

1 : 240

WELL INFORMATION					
MWD Run Number	100	200	300		
Date run completed	06-Aug-13	09-Aug-13	13-Aug-13		
Rig Bit Number	0100	0200	0300		
Bit Size (in)	13.500	8.750	6.125		
Tool Nominal OD (in)	8.000	6.750	4.750		
Log Start Depth (MD, ft)	13.00	984.00	7,761.00		
Log End Depth (MD, ft)	984.00	7,761.00	11,703.00		
Drill or Wipe	Drill	Drill	Drill		
Drill/Wipe Start Date and Time	06-Aug-13 01:45	07-Aug-13 23:54	11-Aug-13 07:00		
Drill/Wipe End Date and Time	06-Aug-13 16:55	09-Aug-13 12:45	12-Aug-13 10:35		
Min Inc (deg) @ Depth (MD, ft)	.35 @ 360.00	.46 @ 1,250.00	87.44 @ 7,802.00		
Max Inc (deg) @ Depth (MD, ft)	.90 @ 825.00	88.67 @ 7,761.00	91.76 @ 8,182.00		
Bit TFA(in2) / Bit Type	1.49 / PDC	1.49 / PDC	1.04 / PDC		
Flow Rate (gpm)	400.07	573.36	298.30		
Max AV (fpm) / CV (fpm) @ MWD	N/A / N/A	N/A / N/A	N/A / N/A		
Fluid Type	Native/Spud Mud	Fresh Water Gel	Fresh Water Gel		
Density (ppg) / Viscosity (spqt)	8.40 / 35.00	9.60 / 36.00	9.70 / 36.00		
Filtrate CL (ppm)	1,200.00	900.00	800.00		
pH / Fluid Loss (mptm)	9.80 / 0	9.00 / 7	9.00 / 8		
PV (cP) / YP (lbf2)	12 / 8.00	11 / 12.00	9 / 11.00		
% Solids / % Sand	3.00 / 0.40	6.7 / 1	6.8 / 0.05		
% 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		
Min Tool Temp (deg F) / S	100.00 / PDM	175.04 / PDM	204.10 / PDM		

Max Tool Temp (degF) / Source	100.62 / PCM	175.21 / PCM	231.42 / PCM		
Rm @ Max Tool Temp (degF)	N/A @ N/A	N/A @ N/A	N/A @ N/A		
Lead MWD Engineer	Evan LeBlanc	Evan LeBlanc	Matt Busche		
Customer Representative	Sam Taylor	Sam Taylor	Sam Taylor		

SENSOR INFORMATION

Downhole Processor Information

Tool Type	PCM	PCM	PCM		
Software Version	5.84	5.84	5.84		
Sub Serial Number	11847568	11341324	12187591		
Insert Serial Number	11680751	11227549	11680751		
Date and Time Initialized	02-Aug-13 21:49	06-Aug-13 12:06	08-Aug-13 18:22		
Date and Time Read	06-Aug-13 21:48	09-Aug-13 20:48	13-Aug-13 00:19		
ECMB SW Version	N/A	N/A	N/A		

Directional Sensor Information

Tool Type	PCDC	PCDC	PCDC		
Distance From Bit (ft)	53.98	45.58	43.37		
Software Version	6.21	6.21	6.21		
Sub Serial Number	11847568	11341324	12187591		
Sonde Serial Number	11145708	11478090	11145708		
Sensor ID Number	N/A	N/A	N/A		
Toolface Offset (deg)	346.10	356.93	353.19		

Gamma Ray Sensor Information

Tool Type		PCG	PCG		
Distance From Bit (ft)		50.53	48.32		
Recorded Sample Period (sec)		10	10		
Software Version		8.15	8.15		
Sub Serial Number		11341324	12187591		
Insert/Sonde Serial Number		11293285	11579782		

REMARKS

1. All depths are measured depths, referenced to the Driller's pipe tally and are measured from the Kelly Bushing, unless otherwise specified.
2. No depth corrections have been made for pipe stretch or compression.
3. All data presented is recorded data unless otherwise specified.
4. The following smoothing parameters have been applied to the data:

PGRC (Corrected Gamma Ray):

