



MONTANA-DAKOTA

UTILITIES CO.

A Division of MDU Resources Group, Inc.

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

July 5, 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 – April 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 May 2017.
2. Attachment B consists of copies of the monthly Heating Value Test Reports received from our suppliers for the month of April 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 April 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,

Tamie Aberle
Director of Regulatory Affairs

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

Town	Heat Zone	Therm Factor
MDU-303-ALEXANDER	025	1.1325
MDU-308-ARNEGARD	025	1.1325
MDU-314-APPLE VALLEY	271	1.1221
MDU-318-BEACH	032	1.0276
MDU-319-BELFIELD	032	1.0352
MDU-323-BERTHOLD	262	1.1155
MDU-327-BISMARCK	028	1.0711
MDU-330-BOWMAN	034	0.9340
MDU-337-BURLINGTON	262	1.1395
MDU-343-CARRINGTON	273	1.1212
MDU-344-CLEVELAND	272	1.1123
MDU-364-CAVALIER	273	1.1448
MDU-365-DAWSON	271	1.1142
MDU-368-DES LACS	262	1.1235
MDU-369-DICKINSON	031	1.0484
MDU-374-FT TOTTEN	273	1.1291
MDU-375-DEVILS LAKE	273	1.1291
MDU-379-BARLOW	273	1.1212
MDU-384-EPPING	264	1.0899
MDU-387-ELDRIDGE	272	1.1202
MDU-407-GLADSTONE	031	1.0483
MDU-411-GLEN ULLIN	031	1.0560
MDU-413-GOLVA	032	1.0125
MDU-416-GARRISON	262	1.1235
MDU-417-GRAFTON	273	1.1527
MDU-429-HEBRON	031	1.0560
MDU-432-HETTINGER	903	2.3875
MDU-449-JAMESTOWN	272	1.1281
MDU-459-KILLDEER	033	1.1107
MDU-463-LANGDON	273	1.1212
MDU-469-LEFOR	031	1.0484
MDU-474-LIGNITE	263	1.0607
MDU-475-LINTON	802	1.0170
MDU-478-LINCOLN	028	1.0787
MDU-488-MCKENZIE	271	1.1221
MDU-494-MEDINA	271	1.1142
MDU-498-MANDAN	028	1.0787
MDU-500-MARMARTH	034	0.9204
MDU-505-MINOT	262	1.1395
MDU-510-MOTT	031	1.0484
MDU-512-MAX	262	1.1155
MDU-522-NEW ENGLAND	031	1.0408
MDU-524-NEW SALEM	028	1.0711
MDU-532-NEW ROCKFORD	273	1.1212
MDU-539-PARK RIVER	273	1.1448
MDU-540-PALERMO	262	1.1155
MDU-558-RAY	264	1.0937
MDU-561-REGENT	031	1.0484
MDU-563-RHAME	034	0.9069

MDU-564-RICHARDTON	031	1.0408
MDU-568-ROSS	261	0.9987
MDU-572-RUTHVILLE	262	1.1395
MDU-574-SANBORN	272	1.1281
MDU-583-SENTINEL BUTTE	032	1.0276
MDU-588-SOUTH HEART	031	1.0408
MDU-717-SPIRITWOOD	272	1.1281
MDU-590-SPRINGBROOK	264	1.0899
MDU-591-STANLEY	261	1.0131
MDU-593-STEELE	271	1.1142
MDU-598-SHEYENNE	273	1.1291
MDU-605-SURREY	262	1.1395
MDU-610-TAPPEN	271	1.1142
MDU-611-TAYLOR	031	1.0408
MDU-616-TIOGA	261	0.9987
MDU-619-TURTLE LAKE	262	1.1235
MDU-620-TRENTON	024	1.1140
MDU-624-UNDERWOOD	262	1.1235
MDU-625-VALLEY CITY	272	1.1360
MDU-629-WALHALLA	273	1.1448
MDU-632-WATFORD CITY	610	1.1060
MDU-636-WHEELOCK	264	1.0821
MDU-637-WHITE EARTH	261	1.1051
MDU-642-WILLISTON	024	1.1140
MDU-646-WASHBURN	262	1.1315
MDU-647-WILTON	262	1.1155
MDU-664-RIVERDALE	262	1.1235
MDU-691-FAIRVIEW	241	1.1216
MDU-712-MINOT AFB	262	1.1395
MDU-718-FAIRMOUNT	600	1.1189
MDU-732-NEKOMA	273	1.1212
MDU-732-MSR SITE	273	1.1212

GQ Source Daily Summary

April 2017

Number: 251

Pressure Base: 14.730

Contract Day: 1

Name: SIDNEY BORDER-MONDAK JNCTN-SIDNEY PLANT Temperature Base:

Contract Hour: 9

Day	Relative Density	Heating Value Wet	Heating Value Dry	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.7203	1170.4	1191.1	1.047	3.393	70.837	20.900	3.480	0.111	0.208	0.012	0.010	0.000	0.000	0.000	0.000	0.000	1403.47	
2	0.7202	1167.2	1187.9	1.083	3.530	70.728	20.970	3.344	0.112	0.211	0.012	0.010	0.000	0.000	0.000	0.000	0.000	1399.69	
3	0.7208	1168.6	1189.3	1.088	3.494	70.599	21.152	3.321	0.112	0.212	0.012	0.010	0.000	0.000	0.000	0.000	0.000	1400.78	
4	0.7162	1163.4	1184.0	1.054	3.431	71.306	20.749	3.115	0.111	0.211	0.012	0.011	0.000	0.000	0.000	0.000	0.000	1398.99	
5	0.7165	1164.1	1184.7	1.053	3.412	71.261	20.811	3.117	0.111	0.213	0.012	0.010	0.000	0.000	0.000	0.000	0.000	1399.63	
6	0.7174	1165.3	1186.0	1.057	3.423	71.058	20.998	3.124	0.108	0.208	0.012	0.011	0.000	0.000	0.000	0.000	0.000	1400.14	
7	0.7193	1168.3	1189.0	1.062	3.412	70.921	20.910	3.347	0.114	0.213	0.012	0.010	0.000	0.000	0.000	0.000	0.000	1401.85	
8	0.7193	1167.7	1188.4	1.063	3.438	70.946	20.850	3.351	0.116	0.213	0.011	0.010	0.000	0.000	0.000	0.000	0.000	1401.23	
9	0.7229	1169.5	1190.2	1.123	3.580	70.263	21.305	3.375	0.118	0.215	0.011	0.010	0.000	0.000	0.000	0.000	0.000	1399.86	
10	0.7286	1176.0	1196.8	1.168	3.648	69.405	21.795	3.622	0.123	0.219	0.011	0.009	0.000	0.000	0.000	0.000	0.000	1402.16	
11	0.7262	1171.8	1192.5	1.175	3.672	69.662	21.732	3.403	0.118	0.217	0.011	0.009	0.000	0.000	0.000	0.000	0.000	1399.40	
12	0.7151	1161.0	1181.5	1.067	3.456	71.442	20.663	3.030	0.109	0.209	0.012	0.011	0.000	0.000	0.000	0.000	0.000	1397.21	
13	0.7281	1172.7	1193.4	1.219	3.727	69.278	22.070	3.333	0.121	0.227	0.013	0.011	0.000	0.000	0.000	0.000	0.000	1398.67	
14	0.7287	1172.1	1192.9	1.236	3.796	69.123	22.156	3.328	0.119	0.221	0.012	0.010	0.000	0.000	0.000	0.000	0.000	1397.41	
15	0.7280	1170.9	1191.7	1.230	3.812	69.204	22.111	3.286	0.118	0.218	0.012	0.009	0.000	0.000	0.000	0.000	0.000	1396.65	
16	0.7291	1171.6	1192.3	1.243	3.856	69.011	22.222	3.315	0.118	0.215	0.011	0.009	0.000	0.000	0.000	0.000	0.000	1396.36	
17	0.7316	1174.9	1195.7	1.251	3.882	68.561	22.580	3.365	0.120	0.221	0.012	0.009	0.000	0.000	0.000	0.000	0.000	1397.86	
18	0.7314	1174.4	1195.2	1.258	3.877	68.721	22.336	3.429	0.126	0.227	0.015	0.011	0.000	0.000	0.000	0.000	0.000	1397.50	
19	0.7314	1173.8	1194.6	1.261	3.896	68.632	22.476	3.372	0.120	0.223	0.011	0.008	0.000	0.000	0.000	0.000	0.000	1396.91	
20	0.7267	1168.6	1189.3	1.229	3.832	69.458	21.845	3.282	0.117	0.215	0.011	0.009	0.000	0.000	0.000	0.000	0.000	1395.16	
21	0.7263	1168.1	1188.8	1.226	3.841	69.492	21.837	3.251	0.117	0.214	0.011	0.009	0.000	0.000	0.000	0.000	0.000	1394.87	
22	0.7257	1167.6	1188.2	1.235	3.791	69.669	21.695	3.241	0.123	0.223	0.013	0.011	0.000	0.000	0.000	0.000	0.000	1394.85	
23	0.7254	1167.0	1187.7	1.234	3.808	69.754	21.554	3.286	0.120	0.219	0.014	0.011	0.000	0.000	0.000	0.000	0.000	1394.50	
24	0.7218	1166.5	1187.2	1.161	3.605	70.341	21.344	3.200	0.114	0.211	0.013	0.011	0.000	0.000	0.000	0.000	0.000	1397.38	
25	0.7186	1166.0	1186.6	1.065	3.467	70.927	20.994	3.181	0.120	0.222	0.012	0.010	0.000	0.000	0.000	0.000	0.000	1399.81	
26	0.7024	1170.1	1190.9	0.047	3.259	71.639	22.788	2.211	0.024	0.030	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1420.91	
27	0.7056	1174.2	1195.0	0.054	3.301	71.190	23.003	2.381	0.030	0.040	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1422.60	
28	0.7019	1168.7	1189.4	0.045	3.306	71.639	22.831	2.126	0.023	0.030	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1419.68	
29	0.7172	1164.1	1184.7	0.843	3.803	70.689	21.336	3.020	0.101	0.181	0.013	0.013	0.000	0.000	0.000	0.000	0.000	1398.99	
30	0.7418	1190.0	1211.1	1.248	3.903	68.207	21.397	4.742	0.159	0.302	0.022	0.019	0.000	0.000	0.000	0.000	0.000	1406.09	
Avg	0.7222	1170.0	1190.5	1.038	3.622	70.132	21.647	3.233	0.108	0.200	0.011	0.009	0.000	0.000	0.000	0.000	0.000	1401.02	

Zone 211

GQ Source Daily Summary

April 2017

Number: 571

Pressure Base: 14.730

Contract Day: 1

Name: WILLISTON BORDER-CHARBONNEAU STATION

Temperature Base:

