



UTILITIES CO.

A Division of MDU Resources Group, Inc.

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

December 19, 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 – October 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 November 2018.
2. Attachment B consists of copies of the monthly Heating Value Test Reports received from our suppliers for the month of October 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 October 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
Nov-18

<u>Town</u>	<u>Heat Zone</u>	<u>Therm Factor</u>
MDU-303-ALEXANDER	025	1.1334
MDU-308-ARNEGARD	025	1.1334
MDU-314-APPLE VALLEY	271	1.1318
MDU-318-BEACH	032	1.0221
MDU-319-BELFIELD	032	1.0296
MDU-323-BERTHOLD	262	1.1098
MDU-324-BEULAH	032	1.0296
MDU-327-BISMARCK	028	1.1318
MDU-330-BOWMAN	034	0.9546
MDU-337-BURLINGTON	262	1.1337
MDU-343-CARRINGTON	273	1.1318
MDU-344-CLEVELAND	272	1.1238
MDU-364-CAVALIER	273	1.1557
MDU-365-DAWSON	271	1.1238
MDU-368-DES LACS	262	1.1178
MDU-369-DICKINSON	031	1.0727
MDU-374-FT TOTTEN	273	1.1398
MDU-375-DEVILS LAKE	273	1.1398
MDU-379-BARLOW	273	1.1318
MDU-384-EPPING	264	1.0720
MDU-387-ELDRIDGE	272	1.1318
MDU-407-GLADSTONE	031	1.0727
MDU-411-GLEN ULLIN	031	1.0805
MDU-413-GOLVA	032	1.0071
MDU-416-GARRISON	262	1.1178
MDU-417-GRAFTON	273	1.1636
MDU-429-HEBRON	031	1.0805
MDU-432-HETTINGER	903	2.3875
MDU-449-JAMESTOWN	272	1.1398
MDU-459-KILLDEER	033	1.1070
MDU-463-LANGDON	273	1.1318
MDU-469-LEFOR	031	1.0727
MDU-474-LIGNITE	263	1.0902
MDU-475-LINTON	802	1.0585
MDU-478-LINCOLN	028	1.1318
MDU-488-MCKENZIE	271	1.1318
MDU-494-MEDINA	271	1.1238
MDU-498-MANDAN	028	1.1318
MDU-500-MARMARTH	034	0.9408
MDU-505-MINOT	262	1.1337
MDU-510-MOTT	031	1.0727
MDU-512-MAX	262	1.1337
MDU-522-NEW ENGLAND	031	1.0650
MDU-524-NEW SALEM	028	1.1318
MDU-532-NEW ROCKFORD	273	1.1318
MDU-539-PARK RIVER	273	1.1557
MDU-540-PALERMO	262	1.1098
MDU-558-RAY	264	1.0720
MDU-561-REGENT	031	1.0727

MDU-563-RHAME	034	0.9269
MDU-564-RICHARDTON	031	1.0650
MDU-568-ROSS	261	1.1074
MDU-572-RUTHVILLE	262	1.1337
MDU-574-SANBORN	272	1.1398
MDU-583-SENTINEL BUTTE	032	1.0221
MDU-588-SOUTH HEART	031	1.0650
MDU-717-SPIRITWOOD	272	1.1398
MDU-590-SPRINGBROOK	264	1.0720
MDU-591-STANLEY	261	1.1235
MDU-593-STEELE	271	1.1238
MDU-594-STERLING	028	1.1318
MDU-598-SHEYENNE	273	1.1398
MDU-605-SURREY	262	1.1337
MDU-610-TAPPEN	271	1.1238
MDU-611-TAYLOR	031	1.0650
MDU-616-TIOGA	260	1.0502
MDU-619-TURTLE LAKE	262	1.1178
MDU-620-TRENTON	024	1.0959
MDU-624-UNDERWOOD	262	1.1178
MDU-625-VALLEY CITY	272	1.1477
MDU-629-WALHALLA	273	1.1557
MDU-632-WATFORD CITY	610	1.1155
MDU-636-WHEELOCK	264	1.0643
MDU-637-WHITE EARTH	261	1.1155
MDU-642-WILLISTON	024	1.0959
MDU-646-WASHBURN	262	1.1257
MDU-647-WILTON	262	1.1098
MDU-664-RIVERDALE	262	1.1178
MDU-691-FAIRVIEW	241	1.1282
MDU-712-MINOT AFB	262	1.1337
MDU-718-FAIRMOUNT	600	1.1405
MDU-732-NEKOMA	273	1.1318
MDU-732-MSR SITE	273	1.1318

Source Daily Summary

October 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	0.7302	1187.7	1208.8	1205.1	0.902	3.493	68.744	22.999	3.470	0.129	0.237	0.014	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1411.28
2	0.7433	1194.1	1215.2	1211.4	1.313	3.705	67.553	22.712	4.099	0.196	0.376	0.024	0.020	0.000	0.000	0.000	0.000	0.000	0.000	1406.06
3	0.7149	1191.5	1212.6	1209.1	0.111	3.021	70.768	22.450	3.414	0.085	0.139	0.006	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1430.89
4	0.7272	1186.2	1207.2	1203.6	0.773	3.501	69.601	21.905	3.801	0.140	0.255	0.013	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1412.31
5	0.7320	1173.8	1194.5	1190.9	1.305	3.896	69.263	21.275	3.733	0.172	0.322	0.019	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1392.78
6	0.7350	1179.3	1200.2	1196.5	1.317	3.819	68.534	22.202	3.615	0.166	0.312	0.019	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1396.55
7	0.7380	1185.3	1206.3	1202.6	1.321	3.731	67.935	22.868	3.650	0.160	0.301	0.018	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1400.79
8	0.7377	1184.8	1205.8	1202.1	1.329	3.724	67.936	22.930	3.593	0.159	0.298	0.018	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1400.46
9	0.7376	1184.4	1205.4	1201.7	1.328	3.739	67.962	22.871	3.624	0.156	0.290	0.017	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1400.09
10	0.7374	1184.2	1205.1	1201.4	1.327	3.735	67.970	22.890	3.605	0.154	0.288	0.017	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1400.02
11	0.7334	1179.6	1200.5	1196.8	1.289	3.697	68.605	22.482	3.456	0.152	0.287	0.017	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1398.39
12	0.7345	1180.4	1201.3	1197.6	1.300	3.733	68.482	22.486	3.511	0.157	0.297	0.018	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1398.27
13	0.7368	1184.0	1205.0	1201.3	1.305	3.726	68.090	22.758	3.661	0.151	0.279	0.016	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1400.35
14	0.7375	1184.5	1205.5	1201.8	1.319	3.742	67.878	23.033	3.563	0.153	0.284	0.016	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1400.25
15	0.7361	1184.8	1205.7	1201.9	1.267	3.673	68.374	22.444	3.749	0.157	0.300	0.019	0.016	0.000	0.000	0.000	0.000	0.000	0.000	1401.83
16	0.7311	1177.4	1198.2	1194.5	1.260	3.657	69.117	21.996	3.482	0.157	0.297	0.018	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1397.99
17	0.7397	1188.5	1209.5	1205.8	1.322	3.699	67.923	22.639	3.856	0.180	0.342	0.021	0.018	0.000	0.000	0.000	0.000	0.000	0.000	1402.88
18	0.7373	1184.3	1205.2	1201.5	1.328	3.724	68.130	22.630	3.669	0.166	0.315	0.019	0.016	0.000	0.000	0.000	0.000	0.000	0.000	1400.18
19	0.7383	1185.5	1206.5	1202.9	1.329	3.732	68.024	22.649	3.743	0.169	0.318	0.019	0.016	0.000	0.000	0.000	0.000	0.000	0.000	1400.82
20	0.7375	1184.3	1205.3	1201.6	1.329	3.738	68.036	22.747	3.646	0.163	0.306	0.019	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1400.06
21	0.7375	1184.6	1205.6	1201.8	1.328	3.723	68.054	22.731	3.669	0.159	0.302	0.018	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1400.33
22	0.7292	1175.4	1196.2	1192.4	1.241	3.632	69.370	21.870	3.435	0.145	0.276	0.017	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1397.41
23	0.7390	1186.8	1207.9	1204.1	1.327	3.723	67.898	22.774	3.757	0.167	0.317	0.020	0.016	0.000	0.000	0.000	0.000	0.000	0.000	1401.62
24	0.7355	1180.4	1201.3	1197.5	1.314	3.806	68.446	22.285	3.646	0.162	0.306	0.019	0.016	0.000	0.000	0.000	0.000	0.000	0.000	1397.31
25	0.7309	1172.4	1193.1	1189.4	1.296	3.894	69.432	21.159	3.692	0.170	0.321	0.019	0.016	0.000	0.000	0.000	0.000	0.000	0.000	1392.14
26	0.7292	1170.9	1191.6	1187.9	1.277	3.853	69.678	21.049	3.633	0.164	0.310	0.019	0.016	0.000	0.000	0.000	0.000	0.000	0.000	1391.99
27	0.7289	1169.6	1190.3	1186.7	1.289	3.886	69.758	20.908	3.647	0.165	0.312	0.019	0.016	0.000	0.000	0.000	0.000	0.000	0.000	1390.75
28	0.7306	1171.9	1192.7	1189.0	1.293	3.895	69.488	21.107	3.694	0.169	0.318	0.019	0.016	0.000	0.000	0.000	0.000	0.000	0.000	1391.92
29	0.6931	1135.9	1156.0	1152.4	0.856	3.236	75.308	17.714	2.540	0.102	0.212	0.015	0.016	0.000	0.000	0.000	0.000	0.000	0.000	1385.15
30	0.7382	1184.4	1205.4	1201.7	1.332	3.789	68.421	21.839	4.068	0.181	0.333	0.020	0.017	0.000	0.000	0.000	0.000	0.000	0.000	1399.47
31	0.7395	1187.6	1208.6	1204.9	1.328	3.728	67.676	23.088	3.674	0.164	0.308	0.018	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1401.97
Avg	0.7331	1181.0	1201.7	1198.0	1.224	3.698	68.789	22.177	3.626	0.157	0.295	0.018	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1400.07

Zone 211

Source Daily Summary

October 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	0.6829	1126.8	1146.7	1143.2	0.742	3.001	76.768	17.105	2.100	0.078	0.172	0.015	0.019	0.000	0.000	0.000	0.000	0.000	0.000	1384.33
2	0.6821	1125.3	1145.3	1141.8	0.735	3.026	76.883	16.978	2.108	0.075	0.165	0.014	0.017	0.000	0.000	0.000	0.000	0.000	0.000	1383.38
3	0.7060	1163.1	1183.7	1180.0	0.967	2.618	72.760	20.832	2.527	0.084	0.180	0.014	0.017	0.000	0.000	0.000	0.000	0.000	0.000	1405.43
4	0.6739	1115.1	1134.8	1131.5	0.683	2.960	78.198	16.034	1.902	0.063	0.135	0.011	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1379.07
5	0.6733	1112.0	1131.7	1128.4	0.697	3.062	78.461	15.573	1.955	0.070	0.153	0.013	0.016	0.000	0.000	0.000	0.000	0.000	0.000	1375.97
6	0.6765	1117.2	1137.0	1133.6	0.713	3.033	77.907	16.060	2.022	0.073	0.161	0.014	0.017	0.000	0.000	0.000	0.000	0.000	0.000	1378.98
7	0.6756	1115.3	1135.0	1131.7	0.706	3.074	77.945	16.101	1.930	0.067	0.148	0.013	0.016	0.000	0.000	0.000	0.000	0.000	0.000	1377.57
8	0.6765	1116.6	1136.4	1133.0	0.699	3.088	77.858	16.094	1.994	0.073	0.162	0.014	0.017	0.000	0.000	0.000	0.000	0.000	0.000	1378.29
9	0.6765	1116.0	1135.8	1132.4	0.703	3.117	77.825	16.109	2.002	0.070	0.147	0.012	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1377.57
10	0.6773	1118.0	1137.8	1134.6	0.711	3.052	77.673	16.326	1.992	0.070	0.150	0.012	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1379.33
11	0.6771	1117.7	1137.5	1134.1	0.707	3.064	77.753	16.216	1.999	0.071	0.159	0.014	0.018	0.000	0.000	0.000	0.000	0.000	0.000	1379.04
12	0.6774	1118.1	1137.9	1134.6	0.698	3.076	77.840	16.005	2.088	0.080	0.179	0.015	0.019	0.000	0.000	0.000	0.000	0.000	0.000	1379.29
13	0.6764	1117.0	1136.8	1133.5	0.701	3.047	77.878	16.114	1.999	0.073	0.159	0.012	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1378.97
14	0.6759	1116.6	1136.4	1133.2	0.704	3.027	77.870	16.225	1.933	0.068	0.148	0.012	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1378.93
15	0.6711	1108.3	1127.9	1124.7	0.670	3.125	78.697	15.437	1.845	0.064	0.137	0.011	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1373.66
16	0.6716	1109.7	1129.3	1126.1	0.680	3.078	78.588	15.589	1.843	0.063	0.135	0.011	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1374.83
17	0.6751	1115.3	1135.0	1131.8	0.690	3.045	78.080	15.963	1.979	0.069	0.147	0.012	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1378.21
18	0.6753	1115.0	1134.7	1131.4	0.696	3.072	78.004	16.055	1.929	0.067	0.148	0.013	0.016	0.000	0.000	0.000	0.000	0.000	0.000	1377.61
19	0.6775	1117.8	1137.6	1134.4	0.715	3.079	77.522	16.535	1.916	0.066	0.141	0.011	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1378.91
20	0.6798	1121.4	1141.2	1137.9	0.735	3.047	77.160	16.849	1.962	0.069	0.150	0.012	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1380.92
21	0.6801	1122.1	1142.0	1138.7	0.730	3.037	77.074	16.958	1.962	0.068	0.146	0.011	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1381.57
22	0.6789	1120.6	1140.5	1137.1	0.722	3.035	77.293	16.760	1.949	0.069	0.147	0.012	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1380.84
23	0.6801	1122.2	1142.1	1138.7	0.725	3.044	77.117	16.875	1.987	0.071	0.154	0.012	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1381.60
24	0.6816	1124.7	1144.6	1141.2	0.738	3.015	76.900	17.052	2.028	0.074	0.162	0.013	0.017	0.000	0.000	0.000	0.000	0.000	0.000	1383.10
25	0.6806	1123.2	1143.1	1139.8	0.736	3.017	77.014	16.992	1.994	0.070	0.150	0.012	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1382.28
26	0.6802	1122.6	1142.5	1139.1	0.730	3.021	77.168	16.790	2.029	0.073	0.160	0.013	0.016	0.000	0.000	0.000	0.000	0.000	0.000	1381.99
27	0.6822	1126.0	1145.9	1142.6	0.730	3.005	76.764	17.214	2.021	0.073	0.162	0.014	0.017	0.000	0.000	0.000	0.000	0.000	0.000	1384.08
28	0.6776	1118.5	1138.3	1135.0	0.716	3.049	77.560	16.482	1.945	0.069	0.150	0.012	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1379.59
29	0.6822	1125.2	1145.1	1141.7	0.740	3.037	76.844	17.013	2.101	0.073	0.160	0.013	0.017	0.000	0.000	0.000	0.000	0.000	0.000	1383.09
30	0.6777	1120.1	1140.0	1136.7	0.694	2.993	77.511	16.594	1.981	0.066	0.138	0.011	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1381.51
31	0.6826	1126.3	1146.3	1142.9	0.744	2.999	76.854	17.001	2.105	0.081	0.181	0.016	0.020	0.000	0.000	0.000	0.000	0.000	0.000	1384.09
Avg	0.6788	1120.0	1140.3	1136.9	0.721	3.030	77.412	16.578	2.004	0.071	0.154	0.013	0.016	0.000	0.000	0.000	0.000	0.000	0.000	1380.78

