



MONTANA-DAKOTA

UTILITIES CO.

A Division of MDU Resources Group, Inc.

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

December 16, 2014

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

Re: Case No. 11,006 (Therm Billing)
Monthly Report – October 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 November 2014.
2. Attachment B consists of copies of the monthly Heating Value Test Reports received from our supplier for the month of October 2014. There is a report for each of the 18 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 October 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
November 2014**

Town	Heat Zone	Therm Factor
MDU-303-ALEXANDER	025	1.1400
MDU-308-ARNEGARD	025	1.1400
MDU-314-APPLE VALLEY	271	1.1144
MDU-318-BEACH	032	1.0572
MDU-319-BELFIELD	032	1.0650
MDU-323-BERTHOLD	262	1.0909
MDU-327-BISMARCK	028	1.0922
MDU-330-BOWMAN	034	1.0421
MDU-337-BURLINGTON	262	1.1144
MDU-343-CARRINGTON	273	1.1135
MDU-344-CLEVELAND	272	1.1056
MDU-364-CAVALIER	273	1.1370
MDU-365-DAWSON	271	1.1066
MDU-368-DES LACS	262	1.0987
MDU-369-DICKINSON	031	1.0821
MDU-374-FT TOTTEN	273	1.1213
MDU-375-DEVILS LAKE	273	1.1213
MDU-379-BARLOW	273	1.1135
MDU-384-EPPING	264	1.1240
MDU-387-ELDRIDGE	272	1.1135
MDU-407-GLADSTONE	031	1.0821
MDU-411-GLEN ULLIN	311	1.0541
MDU-413-GOLVA	032	1.0417
MDU-416-GARRISON	262	1.0987
MDU-417-GRAFTON	273	1.1448
MDU-429-HEBRON	311	1.0541
MDU-432-HETTINGER	903	2.3875
MDU-449-JAMESTOWN	272	1.1213
MDU-459-KILLDEER	033	1.1145
MDU-463-LANGDON	273	1.1135
MDU-469-LEFOR	031	1.0971
MDU-474-LIGNITE	263	1.0493
MDU-475-LINTON	802	1.0141
MDU-478-LINCOLN	028	1.1000
MDU-494-MEDINA	271	1.1066
MDU-498-MANDAN	028	1.1000
MDU-500-MARMARTH	034	1.0498
MDU-505-MINOT	262	1.1144
MDU-510-MOTT	031	1.0821
MDU-512-MAX	262	1.0862
MDU-522-NEW ENGLAND	031	1.0743
MDU-524-NEW SALEM	028	1.1000
MDU-532-NEW ROCKFORD	273	1.1135
MDU-539-PARK RIVER	273	1.1370
MDU-540-PALERMO	262	1.0909
MDU-558-RAY	264	1.1240
MDU-561-REGENT	031	1.0821
MDU-563-RHAME	034	1.0344
MDU-564-RICHARDTON	311	1.0389

MDU-568-ROSS	261	0.9574
MDU-572-RUTHVILLE	262	1.1144
MDU-574-SANBORN	272	1.1213
MDU-583-SENTINEL BUTTE	032	1.0572
MDU-588-SOUTH HEART	031	1.0743
MDU-717-SPIRITWOOD	272	1.1213
MDU-590-SPRINGBROOK	264	1.1240
MDU-591-STANLEY	261	0.9643
MDU-593-STEELE	271	1.1066
MDU-598-SHEYENNE	273	1.1213
MDU-605-SURREY	262	1.1144
MDU-610-TAPPEN	271	1.1066
MDU-611-TAYLOR	031	1.0743
MDU-616-TIOGA	261	0.9574
MDU-619-TURTLE LAKE	262	1.0987
MDU-620-TRENTON	024	1.1320
MDU-624-UNDERWOOD	262	1.0987
MDU-625-VALLEY CITY	272	1.1291
MDU-629-WALHALLA	273	1.1370
MDU-632-WATFORD CITY	610	1.1381
MDU-636-WHEELOCK	264	1.1159
MDU-637-WHITE EARTH	261	0.9643
MDU-642-WILLISTON	024	1.1320
MDU-646-WASHBURN	262	1.1066
MDU-647-WILTON	262	1.0862
MDU-664-RIVERDALE	262	1.0940
MDU-691-FAIRVIEW	241	1.1387
MDU-712-MINOT AFB	262	1.1144
MDU-732-MSR SITE	273	1.1057

GQ Source Daily Summary

October 2014

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		CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
		Wet	Dry																
1	0.7280	1183.3	1204.2	0.820	3.683	69.001	22.599	3.602	0.097	0.179	0.010	0.008	0.000	0.000	0.000	0.000	0.000	1411.44	
2	0.7227	1198.4	1219.7	0.059	3.417	68.672	24.528	3.149	0.061	0.105	0.004	0.004	0.000	0.000	0.000	0.000	0.000	1434.71	
3	0.7231	1199.3	1220.5	0.065	3.397	68.785	24.306	3.213	0.077	0.143	0.007	0.007	0.000	0.000	0.000	0.000	0.000	1435.27	
4	0.7224	1198.5	1219.7	0.063	3.386	68.835	24.337	3.158	0.072	0.134	0.008	0.007	0.000	0.000	0.000	0.000	0.000	1434.99	
5	0.7234	1195.4	1216.6	0.201	3.456	68.758	24.179	3.214	0.067	0.115	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1430.39	
6	0.7189	1193.2	1214.3	0.055	3.397	69.010	24.560	2.870	0.042	0.063	0.002	0.001	0.000	0.000	0.000	0.000	0.000	1432.12	
7	0.7176	1191.6	1212.7	0.051	3.371	69.156	24.559	2.771	0.036	0.053	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1431.62	
8	0.7168	1190.7	1211.8	0.053	3.351	69.311	24.446	2.732	0.041	0.062	0.002	0.002	0.000	0.000	0.000	0.000	0.000	1431.26	
9	0.7206	1196.3	1217.5	0.057	3.362	68.939	24.458	3.026	0.057	0.094	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1434.16	
10	0.7195	1195.3	1216.4	0.059	3.315	69.132	24.341	3.004	0.055	0.087	0.003	0.003	0.000	0.000	0.000	0.000	0.000	1434.06	
11	0.7217	1197.8	1219.0	0.064	3.359	68.889	24.374	3.125	0.065	0.114	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1434.89	
12	0.7242	1202.1	1223.4	0.063	3.332	68.628	24.467	3.270	0.079	0.146	0.008	0.007	0.000	0.000	0.000	0.000	0.000	1437.55	
13	0.7242	1203.8	1225.1	0.051	3.251	68.324	25.090	3.124	0.058	0.096	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1439.57	
14	0.7252	1204.4	1225.7	0.088	3.255	68.178	25.169	3.145	0.059	0.098	0.004	0.004	0.000	0.000	0.000	0.000	0.000	1439.26	
15	0.7204	1186.3	1207.3	0.398	3.434	69.326	23.674	2.974	0.069	0.115	0.006	0.004	0.000	0.000	0.000	0.000	0.000	1422.43	
16	0.7159	1189.0	1210.0	0.059	3.357	69.592	24.115	2.735	0.052	0.084	0.003	0.003	0.000	0.000	0.000	0.000	0.000	1430.11	
17	0.7265	1207.0	1228.3	0.056	3.260	68.477	24.448	3.470	0.093	0.177	0.010	0.009	0.000	0.000	0.000	0.000	0.000	1441.10	
18	0.7112	1182.2	1203.1	0.053	3.344	69.974	24.258	2.285	0.032	0.050	0.002	0.001	0.000	0.000	0.000	0.000	0.000	1426.61	
19	0.7260	1176.9	1197.7	0.945	3.696	69.138	22.729	3.183	0.099	0.189	0.011	0.009	0.000	0.000	0.000	0.000	0.000	1405.79	6.30
20	0.7290	1172.3	1193.1	1.185	3.888	69.726	20.831	3.945	0.137	0.261	0.015	0.012	0.000	0.000	0.000	0.000	0.000	1397.29	4.21
21	0.7257	1167.1	1187.7	1.179	3.906	70.121	20.686	3.690	0.135	0.255	0.015	0.012	0.000	0.000	0.000	0.000	0.000	1394.23	2.19
22	0.7352	1184.7	1205.7	1.181	3.714	68.482	22.228	4.013	0.125	0.235	0.013	0.011	0.000	0.000	0.000	0.000	0.000	1406.21	6.16
23	0.7341	1181.1	1202.0	1.176	3.840	68.947	21.414	4.196	0.138	0.261	0.015	0.013	0.000	0.000	0.000	0.000	0.000	1402.93	6.80
24	0.7342	1181.7	1202.6	1.194	3.793	68.654	21.994	3.963	0.129	0.245	0.014	0.012	0.000	0.000	0.000	0.000	0.000	1403.45	5.83
25	0.7339	1181.3	1202.2	1.201	3.775	68.581	22.212	3.849	0.123	0.234	0.014	0.011	0.000	0.000	0.000	0.000	0.000	1403.35	5.17
26	0.7338	1181.1	1202.1	1.203	3.773	68.617	22.159	3.867	0.124	0.233	0.013	0.011	0.000	0.000	0.000	0.000	0.000	1403.24	5.16
27	0.7340	1181.6	1202.6	1.199	3.768	68.629	22.086	3.944	0.122	0.229	0.013	0.010	0.000	0.000	0.000	0.000	0.000	1403.63	5.37
28	0.7332	1180.2	1201.1	1.205	3.764	68.735	22.049	3.878	0.121	0.226	0.012	0.010	0.000	0.000	0.000	0.000	0.000	1402.78	4.82
29	0.7331	1180.0	1200.9	1.206	3.773	68.817	21.907	3.915	0.125	0.231	0.014	0.011	0.000	0.000	0.000	0.000	0.000	1402.54	4.79
30	0.7251	1197.4	1218.6	0.245	3.424	68.641	24.134	3.338	0.074	0.131	0.007	0.006	0.000	0.000	0.000	0.000	0.000	1431.12	
31	0.7219	1198.4	1219.6	0.051	3.363	68.805	24.490	3.106	0.064	0.112	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1435.40	
Avg	0.7252	1190.0	1210.7	0.500	3.523	68.932	23.446	3.347	0.085	0.153	0.008	0.007	0.000	0.000	0.000	0.000	0.000	1421.73	5.16