Contract Hour: 9

Day	Relative Density	Heating Value Wet	Heating Value Dry	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.6890	1139.8	1160.0	0.757	2.756	75.918	17.781	2.518	0.081	0.163	0.011	0.013	0.000	0.000	0.000	0.000	0.000	1397.48	
2	0.6863	1135.4	1155.6	0.746	2.789	76.295	17.544	2.359	0.080	0.163	0.012	0.013	0.000	0.000	0.000	0.000	0.000	1394.83	
3	0.6889	1139.8	1160.0	0.747	2.761	76.014	17.614	2.589	0.084	0.167	0.011	0.012	0.000	0.000	0.000	0.000	0.000	1397.55	
4	0.6866	1136.8	1156.9	0.739	2.738	76.402	17.338	2.516	0.081	0.162	0.011	0.013	0.000	0.000	0.000	0.000	0.000	1396.25	
5	0.6845	1133.0	1153.0	0.742	2.774	76.597	17.315	2.312	0.076	0.160	0.011	0.012	0.000	0.000	0.000	0.000	0.000	1393.64	
6	0.6856	1134.3	1154.4	0.750	2.781	76.362	17.556	2.299	0.075	0.154	0.011	0.012	0.000	0.000	0.000	0.000	0.000	1394.17	
7	0.6864	1136.6	1156.7	0.740	2.731	76.302	17.566	2.410	0.077	0.153	0.010	0.012	0.000	0.000	0.000	0.000	0.000	1396.21	
8	0.6881	1138.7	1158.8	0.750	2.751	76.004	17.798	2.442	0.077	0.155	0.011	0.012	0.000	0.000	0.000	0.000	0.000	1397.00	
9	0.6852	1134.3	1154.3	0.740	2.764	76.491	17.388	2.367	0.076	0.153	0.010	0.012	0.000	0.000	0.000	0.000	0.000	1394.52	
10	0.6849	1133.3	1153.3	0.745	2.791	76.465	17.468	2.281	0.074	0.153	0.011	0.012	0.000	0.000	0.000	0.000	0.000	1393.58	
11	0.6829	1130.6	1150.7	0.740	2.771	76.728	17.373	2.137	0.074	0.154	0.011	0.012	0.000	0.000	0.000	0.000	0.000	1392.39	
12	0.6906	1142.9	1163.2	0.793	2.658	75.700	18.058	2.482	0.092	0.189	0.013	0.015	0.000	0.000	0.000	0.000	0.000	1399.68	
13	0.6868	1136.6	1156.7	0.734	2.781	76.270	17.526	2.405	0.085	0.174	0.013	0.015	0.000	0.000	0.000	0.000	0.000	1395.76	
14	0.6863	1136.2	1156.3	0.723	2.770	76.461	17.258	2.508	0.084	0.170	0.012	0.013	0.000	0.000	0.000	0.000	0.000	1395.80	
15	0.6879	1138.2	1158.4	0.732	2.788	76.242	17.362	2.578	0.089	0.181	0.013	0.015	0.000	0.000	0.000	0.000	0.000	1396.60	
16	0.6865	1136.0	1156.1	0.736	2.779	76.438	17.253	2.515	0.084	0.169	0.012	0.014	0.000	0.000	0.000	0.000	0.000	1395.40	
17	0.6846	1133.8	1153.8	0.730	2.751	76.684	17.166	2.399	0.081	0.165	0.012	0.013	0.000	0.000	0.000	0.000	0.000	1394.52	
18	0.6855	1135.7	1155.8	0.731	2.710	76.519	17.358	2.415	0.080	0.163	0.011	0.012	0.000	0.000	0.000	0.000	0.000	1396.08	
19	0.6917	1146.4	1166.7	0.786	2.565	75.609	18.085	2.674	0.084	0.172	0.012	0.013	0.000	0.000	0.000	0.000	0.000	1402.75	
20	0.6818	1130.1	1150.1	0.710	2.741	77.096	16.909	2.287	0.076	0.158	0.011	0.012	0.000	0.000	0.000	0.000	0.000	1392.87	
21	0.6844	1132.9	1152.9	0.748	2.761	76.397	17.735	2.117	0.071	0.148	0.011	0.012	0.000	0.000	0.000	0.000	0.000	1393.64	
22	0.6925	1145.7	1166.0	0.771	2.706	74.783	19.355	2.158	0.067	0.140	0.010	0.011	0.000	0.000	0.000	0.000	0.000	1401.18	
23	0.6916	1143.5	1163.7	0.776	2.756	74.750	19.533	1.964	0.064	0.135	0.010	0.011	0.000	0.000	0.000	0.000	0.000	1399.30	
24	0.6910	1142.0	1162.2	0.768	2.795	74.843	19.407	1.990	0.058	0.120	0.008	0.009	0.000	0.000	0.000	0.000	0.000	1398.18	
25	0.6885	1138.0	1158.1	0.774	2.801	75.245	19.111	1.869	0.058	0.122	0.009	0.010	0.000	0.000	0.000	0.000	0.000	1395.74	
26	0.6924	1144.3	1164.6	0.787	2.755	74.788	19.332	2.106	0.066	0.143	0.011	0.013	0.000	0.000	0.000	0.000	0.000	1399.61	
27	0.6912	1142.6	1162.8	0.779	2.761	74.934	19.264	2.044	0.062	0.134	0.010	0.012	0.000	0.000	0.000	0.000	0.000	1398.70	
28	0.6909	1142.0	1162.2	0.776	2.779	75.113	18.947	2.151	0.066	0.143	0.011	0.014	0.000	0.000	0.000	0.000	0.000	1398.19	
29	0.6894	1140.1	1160.3	0.776	2.748	75.167	19.145	1.966	0.058	0.122	0.008	0.010	0.000	0.000	0.000	0.000	0.000	1397.51	
30	0.6906	1141.9	1162.1	0.766	2.771	74.890	19.416	1.960	0.058	0.121	0.008	0.010	0.000	0.000	0.000	0.000	0.000	1398.42	
Avg	0.6877	1138.0	1158.2	0.753	2.753	75.917	18.032	2.294	0.075	0.154	0.011	0.012	0.000	0.000	0.000	0.000	0.000	1396.59	

Zone 24

GQ Source Number:	0602160	Specific Gravity:	0.6990
GQ Source Name:	FAIRVIEW BORDER	Dry Heat Value:	1166.77
Effective Date:	4/1/2017 9:00:00 AM	Wet Heat Value:	1146.46
Effective End Date:	1/18/2038 9:14:07 PM	As Deliv. Heat Value:	1166.77
Pressure Base:	14.730	Sample Pressure:	390.00
Viscosity:		Sample Temperature:	

		<u>Mol %</u>	<u>Liquid Content</u>			<u>Mol %</u>
C1	Methane	73.785		CO2	Carbon Dioxide	0.876
C2	Ethane	19.327	0.0000	N2	Nitrogen	3.078
C3	Propane	2.645	0.7265	O2	Oxygen	0.008
IC4	Isobutane	0.089	0.0289	He	Helium	
NC4	n-Butane	0.171	0.0537	H2	Hydrogen	
IC5	Isopentane	0.011	0.0041	H2S	Hydrogen Sulfide	
NC5	n-Pentane	0.011	0.0041	Ar	Argon	
C6	Hexanes	0.000	0.0000	CO	Carbon Monoxide	
C7	Heptanes			H2	Water	
C8	Octanes			Neo-C5	Neopentane	
C9	Nonanes					
C10	Decanes					

Totals 100.000% 0.817 GPM

Sample Date: 4/1/2017 12:00:00 AM
Sample Type: Composite
Sample Tech: RR
H2S: ppm

Sample Remarks:

Analysis Tech: MB

Analysis Remarks:

Zone 241

GQ Source Number:	0602225	Specific Gravity:	0.7239
GQ Source Name:	WATFORD CITY WEST BORDER	Dry Heat Value:	1200.31
Effective Date:	4/1/2017 9:00:00 AM	Wet Heat Value:	1179.42
Effective End Date:	1/18/2038 9:14:07 PM	As Deliv. Heat Value:	1200.31
Pressure Base:	14.730	Sample Pressure:	438.00
Viscosity:		Sample Temperature:	

	<u>Mol %</u>	<u>Liquid Content</u>			<u>Mol %</u>	
C1	Methane	69.973		CO2	Carbon Dioxide	1.026
C2	Ethane	22.063	5.8831	N2	Nitrogen	3.168
C3	Propane	3.161	0.8683	O2	Oxygen	0.009
IC4	Isobutane	0.173	0.0565	He	Helium	
NC4	n-Butane	0.364	0.1145	H2	Hydrogen	
IC5	Isopentane	0.030	0.0110	H2S	Hydrogen Sulfide	
NC5	n-Pentane	0.030	0.0107	Ar	Argon	
C6	Hexanes	0.002	0.0008	CO	Carbon Monoxide	
C7	Heptanes			H2	Water	
C8	Octanes			Neo-C5	Neopentane	
C9	Nonanes					
C10	Decanes					

Totals 100.000% 6.945 GPM

Sample Date: 4/1/2017 12:00:00 AM
Sample Type: Composite
Sample Tech: ES
H2S: ppm

Sample Remarks:

Analysis Tech: MB

Analysis Remarks:

Zone 25

GQ Source Daily Summary

April 2017

Number: 164

Pressure Base: 14.730

Contract Day: 1

Name: NORTH TIOGA TRANSFER-NESSON PLANT

Temperature Base:

Contract Hour: 9

Day	Relative Density	Heating Value Wet	Heating Value Dry	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.6327		1060.7																
2	0.6335		1062.1																
3	0.6444		1080.5																
4	0.6370		1069.7																
5	0.6400		1072.7																
6	0.6293		1056.7																
7	0.6442		1080.5																
8	0.6365		1069.3																
9	0.6287		1056.7																
10	0.6359		1067.6																
11	0.6422		1078.3																
12	0.6093		1027.9																
13	0.6381		1071.9																
14	0.6435		1080.1																
15	0.6411		1075.2																
16	0.6317		1061.7																
17	0.6305		1060.3																
18	0.6031		1019.8																
19	0.5792		981.5																
20	0.6066		1022.4																
21	0.6551		1097.3																
22	0.6679		1124.3																
23	0.6739		1131.7																
24	0.6718		1128.9																
25	0.6774		1135.9																
26	0.6796		1140.1																
27	0.6747		1133.3																
28	0.6783		1139.0																
29	0.6747		1132.9																
30	0.6752		1133.0																
Avg	0.6439		1081.7																

*** End of Report***

Zone 260

GQ Source Daily Summary

April 2017

Number: 091

Pressure Base: 14.730

Contract Day: 1

Name: MINOT BRDR-PALERMO BRDR-BISMARCK STN

Temperature Base:

Contract Hour: 9

Day	Relative Density	Heating Value Wet	Heating Value Dry	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.7289	1164.5	1185.2	0.874	4.823	68.934	21.419	3.491	0.129	0.292	0.018	0.019	0.000	0.000	0.000	0.000	0.000	1388.19	
2	0.7286	1165.9	1186.5	0.873	4.718	69.076	21.322	3.544	0.130	0.296	0.018	0.021	0.000	0.000	0.000	0.000	0.000	1390.02	
3	0.7294	1165.8	1186.5	0.877	4.786	68.976	21.312	3.564	0.136	0.308	0.019	0.022	0.000	0.000	0.000	0.000	0.000	1389.26	
4	0.7337	1168.1	1188.8	0.871	5.059	68.298	21.493	3.774	0.142	0.323	0.019	0.021	0.000	0.000	0.000	0.000	0.000	1387.87	
5	0.7353	1169.4	1190.1	0.876	5.122	68.115	21.474	3.900	0.144	0.327	0.020	0.022	0.000	0.000	0.000	0.000	0.000	1387.92	
6	0.7342	1169.4	1190.1	0.869	5.034	68.283	21.439	3.869	0.141	0.323	0.020	0.022	0.000	0.000	0.000	0.000	0.000	1388.92	
7	0.7324	1166.8	1187.5	0.874	5.011	68.535	21.321	3.772	0.136	0.310	0.019	0.022	0.000	0.000	0.000	0.000	0.000	1387.58	
8	0.7329	1166.6	1187.3	0.867	5.084	68.405	21.374	3.790	0.135	0.306	0.018	0.020	0.000	0.000	0.000	0.000	0.000	1386.85	
9	0.7351	1169.3	1190.0	0.869	5.128	68.111	21.482	3.912	0.140	0.318	0.019	0.021	0.000	0.000	0.000	0.000	0.000	1387.88	
10	0.7340	1168.9	1189.6	0.868	5.049	68.269	21.470	3.856	0.138	0.312	0.018	0.020	0.000	0.000	0.000	0.000	0.000	1388.47	
11	0.7351	1169.7	1190.4	0.847	5.129	68.113	21.493	3.917	0.141	0.320	0.019	0.021	0.000	0.000	0.000	0.000	0.000	1388.45	
12	0.7341	1169.1	1189.8	0.855	5.068	68.157	21.630	3.816	0.135	0.305	0.017	0.018	0.000	0.000	0.000	0.000	0.000	1388.62	
13	0.7271	1161.3	1181.9	0.829	4.922	69.458	20.633	3.683	0.133	0.303	0.018	0.020	0.000	0.000	0.000	0.000	0.000	1386.01	
14	0.7352	1169.0	1189.7	0.868	5.153	68.108	21.441	3.929	0.139	0.324	0.019	0.020	0.000	0.000	0.000	0.000	0.000	1387.50	
15	0.7355	1170.0	1190.7	0.863	5.124	68.123	21.405	3.975	0.141	0.328	0.019	0.021	0.000	0.000	0.000	0.000	0.000	1388.43	
16	0.7370	1172.8	1193.6	0.867	5.086	67.929	21.555	4.035	0.146	0.338	0.020	0.022	0.000	0.000	0.000	0.000	0.000	1390.34	
17	0.7342	1169.2	1189.9	0.866	5.048	68.309	21.376	3.897	0.142	0.321	0.019	0.021	0.000	0.000	0.000	0.000	0.000	1388.67	
18	0.7326	1168.4	1189.1	0.866	4.944	68.550	21.335	3.813	0.140	0.313	0.019	0.021	0.000	0.000	0.000	0.000	0.000	1389.32	
19	0.7336	1168.4	1189.1	0.871	5.038	68.359	21.402	3.828	0.143	0.321	0.019	0.021	0.000	0.000	0.000	0.000	0.000	1388.27	
20	0.7212	1150.4	1170.8	0.783	5.094	70.546	19.468	3.635	0.135	0.304	0.017	0.018	0.000	0.000	0.000	0.000	0.000	1378.62	
21	0.7301	1164.4	1185.0	0.861	4.968	68.971	20.947	3.768	0.138	0.309	0.018	0.020	0.000	0.000	0.000	0.000	0.000	1386.81	
22	0.7336	1169.2	1189.9	0.870	4.993	68.337	21.490	3.809	0.142	0.322	0.018	0.020	0.000	0.000	0.000	0.000	0.000	1389.19	
23	0.7355	1170.7	1191.5	0.869	5.069	68.045	21.608	3.909	0.143	0.321	0.018	0.018	0.000	0.000	0.000	0.000	0.000	1389.31	
24	0.7357	1170.3	1191.0	0.871	5.118	68.015	21.562	3.927	0.144	0.325	0.018	0.020	0.000	0.000	0.000	0.000	0.000	1388.57	
25	0.7354	1168.8	1189.5	0.862	5.191	68.032	21.523	3.879	0.146	0.330	0.018	0.019	0.000	0.000	0.000	0.000	0.000	1387.09	
26	0.7350	1168.2	1188.9	0.858	5.194	68.165	21.356	3.897	0.150	0.340	0.019	0.021	0.000	0.000	0.000	0.000	0.000	1386.77	
27	0.7371	1172.1	1192.9	0.861	5.144	67.983	21.419	4.014	0.160	0.370	0.023	0.025	0.000	0.000	0.000	0.000	0.000	1389.47	
28	0.7381	1172.1	1192.9	0.865	5.235	67.866	21.352	4.096	0.162	0.375	0.023	0.026	0.000	0.000	0.000	0.000	0.000	1388.47	
29	0.7380	1172.0	1192.7	0.883	5.213	67.770	21.526	4.059	0.154	0.353	0.021	0.022	0.000	0.000	0.000	0.000	0.000	1388.38	
30	0.7389	1175.6	1196.4	0.879	5.078	67.846	21.458	4.134	0.163	0.384	0.027	0.032	0.000	0.000	0.000	0.000	0.000	1391.83	
Avg	0.7336	1168.0	1188.9	0.864	5.054	68.389	21.336	3.850	0.142	0.324	0.019	0.021	0.000	0.000	0.000	0.000	0.000	1388.10	

