



UTILITIES CO.

A Division of MDU Resources Group, Inc.

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

April 13, 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 – February 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 March 2016.
2. Attachment B consists of copies of the monthly Heating Value Test Reports received from our suppliers for the month of February 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 February 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
February 2016

Town	Heat Zone	Therm Factor
MDU-303-ALEXANDER	025	1.1485
MDU-308-ARNEGARD	025	1.1485
MDU-314-APPLE VALLEY	271	1.1308
MDU-318-BEACH	032	1.0323
MDU-319-BELFIELD	032	1.0398
MDU-323-BERTHOLD	262	1.1230
MDU-327-BISMARCK	028	1.0913
MDU-330-BOWMAN	034	1.0118
MDU-337-BURLINGTON	262	1.1472
MDU-343-CARRINGTON	273	1.1299
MDU-344-CLEVELAND	272	1.1219
MDU-364-CAVALIER	273	1.1537
MDU-365-DAWSON	271	1.1229
MDU-368-DES LACS	262	1.1311
MDU-369-DICKINSON	031	1.0596
MDU-374-FT TOTTEN	273	1.1378
MDU-375-DEVILS LAKE	273	1.1378
MDU-379-BARLOW	273	1.1299
MDU-384-EPPING	264	1.1173
MDU-387-ELDRIDGE	272	1.1299
MDU-407-GLADSTONE	031	1.0596
MDU-411-GLEN ULLIN	031	1.0673
MDU-413-GOLVA	032	1.0171
MDU-416-GARRISON	262	1.1311
MDU-417-GRAFTON	273	1.1617
MDU-421-HALLIDAY	031	1.0596
MDU-429-HEBRON	031	1.0673
MDU-432-HETTINGER	903	2.3875
MDU-449-JAMESTOWN	272	1.1378
MDU-459-KILLDEER	033	1.1164
MDU-463-LANGDON	273	1.1299
MDU-469-LEFOR	031	1.0596
MDU-474-LIGNITE	263	1.0388
MDU-475-LINTON	802	1.0285
MDU-478-LINCOLN	028	1.0913
MDU-488-MCKENZIE	271	1.1308
MDU-494-MEDINA	271	1.1229
MDU-498-MANDAN	028	1.0913
MDU-500-MARMARTH	034	1.0193
MDU-505-MINOT	262	1.5256
MDU-510-MOTT	031	1.0596
MDU-512-MAX	262	1.1230
MDU-522-NEW ENGLAND	031	1.0519
MDU-524-NEW SALEM	028	1.0682
MDU-532-NEW ROCKFORD	273	1.1299
MDU-539-PARK RIVER	273	1.1537
MDU-540-PALERMO	262	1.1230
MDU-558-RAY	264	1.1173
MDU-561-REGENT	031	1.0596

MDU-563-RHAME	034	1.0043
MDU-564-RICHARDTON	031	1.0519
MDU-568-ROSS	261	0.9865
MDU-572-RUTHVILLE	262	1.1472
MDU-574-SANBORN	272	1.1378
MDU-583-SENTINEL BUTTE	032	1.0323
MDU-588-SOUTH HEART	031	1.0519
MDU-717-SPIRITWOOD	272	1.1378
MDU-590-SPRINGBROOK	264	1.1173
MDU-591-STANLEY	261	0.9936
MDU-593-STEELE	271	1.1229
MDU-598-SHEYENNE	273	1.1378
MDU-605-SURREY	262	1.1472
MDU-610-TAPPEN	271	1.1229
MDU-611-TAYLOR	031	1.0519
MDU-616-TIOGA	261	1.0008
MDU-619-TURTLE LAKE	262	1.1311
MDU-620-TRENTON	024	1.1368
MDU-624-UNDERWOOD	262	1.1301
MDU-625-VALLEY CITY	272	1.1458
MDU-629-WALHALLA	273	1.1537
MDU-632-WATFORD CITY	610	1.0909
MDU-636-WHEELOCK	264	1.1093
MDU-637-WHITE EARTH	261	0.9936
MDU-642-WILLISTON	024	1.1368
MDU-646-WASHBURN	262	1.1392
MDU-647-WILTON	262	1.1230
MDU-664-RIVERDALE	262	1.1311
MDU-691-FAIRVIEW	241	1.1406
MDU-712-MINOT AFB	262	1.1472
MDU-718-FAIRMOUNT	600	1.1110
MDU-732-NEKOMA	273	1.1299
MDU-732-MSR SITE	273	1.1385

GQ Source Daily Summary

February 2016

Number: 251

Pressure Base: 14.730

Contract Day: 1

Name: SIDNEY BORDER-MONDAK JNCTN-SIDNEY PLANT

Temperature Base:

Contract Hour: 9

Day	Relative Density	Heating Value Wet	Heating Value Dry	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.7396	1186.7	1207.7	1.207	3.968	68.481	21.055	4.892	0.132	0.242	0.013	0.010	0.000	0.000	0.000	0.000	0.000	1404.26	
2	0.7402	1187.0	1208.0	1.212	3.993	68.406	21.059	4.935	0.131	0.241	0.013	0.010	0.000	0.000	0.000	0.000	0.000	1404.12	
3	0.7389	1185.7	1206.7	1.207	3.962	68.617	20.925	4.892	0.133	0.242	0.013	0.010	0.000	0.000	0.000	0.000	0.000	1403.80	
4	0.7371	1182.9	1203.8	1.215	3.954	68.776	20.992	4.661	0.134	0.244	0.013	0.010	0.000	0.000	0.000	0.000	0.000	1402.14	
5	0.7431	1192.6	1213.7	1.207	3.930	68.251	20.864	5.340	0.135	0.248	0.013	0.010	0.000	0.000	0.000	0.000	0.000	1407.98	
6	0.7408	1188.8	1209.8	1.205	3.951	68.469	20.864	5.115	0.132	0.240	0.013	0.010	0.000	0.000	0.000	0.000	0.000	1405.63	
7	0.7384	1184.9	1205.9	1.209	3.957	68.694	20.872	4.886	0.129	0.232	0.012	0.010	0.000	0.000	0.000	0.000	0.000	1403.36	
8	0.7410	1189.6	1210.6	1.208	3.915	68.431	20.944	5.103	0.133	0.243	0.013	0.010	0.000	0.000	0.000	0.000	0.000	1406.40	
9	0.7452	1196.6	1217.8	1.195	3.897	68.127	20.740	5.621	0.140	0.255	0.014	0.011	0.000	0.000	0.000	0.000	0.000	1410.74	
10	0.7417	1191.2	1212.3	1.198	3.905	68.390	20.901	5.191	0.138	0.253	0.013	0.011	0.000	0.000	0.000	0.000	0.000	1407.57	
11	0.7435	1193.8	1215.0	1.196	3.908	68.265	20.781	5.445	0.136	0.247	0.013	0.010	0.000	0.000	0.000	0.000	0.000	1409.06	
12	0.7427	1191.9	1213.0	1.210	3.928	68.401	20.647	5.402	0.138	0.251	0.013	0.010	0.000	0.000	0.000	0.000	0.000	1407.56	
13	0.7453	1196.5	1217.7	1.209	3.897	68.172	20.608	5.697	0.139	0.254	0.013	0.010	0.000	0.000	0.000	0.000	0.000	1410.47	
14	0.7433	1193.0	1214.2	1.220	3.906	68.261	20.862	5.307	0.147	0.271	0.014	0.011	0.000	0.000	0.000	0.000	0.000	1408.24	
15	0.7356	1180.5	1201.4	1.226	3.937	69.053	20.716	4.717	0.118	0.213	0.011	0.009	0.000	0.000	0.000	0.000	0.000	1400.81	
16	0.7350	1180.0	1200.9	1.222	3.919	69.073	20.848	4.561	0.126	0.229	0.012	0.009	0.000	0.000	0.000	0.000	0.000	1400.73	
17	0.7345	1178.8	1199.7	1.221	3.943	69.185	20.725	4.527	0.133	0.241	0.013	0.010	0.000	0.000	0.000	0.000	0.000	1399.83	
18	0.7409	1189.7	1210.7	1.209	3.901	68.623	20.607	5.249	0.137	0.250	0.013	0.010	0.000	0.000	0.000	0.000	0.000	1406.59	
19	0.7373	1184.0	1205.0	1.214	3.900	68.921	20.742	4.822	0.134	0.244	0.013	0.010	0.000	0.000	0.000	0.000	0.000	1403.32	
20	0.7389	1186.4	1207.4	1.217	3.899	68.789	20.677	5.027	0.131	0.238	0.013	0.010	0.000	0.000	0.000	0.000	0.000	1404.61	
21	0.7416	1191.3	1212.4	1.211	3.864	68.559	20.631	5.324	0.137	0.250	0.013	0.010	0.000	0.000	0.000	0.000	0.000	1407.86	
22	0.7414	1190.6	1211.7	1.212	3.881	68.627	20.529	5.343	0.136	0.249	0.013	0.010	0.000	0.000	0.000	0.000	0.000	1407.27	
23	0.7393	1186.9	1207.9	1.212	3.915	68.746	20.661	5.067	0.133	0.242	0.013	0.010	0.000	0.000	0.000	0.000	0.000	1404.83	
24	0.7387	1185.8	1206.8	1.222	3.909	68.769	20.739	4.970	0.131	0.238	0.012	0.009	0.000	0.000	0.000	0.000	0.000	1404.12	
25	0.7463	1198.4	1219.6	1.206	3.876	68.238	20.355	5.878	0.147	0.272	0.015	0.012	0.000	0.000	0.000	0.000	0.000	1411.77	
26	0.7385	1185.6	1206.6	1.208	3.927	68.878	20.511	5.114	0.122	0.220	0.011	0.009	0.000	0.000	0.000	0.000	0.000	1404.00	
27	0.7342	1179.0	1199.8	1.213	3.925	69.194	20.787	4.477	0.136	0.246	0.012	0.010	0.000	0.000	0.000	0.000	0.000	1400.24	
28	0.7397	1187.9	1209.0	1.207	3.893	68.727	20.655	5.116	0.133	0.245	0.013	0.010	0.000	0.000	0.000	0.000	0.000	1405.70	
29	0.7437	1195.1	1216.3	1.201	3.841	68.286	20.767	5.520	0.129	0.235	0.012	0.010	0.000	0.000	0.000	0.000	0.000	1410.36	
Avg	0.7402	1188.0	1209.4	1.210	3.917	68.600	20.761	5.110	0.134	0.244	0.013	0.010	0.000	0.000	0.000	0.000	0.000	1405.63	

