



1 : 600 / 1 : 240

| | | | |
|--|--------------------------------|--|--------------------|
| Country : USA | | | |
| Field : Wattenberg | | | |
| Location : Lat: 40° 28' 55.74" North Long: 104° 28' 5.74" West | | | |
| Well : Aggie State AA17-625 | | | |
| Company : Noble Energy | | | |
| Rig : H&P 273 | | | |
| LOCATION | | Company : Noble Energy Rig : H&P 273 Well : Aggie State AA17-625 Field : Wattenberg Country : USA API Number : 05-123-40904 | |
| Latitude : 40° 28' 55.74" North Longitude : 104° 28' 5.74" West | | Other Services | |
| UTM Easting = 3,286,995.593 ft UTM Northing = 1,420,157.288 ft | | Directional Drilling | |
| Permanent Datum : Ground Level | Elevation : 4666.00 ft | Elev. | KB N/A |
| Log Measured From : Drill Floor | 24.00 ft Above Permanent Datum | DF | 4690.00 ft |
| Drilling Measured From : Drill Floor | MD LOG | GL | 4666.00 ft |
| | | WD | N/A |
| Depth Logged : 942.00 ft To 11,110.00 ft | Unit No. : 11703717 | Job No. : CA-XX-0902101362 | |
| Date Logged : 19-Feb-15 To 23-Feb-15 | | | |
| Total Depth MD : 11,110.00 ft TVD: 6,603.51 ft | Plot Type : Final | | |
| Spud Date : 18-Feb-15 | Plot Date : 24-Feb-15 | | |
| Run No. | Borehole Record (MD) | Size | Casing Record (MD) |
| | Size | From | To |
| 2 | 8.750 in | 942.00 ft | 6.321.00 ft |
| 3 | 8.750 in | 6.321.00 ft | 6.926.00 ft |
| 4 | 6.125 in | 6.926.00 ft | 11,110.00 ft |
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|-------------------------------|-----------------|-----------------|-----------------|--|--|
| Max Tool Temp (degF) / Source | 145.90 / PCM | 167.00 / PCM | 226.10 / PCM | | |
| Rm @ Max Tool Temp (degF) | N/A @ N/A | N/A @ N/A | N/A @ N/A | | |
| Lead MWD Engineer | Paul Kock | Paul Kock | Paul Kock | | |
| Customer Representative | Charles Collver | Charles Collver | Charles Collver | | |

SENSOR INFORMATION

Downhole Processor Information

| | | | | | |
|---------------------------|-----------------|-----------------|--------------------|--|--|
| Tool Type | PCM | PCM | PCM | | |
| Software Version | 5.93 | 5.93 | 5.93 | | |
| Sub Serial Number | 11107081 | 11107081 | 12310748 | | |
| Insert Serial Number | 11680742 | 11680742 | 11680771 | | |
| Date and Time Initialized | 19-Feb-15 10:28 | 19-Feb-14 10:28 | 21-Feb-15 17:55 | | |
| Date and Time Read | 21-Feb-15 10:26 | 21-Feb-15 10:39 | 24-Jan-15 01:30:00 | | |
| ECMB SW Version | N/A | N/A | N/A | | |

Directional Sensor Information

| | | | | | |
|------------------------|----------|----------|----------|--|--|
| Tool Type | PCDC | PCDC | PCDC | | |
| Distance From Bit (ft) | 52.31 | 53.06 | 63.79 | | |
| Software Version | 6.33 | 6.33 | 6.33 | | |
| Sub Serial Number | 11107081 | 11107081 | 12310748 | | |
| Sonde Serial Number | 11638559 | 11638559 | 11477956 | | |
| Sensor ID Number | N/A | N/A | N/A | | |
| Toolface Offset (deg) | 119.80 | 103.70 | 90.20 | | |

Gamma Ray Sensor Information

| | | | | | |
|------------------------------|----------|----------|----------|--|--|
| Tool Type | PCG | PCG | PCG | | |
| Distance From Bit (ft) | 42.19 | 42.94 | 59.06 | | |
| Recorded Sample Period (sec) | 10 | 10 | 10 | | |
| Software Version | 8.15 | 8.15 | 8.15 | | |
| Sub Serial Number | 11107081 | 11107081 | 12310748 | | |
| Insert/Sonde Serial Number | 11293411 | 11293411 | 11121362 | | |

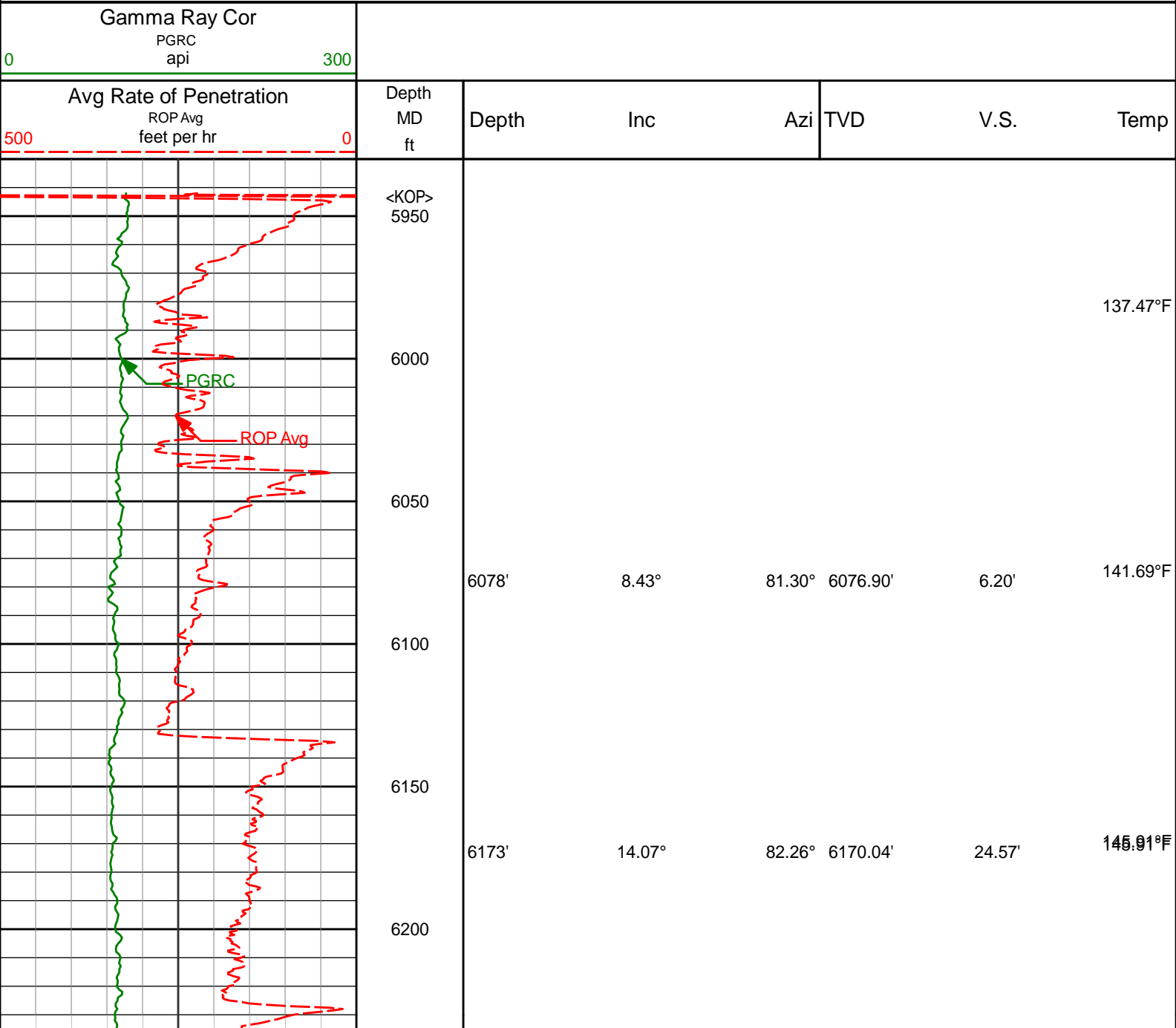
REMARKS

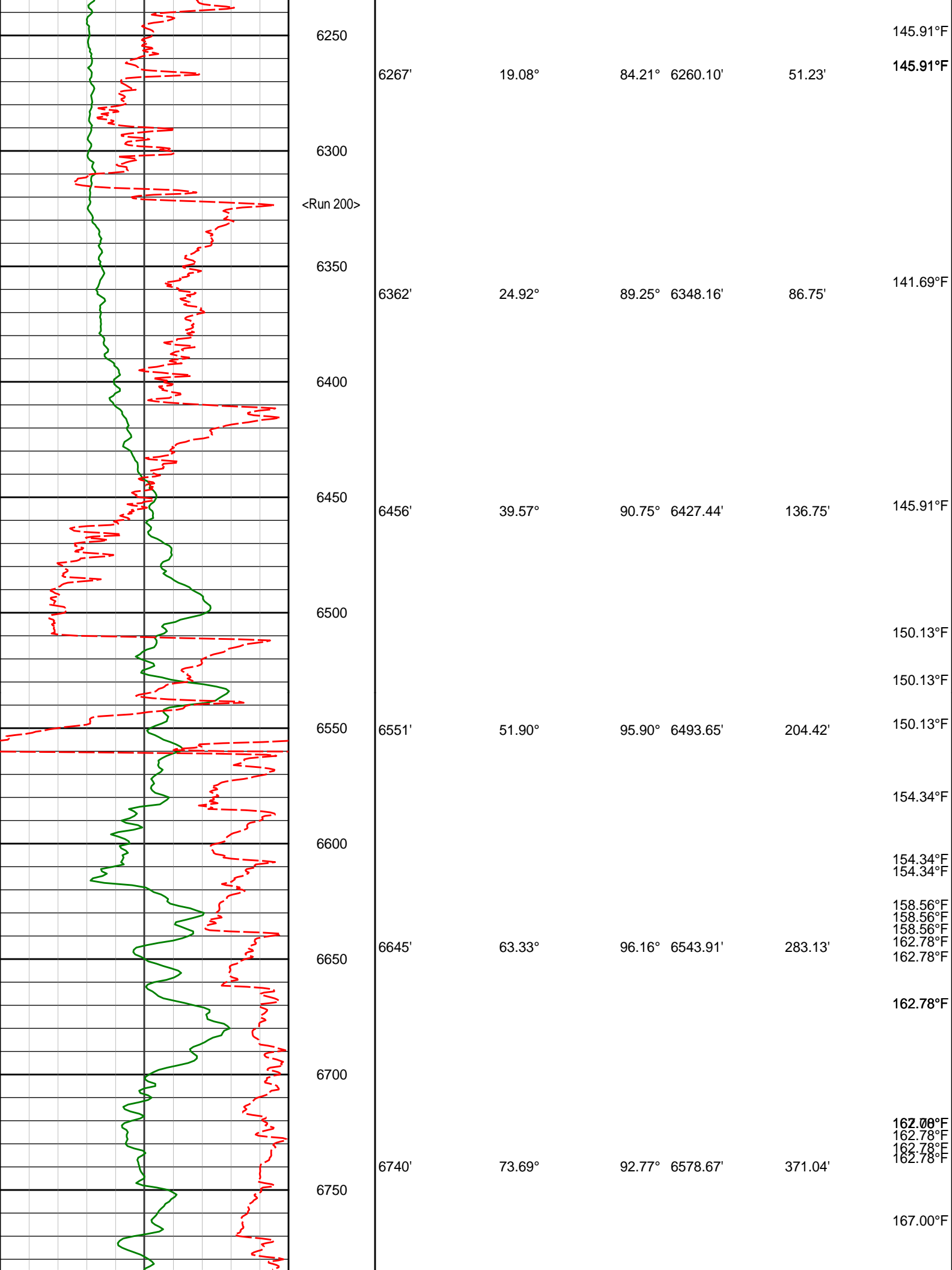
1. All depths are calibrated to the driller's pipe tally and are measured from the rig drill floor.
2. No depth corrections have been made for pipe stretch or compression.
3. All data presented is recorded (memory data) unless otherwise stated.
 - ROPA: Average Rate of Penetration is real time data.
 - PGRC: Smooth Pressure Case Gamma Ray Borehole corrected is recorded data.
4. The following smoothing parameters have been applied to the data:
 - All ROP in logs - 0.5 ft interval, 1.2 ft coercion distance.
 - Gamma in 2" (1:600) logs - 1 ft interval, 3 ft coercion distance.
 - Gamma in 5" (1:240) logs - 0.5 ft interval, 0.6 ft coercion distance.
5. INSITE version 8.1.10
6. Gamma presented inside casing/cement from 6883 ft. MD to 6926 ft. MD.

