TSP Name: Southern Star Central Gas Pipeline, Inc.

TSP: 007906233

CSI048

12/6/2019 12:15:31 AM

Gas Quality Reports

LS130 - Kansas Hugoton at Montezuma

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	1,041.3	1,023.2	0.605	1,338.33	-135.03	3.085	0.050	89.639	6.785	0.436	0.003	0.004	0	0	0
09/07/2019	1,041.3	1,023.2	0.606	1,338.18	-134.93	3.096	0.050	89.621	6.781	0.446	0.003	0.004	0	0	0
09/08/2019	1,041.1	1,023.0	0.605	1,337.98	-135.12	3.101	0.051	89.629	6.782	0.432	0.003	0.004	0	0	0
09/09/2019	1,040.3	1,022.2	0.605	1,337.42	-135.59	3.110	0.051	89.702	6.707	0.425	0.003	0.004	0	0	0
09/10/2019	1,037.9	1,019.8	0.604	1,335.97	-137.29	3.114	0.050	89.966	6.483	0.381	0.002	0.004	0	0	0
09/11/2019	1,038.5	1,020.4	0.604	1,336.25	-136.78	3.122	0.050	89.878	6.548	0.396	0.003	0.004	0	0	0
09/12/2019	1,035.9	1,017.9	0.602	1,334.96	-138.84	3.102	0.051	90.191	6.326	0.325	0.002	0.003	0	0	0
09/13/2019	1,038.8	1,020.7	0.604	1,336.62	-136.76	3.103	0.050	89.876	6.585	0.381	0.002	0.004	0	0	0
09/14/2019	1,040.6	1,022.5	0.605	1,337.60	-135.32	3.112	0.050	89.666	6.728	0.437	0.003	0.004	0	0	0
09/15/2019	1,040.6	1,022.5	0.605	1,337.52	-135.30	3.118	0.050	89.647	6.744	0.434	0.003	0.004	0	0	0
09/16/2019	1,040.8	1,022.7	0.605	1,337.72	-135.25	3.110	0.050	89.650	6.749	0.434	0.003	0.004	0	0	0
09/17/2019	1,041.0	1,022.9	0.605	1,338.00	-135.14	3.097	0.051	89.650	6.758	0.438	0.003	0.004	0	0	0
09/18/2019	1,039.3	1,021.3	0.605	1,336.74	-136.24	3.121	0.050	89.777	6.647	0.398	0.003	0.004	0	0	0
09/19/2019	1,036.8	1,018.8	0.603	1,335.37	-138.10	3.112	0.050	90.078	6.403	0.350	0.002	0.004	0	0	0
09/20/2019	1,036.9	1,018.8	0.603	1,335.60	-138.17	3.095	0.050	90.106	6.396	0.347	0.002	0.003	0	0	0
09/21/2019	1,038.9	1,020.8	0.604	1,336.89	-136.76	3.086	0.049	89.917	6.549	0.393	0.002	0.004	0	0	0
09/22/2019	1,039.8	1,021.7	0.604	1,337.51	-136.20	3.078	0.050	89.811	6.665	0.391	0.002	0.004	0	0	0
09/23/2019	1,040.1	1,022.0	0.605	1,337.38	-135.78	3.105	0.050	89.723	6.706	0.410	0.002	0.004	0	0	0
09/24/2019	1,040.1	1,022.0	0.605	1,337.29	-135.75	3.113	0.049	89.714	6.703	0.415	0.003	0.004	0	0	0
09/25/2019	1,039.1	1,021.0	0.604	1,336.61	-136.40	3.121	0.050	89.810	6.615	0.398	0.003	0.004	0	0	0
09/26/2019	1,037.0	1,018.9	0.603	1,335.51	-138.02	3.108	0.050	90.071	6.412	0.353	0.002	0.003	0	0	0
