



UTILITIES CO.

A Division of MDU Resources Group, Inc.

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

July 24, 2018

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

Re: Case No. PU-18-002 (Therm Billing)
Monthly Report – May 2018

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 Case No. 11,006, 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 June 2018.
2. Attachment B consists of copies of the monthly Heating Value Test Reports received from our suppliers for the month of May 2018.
3. Attachment C is a listing which states the type of measuring device in place at each zone.
4. Attachment D is a monthly list of the heating value data, by zone, for the most recent 12-month period and an average thereof. It is being provided pursuant to a Staff request.
5. Attachment E provides a brief explanation of the thermal variances, where applicable, for the month of May 2018.

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 black ink that reads 'Tamie Aberle'.

Tamie Aberle
Director of Regulatory Affairs

Montana-Dakota Utilities Co.
Therm Billing Factors - North Dakota
Jun-18

Town	Heat Zone	Therm Factor
MDU-303-ALEXANDER	025	1.1192
MDU-308-ARNEGARD	025	1.1192
MDU-314-APPLE VALLEY	271	1.1521
MDU-318-BEACH	032	1.0313
MDU-319-BELFIELD	032	1.0389
MDU-323-BERTHOLD	262	1.1315
MDU-324-BEULAH	032	1.0389
MDU-327-BISMARCK	028	1.1142
MDU-330-BOWMAN	034	0.9340
MDU-337-BURLINGTON	262	1.1559
MDU-343-CARRINGTON	273	1.1501
MDU-344-CLEVELAND	272	1.1439
MDU-364-CAVALIER	273	1.1744
MDU-365-DAWSON	271	1.1439
MDU-368-DES LACS	262	1.1396
MDU-369-DICKINSON	031	1.4242
MDU-374-FT TOTTEN	273	1.1582
MDU-375-DEVILS LAKE	273	1.1582
MDU-379-BARLOW	273	1.1501
MDU-384-EPPING	264	1.0654
MDU-387-ELDRIDGE	272	1.1521
MDU-407-GLADSTONE	031	1.0634
MDU-411-GLEN ULLIN	031	1.0711
MDU-413-GOLVA	032	1.0162
MDU-416-GARRISON	262	1.1396
MDU-417-GRAFTON	273	1.1825
MDU-429-HEBRON	031	1.0711
MDU-432-HETTINGER	903	2.4049
MDU-449-JAMESTOWN	272	1.1602
MDU-459-KILLDEER	033	1.1098
MDU-463-LANGDON	273	1.1501
MDU-469-LEFOR	031	1.0634
MDU-474-LIGNITE	263	1.0797
MDU-475-LINTON	802	1.0363
MDU-478-LINCOLN	028	1.1221
MDU-488-MCKENZIE	271	1.1521
MDU-494-MEDINA	271	1.1439
MDU-498-MANDAN	028	1.1221
MDU-500-MARMARTH	034	0.9204
MDU-505-MINOT	262	1.1559
MDU-510-MOTT	031	1.0634
MDU-512-MAX	262	1.1315
MDU-522-NEW ENGLAND	031	1.0557
MDU-524-NEW SALEM	028	1.0985
MDU-532-NEW ROCKFORD	273	1.1501
MDU-539-PARK RIVER	273	1.1744
MDU-540-PALERMO	262	1.1315
MDU-558-RAY	264	1.0654
MDU-561-REGENT	031	1.0634

MDU-563-RHAME	034	0.9069
MDU-564-RICHARDTON	031	1.0557
MDU-568-ROSS	261	1.1027
MDU-572-RUTHVILLE	262	1.1559
MDU-574-SANBORN	272	1.1602
MDU-583-SENTINEL BUTTE	032	1.0313
MDU-588-SOUTH HEART	031	1.0557
MDU-717-SPIRITWOOD	272	1.1602
MDU-590-SPRINGBROOK	264	1.0654
MDU-591-STANLEY	261	1.1187
MDU-593-STEELE	271	1.1439
MDU-594-STERLING	028	1.1221
MDU-598-SHEYENNE	273	1.1582
MDU-605-SURREY	262	1.1559
MDU-610-TAPPEN	271	1.1439
MDU-611-TAYLOR	031	1.0557
MDU-616-TIOGA	260	0.9274
MDU-619-TURTLE LAKE	262	1.1396
MDU-620-TRENTON	024	1.0807
MDU-624-UNDERWOOD	262	1.1396
MDU-625-VALLEY CITY	272	1.1683
MDU-629-WALHALLA	273	1.1744
MDU-632-WATFORD CITY	610	1.1088
MDU-636-WHEELOCK	264	1.0577
MDU-637-WHITE EARTH	261	1.1107
MDU-642-WILLISTON	024	1.0807
MDU-646-WASHBURN	262	1.1487
MDU-647-WILTON	262	1.1315
MDU-664-RIVERDALE	262	1.1396
MDU-691-FAIRVIEW	241	1.0949
MDU-712-MINOT AFB	262	1.1559
MDU-718-FAIRMOUNT	600	1.1326
MDU-732-NEKOMA	273	1.1501
MDU-732-MSR SITE	273	1.1501

Source Daily Summary

May 2018

Number: 251

Pressure Base: 14.730

Contract Day: 1

Name: SDNY BDR-MNDK JNCTN-SDNY PLT

Temperature Base:

Contract Hour: 9

Day	Relative Density	Heating Value Wet	Heating Value Dry	Heating Value As Del	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.7364	1183.8	1204.7	1200.2	1.269	3.762	68.076	22.803	3.641	0.151	0.272	0.015	0.012	0.000	0.000	0.000	0.000	0.000	1400.44	
2	0.7383	1185.2	1206.2	1201.7	1.296	3.800	67.834	22.890	3.715	0.156	0.282	0.015	0.012	0.000	0.000	0.000	0.000	0.000	1400.47	
3	0.7254	1172.4	1193.1	1188.5	1.151	3.598	69.825	21.708	3.315	0.133	0.244	0.014	0.011	0.000	0.000	0.000	0.000	0.000	1397.50	
4	0.7183	1166.3	1186.9	1182.2	1.060	3.446	70.882	21.173	3.071	0.120	0.224	0.013	0.011	0.000	0.000	0.000	0.000	0.000	1397.03	
5	0.7215	1169.0	1189.7	1184.9	1.119	3.491	70.431	21.394	3.176	0.127	0.236	0.014	0.012	0.000	0.000	0.000	0.000	0.000	1397.15	
6	0.7210	1167.7	1188.4	1183.5	1.132	3.499	70.596	21.172	3.203	0.129	0.243	0.014	0.012	0.000	0.000	0.000	0.000	0.000	1396.15	
7	0.7310	1174.4	1195.2	1190.2	1.242	3.865	69.273	21.407	3.753	0.153	0.278	0.015	0.012	0.000	0.000	0.000	0.000	0.000	1394.44	
8	0.7290	1171.3	1192.1	1187.3	1.252	3.845	69.669	21.068	3.693	0.157	0.288	0.016	0.013	0.000	0.000	0.000	0.000	0.000	1392.75	
9	0.7278	1169.1	1189.9	1185.1	1.242	3.878	70.032	20.573	3.781	0.164	0.300	0.017	0.014	0.000	0.000	0.000	0.000	0.000	1391.30	
10	0.7323	1174.2	1195.0	1190.4	1.269	3.950	69.410	20.865	3.965	0.178	0.329	0.018	0.014	0.000	0.000	0.000	0.000	0.000	1393.02	
11	0.7332	1175.7	1196.5	1191.9	1.276	3.940	68.970	21.523	3.790	0.166	0.305	0.017	0.013	0.000	0.000	0.000	0.000	0.000	1393.90	
12	0.7318	1173.0	1193.8	1189.3	1.279	3.961	69.357	21.026	3.865	0.170	0.311	0.017	0.014	0.000	0.000	0.000	0.000	0.000	1392.11	
13	0.7354	1179.5	1200.4	1195.7	1.277	3.908	68.685	21.671	3.977	0.160	0.292	0.016	0.013	0.000	0.000	0.000	0.000	0.000	1396.36	
14	0.7348	1178.0	1198.8	1194.0	1.279	3.936	68.834	21.438	4.060	0.150	0.274	0.016	0.013	0.000	0.000	0.000	0.000	0.000	1395.19	
15	0.7326	1174.6	1195.4	1190.4	1.292	3.924	69.213	21.133	3.980	0.152	0.278	0.015	0.012	0.000	0.000	0.000	0.000	0.000	1393.17	
16	0.7112	1166.3	1186.9	1182.0	0.782	3.198	71.680	21.226	2.838	0.089	0.167	0.010	0.009	0.000	0.000	0.000	0.000	0.000	1404.23	
17	0.6954	1154.1	1174.6	1169.9	0.592	2.749	74.054	20.130	2.285	0.059	0.115	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1405.09	
18	0.6861	1141.6	1161.8	1157.5	0.442	2.862	75.398	19.161	1.996	0.045	0.085	0.006	0.006	0.000	0.000	0.000	0.000	0.000	1399.33	
19	0.6831	1136.3	1156.4	1152.1	0.440	2.905	75.972	18.574	1.971	0.043	0.083	0.005	0.006	0.000	0.000	0.000	0.000	0.000	1395.89	
20	0.6850	1139.4	1159.6	1155.1	0.444	2.891	75.691	18.766	2.062	0.046	0.088	0.005	0.006	0.000	0.000	0.000	0.000	0.000	1397.71	
21	0.6819	1130.1	1150.2	1145.5	0.550	2.997	76.369	17.966	1.951	0.050	0.102	0.007	0.008	0.000	0.000	0.000	0.000	0.000	1389.55	
22	0.6834	1130.4	1150.4	1145.8	0.632	3.000	76.312	17.803	2.053	0.059	0.122	0.009	0.010	0.000	0.000	0.000	0.000	0.000	1388.27	
23	0.7021	1172.1	1192.8	1188.2	0.098	3.028	72.392	21.685	2.677	0.046	0.069	0.002	0.002	0.000	0.000	0.000	0.000	0.000	1420.24	
24	0.7011	1172.8	1193.5	1188.9	0.038	2.991	72.160	22.330	2.412	0.031	0.037	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1422.11	
25	0.7025	1174.5	1195.3	1190.5	0.038	3.016	72.042	22.260	2.561	0.036	0.046	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1422.79	
26	0.7095	1184.3	1205.3	1200.5	0.099	2.976	71.432	22.202	3.134	0.058	0.091	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1427.53	
27	0.7072	1163.3	1183.9	1178.8	0.694	3.127	72.940	19.781	3.059	0.117	0.241	0.019	0.019	0.000	0.000	0.000	0.000	0.000	1404.45	
28	0.7497	1203.4	1224.7	1219.2	1.166	3.948	68.523	19.796	5.472	0.318	0.663	0.058	0.054	0.000	0.000	0.000	0.000	0.000	1410.51	
29	0.7562	1212.5	1233.9	1228.3	1.250	3.874	67.194	21.102	5.582	0.297	0.601	0.050	0.047	0.000	0.000	0.000	0.000	0.000	1415.09	
30	0.7642	1227.5	1249.3	1243.1	1.258	3.695	66.278	22.056	5.279	0.386	0.863	0.092	0.090	0.000	0.000	0.000	0.000	0.000	1425.08	
31	0.7580	1217.3	1238.8	1233.5	1.268	3.723	66.541	22.392	4.951	0.306	0.677	0.070	0.070	0.000	0.000	0.000	0.000	0.000	1419.08	
Avg	0.7202	1172.0	1193.0	1188.2	0.911	3.477	70.841	20.938	3.396	0.137	0.265	0.019	0.017	0.000	0.000	0.000	0.000	0.000	1402.51	

Zone 211

Source Daily Summary

May 2018

Number: 571

Pressure Base: 14.730

Contract Day: 1

Name: WILLISTON BDR-CHARBN STN

Temperature Base:

Contract Hour: 9

Day	Relative Density	Heating Value Wet	Heating Value Dry	Heating Value As Del	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.6758	1116.4	1136.2	1133.1	0.765	2.931	77.814	16.426	1.859	0.060	0.125	0.009	0.011	0.000	0.000	0.000	0.000	0.000	1378.91	
2	0.6762	1117.0	1136.8	1133.6	0.783	2.907	77.840	16.341	1.912	0.063	0.132	0.010	0.012	0.000	0.000	0.000	0.000	0.000	1379.17	
3	0.6687	1108.4	1128.1	1124.9	0.712	2.828	79.038	15.547	1.686	0.055	0.114	0.009	0.010	0.000	0.000	0.000	0.000	0.000	1376.29	
4	0.6700	1112.1	1131.8	1128.6	0.718	2.724	78.760	15.943	1.670	0.053	0.112	0.009	0.010	0.000	0.000	0.000	0.000	0.000	1379.43	
5	0.6711	1113.2	1132.9	1129.7	0.723	2.750	78.596	16.029	1.714	0.054	0.115	0.009	0.011	0.000	0.000	0.000	0.000	0.000	1379.67	
6	0.6720	1114.9	1134.7	1131.5	0.728	2.724	78.401	16.253	1.703	0.054	0.115	0.009	0.011	0.000	0.000	0.000	0.000	0.000	1380.88	
7	0.6716	1113.4	1133.1	1129.9	0.819	2.636	78.853	15.566	1.917	0.061	0.128	0.010	0.011	0.000	0.000	0.000	0.000	0.000	1379.44	
8	0.6697	1111.6	1131.3	1128.1	0.720	2.723	78.848	15.826	1.697	0.053	0.113	0.009	0.011	0.000	0.000	0.000	0.000	0.000	1379.14	
9	0.6699	1111.8	1131.5	1128.3	0.714	2.735	78.807	15.864	1.697	0.052	0.112	0.009	0.010	0.000	0.000	0.000	0.000	0.000	1379.20	
10	0.6705	1112.7	1132.4	1129.3	0.725	2.721	78.741	15.891	1.731	0.055	0.116	0.009	0.011	0.000	0.000	0.000	0.000	0.000	1379.69	
11	0.6695	1110.6	1130.2	1127.1	0.724	2.759	78.944	15.648	1.733	0.055	0.117	0.009	0.011	0.000	0.000	0.000	0.000	0.000	1378.07	
12	0.6697	1111.1	1130.8	1127.6	0.726	2.744	78.904	15.705	1.729	0.055	0.117	0.009	0.011	0.000	0.000	0.000	0.000	0.000	1378.49	
13	0.6698	1111.7	1131.4	1128.2	0.724	2.720	78.834	15.837	1.699	0.053	0.113	0.009	0.011	0.000	0.000	0.000	0.000	0.000	1379.16	
14	0.6703	1112.3	1132.0	1128.9	0.725	2.722	78.721	15.970	1.674	0.054	0.114	0.009	0.011	0.000	0.000	0.000	0.000	0.000	1379.50	
15	0.6746	1117.9	1137.6	1134.4	0.890	2.538	78.434	15.905	2.017	0.063	0.132	0.010	0.012	0.000	0.000	0.000	0.000	0.000	1381.88	
16	0.6765	1118.8	1138.6	1135.3	0.922	2.608	78.267	15.804	2.161	0.067	0.145	0.012	0.014	0.000	0.000	0.000	0.000	0.000	1381.10	
17	0.6747	1117.8	1137.6	1134.4	0.846	2.621	78.272	16.104	1.944	0.061	0.130	0.010	0.012	0.000	0.000	0.000	0.000	0.000	1381.69	
18	0.6686	1109.5	1129.2	1126.0	0.713	2.749	79.047	15.643	1.661	0.054	0.114	0.009	0.011	0.000	0.000	0.000	0.000	0.000	1377.76	
19	0.6658	1105.5	1125.0	1121.9	0.679	2.795	79.425	15.369	1.558	0.050	0.105	0.008	0.010	0.000	0.000	0.000	0.000	0.000	1375.51	
20	0.6674	1107.8	1127.4	1124.2	0.691	2.782	79.156	15.610	1.583	0.051	0.108	0.009	0.010	0.000	0.000	0.000	0.000	0.000	1376.78	
21	0.6722	1111.7	1131.4	1128.2	0.721	2.951	78.460	15.846	1.824	0.058	0.121	0.009	0.011	0.000	0.000	0.000	0.000	0.000	1376.68	
22	0.6731	1113.2	1132.9	1129.7	0.742	2.903	78.340	15.973	1.839	0.058	0.123	0.010	0.012	0.000	0.000	0.000	0.000	0.000	1377.72	
23	0.6778	1120.6	1140.5	1137.1	0.982	2.531	78.273	15.623	2.334	0.073	0.156	0.013	0.016	0.000	0.000	0.000	0.000	0.000	1381.99	
24	0.6789	1122.1	1142.0	1138.7	0.933	2.617	77.923	16.002	2.264	0.074	0.158	0.013	0.015	0.000	0.000	0.000	0.000	0.000	1382.72	
25	0.6789	1120.9	1140.7	1137.5	0.825	2.857	77.629	16.301	2.141	0.072	0.150	0.011	0.014	0.000	0.000	0.000	0.000	0.000	1381.22	
26	0.6790	1120.8	1140.6	1137.3	0.832	2.858	77.668	16.212	2.181	0.072	0.151	0.011	0.014	0.000	0.000	0.000	0.000	0.000	1381.03	
27	0.6756	1114.8	1134.6	1131.3	0.855	2.872	78.333	15.532	2.166	0.071	0.147	0.011	0.013	0.000	0.000	0.000	0.000	0.000	1377.09	
28	0.6795	1121.3	1141.1	1137.8	0.834	2.876	77.427	16.551	2.077	0.069	0.143	0.011	0.013	0.000	0.000	0.000	0.000	0.000	1381.10	
29	0.6830	1127.2	1147.2	1143.8	0.826	2.850	76.937	16.906	2.201	0.078	0.170	0.014	0.017	0.000	0.000	0.000	0.000	0.000	1384.87	
30	0.6808	1123.7	1143.6	1140.2	0.973	2.636	77.653	16.145	2.326	0.076	0.162	0.013	0.016	0.000	0.000	0.000	0.000	0.000	1382.79	
31	0.6771	1113.4	1133.1	1129.8	1.009	2.865	78.647	14.652	2.543	0.083	0.173	0.012	0.015	0.000	0.000	0.000	0.000	0.000	1373.75	
Avg	0.6735	1115.0	1134.7	1131.5	0.793	2.759	78.419	15.904	1.911	0.062	0.130	0.010	0.012	0.000	0.000	0.000	0.000	0.000	1379.44	

