

Gas Quality Reports

LS250 - St Joe 20" at Tonganoxie

11/25/2019 - 2/25/2020

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%)
11/25/2019	1,043.0	1,024.8	0.604	1,341.64	-134.46	2.564	0.260	90.306	6.332	0.482	0.017	0.030	0.004	0.003	0.003
11/26/2019	1,043.4	1,025.2	0.604	1,343.06	-134.56	2.372	0.319	90.614	6.109	0.524	0.018	0.031	0.004	0.003	0.004
11/27/2019	1,039.2	1,021.1	0.600	1,342.08	-138.91	2.104	0.415	91.380	5.688	0.368	0.012	0.022	0.003	0.003	0.004
11/28/2019	1,039.5	1,021.4	0.599	1,343.04	-139.21	2.028	0.421	91.459	5.716	0.333	0.011	0.020	0.003	0.003	0.004
11/29/2019	1,040.2	1,022.1	0.600	1,343.34	-138.38	2.043	0.417	91.412	5.690	0.388	0.014	0.024	0.004	0.003	0.004
11/30/2019	1,040.8	1,022.7	0.601	1,342.91	-137.27	2.201	0.358	91.152	5.804	0.433	0.015	0.026	0.004	0.003	0.005
12/01/2019	1,039.4	1,021.3	0.600	1,341.66	-138.04	2.211	0.375	91.273	5.653	0.434	0.016	0.026	0.004	0.003	0.005
12/02/2019	1,041.4	1,023.2	0.601	1,343.17	-136.72	2.134	0.404	91.175	5.769	0.457	0.017	0.030	0.005	0.004	0.006
12/03/2019	1,043.1	1,025.0	0.602	1,344.28	-135.39	2.128	0.402	91.009	5.905	0.488	0.019	0.033	0.005	0.004	0.007
12/04/2019	1,041.1	1,023.0	0.600	1,343.51	-137.49	2.067	0.421	91.258	5.797	0.404	0.015	0.027	0.004	0.003	0.005
12/05/2019	1,042.7	1,024.5	0.601	1,344.55	-135.93	2.044	0.428	91.228	5.717	0.512	0.021	0.036	0.005	0.004	0.005
12/06/2019	1,043.9	1,025.7	0.602	1,345.86	-135.08	2.024	0.408	91.220	5.722	0.544	0.024	0.042	0.006	0.004	0.006
12/07/2019	1,042.1	1,023.9	0.600	1,344.73	-136.37	2.008	0.422	91.442	5.519	0.528	0.023	0.043	0.005	0.004	0.005
12/08/2019	1,040.8	1,022.7	0.604	1,339.43	-135.17	2.676	0.239	90.424	6.091	0.500	0.021	0.039	0.004	0.003	0.004
12/09/2019	1,053.0	1,034.7	0.610	1,348.10	-66.12	2.433	0.307	89.565	6.845	0.740	0.033	0.059	0.007	0.006	0.005
12/10/2019	1,046.0	1,027.8	0.606	1,344.24	-62.38	2.310	0.377	90.536	6.006	0.659	0.031	0.053	0.009	0.009	0.010
12/11/2019	1,040.3	1,022.2	0.601	1,341.75	-69.14	2.149	0.440	91.378	5.376	0.558	0.027	0.047	0.008	0.008	0.010
12/12/2019	1,040.6	1,022.5	0.600	1,343.53	-137.13	2.049	0.416	91.530	5.421	0.507	0.022	0.037	0.006	0.005	0.007
12/13/2019	1,031.9	1,013.9	0.594	1,339.24	-145.12	1.964	0.431	92.552	4.706	0.302	0.012	0.021	0.004	0.003	0.005
12/14/2019	1,032.7	1,014.7	0.595	1,339.23	-144.27	1.988	0.440	92.392	4.814	0.318	0.013	0.022	0.004	0.003	0.005
12/15/2019	1,034.3	1,016.3	0.597	1,339.09	-142.06	2.044	0.462	92.075	4.991	0.370	0.016	0.028	0.004	0.004	0.006
