



UTILITIES CO.

A Division of MDU Resources Group, Inc.

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

April 13, 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 – February 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 March 2017.
2. Attachment B consists of copies of the monthly Heating Value Test Reports received from our suppliers for the month of February 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 February 2017.

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

Sincerely,

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

Tamie Aberle
Director of Regulatory Affairs

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

Town	Heat Zone	Therm Factor
MDU-303-ALEXANDER	025	1.1315
MDU-308-ARNEGARD	025	1.1315
MDU-314-APPLE VALLEY	271	1.0893
MDU-318-BEACH	032	1.0332
MDU-319-BELFIELD	032	1.0408
MDU-323-BERTHOLD	262	1.0881
MDU-327-BISMARCK	028	1.0683
MDU-330-BOWMAN	034	0.9340
MDU-337-BURLINGTON	262	1.1115
MDU-343-CARRINGTON	273	1.0884
MDU-344-CLEVELAND	272	1.0807
MDU-364-CAVALIER	273	1.1113
MDU-365-DAWSON	271	1.0817
MDU-368-DES LACS	262	1.0959
MDU-369-DICKINSON	031	1.0437
MDU-374-FT TOTTEN	273	1.0960
MDU-375-DEVILS LAKE	273	1.0960
MDU-379-BARLOW	273	1.0884
MDU-384-EPPING	264	1.1202
MDU-387-ELDRIDGE	272	1.0884
MDU-407-GLADSTONE	031	1.0437
MDU-411-GLEN ULLIN	031	1.0512
MDU-413-GOLVA	032	1.0180
MDU-416-GARRISON	262	1.0959
MDU-417-GRAFTON	273	1.1190
MDU-429-HEBRON	031	1.0512
MDU-432-HETTINGER	903	2.3875
MDU-449-JAMESTOWN	272	1.0960
MDU-459-KILLDEER	033	1.1115
MDU-463-LANGDON	273	1.0884
MDU-469-LEFOR	031	1.0437
MDU-474-LIGNITE	263	1.0493
MDU-475-LINTON	802	1.0121
MDU-478-LINCOLN	028	1.0758
MDU-488-MCKENZIE	271	1.0893
MDU-494-MEDINA	271	1.0817
MDU-498-MANDAN	028	1.0758
MDU-500-MARMARTH	034	0.9204
MDU-505-MINOT	262	1.1115
MDU-510-MOTT	031	1.0437
MDU-512-MAX	262	1.1126
MDU-522-NEW ENGLAND	031	1.0361
MDU-524-NEW SALEM	028	1.0531
MDU-532-NEW ROCKFORD	273	1.0884
MDU-539-PARK RIVER	273	1.1113
MDU-540-PALERMO	262	1.0881
MDU-558-RAY	264	1.1202
MDU-561-REGENT	031	1.0437
MDU-563-RHAME	034	0.9069

MDU-564-RICHARDTON	031	1.0361
MDU-568-ROSS	261	1.0362
MDU-572-RUTHVILLE	262	1.1115
MDU-574-SANBORN	272	1.0960
MDU-583-SENTINEL BUTTE	032	1.0332
MDU-588-SOUTH HEART	031	1.0361
MDU-717-SPIRITWOOD	272	1.0960
MDU-590-SPRINGBROOK	264	1.1202
MDU-591-STANLEY	261	1.0437
MDU-593-STEELE	271	1.0817
MDU-598-SHEYENNE	273	1.0960
MDU-605-SURREY	262	1.1115
MDU-610-TAPPEN	271	1.0817
MDU-611-TAYLOR	031	1.0361
MDU-616-TIOGA	261	1.0362
MDU-619-TURTLE LAKE	262	1.0959
MDU-620-TRENTON	024	1.1311
MDU-624-UNDERWOOD	262	1.0959
MDU-625-VALLEY CITY	272	1.1037
MDU-629-WALHALLA	273	1.1113
MDU-632-WATFORD CITY	610	1.0571
MDU-636-WHEELOCK	264	1.1121
MDU-637-WHITE EARTH	261	1.0960
MDU-642-WILLISTON	024	1.1311
MDU-646-WASHBURN	262	1.1037
MDU-647-WILTON	262	1.1113
MDU-664-RIVERDALE	262	1.0959
MDU-691-FAIRVIEW	241	1.1377
MDU-712-MINOT AFB	262	1.1115
MDU-718-FAIRMOUNT	600	1.1149
MDU-732-NEKOMA	273	1.0884
MDU-732-MSR SITE	273	1.0884

GQ Source Daily Summary

February 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		Heating Value Dry																
		Wet	Dry	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT	
1	0.7347	1181.2	1202.1	1.214	3.838	68.362	22.375	3.877	0.114	0.203	0.010	0.007	0.000	0.000	0.000	0.000	0.000	0.000	1402.44	
2	0.7358	1181.5	1202.4	1.247	3.873	68.207	22.413	3.927	0.114	0.203	0.010	0.007	0.000	0.000	0.000	0.000	0.000	0.000	1401.78	
3	0.7352	1180.5	1201.4	1.252	3.867	68.264	22.430	3.861	0.111	0.199	0.010	0.007	0.000	0.000	0.000	0.000	0.000	0.000	1401.21	
4	0.7351	1180.4	1201.3	1.250	3.864	68.295	22.388	3.880	0.110	0.196	0.010	0.007	0.000	0.000	0.000	0.000	0.000	0.000	1401.20	
5	0.7350	1180.8	1201.7	1.251	3.839	68.267	22.479	3.842	0.109	0.195	0.010	0.007	0.000	0.000	0.000	0.000	0.000	0.000	1401.63	
6	0.7343	1179.3	1200.2	1.251	3.861	68.483	22.168	3.916	0.110	0.195	0.009	0.007	0.000	0.000	0.000	0.000	0.000	0.000	1400.56	
7	0.7366	1183.5	1204.5	1.229	3.848	68.443	21.996	3.992	0.160	0.299	0.018	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1403.42	
8	0.7244	1175.6	1196.5	0.894	3.702	69.404	22.480	3.238	0.098	0.170	0.008	0.006	0.000	0.000	0.000	0.000	0.000	0.000	1405.83	
9	0.7312	1173.9	1194.7	1.262	3.884	68.669	22.429	3.413	0.117	0.208	0.010	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1397.13	
10	0.7298	1172.9	1193.7	1.231	3.856	68.927	22.235	3.410	0.115	0.207	0.011	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1397.31	
11	0.7231	1168.9	1189.6	1.146	3.605	69.997	21.737	3.188	0.107	0.199	0.011	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1398.91	
12	0.7216	1166.9	1187.6	1.132	3.606	70.234	21.557	3.151	0.105	0.196	0.011	0.009	0.000	0.000	0.000	0.000	0.000	0.000	1398.00	
13	0.7231	1169.2	1189.9	1.139	3.595	70.058	21.629	3.248	0.108	0.202	0.011	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1399.30	
14	0.7233	1169.0	1189.7	1.144	3.620	69.980	21.709	3.215	0.108	0.202	0.011	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1398.87	
15	0.7245	1171.4	1192.2	1.133	3.601	69.792	21.875	3.263	0.109	0.204	0.011	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1400.59	
16	0.7252	1171.6	1192.4	1.150	3.631	69.700	21.876	3.311	0.109	0.203	0.011	0.009	0.000	0.000	0.000	0.000	0.000	0.000	1400.13	
17	0.7257	1172.2	1192.9	1.154	3.635	69.645	21.888	3.342	0.111	0.205	0.011	0.009	0.000	0.000	0.000	0.000	0.000	0.000	1400.33	
18	0.7266	1172.3	1193.0	1.177	3.672	69.565	21.864	3.350	0.123	0.226	0.012	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1399.66	
19	0.7248	1171.5	1192.3	1.150	3.595	69.833	21.789	3.253	0.125	0.232	0.012	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1400.45	
20	0.7252	1173.8	1194.6	1.122	3.533	69.887	21.660	3.433	0.119	0.223	0.012	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1402.82	
21	0.7258	1174.5	1195.3	1.126	3.540	69.849	21.615	3.501	0.121	0.225	0.012	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1403.05	
22	0.7281	1175.4	1196.2	1.167	3.648	69.292	22.133	3.375	0.127	0.234	0.012	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1401.81	
23	0.7285	1172.9	1193.7	1.207	3.768	69.122	22.245	3.291	0.123	0.224	0.011	0.009	0.000	0.000	0.000	0.000	0.000	0.000	1398.61	
24	0.7249	1170.5	1191.2	1.156	3.655	69.816	21.727	3.275	0.123	0.226	0.012	0.009	0.000	0.000	0.000	0.000	0.000	0.000	1399.13	
25	0.7241	1169.3	1190.0	1.162	3.645	69.979	21.566	3.290	0.119	0.219	0.011	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1398.46	
26	0.7256	1171.7	1192.4	1.163	3.645	69.642	21.928	3.259	0.121	0.222	0.012	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1399.82	
27	0.7332	1177.5	1198.4	1.245	3.873	68.675	22.116	3.662	0.144	0.262	0.013	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1399.54	
28	0.7339	1178.1	1198.9	1.238	3.917	68.641	22.014	3.737	0.150	0.277	0.014	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1399.47	
Avg	0.7285	1175.0	1195.3	1.178	3.722	69.251	22.011	3.482	0.118	0.216	0.011	0.009	0.000	0.000	0.000	0.000	0.000	0.000	1400.41	

