



WELL INFORMATION					
MWD Run Number	100	200			
Date run completed	24-Aug-13	28-Aug-13			
Rig Bit Number	02	03			
Bit Size (in)	8.750	8.750			
Tool Nominal OD (in)	6.750	6.750			
Log Start Depth (MD, ft)	874.00	7,718.00			
Log End Depth (MD, ft)	7,718.00	9,150.00			
Drill or Wipe	Drill	Drill			
Drill/Wipe Start Date and Time	22-Aug-13 01:57	24-Aug-13 05:57			
Drill/Wipe End Date and Time	24-Aug-13 07:00	27-Aug-13 22:00			
Min Inc (deg) @ Depth (MD, ft)	.03 @ 6,439.00	.06 @ 9,039.00			
Max Inc (deg) @ Depth (MD, ft)	11.17 @ 2,406.00	.22 @ 8,860.00			
Bit TFA(in2) / Bit Type	.72 / PDC	.72 / PDC			
Flow Rate (gpm)	494.00	440.00			
Max AV (fpm) / CV (fpm) @ MWD	311.4 / 98.4	316.8 / 338.2			
Fluid Type	Fresh Water Gel	Fresh Water Gel			
Density (ppg) / Viscosity (spqt)	8.43 / 27.00	8.50 / 38.00			
Filtrate CL (ppm)	500.00	1,000.00			
pH / Fluid Loss (mptm)	8.50 / 0	11.00 / 0			
PV (cP) / YP (Ihf2)	1 / 1.00	8 / 16.00			
% Solids / % Sand	1.0 / 0.10	3.0 / 0.25			
% Oil / Oil:Water Ratio	N/A / N/A	NA / NA			
Rm @ Measured Temp (degF)	N/A @ N/A	NA @ NA			
Rmf @ Measured Temp (degF)	N/A @ N/A	NA @ NA			
Rmc @ Measured Temp (degF)	N/A @ N/A	NA @ NA			
Max Tool Temp (deg F) / S	151.50 / PCM	120.00 / PCM			

Max Tool Temp (degF) / Source	151.50 / PCM	189.99 / PCM			
Rm @ Max Tool Temp (degF)	N/A @ 151.50	NA @ 189.99			
Lead MWD Engineer	Scott Trowbridge	Scott Trowbridge			
Customer Representative	Kevin Campbell	Kevin Campbell			

SENSOR INFORMATION

Downhole Processor Information

Tool Type	PCM	PCM			
Software Version	5.84	5.84			
Sub Serial Number	11633608	11633608			
Insert Serial Number	10744813	11620268			
Date and Time Initialized	21-Aug-13 14:03	24-Aug-13 12:43			
Date and Time Read	24-Aug-13 16:27	28-Aug-13 08:50			
ECMB SW Version	N/A	N/A			

Directional Sensor Information

Tool Type	PCDC	PCDC			
Distance From Bit (ft)	79.00	79.00			
Software Version	6.21	6.21			
Sub Serial Number	11633608	11633608			
Sonde Serial Number	11478007	11478177			
Sensor ID Number	N/A	N/A			
Toolface Offset (deg)	0	0			

Gamma Ray Sensor Information

Tool Type	PCG	PCG			
Distance From Bit (ft)	82.04	82.04			
Recorded Sample Period (sec)	10	10			
Software Version	8.15	8.15			
Sub Serial Number	11633608	11633608			
Insert/Sonde Serial Number	11681026	11681038			

REMARKS

1. All depths are measured bit depths, referenced to the Drillers Driller's pipe tally and are measured from the Drill Floor, unless otherwise specified.

2. No depth corrections have been made for pipe stretch or compression.

3. Critical annular velocities are calculated using the "Power Law" for water based fluids and the "Bingham Plastic" model for oil and synthetic based fluids.

4. All data is stored data unless otherwise specified.

5. The following smoothing parameters have been applied to the data:

PCG GR XHI-Range (Gamma Ray Cor)
Interval Resolution: .5
Interval Distance: .6
Gap Fill: 3

ROPA (Average Rate of Penetration)
Interval Resolution: .5
Interval Distance: 1.2
Gap Fill: .3

WARRANTY

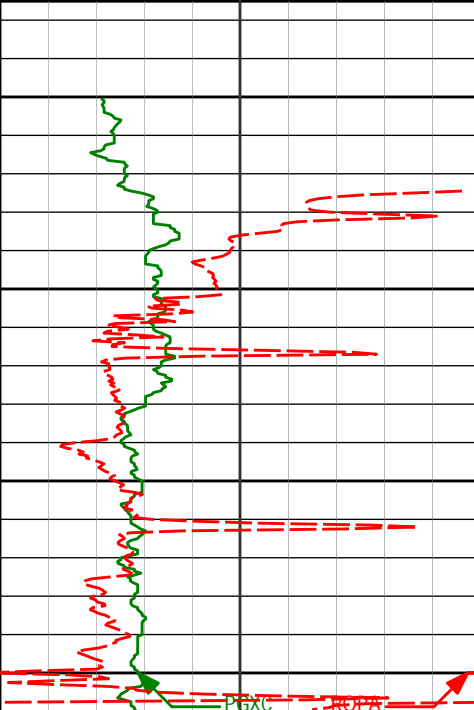
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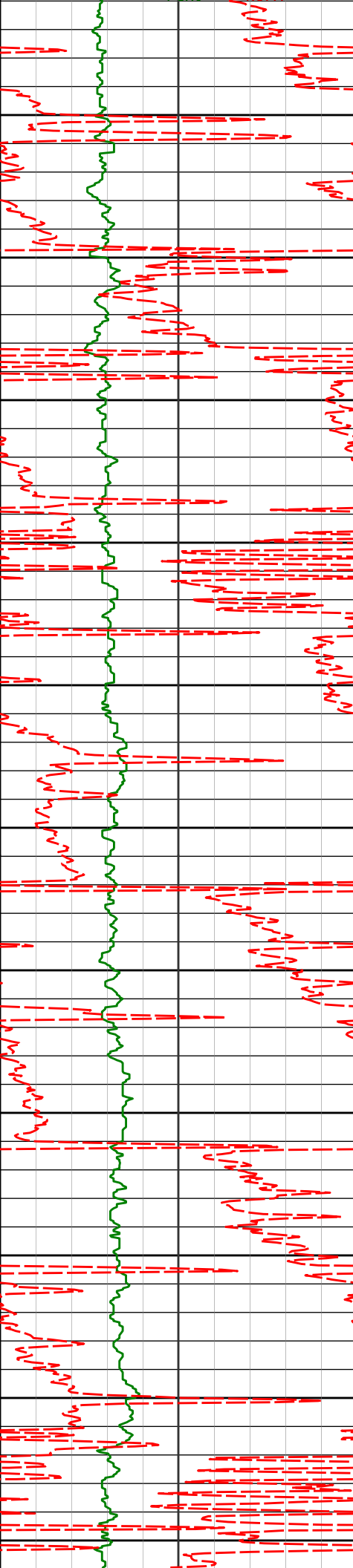
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Sperry Drilling Services

MD Detail Log 1:600

Noble Energy
Bethyl GW30-16
PD 829
Sec 30-T8N-R63W

Avg Rate of Penetration feet per hr							
500		0					
PCG GR XHi-Range RT BCor api							
0		300					
		Depth ft	Depth	Inc.	Azi.	TVD	V.S.
		850	9 5/8" casing shoe at 864ft MD				
		Run 100	882'	0.09°	107.77°	881.99'	2.65'
		900					
		950					
		972'	0.13°	114.56°	971.99'	2.54'	
		1000					



1050

1061'

0.14°

89.30°

1060.99'

2.38'

1100

1150

1151'

0.25°

31.00°

1150.99'

2.11'

1200

1250

1241'

0.14°

348.65°

1240.98'

1.92'

1300

1350

1330'

0.11°

245.20°

1329.98'

1.98'

1400

1450

1420'

0.18°

354.04°

1419.98'

2.02'

1500

1550

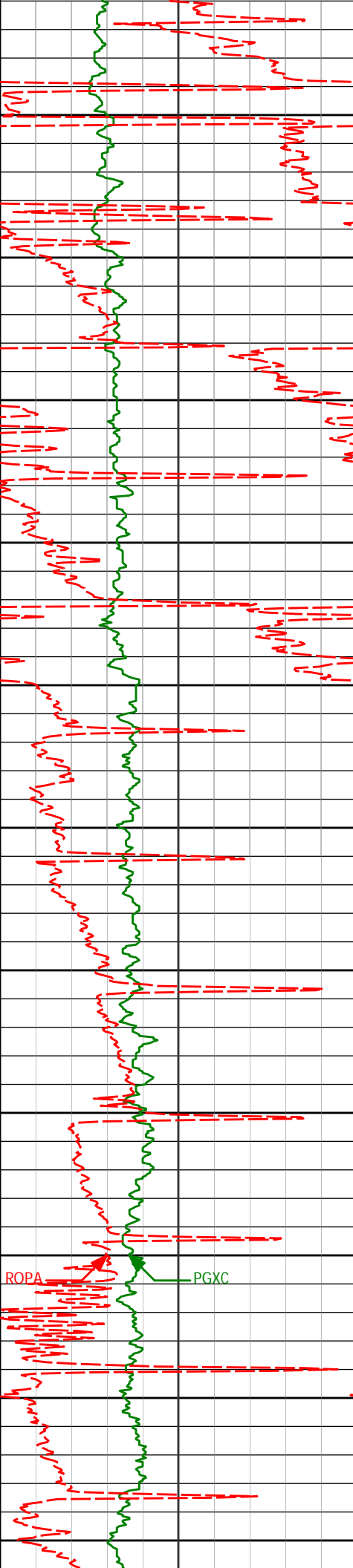
1510'

0.06°

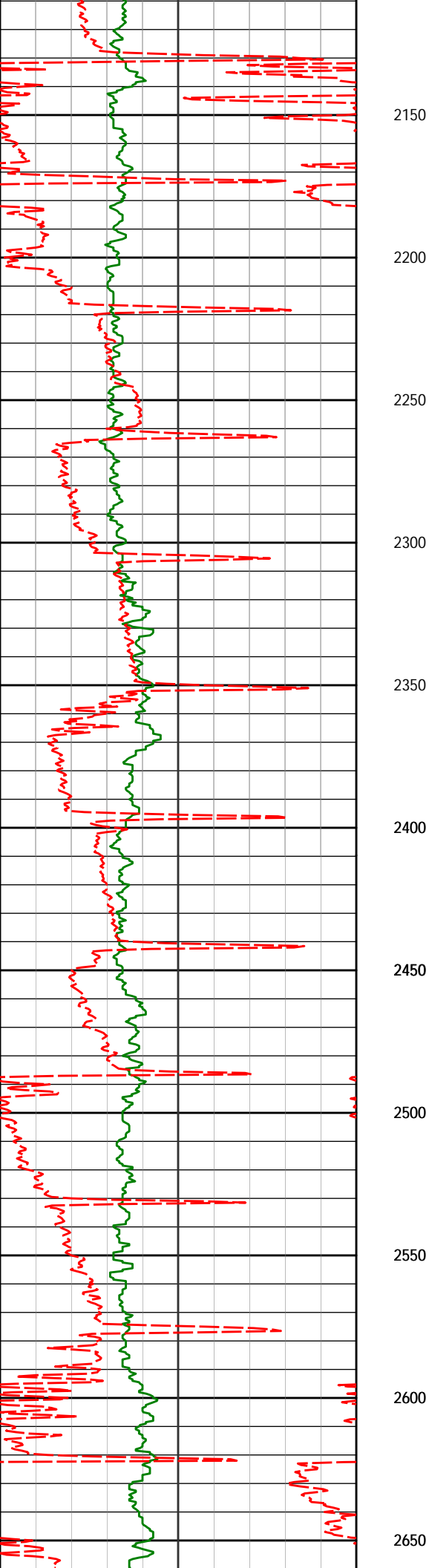
117.73°

1509.98'

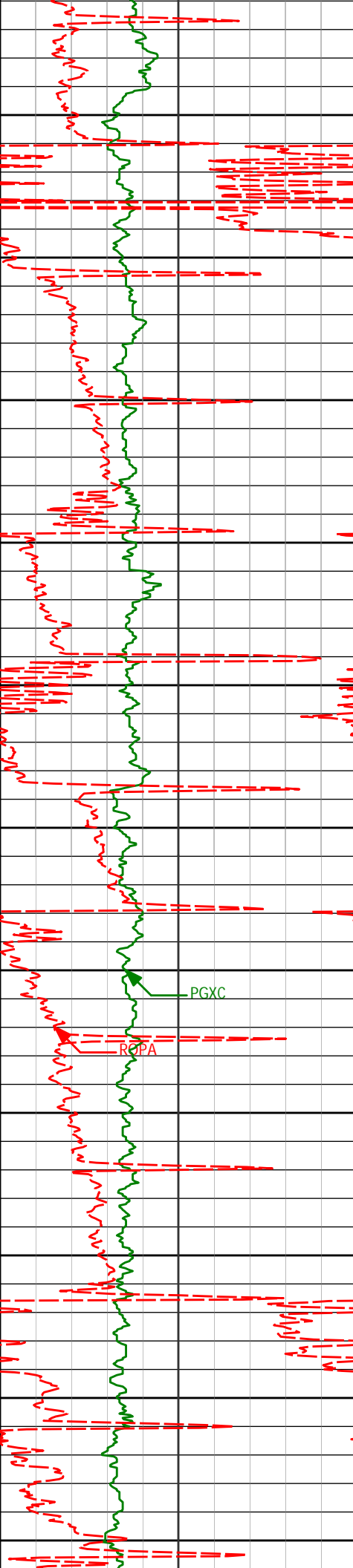
1.95'



1600	1599'	0.20°	169.33°	1598.98'	1.95'
1650					
1700	1689'	0.31°	205.78°	1688.98'	2.18'
1750					
1800	1779'	0.91°	195.09°	1778.98'	2.83'
1850					
1900	1868'	1.75°	221.85°	1867.95'	4.54'
1950					
2000	1958'	3.38°	242.34°	1957.86'	8.45'
2050	2048'	4.64°	247.50°	2047.64'	14.74'
2100					



2137'	5.75°	245.67°	2136.27'	22.79'
2227'	6.96°	248.62°	2225.72'	32.73'
2317'	8.82°	247.02°	2314.86'	45.08'
2406'	11.17°	245.61°	2402.51'	60.52'
2496'	11.14°	243.06°	2490.81'	77.93'
2585'	10.95°	240.71°	2578.16'	94.96'



2675'	9.56°	243.35°	2666.72'	110.96'
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2700

2765'	9.83°	250.00°	2755.43'	126.08'
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2750

2800

2854'	9.81°	258.57°	2843.14'	141.01'
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2850

