



UTILITIES CO.

A Division of MDU Resources Group, Inc.

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

October 4, 2017

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

Re: Case No. PU-17-002 (Therm Billing)
Monthly Report – July 2017

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 August 2017.
2. Attachment B consists of copies of the monthly Heating Value Test Reports received from our suppliers for the month of July 2017.
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 July 2017.

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 blue ink that reads 'Tamie Aberle'.

Tamie Aberle
Director of Regulatory Affairs

Montana-Dakota Utilities Co.
Therm Billing Factors - North Dakota
Aug-17

Town	Heat Zone	Therm Factor
MDU-303-ALEXANDER	025	1.1372
MDU-308-ARNEGARD	025	1.1372
MDU-314-APPLE VALLEY	271	1.1463
MDU-318-BEACH	032	1.0369
MDU-319-BELFIELD	032	1.0445
MDU-323-BERTHOLD	262	1.1230
MDU-327-BISMARCK	028	1.1463
MDU-330-BOWMAN	034	0.9340
MDU-337-BURLINGTON	262	1.1472
MDU-343-CARRINGTON	273	1.1472
MDU-344-CLEVELAND	272	1.1382
MDU-364-CAVALIER	273	1.1714
MDU-365-DAWSON	271	1.1382
MDU-368-DES LACS	262	1.1311
MDU-369-DICKINSON	031	1.0981
MDU-374-FT TOTTEN	273	1.1553
MDU-375-DEVILS LAKE	273	1.1553
MDU-379-BARLOW	273	1.1472
MDU-384-EPPING	264	1.0701
MDU-387-ELDRIDGE	272	1.1463
MDU-407-GLADSTONE	031	1.0981
MDU-411-GLEN ULLIN	031	1.1060
MDU-413-GOLVA	032	1.0216
MDU-416-GARRISON	262	1.1311
MDU-417-GRAFTON	273	1.1795
MDU-429-HEBRON	031	1.1060
MDU-432-HETTINGER	903	2.3875
MDU-449-JAMESTOWN	272	1.1543
MDU-459-KILLDEER	033	1.1117
MDU-463-LANGDON	273	1.1472
MDU-469-LEFOR	031	1.0981
MDU-474-LIGNITE	263	1.0797
MDU-475-LINTON	802	1.0170
MDU-478-LINCOLN	028	1.1463
MDU-488-MCKENZIE	271	1.1463
MDU-494-MEDINA	271	1.1382
MDU-498-MANDAN	028	1.1463
MDU-500-MARMARTH	034	0.9204
MDU-505-MINOT	262	1.1472
MDU-510-MOTT	031	1.0981
MDU-512-MAX	262	1.1230
MDU-522-NEW ENGLAND	031	1.0901
MDU-524-NEW SALEM	028	1.1221
MDU-532-NEW ROCKFORD	273	1.1472
MDU-539-PARK RIVER	273	1.1714
MDU-540-PALERMO	262	1.1230
MDU-558-RAY	264	1.0701
MDU-561-REGENT	031	1.0981
MDU-563-RHAME	034	0.9069

MDU-564-RICHARDTON	031	1.0901
MDU-568-ROSS	261	1.1074
MDU-572-RUTHVILLE	262	1.1501
MDU-574-SANBORN	272	1.1543
MDU-583-SENTINEL BUTTE	032	1.0369
MDU-588-SOUTH HEART	031	1.0901
MDU-717-SPIRITWOOD	272	1.1543
MDU-590-SPRINGBROOK	264	1.0701
MDU-591-STANLEY	261	1.1155
MDU-593-STEELE	271	1.1382
MDU-598-SHEYENNE	273	1.1553
MDU-605-SURREY	262	1.1472
MDU-610-TAPPEN	271	1.1382
MDU-611-TAYLOR	031	1.0901
MDU-616-TIOGA	261	1.1074
MDU-619-TURTLE LAKE	262	1.1311
MDU-620-TRENTON	024	1.0854
MDU-624-UNDERWOOD	262	1.1339
MDU-625-VALLEY CITY	272	1.1624
MDU-629-WALHALLA	273	1.1714
MDU-632-WATFORD CITY	610	1.1107
MDU-636-WHEELOCK	264	1.0624
MDU-637-WHITE EARTH	261	1.1155
MDU-642-WILLISTON	024	1.0854
MDU-646-WASHBURN	262	1.1392
MDU-647-WILTON	262	1.1230
MDU-664-RIVERDALE	262	1.1339
MDU-691-FAIRVIEW	241	1.1044
MDU-712-MINOT AFB	262	1.1472
MDU-718-FAIRMOUNT	600	1.1307
MDU-732-NEKOMA	273	1.1472
MDU-732-MSR SITE	273	1.1472

Source Daily Summary

July 2017

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 Dry	Heating Value As Del	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.7194	1169.5	1190.2	1185.4	0.963	3.491	70.556	21.558	3.073	0.112	0.220	0.014	0.012	0.000	0.000	0.000	0.000	0.000	1399.92	
2	0.7185	1169.0	1189.7	1185.1	0.924	3.495	70.691	21.452	3.092	0.109	0.212	0.013	0.012	0.000	0.000	0.000	0.000	0.000	1400.24	
3	0.7221	1172.5	1193.3	1188.2	0.984	3.532	70.380	21.359	3.338	0.127	0.249	0.016	0.014	0.000	0.000	0.000	0.000	0.000	1400.85	
4	0.7214	1172.1	1192.9	1188.1	0.969	3.512	70.513	21.250	3.356	0.125	0.245	0.016	0.014	0.000	0.000	0.000	0.000	0.000	1401.07	
5	0.7212	1172.0	1192.7	1187.4	0.959	3.520	70.471	21.332	3.344	0.118	0.228	0.014	0.013	0.000	0.000	0.000	0.000	0.000	1401.06	
6	0.7347	1183.6	1204.6	1199.8	1.181	3.736	68.471	22.418	3.743	0.143	0.276	0.017	0.014	0.000	0.000	0.000	0.000	0.000	1401.93	
7	0.7402	1189.2	1210.2	1205.1	1.251	3.813	67.851	22.554	3.972	0.176	0.343	0.022	0.018	0.000	0.000	0.000	0.000	0.000	1403.17	
8	0.7478	1200.8	1222.1	1216.7	1.245	3.812	67.293	22.337	4.580	0.226	0.450	0.030	0.026	0.000	0.000	0.000	0.000	0.000	1409.72	
9	0.7429	1192.3	1213.4	1208.4	1.213	3.928	68.132	21.425	4.640	0.208	0.406	0.026	0.022	0.000	0.000	0.000	0.000	0.000	1404.24	
10	0.7385	1184.8	1205.8	1200.6	1.223	3.953	68.671	21.193	4.320	0.201	0.393	0.025	0.020	0.000	0.000	0.000	0.000	0.000	1399.62	
11	0.7214	1170.6	1191.3	1186.5	0.971	3.604	70.767	20.707	3.487	0.143	0.285	0.019	0.017	0.000	0.000	0.000	0.000	0.000	1399.17	
12	0.7184	1167.8	1188.5	1183.8	0.915	3.575	71.068	20.725	3.276	0.134	0.270	0.019	0.018	0.000	0.000	0.000	0.000	0.000	1398.83	
13	0.7179	1167.8	1188.5	1183.6	0.920	3.521	71.217	20.552	3.382	0.125	0.249	0.017	0.015	0.000	0.000	0.000	0.000	0.000	1399.27	
14	0.7191	1168.4	1189.1	1184.0	0.938	3.569	71.130	20.469	3.453	0.137	0.269	0.018	0.016	0.000	0.000	0.000	0.000	0.000	1398.81	
15	0.7170	1164.6	1185.2	1180.2	0.947	3.589	71.205	20.674	3.191	0.123	0.240	0.016	0.014	0.000	0.000	0.000	0.000	0.000	1396.35	
16	0.7204	1169.4	1190.1	1185.3	0.958	3.591	71.157	20.173	3.643	0.148	0.294	0.019	0.017	0.000	0.000	0.000	0.000	0.000	1398.85	
17	0.7130	1159.1	1179.6	1174.8	0.927	3.582	71.756	20.348	3.038	0.109	0.213	0.014	0.012	0.000	0.000	0.000	0.000	0.000	1393.64	
18	0.7139	1163.9	1184.5	1179.8	0.867	3.465	71.630	20.517	3.191	0.103	0.202	0.013	0.012	0.000	0.000	0.000	0.000	0.000	1398.55	
19	0.7262	1181.0	1201.9	1196.8	0.911	3.499	70.501	20.496	4.032	0.168	0.348	0.023	0.020	0.000	0.000	0.000	0.000	0.000	1407.03	
20	0.7253	1177.3	1198.2	1193.1	1.016	3.486	70.803	20.122	3.973	0.180	0.370	0.026	0.023	0.000	0.000	0.000	0.000	0.000	1403.41	
21	0.7224	1173.8	1194.6	1189.6	1.026	3.406	71.310	19.777	3.903	0.174	0.356	0.025	0.023	0.000	0.000	0.000	0.000	0.000	1402.14	
22	0.7246	1175.4	1196.2	1191.2	1.041	3.494	71.114	19.662	4.073	0.186	0.379	0.027	0.024	0.000	0.000	0.000	0.000	0.000	1401.85	
23	0.7343	1184.7	1205.7	1200.3	1.160	3.657	69.274	21.200	4.073	0.194	0.390	0.027	0.024	0.000	0.000	0.000	0.000	0.000	1403.60	
24	0.7453	1198.9	1220.2	1215.1	1.204	3.759	67.626	22.181	4.545	0.208	0.420	0.030	0.026	0.000	0.000	0.000	0.000	0.000	1409.85	
25	0.7429	1193.6	1214.7	1209.7	1.254	3.785	67.581	22.619	4.166	0.186	0.364	0.023	0.020	0.000	0.000	0.000	0.000	0.000	1405.90	
26	0.7477	1201.4	1222.6	1217.2	1.245	3.779	67.062	22.738	4.531	0.200	0.395	0.026	0.023	0.000	0.000	0.000	0.000	0.000	1410.40	
27	0.7239	1174.4	1195.2	1190.7	1.021	3.527	70.461	20.907	3.611	0.144	0.291	0.020	0.018	0.000	0.000	0.000	0.000	0.000	1401.34	
28	0.7391	1193.8	1215.0	1209.8	1.108	3.628	68.764	21.292	4.565	0.194	0.395	0.028	0.025	0.000	0.000	0.000	0.000	0.000	1409.76	
29	0.7387	1192.2	1213.3	1208.7	1.133	3.663	68.256	22.276	4.076	0.184	0.366	0.025	0.022	0.000	0.000	0.000	0.000	0.000	1408.18	
30	0.7422	1199.8	1221.0	1215.8	1.077	3.607	67.975	22.257	4.439	0.197	0.397	0.027	0.024	0.000	0.000	0.000	0.000	0.000	1413.85	
31	0.7364	1189.9	1211.0	1206.2	1.086	3.651	68.704	21.892	4.048	0.189	0.380	0.026	0.023	0.000	0.000	0.000	0.000	0.000	1407.76	
Avg	0.7289	1180.0	1200.7	1195.7	1.053	3.620	69.755	21.241	3.811	0.161	0.319	0.021	0.019	0.000	0.000	0.000	0.000	0.000	1402.91	

