



MONTANA-DAKOTA

UTILITIES CO.

A Division of MDU Resources Group, Inc.

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

October 3, 2013

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

Re: Case No. 11,006 (Therm Billing)
Monthly Report – August 2013

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 September 2013.
2. Attachment B consists of copies of the monthly Heating Value Test Reports received from our supplier for the month of August 2013. 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 August 2013.

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
September 2013

Town	Heat Zone	Therm Factor
MDU-303-ALEXANDER	025	1.126790
MDU-308-ARNEGARD	025	1.126790
MDU-314-APPLE VALLEY	271	1.145298
MDU-318-BEACH	032	1.048892
MDU-319-BELFIELD	032	1.056598
MDU-323-BERTHOLD	262	1.119234
MDU-327-BISMARCK	028	1.145298
MDU-330-BOWMAN	034	1.033849
MDU-337-BURLINGTON	262	1.143369
MDU-343-CARRINGTON	273	1.146263
MDU-344-CLEVELAND	272	1.137240
MDU-364-CAVALIER	273	1.170458
MDU-365-DAWSON	271	1.137240
MDU-368-DES LACS	262	1.127279
MDU-369-DICKINSON	031	1.029608
MDU-374-FT TOTTEN	273	1.154327
MDU-375-DEVILS LAKE	273	1.154327
MDU-379-BARLOW	273	1.146263
MDU-384-EPPING	264	1.129623
MDU-387-ELDRIDGE	272	1.145298
MDU-407-GLADSTONE	031	1.029608
MDU-411-GLEN ULLIN	311	1.072009
MDU-413-GOLVA	032	1.033482
MDU-416-GARRISON	262	1.127279
MDU-417-GRAFTON	273	1.178523
MDU-429-HEBRON	311	1.072009
MDU-432-HETTINGER	903	2.387549
MDU-449-JAMESTOWN	272	1.153356
MDU-459-KILLDEER	033	1.116400
MDU-463-LANGDON	273	1.146263
MDU-469-LEFOR	031	1.029608
MDU-474-LIGNITE	263	1.074958
MDU-475-LINTON	802	0.995744
MDU-478-LINCOLN	028	1.145298
MDU-494-MEDINA	271	1.137240
MDU-498-MANDAN	028	1.145298
MDU-500-MARMARTH	034	1.041499
MDU-505-MINOT	262	1.143369
MDU-510-MOTT	031	1.029608
MDU-512-MAX	262	1.119234
MDU-522-NEW ENGLAND	031	1.022153
MDU-524-NEW SALEM	028	1.121123
MDU-532-NEW ROCKFORD	273	1.146263
MDU-539-PARK RIVER	273	1.170458
MDU-540-PALERMO	262	1.119234
MDU-558-RAY	264	1.129623
MDU-561-REGENT	031	1.029608
MDU-563-RHAME	034	1.026198
MDU-564-RICHARDTON	311	1.056598
MDU-568-ROSS	261	1.092434
MDU-572-RUTHVILLE	262	1.149158
MDU-574-SANBORN	272	1.153356

Montana-Dakota Utilities Co.
Therm Billing Factors- North Dakota
September 2013

Town	Heat Zone	Therm Factor
MDU-583-SENTINEL BUTTE	032	1.055361
MDU-588-SOUTH HEART	031	1.022153
MDU-717-SPIRITWOOD	272	1.153356
MDU-590-SPRINGBROOK	264	1.129623
MDU-591-STANLEY	261	1.100344
MDU-593-STEELE	271	1.137240
MDU-598-SHEYENNE	273	1.154327
MDU-605-SURREY	262	1.143369
MDU-610-TAPPEN	271	1.137240
MDU-611-TAYLOR	031	1.022153
MDU-616-TIOGA	261	1.108253
MDU-619-TURTLE LAKE	262	1.127279
MDU-620-TRENTON	024	1.137743
MDU-624-UNDERWOOD	262	1.127279
MDU-625-VALLEY CITY	272	1.161414
MDU-629-WALHALLA	273	1.170458
MDU-632-WATFORD CITY	025	1.126790
MDU-636-WHEELOCK	264	1.121504
MDU-637-WHITE EARTH	261	1.100344
MDU-642-WILLISTON	024	1.137743
MDU-646-WASHBURN	262	1.135324
MDU-647-WILTON	262	1.119234
MDU-664-RIVERDALE	262	1.132986
MDU-691-FAIRVIEW	241	1.144402
MDU-712-MINOT AFB	262	1.143369
MDU-732-MSR SITE	273	1.150123

GQ Source Daily Summary

August 2013

Number: 251

Pressure Base: 14.730

Contract Day: 1

Name: SIDNEY BORDER-MONDAK JNCTN-SIDNEY PLANT

Temperature Base:

Contract Hour: 9

Day	Relative Density	Heating Value Wet	Heating Value Dry	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.7352	1185.2	1206.2	1.156	3.722	68.718	21.794	4.181	0.137	0.262	0.016	0.013	0.000	0.000	0.000	0.000	0.000	1406.77	
2	0.7354	1185.2	1206.2	1.154	3.745	68.683	21.783	4.225	0.131	0.250	0.015	0.013	0.000	0.000	0.000	0.000	0.000	1406.53	
3	0.7333	1182.6	1203.6	1.148	3.715	69.117	21.375	4.231	0.133	0.253	0.015	0.012	0.000	0.000	0.000	0.000	0.000	1405.49	
4	0.7366	1187.8	1208.9	1.156	3.693	68.417	22.133	4.191	0.132	0.250	0.015	0.013	0.000	0.000	0.000	0.000	0.000	1408.54	
5	0.7341	1183.5	1204.4	1.163	3.716	68.731	21.973	4.012	0.130	0.246	0.015	0.013	0.000	0.000	0.000	0.000	0.000	1405.73	
6	0.7308	1178.9	1199.8	1.136	3.724	69.158	21.774	3.825	0.121	0.232	0.015	0.013	0.000	0.000	0.000	0.000	0.000	1403.50	
7	0.7346	1184.1	1205.1	1.166	3.723	68.553	22.201	3.966	0.126	0.239	0.015	0.012	0.000	0.000	0.000	0.000	0.000	1406.01	
8	0.7377	1189.4	1210.4	1.156	3.710	68.154	22.408	4.147	0.138	0.260	0.015	0.013	0.000	0.000	0.000	0.000	0.000	1409.25	
9	0.7377	1189.0	1210.1	1.151	3.733	68.393	21.944	4.332	0.144	0.272	0.017	0.014	0.000	0.000	0.000	0.000	0.000	1408.87	
10	0.7348	1184.9	1205.9	1.146	3.718	68.793	21.740	4.166	0.140	0.266	0.016	0.014	0.000	0.000	0.000	0.000	0.000	1406.78	
11	0.7354	1185.9	1206.9	1.148	3.716	68.677	21.825	4.221	0.134	0.251	0.015	0.013	0.000	0.000	0.000	0.000	0.000	1407.32	
12	0.7221	1188.9	1209.9	0.341	3.519	69.260	23.379	3.294	0.073	0.122	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1423.87	
13	0.7378	1189.9	1211.0	1.137	3.711	68.373	21.964	4.389	0.138	0.260	0.016	0.013	0.000	0.000	0.000	0.000	0.000	1409.82	
14	0.7374	1188.8	1209.9	1.146	3.722	68.446	21.898	4.361	0.139	0.260	0.016	0.013	0.000	0.000	0.000	0.000	0.000	1408.97	
15	0.7383	1190.7	1211.8	1.142	3.699	68.446	21.747	4.527	0.142	0.267	0.016	0.014	0.000	0.000	0.000	0.000	0.000	1410.31	
16	0.7381	1190.7	1211.8	1.145	3.673	68.514	21.698	4.522	0.144	0.272	0.017	0.015	0.000	0.000	0.000	0.000	0.000	1410.51	
17	0.7372	1189.8	1210.9	1.165	3.619	68.594	21.719	4.505	0.129	0.241	0.015	0.013	0.000	0.000	0.000	0.000	0.000	1410.26	
18	0.7358	1186.9	1207.9	1.152	3.682	68.700	21.751	4.298	0.135	0.252	0.016	0.014	0.000	0.000	0.000	0.000	0.000	1408.18	
19	0.7384	1191.2	1212.3	1.143	3.680	68.392	21.866	4.472	0.144	0.271	0.017	0.015	0.000	0.000	0.000	0.000	0.000	1410.75	
20	0.7358	1186.6	1207.6	1.145	3.712	68.629	21.868	4.215	0.139	0.261	0.016	0.014	0.000	0.000	0.000	0.000	0.000	1407.79	
21	0.7355	1186.2	1207.2	1.148	3.706	68.631	21.920	4.172	0.137	0.257	0.016	0.013	0.000	0.000	0.000	0.000	0.000	1407.60	
22	0.7347	1185.0	1206.0	1.150	3.703	68.735	21.884	4.095	0.138	0.262	0.017	0.015	0.000	0.000	0.000	0.000	0.000	1406.91	
23	0.7372	1189.9	1210.9	1.160	3.621	68.351	22.241	4.201	0.137	0.258	0.017	0.015	0.000	0.000	0.000	0.000	0.000	1410.37	
24	0.7226	1189.8	1210.9	0.281	3.595	69.085	23.499	3.377	0.059	0.094	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1424.56	
25	0.7309	1181.0	1201.9	1.072	3.713	68.948	22.134	3.783	0.114	0.212	0.013	0.011	0.000	0.000	0.000	0.000	0.000	1405.84	
26	0.7267	1192.2	1213.3	0.414	3.628	69.060	22.765	3.884	0.091	0.146	0.007	0.006	0.000	0.000	0.000	0.000	0.000	1423.36	
27	0.7230	1185.5	1206.5	0.442	3.651	69.282	23.004	3.415	0.072	0.122	0.006	0.006	0.000	0.000	0.000	0.000	0.000	1418.99	
28	0.7277	1187.7	1208.7	0.640	3.653	68.965	22.751	3.719	0.090	0.162	0.010	0.009	0.000	0.000	0.000	0.000	0.000	1417.06	
29	0.7340	1183.4	1204.4	1.158	3.714	68.832	21.836	4.028	0.138	0.263	0.017	0.015	0.000	0.000	0.000	0.000	0.000	1405.82	
30	0.7347	1184.8	1205.8	1.154	3.705	68.725	21.906	4.077	0.139	0.263	0.016	0.014	0.000	0.000	0.000	0.000	0.000	1406.74	
31	0.7296	1182.9	1203.9	0.923	3.692	69.089	22.157	3.784	0.115	0.214	0.013	0.012	0.000	0.000	0.000	0.000	0.000	1409.49	
Avg	0.7336	1187.0	1207.7	1.024	3.688	68.724	22.095	4.084	0.125	0.234	0.014	0.012	0.000	0.000	0.000	0.000	0.000	1410.06	

