



UTILITIES CO.
A Division of MDU Resources Group, Inc.

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

June 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 – April 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 May 2014.
2. Attachment B consists of copies of the monthly Heating Value Test Reports received from our supplier for the month of April 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 April 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,

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

Tamie Aberle
Director of Regulatory Affairs

**Montana-Dakota Utilities Co.
Therm Billing Factors - North Dakota
May 2014**

Town	Heat Zone	Therm Factor
MDU-303-ALEXANDER	025	1.1532
MDU-308-ARNEGARD	025	1.1523
MDU-314-APPLE VALLEY	271	1.1501
MDU-318-BEACH	032	0.9953
MDU-319-BELFIELD	032	1.0026
MDU-323-BERTHOLD	262	1.1296
MDU-327-BISMARCK	028	1.0874
MDU-330-BOWMAN	034	0.9449
MDU-337-BURLINGTON	262	1.1540
MDU-343-CARRINGTON	273	1.1482
MDU-344-CLEVELAND	272	1.1420
MDU-364-CAVALIER	273	1.1724
MDU-365-DAWSON	271	1.1420
MDU-368-DES LACS	262	1.1377
MDU-369-DICKINSON	031	1.0334
MDU-374-FT TOTTEN	273	1.1563
MDU-375-DEVILS LAKE	273	1.1563
MDU-379-BARLOW	273	1.1482
MDU-384-EPPING	264	1.1117
MDU-387-ELDRIDGE	272	1.1501
MDU-407-GLADSTONE	031	1.0334
MDU-411-GLEN ULLIN	311	1.0305
MDU-413-GOLVA	032	0.9807
MDU-416-GARRISON	262	1.1377
MDU-417-GRAFTON	273	1.1805
MDU-429-HEBRON	311	1.0305
MDU-432-HETTINGER	903	2.3875
MDU-449-JAMESTOWN	272	1.1582
MDU-459-KILLDEER	033	1.1173
MDU-463-LANGDON	273	1.1482
MDU-469-LEFOR	031	1.0334
MDU-474-LIGNITE	263	1.0217
MDU-475-LINTON	802	1.0073
MDU-478-LINCOLN	028	1.0951
MDU-494-MEDINA	271	1.1420
MDU-498-MANDAN	028	1.0951
MDU-500-MARMARTH	034	0.9519
MDU-505-MINOT	262	1.1540
MDU-510-MOTT	031	1.0334
MDU-512-MAX	262	1.1296
MDU-522-NEW ENGLAND	031	1.0259
MDU-524-NEW SALEM	028	1.0720
MDU-532-NEW ROCKFORD	273	1.1482
MDU-539-PARK RIVER	273	1.1724
MDU-540-PALERMO	262	1.1296
MDU-558-RAY	264	1.1117
MDU-561-REGENT	031	1.0334
MDU-563-RHAME	034	0.9379
MDU-564-RICHARDTON	311	1.0156

MDU-568-ROSS	261	1.1074
MDU-572-RUTHVILLE	262	1.1540
MDU-574-SANBORN	272	1.1582
MDU-583-SENTINEL BUTTE	032	0.9952
MDU-588-SOUTH HEART	031	1.0259
MDU-717-SPIRITWOOD	272	1.1582
MDU-590-SPRINGBROOK	264	1.1117
MDU-591-STANLEY	261	1.1155
MDU-593-STEELE	271	1.1420
MDU-598-SHEYENNE	273	1.1563
MDU-605-SURREY	262	1.1540
MDU-610-TAPPEN	271	1.1420
MDU-611-TAYLOR	031	1.0045
MDU-616-TIOGA	261	1.1074
MDU-619-TURTLE LAKE	262	1.1377
MDU-620-TRENTON	024	1.1197
MDU-624-UNDERWOOD	262	1.1377
MDU-625-VALLEY CITY	272	1.1663
MDU-629-WALHALLA	273	1.1724
MDU-632-WATFORD CITY	025	1.1532
MDU-636-WHEELOCK	264	1.1037
MDU-637-WHITE EARTH	261	1.1155
MDU-642-WILLISTON	024	1.1197
MDU-646-WASHBURN	262	1.1459
MDU-647-WILTON	262	1.1296
MDU-664-RIVERDALE	262	1.1377
MDU-691-FAIRVIEW	241	1.1358
MDU-712-MINOT AFB	262	1.1540
MDU-732-MSR SITE	273	1.1173

