



| WELL INFORMATION | | | | | |
|----------------------------------|------------------|------------------|------------------|--|--|
| MWD Run Number | 100 | 200 | 300 | | |
| Date run completed | 02-Jun-13 | 04-Jun-13 | 09-Jun-13 | | |
| Rig Bit Number | 2 | 3 | 4 | | |
| Bit Size (in) | 8.750 | 8.750 | 6.125 | | |
| Tool Nominal OD (in) | 6.750 | 6.750 | 4.750 | | |
| Log Start Depth (MD, ft) | 1,057.00 | 6,873.00 | 8,078.00 | | |
| Log End Depth (MD, ft) | 6,873.00 | 8,078.00 | 11,750.00 | | |
| Drill or Wipe | Drill | Drill | Drill | | |
| Drill/Wipe Start Date and Time | 01-Jun-13 03:45 | 03-Jun-13 04:15 | 06-Jun-13 12:45 | | |
| Drill/Wipe End Date and Time | 02-Jun-13 15:21 | 04-Jun-13 09:30 | 08-Jun-13 05:18 | | |
| Min Inc (deg) @ Depth (MD, ft) | .11 @ 1,093.00 | 16.88 @ 6,875.00 | 86.64 @ 8,290.00 | | |
| Max Inc (deg) @ Depth (MD, ft) | 17.94 @ 4,478.00 | 86.85 @ 8,030.00 | 91.73 @ 9,625.00 | | |
| Bit TFA(in2) / Bit Type | .98 / PDC | 1.04 / PDC | .98 / PDC | | |
| Flow Rate (gpm) | 598.55 | 521.33 | 285.99 | | |
| Max AV (fpm) / CV (fpm) @ MWD | 474.0 / 404.0 | 487.0 / 404.0 | 515.0 / 428.0 | | |
| Fluid Type | Fresh Water Gel | Native/Spud Mud | Native/Spud Mud | | |
| Density (ppg) / Viscosity (spqt) | 8.45 / 29.00 | 9.70 / 5.20 | 9.70 / 43.00 | | |
| Filtrate CL (ppm) | 1,200.00 | 1,300.00 | 1,300.00 | | |
| pH / Fluid Loss (mptm) | 8.50 / 29 | 9.00 / 5 | 9.50 / 7 | | |
| PV (cP) / YP (Ihf2) | 1 / 1.00 | 13 / 11.00 | 13 / 10.00 | | |
| % Solids / % Sand | 0.75 / 0 | 7.50 / 0 | 8.00 / 0 | | |
| % Oil / Oil:Water Ratio | N / A | N / A | N / A | | |
| Rm @ Measured Temp (degF) | N/A @ N/A | N/A @ N/A | N/A @ N/A | | |
| Rmf @ Measured Temp (degF) | N/A @ N/A | N/A @ N/A | N/A @ N/A | | |
| Rmc @ Measured Temp (degF) | N/A @ N/A | N/A @ N/A | N/A @ N/A | | |
| Min Tool Temp (deg F) / S | 478.05 / PDM | 477.04 / PDM | 340.04 / PDM | | |

| | | | | | |
|-------------------------------|--------------|--------------|---------------|--|--|
| Max Tool Temp (degF) / Source | 170.37 / PCM | 177.64 / PCM | 210.31 / PCM | | |
| Rm @ Max Tool Temp (degF) | N/A @ 170.37 | N/A @ 177.64 | N/A @ 210.31 | | |
| Lead MWD Engineer | Evan LeBlanc | Evan LeBlanc | Evan LeBlanc | | |
| Customer Representative | Jim Baker | Jim Baker | Mike Bradshaw | | |

SENSOR INFORMATION

Downhole Processor Information

| | | | | | |
|---------------------------|-----------------|-----------------|-----------------|--|--|
| Tool Type | PCM | PCM | PCM | | |
| Software Version | 5.84 | 5.84 | 5.84 | | |
| Sub Serial Number | 11341336 | 11341336 | 12187587 | | |
| Insert Serial Number | 11680783 | 11400850 | 11680783 | | |
| Date and Time Initialized | 31-May-13 15:28 | 02-Jun-13 17:44 | 05-Jun-13 13:35 | | |
| Date and Time Read | 03-Jun-13 01:08 | 04-Jun-13 18:05 | 09-Jun-13 07:11 | | |
| ECMB SW Version | N/A | N/A | N/A | | |

Directional Sensor Information

| | | | | | |
|------------------------|----------|----------|----------|--|--|
| Tool Type | PCDC | PCDC | PCDC | | |
| Distance From Bit (ft) | 52.00 | 48.00 | 53.60 | | |
| Software Version | 6.21 | 6.21 | 6.21 | | |
| Sub Serial Number | 11341336 | 11341336 | 12187587 | | |
| Sonde Serial Number | 11478086 | 11400850 | 11478086 | | |
| Sensor ID Number | N/A | N/A | N/A | | |
| Toolface Offset (deg) | 220.17 | 9.07 | 133.39 | | |

Gamma Ray Sensor Information

| | | | | | |
|------------------------------|-----|----------|----------|--|--|
| Tool Type | N/A | PCG | PCG | | |
| Distance From Bit (ft) | N/A | 50.80 | 43.48 | | |
| Recorded Sample Period (sec) | N/A | 10 | 10 | | |
| Software Version | N/A | 8.15 | 8.15 | | |
| Sub Serial Number | N/A | 11341336 | 12187587 | | |
| Insert/Sonde Serial Number | N/A | 11680944 | 11680968 | | |

REMARKS

- All depths are calibrated to driller's pipe tally and are true vertical depth from the drill floor.
- No depth corrections have been made for pipe stretch or compression.
- All data presented is recorded (memory data) unless other wise stated.
- The following Smoothing parameters have been applied to data:

Gamma Ray
 Interval Resolution: 0.5 ft
 Interval Distance: 0.6 ft
 Gap Fill: 3.0 ft

Rate Of Penetration
 Interval Resolution: 0.5 ft
 Interval Distance: 1.2 ft
 Gap Fill: 3.0 ft
- Environmental parameters used for processing Corrected Gamm:

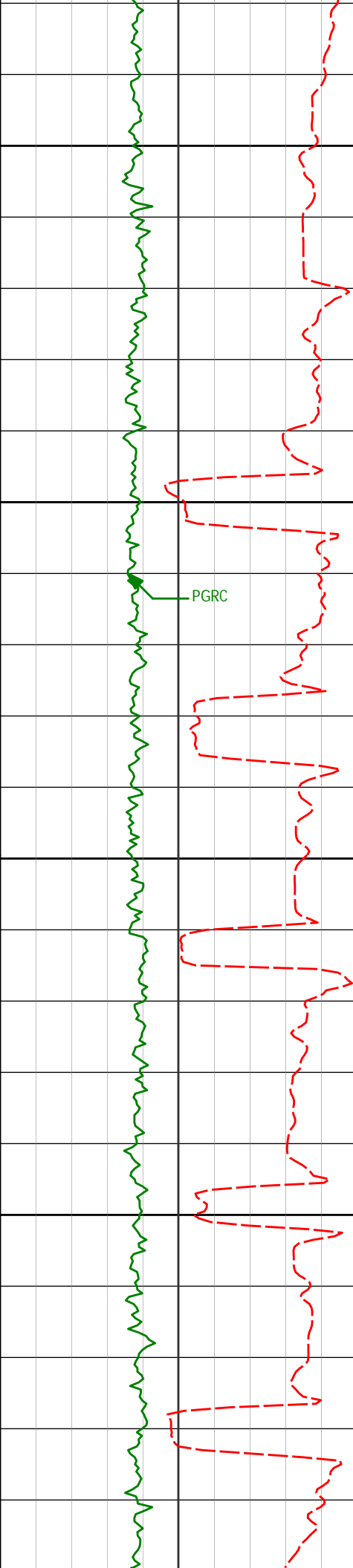
Mud Weight: 9.3-10.0 ppg
 Borehole Size: 8.75 in and 6.125 in

6. Log begins with gamma logging and ends at TD of the build

INSITE Version 7.4.10 Build 39

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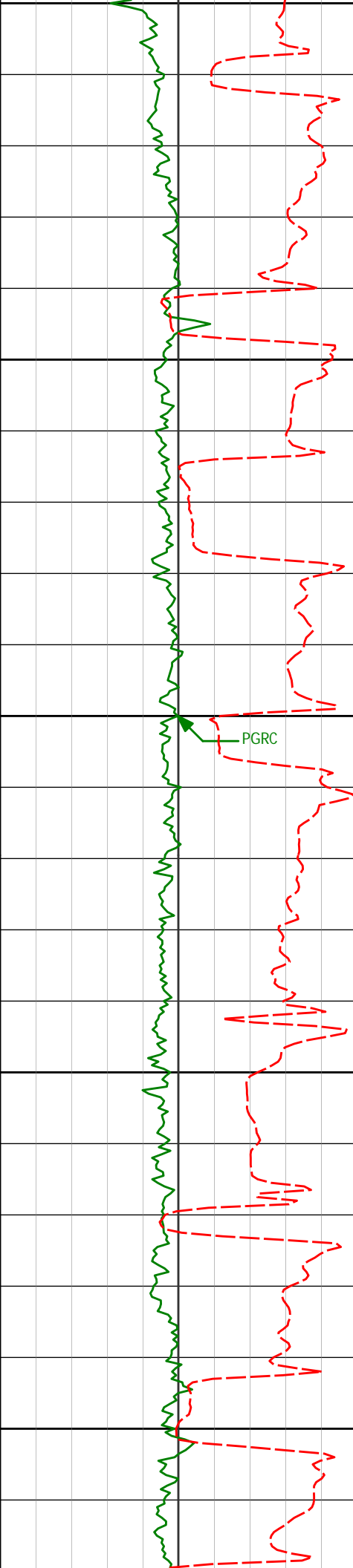
| PCG Gamma Ray PGRC | | | | | | |
|--|--|-------------|-----|-----|-----|-----|
| 0 300 api | | | | | | |
| Avg Rate of Penetration feet per hr | | Depth ft | Inc | Azi | TVD | DLS |
| 500 0 | | | | | | |
| | | 6850 | | | | |
| | | | | | | |



