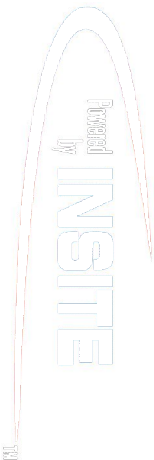


**PCDC - Pressure Case Directional
PCGK - Pressure Case Gamma**

1 : 240

Country	: USA
Field	: Wattenberg
Location	: Lat: 40° 30' 36.61" North Long: 104° 27' 3.10" West
Well	: NCLP AA07-69HNA
Company	: Noble Energy
Rig	: H&P 322
LOCATION	Company : Noble Energy
	Rig : H&P 322
Latitude : 40° 30' 36.61" North Longitude : 104° 27' 3.10" West	Well : NCLP AA07-69HNA
	Field : Wattenberg
UTM Easting = 3291714.7 ft UTM Northing = 1430421.18 ft	Country : USA
	API Number : 05-123-39160
Other Services Directional Drilling	
Permanent Datum : Ground Level	Elevation : 4708.00 ft
Log Measured From : Drill Floor	24.00 ft Above Permanent Datum
Drilling Measured From : Drill Floor	MD LOG
Depth Logged : 858.00 ft To 13,228.00 ft	Unit No. : 11210425
Date Logged : 31-May-14 To 07-Jun-14	Job No. : CA-XX-0901286745
Total Depth MD : 13,228.00 ft TVD : 6,684.23 ft	Plot Type : Final
Spud Date : 31-May-14	Plot Date : 08-Jun-14
Run No.	Borehole Record (MD)
Size	From To
2	8,750 in 858.00 ft 6,058.00 ft
3	8,750 in 6,058.00 ft 7,073.00 ft
4	6,125 in 7,073.00 ft 13,228.00 ft
	Casing Record (MD)
	Size Weight From To
	9.625 in 36.00 lbpf SURFACE 848.00 ft
	7.000 in 26.00 lbpf SURFACE 7,063.00 ft

WELL INFORMATION

MWD Run Number	100	200	300
Date run completed	02-Jun-14	03-Jun-14	07-Jun-14
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)	858.00	6,058.00	7,073.00
Log End Depth (MD, ft)	6,058.00	7,073.00	13,228.00
Drill or Wipe	Drill	Drill	Drill
Drill/Wipe Start Date and Time	01-Jun-14 13:45	02-Jun-14 18:10	04-Jun-14 15:10
Drill/Wipe End Date and Time	02-Jun-14 06:30	03-Jun-14 04:50	07-Jun-14 08:34
Min Inc (deg) @ Depth (MD, ft)	0.14 @ 5,999.00	1.27 @ 6,116.00	87.47 @ 7,166.00
Max Inc (deg) @ Depth (MD, ft)	14.05 @ 2,994.00	82.83 @ 7,015.00	92.90 @ 13,167.00
Bit TFA(in2) / Bit Type	0.91 / PDC	0.98 / PDC	0.98 / PDC
Flow Rate (gpm)	556.00	554.00	270.00
Max AV (fpm) / CV (fpm) @ MWD	462.9 / 462.9	436.8 / 436.8	429.3 / 429.3
Fluid Type	Fresh Water Gel	Fresh Water Gel	Fresh Water Gel
Density (ppg) / Viscosity (spqt)	8.60 / 26.00	10.50 / 38.00	9.55 / 40.00
Filtrate CL (ppm)	2,300.00	1,800.00	1,400.00
pH / Fluid Loss (mptm)	10.20 / N/A	9.90 / N/A	9.70 / N/A
PV (cP) / YP (lhf2)	2 / 3.00	12 / 10.00	37 / 11.00
% Solids / % Sand	1.1 / .01	11.9 / .05	6.5 / .1
% 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 @ 100.00	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	163.20 / PCM	163.20 / PCM	226.08 / PCM		
Rm @ Max Tool Temp (degF)	N/A @ N/A	N/A @ N/A	N/A @ N/A		
Lead MWD Engineer	Robert Ley	Robert Ley	Robert Ley		
Customer Representative	Jeremy Stolz	Jeremy Stolz	Jeremy Stolz		

SENSOR INFORMATION

Downhole Processor Information

Tool Type	PCM	PCM	PCM		
Software Version	5.84	5.84	5.84		
Sub Serial Number	11342299	11342299	12177825		
Insert Serial Number	11400989	11400989	11400989		
Date and Time Initialized	31-May-14 19:25	01-Jan-70 00:00	03-Jun-14 16:39		
Date and Time Read	03-Jun-14 10:59	03-Jun-14 10:49	07-Jun-14 23:08		
ECMB SW Version	N/A	N/A	N/A		

Directional Sensor Information

Tool Type	PCDC	PCDC	PCDC		
Distance From Bit (ft)	59.00	58.00	61.00		
Software Version	6.21	6.21	6.21		
Sub Serial Number	11342299	11342299	12177825		
Sonde Serial Number	11833224	11833224	11833224		
Sensor ID Number	N/A	N/A	N/A		
Toolface Offset (deg)	6.47	73.27	49.16		

Gamma Ray Sensor Information

Tool Type	PCG	PCG	PCG		
Distance From Bit (ft)	51.43	50.62	54.11		
Recorded Sample Period (sec)	10	10	10		
Software Version	8.15	8.15	8.15		
Sub Serial Number	11342299	11342299	12177825		
Insert/Sonde Serial Number	12071509	12071509	12071509		

REMARKS

1. All depths are measured depths and are calibrated to the driller' pipe tally and are measured 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. The Following smoothing parameters have been applied to the data"

PGXR (Gamma Ray):

Interval Resolution: 0.5 feet

Coercion Distance: 0.6 feet

Gap Fill: 3.0 feet

ROPA (Rate of Penetration):

Interval Resolution: 0.5 feet

Coercion Distance: 1.2 feet

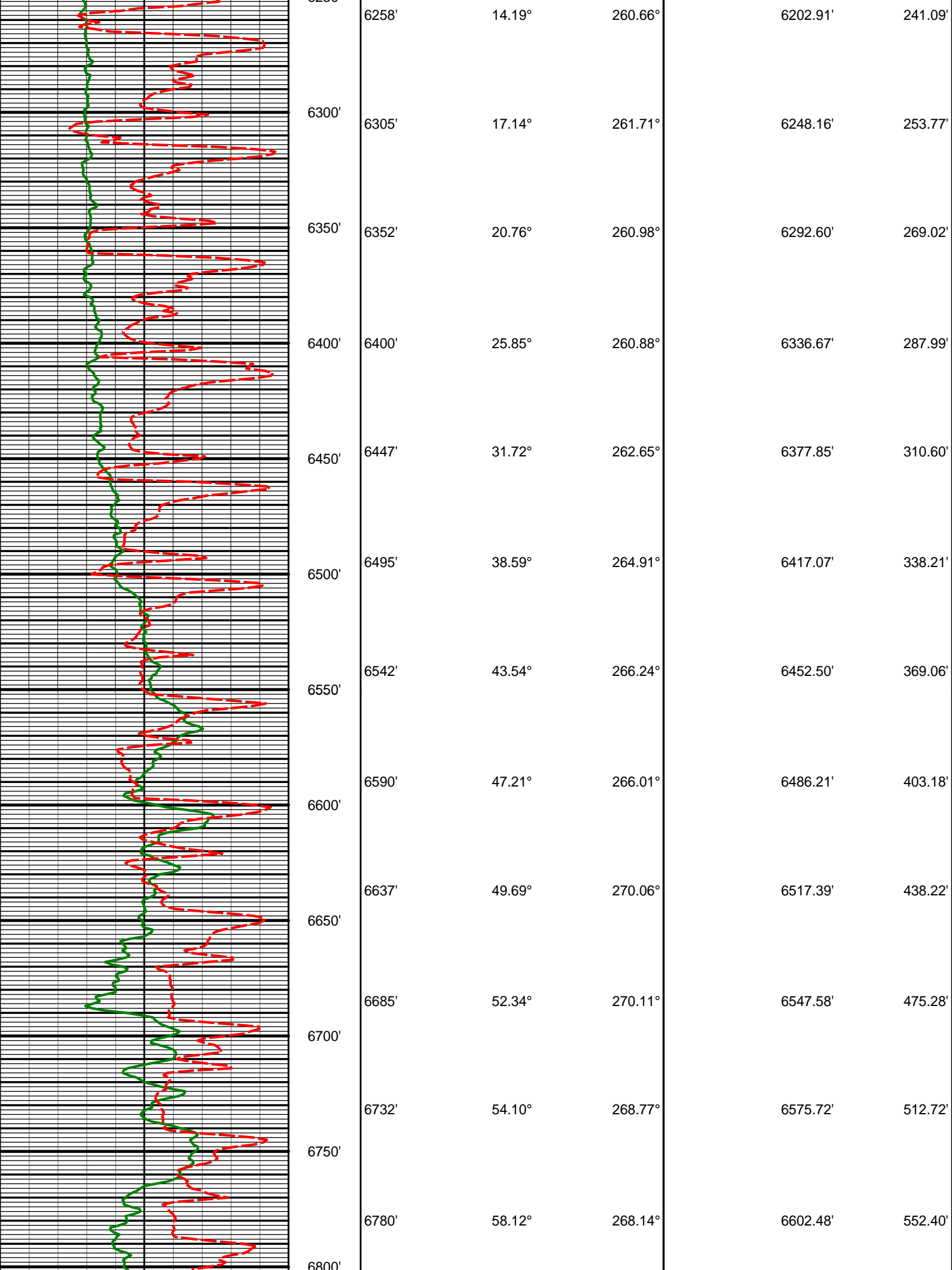
WARRANTY

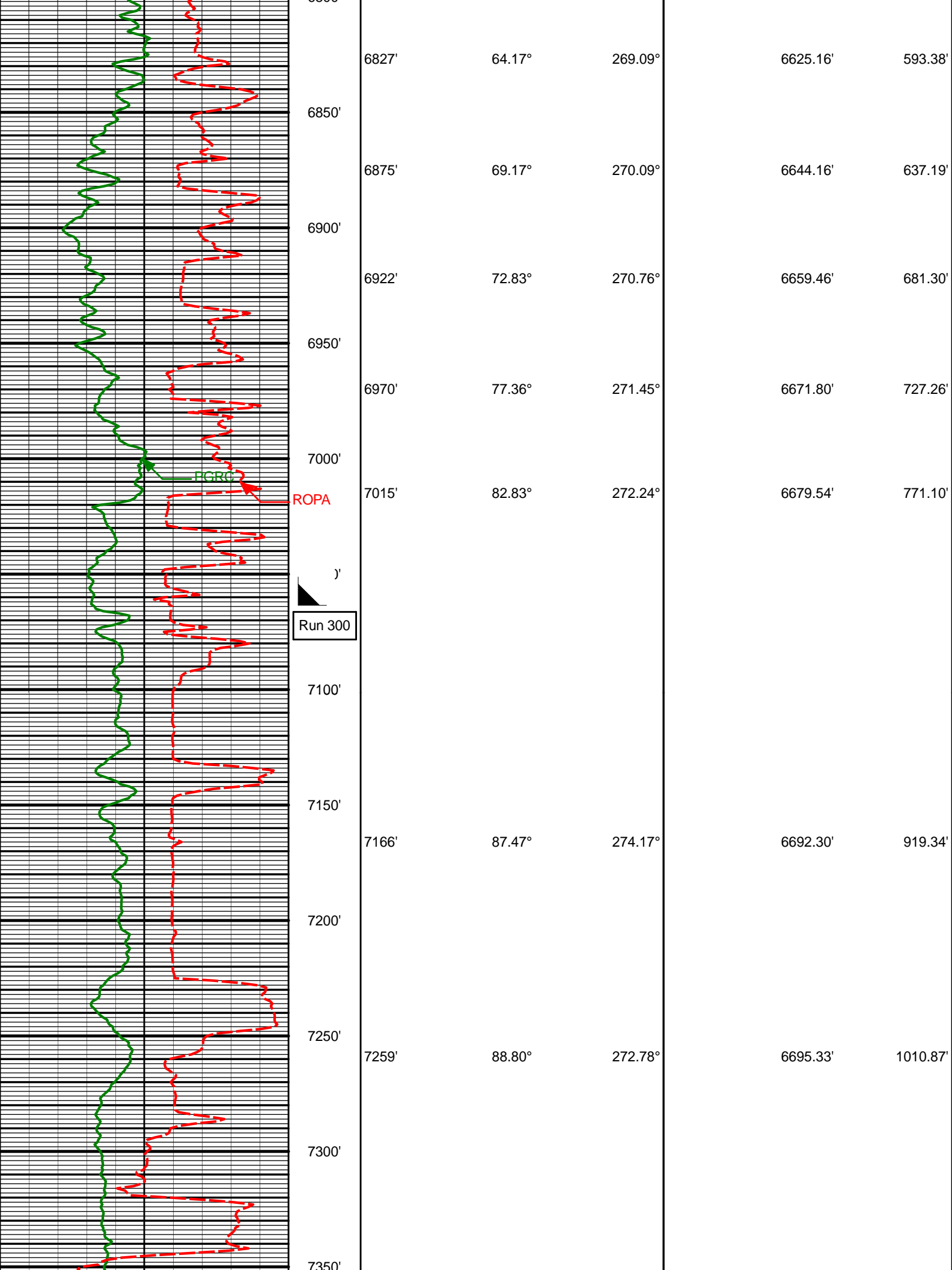
HALLIBURTON WILL USE ITS BEST EFFORTS TO FURNISH CUSTOMERS WITH ACCURATE INFORMATION AND INTERPRETATIONS THAT ARE PART OF, AND INCIDENT TO, THE SERVICES PROVIDED. HOWEVER, HALLIBURTON CANNOT AND DOES NOT WARRANT THE ACCURACY OR CORRECTNESS OF SUCH INFORMATION AND INTERPRETATIONS. UNDER NO CIRCUMSTANCES 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.

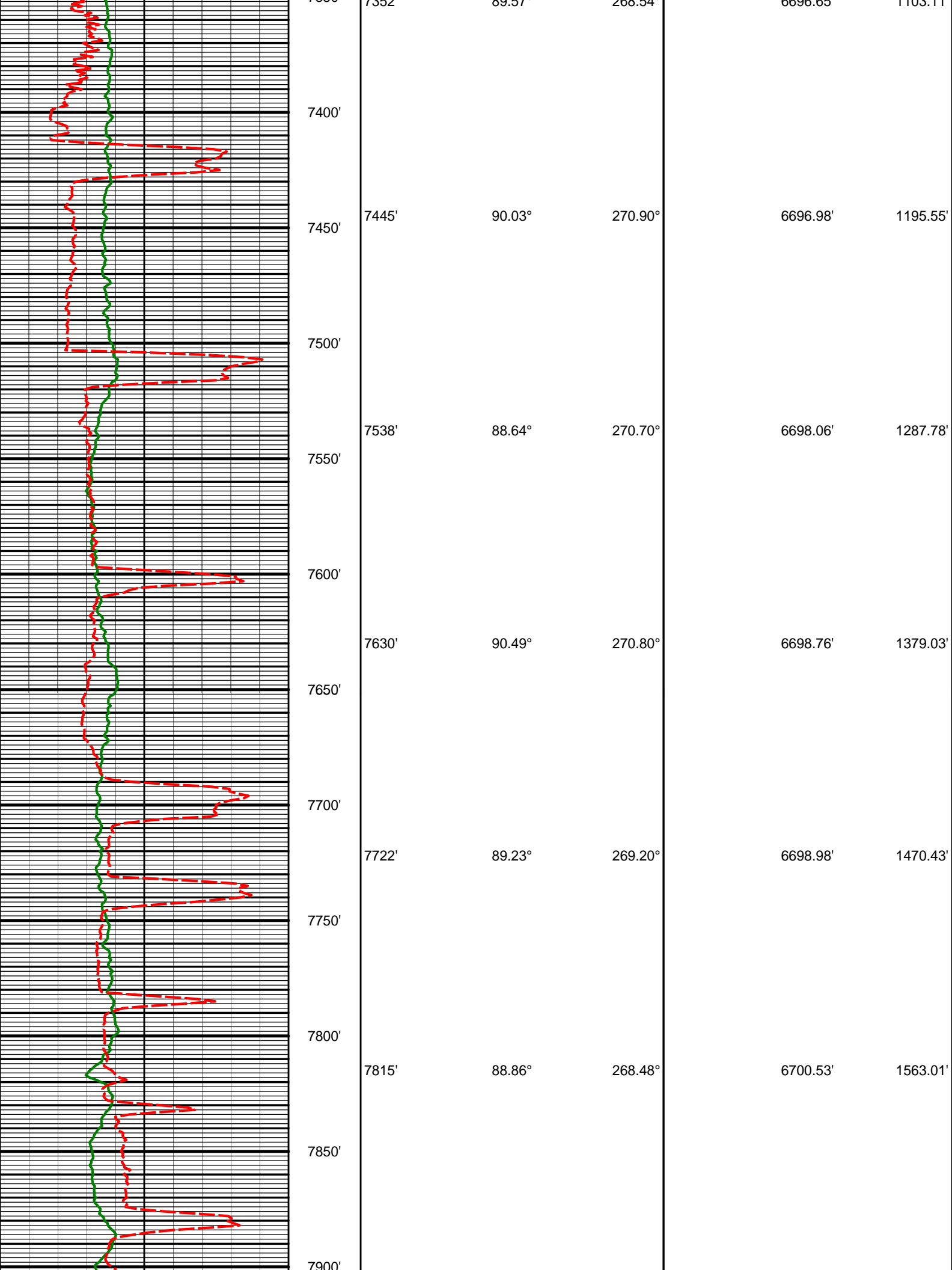
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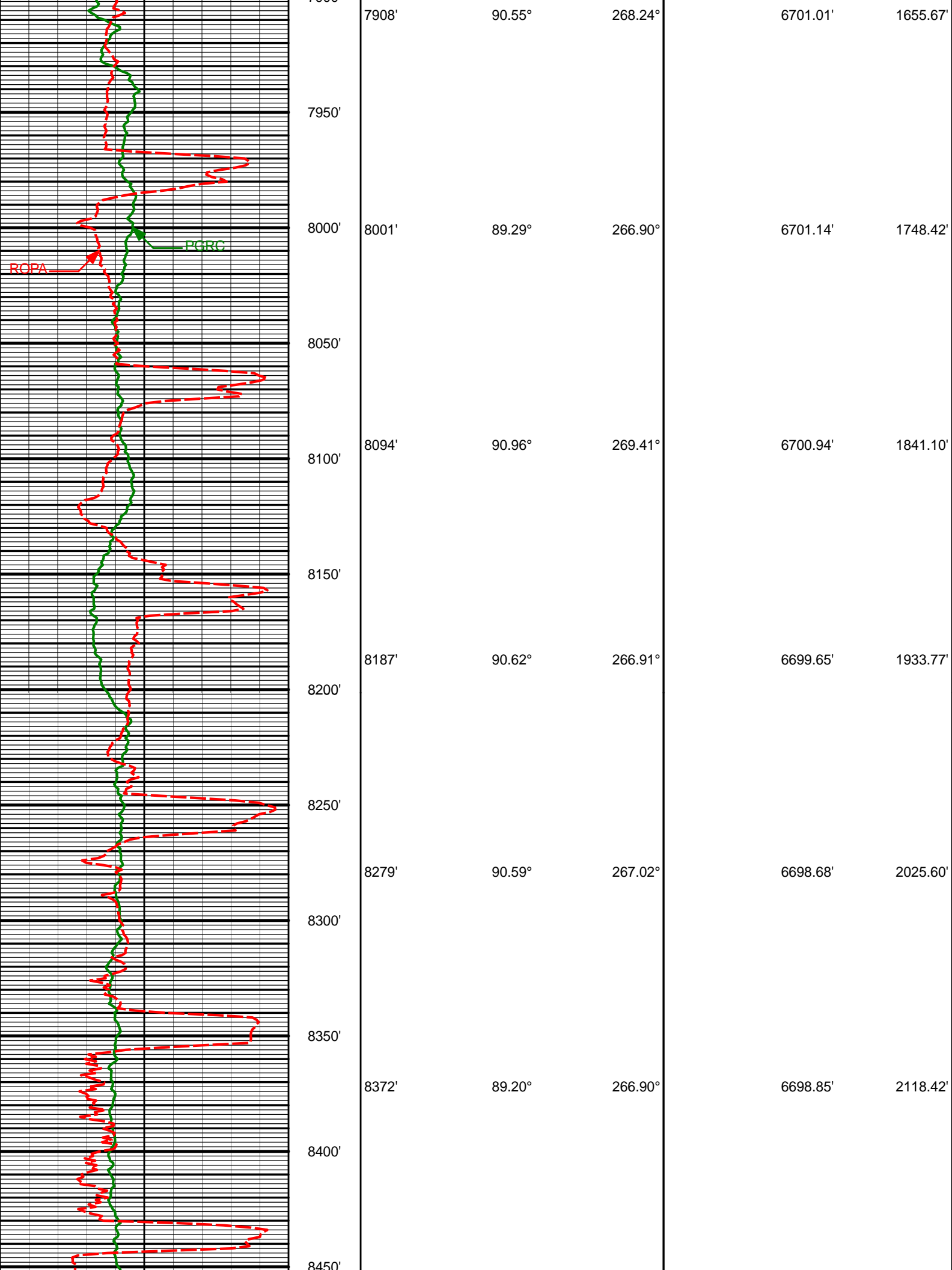
MD Detail Log 1:600