Zone 211

GQ Source Analysis

GQ Source Number:	0602330	Specific Gravity:	0.7117
GQ Source Name:	WILLISTON BORDER	Dry Heat Value:	1194.67
Effective Date:	2/1/2016 9:00:00 AM	Wet Heat Value:	1173.88
Effective End Date:	1/18/2038 9:14:07 PM	As Deliv. Heat Value:	1194.67
Pressure Base:	14.730	Sample Pressure:	397.00
Viscosity:		Sample Temperature:	

	<u>Mol %</u>	<u>Liquid Content</u>		<u>Mol %</u>	
C1	Methane	71.422	CO2	Carbon Dioxide	0.872
C2	Ethane	22.029	N2	Nitrogen	2.611
C3	Propane	2.742	O2	Oxygen	0.000
IC4	Isobutane	0.095	He	Helium	
NC4	n-Butane	0.198	H2	Hydrogen	
IC5	Isopentane	0.015	H2S	Hydrogen Sulfide	
NC5	n-Pentane	0.017	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% 6.732 GPM

Sample Date: 3/1/2016 12:00:00 AM
Sample Type: Spot
Sample Tech: ES
H2S: ppm

Sample Remarks:

Analysis Tech: MB

Analysis Remarks:

Zone 24

GQ Source Analysis

GQ Source Number:	0602160	Specific Gravity:	0.7356
GQ Source Name:	FAIRVIEW BORDER	Dry Heat Value:	1201.11
Effective Date:	2/1/2016 9:00:00 AM	Wet Heat Value:	1180.21
Effective End Date:	1/18/2038 9:14:07 PM	As Deliv. Heat Value:	1201.11
Pressure Base:	14.730	Sample Pressure:	327.00
Viscosity:		Sample Temperature:	

		<u>Mol %</u>	<u>Liquid Content</u>			<u>Mol %</u>
C1	Methane	68.860		CO2	Carbon Dioxide	1.212
C2	Ethane	20.758	5.5350	N2	Nitrogen	3.933
C3	Propane	4.817	1.3232	O2	Oxygen	0.011
IC4	Isobutane	0.141	0.0461	He	Helium	
NC4	n-Butane	0.244	0.0768	H2	Hydrogen	
IC5	Isopentane	0.013	0.0048	H2S	Hydrogen Sulfide	
NC5	n-Pentane	0.010	0.0038	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%		6.990 GPM	

Sample Date: 3/1/2016 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:	0602230	Specific Gravity:	0.7301
GQ Source Name:	WATFORD CITY BORDER	Dry Heat Value:	1213.20
Effective Date:	2/1/2016 9:00:00 AM	Wet Heat Value:	1192.08
Effective End Date:	1/18/2038 9:14:07 PM	As Deliv. Heat Value:	1213.20
Pressure Base:	14.730	Sample Pressure:	347.00
Viscosity:		Sample Temperature:	

		<u>Mol %</u>	<u>Liquid Content</u>			<u>Mol %</u>
C1	Methane	69.941		CO2	Carbon Dioxide	1.002
C2	Ethane	21.224	5.6592	N2	Nitrogen	3.004
C3	Propane	4.047	1.1118	O2	Oxygen	0.010
IC4	Isobutane	0.228	0.0743	He	Helium	
NC4	n-Butane	0.471	0.1482	H2	Hydrogen	
IC5	Isopentane	0.036	0.0133	H2S	Hydrogen Sulfide	
NC5	n-Pentane	0.035	0.0128	Ar	Argon	
C6	Hexanes	0.002	0.0009	CO	Carbon Monoxide	
C7	Heptanes			H2	Water	
C8	Octanes			Neo-C5	Neopentane	
C9	Nonanes					
C10	Decanes					

Totals 100.000% 7.020 GPM

Sample Date: 3/1/2016 12:00:00 AM
Sample Type: Spot
Sample Tech: ES
H2S: ppm

Sample Remarks:

Analysis Tech: MB

Analysis Remarks:

Zone 25

GQ Source Daily Summary

February 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		CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
		Wet	Dry																
1	0.6006	998.2	1015.9	0.122	4.045	90.810	4.427	0.508	0.022	0.054	0.006	0.007	0.000	0.000	0.000	0.000	0.000	0.000	1310.79
2	0.6080	1009.7	1027.5	0.162	3.987	89.553	5.519	0.661	0.029	0.072	0.008	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1317.73
3	0.6073	1007.2	1025.1	0.175	4.043	89.590	5.483	0.624	0.023	0.053	0.005	0.006	0.000	0.000	0.000	0.000	0.000	0.000	1315.39
4	0.6056	1004.0	1021.8	0.159	4.102	89.984	5.015	0.634	0.027	0.065	0.007	0.009	0.000	0.000	0.000	0.000	0.000	0.000	1312.98
5	0.5988	995.1	1012.7	0.110	4.086	91.069	4.209	0.449	0.019	0.047	0.005	0.006	0.000	0.000	0.000	0.000	0.000	0.000	1308.60
6	0.5839	972.4	989.7	0.013	4.213	93.568	2.056	0.123	0.007	0.016	0.001	0.002	0.000	0.000	0.000	0.000	0.000	0.000	1295.12
7	0.6062	1005.8	1023.6	0.172	4.034	89.674	5.530	0.522	0.018	0.041	0.004	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1314.69
8	0.5852	973.6	990.8	0.031	4.237	93.365	2.176	0.160	0.008	0.019	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	1295.19
9	0.6023	1000.7	1018.4	0.115	4.059	90.738	4.287	0.654	0.036	0.090	0.009	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1312.24
10	0.6201	1027.1	1045.3	0.252	3.921	87.382	7.474	0.839	0.033	0.081	0.008	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1327.43
11	0.6170	1022.9	1041.0	0.241	3.904	87.941	6.983	0.815	0.030	0.071	0.007	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1325.25
12	0.6270	1038.1	1056.5	0.292	3.834	86.395	8.213	1.083	0.046	0.113	0.011	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1334.22
13	0.6391	1055.4	1074.1	0.358	3.817	84.518	9.632	1.406	0.065	0.163	0.018	0.023	0.000	0.000	0.000	0.000	0.000	0.000	1343.53
14	0.6182	1024.7	1042.8	0.234	3.913	87.954	6.790	0.945	0.042	0.100	0.010	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1326.26
15	0.6191	1026.4	1044.6	0.247	3.878	87.676	7.139	0.923	0.036	0.084	0.007	0.009	0.000	0.000	0.000	0.000	0.000	0.000	1327.54
16	0.6243	1034.0	1052.3	0.284	3.846	86.716	8.034	0.986	0.036	0.082	0.007	0.009	0.000	0.000	0.000	0.000	0.000	0.000	1331.82
17	0.6287	1039.7	1058.1	0.326	3.849	85.866	8.805	1.036	0.033	0.074	0.006	0.007	0.000	0.000	0.000	0.000	0.000	0.000	1334.48
18	0.6214	1028.5	1046.7	0.273	3.926	87.157	7.643	0.881	0.031	0.073	0.007	0.009	0.000	0.000	0.000	0.000	0.000	0.000	1327.81
19	0.6140	1023.3	1041.4	0.060	3.875	87.667	8.101	0.259	0.010	0.023	0.002	0.003	0.000	0.000	0.000	0.000	0.000	0.000	1328.88
20	0.5960	992.4	1010.0	0.086	4.027	91.420	4.101	0.322	0.012	0.028	0.002	0.003	0.000	0.000	0.000	0.000	0.000	0.000	1308.17
21	0.6199	1026.6	1044.8	0.259	3.925	87.367	7.505	0.834	0.029	0.068	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1326.95
22	0.6000	996.4	1014.0	0.117	4.113	90.866	4.320	0.506	0.021	0.048	0.004	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1308.97
23	0.6259	1036.6	1054.9	0.250	3.899	86.029	8.956	0.774	0.025	0.056	0.005	0.006	0.000	0.000	0.000	0.000	0.000	0.000	1333.28
24	0.6117	1013.3	1031.3	0.218	4.019	88.817	6.175	0.677	0.024	0.058	0.006	0.007	0.000	0.000	0.000	0.000	0.000	0.000	1318.55
25	0.6126	1014.9	1032.8	0.227	4.005	88.626	6.348	0.712	0.024	0.052	0.004	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1319.55
26	0.5990	995.2	1012.8	0.123	4.074	91.044	4.222	0.469	0.018	0.042	0.003	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1308.63
27	0.6156	1020.2	1038.3	0.226	3.958	88.284	6.556	0.844	0.034	0.081	0.008	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1323.26
28	0.6301	1041.6	1060.0	0.333	3.854	85.700	8.877	1.091	0.039	0.089	0.008	0.009	0.000	0.000	0.000	0.000	0.000	0.000	1335.37
29	0.6414	1059.2	1078.0	0.387	3.762	83.961	10.282	1.365	0.060	0.149	0.016	0.019	0.000	0.000	0.000	0.000	0.000	0.000	1345.91
Avg	0.6131	1017.0	1034.7	0.202	3.973	88.612	6.374	0.728	0.029	0.069	0.007	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1321.33