KOP

See Remark 7

| | | | | | |
|------|------|-------|--------|---------|------|
| 6900 | 6900 | 21.20 | 295.41 | 6721.30 | 8.09 |
| 6950 | | | | | |
| 7000 | 7000 | 23.77 | 311.80 | 6813.78 | 6.75 |
| 7050 | | | | | |
| 7100 | | | | | |



7100

7150

7200

7250

7300

7100

7200

7300

31.27

35.67

43.69

326.73

335.16

341.29

6902.51

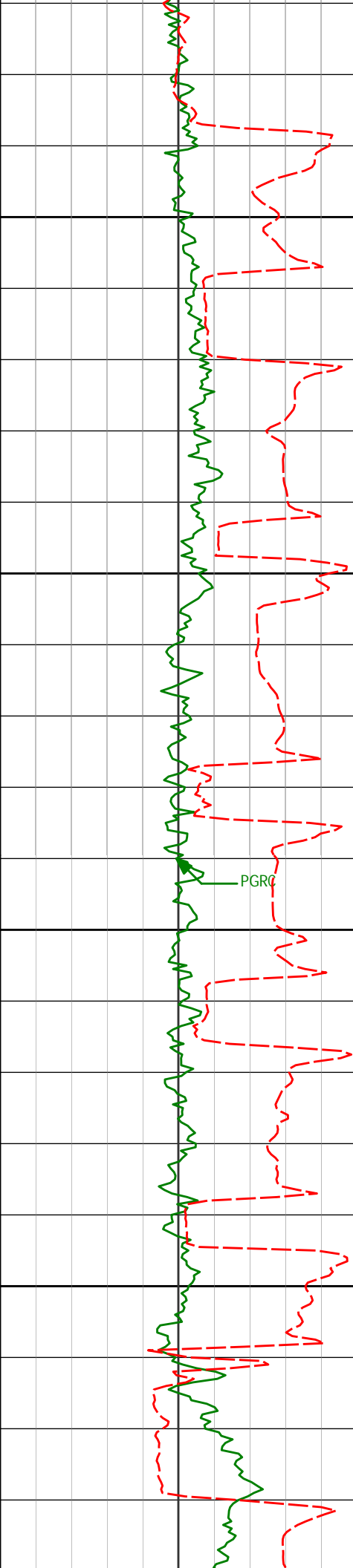
6985.95

7062.88

10.13

6.39

8.92



7350

7400

7450

7500

PGR0

7400

7500

48.55

52.83

346.89

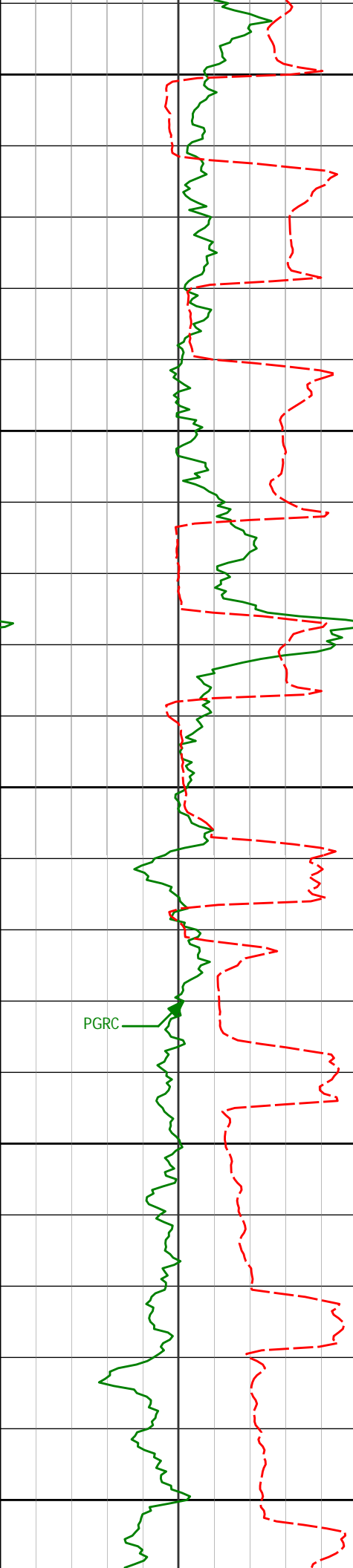
353.32

7132.21

7195.59

6.31

6.56



7550

7600

7650

7700

7750

7600

7700

60.17

62.79

356.78

355.23

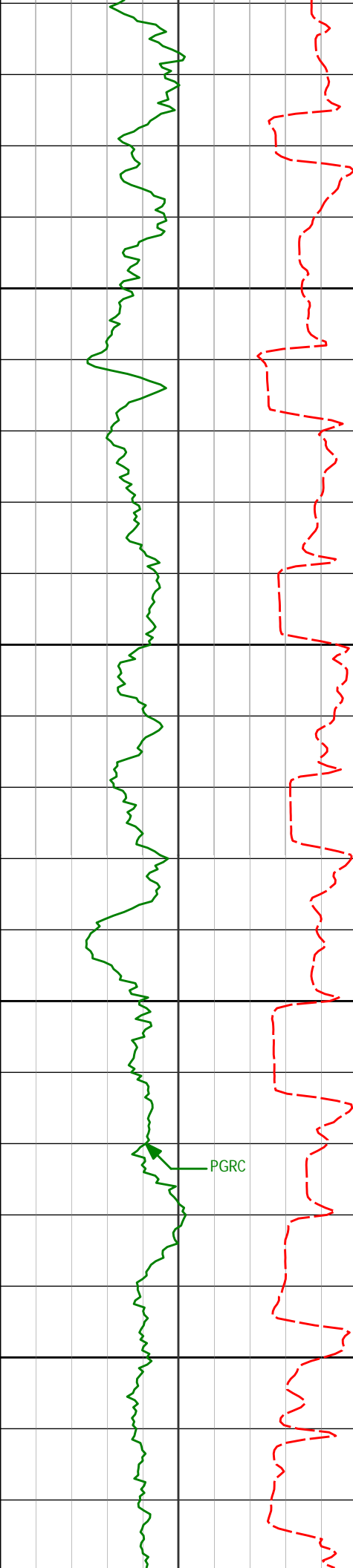
7250.75

7298.49

7.89

2.95

PGRC



7800

7850

7900

7950

7800

7900

72.14

80.95

353.05