Zone 211

GQ Source Daily Summary

October 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	0.7118	1169.6	1190.3	0.889	2.892	71.711	21.597	2.506	0.105	0.249	0.023	0.029	0.000	0.000	0.000	0.000	0.000	1410.79	
2	0.7150	1174.4	1195.2	0.931	2.833	71.026	22.293	2.565	0.096	0.217	0.018	0.022	0.000	0.000	0.000	0.000	0.000	1413.50	
3	0.7164	1178.9	1199.8	0.920	2.706	70.949	22.345	2.689	0.107	0.243	0.019	0.023	0.000	0.000	0.000	0.000	0.000	1417.52	
4	0.7154	1177.8	1198.7	0.925	2.668	71.285	22.039	2.619	0.120	0.286	0.026	0.032	0.000	0.000	0.000	0.000	0.000	1417.21	
5	0.7143	1177.2	1198.0	0.919	2.611	71.475	21.938	2.606	0.118	0.277	0.025	0.031	0.000	0.000	0.000	0.000	0.000	1417.54	
6	0.7121	1172.7	1193.4	0.915	2.691	71.511	22.090	2.434	0.097	0.222	0.018	0.022	0.000	0.000	0.000	0.000	0.000	1414.26	
7	0.7153	1176.0	1196.8	0.925	2.775	71.064	22.310	2.521	0.105	0.249	0.023	0.028	0.000	0.000	0.000	0.000	0.000	1415.07	
8	0.7188	1180.7	1201.6	0.915	2.825	70.760	22.241	2.773	0.125	0.301	0.027	0.033	0.000	0.000	0.000	0.000	0.000	1417.34	
9	0.7166	1176.8	1197.7	0.944	2.810	71.370	21.500	2.897	0.124	0.294	0.027	0.034	0.000	0.000	0.000	0.000	0.000	1414.83	
10	0.7071	1167.5	1188.2	0.904	2.552	72.334	21.620	2.238	0.097	0.216	0.018	0.021	0.000	0.000	0.000	0.000	0.000	1413.03	
11	0.7156	1175.3	1196.1	0.915	2.854	71.289	21.752	2.748	0.116	0.272	0.024	0.030	0.000	0.000	0.000	0.000	0.000	1413.99	
12	0.7159	1175.0	1195.8	0.931	2.877	71.176	21.891	2.689	0.113	0.268	0.024	0.030	0.000	0.000	0.000	0.000	0.000	1413.31	
13	0.7160	1174.9	1195.7	0.923	2.903	71.302	21.627	2.781	0.120	0.284	0.026	0.033	0.000	0.000	0.000	0.000	0.000	1413.11	
14	0.7027	1155.7	1176.2	0.850	2.945	73.142	20.422	2.307	0.091	0.207	0.017	0.020	0.000	0.000	0.000	0.000	0.000	1403.00	
15	0.7001	1152.3	1172.7	0.860	2.889	73.360	20.505	2.112	0.079	0.169	0.012	0.014	0.000	0.000	0.000	0.000	0.000	1401.57	
16	0.7057	1162.0	1182.6	0.917	2.742	72.377	21.502	2.169	0.084	0.180	0.013	0.015	0.000	0.000	0.000	0.000	0.000	1407.72	
17	0.7074	1165.0	1185.6	0.925	2.712	71.979	21.945	2.172	0.080	0.166	0.010	0.011	0.000	0.000	0.000	0.000	0.000	1409.57	
18	0.7082	1165.9	1186.6	0.927	2.719	71.914	21.944	2.211	0.083	0.177	0.012	0.014	0.000	0.000	0.000	0.000	0.000	1410.02	
19	0.7062	1162.6	1183.2	0.909	2.766	72.202	21.685	2.168	0.080	0.169	0.011	0.011	0.000	0.000	0.000	0.000	0.000	1407.93	
20	0.7133	1172.0	1192.7	0.925	2.833	71.423	21.898	2.537	0.102	0.235	0.021	0.026	0.000	0.000	0.000	0.000	0.000	1412.19	
21	0.7170	1177.2	1198.0	0.928	2.857	71.155	21.783	2.804	0.122	0.290	0.027	0.035	0.000	0.000	0.000	0.000	0.000	1414.79	
22	0.7138	1173.1	1193.9	0.919	2.816	71.501	21.700	2.646	0.112	0.259	0.022	0.027	0.000	0.000	0.000	0.000	0.000	1413.10	
23	0.7154	1175.6	1196.5	0.929	2.798	71.369	21.708	2.744	0.119	0.278	0.025	0.031	0.000	0.000	0.000	0.000	0.000	1414.56	
24	0.7145	1174.6	1195.4	0.929	2.773	71.511	21.634	2.707	0.117	0.273	0.025	0.031	0.000	0.000	0.000	0.000	0.000	1414.25	
25	0.7131	1172.8	1193.5	0.914	2.781	71.642	21.589	2.655	0.112	0.258	0.022	0.026	0.000	0.000	0.000	0.000	0.000	1413.36	
26	0.7132	1173.7	1194.5	0.927	2.716	71.572	21.790	2.582	0.110	0.254	0.022	0.028	0.000	0.000	0.000	0.000	0.000	1414.36	
27	0.6980	1155.1	1175.5	0.859	2.526	73.774	20.551	1.983	0.088	0.190	0.014	0.015	0.000	0.000	0.000	0.000	0.000	1407.00	
28	0.6941	1148.8	1169.1	0.792	2.644	74.424	19.931	1.883	0.092	0.203	0.014	0.016	0.000	0.000	0.000	0.000	0.000	1403.21	
29	0.7001	1150.6	1171.0	0.800	3.075	73.741	19.672	2.344	0.098	0.227	0.019	0.023	0.000	0.000	0.000	0.000	0.000	1399.54	
30	0.7095	1166.3	1186.9	0.814	2.984	72.254	20.940	2.563	0.115	0.273	0.025	0.031	0.000	0.000	0.000	0.000	0.000	1409.16	
31	0.7088	1164.4	1185.1	0.854	2.971	72.253	21.049	2.463	0.106	0.251	0.023	0.029	0.000	0.000	0.000	0.000	0.000	1407.63	
Av9	0.7107	1169.0	1189.9	0.901	2.792	71.898	21.532	2.488	0.104	0.240	0.020	0.025	0.000	0.000	0.000	0.000	0.000	1411.43	

Zone 24, 264

GQ Source Analysis

GQ Source Number:	0602160	Specific Gravity:	0.7297
GQ Source Name:	FAIRVIEW BORDER	Dry Heat Value:	1197.42
Effective Date:	10/1/2014 9:00:00 AM	Wet Heat Value:	1176.58
Effective End Date:	1/18/2038 9:14:07 PM	As Deliv. Heat Value:	1197.42
Pressure Base:	14.730	Sample Pressure:	316.00
Viscosity:		Sample Temperature:	0.00

		<u>Mol %</u>	<u>Liquid Content</u>			<u>Mol %</u>
C1	Methane	69.087		CO2	Carbon Dioxide	1.146
C2	Ethane	21.771	5.8051	N2	Nitrogen	3.706
C3	Propane	3.886	1.0675	O2	Oxygen	0.011
IC4	Isobutane	0.143	0.0467	He	Helium	
NC4	n-Butane	0.225	0.0707	H2	Hydrogen	
IC5	Isopentane	0.013	0.0049	H2S	Hydrogen Sulfide	
NC5	n-Pentane	0.012	0.0043	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%		6.999 GPM	

Sample Date: 10/1/2014 9:00:00 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:	0.7235
GQ Source Name:	WATFORD CITY BORDER	Dry Heat Value:	1206.59
Effective Date:	10/1/2014 9:00:00 AM	Wet Heat Value:	1185.60
Effective End Date:	1/18/2038 9:14:07 PM	As Deliv. Heat Value:	1206.59
Pressure Base:	14.730	Sample Pressure:	500.00
Viscosity:		Sample Temperature:	0.00

		<u>Mol %</u>	<u>Liquid Content</u>			<u>Mol %</u>
C1	Methane	69.531		CO2	Carbon Dioxide	0.977
C2	Ethane	23.397	6.2387	N2	Nitrogen	2.838
C3	Propane	2.702	0.7422	O2	Oxygen	0.000
IC4	Isobutane	0.164	0.0534	He	Helium	
NC4	n-Butane	0.319	0.1004	H2	Hydrogen	
IC5	Isopentane	0.032	0.0117	H2S	Hydrogen Sulfide	
NC5	n-Pentane	0.036	0.0129	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% 7.159 GPM

