HALLIBURTON | Sperry Drilling

PCDC - Pressure Case Directional
PCGK - Pressure Case Gamma

Powered by INSITE™

1 : 600 / 1 : 240

Company	**Noble**
Rig	**H&P 321**
Well	**Tripucka State LD02-75-1BHN**
Field	**Wildcat**
Country	**USA**
API Number	**05-123-39875**

Country : **USA**
Field : **Wildcat**
Location : **Lat: 40° 46' 30.04" North Long: 103° 49' 43.90" West**
Well : **Tripucka State LD02-75-1BHN**
Company : **Noble**
Rig : **H&P 321**

LOCATION
Latitude : **40° 46' 30.04" North**
Longitude : **103° 49' 43.90" West**
UTM Easting = **3,462,827.670 ft**
UTM Northing = **1,529,543.210 ft**

Other Services
Directional Drilling

Permanent Datum : **Ground Level**
Elevation : **4676.00 ft**
Log Measured From : **Drill Floor** **30.00 ft** Above Permanent Datum
Drilling Measured From : **Drill Floor**

MD LOG

Elev. KB **N/A**
DF **4706.00 ft**
GL **4676.00 ft**
WD **N/A**

Depth Logged : **1,243.00 ft** To **9,577.00 ft**
Date Logged : **08-Jan-15** To **12-Jan-15**
Total Depth MD : **9,577.00 ft** TVD : **5,521.89 ft**
Spud Date : **08-Jan-15**

Unit No. : **11210424**
Job No. : **CA-XX-0901941248**

Plot Type : **Final**
Plot Date : **13-Jan-15**

Run No.	Borehole Record (MD) Size	From	To
100	8.750 in	1,243.00 ft	5,895.00 ft
200	6.125 in	5,895.00 ft	9,577.00 ft

Run No.	Borehole Record (MD) Size	From	To

Casing Record (MD) Size	Weight	From	To
9.625 in	34.90 lbpf	SURFACE	1,243.00 ft
7.000 in	25.70 lbpf	SURFACE	5,940.00 ft

WELL INFORMATION

MWD Run Number	100	200
Date run completed	10-Jan-15	12-Jan-15
Rig Bit Number	2	3
Bit Size (in)	8.750	6.125
Tool Nominal OD (in)	6.750	4.800
Log Start Depth (MD, ft)	1,243.00	5,950.00
Log End Depth (MD, ft)	5,950.00	9,577.00
Drill or Wipe	Drill	Drill
Drill/Wipe Start Date and Time	09-Jan-15 08:22	11-Jan-15 11:30
Drill/Wipe End Date and Time	10-Jan-15 09:05	12-Jan-15 10:35
Min Inc (deg) @ Depth (MD, ft)	0.15 @ 2,677.00	86.86 @ 6,012.00
Max Inc (deg) @ Depth (MD, ft)	86.36 @ 5,895.00	93.95 @ 8,094.00
Bit TFA(in2) / Bit Type	1.74 / PDC	0.65 / PDC
Flow Rate (gpm)	551.28	315.00
Max AV (fpm) / CV (fpm) @ MWD	N/A / N/A	N/A / N/A
Fluid Type	Fresh Water Gel	Fresh Water Gel
Density (ppg) / Viscosity (spqt)	9.70 / 45.00	10.18 / 38.00
Filtrate CL (ppm)	1,800.00	1,600.00
pH / Fluid Loss (mptm)	9.70 / 7	10.90 / 9
PV (cP) / YP (lhf2)	12 / 12.00	8 / 9.00
% Solids / % Sand	11.50 / 0.40	9.10 / 0.35
% Oil / Oil:Water Ratio	N/A / N/A	N/A / N/A
Rm @ Measured Temp (degF)	N/A @ N/A	N/A @ N/A
Rmf @ Measured Temp (degF)	N/A @ N/A	N/A @ N/A
Rmc @ Measured Temp (degF)	N/A @ N/A	N/A @ N/A

Max Tool Temp (degF) / Source	150.10 / PCM	192.30 / PCM			
Rm @ Max Tool Temp (degF)	N/A @ 150.10	N/A @ 192.30			
Lead MWD Engineer	Robert Barnes	Robert Barnes			
Customer Representative	Stetson Nielsen	Stetson Nielsen			

SENSOR INFORMATION

Downhole Processor Information

Tool Type	PCM	PCM			
Software Version	5.93	5.93			
Sub Serial Number	11341338	12334786			
Insert Serial Number	11680738	11620311			
Date and Time Initialized	08-Jan-15 17:14	10-Jan-15 12:07			
Date and Time Read	10-Jan-15 13:44	12-Jan-15 17:31			
ECMB SW Version	N/A	N/A			

Directional Sensor Information

Tool Type	PCDC	PCDC			
Distance From Bit (ft)	55.00	63.00			
Software Version	6.21	6.21			
Sub Serial Number	11341338	12334786			
Sonde Serial Number	11062056	11833222			
Sensor ID Number	N/A	N/A			
Toolface Offset (deg)	105.23	255.75			

Gamma Ray Sensor Information

Tool Type	PCG	PCG			
Distance From Bit (ft)	48.01	66.15			
Recorded Sample Period (sec)	10	10			
Software Version	8.15	8.15			
Sub Serial Number	11341338	12334786			
Insert/Sonde Serial Number	11293410	11120594			

REMARKS

1. All depths are calibrated to driller's pipe tally and are measured depth's from the Drill Floor.

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

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

4. All data presented is recorded data unless otherwice specified.

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

1:600 Log
PGRC (Gamma CG) and ROPA (Average Rate of Penetration)
Interval Resolution: 1.0 ft
Interval Distance: 3.0 ft

1:240 Log
PGRC (Gamma CG):
Interval Resolution: 0.5 ft
Interval Distance: 0.6 ft

ROPA (Average Rate Of Penetration):
Interval Resolution: 0.5 ft

Interval Distance: 1.2 ft

6. Insite Version V8.0.20

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.

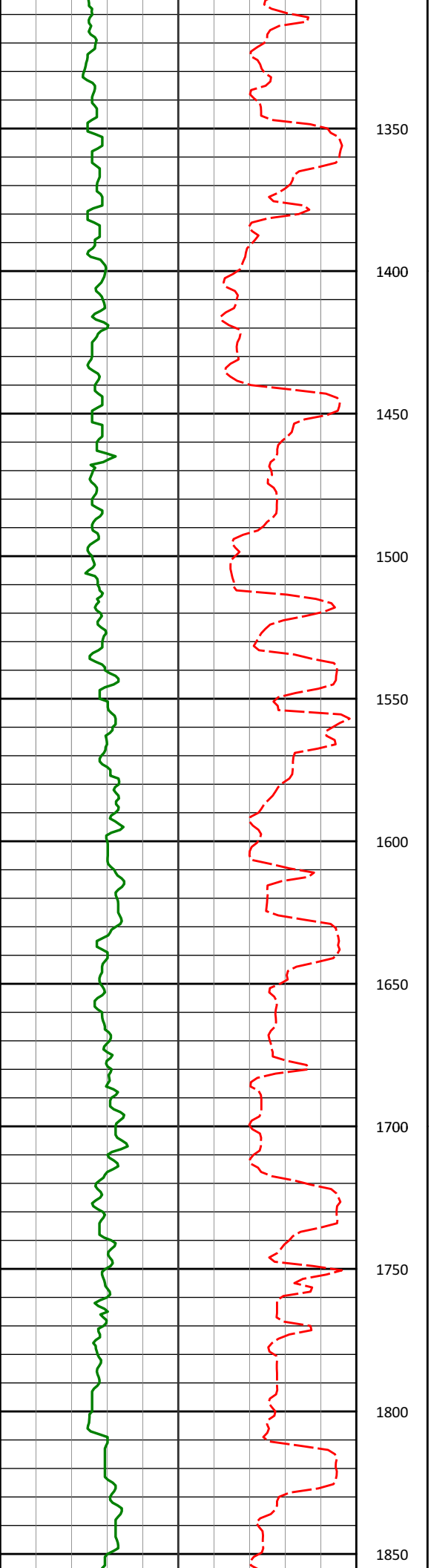
HALLIBURTON
Sperry Drilling Services
MD Correlation Log 1:600

Noble Energy
Tripucka_State_LD02-75-1BHN
H&P 321
Sec.2-T9N-R58W

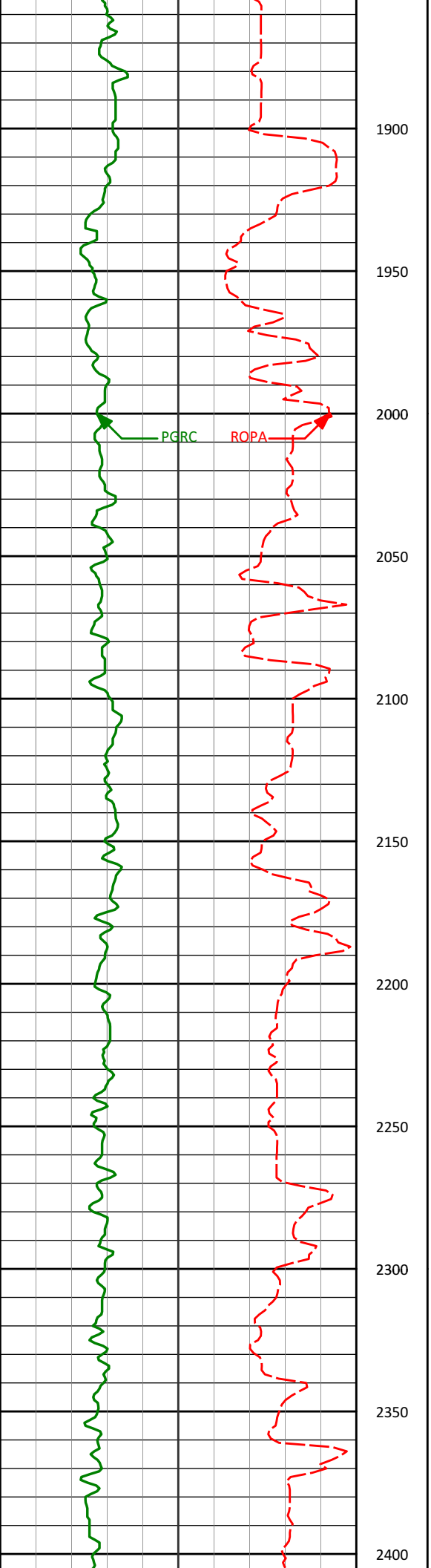
PCG Gamma Ray BCorr
PGRC
0 api 300

Avg Rate of Penetration
ROPA
1K feet per hr 0

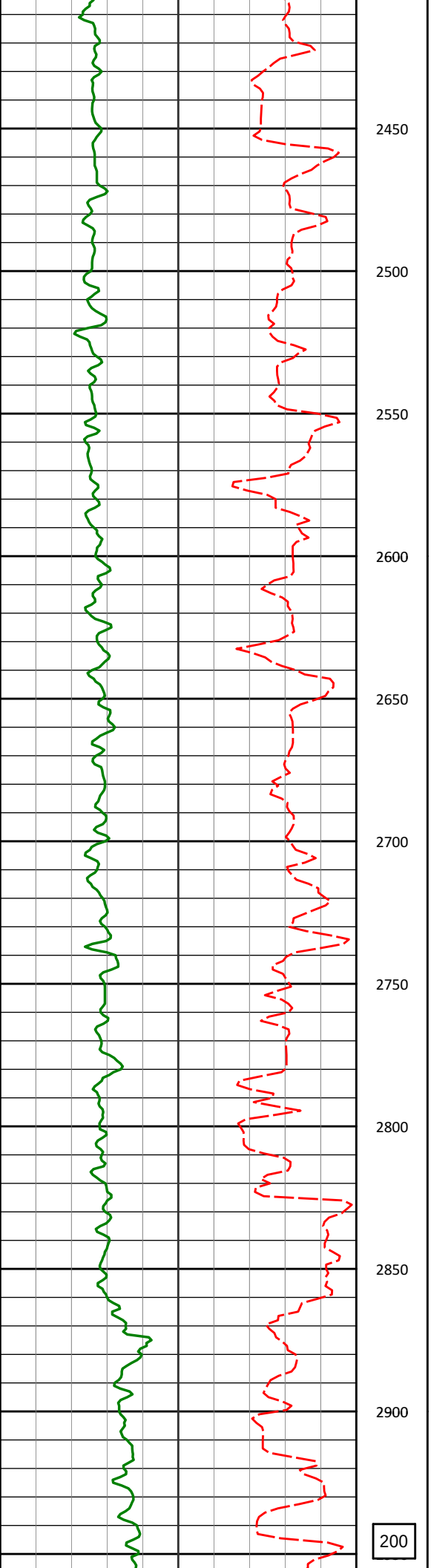
Depth ft	*Depth*	*Inc.*	*Azi.*	*TVD*	*V.S.*
1150					
1200					
100					
1250					
1300	1298'	0.72°	233.71°	1297.92'	0.71'



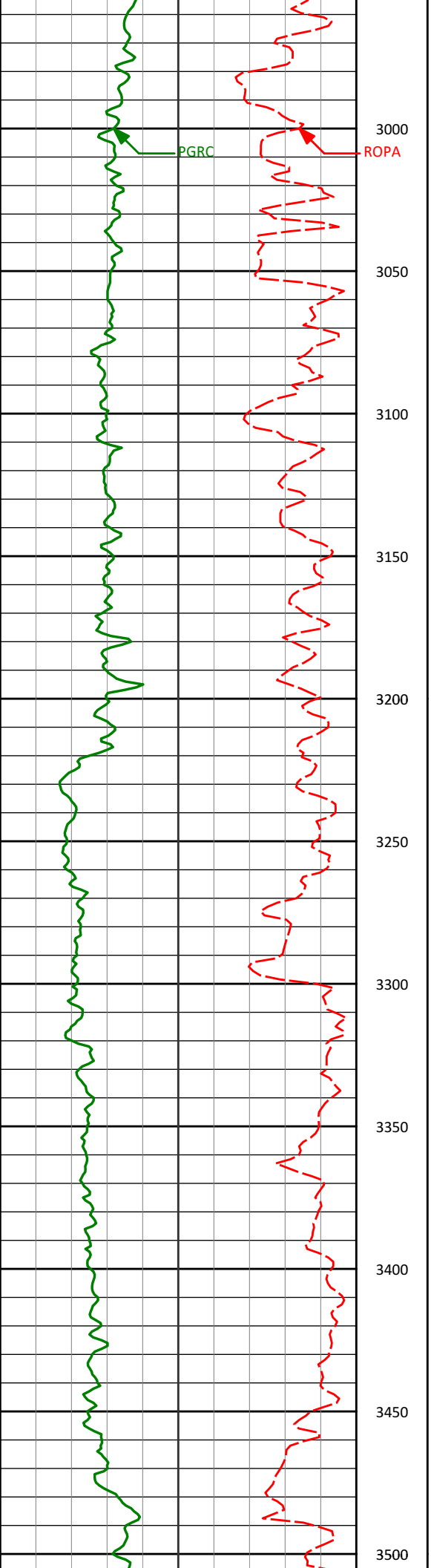
1482'	0.49°	219.84°	1481.91'	-0.44'
1574'	0.97°	134.61°	1573.91'	-1.31'
1666'	0.93°	141.02°	1665.89'	-2.53'
1757'	0.55°	119.59°	1756.88'	-3.39'
1850'	0.46°	114.56°	1849.88'	-3.83'