Zone 262

GQ Source Number:	2501030	Specific Gravity:	0.6737
GQ Source Name:	LIGNITE PLANT	Dry Heat Value:	1103.08
Effective Date:	4/1/2017 9:00:00 AM	Wet Heat Value:	1083.88
Effective End Date:	1/18/2038 9:14:07 PM	As Deliv. Heat Value:	1103.08
Pressure Base:	14.730	Sample Pressure:	420.00
Viscosity:		Sample Temperature:	

	<u>Mol %</u>	<u>Liquid Content</u>			<u>Mol %</u>	
C1	Methane	77.207		CO2	Carbon Dioxide	0.167
C2	Ethane	14.835	3.9560	N2	Nitrogen	5.069
C3	Propane	2.159	0.5930	O2	Oxygen	0.473
IC4	Isobutane	0.055	0.0180	He	Helium	
NC4	n-Butane	0.035	0.0110	H2	Hydrogen	
IC5	Isopentane	0.000	0.0000	H2S	Hydrogen Sulfide	
NC5	n-Pentane	0.000	0.0000	Ar	Argon	
C6	Hexanes	0.000	0.0000	CO	Carbon Monoxide	
C7	Heptanes			H2	Water	
C8	Octanes			Neo-C5	Neopentane	
C9	Nonanes					
C10	Decanes					
		Totals	100.000%	4.578 GPM		

Sample Date: 4/1/2017 12:00:00 AM
Sample Type: Composite
Sample Tech: ES
H2S: ppm

Sample Remarks:

Analysis Tech: DW

Analysis Remarks:

Zone 263

GQ Source Number:	3002013	Specific Gravity:	0.6850
GQ Source Name:	EPPING BORDER SAMPLER	Dry Heat Value:	1154.04
Effective Date:	4/1/2017 9:00:00 AM	Wet Heat Value:	1133.96
Effective End Date:	1/18/2038 9:14:00 PM	As Deliv. Heat Value:	1154.04
Pressure Base:	14.730	Sample Pressure:	480.00
Viscosity:		Sample Temperature:	

		<u>Mol %</u>	<u>Liquid Content</u>			<u>Mol %</u>
C1	Methane	75.756		CO2	Carbon Dioxide	0.707
C2	Ethane	18.550	4.9460	N2	Nitrogen	2.768
C3	Propane	2.004	0.5500	O2	Oxygen	0.017
IC4	Isobutane	0.061	0.0200	He	Helium	
NC4	n-Butane	0.120	0.0380	H2	Hydrogen	
IC5	Isopentane	0.008	0.0030	H2S	Hydrogen Sulfide	
NC5	n-Pentane	0.009	0.0030	Ar	Argon	
C6	Hexanes	0.000	0.0000	CO	Carbon Monoxide	
C7	Heptanes			H2	Water	
C8	Octanes			Neo-C5	Neopentane	
C9	Nonanes					
C10	Decanes					

Totals 100.000% 5.560 GPM

Sample Date: 4/1/2017 12:00:00 AM
Sample Type: Composite
Sample Tech: ES
H2S: ppm

Sample Remarks:

Analysis Tech: DW

Analysis Remarks:

Zone 264

*** End of Report ***

GQ Source Daily Summary

April 2017

Number: 603

Pressure Base: 14.730

Contract Day: 1

Name: TIOGA COMP STATION-COUNTY LINE PLANT

Temperature Base:

Contract Hour: 9

Day	Relative Density	Heating Value Wet	Heating Value Dry	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.7066	1154.8	1175.2															1398.06	
2	0.7041	1150.9	1171.3															1395.89	
3	0.7059	1154.1	1174.5															1397.92	
4	0.7060	1153.8	1174.2															1397.46	
5	0.7061	1153.9	1174.3															1397.48	
6	0.7031	1148.6	1168.9															1394.02	
7	0.7006	1145.1	1165.4															1392.32	
8	0.7030	1149.1	1169.4															1394.72	
9	0.7010	1146.2	1166.5															1393.24	
10	0.7017	1147.5	1167.8															1394.10	
11	0.7017	1147.5	1167.8															1394.10	
12	0.7066	1153.6	1174.0															1396.63	
13	0.7012	1147.1	1167.4	0.000	1.000	96.000	3.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1394.12	
14	0.7069	1156.1	1176.6	2.000	2.000	94.000	2.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1399.43	
15	0.7058	1153.8	1174.2	2.000	2.000	94.000	2.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1397.66	
16	0.7031	1150.0	1170.4	2.000	2.000	94.000	2.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1395.81	
17	0.7034	1149.9	1170.3	2.000	2.000	94.000	2.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1395.39	
18	0.7035	1150.3	1170.7	2.000	2.000	94.000	2.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1395.77	
19	0.6987	1142.4	1162.6	2.000	2.000	94.000	2.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1390.86	
20	0.6999	1144.6	1164.9	2.000	2.000	94.000	2.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1392.42	
21	0.7022	1148.3	1168.6	2.000	2.000	94.000	2.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1394.55	
22	0.7025	1148.9	1169.2	2.000	2.000	94.000	2.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1394.97	
23	0.7012	1146.7	1167.0	2.000	2.000	94.000	2.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1393.64	
24	0.6990	1144.6	1164.9	2.000	2.000	94.000	2.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1393.32	
25	0.7032	1149.1	1169.4	2.000	2.000	94.000	2.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1394.52	
26	0.7102	1160.2	1180.7	2.000	2.000	94.000	2.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1401.04	
27	0.7039	1150.5	1170.9	2.000	2.000	94.000	2.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1395.61	
28	0.7071	1155.6	1176.1	2.000	2.000	94.000	2.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1398.63	
29	0.7033	1149.2	1169.6	2.000	2.000	94.000	2.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1394.66	
30	0.7033	1149.0	1169.3	2.000	2.000	94.000	2.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1394.30	
Avg	0.7035	1150.0	1170.4	1.889	1.944	94.111	2.056	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1395.42	

Zone 2b5

GQ Source Daily Summary

April 2017

Number: 591

Pressure Base: 14.730

Contract Day: 1

Name: COUNTY LINE PLANT

Temperature Base:

Contract Hour: 9

Day	Relative Density	Heating Value Wet	Heating Value Dry	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.7128	1167.4	1188.1	0.911	3.093	70.854	22.576	2.365	0.056	0.130	0.007	0.008	0.000	0.000	0.000	0.000	0.000	1407.17	
2	0.7109	1164.3	1185.0	0.913	3.101	70.921	22.857	1.962	0.071	0.159	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1405.34	
3	0.7160	1172.9	1193.7	0.909	3.059	70.105	23.462	2.264	0.058	0.130	0.007	0.006	0.000	0.000	0.000	0.000	0.000	1410.68	
4	0.7175	1175.6	1196.5	0.902	3.045	69.880	23.603	2.378	0.054	0.124	0.006	0.006	0.000	0.000	0.000	0.000	0.000	1412.48	
5	0.7139	1169.5	1190.2	0.906	3.072	70.689	22.709	2.428	0.052	0.125	0.008	0.009	0.000	0.000	0.000	0.000	0.000	1408.64	
6	0.7119	1166.2	1186.9	0.910	3.077	70.870	22.753	2.198	0.051	0.121	0.009	0.010	0.000	0.000	0.000	0.000	0.000	1406.69	
7	0.7106	1163.6	1184.2	0.914	3.109	70.929	22.861	1.995	0.052	0.122	0.008	0.009	0.000	0.000	0.000	0.000	0.000	1404.84	
8	0.7099	1162.5	1183.1	0.923	3.097	70.977	22.924	1.889	0.052	0.122	0.008	0.009	0.000	0.000	0.000	0.000	0.000	1404.21	
9	0.7087	1161.5	1182.1	0.925	3.044	71.100	22.981	1.754	0.053	0.125	0.008	0.009	0.000	0.000	0.000	0.000	0.000	1404.19	
10	0.7080	1160.4	1181.0	0.917	3.063	71.187	22.922	1.713	0.054	0.126	0.008	0.009	0.000	0.000	0.000	0.000	0.000	1403.49	
11	0.7087	1160.7	1181.3	0.927	3.089	71.057	23.018	1.712	0.054	0.126	0.008	0.009	0.000	0.000	0.000	0.000	0.000	1403.22	
12	0.7082	1159.6	1180.2	0.927	3.111	71.237	22.782	1.701	0.065	0.153	0.011	0.012	0.000	0.000	0.000	0.000	0.000	1402.36	
13	0.7039	1151.9	1172.3	0.908	3.198	72.502	21.053	2.082	0.072	0.164	0.010	0.010	0.000	0.000	0.000	0.000	0.000	1397.19	
14	0.7145	1170.8	1191.6	0.917	3.030	70.513	23.028	2.280	0.065	0.148	0.009	0.010	0.000	0.000	0.000	0.000	0.000	1409.67	
15	0.7142	1170.4	1191.1	0.915	3.032	70.657	22.804	2.352	0.066	0.152	0.010	0.010	0.000	0.000	0.000	0.000	0.000	1409.42	
16	0.7104	1164.2	1184.8	0.920	3.041	71.365	22.167	2.265	0.068	0.155	0.010	0.011	0.000	0.000	0.000	0.000	0.000	1405.74	
17	0.7109	1164.4	1185.0	0.923	3.075	71.105	22.523	2.149	0.063	0.143	0.009	0.010	0.000	0.000	0.000	0.000	0.000	1405.47	
18	0.7097	1162.8	1183.4	0.916	3.071	71.422	22.147	2.210	0.065	0.148	0.010	0.011	0.000	0.000	0.000	0.000	0.000	1404.69	
19	0.7075	1159.0	1179.6	0.861	3.165	73.027	19.537	2.971	0.118	0.273	0.021	0.025	0.000	0.000	0.000	0.000	0.000	1402.16	
20	0.7033	1151.9	1172.3	0.885	3.177	72.986	20.298	2.345	0.086	0.193	0.013	0.015	0.000	0.000	0.000	0.000	0.000	1397.86	
21	0.7121	1166.5	1187.2	0.933	3.041	71.088	22.451	2.172	0.087	0.201	0.013	0.014	0.000	0.000	0.000	0.000	0.000	1406.87	
22	0.7121	1166.8	1187.5	0.932	3.027	71.062	22.498	2.177	0.084	0.194	0.012	0.014	0.000	0.000	0.000	0.000	0.000	1407.21	
23	0.7141	1169.9	1190.6	0.935	3.020	70.766	22.692	2.292	0.082	0.188	0.012	0.013	0.000	0.000	0.000	0.000	0.000	1408.96	
24	0.7099	1163.2	1183.8	0.929	3.041	71.588	21.878	2.261	0.083	0.192	0.012	0.014	0.000	0.000	0.000	0.000	0.000	1405.03	
25	0.7094	1161.6	1182.2	0.918	3.112	71.803	21.486	2.362	0.089	0.204	0.013	0.015	0.000	0.000	0.000	0.000	0.000	1403.55	
26	0.7108	1163.7	1184.3	0.918	3.109	71.633	21.570	2.440	0.090	0.210	0.014	0.015	0.000	0.000	0.000	0.000	0.000	1404.75	
27	0.7096	1162.9	1183.5	0.930	3.036	71.854	21.447	2.400	0.092	0.212	0.014	0.016	0.000	0.000	0.000	0.000	0.000	1404.87	
28	0.7101	1163.6	1184.2	0.934	3.037	71.582	21.871	2.255	0.089	0.204	0.013	0.015	0.000	0.000	0.000	0.000	0.000	1405.19	
29	0.7111	1165.2	1185.8	0.929	3.036	71.336	22.163	2.216	0.089	0.204	0.013	0.014	0.000	0.000	0.000	0.000	0.000	1406.20	
30	0.7118	1165.9	1186.5	0.934	3.054	71.221	22.232	2.240	0.088	0.203	0.013	0.015	0.000	0.000	0.000	0.000	0.000	1406.33	
Avg	0.7108	1164.0	1184.9	0.917	3.075	71.244	22.310	2.194	0.072	0.165	0.011	0.012	0.000	0.000	0.000	0.000	0.000	1405.48	