09/27/2019	1,035.4	1,017.4	0.602	1,334.77	-139.27	3.093	0.050	90.282	6.249	0.320	0.002	0.003	0	0	0
09/28/2019	1,037.1	1,019.0	0.603	1,335.79	-138.06	3.088	0.051	90.095	6.410	0.349	0.002	0.003	0	0	0
09/29/2019	1,039.9	1,021.8	0.605	1,337.02	-135.74	3.125	0.050	89.720	6.669	0.429	0.003	0.004	0	0	0
09/30/2019	1,039.9	1,021.8	0.605	1,336.86	-135.63	3.141	0.049	89.691	6.676	0.436	0.003	0.004	0	0	0
10/01/2019	1,037.4	1,019.3	0.604	1,334.98	-137.39	3.174	0.049	89.877	6.534	0.360	0.003	0.004	0	0	0
10/02/2019	1,033.7	1,015.7	0.603	1,330.72	-139.08	3.355	0.048	89.885	6.396	0.310	0.002	0.003	0	0	0
10/03/2019	1,030.0	1,012.1	0.602	1,327.40	-141.15	3.457	0.047	90.101	6.114	0.277	0.002	0.003	0	0	0
10/04/2019	1,025.2	1,007.3	0.599	1,324.07	-144.79	3.500	0.047	90.548	5.700	0.200	0.002	0.003	0	0	0
10/05/2019	1,025.3	1,007.5	0.600	1,324.20	-144.70	3.495	0.047	90.553	5.691	0.209	0.002	0.003	0	0	0
10/06/2019	1,025.3	1,007.5	0.600	1,324.20	-144.70	3.495	0.047	90.553	5.691	0.209	0.002	0.003	0	0	0
10/07/2019	1,031.6	1,013.7	0.604	1,327.23	-139.35	3.554	0.047	89.694	6.385	0.314	0.002	0.003	0	0	0
10/08/2019	1,031.6	1,013.7	0.604	1,327.23	-139.35	3.554	0.047	89.694	6.385	0.314	0.002	0.003	0	0	0
10/09/2019	1,032.9	1,015.0	0.606	1,327.05	-137.83	3.638	0.045	89.400	6.532	0.378	0.003	0.004	0	0	0
10/10/2019	1,030.4	1,012.5	0.605	1,324.65	-139.30	3.716	0.045	89.493	6.418	0.321	0.002	0.003	0	0	0.001
10/11/2019	1,030.2	1,012.3	0.605	1,324.50	-139.38	3.721	0.045	89.500	6.408	0.319	0.002	0.003	0	0	0.001
10/12/2019	1,029.4	1,011.5	0.604	1,324.50	-140.22	3.678	0.046	89.691	6.277	0.303	0.002	0.003	0	0	0.001
10/13/2019	1,033.7	1,015.7	0.604	1,330.34	-138.74	3.389	0.049	89.820	6.406	0.330	0.002	0.003	0	0	0.001
10/14/2019	1,038.1	1,020.0	0.605	1,334.93	-136.60	3.214	0.050	89.713	6.633	0.385	0.002	0.003	0	0	0.001
10/15/2019	1,037.4	1,019.4	0.604	1,334.87	-137.24	3.189	0.048	89.830	6.569	0.357	0.002	0.003	0	0	0.001
10/16/2019	1,032.0	1,014.0	0.602	1,329.96	-140.39	3.332	0.050	90.135	6.194	0.283	0.002	0.003	0	0	0.001
10/17/2019	1,032.7	1,014.8	0.602	1,330.62	-139.89	3.315	0.050	90.094	6.232	0.303	0.002	0.003	0	0	0.001
10/18/2019	1,035.4	1,017.4	0.604	1,332.71	-138.11	3.271	0.050	89.897	6.415	0.360	0.002	0.003	0	0	0.001