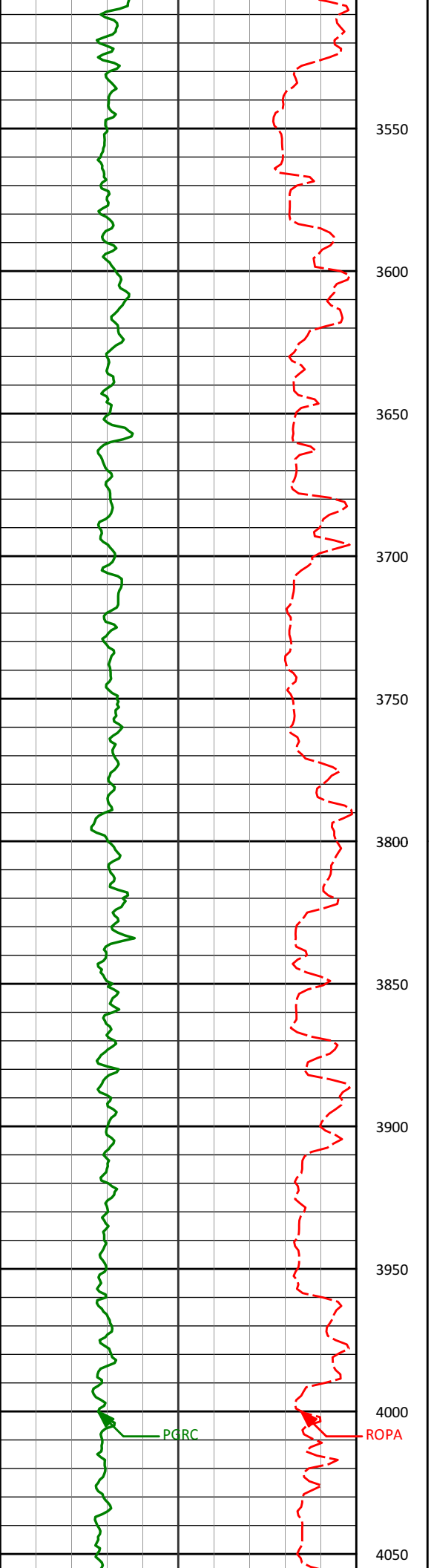
1941'	0.39°	89.95°	1940.88'	-4.04'
2033'	0.16°	127.74°	2032.88'	-4.15'
2217'	0.33°	59.11°	2216.88'	-4.09'
2402'	0.36°	81.16°	2401.87'	-3.82'



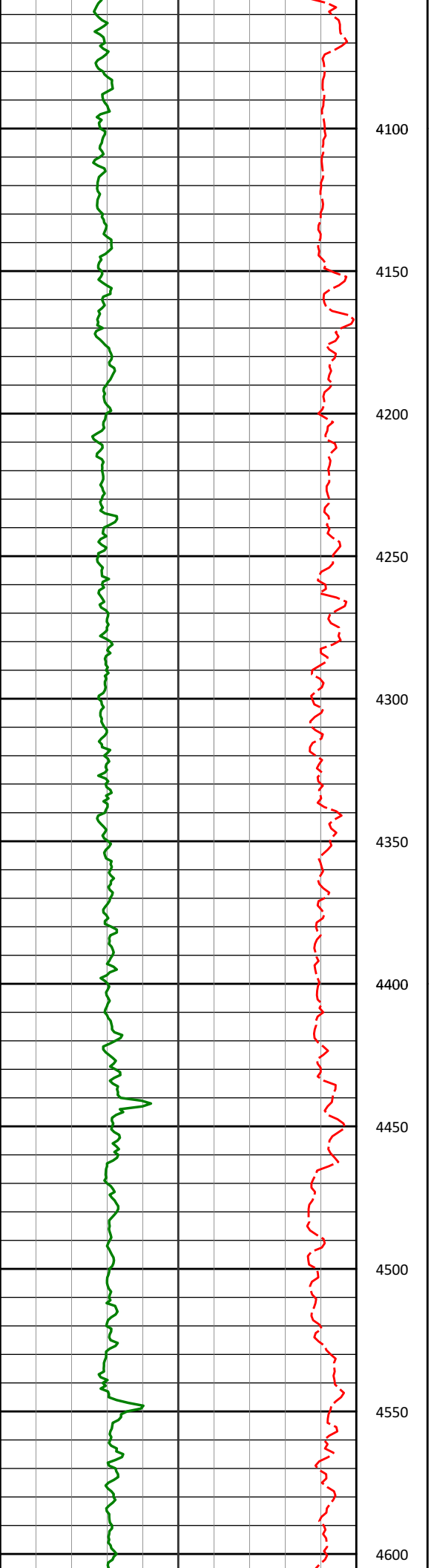
2494'	0.41°	68.48°	2493.87'	-3.71'
2586'	0.33°	48.92°	2585.87'	-3.46'
2677'	0.15°	12.62°	2676.87'	-3.19'
2772'	0.17°	81.94°	2771.87'	-3.06'
2867'	0.95°	340.94°	2866.86'	-2.29'



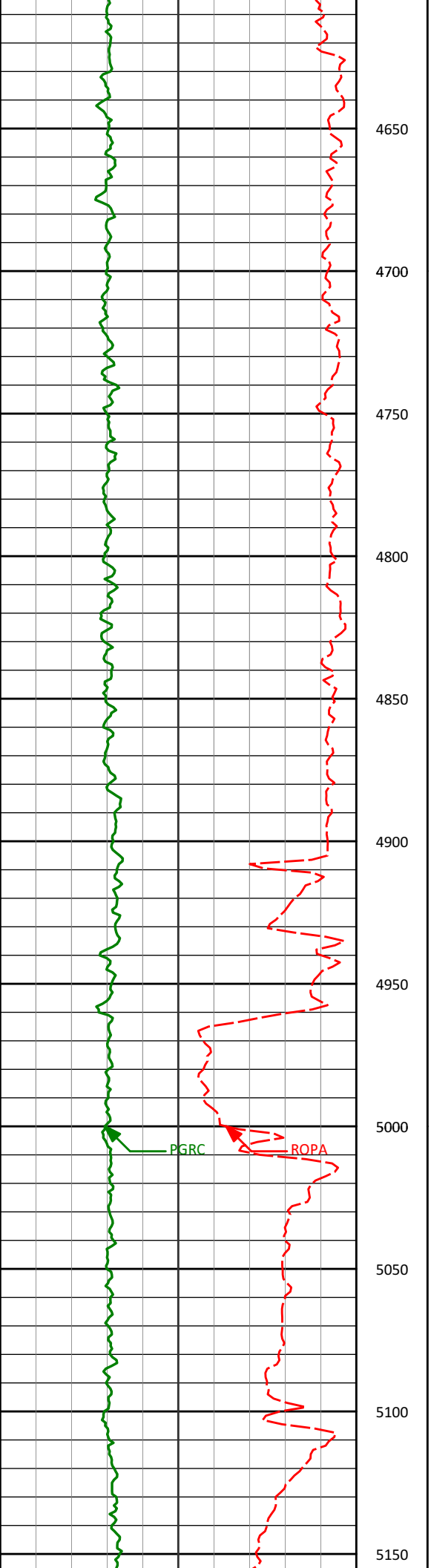
2962'	1.66°	290.82°	2961.84'	-0.92'
3056'	2.60°	288.07°	3055.78'	0.51'
3151'	5.29°	291.00°	3150.54'	3.29'
3245'	6.92°	301.16°	3244.01'	8.54'
3340'	8.29°	294.89°	3338.17'	15.35'
3435'	10.76°	289.42°	3431.86'	22.45'



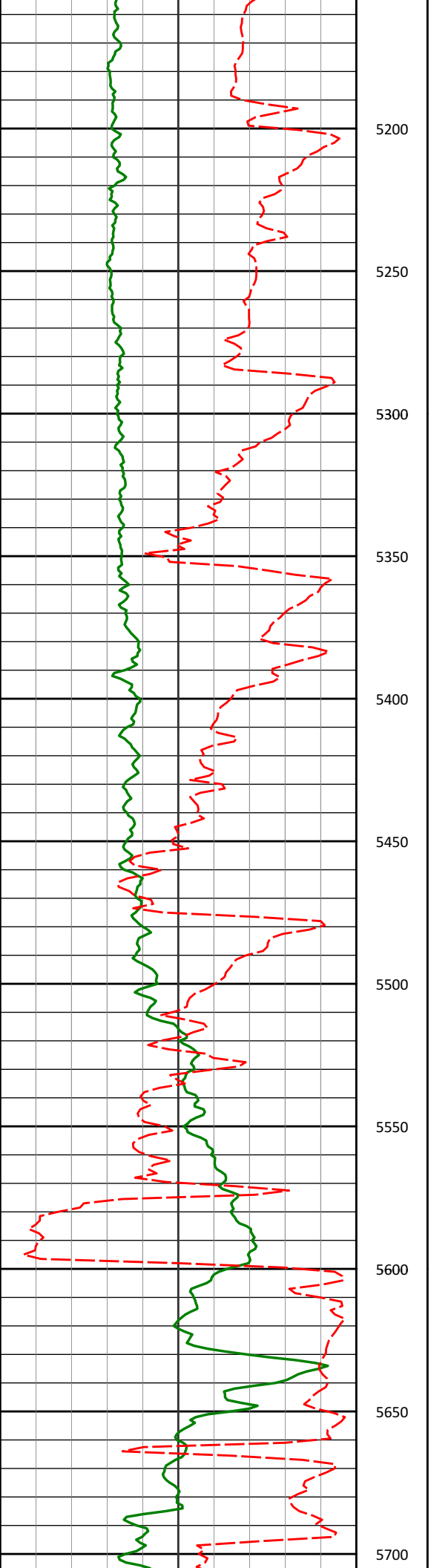
3529'	11.62°	281.43°	3524.07'	28.78'
3623'	10.60°	278.07°	3616.31'	33.43'
3718'	8.13°	275.98°	3710.04'	36.71'
3812'	9.57°	276.74°	3802.92'	39.59'
3907'	10.90°	278.13°	3896.40'	43.26'
4001'	10.51°	275.23°	3988.77'	46.82'



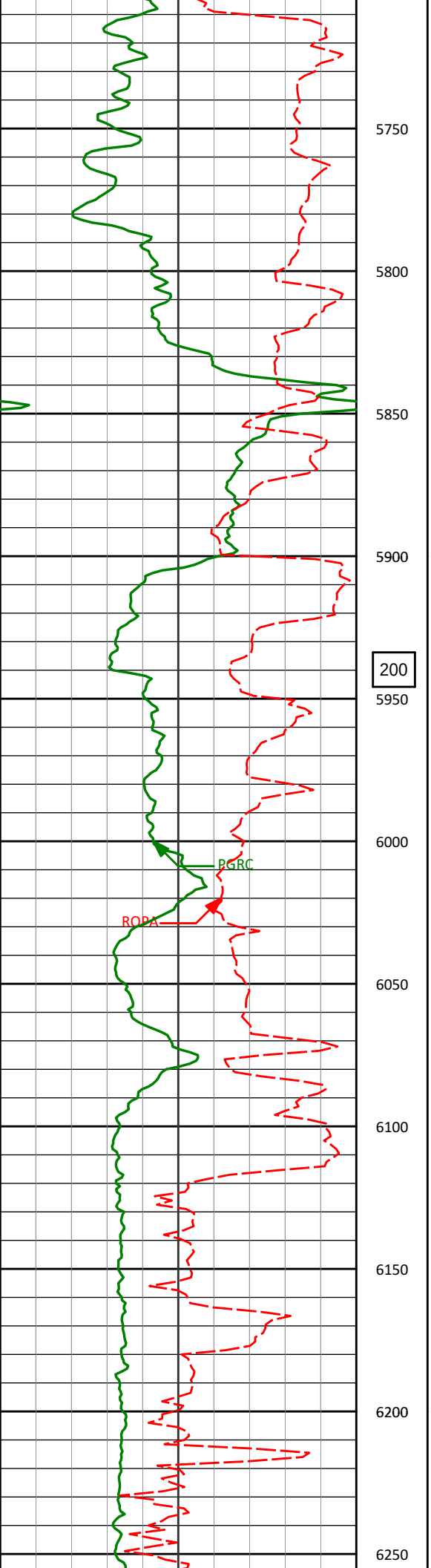
4096'	10.87°	275.31°	4082.12'	49.99'
4191'	10.62°	277.79°	4175.45'	53.55'
4285'	9.79°	274.10°	4267.96'	56.76'
4380'	8.08°	261.77°	4361.82'	57.68'
4475'	7.45°	263.12°	4455.95'	57.12'
4569'	6.67°	272.68°	4549.24'	57.66'



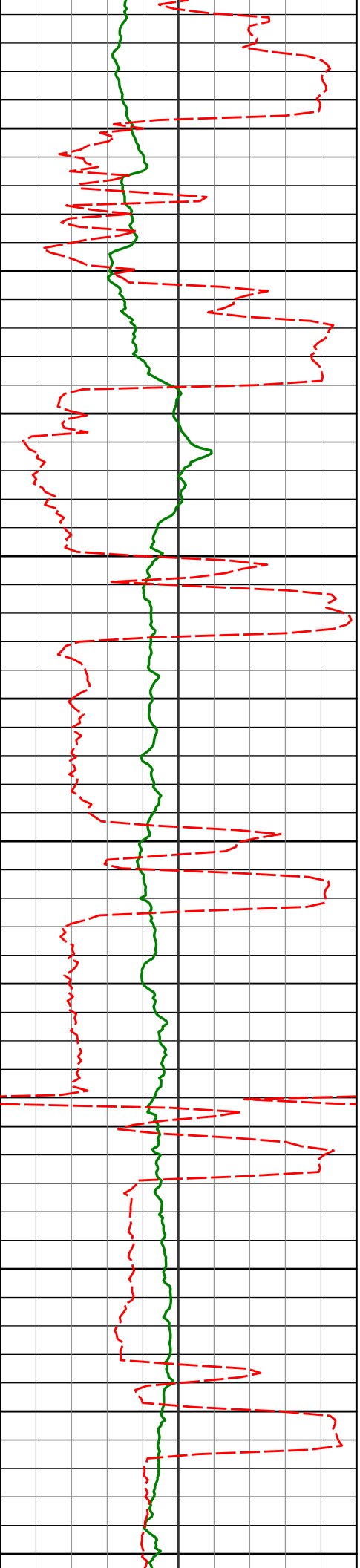
4664'	5.63°	288.04°	4643.69'	60.24'
4759'	3.63°	316.96°	4738.39'	64.44'
4853'	1.52°	341.80°	4832.29'	68.00'
4948'	3.30°	60.63°	4927.23'	70.35'
5043'	6.98°	35.53°	5021.84'	75.86'
5137'	14.14°	16.50°	5114.21'	90.90'