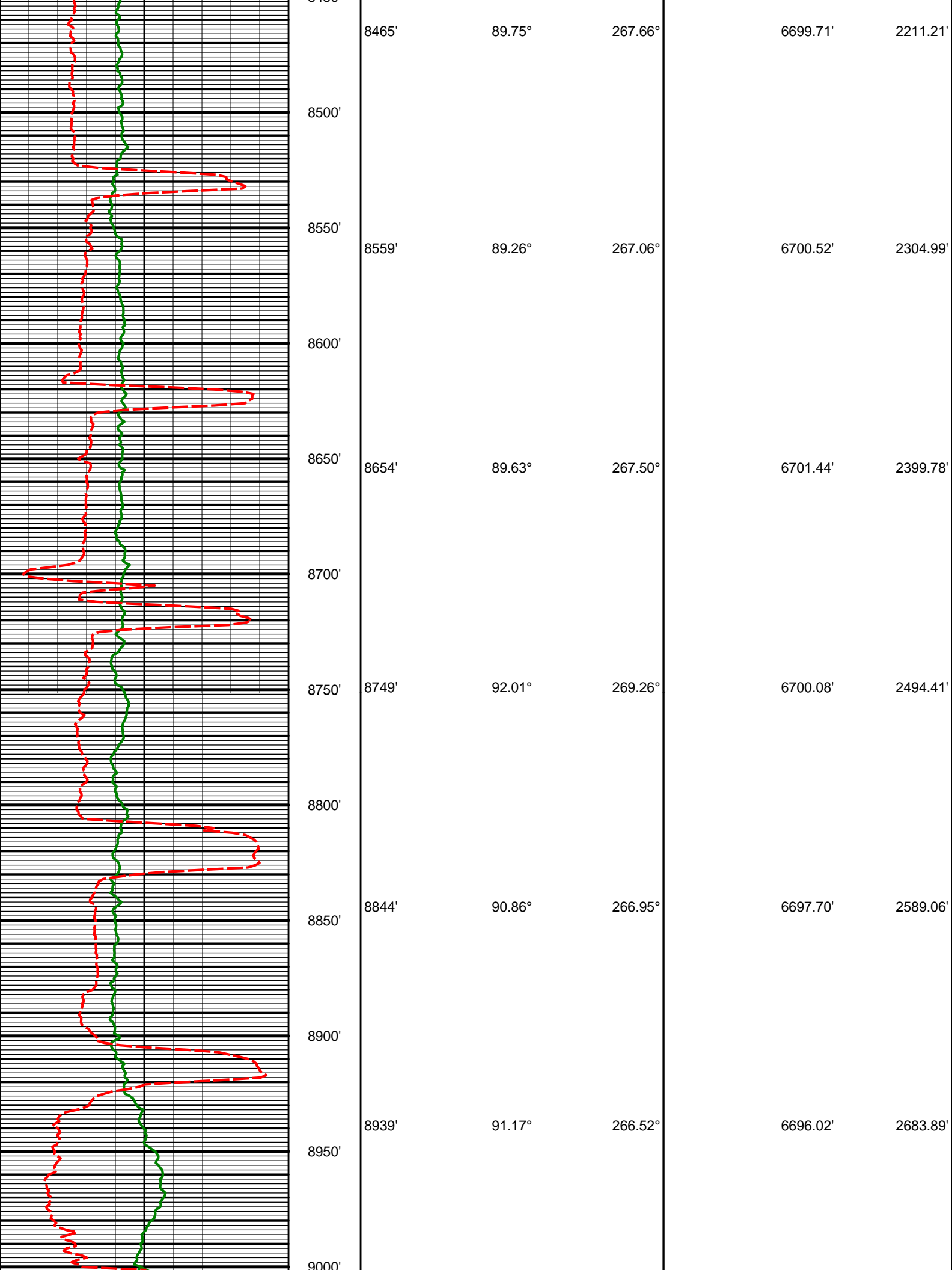
Gamma Ray (PGXC) (Api)						
0300						
Avg Rate of Penetration feet per hr	Feet					
6000		Depth	Inc	Azm	TVD	Vsec
	6000'					
	6050'					
	Run 200					
	6100'					
	KOP	6116'	1.27°	284.68°	6062.54'	221.69'
	6150'	6163'	6.15°	272.28°	6109.43'	224.66'
	6200'	6211'	9.86°	265.04°	6156.95'	231.31'
	6250'					

