

January 16, 2015

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

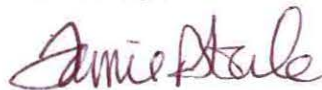
Re: Case No. 11,006 (Therm Billing)
Monthly Report – November 2014

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 the above-referenced docket, 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 December 2014.
2. Attachment B consists of copies of the monthly Heating Value Test Reports received from our suppliers for the month of November 2014.
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 November 2014.

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

Sincerely,



Tamie Aberle
Director of Regulatory Affairs

Montana-Dakota Utilities Co.
Therm Billing Factors - North Dakota
December 2014

Town	Heat Zone	Therm Factor
MDU-303-ALEXANDER	025	1.1325
MDU-308-ARNEGARD	025	1.1400
MDU-314-APPLE VALLEY	271	1.1183
MDU-318-BEACH	032	1.0258
MDU-319-BELFIELD	032	1.0333
MDU-323-BERTHOLD	262	1.1060
MDU-327-BISMARCK	028	1.0787
MDU-330-BOWMAN	034	1.0238
MDU-337-BURLINGTON	262	1.1299
MDU-343-CARRINGTON	273	1.1173
MDU-344-CLEVELAND	272	1.1085
MDU-364-CAVALIER	273	1.1409
MDU-365-DAWSON	271	1.1104
MDU-368-DES LACS	262	1.1140
MDU-369-DICKINSON	031	1.0549
MDU-374-FT TOTTEN	273	1.1252
MDU-375-DEVILS LAKE	273	1.1252
MDU-379-BARLOW	273	1.1173
MDU-384-EPPING	264	1.1164
MDU-387-ELDRIDGE	272	1.1164
MDU-407-GLADSTONE	031	1.0549
MDU-411-GLEN ULLIN	311	1.0588
MDU-413-GOLVA	032	1.0107
MDU-416-GARRISON	262	1.1140
MDU-417-GRAFTON	273	1.1488
MDU-429-HEBRON	311	1.0588
MDU-432-HETTINGER	903	2.3875
MDU-449-JAMESTOWN	272	1.1242
MDU-459-KILLDEER	033	1.1107
MDU-463-LANGDON	273	1.1173
MDU-469-LEFOR	031	1.0549
MDU-474-LIGNITE	263	1.0436
MDU-475-LINTON	802	1.0170
MDU-478-LINCOLN	028	1.0787
MDU-494-MEDINA	271	1.1104
MDU-498-MANDAN	028	1.0787
MDU-500-MARMARTH	034	1.0313
MDU-505-MINOT	262	1.1299
MDU-510-MOTT	031	1.0549
MDU-512-MAX	262	1.1299
MDU-522-NEW ENGLAND	031	1.0473
MDU-524-NEW SALEM	028	1.0787
MDU-532-NEW ROCKFORD	273	1.1173
MDU-539-PARK RIVER	273	1.1409
MDU-540-PALERMO	262	1.1060
MDU-558-RAY	264	1.1164
MDU-561-REGENT	031	1.0549
MDU-563-RHAME	034	1.0162
MDU-564-RICHARDTON	311	1.0436

MDU-568-ROSS	261	0.9921
MDU-572-RUTHVILLE	262	1.1299
MDU-574-SANBORN	272	1.1242
MDU-583-SENTINEL BUTTE	032	1.0258
MDU-588-SOUTH HEART	031	1.0473
MDU-717-SPIRITWOOD	272	1.1242
MDU-590-SPRINGBROOK	264	1.1164
MDU-591-STANLEY	261	0.9993
MDU-593-STEELE	271	1.1104
MDU-598-SHEYENNE	273	1.1252
MDU-605-SURREY	262	1.1299
MDU-610-TAPPEN	271	1.1104
MDU-611-TAYLOR	031	1.0743
MDU-616-TIOGA	261	0.9921
MDU-619-TURTLE LAKE	262	1.1140
MDU-620-TRENTON	024	1.1244
MDU-624-UNDERWOOD	262	1.1140
MDU-625-VALLEY CITY	272	1.1321
MDU-629-WALHALLA	273	1.1409
MDU-632-WATFORD CITY	610	1.1268
MDU-636-WHEELOCK	264	1.1084
MDU-637-WHITE EARTH	261	0.9993
MDU-642-WILLISTON	024	1.1244
MDU-646-WASHBURN	262	1.1219
MDU-647-WILTON	262	1.1060
MDU-664-RIVERDALE	262	1.1140
MDU-691-FAIRVIEW	241	1.1444
MDU-712-MINOT AFB	262	1.1299
MDU-718-FAIRMOUNT	600	1.1120
MDU-732-MSR SITE	273	1.1135

GQ Source Daily Summary

November 2014

Number: 372

Pressure Base: 14.730

Contract Day: 1

Name: NESSON PLANT-CHARBONNEAU STATION

Temperature Base:

Contract Hour: 9

Day	Relative Density	Heating Value Wet	Heating Value Dry	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.7045	1156.2	1176.7	0.807	3.141	72.853	20.431	2.430	0.092	0.209	0.017	0.020	0.000	0.000	0.000	0.000	0.000	1401.93	
2	0.7084	1163.0	1183.6	0.838	3.042	72.336	20.884	2.507	0.103	0.242	0.022	0.027	0.000	0.000	0.000	0.000	0.000	1406.34	
3	0.7048	1161.9	1182.5	0.848	2.763	72.561	21.356	2.163	0.085	0.189	0.016	0.019	0.000	0.000	0.000	0.000	0.000	1408.56	
4	0.7053	1159.6	1180.1	0.836	2.975	72.549	21.006	2.329	0.085	0.189	0.014	0.016	0.000	0.000	0.000	0.000	0.000	1405.15	
5	0.7094	1165.4	1186.0	0.852	2.977	72.077	21.243	2.469	0.099	0.235	0.021	0.027	0.000	0.000	0.000	0.000	0.000	1408.13	
6	0.7044	1157.3	1177.8	0.798	3.081	72.989	20.293	2.466	0.097	0.230	0.020	0.025	0.000	0.000	0.000	0.000	0.000	1403.31	
7	0.7017	1153.3	1173.8	0.799	3.068	73.470	19.875	2.430	0.094	0.221	0.019	0.024	0.000	0.000	0.000	0.000	0.000	1401.19	
8	0.7017	1153.3	1173.8	0.799	3.068	73.470	19.875	2.430	0.094	0.221	0.019	0.024	0.000	0.000	0.000	0.000	0.000	1401.19	
9	0.7017	1153.3	1173.8	0.799	3.068	73.470	19.875	2.430	0.094	0.221	0.019	0.024	0.000	0.000	0.000	0.000	0.000	1401.19	
10	0.7017	1153.3	1173.8	0.799	3.068	73.470	19.875	2.430	0.094	0.221	0.019	0.024	0.000	0.000	0.000	0.000	0.000	1401.19	
11	0.7143	1168.6	1189.3	0.822	3.286	71.440	21.226	2.793	0.109	0.267	0.025	0.032	0.000	0.000	0.000	0.000	0.000	1407.14	
12	0.7098	1159.1	1179.7	0.837	3.416	71.660	21.365	2.435	0.077	0.178	0.015	0.018	0.000	0.000	0.000	0.000	0.000	1400.25	
13	0.7093	1159.5	1180.0	0.802	3.407	71.884	21.041	2.551	0.084	0.195	0.016	0.019	0.000	0.000	0.000	0.000	0.000	1401.05	
14	0.7087	1165.4	1186.0	0.850	2.911	72.090	21.409	2.372	0.095	0.227	0.021	0.026	0.000	0.000	0.000	0.000	0.000	1408.89	
15	0.7089	1166.2	1186.8	0.868	2.861	71.888	21.825	2.195	0.092	0.222	0.021	0.027	0.000	0.000	0.000	0.000	0.000	1409.57	
16	0.7079	1164.5	1185.1	0.849	2.893	71.977	21.775	2.169	0.090	0.208	0.017	0.021	0.000	0.000	0.000	0.000	0.000	1408.60	
17	0.7072	1162.8	1183.4	0.864	2.909	72.119	21.615	2.160	0.087	0.204	0.018	0.023	0.000	0.000	0.000	0.000	0.000	1407.23	
18	0.7095	1166.7	1187.3	0.862	2.895	71.902	21.669	2.292	0.096	0.232	0.022	0.029	0.000	0.000	0.000	0.000	0.000	1409.58	
19	0.7083	1163.8	1184.4	0.828	3.002	72.155	21.255	2.403	0.092	0.219	0.020	0.025	0.000	0.000	0.000	0.000	0.000	1407.37	
20	0.7094	1166.1	1186.8	0.853	2.930	71.919	21.578	2.363	0.092	0.218	0.020	0.025	0.000	0.000	0.000	0.000	0.000	1409.04	
21	0.7088	1164.9	1185.5	0.842	2.963	72.143	21.194	2.505	0.094	0.215	0.019	0.023	0.000	0.000	0.000	0.000	0.000	1408.17	
22	0.7073	1163.8	1184.4	0.839	2.896	72.321	21.194	2.414	0.091	0.208	0.017	0.020	0.000	0.000	0.000	0.000	0.000	1408.34	
23	0.7101	1167.1	1187.8	0.846	2.946	71.842	21.600	2.380	0.099	0.238	0.022	0.027	0.000	0.000	0.000	0.000	0.000	1409.57	
24	0.7077	1164.5	1185.1	0.850	2.875	72.095	21.600	2.240	0.090	0.210	0.018	0.022	0.000	0.000	0.000	0.000	0.000	1408.79	
25	0.7067	1163.4	1184.0	0.871	2.819	72.351	21.381	2.222	0.092	0.218	0.020	0.025	0.000	0.000	0.000	0.000	0.000	1408.40	
26	0.7013	1159.7	1180.2	0.869	2.543	72.947	21.479	1.892	0.076	0.167	0.013	0.015	0.000	0.000	0.000	0.000	0.000	1409.33	
27	0.7054	1165.1	1185.7	0.872	2.592	72.433	21.702	2.059	0.093	0.212	0.017	0.020	0.000	0.000	0.000	0.000	0.000	1411.74	
28	0.7057	1160.8	1181.4	0.856	2.906	72.290	21.522	2.124	0.082	0.187	0.015	0.018	0.000	0.000	0.000	0.000	0.000	1406.28	
29	0.7038	1158.1	1178.6	0.833	2.925	72.707	21.082	2.130	0.086	0.200	0.016	0.019	0.000	0.000	0.000	0.000	0.000	1404.87	
30	0.7038	1158.1	1178.6	0.833	2.925	72.707	21.082	2.130	0.086	0.200	0.016	0.019	0.000	0.000	0.000	0.000	0.000	1404.87	
Avg	0.7066	1161.0	1182.1	0.837	2.972	72.404	21.110	2.330	0.091	0.213	0.018	0.023	0.000	0.000	0.000	0.000	0.000	1406.24	

Zone 24, 264

GQ Source Analysis

GQ Source Number:	0602160	Specific Gravity:	0.7308
GQ Source Name:	FAIRVIEW BORDER	Dry Heat Value:	1203.02
Effective Date:	11/1/2014 9:00:00 AM	Wet Heat Value:	1182.08
Effective End Date:	1/18/2038 9:14:07 PM	As Deliv. Heat Value:	1203.02
Pressure Base:	14.730	Sample Pressure:	364.00
Viscosity:		Sample Temperature:	

	<u>Mol %</u>	<u>Liquid Content</u>			<u>Mol %</u>	
C1	Methane	68.806		CO2	Carbon Dioxide	1.026
C2	Ethane	22.087	5.8893	N2	Nitrogen	3.656
C3	Propane	4.092	1.1241	O2	Oxygen	0.011
IC4	Isobutane	0.103	0.0337	He	Helium	
NC4	n-Butane	0.200	0.0628	H2	Hydrogen	
IC5	Isopentane	0.010	0.0038	H2S	Hydrogen Sulfide	
NC5	n-Pentane	0.009	0.0033	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%	7.117 GPM			

Sample Date: 12/1/2014 12:00:00 AM
Sample Type: Composite
Sample Tech: Rocky Robson
H2S: ppm

Sample Remarks:

Analysis Tech: MB

Analysis Remarks:

Zone 241

GQ Source Analysis

GQ Source Number:	0602230	Specific Gravity:	0.7169
GQ Source Name:	WATFORD CITY BORDER	Dry Heat Value:	1198.72
Effective Date:	11/1/2014 9:00:00 AM	Wet Heat Value:	1177.85
Effective End Date:	1/18/2038 9:14:07 PM	As Deliv. Heat Value:	1198.72
Pressure Base:	14.730	Sample Pressure:	1.00
Viscosity:		Sample Temperature:	

