



1 : 600 / 1 : 240

WELL INFORMATION					
MWD Run Number	100				
Date run completed	24-Mar-15				
Rig Bit Number	0100				
Bit Size (in)	8.750				
Tool Nominal OD (in)	6.750				
Log Start Depth (MD, ft)	925.00				
Log End Depth (MD, ft)	7,115.00				
Drill or Wipe	Drill				
Drill/Wipe Start Date and Time	22-Mar-15 19:20				
Drill/Wipe End Date and Time	24-Mar-15 03:00				
Min Inc (deg) @ Depth (MD, ft)	0.40 @ 1,018.00				
Max Inc (deg) @ Depth (MD, ft)	78.04 @ 7,050.00				
Bit TFA(in2) / Bit Type	1.21 / PDC				
Flow Rate (gpm)	647.81				
Max AV (fpm) / CV (fpm) @ MWD	N/A / N/A				
Fluid Type	Native/Spud Mud				
Density (ppg) / Viscosity (spqt)	9.50 / 41.00				
Filtrate CL (ppm)	1,800.00				
pH / Fluid Loss (mptm)	9.10 / 0				
PV (cP) / YP (lhf2)	15 / 16.00				
% Solids / % Sand	12 / .20				
% Oil / Oil:Water Ratio	N/A / N/A				
Rm @ Measured Temp (degF)	N/A @ N/A				
Rmf @ Measured Temp (degF)	N/A @ N/A				
Rmc @ Measured Temp (degF)	N/A @ N/A				
Max Tool Temp (degF) / S	178.05 / PDC				

Max Tool Temp (degF) / Source	170.37 / PCM				
Rm @ Max Tool Temp (degF)	N/A @ 170.37				
Lead MWD Engineer	Cody Wurdeman				
Customer Representative	Clifford Kester				

SENSOR INFORMATION

Downhole Processor Information

Tool Type	PCM				
Software Version	5.93				
Sub Serial Number	11404272				
Insert Serial Number	11680773				
Date and Time Initialized	22-Mar-15 07:01				
Date and Time Read	24-Mar-15 08:43				
ECMB SW Version	N/A				

Directional Sensor Information

Tool Type	PCDC				
Distance From Bit (ft)	65.00				
Software Version	6.21				
Sub Serial Number	11404272				
Sonde Serial Number	10919505				
Sensor ID Number	N/A				
Toolface Offset (deg)	63.04				

Gamma Ray Sensor Information

Tool Type	PCG				
Distance From Bit (ft)	58.50				
Recorded Sample Period (sec)	10				
Software Version	8.15				
Sub Serial Number	11404272				
Insert/Sonde Serial Number	11293388				

REMARKS

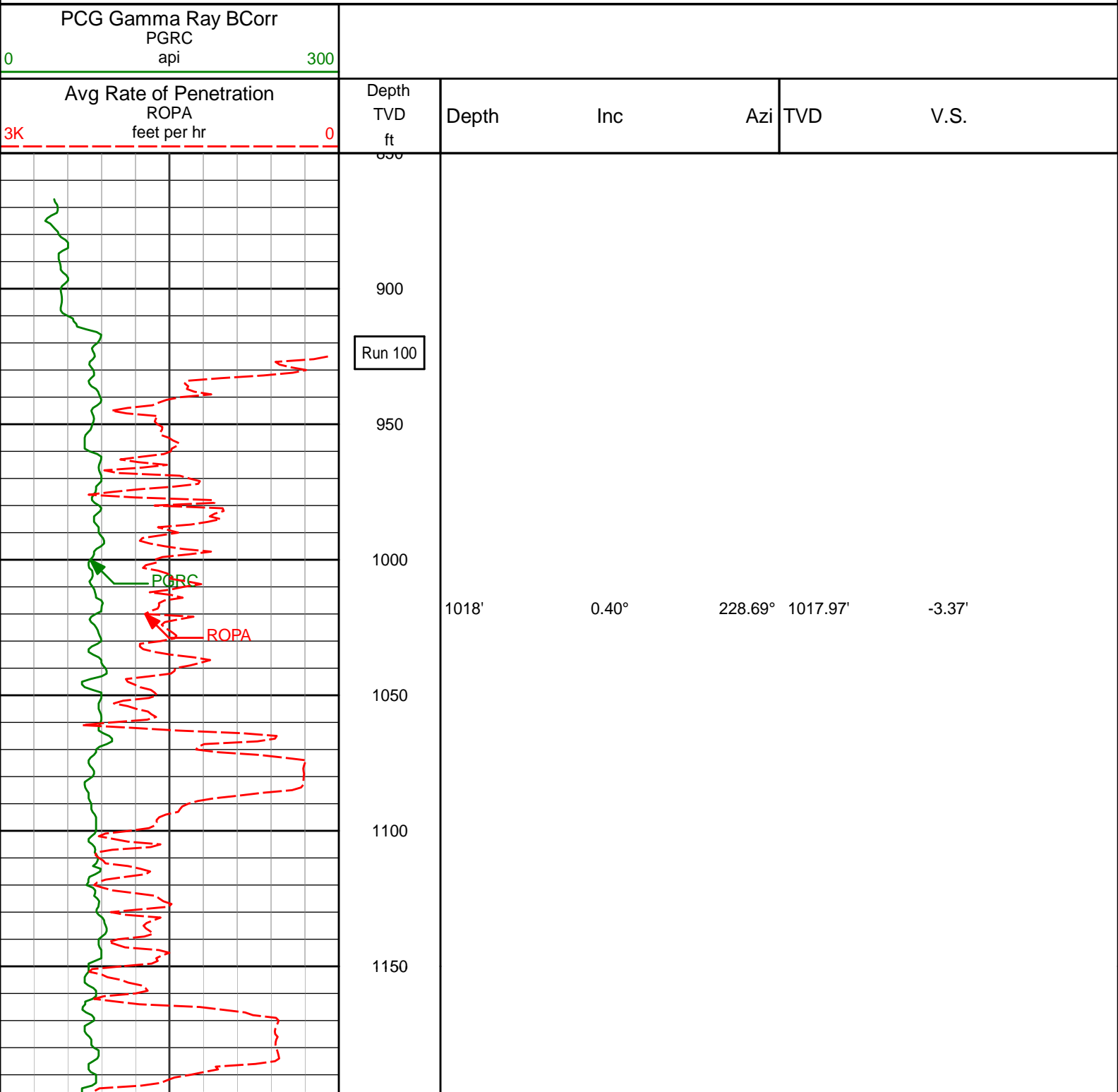
1. All depths are calibrated to driller's pipe tally and are total vertical depth from the drill floor.
2. No depth corrections have been made for pipe stretch or compression.
3. All data presented is recorded (memory data) unless otherwise stated.
4. Environmental parameters used in gamma and resistance processing:
Hole Size: 8.75"
Mud Density: 9.9-11.0
5. The following smoothing parameters have been applied to the data:
Interval: 0.5 ft
Coercion Distance: 1.2 ft (ROPA)
Interval: 0.5 ft
Coercion Distance: 0.6 ft (Gamma Ray)

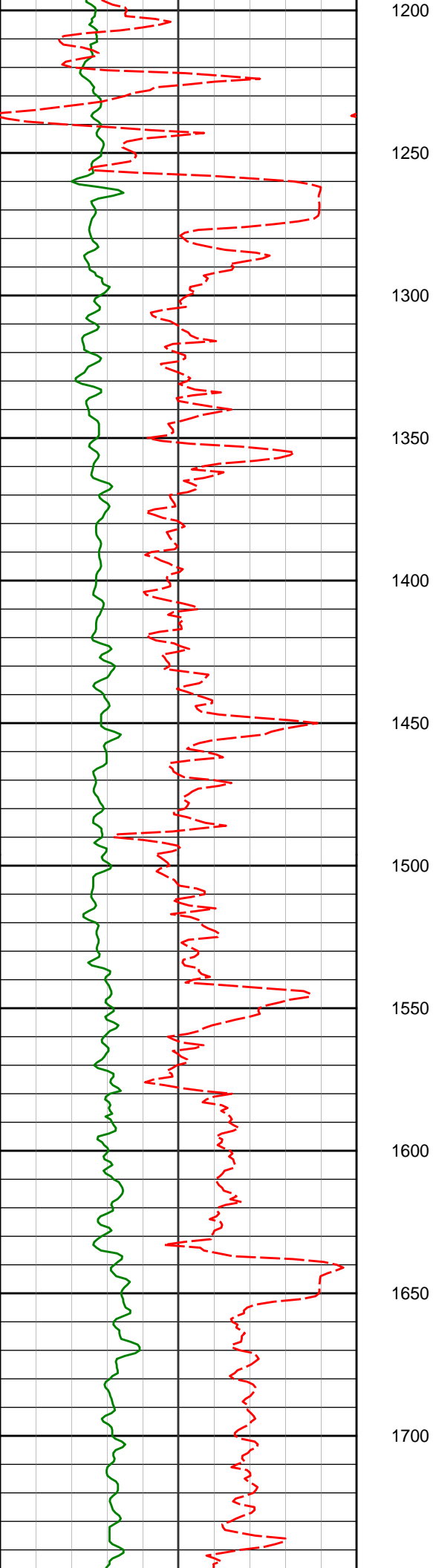
WARRANTY

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TVD Detail 1:600 Scale





1206'

0.61°

279.33° 1205.96'

-4.79'

1298'

0.61°

311.18° 1297.95'

-5.69'

1577'

 0.62°

308.66° 1576.94'

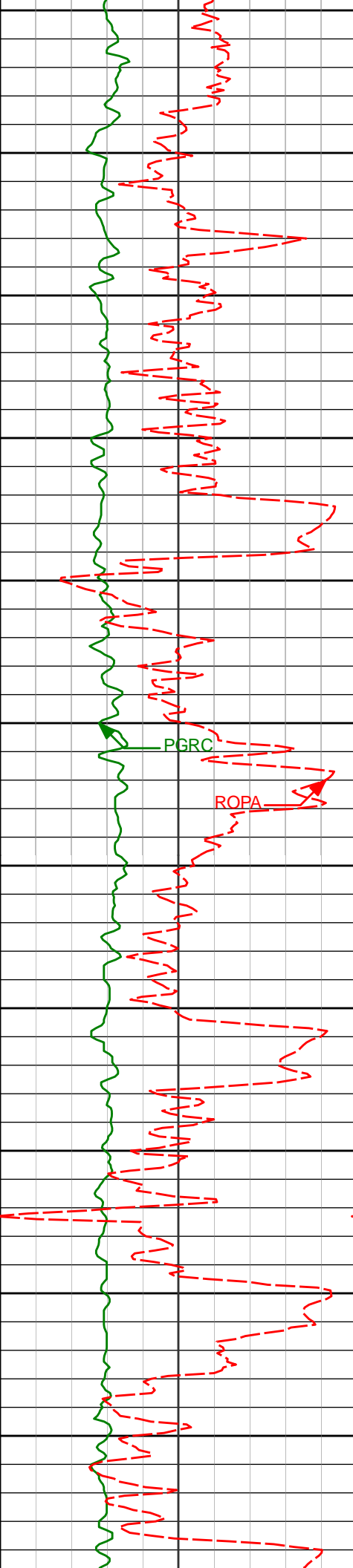
-8.27'

1669'

