



UTILITIES CO.

A Division of MDU Resources Group, Inc.

400 North Fourth Street  
Bismarck, ND 58501  
(701) 222-7900

March 15, 2018

Executive Secretary  
North Dakota Public Service Commission  
State Capitol Building  
Bismarck, ND 58505-0480

Re: Case No. PU-18-002 (Therm Billing)  
Monthly Report – January 2018

Montana-Dakota Utilities Co., a Division of MDU Resources Group, Inc., herewith submits the following information, pursuant to the Ordering paragraphs one and two of the Order issued in Case No. 11,006, dated October 20, 1987 and pursuant to the North Dakota Administrative Code 69-09-01-02, part 2.

1. Attachment A is a schedule showing the thermal billing factors by community that reflect the BTU values shown on Attachment B and were used for billing purposes in February 2018.
2. Attachment B consists of copies of the monthly Heating Value Test Reports received from our suppliers for the month of January 2018.
3. Attachment C is a listing which states the type of measuring device in place at each zone.
4. Attachment D is a monthly list of the heating value data, by zone, for the most recent 12-month period and an average thereof. It is being provided pursuant to a Staff request.
5. Attachment E provides a brief explanation of the thermal variances, where applicable, for the month of January 2018.

Please acknowledge receipt by stamping or initialing the duplicate copy of this letter attached hereto and returning the same in the enclosed self-addressed, stamped envelope. Should the Commission or its Staff have any comments or questions with respect to these reports, please call me.

Sincerely,

A handwritten signature in purple ink that reads 'Tamie Aberle'.

Tamie Aberle  
Director of Regulatory Affairs

**Montana-Dakota Utilities Co.**  
**Therm Billing Factors - North Dakota**  
**Feb-18**

Town	Heat Zone	Therm Factor
MDU-303-ALEXANDER	025	1.1003
MDU-308-ARNEGARD	025	1.1003
MDU-314-APPLE VALLEY	271	1.1347
MDU-318-BEACH	032	1.0129
MDU-319-BELFIELD	032	1.0203
MDU-323-BERTHOLD	262	1.1296
MDU-327-BISMARCK	028	1.0749
MDU-330-BOWMAN	034	0.9340
MDU-337-BURLINGTON	262	1.1540
MDU-343-CARRINGTON	273	1.1357
MDU-344-CLEVELAND	272	1.1277
MDU-364-CAVALIER	273	1.1596
MDU-365-DAWSON	271	1.1267
MDU-368-DES LACS	262	1.1377
MDU-369-DICKINSON	031	1.0418
MDU-374-FT TOTTEN	273	1.1436
MDU-375-DEVILS LAKE	273	1.1436
MDU-379-BARLOW	273	1.1357
MDU-384-EPPING	264	1.0786
MDU-387-ELDRIDGE	272	1.1357
MDU-407-GLADSTONE	031	1.0418
MDU-411-GLEN ULLIN	031	1.0493
MDU-413-GOLVA	032	0.9980
MDU-416-GARRISON	262	1.1377
MDU-417-GRAFTON	273	1.1676
MDU-429-HEBRON	031	1.0493
MDU-432-HETTINGER	903	2.4049
MDU-449-JAMESTOWN	272	1.1436
MDU-459-KILLDEER	033	1.1088
MDU-463-LANGDON	273	1.1357
MDU-469-LEFOR	031	1.0418
MDU-474-LIGNITE	263	1.0654
MDU-475-LINTON	802	1.0353
MDU-478-LINCOLN	028	1.0749
MDU-488-MCKENZIE	271	1.1347
MDU-494-MEDINA	271	1.1267
MDU-498-MANDAN	028	1.0749
MDU-500-MARMARTH	034	0.9204
MDU-505-MINOT	262	1.1540
MDU-510-MOTT	031	1.0418
MDU-512-MAX	262	1.1296
MDU-522-NEW ENGLAND	031	1.0343
MDU-524-NEW SALEM	028	1.0522
MDU-532-NEW ROCKFORD	273	1.1357
MDU-539-PARK RIVER	273	1.1596
MDU-540-PALERMO	262	1.1296
MDU-558-RAY	264	1.0786
MDU-561-REGENT	031	1.0418
MDU-563-RHAME	034	0.9069

MDU-564-RICHARDTON	031	1.0343
MDU-568-ROSS	261	1.0943
MDU-572-RUTHVILLE	262	1.1540
MDU-574-SANBORN	272	1.1436
MDU-583-SENTINEL BUTTE	032	1.0129
MDU-588-SOUTH HEART	031	1.0343
MDU-717-SPIRITWOOD	272	1.1436
MDU-590-SPRINGBROOK	264	1.0786
MDU-591-STANLEY	261	1.1102
MDU-593-STEELE	271	1.1267
MDU-598-SHEYENNE	273	1.1436
MDU-605-SURREY	262	1.1540
MDU-610-TAPPEN	271	1.1267
MDU-611-TAYLOR	031	1.0343
MDU-616-TIOGA	260	0.9426
MDU-619-TURTLE LAKE	262	1.1377
MDU-620-TRENTON	024	1.0873
MDU-624-UNDERWOOD	262	1.1377
MDU-625-VALLEY CITY	272	1.1516
MDU-629-WALHALLA	273	1.1596
MDU-632-WATFORD CITY	610	1.1003
MDU-636-WHEELOCK	264	1.0709
MDU-637-WHITE EARTH	261	1.1022
MDU-642-WILLISTON	024	1.0873
MDU-646-WASHBURN	262	1.1459
MDU-647-WILTON	262	1.1296
MDU-664-RIVERDALE	262	1.1377
MDU-691-FAIRVIEW	241	1.1320
MDU-712-MINOT AFB	262	1.1540
MDU-718-FAIRMOUNT	600	1.1326
MDU-732-NEKOMA	273	1.1357
MDU-732-MSR SITE	273	1.1357

# Source Daily Summary

Number: 251

Pressure Base: 14.730

Contract Day: 1

Name: SDNY BDR-MNDK JNCTN-SDNY PLT

Temperature Base:

Contract Hour: 9

Day	Relative Density	Heating Value Wet	Heating Value Drv	Heating Value As Del	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.6617	1102.0	1121.5	1117.3	0.397	3.045	80.341	14.199	1.783	0.075	0.134	0.013	0.012	0.000	0.000	0.000	0.000	0.000	1374.89	
2	0.7068	1178.6	1199.4	1195.0	0.034	3.177	71.730	21.963	2.903	0.066	0.111	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1423.26	
3	0.7037	1172.0	1192.8	1188.5	0.066	3.238	72.036	21.844	2.674	0.053	0.084	0.003	0.002	0.000	0.000	0.000	0.000	0.000	1418.49	
4	0.7067	1178.4	1199.2	1194.9	0.034	3.177	71.392	22.578	2.697	0.045	0.073	0.003	0.002	0.000	0.000	0.000	0.000	0.000	1423.23	
5	0.6996	1169.7	1190.4	1186.0	0.038	3.039	72.227	22.430	2.219	0.022	0.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1419.86	
6	0.6993	1169.1	1189.8	1185.6	0.038	3.043	72.287	22.366	2.219	0.022	0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1419.53	
7	0.7268	1187.3	1208.3	1203.9	0.745	3.438	69.147	22.882	3.451	0.115	0.202	0.011	0.008	0.000	0.000	0.000	0.000	0.000	1414.20	
8	0.6941	1161.3	1181.9	1177.6	0.040	3.025	73.013	21.996	1.884	0.019	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1415.37	
9	0.6980	1167.8	1188.5	1184.2	0.038	2.999	72.425	22.411	2.085	0.020	0.022	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1419.27	
10	0.6926	1158.3	1178.8	1174.8	0.045	3.061	73.437	21.415	1.997	0.021	0.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1413.08	
11	0.6730	1117.3	1137.0	1133.0	0.186	3.506	77.276	17.267	1.687	0.030	0.045	0.002	0.001	0.000	0.000	0.000	0.000	0.000	1382.07	
12	0.7345	1184.1	1205.1	1200.8	1.160	3.718	68.379	22.640	3.663	0.149	0.267	0.013	0.010	0.000	0.000	0.000	0.000	0.000	1402.87	
13	0.7069	1171.5	1192.2	1187.9	0.351	3.141	71.585	22.222	2.543	0.058	0.094	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1414.80	
14	0.6953	1164.5	1185.1	1181.0	0.040	2.951	72.892	22.073	2.002	0.020	0.022	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1417.92	
15	0.6923	1159.5	1180.0	1175.9	0.040	2.967	73.316	21.824	1.813	0.018	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1414.97	
16	0.6958	1162.8	1183.3	1180.5	0.046	3.007	72.724	22.250	1.933	0.018	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1417.00	
17	0.6964	1165.9	1186.5	1182.2	0.043	2.962	72.685	22.252	2.015	0.020	0.022	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1418.53	
18	0.7001	1170.6	1191.3	1187.1	0.040	3.030	72.210	22.369	2.301	0.024	0.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1420.45	
19	0.6964	1165.3	1185.9	1181.7	0.040	2.999	72.640	22.306	1.976	0.018	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1417.86	
20	0.6942	1160.8	1181.3	1177.2	0.042	3.068	72.962	22.021	1.867	0.018	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1414.56	
21	0.6983	1163.9	1184.5	1180.3	0.152	3.094	72.480	22.159	2.038	0.030	0.044	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1414.25	
22	0.7209	1178.1	1199.0	1194.6	0.734	3.457	69.701	22.907	2.920	0.096	0.168	0.009	0.007	0.000	0.000	0.000	0.000	0.000	1409.10	
23	0.7099	1160.8	1181.4	1188.7	0.434	3.244	71.027	22.632	2.489	0.062	0.103	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1412.80	
24	0.6961	1163.0	1183.6	1179.4	0.043	3.112	72.677	22.154	1.974	0.019	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1415.29	
25	0.6956	1164.8	1185.4	1181.2	0.038	2.956	72.821	22.159	1.985	0.019	0.022	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1418.08	
26	0.6952	1163.3	1183.9	1179.7	0.040	3.012	72.808	22.184	1.918	0.018	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1416.63	
27	0.6956	1165.0	1185.6	1181.3	0.039	2.945	72.834	22.135	2.005	0.019	0.022	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1418.30	
28	0.6954	1162.7	1183.3	1178.9	0.038	3.073	72.841	22.007	1.999	0.020	0.022	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1415.66	
29	0.6949	1162.9	1183.5	1179.3	0.037	3.009	72.878	22.115	1.923	0.018	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1416.50	
30	0.6955	1164.4	1185.0	1180.8	0.040	2.972	72.785	22.222	1.942	0.018	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1417.65	
31	0.6964	1165.5	1186.1	1182.0	0.039	2.996	72.693	22.196	2.032	0.021	0.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1418.00	
Avg	0.6990	1164.0	1184.5	1180.7	0.164	3.112	72.589	21.812	2.224	0.038	0.057	0.002	0.002	0.000	0.000	0.000	0.000	0.000	1414.01	

Zone 211

# Source Daily Summary

Number: 571

Pressure Base: 14.730

Contract Day: 1

Name: WILLISTON BDR-CHARBN STN

Temperature Base:

Contract Hour: 9

Day	Relative Density	Heating Value Wet	Heating Value Drv	Heating Value As Del	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.6703	1111.7	1131.4	1128.4	0.859	2.557	79.430	14.752	2.186	0.063	0.132	0.010	0.011	0.000	0.000	0.000	0.000	0.000	1378.69	
2	0.6742	1118.2	1138.0	1135.0	0.788	2.630	78.352	16.024	2.009	0.058	0.122	0.009	0.010	0.000	0.000	0.000	0.000	0.000	1382.84	
3	0.6773	1121.7	1141.6	1138.5	0.774	2.731	77.763	16.481	2.033	0.062	0.133	0.010	0.012	0.000	0.000	0.000	0.000	0.000	1383.92	
4	0.6764	1118.8	1138.6	1135.6	0.790	2.805	77.955	16.169	2.072	0.061	0.128	0.009	0.011	0.000	0.000	0.000	0.000	0.000	1381.20	
5	0.6757	1118.3	1138.1	1135.2	0.808	2.740	78.125	16.036	2.083	0.061	0.127	0.009	0.010	0.000	0.000	0.000	0.000	0.000	1381.34	
6	0.6782	1122.1	1141.9	1138.9	0.812	2.734	77.753	16.328	2.139	0.068	0.143	0.011	0.012	0.000	0.000	0.000	0.000	0.000	1383.47	
7	0.6815	1126.3	1146.2	1143.2	0.829	2.765	77.307	16.535	2.309	0.071	0.155	0.013	0.015	0.000	0.000	0.000	0.000	0.000	1385.21	
8	0.6845	1129.4	1149.4	1146.1	0.823	2.872	76.796	16.925	2.261	0.082	0.195	0.019	0.026	0.000	0.000	0.000	0.000	0.000	1385.79	
9	0.6850	1130.3	1150.3	1147.0	0.811	2.881	76.601	17.181	2.220	0.078	0.185	0.018	0.024	0.000	0.000	0.000	0.000	0.000	1386.44	
10	0.6742	1112.1	1131.8	1128.7	0.867	2.883	78.983	14.579	2.405	0.078	0.174	0.014	0.018	0.000	0.000	0.000	0.000	0.000	1375.11	
11	0.6715	1108.4	1128.1	1125.1	0.841	2.893	79.145	14.691	2.217	0.063	0.131	0.009	0.010	0.000	0.000	0.000	0.000	0.000	1373.45	
12	0.6710	1106.8	1126.4	1123.5	0.846	2.944	79.343	14.346	2.291	0.067	0.142	0.010	0.011	0.000	0.000	0.000	0.000	0.000	1371.82	
13	0.6723	1109.9	1129.5	1126.6	0.811	2.933	78.860	15.035	2.158	0.060	0.124	0.008	0.010	0.000	0.000	0.000	0.000	0.000	1374.33	
14	0.6694	1105.4	1125.0	1122.1	0.826	2.909	79.482	14.418	2.157	0.062	0.127	0.009	0.010	0.000	0.000	0.000	0.000	0.000	1371.75	
15	0.6671	1102.0	1121.6	1118.6	0.828	2.892	79.977	13.917	2.177	0.063	0.127	0.009	0.010	0.000	0.000	0.000	0.000	0.000	1369.96	
16	0.6724	1111.8	1131.5	1128.6	0.859	2.744	79.048	14.876	2.260	0.063	0.131	0.009	0.010	0.000	0.000	0.000	0.000	0.000	1376.70	
17	0.6767	1120.7	1140.6	1137.6	0.818	2.675	77.936	16.275	2.099	0.058	0.121	0.009	0.010	0.000	0.000	0.000	0.000	0.000	1383.27	
18	0.6811	1126.0	1145.9	1143.0	0.835	2.736	77.175	16.846	2.202	0.061	0.126	0.009	0.010	0.000	0.000	0.000	0.000	0.000	1385.34	
19	0.6785	1120.3	1140.2	1137.2	0.854	2.810	77.839	15.980	2.290	0.067	0.139	0.010	0.011	0.000	0.000	0.000	0.000	0.000	1380.97	
20	0.6773	1119.3	1139.1	1136.2	0.856	2.756	78.113	15.737	2.308	0.068	0.142	0.009	0.010	0.000	0.000	0.000	0.000	0.000	1380.92	
21	0.6767	1119.0	1138.8	1135.9	0.861	2.715	78.263	15.610	2.320	0.068	0.141	0.010	0.012	0.000	0.000	0.000	0.000	0.000	1381.08	
22	0.6736	1114.6	1134.4	1131.5	0.853	2.699	78.797	15.180	2.251	0.065	0.135	0.009	0.011	0.000	0.000	0.000	0.000	0.000	1378.92	
23	0.6742	1114.6	1134.3	1131.4	0.862	2.739	78.754	15.133	2.276	0.069	0.145	0.010	0.012	0.000	0.000	0.000	0.000	0.000	1378.27	
24	0.6757	1117.3	1137.1	1134.1	0.857	2.726	78.397	15.540	2.251	0.067	0.140	0.010	0.011	0.000	0.000	0.000	0.000	0.000	1380.06	
25	0.6786	1121.7	1141.6	1138.7	0.852	2.731	77.750	16.241	2.200	0.067	0.139	0.010	0.011	0.000	0.000	0.000	0.000	0.000	1382.68	
26	0.6783	1121.3	1141.1	1138.2	0.842	2.755	77.771	16.221	2.185	0.067	0.139	0.010	0.012	0.000	0.000	0.000	0.000	0.000	1382.31	
27	0.6735	1114.5	1134.2	1131.2	0.834	2.725	78.765	15.253	2.198	0.067	0.138	0.010	0.011	0.000	0.000	0.000	0.000	0.000	1378.84	
28	0.6744	1115.3	1135.0	1132.1	0.832	2.764	78.540	15.468	2.172	0.066	0.137	0.010	0.011	0.000	0.000	0.000	0.000	0.000	1378.94	
29	0.6804	1124.7	1144.6	1141.7	0.810	2.787	77.286	16.736	2.151	0.067	0.141	0.010	0.012	0.000	0.000	0.000	0.000	0.000	1384.45	
30	0.6838	1130.6	1150.6	1147.7	0.815	2.744	76.544	17.556	2.121	0.065	0.135	0.009	0.010	0.000	0.000	0.000	0.000	0.000	1388.21	
31	0.6766	1118.7	1138.5	1135.5	0.830	2.772	78.080	15.930	2.158	0.067	0.141	0.010	0.011	0.000	0.000	0.000	0.000	0.000	1380.82	
Avg	0.6761	1118.0	1137.6	1134.6	0.832	2.776	78.224	15.742	2.199	0.066	0.140	0.010	0.012	0.000	0.000	0.000	0.000	0.000	1380.23	

Zone 24

# Gas Composition and Properties

Source #: 0602160  
Name: FAIRVIEW BORDER

Component	Mole %	Liquid Content	Mass %
Carbon Dioxide, CO2	0.9956		2.0737
Nitrogen, N2	3.6084		4.7840
Methane, C1	68.8075		52.2423
Ethane, C2	22.4469	0.0000	31.9441
Propane, C3	3.6790	1.0106	7.6779
iso-Butane, iC4	0.1542	0.0503	0.4242
n-Butane, nC4	0.2701	0.0850	0.7430
iso-Pentane, iC5	0.0152	0.0055	0.0519
n-Pentane, nC5	0.0125	0.0045	0.0427
Neo-Pentane, NeoC5			
Hexanes Plus, C6+	0.0000	0.0000	0.0000
Water, H2O			
Hydrogen Sulfide, H2S			
Oxygen, O2	0.0107		0.0162
Carbon Monoxide, CO			
Hydrogen, H2			
Helium, He			
Argon, Ar			

Property	Total Sample	C6 Plus Fraction
Pressure Base	14.730	
Temperature Base	60.00	
HCDP @ Sample Pressure	-11.781	
Cricodentherm	5.409	
HV, Dry @ Base P, T	1203.30	
HV, Sat @ Base P, T	1182.36	
HV, Sat @ Sample P, T	1203.30	
Relative Density	0.7300	
C6+: 100		

Totals 100.0001 1.1570 100.0000

### Sample

Date: 02/01/2018 Pressure: 418.0  
Type: Composite Temperature: 0.0  
Tech: RR H2O: lbs/mm  
H2S: ppm

Remarks:

### Analysis

Date: 02/02/2018 Instrument: WBI- 57  
Cylinder: 316

Tech: MB

Remarks:

Zone 241



# Source Daily Summary

Number: 164

Pressure Base: 14.730

Contract Day: 1

Name: N TIOGA TRANSFER-NESSON PLT

Temperature Base:

Contract Hour: 9

Day	Relative Density	Heating Value Wet	Heating Value Drv	Heating Value As Del	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT		
1	0.5859	975.6	992.9		0.001	4.220	93.130	2.527	0.096	0.007	0.017	0.001	0.002	0.000						1294.21		
2	0.5841	973.3	990.5		0.001	4.197	93.478	2.216	0.084	0.006	0.014	0.002	0.002	0.000							1293.05	
3	0.5832	970.8	988.0		0.006	4.256	93.664	1.960	0.090	0.006	0.014	0.002	0.002	0.000							1290.76	
4	0.5824	968.7	985.9		0.007	4.303	93.822	1.757	0.088	0.006	0.014	0.002	0.002	0.000							1288.93	
5	0.5819	968.0	985.1		0.004	4.316	93.888	1.694	0.077	0.005	0.013	0.001	0.002	0.000							1288.34	
6	0.5819	968.8	986.0		0.007	4.257	93.912	1.719	0.084	0.005	0.013	0.002	0.002	0.000							1289.51	
7	0.5818	968.5	985.7		0.008	4.262	93.948	1.672	0.087	0.006	0.014	0.002	0.002	0.000							1289.24	
8	0.5821	968.1	985.2		0.007	4.316	93.885	1.677	0.090	0.006	0.015	0.002	0.002	0.000							1288.36	
9	0.5819	966.7	983.8		0.007	4.381	93.915	1.583	0.089	0.006	0.015	0.002	0.002	0.000							1286.74	
10	0.6080	1012.0	1029.9		0.003	4.086	88.593	7.216	0.082	0.005	0.012	0.001	0.001	0.000							1317.79	
11	0.5827	967.0	984.1		0.004	4.445	93.715	1.735	0.081	0.005	0.012	0.001	0.001	0.000							1286.22	
12	0.6038	1002.9	1020.7		0.823	2.557	72.535	20.011	3.666	0.144	0.248	0.009	0.007	0.000							1313.56	
13	0.6074	1009.1	1027.0		0.007	4.199	88.707	6.976	0.092	0.005	0.012	0.001	0.002	0.000							1314.73	
14	0.6177	1029.0	1047.2		0.006	3.962	86.625	9.298	0.091	0.005	0.012	0.001	0.001	0.000							1329.34	
15	0.6100	1015.5	1033.5		0.007	4.055	88.199	7.628	0.092	0.005	0.012	0.001	0.001	0.000							1320.20	
16	0.6170	1028.0	1046.2		0.002	3.956	86.756	9.192	0.077	0.004	0.010	0.001	0.001	0.000							1328.91	
17	0.6308	1052.4	1071.0		0.006	3.768	83.973	12.149	0.086	0.005	0.011	0.001	0.001	0.000							1345.39	
18	0.6268	1044.5	1063.0		0.007	3.867	84.781	11.237	0.089	0.005	0.011	0.001	0.002	0.000							1339.64	
19	0.6223	1035.5	1053.9		0.008	3.996	85.671	10.216	0.090	0.005	0.011	0.001	0.002	0.000							1332.82	
20	0.6293	1049.0	1067.5		0.008	3.832	84.276	11.776	0.090	0.005	0.012	0.001	0.001	0.000							1342.64	
21	0.6303	1051.6	1070.3		0.008	3.763	84.078	12.044	0.090	0.005	0.011	0.001	0.001	0.000							1344.99	
22	0.6330	1056.0	1074.7		0.008	3.755	83.521	12.609	0.090	0.004	0.011	0.001	0.001	0.000							1347.65	
23	0.6312	1052.0	1070.6		0.007	3.834	83.866	12.187	0.089	0.004	0.010	0.001	0.001	0.000							1344.40	
24	0.6339	1056.7	1075.4		0.007	3.801	83.320	12.764	0.090	0.004	0.010	0.001	0.001	0.000							1347.55	
25	0.6361	1060.7	1079.5		0.008	3.760	82.894	13.220	0.099	0.005	0.011	0.001	0.001	0.000							1350.36	
26	0.6013	1001.8	1019.5		0.008	4.076	89.985	5.803	0.106	0.006	0.014	0.001	0.001	0.000							1311.68	
27	0.5833	970.7	987.9		0.007	4.268	93.629	1.990	0.086	0.005	0.012	0.001	0.001	0.000							1290.55	
28	0.5834	970.4	987.6		0.007	4.301	93.599	1.986	0.088	0.005	0.012	0.001	0.001	0.000							1289.94	
29	0.5828	969.1	986.3		0.007	4.316	93.730	1.843	0.086	0.005	0.011	0.001	0.001	0.000							1289.00	
30	0.5822	967.8	984.9		0.007	4.341	93.846	1.703	0.084	0.005	0.012	0.001	0.002	0.000							1287.89	
31	0.5824	968.7	985.9		0.006	4.304	93.812	1.775	0.083	0.005	0.012	0.001	0.001	0.000							1288.90	
Avg	0.6026	1003.0	1021.0		0.033	4.056	89.153	6.521	0.204	0.010	0.020	0.002	0.002	0.000							1312.04	

Zone 260

# Source Daily Summary

Number: 601

Pressure Base: 14.730

Contract Day: 1

Name: TIOGA STN-ROBINSON LAKE PLNT

Temperature Base:

Contract Hour: 9

Day	Relative Density	Heating Value Wet	Heating Value Drv	Heating Value As Del	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.7005	1146.3	1166.6	1163.2	0.813	3.359	73.519	19.529	2.525	0.077	0.155	0.010	0.011	0.000	0.000	0.000	0.000	0.000	1390.57	
2	0.7028	1149.0	1169.4	1165.8	0.838	3.372	73.287	19.554	2.668	0.081	0.171	0.013	0.015	0.000	0.000	0.000	0.000	0.000	1391.53	
3	0.7170	1172.9	1193.7	1189.0	0.814	3.278	72.239	19.456	3.535	0.167	0.405	0.044	0.062	0.000	0.000	0.000	0.000	0.000	1405.66	
4	0.6998	1144.0	1164.3	1160.3	0.832	3.399	73.857	19.083	2.519	0.088	0.187	0.015	0.020	0.000	0.000	0.000	0.000	0.000	1388.32	
5	0.6960	1139.3	1159.5	1155.9	0.814	3.368	74.110	19.226	2.256	0.070	0.136	0.009	0.011	0.000	0.000	0.000	0.000	0.000	1386.46	
6	0.6965	1140.3	1160.5	1156.8	0.806	3.360	74.116	19.168	2.299	0.074	0.152	0.011	0.014	0.000	0.000	0.000	0.000	0.000	1387.22	
7	0.6999	1144.0	1164.2	1160.4	0.872	3.351	73.686	19.418	2.385	0.080	0.174	0.014	0.018	0.000	0.000	0.000	0.000	0.000	1388.23	
8	0.7154	1169.1	1189.8	1184.8	0.875	3.264	72.057	20.223	2.906	0.151	0.403	0.050	0.071	0.000	0.000	0.000	0.000	0.000	1402.68	
9	0.7134	1167.3	1188.0	1183.0	0.838	3.240	72.377	19.991	2.889	0.150	0.396	0.049	0.069	0.000	0.000	0.000	0.000	0.000	1402.58	
10	0.7175	1172.8	1193.6	1189.2	0.850	3.281	71.736	20.414	3.017	0.159	0.419	0.051	0.072	0.000	0.000	0.000	0.000	0.000	1405.04	
11	0.7174	1167.7	1188.3	1185.0	0.966	3.416	70.916	21.397	2.892	0.115	0.259	0.018	0.022	0.000	0.000	0.000	0.000	0.000	1399.59	
12	0.7089	1159.2	1179.7	1176.6	0.810	3.360	72.303	20.376	2.795	0.104	0.221	0.014	0.017	0.000	0.000	0.000	0.000	0.000	1397.89	
13	0.7070	1158.1	1178.6	1175.5	0.755	3.338	72.163	20.982	2.481	0.084	0.173	0.011	0.013	0.000	0.000	0.000	0.000	0.000	1398.42	
14	0.7019	1150.4	1170.8	1167.6	0.740	3.356	72.750	20.792	2.125	0.071	0.141	0.011	0.014	0.000	0.000	0.000	0.000	0.000	1394.08	
15	0.7012	1148.9	1169.2	1166.1	0.746	3.377	72.770	20.817	2.083	0.065	0.126	0.008	0.009	0.000	0.000	0.000	0.000	0.000	1392.96	
16	0.7013	1148.6	1168.9	1165.3	0.755	3.391	72.957	20.442	2.223	0.071	0.139	0.010	0.012	0.000	0.000	0.000	0.000	0.000	1392.45	
17	0.7010	1147.2	1167.5	1163.7	0.790	3.384	72.935	20.528	2.152	0.066	0.128	0.008	0.009	0.000	0.000	0.000	0.000	0.000	1391.25	
18	0.7033	1150.4	1170.7	1166.9	0.824	3.367	72.605	20.768	2.199	0.071	0.143	0.010	0.012	0.000	0.000	0.000	0.000	0.000	1392.60	
19	0.7041	1151.4	1171.8	1168.0	0.836	3.355	72.630	20.591	2.329	0.077	0.160	0.011	0.012	0.000	0.000	0.000	0.000	0.000	1393.17	
20	0.7032	1150.4	1170.8	1166.9	0.836	3.333	72.720	20.611	2.256	0.073	0.149	0.010	0.012	0.000	0.000	0.000	0.000	0.000	1392.80	
21	0.7030	1150.1	1170.5	1166.7	0.828	3.342	72.856	20.381	2.330	0.078	0.161	0.011	0.014	0.000	0.000	0.000	0.000	0.000	1392.71	
22	0.7039	1150.6	1171.0	1167.1	0.851	3.359	72.678	20.561	2.283	0.077	0.164	0.012	0.015	0.000	0.000	0.000	0.000	0.000	1392.37	
23	0.7030	1150.8	1171.1	1167.3	0.819	3.317	72.906	20.335	2.344	0.081	0.170	0.012	0.015	0.000	0.000	0.000	0.000	0.000	1393.43	
24	0.7045	1152.3	1172.7	1168.7	0.845	3.321	72.768	20.372	2.383	0.086	0.189	0.016	0.020	0.000	0.000	0.000	0.000	0.000	1393.74	
25	0.7021	1148.4	1168.8	1165.1	0.845	3.337	73.053	20.174	2.324	0.079	0.162	0.011	0.013	0.000	0.000	0.000	0.000	0.000	1391.49	
26	0.7040	1151.2	1171.6	1167.8	0.854	3.332	72.699	20.535	2.302	0.080	0.170	0.013	0.016	0.000	0.000	0.000	0.000	0.000	1392.94	
27	0.7031	1149.8	1170.1	1166.3	0.849	3.340	72.818	20.463	2.257	0.079	0.167	0.012	0.015	0.000	0.000	0.000	0.000	0.000	1392.15	
28	0.7024	1148.6	1168.9	1165.2	0.835	3.371	72.910	20.363	2.256	0.077	0.163	0.011	0.014	0.000	0.000	0.000	0.000	0.000	1391.38	
29	0.7033	1150.2	1170.6	1166.9	0.837	3.347	72.794	20.460	2.291	0.079	0.167	0.012	0.014	0.000	0.000	0.000	0.000	0.000	1392.54	
30	0.7040	1150.8	1171.2	1167.5	0.857	3.348	72.648	20.605	2.276	0.077	0.162	0.012	0.015	0.000	0.000	0.000	0.000	0.000	1392.52	
31	0.7028	1148.9	1169.3	1165.7	0.855	3.349	72.851	20.437	2.240	0.078	0.164	0.012	0.014	0.000	0.000	0.000	0.000	0.000	1391.53	
Avg	0.7047	1153.0	1173.0	1169.2	0.828	3.346	72.797	20.260	2.446	0.089	0.196	0.016	0.021	0.000	0.000	0.000	0.000	0.000	1393.88	

Zone 261

# Source Daily Summary

Number: 091

Pressure Base: 14.730

Contract Day: 1

Name: MNT BRD-PLRMO BRD-BIS STN

Temperature Base:

Contract Hour: 9

Day	Relative Density	Heating Value Wet	Heating Value Drv	Heating Value As Del	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.7407	1175.8	1196.6	1193.4	0.859	5.267	67.535	21.386	4.399	0.161	0.355	0.020	0.019	0.000	0.000	0.000	0.000	0.000	1387.05	
2	0.7390	1174.9	1195.7	1192.5	0.872	5.137	67.832	21.306	4.298	0.156	0.355	0.022	0.022	0.000	0.000	0.000	0.000	0.000	1387.63	
3	0.7454	1184.8	1205.8	1202.4	0.860	5.146	67.246	21.347	4.702	0.189	0.445	0.031	0.033	0.000	0.000	0.000	0.000	0.000	1393.26	
4	0.7418	1178.1	1199.0	1195.4	0.864	5.220	67.576	21.278	4.432	0.170	0.400	0.028	0.032	0.000	0.000	0.000	0.000	0.000	1388.53	
5	0.7333	1167.4	1188.1	1184.9	0.859	5.081	68.576	21.010	3.949	0.148	0.336	0.020	0.020	0.000	0.000	0.000	0.000	0.000	1384.11	
6	0.7348	1167.8	1188.5	1185.3	0.865	5.189	68.299	21.168	3.928	0.154	0.353	0.021	0.022	0.000	0.000	0.000	0.000	0.000	1383.16	
7	0.7398	1172.1	1192.8	1189.6	0.883	5.372	67.554	21.468	4.135	0.163	0.378	0.024	0.024	0.000	0.000	0.000	0.000	0.000	1383.46	
8	0.7414	1175.7	1196.5	1193.1	0.884	5.292	67.481	21.508	4.165	0.177	0.426	0.032	0.034	0.000	0.000	0.000	0.000	0.000	1386.22	
9	0.7402	1177.3	1198.2	1194.5	0.872	5.107	67.824	21.362	4.121	0.183	0.448	0.038	0.044	0.000	0.000	0.000	0.000	0.000	1389.01	
10	0.7437	1178.1	1198.9	1195.7	0.874	5.388	67.127	21.568	4.389	0.183	0.422	0.024	0.025	0.000	0.000	0.000	0.000	0.000	1386.87	
11	0.7399	1172.2	1193.0	1189.9	0.910	5.334	67.296	21.837	4.151	0.150	0.302	0.009	0.009	0.000	0.000	0.000	0.000	0.000	1383.63	
12	0.7406	1173.5	1194.3	1191.1	0.865	5.392	67.325	21.657	4.204	0.165	0.365	0.014	0.012	0.000	0.000	0.000	0.000	0.000	1384.45	
13	0.7425	1176.3	1197.1	1193.9	0.849	5.421	67.078	21.823	4.220	0.170	0.392	0.024	0.023	0.000	0.000	0.000	0.000	0.000	1385.95	
14	0.7425	1174.0	1194.8	1191.7	0.851	5.558	66.997	21.782	4.226	0.167	0.380	0.021	0.019	0.000	0.000	0.000	0.000	0.000	1383.31	
15	0.7409	1173.9	1194.7	1191.5	0.843	5.420	67.252	21.795	4.100	0.164	0.379	0.023	0.023	0.000	0.000	0.000	0.000	0.000	1384.69	
16	0.7371	1170.4	1191.2	1188.0	0.842	5.284	67.848	21.488	3.978	0.157	0.360	0.022	0.022	0.000	0.000	0.000	0.000	0.000	1384.08	
17	0.7340	1168.1	1188.8	1185.7	0.854	5.115	68.237	21.488	3.785	0.147	0.335	0.020	0.019	0.000	0.000	0.000	0.000	0.000	1384.30	
18	0.7361	1170.0	1190.7	1187.5	0.866	5.180	67.974	21.554	3.877	0.154	0.352	0.022	0.022	0.000	0.000	0.000	0.000	0.000	1384.51	
19	0.7368	1170.9	1191.6	1188.5	0.870	5.182	67.914	21.536	3.942	0.156	0.358	0.021	0.021	0.000	0.000	0.000	0.000	0.000	1384.96	
20	0.7357	1170.0	1190.7	1187.5	0.870	5.138	68.062	21.500	3.882	0.153	0.352	0.021	0.022	0.000	0.000	0.000	0.000	0.000	1384.84	
21	0.7348	1170.3	1191.1	1187.9	0.865	5.040	68.264	21.387	3.894	0.155	0.353	0.021	0.021	0.000	0.000	0.000	0.000	0.000	1386.13	
22	0.7324	1169.8	1190.5	1187.3	0.870	4.838	68.656	21.326	3.775	0.150	0.343	0.021	0.021	0.000	0.000	0.000	0.000	0.000	1387.75	
23	0.7337	1172.3	1193.0	1189.8	0.857	4.822	68.632	21.264	3.774	0.149	0.449	0.021	0.032	0.000	0.000	0.000	0.000	0.000	1389.50	
24	0.7335	1171.2	1192.0	1188.7	0.871	4.850	68.580	21.288	3.845	0.156	0.360	0.024	0.025	0.000	0.000	0.000	0.000	0.000	1388.40	
25	0.7325	1169.6	1190.3	1187.2	0.870	4.859	68.656	21.282	3.791	0.152	0.347	0.021	0.021	0.000	0.000	0.000	0.000	0.000	1387.45	
26	0.7334	1171.1	1191.9	1188.7	0.872	4.843	68.468	21.509	3.766	0.151	0.346	0.022	0.022	0.000	0.000	0.000	0.000	0.000	1388.42	
27	0.7317	1169.3	1190.0	1186.8	0.870	4.799	68.719	21.385	3.705	0.147	0.334	0.020	0.021	0.000	0.000	0.000	0.000	0.000	1387.85	
28	0.7324	1169.8	1190.6	1187.4	0.872	4.832	68.589	21.452	3.729	0.148	0.337	0.021	0.020	0.000	0.000	0.000	0.000	0.000	1387.83	
29	0.7329	1170.1	1190.8	1187.7	0.867	4.866	68.544	21.416	3.774	0.149	0.341	0.021	0.021	0.000	0.000	0.000	0.000	0.000	1387.72	
30	0.7346	1170.8	1191.5	1188.3	0.879	4.972	68.290	21.467	3.846	0.153	0.350	0.022	0.022	0.000	0.000	0.000	0.000	0.000	1386.83	
31	0.7333	1168.6	1189.3	1186.2	0.882	4.971	68.464	21.372	3.777	0.151	0.342	0.020	0.020	0.000	0.000	0.000	0.000	0.000	1385.60	
Avg	0.7371	1172.0	1193.2	1189.9	0.867	5.126	67.964	21.452	4.018	0.159	0.368	0.022	0.023	0.000	0.000	0.000	0.000	0.000	1386.37	

Zone 2b2

# Gas Composition and Properties

Source #: 2501030  
Name: LIGNITE PLANT

Component	Mole %	Liquid Content	Mass %
Carbon Dioxide, CO2	0.1356		0.3059
Nitrogen, N2	4.6459		6.6718
Methane, C1	76.7853		63.1481
Ethane, C2	16.1384	4.3170	24.8765
Propane, C3	1.8755	0.5152	4.2396
iso-Butane, iC4	0.0353	0.0115	0.1052
n-Butane, nC4	0.0172	0.0054	0.0512
iso-Pentane, iC5	0.0000	0.0000	0.0000
n-Pentane, nC5	0.0000	0.0000	0.0000
Neo-Pentane, NeoC5			
Hexanes Plus, C6+	0.0000	0.0000	0.0000
Water, H2O			
Hydrogen Sulfide, H2S			
Oxygen, O2	0.3668		0.6017
Carbon Monoxide, CO			
Hydrogen, H2			
Helium, He			
Argon, Ar			

Property	Total Sample	C6 Plus Fraction
Pressure Base	14.730	
Temperature Base	60.00	
HCDP @ Sample Pressure	-39.412	
Cricondentherm	-31.936	
HV, Dry @ Base P, T	1113.57	
HV, Sat @ Base P, T	1094.19	
HV, Sat @ Sample P, T	1113.57	
Relative Density	0.6741	
C6+: 100		

Totals 100.0000 4.8490 100.0000

**Sample**  
Date: 02/01/2018 Pressure: 540.0  
Type: Composite Temperature: 0.0  
Tech: ES H2O: lbs/mm  
H2S: ppm  
Remarks:

**Analysis**  
Date: 02/02/2018 Instrument: WBI- 59  
Cylinder: 387  
Tech: MB  
Remarks:

Zone 263

# Gas Composition and Properties

Source #: 3002013  
Name: EPPING BORDER

Component	Mole %	Liquid Content	Mass %
Carbon Dioxide, CO2	0.8781		1.9221
Nitrogen, N2	2.9901		4.1661
Methane, C1	74.7128		59.6136
Ethane, C2	18.4692	4.9419	27.6214
Propane, C3	2.6579	0.7301	5.8292
iso-Butane, iC4	0.0882	0.0288	0.2550
n-Butane, nC4	0.1700	0.0535	0.4914
iso-Pentane, iC5	0.0119	0.0043	0.0427
n-Pentane, nC5	0.0118	0.0043	0.0423
Neo-Pentane, NeoC5			
Hexanes Plus, C6+	0.0000	0.0000	0.0000
Water, H2O			
Hydrogen Sulfide, H2S			
Oxygen, O2	0.0102		0.0162
Carbon Monoxide, CO			
Hydrogen, H2			
Helium, He			
Argon, Ar			

Property	Total Sample	C6 Plus Fraction
Pressure Base	14.730	
Temperature Base	60.00	
HCDP @ Sample Pressure		
Cricondentherm		
HV, Dry @ Base P, T	1161.30	
HV, Sat @ Base P, T	1141.08	
HV, Sat @ Sample P, T	1161.30	
Relative Density	0.6947	
C6+: 100		

Totals 100.0002 5.7620 100.0000

### Sample

Date: 02/01/2018 Pressure: 430.0  
Type: Composite Temperature: 0.0  
Tech: ES H2O: lbs/mm  
H2S: ppm

Remarks:

### Analysis

Date: 02/02/2018 Instrument: WBI- 58  
Cylinder: 125

Tech: MB

Remarks:

Zone 264



# Source Daily Summary

Number:	043	Pressure Base:	14.730	Contract Day:	1
Name:	BISMARCK STN-CLEVELAND STN	Temperature Base:		Contract Hour:	9