Zone 24

Gas Composition and Properties

Effective October 1, 2018

Source #: 0602160
Name: FAIRVIEW BORDER

Component	Mole %	Liquid Content	Mass %
Carbon Dioxide, CO2	1.1251		2.4008
Nitrogen, N2	3.4530		4.6901
Methane, C1	71.8314		55.8740
Ethane, C2	20.1521	0.0000	29.3807
Propane, C3	3.0104	0.8270	6.4364
iso-Butane, iC4	0.1326	0.0433	0.3737
n-Butane, nC4	0.2531	0.0796	0.7133
iso-Pentane, iC5	0.0173	0.0063	0.0605
n-Pentane, nC5	0.0163	0.0059	0.0570
Neo-Pentane, NeoC5			
Hexanes Plus, C6+	0.0000	0.0000	0.0000
Water, H2O			
Hydrogen Sulfide, H2S			
Oxygen, O2	0.0087		0.0135
Carbon Monoxide, CO			
Hydrogen, H2			
Helium, He			
Argon, Ar			
Totals	100.0000	0.9620	100.0000

Property	Total Sample	C6 Plus Fraction
Pressure Base	14.730	
Temperature Base	60.00	
HCDP @ Sample Pressure	-19.507	
Cricondentherm	-3.136	
HV, Dry @ Base P, T	1175.36	
HV, Sat @ Base P, T	1154.91	
HV, Sat @ Sample P, T	1175.36	
Relative Density	0.7126	

C6+: 100

Sample		
Date: 11/01/2018	Pressure:	400.0
Type: Composite	Temperature:	0.0
Tech: RR	H2O:	lbs/mm
	H2S:	ppm
Remarks:		

Analysis		
Date: 11/02/2018	Instrument:	WBI-240
	Cylinder:	338
Tech: MB		
Remarks:		

Zone 241

Gas Composition and Properties

Effective October 1, 2018

Source #: 0602225
Name: WATFORD CITY WEST BORDER

Component	Mole %	Liquid Content	Mass %
Carbon Dioxide, CO2	1.1518		2.4179
Nitrogen, N2	3.0897		4.1286
Methane, C1	70.4794		53.9334
Ethane, C2	21.1058	5.6491	30.2721
Propane, C3	3.5171	0.9662	7.3978
iso-Butane, iC4	0.1903	0.0621	0.5276
n-Butane, nC4	0.3973	0.1250	1.1015
iso-Pentane, iC5	0.0309	0.0113	0.1063
n-Pentane, nC5	0.0300	0.0108	0.1032
Neo-Pentane, NeoC5			
Hexanes Plus, C6+	0.0000	0.0000	0.0000
Water, H2O			
Hydrogen Sulfide, H2S			
Oxygen, O2	0.0076		0.0116
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		
Cricodentherm		
HV, Dry @ Base P, T	1199.04	
HV, Sat @ Base P, T	1178.18	
HV, Sat @ Sample P, T	1199.04	
Relative Density	0.7243	
C6+: 100		

Totals 99.9999 6.8240 100.0000

Sample
Date: 11/01/2018 Pressure: 476.0
Type: Composite Temperature: 0.0
Tech: ES H2O: lbs/mm
H2S: ppm
Remarks:

Analysis
Date: 11/02/2018 Instrument: WBI- 241
Cylinder: 404
Tech: MB
Remarks:

Zone 25

Source Daily Summary

October 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	0.6606	1087.4	1106.6		0.525	3.641	80.448	13.521	1.595	0.069	0.160	0.016	0.019	0.006					1358.37	
2	0.6677	1098.8	1118.3		0.595	3.501	79.208	14.681	1.764	0.069	0.152	0.013	0.015	0.002					1365.41	
3	0.7078	1156.8	1177.3		0.952	3.200	72.077	21.135	2.340	0.084	0.180	0.014	0.016	0.002					1396.13	
4	0.6445	1065.1	1083.9		0.364	3.731	82.879	11.718	1.153	0.043	0.094	0.008	0.009	0.001					1347.05	
5	0.6480	1068.2	1087.1		0.471	3.711	82.591	11.640	1.386	0.054	0.122	0.010	0.012	0.002					1347.29	
6	0.6483	1068.2	1087.1		0.468	3.741	82.513	11.704	1.374	0.054	0.121	0.010	0.013	0.002					1347.04	
7	0.6503	1070.6	1089.6		0.484	3.760	82.044	12.195	1.328	0.051	0.113	0.010	0.012	0.003					1347.99	
8	0.6506	1070.9	1089.8		0.466	3.792	82.061	12.094	1.383	0.056	0.124	0.010	0.012	0.002					1348.07	
9	0.6526	1073.9	1092.9		0.497	3.757	81.531	12.723	1.329	0.047	0.099	0.008	0.009	0.002					1349.75	
10	0.6488	1067.7	1086.6		0.452	3.837	82.221	12.030	1.303	0.046	0.096	0.007	0.008	0.000					1345.97	
11	0.6484	1067.2	1086.1		0.444	3.850	82.396	11.787	1.334	0.051	0.113	0.010	0.012	0.005					1345.67	
12	0.6560	1079.5	1098.7		0.485	3.741	81.246	12.722	1.565	0.064	0.145	0.013	0.015	0.004					1353.39	
13	0.6577	1082.5	1101.6		0.517	3.682	80.828	13.230	1.529	0.060	0.131	0.010	0.012	0.002					1355.21	
14	0.6500	1071.4	1090.4		0.462	3.716	81.985	12.388	1.290	0.046	0.098	0.007	0.008	0.000					1349.30	
15	0.6503	1071.3	1090.3		0.472	3.733	81.923	12.433	1.283	0.045	0.096	0.007	0.008	0.001					1348.90	
16	0.6580	1083.6	1102.8		0.529	3.616	80.838	13.251	1.544	0.060	0.133	0.012	0.014	0.003					1356.38	
17	0.6560	1080.8	1099.9		0.502	3.644	81.134	13.001	1.518	0.057	0.122	0.010	0.011	0.002					1354.90	
18	0.6558	1080.0	1099.1		0.505	3.667	81.188	12.941	1.482	0.058	0.129	0.012	0.015	0.004					1354.13	
19	0.6592	1084.5	1103.7		0.542	3.659	80.399	13.772	1.447	0.051	0.109	0.009	0.010	0.001					1356.26	
20	0.6615	1087.9	1107.2		0.554	3.648	80.150	13.860	1.567	0.060	0.133	0.011	0.014	0.002					1358.17	
21	0.6610	1087.9	1107.2		0.548	3.611	80.085	14.087	1.491	0.053	0.109	0.008	0.009	0.001					1358.69	
22	0.6632	1091.0	1110.3		0.560	3.617	79.837	14.166	1.602	0.061	0.131	0.011	0.013	0.003					1360.19	
23	0.6613	1087.9	1107.1		0.541	3.654	80.205	13.784	1.590	0.062	0.137	0.011	0.013	0.002					1358.29	
24	0.6627	1090.1	1109.4		0.548	3.638	79.975	13.988	1.616	0.064	0.140	0.012	0.015	0.004					1359.67	
25	0.6609	1087.7	1107.0		0.539	3.625	80.226	13.848	1.553	0.060	0.127	0.010	0.011	0.001					1358.54	
26	0.6614	1088.6	1107.9		0.540	3.615	80.248	13.754	1.603	0.066	0.144	0.012	0.015	0.003					1359.15	
27	0.6632	1091.8	1111.2		0.519	3.624	79.822	14.215	1.578	0.065	0.144	0.012	0.015	0.003					1361.27	
28	0.6564	1080.6	1099.7		0.511	3.681	80.958	13.220	1.433	0.055	0.119	0.009	0.011	0.002					1354.25	
29	0.6627	1089.6	1108.9		0.550	3.658	80.047	13.835	1.680	0.062	0.139	0.012	0.015	0.003					1359.10	
30	0.6505	1073.9	1092.9		0.420	3.675	81.880	12.533	1.342	0.046	0.090	0.006	0.007	0.001					1351.92	
31	0.6597	1085.6	1104.9		0.534	3.648	80.626	13.342	1.576	0.072	0.165	0.015	0.018	0.004					1357.14	
Avg	0.6579	1083.0	1102.1		0.519	3.667	80.760	13.342	1.503	0.058	0.126	0.011	0.012	0.002					1355.60	

Zone 260

Source Daily Summary

October 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	0.7137	1169.3	1190.0	1186.5	0.893	3.071	71.618	21.225	2.755	0.118	0.268	0.023	0.030	0.000	0.000	0.000	0.000	0.000	1405.22	
2	0.7111	1164.3	1184.9	1181.4	0.916	3.098	72.000	20.934	2.642	0.110	0.249	0.022	0.028	0.000	0.000	0.000	0.000	0.000	1401.70	
3	0.7121	1166.7	1187.3	1183.8	0.888	3.092	71.829	21.068	2.713	0.112	0.249	0.022	0.028	0.000	0.000	0.000	0.000	0.000	1403.58	
4	0.7107	1162.5	1183.1	1179.8	0.929	3.156	71.808	21.190	2.586	0.096	0.203	0.015	0.017	0.000	0.000	0.000	0.000	0.000	1400.04	
5	0.7101	1161.5	1182.0	1178.7	0.931	3.160	71.932	21.073	2.571	0.095	0.204	0.015	0.019	0.000	0.000	0.000	0.000	0.000	1399.33	
6	0.7117	1163.6	1184.2	1180.9	0.951	3.151	71.774	21.103	2.664	0.100	0.218	0.017	0.021	0.000	0.000	0.000	0.000	0.000	1400.30	
7	0.7126	1165.0	1185.7	1182.3	0.947	3.145	71.776	20.988	2.750	0.107	0.241	0.020	0.026	0.000	0.000	0.000	0.000	0.000	1401.17	
8	0.7084	1158.9	1179.4	1176.0	0.935	3.148	72.126	21.051	2.426	0.088	0.191	0.016	0.020	0.000	0.000	0.000	0.000	0.000	1397.91	
9	0.7117	1164.4	1185.0	1181.6	0.919	3.148	71.776	21.143	2.633	0.104	0.232	0.019	0.025	0.000	0.000	0.000	0.000	0.000	1401.25	
10	0.7079	1158.0	1178.5	1175.2	0.930	3.171	72.129	21.068	2.407	0.085	0.179	0.014	0.017	0.000	0.000	0.000	0.000	0.000	1397.27	
11	0.7087	1159.7	1180.2	1177.0	0.910	3.169	72.076	21.011	2.533	0.089	0.185	0.012	0.015	0.000	0.000	0.000	0.000	0.000	1398.62	
12	0.7091	1159.9	1180.5	1177.1	0.916	3.183	72.088	20.951	2.532	0.092	0.200	0.017	0.021	0.000	0.000	0.000	0.000	0.000	1398.41	
13	0.7132	1166.8	1187.4	1184.0	0.917	3.147	71.716	21.003	2.803	0.112	0.251	0.022	0.028	0.000	0.000	0.000	0.000	0.000	1402.58	
14	0.7126	1165.8	1186.4	1183.1	0.932	3.129	71.615	21.289	2.664	0.103	0.227	0.018	0.022	0.000	0.000	0.000	0.000	0.000	1402.04	
15	0.7083	1158.9	1179.4	1176.1	0.938	3.140	71.942	21.366	2.344	0.079	0.165	0.012	0.014	0.000	0.000	0.000	0.000	0.000	1398.04	
16	0.7079	1158.8	1179.3	1176.0	0.913	3.145	72.048	21.238	2.379	0.081	0.169	0.012	0.014	0.000	0.000	0.000	0.000	0.000	1398.32	
17	0.7097	1161.3	1181.8	1178.4	0.930	3.137	71.925	21.191	2.497	0.090	0.194	0.016	0.020	0.000	0.000	0.000	0.000	0.000	1399.48	
18	0.7112	1164.4	1185.0	1181.5	0.902	3.130	71.884	21.016	2.709	0.102	0.218	0.017	0.022	0.000	0.000	0.000	0.000	0.000	1401.71	
19	0.7098	1161.3	1181.9	1178.4	0.916	3.161	72.065	20.917	2.591	0.096	0.210	0.018	0.024	0.000	0.000	0.000	0.000	0.000	1399.38	
20	0.7078	1158.4	1178.9	1175.6	0.909	3.158	72.173	21.049	2.406	0.086	0.186	0.015	0.018	0.000	0.000	0.000	0.000	0.000	1398.00	
21	0.7094	1160.5	1181.0	1177.7	0.929	3.162	71.928	21.197	2.470	0.090	0.192	0.015	0.018	0.000	0.000	0.000	0.000	0.000	1398.80	
22	0.7109	1163.4	1184.0	1180.7	0.918	3.139	71.698	21.392	2.528	0.093	0.198	0.015	0.018	0.000	0.000	0.000	0.000	0.000	1400.86	
23	0.7102	1161.9	1182.5	1179.1	0.922	3.153	71.822	21.281	2.507	0.091	0.191	0.014	0.018	0.000	0.000	0.000	0.000	0.000	1399.76	
24	0.7118	1164.0	1184.6	1181.2	0.917	3.189	71.679	21.231	2.628	0.101	0.218	0.016	0.021	0.000	0.000	0.000	0.000	0.000	1400.65	
25	0.7127	1165.2	1185.8	1182.3	0.911	3.207	71.650	21.146	2.695	0.107	0.237	0.020	0.026	0.000	0.000	0.000	0.000	0.000	1401.15	
26	0.7103	1161.5	1182.1	1178.7	0.915	3.201	71.803	21.234	2.525	0.093	0.197	0.014	0.018	0.000	0.000	0.000	0.000	0.000	1399.19	
27	0.7113	1162.9	1183.5	1180.1	0.907	3.215	71.902	20.915	2.672	0.109	0.238	0.019	0.023	0.000	0.000	0.000	0.000	0.000	1399.87	
28	0.7121	1164.2	1184.8	1181.3	0.920	3.199	71.711	21.143	2.642	0.106	0.234	0.019	0.025	0.000	0.000	0.000	0.000	0.000	1400.55	
29	0.7086	1158.8	1179.3	1176.0	0.889	3.242	72.216	20.767	2.528	0.100	0.218	0.018	0.022	0.000	0.000	0.000	0.000	0.000	1397.58	
30	0.7048	1152.4	1172.8	1169.5	0.877	3.297	72.776	20.269	2.487	0.084	0.179	0.014	0.018	0.000	0.000	0.000	0.000	0.000	1393.61	
31	0.7135	1166.6	1187.3	1183.9	0.911	3.198	71.559	21.134	2.819	0.106	0.232	0.018	0.023	0.000	0.000	0.000	0.000	0.000	1402.12	
Avg	0.7105	1162.0	1182.9	1179.5	0.917	3.163	71.905	21.083	2.584	0.098	0.212	0.017	0.021	0.000	0.000	0.000	0.000	0.000	1399.95	