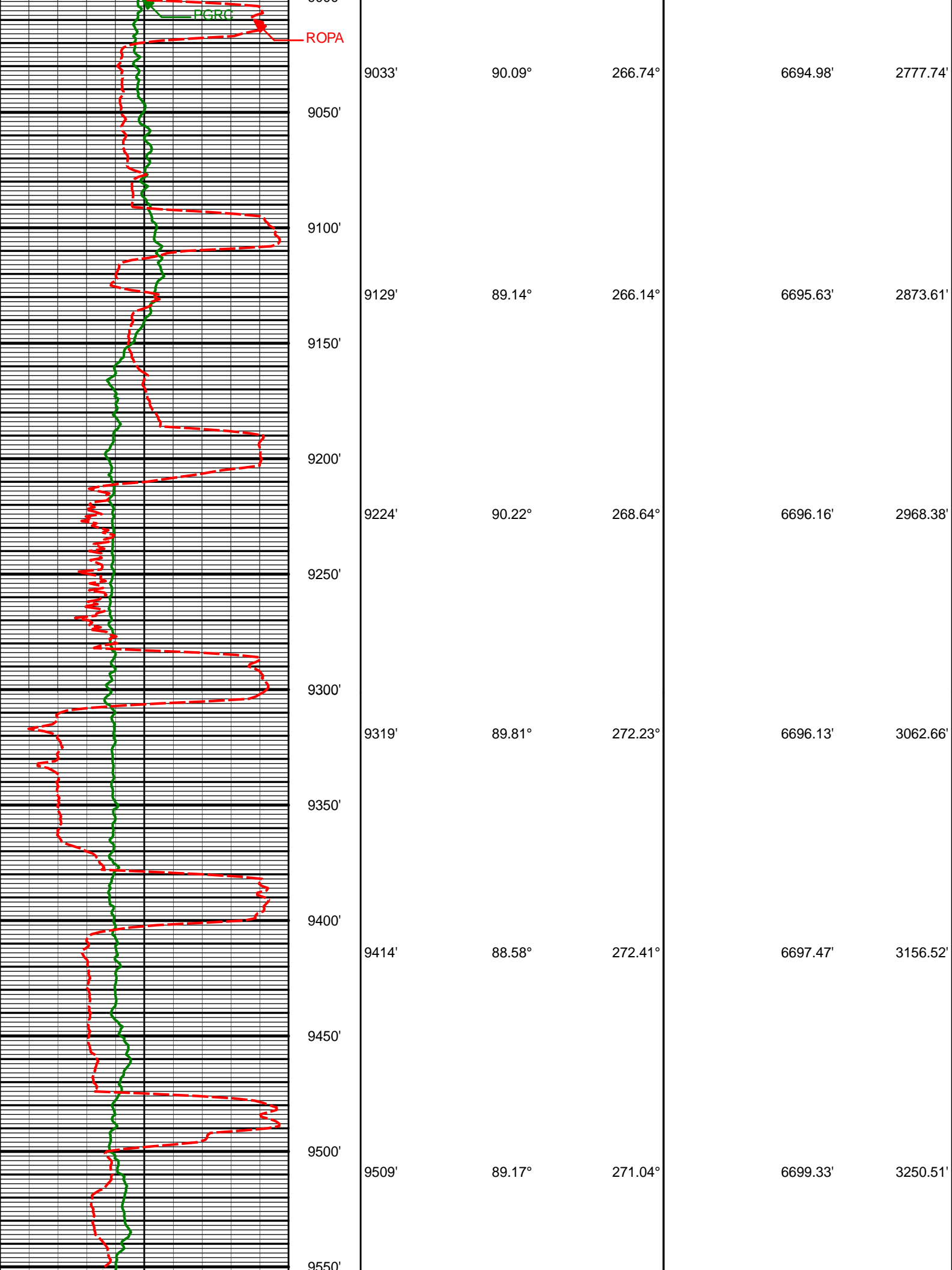


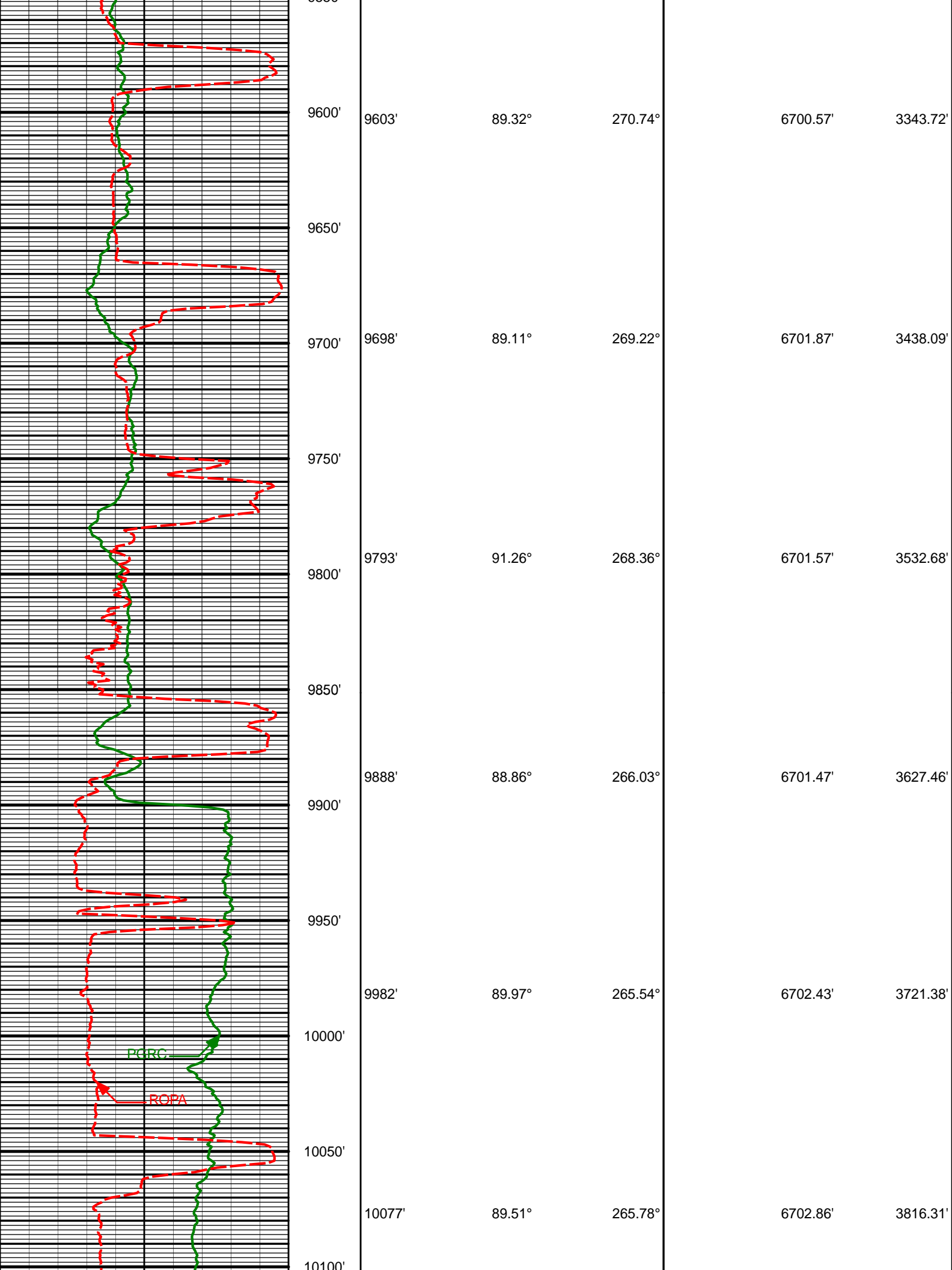


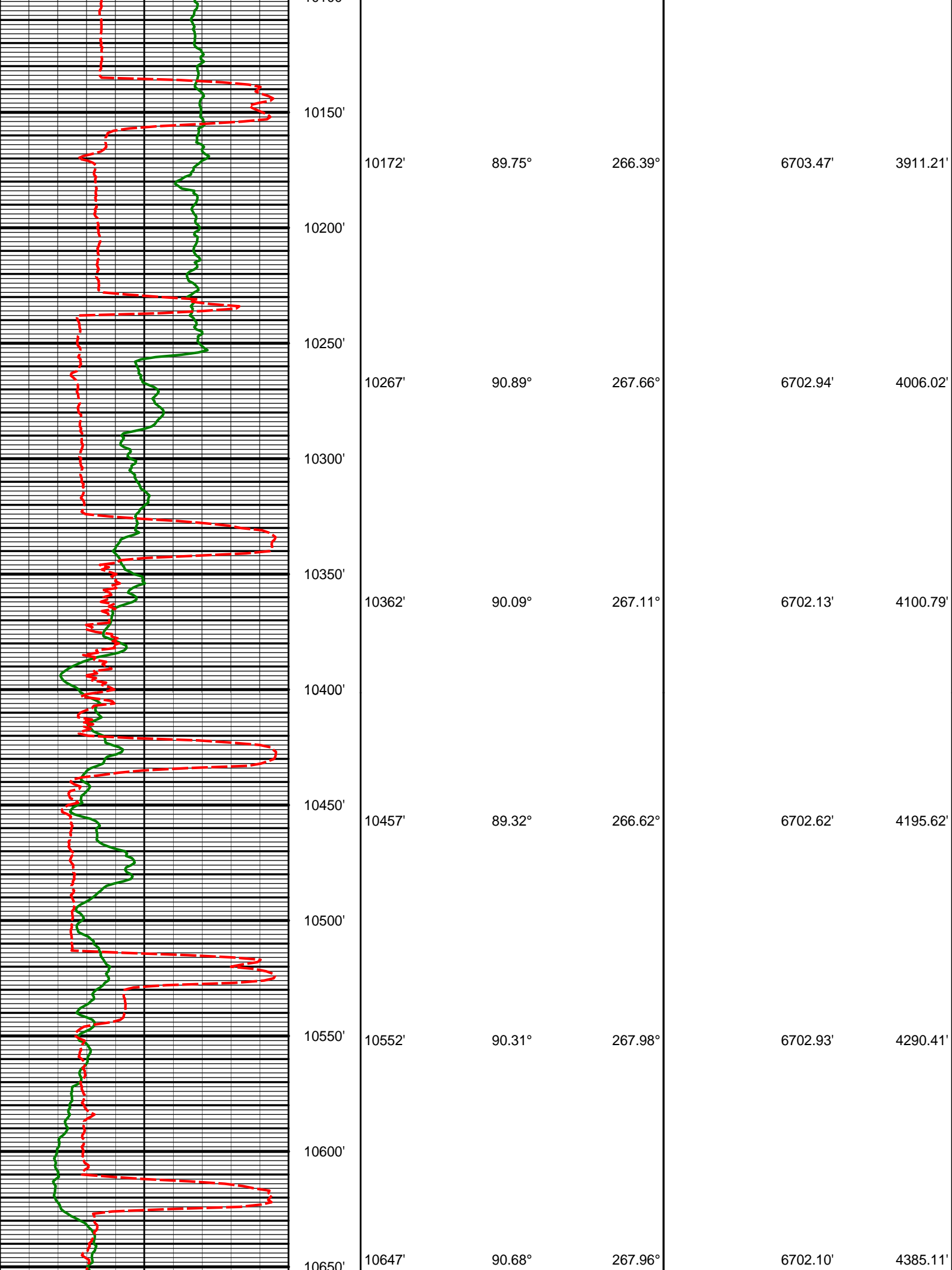


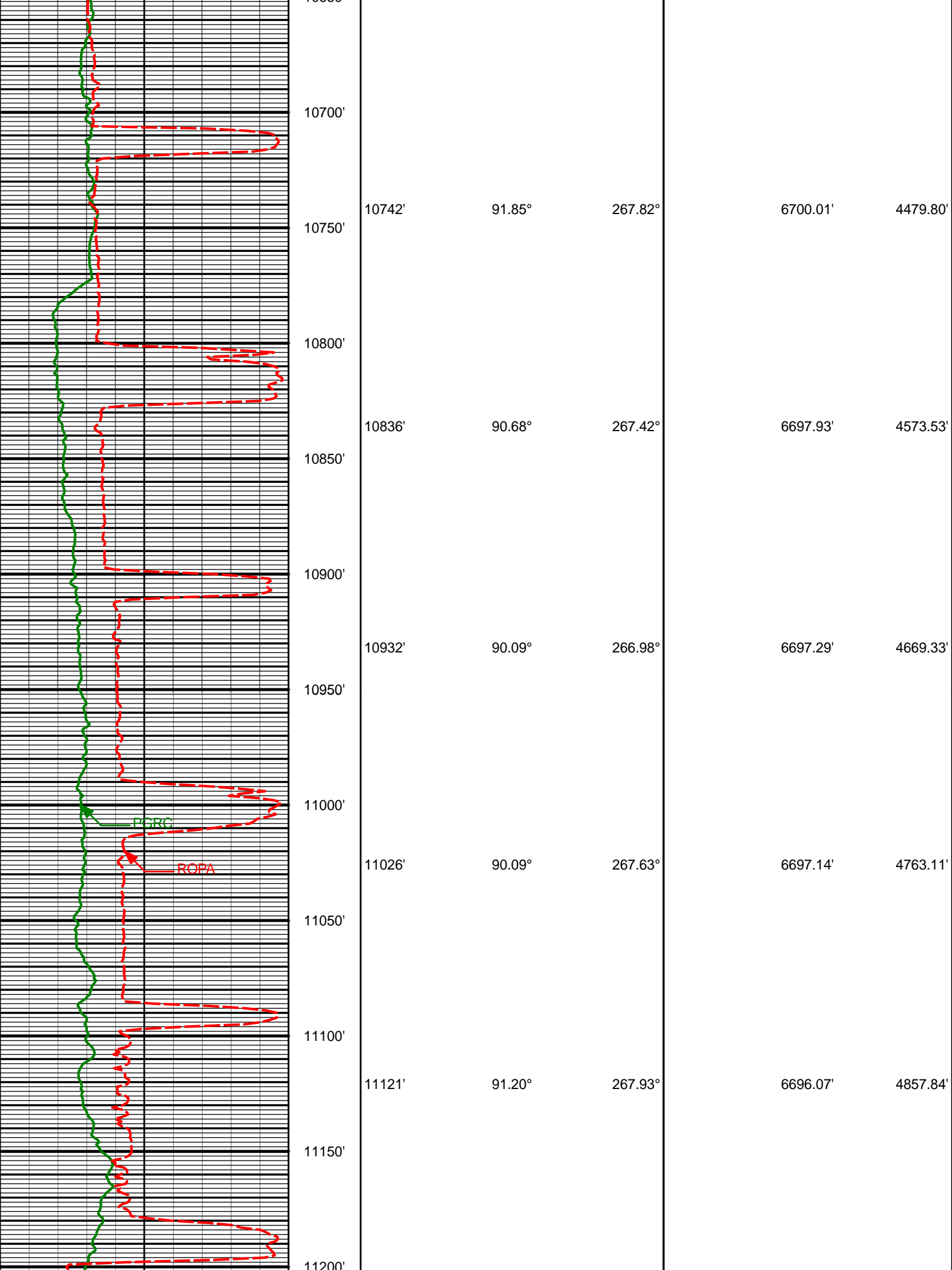


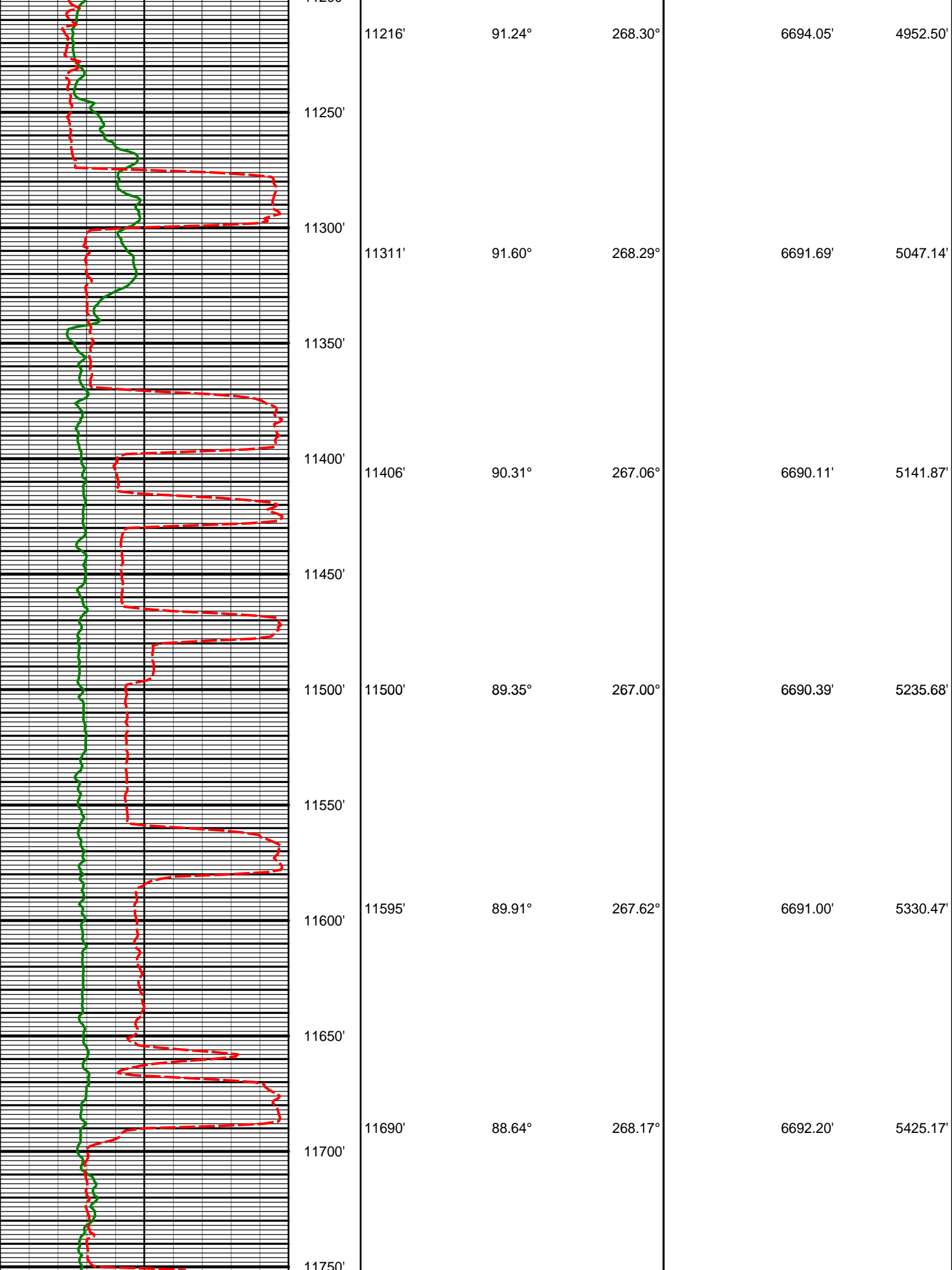


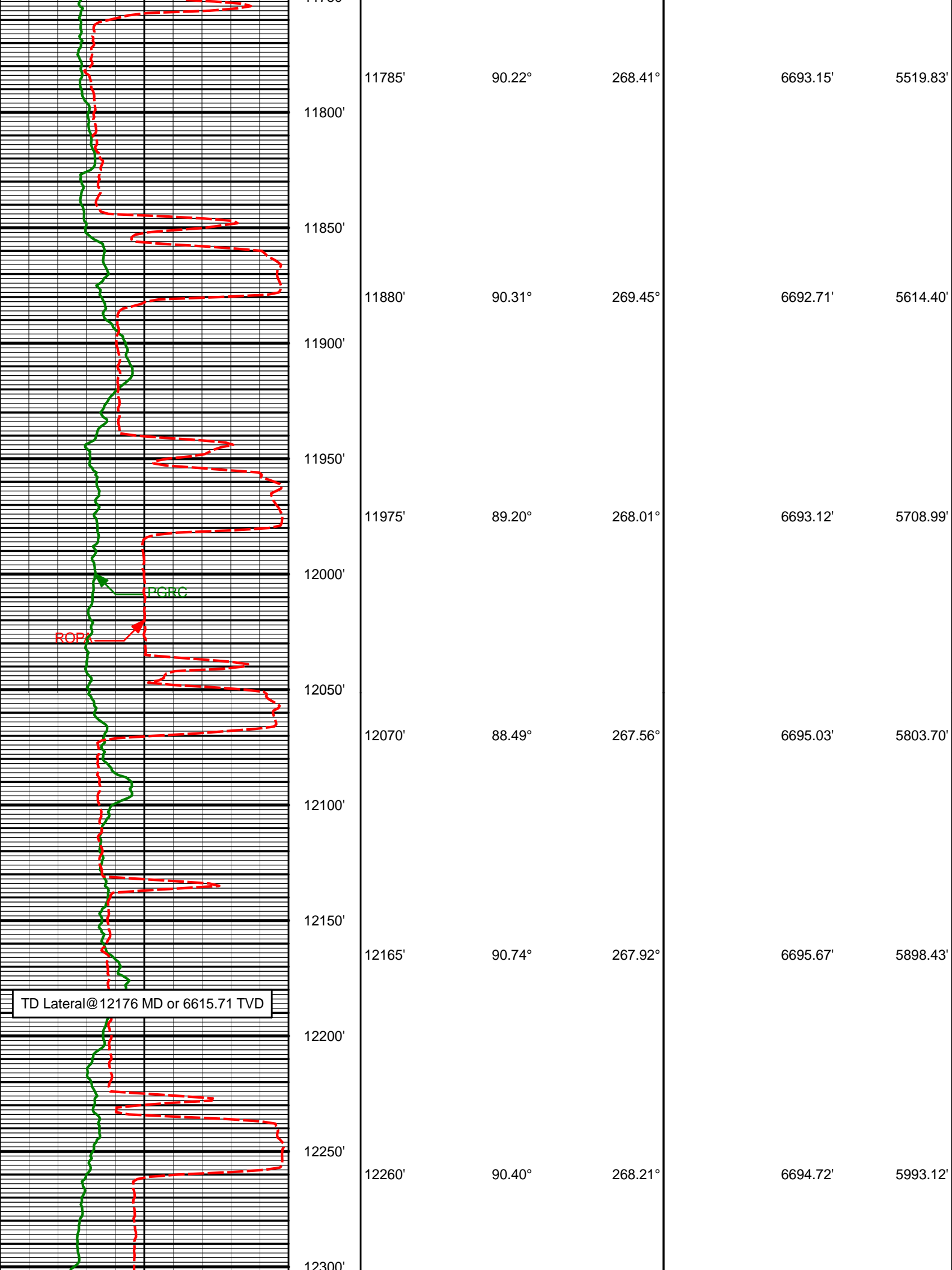


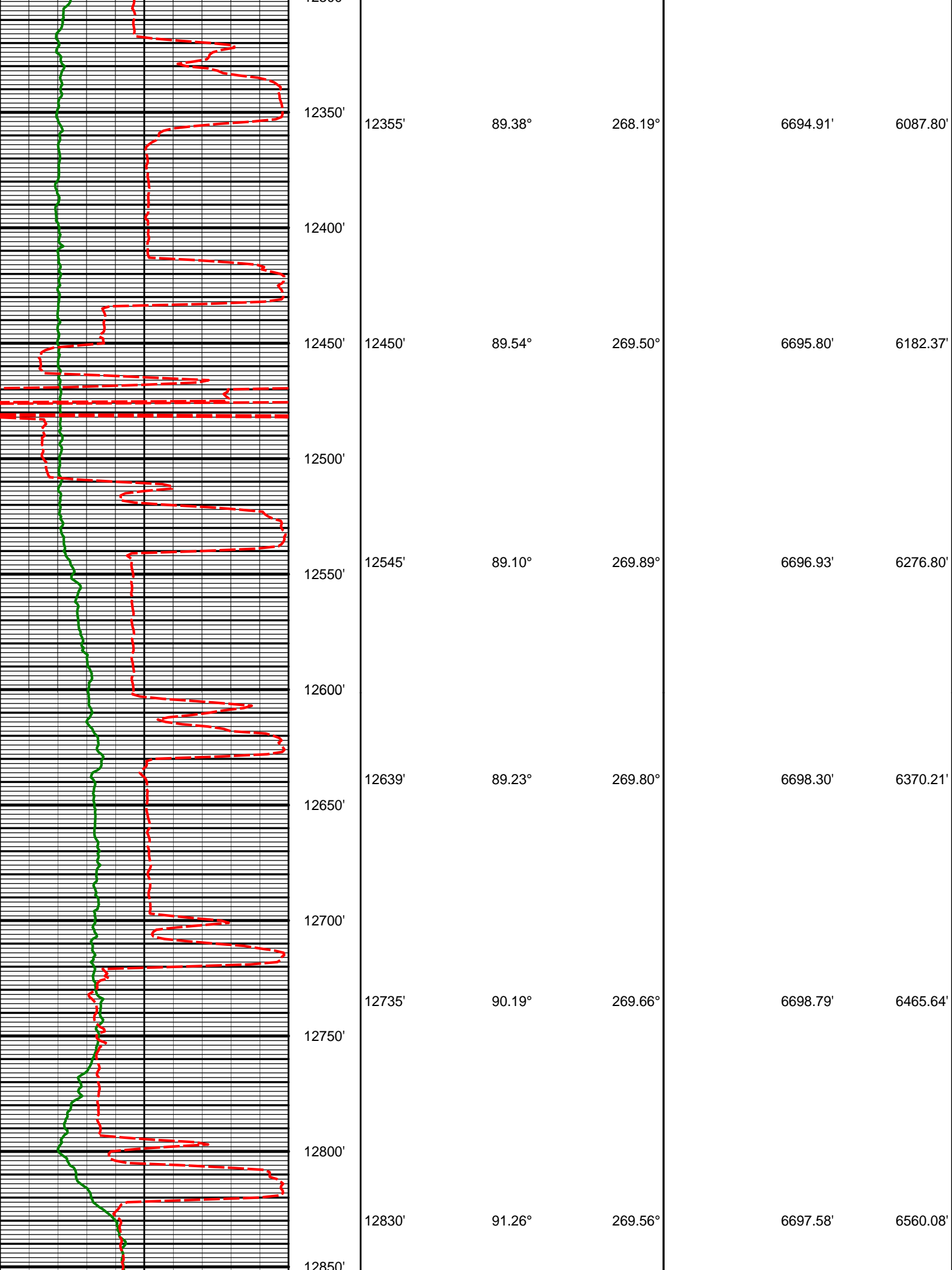


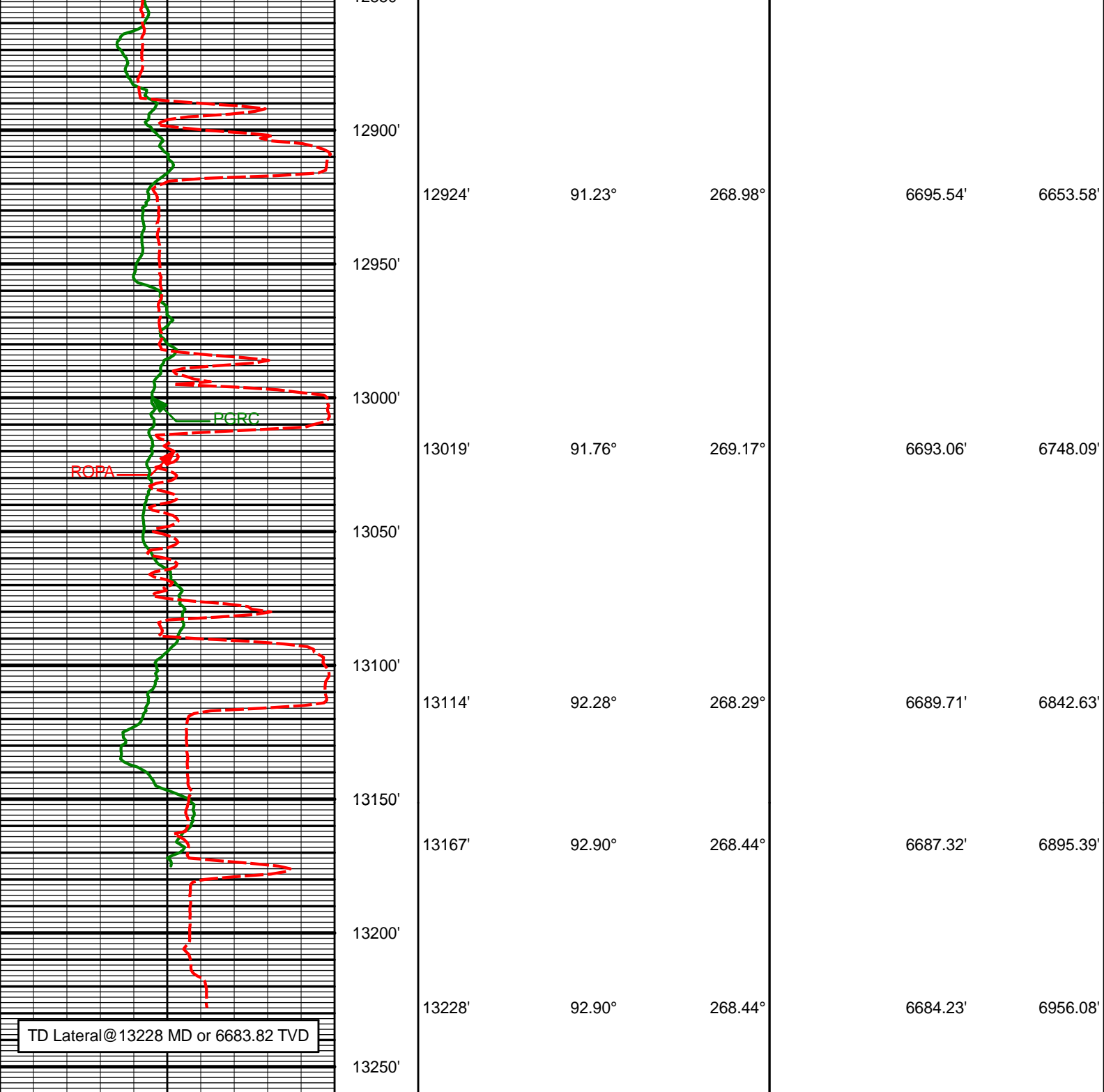








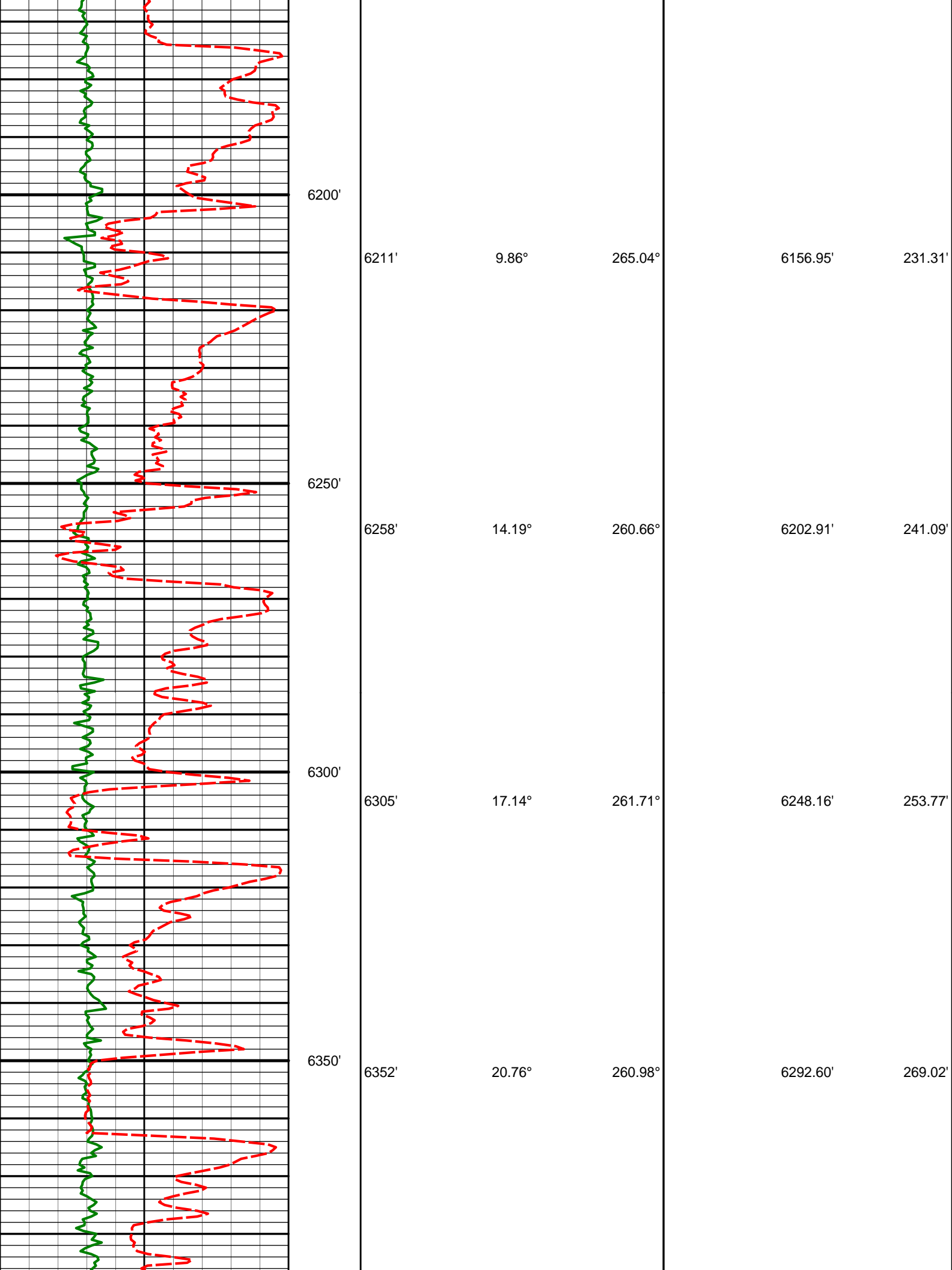


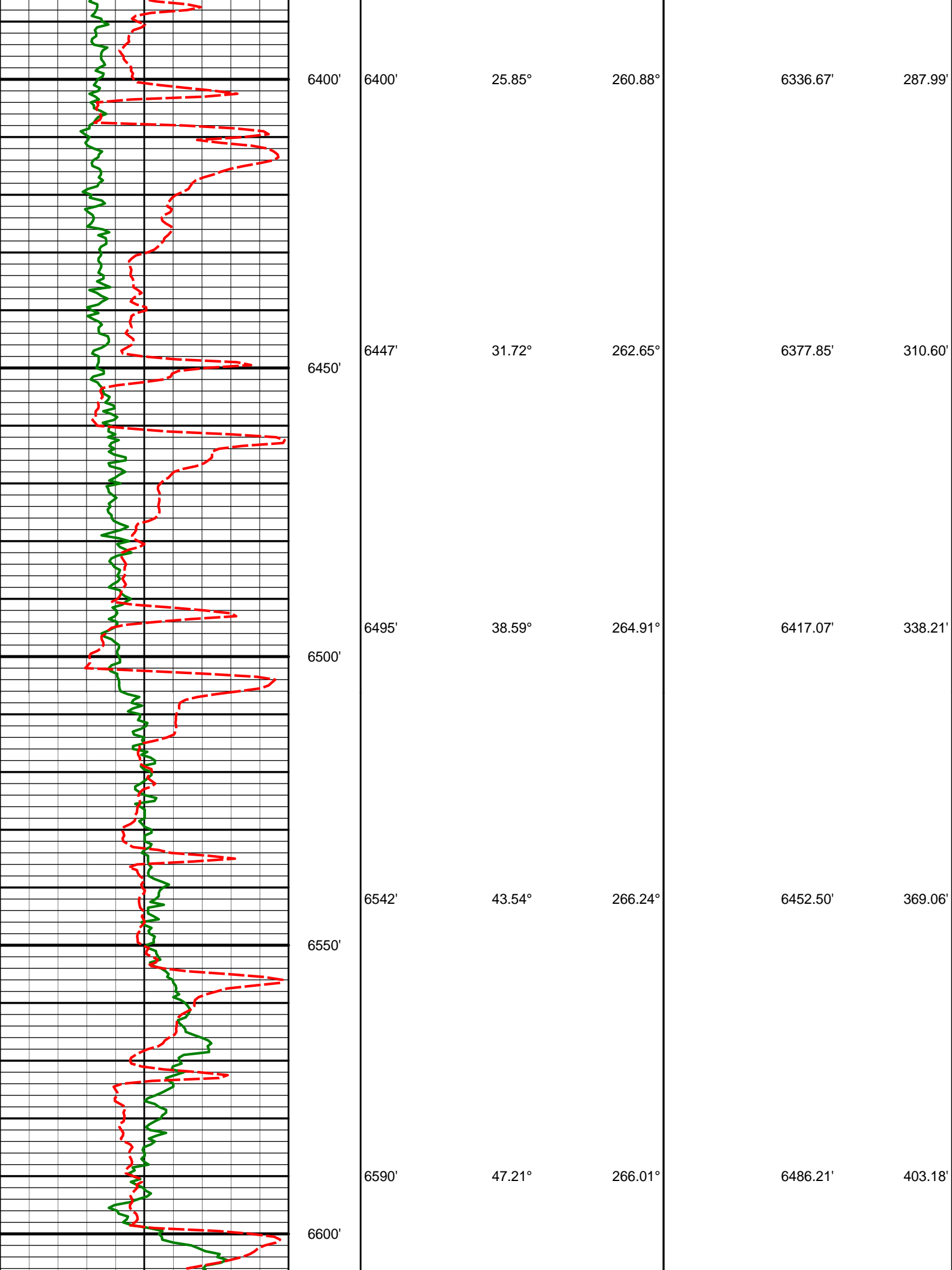


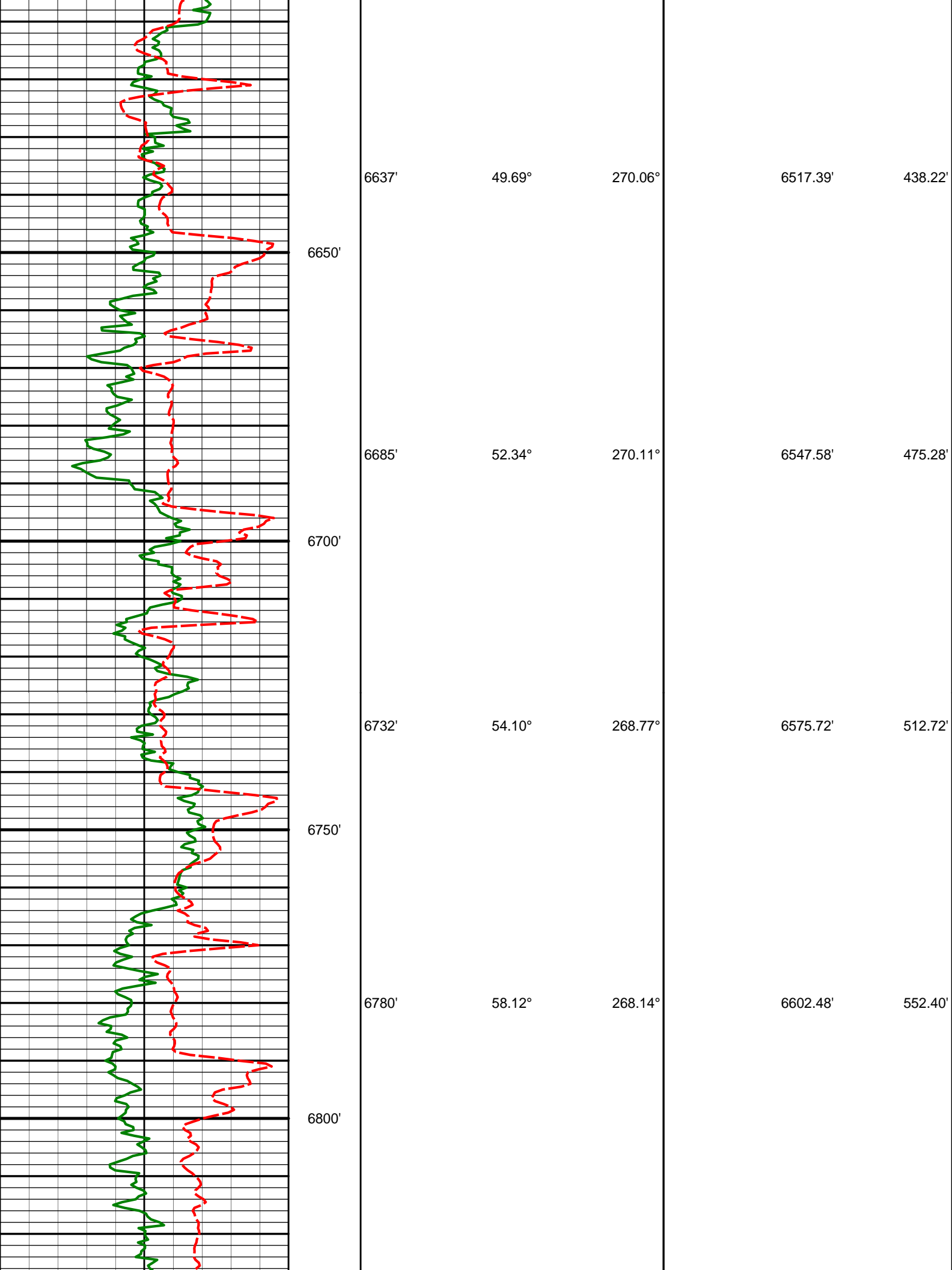
Avg Rate of Penetration feet per hr		Feet			
600	0		Depth	Inc	Azm
Gamma Ray (PGXC) (Api)			TVD		Vsec
0	300				

