HALLIBURTON | Sperry Drilling

PCGK : Pressure Case Gamma
PCDC: Pressure Case Directional

Powered by INSITE™

1 : 600 / 1 : 240

Country : **USA**
Field : **Wattenberg**
Location : **Lat: 40°24' 55.04" North Long: 104°31' 27.55" West**
Well : **Trebor B11-67-1HN**
Company : **Noble Energy**
Rig : **H&P 315**

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Well : **Trebor B11-67-1HN**
Field : **Wattenberg**
Country : **USA**
API Number : **05-123-36299**

LOCATION

Latitude : **40°24' 55.04" North**
Longitude : **104°31' 27.55" West**

UTM Easting = **3,271,670.375 ft**
UTM Northing = **1,395,624.691 ft**

Other Services
Directional Drilling

Permanent Datum : **Ground Level**
Elevation : **4601.00 ft**
Log Measured From : **Drill Floor** **26.00 ft** Above Permanent Datum
Drilling Measured From : **Drill Floor**

MD LOG

Elev. KB **N/A**
DF **4627.00 ft**
GL **4601.00 ft**
WD **N/A**

Depth Logged : **631.00 ft** To **11,070.00 ft**
Date Logged : **05-Jul-13** To **11-Jul-13**
Total Depth MD : **11,070.00 ft** TVD : **6,572.05 ft**
Spud Date : **05-Jul-13**

Unit No. : **11610113**
Job No. : **CA-XX-0900544024**

Plot Type : **Final**
Plot Date : **11-Jul-13**

Run No.	Borehole Record (MD) Size	From	To
2	8.750 in	631.00 ft	5,980.00 ft
3	8.750 in	5,980.00 ft	7,032.00 ft
4	6.125 in	7,032.00 ft	SURFACE

Run No.	Borehole Record (MD) Size	From	To

Casing Record (MD) Size	Weight	From	To
7.000 in	26.00 lbpf	SURFACE	7,026.00 ft

WELL INFORMATION

MWD Run Number	100	200	300
Date run completed	07-Jul-13	08-Jul-13	11-Jul-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)	631.00	5,980.00	7,032.00
Log End Depth (MD, ft)	5,980.00	7,032.00	11,070.00
Drill or Wipe	Drill	Drill	Drill and Wipe
Drill/Wipe Start Date and Time	06-Jul-13 03:30	07-Jul-13 04:30	09-Jul-13 10:00
Drill/Wipe End Date and Time	06-Jul-13 20:40	07-Jul-13 21:10	10-Jul-13 21:00
Min Inc (deg) @ Depth (MD, ft)	.30 @ 583.00	.60 @ 6,003.00	86.92 @ 7,067.00
Max Inc (deg) @ Depth (MD, ft)	17.46 @ 2,792.00	82.61 @ 6,978.00	92.50 @ 9,124.00
Bit TFA(in2) / Bit Type	.75 / PDC	.75 / PDC	.46 / PDC
Flow Rate (gpm)	586.40	499.71	270.00
Max AV (fpm) / CV (fpm) @ MWD	N/A / N/A	N/A / N/A	N/A / N/A
Fluid Type	Fresh Water Gel	Fresh Water Gel	Fresh Water Gel
Density (ppg) / Viscosity (spqt)	8.90 / 30.00	10.35 / 36.00	9.30 / 30.00
Filtrate CL (ppm)	1,100.00	1,500.00	2,000.00
pH / Fluid Loss (mptm)	9.40 / 0	9.30 / 0	9.30 / 9
PV (cP) / YP (lhf2)	4 / 5.00	9 / 7.00	5 / 5.00
% Solids / % Sand	3.40 / 0.30	10.7 / 0.50	5.2 / .25
% Oil / Oil:Water Ratio	N/A / N/A	N/A / 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

Max Tool Temp (degF) / Source	158.60 / PCM	175.21 / PCM	242.28 / PCM		
Rm @ Max Tool Temp (degF)	N/A @ N/A	N/A @ N/A	N/A @ N/A		
Lead MWD Engineer	Chris Sorensen	Chris Sorensen	Chris Sorensen		
Customer Representative	Martin Suarez	Martin Suarez	Martin Suarez		

SENSOR INFORMATION

Downhole Processor Information

Tool Type	PCM	PCM	PCM		
Software Version	5.84	5.84	5.84		
Sub Serial Number	11341333	11341333	12187588		
Insert Serial Number	11680798	11680798	11226936		
Date and Time Initialized	05-Jul-13 16:37	05-Jul-13 16:37	08-Jul-13 10:23		
Date and Time Read	08-Jul-13 06:05	08-Jul-13 05:59	11-Jul-13 11:41		
ECMB SW Version	N/A	N/A	N/A		

Directional Sensor Information

Tool Type	PCDC	PCDC	PCDC		
Distance From Bit (ft)	53.76	52.22	62.20		
Software Version	6.21	6.21	6.21		
Sub Serial Number	11341333	11341333	12187588		
Sonde Serial Number	11297515	11297515	11297583		
Sensor ID Number	N/A	N/A	N/A		
Toolface Offset (deg)	354.14	23.89	215.38		

Gamma Ray Sensor Information

Tool Type	PCG	PCG	PCG		
Distance From Bit (ft)	48.76	47.22	57.22		
Recorded Sample Period (sec)	10	10	10		
Software Version	8.15	8.15	8.15		
Sub Serial Number	11341333	11341333	12187588		
Insert/Sonde Serial Number	11681023	11681023	11293409		

REMARKS

1. All depths are calibrated to the driller's pipe tally and are measured from the rig drill floor.

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

3. All data presented is recorded (memory data) unless otherwise stated.
- ROPA: Average Rate of Penetration is real time data.
- PGRC: Smooth Pressure Case Gamma Ray Borehole corrected is recorded data.

4. The following smoothing parameters have been applied to the data:
- All 2" (1:600) logs - 1 ft. interval, 3 ft. coercion distance.
- All 5" (1:240) logs - .5 ft. interval, .6 ft. coercion distance.

5. INSITE version 7.4.2

6. End of Run 200. Gap between build and lateral sections is due to Gamma sensor measure point to bit distance during the build run. Last Gamma datapoint is at 6984 ft MD. Gamma cannot be measured accurately within cased hole, and collection resumes after drilling through cement at 7032 ft MD.

7. Gap in gamma from 7169 ft MD to 7228 ft MD is caused by the gamma probe failing to respond. No gamma wipe was made.

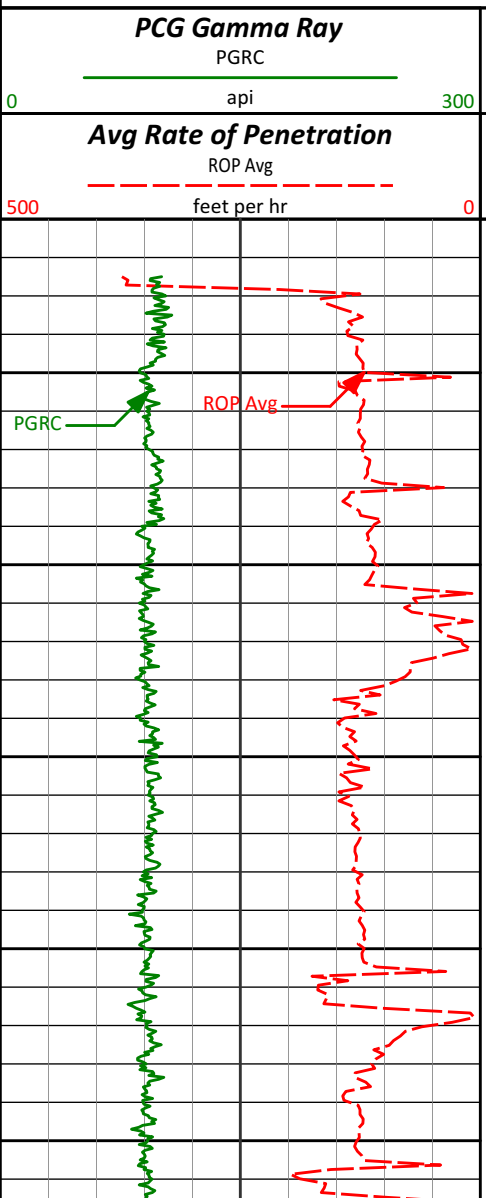
WARRANTY

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.

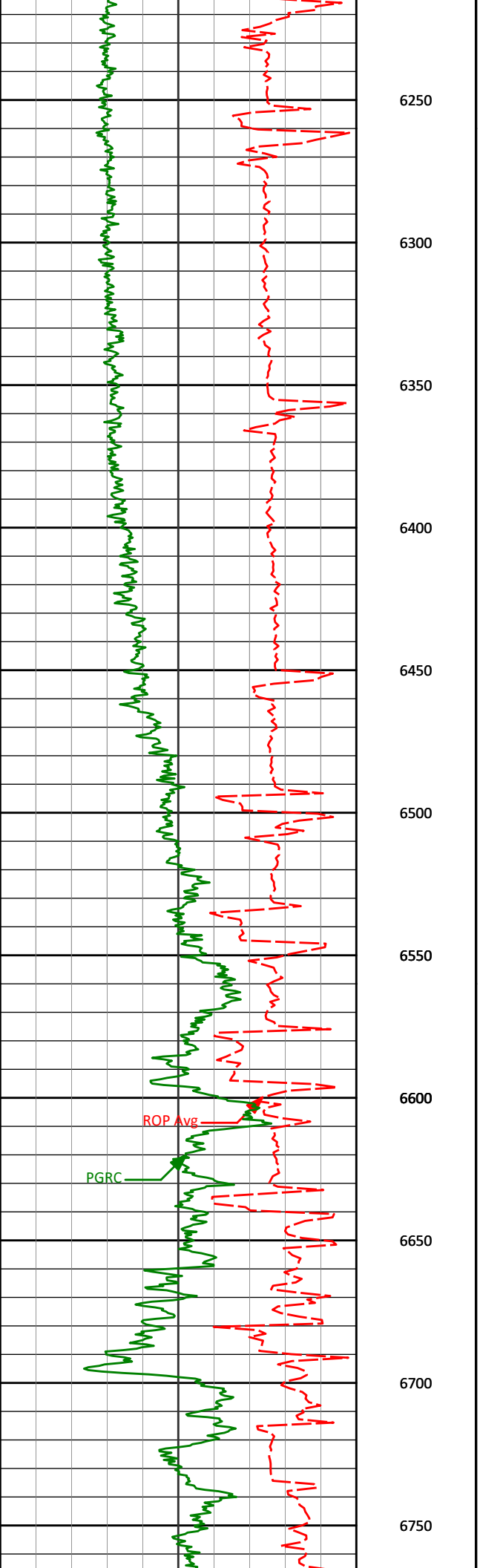
HALLIBURTON
Sperry Drilling Services

MD Main Log 1:600

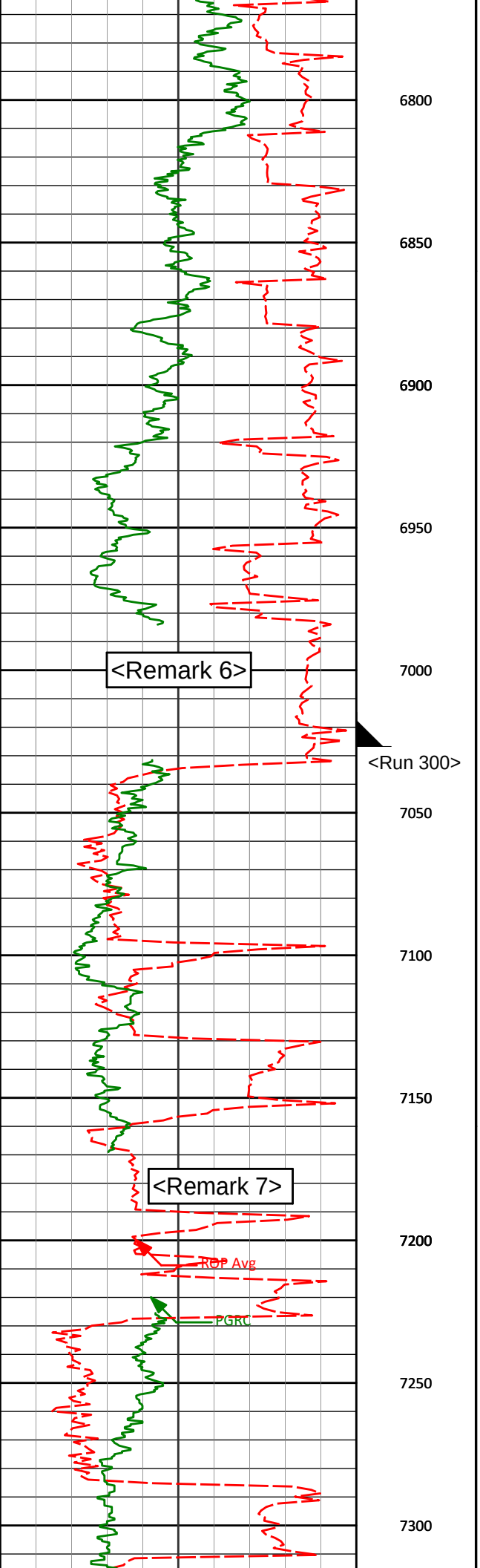
Noble Energy, Inc
Trebor B11-67-1HN
H&P 315
T5N R64W