0.62°

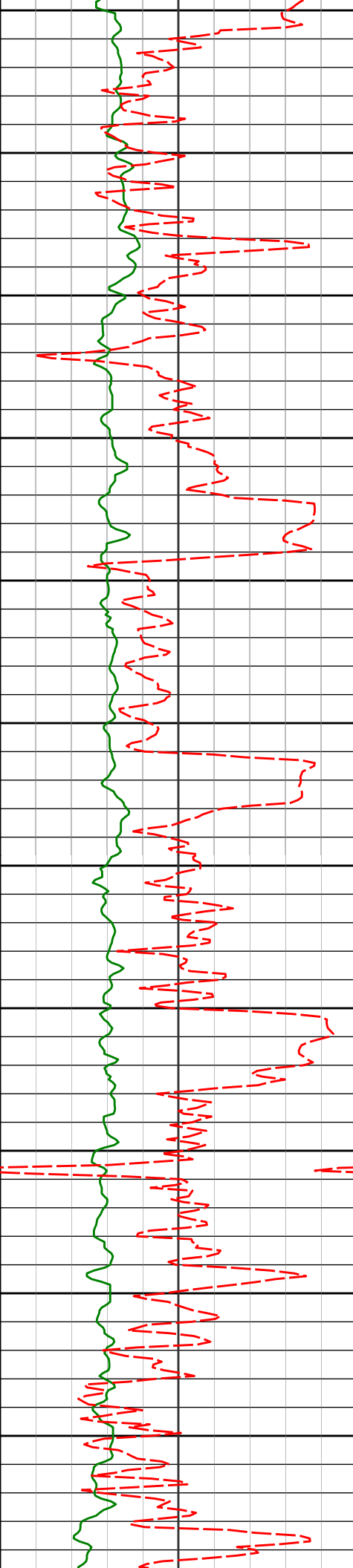
331.24° 1668.93'

-9.01'



1750
1800
1850
1900
1950
2000
2050
2100
2150
2200
2250

1763'	0.56°	329.69°	1762.93'	-9.62'
1855'	0.54°	352.94°	1854.92'	-10.03'
1948'	1.71°	202.23°	1947.91'	-10.46'
2040'	3.32°	212.86°	2039.82'	-11.83'
2133'	6.28°	197.86°	2132.49'	-13.65'
2225'	7.88°	188.41°	2223.79'	-14.27'



2300

2318'

10.35°

185.51° 2315.61'

-13.59'

2350

2400

2410'

9.74°

184.16° 2406.19'

-12.31'

2450

2500

2502'

11.18°

179.34° 2496.67'

-10.03'

2550

2600

2594'

11.71°

187.83° 2586.84'

-8.21'

2650

2700

2687'

12.77°

192.77° 2677.73'

-8.54'

2750

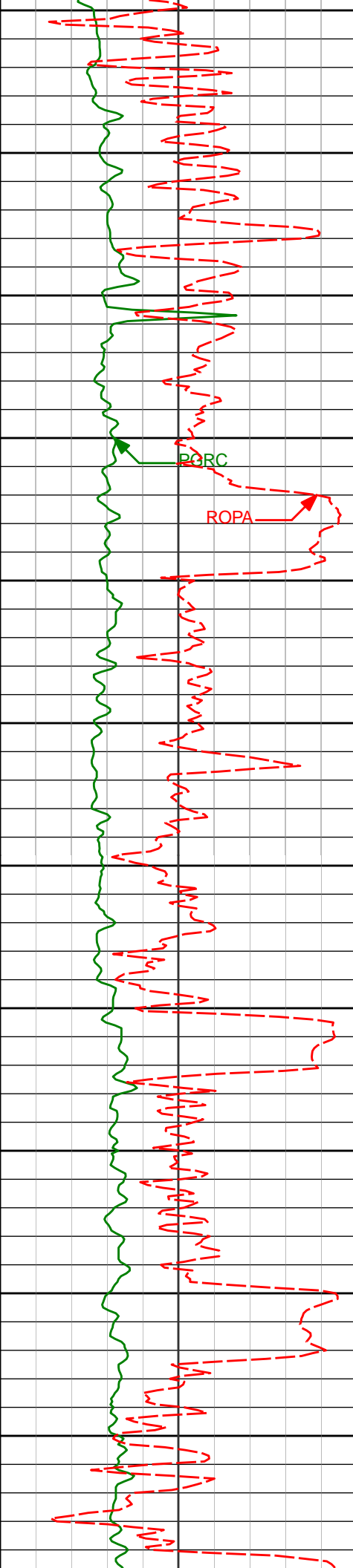
2800

2781'

11.95°

192.82° 2769.55'

-9.72'



2850

2874'

12.03°

193.12°

2860.52'

-10.91'

2900

2950

2969'

11.03°

194.00°

2953.60'

-12.28'

3000

PORC

ROPA

3050

3064'

11.01°

200.25°

3046.85'

-14.70'

3100

3150

3159'

10.61°

192.12°

3140.17'

-16.82'

3200

3250

3254'

9.17°

194.70°

3233.76'

-17.92'

3300

3350

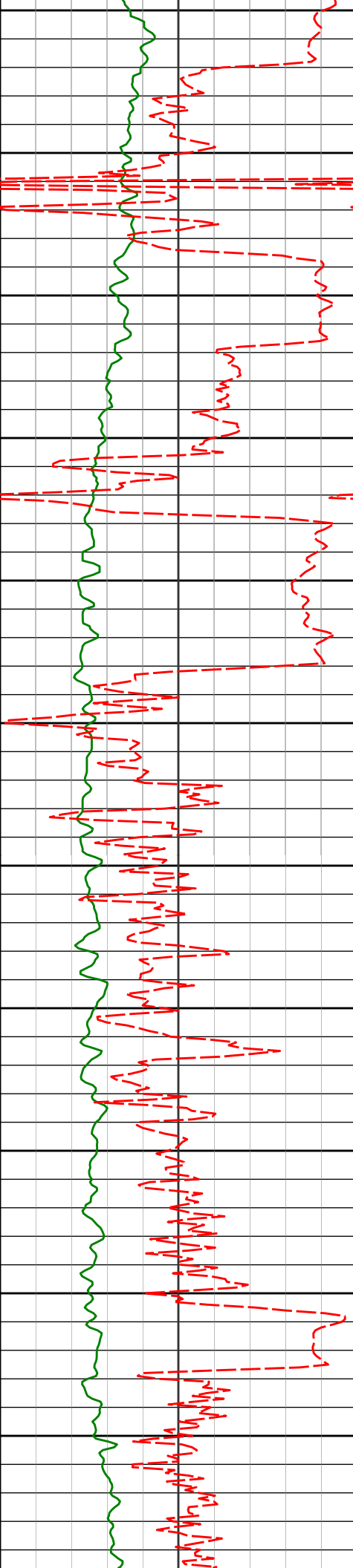
3349'

8.83°

206.35°

3327.60'

-20.74'



3400

3444'

9.84°

200.63°

3421.34'

-24.44'

3450

3500

3539'

9.36°

205.43°

3515.01'

-28.14'

3550

3600

3634'

11.08°

213.09°

3608.51'

-33.94'

3650

3700

3729'

14.65°

210.70°

3701.11'

-41.96'

3750

3800

3824'

15.48°

209.17°

3792.84'

-50.60'

3850

3900

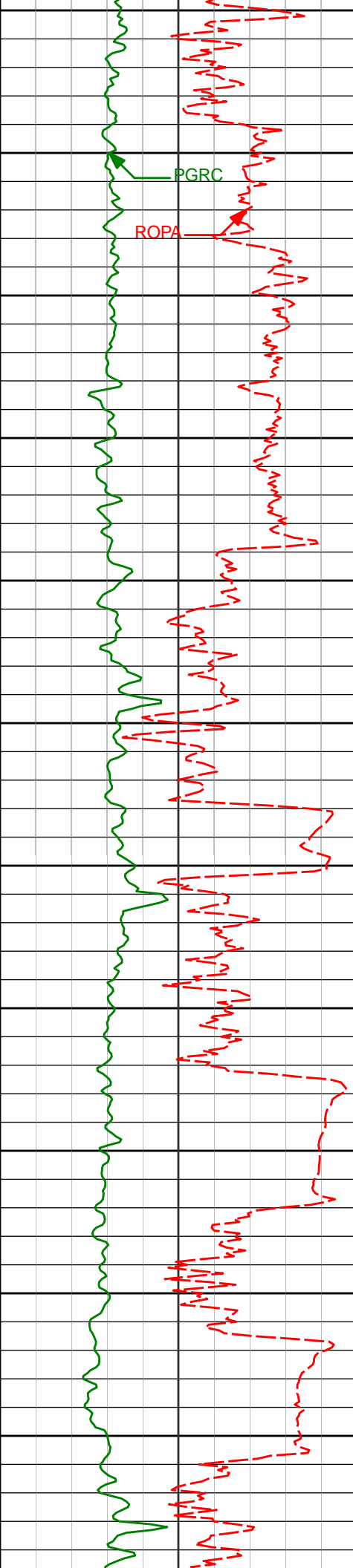
3919'

13.88°

204.95°

3884.74'

-57.93'



3950

4015'

12.73°

205.63° 3978.16'

-63.97'

4000

PGRC

ROPA

4050

4109'

11.69°

206.14° 4070.03'

-69.59'

4100

4150

4204'

9.93°

200.64° 4163.35'

-73.95'

4200

4250

4299'

7.28°

201.37° 4257.27'

-76.79'

4300

4350

4394'

9.70°

204.24° 4351.22'

-80.08'

4400

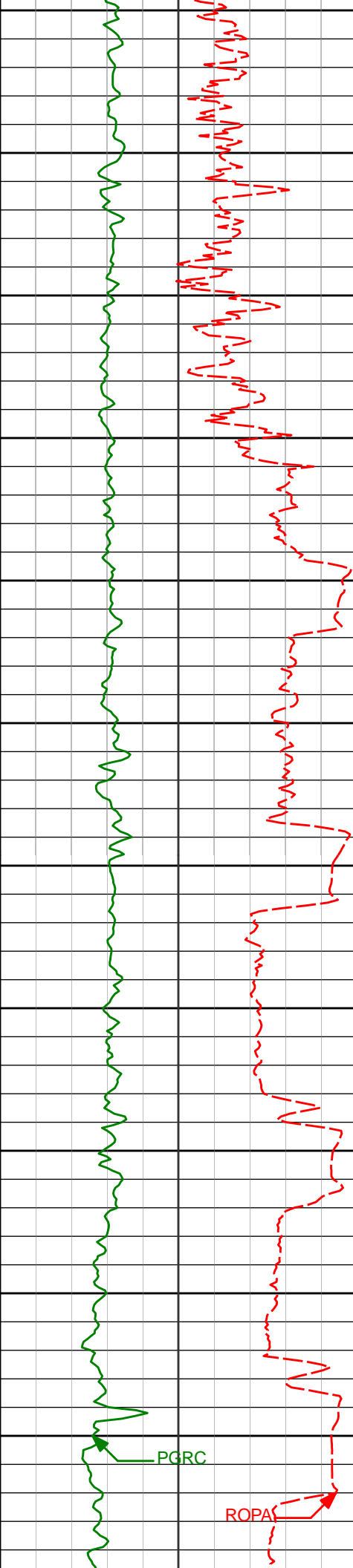
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4489'

14.14°

215.89° 4444.16'

-87.30'



4500

4584'

12.80°

213.07°

4536.55'

-96.70'

4550

4600

4678'

9.51°

208.92°

4628.76'

-103.46'

4650

4700

4774'

9.78°

195.71°

4723.42'

-107.00'

4750

4800

4868'

10.45°

200.12°

4815.96'

-109.46'

4850

4900

4964'

10.00°

196.24°

4910.43'

-112.06'

4950

5000

5058'

