

July 11, 2014

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

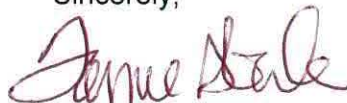
Re: Case No. 11,006 (Therm Billing)
Monthly Report – May 2014

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:

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 June 2014.
2. Attachment B consists of copies of the monthly Heating Value Test Reports received from our supplier for the month of May 2014. There is a report for each of the 17 thermal zones for the month.
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 May 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
June 2014

Town	Heat Zone	Therm Factor
MDU-303-ALEXANDER	025	1.1721
MDU-308-ARNEGARD	025	1.1721
MDU-314-APPLE VALLEY	271	1.1212
MDU-318-BEACH	032	1.0165
MDU-319-BELFIELD	032	1.0240
MDU-323-BERTHOLD	262	1.0966
MDU-327-BISMARCK	028	1.1066
MDU-330-BOWMAN	034	1.0302
MDU-337-BURLINGTON	262	1.1202
MDU-343-CARRINGTON	273	1.1212
MDU-344-CLEVELAND	272	1.1133
MDU-364-CAVALIER	273	1.1448
MDU-365-DAWSON	271	1.1133
MDU-368-DES LACS	262	1.1044
MDU-369-DICKINSON	031	1.0690
MDU-374-FT TOTTEN	273	1.1563
MDU-375-DEVILS LAKE	273	1.1291
MDU-379-BARLOW	273	1.1212
MDU-384-EPPING	264	1.1145
MDU-387-ELDRIDGE	272	1.1212
MDU-407-GLADSTONE	031	1.0334
MDU-411-GLEN ULLIN	311	1.0437
MDU-413-GOLVA	032	1.0016
MDU-416-GARRISON	262	1.1044
MDU-417-GRAFTON	273	1.1527
MDU-429-HEBRON	311	1.0437
MDU-432-HETTINGER	903	2.3875
MDU-449-JAMESTOWN	272	1.1291
MDU-459-KILLDEER	033	1.1173
MDU-463-LANGDON	273	1.1212
MDU-469-LEFOR	031	1.0690
MDU-474-LIGNITE	263	1.0103
MDU-475-LINTON	802	1.0102
MDU-478-LINCOLN	028	1.1144
MDU-494-MEDINA	271	1.1133
MDU-498-MANDAN	028	1.1144
MDU-500-MARMARTH	034	1.0378
MDU-505-MINOT	262	1.1202
MDU-510-MOTT	031	1.0690
MDU-512-MAX	262	1.0966
MDU-522-NEW ENGLAND	031	1.0613
MDU-524-NEW SALEM	028	1.0909
MDU-532-NEW ROCKFORD	273	1.1212
MDU-539-PARK RIVER	273	1.1448
MDU-540-PALERMO	262	1.0966
MDU-558-RAY	264	1.1145
MDU-561-REGENT	031	1.0690
MDU-563-RHAME	034	1.0226
MDU-564-RICHARDTON	311	1.0287

MDU-568-ROSS	261	1.0484
MDU-572-RUTHVILLE	262	1.1202
MDU-574-SANBORN	272	1.1291
MDU-583-SENTINEL BUTTE	032	1.0165
MDU-588-SOUTH HEART	031	1.0613
MDU-717-SPIRITWOOD	272	1.1291
MDU-590-SPRINGBROOK	264	1.1145
MDU-591-STANLEY	261	1.0560
MDU-593-STEELE	271	1.1133
MDU-598-SHEYENNE	273	1.1291
MDU-605-SURREY	262	1.1202
MDU-610-TAPPEN	271	1.1133
MDU-611-TAYLOR	031	1.0613
MDU-616-TIOGA	261	1.0484
MDU-619-TURTLE LAKE	262	1.1044
MDU-620-TRENTON	024	1.1225
MDU-624-UNDERWOOD	262	1.1044
MDU-625-VALLEY CITY	272	1.1370
MDU-629-WALHALLA	273	1.1448
MDU-632-WATFORD CITY	025	1.1721
MDU-636-WHEELOCK	264	1.1065
MDU-637-WHITE EARTH	261	1.0560
MDU-642-WILLISTON	024	1.1225
MDU-646-WASHBURN	262	1.1123
MDU-647-WILTON	262	1.0966
MDU-664-RIVERDALE	262	1.1044
MDU-691-FAIRVIEW	241	1.1454
MDU-712-MINOT AFB	262	1.1202
MDU-732-MSR SITE	273	1.1482

GQ Source Daily Summary

May 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																Wobbe	CCT
				CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10				
1	0.6984	1158.0	1178.5	0.846	2.406	73.372	21.348	1.788	0.067	0.146	0.012	0.015	0.000	0.000	0.000	0.000	0.000	1410.22			
2	0.7030	1158.9	1179.4	0.818	2.824	72.718	21.258	2.146	0.068	0.145	0.011	0.013	0.000	0.000	0.000	0.000	0.000	1406.68			
3	0.7033	1159.5	1180.0	0.811	2.831	72.594	21.390	2.146	0.067	0.141	0.009	0.010	0.000	0.000	0.000	0.000	0.000	1407.06			
4	0.7029	1158.0	1178.5	0.819	2.875	72.666	21.322	2.064	0.072	0.157	0.012	0.014	0.000	0.000	0.000	0.000	0.000	1405.61			
5	0.7029	1158.4	1178.9	0.817	2.849	72.617	21.422	2.058	0.068	0.146	0.010	0.012	0.000	0.000	0.000	0.000	0.000	1406.16			
6	0.6973	1159.0	1179.5	0.865	2.219	73.343	21.766	1.615	0.058	0.119	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1412.48			
7	0.6959	1156.8	1177.2	0.861	2.224	73.673	21.417	1.608	0.066	0.134	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1411.23			
8	0.6964	1157.1	1177.6	0.879	2.225	73.568	21.522	1.584	0.068	0.138	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1411.15			
9	0.6967	1157.3	1177.8	0.879	2.240	73.417	21.727	1.542	0.060	0.121	0.007	0.007	0.000	0.000	0.000	0.000	0.000	1411.06			
10	0.6978	1157.6	1178.1	0.850	2.373	73.275	21.672	1.592	0.070	0.147	0.010	0.011	0.000	0.000	0.000	0.000	0.000	1410.29			
11	0.6969	1156.6	1177.1	0.859	2.330	73.463	21.509	1.627	0.065	0.132	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1410.04			
12	0.6975	1156.4	1176.9	0.852	2.409	73.295	21.624	1.614	0.063	0.128	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1409.23			
13	0.7007	1158.9	1179.5	0.839	2.581	72.988	21.455	1.873	0.075	0.164	0.012	0.013	0.000	0.000	0.000	0.000	0.000	1408.96			
14	0.7002	1158.8	1179.3	0.834	2.548	73.033	21.485	1.852	0.073	0.154	0.010	0.011	0.000	0.000	0.000	0.000	0.000	1409.33			
15	0.7014	1158.6	1179.1	0.843	2.659	72.828	21.523	1.913	0.068	0.145	0.010	0.011	0.000	0.000	0.000	0.000	0.000	1407.87			
16	0.7029	1158.0	1178.5	0.825	2.863	72.875	20.885	2.305	0.072	0.153	0.010	0.011	0.000	0.000	0.000	0.000	0.000	1405.63			
17	0.7061	1164.6	1185.2	0.828	2.756	72.268	21.653	2.188	0.085	0.190	0.015	0.017	0.000	0.000	0.000	0.000	0.000	1410.46			
18	0.7023	1158.4	1179.0	0.830	2.770	72.740	21.397	2.020	0.070	0.150	0.011	0.012	0.000	0.000	0.000	0.000	0.000	1406.81			
19	0.7015	1157.7	1178.2	0.832	2.731	73.002	21.071	2.124	0.071	0.148	0.009	0.010	0.000	0.000	0.000	0.000	0.000	1406.79			
20	0.7007	1158.3	1178.8	0.847	2.604	72.984	21.417	1.912	0.069	0.146	0.010	0.011	0.000	0.000	0.000	0.000	0.000	1408.24			
21	0.7013	1160.4	1180.9	0.850	2.531	72.829	21.678	1.879	0.068	0.144	0.010	0.011	0.000	0.000	0.000	0.000	0.000	1410.13			
22	0.7028	1160.4	1181.0	0.845	2.675	72.561	21.727	1.970	0.066	0.138	0.009	0.010	0.000	0.000	0.000	0.000	0.000	1408.73			
23	0.7050	1164.2	1184.8	0.846	2.646	72.456	21.621	2.139	0.082	0.180	0.014	0.016	0.000	0.000	0.000	0.000	0.000	1411.12			
24	0.7019	1159.2	1179.7	0.837	2.680	72.948	21.187	2.086	0.075	0.161	0.012	0.014	0.000	0.000	0.000	0.000	0.000	1408.05			
25	0.7024	1159.8	1180.3	0.846	2.677	72.590	21.768	1.884	0.067	0.144	0.011	0.012	0.000	0.000	0.000	0.000	0.000	1408.32			
26	0.7008	1157.0	1177.5	0.832	2.720	72.837	21.514	1.886	0.063	0.131	0.008	0.009	0.000	0.000	0.000	0.000	0.000	1406.51			
27	0.7060	1163.0	1183.6	0.819	2.848	72.518	21.137	2.346	0.089	0.204	0.017	0.022	0.000	0.000	0.000	0.000	0.000	1408.70			
28	0.7056	1164.1	1184.7	0.829	2.740	72.370	21.567	2.195	0.082	0.184	0.015	0.018	0.000	0.000	0.000	0.000	0.000	1410.32			
29	0.7074	1161.8	1182.4	0.807	3.073	72.223	21.077	2.552	0.078	0.166	0.011	0.013	0.000	0.000	0.000	0.000	0.000	1405.85			
30	0.7042	1159.8	1180.3	0.833	2.866	72.582	21.226	2.238	0.073	0.157	0.012	0.013	0.000	0.000	0.000	0.000	0.000	1406.48			
31	0.7038	1160.9	1181.4	0.842	2.745	72.493	21.623	2.052	0.070	0.152	0.011	0.013	0.000	0.000	0.000	0.000	0.000	1408.27			
Avg	0.7015	1159.0	1179.8	0.839	2.630	72.875	21.451	1.961	0.070	0.150	0.011	0.012	0.000	0.000	0.000	0.000	0.000	1408.64			