Zone 211

CQ Source Daily Summary

February 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	Heating Value																
				CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT	
1	0.7075	1169.1	1189.8	0.926	2.456	72.470	21.260	2.616	0.080	0.166	0.012	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1414.53	
2	0.7071	1169.0	1189.7	0.925	2.429	72.456	21.398	2.515	0.080	0.169	0.013	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1414.80	
3	0.7080	1170.4	1191.2	0.926	2.423	72.254	21.633	2.483	0.082	0.171	0.013	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1415.64	
4	0.7091	1173.5	1194.3	0.928	2.338	72.245	21.507	2.710	0.081	0.166	0.012	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1418.21	
5	0.7082	1169.5	1190.2	0.916	2.510	72.305	21.404	2.576	0.083	0.176	0.013	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1414.35	
6	0.7074	1167.8	1188.4	0.913	2.547	72.340	21.423	2.520	0.076	0.157	0.011	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1413.02	
7	0.7030	1158.0	1178.5	0.904	2.742	72.937	20.871	2.316	0.069	0.140	0.010	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1405.64	
8	0.6996	1156.8	1177.2	0.896	2.515	73.505	20.665	2.203	0.066	0.132	0.009	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1407.47	
9	0.6993	1158.1	1178.6	0.887	2.411	73.680	20.522	2.270	0.069	0.141	0.010	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1409.44	
10	0.6813	1127.7	1147.7	0.737	2.806	76.836	17.405	1.998	0.063	0.133	0.010	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1390.32	
11	0.6939	1146.3	1166.6	0.807	2.748	74.744	19.138	2.303	0.074	0.158	0.012	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1400.46	
12	0.6942	1145.7	1165.9	0.805	2.822	74.676	19.109	2.335	0.074	0.155	0.011	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1399.33	
13	0.6950	1147.2	1167.5	0.800	2.807	74.671	18.997	2.457	0.077	0.164	0.012	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1400.46	
14	0.6959	1148.8	1169.1	0.800	2.793	74.486	19.217	2.429	0.079	0.168	0.013	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1401.48	
15	0.6962	1149.6	1170.0	0.807	2.759	74.453	19.250	2.460	0.079	0.165	0.012	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1402.23	
16	0.6968	1151.5	1171.9	0.806	2.708	74.365	19.343	2.519	0.077	0.158	0.011	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1403.84	
17	0.6949	1149.6	1169.9	0.802	2.653	74.659	19.165	2.489	0.071	0.142	0.009	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1403.40	
18	0.6937	1147.0	1167.3	0.800	2.698	74.748	19.185	2.340	0.070	0.140	0.009	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1401.51	
19	0.6917	1143.9	1164.1	0.795	2.703	75.095	18.919	2.250	0.071	0.146	0.010	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1399.77	
20	0.6965	1152.3	1172.7	0.801	2.634	74.621	19.001	2.670	0.082	0.165	0.012	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1405.15	
21	0.6977	1153.8	1174.2	0.800	2.654	74.485	19.019	2.761	0.085	0.170	0.012	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1405.78	
22	0.6946	1148.3	1168.6	0.802	2.702	74.762	18.976	2.518	0.073	0.145	0.010	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1402.15	
23	0.6936	1146.6	1166.9	0.803	2.706	74.841	19.011	2.410	0.070	0.139	0.009	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1401.13	
24	0.6939	1147.6	1167.9	0.806	2.675	74.894	18.899	2.479	0.074	0.150	0.011	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1401.97	
25	0.6942	1147.8	1168.1	0.800	2.691	74.857	18.936	2.450	0.078	0.162	0.012	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1402.02	
26	0.6934	1146.7	1167.0	0.800	2.685	75.015	18.779	2.464	0.076	0.156	0.012	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1401.45	
27	0.6922	1145.4	1165.7	0.795	2.661	75.193	18.689	2.405	0.076	0.157	0.012	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1401.07	
28	0.6909	1142.9	1163.2	0.792	2.696	75.401	18.488	2.365	0.077	0.157	0.011	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1399.32	
Avg	0.6975	1153.0	1173.3	0.835	2.642	74.178	19.650	2.440	0.075	0.155	0.011	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1404.85	

Zone 24

GQ Source Analysis

GQ Source Number:	0602160	Specific Gravity:	0.7123
GQ Source Name:	FAIRVIEW BORDER	Dry Heat Value:	1181.15
Effective Date:	2/1/2017 9:00:00 AM	Wet Heat Value:	1160.59
Effective End Date:	1/18/2038 9:14:07 PM	As Deliv. Heat Value:	1181.15
Pressure Base:	14.730	Sample Pressure:	349.00
Viscosity:		Sample Temperature:	

	<u>Mol %</u>	<u>Liquid Content</u>			<u>Mol %</u>	
C1	Methane	71.668		CO2	Carbon Dioxide	1.018
C2	Ethane	20.666	5.5105	N2	Nitrogen	3.240
C3	Propane	3.093	0.8496	O2	Oxygen	0.008
IC4	Isobutane	0.100	0.0326	He	Helium	
NC4	n-Butane	0.185	0.0581	H2	Hydrogen	
IC5	Isopentane	0.011	0.0041	H2S	Hydrogen Sulfide	
NC5	n-Pentane	0.011	0.0039	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%	6.459 GPM		

Sample Date: 3/1/2017 12:00:00 AM
Sample Type: Composite
Sample Tech: RR
H2S: ppm

Sample Remarks:

Analysis Tech: MB

Analysis Remarks:

Zone 241

GQ Source Analysis

GQ Source Number:	0602225	Specific Gravity:	0.7274
GQ Source Name:	WATFORD CITY WEST BORDER	Dry Heat Value:	1202.26
Effective Date:	2/1/2017 9:00:00 AM	Wet Heat Value:	1181.34
Effective End Date:	1/18/2038 9:14:07 PM	As Deliv. Heat Value:	1202.26
Pressure Base:	14.730	Sample Pressure:	235.00
Viscosity:		Sample Temperature:	

		<u>Mol %</u>	<u>Liquid Content</u>			<u>Mol %</u>
C1	Methane	69.037		CO2	Carbon Dioxide	1.043
C2	Ethane	22.962	6.1228	N2	Nitrogen	3.345
C3	Propane	3.027	0.8315	O2	Oxygen	0.021
IC4	Isobutane	0.164	0.0535	He	Helium	
NC4	n-Butane	0.343	0.1077	H2	Hydrogen	
IC5	Isopentane	0.028	0.0104	H2S	Hydrogen Sulfide	
NC5	n-Pentane	0.028	0.0102	Ar	Argon	
C6	Hexanes	0.002	0.0000	CO	Carbon Monoxide	
C7	Heptanes			H2	Water	
C8	Octanes			Neo-C5	Neopentane	
C9	Nonanes					
C10	Decanes					

Totals 100.000% 7.137 GPM

Sample Date: 3/1/2017 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

February 2017

Number: 163

Pressure Base: 14.730

Contract Day: 1

Name: NORTH TIOGA TRNSR-ROBINSON LAKE PLT

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	0.6800	1116.5	1136.2	0.635	3.521	77.164	16.317	2.081	0.071	0.170	0.018	0.022	0.000	0.000	0.000	0.000	0.000	1377.90	
2	0.6799	1115.9	1135.7	0.626	3.561	77.207	16.221	2.089	0.076	0.179	0.018	0.023	0.000	0.000	0.000	0.000	0.000	1377.30	
3	0.6802	1117.0	1136.7	0.627	3.512	77.180	16.169	2.174	0.088	0.204	0.021	0.026	0.000	0.000	0.000	0.000	0.000	1378.27	
4	0.6762	1110.5	1130.2	0.659	3.353	76.250	17.308	2.109	0.085	0.191	0.019	0.025	0.000	0.000	0.000	0.000	0.000	1374.36	
5	0.6690	1099.7	1119.2	0.659	3.353	76.250	17.308	2.109	0.085	0.191	0.019	0.025	0.000	0.000	0.000	0.000	0.000	1368.32	
6	0.6632	1090.6	1109.9	0.576	3.597	79.182	15.035	1.451	0.046	0.096	0.008	0.010	0.000	0.000	0.000	0.000	0.000	1362.93	
7	0.6627	1084.0	1103.2	0.561	3.996	79.500	14.409	1.402	0.040	0.079	0.006	0.007	0.000	0.000	0.000	0.000	0.000	1355.17	
8	0.6588	1083.7	1102.8	0.552	3.665	80.124	14.313	1.232	0.034	0.069	0.005	0.005	0.000	0.000	0.000	0.000	0.000	1358.69	
9	0.6371	1057.4	1076.1	0.459	3.742	82.771	11.875	1.053	0.029	0.060	0.005	0.006	0.000	0.000	0.000	0.000	0.000	1348.22	
10	0.6691	1054.0	1072.7	0.801	3.149	72.467	20.494	2.710	0.103	0.232	0.020	0.024	0.000	0.000	0.000	0.000	0.000	1311.37	
11	0.6444	1062.7	1081.5	0.847	3.162	72.004	20.867	2.669	0.112	0.272	0.029	0.037	0.000	0.000	0.000	0.000	0.000	1347.30	
12	0.6491	1064.8	1083.6	0.884	3.257	72.418	21.142	2.053	0.066	0.149	0.014	0.016	0.000	0.000	0.000	0.000	0.000	1345.03	
13	0.6444	1062.8	1081.6	0.853	3.277	72.641	20.401	2.469	0.094	0.219	0.019	0.025	0.000	0.000	0.000	0.000	0.000	1347.35	
14	0.6517	1079.1	1098.2	0.844	3.154	71.840	21.156	2.614	0.102	0.239	0.023	0.028	0.000	0.000	0.000	0.000	0.000	1360.35	
15	0.6371	1058.9	1077.7	0.846	3.192	71.812	21.009	2.748	0.100	0.238	0.024	0.030	0.000	0.000	0.000	0.000	0.000	1350.14	
16	0.6546	1074.5	1093.5	0.851	3.255	71.964	21.139	2.443	0.092	0.211	0.019	0.025	0.000	0.000	0.000	0.000	0.000	1351.54	
17	0.6389	1060.3	1079.0	0.857	3.225	71.736	21.967	2.018	0.057	0.121	0.009	0.010	0.000	0.000	0.000	0.000	0.000	1349.97	
18	0.6491	1070.1	1089.0	0.849	3.232	72.232	21.309	2.207	0.054	0.105	0.006	0.006	0.000	0.000	0.000	0.000	0.000	1351.70	
19	0.6713	1066.8	1085.7	0.853	3.246	72.790	20.521	2.323	0.076	0.163	0.013	0.015	0.000	0.000	0.000	0.000	0.000	1325.14	
20	0.6371	1057.1	1075.8	0.865	3.241	72.136	20.575	2.742	0.112	0.264	0.028	0.037	0.000	0.000	0.000	0.000	0.000	1347.77	
21	0.6713	1066.4	1085.3	0.856	3.246	72.224	20.558	2.713	0.108	0.243	0.022	0.029	0.000	0.000	0.000	0.000	0.000	1324.62	
22	0.6317	1046.2	1064.7	0.870	3.255	72.466	20.504	2.562	0.097	0.208	0.017	0.020	0.000	0.000	0.000	0.000	0.000	1339.58	
23	0.6288	1042.5	1061.0	0.851	3.231	72.649	21.017	2.252	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1337.99	
24	0.6491	1064.5	1083.3	0.869	3.331	74.971	20.828	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1344.61	
25	0.6366	1037.5	1055.9	0.869	3.331	74.971	20.828	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1323.40	
26	0.6317	1054.8	1073.5	0.869	3.331	74.971	20.828	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1350.65	
27	0.6166	1023.1	1041.2	0.869	3.331	74.971	20.828	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1325.96	
28	0.6317	1046.2	1064.8	0.869	3.331	74.971	20.828	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1339.66	
Avg	0.6518	1070.0	1089.2	0.772	3.360	74.710	19.134	1.794	0.062	0.139	0.013	0.016	0.000	0.000	0.000	0.000	0.000	1349.12	