11.88°

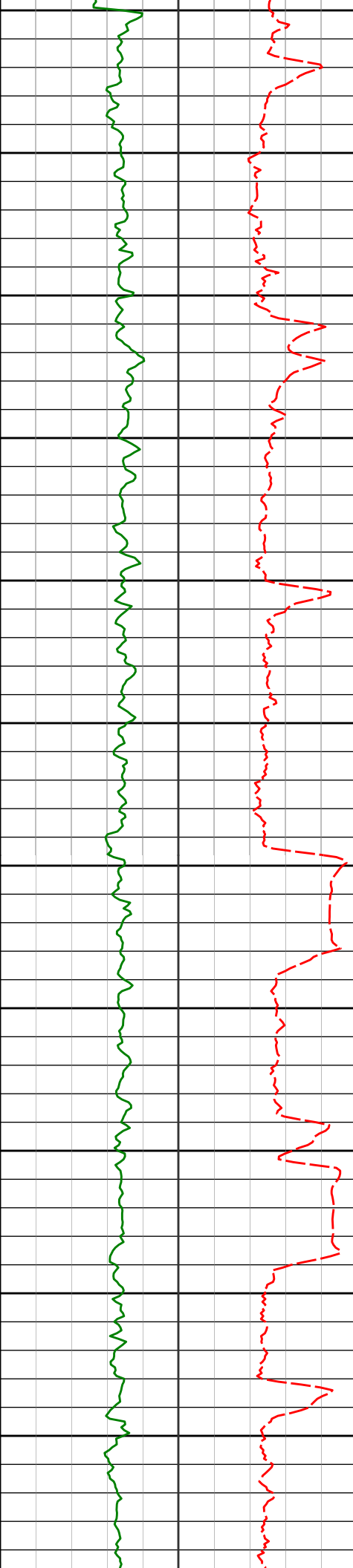
187.14°

5002.73'

-112.64'

PGRC

ROPA



5050

5100

5150

5200

5250

5300

5350

5400

5450

5500

5550

5153'

13.43°

187.37° 5095.42'

-111.85'

5248'

12.18°

187.22° 5188.05'

-111.07'

5344'

9.88°

183.58° 5282.27'

-109.84'

5439'

11.43°

182.79° 5375.63'

-107.92'

5534'

12.03°

181.86° 5468.65'

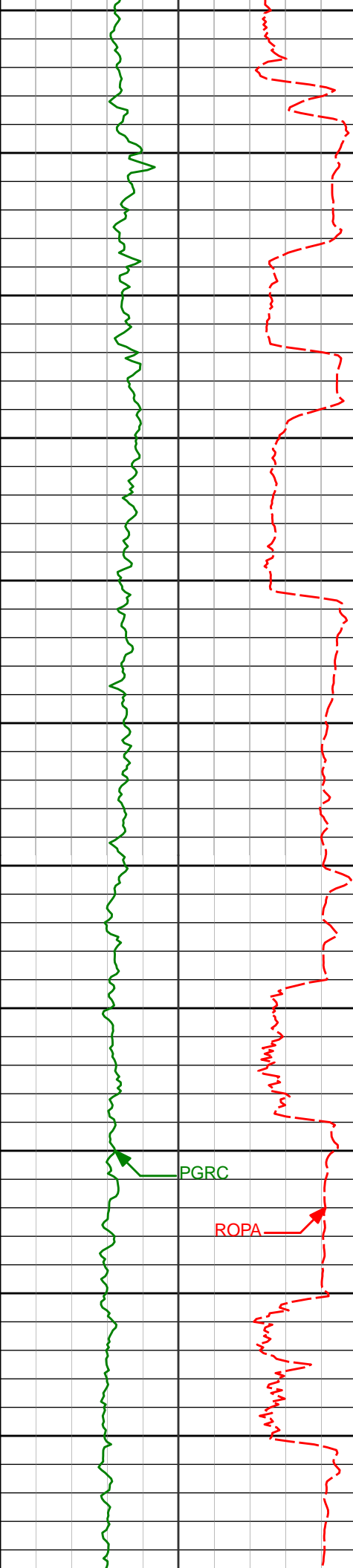
-105.53'

5629'

10.38°

182.71° 5561.83'

-103.22'



5600

5650

5700

5750

5800

5850

5900

5950

6000

6050

6100

5724'

9.54°

187.98° 5655.40'

-102.02'

5819'

10.54°

195.00° 5748.95'

-102.67'

5914'

16.12°

187.23° 5841.36'

-103.00'

6009'

27.24°

184.55° 5929.50'

-100.64'

6104'

25.66°

168.73° 6014.66'

-91.51'

6199'

24.97°

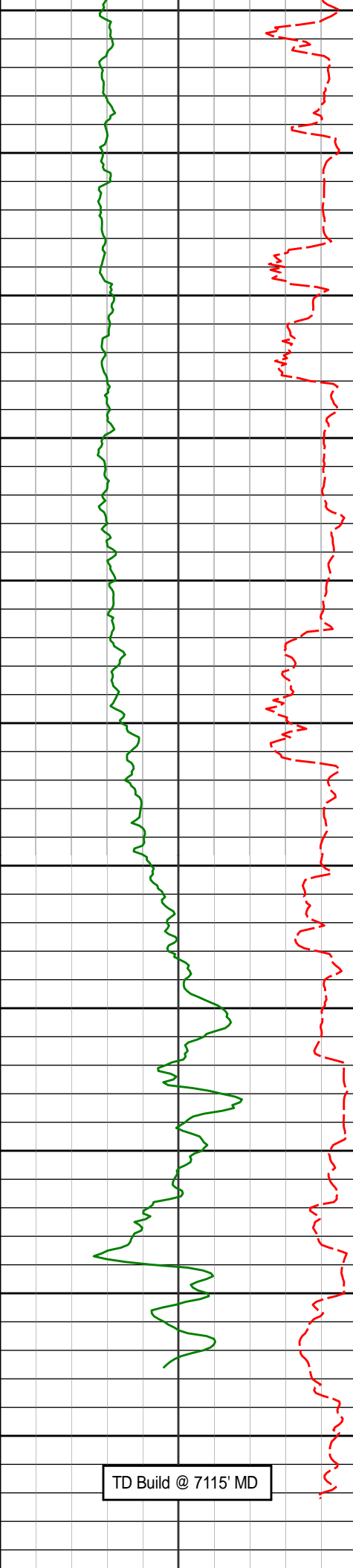
149.88° 6100.68'

-71.44'

PGRC

ROPA





6150

6294'

26.27°

137.64° 6186.40'

-42.13'

6200

6250

6389'

27.07°

125.03° 6271.36'

-6.08'

6300

6350

6484'

38.44°

109.59° 6351.26'

42.72'

6400

6579'

42.78°

103.63° 6423.39'

104.02'

6450

6500

6674'

50.85°

100.62° 6488.36'

173.14'

6550

6769'

59.15°

97.75° 6542.81'

250.88'

6600

6864'

67.96°

94.58° 6585.08'

335.70'

6959'

74.56°

93.70° 6615.59'

425.23'

7050'

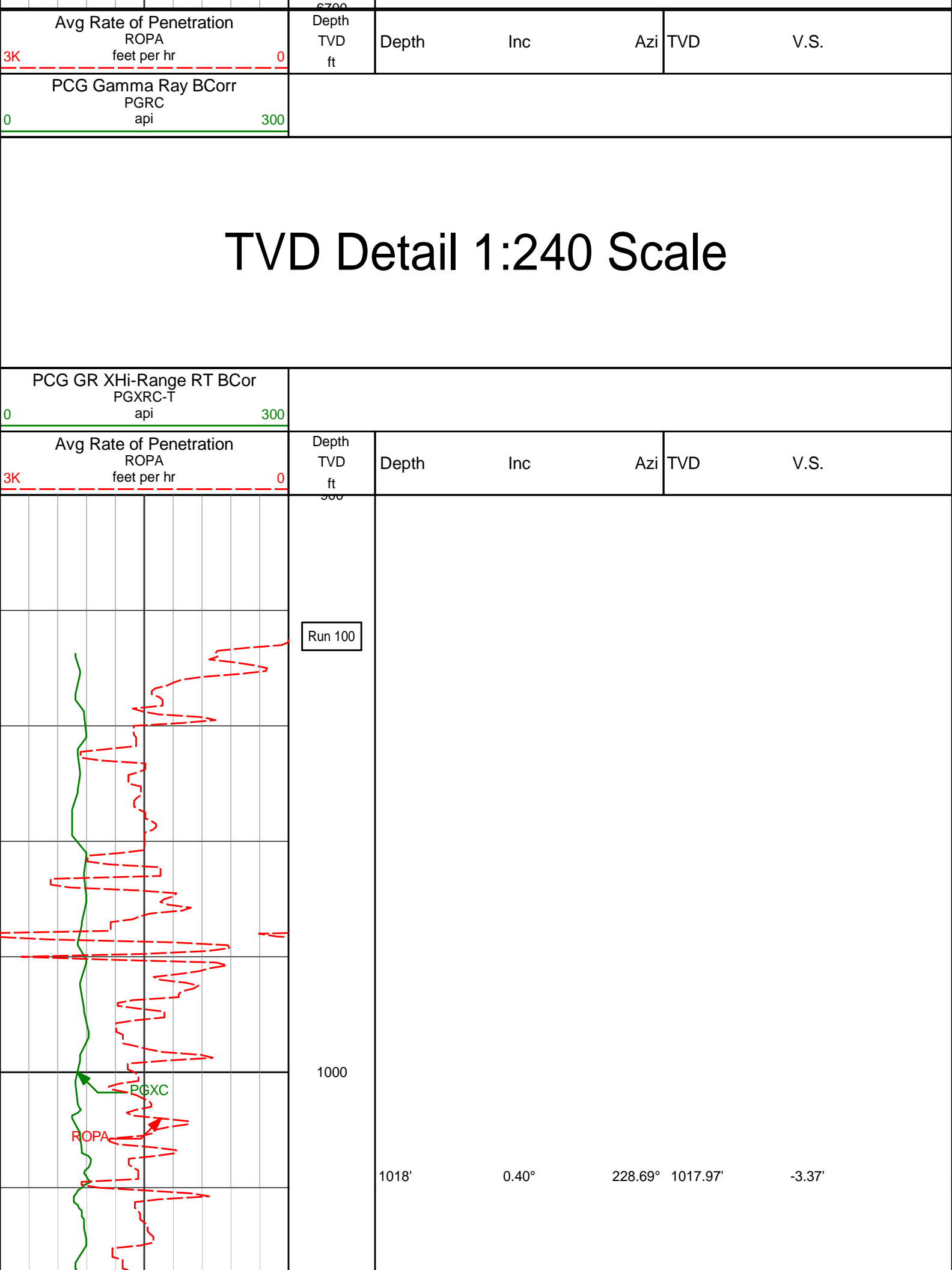
78.04°

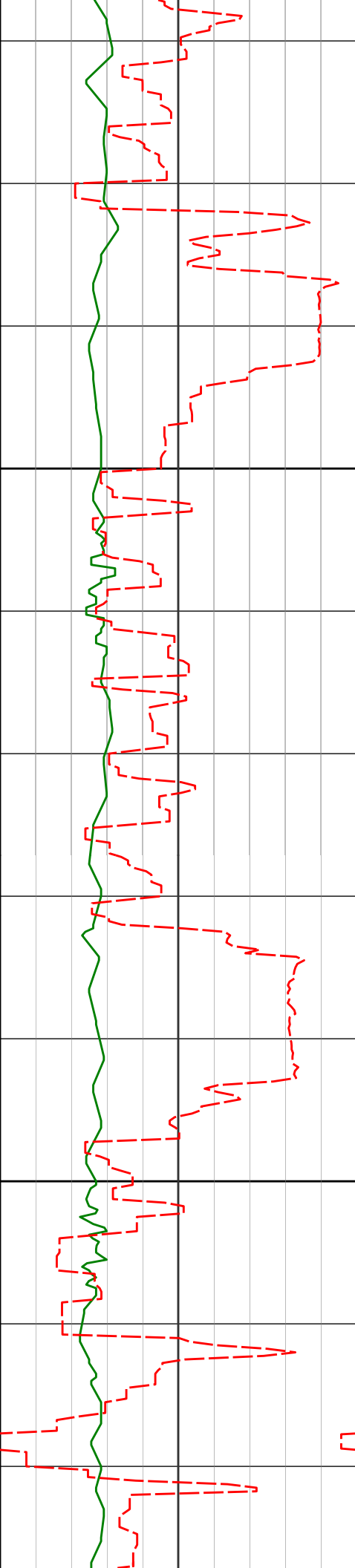
93.37° 6637.14'