Zone 24, 2b4

GQ Source Analysis

GQ Source Number:	0602160	Specific Gravity:	0.7305
GQ Source Name:	FAIRVIEW BORDER	Dry Heat Value:	1203.60
Effective Date:	5/1/2014 9:00:00 AM	Wet Heat Value:	1182.65
Effective End Date:	1/18/2038 9:14:07 PM	As Deliv. Heat Value:	1203.60
Pressure Base:	14.730	Sample Pressure:	500.00
Viscosity:		Sample Temperature:	

	<u>Mol %</u>	<u>Liquid Content</u>			<u>Mol %</u>	
C1	Methane	68.949		CO2	Carbon Dioxide	1.011
C2	Ethane	21.936	0.0000	N2	Nitrogen	3.616
C3	Propane	4.122	1.1325	O2	Oxygen	0.011
IC4	Isobutane	0.119	0.0389	He	Helium	
NC4	n-Butane	0.213	0.0671	H2	Hydrogen	
IC5	Isopentane	0.012	0.0042	H2S	Hydrogen Sulfide	
NC5	n-Pentane	0.010	0.0035	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% 1.246 GPM

Sample Date: 5/1/2014 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:	0.7658
GQ Source Name:	WATFORD CITY BORDER	Dry Heat Value:	1241.36
Effective Date:	5/1/2014 9:00:00 AM	Wet Heat Value:	1219.76
Effective End Date:	1/18/2038 9:14:07 PM	As Deliv. Heat Value:	1241.36
Pressure Base:	14.730	Sample Pressure:	347.00
Viscosity:		Sample Temperature:	

		<u>Mol %</u>	<u>Liquid Content</u>			<u>Mol %</u>
C1	Methane	65.948		CO2	Carbon Dioxide	0.804
C2	Ethane	20.233	5.3951	N2	Nitrogen	4.970
C3	Propane	6.683	1.8359	O2	Oxygen	0.000
IC4	Isobutane	0.390	0.1272	He	Helium	
NC4	n-Butane	0.829	0.2607	H2	Hydrogen	
IC5	Isopentane	0.069	0.0253	H2S	Hydrogen Sulfide	
NC5	n-Pentane	0.069	0.0250	Ar	Argon	
C6	Hexanes	0.005	0.0000	CO	Carbon Monoxide	
C7	Heptanes			H2	Water	
C8	Octanes			Neo-C5	Neopentane	
C9	Nonanes					
C10	Decanes					

Totals 100.000% 7.669 GPM

Sample Date: 5/1/2014 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

May 2014

Number: 163

Pressure Base: 14.730

Contract Day: 1

Name: NORTH TIOGA TRANSFER-PALERMO BORDER LI

Temperature Base:

Contract Hour: 9

Day	Relative Density	Heating Value Wet	Heating Value Dry	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.6998	1157.3	1177.8	0.374	3.300	72.585	21.498	2.080	0.050	0.098	0.006	0.008	0.000	0.000	0.000	0.000	0.000	1407.78	
2	0.6751	1119.0	1138.9	0.269	3.464	76.856	17.795	1.485	0.042	0.078	0.005	0.006	0.000	0.000	0.000	0.000	0.000	1386.00	
3	0.6479	1073.6	1092.6	0.278	3.670	81.957	12.882	1.105	0.031	0.065	0.006	0.007	0.000	0.000	0.000	0.000	0.000	1357.32	
4	0.6383	1056.9	1075.6	0.280	3.781	83.888	10.860	1.079	0.032	0.069	0.006	0.006	0.000	0.000	0.000	0.000	0.000	1346.21	
5	0.6486	1073.7	1092.7	0.284	3.719	81.924	12.745	1.216	0.033	0.068	0.005	0.006	0.000	0.000	0.000	0.000	0.000	1356.73	
6	0.6700	1107.1	1126.7	0.359	3.584	77.751	16.882	1.298	0.036	0.077	0.006	0.007	0.000	0.000	0.000	0.000	0.000	1376.31	
7	0.6887	1142.8	1163.1	0.391	3.121	73.840	21.443	1.067	0.037	0.082	0.008	0.010	0.000	0.000	0.000	0.000	0.000	1401.45	
8	0.6885	1139.7	1159.9	0.398	3.274	74.170	20.693	1.299	0.044	0.100	0.009	0.011	0.000	0.000	0.000	0.000	0.000	1397.82	
9	0.6594	1089.6	1108.9	0.390	3.598	80.132	14.311	1.420	0.043	0.092	0.007	0.008	0.000	0.000	0.000	0.000	0.000	1365.52	
10	0.6614	1090.5	1109.8	0.396	3.724	79.971	14.135	1.572	0.054	0.124	0.011	0.013	0.000	0.000	0.000	0.000	0.000	1364.61	
11	0.6677	1099.7	1119.1	0.428	3.706	78.982	14.895	1.754	0.063	0.145	0.013	0.015	0.000	0.000	0.000	0.000	0.000	1369.60	
12	0.6686	1100.9	1120.4	0.440	3.701	79.019	14.702	1.860	0.071	0.169	0.017	0.021	0.000	0.000	0.000	0.000	0.000	1370.16	
13	0.6661	1097.0	1116.4	0.403	3.751	79.436	14.298	1.857	0.068	0.155	0.014	0.017	0.000	0.000	0.000	0.000	0.000	1367.97	
14	0.6644	1093.7	1113.1	0.408	3.789	79.488	14.406	1.708	0.056	0.122	0.010	0.012	0.000	0.000	0.000	0.000	0.000	1365.59	
15	0.6598	1088.0	1107.3	0.396	3.723	80.242	13.900	1.567	0.048	0.104	0.009	0.011	0.000	0.000	0.000	0.000	0.000	1363.18	
16	0.6605	1090.1	1109.4	0.372	3.700	80.586	13.222	1.837	0.078	0.170	0.016	0.019	0.000	0.000	0.000	0.000	0.000	1364.95	
17	0.6572	1085.0	1104.3	0.362	3.708	80.691	13.518	1.574	0.043	0.089	0.007	0.008	0.000	0.000	0.000	0.000	0.000	1362.17	
18	0.6524	1076.4	1095.5	0.365	3.780	81.584	12.652	1.457	0.045	0.098	0.009	0.010	0.000	0.000	0.000	0.000	0.000	1356.27	
19	0.6504	1072.5	1091.5	0.367	3.831	81.921	12.312	1.414	0.043	0.094	0.008	0.010	0.000	0.000	0.000	0.000	0.000	1353.39	
20	0.6525	1075.2	1094.3	0.385	3.831	81.535	12.646	1.454	0.044	0.092	0.007	0.008	0.000	0.000	0.000	0.000	0.000	1354.70	
21	0.6531	1077.5	1096.6	0.367	3.782	81.501	12.688	1.480	0.050	0.111	0.010	0.012	0.000	0.000	0.000	0.000	0.000	1356.82	
22	0.6470	1067.3	1086.2	0.365	3.829	82.484	11.880	1.296	0.041	0.088	0.007	0.009	0.000	0.000	0.000	0.000	0.000	1350.38	
23	0.6516	1074.9	1093.9	0.368	3.793	81.818	12.376	1.450	0.053	0.119	0.010	0.013	0.000	0.000	0.000	0.000	0.000	1355.19	
24	0.6569	1083.6	1102.8	0.380	3.744	80.710	13.523	1.477	0.046	0.101	0.009	0.010	0.000	0.000	0.000	0.000	0.000	1360.66	
25	0.6512	1074.8	1093.9	0.367	3.766	81.631	12.789	1.304	0.040	0.087	0.007	0.009	0.000	0.000	0.000	0.000	0.000	1355.48	
26	0.6652	1098.2	1117.7	0.358	3.666	78.885	15.542	1.397	0.043	0.094	0.007	0.008	0.000	0.000	0.000	0.000	0.000	1370.31	
27	0.7125	1180.7	1201.7	0.224	3.270	73.069	18.519	4.271	0.195	0.394	0.027	0.030	0.000	0.000	0.000	0.000	0.000	1423.44	
28	0.6825	1127.6	1147.6	0.348	3.509	77.009	16.193	2.582	0.107	0.220	0.016	0.018	0.000	0.000	0.000	0.000	0.000	1388.76	
29	0.6687	1107.6	1127.2	0.250	3.583	79.111	14.569	2.239	0.080	0.152	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1377.99	
30	0.6867	1136.8	1157.0	0.276	3.462	75.274	18.660	2.118	0.065	0.127	0.008	0.009	0.000	0.000	0.000	0.000	0.000	1395.89	
31	0.6656	1098.1	1117.5	0.365	3.710	78.916	15.362	1.483	0.046	0.099	0.009	0.010	0.000	0.000	0.000	0.000	0.000	1369.64	
Avg	0.6651	1099.0	1118.0	0.355	3.641	79.257	14.900	1.652	0.056	0.119	0.010	0.011	0.000	0.000	0.000	0.000	0.000	1370.72	

Zone 2b1

GQ Source Number:	2501030	Specific Gravity:	0.6281
GQ Source Name:	LIGNITE PLANT	Dry Heat Value:	1062.26
Effective Date:	5/1/2014 9:00:00 AM	Wet Heat Value:	1043.77
Effective End Date:	1/18/2038 9:14:07 PM	As Deliv. Heat Value:	1062.26
Pressure Base:	14.730	Sample Pressure:	393.00
Viscosity:		Sample Temperature:	

		<u>Mol %</u>	<u>Liquid Content</u>			<u>Mol %</u>
C1	Methane	84.333		CO2	Carbon Dioxide	0.047
C2	Ethane	11.653	3.1071	N2	Nitrogen	3.944
C3	Propane	0.000	0.0000	O2	Oxygen	0.008
IC4	Isobutane	0.013	0.0044	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	0.000	0.0000	CO	Carbon Monoxide	
C7	Heptanes			H2	Water	
C8	Octanes			Neo-C5	Neopentane	
C9	Nonanes					
C10	Decanes					

Totals 99.997% 3.112 GPM

Sample Date: 5/1/2014 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 Daily Summary

May 2014

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	0.7197	1160.4	1181.0	0.463	4.843	69.615	21.706	3.103	0.079	0.172	0.009	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1391.96
2	0.7262	1169.9	1190.6	0.601	4.657	68.968	21.959	3.509	0.089	0.195	0.011	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1397.22
3	0.7254	1163.4	1184.0	0.581	5.013	69.304	21.051	3.711	0.099	0.216	0.012	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1390.11
4	0.7153	1146.2	1166.5	0.588	5.100	71.185	19.251	3.542	0.095	0.213	0.012	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1379.20
5	0.7083	1135.9	1156.0	0.578	5.078	72.484	18.103	3.436	0.092	0.205	0.012	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1373.64
6	0.7089	1139.8	1160.0	0.558	4.936	72.149	18.773	3.288	0.085	0.188	0.011	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1377.69
7	0.7103	1146.0	1166.3	0.560	4.687	71.614	19.850	3.004	0.080	0.180	0.012	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1383.80
8	0.7173	1161.5	1182.1	0.554	4.407	69.971	22.016	2.787	0.077	0.169	0.010	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1395.79
9	0.7140	1154.1	1174.6	0.563	4.531	70.868	20.786	2.957	0.083	0.186	0.012	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1390.05
10	0.7029	1134.0	1154.1	0.564	4.714	73.189	18.184	3.054	0.085	0.188	0.011	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1376.50
11	0.7035	1134.8	1154.9	0.562	4.726	73.183	18.110	3.090	0.092	0.208	0.014	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1376.88
12	0.7065	1140.1	1160.3	0.579	4.661	72.714	18.522	3.176	0.097	0.221	0.015	0.017	0.000	0.000	0.000	0.000	0.000	0.000	1380.38
13	0.7041	1136.5	1156.6	0.576	4.656	73.260	17.976	3.162	0.101	0.231	0.017	0.020	0.000	0.000	0.000	0.000	0.000	0.000	1378.36
14	0.7043	1135.2	1155.3	0.566	4.761	73.181	17.938	3.207	0.097	0.219	0.014	0.016	0.000	0.000	0.000	0.000	0.000	0.000	1376.71
15	0.7011	1130.9	1151.0	0.561	4.735	73.559	17.807	3.034	0.087	0.192	0.012	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1374.59
16	0.7008	1130.5	1150.6	0.562	4.728	73.661	17.681	3.061	0.087	0.194	0.012	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1374.41
17	0.7047	1135.9	1156.1	0.556	4.769	73.273	17.699	3.328	0.104	0.235	0.016	0.019	0.000	0.000	0.000	0.000	0.000	0.000	1377.17
18	0.7017	1131.5	1151.5	0.550	4.775	73.508	17.730	3.136	0.087	0.192	0.011	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1374.67
19	0.6980	1125.1	1145.0	0.554	4.813	74.183	17.102	3.034	0.088	0.199	0.012	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1370.50
20	0.6981	1124.9	1144.8	0.554	4.837	74.103	17.204	2.997	0.086	0.193	0.012	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1370.10
21	0.6992	1127.3	1147.3	0.555	4.786	73.852	17.535	2.975	0.085	0.188	0.011	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1372.04
22	0.6978	1124.5	1144.4	0.556	4.823	74.262	16.998	3.037	0.091	0.206	0.013	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1369.98
23	0.6968	1122.7	1142.6	0.555	4.845	74.401	16.866	3.023	0.088	0.197	0.012	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1368.77
24	0.6988	1127.4	1147.4	0.550	4.747	74.090	17.241	3.037	0.093	0.212	0.014	0.016	0.000	0.000	0.000	0.000	0.000	0.000	1372.60
25	0.7011	1130.8	1150.8	0.559	4.744	73.593	17.746	3.042	0.089	0.200	0.013	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1374.44
26	0.7012	1131.0	1151.0	0.555	4.756	73.445	17.977	2.965	0.086	0.193	0.012	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1374.49
27	0.7071	1140.6	1160.8	0.549	4.726	72.602	18.575	3.178	0.102	0.235	0.016	0.018	0.000	0.000	0.000	0.000	0.000	0.000	1380.43
28	0.7369	1192.5	1213.6	0.469	4.476	68.621	20.987	4.846	0.183	0.376	0.020	0.021	0.000	0.000	0.000	0.000	0.000	0.000	1413.73
29	0.7126	1149.2	1169.5	0.549	4.722	71.840	18.984	3.532	0.107	0.235	0.014	0.016	0.000	0.000	0.000	0.000	0.000	0.000	1385.36
30	0.7167	1156.7	1177.2	0.507	4.705	71.238	19.380	3.777	0.116	0.249	0.013	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1390.46
31	0.7189	1159.8	1180.4	0.517	4.713	70.324	20.701	3.402	0.098	0.217	0.013	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1392.08
Avg	0.7083	1142.0	1162.1	0.553	4.757	72.330	18.788	3.240	0.094	0.210	0.013	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1380.78