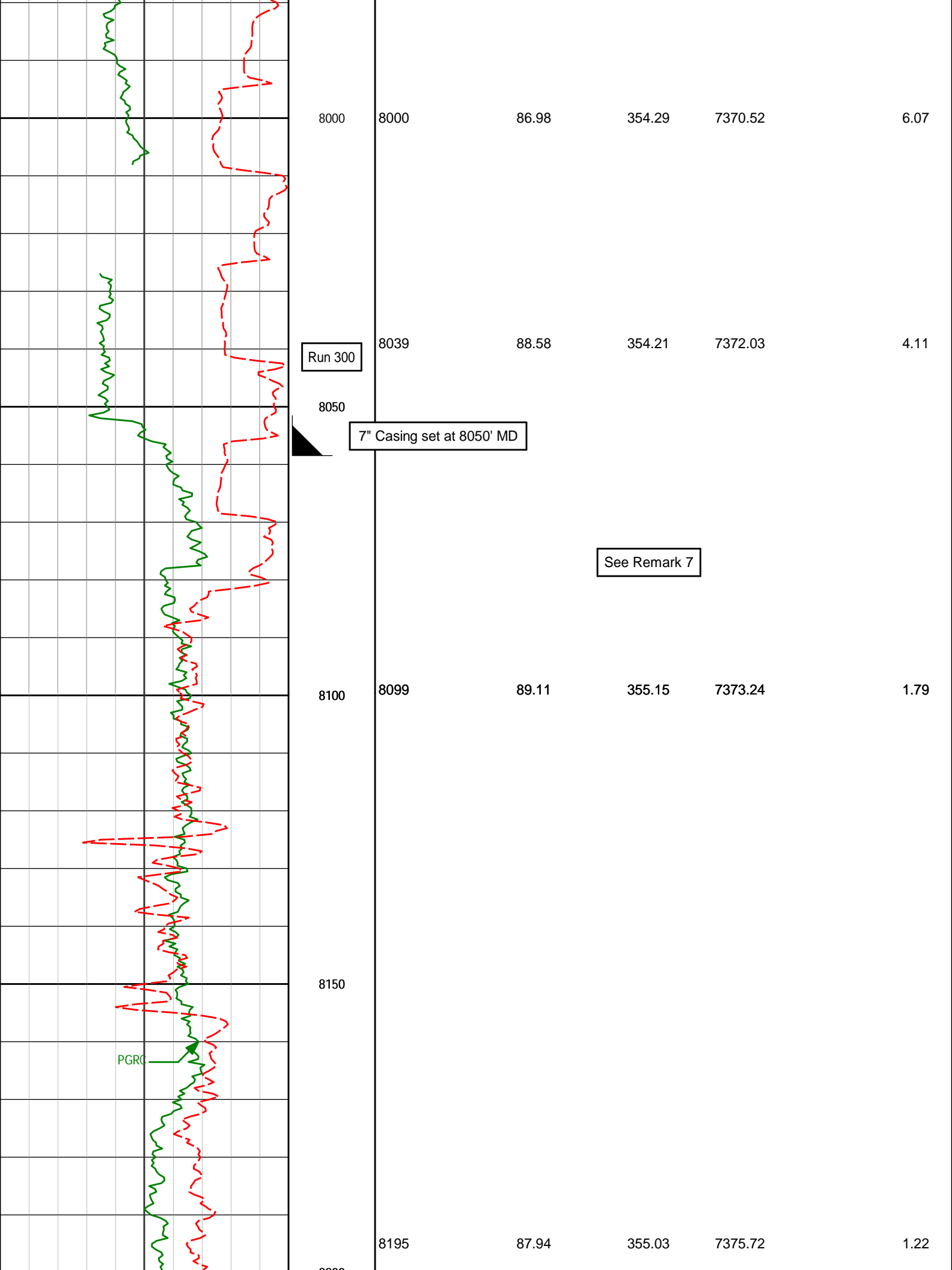
353.60

7336.77

7360.01

9.57

8.82



8000

8000

86.98

354.29

7370.52

6.07

Run 300

8039

88.58

354.21

7372.03

4.11

8050

7" Casing set at 8050' MD

See Remark 7

8100

8099

89.11

355.15

7373.24

1.79

8150

PGR

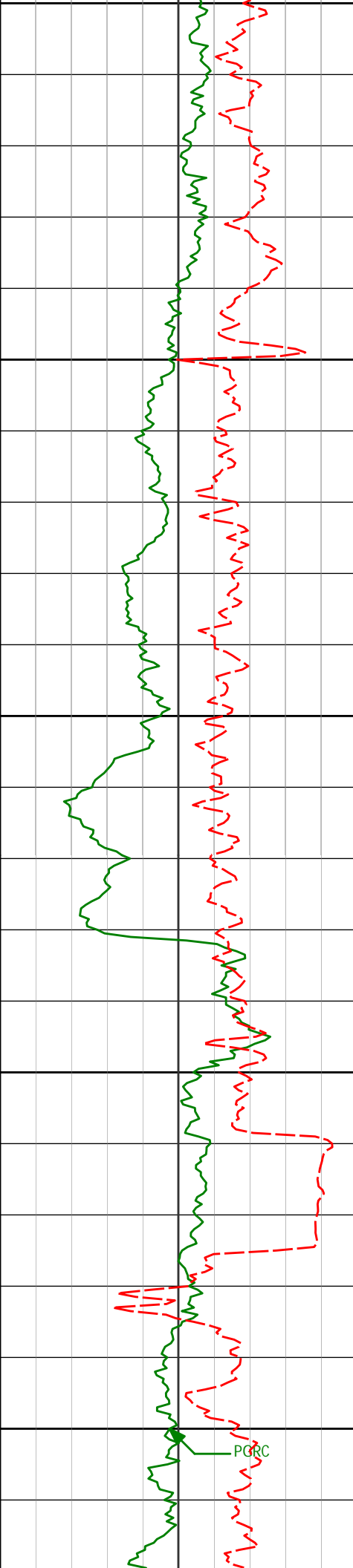
8195

87.94

355.03

7375.72

1.22



8200

8250

8290

8300

8350

8386

8400

86.64

354.33

7380.22

1.55

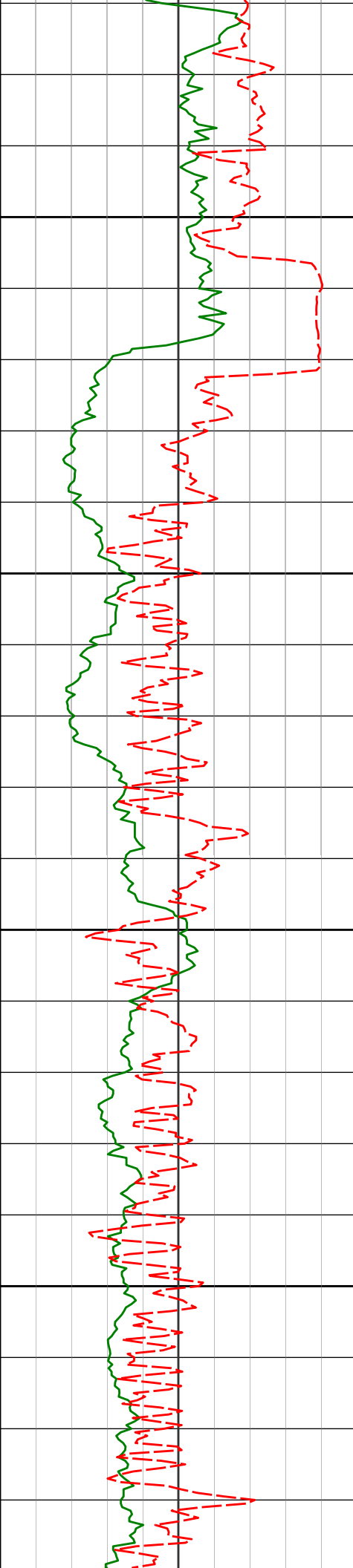
86.98

355.24

7385.57

1.01

PGRC



8450

8481

89.11

356.00

7388.81

2.38

8500

8550

8575

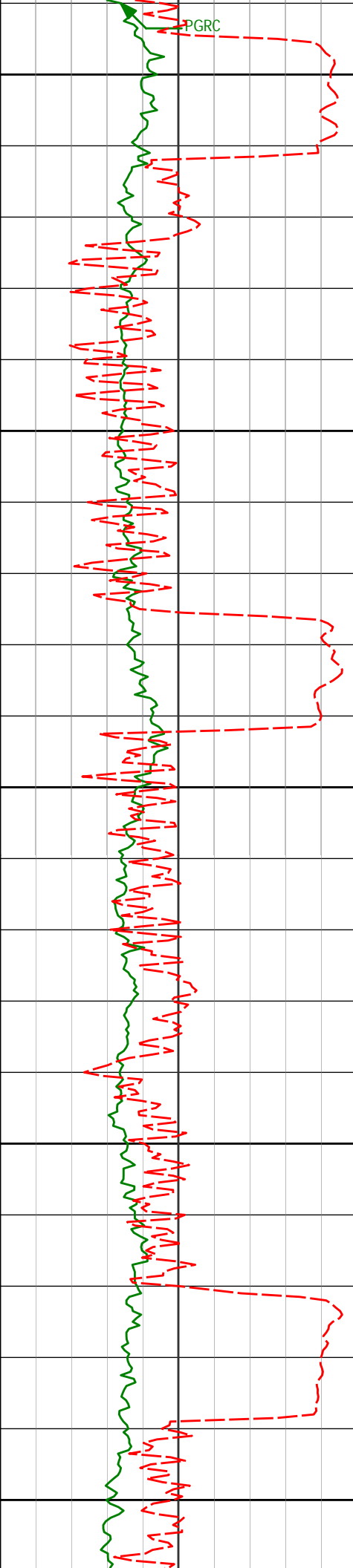
88.06

355.19

7391.14

1.41

8600



8650

8671

89.26

354.54

7393.39

1.42

8700

8750

8766

91.66

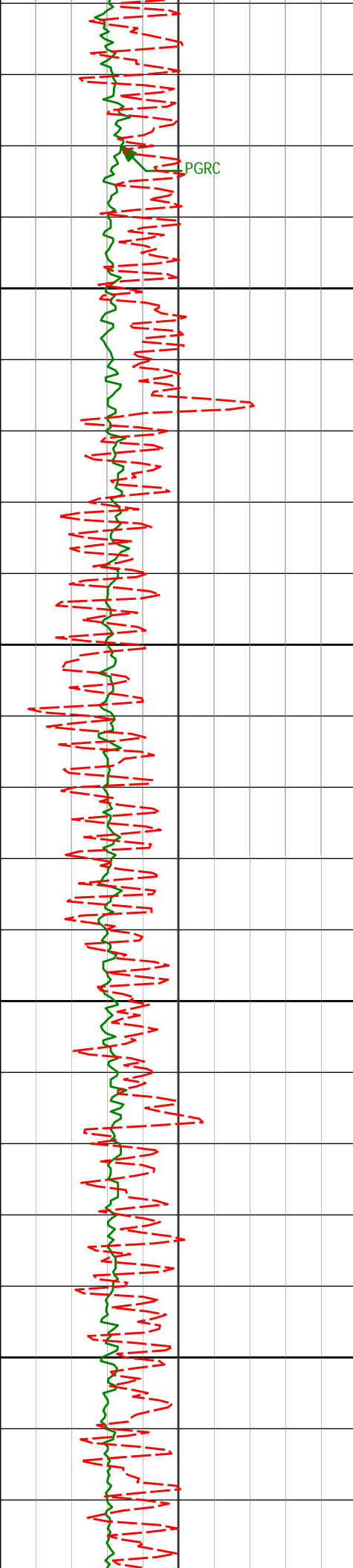
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7392.62

