

Gas Quality Reports

LS195 - Fairfax at Tonganoxie

Page 1 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%)
09/06/2019	1,040.7	1,022.6	0.601	1,342.06	-137.28	2.033	0.512	91.200	5.761	0.442	0.016	0.026	0.003	0.003	0.004
09/07/2019	1,048.8	1,030.5	0.606	1,347.46	-73.18	2.263	0.318	90.335	6.350	0.653	0.024	0.041	0.005	0.005	0.004
09/08/2019	1,061.6	1,043.1	0.613	1,355.32	-55.21	2.338	0.239	89.166	7.102	1.018	0.043	0.070	0.010	0.008	0.007
09/09/2019	1,055.1	1,036.7	0.609	1,351.86	-61.16	2.137	0.357	89.998	6.537	0.855	0.037	0.059	0.008	0.006	0.007
09/10/2019	1,050.4	1,032.1	0.607	1,347.64	-69.77	2.374	0.286	90.075	6.406	0.774	0.027	0.044	0.006	0.004	0.004
09/11/2019	1,048.2	1,029.9	0.608	1,344.22	-129.98	2.777	0.142	89.661	6.640	0.706	0.024	0.040	0.005	0.004	0.001
09/12/2019	1,031.9	1,013.9	0.596	1,336.24	-144.52	1.928	0.620	92.120	5.051	0.245	0.009	0.016	0.003	0.003	0.005
09/13/2019	1,028.5	1,010.6	0.594	1,334.43	-147.33	1.902	0.629	92.559	4.664	0.218	0.007	0.012	0.002	0.002	0.005
09/14/2019	1,025.7	1,007.8	0.593	1,332.25	-149.32	1.968	0.614	92.799	4.383	0.205	0.008	0.013	0.002	0.002	0.005
09/15/2019	1,034.9	1,016.9	0.597	1,339.62	-142.29	1.952	0.515	91.997	5.174	0.324	0.011	0.018	0.003	0.002	0.005
09/16/2019	1,034.2	1,016.2	0.598	1,337.19	-141.86	2.164	0.487	91.634	5.371	0.305	0.011	0.017	0.003	0.002	0.004
09/17/2019	1,047.6	1,029.4	0.605	1,346.64	-73.11	2.277	0.318	90.436	6.255	0.636	0.024	0.039	0.006	0.004	0.005
09/18/2019	1,043.6	1,025.4	0.602	1,344.85	-135.11	2.217	0.327	90.932	5.944	0.516	0.019	0.030	0.005	0.003	0.006
09/19/2019	1,052.3	1,034.0	0.609	1,348.29	-66.53	2.637	0.138	89.652	6.632	0.845	0.031	0.050	0.007	0.005	0.004
09/20/2019	1,051.4	1,033.1	0.608	1,348.71	-71.28	2.411	0.235	89.942	6.572	0.766	0.024	0.040	0.004	0.003	0.004
09/21/2019	1,056.8	1,038.4	0.611	1,351.63	-58.05	2.557	0.148	89.481	6.651	1.036	0.039	0.066	0.009	0.007	0.006
09/22/2019	1,053.5	1,035.2	0.610	1,348.80	-56.36	2.614	0.164	89.740	6.327	1.030	0.039	0.062	0.009	0.007	0.009
09/23/2019	1,055.6	1,037.2	0.612	1,348.99	-52.69	2.638	0.203	89.447	6.448	1.122	0.044	0.071	0.010	0.008	0.009
09/24/2019	1,041.7	1,023.5	0.603	1,341.66	-74.75	2.320	0.375	90.995	5.584	0.645	0.024	0.041	0.005	0.004	0.006
09/25/2019	1,032.1	1,014.2	0.596	1,337.15	-144.68	2.011	0.522	92.094	5.114	0.229	0.008	0.013	0.002	0.002	0.004
09/26/2019	1,043.2	1,025.0	0.601	1,345.56	-135.41	2.142	0.324	91.251	5.635	0.571	0.024	0.039	0.005	0.004	0.006