Zone 261

GQ Source Daily Summary

February 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		CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
		Value Wet	Value Dry																
1	0.7082	1137.8	1157.9	0.733	4.723	72.638	18.256	3.272	0.107	0.241	0.013	0.016	0.000	0.000	0.000	0.000	0.000	0.000	1375.93
2	0.7083	1138.0	1158.1	0.728	4.723	72.654	18.238	3.267	0.109	0.247	0.015	0.017	0.000	0.000	0.000	0.000	0.000	0.000	1376.14
3	0.7023	1133.0	1153.1	0.702	4.505	73.676	17.672	3.057	0.108	0.245	0.016	0.019	0.000	0.000	0.000	0.000	0.000	0.000	1376.00
4	0.7089	1141.7	1161.9	0.733	4.553	72.614	18.436	3.238	0.118	0.268	0.018	0.022	0.000	0.000	0.000	0.000	0.000	0.000	1379.97
5	0.7181	1146.4	1166.7	0.752	5.101	71.121	18.886	3.704	0.126	0.280	0.015	0.017	0.000	0.000	0.000	0.000	0.000	0.000	1376.77
6	0.7157	1142.3	1162.6	0.749	5.124	71.426	18.710	3.584	0.119	0.262	0.013	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1374.22
7	0.7154	1139.0	1159.2	0.730	5.327	71.396	18.573	3.588	0.114	0.250	0.011	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1370.52
8	0.7141	1139.0	1159.2	0.730	5.210	71.638	18.469	3.569	0.114	0.249	0.010	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1371.70
9	0.7173	1142.7	1162.9	0.741	5.261	71.348	18.349	3.913	0.118	0.252	0.009	0.009	0.000	0.000	0.000	0.000	0.000	0.000	1373.13
10	0.7248	1155.6	1176.1	0.809	5.074	69.887	19.953	3.896	0.115	0.246	0.010	0.009	0.000	0.000	0.000	0.000	0.000	0.000	1381.50
11	0.7339	1164.5	1185.1	0.877	5.288	68.324	21.114	3.890	0.147	0.326	0.017	0.018	0.000	0.000	0.000	0.000	0.000	0.000	1383.43
12	0.7315	1160.0	1180.5	0.881	5.339	68.488	21.151	3.679	0.135	0.298	0.015	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1380.27
13	0.7326	1163.6	1184.2	0.853	5.262	68.440	21.165	3.782	0.144	0.319	0.016	0.018	0.000	0.000	0.000	0.000	0.000	0.000	1383.49
14	0.7342	1163.7	1184.3	0.847	5.405	68.211	21.154	3.876	0.147	0.324	0.017	0.019	0.000	0.000	0.000	0.000	0.000	0.000	1382.16
15	0.7347	1165.7	1186.3	0.844	5.341	68.168	21.206	3.941	0.142	0.320	0.018	0.020	0.000	0.000	0.000	0.000	0.000	0.000	1384.04
16	0.7329	1164.7	1185.3	0.874	5.193	68.191	21.687	3.561	0.138	0.316	0.018	0.020	0.000	0.000	0.000	0.000	0.000	0.000	1384.52
17	0.7339	1166.7	1187.4	0.880	5.153	67.996	21.913	3.574	0.135	0.311	0.018	0.020	0.000	0.000	0.000	0.000	0.000	0.000	1386.04
18	0.7337	1167.1	1187.8	0.868	5.131	67.974	21.974	3.601	0.129	0.291	0.015	0.016	0.000	0.000	0.000	0.000	0.000	0.000	1386.65
19	0.7347	1167.9	1188.5	0.874	5.170	67.907	21.884	3.689	0.136	0.305	0.017	0.018	0.000	0.000	0.000	0.000	0.000	0.000	1386.60
20	0.7345	1168.1	1188.8	0.877	5.125	68.064	21.714	3.721	0.140	0.319	0.019	0.021	0.000	0.000	0.000	0.000	0.000	0.000	1387.12
21	0.7359	1170.0	1190.8	0.868	5.150	68.002	21.565	3.884	0.148	0.338	0.021	0.023	0.000	0.000	0.000	0.000	0.000	0.000	1388.13
22	0.7357	1170.3	1191.0	0.876	5.109	67.998	21.638	3.859	0.146	0.331	0.020	0.022	0.000	0.000	0.000	0.000	0.000	0.000	1388.53
23	0.7345	1168.3	1188.9	0.868	5.137	68.008	21.745	3.782	0.132	0.295	0.016	0.017	0.000	0.000	0.000	0.000	0.000	0.000	1387.24
24	0.7340	1167.0	1187.7	0.871	5.157	68.092	21.659	3.762	0.131	0.295	0.016	0.017	0.000	0.000	0.000	0.000	0.000	0.000	1386.27
25	0.7367	1170.8	1191.5	0.873	5.179	67.858	21.652	3.903	0.148	0.342	0.021	0.024	0.000	0.000	0.000	0.000	0.000	0.000	1388.17
26	0.7360	1169.8	1190.5	0.863	5.190	68.013	21.508	3.880	0.148	0.347	0.024	0.028	0.000	0.000	0.000	0.000	0.000	0.000	1387.65
27	0.7341	1168.4	1189.1	0.868	5.083	68.301	21.411	3.810	0.145	0.335	0.022	0.025	0.000	0.000	0.000	0.000	0.000	0.000	1387.87
28	0.7320	1165.8	1186.5	0.872	5.038	68.513	21.428	3.655	0.137	0.315	0.020	0.022	0.000	0.000	0.000	0.000	0.000	0.000	1386.79
Avg	0.7267	1158.0	1178.3	0.823	5.109	69.462	20.468	3.676	0.131	0.295	0.016	0.018	0.000	0.000	0.000	0.000	0.000	0.000	1382.17

Zone 262

GQ Source Analysis

GQ Source Number:	2501030	Specific Gravity:	0.6702
GQ Source Name:	LIGNITE PLANT	Dry Heat Value:	1111.65
Effective Date:	2/1/2017 9:00:00 AM	Wet Heat Value:	1092.30
Effective End Date:	1/18/2038 9:14:07 PM	As Deliv. Heat Value:	1111.65
Pressure Base:	14.730	Sample Pressure:	500.00
Viscosity:		Sample Temperature:	

		<u>Mol %</u>	<u>Liquid Content</u>			<u>Mol %</u>
C1	Methane	77.342		CO2	Carbon Dioxide	0.129
C2	Ethane	16.050	4.2796	N2	Nitrogen	4.451
C3	Propane	1.663	0.4568	O2	Oxygen	0.333
IC4	Isobutane	0.025	0.0081	He	Helium	
NC4	n-Butane	0.008	0.0025	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% 4.747 GPM

Sample Date: 3/1/2017 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:	0.6951
GQ Source Name:	EPPING BORDER	Dry Heat Value:	1171.76
Effective Date:	2/1/2017 9:00:00 AM	Wet Heat Value:	1151.37
Effective End Date:	1/18/2038 9:14:07 PM	As Deliv. Heat Value:	1171.76
Pressure Base:	14.730	Sample Pressure:	510.00
Viscosity:		Sample Temperature:	

	<u>Mol %</u>	<u>Liquid Content</u>		<u>Mol %</u>	
C1	Methane	74.440	CO2	Carbon Dioxide	0.837
C2	Ethane	19.510	N2	Nitrogen	2.473
C3	Propane	2.486	O2	Oxygen	0.000
IC4	Isobutane	0.077	He	Helium	
NC4	n-Butane	0.154	H2	Hydrogen	
IC5	Isopentane	0.011	H2S	Hydrogen Sulfide	
NC5	n-Pentane	0.013	Ar	Argon	
C6	Hexanes	0.000	CO	Carbon Monoxide	
C7	Heptanes		H2	Water	
C8	Octanes		Neo-C5	Neopentane	
C9	Nonanes				
C10	Decanes				

Totals 100.000% 5.967 GPM

Sample Date: 3/1/2017 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

February 2017

Number: 161

Pressure Base: 14.730

Contract Day: 1

Name: N. TIOGA TRNS-CONOCO STONEVIEW TO

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	0.7115	1165.1	1185.8	0.836	3.210	71.825	21.032	2.723	0.094	0.226	0.024	0.030	0.000	0.000	0.000	0.000	0.000	1405.79	
2	0.7125	1167.1	1187.8	0.828	3.200	71.751	21.022	2.792	0.104	0.246	0.025	0.032	0.000	0.000	0.000	0.000	0.000	1407.13	
3	0.7110	1164.9	1185.5	0.800	3.217	72.141	20.440	2.915	0.124	0.294	0.030	0.038	0.000	0.000	0.000	0.000	0.000	1405.98	
4	0.7096	1161.9	1182.4	0.778	3.161	71.136	20.843	3.401	0.172	0.418	0.043	0.048	0.000	0.000	0.000	0.000	0.000	1403.70	
5	0.7065	1157.3	1177.8	0.778	3.161	71.136	20.843	3.401	0.172	0.418	0.043	0.048	0.000	0.000	0.000	0.000	0.000	1401.29	
6	0.7014	1149.2	1169.6	0.822	3.242	72.598	20.942	2.142	0.071	0.154	0.013	0.015	0.000	0.000	0.000	0.000	0.000	1396.51	
7	0.7026	1140.6	1160.8	0.835	3.878	72.396	20.661	2.043	0.056	0.111	0.008	0.010	0.000	0.000	0.000	0.000	0.000	1384.95	
8	0.6988	1144.0	1164.3	0.840	3.306	73.001	20.854	1.836	0.049	0.099	0.007	0.008	0.000	0.000	0.000	0.000	0.000	1392.81	
9	0.7013	1148.5	1168.9	0.858	3.299	72.932	20.832	1.905	0.050	0.104	0.009	0.012	0.000	0.000	0.000	0.000	0.000	1395.76	
10	0.6992	1158.4	1178.9	0.363	3.752	84.946	9.691	1.097	0.040	0.092	0.008	0.011	0.000	0.000	0.000	0.000	0.000	1409.82	
11	0.7014	1149.2	1169.6	0.607	3.542	78.904	14.805	1.847	0.075	0.179	0.018	0.023	0.000	0.000	0.000	0.000	0.000	1396.51	
12	0.7046	1155.3	1175.7	0.557	3.862	80.045	14.059	1.316	0.043	0.099	0.009	0.011	0.000	0.000	0.000	0.000	0.000	1400.67	
13	0.6992	1158.4	1178.9	0.496	3.929	81.169	12.724	1.461	0.057	0.135	0.013	0.015	0.000	0.000	0.000	0.000	0.000	1409.84	
14	0.7008	1161.2	1181.8	0.563	3.693	79.024	14.675	1.781	0.070	0.162	0.015	0.018	0.000	0.000	0.000	0.000	0.000	1411.68	
15	0.7044	1154.4	1174.9	0.540	3.815	79.588	13.986	1.810	0.067	0.159	0.016	0.020	0.000	0.000	0.000	0.000	0.000	1399.86	
16	0.7057	1155.5	1176.0	0.566	3.641	79.511	14.451	1.606	0.060	0.136	0.013	0.016	0.000	0.000	0.000	0.000	0.000	1399.91	
17	0.7030	1150.1	1170.5	0.537	3.552	80.587	13.769	1.396	0.043	0.096	0.008	0.010	0.000	0.000	0.000	0.000	0.000	1396.00	
18	0.7029	1151.8	1172.2	0.560	3.529	79.544	14.709	1.526	0.042	0.080	0.005	0.005	0.000	0.000	0.000	0.000	0.000	1398.11	
19	0.7044	1153.9	1174.3	0.584	3.576	79.345	14.697	1.620	0.050	0.108	0.009	0.011	0.000	0.000	0.000	0.000	0.000	1399.18	
20	0.7057	1155.9	1176.4	0.538	3.657	80.241	13.561	1.729	0.070	0.164	0.018	0.023	0.000	0.000	0.000	0.000	0.000	1400.34	
21	0.7065	1156.8	1177.3	0.496	3.736	81.324	12.582	1.612	0.066	0.150	0.015	0.019	0.000	0.000	0.000	0.000	0.000	1400.68	
22	0.6990	1146.3	1166.6	0.531	3.663	80.691	13.269	1.625	0.062	0.136	0.011	0.014	0.000	0.000	0.000	0.000	0.000	1395.38	
23	0.6989	1145.7	1166.0	0.545	3.799	82.726	11.478	1.453	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1394.70	
24	0.6979	1155.2	1175.6	0.632	4.381	94.986	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1407.27	
25	0.7044	1154.1	1174.6	0.632	4.381	94.986	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1399.49	
26	0.7057	1156.3	1176.7	0.632	4.381	94.986	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1400.77	
27	0.7033	1152.4	1172.8	0.632	4.381	94.986	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1398.50	
28	0.7044	1154.2	1174.7	0.632	4.381	94.986	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1399.61	
Avg	0.7038	1154.0	1174.9	0.644	3.690	80.410	13.426	1.608	0.058	0.135	0.013	0.016	0.000	0.000	0.000	0.000	0.000	1400.44	

