

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

March 29, 2017

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

Re: Case No. PU-16-002 (Therm Billing)
Monthly Report – January 2017

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 February 2017.
2. Attachment B consists of copies of the monthly Heating Value Test Reports received from our suppliers for the month of January 2017.
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 January 2017.

Please acknowledge receipt by stamping or initialing the duplicate copy of this letter attached hereto and returning the same in the enclosed self-addressed, stamped envelope. Should the Commission or its Staff have any comments or questions with respect to these reports, please call me.

Sincerely,



Tamie Aberle
Director of Regulatory Affairs

Montana-Dakota Utilities Co.
Therm Billing Factors - North Dakota
Feb-17

| Town | Heat Zone | Therm Factor |
|----------------------|-----------|--------------|
| MDU-303-ALEXANDER | 025 | 1.1268 |
| MDU-308-ARNEGARD | 025 | 1.1268 |
| MDU-314-APPLE VALLEY | 271 | 1.0874 |
| MDU-318-BEACH | 032 | 1.0332 |
| MDU-319-BELFIELD | 032 | 1.0408 |
| MDU-323-BERTHOLD | 262 | 1.0805 |
| MDU-327-BISMARCK | 028 | 1.0654 |
| MDU-330-BOWMAN | 034 | 0.9137 |
| MDU-337-BURLINGTON | 262 | 1.1038 |
| MDU-343-CARRINGTON | 273 | 1.0874 |
| MDU-344-CLEVELAND | 272 | 1.0788 |
| MDU-364-CAVALIER | 273 | 1.1104 |
| MDU-365-DAWSON | 271 | 1.0798 |
| MDU-368-DES LACS | 262 | 1.0883 |
| MDU-369-DICKINSON | 031 | 1.0409 |
| MDU-374-FT TOTTEN | 273 | 1.0951 |
| MDU-375-DEVILS LAKE | 273 | 1.0951 |
| MDU-379-BARLOW | 273 | 1.0874 |
| MDU-384-EPPING | 264 | 1.1202 |
| MDU-387-ELDRIDGE | 272 | 1.0864 |
| MDU-407-GLADSTONE | 031 | 1.0409 |
| MDU-411-GLEN ULLIN | 031 | 1.0484 |
| MDU-413-GOLVA | 032 | 1.0180 |
| MDU-416-GARRISON | 262 | 1.0883 |
| MDU-417-GRAFTON | 273 | 1.1180 |
| MDU-429-HEBRON | 031 | 1.0484 |
| MDU-432-HETTINGER | 903 | 2.3875 |
| MDU-449-JAMESTOWN | 272 | 1.0941 |
| MDU-459-KILLDEER | 033 | 1.1334 |
| MDU-463-LANGDON | 273 | 1.0874 |
| MDU-469-LEFOR | 031 | 1.0409 |
| MDU-474-LIGNITE | 263 | 1.0559 |
| MDU-475-LINTON | 802 | 1.0141 |
| MDU-478-LINCOLN | 028 | 1.0729 |
| MDU-488-MCKENZIE | 271 | 1.0874 |
| MDU-494-MEDINA | 271 | 1.0798 |
| MDU-498-MANDAN | 028 | 1.0729 |
| MDU-500-MARMARTH | 034 | 0.9204 |
| MDU-505-MINOT | 262 | 1.1038 |
| MDU-510-MOTT | 031 | 1.0409 |
| MDU-512-MAX | 262 | 1.1038 |
| MDU-522-NEW ENGLAND | 031 | 1.0333 |
| MDU-524-NEW SALEM | 028 | 1.0503 |
| MDU-532-NEW ROCKFORD | 273 | 1.0874 |
| MDU-539-PARK RIVER | 273 | 1.1104 |
| MDU-540-PALERMO | 262 | 1.0805 |
| MDU-558-RAY | 264 | 1.1202 |
| MDU-561-REGENT | 031 | 1.0409 |
| MDU-563-RHAME | 034 | 0.9069 |

| | | |
|------------------------|-----|--------|
| MDU-564-RICHARDTON | 031 | 1.0333 |
| MDU-568-ROSS | 261 | 1.0277 |
| MDU-572-RUTHVILLE | 262 | 1.1038 |
| MDU-574-SANBORN | 272 | 1.0941 |
| MDU-583-SENTINEL BUTTE | 032 | 1.0332 |
| MDU-588-SOUTH HEART | 031 | 1.0333 |
| MDU-717-SPIRITWOOD | 272 | 1.0941 |
| MDU-590-SPRINGBROOK | 264 | 1.1202 |
| MDU-591-STANLEY | 261 | 1.0352 |
| MDU-593-STEELE | 271 | 1.0798 |
| MDU-598-SHEYENNE | 273 | 1.0951 |
| MDU-605-SURREY | 262 | 1.1038 |
| MDU-610-TAPPEN | 271 | 1.0798 |
| MDU-611-TAYLOR | 031 | 1.0333 |
| MDU-616-TIOGA | 261 | 1.0352 |
| MDU-619-TURTLE LAKE | 262 | 1.0883 |
| MDU-620-TRENTON | 024 | 1.1320 |
| MDU-624-UNDERWOOD | 262 | 1.0883 |
| MDU-625-VALLEY CITY | 272 | 1.1017 |
| MDU-629-WALHALLA | 273 | 1.1104 |
| MDU-632-WATFORD CITY | 610 | 1.0975 |
| MDU-636-WHEELOCK | 264 | 1.1121 |
| MDU-637-WHITE EARTH | 261 | 1.0352 |
| MDU-642-WILLISTON | 024 | 1.1320 |
| MDU-646-WASHBURN | 262 | 1.0960 |
| MDU-647-WILTON | 262 | 1.0805 |
| MDU-664-RIVERDALE | 262 | 1.0883 |
| MDU-691-FAIRVIEW | 241 | 1.1415 |
| MDU-712-MINOT AFB | 262 | 1.1038 |
| MDU-718-FAIRMOUNT | 600 | 1.1170 |
| MDU-732-NEKOMA | 273 | 1.0874 |
| MDU-732-MSR SITE | 273 | 1.0874 |

GQ Source Daily Summary

January 2017

Number: 251

Pressure Base: 14.730

Contract Day: 1

Name: SIDNEY BORDER-MONDAK JNCTN-SIDNEY PLANT Temperature Base:

Contract Hour: 9

| Day | Relative Density | Heating Value Wet | Heating Value Dry | CO2 | N2 | C1 | C2 | C3 | IC4 | NC4 | IC5 | NC5 | C6 | C7 | C8 | C9 | C10 | Wobbe | CCT |
|-----|------------------|-------------------|-------------------|-------|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|-----|
| 1 | 0.7064 | 1170.8 | 1191.6 | 0.169 | 3.412 | 70.931 | 23.230 | 2.176 | 0.030 | 0.047 | 0.002 | 0.002 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1417.75 | |
| 2 | 0.7143 | 1177.4 | 1198.2 | 0.340 | 3.484 | 70.293 | 23.014 | 2.628 | 0.076 | 0.145 | 0.011 | 0.009 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1417.85 | |
| 3 | 0.7059 | 1171.5 | 1192.3 | 0.091 | 3.434 | 70.955 | 23.262 | 2.189 | 0.028 | 0.039 | 0.001 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1419.14 | |
| 4 | 0.7140 | 1170.7 | 1191.4 | 0.529 | 3.587 | 70.238 | 22.950 | 2.526 | 0.061 | 0.102 | 0.004 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1410.07 | |
| 5 | 0.7213 | 1173.5 | 1194.3 | 0.821 | 3.650 | 69.474 | 23.006 | 2.812 | 0.082 | 0.144 | 0.007 | 0.005 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1406.32 | |
| 6 | 0.7075 | 1173.2 | 1194.0 | 0.172 | 3.368 | 70.892 | 23.171 | 2.276 | 0.044 | 0.071 | 0.002 | 0.002 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1419.51 | |
| 7 | 0.7069 | 1175.0 | 1195.8 | 0.041 | 3.393 | 70.969 | 23.155 | 2.320 | 0.045 | 0.072 | 0.002 | 0.002 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1422.26 | |
| 8 | 0.7118 | 1174.1 | 1194.8 | 0.351 | 3.439 | 70.280 | 23.455 | 2.353 | 0.045 | 0.072 | 0.003 | 0.002 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1416.32 | |
| 9 | 0.7210 | 1177.0 | 1197.8 | 0.701 | 3.597 | 69.374 | 23.279 | 2.845 | 0.072 | 0.123 | 0.006 | 0.004 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1410.79 | |
| 10 | 0.7328 | 1176.9 | 1197.7 | 1.254 | 3.860 | 68.386 | 22.698 | 3.462 | 0.116 | 0.206 | 0.010 | 0.008 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1399.19 | |
| 11 | 0.7421 | 1194.2 | 1215.3 | 1.158 | 3.821 | 68.006 | 22.015 | 4.322 | 0.204 | 0.412 | 0.032 | 0.029 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1410.77 | |
| 12 | 0.7216 | 1181.6 | 1202.6 | 0.596 | 3.525 | 69.387 | 23.238 | 3.036 | 0.078 | 0.131 | 0.005 | 0.004 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1415.77 | |
| 13 | 0.7144 | 1184.3 | 1205.2 | 0.192 | 3.299 | 70.360 | 23.027 | 2.906 | 0.076 | 0.131 | 0.005 | 0.004 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1426.01 | |
| 14 | 0.7258 | 1178.6 | 1199.4 | 0.892 | 3.657 | 69.107 | 22.856 | 3.199 | 0.099 | 0.175 | 0.008 | 0.006 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1407.95 | |
| 15 | 0.7278 | 1179.9 | 1200.8 | 0.941 | 3.690 | 68.836 | 22.970 | 3.262 | 0.102 | 0.182 | 0.009 | 0.007 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1407.59 | |
| 16 | 0.7225 | 1180.4 | 1201.3 | 0.680 | 3.550 | 69.552 | 22.757 | 3.188 | 0.094 | 0.164 | 0.008 | 0.006 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1413.49 | |
| 17 | 0.7331 | 1177.6 | 1198.4 | 1.251 | 3.855 | 68.394 | 22.636 | 3.510 | 0.119 | 0.215 | 0.011 | 0.008 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1399.65 | |
| 18 | 0.7332 | 1177.8 | 1198.7 | 1.250 | 3.850 | 68.339 | 22.732 | 3.474 | 0.119 | 0.216 | 0.011 | 0.008 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1399.88 | |
| 19 | 0.7323 | 1176.4 | 1197.2 | 1.250 | 3.856 | 68.546 | 22.498 | 3.491 | 0.120 | 0.218 | 0.011 | 0.009 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1398.98 | |
| 20 | 0.7338 | 1179.0 | 1199.9 | 1.247 | 3.843 | 68.361 | 22.588 | 3.590 | 0.124 | 0.226 | 0.012 | 0.009 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1400.64 | |
| 21 | 0.7308 | 1173.3 | 1194.1 | 1.261 | 3.880 | 68.816 | 22.244 | 3.445 | 0.119 | 0.216 | 0.011 | 0.009 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1396.84 | |
| 22 | 0.7318 | 1175.2 | 1196.0 | 1.256 | 3.870 | 68.643 | 22.388 | 3.483 | 0.120 | 0.218 | 0.011 | 0.009 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1398.09 | |
| 23 | 0.7325 | 1176.6 | 1197.4 | 1.247 | 3.866 | 68.473 | 22.587 | 3.471 | 0.119 | 0.217 | 0.011 | 0.008 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1399.05 | |
| 24 | 0.7312 | 1176.4 | 1197.2 | 1.227 | 3.783 | 68.714 | 22.456 | 3.474 | 0.116 | 0.211 | 0.011 | 0.009 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1400.10 | |
| 25 | 0.7309 | 1181.2 | 1202.1 | 1.167 | 3.550 | 68.899 | 22.423 | 3.624 | 0.109 | 0.205 | 0.011 | 0.010 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1406.10 | |
| 26 | 0.7292 | 1180.6 | 1201.5 | 1.143 | 3.471 | 69.103 | 22.438 | 3.519 | 0.105 | 0.199 | 0.011 | 0.010 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1406.95 | |
| 27 | 0.7329 | 1181.9 | 1202.8 | 1.191 | 3.662 | 68.570 | 22.536 | 3.709 | 0.109 | 0.202 | 0.011 | 0.009 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1404.98 | |
| 28 | 0.7304 | 1180.3 | 1201.2 | 1.168 | 3.564 | 68.923 | 22.437 | 3.581 | 0.106 | 0.199 | 0.011 | 0.010 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1405.46 | |
| 29 | 0.7328 | 1181.3 | 1202.2 | 1.195 | 3.679 | 68.565 | 22.538 | 3.699 | 0.107 | 0.197 | 0.011 | 0.009 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1404.44 | |
| 30 | 0.7330 | 1180.5 | 1201.4 | 1.211 | 3.721 | 68.567 | 22.447 | 3.731 | 0.107 | 0.197 | 0.010 | 0.008 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1403.29 | |
| 31 | 0.7350 | 1180.4 | 1201.3 | 1.252 | 3.857 | 68.342 | 22.322 | 3.897 | 0.112 | 0.201 | 0.010 | 0.007 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1401.24 | |
| Avg | 0.7251 | 1178.0 | 1198.8 | 0.879 | 3.647 | 69.235 | 22.753 | 3.200 | 0.096 | 0.173 | 0.009 | 0.007 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1407.95 | |

Zone 211

GQ Source Daily Summary

January 2017

Number: 571

Pressure Base: 14.730

Contract Day: 1

Name: WILLISTON BORDER-CHARBONNEAU STATION

Temperature Base:

Contract Hour: 9

| Day | Relative Density | Heating Value Wet | Heating Value Dry | CO2 | N2 | C1 | C2 | C3 | IC4 | NC4 | IC5 | NC5 | C6 | C7 | C8 | C9 | C10 | Wobbe | CCT |
|-----|------------------|-------------------|-------------------|-------|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|-----|
| 1 | 0.7022 | 1163.5 | 1184.1 | 0.921 | 2.309 | 73.361 | 20.694 | 2.473 | 0.071 | 0.147 | 0.011 | 0.013 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1413.03 | |
| 2 | 0.7040 | 1170.1 | 1190.8 | 0.922 | 2.072 | 73.251 | 20.814 | 2.696 | 0.073 | 0.148 | 0.011 | 0.013 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1419.23 | |
| 3 | 0.7030 | 1168.9 | 1189.6 | 0.916 | 2.062 | 73.379 | 20.780 | 2.614 | 0.074 | 0.151 | 0.011 | 0.013 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1418.77 | |
| 4 | 0.7034 | 1168.0 | 1188.7 | 0.928 | 2.132 | 73.177 | 21.037 | 2.475 | 0.075 | 0.154 | 0.011 | 0.012 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1417.33 | |
| 5 | 0.7083 | 1173.2 | 1193.9 | 0.922 | 2.287 | 72.494 | 21.268 | 2.734 | 0.083 | 0.180 | 0.014 | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1418.65 | |
| 6 | 0.7120 | 1175.3 | 1196.2 | 0.937 | 2.482 | 71.753 | 21.827 | 2.665 | 0.093 | 0.205 | 0.017 | 0.021 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1417.57 | |
| 7 | 0.7119 | 1177.0 | 1197.8 | 0.931 | 2.384 | 71.822 | 21.826 | 2.703 | 0.091 | 0.204 | 0.018 | 0.022 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1419.61 | |
| 8 | 0.7093 | 1171.3 | 1192.0 | 0.931 | 2.486 | 72.110 | 21.616 | 2.563 | 0.082 | 0.179 | 0.015 | 0.018 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1415.35 | |
| 9 | 0.7092 | 1170.3 | 1191.0 | 0.925 | 2.547 | 72.103 | 21.567 | 2.578 | 0.079 | 0.172 | 0.013 | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1414.23 | |
| 10 | 0.7118 | 1172.8 | 1193.6 | 0.921 | 2.638 | 71.914 | 21.464 | 2.683 | 0.098 | 0.230 | 0.022 | 0.029 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1414.75 | |
| 11 | 0.7077 | 1166.6 | 1187.3 | 0.899 | 2.666 | 72.615 | 20.778 | 2.712 | 0.090 | 0.202 | 0.017 | 0.021 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1411.33 | |
| 12 | 0.7084 | 1167.0 | 1187.6 | 0.910 | 2.692 | 72.249 | 21.229 | 2.664 | 0.074 | 0.157 | 0.011 | 0.013 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1411.08 | |
| 13 | 0.7082 | 1168.7 | 1189.4 | 0.920 | 2.555 | 72.412 | 21.165 | 2.649 | 0.083 | 0.182 | 0.015 | 0.019 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1413.35 | |
| 14 | 0.7094 | 1169.5 | 1190.2 | 0.930 | 2.604 | 72.134 | 21.410 | 2.631 | 0.082 | 0.178 | 0.014 | 0.017 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1413.11 | |
| 15 | 0.7082 | 1167.2 | 1187.9 | 0.936 | 2.622 | 72.419 | 21.089 | 2.626 | 0.085 | 0.188 | 0.016 | 0.019 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1411.54 | |
| 16 | 0.7071 | 1165.9 | 1186.5 | 0.932 | 2.604 | 72.656 | 20.852 | 2.654 | 0.085 | 0.184 | 0.015 | 0.018 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1411.03 | |
| 17 | 0.7057 | 1163.2 | 1183.8 | 0.904 | 2.679 | 72.969 | 20.451 | 2.682 | 0.086 | 0.192 | 0.016 | 0.020 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1409.15 | |
| 18 | 0.7024 | 1158.6 | 1179.1 | 0.895 | 2.663 | 73.518 | 20.064 | 2.537 | 0.086 | 0.196 | 0.018 | 0.023 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1406.87 | |
| 19 | 0.7031 | 1161.7 | 1182.3 | 0.919 | 2.507 | 73.018 | 21.016 | 2.264 | 0.078 | 0.169 | 0.013 | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1409.95 | |
| 20 | 0.7078 | 1168.2 | 1188.9 | 0.924 | 2.539 | 72.474 | 21.145 | 2.611 | 0.085 | 0.188 | 0.016 | 0.019 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1413.18 | |
| 21 | 0.7090 | 1171.9 | 1192.7 | 0.928 | 2.418 | 72.321 | 21.324 | 2.720 | 0.083 | 0.177 | 0.014 | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1416.48 | |
| 22 | 0.7084 | 1170.2 | 1191.0 | 0.925 | 2.470 | 72.399 | 21.258 | 2.639 | 0.086 | 0.187 | 0.015 | 0.019 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1415.02 | |
| 23 | 0.7069 | 1168.7 | 1189.4 | 0.926 | 2.421 | 72.607 | 21.184 | 2.570 | 0.083 | 0.178 | 0.014 | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1414.65 | |
| 24 | 0.7095 | 1172.1 | 1192.9 | 0.921 | 2.470 | 72.239 | 21.321 | 2.751 | 0.087 | 0.183 | 0.014 | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1416.15 | |
| 25 | 0.7085 | 1168.5 | 1189.2 | 0.909 | 2.609 | 72.350 | 21.180 | 2.641 | 0.087 | 0.189 | 0.015 | 0.019 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1412.84 | |
| 26 | 0.7085 | 1168.6 | 1189.3 | 0.909 | 2.609 | 72.385 | 21.089 | 2.710 | 0.085 | 0.182 | 0.015 | 0.018 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1412.87 | |
| 27 | 0.7080 | 1168.5 | 1189.2 | 0.914 | 2.553 | 72.385 | 21.261 | 2.592 | 0.083 | 0.180 | 0.014 | 0.017 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1413.34 | |
| 28 | 0.7086 | 1168.7 | 1189.4 | 0.915 | 2.597 | 72.254 | 21.330 | 2.619 | 0.081 | 0.173 | 0.013 | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1412.97 | |
| 29 | 0.7078 | 1167.5 | 1188.2 | 0.913 | 2.601 | 72.285 | 21.395 | 2.542 | 0.077 | 0.162 | 0.012 | 0.013 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1412.30 | |
| 30 | 0.7076 | 1167.7 | 1188.3 | 0.913 | 2.572 | 72.383 | 21.286 | 2.574 | 0.079 | 0.166 | 0.012 | 0.014 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1412.70 | |
| 31 | 0.7088 | 1170.3 | 1191.0 | 0.915 | 2.523 | 72.308 | 21.246 | 2.724 | 0.084 | 0.174 | 0.012 | 0.014 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1414.67 | |
| Avg | 0.7076 | 1169.0 | 1189.4 | 0.920 | 2.496 | 72.508 | 21.160 | 2.622 | 0.083 | 0.179 | 0.014 | 0.017 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1413.97 | |

Zone 24

GQ Source Analysis

| | | | |
|----------------------------|----------------------|------------------------------|---------|
| GQ Source Number: | 0602160 | Specific Gravity: | 0.7294 |
| GQ Source Name: | FAIRVIEW BORDER | Dry Heat Value: | 1196.11 |
| Effective Date: | 1/1/2017 9:00:00 AM | Wet Heat Value: | 1175.29 |
| Effective End Date: | 1/18/2038 9:14:07 PM | As Deliv. Heat Value: | 1196.11 |
| Pressure Base: | 14.730 | Sample Pressure: | 360.00 |
| Viscosity: | | Sample Temperature: | |

| | | <u>Mol %</u> | <u>Liquid Content</u> | | | <u>Mol %</u> |
|-----|------------|--------------|-----------------------|--------|------------------|--------------|
| C1 | Methane | 68.935 | | CO2 | Carbon Dioxide | 1.253 |
| C2 | Ethane | 22.309 | 0.0000 | N2 | Nitrogen | 3.594 |
| C3 | Propane | 3.478 | 0.9554 | O2 | Oxygen | 0.010 |
| IC4 | Isobutane | 0.136 | 0.0443 | He | Helium | |
| NC4 | n-Butane | 0.252 | 0.0794 | H2 | Hydrogen | |
| IC5 | Isopentane | 0.017 | 0.0063 | H2S | Hydrogen Sulfide | |
| NC5 | n-Pentane | 0.016 | 0.0056 | Ar | Argon | |
| C6 | Hexanes | 0.000 | 0.0000 | CO | Carbon Monoxide | |
| C7 | Heptanes | | | H2 | Water | |
| C8 | Octanes | | | Neo-C5 | Neopentane | |
| C9 | Nonanes | | | | | |
| C10 | Decanes | | | | | |

Totals 100.000% 1.091 GPM

Sample Date: 2/1/2017 12:00:00 AM
Sample Type: Composite
Sample Tech: RR
H2S: ppm

Sample Remarks:

Analysis Tech: MB

Analysis Remarks:

Zone 241

GQ Source Analysis

| | | | |
|----------------------------|--------------------------|------------------------------|---------|
| GQ Source Number: | 0602225 | Specific Gravity: | 0.7225 |
| GQ Source Name: | WATFORD CITY WEST BORDER | Dry Heat Value: | 1197.80 |
| Effective Date: | 1/1/2017 9:00:00 AM | Wet Heat Value: | 1176.95 |
| Effective End Date: | 1/18/2038 9:14:07 PM | As Deliv. Heat Value: | 1197.80 |
| Pressure Base: | 14.730 | Sample Pressure: | 410.00 |
| Viscosity: | | Sample Temperature: | |

| | | <u>Mol %</u> | <u>Liquid Content</u> | | | <u>Mol %</u> |
|-----|------------|--------------|-----------------------|--------|------------------|--------------|
| C1 | Methane | 70.094 | | CO2 | Carbon Dioxide | 1.039 |
| C2 | Ethane | 22.072 | 5.8854 | N2 | Nitrogen | 3.175 |
| C3 | Propane | 3.039 | 0.8347 | O2 | Oxygen | 0.007 |
| IC4 | Isobutane | 0.168 | 0.0549 | He | Helium | |
| NC4 | n-Butane | 0.346 | 0.1090 | H2 | Hydrogen | |
| IC5 | Isopentane | 0.029 | 0.0106 | H2S | Hydrogen Sulfide | |
| NC5 | n-Pentane | 0.029 | 0.0104 | Ar | Argon | |
| C6 | Hexanes | 0.002 | 0.0009 | CO | Carbon Monoxide | |
| C7 | Heptanes | | | H2 | Water | |
| C8 | Octanes | | | Neo-C5 | Neopentane | |
| C9 | Nonanes | | | | | |
| C10 | Decanes | | | | | |

Totals 100.000% 6.906 GPM

Sample Date: 2/1/2017 12:00:00 AM
Sample Type: Composite
Sample Tech: ES
H2S: ppm

Sample Remarks:

Analysis Tech: MB
Analysis Remarks:

Zone 25

GQ Source Daily Summary

January 2017

Number: 163

Pressure Base: 14.730

Contract Day: 1

Name: NORTH TIOGA TRNSR-ROBINSON LAKE PLT

Temperature Base:

Contract Hour: 9

| Day | Relative Density | Heating Value Wet | Heating Value Dry | | | | | | | | | | | | | | | | Wobbe | CCT |
|-----|------------------|-------------------|-------------------|-------|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|-----|
| | | | | CO2 | N2 | C1 | C2 | C3 | IC4 | NC4 | IC5 | NC5 | C6 | C7 | C8 | C9 | C10 | | | |
| 1 | 0.6694 | 1099.7 | 1119.2 | 0.643 | 3.539 | 78.940 | 14.839 | 1.793 | 0.064 | 0.149 | 0.015 | 0.018 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1367.86 | |
| 2 | 0.6578 | 1085.0 | 1104.2 | 0.541 | 3.500 | 80.661 | 13.741 | 1.394 | 0.042 | 0.098 | 0.010 | 0.013 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1361.45 | |
| 3 | 0.6702 | 1104.4 | 1123.9 | 0.564 | 3.447 | 78.914 | 14.845 | 1.974 | 0.066 | 0.158 | 0.015 | 0.018 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1372.83 | |
| 4 | 0.6699 | 1105.2 | 1124.8 | 0.524 | 3.420 | 79.521 | 14.076 | 1.993 | 0.104 | 0.279 | 0.036 | 0.047 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1374.23 | |
| 5 | 0.6764 | 1112.9 | 1132.6 | 0.539 | 3.533 | 79.151 | 13.619 | 2.477 | 0.151 | 0.410 | 0.053 | 0.068 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1377.14 | |
| 6 | 0.6818 | 1120.3 | 1140.1 | 0.672 | 3.403 | 77.277 | 16.126 | 2.097 | 0.094 | 0.250 | 0.034 | 0.047 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1380.71 | |
| 7 | 0.6747 | 1106.7 | 1126.3 | 0.652 | 3.597 | 78.159 | 15.351 | 1.937 | 0.073 | 0.182 | 0.020 | 0.026 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1371.12 | |
| 8 | 0.6652 | 1092.0 | 1111.3 | 0.591 | 3.694 | 79.818 | 13.840 | 1.776 | 0.069 | 0.171 | 0.018 | 0.024 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1362.53 | |
| 9 | 0.6380 | 1053.0 | 1071.7 | 0.404 | 3.790 | 84.334 | 10.130 | 1.163 | 0.044 | 0.108 | 0.012 | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1341.70 | |
| 10 | 0.6308 | 1042.4 | 1060.8 | 0.342 | 3.854 | 85.760 | 8.728 | 1.111 | 0.048 | 0.123 | 0.014 | 0.018 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1335.69 | |
| 11 | 0.6351 | 1049.7 | 1068.3 | 0.368 | 3.777 | 84.708 | 9.902 | 1.117 | 0.035 | 0.079 | 0.007 | 0.008 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1340.50 | |
| 12 | 0.6464 | 1066.5 | 1085.4 | 0.449 | 3.692 | 82.920 | 11.346 | 1.403 | 0.050 | 0.116 | 0.011 | 0.013 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1349.95 | |
| 13 | 0.6573 | 1082.9 | 1102.1 | 0.509 | 3.622 | 81.280 | 12.599 | 1.722 | 0.066 | 0.163 | 0.018 | 0.022 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1359.34 | |
| 14 | 0.6481 | 1067.7 | 1086.6 | 0.490 | 3.719 | 82.720 | 11.403 | 1.460 | 0.053 | 0.126 | 0.013 | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1349.60 | |
| 15 | 0.6451 | 1060.3 | 1079.1 | 0.455 | 3.938 | 83.160 | 10.870 | 1.370 | 0.054 | 0.127 | 0.012 | 0.014 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1343.48 | |
| 16 | 0.6513 | 1069.3 | 1088.3 | 0.501 | 3.905 | 82.082 | 11.794 | 1.511 | 0.054 | 0.127 | 0.012 | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1348.45 | |
| 17 | 0.5998 | 994.4 | 1012.0 | 0.081 | 4.263 | 90.664 | 4.592 | 0.345 | 0.014 | 0.034 | 0.004 | 0.004 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1306.47 | |
| 18 | 0.6243 | 1029.4 | 1047.7 | 0.309 | 4.081 | 86.746 | 7.751 | 0.963 | 0.038 | 0.090 | 0.009 | 0.012 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1325.72 | |
| 19 | 0.6551 | 1077.4 | 1096.5 | 0.528 | 3.725 | 81.302 | 12.753 | 1.503 | 0.050 | 0.116 | 0.010 | 0.012 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1354.71 | |
| 20 | 0.6746 | 1106.4 | 1126.0 | 0.644 | 3.613 | 78.337 | 15.044 | 2.017 | 0.085 | 0.209 | 0.022 | 0.028 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1370.91 | |
| 21 | 0.6799 | 1115.5 | 1135.2 | 0.649 | 3.548 | 77.589 | 15.598 | 2.229 | 0.095 | 0.233 | 0.025 | 0.032 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1376.77 | |
| 22 | 0.6805 | 1116.7 | 1136.5 | 0.647 | 3.534 | 77.584 | 15.516 | 2.329 | 0.095 | 0.234 | 0.027 | 0.034 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1377.68 | |
| 23 | 0.6819 | 1117.4 | 1137.2 | 0.660 | 3.604 | 77.153 | 15.933 | 2.318 | 0.082 | 0.200 | 0.023 | 0.029 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1377.13 | |
| 24 | 0.6764 | 1110.8 | 1130.5 | 0.620 | 3.547 | 77.990 | 15.362 | 2.197 | 0.075 | 0.173 | 0.016 | 0.020 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1374.57 | |
| 25 | 0.6615 | 1088.5 | 1107.8 | 0.531 | 3.648 | 80.360 | 13.486 | 1.737 | 0.062 | 0.144 | 0.014 | 0.017 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1362.00 | |
| 26 | 0.6615 | 1088.4 | 1107.7 | 0.535 | 3.649 | 80.358 | 13.476 | 1.756 | 0.059 | 0.138 | 0.013 | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1361.87 | |
| 27 | 0.6736 | 1106.2 | 1125.8 | 0.604 | 3.588 | 78.358 | 15.131 | 2.061 | 0.068 | 0.156 | 0.015 | 0.018 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1371.74 | |
| 28 | 0.6656 | 1093.8 | 1113.2 | 0.561 | 3.665 | 79.541 | 14.210 | 1.820 | 0.056 | 0.124 | 0.010 | 0.012 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1364.44 | |
| 29 | 0.6626 | 1089.9 | 1109.2 | 0.540 | 3.651 | 79.846 | 14.174 | 1.624 | 0.047 | 0.102 | 0.007 | 0.008 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1362.68 | |
| 30 | 0.6649 | 1093.8 | 1113.1 | 0.560 | 3.599 | 79.643 | 14.266 | 1.709 | 0.059 | 0.135 | 0.013 | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1365.14 | |
| 31 | 0.6751 | 1109.4 | 1129.0 | 0.613 | 3.524 | 77.777 | 15.980 | 1.892 | 0.059 | 0.131 | 0.011 | 0.013 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1374.17 | |
| Avg | 0.6598 | 1086.0 | 1104.9 | 0.527 | 3.667 | 80.731 | 13.112 | 1.703 | 0.065 | 0.158 | 0.017 | 0.021 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1360.08 | |