Zone 261

Source Daily Summary

October 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	0.7308	1152.8	1173.2	1170.0	0.885	5.692	69.052	19.686	4.299	0.123	0.246	0.008	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1369.27
2	0.7293	1150.8	1171.1	1167.9	0.897	5.661	69.220	19.687	4.158	0.116	0.242	0.009	0.009	0.000	0.000	0.000	0.000	0.000	0.000	1368.20
3	0.7313	1149.2	1169.6	1166.4	0.906	5.929	68.896	19.608	4.287	0.117	0.243	0.008	0.007	0.000	0.000	0.000	0.000	0.000	0.000	1364.51
4	0.7386	1173.6	1194.4	1191.0	0.905	5.130	68.153	20.700	4.595	0.151	0.330	0.017	0.019	0.000	0.000	0.000	0.000	0.000	0.000	1386.44
5	0.7312	1156.4	1176.9	1173.7	0.899	5.495	68.912	20.109	4.199	0.119	0.248	0.009	0.009	0.000	0.000	0.000	0.000	0.000	0.000	1373.09
6	0.7317	1158.1	1178.6	1175.4	0.903	5.435	68.853	20.200	4.217	0.122	0.251	0.010	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1374.59
7	0.7322	1159.3	1179.8	1176.6	0.903	5.409	68.828	20.195	4.260	0.125	0.258	0.011	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1375.52
8	0.7325	1160.1	1180.6	1177.4	0.901	5.387	68.770	20.282	4.259	0.124	0.256	0.010	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1376.22
9	0.7321	1158.6	1179.1	1175.9	0.897	5.452	68.848	20.126	4.275	0.125	0.256	0.010	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1374.78
10	0.7288	1153.5	1174.0	1170.8	0.893	5.454	69.233	19.983	4.076	0.114	0.231	0.008	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1371.92
11	0.7314	1161.2	1181.8	1178.6	0.892	5.234	68.986	20.259	4.211	0.128	0.268	0.011	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1378.55
12	0.7292	1155.4	1175.9	1172.7	0.888	5.389	69.280	19.895	4.167	0.120	0.244	0.009	0.009	0.000	0.000	0.000	0.000	0.000	0.000	1373.73
13	0.7287	1154.2	1174.6	1171.4	0.888	5.409	69.427	19.709	4.176	0.125	0.246	0.009	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1372.81
14	0.7298	1157.5	1178.0	1174.8	0.897	5.294	69.271	19.946	4.185	0.130	0.257	0.010	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1375.75
15	0.7340	1164.7	1185.3	1182.0	0.904	5.250	68.624	20.436	4.360	0.132	0.272	0.010	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1380.19
16	0.7340	1164.3	1185.0	1181.7	0.896	5.281	68.722	20.219	4.447	0.135	0.278	0.011	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1379.83
17	0.7367	1162.5	1183.1	1179.8	0.882	5.657	68.378	19.911	4.749	0.134	0.271	0.009	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1375.22
18	0.7315	1155.5	1176.0	1172.7	0.896	5.576	69.092	19.644	4.366	0.135	0.273	0.009	0.009	0.000	0.000	0.000	0.000	0.000	0.000	1371.80
19	0.7311	1155.9	1176.4	1173.2	0.892	5.523	69.172	19.636	4.347	0.135	0.276	0.010	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1372.59
20	0.7309	1152.9	1173.3	1170.2	0.892	5.690	69.144	19.497	4.368	0.130	0.263	0.008	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1369.20
21	0.7344	1159.7	1180.2	1177.0	0.891	5.608	68.706	19.783	4.572	0.139	0.281	0.010	0.009	0.000	0.000	0.000	0.000	0.000	0.000	1373.95
22	0.7333	1157.0	1177.5	1174.4	0.893	5.658	68.841	19.681	4.495	0.137	0.277	0.009	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1371.89
23	0.7357	1162.9	1183.5	1180.3	0.894	5.529	68.501	20.015	4.624	0.139	0.279	0.010	0.009	0.000	0.000	0.000	0.000	0.000	0.000	1376.55
24	0.7332	1158.7	1179.2	1176.0	0.893	5.552	68.818	19.855	4.466	0.133	0.266	0.009	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1373.90
25	0.7341	1158.2	1178.7	1175.5	0.893	5.664	68.716	19.774	4.511	0.140	0.284	0.009	0.009	0.000	0.000	0.000	0.000	0.000	0.000	1372.51
26	0.7328	1156.5	1177.0	1173.8	0.903	5.629	68.874	19.752	4.410	0.136	0.276	0.010	0.009	0.000	0.000	0.000	0.000	0.000	0.000	1371.74
27	0.7324	1157.5	1178.0	1174.9	0.898	5.544	68.925	19.812	4.398	0.134	0.271	0.009	0.009	0.000	0.000	0.000	0.000	0.000	0.000	1373.23
28	0.7325	1157.5	1178.0	1174.8	0.900	5.547	68.939	19.781	4.408	0.134	0.273	0.009	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1373.15
29	0.7333	1155.9	1176.4	1173.2	0.892	5.730	68.873	19.519	4.564	0.135	0.270	0.009	0.008	0.000	0.000	0.000	0.000	0.000	0.000	1370.56
30	0.7322	1153.4	1173.8	1170.7	0.890	5.786	69.010	19.388	4.516	0.133	0.262	0.008	0.007	0.000	0.000	0.000	0.000	0.000	0.000	1368.56
31	0.7391	1165.5	1186.1	1182.9	0.896	5.688	68.174	19.871	4.865	0.158	0.320	0.013	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1376.31
Avg	0.7325	1158.0	1178.6	1175.3	0.895	5.525	68.879	19.902	4.382	0.131	0.267	0.010	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1373.76

Zone 2b2

Gas Composition and Properties

Effective October 1, 2018

Source #: 2501030
Name: LIGNITE PLANT

Component	Mole %	Liquid Content	Mass %
Carbon Dioxide, CO2	0.1869		0.4204
Nitrogen, N2	3.4573		4.9504
Methane, C1	76.8440		63.0113
Ethane, C2	17.2193	4.6067	26.4650
Propane, C3	2.0842	0.5725	4.6976
iso-Butane, iC4	0.0491	0.0160	0.1459
n-Butane, nC4	0.0328	0.0103	0.0974
iso-Pentane, iC5	0.0000	0.0000	0.0000
n-Pentane, nC5	0.0000	0.0000	0.0000
Neo-Pentane, NeoC5			
Hexanes Plus, C6+	0.0019	0.0009	0.0084
Water, H2O			
Hydrogen Sulfide, H2S			
Oxygen, O2	0.1245		0.2036
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	-32.958	
Cricondentherm	-26.110	
HV, Dry @ Base P, T	1139.67	
HV, Sat @ Base P, T	1119.84	
HV, Sat @ Sample P, T	1139.67	
Relative Density	0.6760	

C6+: 100

Totals 100.0000 5.2070 100.0000

Sample
Date: 11/01/2018 Pressure: 550.0
Type: Composite Temperature: 0.0
Tech: ES H2O: lbs/mm
H2S: ppm
Remarks:

Analysis
Date: 11/02/2018 Instrument: WBI-243
Cylinder: 359
Tech: MB
Remarks:

Zone 263

Gas Composition and Properties

Effective October 1, 2018

Source #: 3002013
Name: EPPING BORDER

Component	Mole %	Liquid Content	Mass %
Carbon Dioxide, CO2	0.7492		1.6795
Nitrogen, N2	3.0200		4.3092
Methane, C1	77.3090		63.1723
Ethane, C2	16.6039	4.4421	25.4304
Propane, C3	2.0516	0.5636	4.6080
iso-Butane, iC4	0.0735	0.0240	0.2176
n-Butane, nC4	0.1594	0.0501	0.4719
iso-Pentane, iC5	0.0128	0.0047	0.0470
n-Pentane, nC5	0.0149	0.0054	0.0548
Neo-Pentane, NeoC5			
Hexanes Plus, C6+	0.0000	0.0000	0.0000
Water, H2O			
Hydrogen Sulfide, H2S			
Oxygen, O2	0.0057		0.0093
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	1138.60	
HV, Sat @ Base P, T	1118.79	
HV, Sat @ Sample P, T	1138.60	
Relative Density	0.6784	

C6+: 100

Totals 100.0000 5.0900 100.0000

Sample
Date: 11/01/2018 Pressure: 270.0
Type: Composite Temperature: 0.0
Tech: ES H2O: lbs/mm
H2S: ppm
Remarks:

Analysis
Date: 11/02/2018 Instrument: WBI-242
Cylinder: 348
Tech: MB
Remarks:

Zone 264

Source Daily Summary

October 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	0.7135	1168.9	1189.6	1185.9	0.889	3.086	71.661	21.157	2.769	0.117	0.266	0.023	0.030	0.000	0.000	0.000	0.000	0.000	0.000	1404.84
2	0.7107	1164.0	1184.7	1181.0	0.904	3.095	72.062	20.901	2.626	0.111	0.249	0.023	0.030	0.000	0.000	0.000	0.000	0.000	0.000	1401.77
3	0.7131	1167.7	1188.4	1184.7	0.904	3.095	71.793	20.982	2.782	0.119	0.268	0.025	0.032	0.000	0.000	0.000	0.000	0.000	0.000	1403.81
4	0.7103	1161.6	1182.2	1178.7	0.937	3.154	71.924	21.089	2.551	0.096	0.211	0.017	0.021	0.000	0.000	0.000	0.000	0.000	0.000	1399.37
5	0.7084	1158.7	1179.2	1175.8	0.930	3.172	72.072	21.096	2.427	0.087	0.186	0.014	0.017	0.000	0.000	0.000	0.000	0.000	0.000	1397.68
6	0.7113	1163.2	1183.8	1180.3	0.939	3.153	71.822	21.083	2.654	0.099	0.213	0.016	0.020	0.000	0.000	0.000	0.000	0.000	0.000	1400.22
7	0.7134	1166.1	1186.8	1183.2	0.955	3.144	71.667	21.056	2.775	0.109	0.247	0.021	0.026	0.000	0.000	0.000	0.000	0.000	0.000	1401.68
8	0.7099	1161.4	1182.0	1178.5	0.936	3.135	71.951	21.127	2.513	0.094	0.206	0.017	0.022	0.000	0.000	0.000	0.000	0.000	0.000	1399.49
9	0.7116	1164.0	1184.6	1181.0	0.931	3.141	71.777	21.184	2.594	0.101	0.227	0.020	0.025	0.000	0.000	0.000	0.000	0.000	0.000	1400.88
10	0.7095	1160.6	1181.2	1177.8	0.923	3.164	71.994	21.080	2.506	0.094	0.204	0.016	0.020	0.000	0.000	0.000	0.000	0.000	0.000	1398.95
11	0.7085	1159.0	1179.6	1176.2	0.920	3.169	72.093	21.041	2.480	0.087	0.181	0.013	0.016	0.000	0.000	0.000	0.000	0.000	0.000	1398.06
12	0.7076	1157.8	1178.3	1175.0	0.912	3.176	72.165	21.042	2.423	0.083	0.172	0.012	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1397.45
13	0.7133	1166.5	1187.1	1183.5	0.920	3.167	71.792	20.855	2.832	0.116	0.262	0.024	0.032	0.000	0.000	0.000	0.000	0.000	0.000	1402.07
14	0.7133	1167.1	1187.8	1184.3	0.919	3.132	71.582	21.239	2.737	0.108	0.239	0.019	0.024	0.000	0.000	0.000	0.000	0.000	0.000	1402.93
15	0.7095	1160.8	1181.3	1178.0	0.940	3.133	71.866	21.322	2.437	0.086	0.185	0.014	0.017	0.000	0.000	0.000	0.000	0.000	0.000	1399.13
16	0.7091	1160.3	1180.8	1177.5	0.921	3.148	71.886	21.344	2.413	0.084	0.177	0.013	0.016	0.000	0.000	0.000	0.000	0.000	0.000	1399.02
17	0.7071	1157.3	1177.8	1174.5	0.923	3.145	72.132	21.217	2.321	0.077	0.159	0.011	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1397.33
18	0.7138	1168.5	1189.2	1185.6	0.907	3.110	71.631	21.098	2.840	0.113	0.251	0.022	0.028	0.000	0.000	0.000	0.000	0.000	0.000	1404.10
19	0.7104	1162.4	1183.0	1179.5	0.915	3.155	71.945	21.032	2.603	0.097	0.211	0.018	0.023	0.000	0.000	0.000	0.000	0.000	0.000	1400.10
20	0.7091	1160.5	1181.1	1177.6	0.911	3.151	72.077	21.022	2.504	0.093	0.203	0.017	0.022	0.000	0.000	0.000	0.000	0.000	0.000	1399.19
21	0.7071	1157.0	1177.5	1174.2	0.922	3.168	72.182	21.101	2.353	0.080	0.167	0.012	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1396.94
22	0.7129	1166.3	1187.0	1183.5	0.921	3.141	71.547	21.357	2.658	0.104	0.229	0.019	0.023	0.000	0.000	0.000	0.000	0.000	0.000	1402.37
23	0.7090	1160.4	1180.9	1177.6	0.921	3.141	71.863	21.381	2.413	0.084	0.171	0.011	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1399.15
24	0.7115	1163.4	1184.0	1180.5	0.923	3.182	71.736	21.200	2.606	0.100	0.214	0.017	0.022	0.000	0.000	0.000	0.000	0.000	0.000	1400.26
25	0.7136	1166.8	1187.5	1183.9	0.908	3.194	71.557	21.180	2.752	0.112	0.249	0.021	0.026	0.000	0.000	0.000	0.000	0.000	0.000	1402.27
26	0.7106	1161.7	1182.3	1178.8	0.914	3.212	71.792	21.224	2.527	0.094	0.201	0.016	0.021	0.000	0.000	0.000	0.000	0.000	0.000	1399.14
27	0.7125	1165.1	1185.7	1182.2	0.913	3.188	71.696	21.117	2.692	0.110	0.241	0.019	0.023	0.000	0.000	0.000	0.000	0.000	0.000	1401.30
28	0.7105	1161.5	1182.0	1178.5	0.912	3.219	71.958	20.947	2.595	0.103	0.224	0.018	0.023	0.000	0.000	0.000	0.000	0.000	0.000	1398.95
29	0.7133	1166.4	1187.0	1183.5	0.912	3.189	71.578	21.197	2.715	0.112	0.249	0.021	0.026	0.000	0.000	0.000	0.000	0.000	0.000	1402.02
30	0.7030	1149.1	1169.5	1166.0	0.875	3.326	73.020	20.130	2.360	0.083	0.175	0.013	0.018	0.000	0.000	0.000	0.000	0.000	0.000	1391.44
31	0.7101	1163.5	1184.1	1180.6	0.845	3.169	71.992	20.957	2.698	0.096	0.207	0.016	0.020	0.000	0.000	0.000	0.000	0.000	0.000	1401.70
Avg	0.7106	1163.0	1183.1	1179.6	0.916	3.160	71.897	21.089	2.586	0.098	0.214	0.017	0.022	0.000	0.000	0.000	0.000	0.000	0.000	1400.12