Zone 265

GQ Source Daily Summary

February 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	0.6796	1113.2	1133.0	0.555	3.807	77.020	16.245	2.152	0.069	0.135	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1374.29	
2	0.6764	1110.3	1129.9	0.500	3.772	77.487	15.997	2.036	0.064	0.127	0.009	0.009	0.000	0.000	0.000	0.000	0.000	1373.85	
3	0.6757	1108.4	1128.0	0.464	3.870	77.596	15.826	2.034	0.063	0.128	0.009	0.009	0.000	0.000	0.000	0.000	0.000	1372.27	
4	0.6780	1112.5	1132.2	0.481	3.814	77.246	16.143	2.083	0.068	0.142	0.010	0.012	0.000	0.000	0.000	0.000	0.000	1375.01	
5	0.6859	1117.8	1137.6	0.516	4.180	75.984	16.668	2.389	0.077	0.162	0.011	0.012	0.000	0.000	0.000	0.000	0.000	1373.56	
6	0.6889	1119.8	1139.7	0.534	4.310	75.516	16.831	2.541	0.080	0.167	0.010	0.011	0.000	0.000	0.000	0.000	0.000	1373.07	
7	0.6827	1113.7	1133.4	0.493	4.171	76.382	16.462	2.273	0.068	0.136	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1371.65	
8	0.6784	1110.4	1130.0	0.460	4.011	77.048	16.186	2.095	0.064	0.122	0.008	0.007	0.000	0.000	0.000	0.000	0.000	1371.99	
9	0.6768	1108.9	1128.5	0.461	3.954	77.382	15.906	2.089	0.066	0.126	0.008	0.007	0.000	0.000	0.000	0.000	0.000	1371.72	
10	0.6930	1125.0	1145.0	0.540	4.365	74.884	17.174	2.788	0.078	0.156	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1375.40	
11	0.7025	1137.9	1158.0	0.628	4.339	73.186	18.745	2.789	0.094	0.197	0.011	0.011	0.000	0.000	0.000	0.000	0.000	1381.69	
12	0.7073	1138.9	1159.1	0.650	4.703	72.299	19.139	2.865	0.101	0.216	0.013	0.014	0.000	0.000	0.000	0.000	0.000	1378.14	
13	0.7111	1143.6	1163.9	0.699	4.690	71.755	19.508	2.981	0.108	0.232	0.014	0.014	0.000	0.000	0.000	0.000	0.000	1380.24	
14	0.7137	1147.3	1167.6	0.717	4.692	71.421	19.664	3.111	0.115	0.249	0.015	0.016	0.000	0.000	0.000	0.000	0.000	1382.05	
15	0.7144	1146.2	1166.5	0.705	4.833	71.339	19.531	3.197	0.114	0.250	0.015	0.016	0.000	0.000	0.000	0.000	0.000	1380.15	
16	0.7158	1148.4	1168.8	0.740	4.780	71.051	19.894	3.121	0.116	0.261	0.017	0.019	0.000	0.000	0.000	0.000	0.000	1381.44	
17	0.7170	1150.7	1171.1	0.766	4.712	70.809	20.224	3.073	0.116	0.264	0.018	0.019	0.000	0.000	0.000	0.000	0.000	1383.05	
18	0.7162	1151.2	1171.6	0.712	4.695	70.707	20.533	2.987	0.104	0.233	0.014	0.015	0.000	0.000	0.000	0.000	0.000	1384.37	
19	0.7146	1151.4	1171.8	0.772	4.437	71.174	20.241	2.997	0.109	0.239	0.015	0.015	0.000	0.000	0.000	0.000	0.000	1386.19	
20	0.7257	1161.7	1182.3	0.827	4.766	69.471	21.086	3.395	0.128	0.289	0.018	0.019	0.000	0.000	0.000	0.000	0.000	1387.90	
21	0.7200	1157.7	1178.2	0.797	4.519	70.550	20.395	3.283	0.126	0.288	0.020	0.023	0.000	0.000	0.000	0.000	0.000	1388.57	
22	0.7127	1150.4	1170.8	0.793	4.284	71.829	19.556	3.112	0.120	0.268	0.018	0.020	0.000	0.000	0.000	0.000	0.000	1386.86	
23	0.7042	1141.6	1161.8	0.781	4.045	73.139	18.862	2.816	0.103	0.225	0.014	0.015	0.000	0.000	0.000	0.000	0.000	1384.46	
24	0.6990	1135.6	1155.7	0.734	3.998	73.876	18.446	2.629	0.093	0.200	0.012	0.012	0.000	0.000	0.000	0.000	0.000	1382.27	
25	0.7047	1142.0	1162.2	0.763	4.091	73.090	18.830	2.853	0.108	0.234	0.015	0.016	0.000	0.000	0.000	0.000	0.000	1384.49	
26	0.7081	1145.1	1165.4	0.738	4.258	72.553	19.083	2.958	0.114	0.257	0.019	0.021	0.000	0.000	0.000	0.000	0.000	1384.93	
27	0.7059	1142.9	1163.2	0.724	4.209	72.784	19.065	2.843	0.105	0.234	0.016	0.018	0.000	0.000	0.000	0.000	0.000	1384.42	
28	0.7050	1140.5	1160.7	0.659	4.367	72.800	19.024	2.792	0.102	0.224	0.015	0.017	0.000	0.000	0.000	0.000	0.000	1382.41	
Avg	0.7005	1135.0	1154.9	0.650	4.310	73.585	18.402	2.724	0.095	0.206	0.013	0.014	0.000	0.000	0.000	0.000	0.000	1379.87	

Zone 271

GQ Source Daily Summary

February 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	0.6829	1113.8	1133.5	0.582	4.038	76.582	16.243	2.308	0.075	0.151	0.010	0.010	0.000					1371.68	
2	0.6780	1110.2	1129.8	0.530	3.881	77.259	16.024	2.092	0.066	0.130	0.009	0.009	0.000					1372.13	
3	0.6772	1108.4	1128.1	0.485	3.973	77.347	15.921	2.061	0.064	0.129	0.009	0.010	0.000					1370.86	
4	0.6764	1107.5	1127.1	0.471	3.980	77.456	15.859	2.022	0.064	0.128	0.010	0.010	0.000					1370.46	
5	0.6824	1114.0	1133.7	0.509	4.093	76.524	16.411	2.215	0.073	0.151	0.012	0.013	0.000					1372.39	
6	0.6922	1121.7	1141.5	0.545	4.490	74.974	17.065	2.644	0.084	0.175	0.011	0.012	0.000					1372.06	
7	0.6857	1114.7	1134.5	0.516	4.344	75.947	16.577	2.375	0.073	0.148	0.010	0.010	0.000					1370.04	
8	0.6803	1110.5	1130.2	0.474	4.162	76.719	16.288	2.153	0.065	0.124	0.008	0.008	0.000					1370.25	
9	0.6787	1109.6	1129.3	0.468	4.070	77.025	16.130	2.100	0.067	0.125	0.008	0.008	0.000					1370.79	
10	0.6869	1115.8	1135.6	0.511	4.400	75.820	16.501	2.525	0.076	0.150	0.009	0.009	0.000					1370.17	
11	0.7004	1133.8	1153.9	0.610	4.422	73.501	18.392	2.805	0.083	0.168	0.010	0.010	0.000					1378.76	
12	0.7042	1134.5	1154.6	0.632	4.705	72.833	18.688	2.808	0.099	0.208	0.013	0.014	0.000					1375.88	
13	0.7107	1139.8	1160.0	0.698	4.892	71.708	19.415	2.940	0.102	0.217	0.013	0.013	0.000					1375.96	
14	0.7133	1145.1	1165.4	0.731	4.763	71.445	19.592	3.077	0.114	0.245	0.016	0.017	0.000					1379.85	
15	0.7148	1144.6	1164.9	0.712	4.956	71.169	19.631	3.142	0.114	0.245	0.015	0.016	0.000					1377.88	
16	0.7163	1147.7	1168.1	0.729	4.883	71.034	19.701	3.246	0.116	0.254	0.018	0.019	0.000					1380.15	
17	0.7183	1148.9	1169.2	0.768	4.944	70.535	20.235	3.100	0.118	0.263	0.018	0.019	0.000					1379.58	
18	0.7169	1148.9	1169.3	0.755	4.831	70.658	20.365	3.008	0.109	0.241	0.016	0.018	0.000					1381.00	
19	0.7146	1148.3	1168.6	0.740	4.677	71.026	20.225	2.971	0.104	0.227	0.015	0.015	0.000					1382.44	
20	0.7224	1156.5	1177.0	0.822	4.783	69.948	20.754	3.268	0.122	0.267	0.017	0.019	0.000					1384.79	
21	0.7228	1158.0	1178.5	0.823	4.725	70.004	20.676	3.320	0.126	0.283	0.020	0.023	0.000					1386.22	
22	0.7178	1153.1	1173.5	0.803	4.582	70.941	19.982	3.250	0.124	0.276	0.020	0.022	0.000					1385.15	
23	0.7080	1143.3	1163.5	0.800	4.270	72.564	19.020	2.956	0.112	0.243	0.017	0.018	0.000					1382.80	
24	0.7015	1136.7	1156.9	0.748	4.134	73.458	18.653	2.685	0.095	0.202	0.013	0.013	0.000					1381.28	
25	0.7012	1135.0	1155.1	0.764	4.192	73.570	18.416	2.727	0.097	0.206	0.014	0.014	0.000					1379.42	
26	0.7068	1142.4	1162.6	0.764	4.261	72.724	18.970	2.893	0.112	0.241	0.017	0.019	0.000					1382.96	
27	0.7090	1143.5	1163.8	0.740	4.439	72.319	19.142	2.959	0.112	0.248	0.019	0.021	0.000					1382.13	
28	0.7065	1141.2	1161.4	0.693	4.417	72.602	19.087	2.834	0.104	0.228	0.017	0.019	0.000					1381.77	
Avg	0.7009	1133.0	1153.2	0.658	4.440	73.489	18.356	2.732	0.095	0.203	0.014	0.015	0.000					1377.46	