Zone 211

GQ Source Daily Summary

August 2013

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	0.7131	1172.0	1192.8	0.681	3.168	72.003	20.437	3.319	0.112	0.242	0.017	0.020	0.000	0.000	0.000	0.000	0.000	1412.52	
2	0.7130	1170.9	1191.6	0.719	3.178	71.849	20.733	3.140	0.107	0.236	0.018	0.021	0.000	0.000	0.000	0.000	0.000	1411.19	
3	0.7129	1170.2	1190.9	0.710	3.228	71.861	20.670	3.142	0.109	0.240	0.018	0.022	0.000	0.000	0.000	0.000	0.000	1410.42	
4	0.7151	1173.0	1193.8	0.724	3.236	71.687	20.661	3.253	0.118	0.269	0.023	0.028	0.000	0.000	0.000	0.000	0.000	1411.69	
5	0.7185	1178.8	1199.7	0.714	3.218	71.392	20.667	3.496	0.136	0.315	0.027	0.034	0.000	0.000	0.000	0.000	0.000	1415.27	
6	0.7089	1165.3	1186.0	0.701	3.166	72.250	20.653	2.949	0.085	0.173	0.010	0.012	0.000	0.000	0.000	0.000	0.000	1408.51	
7	0.7110	1167.4	1188.1	0.735	3.175	72.046	20.689	3.032	0.095	0.198	0.014	0.016	0.000	0.000	0.000	0.000	0.000	1409.06	
8	0.7123	1169.8	1190.5	0.754	3.128	71.868	20.788	3.143	0.097	0.196	0.012	0.013	0.000	0.000	0.000	0.000	0.000	1410.58	
9	0.7127	1170.6	1191.3	0.717	3.167	71.884	20.720	3.151	0.102	0.222	0.016	0.020	0.000	0.000	0.000	0.000	0.000	1411.18	
10	0.7186	1179.0	1199.9	0.758	3.144	71.452	20.661	3.455	0.136	0.325	0.030	0.039	0.000	0.000	0.000	0.000	0.000	1415.49	
11	0.7167	1176.6	1197.4	0.735	3.155	71.639	20.559	3.435	0.128	0.293	0.025	0.031	0.000	0.000	0.000	0.000	0.000	1414.36	
12	0.7124	1175.0	1195.8	0.786	2.761	72.795	19.463	3.769	0.133	0.258	0.016	0.019	0.000	0.000	0.000	0.000	0.000	1416.77	
13	0.7185	1178.7	1199.6	0.751	3.160	71.404	20.683	3.523	0.129	0.291	0.026	0.033	0.000	0.000	0.000	0.000	0.000	1415.24	
14	0.7101	1163.8	1184.4	0.670	3.410	72.254	20.236	3.076	0.100	0.216	0.017	0.020	0.000	0.000	0.000	0.000	0.000	1405.53	
15	0.7142	1168.6	1189.3	0.697	3.462	71.741	20.355	3.372	0.109	0.228	0.017	0.019	0.000	0.000	0.000	0.000	0.000	1407.28	
16	0.7174	1176.1	1196.9	0.709	3.282	71.470	20.553	3.556	0.122	0.264	0.020	0.024	0.000	0.000	0.000	0.000	0.000	1413.18	
17	0.7200	1179.9	1200.8	0.740	3.244	71.251	20.666	3.569	0.138	0.322	0.030	0.038	0.000	0.000	0.000	0.000	0.000	1415.19	
18	0.7154	1174.6	1195.4	0.685	3.232	71.694	20.561	3.409	0.116	0.257	0.021	0.026	0.000	0.000	0.000	0.000	0.000	1413.24	
19	0.7159	1175.6	1196.4	0.705	3.185	71.650	20.569	3.485	0.115	0.250	0.019	0.022	0.000	0.000	0.000	0.000	0.000	1414.00	
20	0.7165	1175.9	1196.7	0.745	3.163	71.576	20.634	3.473	0.116	0.250	0.019	0.023	0.000	0.000	0.000	0.000	0.000	1413.73	
21	0.7160	1174.9	1195.7	0.754	3.161	71.553	20.798	3.303	0.119	0.265	0.021	0.026	0.000	0.000	0.000	0.000	0.000	1413.08	
22	0.7176	1178.0	1198.9	0.750	3.126	71.464	20.773	3.393	0.132	0.303	0.026	0.032	0.000	0.000	0.000	0.000	0.000	1415.24	
23	0.7156	1175.7	1196.6	0.725	3.118	71.662	20.711	3.379	0.113	0.248	0.020	0.024	0.000	0.000	0.000	0.000	0.000	1414.45	
24	0.7303	1199.1	1220.3	0.683	3.123	70.558	20.428	4.372	0.211	0.522	0.047	0.056	0.000	0.000	0.000	0.000	0.000	1427.84	
25	0.7213	1183.6	1204.6	0.728	3.163	71.226	20.719	3.576	0.143	0.348	0.040	0.056	0.000	0.000	0.000	0.000	0.000	1418.26	
26	0.7213	1180.7	1201.7	0.715	3.362	70.883	20.993	3.512	0.139	0.332	0.029	0.035	0.000	0.000	0.000	0.000	0.000	1414.77	
27	0.7232	1183.9	1204.8	0.708	3.359	70.805	20.859	3.693	0.143	0.350	0.035	0.046	0.000	0.000	0.000	0.000	0.000	1416.71	
28	0.7145	1171.6	1192.4	0.698	3.306	71.862	20.317	3.410	0.112	0.251	0.020	0.024	0.000	0.000	0.000	0.000	0.000	1410.58	
29	0.7137	1171.3	1192.1	0.734	3.190	71.964	20.402	3.313	0.113	0.243	0.018	0.022	0.000	0.000	0.000	0.000	0.000	1411.07	
30	0.7170	1175.8	1196.6	0.768	3.176	71.638	20.487	3.462	0.128	0.286	0.023	0.029	0.000	0.000	0.000	0.000	0.000	1413.15	
31	0.7121	1168.3	1189.0	0.770	3.172	72.163	20.333	3.158	0.112	0.248	0.020	0.024	0.000	0.000	0.000	0.000	0.000	1408.96	
Avg	0.7160	1175.0	1195.8	0.725	3.197	71.663	20.573	3.397	0.121	0.272	0.022	0.028	0.000	0.000	0.000	0.000	0.000	1413.18	

Zone 24, 264

GQ Source Analysis

WBI Energy Transmission, Inc.

