



UTILITIES CO.

A Division of MDU Resources Group, Inc.

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

August 3, 2016

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

Re: Case No. PU-16-002 (Therm Billing)
Monthly Report – June 2016

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 July 2016.
2. Attachment B consists of copies of the monthly Heating Value Test Reports received from our suppliers for the month of June 2016.
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 June 2016.

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

Sincerely,

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

Tamie Aberle
Director of Regulatory Affairs

Montana-Dakota Utilities Co.
Therm Billing Factors - North Dakota
Jun-16

Town	Heat Zone	Therm Factor
MDU-303-ALEXANDER	025	1.1419
MDU-308-ARNEGARD	025	1.1419
MDU-314-APPLE VALLEY	271	1.1656
MDU-318-BEACH	032	1.0507
MDU-319-BELFIELD	032	1.0585
MDU-323-BERTHOLD	262	1.1410
MDU-327-BISMARCK	028	1.1598
MDU-330-BOWMAN	034	0.8990
MDU-337-BURLINGTON	262	1.1656
MDU-343-CARRINGTON	273	1.1636
MDU-344-CLEVELAND	272	1.1554
MDU-364-CAVALIER	273	1.1822
MDU-365-DAWSON	271	1.1574
MDU-368-DES LACS	262	1.1492
MDU-369-DICKINSON	031	1.0474
MDU-374-FT TOTTEN	273	1.1670
MDU-375-DEVILS LAKE	273	1.1670
MDU-379-BARLOW	273	1.1636
MDU-384-EPPING	264	1.1183
MDU-387-ELDRIDGE	272	1.1636
MDU-407-GLADSTONE	031	1.0474
MDU-411-GLEN ULLIN	031	1.0550
MDU-413-GOLVA	032	1.0353
MDU-416-GARRISON	262	1.1492
MDU-417-GRAFTON	273	1.1964
MDU-429-HEBRON	031	1.0550
MDU-432-HETTINGER	903	2.3875
MDU-449-JAMESTOWN	272	1.1718
MDU-459-KILLDEER	033	1.1183
MDU-463-LANGDON	273	1.1636
MDU-469-LEFOR	031	1.0474
MDU-474-LIGNITE	263	0.9009
MDU-475-LINTON	802	1.0247
MDU-478-LINCOLN	028	1.1598
MDU-488-MCKENZIE	271	1.1656
MDU-494-MEDINA	271	1.1574
MDU-498-MANDAN	028	1.1598
MDU-500-MARMARTH	034	0.9057
MDU-505-MINOT	262	1.1656
MDU-510-MOTT	031	1.0474
MDU-512-MAX	262	1.1410
MDU-522-NEW ENGLAND	031	1.0398
MDU-524-NEW SALEM	028	1.1353
MDU-532-NEW ROCKFORD	273	1.1636
MDU-539-PARK RIVER	273	1.1882
MDU-540-PALERMO	262	1.1410
MDU-558-RAY	264	1.1183
MDU-561-REGENT	031	1.0474
MDU-563-RHAME	034	0.8923

MDU-564-RICHARDTON	031	1.0398
MDU-568-ROSS	261	1.1056
MDU-572-RUTHVILLE	262	1.1656
MDU-574-SANBORN	272	1.1718
MDU-583-SENTINEL BUTTE	032	1.0507
MDU-588-SOUTH HEART	031	1.0398
MDU-717-SPIRITWOOD	272	1.1718
MDU-590-SPRINGBROOK	264	1.1183
MDU-591-STANLEY	261	1.1136
MDU-593-STEELE	271	1.1574
MDU-598-SHEYENNE	273	1.1718
MDU-605-SURREY	262	1.1656
MDU-610-TAPPEN	271	1.1574
MDU-611-TAYLOR	031	1.0398
MDU-616-TIOGA	261	1.1056
MDU-619-TURTLE LAKE	262	1.1492
MDU-620-TRENTON	024	1.1244
MDU-624-UNDERWOOD	262	1.1492
MDU-625-VALLEY CITY	272	1.1800
MDU-629-WALHALLA	273	1.1882
MDU-632-WATFORD CITY	610	1.1183
MDU-636-WHEELOCK	264	1.1103
MDU-637-WHITE EARTH	261	1.1136
MDU-642-WILLISTON	024	1.1244
MDU-646-WASHBURN	262	1.1574
MDU-647-WILTON	262	1.1410
MDU-664-RIVERDALE	262	1.1492
MDU-691-FAIRVIEW	241	1.1435
MDU-712-MINOT AFB	262	1.1656
MDU-718-FAIRMOUNT	600	1.1199
MDU-732-NEKOMA	273	1.1636
MDU-732-MSR SITE	273	1.1588

GQ Source Analysis

GQ Source Number:	0602330	Specific Gravity:	0.7124
GQ Source Name:	WILLISTON BORDER	Dry Heat Value:	1190.92
Effective Date:	6/1/2016 9:00:00 AM	Wet Heat Value:	1170.19
Effective End Date:	1/18/2038 9:14:00 PM	As Deliv. Heat Value:	1190.92
Pressure Base:	14.730	Sample Pressure:	370.00
Viscosity:		Sample Temperature:	

		<u>Mol %</u>	<u>Liquid Content</u>			<u>Mol %</u>
C1	Methane	71.698		CO2	Carbon Dioxide	0.957
C2	Ethane	21.181	0.0000	N2	Nitrogen	2.764
C3	Propane	3.061	0.8408	O2	Oxygen	0.000
IC4	Isobutane	0.102	0.0333	He	Helium	
NC4	n-Butane	0.208	0.0654	H2	Hydrogen	
IC5	Isopentane	0.014	0.0052	H2S	Hydrogen Sulfide	
NC5	n-Pentane	0.016	0.0057	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% 0.950 GPM

Sample Date: 7/1/2016 12:00:00 AM
Sample Type: Composite
Sample Tech: ES
H2S: ppm

Sample Remarks:

Analysis Tech: MB

Analysis Remarks:

Zone 24

GQ Source Daily Summary

June 2016

Number: 163

Pressure Base: 14.730

Contract Day: 1

Name: NORTH TIOGA TRANSFER-PALERMO BORDER LI

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	0.6771	1116.9	1136.7	0.446	3.513	77.264	16.591	2.026	0.059	0.085	0.007	0.009	0.000	0.000	0.000	0.000	0.000	1381.38	
2	0.6840	1126.3	1146.2	0.513	3.487	76.165	17.409	2.238	0.069	0.105	0.006	0.007	0.000	0.000	0.000	0.000	0.000	1385.93	
3	0.6852	1125.3	1145.2	0.603	3.531	75.684	18.007	2.030	0.055	0.081	0.004	0.005	0.000	0.000	0.000	0.000	0.000	1383.43	
4	0.6937	1137.4	1157.5	0.692	3.446	74.727	18.404	2.485	0.078	0.147	0.010	0.011	0.000	0.000	0.000	0.000	0.000	1389.81	
5	0.7024	1150.1	1170.4	0.782	3.358	73.474	19.375	2.687	0.089	0.188	0.019	0.027	0.000	0.000	0.000	0.000	0.000	1396.51	
6	0.6987	1144.7	1164.9	0.747	3.392	73.910	19.086	2.598	0.082	0.161	0.011	0.013	0.000	0.000	0.000	0.000	0.000	1393.66	
7	0.6977	1143.5	1163.8	0.742	3.375	73.998	19.192	2.425	0.078	0.156	0.015	0.020	0.000	0.000	0.000	0.000	0.000	1393.30	
8	0.7034	1157.2	1177.7	0.819	2.967	72.812	20.757	2.419	0.071	0.134	0.010	0.011	0.000	0.000	0.000	0.000	0.000	1404.17	
9	0.7261	1170.0	1190.7	0.775	4.381	69.665	20.991	3.760	0.127	0.269	0.015	0.016	0.000	0.000	0.000	0.000	0.000	1397.64	
10	0.7503	1182.1	1203.1	0.821	5.835	66.363	21.206	5.116	0.189	0.424	0.024	0.023	0.000	0.000	0.000	0.000	0.000	1388.97	
11	0.7556	1186.8	1207.8	0.811	6.059	65.619	21.409	5.398	0.202	0.452	0.026	0.025	0.000	0.000	0.000	0.000	0.000	1389.50	
12	0.7560	1187.3	1208.4	0.814	6.064	65.592	21.357	5.473	0.202	0.450	0.024	0.024	0.000	0.000	0.000	0.000	0.000	1389.72	
13	0.7562	1187.9	1209.0	0.812	6.051	65.540	21.423	5.482	0.201	0.445	0.024	0.023	0.000	0.000	0.000	0.000	0.000	1390.22	
14	0.7555	1186.8	1207.9	0.817	6.041	65.637	21.394	5.422	0.199	0.443	0.024	0.023	0.000	0.000	0.000	0.000	0.000	1389.62	
15	0.7516	1182.9	1203.9	0.814	5.917	66.224	21.125	5.264	0.190	0.420	0.023	0.023	0.000	0.000	0.000	0.000	0.000	1388.68	
16	0.7557	1186.5	1207.5	0.816	6.081	65.634	21.322	5.450	0.200	0.447	0.025	0.025	0.000	0.000	0.000	0.000	0.000	1389.06	
17	0.7552	1185.9	1206.9	0.816	6.071	65.722	21.253	5.454	0.197	0.440	0.024	0.023	0.000	0.000	0.000	0.000	0.000	1388.81	
18	0.7455	1180.7	1201.6	0.805	5.496	67.093	21.075	4.929	0.174	0.385	0.021	0.021	0.000	0.000	0.000	0.000	0.000	1391.80	
19	0.7124	1156.1	1176.6	0.754	3.971	71.766	20.025	3.136	0.100	0.212	0.016	0.020	0.000	0.000	0.000	0.000	0.000	1394.19	
20	0.7000	1143.3	1163.6	0.681	3.704	73.330	19.558	2.508	0.069	0.132	0.008	0.009	0.000	0.000	0.000	0.000	0.000	1390.81	
21	0.6632	1094.7	1114.1	0.135	4.037	78.544	16.183	0.978	0.035	0.078	0.005	0.005	0.000	0.000	0.000	0.000	0.000	1367.48	
22	0.6908	1151.1	1171.5	0.042	3.350	72.110	24.102	0.351	0.012	0.028	0.002	0.003	0.000	0.000	0.000	0.000	0.000	1409.56	
23	0.6991	1156.4	1176.9	0.126	3.673	71.119	24.092	0.879	0.032	0.071	0.004	0.004	0.000	0.000	0.000	0.000	0.000	1407.81	
24	0.7321	1171.4	1192.2	0.558	5.183	68.243	21.742	3.791	0.139	0.311	0.017	0.016	0.000	0.000	0.000	0.000	0.000	1393.76	
25	0.7052	1123.4	1143.3	0.583	5.531	73.968	15.430	3.983	0.145	0.326	0.017	0.017	0.000	0.000	0.000	0.000	0.000	1361.17	
26	0.7427	1173.6	1194.3	0.773	5.712	67.782	20.071	5.021	0.183	0.410	0.024	0.025	0.000	0.000	0.000	0.000	0.000	1385.86	
27	0.7554	1186.1	1207.1	0.821	6.065	65.763	21.136	5.527	0.199	0.442	0.024	0.024	0.000	0.000	0.000	0.000	0.000	1388.90	
28	0.7547	1185.6	1206.6	0.822	6.039	65.814	21.203	5.429	0.198	0.446	0.025	0.024	0.000	0.000	0.000	0.000	0.000	1388.83	
29	0.7372	1174.6	1195.4	0.809	5.081	68.247	20.874	4.448	0.156	0.346	0.020	0.020	0.000	0.000	0.000	0.000	0.000	1392.52	
30	0.7549	1186.1	1207.1	0.826	6.015	65.858	21.129	5.468	0.201	0.452	0.025	0.025	0.000	0.000	0.000	0.000	0.000	1389.30	
Avg	0.7233	1161.0	1181.9	0.679	4.781	70.122	20.231	3.739	0.131	0.283	0.017	0.017	0.000	0.000	0.000	0.000	0.000	1390.08	