2900

2944'	9.82°	256.55°	2931.82'	155.96'
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2950

3000

3034'	9.72°	252.22°	3020.52'	171.00'
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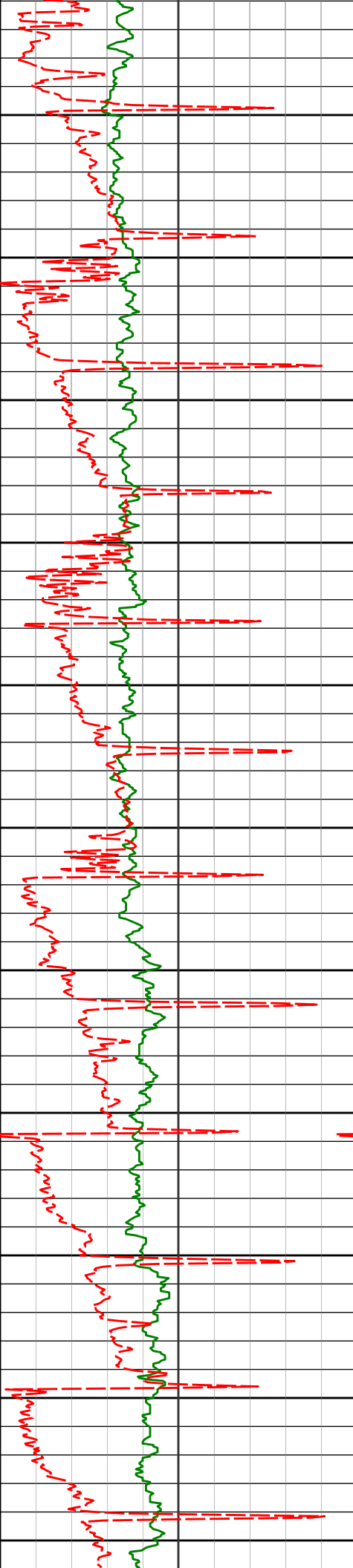
3050

3100

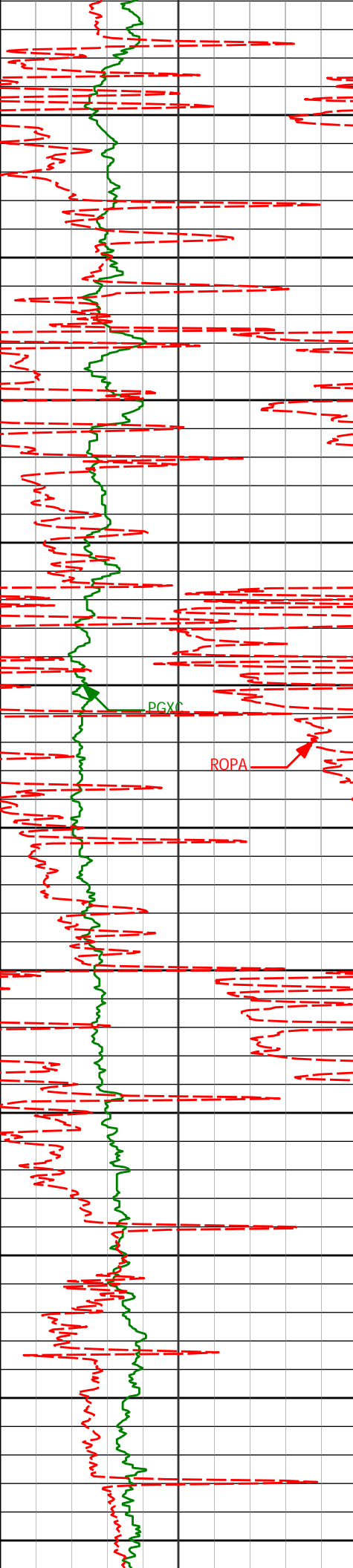
3123'	9.69°	250.35°	3108.24'	185.90'
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3150

3200



	3213'	9.77°	246.74°	3196.95'	201.07'
3250					
3300	3303'	10.14°	246.12°	3285.59'	216.62'
3350					
3400	3392'	9.69°	240.56°	3373.27'	231.93'
3450					
3500	3482'	9.60°	238.92°	3461.99'	246.95'
3550					
3600	3571'	9.27°	228.99°	3549.80'	261.22'
3650	3661'	9.40°	223.63°	3638.61'	275.05'
3700					
3750	3750'	9.56°	224.82°	3726.39'	288.78'



3800

3840'

9.85°

224.95°

3815.11'

303.04'

3850

3900

3930'

9.34°

225.99°

3903.85'

317.20'

3950

4000

4019'

10.18°

226.70°

3991.56'

331.52'

4050

4100

4109'

10.02°

233.72°

4080.17'

346.76'

4150

4200

4199'

9.94°

238.48°

4168.81'

362.16'

4250

4288'

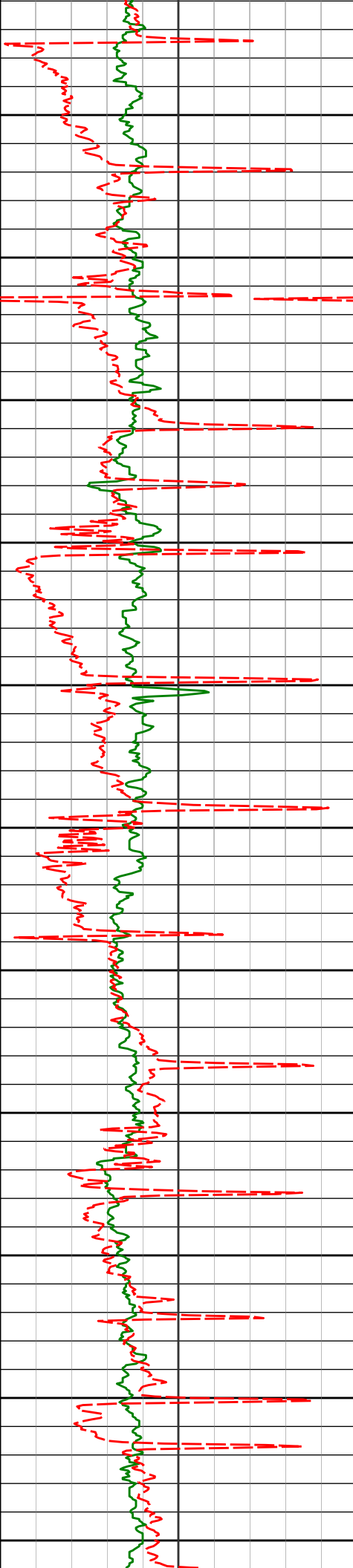
9.68°

241.03°

4256.51'

377.26'

4300



4350

4378'

9.97°

241.13°

4345.19'

392.59'

4400

4450

4468'

9.61°

241.92°

4433.88'

407.86'

4500

4550

4557'

9.62°

246.40°

4521.63'

422.71'

4600

4650

4647'

9.72°

247.65°

4610.35'

437.81'

4700

4750

4736'

9.71°

248.74°

4698.07'

452.80'

4800

4826'

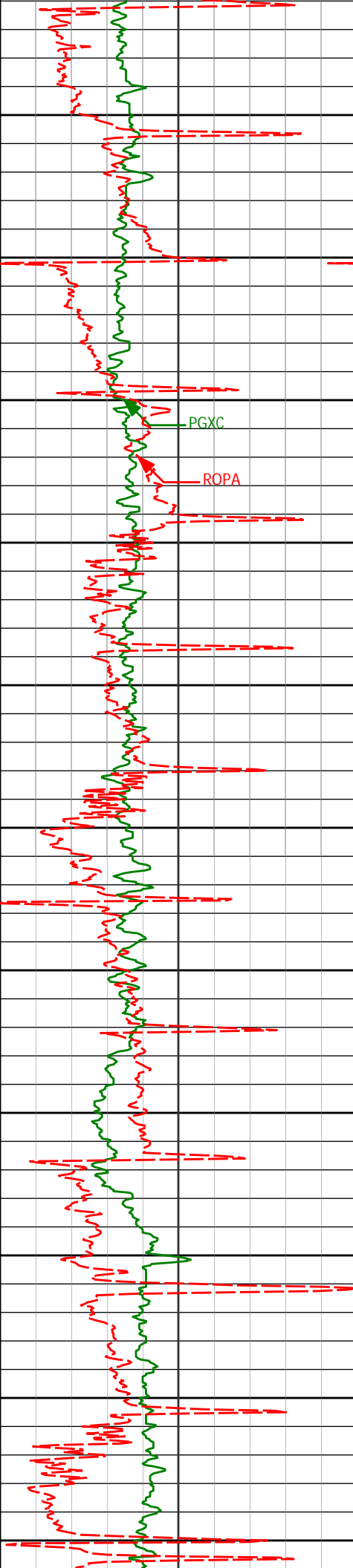
9.22°

250.83°

4786.85'

467.55'

4850



4900

4916'

8.03°

255.62°

4875.83'

480.89'

4950

5000

5005'

6.46°

253.23°

4964.12'

491.95'

5050

5100

5095'

4.74°

256.53°

5053.68'

500.59'

5150

5184'

3.06°

255.41°

5142.48'

506.52'

5200

5250

5274'

2.52°

264.22°

5232.37'

510.75'

5300

5350

5364'

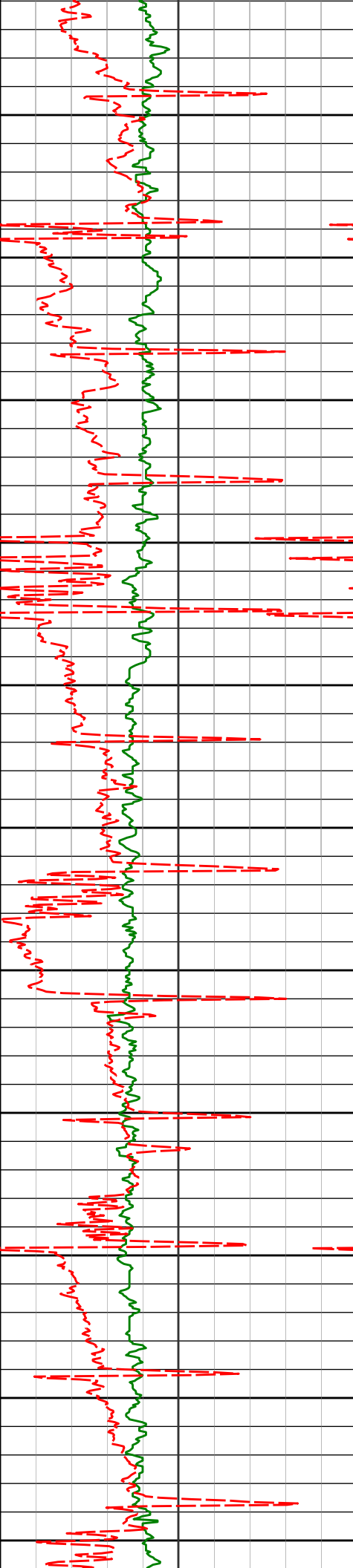
1.20°

280.12°

5322.32'

513.39'

5400



5450

5453'

0.20°

272.62°

5411.31'

514.28'

5500

5550

5543'

0.09°

350.93°

5501.31'

514.40'

5600

5650

5633'

0.66°

223.64°

5591.31'

514.86'

5700

5750

5722'

0.30°

318.85°

5680.31'

515.40'

5800

5850

5812'

0.22°

105.49°

5770.31'

515.34'

5900

5950

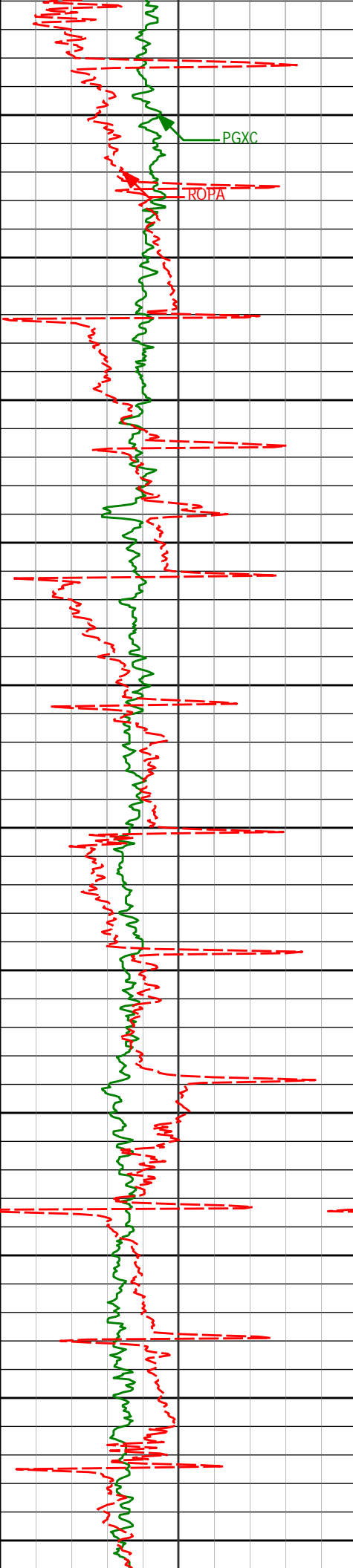
5901'

0.43°

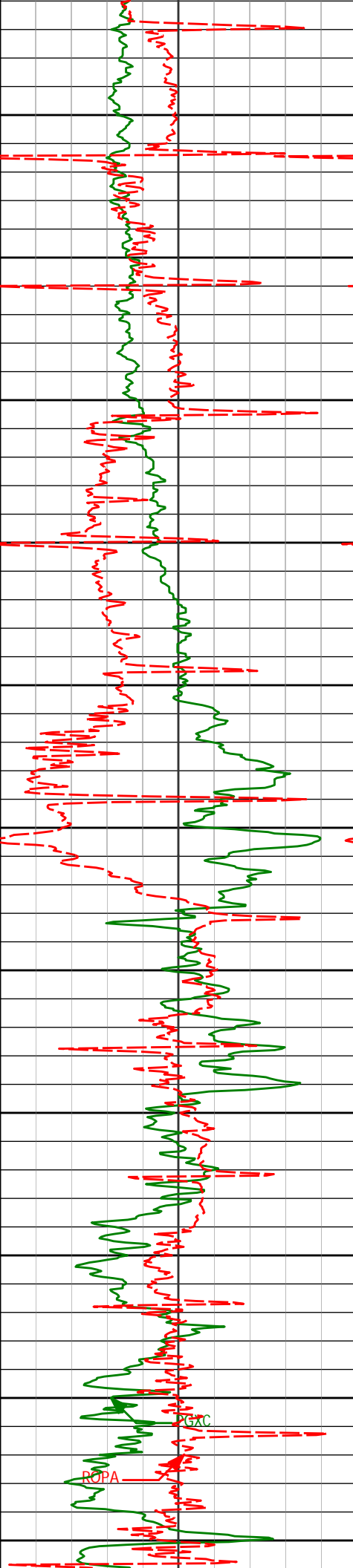
0.15°

5859.31'