GQ Source Number:	0602160	Specific Gravity:	0.7330
GQ Source Name:	FAIRVIEW BORDER	Dry Heat Value:	1202.80
Effective Date:	8/1/2013 9:00:00 AM	Wet Heat Value:	1181.86
Effective End Date:	1/18/2038 9:14:07 PM	As Deliv. Heat Value:	1202.80
Pressure Base:	14.730	Sample Pressure:	340.00
Viscosity:		Sample Temperature:	

	<u>Mol %</u>	<u>Liquid Content</u>			<u>Mol %</u>	
C1	Methane	68.729		CO2	Carbon Dioxide	1.161
C2	Ethane	21.848	5.8256	N2	Nitrogen	3.683
C3	Propane	4.179	1.1480	O2	Oxygen	0.000
IC4	Isobutane	0.133	0.0435	He	Helium	
NC4	n-Butane	0.241	0.0758	H2	Hydrogen	
IC5	Isopentane	0.013	0.0048	H2S	Hydrogen Sulfide	
NC5	n-Pentane	0.013	0.0048	Ar	Argon	
C6	Hexanes	0.000	0.0000	CO	Carbon Monoxide	
C7	Heptanes			H2	Water	
C8	Octanes			Neo-C5	Neopentane	
C9	Nonanes					
C10	Decanes					

Totals 100.000% 7.103 GPM

Sample Date:
Sample Type: Composite
Sample Tech: R. Robson
H2S: ppm

Sample Remarks:

Analysis Tech: DW

Analysis Remarks:

Zone 241

GQ Source Analysis

WBI Energy Transmission, Inc.

GQ Source Number:	0602230	Specific Gravity:	0.7122
GQ Source Name:	WATFORD CITY BORDER	Dry Heat Value:	1192.58
Effective Date:	7/1/2013 9:00:00 AM	Wet Heat Value:	1171.82
Effective End Date:	1/18/2038 9:14:00 PM	As Deliv. Heat Value:	1192.58
Pressure Base:	14.730	Sample Pressure:	450.00
Viscosity:		Sample Temperature:	

	<u>Mol %</u>	<u>Liquid Content</u>		<u>Mol %</u>
C1 Methane	72.212		CO2 Carbon Dioxide	0.774
C2 Ethane	20.113	5.3630	N2 Nitrogen	2.925
C3 Propane	3.539	0.9723	O2 Oxygen	0.000
IC4 Isobutane	0.127	0.0416	He Helium	
NC4 n-Butane	0.257	0.0809	H2 Hydrogen	
IC5 Isopentane	0.025	0.0091	H2S Hydrogen Sulfide	
NC5 n-Pentane	0.024	0.0087	Ar Argon	
C6 Hexanes	0.003	0.0000	CO Carbon Monoxide	
C7 Heptanes			H2 Water	
C8 Octanes			Neo-C5 Neopentane	
C9 Nonanes				
C10 Decanes				

Totals 100.000% 6.475 GPM

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

Sample Remarks:

Analysis Tech: MB

Analysis Remarks:

Zone 25

GQ Source Analysis

WBI Energy Transmission, Inc.

GQ Source Number:	2501030	Specific Gravity:	0.6695
GQ Source Name:	LIGNITE PLANT	Dry Heat Value:	1130.26
Effective Date:	7/1/2013 9:00:00 AM	Wet Heat Value:	1110.59
Effective End Date:	1/18/2038 9:14:00 PM	As Deliv. Heat Value:	1130.26
Pressure Base:	14.730	Sample Pressure:	130.00
Viscosity:		Sample Temperature:	

		<u>Mol %</u>	<u>Liquid Content</u>			<u>Mol %</u>
C1	Methane	76.881		CO2	Carbon Dioxide	0.093
C2	Ethane	18.247	4.8655	N2	Nitrogen	3.702
C3	Propane	1.073	0.2948	O2	Oxygen	0.000
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 99.996% 5.160 GPM

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

Sample Remarks:

Analysis Tech: MB

Analysis Remarks:

Zone 263

*** End of Report ***

GQ Source Daily Summary

August 2013

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	0.7233	1167.1	1187.8	0.458	4.776	69.488	21.403	3.620	0.073	0.162	0.010	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1396.62
2	0.7214	1164.0	1184.7	0.418	4.840	69.780	21.122	3.606	0.068	0.148	0.008	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1394.81
3	0.7220	1164.3	1184.9	0.426	4.872	69.715	21.110	3.633	0.071	0.156	0.009	0.009	0.000	0.000	0.000	0.000	0.000	0.000	1394.49
4	0.7184	1158.6	1179.1	0.423	4.884	70.177	20.894	3.391	0.067	0.146	0.008	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1391.18
5	0.7198	1161.2	1181.8	0.428	4.856	69.989	21.003	3.492	0.068	0.148	0.008	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1392.90
6	0.7213	1164.5	1185.2	0.427	4.787	69.803	21.166	3.589	0.066	0.145	0.008	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1395.51
7	0.7176	1158.1	1178.6	0.421	4.847	70.158	21.132	3.217	0.065	0.143	0.008	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1391.33
8	0.7175	1157.2	1177.7	0.425	4.888	70.145	21.130	3.184	0.066	0.145	0.008	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1391.33
9	0.7201	1161.9	1182.5	0.426	4.837	69.915	21.129	3.465	0.066	0.146	0.008	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1393.54
10	0.7206	1162.6	1183.2	0.432	4.831	69.814	21.240	3.453	0.067	0.147	0.008	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1393.91
11	0.7197	1160.9	1181.4	0.428	4.865	70.051	20.905	3.519	0.067	0.148	0.008	0.009	0.000	0.000	0.000	0.000	0.000	0.000	1392.59
12	0.7021	1151.2	1171.6	0.279	4.024	72.899	19.769	2.846	0.050	0.114	0.009	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1398.32
13	0.7084	1154.9	1175.3	0.414	4.187	71.846	20.441	2.906	0.060	0.130	0.008	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1396.53
14	0.7227	1167.5	1188.2	0.434	4.731	69.631	21.286	3.679	0.069	0.153	0.008	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1397.66
15	0.7215	1166.4	1187.0	0.415	4.710	69.869	21.088	3.695	0.065	0.142	0.008	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1397.54
16	0.7225	1165.4	1186.1	0.436	4.836	69.655	21.165	3.673	0.069	0.150	0.008	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1395.36
17	0.7216	1164.4	1185.0	0.425	4.835	69.773	21.114	3.616	0.069	0.151	0.008	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1394.94
18	0.7245	1166.8	1187.5	0.449	4.917	69.435	21.136	3.808	0.074	0.163	0.009	0.009	0.000	0.000	0.000	0.000	0.000	0.000	1395.12
19	0.7229	1165.7	1186.3	0.439	4.858	69.608	21.154	3.698	0.071	0.156	0.008	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1395.23
20	0.7245	1170.2	1190.9	0.420	4.753	69.487	21.204	3.899	0.069	0.152	0.008	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1399.18
21	0.7228	1167.1	1187.8	0.417	4.792	69.663	21.158	3.732	0.069	0.152	0.008	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1397.09
22	0.7219	1165.7	1186.3	0.422	4.786	69.812	21.074	3.662	0.071	0.156	0.009	0.009	0.000	0.000	0.000	0.000	0.000	0.000	1396.24
23	0.7235	1168.0	1188.7	0.429	4.784	69.567	21.235	3.741	0.071	0.156	0.008	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1397.45
24	0.7290	1177.6	1198.5	0.422	4.716	69.037	21.265	4.307	0.074	0.161	0.009	0.009	0.000	0.000	0.000	0.000	0.000	0.000	1403.72
25	0.7265	1173.2	1194.0	0.409	4.773	69.289	21.193	4.101	0.068	0.149	0.008	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1400.85
26	0.7230	1176.0	1196.8	0.324	4.403	70.045	20.791	4.254	0.056	0.115	0.006	0.006	0.000	0.000	0.000	0.000	0.000	0.000	1407.64
27	0.7304	1181.6	1202.5	0.423	4.603	69.158	21.083	4.364	0.099	0.233	0.017	0.020	0.000	0.000	0.000	0.000	0.000	0.000	1407.10
28	0.7260	1173.5	1194.3	0.404	4.723	69.316	21.289	4.048	0.064	0.139	0.007	0.007	0.000	0.000	0.000	0.000	0.000	0.000	1401.59
29	0.7275	1174.9	1195.7	0.412	4.765	69.102	21.348	4.155	0.065	0.139	0.007	0.007	0.000	0.000	0.000	0.000	0.000	0.000	1401.84
30	0.7214	1164.9	1185.5	0.401	4.815	69.902	20.963	3.699	0.065	0.141	0.007	0.007	0.000	0.000	0.000	0.000	0.000	0.000	1395.83
31	0.7237	1171.1	1191.9	0.383	4.681	69.680	21.086	3.945	0.067	0.142	0.008	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1401.01
Avg	0.7215	1166.0	1186.7	0.415	4.741	69.865	21.067	3.677	0.068	0.149	0.008	0.009	0.000	0.000	0.000	0.000	0.000	0.000	1397.02

Zone 271

GQ Source Daily Summary

August 2013

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	0.7233	1167.1	1187.7	0.460	4.775	69.492	21.403	3.615	0.073	0.162	0.010	0.010	0.000	0.000	0.000	0.000	0.000	1396.55	
2	0.7215	1164.3	1184.9	0.420	4.835	69.751	21.158	3.602	0.068	0.149	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1394.99	
3	0.7218	1164.1	1184.7	0.425	4.866	69.746	21.088	3.630	0.071	0.156	0.009	0.009	0.000	0.000	0.000	0.000	0.000	1394.48	
4	0.7184	1158.8	1179.3	0.423	4.881	70.168	20.900	3.397	0.067	0.147	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1391.30	
5	0.7201	1161.7	1182.3	0.430	4.847	69.951	21.038	3.500	0.068	0.149	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1393.23	
6	0.7211	1164.2	1184.8	0.427	4.788	69.823	21.163	3.570	0.066	0.146	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1395.32	
7	0.7178	1158.4	1178.9	0.422	4.845	70.141	21.133	3.234	0.065	0.144	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1391.50	
8	0.7174	1157.0	1177.5	0.424	4.885	70.165	21.124	3.174	0.066	0.145	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1390.28	
9	0.7201	1162.0	1182.6	0.426	4.832	69.914	21.136	3.464	0.066	0.145	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1393.62	
10	0.7206	1162.7	1183.3	0.432	4.830	69.806	21.247	3.454	0.067	0.147	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1393.97	
11	0.7199	1161.3	1181.8	0.428	4.859	70.020	20.932	3.529	0.067	0.148	0.008	0.009	0.000	0.000	0.000	0.000	0.000	1392.89	
12	0.7028	1151.2	1171.6	0.284	4.081	72.763	19.829	2.858	0.050	0.116	0.009	0.010	0.000	0.000	0.000	0.000	0.000	1397.65	
13	0.7069	1154.0	1174.4	0.401	4.122	72.093	20.327	2.850	0.058	0.132	0.008	0.009	0.000	0.000	0.000	0.000	0.000	1396.92	
14	0.7223	1166.9	1187.5	0.438	4.730	69.690	21.252	3.648	0.070	0.154	0.008	0.009	0.000	0.000	0.000	0.000	0.000	1397.25	
15	0.7216	1166.6	1187.2	0.417	4.708	69.845	21.114	3.693	0.065	0.143	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1397.63	
16	0.7222	1164.8	1185.5	0.436	4.844	69.707	21.117	3.660	0.069	0.151	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1394.96	
17	0.7216	1164.3	1184.9	0.426	4.840	69.776	21.104	3.617	0.069	0.151	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1394.83	
18	0.7244	1166.9	1187.5	0.447	4.908	69.451	21.134	3.804	0.074	0.163	0.009	0.009	0.000	0.000	0.000	0.000	0.000	1395.27	
19	0.7231	1165.7	1186.3	0.440	4.867	69.598	21.146	3.704	0.071	0.157	0.008	0.009	0.000	0.000	0.000	0.000	0.000	1395.13	
20	0.7259	1171.5	1192.2	0.431	4.796	69.338	21.159	4.034	0.070	0.154	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1399.27	
21	0.7231	1167.5	1188.2	0.418	4.792	69.640	21.147	3.763	0.069	0.153	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1397.27	
22	0.7217	1165.5	1186.1	0.419	4.787	69.840	21.048	3.662	0.071	0.155	0.009	0.009	0.000	0.000	0.000	0.000	0.000	1396.16	
23	0.7232	1167.5	1188.2	0.428	4.786	69.596	21.237	3.709	0.071	0.155	0.008	0.009	0.000	0.000	0.000	0.000	0.000	1397.18	
24	0.7288	1177.3	1198.2	0.423	4.719	69.063	21.248	4.294	0.074	0.162	0.009	0.009	0.000	0.000	0.000	0.000	0.000	1403.52	
25	0.7265	1173.2	1194.0	0.406	4.773	69.297	21.185	4.104	0.068	0.149	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1400.91	
26	0.7231	1174.9	1195.7	0.337	4.460	69.968	20.865	4.177	0.058	0.121	0.007	0.007	0.000	0.000	0.000	0.000	0.000	1406.20	
27	0.7293	1180.8	1201.7	0.417	4.564	69.342	20.969	4.344	0.098	0.230	0.017	0.019	0.000	0.000	0.000	0.000	0.000	1407.15	
28	0.7261	1173.6	1194.3	0.404	4.723	69.321	21.280	4.052	0.065	0.140	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1401.63	
29	0.7274	1174.6	1195.4	0.414	4.765	69.131	21.337	4.129	0.066	0.142	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1401.63	
30	0.7216	1165.2	1185.9	0.401	4.814	69.870	20.983	3.713	0.064	0.140	0.007	0.007	0.000	0.000	0.000	0.000	0.000	1396.03	
31	0.7235	1170.8	1191.5	0.383	4.682	69.706	21.073	3.930	0.067	0.143	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1400.80	
Avg	0.7215	1166.0	1186.6	0.416	4.742	69.871	21.060	3.675	0.068	0.150	0.008	0.009	0.000	0.000	0.000	0.000	0.000	1396.95	