	<u>Mol %</u>	<u>Liquid Content</u>			<u>Mol %</u>	
C1	Methane	70.547		CO2	Carbon Dioxide	1.010
C2	Ethane	22.863	6.0962	N2	Nitrogen	2.647
C3	Propane	2.444	0.6713	O2	Oxygen	0.000
IC4	Isobutane	0.148	0.0484	He	Helium	
NC4	n-Butane	0.279	0.0877	H2	Hydrogen	
IC5	Isopentane	0.028	0.0103	H2S	Hydrogen Sulfide	
NC5	n-Pentane	0.031	0.0112	Ar	Argon	
C6	Hexanes	0.004	0.0000	CO	Carbon Monoxide	
C7	Heptanes			H2	Water	
C8	Octanes			Neo-C5	Neopentane	
C9	Nonanes					
C10	Decanes					
Totals		100.000%	6.925 GPM			

Sample Date: 12/1/2014 12:00:00 AM
Sample Type: Composite
Sample Tech: Eric S.
H2S: ppm

Sample Remarks:

Analysis Tech: MB

Analysis Remarks:

Zone 25

GQ Source Analysis

GQ Source Number:	2501030	Specific Gravity:	0.6541
GQ Source Name:	LIGNITE PLANT	Dry Heat Value:	1097.02
Effective Date:	11/1/2014 9:00:00 AM	Wet Heat Value:	1077.93
Effective End Date:	1/18/2038 9:14:07 PM	As Deliv. Heat Value:	1097.02
Pressure Base:	14.730	Sample Pressure:	370.00
Viscosity:		Sample Temperature:	

	<u>Mol %</u>	<u>Liquid Content</u>			<u>Mol %</u>	
C1	Methane	80.428		CO2	Carbon Dioxide	0.141
C2	Ethane	13.826	3.6866	N2	Nitrogen	4.150
C3	Propane	1.427	0.3921	O2	Oxygen	0.013
IC4	Isobutane	0.012	0.0038	He	Helium	
NC4	n-Butane	0.004	0.0011	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%	4.084 GPM			

Sample Date: 12/1/2014 12:00:00 AM
Sample Type: Composite
Sample Tech: Eric S.
H2S: ppm

Sample Remarks:

Analysis Tech: MB

Analysis Remarks:

Zone 263

*** End of Report ***

GQ Source Daily Summary

November 2014

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	0.7189	1138.8	1159.0	0.615	5.838	71.089	18.037	3.914	0.147	0.326	0.016	0.016	0.000					1366.95	
2	0.7198	1139.7	1159.8	0.623	5.858	70.907	18.194	3.913	0.148	0.325	0.016	0.016	0.000					1367.12	
3	0.7131	1136.8	1156.9	0.631	5.396	71.915	18.062	3.532	0.138	0.291	0.018	0.017	0.000					1370.03	
4	0.7075	1130.8	1150.8	0.580	5.313	72.662	17.758	3.263	0.121	0.269	0.016	0.016	0.000					1368.13	
5	0.7174	1136.9	1157.1	0.617	5.813	71.246	18.029	3.811	0.142	0.310	0.016	0.016	0.000					1366.07	
6	0.7162	1136.2	1156.3	0.604	5.759	71.664	17.509	3.978	0.143	0.311	0.016	0.016	0.000					1366.37	
7	0.7243	1144.6	1164.9	0.638	5.956	70.397	18.204	4.274	0.156	0.341	0.017	0.016	0.000					1368.76	
8	0.7184	1140.0	1160.2	0.606	5.737	71.307	17.802	4.044	0.148	0.323	0.016	0.016	0.000					1368.79	
9	0.7049	1127.1	1147.0	0.547	5.342	73.351	16.878	3.452	0.126	0.272	0.016	0.015	0.000					1366.24	
10	0.7018	1125.0	1144.9	0.550	5.178	73.862	16.663	3.331	0.122	0.263	0.016	0.015	0.000					1366.65	
11	0.7009	1129.6	1149.6	0.487	4.910	73.785	17.270	3.175	0.112	0.234	0.014	0.013	0.000					1373.14	
12	0.7078	1140.0	1160.2	0.496	4.910	72.550	18.337	3.328	0.115	0.236	0.014	0.013	0.000					1379.01	
13	0.7142	1153.4	1173.8	0.478	4.727	70.969	20.358	3.125	0.106	0.215	0.012	0.011	0.000					1388.97	
14	0.7144	1151.9	1172.3	0.500	4.801	71.068	20.045	3.237	0.108	0.217	0.013	0.012	0.000					1386.96	
15	0.7145	1150.9	1171.2	0.504	4.864	71.087	19.932	3.253	0.111	0.223	0.013	0.013	0.000					1385.66	
16	0.7171	1155.1	1175.6	0.508	4.846	70.606	20.385	3.293	0.108	0.225	0.015	0.014	0.000					1388.25	
17	0.7107	1145.2	1165.4	0.506	4.857	71.756	19.358	3.177	0.104	0.214	0.014	0.014	0.000					1382.41	
18	0.7029	1131.0	1151.1	0.516	4.963	73.428	17.498	3.244	0.107	0.217	0.014	0.014	0.000					1372.96	
19	0.7045	1133.0	1153.0	0.531	4.975	73.264	17.509	3.337	0.116	0.237	0.016	0.015	0.000					1373.71	
20	0.7018	1127.9	1147.9	0.517	5.045	73.716	17.072	3.281	0.113	0.228	0.014	0.013	0.000					1370.29	
21	0.7108	1136.0	1156.1	0.570	5.321	72.339	17.708	3.639	0.128	0.264	0.016	0.015	0.000					1371.31	
22	0.7163	1139.2	1159.4	0.602	5.594	71.499	17.970	3.883	0.136	0.284	0.016	0.016	0.000					1369.86	
23	0.7154	1137.7	1157.8	0.590	5.617	71.597	17.928	3.825	0.134	0.278	0.016	0.015	0.000					1368.93	
24	0.7074	1132.9	1153.0	0.535	5.243	72.852	17.450	3.519	0.123	0.250	0.015	0.014	0.000					1370.85	
25	0.7097	1136.3	1156.4	0.573	5.200	72.441	17.868	3.504	0.126	0.255	0.017	0.016	0.000					1372.64	
26	0.7106	1143.1	1163.3	0.579	4.858	72.123	18.734	3.291	0.119	0.258	0.019	0.019	0.000					1380.04	
27	0.6905	1119.4	1139.2	0.470	4.576	75.678	16.025	2.873	0.109	0.234	0.017	0.018	0.000					1370.98	
28	0.7102	1137.0	1157.1	0.584	5.179	72.495	17.755	3.526	0.134	0.290	0.019	0.019	0.000					1373.09	
29	0.7039	1130.1	1150.1	0.521	5.110	73.347	17.323	3.307	0.119	0.246	0.015	0.013	0.000					1370.79	
30	0.6963	1123.5	1143.4	0.478	4.868	74.564	16.670	3.067	0.109	0.220	0.013	0.011	0.000					1370.17	
Avg	0.7101	1137.0	1157.1	0.552	5.222	72.319	18.011	3.480	0.124	0.262	0.015	0.015	0.000					1373.17	