Sample Date: 10/1/2014 9:00:00 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:	0.6579
GQ Source Name:	LIGNITE PLANT	Dry Heat Value:	1103.15
Effective Date:	9/1/2014 9:00:00 AM	Wet Heat Value:	1083.95
Effective End Date:	1/18/2038 9:14:07 PM	As Deliv. Heat Value:	1103.15
Pressure Base:	14.730	Sample Pressure:	348.00
Viscosity:		Sample Temperature:	

		<u>Mol %</u>	<u>Liquid Content</u>			<u>Mol %</u>
C1	Methane	79.157		CO2	Carbon Dioxide	0.094
C2	Ethane	15.506	4.1346	N2	Nitrogen	4.218
C3	Propane	1.015	0.2789	O2	Oxygen	0.008
IC4	Isobutane	0.000	0.0000	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		99.998%	4.414 GPM			

Sample Date: 10/1/2014 12:00:00 AM
Sample Type: Composite
Sample Tech: Rocky Robson
H2S: ppm

Sample Remarks:

Analysis Tech: MB

Analysis Remarks:

Zone 263

*** End of Report ***

GQ Source Daily Summary

October 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	0.7083	1131.3	1151.3	0.600	5.328	72.670	17.637	3.292	0.127	0.304	0.021	0.022	0.000	0.000	0.000	0.000	0.000	1367.99	
2	0.7136	1138.0	1158.2	0.629	5.372	71.756	18.333	3.424	0.133	0.312	0.020	0.021	0.000	0.000	0.000	0.000	0.000	1370.98	
3	0.7083	1131.1	1151.1	0.606	5.332	72.588	17.757	3.261	0.125	0.293	0.018	0.020	0.000	0.000	0.000	0.000	0.000	1367.79	
4	0.7103	1134.0	1154.1	0.617	5.324	72.351	17.877	3.346	0.132	0.310	0.021	0.023	0.000	0.000	0.000	0.000	0.000	1369.37	
5	0.7083	1130.0	1150.0	0.605	5.400	72.683	17.530	3.302	0.131	0.306	0.021	0.023	0.000	0.000	0.000	0.000	0.000	1366.44	
6	0.7111	1136.0	1156.1	0.620	5.269	72.252	17.991	3.378	0.134	0.312	0.021	0.023	0.000	0.000	0.000	0.000	0.000	1371.05	
7	0.7097	1132.9	1152.9	0.615	5.341	72.418	17.826	3.328	0.130	0.302	0.019	0.021	0.000	0.000	0.000	0.000	0.000	1368.58	
8	0.7105	1134.9	1155.0	0.612	5.295	72.337	17.899	3.366	0.134	0.313	0.021	0.023	0.000	0.000	0.000	0.000	0.000	1370.28	
9	0.7118	1135.9	1156.0	0.612	5.360	72.069	18.080	3.390	0.134	0.311	0.020	0.022	0.000	0.000	0.000	0.000	0.000	1370.18	
10	0.7152	1142.0	1162.3	0.617	5.293	71.434	18.756	3.410	0.135	0.315	0.020	0.022	0.000	0.000	0.000	0.000	0.000	1374.38	
11	0.7052	1132.6	1152.7	0.619	4.922	73.250	17.587	3.158	0.124	0.294	0.021	0.024	0.000	0.000	0.000	0.000	0.000	1372.67	
12	0.7124	1134.9	1155.0	0.603	5.486	71.931	18.091	3.411	0.132	0.307	0.019	0.020	0.000	0.000	0.000	0.000	0.000	1368.46	
13	0.7096	1131.1	1151.1	0.586	5.484	72.372	17.759	3.334	0.128	0.298	0.018	0.020	0.000	0.000	0.000	0.000	0.000	1366.51	
14	0.7119	1133.6	1153.6	0.598	5.535	71.981	18.012	3.400	0.131	0.304	0.019	0.020	0.000	0.000	0.000	0.000	0.000	1367.25	
15	0.7210	1142.7	1163.0	0.628	5.781	70.624	18.599	3.871	0.144	0.319	0.017	0.017	0.000	0.000	0.000	0.000	0.000	1369.61	
16	0.7148	1135.6	1155.7	0.590	5.686	71.742	17.733	3.761	0.141	0.314	0.016	0.017	0.000	0.000	0.000	0.000	0.000	1367.02	
17	0.7104	1130.3	1150.3	0.580	5.616	72.418	17.326	3.602	0.133	0.294	0.015	0.016	0.000	0.000	0.000	0.000	0.000	1364.78	
18	0.7118	1132.4	1152.5	0.595	5.595	72.177	17.536	3.644	0.132	0.291	0.015	0.016	0.000	0.000	0.000	0.000	0.000	1366.03	
19	0.7123	1131.2	1151.3	0.598	5.707	72.090	17.491	3.653	0.134	0.296	0.015	0.016	0.000	0.000	0.000	0.000	0.000	1364.11	
20	0.7109	1129.4	1149.4	0.588	5.708	72.317	17.310	3.612	0.134	0.299	0.015	0.016	0.000	0.000	0.000	0.000	0.000	1363.21	
21	0.7120	1132.0	1152.0	0.594	5.640	72.178	17.471	3.645	0.137	0.304	0.016	0.016	0.000	0.000	0.000	0.000	0.000	1365.28	
22	0.7126	1133.0	1153.1	0.595	5.629	72.094	17.543	3.658	0.138	0.309	0.016	0.017	0.000	0.000	0.000	0.000	0.000	1366.01	
23	0.7112	1131.1	1151.1	0.590	5.624	72.308	17.401	3.599	0.137	0.308	0.017	0.017	0.000	0.000	0.000	0.000	0.000	1365.03	
24	0.7124	1132.9	1153.0	0.597	5.618	72.117	17.552	3.628	0.139	0.313	0.017	0.018	0.000	0.000	0.000	0.000	0.000	1366.01	
25	0.7122	1132.1	1152.2	0.600	5.640	72.144	17.516	3.616	0.138	0.312	0.017	0.018	0.000	0.000	0.000	0.000	0.000	1365.31	
26	0.7108	1129.2	1149.2	0.593	5.699	72.399	17.203	3.633	0.137	0.305	0.016	0.017	0.000	0.000	0.000	0.000	0.000	1363.11	
27	0.7184	1139.3	1159.4	0.626	5.753	71.191	18.034	3.887	0.147	0.327	0.017	0.018	0.000	0.000	0.000	0.000	0.000	1367.90	
28	0.7161	1135.6	1155.7	0.599	5.792	71.607	17.627	3.872	0.146	0.323	0.016	0.016	0.000	0.000	0.000	0.000	0.000	1365.79	
29	0.7272	1150.3	1170.7	0.656	5.859	69.762	19.005	4.176	0.158	0.349	0.017	0.018	0.000	0.000	0.000	0.000	0.000	1372.80	
30	0.7210	1142.2	1162.4	0.617	5.826	70.761	18.305	3.966	0.151	0.338	0.017	0.017	0.000	0.000	0.000	0.000	0.000	1369.00	
31	0.7178	1138.8	1159.0	0.604	5.753	71.323	17.907	3.899	0.149	0.332	0.017	0.017	0.000	0.000	0.000	0.000	0.000	1367.96	
Avg	0.7129	1135.0	1154.8	0.606	5.538	71.979	17.829	3.565	0.136	0.310	0.018	0.019	0.000	0.000	0.000	0.000	0.000	1367.77	