Zone 28

GQ Source Daily Summary

August 2013

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	Heating Value															
				CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.6637	1092.2	1111.5	1.010	2.898	81.161	12.589	2.003	0.123	0.143	0.046	0.025	0.000	0.000	0.000	0.000	0.000	0.000	1364.31
2	0.6645	1093.2	1112.6	0.984	2.947	80.928	12.810	2.008	0.119	0.136	0.044	0.023	0.000	0.000	0.000	0.000	0.000	0.000	1364.83
3	0.6677	1096.6	1116.0	0.954	3.091	80.317	13.201	2.111	0.119	0.141	0.042	0.022	0.000	0.000	0.000	0.000	0.000	0.000	1365.73
4	0.6701	1093.5	1112.9	1.209	3.110	80.128	13.048	2.187	0.116	0.137	0.042	0.021	0.000	0.000	0.000	0.000	0.000	0.000	1359.53
5	0.6666	1095.5	1114.9	0.910	3.112	80.537	12.970	2.154	0.117	0.135	0.043	0.022	0.000	0.000	0.000	0.000	0.000	0.000	1365.58
6	0.6570	1083.4	1102.6	1.002	2.810	82.445	11.515	1.893	0.126	0.135	0.049	0.024	0.000	0.000	0.000	0.000	0.000	0.000	1360.28
7	0.6633	1090.0	1109.3	0.970	3.048	81.150	12.490	2.024	0.118	0.133	0.043	0.023	0.000	0.000	0.000	0.000	0.000	0.000	1362.11
8	0.6683	1094.2	1113.6	1.068	3.111	80.327	13.027	2.155	0.115	0.133	0.041	0.022	0.000	0.000	0.000	0.000	0.000	0.000	1362.25
9	0.6665	1093.1	1112.4	1.033	3.073	80.574	12.932	2.078	0.115	0.131	0.041	0.022	0.000	0.000	0.000	0.000	0.000	0.000	1362.55
10	0.6639	1089.6	1108.9	0.981	3.117	80.854	12.858	1.880	0.115	0.130	0.042	0.021	0.000	0.000	0.000	0.000	0.000	0.000	1360.92
11	0.6686	1095.7	1115.1	0.957	3.216	80.075	13.336	2.110	0.112	0.132	0.040	0.021	0.000	0.000	0.000	0.000	0.000	0.000	1363.82
12	0.6681	1084.1	1103.3	1.551	2.984	80.721	12.416	2.012	0.118	0.132	0.044	0.022	0.000	0.000	0.000	0.000	0.000	0.000	1349.77
13	0.6514	1075.6	1094.7	1.126	2.568	83.565	10.724	1.679	0.130	0.128	0.053	0.026	0.000	0.000	0.000	0.000	0.000	0.000	1356.32
14	0.6508	1076.0	1095.0	1.082	2.561	83.729	10.514	1.775	0.130	0.128	0.054	0.025	0.000	0.000	0.000	0.000	0.000	0.000	1357.32
15	0.6466	1071.4	1090.3	1.094	2.431	84.442	10.155	1.531	0.133	0.127	0.058	0.028	0.000	0.000	0.000	0.000	0.000	0.000	1355.90
16	0.6639	1092.5	1111.8	0.983	2.934	80.987	12.765	2.043	0.105	0.125	0.038	0.019	0.000	0.000	0.000	0.000	0.000	0.000	1364.56
17	0.6388	1059.7	1078.5	1.210	2.232	85.649	9.234	1.464	0.080	0.087	0.029	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1349.33
18	0.6741	1102.9	1122.4	0.924	3.354	79.080	13.960	2.396	0.103	0.131	0.034	0.018	0.000	0.000	0.000	0.000	0.000	0.000	1367.03
19	0.6765	1109.1	1128.7	0.739	3.476	78.467	14.536	2.505	0.097	0.132	0.030	0.017	0.000	0.000	0.000	0.000	0.000	0.000	1372.39
20	0.6326	1059.3	1078.0	0.870	2.193	86.479	8.888	1.365	0.077	0.086	0.028	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1355.36
21	0.6390	1064.6	1083.4	0.921	2.394	85.292	9.727	1.456	0.078	0.091	0.028	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1355.30
22	0.6453	1069.0	1087.9	1.083	2.470	84.357	10.215	1.658	0.080	0.093	0.028	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1354.30
23	0.6491	1073.9	1092.9	1.005	2.644	83.589	10.790	1.750	0.081	0.098	0.028	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1356.51
24	0.6549	1083.2	1102.4	0.839	2.873	82.392	11.751	1.909	0.085	0.108	0.029	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1362.25
25	0.6525	1079.2	1098.4	0.885	2.826	82.775	11.506	1.782	0.082	0.102	0.028	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1359.69
26	0.6204	1045.4	1063.9	0.860	1.900	88.640	7.340	1.100	0.060	0.060	0.020	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1350.77
27	0.6204	1045.4	1063.9	0.860	1.900	88.640	7.340	1.100	0.060	0.060	0.020	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1350.77
28	0.6253	1051.9	1070.5	0.850	1.980	87.797	7.942	1.264	0.064	0.068	0.023	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1353.82
29	0.6383	1068.9	1087.8	0.711	2.380	85.295	9.764	1.685	0.054	0.088	0.014	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1361.58
30	0.6259	1051.9	1070.5	0.862	2.016	87.643	8.076	1.238	0.062	0.067	0.023	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1353.19
31	0.6376	1064.2	1083.1	0.898	2.314	85.600	9.434	1.574	0.068	0.078	0.023	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1356.41
Avg	0.6526	1079.0	1098.0	0.982	2.708	83.020	11.221	1.803	0.098	0.112	0.036	0.018	0.000	0.000	0.000	0.000	0.000	0.000	1359.18