Depth ft	Depth	Inc.	Azi.	TVD	V.S.
<Run 200>					
6000	6003'	0.60°	192.12°	5902.83'	-610.76'
6050 <KOP>					
6100	6114'	5.88°	79.95°	6013.64'	-605.26'
6150	6162'	9.77°	83.59°	6061.18'	-598.73'
6200	6209'	13.00°	87.37°	6107.25'	-589.48'



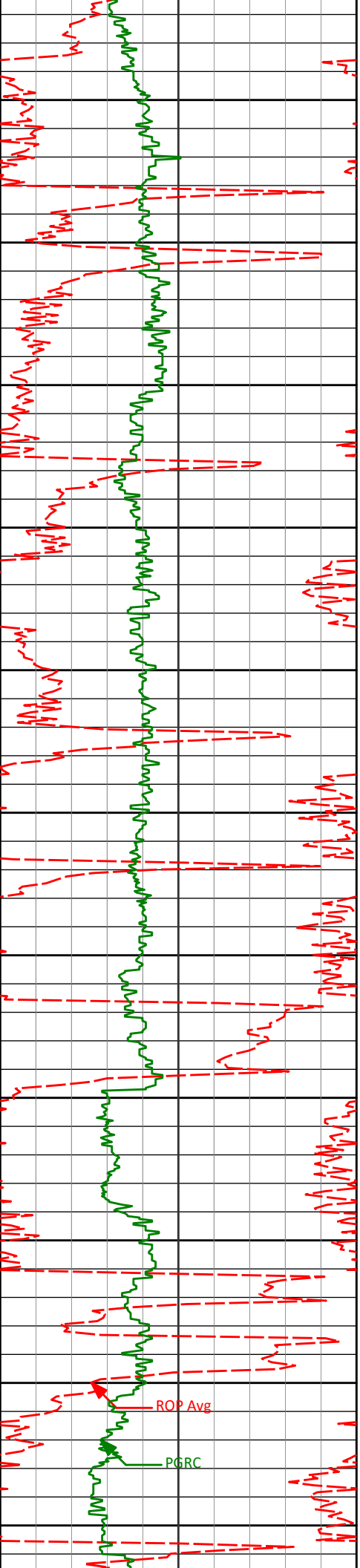
6256'	16.39°	90.07°	6152.71'	-577.63'
6304'	19.62°	90.04°	6198.35'	-562.93'
6352'	23.97°	89.46°	6242.91'	-545.26'
6399'	28.73°	90.18°	6285.01'	-524.58'
6447'	35.18°	88.96°	6325.72'	-499.38'
6494'	41.58°	87.78°	6362.54'	-470.37'
6541'	45.43°	85.25°	6396.63'	-438.11'
6589'	48.78°	84.70°	6429.30'	-402.99'
6637'	54.08°	86.04°	6459.22'	-365.52'
6683'	58.90°	85.20°	6484.61'	-327.24'
6730'	62.28°	86.32°	6507.69'	-286.38'



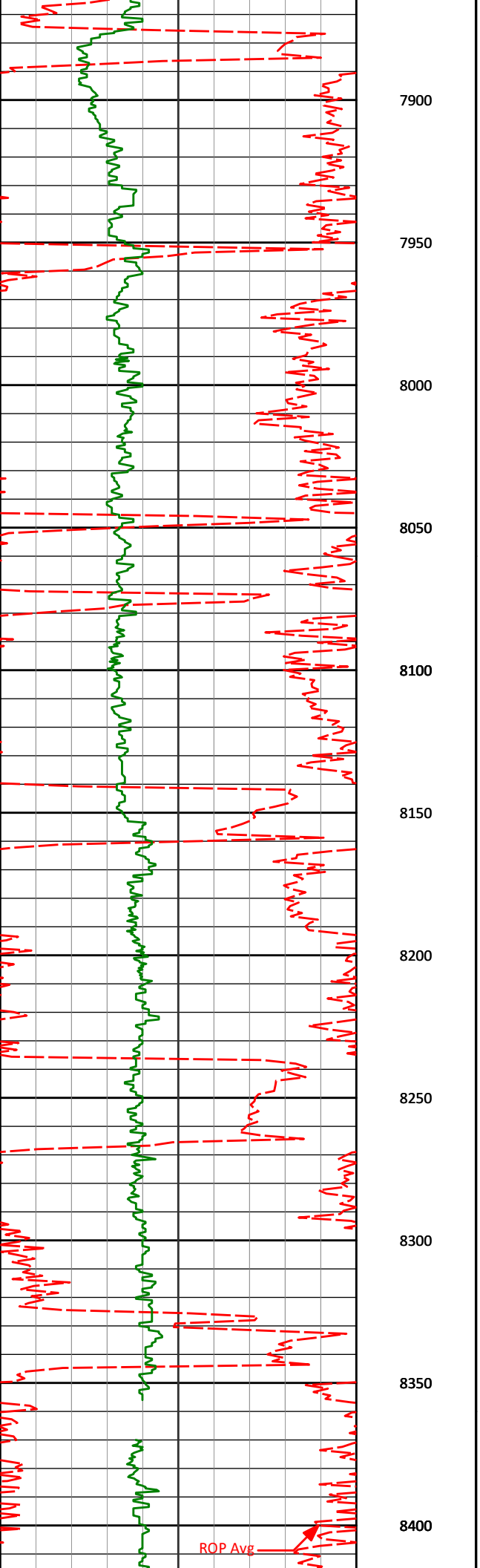
6778'	65.95°	87.39°	6528.64'	-243.33'
6826'	69.32°	88.01°	6546.90'	-199.14'
6873'	73.06°	88.91°	6562.06'	-154.90'
6921'	78.37°	89.38°	6573.90'	-108.73'
6968'	81.95°	88.90°	6581.93'	-62.74'
6978'	82.61°	88.08°	6583.27'	-52.89'

<7" casing set at 7026' MD>

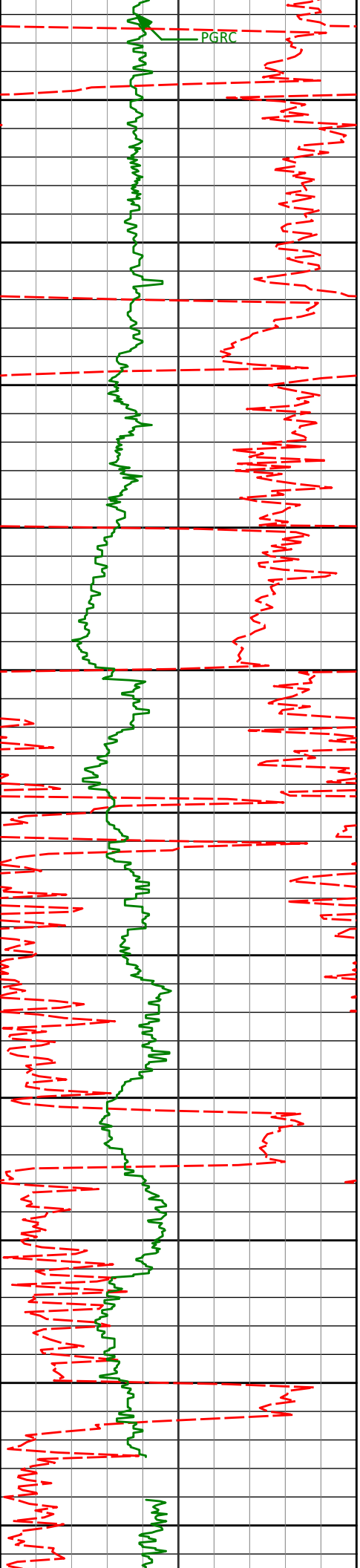
7067'	86.92°	86.65°	6591.39'	35.39'
7161'	87.71°	88.71°	6595.79'	128.88'
7225'	88.03°	89.51°	6598.17'	192.40'



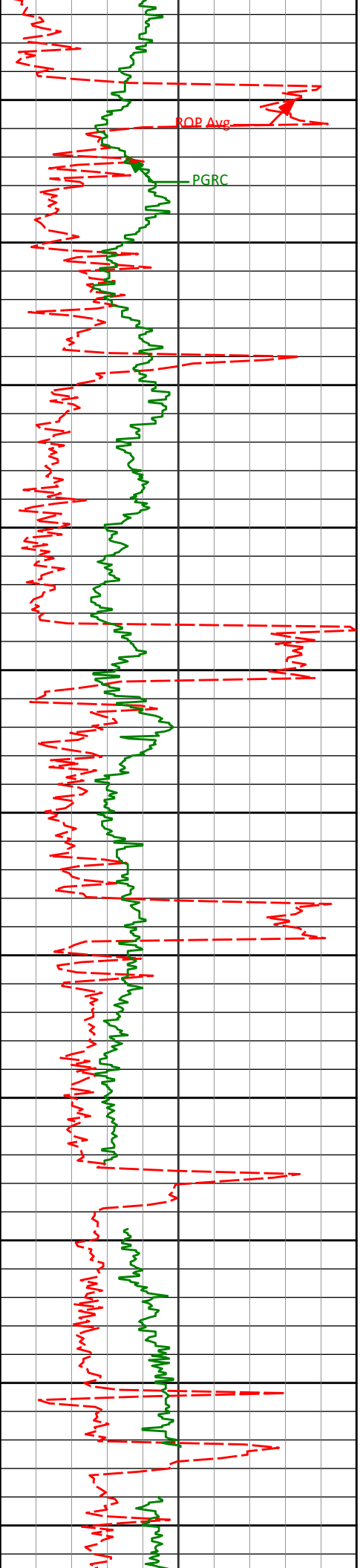
7320'	91.36°	90.03°	6598.68'	286.61'
7415'	91.14°	89.94°	6596.61'	380.76'
7509'	90.89°	90.86°	6594.95'	473.83'
7604'	88.92°	90.03°	6595.10'	567.90'
7699'	91.26°	90.32°	6594.95'	662.02'
7794'	92.13°	89.24°	6592.14'	756.19'