GQ Source Daily Summary

April 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	0.6965	1157.4	1177.9	0.864	2.236	73.395	21.856	1.417	0.070	0.144	0.009	0.009	0.000	0.000	0.000	0.000	0.000	1411.43	
2	0.6958	1156.4	1176.9	0.863	2.234	73.528	21.727	1.418	0.070	0.144	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1410.92	
3	0.6949	1155.0	1175.5	0.854	2.249	73.671	21.602	1.396	0.069	0.143	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1410.13	
4	0.6983	1157.2	1177.7	0.864	2.416	73.299	21.519	1.638	0.077	0.165	0.011	0.012	0.000	0.000	0.000	0.000	0.000	1409.38	
5	0.7002	1159.6	1180.1	0.840	2.486	73.039	21.600	1.746	0.082	0.180	0.013	0.014	0.000	0.000	0.000	0.000	0.000	1410.35	
6	0.6970	1157.2	1177.6	0.855	2.314	73.338	21.787	1.467	0.071	0.149	0.009	0.010	0.000	0.000	0.000	0.000	0.000	1410.60	
7	0.6963	1156.7	1177.2	0.867	2.265	73.395	21.840	1.404	0.069	0.143	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1410.67	
8	0.6972	1157.9	1178.4	0.864	2.275	73.151	22.135	1.356	0.066	0.138	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1411.32	
9	0.6966	1157.9	1178.4	0.864	2.222	73.295	22.031	1.368	0.067	0.137	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1411.85	
10	0.6965	1157.8	1178.3	0.851	2.233	73.496	21.663	1.513	0.074	0.152	0.009	0.009	0.000	0.000	0.000	0.000	0.000	1411.88	
11	0.6958	1156.0	1176.5	0.856	2.268	73.549	21.658	1.432	0.070	0.148	0.009	0.009	0.000	0.000	0.000	0.000	0.000	1410.41	
12	0.6950	1154.0	1174.4	0.854	2.328	73.590	21.649	1.358	0.066	0.138	0.008	0.009	0.000	0.000	0.000	0.000	0.000	1408.67	
13	0.6968	1157.3	1177.8	0.857	2.283	73.292	21.909	1.458	0.062	0.125	0.007	0.007	0.000	0.000	0.000	0.000	0.000	1411.00	
14	0.6951	1154.4	1174.8	0.853	2.311	73.675	21.437	1.537	0.058	0.116	0.007	0.007	0.000	0.000	0.000	0.000	0.000	1409.08	
15	0.6951	1155.1	1175.5	0.848	2.275	73.627	21.583	1.472	0.060	0.121	0.007	0.007	0.000	0.000	0.000	0.000	0.000	1409.97	
16	0.6937	1152.6	1173.1	0.862	2.275	73.840	21.458	1.353	0.064	0.132	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1408.37	
17	0.6952	1154.6	1175.0	0.876	2.269	73.555	21.753	1.327	0.066	0.137	0.009	0.009	0.000	0.000	0.000	0.000	0.000	1409.30	
18	0.6944	1153.8	1174.2	0.869	2.254	73.720	21.605	1.331	0.066	0.137	0.009	0.009	0.000	0.000	0.000	0.000	0.000	1409.12	
19	0.6930	1151.9	1172.3	0.871	2.230	74.036	21.292	1.350	0.066	0.138	0.009	0.009	0.000	0.000	0.000	0.000	0.000	1408.30	
20	0.6927	1151.4	1171.8	0.866	2.245	74.028	21.330	1.319	0.065	0.132	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1407.96	
21	0.7032	1162.3	1182.8	0.826	2.627	72.845	21.293	2.066	0.093	0.212	0.017	0.020	0.000	0.000	0.000	0.000	0.000	1410.51	
22	0.7100	1167.9	1188.6	0.817	2.928	72.132	21.163	2.504	0.116	0.282	0.026	0.032	0.000	0.000	0.000	0.000	0.000	1410.64	
23	0.7082	1165.4	1186.0	0.816	2.922	72.319	21.090	2.435	0.109	0.259	0.023	0.027	0.000	0.000	0.000	0.000	0.000	1409.28	
24	0.7060	1162.0	1182.6	0.800	2.942	72.698	20.712	2.471	0.100	0.233	0.019	0.024	0.000	0.000	0.000	0.000	0.000	1407.40	
25	0.6981	1157.3	1177.8	0.852	2.408	73.261	21.564	1.720	0.061	0.121	0.007	0.007	0.000	0.000	0.000	0.000	0.000	1409.73	
26	0.7034	1158.0	1178.5	0.812	2.930	72.596	21.299	2.102	0.074	0.161	0.012	0.014	0.000	0.000	0.000	0.000	0.000	1405.13	
27	0.7061	1159.5	1180.0	0.792	3.117	72.612	20.608	2.539	0.091	0.206	0.016	0.019	0.000	0.000	0.000	0.000	0.000	1404.27	
28	0.7044	1154.5	1174.9	0.754	3.318	72.556	20.775	2.330	0.073	0.164	0.013	0.016	0.000	0.000	0.000	0.000	0.000	1399.97	
29	0.6937	1139.6	1159.8	0.614	3.439	74.161	19.548	2.014	0.061	0.137	0.011	0.014	0.000	0.000	0.000	0.000	0.000	1392.47	
30	0.6978	1150.0	1170.4	0.736	3.002	73.497	20.497	2.066	0.059	0.123	0.008	0.010	0.000	0.000	0.000	0.000	0.000	1401.08	
Avg	0.6982	1156.0	1176.8	0.834	2.510	73.306	21.399	1.697	0.073	0.157	0.011	0.012	0.000	0.000	0.000	0.000	0.000	1408.37	

Zone 24, 264

GQ Source Analysis

GQ Source Number:	0602160	Specific Gravity:	0.7260
GQ Source Name:	FAIRVIEW BORDER	Dry Heat Value:	1193.60
Effective Date:	4/1/2014 9:00:00 AM	Wet Heat Value:	1172.83
Effective End Date:	1/18/2038 9:14:07 PM	As Deliv. Heat Value:	1193.60
Pressure Base:	14.730	Sample Pressure:	325.00
Viscosity:		Sample Temperature:	0.00

		<u>Mol %</u>	<u>Liquid Content</u>			<u>Mol %</u>
C1	Methane	69.286		CO2	Carbon Dioxide	1.140
C2	Ethane	22.114	5.8966	N2	Nitrogen	3.615
C3	Propane	3.570	0.9815	O2	Oxygen	0.000
IC4	Isobutane	0.098	0.0319	He	Helium	
NC4	n-Butane	0.162	0.0511	H2	Hydrogen	
IC5	Isopentane	0.008	0.0028	H2S	Hydrogen Sulfide	
NC5	n-Pentane	0.007	0.0024	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% 6.966 GPM

Sample Date:
 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:	0.7535
GQ Source Name:	WATFORD CITY BORDER	Dry Heat Value:	1220.81
Effective Date:	4/1/2014 9:00:00 AM	Wet Heat Value:	1199.56
Effective End Date:	1/18/2038 9:14:07 PM	As Deliv. Heat Value:	1220.81
Pressure Base:	14.730	Sample Pressure:	110.00
Viscosity:		Sample Temperature:	0.00

		<u>Mol %</u>	<u>Liquid Content</u>			<u>Mol %</u>
C1	Methane	67.004		CO2	Carbon Dioxide	0.828
C2	Ethane	20.344	5.4247	N2	Nitrogen	5.016
C3	Propane	5.693	1.5649	O2	Oxygen	0.000
IC4	Isobutane	0.337	0.1100	He	Helium	
NC4	n-Butane	0.660	0.2075	H2	Hydrogen	
IC5	Isopentane	0.055	0.0200	H2S	Hydrogen Sulfide	
NC5	n-Pentane	0.058	0.0210	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%			7.348 GPM

Sample Date:
Sample Type: Composite
Sample Tech: ES
H2S: ppm

Sample Remarks:

Analysis Tech: MB

Analysis Remarks:

Zone 25

GQ Source Analysis

GQ Source Number:	2501030	Specific Gravity:	0.6402
GQ Source Name:	LIGNITE PLANT	Dry Heat Value:	1073.75
Effective Date:	4/1/2014 9:00:00 AM	Wet Heat Value:	1055.06
Effective End Date:	1/18/2038 9:14:07 PM	As Deliv. Heat Value:	1073.75
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	82.544		CO2	Carbon Dioxide	0.094
C2	Ethane	12.290	3.2771	N2	Nitrogen	4.331
C3	Propane	0.723	0.1988	O2	Oxygen	0.000
IC4	Isobutane	0.013	0.0042	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			99.995%		3.480 GPM	

Sample Date:
Sample Type: Composite
Sample Tech: ES
H2S: ppm

Sample Remarks:

Analysis Tech: MB

Analysis Remarks:

Zone 2b3

*** End of Report ***

GQ Source Daily Summary

April 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	0.7101	1152.4	1172.8	0.535	4.301	72.670	18.452	3.577	0.137	0.288	0.020	0.021	0.000	0.000	0.000	0.000	0.000	1391.85	
2	0.7192	1165.1	1185.7	0.606	4.280	71.058	19.825	3.768	0.135	0.287	0.020	0.021	0.000	0.000	0.000	0.000	0.000	1398.19	
3	0.7221	1168.6	1189.2	0.611	4.335	70.687	19.931	3.963	0.140	0.293	0.020	0.021	0.000	0.000	0.000	0.000	0.000	1399.50	
4	0.7256	1171.1	1191.8	0.602	4.519	70.093	20.171	4.143	0.142	0.293	0.018	0.018	0.000	0.000	0.000	0.000	0.000	1399.19	
5	0.7315	1180.2	1201.1	0.577	4.557	69.334	20.528	4.457	0.161	0.343	0.020	0.022	0.000	0.000	0.000	0.000	0.000	1404.31	
6	0.7312	1179.5	1200.3	0.568	4.585	69.359	20.502	4.452	0.159	0.335	0.020	0.020	0.000	0.000	0.000	0.000	0.000	1403.78	
7	0.7174	1173.7	1194.5	0.546	3.677	71.648	19.799	3.792	0.156	0.338	0.022	0.023	0.000	0.000	0.000	0.000	0.000	1410.34	
8	0.7095	1172.9	1193.7	0.388	3.221	73.187	18.848	3.816	0.168	0.329	0.021	0.021	0.000	0.000	0.000	0.000	0.000	1417.12	
9	0.7088	1174.4	1195.2	0.363	3.103	73.435	18.646	3.863	0.192	0.371	0.015	0.014	0.000	0.000	0.000	0.000	0.000	1419.58	
10	0.7299	1177.2	1198.1	0.610	4.545	69.296	20.834	4.235	0.146	0.302	0.015	0.015	0.000	0.000	0.000	0.000	0.000	1402.35	
11	0.7336	1180.7	1201.6	0.572	4.735	68.779	20.904	4.520	0.149	0.309	0.015	0.016	0.000	0.000	0.000	0.000	0.000	1402.95	
12	0.7365	1179.2	1200.1	0.671	4.946	67.983	21.617	4.357	0.127	0.271	0.014	0.015	0.000	0.000	0.000	0.000	0.000	1398.45	
13	0.7289	1172.4	1193.1	0.745	4.537	69.192	21.264	3.833	0.119	0.268	0.019	0.022	0.000	0.000	0.000	0.000	0.000	1397.53	
14	0.7216	1164.6	1185.2	0.710	4.384	70.441	20.450	3.581	0.118	0.270	0.022	0.025	0.000	0.000	0.000	0.000	0.000	1395.22	
15	0.7148	1155.5	1176.0	0.683	4.337	71.424	19.841	3.347	0.104	0.228	0.018	0.018	0.000	0.000	0.000	0.000	0.000	1390.97	
16	0.7154	1156.6	1177.1	0.702	4.305	71.300	20.006	3.316	0.104	0.229	0.018	0.020	0.000	0.000	0.000	0.000	0.000	1391.59	
17	0.7311	1173.5	1194.3	0.752	4.672	68.712	21.525	3.964	0.108	0.236	0.015	0.016	0.000	0.000	0.000	0.000	0.000	1396.71	
18	0.7353	1179.3	1200.2	0.779	4.663	68.166	21.847	4.117	0.120	0.270	0.018	0.020	0.000	0.000	0.000	0.000	0.000	1399.71	
19	0.7331	1178.2	1199.1	0.782	4.516	68.643	21.589	3.995	0.129	0.299	0.022	0.025	0.000	0.000	0.000	0.000	0.000	1400.52	
20	0.7372	1183.4	1204.3	0.776	4.603	68.126	21.766	4.190	0.141	0.337	0.028	0.034	0.000	0.000	0.000	0.000	0.000	1402.63	
21	0.7372	1181.6	1202.5	0.768	4.725	67.958	21.915	4.137	0.132	0.312	0.024	0.029	0.000	0.000	0.000	0.000	0.000	1400.53	
22	0.7357	1186.3	1207.3	0.578	4.581	68.606	21.091	4.598	0.161	0.344	0.020	0.021	0.000	0.000	0.000	0.000	0.000	1407.55	
23	0.7407	1198.2	1219.5	0.461	4.490	68.397	20.740	5.222	0.212	0.436	0.021	0.021	0.000	0.000	0.000	0.000	0.000	1416.95	
24	0.7129	1152.0	1172.4	0.467	4.702	71.637	19.308	3.553	0.096	0.211	0.013	0.014	0.000	0.000	0.000	0.000	0.000	1388.52	
25	0.7267	1173.0	1193.7	0.499	4.675	69.389	20.999	4.110	0.095	0.207	0.013	0.014	0.000	0.000	0.000	0.000	0.000	1400.29	
26	0.7289	1174.4	1195.2	0.602	4.628	69.550	20.511	4.202	0.146	0.321	0.019	0.021	0.000	0.000	0.000	0.000	0.000	1399.91	
27	0.7168	1158.8	1179.3	0.470	4.647	71.362	19.194	3.915	0.124	0.261	0.013	0.013	0.000	0.000	0.000	0.000	0.000	1392.87	
28	0.7235	1169.6	1190.3	0.480	4.609	69.086	22.285	3.262	0.081	0.176	0.010	0.011	0.000	0.000	0.000	0.000	0.000	1399.44	
29	0.7149	1158.7	1179.3	0.379	4.621	69.967	22.194	2.623	0.062	0.138	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1394.72	
30	0.7048	1139.7	1159.9	0.378	4.835	71.933	20.069	2.558	0.065	0.144	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1381.58	
Avg	0.7245	1171.0	1191.8	0.589	4.444	70.047	20.555	3.916	0.131	0.281	0.018	0.019	0.000	0.000	0.000	0.000	0.000	1400.16	