Zone 271

GQ Source Daily Summary

May 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	0.7114	1146.1	1166.4	0.458	4.941	71.002	20.504	2.845	0.073	0.159	0.009	0.009	0.000	0.000	0.000	0.000	0.000	1382.87	
2	0.7240	1172.1	1192.9	0.504	4.469	68.990	22.526	3.237	0.080	0.174	0.010	0.010	0.000	0.000	0.000	0.000	0.000	1401.84	
3	0.7309	1173.0	1193.8	0.615	4.891	68.294	22.095	3.763	0.100	0.217	0.012	0.013	0.000	0.000	0.000	0.000	0.000	1396.34	
4	0.7178	1151.4	1171.8	0.583	5.027	70.617	19.941	3.512	0.093	0.205	0.011	0.012	0.000	0.000	0.000	0.000	0.000	1383.05	
5	0.7104	1139.3	1159.5	0.585	5.065	72.084	18.478	3.462	0.094	0.208	0.012	0.013	0.000	0.000	0.000	0.000	0.000	1375.63	
6	0.7095	1138.8	1158.9	0.582	5.012	72.211	18.468	3.417	0.090	0.198	0.012	0.012	0.000	0.000	0.000	0.000	0.000	1375.91	
7	0.7050	1137.1	1157.2	0.547	4.752	72.677	18.696	3.053	0.080	0.174	0.010	0.010	0.000	0.000	0.000	0.000	0.000	1378.20	
8	0.7187	1162.7	1183.3	0.568	4.442	69.805	22.035	2.871	0.079	0.176	0.011	0.012	0.000	0.000	0.000	0.000	0.000	1395.87	
9	0.7183	1163.2	1183.8	0.561	4.392	69.850	22.085	2.828	0.080	0.180	0.012	0.013	0.000	0.000	0.000	0.000	0.000	1396.75	
10	0.7061	1140.2	1160.4	0.572	4.618	72.552	18.914	3.050	0.084	0.186	0.011	0.012	0.000	0.000	0.000	0.000	0.000	1380.99	
11	0.7016	1132.0	1152.0	0.569	4.706	73.520	17.821	3.071	0.089	0.197	0.013	0.014	0.000	0.000	0.000	0.000	0.000	1375.38	
12	0.7049	1137.8	1157.9	0.574	4.658	72.904	18.448	3.090	0.092	0.205	0.014	0.015	0.000	0.000	0.000	0.000	0.000	1379.12	
13	0.7040	1137.5	1157.6	0.584	4.573	73.184	18.215	3.096	0.096	0.217	0.016	0.019	0.000	0.000	0.000	0.000	0.000	1379.71	
14	0.7053	1137.4	1157.5	0.573	4.716	73.051	18.059	3.238	0.100	0.228	0.016	0.018	0.000	0.000	0.000	0.000	0.000	1378.32	
15	0.7023	1133.1	1153.2	0.571	4.701	73.444	17.862	3.090	0.093	0.209	0.015	0.016	0.000	0.000	0.000	0.000	0.000	1376.06	
16	0.7002	1130.7	1150.7	0.556	4.670	73.711	17.763	3.003	0.085	0.188	0.012	0.013	0.000	0.000	0.000	0.000	0.000	1375.21	
17	0.7007	1130.8	1150.8	0.548	4.727	73.662	17.673	3.088	0.086	0.191	0.012	0.012	0.000	0.000	0.000	0.000	0.000	1374.79	
18	0.7052	1137.7	1157.8	0.551	4.721	73.156	17.874	3.327	0.102	0.234	0.016	0.018	0.000	0.000	0.000	0.000	0.000	1378.76	
19	0.7003	1130.3	1150.3	0.548	4.725	73.728	17.633	3.059	0.088	0.194	0.012	0.013	0.000	0.000	0.000	0.000	0.000	1374.50	
20	0.6967	1123.5	1143.4	0.540	4.805	74.334	17.050	2.975	0.085	0.187	0.011	0.012	0.000	0.000	0.000	0.000	0.000	1369.88	
21	0.6971	1124.2	1144.1	0.552	4.782	74.270	17.140	2.955	0.085	0.190	0.012	0.013	0.000	0.000	0.000	0.000	0.000	1370.33	
22	0.6999	1129.5	1149.5	0.546	4.731	73.829	17.532	3.040	0.091	0.204	0.013	0.014	0.000	0.000	0.000	0.000	0.000	1374.02	
23	0.6964	1122.9	1142.8	0.552	4.797	74.392	16.996	2.969	0.085	0.187	0.011	0.011	0.000	0.000	0.000	0.000	0.000	1369.41	
24	0.6973	1124.9	1144.9	0.553	4.752	74.334	17.031	3.006	0.090	0.203	0.014	0.015	0.000	0.000	0.000	0.000	0.000	1371.04	
25	0.7008	1131.2	1151.2	0.556	4.694	73.688	17.684	3.051	0.092	0.206	0.013	0.015	0.000	0.000	0.000	0.000	0.000	1375.24	
26	0.6996	1129.1	1149.1	0.553	4.717	73.775	17.677	2.976	0.086	0.191	0.012	0.012	0.000	0.000	0.000	0.000	0.000	1373.81	
27	0.7027	1134.6	1154.7	0.541	4.694	73.042	18.519	2.915	0.083	0.184	0.011	0.011	0.000	0.000	0.000	0.000	0.000	1377.46	
28	0.7237	1170.0	1190.7	0.509	4.555	70.380	19.958	4.097	0.143	0.316	0.020	0.022	0.000	0.000	0.000	0.000	0.000	1399.54	
29	0.7267	1173.6	1194.4	0.526	4.593	69.885	20.270	4.229	0.148	0.313	0.018	0.018	0.000	0.000	0.000	0.000	0.000	1400.95	
30	0.7022	1131.8	1151.9	0.526	4.835	73.492	17.605	3.221	0.092	0.204	0.012	0.013	0.000	0.000	0.000	0.000	0.000	1374.58	
31	0.7255	1170.7	1191.4	0.517	4.665	69.752	20.630	4.019	0.125	0.262	0.015	0.015	0.000	0.000	0.000	0.000	0.000	1398.73	
Avg	0.7079	1142.0	1162.1	0.552	4.724	72.375	18.812	3.211	0.093	0.206	0.013	0.014	0.000	0.000	0.000	0.000	0.000	1381.11	