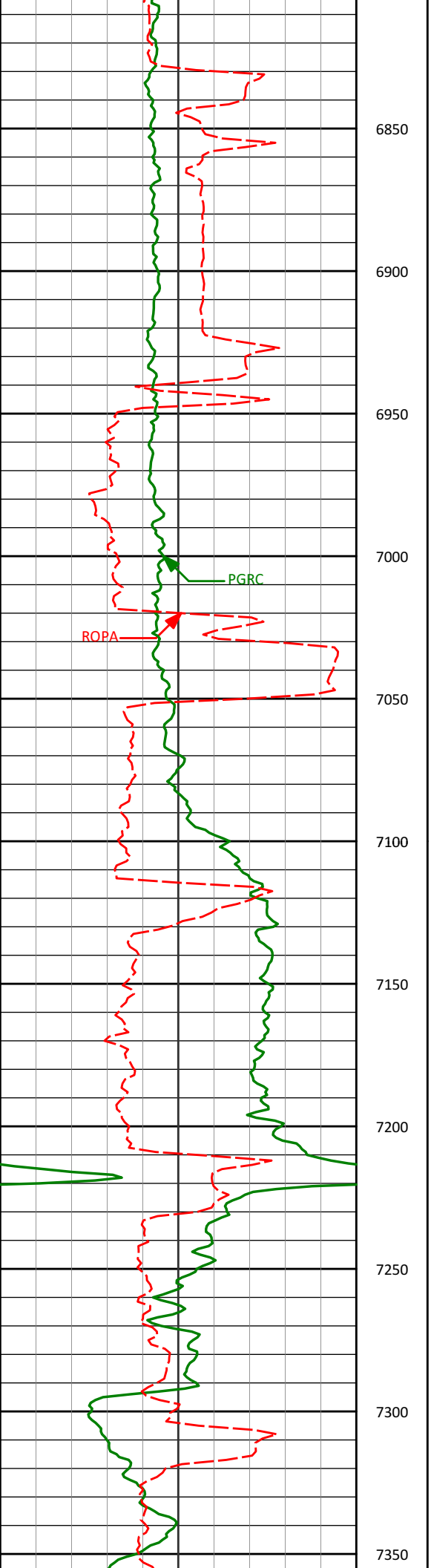
5232'	22.26°	4.45°	5204.41'	119.50'
5326'	32.57°	358.07°	5287.76'	162.44'
5421'	43.71°	359.14°	5362.37'	220.89'
5516'	57.51°	0.53°	5422.51'	293.85'
5611'	65.15°	1.51°	5468.06'	376.66'
5659'	68.88°	359.56°	5486.80'	420.63'



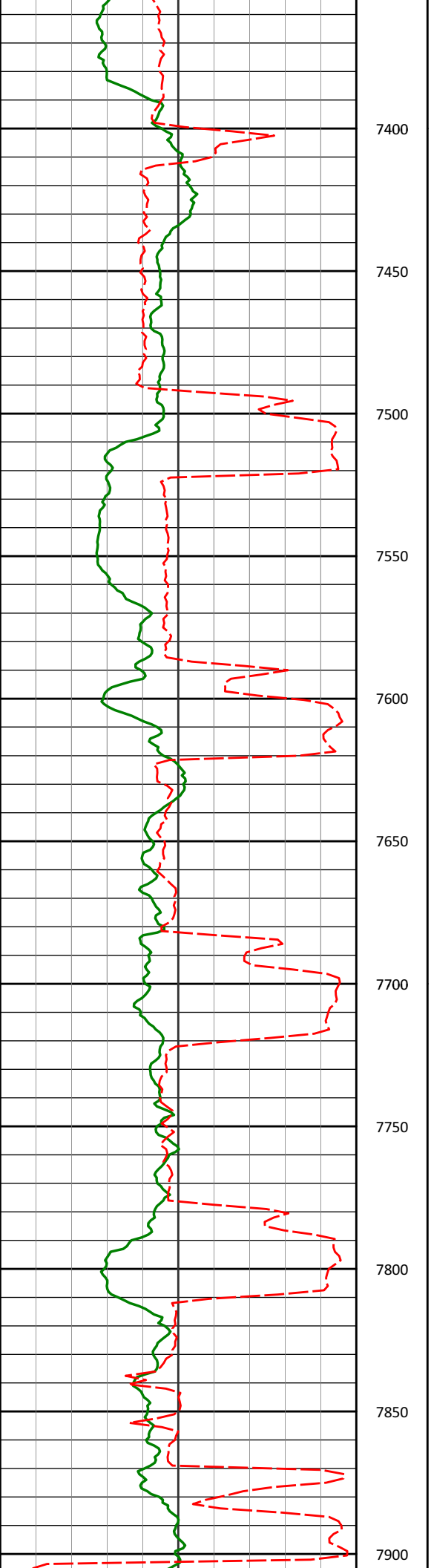
5706'	70.10°	357.74°	5503.27'	464.55'
5754'	74.82°	356.61°	5517.73'	510.27'
5801'	80.90°	355.48°	5527.61'	556.19'
5849'	85.77°	355.40°	5533.18'	603.85'
5895'	86.36°	356.16°	5536.33'	649.74'
6012'	86.86°	356.30°	5543.25'	766.50'
6103'	89.54°	355.23°	5546.11'	857.44'
6198'	90.49°	353.57°	5546.08'	952.43'



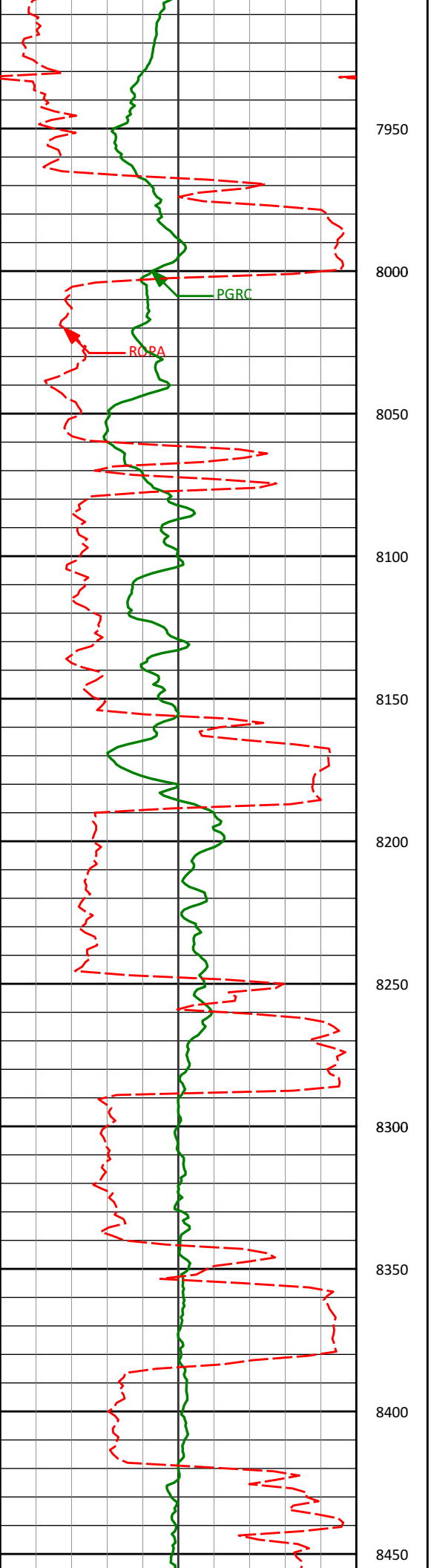
6293'	91.42°	353.86°	5544.50'	1047.39'
6388'	92.31°	356.62°	5541.41'	1142.33'
6483'	91.54°	357.97°	5538.22'	1237.19'
6577'	91.23°	357.65°	5535.94'	1331.04'
6672'	90.71°	357.63°	5534.34'	1425.92'
6767'	90.80°	359.27°	5533.08'	1520.73'



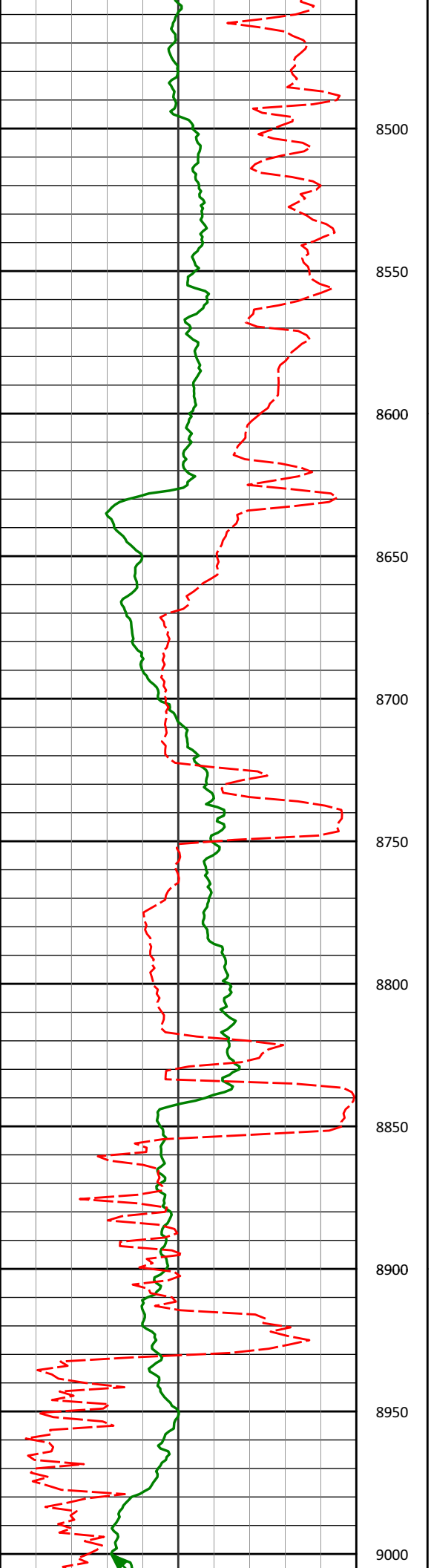
6862'	89.66°	356.96°	5532.70'	1615.58'
6957'	88.95°	355.34°	5533.85'	1710.54'
7052'	91.11°	358.71°	5533.80'	1805.46'
7146'	91.45°	359.08°	5531.70'	1899.21'
7241'	91.88°	357.66°	5528.94'	1994.00'
7336'	92.28°	356.52°	5525.50'	2088.86'



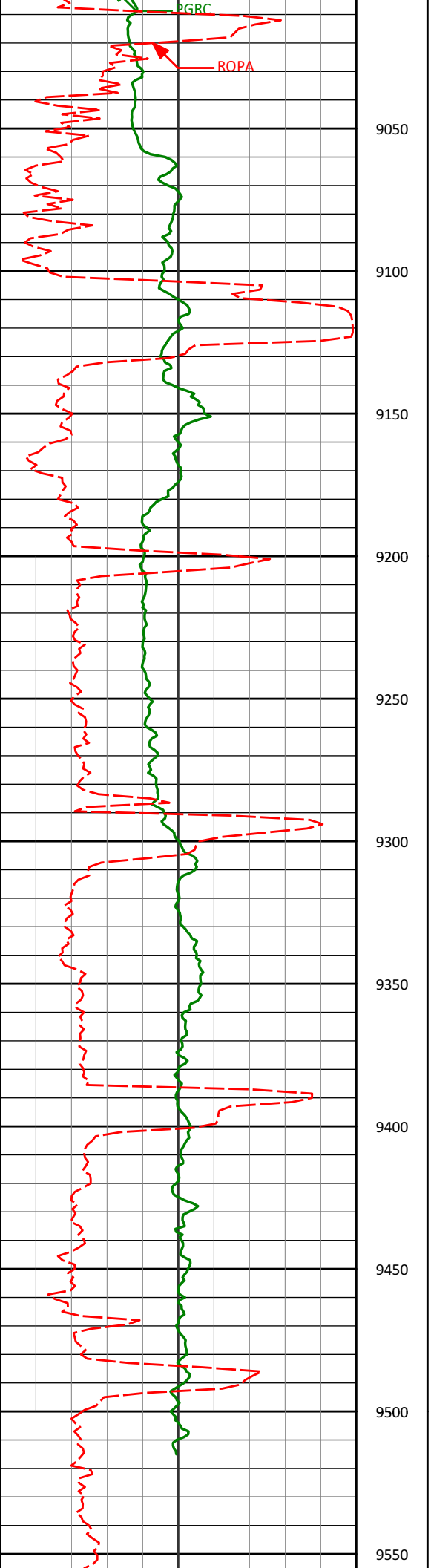
7431'	91.51°	353.50°	5522.35'	2183.80'
7526'	92.00°	356.62°	5519.44'	2278.74'
7620'	92.13°	358.25°	5516.05'	2372.59'
7715'	91.39°	359.29°	5513.14'	2467.33'
7810'	88.40°	357.11°	5513.32'	2562.15'
7904'	88.30°	357.27°	5516.03'	2656.04'



7999'	91.85°	1.38°	5515.90'	2750.73'
8094'	93.95°	1.50°	5511.09'	2844.99'
8189'	93.30°	1.54°	5505.09'	2939.17'
8284'	91.23°	0.77°	5501.33'	3033.52'
8378'	89.11°	0.43°	5501.05'	3127.06'



8473'	89.08°	0.09°	5502.56'	3221.63'
8568'	89.38°	0.19°	5503.84'	3316.23'
8663'	89.63°	0.30°	5504.66'	3410.82'
8757'	89.85°	2.20°	5505.09'	3504.24'
8852'	87.35°	358.22°	5507.41'	3598.78'
8946'	88.43°	0.34°	5510.88'	3692.44'



9041'	88.89°	1.27°	5513.10'	3786.91'
9136'	88.55°	359.58°	5515.22'	3881.44'
9231'	88.58°	358.99°	5517.59'	3976.14'
9325'	89.82°	359.59°	5518.91'	4069.85'
9420'	89.54°	359.47°	5519.44'	4164.54'
9514'	88.92°	358.26°	5520.71'	4258.31'

TD well @ 9577 MD

Depth	Inc.	Azi.	TVD	V.S.
9577'	88.92°	358.26°	5521.89'	4321.19'

Avg Rate of Penetration
ROPA
1K feet per hr 0

Depth ft

PCG Gamma Ray BCorr
PGRC
0 api 300

HALLIBURTON
Sperry Drilling Services
MD Detail Log 1:240

Noble Energy
Tripucka_State_LD02-75-1BHN
H&P 321
Sec. 2-T9N-R58W

PCG Gamma Ray BCorr
PGRC
0 api 300

Avg Rate of Penetration
ROPA
1K feet per hr 0

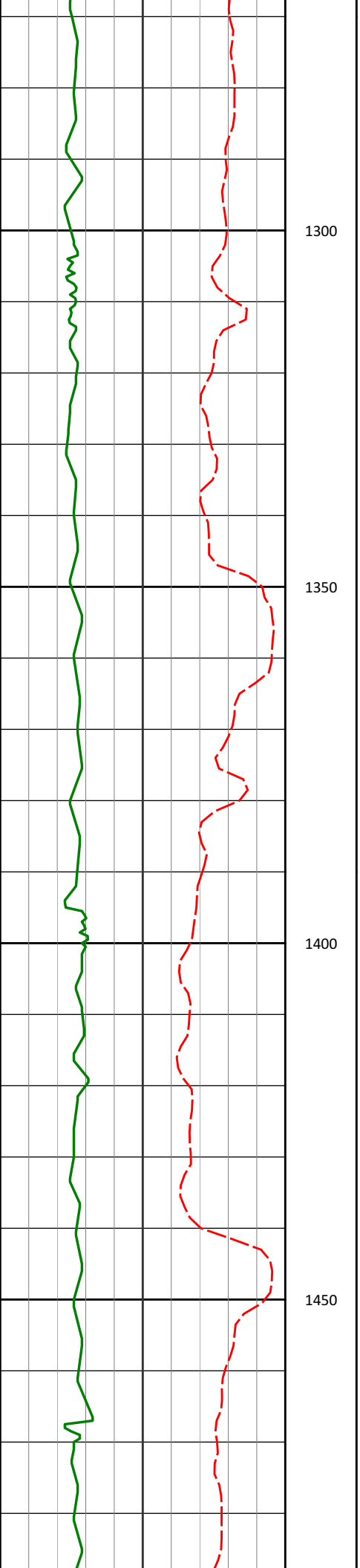
Depth ft

Depth	Inc.	Azi.	TVD	V.S.