Zone 2b1

GQ Source Analysis

GQ Source Number:	2501030	Specific Gravity:	0.6572
GQ Source Name:	LIGNITE PLANT	Dry Heat Value:	1115.61
Effective Date:	6/1/2016 9:00:00 AM	Wet Heat Value:	1096.20
Effective End Date:	1/18/2038 9:14:00 PM	As Deliv. Heat Value:	1115.61
Pressure Base:	14.730	Sample Pressure:	550.00
Viscosity:		Sample Temperature:	

		<u>Mol %</u>	<u>Liquid Content</u>			<u>Mol %</u>
C1	Methane	80.396		CO2	Carbon Dioxide	0.119
C2	Ethane	14.190	3.7836	N2	Nitrogen	3.362
C3	Propane	1.868	0.5132	O2	Oxygen	0.010
IC4	Isobutane	0.037	0.0121	He	Helium	
NC4	n-Butane	0.015	0.0047	H2	Hydrogen	
IC5	Isopentane	0.000	0.0000	H2S	Hydrogen Sulfide	
NC5	n-Pentane	0.000	0.0000	Ar	Argon	
C6	Hexanes	0.003	0.0014	CO	Carbon Monoxide	
C7	Heptanes			H2	Water	
C8	Octanes			Neo-C5	Neopentane	
C9	Nonanes					
C10	Decanes					

Totals 100.000% 4.315 GPM

Sample Date: 7/1/2016 12:00:00 AM
Sample Type: Composite
Sample Tech: ES
H2S: ppm

Sample Remarks:

Analysis Tech: MB

Analysis Remarks:

Zone 263

*** End of Report ***

GQ Source Analysis

GQ Source Number:	0702010	Specific Gravity:	0.7055
GQ Source Name:	EPPING BORDER	Dry Heat Value:	1183.41
Effective Date:	6/1/2016 9:00:00 AM	Wet Heat Value:	1162.81
Effective End Date:	1/18/2038 9:14:00 PM	As Deliv. Heat Value:	1183.41
Pressure Base:	14.730	Sample Pressure:	550.00
Viscosity:		Sample Temperature:	

		<u>Mol %</u>	<u>Liquid Content</u>			<u>Mol %</u>
C1	Methane	72.813		CO2	Carbon Dioxide	0.813
C2	Ethane	20.329	5.4205	N2	Nitrogen	2.778
C3	Propane	2.945	0.8091	O2	Oxygen	0.006
IC4	Isobutane	0.096	0.0313	He	Helium	
NC4	n-Butane	0.191	0.0599	H2	Hydrogen	
IC5	Isopentane	0.014	0.0049	H2S	Hydrogen Sulfide	
NC5	n-Pentane	0.015	0.0056	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% 6.331 GPM

Sample Date: 7/1/2016 12:00:00 AM
Sample Type: Composite
Sample Tech: ES
H2S: ppm

Sample Remarks:

Analysis Tech: MB

Analysis Remarks:

Zone 264

GQ Source Daily Summary

June 2016

Number: 161

Pressure Base: 14.730

Contract Day: 1

Name: NORTH TIOGA TRANSFER-PORTAL

Temperature Base:

Contract Hour: 9

Day	Relative Density	Heating Value Wet	Heating Value Dry	CO2	N2	C1	C2	C3	IC4	NC4	ICS	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.6775	1117.3	1137.0	0.455	3.513	77.153	16.726	2.016	0.055	0.069	0.005	0.009	0.000	0.000	0.000	0.000	0.000	1381.46	
2	0.6884	1132.3	1152.4	0.558	3.465	75.393	18.078	2.311	0.070	0.112	0.006	0.007	0.000	0.000	0.000	0.000	0.000	1388.91	
3	0.6938	1138.3	1158.5	0.659	3.457	74.352	19.066	2.275	0.063	0.108	0.008	0.010	0.000	0.000	0.000	0.000	0.000	1390.78	
4	0.7041	1152.8	1173.2	0.777	3.355	73.078	19.722	2.773	0.090	0.179	0.013	0.014	0.000	0.000	0.000	0.000	0.000	1398.22	
5	0.7060	1155.5	1176.0	0.806	3.323	72.750	20.070	2.751	0.088	0.179	0.015	0.019	0.000	0.000	0.000	0.000	0.000	1399.64	
6	0.7041	1152.7	1173.1	0.783	3.354	73.089	19.726	2.738	0.091	0.186	0.014	0.017	0.000	0.000	0.000	0.000	0.000	1398.02	
7	0.7016	1149.8	1170.1	0.773	3.314	73.223	19.927	2.528	0.075	0.139	0.009	0.011	0.000	0.000	0.000	0.000	0.000	1397.02	
8	0.7077	1157.5	1178.0	0.847	3.306	72.328	20.556	2.682	0.083	0.167	0.014	0.017	0.000	0.000	0.000	0.000	0.000	1400.27	
9	0.7126	1167.8	1188.5	0.731	3.304	72.611	19.369	3.420	0.150	0.342	0.032	0.041	0.000	0.000	0.000	0.000	0.000	1407.81	
10	0.7090	1159.9	1180.4	0.810	3.335	72.498	20.034	2.948	0.105	0.223	0.020	0.026	0.000	0.000	0.000	0.000	0.000	1401.89	
11	0.7046	1153.6	1174.1	0.788	3.341	72.873	20.088	2.609	0.084	0.179	0.017	0.021	0.000	0.000	0.000	0.000	0.000	1398.66	
12	0.7055	1155.4	1175.9	0.780	3.327	72.672	20.252	2.708	0.081	0.154	0.012	0.014	0.000	0.000	0.000	0.000	0.000	1399.97	
13	0.7045	1154.3	1174.7	0.778	3.301	72.859	20.139	2.671	0.077	0.147	0.012	0.016	0.000	0.000	0.000	0.000	0.000	1399.62	
14	0.7024	1150.4	1170.8	0.775	3.346	73.132	19.941	2.561	0.073	0.145	0.012	0.015	0.000	0.000	0.000	0.000	0.000	1396.98	
15	0.7002	1146.9	1167.2	0.764	3.369	73.622	19.390	2.592	0.079	0.157	0.012	0.014	0.000	0.000	0.000	0.000	0.000	1394.91	
16	0.7097	1162.2	1182.8	0.790	3.292	72.380	20.196	2.967	0.102	0.222	0.022	0.028	0.000	0.000	0.000	0.000	0.000	1403.94	
17	0.7042	1154.3	1174.7	0.762	3.304	72.848	20.154	2.691	0.076	0.145	0.010	0.011	0.000	0.000	0.000	0.000	0.000	1399.86	
18	0.7051	1155.3	1175.7	0.779	3.298	72.722	20.263	2.687	0.073	0.150	0.012	0.015	0.000	0.000	0.000	0.000	0.000	1400.19	
19	0.7021	1151.2	1171.6	0.744	3.323	73.047	20.188	2.463	0.070	0.138	0.012	0.015	0.000	0.000	0.000	0.000	0.000	1398.19	
20	0.6742	1114.3	1134.1	0.319	3.588	77.304	16.917	1.787	0.039	0.042	0.003	0.003	0.000	0.000	0.000	0.000	0.000	1381.22	
21	0.6811	1128.6	1148.6	0.343	3.328	76.483	17.529	2.147	0.060	0.094	0.007	0.008	0.000	0.000	0.000	0.000	0.000	1391.83	
22	0.7125	1165.5	1186.1	0.850	3.259	71.782	20.849	2.881	0.103	0.229	0.021	0.026	0.000	0.000	0.000	0.000	0.000	1405.22	
23	0.7121	1165.5	1186.1	0.833	3.256	71.792	20.863	2.903	0.098	0.214	0.018	0.023	0.000	0.000	0.000	0.000	0.000	1405.53	
24	0.6962	1146.0	1166.3	0.584	3.325	74.649	18.409	2.679	0.094	0.206	0.023	0.031	0.000	0.000	0.000	0.000	0.000	1397.68	
25	0.6658	1105.0	1124.6	0.253	3.464	79.297	14.833	2.039	0.048	0.058	0.004	0.004	0.000	0.000	0.000	0.000	0.000	1378.28	
26	0.7152	1170.8	1191.6	0.797	3.270	71.900	20.284	3.209	0.135	0.323	0.035	0.046	0.000	0.000	0.000	0.000	0.000	1408.91	
27	0.7105	1164.1	1184.8	0.762	3.284	72.525	19.859	3.108	0.122	0.279	0.027	0.034	0.000	0.000	0.000	0.000	0.000	1405.58	
28	0.7052	1155.5	1175.9	0.796	3.275	72.867	20.035	2.728	0.087	0.178	0.015	0.019	0.000	0.000	0.000	0.000	0.000	1400.26	
29	0.7042	1153.4	1173.9	0.800	3.294	72.824	20.252	2.571	0.075	0.154	0.013	0.016	0.000	0.000	0.000	0.000	0.000	1398.86	
30	0.7031	1152.0	1172.4	0.798	3.284	72.959	20.194	2.517	0.074	0.151	0.012	0.013	0.000	0.000	0.000	0.000	0.000	1398.21	
Avg	0.7008	1150.0	1170.0	0.710	3.342	73.567	19.464	2.632	0.084	0.169	0.014	0.018	0.000	0.000	0.000	0.000	0.000	1397.60	

