

Gas Quality Reports

LS115 - Glavin to Kansas City

9/6/2019 - 12/6/2019

Page 1 of 3

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%)
09/06/2019	1,045.5	1,027.3	0.604	1,345.13	-72.25	2.078	0.464	90.753	6.080	0.555	0.020	0.033	0.005	0.004	0.008
09/07/2019	1,043.1	1,024.9	0.602	1,344.20	-135.55	2.053	0.455	91.041	5.908	0.484	0.017	0.026	0.004	0.003	0.008
09/08/2019	1,042.3	1,024.2	0.601	1,343.97	-136.11	2.031	0.457	91.212	5.745	0.492	0.019	0.028	0.005	0.004	0.007
09/09/2019	1,033.1	1,015.1	0.596	1,338.50	-143.92	1.830	0.598	92.301	4.958	0.268	0.012	0.017	0.005	0.004	0.008
09/10/2019	1,040.6	1,022.5	0.601	1,342.82	-137.74	1.894	0.556	91.406	5.705	0.380	0.015	0.027	0.005	0.004	0.008
09/11/2019	1,036.2	1,018.2	0.598	1,339.81	-141.34	1.904	0.578	91.739	5.473	0.276	0.008	0.009	0.003	0.003	0.008
09/12/2019	1,031.1	1,013.2	0.596	1,336.00	-145.00	1.907	0.623	92.258	4.943	0.239	0.008	0.008	0.003	0.003	0.009
09/13/2019	1,028.2	1,010.3	0.594	1,334.58	-147.53	1.867	0.633	92.677	4.583	0.209	0.007	0.009	0.003	0.002	0.010
09/14/2019	1,030.2	1,012.3	0.594	1,336.30	-146.30	1.873	0.600	92.460	4.839	0.202	0.007	0.006	0.002	0.002	0.009
09/15/2019	1,031.7	1,013.7	0.595	1,337.49	-145.23	1.886	0.571	92.331	4.960	0.224	0.007	0.006	0.003	0.002	0.008
09/16/2019	1,035.8	1,017.7	0.598	1,339.00	-141.37	2.045	0.515	91.600	5.549	0.263	0.008	0.008	0.002	0.002	0.008
09/17/2019	1,038.5	1,020.4	0.599	1,342.20	-140.57	1.902	0.520	91.493	5.851	0.217	0.005	0.001	0.002	0.002	0.007
09/18/2019	1,035.8	1,017.8	0.596	1,341.44	-142.53	1.851	0.509	92.038	5.331	0.243	0.008	0.006	0.003	0.002	0.008
09/19/2019	1,040.5	1,022.4	0.599	1,344.55	-139.54	1.875	0.470	91.441	5.959	0.232	0.006	0.005	0.002	0.002	0.007
09/20/2019	1,036.2	1,018.1	0.598	1,339.75	-140.70	2.098	0.451	91.680	5.377	0.357	0.011	0.012	0.003	0.003	0.008
09/21/2019	1,053.2	1,034.9	0.609	1,349.92	-56.67	2.531	0.146	89.870	6.439	0.900	0.035	0.054	0.009	0.006	0.011
09/22/2019	1,060.3	1,041.9	0.616	1,351.40	-45.75	2.710	0.173	88.920	6.770	1.264	0.048	0.080	0.012	0.009	0.012
09/23/2019	1,035.5	1,017.5	0.598	1,338.76	-140.20	2.053	0.514	91.853	5.087	0.429	0.018	0.025	0.006	0.005	0.011
09/24/2019	1,036.3	1,018.3	0.599	1,339.00	-139.53	2.098	0.497	91.695	5.208	0.441	0.016	0.027	0.005	0.004	0.010
09/25/2019	1,031.7	1,013.7	0.595	1,337.08	-145.44	1.894	0.589	92.197	5.142	0.156	0.005	0.005	0.002	0.002	0.008
09/26/2019	1,039.2	1,021.1	0.598	1,343.31	-138.72	1.988	0.421	91.746	5.352	0.429	0.017	0.027	0.005	0.004	0.010
09/27/2019	1,028.0	1,010.1	0.594	1,333.74	-147.06	2.098	0.520	92.438	4.703	0.210	0.007	0.011	0.003	0.002	0.009