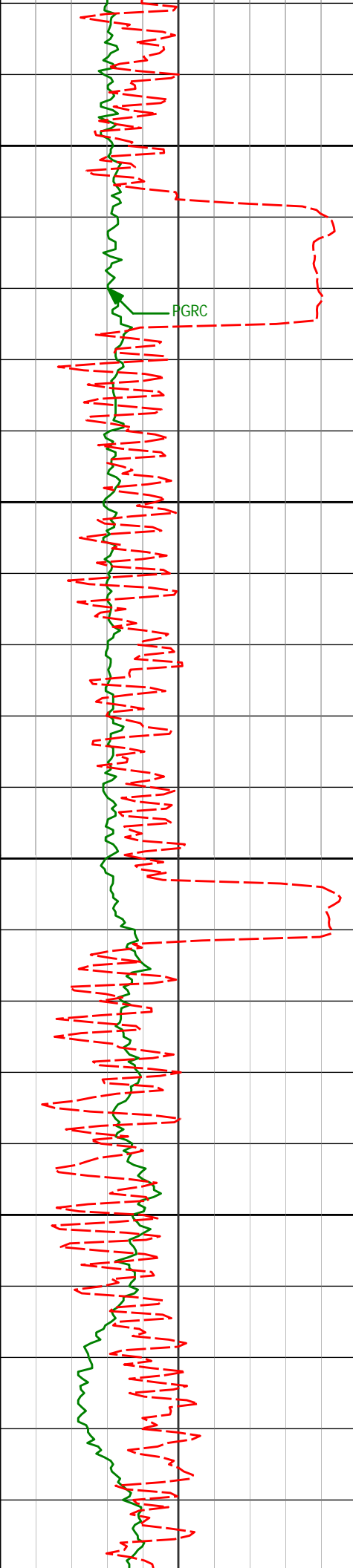
3.43

8800

8850



| Year | 2000 | 2001 | 2002 | 2003 | 2004 |
|------|-------|--------|---------|------|------|
| 8861 | 91.14 | 358.20 | 7390.30 | 1.63 | |
| 8957 | 90.89 | 356.52 | 7388.59 | 1.77 | |
| 9052 | 90.68 | 356.02 | 7387.29 | 0.57 | |



9100

9150

9200

9250

9300

9147

90.83

357.92

7386.04

2.01

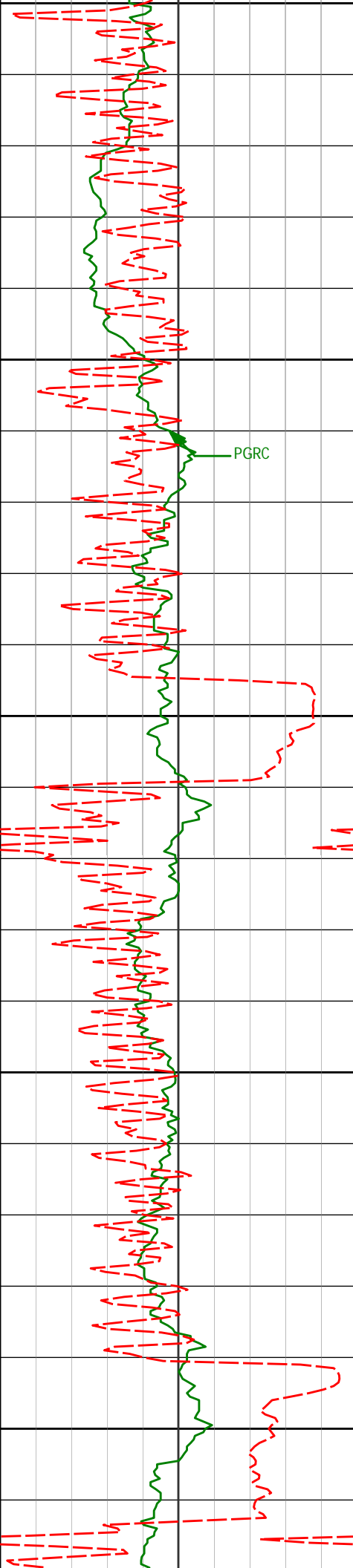
9243

88.18

357.59

7386.86

2.79



9300

9339

87.59

357.30

7390.40

0.68

9350

PGRC

9400

9434

87.75

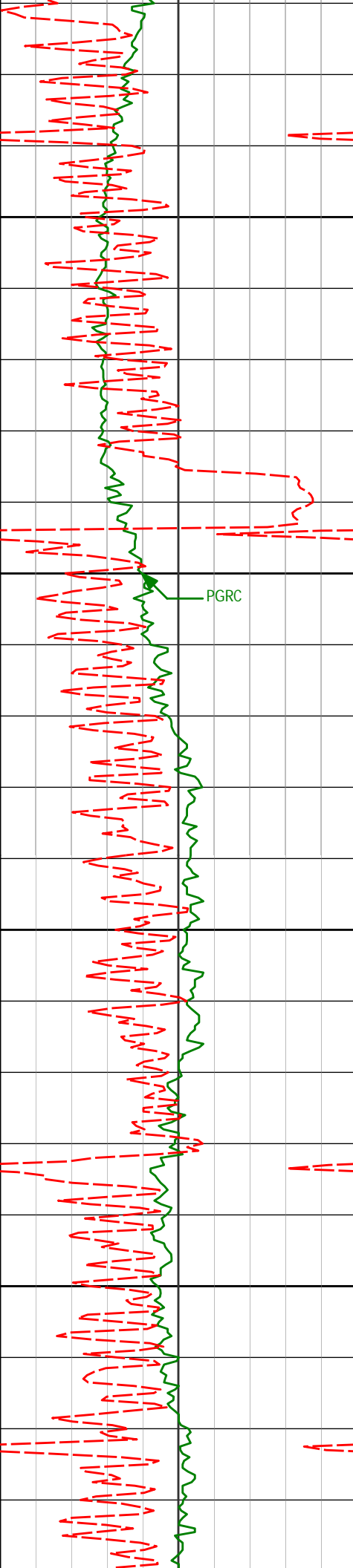
357.24

7394.27

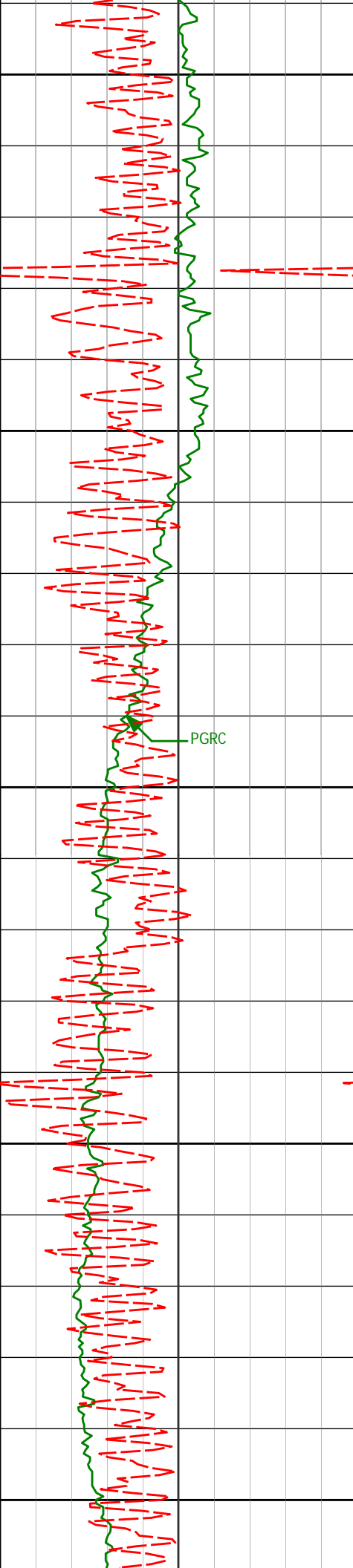
0.17

9450

9500



| | | | | |
|------|-------|--------|---------|------|
| 9529 | 89.69 | 357.28 | 7396.39 | 2.05 |
| 9550 | | | | |
| 9600 | | | | |
| 9625 | 91.73 | 357.03 | 7395.20 | 2.14 |
| 9650 | | | | |
| 9700 | | | | |
| 9720 | 90.52 | 356.71 | 7393.33 | 1.31 |