Zone 24

Gas Composition and Properties

Effective May 1, 2018

Source #: 0602160
Name: FAIRVIEW BORDER

Component	Mole %	Liquid Content	Mass %
Carbon Dioxide, CO2	0.7516		1.6368
Nitrogen, N2	3.1346		4.3452
Methane, C1	73.8070		58.5913
Ethane, C2	19.3912	5.1889	28.8527
Propane, C3	2.6173	0.7190	5.7110
iso-Butane, iC4	0.0936	0.0305	0.2692
n-Butane, nC4	0.1735	0.0546	0.4990
iso-Pentane, iC5	0.0116	0.0042	0.0414
n-Pentane, nC5	0.0113	0.0041	0.0403
Neo-Pentane, NeoC5			
Hexanes Plus, C6+	0.0000	0.0000	0.0000
Water, H2O			
Hydrogen Sulfide, H2S			
Oxygen, O2	0.0083		0.0131
Carbon Monoxide, CO			
Hydrogen, H2			
Helium, He			
Argon, Ar			
Totals	100.0000	6.0020	100.0000

Property	Total Sample	C6 Plus Fraction
Pressure Base	14.730	
Temperature Base	60.00	
HCDP @ Sample Pressure	-26.315	
Cricodentherm	-10.816	
HV, Dry @ Base P, T	1167.70	
HV, Sat @ Base P, T	1147.38	
HV, Sat @ Sample P, T	1167.70	
Relative Density	0.6983	
C6+: 100		

Sample			
Date: 06/01/2018	Pressure:	408.0	
Type: Composite	Temperature:	0.0	
Tech: RR	H2O:	lbs/mm	
	H2S:	ppm	
Remarks:			

Analysis			
Date: 06/04/2018	Instrument:	WBI- 116	
	Cylinder:	360	
Tech: MB			
Remarks:			

Zone 241

Gas Composition and Properties

Effective May 1, 2018

Attachment B
Page 4 of 23

Source #: 0602225
Name: WATFORD CITY WEST BORDER

Component	Mole %	Liquid Content	Mass %
Carbon Dioxide, CO2	1.3270		2.7889
Nitrogen, N2	3.1513		4.2157
Methane, C1	70.6461		54.1215
Ethane, C2	20.8519	0.0000	29.9416
Propane, C3	3.3908	0.9315	7.1402
iso-Butane, iC4	0.1812	0.0591	0.5029
n-Butane, nC4	0.3771	0.1186	1.0467
iso-Pentane, iC5	0.0320	0.0117	0.1103
n-Pentane, nC5	0.0324	0.0117	0.1116
Neo-Pentane, NeoC5			
Hexanes Plus, C6+	0.0019	0.0009	0.0078
Water, H2O			
Hydrogen Sulfide, H2S			
Oxygen, O2	0.0084		0.0128
Carbon Monoxide, CO			
Hydrogen, H2			
Helium, He			
Argon, Ar			

Property	Total Sample	C6 Plus Fraction
Pressure Base	14.730	
Temperature Base	60.00	
HCDP @ Sample Pressure		
Cricondentherm		
HV, Dry @ Base P, T	1192.31	
HV, Sat @ Base P, T	1171.56	
HV, Sat @ Sample P, T	1192.31	
Relative Density	0.7235	

C6+: 100

Totals	100.0001	1.1340	100.0000
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Sample

Date: 06/01/2018 Pressure: 432.0
 Type: Composite Temperature: 0.0
 Tech: ES H2O: lbs/mm
 H2S: ppm

Remarks:

Analysis

Date: 06/04/2018 Instrument: WBI- 115
 Cylinder: 384
 Tech: MB

Remarks:

Zone 25

Source Daily Summary

May 2018

Number: 164

Pressure Base: 14.730

Contract Day: 1

Name: N TIOGA TRANSFER-NESSON PLT

Temperature Base:

Contract Hour: 9

Day	Relative Density	Heating Value Wet	Heating Value Dry	Heating Value As Del	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.5844	970.5	987.7		0.008	4.388	93.371	2.127	0.090	0.005	0.011	0.001	0.001	0.000					1289.03	
2	0.5971	993.6	1011.2		0.008	4.168	90.914	4.718	0.171	0.006	0.013	0.001	0.001	0.000					1305.64	
3	0.5805	969.5	986.7		0.002	4.093	94.188	1.633	0.068	0.004	0.010	0.001	0.001	0.000					1291.95	
4	0.5837	975.8	993.0		0.001	4.014	93.544	2.357	0.067	0.004	0.010	0.001	0.001	0.000					1296.71	
5	0.5808	970.1	987.2		0.001	4.084	94.137	1.693	0.067	0.004	0.010	0.001	0.001	0.000					1292.40	
6	0.5810	970.6	987.8		0.001	4.064	94.112	1.737	0.068	0.004	0.010	0.001	0.001	0.000					1292.99	
7	0.5810	971.0	988.2		0.001	4.040	94.118	1.751	0.071	0.004	0.011	0.001	0.001	0.000					1293.51	
8	0.5811	971.2	988.4		0.001	4.048	94.078	1.786	0.070	0.004	0.010	0.001	0.001	0.000					1293.51	
9	0.5814	971.4	988.6		0.001	4.053	94.037	1.817	0.073	0.004	0.011	0.001	0.001	0.000					1293.59	
10	0.5835	975.3	992.5		0.001	4.019	93.600	2.293	0.070	0.004	0.010	0.001	0.001	0.000					1296.35	
11	0.5809	969.6	986.7		0.001	4.124	94.109	1.683	0.067	0.004	0.010	0.001	0.001	0.000					1291.64	
12	0.5809	970.0	987.2		0.001	4.095	94.116	1.703	0.067	0.004	0.010	0.001	0.001	0.000					1292.25	
13	0.5805	970.5	987.7		0.001	4.026	94.210	1.679	0.067	0.004	0.010	0.001	0.002	0.000					1293.37	
14	0.5843	976.1	993.3		0.001	4.050	93.421	2.443	0.068	0.004	0.011	0.001	0.001	0.000					1296.47	
15	0.5802	969.5	986.6		0.001	4.067	94.255	1.594	0.065	0.004	0.011	0.001	0.001	0.000					1292.25	
16	0.5808	968.7	985.9		0.002	4.167	94.130	1.612	0.070	0.005	0.012	0.002	0.002	0.000					1290.59	
17	0.5804	969.3	986.5		0.001	4.088	94.228	1.598	0.067	0.004	0.011	0.001	0.001	0.000					1291.90	
18	0.5809	969.6	986.8		0.001	4.124	94.104	1.686	0.068	0.004	0.010	0.001	0.001	0.000					1291.67	
19	0.5813	970.2	987.4		0.001	4.119	94.041	1.753	0.069	0.004	0.011	0.001	0.001	0.000					1292.08	
20	0.5810	968.9	986.0		0.003	4.168	94.100	1.642	0.070	0.004	0.011	0.001	0.001	0.000					1290.66	
21	0.5846	974.0	991.2		0.008	4.189	93.384	2.309	0.090	0.005	0.012	0.001	0.001	0.000					1293.47	
22	0.5853	974.2	991.4		0.008	4.243	93.232	2.406	0.091	0.005	0.012	0.002	0.002	0.000					1292.96	
23	0.5809	970.0	987.2		0.001	4.095	94.116	1.703	0.067	0.004	0.010	0.001	0.001	0.000					1295.25	
24	0.5805	970.5	987.7		0.001	4.026	94.210	1.679	0.067	0.004	0.010	0.001	0.002	0.000					1296.35	
25	0.5843	976.0	993.3		0.001	4.050	93.421	2.443	0.068	0.004	0.011	0.001	0.001	0.000					1299.46	
26	0.5802	969.4	986.6		0.001	4.067	94.255	1.594	0.065	0.004	0.011	0.001	0.001	0.000					1295.25	
27	0.5808	968.7	985.9		0.002	4.167	94.130	1.612	0.070	0.005	0.012	0.002	0.002	0.000					1293.66	
28	0.5804	969.3	986.5		0.001	4.088	94.228	1.598	0.067	0.004	0.011	0.001	0.001	0.000					1294.89	
29	0.5809	969.6	986.8		0.001	4.124	94.104	1.686	0.068	0.004	0.010	0.001	0.001	0.000					1294.73	
30	0.5813	970.2	987.4		0.001	4.119	94.041	1.753	0.069	0.004	0.011	0.001	0.001	0.000					1295.07	
31	0.5810	968.8	986.0		0.003	4.168	94.100	1.642	0.070	0.004	0.011	0.001	0.001	0.000					1293.57	
Avg	0.5821	972.0	988.9		0.002	4.108	93.872	1.927	0.074	0.004	0.011	0.001	0.001	0.000					1293.98	

Zone 260

Source Daily Summary

May 2018

Number: 601

Pressure Base: 14.730

Contract Day: 1

Name: TIOGA STN-ROBINSON LAKE PLNT

Temperature Base:

Contract Hour: 9

Day	Relative Density	Heating Value Wet	Heating Value Dry	Heating Value As Del	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.7077	1157.3	1177.8	1174.0	0.910	3.225	72.024	21.206	2.374	0.079	0.160	0.010	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1396.70
2	0.7085	1158.0	1178.5	1174.8	0.921	3.234	71.986	21.129	2.458	0.082	0.166	0.011	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1396.84
3	0.7086	1159.1	1179.6	1175.8	0.901	3.208	72.009	21.125	2.474	0.084	0.171	0.012	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1397.96
4	0.7086	1160.2	1180.7	1177.1	0.879	3.178	72.079	21.020	2.551	0.086	0.178	0.013	0.016	0.000	0.000	0.000	0.000	0.000	0.000	1399.26
5	0.7094	1160.9	1181.5	1177.9	0.882	3.203	71.934	21.099	2.595	0.088	0.175	0.011	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1399.39
6	0.7080	1158.9	1179.4	1175.8	0.883	3.198	72.080	21.075	2.494	0.082	0.166	0.010	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1398.30
7	0.6977	1143.5	1163.7	1159.9	0.793	3.297	74.060	19.153	2.419	0.083	0.169	0.012	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1389.78
8	0.7080	1158.9	1179.4	1175.7	0.861	3.225	72.218	20.805	2.595	0.091	0.182	0.010	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1398.34
9	0.7078	1158.2	1178.7	1175.0	0.876	3.225	72.190	20.912	2.502	0.087	0.179	0.013	0.016	0.000	0.000	0.000	0.000	0.000	0.000	1397.69
10	0.7069	1157.3	1177.8	1174.3	0.885	3.179	72.281	20.957	2.411	0.084	0.175	0.012	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1397.59
11	0.7077	1157.8	1178.3	1174.7	0.895	3.206	72.238	20.898	2.446	0.090	0.193	0.015	0.019	0.000	0.000	0.000	0.000	0.000	0.000	1397.35
12	0.7076	1157.8	1178.3	1174.6	0.892	3.213	72.157	21.021	2.429	0.084	0.175	0.013	0.016	0.000	0.000	0.000	0.000	0.000	0.000	1397.33
13	0.7084	1159.2	1179.8	1176.1	0.884	3.206	72.084	21.016	2.519	0.086	0.179	0.012	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1398.39
14	0.7080	1159.0	1179.5	1175.9	0.869	3.213	72.002	21.204	2.451	0.081	0.160	0.009	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1398.44
15	0.6967	1126.0	1145.9	1140.8	0.830	4.218	73.981	18.498	2.169	0.084	0.185	0.015	0.020	0.000	0.000	0.000	0.000	0.000	0.000	1369.75
16	0.6287	1042.0	1060.4	1057.6	0.331	3.705	85.814	9.026	1.013	0.035	0.068	0.004	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1334.30
17	0.6526	1075.2	1094.3	1090.8	0.502	3.659	81.941	12.099	1.606	0.056	0.115	0.010	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1351.26
18	0.6770	1111.2	1130.9	1127.5	0.717	3.433	77.592	16.103	1.920	0.067	0.142	0.011	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1371.15
19	0.6954	1139.3	1159.5	1155.8	0.782	3.359	74.519	18.640	2.403	0.087	0.179	0.013	0.019	0.000	0.000	0.000	0.000	0.000	0.000	1386.98
20	0.7011	1147.9	1168.2	1164.5	0.836	3.289	73.310	19.906	2.401	0.080	0.158	0.010	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1391.87
21	0.7083	1158.4	1178.9	1174.9	0.900	3.220	72.147	20.915	2.523	0.088	0.180	0.012	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1397.47
22	0.7086	1159.6	1180.1	1176.1	0.889	3.192	72.061	21.028	2.545	0.087	0.175	0.011	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1398.68
23	0.7058	1155.7	1176.1	1171.8	0.855	3.219	72.622	20.470	2.550	0.087	0.171	0.011	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1396.61
24	0.7089	1165.5	1186.1	1182.1	0.814	2.985	71.614	22.032	2.318	0.077	0.143	0.008	0.009	0.000	0.000	0.000	0.000	0.000	0.000	1405.41
25	0.7081	1160.1	1180.7	1176.5	0.866	3.152	72.083	21.129	2.496	0.084	0.167	0.011	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1399.72
26	0.7074	1159.0	1179.5	1175.4	0.859	3.166	72.289	20.839	2.566	0.089	0.171	0.010	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1399.09
27	0.7077	1159.1	1179.7	1175.6	0.872	3.169	72.173	20.983	2.538	0.083	0.161	0.009	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1398.90
28	0.7064	1156.7	1177.2	1173.3	0.867	3.198	72.313	20.919	2.443	0.081	0.159	0.009	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1397.37
29	0.7098	1162.7	1183.3	1178.9	0.854	3.168	72.167	20.721	2.733	0.101	0.214	0.017	0.025	0.000	0.000	0.000	0.000	0.000	0.000	1401.04
30	0.7062	1157.7	1178.2	1173.9	0.837	3.169	72.467	20.706	2.540	0.088	0.172	0.009	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1398.68
31	0.7130	1167.4	1188.1	1183.9	0.916	3.090	71.182	22.017	2.511	0.086	0.174	0.011	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1403.68
Avg	0.7014	1149.0	1169.0	1165.2	0.834	3.271	73.278	19.956	2.387	0.082	0.167	0.011	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1392.43