Zone 271

GQ Source Daily Summary

October 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	0.7056	1128.8	1148.8	0.601	5.225	73.111	17.389	3.212	0.126	0.294	0.020	0.022	0.000					1367.63	
2	0.7037	1123.5	1143.4	0.577	5.409	73.414	16.941	3.205	0.125	0.289	0.019	0.021	0.000					1362.98	
3	0.7145	1139.6	1159.8	0.646	5.335	71.579	18.531	3.430	0.132	0.306	0.020	0.022	0.000					1372.04	
4	0.7084	1131.2	1151.2	0.614	5.324	72.580	17.751	3.275	0.125	0.291	0.019	0.020	0.000					1367.80	
5	0.7108	1133.5	1153.6	0.619	5.402	72.238	17.898	3.353	0.132	0.311	0.022	0.024	0.000					1368.26	
6	0.7107	1135.4	1155.5	0.618	5.275	72.275	17.996	3.353	0.132	0.308	0.021	0.023	0.000					1370.64	
7	0.7073	1129.1	1149.1	0.603	5.368	72.775	17.540	3.253	0.127	0.294	0.020	0.021	0.000					1366.30	
8	0.7107	1134.7	1154.8	0.616	5.317	72.239	18.010	3.342	0.131	0.304	0.020	0.022	0.000					1369.87	
9	0.7116	1135.5	1155.6	0.614	5.365	72.093	18.058	3.384	0.133	0.310	0.021	0.022	0.000					1369.85	
10	0.7129	1138.0	1158.1	0.614	5.331	71.818	18.390	3.363	0.133	0.308	0.020	0.022	0.000					1371.66	
11	0.6989	1123.7	1143.6	0.580	4.933	74.193	16.916	2.950	0.116	0.271	0.019	0.022	0.000					1368.03	
12	0.7189	1145.7	1166.0	0.652	5.367	70.875	19.038	3.560	0.139	0.323	0.022	0.024	0.000					1375.17	
13	0.7089	1129.6	1149.6	0.582	5.518	72.450	17.680	3.312	0.127	0.293	0.018	0.019	0.000					1365.37	
14	0.7104	1131.7	1151.8	0.593	5.513	72.195	17.898	3.338	0.128	0.296	0.019	0.020	0.000					1366.50	
15	0.7192	1141.6	1161.8	0.629	5.678	70.795	18.750	3.654	0.139	0.317	0.019	0.020	0.000					1369.99	
16	0.7154	1135.3	1155.4	0.598	5.750	71.608	17.788	3.773	0.141	0.310	0.016	0.016	0.000					1366.05	
17	0.7116	1131.1	1151.1	0.580	5.682	72.246	17.343	3.678	0.137	0.303	0.016	0.016	0.000					1364.58	
18	0.7100	1129.9	1149.9	0.587	5.589	72.459	17.337	3.581	0.130	0.285	0.015	0.016	0.000					1364.72	
19	0.7122	1131.7	1151.8	0.599	5.665	72.090	17.548	3.646	0.132	0.288	0.015	0.016	0.000					1364.83	
20	0.7117	1129.9	1149.9	0.592	5.745	72.146	17.446	3.615	0.133	0.293	0.015	0.016	0.000					1363.03	
21	0.7113	1130.3	1150.4	0.594	5.678	72.230	17.434	3.603	0.134	0.296	0.015	0.016	0.000					1363.96	
22	0.7123	1132.2	1152.3	0.596	5.651	72.119	17.515	3.643	0.137	0.306	0.017	0.017	0.000					1365.29	
23	0.7103	1129.3	1149.3	0.585	5.656	72.428	17.281	3.585	0.134	0.299	0.016	0.016	0.000					1363.73	
24	0.7119	1132.0	1152.0	0.596	5.632	72.173	17.508	3.607	0.138	0.310	0.018	0.019	0.000					1365.36	
25	0.7106	1130.0	1150.0	0.590	5.642	72.379	17.340	3.574	0.136	0.304	0.017	0.018	0.000					1364.17	
26	0.7123	1131.1	1151.1	0.601	5.712	72.118	17.446	3.645	0.137	0.306	0.017	0.017	0.000					1363.95	
27	0.7107	1129.0	1149.0	0.598	5.701	72.385	17.234	3.611	0.136	0.303	0.016	0.017	0.000					1362.87	
28	0.7248	1146.5	1166.8	0.640	5.890	70.129	18.710	4.104	0.154	0.340	0.017	0.017	0.000					1370.51	
29	0.7173	1137.3	1157.4	0.616	5.783	71.332	17.927	3.848	0.143	0.318	0.017	0.017	0.000					1366.59	
30	0.7232	1144.3	1164.6	0.632	5.880	70.373	18.566	4.024	0.152	0.339	0.017	0.017	0.000					1369.47	
31	0.7184	1138.8	1159.0	0.609	5.806	71.217	17.921	3.931	0.149	0.332	0.017	0.017	0.000					1367.36	
Avg	0.7121	1134.0	1153.6	0.605	5.543	72.066	17.778	3.531	0.134	0.305	0.018	0.019	0.000					1367.05	

Zone 272

GQ Source Daily Summary

October 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	0.7044	1127.2	1147.2	0.597	5.212	73.312	17.248	3.172	0.125	0.292	0.020	0.022	0.000	0.000	0.000	0.000	0.000	1366.88	
2	0.7036	1123.2	1143.0	0.576	5.417	73.441	16.913	3.200	0.125	0.289	0.019	0.021	0.000	0.000	0.000	0.000	0.000	1362.71	
3	0.7146	1139.6	1159.8	0.646	5.339	71.562	18.542	3.432	0.132	0.305	0.020	0.022	0.000	0.000	0.000	0.000	0.000	1372.03	
4	0.7085	1131.4	1151.4	0.615	5.320	72.563	17.772	3.275	0.125	0.291	0.019	0.020	0.000	0.000	0.000	0.000	0.000	1367.92	
5	0.7107	1133.3	1153.4	0.618	5.402	72.269	17.872	3.349	0.132	0.312	0.022	0.024	0.000	0.000	0.000	0.000	0.000	1368.15	
6	0.7105	1135.0	1155.1	0.618	5.280	72.302	17.968	3.349	0.132	0.308	0.021	0.023	0.000	0.000	0.000	0.000	0.000	1370.38	
7	0.7073	1129.1	1149.1	0.603	5.365	72.782	17.534	3.254	0.127	0.295	0.020	0.021	0.000	0.000	0.000	0.000	0.000	1366.33	
8	0.7108	1134.8	1154.9	0.617	5.319	72.221	18.024	3.343	0.130	0.304	0.020	0.022	0.000	0.000	0.000	0.000	0.000	1369.89	
9	0.7116	1135.4	1155.5	0.614	5.363	72.105	18.049	3.384	0.133	0.310	0.021	0.022	0.000	0.000	0.000	0.000	0.000	1369.85	
10	0.7130	1138.2	1158.3	0.615	5.329	71.803	18.402	3.367	0.133	0.308	0.021	0.022	0.000	0.000	0.000	0.000	0.000	1371.77	
11	0.6986	1123.5	1143.3	0.579	4.931	74.230	16.887	2.946	0.116	0.270	0.019	0.022	0.000	0.000	0.000	0.000	0.000	1367.91	
12	0.7189	1145.7	1166.0	0.652	5.365	70.876	19.038	3.561	0.139	0.324	0.022	0.024	0.000	0.000	0.000	0.000	0.000	1375.21	
13	0.7090	1129.7	1149.7	0.582	5.516	72.444	17.687	3.313	0.127	0.293	0.019	0.019	0.000	0.000	0.000	0.000	0.000	1365.45	
14	0.7105	1131.9	1151.9	0.593	5.511	72.180	17.911	3.340	0.128	0.297	0.019	0.020	0.000	0.000	0.000	0.000	0.000	1366.60	
15	0.7191	1141.6	1161.8	0.629	5.677	70.795	18.755	3.651	0.138	0.316	0.019	0.020	0.000	0.000	0.000	0.000	0.000	1369.98	
16	0.7143	1133.8	1153.9	0.595	5.749	71.779	17.657	3.740	0.139	0.309	0.016	0.016	0.000	0.000	0.000	0.000	0.000	1365.22	
17	0.7117	1131.2	1151.2	0.581	5.680	72.240	17.348	3.680	0.137	0.303	0.016	0.016	0.000	0.000	0.000	0.000	0.000	1364.65	
18	0.7100	1130.0	1150.0	0.588	5.587	72.451	17.344	3.583	0.130	0.285	0.015	0.016	0.000	0.000	0.000	0.000	0.000	1364.80	
19	0.7122	1131.8	1151.9	0.598	5.666	72.080	17.554	3.649	0.132	0.289	0.015	0.016	0.000	0.000	0.000	0.000	0.000	1364.88	
20	0.7118	1129.9	1150.0	0.593	5.746	72.134	17.453	3.616	0.133	0.293	0.016	0.016	0.000	0.000	0.000	0.000	0.000	1363.06	
21	0.7113	1130.4	1150.4	0.594	5.677	72.228	17.435	3.603	0.134	0.296	0.016	0.016	0.000	0.000	0.000	0.000	0.000	1364.00	
22	0.7123	1132.2	1152.3	0.597	5.648	72.119	17.515	3.644	0.137	0.306	0.017	0.017	0.000	0.000	0.000	0.000	0.000	1365.33	
23	0.7102	1129.3	1149.3	0.585	5.652	72.443	17.270	3.585	0.134	0.299	0.016	0.016	0.000	0.000	0.000	0.000	0.000	1363.77	
24	0.7120	1132.2	1152.2	0.597	5.630	72.156	17.523	3.609	0.138	0.310	0.018	0.019	0.000	0.000	0.000	0.000	0.000	1365.46	
25	0.7108	1130.2	1150.2	0.591	5.641	72.352	17.363	3.579	0.136	0.304	0.017	0.017	0.000	0.000	0.000	0.000	0.000	1364.31	
26	0.7124	1131.3	1151.4	0.602	5.710	72.094	17.467	3.648	0.138	0.307	0.017	0.017	0.000	0.000	0.000	0.000	0.000	1364.07	
27	0.7109	1129.3	1149.3	0.598	5.699	72.353	17.261	3.617	0.136	0.303	0.016	0.017	0.000	0.000	0.000	0.000	0.000	1363.09	
28	0.7250	1146.9	1167.2	0.641	5.884	70.091	18.743	4.111	0.154	0.340	0.017	0.017	0.000	0.000	0.000	0.000	0.000	1370.81	
29	0.7175	1137.6	1157.7	0.616	5.780	71.305	17.950	3.854	0.144	0.318	0.017	0.017	0.000	0.000	0.000	0.000	0.000	1366.79	
30	0.7234	1144.8	1165.1	0.632	5.872	70.337	18.601	4.032	0.153	0.340	0.017	0.017	0.000	0.000	0.000	0.000	0.000	1369.85	
31	0.7186	1139.2	1159.4	0.609	5.801	71.185	17.949	3.939	0.150	0.333	0.017	0.017	0.000	0.000	0.000	0.000	0.000	1367.64	
Avg	0.7121	1134.0	1153.6	0.606	5.541	72.072	17.775	3.530	0.134	0.305	0.018	0.019	0.000	0.000	0.000	0.000	0.000	1367.06	