515.07'



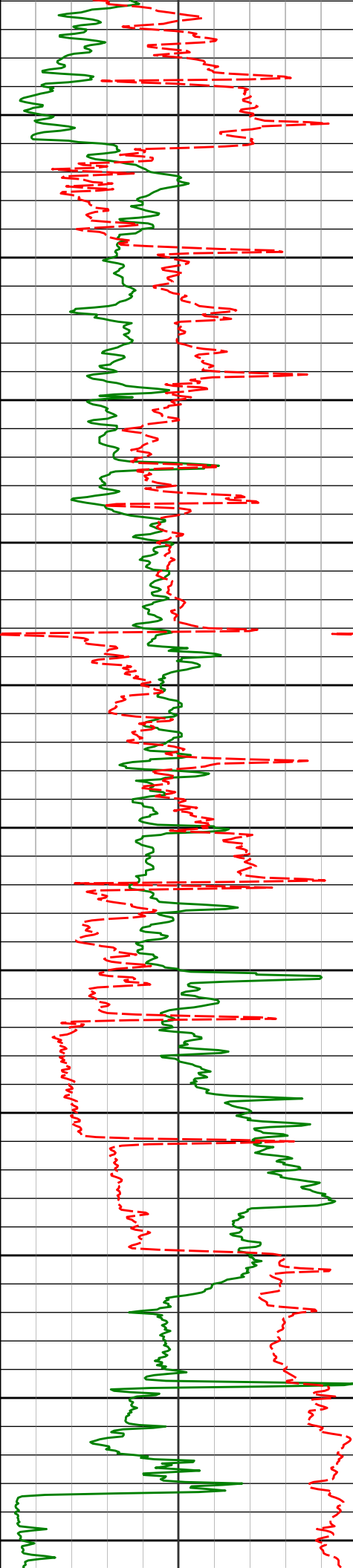
6000	5991'	0.11°	9.94°	5949.31'	514.87'
6050					
6080'	6080'	0.07°	355.67°	6038.31'	514.80'
6100					
6150					
6170'	6170'	0.40°	317.18°	6128.30'	514.88'
6200					
6250	6260'	0.11°	65.65°	6218.30'	514.89'
6300					
6349'	6349'	0.17°	202.35°	6307.30'	514.90'
6400					
6439'	6439'	0.03°	312.69°	6397.30'	515.00'
6450					
6500					



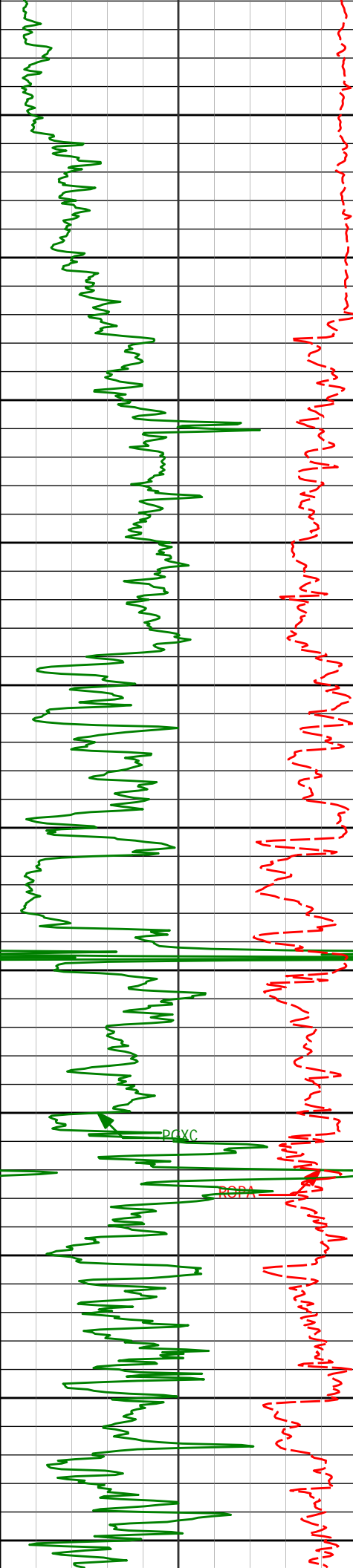
6528'	0.16°	182.27°	6486.30'	515.07'
6550				
6600				
6618'	0.04°	39.40°	6576.30'	515.09'
6650				
6700				
6708'	0.10°	237.21°	6666.30'	515.14'
6750				
6797'	0.20°	128.09°	6755.30'	515.15'
6800				
6850				
6887'	0.17°	83.50°	6845.30'	514.95'
6900				
6950				
6977'	0.15°	154.73°	6935.30'	514.82'

ROPA

PGXC



7100	7066'	0.13°	216.43°	7024.30'	514.91'
7150	7156'	0.28°	202.20°	7114.30'	515.16'
7200					
7250	7246'	0.43°	313.80°	7204.30'	515.44'
7300					
7350	7335'	0.18°	301.66°	7293.30'	515.63'
7400					
7450	7425'	0.20°	242.49°	7383.30'	515.86'
7500					
7550	7515'	0.34°	338.30°	7473.30'	516.00'
7600	7604'	0.34°	250.89°	7562.30'	516.25'



Run 200

7650

7700

7750

7800

7850

7900

7950

8000

8050

8100

8150

7694'

0.09°

39.52°

7652.30'

516.45'

7784'

0.15°

206.11°

7742.30'

516.48'

7874'

0.10°

60.39°

7832.30'

516.50'

7963'

0.14°

65.39°

7921.30'

516.32'

8053'

0.06°

97.99°

8011.30'

516.17'

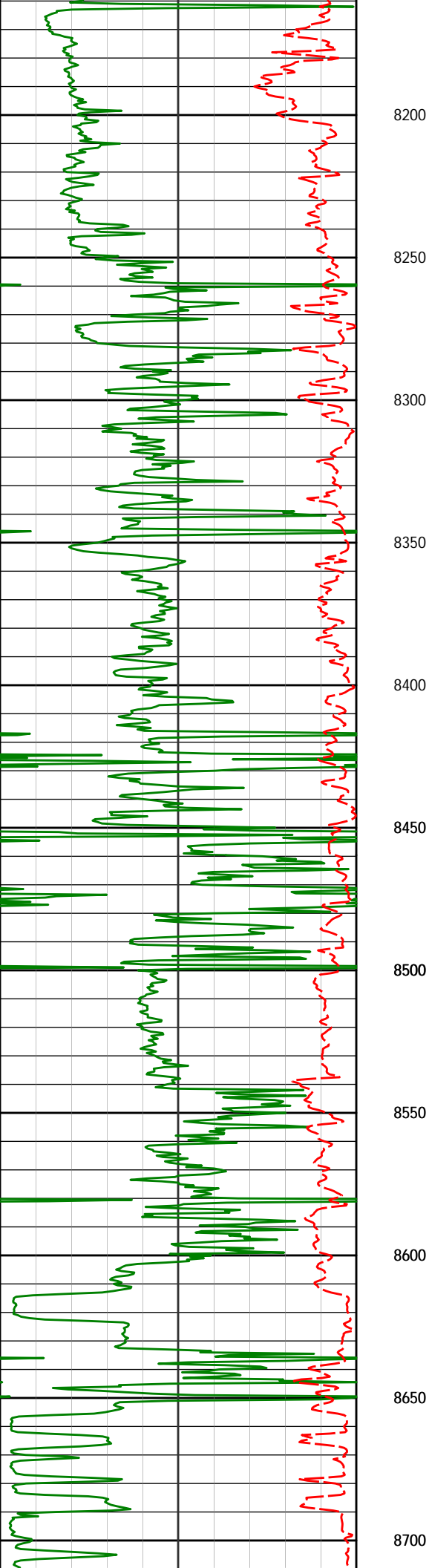
8143'

0.10°

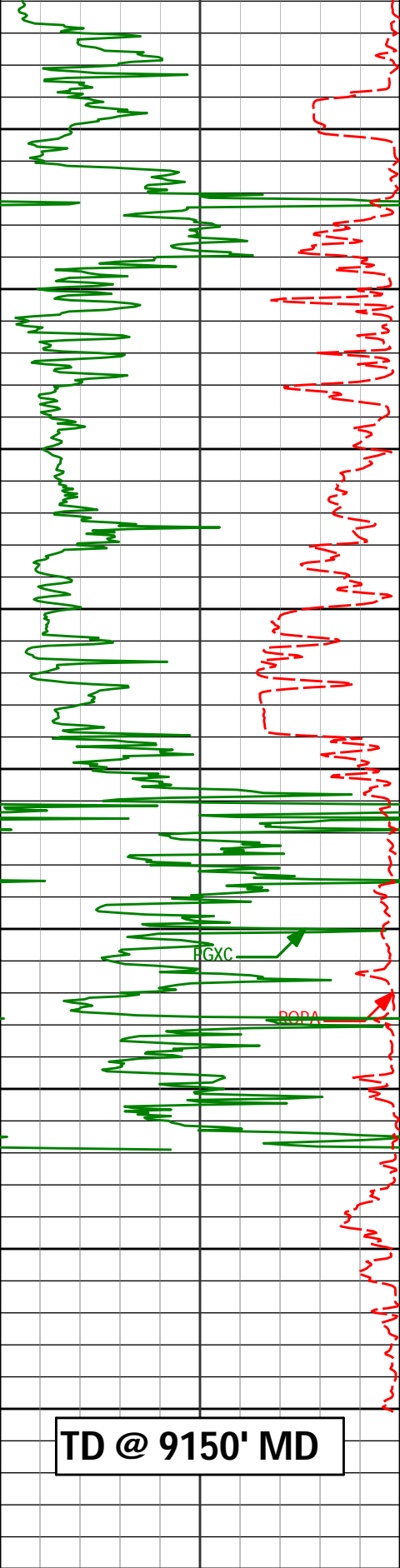
265.13°

8101.30'

516.20'



8232'	0.13°	160.32°	8190.30'	516.28'
8322'	0.20°	290.85°	8280.30'	516.40'
8412'	0.16°	77.32°	8370.30'	516.39'
8501'	0.10°	164.57°	8459.30'	516.28'
8591'	0.09°	161.20°	8549.30'	516.30'
8681'	0.07°	55.57°	8639.30'	516.26'



8750				
8770'	0.10°	228.97°	8728.30'	516.28'
8800				
8860'	0.22°	22.29°	8818.29'	516.22'
8900				
8950'	0.07°	259.51°	8908.29'	516.15'
9000				
9039'	0.06°	109.94°	8997.29'	516.16'
9050				
9071'	0.09°	176.49°	9029.29'	516.16'
9100				
9150'	0.09°	176.49°	9108.29'	516.21'

PCG GR XHi-Range RT BCor api		Depth ft	<i>Depth</i>	<i>Inc.</i>	<i>Azi.</i>	<i>TVD</i>	<i>V.S.</i>
0	300						
Avg Rate of Penetration feet per hr							

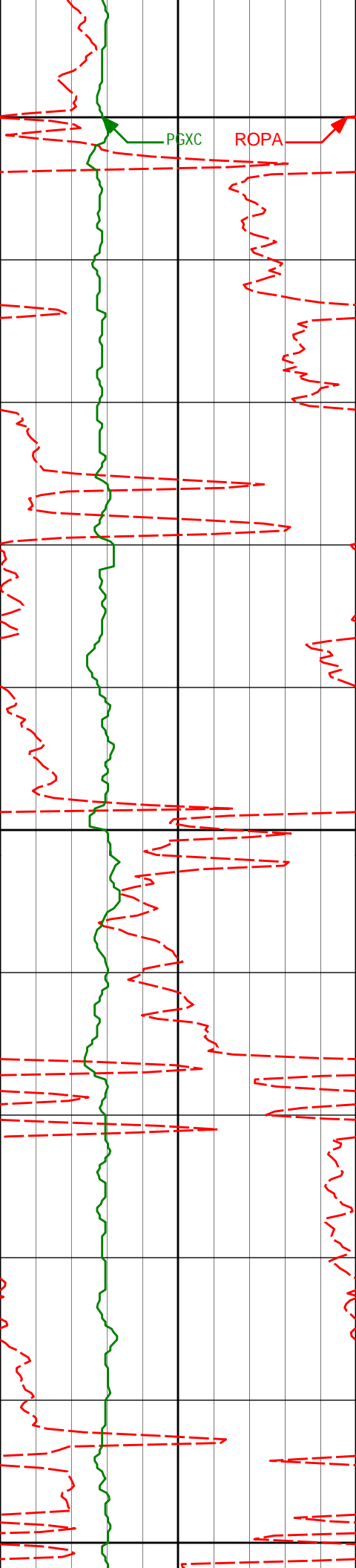
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Sperry Drilling Services

MD Detail Log 1:240

Noble Energy
Bethyl GW30-16
PD 829
Sec 30-T8N-R63W

Avg Rate of Penetration feet per hr							
500		0					
PCG GR XHi-Range RT BCor api		Depth ft	Depth	Inc	Azi	TVD	V.S.
0		300					
<div><div>PGXC</div><div>ROPA</div></div>		<div><div></div><div>Run 100</div></div> <div>900</div>	<div>9 5/8" casing shoe at 864ft MD</div>				
			882'	0.09°	107.77°	881.99'	2.65'
			972'	0.13°	114.56°	971.99'	2.54'



1000

1061'

0.14°

89.30°

1060.99'

2.38'

1100

1151'