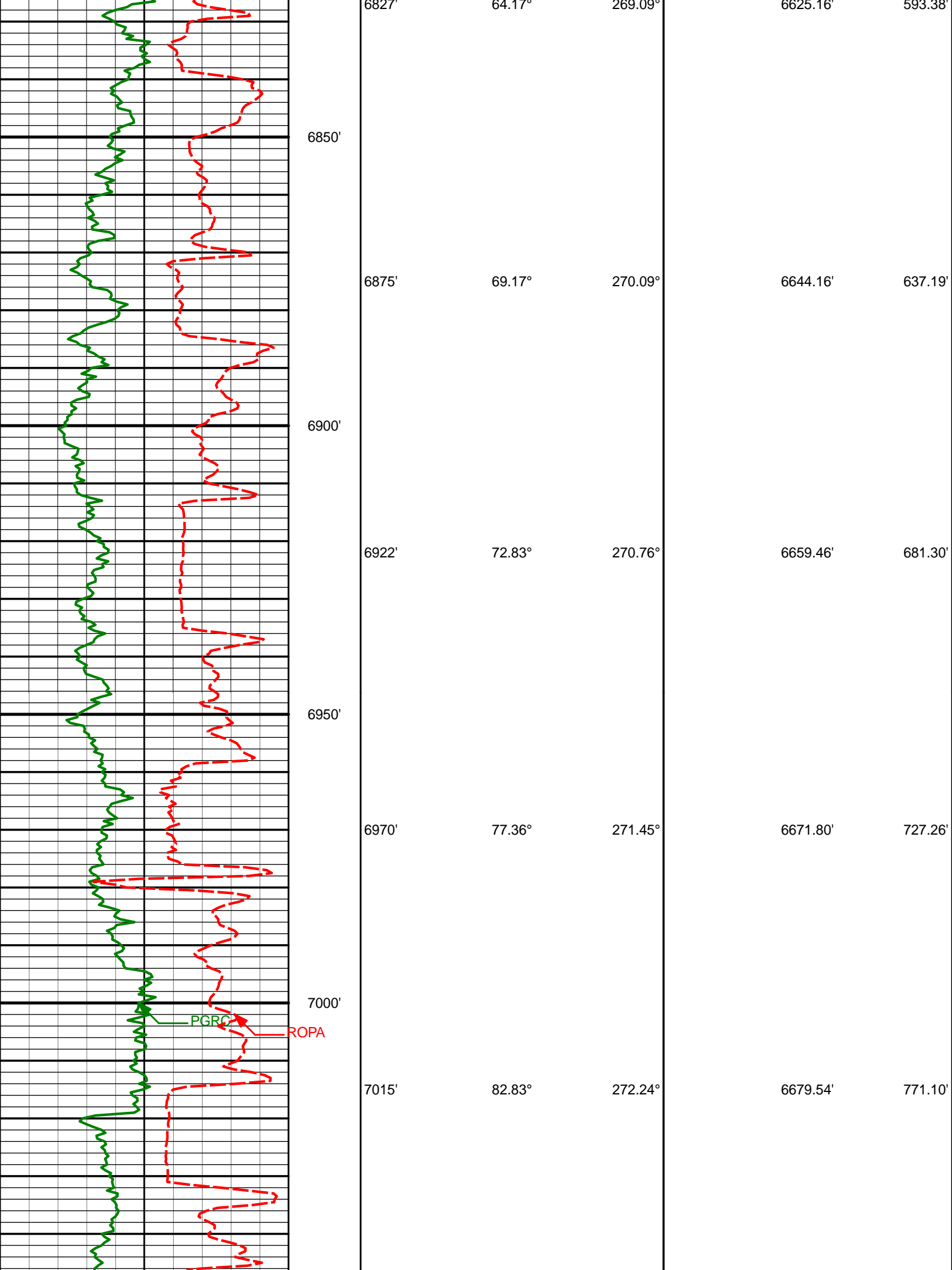
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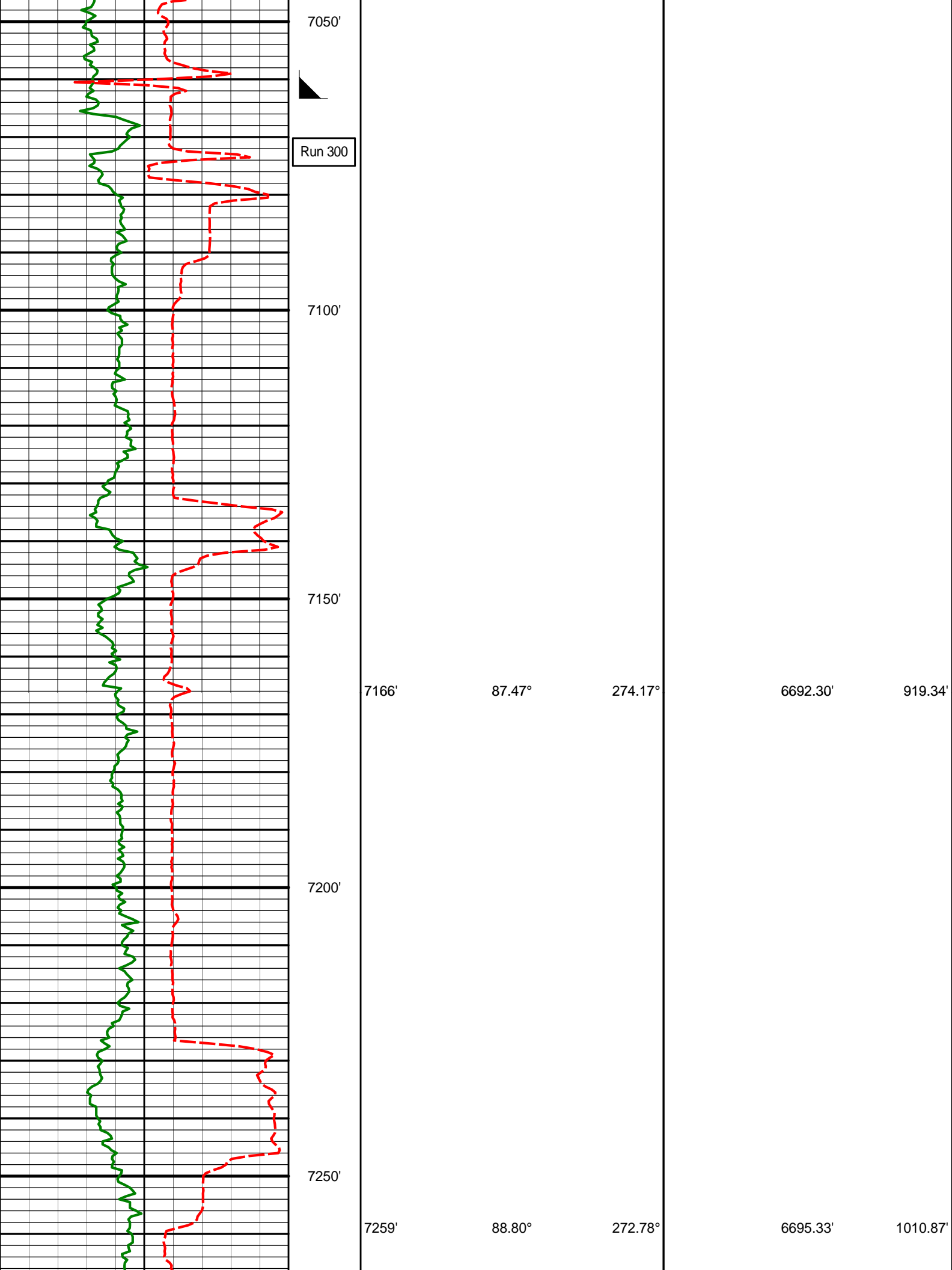
MD Detail Log T.240					
Gamma Ray (PGXC) (Api)					
Avg Rate of Penetration feet per hr	Feet	Depth	Inc	Azm	TVD
0	0	6000			
300					
600	0				
		6050'			
	Run 200				
		6100'			
	KOP	6116'	1.27°	284.68°	6062.54'
		6150'			
		6163'	6.15°	272.28°	6109.43'
					224.66'

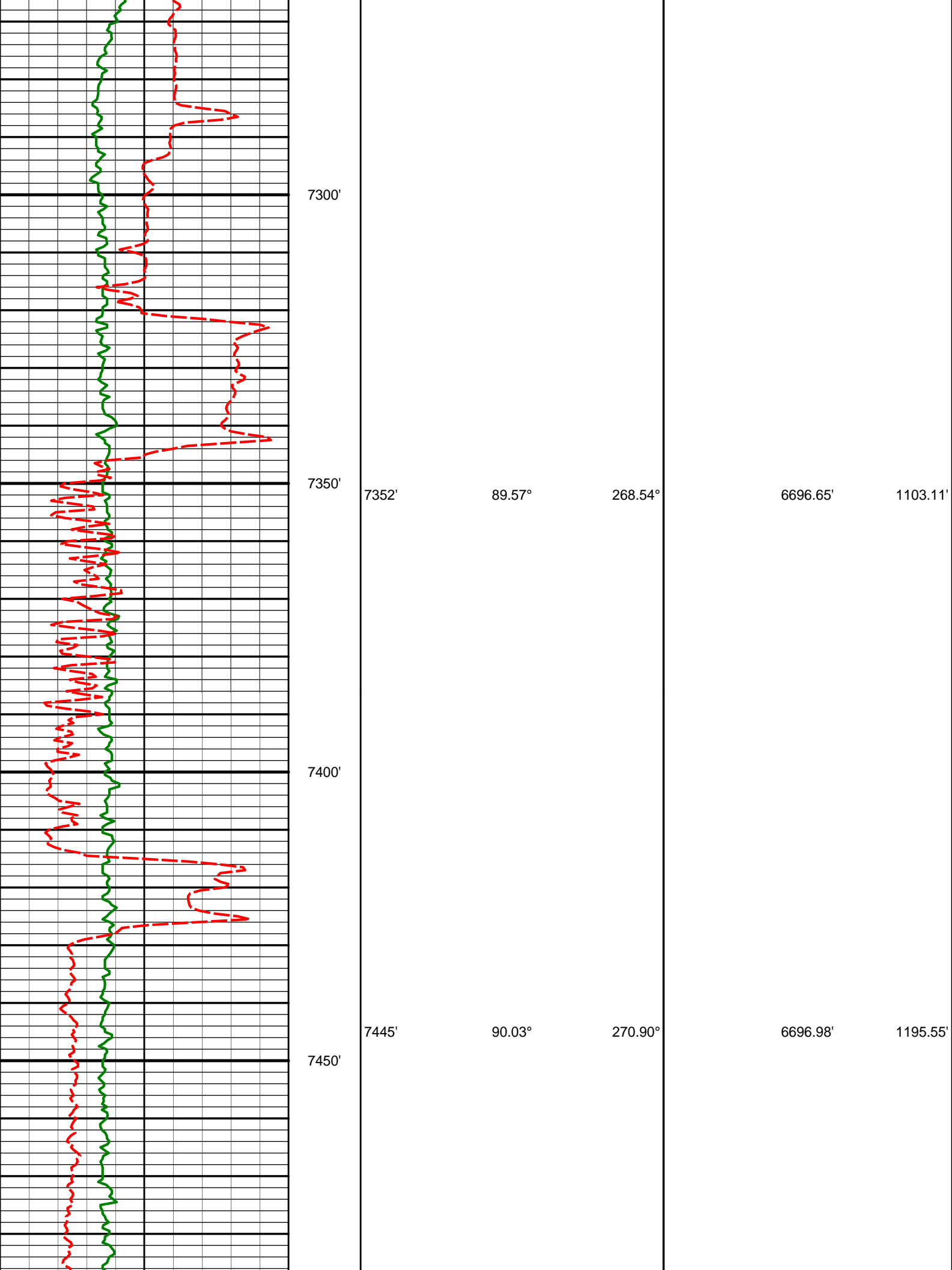


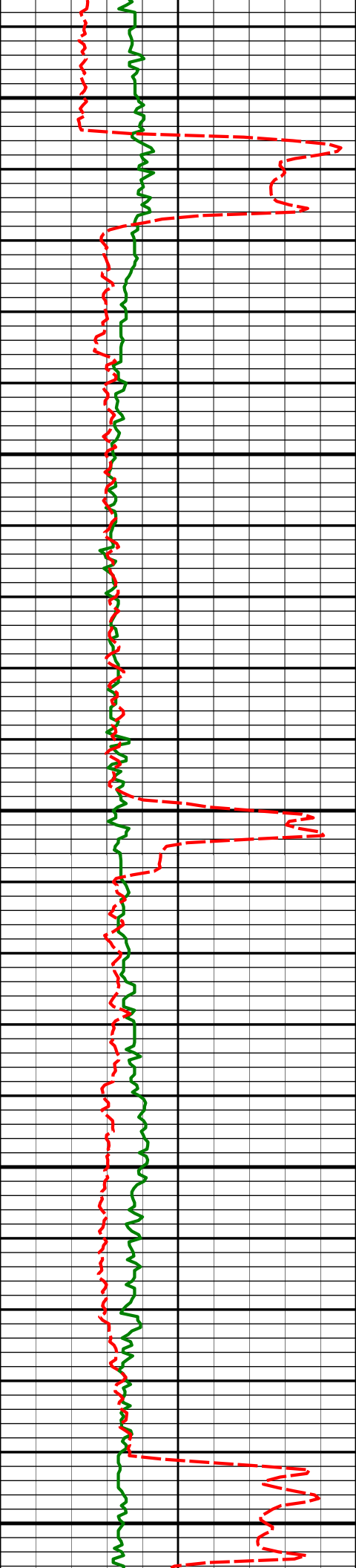












7500'

7538'

88.64°

270.70°

6698.06'

1287.78'

7550'

7600'

7630'

90.49°

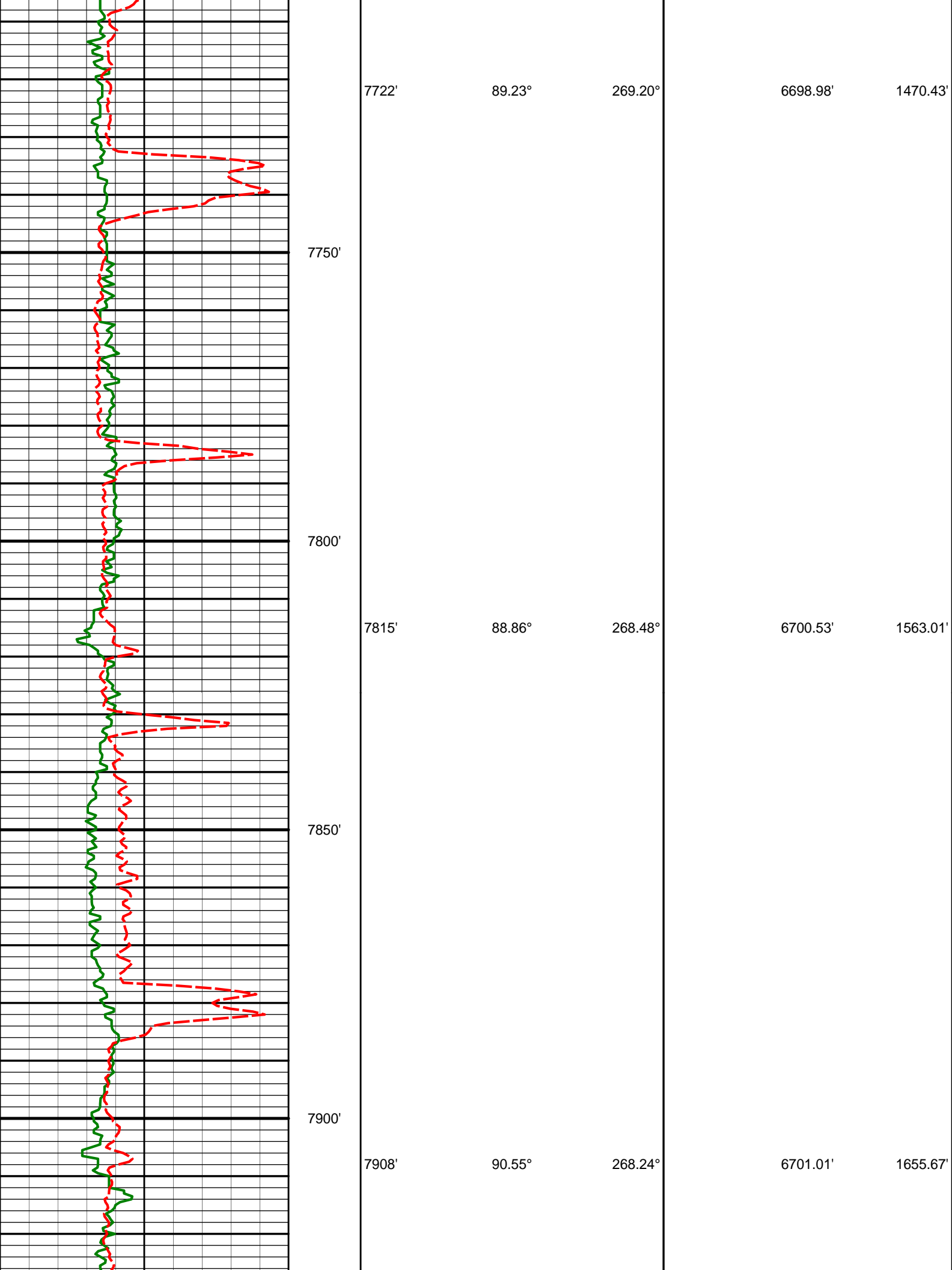
270.80°

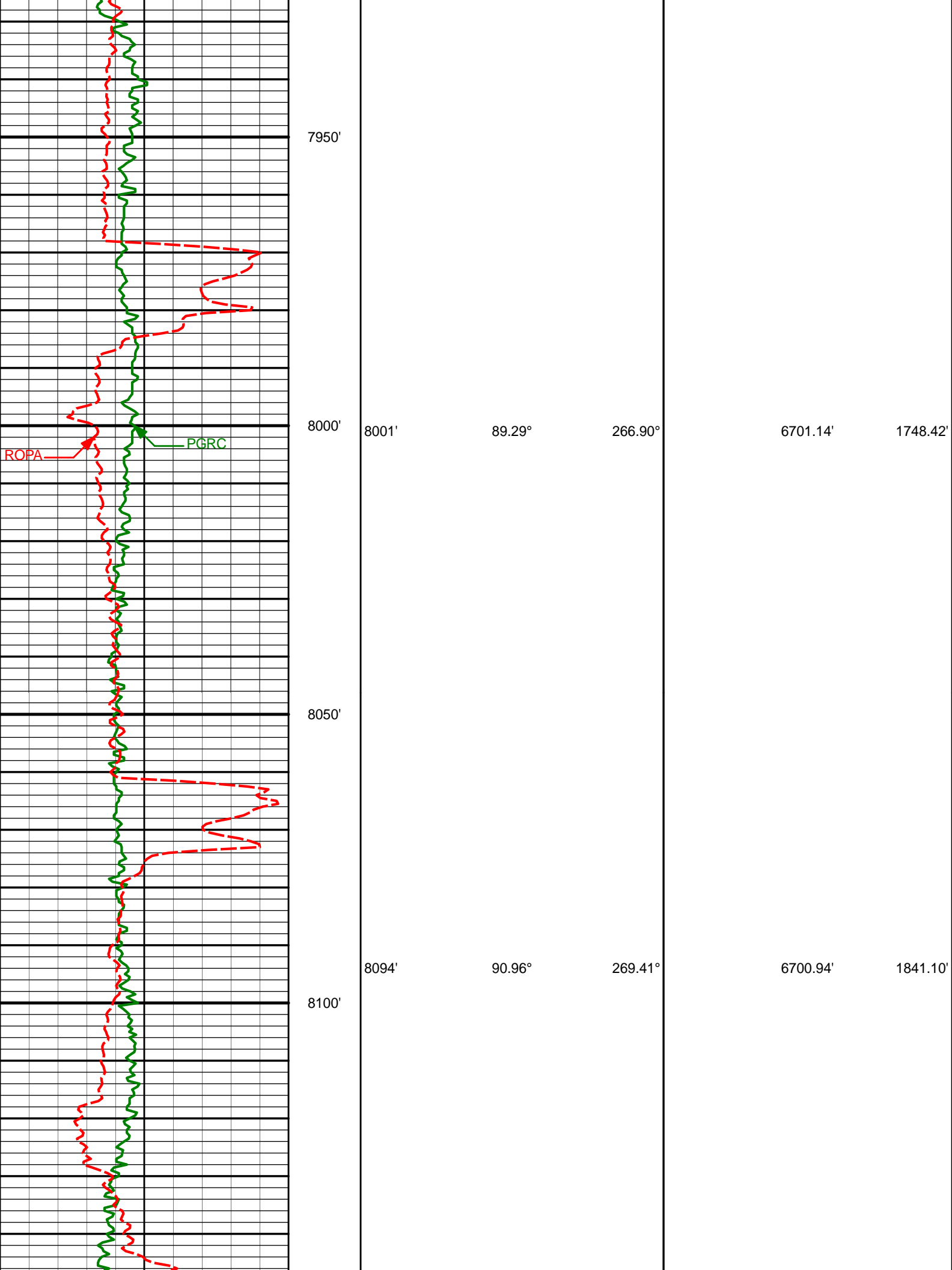
6698.76'

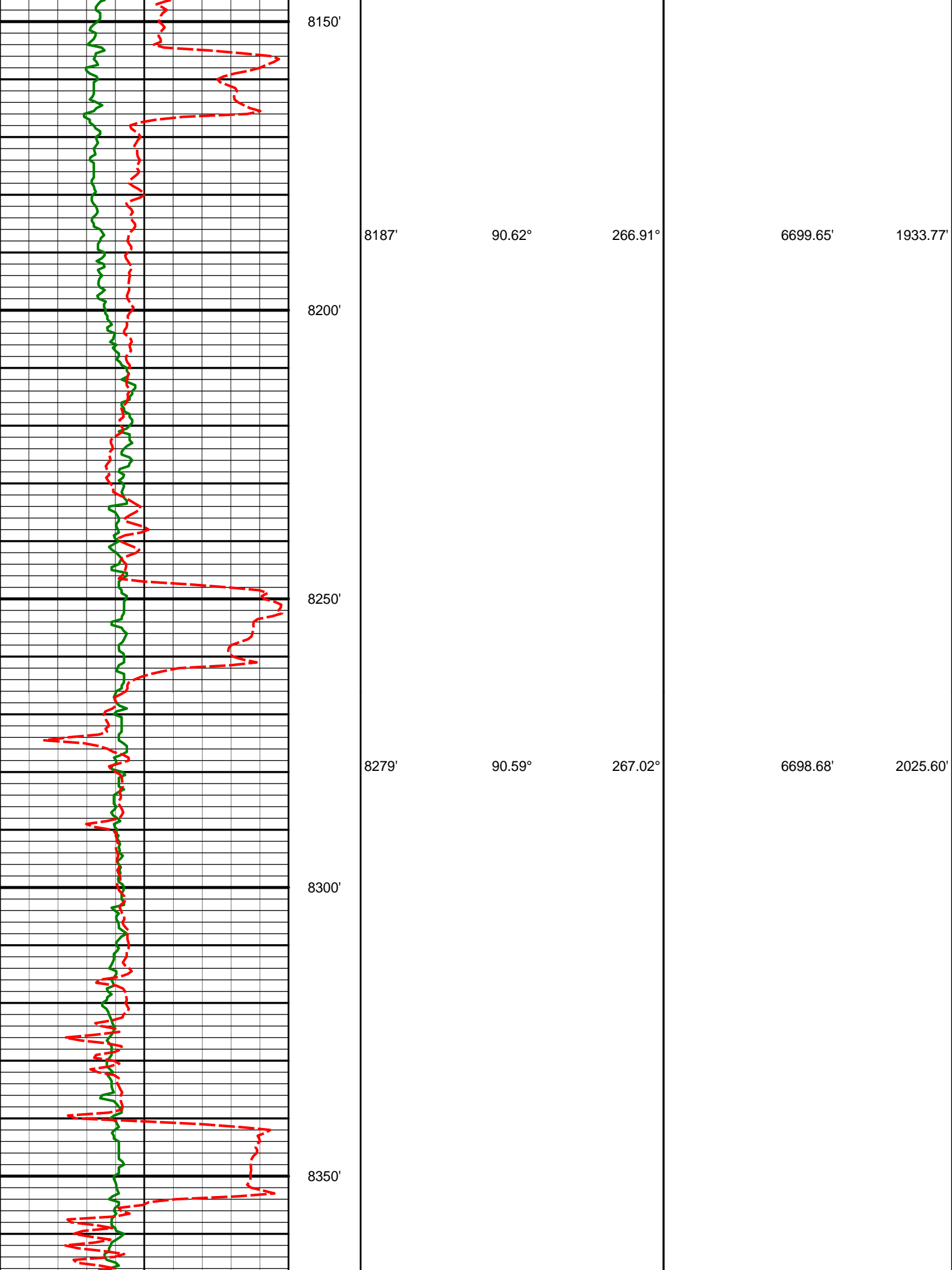
1379.03'