Zone 261

GQ Source Daily Summary

February 2016

Number: 091

Pressure Base: 14.730

Contract Day: 1

Name: MINOT BRDR-PALERMO BRDR-BISMARCK STATI

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	0.7395	1166.9	1187.6	0.771	5.825	67.898	20.254	4.690	0.170	0.357	0.018	0.018	0.000	0.000	0.000	0.000	0.000	1381.02	
2	0.7435	1172.7	1193.4	0.791	5.821	67.263	20.730	4.818	0.174	0.366	0.018	0.019	0.000	0.000	0.000	0.000	0.000	1384.07	
3	0.7409	1169.2	1189.9	0.779	5.799	67.679	20.454	4.721	0.172	0.360	0.017	0.018	0.000	0.000	0.000	0.000	0.000	1382.47	
4	0.7435	1172.3	1193.1	0.795	5.833	67.179	20.886	4.740	0.171	0.361	0.018	0.018	0.000	0.000	0.000	0.000	0.000	1383.67	
5	0.7389	1166.3	1186.9	0.773	5.806	67.949	20.287	4.629	0.168	0.353	0.017	0.017	0.000	0.000	0.000	0.000	0.000	1380.79	
6	0.7485	1177.8	1198.7	0.819	5.930	66.452	21.248	4.944	0.183	0.385	0.020	0.020	0.000	0.000	0.000	0.000	0.000	1385.54	
7	0.7450	1174.4	1195.1	0.797	5.848	67.067	20.812	4.879	0.179	0.379	0.019	0.020	0.000	0.000	0.000	0.000	0.000	1384.67	
8	0.7435	1171.5	1192.2	0.786	5.903	67.219	20.710	4.810	0.170	0.365	0.018	0.019	0.000	0.000	0.000	0.000	0.000	1382.63	
9	0.7445	1172.3	1193.1	0.805	5.914	66.983	20.966	4.768	0.166	0.360	0.018	0.018	0.000	0.000	0.000	0.000	0.000	1382.73	
10	0.7366	1163.0	1183.6	0.764	5.799	68.329	20.005	4.558	0.160	0.348	0.018	0.018	0.000	0.000	0.000	0.000	0.000	1379.13	
11	0.7390	1167.2	1187.9	0.758	5.778	67.912	20.377	4.631	0.160	0.349	0.017	0.018	0.000	0.000	0.000	0.000	0.000	1381.83	
12	0.7397	1169.1	1189.9	0.754	5.728	67.907	20.348	4.686	0.167	0.368	0.020	0.021	0.000	0.000	0.000	0.000	0.000	1383.50	
13	0.7364	1166.2	1186.9	0.747	5.615	68.387	20.147	4.550	0.161	0.355	0.019	0.020	0.000	0.000	0.000	0.000	0.000	1383.06	
14	0.7398	1169.7	1190.4	0.787	5.662	67.787	20.602	4.605	0.161	0.357	0.019	0.021	0.000	0.000	0.000	0.000	0.000	1384.00	
15	0.7422	1172.0	1192.8	0.791	5.739	67.421	20.767	4.713	0.164	0.364	0.020	0.021	0.000	0.000	0.000	0.000	0.000	1384.51	
16	0.7366	1165.1	1185.7	0.764	5.679	68.338	20.118	4.559	0.158	0.348	0.018	0.019	0.000	0.000	0.000	0.000	0.000	1381.50	
17	0.7352	1162.8	1183.4	0.762	5.685	68.535	19.994	4.491	0.155	0.342	0.017	0.018	0.000	0.000	0.000	0.000	0.000	1380.16	
18	0.7378	1166.4	1187.1	0.776	5.684	68.103	20.343	4.552	0.157	0.349	0.018	0.018	0.000	0.000	0.000	0.000	0.000	1382.06	
19	0.7448	1173.5	1194.3	0.802	5.870	66.986	20.974	4.792	0.166	0.371	0.019	0.020	0.000	0.000	0.000	0.000	0.000	1383.89	
20	0.7459	1175.9	1196.7	0.767	5.891	66.808	21.076	4.873	0.169	0.377	0.020	0.020	0.000	0.000	0.000	0.000	0.000	1385.58	
21	0.7403	1170.3	1191.0	0.726	5.766	67.714	20.539	4.686	0.163	0.367	0.019	0.020	0.000	0.000	0.000	0.000	0.000	1384.21	
22	0.7441	1174.3	1195.1	0.754	5.830	67.127	20.884	4.822	0.167	0.377	0.020	0.020	0.000	0.000	0.000	0.000	0.000	1385.47	
23	0.7365	1164.8	1185.4	0.734	5.730	68.329	20.110	4.542	0.159	0.358	0.019	0.019	0.000	0.000	0.000	0.000	0.000	1381.29	
24	0.7440	1174.7	1195.5	0.792	5.741	66.997	21.244	4.663	0.162	0.363	0.019	0.019	0.000	0.000	0.000	0.000	0.000	1386.03	
25	0.7395	1167.8	1188.5	0.762	5.785	67.784	20.533	4.571	0.162	0.364	0.019	0.019	0.000	0.000	0.000	0.000	0.000	1382.08	
26	0.7420	1171.5	1192.2	0.790	5.757	67.398	20.841	4.636	0.164	0.373	0.020	0.020	0.000	0.000	0.000	0.000	0.000	1384.03	
27	0.7397	1168.5	1189.2	0.771	5.744	67.816	20.503	4.589	0.164	0.373	0.020	0.020	0.000	0.000	0.000	0.000	0.000	1382.73	
28	0.7334	1160.7	1181.2	0.741	5.676	68.825	19.815	4.395	0.156	0.354	0.018	0.019	0.000	0.000	0.000	0.000	0.000	1379.34	
29	0.7348	1164.1	1184.8	0.745	5.596	68.578	20.125	4.391	0.159	0.364	0.020	0.021	0.000	0.000	0.000	0.000	0.000	1382.08	
Avg	0.7406	1169.0	1190.1	0.773	5.774	67.682	20.541	4.666	0.165	0.362	0.019	0.019	0.000	0.000	0.000	0.000	0.000	1382.90	

Zone 262

GQ Source Number:	2501030	Specific Gravity:	0.6532
GQ Source Name:	LIGNITE PLANT	Dry Heat Value:	1107.06
Effective Date:	2/1/2016 9:00:00 AM	Wet Heat Value:	1087.79
Effective End Date:	1/18/2038 9:14:07 PM	As Deliv. Heat Value:	1107.06
Pressure Base:	14.730	Sample Pressure:	338.00
Viscosity:		Sample Temperature:	

	<u>Mol %</u>	<u>Liquid Content</u>			<u>Mol %</u>	
C1	Methane	80.128		CO2	Carbon Dioxide	0.080
C2	Ethane	15.276	4.0732	N2	Nitrogen	3.566
C3	Propane	0.934	0.2567	O2	Oxygen	0.009
IC4	Isobutane	0.002	0.0007	He	Helium	
NC4	n-Butane	0.000	0.0000	H2	Hydrogen	
IC5	Isopentane	0.000	0.0000	H2S	Hydrogen Sulfide	
NC5	n-Pentane	0.000	0.0000	Ar	Argon	
C6	Hexanes	0.004	0.0021	CO	Carbon Monoxide	
C7	Heptanes			H2	Water	
C8	Octanes			Neo-C5	Neopentane	
C9	Nonanes					
C10	Decanes					
Totals		100.000%	4.333 GPM			

Sample Date: 3/1/2016 12:00:00 AM
Sample Type: Spot
Sample Tech: ES
H2S: ppm

Sample Remarks:

Analysis Tech: MB

Analysis Remarks:

Zone 263

*** End of Report ***

GQ Source Number:	0702010	Specific Gravity:	0.7026
GQ Source Name:	EPPING BORDER	Dry Heat Value:	1181.29
Effective Date:	2/1/2016 9:00:00 AM	Wet Heat Value:	1160.73
Effective End Date:	1/18/2038 9:14:07 PM	As Deliv. Heat Value:	1181.29
Pressure Base:	14.730	Sample Pressure:	341.00
Viscosity:		Sample Temperature:	