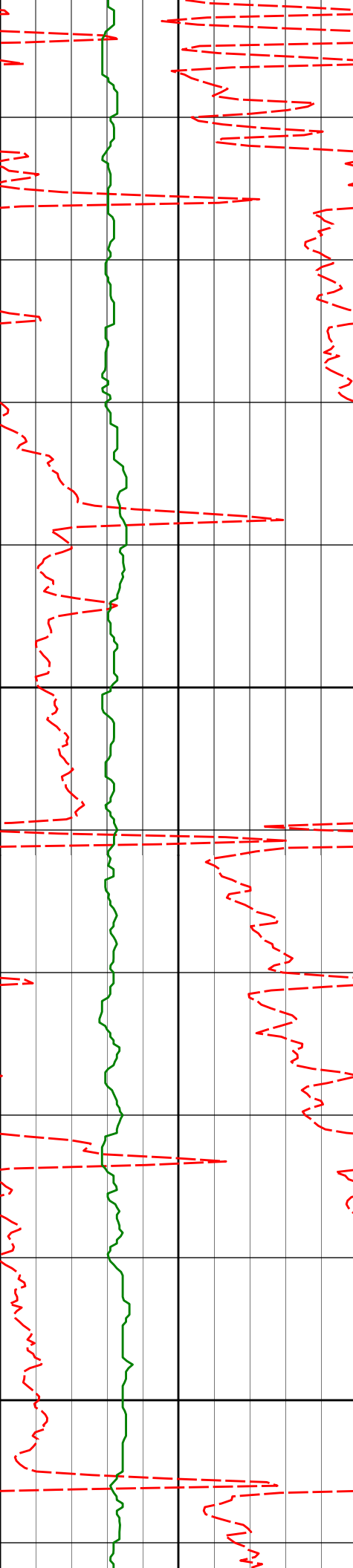
0.25°

31.00°

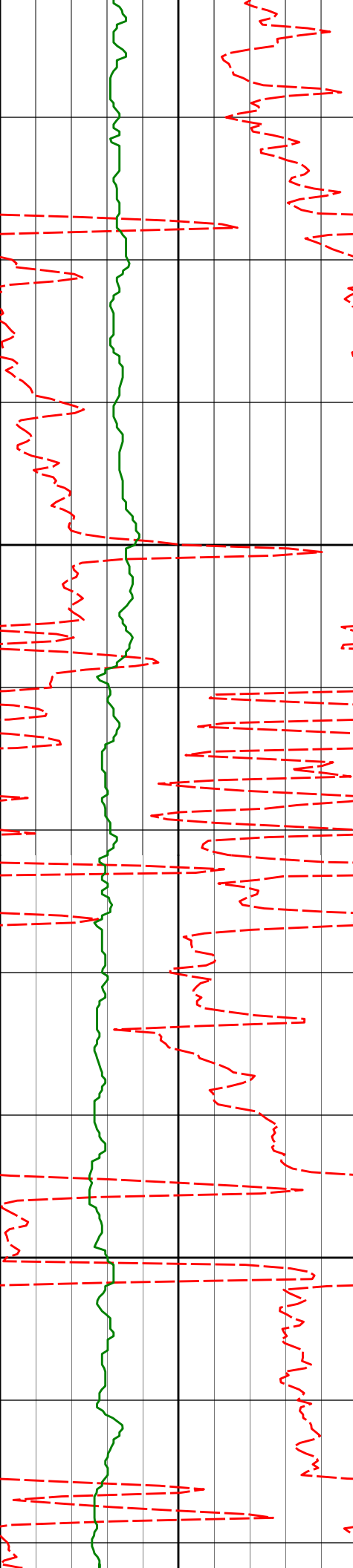
1150.99'

2.11'

1200



1241'	0.14°	348.65°	1240.98'	1.92'
1300				
1330'	0.11°	245.20°	1329.98'	1.98'
1400				
1420'	0.18°	354.04°	1419.98'	2.02'



1500

1510'

0.06°

117.73°

1509.98'

1.95'

1600

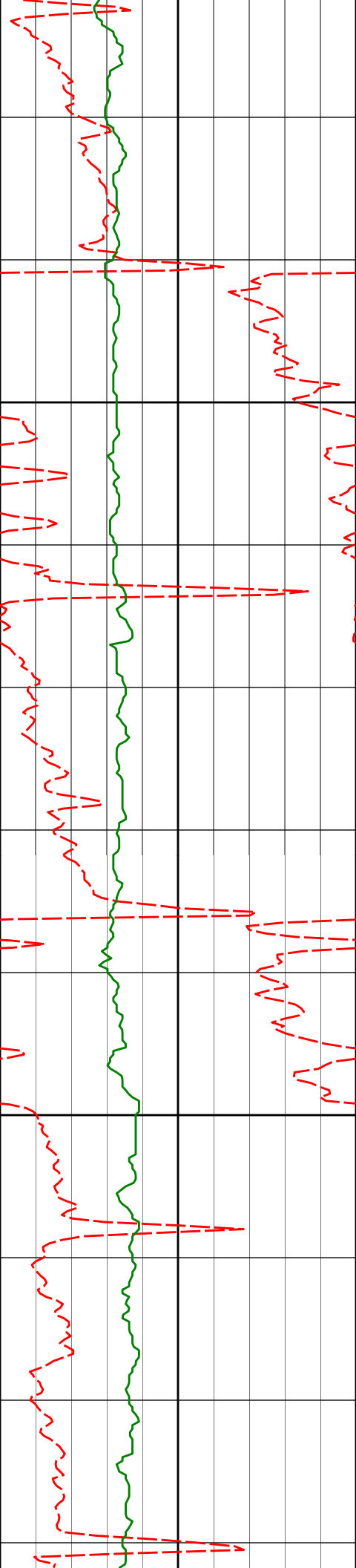
1599'

0.20°

169.33°

1598.98'

1.95'



1700

1800

1689'

0.31°

205.78°

1688.98'

2.18'

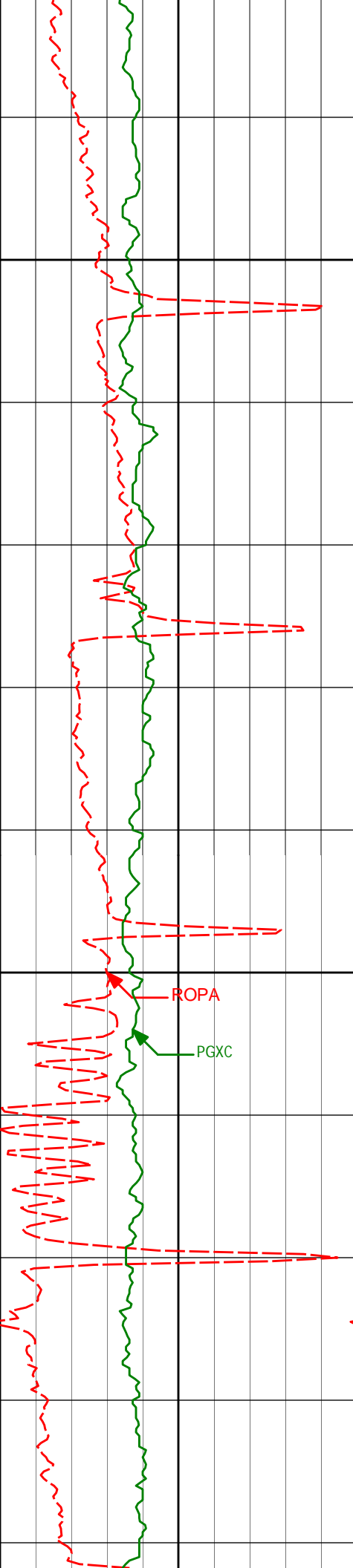
1779'

0.91°

195.09°

1778.98'

2.83'



1900

2000

ROPA

PGXC

1868'

1.75°

221.85°

1867.95'

4.54'

1958'

3.38°

242.34°

1957.86'

8.45'

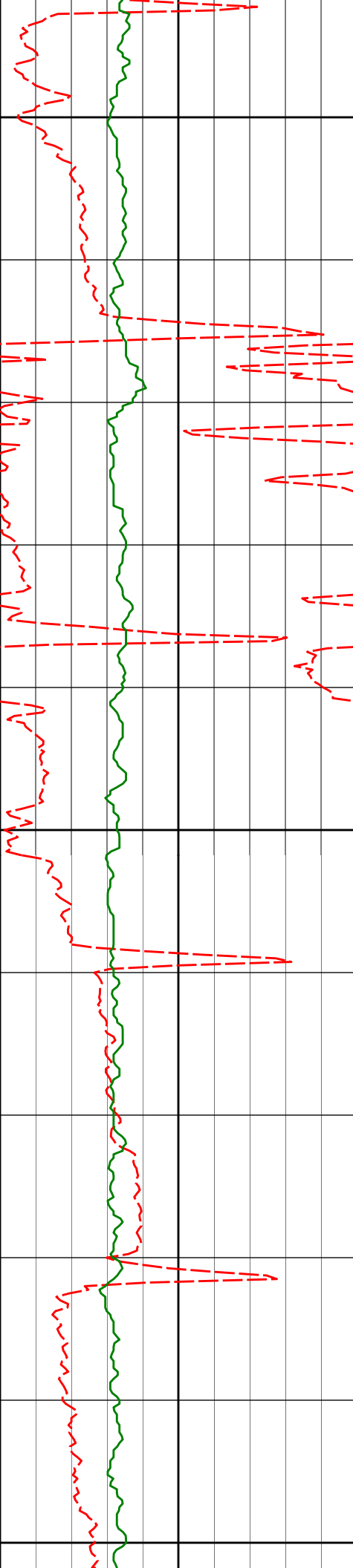
2048'

4.64°

247.50°

2047.64'

14.74'



2100

2137'

5.75°

245.67°

2136.27'

22.79'

2200

2227'

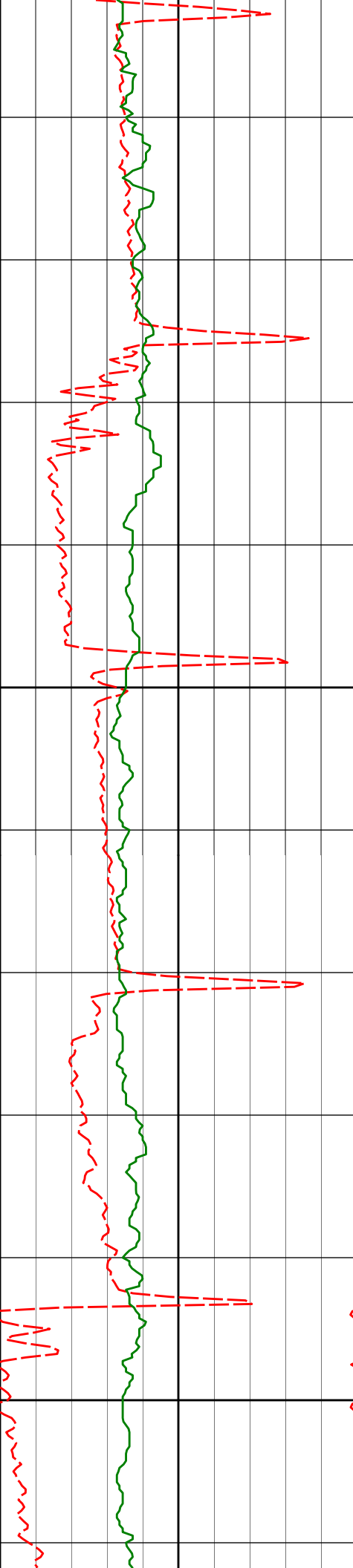
6.96°

248.62°

2225.72'

32.73'

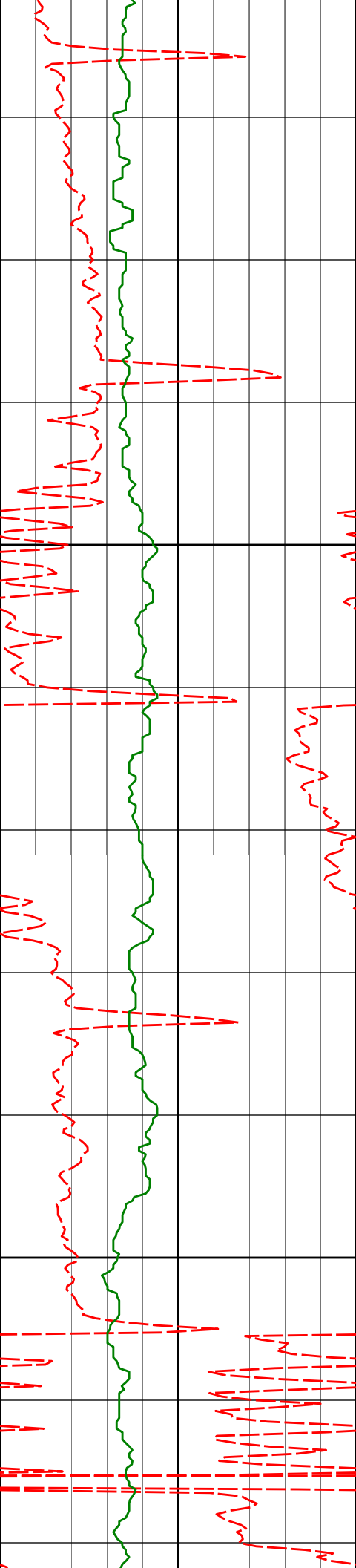
2300



2400

2500

2317'	8.82°	247.02°	2314.86'	45.08'
2406'	11.17°	245.61°	2402.51'	60.52'
2496'	11.14°	243.06°	2490.81'	77.93'



2600

2700

2585'

10.95°

240.71°

2578.16'

94.96'

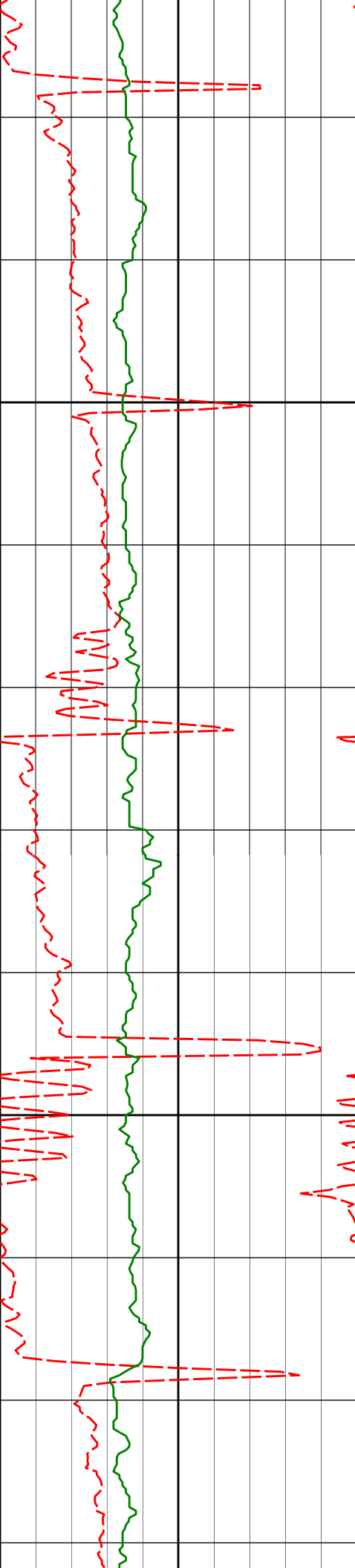
2675'

9.56°

243.35°

2666.72'

110.96'



2800

2900

2765'

9.83°

250.00°

2755.43'

126.08'

2854'

9.81°

258.57°

2843.14'

141.01'