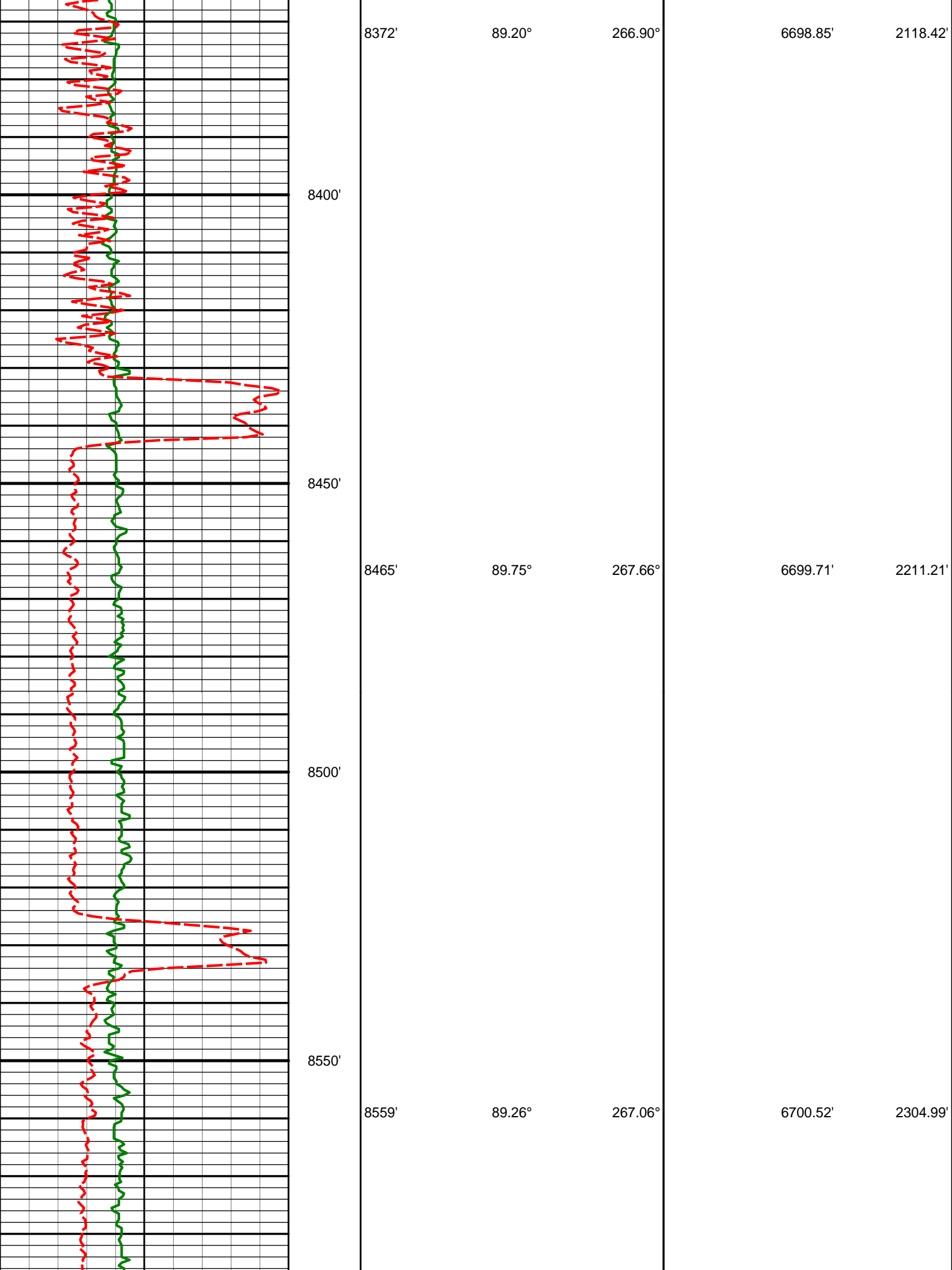
7650'

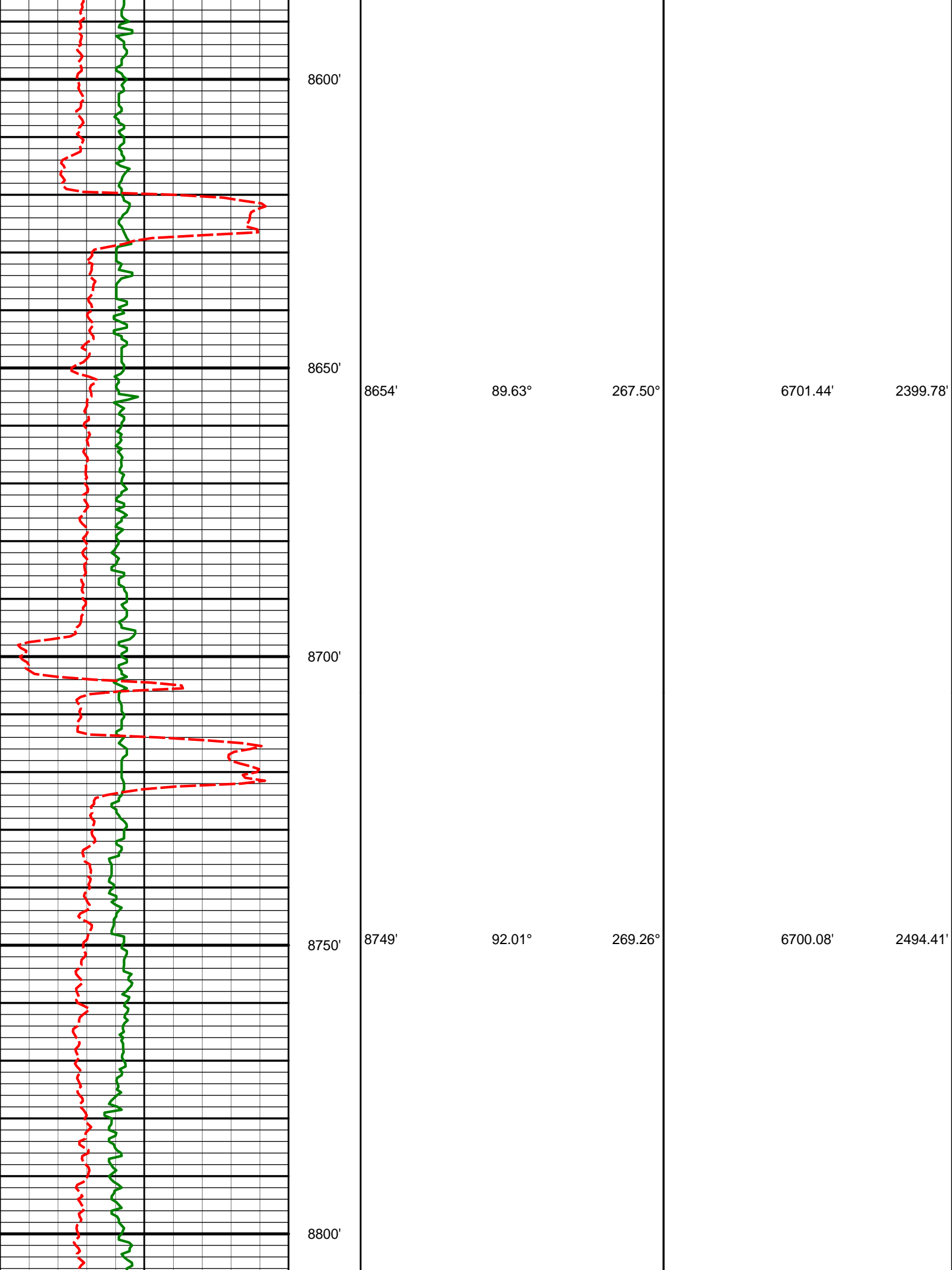
7700'

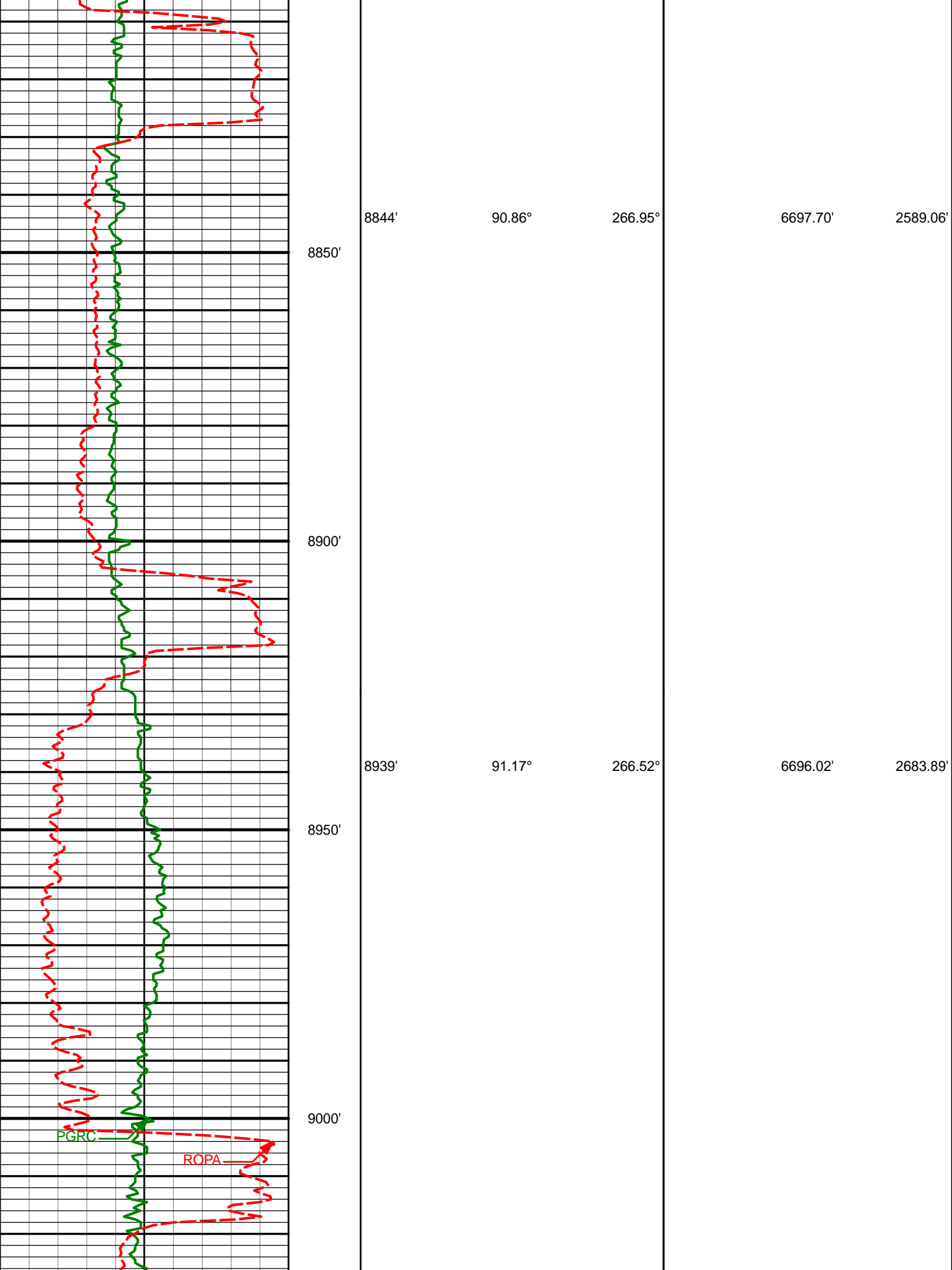


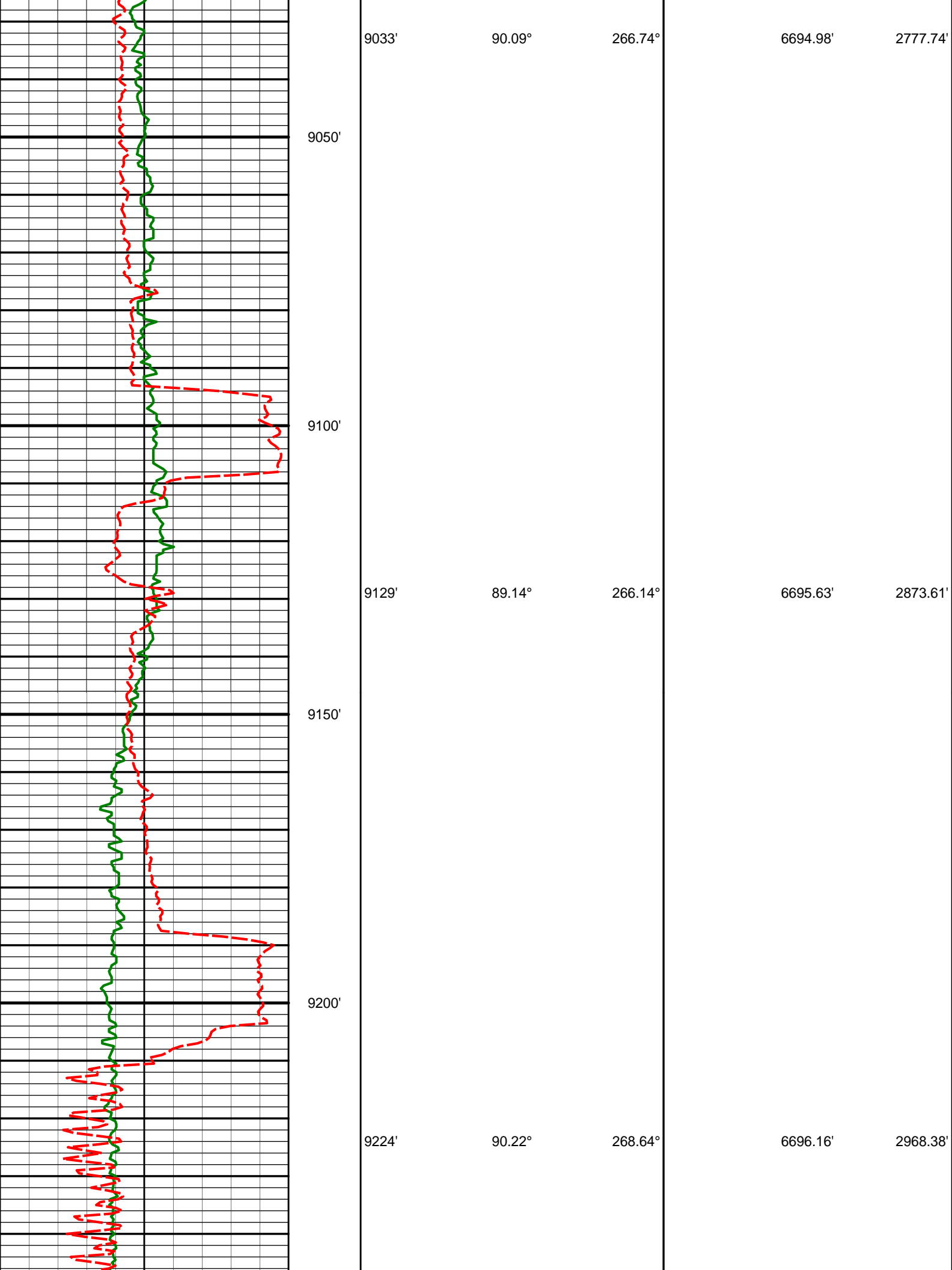


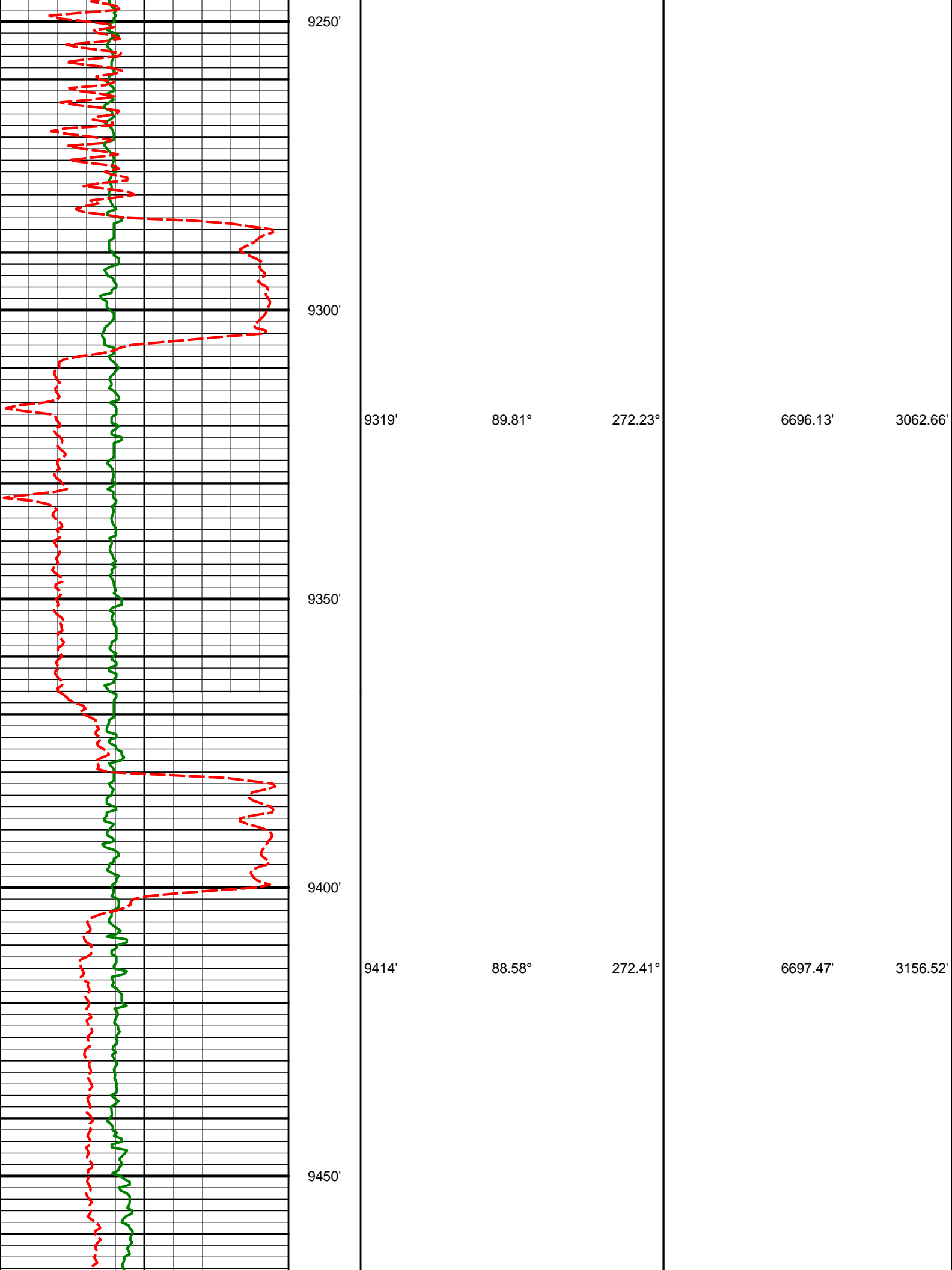


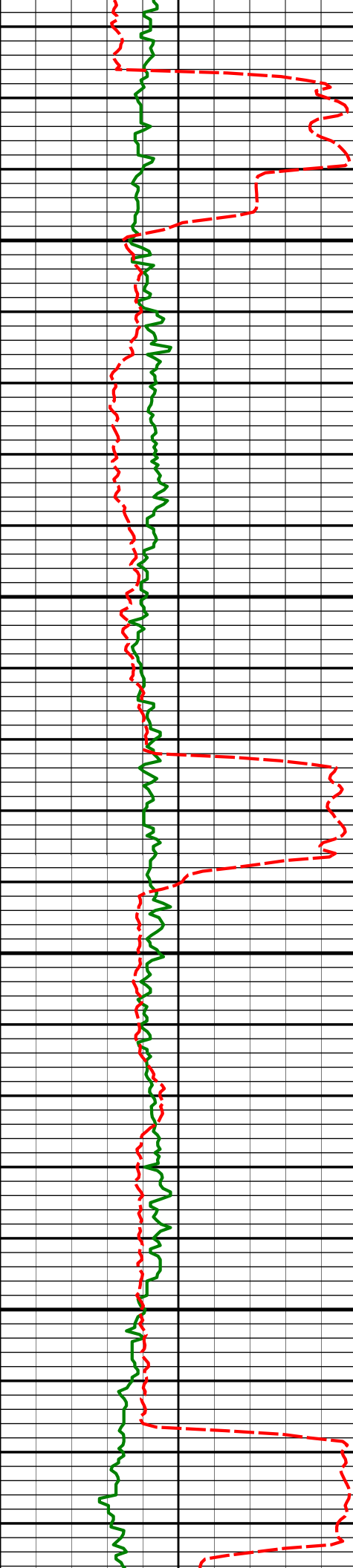












9500'

9509'

89.17°

271.04°

6699.33'

3250.51'

9550'

9600'

9603'