Zone 261

Source Daily Summary

May 2018

Number: 091

Pressure Base: 14.730

Contract Day: 1

Name: MNT BRD-PLRMO BRD-BIS STN

Temperature Base:

Contract Hour: 9

Day	Relative Density	Heating Value Wet	Heating Value Dry	Heating Value As Del	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.7431	1180.5	1201.4	1198.1	0.884	5.163	67.320	21.482	4.569	0.163	0.373	0.022	0.023	0.000	0.000	0.000	0.000	0.000	0.000	1390.39
2	0.7415	1178.1	1199.0	1195.6	0.890	5.149	67.539	21.386	4.463	0.161	0.367	0.021	0.023	0.000	0.000	0.000	0.000	0.000	0.000	1389.06
3	0.7411	1178.6	1199.5	1195.8	0.888	5.091	67.556	21.476	4.426	0.158	0.362	0.020	0.023	0.000	0.000	0.000	0.000	0.000	0.000	1389.94
4	0.7410	1178.5	1199.4	1195.5	0.898	5.065	67.638	21.383	4.444	0.161	0.367	0.021	0.023	0.000	0.000	0.000	0.000	0.000	0.000	1390.00
5	0.7309	1175.9	1196.8	1192.8	0.894	4.286	69.095	21.361	3.855	0.142	0.327	0.019	0.022	0.000	0.000	0.000	0.000	0.000	0.000	1396.55
6	0.7130	1165.7	1186.4	1182.4	0.901	3.221	71.544	21.199	2.774	0.101	0.227	0.015	0.018	0.000	0.000	0.000	0.000	0.000	0.000	1401.61
7	0.7104	1161.3	1181.9	1178.1	0.898	3.250	71.804	21.120	2.617	0.091	0.196	0.011	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1398.91
8	0.7115	1162.8	1183.4	1179.5	0.899	3.259	71.649	21.210	2.671	0.092	0.194	0.011	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1399.59
9	0.7051	1153.6	1174.0	1170.4	0.844	3.302	72.754	20.229	2.571	0.091	0.188	0.009	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1394.82
10	0.7087	1158.7	1179.2	1175.7	0.898	3.251	72.008	21.034	2.518	0.087	0.184	0.009	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1397.40
11	0.7080	1157.2	1177.7	1174.2	0.913	3.252	72.152	20.919	2.454	0.090	0.193	0.012	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1396.28
12	0.7086	1158.0	1178.5	1174.8	0.916	3.255	72.050	20.994	2.469	0.091	0.195	0.012	0.017	0.000	0.000	0.000	0.000	0.000	0.000	1396.67
13	0.7079	1157.0	1177.4	1173.6	0.907	3.264	72.058	21.072	2.419	0.082	0.179	0.008	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1396.16
14	0.7095	1159.4	1179.9	1176.0	0.918	3.257	71.910	21.069	2.546	0.088	0.185	0.012	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1397.39
15	0.7094	1159.5	1180.0	1176.3	0.894	3.320	71.768	21.147	2.575	0.087	0.183	0.012	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1397.42
16	0.7089	1159.0	1179.6	1175.5	0.887	3.265	71.874	21.220	2.482	0.084	0.171	0.008	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1397.66
17	0.6483	1071.2	1090.2	1086.8	0.450	3.580	82.555	11.791	1.450	0.051	0.111	0.005	0.007	0.000	0.000	0.000	0.000	0.000	0.000	1350.74
18	0.6695	1099.2	1118.7	1115.3	0.667	3.544	78.904	14.835	1.830	0.065	0.138	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1363.83
19	0.6860	1124.7	1144.6	1141.1	0.737	3.427	76.058	17.348	2.166	0.077	0.164	0.010	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1378.71
20	0.7005	1146.2	1166.5	1162.8	0.819	3.362	73.627	19.361	2.516	0.093	0.197	0.011	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1390.37
21	0.7066	1153.5	1173.9	1170.3	0.884	3.394	72.396	20.477	2.579	0.085	0.171	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1393.22
22	0.7242	1163.6	1184.2	1180.4	0.902	4.403	70.065	20.546	3.655	0.132	0.274	0.012	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1388.16
23	0.7363	1175.3	1196.1	1192.3	0.912	4.804	68.461	20.969	4.298	0.162	0.354	0.019	0.021	0.000	0.000	0.000	0.000	0.000	0.000	1390.57
24	0.7389	1178.0	1198.8	1194.9	0.904	4.892	68.107	21.078	4.443	0.167	0.370	0.019	0.020	0.000	0.000	0.000	0.000	0.000	0.000	1391.32
25	0.7400	1180.5	1201.4	1197.4	0.893	4.859	68.015	21.091	4.547	0.172	0.382	0.021	0.021	0.000	0.000	0.000	0.000	0.000	0.000	1393.27
26	0.7366	1178.6	1199.4	1195.2	0.900	4.645	68.474	21.093	4.321	0.163	0.362	0.020	0.021	0.000	0.000	0.000	0.000	0.000	0.000	1394.17
27	0.7396	1178.4	1199.2	1195.3	0.893	4.951	68.084	20.923	4.559	0.171	0.375	0.021	0.023	0.000	0.000	0.000	0.000	0.000	0.000	1391.13
28	0.7384	1175.4	1196.2	1192.4	0.868	5.058	68.156	20.859	4.502	0.163	0.354	0.019	0.020	0.000	0.000	0.000	0.000	0.000	0.000	1388.76
29	0.7363	1168.8	1187.5	1183.7	0.869	5.389	68.233	20.634	4.415	0.138	0.293	0.014	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1380.56
30	0.7341	1158.6	1179.1	1175.4	0.873	5.669	68.591	20.014	4.434	0.130	0.267	0.011	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1372.99
31	0.7324	1155.2	1175.6	1172.0	0.874	5.723	68.757	19.916	4.339	0.125	0.248	0.009	0.009	0.000	0.000	0.000	0.000	0.000	0.000	1370.47
Avg	0.7183	1160.0	1180.2	1176.4	0.864	4.140	70.942	20.298	3.352	0.118	0.257	0.014	0.016	0.000	0.000	0.000	0.000	0.000	0.000	1389.30

Zone 262

Gas Composition and Properties

Effective May 1, 2018

Source #: 3002013
Name: EPPING BORDER

Component	Mole %	Liquid Content	Mass %
Carbon Dioxide, CO2	0.7111		1.6129
Nitrogen, N2	2.8967		4.1821
Methane, C1	78.3220		64.7564
Ethane, C2	16.2463	4.3461	25.1767
Propane, C3	1.6487	0.4529	3.7468
iso-Butane, iC4	0.0514	0.0168	0.1540
n-Butane, nC4	0.1027	0.0323	0.3076
iso-Pentane, iC5	0.0066	0.0024	0.0245
n-Pentane, nC5	0.0073	0.0026	0.0271
Neo-Pentane, NeoC5			
Hexanes Plus, C6+	0.0000	0.0000	0.0000
Water, H2O			
Hydrogen Sulfide, H2S			
Oxygen, O2	0.0072		0.0119
Carbon Monoxide, CO			
Hydrogen, H2			
Helium, He			
Argon, Ar			
Totals	100.0000	4.8530	100.0000

Property	Total Sample	C6 Plus Fraction
Pressure Base	14.730	
Temperature Base	60.00	
HCDP @ Sample Pressure		
Cricondentherm		
HV, Dry @ Base P, T	1129.26	
HV, Sat @ Base P, T	1109.60	
HV, Sat @ Sample P, T	1129.26	
Relative Density	0.6705	
C6+: 100		

Sample		
Date: 06/01/2018	Pressure:	180.0
Type: Composite	Temperature:	0.0
Tech: ES	H2O:	lbs/mm
	H2S:	ppm
Remarks:		

Analysis		
Date: 06/04/2018	Instrument:	WBI- 118
	Cylinder:	397
Tech: MB		
Remarks:		

Zone 264

Source Daily Summary

May 2018

Number: 603

Pressure Base: 14.730

Contract Day: 1

Name: TIOGA STN-COUNTY LINE PLANT

Temperature Base:

Contract Hour: 9

Day	Relative Density	Heating Value Wet	Heating Value Dry	Heating Value As Del	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.7080	1157.8	1178.3	1175.1	0.910	3.222	71.967	21.263	2.377	0.080	0.160	0.010	0.011	0.000	0.000	0.000	0.000	0.000	1397.01	
2	0.7087	1158.4	1178.9	1175.8	0.921	3.231	71.942	21.173	2.460	0.082	0.167	0.011	0.013	0.000	0.000	0.000	0.000	0.000	1397.09	
3	0.7090	1159.7	1180.2	1176.9	0.904	3.205	71.944	21.183	2.477	0.084	0.174	0.013	0.016	0.000	0.000	0.000	0.000	0.000	1398.29	
4	0.7090	1160.7	1181.3	1178.0	0.880	3.175	72.020	21.079	2.553	0.086	0.179	0.013	0.016	0.000	0.000	0.000	0.000	0.000	1399.58	
5	0.7096	1161.3	1181.8	1178.6	0.884	3.200	71.890	21.148	2.592	0.087	0.175	0.011	0.013	0.000	0.000	0.000	0.000	0.000	1399.60	
6	0.7083	1159.3	1179.8	1176.6	0.884	3.194	72.032	21.127	2.492	0.082	0.166	0.010	0.012	0.000	0.000	0.000	0.000	0.000	1398.55	
7	0.7072	1157.4	1177.9	1174.6	0.859	3.242	72.397	20.617	2.588	0.088	0.180	0.012	0.016	0.000	0.000	0.000	0.000	0.000	1397.27	
8	0.7042	1153.3	1173.7	1170.5	0.834	3.247	72.879	20.231	2.521	0.089	0.177	0.010	0.012	0.000	0.000	0.000	0.000	0.000	1395.36	
9	0.7040	1152.7	1173.1	1169.8	0.849	3.245	72.846	20.345	2.428	0.085	0.174	0.012	0.015	0.000	0.000	0.000	0.000	0.000	1394.79	
10	0.7035	1152.3	1172.7	1169.5	0.859	3.201	72.874	20.440	2.347	0.082	0.171	0.012	0.014	0.000	0.000	0.000	0.000	0.000	1394.93	
11	0.7037	1152.0	1172.4	1169.1	0.868	3.231	72.925	20.297	2.371	0.088	0.188	0.015	0.019	0.000	0.000	0.000	0.000	0.000	1394.22	
12	0.7038	1152.2	1172.6	1169.3	0.864	3.234	72.818	20.449	2.355	0.081	0.171	0.013	0.016	0.000	0.000	0.000	0.000	0.000	1394.39	
13	0.7045	1153.6	1174.0	1170.8	0.857	3.229	72.752	20.437	2.442	0.084	0.173	0.012	0.014	0.000	0.000	0.000	0.000	0.000	1395.35	
14	0.7039	1152.8	1173.2	1170.1	0.840	3.237	72.726	20.573	2.371	0.079	0.155	0.009	0.011	0.000	0.000	0.000	0.000	0.000	1395.16	
15	0.7099	1147.0	1167.3	1162.8	0.930	4.031	71.704	20.589	2.412	0.093	0.204	0.016	0.021	0.000	0.000	0.000	0.000	0.000	1382.19	
16	0.6868	1125.0	1144.9	1141.6	0.715	3.514	75.773	17.646	2.113	0.073	0.145	0.009	0.011	0.000	0.000	0.000	0.000	0.000	1378.24	
17	0.6930	1134.6	1154.7	1151.3	0.793	3.395	75.079	17.995	2.441	0.085	0.178	0.015	0.020	0.000	0.000	0.000	0.000	0.000	1383.65	
18	0.7016	1146.8	1167.1	1163.9	0.908	3.288	73.362	19.758	2.390	0.084	0.178	0.014	0.018	0.000	0.000	0.000	0.000	0.000	1390.07	
19	0.7027	1149.9	1170.3	1166.9	0.832	3.317	73.283	19.700	2.550	0.092	0.191	0.015	0.021	0.000	0.000	0.000	0.000	0.000	1392.66	
20	0.7033	1151.0	1171.4	1168.2	0.849	3.277	72.931	20.244	2.436	0.081	0.160	0.010	0.012	0.000	0.000	0.000	0.000	0.000	1393.56	
21	0.7068	1156.3	1176.7	1173.4	0.890	3.231	72.392	20.700	2.493	0.087	0.178	0.012	0.015	0.000	0.000	0.000	0.000	0.000	1396.29	
22	0.7089	1160.0	1180.5	1177.3	0.892	3.193	72.017	21.059	2.552	0.087	0.177	0.011	0.013	0.000	0.000	0.000	0.000	0.000	1398.84	
23	0.7063	1156.3	1176.8	1173.4	0.864	3.216	72.553	20.511	2.567	0.088	0.174	0.012	0.015	0.000	0.000	0.000	0.000	0.000	1396.86	
24	0.7087	1164.8	1185.4	1182.1	0.816	3.006	71.672	21.941	2.326	0.077	0.144	0.008	0.009	0.000	0.000	0.000	0.000	0.000	1404.73	
25	0.7087	1161.4	1182.0	1178.6	0.863	3.133	71.974	21.253	2.500	0.084	0.168	0.011	0.014	0.000	0.000	0.000	0.000	0.000	1400.69	
26	0.7075	1159.1	1179.7	1176.4	0.858	3.164	72.270	20.861	2.566	0.089	0.170	0.010	0.012	0.000	0.000	0.000	0.000	0.000	1399.19	
27	0.7079	1159.4	1179.9	1176.5	0.872	3.166	72.160	20.997	2.537	0.083	0.162	0.010	0.012	0.000	0.000	0.000	0.000	0.000	1399.04	
28	0.7065	1157.0	1177.5	1174.3	0.867	3.191	72.308	20.921	2.452	0.082	0.160	0.009	0.010	0.000	0.000	0.000	0.000	0.000	1397.60	
29	0.7102	1163.2	1183.8	1180.2	0.856	3.171	72.136	20.725	2.739	0.104	0.226	0.019	0.024	0.000	0.000	0.000	0.000	0.000	1401.23	
30	0.7061	1157.5	1178.0	1174.8	0.834	3.173	72.504	20.651	2.558	0.088	0.173	0.009	0.011	0.000	0.000	0.000	0.000	0.000	1398.60	
31	0.7134	1168.4	1189.1	1185.8	0.911	3.074	71.092	22.126	2.514	0.086	0.174	0.011	0.013	0.000	0.000	0.000	0.000	0.000	1404.52	
Avg	0.7057	1155.0	1175.3	1172.0	0.863	3.246	72.556	20.582	2.468	0.085	0.173	0.012	0.014	0.000	0.000	0.000	0.000	0.000	1395.79	