Zone 31



GQ Source Analysis

WBI Energy Transmission, Inc.

GQ Source Number:	0202080	Specific Gravity:	0.6751
GQ Source Name:	RICHARDTON-GLEN ULLIN COMPRE	Dry Heat Value:	1135.31
Effective Date:	8/1/2013 12:00:00 AM	Wet Heat Value:	1115.55
Effective End Date:	1/18/2038 9:14:07 PM	As Deliv. Heat Value:	1135.31
Pressure Base:	14.730	Sample Pressure:	1,823.00
Viscosity:		Sample Temperature:	

	<u>Mol %</u>	<u>Liquid Content</u>		<u>Mol %</u>		
C1	Methane	77.525	CO2	Carbon Dioxide	0.428	
C2	Ethane	16.292	0.0000	N2	Nitrogen	3.402
C3	Propane	2.219	0.6096	O2	Oxygen	0.000
IC4	Isobutane	0.040	0.0131	He	Helium	
NC4	n-Butane	0.082	0.0257	H2	Hydrogen	
IC5	Isopentane	0.000	0.0000	H2S	Hydrogen Sulfide	
NC5	n-Pentane	0.009	0.0032	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		99.996%	0.652 GPM			

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

Sample Remarks:

Analysis Tech: MB

Analysis Remarks:

Zone 311

GQ Source Daily Summary

August 2013

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	0.6886	1162.1	1182.7	0.000	2.529	72.835	24.027	0.597	0.005	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.29	
2	0.6886	1162.1	1182.7	0.000	2.534	72.822	24.039	0.593	0.005	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.22	
3	0.6885	1162.0	1182.5	0.000	2.532	72.853	24.000	0.603	0.005	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.17	
4	0.6886	1162.2	1182.8	0.000	2.526	72.819	24.051	0.591	0.005	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.38	
5	0.6884	1161.5	1182.0	0.000	2.553	72.876	23.949	0.609	0.005	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1424.66	
6	0.6881	1160.7	1181.2	0.000	2.569	72.904	23.943	0.572	0.005	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1424.05	
7	0.6875	1160.4	1181.0	0.000	2.530	73.026	23.864	0.568	0.005	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1424.34	
8	0.6881	1161.2	1181.7	0.000	2.543	72.926	23.922	0.597	0.005	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1424.61	
9	0.6878	1160.8	1181.3	0.000	2.539	72.973	23.892	0.584	0.005	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1424.44	
10	0.6882	1160.9	1181.5	0.000	2.567	72.899	23.935	0.585	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1424.21	
11	0.6880	1160.7	1181.3	0.000	2.561	72.923	23.927	0.577	0.005	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1424.16	
12	0.6883	1161.2	1181.8	0.000	2.562	72.875	23.955	0.596	0.005	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1424.44	
13	0.6889	1162.4	1183.0	0.000	2.543	72.783	24.044	0.618	0.005	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.30	
14	0.6895	1163.5	1184.1	0.000	2.533	72.820	23.894	0.709	0.012	0.027	0.002	0.003	0.000	0.000	0.000	0.000	0.000	1426.01	
15	0.6876	1161.0	1181.6	0.000	2.498	73.282	23.372	0.825	0.009	0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.01	
16	0.6868	1159.0	1179.5	0.000	2.554	73.263	23.505	0.660	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1423.27	
17	0.6892	1162.9	1183.5	0.000	2.539	72.811	23.931	0.707	0.005	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.63	
18	0.6885	1161.9	1182.4	0.000	2.538	72.912	23.873	0.664	0.005	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.04	
19	0.6883	1161.9	1182.5	0.000	2.517	73.003	23.753	0.713	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.31	
20	0.6885	1162.4	1183.0	0.000	2.511	72.890	23.942	0.644	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.63	
21	0.6882	1161.6	1182.1	0.000	2.530	72.943	23.880	0.634	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1424.98	
22	0.6884	1161.8	1182.4	0.000	2.535	72.931	23.849	0.671	0.005	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.06	
23	0.6911	1165.5	1186.1	0.000	2.559	72.664	23.830	0.928	0.008	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1426.79	
24	0.6883	1161.4	1181.9	0.000	2.547	72.978	23.780	0.683	0.005	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1424.66	
25	0.6892	1162.4	1182.9	0.000	2.575	72.813	23.885	0.713	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1424.91	
26	0.6885	1162.0	1182.6	0.001	2.528	72.932	23.853	0.668	0.007	0.011	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1425.23	
27	0.6881	1161.3	1181.9	0.000	2.536	72.931	23.916	0.605	0.005	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1424.75	
28	0.6880	1161.3	1181.9	0.000	2.528	72.947	23.913	0.600	0.005	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1424.85	
29	0.6885	1162.3	1182.9	0.000	2.517	72.860	23.993	0.618	0.005	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.52	
30	0.6910	1166.4	1187.0	0.000	2.498	72.543	24.150	0.794	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1427.98	
31	0.6873	1160.3	1180.9	0.000	2.522	73.078	23.801	0.587	0.005	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1424.35	
Avg	0.6885	1162.0	1182.4	0.000	2.537	72.907	23.893	0.649	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1425.04	