513.15'

6650

TD Build @ 7115' MD





1100

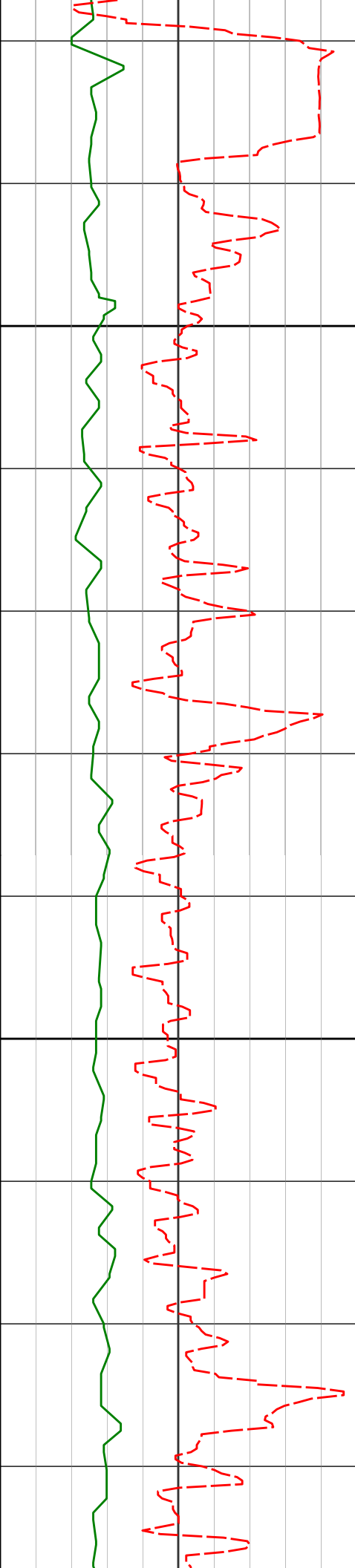
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1206'

0.61°

279.33° 1205.96'

-4.79'



1300

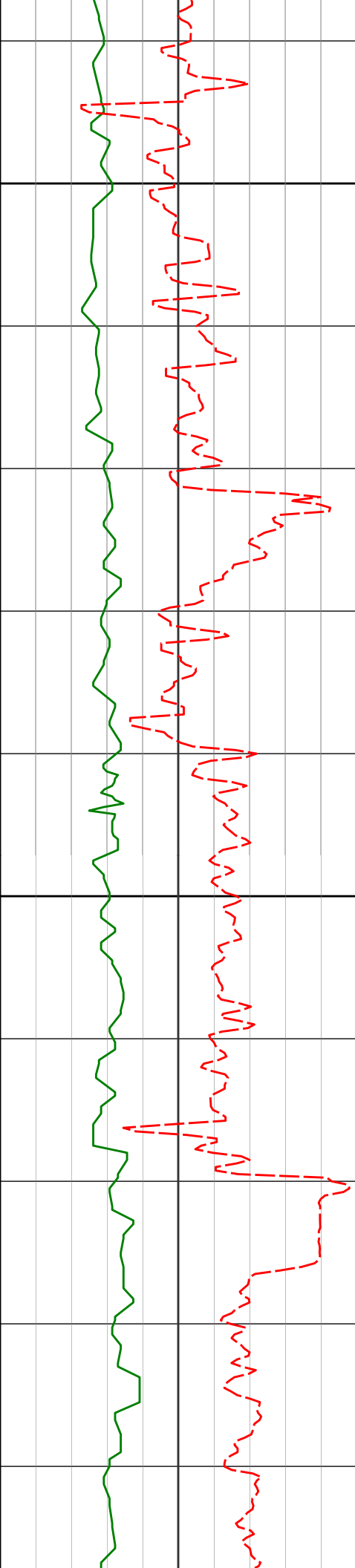
1400

1298'

0.61°

311.18° 1297.95'

-5.69'



1500

1600

1577'

0.62°

308.66° 1576.94'

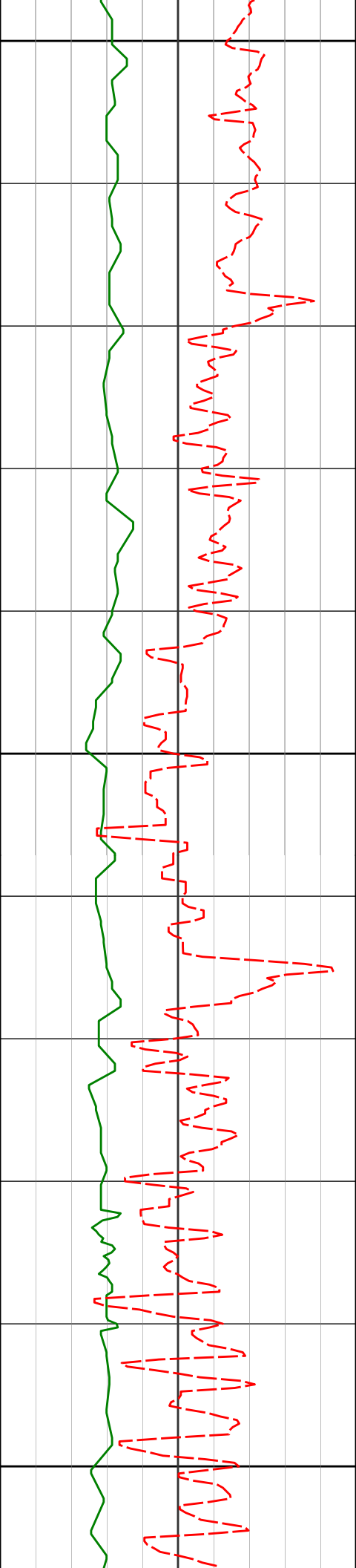
-8.27'

1669'

0.62°

331.24° 1668.93'

-9.01'



1700

1763'

0.56°

329.69° 1762.93'

-9.62'

1800

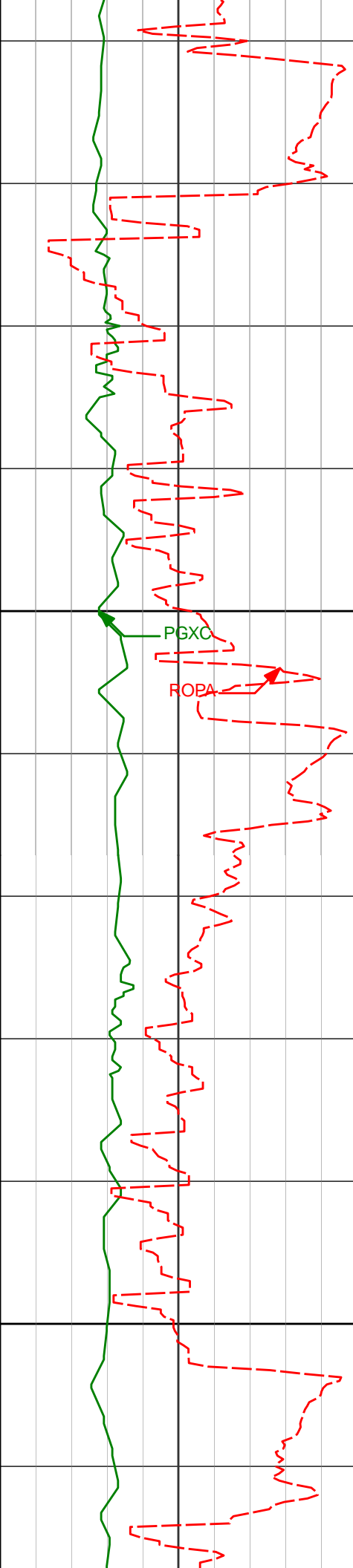
1855'

0.54°

352.94° 1854.92'

-10.03'

1900



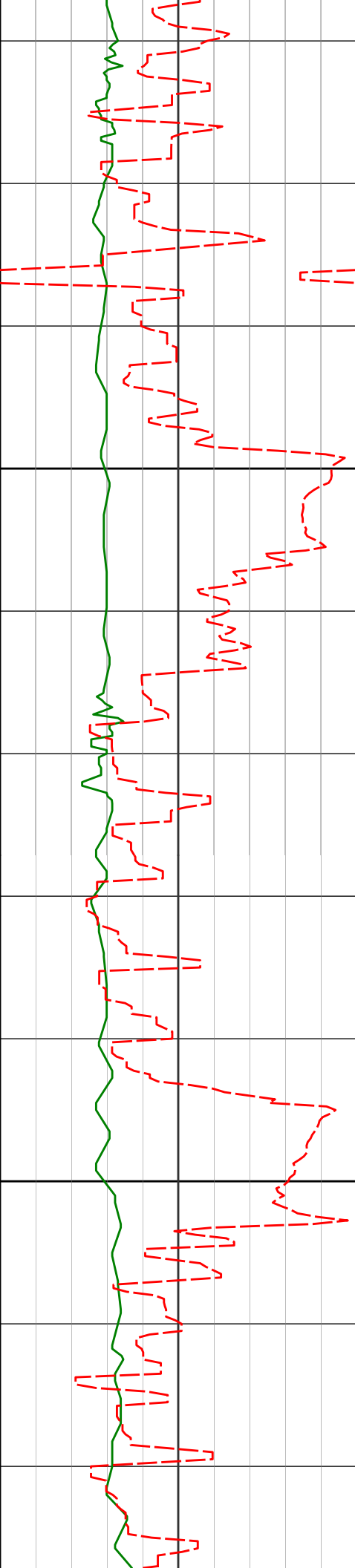
2000

2100

1948' 1.71° 202.23° 1947.91' -10.46'

2040' 3.32° 212.86° 2039.82' -11.83'

2133' 6.28° 197.86° 2132.49' -13.65'



2200

2225'

7.88°

188.41° 2223.79'

-14.27'

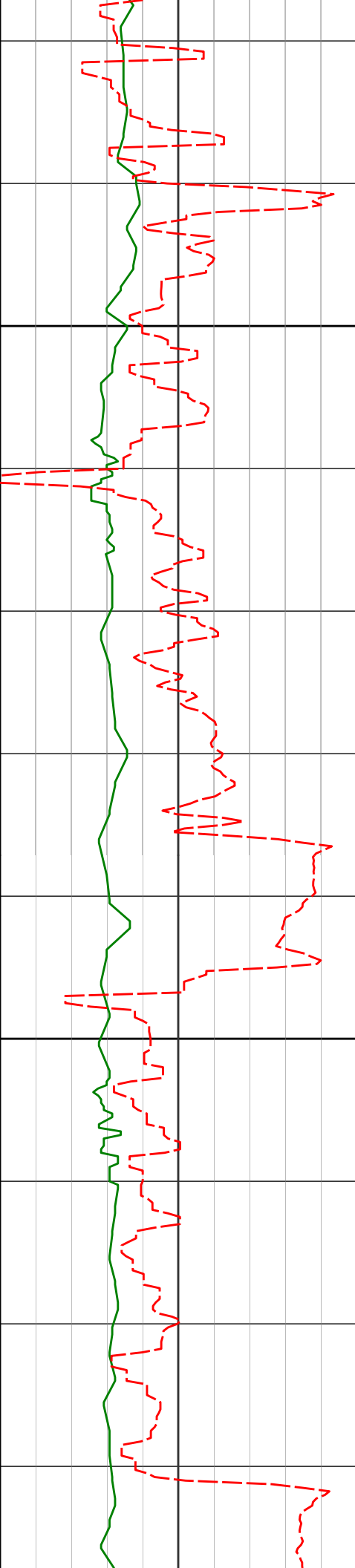
2300

2318'