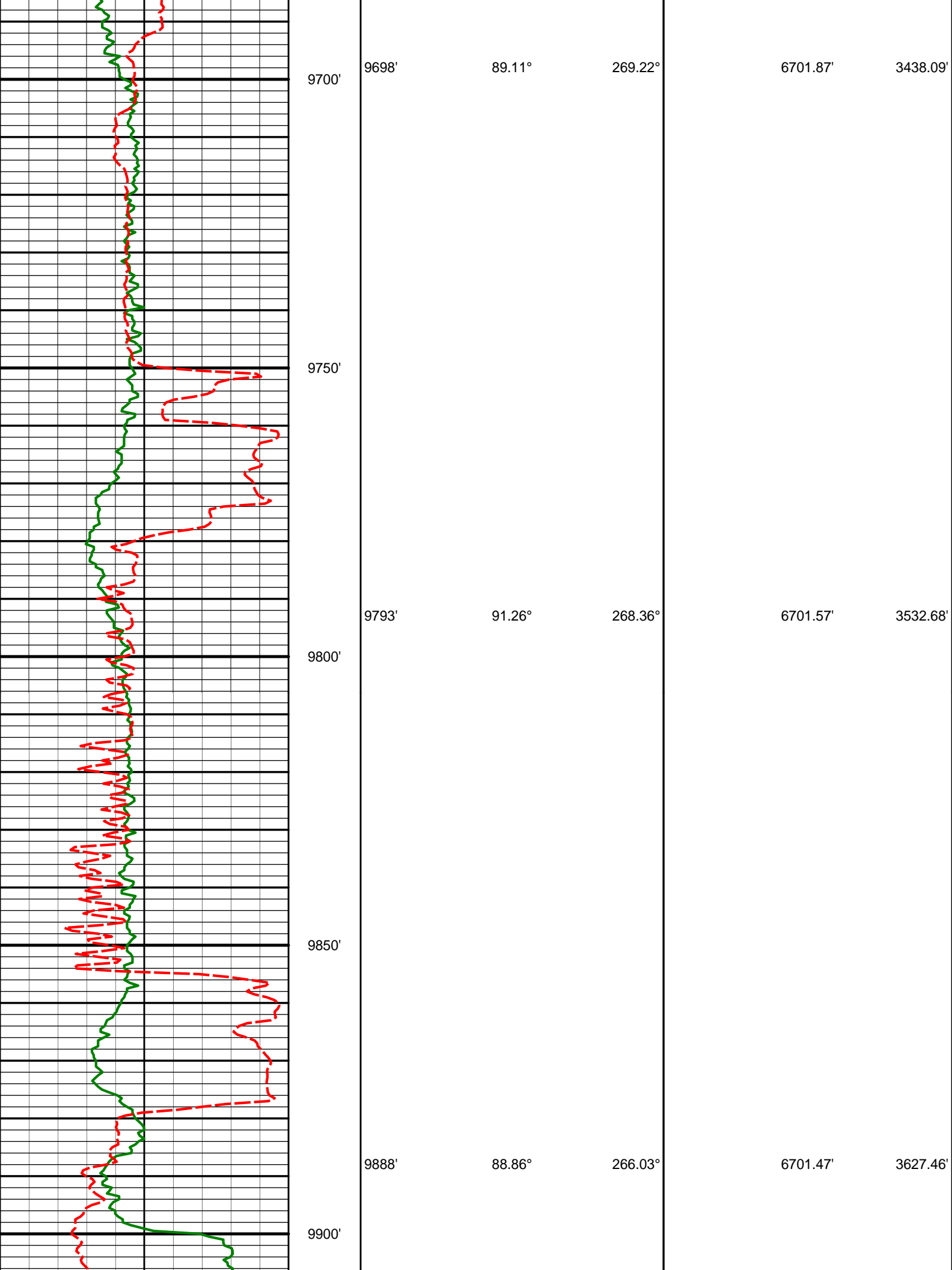
89.32°

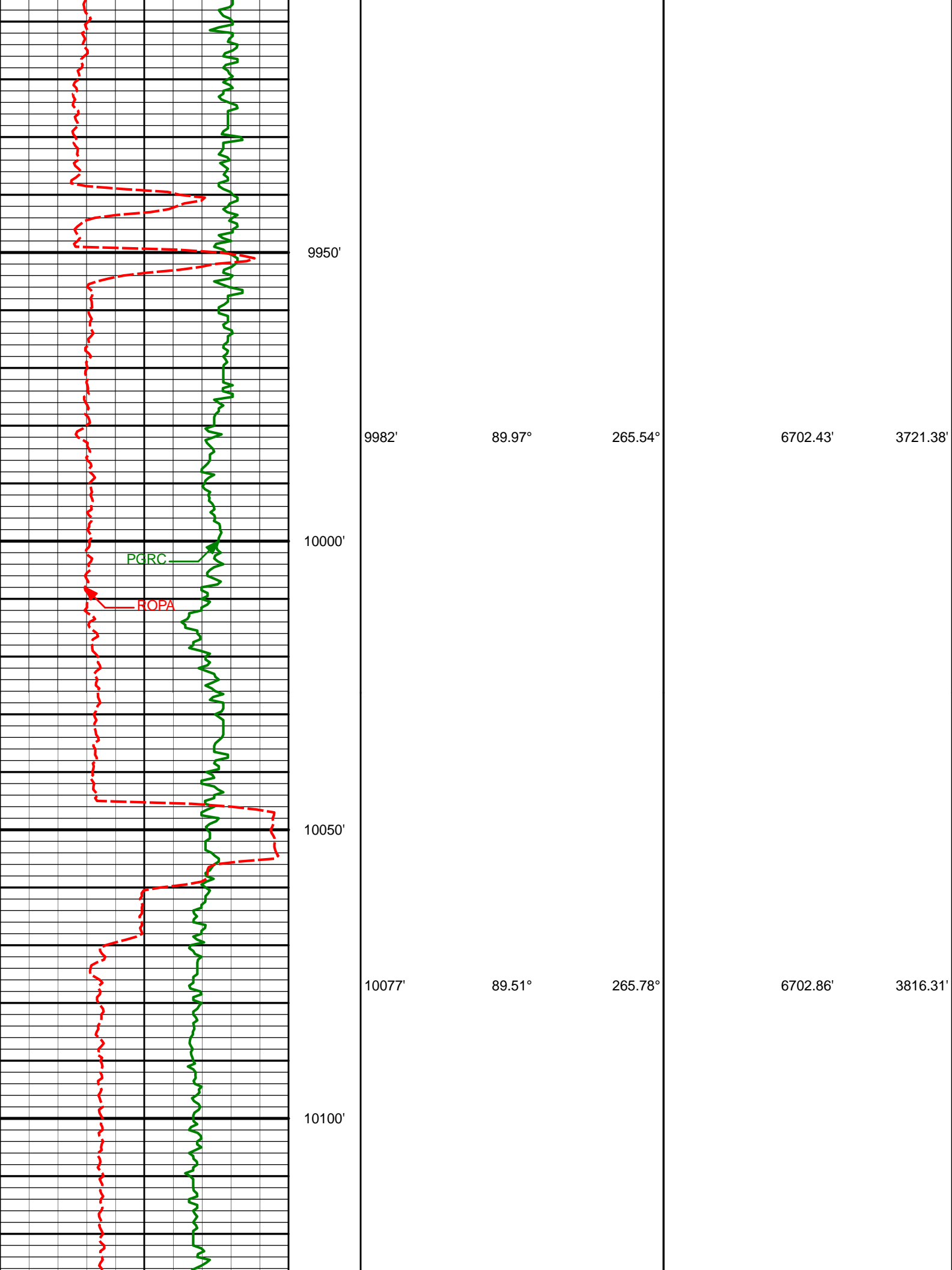
270.74°

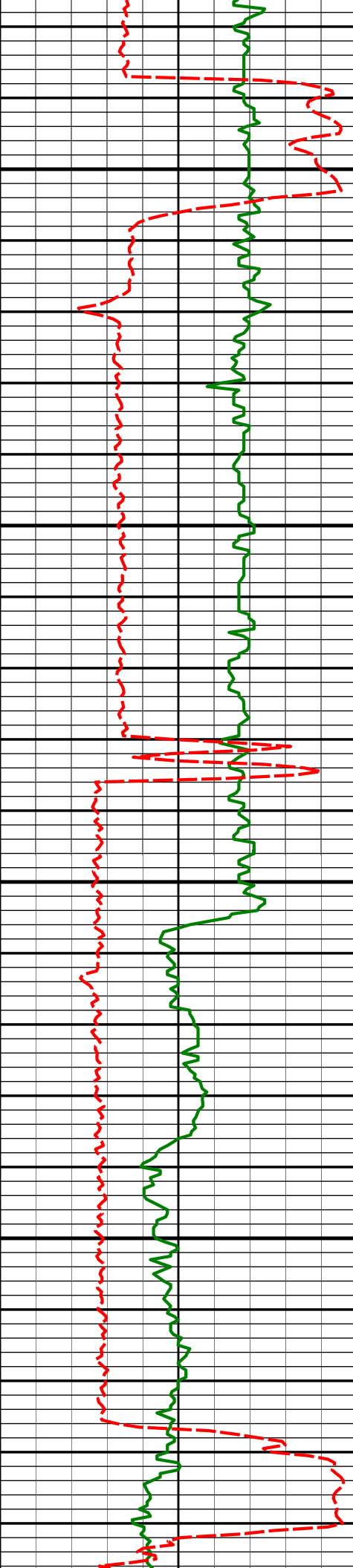
6700.57'

3343.72'

9650'







10150'

10172'

89.75°

266.39°

6703.47'

3911.21'

10200'

10250'

10267'

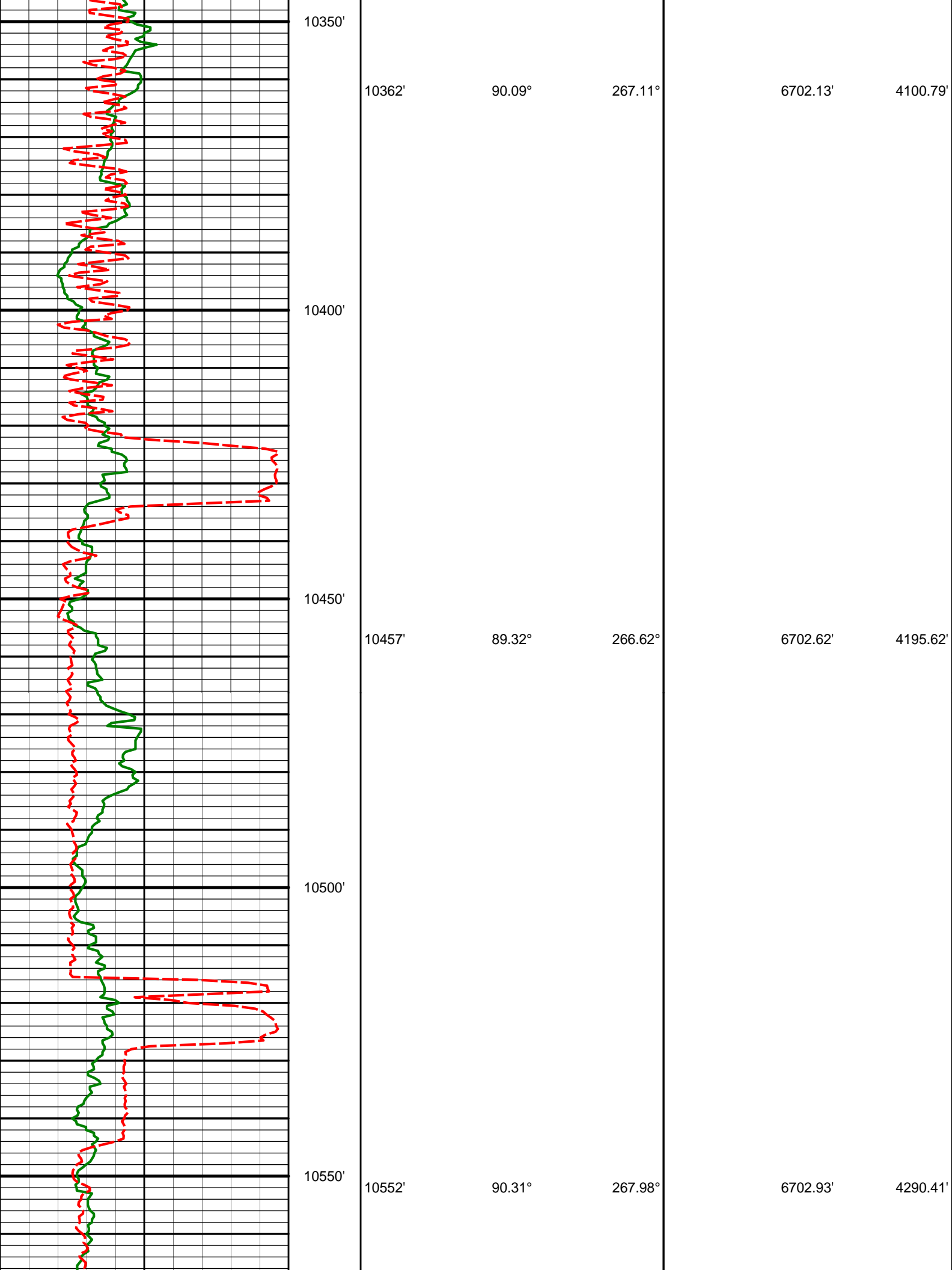
90.89°

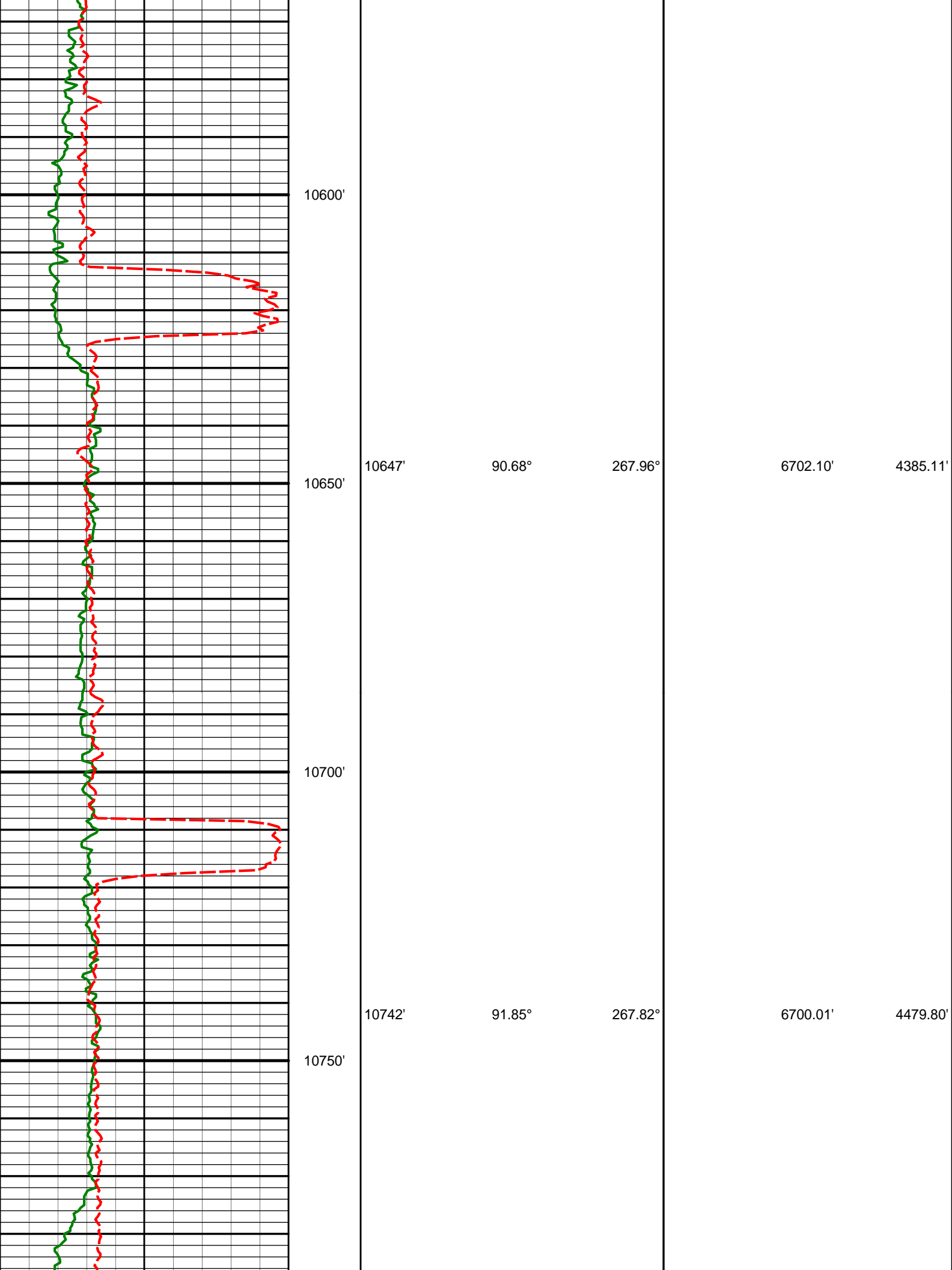
267.66°

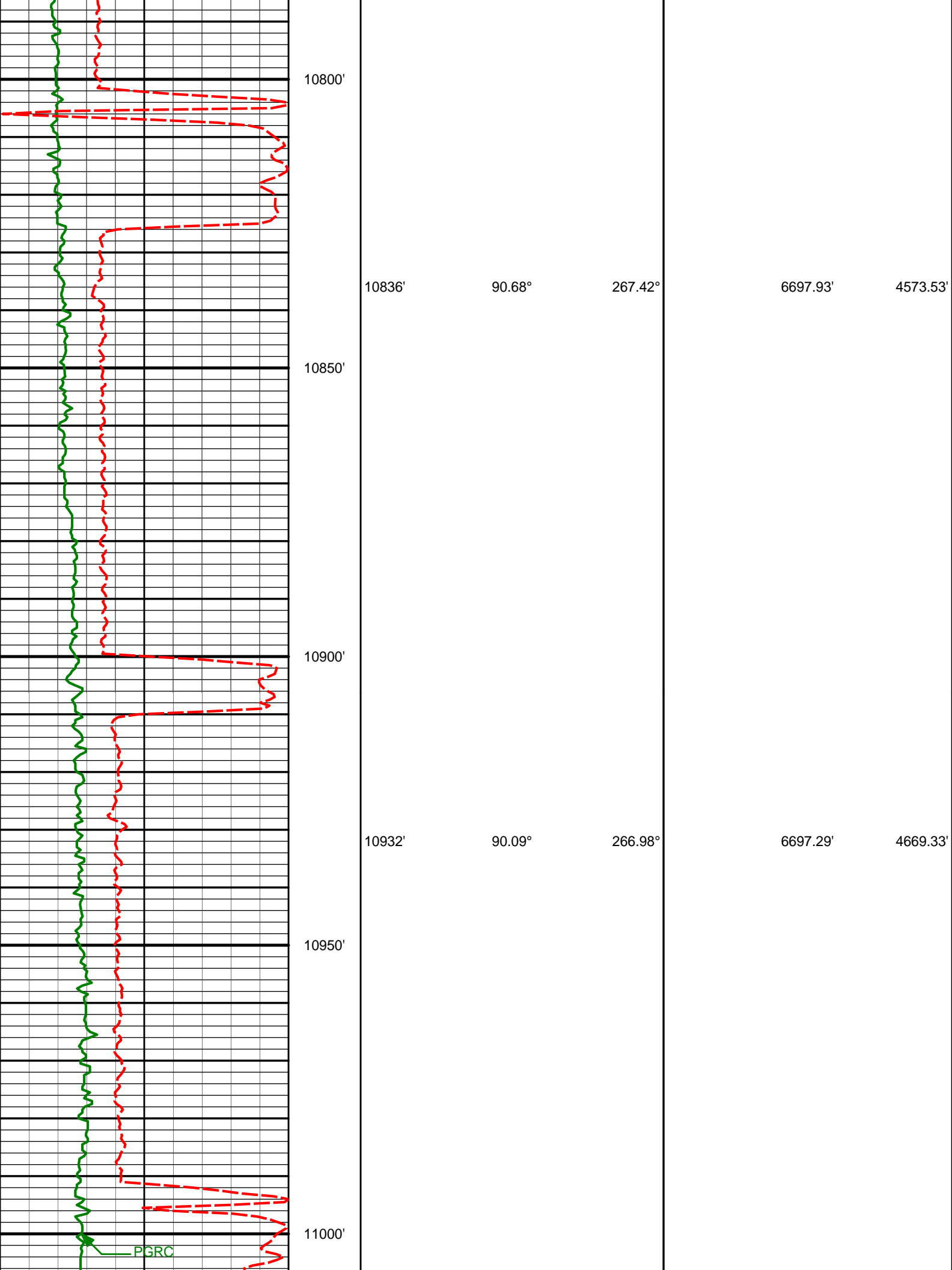
6702.94'

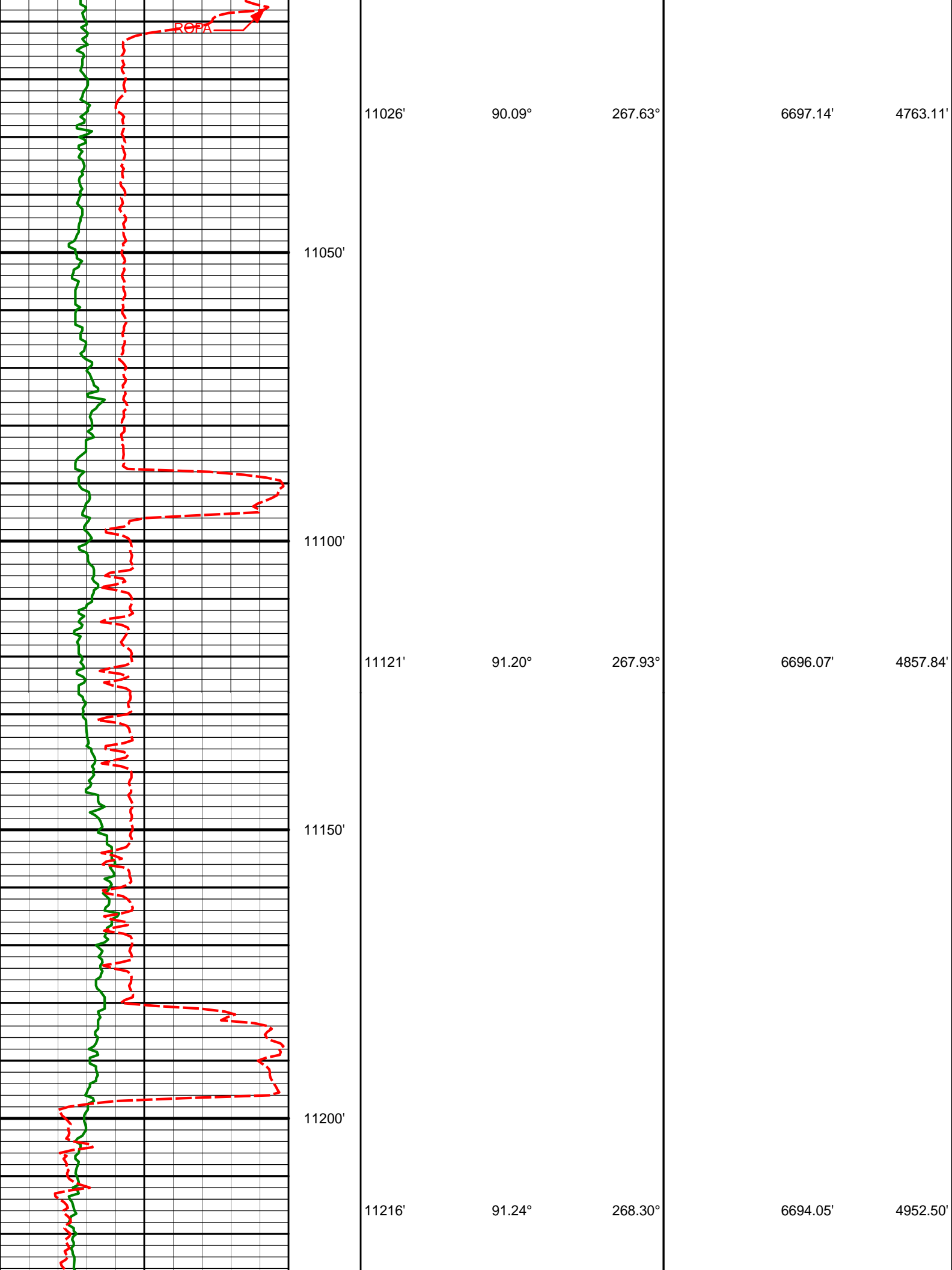
4006.02'