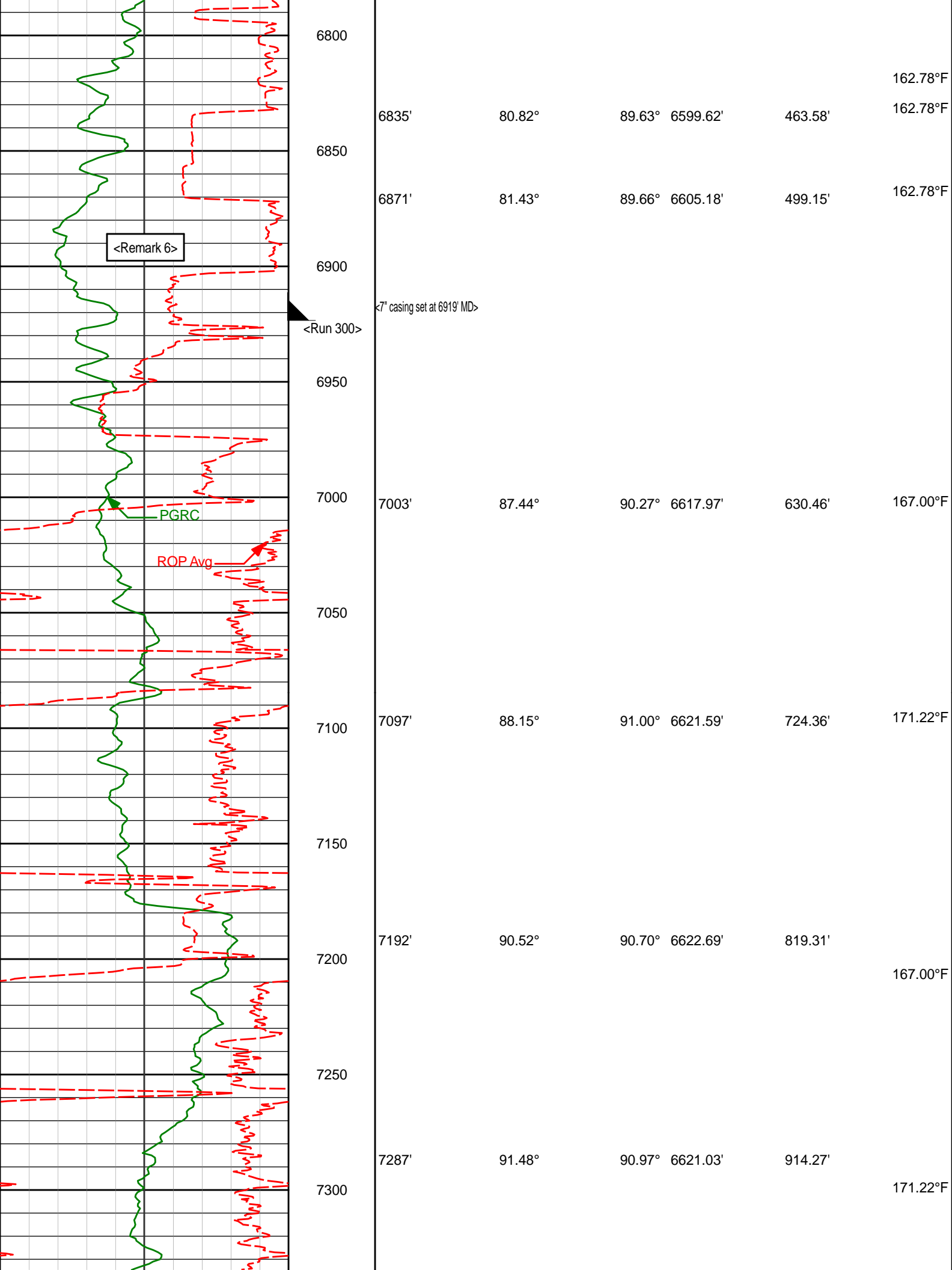
WARRANTY

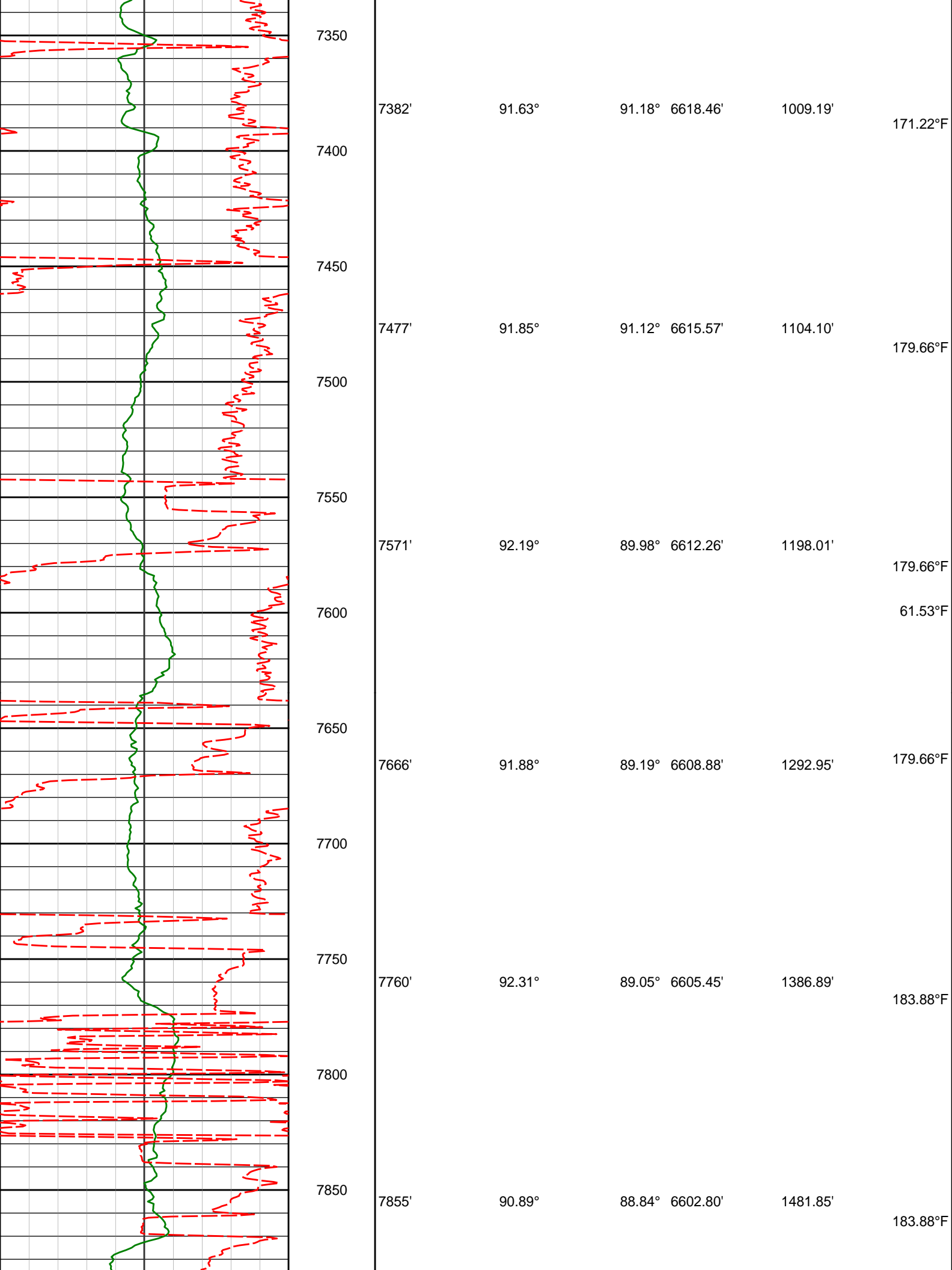
HALLIBURTON WILL USE ITS BEST EFFORTS TO FURNISH CUSTOMERS WITH ACCURATE INFORMATION AND INTERPRETATIONS THAT ARE PART OF, AND INCIDENT TO, THE SERVICES PROVIDED. HOWEVER, HALLIBURTON CANNOT AND DOES NOT WARRANT THE ACCURACY OR CORRECTNESS OF SUCH INFORMATION AND INTERPRETATIONS. UNDER NO CIRCUMSTANCES SHOULD ANY SUCH INFORMATION OR INTERPRETATION BE RELIED UPON AS THE SOLE BASIS FOR ANY DRILLING, COMPLETION, PRODUCTION, OR FINANCIAL DECISION OR ANY PROCEDURE INVOLVING ANY RISK TO THE SAFETY OF ANY DRILLING VENTURE, DRILLING RIG OR ITS CREW OR ANY OTHER THIRD PARTY. THE CUSTOMER HAS FULL RESPONSIBILITY FOR ALL DRILLING, COMPLETION AND PRODUCTION OPERATION. HALLIBURTON MAKES NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, WITH RESPECT TO THE SERVICES RENDERED. IN NO EVENT WILL HALLIBURTON BE LIABLE FOR FAILURE TO OBTAIN ANY PARTICULAR RESULTS OR FOR ANY DAMAGES, INCLUDING, BUT NOT LIMITED TO, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES, RESULTING FROM THE USE OF ANY INFORMATION OR INTERPRETATION PROVIDED BY HALLIBURTON.