9750

9800

9850

9900

9950

9816

89.38

356.67

7393.41

1.19

PGRC

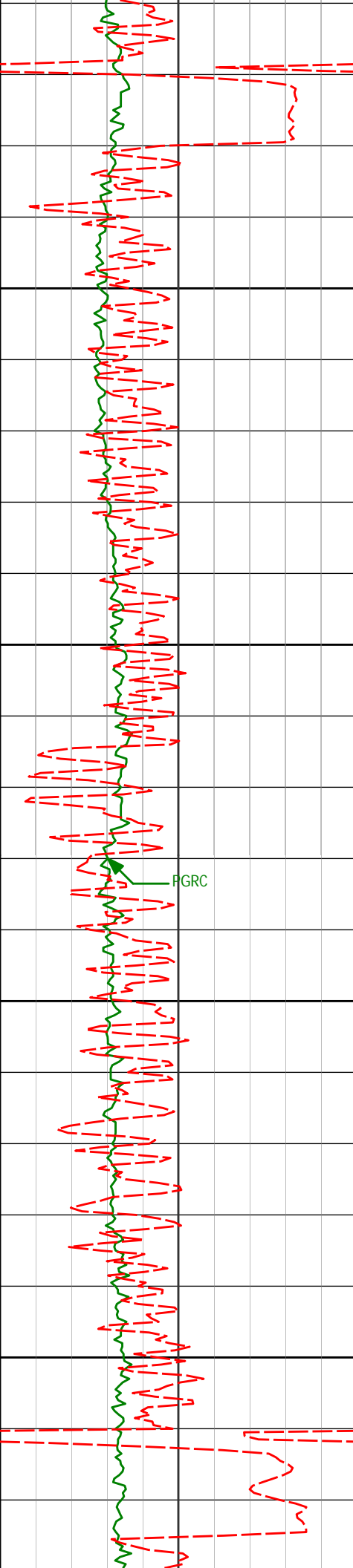
9911

89.17

356.79

7394.61

0.26



10000

10050

10100

10150

10007

90.40

357.75

7394.97

1.63

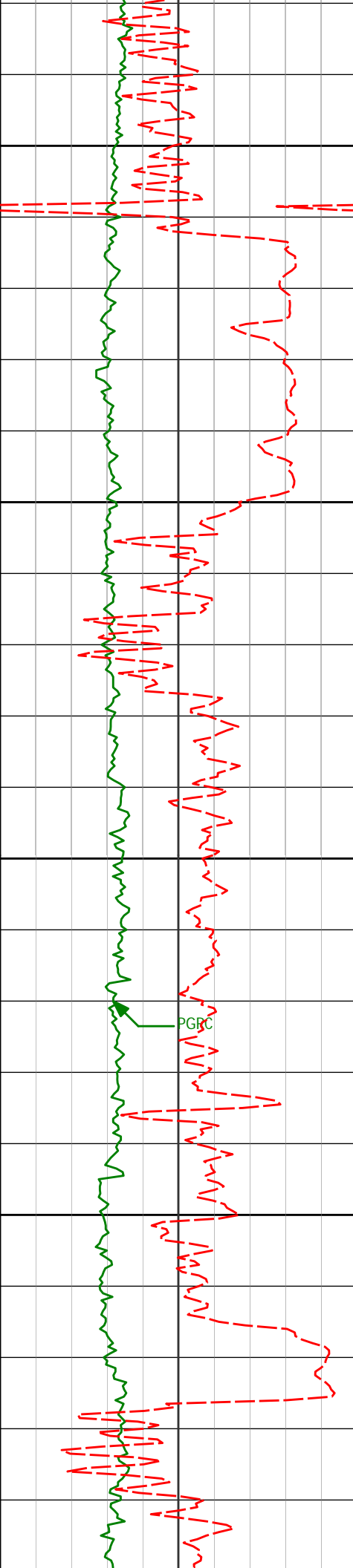
10103

89.78

357.46

7394.82

0.71



10200

10250

10300

10350

10198

10294

10389

90.56

89.57

91.32

359.48

357.44

358.58

7394.54

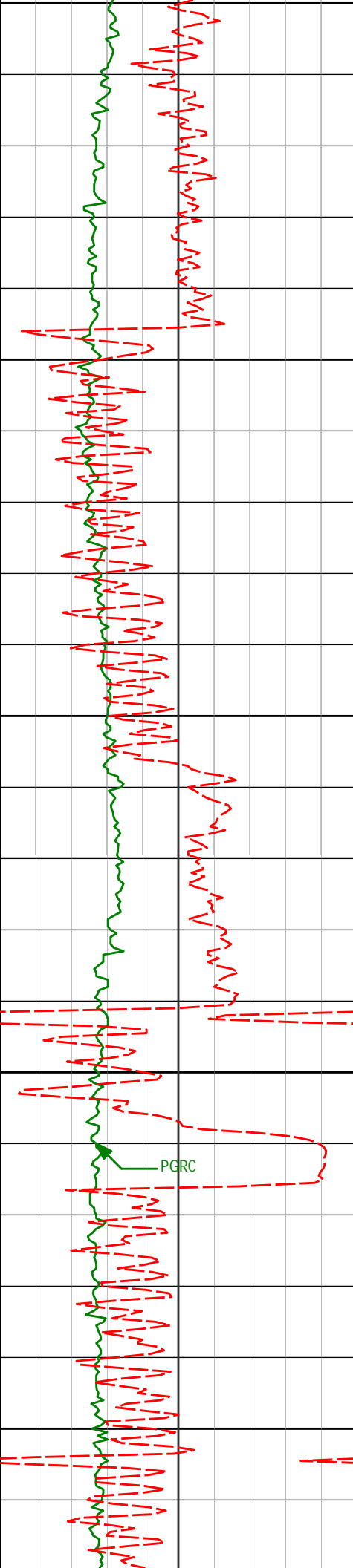
7394.43

7393.69

2.27

2.36

2.20



10400

10450

10484

89.04

357.85

7393.39

2.52

10500

10550

PGRC

10578

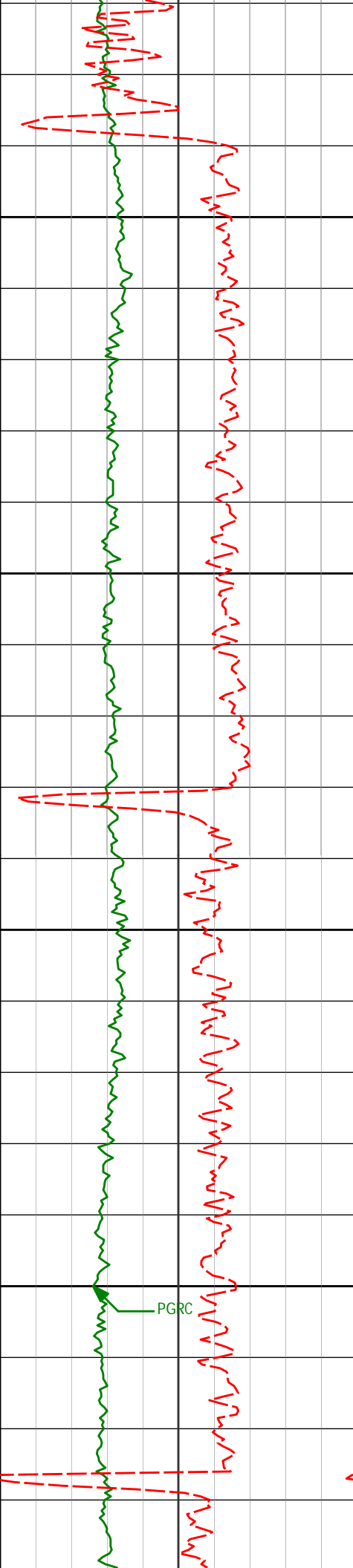
89.85

357.68

7394.30

0.87

10600



10650

10673

90.80

358.07

7393.76

1.09

10700

10750

10768

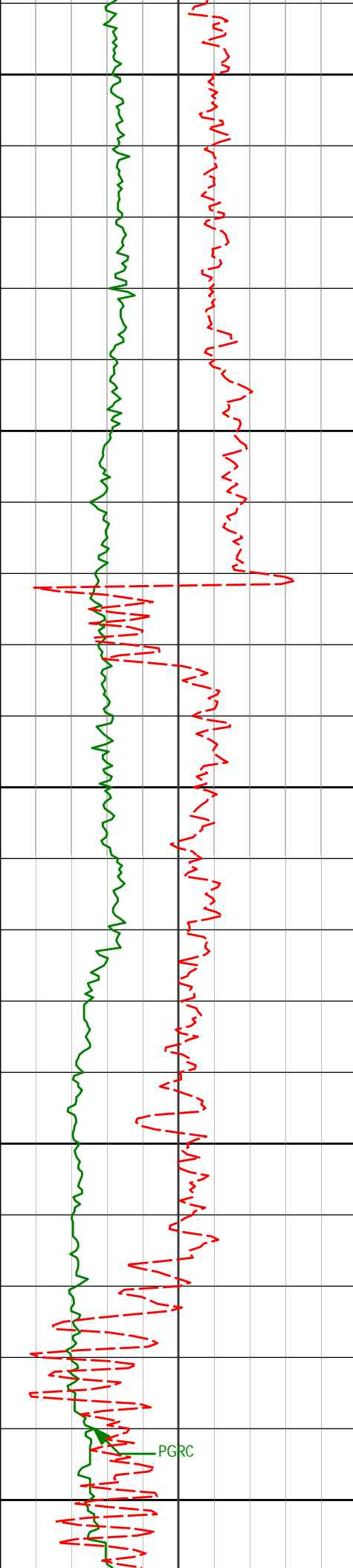
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355.99