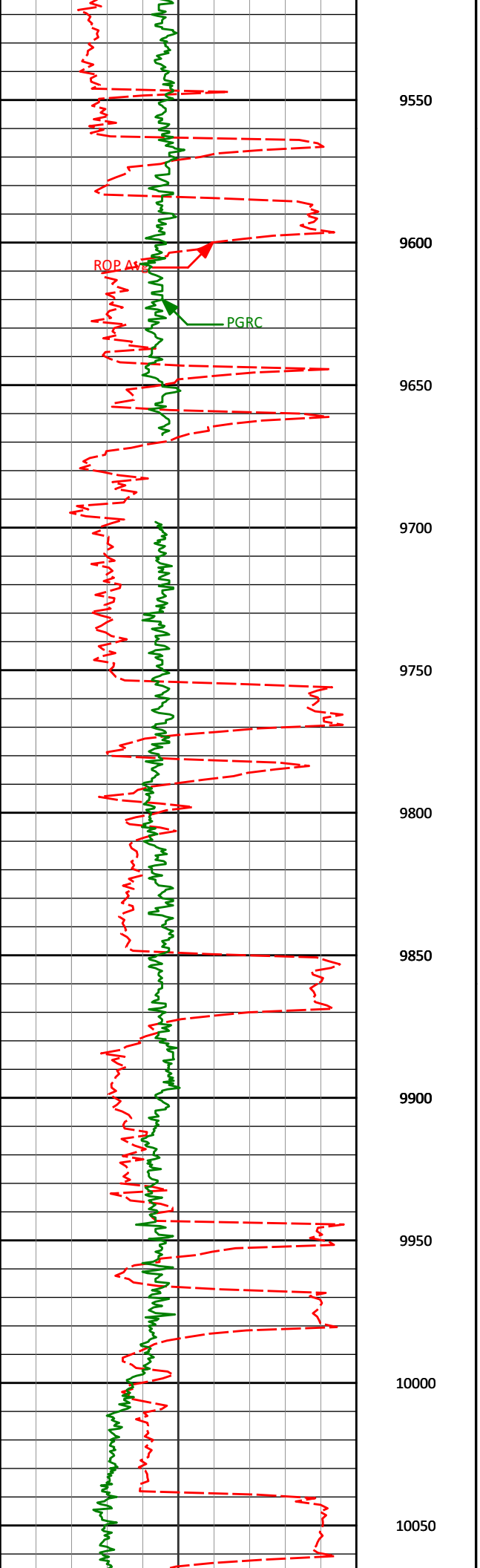
7889'	91.39°	89.60°	6589.23'	850.44'
7984'	91.20°	89.26°	6587.08'	944.71'
8079'	90.37°	91.40°	6585.78'	1038.79'
8174'	90.80°	90.89°	6584.81'	1132.68'
8269'	90.28°	84.86°	6583.91'	1227.20'
8364'	90.09°	85.37°	6583.60'	1322.10'



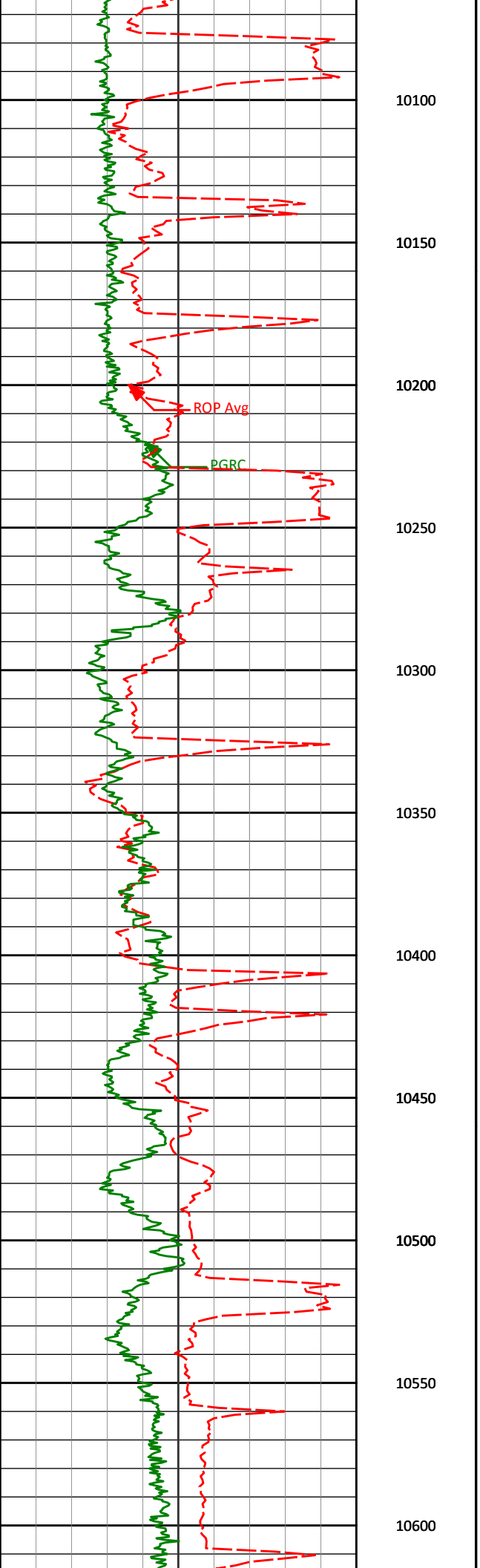
8459'	90.83°	85.10°	6582.84'	1416.98'
8554'	89.45°	85.00°	6582.61'	1511.88'
8649'	88.77°	90.61°	6584.09'	1606.41'
8744'	88.00°	91.28°	6586.77'	1700.32'
8839'	89.26°	91.04°	6589.05'	1794.19'
8934'	89.63°	90.68°	6589.97'	1888.16'



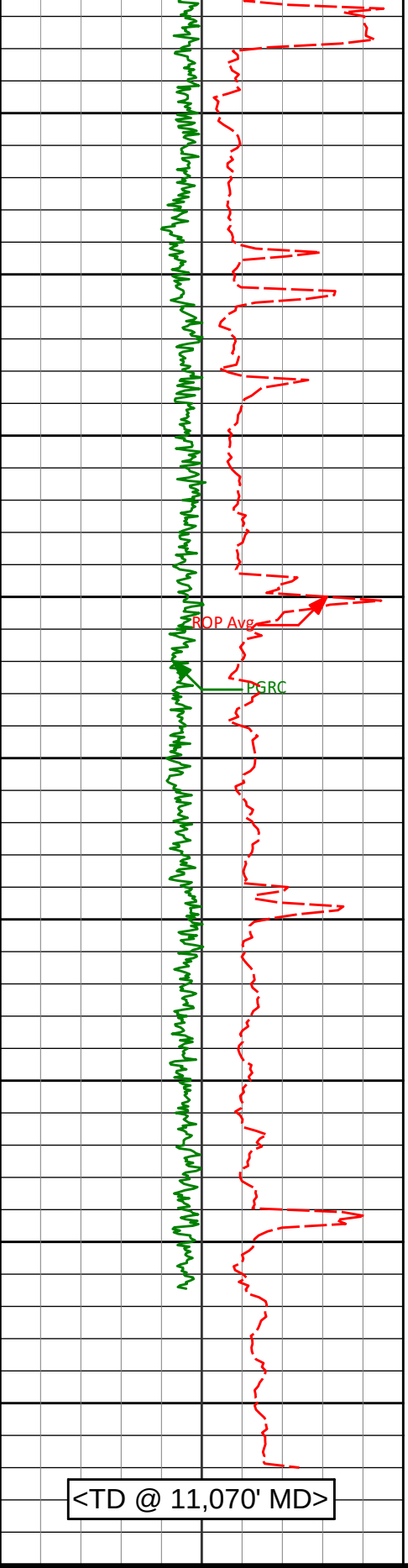
9029'	92.10°	91.81°	6588.54'	1982.01'
9124'	92.50°	91.63°	6584.73'	2075.69'
9218'	90.99°	90.72°	6581.87'	2168.55'
9313'	89.94°	89.44°	6581.11'	2262.69'
9408'	90.06°	89.28°	6581.11'	2357.00'
9503'	90.80°	90.88°	6580.40'	2451.14'



9598'	90.31°	89.57°	6579.48'	2545.26'
9693'	90.65°	91.34°	6578.68'	2639.32'
9788'	89.82°	91.74°	6578.30'	2733.11'
9883'	90.15°	90.12°	6578.32'	2827.07'
9978'	91.39°	91.71°	6577.05'	2921.01'



10073'	90.22°	88.65°	6575.72'	3015.12'
10168'	90.83°	84.86°	6574.85'	3109.82'
10263'	91.02°	87.16°	6573.31'	3204.62'
10358'	89.94°	87.50°	6572.52'	3299.27'
10453'	89.20°	88.04°	6573.24'	3393.85'
10548'	89.45°	89.14°	6574.36'	3488.29'



Depth	Inc.	Azi.	TVD	V.S.
10643'	90.74°	88.81°	6574.21'	3582.67'
10738'	90.00°	87.68°	6573.59'	3677.17'
10832'	90.65°	89.49°	6573.06'	3770.62'
10927'	89.69°	88.44°	6572.78'	3865.00'
11006'	90.52°	91.65°	6572.63'	3943.29'

Avg Rate of Penetration
ROP Avg
500 feet per hr 0

PCG Gamma Ray
PGRC
0 api 300

Depth
ft

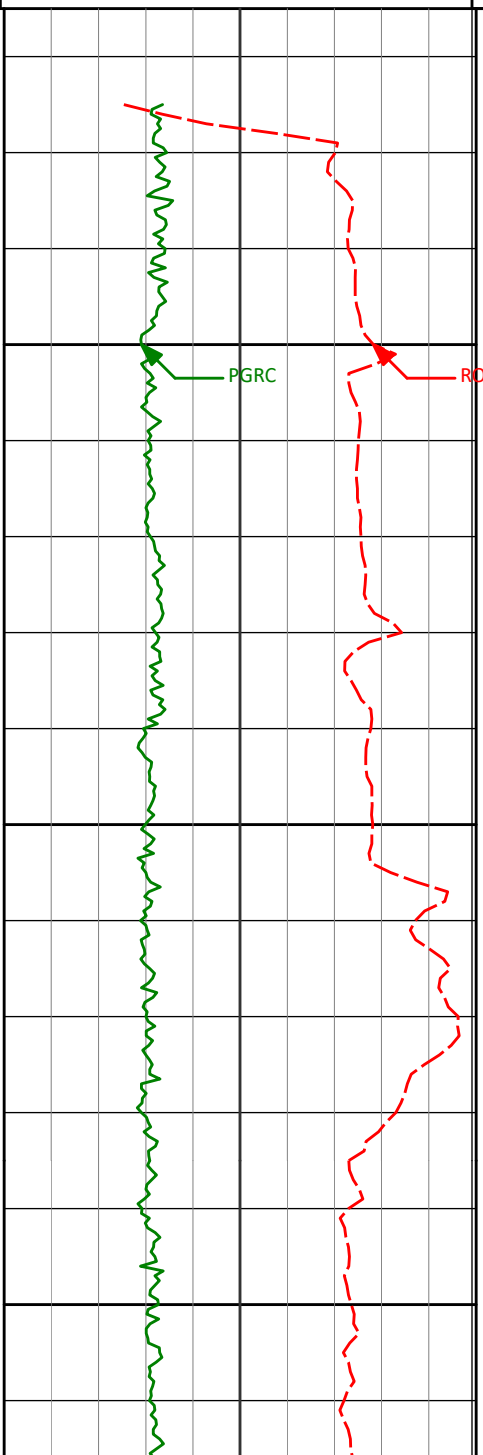
HALLIBURTON
Sperry Drilling Services

MD Detail Log 1:240

Noble Energy, Inc
Trebor B11-67-1HN
H&P 315
T5N R64W

PCG Gamma Ray
PGRC
0 api 300

Avg Rate of Penetration
ROPA
500 feet per hr 0



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<Run 200>					
6000	6003'	0.60°	192.12°	5902.83'	-610.76'
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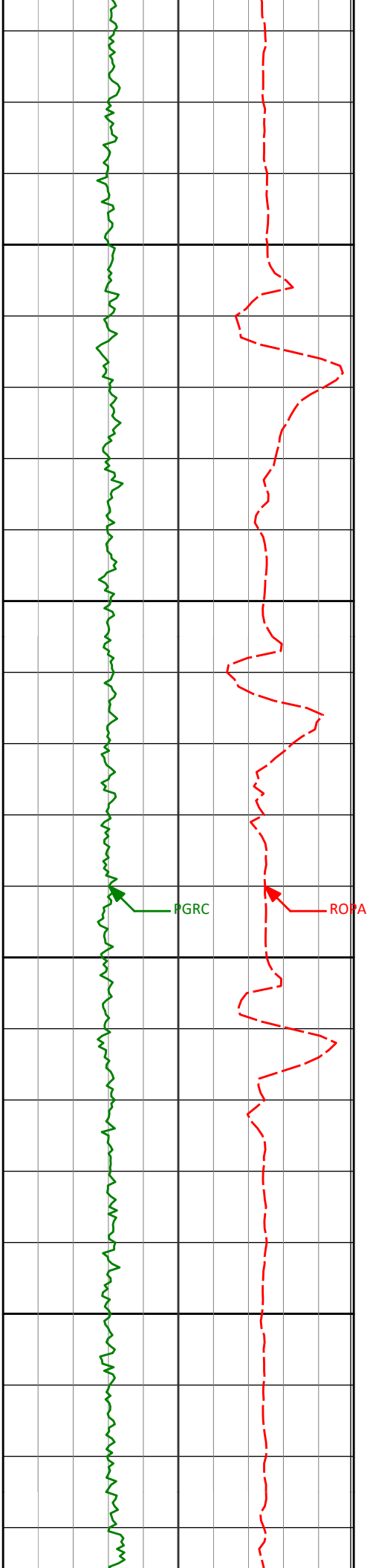
<KOP>					
6100					
	6114'	5.88°	79.95°	6013.64'	-605.26'