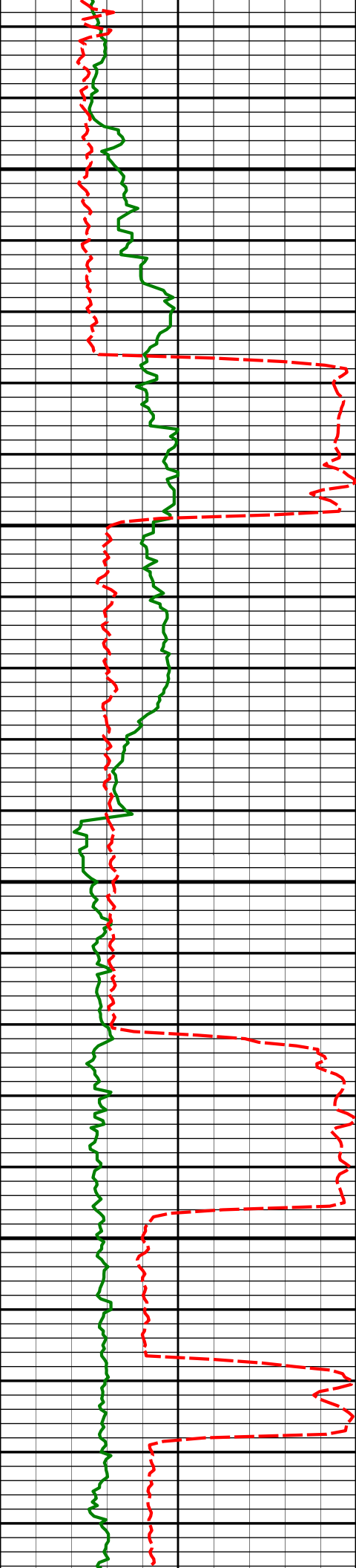
10300'











11250'

11300'

11350'

11400'

11311'

11406'

91.60°

90.31°

268.29°

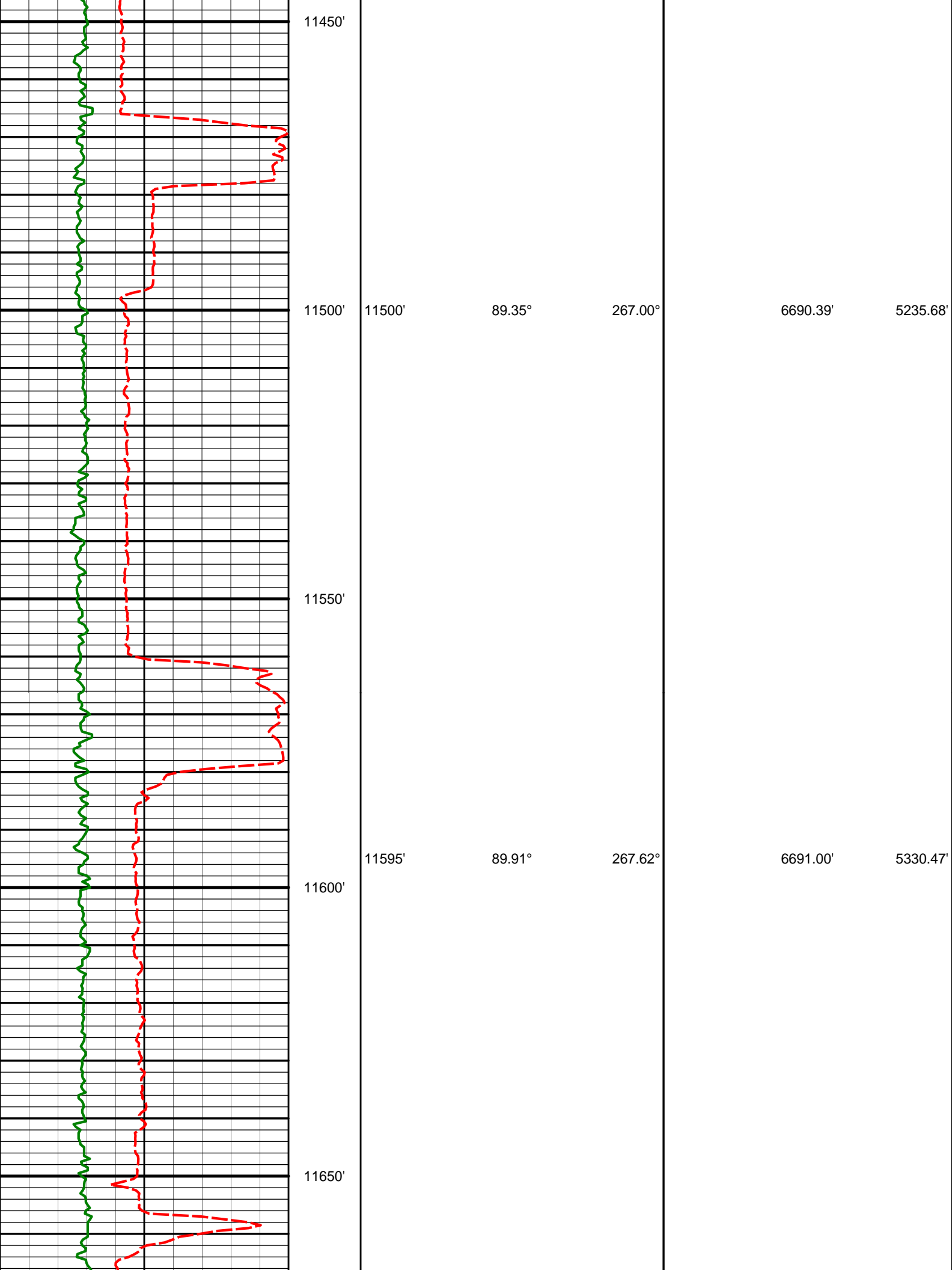
267.06°

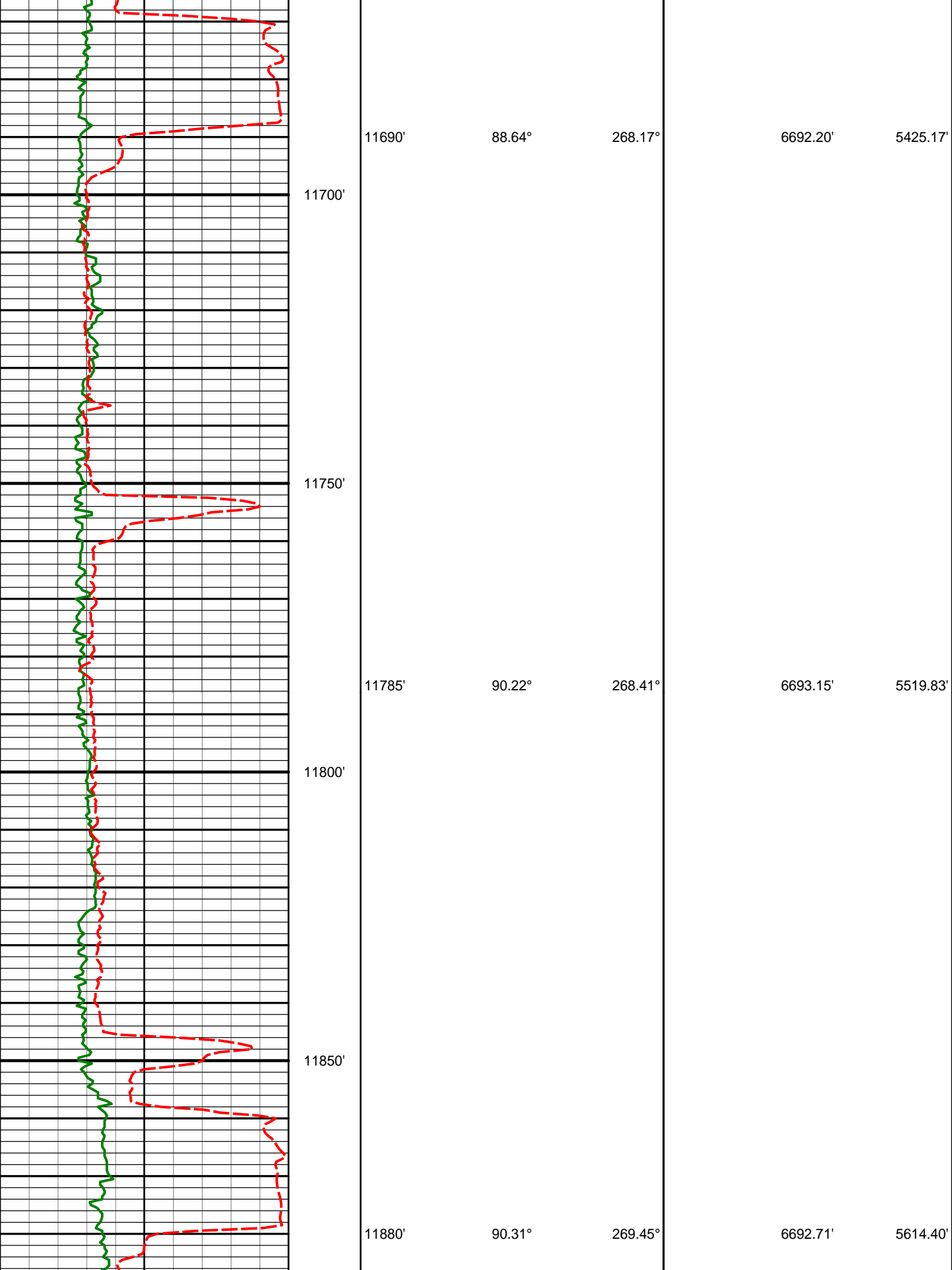
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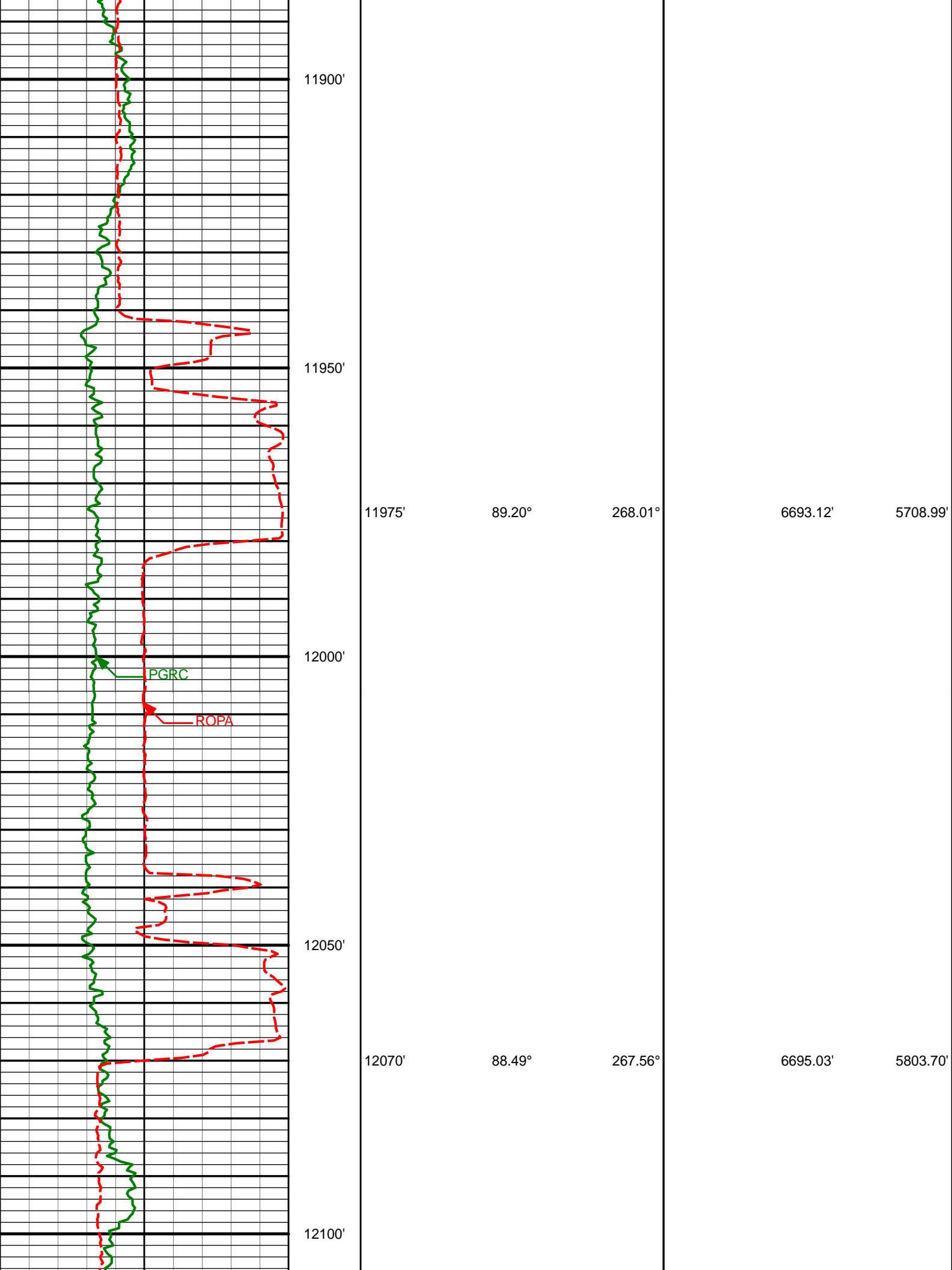
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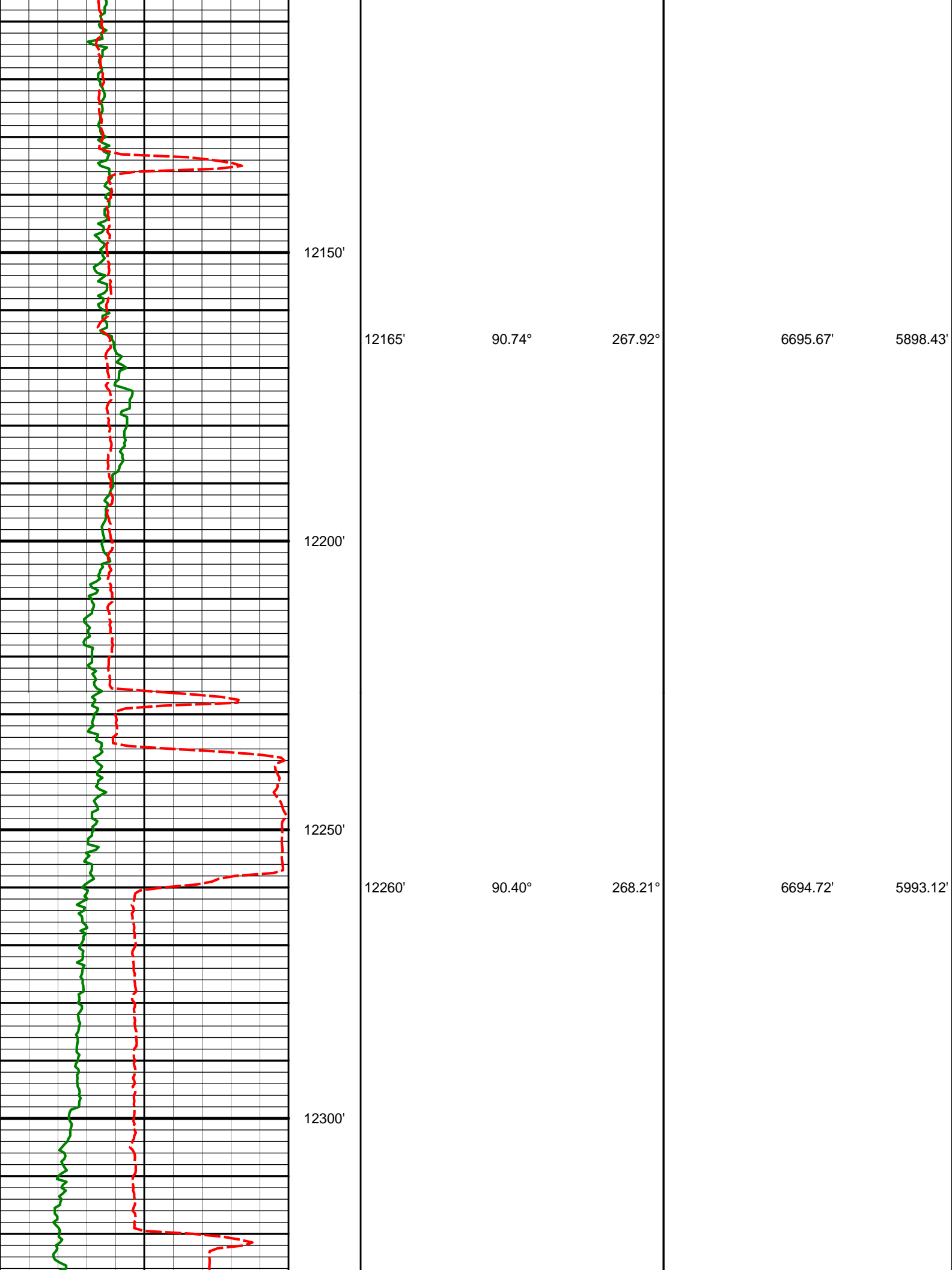
5047.14'

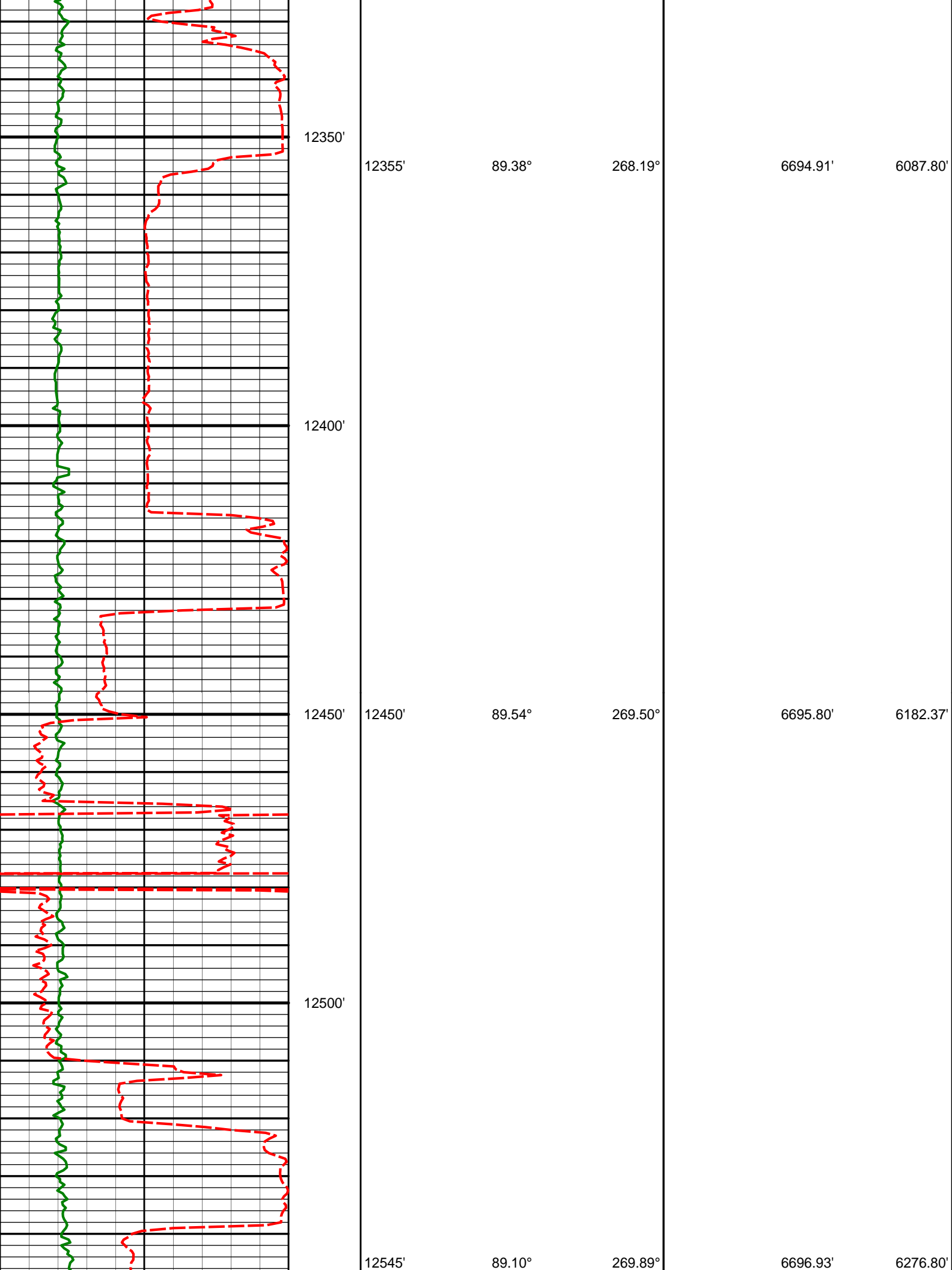
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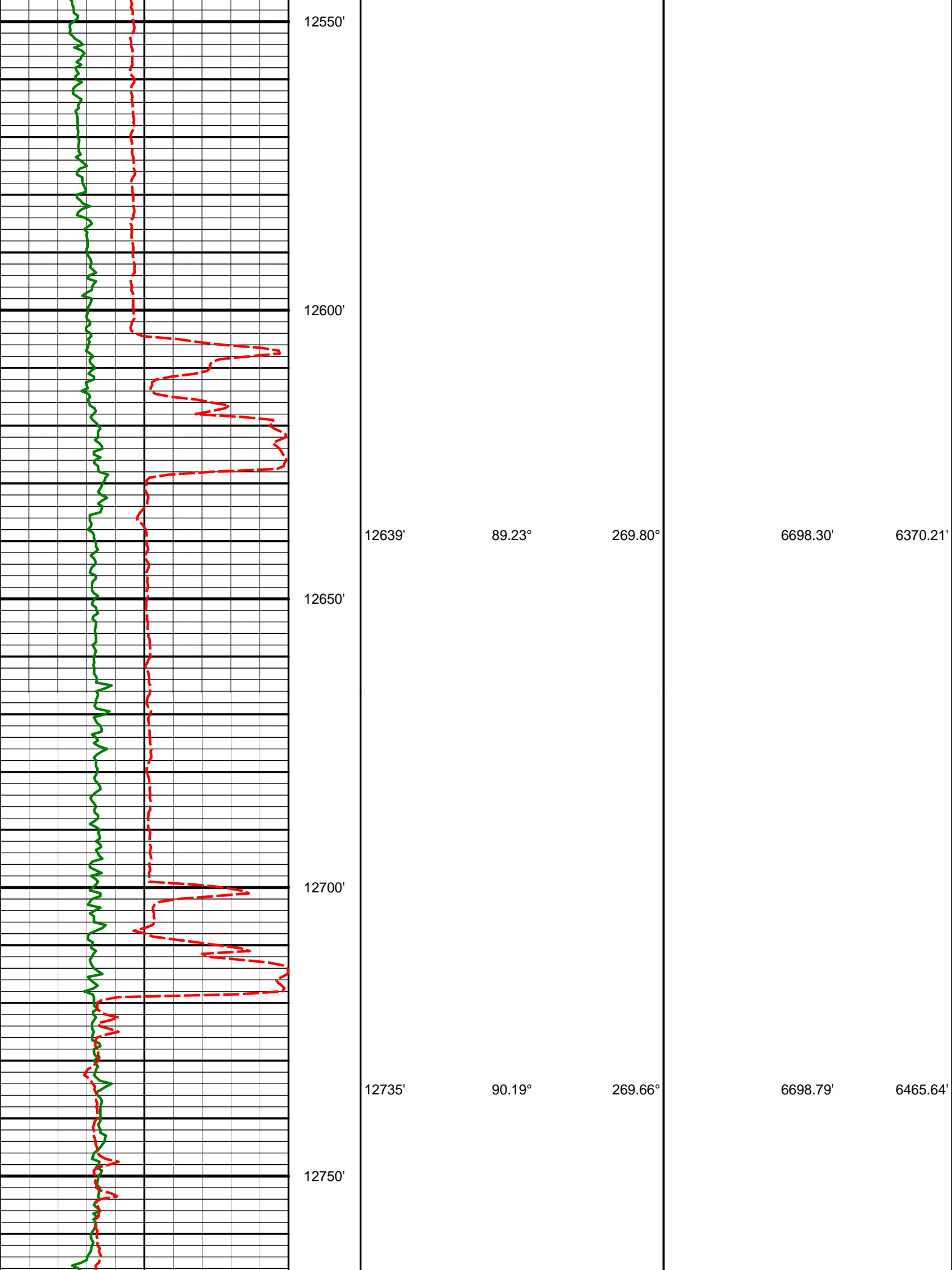