7393.79

2.78

10800



10850

10864

90.28

355.79

7394.25

1.18

10900

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10959

89.54

354.77

7394.41

1.33

11000

11050

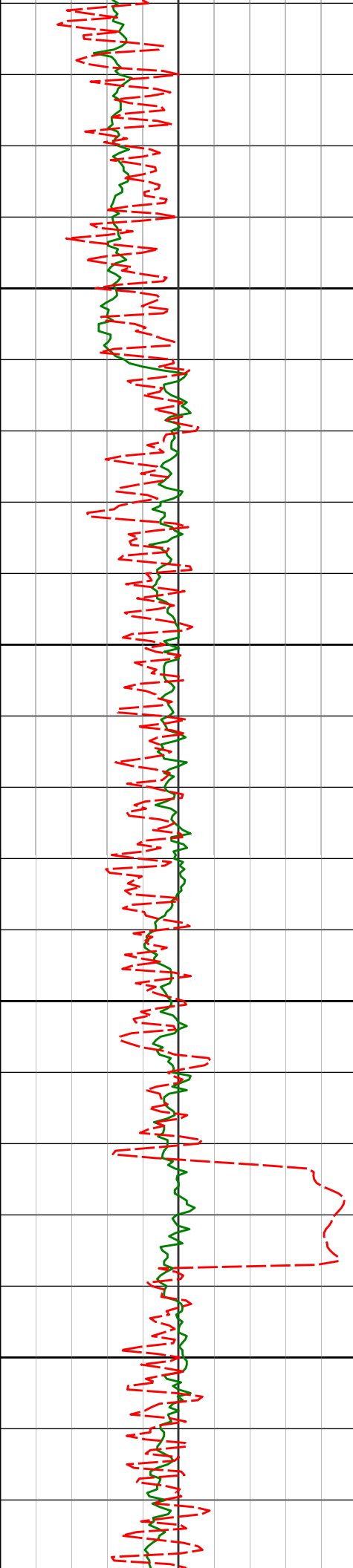
11055

89.81

355.17

7394.95

0.51



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11150

11200

11250

11151

11246

89.23

89.26

354.01

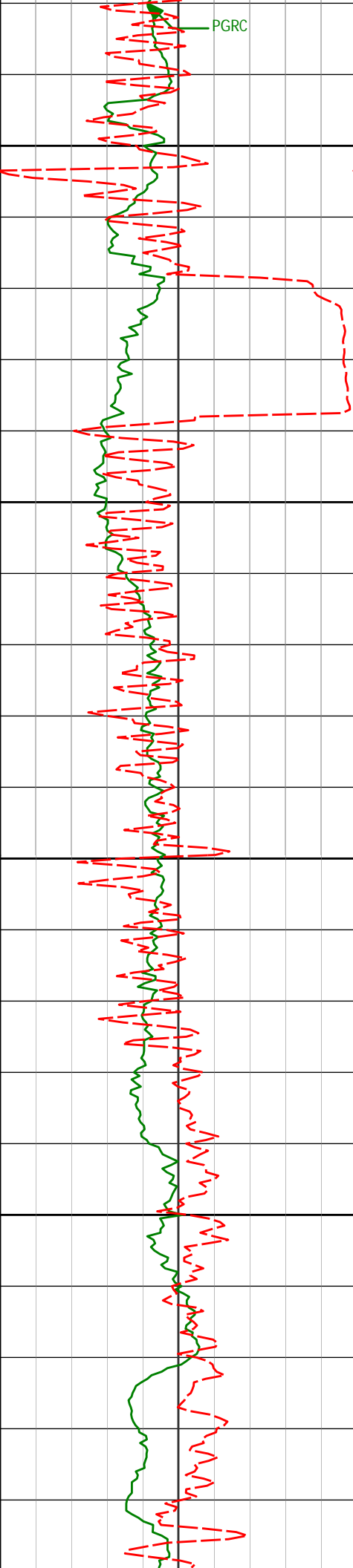
354.31

7395.75

7397.00

1.35

0.32



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11350

11400

11450

11500

11342

89.01

354.91

7398.45

0.68

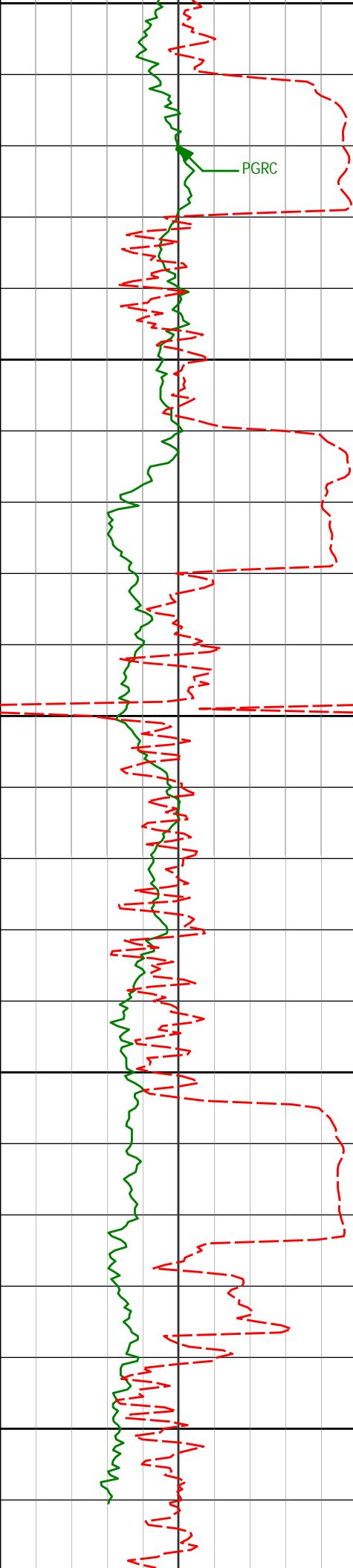
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87.72