Zone 2b5

Source Daily Summary

October 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	0.7297	1153.1	1173.5	1169.7	0.869	5.605	69.248	19.625	4.262	0.123	0.245	0.011	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1370.49
2	0.7282	1150.8	1171.2	1167.4	0.877	5.582	69.461	19.544	4.154	0.117	0.241	0.012	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1369.29
3	0.7248	1146.0	1166.3	1162.5	0.818	5.651	69.842	19.347	3.992	0.106	0.223	0.010	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1366.74
4	0.7212	1156.3	1176.8	1172.9	0.719	4.837	70.702	19.413	3.895	0.128	0.273	0.016	0.017	0.000	0.000	0.000	0.000	0.000	0.000	1382.28
5	0.7299	1155.2	1175.6	1171.9	0.881	5.476	69.141	19.956	4.164	0.117	0.242	0.012	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1372.80
6	0.7304	1157.5	1178.0	1174.3	0.885	5.374	69.076	20.106	4.167	0.120	0.246	0.013	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1375.12
7	0.7310	1158.8	1179.3	1175.5	0.886	5.352	69.032	20.115	4.206	0.125	0.257	0.014	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1376.04
8	0.7316	1159.9	1180.5	1176.6	0.885	5.339	68.936	20.199	4.237	0.124	0.254	0.013	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1376.84
9	0.7314	1159.5	1180.0	1176.2	0.881	5.347	69.014	20.092	4.253	0.127	0.259	0.013	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1376.57
10	0.7286	1154.3	1174.7	1171.0	0.876	5.412	69.324	19.920	4.093	0.117	0.233	0.012	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1373.01
11	0.7300	1160.3	1180.8	1177.0	0.874	5.186	69.217	20.155	4.147	0.127	0.263	0.014	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1378.70
12	0.7278	1154.6	1175.0	1171.3	0.870	5.333	69.508	19.805	4.105	0.119	0.237	0.012	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1374.05
13	0.7280	1154.7	1175.1	1171.4	0.867	5.353	69.558	19.659	4.166	0.125	0.246	0.013	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1373.93
14	0.7247	1152.0	1172.4	1168.8	0.834	5.246	70.011	19.541	3.990	0.121	0.233	0.011	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1374.01
15	0.7277	1161.7	1182.2	1178.5	0.837	4.941	69.593	20.148	4.068	0.127	0.259	0.013	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1382.59
16	0.7282	1160.9	1181.5	1177.8	0.814	5.068	69.562	19.961	4.180	0.128	0.261	0.013	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1381.23
17	0.7281	1159.3	1179.8	1176.1	0.828	5.139	69.617	19.775	4.234	0.127	0.256	0.012	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1379.39
18	0.7321	1158.4	1178.9	1175.2	0.877	5.486	69.101	19.640	4.448	0.140	0.282	0.013	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1374.60
19	0.7300	1156.1	1176.6	1172.8	0.874	5.438	69.362	19.581	4.308	0.136	0.275	0.013	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1373.82
20	0.7304	1153.5	1173.9	1170.1	0.874	5.632	69.277	19.437	4.363	0.132	0.264	0.011	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1370.35
21	0.7337	1160.1	1180.6	1176.8	0.875	5.540	68.863	19.726	4.549	0.140	0.283	0.013	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1375.05
22	0.7324	1156.8	1177.3	1173.4	0.876	5.616	69.025	19.566	4.477	0.138	0.278	0.012	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1372.39
23	0.7356	1164.0	1184.6	1180.7	0.873	5.481	68.600	19.937	4.656	0.142	0.285	0.013	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1377.90
24	0.7326	1159.2	1179.8	1175.8	0.877	5.483	68.974	19.768	4.474	0.135	0.265	0.012	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1375.12
25	0.7336	1158.7	1179.3	1175.3	0.877	5.613	68.827	19.723	4.513	0.141	0.281	0.012	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1373.53
26	0.7324	1157.2	1177.7	1173.7	0.883	5.583	68.977	19.695	4.425	0.137	0.275	0.012	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1372.86
27	0.7319	1157.6	1178.1	1174.1	0.881	5.513	69.056	19.726	4.396	0.134	0.271	0.012	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1373.79
28	0.7314	1157.5	1178.0	1174.1	0.881	5.472	69.148	19.689	4.379	0.134	0.272	0.012	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1374.15
29	0.7316	1155.2	1175.6	1171.8	0.876	5.643	69.159	19.408	4.488	0.134	0.269	0.012	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1371.20
30	0.7313	1153.8	1174.3	1170.5	0.870	5.700	69.213	19.298	4.504	0.133	0.262	0.011	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1369.96
31	0.7374	1164.0	1184.6	1180.7	0.869	5.659	68.483	19.664	4.816	0.158	0.318	0.016	0.017	0.000	0.000	0.000	0.000	0.000	0.000	1376.08
Avg	0.7302	1157.0	1177.5	1173.7	0.863	5.423	69.255	19.749	4.294	0.129	0.262	0.013	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1374.64

Zone 271

Source Daily Summary

October 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	0.7298	1152.7	1173.1	1170.0	0.878	5.626	69.192	19.694	4.225	0.122	0.241	0.011	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1369.87
2	0.7296	1152.5	1172.9	1169.9	0.871	5.628	69.260	19.596	4.257	0.122	0.243	0.012	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1369.90
3	0.7287	1149.1	1169.5	1165.6	0.875	5.745	69.304	19.549	4.155	0.113	0.236	0.012	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1366.65
4	0.7152	1141.5	1161.7	1157.8	0.717	5.182	71.305	18.915	3.558	0.101	0.202	0.010	0.009	0.000	0.000	0.000	0.000	0.000	0.000	1370.37
5	0.7323	1165.4	1186.0	1181.9	0.841	5.136	69.016	20.226	4.322	0.135	0.289	0.017	0.018	0.000	0.000	0.000	0.000	0.000	0.000	1382.54
6	0.7301	1155.8	1176.3	1172.3	0.891	5.439	69.116	20.029	4.140	0.118	0.241	0.013	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1373.31
7	0.7318	1159.0	1179.5	1175.5	0.895	5.399	68.903	20.172	4.229	0.123	0.251	0.014	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1375.48
8	0.7322	1159.9	1180.4	1176.4	0.894	5.380	68.884	20.164	4.270	0.126	0.255	0.014	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1376.20
9	0.7323	1160.8	1181.4	1177.3	0.893	5.336	68.862	20.243	4.253	0.126	0.257	0.014	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1377.15
10	0.7313	1157.5	1178.0	1174.0	0.887	5.454	68.998	20.018	4.246	0.124	0.247	0.013	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1374.17
11	0.7285	1154.0	1174.4	1170.4	0.883	5.409	69.340	19.927	4.073	0.115	0.228	0.011	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1372.67
12	0.7305	1161.3	1181.9	1177.9	0.878	5.158	69.208	20.139	4.189	0.130	0.269	0.015	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1379.50
13	0.7280	1154.7	1175.1	1171.3	0.867	5.353	69.558	19.659	4.166	0.125	0.246	0.013	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1373.93
14	0.7247	1152.0	1172.4	1168.7	0.834	5.246	70.011	19.541	3.990	0.121	0.233	0.011	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1374.01
15	0.7215	1153.3	1173.7	1169.8	0.806	4.918	70.499	19.614	3.787	0.119	0.233	0.012	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1378.40
16	0.7333	1164.6	1185.2	1181.2	0.882	5.218	68.807	20.296	4.369	0.133	0.269	0.014	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1380.68
17	0.7237	1158.0	1178.5	1174.5	0.784	4.875	70.203	19.800	3.957	0.119	0.237	0.012	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1381.89
18	0.7329	1158.6	1179.2	1175.2	0.875	5.549	68.973	19.662	4.507	0.137	0.273	0.012	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1374.07
19	0.7325	1158.9	1179.4	1175.5	0.887	5.479	69.047	19.701	4.436	0.141	0.281	0.014	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1374.71
20	0.7311	1155.7	1176.2	1172.2	0.882	5.547	69.223	19.540	4.377	0.135	0.271	0.012	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1372.27
21	0.7312	1154.5	1175.0	1171.0	0.882	5.635	69.174	19.489	4.404	0.132	0.261	0.011	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1370.69
22	0.7340	1159.5	1180.1	1176.0	0.885	5.588	68.833	19.686	4.558	0.141	0.282	0.013	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1373.98
23	0.7333	1157.8	1178.3	1174.3	0.882	5.627	68.900	19.642	4.518	0.136	0.272	0.012	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1372.69
24	0.7363	1164.6	1185.2	1182.0	0.884	5.499	68.483	20.017	4.665	0.143	0.282	0.013	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1377.83
25	0.7333	1159.3	1179.8	1176.7	0.885	5.540	68.852	19.804	4.495	0.136	0.265	0.012	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1374.42
26	0.7334	1157.9	1178.4	1175.2	0.886	5.629	68.854	19.711	4.478	0.139	0.277	0.013	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1372.66
27	0.7329	1156.8	1177.3	1174.2	0.889	5.643	68.903	19.682	4.453	0.135	0.270	0.012	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1371.89
28	0.7316	1157.5	1178.0	1174.8	0.889	5.480	69.097	19.752	4.355	0.133	0.269	0.012	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1373.87
29	0.7320	1156.6	1177.0	1173.8	0.887	5.578	69.064	19.624	4.419	0.134	0.270	0.012	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1372.39
30	0.7325	1155.7	1176.2	1172.1	0.881	5.681	69.042	19.443	4.532	0.134	0.264	0.012	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1370.95
31	0.7303	1150.8	1171.2	1167.1	0.871	5.797	69.324	19.167	4.431	0.133	0.256	0.011	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1367.11
Avg	0.7303	1157.0	1177.1	1173.4	0.869	5.444	69.233	19.758	4.284	0.129	0.257	0.013	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1374.07

Zone 272

Source Daily Summary

October 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	0.7297	1152.3	1172.7	1169.7	0.878	5.631	69.216	19.674	4.216	0.121	0.241	0.011	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1369.62
2	0.7294	1152.0	1172.4	1169.5	0.871	5.633	69.296	19.567	4.246	0.122	0.242	0.012	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1369.57
3	0.7286	1148.8	1169.2	1165.8	0.876	5.751	69.320	19.532	4.150	0.113	0.235	0.012	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1366.40
4	0.7154	1141.3	1161.5	1158.2	0.718	5.207	71.283	18.894	3.570	0.102	0.205	0.010	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1369.99
5	0.7321	1164.8	1185.4	1181.9	0.840	5.154	69.040	20.194	4.315	0.134	0.287	0.017	0.018	0.000	0.000	0.000	0.000	0.000	0.000	1382.02
6	0.7301	1155.7	1176.2	1172.8	0.891	5.440	69.122	20.021	4.140	0.118	0.242	0.013	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1373.25
7	0.7317	1158.8	1179.3	1175.8	0.895	5.401	68.919	20.159	4.224	0.123	0.251	0.013	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1375.34
8	0.7321	1159.7	1180.3	1176.6	0.894	5.380	68.900	20.153	4.265	0.126	0.254	0.014	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1376.10
9	0.7322	1160.6	1181.2	1177.5	0.894	5.340	68.872	20.234	4.250	0.126	0.257	0.014	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1377.01
10	0.7311	1157.2	1177.7	1174.2	0.887	5.454	69.028	19.999	4.235	0.123	0.247	0.013	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1374.00
11	0.7282	1153.6	1174.0	1170.6	0.883	5.414	69.375	19.900	4.062	0.115	0.228	0.011	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1372.38
12	0.7304	1161.6	1182.1	1178.8	0.878	5.137	69.228	20.137	4.190	0.130	0.269	0.015	0.015	0.000	0.000	0.000	0.000	0.000	0.000	1379.85
13	0.7280	1154.7	1175.1	1171.9	0.867	5.353	69.558	19.659	4.166	0.125	0.246	0.013	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1373.93
14	0.7247	1152.0	1172.4	1169.3	0.834	5.246	70.011	19.541	3.990	0.121	0.233	0.011	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1374.01
15	0.7217	1153.9	1174.4	1171.0	0.804	4.894	70.494	19.623	3.805	0.120	0.235	0.012	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1379.06
16	0.7333	1164.4	1185.0	1181.7	0.882	5.228	68.820	20.263	4.378	0.133	0.269	0.014	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1380.45
17	0.7235	1157.4	1177.9	1174.7	0.785	4.881	70.244	19.763	3.946	0.119	0.237	0.012	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1381.52
18	0.7326	1158.1	1178.6	1175.2	0.876	5.560	69.005	19.630	4.496	0.137	0.272	0.012	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1373.63
19	0.7325	1158.7	1179.2	1175.5	0.897	5.480	69.050	19.688	4.435	0.141	0.281	0.014	0.014	0.000	0.000	0.000	0.000	0.000	0.000	1374.42
20	0.7311	1155.8	1176.2	1172.5	0.883	5.545	69.223	19.542	4.375	0.135	0.271	0.013	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1372.28
21	0.7311	1154.4	1174.8	1171.1	0.883	5.635	69.182	19.490	4.395	0.132	0.261	0.011	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1370.60
22	0.7341	1159.7	1180.2	1176.4	0.886	5.589	68.817	19.698	4.560	0.141	0.282	0.013	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1374.05
23	0.7334	1158.0	1178.5	1174.7	0.882	5.627	68.885	19.645	4.526	0.137	0.273	0.012	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1372.79
24	0.7357	1163.3	1183.9	1180.7	0.884	5.512	68.571	19.957	4.628	0.142	0.279	0.013	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1376.97
25	0.7325	1157.8	1178.3	1175.1	0.885	5.557	68.963	19.726	4.448	0.135	0.263	0.012	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1373.37
26	0.7333	1157.6	1178.1	1175.0	0.887	5.633	68.874	19.687	4.479	0.139	0.276	0.013	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1372.48
27	0.7326	1156.4	1176.9	1173.8	0.889	5.644	68.944	19.653	4.439	0.135	0.270	0.012	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1371.62
28	0.7312	1156.9	1177.4	1174.3	0.889	5.481	69.150	19.716	4.340	0.133	0.267	0.012	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1373.53
29	0.7317	1156.0	1176.5	1173.4	0.888	5.576	69.112	19.594	4.402	0.134	0.269	0.012	0.012	0.000	0.000	0.000	0.000	0.000	0.000	1372.09
30	0.7322	1155.3	1175.7	1172.4	0.881	5.687	69.075	19.412	4.524	0.134	0.264	0.011	0.011	0.000	0.000	0.000	0.000	0.000	0.000	1370.65
31	0.7303	1150.6	1171.0	1167.6	0.872	5.799	69.334	19.156	4.429	0.133	0.256	0.011	0.010	0.000	0.000	0.000	0.000	0.000	0.000	1366.99
Avg	0.7302	1156.0	1176.8	1173.5	0.870	5.448	69.255	19.739	4.278	0.128	0.257	0.013	0.013	0.000	0.000	0.000	0.000	0.000	0.000	1373.87