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6209'	13.00°	87.37°	6107.25'	-589.48'
6256'	16.39°	90.07°	6152.71'	-577.63'
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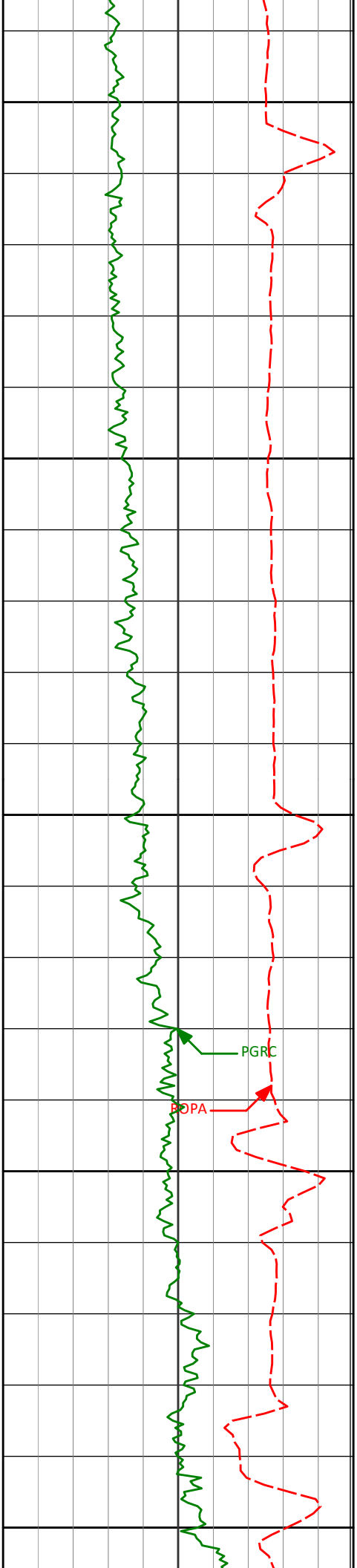

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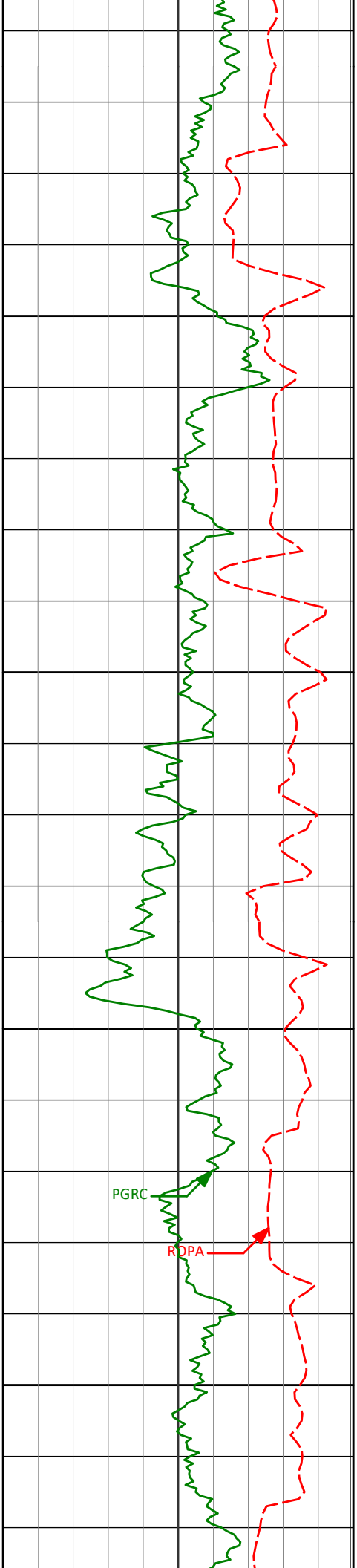

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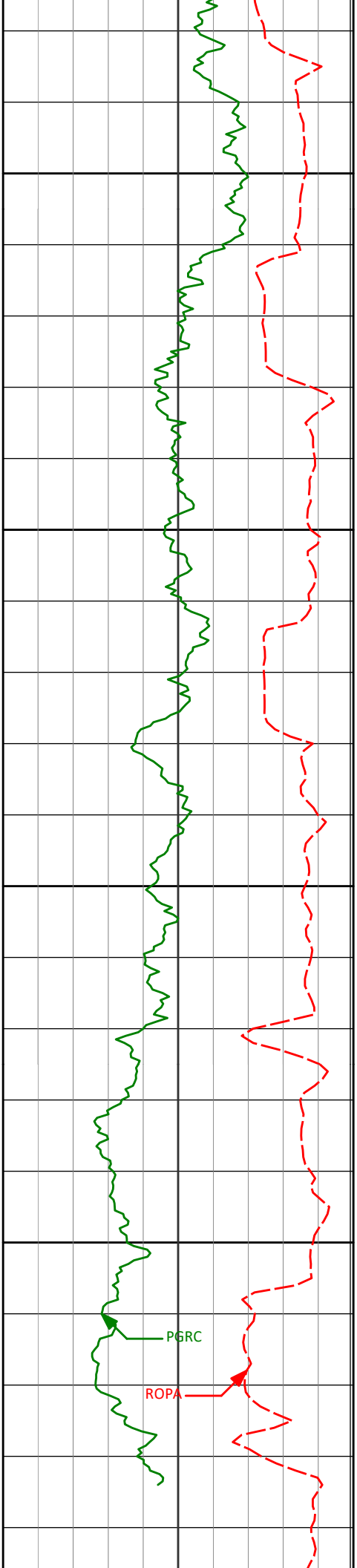
6683'	58.90°	85.20°	6484.61'	-327.24'
6730'	62.28°	86.32°	6507.69'	-286.38'



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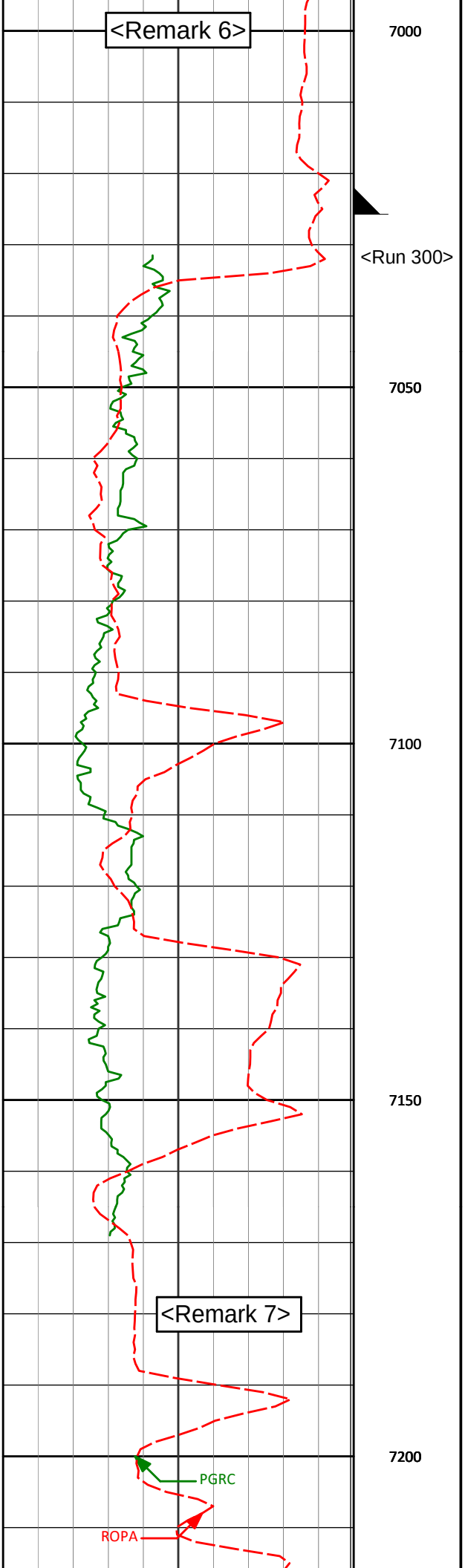
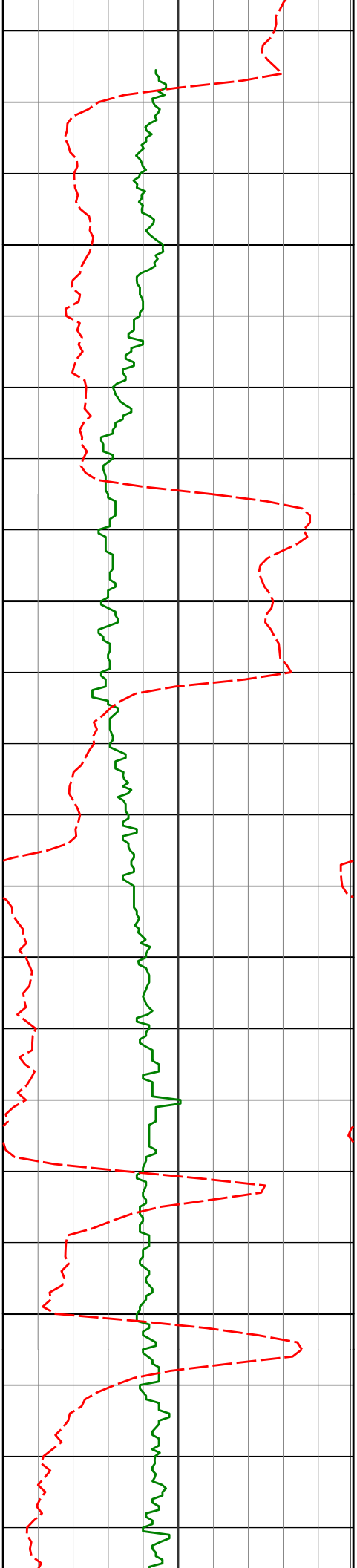
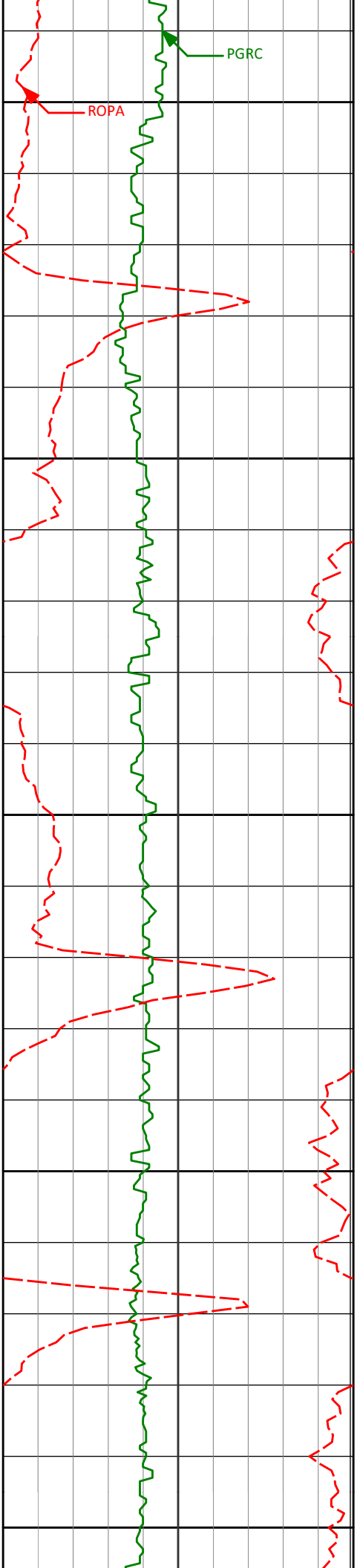