12/16/2019	1,041.5	1,023.4	0.602	1,341.76	-62.38	2.216	0.431	91.177	5.457	0.607	0.030	0.052	0.009	0.009	0.012
12/17/2019	1,043.0	1,024.8	0.604	1,342.39	-58.13	2.236	0.430	91.027	5.518	0.662	0.034	0.059	0.010	0.010	0.013
12/18/2019	1,041.3	1,023.2	0.602	1,342.11	-61.62	2.169	0.437	91.296	5.382	0.601	0.031	0.053	0.009	0.009	0.012
12/19/2019	1,039.9	1,021.8	0.599	1,343.57	-138.04	1.998	0.424	91.661	5.397	0.446	0.020	0.034	0.006	0.005	0.008
12/20/2019	1,041.8	1,023.7	0.599	1,345.93	-137.44	1.915	0.410	91.619	5.543	0.446	0.019	0.032	0.006	0.005	0.007
12/21/2019	1,033.6	1,015.6	0.594	1,341.39	-144.59	1.876	0.426	92.499	4.897	0.261	0.011	0.019	0.004	0.003	0.006
12/22/2019	1,034.7	1,016.7	0.595	1,340.93	-142.70	2.006	0.400	92.171	5.067	0.308	0.013	0.022	0.004	0.003	0.006
12/23/2019	1,036.9	1,018.9	0.597	1,341.72	-140.79	2.038	0.406	91.848	5.303	0.356	0.014	0.023	0.004	0.003	0.005
12/24/2019	1,055.2	1,036.8	0.609	1,351.96	-66.57	2.116	0.369	89.846	6.840	0.732	0.030	0.049	0.007	0.006	0.005
12/25/2019	1,060.1	1,041.7	0.614	1,353.38	-61.31	2.263	0.352	89.018	7.429	0.826	0.034	0.058	0.008	0.007	0.004
12/26/2019	1,048.4	1,030.1	0.606	1,346.38	-131.18	2.218	0.395	90.271	6.427	0.610	0.024	0.040	0.006	0.005	0.004
12/27/2019	1,035.2	1,017.1	0.596	1,340.34	-141.94	2.020	0.437	92.044	5.097	0.351	0.014	0.024	0.004	0.004	0.005
12/28/2019	1,051.2	1,032.9	0.606	1,350.54	-68.98	2.085	0.340	90.421	6.408	0.654	0.028	0.045	0.007	0.006	0.006
12/29/2019	1,053.6	1,035.2	0.608	1,350.96	-67.24	2.166	0.340	89.976	6.721	0.699	0.030	0.049	0.007	0.006	0.006
12/30/2019	1,046.2	1,028.0	0.603	1,347.11	-133.44	2.063	0.385	90.886	6.034	0.551	0.023	0.039	0.006	0.005	0.006
12/31/2019	1,040.1	1,022.0	0.599	1,343.66	-138.12	2.015	0.414	91.593	5.468	0.445	0.019	0.032	0.005	0.004	0.006
01/01/2020	1,033.9	1,015.9	0.595	1,340.79	-143.23	1.921	0.438	92.427	4.831	0.323	0.015	0.028	0.005	0.005	0.007
01/02/2020	1,026.9	1,009.0	0.590	1,336.59	-149.36	1.913	0.451	93.204	4.164	0.225	0.011	0.019	0.004	0.004	0.007
01/03/2020	1,027.5	1,009.6	0.591	1,336.88	-148.75	1.955	0.425	93.113	4.211	0.252	0.011	0.020	0.004	0.003	0.006
01/04/2020	1,033.7	1,015.7	0.595	1,339.99	-142.92	2.055	0.387	92.287	4.856	0.358	0.015	0.027	0.005	0.004	0.006
01/05/2020	1,025.7	1,007.8	0.590	1,335.66	-150.13	1.967	0.427	93.297	4.030	0.235	0.011	0.019	0.004	0.003	0.006
01/06/2020	1,033.4	1,015.4	0.595	1,339.82	-143.09	2.026	0.404	92.384	4.749	0.378	0.016	0.027	0.005	0.004	0.007