Zone 271

GQ Source Daily Summary

April 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	0.7072	1147.9	1168.2	0.560	4.274	72.988	18.371	3.391	0.123	0.256	0.018	0.019	0.000	0.000	0.000	0.000	0.000	1389.15	
2	0.7158	1160.5	1181.0	0.610	4.240	71.536	19.585	3.585	0.130	0.275	0.019	0.020	0.000	0.000	0.000	0.000	0.000	1395.90	
3	0.7217	1168.5	1189.2	0.585	4.339	70.850	19.693	4.041	0.144	0.303	0.022	0.023	0.000	0.000	0.000	0.000	0.000	1399.84	
4	0.7221	1168.1	1188.8	0.609	4.369	70.530	20.138	3.915	0.133	0.271	0.017	0.017	0.000	0.000	0.000	0.000	0.000	1398.93	
5	0.7311	1178.9	1199.7	0.597	4.572	69.288	20.623	4.404	0.156	0.322	0.018	0.019	0.000	0.000	0.000	0.000	0.000	1403.12	
6	0.7318	1181.3	1202.2	0.572	4.531	69.298	20.567	4.480	0.163	0.344	0.022	0.024	0.000	0.000	0.000	0.000	0.000	1405.28	
7	0.7269	1176.7	1197.5	0.606	4.300	69.967	20.452	4.153	0.152	0.329	0.020	0.022	0.000	0.000	0.000	0.000	0.000	1404.57	
8	0.7106	1172.9	1193.7	0.461	3.213	72.876	19.246	3.674	0.163	0.326	0.021	0.020	0.000	0.000	0.000	0.000	0.000	1416.05	
9	0.7093	1175.0	1195.8	0.334	3.151	73.436	18.529	3.951	0.191	0.371	0.019	0.019	0.000	0.000	0.000	0.000	0.000	1419.89	
10	0.7160	1173.0	1193.8	0.510	3.648	71.767	19.783	3.800	0.157	0.309	0.014	0.014	0.000	0.000	0.000	0.000	0.000	1410.87	
11	0.7338	1179.4	1200.3	0.598	4.787	68.642	21.058	4.444	0.145	0.296	0.014	0.013	0.000	0.000	0.000	0.000	0.000	1401.28	
12	0.7353	1181.0	1201.9	0.593	4.838	68.427	21.136	4.540	0.141	0.293	0.015	0.016	0.000	0.000	0.000	0.000	0.000	1401.72	
13	0.7306	1172.4	1193.2	0.744	4.699	68.820	21.415	3.921	0.114	0.252	0.017	0.019	0.000	0.000	0.000	0.000	0.000	1395.95	
14	0.7243	1167.8	1188.4	0.729	4.417	69.946	20.814	3.664	0.119	0.268	0.021	0.023	0.000	0.000	0.000	0.000	0.000	1396.40	
15	0.7179	1160.1	1180.6	0.694	4.332	70.970	20.165	3.444	0.110	0.244	0.020	0.021	0.000	0.000	0.000	0.000	0.000	1393.44	
16	0.7148	1156.1	1176.6	0.692	4.292	71.410	19.920	3.314	0.105	0.228	0.019	0.020	0.000	0.000	0.000	0.000	0.000	1391.62	
17	0.7215	1162.4	1183.0	0.730	4.473	70.188	20.733	3.537	0.099	0.211	0.014	0.014	0.000	0.000	0.000	0.000	0.000	1392.78	
18	0.7381	1182.7	1203.6	0.780	4.728	67.665	22.162	4.248	0.120	0.263	0.016	0.018	0.000	0.000	0.000	0.000	0.000	1400.94	
19	0.7326	1177.8	1198.6	0.787	4.496	68.591	21.753	3.931	0.121	0.276	0.020	0.024	0.000	0.000	0.000	0.000	0.000	1400.40	
20	0.7347	1180.7	1201.6	0.778	4.531	68.395	21.733	4.071	0.132	0.310	0.024	0.027	0.000	0.000	0.000	0.000	0.000	1401.81	
21	0.7388	1185.0	1206.0	0.779	4.646	67.889	21.888	4.254	0.142	0.337	0.030	0.035	0.000	0.000	0.000	0.000	0.000	1403.05	
22	0.7350	1180.9	1201.8	0.693	4.671	68.422	21.457	4.261	0.141	0.311	0.020	0.023	0.000	0.000	0.000	0.000	0.000	1401.83	
23	0.7392	1195.0	1216.2	0.519	4.462	68.435	20.954	4.988	0.194	0.404	0.022	0.023	0.000	0.000	0.000	0.000	0.000	1414.54	
24	0.7234	1170.2	1191.0	0.463	4.581	70.457	19.794	4.229	0.144	0.300	0.016	0.016	0.000	0.000	0.000	0.000	0.000	1400.15	
25	0.7226	1168.1	1188.8	0.478	4.614	70.040	20.585	3.977	0.090	0.192	0.012	0.013	0.000	0.000	0.000	0.000	0.000	1398.45	
26	0.7285	1172.4	1193.2	0.636	4.668	69.289	20.989	3.967	0.124	0.283	0.020	0.023	0.000	0.000	0.000	0.000	0.000	1397.90	
27	0.7225	1168.5	1189.2	0.477	4.578	70.615	19.658	4.203	0.144	0.299	0.014	0.014	0.000	0.000	0.000	0.000	0.000	1399.03	
28	0.7176	1160.2	1180.8	0.485	4.614	70.516	20.649	3.439	0.089	0.187	0.011	0.011	0.000	0.000	0.000	0.000	0.000	1393.90	
29	0.7208	1167.7	1188.3	0.432	4.554	69.122	22.781	2.872	0.069	0.151	0.009	0.010	0.000	0.000	0.000	0.000	0.000	1399.69	
30	0.7077	1146.0	1166.3	0.375	4.727	71.314	20.844	2.523	0.063	0.139	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1386.41	
Avg	0.7244	1171.0	1192.0	0.597	4.411	70.056	20.583	3.907	0.131	0.278	0.018	0.019	0.000	0.000	0.000	0.000	0.000	1400.50	