Gas Quality Reports

LS115 - Glavin to Kansas City

Page 2 of 3

9/6/2019 - 12/6/2019

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%)
10/14/2019	1,026.7	1,008.9	0.591	1,335.69	-65.28	1.828	0.548	93.091	4.345	0.162	0.006	0.010	0.002	0.002	0.005
10/15/2019	0.0	0.0	0.847	0.00	-199.97	87.597	0	0	0	0	0	0	0	0	0
10/15/2019	1,029.3	1,011.4	0.592	1,337.27	-147.84	1.817	0.552	92.800	4.610	0.193	0.007	0.011	0.002	0.002	0.005
10/15/2019	1,029.3	1,011.4	0.592	1,337.27	-65.28	1.817	0.552	92.800	4.610	0.193	0.007	0.011	0.002	0.002	0.005
10/16/2019	0.0	0.0	0.847	0.00	-199.97	87.597	0	0	0	0	0	0	0	0	0
10/16/2019	1,030.0	1,012.1	0.592	1,338.17	-65.28	1.781	0.548	92.777	4.700	0.171	0.005	0.009	0.002	0.002	0.005
10/17/2019	0.0	0.0	0.847	0.00	-199.97	87.597	0	0	0	0	0	0	0	0	0
10/17/2019	1,031.0	1,013.1	0.593	1,338.42	-65.28	1.804	0.553	92.606	4.816	0.194	0.006	0.011	0.002	0.002	0.005
10/18/2019	0.0	0.0	0.847	0.00	-199.97	87.597	0	0	0	0	0	0	0	0	0
10/18/2019	1,032.3	1,014.3	0.593	1,340.14	-65.28	1.757	0.527	92.653	4.812	0.216	0.008	0.015	0.003	0.003	0.006
10/19/2019	0.0	0.0	0.847	0.00	-199.97	87.597	0	0	0	0	0	0	0	0	0
10/19/2019	1,043.8	1,025.6	0.603	1,343.76	-65.28	2.437	0.248	90.733	5.880	0.605	0.026	0.047	0.007	0.007	0.008
10/20/2019	0.0	0.0	0.847	0.00	-199.97	87.597	0	0	0	0	0	0	0	0	0
10/20/2019	1,040.7	1,022.6	0.604	1,338.57	-65.28	2.549	0.363	90.631	5.731	0.634	0.028	0.044	0.007	0.005	0.008
10/21/2019	1,026.7	1,008.9	0.592	1,334.06	-149.61	1.943	0.565	92.662	4.791	0	0.009	0.015	0.003	0.003	0.008
10/22/2019	1,031.9	1,013.9	0.595	1,338.05	-145.50	1.870	0.558	92.257	5.239	0	0.018	0.034	0.007	0.007	0.009
10/23/2019	1,031.8	1,013.8	0.595	1,337.67	-145.10	1.920	0.542	92.235	5.210	0	0.022	0.044	0.009	0.009	0.010
10/24/2019	1,029.8	1,011.9	0.593	1,337.13	-70.26	1.869	0.542	92.745	4.694	0	0.033	0.072	0.016	0.017	0.013
10/25/2019	1,033.4	1,015.4	0.595	1,339.23	-143.93	1.918	0.510	92.133	5.331	0	0.027	0.052	0.010	0.009	0.010
10/26/2019	1,028.8	1,010.9	0.593	1,335.97	-147.83	1.933	0.534	92.539	4.930	0	0.016	0.029	0.006	0.005	0.009
10/27/2019	1,023.5	1,005.7	0.590	1,332.14	-151.53	2.013	0.520	93.089	4.311	0	0.016	0.029	0.006	0.005	0.010
10/28/2019	1,031.1	1,013.1	0.594	1,337.34	-146.16	1.960	0.512	92.227	5.237	0	0.017	0.028	0.005	0.004	0.008
10/29/2019	1,033.8	1,015.9	0.597	1,338.54	-143.49	1.975	0.525	91.841	5.579	0	0.023	0.038	0.006	0.005	0.008
10/30/2019	1,032.4	1,014.4	0.596	1,336.96	-144.30	2.020	0.537	91.914	5.444	0	0.022	0.041	0.008	0.008	0.009
10/31/2019	1,032.1	1,014.1	0.596	1,337.36	-144.95	1.968	0.539	92.046	5.369	0	0.020	0.036	0.007	0.006	0.008
11/01/2019	1,028.9	1,011.0	0.595	1,334.12	-147.24	2.089	0.537	92.096	5.242	0	0.008	0.015	0.003	0.003	0.007
11/02/2019	1,029.9	1,012.0	0.593	1,337.23	-147.71	1.887	0.530	92.463	5.078	0	0.011	0.018	0.004	0.003	0.007
11/03/2019	1,031.4	1,013.4	0.594	1,338.74	-147.08	1.827	0.533	92.384	5.222	0	0.009	0.012	0.004	0.003	0.006
11/04/2019	1,031.0	1,013.0	0.594	1,337.49	-147.07	1.895	0.545	92.222	5.316	0	0.005	0.007	0.002	0.002	0.006
11/05/2019	1,029.0	1,011.1	0.593	1,336.43	-148.41	1.905	0.533	92.511	5.017	0	0.008	0.014	0.003	0.003	0.006
11/06/2019	1,031.4	1,013.5	0.593	1,338.92	-146.85	1.838	0.517	92.412	5.188	0	0.010	0.018	0.004	0.004	0.007
11/07/2019	1,036.0	1,018.0	0.594	1,344.22	-144.63	1.606	0.523	92.368	5.448	0	0.013	0.024	0.006	0.005	0.007
11/08/2019	1,034.9	1,016.9	0.593	1,343.94	-145.57	1.599	0.510	92.549	5.286	0	0.014	0.025	0.005	0.005	0.007
11/09/2019	1,034.8	1,016.8	0.593	1,343.97	-145.71	1.563	0.528	92.629	5.217	0	0.017	0.029	0.005	0.005	0.007
11/10/2019	1,031.1	1,013.2	0.592	1,340.67	-148.47	1.516	0.623	92.956	4.858	0	0.013	0.020	0.004	0.003	0.006
11/11/2019	1,032.5	1,014.5	0.593	1,340.97	-147.21	1.665	0.553	92.551	5.206	0	0.006	0.009	0.002	0.002	0.006
11/12/2019	1,033.5	1,015.5	0.593	1,341.95	-146.51	1.721	0.492	92.442	5.316	0	0.007	0.011	0.003	0.003	0.005
11/13/2019	1,032.5	1,014.6	0.593	1,341.01	-147.15	1.767	0.485	92.453	5.276	0	0.005	0.005	0.002	0.002	0.005
11/14/2019	1,034.4	1,016.4	0.594	1,341.87	-145.34	1.759	0.501	92.243	5.456	0	0.010	0.018	0.004	0.004	0.006
11/15/2019	1,034.3	1,016.3	0.595	1,341.46	-145.14	1.791	0.501	92.178	5.488	0	0.011	0.018	0.004	0.003	0.007
11/16/2019	1,034.0	1,016.0	0.595	1,340.42	-145.01	1.851	0.507	92.074	5.524	0	0.012	0.019	0.004	0.003	0.007
11/17/2019	1,031.0	1,013.1	0.593	1,338.52	-147.43	1.819	0.540	92.416	5.199	0	0.006	0.010	0.002	0.002	0.006
11/18/2019	1,031.7	1,013.8	0.594	1,339.03	-146.85	1.836	0.522	92.343	5.269	0	0.007	0.012	0.003	0.002	0.007