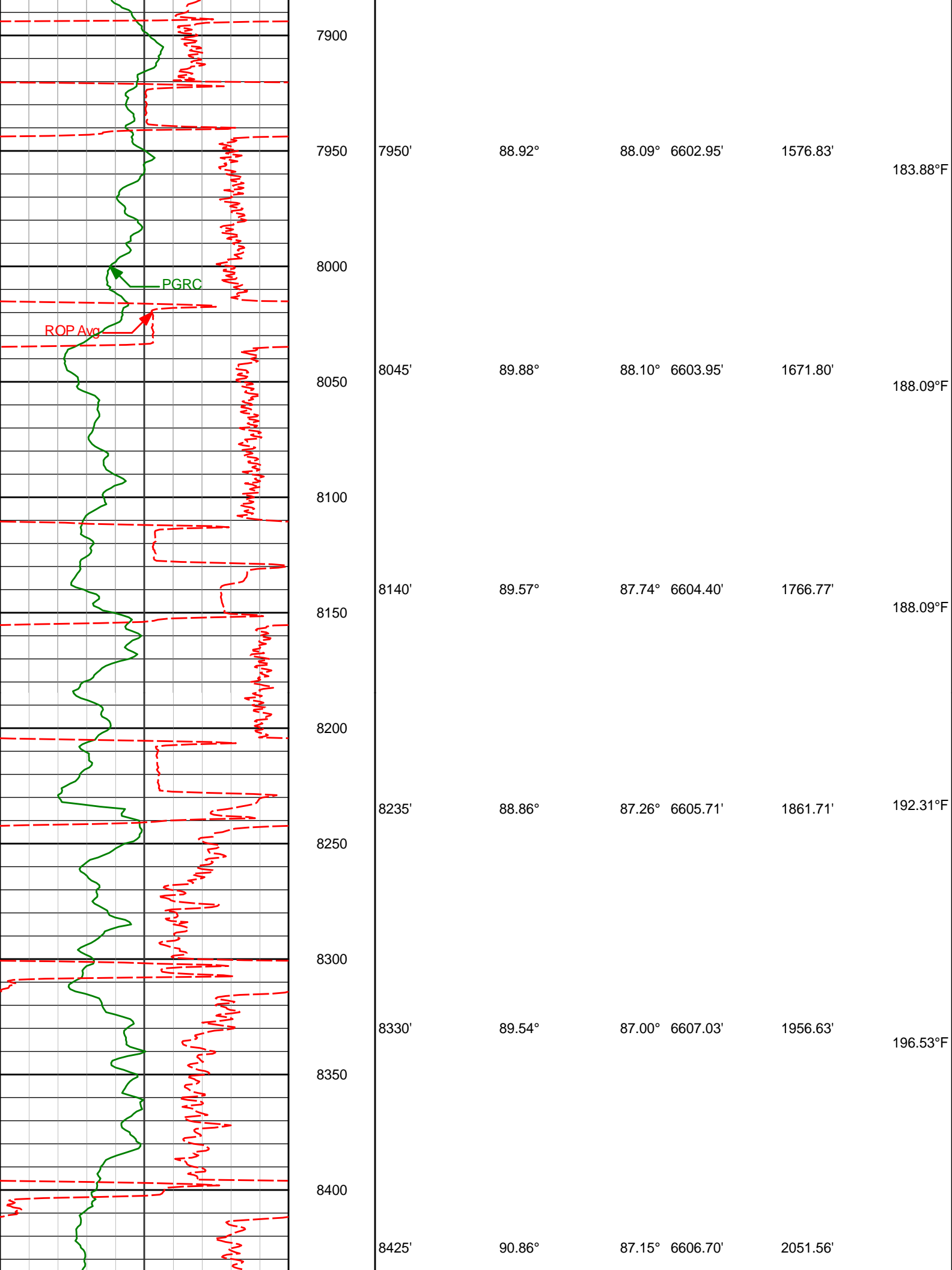
MD Detail 1:600 Scale

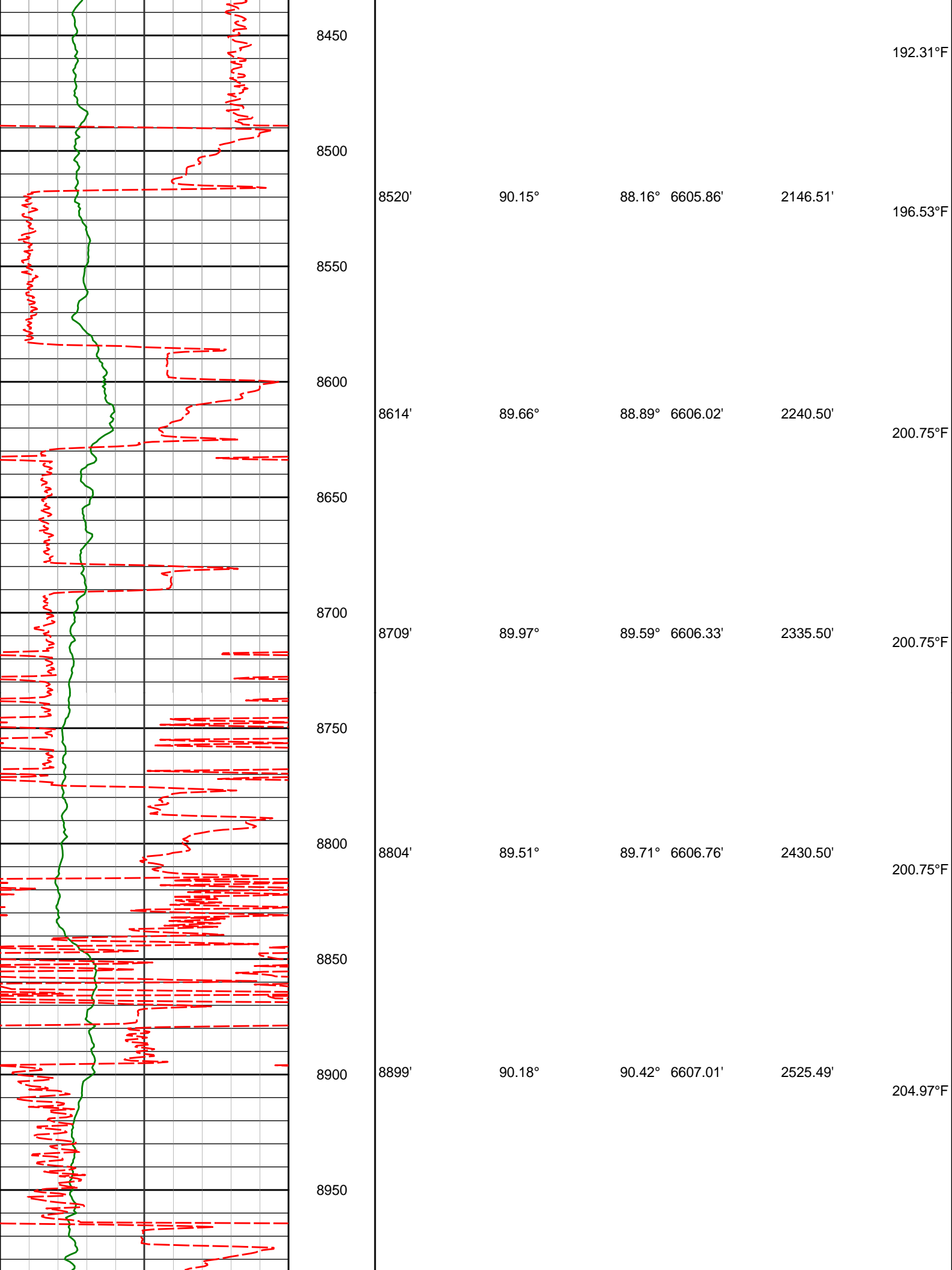


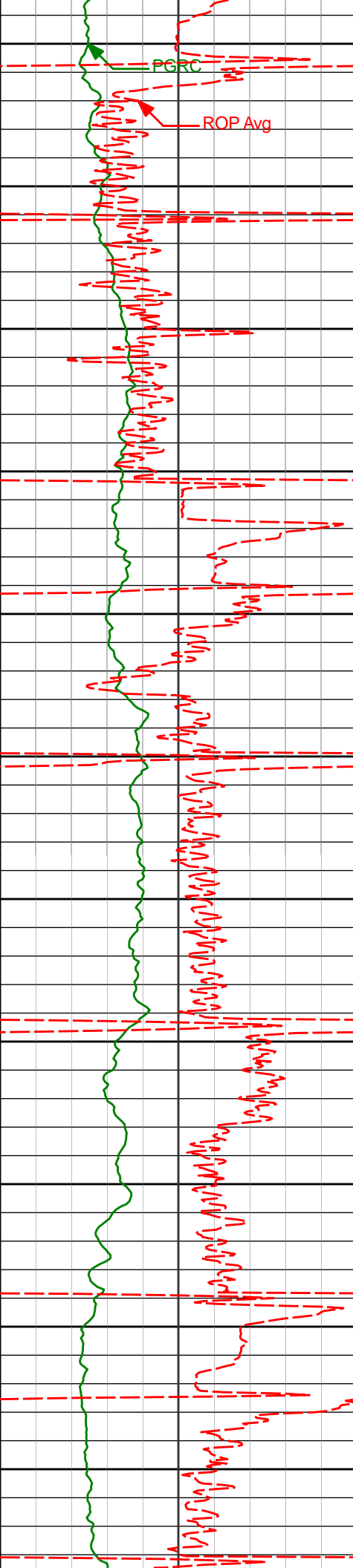




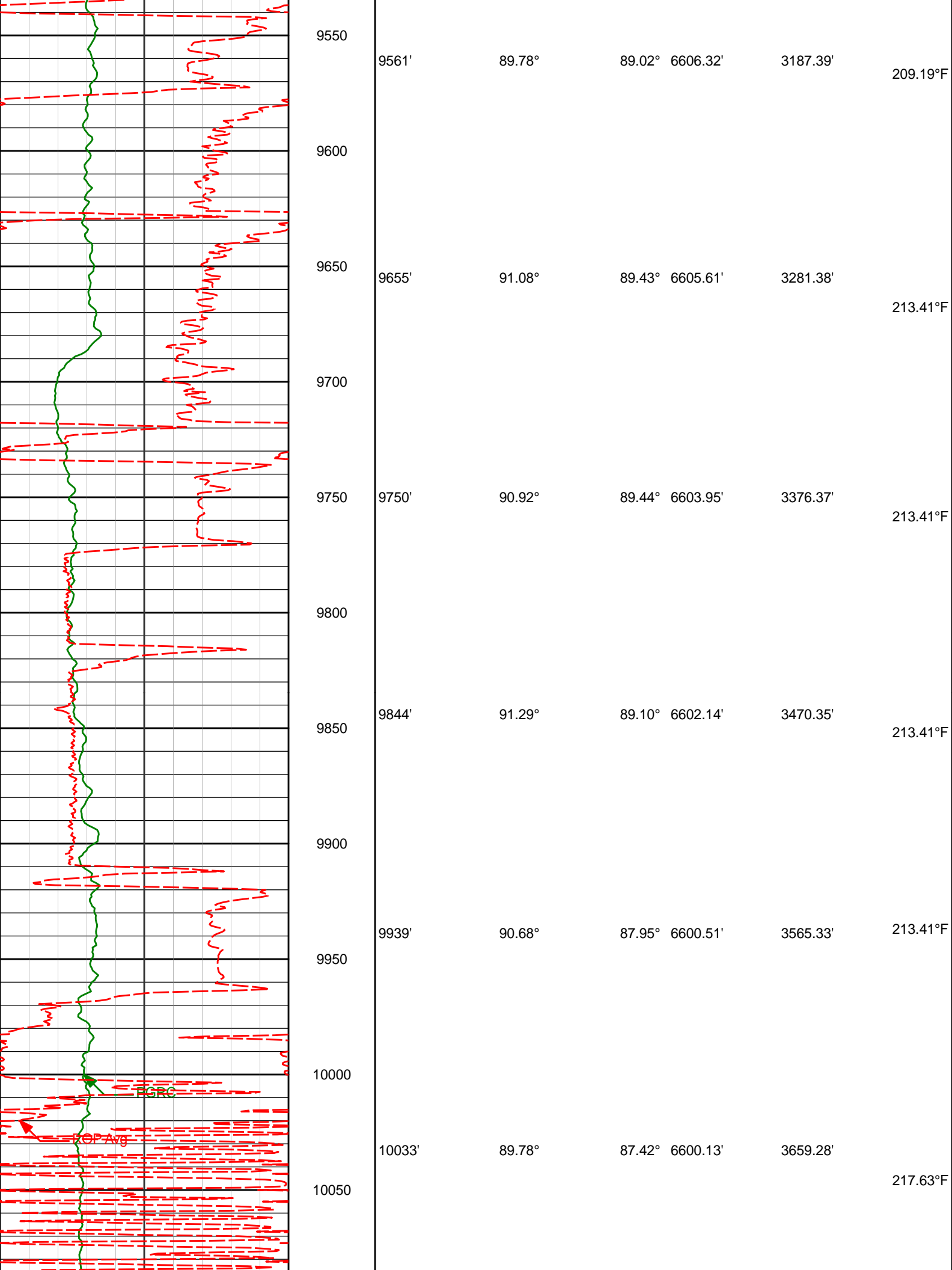


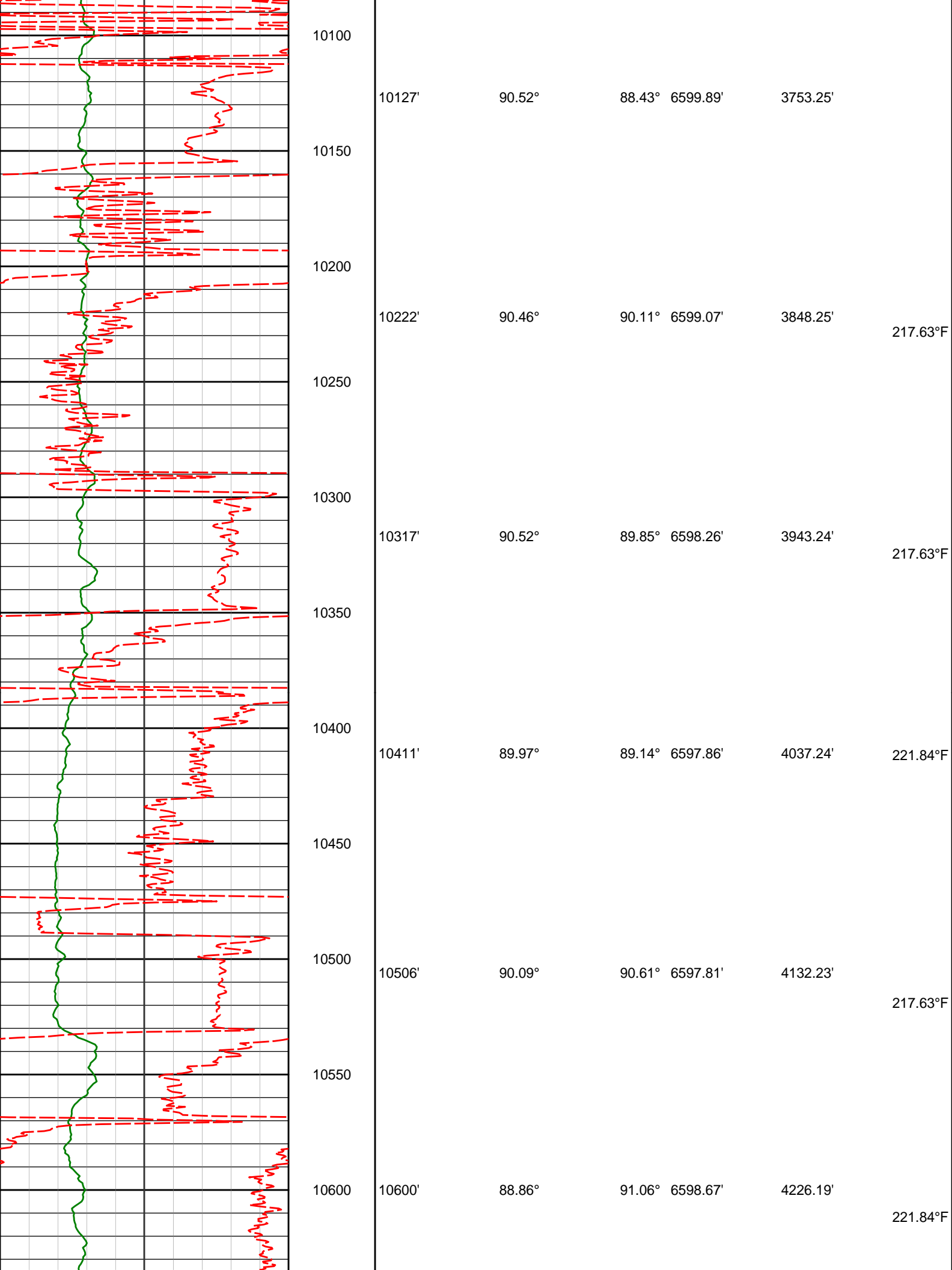


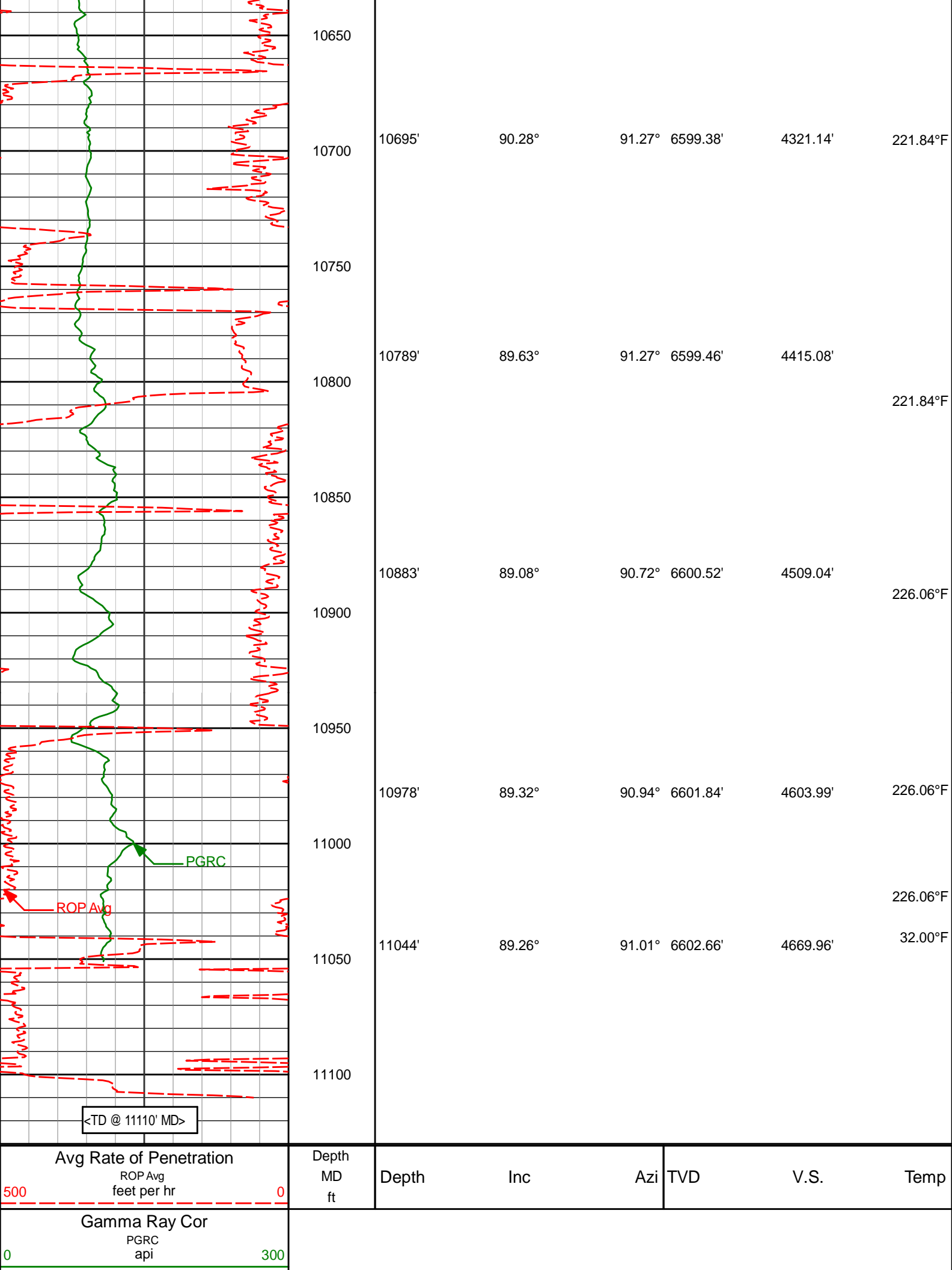




| | | | | | | |
|------|-------|--------|--------|----------|----------|----------|
| 9000 | 8993' | 89.20° | 89.90° | 6607.52' | 2619.48' | 204.97°F |
| 9050 | | | | | | |
| 9100 | 9088' | 89.94° | 89.85° | 6608.24' | 2714.47' | 209.19°F |
| 9150 | | | | | | |
| 9200 | 9182' | 89.05° | 88.47° | 6609.06' | 2808.46' | 209.19°F |
| 9250 | | | | | | |
| 9300 | 9277' | 89.94° | 88.40° | 6609.90' | 2903.44' | 209.19°F |
| 9350 | | | | | | |
| 9400 | 9371' | 91.66° | 89.22° | 6608.59' | 2997.43' | 213.41°F |
| 9450 | | | | | | |
| 9500 | 9466' | 90.65° | 88.15° | 6606.67' | 3092.40' | 209.19°F |







Avg Rate of Penetration

ROP Avg
feet per hr

500

0

Depth
MD
ft

Depth

Inc

Azi

TVD

V.S.