Zone 272

GQ Source Daily Summary

May 2014

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	0.7117	1146.8	1167.1	0.457	4.928	70.925	20.606	2.835	0.073	0.159	0.009	0.009	0.000	0.000	0.000	0.000	0.000	1383.46	
2	0.7235	1171.1	1191.9	0.507	4.479	69.070	22.447	3.229	0.079	0.170	0.009	0.010	0.000	0.000	0.000	0.000	0.000	1401.14	
3	0.7301	1171.7	1192.4	0.616	4.897	68.390	22.041	3.726	0.098	0.209	0.011	0.012	0.000	0.000	0.000	0.000	0.000	1395.51	
4	0.7177	1151.1	1171.5	0.583	5.030	70.650	19.908	3.509	0.093	0.205	0.011	0.012	0.000	0.000	0.000	0.000	0.000	1382.87	
5	0.7104	1139.3	1159.5	0.585	5.065	72.094	18.467	3.464	0.094	0.208	0.012	0.013	0.000	0.000	0.000	0.000	0.000	1375.63	
6	0.7093	1138.6	1158.7	0.581	5.014	72.228	18.455	3.410	0.090	0.199	0.012	0.012	0.000	0.000	0.000	0.000	0.000	1375.80	
7	0.7051	1137.2	1157.3	0.549	4.752	72.668	18.701	3.055	0.080	0.174	0.010	0.010	0.000	0.000	0.000	0.000	0.000	1378.21	
8	0.7188	1162.8	1183.4	0.571	4.446	69.787	22.042	2.876	0.079	0.176	0.011	0.012	0.000	0.000	0.000	0.000	0.000	1395.84	
9	0.7184	1163.5	1184.1	0.559	4.385	69.831	22.110	2.829	0.080	0.180	0.011	0.013	0.000	0.000	0.000	0.000	0.000	1397.02	
10	0.7067	1141.2	1161.4	0.575	4.616	72.430	19.037	3.048	0.084	0.186	0.011	0.012	0.000	0.000	0.000	0.000	0.000	1381.51	
11	0.7013	1131.5	1151.6	0.566	4.708	73.565	17.797	3.052	0.088	0.197	0.013	0.014	0.000	0.000	0.000	0.000	0.000	1375.13	
12	0.7052	1138.2	1158.3	0.578	4.653	72.851	18.503	3.088	0.092	0.205	0.014	0.015	0.000	0.000	0.000	0.000	0.000	1379.36	
13	0.7038	1137.2	1157.4	0.587	4.564	73.222	18.195	3.085	0.096	0.216	0.017	0.019	0.000	0.000	0.000	0.000	0.000	1379.60	
14	0.7053	1137.4	1157.5	0.573	4.716	73.050	18.060	3.238	0.100	0.228	0.016	0.018	0.000	0.000	0.000	0.000	0.000	1378.32	
15	0.7023	1133.1	1153.1	0.571	4.704	73.445	17.858	3.087	0.093	0.211	0.014	0.017	0.000	0.000	0.000	0.000	0.000	1375.99	
16	0.7001	1130.6	1150.7	0.555	4.665	73.729	17.755	2.997	0.085	0.188	0.012	0.014	0.000	0.000	0.000	0.000	0.000	1375.25	
17	0.7009	1131.0	1151.0	0.551	4.727	73.637	17.694	3.089	0.087	0.191	0.012	0.012	0.000	0.000	0.000	0.000	0.000	1374.85	
18	0.7051	1137.5	1157.7	0.550	4.723	73.167	17.865	3.326	0.102	0.232	0.016	0.018	0.000	0.000	0.000	0.000	0.000	1378.67	
19	0.7004	1130.3	1150.3	0.548	4.726	73.719	17.635	3.064	0.088	0.194	0.012	0.013	0.000	0.000	0.000	0.000	0.000	1374.52	
20	0.6968	1123.7	1143.6	0.541	4.804	74.311	17.076	2.971	0.085	0.188	0.011	0.012	0.000	0.000	0.000	0.000	0.000	1369.97	
21	0.6972	1124.3	1144.2	0.554	4.780	74.257	17.151	2.957	0.085	0.190	0.012	0.013	0.000	0.000	0.000	0.000	0.000	1370.38	
22	0.6996	1129.0	1149.0	0.546	4.738	73.890	17.458	3.046	0.090	0.205	0.013	0.014	0.000	0.000	0.000	0.000	0.000	1373.64	
23	0.6965	1123.0	1142.9	0.553	4.798	74.370	17.018	2.966	0.085	0.187	0.011	0.012	0.000	0.000	0.000	0.000	0.000	1369.46	
24	0.6974	1125.1	1145.0	0.553	4.752	74.317	17.048	3.007	0.091	0.204	0.013	0.015	0.000	0.000	0.000	0.000	0.000	1371.15	
25	0.7008	1131.4	1151.4	0.556	4.691	73.677	17.696	3.053	0.093	0.206	0.013	0.014	0.000	0.000	0.000	0.000	0.000	1375.36	
26	0.6996	1129.1	1149.1	0.553	4.717	73.784	17.665	2.980	0.086	0.192	0.012	0.012	0.000	0.000	0.000	0.000	0.000	1373.86	
27	0.7030	1135.0	1155.1	0.543	4.694	72.989	18.563	2.921	0.083	0.184	0.011	0.012	0.000	0.000	0.000	0.000	0.000	1377.67	
28	0.7239	1170.2	1190.9	0.511	4.552	70.342	20.002	4.100	0.143	0.308	0.020	0.022	0.000	0.000	0.000	0.000	0.000	1399.65	
29	0.7269	1173.8	1194.6	0.524	4.593	69.862	20.293	4.228	0.148	0.315	0.018	0.018	0.000	0.000	0.000	0.000	0.000	1401.11	
30	0.7027	1132.8	1152.9	0.528	4.823	73.395	17.697	3.235	0.092	0.204	0.013	0.013	0.000	0.000	0.000	0.000	0.000	1375.25	
31	0.7258	1171.3	1192.0	0.518	4.661	69.709	20.651	4.043	0.126	0.264	0.015	0.015	0.000	0.000	0.000	0.000	0.000	1399.11	
Avg	0.7079	1142.0	1162.1	0.553	4.723	72.367	18.822	3.210	0.093	0.206	0.013	0.014	0.000	0.000	0.000	0.000	0.000	1381.14	

Zone 273

GQ Source Analysis

GQ Source Number:	0202080	Specific Gravity:	0.6508
GQ Source Name:	RICHARDTON-GLEN ULLIN COMPRE	Dry Heat Value:	1104.74
Effective Date:	5/1/2014 9:00:00 AM	Wet Heat Value:	1085.51
Effective End Date:	1/18/2038 9:14:00 PM	As Deliv. Heat Value:	1104.74
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	81.764		CO2	Carbon Dioxide	0.619
C2	Ethane	13.933	3.7150	N2	Nitrogen	2.696
C3	Propane	0.815	0.2240	O2	Oxygen	
IC4	Isobutane	0.058	0.0190	He	Helium	
NC4	n-Butane	0.050	0.0160	H2	Hydrogen	
IC5	Isopentane	0.023	0.0080	H2S	Hydrogen Sulfide	
NC5	n-Pentane	0.011	0.0040	Ar	Argon	
C6	Hexanes	0.029	0.0120	CO	Carbon Monoxide	
C7	Heptanes			H2	Water	
C8	Octanes			Neo-C5	Neopentane	0.000
C9	Nonanes					
C10	Decanes					
Totals		99.998%		3.998 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