Zone 211

Source Daily Summary

July 2017

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 Dry	Heating Value As Del	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.6754	1119.3	1139.1	1135.9	0.748	2.749	77.680	16.945	1.701	0.052	0.108	0.008	0.009	0.000	0.000	0.000	0.000	0.000	1382.85	
2	0.6750	1118.8	1138.6	1135.4	0.741	2.754	77.717	16.935	1.684	0.049	0.103	0.008	0.009	0.000	0.000	0.000	0.000	0.000	1382.63	
3	0.6749	1118.2	1138.1	1134.5	0.729	2.788	77.806	16.758	1.743	0.052	0.108	0.008	0.009	0.000	0.000	0.000	0.000	0.000	1382.16	
4	0.6742	1117.5	1137.3	1134.0	0.738	2.760	77.916	16.696	1.718	0.050	0.104	0.008	0.009	0.000	0.000	0.000	0.000	0.000	1381.87	
5	0.6758	1120.3	1140.2	1136.7	0.733	2.737	77.743	16.777	1.819	0.056	0.116	0.009	0.010	0.000	0.000	0.000	0.000	0.000	1383.83	
6	0.6778	1120.8	1140.6	1137.3	0.745	2.891	77.357	16.952	1.861	0.057	0.118	0.009	0.010	0.000	0.000	0.000	0.000	0.000	1382.20	
7	0.6765	1120.7	1140.6	1137.0	0.742	2.769	77.448	17.169	1.694	0.052	0.108	0.008	0.009	0.000	0.000	0.000	0.000	0.000	1383.57	
8	0.6791	1124.9	1144.8	1141.5	0.754	2.744	77.062	17.450	1.794	0.057	0.119	0.009	0.011	0.000	0.000	0.000	0.000	0.000	1385.99	
9	0.6766	1121.7	1141.5	1138.3	0.737	2.731	77.434	17.212	1.711	0.052	0.107	0.008	0.009	0.000	0.000	0.000	0.000	0.000	1384.60	
10	0.6787	1124.4	1144.3	1140.9	0.735	2.768	77.136	17.354	1.815	0.056	0.117	0.009	0.010	0.000	0.000	0.000	0.000	0.000	1385.75	
11	0.6777	1122.2	1142.0	1138.8	0.750	2.785	77.363	17.083	1.827	0.057	0.118	0.008	0.010	0.000	0.000	0.000	0.000	0.000	1384.08	
12	0.6853	1133.5	1153.5	1149.9	0.721	2.847	77.057	16.400	2.526	0.123	0.273	0.024	0.029	0.000	0.000	0.000	0.000	0.000	1389.99	
13	0.6781	1122.4	1142.2	1139.0	0.754	2.803	77.383	16.950	1.911	0.059	0.121	0.009	0.010	0.000	0.000	0.000	0.000	0.000	1383.91	
14	0.6779	1122.4	1142.3	1138.9	0.749	2.785	77.413	16.961	1.894	0.057	0.120	0.009	0.011	0.000	0.000	0.000	0.000	0.000	1384.20	
15	0.6779	1122.3	1142.2	1138.9	0.752	2.789	77.415	16.968	1.855	0.065	0.135	0.010	0.011	0.000	0.000	0.000	0.000	0.000	1384.07	
16	0.6809	1128.3	1148.2	1144.8	0.734	2.734	77.272	16.793	2.165	0.088	0.184	0.014	0.016	0.000	0.000	0.000	0.000	0.000	1388.29	
17	0.6712	1113.8	1133.6	1130.2	0.675	2.790	78.433	16.268	1.651	0.055	0.111	0.008	0.009	0.000	0.000	0.000	0.000	0.000	1380.47	
18	0.6744	1118.7	1138.5	1135.3	0.715	2.736	77.953	16.626	1.785	0.053	0.112	0.008	0.010	0.000	0.000	0.000	0.000	0.000	1383.20	
19	0.6742	1117.8	1137.6	1134.2	0.706	2.792	77.903	16.684	1.742	0.051	0.106	0.008	0.009	0.000	0.000	0.000	0.000	0.000	1382.23	
20	0.6775	1123.0	1142.9	1139.5	0.718	2.764	77.374	17.121	1.831	0.056	0.117	0.008	0.010	0.000	0.000	0.000	0.000	0.000	1385.31	
21	0.6768	1122.0	1141.9	1138.6	0.718	2.759	77.577	16.861	1.896	0.056	0.115	0.008	0.010	0.000	0.000	0.000	0.000	0.000	1384.80	
22	0.6743	1117.7	1137.5	1134.1	0.720	2.782	77.897	16.706	1.711	0.053	0.111	0.008	0.010	0.000	0.000	0.000	0.000	0.000	1382.03	
23	0.6784	1122.7	1142.5	1139.1	0.743	2.831	77.393	16.867	1.942	0.063	0.136	0.011	0.013	0.000	0.000	0.000	0.000	0.000	1383.93	
24	0.6790	1123.5	1143.4	1139.9	0.748	2.830	77.282	16.987	1.923	0.063	0.139	0.012	0.015	0.000	0.000	0.000	0.000	0.000	1384.29	
25	0.6788	1123.1	1143.0	1139.6	0.748	2.828	77.300	17.013	1.872	0.064	0.145	0.013	0.016	0.000	0.000	0.000	0.000	0.000	1384.11	
26	0.6819	1124.1	1144.0	1140.4	0.759	3.043	76.844	17.070	2.019	0.073	0.161	0.013	0.016	0.000	0.000	0.000	0.000	0.000	1382.16	
27	0.6731	1111.7	1131.4	1128.2	0.689	3.085	78.102	16.192	1.743	0.054	0.114	0.009	0.010	0.000	0.000	0.000	0.000	0.000	1375.80	
28	0.6787	1122.3	1142.2	1138.8	0.775	2.829	77.215	17.137	1.851	0.056	0.119	0.009	0.010	0.000	0.000	0.000	0.000	0.000	1383.26	
29	0.6795	1123.8	1143.7	1140.4	0.752	2.847	77.110	17.166	1.925	0.058	0.122	0.009	0.011	0.000	0.000	0.000	0.000	0.000	1384.31	
30	0.6780	1121.7	1141.5	1138.2	0.738	2.857	77.360	16.956	1.897	0.056	0.118	0.008	0.010	0.000	0.000	0.000	0.000	0.000	1383.21	
31	0.6779	1121.0	1140.9	1137.5	0.741	2.890	77.370	16.920	1.875	0.060	0.124	0.009	0.011	0.000	0.000	0.000	0.000	0.000	1382.42	
Avg	0.6773	1121.0	1141.3	1137.9	0.736	2.810	77.494	16.902	1.851	0.060	0.126	0.010	0.011	0.000	0.000	0.000	0.000	0.000	1383.60	

Zone 24

Gas Composition and Properties

Effective July 1, 2017 09:00 - January 18, 2038 21:14

Source #: 0602160
Name: FAIRVIEW BORDER

Component	Mole %	Liquid Content	Mass %
Carbon Dioxide, CO2	0.6303		1.3820
Nitrogen, N2	3.0566		4.2659
Methane, C1	74.3018		59.3858
Ethane, C2	19.4176	5.1957	29.0887
Propane, C3	2.3447	0.6441	5.1510
iso-Butane, iC4	0.0746	0.0243	0.2160
n-Butane, nC4	0.1457	0.0458	0.4219
iso-Pentane, iC5	0.0105	0.0038	0.0377
n-Pentane, nC5	0.0110	0.0040	0.0395
Neo-Pentane, NeoC5			
Hexanes Plus, C6+	0.0000	0.0000	0.0000
Water, H2O			
Hydrogen Sulfide, H2S			
Oxygen, O2	0.0072		0.0115
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	-27.196	
Cricondentherm	-14.080	
HV, Dry @ Base P, T	1164.73	
HV, Sat @ Base P, T	1144.46	
HV, Sat @ Sample P, T	1164.73	
Relative Density	0.6935	

C6+: 100

Totals 100.0000 5.9180 100.0000

Sample

Date: 08/01/2017 Pressure: 442.0
Type: Composite Temperature: 0.0
Tech: RR H2O: lbs/mm
H2S: ppm

Remarks:

Analysis

Date: 08/02/2017 Instrument: WBI- 202
Cylinder: 356
Tech: MB

Remarks:

Zone 241

Gas Composition and Properties

Effective July 1, 2017 09:00 - January 18, 2038 21:14

Source #: 0602225
Name: WATFORD CITY WEST BORDER

Component	Mole %	Liquid Content	Mass %
Carbon Dioxide, CO2	1.0634		2.2216
Nitrogen, N2	3.1157		4.1433
Methane, C1	69.5704		52.9807
Ethane, C2	22.2239	5.9486	31.7220
Propane, C3	3.3353	0.9162	6.9815
iso-Butane, iC4	0.1933	0.0631	0.5333
n-Butane, nC4	0.4115	0.1294	1.1354
iso-Pentane, iC5	0.0365	0.0133	0.1250
n-Pentane, nC5	0.0384	0.0139	0.1315
Neo-Pentane, NeoC5			
Hexanes Plus, C6+	0.0032	0.0015	0.0131
Water, H2O			
Hydrogen Sulfide, H2S			
Oxygen, O2	0.0083		0.0126
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	1206.36	
HV, Sat @ Base P, T	1185.37	
HV, Sat @ Sample P, T	1206.36	
Relative Density	0.7278	
C6+: 100		

Totals 99.9999 7.0850 100.0000

Sample
Date: 08/01/2017 Pressure: 515.0
Type: Composite Temperature: 0.0
Tech: ES H2O: lbs/mm
H2S: ppm
Remarks:

Analysis
Date: 08/02/2017 Instrument: WBI- 204
Cylinder: 397
Tech: MB
Remarks:

Zone 25

Source Daily Summary

July 2017

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 Dry	Heating Value As Del	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.7047	1155.5	1175.9	1171.6	0.864	3.119	72.798	20.457	2.473	0.087	0.175	0.012	0.015	0.000	0.000	0.000	0.000	0.000	1397.42	
2	0.7066	1158.9	1179.4	1175.1	0.859	3.092	72.382	20.905	2.485	0.084	0.168	0.011	0.013	0.000	0.000	0.000	0.000	0.000	1399.79	
3	0.7061	1158.3	1178.8	1174.4	0.862	3.077	72.505	20.786	2.492	0.085	0.168	0.011	0.013	0.000	0.000	0.000	0.000	0.000	1399.54	
4	0.7071	1160.7	1181.2	1176.7	0.843	3.059	72.413	20.792	2.601	0.088	0.176	0.012	0.015	0.000	0.000	0.000	0.000	0.000	1401.37	
5	0.7059	1158.8	1179.3	1174.5	0.835	3.073	72.574	20.683	2.565	0.086	0.163	0.010	0.012	0.000	0.000	0.000	0.000	0.000	1400.27	
6	0.7068	1160.0	1180.5	1176.2	0.859	3.051	72.351	20.942	2.535	0.083	0.160	0.009	0.011	0.000	0.000	0.000	0.000	0.000	1400.88	
7	0.7074	1160.1	1180.7	1176.2	0.877	3.070	72.291	20.971	2.506	0.084	0.172	0.012	0.016	0.000	0.000	0.000	0.000	0.000	1400.34	
8	0.7073	1160.8	1181.3	1177.0	0.853	3.053	72.203	21.148	2.475	0.081	0.164	0.010	0.012	0.000	0.000	0.000	0.000	0.000	1401.40	
9	0.7069	1160.9	1181.5	1177.0	0.839	3.035	72.271	21.132	2.451	0.082	0.164	0.011	0.014	0.000	0.000	0.000	0.000	0.000	1401.79	
10	0.7083	1163.9	1184.5	1179.7	0.830	2.999	71.895	21.601	2.411	0.082	0.161	0.010	0.011	0.000	0.000	0.000	0.000	0.000	1404.12	
11	0.7099	1166.1	1186.8	1182.0	0.833	3.004	71.900	21.359	2.590	0.094	0.191	0.013	0.016	0.000	0.000	0.000	0.000	0.000	1405.13	
12	0.7078	1162.4	1182.9	1178.6	0.847	3.019	71.929	21.603	2.347	0.079	0.156	0.009	0.010	0.000	0.000	0.000	0.000	0.000	1402.76	
13	0.7073	1161.9	1182.5	1177.8	0.824	3.033	72.113	21.352	2.410	0.082	0.162	0.011	0.013	0.000	0.000	0.000	0.000	0.000	1402.67	
14	0.7103	1167.9	1188.5	1183.9	0.798	2.986	71.790	21.504	2.605	0.094	0.192	0.014	0.016	0.000	0.000	0.000	0.000	0.000	1406.93	
15	0.7089	1163.6	1184.2	1179.4	0.849	3.045	71.898	21.455	2.484	0.084	0.163	0.010	0.013	0.000	0.000	0.000	0.000	0.000	1403.05	
16	0.7103	1166.5	1187.1	1183.5	0.853	2.993	71.586	21.851	2.435	0.086	0.173	0.011	0.013	0.000	0.000	0.000	0.000	0.000	1405.24	
17	0.7050	1167.5	1188.2	1184.6	0.592	2.827	72.664	21.021	2.579	0.103	0.192	0.010	0.011	0.000	0.000	0.000	0.000	0.000	1411.65	
18	0.7044	1164.3	1184.9	1181.4	0.660	2.865	72.564	21.268	2.359	0.091	0.173	0.010	0.011	0.000	0.000	0.000	0.000	0.000	1408.38	
19	0.6965	1151.5	1171.8	1168.2	0.623	2.962	73.855	20.149	2.155	0.081	0.154	0.009	0.011	0.000	0.000	0.000	0.000	0.000	1400.63	
20	0.7063	1166.6	1187.3	1183.8	0.681	2.873	72.333	21.352	2.448	0.098	0.191	0.011	0.013	0.000	0.000	0.000	0.000	0.000	1409.28	
21	0.7062	1166.2	1186.9	1183.4	0.683	2.878	72.397	21.250	2.471	0.100	0.196	0.011	0.013	0.000	0.000	0.000	0.000	0.000	1408.98	
22	0.7019	1158.9	1179.4	1175.3	0.663	2.951	73.127	20.573	2.385	0.094	0.183	0.011	0.013	0.000	0.000	0.000	0.000	0.000	1404.38	
23	0.7057	1158.8	1179.4	1174.9	0.812	3.081	72.770	20.415	2.591	0.098	0.202	0.014	0.018	0.000	0.000	0.000	0.000	0.000	1400.52	
24	0.7139	1172.0	1192.7	1187.9	0.825	3.037	71.587	21.258	2.869	0.118	0.259	0.021	0.027	0.000	0.000	0.000	0.000	0.000	1408.10	
25	0.7173	1176.6	1197.5	1192.2	0.842	3.041	71.212	21.532	2.835	0.135	0.323	0.033	0.047	0.000	0.000	0.000	0.000	0.000	1410.11	
26	0.7148	1172.0	1192.8	1187.8	0.842	3.090	71.380	21.517	2.703	0.120	0.284	0.027	0.037	0.000	0.000	0.000	0.000	0.000	1407.22	
27	0.7078	1160.1	1180.7	1176.2	0.859	3.134	72.016	21.342	2.371	0.082	0.169	0.012	0.014	0.000	0.000	0.000	0.000	0.000	1400.04	
28	0.7083	1161.5	1182.0	1177.4	0.847	3.117	71.955	21.377	2.420	0.086	0.175	0.011	0.012	0.000	0.000	0.000	0.000	0.000	1401.22	
29	0.7089	1163.1	1183.7	1179.0	0.816	3.123	72.005	21.203	2.538	0.093	0.192	0.013	0.016	0.000	0.000	0.000	0.000	0.000	1402.47	
30	0.7084	1161.8	1182.3	1177.6	0.834	3.124	72.041	21.203	2.500	0.090	0.183	0.011	0.013	0.000	0.000	0.000	0.000	0.000	1401.48	
31	0.7070	1160.7	1181.3	1176.6	0.795	3.118	72.288	21.002	2.499	0.091	0.181	0.011	0.014	0.000	0.000	0.000	0.000	0.000	1401.56	
Avg	0.7076	1163.0	1183.4	1179.0	0.803	3.030	72.229	21.129	2.503	0.092	0.186	0.013	0.016	0.000	0.000	0.000	0.000	0.000	1403.51	