Zone 272

GQ Source Daily Summary

April 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	0.7071	1147.6	1168.0	0.561	4.274	73.004	18.364	3.381	0.123	0.255	0.018	0.019	0.000	0.000	0.000	0.000	0.000	1388.97	
2	0.7156	1160.1	1180.7	0.613	4.233	71.576	19.562	3.571	0.130	0.275	0.019	0.020	0.000	0.000	0.000	0.000	0.000	1395.73	
3	0.7204	1166.4	1187.0	0.585	4.351	70.971	19.646	3.986	0.138	0.285	0.019	0.019	0.000	0.000	0.000	0.000	0.000	1398.50	
4	0.7209	1166.1	1186.8	0.609	4.373	70.692	20.036	3.868	0.129	0.262	0.016	0.015	0.000	0.000	0.000	0.000	0.000	1397.75	
5	0.7299	1176.9	1197.7	0.599	4.579	69.393	20.597	4.345	0.150	0.306	0.016	0.016	0.000	0.000	0.000	0.000	0.000	1401.93	
6	0.7299	1178.0	1198.9	0.574	4.547	69.487	20.492	4.387	0.155	0.319	0.019	0.019	0.000	0.000	0.000	0.000	0.000	1403.24	
7	0.7261	1175.1	1195.9	0.599	4.328	70.047	20.383	4.143	0.148	0.314	0.019	0.019	0.000	0.000	0.000	0.000	0.000	1403.52	
8	0.7105	1172.5	1193.3	0.467	3.218	72.867	19.278	3.642	0.161	0.327	0.020	0.020	0.000	0.000	0.000	0.000	0.000	1415.66	
9	0.7078	1172.5	1193.3	0.334	3.165	73.588	18.460	3.889	0.182	0.348	0.016	0.016	0.000	0.000	0.000	0.000	0.000	1418.33	
10	0.7145	1171.0	1191.7	0.508	3.627	71.959	19.696	3.745	0.151	0.291	0.012	0.011	0.000	0.000	0.000	0.000	0.000	1409.99	
11	0.7304	1173.5	1194.3	0.599	4.826	68.993	20.916	4.269	0.129	0.250	0.009	0.008	0.000	0.000	0.000	0.000	0.000	1397.53	
12	0.7316	1174.8	1195.6	0.595	4.874	68.795	21.004	4.341	0.125	0.247	0.010	0.009	0.000	0.000	0.000	0.000	0.000	1397.79	
13	0.7289	1169.5	1190.2	0.745	4.720	68.971	21.361	3.841	0.107	0.229	0.013	0.013	0.000	0.000	0.000	0.000	0.000	1394.07	
14	0.7225	1164.7	1185.3	0.732	4.434	70.088	20.786	3.580	0.109	0.240	0.015	0.016	0.000	0.000	0.000	0.000	0.000	1394.42	
15	0.7166	1158.0	1178.5	0.696	4.342	71.077	20.120	3.398	0.105	0.229	0.016	0.017	0.000	0.000	0.000	0.000	0.000	1392.09	
16	0.7144	1155.3	1175.8	0.692	4.295	71.450	19.904	3.294	0.103	0.225	0.018	0.019	0.000	0.000	0.000	0.000	0.000	1391.16	
17	0.7210	1161.7	1182.3	0.728	4.470	70.249	20.707	3.514	0.097	0.207	0.014	0.014	0.000	0.000	0.000	0.000	0.000	1392.45	
18	0.7352	1177.8	1198.6	0.782	4.754	67.964	22.033	4.108	0.107	0.228	0.012	0.012	0.000	0.000	0.000	0.000	0.000	1397.86	
19	0.7314	1175.5	1196.4	0.790	4.512	68.719	21.676	3.885	0.117	0.263	0.017	0.019	0.000	0.000	0.000	0.000	0.000	1398.92	
20	0.7333	1178.4	1199.2	0.778	4.541	68.513	21.697	4.008	0.128	0.293	0.020	0.022	0.000	0.000	0.000	0.000	0.000	1400.41	
21	0.7364	1181.2	1202.1	0.778	4.660	68.119	21.793	4.152	0.134	0.311	0.024	0.028	0.000	0.000	0.000	0.000	0.000	1400.78	
22	0.7353	1181.2	1202.1	0.696	4.671	68.386	21.483	4.267	0.141	0.312	0.020	0.023	0.000	0.000	0.000	0.000	0.000	1401.94	
23	0.7354	1188.7	1209.7	0.518	4.499	68.815	20.823	4.790	0.173	0.347	0.017	0.018	0.000	0.000	0.000	0.000	0.000	1410.62	
24	0.7211	1166.3	1187.0	0.462	4.603	70.689	19.708	4.116	0.132	0.266	0.012	0.012	0.000	0.000	0.000	0.000	0.000	1397.76	
25	0.7219	1167.0	1187.6	0.482	4.617	70.126	20.534	3.942	0.089	0.188	0.011	0.012	0.000	0.000	0.000	0.000	0.000	1397.71	
26	0.7265	1169.0	1189.7	0.639	4.683	69.477	20.941	3.863	0.115	0.250	0.016	0.017	0.000	0.000	0.000	0.000	0.000	1395.77	
27	0.7198	1164.0	1184.6	0.475	4.603	70.884	19.571	4.056	0.129	0.259	0.011	0.011	0.000	0.000	0.000	0.000	0.000	1396.26	
28	0.7173	1159.9	1180.4	0.483	4.617	70.565	20.592	3.445	0.089	0.187	0.010	0.011	0.000	0.000	0.000	0.000	0.000	1393.69	
29	0.7204	1166.9	1187.6	0.431	4.561	69.213	22.674	2.880	0.069	0.152	0.009	0.010	0.000	0.000	0.000	0.000	0.000	1399.20	
30	0.7068	1144.4	1164.7	0.380	4.733	71.500	20.643	2.525	0.064	0.139	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1385.33	
Avg	0.7230	1169.0	1189.5	0.598	4.424	70.206	20.516	3.841	0.124	0.260	0.015	0.016	0.000	0.000	0.000	0.000	0.000	1398.98	

Zone 273

GQ Source Analysis

GQ Source Number:	0202080	Specific Gravity:	0.6460
GQ Source Name:	RICHARDTON-GLEN ULLIN COMPRE	Dry Heat Value:	1091.27
Effective Date:	4/1/2014 9:00:00 AM	Wet Heat Value:	1072.28
Effective End Date:	1/18/2038 9:14:00 PM	As Deliv. Heat Value:	
Pressure Base:	14.730	Sample Pressure:	336.00
Viscosity:		Sample Temperature:	0.00

		Mol %	Liquid Content			Mol %
C1	Methane	82.480		CO2	Carbon Dioxide	0.383
C2	Ethane	12.601	3.3600	N2	Nitrogen	3.402
C3	Propane	1.009	0.2770	O2	Oxygen	
IC4	Isobutane	0.042	0.0140	He	Helium	
NC4	n-Butane	0.044	0.0140	H2	Hydrogen	
IC5	Isopentane	0.013	0.0050	H2S	Hydrogen Sulfide	
NC5	n-Pentane	0.007	0.0030	Ar	Argon	
C6	Hexanes	0.019	0.0080	CO	Carbon Monoxide	
C7	Heptanes			H2	Water	
C8	Octanes			Neo-C5	Neopentane	0.000
C9	Nonanes					
C10	Decanes					