May 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	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.6423	1060.0	1078.7	0.192	4.103	83.091	11.224	1.316	0.028	0.037	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1345.94	
2	0.6420	1059.6	1078.3	0.190	4.097	83.091	11.295	1.256	0.028	0.036	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1345.80	
3	0.6457	1065.9	1084.8	0.184	4.069	82.407	11.936	1.336	0.027	0.035	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1349.99	
4	0.6352	1050.1	1068.7	0.213	3.999	84.372	10.244	1.101	0.027	0.035	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1340.91	
5	0.6397	1056.9	1075.6	0.198	4.039	83.553	10.910	1.225	0.029	0.039	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1344.69	
6	0.6033	999.8	1017.5	0.241	4.016	90.414	4.677	0.586	0.027	0.031	0.003	0.002	0.000	0.000	0.000	0.000	0.000	1310.03	
7	0.6006	993.9	1011.5	0.272	4.074	90.955	4.092	0.539	0.026	0.033	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1305.28	
8	0.6023	996.5	1014.2	0.280	4.065	90.650	4.364	0.568	0.028	0.034	0.006	0.004	0.000	0.000	0.000	0.000	0.000	1306.81	
9	0.6143	1016.9	1034.9	0.250	3.999	88.452	6.390	0.825	0.031	0.043	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1320.41	
10	0.6171	1021.5	1039.6	0.228	4.022	87.894	6.883	0.893	0.031	0.042	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1323.29	
11	0.6143	1017.5	1035.5	0.235	3.989	88.347	6.583	0.774	0.028	0.035	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1321.15	
12	0.6179	1023.3	1041.5	0.236	3.971	87.714	7.137	0.865	0.029	0.039	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1324.86	
13	0.6224	1030.0	1048.2	0.250	3.963	86.927	7.808	0.970	0.031	0.042	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1328.70	
14	0.6248	1034.0	1052.3	0.245	3.959	86.478	8.208	1.029	0.031	0.042	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1331.22	
15	0.6480	1070.4	1089.4	0.199	3.989	82.197	11.991	1.532	0.034	0.050	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1353.15	
16	0.6723	1108.4	1128.0	0.133	4.056	77.624	16.111	1.968	0.040	0.063	0.003	0.003	0.000	0.000	0.000	0.000	0.000	1375.73	
17	0.6707	1108.0	1127.6	0.087	3.996	77.884	15.988	1.939	0.040	0.061	0.003	0.002	0.000	0.000	0.000	0.000	0.000	1376.95	
18	0.6691	1104.6	1124.2	0.123	4.002	78.259	15.548	1.957	0.040	0.064	0.003	0.003	0.000	0.000	0.000	0.000	0.000	1374.32	
19	0.6693	1105.5	1125.1	0.117	3.975	78.147	15.752	1.913	0.037	0.055	0.002	0.002	0.000	0.000	0.000	0.000	0.000	1375.25	
20	0.6732	1112.5	1132.2	0.143	3.878	77.540	16.304	2.021	0.042	0.065	0.003	0.003	0.000	0.000	0.000	0.000	0.000	1379.85	
21	0.6837	1131.3	1151.4	0.164	3.682	75.651	18.173	2.206	0.045	0.071	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1392.47	
22	0.6842	1131.0	1151.0	0.170	3.744	75.699	17.906	2.347	0.049	0.078	0.004	0.004	0.000	0.000	0.000	0.000	0.000	1391.47	
23	0.6711	1108.0	1127.6	0.149	3.944	77.892	15.946	1.958	0.040	0.063	0.003	0.003	0.000	0.000	0.000	0.000	0.000	1376.44	
24	0.6814	1137.1	1157.3	0.059	3.280	75.300	19.760	1.521	0.028	0.046	0.002	0.002	0.000	0.000	0.000	0.000	0.000	1401.81	
25	0.6884	1161.5	1182.0	0.001	2.553	73.089	23.529	0.805	0.009	0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1424.62	
26	0.6874	1160.0	1180.5	0.003	2.546	73.145	23.627	0.663	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1423.84	
27	0.6880	1159.8	1180.4	0.006	2.604	73.136	23.467	0.764	0.009	0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1423.06	
28	0.6721	1111.3	1131.0	0.158	3.829	77.459	16.711	1.754	0.034	0.052	0.003	0.002	0.000	0.000	0.000	0.000	0.000	1379.47	
29	0.6688	1103.4	1123.0	0.146	4.006	78.420	15.300	2.017	0.041	0.065	0.003	0.003	0.000	0.000	0.000	0.000	0.000	1373.21	
30	0.6809	1139.1	1159.3	0.064	3.107	75.027	20.574	1.178	0.019	0.028	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1404.79	
31	0.6728	1113.0	1132.7	0.140	3.811	77.417	16.688	1.852	0.036	0.052	0.002	0.002	0.000	0.000	0.000	0.000	0.000	1380.92	
Avg	0.6517	1080.0	1099.5	0.164	3.786	81.233	13.391	1.344	0.031	0.044	0.003	0.003	0.000	0.000	0.000	0.000	0.000	1361.50	

Zone 32

GQ Source Daily Summary

May 2014

Number: 111

Pressure Base: 14.730

Contract Day: 1

Name: LITTLE KNIFE-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	0.6882	1161.7	1182.2	0.000	2.522	72.920	23.941	0.604	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.12	
2	0.6890	1163.0	1183.6	0.000	2.512	72.775	24.080	0.619	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.99	
3	0.6883	1162.0	1182.6	0.000	2.514	72.882	23.994	0.596	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.39	
4	0.6889	1163.0	1183.6	0.000	2.509	72.779	24.088	0.611	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1426.00	
5	0.6889	1163.1	1183.7	0.000	2.503	72.817	24.019	0.647	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1426.11	
6	0.6895	1164.2	1184.8	0.001	2.492	72.702	24.146	0.645	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1426.86	
7	0.6881	1161.6	1182.2	0.000	2.514	72.934	23.947	0.592	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.15	
8	0.6887	1162.7	1183.3	0.000	2.510	72.815	24.050	0.612	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.83	
9	0.6893	1163.6	1184.2	0.001	2.504	72.754	24.070	0.657	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1426.39	
10	0.6893	1163.9	1184.5	0.000	2.495	72.798	23.984	0.705	0.007	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1426.63	
11	0.6880	1161.3	1181.9	0.000	2.522	72.974	23.879	0.611	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1424.90	
12	0.6897	1164.1	1184.7	0.000	2.513	72.835	23.859	0.741	0.014	0.031	0.003	0.003	0.000	0.000	0.000	0.000	0.000	1426.55	
13	0.6875	1160.9	1181.5	0.009	2.503	73.086	23.762	0.623	0.006	0.009	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1424.84	
14	0.6886	1162.7	1183.2	0.000	2.499	72.916	23.891	0.679	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.90	
15	0.6890	1163.0	1183.5	0.001	2.516	72.820	23.987	0.662	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.88	
16	0.6891	1163.1	1183.6	0.000	2.521	72.837	23.942	0.673	0.009	0.017	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1425.87	
17	0.6885	1162.0	1182.6	0.001	2.534	72.920	23.856	0.674	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.14	
18	0.6884	1161.6	1182.2	0.000	2.543	72.929	23.858	0.655	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1424.83	
19	0.6892	1163.2	1183.8	0.000	2.525	72.767	24.025	0.668	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.93	
20	0.6890	1162.6	1183.2	0.001	2.535	72.830	23.946	0.673	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.48	
21	0.6924	1165.0	1185.6	0.001	2.525	72.544	23.857	1.039	0.011	0.020	0.001	0.002	0.000	0.000	0.000	0.000	0.000	1424.87	
22	0.6884	1161.8	1182.3	0.001	2.534	72.941	23.849	0.662	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.02	
23	0.6898	1160.6	1181.2	0.000	2.740	72.756	23.683	0.800	0.008	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1422.16	
24	0.6884	1161.9	1182.5	0.001	2.529	72.936	23.846	0.674	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.15	
25	0.6888	1162.4	1183.0	0.000	2.539	72.851	23.924	0.671	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.31	
26	0.6892	1162.8	1183.3	0.000	2.546	72.840	23.874	0.721	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.43	
27	0.6891	1162.3	1182.9	0.000	2.563	72.783	23.990	0.649	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.05	
28	0.6894	1162.9	1183.5	0.000	2.559	72.756	23.977	0.694	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.41	
29	0.6903	1164.4	1185.1	0.000	2.552	72.658	23.997	0.776	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1426.30	
30	0.6909	1165.3	1185.9	0.001	2.558	72.582	24.025	0.816	0.008	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1426.69	
31	0.6899	1163.7	1184.3	0.001	2.554	72.716	23.963	0.748	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.87	
Avg	0.6891	1163.0	1183.4	0.001	2.532	72.821	23.945	0.684	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.55	