Temp

Gamma Ray Cor

PGRC
api

0

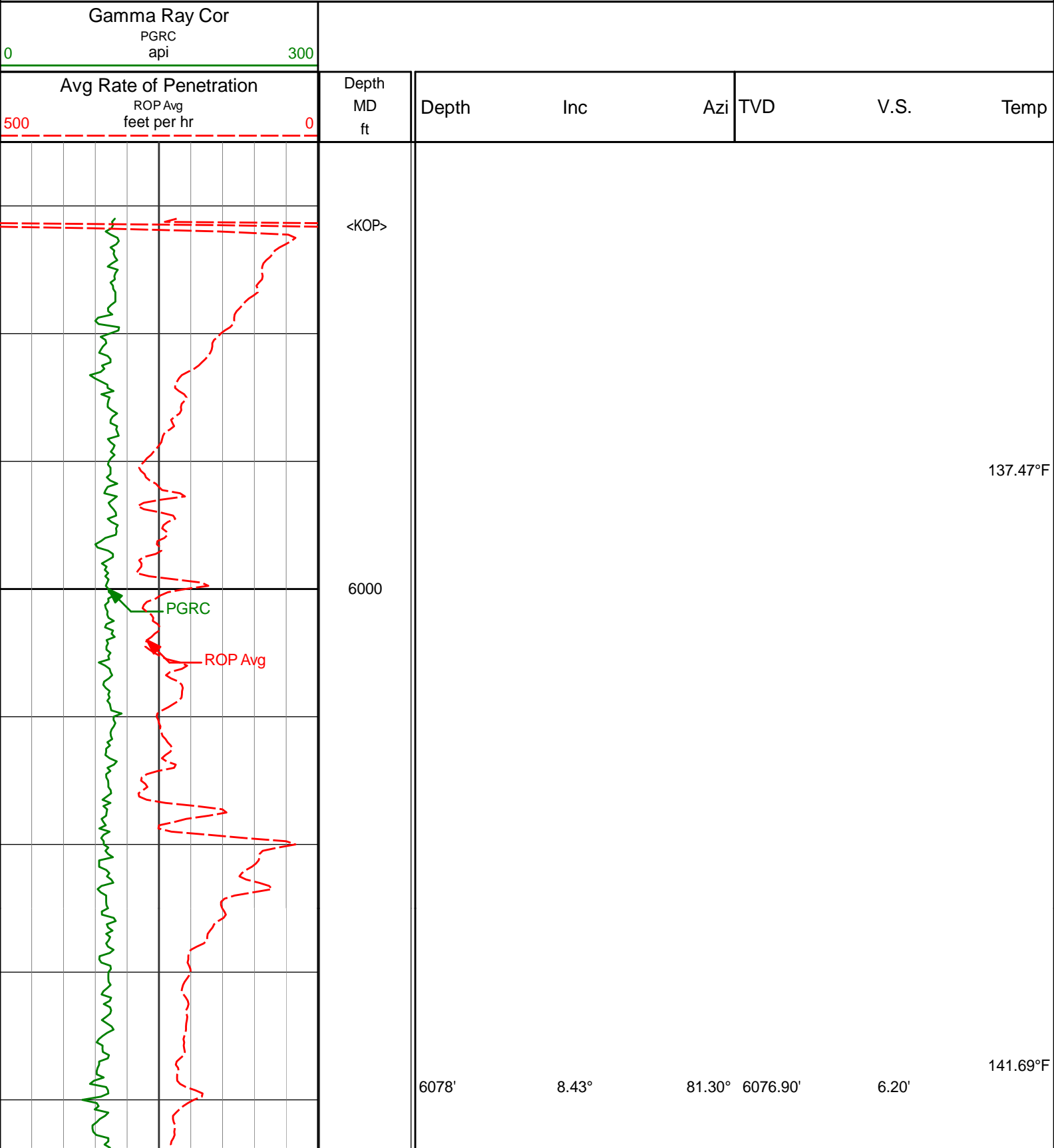
300

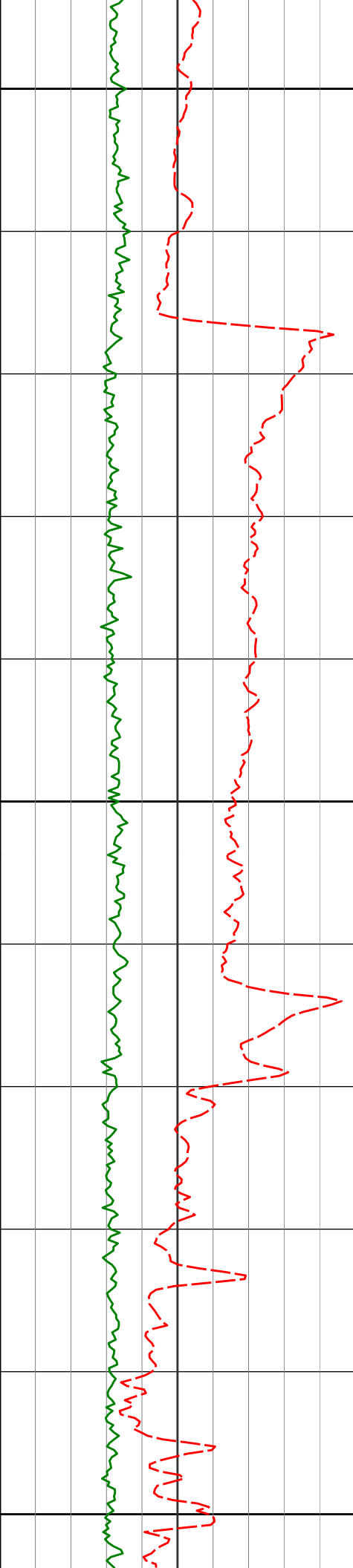
<TD @ 11110' MD>

PGRC

ROP Avg

MD Detail 1:240 Scale





6100

6200

6300

6173'

14.07°

82.26°

6170.04'

24.57'

145.91°F

145.91°F

6267'

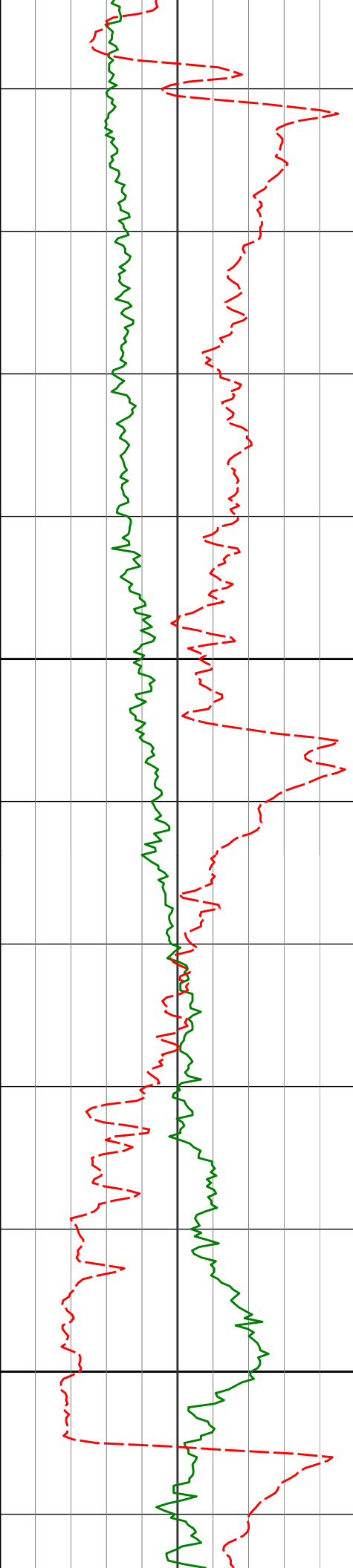
19.08°

84.21°

6260.10'

51.23'

145.91°F



<Run 200>

6400

6500

6362'

24.92°

89.25°

6348.16'

86.75'

141.69°F

6456'