Zone 261

Source Daily Summary

July 2017

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 Dry	Heating Value As Del	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.7322	1168.0	1188.7	1184.9	0.875	4.923	68.482	21.581	3.632	0.143	0.326	0.019	0.019	0.000	0.000	0.000	0.000	0.000	1385.82	
2	0.7318	1168.0	1188.7	1184.9	0.873	4.889	68.546	21.570	3.620	0.142	0.324	0.018	0.019	0.000	0.000	0.000	0.000	0.000	1386.20	
3	0.7300	1166.8	1187.5	1183.5	0.869	4.794	68.793	21.527	3.535	0.137	0.311	0.016	0.018	0.000	0.000	0.000	0.000	0.000	1386.58	
4	0.7299	1166.5	1187.2	1183.1	0.863	4.814	68.823	21.458	3.561	0.136	0.309	0.017	0.018	0.000	0.000	0.000	0.000	0.000	1386.31	
5	0.7310	1167.6	1188.3	1184.1	0.870	4.836	68.678	21.521	3.603	0.139	0.316	0.018	0.019	0.000	0.000	0.000	0.000	0.000	1386.60	
6	0.7313	1167.6	1188.3	1184.2	0.877	4.860	68.675	21.445	3.640	0.142	0.322	0.019	0.020	0.000	0.000	0.000	0.000	0.000	1386.20	
7	0.7315	1168.0	1188.7	1184.6	0.878	4.847	68.636	21.503	3.638	0.141	0.320	0.018	0.019	0.000	0.000	0.000	0.000	0.000	1386.54	
8	0.7317	1168.8	1189.5	1185.3	0.878	4.821	68.614	21.535	3.649	0.142	0.323	0.018	0.019	0.000	0.000	0.000	0.000	0.000	1387.25	
9	0.7322	1170.5	1191.2	1187.2	0.874	4.772	68.596	21.533	3.709	0.146	0.331	0.019	0.020	0.000	0.000	0.000	0.000	0.000	1388.78	
10	0.7332	1171.6	1192.3	1188.2	0.869	4.802	68.466	21.579	3.760	0.149	0.337	0.019	0.020	0.000	0.000	0.000	0.000	0.000	1389.17	
11	0.7339	1172.1	1192.8	1188.8	0.875	4.832	68.315	21.694	3.759	0.148	0.337	0.019	0.020	0.000	0.000	0.000	0.000	0.000	1389.06	
12	0.7346	1172.4	1193.1	1189.3	0.879	4.876	68.186	21.765	3.765	0.149	0.341	0.020	0.021	0.000	0.000	0.000	0.000	0.000	1388.72	
13	0.7361	1173.5	1194.3	1190.3	0.870	4.960	67.925	21.894	3.810	0.152	0.347	0.020	0.021	0.000	0.000	0.000	0.000	0.000	1388.65	
14	0.7363	1174.1	1194.9	1190.9	0.867	4.945	67.913	21.896	3.833	0.153	0.352	0.020	0.021	0.000	0.000	0.000	0.000	0.000	1389.23	
15	0.7349	1172.0	1192.8	1188.8	0.872	4.931	68.062	21.892	3.719	0.147	0.338	0.019	0.020	0.000	0.000	0.000	0.000	0.000	1388.10	
16	0.7343	1171.7	1192.5	1188.3	0.876	4.895	68.169	21.827	3.710	0.147	0.337	0.019	0.021	0.000	0.000	0.000	0.000	0.000	1388.21	
17	0.7350	1172.6	1193.4	1189.1	0.876	4.900	68.079	21.885	3.734	0.147	0.338	0.020	0.021	0.000	0.000	0.000	0.000	0.000	1388.62	
18	0.7348	1173.2	1193.9	1189.9	0.859	4.879	68.099	21.882	3.753	0.149	0.340	0.019	0.020	0.000	0.000	0.000	0.000	0.000	1389.45	
19	0.7364	1175.7	1196.5	1192.3	0.855	4.881	67.927	21.927	3.857	0.155	0.355	0.020	0.021	0.000	0.000	0.000	0.000	0.000	1390.90	
20	0.7405	1176.0	1196.9	1192.7	0.844	5.252	67.374	21.838	4.091	0.167	0.387	0.022	0.024	0.000	0.000	0.000	0.000	0.000	1387.55	
21	0.7407	1176.1	1196.9	1192.8	0.810	5.323	67.374	21.722	4.155	0.172	0.397	0.023	0.025	0.000	0.000	0.000	0.000	0.000	1387.40	
22	0.7394	1175.4	1196.2	1192.2	0.814	5.234	67.554	21.717	4.081	0.169	0.387	0.022	0.023	0.000	0.000	0.000	0.000	0.000	1387.84	
23	0.7366	1175.8	1196.6	1192.5	0.822	4.942	68.091	21.513	4.055	0.165	0.370	0.020	0.022	0.000	0.000	0.000	0.000	0.000	1390.85	
24	0.7415	1179.6	1200.5	1196.3	0.825	5.164	67.454	21.569	4.375	0.176	0.393	0.022	0.023	0.000	0.000	0.000	0.000	0.000	1390.75	
25	0.7396	1176.1	1197.0	1192.9	0.819	5.201	67.584	21.664	4.120	0.171	0.393	0.022	0.024	0.000	0.000	0.000	0.000	0.000	1388.49	
26	0.7375	1174.2	1195.0	1190.9	0.815	5.131	67.880	21.558	4.019	0.167	0.384	0.022	0.024	0.000	0.000	0.000	0.000	0.000	1388.18	
27	0.7346	1172.7	1193.5	1189.4	0.817	4.950	68.302	21.487	3.874	0.160	0.366	0.021	0.023	0.000	0.000	0.000	0.000	0.000	1389.09	
28	0.7361	1174.0	1194.8	1190.6	0.854	4.957	68.196	21.417	3.978	0.166	0.384	0.023	0.025	0.000	0.000	0.000	0.000	0.000	1389.17	
29	0.7379	1177.2	1198.0	1193.8	0.860	4.918	67.970	21.592	4.035	0.171	0.400	0.026	0.029	0.000	0.000	0.000	0.000	0.000	1391.28	
30	0.7383	1177.8	1198.7	1194.3	0.862	4.910	67.872	21.741	3.983	0.171	0.403	0.027	0.032	0.000	0.000	0.000	0.000	0.000	1391.67	
31	0.7384	1176.8	1197.6	1193.3	0.864	4.981	67.810	21.755	3.962	0.170	0.400	0.027	0.031	0.000	0.000	0.000	0.000	0.000	1390.35	
Avg	0.7352	1173.0	1193.4	1189.3	0.857	4.949	68.143	21.661	3.839	0.155	0.354	0.020	0.022	0.000	0.000	0.000	0.000	0.000	1388.48	

Zone 2b2

Gas Composition and Properties

Effective July 1, 2017 09:00 - January 18, 2038 21:14

Source #: 2501030
Name: LIGNITE PLANT

Component	Mole %	Liquid Content	Mass %
Carbon Dioxide, CO2	0.1206		0.2721
Nitrogen, N2	3.0899		4.4372
Methane, C1	77.8140		63.9927
Ethane, C2	16.2255	0.0000	25.0102
Propane, C3	2.5573	0.7025	5.7807
iso-Butane, iC4	0.0768	0.0251	0.2288
n-Butane, nC4	0.0659	0.0207	0.1963
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	0.0500		0.0820
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	-67.496	
Cricondentherm	-23.167	
HV, Dry @ Base P, T	1145.71	
HV, Sat @ Base P, T	1125.77	
HV, Sat @ Sample P, T	1145.71	
Relative Density	0.6741	
C6+: 100		

Totals 100.0000 0.7480 100.0000

Sample
Date: 08/01/2017 Pressure: 160.0
Type: Composite Temperature: 0.0
Tech: ES H2O: lbs/mm
H2S: ppm
Remarks:

Analysis
Date: 08/02/2017 Instrument: WBI- 200
Cylinder: 312
Tech: MB
Remarks:

Zone 2b3

Gas Composition and Properties

Effective July 1, 2017 09:00 - January 18, 2038 21:14

Source #: 3002013
Name: EPPING BORDER

Component	Mole %	Liquid Content	Mass %
Carbon Dioxide, CO2	0.7068		1.5924
Nitrogen, N2	2.8233		4.0489
Methane, C1	77.4633		63.6185
Ethane, C2	17.1348	4.5841	26.3762
Propane, C3	1.6783	0.4610	3.7886
iso-Butane, iC4	0.0562	0.0183	0.1672
n-Butane, nC4	0.1126	0.0354	0.3350
iso-Pentane, iC5	0.0076	0.0028	0.0281
n-Pentane, nC5	0.0084	0.0030	0.0310
Neo-Pentane, NeoC5			
Hexanes Plus, C6+	0.0000	0.0000	0.0000
Water, H2O			
Hydrogen Sulfide, H2S			
Oxygen, O2	0.0086		0.0141
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	1137.62	
HV, Sat @ Base P, T	1117.82	
HV, Sat @ Sample P, T	1137.62	
Relative Density	0.6750	
C6+: 100		

Totals 99.9999 5.1040 100.0000

Sample
Date: 08/01/2017 Pressure: 620.0
Type: Composite Temperature: 0.0
Tech: ES H2O: lbs/mm
H2S: ppm
Remarks:

Analysis
Date: 08/02/2017 Instrument: WBI- 205
Cylinder: 338
Tech: MB
Remarks:

Zone 2b4

Source Daily Summary

July 2017

Number: 603

Pressure Base: 14.730

Contract Day: 1

Name: TIOGA STN-COUNTY LINE PLANT

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	0.7051	1156.1	1176.6	1173.1	0.866	3.113	72.731	20.519	2.478	0.088	0.177	0.012	0.016	0.000	0.000	0.000	0.000	0.000	0.000	1397.81
2	0.7069	1159.6	1180.1	1176.7	0.861	3.085	72.321	20.964	2.489	0.085	0.170	0.011	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1400.21
3	0.7065	1159.0	1179.5	1176.1	0.865	3.074	72.426	20.856	2.500	0.086	0.169	0.011	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1399.91
4	0.7077	1161.5	1182.1	1178.6	0.850	3.056	72.311	20.880	2.607	0.089	0.179	0.013	0.016	0.000	0.000	0.000	0.000	0.000	0.000	1401.78
5	0.7059	1158.8	1179.3	1175.8	0.837	3.071	72.558	20.705	2.560	0.086	0.162	0.009	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1400.27
6	0.7074	1160.9	1181.5	1178.1	0.863	3.041	72.247	21.046	2.539	0.084	0.161	0.009	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1401.44
7	0.7079	1160.9	1181.5	1177.9	0.878	3.063	72.208	21.056	2.506	0.085	0.174	0.013	0.016	0.000	0.000	0.000	0.000	0.000	0.000	1400.83
8	0.7075	1161.1	1181.7	1178.3	0.853	3.051	72.164	21.192	2.473	0.081	0.163	0.010	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1401.62
9	0.7076	1161.9	1182.5	1178.9	0.844	3.026	72.161	21.238	2.458	0.083	0.165	0.011	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1402.37
10	0.7085	1164.1	1184.8	1181.3	0.829	3.000	71.888	21.594	2.420	0.083	0.165	0.010	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1404.26
11	0.7101	1166.4	1187.0	1183.4	0.835	3.001	71.853	21.418	2.583	0.093	0.189	0.013	0.016	0.000	0.000	0.000	0.000	0.000	0.000	1405.28
12	0.7078	1162.2	1182.8	1179.3	0.849	3.023	71.933	21.601	2.342	0.078	0.155	0.009	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1402.60
13	0.7076	1162.5	1183.1	1179.5	0.821	3.029	72.088	21.356	2.433	0.083	0.165	0.011	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1403.08
14	0.7107	1168.4	1189.1	1185.6	0.802	2.984	71.732	21.544	2.615	0.095	0.195	0.014	0.017	0.000	0.000	0.000	0.000	0.000	0.000	1407.21
15	0.7092	1164.0	1184.6	1181.0	0.853	3.045	71.836	21.511	2.487	0.083	0.163	0.010	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1403.22
16	0.7104	1166.2	1186.9	1183.5	0.862	3.003	71.555	21.878	2.424	0.084	0.171	0.011	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1404.85
17	0.7044	1166.7	1187.4	1183.8	0.590	2.824	72.762	20.944	2.567	0.102	0.190	0.010	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1411.29
18	0.7048	1164.9	1185.5	1182.1	0.665	2.858	72.493	21.333	2.364	0.091	0.174	0.010	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1408.73
19	0.6984	1154.8	1175.2	1171.7	0.623	2.934	73.531	20.451	2.203	0.082	0.155	0.009	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1402.86
20	0.7064	1166.6	1187.3	1183.8	0.685	2.873	72.304	21.389	2.436	0.097	0.191	0.011	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1409.25
21	0.7065	1166.7	1187.3	1183.9	0.685	2.874	72.345	21.306	2.471	0.100	0.196	0.011	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1409.24
22	0.7020	1159.1	1179.6	1176.1	0.662	2.951	73.115	20.573	2.395	0.095	0.185	0.011	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1404.51
23	0.7067	1160.4	1181.0	1177.4	0.813	3.073	72.642	20.485	2.639	0.102	0.212	0.015	0.018	0.000	0.000	0.000	0.000	0.000	0.000	1401.50
24	0.7148	1173.4	1194.2	1190.4	0.824	3.029	71.482	21.331	2.888	0.122	0.273	0.022	0.029	0.000	0.000	0.000	0.000	0.000	0.000	1409.00
25	0.7178	1177.4	1198.3	1193.9	0.846	3.038	71.143	21.575	2.851	0.137	0.328	0.034	0.047	0.000	0.000	0.000	0.000	0.000	0.000	1410.50
26	0.7148	1171.9	1192.7	1188.7	0.842	3.095	71.369	21.531	2.697	0.120	0.283	0.027	0.036	0.000	0.000	0.000	0.000	0.000	0.000	1407.11
27	0.7080	1160.5	1181.0	1177.5	0.860	3.128	71.985	21.380	2.369	0.083	0.170	0.012	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1400.31
28	0.7086	1162.0	1182.5	1179.1	0.845	3.115	71.914	21.410	2.429	0.087	0.177	0.011	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1401.55
29	0.7095	1163.8	1184.4	1180.8	0.827	3.122	71.913	21.270	2.548	0.094	0.196	0.014	0.017	0.000	0.000	0.000	0.000	0.000	0.000	1402.69
30	0.7085	1162.1	1182.6	1179.1	0.832	3.121	72.015	21.235	2.500	0.090	0.183	0.011	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1401.73
31	0.7080	1161.9	1182.5	1178.9	0.808	3.117	72.161	21.080	2.527	0.093	0.188	0.012	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1402.01
Avg	0.7079	1163.0	1184.0	1180.5	0.806	3.026	72.167	21.182	2.510	0.092	0.188	0.013	0.016	0.000	0.000	0.000	0.000	0.000	0.000	1403.84