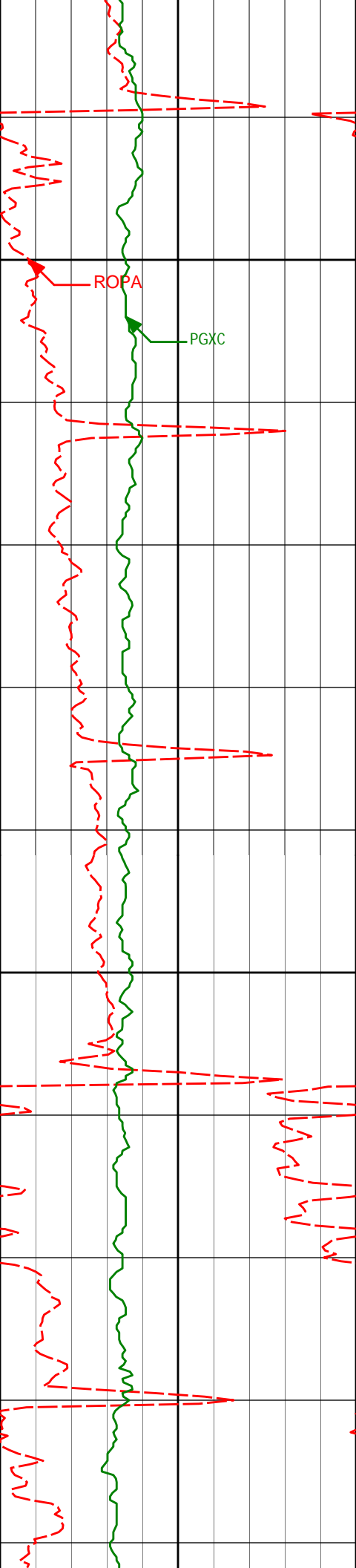
2944'

9.82°

256.55°

2931.82'

155.96'



3000

3034'

9.72°

252.22°

3020.52'

171.00'

3100

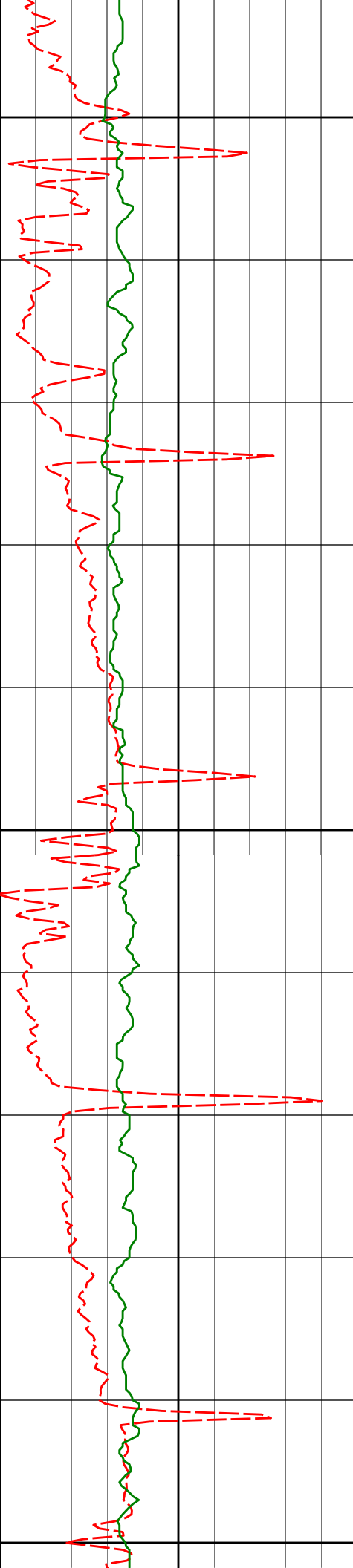
3123'

9.69°

250.35°

3108.24'

185.90'



3200

3213'

9.77°

246.74°

3196.95'

201.07'

3300

3303'

10.14°

246.12°

3285.59'

216.62'

3400

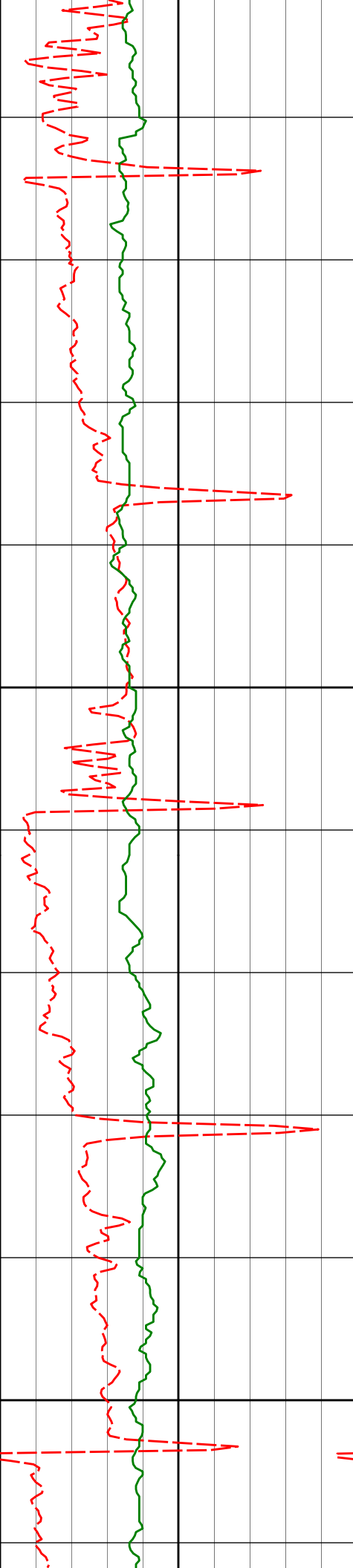
3392'

9.69°

240.56°

3373.27'

231.93'

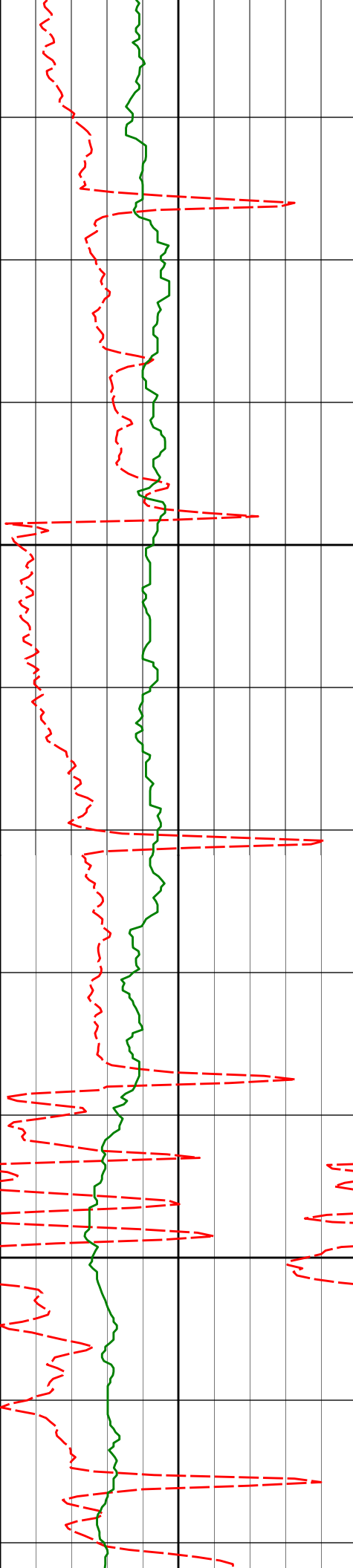


3500

3600

3482'	9.60°	238.92°	3461.99'	246.95'
-------	-------	---------	----------	---------

3571'	9.27°	228.99°	3549.80'	261.22'
-------	-------	---------	----------	---------



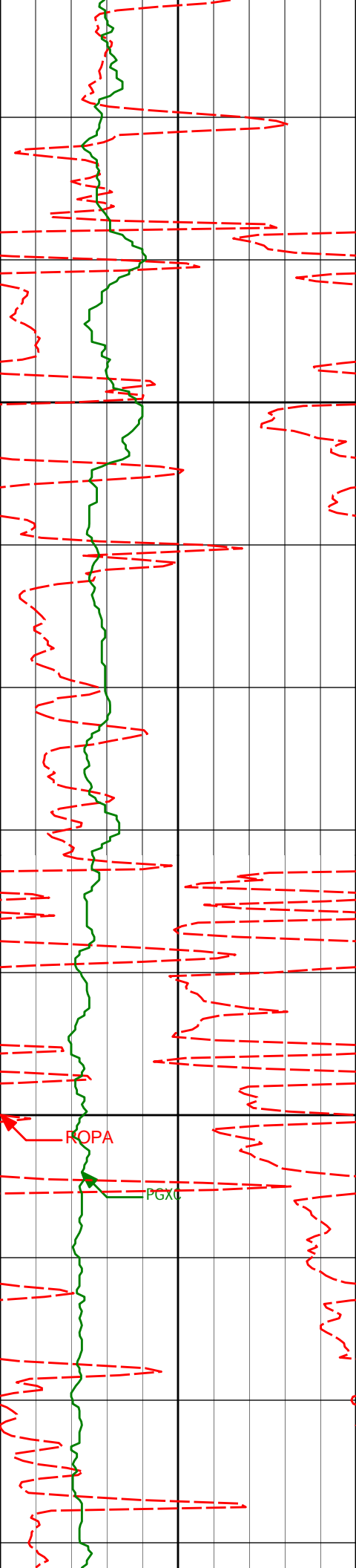
3700

3800

3661'	9.40°	223.63°	3638.61'	275.05'
-------	-------	---------	----------	---------

3750'	9.56°	224.82°	3726.39'	288.78'
-------	-------	---------	----------	---------

3840'	9.85°	224.95°	3815.11'	303.04'
-------	-------	---------	----------	---------



3900

3930'

9.34°

225.99°

3903.85'

317.20'

4000

ROPA

PGXC

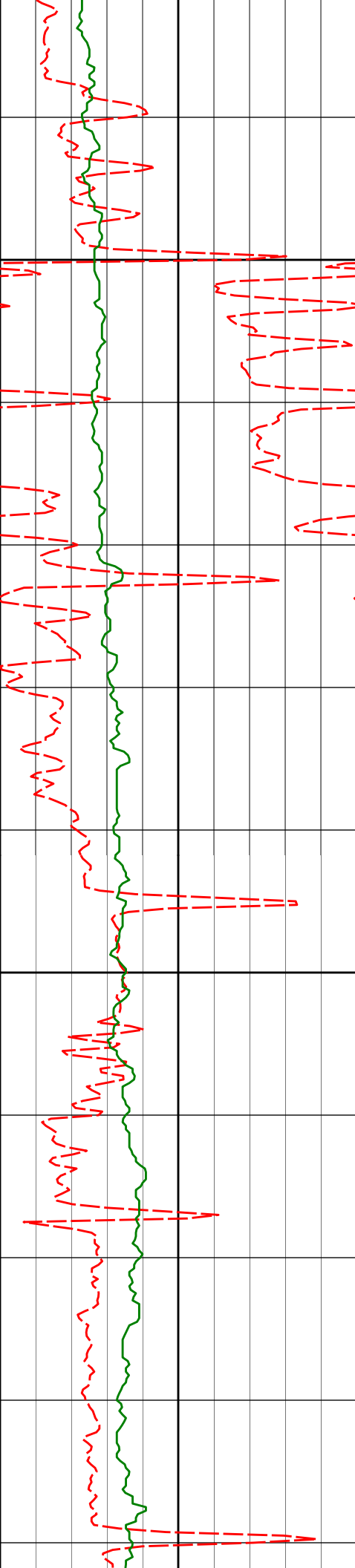
4019'

10.18°

226.70°

3991.56'

331.52'



4100

4109'

10.02°

233.72°

4080.17'

346.76'

4200

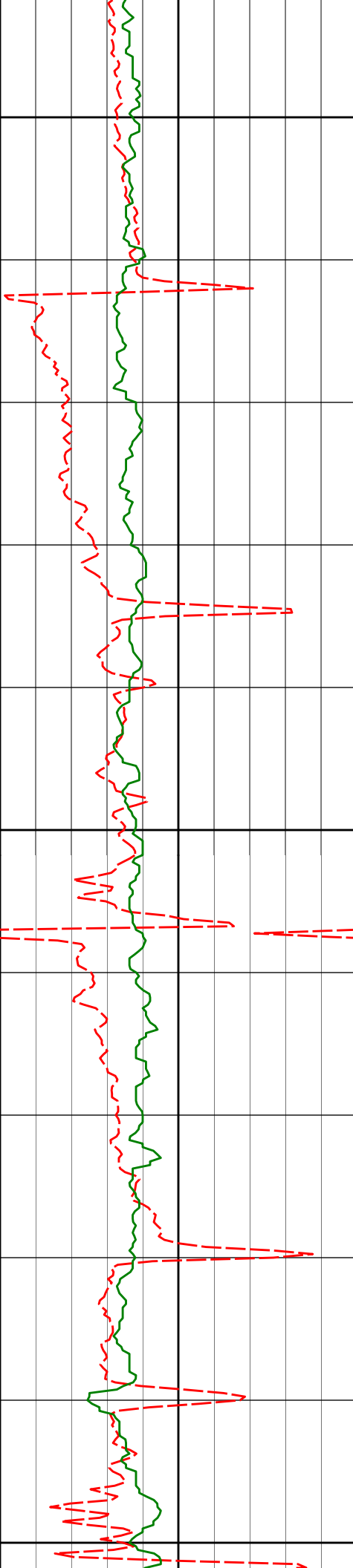
4199'

9.94°

238.48°

4168.81'

362.16'



4300

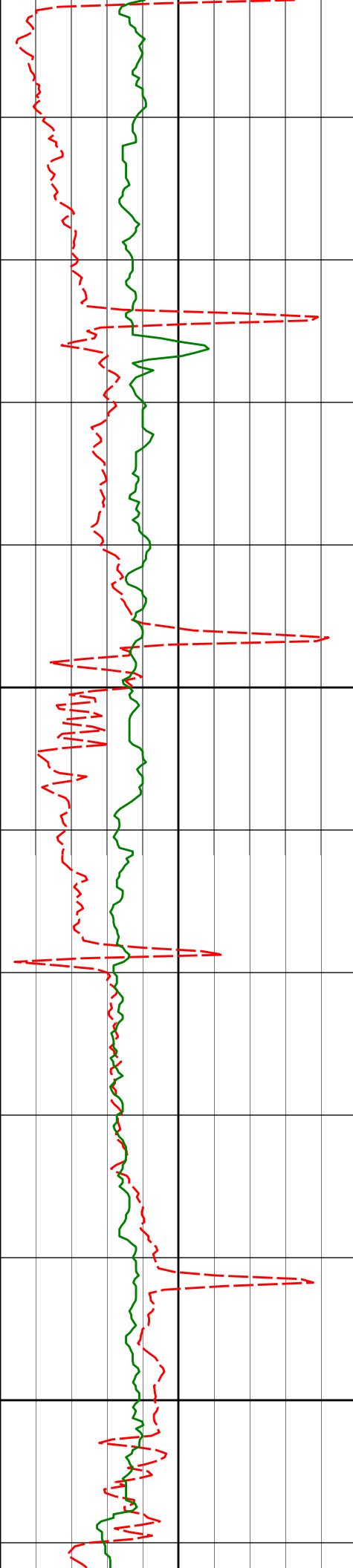
4400

4500

4288'	9.68°	241.03°	4256.51'	377.26'
-------	-------	---------	----------	---------