39.57°

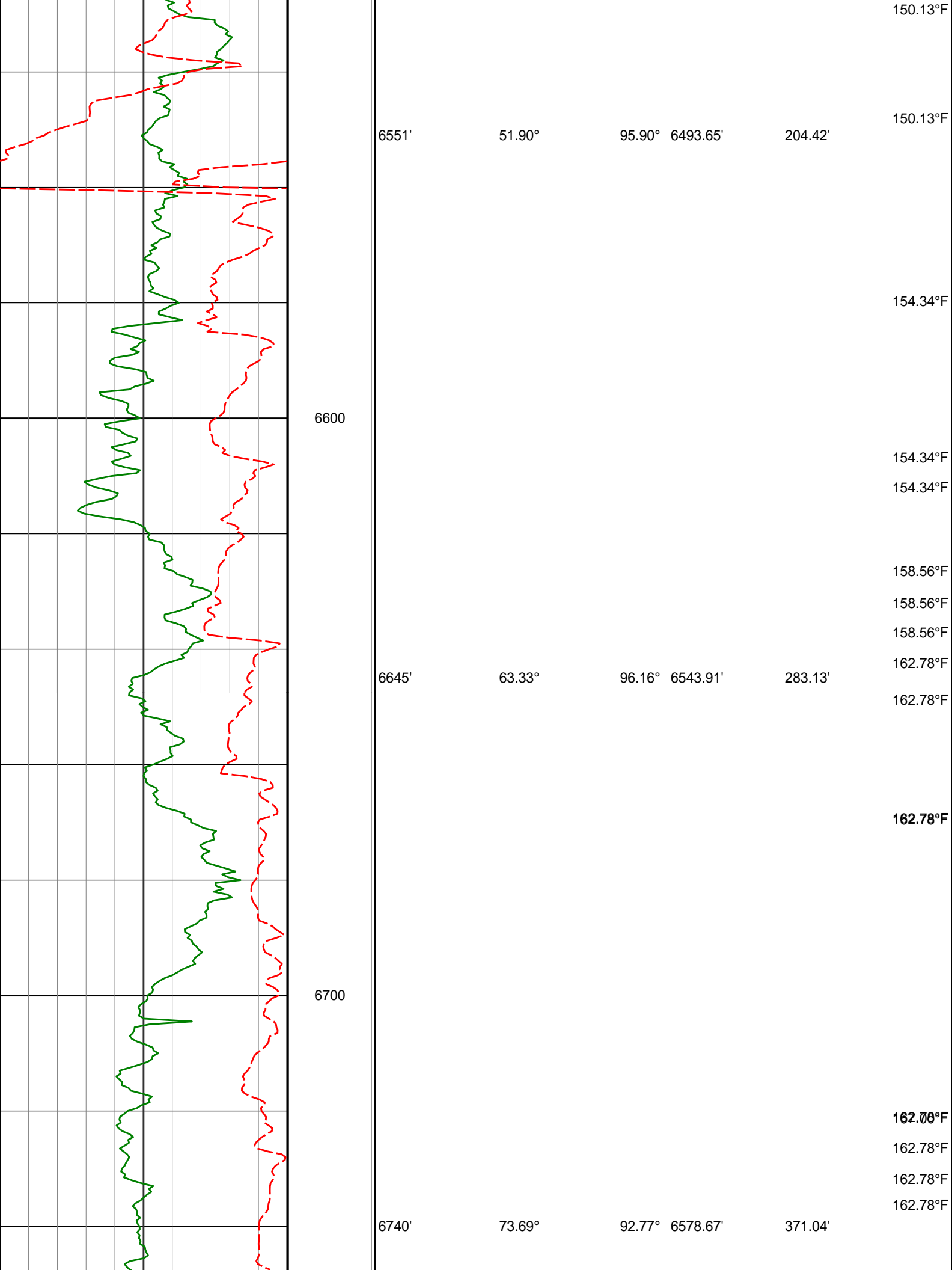
90.75°

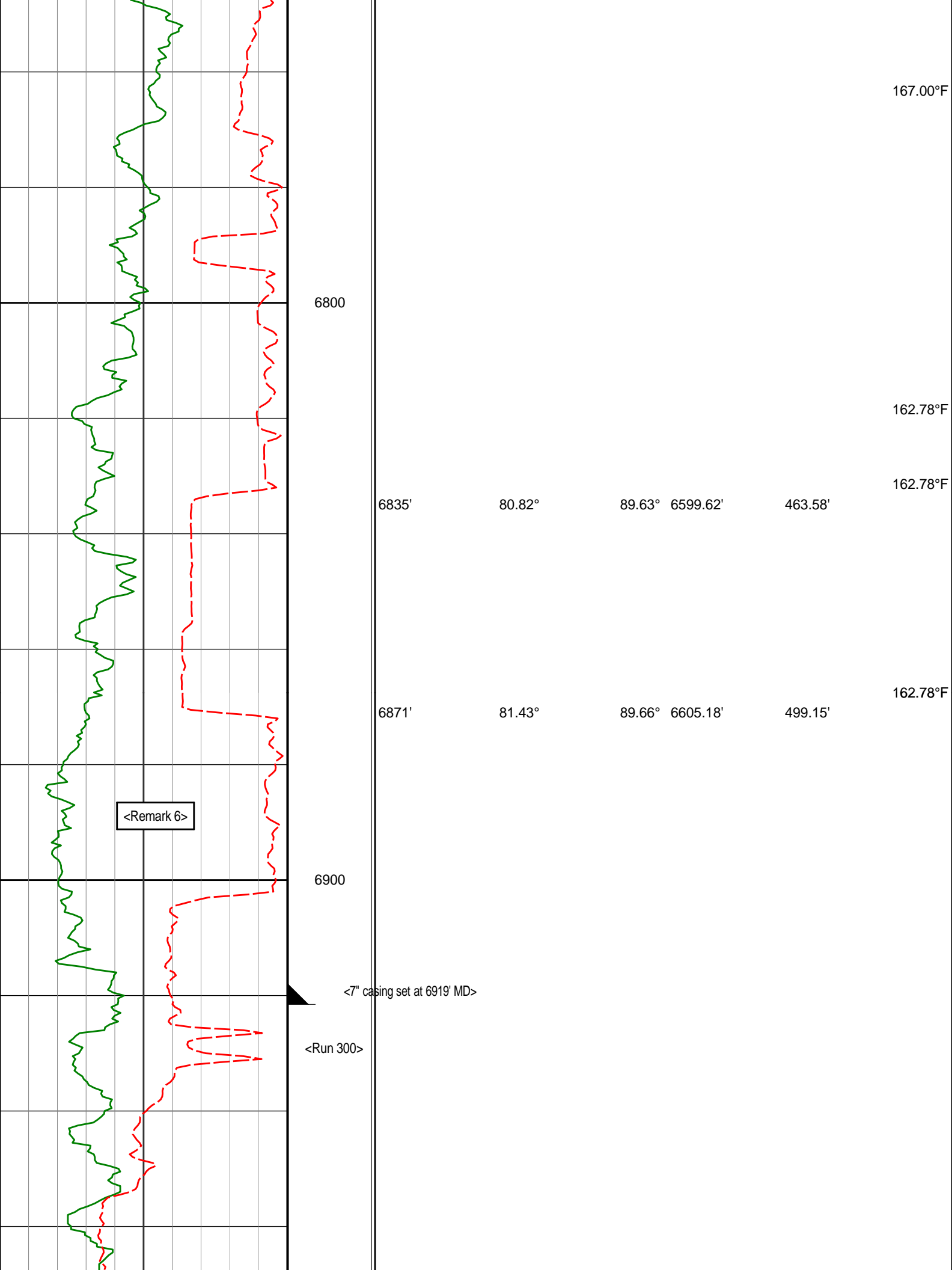
6427.44'

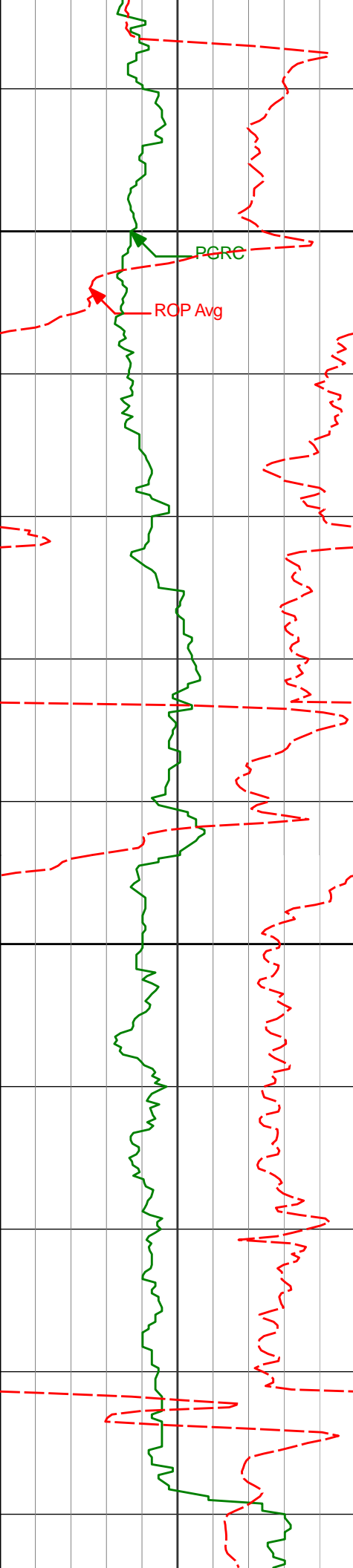
136.75'

145.91°F

150.13°F







7000

7003'

87.44°

90.27° 6617.97'

630.46'

167.00°F

7100

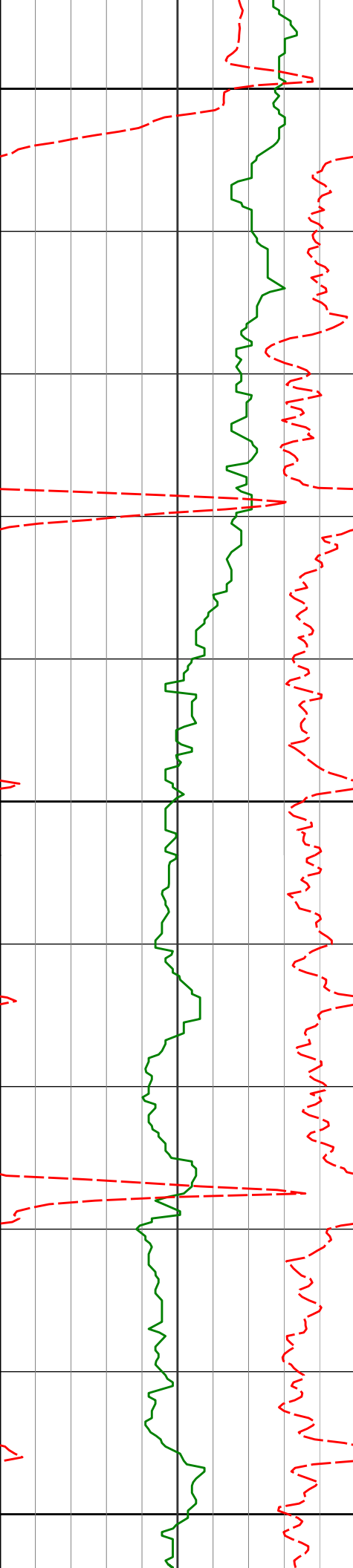
7097'

88.15°

91.00° 6621.59'

724.36'

171.22°F



7200

7300

7400

7192'

90.52°

90.70° 6622.69'

819.31'

167.00°F

7287'

91.48°

90.97° 6621.03'

914.27'

171.22°F

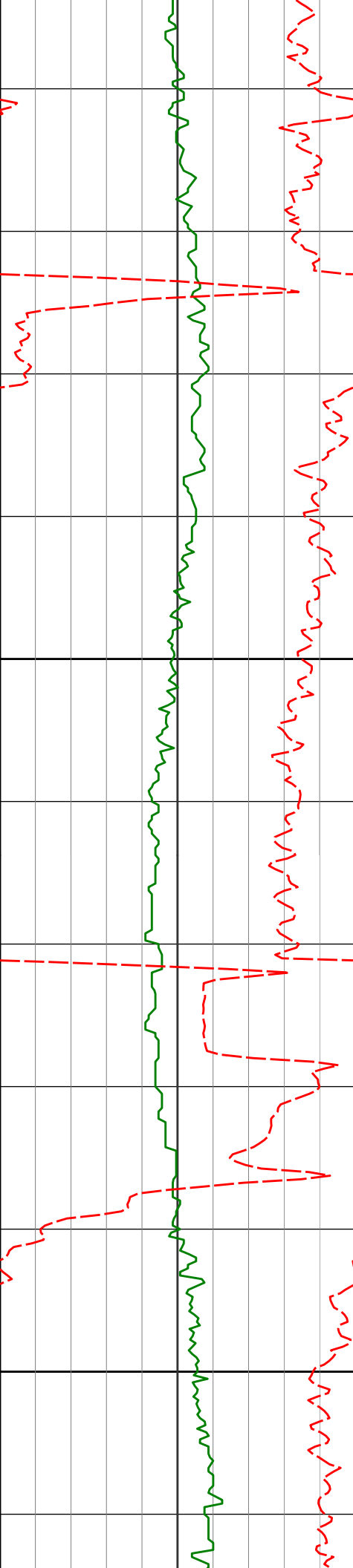
7382'

91.63°

91.18° 6618.46'

1009.19'

171.22°F



7477'

91.85°

91.12° 6615.57'

1104.10'

179.66°F

7500

7571'

92.19°

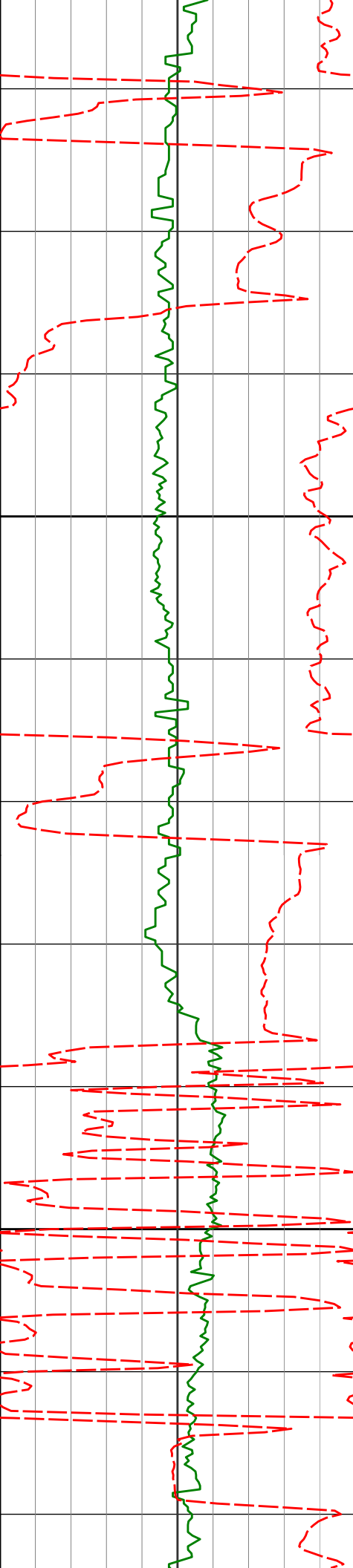
89.98° 6612.26'

1198.01'

179.66°F

7600

61.53°F



7700

7800

7666'

91.88°

89.19° 6608.88'

1292.95'

179.66°F

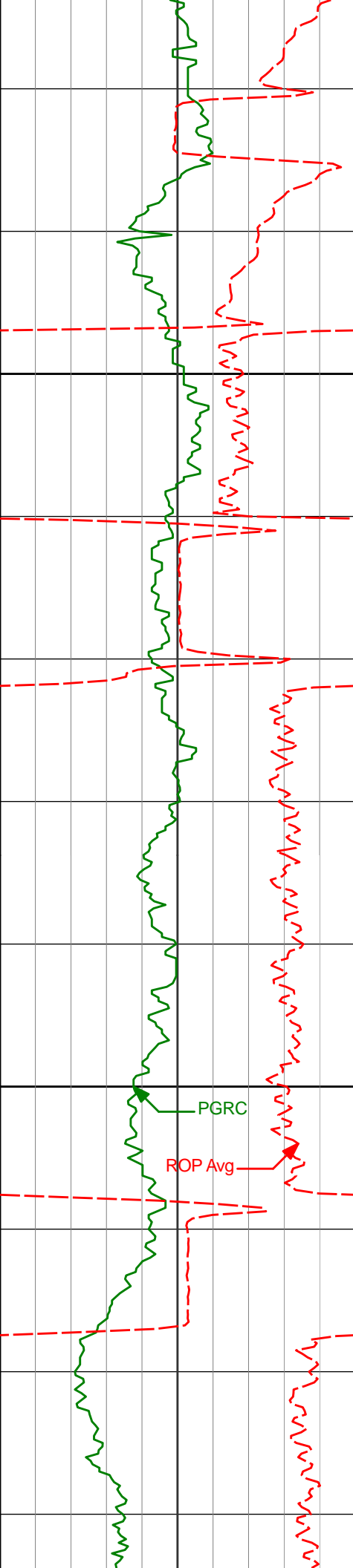
7760'

92.31°

89.05° 6605.45'

1386.89'

183.88°F



7900

8000

PGRC

ROP Avg

7855'

90.89°

88.84° 6602.80'

1481.85'

183.88°F

7950'

88.92°

88.09° 6602.95'

1576.83'

183.88°F

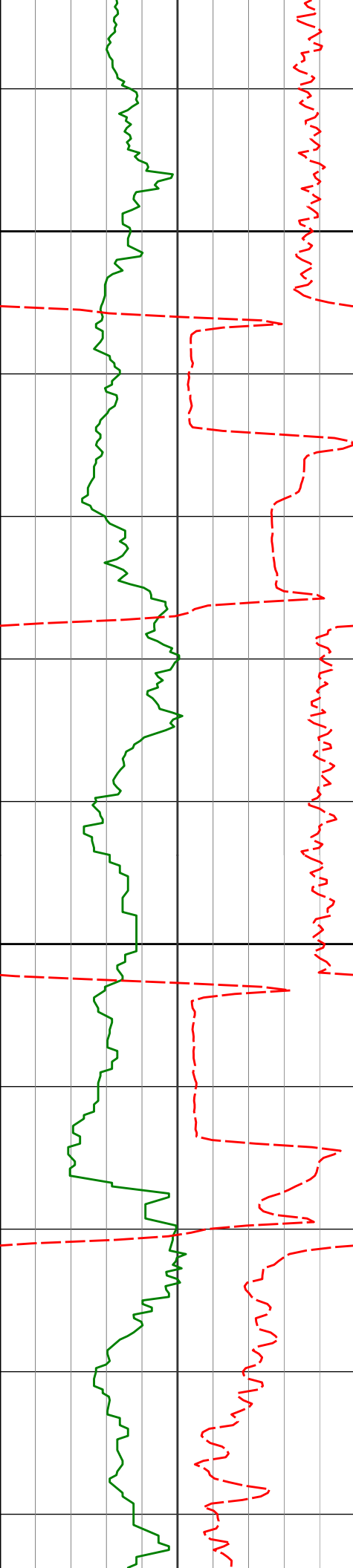
8045'