Zone 272

GQ Source Daily Summary

November 2014

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	0.6585	1093.7	1113.0	0.502	3.096	80.455	14.605	1.173	0.063	0.074	0.020	0.011	0.000	0.000	0.000	0.000	0.000	1371.67	
2	0.6643	1106.5	1126.1	0.569	2.764	79.399	15.951	1.138	0.069	0.073	0.024	0.013	0.000	0.000	0.000	0.000	0.000	1381.60	
3	0.6638	1111.8	1131.5	0.576	2.379	79.242	16.841	0.800	0.064	0.057	0.026	0.013	0.000	0.000	0.000	0.000	0.000	1388.75	
4	0.6519	1085.9	1105.2	0.314	3.231	81.389	13.817	1.139	0.044	0.047	0.012	0.007	0.000	0.000	0.000	0.000	0.000	1368.76	
5	0.6445	1073.4	1092.5	0.353	3.239	82.988	12.141	1.148	0.050	0.058	0.014	0.008	0.000	0.000	0.000	0.000	0.000	1360.76	
6	0.6503	1082.3	1101.5	0.351	3.247	81.983	12.971	1.302	0.054	0.070	0.014	0.008	0.000	0.000	0.000	0.000	0.000	1365.90	
7	0.6558	1079.9	1099.0	0.423	3.796	81.309	12.616	1.649	0.070	0.113	0.014	0.009	0.000	0.000	0.000	0.000	0.000	1357.43	
8	0.6601	1100.6	1120.1	0.327	3.090	79.782	15.518	1.169	0.045	0.050	0.012	0.007	0.000	0.000	0.000	0.000	0.000	1378.61	
9	0.6450	1076.6	1095.7	0.300	3.178	82.548	12.932	0.946	0.039	0.040	0.011	0.006	0.000	0.000	0.000	0.000	0.000	1364.21	
10	0.6512	1083.5	1102.7	0.328	3.290	81.498	13.643	1.135	0.040	0.049	0.010	0.006	0.000	0.000	0.000	0.000	0.000	1366.46	
11	0.6663	1108.7	1128.3	0.239	3.311	78.648	16.229	1.463	0.043	0.053	0.009	0.005	0.000	0.000	0.000	0.000	0.000	1382.34	
12	0.6714	1116.8	1136.6	0.226	3.317	77.747	16.995	1.585	0.048	0.066	0.010	0.006	0.000	0.000	0.000	0.000	0.000	1387.13	
13	0.6706	1115.0	1134.8	0.230	3.345	77.852	16.907	1.548	0.045	0.059	0.009	0.006	0.000	0.000	0.000	0.000	0.000	1385.74	
14	0.6700	1114.2	1133.9	0.221	3.354	77.863	16.976	1.482	0.040	0.051	0.008	0.005	0.000	0.000	0.000	0.000	0.000	1385.32	
15	0.6659	1106.6	1126.2	0.235	3.407	78.686	16.115	1.450	0.041	0.052	0.009	0.005	0.000	0.000	0.000	0.000	0.000	1380.13	
16	0.6661	1107.4	1127.0	0.232	3.384	78.660	16.139	1.481	0.040	0.049	0.009	0.005	0.000	0.000	0.000	0.000	0.000	1380.90	
17	0.6629	1101.9	1121.4	0.234	3.420	79.167	15.726	1.356	0.038	0.046	0.008	0.005	0.000	0.000	0.000	0.000	0.000	1377.34	
18	0.6612	1099.0	1118.4	0.241	3.423	79.551	15.320	1.364	0.040	0.049	0.009	0.005	0.000	0.000	0.000	0.000	0.000	1375.48	
19	0.6576	1094.0	1113.4	0.257	3.363	80.296	14.646	1.324	0.043	0.055	0.010	0.006	0.000	0.000	0.000	0.000	0.000	1373.00	
20	0.6597	1097.4	1116.8	0.263	3.347	79.884	15.061	1.339	0.042	0.050	0.010	0.005	0.000	0.000	0.000	0.000	0.000	1375.02	
21	0.6583	1095.3	1114.7	0.268	3.334	80.142	14.859	1.278	0.044	0.057	0.011	0.006	0.000	0.000	0.000	0.000	0.000	1373.88	
22	0.6616	1100.8	1120.3	0.307	3.253	79.551	15.482	1.283	0.047	0.057	0.013	0.007	0.000	0.000	0.000	0.000	0.000	1377.31	
23	0.6657	1108.6	1128.3	0.293	3.186	78.844	16.148	1.391	0.051	0.067	0.013	0.008	0.000	0.000	0.000	0.000	0.000	1382.77	
24	0.6603	1099.1	1118.5	0.267	3.293	79.823	15.160	1.332	0.047	0.061	0.011	0.007	0.000	0.000	0.000	0.000	0.000	1376.52	
25	0.6588	1097.7	1117.2	0.324	3.147	80.032	15.224	1.157	0.046	0.049	0.013	0.007	0.000	0.000	0.000	0.000	0.000	1376.42	
26	0.6610	1099.9	1119.4	0.245	3.347	79.581	15.397	1.320	0.042	0.052	0.010	0.006	0.000	0.000	0.000	0.000	0.000	1376.79	
27	0.6606	1099.8	1119.2	0.252	3.301	79.772	15.173	1.372	0.047	0.065	0.010	0.006	0.000	0.000	0.000	0.000	0.000	1377.07	
28	0.6607	1099.1	1118.6	0.345	3.216	79.836	15.134	1.328	0.052	0.072	0.012	0.007	0.000	0.000	0.000	0.000	0.000	1376.08	
29	0.6591	1097.6	1117.1	0.258	3.285	79.956	15.116	1.271	0.043	0.054	0.010	0.006	0.000	0.000	0.000	0.000	0.000	1375.91	
30	0.6603	1096.9	1116.3	0.335	3.322	79.890	14.968	1.359	0.047	0.062	0.010	0.006	0.000	0.000	0.000	0.000	0.000	1373.78	
Avg	0.6601	1098.0	1117.8	0.311	3.256	79.879	15.127	1.303	0.047	0.059	0.012	0.007	0.000	0.000	0.000	0.000	0.000	1375.77	