354.78

7401.16

1.37



11500

11550

11600

11650

11700

11533

88.15

355.85

7404.62

1.20

11597

89.63

356.65

7405.86

2.63

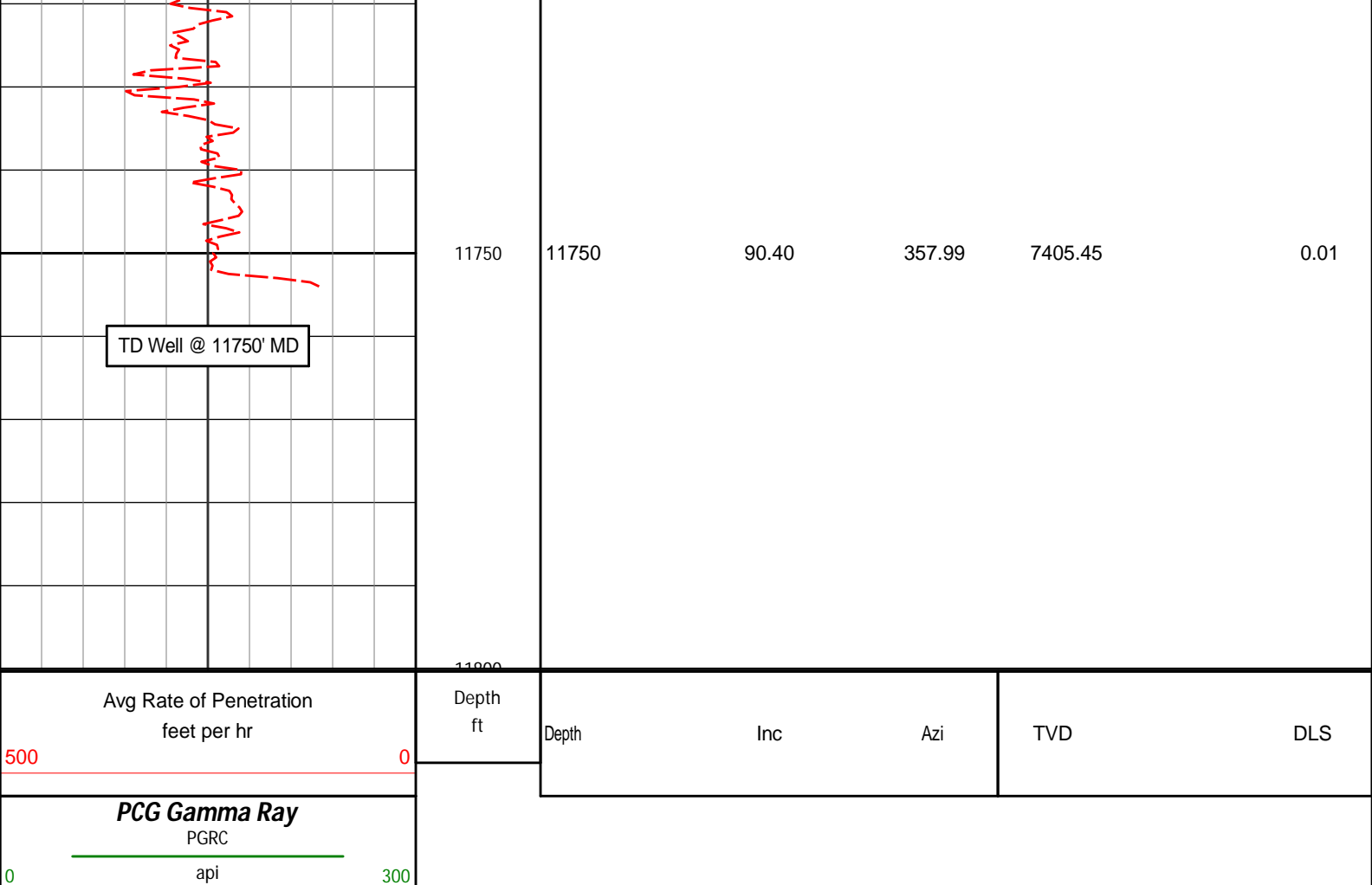
11695

90.40

357.99

7405.83

1.57



HALLIBURTON

DIRECTIONAL SURVEY REPORT

Anadarko Petroleum Corp
Gobbler 29N-23HZ
Wattenburg
USA
CA-XX-0900304807

| 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 |
| 100.00 | 0.36 | 4.97 | 100.00 | 0.31 N | 0.03 E | 0.31 | 0.36 |
| 200.00 | 0.30 | 12.71 | 200.00 | 0.87 N | 0.11 E | 0.87 | 0.07 |
| 300.00 | 0.28 | 329.51 | 300.00 | 1.33 N | 0.05 E | 1.33 | 0.21 |
| 400.00 | 0.24 | 358.08 | 400.00 | 1.75 N | 0.08 W | 1.75 | 0.13 |
| 500.00 | 0.43 | 327.11 | 499.99 | 2.28 N | 0.29 W | 2.29 | 0.26 |
| 600.00 | 0.47 | 302.88 | 599.99 | 2.82 N | 0.85 W | 2.86 | 0.19 |
| 700.00 | 0.28 | 292.58 | 699.99 | 3.14 N | 1.42 W | 3.20 | 0.21 |
| 800.00 | 0.20 | 246.37 | 799.99 | 3.17 N | 1.80 W | 3.25 | 0.20 |
| 900.00 | 0.01 | 174.75 | 899.99 | 3.09 N | 1.96 W | 3.17 | 0.19 |
| 1000.00 | 0.04 | 202.06 | 999.99 | 3.04 N | 1.97 W | 3.13 | 0.03 |
| 1100.00 | 0.26 | 262.57 | 1099.99 | 2.97 N | 2.21 W | 3.07 | 0.24 |
| 1200.00 | 0.35 | 256.96 | 1199.99 | 2.87 N | 2.74 W | 3.00 | 0.10 |
| 1300.00 | 0.11 | 240.76 | 1299.98 | 2.76 N | 3.12 W | 2.90 | 0.25 |
| 1400.00 | 0.43 | 249.48 | 1399.98 | 2.58 N | 3.56 W | 2.74 | 0.32 |
| 1500.00 | 0.18 | 257.21 | 1499.98 | 2.41 N | 4.06 W | 2.59 | 0.25 |
| 1600.00 | 0.41 | 257.96 | 1599.98 | 2.30 N | 4.57 W | 2.51 | 0.23 |
| 1700.00 | 0.36 | 269.67 | 1699.98 | 2.23 N | 5.24 W | 2.46 | 0.09 |
| 1800.00 | 1.51 | 289.14 | 1799.96 | 2.66 N | 6.80 W | 2.96 | 1.18 |
| 1900.00 | 2.44 | 285.46 | 1899.90 | 3.66 N | 10.10 W | 4.11 | 0.93 |
| 2000.00 | 3.51 | 280.35 | 1999.77 | 4.77 N | 15.16 W | 5.46 | 1.10 |

| | | | | | | | |
|---------|-------|--------|---------|-----------|-----------|---------|-------|
| 2000.00 | 5.31 | 268.93 | 1933.77 | 4.77 N | 13.18 W | 5.40 | 1.10 |
| 2100.00 | 5.27 | 274.52 | 2099.47 | 5.69 N | 22.75 W | 6.71 | 1.81 |
| 2200.00 | 7.70 | 269.28 | 2198.82 | 5.96 N | 34.02 W | 7.50 | 2.50 |
| 2300.00 | 9.56 | 268.74 | 2297.69 | 5.70 N | 49.02 W | 7.91 | 1.86 |
| 2400.00 | 12.56 | 270.79 | 2395.82 | 5.66 N | 68.20 W | 8.75 | 3.03 |
| 2500.00 | 14.62 | 271.99 | 2493.01 | 6.25 N | 91.69 W | 10.41 | 2.07 |
| 2600.00 | 16.69 | 272.77 | 2589.30 | 7.39 N | 118.65 W | 12.76 | 2.08 |
| 2700.00 | 16.21 | 274.82 | 2685.21 | 9.25 N | 146.91 W | 15.91 | 0.75 |
| 2800.00 | 15.28 | 271.12 | 2781.45 | 10.68 N | 174.00 W | 18.56 | 1.37 |
| 2900.00 | 15.65 | 268.79 | 2877.83 | 10.65 N | 200.65 W | 19.75 | 0.72 |
| 3000.00 | 16.20 | 269.84 | 2974.00 | 10.33 N | 228.09 W | 20.67 | 0.63 |
| 3100.00 | 15.19 | 270.48 | 3070.27 | 10.40 N | 255.14 W | 21.96 | 1.03 |
| 3200.00 | 16.49 | 267.77 | 3166.47 | 9.96 N | 282.42 W | 22.76 | 1.50 |
| 3300.00 | 16.57 | 269.29 | 3262.33 | 9.23 N | 310.87 W | 23.32 | 0.44 |
| 3400.00 | 16.20 | 269.70 | 3358.27 | 8.98 N | 339.08 W | 24.35 | 0.39 |
| 3500.00 | 15.43 | 269.39 | 3454.49 | 8.76 N | 366.33 W | 25.37 | 0.77 |
| 3600.00 | 13.99 | 268.14 | 3551.21 | 8.23 N | 391.72 W | 25.99 | 1.48 |
| 3700.00 | 15.29 | 267.22 | 3647.96 | 7.19 N | 416.97 W | 26.10 | 1.32 |
| 3800.00 | 16.31 | 271.49 | 3744.18 | 6.92 N | 444.18 W | 27.06 | 1.54 |
| 3900.00 | 16.38 | 269.47 | 3840.14 | 7.16 N | 472.31 W | 28.58 | 0.57 |
| 4000.00 | 15.66 | 267.36 | 3936.26 | 6.41 N | 499.90 W | 29.08 | 0.93 |
| 4100.00 | 15.27 | 266.39 | 4032.64 | 4.96 N | 526.52 W | 28.84 | 0.47 |
| 4200.00 | 15.65 | 269.46 | 4129.02 | 4.00 N | 553.15 W | 29.09 | 0.90 |
| 4300.00 | 15.29 | 269.77 | 4225.40 | 3.82 N | 579.82 W | 30.12 | 0.37 |
| 4400.00 | 17.52 | 270.48 | 4321.32 | 3.90 N | 608.06 W | 31.48 | 2.24 |
| 4500.00 | 17.59 | 270.15 | 4416.66 | 4.06 N | 638.23 W | 33.01 | 0.12 |
| 4600.00 | 16.97 | 270.04 | 4512.15 | 4.11 N | 667.94 W | 34.41 | 0.63 |
| 4700.00 | 16.61 | 270.55 | 4607.88 | 4.26 N | 696.83 W | 35.87 | 0.39 |
| 4800.00 | 16.48 | 268.50 | 4703.74 | 4.03 N | 725.29 W | 36.93 | 0.60 |
| 4900.00 | 16.28 | 268.11 | 4799.69 | 3.19 N | 753.48 W | 37.37 | 0.22 |
| 5000.00 | 16.53 | 267.88 | 4895.62 | 2.21 N | 781.70 W | 37.67 | 0.26 |
| 5100.00 | 16.72 | 268.44 | 4991.44 | 1.29 N | 810.29 W | 38.05 | 0.25 |
| 5200.00 | 16.59 | 269.62 | 5087.24 | 0.80 N | 838.94 W | 38.86 | 0.36 |
| 5300.00 | 16.92 | 268.89 | 5183.00 | 0.43 N | 867.77 W | 39.79 | 0.39 |
| 5400.00 | 16.21 | 271.98 | 5278.85 | 0.63 N | 896.27 W | 41.29 | 1.13 |
| 5500.00 | 16.16 | 272.44 | 5374.89 | 1.71 N | 924.12 W | 43.63 | 0.14 |
| 5600.00 | 16.07 | 273.15 | 5470.96 | 3.06 N | 951.84 W | 46.24 | 0.22 |
| 5700.00 | 15.88 | 272.99 | 5567.10 | 4.54 N | 979.32 W | 48.96 | 0.20 |
| 5800.00 | 15.48 | 272.49 | 5663.38 | 5.83 N | 1006.31 W | 51.47 | 0.41 |
| 5900.00 | 15.14 | 270.54 | 5759.83 | 6.53 N | 1032.70 W | 53.37 | 0.62 |
| 6000.00 | 14.93 | 269.56 | 5856.40 | 6.56 N | 1058.64 W | 54.58 | 0.33 |
| 6100.00 | 14.52 | 271.02 | 5953.12 | 6.68 N | 1084.06 W | 55.85 | 0.55 |
| 6200.00 | 15.93 | 272.59 | 6049.61 | 7.53 N | 1110.31 W | 57.89 | 1.47 |
| 6300.00 | 14.68 | 270.97 | 6146.06 | 8.36 N | 1136.70 W | 59.92 | 1.32 |
| 6400.00 | 16.06 | 272.34 | 6242.48 | 9.14 N | 1163.19 W | 61.90 | 1.42 |
| 6500.00 | 16.02 | 271.47 | 6338.58 | 10.06 N | 1190.80 W | 64.07 | 0.24 |
| 6600.00 | 15.58 | 272.45 | 6434.81 | 10.99 N | 1218.02 W | 66.23 | 0.52 |
| 6700.00 | 17.03 | 271.15 | 6530.78 | 11.86 N | 1246.08 W | 68.37 | 1.50 |
| 6800.00 | 16.39 | 274.98 | 6626.56 | 13.37 N | 1274.77 W | 71.19 | 1.28 |
| 6900.00 | 21.20 | 295.41 | 6721.30 | 22.37 N | 1305.21 W | 81.56 | 8.09 |
| 7000.00 | 23.77 | 311.80 | 6813.78 | 43.60 N | 1336.60 W | 104.18 | 6.75 |
| 7100.00 | 31.27 | 326.73 | 6902.51 | 78.82 N | 1365.94 W | 140.70 | 10.13 |
| 7200.00 | 35.67 | 335.16 | 6985.95 | 127.03 N | 1392.46 W | 190.06 | 6.39 |
| 7300.00 | 43.69 | 341.29 | 7062.88 | 186.31 N | 1415.83 W | 250.35 | 8.92 |
| 7400.00 | 48.55 | 346.89 | 7132.21 | 255.60 N | 1435.43 W | 320.45 | 6.31 |
| 7500.00 | 52.83 | 353.32 | 7195.59 | 331.75 N | 1448.58 W | 397.12 | 6.56 |
| 7600.00 | 60.17 | 356.78 | 7250.75 | 414.76 N | 1455.66 W | 480.37 | 7.89 |
| 7700.00 | 62.79 | 355.23 | 7298.49 | 502.40 N | 1461.80 W | 568.20 | 2.95 |
| 7800.00 | 72.14 | 353.05 | 7336.77 | 594.17 N | 1471.28 W | 660.30 | 9.57 |
| 7900.00 | 80.95 | 353.60 | 7360.01 | 690.67 N | 1482.57 W | 757.22 | 8.82 |
| 8000.00 | 86.98 | 354.29 | 7370.52 | 789.52 N | 1493.06 W | 856.44 | 6.07 |
| 8039.00 | 88.58 | 354.21 | 7372.03 | 828.29 N | 1496.96 W | 895.35 | 4.11 |
| 8099.00 | 89.11 | 355.15 | 7373.24 | 888.02 N | 1502.52 W | 955.27 | 1.79 |
| 8195.00 | 87.94 | 355.03 | 7375.72 | 983.63 N | 1510.74 W | 1051.15 | 1.22 |
| 8290.00 | 86.64 | 354.33 | 7380.22 | 1078.12 N | 1519.53 W | 1145.94 | 1.55 |
| 8386.00 | 86.98 | 355.24 | 7385.57 | 1173.57 N | 1528.24 W | 1241.69 | 1.01 |
| 8481.00 | 89.11 | 356.00 | 7388.81 | 1268.23 N | 1535.50 W | 1336.58 | 2.38 |
| 8575.00 | 88.06 | 355.19 | 7391.14 | 1361.92 N | 1542.72 W | 1430.50 | 1.41 |
| 8671.00 | 89.26 | 354.54 | 7393.39 | 1457.51 N | 1551.31 W | 1526.38 | 1.42 |
| 8766.00 | 91.66 | 356.75 | 7392.62 | 1552.22 N | 1558.52 W | 1621.32 | 3.43 |
| 8861.00 | 91.14 | 358.20 | 7390.30 | 1647.09 N | 1562.71 W | 1716.29 | 1.63 |
| 8957.00 | 90.89 | 356.52 | 7388.59 | 1742.97 N | 1567.14 W | 1812.27 | 1.77 |
| 9052.00 | 90.68 | 356.02 | 7387.29 | 1837.76 N | 1573.31 W | 1907.24 | 0.57 |
| 9147.00 | 90.83 | 357.92 | 7386.04 | 1932.62 N | 1578.33 W | 2002.23 | 2.01 |
| 9243.00 | 88.18 | 357.59 | 7386.86 | 2028.53 N | 1582.09 W | 2098.21 | 2.79 |