Zone 273

Source Daily Summary

October 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	0.7195	1146.1	1166.4	1163.0	0.738	5.263	70.708	19.152	3.797	0.108	0.213	0.010	0.010	0.000	0.000	0.000	0.000	0.000	1372.06	
2	0.7281	1151.0	1171.3	1167.9	0.876	5.575	69.467	19.543	4.156	0.117	0.241	0.012	0.012	0.000	0.000	0.000	0.000	0.000	1369.45	
3	0.6937	1129.7	1149.7	1146.3	0.398	4.367	74.365	18.007	2.645	0.070	0.135	0.007	0.006	0.000	0.000	0.000	0.000	0.000	1377.53	
4	0.6706	1110.1	1129.8	1126.5	0.203	3.689	77.787	16.583	1.605	0.046	0.079	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1376.36	
5	0.6678	1107.9	1127.5	1124.3	0.152	3.634	78.094	16.580	1.440	0.036	0.059	0.003	0.002	0.000	0.000	0.000	0.000	0.000	1376.57	
6	0.6750	1121.7	1141.5	1138.3	0.139	3.499	76.827	17.796	1.624	0.041	0.068	0.003	0.003	0.000	0.000	0.000	0.000	0.000	1386.14	
7	0.6743	1120.0	1139.8	1136.6	0.152	3.511	76.984	17.626	1.613	0.041	0.068	0.003	0.003	0.000	0.000	0.000	0.000	0.000	1384.83	
8	0.6996	1136.6	1156.7	1153.4	0.485	4.366	73.490	18.591	2.820	0.080	0.153	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1379.83	
9	0.6919	1130.9	1151.0	1147.7	0.380	4.144	74.607	18.159	2.496	0.070	0.131	0.007	0.006	0.000	0.000	0.000	0.000	0.000	1380.50	
10	0.6815	1126.8	1146.8	1143.5	0.275	3.581	76.138	17.828	2.002	0.061	0.104	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1385.89	
11	0.6774	1120.7	1140.5	1137.2	0.255	3.602	76.832	17.242	1.907	0.056	0.096	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1382.47	
12	0.6792	1113.5	1133.2	1130.0	0.377	4.019	76.839	16.406	2.168	0.064	0.116	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1371.88	
13	0.6692	1106.5	1126.1	1122.9	0.255	3.697	78.238	15.980	1.685	0.050	0.087	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1373.30	
14	0.6777	1119.4	1139.2	1136.0	0.316	3.615	76.913	17.017	1.964	0.060	0.104	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1380.58	
15	0.6809	1125.2	1145.2	1141.9	0.340	3.525	76.400	17.500	2.047	0.064	0.111	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1384.49	
16	0.6818	1128.4	1148.3	1145.0	0.309	3.469	76.064	18.036	1.950	0.060	0.102	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1387.41	
17	0.6851	1131.1	1151.1	1147.7	0.424	3.432	75.764	18.066	2.102	0.071	0.127	0.008	0.007	0.000	0.000	0.000	0.000	0.000	1387.43	
18	0.7150	1147.2	1167.5	1164.1	0.691	4.849	71.527	18.932	3.641	0.114	0.225	0.011	0.010	0.000	0.000	0.000	0.000	0.000	1377.66	
19	0.7273	1154.6	1175.1	1171.7	0.839	5.326	69.757	19.467	4.185	0.132	0.266	0.013	0.013	0.000	0.000	0.000	0.000	0.000	1374.65	
20	0.6799	1123.4	1143.3	1140.0	0.277	3.640	76.482	17.406	2.014	0.063	0.109	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1383.25	
21	0.7160	1147.7	1168.0	1164.6	0.681	4.930	71.378	18.927	3.726	0.114	0.224	0.010	0.010	0.000	0.000	0.000	0.000	0.000	1377.30	
22	0.7014	1136.0	1156.1	1152.8	0.527	4.508	73.410	18.250	3.020	0.092	0.177	0.008	0.008	0.000	0.000	0.000	0.000	0.000	1377.42	
23	0.7115	1145.9	1166.2	1162.9	0.617	4.714	72.013	18.796	3.528	0.106	0.207	0.010	0.010	0.000	0.000	0.000	0.000	0.000	1379.52	
24	0.7264	1154.3	1174.7	1171.3	0.816	5.297	69.875	19.421	4.195	0.126	0.247	0.011	0.011	0.000	0.000	0.000	0.000	0.000	1375.13	
25	0.7337	1158.9	1179.4	1176.0	0.876	5.610	68.820	19.730	4.517	0.141	0.280	0.013	0.013	0.000	0.000	0.000	0.000	0.000	1373.64	
26	0.7325	1157.1	1177.6	1174.2	0.883	5.597	68.969	19.686	4.427	0.137	0.276	0.013	0.013	0.000	0.000	0.000	0.000	0.000	1372.64	
27	0.7319	1157.4	1177.9	1174.6	0.880	5.530	69.044	19.714	4.401	0.134	0.271	0.012	0.013	0.000	0.000	0.000	0.000	0.000	1373.55	
28	0.7313	1157.8	1178.3	1174.9	0.881	5.448	69.157	19.714	4.369	0.134	0.272	0.013	0.013	0.000	0.000	0.000	0.000	0.000	1374.56	
29	0.7209	1149.0	1169.3	1166.0	0.754	5.196	70.709	18.986	3.971	0.121	0.241	0.011	0.011	0.000	0.000	0.000	0.000	0.000	1374.14	
30	0.6769	1118.5	1138.3	1135.1	0.273	3.657	77.006	16.951	1.940	0.059	0.103	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1380.32	
31	0.6582	1086.5	1105.7	1102.6	0.257	3.881	80.171	14.130	1.431	0.044	0.077	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1359.66	
Avg	0.6973	1133.0	1153.0	1149.6	0.495	4.360	73.995	18.071	2.819	0.084	0.160	0.008	0.007	0.000	0.000	0.000	0.000	0.000	1377.75	

Zone 28

Source Daily Summary

October 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	0.6694	1113.5	1133.2	1129.3	0.840	4.861	74.822	16.218	3.026	0.078	0.145	0.005	0.005	0.000	0.000	0.000	0.000	0.000	1355.12	
2	0.6743	1120.4	1140.2	1173.0	0.849	5.908	68.758	19.306	4.758	0.139	0.260	0.011	0.011	0.000	0.000	0.000	0.000	0.000	1369.41	
3	0.6750	1117.6	1137.4	1135.1	0.863	5.076	73.882	16.633	3.237	0.107	0.182	0.011	0.009	0.000	0.000	0.000	0.000	0.000	1355.86	
4	0.6673	1108.3	1127.9	1129.4	0.840	4.861	74.822	16.218	3.026	0.078	0.145	0.005	0.005	0.000	0.000	0.000	0.000	0.000	1355.12	
5	0.6736	1120.1	1139.9	1135.8	0.856	4.504	75.086	16.101	3.116	0.114	0.200	0.012	0.011	0.000	0.000	0.000	0.000	0.000	1362.23	
6	0.6725	1118.0	1137.8	1135.2	0.863	5.076	73.882	16.633	3.237	0.107	0.182	0.011	0.009	0.000	0.000	0.000	0.000	0.000	1355.86	
7	0.6736	1118.1	1137.9	1147.0	0.847	6.420	70.141	18.150	4.132	0.106	0.192	0.006	0.006	0.000	0.000	0.000	0.000	0.000	1349.32	
8	0.6744	1119.7	1139.5	1135.8	0.856	4.504	75.086	16.101	3.116	0.114	0.200	0.012	0.011	0.000	0.000	0.000	0.000	0.000	1362.23	
9	0.6810	1126.4	1146.3	1143.2	0.870	4.416	74.541	16.498	3.317	0.122	0.210	0.014	0.012	0.000	0.000	0.000	0.000	0.000	1367.12	
10	0.6768	1120.7	1140.5	1173.1	0.849	5.908	68.758	19.306	4.758	0.139	0.260	0.011	0.011	0.000	0.000	0.000	0.000	0.000	1369.41	
11	0.6647	1101.5	1121.0	1129.4	0.840	4.861	74.822	16.218	3.026	0.078	0.145	0.005	0.005	0.000	0.000	0.000	0.000	0.000	1355.12	
12	0.6717	1109.9	1129.6	1145.4	0.830	6.450	70.227	18.168	3.999	0.110	0.202	0.007	0.007	0.000	0.000	0.000	0.000	0.000	1348.34	
13	0.6749	1115.7	1135.5	1135.7	0.894	2.769	78.941	14.171	2.797	0.143	0.247	0.022	0.016	0.000	0.000	0.000	0.000	0.000	1379.83	
14	0.6797	1124.1	1144.0	1140.6	0.829	6.335	70.790	18.013	3.751	0.096	0.174	0.006	0.006	0.000	0.000	0.000	0.000	0.000	1346.72	
15	0.6813	1128.7	1148.7	1169.0	0.807	5.721	69.513	19.078	4.488	0.129	0.244	0.010	0.010	0.000	0.000	0.000	0.000	0.000	1369.52	
16	0.6865	1134.5	1154.6	1150.3	0.810	6.162	70.280	18.413	4.036	0.100	0.187	0.006	0.006	0.000	0.000	0.000	0.000	0.000	1354.37	
17	0.6787	1122.4	1142.3	1129.5	0.840	4.861	74.822	16.218	3.026	0.078	0.145	0.005	0.005	0.000	0.000	0.000	0.000	0.000	1355.12	
18	0.6786	1122.4	1142.3	1154.8	0.843	6.150	69.895	18.605	4.133	0.122	0.235	0.008	0.009	0.000	0.000	0.000	0.000	0.000	1356.56	
19	0.6776	1121.1	1141.0	1173.2	0.849	5.908	68.758	19.306	4.758	0.139	0.260	0.011	0.011	0.000	0.000	0.000	0.000	0.000	1369.41	
20	0.6761	1119.6	1139.4	1135.9	0.856	4.504	75.086	16.101	3.116	0.114	0.200	0.012	0.011	0.000	0.000	0.000	0.000	0.000	1362.23	
21	0.6752	1117.7	1137.5	1135.3	0.863	5.076	73.883	16.632	3.237	0.107	0.182	0.011	0.009	0.000	0.000	0.000	0.000	0.000	1355.86	
22	0.6722	1109.6	1129.2	1129.5	0.840	4.861	74.822	16.218	3.026	0.078	0.145	0.005	0.005	0.000	0.000	0.000	0.000	0.000	1355.13	
23	0.6714	1116.4	1136.2	1132.7	0.898	2.701	79.317	14.006	2.669	0.135	0.232	0.023	0.019	0.000	0.000	0.000	0.000	0.000	1378.84	
24	0.6695	1112.3	1132.0	1173.2	0.849	5.908	68.758	19.306	4.758	0.139	0.260	0.011	0.011	0.000	0.000	0.000	0.000	0.000	1369.41	
25	0.6677	1108.2	1127.8	1129.5	0.840	4.861	74.822	16.218	3.026	0.078	0.145	0.005	0.005	0.000	0.000	0.000	0.000	0.000	1355.12	
26	0.6658	1104.0	1123.6	1120.6	0.895	3.550	78.168	14.850	2.322	0.068	0.136	0.005	0.005	0.000	0.000	0.000	0.000	0.000	1362.95	
27	0.6639	1099.9	1119.4	1116.1	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	1365.23	
28	0.6620	1095.8	1115.2	1112.0	0.857	3.082	80.067	13.792	2.063	0.046	0.089	0.002	0.003	0.000	0.000	0.000	0.000	0.000	1363.68	
29	0.6602	1091.7	1111.0	1107.4	0.883	3.113	80.615	13.191	1.984	0.070	0.131	0.007	0.006	0.000	0.000	0.000	0.000	0.000	1360.25	
30	0.6583	1087.6	1106.8	1103.6	0.827	2.687	81.668	13.106	1.580	0.043	0.082	0.003	0.004	0.000	0.000	0.000	0.000	0.000	1363.73	
31	0.6686	1106.7	1126.3	1129.5	0.840	4.861	74.822	16.218	3.026	0.078	0.145	0.005	0.005	0.000	0.000	0.000	0.000	0.000	1355.12	
Avg	0.6723	1114.0	1133.7	1138.4	0.851	4.811	74.176	16.548	3.313	0.101	0.184	0.009	0.008	0.000	0.000	0.000	0.000	0.000	1360.78	