Zone 265

GQ Source Daily Summary

June 2016

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	0.7512	1183.9	1204.8	0.795	5.848	66.307	21.182	5.189	0.196	0.439	0.022	0.022	0.000	0.000	0.000	0.000	0.000	1390.15	
2	0.7503	1182.3	1203.3	0.808	5.844	66.406	21.143	5.137	0.192	0.428	0.021	0.022	0.000	0.000	0.000	0.000	0.000	1389.12	
3	0.7549	1187.0	1208.0	0.821	5.970	65.804	21.302	5.406	0.202	0.452	0.022	0.022	0.000	0.000	0.000	0.000	0.000	1390.33	
4	0.7546	1185.7	1206.7	0.820	6.020	65.838	21.237	5.391	0.200	0.450	0.022	0.022	0.000	0.000	0.000	0.000	0.000	1389.16	
5	0.7550	1187.2	1208.2	0.821	5.966	65.798	21.314	5.403	0.199	0.452	0.023	0.024	0.000	0.000	0.000	0.000	0.000	1390.48	
6	0.7559	1188.7	1209.8	0.819	5.961	65.687	21.353	5.478	0.202	0.455	0.023	0.023	0.000	0.000	0.000	0.000	0.000	1391.44	
7	0.7552	1187.8	1208.8	0.819	5.955	65.780	21.316	5.425	0.201	0.456	0.024	0.024	0.000	0.000	0.000	0.000	0.000	1390.95	
8	0.7547	1186.7	1207.7	0.821	5.963	65.852	21.283	5.376	0.200	0.457	0.024	0.024	0.000	0.000	0.000	0.000	0.000	1390.26	
9	0.7528	1185.0	1206.0	0.811	5.901	66.164	21.110	5.321	0.197	0.449	0.024	0.024	0.000	0.000	0.000	0.000	0.000	1390.06	
10	0.7556	1186.8	1207.8	0.812	6.057	65.695	21.305	5.420	0.203	0.461	0.024	0.023	0.000	0.000	0.000	0.000	0.000	1389.53	
11	0.7562	1187.8	1208.8	0.814	6.054	65.630	21.308	5.483	0.203	0.461	0.024	0.023	0.000	0.000	0.000	0.000	0.000	1390.07	
12	0.7568	1188.9	1209.9	0.809	6.045	65.514	21.427	5.503	0.201	0.455	0.023	0.022	0.000	0.000	0.000	0.000	0.000	1390.86	
13	0.7557	1187.5	1208.5	0.814	6.029	65.683	21.311	5.468	0.199	0.452	0.023	0.022	0.000	0.000	0.000	0.000	0.000	1390.15	
14	0.7553	1186.6	1207.6	0.814	6.042	65.747	21.251	5.451	0.199	0.451	0.023	0.023	0.000	0.000	0.000	0.000	0.000	1389.52	
15	0.7555	1186.4	1207.4	0.815	6.067	65.747	21.197	5.474	0.200	0.453	0.024	0.024	0.000	0.000	0.000	0.000	0.000	1389.13	
16	0.7554	1185.8	1206.8	0.814	6.093	65.751	21.164	5.484	0.198	0.449	0.023	0.023	0.000	0.000	0.000	0.000	0.000	1388.54	
17	0.7567	1188.8	1209.9	0.816	6.030	65.610	21.278	5.553	0.203	0.463	0.024	0.024	0.000	0.000	0.000	0.000	0.000	1390.86	
18	0.7558	1187.6	1208.7	0.818	6.015	65.704	21.268	5.495	0.200	0.453	0.023	0.023	0.000	0.000	0.000	0.000	0.000	1390.30	
19	0.7552	1185.1	1206.1	0.821	6.105	65.804	21.094	5.474	0.202	0.455	0.023	0.022	0.000	0.000	0.000	0.000	0.000	1387.95	
20	0.7567	1188.4	1209.4	0.824	6.051	65.523	21.430	5.458	0.202	0.462	0.025	0.025	0.000	0.000	0.000	0.000	0.000	1390.30	
21	0.7572	1189.5	1210.6	0.818	6.033	65.606	21.201	5.612	0.208	0.473	0.024	0.024	0.000	0.000	0.000	0.000	0.000	1391.20	
22	0.7574	1190.4	1211.5	0.816	5.999	65.619	21.167	5.677	0.207	0.469	0.024	0.024	0.000	0.000	0.000	0.000	0.000	1392.07	
23	0.7563	1187.6	1208.6	0.815	6.070	65.705	21.123	5.582	0.202	0.457	0.023	0.023	0.000	0.000	0.000	0.000	0.000	1389.77	
24	0.7551	1186.0	1207.0	0.817	6.051	65.880	21.049	5.494	0.201	0.459	0.024	0.024	0.000	0.000	0.000	0.000	0.000	1388.99	
25	0.7564	1188.5	1209.5	0.818	6.023	65.698	21.175	5.574	0.203	0.462	0.024	0.024	0.000	0.000	0.000	0.000	0.000	1390.71	
26	0.7556	1186.5	1207.5	0.818	6.065	65.785	21.105	5.529	0.200	0.452	0.023	0.023	0.000	0.000	0.000	0.000	0.000	1389.13	
27	0.7559	1187.1	1208.1	0.817	6.062	65.704	21.211	5.504	0.201	0.456	0.023	0.023	0.000	0.000	0.000	0.000	0.000	1389.53	
28	0.7546	1185.9	1206.9	0.819	6.010	65.918	21.107	5.433	0.201	0.462	0.024	0.024	0.000	0.000	0.000	0.000	0.000	1389.36	
29	0.7546	1185.5	1206.5	0.822	6.026	65.975	20.989	5.476	0.202	0.461	0.025	0.025	0.000	0.000	0.000	0.000	0.000	1388.90	
30	0.7544	1185.0	1206.0	0.819	6.039	65.952	21.043	5.451	0.198	0.451	0.023	0.023	0.000	0.000	0.000	0.000	0.000	1388.57	
Avg	0.7552	1187.0	1207.9	0.816	6.013	65.796	21.215	5.457	0.201	0.455	0.023	0.023	0.000	0.000	0.000	0.000	0.000	1389.91	