10.35°

185.51° 2315.61'

-13.59'



2400

2410'

9.74°

184.16° 2406.19'

-12.31'

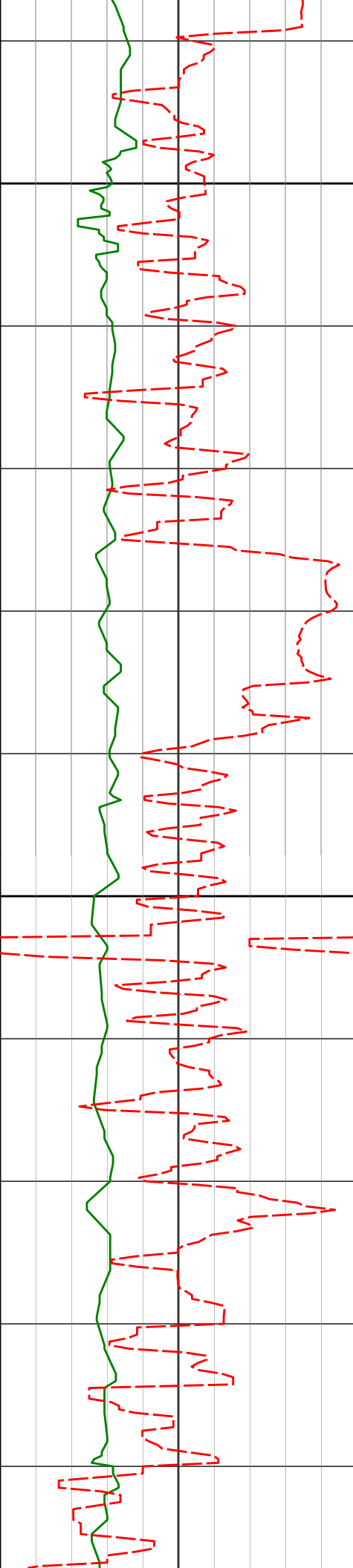
2500

2502'

11.18°

179.34° 2496.67'

-10.03'



2600

2700

2594'

11.71°

187.83° 2586.84'

-8.21'

2687'

12.77°

192.77° 2677.73'

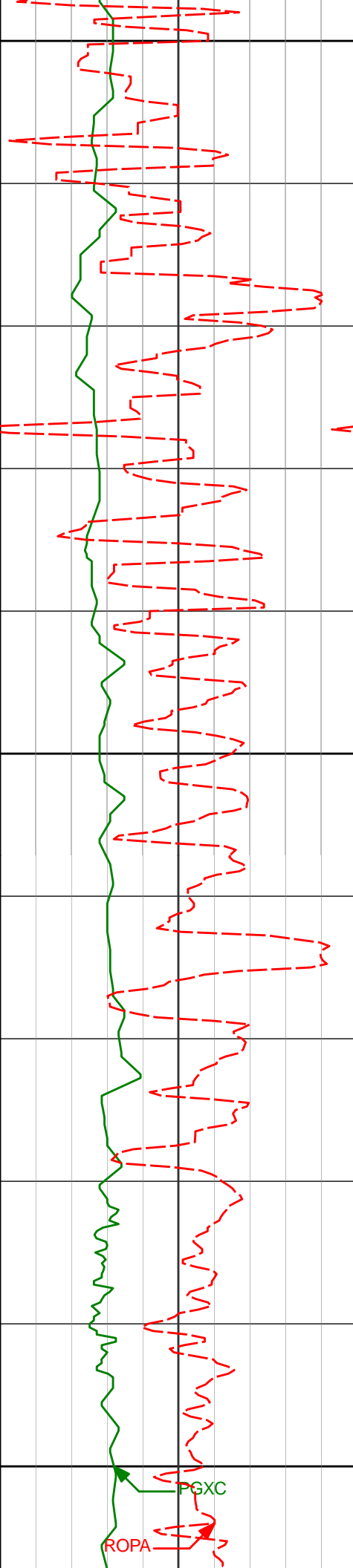
-8.54'

2781'

11.95°

192.82° 2769.55'

-9.72'



2800

2874'

12.03°

193.12° 2860.52'

-10.91'

2900

2969'

11.03°

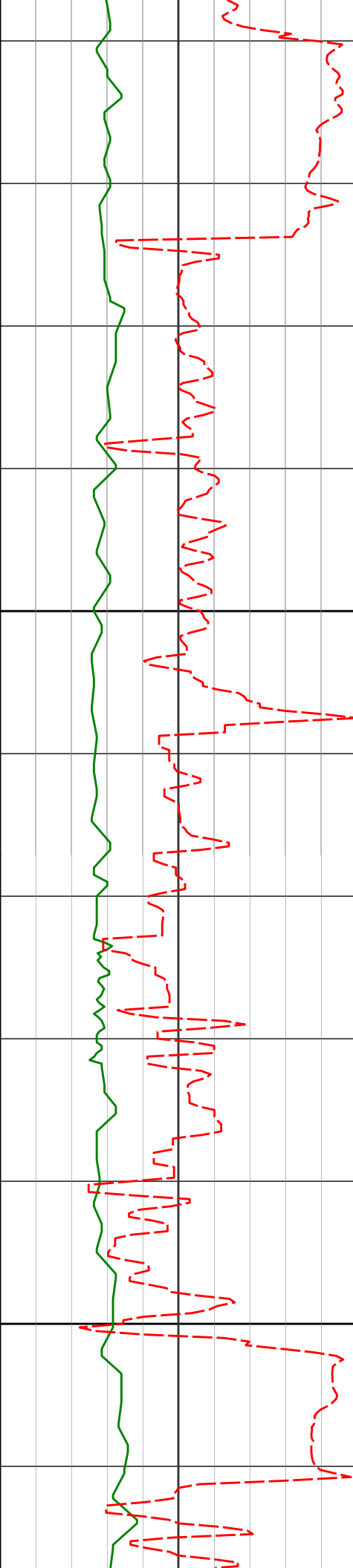
194.00° 2953.60'

-12.28'

3000

PGXC

ROPA



3064'

11.01°

200.25° 3046.85'

-14.70'

3100

3159'

10.61°

192.12° 3140.17'

-16.82'

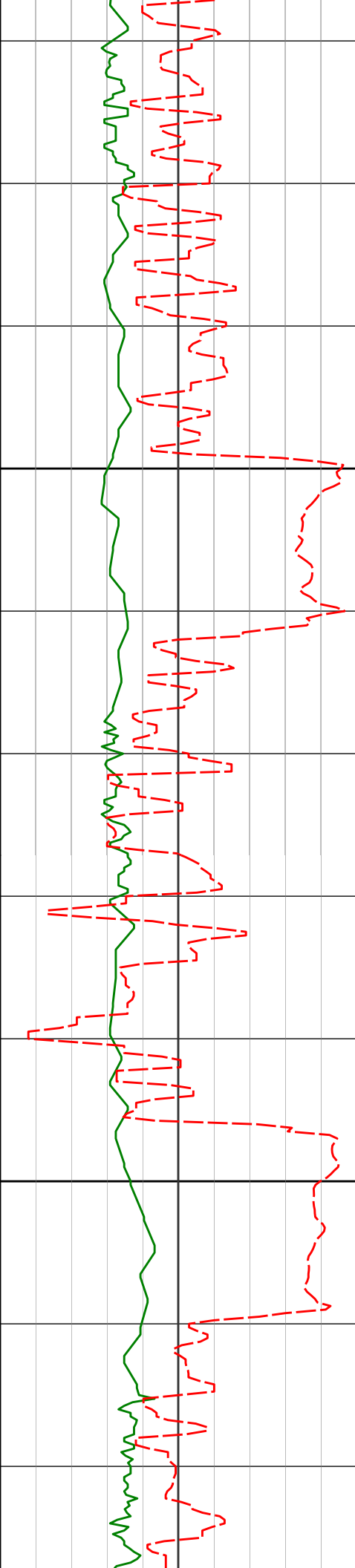
3200

3254'

9.17°

194.70° 3233.76'

-17.92'



3300

3349'

8.83°

206.35° 3327.60'

-20.74'

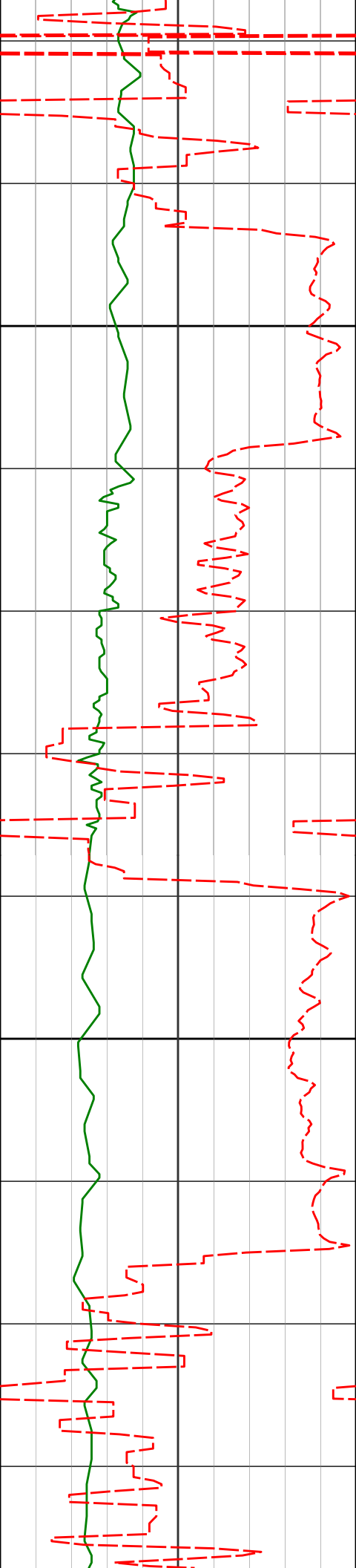
3400

3444'

9.84°

200.63° 3421.34'

-24.44'



3500

3539'

9.36°

205.43° 3515.01'

-28.14'

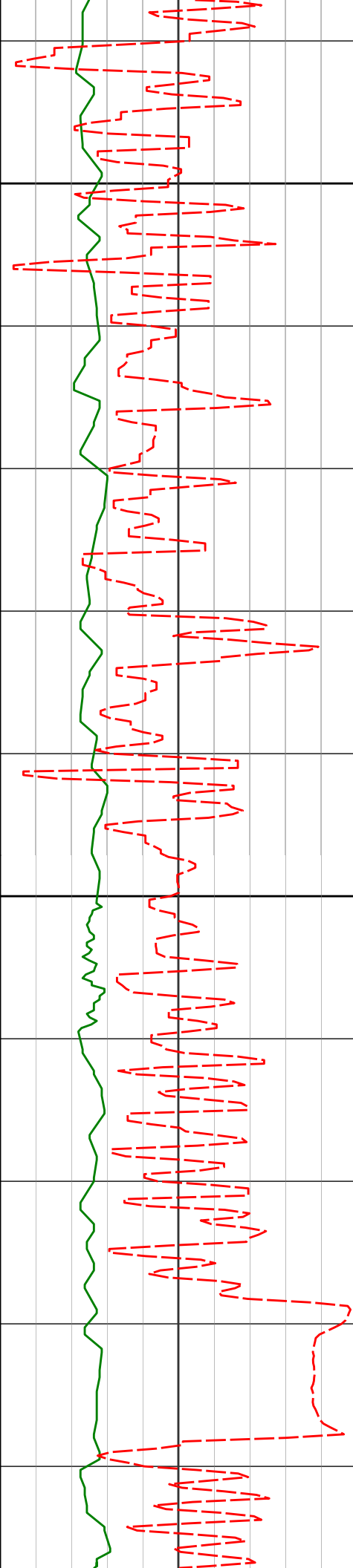
3600

3634'