Zone 265

Source Daily Summary

July 2017

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 Dry	Heating Value As Del	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.7310	1168.1	1188.7	1184.4	0.860	4.828	68.791	21.363	3.640	0.143	0.329	0.021	0.024	0.000	0.000	0.000	0.000	0.000	1386.91	
2	0.7308	1167.9	1188.6	1184.3	0.859	4.820	68.805	21.373	3.633	0.141	0.325	0.021	0.022	0.000	0.000	0.000	0.000	0.000	1386.94	
3	0.7307	1168.1	1188.8	1184.3	0.865	4.794	68.854	21.333	3.639	0.143	0.328	0.021	0.024	0.000	0.000	0.000	0.000	0.000	1387.20	
4	0.7318	1171.0	1191.7	1187.2	0.856	4.733	68.759	21.383	3.735	0.148	0.340	0.021	0.023	0.000	0.000	0.000	0.000	0.000	1389.59	
5	0.7337	1171.9	1192.7	1188.1	0.856	4.849	68.544	21.341	3.845	0.156	0.359	0.023	0.026	0.000	0.000	0.000	0.000	0.000	1388.94	
6	0.7320	1171.3	1192.0	1187.6	0.844	4.745	68.693	21.464	3.730	0.146	0.334	0.021	0.023	0.000	0.000	0.000	0.000	0.000	1389.84	
7	0.7347	1173.5	1194.3	1189.7	0.866	4.830	68.257	21.722	3.775	0.150	0.351	0.023	0.025	0.000	0.000	0.000	0.000	0.000	1389.89	
8	0.7344	1172.5	1193.2	1188.5	0.861	4.872	68.309	21.623	3.786	0.150	0.351	0.023	0.025	0.000	0.000	0.000	0.000	0.000	1388.98	
9	0.7350	1173.4	1194.2	1189.4	0.852	4.891	68.204	21.688	3.810	0.152	0.353	0.023	0.025	0.000	0.000	0.000	0.000	0.000	1389.42	
10	0.7354	1173.6	1194.4	1189.8	0.855	4.909	68.080	21.825	3.785	0.150	0.349	0.022	0.024	0.000	0.000	0.000	0.000	0.000	1389.36	
11	0.7361	1174.3	1195.1	1190.3	0.845	4.952	68.019	21.775	3.842	0.155	0.362	0.023	0.026	0.000	0.000	0.000	0.000	0.000	1389.41	
12	0.7346	1173.4	1194.2	1189.7	0.849	4.853	68.185	21.839	3.735	0.148	0.345	0.022	0.024	0.000	0.000	0.000	0.000	0.000	1389.91	
13	0.7340	1172.4	1193.1	1188.6	0.860	4.850	68.247	21.827	3.680	0.147	0.343	0.022	0.024	0.000	0.000	0.000	0.000	0.000	1389.19	
14	0.7346	1174.4	1195.2	1190.5	0.827	4.831	68.269	21.702	3.816	0.153	0.355	0.022	0.024	0.000	0.000	0.000	0.000	0.000	1391.03	
15	0.7364	1175.8	1196.6	1192.0	0.850	4.873	68.047	21.775	3.877	0.158	0.369	0.024	0.027	0.000	0.000	0.000	0.000	0.000	1391.01	
16	0.7356	1173.5	1194.3	1189.5	0.855	4.937	68.126	21.665	3.856	0.154	0.359	0.023	0.025	0.000	0.000	0.000	0.000	0.000	1389.03	
17	0.7407	1176.8	1197.6	1193.0	0.840	5.230	67.423	21.780	4.102	0.171	0.401	0.026	0.028	0.000	0.000	0.000	0.000	0.000	1388.20	
18	0.7393	1176.1	1196.9	1192.5	0.801	5.206	67.652	21.619	4.098	0.172	0.399	0.025	0.027	0.000	0.000	0.000	0.000	0.000	1388.59	
19	0.7350	1172.6	1193.4	1189.0	0.801	5.008	68.233	21.524	3.862	0.158	0.366	0.023	0.025	0.000	0.000	0.000	0.000	0.000	1388.62	
20	0.7360	1172.8	1193.6	1187.7	0.802	5.091	68.328	21.075	4.088	0.169	0.394	0.025	0.027	0.000	0.000	0.000	0.000	0.000	1387.86	
21	0.7385	1176.3	1197.1	1192.4	0.806	5.107	67.793	21.626	4.052	0.169	0.395	0.025	0.027	0.000	0.000	0.000	0.000	0.000	1389.60	
22	0.7382	1175.6	1196.4	1191.7	0.804	5.122	67.875	21.509	4.065	0.170	0.400	0.026	0.028	0.000	0.000	0.000	0.000	0.000	1389.11	
23	0.7338	1172.5	1193.3	1188.5	0.808	4.893	68.481	21.409	3.836	0.157	0.365	0.024	0.026	0.000	0.000	0.000	0.000	0.000	1389.56	
24	0.7366	1175.8	1196.7	1191.8	0.850	4.891	68.240	21.381	4.013	0.169	0.399	0.027	0.030	0.000	0.000	0.000	0.000	0.000	1390.81	
25	0.7386	1179.1	1200.0	1195.1	0.845	4.887	67.940	21.649	4.016	0.175	0.421	0.031	0.036	0.000	0.000	0.000	0.000	0.000	1392.68	
26	0.7385	1178.3	1199.2	1194.4	0.846	4.921	67.913	21.677	3.984	0.173	0.418	0.031	0.036	0.000	0.000	0.000	0.000	0.000	1391.89	
27	0.7358	1170.3	1191.0	1186.5	0.854	5.149	68.071	21.512	3.844	0.157	0.365	0.023	0.026	0.000	0.000	0.000	0.000	0.000	1385.06	
28	0.7352	1170.0	1190.8	1186.3	0.858	5.103	68.194	21.426	3.859	0.154	0.359	0.023	0.025	0.000	0.000	0.000	0.000	0.000	1385.32	
29	0.7355	1173.5	1194.3	1189.8	0.843	4.937	68.181	21.595	3.879	0.155	0.362	0.023	0.025	0.000	0.000	0.000	0.000	0.000	1389.22	
30	0.7374	1175.2	1196.0	1191.5	0.849	5.003	67.970	21.589	3.996	0.161	0.379	0.025	0.027	0.000	0.000	0.000	0.000	0.000	1389.39	
31	0.7377	1175.9	1196.7	1192.2	0.844	5.001	67.932	21.600	4.026	0.163	0.384	0.024	0.026	0.000	0.000	0.000	0.000	0.000	1389.90	
Avg	0.7354	1173.0	1194.2	1189.6	0.842	4.939	68.207	21.570	3.868	0.157	0.366	0.024	0.026	0.000	0.000	0.000	0.000	0.000	1389.11	

Zone 271

Source Daily Summary

July 2017

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 Dry	Heating Value As Del	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.7298	1165.6	1186.2	1182.9	0.857	4.871	68.859	21.378	3.549	0.136	0.306	0.020	0.022	0.000						1385.17
2	0.7315	1167.4	1188.1	1184.7	0.864	4.912	68.629	21.461	3.629	0.141	0.318	0.021	0.023	0.000						1385.66
3	0.7313	1166.6	1187.2	1183.9	0.870	4.935	68.698	21.337	3.651	0.142	0.321	0.021	0.023	0.000						1384.86
4	0.7319	1168.0	1188.7	1185.4	0.872	4.900	68.582	21.480	3.659	0.142	0.320	0.022	0.024	0.000						1386.09
5	0.7329	1170.1	1190.8	1187.6	0.867	4.869	68.522	21.461	3.750	0.149	0.336	0.023	0.025	0.000						1387.69
6	0.7332	1170.7	1191.5	1188.1	0.859	4.869	68.535	21.402	3.794	0.152	0.342	0.023	0.026	0.000						1388.12
7	0.7313	1169.4	1190.1	1186.8	0.850	4.786	68.752	21.411	3.693	0.144	0.320	0.021	0.023	0.000						1388.33
8	0.7352	1172.4	1193.2	1189.7	0.874	4.937	68.116	21.744	3.791	0.150	0.340	0.023	0.025	0.000						1388.13
9	0.7340	1170.9	1191.6	1188.3	0.870	4.922	68.284	21.648	3.747	0.147	0.335	0.023	0.024	0.000						1387.55
10	0.7358	1172.8	1193.5	1190.1	0.861	4.986	68.040	21.733	3.831	0.152	0.346	0.023	0.025	0.000						1388.04
11	0.7352	1171.7	1192.4	1189.1	0.859	5.005	68.056	21.762	3.784	0.149	0.338	0.023	0.024	0.000						1387.35
12	0.7360	1173.0	1193.8	1190.3	0.851	5.007	67.990	21.785	3.816	0.153	0.348	0.024	0.026	0.000						1388.06
13	0.7344	1172.0	1192.7	1189.3	0.858	4.912	68.182	21.788	3.732	0.148	0.334	0.022	0.024	0.000						1388.38
14	0.7339	1170.4	1191.2	1187.8	0.866	4.941	68.223	21.777	3.673	0.145	0.329	0.022	0.024	0.000						1387.13
15	0.7347	1173.1	1193.9	1190.6	0.834	4.903	68.193	21.727	3.802	0.151	0.342	0.023	0.025	0.000						1389.56
16	0.7371	1175.6	1196.4	1192.9	0.850	4.954	67.913	21.795	3.913	0.159	0.363	0.025	0.028	0.000						1390.11
17	0.7362	1173.4	1194.1	1190.8	0.864	4.988	67.936	21.830	3.833	0.153	0.347	0.023	0.025	0.000						1388.40
18	0.7381	1174.6	1195.4	1191.9	0.854	5.111	67.646	21.922	3.895	0.158	0.362	0.025	0.027	0.000						1387.94
19	0.7400	1175.4	1196.2	1192.8	0.811	5.301	67.483	21.687	4.105	0.171	0.390	0.026	0.028	0.000						1387.14
20	0.7370	1173.1	1193.9	1190.5	0.810	5.156	67.856	21.681	3.920	0.161	0.366	0.024	0.026	0.000						1387.36
21	0.7357	1171.2	1192.0	1188.7	0.816	5.141	68.213	21.257	3.980	0.165	0.376	0.025	0.027	0.000						1386.34
22	0.7324	1166.7	1187.3	1183.9	0.779	5.168	68.751	20.822	3.900	0.161	0.367	0.025	0.027	0.000						1383.97
23	0.7388	1175.0	1195.9	1192.4	0.813	5.205	67.694	21.622	4.056	0.169	0.387	0.026	0.028	0.000						1387.85
24	0.7335	1170.8	1191.5	1188.0	0.811	4.966	68.485	21.355	3.825	0.156	0.353	0.024	0.026	0.000						1387.86
25	0.7370	1174.9	1195.7	1192.3	0.860	4.969	68.087	21.476	4.006	0.165	0.380	0.027	0.031	0.000						1389.44
26	0.7388	1177.6	1198.4	1194.7	0.851	4.994	67.840	21.656	4.009	0.174	0.408	0.032	0.037	0.000						1390.71
27	0.7392	1177.7	1198.6	1194.9	0.860	5.006	67.745	21.747	3.996	0.172	0.407	0.031	0.036	0.000						1390.56
28	0.7367	1170.0	1190.7	1187.3	0.864	5.236	67.890	21.579	3.863	0.157	0.359	0.024	0.027	0.000						1383.90
29	0.7362	1170.3	1191.0	1187.6	0.866	5.167	67.988	21.543	3.881	0.154	0.352	0.023	0.025	0.000						1384.76
30	0.7348	1172.1	1192.8	1189.5	0.849	4.953	68.171	21.689	3.798	0.150	0.342	0.023	0.025	0.000						1388.25
31	0.7381	1174.6	1195.4	1192.0	0.855	5.108	67.760	21.693	4.004	0.161	0.368	0.025	0.027	0.000						1388.00
Avg	0.7352	1172.0	1192.6	1189.2	0.849	5.006	68.165	21.589	3.835	0.154	0.352	0.024	0.026	0.000						1387.51