Zone 28

GQ Source Analysis

GQ Source Number:	0202080	Specific Gravity:	0.6618
GQ Source Name:	RICHARDTON-GLEN ULLIN COMPRE	Dry Heat Value:	1121.33
Effective Date:	11/1/2014 9:00:00 AM	Wet Heat Value:	1101.81
Effective End Date:	1/18/2038 9:14:00 PM	As Deliv. Heat Value:	1121.33
Pressure Base:	14.730	Sample Pressure:	336.00
Viscosity:		Sample Temperature:	0.00

		<u>Mol %</u>	<u>Liquid Content</u>			<u>Mol %</u>
C1	Methane	79.444		CO2	Carbon Dioxide	0.294
C2	Ethane	15.639	4.1700	N2	Nitrogen	3.228
C3	Propane	1.267	0.3480	O2	Oxygen	
IC4	Isobutane	0.043	0.0140	He	Helium	
NC4	n-Butane	0.050	0.0160	H2	Hydrogen	
IC5	Isopentane	0.011	0.0040	H2S	Hydrogen Sulfide	
NC5	n-Pentane	0.006	0.0020	Ar	Argon	
C6	Hexanes	0.018	0.0070	CO	Carbon Monoxide	
C7	Heptanes			H2	Water	
C8	Octanes			Neo-C5	Neopentane	0.000
C9	Nonanes					
C10	Decanes					
Totals		100.000%		4.561 GPM		

Sample Date: 5/1/2014 10:29:00 AM
Sample Type: Composite
Sample Tech: RR
H2S: ppm

Sample Remarks:

Analysis Tech: MB

Analysis Remarks:

Zone 311

GQ Source Daily Summary

November 2014

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	Heating Value															
				CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.6496	1076.3	1095.4	0.109	3.915	81.897	12.368	1.601	0.039	0.065	0.004	0.003	0.000	0.000	0.000	0.000	0.000	0.000	1358.99
2	0.6503	1077.7	1096.8	0.104	3.902	81.613	12.784	1.513	0.031	0.048	0.003	0.002	0.000	0.000	0.000	0.000	0.000	0.000	1360.08
3	0.6385	1059.8	1078.6	0.116	3.860	83.818	10.822	1.317	0.027	0.037	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1349.87
4	0.6454	1070.9	1089.8	0.132	3.811	82.799	11.565	1.576	0.041	0.069	0.004	0.003	0.000	0.000	0.000	0.000	0.000	0.000	1356.57
5	0.6329	1050.5	1069.1	0.144	3.864	84.984	9.648	1.268	0.033	0.053	0.003	0.002	0.000	0.000	0.000	0.000	0.000	0.000	1343.76
6	0.6502	1077.7	1096.8	0.142	3.836	81.792	12.525	1.605	0.037	0.057	0.003	0.002	0.000	0.000	0.000	0.000	0.000	0.000	1360.05
7	0.6553	1085.4	1104.6	0.134	3.858	80.767	13.507	1.640	0.035	0.054	0.003	0.002	0.000	0.000	0.000	0.000	0.000	0.000	1364.53
8	0.6377	1057.5	1076.3	0.177	3.832	84.105	10.462	1.342	0.031	0.047	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	1347.77
9	0.6513	1078.6	1097.7	0.178	3.825	81.567	12.780	1.551	0.035	0.057	0.003	0.002	0.000	0.000	0.000	0.000	0.000	0.000	1360.07
10	0.6675	1106.5	1126.1	0.097	3.776	78.434	15.772	1.827	0.035	0.055	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	1378.35
11	0.6746	1118.0	1137.8	0.096	3.747	77.203	16.847	1.981	0.044	0.075	0.004	0.003	0.000	0.000	0.000	0.000	0.000	0.000	1385.27
12	0.6733	1116.0	1135.7	0.099	3.745	77.329	16.845	1.874	0.039	0.063	0.003	0.003	0.000	0.000	0.000	0.000	0.000	0.000	1384.09
13	0.6717	1113.2	1132.9	0.100	3.738	77.550	16.726	1.787	0.034	0.053	0.003	0.002	0.000	0.000	0.000	0.000	0.000	0.000	1382.34
14	0.6664	1104.0	1123.6	0.108	3.747	78.586	15.724	1.718	0.033	0.053	0.003	0.002	0.000	0.000	0.000	0.000	0.000	0.000	1376.32
15	0.6669	1105.1	1124.6	0.108	3.747	78.532	15.729	1.779	0.032	0.050	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	1377.15
16	0.6631	1098.3	1117.8	0.110	3.747	79.180	15.209	1.634	0.031	0.047	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	1372.62
17	0.6608	1094.5	1113.9	0.111	3.747	79.658	14.715	1.635	0.032	0.049	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	1370.22
18	0.6574	1089.9	1109.2	0.111	3.818	80.340	13.976	1.654	0.036	0.057	0.003	0.002	0.000	0.000	0.000	0.000	0.000	0.000	1367.96
19	0.6579	1089.9	1109.2	0.112	3.859	80.149	14.209	1.586	0.032	0.049	0.003	0.002	0.000	0.000	0.000	0.000	0.000	0.000	1367.57
20	0.6618	1095.7	1115.1	0.117	3.868	79.506	14.711	1.686	0.039	0.065	0.004	0.003	0.000	0.000	0.000	0.000	0.000	0.000	1370.72
21	0.6677	1105.5	1125.1	0.095	3.862	78.555	15.428	1.926	0.046	0.080	0.004	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1376.82
22	0.6647	1100.8	1120.3	0.080	3.884	79.073	14.984	1.858	0.043	0.072	0.003	0.003	0.000	0.000	0.000	0.000	0.000	0.000	1374.08
23	0.6576	1089.6	1108.9	0.099	3.873	80.258	14.041	1.630	0.036	0.058	0.003	0.002	0.000	0.000	0.000	0.000	0.000	0.000	1367.44
24	0.6583	1090.9	1110.2	0.090	3.875	80.128	14.147	1.673	0.033	0.050	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	1368.29
25	0.6597	1093.0	1112.3	0.104	3.856	79.931	14.303	1.695	0.039	0.064	0.004	0.003	0.000	0.000	0.000	0.000	0.000	0.000	1369.49
26	0.6599	1093.9	1113.2	0.156	3.739	80.025	14.240	1.707	0.045	0.078	0.005	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1370.41
27	0.6577	1089.7	1109.0	0.195	3.730	80.351	14.024	1.585	0.041	0.066	0.004	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1367.45
28	0.6580	1090.6	1109.9	0.111	3.828	80.243	14.063	1.647	0.038	0.062	0.004	0.003	0.000	0.000	0.000	0.000	0.000	0.000	1368.28
29	0.6590	1092.5	1111.8	0.160	3.736	80.125	14.204	1.656	0.042	0.068	0.004	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1369.59
30	0.6630	1097.9	1117.3	0.176	3.762	79.304	14.977	1.682	0.036	0.056	0.004	0.003	0.000	0.000	0.000	0.000	0.000	0.000	1372.18
Avg	0.6579	1090.0	1109.6	0.122	3.813	80.260	14.045	1.654	0.036	0.059	0.003	0.003	0.000	0.000	0.000	0.000	0.000	0.000	1367.94