| | | | | | | | |
|----------|-------|--------|---------|-----------|-----------|---------|------|
| 9339.00 | 87.59 | 357.30 | 7390.40 | 2124.37 N | 1586.36 W | 2194.15 | 0.68 |
| 9434.00 | 87.75 | 357.24 | 7394.27 | 2219.18 N | 1590.88 W | 2289.07 | 0.17 |
| 9529.00 | 89.69 | 357.28 | 7396.39 | 2314.05 N | 1595.42 W | 2384.04 | 2.05 |
| 9625.00 | 91.73 | 357.03 | 7395.20 | 2409.92 N | 1600.18 W | 2480.03 | 2.14 |
| 9720.00 | 90.52 | 356.71 | 7393.33 | 2504.75 N | 1605.36 W | 2575.00 | 1.31 |
| 9816.00 | 89.38 | 356.67 | 7393.41 | 2600.59 N | 1610.90 W | 2670.99 | 1.19 |
| 9911.00 | 89.17 | 356.79 | 7394.61 | 2695.43 N | 1616.32 W | 2765.98 | 0.26 |
| 10007.00 | 90.40 | 357.75 | 7394.97 | 2791.32 N | 1620.89 W | 2861.97 | 1.63 |
| 10103.00 | 89.78 | 357.46 | 7394.82 | 2887.23 N | 1624.90 W | 2957.97 | 0.71 |
| 10198.00 | 90.56 | 359.48 | 7394.54 | 2982.19 N | 1627.44 W | 3052.95 | 2.27 |
| 10294.00 | 89.57 | 357.44 | 7394.43 | 3078.15 N | 1630.03 W | 3148.93 | 2.36 |
| 10389.00 | 91.32 | 358.58 | 7393.69 | 3173.09 N | 1633.33 W | 3243.91 | 2.20 |
| 10484.00 | 89.04 | 357.85 | 7393.39 | 3268.03 N | 1636.29 W | 3338.90 | 2.52 |
| 10578.00 | 89.85 | 357.68 | 7394.30 | 3361.96 N | 1639.95 W | 3432.89 | 0.87 |
| 10673.00 | 90.80 | 358.07 | 7393.76 | 3456.89 N | 1643.48 W | 3527.88 | 1.09 |
| 10768.00 | 89.17 | 355.99 | 7393.79 | 3551.75 N | 1648.40 W | 3622.87 | 2.78 |
| 10864.00 | 90.28 | 355.79 | 7394.25 | 3647.50 N | 1655.28 W | 3718.84 | 1.18 |
| 10959.00 | 89.54 | 354.77 | 7394.41 | 3742.18 N | 1663.10 W | 3813.77 | 1.33 |
| 11055.00 | 89.81 | 355.17 | 7394.95 | 3837.81 N | 1671.52 W | 3909.68 | 0.51 |
| 11151.00 | 89.23 | 354.01 | 7395.75 | 3933.37 N | 1680.57 W | 4005.56 | 1.35 |
| 11246.00 | 89.26 | 354.31 | 7397.00 | 4027.87 N | 1690.24 W | 4100.40 | 0.32 |
| 11342.00 | 89.01 | 354.91 | 7398.45 | 4123.44 N | 1699.25 W | 4196.28 | 0.68 |
| 11437.00 | 87.72 | 354.78 | 7401.16 | 4218.01 N | 1707.78 W | 4291.14 | 1.37 |
| 11533.00 | 88.15 | 355.85 | 7404.62 | 4313.63 N | 1715.61 W | 4387.01 | 1.20 |
| 11597.00 | 89.63 | 356.65 | 7405.86 | 4377.48 N | 1719.79 W | 4450.99 | 2.63 |
| 11695.00 | 90.40 | 357.99 | 7405.83 | 4475.37 N | 1724.38 W | 4548.98 | 1.57 |
| 11750.00 | 90.40 | 357.99 | 7405.45 | 4530.33 N | 1726.31 W | 4603.98 | 0.01 |

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 357.40 DEGREES (TRUE)
A TOTAL CORRECTION OF 8.62 DEG FROM MAGNETIC NORTH TO TRUE NORTH HAS BEEN APPLIED**

**HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.
HORIZONTAL DISPLACEMENT(CLOSURE) AT 11750.00 FEET
IS 4848.10 FEET ALONG 339.14 DEGREES (TRUE)**

Surveys through 8039' MD are VES Gyro run after intermediate casing run and are tied to surface. All subsequent are MWD surveys tied to gyro data.

Final survey is a straight line projection to the bit at TD.