Zone 272

Source Daily Summary

July 2017

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 Dry	Heating Value As Del	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.7311	1167.9	1188.6	1185.4	0.860	4.846	68.677	21.514	3.604	0.140	0.314	0.021	0.023	0.000	0.000	0.000	0.000	0.000	1386.72	
2	0.7313	1167.3	1188.0	1184.8	0.870	4.887	68.725	21.348	3.659	0.143	0.322	0.022	0.024	0.000	0.000	0.000	0.000	0.000	1385.77	
3	0.7321	1169.1	1189.9	1186.6	0.868	4.847	68.576	21.540	3.661	0.142	0.320	0.022	0.024	0.000	0.000	0.000	0.000	0.000	1387.26	
4	0.7325	1170.2	1190.9	1187.7	0.866	4.827	68.570	21.493	3.721	0.147	0.330	0.022	0.024	0.000	0.000	0.000	0.000	0.000	1388.12	
5	0.7328	1171.5	1192.2	1189.1	0.866	4.779	68.578	21.475	3.766	0.150	0.337	0.023	0.026	0.000	0.000	0.000	0.000	0.000	1389.38	
6	0.7322	1170.6	1191.4	1188.2	0.851	4.796	68.665	21.405	3.760	0.148	0.330	0.022	0.023	0.000	0.000	0.000	0.000	0.000	1388.91	
7	0.7355	1173.4	1194.1	1190.9	0.874	4.904	68.082	21.791	3.811	0.151	0.340	0.022	0.024	0.000	0.000	0.000	0.000	0.000	1388.99	
8	0.7344	1172.4	1193.2	1189.9	0.874	4.858	68.254	21.730	3.749	0.148	0.338	0.023	0.025	0.000	0.000	0.000	0.000	0.000	1388.92	
9	0.7365	1174.0	1194.8	1191.6	0.862	4.980	67.940	21.785	3.877	0.155	0.352	0.024	0.025	0.000	0.000	0.000	0.000	0.000	1388.84	
10	0.7352	1173.0	1193.8	1190.5	0.863	4.911	68.109	21.800	3.779	0.150	0.340	0.023	0.026	0.000	0.000	0.000	0.000	0.000	1388.91	
11	0.7362	1173.8	1194.5	1191.4	0.857	4.972	67.895	21.935	3.797	0.151	0.344	0.023	0.025	0.000	0.000	0.000	0.000	0.000	1388.89	
12	0.7367	1174.7	1195.5	1192.2	0.859	4.956	67.907	21.871	3.851	0.155	0.351	0.024	0.026	0.000	0.000	0.000	0.000	0.000	1389.42	
13	0.7341	1171.8	1192.5	1189.3	0.864	4.883	68.195	21.858	3.680	0.145	0.329	0.022	0.023	0.000	0.000	0.000	0.000	0.000	1388.50	
14	0.7345	1172.9	1193.6	1190.3	0.847	4.887	68.179	21.801	3.753	0.149	0.336	0.023	0.025	0.000	0.000	0.000	0.000	0.000	1389.32	
15	0.7375	1177.0	1197.8	1194.6	0.847	4.911	67.848	21.884	3.929	0.161	0.367	0.025	0.027	0.000	0.000	0.000	0.000	0.000	1391.43	
16	0.7354	1173.5	1194.3	1191.0	0.863	4.901	68.087	21.811	3.800	0.151	0.341	0.023	0.025	0.000	0.000	0.000	0.000	0.000	1389.29	
17	0.7381	1175.2	1196.0	1192.7	0.865	5.053	67.671	21.923	3.918	0.158	0.361	0.024	0.026	0.000	0.000	0.000	0.000	0.000	1388.77	
18	0.7422	1177.6	1198.5	1195.2	0.819	5.352	67.172	21.836	4.190	0.175	0.401	0.027	0.029	0.000	0.000	0.000	0.000	0.000	1387.78	
19	0.7384	1174.9	1195.7	1192.4	0.814	5.173	67.673	21.763	3.989	0.164	0.374	0.025	0.027	0.000	0.000	0.000	0.000	0.000	1388.10	
20	0.7342	1171.6	1192.3	1189.0	0.807	4.987	68.418	21.326	3.885	0.161	0.364	0.024	0.026	0.000	0.000	0.000	0.000	0.000	1388.21	
21	0.7386	1175.2	1196.0	1192.6	0.808	5.184	67.799	21.462	4.137	0.170	0.385	0.026	0.028	0.000	0.000	0.000	0.000	0.000	1388.33	
22	0.7389	1176.2	1197.0	1193.5	0.814	5.140	67.680	21.708	4.050	0.169	0.386	0.026	0.028	0.000	0.000	0.000	0.000	0.000	1389.15	
23	0.7360	1173.7	1194.5	1191.0	0.802	5.037	68.133	21.493	3.949	0.163	0.372	0.025	0.027	0.000	0.000	0.000	0.000	0.000	1388.96	
24	0.7348	1171.6	1192.4	1188.9	0.846	4.987	68.351	21.337	3.903	0.159	0.364	0.025	0.028	0.000	0.000	0.000	0.000	0.000	1387.62	
25	0.7385	1178.1	1198.9	1195.3	0.851	4.933	67.892	21.640	4.054	0.172	0.398	0.029	0.033	0.000	0.000	0.000	0.000	0.000	1391.70	
26	0.7388	1178.8	1199.6	1195.8	0.859	4.908	67.821	21.801	3.962	0.172	0.407	0.032	0.038	0.000	0.000	0.000	0.000	0.000	1392.10	
27	0.7389	1176.4	1197.2	1193.6	0.858	5.057	67.749	21.726	3.978	0.170	0.398	0.030	0.034	0.000	0.000	0.000	0.000	0.000	1389.34	
28	0.7351	1167.6	1188.3	1184.9	0.864	5.233	68.082	21.472	3.813	0.151	0.339	0.022	0.024	0.000	0.000	0.000	0.000	0.000	1382.63	
29	0.7359	1172.7	1193.4	1190.0	0.860	5.001	68.046	21.676	3.866	0.153	0.350	0.023	0.025	0.000	0.000	0.000	0.000	0.000	1387.93	
30	0.7379	1175.2	1196.0	1192.7	0.850	5.049	67.814	21.711	3.995	0.160	0.368	0.025	0.027	0.000	0.000	0.000	0.000	0.000	1389.01	
31	0.7377	1175.0	1195.8	1192.6	0.855	5.040	67.825	21.720	3.986	0.160	0.364	0.024	0.026	0.000	0.000	0.000	0.000	0.000	1388.93	
Avg	0.7359	1173.0	1194.1	1190.8	0.850	4.977	68.078	21.666	3.867	0.156	0.356	0.024	0.026	0.000	0.000	0.000	0.000	0.000	1388.62	

Zone 223

Source Daily Summary

July 2017

Number: 041

Pressure Base: 14.730

Contract Day: 1

Name: BISMARCK STN-GLEN ULLIN 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	0.7310	1168.1	1188.8	1184.7	0.859	4.827	68.791	21.369	3.637	0.143	0.329	0.021	0.024	0.000	0.000	0.000	0.000	0.000	1386.95	
2	0.7306	1167.6	1188.3	1184.3	0.859	4.820	68.842	21.337	3.632	0.141	0.325	0.021	0.022	0.000	0.000	0.000	0.000	0.000	1386.77	
3	0.7307	1168.0	1188.7	1184.5	0.864	4.798	68.852	21.333	3.637	0.142	0.328	0.022	0.024	0.000	0.000	0.000	0.000	0.000	1387.13	
4	0.7317	1170.7	1191.4	1187.3	0.855	4.740	68.781	21.356	3.734	0.148	0.340	0.022	0.024	0.000	0.000	0.000	0.000	0.000	1389.39	
5	0.7334	1171.5	1192.3	1188.0	0.854	4.853	68.584	21.309	3.837	0.155	0.358	0.023	0.026	0.000	0.000	0.000	0.000	0.000	1388.70	
6	0.7316	1171.0	1191.7	1187.6	0.843	4.732	68.747	21.441	3.717	0.145	0.332	0.021	0.023	0.000	0.000	0.000	0.000	0.000	1389.81	
7	0.7347	1173.5	1194.3	1190.2	0.865	4.834	68.259	21.714	3.779	0.151	0.351	0.023	0.025	0.000	0.000	0.000	0.000	0.000	1389.85	
8	0.7341	1172.2	1192.9	1188.8	0.861	4.867	68.350	21.596	3.780	0.150	0.350	0.023	0.025	0.000	0.000	0.000	0.000	0.000	1388.86	
9	0.7351	1173.5	1194.3	1190.1	0.853	4.891	68.191	21.697	3.812	0.152	0.355	0.023	0.026	0.000	0.000	0.000	0.000	0.000	1389.49	
10	0.7351	1173.3	1194.1	1190.0	0.854	4.895	68.133	21.799	3.776	0.150	0.347	0.022	0.024	0.000	0.000	0.000	0.000	0.000	1389.36	
11	0.7359	1174.0	1194.8	1190.5	0.845	4.950	68.050	21.758	3.833	0.155	0.360	0.023	0.026	0.000	0.000	0.000	0.000	0.000	1389.29	
12	0.7342	1173.3	1194.1	1190.1	0.849	4.830	68.240	21.819	3.725	0.148	0.344	0.022	0.024	0.000	0.000	0.000	0.000	0.000	1390.07	
13	0.7342	1172.2	1193.0	1189.0	0.859	4.875	68.219	21.820	3.689	0.147	0.343	0.022	0.025	0.000	0.000	0.000	0.000	0.000	1388.86	
14	0.7344	1174.1	1194.9	1190.7	0.828	4.831	68.291	21.695	3.803	0.152	0.353	0.023	0.025	0.000	0.000	0.000	0.000	0.000	1390.83	
15	0.7363	1175.7	1196.6	1192.4	0.848	4.870	68.073	21.752	3.879	0.158	0.369	0.024	0.027	0.000	0.000	0.000	0.000	0.000	1391.04	
16	0.7353	1173.3	1194.1	1189.7	0.855	4.913	68.186	21.649	3.838	0.153	0.357	0.023	0.025	0.000	0.000	0.000	0.000	0.000	1389.14	
17	0.7396	1176.1	1196.9	1192.7	0.841	5.175	67.565	21.754	4.052	0.167	0.393	0.025	0.027	0.000	0.000	0.000	0.000	0.000	1388.30	
18	0.7394	1176.1	1196.9	1192.8	0.800	5.219	67.644	21.604	4.108	0.172	0.401	0.025	0.027	0.000	0.000	0.000	0.000	0.000	1388.46	
19	0.7354	1173.2	1194.0	1189.9	0.799	5.016	68.174	21.549	3.884	0.159	0.369	0.023	0.026	0.000	0.000	0.000	0.000	0.000	1388.89	
20	0.7365	1173.0	1193.8	1189.5	0.809	5.118	68.205	21.184	4.069	0.168	0.394	0.025	0.027	0.000	0.000	0.000	0.000	0.000	1387.57	
21	0.7389	1176.5	1197.3	1193.1	0.807	5.130	67.744	21.619	4.078	0.170	0.398	0.025	0.028	0.000	0.000	0.000	0.000	0.000	1389.47	
22	0.7384	1175.7	1196.5	1192.4	0.805	5.136	67.846	21.511	4.076	0.171	0.402	0.026	0.028	0.000	0.000	0.000	0.000	0.000	1388.99	
23	0.7336	1172.3	1193.0	1188.9	0.807	4.891	68.513	21.391	3.825	0.157	0.365	0.024	0.026	0.000	0.000	0.000	0.000	0.000	1389.46	
24	0.7363	1175.2	1196.0	1191.8	0.850	4.904	68.262	21.372	3.993	0.167	0.395	0.027	0.031	0.000	0.000	0.000	0.000	0.000	1390.33	
25	0.7385	1179.0	1199.9	1195.5	0.845	4.885	67.958	21.636	4.016	0.174	0.419	0.031	0.036	0.000	0.000	0.000	0.000	0.000	1392.64	
26	0.7385	1178.3	1199.2	1194.7	0.845	4.926	67.912	21.673	3.986	0.173	0.418	0.031	0.036	0.000	0.000	0.000	0.000	0.000	1391.84	
27	0.7359	1170.8	1191.5	1187.4	0.854	5.132	68.073	21.515	3.850	0.158	0.368	0.024	0.026	0.000	0.000	0.000	0.000	0.000	1385.46	
28	0.7352	1170.0	1190.7	1186.5	0.858	5.106	68.190	21.431	3.856	0.154	0.358	0.023	0.025	0.000	0.000	0.000	0.000	0.000	1385.25	
29	0.7354	1173.3	1194.1	1189.9	0.843	4.943	68.192	21.584	3.874	0.155	0.361	0.023	0.025	0.000	0.000	0.000	0.000	0.000	1389.01	
30	0.7373	1175.2	1196.0	1191.8	0.849	5.001	67.977	21.588	3.993	0.161	0.379	0.025	0.027	0.000	0.000	0.000	0.000	0.000	1389.39	
31	0.7376	1175.7	1196.5	1192.2	0.844	5.007	67.940	21.594	4.018	0.163	0.383	0.024	0.026	0.000	0.000	0.000	0.000	0.000	1389.68	
Avg	0.7353	1173.0	1194.1	1189.9	0.842	4.939	68.219	21.563	3.864	0.157	0.366	0.024	0.026	0.000	0.000	0.000	0.000	0.000	1389.04	