Zone 272

GQ Source Daily Summary

February 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	0.6818	1113.9	1133.6	0.577	3.939	76.758	16.203	2.281	0.075	0.148	0.009	0.009	0.000	0.000	0.000	0.000	0.000	1372.88	
2	0.6774	1110.7	1130.3	0.529	3.796	77.367	16.017	2.081	0.066	0.128	0.009	0.008	0.000	0.000	0.000	0.000	0.000	1373.35	
3	0.6765	1108.8	1128.4	0.482	3.895	77.462	15.906	2.047	0.064	0.126	0.009	0.010	0.000	0.000	0.000	0.000	0.000	1371.97	
4	0.6757	1107.9	1127.5	0.466	3.896	77.579	15.840	2.010	0.063	0.126	0.009	0.010	0.000	0.000	0.000	0.000	0.000	1371.70	
5	0.6817	1114.4	1134.1	0.504	4.005	76.652	16.395	2.199	0.072	0.149	0.011	0.013	0.000	0.000	0.000	0.000	0.000	1373.66	
6	0.6918	1122.3	1142.2	0.543	4.412	75.059	17.067	2.639	0.084	0.174	0.011	0.012	0.000	0.000	0.000	0.000	0.000	1373.29	
7	0.6849	1115.1	1134.9	0.511	4.259	76.072	16.564	2.359	0.072	0.145	0.009	0.009	0.000	0.000	0.000	0.000	0.000	1371.25	
8	0.6797	1110.9	1130.6	0.470	4.082	76.842	16.266	2.140	0.064	0.122	0.008	0.007	0.000	0.000	0.000	0.000	0.000	1371.37	
9	0.6781	1110.2	1129.9	0.465	3.983	77.137	16.121	2.090	0.066	0.123	0.008	0.007	0.000	0.000	0.000	0.000	0.000	1372.13	
10	0.6862	1116.2	1136.0	0.505	4.313	75.958	16.473	2.511	0.075	0.147	0.009	0.008	0.000	0.000	0.000	0.000	0.000	1371.42	
11	0.6999	1134.6	1154.7	0.604	4.337	73.597	18.392	2.803	0.083	0.166	0.010	0.009	0.000	0.000	0.000	0.000	0.000	1380.21	
12	0.7039	1135.6	1155.7	0.629	4.616	72.892	18.728	2.804	0.099	0.207	0.013	0.013	0.000	0.000	0.000	0.000	0.000	1377.50	
13	0.7103	1140.6	1160.8	0.693	4.808	71.774	19.452	2.931	0.102	0.214	0.012	0.012	0.000	0.000	0.000	0.000	0.000	1377.39	
14	0.7131	1146.1	1166.4	0.728	4.683	71.510	19.608	3.079	0.114	0.244	0.016	0.017	0.000	0.000	0.000	0.000	0.000	1381.28	
15	0.7145	1145.5	1165.8	0.710	4.878	71.230	19.654	3.140	0.114	0.243	0.015	0.016	0.000	0.000	0.000	0.000	0.000	1379.23	
16	0.7161	1148.8	1169.2	0.726	4.800	71.084	19.739	3.246	0.116	0.253	0.017	0.018	0.000	0.000	0.000	0.000	0.000	1381.68	
17	0.7180	1149.8	1170.2	0.765	4.863	70.594	20.263	3.100	0.118	0.261	0.018	0.019	0.000	0.000	0.000	0.000	0.000	1381.00	
18	0.7169	1150.4	1170.7	0.753	4.745	70.674	20.430	3.014	0.109	0.241	0.016	0.017	0.000	0.000	0.000	0.000	0.000	1382.73	
19	0.7145	1149.6	1169.9	0.737	4.593	71.058	20.285	2.970	0.104	0.225	0.014	0.014	0.000	0.000	0.000	0.000	0.000	1384.09	
20	0.7222	1157.7	1178.2	0.819	4.697	69.998	20.791	3.271	0.122	0.266	0.017	0.018	0.000	0.000	0.000	0.000	0.000	1386.38	
21	0.7229	1159.5	1180.0	0.821	4.647	70.000	20.747	3.333	0.127	0.283	0.020	0.022	0.000	0.000	0.000	0.000	0.000	1387.88	
22	0.7176	1154.3	1174.7	0.800	4.498	70.975	20.042	3.247	0.124	0.274	0.019	0.021	0.000	0.000	0.000	0.000	0.000	1386.75	
23	0.7078	1144.2	1164.5	0.797	4.193	72.619	19.047	2.955	0.112	0.242	0.017	0.018	0.000	0.000	0.000	0.000	0.000	1384.17	
24	0.7012	1137.7	1157.8	0.745	4.058	73.517	18.674	2.686	0.095	0.200	0.013	0.013	0.000	0.000	0.000	0.000	0.000	1382.66	
25	0.7007	1135.8	1155.9	0.760	4.098	73.671	18.427	2.716	0.097	0.204	0.013	0.013	0.000	0.000	0.000	0.000	0.000	1380.93	
26	0.7067	1143.8	1164.0	0.763	4.173	72.758	19.019	2.901	0.112	0.240	0.017	0.018	0.000	0.000	0.000	0.000	0.000	1384.68	
27	0.7089	1144.8	1165.0	0.739	4.360	72.348	19.189	2.965	0.112	0.248	0.019	0.021	0.000	0.000	0.000	0.000	0.000	1383.68	
28	0.7060	1142.1	1162.3	0.689	4.325	72.687	19.107	2.826	0.104	0.226	0.017	0.018	0.000	0.000	0.000	0.000	0.000	1383.28	
Avg	0.7005	1134.0	1154.1	0.655	4.355	73.567	18.373	2.727	0.095	0.201	0.013	0.014	0.000	0.000	0.000	0.000	0.000	1378.88	

Zone 273

GQ Source Daily Summary

February 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	0.6642	1100.9	1120.4	0.468	3.249	79.403	15.183	1.551	0.050	0.085	0.006	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1374.66
2	0.6614	1096.6	1116.1	0.397	3.350	79.738	14.949	1.444	0.043	0.071	0.005	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1372.30
3	0.6592	1093.2	1112.6	0.337	3.439	80.040	14.688	1.388	0.038	0.062	0.005	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1370.35
4	0.6611	1096.1	1115.5	0.340	3.445	79.645	15.067	1.395	0.038	0.062	0.005	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1371.90
5	0.6598	1093.1	1112.4	0.302	3.561	79.808	14.871	1.360	0.034	0.055	0.004	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1369.50
6	0.6622	1095.6	1115.0	0.338	3.576	79.466	15.059	1.454	0.038	0.061	0.004	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1370.20
7	0.6626	1096.2	1115.6	0.347	3.561	79.404	15.124	1.456	0.038	0.062	0.004	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1370.58
8	0.6643	1099.1	1118.6	0.359	3.528	79.162	15.312	1.514	0.044	0.072	0.005	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1372.42
9	0.6635	1098.0	1117.4	0.368	3.510	79.395	15.041	1.545	0.049	0.081	0.006	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1371.81
10	0.6634	1099.2	1118.6	0.306	3.523	79.184	15.446	1.428	0.040	0.065	0.005	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1373.40
11	0.6653	1102.6	1122.2	0.357	3.407	78.837	15.885	1.404	0.039	0.063	0.004	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1375.81
12	0.6678	1101.4	1120.9	0.329	3.767	78.269	16.070	1.462	0.037	0.060	0.004	0.003	0.000	0.000	0.000	0.000	0.000	0.000	1371.64
13	0.6691	1104.6	1124.1	0.379	3.614	78.152	16.248	1.488	0.041	0.069	0.004	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1374.32
14	0.6709	1108.3	1127.9	0.431	3.483	77.923	16.495	1.533	0.046	0.080	0.005	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1377.03
15	0.6711	1106.1	1125.7	0.400	3.674	77.871	16.347	1.573	0.046	0.078	0.005	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1374.19
16	0.6682	1101.4	1120.9	0.409	3.678	78.479	15.723	1.574	0.047	0.080	0.005	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1371.26
17	0.6645	1097.8	1117.3	0.468	3.461	79.230	15.214	1.492	0.046	0.079	0.005	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1370.60
18	0.6701	1105.7	1125.3	0.339	3.701	77.825	16.587	1.434	0.038	0.067	0.004	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1374.71
19	0.6662	1108.5	1128.2	0.566	2.821	79.003	16.074	1.386	0.051	0.089	0.006	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1382.16
20	0.6732	1119.9	1139.7	0.641	2.663	77.952	16.990	1.561	0.065	0.114	0.007	0.007	0.000	0.000	0.000	0.000	0.000	0.000	1389.15
21	0.6664	1112.4	1132.1	0.582	2.573	78.970	16.394	1.329	0.051	0.090	0.006	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1386.87
22	0.6599	1101.2	1120.7	0.652	2.543	80.397	14.904	1.347	0.053	0.094	0.006	0.006	0.000	0.000	0.000	0.000	0.000	0.000	1379.58
23	0.6575	1098.1	1117.6	0.672	2.470	80.897	14.490	1.314	0.053	0.093	0.006	0.006	0.000	0.000	0.000	0.000	0.000	0.000	1378.26
24	0.6584	1097.4	1116.9	0.599	2.709	80.575	14.655	1.314	0.050	0.087	0.006	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1376.44
25	0.6638	1104.7	1124.3	0.638	2.709	79.794	15.167	1.506	0.063	0.110	0.008	0.007	0.000	0.000	0.000	0.000	0.000	0.000	1379.98
26	0.6605	1100.0	1119.5	0.559	2.809	80.130	15.003	1.353	0.049	0.086	0.006	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1377.50
27	0.6634	1103.9	1123.5	0.534	2.890	79.492	15.574	1.370	0.048	0.082	0.006	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1379.28
28	0.6653	1101.2	1120.7	0.385	3.454	78.933	15.659	1.442	0.044	0.073	0.005	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1374.01
Avg	0.6644	1102.0	1121.1	0.447	3.256	79.213	15.508	1.443	0.046	0.077	0.005	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1375.35