11.08°

213.09° 3608.51'

-33.94'



3700

3729'

14.65°

210.70° 3701.11'

-41.96'

3800

3824'

15.48°

209.17° 3792.84'

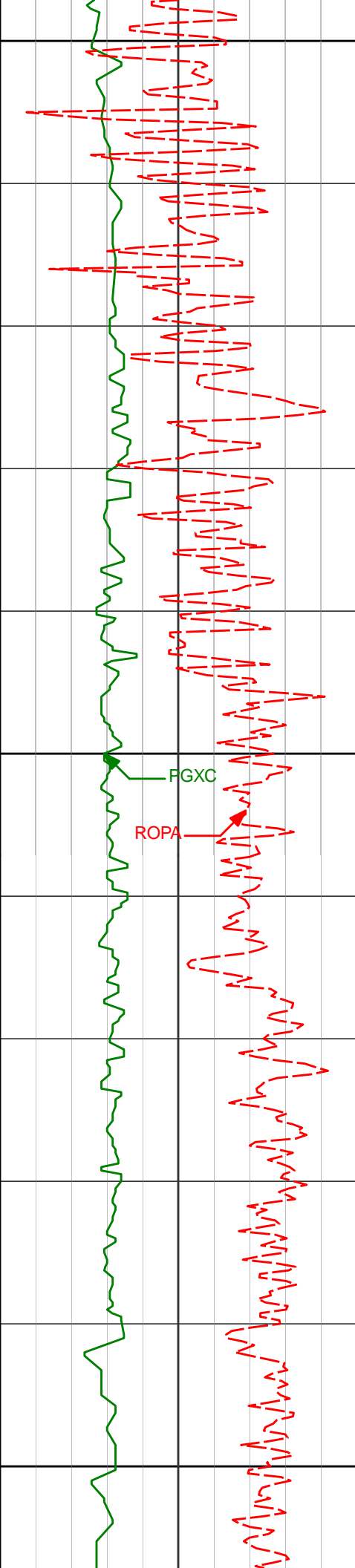
-50.60'

3919'

13.88°

204.95° 3884.74'

-57.93'



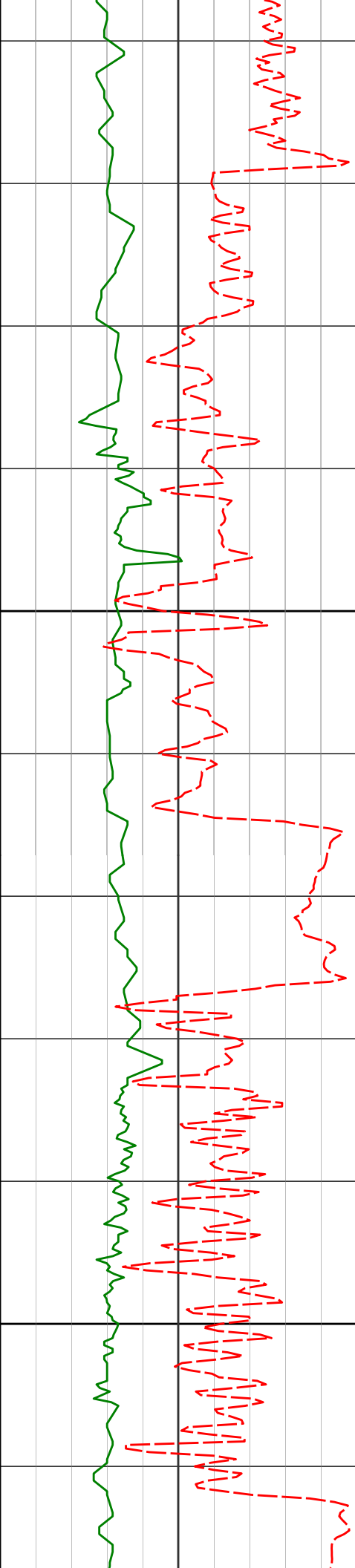
3900

4000

4100

4015'	12.73°	205.63°	3978.16'	-63.97'
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4109'	11.69°	206.14°	4070.03'	-69.59'
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4204'

9.93°

200.64° 4163.35'

-73.95'

4200

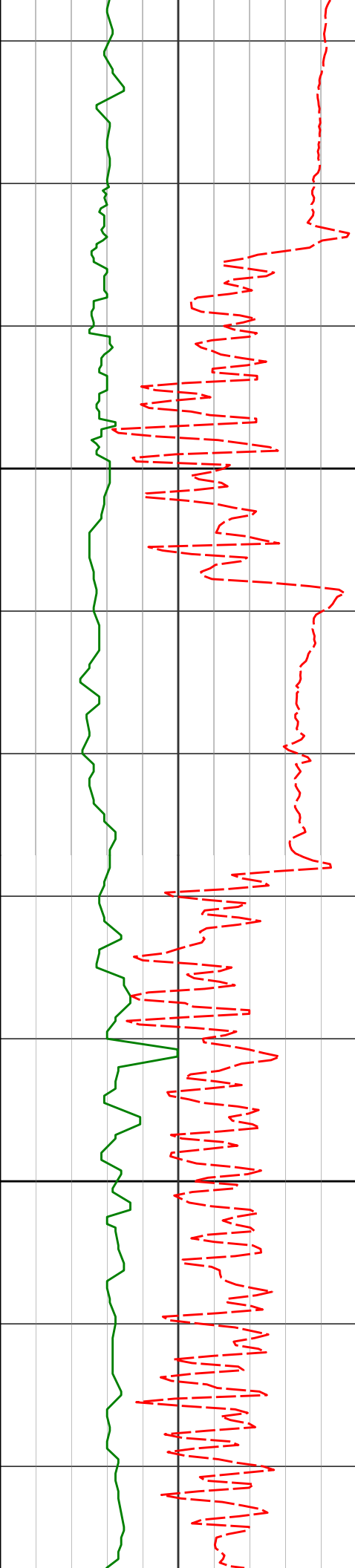
4299'

7.28°

201.37° 4257.27'

-76.79'

4300



4394'

9.70°

204.24° 4351.22'

-80.08'

4400

4489'

14.14°

215.89° 4444.16'

-87.30'

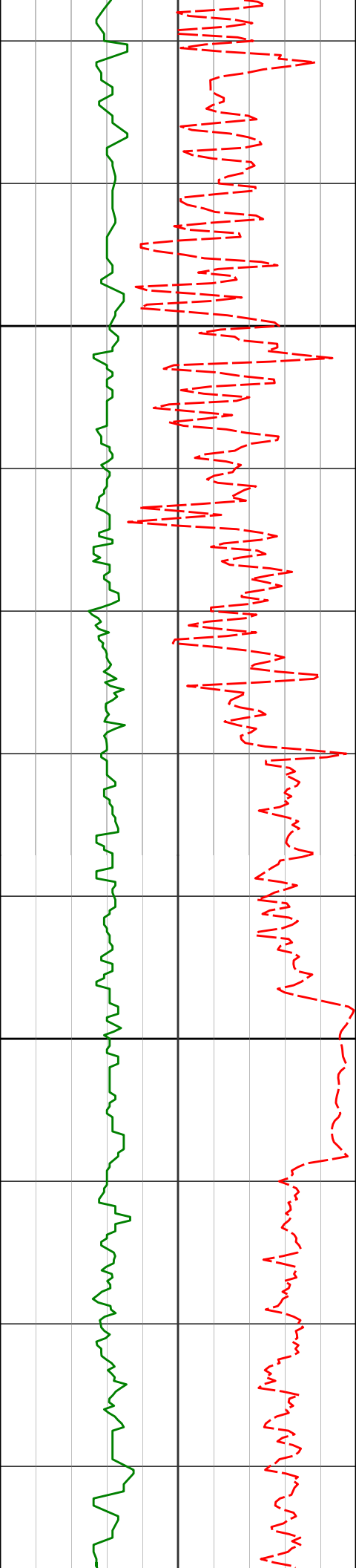
4500

4584'

12.80°

213.07° 4536.55'

-96.70'



4600

4678'

9.51°

208.92° 4628.76'

-103.46'

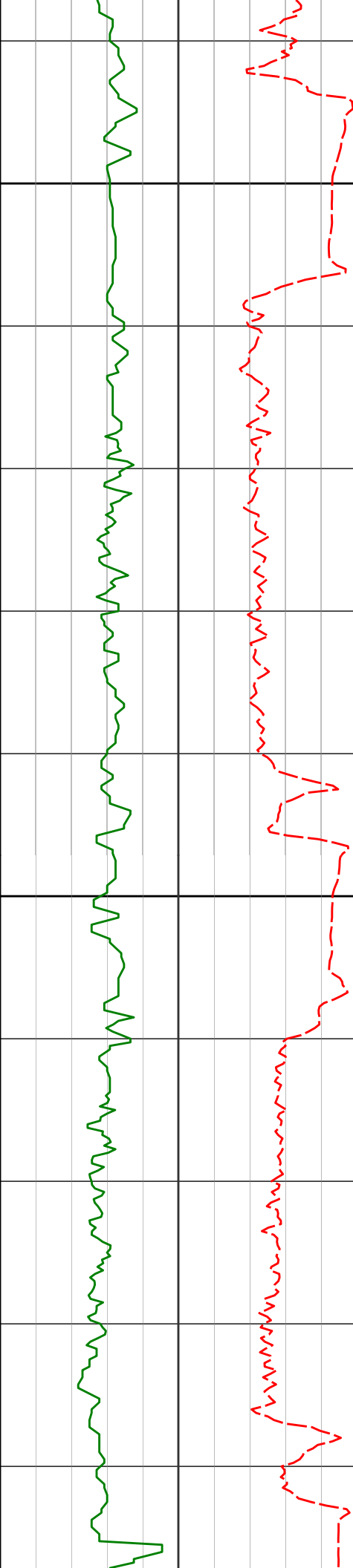
4700

4774'

9.78°

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-107.00'



4800

4868'

10.45°

200.12° 4815.96'

-109.46'

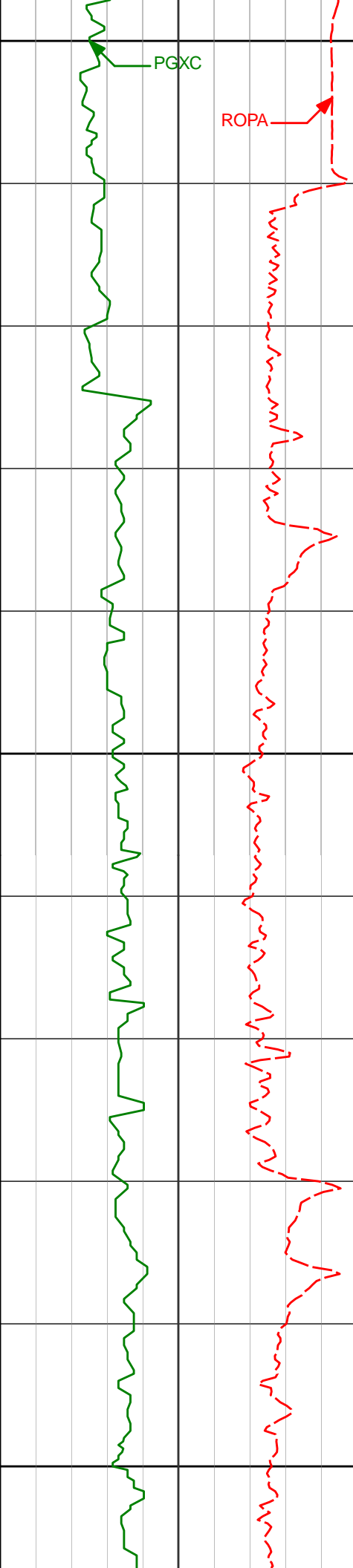
4900

4964'