Zone 28

Source Daily Summary

July 2017

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	0.6847	1151.1	1171.5	1168.0	0.000	2.831	73.831	22.487	0.835	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.52
2	0.7150	1160.4	1181.0	1177.3	0.584	4.216	70.597	21.506	2.749	0.095	0.222	0.014	0.016	0.000	0.000	0.000	0.000	0.000	0.000	1393.65
3	0.7264	1162.2	1182.8	1178.9	0.834	4.798	69.459	20.912	3.520	0.131	0.306	0.020	0.021	0.000	0.000	0.000	0.000	0.000	0.000	1384.45
4	0.7271	1162.6	1183.2	1179.3	0.833	4.840	69.369	20.906	3.569	0.132	0.309	0.020	0.021	0.000	0.000	0.000	0.000	0.000	0.000	1384.25
5	0.6940	1156.5	1176.9	1173.2	0.132	3.177	72.799	22.329	1.468	0.028	0.060	0.003	0.003	0.000	0.000	0.000	0.000	0.000	0.000	1409.70
6	0.6864	1153.3	1173.7	1170.1	0.003	2.857	73.586	22.594	0.941	0.007	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1413.38
7	0.6853	1152.0	1172.4	1168.8	0.000	2.837	73.698	22.610	0.838	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.96
8	0.7046	1159.0	1179.5	1175.7	0.355	3.677	71.732	21.853	2.155	0.065	0.145	0.009	0.009	0.000	0.000	0.000	0.000	0.000	0.000	1402.24
9	0.7318	1168.6	1189.3	1185.4	0.851	4.883	68.744	21.212	3.777	0.145	0.341	0.022	0.025	0.000	0.000	0.000	0.000	0.000	0.000	1386.95
10	0.7314	1167.7	1188.4	1184.5	0.845	4.911	68.799	21.147	3.769	0.144	0.340	0.022	0.024	0.000	0.000	0.000	0.000	0.000	0.000	1386.24
11	0.7329	1169.2	1189.9	1186.0	0.839	4.967	68.586	21.232	3.829	0.148	0.351	0.023	0.026	0.000	0.000	0.000	0.000	0.000	0.000	1386.62
12	0.7311	1167.5	1188.2	1184.5	0.836	4.902	68.808	21.197	3.738	0.142	0.333	0.021	0.023	0.000	0.000	0.000	0.000	0.000	0.000	1386.39
13	0.7328	1168.9	1189.6	1185.7	0.832	4.990	68.535	21.313	3.789	0.147	0.347	0.022	0.025	0.000	0.000	0.000	0.000	0.000	0.000	1386.31
14	0.7019	1161.5	1182.1	1178.1	0.226	3.461	71.999	22.088	2.048	0.051	0.113	0.007	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1408.01
15	0.6863	1153.2	1173.6	1169.9	0.000	2.858	73.574	22.629	0.923	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1413.40
16	0.6876	1154.9	1175.4	1171.5	0.000	2.872	73.468	22.567	1.073	0.008	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1414.20
17	0.6869	1154.2	1174.7	1171.0	0.000	2.848	73.481	22.712	0.942	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1414.08
18	0.6873	1153.4	1173.8	1170.1	0.021	2.912	73.462	22.596	0.980	0.011	0.018	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.54
19	0.6850	1144.3	1164.6	1160.9	0.156	3.040	74.391	21.106	1.229	0.026	0.048	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	1403.78
20	0.6881	1154.3	1174.7	1170.9	0.066	2.860	73.576	22.284	1.170	0.016	0.026	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1412.85
21	0.6857	1146.7	1167.0	1163.3	0.156	2.954	74.334	21.190	1.293	0.026	0.044	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	1406.03
22	0.6984	1145.5	1165.8	1162.1	0.447	3.775	73.272	19.970	2.267	0.079	0.170	0.010	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1391.98
23	0.7370	1172.0	1192.7	1188.8	0.796	5.242	68.116	21.088	4.146	0.167	0.393	0.025	0.028	0.000	0.000	0.000	0.000	0.000	0.000	1386.10
24	0.7324	1168.7	1189.4	1185.4	0.776	5.049	68.758	20.915	3.925	0.157	0.369	0.024	0.026	0.000	0.000	0.000	0.000	0.000	0.000	1386.45
25	0.7312	1166.9	1187.6	1183.7	0.813	4.986	68.963	20.812	3.860	0.153	0.362	0.024	0.027	0.000	0.000	0.000	0.000	0.000	0.000	1385.53
26	0.7066	1159.5	1180.1	1176.3	0.371	3.801	71.540	21.739	2.284	0.073	0.169	0.011	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1401.02
27	0.6858	1153.3	1173.7	1170.0	0.000	2.803	73.704	22.544	0.932	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1414.02
28	0.6880	1156.0	1176.5	1172.7	0.000	2.845	73.302	22.848	0.988	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1415.09
29	0.6872	1154.7	1175.1	1171.4	0.000	2.854	73.430	22.737	0.961	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1414.25
30	0.6876	1155.4	1175.9	1172.1	0.000	2.847	73.388	22.747	1.001	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1414.74
31	0.6878	1154.7	1175.2	1171.4	0.000	2.910	73.280	22.845	0.949	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1413.68
Avg	0.7043	1158.0	1178.8	1175.1	0.347	3.703	71.761	21.829	2.127	0.065	0.148	0.009	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1401.72

Zone 31

Source Daily Summary

July 2017

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 Dry	Heating Value As Del	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.6833	1140.0	1160.2	1156.7	0.158	3.137	74.711	20.702	1.222	0.023	0.041	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	1400.25
2	0.6844	1141.8	1162.0	1158.5	0.153	3.133	74.569	20.774	1.301	0.024	0.041	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	1401.39
3	0.6802	1133.0	1153.0	1149.5	0.219	3.176	75.518	19.703	1.295	0.029	0.053	0.003	0.003	0.000	0.000	0.000	0.000	0.000	0.000	1394.82
4	0.6818	1134.3	1154.4	1150.8	0.239	3.220	75.369	19.630	1.438	0.034	0.062	0.004	0.003	0.000	0.000	0.000	0.000	0.000	0.000	1394.74
5	0.6678	1092.1	1111.4	1107.8	0.522	4.074	79.054	14.269	1.932	0.061	0.112	0.007	0.006	0.000	0.000	0.000	0.000	0.000	0.000	1356.84
6	0.6683	1091.4	1110.8	1107.0	0.554	4.074	79.146	13.953	2.068	0.067	0.122	0.008	0.007	0.000	0.000	0.000	0.000	0.000	0.000	1355.53
7	0.6822	1135.5	1155.6	1152.1	0.214	3.221	75.190	19.898	1.379	0.031	0.059	0.003	0.003	0.000	0.000	0.000	0.000	0.000	0.000	1395.68
8	0.6880	1156.3	1176.7	1173.1	0.005	2.820	73.284	22.917	0.953	0.008	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1415.42
9	0.6975	1162.9	1183.5	1179.4	0.133	3.112	72.359	22.660	1.608	0.035	0.078	0.007	0.009	0.000	0.000	0.000	0.000	0.000	0.000	1413.58
10	0.7015	1160.9	1181.5	1177.7	0.261	3.409	71.830	22.566	1.757	0.049	0.112	0.007	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1407.35
11	0.6919	1142.5	1162.7	1159.0	0.332	3.520	74.004	20.059	1.895	0.057	0.118	0.008	0.007	0.000	0.000	0.000	0.000	0.000	0.000	1394.58
12	0.6897	1139.5	1159.7	1156.1	0.305	3.533	74.305	19.873	1.814	0.052	0.106	0.007	0.006	0.000	0.000	0.000	0.000	0.000	0.000	1393.21
13	0.6887	1138.3	1158.5	1154.8	0.301	3.526	74.388	19.905	1.714	0.050	0.103	0.007	0.007	0.000	0.000	0.000	0.000	0.000	0.000	1392.67
14	0.6796	1115.2	1135.0	1131.3	0.448	3.849	76.768	16.675	2.045	0.067	0.131	0.009	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1373.51
15	0.6741	1103.8	1123.3	1119.7	0.485	3.969	77.752	15.686	1.913	0.062	0.119	0.008	0.007	0.000	0.000	0.000	0.000	0.000	0.000	1365.02
16	0.6734	1100.9	1120.4	1116.8	0.511	4.038	78.272	14.754	2.189	0.075	0.143	0.009	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1362.11
17	0.6658	1087.5	1106.8	1103.2	0.532	4.112	79.531	13.660	1.956	0.067	0.127	0.008	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1353.22
18	0.6703	1096.4	1115.8	1113.1	0.572	3.925	78.796	14.429	2.075	0.066	0.122	0.008	0.007	0.000	0.000	0.000	0.000	0.000	0.000	1359.76
19	0.6712	1097.2	1116.6	1113.4	0.538	4.016	78.850	14.070	2.282	0.077	0.147	0.010	0.009	0.000	0.000	0.000	0.000	0.000	0.000	1359.77
20	0.6758	1107.5	1127.2	1124.0	0.710	3.552	78.326	14.774	2.343	0.096	0.177	0.012	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1367.93
21	0.6858	1146.9	1167.2	1163.5	0.148	2.970	74.206	21.409	1.190	0.025	0.046	0.003	0.003	0.000	0.000	0.000	0.000	0.000	0.000	1406.05
22	0.6915	1161.2	1181.8	1178.1	0.012	2.832	72.786	23.198	1.145	0.011	0.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1417.94
23	0.6992	1160.7	1181.2	1177.4	0.196	3.309	72.108	22.566	1.668	0.044	0.097	0.006	0.006	0.000	0.000	0.000	0.000	0.000	0.000	1409.41
24	0.7061	1164.4	1185.0	1181.1	0.287	3.591	71.269	22.592	2.033	0.063	0.145	0.009	0.009	0.000	0.000	0.000	0.000	0.000	0.000	1406.90
25	0.7119	1166.5	1187.1	1183.3	0.361	3.899	70.481	22.675	2.307	0.077	0.178	0.011	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1403.64
26	0.7036	1163.1	1183.7	1179.7	0.215	3.551	71.233	23.143	1.692	0.046	0.104	0.007	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1407.83
27	0.6978	1158.7	1179.2	1175.4	0.190	3.315	72.170	22.705	1.476	0.041	0.091	0.006	0.006	0.000	0.000	0.000	0.000	0.000	0.000	1408.27
28	0.6980	1158.9	1179.4	1175.2	0.194	3.313	72.144	22.718	1.488	0.041	0.090	0.006	0.006	0.000	0.000	0.000	0.000	0.000	0.000	1408.37
29	0.6988	1159.8	1180.3	1176.6	0.187	3.343	71.975	22.861	1.492	0.040	0.089	0.006	0.006	0.000	0.000	0.000	0.000	0.000	0.000	1408.65
30	0.6997	1160.6	1181.2	1177.3	0.185	3.378	71.811	22.974	1.510	0.040	0.090	0.006	0.006	0.000	0.000	0.000	0.000	0.000	0.000	1408.76
31	0.7005	1161.1	1181.7	1177.3	0.191	3.415	71.694	23.006	1.547	0.042	0.093	0.006	0.007	0.000	0.000	0.000	0.000	0.000	0.000	1408.55
Avg	0.6874	1137.0	1156.9	1153.2	0.302	3.493	74.642	19.703	1.701	0.048	0.097	0.006	0.006	0.000	0.000	0.000	0.000	0.000	0.000	1391.99

Zone 32

Source Daily Summary

July 2017

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 Dry	Heating Value As Del	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.6898	1159.8	1180.3	1175.7	0.002	2.779	73.025	23.117	1.056	0.008	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1417.88
2	0.6888	1158.4	1178.9	1174.3	0.002	2.772	73.159	23.057	0.990	0.008	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1417.19
3	0.6902	1159.6	1180.2	1175.5	0.002	2.826	72.935	23.160	1.057	0.008	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1417.29
4	0.6893	1158.4	1179.0	1174.2	0.001	2.823	73.013	23.175	0.970	0.008	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1416.69
5	0.6896	1158.7	1179.2	1174.3	0.000	2.828	73.033	23.093	1.026	0.008	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1416.76
6	0.6884	1157.6	1178.1	1173.6	0.001	2.786	73.137	23.150	0.909	0.007	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1416.65
7	0.6886	1158.0	1178.5	1173.9	0.002	2.783	73.160	23.072	0.967	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1416.85
8	0.6908	1161.2	1181.8	1177.2	0.002	2.790	72.973	22.993	1.218	0.010	0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1418.57
9	0.6886	1158.0	1178.5	1174.0	0.001	2.782	73.117	23.164	0.918	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1416.86
10	0.6885	1158.4	1178.9	1174.4	0.019	2.721	73.205	23.086	0.948	0.008	0.011	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1417.45
11	0.6881	1157.4	1177.9	1173.5	0.001	2.764	73.226	23.079	0.912	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1416.76
12	0.6888	1156.6	1177.1	1172.6	0.000	2.889	73.023	23.190	0.877	0.007	0.012	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1414.93
13	0.6886	1157.7	1178.2	1173.4	0.001	2.804	73.053	23.257	0.868	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1416.47
14	0.6911	1161.2	1181.7	1177.1	0.001	2.819	72.905	23.042	1.203	0.011	0.017	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1418.26
15	0.6883	1156.9	1177.4	1173.1	0.010	2.817	73.123	23.130	0.902	0.007	0.010	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1415.83
16	0.6903	1159.7	1180.2	1175.6	0.001	2.837	72.972	23.048	1.119	0.009	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1417.19
17	0.6892	1159.0	1179.6	1175.2	0.002	2.772	72.973	23.341	0.895	0.007	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1417.56
18	0.6881	1156.8	1177.2	1172.9	0.001	2.812	73.142	23.176	0.853	0.007	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1415.87
19	0.6897	1159.7	1180.2	1175.7	0.001	2.782	72.911	23.353	0.937	0.007	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1417.80
20	0.6902	1160.0	1180.6	1176.0	0.001	2.809	72.866	23.312	0.991	0.008	0.012	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1417.69
21	0.6920	1162.9	1183.5	1179.0	0.001	2.804	72.638	23.416	1.108	0.011	0.019	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1419.32
22	0.6901	1160.7	1181.3	1176.9	0.002	2.751	72.896	23.347	0.987	0.007	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1418.72
23	0.6900	1160.7	1181.3	1176.8	0.002	2.741	72.905	23.359	0.975	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1418.83
24	0.6944	1164.2	1184.8	1180.1	0.009	2.943	72.001	24.031	0.997	0.008	0.011	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1418.40
25	0.6910	1159.7	1180.2	1175.9	0.000	2.903	72.570	23.629	0.880	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1416.56
26	0.6878	1157.3	1177.8	1173.3	0.001	2.747	73.238	23.131	0.865	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1416.85
27	0.6889	1158.6	1179.1	1174.7	0.002	2.773	73.066	23.210	0.932	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1417.31
28	0.6902	1160.1	1180.6	1176.1	0.002	2.800	72.863	23.328	0.989	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1417.83
29	0.6899	1159.5	1180.0	1175.5	0.002	2.809	72.884	23.339	0.949	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1417.41
30	0.6899	1159.6	1180.1	1175.5	0.001	2.807	72.912	23.277	0.985	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1417.49
31	0.6900	1158.5	1179.0	1174.4	0.001	2.878	72.815	23.376	0.913	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1416.13
Avg	0.6897	1159.0	1179.7	1175.2	0.002	2.805	72.959	23.240	0.974	0.008	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1417.27