Zone 28

GQ Source Daily Summary

February 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	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.6606	1096.3	1115.7	0.418	3.262	79.995	14.699	1.495	0.045	0.077	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1372.71	
2	0.6587	1092.7	1112.1	0.347	3.410	80.167	14.546	1.418	0.039	0.065	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1370.20	
3	0.6581	1091.7	1111.1	0.321	3.450	80.206	14.544	1.375	0.036	0.061	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1369.63	
4	0.6592	1092.2	1111.6	0.327	3.517	79.988	14.670	1.396	0.036	0.060	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1369.09	
5	0.6604	1093.6	1112.9	0.312	3.569	79.736	14.872	1.414	0.035	0.057	0.003	0.003	0.000	0.000	0.000	0.000	0.000	1369.55	
6	0.6605	1092.9	1112.3	0.336	3.584	79.777	14.751	1.446	0.037	0.062	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1368.60	
7	0.6618	1095.5	1114.9	0.341	3.543	79.582	14.932	1.489	0.039	0.066	0.004	0.004	0.000	0.000	0.000	0.000	0.000	1370.44	
8	0.6637	1099.0	1118.5	0.355	3.484	79.343	15.117	1.564	0.047	0.079	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1372.90	
9	0.6609	1095.1	1114.5	0.306	3.534	79.695	14.902	1.445	0.041	0.068	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1370.92	
10	0.6643	1101.8	1121.3	0.361	3.366	79.029	15.716	1.421	0.038	0.063	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1375.72	
11	0.6646	1096.6	1116.0	0.317	3.777	78.852	15.522	1.435	0.035	0.057	0.003	0.001	0.000	0.000	0.000	0.000	0.000	1368.93	
12	0.6673	1101.8	1121.3	0.377	3.624	78.476	15.919	1.491	0.040	0.068	0.004	0.002	0.000	0.000	0.000	0.000	0.000	1372.62	
13	0.6689	1105.6	1125.2	0.411	3.482	78.294	16.154	1.529	0.045	0.078	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1375.84	
14	0.6693	1104.0	1123.5	0.376	3.680	78.165	16.081	1.569	0.044	0.077	0.005	0.003	0.000	0.000	0.000	0.000	0.000	1373.28	
15	0.6668	1099.5	1118.9	0.382	3.703	78.697	15.516	1.570	0.045	0.078	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1370.31	
16	0.6627	1095.1	1114.5	0.434	3.509	79.531	14.907	1.490	0.043	0.077	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1369.05	
17	0.6680	1102.9	1122.4	0.316	3.716	78.193	16.232	1.434	0.037	0.066	0.004	0.002	0.000	0.000	0.000	0.000	0.000	1373.25	
18	0.6644	1106.1	1125.7	0.539	2.833	79.339	15.748	1.394	0.049	0.088	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1381.09	
19	0.6694	1115.5	1135.3	0.613	2.623	78.579	16.505	1.501	0.059	0.107	0.006	0.006	0.000	0.000	0.000	0.000	0.000	1387.55	
20	0.6635	1109.2	1128.8	0.543	2.566	79.391	16.106	1.260	0.045	0.080	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1385.74	
21	0.6589	1100.0	1119.5	0.626	2.561	80.521	14.811	1.331	0.050	0.090	0.005	0.005	0.000	0.000	0.000	0.000	0.000	1379.12	
22	0.6557	1095.3	1114.7	0.672	2.478	81.246	14.118	1.332	0.051	0.092	0.006	0.006	0.000	0.000	0.000	0.000	0.000	1376.53	
23	0.6577	1098.1	1117.5	0.613	2.584	80.708	14.658	1.294	0.048	0.085	0.005	0.005	0.000	0.000	0.000	0.000	0.000	1377.96	
24	0.6592	1097.8	1117.3	0.630	2.709	80.590	14.476	1.428	0.055	0.098	0.007	0.006	0.000	0.000	0.000	0.000	0.000	1376.11	
25	0.6598	1099.3	1118.8	0.598	2.727	80.370	14.751	1.397	0.052	0.093	0.006	0.006	0.000	0.000	0.000	0.000	0.000	1377.36	
26	0.6603	1098.9	1118.4	0.529	2.908	80.085	14.978	1.365	0.045	0.080	0.005	0.005	0.000	0.000	0.000	0.000	0.000	1376.28	
27	0.6654	1103.4	1123.0	0.449	3.231	79.003	15.732	1.452	0.045	0.078	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1376.66	
28	0.6612	1095.0	1114.4	0.316	3.550	79.577	15.055	1.393	0.038	0.063	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1370.53	
Avg	0.6625	1099.0	1118.6	0.434	3.249	79.540	15.215	1.433	0.043	0.075	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1374.21	

Zone 31

GQ Source Daily Summary

February 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 Wet	Heating Value Dry	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.6608	1097.3	1116.8	0.364	3.296	79.882	14.842	1.501	0.040	0.065	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1373.85	
2	0.6605	1097.1	1116.5	0.353	3.300	79.913	14.840	1.483	0.039	0.063	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1373.84	
3	0.6605	1097.3	1116.7	0.351	3.293	79.902	14.869	1.476	0.039	0.062	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1374.07	
4	0.6602	1096.5	1116.0	0.347	3.319	79.942	14.809	1.475	0.038	0.061	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1373.42	
5	0.6604	1096.0	1115.5	0.351	3.357	79.927	14.765	1.489	0.039	0.062	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1372.65	
6	0.6604	1096.0	1115.4	0.353	3.361	79.930	14.747	1.497	0.039	0.063	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1372.53	
7	0.6608	1096.7	1116.2	0.349	3.354	79.860	14.823	1.502	0.039	0.063	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1373.10	
8	0.6608	1096.5	1115.9	0.351	3.373	79.866	14.779	1.518	0.040	0.064	0.006	0.004	0.000	0.000	0.000	0.000	0.000	1372.75	
9	0.6609	1096.5	1115.9	0.345	3.386	79.846	14.789	1.523	0.039	0.062	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1372.71	
10	0.6607	1095.1	1114.5	0.347	3.454	79.907	14.631	1.548	0.039	0.063	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1371.09	
11	0.6614	1095.8	1115.2	0.349	3.472	79.796	14.705	1.565	0.040	0.063	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1371.24	
12	0.6618	1096.5	1115.9	0.352	3.459	79.748	14.749	1.577	0.040	0.064	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1371.75	
13	0.6619	1096.5	1116.0	0.351	3.470	79.726	14.757	1.581	0.040	0.064	0.006	0.004	0.000	0.000	0.000	0.000	0.000	1371.67	
14	0.6618	1096.5	1115.9	0.349	3.466	79.767	14.724	1.580	0.040	0.064	0.006	0.004	0.000	0.000	0.000	0.000	0.000	1371.72	
15	0.6617	1096.4	1115.8	0.348	3.460	79.805	14.699	1.574	0.040	0.064	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1371.77	
16	0.6610	1094.4	1113.8	0.352	3.508	79.960	14.497	1.569	0.040	0.065	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1370.03	
17	0.6607	1094.2	1113.6	0.363	3.479	80.015	14.461	1.566	0.041	0.066	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1370.04	
18	0.6612	1095.3	1114.7	0.364	3.456	79.927	14.562	1.573	0.041	0.066	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1370.92	
19	0.6603	1093.1	1112.5	0.465	3.353	80.277	14.187	1.580	0.047	0.079	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1369.07	
20	0.6590	1089.4	1108.7	0.681	3.125	80.881	13.499	1.634	0.060	0.107	0.007	0.006	0.000	0.000	0.000	0.000	0.000	1365.80	
21	0.6595	1091.1	1110.4	0.597	3.201	80.628	13.790	1.621	0.055	0.096	0.006	0.006	0.000	0.000	0.000	0.000	0.000	1367.33	
22	0.6605	1097.0	1116.4	0.364	3.294	79.941	14.781	1.505	0.040	0.065	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1373.64	
23	0.6497	1073.8	1092.9	0.365	3.683	81.968	12.505	1.357	0.042	0.070	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1355.85	
24	0.6567	1087.7	1106.9	0.353	3.519	80.656	13.874	1.481	0.040	0.066	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1365.96	
25	0.6601	1093.5	1112.9	0.356	3.478	80.041	14.451	1.559	0.040	0.065	0.005	0.005	0.000	0.000	0.000	0.000	0.000	1369.77	
26	0.6616	1095.6	1115.0	0.362	3.477	79.791	14.060	1.593	0.041	0.066	0.005	0.005	0.000	0.000	0.000	0.000	0.000	1370.90	
27	0.6614	1095.3	1114.7	0.349	3.507	79.785	14.663	1.582	0.040	0.064	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1370.56	
28	0.6614	1095.3	1114.7	0.344	3.506	79.786	14.672	1.580	0.039	0.063	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1370.70	
Av9	0.6603	1094.0	1113.8	0.378	3.407	80.053	14.505	1.539	0.041	0.067	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1370.67	