Day	Relative Density	Heating Value Wet	Heating Value Drv	Heating Value As Del	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.6916	1124.5	1144.4	1140.7	0.698	4.023	75.640	16.496	2.772	0.108	0.229	0.017	0.017	0.000	0.000	0.000	0.000	0.000	0.000	1372.73
2	0.6937	1124.7	1144.6	1140.8	0.719	4.184	75.248	16.643	2.842	0.107	0.225	0.016	0.016	0.000	0.000	0.000	0.000	0.000	0.000	1370.79
3	0.6947	1125.7	1145.6	1141.8	0.732	4.195	75.065	16.804	2.837	0.106	0.227	0.017	0.017	0.000	0.000	0.000	0.000	0.000	0.000	1371.06
4	0.7017	1135.3	1155.4	1151.5	0.706	4.298	74.240	17.064	3.208	0.132	0.300	0.024	0.027	0.000	0.000	0.000	0.000	0.000	0.000	1375.82
5	0.6978	1129.0	1149.0	1145.3	0.625	4.445	74.288	17.416	2.862	0.104	0.227	0.015	0.016	0.000	0.000	0.000	0.000	0.000	0.000	1372.12
6	0.6968	1125.6	1145.6	1141.9	0.679	4.473	74.473	17.235	2.768	0.107	0.233	0.016	0.016	0.000	0.000	0.000	0.000	0.000	0.000	1369.04
7	0.7092	1140.1	1160.3	1156.4	0.753	4.643	72.548	18.447	3.163	0.125	0.280	0.020	0.021	0.000	0.000	0.000	0.000	0.000	0.000	1374.39
8	0.7069	1136.3	1156.4	1152.5	0.698	4.742	72.845	18.196	3.095	0.119	0.270	0.018	0.019	0.000	0.000	0.000	0.000	0.000	0.000	1372.01
9	0.7164	1151.0	1171.4	1167.2	0.745	4.669	71.536	19.130	3.362	0.146	0.349	0.029	0.035	0.000	0.000	0.000	0.000	0.000	0.000	1380.38
10	0.7043	1137.6	1157.7	1153.6	0.702	4.418	73.564	17.772	3.041	0.135	0.310	0.027	0.031	0.000	0.000	0.000	0.000	0.000	0.000	1375.90
11	0.6915	1122.4	1142.3	1138.3	0.683	4.171	75.604	16.478	2.651	0.115	0.254	0.021	0.023	0.000	0.000	0.000	0.000	0.000	0.000	1370.10
12	0.6729	1098.8	1118.2	1114.6	0.626	3.944	78.502	14.596	2.051	0.084	0.171	0.014	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1359.86
13	0.6776	1106.0	1125.6	1121.9	0.562	4.043	77.576	15.359	2.180	0.083	0.171	0.013	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1364.06
14	0.6852	1113.5	1133.2	1129.6	0.548	4.326	76.238	16.168	2.412	0.090	0.192	0.013	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1365.67
15	0.6757	1102.8	1122.4	1118.8	0.515	4.127	77.799	15.182	2.114	0.078	0.161	0.012	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1362.14
16	0.6805	1108.6	1128.2	1124.6	0.572	4.147	77.035	15.725	2.235	0.085	0.176	0.013	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1364.33
17	0.7154	1148.1	1168.4	1164.6	0.725	4.786	71.294	19.501	3.251	0.125	0.280	0.018	0.019	0.000	0.000	0.000	0.000	0.000	0.000	1378.02
18	0.7274	1161.4	1182.0	1178.0	0.801	4.981	69.409	20.679	3.618	0.143	0.325	0.021	0.023	0.000	0.000	0.000	0.000	0.000	0.000	1382.48
19	0.7362	1171.0	1191.8	1187.7	0.852	5.140	68.038	21.503	3.903	0.156	0.359	0.023	0.025	0.000	0.000	0.000	0.000	0.000	0.000	1385.61
20	0.7347	1170.1	1190.8	1186.7	0.846	5.072	68.255	21.439	3.834	0.153	0.352	0.023	0.025	0.000	0.000	0.000	0.000	0.000	0.000	1385.81
21	0.7292	1164.4	1185.0	1181.0	0.808	4.966	69.094	20.950	3.666	0.145	0.329	0.021	0.022	0.000	0.000	0.000	0.000	0.000	0.000	1384.24
22	0.7238	1160.8	1181.3	1177.4	0.788	4.701	70.054	20.440	3.513	0.141	0.320	0.021	0.022	0.000	0.000	0.000	0.000	0.000	0.000	1385.17
23	0.7257	1163.7	1184.3	1180.3	0.804	4.678	69.777	20.650	3.577	0.143	0.325	0.022	0.024	0.000	0.000	0.000	0.000	0.000	0.000	1386.80
24	0.7269	1164.9	1185.5	1181.4	0.808	4.719	69.543	20.827	3.581	0.144	0.330	0.023	0.025	0.000	0.000	0.000	0.000	0.000	0.000	1386.97
25	0.7289	1166.4	1187.0	1183.0	0.830	4.779	69.301	20.838	3.713	0.151	0.341	0.022	0.024	0.000	0.000	0.000	0.000	0.000	0.000	1386.92
26	0.7289	1168.2	1188.9	1184.8	0.822	4.672	69.431	20.840	3.581	0.277	0.332	0.022	0.024	0.000	0.000	0.000	0.000	0.000	0.000	1389.17
27	0.7112	1147.6	1167.9	1164.1	0.691	4.476	71.888	19.492	3.038	0.118	0.262	0.017	0.018	0.000	0.000	0.000	0.000	0.000	0.000	1381.47
28	0.7099	1145.8	1166.0	1162.2	0.693	4.459	72.092	19.371	2.979	0.115	0.255	0.017	0.018	0.000	0.000	0.000	0.000	0.000	0.000	1380.55
29	0.7132	1149.4	1169.8	1165.9	0.713	4.515	71.683	19.509	3.114	0.156	0.272	0.018	0.019	0.000	0.000	0.000	0.000	0.000	0.000	1381.75
30	0.7170	1152.4	1172.8	1168.9	0.743	4.648	71.056	19.829	3.267	0.129	0.289	0.019	0.020	0.000	0.000	0.000	0.000	0.000	0.000	1381.62
31	0.7212	1145.5	1165.8	1162.3	0.072	6.483	69.709	19.532	3.683	0.002	0.520	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1369.56
Avg	0.7079	1141.0	1160.9	1157.0	0.696	4.578	72.672	18.520	3.094	0.123	0.279	0.018	0.020	0.000	0.000	0.000	0.000	0.000	0.000	1376.34

Zone 271

# Source Daily Summary

Number: 063

Pressure Base: 14.730

Contract Day: 1

Name: CLEVELAND STN-MAPLETON

Temperature Base:

Contract Hour: 9

Day	Relative Density	Heating Value Wet	Heating Value Drv	Heating Value As Del	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.6927	1124.9	1144.8	1141.4	0.714	4.078	75.546	16.410	2.871	0.111	0.234	0.018	0.018	0.000						1372.09
2	0.6896	1119.8	1139.7	1136.1	0.714	4.100	75.866	16.323	2.666	0.099	0.203	0.015	0.015	0.000						1368.93
3	0.6964	1127.9	1147.9	1144.4	0.734	4.207	74.780	17.030	2.881	0.107	0.227	0.017	0.017	0.000						1372.18
4	0.7001	1133.7	1153.8	1150.1	0.725	4.225	74.361	17.173	3.078	0.122	0.271	0.022	0.024	0.000						1375.38
5	0.6995	1130.9	1150.9	1147.3	0.668	4.424	74.230	17.292	2.982	0.113	0.250	0.019	0.021	0.000						1372.60
6	0.6965	1125.6	1145.5	1142.0	0.633	4.524	74.432	17.294	2.770	0.101	0.217	0.014	0.015	0.000						1369.17
7	0.7018	1131.4	1151.4	1147.7	0.734	4.515	73.734	17.689	2.925	0.115	0.251	0.018	0.019	0.000						1370.94
8	0.7112	1140.8	1161.0	1157.4	0.738	4.809	72.178	18.604	3.224	0.126	0.281	0.020	0.021	0.000						1373.29
9	0.7150	1147.3	1167.6	1163.9	0.721	4.795	71.597	19.080	3.307	0.135	0.313	0.024	0.027	0.000						1377.39
10	0.7142	1148.7	1169.0	1165.2	0.750	4.597	71.932	18.879	3.290	0.144	0.341	0.031	0.036	0.000						1379.64
11	0.6960	1126.6	1146.6	1142.9	0.691	4.320	74.963	16.738	2.839	0.124	0.275	0.024	0.026	0.000						1370.78
12	0.6787	1106.9	1126.5	1123.0	0.659	3.948	77.646	15.176	2.248	0.093	0.196	0.017	0.017	0.000						1363.87
13	0.6753	1100.1	1119.6	1116.2	0.600	4.128	78.076	14.759	2.151	0.085	0.174	0.014	0.013	0.000						1359.03
14	0.6812	1110.1	1129.7	1126.4	0.565	4.135	76.930	15.810	2.273	0.085	0.175	0.013	0.013	0.000						1365.37
15	0.6815	1108.5	1128.1	1124.8	0.524	4.315	76.843	15.730	2.300	0.085	0.178	0.013	0.012	0.000						1363.22
16	0.6722	1099.0	1118.5	1115.1	0.530	4.015	78.375	14.856	1.985	0.073	0.145	0.011	0.010	0.000						1360.84
17	0.6997	1129.6	1149.6	1146.1	0.648	4.547	73.892	17.738	2.803	0.107	0.232	0.016	0.017	0.000						1371.03
18	0.7221	1155.6	1176.0	1172.4	0.768	4.889	70.192	20.267	3.418	0.132	0.295	0.019	0.020	0.000						1380.54
19	0.7342	1168.5	1189.2	1185.5	0.844	5.118	68.328	21.353	3.813	0.151	0.344	0.023	0.025	0.000						1384.46
20	0.7363	1170.9	1191.6	1187.9	0.859	5.151	68.043	21.465	3.921	0.156	0.356	0.023	0.025	0.000						1385.26
21	0.7319	1166.4	1187.1	1183.4	0.834	5.053	68.692	21.140	3.750	0.148	0.336	0.023	0.024	0.000						1384.06
22	0.7255	1160.6	1181.2	1177.6	0.791	4.864	69.767	20.495	3.577	0.142	0.319	0.021	0.023	0.000						1383.33
23	0.7245	1161.2	1181.7	1178.1	0.805	4.717	69.925	20.542	3.517	0.139	0.312	0.021	0.022	0.000						1384.92
24	0.7258	1162.8	1183.4	1179.7	0.805	4.738	69.734	20.647	3.573	0.141	0.317	0.021	0.023	0.000						1385.63
25	0.7285	1166.0	1186.6	1182.8	0.826	4.769	69.380	20.807	3.680	0.149	0.338	0.024	0.027	0.000						1386.76
26	0.7303	1167.5	1188.2	1184.5	0.848	4.814	69.038	21.050	3.716	0.150	0.338	0.022	0.024	0.000						1386.90
27	0.7211	1157.8	1178.3	1174.8	0.771	4.653	70.407	20.328	3.366	0.133	0.299	0.021	0.022	0.000						1384.21
28	0.7091	1144.4	1164.6	1161.2	0.686	4.481	72.230	19.232	2.973	0.113	0.250	0.017	0.018	0.000						1379.62
29	0.7110	1146.0	1166.3	1162.8	0.706	4.526	71.969	19.334	3.051	0.117	0.260	0.017	0.019	0.000						1379.78
30	0.7160	1151.5	1171.9	1168.3	0.739	4.609	71.215	19.759	3.234	0.126	0.280	0.019	0.020	0.000						1381.55
31	0.7142	1148.0	1168.3	1164.8	0.726	4.676	71.510	19.459	3.191	0.124	0.276	0.019	0.020	0.000						1379.02
Avg	0.7075	1140.0	1160.2	1156.6	0.721	4.540	72.768	18.466	3.076	0.121	0.267	0.019	0.020	0.000						1375.86

Zone 272

# Source Daily Summary

Number: 061

Pressure Base: 14.730

Contract Day: 1

Name: CLEVELAND STN-GRAFTON BDR

Temperature Base:

Contract Hour: 9

Day	Relative Density	Heating Value Wet	Heating Value Drv	Heating Value As Del	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.6931	1125.5	1145.4	1142.1	0.714	4.082	75.494	16.430	2.896	0.112	0.236	0.018	0.018	0.000	0.000	0.000	0.000	0.000	1372.37	
2	0.6897	1119.8	1139.6	1136.4	0.715	4.106	75.856	16.322	2.669	0.099	0.203	0.015	0.015	0.000	0.000	0.000	0.000	0.000	1368.85	
3	0.6965	1128.1	1148.1	1144.8	0.734	4.212	74.746	17.055	2.884	0.107	0.227	0.017	0.017	0.000	0.000	0.000	0.000	0.000	1372.23	
4	0.7002	1133.7	1153.7	1150.4	0.724	4.233	74.353	17.169	3.081	0.123	0.271	0.022	0.024	0.000	0.000	0.000	0.000	0.000	1375.28	
5	0.6995	1130.9	1150.9	1147.6	0.669	4.423	74.221	17.304	2.979	0.113	0.250	0.019	0.021	0.000	0.000	0.000	0.000	0.000	1372.61	
6	0.6967	1125.7	1145.6	1142.4	0.634	4.527	74.409	17.311	2.771	0.101	0.218	0.014	0.015	0.000	0.000	0.000	0.000	0.000	1369.17	
7	0.7021	1131.5	1151.6	1148.3	0.738	4.523	73.690	17.712	2.932	0.116	0.252	0.018	0.019	0.000	0.000	0.000	0.000	0.000	1370.90	
8	0.7115	1141.1	1161.3	1157.9	0.740	4.818	72.128	18.632	3.233	0.126	0.283	0.020	0.021	0.000	0.000	0.000	0.000	0.000	1373.32	
9	0.7153	1147.6	1167.9	1164.4	0.723	4.807	71.541	19.112	3.316	0.136	0.314	0.024	0.027	0.000	0.000	0.000	0.000	0.000	1377.38	
10	0.7146	1149.0	1169.4	1165.7	0.752	4.608	71.869	18.919	3.299	0.145	0.341	0.031	0.036	0.000	0.000	0.000	0.000	0.000	1379.70	
11	0.6962	1126.7	1146.7	1143.2	0.691	4.330	74.928	16.757	2.843	0.124	0.276	0.024	0.026	0.000	0.000	0.000	0.000	0.000	1370.73	
12	0.6793	1107.5	1127.1	1123.8	0.661	3.959	77.555	15.236	2.265	0.094	0.197	0.017	0.017	0.000	0.000	0.000	0.000	0.000	1364.08	
13	0.6757	1100.7	1120.2	1117.0	0.596	4.144	77.984	14.824	2.164	0.085	0.175	0.014	0.013	0.000	0.000	0.000	0.000	0.000	1359.26	
14	0.6812	1109.9	1129.6	1126.4	0.565	4.142	76.936	15.800	2.271	0.085	0.175	0.013	0.013	0.000	0.000	0.000	0.000	0.000	1365.21	
15	0.6815	1108.4	1128.0	1124.9	0.525	4.320	76.839	15.729	2.298	0.085	0.178	0.013	0.013	0.000	0.000	0.000	0.000	0.000	1363.11	
16	0.6726	1099.4	1118.8	1115.7	0.531	4.026	78.318	14.888	1.996	0.074	0.147	0.011	0.010	0.000	0.000	0.000	0.000	0.000	1360.88	
17	0.7001	1130.1	1150.1	1146.9	0.651	4.557	73.819	17.783	2.816	0.108	0.233	0.016	0.016	0.000	0.000	0.000	0.000	0.000	1371.14	
18	0.7224	1155.9	1176.3	1173.0	0.773	4.897	70.135	20.303	3.425	0.132	0.295	0.019	0.020	0.000	0.000	0.000	0.000	0.000	1380.57	
19	0.7344	1168.8	1189.5	1185.9	0.845	5.124	68.288	21.378	3.818	0.152	0.346	0.023	0.025	0.000	0.000	0.000	0.000	0.000	1384.53	
20	0.7363	1171.0	1191.7	1188.2	0.860	5.150	68.031	21.478	3.920	0.156	0.356	0.024	0.025	0.000	0.000	0.000	0.000	0.000	1385.29	
21	0.7324	1166.9	1187.6	1184.1	0.838	5.061	68.618	21.187	3.763	0.148	0.337	0.023	0.024	0.000	0.000	0.000	0.000	0.000	1384.18	
22	0.7263	1161.4	1181.9	1178.6	0.797	4.887	69.627	20.578	3.604	0.143	0.321	0.021	0.023	0.000	0.000	0.000	0.000	0.000	1383.44	
23	0.7246	1161.4	1182.0	1178.6	0.806	4.714	69.904	20.558	3.522	0.140	0.313	0.021	0.022	0.000	0.000	0.000	0.000	0.000	1385.08	
24	0.7261	1163.4	1184.0	1180.5	0.807	4.737	69.670	20.702	3.578	0.142	0.319	0.022	0.023	0.000	0.000	0.000	0.000	0.000	1385.92	
25	0.7288	1166.4	1187.0	1183.5	0.828	4.767	69.346	20.831	3.687	0.150	0.340	0.024	0.027	0.000	0.000	0.000	0.000	0.000	1386.98	
26	0.7307	1167.9	1188.6	1185.1	0.850	4.818	68.981	21.091	3.724	0.151	0.339	0.022	0.024	0.000	0.000	0.000	0.000	0.000	1387.05	
27	0.7217	1158.5	1179.0	1175.7	0.776	4.663	70.307	20.388	3.386	0.134	0.302	0.021	0.023	0.000	0.000	0.000	0.000	0.000	1384.40	
28	0.7092	1144.5	1164.8	1161.5	0.687	4.482	72.207	19.251	2.974	0.114	0.250	0.017	0.018	0.000	0.000	0.000	0.000	0.000	1379.66	
29	0.7111	1146.1	1166.4	1163.2	0.707	4.530	71.942	19.355	3.051	0.117	0.260	0.018	0.019	0.000	0.000	0.000	0.000	0.000	1379.79	
30	0.7160	1151.5	1171.8	1168.5	0.740	4.613	71.213	19.759	3.231	0.125	0.280	0.019	0.020	0.000	0.000	0.000	0.000	0.000	1381.45	
31	0.7142	1147.9	1168.2	1165.0	0.727	4.676	71.513	19.456	3.190	0.124	0.276	0.019	0.020	0.000	0.000	0.000	0.000	0.000	1378.98	
Avg	0.7077	1140.0	1160.4	1157.1	0.723	4.546	72.725	18.494	3.083	0.121	0.268	0.019	0.020	0.000	0.000	0.000	0.000	0.000	1375.92	

Zone 273



# Source Daily Summary

Number: 271

Pressure Base: 14.730

Contract Day: 1

Name: DCKSN BRD-BLFD TSF-G.U. STN

Temperature Base:

Contract Hour: 9

Day	Relative Density	Heating Value Wet	Heating Value Dry	Heating Value As Del	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.6462	1072.3	1091.3	1088.4	0.588	3.113	82.929	11.979	1.247	0.047	0.080	0.009	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1354.27
2	0.6461	1072.4	1091.4	1088.6	0.568	3.121	82.905	12.042	1.223	0.047	0.078	0.009	0.007	0.000	0.000	0.000	0.000	0.000	0.000	1354.60
3	0.6465	1072.9	1091.9	1089.1	0.547	3.159	82.803	12.121	1.231	0.046	0.077	0.009	0.007	0.000	0.000	0.000	0.000	0.000	0.000	1354.86
4	0.6497	1074.7	1093.7	1090.8	0.459	3.485	82.109	12.497	1.309	0.044	0.077	0.010	0.009	0.000	0.000	0.000	0.000	0.000	0.000	1353.70
5	0.6483	1070.8	1089.7	1087.0	0.344	3.778	82.045	12.491	1.229	0.038	0.066	0.005	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1350.21
6	0.6407	1062.9	1081.8	1079.0	0.512	3.276	83.762	11.233	1.090	0.042	0.068	0.008	0.007	0.000	0.000	0.000	0.000	0.000	0.000	1348.30
7	0.6450	1067.6	1086.5	1083.8	0.358	3.629	82.670	12.099	1.139	0.035	0.059	0.006	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1349.78
8	0.6502	1077.7	1096.8	1094.0	0.359	3.508	81.739	13.032	1.255	0.037	0.061	0.006	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1357.03
9	0.6465	1072.5	1091.5	1088.7	0.435	3.359	82.590	12.283	1.208	0.042	0.069	0.008	0.006	0.000	0.000	0.000	0.000	0.000	0.000	1354.32
10	0.6435	1068.4	1087.3	1084.4	0.495	3.235	83.313	11.637	1.181	0.047	0.074	0.010	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1352.16
11	0.6437	1067.9	1086.8	1084.0	0.526	3.243	83.295	11.592	1.208	0.046	0.076	0.009	0.007	0.000	0.000	0.000	0.000	0.000	0.000	1351.34
12	0.6389	1058.5	1077.3	1074.5	0.452	3.465	84.003	10.898	1.066	0.039	0.063	0.007	0.006	0.000	0.000	0.000	0.000	0.000	0.000	1344.61
13	0.6482	1074.3	1093.3	1090.5	0.391	3.479	82.224	12.516	1.272	0.040	0.066	0.006	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1354.78
14	0.6468	1071.1	1090.1	1087.4	0.328	3.634	82.349	12.361	1.223	0.036	0.060	0.005	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1352.29
15	0.6465	1071.2	1090.2	1087.5	0.397	3.493	82.543	12.214	1.236	0.039	0.065	0.006	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1352.73
16	0.6498	1075.3	1094.4	1091.6	0.369	3.600	81.857	12.785	1.271	0.039	0.067	0.006	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1354.42
17	0.6565	1087.2	1106.4	1103.7	0.285	3.636	80.300	14.464	1.215	0.034	0.058	0.004	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1362.37
18	0.6539	1082.4	1101.6	1098.8	0.251	3.734	80.716	14.037	1.177	0.030	0.051	0.003	0.002	0.000	0.000	0.000	0.000	0.000	0.000	1359.11
19	0.6557	1085.9	1105.2	1102.4	0.251	3.691	80.409	14.324	1.236	0.031	0.052	0.004	0.002	0.000	0.000	0.000	0.000	0.000	0.000	1361.63
20	0.6549	1084.4	1103.7	1100.9	0.243	3.719	80.528	14.212	1.213	0.030	0.050	0.003	0.002	0.000	0.000	0.000	0.000	0.000	0.000	1360.59
21	0.6509	1077.8	1096.9	1094.2	0.258	3.720	81.353	13.394	1.187	0.031	0.051	0.004	0.002	0.000	0.000	0.000	0.000	0.000	0.000	1356.45
22	0.6517	1079.0	1098.1	1095.4	0.269	3.707	81.234	13.483	1.214	0.032	0.054	0.004	0.003	0.000	0.000	0.000	0.000	0.000	0.000	1357.11
23	0.6532	1082.1	1101.2	1098.5	0.244	3.703	80.863	13.908	1.195	0.030	0.050	0.004	0.002	0.000	0.000	0.000	0.000	0.000	0.000	1359.34
24	0.6536	1082.2	1101.4	1098.7	0.254	3.709	80.845	13.875	1.229	0.031	0.051	0.004	0.002	0.000	0.000	0.000	0.000	0.000	0.000	1359.21
25	0.6515	1080.0	1099.1	1096.4	0.244	3.664	81.185	13.665	1.161	0.029	0.048	0.003	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1358.61
26	0.6514	1079.8	1098.9	1096.2	0.234	3.684	81.195	13.638	1.169	0.029	0.046	0.003	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1358.41
27	0.6531	1081.5	1100.7	1098.0	0.252	3.707	80.915	13.838	1.200	0.031	0.051	0.004	0.002	0.000	0.000	0.000	0.000	0.000	0.000	1358.87
28	0.6522	1079.5	1098.6	1095.9	0.277	3.709	81.154	13.549	1.215	0.033	0.055	0.004	0.003	0.000	0.000	0.000	0.000	0.000	0.000	1357.26
29	0.6523	1079.7	1098.8	1096.1	0.276	3.711	81.109	13.615	1.193	0.033	0.055	0.004	0.003	0.000	0.000	0.000	0.000	0.000	0.000	1357.32
30	0.6493	1073.7	1092.7	1090.0	0.265	3.808	81.644	13.043	1.149	0.031	0.052	0.004	0.003	0.000	0.000	0.000	0.000	0.000	0.000	1352.96
31	0.6489	1073.4	1092.4	1089.7	0.273	3.777	81.802	12.843	1.211	0.032	0.054	0.004	0.003	0.000	0.000	0.000	0.000	0.000	0.000	1353.00
Avg	0.6492	1075.0	1094.5	1091.7	0.355	3.557	81.884	12.892	1.205	0.036	0.061	0.006	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1355.21

Zone 31

# Source Daily Summary

Number:	051	Pressure Base:	14.730	Contract Day:	1
Name:	CABIN CRK STN-BELFIELD TRSFR	Temperature Base:		Contract Hour:	9

Day	Relative Density	Heating Value Wet	Heating Value Drv	Heating Value As Del	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.6366	1057.8	1076.6	1073.0	0.762	2.820	85.152	9.905	1.197	0.055	0.088	0.011	0.009	0.000	0.000	0.000	0.000	0.000	0.000	1345.94
2	0.6211	1039.3	1057.7	1053.9	1.025	2.088	88.531	7.222	0.956	0.061	0.089	0.016	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1338.58
3	0.6209	1039.0	1057.4	1053.6	1.021	2.093	88.565	7.191	0.953	0.061	0.088	0.016	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1338.43
4	0.6466	1067.2	1086.1	1083.0	0.468	3.642	82.753	11.635	1.359	0.047	0.082	0.007	0.006	0.000	0.000	0.000	0.000	0.000	0.000	1347.45
5	0.6383	1057.5	1076.2	1072.7	0.619	3.219	84.584	10.205	1.222	0.051	0.083	0.010	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1343.80
6	0.6180	1035.6	1054.0	1049.9	1.032	2.017	89.182	6.662	0.918	0.065	0.092	0.019	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1337.01
7	0.6191	1037.0	1055.4	1051.4	1.035	2.026	88.957	6.871	0.929	0.063	0.089	0.017	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1337.73
8	0.6189	1036.8	1055.2	1051.1	1.045	2.004	89.029	6.803	0.930	0.064	0.092	0.018	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1337.64
9	0.6150	1032.0	1050.3	1046.1	0.924	2.109	89.779	6.053	0.913	0.079	0.102	0.025	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1335.61
10	0.6255	1044.1	1062.6	1058.8	0.887	2.423	87.529	7.949	1.030	0.062	0.090	0.016	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1339.96
11	0.6236	1041.6	1060.0	1056.2	0.922	2.344	87.943	7.609	1.000	0.062	0.090	0.017	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1338.73
12	0.6241	1042.7	1061.2	1057.3	0.909	2.342	87.822	7.744	1.002	0.062	0.089	0.017	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1339.66
13	0.6217	1040.1	1058.5	1054.5	0.961	2.196	88.403	7.276	0.975	0.064	0.092	0.019	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1338.81
14	0.6248	1043.4	1061.9	1058.1	0.862	2.438	87.610	7.900	1.017	0.059	0.086	0.016	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1339.83
15	0.6278	1046.8	1065.4	1061.5	0.839	2.542	87.013	8.365	1.064	0.060	0.089	0.016	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1341.09
16	0.6387	1055.9	1074.5	1071.2	0.447	3.617	84.228	10.339	1.238	0.044	0.075	0.007	0.006	0.000	0.000	0.000	0.000	0.000	0.000	1341.38
17	0.6441	1061.8	1080.6	1077.3	0.358	3.898	82.991	11.355	1.282	0.039	0.067	0.005	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1343.34
18	0.6479	1069.7	1088.6	1085.3	0.337	3.813	82.239	12.158	1.341	0.038	0.064	0.005	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1349.28
19	0.6475	1068.4	1087.4	1084.0	0.333	3.858	82.325	12.016	1.356	0.038	0.064	0.005	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1348.10
20	0.6463	1066.9	1085.8	1082.6	0.327	3.849	82.504	11.913	1.301	0.037	0.061	0.005	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1347.41
21	0.6467	1068.1	1087.0	1084.0	0.328	3.816	82.430	12.012	1.307	0.037	0.062	0.005	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1348.43
22	0.6444	1064.2	1083.0	1079.9	0.340	3.810	82.905	11.555	1.280	0.038	0.063	0.005	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1346.03
23	0.6446	1065.0	1083.9	1080.6	0.325	3.804	82.852	11.620	1.292	0.037	0.061	0.005	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1346.82
24	0.6451	1065.7	1084.6	1081.5	0.329	3.797	82.752	11.732	1.285	0.036	0.060	0.005	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1347.26
25	0.6434	1063.1	1082.0	1078.9	0.317	3.822	83.052	11.431	1.277	0.036	0.058	0.005	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1345.67
26	0.6403	1058.4	1077.1	1073.8	0.323	3.805	83.650	10.906	1.214	0.035	0.058	0.005	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1342.93
27	0.6412	1059.0	1077.8	1074.7	0.348	3.817	83.526	10.950	1.247	0.038	0.064	0.005	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1342.77
28	0.6456	1065.0	1083.9	1080.8	0.368	3.834	82.754	11.591	1.333	0.041	0.069	0.006	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1345.76
29	0.6408	1057.1	1075.8	1072.5	0.366	3.865	83.657	10.736	1.258	0.040	0.067	0.006	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1340.76
30	0.6394	1055.0	1073.6	1070.4	0.341	3.906	83.842	10.585	1.218	0.037	0.062	0.005	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1339.49
31	0.6409	1057.1	1075.8	1072.6	0.357	3.891	83.606	10.777	1.254	0.039	0.065	0.006	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1340.62
Avg	0.6348	1054.0	1072.3	1068.7	0.608	3.145	85.231	9.712	1.160	0.049	0.076	0.010	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1342.46