<7" casing set at 7026' MD>

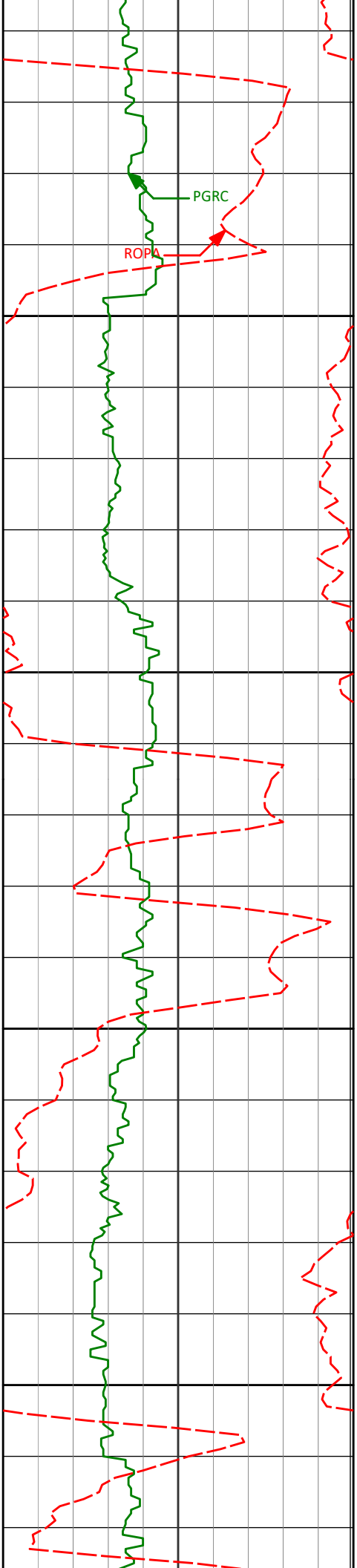
7067'	86.92°	86.65°	6591.39'	35.39'
7161'	87.71°	88.71°	6595.79'	128.88'



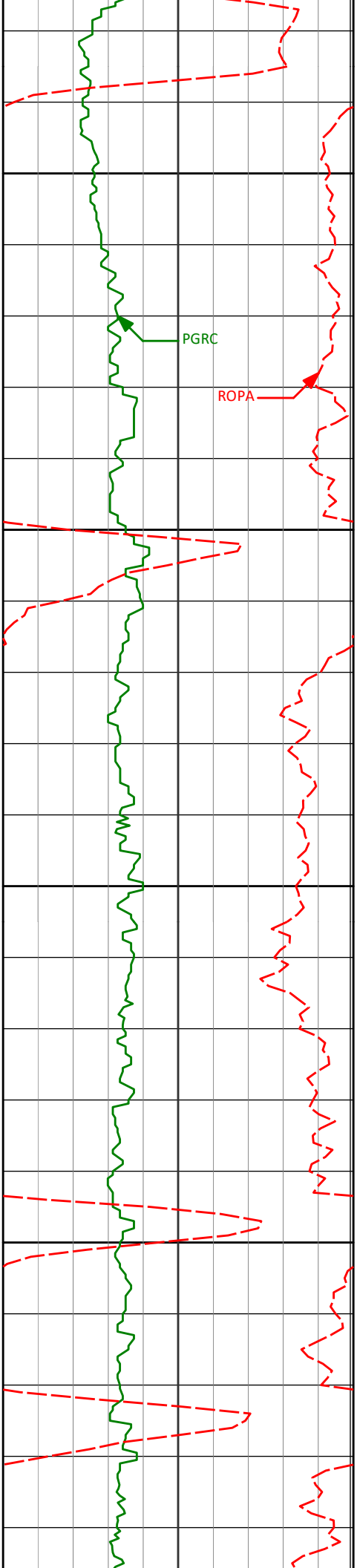
7225'	88.03°	89.51°	6598.17'	192.40'
7320'	91.36°	90.03°	6598.68'	286.61'
7415'	91.14°	89.94°	6596.61'	380.76'



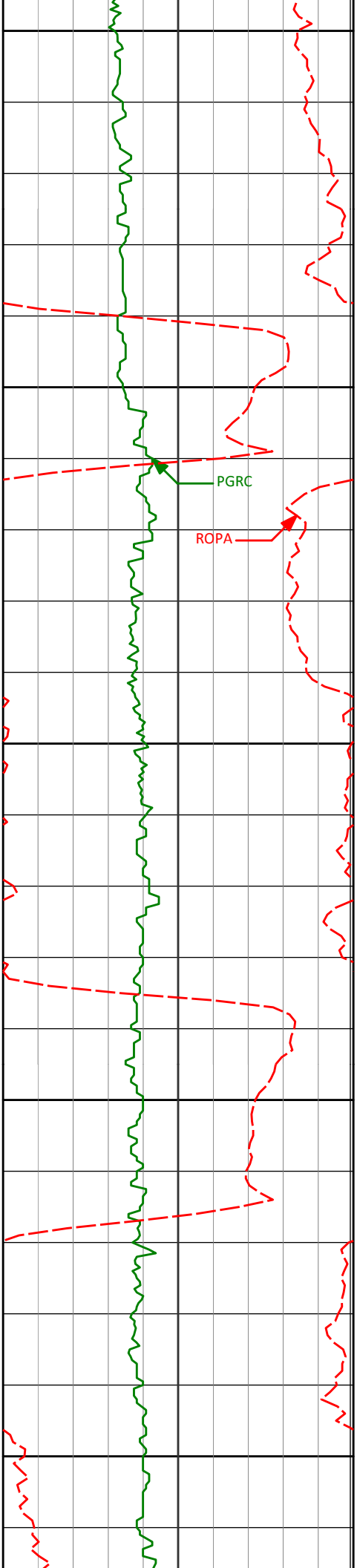
7509'	90.89°	90.86°	6594.95'	473.83'
7604'	88.92°	90.03°	6595.10'	567.90'



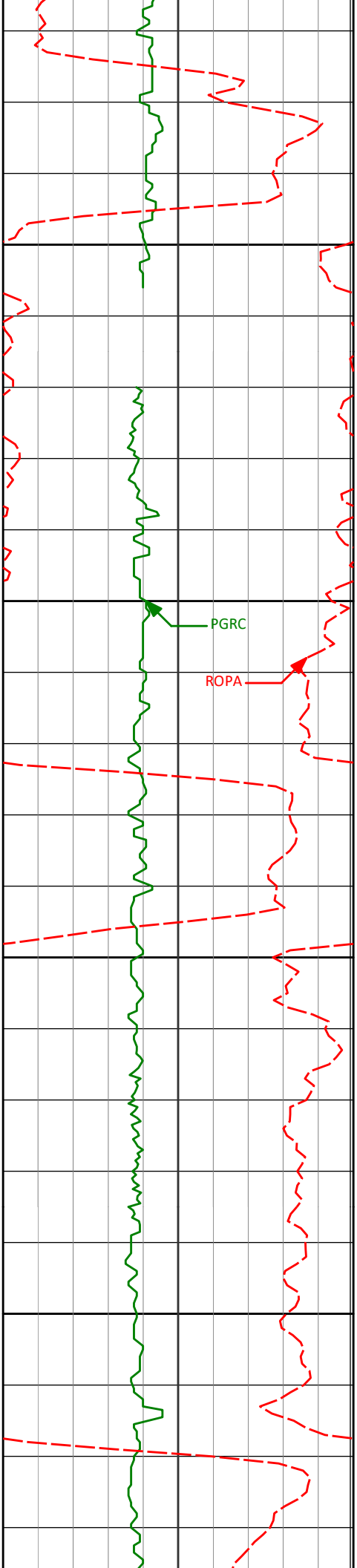
7699'	91.26°	90.32°	6594.95'	662.02'	
7794'	92.13°	89.24°	6592.14'	756.19'	



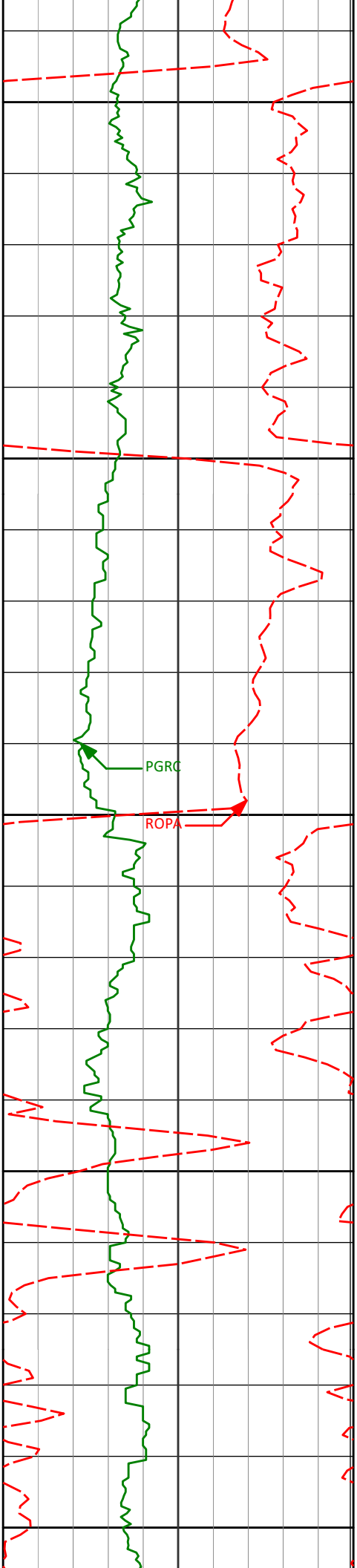
7889'	91.39°	89.60°	6589.23'	850.44'
7984'	91.20°	89.26°	6587.08'	944.71'
8079'	90.37°	91.40°	6585.78'	1038.79'