	<u>Mol %</u>	<u>Liquid Content</u>			<u>Mol %</u>	
C1	Methane	73.045		CO2	Carbon Dioxide	0.873
C2	Ethane	20.690	5.5169	N2	Nitrogen	2.556
C3	Propane	2.546	0.6993	O2	Oxygen	0.000
IC4	Isobutane	0.084	0.0274	He	Helium	
NC4	n-Butane	0.176	0.0554	H2	Hydrogen	
IC5	Isopentane	0.014	0.0051	H2S	Hydrogen Sulfide	
NC5	n-Pentane	0.016	0.0059	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% 6.310 GPM

Sample Date: 3/1/2016 12:00:00 AM
Sample Type: Spot
Sample Tech: ES
H2S: ppm

Sample Remarks:

Analysis Tech: MB

Analysis Remarks:

Zone 264

GQ Source Daily Summary

February 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	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.7179	1171.9	1192.7	0.876	3.335	71.345	20.753	3.166	0.128	0.318	0.034	0.044	0.000	0.000	0.000	0.000	0.000	1407.61	
2	0.7194	1175.0	1195.8	0.873	3.290	71.159	20.902	3.226	0.134	0.335	0.035	0.045	0.000	0.000	0.000	0.000	0.000	1409.87	
3	0.7123	1163.7	1184.4	0.879	3.302	71.776	20.825	2.858	0.097	0.222	0.019	0.023	0.000	0.000	0.000	0.000	0.000	1403.34	
4	0.7182	1172.7	1193.4	0.899	3.284	71.244	20.915	3.159	0.124	0.303	0.032	0.040	0.000	0.000	0.000	0.000	0.000	1408.21	
5	0.7165	1170.1	1190.9	0.874	3.316	71.415	20.843	3.065	0.122	0.299	0.030	0.037	0.000	0.000	0.000	0.000	0.000	1406.86	
6	0.7153	1167.8	1188.5	0.894	3.319	71.511	20.823	3.023	0.111	0.262	0.025	0.031	0.000	0.000	0.000	0.000	0.000	1405.19	
7	0.7095	1158.5	1179.0	0.902	3.332	71.771	21.285	2.436	0.074	0.166	0.014	0.017	0.000	0.000	0.000	0.000	0.000	1399.71	
8	0.7137	1165.4	1186.0	0.869	3.350	71.528	21.051	2.794	0.104	0.250	0.024	0.030	0.000	0.000	0.000	0.000	0.000	1403.93	
9	0.7367	1202.1	1223.4	0.874	3.245	69.867	20.665	4.305	0.246	0.637	0.071	0.089	0.000	0.000	0.000	0.000	0.000	1425.32	
10	0.7145	1166.6	1187.2	0.897	3.318	71.353	21.275	2.745	0.104	0.250	0.025	0.031	0.000	0.000	0.000	0.000	0.000	1404.48	
11	0.7128	1163.7	1184.3	0.880	3.357	71.628	20.978	2.775	0.099	0.235	0.022	0.026	0.000	0.000	0.000	0.000	0.000	1402.71	
12	0.7142	1166.1	1186.8	0.893	3.314	71.591	20.929	2.826	0.109	0.271	0.029	0.037	0.000	0.000	0.000	0.000	0.000	1404.33	
13	0.7203	1176.0	1196.8	0.884	3.297	71.167	20.815	3.220	0.147	0.372	0.042	0.055	0.000	0.000	0.000	0.000	0.000	1410.18	
14	0.7184	1172.7	1193.4	0.878	3.334	71.201	20.914	3.159	0.132	0.313	0.030	0.038	0.000	0.000	0.000	0.000	0.000	1408.03	
15	0.7153	1168.0	1188.7	0.870	3.341	71.516	20.805	3.029	0.115	0.267	0.025	0.032	0.000	0.000	0.000	0.000	0.000	1405.44	
16	0.7128	1164.3	1184.9	0.876	3.321	71.706	20.863	2.861	0.101	0.228	0.020	0.024	0.000	0.000	0.000	0.000	0.000	1403.53	
17	0.7108	1161.0	1181.5	0.897	3.310	71.796	20.987	2.711	0.083	0.184	0.015	0.018	0.000	0.000	0.000	0.000	0.000	1401.43	
18	0.7118	1161.7	1182.3	0.906	3.341	71.809	20.834	2.756	0.092	0.214	0.021	0.026	0.000	0.000	0.000	0.000	0.000	1401.34	
19	0.7115	1161.7	1182.2	0.902	3.327	71.729	20.999	2.721	0.086	0.197	0.017	0.021	0.000	0.000	0.000	0.000	0.000	1401.55	
20	0.7110	1160.9	1181.5	0.894	3.338	71.678	21.141	2.653	0.082	0.183	0.015	0.017	0.000	0.000	0.000	0.000	0.000	1401.13	
21	0.7126	1162.9	1183.5	0.908	3.345	71.580	21.093	2.723	0.091	0.213	0.020	0.025	0.000	0.000	0.000	0.000	0.000	1401.95	
22	0.7105	1160.5	1181.0	0.876	3.345	71.859	20.899	2.706	0.086	0.194	0.016	0.019	0.000	0.000	0.000	0.000	0.000	1401.09	
23	0.7081	1156.5	1177.0	0.894	3.333	72.133	20.820	2.539	0.078	0.174	0.014	0.016	0.000	0.000	0.000	0.000	0.000	1398.73	
24	0.7081	1156.4	1176.8	0.893	3.346	72.150	20.795	2.519	0.080	0.182	0.015	0.019	0.000	0.000	0.000	0.000	0.000	1398.49	
25	0.7081	1156.7	1177.2	0.894	3.318	72.072	20.919	2.540	0.074	0.160	0.011	0.012	0.000	0.000	0.000	0.000	0.000	1398.98	
26	0.7117	1161.8	1182.3	0.913	3.324	71.755	20.910	2.771	0.088	0.200	0.017	0.021	0.000	0.000	0.000	0.000	0.000	1401.45	
27	0.7148	1167.1	1187.8	0.896	3.308	71.546	20.878	2.949	0.108	0.257	0.025	0.032	0.000	0.000	0.000	0.000	0.000	1404.90	
28	0.7114	1161.7	1182.3	0.890	3.333	71.810	20.874	2.742	0.094	0.217	0.018	0.022	0.000	0.000	0.000	0.000	0.000	1401.69	
29	0.7142	1166.3	1187.0	0.869	3.340	71.842	20.468	2.970	0.126	0.313	0.032	0.039	0.000	0.000	0.000	0.000	0.000	1404.51	
Avg	0.7142	1166.0	1186.8	0.888	3.323	71.570	20.905	2.895	0.107	0.256	0.025	0.031	0.000	0.000	0.000	0.000	0.000	1404.35	