Zone 33

GQ Source Analysis

WBI Energy Transmission, Inc.

GQ Source Number:	1202160	Specific Gravity:	0.7859
GQ Source Name:	BOWMAN BORDER	Dry Heat Value:	1126.77
Effective Date:	8/1/2013 9:00:00 AM	Wet Heat Value:	1107.16
Effective End Date:	1/18/2038 9:14:07 PM	As Deliv. Heat Value:	1126.77
Pressure Base:	14.730	Sample Pressure:	
Viscosity:		Sample Temperature:	

		<u>Mol %</u>	<u>Liquid Content</u>			<u>Mol %</u>
C1	Methane	57.037		CO2	Carbon Dioxide	2.049
C2	Ethane	25.322	6.7520	N2	Nitrogen	11.915
C3	Propane	3.247	0.8920	O2	Oxygen	
IC4	Isobutane	0.092	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	0.035	0.0130	Ar	Argon	
C6	Hexanes	0.007	0.0030	CO	Carbon Monoxide	
C7	Heptanes			H2	Water	
C8	Octanes			Neo-C5	Neopentane	
C9	Nonanes					
C10	Decanes					

Totals 100.000% 7.784 GPM

Sample Date: 9/3/2013 9:00:00 AM
Sample Type: Composite
Sample Tech: MIKE GENTILINI
H2S: ppm

Sample Remarks:

Analysis Tech: MIKE GENTILINI

Analysis Remarks:

Zone 34

NORTH DAKOTA HEATING VALUE ZONES		
<i>ZONES</i>	<i>MEASURING DEVICE</i>	<i>LOCATION</i>
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

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	AUG 13	JULY 13	JUNE 13	MAY 13	APR 13	MAR 13	FEB 13	JAN 13	DEC 12	NOV 12	OCT 12	SEPT 12	ZONE
MT/ND	211	Sidney Area	1205	1208	1209	1212	1201	1213	1206	1202	1203	1200	1201	1200	1202	211
ND	24	Williston Area	1201	1196	1198	1196	1197	1216	1204	1204	1204	1203	1199	1195	1197	24
ND	25	Watford City Area	1188	1193	1193	1188	1154	1200	1201	1196	1192	1192	1188	1176	1183	25
ND/MT	241	Fairview Area	1197	1203	1205	1205	1203	1203	1195	1196	1191	1191	1192	1189	1191	241
ND	261	Williston - Tioga - Minot Line	1158	1165	1172	1156	1159	1163	1123	1139	1160	1162	1162	1164	1170	261
ND	262	Minot Area	1174	1185	1191	1181	1177	1172	1170	1168	1163	1165	1165	1171	1175	262
ND	263	Tioga - Portal	1118	1130	1130	1127	1123	1117	1116	1116	1069	1069	1135	1140	1142	263
ND	264	Williston - Ray	1201	1196	1198	1196	1197	1216	1204	1204	1204	1203	1199	1195	1197	264
ND	271	Bismarck - Cleveland	1164	1187	1191	1183	1175	1167	1145	1144	1137	1147	1154	1170	1173	271
ND	272	Cleveland - Mapleton	1166	1187	1192	1183	1178	1169	1147	1145	1138	1148	1155	1171	1175	272
ND	273	Cleveland - Grafton	1166	1188	1192	1184	1177	1169	1146	1145	1138	1149	1155	1171	1175	273
ND	28	Bismarck - Cabin Creek	1142	1187	1191	1182	1173	1117	1102	1100	1108	1114	1104	1149	1173	28
ND	31	Dickinson Area	1114	1098	1112	1130	1163	1117	1103	1098	1105	1110	1111	1152	1074	31
ND	311	Taylor Take-Off - Glen Ullin Comp		1135	1188	1097	1163	1117	1103	1098	1105	1110				
ND/MT	32	Cabin Creek - Dickinson	1103	1135	1142	1094	1100	1088	1089	1086	1094	1099	1056	1121	1131	32
ND	33	Killdeer	1178	1182	1183	1180	1179	1177	1176	1177	1177	1176	1177	1177	1180	33
ND	34	Bowman Area	1139	1127	1140	1121	1136	1146	1144	1147	1143	1142	1142	1140	1136	34
ND	35	Baker Field - North Dakota	979	0	0	0	0	0	0	0	979	979	979	979	979	35

**THERMAL ZONE VARIANCE
DOCUMENTATION**

August 2013

<i>ZONE</i>	<i>BTU VARIANCE</i>	<i>REASON</i>
311	-53	Mix of gas in the area