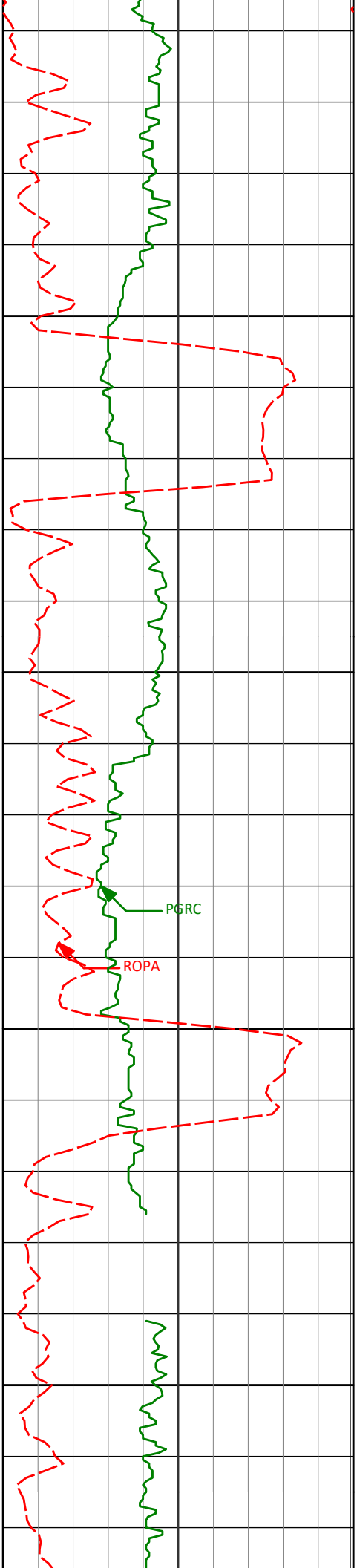
8174'	90.80°	90.89°	6584.81'	1132.68'
8269'	90.28°	84.86°	6583.91'	1227.20'



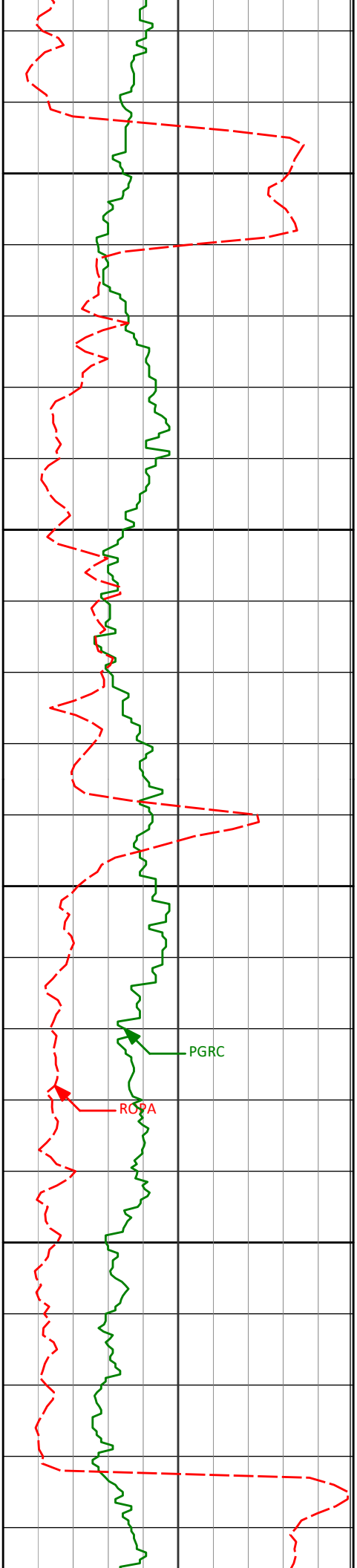
8364'	90.09°	85.37°	6583.60'	1322.10'
8459'	90.83°	85.10°	6582.84'	1416.98'



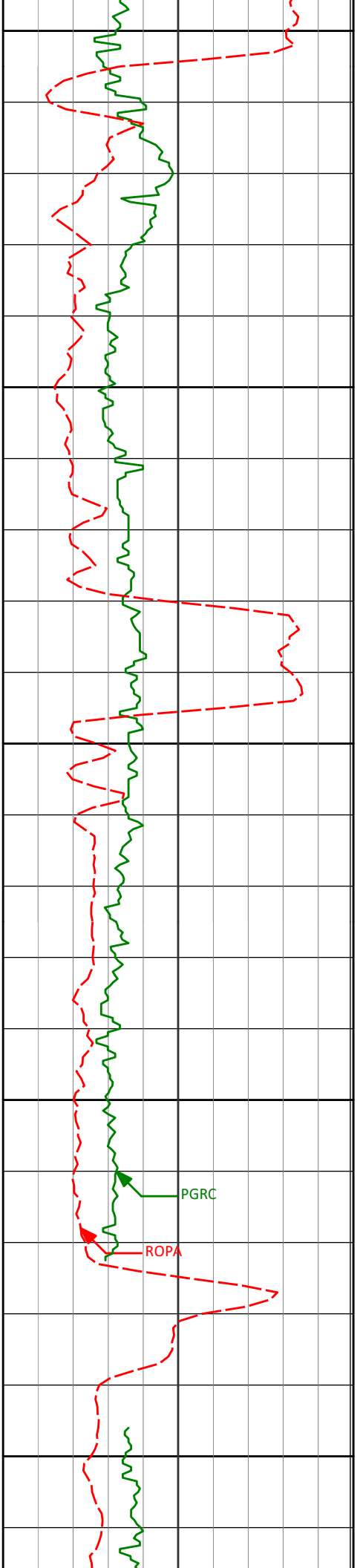
8554'	89.45°	85.00°	6582.61'	1511.88'
8649'	88.77°	90.61°	6584.09'	1606.41'
8744'	88.00°	91.28°	6586.77'	1700.32'



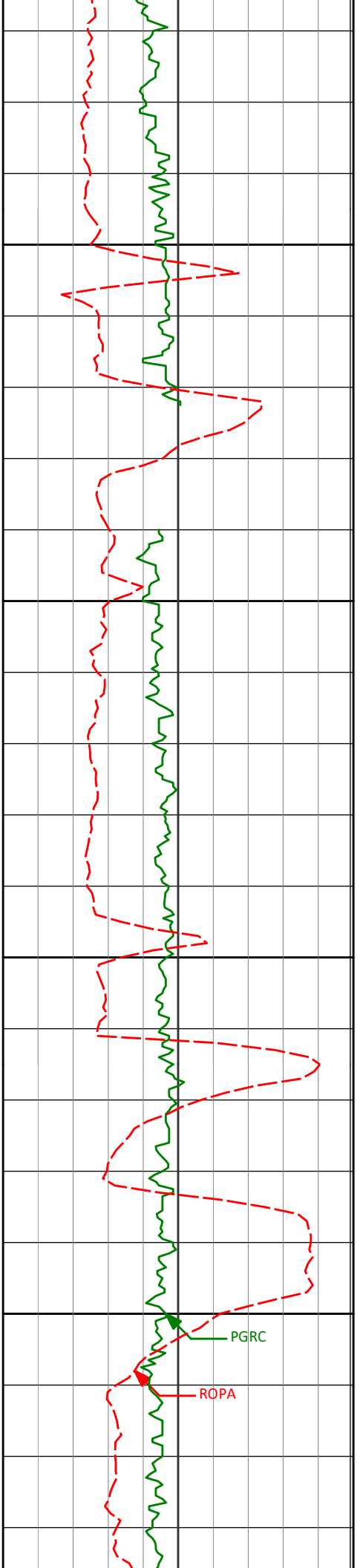
8839'	89.26°	91.04°	6589.05'	1794.19'
8934'	89.63°	90.68°	6589.97'	1888.16'



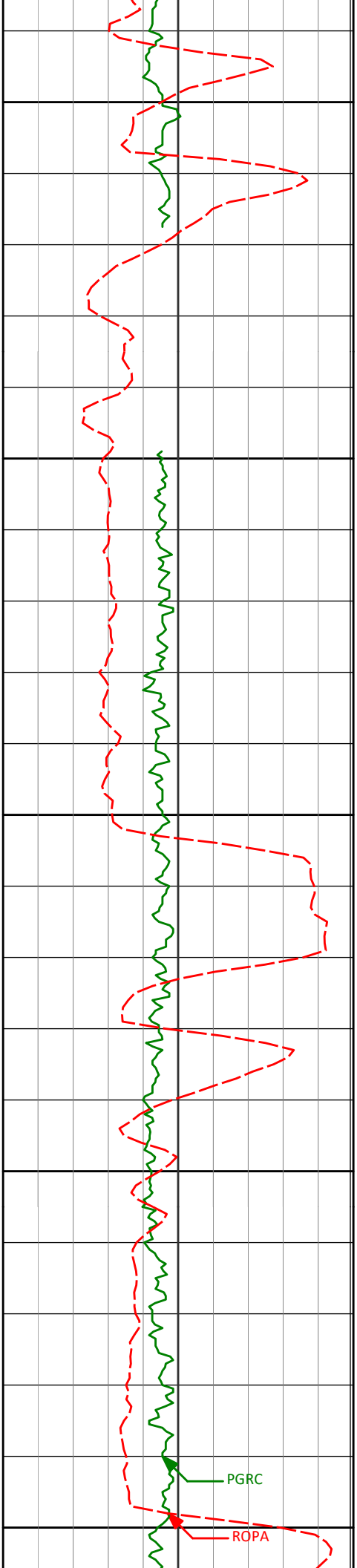
9029'	92.10°	91.81°	6588.54'	1982.01'
9124'	92.50°	91.63°	6584.73'	2075.69'



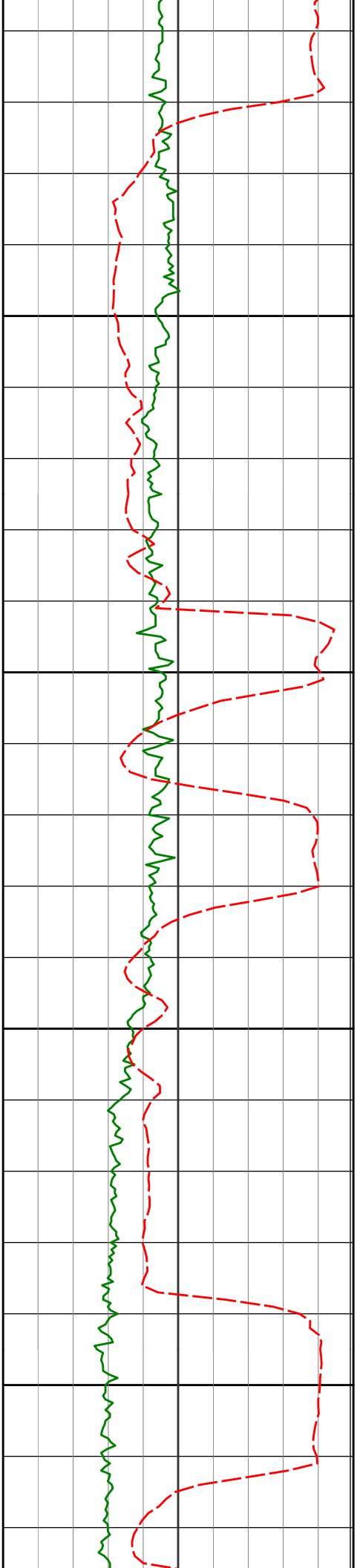
9218'	90.99°	90.72°	6581.87'	2168.55'
9313'	89.94°	89.44°	6581.11'	2262.69'
9408'	90.06°	89.28°	6581.11'	2357.00'