Zone 33

Gas Composition and Properties

Effective June 1, 2016 09:00 - January 18, 2038 21:14

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			
Totals	100.0000	0.6100	100.4818

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		

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

July 2017

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 Dry	Heating Value As Del	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.6852	1123.4	1143.3	1140.3	0.990	3.068	74.402	20.934	0.597	0.003	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1377.95
2	0.6899	1131.9	1151.9	1148.9	0.981	3.001	74.339	20.195	1.455	0.013	0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1383.58
3	0.6743	1105.7	1125.3	1122.4	0.999	3.108	76.591	18.731	0.561	0.004	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1367.18
4	0.6787	1112.7	1132.4	1129.5	1.003	3.091	75.715	19.607	0.575	0.004	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1371.35
5	0.6814	1116.2	1135.9	1133.0	0.997	3.141	75.380	19.666	0.802	0.005	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1372.86
6	0.6763	1106.9	1126.5	1123.5	1.004	3.214	76.147	19.100	0.525	0.004	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1366.62
7	0.6924	1134.2	1154.3	1151.3	0.975	3.099	73.592	21.061	1.257	0.007	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1384.05
8	0.6897	1130.3	1150.4	1147.4	0.978	3.087	73.880	21.034	1.008	0.005	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1381.93
9	0.6868	1125.4	1145.4	1142.4	0.972	3.124	74.317	20.707	0.868	0.005	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1378.83
10	0.6927	1135.6	1155.7	1152.6	0.972	3.054	73.458	21.315	1.182	0.007	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1385.36
11	0.6925	1134.6	1154.7	1151.6	0.974	3.097	73.579	21.073	1.247	0.010	0.018	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1384.26
12	0.6793	1112.7	1132.4	1129.4	0.996	3.158	75.870	19.098	0.866	0.005	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1370.67
13	0.6827	1118.4	1138.2	1135.2	0.995	3.134	74.923	20.335	0.594	0.006	0.012	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1374.27
14	0.6851	1122.7	1142.6	1139.6	0.988	3.102	74.459	20.811	0.628	0.005	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1377.23
15	0.6832	1119.5	1139.3	1136.4	0.990	3.113	74.761	20.575	0.552	0.003	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1375.26
16	0.6872	1129.2	1149.2	1146.1	0.987	2.905	74.456	20.614	1.023	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1383.03
17	0.6810	1116.6	1136.4	1133.4	0.996	3.075	75.347	19.898	0.674	0.004	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1373.88
18	0.6798	1115.1	1134.8	1131.9	0.997	3.057	75.415	20.020	0.503	0.003	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1373.19
19	0.6801	1114.4	1134.2	1131.2	1.001	3.117	75.444	19.833	0.596	0.004	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1372.08
20	0.6880	1130.6	1150.6	1147.6	0.985	2.901	74.336	20.683	1.082	0.005	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1383.92
21	0.6913	1133.3	1153.4	1150.4	0.966	3.064	74.028	20.458	1.466	0.008	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1384.03
22	0.6868	1124.4	1144.3	1141.3	0.991	3.153	74.538	20.241	1.061	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1377.57
23	0.6881	1126.9	1146.8	1143.8	0.984	3.141	73.956	21.152	0.751	0.006	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1379.28
24	0.6879	1127.1	1147.1	1144.0	0.983	3.110	73.967	21.202	0.722	0.006	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1379.76
25	0.6819	1115.9	1135.7	1132.7	1.005	3.185	75.312	19.665	0.819	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1372.14
26	0.6866	1127.0	1147.0	1144.0	0.996	2.966	74.249	21.074	0.707	0.004	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1381.03
27	0.6805	1114.5	1134.2	1131.3	1.003	3.144	75.373	19.865	0.613	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1371.80
28	0.6792	1112.0	1131.7	1128.7	0.998	3.183	75.598	19.631	0.588	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1370.05
29	0.6801	1113.2	1133.0	1130.0	1.001	3.187	75.488	19.665	0.656	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1370.65
30	0.6824	1117.5	1137.3	1134.3	0.988	3.169	75.202	19.774	0.862	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1373.50
31	0.6801	1113.9	1133.6	1130.6	1.009	3.132	75.497	19.717	0.640	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1371.49
Avg	0.6842	1121.0	1141.2	1138.2	0.990	3.099	74.826	20.249	0.822	0.005	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1376.41

Zone 43



Alliance Pipeline

DAILY ANALYSIS --- USA
 ND07MD1 --- Hankinson Sales
 July 2017

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%	HeI Mol%
1	1,153.635	0.6668	83.7057	9.3162	3.9116	0.3673	0.6365	0.0656	0.0549	0.0274	1.3853	0.5169	0.0125
2	1,152.255	0.6656	83.7899	9.3613	3.8423	0.3578	0.6067	0.0648	0.0540	0.0292	1.3734	0.5083	0.0123
3	1,152.547	0.6659	83.7960	9.3190	3.8440	0.3635	0.6289	0.0650	0.0544	0.0292	1.3767	0.5109	0.0124
4	1,152.519	0.6662	83.7350	9.3378	3.8538	0.3624	0.6274	0.0663	0.0553	0.0293	1.4105	0.5099	0.0123
5	1,155.032	0.6681	83.5357	9.3371	3.9893	0.3732	0.6478	0.0675	0.0563	0.0292	1.4583	0.4937	0.0120
6	1,156.040	0.6680	83.5783	9.3848	3.9606	0.3802	0.6510	0.0695	0.0578	0.0285	1.3713	0.5058	0.0121
7	1,153.988	0.6668	83.7142	9.3454	3.8758	0.3762	0.6404	0.0687	0.0570	0.0279	1.3680	0.5142	0.0122
8	1,158.128	0.6695	83.3831	9.4867	4.0027	0.3887	0.6788	0.0691	0.0576	0.0288	1.3852	0.5074	0.0119
9	1,157.296	0.6687	83.4363	9.5552	3.9482	0.3791	0.6528	0.0689	0.0573	0.0284	1.3399	0.5215	0.0125
10	1,156.673	0.6680	83.5470	9.5437	3.8850	0.3814	0.6520	0.0687	0.0572	0.0289	1.2928	0.5310	0.0123
11	1,157.835	0.6689	83.4488	9.5259	3.9664	0.3850	0.6631	0.0684	0.0567	0.0280	1.3284	0.5169	0.0123
12	1,156.461	0.6683	83.5495	9.4103	3.9565	0.3832	0.6623	0.0689	0.0570	0.0274	1.3564	0.5162	0.0123
13	1,156.776	0.6681	83.6058	9.3739	3.9514	0.3872	0.6797	0.0669	0.0555	0.0266	1.3255	0.5150	0.0124
14	1,152.861	0.6656	83.9481	9.1719	3.8576	0.3736	0.6481	0.0672	0.0566	0.0273	1.3280	0.5092	0.0125
15	1,149.189	0.6620	84.3725	9.0726	3.6909	0.3548	0.6070	0.0660	0.0561	0.0286	1.2633	0.4746	0.0136
16	1,149.450	0.6626	84.2859	9.0670	3.7388	0.3593	0.6158	0.0623	0.0520	0.0266	1.2902	0.4890	0.0132
17	1,149.331	0.6627	84.3481	8.9704	3.7188	0.3704	0.6432	0.0649	0.0541	0.0270	1.3031	0.4869	0.0130
18	1,150.295	0.6635	84.2020	9.0533	3.7546	0.3718	0.6419	0.0655	0.0545	0.0274	1.3336	0.4826	0.0128
19	1,153.804	0.6658	83.9172	9.1871	3.8648	0.3844	0.6624	0.0671	0.0561	0.0273	1.3372	0.4840	0.0125
20	1,152.619	0.6648	84.1481	8.9904	3.8473	0.3878	0.6674	0.0680	0.0570	0.0288	1.3043	0.4881	0.0126
21	1,153.919	0.6661	83.9481	9.0964	3.8800	0.3914	0.6840	0.0675	0.0566	0.0284	1.3492	0.4861	0.0123
22	1,153.206	0.6646	84.1313	9.0776	3.8194	0.3851	0.6643	0.0677	0.0573	0.0309	1.2943	0.4601	0.0120
23	1,154.969	0.6655	83.9810	9.2164	3.8554	0.3835	0.6578	0.0688	0.0598	0.0313	1.2774	0.4568	0.0118
24	1,153.738	0.6648	84.0791	9.1541	3.8373	0.3766	0.6484	0.0680	0.0581	0.0310	1.2734	0.4619	0.0122
25	1,152.142	0.6637	84.2675	9.0108	3.8008	0.3742	0.6483	0.0689	0.0586	0.0309	1.2669	0.4606	0.0123
26	1,153.623	0.6652	84.0558	9.0870	3.8619	0.3823	0.6636	0.0689	0.0582	0.0302	1.3161	0.4637	0.0123
27	1,147.707	0.6596	84.8297	8.7783	3.6519	0.3616	0.6018	0.0666	0.0560	0.0296	1.1441	0.4679	0.0126
28	1,149.688	0.6625	84.5545	8.6915	3.7674	0.3835	0.6785	0.0682	0.0577	0.0298	1.2856	0.4711	0.0122
29	1,151.578	0.6636	84.2890	8.9562	3.7857	0.3770	0.6591	0.0694	0.0594	0.0325	1.2960	0.4629	0.0127
30	1,152.987	0.6648	84.0743	9.1439	3.7928	0.3800	0.6611	0.0685	0.0576	0.0326	1.2981	0.4787	0.0124
31	1,154.917	0.6663	83.9364	9.1045	3.9292	0.3866	0.6763	0.0670	0.0567	0.0315	1.3266	0.4727	0.0125
Volume	1,153.395	0.6656	83.9408	9.1982	3.8531	0.3764	0.6501	0.0674	0.0566	0.0291	1.3247	0.4912	0.0124
Weight Avg Energy	1,153.401	0.6656	83.9401	9.1986	3.8533	0.3764	0.6502	0.0674	0.0566	0.0291	1.3247	0.4912	0.0124

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Jul-17

ZONE 610

Watford City

01325

Watford City West Border

01312

Watford City East Border

Weighted

Begin Date	End Date	01325			01312			Weighted	Date
		MCF	DK	BTU Zone 25	MCF	DK	BTU Zone 43		
7/1/2017	7/2/2017	63	75	1.206	29	33	1.143	1.186	7/1/2017
7/2/2017	7/3/2017	57	69	1.206	25	29	1.152	1.190	7/2/2017
7/3/2017	7/4/2017	61	74	1.206	26	29	1.125	1.182	7/3/2017
7/4/2017	7/5/2017	33	40	1.206	24	27	1.132	1.175	7/4/2017
7/5/2017	7/6/2017	78	94	1.206	24	27	1.136	1.190	7/5/2017
7/6/2017	7/7/2017	75	90	1.206	24	27	1.127	1.187	7/6/2017
7/7/2017	7/8/2017	56	68	1.206	34	39	1.154	1.186	7/7/2017
7/8/2017	7/9/2017	55	67	1.206	24	27	1.150	1.189	7/8/2017
7/9/2017	7/10/2017	62	75	1.206	24	27	1.145	1.189	7/9/2017
7/10/2017	7/11/2017	67	81	1.206	24	27	1.156	1.193	7/10/2017
7/11/2017	7/12/2017	55	66	1.206	37	42	1.155	1.185	7/11/2017
7/12/2017	7/13/2017	75	90	1.206	28	32	1.132	1.186	7/12/2017
7/13/2017	7/14/2017	60	73	1.206	40	46	1.138	1.179	7/13/2017
7/14/2017	7/15/2017	43	52	1.206	28	32	1.143	1.181	7/14/2017
7/15/2017	7/16/2017	49	60	1.206	28	32	1.139	1.182	7/15/2017
7/16/2017	7/17/2017	61	74	1.206	26	30	1.149	1.189	7/16/2017
7/17/2017	7/18/2017	72	87	1.206	27	30	1.136	1.187	7/17/2017
7/18/2017	7/19/2017	52	63	1.206	38	43	1.135	1.176	7/18/2017
7/19/2017	7/20/2017	61	73	1.206	38	43	1.134	1.178	7/19/2017
7/20/2017	7/21/2017	57	69	1.206	31	35	1.151	1.187	7/20/2017
7/21/2017	7/22/2017	48	58	1.206	20	23	1.153	1.190	7/21/2017
7/22/2017	7/23/2017	61	73	1.206	10	11	1.144	1.197	7/22/2017
7/23/2017	7/24/2017	59	72	1.206	10	11	1.147	1.197	7/23/2017
7/24/2017	7/25/2017	58	70	1.206	28	32	1.147	1.187	7/24/2017
7/25/2017	7/26/2017	73	88	1.206	30	34	1.136	1.186	7/25/2017
7/26/2017	7/27/2017	73	88	1.206	26	30	1.147	1.191	7/26/2017
7/27/2017	7/28/2017	43	52	1.206	31	36	1.134	1.176	7/27/2017
7/28/2017	7/29/2017	40	49	1.206	28	31	1.132	1.176	7/28/2017
7/29/2017	7/30/2017	34	41	1.206	29	33	1.133	1.172	7/29/2017
7/30/2017	7/31/2017	43	52	1.206	25	28	1.137	1.181	7/30/2017
7/31/2017	8/1/2017	52	63	1.206	25	29	1.134	1.183	7/31/2017
		1,776	2,146		841	955	1.1412	1.1849	

