.003	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 = 52762