Zone 33

GQ Source Analysis

GQ Source Number:	1202160	Specific Gravity:	0.7840
GQ Source Name:	BOWMAN BORDER	Dry Heat Value:	1122.71
Effective Date:	5/1/2014 9:00:00 AM	Wet Heat Value:	1103.17
Effective End Date:	1/18/2038 9:14:07 PM	As Deliv. Heat Value:	1122.71
Pressure Base:	14.730	Sample Pressure:	
Viscosity:		Sample Temperature:	

		<u>Mol %</u>	<u>Liquid Content</u>			<u>Mol %</u>
C1	Methane	56.103		CO2	Carbon Dioxide	1.650
C2	Ethane	26.737	7.1290	N2	Nitrogen	12.591
C3	Propane	2.550	0.7000	O2	Oxygen	
IC4	Isobutane	0.078	0.0250	He	Helium	
NC4	n-Butane	0.244	0.0770	H2	Hydrogen	
IC5	Isopentane	0.011	0.0040	H2S	Hydrogen Sulfide	
NC5	n-Pentane	0.029	0.0100	Ar	Argon	
C6	Hexanes	0.007	0.0030	CO	Carbon Monoxide	
C7	Heptanes			H2	Water	
C8	Octanes			Neo-C5	Neopentane	0.000
C9	Nonanes					
C10	Decanes					

Totals 100.000% 7.948 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

Gas Quality

| Gas Quality Download - Chromatograph |

ROW ID	LOCATIONS DESCRIPTION	GROSS HEATING VALUE (BTU/GCF)	SPECIFIC GRAVITY	WOBBE INDEX (BTU/GCF)	CHLORINE (ppm)	STYROGEN (mole percent)	CARBON DIOXIDE (mole percent)	METHANE (mole percent)	ETHANE (mole percent)	PROPANE (mole percent)	SARVAL BUTANE (mole percent)	ISO BUTANE (mole percent)	PENTANE (mole percent)	NO. HEXANE (mole percent)	HEPTANE (mole percent)	HEXANES PLUS (mole percent)	HEAVY ENDS (mole percent)	HYDROGEN (mole percent)	HELIUM (mole percent)	PRODUCTION DATE	POSTING DATE	ChangeinStamp	NOTES
11587	GLEN ULLIN	1035.1	0.5982	1338.3	-62	1.4006	0.9582	91.8727	5.2587	0.3212	0.0132	0.0085	0	0.0009	0	0.0052	0.1486	0.0105	4/30/2014	5/1/2014	5/1/2014 2:16:14 PM		
11587	GLEN ULLIN	1035.1	0.5982	1338.3	-62	1.4006	0.9582	91.8727	5.2587	0.3212	0.0132	0.0085	0	0.0009	0	0.0052	0.1486	0.0105	5/2/2014	5/2/2014	5/2/2014 2:18:42 PM		
11587	GLEN ULLIN	1035.1	0.5982	1338.3	-62	1.4006	0.9582	91.8727	5.2587	0.3212	0.0132	0.0085	0	0.0009	0	0.0052	0.1486	0.0105	5/2/2014	5/2/2014	5/2/2014 2:15:54 PM		
11587	GLEN ULLIN	1035.1	0.5982	1338.3	-62.1	1.4006	0.9582	91.8727	5.2587	0.3154	0.0132	0.0085	0	0.0009	0	0.0052	0.1498	0.0157	5/4/2014	5/4/2014	5/4/2014 2:14:47 PM		
11587	GLEN ULLIN	1035.1	0.5982	1338.3	-62.1	1.4006	0.9582	91.8727	5.2587	0.3142	0.0132	0.0085	0	0.0009	0	0.0052	0.15	0.0167	5/5/2014	5/5/2014	5/5/2014 2:14:31 PM		
11587	GLEN ULLIN	1035.1	0.5982	1338.3	-38.2	1.3189	1.0521	89.5453	6.7929	0.8464	0.0891	0.0127	0.0176	0	0.0108	0	0.2301	0.0153	5/6/2014	5/6/2014	5/6/2014 2:14:23 PM		
11587	GLEN ULLIN	1048.2	0.6064	1346	-75	1.2644	1.0431	90.3144	6.4446	0.4369	0.028	0.02	0.0026	0.0038	0	0.0066	0.228	0.0131	5/6/2014	5/7/2014	5/7/2014 2:15:17 PM		
11587	GLEN ULLIN	1049	0.6064	1347.1	-73.7	1.2646	1.0095	90.2944	6.6662	0.457	0.0289	0.0215	0.0028	0.0042	0	0.0011	0.2367	0.0131	5/6/2014	5/6/2014	5/6/2014 2:15:10 PM		
11587	GLEN ULLIN	1046.7	0.6056	1345	-72.3	1.3031	1.0272	90.4538	6.4784	0.4327	0.0287	0.0233	0.0028	0.0041	0	0.0015	0.2321	0.0131	5/6/2014	5/6/2014	5/6/2014 2:15:52 PM		
11587	GLEN ULLIN	1048.1	0.6062	1346.1	-73.6	1.2297	1.0331	90.3949	6.5152	0.4721	0.0346	0.0242	0.0031	0.0046	0	0.0069	0.2527	0.0131	5/9/2014	5/10/2014	5/10/2014 2:15:55 PM		
11587	GLEN ULLIN	1049.2	0.6074	1346.2	-67.4	1.2653	1.0019	90.1548	6.6991	0.4702	0.0369	0.0273	0.004	0.0058	0	0.0022	0.2581	0.0114	5/10/2014	5/10/2014	5/10/2014 2:14:46 PM		
11587	GLEN ULLIN	1047.9	0.6066	1343.4	-67.5	1.2816	1.051	90.3743	6.4865	0.4827	0.037	0.0271	0.0039	0.0057	0	0.0022	0.2339	0.0114	5/10/2014	5/10/2014	5/10/2014 2:16:34 PM		
11587	GLEN ULLIN	1048.1	0.6068	1345.5	-69.6	1.2886	1.05	90.3488	6.5171	0.4904	0.0339	0.0249	0.0034	0.005	0	0.0018	0.2316	0.0114	5/12/2014	5/12/2014	5/12/2014 2:17:29 PM		
11587	GLEN ULLIN	1045.3	0.6047	1344.2	-69.4	1.2349	1.0663	90.8351	6.1272	0.459	0.0356	0.0283	0.0037	0.0055	0	0.0021	0.1889	0.0114	5/16/2014	5/17/2014	5/17/2014 2:15:15 PM		
11587	GLEN ULLIN	1047.5	0.6073	1344	-65.9	1.3318	1.087	90.2953	6.4599	0.5152	0.0394	0.0287	0.0042	0.0061	0	0.0024	0.2145	0.0114	5/17/2014	5/18/2014	5/18/2014 2:16:33 PM		
11587	GLEN ULLIN	1052.2	0.6106	1346.6	-63.3	1.3264	1.0978	89.7223	6.9761	0.5531	0.0432	0.0316	0.0048	0.0068	0	0.0026	0.2162	0.0114	5/19/2014	5/19/2014	5/19/2014 2:16:40 PM		
11587	GLEN ULLIN	1031.5	0.6095	1346.9	-64.6	1.2727	1.0955	89.9512	6.8173	0.5385	0.0415	0.0306	0.0047	0.0066	0	0.0022	0.2053	0.0114	5/20/2014	5/20/2014	5/20/2014 2:17:27 PM		
11587	GLEN ULLIN	1048.7	0.6074	1345.6	-64.4	1.2176	1.1133	90.4286	6.7194	0.5433	0.0426	0.0312	0.0047	0.0067	0	0.0026	0.1924	0.0114	5/20/2014	5/21/2014	5/21/2014 2:16:35 PM		
11587	GLEN ULLIN	1048.7	0.6066	1346.5	-63.4	1.2359	1.057	90.485	6.1619	0.5389	0.0439	0.0322	0.0054	0.0073	0	0.0028	0.2261	0.0114	5/21/2014	5/22/2014	5/22/2014 2:17:44 PM		
11587	GLEN ULLIN	1048.3	0.6063	1346.2	-63.7	1.2177	1.0598	90.5161	6.3658	0.5056	0.0437	0.0321	0.0054	0.0074	0	0.0029	0.2296	0.0114	5/22/2014	5/23/2014	5/23/2014 2:17:25 PM		
11587	GLEN ULLIN	1048.3	0.6060	1346.2	-63.7	1.2177	1.0598	90.5161	6.3658	0.5056	0.0437	0.0321	0.0054	0.0074	0	0.0029	0.2296	0.0114	5/22/2014	5/23/2014	5/23/2014 2:17:11 PM		
11587	GLEN ULLIN	1052.9	0.6103	1347.8	-60.3	1.3161	1.0607	89.7398	6.9722	0.56	0.0483	0.0351	0.0062	0.0081	0	0.0032	0.2338	0.0114	5/24/2014	5/25/2014	5/25/2014 2:17:11 PM		
11587	GLEN ULLIN	1052.9	0.6103	1347.8	-60.3	1.3161	1.0607	89.7398	6.9722	0.56	0.0483	0.0351	0.0062	0.0081	0	0.0032	0.2338	0.0114	5/24/2014	5/26/2014	5/26/2014 2:15:30 PM		
11587	GLEN ULLIN	1052.2	0.6106	1346.5	-60.4	1.362	1.0795	89.7596	6.9602	0.5527	0.0423	0.0306	0.0045	0.0069	0	0.0026	0.1776	0.0114	5/26/2014	5/27/2014	5/27/2014 2:16:33 PM		
11587	GLEN ULLIN	1047.7	0.6071	1344.7	-68.6	1.2911	1.0818	89.4302	6.4739	0.4771	0.0338	0.0287	0.0037	0.0054	0	0.0019	0.1503	0.0114	5/28/2014	5/28/2014	5/28/2014 2:22:27 PM		
11587	GLEN ULLIN	1047.3	0.6054	1345.7	-66.3	1.2016	1.0651	90.7232	6.2173	0.4981	0.0389	0.0288	0.0047	0.0065	0	0.0024	0.1992	0.0114	5/29/2014	5/29/2014	5/29/2014 2:16:27 PM		
11587	GLEN ULLIN	1049.1	0.6072	1346.4	-68	1.2259	1.0784	90.3614	6.4635	0.5494	0.0409	0.0284	0.0039	0.0056	0	0.0017	0.226	0.0114	5/29/2014	5/30/2014	5/30/2014 2:15:56 PM		
11587	GLEN ULLIN	1047.7	0.6083	1343.3	-64.0	1.3391	1.1235	90.1048	6.5173	0.5418	0.0429	0.0369	0.0048	0.0066	0	0.0023	0.2655	0.0114	5/30/2014	5/31/2014	5/31/2014 2:18:27 PM		