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11/25/2019 - 2/25/2020

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01/07/2020	1,028.6	1,010.7	0.592	1,337.10	-147.34	1.988	0.427	92.950	4.282	0.301	0.014	0.024	0.004	0.004	0.006
01/08/2020	1,027.8	1,009.9	0.591	1,337.10	-148.31	1.973	0.411	93.110	4.169	0.290	0.013	0.022	0.004	0.003	0.006
01/09/2020	1,040.4	1,022.3	0.601	1,342.38	-136.58	2.293	0.313	91.265	5.494	0.560	0.025	0.036	0.005	0.004	0.006
01/10/2020	1,033.0	1,015.0	0.595	1,338.71	-142.82	2.141	0.377	92.257	4.760	0.405	0.018	0.028	0.005	0.003	0.006
01/11/2020	1,048.1	1,029.9	0.606	1,346.19	-61.66	2.244	0.380	90.416	6.178	0.670	0.031	0.052	0.009	0.008	0.010
01/12/2020	1,044.3	1,026.1	0.604	1,343.60	-56.76	2.227	0.411	90.922	5.657	0.656	0.034	0.058	0.011	0.011	0.014
01/13/2020	1,035.9	1,017.9	0.597	1,340.31	-70.93	2.060	0.435	92.082	4.863	0.465	0.024	0.043	0.008	0.008	0.011
01/14/2020	1,025.1	1,007.2	0.589	1,335.87	-150.62	1.909	0.433	93.535	3.830	0.234	0.013	0.026	0.005	0.005	0.008
01/15/2020	1,025.3	1,007.5	0.590	1,335.36	-150.16	2.067	0.367	93.253	4.031	0.239	0.011	0.019	0.004	0.003	0.006
01/16/2020	1,038.7	1,020.6	0.600	1,340.50	-60.80	2.226	0.404	91.571	5.104	0.578	0.030	0.053	0.010	0.010	0.014
01/17/2020	1,047.2	1,029.0	0.607	1,344.33	-49.48	2.305	0.413	90.532	5.819	0.773	0.042	0.073	0.013	0.013	0.017
01/18/2020	1,045.3	1,027.1	0.606	1,343.08	-49.94	2.314	0.415	90.714	5.670	0.733	0.040	0.070	0.013	0.013	0.017
01/19/2020	1,048.8	1,030.6	0.608	1,344.77	-46.76	2.365	0.401	90.271	5.986	0.807	0.045	0.078	0.014	0.014	0.018
01/20/2020	1,048.2	1,029.9	0.608	1,344.11	-46.84	2.391	0.400	90.289	5.956	0.794	0.045	0.079	0.014	0.014	0.018
01/21/2020	1,042.6	1,024.5	0.604	1,341.72	-54.17	2.288	0.422	91.003	5.486	0.659	0.037	0.066	0.012	0.012	0.016
01/22/2020	1,033.6	1,015.6	0.596	1,338.63	-76.87	2.046	0.464	92.289	4.681	0.432	0.022	0.041	0.007	0.007	0.010
01/23/2020	1,030.1	1,012.2	0.593	1,337.22	-145.47	1.992	0.465	92.728	4.413	0.335	0.017	0.031	0.005	0.005	0.008
01/24/2020	1,027.9	1,010.0	0.592	1,336.32	-147.64	1.978	0.454	93.001	4.221	0.288	0.014	0.027	0.005	0.004	0.008
01/25/2020	1,031.2	1,013.3	0.594	1,337.60	-144.30	2.016	0.463	92.586	4.484	0.378	0.019	0.035	0.006	0.005	0.008
01/26/2020	1,029.9	1,012.0	0.593	1,336.99	-145.56	2.010	0.459	92.731	4.390	0.344	0.017	0.032	0.005	0.005	0.008
01/27/2020	1,027.5	1,009.6	0.592	1,335.94	-147.99	1.994	0.450	93.019	4.199	0.282	0.014	0.026	0.004	0.004	0.007
01/28/2020	1,027.4	1,009.5	0.592	1,335.66	-148.01	2.011	0.452	92.979	4.228	0.277	0.013	0.025	0.004	0.004	0.007
01/29/2020	1,031.3	1,013.4	0.595	1,336.99	-143.57	2.077	0.461	92.447	4.554	0.386	0.020	0.036	0.006	0.006	0.008
01/30/2020	1,035.2	1,017.2	0.600	1,336.97	-55.85	2.308	0.433	91.739	4.875	0.516	0.031	0.055	0.012	0.013	0.017
01/31/2020	1,026.4	1,008.5	0.592	1,334.49	-76.51	2.094	0.429	93.038	4.081	0.284	0.016	0.030	0.007	0.008	0.014