Zone 2b5

GQ Source Daily Summary

February 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	0.7268	1158.2	1178.7	0.651	5.353	69.687	19.760	4.071	0.142	0.302	0.017	0.017	0.000	0.000	0.000	0.000	0.000	1382.56	
2	0.7280	1160.4	1181.0	0.648	5.331	69.530	19.864	4.146	0.145	0.303	0.017	0.017	0.000	0.000	0.000	0.000	0.000	1384.10	
3	0.7263	1159.4	1179.9	0.636	5.248	69.758	19.842	4.054	0.139	0.291	0.016	0.016	0.000	0.000	0.000	0.000	0.000	1384.53	
4	0.7281	1160.9	1181.4	0.648	5.315	69.447	20.016	4.099	0.142	0.299	0.016	0.017	0.000	0.000	0.000	0.000	0.000	1384.52	
5	0.7271	1159.4	1179.9	0.650	5.311	69.604	19.905	4.061	0.141	0.296	0.016	0.017	0.000	0.000	0.000	0.000	0.000	1383.68	
6	0.7281	1160.3	1180.9	0.652	5.343	69.448	19.985	4.093	0.143	0.302	0.017	0.017	0.000	0.000	0.000	0.000	0.000	1383.88	
7	0.7295	1164.1	1184.7	0.639	5.260	69.233	20.249	4.132	0.145	0.307	0.017	0.018	0.000	0.000	0.000	0.000	0.000	1387.06	
8	0.7111	1142.6	1162.9	0.535	4.995	72.072	18.520	3.492	0.116	0.243	0.013	0.014	0.000	0.000	0.000	0.000	0.000	1379.04	
9	0.7235	1158.9	1179.4	0.667	4.971	70.229	19.765	3.917	0.135	0.283	0.016	0.016	0.000	0.000	0.000	0.000	0.000	1386.59	
10	0.7212	1157.1	1177.6	0.622	4.930	70.580	19.564	3.874	0.129	0.271	0.015	0.015	0.000	0.000	0.000	0.000	0.000	1386.71	
11	0.7165	1151.1	1171.4	0.604	4.890	71.224	19.258	3.614	0.121	0.259	0.015	0.015	0.000	0.000	0.000	0.000	0.000	1383.91	
12	0.7128	1146.9	1167.2	0.563	4.852	71.777	18.928	3.502	0.112	0.239	0.014	0.014	0.000	0.000	0.000	0.000	0.000	1382.58	
13	0.7209	1153.9	1174.3	0.609	5.120	70.642	19.305	3.878	0.130	0.283	0.017	0.017	0.000	0.000	0.000	0.000	0.000	1383.09	
14	0.7221	1155.5	1176.0	0.626	5.110	70.385	19.581	3.852	0.127	0.284	0.017	0.018	0.000	0.000	0.000	0.000	0.000	1383.89	
15	0.7326	1165.2	1185.9	0.696	5.398	68.837	20.277	4.277	0.146	0.328	0.019	0.021	0.000	0.000	0.000	0.000	0.000	1385.47	
16	0.7280	1160.1	1180.7	0.679	5.304	69.557	19.850	4.123	0.140	0.310	0.018	0.019	0.000	0.000	0.000	0.000	0.000	1383.72	
17	0.7259	1158.0	1178.5	0.673	5.248	69.880	19.681	4.043	0.137	0.302	0.017	0.018	0.000	0.000	0.000	0.000	0.000	1383.15	
18	0.7310	1161.7	1182.3	0.715	5.431	69.163	19.904	4.279	0.146	0.325	0.019	0.019	0.000	0.000	0.000	0.000	0.000	1382.83	
19	0.7384	1168.0	1188.6	0.748	5.692	68.018	20.435	4.555	0.157	0.354	0.020	0.021	0.000	0.000	0.000	0.000	0.000	1383.28	
20	0.7403	1172.1	1192.8	0.737	5.639	67.626	20.883	4.568	0.156	0.349	0.020	0.021	0.000	0.000	0.000	0.000	0.000	1386.34	
21	0.7302	1165.4	1186.0	0.660	5.215	69.113	20.397	4.127	0.140	0.311	0.018	0.019	0.000	0.000	0.000	0.000	0.000	1387.96	
22	0.7340	1165.8	1186.5	0.709	5.466	68.706	20.199	4.391	0.150	0.339	0.019	0.020	0.000	0.000	0.000	0.000	0.000	1384.91	
23	0.7311	1163.4	1184.0	0.668	5.409	69.049	20.142	4.224	0.144	0.327	0.019	0.019	0.000	0.000	0.000	0.000	0.000	1384.73	
24	0.7318	1164.7	1185.3	0.685	5.369	68.821	20.486	4.149	0.139	0.314	0.018	0.018	0.000	0.000	0.000	0.000	0.000	1385.59	
25	0.7336	1163.3	1183.9	0.721	5.571	68.703	20.161	4.307	0.151	0.345	0.020	0.020	0.000	0.000	0.000	0.000	0.000	1382.22	
26	0.7397	1169.7	1190.5	0.767	5.674	67.832	20.604	4.546	0.161	0.372	0.022	0.023	0.000	0.000	0.000	0.000	0.000	1384.20	
27	0.7415	1171.6	1192.4	0.769	5.726	67.606	20.642	4.660	0.167	0.384	0.022	0.023	0.000	0.000	0.000	0.000	0.000	1384.73	
28	0.7304	1159.0	1179.5	0.705	5.559	69.322	19.594	4.277	0.152	0.349	0.020	0.021	0.000	0.000	0.000	0.000	0.000	1380.07	
29	0.7194	1153.1	1173.5	0.600	5.040	70.739	19.508	3.676	0.124	0.279	0.016	0.017	0.000	0.000	0.000	0.000	0.000	1383.60	
Avg	0.7279	1160.0	1180.9	0.665	5.302	69.538	19.907	4.103	0.141	0.309	0.018	0.018	0.000	0.000	0.000	0.000	0.000	1384.10	

Zone 271

GQ Source Daily Summary

February 2016

Number: 063

Pressure Base: 14.730

Contract Day: 1

Name: CLEVELAND STATION-MAPLETON

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	
		Wet	Dry																	
1	0.7258	1157.1	1177.5	0.641	5.334	69.807	19.736	4.015	0.140	0.293	0.016	0.017	0.000						1382.24	
2	0.7267	1157.3	1177.8	0.652	5.395	69.726	19.643	4.105	0.144	0.301	0.017	0.017	0.000						1381.58	
3	0.7264	1159.2	1179.7	0.636	5.277	69.694	19.886	4.050	0.138	0.287	0.016	0.016	0.000						1384.13	
4	0.7261	1158.0	1178.5	0.639	5.315	69.758	19.780	4.043	0.140	0.292	0.016	0.017	0.000						1383.04	
5	0.7287	1160.7	1181.3	0.660	5.361	69.324	20.075	4.107	0.142	0.297	0.017	0.017	0.000						1383.81	
6	0.7258	1157.4	1177.9	0.638	5.320	69.780	19.796	4.006	0.139	0.290	0.016	0.016	0.000						1382.65	
7	0.7303	1163.8	1184.4	0.652	5.336	69.070	20.305	4.150	0.146	0.306	0.017	0.018	0.000						1385.93	
8	0.7177	1150.6	1171.0	0.566	5.093	70.971	19.268	3.689	0.124	0.259	0.014	0.015	0.000						1382.15	
9	0.7157	1147.8	1168.1	0.616	4.996	71.462	18.817	3.690	0.126	0.264	0.015	0.015	0.000						1380.72	
10	0.7238	1159.6	1180.1	0.653	4.979	70.140	19.861	3.925	0.133	0.278	0.016	0.016	0.000						1387.14	
11	0.7166	1150.2	1170.6	0.596	4.965	71.211	19.159	3.662	0.122	0.256	0.015	0.015	0.000						1382.78	
12	0.7128	1146.9	1167.2	0.581	4.828	71.771	18.958	3.483	0.113	0.239	0.014	0.014	0.000						1382.51	
13	0.7188	1151.1	1171.5	0.601	5.105	70.911	19.173	3.785	0.125	0.269	0.016	0.016	0.000						1381.81	
14	0.7193	1152.1	1172.5	0.607	5.081	70.831	19.276	3.775	0.125	0.272	0.016	0.017	0.000						1382.48	
15	0.7300	1162.1	1182.7	0.681	5.358	69.216	20.076	4.175	0.142	0.313	0.019	0.020	0.000						1384.31	
16	0.7292	1160.2	1180.8	0.686	5.398	69.365	19.882	4.176	0.142	0.313	0.019	0.020	0.000						1382.73	
17	0.7262	1158.2	1178.7	0.673	5.262	69.800	19.750	4.041	0.137	0.300	0.018	0.018	0.000						1383.13	
18	0.7295	1160.4	1180.9	0.706	5.383	69.339	19.888	4.194	0.142	0.311	0.018	0.019	0.000						1382.66	
19	0.7353	1163.9	1184.5	0.742	5.658	68.486	20.132	4.448	0.152	0.342	0.020	0.020	0.000						1381.37	
20	0.7408	1171.0	1191.7	0.752	5.729	67.559	20.805	4.604	0.158	0.352	0.020	0.021	0.000						1384.59	
21	0.7328	1166.6	1187.3	0.676	5.356	68.674	20.580	4.220	0.142	0.315	0.018	0.019	0.000						1387.00	
22	0.7304	1161.7	1182.3	0.691	5.407	69.245	19.883	4.266	0.146	0.324	0.019	0.020	0.000						1383.45	
23	0.7332	1165.2	1185.8	0.688	5.467	68.704	20.324	4.302	0.146	0.329	0.019	0.020	0.000						1384.85	
24	0.7204	1150.4	1170.8	0.618	5.272	70.668	19.163	3.831	0.128	0.285	0.017	0.017	0.000						1379.38	
25	0.7351	1165.6	1186.2	0.734	5.552	68.389	20.483	4.314	0.149	0.338	0.020	0.020	0.000						1383.53	
26	0.7353	1164.3	1185.0	0.738	5.636	68.463	20.227	4.385	0.155	0.354	0.021	0.021	0.000						1381.91	
27	0.7415	1171.2	1191.9	0.775	5.749	67.531	20.720	4.637	0.165	0.378	0.022	0.023	0.000						1384.18	
28	0.7350	1162.8	1183.4	0.741	5.698	68.625	19.917	4.450	0.159	0.365	0.022	0.022	0.000						1380.33	
29	0.7222	1154.3	1174.8	0.627	5.187	70.328	19.593	3.810	0.129	0.291	0.017	0.018	0.000						1382.39	
Avg	0.7273	1159.0	1179.5	0.664	5.327	69.615	19.833	4.081	0.140	0.304	0.018	0.018	0.000						1383.06	