09/27/2019	1,038.0	1,020.0	0.601	1,338.66	-137.67	2.578	0.256	90.913	5.718	0.487	0.014	0.024	0.003	0.003	0.004
09/28/2019	1,032.0	1,014.1	0.598	1,334.49	-142.43	2.199	0.543	91.811	5.017	0.381	0.014	0.024	0.003	0.003	0.004
09/29/2019	1,029.2	1,011.3	0.595	1,334.40	-146.33	2.090	0.529	92.271	4.847	0.235	0.007	0.012	0.002	0.002	0.004
09/30/2019	1,045.0	1,026.8	0.604	1,344.29	-133.22	2.310	0.343	90.578	6.114	0.581	0.022	0.038	0.005	0.004	0.005
10/01/2019	1,030.8	1,012.9	0.596	1,335.67	-145.64	2.025	0.553	92.115	5.084	0.201	0.006	0.010	0.001	0.001	0.003
10/02/2019	1,030.9	1,013.0	0.595	1,336.31	-145.53	1.959	0.565	92.279	4.935	0.230	0.008	0.015	0.003	0.002	0.005
10/03/2019	1,034.9	1,016.9	0.598	1,338.45	-141.38	2.067	0.503	91.825	5.188	0.370	0.014	0.022	0.004	0.003	0.005
10/04/2019	1,027.5	1,009.6	0.592	1,335.68	-149.24	1.841	0.568	92.921	4.466	0.181	0.006	0.010	0.002	0.002	0.004
10/05/2019	1,029.8	1,011.9	0.593	1,337.71	-147.45	1.939	0.465	92.663	4.694	0.216	0.007	0.011	0.001	0.001	0.003
10/06/2019	1,025.8	1,007.9	0.589	1,336.12	-151.30	1.781	0.528	93.367	4.138	0.157	0.007	0.012	0.003	0.002	0.004
10/07/2019	1,032.8	1,014.8	0.595	1,338.56	-143.49	2.034	0.450	92.282	4.838	0.348	0.013	0.022	0.004	0.003	0.006
10/08/2019	1,027.0	1,009.1	0.590	1,337.37	-150.56	1.770	0.503	93.306	4.228	0.166	0.006	0.011	0.003	0.002	0.004
10/09/2019	1,037.3	1,019.3	0.597	1,342.24	-140.78	1.986	0.424	91.864	5.317	0.367	0.012	0.019	0.003	0.003	0.004
10/10/2019	1,036.7	1,018.6	0.601	1,337.22	-138.20	2.490	0.350	91.114	5.499	0.482	0.019	0.031	0.005	0.004	0.005
10/11/2019	1,033.5	1,015.5	0.597	1,337.39	-142.32	2.287	0.372	91.740	5.227	0.336	0.011	0.018	0.003	0.002	0.004
10/12/2019	1,032.7	1,014.7	0.596	1,337.67	-143.33	2.250	0.355	91.944	5.098	0.319	0.010	0.016	0.003	0.002	0.003
10/13/2019	1,038.0	1,019.9	0.600	1,340.20	-138.10	2.288	0.360	91.429	5.336	0.521	0.019	0.031	0.005	0.004	0.006
10/14/2019	1,026.9	1,009.1	0.592	1,335.01	-149.13	2.004	0.479	92.859	4.426	0.204	0.008	0.013	0.002	0.001	0.004
10/15/2019	1,041.3	1,023.2	0.602	1,341.66	-135.52	2.426	0.295	90.860	5.800	0.546	0.022	0.037	0.005	0.004	0.005
10/16/2019	1,030.8	1,012.9	0.595	1,336.24	-145.16	2.073	0.491	92.256	4.862	0.283	0.010	0.017	0.003	0.002	0.004
10/17/2019	1,040.7	1,022.6	0.601	1,342.27	-136.92	2.370	0.276	90.993	5.846	0.462	0.016	0.025	0.004	0.003	0.004
10/18/2019	1,046.1	1,027.9	0.606	1,344.08	-131.77	2.692	0.138	90.090	6.348	0.662	0.022	0.036	0.005	0.003	0.003