89.88°

88.10° 6603.95'

1671.80'

188.09°F



8100

8140'

89.57°

87.74° 6604.40'

1766.77'

188.09°F

8200

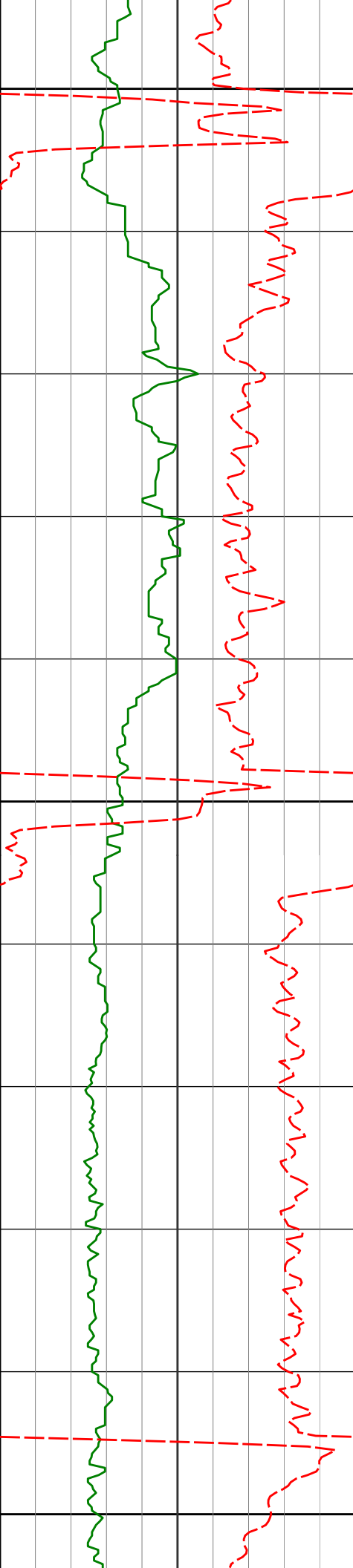
8235'

88.86°

87.26° 6605.71'

1861.71'

192.31°F



8300

8330'

89.54°

87.00° 6607.03'

1956.63'

196.53°F

8400

8425'

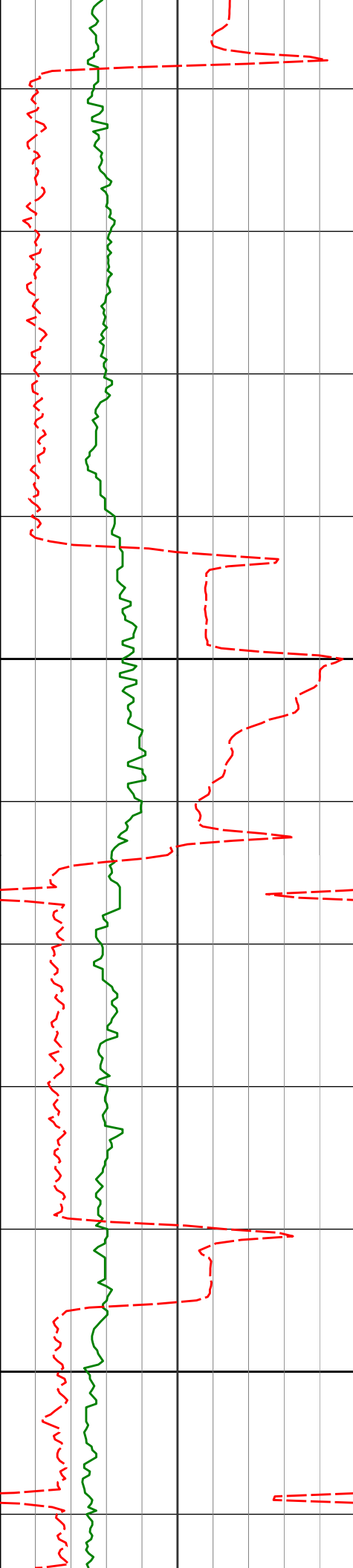
90.86°

87.15° 6606.70'

2051.56'

192.31°F

8500



8600

8700

8520'

8614'

8709'

90.15°

89.66°

89.97°

88.16° 6605.86'

88.89° 6606.02'

89.59° 6606.33'

2146.51'

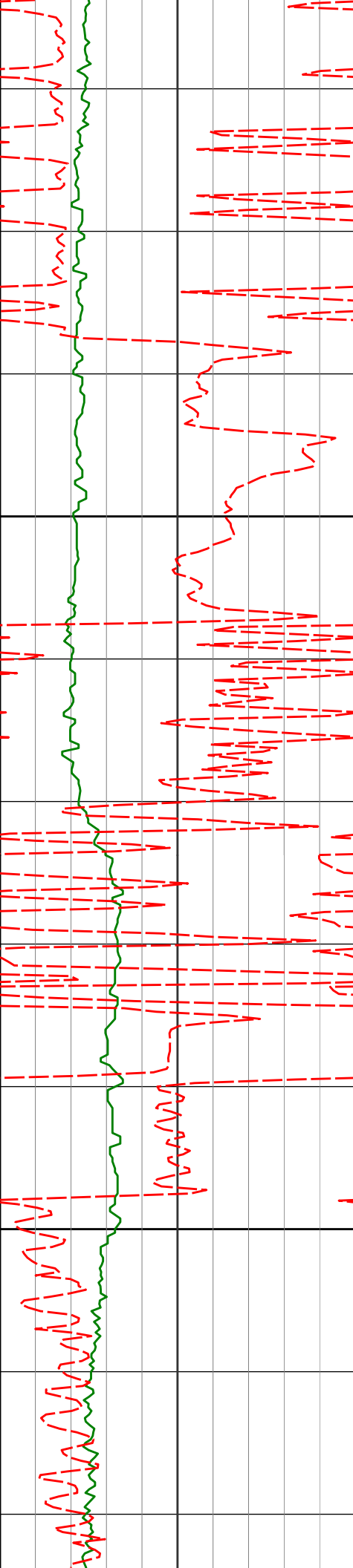
2240.50'

2335.50'

196.53°F

200.75°F

200.75°F



8800

8804'

89.51°

89.71° 6606.76'

2430.50'

200.75°F

8900

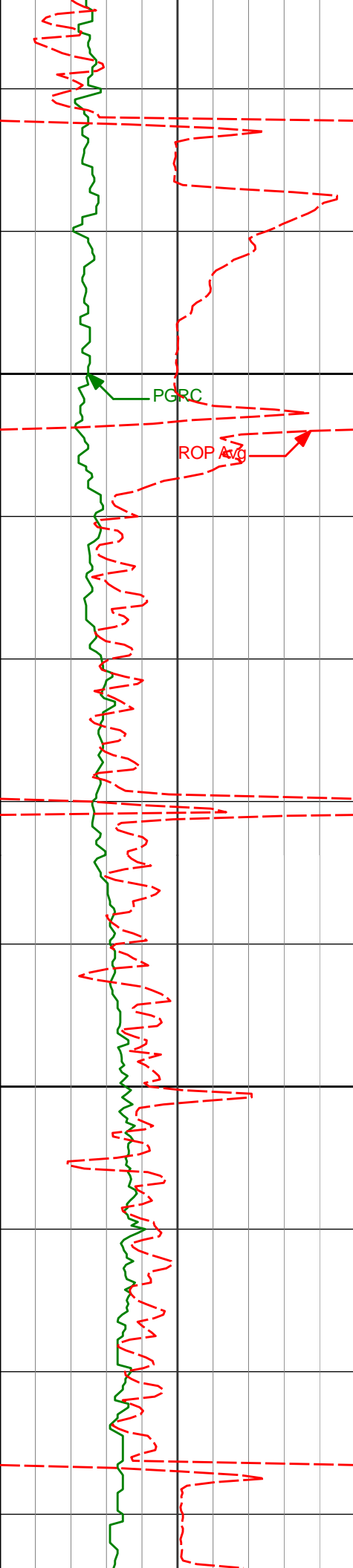
8899'

90.18°

90.42° 6607.01'

2525.49'

204.97°F



9000

8993'

89.20°

89.90° 6607.52'

2619.48'

PGRC

ROP Avg

204.97°F

9100

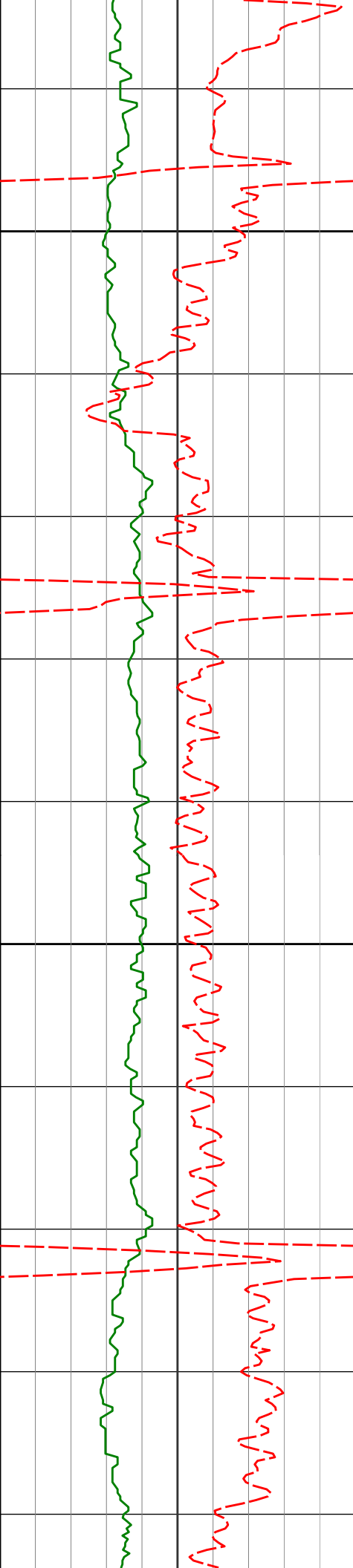
9088'

89.94°

89.85° 6608.24'

2714.47'

209.19°F



9200

9300

9182'

89.05°

88.47° 6609.06'

2808.46'

209.19°F

9277'

89.94°

88.40° 6609.90'

2903.44'

209.19°F

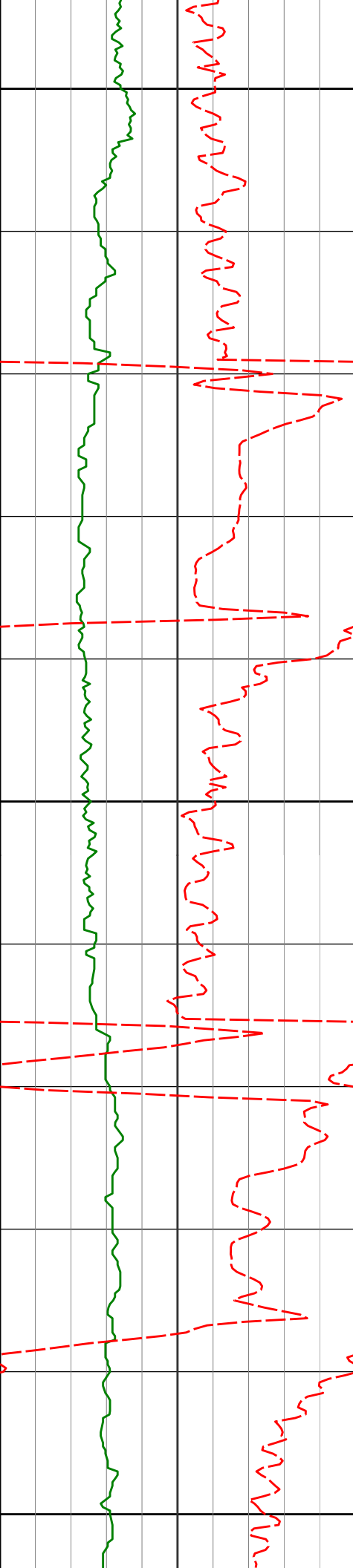
9371'

91.66°

89.22° 6608.59'

2997.43'

213.41°F



9400

9466'

90.65°

88.15°

6606.67'

3092.40'

209.19°F

9500

9561'

89.78°

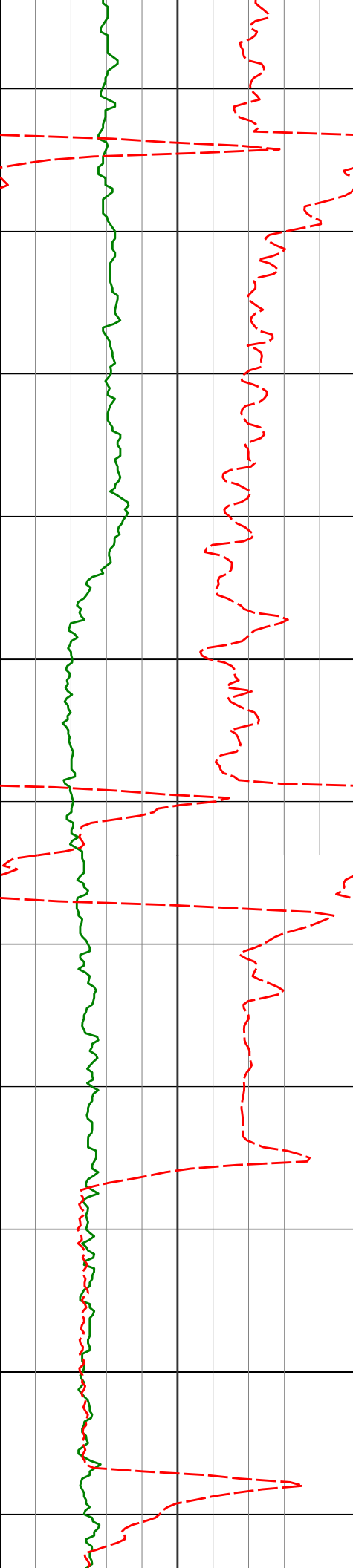
89.02°

6606.32'