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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	1,036.7	1,018.7	0.605	1,333.25	-137.14	3.290	0.050	89.691	6.597	0.366	0.002	0.003	0	0	0.001
10/20/2019	1,037.0	1,018.9	0.605	1,333.30	-136.93	3.298	0.050	89.647	6.630	0.370	0.002	0.003	0	0	0.001
10/21/2019	1,036.6	1,018.6	0.605	1,332.78	-137.03	3.324	0.050	89.627	6.625	0.367	0.002	0.003	0	0	0.001
10/22/2019	1,033.7	1,015.7	0.603	1,330.59	-138.98	3.363	0.050	89.872	6.395	0.314	0.002	0.003	0	0	0.001
10/23/2019	1,029.8	1,011.9	0.602	1,327.70	-141.52	3.415	0.052	90.190	6.084	0.254	0.002	0.003	0	0	0.001
10/24/2019	1,028.7	1,010.8	0.601	1,326.93	-142.38	3.425	0.051	90.289	6.006	0.224	0.002	0.003	0	0	0.001
10/25/2019	1,028.6	1,010.7	0.601	1,326.46	-142.21	3.463	0.050	90.209	6.048	0.225	0.002	0.003	0	0	0.001
10/26/2019	1,033.5	1,015.5	0.604	1,330.17	-138.93	3.391	0.050	89.827	6.412	0.313	0.002	0.003	0	0	0.001
10/27/2019	1,034.8	1,016.8	0.605	1,330.55	-137.80	3.425	0.050	89.601	6.580	0.338	0.002	0.003	0	0	0.001
10/28/2019	1,032.6	1,014.6	0.604	1,328.42	-139.03	3.496	0.050	89.685	6.463	0.299	0.002	0.003	0	0	0.001
10/29/2019	1,029.4	1,011.5	0.602	1,326.68	-141.52	3.485	0.050	90.064	6.165	0.231	0.002	0.003	0	0	0.001
10/30/2019	1,028.5	1,010.6	0.602	1,325.61	-141.94	3.531	0.049	90.070	6.121	0.224	0.002	0.003	0	0	0.001
10/31/2019	1,026.3	1,008.4	0.601	1,324.27	-143.58	3.534	0.051	90.303	5.922	0.185	0.002	0.003	0	0	0.001
11/01/2019	1,028.5	1,010.6	0.601	1,326.37	-142.23	3.461	0.053	90.226	6.022	0.232	0.002	0.003	0	0	0.001
11/02/2019	1,028.6	1,010.7	0.601	1,326.32	-142.14	3.475	0.050	90.189	6.052	0.229	0.002	0.003	0	0	0.001
11/03/2019	1,029.0	1,011.1	0.602	1,326.73	-141.88	3.461	0.050	90.174	6.071	0.238	0.002	0.003	0	0	0.001
11/04/2019	1,028.4	1,010.5	0.601	1,326.14	-142.19	3.482	0.050	90.194	6.036	0.232	0.002	0.003	0	0	0.001
11/05/2019	1,028.7	1,010.8	0.601	1,326.58	-142.11	3.460	0.049	90.212	6.038	0.234	0.002	0.003	0	0	0.001
11/06/2019	1,028.7	1,010.8	0.601	1,326.73	-142.16	3.446	0.051	90.239	6.024	0.233	0.002	0.004	0	0	0.001
11/07/2019	1,028.2	1,010.3	0.601	1,325.96	-142.44	3.483	0.051	90.212	6.031	0.219	0.002	0.003	0	0	0.001
11/08/2019	1,029.1	1,011.2	0.602	1,326.64	-141.73	3.473	0.051	90.135	6.092	0.244	0.002	0.003	0	0	0.001
11/09/2019	1,030.3	1,012.4	0.602	1,327.45	-140.87	3.463	0.051	90.031	6.179	0.271	0.002	0.003	0	0	0.001
11/10/2019	1,029.1	1,011.2	0.602	1,326.66	-141.71	3.471	0.051	90.142	6.082	0.249	0.002	0.003	0	0	0.001
11/11/2019	1,026.8	1,008.9	0.601	1,324.36	-143.10	3.553	0.050	90.199	6.001	0.193	0.002	0.002	0	0	0.001