Totals 100.000% 3.681 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

April 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	0.6404	1056.8	1075.5	0.241	4.039	83.635	10.633	1.360	0.034	0.047	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1343.90	
2	0.6458	1066.3	1085.2	0.252	3.954	82.516	11.838	1.359	0.031	0.043	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1350.32	
3	0.6356	1049.6	1068.2	0.280	3.964	84.432	10.093	1.151	0.030	0.041	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1339.87	
4	0.6326	1044.9	1063.4	0.289	3.958	84.967	9.651	1.054	0.030	0.042	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1336.96	
5	0.6472	1067.6	1086.5	0.268	3.978	82.239	12.089	1.345	0.030	0.043	0.004	0.004	0.000	0.000	0.000	0.000	0.000	1350.54	
6	0.6352	1049.4	1068.0	0.265	3.965	84.426	10.177	1.092	0.028	0.038	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1340.00	
7	0.6322	1045.4	1063.9	0.252	3.948	84.985	9.687	1.056	0.027	0.037	0.004	0.004	0.000	0.000	0.000	0.000	0.000	1338.03	
8	0.6427	1062.3	1081.1	0.233	3.930	83.017	11.499	1.251	0.027	0.035	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1348.51	
9	0.6471	1066.0	1084.8	0.221	4.139	82.233	11.928	1.405	0.028	0.040	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1348.59	
10	0.6430	1062.4	1081.2	0.197	4.015	82.890	11.571	1.265	0.024	0.031	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1348.27	
11	0.6383	1054.5	1073.2	0.215	4.019	83.800	10.725	1.174	0.026	0.033	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1343.26	
12	0.6371	1052.6	1071.3	0.225	4.003	83.971	10.658	1.077	0.025	0.033	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1342.18	
13	0.6405	1058.8	1077.5	0.217	3.965	83.380	11.181	1.186	0.028	0.037	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1346.36	
14	0.6408	1058.5	1077.2	0.226	3.999	83.343	11.162	1.193	0.029	0.039	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1345.64	
15	0.6351	1047.1	1065.6	0.236	4.137	84.418	10.036	1.090	0.030	0.043	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1337.17	
16	0.6321	1041.7	1060.1	0.250	4.163	85.014	9.438	1.048	0.031	0.045	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1333.45	
17	0.6310	1041.1	1059.6	0.248	4.102	85.211	9.321	1.036	0.030	0.042	0.006	0.004	0.000	0.000	0.000	0.000	0.000	1333.83	
18	0.6303	1039.9	1058.3	0.235	4.124	85.337	9.188	1.036	0.030	0.041	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1333.08	
19	0.6271	1036.3	1054.7	0.221	4.068	85.895	8.778	0.967	0.027	0.036	0.005	0.003	0.000	0.000	0.000	0.000	0.000	1331.79	
20	0.6313	1044.1	1062.6	0.201	4.019	85.135	9.491	1.084	0.027	0.036	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1337.31	
21	0.6389	1055.1	1073.8	0.201	4.061	83.709	10.743	1.210	0.029	0.040	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1343.41	
22	0.6634	1093.3	1112.6	0.191	4.058	79.233	14.684	1.744	0.034	0.052	0.003	0.002	0.000	0.000	0.000	0.000	0.000	1365.98	
23	0.6532	1076.4	1095.5	0.191	4.125	81.106	12.941	1.556	0.031	0.045	0.003	0.002	0.000	0.000	0.000	0.000	0.000	1355.32	
24	0.6457	1062.4	1081.2	0.264	4.158	82.608	11.443	1.445	0.031	0.045	0.003	0.002	0.000	0.000	0.000	0.000	0.000	1345.48	
25	0.6577	1081.7	1100.9	0.282	4.081	80.429	13.445	1.671	0.034	0.053	0.003	0.002	0.000	0.000	0.000	0.000	0.000	1357.48	
26	0.6481	1068.1	1087.0	0.262	4.038	82.178	11.958	1.475	0.034	0.049	0.003	0.003	0.000	0.000	0.000	0.000	0.000	1350.27	
27	0.6498	1070.9	1089.8	0.256	4.041	81.947	12.072	1.595	0.034	0.050	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1351.94	
28	0.6436	1062.9	1081.7	0.189	4.047	82.906	11.408	1.372	0.031	0.042	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1348.31	
29	0.6504	1073.9	1092.9	0.203	3.993	81.682	12.523	1.520	0.031	0.042	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1355.19	
30	0.6446	1065.4	1084.3	0.190	3.991	82.748	11.564	1.438	0.028	0.035	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1350.39	
Avg	0.6414	1059.0	1077.2	0.233	4.036	83.313	11.064	1.275	0.030	0.041	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1345.09	

Zone 32

GQ Source Daily Summary

April 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																	Wobbe	CCT
				CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10				
1	0.6874	1160.1	1180.7	0.001	2.546	73.018	23.869	0.554	0.005	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1423.98	
2	0.6872	1159.8	1180.3	0.000	2.547	73.068	23.809	0.562	0.005	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1423.77	
3	0.6878	1160.7	1181.3	0.001	2.544	72.969	23.893	0.580	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1424.34	
4	0.6879	1161.0	1181.6	0.000	2.532	72.960	23.909	0.585	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1424.65	
5	0.6878	1160.7	1181.3	0.000	2.538	72.995	23.862	0.592	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1424.41	
6	0.6883	1161.6	1182.2	0.000	2.537	72.896	23.944	0.609	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1424.90	
7	0.6893	1163.0	1183.6	0.000	2.547	72.734	24.058	0.639	0.007	0.012	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.58	
8	0.6896	1163.7	1184.3	0.000	2.531	72.678	24.126	0.651	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1426.13	
9	0.6922	1167.6	1188.2	0.000	2.543	72.384	24.180	0.861	0.012	0.020	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1428.12	
10	0.6904	1164.9	1185.5	0.000	2.529	72.567	24.212	0.663	0.009	0.017	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1426.82	
11	0.6900	1164.4	1185.1	0.000	2.525	72.588	24.225	0.647	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1426.62	
12	0.6887	1162.3	1182.9	0.000	2.535	72.780	24.092	0.580	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.33	
13	0.6886	1162.1	1182.6	0.000	2.531	72.832	24.030	0.593	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.23	
14	0.6892	1163.1	1183.7	0.000	2.530	72.707	24.149	0.599	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.81	
15	0.6891	1162.8	1183.4	0.000	2.540	72.711	24.144	0.592	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.56	
16	0.6894	1163.4	1184.0	0.000	2.532	72.662	24.197	0.595	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.94	
17	0.6897	1163.8	1184.4	0.001	2.536	72.725	24.021	0.691	0.009	0.016	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1426.11	
18	0.6907	1165.3	1185.9	0.000	2.532	72.565	24.168	0.694	0.012	0.024	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1427.01	
19	0.6907	1165.1	1185.7	0.001	2.543	72.554	24.158	0.722	0.008	0.013	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1426.74	
20	0.6908	1165.2	1185.9	0.002	2.544	72.603	24.032	0.798	0.009	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1426.81	
21	0.6902	1164.1	1184.7	0.001	2.559	72.617	24.096	0.710	0.007	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1426.04	
22	0.6896	1163.6	1184.2	0.001	2.539	72.688	24.097	0.659	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.96	
23	0.6909	1165.5	1186.2	0.001	2.536	72.616	24.009	0.802	0.012	0.021	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1427.05	
24	0.6893	1163.3	1183.9	0.001	2.529	72.752	24.039	0.662	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.90	
25	0.6891	1163.0	1183.5	0.002	2.530	72.773	24.031	0.649	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.71	
26	0.6883	1161.8	1182.4	0.001	2.519	72.905	23.954	0.608	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.22	
27	0.6880	1161.4	1182.0	0.000	2.519	72.933	23.954	0.580	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.00	
28	0.6873	1160.2	1180.7	0.000	2.531	73.023	23.906	0.526	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1424.17	
29	0.6873	1160.4	1180.9	0.000	2.516	73.042	23.886	0.541	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1424.46	
30	0.6880	1161.1	1181.7	0.000	2.535	72.916	23.972	0.563	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1424.67	
Avg	0.6891	1163.0	1183.4	0.001	2.535	72.775	24.034	0.637	0.007	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.60	

Zone 33

GQ Source Analysis

GQ Source Number:	1202160	Specific Gravity:	0.6363
GQ Source Name:	BOWMAN BORDER	Dry Heat Value:	1029.79
Effective Date:	4/1/2014 9:00:00 AM	Wet Heat Value:	1011.87
Effective End Date:	1/18/2038 9:14:07 PM	As Deliv. Heat Value:	1029.79
Pressure Base:	14.730	Sample Pressure:	
Viscosity:		Sample Temperature:	