Zone 31

Source Daily Summary

October 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	0.6295	1051.3	1069.9	1066.1	0.240	3.464	86.577	7.460	2.095	0.058	0.099	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1343.76
2	0.6456	1074.0	1093.0	1090.3	0.317	3.741	83.096	10.142	2.488	0.074	0.131	0.006	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1353.31
3	0.6618	1096.6	1116.0	1112.6	0.228	3.651	79.565	14.855	1.568	0.046	0.079	0.004	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1368.58
4	0.6601	1093.8	1113.2	1109.7	0.229	3.657	79.940	14.450	1.589	0.046	0.080	0.004	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1366.90
5	0.6590	1092.1	1111.4	1108.0	0.213	3.681	80.203	14.124	1.640	0.047	0.082	0.004	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1365.90
6	0.6593	1092.3	1111.6	1108.1	0.218	3.683	80.196	14.095	1.665	0.049	0.085	0.005	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1365.90
7	0.6610	1094.4	1113.8	1110.3	0.229	3.696	79.910	14.309	1.704	0.051	0.090	0.005	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1366.80
8	0.6605	1093.8	1113.2	1109.7	0.230	3.692	79.979	14.270	1.679	0.051	0.090	0.005	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1366.47
9	0.6606	1094.1	1113.5	1110.1	0.234	3.677	79.939	14.344	1.658	0.050	0.089	0.005	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1366.76
10	0.6559	1086.6	1105.8	1102.7	0.230	3.693	80.813	13.541	1.579	0.048	0.085	0.005	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1362.24
11	0.6575	1087.3	1106.5	1103.4	0.254	3.766	80.593	13.575	1.663	0.051	0.089	0.005	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1361.41
12	0.6617	1094.7	1114.1	1110.8	0.253	3.712	79.762	14.444	1.675	0.052	0.093	0.005	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1366.41
13	0.6677	1103.6	1123.1	1119.8	0.401	3.506	79.035	14.959	1.902	0.065	0.117	0.007	0.006	0.000	0.000	0.000	0.000	0.000	0.000	1371.28
14	0.6760	1115.6	1135.4	1132.0	0.593	3.264	77.961	15.741	2.189	0.083	0.150	0.010	0.009	0.000	0.000	0.000	0.000	0.000	0.000	1377.65
15	0.7095	1165.2	1185.9	1182.4	1.188	2.474	73.338	19.263	3.294	0.145	0.263	0.018	0.017	0.000	0.000	0.000	0.000	0.000	0.000	1404.54
16	0.6563	1099.0	1118.5	1115.0	0.873	2.001	81.614	13.833	1.509	0.055	0.101	0.007	0.007	0.000	0.000	0.000	0.000	0.000	0.000	1377.36
17	0.6443	1073.7	1092.7	1089.3	0.582	2.852	83.441	11.632	1.352	0.047	0.083	0.006	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1358.10
18	0.6529	1081.9	1101.0	1097.6	0.345	3.530	81.505	12.952	1.521	0.049	0.087	0.005	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1359.37
19	0.6592	1090.2	1109.5	1106.1	0.253	3.755	80.195	14.030	1.619	0.050	0.088	0.005	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1363.28
20	0.6656	1099.9	1119.4	1116.0	0.266	3.742	79.138	14.865	1.824	0.056	0.099	0.005	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1368.87
21	0.6707	1105.7	1125.3	1121.9	0.312	3.797	78.336	15.388	1.982	0.062	0.112	0.006	0.006	0.000	0.000	0.000	0.000	0.000	0.000	1370.86
22	0.6687	1101.4	1120.9	1117.5	0.349	3.814	78.735	14.988	1.924	0.063	0.114	0.007	0.006	0.000	0.000	0.000	0.000	0.000	0.000	1367.53
23	0.6643	1095.6	1115.0	1111.6	0.286	3.844	79.540	14.248	1.899	0.061	0.110	0.006	0.006	0.000	0.000	0.000	0.000	0.000	0.000	1364.91
24	0.6489	1071.3	1090.2	1086.9	0.260	3.923	82.125	12.084	1.470	0.047	0.081	0.005	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1350.27
25	0.6506	1073.3	1092.3	1088.9	0.265	3.951	81.778	12.398	1.470	0.047	0.081	0.005	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1351.09
26	0.6535	1078.4	1097.4	1094.0	0.276	3.902	81.250	12.915	1.517	0.048	0.083	0.005	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1354.40
27	0.6561	1082.5	1101.6	1098.2	0.286	3.880	80.803	13.307	1.580	0.049	0.085	0.005	0.004	0.000	0.000	0.000	0.000	0.000	0.000	1356.89
28	0.6566	1082.9	1102.1	1098.7	0.293	3.890	80.751	13.304	1.612	0.051	0.089	0.005	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1356.90
29	0.6547	1079.2	1098.4	1095.0	0.295	3.929	81.053	13.041	1.538	0.049	0.085	0.005	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1354.31
30	0.6531	1075.8	1094.9	1091.6	0.290	4.001	81.352	12.681	1.529	0.049	0.087	0.005	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1351.58
31	0.6610	1089.9	1109.2	1105.9	0.302	3.864	80.011	13.920	1.744	0.055	0.093	0.005	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1361.10
Avg	0.6594	1091.0	1110.2	1106.8	0.342	3.614	80.404	13.715	1.757	0.057	0.100	0.006	0.005	0.000	0.000	0.000	0.000	0.000	0.000	1363.70

Zone 32

Source Daily Summary

October 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	0.6858	1151.7	1172.1	1167.2	0.000	2.905	73.396	23.037	0.649	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.04	-26.61
2	0.6853	1151.5	1171.9	1167.4	0.000	2.868	73.505	22.966	0.648	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.34	-26.79
3	0.6855	1151.3	1171.7	1167.0	0.000	2.893	73.419	23.072	0.602	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1411.99	-26.92
4	0.6859	1151.6	1172.0	1167.2	0.000	2.916	73.348	23.108	0.615	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1411.88	-26.73
5	0.6854	1151.8	1172.2	1167.3	0.000	2.858	73.453	23.065	0.610	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.62	-26.86
6	0.6855	1152.0	1172.4	1167.6	0.000	2.864	73.424	23.076	0.622	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.66	-26.73
7	0.6853	1151.5	1171.9	1166.9	0.000	2.866	73.470	23.034	0.616	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.40	-26.89
8	0.6853	1151.4	1171.8	1166.6	0.000	2.869	73.494	22.992	0.632	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.31	-26.86
9	0.6853	1151.4	1171.8	1166.8	0.000	2.880	73.465	23.021	0.621	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.15	-26.89
10	0.6846	1150.1	1170.5	1165.6	0.000	2.887	73.592	22.905	0.602	0.005	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1411.38	-27.35
11	0.6850	1150.7	1171.0	1165.9	0.000	2.894	73.533	22.932	0.628	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1411.61	-27.05
12	0.6854	1151.0	1171.4	1166.3	0.000	2.911	73.478	22.944	0.653	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1411.59	-26.80
13	0.6838	1149.1	1169.4	1164.8	0.000	2.874	73.745	22.781	0.587	0.005	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1410.94	-27.80
14	0.6840	1149.5	1169.8	1164.6	0.000	2.868	73.729	22.786	0.604	0.005	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1411.21	-27.63
15	0.6839	1149.2	1169.5	1164.6	0.000	2.874	73.784	22.689	0.639	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1410.99	-27.57
16	0.6836	1149.4	1169.7	1165.1	0.000	2.837	73.852	22.654	0.643	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1411.49	-27.61
17	0.6845	1151.5	1171.9	1167.1	0.000	2.793	73.679	22.860	0.654	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1413.18	-26.99
18	0.6855	1152.2	1172.6	1168.0	0.000	2.845	73.483	22.988	0.670	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1413.01	-26.52
19	0.6854	1151.7	1172.1	1167.4	0.000	2.871	73.466	23.011	0.638	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.42	-26.74
20	0.6855	1151.8	1172.2	1167.7	0.000	2.870	73.447	23.029	0.641	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.53	-26.69
21	0.6855	1151.8	1172.2	1167.5	0.000	2.867	73.455	23.023	0.641	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.56	-26.70
22	0.6853	1151.3	1171.7	1166.9	0.000	2.883	73.491	22.969	0.644	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.08	-26.82
23	0.6852	1151.3	1171.7	1166.9	0.000	2.872	73.520	22.947	0.647	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.20	-26.84
24	0.6852	1152.1	1172.5	1167.5	0.000	2.824	73.531	22.993	0.638	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1413.11	-26.79
25	0.6856	1151.4	1171.8	1167.0	0.000	2.900	73.435	23.008	0.644	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1411.97	-26.72
26	0.6853	1151.2	1171.6	1167.0	0.000	2.880	73.517	22.938	0.650	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.06	-26.79
27	0.6851	1151.2	1171.6	1166.9	0.000	2.871	73.528	22.944	0.644	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.17	-26.88
28	0.6848	1150.6	1171.0	1166.4	0.000	2.873	73.590	22.889	0.635	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1411.82	-27.10
29	0.6851	1151.3	1171.7	1167.2	0.000	2.858	73.532	22.963	0.633	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.37	-26.92
30	0.6850	1151.4	1171.8	1167.2	0.000	2.846	73.548	22.962	0.631	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.56	-26.94
31	0.6848	1151.2	1171.6	1166.7	0.000	2.835	73.616	22.884	0.652	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.58	-26.95
Avg	0.6851	1151.0	1171.5	1166.7	0.000	2.869	73.533	22.951	0.633	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1412.14	-26.95

Zone 33

Source Daily Summary

October 2018

Number:	351	Pressure Base:	14.730	Contract Day:	1
Name:	BADLANDS 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	0.6504	1068.6	1087.5	1084.2	0.228	4.278	81.829	11.974	1.540	0.053	0.087	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1345.30	
2	0.6401	1050.5	1069.1	1065.8	0.217	4.434	83.633	10.273	1.310	0.048	0.075	0.005	0.005	0.000	0.000	0.000	0.000	0.000	1333.02	
3	0.6335	1039.6	1058.0	1054.9	0.200	4.503	84.679	9.428	1.078	0.041	0.061	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1325.97	
4	0.6480	1064.3	1083.1	1079.9	0.227	4.315	82.189	11.700	1.432	0.049	0.078	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1342.37	
5	0.6529	1072.8	1091.8	1088.6	0.231	4.256	81.369	12.397	1.596	0.053	0.086	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1347.96	
6	0.6501	1067.5	1086.4	1083.2	0.233	4.308	81.889	11.882	1.538	0.052	0.085	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1344.24	
7	0.6504	1068.0	1086.9	1083.7	0.234	4.306	81.840	11.923	1.547	0.053	0.086	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1344.54	
8	0.6509	1069.0	1088.0	1084.8	0.233	4.295	81.731	12.041	1.550	0.053	0.087	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1345.30	
9	0.6715	1105.7	1125.3	1122.1	0.261	3.954	78.028	15.650	1.929	0.060	0.106	0.006	0.006	0.000	0.000	0.000	0.000	0.000	1369.93	
10	0.6719	1106.6	1126.2	1123.0	0.253	3.943	77.908	15.825	1.895	0.059	0.104	0.006	0.006	0.000	0.000	0.000	0.000	0.000	1370.76	
11	0.6529	1072.6	1091.6	1088.4	0.235	4.258	81.351	12.450	1.553	0.053	0.089	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1347.71	
12	0.6444	1057.5	1076.2	1073.0	0.228	4.393	82.871	10.979	1.385	0.050	0.082	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1337.46	
13	0.6512	1069.7	1088.6	1085.6	0.237	4.279	81.619	12.217	1.499	0.052	0.086	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1345.80	
14	0.6515	1070.0	1089.0	1086.0	0.238	4.279	81.558	12.288	1.489	0.051	0.086	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1346.01	
15	0.6085	1011.3	1029.2	1026.1	0.167	3.922	89.397	5.754	0.687	0.028	0.039	0.003	0.003	0.000	0.000	0.000	0.000	0.000	1316.07	
16	0.5727	962.0	979.0	976.1	0.109	3.647	95.906	0.313	0.017	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1290.70	
17	0.6538	1077.3	1096.4	1093.2	0.282	3.980	81.498	12.302	1.772	0.058	0.097	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1352.57	
18	0.6545	1074.9	1094.0	1090.6	0.246	4.247	81.073	12.694	1.587	0.054	0.089	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1348.87	
19	0.6375	1044.0	1062.4	1059.3	0.229	4.564	84.156	9.626	1.284	0.049	0.079	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1327.54	
20	0.6323	1035.0	1053.4	1050.2	0.222	4.633	85.040	8.825	1.150	0.046	0.072	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1321.54	
21	0.6253	1022.9	1041.0	1037.9	0.215	4.728	86.251	7.711	0.980	0.042	0.063	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1313.30	
22	0.6289	1029.1	1047.3	1044.2	0.222	4.674	85.600	8.353	1.034	0.042	0.064	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1317.52	
23	0.6099	1006.4	1024.3	1021.3	0.188	4.324	89.082	5.630	0.691	0.032	0.045	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1308.43	
24	0.5780	965.0	982.1	979.2	0.110	3.961	94.871	0.948	0.094	0.011	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1288.78	
25	0.5734	962.5	979.6	976.8	0.108	3.683	95.768	0.404	0.028	0.009	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1290.62	
26	0.6104	1007.5	1025.4	1022.4	0.186	4.305	88.988	5.738	0.702	0.031	0.044	0.003	0.003	0.000	0.000	0.000	0.000	0.000	1309.32	
27	0.6368	1041.0	1059.4	1056.3	0.243	4.663	84.179	9.595	1.186	0.046	0.076	0.006	0.006	0.000	0.000	0.000	0.000	0.000	1324.42	
28	0.6381	1041.5	1059.9	1056.8	0.245	4.752	83.922	9.742	1.205	0.046	0.077	0.006	0.006	0.000	0.000	0.000	0.000	0.000	1323.71	
29	0.6368	1039.2	1057.6	1054.5	0.246	4.769	84.126	9.568	1.163	0.045	0.073	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1322.12	
30	0.6378	1043.5	1062.0	1058.9	0.261	4.575	84.006	9.839	1.188	0.046	0.073	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1326.50	
31	0.6346	1036.8	1055.2	1052.0	0.254	4.689	84.594	9.195	1.137	0.045	0.073	0.006	0.006	0.000	0.000	0.000	0.000	0.000	1321.44	
Avg	0.6351	1045.0	1063.1	1060.0	0.219	4.320	84.547	9.589	1.201	0.044	0.070	0.005	0.005	0.000	0.000	0.000	0.000	0.000	1330.64	