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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%)
10/19/2019	1,040.6	1,022.5	0.603	1,340.25	-135.19	2.669	0.189	90.692	5.789	0.581	0.024	0.040	0.006	0.005	0.005
10/20/2019	1,040.9	1,022.7	0.602	1,341.88	-73.18	2.349	0.317	91.172	5.445	0.627	0.028	0.044	0.007	0.005	0.007
10/21/2019	1,034.2	1,016.2	0.598	1,337.45	-140.95	2.173	0.465	91.889	4.949	0.452	0.021	0.038	0.005	0.004	0.005
10/22/2019	1,038.3	1,020.2	0.600	1,340.82	-138.22	2.171	0.411	91.528	5.333	0.481	0.020	0.037	0.006	0.006	0.006
10/23/2019	1,039.1	1,021.0	0.600	1,341.87	-53.61	2.179	0.371	91.707	5.107	0.481	0.032	0.073	0.016	0.018	0.017
10/24/2019	1,034.6	1,016.6	0.598	1,337.79	-56.74	2.191	0.445	92.059	4.698	0.453	0.032	0.073	0.016	0.018	0.016
10/25/2019	1,038.2	1,020.2	0.597	1,343.80	-50.73	1.854	0.451	92.477	4.524	0.508	0.039	0.089	0.018	0.021	0.018
10/26/2019	1,038.3	1,020.3	0.600	1,340.55	-137.82	2.218	0.396	91.492	5.300	0.513	0.022	0.039	0.006	0.005	0.007
10/27/2019	1,040.9	1,022.8	0.605	1,338.37	-67.15	2.751	0.249	90.481	5.716	0.711	0.028	0.043	0.007	0.005	0.009
10/28/2019	1,037.6	1,019.5	0.601	1,338.70	-138.12	2.445	0.327	91.134	5.550	0.496	0.015	0.023	0.004	0.003	0.005
10/29/2019	1,054.4	1,036.1	0.611	1,348.83	-59.96	2.576	0.217	89.462	6.677	0.969	0.031	0.050	0.007	0.005	0.007
10/30/2019	1,047.4	1,029.2	0.605	1,346.26	-57.97	2.280	0.329	90.634	5.918	0.705	0.034	0.065	0.012	0.012	0.011
10/31/2019	1,045.1	1,026.9	0.605	1,343.43	-63.29	2.290	0.406	90.653	5.857	0.684	0.031	0.053	0.008	0.008	0.009
11/01/2019	1,036.7	1,018.7	0.601	1,337.60	-138.91	2.263	0.479	91.250	5.540	0.411	0.016	0.027	0.004	0.004	0.006
11/02/2019	1,033.5	1,015.5	0.597	1,338.15	-142.92	2.078	0.468	91.986	5.121	0.305	0.011	0.020	0.003	0.003	0.004
11/03/2019	1,039.1	1,021.0	0.599	1,342.30	-138.59	2.096	0.405	91.521	5.480	0.441	0.016	0.026	0.004	0.003	0.005
11/04/2019	1,041.0	1,022.9	0.601	1,342.30	-136.83	2.212	0.389	91.062	5.816	0.470	0.015	0.025	0.004	0.003	0.004
11/05/2019	1,031.5	1,013.6	0.595	1,337.29	-145.39	2.016	0.492	92.224	5.010	0.232	0.007	0.012	0.002	0.001	0.003
11/06/2019	1,033.9	1,015.9	0.596	1,339.33	-143.26	1.964	0.491	92.110	5.124	0.271	0.010	0.019	0.004	0.003	0.005
11/07/2019	1,036.7	1,018.6	0.597	1,342.16	-141.61	1.841	0.503	92.054	5.260	0.290	0.013	0.024	0.005	0.005	0.006
11/08/2019	1,038.4	1,020.4	0.598	1,342.96	-139.97	1.879	0.490	91.836	5.390	0.350	0.015	0.027	0.005	0.004	0.006
11/09/2019	1,045.5	1,027.3	0.602	1,347.01	-134.54	2.064	0.369	90.938	6.052	0.513	0.020	0.032	0.004	0.004	0.004
11/10/2019	1,058.2	1,039.8	0.612	1,352.17	-60.21	2.506	0.199	89.206	6.998	0.977	0.038	0.060	0.007	0.005	0.005
11/11/2019	1,034.4	1,016.4	0.596	1,340.42	-143.59	1.850	0.520	92.210	5.133	0.253	0.009	0.016	0.003	0.003	0.004