3187.39'

209.19°F

9600



9700

9800

9655'

91.08°

89.43° 6605.61'

3281.38'

213.41°F

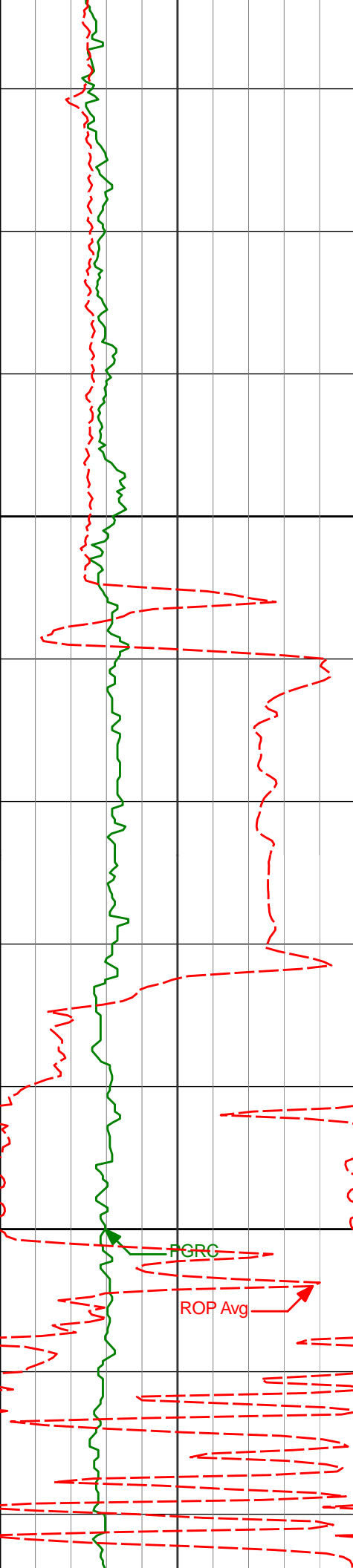
9750'

90.92°

89.44° 6603.95'

3376.37'

213.41°F



9900

10000

9844'

91.29°

89.10° 6602.14'

3470.35'

213.41°F

9939'

90.68°

87.95° 6600.51'

3565.33'

213.41°F

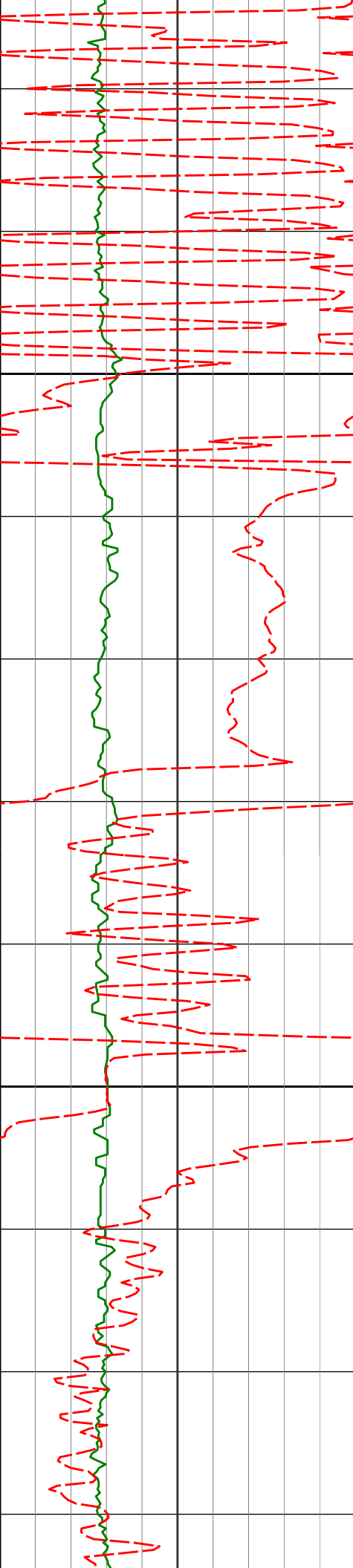
10033'

89.78°

87.42° 6600.13'

3659.28'

217.63°F



10100

10127'

90.52°

88.43° 6599.89'

3753.25'

10200

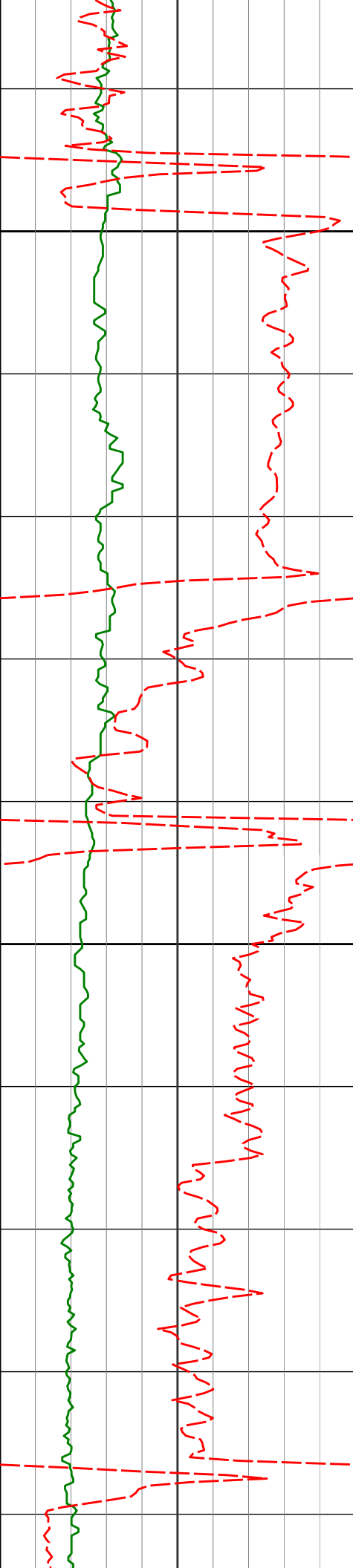
10222'

90.46°

90.11° 6599.07'

3848.25'

217.63°F



10300

10317'

90.52°

89.85° 6598.26'

3943.24'

217.63°F

10400

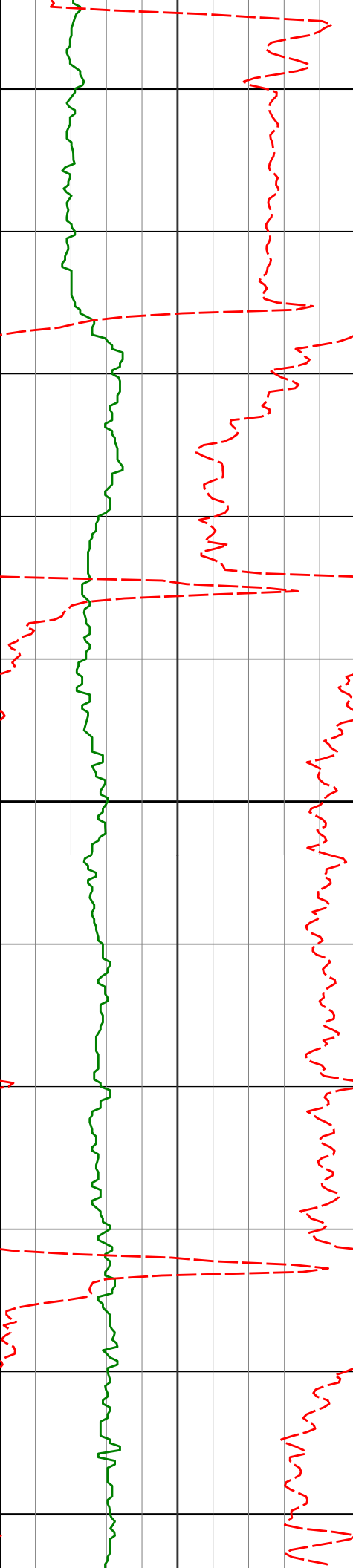
10411'

89.97°

89.14° 6597.86'

4037.24'

221.84°F



10500

10506'

90.09°

90.61° 6597.81'

4132.23'

217.63°F

10600

10600'

88.86°

91.06° 6598.67'

4226.19'

221.84°F

10700

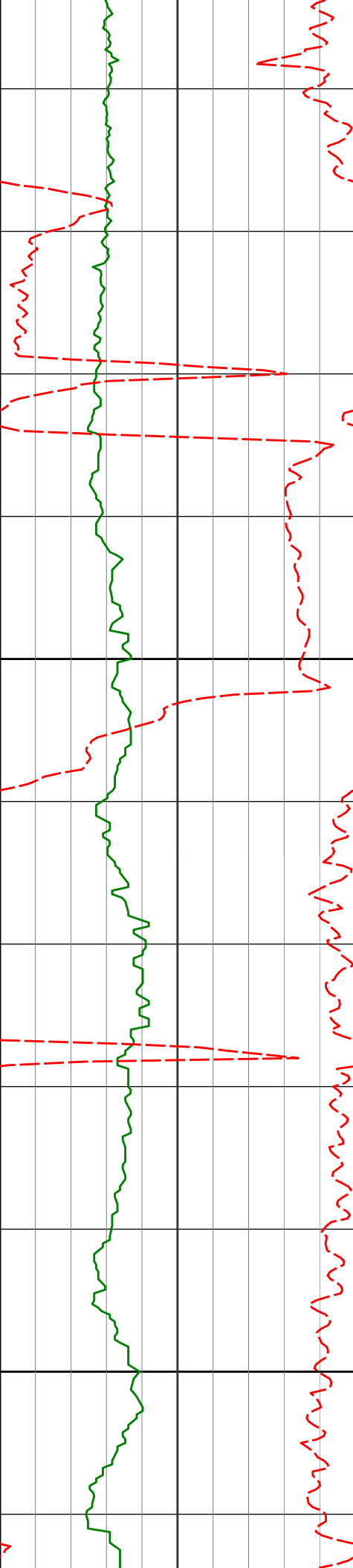
10695'

90.28°

91.27° 6599.38'

4321.14'

221.84°F



10800

10789'

89.63°

91.27° 6599.46'

4415.08'

221.84°F

10900

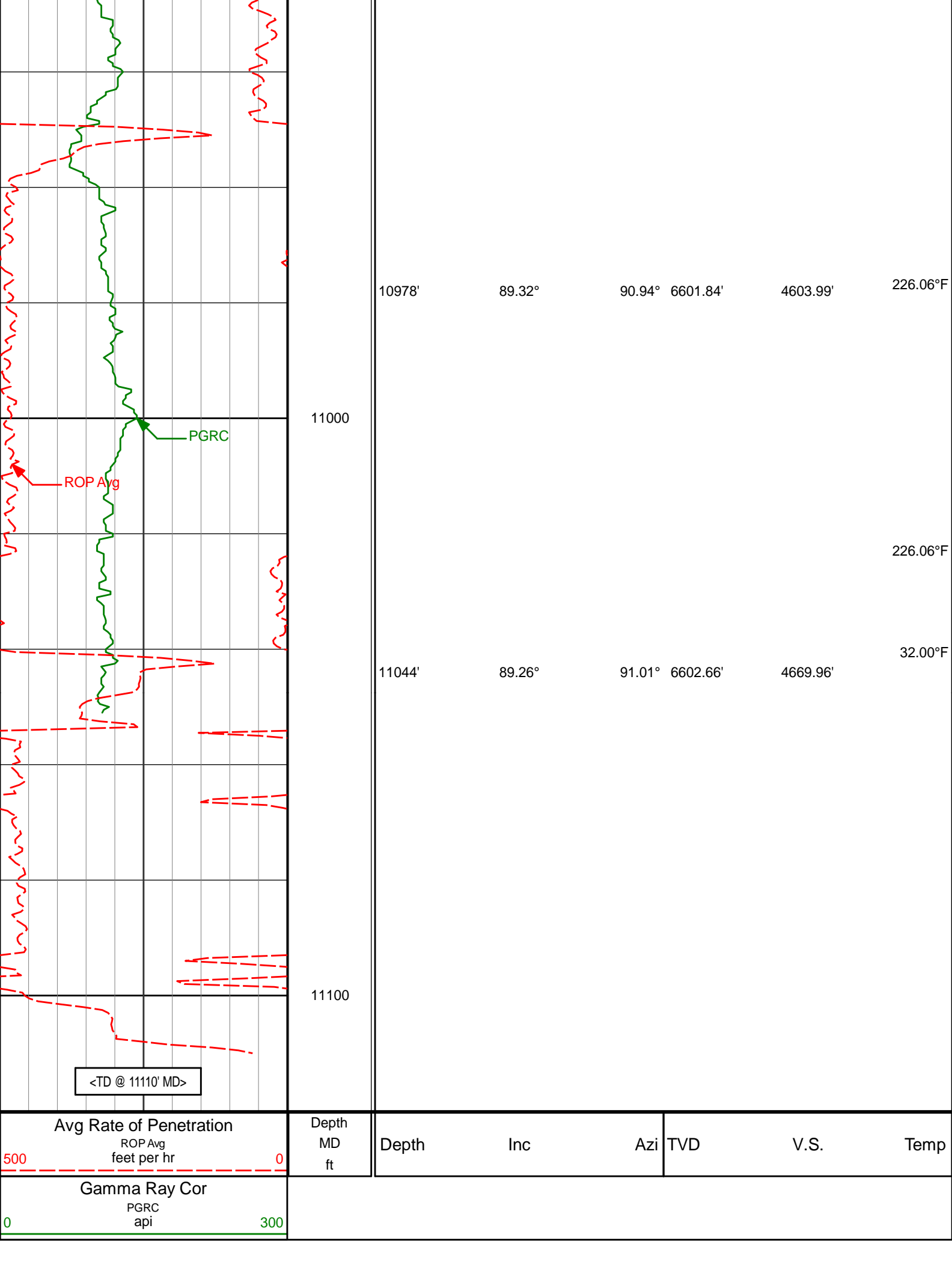
10883'

89.08°

90.72° 6600.52'

4509.04'

226.06°F



11000

11100

Depth
MD
ft

Depth

Inc

Azi

TVD

V.S.