Zone 273

GQ Source Daily Summary

October 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	0.7085	1132.9	1153.0	0.599	5.248	72.679	17.671	3.325	0.132	0.304	0.020	0.022	0.000	0.000	0.000	0.000	0.000	1369.79	
2	0.7133	1137.4	1157.6	0.626	5.381	71.816	18.271	3.419	0.133	0.312	0.020	0.022	0.000	0.000	0.000	0.000	0.000	1370.59	
3	0.6732	1102.9	1122.4	0.886	3.326	78.853	14.783	1.797	0.116	0.180	0.035	0.023	0.000	0.000	0.000	0.000	0.000	1368.22	
4	0.6445	1079.5	1098.6	1.116	1.705	84.130	12.198	0.584	0.108	0.081	0.051	0.026	0.000	0.000	0.000	0.000	0.000	1368.17	
5	0.6637	1116.2	1135.9	0.592	2.080	79.126	17.468	0.588	0.059	0.046	0.026	0.013	0.000	0.000	0.000	0.000	0.000	1394.34	
6	0.6514	1090.1	1109.4	0.945	1.974	82.356	13.790	0.700	0.094	0.079	0.041	0.021	0.000	0.000	0.000	0.000	0.000	1374.51	
7	0.6530	1086.6	1105.8	1.022	2.217	82.436	13.094	0.948	0.108	0.107	0.044	0.023	0.000	0.000	0.000	0.000	0.000	1368.53	
8	0.6511	1091.1	1110.4	0.939	1.895	82.413	13.891	0.633	0.093	0.073	0.043	0.021	0.000	0.000	0.000	0.000	0.000	1376.05	
9	0.6725	1132.2	1152.3	0.378	2.258	76.912	19.734	0.621	0.040	0.033	0.016	0.008	0.000	0.000	0.000	0.000	0.000	1405.11	
10	0.6865	1125.9	1145.9	0.478	3.799	75.549	17.931	1.973	0.082	0.155	0.018	0.014	0.000	0.000	0.000	0.000	0.000	1383.27	
11	0.6919	1120.7	1140.6	0.571	4.478	75.319	16.609	2.637	0.106	0.237	0.020	0.022	0.000	0.000	0.000	0.000	0.000	1371.29	
12	0.7125	1135.0	1155.1	0.604	5.488	71.916	18.099	3.415	0.132	0.307	0.019	0.021	0.000	0.000	0.000	0.000	0.000	1368.49	
13	0.7099	1131.4	1151.5	0.587	5.492	72.322	17.790	3.343	0.129	0.299	0.019	0.020	0.000	0.000	0.000	0.000	0.000	1366.63	
14	0.7116	1133.2	1153.3	0.596	5.529	72.034	17.977	3.390	0.130	0.304	0.019	0.020	0.000	0.000	0.000	0.000	0.000	1367.14	
15	0.7207	1142.4	1162.6	0.627	5.780	70.663	18.579	3.853	0.144	0.320	0.017	0.018	0.000	0.000	0.000	0.000	0.000	1369.42	
16	0.7142	1134.8	1154.9	0.587	5.684	71.847	17.651	3.745	0.141	0.313	0.016	0.017	0.000	0.000	0.000	0.000	0.000	1366.59	
17	0.7101	1130.1	1150.1	0.578	5.608	72.468	17.286	3.601	0.133	0.294	0.015	0.016	0.000	0.000	0.000	0.000	0.000	1364.75	
18	0.7109	1131.2	1151.2	0.590	5.594	72.331	17.410	3.623	0.132	0.290	0.015	0.015	0.000	0.000	0.000	0.000	0.000	1365.36	
19	0.7121	1131.0	1151.1	0.598	5.701	72.126	17.469	3.647	0.134	0.295	0.015	0.016	0.000	0.000	0.000	0.000	0.000	1364.06	
20	0.7107	1129.0	1149.0	0.587	5.715	72.349	17.283	3.603	0.134	0.297	0.015	0.016	0.000	0.000	0.000	0.000	0.000	1362.90	
21	0.7117	1131.5	1151.5	0.594	5.644	72.220	17.434	3.637	0.136	0.303	0.016	0.016	0.000	0.000	0.000	0.000	0.000	1364.98	
22	0.7126	1133.0	1153.1	0.596	5.635	72.082	17.547	3.660	0.138	0.309	0.016	0.017	0.000	0.000	0.000	0.000	0.000	1365.93	
23	0.7108	1130.6	1150.7	0.588	5.621	72.366	17.360	3.588	0.136	0.307	0.017	0.017	0.000	0.000	0.000	0.000	0.000	1364.81	
24	0.7123	1132.8	1152.9	0.597	5.616	72.132	17.541	3.626	0.139	0.313	0.017	0.018	0.000	0.000	0.000	0.000	0.000	1365.98	
25	0.7117	1131.4	1151.5	0.597	5.643	72.225	17.445	3.606	0.138	0.311	0.017	0.018	0.000	0.000	0.000	0.000	0.000	1364.91	
26	0.7105	1128.8	1148.8	0.591	5.702	72.444	17.165	3.624	0.137	0.304	0.016	0.017	0.000	0.000	0.000	0.000	0.000	1362.84	
27	0.6713	1095.7	1115.1	0.946	3.496	79.544	13.649	1.989	0.127	0.189	0.037	0.022	0.000	0.000	0.000	0.000	0.000	1361.21	
28	0.6440	1078.2	1097.3	1.125	1.725	84.202	12.094	0.584	0.109	0.082	0.051	0.026	0.000	0.000	0.000	0.000	0.000	1366.94	
29	0.6652	1118.3	1138.1	0.554	2.153	78.679	17.912	0.566	0.056	0.043	0.024	0.012	0.000	0.000	0.000	0.000	0.000	1395.42	
30	0.6633	1114.6	1134.3	0.625	2.093	79.220	17.321	0.589	0.062	0.048	0.028	0.014	0.000	0.000	0.000	0.000	0.000	1392.72	
31	0.6666	1118.4	1138.3	0.447	2.437	78.407	17.788	0.794	0.051	0.046	0.020	0.010	0.000	0.000	0.000	0.000	0.000	1394.12	
Avg	0.6904	1120.0	1140.1	0.670	4.217	75.586	16.717	2.442	0.113	0.212	0.024	0.018	0.000	0.000	0.000	0.000	0.000	1372.42	

Zone 28

GQ Source Daily Summary

October 2014

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 Wet	Heating Value Dry	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.6820	1152.5	1173.0	0.000	2.494	74.199	22.682	0.611	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1420.33	
2	0.6778	1144.4	1164.7	0.102	2.433	75.199	21.646	0.588	0.014	0.014	0.003	0.002	0.000	0.000	0.000	0.000	0.000	1414.65	
3	0.6819	1152.5	1172.9	0.000	2.489	74.201	22.697	0.597	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1420.36	
4	0.6819	1152.4	1172.8	0.000	2.495	74.224	22.654	0.612	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1420.21	
5	0.6818	1151.6	1172.0	0.000	2.528	74.301	22.488	0.662	0.008	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1419.43	
6	0.6821	1152.9	1173.4	0.000	2.482	74.211	22.644	0.648	0.007	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1420.68	
7	0.6821	1152.4	1172.9	0.000	2.511	74.197	22.640	0.636	0.007	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1420.08	
8	0.6789	1143.3	1163.6	0.013	2.743	75.013	21.406	0.800	0.010	0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.16	
9	0.6758	1132.1	1152.1	0.031	3.108	75.888	19.872	1.069	0.014	0.019	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1401.48	
10	0.6786	1138.8	1158.9	0.025	2.972	75.336	20.572	1.057	0.016	0.023	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1406.85	
11	0.6814	1148.1	1168.4	0.009	2.698	74.515	21.937	0.817	0.010	0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1415.39	
12	0.6817	1150.4	1170.8	0.004	2.585	74.328	22.392	0.672	0.008	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1418.07	
13	0.6818	1148.1	1168.5	0.012	2.728	74.486	21.887	0.856	0.013	0.019	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1415.05	
14	0.6884	1159.2	1179.8	0.008	2.667	73.906	21.816	1.534	0.027	0.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1421.89	
15	0.6821	1151.9	1172.3	0.000	2.538	74.172	22.673	0.602	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1419.49	
16	0.6817	1151.6	1172.0	0.000	2.523	74.235	22.635	0.592	0.007	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1419.49	
17	0.6823	1152.6	1173.0	0.000	2.522	74.135	22.708	0.618	0.007	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1420.06	
18	0.6821	1152.1	1172.5	0.000	2.529	74.159	22.699	0.597	0.007	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1419.71	
19	0.6820	1151.9	1172.3	0.000	2.532	74.180	22.675	0.598	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1419.58	
20	0.6716	1131.8	1151.9	0.299	2.321	76.826	19.880	0.602	0.030	0.025	0.011	0.005	0.000	0.000	0.000	0.000	0.000	1405.19	
21	0.6123	1016.8	1034.8	2.024	1.102	91.957	3.923	0.571	0.172	0.127	0.082	0.040	0.000	0.000	0.000	0.000	0.000	1322.54	
22	0.6606	1110.2	1129.9	0.628	2.099	79.649	16.871	0.603	0.061	0.051	0.026	0.013	0.000	0.000	0.000	0.000	0.000	1389.54	
23	0.6811	1149.7	1170.1	0.038	2.523	74.441	22.361	0.615	0.010	0.011	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1417.79	
24	0.6793	1146.7	1167.0	0.081	2.473	74.859	21.961	0.596	0.013	0.013	0.003	0.001	0.000	0.000	0.000	0.000	0.000	1415.83	
25	0.6198	1032.8	1051.1	1.743	1.264	89.938	6.097	0.579	0.154	0.114	0.073	0.036	0.000	0.000	0.000	0.000	0.000	1335.12	
26	0.6145	1021.9	1040.0	1.923	1.160	91.254	4.678	0.575	0.167	0.123	0.080	0.039	0.000	0.000	0.000	0.000	0.000	1326.66	
27	0.6714	1130.9	1150.9	0.326	2.320	76.884	19.809	0.579	0.034	0.028	0.014	0.007	0.000	0.000	0.000	0.000	0.000	1404.14	
28	0.6798	1147.1	1167.5	0.076	2.498	74.729	22.091	0.578	0.013	0.013	0.003	0.000	0.000	0.000	0.000	0.000	0.000	1415.99	
29	0.6817	1150.6	1171.0	0.035	2.525	74.316	22.487	0.615	0.010	0.011	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1418.34	
30	0.6787	1141.9	1162.1	0.019	2.802	75.140	21.136	0.866	0.014	0.022	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1410.59	
31	0.6677	1116.5	1136.2	0.056	3.257	77.595	17.962	1.081	0.020	0.029	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1390.46	
Avg	0.6731	1133.0	1153.5	0.240	2.449	76.531	19.999	0.711	0.028	0.026	0.010	0.005	0.000	0.000	0.000	0.000	0.000	1405.71	