4378'	9.97°	241.13°	4345.19'	392.59'
-------	-------	---------	----------	---------

4468'	9.61°	241.92°	4433.88'	407.86'
-------	-------	---------	----------	---------



4600

4700

4557'

9.62°

246.40°

4521.63'

422.71'

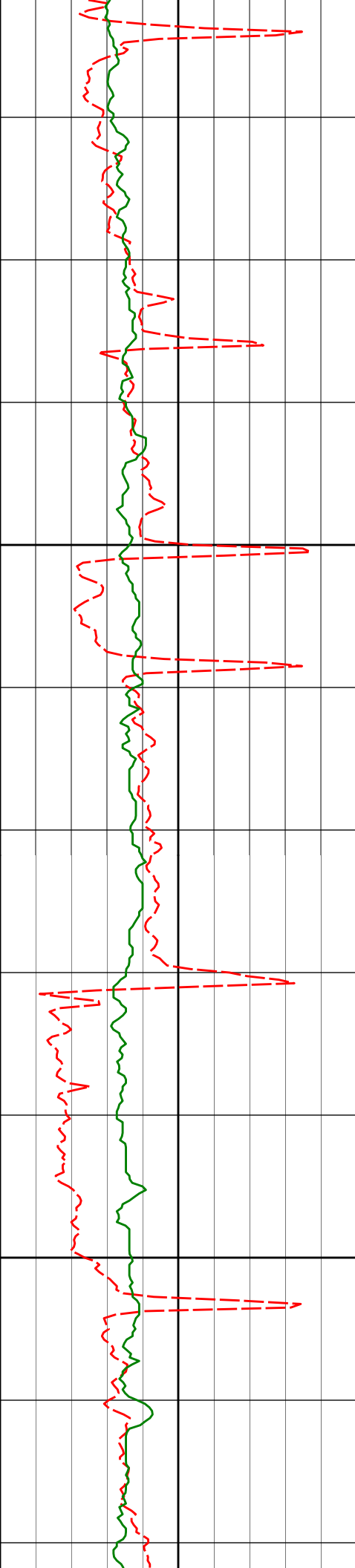
4647'

9.72°

247.65°

4610.35'

437.81'



4800

4900

4736'

9.71°

248.74°

4698.07'

452.80'

4826'

9.22°

250.83°

4786.85'

467.55'

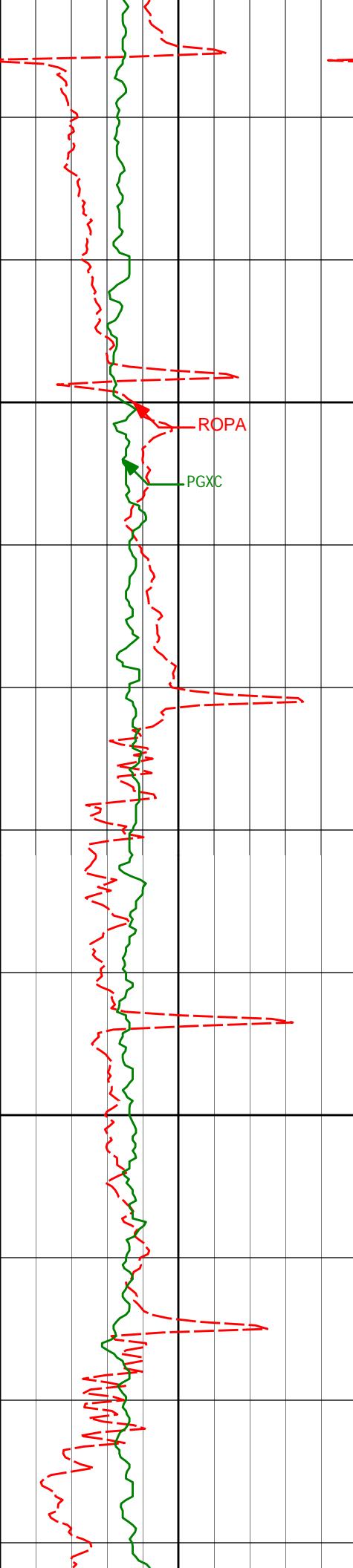
4916'

8.03°

255.62°

4875.83'

480.89'



5000

5005'

6.46°

253.23°

4964.12'

491.95'

5100

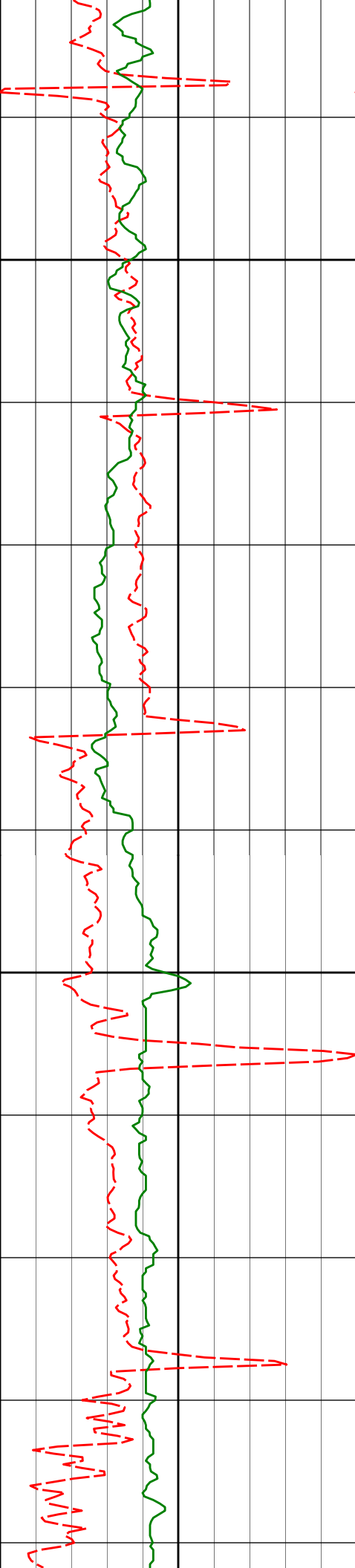
5095'

4.74°

256.53°

5053.68'

500.59'



5200

5300

5184'

3.06°

255.41°

5142.48'

506.52'

5274'

2.52°

264.22°

5232.37'

510.75'

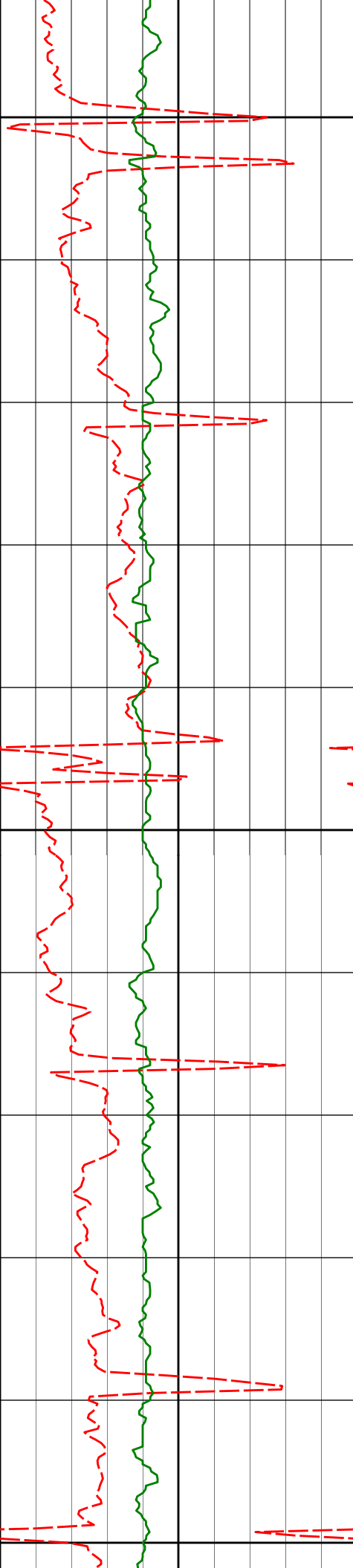
5364'

1.20°

280.12°

5322.32'

513.39'



5400

5500

5600

5453'

0.20°

 272.62°

5411.31'

514.28'

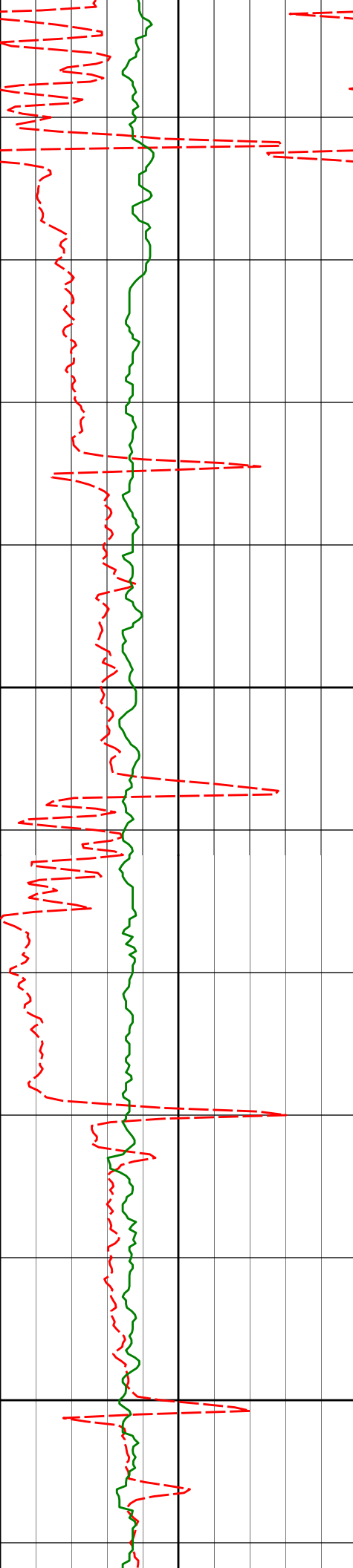
5543'

0.09°

350.93°

5501.31'

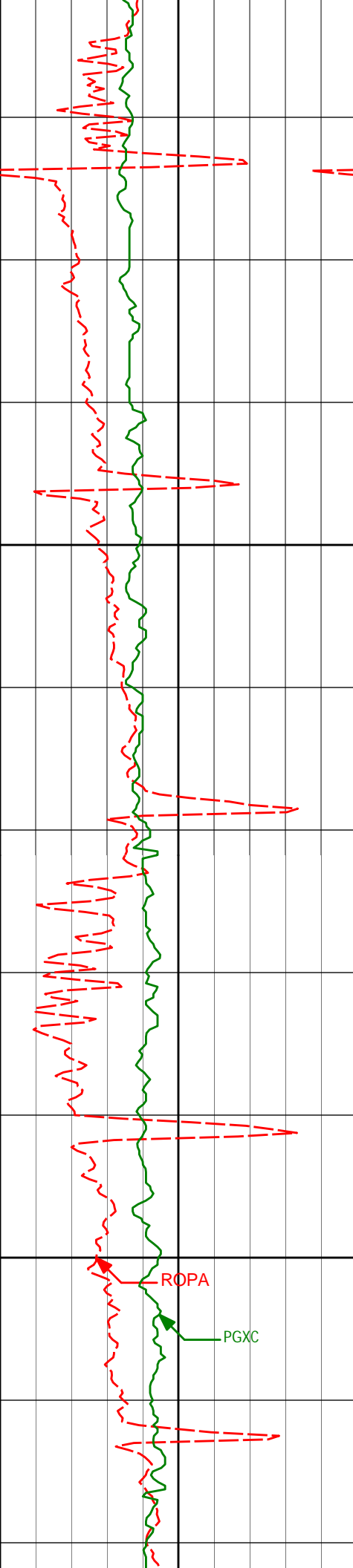
514.40'



5700

5800

5633'	0.66°	223.64°	5591.31'	514.86'
5722'	0.30°	318.85°	5680.31'	515.40'
5812'	0.22°	105.49°	5770.31'	515.34'



5900

5901'

0.43°

0.15°

5859.31'

515.07'

6000

5991'

0.11°

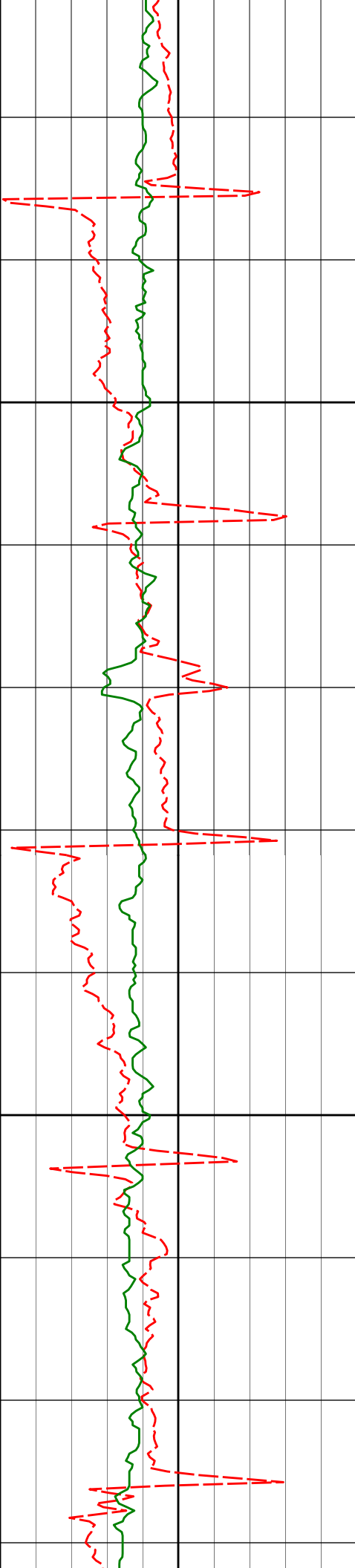
9.94°

5949.31'

514.87'