02/01/2020	1,023.3	1,005.5	0.588	1,334.66	-152.29	1.943	0.421	93.639	3.770	0.183	0.009	0.018	0.004	0.004	0.009
02/02/2020	1,029.0	1,011.1	0.592	1,337.06	-146.69	2.066	0.391	92.791	4.407	0.291	0.013	0.023	0.004	0.004	0.008
02/03/2020	1,044.8	1,026.6	0.603	1,345.12	-73.33	2.258	0.323	90.791	5.977	0.567	0.025	0.042	0.006	0.006	0.006
02/04/2020	1,032.4	1,014.4	0.596	1,337.46	-71.17	2.180	0.401	92.242	4.712	0.379	0.020	0.036	0.009	0.009	0.012
02/05/2020	1,037.1	1,019.0	0.602	1,337.06	-43.93	2.445	0.398	91.393	5.034	0.573	0.036	0.063	0.015	0.017	0.025
02/06/2020	1,037.1	1,019.0	0.602	1,337.06	-43.93	2.445	0.398	91.393	5.034	0.573	0.036	0.063	0.015	0.017	0.025
02/07/2020	1,037.1	1,019.0	0.602	1,337.06	-43.93	2.445	0.398	91.393	5.034	0.573	0.036	0.063	0.015	0.017	0.025
02/08/2020	1,037.1	1,019.0	0.602	1,337.06	-43.93	2.445	0.398	91.393	5.034	0.573	0.036	0.063	0.015	0.017	0.025
02/09/2020	1,037.1	1,019.0	0.602	1,337.06	-43.93	2.445	0.398	91.393	5.034	0.573	0.036	0.063	0.015	0.017	0.025
02/10/2020	1,037.1	1,019.0	0.602	1,337.06	-43.93	2.445	0.398	91.393	5.034	0.573	0.036	0.063	0.015	0.017	0.025
02/11/2020	1,025.4	1,007.5	0.590	1,334.85	-149.80	1.991	0.445	93.265	4.008	0.238	0.012	0.023	0.004	0.004	0.009
02/12/2020	1,026.8	1,008.9	0.591	1,335.23	-148.16	2.026	0.446	93.071	4.114	0.283	0.014	0.028	0.005	0.005	0.009
02/13/2020	1,042.9	1,024.7	0.607	1,338.85	-40.79	2.603	0.383	90.509	5.595	0.729	0.045	0.078	0.016	0.017	0.025
02/14/2020	1,042.2	1,024.1	0.606	1,339.29	-46.80	2.512	0.397	90.689	5.541	0.698	0.042	0.073	0.014	0.014	0.020
02/15/2020	1,032.1	1,014.1	0.597	1,336.05	-68.61	2.210	0.449	92.188	4.611	0.442	0.025	0.045	0.009	0.009	0.013
02/16/2020	1,028.5	1,010.6	0.593	1,335.76	-146.27	2.063	0.446	92.825	4.270	0.327	0.017	0.032	0.006	0.006	0.010
02/17/2020	1,025.8	1,007.9	0.590	1,335.44	-149.72	2.011	0.413	93.222	4.075	0.233	0.010	0.020	0.004	0.004	0.008
02/18/2020	1,029.8	1,011.8	0.593	1,337.25	-145.97	2.102	0.381	92.657	4.497	0.312	0.013	0.024	0.004	0.004	0.007

TSP Name: Southern Star Central Gas Pipeline, Inc.

CSI048

TSP: 007906233

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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%)
02/19/2020	1,031.1	1,013.1	0.597	1,334.77	-61.02	2.318	0.417	92.154	4.578	0.426	0.025	0.045	0.010	0.011	0.016
02/20/2020	1,033.6	1,015.6	0.600	1,334.49	-51.98	2.460	0.420	91.644	4.831	0.512	0.032	0.057	0.012	0.013	0.020
02/21/2020	1,034.7	1,016.6	0.601	1,335.15	-51.38	2.445	0.427	91.563	4.879	0.547	0.033	0.060	0.012	0.013	0.020
02/22/2020	1,028.3	1,010.4	0.594	1,334.22	-145.31	2.217	0.425	92.565	4.374	0.341	0.018	0.034	0.006	0.006	0.012
02/23/2020	1,042.1	1,024.0	0.601	1,343.81	-71.73	2.343	0.254	91.066	5.721	0.535	0.023	0.038	0.006	0.005	0.009

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 = 48033