Zone 2b5

Source Daily Summary

May 2018

Number: 043

Pressure Base: 14.730

Contract Day: 1

Name: BISMARCK STN-CLEVELAND STN

Temperature Base:

Contract Hour: 9

Day	Relative Density	Heating Value Wet	Heating Value Dry	Heating Value As Del	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.7415	1179.8	1200.7	1196.4	0.871	5.075	67.595	21.406	4.469	0.163	0.372	0.024	0.026	0.000	0.000	0.000	0.000	0.000	0.000	1390.92
2	0.7404	1178.4	1199.2	1194.8	0.874	5.059	67.720	21.368	4.408	0.160	0.364	0.023	0.024	0.000	0.000	0.000	0.000	0.000	0.000	1390.23
3	0.7317	1172.2	1192.9	1188.3	0.888	4.596	68.952	21.159	3.904	0.141	0.317	0.021	0.023	0.000	0.000	0.000	0.000	0.000	0.000	1391.24
4	0.7080	1158.8	1179.3	1174.8	0.877	3.206	72.164	20.930	2.540	0.086	0.175	0.011	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1398.23
5	0.7094	1160.7	1181.2	1176.5	0.886	3.218	71.976	21.026	2.594	0.090	0.183	0.012	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1398.92
6	0.7078	1158.2	1178.7	1174.2	0.878	3.226	72.127	21.001	2.493	0.084	0.169	0.010	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1397.65
7	0.6976	1143.0	1163.3	1158.7	0.798	3.317	73.997	19.249	2.370	0.081	0.164	0.011	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1389.19
8	0.7024	1150.5	1170.9	1166.6	0.821	3.273	73.199	19.917	2.504	0.089	0.177	0.010	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1393.66
9	0.7080	1158.4	1178.9	1174.5	0.876	3.239	72.170	20.907	2.512	0.088	0.182	0.012	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1397.57
10	0.7082	1158.6	1179.1	1174.9	0.857	3.275	72.013	21.100	2.470	0.085	0.175	0.011	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1397.69
11	0.7038	1156.6	1177.1	1172.8	0.709	3.205	72.363	21.386	2.076	0.074	0.160	0.012	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1399.67
12	0.7061	1156.3	1176.8	1172.6	0.848	3.225	72.265	21.073	2.323	0.079	0.163	0.010	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1397.09
13	0.7081	1158.2	1178.7	1174.2	0.891	3.233	72.195	20.855	2.519	0.089	0.188	0.013	0.016	0.000	0.000	0.000	0.000	0.000	0.000	1397.30
14	0.7078	1158.3	1178.8	1174.4	0.864	3.238	72.084	21.076	2.469	0.083	0.166	0.010	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1397.83
15	0.7083	1158.9	1179.4	1174.8	0.880	3.227	72.187	20.835	2.566	0.092	0.188	0.012	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1397.95
16	0.6302	1043.7	1062.2	1058.2	0.327	3.744	85.635	9.110	1.053	0.039	0.080	0.005	0.006	0.000	0.000	0.000	0.000	0.000	0.000	1334.67
17	0.6485	1071.9	1090.9	1086.7	0.460	3.547	82.582	11.747	1.496	0.049	0.101	0.008	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1351.22
18	0.6626	1098.0	1117.5	1113.6	0.613	3.045	79.741	15.104	1.341	0.045	0.096	0.007	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1369.55
19	0.6813	1124.1	1144.1	1139.9	0.754	2.995	76.909	17.124	1.962	0.074	0.156	0.012	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1382.66
20	0.7018	1146.4	1166.8	1162.5	0.820	3.465	73.320	19.583	2.525	0.088	0.177	0.010	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1389.40
21	0.7347	1174.6	1195.4	1190.8	0.887	4.724	68.813	20.752	4.251	0.164	0.363	0.022	0.024	0.000	0.000	0.000	0.000	0.000	0.000	1391.26
22	0.7390	1180.9	1201.8	1197.3	0.876	4.764	68.289	20.914	4.540	0.175	0.394	0.024	0.025	0.000	0.000	0.000	0.000	0.000	0.000	1394.61
23	0.7380	1179.1	1200.0	1195.4	0.876	4.776	68.411	20.858	4.476	0.172	0.380	0.024	0.027	0.000	0.000	0.000	0.000	0.000	0.000	1393.44
24	0.7361	1173.6	1194.4	1189.9	0.850	4.974	68.511	20.740	4.375	0.160	0.349	0.020	0.021	0.000	0.000	0.000	0.000	0.000	0.000	1388.76
25	0.7338	1163.1	1183.7	1179.3	0.839	5.419	68.550	20.425	4.372	0.124	0.249	0.011	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1378.58
26	0.7348	1157.7	1178.2	1173.8	0.865	5.805	68.566	19.773	4.563	0.134	0.270	0.012	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1371.15
27	0.7303	1154.5	1175.0	1170.9	0.860	5.588	69.092	19.831	4.245	0.123	0.240	0.010	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1371.61
28	0.7321	1153.0	1173.5	1169.5	0.857	5.851	68.828	19.684	4.398	0.123	0.239	0.010	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1368.19
29	0.7364	1161.1	1181.7	1177.6	0.858	5.761	68.324	19.993	4.612	0.142	0.283	0.013	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1373.67
30	0.7475	1181.5	1202.4	1198.0	0.857	5.553	67.030	20.845	5.041	0.194	0.429	0.026	0.027	0.000	0.000	0.000	0.000	0.000	0.000	1387.35
31	0.7311	1156.0	1176.5	1172.4	0.858	5.578	68.753	20.380	4.027	0.131	0.254	0.010	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1372.62
Avg	0.7131	1152.0	1172.9	1168.5	0.815	4.168	71.754	19.682	3.209	0.110	0.232	0.014	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1385.61

Zone 271

Source Daily Summary

May 2018

Number: 063

Pressure Base: 14.730

Contract Day: 1

Name: CLEVELAND STN-MAPLETON

Temperature Base:

Contract Hour: 9

Day	Relative Density	Heating Value Wet	Heating Value Dry	Heating Value As Del	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.7435	1178.9	1199.7	1196.4	0.883	5.304	67.300	21.326	4.597	0.165	0.374	0.024	0.026	0.000	0.000	0.000	0.000	0.000	1387.88	
2	0.7412	1178.1	1199.0	1195.7	0.882	5.130	67.625	21.334	4.455	0.161	0.364	0.024	0.025	0.000	0.000	0.000	0.000	0.000	1389.27	
3	0.7399	1177.6	1198.4	1195.2	0.885	5.043	67.799	21.324	4.387	0.158	0.356	0.023	0.025	0.000	0.000	0.000	0.000	0.000	1389.79	
4	0.7216	1166.6	1187.3	1184.0	0.893	3.982	70.275	21.169	3.282	0.115	0.250	0.017	0.019	0.000	0.000	0.000	0.000	0.000	1394.37	
5	0.7088	1159.5	1180.0	1176.8	0.885	3.231	72.059	20.966	2.565	0.087	0.178	0.013	0.015	0.000	0.000	0.000	0.000	0.000	1398.16	
6	0.7093	1159.7	1180.2	1177.0	0.886	3.260	71.974	20.996	2.598	0.088	0.175	0.011	0.012	0.000	0.000	0.000	0.000	0.000	1397.96	
7	0.7084	1158.4	1178.9	1175.8	0.889	3.250	72.047	21.024	2.512	0.084	0.170	0.011	0.012	0.000	0.000	0.000	0.000	0.000	1397.34	
8	0.6865	1126.0	1146.0	1142.8	0.722	3.418	75.938	17.505	2.172	0.075	0.150	0.010	0.011	0.000	0.000	0.000	0.000	0.000	1379.62	
9	0.7077	1157.2	1177.7	1174.5	0.872	3.283	72.241	20.754	2.561	0.089	0.177	0.010	0.011	0.000	0.000	0.000	0.000	0.000	1396.55	
10	0.7080	1157.6	1178.1	1174.7	0.883	3.276	72.167	20.875	2.509	0.087	0.176	0.012	0.015	0.000	0.000	0.000	0.000	0.000	1396.59	
11	0.7060	1157.1	1177.6	1174.4	0.775	3.284	72.170	21.226	2.278	0.078	0.163	0.012	0.014	0.000	0.000	0.000	0.000	0.000	1398.05	
12	0.7054	1157.1	1177.6	1174.4	0.763	3.238	72.223	21.307	2.200	0.078	0.164	0.012	0.014	0.000	0.000	0.000	0.000	0.000	1398.76	
13	0.7078	1157.0	1177.5	1174.3	0.899	3.269	72.141	20.947	2.455	0.084	0.176	0.013	0.015	0.000	0.000	0.000	0.000	0.000	1396.17	
14	0.7084	1158.4	1178.9	1175.7	0.883	3.260	72.086	20.958	2.523	0.087	0.178	0.012	0.013	0.000	0.000	0.000	0.000	0.000	1397.29	
15	0.7078	1157.6	1178.1	1174.9	0.875	3.273	72.063	21.066	2.453	0.083	0.165	0.010	0.011	0.000	0.000	0.000	0.000	0.000	1396.86	
16	0.6727	1105.2	1124.8	1121.6	0.640	3.515	78.374	15.341	1.890	0.070	0.147	0.010	0.012	0.000	0.000	0.000	0.000	0.000	1367.54	
17	0.6273	1041.5	1059.9	1057.1	0.301	3.644	86.157	8.762	1.027	0.034	0.066	0.004	0.005	0.000	0.000	0.000	0.000	0.000	1334.93	
18	0.6607	1089.6	1108.9	1105.8	0.459	3.617	80.126	14.106	1.513	0.051	0.107	0.009	0.011	0.000	0.000	0.000	0.000	0.000	1360.81	
19	0.6640	1100.7	1120.2	1117.1	0.778	2.768	79.921	14.802	1.551	0.053	0.108	0.008	0.010	0.000	0.000	0.000	0.000	0.000	1371.31	
20	0.6945	1140.0	1160.2	1157.0	0.771	3.248	74.556	18.858	2.285	0.084	0.173	0.012	0.014	0.000	0.000	0.000	0.000	0.000	1388.76	
21	0.7136	1155.9	1176.4	1173.2	0.862	3.932	71.656	20.058	3.115	0.113	0.235	0.014	0.016	0.000	0.000	0.000	0.000	0.000	1389.26	
22	0.7382	1178.4	1199.3	1196.0	0.891	4.819	68.276	21.001	4.418	0.169	0.378	0.024	0.025	0.000	0.000	0.000	0.000	0.000	1392.48	
23	0.7358	1177.3	1198.2	1195.1	0.886	4.668	68.582	21.002	4.298	0.162	0.356	0.022	0.024	0.000	0.000	0.000	0.000	0.000	1393.54	
24	0.7342	1171.5	1192.2	1188.9	0.879	4.886	68.819	20.612	4.253	0.158	0.344	0.023	0.025	0.000	0.000	0.000	0.000	0.000	1387.98	
25	0.7358	1172.2	1193.0	1189.9	0.854	5.031	68.393	20.897	4.313	0.150	0.325	0.019	0.019	0.000	0.000	0.000	0.000	0.000	1387.47	
26	0.7360	1162.6	1183.2	1180.2	0.869	5.607	68.295	20.276	4.540	0.129	0.259	0.013	0.012	0.000	0.000	0.000	0.000	0.000	1376.01	
27	0.7342	1155.2	1175.6	1172.6	0.866	5.898	68.575	19.730	4.525	0.129	0.254	0.011	0.011	0.000	0.000	0.000	0.000	0.000	1368.85	
28	0.7304	1153.7	1174.1	1171.2	0.869	5.632	69.037	19.853	4.229	0.122	0.236	0.010	0.010	0.000	0.000	0.000	0.000	0.000	1370.61	
29	0.7320	1152.3	1172.7	1169.8	0.865	5.876	68.812	19.689	4.377	0.123	0.237	0.011	0.010	0.000	0.000	0.000	0.000	0.000	1367.44	
30	0.7321	1153.9	1174.4	1171.4	0.868	5.773	68.773	19.877	4.332	0.124	0.233	0.010	0.010	0.000	0.000	0.000	0.000	0.000	1369.40	
31	0.7363	1166.7	1187.3	1184.3	0.871	5.390	68.308	20.534	4.391	0.154	0.318	0.017	0.018	0.000	0.000	0.000	0.000	0.000	1380.45	
Avg	0.7125	1151.0	1171.5	1168.3	0.819	4.187	71.831	19.619	3.181	0.108	0.226	0.014	0.015	0.000	0.000	0.000	0.000	0.000	1384.56	

Zone 272

Source Daily Summary

May 2018

Number: 061

Pressure Base: 14.730

Contract Day: 1

Name: CLEVELAND STN-GRAFTON BDR

Temperature Base:

Contract Hour: 9

Day	Relative Density	Heating Value Wet	Heating Value Dry	Heating Value As Del	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.7362	1163.9	1184.5	1184.1	0.884	5.375	68.094	20.965	4.227	0.136	0.290	0.014	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1380.20
2	0.7389	1173.2	1194.0	1191.4	0.883	5.183	67.856	21.204	4.345	0.152	0.336	0.020	0.021	0.000	0.000	0.000	0.000	0.000	0.000	1386.30
3	0.7398	1177.2	1198.1	1194.8	0.885	5.051	67.819	21.304	4.380	0.158	0.357	0.023	0.025	0.000	0.000	0.000	0.000	0.000	0.000	1389.52
4	0.7216	1166.4	1187.0	1183.8	0.893	3.997	70.274	21.152	3.282	0.116	0.251	0.017	0.019	0.000	0.000	0.000	0.000	0.000	0.000	1394.08
5	0.7088	1159.5	1180.0	1176.8	0.885	3.232	72.051	20.978	2.560	0.087	0.178	0.013	0.016	0.000	0.000	0.000	0.000	0.000	0.000	1398.16
6	0.7095	1159.9	1180.4	1177.1	0.888	3.263	71.938	21.025	2.599	0.088	0.176	0.011	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1398.00
7	0.7085	1158.5	1179.1	1175.8	0.890	3.251	72.030	21.040	2.513	0.084	0.170	0.011	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1397.40
8	0.6874	1127.3	1147.3	1144.1	0.730	3.418	75.759	17.669	2.179	0.074	0.149	0.010	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1380.22
9	0.7077	1157.2	1177.7	1174.6	0.872	3.285	72.227	20.773	2.557	0.089	0.176	0.010	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1396.55
10	0.7084	1158.1	1178.6	1175.3	0.884	3.274	72.124	20.904	2.520	0.088	0.179	0.012	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1396.85
11	0.7062	1157.4	1177.9	1174.8	0.774	3.288	72.138	21.248	2.282	0.079	0.165	0.012	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1398.18
12	0.7054	1157.1	1177.6	1174.5	0.765	3.240	72.217	21.310	2.199	0.078	0.165	0.012	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1398.69
13	0.7078	1156.9	1177.4	1174.3	0.900	3.273	72.136	20.956	2.446	0.084	0.177	0.013	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1396.07
14	0.7086	1158.6	1179.1	1175.7	0.885	3.260	72.065	20.973	2.524	0.087	0.180	0.012	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1397.35
15	0.7082	1158.1	1178.6	1175.5	0.876	3.269	72.009	21.112	2.463	0.084	0.167	0.010	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1397.20
16	0.6742	1107.3	1126.9	1123.7	0.652	3.510	78.119	15.565	1.911	0.071	0.148	0.010	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1368.61
17	0.6293	1044.2	1062.7	1059.8	0.327	3.631	85.805	9.066	1.058	0.036	0.069	0.004	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1336.24
18	0.6628	1092.9	1112.3	1109.2	0.466	3.597	79.755	14.456	1.546	0.052	0.109	0.009	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1362.86
19	0.6647	1101.5	1121.0	1118.1	0.781	2.778	79.795	14.898	1.567	0.053	0.110	0.008	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1371.64
20	0.6950	1140.9	1161.1	1158.0	0.771	3.243	74.474	18.925	2.301	0.084	0.175	0.012	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1389.30
21	0.7128	1155.3	1175.7	1172.6	0.861	3.896	71.756	20.056	3.063	0.111	0.229	0.014	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1389.30
22	0.7382	1178.3	1199.1	1195.9	0.893	4.823	68.275	20.998	4.417	0.169	0.377	0.024	0.025	0.000	0.000	0.000	0.000	0.000	0.000	1392.33
23	0.7364	1177.9	1198.7	1195.7	0.886	4.693	68.513	20.995	4.341	0.164	0.361	0.023	0.024	0.000	0.000	0.000	0.000	0.000	0.000	1393.58
24	0.7360	1173.4	1194.2	1191.0	0.881	4.933	68.591	20.658	4.369	0.163	0.356	0.023	0.025	0.000	0.000	0.000	0.000	0.000	0.000	1388.62
25	0.7364	1172.4	1193.2	1190.1	0.852	5.073	68.339	20.847	4.371	0.152	0.327	0.019	0.019	0.000	0.000	0.000	0.000	0.000	0.000	1387.19
26	0.7358	1162.5	1183.0	1180.1	0.870	5.602	68.310	20.282	4.524	0.128	0.258	0.012	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1375.94
27	0.7345	1155.4	1175.9	1173.0	0.867	5.910	68.535	19.736	4.540	0.131	0.258	0.012	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1368.88
28	0.7306	1153.8	1174.3	1171.4	0.870	5.641	69.013	19.849	4.246	0.123	0.237	0.011	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1370.61
29	0.7325	1152.9	1173.3	1170.5	0.865	5.884	68.752	19.702	4.411	0.124	0.240	0.011	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1367.72
30	0.7308	1153.0	1173.5	1170.3	0.865	5.719	68.954	19.819	4.272	0.122	0.229	0.010	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1369.45
31	0.7349	1164.5	1185.1	1182.1	0.870	5.391	68.473	20.453	4.336	0.146	0.298	0.016	0.016	0.000	0.000	0.000	0.000	0.000	0.000	1379.23
Avg	0.7125	1151.0	1171.2	1168.2	0.822	4.193	71.813	19.642	3.172	0.107	0.222	0.013	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1384.40

Zone 273

Source Daily Summary

May 2018

Number: 041

Pressure Base: 14.730

Contract Day: 1

Name: BISMARCK STN-GLEN ULLIN STN

Temperature Base:

Contract Hour: 9

Day	Relative Density	Heating Value Wet	Heating Value Dry	Heating Value As Del	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.7415	1179.5	1200.4	1196.8	0.871	5.092	67.592	21.396	4.467	0.163	0.371	0.024	0.026	0.000	0.000	0.000	0.000	0.000	1390.58	
2	0.7404	1178.3	1199.2	1195.5	0.874	5.064	67.720	21.364	4.407	0.160	0.364	0.023	0.024	0.000	0.000	0.000	0.000	0.000	1390.14	
3	0.7327	1172.7	1193.5	1189.9	0.887	4.660	68.818	21.148	3.973	0.143	0.325	0.021	0.023	0.000	0.000	0.000	0.000	0.000	1390.91	
4	0.7079	1158.8	1179.3	1175.8	0.876	3.204	72.178	20.914	2.542	0.086	0.175	0.011	0.013	0.000	0.000	0.000	0.000	0.000	1398.27	
5	0.7093	1160.5	1181.0	1177.3	0.885	3.219	72.005	20.997	2.593	0.090	0.183	0.013	0.015	0.000	0.000	0.000	0.000	0.000	1398.81	
6	0.7078	1158.1	1178.6	1175.1	0.879	3.230	72.142	20.975	2.499	0.084	0.169	0.010	0.012	0.000	0.000	0.000	0.000	0.000	1397.55	
7	0.6981	1143.7	1163.9	1160.3	0.802	3.313	73.927	19.309	2.376	0.082	0.167	0.011	0.013	0.000	0.000	0.000	0.000	0.000	1389.52	
8	0.7009	1148.4	1168.7	1165.2	0.810	3.283	73.456	19.692	2.476	0.088	0.175	0.010	0.011	0.000	0.000	0.000	0.000	0.000	1392.51	
9	0.7079	1158.1	1178.6	1175.0	0.875	3.243	72.199	20.868	2.517	0.088	0.182	0.013	0.015	0.000	0.000	0.000	0.000	0.000	1397.41	
10	0.7128	1162.6	1183.2	1179.7	0.851	3.470	71.418	21.183	2.752	0.096	0.202	0.013	0.015	0.000	0.000	0.000	0.000	0.000	1398.03	
11	0.6905	1155.8	1176.3	1173.1	0.002	3.087	72.507	23.670	0.715	0.007	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.29	
12	0.7005	1155.1	1175.6	1172.2	0.567	3.206	72.392	21.889	1.766	0.054	0.111	0.007	0.008	0.000	0.000	0.000	0.000	0.000	1401.27	
13	0.7080	1158.0	1178.5	1174.9	0.891	3.233	72.215	20.844	2.512	0.089	0.187	0.014	0.016	0.000	0.000	0.000	0.000	0.000	1397.20	
14	0.7080	1158.7	1179.2	1175.6	0.864	3.235	72.065	21.082	2.480	0.084	0.168	0.010	0.011	0.000	0.000	0.000	0.000	0.000	1398.04	
15	0.7082	1158.7	1179.2	1175.5	0.880	3.229	72.191	20.842	2.554	0.091	0.186	0.012	0.015	0.000	0.000	0.000	0.000	0.000	1397.79	
16	0.6328	1046.9	1065.4	1062.1	0.354	3.750	85.212	9.438	1.106	0.041	0.086	0.006	0.007	0.000	0.000	0.000	0.000	0.000	1335.96	
17	0.6559	1080.7	1099.9	1096.6	0.511	3.625	81.274	12.778	1.620	0.058	0.118	0.007	0.009	0.000	0.000	0.000	0.000	0.000	1354.68	
18	0.6541	1100.2	1119.7	1116.6	0.489	2.311	80.515	15.991	0.655	0.013	0.023	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1381.07	
19	0.6401	1082.2	1101.4	1098.3	0.687	1.790	83.537	13.403	0.547	0.012	0.021	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1373.23	
20	0.7001	1146.5	1166.8	1163.4	0.730	3.436	73.310	19.954	2.315	0.079	0.157	0.009	0.010	0.000	0.000	0.000	0.000	0.000	1391.25	
21	0.7327	1173.1	1193.9	1190.1	0.888	4.635	69.069	20.719	4.135	0.159	0.351	0.021	0.023	0.000	0.000	0.000	0.000	0.000	1391.30	
22	0.7390	1180.7	1201.6	1197.8	0.875	4.779	68.294	20.886	4.546	0.176	0.395	0.024	0.026	0.000	0.000	0.000	0.000	0.000	1394.36	
23	0.7367	1177.9	1198.7	1194.8	0.877	4.736	68.559	20.850	4.387	0.168	0.372	0.024	0.027	0.000	0.000	0.000	0.000	0.000	1393.13	
24	0.7351	1172.9	1193.6	1189.9	0.851	4.931	68.659	20.683	4.327	0.159	0.348	0.020	0.021	0.000	0.000	0.000	0.000	0.000	1388.76	
25	0.7334	1163.5	1184.1	1180.5	0.849	5.347	68.610	20.459	4.334	0.130	0.249	0.011	0.011	0.000	0.000	0.000	0.000	0.000	1379.38	
26	0.7350	1158.2	1178.7	1175.0	0.868	5.788	68.549	19.791	4.572	0.134	0.272	0.013	0.013	0.000	0.000	0.000	0.000	0.000	1371.56	
27	0.7303	1154.0	1174.4	1170.9	0.859	5.614	69.099	19.802	4.243	0.123	0.239	0.011	0.010	0.000	0.000	0.000	0.000	0.000	1371.08	
28	0.7320	1153.2	1173.7	1170.2	0.857	5.827	68.842	19.708	4.384	0.123	0.239	0.010	0.010	0.000	0.000	0.000	0.000	0.000	1368.53	
29	0.7335	1155.0	1175.4	1171.9	0.859	5.860	68.692	19.697	4.482	0.130	0.257	0.012	0.011	0.000	0.000	0.000	0.000	0.000	1369.15	
30	0.7475	1182.5	1203.4	1199.6	0.861	5.487	67.048	20.877	5.045	0.196	0.434	0.025	0.026	0.000	0.000	0.000	0.000	0.000	1388.52	
31	0.7308	1154.9	1175.4	1171.6	0.854	5.618	68.792	20.342	3.993	0.130	0.251	0.010	0.010	0.000	0.000	0.000	0.000	0.000	1371.58	
Avg	0.7111	1151.0	1171.7	1168.1	0.777	4.107	71.964	19.727	3.075	0.104	0.219	0.013	0.014	0.000	0.000	0.000	0.000	0.000	1386.25	

Zone 28

Source Daily Summary

May 2018

Number: 271

Pressure Base: 14.730

Contract Day: 1

Name: DCKSN BRD-BLFD TSF-G.U. STN

Temperature Base:

Contract Hour: 9

Day	Relative Density	Heating Value Wet	Heating Value Dry	Heating Value As Del	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.7415	1179.5	1200.4	1196.7	0.871	5.092	67.592	21.396	4.467	0.163	0.371	0.024	0.026	0.000	0.000	0.000	0.000	0.000	1390.60	
2	0.7404	1178.3	1199.2	1195.5	0.874	5.064	67.720	21.364	4.407	0.160	0.364	0.023	0.024	0.000	0.000	0.000	0.000	0.000	1390.14	
3	0.7327	1172.7	1193.5	1189.8	0.887	4.660	68.818	21.148	3.973	0.143	0.325	0.021	0.023	0.000	0.000	0.000	0.000	0.000	1390.82	
4	0.7079	1158.8	1179.3	1175.7	0.876	3.204	72.178	20.914	2.542	0.086	0.175	0.011	0.013	0.000	0.000	0.000	0.000	0.000	1398.25	
5	0.7093	1160.5	1181.0	1177.3	0.885	3.219	72.005	20.997	2.593	0.090	0.183	0.013	0.015	0.000	0.000	0.000	0.000	0.000	1398.82	
6	0.7078	1158.1	1178.6	1175.0	0.879	3.230	72.142	20.975	2.499	0.084	0.169	0.010	0.012	0.000	0.000	0.000	0.000	0.000	1397.53	
7	0.6981	1143.6	1163.9	1160.2	0.802	3.313	73.927	19.309	2.376	0.082	0.167	0.011	0.013	0.000	0.000	0.000	0.000	0.000	1389.61	
8	0.7009	1148.4	1168.7	1165.2	0.810	3.283	73.456	19.692	2.476	0.088	0.175	0.010	0.011	0.000	0.000	0.000	0.000	0.000	1392.56	
9	0.7079	1158.1	1178.6	1175.0	0.875	3.243	72.199	20.868	2.517	0.088	0.182	0.013	0.015	0.000	0.000	0.000	0.000	0.000	1397.42	
10	0.7128	1162.6	1183.2	1179.6	0.851	3.470	71.418	21.183	2.752	0.096	0.202	0.013	0.015	0.000	0.000	0.000	0.000	0.000	1397.96	
11	0.6905	1155.8	1176.3	1173.0	0.002	3.087	72.507	23.670	0.715	0.007	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.28	
12	0.7005	1155.1	1175.6	1172.2	0.567	3.206	72.392	21.889	1.766	0.054	0.111	0.007	0.008	0.000	0.000	0.000	0.000	0.000	1401.22	
13	0.7080	1158.0	1178.5	1174.9	0.891	3.233	72.215	20.844	2.512	0.089	0.187	0.014	0.016	0.000	0.000	0.000	0.000	0.000	1397.20	
14	0.7080	1158.7	1179.2	1175.6	0.864	3.235	72.065	21.082	2.480	0.084	0.168	0.010	0.011	0.000	0.000	0.000	0.000	0.000	1398.04	
15	0.7082	1158.7	1179.2	1175.5	0.880	3.229	72.191	20.842	2.554	0.091	0.186	0.012	0.015	0.000	0.000	0.000	0.000	0.000	1397.81	
16	0.6328	1046.9	1065.4	1062.1	0.354	3.750	85.212	9.438	1.106	0.041	0.086	0.006	0.007	0.000	0.000	0.000	0.000	0.000	1336.15	
17	0.6559	1080.8	1099.9	1096.5	0.511	3.625	81.274	12.778	1.620	0.058	0.118	0.007	0.009	0.000	0.000	0.000	0.000	0.000	1354.76	
18	0.6541	1100.2	1119.7	1116.6	0.489	2.311	80.515	15.991	0.655	0.013	0.023	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1381.16	
19	0.6401	1082.2	1101.4	1098.3	0.687	1.790	83.537	13.403	0.547	0.012	0.021	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1373.31	
20	0.7001	1146.5	1166.8	1163.4	0.730	3.436	73.310	19.954	2.315	0.079	0.157	0.009	0.010	0.000	0.000	0.000	0.000	0.000	1391.20	
21	0.7327	1173.1	1193.9	1190.1	0.888	4.635	69.069	20.719	4.135	0.159	0.351	0.021	0.023	0.000	0.000	0.000	0.000	0.000	1391.26	
22	0.7390	1180.7	1201.6	1197.8	0.875	4.779	68.294	20.886	4.546	0.176	0.395	0.024	0.026	0.000	0.000	0.000	0.000	0.000	1394.36	
23	0.7367	1177.8	1198.7	1194.9	0.877	4.736	68.559	20.850	4.387	0.168	0.372	0.024	0.027	0.000	0.000	0.000	0.000	0.000	1393.10	
24	0.7351	1172.8	1193.6	1189.9	0.851	4.931	68.659	20.683	4.327	0.159	0.348	0.020	0.021	0.000	0.000	0.000	0.000	0.000	1388.75	
25	0.7334	1163.5	1184.1	1180.5	0.849	5.347	68.610	20.459	4.334	0.130	0.249	0.011	0.011	0.000	0.000	0.000	0.000	0.000	1379.38	
26	0.6966	1132.7	1152.8	1149.2	0.845	3.770	75.073	16.834	3.117	0.106	0.229	0.013	0.013	0.000	0.000	0.000	0.000	0.000	1378.19	
27	0.6512	1083.2	1102.4	1099.1	0.883	2.465	82.464	12.588	1.472	0.040	0.082	0.003	0.004	0.000	0.000	0.000	0.000	0.000	1362.95	
28	0.6422	1076.0	1095.0	1091.7	0.864	2.093	83.911	11.943	1.080	0.034	0.067	0.004	0.004	0.000	0.000	0.000	0.000	0.000	1363.24	
29	0.6460	1079.3	1098.4	1095.1	0.850	2.273	83.227	12.324	1.214	0.035	0.071	0.003	0.004	0.000	0.000	0.000	0.000	0.000	1363.39	
30	0.6687	1099.5	1119.0	1115.5	0.842	3.178	79.594	14.012	2.161	0.066	0.135	0.006	0.007	0.000	0.000	0.000	0.000	0.000	1365.61	
31	0.6345	1067.7	1086.6	1083.3	0.917	1.791	85.290	11.083	0.833	0.026	0.054	0.002	0.003	0.000	0.000	0.000	0.000	0.000	1360.98	
Avg	0.6959	1138.0	1157.9	1154.4	0.778	3.506	74.498	18.391	2.532	0.087	0.185	0.011	0.012	0.000	0.000	0.000	0.000	0.000	1384.78	