11/12/2019	1,039.9	1,021.8	0.599	1,343.31	-138.50	1.943	0.474	91.604	5.510	0.410	0.016	0.029	0.005	0.004	0.006
11/13/2019	1,039.3	1,021.2	0.599	1,343.28	-139.23	1.931	0.466	91.673	5.493	0.383	0.015	0.026	0.004	0.003	0.005
11/14/2019	1,037.4	1,019.3	0.597	1,343.13	-141.87	1.816	0.489	91.971	5.437	0.253	0.009	0.016	0.003	0.002	0.004
11/15/2019	1,039.3	1,021.2	0.597	1,344.70	-140.52	1.791	0.478	91.860	5.543	0.290	0.010	0.019	0.003	0.003	0.004
11/16/2019	1,042.6	1,024.5	0.602	1,344.27	-136.41	2.035	0.448	91.104	5.919	0.435	0.017	0.031	0.004	0.003	0.003
11/17/2019	1,051.1	1,032.8	0.607	1,349.32	-71.95	2.090	0.402	90.268	6.490	0.663	0.027	0.046	0.006	0.005	0.004
11/18/2019	1,037.4	1,019.4	0.598	1,341.85	-140.93	1.947	0.475	91.745	5.497	0.299	0.010	0.017	0.003	0.003	0.004
11/19/2019	1,049.5	1,031.3	0.607	1,347.23	-70.49	2.464	0.223	90.004	6.570	0.656	0.024	0.042	0.006	0.005	0.005
11/20/2019	1,053.4	1,035.1	0.610	1,349.08	-67.45	2.473	0.240	89.543	6.897	0.758	0.027	0.046	0.006	0.005	0.005
11/21/2019	1,048.9	1,030.7	0.607	1,346.09	-66.32	2.266	0.397	90.199	6.375	0.655	0.029	0.055	0.009	0.008	0.007
11/22/2019	1,036.8	1,018.8	0.595	1,343.60	-142.83	1.769	0.476	92.143	5.357	0.229	0.007	0.012	0.002	0.001	0.003
11/23/2019	1,038.1	1,020.0	0.597	1,343.61	-141.30	1.833	0.474	91.889	5.508	0.263	0.009	0.015	0.003	0.002	0.004
11/24/2019	1,039.0	1,020.9	0.598	1,343.60	-140.25	1.933	0.438	91.652	5.643	0.300	0.009	0.016	0.002	0.002	0.003
11/25/2019	1,043.7	1,025.6	0.606	1,341.19	-133.27	2.699	0.220	90.034	6.464	0.522	0.019	0.032	0.004	0.004	0.003
11/26/2019	1,040.6	1,022.5	0.601	1,342.46	-137.33	2.185	0.386	91.151	5.785	0.442	0.015	0.025	0.004	0.003	0.004
11/27/2019	1,035.6	1,017.6	0.596	1,341.99	-143.46	1.814	0.498	92.095	5.380	0.190	0.006	0.010	0.002	0.001	0.004
11/28/2019	1,037.0	1,019.0	0.597	1,342.15	-141.64	1.887	0.485	91.883	5.435	0.277	0.009	0.015	0.003	0.002	0.004
11/29/2019	1,039.2	1,021.1	0.599	1,342.33	-138.80	2.089	0.412	91.448	5.617	0.381	0.015	0.025	0.004	0.003	0.005
11/30/2019	1,041.7	1,023.5	0.601	1,343.15	-136.40	2.264	0.330	91.010	5.863	0.478	0.017	0.028	0.004	0.003	0.004

TSP Name: Southern Star Central Gas Pipeline, Inc.

CSI048

TSP: 007906233

12/6/2019 12:15:34 AM

Gas Quality Reports

LS195 - Fairfax at Tonganoxie

Page 3 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%)
12/01/2019	1,035.0	1,017.0	0.597	1,339.61	-142.31	1.976	0.500	91.948	5.237	0.299	0.011	0.019	0.003	0.003	0.004
12/02/2019	1,037.3	1,019.3	0.597	1,342.11	-141.02	1.924	0.472	91.847	5.399	0.316	0.012	0.021	0.003	0.002	0.004
12/03/2019	1,040.7	1,022.6	0.600	1,344.06	-138.36	1.984	0.434	91.404	5.769	0.362	0.013	0.024	0.004	0.003	0.004
12/04/2019	1,036.9	1,018.9	0.597	1,341.46	-141.37	1.962	0.470	91.778	5.463	0.293	0.009	0.017	0.002	0.002	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 = 48031