Zone 32

# Source Daily Summary

Number: 111

Pressure Base: 14.730

Contract Day: 1

Name: LITTLE KNIFE PLANT

Temperature Base:

Contract Hour: 9

Day	Relative Density	Heating Value Wet	Heating Value Drv	Heating Value As Del	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.6893	1152.9	1173.3	1168.4	0.000	3.162	72.641	23.534	0.648	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1409.92	
2	0.6898	1153.7	1174.1	1169.3	0.000	3.165	72.589	23.524	0.707	0.007	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1410.34	
3	0.6896	1153.6	1174.0	1168.9	0.000	3.143	72.661	23.461	0.719	0.007	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1410.54	
4	0.6900	1154.4	1174.9	1170.1	0.000	3.135	72.563	23.572	0.715	0.007	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1411.10	
5	0.6886	1156.2	1176.7	1172.0	0.000	2.895	72.861	23.542	0.686	0.007	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1414.69	
6	0.6896	1153.4	1173.8	1168.7	0.000	3.154	72.668	23.435	0.728	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1410.30	
7	0.6911	1156.8	1177.3	1172.6	0.000	3.084	72.477	23.596	0.825	0.007	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.99	
8	0.6902	1157.8	1178.3	1173.4	0.000	2.951	72.674	23.524	0.832	0.008	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1414.93	
9	0.6908	1155.7	1176.2	1171.6	0.000	3.126	72.524	23.507	0.824	0.007	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1411.91	
10	0.6921	1156.9	1177.4	1172.8	0.000	3.183	72.199	23.819	0.782	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1411.92	
11	0.6895	1152.6	1173.1	1167.7	0.000	3.196	72.634	23.465	0.690	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1409.42	
12	0.6903	1154.7	1175.1	1169.7	0.000	3.148	72.503	23.617	0.717	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1411.09	
13	0.6899	1153.6	1174.0	1168.9	0.000	3.175	72.571	23.532	0.707	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1410.19	
14	0.6901	1153.9	1174.3	1169.9	0.000	3.176	72.497	23.642	0.670	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1410.33	
15	0.6897	1152.9	1173.3	1168.3	0.000	3.197	72.577	23.545	0.666	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1409.55	
16	0.6903	1154.1	1174.6	1169.3	0.000	3.178	72.480	23.636	0.691	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1410.46	
17	0.6900	1154.3	1174.7	1169.7	0.000	3.140	72.573	23.553	0.719	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1410.96	
18	0.6901	1154.8	1175.3	1170.2	0.000	3.117	72.549	23.609	0.710	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1411.50	
19	0.6896	1154.7	1175.1	1170.2	0.000	3.083	72.619	23.598	0.685	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1411.80	
20	0.6900	1155.1	1175.5	1170.6	0.000	3.094	72.555	23.648	0.688	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1411.87	
21	0.6905	1155.5	1176.0	1171.0	0.000	3.112	72.455	23.722	0.696	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1411.94	
22	0.6907	1155.1	1175.6	1170.6	0.000	3.155	72.415	23.712	0.704	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1411.26	
23	0.6908	1155.8	1176.2	1171.1	0.000	3.130	72.391	23.754	0.710	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1411.89	
24	0.6911	1156.5	1177.0	1171.9	0.000	3.107	72.403	23.710	0.763	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.57	
25	0.6904	1156.0	1176.4	1171.3	0.000	3.079	72.473	23.736	0.697	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.55	
26	0.6902	1155.0	1175.4	1170.7	0.000	3.121	72.520	23.635	0.709	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1411.55	
27	0.6901	1155.0	1175.4	1170.6	0.000	3.114	72.499	23.698	0.675	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1411.63	
28	0.6900	1155.3	1175.7	1170.5	0.000	3.082	72.560	23.645	0.698	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.12	
29	0.6904	1155.3	1175.8	1170.7	0.000	3.119	72.468	23.700	0.698	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1411.74	
30	0.6904	1155.2	1175.7	1171.0	0.000	3.119	72.483	23.683	0.701	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1411.69	
31	0.6897	1154.8	1175.2	1170.8	0.000	3.079	72.563	23.710	0.633	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1411.91	
Avg	0.6902	1155.0	1175.3	1170.4	0.000	3.120	72.537	23.615	0.713	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1411.50	

Zone 33

# Gas Composition and Properties

Source #: 1202160  
Name: BOWMAN BORDER

Component	Mole %	Liquid Content	Mass %
Carbon Dioxide, CO2	0.2321		0.6048
Nitrogen, N2	3.4604		5.7399
Methane, C1	94.0188		89.3085
Ethane, C2	1.9955	0.5321	3.5530
Propane, C3	0.2261	0.0621	0.5904
iso-Butane, iC4	0.0203	0.0066	0.5904
n-Butane, nC4	0.0216	0.0068	0.0743
iso-Pentane, iC5	0.0028	0.0010	0.0120
n-Pentane, nC5	0.0020	0.0007	0.0085
Neo-Pentane, NeoC5			
Hexanes Plus, C6+	0.0000	0.0000	0.0000
Water, H2O			
Hydrogen Sulfide, H2S			
Oxygen, O2	0.0204		
Carbon Monoxide, CO			
Hydrogen, H2			
Helium, He			
Argon, Ar			

Property	Total Sample	C6 Plus Fraction
Pressure Base	14.730	
Temperature Base	60.00	
HCDP @ Sample Pressure		
Cricondentherm		
HV, Dry @ Base P, T	996.12	
HV, Sat @ Base P, T	978.78	
HV, Sat @ Sample P, T	996.12	
Relative Density	0.5840	
C6+: 100		

Totals 100.0000 0.6100 100.4818

### Sample

Date: 07/01/2016 Pressure: 380.0  
Type: Spot Temperature:  
Tech: MG H2O: lbs/mm  
H2S: ppm

Remarks:

### Analysis

Date: 07/05/2016 Instrument: WBI- 447  
Cylinder: 100

Tech: MB

Remarks: Inactive

Zone 34

# Source Daily Summary

Number: 471

Pressure Base: 14.730

Contract Day:

Name: SPRING CREEK I - SAX VALVE I

Temperature Base:

Contract Hour: 9

Day	Relative Density	Heating Value Wet	Heating Value Drv	Heating Value As Del	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.6865	1133.3	1153.3	1150.4	0.980	2.602	74.427	21.145	0.844	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1388.75	
2	0.6839	1127.6	1147.5	1144.6	0.992	2.685	74.800	20.861	0.646	0.006	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1384.41	
3	0.6881	1134.7	1154.8	1151.8	0.989	2.643	74.509	20.691	1.098	0.023	0.045	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1388.89	
4	0.6843	1129.7	1149.7	1146.7	0.993	2.596	74.558	21.347	0.504	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1386.58	
5	0.6868	1133.8	1153.9	1150.9	0.980	2.604	73.896	22.143	0.376	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1389.06	
6	0.6907	1139.6	1159.8	1156.8	0.978	2.616	73.397	22.354	0.632	0.008	0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1392.27	
7	0.6901	1139.6	1159.8	1156.8	0.973	2.566	73.412	22.509	0.514	0.008	0.016	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1392.90	
8	0.6897	1139.3	1159.5	1156.5	0.975	2.547	73.453	22.529	0.473	0.007	0.014	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1392.90	
9	0.6888	1136.8	1156.9	1153.9	0.976	2.609	73.789	21.983	0.616	0.009	0.017	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1390.74	
10	0.6878	1135.5	1155.6	1152.7	0.981	2.588	73.824	22.109	0.494	0.001	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1390.21	
11	0.6900	1139.0	1159.1	1156.2	0.977	2.593	73.626	22.038	0.765	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1392.15	
12	0.6843	1127.8	1147.7	1144.9	0.994	2.709	74.562	21.207	0.527	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1384.27	
13	0.6805	1120.8	1140.6	1137.8	1.009	2.759	75.287	20.482	0.448	0.004	0.010	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1379.48	
14	0.6803	1122.0	1141.9	1138.9	0.993	2.683	75.412	20.371	0.532	0.003	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1381.25	
15	0.6801	1121.6	1141.5	1138.6	0.996	2.688	75.437	20.352	0.513	0.004	0.008	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1380.90	
16	0.6774	1116.8	1136.6	1133.7	1.003	2.715	75.840	20.062	0.372	0.003	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1377.78	
17	0.6773	1115.6	1135.4	1132.5	1.010	2.770	75.849	19.995	0.367	0.003	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1376.37	
18	0.6779	1116.8	1136.6	1133.7	1.005	2.755	75.746	20.107	0.376	0.003	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1377.30	
19	0.6796	1120.7	1140.6	1137.6	0.995	2.693	75.590	20.163	0.532	0.008	0.016	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1380.34	
20	0.6810	1123.9	1143.8	1140.8	0.984	2.651	75.286	20.538	0.507	0.009	0.020	0.002	0.002	0.000	0.000	0.000	0.000	0.000	1382.80	
21	0.6863	1131.9	1152.0	1149.0	0.987	2.654	74.223	21.568	0.548	0.006	0.013	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1387.34	
22	0.6826	1126.5	1146.5	1143.4	0.982	2.647	74.994	20.807	0.532	0.009	0.022	0.003	0.004	0.000	0.000	0.000	0.000	0.000	1384.36	
23	0.6836	1127.8	1147.8	1144.6	0.986	2.650	75.102	20.461	0.714	0.021	0.051	0.007	0.008	0.000	0.000	0.000	0.000	0.000	1384.90	
24	0.6854	1130.1	1150.1	1147.1	0.987	2.679	74.314	21.519	0.496	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1386.05	
25	0.6822	1125.3	1145.3	1142.3	0.987	2.672	75.021	20.760	0.557	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1383.38	
26	0.6922	1142.0	1162.3	1159.2	0.963	2.633	73.239	22.336	0.812	0.005	0.010	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1393.68	
27	0.6999	1155.5	1176.0	1172.5	0.950	2.553	72.369	22.834	1.116	0.042	0.104	0.014	0.018	0.000	0.000	0.000	0.000	0.000	1402.15	
28	0.6992	1153.7	1174.1	1170.8	0.956	2.583	72.420	22.798	1.100	0.035	0.084	0.010	0.013	0.000	0.000	0.000	0.000	0.000	1400.75	
29	0.7003	1156.2	1176.7	1173.3	0.953	2.535	72.456	22.591	1.295	0.043	0.099	0.012	0.015	0.000	0.000	0.000	0.000	0.000	1402.70	
30	0.6952	1147.1	1167.4	1164.2	0.967	2.592	72.946	22.484	0.906	0.028	0.062	0.006	0.007	0.000	0.000	0.000	0.000	0.000	1396.86	
31	0.6928	1144.1	1164.4	1161.3	0.964	2.556	73.417	22.044	0.926	0.026	0.056	0.005	0.006	0.000	0.000	0.000	0.000	0.000	1395.63	
Avg	0.6866	1133.0	1152.8	1149.8	0.983	2.640	74.297	21.393	0.650	0.010	0.023	0.002	0.003	0.000	0.000	0.000	0.000	0.000	1387.97	