Zone 2bb

GQ Source Daily Summary

April 2017

Number: 043

Pressure Base: 14.730

Contract Day: 1

Name: BISMARCK STATION-CLEVELAND STATION

Temperature Base:

Contract Hour: 9

Day	Relative Density	Heating Value Wet	Heating Value Dry	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.7272	1164.3	1184.9	0.850	4.719	69.274	21.243	3.451	0.128	0.293	0.020	0.022	0.000	0.000	0.000	0.000	0.000	1389.48	
2	0.7281	1165.9	1186.6	0.856	4.690	69.259	21.156	3.558	0.132	0.305	0.021	0.024	0.000	0.000	0.000	0.000	0.000	1390.61	
3	0.7277	1164.9	1185.5	0.836	4.754	69.226	21.216	3.491	0.132	0.303	0.020	0.023	0.000	0.000	0.000	0.000	0.000	1389.67	
4	0.7348	1170.3	1191.0	0.852	5.063	68.211	21.484	3.862	0.145	0.336	0.022	0.024	0.000	0.000	0.000	0.000	0.000	1389.36	
5	0.7332	1168.8	1189.5	0.839	5.015	68.454	21.381	3.804	0.140	0.323	0.022	0.024	0.000	0.000	0.000	0.000	0.000	1389.24	
6	0.7339	1170.0	1190.8	0.853	4.992	68.428	21.308	3.899	0.142	0.331	0.022	0.024	0.000	0.000	0.000	0.000	0.000	1389.94	
7	0.7308	1165.6	1186.2	0.855	4.966	68.815	21.168	3.715	0.132	0.306	0.020	0.022	0.000	0.000	0.000	0.000	0.000	1387.61	
8	0.7350	1169.3	1190.0	0.849	5.145	68.208	21.344	3.936	0.143	0.332	0.021	0.023	0.000	0.000	0.000	0.000	0.000	1388.03	
9	0.7348	1170.5	1191.2	0.848	5.055	68.176	21.543	3.872	0.139	0.322	0.021	0.023	0.000	0.000	0.000	0.000	0.000	1389.66	
10	0.7299	1168.0	1188.6	0.785	4.844	68.766	21.555	3.592	0.128	0.292	0.019	0.020	0.000	0.000	0.000	0.000	0.000	1391.31	
11	0.7328	1168.0	1188.7	0.836	5.038	68.522	21.267	3.838	0.138	0.318	0.021	0.023	0.000	0.000	0.000	0.000	0.000	1388.59	
12	0.7284	1163.9	1184.5	0.837	4.875	69.185	20.986	3.651	0.130	0.297	0.019	0.020	0.000	0.000	0.000	0.000	0.000	1387.84	
13	0.7293	1161.8	1182.4	0.827	5.099	69.247	20.483	3.830	0.140	0.328	0.022	0.024	0.000	0.000	0.000	0.000	0.000	1384.53	
14	0.7343	1169.3	1190.0	0.848	5.083	68.359	21.267	3.922	0.143	0.332	0.022	0.024	0.000	0.000	0.000	0.000	0.000	1388.65	
15	0.7369	1173.9	1194.6	0.846	5.049	67.989	21.534	4.037	0.150	0.347	0.023	0.025	0.000	0.000	0.000	0.000	0.000	1391.65	
16	0.7364	1172.8	1193.5	0.854	5.051	68.035	21.539	3.995	0.145	0.335	0.022	0.024	0.000	0.000	0.000	0.000	0.000	1390.89	
17	0.7330	1168.7	1189.4	0.849	4.992	68.562	21.227	3.859	0.141	0.325	0.022	0.024	0.000	0.000	0.000	0.000	0.000	1389.20	
18	0.7325	1169.3	1190.1	0.850	4.909	68.645	21.245	3.843	0.141	0.323	0.021	0.023	0.000	0.000	0.000	0.000	0.000	1390.43	
19	0.7322	1167.1	1187.7	0.858	5.004	68.666	21.160	3.799	0.143	0.327	0.021	0.023	0.000	0.000	0.000	0.000	0.000	1388.05	
20	0.7192	1148.5	1168.9	0.760	5.061	70.880	19.269	3.558	0.132	0.300	0.019	0.020	0.000	0.000	0.000	0.000	0.000	1378.17	
21	0.7314	1167.6	1188.3	0.847	4.904	68.806	21.163	3.773	0.141	0.322	0.021	0.022	0.000	0.000	0.000	0.000	0.000	1389.53	
22	0.7338	1169.8	1190.5	0.854	4.997	68.346	21.474	3.818	0.142	0.325	0.021	0.023	0.000	0.000	0.000	0.000	0.000	1389.71	
23	0.7353	1171.6	1192.4	0.854	5.017	68.144	21.554	3.919	0.144	0.327	0.020	0.021	0.000	0.000	0.000	0.000	0.000	1390.59	
24	0.7364	1168.8	1189.5	0.850	5.162	68.110	21.502	3.824	0.143	0.335	0.020	0.022	0.000	0.000	0.000	0.000	0.000	1386.24	
25	0.7304	1165.2	1185.8	0.824	4.999	68.852	21.155	3.675	0.139	0.315	0.020	0.021	0.000	0.000	0.000	0.000	0.000	1387.52	
26	0.7345	1168.4	1189.1	0.856	5.136	68.330	21.247	3.888	0.151	0.346	0.022	0.024	0.000	0.000	0.000	0.000	0.000	1387.52	
27	0.7373	1172.9	1193.6	0.863	5.124	68.041	21.333	4.035	0.163	0.385	0.026	0.029	0.000	0.000	0.000	0.000	0.000	1390.05	
28	0.7378	1172.7	1193.5	0.866	5.173	67.897	21.434	4.053	0.159	0.368	0.024	0.026	0.000	0.000	0.000	0.000	0.000	1389.44	
29	0.7381	1174.9	1195.7	0.861	5.076	67.996	21.344	4.113	0.163	0.387	0.028	0.033	0.000	0.000	0.000	0.000	0.000	1391.72	
30	0.7372	1172.5	1193.3	0.861	5.135	67.992	21.355	4.121	0.149	0.343	0.021	0.023	0.000	0.000	0.000	0.000	0.000	1389.79	
Avg	0.7328	1168.0	1188.9	0.844	5.004	68.581	21.231	3.824	0.142	0.328	0.021	0.023	0.000	0.000	0.000	0.000	0.000	1388.83	

Zone 271

GQ Source Daily Summary

April 2017

Number: 063

Pressure Base: 14.730

Contract Day: 1

Name: CLEVELAND STATION-MAPLETON

Temperature Base:

Contract Hour: 9

Day	Relative Density	Heating Value Wet	Heating Value Dry	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.7271	1160.4	1180.9	0.841	4.958	69.151	21.213	3.395	0.124	0.279	0.019	0.020	0.000					1384.94	
2	0.7287	1164.3	1184.9	0.867	4.831	69.035	21.294	3.504	0.129	0.294	0.021	0.024	0.000					1388.08	
3	0.7267	1163.1	1183.7	0.834	4.764	69.388	21.086	3.458	0.130	0.294	0.021	0.024	0.000					1388.58	
4	0.7328	1166.8	1187.5	0.868	5.058	68.443	21.430	3.696	0.140	0.318	0.022	0.024	0.000					1387.20	
5	0.7337	1167.2	1187.9	0.848	5.152	68.347	21.322	3.825	0.141	0.319	0.022	0.025	0.000					1386.80	
6	0.7335	1167.1	1187.7	0.861	5.118	68.355	21.389	3.776	0.138	0.316	0.022	0.024	0.000					1386.85	
7	0.7337	1167.7	1188.4	0.868	5.091	68.385	21.307	3.845	0.139	0.318	0.022	0.025	0.000					1387.39	
8	0.7332	1165.9	1186.6	0.864	5.158	68.386	21.313	3.788	0.136	0.309	0.021	0.023	0.000					1385.75	
9	0.7354	1168.1	1188.8	0.861	5.235	68.091	21.387	3.918	0.142	0.321	0.021	0.023	0.000					1386.28	
10	0.7341	1167.5	1188.2	0.858	5.154	68.283	21.360	3.848	0.139	0.313	0.022	0.024	0.000					1386.80	
11	0.7310	1166.3	1187.0	0.808	5.016	68.630	21.405	3.678	0.131	0.293	0.019	0.021	0.000					1388.29	
12	0.7310	1165.2	1185.8	0.826	5.054	68.709	21.222	3.714	0.133	0.299	0.020	0.022	0.000					1386.93	
13	0.7325	1166.3	1187.0	0.857	5.083	68.484	21.327	3.771	0.134	0.302	0.020	0.022	0.000					1386.85	
14	0.7259	1155.6	1176.1	0.811	5.179	69.778	20.014	3.724	0.136	0.312	0.022	0.024	0.000					1380.38	
15	0.7351	1168.3	1189.0	0.854	5.208	68.190	21.297	3.938	0.143	0.323	0.022	0.025	0.000					1386.76	
16	0.7372	1172.3	1193.0	0.855	5.160	67.891	21.539	4.029	0.146	0.331	0.023	0.025	0.000					1389.48	
17	0.7365	1171.3	1192.0	0.860	5.148	67.987	21.483	4.002	0.145	0.328	0.022	0.024	0.000					1388.96	
18	0.7319	1166.8	1187.5	0.860	4.986	68.689	21.190	3.776	0.139	0.313	0.022	0.024	0.000					1388.05	
19	0.7338	1169.5	1190.2	0.856	5.003	68.393	21.384	3.856	0.142	0.319	0.022	0.024	0.000					1389.48	
20	0.7213	1148.8	1169.2	0.791	5.187	70.500	19.480	3.561	0.135	0.304	0.020	0.022	0.000					1376.60	
21	0.7287	1161.9	1182.4	0.829	5.038	69.220	20.680	3.749	0.137	0.304	0.020	0.022	0.000					1385.13	
22	0.7330	1168.2	1188.8	0.853	5.016	68.533	21.263	3.823	0.144	0.323	0.022	0.023	0.000					1388.62	
23	0.7345	1169.4	1190.1	0.865	5.067	68.205	21.529	3.835	0.140	0.315	0.021	0.023	0.000					1388.64	
24	0.7361	1171.3	1192.1	0.858	5.107	67.982	21.599	3.945	0.144	0.323	0.020	0.022	0.000					1389.45	
25	0.7345	1169.1	1189.8	0.839	5.119	68.152	21.572	3.820	0.140	0.315	0.021	0.022	0.000					1388.34	
26	0.7291	1162.9	1183.5	0.830	5.005	69.055	20.980	3.647	0.137	0.306	0.019	0.020	0.000					1386.08	
27	0.7340	1166.1	1186.8	0.855	5.236	68.319	21.219	3.846	0.147	0.331	0.022	0.024	0.000					1385.21	
28	0.7368	1169.6	1190.3	0.874	5.259	67.993	21.325	3.983	0.157	0.357	0.024	0.027	0.000					1386.67	
29	0.7390	1172.4	1193.2	0.874	5.289	67.755	21.369	4.113	0.164	0.378	0.027	0.030	0.000					1387.98	
30	0.7379	1171.2	1192.0	0.876	5.257	67.831	21.425	4.053	0.155	0.352	0.024	0.026	0.000					1387.59	
Avg	0.7326	1166.0	1187.0	0.850	5.098	68.539	21.214	3.797	0.140	0.317	0.022	0.024	0.000					1386.80	

Zone 272

GQ Source Daily Summary

April 2017

Number: 061

Pressure Base: 14.730

Contract Day: 1

Name: CLEVELAND STATION-GRAFTON BORDER

Temperature Base:

Contract Hour: 9

Day	Relative Density	Heating Value Wet	Heating Value Dry	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.7271	1161.2	1181.7	0.840	4.912	69.146	21.263	3.402	0.124	0.276	0.018	0.020	0.000	0.000	0.000	0.000	0.000	1385.87	
2	0.7282	1164.8	1185.4	0.867	4.755	69.147	21.260	3.506	0.129	0.292	0.021	0.023	0.000	0.000	0.000	0.000	0.000	1389.11	
3	0.7264	1164.0	1184.6	0.831	4.686	69.454	21.101	3.460	0.130	0.292	0.021	0.024	0.000	0.000	0.000	0.000	0.000	1389.92	
4	0.7326	1167.9	1188.6	0.866	4.978	68.490	21.460	3.702	0.141	0.318	0.022	0.024	0.000	0.000	0.000	0.000	0.000	1388.68	
5	0.7338	1168.5	1189.2	0.846	5.086	68.353	21.366	3.842	0.141	0.319	0.022	0.024	0.000	0.000	0.000	0.000	0.000	1388.21	
6	0.7343	1168.4	1189.1	0.859	5.114	68.269	21.400	3.851	0.141	0.320	0.022	0.024	0.000	0.000	0.000	0.000	0.000	1387.71	
7	0.7333	1167.9	1188.6	0.865	5.043	68.464	21.285	3.845	0.138	0.315	0.022	0.024	0.000	0.000	0.000	0.000	0.000	1388.04	
8	0.7326	1165.8	1186.5	0.861	5.110	68.496	21.269	3.780	0.135	0.305	0.021	0.023	0.000	0.000	0.000	0.000	0.000	1386.22	
9	0.7347	1168.0	1188.7	0.857	5.187	68.199	21.349	3.908	0.141	0.317	0.021	0.022	0.000	0.000	0.000	0.000	0.000	1386.73	
10	0.7301	1163.9	1184.6	0.825	5.044	68.710	21.352	3.646	0.123	0.268	0.015	0.015	0.000	0.000	0.000	0.000	0.000	1386.36	
11	0.7268	1160.6	1181.1	0.813	4.964	69.191	21.115	3.518	0.118	0.254	0.014	0.014	0.000	0.000	0.000	0.000	0.000	1385.42	
12	0.7318	1163.5	1184.1	0.861	5.181	68.407	21.407	3.731	0.123	0.264	0.013	0.013	0.000	0.000	0.000	0.000	0.000	1384.18	
13	0.7217	1152.4	1172.8	0.809	4.986	70.313	19.931	3.528	0.124	0.275	0.017	0.018	0.000	0.000	0.000	0.000	0.000	1380.52	
14	0.7324	1163.9	1184.5	0.863	5.210	68.477	21.181	3.814	0.131	0.289	0.017	0.017	0.000	0.000	0.000	0.000	0.000	1384.05	
15	0.7333	1165.8	1186.4	0.861	5.178	68.338	21.337	3.830	0.132	0.289	0.017	0.018	0.000	0.000	0.000	0.000	0.000	1385.51	
16	0.7341	1167.6	1188.3	0.859	5.145	68.239	21.406	3.887	0.134	0.293	0.017	0.018	0.000	0.000	0.000	0.000	0.000	1386.91	
17	0.7361	1171.3	1192.1	0.854	5.112	68.079	21.433	4.000	0.145	0.328	0.023	0.025	0.000	0.000	0.000	0.000	0.000	1389.44	
18	0.7321	1167.9	1188.5	0.864	4.932	68.657	21.285	3.766	0.139	0.311	0.022	0.025	0.000	0.000	0.000	0.000	0.000	1389.13	
19	0.7336	1169.8	1190.5	0.858	4.964	68.446	21.358	3.869	0.142	0.318	0.022	0.024	0.000	0.000	0.000	0.000	0.000	1390.03	
20	0.7221	1150.0	1170.3	0.788	5.197	70.381	19.547	3.602	0.137	0.306	0.020	0.022	0.000	0.000	0.000	0.000	0.000	1377.22	
21	0.7306	1165.0	1185.6	0.847	4.994	68.942	20.925	3.801	0.139	0.310	0.020	0.022	0.000	0.000	0.000	0.000	0.000	1387.09	
22	0.7340	1169.8	1190.5	0.860	5.004	68.357	21.425	3.836	0.145	0.327	0.022	0.024	0.000	0.000	0.000	0.000	0.000	1389.56	
23	0.7347	1170.0	1190.7	0.864	5.049	68.185	21.551	3.854	0.140	0.314	0.020	0.022	0.000	0.000	0.000	0.000	0.000	1389.19	
24	0.7358	1171.7	1192.4	0.856	5.067	68.021	21.619	3.928	0.144	0.322	0.021	0.022	0.000	0.000	0.000	0.000	0.000	1390.07	
25	0.7327	1167.8	1188.5	0.836	5.037	68.446	21.433	3.759	0.139	0.310	0.020	0.021	0.000	0.000	0.000	0.000	0.000	1388.48	
26	0.7321	1165.4	1186.1	0.843	5.118	68.606	21.150	3.776	0.143	0.320	0.021	0.022	0.000	0.000	0.000	0.000	0.000	1386.16	
27	0.7360	1169.8	1190.5	0.873	5.172	68.105	21.353	3.948	0.154	0.348	0.023	0.025	0.000	0.000	0.000	0.000	0.000	1387.67	
28	0.7345	1165.7	1186.3	0.874	5.275	68.257	21.164	3.927	0.146	0.321	0.018	0.018	0.000	0.000	0.000	0.000	0.000	1384.27	
29	0.7347	1166.8	1187.5	0.873	5.230	68.179	21.305	3.929	0.142	0.308	0.017	0.016	0.000	0.000	0.000	0.000	0.000	1385.38	
30	0.7362	1170.3	1191.0	0.875	5.153	68.056	21.399	4.000	0.146	0.327	0.021	0.023	0.000	0.000	0.000	0.000	0.000	1388.12	
Avg	0.7319	1166.0	1186.5	0.852	5.063	68.614	21.214	3.775	0.137	0.305	0.020	0.021	0.000	0.000	0.000	0.000	0.000	1386.84	

Zone 223

GQ Source Daily Summary

April 2017

Number: 041

Pressure Base: 14.730

Contract Day: 1

Name: BISMARCK STATION-GLEN ULLIN STATION

Temperature Base:

Contract Hour: 9

Day	Relative Density	Heating Value Wet	Heating Value Dry	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.6857	1123.9	1143.8	0.523	3.780	75.522	18.005	1.972	0.060	0.121	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1381.28	
2	0.6997	1144.8	1165.1	0.483	3.886	72.891	20.325	2.182	0.067	0.145	0.010	0.011	0.000	0.000	0.000	0.000	0.000	1392.85	
3	0.6918	1137.5	1157.6	0.403	3.712	74.052	19.753	1.907	0.054	0.108	0.007	0.007	0.000	0.000	0.000	0.000	0.000	1391.80	
4	0.6810	1128.9	1148.9	0.363	3.280	75.775	18.941	1.521	0.039	0.072	0.004	0.004	0.000	0.000	0.000	0.000	0.000	1392.23	
5	0.6771	1122.2	1142.0	0.355	3.331	76.496	18.240	1.469	0.037	0.065	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1387.94	
6	0.6945	1135.9	1156.0	0.569	3.807	74.190	18.906	2.273	0.075	0.160	0.010	0.011	0.000	0.000	0.000	0.000	0.000	1387.20	
7	0.7213	1157.3	1177.8	0.795	4.669	70.257	20.505	3.350	0.118	0.269	0.018	0.020	0.000	0.000	0.000	0.000	0.000	1386.91	
8	0.7348	1169.0	1189.7	0.848	5.141	68.240	21.329	3.925	0.143	0.330	0.021	0.023	0.000	0.000	0.000	0.000	0.000	1387.92	
9	0.7149	1152.0	1172.4	0.677	4.575	71.058	20.248	3.064	0.106	0.239	0.015	0.017	0.000	0.000	0.000	0.000	0.000	1386.79	
10	0.6877	1149.5	1169.9	0.100	3.057	73.546	22.219	1.033	0.016	0.026	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1410.70	
11	0.6781	1117.3	1137.0	0.481	3.536	76.776	17.296	1.738	0.057	0.103	0.006	0.006	0.000	0.000	0.000	0.000	0.000	1380.78	
12	0.7159	1152.5	1172.9	0.756	4.515	71.024	20.183	3.143	0.108	0.240	0.015	0.016	0.000	0.000	0.000	0.000	0.000	1386.36	
13	0.6897	1125.3	1145.2	0.664	3.856	75.394	17.450	2.356	0.081	0.175	0.012	0.012	0.000	0.000	0.000	0.000	0.000	1379.04	
14	0.7270	1162.1	1182.7	0.818	4.877	69.529	20.621	3.672	0.133	0.307	0.020	0.023	0.000	0.000	0.000	0.000	0.000	1387.11	
15	0.7159	1152.4	1172.8	0.765	4.511	71.248	19.788	3.271	0.117	0.265	0.017	0.018	0.000	0.000	0.000	0.000	0.000	1386.15	
16	0.6825	1123.5	1143.4	0.630	3.339	76.404	17.440	1.965	0.066	0.138	0.009	0.010	0.000	0.000	0.000	0.000	0.000	1384.09	
17	0.7150	1159.4	1179.9	0.586	4.273	70.640	21.388	2.775	0.095	0.214	0.014	0.015	0.000	0.000	0.000	0.000	0.000	1395.65	
18	0.7292	1167.9	1188.6	0.783	4.782	68.967	21.391	3.607	0.131	0.298	0.020	0.022	0.000	0.000	0.000	0.000	0.000	1391.97	
19	0.7324	1167.3	1188.0	0.856	5.009	68.629	21.184	3.808	0.142	0.326	0.021	0.023	0.000	0.000	0.000	0.000	0.000	1388.17	
20	0.7192	1148.6	1169.0	0.762	5.054	70.877	19.276	3.559	0.132	0.300	0.019	0.020	0.000	0.000	0.000	0.000	0.000	1378.30	
21	0.7311	1167.3	1188.0	0.847	4.902	68.851	21.124	3.770	0.141	0.321	0.021	0.023	0.000	0.000	0.000	0.000	0.000	1389.36	
22	0.7337	1169.6	1190.3	0.853	5.000	68.356	21.466	3.815	0.142	0.325	0.021	0.023	0.000	0.000	0.000	0.000	0.000	1389.62	
23	0.7326	1168.5	1189.2	0.845	4.977	68.569	21.300	3.795	0.149	0.322	0.020	0.022	0.000	0.000	0.000	0.000	0.000	1389.31	
24	0.7185	1146.0	1166.2	0.761	5.141	70.993	19.106	3.523	0.132	0.304	0.020	0.022	0.000	0.000	0.000	0.000	0.000	1375.87	
25	0.6732	1121.5	1141.4	0.408	2.828	77.301	18.168	1.192	0.032	0.061	0.005	0.005	0.000	0.000	0.000	0.000	0.000	1391.13	
26	0.6608	1091.1	1110.4	0.186	3.957	79.135	15.514	1.143	0.023	0.038	0.002	0.002	0.000	0.000	0.000	0.000	0.000	1365.97	
27	0.6597	1091.8	1111.1	0.112	3.922	79.306	15.431	1.170	0.020	0.034	0.002	0.002	0.000	0.000	0.000	0.000	0.000	1367.98	
28	0.6582	1090.1	1109.4	0.768	2.876	81.185	13.347	1.627	0.056	0.126	0.008	0.009	0.000	0.000	0.000	0.000	0.000	1367.61	
29	0.6996	1135.7	1155.8	0.722	4.056	74.183	17.787	2.847	0.107	0.254	0.020	0.024	0.000	0.000	0.000	0.000	0.000	1382.05	
30	0.7216	1156.3	1176.8	0.839	4.686	70.610	19.755	3.644	0.130	0.298	0.019	0.020	0.000	0.000	0.000	0.000	0.000	1385.47	
Avg	0.7027	1141.0	1161.4	0.619	4.178	73.000	19.250	2.637	0.090	0.199	0.013	0.014	0.000	0.000	0.000	0.000	0.000	1385.59	

Zone 28

GQ Source Daily Summary

April 2017

Number: 271

Pressure Base: 14.730

Contract Day: 1

Name: DICKINSON BRD-BELFIELD TSF-GLENULLIN STN

Temperature Base:

Contract Hour: 9

Day	Relative Density	Heating Value Wet	Heating Value Dry											Wobbe	CCT					
				CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6			C7	C8	C9	C10	
1	0.6812	1126.8	1146.8	0.315	3.499	75.637	18.901	1.541	0.036	0.066	0.003	0.002	0.000	0.000	0.000	0.000	0.000	0.000	1389.44	
2	0.6814	1129.7	1149.7	0.260	3.427	75.432	19.329	1.462	0.031	0.056	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1392.80	
3	0.6755	1122.0	1141.9	0.358	3.187	76.814	18.071	1.466	0.036	0.064	0.003	0.002	0.000	0.000	0.000	0.000	0.000	0.000	1389.36	
4	0.6735	1116.2	1136.0	0.372	3.332	77.238	17.463	1.483	0.038	0.067	0.003	0.002	0.000	0.000	0.000	0.000	0.000	0.000	1384.23	
5	0.6714	1114.7	1134.4	0.420	3.159	77.686	17.195	1.425	0.038	0.069	0.004	0.003	0.000	0.000	0.000	0.000	0.000	0.000	1384.45	
6	0.6755	1120.6	1140.5	0.296	3.373	76.629	18.216	1.381	0.034	0.063	0.004	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1387.60	
7	0.6809	1137.1	1157.2	0.178	3.058	75.111	20.471	1.125	0.020	0.034	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1402.32	
8	0.6892	1154.5	1174.9	0.000	3.053	72.971	23.022	0.935	0.008	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1415.26	
9	0.6867	1149.4	1169.8	0.047	3.054	73.593	22.301	0.973	0.012	0.019	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1411.58	
10	0.6745	1111.2	1130.9	0.421	3.659	77.262	16.868	1.646	0.048	0.087	0.005	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1376.95	
11	0.6659	1100.4	1119.9	0.478	3.415	78.988	15.449	1.539	0.044	0.078	0.004	0.003	0.000	0.000	0.000	0.000	0.000	0.000	1372.42	
12	0.6604	1098.4	1117.9	0.533	2.934	80.016	15.066	1.331	0.040	0.072	0.004	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1375.66	
13	0.6747	1128.7	1148.7	0.238	2.892	76.350	19.452	1.013	0.019	0.032	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1398.44	
14	0.6863	1147.3	1167.6	0.046	3.152	73.631	22.188	0.951	0.012	0.019	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1409.34	
15	0.6892	1152.0	1172.4	0.000	3.201	72.944	22.913	0.922	0.008	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.27	
16	0.6737	1126.5	1146.4	0.268	2.892	76.609	19.139	1.028	0.022	0.039	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1396.68	
17	0.6627	1111.7	1131.4	0.400	2.546	78.982	17.058	0.947	0.023	0.041	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1389.87	
18	0.6864	1148.6	1169.0	0.036	3.088	73.551	22.401	0.899	0.009	0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1410.98	
19	0.6883	1154.4	1174.8	0.000	2.970	73.163	22.928	0.918	0.008	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1416.11	
20	0.6882	1151.3	1171.7	0.004	3.146	73.142	22.774	0.912	0.008	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.40	
21	0.6886	1151.5	1171.9	0.000	3.175	73.058	22.838	0.912	0.008	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.26	
22	0.6891	1152.6	1173.0	0.000	3.162	72.942	22.967	0.911	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1413.01	
23	0.6888	1151.9	1172.3	0.000	3.169	73.005	22.911	0.895	0.008	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.52	
24	0.6625	1111.8	1131.5	0.425	2.489	79.070	16.991	0.948	0.024	0.045	0.003	0.003	0.000	0.000	0.000	0.000	0.000	0.000	1390.07	
25	0.6593	1090.3	1109.6	0.156	3.903	79.366	15.402	1.122	0.020	0.032	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1366.62	
26	0.6590	1093.6	1112.9	0.056	3.832	79.215	15.825	1.042	0.013	0.017	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1370.96	
27	0.6759	1132.8	1152.9	0.199	2.822	75.934	20.102	0.895	0.016	0.029	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	1402.21	
28	0.6829	1143.1	1163.4	0.094	3.012	74.321	21.659	0.886	0.011	0.018	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1407.75	
29	0.6671	1118.7	1138.5	0.214	2.823	77.627	18.501	0.813	0.009	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1393.80	
30	0.6172	1048.3	1066.8	0.772	1.573	88.208	8.972	0.454	0.008	0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1357.90	
Avg	0.6752	1127.0	1146.5	0.220	3.100	76.283	19.246	1.092	0.021	0.036	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1395.18	

Zone 31

GQ Source Daily Summary

April 2017

Number: 051

Pressure Base: 14.730

Contract Day: 1

Name: CABIN CREEK STATION-BELFIELD TRANSFER

Temperature Base:

Contract Hour: 9

Day	Relative Density	Heating Value	Heating Value																	
		Wet	Dry	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT	
1	0.6737	1101.2	1120.7	0.564	3.973	77.962	15.321	1.989	0.062	0.116	0.007	0.006	0.000	0.000	0.000	0.000	0.000	0.000	1365.38	
2	0.6737	1101.2	1120.8	0.564	3.964	77.970	15.326	1.988	0.062	0.114	0.007	0.006	0.000	0.000	0.000	0.000	0.000	0.000	1365.49	
3	0.6747	1103.6	1123.1	0.586	3.885	77.893	15.358	2.091	0.061	0.113	0.007	0.006	0.000	0.000	0.000	0.000	0.000	0.000	1367.33	
4	0.6748	1103.9	1123.4	0.598	3.856	77.929	15.303	2.123	0.062	0.115	0.007	0.006	0.000	0.000	0.000	0.000	0.000	0.000	1367.62	
5	0.6721	1099.8	1119.3	0.612	3.829	78.513	14.720	2.138	0.062	0.114	0.007	0.006	0.000	0.000	0.000	0.000	0.000	0.000	1365.29	
6	0.6660	1092.3	1111.6	0.612	3.718	79.568	14.002	1.897	0.065	0.122	0.008	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1362.09	
7	0.6690	1095.5	1114.9	0.623	3.788	79.073	14.295	2.015	0.066	0.124	0.008	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1363.03	
8	0.6692	1099.5	1119.0	0.700	3.446	79.203	14.405	2.023	0.073	0.134	0.009	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1367.83	
9	0.6681	1092.2	1111.5	0.602	3.933	79.141	14.163	1.969	0.065	0.114	0.006	0.006	0.000	0.000	0.000	0.000	0.000	0.000	1359.88	
10	0.6677	1089.7	1109.0	0.573	4.097	79.096	14.115	1.942	0.060	0.105	0.006	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1357.14	
11	0.6665	1088.5	1107.8	0.593	4.019	79.377	13.899	1.933	0.061	0.106	0.006	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1356.99	
12	0.6635	1089.8	1109.1	0.649	3.575	79.941	13.911	1.744	0.058	0.108	0.007	0.006	0.000	0.000	0.000	0.000	0.000	0.000	1361.60	
13	0.6635	1084.7	1103.9	0.580	3.993	79.784	13.716	1.756	0.057	0.102	0.006	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1355.26	
14	0.6591	1082.7	1101.8	0.603	3.672	80.563	13.411	1.596	0.052	0.092	0.006	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1357.17	
15	0.6612	1084.0	1103.2	0.588	3.811	80.123	13.697	1.627	0.052	0.092	0.005	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1356.69	
16	0.6652	1087.5	1106.7	0.551	4.025	79.367	14.161	1.736	0.054	0.094	0.005	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1356.99	
17	0.6580	1078.1	1097.2	0.502	3.999	80.532	13.295	1.540	0.045	0.078	0.004	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1352.60	
18	0.6529	1073.4	1092.4	0.512	3.792	81.464	12.709	1.399	0.042	0.074	0.005	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1351.96	
19	0.6582	1077.3	1096.3	0.529	4.022	80.640	13.051	1.604	0.052	0.092	0.005	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1351.39	
20	0.6626	1086.3	1105.5	0.615	3.765	79.999	13.721	1.734	0.055	0.098	0.006	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1358.05	
21	0.6581	1081.7	1100.9	0.622	3.601	80.794	13.244	1.587	0.051	0.091	0.005	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1357.08	
22	0.6637	1090.4	1109.7	0.482	3.818	79.429	14.538	1.603	0.044	0.077	0.004	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1362.12	
23	0.6628	1086.9	1106.1	0.468	3.961	79.734	13.968	1.739	0.045	0.077	0.004	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1358.74	
24	0.6637	1089.0	1108.3	0.428	3.980	79.534	14.148	1.779	0.046	0.077	0.004	0.003	0.000	0.000	0.000	0.000	0.000	0.000	1360.43	
25	0.6570	1081.3	1100.5	0.402	3.862	80.699	13.312	1.610	0.041	0.068	0.004	0.003	0.000	0.000	0.000	0.000	0.000	0.000	1357.66	
26	0.6437	1068.3	1087.2	0.513	3.236	83.252	11.647	1.241	0.037	0.064	0.005	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1355.10	
27	0.6233	1041.0	1059.5	0.607	2.832	87.108	8.593	0.753	0.033	0.061	0.006	0.006	0.000	0.000	0.000	0.000	0.000	0.000	1341.95	
28	0.6203	1035.1	1053.4	0.621	2.895	87.687	7.972	0.714	0.034	0.064	0.006	0.006	0.000	0.000	0.000	0.000	0.000	0.000	1337.47	
29	0.6415	1067.4	1086.3	0.435	3.204	83.328	11.982	0.949	0.032	0.059	0.006	0.006	0.000	0.000	0.000	0.000	0.000	0.000	1356.11	
30	0.6553	1088.5	1107.8	0.355	3.337	80.593	14.472	1.148	0.031	0.055	0.005	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1368.42	
Avg	0.6603	1085.0	1103.9	0.556	3.730	80.343	13.549	1.666	0.052	0.093	0.006	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1358.50	

Zone 32

GQ Source Daily Summary

April 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	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.6930	1160.7	1181.3	0.000	3.033	72.267	23.676	1.002	0.009	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1418.96	
2	0.6919	1159.6	1180.1	0.000	2.995	72.460	23.563	0.960	0.009	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1418.74	
3	0.6914	1158.3	1178.8	0.000	3.026	72.536	23.477	0.938	0.009	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1417.71	
4	0.6919	1158.1	1178.7	0.000	3.082	72.406	23.574	0.920	0.008	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1417.01	
5	0.6917	1157.7	1178.2	0.000	3.097	72.448	23.503	0.930	0.009	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1416.57	
6	0.6919	1158.4	1178.9	0.000	3.062	72.445	23.526	0.944	0.009	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1417.37	
7	0.6921	1159.3	1179.8	0.000	3.031	72.418	23.566	0.963	0.009	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1418.18	
8	0.6913	1158.9	1179.5	0.000	2.983	72.536	23.538	0.921	0.009	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1418.52	
9	0.6901	1156.9	1177.4	0.000	2.987	72.725	23.414	0.856	0.008	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1417.36	
10	0.6907	1158.3	1178.8	0.000	2.960	72.668	23.443	0.907	0.009	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1418.39	
11	0.6913	1156.9	1177.4	0.000	3.098	72.537	23.415	0.926	0.009	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1416.13	
12	0.6920	1158.0	1178.5	0.000	3.102	72.406	23.528	0.943	0.009	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1416.70	
13	0.6914	1156.9	1177.3	0.000	3.119	72.503	23.428	0.928	0.009	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1415.87	
14	0.6912	1155.7	1176.2	0.000	3.167	72.523	23.383	0.909	0.008	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1414.71	
15	0.6913	1156.5	1177.0	0.000	3.131	72.492	23.457	0.898	0.009	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1415.55	
16	0.6911	1155.7	1176.1	0.000	3.157	72.521	23.421	0.880	0.008	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1414.80	
17	0.6911	1156.0	1176.4	0.000	3.142	72.523	23.434	0.879	0.009	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1415.12	
18	0.6905	1159.4	1180.0	0.000	2.878	72.702	23.495	0.903	0.009	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1419.95	
19	0.6913	1156.7	1177.2	0.000	3.113	72.503	23.461	0.904	0.008	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1415.87	
20	0.6916	1154.0	1174.4	0.000	3.105	72.496	23.451	0.907	0.009	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.17	
21	0.6917	1156.6	1177.0	0.000	3.160	72.434	23.465	0.920	0.009	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1415.26	
22	0.6915	1157.0	1177.5	0.000	3.115	72.470	23.488	0.907	0.009	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1416.00	
23	0.6906	1155.8	1176.2	0.000	3.104	72.597	23.433	0.844	0.008	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1415.43	
24	0.6908	1155.2	1175.7	0.000	3.159	72.544	23.423	0.856	0.008	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1414.55	
25	0.6910	1156.1	1176.5	0.000	3.128	72.529	23.453	0.869	0.008	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1415.34	
26	0.6912	1156.6	1177.1	0.000	3.108	72.517	23.471	0.884	0.008	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1415.85	
27	0.6909	1155.6	1176.1	0.000	3.143	72.558	23.395	0.882	0.008	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1414.93	
28	0.6916	1156.9	1177.4	0.000	3.134	72.450	23.482	0.914	0.008	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1415.71	
29	0.6917	1156.7	1177.2	0.000	3.148	72.440	23.472	0.922	0.008	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1415.47	
30	0.6920	1156.7	1177.2	0.000	3.183	72.371	23.492	0.933	0.009	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1415.10	
Avg	0.6914	1157.0	1177.7	0.000	3.088	72.501	23.477	0.912	0.009	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1416.31	

Zone 33

GQ Source Number:	1202160	Specific Gravity:	0.5840
GQ Source Name:	BOWMAN BORDER	Dry Heat Value:	996.12
Effective Date:	6/1/2016 9:00:00 AM	Wet Heat Value:	978.78
Effective End Date:	1/18/2038 9:14:00 PM	As Deliv. Heat Value:	996.12
Pressure Base:	14.730	Sample Pressure:	380.00
Viscosity:		Sample Temperature:	