Zone 31

Source Daily Summary

May 2018

Number: 051

Pressure Base: 14.730

Contract Day: 1

Name: CABIN CRK STN-BELFIELD TRSFR

Temperature Base:

Contract Hour: 9

Day	Relative Density	Heating Value Wet	Heating Value Dry	Heating Value As Del	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.6497	1090.5	1109.8	1106.7	0.942	1.790	82.750	13.112	1.270	0.045	0.079	0.005	0.005	0.000	0.000	0.000	0.000	0.000	1373.66	
2	0.6518	1092.3	1111.7	1108.5	0.943	1.872	82.241	13.630	1.169	0.048	0.086	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1373.79	
3	0.6484	1076.0	1095.1	1091.9	0.664	2.975	82.521	12.477	1.223	0.047	0.083	0.005	0.005	0.000	0.000	0.000	0.000	0.000	1356.73	
4	0.6651	1100.1	1119.5	1116.3	0.795	2.882	79.968	14.364	1.762	0.076	0.135	0.009	0.008	0.000	0.000	0.000	0.000	0.000	1369.41	
5	0.6628	1101.2	1120.7	1117.5	0.893	2.447	80.554	14.167	1.711	0.075	0.134	0.009	0.009	0.000	0.000	0.000	0.000	0.000	1373.27	
6	0.6584	1095.5	1114.9	1111.7	0.856	2.438	81.154	13.838	1.526	0.062	0.112	0.007	0.007	0.000	0.000	0.000	0.000	0.000	1370.74	
7	0.6533	1082.2	1101.4	1098.2	0.470	3.353	81.310	13.461	1.277	0.043	0.077	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1359.40	
8	0.6711	1111.3	1131.0	1127.8	0.897	2.604	79.109	15.193	1.949	0.082	0.147	0.010	0.008	0.000	0.000	0.000	0.000	0.000	1377.32	
9	0.6568	1090.0	1109.3	1106.2	0.832	2.653	81.502	13.238	1.578	0.064	0.116	0.008	0.007	0.000	0.000	0.000	0.000	0.000	1365.56	
10	0.6614	1097.8	1117.2	1113.4	0.875	2.543	80.782	13.885	1.699	0.071	0.127	0.009	0.008	0.000	0.000	0.000	0.000	0.000	1370.58	
11	0.6572	1094.6	1114.0	1110.1	0.893	2.323	81.457	13.609	1.529	0.063	0.113	0.007	0.007	0.000	0.000	0.000	0.000	0.000	1370.90	
12	0.6575	1095.5	1114.9	1111.1	0.905	2.271	81.432	13.673	1.526	0.064	0.115	0.008	0.007	0.000	0.000	0.000	0.000	0.000	1371.80	
13	0.6554	1091.0	1110.4	1107.0	0.882	2.389	81.764	13.287	1.491	0.062	0.111	0.008	0.007	0.000	0.000	0.000	0.000	0.000	1368.28	
14	0.6540	1087.9	1107.2	1103.9	0.840	2.511	81.913	13.115	1.449	0.057	0.102	0.007	0.006	0.000	0.000	0.000	0.000	0.000	1365.83	
15	0.6593	1096.6	1116.0	1112.6	0.884	2.406	81.158	13.702	1.649	0.067	0.119	0.008	0.007	0.000	0.000	0.000	0.000	0.000	1371.28	
16	0.6605	1104.3	1123.9	1120.6	0.998	1.880	80.923	14.516	1.491	0.062	0.114	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1379.61	
17	0.6496	1084.7	1103.9	1100.7	0.849	2.279	82.690	12.719	1.299	0.054	0.096	0.007	0.006	0.000	0.000	0.000	0.000	0.000	1366.40	
18	0.6522	1086.3	1105.5	1101.7	0.803	2.498	82.296	12.745	1.474	0.061	0.109	0.007	0.007	0.000	0.000	0.000	0.000	0.000	1365.63	
19	0.6564	1098.5	1117.9	1113.9	0.954	1.918	81.721	13.716	1.500	0.063	0.113	0.008	0.007	0.000	0.000	0.000	0.000	0.000	1376.58	
20	0.6533	1096.0	1115.4	1111.9	0.959	1.763	82.302	13.387	1.396	0.064	0.111	0.009	0.008	0.000	0.000	0.000	0.000	0.000	1376.78	
21	0.6486	1089.5	1108.8	1105.5	0.951	1.730	82.968	12.993	1.209	0.049	0.087	0.006	0.006	0.000	0.000	0.000	0.000	0.000	1373.62	
22	0.6406	1066.9	1085.8	1082.6	0.587	2.911	83.967	11.241	1.177	0.039	0.069	0.004	0.004	0.000	0.000	0.000	0.000	0.000	1353.42	
23	0.6381	1060.0	1078.8	1075.6	0.395	3.395	84.004	11.081	1.033	0.031	0.053	0.003	0.003	0.000	0.000	0.000	0.000	0.000	1347.29	
24	0.6432	1061.0	1079.8	1076.6	0.462	3.711	83.240	11.271	1.169	0.050	0.087	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1343.20	
25	0.6815	1121.9	1141.8	1138.4	0.784	3.102	77.189	16.391	2.248	0.095	0.170	0.011	0.010	0.000	0.000	0.000	0.000	0.000	1379.82	
26	0.6695	1114.6	1134.3	1130.9	0.991	2.109	79.503	15.295	1.867	0.076	0.140	0.009	0.009	0.000	0.000	0.000	0.000	0.000	1383.06	
27	0.6602	1103.0	1122.6	1119.3	0.990	1.936	80.968	14.420	1.507	0.058	0.107	0.007	0.007	0.000	0.000	0.000	0.000	0.000	1378.40	
28	0.6574	1099.0	1118.4	1115.2	0.987	1.928	81.427	14.074	1.409	0.057	0.104	0.007	0.007	0.000	0.000	0.000	0.000	0.000	1376.21	
29	0.6591	1101.8	1121.4	1118.0	1.006	1.887	81.142	14.357	1.420	0.061	0.111	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1377.97	
30	0.6594	1101.6	1121.1	1117.7	1.000	1.938	81.106	14.309	1.460	0.060	0.111	0.008	0.007	0.000	0.000	0.000	0.000	0.000	1377.35	
31	0.6532	1094.4	1113.8	1110.4	0.991	1.809	82.138	13.632	1.271	0.052	0.094	0.007	0.006	0.000	0.000	0.000	0.000	0.000	1374.83	
Avg	0.6563	1093.0	1112.5	1109.1	0.848	2.395	81.523	13.577	1.476	0.060	0.107	0.007	0.007	0.000	0.000	0.000	0.000	0.000	1369.96	

Zone 32

Source Daily Summary

May 2018

Number: 111

Pressure Base: 14.730

Contract Day: 1

Name: LITTLE KNIFE PLANT

Temperature Base:

Contract Hour: 9

Day	Relative Density	Heating Value Wet	Heating Value Dry	Heating Value As Del	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.6896	1154.7	1175.2	1170.5	0.000	3.076	72.623	23.616	0.671	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1411.88	-24.96
2	0.6893	1154.8	1175.3	1170.6	0.000	3.042	72.697	23.559	0.686	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.32	-24.96
3	0.6886	1154.6	1175.0	1170.7	0.000	2.989	72.861	23.443	0.691	0.007	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.76	-25.19
4	0.6893	1155.5	1175.9	1171.3	0.000	3.003	72.719	23.563	0.700	0.007	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1413.11	-24.82
5	0.6897	1155.5	1175.9	1171.6	0.000	3.043	72.635	23.596	0.710	0.007	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.68	-24.66
6	0.6900	1156.1	1176.5	1172.1	0.000	3.035	72.591	23.633	0.726	0.007	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1413.10	-24.43
7	0.6894	1154.9	1175.4	1171.0	0.000	3.048	72.710	23.509	0.716	0.007	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.27	-24.82
8	0.6895	1155.3	1175.7	1171.4	0.000	3.039	72.667	23.571	0.706	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.59	-24.76
9	0.6900	1155.4	1175.8	1171.6	0.000	3.074	72.582	23.615	0.710	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.28	-24.57
10	0.6901	1154.9	1175.4	1170.7	0.000	3.115	72.519	23.661	0.689	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1411.59	-24.71
11	0.6887	1153.0	1173.5	1168.8	0.000	3.096	72.792	23.428	0.668	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1410.74	-25.45
12	0.6898	1154.4	1174.9	1170.2	0.000	3.115	72.598	23.565	0.705	0.007	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1411.32	-24.78
13	0.6901	1154.3	1174.7	1170.2	0.000	3.146	72.554	23.571	0.715	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1410.91	-24.71
14	0.6898	1154.3	1174.8	1170.2	0.000	3.121	72.623	23.516	0.724	0.007	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1411.17	-24.75
15	0.6899	1155.0	1175.4	1171.0	0.000	3.094	72.607	23.555	0.728	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1411.82	-24.61
16	0.6893	1154.5	1174.9	1170.1	0.000	3.068	72.731	23.461	0.725	0.007	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1411.82	-24.87
17	0.6878	1153.2	1173.6	1169.2	0.000	3.003	72.986	23.335	0.662	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1411.83	-25.72
18	0.6886	1154.5	1174.9	1170.2	0.000	2.996	72.837	23.484	0.668	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.63	-25.29
19	0.6892	1155.2	1175.6	1171.3	0.000	3.010	72.743	23.530	0.701	0.007	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.87	-24.89
20	0.6889	1154.8	1175.2	1170.7	0.000	3.007	72.827	23.428	0.722	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.66	-24.96
21	0.6892	1155.3	1175.7	1171.1	0.000	3.004	72.788	23.447	0.743	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.97	-24.72
22	0.6905	1157.3	1177.8	1173.2	0.000	3.003	72.547	23.670	0.762	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1414.10	-24.01
23	0.6912	1157.3	1177.8	1173.1	0.000	3.077	72.360	23.795	0.751	0.007	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1413.31	-23.82
24	0.6901	1155.2	1175.7	1171.4	0.000	3.096	72.594	23.536	0.759	0.007	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1411.96	-24.41
25	0.6901	1155.7	1176.2	1171.5	0.000	3.060	72.594	23.589	0.742	0.007	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.63	-24.41
26	0.6905	1156.6	1177.1	1172.2	0.000	3.046	72.529	23.653	0.755	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1413.24	-24.13
27	0.6905	1156.7	1177.2	1172.6	0.000	3.043	72.504	23.694	0.743	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1413.36	-24.13
28	0.6896	1156.2	1176.6	1172.0	0.000	2.990	72.675	23.604	0.715	0.007	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1413.63	-24.58
29	0.6900	1156.3	1176.8	1172.0	0.000	3.014	72.628	23.593	0.748	0.007	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1413.46	-24.34
30	0.6891	1154.6	1175.1	1170.4	0.000	3.037	72.769	23.464	0.715	0.007	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.24	-24.96
31	0.6887	1154.1	1174.5	1170.1	0.000	3.035	72.838	23.405	0.706	0.007	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1411.96	-25.17
Avg	0.6896	1155.0	1175.6	1171.1	0.000	3.049	72.669	23.551	0.715	0.007	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.43	-24.73

Zone 33

Gas Composition and Properties

Effective June 1, 2016

Source #: 1202160
Name: BOWMAN BORDER

Component	Mole %	Liquid Content	Mass %
Carbon Dioxide, CO2	0.2321		0.6048
Nitrogen, N2	3.4604		5.7399
Methane, C1	94.0188		89.3085
Ethane, C2	1.9955	0.5321	3.5530
Propane, C3	0.2261	0.0621	0.5904
iso-Butane, iC4	0.0203	0.0066	0.5904
n-Butane, nC4	0.0216	0.0068	0.0743
iso-Pentane, iC5	0.0028	0.0010	0.0120
n-Pentane, nC5	0.0020	0.0007	0.0085
Neo-Pentane, NeoC5			
Hexanes Plus, C6+	0.0000	0.0000	0.0000
Water, H2O			
Hydrogen Sulfide, H2S			
Oxygen, O2	0.0204		
Carbon Monoxide, CO			
Hydrogen, H2			
Helium, He			
Argon, Ar			

Property	Total Sample	C6 Plus Fraction
Pressure Base	14.730	
Temperature Base	60.00	
HCDP @ Sample Pressure		
Cricondentherm		
HV, Dry @ Base P, T	996.12	
HV, Sat @ Base P, T	978.78	
HV, Sat @ Sample P, T	996.12	
Relative Density	0.5840	

C6+: 100

Totals 100.0000 0.6100 100.4818

Sample		
Date: 07/01/2016	Pressure:	380.0
Type: Spot	Temperature:	
Tech: MG	H2O:	lbs/mm
	H2S:	ppm
Remarks:		

Analysis		
Date: 07/05/2016	Instrument:	WBI- 447
	Cylinder:	100
Tech: MB		
Remarks: Inactive		

Zone 34

Source Daily Summary

v

May 2018

Number: 471

Pressure Base: 14.730

Contract Day:

Name: SPRING CREEK I - SAX VALVE I

Temperature Base:

Contract Hour: 9

Day	Relative Density	Heating Value Wet	Heating Value Dry	Heating Value As Del	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.6904	1136.0	1156.1	1153.1	0.987	2.793	73.267	22.466	0.479	0.004	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1388.20	-27.53
2	0.6908	1137.0	1157.2	1154.2	0.986	2.774	73.214	22.502	0.512	0.005	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1388.99	-27.10
3	0.6940	1143.0	1163.2	1160.2	0.974	2.731	72.613	23.103	0.563	0.006	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1393.03	-25.10
4	0.6972	1147.5	1167.9	1164.8	0.971	2.752	72.318	23.033	0.901	0.010	0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1395.43	-22.27
5	0.6965	1146.6	1166.9	1163.9	0.971	2.746	72.346	23.122	0.790	0.009	0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1394.97	-22.99
6	0.6977	1148.3	1168.6	1165.6	0.974	2.753	72.246	23.067	0.935	0.010	0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1395.79	-21.89
7	0.6897	1134.4	1154.5	1151.5	0.987	2.821	73.649	21.816	0.718	0.005	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1386.97	-27.12
8	0.6838	1124.4	1144.3	1141.3	1.000	2.862	74.752	20.751	0.625	0.004	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1380.57	-30.71
9	0.6933	1140.8	1161.0	1157.8	0.984	2.778	73.096	22.230	0.891	0.008	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1391.13	-24.41
10	0.6965	1146.1	1166.4	1163.4	0.976	2.767	72.325	23.139	0.771	0.009	0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1394.39	-23.14
11	0.6872	1130.4	1150.4	1147.4	0.997	2.820	74.123	21.375	0.670	0.005	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1384.47	-28.60
12	0.6940	1142.2	1162.5	1159.5	0.982	2.763	72.670	22.954	0.615	0.006	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1392.14	-25.04
13	0.7019	1155.4	1175.8	1172.8	0.965	2.722	71.682	23.383	1.223	0.010	0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1400.27	-18.83
14	0.6941	1142.5	1162.7	1159.7	0.978	2.763	72.542	23.194	0.510	0.005	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1392.35	-25.37
15	0.6953	1144.3	1164.6	1161.6	0.977	2.767	72.256	23.506	0.480	0.005	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1393.39	-24.82
16	0.6918	1138.4	1158.6	1155.6	0.988	2.781	72.913	22.886	0.424	0.003	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1389.68	-26.99
17	0.6854	1127.4	1147.4	1144.4	1.003	2.821	74.107	21.772	0.290	0.002	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1382.73	-31.03
18	0.6892	1134.1	1154.2	1151.2	0.994	2.786	73.421	22.407	0.381	0.004	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1387.07	-28.56
19	0.6905	1136.1	1156.2	1153.2	0.989	2.794	73.063	22.855	0.291	0.003	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1388.20	-28.18
20	0.6886	1132.8	1152.8	1149.8	0.993	2.812	73.423	22.496	0.269	0.002	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1386.06	-29.33
21	0.6819	1121.4	1141.3	1138.4	1.013	2.847	74.723	21.210	0.203	0.001	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1378.88	-33.37
22	0.6867	1127.9	1147.9	1144.9	0.997	2.927	73.858	21.868	0.345	0.002	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1381.99	-30.40
23	0.6972	1141.2	1161.4	1158.4	0.968	3.146	71.836	23.530	0.502	0.007	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1387.76	-24.58
24	0.6989	1148.8	1169.2	1166.1	0.967	2.843	71.834	23.547	0.787	0.009	0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1395.28	-22.02
25	0.7047	1159.8	1180.3	1177.2	0.961	2.721	71.527	23.119	1.650	0.010	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1402.80	-16.17
26	0.7027	1156.5	1177.0	1173.9	0.963	2.741	71.614	23.313	1.351	0.008	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1400.71	-18.14
27	0.6938	1141.7	1161.9	1158.9	0.977	2.783	72.595	23.118	0.517	0.004	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1391.72	-25.56
28	0.6924	1138.5	1158.6	1155.6	0.983	2.839	72.939	22.656	0.569	0.005	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1389.18	-26.21
29	0.6916	1137.2	1157.4	1154.3	0.987	2.832	73.271	22.162	0.736	0.005	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1388.45	-26.08
30	0.6889	1132.9	1153.0	1150.0	0.991	2.836	73.554	22.142	0.466	0.004	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1385.92	-28.45
31	0.6946	1143.2	1163.4	1160.4	0.977	2.767	72.565	23.044	0.627	0.008	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1392.73	-24.61
Avg	0.6930	1140.0	1160.1	1157.1	0.983	2.803	72.914	22.638	0.648	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1390.36	-25.63

Zone 43

May-18

ZONE 550

MANDAN BORDER

01970

WBI - Mandan Border
WBI Meter #0202220

Weighted

Begin Date	End Date	NBPL - St Anthony			01970		BTU Zone 28	AVG BTU	
		MCF	DK	BTU	MCF	DK			
5/1/2018	5/2/2018				2261	2714	1.2004	1.200	5/1/2018
5/2/2018	5/3/2018				1553	1863	1.1992	1.199	5/2/2018
5/3/2018	5/4/2018				1229	1465	1.1935	1.194	5/3/2018
5/4/2018	5/5/2018				974	1149	1.1793	1.179	5/4/2018
5/5/2018	5/6/2018				932	1100	1.1810	1.181	5/5/2018
5/6/2018	5/7/2018				953	1124	1.1786	1.179	5/6/2018
5/7/2018	5/8/2018				940	1094	1.1639	1.164	5/7/2018
5/8/2018	5/9/2018				1097	1282	1.1687	1.169	5/8/2018
5/9/2018	5/10/2018				1218	1435	1.1786	1.179	5/9/2018
5/10/2018	5/11/2018				2237	2647	1.1832	1.183	5/10/2018
5/11/2018	5/12/2018				1928	2268	1.1763	1.176	5/11/2018
5/12/2018	5/13/2018				1381	1623	1.1756	1.176	5/12/2018
5/13/2018	5/14/2018				1046	1233	1.1785	1.179	5/13/2018
5/14/2018	5/15/2018				1048	1236	1.1792	1.179	5/14/2018
5/15/2018	5/16/2018				1018	1200	1.1792	1.179	5/15/2018
5/16/2018	5/17/2018				984	1045	1.0654	1.065	5/16/2018
5/17/2018	5/18/2018				1175	1291	1.0999	1.100	5/17/2018
5/18/2018	5/19/2018				1771	1981	1.1197	1.120	5/18/2018
5/19/2018	5/20/2018				1290	1428	1.1014	1.101	5/19/2018
5/20/2018	5/21/2018				1148	1340	1.1668	1.167	5/20/2018
5/21/2018	5/22/2018				987	1178	1.1939	1.194	5/21/2018
5/22/2018	5/23/2018				895	1075	1.2016	1.202	5/22/2018
5/23/2018	5/24/2018				918	1099	1.1987	1.199	5/23/2018
5/24/2018	5/25/2018				902	1076	1.1936	1.194	5/24/2018
5/25/2018	5/26/2018				796	942	1.1841	1.184	5/25/2018
5/26/2018	5/27/2018				718	847	1.1787	1.179	5/26/2018
5/27/2018	5/28/2018				751	882	1.1744	1.174	5/27/2018
5/28/2018	5/29/2018				841	987	1.1737	1.174	5/28/2018
5/29/2018	5/30/2018				906	1065	1.1754	1.175	5/29/2018
5/30/2018	5/31/2018				897	1080	1.2034	1.203	5/30/2018
5/31/2018	6/1/2018				886	1041	1.1754	1.175	5/31/2018
		0	0	#DIV/0!	35,680	41,790	1.1717	1.1717	



Alliance Pipeline

DAILY ANALYSIS — USA
 ND07MD1 — Hankinson Sales
 May 2018

DAY	Heating Value (BTU/ft3)	Relative Density	C1 Mol%	C2 Mol%	C3 Mol%	IC4 Mol%	NC4 Mol%	IC5 Mol%	NC5 Mol%	C6+ Mol%	N2 Mol%	CO2 Mol%	HeI Mol%
1	1,160.974	0.6719	82.8627	9.8537	4.0535	0.3851	0.7315	0.0534	0.0448	0.0251	1.5323	0.4472	0.0107
2	1,146.831	0.6595	84.6095	9.0550	3.6050	0.3409	0.5923	0.0511	0.0431	0.0245	1.2307	0.4369	0.0110
3	1,145.898	0.6564	84.9463	9.1865	3.4013	0.3306	0.5498	0.0512	0.0443	0.0278	1.0474	0.4034	0.0114
4	1,141.265	0.6537	85.4375	8.7860	3.3724	0.3173	0.5047	0.0535	0.0458	0.0283	0.9814	0.4613	0.0118
5	1,147.237	0.6589	84.8832	8.8488	3.5937	0.3547	0.6036	0.0586	0.0490	0.0290	1.0928	0.4754	0.0110
6	1,148.504	0.6593	84.8523	8.8598	3.6288	0.3612	0.6128	0.0585	0.0490	0.0286	1.0775	0.4608	0.0106
7	1,150.513	0.6602	84.7630	8.8941	3.6921	0.3672	0.6299	0.0575	0.0478	0.0292	1.0622	0.4468	0.0103
8	1,148.304	0.6578	85.0843	8.8270	3.5439	0.3615	0.6161	0.0580	0.0489	0.0305	0.9836	0.4353	0.0110
9	1,147.556	0.6580	85.0162	8.8272	3.5570	0.3575	0.6107	0.0574	0.0486	0.0296	1.0481	0.4366	0.0110
10	1,144.894	0.6562	85.2010	8.8066	3.4276	0.3496	0.5930	0.0561	0.0482	0.0302	1.0341	0.4424	0.0113
11	1,146.097	0.6574	85.0612	8.8290	3.4948	0.3537	0.6058	0.0554	0.0476	0.0304	1.0657	0.4453	0.0112
12	1,147.807	0.6583	84.8991	8.9651	3.5429	0.3566	0.5993	0.0552	0.0463	0.0279	1.0530	0.4435	0.0109
13	1,146.726	0.6578	84.9598	8.9197	3.5404	0.3497	0.5834	0.0545	0.0455	0.0278	1.0532	0.4554	0.0107
14	1,148.658	0.6584	84.9001	8.9725	3.5672	0.3558	0.6072	0.0545	0.0454	0.0264	1.0263	0.4340	0.0106
15	1,146.846	0.6575	85.0724	8.8456	3.5224	0.3514	0.6065	0.0545	0.0454	0.0266	0.9980	0.4666	0.0106
16	1,146.466	0.6573	85.1321	8.7702	3.5381	0.3521	0.6055	0.0543	0.0452	0.0263	1.0001	0.4656	0.0106
17	1,145.147	0.6571	85.1490	8.7188	3.5038	0.3534	0.6114	0.0551	0.0450	0.0270	1.0477	0.4783	0.0104
18	1,145.963	0.6574	85.0520	8.8379	3.5044	0.3518	0.5964	0.0569	0.0468	0.0284	1.0576	0.4575	0.0103
19	1,144.864	0.6564	85.1567	8.8110	3.4679	0.3452	0.5856	0.0556	0.0453	0.0269	1.0510	0.4442	0.0105
20	1,150.835	0.6613	84.5264	9.0238	3.6843	0.3698	0.6605	0.0534	0.0447	0.0251	1.1748	0.4266	0.0105
21	1,151.682	0.6619	84.3850	9.1690	3.6948	0.3650	0.6436	0.0543	0.0467	0.0256	1.1797	0.4256	0.0107
22	1,151.052	0.6618	84.3066	9.2658	3.6886	0.3530	0.6134	0.0542	0.0459	0.0261	1.2035	0.4322	0.0107
23	1,149.724	0.6609	84.3288	9.3849	3.5819	0.3470	0.5879	0.0553	0.0470	0.0258	1.2000	0.4309	0.0106
24	1,149.884	0.6610	84.3646	9.3196	3.6055	0.3484	0.5875	0.0585	0.0493	0.0280	1.1940	0.4342	0.0106
25	1,149.570	0.6602	84.4961	9.2625	3.5702	0.3487	0.5984	0.0570	0.0483	0.0279	1.1548	0.4257	0.0105
26	1,143.297	0.6557	85.1191	8.9921	3.3557	0.3298	0.5439	0.0574	0.0482	0.0294	1.0468	0.4669	0.0106
27	1,147.997	0.6587	84.7931	9.0389	3.5651	0.3437	0.5872	0.0576	0.0489	0.0282	1.0979	0.4289	0.0104
28	1,150.333	0.6600	84.5772	9.2258	3.6003	0.3459	0.6005	0.0553	0.0467	0.0275	1.0816	0.4281	0.0110
29	1,152.564	0.6618	84.3481	9.3376	3.6554	0.3558	0.6138	0.0605	0.0505	0.0283	1.0978	0.4413	0.0111
30	1,151.439	0.6614	84.3889	9.3034	3.6278	0.3559	0.6027	0.0625	0.0505	0.0294	1.1213	0.4471	0.0105
31	1,151.108	0.6614	84.3908	9.2960	3.6114	0.3561	0.6090	0.0629	0.0496	0.0295	1.1424	0.4423	0.0100
Volume	1,148.135	0.6589	84.8010	9.0113	3.5626	0.3521	0.6009	0.0566	0.0473	0.0280	1.0844	0.4451	0.0107
Weight Avg Energy	1,148.141	0.6589	84.8002	9.0117	3.5628	0.3521	0.6010	0.0566	0.0473	0.0280	1.0845	0.4451	0.0107

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May-18

ZONE 610

Watford City

01325
Watford City West Border
WBI Meter #0602225

01312
Watford City East Border
WBI Meter #2702230

Weighted

Begin Date	End Date	MCF	DK	BTU Zone 25	MCF	DK	BTU Zone 43	AVG BTU	
5/1/2018	5/2/2018	201	240	1.192	213	246	1.156	1.173	5/1/2018
5/2/2018	5/3/2018	129	154	1.192	230	266	1.157	1.170	5/2/2018
5/3/2018	5/4/2018	55	65	1.192	204	238	1.163	1.169	5/3/2018
5/4/2018	5/5/2018	10	12	1.192	164	192	1.168	1.169	5/4/2018
5/5/2018	5/6/2018	5	6	1.192	139	162	1.167	1.168	5/5/2018
5/6/2018	5/7/2018	7	8	1.192	148	173	1.169	1.170	5/6/2018
5/7/2018	5/8/2018	5	6	1.192	117	135	1.155	1.157	5/7/2018
5/8/2018	5/9/2018	12	14	1.192	174	199	1.144	1.147	5/8/2018
5/9/2018	5/10/2018	66	79	1.192	193	225	1.161	1.169	5/9/2018
5/10/2018	5/11/2018	231	276	1.192	252	294	1.166	1.178	5/10/2018
5/11/2018	5/12/2018	186	221	1.192	225	258	1.150	1.169	5/11/2018
5/12/2018	5/13/2018	43	52	1.192	174	202	1.163	1.169	5/12/2018
5/13/2018	5/14/2018	16	19	1.192	159	187	1.176	1.177	5/13/2018
5/14/2018	5/15/2018	18	21	1.192	154	179	1.163	1.166	5/14/2018
5/15/2018	5/16/2018	5	6	1.192	139	162	1.165	1.166	5/15/2018
5/16/2018	5/17/2018	0	0	1.192	135	157	1.159	1.159	5/16/2018
5/17/2018	5/18/2018	13	16	1.192	175	201	1.147	1.150	5/17/2018
5/18/2018	5/19/2018	139	166	1.192	210	242	1.154	1.169	5/18/2018
5/19/2018	5/20/2018	40	47	1.192	168	195	1.156	1.163	5/19/2018
5/20/2018	5/21/2018	24	28	1.192	152	175	1.153	1.158	5/20/2018
5/21/2018	5/22/2018	9	10	1.192	139	159	1.141	1.144	5/21/2018
5/22/2018	5/23/2018	1	1	1.192	146	167	1.148	1.148	5/22/2018
5/23/2018	5/24/2018	3	3	1.192	131	152	1.161	1.162	5/23/2018
5/24/2018	5/25/2018	8	10	1.192	129	150	1.169	1.170	5/24/2018
5/25/2018	5/26/2018	1	1	1.192	115	136	1.180	1.180	5/25/2018
5/26/2018	5/27/2018	0	0	1.192	116	137	1.177	1.177	5/26/2018
5/27/2018	5/28/2018	0	0	1.192	117	136	1.162	1.162	5/27/2018
5/28/2018	5/29/2018	3	4	1.192	125	145	1.159	1.160	5/28/2018
5/29/2018	5/30/2018	3	3	1.192	126	146	1.157	1.158	5/29/2018
5/30/2018	5/31/2018	2	2	1.192	130	150	1.153	1.154	5/30/2018
5/31/2018	6/1/2018	21	25	1.192	168	195	1.163		5/31/2018
		1,256	1,495		4,967	5,761	1.1601	1.1644	