Zone 43



# Alliance Pipeline

DAILY ANALYSIS — USA  
 ND07MD1 — Hankinson Sales

DAY	Heating Value (BTU/ft3)	Relative Density	C1 Mol%	C2 Mol%	C3 Mol%	IC4 Mol%	NC4 Mol%	IC5 Mol%	NC5 Mol%	C6+ Mol%	N2 Mol%	CO2 Mol%	Hel Mol%
1	1,146.444	0.6568	84.9020	9.3225	3.2182	0.3573	0.5993	0.0626	0.0520	0.0264	1.0157	0.4319	0.0120
2	1,145.793	0.6564	84.9396	9.3031	3.1989	0.3550	0.5963	0.0615	0.0523	0.0267	1.0354	0.4194	0.0118
3	1,143.897	0.6557	85.0095	9.2387	3.1690	0.3502	0.5873	0.0601	0.0503	0.0246	1.0777	0.4205	0.0122
4	1,145.821	0.6575	84.7893	9.3027	3.2293	0.3613	0.6158	0.0604	0.0516	0.0270	1.1258	0.4254	0.0115
5	1,145.530	0.6573	84.8372	9.2627	3.2229	0.3599	0.6192	0.0603	0.0510	0.0282	1.1225	0.4245	0.0114
6	1,145.132	0.6572	84.8758	9.2193	3.2158	0.3597	0.6164	0.0630	0.0533	0.0296	1.1182	0.4374	0.0116
7	1,145.926	0.6577	84.9484	9.0338	3.3312	0.3643	0.6293	0.0618	0.0514	0.0292	1.0756	0.4634	0.0116
8	1,147.431	0.6584	84.8549	9.0355	3.4716	0.3553	0.6116	0.0592	0.0489	0.0280	1.0692	0.4539	0.0119
9	1,146.980	0.6581	84.8371	9.0650	3.4616	0.3485	0.5987	0.0595	0.0510	0.0282	1.1176	0.4210	0.0118
10	1,151.195	0.6607	84.6003	9.1142	3.5953	0.3701	0.6459	0.0607	0.0516	0.0283	1.0888	0.4327	0.0119
11	1,150.539	0.6598	84.7413	9.0619	3.5563	0.3703	0.6396	0.0609	0.0518	0.0288	1.0492	0.4280	0.0119
12	1,150.406	0.6597	84.6227	9.2552	3.5223	0.3576	0.6114	0.0595	0.0511	0.0271	1.0557	0.4257	0.0118
13	1,145.408	0.6567	85.0254	9.0020	3.4042	0.3429	0.5870	0.0576	0.0490	0.0247	1.0705	0.4250	0.0119
14	1,148.305	0.6590	84.6853	9.1918	3.4847	0.3526	0.6064	0.0571	0.0480	0.0250	1.1069	0.4304	0.0118
15	1,150.919	0.6604	84.5028	9.3369	3.5408	0.3606	0.5961	0.0615	0.0528	0.0283	1.0760	0.4323	0.0121
16	1,150.857	0.6607	84.4902	9.3270	3.5394	0.3635	0.6002	0.0625	0.0519	0.0291	1.0621	0.4624	0.0116
17	1,152.470	0.6614	84.4480	9.3190	3.5809	0.3691	0.6295	0.0615	0.0520	0.0295	1.0422	0.4569	0.0115
18	1,154.064	0.6624	84.3130	9.4192	3.6071	0.3737	0.6413	0.0612	0.0524	0.0288	1.0311	0.4606	0.0116
19	1,153.009	0.6618	84.3399	9.4474	3.5497	0.3687	0.6361	0.0612	0.0515	0.0288	1.0551	0.4498	0.0119
20	1,152.003	0.6607	84.4849	9.3612	3.5325	0.3638	0.6253	0.0609	0.0523	0.0286	1.0461	0.4324	0.0120
21	1,149.717	0.6597	84.6075	9.2680	3.5283	0.3484	0.6015	0.0576	0.0475	0.0256	1.0442	0.4595	0.0119
22	1,154.681	0.6628	84.2285	9.4271	3.6851	0.3666	0.6371	0.0588	0.0487	0.0282	1.0687	0.4398	0.0115
23	1,153.321	0.6621	84.2531	9.4952	3.6197	0.3571	0.6152	0.0580	0.0475	0.0271	1.0646	0.4508	0.0116
24	1,152.722	0.6616	84.3023	9.4836	3.5947	0.3561	0.6061	0.0585	0.0482	0.0277	1.0666	0.4445	0.0116
25	1,154.091	0.6626	84.1629	9.5470	3.6451	0.3581	0.6167	0.0585	0.0479	0.0270	1.0774	0.4474	0.0118
26	1,152.487	0.6621	84.2799	9.4029	3.6373	0.3566	0.6197	0.0578	0.0473	0.0268	1.0963	0.4635	0.0121
27	1,152.170	0.6619	84.2974	9.4376	3.5940	0.3555	0.6183	0.0582	0.0481	0.0272	1.0744	0.4774	0.0121
28	1,150.236	0.6605	84.6507	9.0489	3.6260	0.3610	0.6282	0.0596	0.0488	0.0273	1.0567	0.4806	0.0120
29	1,146.834	0.6584	84.9082	8.8988	3.5454	0.3504	0.6069	0.0565	0.0465	0.0270	1.0826	0.4660	0.0118
30	1,149.849	0.6605	84.5982	9.0943	3.6288	0.3568	0.6154	0.0575	0.0474	0.0267	1.0967	0.4663	0.0119
31	1,151.138	0.6613	84.4753	9.1701	3.6525	0.3620	0.6219	0.0589	0.0488	0.0284	1.1218	0.4487	0.0115
Volume	1,149.623	0.6597	84.6161	9.2532	3.4885	0.3591	0.6154	0.0598	0.0501	0.0275	1.0741	0.4443	0.0118
Weight Avg Energy	1,149.631	0.6597	84.6155	9.2534	3.4889	0.3591	0.6154	0.0598	0.0501	0.0275	1.0741	0.4444	0.0118

Zone 600

ZONE 550

MANDAN BORDER

01970

Weighted

NBPL - St Anthony

WBI - Mandan Border

Begin Date	End Date	MCF	DK	BTU	MCF	DK	BTU	Zone 28	AVG BTU	
1/1/2018	1/2/2018	1071	1138	1.0622	8271	9046	1.0938	1.090	1/1/2018	
1/2/2018	1/3/2018	963	1026	1.0611	6496	7094	1.0921	1.088	1/2/2018	
1/3/2018	1/4/2018	1339	1411	1.0631	6146	6705	1.0910	1.086	1/3/2018	
1/4/2018	1/5/2018	1338	1429	1.0670	6249	6823	1.0921	1.088	1/4/2018	
1/5/2018	1/6/2018	1048	1119	1.0670	6309	6918	1.0966	1.092	1/5/2018	
1/6/2018	1/7/2018	1052	1126	1.0699	4579	4961	1.0827	1.080	1/6/2018	
1/7/2018	1/8/2018	1068	1143	1.0710	3835	4162	1.0854	1.082	1/7/2018	
1/8/2018	1/9/2018	1073	1151	1.0731	3617	3933	1.0879	1.085	1/8/2018	
1/9/2018	1/10/2018	1034	1110	1.0731	3252	3567	1.0970	1.091	1/9/2018	
1/10/2018	1/11/2018	2113	2261	1.0700	5949	6493	1.0915	1.086	1/10/2018	
1/11/2018	1/12/2018	2048	2189	1.0690	7714	8404	1.0895	1.085	1/11/2018	
1/12/2018	1/13/2018	2039	2168	1.0635	8082	8744	1.0828	1.079	1/12/2018	
1/13/2018	1/14/2018	2028	2149	1.0592	6268	6826	1.0904	1.083	1/13/2018	
1/14/2018	1/15/2018	2109	2242	1.0633	6565	7176	1.0932	1.086	1/14/2018	
1/15/2018	1/16/2018	2076	2208	1.0636	8101	8831	1.0901	1.085	1/15/2018	
1/16/2018	1/17/2018	2082	2214	1.0633	6231	6809	1.0928	1.085	1/16/2018	
1/17/2018	1/18/2018	2069	2199	1.0629	3249	3566	1.0976	1.084	1/17/2018	
1/18/2018	1/19/2018	2084	2227	1.0683	2642	2921	1.1062	1.089	1/18/2018	
1/19/2018	1/20/2018	2110	2260	1.0712	1899	2094	1.1026	1.086	1/19/2018	
1/20/2018	1/21/2018	2107	2260	1.0729	2262	2505	1.1078	1.091	1/20/2018	
1/21/2018	1/22/2018	2093	2243	1.0717	3441	3806	1.1060	1.093	1/21/2018	
1/22/2018	1/23/2018	2061	2207	1.0710	3881	4264	1.0986	1.089	1/22/2018	
1/23/2018	1/24/2018	2062	2207	1.0703	3797	4177	1.0998	1.089	1/23/2018	
1/24/2018	1/25/2018	2059	2207	1.0717	3415	3774	1.1048	1.092	1/24/2018	
1/25/2018	1/26/2018	2040	2181	1.0694	2609	2877	1.1028	1.088	1/25/2018	
1/26/2018	1/27/2018	2088	2240	1.0729	3075	3386	1.1006	1.089	1/26/2018	
1/27/2018	1/28/2018	2126	2291	1.0776	5057	5578	1.1029	1.095	1/27/2018	
1/28/2018	1/29/2018	2094	2252	1.0756	5139	5667	1.1026	1.095	1/28/2018	
1/29/2018	1/30/2018	2050	2205	1.0759	4514	4968	1.1006	1.093	1/29/2018	
1/30/2018	1/31/2018	2020	2165	1.0718	3004	3304	1.1000	1.089	1/30/2018	
1/31/2018	2/1/2018	2105	2259	1.0731	6069	6595	1.0879	1.084	1/31/2018	
		55,649	59,487	1.0689	151,717	165,974	1.0958	1.0877		

**ZONE 610**

**Watford City**

01325

Watford City West Border

01312

Watford City East Border

**Weighted**

Begin Date	End Date	01325 Watford City West Border			01312 Watford City East Border			AVG BTU	
		MCF	DK	BTU Zone 25	MCF	DK	BTU Zone 43		
1/1/2018	1/2/2018	897	1053	1.174	875	1009	1.153	1.164	1/1/2018
1/2/2018	1/3/2018	705	828	1.174	595	683	1.148	1.162	1/2/2018
1/3/2018	1/4/2018	627	737	1.174	511	590	1.155	1.165	1/3/2018
1/4/2018	1/5/2018	633	744	1.174	574	660	1.150	1.163	1/4/2018
1/5/2018	1/6/2018	652	766	1.174	586	676	1.154	1.165	1/5/2018
1/6/2018	1/7/2018	506	594	1.174	426	493	1.160	1.168	1/6/2018
1/7/2018	1/8/2018	526	617	1.174	418	485	1.160	1.168	1/7/2018
1/8/2018	1/9/2018	517	607	1.174	477	553	1.160	1.167	1/8/2018
1/9/2018	1/10/2018	494	580	1.174	352	406	1.157	1.167	1/9/2018
1/10/2018	1/11/2018	848	996	1.174	792	915	1.156	1.165	1/10/2018
1/11/2018	1/12/2018	917	1077	1.174	856	993	1.159	1.167	1/11/2018
1/12/2018	1/13/2018	900	1057	1.174	897	1030	1.148	1.161	1/12/2018
1/13/2018	1/14/2018	802	941	1.174	770	879	1.141	1.158	1/13/2018
1/14/2018	1/15/2018	831	975	1.174	742	847	1.142	1.159	1/14/2018
1/15/2018	1/16/2018	928	1089	1.174	948	1082	1.142	1.158	1/15/2018
1/16/2018	1/17/2018	771	905	1.174	739	839	1.137	1.156	1/16/2018
1/17/2018	1/18/2018	605	711	1.174	526	597	1.135	1.156	1/17/2018
1/18/2018	1/19/2018	518	608	1.174	507	577	1.137	1.156	1/18/2018
1/19/2018	1/20/2018	495	581	1.174	366	417	1.141	1.160	1/19/2018
1/20/2018	1/21/2018	530	623	1.174	481	550	1.144	1.160	1/20/2018
1/21/2018	1/22/2018	600	705	1.174	410	473	1.152	1.165	1/21/2018
1/22/2018	1/23/2018	612	719	1.174	504	578	1.147	1.162	1/22/2018
1/23/2018	1/24/2018	607	712	1.174	434	498	1.148	1.163	1/23/2018
1/24/2018	1/25/2018	605	710	1.174	459	528	1.150	1.164	1/24/2018
1/25/2018	1/26/2018	573	673	1.174	474	543	1.145	1.161	1/25/2018
1/26/2018	1/27/2018	645	758	1.174	495	576	1.162	1.169	1/26/2018
1/27/2018	1/28/2018	776	911	1.174	619	728	1.176	1.175	1/27/2018
1/28/2018	1/29/2018	727	854	1.174	577	677	1.174	1.174	1/28/2018
1/29/2018	1/30/2018	652	765	1.174	449	529	1.177	1.175	1/29/2018
1/30/2018	1/31/2018	547	642	1.174	387	452	1.167	1.171	1/30/2018
1/31/2018	2/1/2018	803	943	1.174	796	927	1.164	1.169	1/31/2018
		20,849	24,481		18,042	20,790	1.1529	1.1642	