	<u>Mol %</u>	<u>Liquid Content</u>			<u>Mol %</u>	
C1	Methane	94.019		CO2	Carbon Dioxide	0.232
C2	Ethane	1.995	0.5321	N2	Nitrogen	3.460
C3	Propane	0.226	0.0621	O2	Oxygen	0.020
IC4	Isobutane	0.020	0.0066	He	Helium	
NC4	n-Butane	0.022	0.0068	H2	Hydrogen	
IC5	Isopentane	0.003	0.0010	H2S	Hydrogen Sulfide	
NC5	n-Pentane	0.002	0.0007	Ar	Argon	
C6	Hexanes	0.000	0.0000	CO	Carbon Monoxide	
C7	Heptanes			H2	Water	
C8	Octanes			Neo-C5	Neopentane	
C9	Nonanes					
C10	Decanes					

Totals 100.000% 0.609 GPM

Sample Date: 7/1/2016 12:00:00 AM
Sample Type: Spot
Sample Tech: MG
H2S: ppm

Sample Remarks:

Analysis Tech: MB
Analysis Remarks: Inactive

Zone 34

GQ Source Daily Summary

April 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	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.6850	1123.1	1143.0	0.982	3.081	74.418	20.915	0.600	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1380.99	
2	0.6828	1119.1	1138.9	0.987	3.105	74.842	20.501	0.562	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1378.36	
3	0.6822	1118.0	1137.8	0.987	3.115	75.104	20.083	0.706	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1377.60	
4	0.6859	1125.4	1145.4	0.982	3.016	74.823	20.047	1.090	0.014	0.026	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1382.95	
5	0.6800	1114.1	1133.9	1.005	3.119	75.453	19.833	0.587	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1375.03	
6	0.6807	1115.3	1135.1	1.003	3.113	75.495	19.625	0.749	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1375.77	
7	0.6727	1102.7	1122.3	0.997	3.142	76.797	18.607	0.447	0.004	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1368.28	
8	0.6799	1114.3	1134.0	1.005	3.101	75.555	19.679	0.648	0.005	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1375.30	
9	0.6841	1121.1	1140.9	0.991	3.105	74.859	20.191	0.849	0.003	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1379.40	
10	0.6767	1108.8	1128.4	1.004	3.129	76.251	18.915	0.689	0.005	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1371.81	
11	0.6750	1106.2	1125.7	1.020	3.117	76.515	18.732	0.602	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1370.16	
12	0.6784	1116.0	1135.8	0.987	2.872	76.946	17.505	1.640	0.020	0.029	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1378.89	
13	0.6884	1133.9	1153.9	0.985	2.733	74.297	20.877	1.098	0.005	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1390.81	
14	0.6853	1124.7	1144.6	0.996	2.985	74.551	20.715	0.747	0.003	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1382.67	
15	0.6825	1118.9	1138.7	0.992	3.081	75.115	20.047	0.760	0.003	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1378.39	
16	0.6818	1118.2	1138.0	0.991	3.067	75.188	20.048	0.701	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1378.12	
17	0.6836	1120.8	1140.6	0.989	3.075	74.783	20.495	0.654	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1379.58	
18	0.6876	1127.7	1147.6	0.988	3.032	74.061	21.171	0.743	0.003	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1384.03	
19	0.6882	1128.4	1148.4	0.980	3.056	74.200	20.743	1.015	0.004	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1384.32	
20	0.6875	1127.4	1147.4	0.983	3.051	74.077	21.127	0.757	0.003	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1383.76	
21	0.6901	1131.7	1151.7	0.981	3.041	73.641	21.475	0.855	0.003	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1386.34	
22	0.6881	1129.2	1149.2	0.979	3.000	74.112	21.005	0.889	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1385.43	
23	0.6881	1128.6	1148.6	0.978	3.038	74.068	21.046	0.864	0.003	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1384.66	
24	0.6837	1120.6	1140.4	0.993	3.088	74.979	20.071	0.860	0.005	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1379.26	
25	0.6770	1111.1	1130.8	0.993	3.039	76.239	18.961	0.761	0.003	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1374.32	
26	0.6765	1107.6	1127.2	1.004	3.189	76.108	19.166	0.528	0.003	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1370.47	
27	0.6878	1129.7	1149.7	0.977	2.945	74.209	20.934	0.926	0.004	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1386.26	
28	0.6901	1132.2	1152.3	0.985	2.996	73.976	20.868	1.163	0.006	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1387.01	
29	0.6815	1117.5	1137.3	0.996	3.070	75.328	19.824	0.776	0.003	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1377.63	
30	0.6947	1141.2	1161.4	0.976	2.893	73.066	21.873	1.181	0.006	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1393.41	
Avg	0.6835	1121.0	1141.0	0.991	3.046	74.969	20.169	0.815	0.005	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1380.03	

Zone 43

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

DAY	Heating Value (BTU/m3)	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	1,139.720	0.6549	85.1910	8.7477	3.4278	0.3097	0.5323	0.0505	0.0421	0.0252	1.2079	0.4527	0.0130
2	1,140.209	0.6557	85.1196	8.7376	3.4472	0.3166	0.5528	0.0504	0.0424	0.0250	1.2360	0.4599	0.0124
3	1,137.359	0.6536	85.3374	8.7354	3.2838	0.3097	0.5399	0.0484	0.0403	0.0240	1.2017	0.4668	0.0127
4	1,139.997	0.6555	85.1021	8.8442	3.3634	0.3189	0.5557	0.0508	0.0420	0.0255	1.2093	0.4756	0.0126
5	1,144.110	0.6590	84.6608	9.0000	3.5288	0.3334	0.5902	0.0518	0.0426	0.0241	1.2594	0.4963	0.0125
6	1,147.179	0.6614	84.4189	8.9467	3.7754	0.3362	0.5921	0.0522	0.0430	0.0247	1.2987	0.4997	0.0124
7	1,146.128	0.6606	84.4652	9.0144	3.6983	0.3291	0.5818	0.0497	0.0412	0.0242	1.2859	0.4978	0.0126
8	1,145.543	0.6596	84.6404	8.9215	3.6952	0.3265	0.5652	0.0495	0.0408	0.0248	1.2281	0.4953	0.0128
9	1,144.549	0.6595	84.6160	8.9449	3.6408	0.3270	0.5705	0.0500	0.0413	0.0244	1.2659	0.5064	0.0128
10	1,141.601	0.6578	84.8062	8.8723	3.5264	0.3208	0.5602	0.0487	0.0402	0.0237	1.2921	0.4972	0.0122
11	1,140.713	0.6565	84.9964	8.7817	3.4965	0.3181	0.5525	0.0480	0.0398	0.0226	1.2564	0.4757	0.0123
12	1,138.395	0.6543	85.3056	8.6756	3.3724	0.3129	0.5392	0.0496	0.0414	0.0239	1.1977	0.4693	0.0124
13	1,142.191	0.6565	85.0471	8.7866	3.4940	0.3221	0.5601	0.0527	0.0443	0.0263	1.1856	0.4682	0.0128
14	1,141.759	0.6556	85.2013	8.6924	3.5449	0.3090	0.5324	0.0495	0.0413	0.0260	1.1258	0.4645	0.0130
15	1,139.946	0.6545	85.3031	8.7155	3.4022	0.3127	0.5410	0.0492	0.0407	0.0261	1.1353	0.4617	0.0127
16	1,138.882	0.6539	85.3456	8.7081	3.3724	0.3066	0.5356	0.0471	0.0390	0.0244	1.1547	0.4537	0.0128
17	1,138.122	0.6536	85.3298	8.7297	3.3838	0.2975	0.5136	0.0451	0.0373	0.0223	1.1664	0.4615	0.0129
18	1,139.370	0.6554	85.0976	8.7821	3.4393	0.3097	0.5325	0.0480	0.0395	0.0231	1.2488	0.4672	0.0122
19	1,139.072	0.6547	85.1891	8.7792	3.4044	0.3079	0.5278	0.0468	0.0387	0.0231	1.2098	0.4609	0.0123
20	1,141.090	0.6558	85.0722	8.8361	3.4694	0.3119	0.5380	0.0477	0.0396	0.0230	1.1841	0.4656	0.0123
21	1,140.837	0.6556	85.0403	8.9063	3.4519	0.3061	0.5259	0.0462	0.0383	0.0224	1.1791	0.4711	0.0125
22	1,143.654	0.6575	84.9030	8.9086	3.5075	0.3293	0.5650	0.0535	0.0443	0.0258	1.1776	0.4729	0.0124
23	1,144.344	0.6585	84.5700	9.2880	3.3845	0.3334	0.5768	0.0520	0.0434	0.0259	1.2489	0.4649	0.0122
24	1,143.389	0.6587	84.4185	9.4298	3.3740	0.3189	0.5534	0.0476	0.0394	0.0239	1.2989	0.4829	0.0126
25	1,146.430	0.6622	83.8581	9.6997	3.5004	0.3225	0.5811	0.0458	0.0376	0.0202	1.4271	0.4952	0.0123
26	1,149.799	0.6644	83.5794	9.8170	3.6329	0.3285	0.5924	0.0471	0.0390	0.0214	1.4409	0.4892	0.0121
27	1,147.128	0.6608	84.1948	9.5455	3.4815	0.3293	0.5749	0.0503	0.0414	0.0234	1.2580	0.4885	0.0124
28	1,150.961	0.6638	83.8676	9.6232	3.5991	0.3517	0.6195	0.0568	0.0471	0.0251	1.3097	0.4877	0.0124
29	1,150.962	0.6633	83.9961	9.5675	3.5701	0.3525	0.6149	0.0622	0.0524	0.0276	1.2449	0.4990	0.0129
30	1,147.845	0.6612	84.2027	9.4992	3.4813	0.3407	0.5921	0.0561	0.0467	0.0249	1.2552	0.4893	0.0117
Volume	1,143.013	0.6578	84.7678	9.0141	3.4912	0.3216	0.5602	0.0501	0.0416	0.0242	1.2389	0.4778	0.0125
Weight Avg Energy	1,143.026	0.6578	84.7662	9.0150	3.4915	0.3216	0.5603	0.0501	0.0416	0.0242	1.2390	0.4778	0.0125

600
zone

Apr-17

ZONE 610

Watford City

01325
Watford City West Border

01312
Watford City East Border

Weighted

Begin Date	End Date	BTU			BTU			AVG BTU	
		MCF	DK	Zone 25	MCF	DK	Zone 43		
4/1/2017	4/2/2017	297	357	1.200	58	66	1.143	1.191	4/1/2017
4/2/2017	4/3/2017	359	431	1.200	71	81	1.139	1.190	4/2/2017
4/3/2017	4/4/2017	380	456	1.200	84	95	1.138	1.189	4/3/2017
4/4/2017	4/5/2017	484	580	1.200	88	101	1.145	1.192	4/4/2017
4/5/2017	4/6/2017	400	481	1.200	98	111	1.134	1.187	4/5/2017
4/6/2017	4/7/2017	310	372	1.200	118	133	1.135	1.182	4/6/2017
4/7/2017	4/8/2017	168	201	1.200	58	65	1.122	1.180	4/7/2017
4/8/2017	4/9/2017	240	288	1.200	100	114	1.134	1.181	4/8/2017
4/9/2017	4/10/2017	477	573	1.200	153	175	1.141	1.186	4/9/2017
4/10/2017	4/11/2017	447	536	1.200	148	167	1.128	1.182	4/10/2017
4/11/2017	4/12/2017	382	458	1.200	73	82	1.126	1.188	4/11/2017
4/12/2017	4/13/2017	278	334	1.200	59	67	1.136	1.189	4/12/2017
4/13/2017	4/14/2017	213	256	1.200	49	57	1.154	1.191	4/13/2017
4/14/2017	4/15/2017	244	292	1.200	66	76	1.145	1.188	4/14/2017
4/15/2017	4/16/2017	373	447	1.200	66	75	1.139	1.191	4/15/2017
4/16/2017	4/17/2017	530	636	1.200	119	136	1.138	1.189	4/16/2017
4/17/2017	4/18/2017	462	555	1.200	93	106	1.141	1.190	4/17/2017
4/18/2017	4/19/2017	344	413	1.200	80	91	1.148	1.190	4/18/2017
4/19/2017	4/20/2017	378	453	1.200	114	131	1.148	1.188	4/19/2017
4/20/2017	4/21/2017	333	400	1.200	113	130	1.147	1.187	4/20/2017
4/21/2017	4/22/2017	260	312	1.200	55	64	1.152	1.192	4/21/2017
4/22/2017	4/23/2017	368	442	1.200	101	116	1.149	1.189	4/22/2017
4/23/2017	4/24/2017	607	729	1.200	128	147	1.149	1.191	4/23/2017
4/24/2017	4/25/2017	601	721	1.200	155	177	1.140	1.188	4/24/2017
4/25/2017	4/26/2017	585	702	1.200	184	208	1.131	1.183	4/25/2017
4/26/2017	4/27/2017	460	552	1.200	105	119	1.127	1.186	4/26/2017
4/27/2017	4/28/2017	409	491	1.200	81	94	1.150	1.192	4/27/2017
4/28/2017	4/29/2017	301	361	1.200	67	77	1.152	1.191	4/28/2017
4/29/2017	4/30/2017	258	309	1.200	52	59	1.137	1.189	4/29/2017
4/30/2017	5/1/2017	191	230	1.200	70	82	1.161	1.190	4/30/2017
		11,139	13,368		2,806	3,202	1.1410	1.1880	