		<u>Mol %</u>	<u>Liquid Content</u>			<u>Mol %</u>
C1	Methane	84.344		CO2	Carbon Dioxide	0.633
C2	Ethane	8.092	2.1580	N2	Nitrogen	5.797
C3	Propane	0.979	0.2690	O2	Oxygen	
IC4	Isobutane	0.045	0.0150	He	Helium	
NC4	n-Butane	0.084	0.0260	H2	Hydrogen	
IC5	Isopentane	0.009	0.0030	H2S	Hydrogen Sulfide	
NC5	n-Pentane	0.010	0.0040	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%				2.478 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

ROW ID	LOCATION DESCRIPTION	GROSS HEATING VALUE (BTU/CF)	SPECIFIC GRAVITY	WOBBE (cal)	CRICONDENTHERM (deg F)	NITROGEN (mole percent)	CARBON DIOXIDE (mole percent)	METHANE (mole percent)	ETHANE (mole percent)	PROPANE (mole percent)	NORMAL BUTANE (mole percent)	ISO BUTANE (mole percent)	PENTANE (mole percent)	ISO PENTANE (mole percent)	NEO PENTANE (mole percent)	HEXANES PLUS (mole percent)	HYDROGEN (mole percent)	HELIUM (mole percent)	PRODUCTION DATE	POSTING DATE	Changetimesamp	NOTES
11587	GLEN ULLIN	1049.9	0.607	1347.6	-50	1.3072	0.9776	90.523	6.3104	0.5515	0.06	0.047	0.0096	0.0126	0	0.0065	0.1798	0.017	3/31/2014	4/1/2014	4/1/2014 2:18:35 PM	
11587	GLEN ULLIN	1049.4	0.607	1346.9	-51.9	1.2745	1.0176	90.5518	6.3066	0.538	0.0557	0.0435	0.0089	0.0116	0	0.006	0.18	0.017	4/1/2014	4/2/2014	4/2/2014 2:16:59 PM	
11587	GLEN ULLIN	1051.6	0.6094	1347.1	-51.5	1.2903	1.0677	90.1781	6.5881	0.5786	0.0563	0.0435	0.0084	0.011	0	0.0059	0.1579	0.017	4/2/2014	4/3/2014	4/3/2014 2:16:30 PM	
11587	GLEN ULLIN	1046.9	0.606	1344.8	-67.3	1.3217	1.0298	90.6062	6.3419	0.4673	0.0342	0.0259	0.004	0.0056	0	0.0025	0.1453	0.017	4/3/2014	4/4/2014	4/4/2014 2:15:56 PM	
11587	GLEN ULLIN	1041	0.6019	1341.8	-81	1.3332	0.9966	91.2565	5.8719	0.3594	0.0186	0.0135	0.0014	0.0021	0	0.0005	0.1297	0.017	4/4/2014	4/5/2014	4/5/2014 2:15:34 PM	
11587	GLEN ULLIN	1041.5	0.6033	1340.9	-75.8	1.383	1.0317	91.0309	5.9454	0.3958	0.0249	0.0184	0.0021	0.0035	0	0.0013	0.1484	0.017	4/5/2014	4/6/2014	4/6/2014 2:15:30 PM	
11587	GLEN ULLIN	1049.6	0.6087	1345.3	-70.8	1.3723	1.0604	90.0686	6.8252	0.4742	0.029	0.0221	0.0029	0.0044	0	0.0015	0.1443	0.017	4/6/2014	4/7/2014	4/7/2014 2:13:46 PM	
11587	GLEN ULLIN	1043.9	0.6047	1342.3	-77.4	1.5294	1.0603	90.7681	6.2462	0.3937	0.022	0.0168	0.0019	0.003	0	0.001	0.1447	0.017	4/7/2014	4/8/2014	4/8/2014 2:14:42 PM	
11587	GLEN ULLIN	1036	0.599	1338.6	-85.4	1.3419	1.0101	91.7317	5.4336	0.3012	0.011	0.0076	0	0	0	0	0.1489	0.017	4/8/2014	4/9/2014	4/9/2014 2:16:06 PM	
11587	GLEN ULLIN	1041.8	0.603	1341.6	-80.5	1.3013	1.0551	90.9628	6.0485	0.3792	0.0188	0.0127	0.0006	0.0014	0	0.0001	0.2062	0.017	4/9/2014	4/10/2014	4/10/2014 2:15:38 PM	
11587	GLEN ULLIN	1056.7	0.6135	1349.1	-71.3	1.3106	1.1137	89.0221	7.879	0.4488	0.0241	0.0159	0.0007	0.0018	0	0.0002	0.1703	0.017	4/10/2014	4/11/2014	4/11/2014 2:15:19 PM	
11587	GLEN ULLIN	1055.3	0.6128	1348.1	-70.8	1.3784	1.0796	89.1127	7.6708	0.4876	0.0268	0.0188	0.0014	0.0026	0	0.0007	0.2007	0.0182	4/11/2014	4/12/2014	4/12/2014 2:15:22 PM	
11587	GLEN ULLIN	1057.8	0.6147	1349.1	-71.9	1.3853	1.1007	88.5833	8.3612	0.3487	0.0139	0.0097	0.0002	0.0007	0	0	0.1838	0.0112	4/12/2014	4/13/2014	4/13/2014 2:14:23 PM	
11587	GLEN ULLIN	1046	0.6065	1343.1	-76.8	1.358	1.0728	90.3442	6.5688	0.4161	0.0218	0.0163	0.0016	0.0026	0	0.0004	0.1849	0.0112	4/13/2014	4/14/2014	4/14/2014 2:14:53 PM	
11587	GLEN ULLIN	1037.7	0.6024	1337	-82.9	1.4531	1.0802	91.0461	5.8925	0.3184	0.0104	0.0073	0	0	0	0	0.1726	0.0172	4/14/2014	4/15/2014	4/15/2014 2:18:30 PM	
11587	GLEN ULLIN	1038.9	0.6003	1340.9	-83.8	1.3307	0.9832	91.4402	5.7311	0.3218	0.0118	0.008	0	0.0001	0	0	0.1586	0.0218	4/15/2014	4/16/2014	4/16/2014 2:15:49 PM	
11587	GLEN ULLIN	1035.8	0.5977	1339.8	-85.6	1.2796	0.9772	92.0214	5.2107	0.3326	0.0144	0.0099	0.0003	0.0009	0	0	0.1593	0.0218	4/16/2014	4/17/2014	4/17/2014 2:16:05 PM	
11587	GLEN ULLIN	1037.4	0.5994	1340	-79	1.2937	1.0102	91.8432	5.2146	0.4177	0.0273	0.0201	0.0025	0.0038	0	0.0011	0.1503	0.0218	4/17/2014	4/18/2014	4/18/2014 2:14:42 PM	
11587	GLEN ULLIN	1037.4	0.5994	1340	-79	1.2937	1.0102	91.8432	5.2146	0.4177	0.0273	0.0201	0.0025	0.0038	0	0.0011	0.1503	0.0218	4/17/2014	4/19/2014	4/19/2014 2:15:45 PM	
11587	GLEN ULLIN	1047.8	0.6081	1343.7	-73.9	1.5024	1.0053	89.9916	6.7362	0.4923	0.0284	0.02	0.0017	0.0031	0	0.0009	0.201	0.0105	4/19/2014	4/20/2014	4/20/2014 2:15:57 PM	
11587	GLEN ULLIN	1049.2	0.6093	1344.2	-73.8	1.4762	1.0356	89.8514	6.8873	0.5013	0.0305	0.0199	0.0018	0.0027	0	0.0002	0.1782	0.0105	4/20/2014	4/21/2014	4/21/2014 2:14:05 PM	
11587	GLEN ULLIN	1042.8	0.6038	1342.1	-72.1	1.4037	1.001	90.7403	6.2235	0.3866	0.0176	0.0113	0.0001	0.0008	0	0.0024	0.2005	0.0105	4/21/2014	4/22/2014	4/22/2014 2:16:00 PM	
11587	GLEN ULLIN	1043.1	0.6047	1341.4	-62.1	1.3918	1.0518	90.7725	6.1375	0.4281	0.0257	0.0156	0.0013	0.0015	0	0.0045	0.1568	0.0105	4/22/2014	4/23/2014	4/23/2014 2:15:17 PM	
11587	GLEN ULLIN	1043	0.6046	1341.4	-61.9	1.3914	1.0507	90.8069	6.0916	0.4386	0.0271	0.0164	0.0016	0.0016	0	0.0045	0.1572	0.0105	4/23/2014	4/24/2014	4/24/2014 2:14:50 PM	
11587	GLEN ULLIN	1041.8	0.6026	1342.1	-62	1.3608	0.9898	91.2397	5.7316	0.4649	0.0324	0.0186	0.0012	0.0014	0	0.0044	0.1447	0.0105	4/24/2014	4/25/2014	4/25/2014 2:14:30 PM	
11587	GLEN ULLIN	1037.3	0.5995	1339.7	-62	1.39	0.9578	91.6645	5.4286	0.3579	0.0187	0.0114	0.0003	0.001	0	0.0049	0.1534	0.0105	4/25/2014	4/26/2014	4/26/2014 2:16:06 PM	
11587	GLEN ULLIN	1035.1	0.5982	1338.3	-62	1.4006	0.9582	91.8737	5.2587	0.3212	0.0132	0.0085	0	0.0009	0	0.0052	0.1486	0.0105	4/26/2014	4/27/2014	4/27/2014 2:15:46 PM	
11587	GLEN ULLIN	1035.1	0.5982	1338.3	-62	1.4006	0.9582	91.8737	5.2587	0.3212	0.0132	0.0085	0	0.0009	0	0.0052	0.1486	0.0105	4/27/2014	4/28/2014	4/28/2014 2:14:43 PM	
11587	GLEN ULLIN	1035.1	0.5982	1338.3	-62	1.4006	0.9582	91.8737	5.2587	0.3212	0.0132	0.0085	0	0.0009	0	0.0052	0.1486	0.0105	4/28/2014	4/29/2014	4/29/2014 2:14:46 PM	
11587	GLEN ULLIN	1035.1	0.5982	1338.3	-62	1.4006	0.9582	91.8737	5.2587	0.3212	0.0132	0.0085	0	0.0009	0	0.0052	0.1486	0.0105	4/29/2014	4/30/2014	4/30/2014 2:16:11 PM	