Zone 271

GQ Source Daily Summary

June 2016

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	0.7554	1187.1	1208.2	0.823	6.006	65.702	21.368	5.393	0.205	0.456	0.024	0.023	0.000					1390.04	
2	0.7472	1179.0	1199.9	0.788	5.783	66.856	20.920	5.013	0.187	0.410	0.021	0.021	0.000					1388.12	
3	0.7526	1183.8	1204.8	0.818	5.952	66.058	21.255	5.242	0.196	0.435	0.022	0.022	0.000					1388.75	
4	0.7544	1185.6	1206.5	0.821	6.008	65.853	21.242	5.393	0.200	0.440	0.022	0.022	0.000					1389.15	
5	0.7544	1185.0	1206.0	0.822	6.037	65.850	21.231	5.375	0.198	0.442	0.023	0.023	0.000					1388.54	
6	0.7550	1186.8	1207.8	0.819	5.990	65.774	21.314	5.414	0.200	0.444	0.023	0.023	0.000					1390.09	
7	0.7554	1187.9	1208.9	0.820	5.959	65.721	21.373	5.438	0.199	0.443	0.023	0.023	0.000					1390.97	
8	0.7546	1186.2	1207.2	0.823	5.990	65.807	21.320	5.366	0.199	0.447	0.024	0.023	0.000					1389.66	
9	0.7526	1184.6	1205.6	0.820	5.896	66.067	21.302	5.237	0.194	0.436	0.024	0.024	0.000					1389.75	
10	0.7549	1185.8	1206.8	0.825	6.036	65.749	21.303	5.392	0.201	0.449	0.024	0.023	0.000					1388.96	
11	0.7554	1186.0	1207.0	0.818	6.080	65.658	21.349	5.399	0.200	0.449	0.024	0.023	0.000					1388.72	
12	0.7562	1187.5	1208.6	0.817	6.067	65.563	21.369	5.488	0.202	0.449	0.023	0.022	0.000					1389.77	
13	0.7560	1187.0	1208.0	0.821	6.072	65.567	21.395	5.458	0.199	0.443	0.023	0.022	0.000					1389.35	
14	0.7552	1186.2	1207.2	0.818	6.050	65.692	21.340	5.414	0.198	0.442	0.023	0.023	0.000					1389.16	
15	0.7547	1185.0	1206.0	0.813	6.083	65.800	21.178	5.445	0.198	0.438	0.023	0.023	0.000					1388.22	
16	0.7550	1184.9	1205.9	0.814	6.117	65.736	21.213	5.437	0.197	0.440	0.023	0.023	0.000					1387.82	
17	0.7557	1186.2	1207.2	0.816	6.095	65.698	21.198	5.501	0.200	0.446	0.023	0.023	0.000					1388.75	
18	0.7560	1187.7	1208.7	0.824	6.025	65.662	21.286	5.505	0.201	0.450	0.024	0.023	0.000					1390.16	
19	0.7543	1183.3	1204.2	0.826	6.127	65.859	21.110	5.399	0.197	0.438	0.023	0.022	0.000					1386.60	
20	0.7558	1186.7	1207.7	0.825	6.066	65.687	21.236	5.484	0.202	0.452	0.024	0.023	0.000					1389.15	
21	0.7562	1186.7	1207.7	0.827	6.100	65.630	21.231	5.504	0.203	0.456	0.024	0.024	0.000					1388.80	
22	0.7566	1188.4	1209.4	0.820	6.044	65.710	21.077	5.632	0.206	0.462	0.024	0.024	0.000					1390.40	
23	0.7563	1187.5	1208.6	0.819	6.071	65.717	21.061	5.628	0.203	0.454	0.023	0.023	0.000					1389.69	
24	0.7549	1185.2	1206.2	0.821	6.076	65.830	21.101	5.477	0.199	0.448	0.024	0.023	0.000					1388.25	
25	0.7551	1185.3	1206.2	0.818	6.095	65.835	21.046	5.507	0.201	0.451	0.024	0.024	0.000					1388.16	
26	0.7552	1185.7	1206.7	0.820	6.072	65.816	21.085	5.516	0.199	0.446	0.023	0.023	0.000					1388.62	
27	0.7540	1182.9	1203.8	0.814	6.146	66.059	20.742	5.557	0.201	0.439	0.021	0.021	0.000					1386.34	
28	0.7542	1184.4	1205.4	0.816	6.072	65.929	21.062	5.426	0.200	0.448	0.024	0.024	0.000					1387.91	
29	0.7543	1184.9	1205.9	0.817	6.042	65.939	21.067	5.433	0.201	0.452	0.024	0.024	0.000					1388.48	
30	0.7539	1183.5	1204.5	0.824	6.082	66.003	20.971	5.428	0.198	0.446	0.024	0.023	0.000					1387.19	
Avg	0.7547	1186.0	1206.6	0.819	6.041	65.828	21.191	5.430	0.200	0.445	0.023	0.023	0.000					1388.85	

Zone 272

GQ Source Daily Summary

June 2016

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	0.7553	1186.9	1207.9	0.825	6.011	65.709	21.362	5.386	0.205	0.455	0.024	0.023	0.000	0.000	0.000	0.000	0.000	1389.79	
2	0.7471	1178.7	1199.6	0.790	5.787	66.867	20.914	5.005	0.187	0.409	0.021	0.021	0.000	0.000	0.000	0.000	0.000	1387.89	
3	0.7526	1183.6	1204.5	0.820	5.961	66.063	21.239	5.242	0.196	0.435	0.022	0.022	0.000	0.000	0.000	0.000	0.000	1388.48	
4	0.7543	1185.3	1206.3	0.823	6.013	65.861	21.232	5.388	0.200	0.440	0.022	0.022	0.000	0.000	0.000	0.000	0.000	1388.91	
5	0.7542	1184.6	1205.6	0.822	6.045	65.878	21.202	5.368	0.198	0.442	0.023	0.023	0.000	0.000	0.000	0.000	0.000	1388.23	
6	0.7549	1186.5	1207.5	0.821	6.002	65.772	21.310	5.407	0.199	0.443	0.023	0.023	0.000	0.000	0.000	0.000	0.000	1389.75	
7	0.7553	1187.6	1208.6	0.822	5.970	65.729	21.353	5.438	0.200	0.443	0.023	0.023	0.000	0.000	0.000	0.000	0.000	1390.67	
8	0.7546	1186.1	1207.1	0.825	5.994	65.807	21.317	5.363	0.199	0.447	0.024	0.024	0.000	0.000	0.000	0.000	0.000	1389.51	
9	0.7525	1184.4	1205.4	0.821	5.901	66.078	21.292	5.232	0.194	0.435	0.024	0.024	0.000	0.000	0.000	0.000	0.000	1389.55	
10	0.7550	1185.9	1206.9	0.829	6.034	65.733	21.319	5.391	0.200	0.448	0.024	0.023	0.000	0.000	0.000	0.000	0.000	1388.95	
11	0.7553	1185.7	1206.7	0.820	6.083	65.666	21.342	5.393	0.200	0.448	0.024	0.023	0.000	0.000	0.000	0.000	0.000	1388.52	
12	0.7562	1187.4	1208.4	0.820	6.068	65.560	21.378	5.480	0.201	0.447	0.023	0.022	0.000	0.000	0.000	0.000	0.000	1389.61	
13	0.7560	1186.9	1207.9	0.821	6.075	65.566	21.400	5.452	0.199	0.443	0.023	0.022	0.000	0.000	0.000	0.000	0.000	1389.24	
14	0.7551	1185.9	1206.9	0.820	6.054	65.709	21.326	5.406	0.198	0.441	0.023	0.022	0.000	0.000	0.000	0.000	0.000	1388.92	
15	0.7548	1185.1	1206.1	0.817	6.082	65.782	21.194	5.444	0.197	0.437	0.023	0.022	0.000	0.000	0.000	0.000	0.000	1388.19	
16	0.7550	1184.7	1205.7	0.817	6.121	65.741	21.205	5.432	0.197	0.440	0.023	0.023	0.000	0.000	0.000	0.000	0.000	1387.61	
17	0.7556	1185.9	1206.9	0.817	6.102	65.711	21.184	5.494	0.200	0.446	0.023	0.023	0.000	0.000	0.000	0.000	0.000	1388.48	
18	0.7559	1187.3	1208.3	0.827	6.031	65.680	21.269	5.496	0.201	0.449	0.024	0.023	0.000	0.000	0.000	0.000	0.000	1389.84	
19	0.7542	1183.0	1204.0	0.830	6.131	65.868	21.097	5.395	0.197	0.437	0.023	0.022	0.000	0.000	0.000	0.000	0.000	1386.35	
20	0.7558	1186.6	1207.6	0.827	6.066	65.697	21.227	5.482	0.202	0.452	0.024	0.023	0.000	0.000	0.000	0.000	0.000	1389.05	
21	0.7562	1186.5	1207.5	0.829	6.106	65.637	21.220	5.502	0.203	0.455	0.024	0.024	0.000	0.000	0.000	0.000	0.000	1388.58	
22	0.7565	1188.0	1209.1	0.822	6.050	65.723	21.065	5.625	0.206	0.461	0.024	0.023	0.000	0.000	0.000	0.000	0.000	1390.11	
23	0.7562	1187.3	1208.3	0.821	6.075	65.728	21.053	5.621	0.203	0.453	0.023	0.023	0.000	0.000	0.000	0.000	0.000	1389.47	
24	0.7548	1185.0	1206.0	0.821	6.077	65.844	21.092	5.474	0.199	0.446	0.024	0.023	0.000	0.000	0.000	0.000	0.000	1388.14	
25	0.7550	1185.1	1206.1	0.820	6.097	65.840	21.043	5.502	0.200	0.450	0.024	0.023	0.000	0.000	0.000	0.000	0.000	1388.03	
26	0.7550	1185.4	1206.4	0.822	6.073	65.836	21.071	5.508	0.199	0.444	0.023	0.023	0.000	0.000	0.000	0.000	0.000	1388.39	
27	0.7539	1182.8	1203.7	0.813	6.142	66.043	20.802	5.521	0.199	0.437	0.022	0.021	0.000	0.000	0.000	0.000	0.000	1386.34	
28	0.7542	1184.1	1205.0	0.817	6.082	65.935	21.051	5.421	0.199	0.447	0.024	0.023	0.000	0.000	0.000	0.000	0.000	1387.61	
29	0.7543	1184.8	1205.8	0.821	6.044	65.935	21.066	5.434	0.201	0.451	0.025	0.024	0.000	0.000	0.000	0.000	0.000	1388.37	
30	0.7540	1183.6	1204.5	0.828	6.080	65.991	20.983	5.428	0.198	0.446	0.024	0.023	0.000	0.000	0.000	0.000	0.000	1387.18	
Avg	0.7547	1185.0	1206.3	0.821	6.045	65.833	21.187	5.424	0.199	0.444	0.023	0.023	0.000	0.000	0.000	0.000	0.000	1388.66	