Zone 31

GQ Source Analysis

GQ Source Number:	0202080	Specific Gravity:	0.6548
GQ Source Name:	RICHARDTON-GLEN ULLIN COMPRE	Dry Heat Value:	1116.45
Effective Date:	10/1/2014 9:00:00 AM	Wet Heat Value:	1097.02
Effective End Date:	1/18/2038 9:14:00 PM	As Deliv. Heat Value:	1116.45
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	81.433		CO2	Carbon Dioxide	0.845
C2	Ethane	14.757	3.9350	N2	Nitrogen	2.026
C3	Propane	0.659	0.1810	O2	Oxygen	
IC4	Isobutane	0.083	0.0270	He	Helium	
NC4	n-Butane	0.066	0.0210	H2	Hydrogen	
IC5	Isopentane	0.039	0.0140	H2S	Hydrogen Sulfide	
NC5	n-Pentane	0.019	0.0070	Ar	Argon	
C6	Hexanes	0.070	0.0290	CO	Carbon Monoxide	
C7	Heptanes			H2	Water	
C8	Octanes			Neo-C5	Neopentane	0.003
C9	Nonanes					
C10	Decanes					
Totals						
			100.000%		4.214 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

October 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	0.6855	1157.8	1178.3	0.002	2.498	73.504	23.355	0.626	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1423.21	
2	0.6861	1158.3	1178.9	0.001	2.524	73.376	23.459	0.625	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1423.22	
3	0.6828	1152.4	1172.8	0.008	2.568	74.005	22.822	0.582	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1419.24	
4	0.6830	1153.0	1173.4	0.002	2.556	73.959	22.894	0.574	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1419.85	
5	0.6853	1158.0	1178.5	0.003	2.470	73.515	23.398	0.599	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1423.58	
6	0.6838	1154.3	1174.8	0.011	2.537	73.884	22.895	0.655	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1420.64	
7	0.6702	1108.4	1128.0	0.083	3.941	77.741	16.383	1.787	0.026	0.037	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1377.81	
8	0.6702	1107.8	1127.4	0.085	3.975	77.718	16.389	1.768	0.026	0.036	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1377.08	
9	0.6789	1122.5	1142.3	0.084	3.896	76.458	17.282	2.162	0.043	0.070	0.003	0.003	0.000	0.000	0.000	0.000	0.000	1386.41	
10	0.6721	1111.0	1130.7	0.088	3.951	77.680	16.157	2.010	0.041	0.067	0.003	0.003	0.000	0.000	0.000	0.000	0.000	1379.12	
11	0.6481	1071.6	1090.6	0.135	4.023	82.023	12.266	1.470	0.031	0.047	0.003	0.002	0.000	0.000	0.000	0.000	0.000	1354.64	
12	0.6572	1086.7	1105.9	0.141	3.943	80.557	13.487	1.748	0.043	0.074	0.004	0.004	0.000	0.000	0.000	0.000	0.000	1364.24	
13	0.6716	1110.3	1129.9	0.111	3.914	77.867	15.933	2.054	0.043	0.071	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1378.71	
14	0.6737	1112.4	1132.1	0.140	3.933	77.446	16.323	2.037	0.043	0.071	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1379.30	
15	0.6689	1105.0	1124.6	0.149	3.915	78.473	15.300	2.030	0.046	0.079	0.004	0.004	0.000	0.000	0.000	0.000	0.000	1375.00	
16	0.6618	1094.8	1114.2	0.120	3.919	79.417	14.789	1.671	0.032	0.048	0.002	0.001	0.000	0.000	0.000	0.000	0.000	1369.60	
17	0.6663	1102.0	1121.5	0.114	3.906	78.941	14.919	1.974	0.049	0.087	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1373.95	
18	0.6813	1141.8	1162.0	0.033	3.028	74.988	20.671	1.226	0.020	0.031	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1407.66	
19	0.6841	1155.0	1175.5	0.006	2.537	73.760	23.073	0.608	0.007	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1421.11	
20	0.6851	1156.7	1177.2	0.003	2.525	73.561	23.298	0.598	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1422.26	
21	0.6854	1156.9	1177.4	0.004	2.546	73.499	23.316	0.619	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1422.14	
22	0.6798	1126.7	1146.6	0.094	3.704	76.223	17.849	1.971	0.052	0.095	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1390.72	
23	0.6762	1115.8	1135.6	0.112	3.999	77.006	16.658	2.083	0.049	0.085	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1380.99	
24	0.6815	1140.3	1160.5	0.105	3.030	75.076	20.486	1.218	0.030	0.048	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1405.71	
25	0.6861	1157.9	1178.4	0.004	2.547	73.367	23.454	0.613	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1422.66	
26	0.6823	1150.7	1171.1	0.101	2.478	74.309	22.466	0.610	0.015	0.015	0.004	0.002	0.000	0.000	0.000	0.000	0.000	1417.78	
27	0.6748	1119.4	1139.2	0.083	3.702	77.089	17.086	1.914	0.044	0.075	0.004	0.004	0.000	0.000	0.000	0.000	0.000	1386.75	
28	0.6420	1061.9	1080.7	0.150	4.016	83.269	11.043	1.434	0.033	0.052	0.003	0.002	0.000	0.000	0.000	0.000	0.000	1348.51	
29	0.6444	1067.9	1086.8	0.108	3.943	82.740	11.677	1.449	0.031	0.047	0.002	0.002	0.000	0.000	0.000	0.000	0.000	1353.77	
30	0.6724	1112.1	1131.8	0.090	3.901	77.654	16.212	2.032	0.040	0.064	0.003	0.003	0.000	0.000	0.000	0.000	0.000	1380.25	
31	0.6764	1118.3	1138.1	0.080	3.925	76.986	16.720	2.152	0.048	0.082	0.004	0.004	0.000	0.000	0.000	0.000	0.000	1383.75	
Avg	0.6741	1124.0	1144.0	0.073	3.366	76.648	18.454	1.384	0.027	0.044	0.002	0.002	0.000	0.000	0.000	0.000	0.000	1393.22	

Zone 32

GQ Source Daily Summary

October 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	0.6867	1159.5	1180.0	0.000	2.517	73.238	23.611	0.619	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1423.92	
2	0.6859	1158.8	1179.4	0.002	2.472	73.390	23.532	0.590	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1424.05	
3	0.6863	1159.3	1179.9	0.003	2.480	73.357	23.527	0.603	0.017	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1424.23	
4	0.6858	1158.5	1179.0	0.003	2.488	73.432	23.437	0.626	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1423.66	
5	0.6874	1161.0	1181.6	0.002	2.480	73.257	23.502	0.724	0.010	0.020	0.002	0.002	0.000	0.000	0.000	0.000	0.000	1425.17	
6	0.6862	1159.2	1179.7	0.002	2.480	73.358	23.521	0.624	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1424.16	
7	0.6860	1158.8	1179.3	0.001	2.489	73.415	23.443	0.638	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1423.83	
8	0.6853	1158.3	1178.8	0.001	2.457	73.491	23.464	0.574	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1423.92	
9	0.6859	1158.9	1179.4	0.001	2.478	73.384	23.523	0.600	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1424.01	
10	0.6864	1159.4	1179.9	0.003	2.490	73.319	23.542	0.632	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1424.13	
11	0.6863	1159.2	1179.7	0.003	2.491	73.330	23.538	0.625	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1424.04	
12	0.6865	1159.2	1179.7	0.003	2.507	73.278	23.594	0.604	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1423.83	
13	0.6869	1160.0	1180.5	0.002	2.497	73.205	23.663	0.617	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1424.42	
14	0.6938	1170.8	1191.6	0.003	2.479	72.640	23.449	1.373	0.021	0.034	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1430.53	
15	0.6863	1159.0	1179.5	0.002	2.502	73.320	23.549	0.613	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1423.82	
16	0.6861	1158.6	1179.1	0.003	2.502	73.344	23.551	0.586	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1423.59	
17	0.6867	1159.7	1180.2	0.002	2.497	73.256	23.607	0.622	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1424.24	
18	0.6861	1158.7	1179.2	0.002	2.504	73.351	23.522	0.607	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1423.61	
19	0.6861	1158.6	1179.1	0.002	2.514	73.343	23.523	0.604	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1423.43	
20	0.6864	1158.6	1179.1	0.003	2.536	73.292	23.541	0.614	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1423.19	
21	0.6866	1159.2	1179.7	0.002	2.521	73.245	23.608	0.610	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1423.72	
22	0.6870	1159.6	1180.1	0.002	2.536	73.218	23.589	0.622	0.010	0.020	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1423.75	
23	0.6869	1159.6	1180.1	0.003	2.524	73.210	23.622	0.627	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1423.87	
24	0.6870	1159.5	1180.0	0.003	2.537	73.183	23.643	0.621	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1423.70	
25	0.6872	1159.7	1180.3	0.003	2.540	73.135	23.695	0.614	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1423.79	
26	0.6872	1159.6	1180.1	0.002	2.547	73.134	23.695	0.608	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1423.65	
27	0.6873	1160.1	1180.6	0.002	2.530	73.078	23.804	0.572	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1424.09	
28	0.6873	1160.4	1180.9	0.002	2.516	73.080	23.810	0.579	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1424.42	
29	0.6873	1160.5	1181.0	0.003	2.508	73.105	23.762	0.608	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1424.55	
30	0.6874	1160.6	1181.1	0.002	2.507	73.089	23.786	0.602	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1424.62	
31	0.6878	1160.2	1180.8	0.001	2.566	72.967	23.884	0.568	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1423.83	
Avg	0.6868	1160.0	1180.3	0.002	2.506	73.240	23.598	0.636	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1424.19	