ROW ID	LOCATION DESCRIPTION	GROSS HEATING VALUE (BTU/CF)	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	1049.1	0.6053	1348.4	-79	1.4434	0.8154	90.2354	6.9953	0.3111	0.0144	0.0077	0	0.0009	0	0	0.1591	0.0173	6/30/2017	7/1/2017	7/1/2017 3:09:43 PM	
11587	GLEN ULLIN	1049.1	0.6053	1348.4	-79	1.4434	0.8154	90.2354	6.9953	0.3111	0.0144	0.0077	0	0.0009	0	0	0.1591	0.0173	7/1/2017	7/2/2017	7/2/2017 3:09:01 PM	
11587	GLEN ULLIN	1049.1	0.6053	1348.4	-79	1.4434	0.8154	90.2354	6.9953	0.3111	0.0144	0.0077	0	0.0009	0	0	0.1591	0.0173	7/2/2017	7/3/2017	7/3/2017 3:09:44 PM	
11587	GLEN ULLIN	1048.7	0.6043	1349	-79	1.4608	0.7584	90.4185	6.761	0.3861	0.0139	0.0083	0.0001	0.0002	0	0	0.1733	0.0173	7/3/2017	7/4/2017	7/4/2017 3:08:00 PM	
11587	GLEN ULLIN	1048.9	0.6051	1348.4	-79.2	1.5017	0.7712	90.2115	6.9776	0.3388	0.0086	0.0056	0	0	0	0	0.1669	0.0173	7/4/2017	7/5/2017	7/5/2017 3:08:21 PM	
11587	GLEN ULLIN	1049.9	0.606	1348.6	-78	1.5339	0.7705	90.0424	7.0469	0.3833	0.0124	0.0076	0.0001	0.0002	0	0	0.181	0.0173	7/5/2017	7/6/2017	7/6/2017 3:08:24 PM	
11587	GLEN ULLIN	1051.3	0.6074	1349	-77.3	1.5467	0.7908	89.7228	7.3692	0.3475	0.0098	0.0063	0	0	0	0	0.1865	0.0173	7/6/2017	7/7/2017	7/7/2017 3:08:18 PM	
11587	GLEN ULLIN	1053.3	0.6087	1350.1	-75.4	1.5571	0.7871	89.5418	7.461	0.427	0.0129	0.0085	0.0003	0.0005	0	0	0.1835	0.0173	7/7/2017	7/8/2017	7/8/2017 3:07:25 PM	
11587	GLEN ULLIN	1053.5	0.6088	1350.2	-75.8	1.5673	0.7767	89.5249	7.5217	0.4033	0.0116	0.0072	0	0	0	0	0.1666	0.0173	7/8/2017	7/9/2017	7/9/2017 3:07:14 PM	
11587	GLEN ULLIN	1057.1	0.6118	1351.5	-73.4	1.5622	0.8233	89.0048	7.9894	0.4264	0.0116	0.0074	0	0	0	0	0.1543	0.0173	7/9/2017	7/10/2017	7/10/2017 3:14:37 PM	
11587	GLEN ULLIN	1058.8	0.6122	1353.2	-72.8	1.4865	0.8361	88.9321	8.1179	0.4335	0.0108	0.0069	0	0.0001	0	0	0.1568	0.0173	7/10/2017	7/11/2017	7/11/2017 3:15:25 PM	
11587	GLEN ULLIN	1057.5	0.6106	1353.3	-72.4	1.4732	0.7959	89.3256	7.6615	0.5199	0.0213	0.0125	0.0011	0.0015	0	0.0001	0.168	0.0173	7/11/2017	7/12/2017	7/12/2017 3:14:53 PM	
11587	GLEN ULLIN	1047.7	0.6033	1348.9	-72.7	1.3904	0.776	90.9007	6.1947	0.4968	0.0372	0.0199	0.0036	0.0038	0	0.0013	0.1549	0.0173	7/12/2017	7/13/2017	7/13/2017 3:13:17 PM	
11587	GLEN ULLIN	1053.8	0.6081	1351.4	-74.2	1.4338	0.8079	89.808	7.2904	0.4292	0.0275	0.0142	0.0024	0.0025	0	0.0004	0.164	0.0173	7/13/2017	7/14/2017	7/14/2017 3:14:40 PM	
11587	GLEN ULLIN	1060.2	0.6127	1354.5	-71.1	1.4803	0.8158	88.8761	8.1594	0.4567	0.0218	0.0122	0.0014	0.0016	0	0.0004	0.156	0.0173	7/14/2017	7/15/2017	7/15/2017 3:13:51 PM	
11587	GLEN ULLIN	1060.7	0.6131	1354.7	-71.6	1.4599	0.8297	88.8785	8.2718	0.4146	0.0165	0.0112	0.0008	0.0014	0	0.0003	0.0973	0.0173	7/15/2017	7/16/2017	7/16/2017 3:12:29 PM	
11587	GLEN ULLIN	1061.2	0.6133	1355.1	-72	1.426	0.8427	89.0297	8.2321	0.4146	0.0159	0.0102	0.0007	0.0009	0	0.0002	0.0099	0.0173	7/16/2017	7/17/2017	7/17/2017 3:13:08 PM	
11587	GLEN ULLIN	1058.9	0.6115	1354.1	-74.2	1.428	0.8235	89.279	8.0792	0.3436	0.0112	0.007	0.0002	0.0003	0	0.0001	0.0099	0.0173	7/17/2017	7/18/2017	7/18/2017 3:14:15 PM	
11587	GLEN ULLIN	1060.7	0.6129	1354.9	-73.2	1.4276	0.8371	89.013	8.334	0.3419	0.0117	0.0074	0.0001	0.0004	0	0	0.0099	0.0173	7/18/2017	7/19/2017	7/19/2017 3:11:52 PM	
11587	GLEN ULLIN	1060.7	0.6129	1354.9	-73.2	1.4276	0.8371	89.013	8.334	0.3419	0.0117	0.0074	0.0001	0.0004	0	0	0.0099	0.0173	7/18/2017	7/20/2017	7/20/2017 3:11:11 PM	
11587	GLEN ULLIN	1062.7	0.6139	1356.4	-71	1.4172	0.8275	88.7959	8.4837	0.3793	0.0172	0.0123	0.0013	0.002	0	0.0007	0.0453	0.0173	7/20/2017	7/21/2017	7/21/2017 3:10:28 PM	
11587	GLEN ULLIN	1062.7	0.6139	1356.4	-71	1.4172	0.8275	88.7959	8.4837	0.3793	0.0172	0.0123	0.0013	0.002	0	0.0007	0.0453	0.0173	7/20/2017	7/22/2017	7/22/2017 3:10:09 PM	
11587	GLEN ULLIN	1061.4	0.6133	1355.3	-72.1	1.4287	0.8383	88.7351	8.4612	0.3747	0.0125	0.0078	0.0002	0.0004	0	0	0.1247	0.0173	7/22/2017	7/23/2017	7/23/2017 3:11:08 PM	
11587	GLEN ULLIN	1061.8	0.6137	1355.4	-71.7	1.461	0.8278	88.5598	8.5723	0.3762	0.0128	0.0074	0.0001	0.0001	0	0	0.165	0.0173	7/23/2017	7/24/2017	7/24/2017 3:09:59 PM	
11587	GLEN ULLIN	1057.7	0.6107	1353.5	-74.4	1.4942	0.7804	89.1369	8.0498	0.358	0.0109	0.0066	0	0	0	0	0.1437	0.0173	7/24/2017	7/25/2017	7/25/2017 3:10:03 PM	
11587	GLEN ULLIN	1059.2	0.6125	1353.3	-73.1	1.5503	0.7954	88.7616	8.3405	0.3593	0.0113	0.0067	0	0	0	0	0.1556	0.0173	7/25/2017	7/26/2017	7/26/2017 3:12:48 PM	
11587	GLEN ULLIN	1060.1	0.6132	1353.8	-72.1	1.5588	0.7971	88.6541	8.3707	0.4142	0.0131	0.0074	0	0.0001	0	0	0.1653	0.0173	7/26/2017	7/27/2017	7/27/2017 3:11:48 PM	
11587	GLEN ULLIN	1059.1	0.6116	1354.2	-72.9	1.4558	0.8071	88.9911	8.1218	0.4055	0.0143	0.0085	0.0005	0.0007	0	0	0.1756	0.0173	7/27/2017	7/28/2017	7/28/2017 3:09:33 PM	
11587	GLEN ULLIN	1059.7	0.6124	1354.2	-72	1.4589	0.8272	88.8734	8.1751	0.4421	0.0146	0.0093	0.0005	0.0006	0	0.0002	0.183	0.0173	7/28/2017	7/29/2017	7/29/2017 3:07:21 PM	
11587	GLEN ULLIN	1064	0.6153	1356.4	-70	1.4643	0.8376	88.3378	8.717	0.4422	0.0157	0.0096	0.0003	0.0004	0	0	0.1559	0.0173	7/29/2017	7/30/2017	7/30/2017 3:06:46 PM	
11587	GLEN ULLIN	1059.3	0.612	1354.1	-72.6	1.4555	0.818	88.9928	8.0998	0.4365	0.0139	0.0084	0.0001	0.0003	0	0	0.1562	0.0173	7/30/2017	7/31/2017	7/31/2017 3:06:36 PM	
11587	GLEN ULLIN	1060.7	0.6134	1354.3	-71.5	1.4941	0.8263	88.7446	8.2873	0.4585	0.0145	0.0089	0.0002	0.0005	0	0	0.1466	0.0173	7/31/2017	8/1/2017	8/1/2017 3:08:15 PM	

Zone
208

NORTH DAKOTA HEATING VALUE ZONES		
ZONES	MEASURING DEVICE	LOCATION
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
266	Chromatograph	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
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	JULY 17	JUNE 17	MAY 17	APRIL 17	MAR 17	FEB 17	JAN 17	DEC 16	NOV 16	OCT 16	SEPT 16	AUG 16	ZONE
MT/ND	211	Sidney Border - MonDak Tfr - Sidney Plt	1199	1201	1191	1206	1191	1194	1195	1199	1199	1200	1193	1209	1210	211
ND	24	Williston Border - Charbonneau Station	1169	1141	1141	1148	1158	1171	1173	1189	1190	1187	1169	1195	1169	24
ND	25	Watford City West Border	1203	1206	1204	1204	1200	1199	1202	1198	1193	1200	1206	1211	1213	25
ND	28	Bismarck Station - Glen Ullin Station	1153	1194	1188	1191	1161	1118	1121	1115	1112	1122	1152	1172	1185	28
ND	31	Dickinson Brd - Belfield Tfr - G Ullin Stn	1142	1179	1171	1137	1147	1118	1119	1113	1110	1120	1153	1171	1169	31
ND/MT	32	Cabin Creek Station - Belfield Transfer	1123	1157	1122	1097	1104	1112	1114	1118	1118	1099	1137	1153	1150	32
ND	33	Little Knife Plant	1181	1180	1177	1177	1178	1176	1177	1181	1200	1179	1182	1184	1183	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	1119	1141	1126	1136	1141	1102	1075	1121	1122	1114	1109	1128	1109	43
ND/MT	241	Fairview Border	1183	1165	1161	1168	1167	1179	1181	1196	1200	1193	1170	1210	1200	241
ND	260	North Tioga Transfer - Nesson Plant		1002	1087	1090	1082	0								260
ND	261	Tioga Comp Station - Robinson Lake Plant	1111	1183	1181	1176	1170	1065	1089	1105	1096	1034	981	1174	1074	261
ND	262	Minot Bdr - Palermo Bdr - Bismarck Stn	1172	1193	1189	1192	1189	1181	1178	1152	1144	1147	1141	1172	1191	262
ND	263	Lignite Plant	1121	1146	1135	1115	1103	1115	1112	1103	1110	1138	1120	1129	1127	263
ND	264	Epping Border	1165	1138	1133	1145	1154	1158	1172	1186	1186	1158	1157	1194	1198	264
ND	265	Tioga Comp Station - County Line Plant	1177	1184	1181	1176	1170	1174	1175	1184	1170	1182	1180	1186	1166	265
ND	266	County Line Plant		1191	1183	1185	1185	1173	1182	0						266
ND	271	Bismarck Station - Cleveland Station	1165	1194	1188	1192	1189	1163	1155	1129	1127	1140	1142	1173	1185	271
ND	272	Cleveland Station - Mapleton	1164	1193	1188	1191	1187	1161	1153	1128	1126	1139	1142	1172	1184	272
ND	273	Cleveland Station - Grafton Border	1164	1194	1189	1192	1187	1162	1154	1128	1127	1139	1142	1172	1184	273
ND	610	MDU-Watford City BTU	1180	1185	1176	1183	1188	1171	1163	1170	1162	1176	1179	1197	1206	610
ND	802	Linton	1056	1057	1054	1063	1059	1054	1052	1049	1051	1058	1053	1058	1059	802
ND	903	Hettinger Propane	2549	2549	2549	2549	2549	2549	2549	2549	2549	2549	2549	2549	2549	903

**THERMAL ZONE VARIANCE
DOCUMENTATION**

July 2017

<i>ZONE</i>	<i>BTU VARIANCE</i>	<i>REASON</i>
32	35	Direction/Source of Gas Change
260	-85	Direction/Source of Gas Change