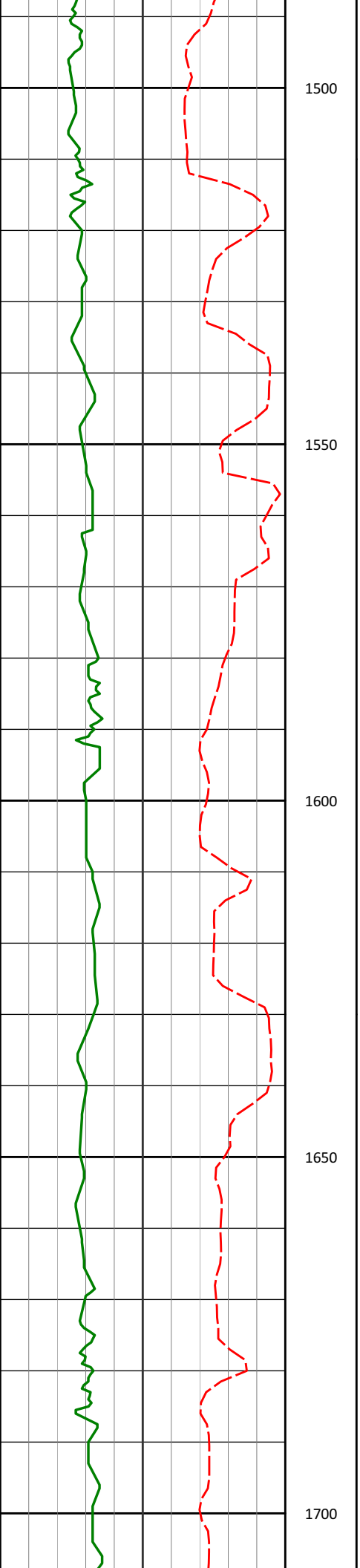
1200

Run 100

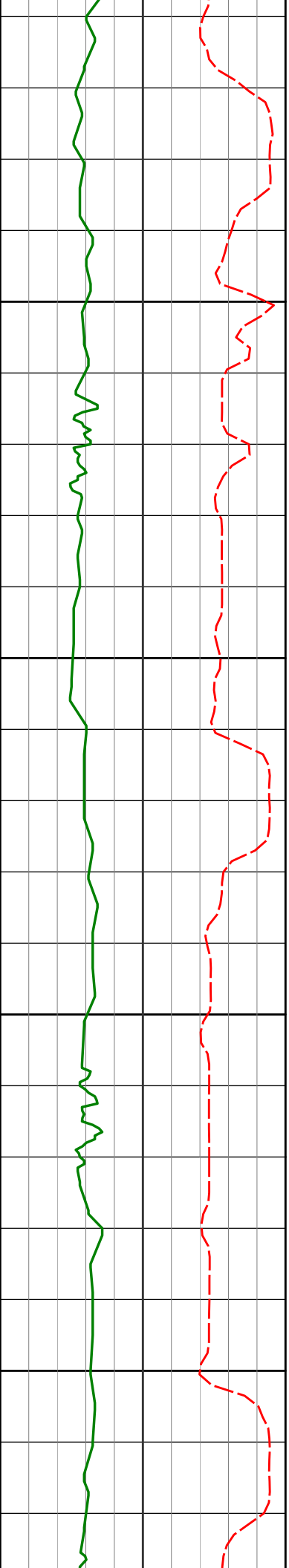
1250



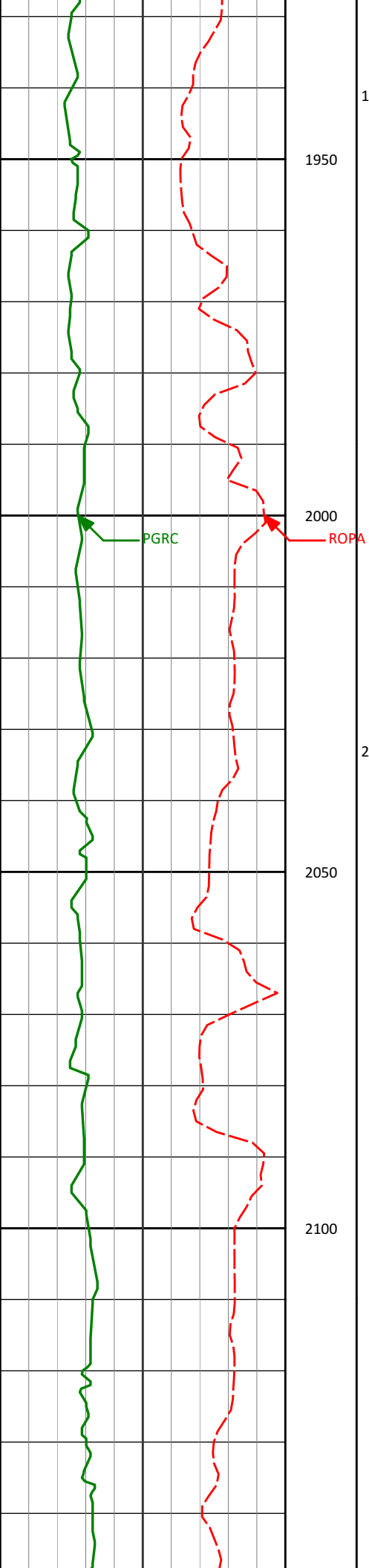
1298'	0.72°	233.71°	1297.92'	0.71'
1482'	0.49°	219.84°	1481.91'	-0.44'



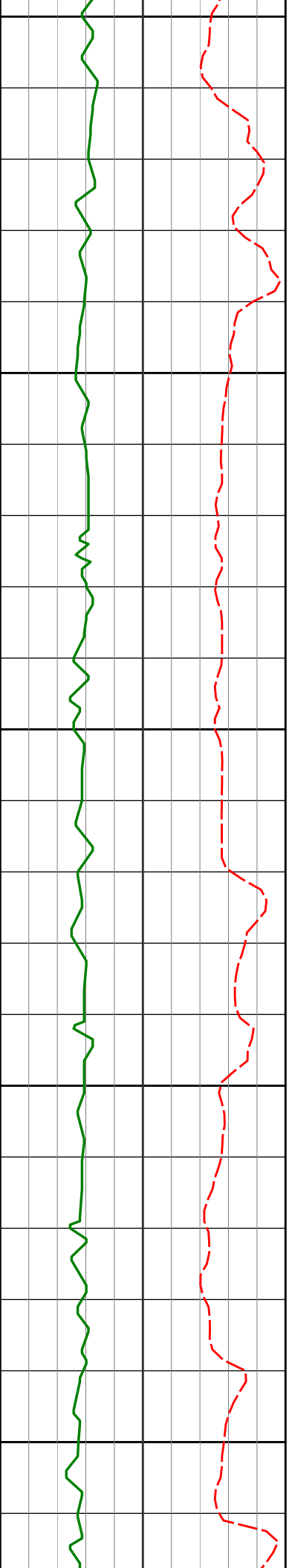
1574'	0.97°	134.61°	1573.91'	-1.31'
1666'	0.93°	141.02°	1665.89'	-2.53'



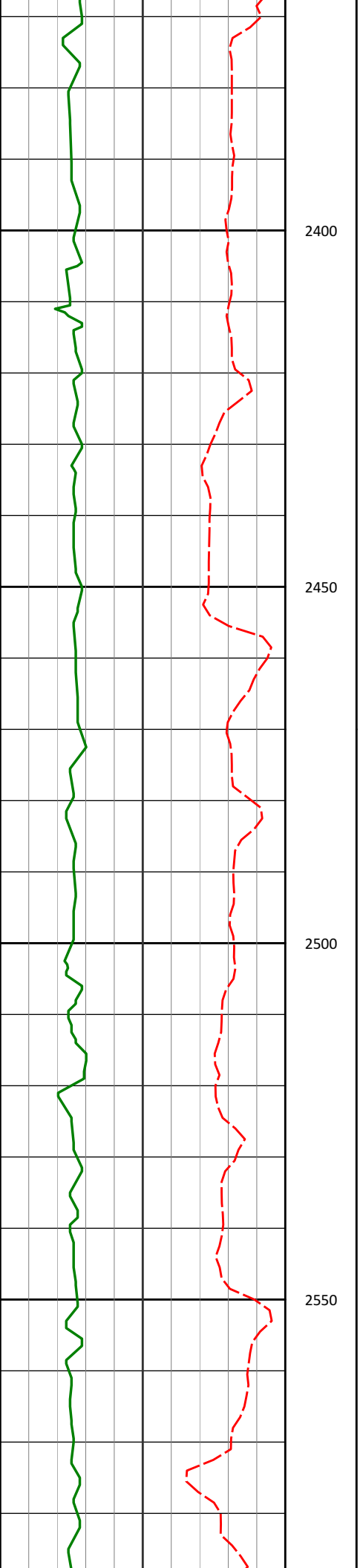
1757'	0.55°	119.59°	1756.88'	-3.39'
1850'	0.46°	114.56°	1849.88'	-3.83'



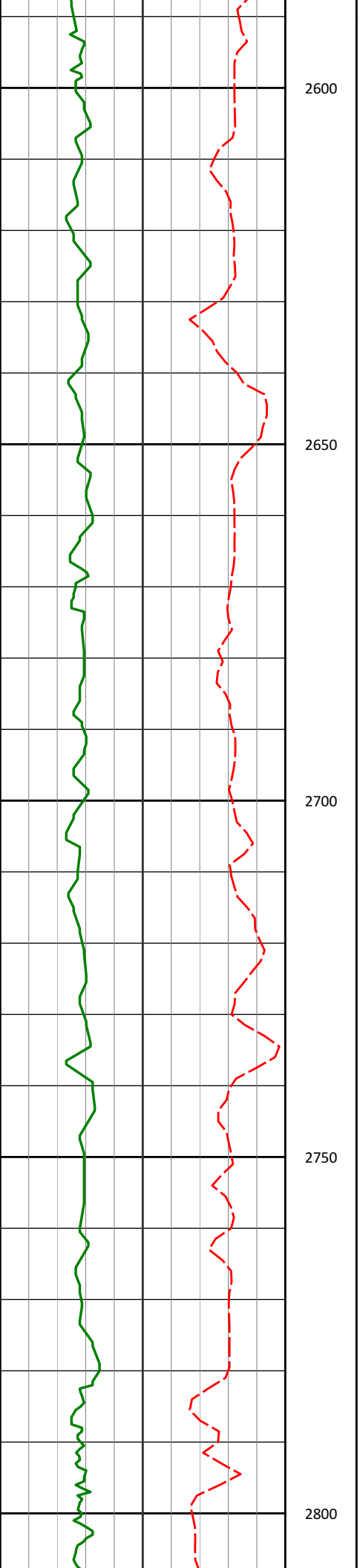
1941'	0.39°	89.95°	1940.88'	-4.04'
2033'	0.16°	127.74°	2032.88'	-4.15'



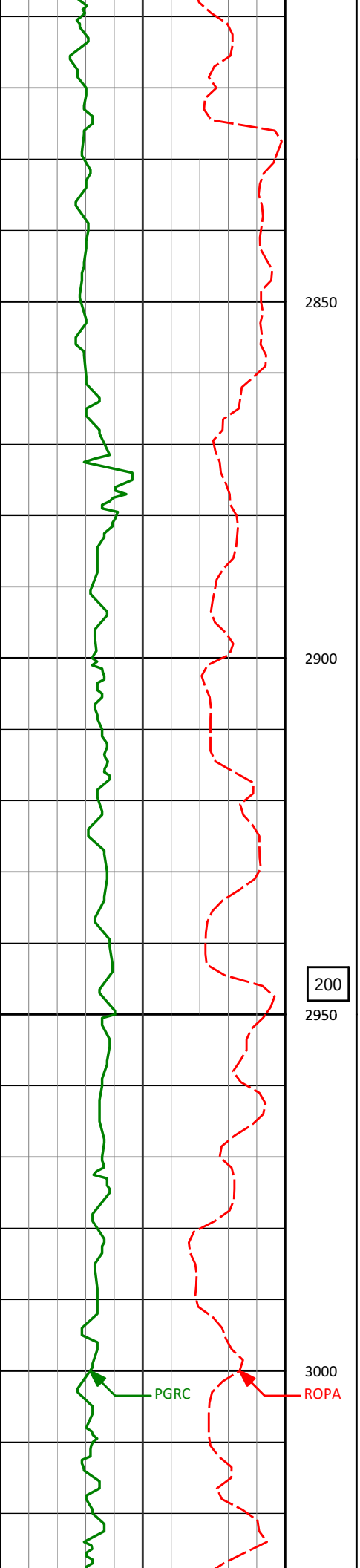
2217'	0.33°	59.11°	2216.88'	-4.09'



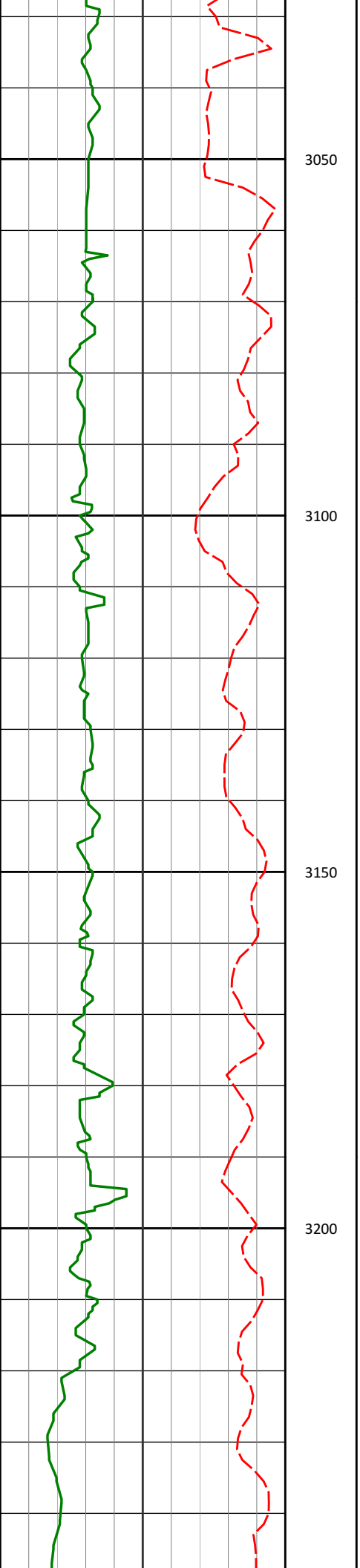
2402'	0.36°	81.16°	2401.87'	-3.82'
2494'	0.41°	68.48°	2493.87'	-3.71'
2586'	0.33°	48.92°	2585.87'	-3.46'



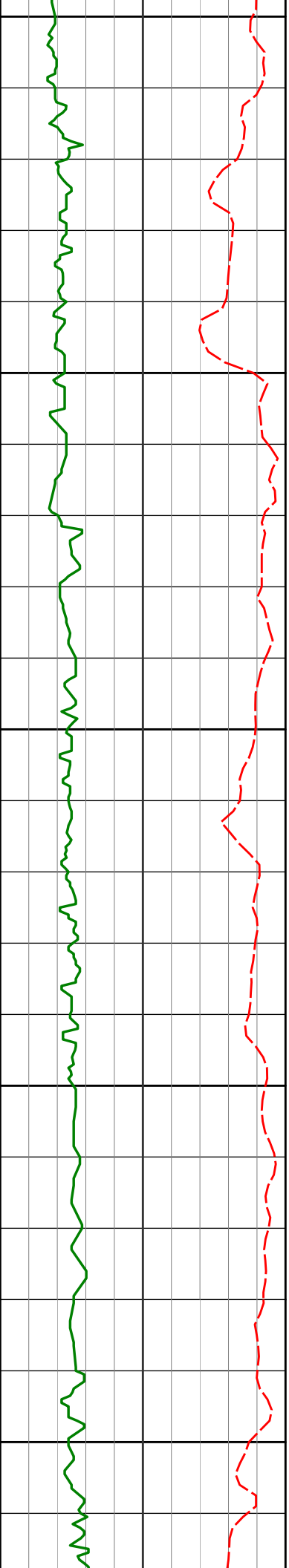
2677'	0.15°	12.62°	2676.87'	-3.19'
2772'	0.17°	81.94°	2771.87'	-3.06'