31 record(s) retrieved

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
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	MAY 14	APR 14	MAR 14	FEB 14	JAN 14	DEC 13	NOV 13	OCT 13	SEPT 13	AUG 13	JULY 13	JUNE 13	ZONE
MT/ND	211	Sidney Area	1207	1212	1198	1204	1205	1208	1204	1209	1211	1206	1208	1209	1212	211
ND	24	Williston Area	1193	1180	1177	1181	1177	1201	1201	1207	1204	1199	1196	1198	1196	24
ND	25	Watford City Area	1204	1241	1221	1220	1205	1218	1191	1197	1183	1198	1193	1193	1188	25
ND/MT	241	Fairview Area	1200	1204	1194	1197	1197	1203	1197	1189	1198	1202	1203	1205	1205	241
ND	261	Williston - Tioga - Minot Line	1172	1118	1181	1187	1185	1189	1193	1166	1175	1180	1165	1172	1156	261
ND	262	Minot Area	1192	1161	1196	1201	1200	1201	1201	1192	1197	1196	1185	1191	1181	262
ND	263	Tioga - Portal	1092	1062	1074	1058	1051	1063	1061	1096	1125	1130	1130	1130	1127	263
ND	264	Williston - Ray	1193	1180	1177	1181	1177	1201	1201	1207	1204	1199	1196	1198	1196	264
ND	271	Bismarck - Cleveland	1170	1162	1192	1159	1127	1144	1145	1164	1184	1199	1187	1191	1183	271
ND	272	Cleveland - Mapleton	1170	1162	1192	1158	1127	1144	1145	1164	1184	1199	1187	1192	1183	272
ND	273	Cleveland - Grafton	1170	1162	1190	1158	1127	1144	1145	1164	1184	1199	1188	1192	1184	273
ND	28	Bismarck - Cabin Creek	1135	1155	1135	1077	1072	1081	1092	1105	1147	1199	1187	1191	1182	28
ND	31	Dickinson Area	1102	1140	1102	1079	1073	1082	1092	1107	1126	1079	1098	1112	1130	31
ND	311	Taylor Take-Off - Glen Ullin Comp	1115	1105	1091	1072	1197	1092	1092	1104	1108	1094	1135	1188	1097	311
ND/MT	32	Cabin Creek - Dickinson	1094	1100	1077	1061	1058	1070	1082	1096	1095	1115	1135	1142	1094	32
ND	33	Killdeer	1182	1183	1183	1180	1181	1182	1180	1180	1182	1183	1182	1183	1180	33
ND	34	Bowman Area	1099	1123	1030	1059	1047	1073	1082	1118	1118	1145	1127	1140	1121	34
ND	802	Linton	1038	1047	1044	1045	1039	1042	1033	1037	1037	1032	1032	1032	1036	802

**THERMAL ZONE VARIANCE
DOCUMENTATION**

May 2014

ZONE	BTU VARIANCE	REASON
25	20	Mix of gas in the area
28	20	Mix of gas in the area
31	38	Direction of gas flow changed
32	23	Direction of gas flow changed
34	93	Gas source changed to Baker/Little Beaver
261	-63	Direction of gas flow changed
262	-35	Direction of gas flow changed
271	-30	Mix of gas in the area
272	-30	Mix of gas in the area
273	-28	Mix of gas in the area