Zone 293

GQ Source Daily Summary

June 2016

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	0.7512	1184.2	1205.2	0.812	5.805	66.296	21.228	5.190	0.192	0.432	0.022	0.022	0.000	0.000	0.000	0.000	0.000	1390.53	
2	0.7499	1181.9	1202.9	0.805	5.828	66.476	21.113	5.117	0.191	0.426	0.021	0.022	0.000	0.000	0.000	0.000	0.000	1389.08	
3	0.7546	1186.6	1207.6	0.821	5.969	65.834	21.294	5.387	0.201	0.451	0.022	0.022	0.000	0.000	0.000	0.000	0.000	1390.13	
4	0.7545	1185.6	1206.6	0.820	6.019	65.852	21.229	5.386	0.200	0.450	0.022	0.022	0.000	0.000	0.000	0.000	0.000	1389.09	
5	0.7549	1187.1	1208.1	0.821	5.969	65.803	21.309	5.400	0.199	0.452	0.023	0.024	0.000	0.000	0.000	0.000	0.000	1390.39	
6	0.7557	1188.3	1209.3	0.819	5.968	65.713	21.334	5.465	0.201	0.455	0.023	0.023	0.000	0.000	0.000	0.000	0.000	1391.12	
7	0.7552	1187.7	1208.7	0.820	5.954	65.791	21.309	5.422	0.200	0.456	0.023	0.024	0.000	0.000	0.000	0.000	0.000	1390.90	
8	0.7536	1185.5	1206.5	0.817	5.940	66.008	21.213	5.327	0.198	0.450	0.024	0.024	0.000	0.000	0.000	0.000	0.000	1389.84	
9	0.7525	1184.8	1205.8	0.810	5.888	66.205	21.101	5.304	0.196	0.448	0.024	0.024	0.000	0.000	0.000	0.000	0.000	1390.07	
10	0.7554	1186.5	1207.5	0.812	6.058	65.721	21.293	5.407	0.202	0.460	0.024	0.023	0.000	0.000	0.000	0.000	0.000	1389.31	
11	0.7557	1186.7	1207.7	0.812	6.074	65.694	21.268	5.443	0.202	0.460	0.024	0.023	0.000	0.000	0.000	0.000	0.000	1389.26	
12	0.7568	1188.8	1209.9	0.810	6.052	65.514	21.415	5.507	0.201	0.455	0.023	0.023	0.000	0.000	0.000	0.000	0.000	1390.75	
13	0.7556	1187.3	1208.3	0.813	6.030	65.702	21.297	5.460	0.199	0.453	0.023	0.023	0.000	0.000	0.000	0.000	0.000	1390.04	
14	0.7553	1186.6	1207.7	0.814	6.037	65.742	21.270	5.444	0.198	0.449	0.023	0.023	0.000	0.000	0.000	0.000	0.000	1389.58	
15	0.7555	1186.5	1207.5	0.815	6.067	65.739	21.205	5.474	0.200	0.454	0.024	0.024	0.000	0.000	0.000	0.000	0.000	1389.19	
16	0.7553	1185.7	1206.7	0.814	6.096	65.759	21.158	5.480	0.198	0.449	0.023	0.023	0.000	0.000	0.000	0.000	0.000	1388.45	
17	0.7565	1188.4	1209.4	0.816	6.039	65.628	21.264	5.542	0.202	0.461	0.024	0.024	0.000	0.000	0.000	0.000	0.000	1390.54	
18	0.7557	1187.3	1208.3	0.818	6.032	65.707	21.252	5.492	0.200	0.453	0.023	0.023	0.000	0.000	0.000	0.000	0.000	1389.97	
19	0.7550	1184.8	1205.8	0.821	6.106	65.824	21.087	5.462	0.201	0.454	0.022	0.022	0.000	0.000	0.000	0.000	0.000	1387.76	
20	0.7564	1188.1	1209.1	0.822	6.042	65.577	21.392	5.457	0.201	0.460	0.024	0.024	0.000	0.000	0.000	0.000	0.000	1390.23	
21	0.7567	1188.7	1209.8	0.817	6.034	65.641	21.224	5.562	0.205	0.468	0.024	0.024	0.000	0.000	0.000	0.000	0.000	1390.76	
22	0.7572	1189.9	1211.0	0.817	6.008	65.640	21.161	5.652	0.206	0.469	0.024	0.024	0.000	0.000	0.000	0.000	0.000	1391.69	
23	0.7563	1187.6	1208.6	0.815	6.069	65.711	21.112	5.586	0.202	0.458	0.023	0.023	0.000	0.000	0.000	0.000	0.000	1389.77	
24	0.7550	1185.8	1206.8	0.817	6.057	65.882	21.043	5.492	0.201	0.458	0.024	0.024	0.000	0.000	0.000	0.000	0.000	1388.85	
25	0.7562	1188.1	1209.1	0.818	6.031	65.719	21.155	5.568	0.203	0.461	0.024	0.024	0.000	0.000	0.000	0.000	0.000	1390.42	
26	0.7555	1186.4	1207.4	0.818	6.064	65.791	21.101	5.528	0.200	0.452	0.023	0.023	0.000	0.000	0.000	0.000	0.000	1389.13	
27	0.7558	1187.2	1208.2	0.817	6.049	65.725	21.190	5.515	0.201	0.455	0.023	0.023	0.000	0.000	0.000	0.000	0.000	1389.73	
28	0.7546	1186.1	1207.1	0.819	5.999	65.919	21.125	5.429	0.201	0.460	0.024	0.024	0.000	0.000	0.000	0.000	0.000	1389.55	
29	0.7545	1185.4	1206.4	0.822	6.026	65.980	20.991	5.470	0.201	0.461	0.024	0.024	0.000	0.000	0.000	0.000	0.000	1388.86	
30	0.7542	1184.7	1205.6	0.819	6.048	65.974	21.020	5.442	0.198	0.451	0.023	0.023	0.000	0.000	0.000	0.000	0.000	1388.25	
Avg	0.7550	1187.0	1207.6	0.816	6.012	65.819	21.205	5.447	0.200	0.454	0.023	0.023	0.000	0.000	0.000	0.000	0.000	1389.77	