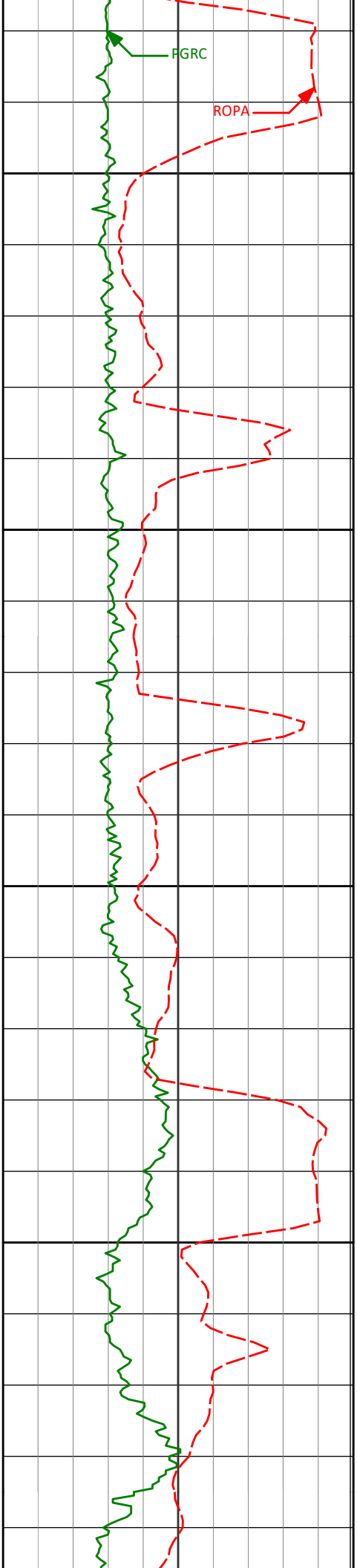
9503'	90.80°	90.88°	6580.40'	2451.14'
9598'	90.31°	89.57°	6579.48'	2545.26'



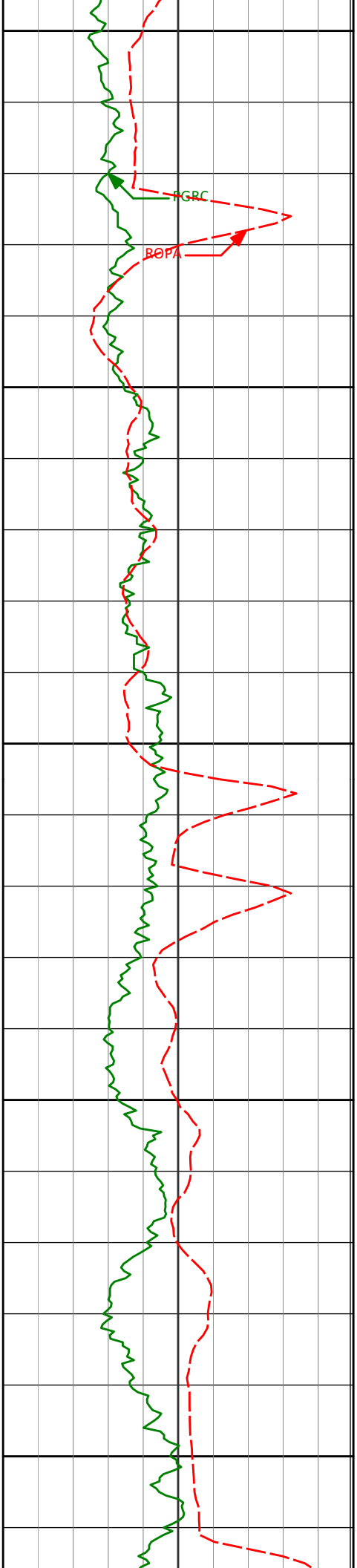
9693'	90.65°	91.34°	6578.68'	2639.32'
9788'	89.82°	91.74°	6578.30'	2733.11'



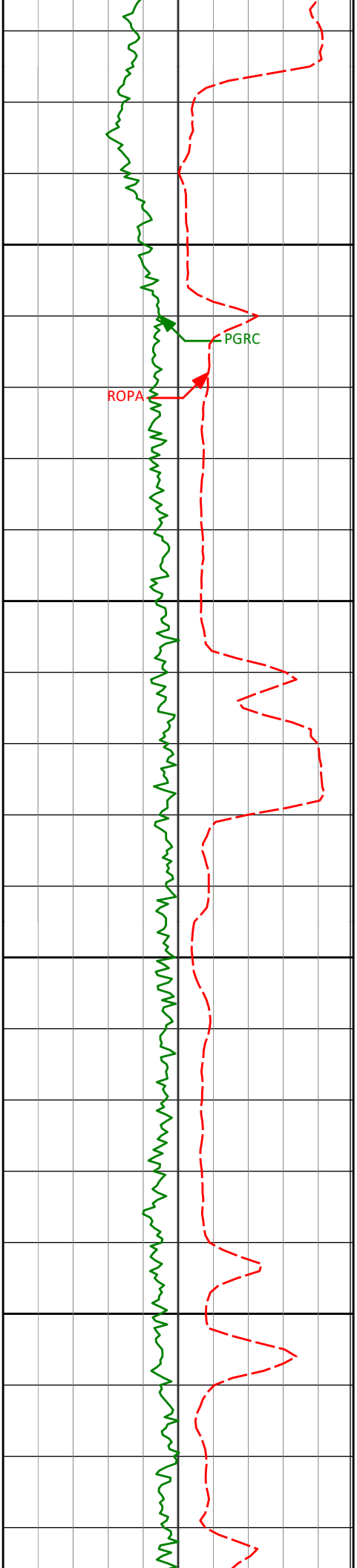
9883'	90.15°	90.12°	6578.32'	2827.07'
9978'	91.39°	91.71°	6577.05'	2921.01'
10073'	90.22°	88.65°	6575.72'	3015.12'



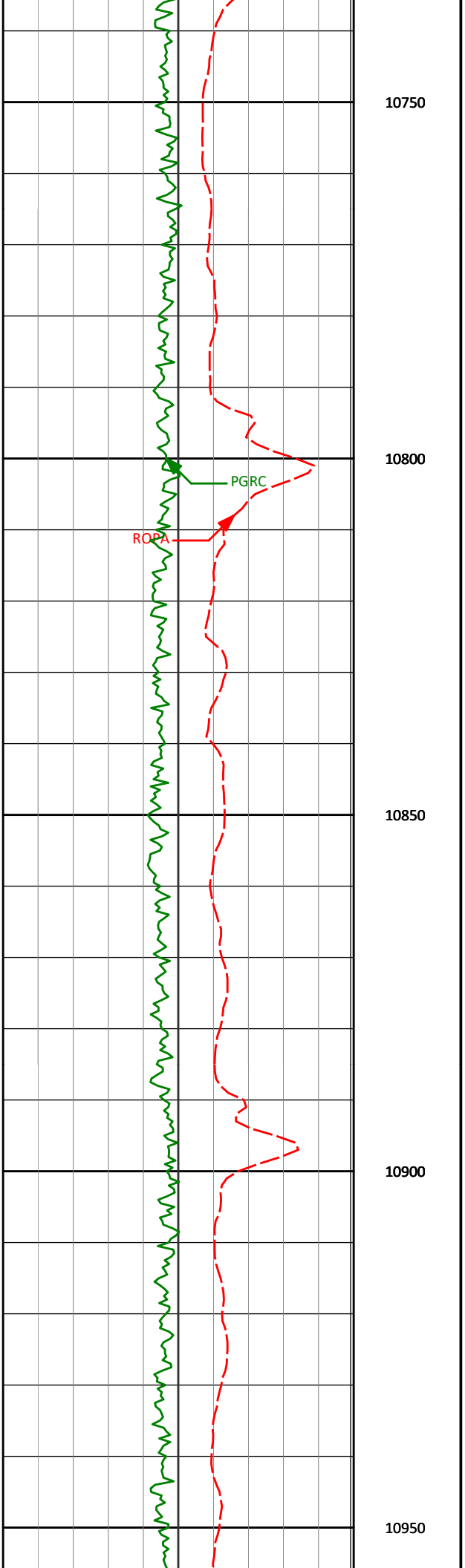
10168'	90.83°	84.86°	6574.85'	3109.82'
10263'	91.02°	87.16°	6573.31'	3204.62'



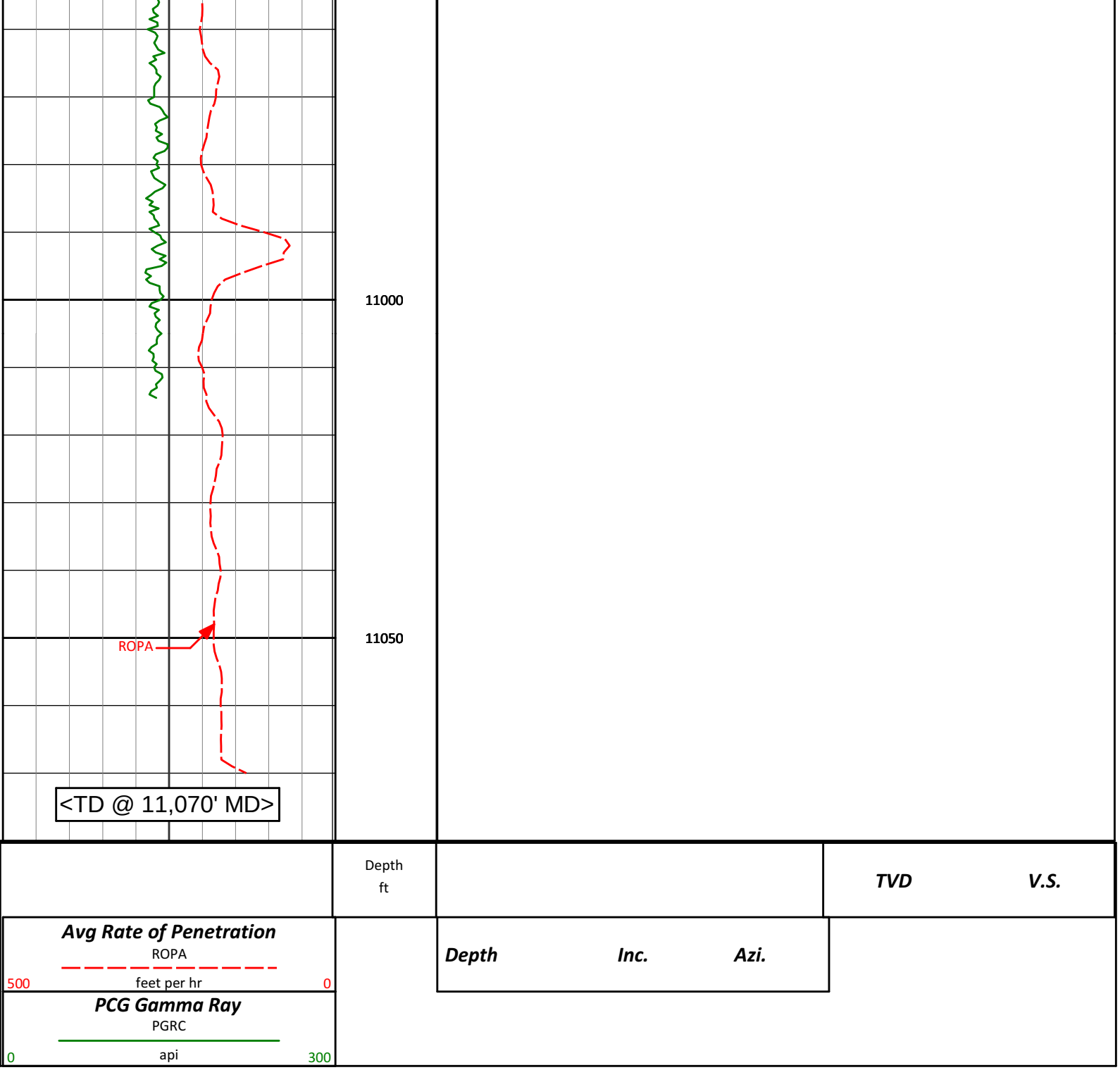
10358'	89.94°	87.50°	6572.52'	3299.27'
10453'	89.20°	88.04°	6573.24'	3393.85'



10548'	89.45°	89.14°	6574.36'	3488.29'
10643'	90.74°	88.81°	6574.21'	3582.67'



10738'	90.00°	87.68°	6573.59'	3677.17'
10832'	90.65°	89.49°	6573.06'	3770.62'
10927'	89.69°	88.44°	6572.78'	3865.00'



	Depth ft		TVD	V.S.
Avg Rate of Penetration ROPA 500 feet per hr 0		**Depth**	**Inc.**	**Azi.**
PCG Gamma Ray PGRC 0 api 300				

HALLIBURTON

DIRECTIONAL SURVEY REPORT

Noble Energy
Trebor B11-67-1HN
Wattenberg
Weld Colorado
USA
CA-XX-0900544024

Surface surveys at 303 ft and 583 ft have had azimuths corrected to grid north, but were not taken by Halliburton.