Zone 32

GQ Source Daily Summary

February 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	0.6900	1156.4	1176.9	0.000	3.014	72.664	23.514	0.790	0.008	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1416.78	
2	0.6902	1156.7	1177.2	0.000	3.011	72.650	23.514	0.807	0.008	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1416.98	
3	0.6900	1156.3	1176.8	0.000	3.014	72.683	23.485	0.800	0.008	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1416.73	
4	0.6900	1156.3	1176.8	0.000	3.018	72.655	23.530	0.779	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1416.68	
5	0.6895	1155.6	1176.0	0.000	3.017	72.720	23.501	0.745	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1416.28	
6	0.6895	1155.4	1175.9	0.000	3.021	72.719	23.510	0.733	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1416.17	
7	0.6897	1156.4	1176.9	0.000	2.978	72.697	23.563	0.745	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1417.19	
8	0.6895	1157.4	1177.9	0.000	2.903	72.736	23.605	0.739	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1418.56	
9	0.6901	1157.8	1178.3	0.000	2.940	72.653	23.598	0.792	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1418.36	
10	0.6904	1158.1	1178.6	0.000	2.943	72.641	23.570	0.828	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1418.49	
11	0.6902	1157.4	1177.9	0.000	2.965	72.651	23.561	0.805	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1417.89	
12	0.6903	1157.7	1178.2	0.000	2.961	72.629	23.580	0.812	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1418.10	
13	0.6906	1158.5	1179.0	0.000	2.935	72.587	23.647	0.814	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1418.83	
14	0.6906	1158.3	1178.8	0.000	2.957	72.567	23.637	0.821	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1418.54	
15	0.6910	1157.6	1178.1	0.000	3.033	72.498	23.520	0.832	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1417.26	
16	0.6917	1158.4	1178.9	0.000	3.047	72.370	23.730	0.836	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1417.52	
17	0.6906	1157.1	1177.6	0.000	3.026	72.564	23.580	0.814	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1417.03	
18	0.6899	1156.9	1177.4	0.000	2.972	72.692	23.526	0.793	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1417.52	
19	0.6898	1157.2	1177.7	0.000	2.947	72.719	23.519	0.797	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1417.96	
20	0.6903	1157.4	1177.9	0.000	2.980	72.643	23.535	0.825	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1417.71	
21	0.6895	1156.8	1177.3	0.009	2.944	72.778	23.433	0.818	0.008	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1417.72	
22	0.6901	1157.5	1178.0	0.000	2.958	72.652	23.577	0.795	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1417.99	
23	0.6897	1157.0	1177.5	0.000	2.945	72.726	23.539	0.773	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1417.88	
24	0.6892	1156.5	1177.0	0.000	2.933	72.818	23.461	0.771	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1417.70	
25	0.6891	1155.5	1175.9	0.000	2.981	72.806	23.461	0.736	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1416.63	
26	0.6891	1155.2	1175.6	0.000	3.000	72.812	23.427	0.745	0.007	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1416.24	
27	0.6892	1155.7	1176.2	0.000	2.977	72.776	23.497	0.733	0.007	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1416.81	
28	0.6896	1156.4	1176.9	0.000	2.977	72.707	23.547	0.752	0.007	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1417.19	
Avg	0.6900	1157.0	1177.4	0.000	2.978	72.672	23.545	0.787	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1417.45	

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: Inactive

Zone 34

CQ Source Daily Summary

February 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	0.6462	1055.6	1074.3	1.088	3.373	82.558	12.270	0.673	0.014	0.023	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1336.45	
2	0.6471	1057.0	1075.7	1.086	3.378	82.374	12.457	0.668	0.014	0.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1337.21	
3	0.6451	1053.1	1071.7	1.093	3.416	82.778	12.017	0.658	0.014	0.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1334.36	
4	0.6458	1054.3	1073.0	1.094	3.404	82.660	12.125	0.678	0.015	0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1335.23	
5	0.6452	1053.2	1071.9	1.096	3.415	82.768	12.009	0.672	0.015	0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1334.41	
6	0.6462	1055.5	1074.2	1.078	3.397	82.546	12.263	0.677	0.014	0.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1336.29	
7	0.6449	1053.5	1072.2	1.088	3.379	82.812	12.025	0.658	0.014	0.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1335.12	
8	0.6479	1058.4	1077.1	1.092	3.363	82.228	12.589	0.689	0.015	0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1338.15	
9	0.6485	1059.3	1078.0	1.081	3.377	82.113	12.692	0.699	0.014	0.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1338.70	
10	0.6478	1058.7	1077.5	1.077	3.348	82.268	12.562	0.708	0.014	0.023	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1338.74	
11	0.6507	1063.0	1081.8	1.084	3.352	81.694	13.115	0.714	0.015	0.026	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1341.13	
12	0.6483	1059.2	1078.0	1.085	3.361	82.160	12.643	0.714	0.014	0.023	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1338.76	
13	0.6583	1076.5	1095.5	1.062	3.277	80.258	14.525	0.829	0.018	0.031	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1350.27	
14	0.6517	1067.0	1085.9	1.068	3.230	81.491	13.448	0.720	0.016	0.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1345.12	
15	0.6460	1057.0	1075.7	1.062	3.312	82.617	12.270	0.699	0.015	0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1338.35	
16	0.6458	1055.6	1074.3	1.077	3.351	82.583	12.336	0.619	0.012	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1336.83	
17	0.6477	1060.2	1079.0	1.044	3.298	82.347	12.491	0.776	0.016	0.028	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1340.72	
18	0.6485	1060.4	1079.2	1.056	3.348	82.169	12.610	0.771	0.017	0.029	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1340.11	
19	0.6483	1059.3	1078.0	1.074	3.374	82.174	12.609	0.728	0.015	0.026	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1338.83	
20	0.6483	1059.2	1077.9	1.086	3.360	82.192	12.588	0.736	0.014	0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1338.75	
21	0.6457	1057.0	1075.7	1.064	3.278	82.626	12.351	0.647	0.013	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1338.68	
22	0.6367	1046.0	1064.5	1.095	3.062	84.400	10.878	0.534	0.011	0.019	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1333.97	
23	0.6299	1032.9	1051.2	1.078	3.238	85.783	9.320	0.548	0.013	0.022	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1324.48	
24	0.6522	1065.9	1084.8	1.082	3.316	81.602	13.054	0.883	0.023	0.040	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1343.28	
25	0.6422	1048.9	1067.4	1.087	3.412	83.447	11.274	0.731	0.018	0.031	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1331.99	
26	0.6399	1044.5	1063.0	1.104	3.436	83.879	10.847	0.689	0.016	0.028	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1328.82	
27	0.6354	1037.7	1056.1	1.086	3.452	84.750	10.316	0.654	0.016	0.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1324.88	
28	0.6440	1052.6	1071.2	1.081	3.359	83.160	11.555	0.789	0.020	0.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1334.87	
Avg	0.6459	1056.0	1074.5	1.080	3.345	82.659	12.176	0.699	0.015	0.026	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1336.95	

Zone 43

Feb-17

ZONE 610

Watford City

01325

01312

Weighted

Watford City West Border

Watford City East Border

Begin Date	End Date	01325			01312			Weighted	Date
		MCF	DK	BTU Zone 25	MCF	DK	BTU Zone 43		
2/1/2017	2/2/2017	836	1005	1.202	525	564	1.074	1.153	2/1/2017
2/2/2017	2/3/2017	845	1015	1.202	546	588	1.076	1.153	2/2/2017
2/3/2017	2/4/2017	806	969	1.202	394	422	1.072	1.159	2/3/2017
2/4/2017	2/5/2017	801	963	1.202	414	444	1.073	1.158	2/4/2017
2/5/2017	2/6/2017	819	985	1.202	383	410	1.072	1.161	2/5/2017
2/6/2017	2/7/2017	862	1036	1.202	510	548	1.074	1.154	2/6/2017
2/7/2017	2/8/2017	887	1066	1.202	635	681	1.072	1.148	2/7/2017
2/8/2017	2/9/2017	902	1085	1.202	668	720	1.077	1.149	2/8/2017
2/9/2017	2/10/2017	723	869	1.202	401	433	1.078	1.158	2/9/2017
2/10/2017	2/11/2017	574	690	1.202	240	259	1.078	1.165	2/10/2017
2/11/2017	2/12/2017	646	776	1.202	276	298	1.082	1.166	2/11/2017
2/12/2017	2/13/2017	631	759	1.202	180	194	1.078	1.174	2/12/2017
2/13/2017	2/14/2017	634	762	1.202	255	279	1.096	1.172	2/13/2017
2/14/2017	2/15/2017	590	710	1.202	258	280	1.086	1.167	2/14/2017
2/15/2017	2/16/2017	510	613	1.202	143	154	1.076	1.174	2/15/2017
2/16/2017	2/17/2017	424	510	1.202	154	166	1.074	1.168	2/16/2017
2/17/2017	2/18/2017	455	547	1.202	144	155	1.079	1.172	2/17/2017
2/18/2017	2/19/2017	557	670	1.202	178	192	1.079	1.172	2/18/2017
2/19/2017	2/20/2017	506	608	1.202	113	122	1.078	1.179	2/19/2017
2/20/2017	2/21/2017	467	561	1.202	170	184	1.078	1.169	2/20/2017
2/21/2017	2/22/2017	522	628	1.202	242	260	1.076	1.162	2/21/2017
2/22/2017	2/23/2017	638	768	1.202	211	224	1.065	1.168	2/22/2017
2/23/2017	2/24/2017	746	897	1.202	348	367	1.051	1.154	2/23/2017
2/24/2017	2/25/2017	705	848	1.202	274	297	1.085	1.169	2/24/2017
2/25/2017	2/26/2017	724	870	1.202	323	345	1.067	1.160	2/25/2017
2/26/2017	2/27/2017	706	849	1.202	291	309	1.063	1.161	2/26/2017
2/27/2017	2/28/2017	780	937	1.202	434	458	1.056	1.150	2/27/2017
2/28/2017	3/1/2017	724	870	1.202	404	431	1.071	1.155	2/28/2017
		19,020	22,866		9,114	9,784	1.0745	1.1625	