*** End of Report ***

Zone 34

Source Daily Summary

October 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	0.6860	1130.7	1150.7	1147.7	1.009	2.669	74.428	21.187	0.692	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1386.03	-29.02
2	0.6855	1130.3	1150.3	1147.3	0.994	2.668	74.450	21.252	0.616	0.007	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1386.11	-29.30
3	0.6944	1145.0	1165.2	1162.2	0.994	2.615	72.864	22.691	0.782	0.018	0.034	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1395.04	-23.50
4	0.6942	1142.6	1162.8	1159.8	0.978	2.762	72.482	23.298	0.471	0.004	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1392.41	-25.52
5	0.6905	1135.7	1155.8	1152.8	1.000	2.801	73.532	21.906	0.747	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1387.68	-26.63
6	0.6867	1130.9	1150.9	1147.9	0.999	2.737	74.195	21.427	0.629	0.005	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1385.65	-28.87
7	0.6842	1125.3	1145.2	1142.3	1.014	2.819	74.625	20.980	0.552	0.004	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1381.33	-30.77
8	0.6920	1141.1	1161.3	1158.3	0.980	2.640	73.064	22.727	0.575	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1392.85	-25.94
9	0.6820	1122.5	1142.4	1139.4	1.011	2.788	75.197	20.319	0.677	0.004	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1380.11	-31.35
10	0.6816	1121.5	1141.4	1138.4	1.009	2.814	75.296	20.175	0.692	0.006	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1379.31	-31.45
11	0.6841	1125.7	1145.6	1142.6	1.001	2.804	75.190	19.913	1.055	0.017	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1381.89	-28.40
12	0.6945	1144.1	1164.4	1161.3	0.977	2.698	73.101	22.073	1.124	0.012	0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1393.93	-22.72
13	0.6882	1133.4	1153.5	1150.5	0.999	2.724	74.370	20.794	1.085	0.012	0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1387.19	-26.13
14	0.6871	1131.9	1152.0	1149.0	1.000	2.712	74.437	20.888	0.944	0.009	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1386.48	-27.27
15	0.6866	1130.6	1150.6	1147.6	1.000	2.745	74.582	20.669	0.983	0.009	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1385.34	-27.45
16	0.6805	1121.0	1140.9	1137.9	1.007	2.746	75.543	19.978	0.715	0.005	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1379.77	-31.82
17	0.6888	1134.3	1154.4	1151.4	1.002	2.711	74.838	19.872	1.444	0.050	0.082	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1387.74	-22.91
18	0.6774	1114.4	1134.1	1131.2	1.020	2.833	76.056	19.502	0.581	0.004	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1374.80	-34.39
19	0.6820	1123.4	1143.3	1140.3	1.008	2.742	75.241	20.283	0.713	0.005	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1381.13	-31.02
20	0.6914	1138.2	1158.3	1155.3	0.995	2.733	74.237	20.480	1.455	0.036	0.062	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1389.82	-22.28
21	0.6813	1121.7	1141.6	1138.6	1.007	2.774	75.341	20.204	0.656	0.007	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1379.86	-31.68
22	0.6863	1130.4	1150.4	1147.4	1.000	2.731	74.360	21.180	0.718	0.005	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1385.40	-28.75
23	0.6783	1117.8	1137.6	1134.7	1.013	2.718	75.638	20.284	0.339	0.003	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1378.16	-34.55
24	0.6766	1113.8	1133.5	1130.5	1.015	2.806	76.066	19.668	0.438	0.003	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1374.82	-35.32
25	0.6772	1114.2	1133.9	1130.9	1.013	2.839	75.994	19.654	0.493	0.003	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1374.73	-34.85
26	0.6736	1108.5	1128.2	1125.2	1.023	2.834	76.604	19.165	0.368	0.002	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1371.39	-37.38
27	0.6731	1107.6	1127.2	1124.5	1.046	2.850	76.613	19.114	0.373	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1370.39	-37.47
28	0.6726	1106.6	1126.2	1123.4	1.037	2.866	76.699	19.059	0.332	0.002	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1369.78	-37.98
29	0.6722	1105.6	1125.2	1122.7	1.029	2.854	76.814	18.994	0.304	0.002	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1369.61	-38.50
30	0.6717	1104.5	1124.1	1121.2	1.043	2.870	76.888	18.939	0.257	0.001	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1368.36	-39.13
31	0.6697	1101.3	1120.9	1118.0	1.053	2.858	77.240	18.663	0.186	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1366.48	-40.65
Avg	0.6829	1124.0	1144.3	1141.3	1.009	2.766	75.032	20.495	0.677	0.008	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1381.41	-30.74

Zone 43

October-18

ZONE 550

MANDAN BORDER

NBPL - St Anthony

Weighted

Begin Date	End Date	MCF	DK	BTU	MCF	DK	BTU Zone 28	AVG BTU	
10/1/2018	10/2/2018				2537	2958	1.1664	1.166	10/1/2018
10/2/2018	10/3/2018				1798	2105	1.1713	1.171	10/2/2018
10/3/2018	10/4/2018				3275	3762	1.1497	1.150	10/3/2018
10/4/2018	10/5/2018				3583	4048	1.1298	1.130	10/4/2018
10/5/2018	10/6/2018				3336	3761	1.1275	1.128	10/5/2018
10/6/2018	10/7/2018				3091	3528	1.1415	1.142	10/6/2018
10/7/2018	10/8/2018				3229	3681	1.1398	1.140	10/7/2018
10/8/2018	10/9/2018				3200	3701	1.1567	1.157	10/8/2018
10/9/2018	10/10/2018				3641	4189	1.1510	1.151	10/9/2018
10/10/2018	10/11/2018				4004	4592	1.1468	1.147	10/10/2018
10/11/2018	10/12/2018	6565	7191	1.0949	3357	3830	1.1405	1.110	10/11/2018
10/12/2018	10/13/2018	4	5	1.1001	2369	2686	1.1332	1.133	10/12/2018
10/13/2018	10/14/2018				3672	4138	1.1261	1.126	10/13/2018
10/14/2018	10/15/2018				4558	5195	1.1392	1.139	10/14/2018
10/15/2018	10/16/2018				2751	3151	1.1452	1.145	10/15/2018
10/16/2018	10/17/2018				2459	2825	1.1483	1.148	10/16/2018
10/17/2018	10/18/2018				1995	2294	1.1511	1.151	10/17/2018
10/18/2018	10/19/2018				1681	1965	1.1675	1.168	10/18/2018
10/19/2018	10/20/2018				2182	2561	1.1751	1.175	10/19/2018
10/20/2018	10/21/2018				2669	3052	1.1433	1.143	10/20/2018
10/21/2018	10/22/2018	1081	1186	1.0973	2232	2607	1.1680	1.145	10/21/2018
10/22/2018	10/23/2018	2622	2866	1.0933	2895	3340	1.1561	1.126	10/22/2018
10/23/2018	10/24/2018	1228	1339	1.0901	2551	2974	1.1662	1.141	10/23/2018
10/24/2018	10/25/2018	1218	1322	1.0859	1850	2173	1.1747	1.139	10/24/2018
10/25/2018	10/26/2018	4561	4963	1.0880	1774	2094	1.1794	1.114	10/25/2018
10/26/2018	10/27/2018	483	525	1.0887	1919	2260	1.1776	1.160	10/26/2018
10/27/2018	10/28/2018	1025	1115	1.0878	2249	2649	1.1779	1.150	10/27/2018
10/28/2018	10/29/2018				2055	2422	1.1783	1.178	10/28/2018
10/29/2018	10/30/2018				2501	2917	1.1693	1.169	10/29/2018
10/30/2018	10/31/2018				2651	3014	1.1383	1.138	10/30/2018
10/31/2018	11/1/2018	2	2	1.0928	2980	3294	1.1057	1.106	10/31/2018
		18,789	20,514	1.0919	85,044	97,766	1.1530	1.1447	



Alliance Pipeline

DAILY ANALYSIS — USA
 ND07MD1 — Hankinson Sales
 October 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%	Hel Mol%
1	1,155.402	0.6629	84.0075	9.7676	3.6714	0.3462	0.5904	0.0526	0.0431	0.0266	1.0613	0.4227	0.0105
2	1,153.579	0.6616	84.1181	9.7820	3.6042	0.3303	0.5642	0.0506	0.0422	0.0268	1.0470	0.4246	0.0101
3	1,154.924	0.6610	84.1365	10.0779	3.3902	0.3444	0.5865	0.0524	0.0435	0.0265	0.9041	0.4271	0.0110
4	1,152.489	0.6591	84.3484	10.0235	3.2758	0.3356	0.5684	0.0524	0.0439	0.0297	0.9024	0.4091	0.0108
5	1,154.110	0.6611	84.0708	10.0351	3.4532	0.3368	0.5680	0.0504	0.0413	0.0275	0.9998	0.4062	0.0109
6	1,148.887	0.6585	84.4089	9.7839	3.3349	0.3251	0.5510	0.0489	0.0401	0.0252	1.0606	0.4104	0.0111
7	1,152.678	0.6610	84.1969	9.7401	3.5415	0.3381	0.5766	0.0512	0.0421	0.0259	1.0670	0.4099	0.0108
8	1,150.293	0.6599	84.2948	9.7149	3.4671	0.3295	0.5564	0.0500	0.0410	0.0259	1.0899	0.4200	0.0105
9	1,151.871	0.6608	84.2353	9.7121	3.5112	0.3383	0.5791	0.0507	0.0417	0.0262	1.0708	0.4236	0.0109
10	1,152.985	0.6613	84.1541	9.7827	3.5205	0.3428	0.5895	0.0507	0.0415	0.0254	1.0646	0.4171	0.0111
11	1,154.898	0.6625	84.0514	9.7973	3.5821	0.3527	0.6070	0.0528	0.0437	0.0265	1.0541	0.4214	0.0111
12	1,154.527	0.6620	84.1196	9.7803	3.5699	0.3500	0.5997	0.0521	0.0429	0.0253	1.0234	0.4257	0.0112
13	1,153.971	0.6622	84.1729	9.5849	3.7120	0.3387	0.5788	0.0507	0.0416	0.0241	1.0284	0.4559	0.0119
14	1,161.750	0.6672	83.6033	9.7975	3.9737	0.3746	0.6267	0.0561	0.0458	0.0236	1.0330	0.4536	0.0120
15	1,160.796	0.6664	83.6396	9.8299	3.9345	0.3663	0.6162	0.0532	0.0436	0.0220	1.0464	0.4363	0.0120
16	1,157.255	0.6640	83.8933	9.7815	3.7506	0.3552	0.6134	0.0497	0.0405	0.0250	1.0633	0.4160	0.0115
17	1,156.315	0.6632	84.1017	9.5616	3.7891	0.3551	0.6051	0.0514	0.0419	0.0258	1.0427	0.4139	0.0117
18	1,156.659	0.6634	84.0601	9.6022	3.7962	0.3538	0.6087	0.0494	0.0403	0.0244	1.0356	0.4176	0.0117
19	1,156.448	0.6632	84.0194	9.6828	3.7737	0.3509	0.5903	0.0502	0.0411	0.0239	1.0417	0.4144	0.0117
20	1,157.014	0.6633	84.0399	9.6740	3.7641	0.3570	0.6060	0.0512	0.0416	0.0234	1.0217	0.4097	0.0114
21	1,153.735	0.6609	84.2612	9.6919	3.5856	0.3425	0.5892	0.0487	0.0397	0.0212	1.0132	0.3954	0.0113
22	1,153.992	0.6611	84.2632	9.6673	3.5961	0.3479	0.5970	0.0499	0.0404	0.0192	1.0013	0.4059	0.0118
23	1,154.712	0.6617	84.1710	9.7445	3.6030	0.3460	0.5949	0.0498	0.0408	0.0238	1.0022	0.4123	0.0119
24	1,155.410	0.6628	83.9918	9.8057	3.6543	0.3476	0.5978	0.0498	0.0409	0.0232	1.0584	0.4188	0.0117
25	1,155.877	0.6626	84.0432	9.7995	3.6596	0.3486	0.5929	0.0500	0.0411	0.0237	1.0187	0.4106	0.0120
26	1,153.290	0.6611	84.1993	9.7347	3.5877	0.3388	0.5697	0.0492	0.0404	0.0230	1.0377	0.4076	0.0119
27	1,153.038	0.6602	84.3480	9.6581	3.5597	0.3401	0.5754	0.0495	0.0409	0.0241	1.0039	0.3887	0.0116
28	1,151.928	0.6592	84.4806	9.6236	3.5062	0.3343	0.5673	0.0489	0.0405	0.0245	0.9739	0.3889	0.0114
29	1,154.218	0.6609	84.1969	9.8164	3.5742	0.3360	0.5720	0.0468	0.0385	0.0235	0.9971	0.3870	0.0116
30	1,153.348	0.6610	84.1967	9.7535	3.5675	0.3375	0.5807	0.0478	0.0396	0.0236	1.0379	0.4033	0.0118
31	1,152.382	0.6607	84.2046	9.7590	3.5483	0.3323	0.5661	0.0479	0.0397	0.0234	1.0608	0.4061	0.0118
Volume	1,154.536	0.6619	84.1251	9.7620	3.6102	0.3446	0.5869	0.0506	0.0416	0.0247	1.0275	0.4156	0.0114
Weight Avg Energy	1,154.542	0.6619	84.1247	9.7620	3.6104	0.3446	0.5869	0.0506	0.0416	0.0247	1.0275	0.4156	0.0114

For VU

October-18

ZONE 610

Watford City

Watford City West Border

Weighted

Begin Date	End Date	MCF	DK	BTU Zone 25	MCF	DK	BTU Zone 43	AVG BTU	
10/1/2018	10/2/2018	318	382	1.1990	151	173	1.1507	1.183	10/1/2018
10/2/2018	10/3/2018	314	377	1.1990	110	126	1.1503	1.186	10/2/2018
10/3/2018	10/4/2018	457	548	1.1990	308	359	1.1652	1.185	10/3/2018
10/4/2018	10/5/2018	454	544	1.1990	281	327	1.1628	1.185	10/4/2018
10/5/2018	10/6/2018	441	528	1.1990	244	282	1.1558	1.184	10/5/2018
10/6/2018	10/7/2018	384	461	1.1990	189	218	1.1509	1.183	10/6/2018
10/7/2018	10/8/2018	408	489	1.1990	225	259	1.1452	1.180	10/7/2018
10/8/2018	10/9/2018	407	489	1.1990	226	262	1.1613	1.186	10/8/2018
10/9/2018	10/10/2018	451	541	1.1990	286	326	1.1424	1.177	10/9/2018
10/10/2018	10/11/2018	501	601	1.1990	396	452	1.1414	1.174	10/10/2018
10/11/2018	10/12/2018	438	525	1.1990	252	288	1.1456	1.179	10/11/2018
10/12/2018	10/13/2018	365	437	1.1990	156	181	1.1644	1.189	10/12/2018
10/13/2018	10/14/2018	489	586	1.1990	366	422	1.1535	1.180	10/13/2018
10/14/2018	10/15/2018	501	601	1.1990	465	536	1.1520	1.176	10/14/2018
10/15/2018	10/16/2018	375	449	1.1990	190	219	1.1506	1.183	10/15/2018
10/16/2018	10/17/2018	359	431	1.1990	190	217	1.1409	1.179	10/16/2018
10/17/2018	10/18/2018	325	390	1.1990	148	171	1.1544	1.185	10/17/2018
10/18/2018	10/19/2018	279	335	1.1990	102	115	1.1341	1.182	10/18/2018
10/19/2018	10/20/2018	362	435	1.1990	154	176	1.1433	1.182	10/19/2018
10/20/2018	10/21/2018	360	431	1.1990	147	170	1.1583	1.187	10/20/2018
10/21/2018	10/22/2018	350	420	1.1990	179	204	1.1416	1.180	10/21/2018
10/22/2018	10/23/2018	403	483	1.1990	265	306	1.1504	1.180	10/22/2018
10/23/2018	10/24/2018	357	428	1.1990	224	255	1.1376	1.175	10/23/2018
10/24/2018	10/25/2018	315	377	1.1990	169	191	1.1335	1.176	10/24/2018
10/25/2018	10/26/2018	328	393	1.1990	134	152	1.1339	1.180	10/25/2018
10/26/2018	10/27/2018	316	379	1.1990	95	108	1.1282	1.183	10/26/2018
10/27/2018	10/28/2018	357	428	1.1990	137	154	1.1272	1.179	10/27/2018
10/28/2018	10/29/2018	341	409	1.1990	146	164	1.1262	1.177	10/28/2018
10/29/2018	10/30/2018	403	483	1.1990	205	230	1.1252	1.174	10/29/2018
10/30/2018	10/31/2018	392	470	1.1990	203	228	1.1241	1.173	10/30/2018
10/31/2018	11/1/2018	410	492	1.1990	228	256	1.1209	1.171	10/31/2018
		11,960	14,342		6,571	7,527	1.1443	1.1804	