Zone 272

GQ Source Daily Summary

February 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	0.7255	1156.8	1177.3	0.641	5.332	69.842	19.711	4.009	0.139	0.292	0.016	0.017	0.000	0.000	0.000	0.000	0.000	1382.11	
2	0.7267	1157.2	1177.7	0.652	5.398	69.726	19.645	4.102	0.144	0.300	0.017	0.017	0.000	0.000	0.000	0.000	0.000	1381.51	
3	0.7263	1159.0	1179.6	0.638	5.274	69.703	19.887	4.042	0.138	0.287	0.016	0.016	0.000	0.000	0.000	0.000	0.000	1384.04	
4	0.7262	1158.0	1178.5	0.639	5.320	69.755	19.773	4.049	0.140	0.291	0.016	0.016	0.000	0.000	0.000	0.000	0.000	1382.96	
5	0.7286	1160.4	1180.9	0.660	5.370	69.342	20.056	4.102	0.141	0.295	0.017	0.017	0.000	0.000	0.000	0.000	0.000	1383.50	
6	0.7257	1157.1	1177.6	0.639	5.327	69.792	19.785	3.997	0.139	0.289	0.016	0.016	0.000	0.000	0.000	0.000	0.000	1382.38	
7	0.7302	1163.5	1184.1	0.653	5.342	69.087	20.288	4.143	0.145	0.306	0.017	0.018	0.000	0.000	0.000	0.000	0.000	1385.66	
8	0.7176	1150.3	1170.7	0.565	5.091	70.999	19.254	3.679	0.124	0.259	0.015	0.015	0.000	0.000	0.000	0.000	0.000	1382.04	
9	0.7160	1148.1	1168.4	0.618	4.998	71.419	18.847	3.698	0.126	0.263	0.015	0.015	0.000	0.000	0.000	0.000	0.000	1380.84	
10	0.7238	1159.7	1180.2	0.654	4.973	70.132	19.875	3.923	0.133	0.277	0.016	0.016	0.000	0.000	0.000	0.000	0.000	1387.21	
11	0.7167	1150.3	1170.6	0.597	4.962	71.206	19.164	3.663	0.122	0.256	0.015	0.015	0.000	0.000	0.000	0.000	0.000	1382.82	
12	0.7125	1146.5	1166.8	0.581	4.827	71.816	18.925	3.474	0.112	0.238	0.014	0.014	0.000	0.000	0.000	0.000	0.000	1382.28	
13	0.7186	1150.9	1171.3	0.599	5.104	70.939	19.153	3.781	0.125	0.268	0.016	0.016	0.000	0.000	0.000	0.000	0.000	1381.72	
14	0.7191	1151.8	1172.2	0.607	5.078	70.864	19.254	3.768	0.125	0.272	0.016	0.017	0.000	0.000	0.000	0.000	0.000	1382.37	
15	0.7297	1161.7	1182.3	0.681	5.358	69.249	20.063	4.158	0.141	0.311	0.019	0.020	0.000	0.000	0.000	0.000	0.000	1384.07	
16	0.7290	1159.7	1180.3	0.686	5.407	69.402	19.843	4.168	0.142	0.313	0.019	0.020	0.000	0.000	0.000	0.000	0.000	1382.36	
17	0.7261	1158.0	1178.5	0.675	5.254	69.822	19.746	4.032	0.137	0.298	0.018	0.018	0.000	0.000	0.000	0.000	0.000	1383.10	
18	0.7294	1160.3	1180.8	0.705	5.381	69.352	19.884	4.190	0.141	0.310	0.018	0.019	0.000	0.000	0.000	0.000	0.000	1382.63	
19	0.7353	1164.1	1184.8	0.742	5.647	68.484	20.136	4.455	0.153	0.342	0.020	0.020	0.000	0.000	0.000	0.000	0.000	1381.63	
20	0.7405	1170.4	1191.1	0.751	5.738	67.600	20.770	4.591	0.157	0.352	0.020	0.021	0.000	0.000	0.000	0.000	0.000	1384.19	
21	0.7327	1166.5	1187.2	0.678	5.352	68.688	20.576	4.214	0.142	0.314	0.018	0.018	0.000	0.000	0.000	0.000	0.000	1386.94	
22	0.7303	1161.5	1182.0	0.690	5.413	69.264	19.862	4.262	0.146	0.324	0.019	0.019	0.000	0.000	0.000	0.000	0.000	1383.23	
23	0.7331	1165.0	1185.6	0.688	5.470	68.722	20.307	4.301	0.146	0.327	0.019	0.020	0.000	0.000	0.000	0.000	0.000	1384.71	
24	0.7201	1149.8	1170.2	0.617	5.285	70.707	19.125	3.821	0.127	0.284	0.017	0.017	0.000	0.000	0.000	0.000	0.000	1378.92	
25	0.7355	1166.0	1186.7	0.737	5.562	68.318	20.526	4.332	0.149	0.336	0.020	0.020	0.000	0.000	0.000	0.000	0.000	1383.66	
26	0.7356	1164.7	1185.4	0.739	5.640	68.410	20.265	4.397	0.155	0.352	0.021	0.021	0.000	0.000	0.000	0.000	0.000	1382.08	
27	0.7416	1171.2	1192.0	0.776	5.755	67.506	20.739	4.638	0.165	0.377	0.022	0.023	0.000	0.000	0.000	0.000	0.000	1384.11	
28	0.7349	1162.6	1183.2	0.741	5.705	68.623	19.921	4.444	0.159	0.364	0.022	0.022	0.000	0.000	0.000	0.000	0.000	1380.15	
29	0.7223	1154.3	1174.7	0.629	5.201	70.295	19.608	3.814	0.129	0.290	0.017	0.017	0.000	0.000	0.000	0.000	0.000	1382.19	
Avg	0.7272	1159.0	1179.3	0.665	5.330	69.623	19.827	4.077	0.139	0.303	0.018	0.018	0.000	0.000	0.000	0.000	0.000	1382.95	

*** End of Report***

Zone 223

GQ Source Daily Summary

February 2016

Number: 271

Pressure Base: 14.730

Contract Day: 1

Name: DICKINSON STN-BELFIELD TSF-GLENULLIN 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
		Wet	Dry																
1	0.6692	1108.4	1128.0	0.191	3.683	77.879	16.611	1.561	0.028	0.045	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1378.91
2	0.6770	1120.0	1139.9	0.204	3.682	76.613	17.577	1.838	0.032	0.051	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1385.37
3	0.6763	1118.1	1137.9	0.214	3.723	76.766	17.358	1.846	0.034	0.055	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1383.68
4	0.6765	1119.8	1139.6	0.194	3.671	76.646	17.607	1.798	0.032	0.050	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1385.54
5	0.6753	1118.7	1138.5	0.196	3.616	76.823	17.568	1.717	0.030	0.048	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1385.49
6	0.6727	1115.2	1134.9	0.173	3.627	77.277	17.172	1.675	0.029	0.045	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1383.70
7	0.6711	1111.9	1131.6	0.173	3.674	77.525	16.950	1.604	0.028	0.043	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1381.30
8	0.6646	1100.7	1120.2	0.284	3.572	79.180	15.143	1.697	0.045	0.074	0.003	0.003	0.000	0.000	0.000	0.000	0.000	0.000	1373.98
9	0.6896	1139.1	1159.3	0.444	3.331	75.323	18.134	2.542	0.077	0.134	0.008	0.006	0.000	0.000	0.000	0.000	0.000	0.000	1396.05
10	0.6849	1130.1	1150.1	0.316	3.638	75.766	17.790	2.326	0.057	0.098	0.005	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1389.69
11	0.6758	1119.2	1139.1	0.352	3.389	77.159	17.119	1.848	0.046	0.079	0.004	0.003	0.000	0.000	0.000	0.000	0.000	0.000	1385.64
12	0.6717	1111.2	1130.9	0.230	3.681	77.705	16.485	1.806	0.034	0.055	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1379.87
13	0.6743	1115.0	1134.7	0.213	3.726	77.164	16.977	1.824	0.035	0.057	0.003	0.002	0.000	0.000	0.000	0.000	0.000	0.000	1381.85
14	0.6727	1114.4	1134.1	0.169	3.675	77.298	17.090	1.687	0.030	0.048	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1382.80
15	0.6762	1119.3	1139.1	0.231	3.613	76.801	17.468	1.778	0.039	0.065	0.003	0.002	0.000	0.000	0.000	0.000	0.000	0.000	1385.23
16	0.6816	1127.7	1147.7	0.318	3.473	76.001	18.153	1.915	0.049	0.084	0.004	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1390.17
17	0.6818	1127.5	1147.5	0.300	3.528	75.900	18.239	1.909	0.044	0.074	0.003	0.003	0.000	0.000	0.000	0.000	0.000	0.000	1389.74
18	0.6732	1113.8	1133.5	0.157	3.782	77.044	17.350	1.597	0.027	0.043	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1381.52
19	0.6798	1124.7	1144.6	0.192	3.684	75.956	18.313	1.769	0.032	0.053	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1388.23
20	0.6842	1132.6	1152.7	0.297	3.452	75.470	18.710	1.936	0.047	0.081	0.004	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1393.53
21	0.6783	1123.4	1143.3	0.345	3.389	76.676	17.563	1.893	0.046	0.080	0.004	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1388.14
22	0.6729	1115.0	1134.8	0.178	3.650	77.213	17.234	1.644	0.030	0.049	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1383.29
23	0.6721	1113.1	1132.8	0.163	3.706	77.303	17.160	1.591	0.028	0.046	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1381.84
24	0.6695	1110.5	1130.2	0.165	3.619	77.750	16.896	1.494	0.029	0.045	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1381.26
25	0.6689	1110.6	1130.2	0.156	3.571	77.822	16.930	1.451	0.026	0.042	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1381.97
26	0.6756	1124.1	1144.0	0.113	3.443	76.463	18.408	1.514	0.023	0.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1391.85
27	0.6780	1127.8	1147.8	0.128	3.428	76.027	18.796	1.563	0.023	0.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1393.87
28	0.6773	1122.1	1142.0	0.219	3.561	76.426	18.023	1.686	0.031	0.050	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1387.64
29	0.6728	1112.7	1132.4	0.191	3.756	77.265	17.046	1.658	0.031	0.051	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1380.54
Avg	0.6756	1119.0	1138.7	0.224	3.598	76.870	17.444	1.764	0.036	0.059	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	1385.27