Zone 261

GQ Source Daily Summary

January 2017

Number: 091

Pressure Base: 14.730

Contract Day: 1

Name: MINOT BRDR-PALERMO BRDR-BISMARCK STN

Temperature Base:

Contract Hour: 9

| Day | Relative Density | Heating Value Wet | Heating Value Dry | CO2 | N2 | C1 | C2 | C3 | IC4 | NC4 | IC5 | NC5 | C6 | C7 | C8 | C9 | C10 | Wobbe | CCT |
|-----|------------------|-------------------|-------------------|-------|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|-----|
| 1 | 0.6930 | 1111.1 | 1130.8 | 0.700 | 4.970 | 75.042 | 16.125 | 2.908 | 0.083 | 0.163 | 0.004 | 0.005 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1358.50 | |
| 2 | 0.7060 | 1123.2 | 1143.1 | 0.747 | 5.385 | 72.997 | 17.172 | 3.370 | 0.096 | 0.210 | 0.010 | 0.012 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1360.41 | |
| 3 | 0.7054 | 1123.0 | 1142.9 | 0.722 | 5.380 | 72.930 | 17.384 | 3.283 | 0.092 | 0.197 | 0.006 | 0.005 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1360.74 | |
| 4 | 0.7094 | 1129.1 | 1149.1 | 0.719 | 5.350 | 72.481 | 17.633 | 3.423 | 0.112 | 0.249 | 0.016 | 0.018 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1364.23 | |
| 5 | 0.7097 | 1128.6 | 1148.6 | 0.705 | 5.468 | 72.651 | 17.173 | 3.542 | 0.127 | 0.293 | 0.019 | 0.022 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1363.35 | |
| 6 | 0.6979 | 1131.7 | 1151.8 | 0.697 | 4.169 | 75.148 | 16.408 | 2.956 | 0.141 | 0.376 | 0.044 | 0.061 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1378.81 | |
| 7 | 0.6976 | 1127.6 | 1147.5 | 0.711 | 4.386 | 74.504 | 17.167 | 2.844 | 0.103 | 0.245 | 0.018 | 0.023 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1373.93 | |
| 8 | 0.7066 | 1127.6 | 1147.6 | 0.740 | 5.179 | 72.973 | 17.402 | 3.326 | 0.108 | 0.242 | 0.013 | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1365.22 | |
| 9 | 0.7173 | 1135.5 | 1155.6 | 0.748 | 5.693 | 71.327 | 17.939 | 3.866 | 0.125 | 0.275 | 0.013 | 0.014 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1364.47 | |
| 10 | 0.7203 | 1134.9 | 1155.0 | 0.742 | 6.024 | 70.818 | 17.932 | 4.068 | 0.126 | 0.269 | 0.010 | 0.010 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1360.82 | |
| 11 | 0.7159 | 1129.4 | 1149.4 | 0.718 | 5.982 | 71.546 | 17.421 | 3.922 | 0.124 | 0.266 | 0.011 | 0.011 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1358.41 | |
| 12 | 0.7159 | 1131.4 | 1151.4 | 0.711 | 5.870 | 71.519 | 17.573 | 3.944 | 0.118 | 0.248 | 0.009 | 0.008 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1360.80 | |
| 13 | 0.7149 | 1136.1 | 1156.2 | 0.702 | 5.496 | 71.946 | 17.467 | 3.929 | 0.132 | 0.297 | 0.016 | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1367.53 | |
| 14 | 0.7169 | 1139.4 | 1159.6 | 0.732 | 5.443 | 71.550 | 17.894 | 3.929 | 0.130 | 0.291 | 0.015 | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1369.51 | |
| 15 | 0.7127 | 1132.9 | 1153.0 | 0.713 | 5.467 | 72.211 | 17.380 | 3.799 | 0.126 | 0.278 | 0.013 | 0.013 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1365.81 | |
| 16 | 0.7015 | 1116.9 | 1136.7 | 0.668 | 5.463 | 73.883 | 16.262 | 3.353 | 0.109 | 0.241 | 0.010 | 0.011 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1357.15 | |
| 17 | 0.7249 | 1142.3 | 1162.6 | 0.759 | 5.976 | 70.051 | 18.610 | 4.163 | 0.131 | 0.286 | 0.012 | 0.012 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1365.43 | |
| 18 | 0.7205 | 1134.3 | 1154.4 | 0.704 | 6.126 | 70.696 | 18.025 | 4.035 | 0.124 | 0.269 | 0.010 | 0.009 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1360.08 | |
| 19 | 0.7008 | 1119.3 | 1139.1 | 0.639 | 5.298 | 74.183 | 16.042 | 3.424 | 0.118 | 0.268 | 0.014 | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1360.68 | |
| 20 | 0.7087 | 1131.7 | 1151.8 | 0.721 | 5.152 | 72.762 | 17.461 | 3.486 | 0.119 | 0.270 | 0.014 | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1368.20 | |
| 21 | 0.7089 | 1136.2 | 1156.3 | 0.746 | 4.863 | 72.771 | 17.797 | 3.371 | 0.123 | 0.287 | 0.020 | 0.023 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1373.35 | |
| 22 | 0.7089 | 1137.1 | 1157.2 | 0.731 | 4.835 | 72.794 | 17.782 | 3.407 | 0.122 | 0.285 | 0.020 | 0.024 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1374.39 | |
| 23 | 0.7082 | 1136.5 | 1156.6 | 0.734 | 4.800 | 72.905 | 17.712 | 3.417 | 0.119 | 0.272 | 0.018 | 0.022 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1374.35 | |
| 24 | 0.7107 | 1139.7 | 1159.9 | 0.743 | 4.821 | 72.401 | 18.173 | 3.457 | 0.114 | 0.253 | 0.017 | 0.020 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1375.87 | |
| 25 | 0.7163 | 1138.3 | 1158.4 | 0.742 | 5.435 | 71.448 | 18.199 | 3.755 | 0.123 | 0.269 | 0.013 | 0.014 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1368.77 | |
| 26 | 0.7176 | 1137.2 | 1157.4 | 0.743 | 5.624 | 71.176 | 18.225 | 3.827 | 0.121 | 0.262 | 0.011 | 0.011 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1366.27 | |
| 27 | 0.7066 | 1133.8 | 1153.9 | 0.706 | 4.849 | 73.097 | 17.567 | 3.378 | 0.114 | 0.257 | 0.015 | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1372.76 | |
| 28 | 0.7136 | 1135.5 | 1155.7 | 0.733 | 5.308 | 71.883 | 18.061 | 3.618 | 0.117 | 0.250 | 0.015 | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1368.08 | |
| 29 | 0.7110 | 1132.4 | 1152.5 | 0.729 | 5.318 | 72.167 | 17.909 | 3.511 | 0.109 | 0.237 | 0.010 | 0.010 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1366.79 | |
| 30 | 0.7087 | 1129.0 | 1149.0 | 0.724 | 5.322 | 72.439 | 17.797 | 3.374 | 0.104 | 0.223 | 0.009 | 0.008 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1364.84 | |
| 31 | 0.7060 | 1132.3 | 1152.4 | 0.711 | 4.879 | 73.011 | 17.758 | 3.273 | 0.108 | 0.237 | 0.011 | 0.012 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1371.54 | |
| Avg | 0.7101 | 1131.0 | 1151.5 | 0.721 | 5.301 | 72.494 | 17.531 | 3.547 | 0.117 | 0.260 | 0.014 | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1366.49 | |

Zone 2b2

GQ Source Analysis

| | | | |
|----------------------------|----------------------|------------------------------|---------|
| GQ Source Number: | 2501030 | Specific Gravity: | 0.6701 |
| GQ Source Name: | LIGNITE PLANT | Dry Heat Value: | 1103.47 |
| Effective Date: | 1/1/2017 9:00:00 AM | Wet Heat Value: | 1084.27 |
| Effective End Date: | 1/18/2038 9:14:07 PM | As Deliv. Heat Value: | 1103.47 |
| Pressure Base: | 14.730 | Sample Pressure: | 370.00 |
| Viscosity: | | Sample Temperature: | |

| | <u>Mol %</u> | <u>Liquid Content</u> | | | <u>Mol %</u> | |
|-----|--------------|-----------------------|--------|--------|------------------|-------|
| C1 | Methane | 76.805 | | CO2 | Carbon Dioxide | 0.126 |
| C2 | Ethane | 16.625 | 4.4330 | N2 | Nitrogen | 4.797 |
| C3 | Propane | 1.177 | 0.3233 | O2 | Oxygen | 0.457 |
| IC4 | Isobutane | 0.009 | 0.0031 | He | Helium | |
| NC4 | n-Butane | 0.002 | 0.0008 | H2 | Hydrogen | |
| IC5 | Isopentane | 0.000 | 0.0000 | H2S | Hydrogen Sulfide | |
| NC5 | n-Pentane | 0.000 | 0.0000 | Ar | Argon | |
| C6 | Hexanes | 0.000 | 0.0000 | CO | Carbon Monoxide | |
| C7 | Heptanes | | | H2 | Water | |
| C8 | Octanes | | | Neo-C5 | Neopentane | |
| C9 | Nonanes | | | | | |
| C10 | Decanes | | | | | |

Totals 100.000% 4.760 GPM

Sample Date: 2/1/2017 12:00:00 AM
Sample Type: Composite
Sample Tech: ES
H2S: ppm

Sample Remarks:

Analysis Tech: MB

Analysis Remarks:

Zone 263

*** End of Report ***

GQ Source Analysis

| | | | |
|----------------------------|----------------------|------------------------------|---------|
| GQ Source Number: | 0702010 | Specific Gravity: | 0.7035 |
| GQ Source Name: | EPPING BORDER | Dry Heat Value: | 1186.20 |
| Effective Date: | 1/1/2017 9:00:00 AM | Wet Heat Value: | 1165.56 |
| Effective End Date: | 1/18/2038 9:14:07 PM | As Deliv. Heat Value: | 1186.20 |
| Pressure Base: | 14.730 | Sample Pressure: | 475.00 |
| Viscosity: | | Sample Temperature: | |

| | <u>Mol %</u> | <u>Liquid Content</u> | | | <u>Mol %</u> | |
|-----|--------------|-----------------------|----------|-----------|------------------|-------|
| C1 | Methane | 73.005 | | CO2 | Carbon Dioxide | 0.921 |
| C2 | Ethane | 20.878 | 5.5671 | N2 | Nitrogen | 2.274 |
| C3 | Propane | 2.652 | 0.7286 | O2 | Oxygen | 0.000 |
| IC4 | Isobutane | 0.079 | 0.0256 | He | Helium | |
| NC4 | n-Butane | 0.162 | 0.0511 | H2 | Hydrogen | |
| IC5 | Isopentane | 0.013 | 0.0047 | H2S | Hydrogen Sulfide | |
| NC5 | n-Pentane | 0.015 | 0.0054 | Ar | Argon | |
| C6 | Hexanes | 0.000 | 0.0000 | CO | Carbon Monoxide | |
| C7 | Heptanes | | | H2 | Water | |
| C8 | Octanes | | | Neo-C5 | Neopentane | |
| C9 | Nonanes | | | | | |
| C10 | Decanes | | | | | |
| | | Totals | 100.000% | 6.383 GPM | | |

Sample Date: 2/1/2017 12:00:00 AM
Sample Type: Composite
Sample Tech: ES
H2S: ppm

Sample Remarks:

Analysis Tech: MB
Analysis Remarks:

Zone 264

GQ Source Daily Summary

January 2017

Number: 161

Pressure Base: 14.730

Contract Day: 1

Name: N. TIOGA TRNS-CONOCO STONEVIEW TO

Temperature Base:

Contract Hour: 9

| Day | Relative Density | Heating Value Wet | Heating Value Dry | CO2 | N2 | C1 | C2 | C3 | IC4 | NC4 | IC5 | NC5 | C6 | C7 | C8 | C9 | C10 | Wobbe | CCT |
|-----|------------------|-------------------|-------------------|-------|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|-----|
| 1 | 0.7059 | 1154.5 | 1175.0 | 0.912 | 3.221 | 72.790 | 20.181 | 2.544 | 0.091 | 0.213 | 0.021 | 0.026 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1398.43 | |
| 2 | 0.6980 | 1146.4 | 1166.7 | 0.831 | 3.102 | 73.644 | 20.095 | 2.097 | 0.060 | 0.139 | 0.014 | 0.018 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1396.40 | |
| 3 | 0.7101 | 1166.2 | 1186.8 | 0.821 | 3.039 | 72.331 | 20.499 | 2.911 | 0.100 | 0.248 | 0.024 | 0.028 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1408.35 | |
| 4 | 0.7143 | 1173.9 | 1194.7 | 0.781 | 3.015 | 72.587 | 19.729 | 3.127 | 0.171 | 0.457 | 0.057 | 0.075 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1413.48 | |
| 5 | 0.7274 | 1191.4 | 1212.5 | 0.829 | 3.101 | 71.438 | 19.667 | 3.858 | 0.247 | 0.670 | 0.082 | 0.106 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1421.50 | |
| 6 | 0.7100 | 1162.2 | 1182.8 | 0.860 | 3.211 | 72.505 | 20.319 | 2.584 | 0.111 | 0.304 | 0.044 | 0.062 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1403.68 | |
| 7 | 0.7087 | 1159.1 | 1179.7 | 0.889 | 3.233 | 72.549 | 20.233 | 2.661 | 0.104 | 0.261 | 0.029 | 0.039 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1401.27 | |
| 8 | 0.7099 | 1160.7 | 1181.2 | 0.901 | 3.235 | 72.386 | 20.320 | 2.715 | 0.107 | 0.267 | 0.030 | 0.039 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1401.93 | |
| 9 | 0.7076 | 1156.9 | 1177.4 | 0.889 | 3.268 | 72.602 | 20.257 | 2.572 | 0.101 | 0.249 | 0.027 | 0.034 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1399.66 | |
| 10 | 0.7134 | 1165.5 | 1186.2 | 0.909 | 3.248 | 72.028 | 20.443 | 2.848 | 0.122 | 0.315 | 0.037 | 0.049 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1404.39 | |
| 11 | 0.7043 | 1153.2 | 1173.7 | 0.845 | 3.246 | 72.702 | 20.519 | 2.433 | 0.071 | 0.155 | 0.013 | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1398.54 | |
| 12 | 0.7095 | 1160.6 | 1181.2 | 0.886 | 3.223 | 72.193 | 20.642 | 2.694 | 0.095 | 0.221 | 0.021 | 0.025 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1402.30 | |
| 13 | 0.7114 | 1163.7 | 1184.3 | 0.873 | 3.233 | 72.214 | 20.342 | 2.895 | 0.109 | 0.268 | 0.029 | 0.037 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1404.10 | |
| 14 | 0.7110 | 1161.0 | 1181.6 | 0.946 | 3.243 | 72.051 | 20.648 | 2.740 | 0.095 | 0.226 | 0.023 | 0.028 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1401.35 | |
| 15 | 0.7110 | 1161.3 | 1181.8 | 0.924 | 3.269 | 72.043 | 20.644 | 2.711 | 0.106 | 0.251 | 0.023 | 0.029 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1401.57 | |
| 16 | 0.7101 | 1160.2 | 1180.7 | 0.917 | 3.255 | 72.181 | 20.540 | 2.737 | 0.096 | 0.226 | 0.021 | 0.026 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1401.20 | |
| 17 | 0.7108 | 1162.3 | 1182.9 | 0.890 | 3.238 | 72.279 | 20.303 | 2.848 | 0.113 | 0.269 | 0.027 | 0.033 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1402.97 | |
| 18 | 0.7083 | 1157.1 | 1177.6 | 0.897 | 3.304 | 72.580 | 20.128 | 2.682 | 0.103 | 0.247 | 0.026 | 0.033 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1399.25 | |
| 19 | 0.7070 | 1156.4 | 1176.9 | 0.881 | 3.254 | 72.420 | 20.622 | 2.494 | 0.086 | 0.202 | 0.018 | 0.022 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1399.65 | |
| 20 | 0.7140 | 1167.3 | 1187.9 | 0.904 | 3.214 | 71.840 | 20.657 | 2.875 | 0.124 | 0.310 | 0.033 | 0.042 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1405.82 | |
| 21 | 0.7139 | 1168.1 | 1188.8 | 0.866 | 3.204 | 71.998 | 20.415 | 2.993 | 0.128 | 0.318 | 0.034 | 0.044 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1407.00 | |
| 22 | 0.7148 | 1169.7 | 1190.5 | 0.866 | 3.189 | 71.986 | 20.297 | 3.131 | 0.128 | 0.320 | 0.036 | 0.047 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1408.07 | |
| 23 | 0.7140 | 1167.2 | 1187.8 | 0.864 | 3.282 | 71.866 | 20.459 | 3.079 | 0.115 | 0.272 | 0.028 | 0.036 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1405.70 | |
| 24 | 0.7128 | 1167.1 | 1187.8 | 0.847 | 3.193 | 71.886 | 20.677 | 2.999 | 0.104 | 0.242 | 0.023 | 0.028 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1406.88 | |
| 25 | 0.7134 | 1167.6 | 1188.3 | 0.858 | 3.203 | 71.657 | 21.022 | 2.854 | 0.105 | 0.247 | 0.024 | 0.030 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1406.88 | |
| 26 | 0.7132 | 1167.3 | 1188.0 | 0.860 | 3.202 | 71.719 | 20.929 | 2.889 | 0.103 | 0.244 | 0.024 | 0.030 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1406.71 | |
| 27 | 0.7143 | 1169.1 | 1189.8 | 0.853 | 3.210 | 71.621 | 20.901 | 3.005 | 0.105 | 0.249 | 0.025 | 0.031 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1407.73 | |
| 28 | 0.7119 | 1164.8 | 1185.4 | 0.863 | 3.230 | 71.670 | 21.129 | 2.790 | 0.086 | 0.194 | 0.017 | 0.020 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1404.97 | |
| 29 | 0.7087 | 1160.7 | 1181.2 | 0.841 | 3.222 | 71.819 | 21.380 | 2.491 | 0.071 | 0.153 | 0.011 | 0.013 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1403.09 | |
| 30 | 0.7107 | 1164.3 | 1184.9 | 0.854 | 3.162 | 71.863 | 21.128 | 2.636 | 0.094 | 0.216 | 0.020 | 0.025 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1405.51 | |
| 31 | 0.7091 | 1161.9 | 1182.4 | 0.835 | 3.192 | 71.888 | 21.257 | 2.545 | 0.078 | 0.173 | 0.015 | 0.017 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1404.17 | |
| Avg | 0.7110 | 1163.0 | 1184.1 | 0.871 | 3.208 | 72.172 | 20.528 | 2.788 | 0.107 | 0.262 | 0.028 | 0.035 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1404.28 | |

Zone 265

GQ Source Daily Summary

January 2017

Number: 043

Pressure Base: 14.730

Contract Day: 1

Name: BISMARCK STATION-CLEVELAND STATION

Temperature Base:

Contract Hour: 9

| Day | Relative Density | Heating Value | Heating Value | CO2 | N2 | C1 | C2 | C3 | IC4 | NC4 | IC5 | NC5 | C6 | C7 | C8 | C9 | C10 | Wobbe | CCT |
|-----|------------------|---------------|---------------|-------|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|
| | | Wet | Dry | | | | | | | | | | | | | | | | |
| 1 | 0.6760 | 1099.9 | 1119.4 | 0.457 | 4.424 | 77.528 | 15.208 | 2.208 | 0.058 | 0.105 | 0.006 | 0.006 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1361.52 |
| 2 | 0.6710 | 1098.2 | 1117.7 | 0.453 | 4.067 | 78.326 | 15.037 | 1.949 | 0.053 | 0.101 | 0.007 | 0.007 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1364.47 |
| 3 | 0.6686 | 1094.5 | 1113.9 | 0.413 | 4.123 | 78.704 | 14.717 | 1.878 | 0.052 | 0.099 | 0.007 | 0.007 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1362.33 |
| 4 | 0.6702 | 1099.4 | 1118.9 | 0.403 | 3.994 | 78.348 | 15.231 | 1.868 | 0.050 | 0.094 | 0.006 | 0.006 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1366.76 |
| 5 | 0.6673 | 1095.3 | 1114.6 | 0.420 | 3.954 | 79.013 | 14.570 | 1.856 | 0.057 | 0.112 | 0.009 | 0.009 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1364.47 |
| 6 | 0.6588 | 1091.0 | 1110.3 | 0.350 | 3.517 | 80.233 | 14.331 | 1.437 | 0.042 | 0.075 | 0.007 | 0.007 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1367.94 |
| 7 | 0.6647 | 1097.8 | 1117.2 | 0.383 | 3.610 | 79.247 | 14.992 | 1.622 | 0.047 | 0.084 | 0.007 | 0.007 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1370.33 |
| 8 | 0.6625 | 1096.2 | 1115.7 | 0.386 | 3.491 | 79.776 | 14.587 | 1.572 | 0.052 | 0.114 | 0.010 | 0.011 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1370.67 |
| 9 | 0.6639 | 1092.5 | 1111.9 | 0.405 | 3.816 | 79.546 | 14.363 | 1.697 | 0.053 | 0.103 | 0.008 | 0.008 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1364.66 |
| 10 | 0.6704 | 1098.7 | 1118.1 | 0.379 | 4.095 | 78.369 | 15.059 | 1.928 | 0.054 | 0.104 | 0.007 | 0.007 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1365.61 |
| 11 | 0.6719 | 1101.3 | 1120.8 | 0.365 | 4.101 | 78.025 | 15.404 | 1.942 | 0.053 | 0.098 | 0.006 | 0.006 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1367.30 |
| 12 | 0.6731 | 1104.9 | 1124.5 | 0.383 | 3.970 | 77.786 | 15.785 | 1.914 | 0.052 | 0.097 | 0.006 | 0.006 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1370.54 |
| 13 | 0.6754 | 1106.3 | 1125.9 | 0.396 | 4.074 | 77.547 | 15.714 | 2.083 | 0.058 | 0.113 | 0.008 | 0.007 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1369.97 |
| 14 | 0.6729 | 1104.5 | 1124.0 | 0.381 | 3.970 | 77.990 | 15.460 | 2.012 | 0.058 | 0.114 | 0.008 | 0.007 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1370.30 |
| 15 | 0.6693 | 1100.7 | 1120.2 | 0.348 | 3.914 | 78.515 | 15.188 | 1.867 | 0.052 | 0.101 | 0.007 | 0.007 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1369.27 |
| 16 | 0.6743 | 1105.4 | 1125.0 | 0.381 | 4.050 | 77.771 | 15.529 | 2.073 | 0.060 | 0.120 | 0.008 | 0.008 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1369.98 |
| 17 | 0.6748 | 1100.2 | 1119.7 | 0.425 | 4.341 | 77.798 | 15.048 | 2.177 | 0.064 | 0.129 | 0.008 | 0.008 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1363.10 |
| 18 | 0.6889 | 1114.2 | 1133.9 | 0.475 | 4.742 | 75.514 | 16.324 | 2.686 | 0.079 | 0.162 | 0.009 | 0.009 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1366.15 |
| 19 | 0.6919 | 1113.1 | 1132.8 | 0.516 | 5.026 | 75.248 | 15.970 | 2.929 | 0.092 | 0.197 | 0.011 | 0.011 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1361.89 |
| 20 | 0.6990 | 1122.2 | 1142.1 | 0.614 | 4.992 | 74.179 | 16.745 | 3.119 | 0.101 | 0.224 | 0.013 | 0.013 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1365.98 |
| 21 | 0.6890 | 1118.6 | 1138.4 | 0.545 | 4.372 | 75.641 | 16.573 | 2.555 | 0.087 | 0.197 | 0.014 | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1371.50 |
| 22 | 0.6907 | 1121.5 | 1141.4 | 0.546 | 4.353 | 75.330 | 16.868 | 2.590 | 0.087 | 0.195 | 0.014 | 0.017 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1373.36 |
| 23 | 0.6877 | 1118.1 | 1137.9 | 0.530 | 4.304 | 75.826 | 16.525 | 2.517 | 0.083 | 0.184 | 0.014 | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1372.20 |
| 24 | 0.6896 | 1121.7 | 1141.5 | 0.554 | 4.227 | 75.460 | 16.940 | 2.535 | 0.082 | 0.176 | 0.012 | 0.014 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1374.68 |
| 25 | 0.6927 | 1124.5 | 1144.4 | 0.539 | 4.368 | 74.867 | 17.305 | 2.647 | 0.082 | 0.171 | 0.010 | 0.011 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1375.09 |
| 26 | 0.6972 | 1126.9 | 1146.8 | 0.593 | 4.568 | 74.179 | 17.542 | 2.821 | 0.090 | 0.186 | 0.011 | 0.011 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1373.49 |
| 27 | 0.6934 | 1126.4 | 1146.3 | 0.584 | 4.258 | 74.821 | 17.378 | 2.672 | 0.087 | 0.178 | 0.011 | 0.011 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1376.59 |
| 28 | 0.6976 | 1130.1 | 1150.2 | 0.656 | 4.311 | 74.325 | 17.507 | 2.876 | 0.097 | 0.202 | 0.012 | 0.013 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1377.05 |
| 29 | 0.6957 | 1124.0 | 1144.0 | 0.635 | 4.533 | 74.560 | 17.131 | 2.846 | 0.089 | 0.185 | 0.010 | 0.010 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1371.53 |
| 30 | 0.6938 | 1122.1 | 1141.9 | 0.628 | 4.489 | 74.812 | 17.036 | 2.754 | 0.086 | 0.176 | 0.009 | 0.009 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1370.94 |
| 31 | 0.6837 | 1114.1 | 1133.8 | 0.598 | 4.073 | 76.502 | 16.181 | 2.389 | 0.078 | 0.160 | 0.009 | 0.010 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1371.21 |
| Avg | 0.6799 | 1109.0 | 1128.8 | 0.476 | 4.198 | 76.961 | 15.879 | 2.259 | 0.069 | 0.141 | 0.009 | 0.010 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1369.06 |

Zone 271

GQ Source Daily Summary

January 2017

Number: 061

Pressure Base: 14.730

Contract Day: 1

Name: CLEVELAND STATION-GRAFTON BORDER

Temperature Base:

Contract Hour: 9

| Day | Relative Density | Heating Value | | CO2 | N2 | C1 | C2 | C3 | IC4 | NC4 | IC5 | NC5 | C6 | C7 | C8 | C9 | C10 | Wobbe | CCT |
|-----|------------------|---------------|--------|-------|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|
| | | Wet | Dry | | | | | | | | | | | | | | | | |
| 1 | 0.6777 | 1100.3 | 1119.8 | 0.474 | 4.539 | 77.280 | 15.236 | 2.292 | 0.061 | 0.108 | 0.006 | 0.005 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1360.23 |
| 2 | 0.6700 | 1094.9 | 1114.3 | 0.440 | 4.195 | 78.499 | 14.750 | 1.958 | 0.052 | 0.094 | 0.006 | 0.006 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1361.37 |
| 3 | 0.6712 | 1096.8 | 1116.2 | 0.441 | 4.193 | 78.306 | 14.909 | 1.978 | 0.054 | 0.104 | 0.007 | 0.008 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1362.46 |
| 4 | 0.6696 | 1097.3 | 1116.7 | 0.408 | 4.059 | 78.454 | 15.075 | 1.853 | 0.049 | 0.090 | 0.006 | 0.005 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1364.73 |
| 5 | 0.6693 | 1097.5 | 1117.0 | 0.408 | 4.017 | 78.598 | 14.923 | 1.880 | 0.055 | 0.105 | 0.007 | 0.007 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1365.33 |
| 6 | 0.6623 | 1092.6 | 1112.0 | 0.397 | 3.677 | 79.763 | 14.400 | 1.612 | 0.049 | 0.088 | 0.008 | 0.007 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1366.38 |
| 7 | 0.6621 | 1093.7 | 1113.1 | 0.360 | 3.646 | 79.628 | 14.727 | 1.512 | 0.042 | 0.073 | 0.006 | 0.006 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1367.97 |
| 8 | 0.6645 | 1097.5 | 1116.9 | 0.397 | 3.588 | 79.413 | 14.786 | 1.639 | 0.053 | 0.103 | 0.010 | 0.011 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1370.16 |
| 9 | 0.6617 | 1091.2 | 1110.5 | 0.401 | 3.703 | 79.867 | 14.289 | 1.586 | 0.048 | 0.089 | 0.008 | 0.008 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1365.16 |
| 10 | 0.6686 | 1096.3 | 1115.7 | 0.394 | 4.046 | 78.689 | 14.850 | 1.855 | 0.053 | 0.099 | 0.007 | 0.007 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1364.53 |
| 11 | 0.6718 | 1099.9 | 1119.3 | 0.372 | 4.168 | 78.066 | 15.278 | 1.953 | 0.053 | 0.098 | 0.006 | 0.005 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1365.64 |
| 12 | 0.6721 | 1103.2 | 1122.8 | 0.372 | 3.984 | 77.968 | 15.626 | 1.894 | 0.051 | 0.092 | 0.006 | 0.005 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1369.59 |
| 13 | 0.6750 | 1104.6 | 1124.1 | 0.404 | 4.135 | 77.553 | 15.700 | 2.033 | 0.057 | 0.106 | 0.007 | 0.006 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1368.21 |
| 14 | 0.6747 | 1105.4 | 1125.0 | 0.394 | 4.069 | 77.650 | 15.650 | 2.056 | 0.058 | 0.111 | 0.007 | 0.007 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1369.59 |
| 15 | 0.6719 | 1103.4 | 1123.0 | 0.361 | 3.978 | 78.093 | 15.442 | 1.946 | 0.056 | 0.108 | 0.008 | 0.007 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1369.93 |
| 16 | 0.6719 | 1102.9 | 1122.5 | 0.357 | 4.009 | 78.106 | 15.391 | 1.956 | 0.057 | 0.109 | 0.007 | 0.007 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1369.40 |
| 17 | 0.6753 | 1102.8 | 1122.3 | 0.412 | 4.259 | 77.652 | 15.330 | 2.145 | 0.063 | 0.123 | 0.008 | 0.008 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1365.68 |
| 18 | 0.6837 | 1108.0 | 1127.6 | 0.467 | 4.642 | 76.371 | 15.785 | 2.497 | 0.074 | 0.148 | 0.009 | 0.008 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1363.73 |
| 19 | 0.6929 | 1114.8 | 1134.5 | 0.502 | 5.039 | 74.866 | 16.474 | 2.848 | 0.083 | 0.170 | 0.009 | 0.008 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1362.96 |
| 20 | 0.6933 | 1115.4 | 1135.1 | 0.565 | 4.946 | 75.137 | 16.030 | 2.983 | 0.099 | 0.213 | 0.013 | 0.014 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1363.25 |
| 21 | 0.6941 | 1119.9 | 1139.7 | 0.580 | 4.718 | 74.882 | 16.650 | 2.840 | 0.094 | 0.206 | 0.014 | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1368.07 |
| 22 | 0.6918 | 1122.2 | 1142.1 | 0.555 | 4.408 | 75.079 | 17.058 | 2.591 | 0.087 | 0.191 | 0.015 | 0.017 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1373.06 |
| 23 | 0.6890 | 1118.3 | 1138.1 | 0.539 | 4.398 | 75.626 | 16.570 | 2.562 | 0.086 | 0.187 | 0.015 | 0.017 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1371.15 |
| 24 | 0.6895 | 1120.3 | 1140.1 | 0.555 | 4.308 | 75.503 | 16.788 | 2.554 | 0.084 | 0.180 | 0.013 | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1372.99 |
| 25 | 0.6900 | 1121.3 | 1141.2 | 0.538 | 4.314 | 75.320 | 17.014 | 2.546 | 0.079 | 0.165 | 0.011 | 0.012 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1373.82 |
| 26 | 0.6956 | 1125.1 | 1145.0 | 0.567 | 4.567 | 74.379 | 17.462 | 2.744 | 0.086 | 0.174 | 0.011 | 0.011 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1372.87 |
| 27 | 0.6984 | 1128.4 | 1148.4 | 0.601 | 4.577 | 73.955 | 17.722 | 2.856 | 0.090 | 0.180 | 0.010 | 0.010 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1374.17 |
| 28 | 0.6951 | 1129.8 | 1149.9 | 0.639 | 4.120 | 74.673 | 17.531 | 2.724 | 0.095 | 0.192 | 0.013 | 0.014 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1379.18 |
| 29 | 0.6968 | 1124.7 | 1144.6 | 0.649 | 4.578 | 74.426 | 17.133 | 2.909 | 0.093 | 0.190 | 0.011 | 0.011 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1371.18 |
| 30 | 0.6950 | 1123.6 | 1143.5 | 0.640 | 4.494 | 74.611 | 17.189 | 2.779 | 0.088 | 0.178 | 0.010 | 0.010 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1371.61 |
| 31 | 0.6892 | 1116.1 | 1135.9 | 0.612 | 4.443 | 75.496 | 16.638 | 2.558 | 0.079 | 0.157 | 0.009 | 0.008 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1368.27 |
| Avg | 0.6801 | 1109.0 | 1128.3 | 0.477 | 4.252 | 76.900 | 15.884 | 2.263 | 0.069 | 0.137 | 0.009 | 0.009 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1368.15 |

Zone 273

GQ Source Daily Summary

January 2017

Number: 271

Pressure Base: 14.730

Contract Day: 1

Name: DICKINSON BRD-BELFIELD TSF-GLENULLIN STN

Temperature Base:

Contract Hour: 9

| Day | Relative Density | Heating Value Wet | Heating Value Dry | CO2 | N2 | C1 | C2 | C3 | IC4 | NC4 | IC5 | NC5 | C6 | C7 | C8 | C9 | C10 | Wobbe | CCT |
|-----|------------------|-------------------|-------------------|-------|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|-----|
| 1 | 0.6545 | 1084.4 | 1103.6 | 0.275 | 3.635 | 80.801 | 13.849 | 1.350 | 0.032 | 0.053 | 0.003 | 0.002 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1364.10 | |
| 2 | 0.6527 | 1082.7 | 1101.9 | 0.277 | 3.564 | 81.110 | 13.687 | 1.272 | 0.032 | 0.052 | 0.003 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1363.85 | |
| 3 | 0.6536 | 1084.4 | 1103.6 | 0.279 | 3.539 | 80.971 | 13.814 | 1.306 | 0.032 | 0.053 | 0.004 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1365.12 | |
| 4 | 0.6540 | 1085.6 | 1104.8 | 0.278 | 3.506 | 80.896 | 13.929 | 1.299 | 0.032 | 0.053 | 0.003 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1366.16 | |
| 5 | 0.6515 | 1083.1 | 1102.3 | 0.329 | 3.345 | 81.469 | 13.484 | 1.272 | 0.036 | 0.056 | 0.005 | 0.004 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1365.65 | |
| 6 | 0.6544 | 1087.8 | 1107.1 | 0.296 | 3.387 | 80.816 | 14.129 | 1.281 | 0.033 | 0.052 | 0.004 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1368.49 | |
| 7 | 0.6564 | 1091.0 | 1110.3 | 0.325 | 3.331 | 80.548 | 14.340 | 1.354 | 0.036 | 0.058 | 0.005 | 0.004 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1370.47 | |
| 8 | 0.6518 | 1081.8 | 1101.0 | 0.327 | 3.459 | 81.372 | 13.474 | 1.272 | 0.034 | 0.055 | 0.004 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1363.65 | |
| 9 | 0.6532 | 1083.5 | 1102.7 | 0.286 | 3.552 | 81.041 | 13.731 | 1.300 | 0.032 | 0.052 | 0.003 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1364.32 | |
| 10 | 0.6554 | 1087.1 | 1106.3 | 0.255 | 3.585 | 80.562 | 14.198 | 1.318 | 0.030 | 0.048 | 0.003 | 0.002 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1366.56 | |
| 11 | 0.6590 | 1093.0 | 1112.4 | 0.278 | 3.527 | 79.948 | 14.766 | 1.391 | 0.032 | 0.052 | 0.003 | 0.002 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1370.24 | |
| 12 | 0.6606 | 1095.2 | 1114.6 | 0.305 | 3.504 | 79.713 | 14.948 | 1.430 | 0.035 | 0.058 | 0.004 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1371.30 | |
| 13 | 0.6594 | 1094.1 | 1113.5 | 0.287 | 3.486 | 79.910 | 14.809 | 1.411 | 0.034 | 0.055 | 0.004 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1371.18 | |
| 14 | 0.6572 | 1090.3 | 1109.6 | 0.258 | 3.547 | 80.240 | 14.532 | 1.339 | 0.031 | 0.049 | 0.003 | 0.002 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1368.83 | |
| 15 | 0.6578 | 1091.5 | 1110.8 | 0.248 | 3.552 | 80.145 | 14.591 | 1.371 | 0.033 | 0.053 | 0.003 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1369.59 | |
| 16 | 0.6570 | 1089.8 | 1109.1 | 0.256 | 3.567 | 80.341 | 14.353 | 1.390 | 0.033 | 0.054 | 0.003 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1368.29 | |
| 17 | 0.6533 | 1083.1 | 1102.3 | 0.244 | 3.649 | 80.966 | 13.746 | 1.307 | 0.032 | 0.051 | 0.003 | 0.002 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1363.70 | |
| 18 | 0.6566 | 1088.1 | 1107.3 | 0.244 | 3.650 | 80.337 | 14.339 | 1.346 | 0.031 | 0.050 | 0.003 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1366.60 | |
| 19 | 0.6575 | 1089.0 | 1108.3 | 0.273 | 3.662 | 80.131 | 14.469 | 1.369 | 0.033 | 0.054 | 0.005 | 0.004 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1366.78 | |
| 20 | 0.6593 | 1092.3 | 1111.6 | 0.234 | 3.666 | 79.719 | 14.995 | 1.307 | 0.029 | 0.047 | 0.002 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1369.04 | |
| 21 | 0.6634 | 1098.1 | 1117.5 | 0.263 | 3.658 | 78.994 | 15.613 | 1.382 | 0.032 | 0.053 | 0.003 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1372.00 | |
| 22 | 0.6587 | 1090.1 | 1109.4 | 0.263 | 3.696 | 79.907 | 14.722 | 1.326 | 0.032 | 0.052 | 0.002 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1366.93 | |
| 23 | 0.6634 | 1097.2 | 1116.6 | 0.326 | 3.611 | 79.167 | 15.354 | 1.431 | 0.039 | 0.066 | 0.004 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1370.96 | |
| 24 | 0.6641 | 1098.4 | 1117.9 | 0.300 | 3.645 | 78.992 | 15.505 | 1.453 | 0.037 | 0.062 | 0.003 | 0.002 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1371.73 | |
| 25 | 0.6727 | 1110.4 | 1130.0 | 0.383 | 3.597 | 77.630 | 16.559 | 1.697 | 0.046 | 0.079 | 0.004 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1377.75 | |
| 26 | 0.6761 | 1116.4 | 1136.2 | 0.442 | 3.457 | 77.233 | 16.864 | 1.839 | 0.056 | 0.099 | 0.006 | 0.005 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1381.77 | |
| 27 | 0.6791 | 1121.6 | 1141.5 | 0.533 | 3.282 | 76.950 | 17.053 | 1.977 | 0.068 | 0.122 | 0.008 | 0.007 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1385.15 | |
| 28 | 0.6675 | 1106.5 | 1126.0 | 0.494 | 3.173 | 78.872 | 15.660 | 1.647 | 0.052 | 0.092 | 0.006 | 0.005 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1378.29 | |
| 29 | 0.6695 | 1107.4 | 1127.0 | 0.485 | 3.324 | 78.461 | 15.889 | 1.689 | 0.052 | 0.091 | 0.005 | 0.004 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1377.30 | |
| 30 | 0.6640 | 1099.3 | 1118.8 | 0.468 | 3.318 | 79.431 | 15.071 | 1.573 | 0.047 | 0.083 | 0.005 | 0.004 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1373.01 | |
| 31 | 0.6627 | 1099.0 | 1118.5 | 0.481 | 3.203 | 79.727 | 14.873 | 1.570 | 0.050 | 0.087 | 0.005 | 0.004 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1373.87 | |
| Avg | 0.6599 | 1094.0 | 1113.0 | 0.322 | 3.506 | 79.884 | 14.753 | 1.428 | 0.038 | 0.062 | 0.004 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1370.09 | |

Zone 31

GQ Source Daily Summary

January 2017

Number: 051

Pressure Base: 14.730

Contract Day: 1

Name: CABIN CREEK STATION-BELFIELD TRANSFER

Temperature Base:

Contract Hour: 9

| Day | Relative Density | Heating Value Wet | Heating Value Dry | CO2 | N2 | C1 | C2 | C3 | IC4 | NC4 | IC5 | NC5 | C6 | C7 | C8 | C9 | C10 | Wobbe | CCT |
|-----|------------------|-------------------|-------------------|-------|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|-----|
| 1 | 0.6579 | 1094.8 | 1114.1 | 0.360 | 3.189 | 80.365 | 14.586 | 1.388 | 0.039 | 0.063 | 0.005 | 0.004 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1373.61 | |
| 2 | 0.6579 | 1094.9 | 1114.3 | 0.361 | 3.176 | 80.365 | 14.605 | 1.382 | 0.039 | 0.063 | 0.005 | 0.004 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1373.83 | |
| 3 | 0.6591 | 1097.4 | 1116.8 | 0.362 | 3.144 | 80.128 | 14.857 | 1.398 | 0.039 | 0.064 | 0.005 | 0.004 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1375.62 | |
| 4 | 0.6581 | 1095.7 | 1115.1 | 0.363 | 3.146 | 80.328 | 14.669 | 1.382 | 0.039 | 0.063 | 0.005 | 0.004 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1374.58 | |
| 5 | 0.6593 | 1098.4 | 1117.8 | 0.373 | 3.080 | 80.118 | 14.925 | 1.391 | 0.039 | 0.064 | 0.005 | 0.004 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1376.71 | |
| 6 | 0.6598 | 1099.2 | 1118.7 | 0.371 | 3.079 | 80.022 | 15.020 | 1.396 | 0.039 | 0.064 | 0.005 | 0.004 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1377.22 | |
| 7 | 0.6601 | 1099.8 | 1119.3 | 0.371 | 3.073 | 79.956 | 15.083 | 1.403 | 0.039 | 0.064 | 0.005 | 0.004 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1377.64 | |
| 8 | 0.6592 | 1097.7 | 1117.2 | 0.368 | 3.115 | 80.129 | 14.884 | 1.392 | 0.039 | 0.063 | 0.005 | 0.004 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1376.03 | |
| 9 | 0.6598 | 1098.7 | 1118.2 | 0.360 | 3.124 | 80.006 | 14.998 | 1.401 | 0.038 | 0.062 | 0.005 | 0.004 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1376.61 | |
| 10 | 0.6597 | 1098.0 | 1117.4 | 0.356 | 3.172 | 80.013 | 14.938 | 1.412 | 0.038 | 0.062 | 0.005 | 0.004 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1375.72 | |
| 11 | 0.6603 | 1098.9 | 1118.4 | 0.361 | 3.162 | 79.908 | 15.036 | 1.422 | 0.039 | 0.063 | 0.005 | 0.004 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1376.31 | |
| 12 | 0.6605 | 1099.0 | 1118.5 | 0.360 | 3.175 | 79.881 | 15.042 | 1.432 | 0.039 | 0.063 | 0.005 | 0.004 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1376.23 | |
| 13 | 0.6602 | 1098.5 | 1118.0 | 0.357 | 3.181 | 79.931 | 14.993 | 1.427 | 0.038 | 0.062 | 0.005 | 0.004 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1375.91 | |
| 14 | 0.6600 | 1098.3 | 1117.8 | 0.355 | 3.178 | 79.961 | 14.976 | 1.421 | 0.038 | 0.062 | 0.005 | 0.004 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1375.90 | |
| 15 | 0.6601 | 1098.4 | 1117.8 | 0.353 | 3.186 | 79.944 | 14.978 | 1.428 | 0.038 | 0.062 | 0.005 | 0.004 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1375.86 | |
| 16 | 0.6595 | 1096.5 | 1115.9 | 0.350 | 3.254 | 80.055 | 14.796 | 1.436 | 0.038 | 0.062 | 0.005 | 0.004 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1374.05 | |
| 17 | 0.6602 | 1098.5 | 1117.9 | 0.353 | 3.194 | 79.922 | 14.989 | 1.432 | 0.038 | 0.062 | 0.005 | 0.004 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1375.81 | |
| 18 | 0.6598 | 1097.9 | 1117.3 | 0.350 | 3.197 | 79.982 | 14.944 | 1.418 | 0.038 | 0.061 | 0.005 | 0.004 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1375.49 | |
| 19 | 0.6602 | 1097.0 | 1116.5 | 0.349 | 3.280 | 79.945 | 14.856 | 1.460 | 0.038 | 0.062 | 0.005 | 0.004 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1374.12 | |
| 20 | 0.6609 | 1097.8 | 1117.2 | 0.353 | 3.299 | 79.829 | 14.921 | 1.488 | 0.039 | 0.063 | 0.005 | 0.004 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1374.25 | |
| 21 | 0.6603 | 1097.2 | 1116.7 | 0.350 | 3.276 | 79.929 | 14.872 | 1.462 | 0.038 | 0.062 | 0.005 | 0.004 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1374.24 | |
| 22 | 0.6611 | 1097.4 | 1116.9 | 0.358 | 3.326 | 79.820 | 14.877 | 1.506 | 0.040 | 0.064 | 0.005 | 0.004 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1373.69 | |
| 23 | 0.6613 | 1097.7 | 1117.2 | 0.356 | 3.336 | 79.767 | 14.914 | 1.514 | 0.039 | 0.064 | 0.005 | 0.004 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1373.78 | |
| 24 | 0.6614 | 1099.4 | 1118.9 | 0.356 | 3.244 | 79.719 | 15.096 | 1.472 | 0.039 | 0.064 | 0.005 | 0.004 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1375.76 | |
| 25 | 0.6618 | 1100.3 | 1119.8 | 0.364 | 3.216 | 79.660 | 15.164 | 1.479 | 0.040 | 0.066 | 0.005 | 0.004 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1376.43 | |
| 26 | 0.6619 | 1100.9 | 1120.4 | 0.369 | 3.181 | 79.649 | 15.215 | 1.468 | 0.041 | 0.067 | 0.006 | 0.005 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1377.09 | |
| 27 | 0.6615 | 1100.5 | 1120.0 | 0.373 | 3.160 | 79.734 | 15.151 | 1.462 | 0.041 | 0.067 | 0.006 | 0.005 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1377.02 | |
| 28 | 0.6599 | 1098.9 | 1118.3 | 0.358 | 3.135 | 79.955 | 15.051 | 1.390 | 0.039 | 0.062 | 0.006 | 0.004 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1376.62 | |
| 29 | 0.6661 | 1098.5 | 1118.0 | 0.475 | 3.551 | 79.146 | 14.959 | 1.727 | 0.049 | 0.083 | 0.006 | 0.005 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1369.89 | |
| 30 | 0.6604 | 1098.1 | 1117.6 | 0.391 | 3.172 | 79.944 | 14.945 | 1.430 | 0.041 | 0.068 | 0.006 | 0.005 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1375.23 | |
| 31 | 0.6608 | 1098.8 | 1118.2 | 0.368 | 3.210 | 79.853 | 14.992 | 1.462 | 0.040 | 0.065 | 0.005 | 0.004 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1375.56 | |
| Avg | 0.6603 | 1098.0 | 1117.6 | 0.365 | 3.200 | 79.934 | 14.946 | 1.441 | 0.039 | 0.064 | 0.005 | 0.004 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1375.38 | |

Zone 32

GQ Source Daily Summary

January 2017

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 | CO2 | N2 | C1 | C2 | C3 | IC4 | NC4 | IC5 | NC5 | C6 | C7 | C8 | C9 | C10 | Wobbe | CCT |
|-----|------------------|-------------------|-------------------|-------|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|-----|
| 1 | 0.6929 | 1161.1 | 1181.7 | 0.000 | 2.993 | 72.122 | 24.040 | 0.827 | 0.008 | 0.010 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1419.66 | |
| 2 | 0.6912 | 1160.1 | 1180.6 | 0.000 | 2.899 | 72.435 | 23.869 | 0.779 | 0.007 | 0.010 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1420.10 | |
| 3 | 0.6908 | 1159.5 | 1180.0 | 0.000 | 2.901 | 72.475 | 23.859 | 0.748 | 0.007 | 0.010 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1419.74 | |
| 4 | 0.6916 | 1160.0 | 1180.6 | 0.000 | 2.942 | 72.298 | 24.007 | 0.736 | 0.007 | 0.010 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1419.59 | |
| 5 | 0.6908 | 1162.1 | 1182.6 | 0.000 | 2.745 | 72.497 | 23.998 | 0.743 | 0.007 | 0.010 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1422.88 | |
| 6 | 0.6922 | 1161.5 | 1182.1 | 0.000 | 2.902 | 72.238 | 24.056 | 0.787 | 0.007 | 0.010 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1420.87 | |
| 7 | 0.6924 | 1160.8 | 1181.3 | 0.000 | 2.974 | 72.174 | 24.047 | 0.788 | 0.007 | 0.010 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1419.67 | |
| 8 | 0.6917 | 1160.2 | 1180.8 | 0.000 | 2.942 | 72.271 | 24.031 | 0.740 | 0.007 | 0.010 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1419.70 | |
| 9 | 0.6940 | 1164.3 | 1184.9 | 0.000 | 2.906 | 72.025 | 24.107 | 0.941 | 0.009 | 0.012 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1422.35 | |
| 10 | 0.6924 | 1162.0 | 1182.6 | 0.000 | 2.891 | 72.315 | 23.878 | 0.895 | 0.009 | 0.012 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1421.26 | |
| 11 | 0.6926 | 1162.7 | 1183.3 | 0.000 | 2.876 | 72.251 | 23.968 | 0.883 | 0.009 | 0.012 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1421.80 | |
| 12 | 0.6937 | 1163.5 | 1184.1 | 0.000 | 2.925 | 72.067 | 24.062 | 0.926 | 0.009 | 0.012 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1421.73 | |
| 13 | 0.6931 | 1162.6 | 1183.1 | 0.000 | 2.928 | 72.203 | 23.910 | 0.939 | 0.009 | 0.012 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1421.15 | |
| 14 | 0.6943 | 1164.7 | 1185.4 | 0.000 | 2.906 | 72.001 | 24.098 | 0.975 | 0.009 | 0.012 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1422.59 | |
| 15 | 0.6925 | 1161.6 | 1182.2 | 0.000 | 2.929 | 72.286 | 23.861 | 0.904 | 0.009 | 0.012 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1420.61 | |
| 16 | 0.6919 | 1160.6 | 1181.2 | 0.000 | 2.934 | 72.486 | 23.580 | 0.969 | 0.012 | 0.018 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1420.00 | |
| 17 | 0.6910 | 1159.5 | 1180.0 | 0.000 | 2.912 | 72.548 | 23.674 | 0.847 | 0.008 | 0.010 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1419.62 | |
| 18 | 0.6919 | 1160.2 | 1180.8 | 0.000 | 2.959 | 72.374 | 23.773 | 0.875 | 0.008 | 0.011 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1419.50 | |
| 19 | 0.6918 | 1159.5 | 1180.0 | 0.000 | 2.990 | 72.375 | 23.759 | 0.858 | 0.008 | 0.010 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1418.78 | |
| 20 | 0.6918 | 1159.0 | 1179.6 | 0.000 | 3.019 | 72.380 | 23.714 | 0.868 | 0.008 | 0.011 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1418.20 | |
| 21 | 0.6920 | 1159.9 | 1180.4 | 0.000 | 2.986 | 72.324 | 23.826 | 0.847 | 0.008 | 0.011 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1419.05 | |
| 22 | 0.6918 | 1159.6 | 1180.2 | 0.000 | 2.988 | 72.355 | 23.793 | 0.846 | 0.008 | 0.011 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1418.87 | |
| 23 | 0.6914 | 1159.8 | 1180.3 | 0.000 | 2.937 | 72.447 | 23.754 | 0.842 | 0.008 | 0.011 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1419.50 | |
| 24 | 0.6902 | 1158.2 | 1178.7 | 0.000 | 2.921 | 72.650 | 23.624 | 0.788 | 0.007 | 0.010 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1418.77 | |
| 25 | 0.6906 | 1158.1 | 1178.6 | 0.000 | 2.965 | 72.553 | 23.674 | 0.791 | 0.008 | 0.010 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1418.27 | |
| 26 | 0.6899 | 1157.4 | 1177.9 | 0.000 | 2.944 | 72.694 | 23.550 | 0.795 | 0.008 | 0.010 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1418.11 | |
| 27 | 0.6903 | 1157.1 | 1177.6 | 0.000 | 2.996 | 72.646 | 23.516 | 0.824 | 0.008 | 0.011 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1417.36 | |
| 28 | 0.6906 | 1157.3 | 1177.8 | 0.000 | 3.014 | 72.583 | 23.549 | 0.835 | 0.008 | 0.011 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1417.30 | |
| 29 | 0.6900 | 1156.5 | 1177.0 | 0.000 | 3.006 | 72.705 | 23.448 | 0.823 | 0.008 | 0.010 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1416.91 | |
| 30 | 0.6896 | 1156.0 | 1176.5 | 0.000 | 3.000 | 72.758 | 23.422 | 0.802 | 0.008 | 0.010 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1416.72 | |
| 31 | 0.6901 | 1156.7 | 1177.2 | 0.000 | 3.001 | 72.663 | 23.517 | 0.801 | 0.008 | 0.010 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1417.10 | |
| Avg | 0.6916 | 1160.0 | 1180.6 | 0.000 | 2.943 | 72.393 | 23.805 | 0.839 | 0.008 | 0.011 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1419.60 | |

Zone 33

| | | | |
|----------------------------|----------------------|------------------------------|--------|
| GQ Source Number: | 1202160 | Specific Gravity: | 0.5840 |
| GQ Source Name: | BOWMAN BORDER | Dry Heat Value: | 996.12 |
| Effective Date: | 6/1/2016 9:00:00 AM | Wet Heat Value: | 978.78 |
| Effective End Date: | 1/18/2038 9:14:00 PM | As Deliv. Heat Value: | 996.12 |
| Pressure Base: | 14.730 | Sample Pressure: | 380.00 |
| Viscosity: | | Sample Temperature: | |

| | | <u>Mol %</u> | <u>Liquid Content</u> | | | <u>Mol %</u> |
|---------------|------------|--------------|-----------------------|-----------|------------------|--------------|
| C1 | Methane | 94.019 | | CO2 | Carbon Dioxide | 0.232 |
| C2 | Ethane | 1.995 | 0.5321 | N2 | Nitrogen | 3.460 |
| C3 | Propane | 0.226 | 0.0621 | O2 | Oxygen | 0.020 |
| IC4 | Isobutane | 0.020 | 0.0066 | He | Helium | |
| NC4 | n-Butane | 0.022 | 0.0068 | H2 | Hydrogen | |
| IC5 | Isopentane | 0.003 | 0.0010 | H2S | Hydrogen Sulfide | |
| NC5 | n-Pentane | 0.002 | 0.0007 | Ar | Argon | |
| C6 | Hexanes | 0.000 | 0.0000 | CO | Carbon Monoxide | |
| C7 | Heptanes | | | H2 | Water | |
| C8 | Octanes | | | Neo-C5 | Neopentane | |
| C9 | Nonanes | | | | | |
| C10 | Decanes | | | | | |
| Totals | | | 100.000% | 0.609 GPM | | |

Sample Date: 7/1/2016 12:00:00 AM
Sample Type: Spot
Sample Tech: MG
H2S: ppm

Sample Remarks:

Analysis Tech: MB

Analysis Remarks:

Zone 34

GQ Source Daily Summary

January 2017

Number: 243

Pressure Base: 14.730

Contract Day: 1

Name: LANDECK STATION-APACHE JUNCTION

Temperature Base:

Contract Hour: 9

| Day | Relative Density | Heating Value Wet | Heating Value Dry | CO2 | N2 | C1 | C2 | C3 | IC4 | NC4 | IC5 | NC5 | C6 | C7 | C8 | C9 | C10 | Wobbe | CCT |
|-----|------------------|-------------------|-------------------|-------|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|-----|
| 1 | 0.6353 | 1049.0 | 1067.6 | 0.255 | 4.004 | 84.727 | 9.528 | 1.396 | 0.033 | 0.051 | 0.003 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1339.50 | |
| 2 | 0.6416 | 1058.7 | 1077.4 | 0.267 | 3.998 | 83.544 | 10.604 | 1.491 | 0.035 | 0.055 | 0.004 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1345.06 | |
| 3 | 0.6423 | 1060.2 | 1079.0 | 0.269 | 3.966 | 83.413 | 10.759 | 1.497 | 0.035 | 0.055 | 0.004 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1346.30 | |
| 4 | 0.6354 | 1049.7 | 1068.3 | 0.250 | 3.988 | 84.648 | 9.668 | 1.359 | 0.032 | 0.049 | 0.003 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1340.13 | |
| 5 | 0.6349 | 1049.0 | 1067.6 | 0.248 | 3.981 | 84.729 | 9.618 | 1.339 | 0.031 | 0.048 | 0.003 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1339.85 | |
| 6 | 0.6369 | 1051.9 | 1070.6 | 0.255 | 3.986 | 84.356 | 9.943 | 1.374 | 0.032 | 0.049 | 0.003 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1341.44 | |
| 7 | 0.6403 | 1057.4 | 1076.2 | 0.265 | 3.954 | 83.750 | 10.500 | 1.439 | 0.033 | 0.051 | 0.004 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1344.86 | |
| 8 | 0.6405 | 1058.3 | 1077.0 | 0.268 | 3.918 | 83.711 | 10.576 | 1.436 | 0.033 | 0.051 | 0.004 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1345.72 | |
| 9 | 0.6404 | 1057.9 | 1076.7 | 0.267 | 3.927 | 83.738 | 10.541 | 1.437 | 0.033 | 0.051 | 0.004 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1345.43 | |
| 10 | 0.6407 | 1058.4 | 1077.2 | 0.268 | 3.926 | 83.678 | 10.595 | 1.441 | 0.033 | 0.051 | 0.004 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1345.69 | |
| 11 | 0.6413 | 1059.3 | 1078.1 | 0.272 | 3.915 | 83.585 | 10.687 | 1.450 | 0.033 | 0.052 | 0.004 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1346.30 | |
| 12 | 0.6417 | 1060.0 | 1078.8 | 0.273 | 3.913 | 83.504 | 10.761 | 1.458 | 0.033 | 0.052 | 0.004 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1346.71 | |
| 13 | 0.6417 | 1060.0 | 1078.8 | 0.274 | 3.912 | 83.510 | 10.754 | 1.458 | 0.033 | 0.052 | 0.004 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1346.70 | |
| 14 | 0.6415 | 1059.6 | 1078.4 | 0.274 | 3.913 | 83.561 | 10.696 | 1.463 | 0.034 | 0.052 | 0.004 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1346.46 | |
| 15 | 0.6406 | 1058.5 | 1077.2 | 0.273 | 3.904 | 83.711 | 10.580 | 1.441 | 0.033 | 0.051 | 0.004 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1345.91 | |
| 16 | 0.6402 | 1058.0 | 1076.7 | 0.273 | 3.893 | 83.790 | 10.524 | 1.429 | 0.033 | 0.051 | 0.004 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1345.73 | |
| 17 | 0.6397 | 1057.4 | 1076.1 | 0.271 | 3.889 | 83.868 | 10.466 | 1.416 | 0.032 | 0.050 | 0.004 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1345.45 | |
| 18 | 0.6398 | 1057.4 | 1076.2 | 0.272 | 3.893 | 83.854 | 10.475 | 1.416 | 0.033 | 0.050 | 0.004 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1345.41 | |
| 19 | 0.6397 | 1057.3 | 1076.1 | 0.272 | 3.890 | 83.868 | 10.465 | 1.414 | 0.033 | 0.050 | 0.004 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1345.39 | |
| 20 | 0.6397 | 1057.4 | 1076.1 | 0.273 | 3.890 | 83.862 | 10.473 | 1.412 | 0.033 | 0.050 | 0.004 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1345.39 | |
| 21 | 0.6395 | 1056.9 | 1075.7 | 0.273 | 3.892 | 83.911 | 10.427 | 1.408 | 0.033 | 0.050 | 0.004 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1345.12 | |
| 22 | 0.6399 | 1057.5 | 1076.2 | 0.275 | 3.892 | 83.841 | 10.488 | 1.414 | 0.033 | 0.050 | 0.004 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1345.42 | |
| 23 | 0.6393 | 1056.7 | 1075.5 | 0.273 | 3.888 | 83.938 | 10.410 | 1.402 | 0.032 | 0.050 | 0.004 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1345.06 | |
| 24 | 0.6395 | 1057.3 | 1076.0 | 0.274 | 3.873 | 83.900 | 10.462 | 1.401 | 0.032 | 0.050 | 0.004 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1345.49 | |
| 25 | 0.6400 | 1057.7 | 1076.5 | 0.276 | 3.888 | 83.817 | 10.511 | 1.418 | 0.033 | 0.050 | 0.004 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1345.59 | |
| 26 | 0.6385 | 1055.3 | 1074.0 | 0.275 | 3.900 | 84.096 | 10.238 | 1.403 | 0.033 | 0.050 | 0.004 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1344.06 | |
| 27 | 0.6383 | 1054.9 | 1073.6 | 0.274 | 3.901 | 84.141 | 10.197 | 1.397 | 0.032 | 0.050 | 0.004 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1343.80 | |
| 28 | 0.6390 | 1040.7 | 1059.1 | 0.276 | 3.896 | 84.017 | 10.309 | 1.412 | 0.033 | 0.050 | 0.004 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1324.91 | |
| 29 | 0.6387 | 1055.7 | 1074.4 | 0.274 | 3.888 | 84.064 | 10.293 | 1.393 | 0.032 | 0.049 | 0.004 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1344.43 | |
| 30 | 0.6385 | 1055.6 | 1074.3 | 0.274 | 3.881 | 84.090 | 10.276 | 1.390 | 0.032 | 0.049 | 0.004 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1344.44 | |
| 31 | 0.6140 | 1019.7 | 1037.8 | 0.214 | 3.854 | 88.522 | 6.444 | 0.899 | 0.025 | 0.036 | 0.003 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1324.23 | |
| Avg | 0.6387 | 1055.0 | 1073.6 | 0.268 | 3.917 | 84.056 | 10.267 | 1.403 | 0.033 | 0.050 | 0.004 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1343.42 | |

Zone 38

Jan-17

ZONE 610

| Watford City | | Effective 2-3-16 01325 Watford City West Border | | | 01312 Watford City East Border | | | Weighted | |
|--------------|-----------|---|--------|----------------|-----------------------------------|--------|----------------|------------|-----------|
| Begin Date | End Date | MCF | DK | BTU Zone 25 | MCF | DK | BTU Zone 43 | AVG BTU | |
| 1/1/2017 | 1/2/2017 | 770 | 923 | 1.198 | 859 | 963 | 1.121 | 1.157 | 1/1/2017 |
| 1/2/2017 | 1/3/2017 | 859 | 1029 | 1.198 | 1053 | 1182 | 1.122 | 1.156 | 1/2/2017 |
| 1/3/2017 | 1/4/2017 | 920 | 1102 | 1.198 | 1075 | 1206 | 1.122 | 1.157 | 1/3/2017 |
| 1/4/2017 | 1/5/2017 | 899 | 1077 | 1.198 | 974 | 1092 | 1.121 | 1.158 | 1/4/2017 |
| 1/5/2017 | 1/6/2017 | 889 | 1065 | 1.198 | 959 | 1076 | 1.122 | 1.159 | 1/5/2017 |
| 1/6/2017 | 1/7/2017 | 895 | 1072 | 1.198 | 975 | 1095 | 1.123 | 1.159 | 1/6/2017 |
| 1/7/2017 | 1/8/2017 | 884 | 1059 | 1.198 | 904 | 1013 | 1.120 | 1.159 | 1/7/2017 |
| 1/8/2017 | 1/9/2017 | 875 | 1048 | 1.198 | 836 | 939 | 1.123 | 1.161 | 1/8/2017 |
| 1/9/2017 | 1/10/2017 | 863 | 1034 | 1.198 | 787 | 884 | 1.122 | 1.162 | 1/9/2017 |
| 1/10/2017 | 1/11/2017 | 908 | 1088 | 1.198 | 664 | 741 | 1.116 | 1.163 | 1/10/2017 |
| 1/11/2017 | 1/12/2017 | 954 | 1143 | 1.198 | 690 | 770 | 1.116 | 1.164 | 1/11/2017 |
| 1/12/2017 | 1/13/2017 | 943 | 1130 | 1.198 | 739 | 829 | 1.121 | 1.164 | 1/12/2017 |
| 1/13/2017 | 1/14/2017 | 860 | 1030 | 1.198 | 571 | 642 | 1.124 | 1.168 | 1/13/2017 |
| 1/14/2017 | 1/15/2017 | 828 | 992 | 1.198 | 461 | 520 | 1.127 | 1.173 | 1/14/2017 |
| 1/15/2017 | 1/16/2017 | 780 | 935 | 1.198 | 334 | 375 | 1.125 | 1.176 | 1/15/2017 |
| 1/16/2017 | 1/17/2017 | 776 | 930 | 1.198 | 410 | 461 | 1.124 | 1.172 | 1/16/2017 |
| 1/17/2017 | 1/18/2017 | 689 | 826 | 1.198 | 308 | 347 | 1.125 | 1.175 | 1/17/2017 |
| 1/18/2017 | 1/19/2017 | 594 | 712 | 1.198 | 245 | 276 | 1.125 | 1.177 | 1/18/2017 |
| 1/19/2017 | 1/20/2017 | 649 | 777 | 1.198 | 218 | 244 | 1.121 | 1.179 | 1/19/2017 |
| 1/20/2017 | 1/21/2017 | 641 | 768 | 1.198 | 168 | 189 | 1.122 | 1.182 | 1/20/2017 |
| 1/21/2017 | 1/22/2017 | 624 | 747 | 1.198 | 170 | 191 | 1.121 | 1.182 | 1/21/2017 |
| 1/22/2017 | 1/23/2017 | 661 | 792 | 1.198 | 165 | 185 | 1.119 | 1.182 | 1/22/2017 |
| 1/23/2017 | 1/24/2017 | 702 | 841 | 1.198 | 267 | 299 | 1.120 | 1.177 | 1/23/2017 |
| 1/24/2017 | 1/25/2017 | 747 | 894 | 1.198 | 319 | 356 | 1.117 | 1.174 | 1/24/2017 |
| 1/25/2017 | 1/26/2017 | 774 | 927 | 1.198 | 346 | 385 | 1.116 | 1.173 | 1/25/2017 |
| 1/26/2017 | 1/27/2017 | 767 | 919 | 1.198 | 308 | 345 | 1.121 | 1.176 | 1/26/2017 |
| 1/27/2017 | 1/28/2017 | 698 | 836 | 1.198 | 231 | 259 | 1.124 | 1.180 | 1/27/2017 |
| 1/28/2017 | 1/29/2017 | 583 | 698 | 1.198 | 141 | 158 | 1.125 | 1.184 | 1/28/2017 |
| 1/29/2017 | 1/30/2017 | 584 | 699 | 1.198 | 132 | 148 | 1.120 | 1.184 | 1/29/2017 |
| 1/30/2017 | 1/31/2017 | 659 | 789 | 1.198 | 179 | 200 | 1.121 | 1.182 | 1/30/2017 |
| 1/31/2017 | 2/1/2017 | 784 | 939 | 1.198 | 359 | 392 | 1.092 | 1.165 | 1/31/2017 |
| | | 24,059 | 28,821 | | 15,847 | 17,762 | 1.1206 | 1.1702 | |