10.00°

196.24° 4910.43'

-112.06'



5000

5058'

11.88°

187.14° 5002.73'

-112.64'

5100

5153'

13.43°

187.37° 5095.42'

-111.85'

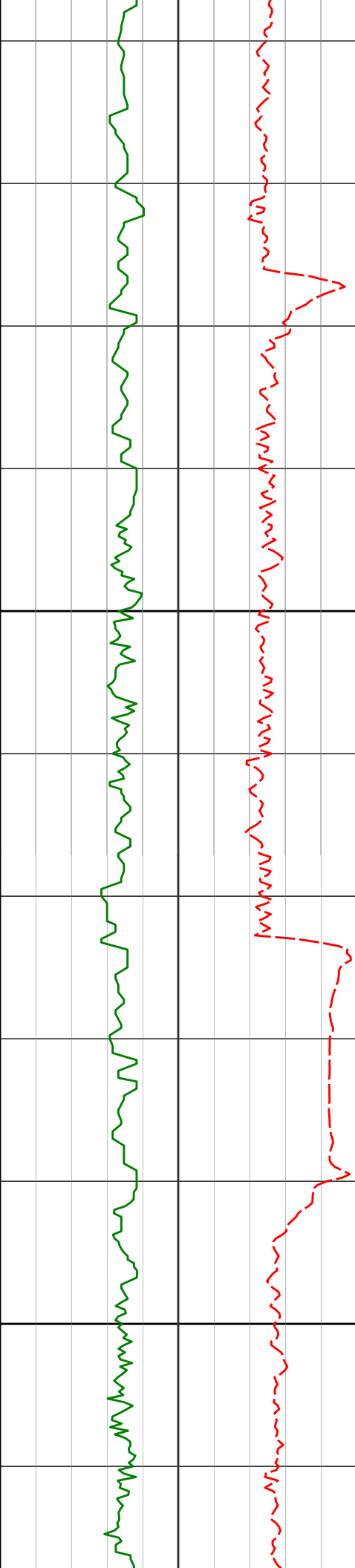
5200

5248'

12.18°

187.22° 5188.05'

-111.07'



5300

5400

5344'

9.88°

183.58° 5282.27'

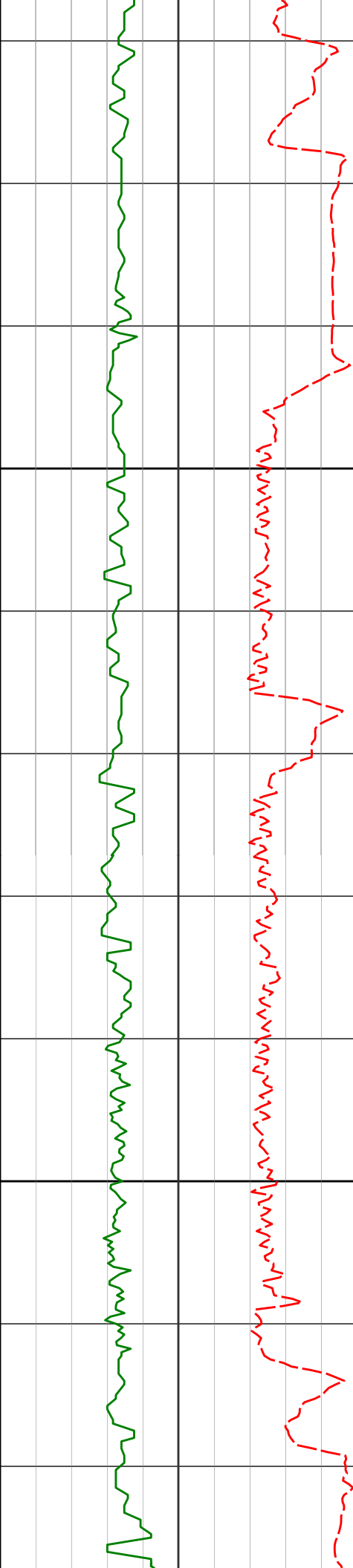
-109.84'

5439'

11.43°

182.79° 5375.63'

-107.92'



5500

5600

5534'

12.03°

181.86° 5468.65'

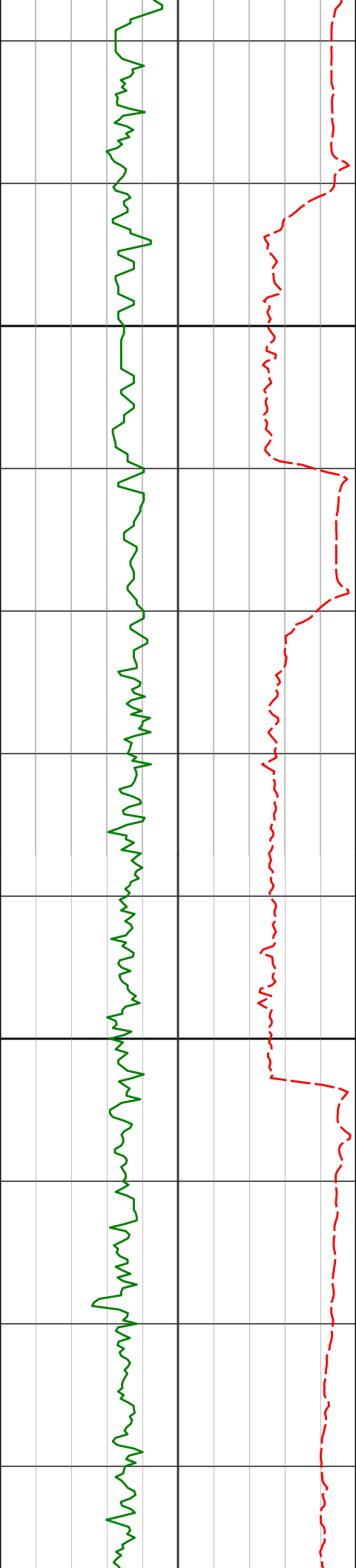
-105.53'

5629'

10.38°

182.71° 5561.83'

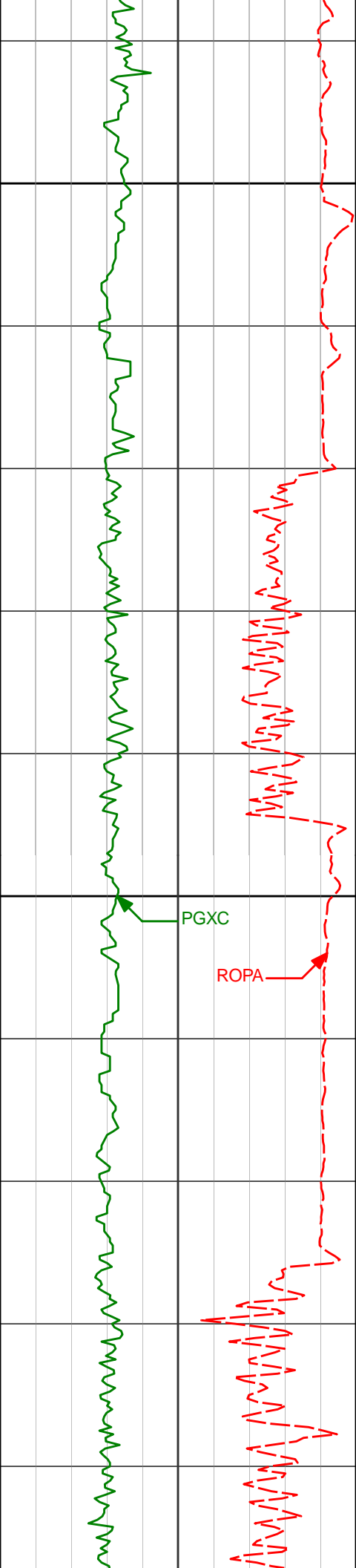
-103.22'



5700

5800

5724'	9.54°	187.98°	5655.40'	-102.02'
5819'	10.54°	195.00°	5748.95'	-102.67'
5914'	16.12°	187.23°	5841.36'	-103.00'



5900

6009'

27.24°

184.55° 5929.50'

-100.64'

6000

PGXC

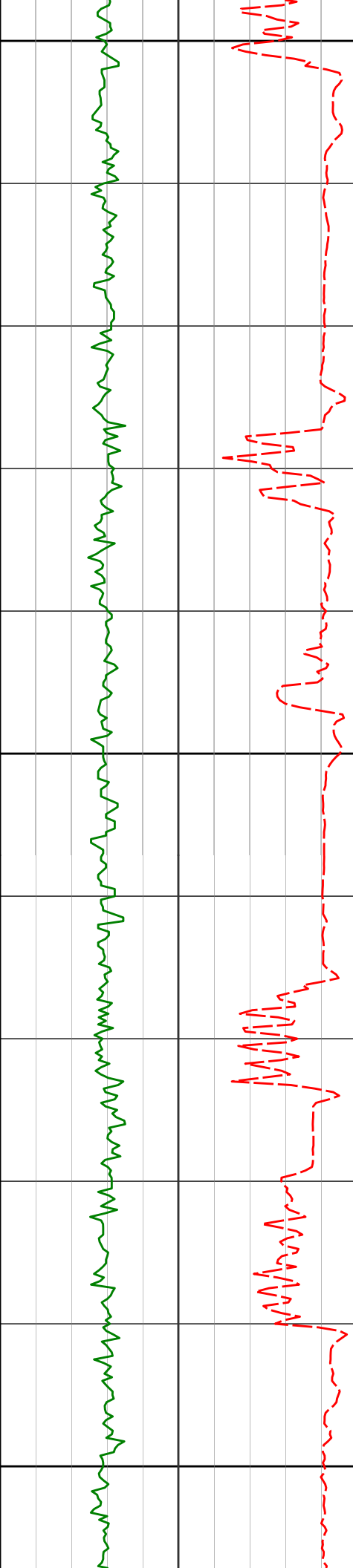
ROPA

6104'

25.66°

168.73° 6014.66'

-91.51'



6100

6199'

24.97°

149.88° 6100.68'

-71.44'

6200

6294'

26.27°

137.64° 6186.40'

-42.13'