Zone 32

GQ Source Analysis

GQ Source Number:	1202160	Specific Gravity:	0.7437
GQ Source Name:	BOWMAN BORDER	Dry Heat Value:	1116.46
Effective Date:	11/1/2014 9:00:00 AM	Wet Heat Value:	1097.03
Effective End Date:	1/18/2038 9:14:07 PM	As Deliv. Heat Value:	1116.46
Pressure Base:	14.730	Sample Pressure:	
Viscosity:		Sample Temperature:	

	<u>Mol %</u>	<u>Liquid Content</u>		<u>Mol %</u>	
C1	Methane	64.542	CO2	Carbon Dioxide	1.500
C2	Ethane	21.739	N2	Nitrogen	9.397
C3	Propane	2.493	O2	Oxygen	
IC4	Isobutane	0.074	He	Hellum	
NC4	n-Butane	0.212	H2	Hydrogen	
IC5	Isopentane	0.010	H2S	Hydrogen Sulfide	
NC5	n-Pentane	0.027	Ar	Argon	
C6	Hexanes	0.006	CO	Carbon Monoxide	
C7	Heptanes		H2	Water	
C8	Octanes		Neo-C5	Neopentane	
C9	Nonanes				
C10	Decanes				

Totals 100.000% 6.589 GPM

Sample Date: 4/1/2014 1:01:00 PM
Sample Type: Composite
Sample Tech: MIKE GENTILINI
H2S: ppm

Sample Remarks:

Analysis Tech: MIKE GENTILINI

Analysis Remarks:

Zone 34

Nov-14

ZONE 610

Watford City
01320
Watford City Border

01312
Watford City East Border

Weighted

Begin Date	End Date	MCF		DK	BTU Zone 25	MCF		DK	BTU Zone 43	AVG BTU	
		MCF	DK			MCF	DK				
11/1/2014	11/2/2014		380	455	1.199	372	439		1.181	1.190	11/1/2014
11/2/2014	11/3/2014		363	435	1.199	287	340		1.185	1.193	11/2/2014
11/3/2014	11/4/2014		469	562	1.199	472	560		1.187	1.193	11/3/2014
11/4/2014	11/5/2014		399	479	1.199	412	486		1.180	1.189	11/4/2014
11/5/2014	11/6/2014		474	568	1.199	950	1126		1.178	1.185	11/5/2014
11/6/2014	11/7/2014		313	376	1.199	299	355		1.188	1.194	11/6/2014
11/7/2014	11/8/2014		458	549	1.199	259	305		1.181	1.192	11/7/2014
11/8/2014	11/9/2014		488	585	1.199	375	444		1.184	1.192	11/8/2014
11/9/2014	11/10/2014		643	771	1.199	207	245		1.183	1.195	11/9/2014
11/10/2014	11/11/2014		875	1049	1.199	30	36		1.181	1.198	11/10/2014
11/11/2014	11/12/2014		941	1127	1.199	0	0		1.184	1.199	11/11/2014
11/12/2014	11/13/2014		776	930	1.199	257	304		1.183	1.195	11/12/2014
11/13/2014	11/14/2014		788	945	1.199	508	604		1.188	1.195	11/13/2014
11/14/2014	11/15/2014		797	956	1.199	767	913		1.190	1.195	11/14/2014
11/15/2014	11/16/2014		838	1005	1.199	781	922		1.181	1.190	11/15/2014
11/16/2014	11/17/2014		834	999	1.199	720	851		1.183	1.192	11/16/2014
11/17/2014	11/18/2014		838	1005	1.199	792	935		1.181	1.190	11/17/2014
11/18/2014	11/19/2014		733	879	1.199	649	765		1.179	1.190	11/18/2014
11/19/2014	11/20/2014		734	880	1.199	624	735		1.178	1.189	11/19/2014
11/20/2014	11/21/2014		670	803	1.199	419	495		1.181	1.192	11/20/2014
11/21/2014	11/22/2014		506	606	1.199	296	351		1.184	1.193	11/21/2014
11/22/2014	11/23/2014		502	601	1.199	290	344		1.185	1.194	11/22/2014
11/23/2014	11/24/2014		702	842	1.199	296	351		1.185	1.195	11/23/2014
11/24/2014	11/25/2014		623	747	1.199	376	446		1.185	1.194	11/24/2014
11/25/2014	11/26/2014		632	757	1.199	455	538		1.182	1.192	11/25/2014
11/26/2014	11/27/2014		720	863	1.199	466	555		1.192	1.196	11/26/2014
11/27/2014	11/28/2014		687	824	1.199	330	391		1.186	1.195	11/27/2014
11/28/2014	11/29/2014		651	780	1.199	345	412		1.191	1.196	11/28/2014
11/29/2014	11/30/2014		836	1003	1.199	583	694		1.190	1.195	11/29/2014
11/30/2014	12/1/2014		868	1040	1.199	483	570		1.180	1.192	11/30/2014
		19,538	23,421			13,100	15,512		1.1839	1.1930	