Zone 802

| ROW ID | LOCATION DESCRIPTION | GROSS HEATING VALUE (BTU/CF) | SPECIFIC GRAVITY | WOBBE (cal) | CRICONDENTHERM (deg F) | NITROGEN (mole percent) | CARBON DIOXIDE (mole percent) | METHANE (mole percent) | ETHANE (mole percent) | PROPANE (mole percent) | NORMAL BUTANE (mole percent) | ISO BUTANE (mole percent) | PENTANE (mole percent) | ISO PENTANE (mole percent) | NEO PENTANE (mole percent) | HEXANES PLUS (mole percent) | HYDROGEN (mole percent) | HELIUM (mole percent) | PRODUCTION DATE | POSTING DATE | Changestimestamp | NOTES |
|--------|----------------------|------------------------------|------------------|-------------|------------------------|-------------------------|-------------------------------|------------------------|-----------------------|------------------------|------------------------------|---------------------------|------------------------|----------------------------|----------------------------|-----------------------------|-------------------------|-----------------------|-----------------|--------------|----------------------|-------|
| 11587 | GLEN ULLIN | 1047.6 | 0.6022 | 1350 | -81.3 | 1.2366 | 0.8188 | 90.8305 | 6.6348 | 0.2758 | 0.0093 | 0.0063 | 0 | 0 | 0 | 0 | 0.1722 | 0.0176 | 12/31/2016 | 1/1/2017 | 1/1/2017 2:56:46 PM | |
| 11587 | GLEN ULLIN | 1045.8 | 0.6013 | 1348.6 | -82.3 | 1.2718 | 0.8159 | 90.9326 | 6.5176 | 0.2455 | 0.008 | 0.0058 | 0 | 0 | 0 | 0 | 0.186 | 0.0172 | 1/1/2017 | 1/2/2017 | 1/2/2017 2:58:20 PM | |
| 11587 | GLEN ULLIN | 1045.5 | 0.6008 | 1348.9 | -82.5 | 1.2632 | 0.7977 | 91.0451 | 6.413 | 0.2618 | 0.0093 | 0.0063 | 0 | 0 | 0 | 0 | 0.188 | 0.0168 | 1/2/2017 | 1/3/2017 | 1/3/2017 2:58:45 PM | |
| 11587 | GLEN ULLIN | 1044.5 | 0.5995 | 1349.1 | -83.5 | 1.2119 | 0.7931 | 91.2707 | 6.2509 | 0.2464 | 0.0095 | 0.0062 | 0 | 0 | 0 | 0 | 0.1952 | 0.017 | 1/3/2017 | 1/4/2017 | 1/4/2017 3:03:41 PM | |
| 11587 | GLEN ULLIN | 1044.9 | 0.5997 | 1349.3 | -83.4 | 1.1791 | 0.8115 | 91.2795 | 6.284 | 0.2376 | 0.0082 | 0.0059 | 0 | 0.0001 | 0 | 0 | 0.1777 | 0.0167 | 1/4/2017 | 1/5/2017 | 1/5/2017 3:00:35 PM | |
| 11587 | GLEN ULLIN | 1045.1 | 0.5999 | 1349.4 | -83.1 | 1.2072 | 0.7946 | 91.2621 | 6.2843 | 0.2487 | 0.01 | 0.0073 | 0.0002 | 0.0004 | 0 | 0.0002 | 0.169 | 0.017 | 1/5/2017 | 1/6/2017 | 1/6/2017 2:59:41 PM | |
| 11587 | GLEN ULLIN | 1045 | 0.6 | 1349 | -83.1 | 1.2274 | 0.793 | 91.1912 | 6.3084 | 0.2543 | 0.009 | 0.0062 | 0 | 0 | 0 | 0 | 0.1921 | 0.0169 | 1/6/2017 | 1/7/2017 | 1/7/2017 3:00:02 PM | |
| 11587 | GLEN ULLIN | 1045.8 | 0.6006 | 1349.4 | -82.4 | 1.2351 | 0.7975 | 91.1032 | 6.3724 | 0.2742 | 0.0105 | 0.0071 | 0 | 0.0001 | 0 | 0 | 0.1825 | 0.0177 | 1/7/2017 | 1/8/2017 | 1/8/2017 2:57:54 PM | |
| 11587 | GLEN ULLIN | 1045.7 | 0.6006 | 1349.4 | -82.6 | 1.2283 | 0.8031 | 91.1082 | 6.3942 | 0.2602 | 0.0094 | 0.0062 | 0 | 0 | 0 | 0 | 0.1726 | 0.0185 | 1/8/2017 | 1/9/2017 | 1/9/2017 2:59:07 PM | |
| 11587 | GLEN ULLIN | 1046.7 | 0.6012 | 1349.9 | -82.3 | 1.2158 | 0.8077 | 91.0385 | 6.506 | 0.2538 | 0.008 | 0.0055 | 0 | 0 | 0 | 0 | 0.1489 | 0.0189 | 1/9/2017 | 1/10/2017 | 1/10/2017 2:58:47 PM | |
| 11587 | GLEN ULLIN | 1047.8 | 0.602 | 1350.5 | -81.7 | 1.2657 | 0.7756 | 90.9413 | 6.6102 | 0.2656 | 0.0097 | 0.0063 | 0 | 0 | 0 | 0 | 0.1082 | 0.0174 | 1/10/2017 | 1/11/2017 | 1/11/2017 2:59:50 PM | |
| 11587 | GLEN ULLIN | 1048.4 | 0.6027 | 1350.4 | -80.9 | 1.2645 | 0.8029 | 90.8049 | 6.6814 | 0.2837 | 0.0111 | 0.0075 | 0.0002 | 0.0004 | 0 | 0 | 0.1262 | 0.0169 | 1/11/2017 | 1/12/2017 | 1/12/2017 3:01:09 PM | |
| 11587 | GLEN ULLIN | 1048.8 | 0.6026 | 1351.1 | -81 | 1.1724 | 0.8356 | 90.9364 | 6.6423 | 0.282 | 0.0103 | 0.0074 | 0.0001 | 0.0004 | 0 | 0.0001 | 0.0986 | 0.0154 | 1/12/2017 | 1/13/2017 | 1/13/2017 3:01:33 PM | |
| 11587 | GLEN ULLIN | 1051.3 | 0.6039 | 1352.8 | -79.1 | 1.1723 | 0.8224 | 90.6933 | 6.8693 | 0.3084 | 0.0133 | 0.0102 | 0.0004 | 0.0011 | 0 | 0.0003 | 0.095 | 0.0139 | 1/13/2017 | 1/14/2017 | 1/14/2017 2:59:36 PM | |
| 11587 | GLEN ULLIN | 1051.9 | 0.6045 | 1353 | -79 | 1.1718 | 0.8366 | 90.6323 | 6.9482 | 0.3081 | 0.0129 | 0.0093 | 0.0002 | 0.0008 | 0 | 0.0001 | 0.0716 | 0.0101 | 1/14/2017 | 1/15/2017 | 1/15/2017 2:59:43 PM | |
| 11587 | GLEN ULLIN | 1053.2 | 0.6056 | 1353.4 | -78.4 | 1.1947 | 0.8351 | 90.3901 | 7.1776 | 0.3028 | 0.0104 | 0.0071 | 0.0001 | 0.0001 | 0 | 0 | 0.0721 | 0.0113 | 1/15/2017 | 1/16/2017 | 1/16/2017 3:01:34 PM | |
| 11587 | GLEN ULLIN | 1051.9 | 0.6049 | 1352.5 | -79.1 | 1.2116 | 0.831 | 90.4574 | 7.076 | 0.2924 | 0.0104 | 0.0068 | 0 | 0 | 0 | 0 | 0.1034 | 0.0112 | 1/16/2017 | 1/17/2017 | 1/17/2017 3:00:48 PM | |
| 11587 | GLEN ULLIN | 1051.3 | 0.6045 | 1352.1 | -79.5 | 1.2385 | 0.8146 | 90.5557 | 6.993 | 0.2885 | 0.0107 | 0.0068 | 0 | 0 | 0 | 0 | 0.0834 | 0.0098 | 1/17/2017 | 1/18/2017 | 1/18/2017 3:01:02 PM | |
| 11587 | GLEN ULLIN | 1052 | 0.6048 | 1352.8 | -79.1 | 1.1786 | 0.8442 | 90.5174 | 7.0532 | 0.2907 | 0.0106 | 0.0068 | 0 | 0.0001 | 0 | 0 | 0.088 | 0.0097 | 1/18/2017 | 1/19/2017 | 1/19/2017 2:59:00 PM | |
| 11587 | GLEN ULLIN | 1052.7 | 0.6062 | 1352 | -78.5 | 1.2818 | 0.836 | 90.2016 | 7.2886 | 0.281 | 0.0083 | 0.0057 | 0 | 0 | 0 | 0 | 0.0879 | 0.0101 | 1/19/2017 | 1/20/2017 | 1/20/2017 3:01:39 PM | |
| 11587 | GLEN ULLIN | 1049.4 | 0.6036 | 1350.7 | -80.4 | 1.2789 | 0.8093 | 90.6784 | 6.836 | 0.2746 | 0.0101 | 0.0066 | 0.0002 | 0.0003 | 0 | 0.0001 | 0.0934 | 0.0131 | 1/20/2017 | 1/21/2017 | 1/21/2017 2:58:29 PM | |
| 11587 | GLEN ULLIN | 1048 | 0.6023 | 1350.4 | -81.5 | 1.2373 | 0.8124 | 90.9211 | 6.6321 | 0.2655 | 0.0096 | 0.006 | 0 | 0.0001 | 0 | 0 | 0.1032 | 0.0137 | 1/21/2017 | 1/22/2017 | 1/22/2017 3:00:53 PM | |
| 11587 | GLEN ULLIN | 1049.8 | 0.604 | 1350.8 | -80 | 1.2617 | 0.8252 | 90.5993 | 6.8779 | 0.2941 | 0.0097 | 0.0061 | 0 | 0 | 0 | 0 | 0.1116 | 0.0148 | 1/22/2017 | 1/23/2017 | 1/23/2017 3:00:00 PM | |
| 11587 | GLEN ULLIN | 1050.7 | 0.6047 | 1351.1 | -79.5 | 1.259 | 0.8363 | 90.4711 | 7.0146 | 0.2793 | 0.01 | 0.0064 | 0.0001 | 0.0002 | 0 | 0.0001 | 0.1086 | 0.0149 | 1/23/2017 | 1/24/2017 | 1/24/2017 3:01:34 PM | |
| 11587 | GLEN ULLIN | 1050.2 | 0.6043 | 1351 | -79.7 | 1.2724 | 0.8236 | 90.4912 | 6.976 | 0.2782 | 0.0106 | 0.0067 | 0.0001 | 0.0002 | 0 | 0.0001 | 0.1255 | 0.0171 | 1/24/2017 | 1/25/2017 | 1/25/2017 3:00:57 PM | |
| 11587 | GLEN ULLIN | 1051.7 | 0.6057 | 1351.3 | -78.5 | 1.3408 | 0.8037 | 90.1733 | 7.2092 | 0.2945 | 0.0118 | 0.0078 | 0.0001 | 0.0005 | 0 | 0 | 0.1398 | 0.0179 | 1/25/2017 | 1/26/2017 | 1/26/2017 3:01:38 PM | |
| 11587 | GLEN ULLIN | 1047.4 | 0.6019 | 1350 | -81.6 | 1.269 | 0.7863 | 90.9429 | 6.5536 | 0.2852 | 0.0095 | 0.0059 | 0 | 0 | 0 | 0 | 0.1302 | 0.0179 | 1/26/2017 | 1/27/2017 | 1/27/2017 3:00:57 PM | |
| 11587 | GLEN ULLIN | 1054.3 | 0.6068 | 1353.4 | -77.3 | 1.271 | 0.8207 | 89.9967 | 7.4329 | 0.3143 | 0.0107 | 0.0066 | 0 | 0.0001 | 0 | 0 | 0.1299 | 0.0166 | 1/27/2017 | 1/28/2017 | 1/28/2017 3:00:46 PM | |
| 11587 | GLEN ULLIN | 1053.2 | 0.606 | 1353 | -78 | 1.2964 | 0.7962 | 90.1385 | 7.3036 | 0.3064 | 0.0122 | 0.0071 | 0 | 0 | 0 | 0 | 0.1236 | 0.017 | 1/28/2017 | 1/29/2017 | 1/29/2017 3:02:10 PM | |
| 11587 | GLEN ULLIN | 1053 | 0.6062 | 1352.4 | -77.9 | 1.3092 | 0.8077 | 90.0543 | 7.3405 | 0.301 | 0.0119 | 0.0071 | 0 | 0.0001 | 0 | 0 | 0.1495 | 0.0185 | 1/29/2017 | 1/30/2017 | 1/30/2017 3:01:35 PM | |
| 11587 | GLEN ULLIN | 1053.8 | 0.607 | 1352.6 | -77.1 | 1.3106 | 0.822 | 89.897 | 7.4556 | 0.3126 | 0.012 | 0.0075 | 0.0001 | 0.0003 | 0 | 0 | 0.1639 | 0.0188 | 1/30/2017 | 1/31/2017 | 1/31/2017 3:03:24 PM | |
| 11587 | GLEN ULLIN | 1052.2 | 0.6058 | 1351.8 | -78 | 1.3058 | 0.8167 | 90.1564 | 7.191 | 0.3339 | 0.0118 | 0.0071 | 0 | 0 | 0 | 0 | 0.1605 | 0.0185 | 1/31/2017 | 2/1/2017 | 2/1/2017 3:01:56 PM | |

32 record(s) retrieved

| NORTH DAKOTA HEATING VALUE ZONES | | |
|---|---------------------------------|--------------------------------|
| ZONES | MEASURING DEVICE | LOCATION |
| 211 | Chromatograph | Sidney Area |
| 24 | Monthly Sampler | Williston Area |
| 241 | Monthly Sampler | Fairview Area |
| 25 | Monthly Sampler | Watford City Area |
| 261 | Chromatograph | Williston – Tioga – Minot Line |
| 262 | Chromatograph | Minot Area |
| 263 | Monthly Sampler | Tioga – Portal |
| 264 | Monthly Sampler | Williston – Ray |
| 265 | Chromatograph | North Tioga |
| 271 | Chromatograph | Bismarck – Cleveland |
| 272 | Chromatograph | Cleveland – Mapleton |
| 273 | Chromatograph | Cleveland – Grafton |
| 28 | Chromatograph | Bismarck |
| 31 | Chromatograph | Dickinson |
| 32 | Chromatograph | Cabin Creek – Dickinson |
| 33 | Chromatograph | Killdeer |
| 34 | Monthly Sampler | Bowman Area |
| 43 | Chromatograph | Spring Creek |
| 600 | Chromatograph | Hankinson Area |
| 610 | Monthly Sampler & Chromatograph | Watford City |
| 802 | Chromatograph | Linton |

MONTANA DAKOTA UTILITIES CO
 NORTH DAKOTA
 HEATING VALUE DATA

| STATE | ZONE | ZONE BOUNDARY | 12 MONTH AVERAGE | JAN 17 | DEC 16 | NOV 16 | OCT 16 | SEPT 16 | AUG 16 | JULY 16 | JUNE 16 | MAY 16 | APR 16 | MAR 16 | FEB 16 | ZONE |
|-------|------|---------------------------------|------------------|--------|--------|--------|--------|---------|--------|---------|---------|--------|--------|--------|--------|------|
| MT/ND | 211 | Sidney Area | 1205 | 1199 | 1199 | 1200 | 1193 | 1209 | 1210 | 1208 | 1206 | 1205 | 1207 | 1213 | 1209 | 211 |
| ND | 24 | Williston Area | 1188 | 1189 | 1190 | 1187 | 1169 | 1195 | 1189 | 1197 | 1191 | 1182 | 1196 | 1194 | 1195 | 24 |
| ND | 25 | Watford City Border | 1207 | 1198 | 1193 | 1200 | 1206 | 1211 | 1213 | 1211 | 1206 | 1209 | 1211 | 1211 | 1213 | 25 |
| ND/MT | 241 | Fairview Area | 1198 | 1196 | 1200 | 1193 | 1170 | 1210 | 1200 | 1202 | 1197 | 1202 | 1207 | 1201 | 1201 | 241 |
| ND | 261 | Williston - Tioga - Minot Line | 1108 | 1105 | 1096 | 1034 | 981 | 1174 | 1074 | 1206 | 1182 | 1179 | 1186 | 1048 | 1035 | 261 |
| ND | 262 | Minot Area | 1180 | 1152 | 1144 | 1147 | 1141 | 1172 | 1191 | 1208 | 1208 | 1208 | 1206 | 1189 | 1190 | 262 |
| ND | 263 | Tioga - Portal | 1100 | 1103 | 1110 | 1138 | 1120 | 1129 | 1127 | 1118 | 1116 | 947 | 1105 | 1082 | 1107 | 263 |
| ND | 264 | Williston - Ray | 1181 | 1186 | 1186 | 1158 | 1157 | 1194 | 1198 | 1169 | 1183 | 1184 | 1190 | 1189 | 1181 | 264 |
| ND | 265 | North Tioga Transfer - Portal | 1179 | 1184 | 1170 | 1182 | 1180 | 1186 | 1166 | 1177 | 1170 | 1173 | 1190 | 1186 | 1187 | 265 |
| ND | 271 | Bismarck - Cleveland | 1174 | 1129 | 1127 | 1140 | 1142 | 1173 | 1185 | 1208 | 1208 | 1208 | 1206 | 1186 | 1181 | 271 |
| ND | 272 | Cleveland - Mapleton | 1173 | 1128 | 1126 | 1139 | 1142 | 1172 | 1184 | 1207 | 1207 | 1206 | 1204 | 1185 | 1180 | 272 |
| ND | 273 | Cleveland - Grafton | 1173 | 1128 | 1127 | 1139 | 1142 | 1172 | 1184 | 1207 | 1206 | 1206 | 1201 | 1185 | 1179 | 273 |
| ND | 28 | Bismarck - Cabin Creek | 1164 | 1115 | 1112 | 1122 | 1152 | 1172 | 1185 | 1208 | 1208 | 1202 | 1190 | 1154 | 1142 | 28 |
| ND | 31 | Dickinson Area | 1134 | 1113 | 1110 | 1120 | 1153 | 1171 | 1169 | 1124 | 1128 | 1117 | 1114 | 1144 | 1139 | 31 |
| ND/MT | 32 | Cabin Creek - Dickinson | 1133 | 1118 | 1118 | 1099 | 1137 | 1153 | 1150 | 1157 | 1153 | 1137 | 1129 | 1121 | 1125 | 32 |
| ND | 33 | Killdeer | 1184 | 1181 | 1200 | 1179 | 1182 | 1184 | 1183 | 1184 | 1185 | 1184 | 1181 | 1181 | 1183 | 33 |
| ND | 34 | Bowman Area | 999 | 996 | 996 | 996 | 996 | 996 | 996 | 996 | 996 | 980 | 982 | 979 | 1082 | 34 |
| ND | 43 | Spring Creek - Garden Crk Plant | 1111 | 1121 | 1122 | 1114 | 1109 | 1128 | 1109 | 1089 | 1087 | 1102 | 1143 | 1112 | 1091 | 43 |
| ND | 610 | MDU-Watford City BTU | 1178 | 1170 | 1162 | 1176 | 1179 | 1197 | 1206 | 1203 | 1186 | 1184 | 1174 | 1153 | 1140 | 610 |
| ND | 802 | Linton | 1057 | 1049 | 1051 | 1058 | 1053 | 1058 | 1059 | 1054 | 1065 | 1062 | 1062 | 1057 | 1056 | 802 |
| ND | 903 | Hettinger Propane | 2549 | 2549 | 2549 | 2549 | 2549 | 2549 | 2549 | 2549 | 2549 | 2549 | 2549 | 2549 | 2549 | 903 |

**THERMAL ZONE VARIANCE
DOCUMENTATION**

January 2017

| ZONE | <i>BTU VARIANCE</i> | <i>REASON</i> |
|-------------|--------------------------------|--|
| | | No Variance greater than 20 for this time period |