Zone 28

GQ Source Daily Summary

June 2016

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 Wet	Heating Value Dry	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.6522	1101.0	1120.5	0.536	2.000	81.680	14.558	1.075	0.054	0.079	0.010	0.008	0.000	0.000	0.000	0.000	0.000	1387.54	
2	0.6591	1108.7	1128.4	0.549	2.163	80.525	15.290	1.294	0.062	0.097	0.011	0.009	0.000	0.000	0.000	0.000	0.000	1389.84	
3	0.6853	1156.0	1176.5	0.069	2.488	74.045	22.366	0.975	0.018	0.033	0.003	0.003	0.000	0.000	0.000	0.000	0.000	1421.14	
4	0.6823	1151.2	1171.6	0.130	2.403	74.744	21.686	0.983	0.019	0.030	0.003	0.002	0.000	0.000	0.000	0.000	0.000	1418.32	
5	0.6867	1158.9	1179.5	0.004	2.536	73.487	23.105	0.849	0.007	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1423.34	
6	0.6875	1160.3	1180.8	0.004	2.528	73.364	23.203	0.882	0.008	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1424.17	
7	0.6876	1160.4	1180.9	0.005	2.537	73.318	23.253	0.867	0.008	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1424.11	
8	0.6954	1162.0	1182.6	0.135	2.965	72.648	22.613	1.523	0.036	0.074	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1418.26	
9	0.7151	1171.5	1192.2	0.339	3.927	70.281	22.387	2.773	0.085	0.189	0.009	0.009	0.000	0.000	0.000	0.000	0.000	1409.84	
10	0.6806	1130.0	1150.0	0.542	2.890	77.046	17.167	2.055	0.099	0.170	0.018	0.014	0.000	0.000	0.000	0.000	0.000	1394.27	
11	0.6519	1104.0	1123.5	0.572	1.739	82.070	14.267	1.122	0.088	0.107	0.020	0.015	0.000	0.000	0.000	0.000	0.000	1391.51	
12	0.6660	1117.2	1137.0	0.565	2.264	79.611	15.720	1.577	0.094	0.136	0.019	0.014	0.000	0.000	0.000	0.000	0.000	1393.26	
13	0.6669	1118.3	1138.1	0.533	2.333	79.335	15.989	1.560	0.089	0.132	0.017	0.013	0.000	0.000	0.000	0.000	0.000	1393.66	
14	0.6494	1098.1	1117.5	0.567	1.867	82.638	13.487	1.215	0.085	0.109	0.019	0.014	0.000	0.000	0.000	0.000	0.000	1386.79	
15	0.6442	1091.3	1110.6	0.556	1.814	83.360	13.088	1.012	0.063	0.083	0.014	0.010	0.000	0.000	0.000	0.000	0.000	1383.70	
16	0.6426	1085.8	1105.1	0.578	1.963	83.296	13.228	0.859	0.025	0.044	0.003	0.003	0.000	0.000	0.000	0.000	0.000	1378.53	
17	0.6772	1141.5	1161.7	0.166	2.461	75.711	20.702	0.916	0.015	0.026	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1411.54	
18	0.6888	1161.2	1181.7	0.010	2.596	73.108	23.354	0.908	0.009	0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1423.81	
19	0.6898	1163.1	1183.7	0.007	2.575	72.993	23.408	0.993	0.009	0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.18	
20	0.6890	1162.0	1182.5	0.006	2.570	73.074	23.414	0.917	0.008	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1424.64	
21	0.6888	1161.4	1182.0	0.006	2.583	73.089	23.414	0.887	0.008	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1424.20	
22	0.6665	1126.4	1146.3	0.258	2.228	77.950	18.689	0.836	0.014	0.021	0.002	0.001	0.000	0.000	0.000	0.000	0.000	1404.06	
23	0.6536	1103.6	1123.1	0.383	2.220	80.701	15.825	0.823	0.017	0.026	0.002	0.002	0.000	0.000	0.000	0.000	0.000	1389.17	
24	0.6677	1125.5	1145.4	0.326	2.292	77.998	18.297	1.021	0.021	0.039	0.002	0.002	0.000	0.000	0.000	0.000	0.000	1401.72	
25	0.6687	1124.5	1144.4	0.330	2.444	77.929	18.068	1.147	0.026	0.051	0.003	0.003	0.000	0.000	0.000	0.000	0.000	1399.43	
26	0.6681	1124.9	1144.8	0.303	2.399	77.925	18.244	1.057	0.022	0.045	0.002	0.002	0.000	0.000	0.000	0.000	0.000	1400.66	
27	0.6603	1115.1	1134.8	0.360	2.178	79.461	17.014	0.928	0.020	0.035	0.002	0.002	0.000	0.000	0.000	0.000	0.000	1396.57	
28	0.6667	1122.6	1142.5	0.332	2.364	78.302	17.831	1.091	0.025	0.048	0.003	0.003	0.000	0.000	0.000	0.000	0.000	1399.22	
29	0.6694	1126.6	1146.5	0.298	2.429	77.665	18.464	1.069	0.024	0.044	0.003	0.002	0.000	0.000	0.000	0.000	0.000	1401.34	
30	0.6870	1159.0	1179.5	0.020	2.543	73.510	22.981	0.923	0.009	0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1423.03	
Avg	0.6731	1133.0	1153.1	0.283	2.410	77.029	19.037	1.138	0.036	0.057	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1405.43	

Zone 32

GQ Source Daily Summary

June 2016

Number: 111

Pressure Base: 14.730

Contract Day: 1

Name: LITTLE KNIFE PLANT-BELFIELD TRANSFER

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	0.6891	1163.3	1183.9	0.001	2.504	72.983	23.648	0.847	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1426.21	
2	0.6897	1164.0	1184.7	0.001	2.512	73.017	23.476	0.965	0.010	0.017	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1426.49	
3	0.6895	1163.5	1184.1	0.002	2.521	73.030	23.477	0.943	0.009	0.015	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1426.10	
4	0.6881	1161.5	1182.1	0.002	2.519	73.198	23.403	0.860	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.01	
5	0.6887	1162.5	1183.1	0.003	2.513	73.105	23.472	0.890	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.63	
6	0.6891	1163.0	1183.5	0.003	2.518	73.025	23.564	0.872	0.007	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.80	
7	0.6897	1164.1	1184.7	0.003	2.507	73.019	23.477	0.963	0.010	0.018	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1426.54	
8	0.6896	1163.8	1184.4	0.004	2.517	72.988	23.530	0.941	0.008	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1426.25	
9	0.6909	1165.4	1186.0	0.001	2.545	72.712	23.788	0.931	0.009	0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1426.88	
10	0.6902	1163.7	1184.3	0.000	2.586	72.662	23.970	0.764	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.55	
11	0.6913	1165.1	1185.7	0.000	2.605	72.519	24.016	0.840	0.008	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1426.10	
12	0.6912	1165.1	1185.7	0.000	2.598	72.541	23.999	0.842	0.008	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1426.16	
13	0.6906	1164.0	1184.6	0.010	2.597	72.669	23.881	0.818	0.009	0.013	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1425.50	
14	0.6913	1165.3	1185.9	0.000	2.588	72.556	23.977	0.858	0.008	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1426.38	
15	0.6911	1165.0	1185.6	0.000	2.594	72.612	23.875	0.899	0.008	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1426.15	
16	0.6914	1165.0	1185.6	0.000	2.615	72.578	23.878	0.908	0.008	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.93	
17	0.6902	1163.6	1184.2	0.001	2.586	72.819	23.663	0.910	0.008	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.46	
18	0.6910	1165.3	1186.0	0.004	2.557	72.765	23.640	1.014	0.008	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1426.67	
19	0.6902	1164.0	1184.7	0.003	2.562	72.824	23.676	0.916	0.008	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.91	
20	0.6899	1163.6	1184.2	0.003	2.563	72.865	23.650	0.901	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.63	
21	0.6903	1163.9	1184.5	0.002	2.580	72.823	23.641	0.935	0.008	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.66	
22	0.6898	1163.2	1183.8	0.002	2.569	72.860	23.690	0.860	0.007	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.41	
23	0.6898	1163.6	1184.2	0.002	2.552	72.877	23.662	0.888	0.007	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.79	
24	0.6904	1164.6	1185.2	0.003	2.546	72.877	23.553	1.000	0.009	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1426.39	
25	0.6895	1163.6	1184.2	0.001	2.526	72.933	23.649	0.875	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1426.08	
26	0.6895	1163.6	1184.2	0.001	2.525	72.963	23.580	0.911	0.008	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1426.12	
27	0.6899	1163.8	1184.4	0.001	2.543	72.892	23.634	0.913	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1426.04	
28	0.6899	1164.0	1184.7	0.002	2.532	72.944	23.538	0.964	0.008	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1426.25	
29	0.6888	1162.5	1183.1	0.001	2.529	73.093	23.461	0.897	0.008	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.44	
30	0.6884	1161.7	1182.2	0.003	2.536	73.198	23.343	0.891	0.010	0.017	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1424.88	
Avg	0.6900	1164.0	1184.5	0.002	2.551	72.865	23.660	0.900	0.008	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.95	

Zone 33

GQ Source Analysis

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:

Zone 34

GQ Source Daily Summary

June 2016

Number: 471

Pressure Base: 14.730

Contract Day:

Name: SPRING CREEK I INTERCONNECT

Temperature Base:

Contract Hour: 9

Day	Relative Density	Heating Value Wet	Heating Value Dry	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NCS	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.6460	1056.2	1074.9	1.056	3.372	82.736	11.970	0.813	0.019	0.034	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1337.30	
2	0.6484	1058.8	1077.5	1.065	3.425	82.223	12.435	0.808	0.017	0.028	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1338.09	
3	0.6633	1084.5	1103.7	1.052	3.279	79.513	15.011	1.066	0.028	0.051	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1355.13	
4	0.6724	1101.1	1120.6	1.019	3.173	77.730	16.842	1.155	0.028	0.052	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1366.55	
5	0.6749	1106.3	1125.9	1.017	3.092	77.166	17.552	1.104	0.025	0.045	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1370.49	
6	0.6503	1063.8	1082.6	1.047	3.326	81.788	13.035	0.762	0.016	0.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1342.46	
7	0.6442	1053.2	1071.8	1.062	3.379	82.905	11.969	0.652	0.012	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1335.36	
8	0.6554	1072.9	1091.9	1.063	3.227	80.838	14.008	0.818	0.017	0.029	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1348.68	
9	0.6551	1071.2	1090.1	1.065	3.299	80.908	13.851	0.825	0.019	0.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1346.87	
10	0.6498	1059.7	1078.4	1.081	3.472	82.002	12.561	0.827	0.021	0.036	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1337.87	
11	0.6498	1061.3	1080.1	1.088	3.365	81.959	12.759	0.779	0.018	0.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1339.89	
12	0.6492	1060.0	1078.8	1.087	3.390	81.994	12.775	0.709	0.017	0.029	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1338.89	
13	0.6441	1052.0	1070.7	1.092	3.388	83.018	11.774	0.685	0.016	0.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1334.06	
14	0.6429	1049.9	1068.5	1.110	3.381	83.249	11.560	0.658	0.016	0.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1332.55	
15	0.6488	1061.8	1080.6	1.068	3.277	82.208	12.556	0.843	0.018	0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1341.46	
16	0.6472	1060.0	1078.8	1.077	3.217	82.432	12.509	0.723	0.016	0.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1340.94	
17	0.6488	1062.1	1080.9	1.089	3.219	82.151	12.742	0.752	0.017	0.029	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1341.98	
18	0.6544	1071.8	1090.7	1.076	3.178	81.106	13.745	0.841	0.020	0.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1348.34	
19	0.6474	1060.3	1079.1	1.070	3.227	82.547	12.248	0.839	0.024	0.044	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1341.11	
20	0.6441	1051.7	1070.3	1.077	3.428	83.319	11.163	0.938	0.026	0.048	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1333.63	
21	0.6450	1056.3	1075.0	1.083	3.228	82.986	11.830	0.830	0.017	0.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1338.51	
22	0.6509	1067.9	1086.8	1.046	3.125	81.886	12.950	0.952	0.016	0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1347.14	
23	0.6481	1061.6	1080.4	1.084	3.193	82.443	12.331	0.907	0.016	0.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1342.01	
24	0.6439	1052.5	1071.1	1.083	3.353	83.174	11.548	0.799	0.016	0.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1334.86	
25	0.6453	1058.2	1076.9	1.088	3.128	82.970	11.932	0.836	0.017	0.029	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1340.63	
26	0.6663	1093.5	1112.8	1.041	3.025	79.600	15.605	1.190	0.028	0.050	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1363.32	
27	0.6694	1097.4	1116.8	1.039	3.086	78.463	16.086	1.243	0.029	0.052	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1364.97	
28	0.6682	1095.1	1114.5	1.039	3.106	78.671	15.911	1.189	0.030	0.053	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1363.38	
29	0.6576	1077.0	1096.1	1.034	3.218	80.636	14.007	1.037	0.024	0.043	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1351.53	
30	0.6427	1051.8	1070.4	1.067	3.306	83.400	11.393	0.790	0.016	0.028	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1335.23	
Avg	0.6525	1068.0	1086.6	1.066	3.263	81.516	13.222	0.879	0.020	0.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1345.11	