11/12/2019	1,027.5	1,009.6	0.601	1,325.54	-143.01	3.479	0.055	90.271	5.999	0.191	0.002	0.003	0	0	0.001
11/13/2019	1,029.8	1,011.9	0.602	1,327.10	-141.24	3.455	0.060	90.073	6.152	0.254	0.002	0.003	0	0	0.001
11/14/2019	1,030.0	1,012.1	0.602	1,327.51	-141.27	3.429	0.059	90.114	6.137	0.255	0.002	0.003	0	0	0.001
11/15/2019	1,030.9	1,013.0	0.603	1,328.10	-140.57	3.426	0.059	90.028	6.202	0.280	0.002	0.003	0	0	0.001
11/16/2019	1,031.2	1,013.2	0.603	1,328.42	-140.47	3.410	0.060	90.030	6.215	0.280	0.002	0.003	0	0	0.001
11/17/2019	1,031.3	1,013.4	0.603	1,328.50	-140.33	3.413	0.059	90.003	6.236	0.283	0.002	0.003	0	0	0.001
11/18/2019	1,032.3	1,014.3	0.603	1,329.17	-139.69	3.400	0.060	89.935	6.293	0.307	0.002	0.003	0	0	0.001
11/19/2019	1,031.8	1,013.9	0.603	1,328.98	-140.05	3.400	0.056	89.997	6.244	0.298	0.002	0.003	0	0	0.001
11/20/2019	1,032.3	1,014.4	0.603	1,329.50	-139.81	3.380	0.056	89.977	6.281	0.300	0.002	0.003	0	0	0
11/21/2019	1,030.4	1,012.4	0.602	1,327.79	-141.02	3.426	0.058	90.085	6.161	0.264	0.002	0.003	0	0	0
11/22/2019	1,030.2	1,012.3	0.602	1,327.29	-140.99	3.460	0.058	90.018	6.205	0.254	0.002	0.003	0	0	0
11/23/2019	1,031.1	1,013.1	0.603	1,328.32	-140.55	3.417	0.058	90.020	6.230	0.270	0.002	0.003	0	0	0.001
11/24/2019	1,031.3	1,013.3	0.603	1,328.60	-140.46	3.404	0.057	90.035	6.220	0.279	0.002	0.003	0	0	0.001
11/25/2019	1,030.5	1,012.6	0.602	1,328.12	-140.98	3.407	0.057	90.112	6.150	0.268	0.002	0.003	0	0	0.001
11/26/2019	1,029.5	1,011.6	0.602	1,327.21	-141.66	3.436	0.055	90.158	6.105	0.241	0.002	0.003	0	0	0.001
11/27/2019	1,026.9	1,009.0	0.601	1,324.36	-143.03	3.554	0.052	90.189	6.006	0.195	0.002	0.003	0	0	0.001
11/28/2019	1,027.0	1,009.1	0.601	1,324.20	-142.88	3.571	0.052	90.139	6.037	0.197	0.002	0.003	0	0	0.001
11/29/2019	1,033.2	1,015.2	0.605	1,328.49	-138.50	3.517	0.052	89.573	6.539	0.315	0.002	0.003	0	0	0
11/30/2019	1,031.2	1,013.3	0.604	1,327.39	-139.99	3.508	0.055	89.807	6.348	0.278	0.002	0.003	0	0	0

Gas Quality Reports

LS130 - Kansas Hugoton at Montezuma
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	1,027.5	1,009.6	0.601	1,324.84	-142.63	3.539	0.055	90.142	6.056	0.204	0.002	0.003	0	0	0
12/02/2019	1,025.0	1,007.2	0.601	1,321.63	-142.63	3.539	0.055	90.142	6.056	0.204	0.002	0.003	0	0	0
12/03/2019	1,025.5	1,007.7	0.599	1,324.59	-144.88	3.478	0.045	90.508	5.817	0.149	0.001	0.002	0	0	0
12/04/2019	1,024.8	1,007.0	0.599	1,323.95	-145.36	3.496	0.045	90.555	5.762	0.139	0.001	0.002	0	0	0

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 = 63121