Gas Quality Reports

LS115 - Glavin to Kansas City

9/6/2019 - 12/6/2019

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%)
11/19/2019	1,036.3	1,018.3	0.597	1,341.39	-142.44	2.044	0.402	91.585	5.912	0	0.014	0.025	0.005	0.004	0.007
11/20/2019	1,034.0	1,016.0	0.594	1,341.98	-145.55	1.726	0.504	92.388	5.332	0	0.013	0.020	0.005	0.004	0.009
11/21/2019	1,035.9	1,017.9	0.597	1,341.28	-142.93	1.924	0.476	91.747	5.799	0	0.017	0.021	0.005	0.004	0.008
11/22/2019	1,030.9	1,013.0	0.595	1,336.48	-146.30	1.963	0.554	92.090	5.352	0	0.010	0.016	0.004	0.003	0.007
11/23/2019	1,033.3	1,015.3	0.594	1,340.34	-145.77	1.788	0.532	92.228	5.417	0	0.008	0.013	0.003	0.003	0.007
11/24/2019	1,034.8	1,016.8	0.595	1,341.37	-144.46	1.813	0.506	92.083	5.543	0	0.015	0.025	0.004	0.004	0.007
11/25/2019	1,031.3	1,013.3	0.594	1,338.08	-146.89	1.887	0.526	92.264	5.296	0	0.006	0.010	0.003	0.002	0.007
11/26/2019	1,030.4	1,012.5	0.593	1,337.62	-147.58	1.862	0.541	92.398	5.171	0	0.006	0.009	0.003	0.002	0.007
11/27/2019	1,033.1	1,015.1	0.595	1,338.72	-144.92	1.933	0.518	92.006	5.485	0	0.015	0.026	0.005	0.004	0.007
11/28/2019	1,034.0	1,016.0	0.595	1,340.76	-145.23	1.841	0.495	92.114	5.512	0	0.010	0.015	0.003	0.003	0.007
11/29/2019	1,033.0	1,015.0	0.594	1,339.99	-145.82	1.862	0.492	92.198	5.409	0	0.010	0.016	0.003	0.003	0.007
11/30/2019	1,030.6	1,012.6	0.593	1,338.01	-147.45	1.896	0.502	92.404	5.163	0	0.009	0.014	0.003	0.003	0.007
12/01/2019	1,032.7	1,014.8	0.594	1,340.23	-146.51	1.823	0.498	92.267	5.395	0	0.005	0.004	0.002	0.002	0.006
12/02/2019	1,033.7	1,015.7	0.594	1,341.56	-146.08	1.770	0.490	92.293	5.423	0	0.007	0.008	0.002	0.002	0.006
12/03/2019	1,034.8	1,016.8	0.594	1,342.12	-145.13	1.783	0.485	92.139	5.565	0	0.006	0.011	0.002	0.002	0.006
12/04/2019	1,032.7	1,014.8	0.594	1,339.77	-146.09	1.873	0.489	92.195	5.412	0	0.007	0.013	0.002	0.002	0.006

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 = 52871