Zone 33

GQ Source Analysis

GQ Source Number:	1202160	Specific Gravity:	0.7771
GQ Source Name:	BOWMAN BORDER	Dry Heat Value:	1135.86
Effective Date:	10/1/2014 9:00:00 AM	Wet Heat Value:	1116.09
Effective End Date:	1/18/2038 9:14:07 PM	As Deliv. Heat Value:	1135.86
Pressure Base:	14.730	Sample Pressure:	
Viscosity:		Sample Temperature:	

		<u>Mol %</u>	<u>Liquid Content</u>			<u>Mol %</u>
C1	Methane	58.349		CO2	Carbon Dioxide	1.655
C2	Ethane	25.398	6.7720	N2	Nitrogen	11.138
C3	Propane	3.033	0.8330	O2	Oxygen	
IC4	Isobutane	0.093	0.0300	He	Helium	
NC4	n-Butane	0.283	0.0890	H2	Hydrogen	
IC5	Isopentane	0.013	0.0050	H2S	Hydrogen Sulfide	
NC5	n-Pentane	0.033	0.0120	Ar	Argon	
C6	Hexanes	0.005	0.0020	CO	Carbon Monoxide	
C7	Heptanes			H2	Water	
C8	Octanes			Neo-C5	Neopentane	
C9	Nonanes					
C10	Decanes					
Totals			100.000%		7.743 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

Oct-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	
10/1/2014	10/2/2014	143	172	1.207	86	102	1.188	1.200	10/1/2014
10/2/2014	10/3/2014	196	237	1.207	192	230	1.198	1.203	10/2/2014
10/3/2014	10/4/2014	201	242	1.207	222	270	1.219	1.213	10/3/2014
10/4/2014	10/5/2014	173	209	1.207	144	173	1.197	1.202	10/4/2014
10/5/2014	10/6/2014	173	209	1.207	92	110	1.202	1.205	10/5/2014
10/6/2014	10/7/2014	182	219	1.207	115	139	1.204	1.206	10/6/2014
10/7/2014	10/8/2014	175	211	1.207	113	135	1.200	1.204	10/7/2014
10/8/2014	10/9/2014	189	228	1.207	186	221	1.191	1.199	10/8/2014
10/9/2014	10/10/2014	184	222	1.207	211	251	1.194	1.200	10/9/2014
10/10/2014	10/11/2014	157	189	1.207	89	107	1.196	1.203	10/10/2014
10/11/2014	10/12/2014	136	164	1.207	107	128	1.201	1.204	10/11/2014
10/12/2014	10/13/2014	154	186	1.207	200	240	1.201	1.204	10/12/2014
10/13/2014	10/14/2014	172	208	1.207	349	416	1.195	1.199	10/13/2014
10/14/2014	10/15/2014	149	180	1.207	355	426	1.198	1.201	10/14/2014
10/15/2014	10/16/2014	143	172	1.207	214	257	1.201	1.203	10/15/2014
10/16/2014	10/17/2014	284	342	1.207	15	18	1.193	1.206	10/16/2014
10/17/2014	10/18/2014	342	413	1.207	0	0	1.189	1.207	10/17/2014
10/18/2014	10/19/2014	235	284	1.207	0	0	1.192	1.207	10/18/2014
10/19/2014	10/20/2014	224	270	1.207	0	0	1.193	1.207	10/19/2014
10/20/2014	10/21/2014	178	214	1.207	0	0	1.194	1.207	10/20/2014
10/21/2014	10/22/2014	166	201	1.207	0	0	1.189	1.207	10/21/2014
10/22/2014	10/23/2014	232	280	1.207	0	0	1.191	1.207	10/22/2014
10/23/2014	10/24/2014	232	280	1.207	0	0	1.190	1.207	10/23/2014
10/24/2014	10/25/2014	255	308	1.207	0	0	1.189	1.207	10/24/2014
10/25/2014	10/26/2014	218	263	1.207	0	0	1.192	1.207	10/25/2014
10/26/2014	10/27/2014	240	289	1.207	0	0	1.182	1.207	10/26/2014
10/27/2014	10/28/2014	472	570	1.207	0	0	1.190	1.207	10/27/2014
10/28/2014	10/29/2014	540	652	1.207	0	0	1.184	1.207	10/28/2014
10/29/2014	10/30/2014	451	545	1.207	0	0	1.183	1.207	10/29/2014
10/30/2014	10/31/2014	525	634	1.207	0	0	1.181	1.207	10/30/2014
10/31/2014	11/1/2014	463	558	1.207	127	151	1.187	1.203	10/31/2014
		7,584	9,151		2,817	3,374	1.1937	1.2050	

[Gas Quality Download - Chromatograph]