Last survey is a projection from 11006 ft MD to TD at 11070 ft MD.

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
303.00	0.40	299.55	303.00	0.52 N	0.92 W	-0.84	0.13
583.00	0.30	232.55	582.99	0.56 N	2.35 W	-2.26	0.14
718.00	0.86	233.07	717.99	0.26 S	3.44 W	-3.44	0.41
811.00	0.88	337.24	810.98	0.02 S	4.27 W	-4.23	1.47
903.00	0.52	349.41	902.97	1.04 N	4.62 W	-4.44	0.41
996.00	0.73	336.54	995.97	2.00 N	4.93 W	-4.62	0.26
1090.00	3.21	338.91	1089.90	5.00 N	6.12 W	-5.40	2.64
1182.00	4.05	329.42	1181.72	10.21 N	8.70 W	-7.27	1.12
1275.00	4.98	317.84	1274.43	16.02 N	13.08 W	-10.85	1.39
1368.00	6.81	308.19	1366.94	22.42 N	20.12 W	-16.98	2.24
1463.00	9.29	301.72	1461.00	29.94 N	31.07 W	-26.85	2.78
1558.00	11.62	300.18	1554.41	38.79 N	45.87 W	-40.35	2.46
1653.00	13.45	301.02	1647.14	49.29 N	63.61 W	-56.55	1.94
1748.00	15.49	303.71	1739.13	62.02 N	83.63 W	-74.72	2.26
1843.00	16.35	302.81	1830.48	76.31 N	105.42 W	-94.44	0.94
1938.00	15.98	302.55	1921.73	90.59 N	127.68 W	-114.62	0.39
2033.00	16.86	300.87	2012.85	104.70 N	150.53 W	-135.41	1.05
2128.00	16.87	298.49	2103.77	118.34 N	174.48 W	-157.34	0.73
2223.00	15.44	297.95	2195.01	130.85 N	197.77 W	-178.78	1.51
2317.00	16.33	301.62	2285.42	143.64 N	220.08 W	-199.21	1.43
2412.00	16.51	305.11	2376.55	158.41 N	242.50 W	-219.48	1.05
2507.00	15.09	303.86	2467.96	173.07 N	263.82 W	-238.68	1.54
2602.00	17.22	305.62	2559.20	188.15 N	285.52 W	-258.21	2.30
2697.00	17.34	305.58	2649.91	204.58 N	308.47 W	-278.79	0.13
2792.00	17.46	305.86	2740.56	221.17 N	331.54 W	-299.46	0.15
2887.00	16.46	304.82	2831.43	237.20 N	354.13 W	-319.75	1.10
2982.00	15.71	304.71	2922.71	252.20 N	375.75 W	-339.20	0.79
3077.00	14.22	303.84	3014.49	266.02 N	396.01 W	-357.46	1.59
3172.00	15.54	306.87	3106.30	280.16 N	415.88 W	-375.29	1.62
3267.00	13.28	303.23	3198.31	293.77 N	435.19 W	-392.63	2.56
3361.00	14.55	306.47	3289.55	306.71 N	453.71 W	-409.29	1.58
3456.00	16.43	304.16	3381.10	321.34 N	474.42 W	-427.89	2.08
3551.00	15.36	303.93	3472.47	335.91 N	495.98 W	-447.34	1.12
3646.00	16.40	303.63	3563.84	350.37 N	517.59 W	-466.85	1.10
3741.00	15.36	304.97	3655.21	365.01 N	539.07 W	-486.21	1.16
3836.00	13.90	304.29	3747.13	378.65 N	558.81 W	-503.98	1.55
3931.00	13.36	305.12	3839.45	391.39 N	577.21 W	-520.54	0.60
4026.00	11.75	305.10	3932.18	403.26 N	594.10 W	-535.71	1.70
4121.00	10.06	304.71	4025.46	413.55 N	608.84 W	-548.96	1.77
4216.00	8.67	303.21	4119.19	422.20 N	621.65 W	-560.53	1.49
4310.00	7.91	304.59	4212.21	429.75 N	632.91 W	-570.69	0.84
4405.00	7.38	305.60	4306.37	437.02 N	643.25 W	-579.98	0.58
4500.00	6.36	310.67	4400.68	444.00 N	652.20 W	-587.93	1.25
4595.00	3.87	307.75	4495.30	449.39 N	658.73 W	-593.69	2.63
4690.00	3.05	298.05	4590.12	452.54 N	663.50 W	-598.01	1.06
4785.00	3.11	273.61	4684.99	453.90 N	668.30 W	-602.59	1.37
4880.00	0.80	348.92	4779.94	454.71 N	671.01 W	-605.16	3.17
4975.00	0.34	29.63	4874.93	455.61 N	670.99 W	-605.03	0.61
5070.00	0.46	326.56	4969.93	456.17 N	671.06 W	-605.02	0.45
5354.00	1.02	185.78	5253.92	454.61 N	671.94 W	-606.10	0.49
5639.00	1.19	197.44	5538.87	449.27 N	673.08 W	-607.94	0.10
5924.00	0.61	220.64	5823.83	445.31 N	674.95 W	-610.31	0.24
6003.00	0.60	192.12	5902.83	444.60 N	675.31 W	-610.76	0.37
6114.00	5.88	79.95	6013.64	445.03 N	669.82 W	-605.26	5.53
6162.00	9.77	83.59	6061.18	445.91 N	663.35 W	-598.73	8.15
6209.00	13.00	87.37	6107.25	446.60 N	654.10 W	-589.48	7.06
6256.00	16.39	90.07	6152.71	446.83 N	642.19 W	-577.63	7.35
6304.00	19.62	90.04	6198.35	446.82 N	627.35 W	-562.93	6.73
6352.00	23.97	89.46	6242.91	446.91 N	609.54 W	-545.26	9.09
6399.00	28.73	90.18	6285.01	446.96 N	588.68 W	-524.58	10.15
6447.00	35.18	88.96	6325.72	447.17 N	563.29 W	-499.38	13.49
6494.00	41.58	87.78	6362.54	448.03 N	534.14 W	-470.37	13.70
6541.00	45.43	85.25	6396.63	450.02 N	501.86 W	-438.11	9.00
6589.00	48.78	84.70	6429.30	453.10 N	466.84 W	-402.99	7.02
6637.00	54.08	86.04	6459.22	456.12 N	429.44 W	-365.52	11.26
6683.00	58.90	85.20	6484.61	459.05 N	391.21 W	-327.24	10.58
6730.00	62.28	86.32	6507.69	462.07 N	350.39 W	-286.38	7.49
6778.00	65.95	87.39	6528.64	464.43 N	307.28 W	-243.33	7.91
6826.00	69.32	88.01	6546.90	466.21 N	262.93 W	-199.14	7.12
6873.00	73.06	88.91	6562.06	467.41 N	218.47 W	-154.90	8.17

6921.00	78.37	89.38	6573.90	468.10 N	171.98 W	-108.73	11.10
6968.00	81.95	88.90	6581.93	468.79 N	125.68 W	-62.74	7.68
6978.00	82.61	88.08	6583.27	469.06 N	115.77 W	-52.89	10.47
7067.00	86.92	86.65	6591.39	473.13 N	27.26 W	35.39	5.10
7161.00	87.71	88.71	6595.79	476.93 N	66.55 E	128.88	2.35
7225.00	88.03	89.51	6598.17	477.93 N	130.50 E	192.40	1.34
7320.00	91.36	90.03	6598.68	478.31 N	225.48 E	286.61	3.55
7415.00	91.14	89.94	6596.61	478.33 N	320.46 E	380.76	0.25
7509.00	90.89	90.86	6594.95	477.68 N	414.44 E	473.83	1.01
7604.00	88.92	90.03	6595.10	476.94 N	509.43 E	567.90	2.25
7699.00	91.26	90.32	6594.95	476.65 N	604.43 E	662.02	2.49
7794.00	92.13	89.24	6592.14	477.01 N	699.38 E	756.19	1.46
7889.00	91.39	89.60	6589.23	477.98 N	794.33 E	850.44	0.87
7984.00	91.20	89.26	6587.08	478.93 N	889.30 E	944.71	0.41
8079.00	90.37	91.40	6585.78	478.38 N	984.29 E	1038.79	2.42
8174.00	90.80	90.89	6584.81	476.48 N	1079.26 E	1132.68	0.70
8269.00	90.28	84.86	6583.91	480.00 N	1174.15 E	1227.20	6.38
8364.00	90.09	85.37	6583.60	488.10 N	1268.80 E	1322.10	0.57
8459.00	90.83	85.10	6582.84	495.99 N	1363.47 E	1416.98	0.83
8554.00	89.45	85.00	6582.61	504.19 N	1458.11 E	1511.88	1.46
8649.00	88.77	90.61	6584.09	507.83 N	1552.99 E	1606.41	5.95
8744.00	88.00	91.28	6586.77	506.26 N	1647.94 E	1700.32	1.08
8839.00	89.26	91.04	6589.05	504.34 N	1742.89 E	1794.19	1.36
8934.00	89.63	90.68	6589.97	502.92 N	1837.88 E	1888.16	0.54
9029.00	92.10	91.81	6588.54	500.86 N	1932.83 E	1982.01	2.85
9124.00	92.50	91.63	6584.73	498.01 N	2027.71 E	2075.69	0.46
9218.00	90.99	90.72	6581.87	496.08 N	2121.65 E	2168.55	1.88
9313.00	89.94	89.44	6581.11	495.95 N	2216.64 E	2262.69	1.74
9408.00	90.06	89.28	6581.11	497.02 N	2311.64 E	2357.00	0.21
9503.00	90.80	90.88	6580.40	496.88 N	2406.63 E	2451.14	1.86
9598.00	90.31	89.57	6579.48	496.51 N	2501.62 E	2545.26	1.47
9693.00	90.65	91.34	6578.68	495.76 N	2596.61 E	2639.32	1.90
9788.00	89.82	91.74	6578.30	493.21 N	2691.57 E	2733.11	0.97
9883.00	90.15	90.12	6578.32	491.67 N	2786.56 E	2827.07	1.74
9978.00	91.39	91.71	6577.05	490.15 N	2881.53 E	2921.01	2.12
10073.00	90.22	88.65	6575.72	489.85 N	2976.51 E	3015.12	3.45
10168.00	90.83	84.86	6574.85	495.23 N	3071.34 E	3109.82	4.04
10263.00	91.02	87.16	6573.31	501.84 N	3166.09 E	3204.62	2.43
10358.00	89.94	87.50	6572.52	506.27 N	3260.98 E	3299.27	1.19
10453.00	89.20	88.04	6573.24	509.97 N	3355.90 E	3393.85	0.97
10548.00	89.45	89.14	6574.36	512.31 N	3450.87 E	3488.29	1.19
10643.00	90.74	88.81	6574.21	514.01 N	3545.85 E	3582.67	1.41
10738.00	90.00	87.68	6573.59	516.92 N	3640.80 E	3677.17	1.42
10832.00	90.65	89.49	6573.06	519.25 N	3734.77 E	3770.62	2.04
10927.00	89.69	88.44	6572.78	520.96 N	3829.75 E	3865.00	1.49
11006.00	90.52	91.65	6572.63	520.90 N	3908.74 E	3943.29	4.19
11070.00	90.52	91.65	6572.05	519.06 N	3972.71 E	4006.46	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 82.42 DEGREES (GRID)
A TOTAL CORRECTION OF 7.85 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED

HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.
HORIZONTAL DISPLACEMENT(CLOSURE) AT 11070.00 FEET
IS 4006.47 FEET ALONG 82.56 DEGREES (GRID)

Date Printed:11 July 2013