ROW ID	LOCATION DESCRIPTION	GROSS HEATING VALUE (BTU/GCF)	SPECIFIC GRAVITY	WOBBE (100)	CHICKENENTHERM (deg F)	NITROGEN (moic percent)	CARBON DIOXIDE (moic percent)	METHANE (moic percent)	ETHANE (moic percent)	PROPANE (moic percent)	NORMAL BUTANE (moic percent)	ISO BUTANE (moic percent)	PENTANE (moic percent)	ISO PENTANE (moic percent)	NEO PENTANE (moic percent)	HEXANES PLUS (moic percent)	HYDROGEN (moic percent)	HELIUM (moic percent)	PRODUCTION DATE	POSTING DATE	Change(timestamp)	NOTES
11587	GLENN ULLIN	1057.3	0.809	1354.8	-69.1	1.2602	0.8773	90.0083	7.2272	0.5113	0.0338	0.0234	0.0033	0.0046	0	0.8015	0.6892	0.016	11/16/2014	11/16/2014	11/16/2014 2:18:29 PM	
11587	GLENN ULLIN	1052.5	0.8077	1352.4	-74.4	1.1816	0.8811	90.4539	6.8438	0.4225	0.0273	0.0164	0.0027	0.0038	0	0.8011	0.1481	0.016	11/16/2014	11/16/2014	11/16/2014 2:18:11 PM	
11587	GLENN ULLIN	1056.7	0.8084	1354.8	-63.3	1.1879	0.8791	90.0208	7.1512	0.5136	0.0385	0.0269	0.0040	0.0057	0	0.8024	0.1602	0.016	11/16/2014	11/16/2014	11/16/2014 2:17:28 PM	
11587	GLENN ULLIN	1056.3	0.8071	1355.8	-64.4	1.1455	0.8412	90.2361	7.0173	0.5024	0.0361	0.0262	0.0042	0.0056	0	0.8027	0.1487	0.016	11/16/2014	11/16/2014	11/16/2014 2:18:07 PM	
11587	GLENN ULLIN	1053.2	0.8057	1355.3	-72	1.1621	0.8621	90.5248	6.8332	0.4319	0.0285	0.0204	0.0028	0.004	0	0.8016	0.1137	0.016	11/16/2014	11/16/2014	11/16/2014 2:17:53 PM	
11587	GLENN ULLIN	1053.4	0.8058	1353.4	-72	1.1621	0.8621	90.5248	6.8332	0.4319	0.0285	0.0204	0.0028	0.004	0	0.8016	0.1137	0.016	11/16/2014	11/16/2014	11/16/2014 2:18:24 PM	
11587	GLENN ULLIN	1053.4	0.8058	1353.4	-68.9	1.2056	0.8334	90.4566	6.8036	0.4674	0.0238	0.0246	0.0035	0.005	0	0.8019	0.1533	0.016	11/16/2014	11/16/2014	11/16/2014 2:17:58 PM	
11587	GLENN ULLIN	1053.4	0.8059	1354.7	-63.6	1.2102	0.8221	90.2603	6.9934	0.4722	0.0368	0.0279	0.0046	0.0064	0	0.8003	0.1429	0.016	11/16/2014	11/16/2014	11/16/2014 2:18:11 PM	
11587	GLENN ULLIN	1054	0.8061	1351.9	-69.2	1.2025	0.8308	90.3225	6.9477	0.4412	0.0316	0.0231	0.0034	0.0048	0	0.8002	0.1714	0.016	11/16/2014	11/16/2014	11/16/2014 2:18:24 PM	
11587	GLENN ULLIN	1054.6	0.807	1351.6	-67.8	1.2279	0.8516	90.1876	7.0238	0.4631	0.0331	0.0247	0.0036	0.0052	0	0.8022	0.1744	0.016	11/16/2014	11/16/2014	11/16/2014 2:18:25 PM	
11587	GLENN ULLIN	1052.6	0.8055	1352.7	-63.8	1.2212	0.8359	90.4566	6.7822	0.4335	0.035	0.0276	0.0038	0.0065	0	0.8033	0.1774	0.016	11/16/2014	11/16/2014	11/16/2014 2:17:58 PM	
11587	GLENN ULLIN	1052.3	0.8054	1352.8	-63.8	1.2206	0.8341	90.4639	6.7749	0.4333	0.035	0.0276	0.0038	0.0065	0	0.8033	0.1774	0.016	11/16/2014	11/16/2014	11/16/2014 2:18:04 PM	
11587	GLENN ULLIN	1052	0.8016	1354	-64.2	1.0981	0.8242	90.8354	6.5857	0.3977	0.0219	0.0275	0.0046	0.0066	0	0.8033	0.1678	0.016	11/16/2014	11/16/2014	11/16/2014 2:18:26 PM	
11587	GLENN ULLIN	1051.6	0.8048	1352.2	-63.1	1.1764	0.8656	90.6133	6.6999	0.4198	0.0314	0.0255	0.0041	0.0059	0	0.8003	0.1699	0.016	11/16/2014	11/16/2014	11/16/2014 2:18:55 PM	
11587	GLENN ULLIN	1050.2	0.8031	1352.3	-67.7	1.1492	0.8334	90.8949	6.4824	0.3935	0.0289	0.0235	0.0036	0.0053	0	0.8004	0.1686	0.016	11/16/2014	11/16/2014	11/16/2014 2:18:19 PM	
11587	GLENN ULLIN	1051.4	0.8033	1353.6	-60.5	1.0929	0.8348	90.9432	6.4185	0.4274	0.0274	0.0269	0.0056	0.0078	0	0.8004	0.1641	0.016	11/16/2014	11/16/2014	11/16/2014 2:18:23 PM	
11587	GLENN ULLIN	1052.8	0.8052	1353.4	-64.9	1.1245	0.8375	90.5653	6.7704	0.4179	0.0266	0.0262	0.004	0.0061	0	0.8003	0.1616	0.016	11/16/2014	11/16/2014	11/16/2014 2:18:27 PM	
11587	GLENN ULLIN	1051.5	0.8046	1352.3	-66.4	1.1262	0.8462	90.6539	6.6928	0.3903	0.0301	0.0244	0.0036	0.0055	0	0.80028	0.1702	0.016	11/16/2014	11/16/2014	11/16/2014 2:18:12 PM	
11587	GLENN ULLIN	1051.4	0.8043	1352.5	-65.3	1.1189	0.8404	90.7371	6.6809	0.4125	0.0322	0.0258	0.0038	0.0058	0	0.8003	0.1732	0.016	11/16/2014	11/16/2014	11/16/2014 2:18:07 PM	
11587	GLENN ULLIN	1053	0.8058	1352.9	-61.6	1.1572	0.8377	90.485	6.7523	0.4491	0.0278	0.0298	0.005	0.007	0	0.80036	0.1778	0.016	11/16/2014	11/16/2014	11/16/2014 2:17:54 PM	
11587	GLENN ULLIN	1060.7	0.8105	1357.5	-43.6	1.1198	0.8966	89.8717	7.1308	0.4623	0.043	0.0514	0.0098	0.0132	0	0.80092	0.1782	0.016	11/16/2014	11/16/2014	11/16/2014 2:18:06 PM	
11587	GLENN ULLIN	1051	0.8048	1351.4	-75.7	1.1972	0.8719	90.5228	6.7944	0.381	0.0243	0.0177	0.0025	0.0034	0	0.8001	0.1788	0.016	11/16/2014	11/16/2014	11/16/2014 2:18:25 PM	
11587	GLENN ULLIN	1053	0.8056	1353.1	-61.7	1.2142	0.8338	90.478	6.7634	0.4445	0.0318	0.0288	0.0051	0.0068	0	0.80035	0.1685	0.016	11/16/2014	11/16/2014	11/16/2014 2:18:13 PM	
11587	GLENN ULLIN	1056.5	0.8077	1353.2	-59.7	1.1959	0.8360	90.1051	7.0035	0.5098	0.0416	0.0315	0.0055	0.0075	0	0.80039	0.1837	0.016	11/16/2014	11/16/2014	11/16/2014 2:18:00 PM	
11587	GLENN ULLIN	1052.6	0.8048	1353.5	-63.4	1.14	0.8479	90.6286	6.6294	0.4741	0.0351	0.0274	0.0045	0.0063	0	0.80033	0.1928	0.016	11/16/2014	11/16/2014	11/16/2014 2:18:18 PM	
11587	GLENN ULLIN	1051.9	0.8045	1353	-64.8	1.1414	0.857	90.6797	6.6669	0.4476	0.0268	0.0258	0.0042	0.0059	0	0.8003	0.1813	0.016	11/16/2014	11/16/2014	11/16/2014 2:18:26 PM	
11587	GLENN ULLIN	1056.2	0.8072	1355.5	-58.8	1.1473	0.8478	90.2616	6.9551	0.5033	0.0437	0.0345	0.0087	0.0087	0	0.80046	0.1794	0.016	11/16/2014	11/16/2014	11/16/2014 2:18:10 PM	
11587	GLENN ULLIN	1054	0.8039	1354	-58.7	1.171	0.8386	90.4668	6.7518	0.4817	0.0493	0.0326	0.0081	0.0081	0	0.80041	0.1836	0.016	11/16/2014	11/16/2014	11/16/2014 2:18:34 PM	
11587	GLENN ULLIN	1055.6	0.8076	1354.2	-58	1.1944	0.8692	90.1715	6.9541	0.5179	0.0435	0.0326	0.0082	0.0083	0	0.80041	0.1835	0.016	11/16/2014	11/16/2014	11/16/2014 2:18:25 PM	
11587	GLENN ULLIN	1057.2	0.8084	1355.3	-57.2	1.1828	0.8444	90.0814	6.9807	0.5328	0.0465	0.0353	0.0086	0.0086	0	0.80042	0.183	0.016	11/16/2014	11/16/2014	11/16/2014 2:18:35 PM	