ROW ID	LOCATION DESCRIPTION	GROSS HEATING VALUE (BTU/CF)	SPECIFIC GRAVITY	WOBBE (cal/cf)	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	ChangeTimestamp	NOTES
11587	GLEN ULLIN	1095	0.6379	1371	-52	1.7157	0.8482	84.393	12.2292	0.7509	0.0345	0.0186	0.0025	0.0023	0	0.0009	0.0161	0	9/30/2018	10/1/2018	10/1/2018 3:32:11 PM	
11587	GLEN ULLIN	1092.9	0.6357	1370.8	-53.2	1.6535	0.8346	84.8401	11.8334	0.776	0.032	0.0179	0.0017	0.0018	0	0.0008	0.0208	0	10/1/2018	10/2/2018	10/2/2018 3:36:42 PM	
11587	GLEN ULLIN	1091.9	0.6351	1370.1	-53.6	1.6625	0.8307	85.0005	11.6442	0.7927	0.0372	0.0203	0.0022	0.0022	0	0.0002	0.0229	0	10/2/2018	10/3/2018	10/3/2018 3:33:59 PM	
11587	GLEN ULLIN	1098.1	0.6389	1373.8	-50.4	1.5945	0.8678	84.3195	12.3344	0.8098	0.0432	0.0229	0.0028	0.0027	0	0.0008	0.0188	0	10/4/2018	10/4/2018	10/4/2018 3:35:05 PM	
11587	GLEN ULLIN	1095	0.6368	1372.2	-52.8	1.6308	0.8318	84.6517	12.0506	0.7761	0.0354	0.0199	0.0016	0.0017	0	0.0001	0.0084	0	10/4/2018	10/5/2018	10/5/2018 3:33:36 PM	
11587	GLEN ULLIN	1091.8	0.6347	1370.4	-54.2	1.6398	0.826	85.0348	11.6862	0.7606	0.0299	0.0169	0.0016	0.0017	0	0.0004	0.0182	0	10/5/2018	10/6/2018	10/6/2018 3:43:47 PM	
11587	GLEN ULLIN	1094.3	0.6369	1371.2	-52.6	1.6821	0.8336	84.6046	12.0506	0.7797	0.0284	0.0162	0.0018	0.0016	0	0.0001	0.0193	0	10/6/2018	10/7/2018	10/7/2018 3:38:10 PM	
11587	GLEN ULLIN	1094.1	0.637	1370.8	-52.3	1.7008	0.8371	84.6149	11.9705	0.8066	0.0339	0.0184	0.0025	0.0023	0	0.0007	0.0266	0	10/7/2018	10/8/2018	10/8/2018 3:33:15 PM	
11587	GLEN ULLIN	1095.7	0.6379	1371.9	-51.6	1.6885	0.8369	84.4155	12.1809	0.8063	0.0331	0.0181	0.0024	0.0022	0	0.0008	0.0219	0	10/8/2018	10/9/2018	10/9/2018 3:32:43 PM	
11587	GLEN ULLIN	1094.9	0.6379	1370.9	-52.3	1.7007	0.8566	84.4209	12.1984	0.7763	0.0277	0.0157	0.002	0.0017	0	0.0007	0.0182	0	10/9/2018	10/10/2018	10/10/2018 3:38:07 PM	
11587	GLEN ULLIN	1093.2	0.6363	1370.5	-52.7	1.6675	0.8496	84.7943	11.8116	0.8106	0.0365	0.0197	0.0023	0.0022	0	0.0004	0.0256	0	10/10/2018	10/11/2018	10/11/2018 3:32:57 PM	
11587	GLEN ULLIN	1097.5	0.6397	1372.2	-48.8	1.7399	0.8436	84.2368	12.1753	0.9248	0.0451	0.0243	0.0037	0.0033	0	0.0018	0.0217	0	10/11/2018	10/12/2018	10/12/2018 3:31:45 PM	
11587	GLEN ULLIN	1095.1	0.6379	1371.1	-49.8	1.7345	0.8269	84.5731	11.8916	0.8968	0.0429	0.0222	0.0043	0.0036	0	0.002	0.026	0	10/12/2018	10/13/2018	10/13/2018 3:31:34 PM	
11587	GLEN ULLIN	1093.6	0.6365	1370.7	-50.9	1.6832	0.8388	84.8401	11.6768	0.8834	0.0427	0.0218	0.0041	0.0036	0	0.0016	0.0254	0	10/13/2018	10/14/2018	10/14/2018 3:33:11 PM	
11587	GLEN ULLIN	1090.7	0.6341	1369.7	-52.9	1.6232	0.8434	85.1585	11.4409	0.8162	0.0376	0.0195	0.003	0.0028	0	0.0015	0.0948	0	10/14/2018	10/15/2018	10/15/2018 3:35:25 PM	
11587	GLEN ULLIN	1087.2	0.6311	1368.5	-54.5	1.5414	0.8564	85.4532	11.068	0.8039	0.0353	0.0188	0.0031	0.0027	0	0.0012	0.2572	0	10/15/2018	10/16/2018	10/16/2018 3:31:24 PM	
11587	GLEN ULLIN	1086.8	0.6311	1368	-54.6	1.5683	0.8559	85.2311	11.166	0.7961	0.035	0.0189	0.0029	0.0026	0	0.0009	0.3224	0	10/16/2018	10/17/2018	10/17/2018 3:36:24 PM	
11587	GLEN ULLIN	1092.9	0.6357	1370.7	-50.3	1.6311	0.8561	84.5211	11.6492	0.9602	0.0456	0.0257	0.003	0.0027	0	0.0001	0.3048	0	10/17/2018	10/18/2018	10/18/2018 3:35:51 PM	
11587	GLEN ULLIN	1090.6	0.6343	1369.3	-51.8	1.6593	0.8411	84.7136	11.5451	0.8761	0.0423	0.0224	0.0031	0.0028	0	0.0012	0.2935	0	10/18/2018	10/19/2018	10/19/2018 3:35:28 PM	
11587	GLEN ULLIN	1090.5	0.6345	1369	-52.6	1.6659	0.8498	84.7971	11.6231	0.8071	0.0376	0.0196	0.0033	0.0029	0	0.0012	0.2673	0	10/19/2018	10/20/2018	10/20/2018 3:40:44 PM	
11587	GLEN ULLIN	1097.4	0.6397	1372	-48.7	1.7325	0.8564	84.1523	12.1343	0.9733	0.0462	0.025	0.0029	0.0028	0	0.0012	0.139	0	10/20/2018	10/21/2018	10/21/2018 3:40:35 PM	
11587	GLEN ULLIN	1096.4	0.6393	1371.3	-49.2	1.7614	0.8463	84.265	12.0853	0.9269	0.0476	0.0248	0.0033	0.0031	0	0.0014	0.0459	0	10/21/2018	10/22/2018	10/22/2018 3:32:25 PM	
11587	GLEN ULLIN	1092.9	0.6373	1369	-51.1	1.7843	0.8527	84.256	12.0515	0.8188	0.0381	0.0201	0.0029	0.0027	0	0.0014	0.1877	0.0022	10/22/2018	10/23/2018	10/23/2018 3:42:03 PM	
11587	GLEN ULLIN	1090.9	0.6352	1368.7	-51.8	1.6953	0.8616	84.5779	11.734	0.814	0.0418	0.0217	0.0036	0.0032	0	0.0014	0.2453	0.0017	10/23/2018	10/24/2018	10/24/2018 3:35:47 PM	
11587	GLEN ULLIN	1087.6	0.6325	1367.5	-52.8	1.6327	0.864	85.2026	11.1827	0.8133	0.0457	0.0243	0.0038	0.0037	0	0.0017	0.2442	0.0012	10/24/2018	10/25/2018	10/25/2018 3:35:41 PM	
11587	GLEN ULLIN	1085.4	0.6308	1366.6	-54.3	1.6209	0.8556	85.4881	10.9257	0.8057	0.0412	0.0217	0.0033	0.0032	0	0.0013	0.2391	0.0021	10/25/2018	10/26/2018	10/26/2018 3:37:58 PM	
11587	GLEN ULLIN	1086.4	0.6317	1366.8	-52.7	1.6675	0.8418	85.3368	11.0364	0.8051	0.0503	0.0251	0.0049	0.0043	0	0.0021	0.2253	0.0022	10/26/2018	10/27/2018	10/27/2018 3:33:56 PM	
11587	GLEN ULLIN	1092.3	0.6363	1369.3	-49.3	1.7381	0.8392	84.6663	11.5353	0.9603	0.0515	0.0257	0.0052	0.0045	0	0.002	0.1904	0.0016	10/27/2018	10/28/2018	10/28/2018 3:34:17 PM	
11587	GLEN ULLIN	1089.2	0.6339	1368.1	-52.3	1.7185	0.8318	84.8883	11.4601	0.8202	0.0429	0.0219	0.0039	0.0034	0	0.0015	0.2258	0.0022	10/28/2018	10/29/2018	10/29/2018 3:34:57 PM	
11587	GLEN ULLIN	1092.8	0.6363	1370	-46.8	1.7202	0.8348	84.7305	11.5202	0.9322	0.061	0.0376	0.0064	0.0069	0	0.0039	0.1835	0.0033	10/29/2018	10/30/2018	10/30/2018 3:37:51 PM	
11587	GLEN ULLIN	1088.9	0.6339	1367.6	-53.2	1.6944	0.855	85.2419	11.3179	0.792	0.0407	0.021	0.0037	0.0033	0	0.0016	0.0355	0.0066	10/30/2018	10/31/2018	10/31/2018 3:36:42 PM	
11587	GLEN ULLIN	1093.6	0.6374	1369.8	-51	1.7343	0.8573	84.6332	11.7761	0.8961	0.0429	0.0237	0.0032	0.0032	0	0.0009	0.0387	0	10/31/2018	11/1/2018	11/1/2018 3:38:49 PM	

32 record(s) retrieved

CONF
8/2

NORTH DAKOTA HEATING VALUE ZONES		
ZONES	MEASURING DEVICE	LOCATION
211	Chromatograph	Sidney Border
24	Chromatograph	Williston Border
241	Accumulated Sample	Fairview Border
25	Accumulated Sample	Watford City West Border
260	Chromatograph	North Tioga Transfer
261	Chromatograph	Tioga Comp Station – Robinson Lake Plant
262	Chromatograph	Minot Border
263	Accumulated Sample	Lignite Plant
264	Accumulated Sample	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	Chromatograph	Bowman Border
43	Chromatograph	Spring Creek
550	Accumulated Sample & Chromatograph	Mandan Border
600	Chromatograph	Hankinson Area
610	Accumulated Sample & Chromatograph	Watford City
802	Chromatograph	Linton

MONTANA DAKOTA UTILITIES CO
NORTH DAKOTA
HEATING VALUE DATA

STATE	ZONE	ZONE BOUNDARY	12 MONTH AVERAGE	OCT 18	SEPT 18	AUG 18	JULY 18	JUNE 18	MAY 18	APRIL 18	MARCH 18	FEB 18	JAN 18	DEC 17	NOV 17	ZONE
MT/ND	211	Sidney Border - MonDak Tfr - Sidney Plt	1196	1202	1191	1203	1202	1171	1193	1191	1211	1195	1185	1193	1210	211
ND	24	Williston Border - Charbonneau Station	1142	1140	1152	1136	1158	1141	1135	1136	1140	1140	1138	1143	1144	24
ND	25	Watford City West Border	1188	1199	1200	1197	1204	1202	1192	1185	1179	1184	1174	1165	1169	25
ND	28	Bismarck Station - Glen Ullin Station	1141	1153	1173	1162	1153	1173	1172	1163	1121	1098	1096	1114	1111	28
ND	31	Dickinson Brd - Belfield Trf - G Ullin Stn	1127	1134	1144	1132	1147	1139	1158	1134	1122	1102	1095	1111	1110	31
ND/MT	32	Cabin Creek Station - Belfield Transfer	1107	1110	1106	1133	1136	1127	1113	1116	1104	1080	1072	1096	1090	32
ND	33	Little Knife Plant	1175	1172	1172	1176	1175	1174	1176	1175	1175	1176	1175	1174	1174	33
ND	34	Badlands Plant/Bowman Border	1000	1063	1018	979	983	984	996	996	996	996	996	996	996	34
ND	43	Spring Creek I - Sax Valve I	1157	1144	1158	1172	1152	1155	1160	1164	1158	1148	1153	1165	1158	43
ND/MT	241	Fairview Border	1188	1175	1186	1195	1196	1180	1168	1151	1205	1206	1203	1190	1204	241
ND	260	North Tioga Transfer - Nesson Plant	1042	1102	1120	1101	1127	1089	989	989	987	986	1021	998	992	260
ND	261	Tioga Comp Station - Robinson Lake Plan	1174	1183	1181	1175	1177	1178	1169	1176	1173	1171	1173	1167	1170	261
ND	262	Minot Bdr - Palermo Bdr - Bismarck Stn	1183	1179	1175	1160	1156	1175	1180	1198	1199	1191	1193	1196	1190	262
ND	263	Lignite Plant	1132	1140	1146	1162	1135	1115	1128	1135	1115	1135	1114	1120	1143	263
ND	264	Epping Border	1138	1139	1135	1135	1148	1148	1129	1128	1118	1144	1161	1142	1133	264
ND	265	Tioga Comp Station - County Line Plant	1175	1183	1182	1178	1176	1178	1175	1176	1173	1171	1174	1167	1170	265
ND	266	County Line Plant	1181	1181	1180	1178	1181	1181	1180	1181	1182	1185	1183	1181	1184	266
ND	271	Bismarck Station - Cleveland Station	1172	1178	1173	1162	1153	1173	1173	1194	1187	1159	1161	1176	1179	271
ND	272	Cleveland Station - Mapleton	1172	1177	1173	1160	1154	1173	1172	1194	1187	1158	1160	1177	1179	272
ND	273	Cleveland Station - Grafton Border	1172	1177	1173	1161	1153	1173	1171	1192	1187	1158	1160	1177	1179	273
ND	550	Mandan Border / NBPL-St Anthony	1145	1145	1173	1162	1150	1173	1172	1163	1100	1090	1088	1099	1093	550
ND	610	MDU-Watford City BTU	1168	1180	1181	1175	1152	1156	1164	1174	1170	1168	1164	1165	1165	610
ND	802	Linton	1083	1092	1097	1092	1101	1097	1083	1074	1069	1068	1069	1073	1075	802
ND	903	Hettinger Propane	2549	2549	2549	2549	2549	2549	2549	2549	2549	2549	2549	2549	2549	903

THERMAL ZONE VARIANCE DOCUMENTATION		
October 2018		
ZONE	BTU VARIANCE	REASON
28	-20	Operational Change
34	45	Blend of Gas