30 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
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	APR 14	MAR 14	FEB 14	JAN 14	DEC 13	NOV 13	OCT 13	SEPT 13	AUG 13	JULY 13	JUNE 13	MAY 13	ZONE
MT/ND	211	Sidney Area	1206	1198	1204	1205	1208	1204	1209	1211	1206	1208	1209	1212	1201	211
ND	24	Williston Area	1195	1177	1181	1177	1201	1201	1207	1204	1199	1196	1198	1196	1197	24
ND	25	Watford City Area	1197	1221	1220	1205	1218	1191	1197	1183	1198	1193	1193	1188	1154	25
ND/MT	241	Fairview Area	1199	1194	1197	1197	1203	1197	1189	1198	1202	1203	1205	1205	1203	241
ND	261	Williston - Tioga - Minot Line	1176	1181	1187	1185	1189	1193	1166	1175	1180	1165	1172	1156	1159	261
ND	262	Minot Area	1193	1196	1201	1200	1201	1201	1192	1197	1196	1185	1191	1181	1177	262
ND	263	Tioga - Portal	1097	1074	1058	1051	1063	1061	1096	1125	1130	1130	1130	1127	1123	263
ND	264	Williston - Ray	1195	1177	1181	1177	1201	1201	1207	1204	1199	1196	1198	1196	1197	264
ND	271	Bismarck - Cleveland	1171	1192	1159	1127	1144	1145	1164	1184	1199	1187	1191	1183	1175	271
ND	272	Cleveland - Mapleton	1171	1192	1158	1127	1144	1145	1164	1184	1199	1187	1192	1183	1178	272
ND	273	Cleveland - Grafton	1171	1190	1158	1127	1144	1145	1164	1184	1199	1188	1192	1184	1177	273
ND	28	Bismarck - Cabin Creek	1137	1135	1077	1072	1081	1092	1105	1147	1199	1187	1191	1182	1173	28
ND	31	Dickinson Area	1104	1102	1079	1073	1082	1092	1107	1126	1079	1098	1112	1130	1163	31
ND	311	Taylor Take-Off - Glen Ullin Comp	1119	1091	1072	1197	1092	1092	1104	1108	1094	1135	1188	1097	1163	311
ND/MT	32	Cabin Creek - Dickinson	1094	1077	1061	1058	1070	1082	1096	1095	1115	1135	1142	1094	1100	32
ND	33	Killdeer	1181	1183	1180	1181	1182	1180	1180	1182	1183	1182	1183	1180	1179	33
ND	34	Bowman Area	1100	1030	1059	1047	1073	1082	1118	1118	1145	1127	1140	1121	1136	34
ND	802	Linton	1037	1044	1045	1039	1042	1033	1037	1037	1032	1032	1032	1036	1031	802

**THERMAL ZONE VARIANCE
DOCUMENTATION**

April 2014

ZONE	BTU VARIANCE	REASON
28	-52	Mix of gas in the area
31	47	Mix of gas in the area
34	-27	Mix of gas in the area
271	33	Mix of gas in the area
272	34	Mix of gas in the area
273	32	Mix of gas in the area