ROW ID	LOCATION DESCRIPTION	GROSS HEATING VALUE (BTU/C F)	SPECIFIC GRAVITY	WOBBE (cal)	CRICONDENTHERM (deg F)	NITROGEN (mole percent)	CARBON DIOXIDE (mole percent)	METHANE (mole percent)	ETHANE (mole percent)	PROPANE (mole percent)	NORMAL BUTANE (mole percent)	ISO BUTANE (mole percent)	PENTANE (mole percent)	ISO PENTANE (mole percent)	NEO PENTANE (mole percent)	HEXANES PLUS (mole percent)	HYDROGEN (mole percent)	HELIUM (mole percent)	PRODUCTION DATE	POSTING DATE	ChangeTimestamp	NOTES
11587	GLEN ULLIN	1066.3	0.6164	1358.2	-64.7	1.3633	0.8452	88.2114	8.7586	0.5267	0.0306	0.0234	0.0027	0.0042	0	0.0017	0.0028	0.2295	12/31/2017	1/1/2018	1/1/2018 3:09:28 PM	
11587	GLEN ULLIN	1061.8	0.6125	1356.7	-67.6	1.2718	0.8304	88.8593	8.1468	0.5252	0.0297	0.022	0.0025	0.0037	0	0.0014	0.0014	0.3069	1/1/2018	1/2/2018	1/2/2018 3:09:55 PM	
11587	GLEN ULLIN	1061.6	0.6133	1355.6	-67	1.3307	0.8422	88.5733	8.3472	0.4863	0.0306	0.023	0.0026	0.0041	0	0.0016	0	0.3582	1/2/2018	1/3/2018	1/3/2018 3:15:48 PM	
11587	GLEN ULLIN	1063.6	0.6148	1356.5	-64.4	1.3591	0.8352	88.3099	8.498	0.5569	0.0338	0.0251	0.0027	0.0041	0	0.0021	0	0.3736	1/3/2018	1/4/2018	1/4/2018 3:18:30 PM	
11587	GLEN ULLIN	1067.1	0.6175	1357.9	-64.3	1.3871	0.8506	87.7772	9.0333	0.5457	0.0281	0.0215	0.0023	0.0036	0	0.0015	0	0.3504	1/4/2018	1/5/2018	1/5/2018 3:16:55 PM	
11587	GLEN ULLIN	1067.1	0.6184	1356.9	-67.3	1.4824	0.8468	87.4722	9.412	0.4421	0.0159	0.0105	0.0001	0.0004	0	0.0001	0	0.3181	1/5/2018	1/6/2018	1/6/2018 3:13:23 PM	
11587	GLEN ULLIN	1070.6	0.6214	1358.1	-64.6	1.5935	0.8299	86.9496	9.787	0.5128	0.0208	0.0132	0.0009	0.0013	0	0.0001	0.0098	0.2822	1/6/2018	1/7/2018	1/7/2018 3:09:43 PM	
11587	GLEN ULLIN	1070.9	0.6217	1358.1	-64.5	1.6139	0.8177	86.8062	9.9008	0.5083	0.0197	0.0117	0.0004	0.0007	0	0	0	0.3206	1/7/2018	1/8/2018	1/8/2018 3:11:44 PM	
11587	GLEN ULLIN	1073.2	0.6232	1359.5	-62.9	1.6006	0.8282	86.6598	10.0589	0.5364	0.0234	0.0142	0.0015	0.0018	0	0.0002	0	0.2761	1/8/2018	1/9/2018	1/9/2018 3:13:33 PM	
11587	GLEN ULLIN	1073.1	0.623	1359.5	-62.6	1.5891	0.8276	86.6869	9.9831	0.5715	0.023	0.0151	0.0012	0.0019	0	0.0004	0	0.3002	1/9/2018	1/10/2018	1/10/2018 3:13:36 PM	
11587	GLEN ULLIN	1069.9	0.6208	1357.9	-65.1	1.5511	0.8405	86.9722	9.7895	0.4826	0.0174	0.0113	0.0005	0.0009	0	0.0002	0	0.3322	1/10/2018	1/11/2018	1/11/2018 3:12:01 PM	
11587	GLEN ULLIN	1068.5	0.6193	1357.8	-67.1	1.4941	0.8445	87.2619	9.6694	0.4159	0.0106	0.0073	0	0.0001	0	0	0.0004	0.2969	1/11/2018	1/12/2018	1/12/2018 3:17:39 PM	
11587	GLEN ULLIN	1062.5	0.6143	1355.6	-68.2	1.4107	0.8221	88.417	8.532	0.4773	0.0225	0.0174	0.0017	0.0029	0	0.0012	0.0009	0.295	1/12/2018	1/13/2018	1/13/2018 3:11:50 PM	
11587	GLEN ULLIN	1059.7	0.6131	1353.4	-71.1	1.4556	0.8268	88.5355	8.4461	0.4002	0.0166	0.0118	0.0007	0.0015	0	0.0004	0	0.3045	1/13/2018	1/14/2018	1/14/2018 3:15:01 PM	
11587	GLEN ULLIN	1063.4	0.6155	1355.4	-69.7	1.4675	0.8306	88.0895	8.889	0.4225	0.0138	0.0092	0.0002	0.0005	0	0.0001	0	0.2767	1/14/2018	1/15/2018	1/15/2018 3:11:11 PM	
11587	GLEN ULLIN	1064	0.616	1355.7	-68.8	1.4633	0.8322	87.9417	8.9924	0.4259	0.0153	0.0111	0.0006	0.0011	0	0.0003	0	0.3164	1/15/2018	1/16/2018	1/16/2018 3:23:14 PM	
11587	GLEN ULLIN	1062.8	0.6144	1355.9	-69.9	1.3948	0.8356	88.3483	8.7321	0.3932	0.0164	0.0123	0.0009	0.0017	0	0.0006	0.0004	0.2642	1/16/2018	1/17/2018	1/17/2018 3:18:42 PM	
11587	GLEN ULLIN	1063.5	0.6154	1355.7	-68.9	1.4364	0.833	88.1085	8.8412	0.4382	0.0188	0.013	0.0008	0.0014	0	0.0003	0.0035	0.3058	1/17/2018	1/18/2018	1/18/2018 3:18:55 PM	
11587	GLEN ULLIN	1068.3	0.619	1357.8	-66.5	1.4765	0.8431	87.3931	9.4889	0.4608	0.0191	0.0118	0.0003	0.0007	0	0	0	0.3056	1/18/2018	1/19/2018	1/19/2018 3:16:25 PM	
11587	GLEN ULLIN	1071.7	0.6221	1358.7	-64.1	1.5884	0.8361	86.8959	9.8694	0.5166	0.0224	0.0135	0.0012	0.0017	0	0.0001	0	0.2543	1/19/2018	1/20/2018	1/20/2018 3:13:27 PM	
11587	GLEN ULLIN	1072.4	0.6227	1359	-64.1	1.5958	0.8411	86.72	10.0691	0.4818	0.0197	0.0117	0.0008	0.0011	0	0.0001	0.0004	0.2579	1/20/2018	1/21/2018	1/21/2018 3:12:36 PM	
11587	GLEN ULLIN	1072.3	0.6217	1359.9	-64.9	1.5149	0.8323	86.8777	10.0329	0.4423	0.018	0.0111	0.0005	0.0011	0	0	0	0.27	1/21/2018	1/22/2018	1/22/2018 3:17:40 PM	
11587	GLEN ULLIN	1070.5	0.6206	1358.9	-65.8	1.5132	0.825	86.9398	9.9514	0.415	0.0157	0.0094	0.0003	0.0005	0	0	0.0004	0.3293	1/22/2018	1/23/2018	1/23/2018 3:19:01 PM	
11587	GLEN ULLIN	1070.8	0.6209	1358.9	-64.9	1.5214	0.8452	87.1473	9.7284	0.4816	0.0226	0.0124	0.0015	0.0015	0	0.0002	0	0.2394	1/23/2018	1/24/2018	1/24/2018 3:13:50 PM	
11587	GLEN ULLIN	1071.3	0.6212	1359.2	-65	1.5451	0.8269	87.1183	9.7619	0.4945	0.0199	0.0121	0.0009	0.0013	0	0.0001	0	0.2187	1/24/2018	1/25/2018	1/25/2018 3:13:31 PM	
11587	GLEN ULLIN	1069.5	0.62	1358.3	-65.6	1.5384	0.8266	87.4246	9.4306	0.5321	0.0217	0.0121	0.001	0.0011	0	0	0	0.2123	1/25/2018	1/26/2018	1/26/2018 3:16:38 PM	
11587	GLEN ULLIN	1073	0.6224	1360.1	-63.2	1.5546	0.8247	86.9025	9.9072	0.5305	0.0253	0.0157	0.0017	0.0022	0	0.0004	0	0.234	1/26/2018	1/27/2018	1/27/2018 3:16:09 PM	
11587	GLEN ULLIN	1078.2	0.6263	1362.5	-58.9	1.5795	0.8418	86.2371	10.4423	0.6047	0.0335	0.0201	0.003	0.0034	0	0.0014	0.0004	0.2327	1/27/2018	1/28/2018	1/28/2018 3:12:00 PM	
11587	GLEN ULLIN	1075.2	0.6233	1361.9	-62.7	1.5456	0.8325	86.7905	10.0763	0.5297	0.0249	0.0138	0.0017	0.0017	0	0.0007	0.131	0.0546	1/28/2018	1/29/2018	1/29/2018 3:12:58 PM	
11587	GLEN ULLIN	1075.8	0.6237	1362.2	-61.8	1.5421	0.8376	86.8087	10.0174	0.5739	0.0292	0.0153	0.0025	0.0023	0	0.0006	0.1517	0.0191	1/29/2018	1/30/2018	1/30/2018 3:13:59 PM	
11587	GLEN ULLIN	1071.7	0.6211	1359.9	-65	1.5636	0.8244	87.2164	9.6693	0.5124	0.0224	0.0123	0.0012	0.0012	0	0.0001	0.1598	0.0191	1/30/2018	1/31/2018	1/31/2018 3:16:47 PM	
11587	GLEN ULLIN	1073.3	0.622	1360.8	-63.9	1.5577	0.825	86.9672	9.8718	0.5213	0.0245	0.0137	0.0015	0.0016	0	0	0.1977	0.0191	1/31/2018	2/1/2018	2/1/2018 3:16:05 PM	

32 record(s) retrieved

None  
801

<b>NORTH DAKOTA HEATING VALUE ZONES</b>		
<b>ZONES</b>	<b>MEASURING DEVICE</b>	<b>LOCATION</b>
211	Chromatograph	Sidney Border
24	Monthly Sampler	Williston Border
241	Monthly Sampler	Fairview Border
25	Monthly Sampler	Watford City West Border
260	Chromatograph	North Tioga Transfer
261	Chromatograph	Tioga Comp Station – Robinson Lake Plant
262	Chromatograph	Minot Border
263	Monthly Sampler	Lignite Plant
264	Monthly Sampler	Epping Border
265	Chromatograph	Tioga Comp Station – County Line Plant
271	Chromatograph	Bismarck – Cleveland
272	Chromatograph	Cleveland – Mapleton
273	Chromatograph	Cleveland – Grafton
28	Chromatograph	Bismarck Station
31	Chromatograph	Dickinson Border
32	Chromatograph	Cabin Creek Station
33	Chromatograph	Little Knife Plant
34	Monthly Sampler	Bowman Border
43	Chromatograph	Spring Creek
550	Monthly Sampler & Chromatograph	Mandan Border
600	Chromatograph	Hankinson Area
610	Monthly Sampler & Chromatograph	Watford City
802	Chromatograph	Linton

MONTANA DAKOTA UTILITIES CO  
 NORTH DAKOTA  
 HEATING VALUE DATA

STATE	ZONE	ZONE BOUNDARY	12 MONTH AVERAGE	JAN 18	DEC 17	NOV 17	OCT 17	SEPT 17	AUG 17	JULY 17	JUNE 17	MAY 17	APRIL 17	MAR 17	FEB 17	ZONE
MT/ND	211	Sidney Border - MonDak Tfr - Sidney Plt	1198	1185	1193	1210	1201	1200	1204	1201	1191	1206	1191	1194	1195	211
ND	24	Williston Border - Charbonneau Station	1149	1138	1143	1144	1144	1142	1142	1141	1141	1148	1158	1171	1173	24
ND	25	Watford City West Border	1195	1174	1165	1169	1204	1205	1202	1206	1204	1204	1200	1199	1202	25
ND	28	Bismarck Station - Glen Ullin Station	1155	1096	1114	1111	1173	1196	1195	1194	1188	1191	1161	1118	1121	28
ND	31	Mandan Border / NBPL-St Anthony	1132	1095	1111	1110	1132	1100	1169	1179	1171	1137	1147	1118	1119	31
ND/MT	32	Cabin Creek Station - Beifled Transfer	1110	1072	1096	1090	1113	1103	1136	1157	1122	1097	1104	1112	1114	32
ND	33	Little Knife Plant	1177	1175	1174	1174	1174	1177	1181	1180	1177	1177	1178	1176	1177	33
ND	34	Bowman Border	996	996	996	996	996	996	996	996	996	996	996	996	996	34
ND	43	Spring Creek I - Sax Valve I	1137	1153	1165	1158	1143	1147	1151	1141	1126	1136	1141	1102	1075	43
ND/MT	241	Fairview Border	1180	1203	1190	1204	1196	1175	1169	1165	1161	1168	1167	1179	1181	241
ND	260	North Tioga Transfer - Nesson Plant		1021	998	992	996	987	993	1002	1087	1090	1082	0		260
ND	261	Tioga Comp Station - Robinson Lake Plant	1159	1173	1167	1170	1176	1175	1177	1183	1181	1176	1170	1065	1089	261
ND	262	Minot Bdr - Palermo Bdr - Bismarck Stn	1191	1193	1196	1190	1194	1196	1195	1193	1189	1192	1189	1181	1178	262
ND	263	Lignite Plant	1126	1114	1120	1143	1141	1123	1143	1146	1135	1115	1103	1115	1112	263
ND	264	Epping Border	1145	1161	1142	1133	1134	1136	1133	1138	1133	1145	1154	1158	1172	264
ND	265	Tioga Comp Station - County Line Plant	1175	1174	1167	1170	1176	1176	1177	1184	1181	1176	1170	1174	1175	265
ND	266	County Line Plant	1184	1183	1181	1184	1185	1189	1184	1191	1183	1185	1185	1173	1182	266
ND	271	Bismarck Station - Cleveland Station	1182	1161	1176	1179	1192	1196	1195	1194	1188	1192	1189	1163	1155	271
ND	272	Cleveland Station - Mapleton	1181	1160	1177	1179	1192	1196	1195	1193	1188	1191	1187	1161	1153	272
ND	273	Cleveland Station - Grafton Border	1181	1160	1177	1179	1192	1196	1195	1194	1189	1192	1187	1162	1154	273
ND	550	Mandan Border / NBPL-St Anthony		1088	1099	1093										550
ND	610	MDU-Watford City BTU	1177	1164	1165	1165	1189	1190	1183	1185	1176	1183	1188	1171	1163	610
ND	802	Linton	1062	1069	1073	1075	1064	1065	1062	1057	1054	1063	1059	1054	1052	802
ND	903	Hettinger Propane	2549	2549	2549	2549	2549	2549	2549	2549	2549	2549	2549	2549	2549	903

**THERMAL ZONE VARIANCE  
DOCUMENTATION**

**January 2018**

<b><i>ZONE</i></b>	<b><i>BTU VARIANCE</i></b>	<b><i>REASON</i></b>
32	-24	Direction Change
260	23	Operational Change