Zone 31

GQ Source Analysis

GQ Source Number:	1202160	Specific Gravity:	0.6978
GQ Source Name:	BOWMAN BORDER	Dry Heat Value:	1082.29
Effective Date:	2/1/2016 9:00:00 AM	Wet Heat Value:	1063.46
Effective End Date:	1/18/2038 9:14:07 PM	As Deliv. Heat Value:	1082.29
Pressure Base:	14.730	Sample Pressure:	456.00
Viscosity:		Sample Temperature:	

		<u>Mol %</u>	<u>Liquid Content</u>			<u>Mol %</u>
C1	Methane	73.115		CO2	Carbon Dioxide	1.159
C2	Ethane	15.766	0.0000	N2	Nitrogen	7.598
C3	Propane	2.024	0.5560	O2	Oxygen	0.025
IC4	Isobutane	0.073	0.0238	He	Helium	
NC4	n-Butane	0.199	0.0627	H2	Hydrogen	
IC5	Isopentane	0.011	0.0041	H2S	Hydrogen Sulfide	
NC5	n-Pentane	0.027	0.0098	Ar	Argon	
C6	Hexanes	0.003	0.0013	CO	Carbon Monoxide	
C7	Heptanes			H2	Water	
C8	Octanes			Neo-C5	Neopentane	
C9	Nonanes					
C10	Decanes					
Totals			100.000%	0.658 GPM		

Sample Date: 3/1/2016 12:00:00 AM
Sample Type: Composite
Sample Tech: ES
H2S: ppm

Sample Remarks:

Analysis Tech: MB

Analysis Remarks:

Zone 34

Feb-16

01325 Watford City West Border

ZONE 610

Effective 2-3-16

Watford City

01320

01312

Watford City Border

Watford City East Border

Weighted

Begin Date	End Date	BTU			BTU			AVG BTU	
		MCF	DK	Zone 25	MCF	DK	Zone 43		
2/1/2016	2/2/2016	652	790	1.213	280	306	1.093	1.177	2/1/2016
2/2/2016	2/3/2016	152	185	1.213	924	1004	1.087	1.105	2/2/2016
2/3/2016	2/4/2016	435	520	1.213	751	818	1.089	1.134	2/3/2016
2/4/2016	2/5/2016	407	487	1.213	597	651	1.090	1.140	2/4/2016
2/5/2016	2/6/2016	365	436	1.213	540	585	1.082	1.135	2/5/2016
2/6/2016	2/7/2016	359	429	1.213	529	572	1.082	1.135	2/6/2016
2/7/2016	2/8/2016	490	586	1.213	615	664	1.081	1.140	2/7/2016
2/8/2016	2/9/2016	402	480	1.213	599	649	1.084	1.136	2/8/2016
2/9/2016	2/10/2016	355	424	1.213	516	563	1.092	1.141	2/9/2016
2/10/2016	2/11/2016	410	490	1.213	570	625	1.095	1.144	2/10/2016
2/11/2016	2/12/2016	453	541	1.213	653	711	1.088	1.139	2/11/2016
2/12/2016	2/13/2016	557	665	1.213	749	817	1.092	1.144	2/12/2016
2/13/2016	2/14/2016	449	536	1.213	594	647	1.088	1.142	2/13/2016
2/14/2016	2/15/2016	331	395	1.213	510	558	1.092	1.140	2/14/2016
2/15/2016	2/16/2016	330	394	1.213	515	562	1.092	1.139	2/15/2016
2/16/2016	2/17/2016	326	390	1.213	485	531	1.095	1.142	2/16/2016
2/17/2016	2/18/2016	295	352	1.213	484	530	1.096	1.140	2/17/2016
2/18/2016	2/19/2016	326	389	1.213	487	534	1.097	1.144	2/18/2016
2/19/2016	2/20/2016	356	425	1.213	508	556	1.094	1.143	2/19/2016
2/20/2016	2/21/2016	319	381	1.213	513	561	1.094	1.140	2/20/2016
2/21/2016	2/22/2016	413	493	1.213	571	619	1.085	1.139	2/21/2016
2/22/2016	2/23/2016	334	399	1.213	533	578	1.083	1.133	2/22/2016
2/23/2016	2/24/2016	349	418	1.213	519	561	1.081	1.134	2/23/2016
2/24/2016	2/25/2016	448	535	1.213	559	612	1.095	1.147	2/24/2016
2/25/2016	2/26/2016	365	436	1.213	531	579	1.092	1.141	2/25/2016
2/26/2016	2/27/2016	224	267	1.213	388	422	1.088	1.134	2/26/2016
2/27/2016	2/28/2016	182	218	1.213	392	428	1.090	1.129	2/27/2016
2/28/2016	2/29/2016	320	382	1.213	430	475	1.105	1.151	2/28/2016
2/29/2016	3/1/2016	574	686	1.213	695	768	1.105	1.154	2/29/2016