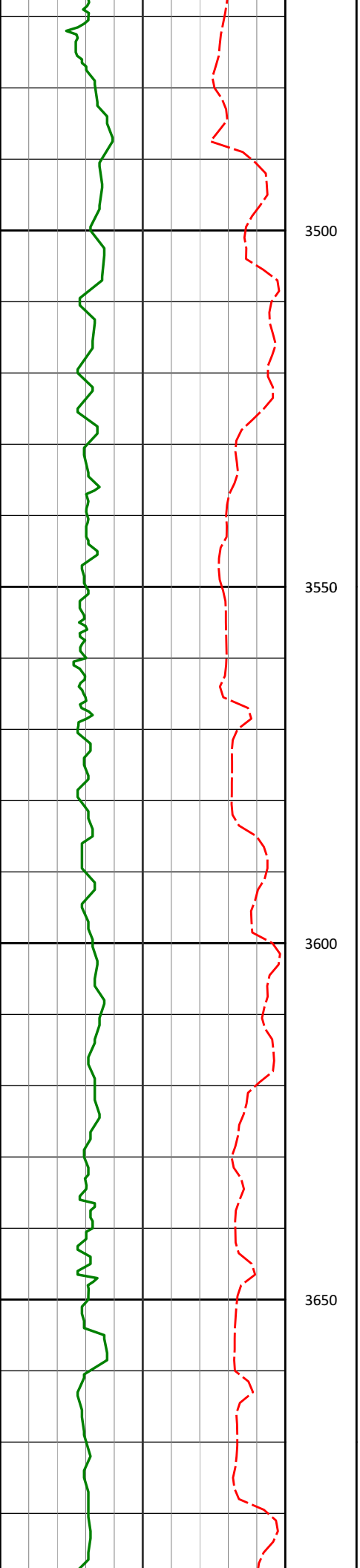
2867'	0.95°	340.94°	2866.86'	-2.29'
2962'	1.66°	290.82°	2961.84'	-0.92'



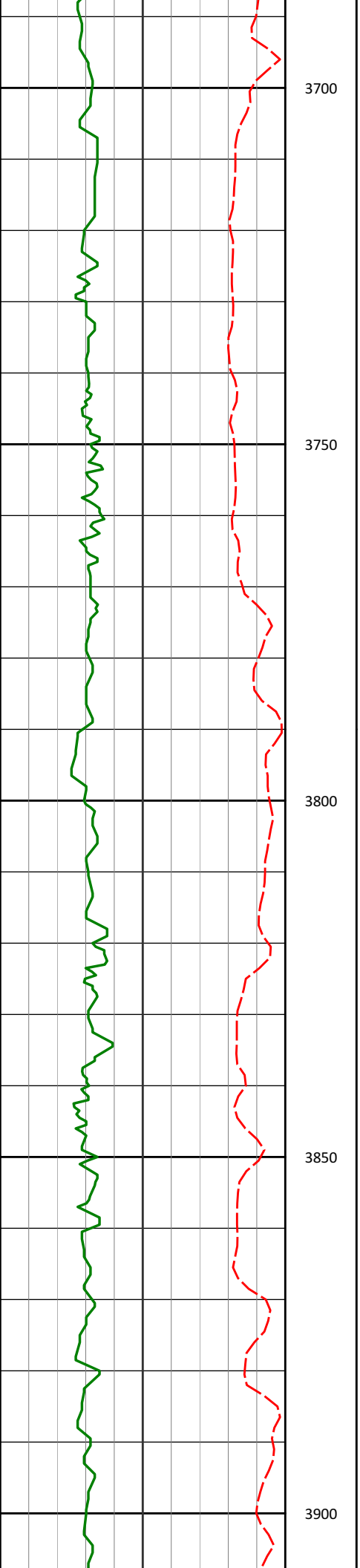
3056'	2.60°	288.07°	3055.78'	0.51'
3151'	5.29°	291.00°	3150.54'	3.29'
3245'	6.92°	301.16°	3244.01'	8.54'



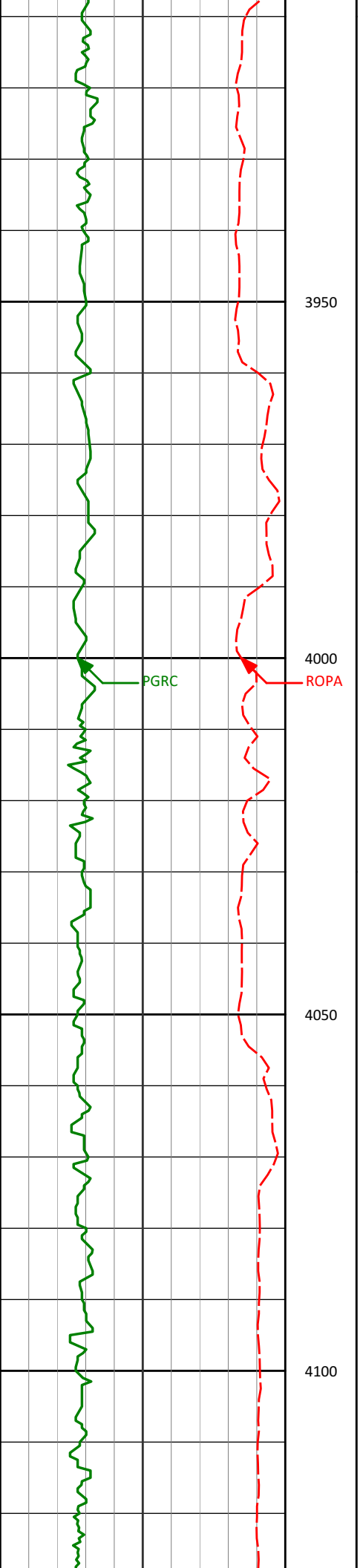
3340'	8.29°	294.89°	3338.17'	15.35'
3435'	10.76°	289.42°	3431.86'	22.45'



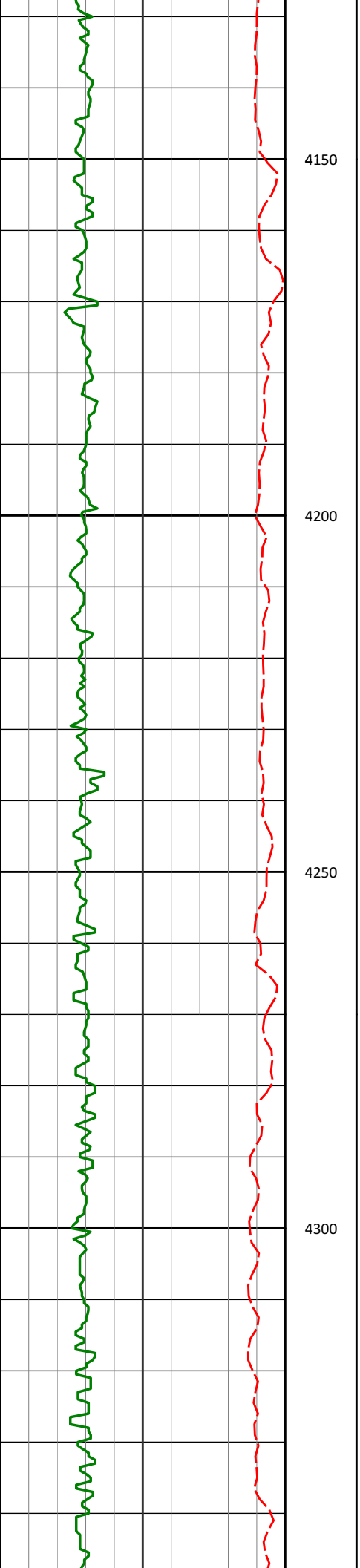
3529'	11.62°	281.43°	3524.07'	28.78'
3623'	10.60°	278.07°	3616.31'	33.43'



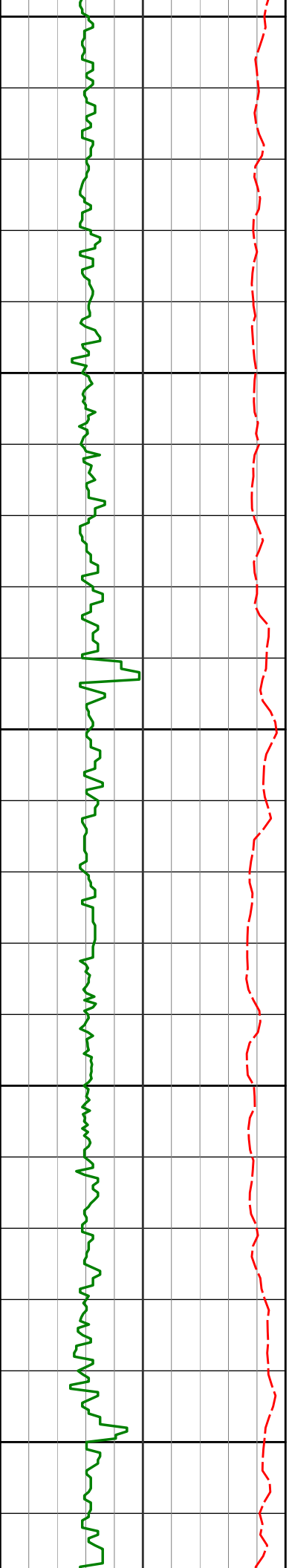
3718'	8.13°	275.98°	3710.04'	36.71'
3812'	9.57°	276.74°	3802.92'	39.59'
3907'	10.90°	278.13°	3896.40'	43.26'



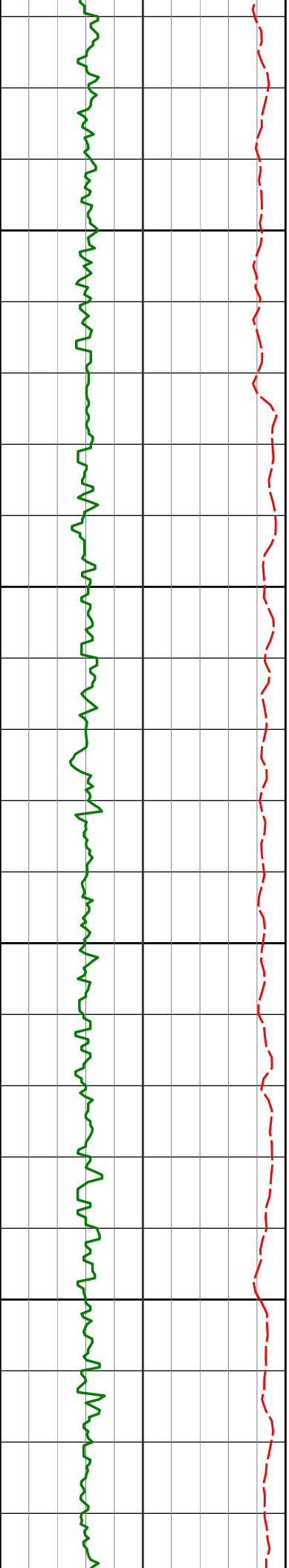
4001'	10.51°	275.23°	3988.77'	46.82'
4096'	10.87°	275.31°	4082.12'	49.99'



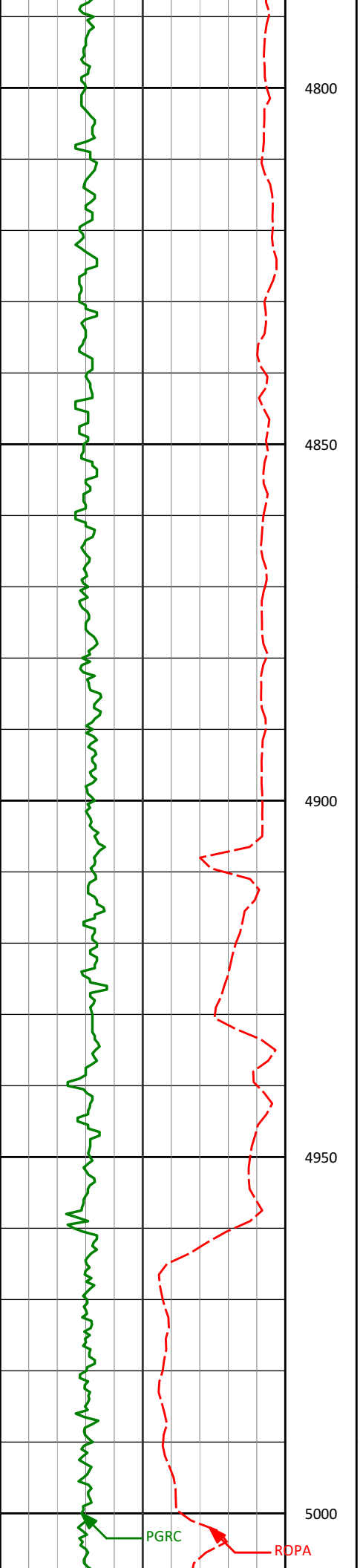
4191'	10.62°	277.79°	4175.45'	53.55'
4285'	9.79°	274.10°	4267.96'	56.76'



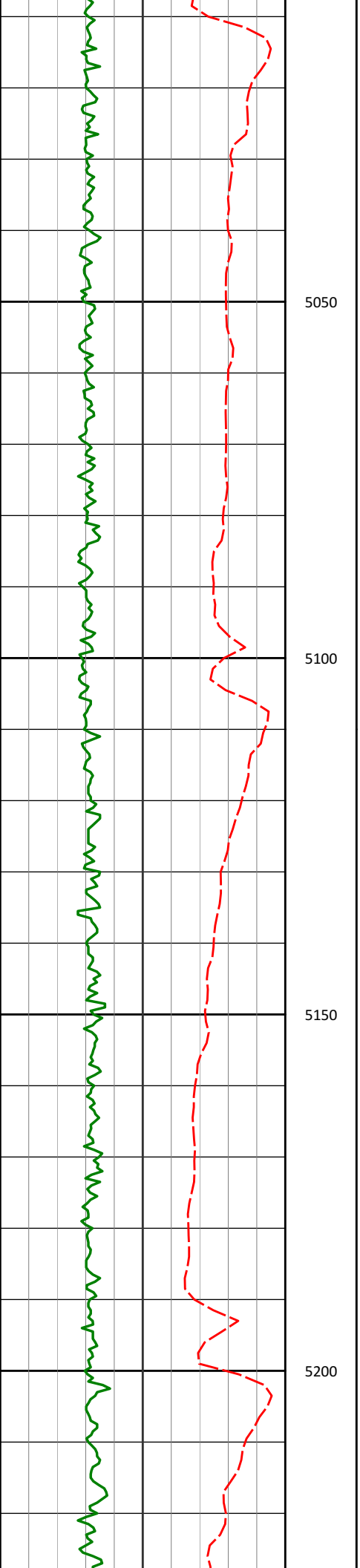
4380'	8.08°	261.77°	4361.82'	57.68'
4475'	7.45°	263.12°	4455.95'	57.12'