ROPA

PGXC



6080'

0.07°

355.67°

6038.31'

514.80'

6100

6170'

0.40°

317.18°

6128.30'

514.88'

6200

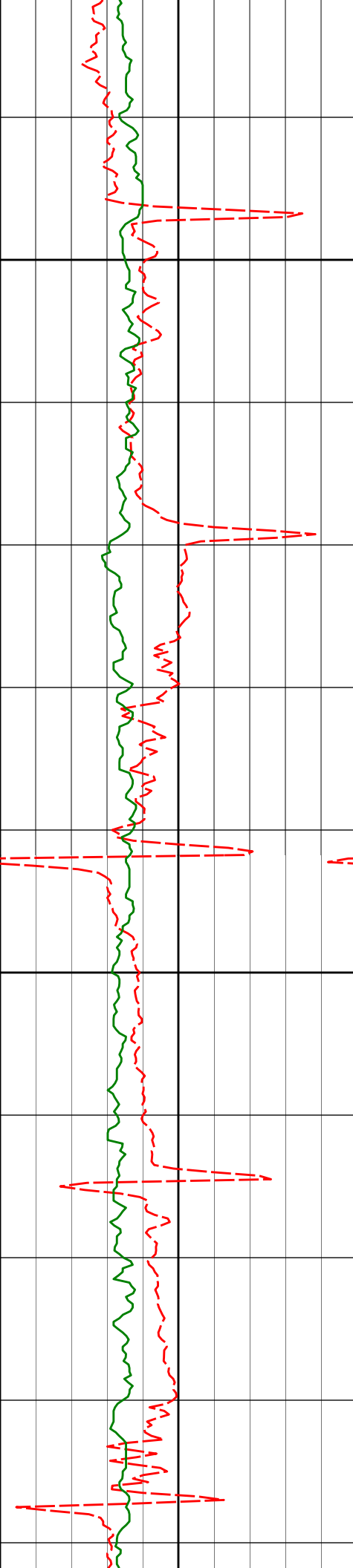
6260'

0.11°

65.65°

6218.30'

514.89'



6300

6349'

0.17°

202.35°

6307.30'

514.90'

6400

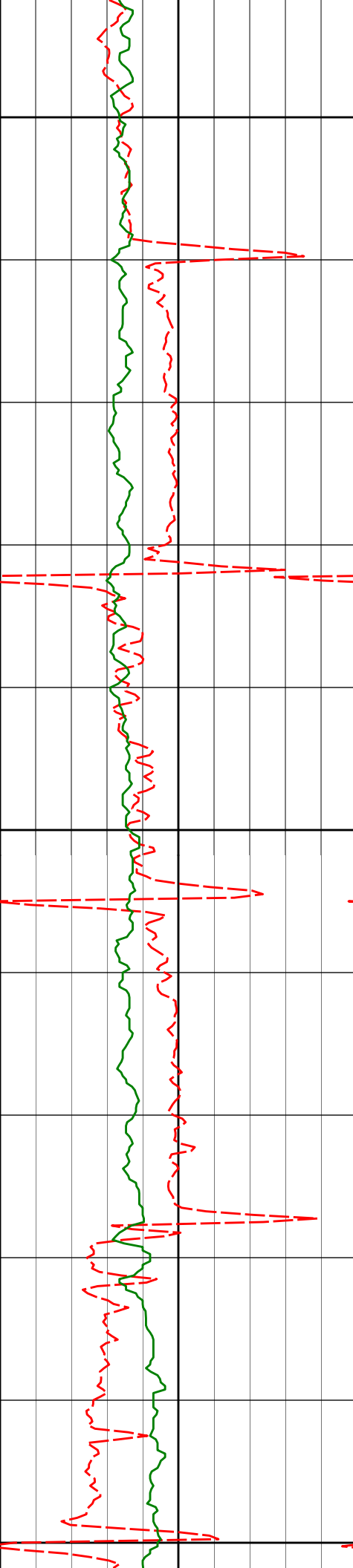
6439'

0.03°

312.69°

6397.30'

515.00'



6500

6528'

0.16°

182.27°

6486.30'

515.07'

6600

6618'

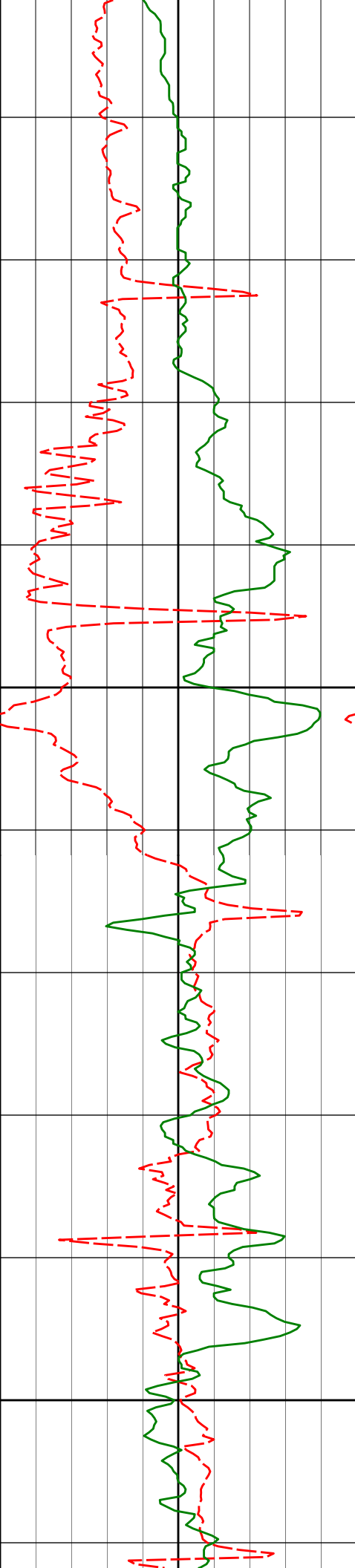
0.04°

39.40°

6576.30'

515.09'

6700



6800

6900

6708'

0.10°

237.21°

6666.30'

515.14'

6797'

0.20°

128.09°

6755.30'

515.15'

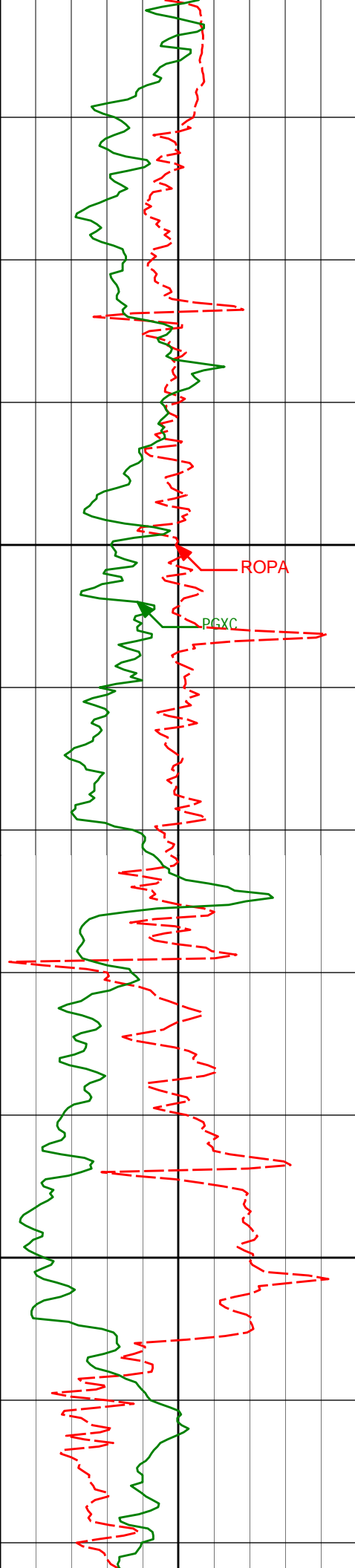
6887'

0.17°

83.50°

6845.30'

514.95'



7000

7100

6977'

0.15°

154.73°

6935.30'

514.82'

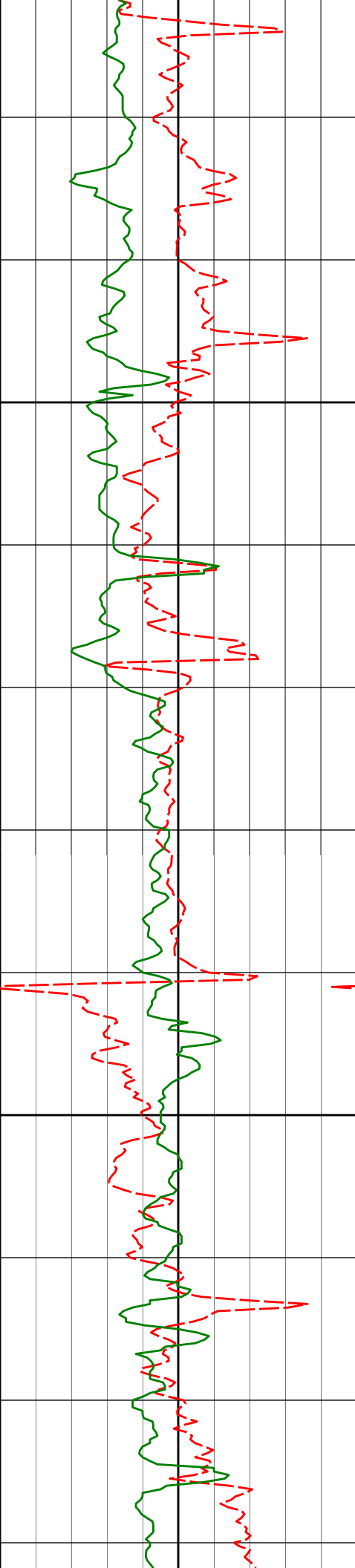
7066'

0.13°

216.43°

7024.30'

514.91'



7200

7300

7156'

0.28°

202.20°

7114.30'

515.16'

7246'

0.43°

313.80°

7204.30'

515.44'

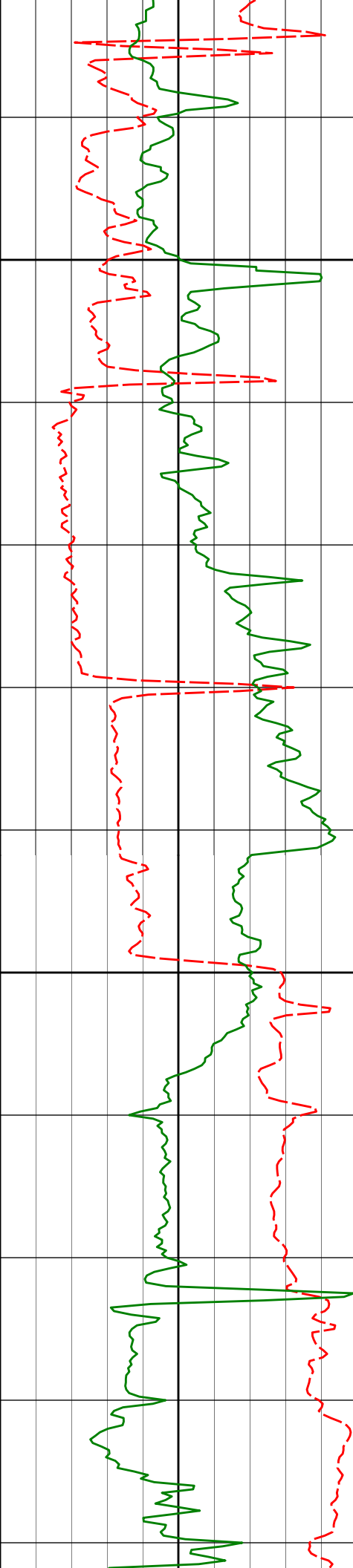
7335'

0.18°

301.66°

7293.30'

515.63'



7400

7425'

0.20°

242.49°

7383.30'

515.86'

7500

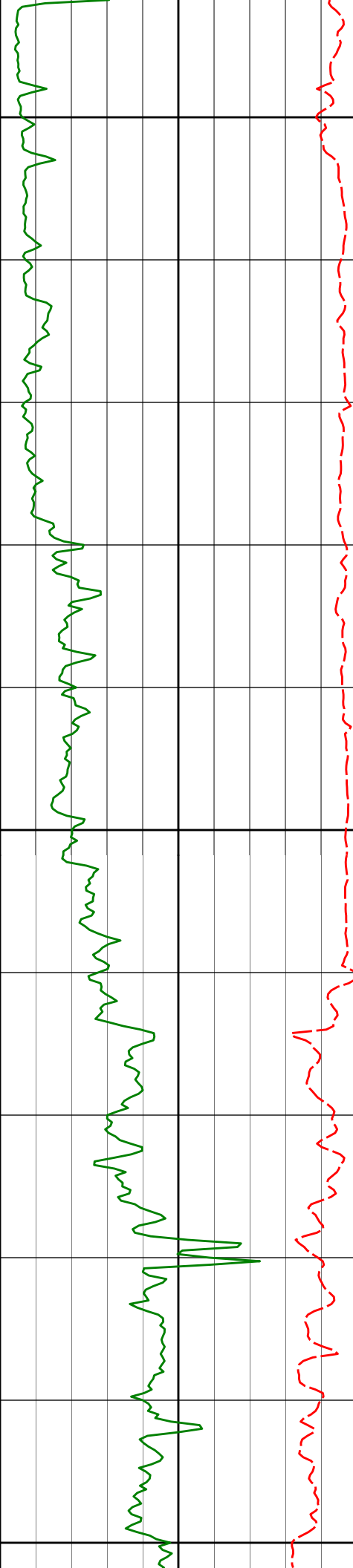
7515'

0.34°

338.30°

7473.30'

516.00'



7600

7604'

0.34°

250.89°

7562.30'

516.25'

7694'

0.09°

39.52°

7652.30'

516.45'

7700

Run 200

7784'