ROW ID	LOCATION DESCRIPTION	GROSS HEATING VALUE (BTU/CF)	SPECIFIC GRAVITY	WOBBE (cal/c)	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	1052.2	0.6058	1351.8	-78	1.3058	0.8167	90.1564	7.191	0.3339	0.0118	0.0071	0	0	0	0	0.1605	0.0185	1/31/2017	2/1/2017	2/1/2017 3:01:56 PM	
11587	GLEN ULLIN	1048.4	0.6031	1350	-80.5	1.2761	0.8195	90.6901	6.7234	0.3033	0.0104	0.0063	0	0	0	0	0.1544	0.0173	2/1/2017	2/2/2017	2/2/2017 3:02:09 PM	
11587	GLEN ULLIN	1048.1	0.6036	1349	-80.3	1.3268	0.829	90.5849	6.7713	0.2963	0.0109	0.0065	0	0	0	0	0.1558	0.0191	2/2/2017	2/3/2017	2/3/2017 3:03:12 PM	
11587	GLEN ULLIN	1047.7	0.6029	1349.4	-80.9	1.2933	0.8202	90.7547	6.6777	0.2852	0.0109	0.0066	0.0001	0.0001	0	0	0.1342	0.0186	2/3/2017	2/4/2017	2/4/2017 3:05:30 PM	
11587	GLEN ULLIN	1049.9	0.6047	1350.2	-79.4	1.3195	0.8254	90.4509	6.9525	0.3001	0.0121	0.0069	0	0	0	0	0.1156	0.0171	2/4/2017	2/5/2017	2/5/2017 3:01:28 PM	
11587	GLEN ULLIN	1052.2	0.6059	1351.8	-78.4	1.2878	0.8325	90.2909	7.1673	0.3068	0.0116	0.0068	0	0	0	0	0.0793	0.0167	2/5/2017	2/6/2017	2/6/2017 3:02:28 PM	
11587	GLEN ULLIN	1053.1	0.6062	1352.6	-78.1	1.2717	0.8245	90.2398	7.2514	0.3072	0.0109	0.0066	0	0	0	0	0.0739	0.0163	2/6/2017	2/7/2017	2/7/2017 3:01:10 PM	
11587	GLEN ULLIN	1051.3	0.6049	1351.7	-78.9	1.2594	0.824	90.3597	7.0694	0.3049	0.0105	0.0067	0	0.0002	0	0	0.148	0.0161	2/7/2017	2/8/2017	2/8/2017 3:02:53 PM	
11587	GLEN ULLIN	1049.4	0.6038	1350.5	-79.6	1.2565	0.8351	90.5563	6.8365	0.3088	0.0121	0.0082	0.0001	0.0005	0	0.0001	0.1709	0.0164	2/8/2017	2/9/2017	2/9/2017 3:47:34 PM	
11587	GLEN ULLIN	1047.3	0.6023	1349.5	-81.4	1.2446	0.8349	90.8444	6.6304	0.2672	0.0087	0.0053	0	0	0	0	0.1529	0.0137	2/9/2017	2/10/2017	2/10/2017 3:04:04 PM	
11587	GLEN ULLIN	1050.1	0.6047	1350.4	-79.4	1.2902	0.8379	90.4842	6.9341	0.308	0.011	0.0064	0	0	0	0	0.1169	0.0125	2/10/2017	2/11/2017	2/11/2017 3:02:28 PM	
11587	GLEN ULLIN	1051.3	0.6053	1351.3	-78.6	1.2904	0.8289	90.3164	7.0722	0.3197	0.0126	0.0074	0.0001	0.0002	0	0	0.1396	0.0141	2/11/2017	2/12/2017	2/12/2017 3:02:48 PM	
11587	GLEN ULLIN	1051.2	0.6054	1351	-78.8	1.3297	0.8138	90.2852	7.0987	0.3105	0.0111	0.0067	0	0	0	0	0.1305	0.0138	2/12/2017	2/13/2017	2/13/2017 3:04:35 PM	
11587	GLEN ULLIN	1052.1	0.6059	1351.6	-78.1	1.2862	0.8377	90.197	7.1769	0.3225	0.0125	0.0072	0	0.0001	0	0	0.1427	0.0173	2/13/2017	2/14/2017	2/14/2017 3:03:02 PM	
11587	GLEN ULLIN	1051.4	0.6055	1351.2	-78.4	1.3314	0.8102	90.2139	7.1312	0.3206	0.0124	0.0071	0	0	0	0	0.1559	0.018	2/14/2017	2/15/2017	2/15/2017 3:02:01 PM	
11587	GLEN ULLIN	1051.7	0.6056	1351.5	-78.3	1.3284	0.8055	90.2364	7.1331	0.3242	0.0129	0.0075	0.0001	0.0003	0	0	0.1373	0.0151	2/15/2017	2/16/2017	2/16/2017 3:03:56 PM	
11587	GLEN ULLIN	1055.1	0.6081	1353	-76.3	1.3319	0.8265	89.7549	7.5895	0.3309	0.0119	0.007	0.0001	0.0001	0	0	0.1313	0.0152	2/16/2017	2/17/2017	2/17/2017 3:01:57 PM	
11587	GLEN ULLIN	1054.2	0.6071	1353	-76.8	1.2997	0.82	89.9248	7.416	0.3434	0.0129	0.0079	0.0002	0.0003	0	0.0001	0.1568	0.0176	2/17/2017	2/18/2017	2/18/2017 3:01:22 PM	
11587	GLEN ULLIN	1055.3	0.6083	1353	-75.9	1.3502	0.8185	89.6834	7.5942	0.3557	0.014	0.0078	0	0	0	0	0.1587	0.0165	2/18/2017	2/19/2017	2/19/2017 3:00:57 PM	
11587	GLEN ULLIN	1054.7	0.6078	1352.9	-76.4	1.3406	0.8188	89.7266	7.5797	0.3297	0.0125	0.007	0	0	0	0	0.1693	0.0171	2/19/2017	2/20/2017	2/20/2017 3:01:45 PM	
11587	GLEN ULLIN	1053.7	0.6071	1352.3	-76.9	1.3464	0.8157	89.861	7.4357	0.3326	0.0131	0.0072	0.0001	0.0001	0	0	0.1712	0.0177	2/20/2017	2/21/2017	2/21/2017 3:01:51 PM	
11587	GLEN ULLIN	1055.8	0.6086	1353.4	-75.5	1.3339	0.8315	89.5879	7.6803	0.3523	0.0143	0.008	0.0001	0.0002	0	0	0.1761	0.0172	2/21/2017	2/22/2017	2/22/2017 3:03:56 PM	
11587	GLEN ULLIN	1053.7	0.6071	1352.4	-77.1	1.3417	0.8117	89.8955	7.4373	0.3219	0.0137	0.0076	0	0	0	0	0.1558	0.0169	2/22/2017	2/23/2017	2/23/2017 3:00:50 PM	
11587	GLEN ULLIN	1049.1	0.6043	1349.6	-79.7	1.3424	0.822	90.499	6.869	0.3037	0.0121	0.0069	0.0001	0.0001	0	0	0.1308	0.0151	2/23/2017	2/24/2017	2/24/2017 3:01:22 PM	
11587	GLEN ULLIN	1054.6	0.6079	1352.7	-76.3	1.2948	0.8563	89.9426	7.4143	0.3573	0.0149	0.0089	0.0002	0.0003	0	0.0001	0.0998	0.0109	2/24/2017	2/25/2017	2/25/2017 3:01:17 PM	
11587	GLEN ULLIN	1052.2	0.6061	1351.5	-77.8	1.3126	0.8277	90.251	7.1148	0.3496	0.0148	0.0086	0.0001	0.0002	0	0	0.1099	0.0123	2/25/2017	2/26/2017	2/26/2017 2:59:52 PM	
11587	GLEN ULLIN	1051.3	0.6056	1351	-78.1	1.3038	0.8367	90.3355	7.0091	0.3524	0.0149	0.0087	0.0002	0.0004	0	0	0.1245	0.0152	2/26/2017	2/27/2017	2/27/2017 3:01:41 PM	
11587	GLEN ULLIN	1051	0.6053	1350.8	-78.7	1.3168	0.8273	90.4072	6.9813	0.3377	0.0129	0.0076	0	0	0	0	0.0977	0.0126	2/27/2017	2/28/2017	2/28/2017 3:01:35 PM	
11587	GLEN ULLIN	1051.2	0.6055	1350.9	-78.5	1.3138	0.8299	90.3354	7.0351	0.336	0.0128	0.0075	0	0	0	0	0.1163	0.0137	2/28/2017	3/1/2017	3/1/2017 3:01:12 PM	

29 record(s) retrieved

FORM 802

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	FEB 17	JAN 16	DEC 16	NOV 16	OCT 16	SEPT 16	AUG 16	JULY 16	JUNE 16	MAY 16	APR 16	MAR 16	ZONE
MT/ND	211	Sidney Border - MonDak Tfr - Sidney P	1204	1195	1199	1199	1200	1193	1209	1210	1208	1206	1205	1207	1213	211
ND	24	Williston Border - Charbonneau Station	1186	1173	1189	1190	1187	1169	1195	1169	1197	1191	1182	1196	1194	24
ND	25	Watford City West Border	1206	1202	1198	1193	1200	1206	1211	1213	1211	1206	1209	1211	1211	25
ND	28	Bismarck Station - Glen Ullin Station	1162	1121	1115	1112	1122	1152	1172	1185	1208	1208	1202	1190	1154	28
ND	31	Dickinson Brd - Belfield Tfr - G Ullin Str	1132	1119	1113	1110	1120	1153	1171	1169	1124	1128	1117	1114	1144	31
ND/MT	32	Cabin Creek Station - Belfield Transfer	1132	1114	1118	1118	1099	1137	1153	1150	1157	1153	1137	1129	1121	32
ND	33	Little Knife Plant	1183	1177	1181	1200	1179	1182	1184	1183	1184	1185	1184	1181	1181	33
ND	34	Bowman Border	992	996	996	996	996	996	996	996	996	996	980	982	979	34
ND	43	Spring Creek - Garden Crk Plant	1109	1075	1121	1122	1114	1109	1128	1109	1089	1087	1102	1143	1112	43
ND/MT	241	Fairview Border	1197	1181	1196	1200	1193	1170	1210	1200	1202	1197	1202	1207	1201	241
ND	261	N Tioga Transfer - Robinson Lake Plant	1113	1089	1105	1096	1034	981	1174	1074	1206	1182	1179	1186	1048	261
ND	262	Minot Bdr - Palermo Bdr - Bismarck Str	1179	1178	1152	1144	1147	1141	1172	1191	1208	1208	1208	1206	1189	262
ND	263	Lignite Plant	1101	1112	1103	1110	1138	1120	1129	1127	1118	1116	947	1105	1082	263
ND	264	Epping Border	1181	1172	1186	1186	1158	1157	1194	1198	1169	1183	1184	1190	1189	264
ND	265	Cty Line Plt - Conoco Stoneview Takec	1178	1175	1184	1170	1182	1180	1186	1166	1177	1170	1173	1190	1186	265
ND	271	Bismarck Station - Cleveland Station	1172	1155	1129	1127	1140	1142	1173	1185	1208	1208	1208	1206	1186	271
ND	272	Cleveland Station - Mapleton	1171	1153	1128	1126	1139	1142	1172	1184	1207	1207	1206	1204	1185	272
ND	273	Cleveland Station - Grafton Border	1171	1154	1128	1127	1139	1142	1172	1184	1207	1206	1206	1201	1185	273
ND	610	MDU-Watford City BTU	1179	1163	1170	1162	1176	1179	1197	1206	1203	1186	1184	1174	1153	610
ND	802	Linton	1057	1052	1049	1051	1058	1053	1058	1059	1054	1065	1062	1062	1057	802
ND	903	Hettinger Propane	2549	2549	2549	2549	2549	2549	2549	2549	2549	2549	2549	2549	2549	903

**THERMAL ZONE VARIANCE
DOCUMENTATION**

February 2017

<i>ZONE</i>	<i>BTU VARIANCE</i>	<i>REASON</i>
43	-46	Operational Changes
262	26	Supply & Blending of Gas
271	26	Supply & Blending of Gas
272	25	Supply & Blending of Gas
273	26	Supply & Blending of Gas