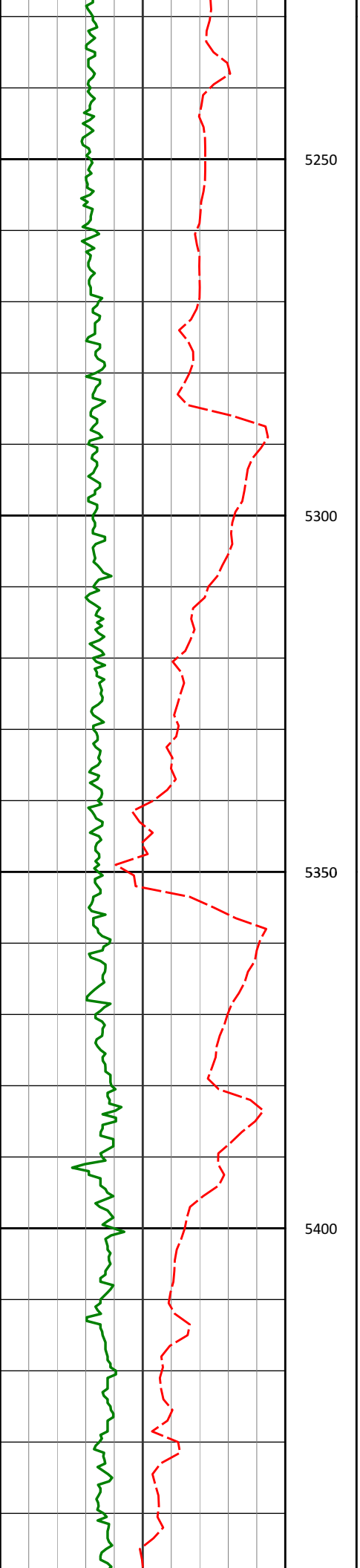
4569'	6.67°	272.68°	4549.24'	57.66'
4664'	5.63°	288.04°	4643.69'	60.24'
4759'	3.63°	316.96°	4738.39'	64.44'



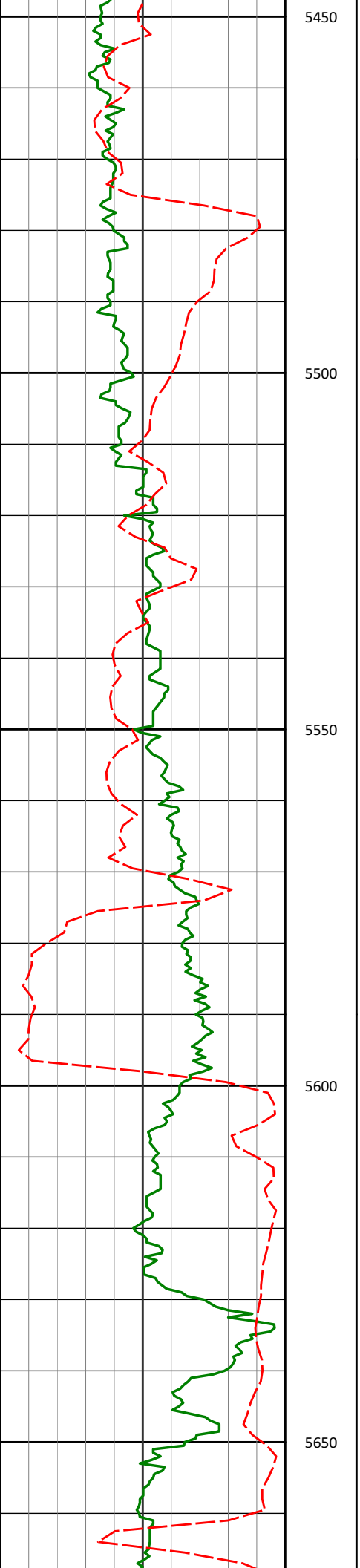
4853'	1.52°	341.80°	4832.29'	68.00'
4948'	3.30°	60.63°	4927.23'	70.35'



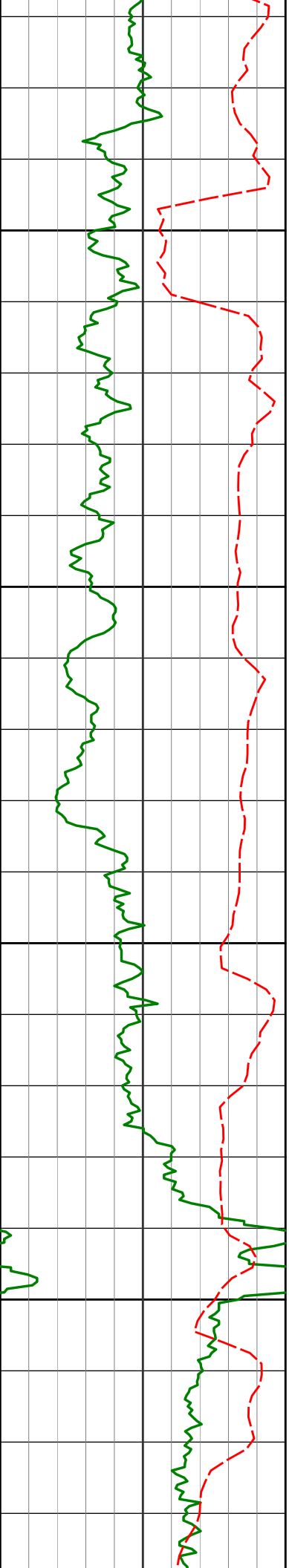
5043'	6.98°	35.53°	5021.84'	75.86'
5137'	14.14°	16.50°	5114.21'	90.90'



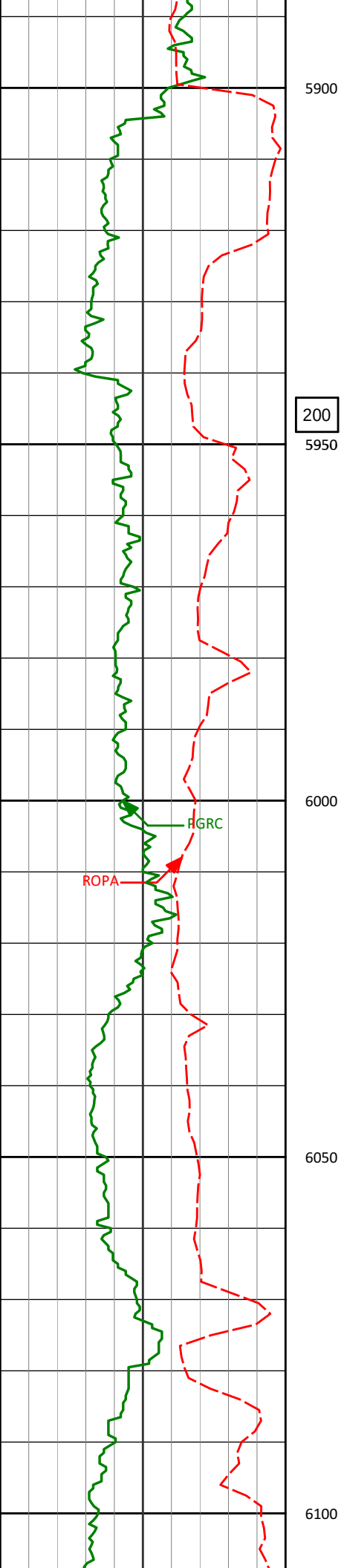
5232'	22.26°	4.45°	5204.41'	119.50'
5326'	32.57°	358.07°	5287.76'	162.44'
5421'	43.71°	359.14°	5362.37'	220.89'



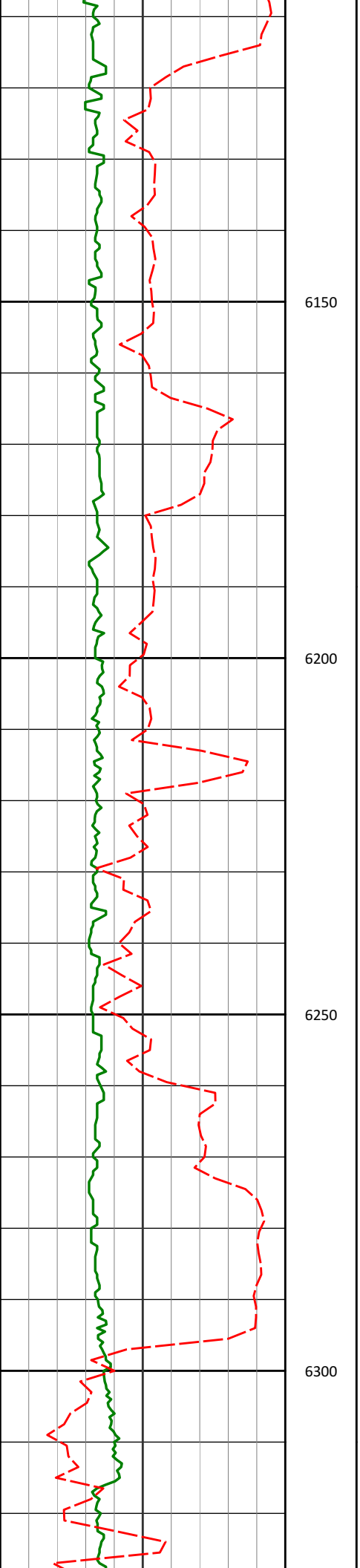
5516'	57.51°	0.53°	5422.51'	293.85'
5611'	65.15°	1.51°	5468.06'	376.66'
5659'	68.88°	359.56°	5486.80'	420.63'



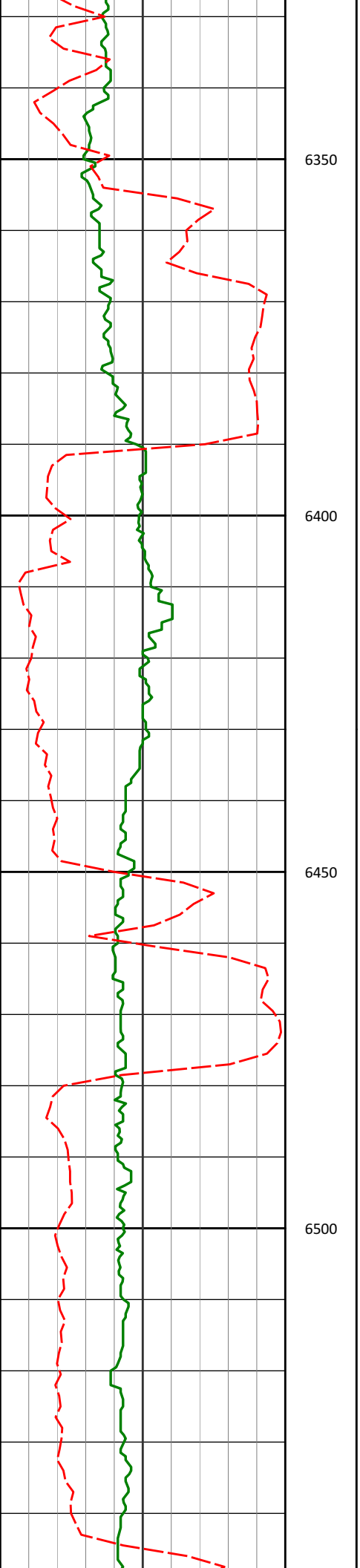
5706'	70.10°	357.74°	5503.27'	464.55'
5754'	74.82°	356.61°	5517.73'	510.27'
5801'	80.90°	355.48°	5527.61'	556.19'
5849'	85.77°	355.40°	5533.18'	603.85'



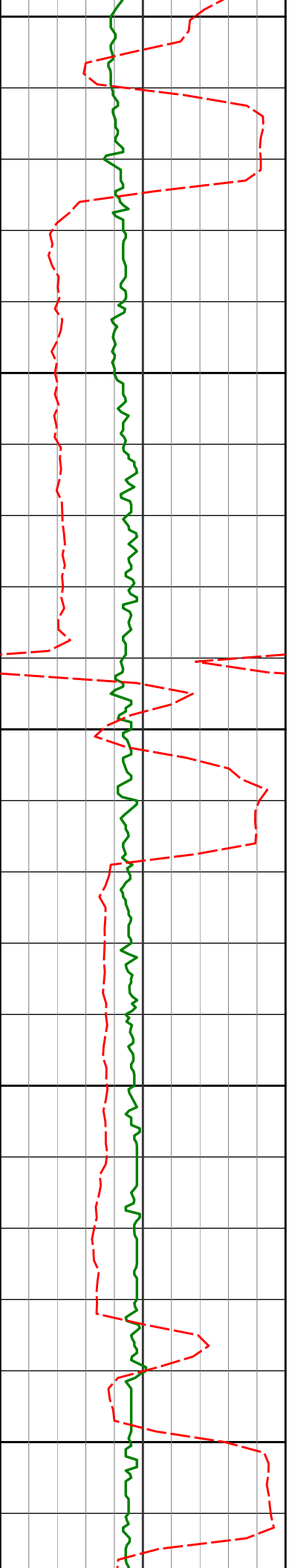
5895'	86.36°	356.16°	5536.33'	649.74'
6012'	86.86°	356.30°	5543.25'	766.50'
6103'	89.54°	355.23°	5546.11'	857.44'



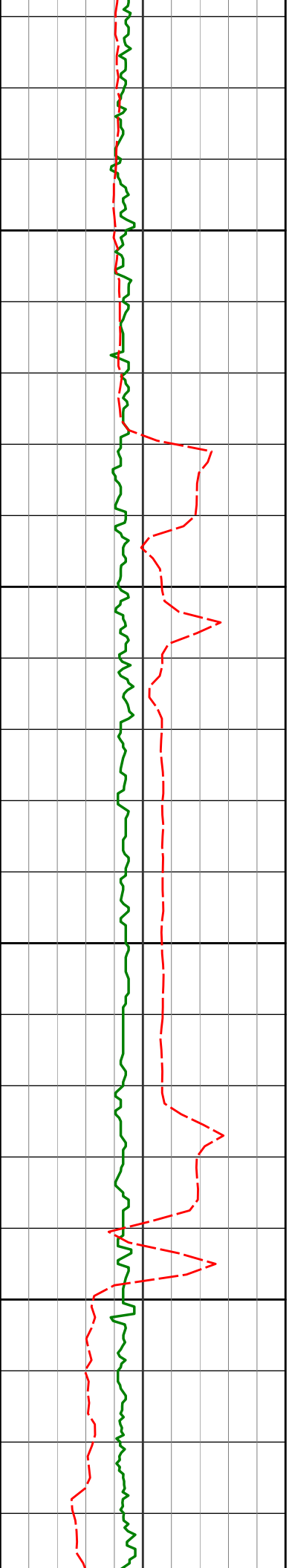
6198'	90.49°	353.57°	5546.08'	952.43'
6293'	91.42°	353.86°	5544.50'	1047.39'