30 records() retrieved

Zone 802

NORTH DAKOTA HEATING VALUE ZONES		
ZONES	MEASURING DEVICE	LOCATION
211	Chromatograph	Sidney Area
24	Chromatograph	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	Chromatograph	Williston – Ray
271	Chromatograph	Bismarck – Cleveland
272	Chromatograph	Cleveland – Mapleton
273	Chromatograph	Cleveland – Grafton
28	Chromatograph	Bismarck
31	Chromatograph	Dickinson
311	Monthly Sampler	Taylor Take-Off – Glen Ullin Comp
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
 12 MONTH ACCUMULATIVE AT 14.73 psia, 60 f. DRY

STATE	ZONE	ZONE BOUNDARY	12 MONTH AVERAGE	NOV 14	OCT 14	SEPT 14	AUG 14	JULY 14	JUNE 14	MAY 14	APR 14	MAR 14	FEB 14	JAN 14	DEC 13	ZONE
MT/ND	211	Sidney Area	1207	1215	1211	1204	1209	1212	1207	1212	1198	1204	1205	1208	1204	211
ND	24	Williston Area	1186	1182	1190	1189	1186	1184	1183	1180	1177	1181	1177	1201	1201	24
ND	25	Wattford City Border	1214	1199	1207	1217	1205	1219	1226	1241	1221	1220	1205	1218	1191	25
ND/MT	241	Fairview Area	1201	1203	1197	1205	1201	1208	1202	1204	1194	1197	1197	1203	1197	241
ND	261	Williston - Tioga - Minot Line	1115	1058	1021	1027	1013	1094	1115	1118	1181	1187	1185	1189	1193	261
ND	262	Minot Area	1175	1171	1155	1150	1149	1154	1166	1161	1196	1201	1200	1201	1201	262
ND	263	Tioga - Portal	1078	1097	1103	1103	1089	1098	1078	1062	1074	1058	1051	1063	1061	263
ND	264	Williston - Ray	1186	1182	1190	1189	1186	1184	1183	1180	1177	1181	1177	1201	1201	264
ND	271	Bismarck - Cleveland	1155	1159	1155	1147	1148	1152	1164	1162	1192	1159	1127	1144	1145	271
ND	272	Cleveland - Mapleton	1154	1157	1154	1146	1148	1151	1163	1162	1192	1158	1127	1144	1145	272
ND	273	Cleveland - Grafton	1154	1158	1154	1146	1148	1151	1163	1162	1190	1158	1127	1144	1145	273
ND	28	Bismarck - Cabin Creek	1123	1118	1140	1147	1148	1151	1163	1155	1135	1077	1072	1081	1092	28
ND	31	Dickinson Area	1128	1125	1154	1170	1174	1176	1171	1140	1102	1079	1073	1082	1092	31
ND	311	Taylor Take-Off - Glen Ullin Comp	1117	1121	1116	1130	1114	1131	1138	1105	1091	1072	1197	1092	1092	311
ND/MT	32	Cabin Creek - Dickinson	1107	1110	1144	1164	1134	1147	1134	1100	1077	1061	1058	1070	1082	32
ND	33	Killdeer	1181	1176	1180	1182	1182	1183	1183	1183	1183	1180	1181	1182	1180	33
ND	34	Bowman Area	1098	1116	1136	1128	1127	1130	1119	1123	1030	1059	1047	1073	1082	34
ND	610	MDU-Wattford City BTU	1202	1193	1205	1210	1204	1204	1195							
ND	802	Linton	1047	1054	1051	1054	1060	1050	1047	1047	1044	1045	1039	1042	1033	802

**THERMAL ZONE VARIANCE
DOCUMENTATION**

November 2014

<i>ZONE</i>	<i>BTU VARIANCE</i>	<i>REASON</i>
261	37	Changes in Gas Processing
28	-22	Changes in Gas Supply
31	-29	Changes in Gas Supply
32	-34	Changes in Gas Supply
34	-20	Changes in Gas Supply