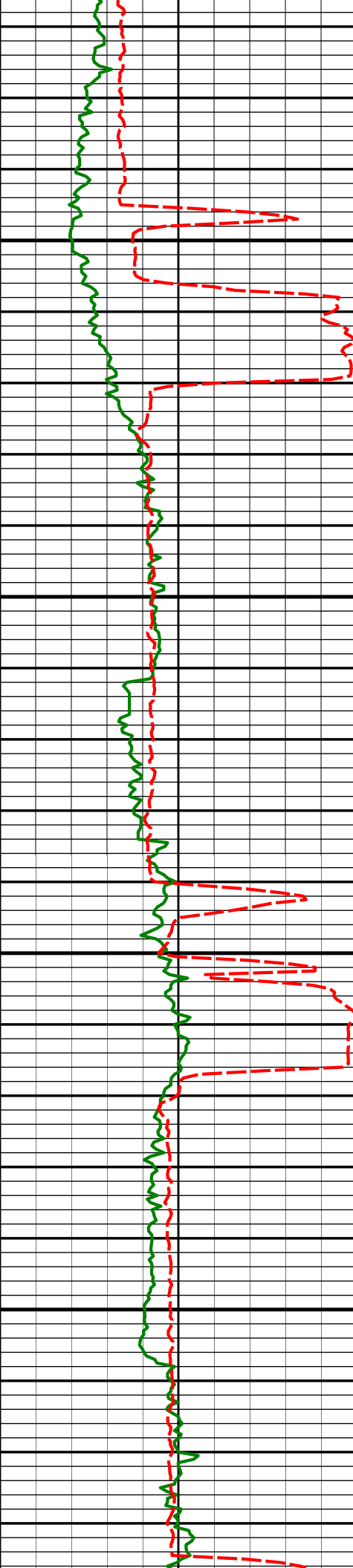












12800'

12830'

91.26°

269.56°

6697.58'

6560.08'

12850'

12900'

12924'

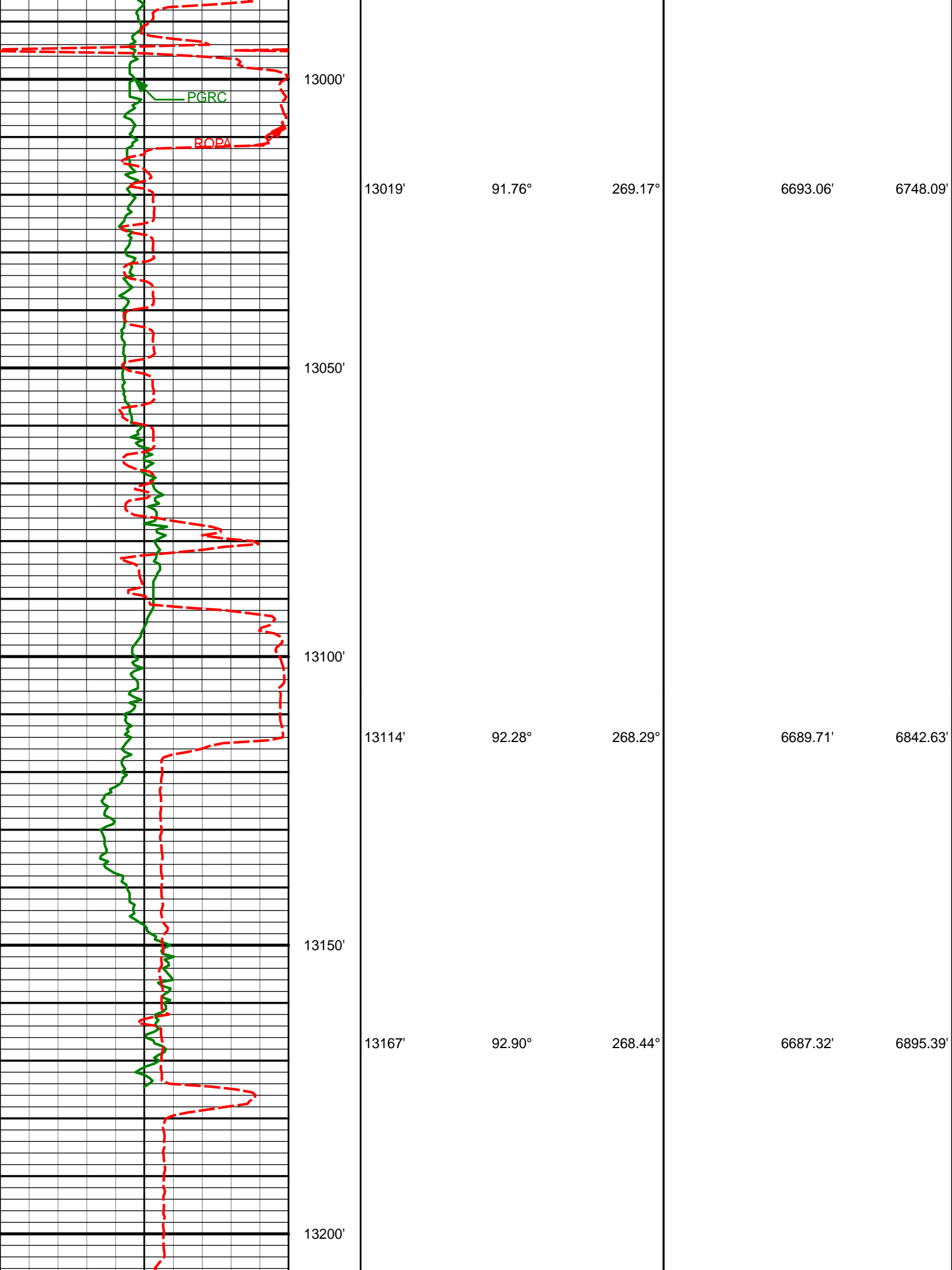
91.23°

268.98°

6695.54'

6653.58'

12950'



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DIRECTIONAL SURVEY REPORT

**Noble Energy
NCLP AA07-69HNA
Wattenberg
Weld Colorado
USA
CA-XX-0901286745**

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
250.00	0.20	68.25	250.00	0.16 N	0.41 E	-0.42	0.08
500.00	0.20	38.25	500.00	0.67 N	1.08 E	-1.15	0.04
750.00	0.70	257.45	749.99	0.68 N	0.14 W	0.06	0.35
840.00	0.50	276.45	839.99	0.60 N	1.07 W	0.99	0.31
921.00	0.15	252.65	920.99	0.61 N	1.52 W	1.44	0.45
1014.00	0.44	255.22	1013.99	0.48 N	1.98 W	1.91	0.31
1107.00	0.35	246.09	1106.98	0.28 N	2.59 W	2.54	0.12
1200.00	1.92	201.03	1199.96	1.29 S	3.40 W	3.53	1.82
1293.00	1.90	202.88	1292.91	4.17 S	4.56 W	5.01	0.07
1386.00	2.09	203.65	1385.85	7.14 S	5.84 W	6.62	0.21
1479.00	1.80	204.96	1478.80	10.02 S	7.14 W	8.23	0.32
1573.00	1.86	207.01	1572.75	12.72 S	8.45 W	9.85	0.09
1668.00	3.50	169.91	1667.65	16.95 S	8.65 W	10.52	2.43
1763.00	5.34	164.44	1762.37	24.06 S	6.95 W	9.64	1.98
1857.00	6.60	180.22	1855.86	33.68 S	5.80 W	9.59	2.19
1952.00	8.09	180.02	1950.08	45.82 S	5.82 W	11.00	1.57
2047.00	8.61	177.71	2044.07	59.61 S	5.54 W	12.29	0.65
2142.00	9.21	181.99	2137.93	74.32 S	5.52 W	13.94	0.94
2237.00	9.10	181.67	2231.72	89.42 S	6.00 W	16.14	0.13
2331.00	10.22	191.02	2324.39	105.04 S	7.82 W	19.71	2.05
2426.00	10.58	193.18	2417.83	121.80 S	11.42 W	25.19	0.56
2521.00	11.03	189.53	2511.14	139.26 S	14.91 W	30.65	0.86
2615.00	11.02	185.06	2603.41	157.08 S	17.19 W	34.94	0.91
2710.00	11.21	184.09	2696.63	175.33 S	18.65 W	38.47	0.28
2804.00	10.97	186.47	2788.87	193.33 S	20.31 W	42.16	0.55
2899.00	11.86	188.66	2881.99	211.96 S	22.80 W	46.75	1.04
2994.00	14.05	190.43	2974.57	232.96 S	26.35 W	52.68	2.34
3088.00	11.90	186.76	3066.17	253.81 S	29.56 W	58.23	2.45
3183.00	11.67	189.66	3159.16	273.01 S	32.33 W	63.16	0.67
3278.00	9.42	203.64	3252.57	289.61 S	37.06 W	69.75	3.57
3373.00	7.95	192.56	3346.48	303.14 S	41.60 W	75.81	2.34
3468.00	7.52	213.88	3440.64	314.72 S	46.50 W	81.99	3.04
3563.00	7.38	220.23	3534.84	324.54 S	53.91 W	90.46	0.88
3658.00	8.34	242.67	3633.81	335.58 S	64.87 W	99.74	2.22

3658.00	9.21	212.87	3628.84	335.58 S	61.97 W	99.74	2.22
3752.00	10.74	209.00	3721.42	349.56 S	70.30 W	109.60	1.78
3847.00	12.26	202.00	3814.52	366.66 S	78.37 W	119.56	2.17
3942.00	13.88	203.47	3907.05	386.46 S	86.69 W	130.08	1.74
4037.00	13.44	198.32	3999.37	407.40 S	94.70 W	140.42	1.36
4132.00	12.44	193.04	4091.96	427.85 S	100.48 W	148.48	1.63
4226.00	9.96	197.43	4184.16	445.47 S	105.20 W	155.18	2.79
4321.00	9.28	191.77	4277.83	460.81 S	109.22 W	160.92	1.23
4416.00	8.85	182.93	4371.65	475.60 S	111.16 W	164.53	1.53
4511.00	9.24	191.13	4465.47	490.39 S	113.00 W	168.04	1.42
4606.00	11.27	198.22	4558.95	506.69 S	117.38 W	174.24	2.51
4700.00	9.68	188.59	4651.39	523.23 S	121.43 W	180.15	2.51
4795.00	7.50	207.98	4745.33	536.61 S	125.54 W	185.75	3.78
4889.00	5.99	203.02	4838.68	546.54 S	130.33 W	191.64	1.72
4984.00	6.36	206.98	4933.13	555.79 S	134.66 W	196.99	0.59
5079.00	7.78	203.30	5027.41	566.39 S	139.59 W	203.10	1.57
5174.00	6.77	202.90	5121.64	577.45 S	144.31 W	209.05	1.06
5268.00	6.17	198.30	5215.04	587.35 S	148.05 W	213.89	0.84
5363.00	3.51	187.58	5309.70	595.08 S	150.04 W	216.74	2.95
5458.00	1.73	180.13	5404.59	599.40 S	150.43 W	217.62	1.90
5552.00	0.94	206.07	5498.57	601.51 S	150.77 W	218.20	1.04
5647.00	0.90	208.30	5593.56	602.87 S	151.47 W	219.04	0.06
5742.00	0.34	237.57	5688.55	603.68 S	152.06 W	219.72	0.66
5837.00	0.31	337.80	5783.55	603.59 S	152.39 W	220.05	0.53
5999.00	0.14	287.15	5945.55	603.13 S	152.75 W	220.35	0.15
6116.00	1.27	284.68	6062.54	602.76 S	154.14 W	221.69	0.97
6163.00	6.15	272.28	6109.43	602.52 S	157.16 W	224.66	10.46
6211.00	9.86	265.04	6156.95	602.78 S	163.83 W	231.31	7.99
6258.00	14.19	260.66	6202.91	604.06 S	173.52 W	241.09	9.41
6305.00	17.14	261.71	6248.16	605.99 S	186.06 W	253.77	6.31
6352.00	20.76	260.98	6292.60	608.30 S	201.15 W	269.02	7.72
6400.00	25.85	260.88	6336.67	611.29 S	219.90 W	287.99	10.60
6447.00	31.72	262.65	6377.85	614.50 S	242.29 W	310.60	12.62
6495.00	38.59	264.91	6417.07	617.45 S	269.75 W	338.21	14.56
6542.00	43.54	266.24	6452.50	619.81 S	300.52 W	369.06	10.69
6590.00	47.21	266.01	6486.21	622.12 S	334.60 W	403.18	7.65
6637.00	49.69	270.06	6517.39	623.30 S	369.73 W	438.22	8.33
6685.00	52.34	270.11	6547.58	623.25 S	407.04 W	475.28	5.52
6732.00	54.10	268.77	6575.72	623.62 S	444.68 W	512.72	4.39
6780.00	58.12	268.14	6602.48	624.70 S	484.50 W	552.40	8.45
6827.00	64.17	269.09	6625.16	625.68 S	525.64 W	593.38	12.99
6875.00	69.17	270.09	6644.16	625.99 S	569.70 W	637.19	10.59
6922.00	72.83	270.76	6659.46	625.66 S	614.13 W	681.30	7.90
6970.00	77.36	271.45	6671.80	624.76 S	660.49 W	727.26	9.54
7015.00	82.83	272.24	6679.54	623.33 S	704.78 W	771.10	12.28
7166.00	87.47	274.17	6692.30	614.92 S	854.96 W	919.34	3.33
7259.00	88.80	272.78	6695.33	609.28 S	947.73 W	1010.87	2.07
7352.00	89.57	268.54	6696.65	608.21 S	1040.69 W	1103.11	4.63
7445.00	90.03	270.90	6696.98	608.67 S	1133.68 W	1195.55	2.59
7538.00	88.64	270.70	6698.06	607.37 S	1226.67 W	1287.78	1.51
7630.00	90.49	270.80	6698.76	606.16 S	1318.65 W	1379.03	2.01
7722.00	89.23	269.20	6698.98	606.16 S	1410.65 W	1470.43	2.21
7815.00	88.86	268.48	6700.53	608.05 S	1503.61 W	1563.01	0.87
7908.00	90.55	268.24	6701.01	610.71 S	1596.57 W	1655.67	1.84
8001.00	89.29	266.90	6701.14	614.65 S	1689.48 W	1748.42	1.98
8094.00	90.96	269.41	6700.94	617.64 S	1782.42 W	1841.10	3.24
8187.00	90.62	266.91	6699.65	620.63 S	1875.36 W	1933.77	2.71
8279.00	90.59	267.02	6698.68	625.50 S	1967.23 W	2025.60	0.12
8372.00	89.20	266.90	6698.85	630.43 S	2060.09 W	2118.42	1.50
8465.00	89.75	267.66	6699.71	634.85 S	2152.98 W	2211.21	1.01
8559.00	89.26	267.06	6700.52	639.18 S	2246.88 W	2304.99	0.82
8654.00	89.63	267.50	6701.44	643.68 S	2341.77 W	2399.78	0.61
8749.00	92.01	269.26	6700.08	646.37 S	2436.71 W	2494.41	3.12
8844.00	90.86	266.95	6697.70	649.51 S	2531.62 W	2589.06	2.72
8939.00	91.17	266.52	6696.02	654.92 S	2626.45 W	2683.89	0.56
9033.00	90.09	266.74	6694.98	660.45 S	2720.28 W	2777.74	1.17
9129.00	89.14	266.14	6695.63	666.41 S	2816.09 W	2873.61	1.17
9224.00	90.22	268.64	6696.16	670.73 S	2910.98 W	2968.38	2.87
9319.00	89.81	272.23	6696.13	670.01 S	3005.96 W	3062.66	3.80
9414.00	88.58	272.41	6697.47	666.17 S	3100.87 W	3156.52	1.31
9509.00	89.17	271.04	6699.33	663.31 S	3195.81 W	3250.51	1.57
9603.00	89.32	270.74	6700.57	661.85 S	3289.79 W	3343.72	0.36
9698.00	89.11	269.22	6701.87	661.88 S	3384.78 W	3438.09	1.62
9793.00	91.26	268.36	6701.57	663.89 S	3479.75 W	3532.68	2.44
9888.00	88.86	266.03	6701.47	668.53 S	3574.62 W	3627.46	3.52

9982.00	89.97	265.54	6702.43	675.44 S	3668.36 W	3721.38	1.29
10077.00	89.51	265.78	6702.86	682.63 S	3763.09 W	3816.31	0.55
10172.00	89.75	266.39	6703.47	689.12 S	3857.87 W	3911.21	0.69
10267.00	90.89	267.66	6702.94	694.05 S	3952.73 W	4006.02	1.80
10362.00	90.09	267.11	6702.13	698.38 S	4047.63 W	4100.79	1.02
10457.00	89.32	266.62	6702.62	703.58 S	4142.48 W	4195.62	0.96
10552.00	90.31	267.98	6702.93	708.05 S	4237.37 W	4290.41	1.77
10647.00	90.68	267.96	6702.10	711.42 S	4332.31 W	4385.11	0.39
10742.00	91.85	267.82	6700.01	714.91 S	4427.22 W	4479.80	1.24
10836.00	90.68	267.42	6697.93	718.82 S	4521.12 W	4573.53	1.32
10932.00	90.09	266.98	6697.29	723.51 S	4617.00 W	4669.33	0.77
11026.00	90.09	267.63	6697.14	727.93 S	4710.89 W	4763.11	0.69
11121.00	91.20	267.93	6696.07	731.61 S	4805.82 W	4857.84	1.21
11216.00	91.24	268.30	6694.05	734.73 S	4900.74 W	4952.50	0.39
11311.00	91.60	268.29	6691.69	737.56 S	4995.67 W	5047.14	0.38
11406.00	90.31	267.06	6690.11	741.41 S	5090.58 W	5141.87	1.88
11500.00	89.35	267.00	6690.39	746.28 S	5184.45 W	5235.68	1.02
11595.00	89.91	267.62	6691.00	750.74 S	5279.34 W	5330.47	0.88
11690.00	88.64	268.17	6692.20	754.23 S	5374.27 W	5425.17	1.46
11785.00	90.22	268.41	6693.15	757.06 S	5469.22 W	5519.83	1.68
11880.00	90.31	269.45	6692.71	758.84 S	5564.20 W	5614.40	1.10
11975.00	89.20	268.01	6693.12	760.94 S	5659.17 W	5708.99	1.91
12070.00	88.49	267.56	6695.03	764.61 S	5754.08 W	5803.70	0.88
12165.00	90.74	267.92	6695.67	768.36 S	5849.00 W	5898.43	2.40
12260.00	90.40	268.21	6694.72	771.57 S	5943.94 W	5993.12	0.47
12355.00	89.38	268.19	6694.91	774.55 S	6038.89 W	6087.80	1.07
12450.00	89.54	269.50	6695.80	776.47 S	6133.86 W	6182.37	1.39
12545.00	89.10	269.89	6696.93	776.97 S	6228.85 W	6276.80	0.62
12639.00	89.23	269.80	6698.30	777.23 S	6322.84 W	6370.21	0.17
12735.00	90.19	269.66	6698.79	777.68 S	6418.84 W	6465.64	1.01
12830.00	91.26	269.56	6697.58	778.32 S	6513.83 W	6560.08	1.13
12924.00	91.23	268.98	6695.54	779.52 S	6607.80 W	6653.58	0.62
13019.00	91.76	269.17	6693.06	781.06 S	6702.75 W	6748.09	0.59
13114.00	92.28	268.29	6689.71	783.16 S	6797.67 W	6842.63	1.08
13167.00	92.90	268.44	6687.32	784.67 S	6850.59 W	6895.39	1.20
13228.00	92.90	268.44	6684.23	786.33 S	6911.49 W	6956.08	0.00

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 263.47 DEGREES (GRID)
A TOTAL CORRECTION OF 7.45 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED

HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.
HORIZONTAL DISPLACEMENT(CLOSURE) AT 13228.00 FEET
IS 6956.08 FEET ALONG 263.51 DEGREES (GRID)

Tie-In @ Surface

Surveys at 250 ft, 500, 750, and 840 ft were taken and provided by HP 322 while they were drilling the surface hole and have been converted from magnetic north to grid north.