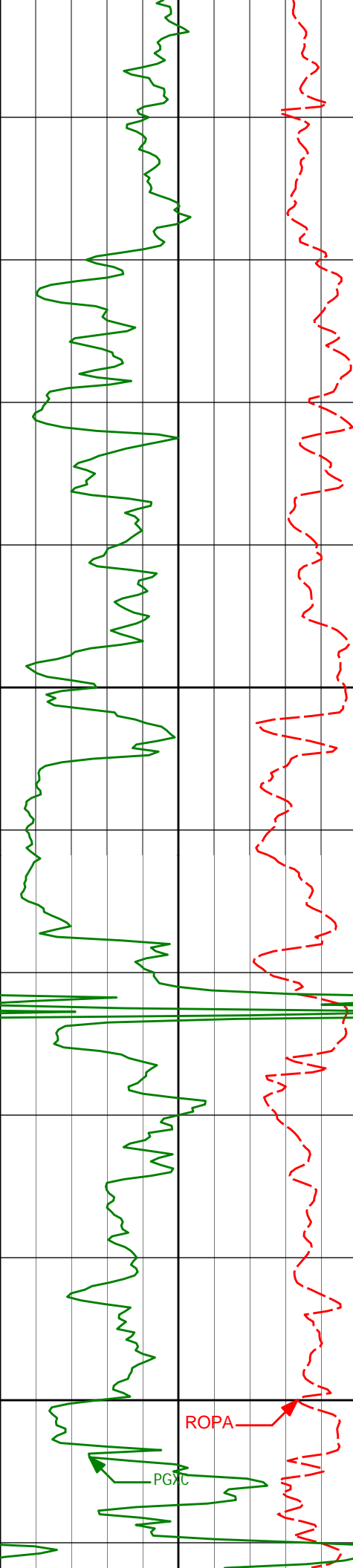
0.15°

206.11°

7742.30'

516.48'

7800



7900

8000

7874'

0.10°

60.39°

7832.30'

516.50'

7963'

0.14°

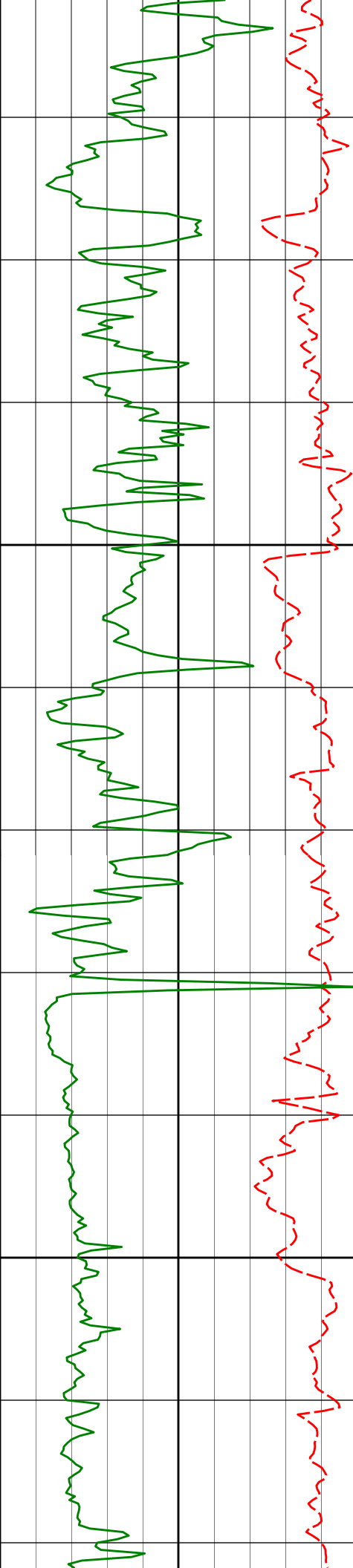
65.39°

7921.30'

516.32'

ROPA

PG/C



8100

8200

8053'

8143'

8232'

0.06°

0.10°

0.13°

97.99°

265.13°

160.32°

8011.30'

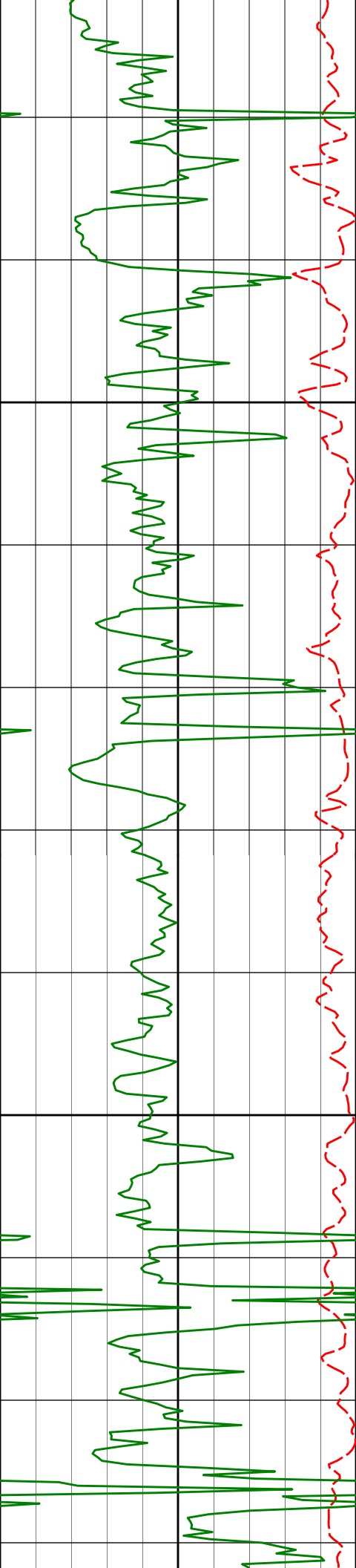
8101.30'

8190.30'

516.17'

516.20'

516.28'



8300

8322'

0.20°

290.85°

8280.30'

516.40'

8400

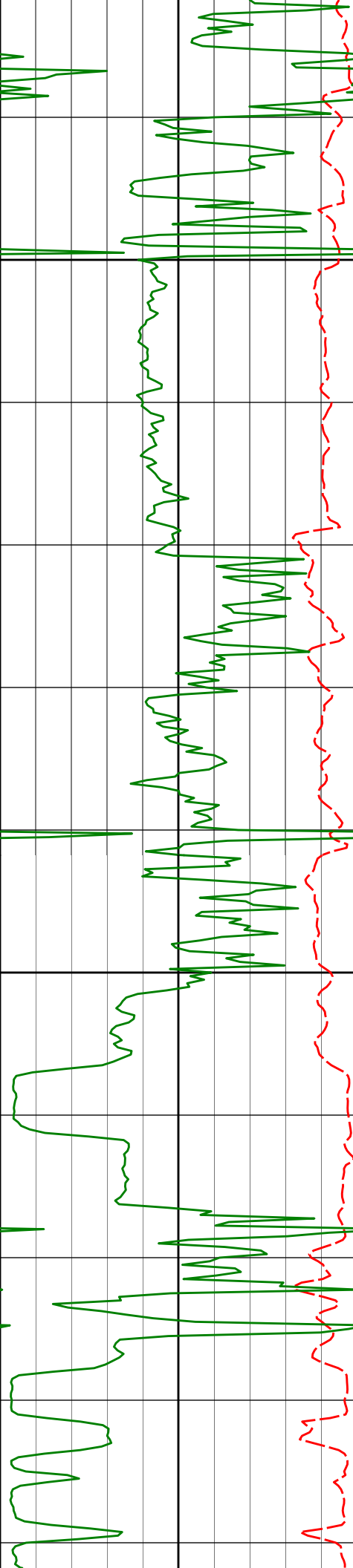
8412'

0.16°

77.32°

8370.30'

516.39'



8500

8501'

0.10°

164.57°

8459.30'

516.28'

8591'

0.09°

161.20°

8549.30'

516.30'

8600

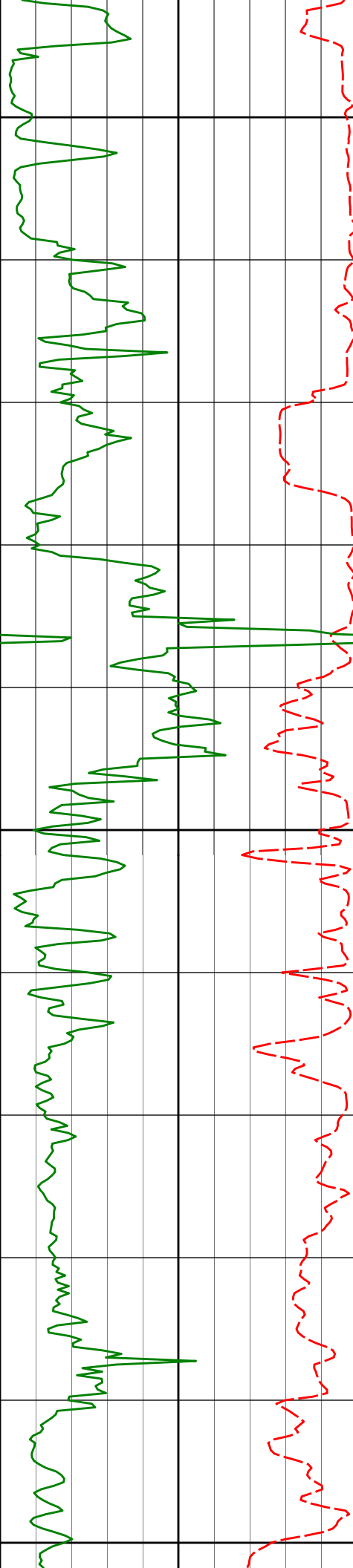
8681'

0.07°

55.57°

8639.30'

516.26'



8700

8800

8900

8770'

0.10°

228.97°

8728.30'

516.28'

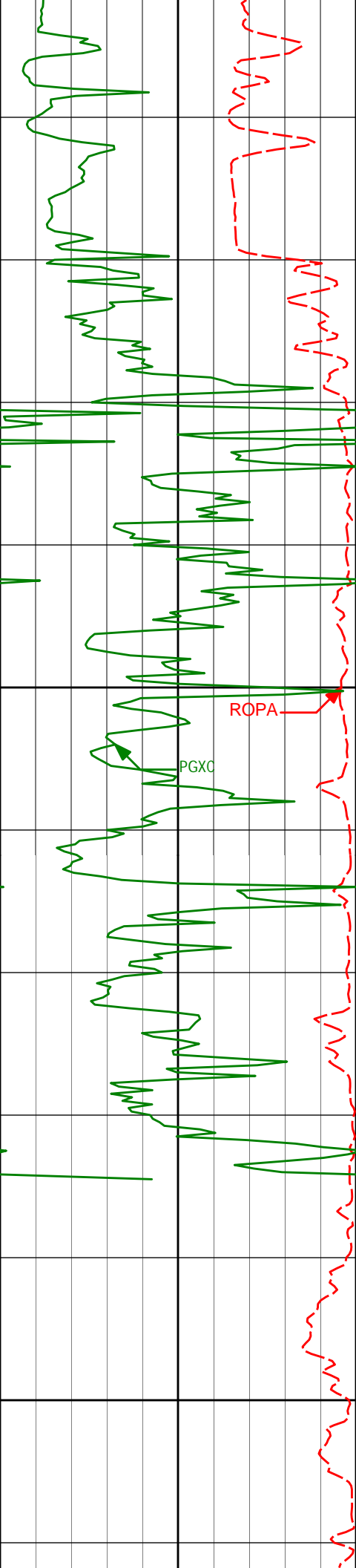
8860'

0.22°

22.29°

8818.29'

516.22'



8950'

0.07°

259.51°

8908.29'

516.15'

9000

ROPA

PGXC

9039'

0.06°

109.94°

8997.29'

516.16'

9071'

0.09°

176.49°

9029.29'

516.16'

9100

<div>TD @ 9150' MD</div>									
<div>PCG GR XHi-Range RT BCor api</div> <div>0300</div> <div>Avg Rate of Penetration feet per hr</div> <div>5000</div>									
Depth ft		Depth	Inc	Azi	TVD		V.S.		
		9150'	0.09°	176.49°	9108.29'		516.21'		



HALLIBURTON

DIRECTIONAL SURVEY REPORT

Noble Energy
Bethyl GW30-16
Wildcat
Weld Colorado
USA
CA-XX-0900671434

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
131.00	0.20	262.00	131.00	0.03 S	0.23 W	0.22	0.15
207.00	0.50	309.00	207.00	0.16 N	0.62 W	0.49	0.52
319.00	0.60	318.00	318.99	0.90 N	1.39 W	0.87	0.12
414.00	0.30	284.00	413.99	1.33 N	1.96 W	1.21	0.41
510.00	0.20	198.90	509.99	1.23 N	2.26 W	1.52	0.36
605.00	0.20	279.00	604.99	1.10 N	2.48 W	1.77	0.27
699.00	0.40	278.90	698.99	1.18 N	2.96 W	2.18	0.21
794.00	0.20	302.70	793.99	1.32 N	3.43 W	2.54	0.24
857.00	0.20	307.20	856.99	1.45 N	3.61 W	2.65	0.02
882.00	0.09	107.77	881.99	1.47 N	3.63 W	2.65	1.16
972.00	0.13	114.56	971.99	1.40 N	3.47 W	2.54	0.04
1061.00	0.14	89.30	1060.99	1.36 N	3.27 W	2.38	0.07
1151.00	0.25	31.00	1150.99	1.54 N	3.06 W	2.11	0.24
1241.00	0.14	348.65	1240.98	1.81 N	2.98 W	1.92	0.20
1330.00	0.11	245.20	1329.98	1.88 N	3.08 W	1.98	0.22
1420.00	0.18	354.04	1419.98	1.99 N	3.17 W	2.02	0.27
1510.00	0.06	117.73	1509.98	2.10 N	3.14 W	1.95	0.24
1599.00	0.20	169.33	1598.98	1.93 N	3.07 W	1.95	0.19
1689.00	0.31	205.78	1688.98	1.56 N	3.15 W	2.18	0.21
1779.00	0.91	195.09	1778.98	0.65 N	3.44 W	2.83	0.68
1868.00	1.75	221.85	1867.95	1.04 S	4.53 W	4.54	1.14
1958.00	3.38	242.34	1957.86	3.29 S	7.79 W	8.45	2.05
2048.00	4.64	247.50	2047.64	5.92 S	13.50 W	14.74	1.45
2137.00	5.75	245.67	2136.27	9.13 S	20.89 W	22.79	1.26
2227.00	6.96	248.62	2225.72	12.97 S	30.07 W	32.73	1.40
2317.00	8.82	247.02	2314.86	17.66 S	41.51 W	45.08	2.08
2406.00	11.17	245.61	2402.51	23.89 S	55.65 W	60.52	2.65
2496.00	11.14	243.06	2490.81	31.43 S	71.34 W	77.93	0.55
2585.00	10.95	240.71	2578.16	39.46 S	86.38 W	94.96	0.55
2675.00	9.56	243.35	2666.72	46.99 S	100.52 W	110.96	1.63
2765.00	9.83	250.00	2755.43	52.97 S	114.42 W	126.08	1.28

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 244.75 DEGREES (GRID)
A TOTAL CORRECTION OF 7.79 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED

HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.
HORIZONTAL DISPLACEMENT(CLOSURE) AT 9150.00 FEET
IS 516.36 FEET ALONG 243.36 DEGREES (GRID)

Tie onto Vaughn ESS Rig Survey @ 857' MD

Final Survey is a projection to bit at TD

Date Printed: 28 August 2013