Temp

Avg Rate of Penetration
ROP Avg
feet per hr

Gamma Ray Cor
PGRC
api

ROP Avg

PGRC

<TD @ 11110' MD>

HALLIBURTON

DIRECTIONAL SURVEY REPORT

Noble Energy
Aggie State AA17-625
Wattenberg
Weld Colorado
USA
CA-XX-0902101362

| Measured Depth (feet) | Inclination (degrees) | Direction (degrees) | Vertical Depth (feet) | Latitude (feet) | Departure (feet) | Vertical Section (feet) | Dogleg (deg/100ft) |
|--------------------------|--------------------------|------------------------|--------------------------|--------------------|---------------------|----------------------------|-----------------------|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 N | 0.00 E | 0.00 | TIE-IN |
| 273.00 | 0.40 | 324.84 | 273.00 | 0.78 N | 0.55 W | -0.54 | 0.15 |
| 642.00 | 0.40 | 63.64 | 641.99 | 2.40 N | 0.14 W | -0.11 | 0.16 |
| 920.00 | 0.50 | 214.64 | 919.99 | 1.84 N | 0.04 E | 0.07 | 0.31 |
| 1100.00 | 0.11 | 285.70 | 1099.99 | 1.24 N | 0.57 W | -0.55 | 0.26 |
| 1377.00 | 0.57 | 215.18 | 1376.98 | 0.18 N | 1.62 W | -1.62 | 0.20 |
| 1653.00 | 0.47 | 213.98 | 1652.97 | 1.88 S | 3.04 W | -3.06 | 0.04 |
| 1838.00 | 0.56 | 234.09 | 1837.96 | 3.04 S | 4.20 W | -4.23 | 0.11 |
| 2114.00 | 0.32 | 235.46 | 2113.95 | 4.27 S | 5.93 W | -5.98 | 0.09 |
| 2300.00 | 0.37 | 280.58 | 2299.95 | 4.45 S | 6.94 W | -7.00 | 0.14 |
| 2392.00 | 0.39 | 316.47 | 2391.95 | 4.17 S | 7.45 W | -7.50 | 0.26 |
| 2487.00 | 0.44 | 329.14 | 2486.95 | 3.62 S | 7.86 W | -7.90 | 0.11 |
| 2581.00 | 0.25 | 330.54 | 2580.95 | 3.13 S | 8.15 W | -8.18 | 0.20 |
| 2676.00 | 0.86 | 313.82 | 2675.94 | 2.46 S | 8.76 W | -8.79 | 0.66 |
| 2866.00 | 0.94 | 334.78 | 2865.92 | 0.06 S | 10.46 W | -10.46 | 0.18 |
| 2960.00 | 1.29 | 327.99 | 2959.90 | 1.53 N | 11.35 W | -11.33 | 0.40 |
| 3054.00 | 1.31 | 326.58 | 3053.88 | 3.33 N | 12.50 W | -12.46 | 0.04 |
| 3243.00 | 0.72 | 309.67 | 3242.84 | 5.89 N | 14.60 W | -14.53 | 0.35 |
| 3338.00 | 0.72 | 275.19 | 3337.84 | 6.32 N | 15.66 W | -15.58 | 0.45 |
| 3433.00 | 1.05 | 264.27 | 3432.83 | 6.29 N | 17.12 W | -17.04 | 0.39 |
| 3621.00 | 0.98 | 246.37 | 3620.80 | 5.48 N | 20.30 W | -20.24 | 0.17 |
| 3716.00 | 1.01 | 255.56 | 3715.78 | 4.94 N | 21.86 W | -21.80 | 0.17 |
| 3811.00 | 1.05 | 264.45 | 3810.77 | 4.65 N | 23.54 W | -23.48 | 0.17 |
| 3905.00 | 0.59 | 129.71 | 3904.76 | 4.26 N | 24.02 W | -23.97 | 1.62 |
| 3999.00 | 0.65 | 100.14 | 3998.76 | 3.85 N | 23.12 W | -23.08 | 0.34 |
| 4188.00 | 0.63 | 30.52 | 4187.75 | 4.56 N | 21.54 W | -21.49 | 0.39 |
| 4282.00 | 0.91 | 14.48 | 4281.74 | 5.73 N | 21.09 W | -21.02 | 0.37 |
| 4471.00 | 1.19 | 3.81 | 4470.71 | 9.14 N | 20.59 W | -20.48 | 0.18 |
| 4659.00 | 0.88 | 33.41 | 4658.68 | 12.29 N | 19.66 W | -19.52 | 0.32 |
| 4753.00 | 0.91 | 34.52 | 4752.67 | 13.51 N | 18.84 W | -18.68 | 0.04 |
| 4943.00 | 0.78 | 38.83 | 4942.65 | 15.76 N | 17.18 W | -16.99 | 0.08 |
| 5131.00 | 1.03 | 120.67 | 5130.63 | 15.89 N | 14.92 W | -14.73 | 0.64 |
| 5320.00 | 0.85 | 90.76 | 5319.61 | 15.01 N | 12.06 W | -11.88 | 0.27 |
| 5415.00 | 0.33 | 54.54 | 5414.60 | 15.16 N | 11.13 W | -10.95 | 0.65 |
| 5510.00 | 0.70 | 112.46 | 5509.60 | 15.10 N | 10.37 W | -10.19 | 0.63 |
| 5604.00 | 0.62 | 118.67 | 5603.59 | 14.63 N | 9.39 W | -9.22 | 0.11 |
| 5699.00 | 0.63 | 78.99 | 5698.59 | 14.49 N | 8.43 W | -8.26 | 0.45 |
| 5794.00 | 0.22 | 117.97 | 5793.58 | 14.50 N | 7.76 W | -7.59 | 0.50 |
| 5888.00 | 0.16 | 331.79 | 5887.58 | 14.53 N | 7.66 W | -7.49 | 0.39 |
| 6078.00 | 8.43 | 81.30 | 6076.90 | 16.88 N | 6.01 E | 6.20 | 4.47 |
| 6173.00 | 14.07 | 82.26 | 6170.04 | 19.49 N | 24.35 E | 24.57 | 5.94 |
| 6267.00 | 19.08 | 84.21 | 6260.10 | 22.58 N | 50.97 E | 51.23 | 5.36 |
| 6362.00 | 24.92 | 89.25 | 6348.16 | 24.41 N | 86.47 E | 86.75 | 6.46 |
| 6456.00 | 39.57 | 90.75 | 6427.44 | 24.27 N | 136.48 E | 136.75 | 15.61 |
| 6551.00 | 51.90 | 95.90 | 6493.65 | 20.02 N | 204.20 E | 204.42 | 13.54 |
| 6645.00 | 63.33 | 96.16 | 6543.91 | 11.68 N | 283.01 E | 283.13 | 12.16 |
| 6740.00 | 73.69 | 92.77 | 6578.67 | 4.90 N | 371.01 E | 371.04 | 11.40 |
| 6835.00 | 80.82 | 89.63 | 6599.62 | 3.00 N | 463.58 E | 463.58 | 8.17 |
| 6871.00 | 81.43 | 89.66 | 6605.18 | 3.22 N | 499.14 E | 499.15 | 1.70 |
| 7003.00 | 87.44 | 90.27 | 6617.97 | 3.30 N | 630.46 E | 630.46 | 4.58 |
| 7097.00 | 88.15 | 91.00 | 6621.59 | 2.26 N | 724.38 E | 724.36 | 1.08 |
| 7192.00 | 90.52 | 90.70 | 6622.69 | 0.85 N | 819.36 E | 819.31 | 2.51 |
| 7287.00 | 91.48 | 90.97 | 6621.03 | 0.54 S | 914.34 E | 914.27 | 1.05 |
| 7382.00 | 91.63 | 91.18 | 6618.46 | 2.32 S | 1009.28 E | 1009.19 | 0.27 |
| 7477.00 | 91.85 | 91.12 | 6615.57 | 4.23 S | 1104.22 E | 1104.10 | 0.24 |

| | | | | | | | |
|----------|-------|-------|---------|---------|-----------|---------|------|
| 7571.00 | 92.19 | 89.98 | 6612.26 | 5.13 S | 1198.16 E | 1198.01 | 1.26 |
| 7666.00 | 91.88 | 89.19 | 6608.88 | 4.44 S | 1293.09 E | 1292.95 | 0.89 |
| 7760.00 | 92.31 | 89.05 | 6605.45 | 3.00 S | 1387.02 E | 1386.89 | 0.48 |
| 7855.00 | 90.89 | 88.84 | 6602.80 | 1.25 S | 1481.96 E | 1481.85 | 1.51 |
| 7950.00 | 88.92 | 88.09 | 6602.95 | 1.30 N | 1576.92 E | 1576.83 | 2.22 |
| 8045.00 | 89.88 | 88.10 | 6603.95 | 4.45 N | 1671.86 E | 1671.80 | 1.01 |
| 8140.00 | 89.57 | 87.74 | 6604.40 | 7.90 N | 1766.80 E | 1766.77 | 0.50 |
| 8235.00 | 88.86 | 87.26 | 6605.71 | 12.05 N | 1861.70 E | 1861.71 | 0.90 |
| 8330.00 | 89.54 | 87.00 | 6607.03 | 16.80 N | 1956.57 E | 1956.63 | 0.77 |
| 8425.00 | 90.86 | 87.15 | 6606.70 | 21.65 N | 2051.44 E | 2051.56 | 1.40 |
| 8520.00 | 90.15 | 88.16 | 6605.86 | 25.54 N | 2146.36 E | 2146.51 | 1.30 |
| 8614.00 | 89.66 | 88.89 | 6606.02 | 27.96 N | 2240.33 E | 2240.50 | 0.94 |
| 8709.00 | 89.97 | 89.59 | 6606.33 | 29.22 N | 2335.32 E | 2335.50 | 0.81 |
| 8804.00 | 89.51 | 89.71 | 6606.76 | 29.80 N | 2430.32 E | 2430.50 | 0.50 |
| 8899.00 | 90.18 | 90.42 | 6607.01 | 29.69 N | 2525.31 E | 2525.49 | 1.03 |
| 8993.00 | 89.20 | 89.90 | 6607.52 | 29.43 N | 2619.31 E | 2619.48 | 1.18 |
| 9088.00 | 89.94 | 89.85 | 6608.24 | 29.63 N | 2714.31 E | 2714.47 | 0.78 |
| 9182.00 | 89.05 | 88.47 | 6609.06 | 31.01 N | 2808.29 E | 2808.46 | 1.75 |
| 9277.00 | 89.94 | 88.40 | 6609.90 | 33.61 N | 2903.25 E | 2903.44 | 0.94 |
| 9371.00 | 91.66 | 89.22 | 6608.59 | 35.56 N | 2997.22 E | 2997.43 | 2.03 |
| 9466.00 | 90.65 | 88.15 | 6606.67 | 37.74 N | 3092.17 E | 3092.40 | 1.55 |
| 9561.00 | 89.78 | 89.02 | 6606.32 | 40.08 N | 3187.14 E | 3187.39 | 1.30 |
| 9655.00 | 91.08 | 89.43 | 6605.61 | 41.36 N | 3281.12 E | 3281.38 | 1.45 |
| 9750.00 | 90.92 | 89.44 | 6603.95 | 42.29 N | 3376.10 E | 3376.37 | 0.17 |
| 9844.00 | 91.29 | 89.10 | 6602.14 | 43.49 N | 3470.08 E | 3470.35 | 0.53 |
| 9939.00 | 90.68 | 87.95 | 6600.51 | 45.93 N | 3565.03 E | 3565.33 | 1.37 |
| 10033.00 | 89.78 | 87.42 | 6600.13 | 49.73 N | 3658.95 E | 3659.28 | 1.11 |
| 10127.00 | 90.52 | 88.43 | 6599.89 | 53.13 N | 3752.89 E | 3753.25 | 1.33 |
| 10222.00 | 90.46 | 90.11 | 6599.07 | 54.35 N | 3847.87 E | 3848.25 | 1.77 |
| 10317.00 | 90.52 | 89.85 | 6598.26 | 54.38 N | 3942.87 E | 3943.24 | 0.28 |
| 10411.00 | 89.97 | 89.14 | 6597.86 | 55.21 N | 4036.87 E | 4037.24 | 0.96 |
| 10506.00 | 90.09 | 90.61 | 6597.81 | 55.41 N | 4131.86 E | 4132.23 | 1.55 |
| 10600.00 | 88.86 | 91.06 | 6598.67 | 54.04 N | 4225.85 E | 4226.19 | 1.39 |
| 10695.00 | 90.28 | 91.27 | 6599.38 | 52.11 N | 4320.82 E | 4321.14 | 1.51 |
| 10789.00 | 89.63 | 91.27 | 6599.46 | 50.03 N | 4414.80 E | 4415.08 | 0.69 |
| 10883.00 | 89.08 | 90.72 | 6600.52 | 48.40 N | 4508.78 E | 4509.04 | 0.83 |
| 10978.00 | 89.32 | 90.94 | 6601.84 | 47.02 N | 4603.76 E | 4603.99 | 0.34 |
| 11044.00 | 89.26 | 91.01 | 6602.66 | 45.90 N | 4669.74 E | 4669.96 | 0.14 |
| 11110.00 | 89.26 | 91.01 | 6603.51 | 44.74 N | 4735.73 E | 4735.93 | 0.00 |

CALCULATION BASED ON MINIMUM CURVATURE METHOD

**SURVEY COORDINATES RELATIVE TO WELL SYSTEM REFERENCE POINT
TVD VALUES GIVEN RELATIVE TO DRILLING MEASUREMENT POINT**

**VERTICAL SECTION RELATIVE TO WELL HEAD
VERTICAL SECTION IS COMPUTED ALONG A DIRECTION OF 89.33 DEGREES (GRID)
A TOTAL CORRECTION OF 7.44 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED**

**HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.
HORIZONTAL DISPLACEMENT(CLOSURE) AT 11110.00 FEET
IS 4735.94 FEET ALONG 89.46 DEGREES (GRID)**

Surface surveys at 273 ft, 642 ft and 920 ft have had azimuths corrected to grid north, but were not taken by Halliburton.

Last survey is a projection from 11044 ft MD to TD at 11110 ft MD.