10,978 13,129

16,037 17,486

1.0906

1.1401

ROW ID	LOCATION DESCRIPTION	GROSS HEATING VALUE (BTU/GF)	SPECIFIC GRAVITY	WOBBE (cal)	CRICONDENTHERM (deg F)	NITROGEN (mole percent)	CARBON DIOXIDE (mole percent)	METHANE (mole percent)	ETHANE (mole percent)	PROPANE (mole percent)	NORMAL BUTANE (mole percent)	ISO BUTANE (mole percent)	PENTANE (mole percent)	ISO PENTANE (mole percent)	NEO PENTANE (mole percent)	HEXANES PLUS (mole percent)	HYDROGEN (mole percent)	HELIUM (mole percent)	PRODUCTION DATE	POSTING DATE	ChangeTimestamp	NOTES
11587	GLEN ULLIN	1060.8	0.6109	1357.3	-72.8	1.2926	0.7998	89.3456	7.9502	0.4635	0.0155	0.0093	0	0	0	0	0.1049	0.0196	1/31/2016	2/1/2016	2/1/2016 2:38:23 PM	
11587	GLEN ULLIN	1061	0.6107	1357.7	-72.7	1.2619	0.7994	89.4071	7.9128	0.4729	0.0154	0.0096	0.0001	0.0003	0	0	0.103	0.0196	2/1/2016	2/2/2016	2/2/2016 2:38:13 PM	
11587	GLEN ULLIN	1059.4	0.6099	1356.6	-73.5	1.2937	0.7904	89.5555	7.7478	0.4638	0.0158	0.0098	0	0.0003	0	0	0.1048	0.0196	2/2/2016	2/3/2016	2/3/2016 2:37:39 PM	
11587	GLEN ULLIN	1059.9	0.6101	1356.9	-73.2	1.2774	0.797	89.5235	7.775	0.4755	0.0156	0.0099	0.0001	0.0004	0	0	0.1081	0.0196	2/3/2016	2/4/2016	2/4/2016 2:38:14 PM	
11587	GLEN ULLIN	1061	0.6109	1357.4	-72.9	1.2713	0.8079	89.3592	7.9824	0.453	0.0123	0.0083	0	0.0002	0	0	0.1066	0.0196	2/4/2016	2/5/2016	2/5/2016 2:40:01 PM	
11587	GLEN ULLIN	1060.5	0.6105	1357.3	-72.9	1.239	0.8226	89.3239	7.9521	0.4554	0.0127	0.0087	0.0001	0.0003	0	0	0.1681	0.0196	2/5/2016	2/6/2016	2/6/2016 2:38:18 PM	
11587	GLEN ULLIN	1056.5	0.6082	1354.7	-75.3	1.2761	0.8161	89.7426	7.548	0.4157	0.0112	0.0075	0	0.0002	0	0	0.1651	0.0196	2/6/2016	2/7/2016	2/7/2016 2:37:55 PM	
11587	GLEN ULLIN	1055.9	0.6077	1354.5	-75.2	1.2453	0.8264	89.9016	7.3736	0.45	0.0127	0.0087	0.0002	0.0005	0	0	0.1644	0.0196	2/7/2016	2/8/2016	2/8/2016 2:39:05 PM	
11587	GLEN ULLIN	1050.9	0.6043	1351.9	-78.6	1.2582	0.8064	90.5118	6.8324	0.3937	0.0105	0.0068	0	0	0	0	0.1618	0.0196	2/8/2016	2/9/2016	2/9/2016 2:38:19 PM	
11587	GLEN ULLIN	1050.1	0.604	1351.2	-78.3	1.2963	0.7919	90.626	6.6183	0.4581	0.0145	0.0091	0.0001	0.0002	0	0	0.1668	0.0196	2/9/2016	2/10/2016	2/10/2016 2:38:13 PM	
11587	GLEN ULLIN	1052.8	0.6058	1352.7	-74.8	1.299	0.7976	90.3276	6.8402	0.5038	0.0216	0.0154	0.0015	0.0021	0	0.0009	0.17	0.0196	2/10/2016	2/11/2016	2/11/2016 2:38:19 PM	
11587	GLEN ULLIN	1052.9	0.6063	1352.2	-76.5	1.3112	0.8144	90.1774	7.0344	0.4539	0.0141	0.0094	0.0002	0.0005	0	0	0.164	0.0196	2/11/2016	2/12/2016	2/12/2016 2:39:02 PM	
11587	GLEN ULLIN	1058.4	0.6095	1355.7	-73.8	1.2625	0.8303	89.6545	7.629	0.4686	0.0144	0.0097	0.0001	0.0003	0	0	0.1104	0.0196	2/12/2016	2/13/2016	2/13/2016 2:38:31 PM	
11587	GLEN ULLIN	1058	0.6092	1355.5	-73.9	1.2992	0.8054	89.6066	7.6239	0.4693	0.0145	0.0095	0.0001	0.0003	0	0	0.1531	0.0196	2/13/2016	2/14/2016	2/14/2016 2:38:52 PM	
11587	GLEN ULLIN	1055.2	0.6074	1353.9	-75.7	1.3109	0.7986	89.8312	7.4143	0.4179	0.013	0.0081	0	0	0	0	0.1879	0.0194	2/14/2016	2/15/2016	2/15/2016 2:37:52 PM	
11587	GLEN ULLIN	1053.6	0.6067	1352.7	-76.3	1.3421	0.7883	90.0566	7.1572	0.4477	0.014	0.0092	0	0	0	0	0.165	0.0198	2/15/2016	2/16/2016	2/16/2016 2:39:16 PM	
11587	GLEN ULLIN	1054.4	0.607	1353.4	-76	1.3091	0.7986	90.0349	7.2135	0.4507	0.0132	0.0086	0	0	0	0	0.1531	0.0197	2/16/2016	2/17/2016	2/17/2016 2:38:17 PM	
11587	GLEN ULLIN	1055.2	0.6074	1353.9	-75.8	1.2992	0.802	89.9356	7.3337	0.4374	0.0127	0.0084	0	0	0	0	0.1513	0.0197	2/17/2016	2/18/2016	2/18/2016 2:39:44 PM	
11587	GLEN ULLIN	1057.3	0.6092	1354.6	-74.4	1.3175	0.8196	89.5667	7.6574	0.4383	0.0125	0.0082	0	0	0	0	0.159	0.0197	2/18/2016	2/19/2016	2/19/2016 2:38:27 PM	
11587	GLEN ULLIN	1055.9	0.608	1354.2	-75.5	1.3077	0.8025	89.7862	7.4928	0.4142	0.0124	0.0079	0.0001	0.0001	0	0	0.1567	0.0198	2/19/2016	2/20/2016	2/20/2016 2:38:21 PM	
11587	GLEN ULLIN	1060.3	0.6098	1357.8	-58	1.1993	0.814	89.7607	7.3249	0.6018	0.046	0.0357	0.0062	0.0081	0	0.0038	0.1817	0.0177	2/20/2016	2/21/2016	2/21/2016 2:38:02 PM	
11587	GLEN ULLIN	1048.3	0.6026	1350.4	-79.7	1.2988	0.7755	90.8165	6.4799	0.4058	0.0146	0.0084	0.0004	0.0004	0	0	0.1814	0.0176	2/21/2016	2/22/2016	2/22/2016 2:37:15 PM	
11587	GLEN ULLIN	1048.3	0.6027	1350.3	-79.7	1.2903	0.7852	90.8289	6.465	0.4141	0.0132	0.008	0.0001	0.0001	0	0	0.1755	0.0193	2/22/2016	2/23/2016	2/23/2016 2:39:10 PM	
11587	GLEN ULLIN	1050.4	0.6042	1351.3	-78.4	1.3129	0.7843	90.5	6.7557	0.4229	0.0133	0.0084	0	0.0001	0	0	0.1827	0.026	2/23/2016	2/24/2016	2/24/2016 2:37:26 PM	
11587	GLEN ULLIN	1053.1	0.6059	1352.9	-77.1	1.2774	0.8048	90.1658	7.1244	0.4113	0.0113	0.0072	0	0	0	0	0.1789	0.0188	2/24/2016	2/25/2016	2/25/2016 2:39:00 PM	
11587	GLEN ULLIN	1054.9	0.608	1352.9	-75.2	1.3663	0.81	89.7336	7.4148	0.4405	0.0139	0.0094	0.0001	0.0004	0	0	0.1927	0.0202	2/25/2016	2/26/2016	2/26/2016 2:39:01 PM	
11587	GLEN ULLIN	1055	0.6086	1352.4	-74.8	1.3924	0.8191	89.6476	7.4512	0.4551	0.0144	0.0095	0.0002	0.0003	0	0	0.1918	0.0189	2/26/2016	2/27/2016	2/27/2016 2:38:34 PM	
11587	GLEN ULLIN	1054.5	0.6083	1352	-74.9	1.4158	0.8098	89.7151	7.3412	0.487	0.0135	0.0087	0	0.0001	0	0	0.1889	0.0194	2/27/2016	2/28/2016	2/28/2016 2:39:35 PM	
11587	GLEN ULLIN	1053.4	0.6072	1351.8	-75.8	1.3787	0.8066	89.9401	7.1743	0.4711	0.0137	0.0085	0	0	0	0	0.1873	0.02	2/28/2016	2/29/2016	2/29/2016 2:38:57 PM	
11587	GLEN ULLIN	1053.3	0.6066	1352.4	-76.2	1.3211	0.8139	90.0461	7.1251	0.4604	0.0127	0.0079	0	0	0	0	0.1955	0.0198	2/29/2016	3/1/2016	3/1/2016 2:39:13 PM	

30 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
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 16	JAN 16	DEC 15	NOV 15	OCT 15	SEPT 15	AUG 15	JULY 15	JUNE 15	MAY 15	APRIL 15	MAR 15	ZONE
MT/ND	211	Sidney Area	1201	1209	1207	1204	1195	1188	1193	1196	1199	1205	1202	1204	1205	211
ND	24	Williston Area	1185	1195	1195	1199	1183	1177	1166	1179	1185	1187	1206	1174	1171	24
ND	25	Watford City Border	1210	1213	1216	1216	1223	1216	1198	1198	1188	1207	1220	1212	1207	25
ND/MT	241	Fairview Area	1193	1201	1199	1199	1184	1182	1177	1188	1195	1195	1197	1198	1196	241
ND	261	Williston - Tioga - Minot Line	1028	1035	1052	1066	1047	1000	1042	1015	1028	1026	1006	1021	992	261
ND	262	Minot Area	1191	1190	1189	1188	1192	1198	1201	1201	1201	1185	1188	1188	1175	262
ND	263	Tioga - Portal	1102	1107	1092	1082	1112	1112	1104	1117	1121	1107	1090	1090	1084	263
ND	264	Williston - Ray	1173	1181	1183	1180	1178	1162	1154	1146	1170	1187	1189	1174	1171	264
ND	265	North Tioga Transfer - Portal	1187	1187	1190	1188	1189	1180	1188	1188	1191	1187	1187	1187	1183	265
ND	271	Bismarck - Cleveland	1188	1181	1172	1181	1192	1199	1203	1199	1201	1186	1189	1186	1171	271
ND	272	Cleveland - Mapleton	1187	1180	1171	1180	1191	1197	1202	1199	1200	1186	1188	1185	1169	272
ND	273	Cleveland - Grafton	1187	1179	1171	1180	1190	1197	1203	1199	1200	1185	1189	1182	1167	273
ND	28	Bismarck - Cabin Creek	1170	1142	1131	1137	1148	1196	1203	1200	1201	1186	1189	1170	1133	28
ND	31	Dickinson Area	1143	1139	1130	1136	1135	1161	1161	1145	1181	1127	1129	1136	1139	31
ND	311	Taylor Take-Off - Glen Ullin Comp	1156	0	0	0	1147	1179	1168	1158	1200	1168	1171	1096	1115	311
ND/MT	32	Cabin Creek - Dickinson	1140	1125	1117	1117	1111	1120	1176	1173	1181	1169	1165	1118	1110	32
ND	33	Killdeer	1184	1183	1182	1186	1185	1186	1186	1191	1185	1183	1183	1180	1179	33
ND	34	Bowman Area	1108	1082	1103	1121	1102	1084	1025	1133	1176	1121	1130	1123	1099	34
ND	610	MDU-Watford City BTU	1183	1140	1155	1174	1197	1211	1197	1197	1145	1175	1216	1202	1192	
ND	802	Linton	1061	1056	1060	1066	1073	1064	1055	1055	1057	1068	1064	1064	1054	802
ND	903	Hettinger Propane	2549	2549	2549	2549	2549	2549	2549	2549	2549	2549	2549	2549	2549	903

**THERMAL ZONE VARIANCE
DOCUMENTATION**

January 2016

<i>ZONE</i>	<i>BTU VARIANCE</i>	<i>REASON</i>
34	-21	Change in Supply