Zone 43

Jun-16

ZONE 610

Watford City

Effective 2-3-16

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		
6/1/2016	6/2/2016	122	147	1.206	19	20	1.075	1.188	6/1/2016
6/2/2016	6/3/2016	52	62	1.206	11	12	1.078	1.184	6/2/2016
6/3/2016	6/4/2016	70	85	1.206	13	14	1.104	1.190	6/3/2016
6/4/2016	6/5/2016	24	29	1.206	3	4	1.121	1.197	6/4/2016
6/5/2016	6/6/2016	53	64	1.206	2	2	1.126	1.203	6/5/2016
6/6/2016	6/7/2016	58	70	1.206	16	18	1.083	1.179	6/6/2016
6/7/2016	6/8/2016	30	36	1.206	6	6	1.072	1.184	6/7/2016
6/8/2016	6/9/2016	34	41	1.206	5	6	1.092	1.191	6/8/2016
6/9/2016	6/10/2016	53	63	1.206	4	5	1.090	1.198	6/9/2016
6/10/2016	6/11/2016	9	11	1.206	1	1	1.078	1.193	6/10/2016
6/11/2016	6/12/2016	44	53	1.206	1	1	1.080	1.203	6/11/2016
6/12/2016	6/13/2016	67	81	1.206	2	2	1.079	1.202	6/12/2016
6/13/2016	6/14/2016	76	92	1.206	3	3	1.071	1.201	6/13/2016
6/14/2016	6/15/2016	28	33	1.206	21	22	1.069	1.147	6/14/2016
6/15/2016	6/16/2016	3	3	1.206	31	33	1.081	1.092	6/15/2016
6/16/2016	6/17/2016	20	24	1.206	12	13	1.079	1.158	6/16/2016
6/17/2016	6/18/2016	43	51	1.206	21	23	1.081	1.165	6/17/2016
6/18/2016	6/19/2016	27	32	1.206	1	1	1.091	1.202	6/18/2016
6/19/2016	6/20/2016	53	64	1.206	2	2	1.079	1.201	6/19/2016
6/20/2016	6/21/2016	42	50	1.206	20	21	1.070	1.162	6/20/2016
6/21/2016	6/22/2016	67	81	1.206	7	8	1.075	1.194	6/21/2016
6/22/2016	6/23/2016	56	67	1.206	18	19	1.087	1.177	6/22/2016
6/23/2016	6/24/2016	57	69	1.206	12	13	1.080	1.184	6/23/2016
6/24/2016	6/25/2016	44	53	1.206	6	6	1.071	1.190	6/24/2016
6/25/2016	6/26/2016	40	48	1.206	1	1	1.077	1.203	6/25/2016
6/26/2016	6/27/2016	85	103	1.206	8	9	1.113	1.198	6/26/2016
6/27/2016	6/28/2016	63	76	1.206	16	18	1.117	1.188	6/27/2016
6/28/2016	6/29/2016	57	69	1.206	4	5	1.115	1.200	6/28/2016
6/29/2016	6/30/2016	52	63	1.206	1	2	1.096	1.204	6/29/2016
6/30/2016	7/1/2016	55	67	1.206	10	11	1.070	1.185	6/30/2016
		1,484	1,787		277	301	1.0867	1.1855	