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	1059.2	0.6107	1355.4	-73.6	1.3402	0.8163	89.377	7.9047	0.4226	0.0135	0.0089	0.0001	0.0005	0	0	0.1018	0.0159	3/31/2017	4/1/2017	4/1/2017 3:04:51 PM	
11587	GLEN ULLIN	1058.5	0.61	1355.2	-74.4	1.3192	0.8192	89.4856	7.848	0.3938	0.0115	0.0071	0	0	0	0	0.1012	0.0146	4/1/2017	4/2/2017	4/2/2017 3:04:25 PM	
11587	GLEN ULLIN	1057.4	0.6094	1354.5	-75	1.3528	0.802	89.5641	7.7705	0.3787	0.0108	0.0068	0	0	0	0	0.0993	0.0158	4/2/2017	4/3/2017	4/3/2017 3:02:40 PM	
11587	GLEN ULLIN	1057.7	0.6096	1354.7	-74.9	1.3131	0.8306	89.5742	7.7721	0.3854	0.0097	0.0062	0	0	0	0	0.0948	0.0151	4/3/2017	4/4/2017	4/4/2017 3:04:58 PM	
11587	GLEN ULLIN	1057.8	0.6097	1354.6	-74.2	1.3352	0.8161	89.6009	7.6656	0.4446	0.0137	0.008	0.0001	0.0001	0	0	0.101	0.016	4/4/2017	4/5/2017	4/5/2017 3:04:11 PM	
11587	GLEN ULLIN	1057	0.6097	1353.6	-74.8	1.3995	0.8101	89.4356	7.7975	0.3864	0.012	0.007	0	0	0	0	0.1359	0.0159	4/5/2017	4/6/2017	4/6/2017 3:04:48 PM	
11587	GLEN ULLIN	1061.1	0.6129	1355.4	-71	1.4357	0.8194	88.8488	8.2554	0.4425	0.0185	0.0124	0.0009	0.0014	0	0.0005	0.1483	0.0169	4/6/2017	4/7/2017	4/7/2017 3:04:37 PM	
11587	GLEN ULLIN	1061.3	0.6133	1355.2	-70.9	1.4082	0.8493	88.9087	8.2494	0.4303	0.0202	0.0137	0.0012	0.0018	0	0.0005	0.1029	0.0131	4/7/2017	4/8/2017	4/8/2017 3:04:02 PM	
11587	GLEN ULLIN	1061.1	0.6127	1355.6	-71.2	1.3696	0.8518	89.0419	8.1445	0.4455	0.0192	0.0128	0.0008	0.0014	0	0.0005	0.0983	0.0145	4/8/2017	4/9/2017	4/9/2017 3:04:28 PM	
11587	GLEN ULLIN	1058.9	0.6109	1354.8	-73.9	1.3952	0.8087	89.2468	8.0138	0.3915	0.0101	0.0064	0	0	0	0	0.1102	0.0171	4/9/2017	4/10/2017	4/10/2017 3:04:09 PM	
11587	GLEN ULLIN	1060.4	0.6116	1355.9	-73.3	1.3527	0.8246	89.0799	8.228	0.3652	0.0112	0.0068	0	0	0	0	0.1149	0.0184	4/10/2017	4/11/2017	4/11/2017 3:05:55 PM	
11587	GLEN ULLIN	1058.6	0.6109	1354.4	-74.1	1.3981	0.8147	89.2059	8.0633	0.3585	0.0123	0.0074	0	0	0	0	0.1215	0.0185	4/11/2017	4/12/2017	4/12/2017 3:04:13 PM	
11587	GLEN ULLIN	1056.5	0.6087	1354.1	-75.2	1.2902	0.8392	89.6941	7.6167	0.389	0.0127	0.0081	0.0001	0.0002	0	0	0.1332	0.0183	4/12/2017	4/13/2017	4/13/2017 3:04:43 PM	
11587	GLEN ULLIN	1056.3	0.6086	1354	-74.8	1.296	0.8302	89.7542	7.5011	0.4345	0.0134	0.009	0.0003	0.0006	0	0.0002	0.1432	0.0169	4/13/2017	4/14/2017	4/14/2017 3:04:44 PM	
11587	GLEN ULLIN	1054.3	0.6081	1352	-76.1	1.39	0.8165	89.7679	7.4564	0.3888	0.0115	0.007	0	0	0	0	0.1425	0.0183	4/14/2017	4/15/2017	4/15/2017 3:04:40 PM	
11587	GLEN ULLIN	1055.9	0.6094	1352.6	-75	1.3979	0.829	89.5286	7.6655	0.4	0.0118	0.0075	0	0.0002	0	0	0.142	0.018	4/15/2017	4/16/2017	4/16/2017 3:04:37 PM	
11587	GLEN ULLIN	1056.3	0.6093	1353.2	-75.1	1.3999	0.8071	89.5456	7.68	0.4009	0.0108	0.0069	0	0	0	0	0.1314	0.0179	4/16/2017	4/17/2017	4/17/2017 3:07:10 PM	
11587	GLEN ULLIN	1056	0.6093	1352.9	-75.2	1.4032	0.8145	89.505	7.7124	0.3804	0.0115	0.0069	0	0	0	0	0.146	0.0179	4/17/2017	4/18/2017	4/18/2017 3:04:23 PM	
11587	GLEN ULLIN	1059.1	0.6113	1354.6	-73.3	1.388	0.8337	89.0842	8.0827	0.4072	0.0114	0.0071	0	0	0	0	0.1696	0.0179	4/18/2017	4/19/2017	4/19/2017 3:04:29 PM	
11587	GLEN ULLIN	1058.2	0.6106	1354.3	-73.7	1.372	0.8339	89.2472	7.9277	0.4153	0.0121	0.0073	0	0	0	0	0.1667	0.0179	4/19/2017	4/20/2017	4/20/2017 3:05:48 PM	
11587	GLEN ULLIN	1054.4	0.6083	1351.9	-75.9	1.407	0.8214	89.6886	7.4977	0.3947	0.0102	0.0063	0	0	0	0	0.1555	0.0186	4/20/2017	4/21/2017	4/21/2017 3:05:51 PM	
11587	GLEN ULLIN	1059.4	0.6121	1354.1	-72.7	1.4399	0.8301	89.0724	8.0527	0.4527	0.0113	0.0069	0	0	0	0	0.1134	0.0186	4/21/2017	4/22/2017	4/22/2017 3:04:25 PM	
11587	GLEN ULLIN	1060.1	0.6117	1355.4	-72.4	1.4073	0.8059	88.994	8.1237	0.4468	0.0136	0.0078	0.0002	0.0002	0	0	0.1809	0.0186	4/22/2017	4/23/2017	4/23/2017 3:05:35 PM	
11587	GLEN ULLIN	1062.8	0.6133	1357.1	-71.4	1.3687	0.8215	88.7525	8.4425	0.4334	0.0119	0.0074	0.0001	0.0002	0	0.0001	0.1451	0.0186	4/23/2017	4/24/2017	4/24/2017 3:05:32 PM	
11587	GLEN ULLIN	1059.1	0.611	1355	-73.4	1.3971	0.8027	89.1505	8.0463	0.404	0.0133	0.0077	0	0.0001	0	0	0.1599	0.0186	4/24/2017	4/25/2017	4/25/2017 3:05:04 PM	
11587	GLEN ULLIN	1057.5	0.6101	1353.9	-74	1.3964	0.817	89.2686	7.8845	0.4004	0.0146	0.0086	0.0001	0.0002	0	0	0.1911	0.0186	4/25/2017	4/26/2017	4/26/2017 3:05:49 PM	
11587	GLEN ULLIN	1055.9	0.6092	1352.9	-75	1.43	0.7981	89.4367	7.7321	0.3811	0.0143	0.0081	0	0	0	0	0.1803	0.018	4/26/2017	4/27/2017	4/27/2017 3:06:04 PM	
11587	GLEN ULLIN	1062.1	0.6135	1356	-71.4	1.4349	0.8205	88.7147	8.4121	0.442	0.0136	0.0077	0	0	0	0	0.1367	0.0185	4/27/2017	4/28/2017	4/28/2017 3:05:27 PM	
11587	GLEN ULLIN	1066.5	0.6161	1358.8	-68.9	1.4485	0.7989	88.1565	8.9004	0.4954	0.0122	0.0073	0	0	0	0	0.1646	0.0186	4/28/2017	4/29/2017	4/29/2017 3:04:41 PM	
11587	GLEN ULLIN	1064.1	0.6155	1356.3	-69.9	1.5344	0.7983	88.2213	8.7895	0.4469	0.0139	0.0078	0.0002	0.0003	0	0	0.1666	0.0186	4/29/2017	4/30/2017	4/30/2017 3:06:29 PM	
11587	GLEN ULLIN	1068.5	0.618	1359.3	-67.5	1.4876	0.8107	87.7709	9.2063	0.5114	0.0126	0.0076	0	0.0001	0	0	0.1741	0.0186	4/30/2017	5/1/2017	5/1/2017 3:06:43 PM	

31 record(s) retrieved

Zone 402

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	APRIL 17	MAR 17	FEB 17	JAN 17	DEC 16	NOV 16	OCT 16	SEPT 16	AUG 16	JULY 16	JUNE 16	MAY 16	ZONE
MT/ND	211	Sidney Border - MonDak Tfr - Sidney Plt	1201	1191	1194	1195	1199	1199	1200	1193	1209	1210	1208	1206	1205	211
ND	24	Williston Border - Charbonneau Station	1181	1158	1171	1173	1189	1190	1187	1169	1195	1169	1197	1191	1182	24
ND	25	Watford City West Border	1204	1200	1199	1202	1198	1193	1200	1206	1211	1213	1211	1206	1209	25
ND	28	Bismarck Station - Glen Ullin Station	1156	1161	1118	1121	1115	1112	1122	1152	1172	1185	1208	1208	1202	28
ND	31	Dickinson Brd - Belfield Tfr - G Ullin Str	1132	1147	1118	1119	1113	1110	1120	1153	1171	1169	1124	1128	1117	31
ND/MT	32	Cabin Creek Station - Belfield Transfer	1129	1104	1112	1114	1118	1118	1099	1137	1153	1150	1157	1153	1137	32
ND	33	Little Knife Plant	1183	1178	1176	1177	1181	1200	1179	1182	1184	1183	1184	1185	1184	33
ND	34	Bowman Border	995	996	996	996	996	996	996	996	996	996	996	996	980	34
ND	43	Spring Creek I - Sax Valve I	1108	1141	1102	1075	1121	1122	1114	1109	1128	1109	1089	1087	1102	43
ND/MT	241	Fairview Border	1191	1167	1179	1181	1196	1200	1193	1170	1210	1200	1202	1197	1202	241
ND	260	North Tioga Transfer - Nesson Plant		1082	0											260
ND	261	Tioga Comp Station - Robinson Lake Plan	1113	1170	1065	1089	1105	1096	1034	981	1174	1074	1206	1182	1179	261
ND	262	Minot Bdr - Palermo Bdr - Bismarck Stn	1177	1189	1181	1178	1152	1144	1147	1141	1172	1191	1208	1208	1208	262
ND	263	Lignite Plant	1103	1103	1115	1112	1103	1110	1138	1120	1129	1127	1118	1116	947	263
ND	264	Epping Border	1175	1154	1158	1172	1186	1186	1158	1157	1194	1198	1169	1183	1184	264
ND	265	Tioga Comp Station - County Line Plant	1175	1170	1174	1175	1184	1170	1182	1180	1186	1166	1177	1170	1173	265
ND	266	County Line Plant		1185	1173	1182	0									266
ND	271	Bismarck Station - Cleveland Station	1169	1189	1163	1155	1129	1127	1140	1142	1173	1185	1208	1208	1208	271
ND	272	Cleveland Station - Mapleton	1168	1187	1161	1153	1128	1126	1139	1142	1172	1184	1207	1207	1206	272
ND	273	Cleveland Station - Grafton Border	1168	1187	1162	1154	1128	1127	1139	1142	1172	1184	1207	1206	1206	273
ND	610	MDU-Watford City BTU	1182	1188	1171	1163	1170	1162	1176	1179	1197	1206	1203	1186	1184	610
ND	802	Linton	1056	1059	1054	1052	1049	1051	1058	1053	1058	1059	1054	1065	1062	802
ND	903	Hettinger Propane	2549	2549	2549	2549	2549	2549	2549	2549	2549	2549	2549	2549	2549	903

**THERMAL ZONE VARIANCE
DOCUMENTATION**

April 2017

ZONE	BTU VARIANCE	REASON
28	43	Supply Change
31	29	Supply Change
271	26	Supply Change
272	26	Supply Change
273	25	Supply Change
43	39	Operational Changes at Garden Creek
432	22	Operational Changes at Garden Creek
433	35	Operational Changes at Garden Creek