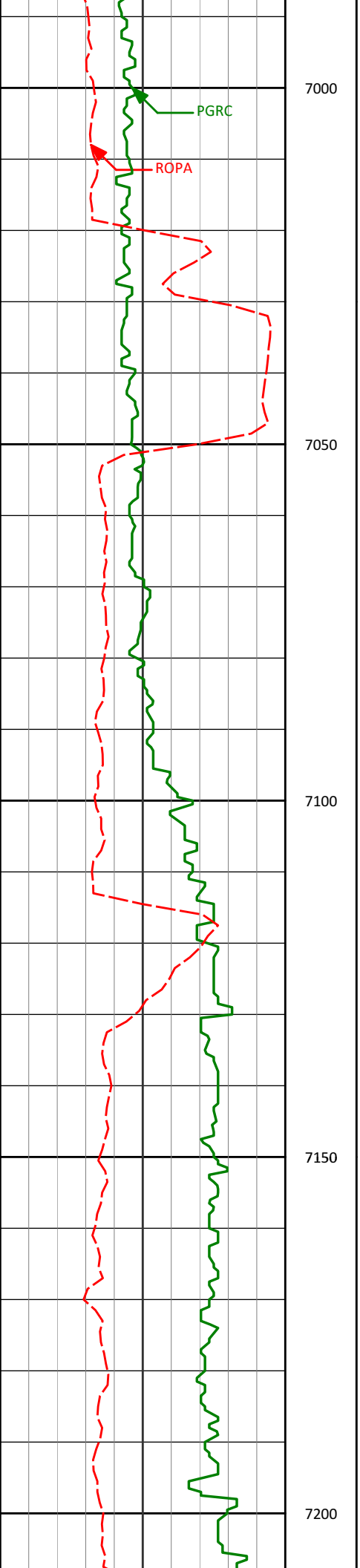
6388'	92.31°	356.62°	5541.41'	1142.33'
6483'	91.54°	357.97°	5538.22'	1237.19'



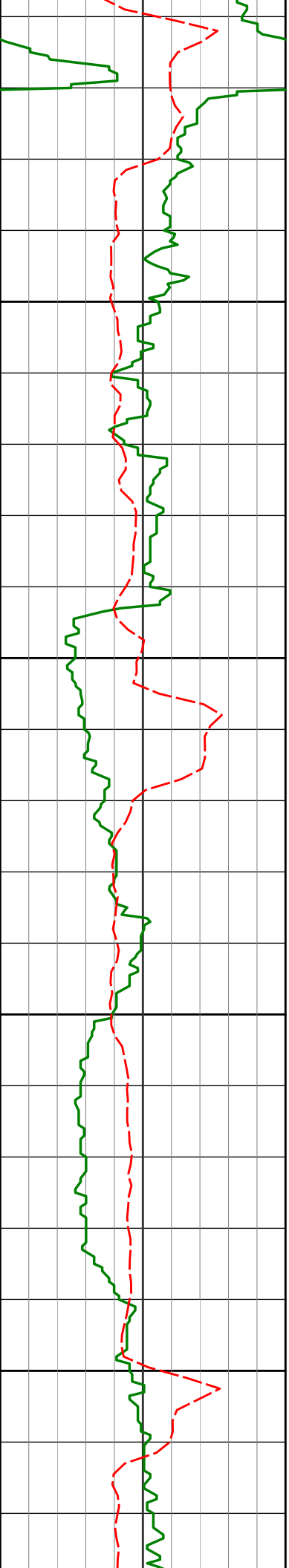
6577'	91.23°	357.65°	5535.94'	1331.04'
6672'	90.71°	357.63°	5534.34'	1425.92'
6767'	90.80°	359.27°	5533.08'	1520.73'



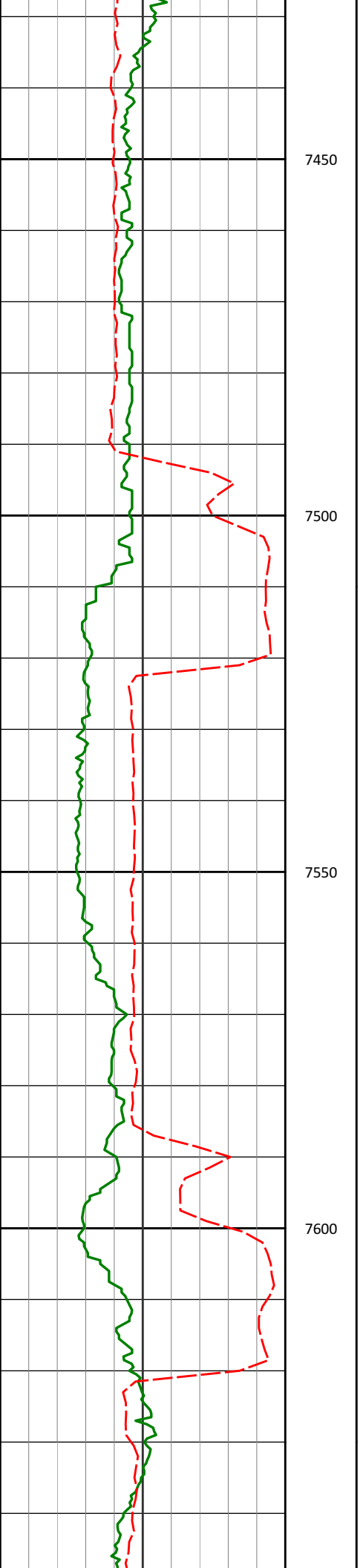
6862'	89.66°	356.96°	5532.70'	1615.58'
6957'	88.95°	355.34°	5533.85'	1710.54'



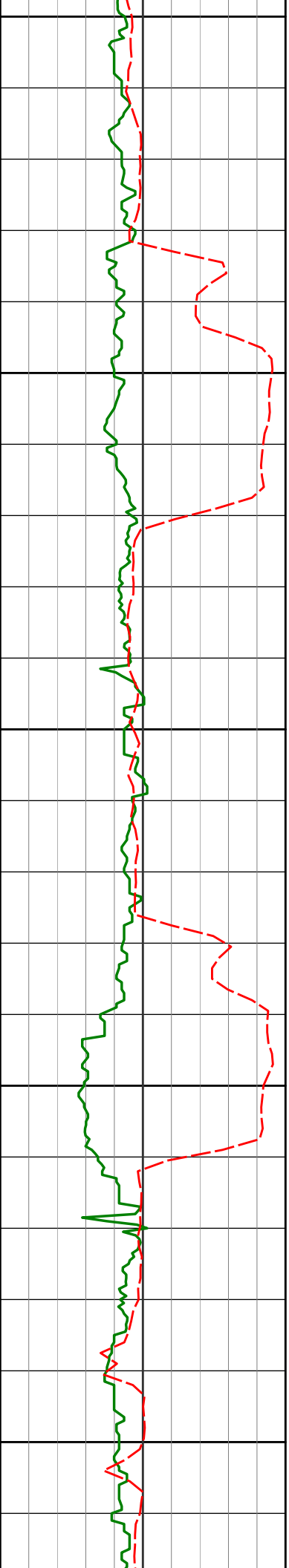
7052'	91.11°	358.71°	5533.80'	1805.46'
7146'	91.45°	359.08°	5531.70'	1899.21'



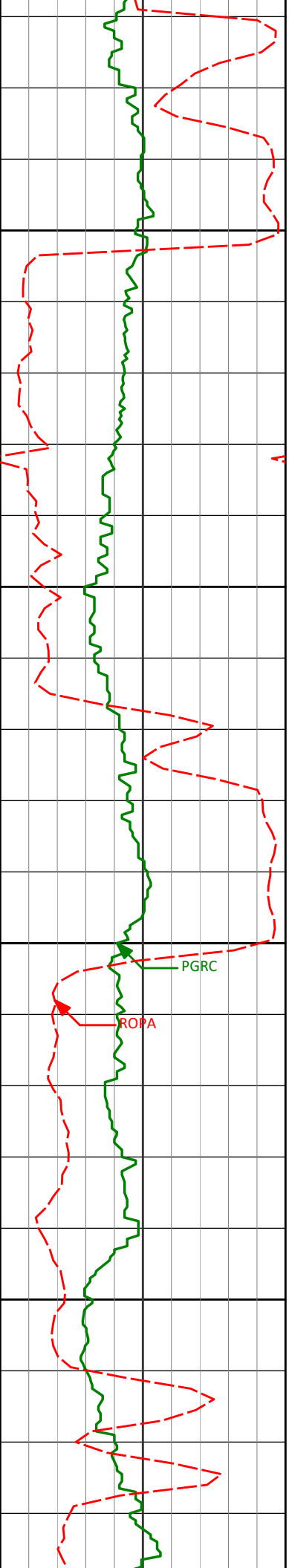
7241'	91.88°	357.66°	5528.94'	1994.00'
7336'	92.28°	356.52°	5525.50'	2088.86'



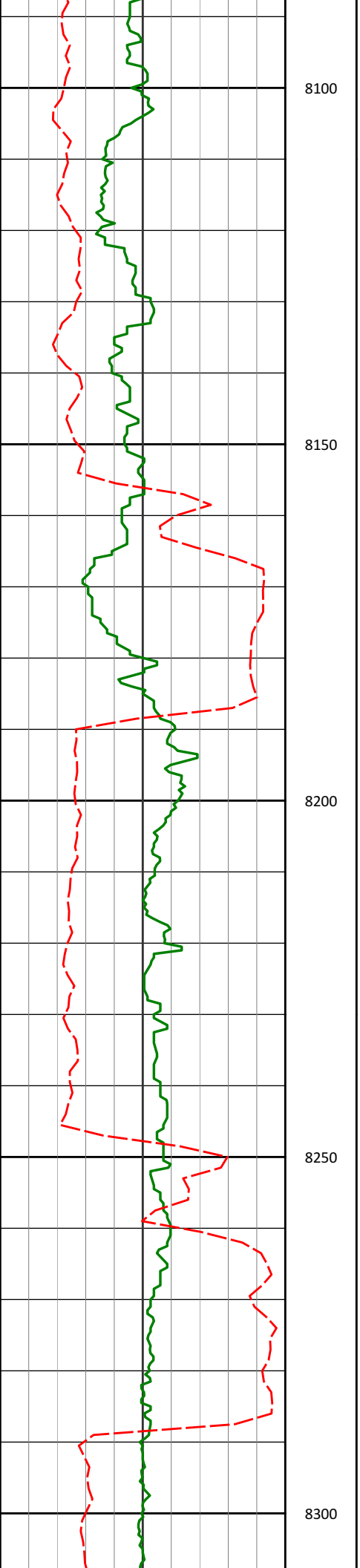
7431'	91.51°	353.50°	5522.35'	2183.80'
7526'	92.00°	356.62°	5519.44'	2278.74'
7620'	92.13°	358.25°	5516.05'	2372.59'



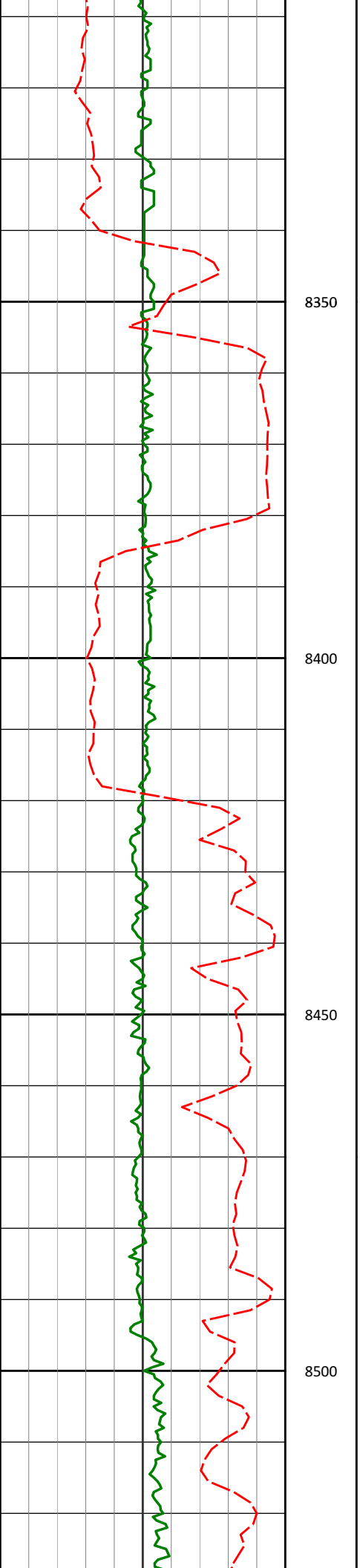
7715'	91.39°	359.29°	5513.14'	2467.33'
7810'	88.40°	357.11°	5513.32'	2562.15'



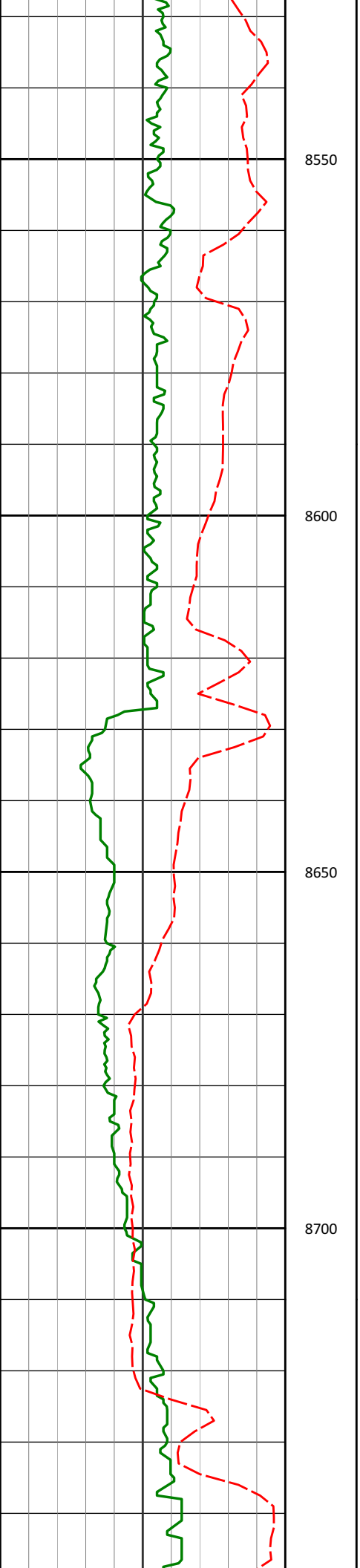
7904'	88.30°	357.27°	5516.03'	2656.04'
7999'	91.85°	1.38°	5515.90'	2750.73'



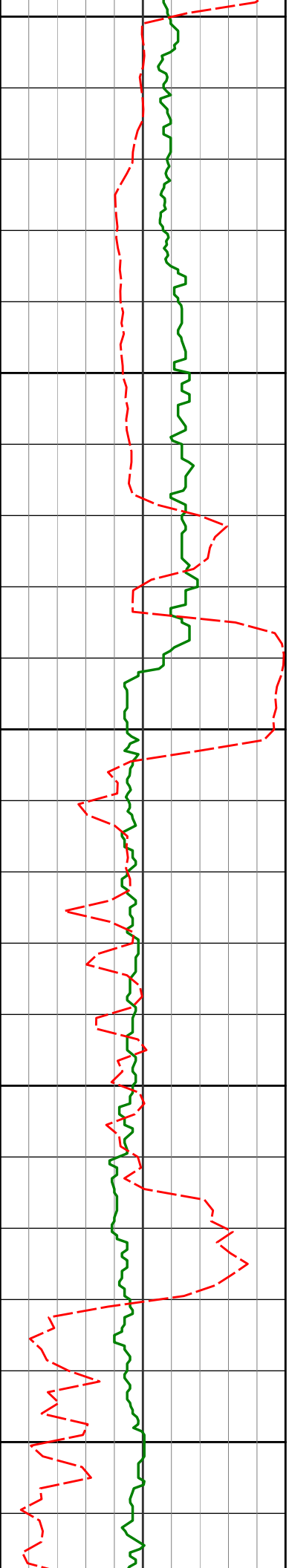
8094'	93.95°	1.50°	5511.09'	2844.99'
8189'	93.30°	1.54°	5505.09'	2939.17'
8284'	91.23°	0.77°	5501.33'	3033.52'