ROW ID	LOCATION DESCRIPTION	GROSS HEATING VALUE (BTU/CF)	SPECIFIC GRAVITY	WOBBE (calc)	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	NOTE
11587	GLEN ULLIN	1067.8	0.6152	1361.4	-45	1.1905	0.8533	89.1373	7.7234	0.7643	0.0785	0.066	0.0115	0.0153	0	0.0071	0.1378	0.0175	5/31/2016	6/1/2016	6/1/2016 2:48:23 PM	
11587	GLEN ULLIN	1064.3	0.6135	1358.8	-45.9	1.2167	0.8695	89.4774	7.3508	0.7555	0.0779	0.0655	0.0113	0.015	0	0.0068	0.14	0.0175	6/1/2016	6/2/2016	6/2/2016 2:48:15 PM	
11587	GLEN ULLIN	1065.6	0.6146	1359.2	-48.2	1.2288	0.8803	89.2326	7.5843	0.7572	0.0733	0.0604	0.0103	0.0136	0	0.0057	0.1372	0.0175	6/2/2016	6/3/2016	6/3/2016 2:48:36 PM	
11587	GLEN ULLIN	1063.6	0.6136	1357.8	-51.4	1.2455	0.886	89.3578	7.5236	0.7021	0.0644	0.0536	0.0089	0.0119	0	0.0049	0.1279	0.0175	6/3/2016	6/4/2016	6/4/2016 2:49:03 PM	
11587	GLEN ULLIN	1067.3	0.6162	1359.7	-48.7	1.2917	0.8724	88.9401	7.8299	0.7787	0.073	0.0598	0.0099	0.0132	0	0.0055	0.1107	0.0175	6/4/2016	6/5/2016	6/5/2016 2:46:53 PM	
11587	GLEN ULLIN	1080.4	0.6245	1367.2	-34.9	1.3161	0.8526	87.6489	8.7727	1.026	0.1093	0.092	0.0157	0.0209	0	0.0103	0.1182	0.0175	6/5/2016	6/6/2016	6/6/2016 2:49:21 PM	
11587	GLEN ULLIN	1087.8	0.6291	1371.5	-23	1.3186	0.8403	87.114	9.0152	1.2339	0.1455	0.124	0.0223	0.0299	0	0.0178	0.1226	0.0175	6/6/2016	6/7/2016	6/7/2016 2:49:24 PM	
11587	GLEN ULLIN	1087.1	0.6288	1370.9	-23.3	1.3106	0.8533	87.1834	8.9583	1.2184	0.1445	0.1235	0.0221	0.0298	0	0.0176	0.1209	0.0175	6/7/2016	6/8/2016	6/8/2016 2:47:35 PM	
11587	GLEN ULLIN	1086.4	0.6283	1370.6	-23.2	1.3088	0.8556	87.2768	8.8752	1.212	0.1443	0.124	0.022	0.0299	0	0.0179	0.1195	0.0175	6/8/2016	6/9/2016	6/9/2016 2:49:08 PM	
11587	GLEN ULLIN	1088	0.6292	1371.6	-23.3	1.2675	0.8735	87.1876	8.9258	1.2708	0.1471	0.1257	0.0221	0.0299	0	0.0172	0.1171	0.0175	6/9/2016	6/10/2016	6/10/2016 2:49:29 PM	
11587	GLEN ULLIN	1087.5	0.6288	1371.4	-22.6	1.238	0.8833	87.3377	8.7578	1.2916	0.1536	0.1285	0.0233	0.0313	0	0.0175	0.1219	0.0175	6/10/2016	6/11/2016	6/11/2016 2:49:50 PM	
11587	GLEN ULLIN	1087	0.6286	1371	-22.5	1.2235	0.9033	87.4091	8.6571	1.3114	0.1535	0.1305	0.0227	0.0308	0	0.0179	0.1253	0.0175	6/11/2016	6/12/2016	6/12/2016 2:47:35 PM	
11587	GLEN ULLIN	1082.7	0.6256	1368.8	-25	1.2297	0.8871	87.8714	8.294	1.2389	0.1452	0.1244	0.0214	0.029	0	0.0162	0.1285	0.0175	6/12/2016	6/13/2016	6/13/2016 2:54:26 PM	
11587	GLEN ULLIN	1073.7	0.6196	1364.1	-25.1	1.2147	0.8735	89.0424	7.1723	1.2175	0.1404	0.1192	0.0212	0.0285	0	0.0174	0.1403	0.0175	6/13/2016	6/14/2016	6/14/2016 2:47:54 PM	
11587	GLEN ULLIN	1065	0.6141	1359.1	-33.8	1.2476	0.8577	89.7112	6.7911	0.9851	0.1082	0.0887	0.016	0.021	0	0.0125	0.1454	0.0175	6/14/2016	6/15/2016	6/15/2016 2:52:02 PM	
11587	GLEN ULLIN	1049.6	0.6044	1350.1	-76.8	1.2796	0.8511	90.6646	6.5473	0.4436	0.0244	0.0163	0.0022	0.0026	0	0.0004	0.1541	0.0175	6/15/2016	6/16/2016	6/16/2016 2:51:25 PM	
11587	GLEN ULLIN	1051.8	0.6055	1351.7	-72.1	1.2369	0.8558	90.5401	6.6765	0.4736	0.0307	0.0208	0.0035	0.0041	0	0.0013	0.1424	0.0175	6/16/2016	6/17/2016	6/17/2016 2:49:01 PM	
11587	GLEN ULLIN	1052.2	0.6061	1351.6	-73.3	1.2703	0.8549	90.3911	6.8199	0.4529	0.0284	0.0191	0.0032	0.0037	0	0.0012	0.1405	0.0175	6/17/2016	6/18/2016	6/18/2016 2:48:33 PM	
11587	GLEN ULLIN	1052.4	0.6063	1351.5	-75.3	1.2818	0.8536	90.3151	6.8952	0.4499	0.0245	0.0166	0.0024	0.0028	0	0.0003	0.143	0.0175	6/18/2016	6/19/2016	6/19/2016 2:49:17 PM	
11587	GLEN ULLIN	1053.9	0.607	1352.7	-73.5	1.2623	0.8485	90.22	6.9563	0.4914	0.0281	0.0216	0.0025	0.0037	0	0.0005	0.1504	0.0175	6/19/2016	6/20/2016	6/20/2016 2:50:17 PM	
11587	GLEN ULLIN	1054.9	0.6078	1353.1	-68.5	1.2559	0.8643	90.3457	6.6282	0.6444	0.0594	0.0353	0.0047	0.006	0	0.0007	0.1395	0.0175	6/20/2016	6/21/2016	6/21/2016 2:50:15 PM	
11587	GLEN ULLIN	1054.5	0.6073	1353.1	-70.3	1.2247	0.8717	90.3059	6.7917	0.5745	0.0346	0.0272	0.0033	0.0048	0	0.0012	0.1447	0.0175	6/21/2016	6/22/2016	6/22/2016 2:49:50 PM	
11587	GLEN ULLIN	1053.4	0.6065	1352.6	-76.4	1.2524	0.8454	90.1991	7.083	0.427	0.0157	0.0113	0.0006	0.0011	0	0	0.1487	0.0175	6/22/2016	6/23/2016	6/23/2016 2:50:17 PM	
11587	GLEN ULLIN	1053.4	0.6065	1352.6	-76.4	1.2524	0.8454	90.1991	7.083	0.427	0.0157	0.0113	0.0006	0.0011	0	0	0.1487	0.0175	6/22/2016	6/24/2016	6/24/2016 2:49:01 PM	
11587	GLEN ULLIN	1050.7	0.6044	1351.5	-78.5	1.2903	0.7954	90.5195	6.8193	0.3854	0.0135	0.0092	0.0004	0.0006	0	0	0.1504	0.0175	6/24/2016	6/25/2016	6/25/2016 2:48:54 PM	
11587	GLEN ULLIN	1051.8	0.6053	1351.9	-77	1.2696	0.8266	90.4238	6.8359	0.4439	0.0171	0.012	0.0008	0.0011	0	0.0001	0.1531	0.0175	6/25/2016	6/26/2016	6/26/2016 2:49:45 PM	
11587	GLEN ULLIN	1057.7	0.6093	1355	-69.5	1.2564	0.8514	89.8544	7.22	0.5809	0.0337	0.026	0.0033	0.0048	0	0.0011	0.1534	0.0175	6/26/2016	6/27/2016	6/27/2016 2:53:50 PM	
11587	GLEN ULLIN	1058.3	0.6097	1355.4	-69.8	1.2581	0.8457	89.8033	7.2888	0.5842	0.0333	0.0251	0.0031	0.0044	0	0.0009	0.1375	0.0175	6/27/2016	6/28/2016	6/28/2016 2:50:39 PM	
11587	GLEN ULLIN	1056.1	0.6083	1354	-73.2	1.2805	0.834	89.9483	7.2421	0.4958	0.0256	0.0177	0.0022	0.0028	0	0.0004	0.1371	0.0175	6/28/2016	6/29/2016	6/29/2016 2:50:22 PM	
11587	GLEN ULLIN	1050.3	0.6032	1352.4	-78.8	1.1727	0.8177	90.836	6.5888	0.4023	0.0161	0.0101	0.0008	0.0011	0	0	0.1417	0.0175	6/29/2016	6/30/2016	6/30/2016 2:51:58 PM	
11587	GLEN ULLIN	1049.3	0.6037	1350.5	-78.9	1.2646	0.8258	90.7381	6.5764	0.4116	0.0153	0.01	0.0005	0.0006	0	0	0.1423	0.0172	6/30/2016	7/1/2016	7/1/2016 2:51:37 PM	

31 record(s) retrieved

Zone 007

NORTH DAKOTA HEATING VALUE ZONES		
ZONES	MEASURING DEVICE	LOCATION
211	Chromatograph	Sidney Area
24	Monthly Sampler	Williston Area
241	Monthly Sampler	Fairview Area
25	Monthly Sampler	Watford City Area
261	Chromatograph	Williston – Tioga – Minot Line
262	Chromatograph	Minot Area
263	Monthly Sampler	Tioga – Portal
264	Monthly Sampler	Williston – Ray
265	Chromatograph	North Tioga
271	Chromatograph	Bismarck – Cleveland
272	Chromatograph	Cleveland – Mapleton
273	Chromatograph	Cleveland – Grafton
28	Chromatograph	Bismarck
31	Chromatograph	Dickinson
32	Chromatograph	Cabin Creek – Dickinson
33	Chromatograph	Killdeer
34	Monthly Sampler	Bowman Area
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	JUNE 16	MAY 16	APR 16	MAR 16	FEB 16	JAN 16	DEC 15	NOV 15	OCT 15	SEPT 15	AUG 15	JULY 15	ZONE
MT/ND	211	Sidney Area	1202	1206	1205	1207	1213	1209	1207	1204	1195	1188	1193	1196	1199	211
ND	24	Williston Area	1187	1191	1182	1196	1194	1195	1195	1199	1183	1177	1166	1179	1185	24
ND	25	Watford City Border	1209	1206	1209	1211	1211	1213	1216	1216	1223	1216	1198	1198	1188	25
ND/MT	241	Fairview Area	1194	1197	1202	1207	1201	1201	1199	1199	1184	1182	1177	1188	1195	241
ND	261	Williston - Tioga - Minot Line	1073	1182	1179	1186	1048	1035	1052	1066	1047	1000	1042	1015	1028	261
ND	262	Minot Area	1198	1208	1208	1206	1189	1190	1189	1188	1192	1198	1201	1201	1201	262
ND	263	Tioga - Portal	1091	1116	947	1105	1082	1107	1092	1082	1112	1112	1104	1117	1121	263
ND	264	Williston - Ray	1175	1183	1184	1190	1189	1181	1183	1180	1178	1162	1154	1146	1170	264
ND	265	North Tioga Transfer - Portal	1185	1170	1173	1190	1186	1187	1190	1188	1189	1180	1188	1188	1191	265
ND	271	Bismarck - Cleveland	1195	1208	1208	1206	1186	1181	1172	1181	1192	1199	1203	1199	1201	271
ND	272	Cleveland - Mapleton	1194	1207	1206	1204	1185	1180	1171	1180	1191	1197	1202	1199	1200	272
ND	273	Cleveland - Grafton	1193	1206	1206	1201	1185	1179	1171	1180	1190	1197	1203	1199	1200	273
ND	28	Bismarck - Cabin Creek	1176	1208	1202	1190	1154	1142	1131	1137	1148	1196	1203	1200	1201	28
ND	31	Dickinson Area	1141	1128	1117	1114	1144	1139	1130	1136	1135	1161	1161	1145	1181	31
ND	311	Taylor Take-Off - Glen Ullin Comp	1170	0	0	0	0	0	0	0	1147	1179	1168	1158	1200	311
ND/MT	32	Cabin Creek - Dickinson	1138	1153	1137	1129	1121	1125	1117	1117	1111	1120	1176	1173	1181	32
ND	33	Killdeer	1185	1185	1184	1181	1181	1183	1182	1186	1185	1186	1186	1191	1185	33
ND	34	Bowman Area	1064	996	960	982	979	1082	1103	1121	1102	1084	1025	1133	1176	34
ND	43	Spring Creek - Garden Crk Plant	1106	1087	1102	1143	1112	1091	1087	1092	1088	1083	1100	1162	1129	43
ND	610	MDU-Watford City BTU	1176	1186	1184	1174	1153	1140	1155	1174	1197	1211	1197	1197	1145	610
ND	802	Linton	1061	1065	1062	1062	1057	1056	1060	1066	1073	1064	1055	1055	1057	802
ND	903	Hettinger Propane	2549	2549	2549	2549	2549	2549	2549	2549	2549	2549	2549	2549	2549	903

**THERMAL ZONE VARIANCE
DOCUMENTATION**

June 2016

<i>ZONE</i>	<i>BTU VARIANCE</i>	<i>REASON</i>
263	169	Lignite Plant down in May