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	Changestimestamp	NOTES
11587	GLEN ULLIN	1082.4	0.6283	1365.5	-58.2	1.5449	0.862	86.0729	10.5002	0.8083	0.0212	0.0132	0.0002	0.0003	0	0	0.1601	0.0163	4/30/2018	5/1/2018	5/1/2018 3:23:25 PM	
11587	GLEN ULLIN	1081.4	0.6288	1363.7	-59	1.66	0.8573	85.7571	10.8717	0.6238	0.025	0.0146	0.0011	0.0013	0	0	0.1708	0.0163	5/1/2018	5/2/2018	5/2/2018 3:24:14 PM	
11587	GLEN ULLIN	1079.4	0.6267	1363.4	-59.9	1.5883	0.8559	86.2221	10.5205	0.5944	0.0303	0.0181	0.002	0.0024	0	0.0004	0.153	0.0163	5/2/2018	5/3/2018	5/3/2018 3:24:02 PM	
11587	GLEN ULLIN	1085.7	0.6312	1366.5	-57.4	1.627	0.8613	85.2845	11.4	0.6162	0.0242	0.0138	0.001	0.0012	0	0	0.1547	0.0163	5/3/2018	5/4/2018	5/4/2018 3:24:13 PM	
11587	GLEN ULLIN	1091.5	0.6348	1370	-54.7	1.5953	0.8721	84.7145	11.9542	0.6855	0.0253	0.0141	0.0011	0.0012	0	0	0.1202	0.0163	5/4/2018	5/5/2018	5/5/2018 3:25:34 PM	
11587	GLEN ULLIN	1084.7	0.6304	1366.1	-57.7	1.6199	0.8564	85.4957	11.191	0.6399	0.0258	0.0143	0.0013	0.0014	0	0	0.1462	0.0163	5/5/2018	5/6/2018	5/6/2018 3:24:04 PM	
11587	GLEN ULLIN	1084.8	0.6314	1365.2	-56.4	1.6651	0.8837	85.3792	11.1177	0.7245	0.0311	0.017	0.0019	0.0019	0	0	0.1605	0.0163	5/6/2018	5/7/2018	5/7/2018 3:25:22 PM	
11587	GLEN ULLIN	1080.5	0.628	1363.5	-59.6	1.6015	0.8794	85.9784	10.714	0.6154	0.0255	0.0139	0.0014	0.0014	0	0	0.1508	0.0163	5/7/2018	5/8/2018	5/8/2018 3:26:08 PM	
11587	GLEN ULLIN	1078	0.6266	1361.8	-60.6	1.6189	0.8833	86.2619	10.406	0.614	0.0261	0.0142	0.0016	0.0015	0	0	0.1543	0.0163	5/8/2018	5/9/2018	5/9/2018 3:29:37 PM	
11587	GLEN ULLIN	1076.2	0.625	1361.3	-61.9	1.6042	0.8678	86.4812	10.2385	0.5806	0.0226	0.0127	0.001	0.0009	0	0	0.1726	0.0163	5/9/2018	5/10/2018	5/10/2018 3:27:03 PM	
11587	GLEN ULLIN	1081.4	0.6288	1363.7	-59.4	1.6238	0.8795	85.7813	10.9175	0.5894	0.0241	0.0135	0.0008	0.0008	0	0	0.1518	0.0163	5/10/2018	5/11/2018	5/11/2018 3:26:52 PM	
11587	GLEN ULLIN	1081.2	0.6285	1363.9	-57.8	1.5901	0.889	86.0008	10.628	0.6702	0.0359	0.0187	0.0027	0.0024	0	0.0009	0.1439	0.0163	5/11/2018	5/12/2018	5/12/2018 3:24:18 PM	
11587	GLEN ULLIN	1080.6	0.6285	1363	-59.3	1.6177	0.8969	85.8581	10.8331	0.5826	0.0245	0.0136	0.0013	0.0011	0	0.0005	0.1531	0.0163	5/12/2018	5/13/2018	5/13/2018 3:23:18 PM	
11587	GLEN ULLIN	1088	0.6332	1367.3	-55.1	1.6153	0.8985	85.1339	11.37	0.7779	0.0296	0.0167	0.0012	0.0013	0	0	0.1372	0.0163	5/13/2018	5/14/2018	5/14/2018 3:25:29 PM	
11587	GLEN ULLIN	1088	0.633	1367.5	-55.4	1.6286	0.8786	85.0467	11.5213	0.6989	0.0321	0.0175	0.0018	0.0018	0	0	0.1572	0.0163	5/14/2018	5/15/2018	5/15/2018 3:25:17 PM	
11587	GLEN ULLIN	1084.8	0.63	1366.7	-57.5	1.5306	0.8847	85.5836	11.1349	0.633	0.03	0.0161	0.002	0.0019	0	0.0002	0.166	0.0163	5/15/2018	5/16/2018	5/16/2018 3:27:26 PM	
11587	GLEN ULLIN	1083.2	0.6284	1366.5	-58.5	1.4821	0.8809	85.9386	10.8886	0.6039	0.0297	0.0172	0.002	0.0021	0	0.0003	0.1399	0.0164	5/16/2018	5/17/2018	5/17/2018 3:29:53 PM	
11587	GLEN ULLIN	1080.3	0.6259	1365.5	-61.5	1.4076	0.8832	86.6542	10.4465	0.5418	0.0248	0.0141	0.0013	0.0013	0	0	0.0108	0.0163	5/17/2018	5/18/2018	5/18/2018 3:33:20 PM	
11587	GLEN ULLIN	1080.9	0.6264	1365.8	-60.4	1.4676	0.8488	86.5482	10.502	0.5602	0.0285	0.0155	0.0023	0.0021	0	0.0007	0.01	0.0161	5/18/2018	5/19/2018	5/19/2018 3:27:21 PM	
11587	GLEN ULLIN	1086.2	0.6301	1368.3	-52.6	1.4882	0.8605	86.055	10.7547	0.7212	0.0494	0.0319	0.0053	0.0062	0	0.0031	0.01	0.0171	5/19/2018	5/20/2018	5/20/2018 3:26:29 PM	
11587	GLEN ULLIN	1081	0.627	1365.2	-60.4	1.4904	0.8653	86.4474	10.5531	0.5737	0.0268	0.0149	0.0018	0.0018	0	0.0002	0.01	0.0171	5/20/2018	5/21/2018	5/21/2018 3:27:54 PM	
11587	GLEN ULLIN	1080.7	0.627	1364.8	-60.4	1.4803	0.8865	86.4484	10.4976	0.5938	0.0275	0.0155	0.0017	0.0018	0	0.0001	0.0328	0.0155	5/21/2018	5/22/2018	5/22/2018 3:35:45 PM	
11587	GLEN ULLIN	1087.3	0.633	1366.6	-56.3	1.6813	0.8727	85.113	11.5191	0.6681	0.0266	0.015	0.0011	0.0011	0	0	0.0887	0.014	5/22/2018	5/23/2018	5/23/2018 3:28:00 PM	
11587	GLEN ULLIN	1085.1	0.6306	1366.5	-57.6	1.6182	0.851	85.412	11.2909	0.6109	0.0283	0.0155	0.0016	0.0015	0	0	0.154	0.014	5/23/2018	5/24/2018	5/24/2018 3:31:30 PM	
11587	GLEN ULLIN	1086.8	0.6319	1367.2	-56.4	1.623	0.8615	85.1723	11.4527	0.6561	0.029	0.0163	0.0016	0.0017	0	0	0.1691	0.014	5/24/2018	5/25/2018	5/25/2018 3:27:48 PM	
11587	GLEN ULLIN	1089.8	0.6344	1368.2	-53.1	1.6471	0.8839	84.9373	11.4006	0.8855	0.0368	0.0197	0.0023	0.0022	0	0.0001	0.1662	0.0145	5/25/2018	5/26/2018	5/26/2018 3:29:50 PM	
11587	GLEN ULLIN	1085	0.6313	1365.6	-56.2	1.6222	0.8979	85.3676	11.1059	0.7397	0.0326	0.0174	0.0018	0.0018	0	0	0.1953	0.017	5/26/2018	5/27/2018	5/27/2018 3:29:24 PM	
11587	GLEN ULLIN	1080.3	0.6281	1363.1	-59.4	1.5611	0.921	85.9535	10.7471	0.5778	0.0316	0.0163	0.0021	0.002	0	0.0001	0.1726	0.0169	5/27/2018	5/28/2018	5/28/2018 3:30:00 PM	
11587	GLEN ULLIN	1083.6	0.6304	1364.7	-55.8	1.6066	0.9093	85.5085	11.0425	0.6441	0.0413	0.022	0.0038	0.0037	0	0.0013	0.2	0.017	5/28/2018	5/29/2018	5/29/2018 3:32:57 PM	
11587	GLEN ULLIN	1081.6	0.6289	1363.9	-58.1	1.579	0.9088	85.7957	10.8215	0.6279	0.0352	0.0181	0.0026	0.0024	0	0.0002	0.1921	0.0168	5/29/2018	5/30/2018	5/30/2018 3:32:16 PM	
11587	GLEN ULLIN	1080	0.628	1362.8	-59.1	1.5834	0.9132	85.9847	10.6552	0.613	0.0316	0.0179	0.0021	0.0022	0	0.0002	0.1789	0.0169	5/30/2018	5/31/2018	5/31/2018 3:32:00 PM	
11587	GLEN ULLIN	1079.5	0.6275	1362.7	-59.7	1.5798	0.906	86.0824	10.5986	0.5995	0.0303	0.0165	0.002	0.002	0	0	0.1661	0.0169	5/31/2018	6/1/2018	6/1/2018 3:31:31 PM	

32 record(s) retrieved

Handwritten: 10/20/18

NORTH DAKOTA HEATING VALUE ZONES		
ZONES	MEASURING DEVICE	LOCATION
211	Chromatograph	Sidney Border
24	Monthly Sampler	Williston Border
241	Monthly Sampler	Fairview Border
25	Monthly Sampler	Watford City West Border
260	Chromatograph	North Tioga Transfer
261	Chromatograph	Tioga Comp Station – Robinson Lake Plant
262	Chromatograph	Minot Border
263	Monthly Sampler	Lignite Plant
264	Monthly Sampler	Epping Border
265	Chromatograph	Tioga Comp Station – County Line Plant
271	Chromatograph	Bismarck – Cleveland
272	Chromatograph	Cleveland – Mapleton
273	Chromatograph	Cleveland – Grafton
28	Chromatograph	Bismarck Station
31	Chromatograph	Dickinson Border
32	Chromatograph	Cabin Creek Station
33	Chromatograph	Little Knife Plant
34	Monthly Sampler	Bowman Border
43	Chromatograph	Spring Creek
550	Monthly Sampler & Chromatograph	Mandan Border
600	Chromatograph	Hankinson Area
610	Monthly Sampler & Chromatograph	Watford City
802	Chromatograph	Linton

MONTANA DAKOTA UTILITIES CO
NORTH DAKOTA
HEATING VALUE DATA

STATE	ZONE	ZONE BOUNDARY	12 MONTH AVERAGE	MAY 18	APRIL 18	MARCH 18	FEB 18	JAN 18	DEC 17	NOV 17	OCT 17	SEPT 17	AUG 17	JULY 17	JUNE 17	ZONE
MT/ND	211	Sidney Border - MonDak Tfr - Sidney Plt	1198	1193	1191	1211	1195	1185	1193	1210	1201	1200	1204	1201	1191	211
ND	24	Williston Border - Charbonneau Station	1141	1135	1136	1140	1140	1138	1143	1144	1144	1142	1142	1141	1141	24
ND	25	Watford City West Border	1189	1192	1185	1179	1184	1174	1165	1169	1204	1205	1202	1206	1204	25
ND	28	Bismarck Station - Glen Ullin Station	1152	1172	1163	1121	1098	1096	1114	1111	1173	1196	1195	1194	1188	28
ND	31	Dickinson Brd - Belfield Trf - G Ullin Stn	1132	1158	1134	1122	1102	1095	1111	1110	1132	1100	1169	1179	1171	31
ND/MT	32	Cabin Creek Station - Belfied Transfer	1109	1113	1116	1104	1080	1072	1096	1090	1113	1103	1136	1157	1122	32
ND	33	Little Knife Plant	1176	1176	1175	1175	1176	1175	1174	1174	1174	1177	1181	1180	1177	33
ND	34	Bowman Border	996	996	996	996	996	996	996	996	996	996	996	996	996	34
ND	43	Spring Creek I - Sax Valve I	1151	1160	1164	1158	1148	1153	1165	1158	1143	1147	1151	1141	1126	43
ND/MT	241	Fairview Border	1183	1168	1151	1205	1206	1203	1190	1204	1196	1175	1169	1165	1161	241
ND	260	North Tioga Transfer - Nesson Plant	1002	989	989	987	986	1021	998	992	996	987	993	1002	1087	260
ND	261	Tioga Comp Station - Robinson Lake Plan	1174	1169	1176	1173	1171	1173	1167	1170	1176	1175	1177	1183	1181	261
ND	262	Minot Bdr - Palermo Bdr - Bismarck Stn	1193	1180	1198	1199	1191	1193	1196	1190	1194	1196	1195	1193	1189	262
ND	263	Lignite Plant	1132	1128	1135	1115	1135	1114	1120	1143	1141	1123	1143	1146	1135	263
ND	264	Epping Border	1136	1129	1128	1118	1144	1161	1142	1133	1134	1136	1133	1138	1133	264
ND	265	Tioga Comp Station - County Line Plant	1175	1175	1176	1173	1171	1174	1167	1170	1176	1176	1177	1184	1181	265
ND	266	County Line Plant	1184	1180	1181	1182	1185	1183	1181	1184	1185	1189	1184	1191	1183	266
ND	271	Bismarck Station - Cleveland Station	1183	1173	1194	1187	1159	1161	1176	1179	1192	1196	1195	1194	1188	271
ND	272	Cleveland Station - Mapleton	1183	1172	1194	1187	1158	1160	1177	1179	1192	1196	1195	1193	1188	272
ND	273	Cleveland Station - Grafton Border	1183	1171	1192	1187	1158	1160	1177	1179	1192	1196	1195	1194	1189	273
ND	550	Mandan Border / NBPL-St Anthony		1172	1163	1100	1090	1088	1099	1093						550
ND	610	MDU-Watford City BTU	1174	1164	1174	1170	1168	1164	1165	1165	1189	1190	1183	1185	1176	610
ND	802	Linton	1068	1083	1074	1069	1068	1069	1073	1075	1064	1065	1062	1057	1054	802
ND	903	Hettinger Propane	2549	2549	2549	2549	2549	2549	2549	2549	2549	2549	2549	2549	2549	903

**THERMAL ZONE VARIANCE
DOCUMENTATION**

May 2018

<i>ZONE</i>	<i>BTU VARIANCE</i>	<i>REASON</i>
31	24	Operational Change
271	-21	Operational Change
272	-22	Operational Change
273	-21	Operational Change