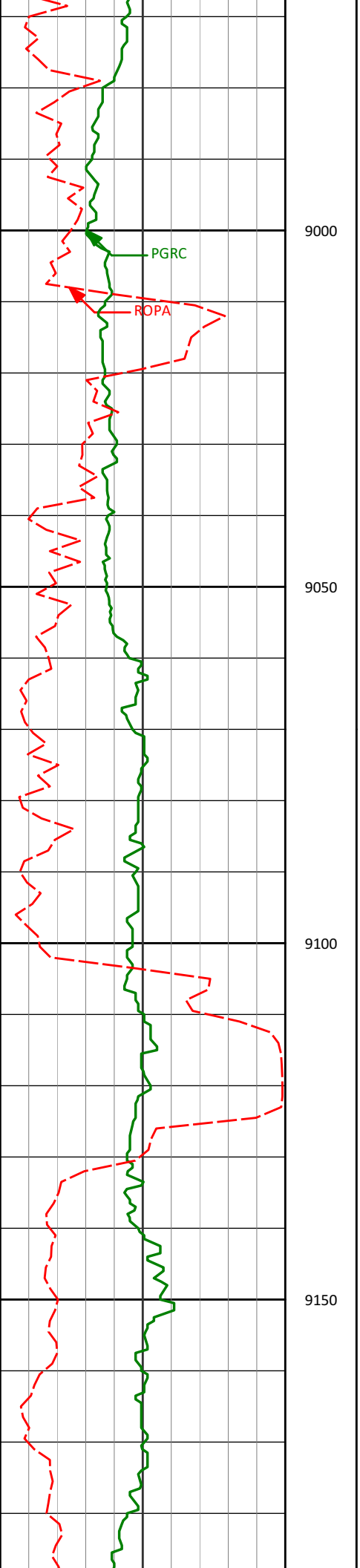
8378'	89.11°	0.43°	5501.05'	3127.06'
8473'	89.08°	0.09°	5502.56'	3221.63'



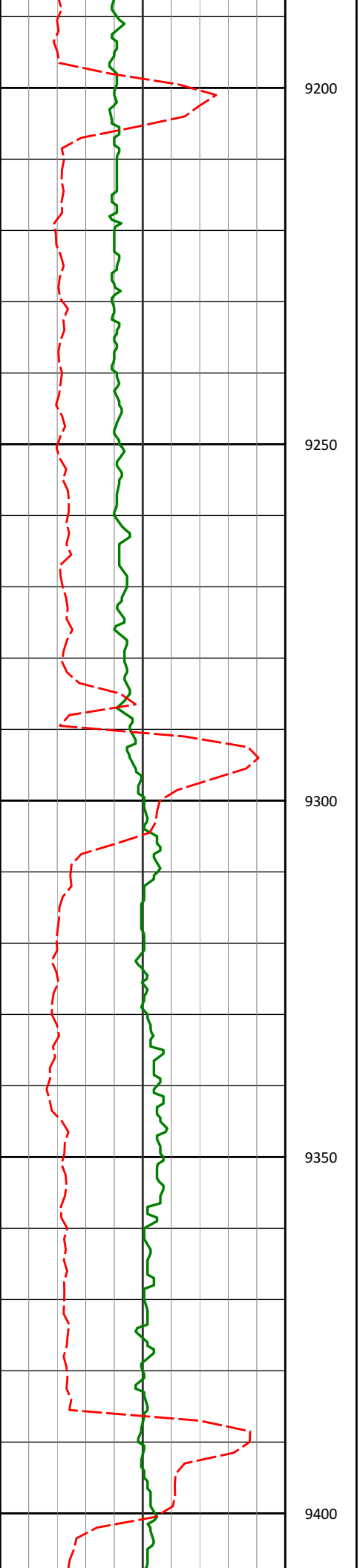
8568'	89.38°	0.19°	5503.84'	3316.23'
8663'	89.63°	0.30°	5504.66'	3410.82'



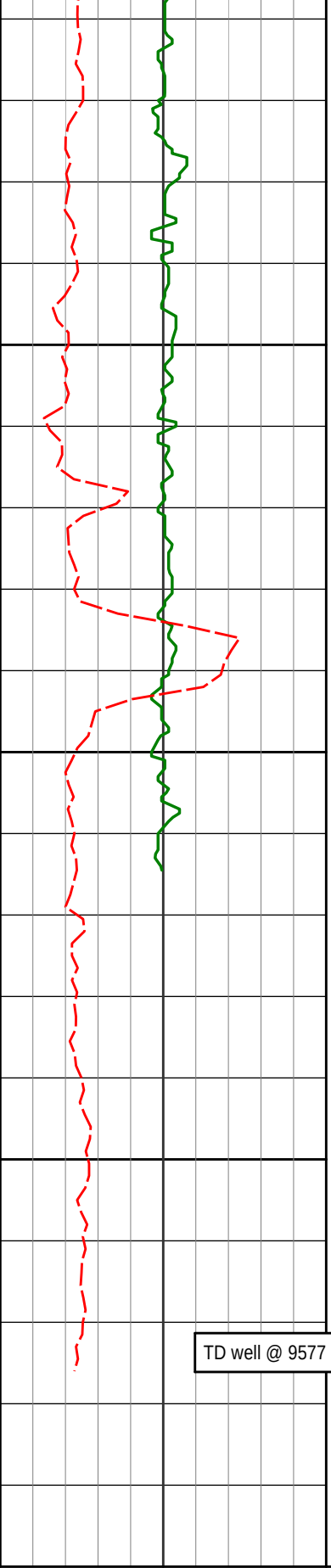
8757'	89.85°	2.20°	5505.09'	3504.24'
8852'	87.35°	358.22°	5507.41'	3598.78'
8946'	88.43°	0.34°	5510.88'	3692.44'



9041'	88.89°	1.27°	5513.10'	3786.91'
9136'	88.55°	359.58°	5515.22'	3881.44'



9231'	88.58°	358.99°	5517.59'	3976.14'
9325'	89.82°	359.59°	5518.91'	4069.85'



Depth	Inc.	Azi.	TVD	V.S.
9420'	89.54°	359.47°	5519.44'	4164.54'
9514'	88.92°	358.26°	5520.71'	4258.31'
9577'	88.92°	358.26°	5521.89'	4321.19'

Avg Rate of Penetration
ROPA
1K feet per hr 0

PCG Gamma Ray BCorr
PGRC
0 api 300

Depth ft

HALLIBURTON

DIRECTIONAL SURVEY REPORT

Noble
Tripucka State LD02-75-1BHN
Wildcat
Weld Colorado
USA
CA-XX-0901941248

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	0.30	253.72	273.00	0.20 S	0.69 W	-0.14	0.11
546.00	0.60	291.22	545.99	0.12 N	2.70 W	0.36	0.15
830.00	1.40	251.42	829.95	0.45 S	7.38 W	0.20	0.36
1099.00	0.70	42.82	1098.93	0.29 S	9.38 W	0.54	0.76
1298.00	0.72	233.71	1297.92	0.14 S	9.56 W	0.71	0.71
1482.00	0.49	219.84	1481.91	1.42 S	10.99 W	-0.44	0.15
1574.00	0.97	134.61	1573.91	2.27 S	10.69 W	-1.31	1.14
1666.00	0.93	141.02	1665.89	3.39 S	9.66 W	-2.53	0.12
1757.00	0.55	119.59	1756.88	4.19 S	8.81 W	-3.39	0.51
1850.00	0.46	114.56	1849.88	4.56 S	8.08 W	-3.83	0.11
1941.00	0.39	89.95	1940.88	4.71 S	7.45 W	-4.04	0.21
2033.00	0.16	127.74	2032.88	4.79 S	7.04 W	-4.15	0.30
2217.00	0.33	59.11	2216.88	4.67 S	6.38 W	-4.09	0.17
2402.00	0.36	81.16	2401.87	4.31 S	5.35 W	-3.82	0.07
2494.00	0.41	68.48	2493.87	4.14 S	4.76 W	-3.71	0.10
2586.00	0.33	48.92	2585.87	3.85 S	4.26 W	-3.46	0.16
2677.00	0.15	12.62	2676.87	3.56 S	4.04 W	-3.19	0.24
2772.00	0.17	81.94	2771.87	3.42 S	3.87 W	-3.06	0.19
2867.00	0.95	340.94	2866.86	2.65 S	4.00 W	-2.29	1.05
2962.00	1.66	290.82	2961.84	1.42 S	5.54 W	-0.92	1.34
3056.00	2.60	288.07	3055.78	0.27 S	8.83 W	0.51	1.01
3151.00	5.29	291.00	3150.54	1.97 N	14.97 W	3.29	2.84
3245.00	6.92	301.16	3244.01	6.45 N	23.87 W	8.54	2.08
3340.00	8.29	294.89	3338.17	12.30 N	34.98 W	15.35	1.68
3435.00	10.76	289.42	3431.86	18.13 N	49.56 W	22.45	2.76
3529.00	11.62	281.43	3524.07	22.92 N	67.12 W	28.78	1.89
3623.00	10.60	278.07	3616.31	26.01 N	84.96 W	33.43	1.28
3718.00	8.13	275.98	3710.04	27.94 N	100.30 W	36.71	2.63
3812.00	9.57	276.74	3802.92	29.55 N	114.67 W	39.59	1.54
3907.00	10.90	278.13	3896.40	31.75 N	131.40 W	43.26	1.42
4001.00	10.51	275.23	3988.77	33.78 N	148.74 W	46.82	0.70
4096.00	10.87	275.31	4082.12	35.40 N	166.29 W	49.99	0.38
4191.00	10.62	277.79	4175.45	37.42 N	183.89 W	53.55	0.55
4285.00	9.79	274.10	4267.96	39.16 N	200.44 W	56.76	1.13
4380.00	8.08	261.77	4361.82	38.78 N	215.10 W	57.68	2.69
4475.00	7.45	263.12	4455.95	37.09 N	227.83 W	57.12	0.70
4569.00	6.67	272.68	4549.24	36.61 N	239.32 W	57.66	1.50
4664.00	5.63	288.04	4643.69	38.32 N	249.26 W	60.24	2.04
4759.00	3.63	316.96	4738.39	41.96 N	255.75 W	64.44	3.17
4853.00	1.52	341.80	4832.29	45.31 N	258.17 W	68.00	2.48
4948.00	3.30	60.63	4927.23	47.85 N	256.18 W	70.35	3.53
5043.00	6.98	35.53	5021.84	53.90 N	250.44 W	75.86	4.45
5137.00	14.14	16.50	5114.21	69.58 N	243.85 W	90.90	8.38
5232.00	22.26	4.45	5204.41	98.71 N	239.14 W	119.50	9.37
5326.00	32.57	358.07	5287.76	141.87 N	238.61 W	162.44	11.39
5421.00	43.71	359.14	5362.37	200.43 N	239.97 W	220.89	11.74
5516.00	57.51	0.53	5422.51	273.66 N	240.09 W	293.85	14.57
5611.00	65.15	1.51	5468.06	356.94 N	238.58 W	376.66	8.09
5659.00	68.88	359.56	5486.80	401.11 N	238.17 W	420.63	8.62
5706.00	70.10	357.74	5503.27	445.12 N	239.21 W	464.55	4.46
5754.00	74.82	356.61	5517.73	490.82 N	241.47 W	510.27	10.08
5801.00	80.90	355.48	5527.61	536.64 N	244.64 W	556.19	13.16
5849.00	85.77	355.40	5533.18	584.15 N	248.43 W	603.85	10.15
5895.00	86.36	356.16	5536.33	629.91 N	251.81 W	649.74	2.09

6012.00	86.86	356.30	5543.25	746.46 N	259.49 W	766.50	0.44
6103.00	89.54	355.23	5546.11	837.15 N	266.21 W	857.44	3.17
6198.00	90.49	353.57	5546.08	931.69 N	275.48 W	952.43	2.02
6293.00	91.42	353.86	5544.50	1026.11 N	285.89 W	1047.39	1.02
6388.00	92.31	356.62	5541.41	1120.72 N	293.76 W	1142.33	3.06
6483.00	91.54	357.97	5538.22	1215.56 N	298.24 W	1237.19	1.63
6577.00	91.23	357.65	5535.94	1309.46 N	301.83 W	1331.04	0.47
6672.00	90.71	357.63	5534.34	1404.37 N	305.74 W	1425.92	0.55
6767.00	90.80	359.27	5533.08	1499.32 N	308.32 W	1520.73	1.73
6862.00	89.66	356.96	5532.70	1594.26 N	311.45 W	1615.58	2.70
6957.00	88.95	355.34	5533.85	1689.04 N	317.82 W	1710.54	1.86
7052.00	91.11	358.71	5533.80	1783.89 N	322.75 W	1805.46	4.21
7146.00	91.45	359.08	5531.70	1877.85 N	324.57 W	1899.21	0.53
7241.00	91.88	357.66	5528.94	1972.77 N	327.27 W	1994.00	1.55
7336.00	92.28	356.52	5525.50	2067.58 N	332.09 W	2088.86	1.27
7431.00	91.51	353.50	5522.35	2162.16 N	340.35 W	2183.80	3.28
7526.00	92.00	356.62	5519.44	2256.75 N	348.52 W	2278.74	3.33
7620.00	92.13	358.25	5516.05	2350.59 N	352.73 W	2372.59	1.73
7715.00	91.39	359.29	5513.14	2445.52 N	354.77 W	2467.33	1.34
7810.00	88.40	357.11	5513.32	2540.46 N	357.75 W	2562.15	3.89
7904.00	88.30	357.27	5516.03	2634.30 N	362.35 W	2656.04	0.19
7999.00	91.85	1.38	5515.90	2729.26 N	363.47 W	2750.73	5.72
8094.00	93.95	1.50	5511.09	2824.10 N	361.09 W	2844.99	2.22
8189.00	93.30	1.54	5505.09	2918.88 N	358.58 W	2939.17	0.69
8284.00	91.23	0.77	5501.33	3013.78 N	356.66 W	3033.52	2.32
8378.00	89.11	0.43	5501.05	3107.77 N	355.68 W	3127.06	2.29
8473.00	89.08	0.09	5502.56	3202.76 N	355.25 W	3221.63	0.36
8568.00	89.38	0.19	5503.84	3297.75 N	355.03 W	3316.23	0.34
8663.00	89.63	0.30	5504.66	3392.74 N	354.62 W	3410.82	0.28
8757.00	89.85	2.20	5505.09	3486.72 N	352.57 W	3504.24	2.03
8852.00	87.35	358.22	5507.41	3581.66 N	352.22 W	3598.78	4.94
8946.00	88.43	0.34	5510.88	3675.58 N	353.40 W	3692.44	2.53
9041.00	88.89	1.27	5513.10	3770.55 N	352.06 W	3786.91	1.09
9136.00	88.55	359.58	5515.22	3865.52 N	351.36 W	3881.44	1.81
9231.00	88.58	358.99	5517.59	3960.48 N	352.55 W	3976.14	0.61
9325.00	89.82	359.59	5518.91	4054.46 N	353.71 W	4069.85	1.46
9420.00	89.54	359.47	5519.44	4149.46 N	354.48 W	4164.54	0.32
9514.00	88.92	358.26	5520.71	4243.43 N	356.35 W	4258.31	1.45
9577.00	88.92	358.26	5521.89	4306.39 N	358.26 W	4321.19	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 354.92 DEGREES (GRID)
A TOTAL CORRECTION OF 6.92 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED

HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.
HORIZONTAL DISPLACEMENT(CLOSURE) AT 9577.00 FEET
IS 4321.26 FEET ALONG 355.24 DEGREES (GRID)

Tied in @ Surface
First four Survey's from 3rd party source (Muilti Shot EMS)

Final survey projected to bit.

Date Printed:12 January 2015