ROW ID	LOCATION DESCRIPTION	GROSS HEATING VALUE (BTU/CF)	SPECIFIC GRAVITY	WOBBE (calc)	CRICONDENTHERM (deg F)	NITROGEN (mole percent)	CARBON DIOXIDE (mole percent)	METHANE (mole percent)	ETHANE (mole percent)	PROPANE (mole percent)	NORMAL BUTANE (mole percent)	ISO BUTANE (mole percent)	PENTANE (mole percent)	ISO PENTANE (mole percent)	NEO PENTANE (mole percent)	HEXANES PLUS (mole percent)	HYDROGEN (mole percent)	HELIUM (mole percent)	PRODUCTION DATE	POSTING DATE	Changestimestamp	NOTES
11587	GLEN ULLIN	1052.7	0.6082	1349.8	-75.1	1.3616	0.9127	89.7897	7.2197	0.4564	0.0181	0.0114	0.0003	0.0007	0	0	0.2149	0.0152	9/30/2014	10/1/2014	10/1/2014 2:16:50 PM	
11587	GLEN ULLIN	1049.4	0.605	1349.1	-77.9	1.2961	0.885	90.4102	6.7863	0.3809	0.0192	0.0123	0.001	0.0014	0	0	0.1916	0.015	10/1/2014	10/2/2014	10/2/2014 2:18:28 PM	
11587	GLEN ULLIN	1046.2	0.6039	1346.2	-79.8	1.3574	0.9033	90.6284	6.5342	0.359	0.0148	0.0091	0.0001	0.0002	0	0	0.1783	0.015	10/2/2014	10/3/2014	10/3/2014 2:18:22 PM	
11587	GLEN ULLIN	1049.1	0.6048	1348.9	-78	1.2731	0.9013	90.6101	6.5756	0.4508	0.016	0.0102	0.0004	0.0004	0	0.0001	0.1461	0.015	10/3/2014	10/4/2014	10/4/2014 2:18:36 PM	
11587	GLEN ULLIN	1046.4	0.6033	1347.2	-79.6	1.2945	0.896	90.8186	6.3511	0.4196	0.0151	0.0096	0.0002	0.0004	0	0	0.1805	0.015	10/4/2014	10/5/2014	10/5/2014 2:18:16 PM	
11587	GLEN ULLIN	1047.4	0.605	1346.6	-78.6	1.3136	0.9514	90.5352	6.5947	0.4044	0.0147	0.0095	0.0002	0.0004	0	0	0.1602	0.015	10/5/2014	10/6/2014	10/6/2014 2:17:28 PM	
11587	GLEN ULLIN	1048	0.6047	1347.7	-78.5	1.2983	0.9162	90.5054	6.6273	0.4141	0.015	0.0093	0	0.0001	0	0	0.1983	0.015	10/6/2014	10/7/2014	10/7/2014 2:17:04 PM	
11587	GLEN ULLIN	1050.9	0.6073	1348.6	-76.1	1.3617	0.926	89.9715	7.0374	0.4462	0.0167	0.0106	0.0003	0.0006	0	0	0.2146	0.015	10/7/2014	10/8/2014	10/8/2014 2:17:38 PM	
11587	GLEN ULLIN	1047.9	0.6049	1347.4	-78.5	1.3568	0.8939	90.4594	6.6752	0.392	0.0165	0.0108	0.0005	0.001	0	0	0.1775	0.015	10/8/2014	10/9/2014	10/9/2014 2:17:57 PM	
11587	GLEN ULLIN	1053.7	0.6084	1350.8	-72.7	1.3226	0.9063	89.9277	7.1323	0.4722	0.0281	0.0202	0.0027	0.0039	0	0.0009	0.1676	0.015	10/9/2014	10/10/2014	10/10/2014 2:19:05 PM	
11587	GLEN ULLIN	1053.2	0.6077	1351	-75.6	1.3195	0.8843	89.9051	7.2262	0.429	0.0175	0.0113	0.0006	0.0009	0	0	0.1895	0.015	10/10/2014	10/11/2014	10/11/2014 2:17:03 PM	
11587	GLEN ULLIN	1054.4	0.6078	1352.5	-74.3	1.304	0.8531	89.9376	7.1884	0.4759	0.0226	0.0151	0.0015	0.0022	0	0.0002	0.1836	0.015	10/11/2014	10/12/2014	10/12/2014 2:18:06 PM	
11587	GLEN ULLIN	1051.4	0.6055	1351.2	-77.2	1.2601	0.8598	90.3336	6.8921	0.4237	0.0174	0.0107	0.0003	0.0006	0	0	0.186	0.015	10/12/2014	10/13/2014	10/13/2014 2:17:57 PM	
11587	GLEN ULLIN	1049.2	0.6031	1351.1	-79.4	1.1745	0.852	90.7926	6.594	0.3693	0.0159	0.0097	0.0002	0.0005	0	0	0.1771	0.015	10/13/2014	10/14/2014	10/14/2014 2:16:50 PM	
11587	GLEN ULLIN	1050.2	0.6043	1351	-77.9	1.2477	0.8398	90.5699	6.6847	0.4261	0.0173	0.0112	0.0006	0.0013	0	0	0.1858	0.015	10/14/2014	10/15/2014	10/15/2014 2:17:06 PM	
11587	GLEN ULLIN	1051.7	0.6052	1351.9	-77	1.2305	0.8455	90.4215	6.8255	0.4492	0.0165	0.0109	0.0005	0.0012	0	0	0.1846	0.015	10/15/2014	10/16/2014	10/16/2014 2:18:37 PM	
11587	GLEN ULLIN	1048.4	0.6029	1350.3	-79.2	1.2484	0.8259	90.8016	6.4775	0.4132	0.0166	0.0105	0.0002	0.0007	0	0.0001	0.1914	0.015	10/16/2014	10/17/2014	10/17/2014 2:18:20 PM	
11587	GLEN ULLIN	1049.6	0.6038	1350.8	-78.1	1.2526	0.829	90.6502	6.6042	0.4184	0.0204	0.0126	0.001	0.0015	0	0	0.1955	0.0164	10/17/2014	10/18/2014	10/18/2014 2:18:26 PM	
11587	GLEN ULLIN	1050.2	0.6038	1351.5	-78.1	1.2166	0.8295	90.7139	6.5856	0.4336	0.019	0.0126	0.0008	0.0014	0	0.0001	0.1726	0.0168	10/18/2014	10/19/2014	10/19/2014 2:17:45 PM	
11587	GLEN ULLIN	1052.7	0.6058	1352.5	-76.9	1.2545	0.8323	90.3207	6.9686	0.4331	0.0159	0.0098	0.0002	0.0005	0	0	0.1493	0.0168	10/19/2014	10/20/2014	10/20/2014 2:16:48 PM	
11587	GLEN ULLIN	1051.1	0.6045	1351.9	-77.5	1.2555	0.8146	90.5253	6.7641	0.4201	0.0193	0.0127	0.001	0.0016	0	0.0001	0.1708	0.016	10/20/2014	10/21/2014	10/21/2014 2:18:10 PM	
11587	GLEN ULLIN	1046.6	0.6017	1349.2	-80.9	1.254	0.816	91.0218	6.3327	0.3583	0.0158	0.0094	0.0001	0.0004	0	0	0.1744	0.016	10/21/2014	10/22/2014	10/22/2014 2:18:06 PM	
11587	GLEN ULLIN	1050.9	0.6046	1351.5	-74.7	1.24	0.8357	90.5892	6.6543	0.4406	0.0249	0.0175	0.0023	0.0035	0	0.0012	0.1745	0.016	10/22/2014	10/23/2014	10/23/2014 2:17:53 PM	
11587	GLEN ULLIN	1050.4	0.6046	1350.9	-77.3	1.253	0.8482	90.5225	6.7187	0.4197	0.0209	0.0139	0.0016	0.0022	0	0	0.1823	0.016	10/23/2014	10/24/2014	10/24/2014 2:17:48 PM	
11587	GLEN ULLIN	1055	0.6079	1353.2	-72.9	1.2389	0.8763	89.9754	7.188	0.4708	0.0268	0.0187	0.0025	0.0035	0	0.0008	0.182	0.016	10/24/2014	10/25/2014	10/25/2014 2:17:35 PM	
11587	GLEN ULLIN	1053.6	0.6069	1352.4	-74.8	1.2407	0.8748	90.1471	7.0227	0.4729	0.0234	0.0158	0.002	0.0027	0	0	0.1827	0.016	10/25/2014	10/26/2014	10/26/2014 2:17:46 PM	
11587	GLEN ULLIN	1053.8	0.6071	1352.5	-76	1.252	0.8686	90.0461	7.2463	0.3823	0.0183	0.012	0.0011	0.0016	0	0	0.157	0.016	10/26/2014	10/27/2014	10/27/2014 2:17:34 PM	
11587	GLEN ULLIN	1055	0.6079	1353.1	-75.4	1.2596	0.8619	90.0191	7.2744	0.4328	0.0175	0.011	0.0004	0.001	0	0	0.1076	0.016	10/27/2014	10/28/2014	10/28/2014 2:17:44 PM	
11587	GLEN ULLIN	1050.7	0.6051	1350.8	-78.6	1.2287	0.8785	90.5496	6.8761	0.3417	0.0144	0.0094	0.0004	0.0006	0	0	0.0859	0.016	10/28/2014	10/29/2014	10/29/2014 2:18:11 PM	
11587	GLEN ULLIN	1050.7	0.6051	1350.8	-78.6	1.2287	0.8785	90.5496	6.8761	0.3417	0.0144	0.0094	0.0004	0.0006	0	0	0.0859	0.016	10/28/2014	10/30/2014	10/30/2014 2:17:59 PM	
11587	GLEN ULLIN	1051.4	0.6048	1352	-77.7	1.1582	0.881	90.7169	6.7196	0.3943	0.0212	0.0134	0.0012	0.0016	0	0.0001	0.0785	0.016	10/30/2014	10/31/2014	10/31/2014 2:18:22 PM	

31 record(s) 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
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	OCT 14	SEPT 14	AUG 14	JULY 14	JUNE 14	MAY 14	APR 14	MAR 14	FEB 14	JAN 14	DEC 13	NOV 13	ZONE
MT/ND	211	Sidney Area	1207	1211	1204	1209	1212	1207	1212	1198	1204	1205	1208	1204	1209	211
ND	24	Williston Area	1188	1190	1189	1186	1184	1183	1180	1177	1181	1177	1201	1201	1207	24
ND	25	Watford City Border	1214	1207	1217	1205	1219	1226	1241	1221	1220	1205	1218	1191	1197	25
ND/MT	241	Fairview Area	1200	1197	1205	1201	1208	1202	1204	1194	1197	1197	1203	1197	1189	241
ND	261	Williston - Tioga - Minot Line	1124	1021	1027	1013	1094	1115	1118	1181	1187	1185	1189	1193	1166	261
ND	262	Minot Area	1177	1155	1150	1149	1154	1166	1161	1196	1201	1200	1201	1201	1192	262
ND	263	Tioga - Portal	1078	1103	1103	1089	1098	1078	1062	1074	1058	1051	1063	1061	1096	263
ND	264	Williston - Ray	1188	1190	1189	1186	1184	1183	1180	1177	1181	1177	1201	1201	1207	264
ND	271	Bismarck - Cleveland	1155	1155	1147	1148	1152	1164	1162	1192	1159	1127	1144	1145	1164	271
ND	272	Cleveland - Mapleton	1155	1154	1146	1148	1151	1163	1162	1192	1158	1127	1144	1145	1164	272
ND	273	Cleveland - Grafton	1154	1154	1146	1148	1151	1163	1162	1190	1158	1127	1144	1145	1164	273
ND	28	Bismarck - Cabin Creek	1122	1140	1147	1148	1151	1163	1155	1135	1077	1072	1081	1092	1105	28
ND	31	Dickinson Area	1127	1154	1170	1174	1176	1171	1140	1102	1079	1073	1082	1092	1107	31
ND	311	Taylor Take-Off - Glen Ullin Comp	1115	1116	1130	1114	1131	1138	1105	1091	1072	1197	1092	1092	1104	311
ND/MT	32	Cabin Creek - Dickinson	1106	1144	1164	1134	1147	1134	1100	1077	1061	1058	1070	1082	1096	32
ND	33	Killdeer	1182	1180	1182	1182	1183	1183	1183	1183	1180	1181	1182	1180	1180	33
ND	34	Bowman Area	1098	1136	1128	1127	1130	1119	1123	1030	1059	1047	1073	1082	1118	34
ND	610	MDU-Watford City BTU	1204	1205	1210	1204	1204	1195								
ND	802	Linton	1046	1051	1054	1060	1050	1047	1047	1044	1045	1039	1042	1033	1037	802

**THERMAL ZONE VARIANCE
DOCUMENTATION**

October 2014

<i>ZONE</i>	<i>BTU VARIANCE</i>	<i>REASON</i>
32	-20	Change in gas supply