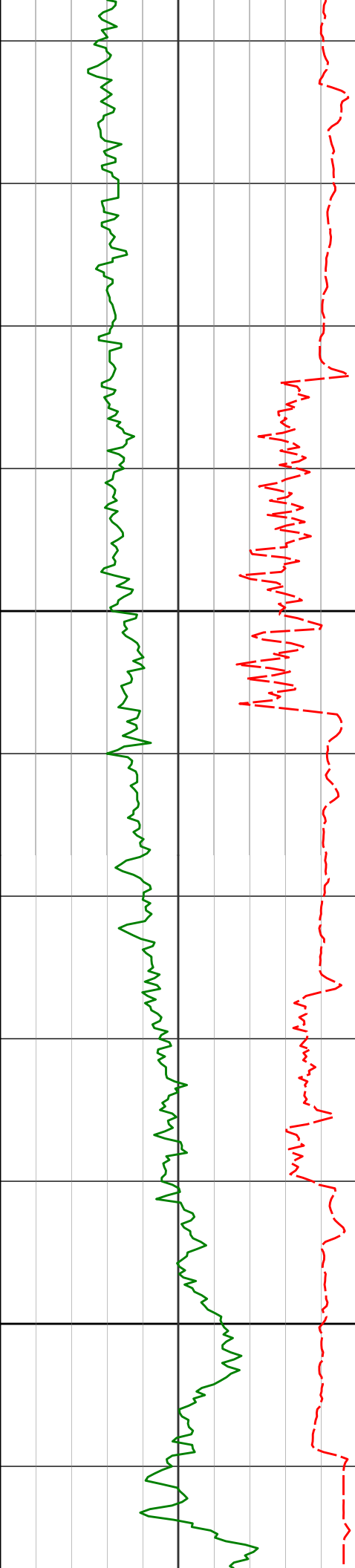
6300

6389'

27.07°

125.03° 6271.36'

-6.08'



6400

6500

6484'

38.44°

109.59° 6351.26'

42.72'

6579'

42.78°

103.63° 6423.39'

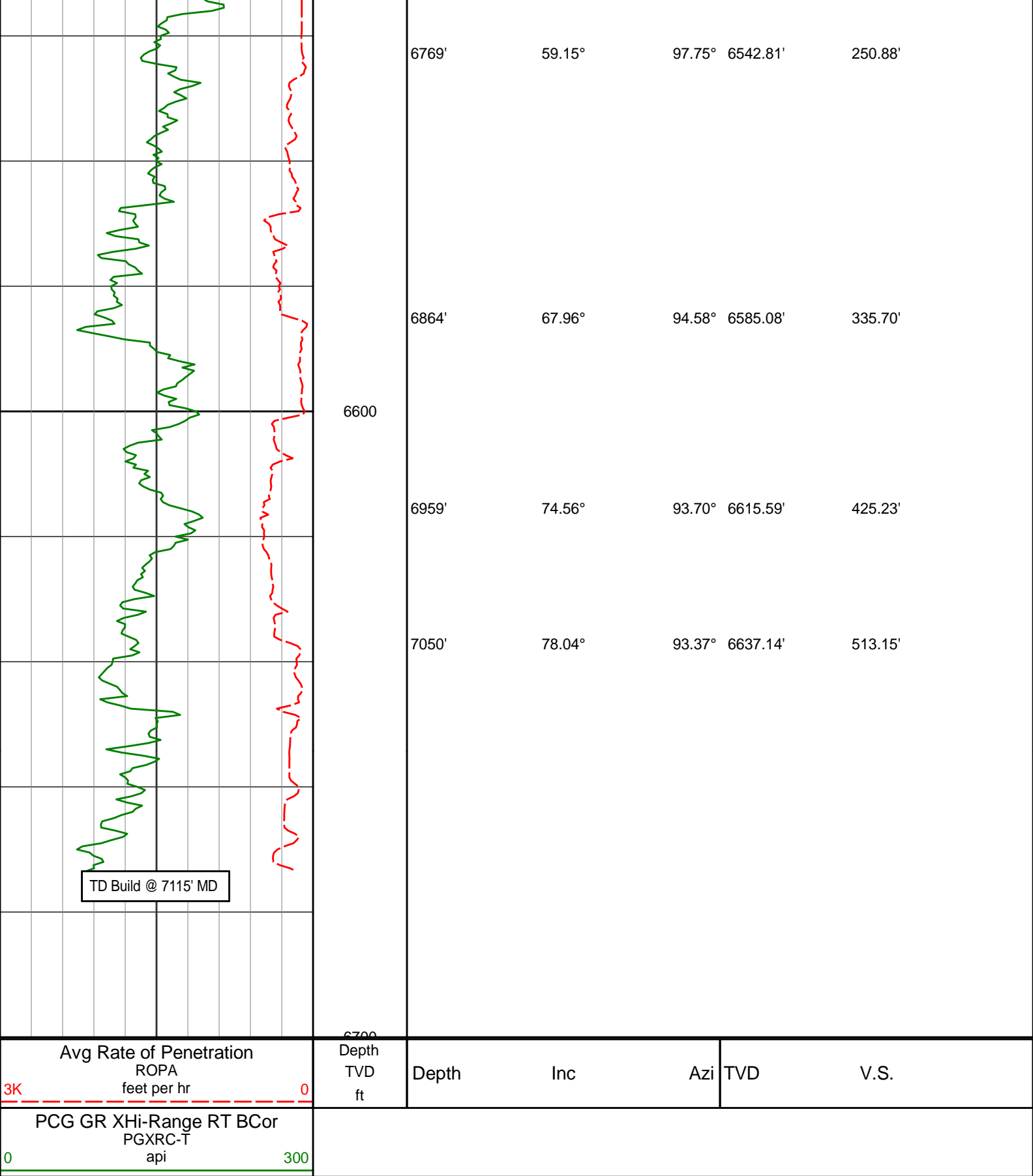
104.02'

6674'

50.85°

100.62° 6488.36'

173.14'



HALLIBURTON

0.00	0.00	0.00	0.00	0.00 N	0.00 E	0.00	TIE-IN
377.00	0.20	23.30	377.00	0.60 N	0.26 E	0.16	0.05
655.00	0.90	223.80	654.99	0.53 S	1.06 W	-0.96	0.39
1018.00	0.40	228.69	1017.97	3.42 S	3.98 W	-3.37	0.14
1206.00	0.61	279.33	1205.96	3.69 S	5.46 W	-4.79	0.25
1298.00	0.61	311.18	1297.95	3.29 S	6.32 W	-5.69	0.36
1577.00	0.62	308.66	1576.94	1.37 S	8.61 W	-8.27	0.01
1669.00	0.62	331.24	1668.93	0.62 S	9.24 W	-9.01	0.26
1763.00	0.56	329.69	1762.93	0.22 N	9.72 W	-9.62	0.07
1855.00	0.54	352.94	1854.92	1.04 N	10.00 W	-10.03	0.24
1948.00	1.71	202.23	1947.91	0.19 N	10.58 W	-10.46	2.36
2040.00	3.32	212.86	2039.82	3.32 S	12.54 W	-11.83	1.81
2133.00	6.28	197.86	2132.49	10.42 S	15.56 W	-13.65	3.43
2225.00	7.88	188.41	2223.79	21.45 S	18.03 W	-14.27	2.15
2318.00	10.35	185.51	2315.61	36.08 S	19.76 W	-13.59	2.70
2410.00	9.74	184.16	2406.19	52.07 S	21.12 W	-12.31	0.71
2502.00	11.18	179.34	2496.67	68.75 S	21.58 W	-10.03	1.83
2594.00	11.71	187.83	2586.84	86.92 S	22.75 W	-8.21	1.92
2687.00	12.77	192.77	2677.73	106.29 S	26.31 W	-8.54	1.60
2781.00	11.95	192.82	2769.55	125.91 S	30.77 W	-9.72	0.87
2874.00	12.03	193.12	2860.52	144.74 S	35.10 W	-10.91	0.11
2969.00	11.03	194.00	2953.60	163.20 S	39.55 W	-12.28	1.07
3064.00	11.01	200.25	3046.85	180.53 S	44.89 W	-14.70	1.26
3159.00	10.61	192.12	3140.17	197.59 S	49.86 W	-16.82	1.66
3254.00	9.17	194.70	3233.76	213.46 S	53.62 W	-17.92	1.59
3349.00	8.83	206.35	3327.60	227.32 S	58.78 W	-20.74	1.95
3444.00	9.84	200.63	3421.34	241.45 S	64.88 W	-24.44	1.44
3539.00	9.36	205.43	3515.01	256.03 S	71.05 W	-28.14	0.98
3634.00	11.08	213.09	3608.51	270.65 S	79.36 W	-33.94	2.30
3729.00	14.65	210.70	3701.11	288.64 S	90.48 W	-41.96	3.80
3824.00	15.48	209.17	3792.84	310.04 S	102.79 W	-50.60	0.97
3919.00	13.88	204.95	3884.74	331.44 S	113.78 W	-57.93	2.02
4015.00	12.73	205.63	3978.16	351.42 S	123.21 W	-63.97	1.21
4109.00	11.69	206.14	4070.03	369.31 S	131.88 W	-69.59	1.11
4204.00	9.93	200.64	4163.35	385.61 S	139.01 W	-73.95	2.15
4299.00	7.28	201.37	4257.27	398.89 S	144.09 W	-76.79	2.79
4394.00	9.70	204.24	4351.22	411.79 S	149.57 W	-80.08	2.59
4489.00	14.14	215.89	4444.16	428.50 S	159.67 W	-87.30	5.29
4584.00	12.80	213.07	4536.55	446.72 S	172.21 W	-96.70	1.57
4678.00	9.51	208.92	4628.76	462.25 S	181.65 W	-103.46	3.60
4774.00	9.78	195.71	4723.42	477.04 S	187.70 W	-107.00	2.32
4868.00	10.45	200.12	4815.96	492.73 S	192.79 W	-109.46	1.09
4964.00	10.00	196.24	4910.43	508.91 S	198.12 W	-112.06	0.86
5058.00	11.88	187.14	5002.73	526.35 S	201.60 W	-112.64	2.71
5153.00	13.43	187.37	5095.42	546.99 S	204.23 W	-111.85	1.63
5248.00	12.18	187.22	5188.05	567.88 S	206.91 W	-111.07	1.32
5344.00	9.88	183.58	5282.27	586.15 S	208.70 W	-109.84	2.50
5439.00	11.43	182.79	5375.63	603.68 S	209.66 W	-107.92	1.64
5534.00	12.03	181.86	5468.65	622.98 S	210.44 W	-105.53	0.66
5629.00	10.38	182.71	5561.83	641.43 S	211.17 W	-103.22	1.75
5724.00	9.54	187.98	5655.40	657.77 S	212.67 W	-102.02	1.30
5819.00	10.54	195.00	5748.95	673.96 S	216.01 W	-102.67	1.66
5914.00	16.12	187.23	5841.36	695.46 S	219.92 W	-103.00	6.16
6009.00	27.24	184.55	5929.50	730.32 S	223.32 W	-100.64	11.75
6104.00	25.66	168.73	6014.66	772.22 S	221.02 W	-91.51	7.58
6199.00	24.97	149.88	6100.68	809.80 S	206.91 W	-71.44	8.48
6294.00	26.27	137.64	6186.40	842.71 S	182.67 W	-42.13	5.73
6389.00	27.07	125.03	6271.36	870.67 S	150.77 W	-6.08	6.01
6484.00	38.44	109.59	6351.26	893.09 S	105.02 W	42.72	14.77
6579.00	42.78	103.63	6423.39	910.61 S	45.80 W	104.02	6.12
6674.00	50.85	100.62	6488.36	925.03 S	21.88 E	173.14	8.80
6769.00	59.15	97.75	6542.81	937.34 S	98.64 E	250.88	9.08
6864.00	67.96	94.58	6585.08	946.37 S	183.12 E	335.70	9.74
6959.00	74.56	93.70	6615.59	952.85 S	272.79 E	425.23	7.00
7050.00	78.04	93.37	6637.14	958.30 S	361.02 E	513.15	3.84

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 99.43 DEGREES (GRID)
A TOTAL CORRECTION OF 7.42 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED**

**HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.
HORIZONTAL DISPLACEMENT(CLOSURE) AT 7050.00 FEET
IS 1024.05 FEET ALONG 159.36 DEGREES (GRID)**

Final survey is a straight line projection to TD.

Date Printed: 26 March 2015