Interval Resolution: 0.5 ft

Interval Distance: 0.6 ft

Gap Fill: 3.0 ft

ROPA (Average Rate Of Penetration):

Interval Resolution: 0.5 ft

Interval Distance: 1.2 ft

Gap Fill: 3.0 ft

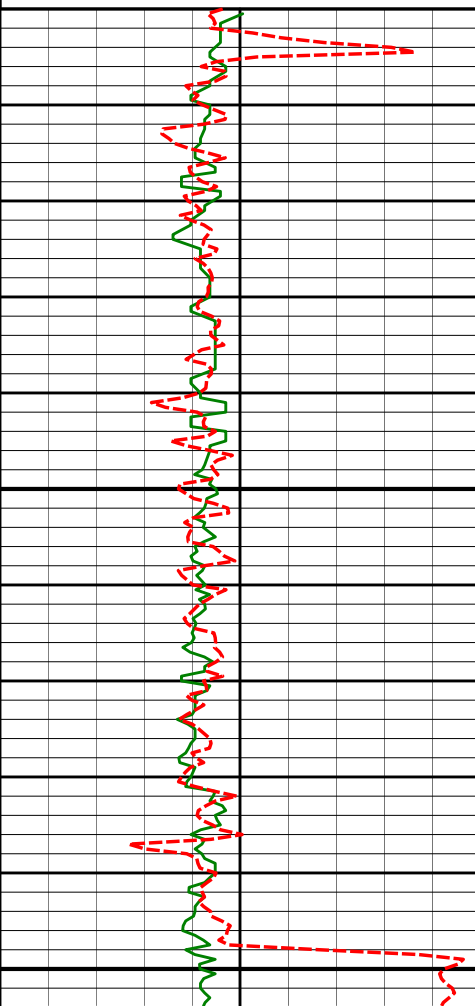
Insite version: 7.4.10

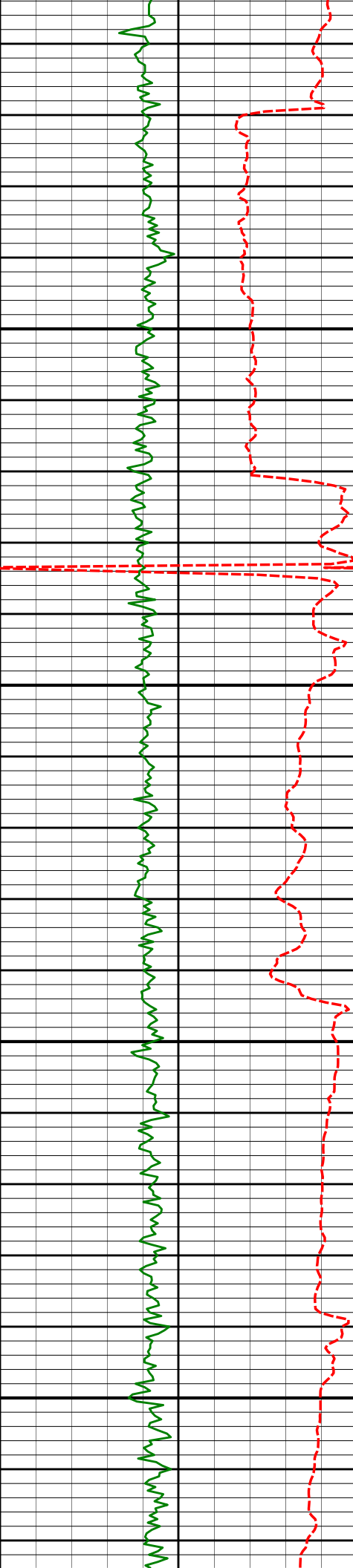
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HALLIBURTON

MD Main Log 1:240

PCG GR XHi-Range RT BCor (PGRC) api						
0300						
Average Rate of Penetration (ROPA) feet per hr		Depth				
1K0		Depth	Inc	Azi	TVD	V/S
		6550				
		6550	6552'	3.52°	133.06°	6482.82' -577.23'
		6600				



6650

6647'

1.90°

111.04°

6577.72'

-579.78'

6700

6695'

1.09°

56.85°

6625.70'

-579.82'

6750

6742'

5.25°

4.48°

6672.62'

-577.43'

6800

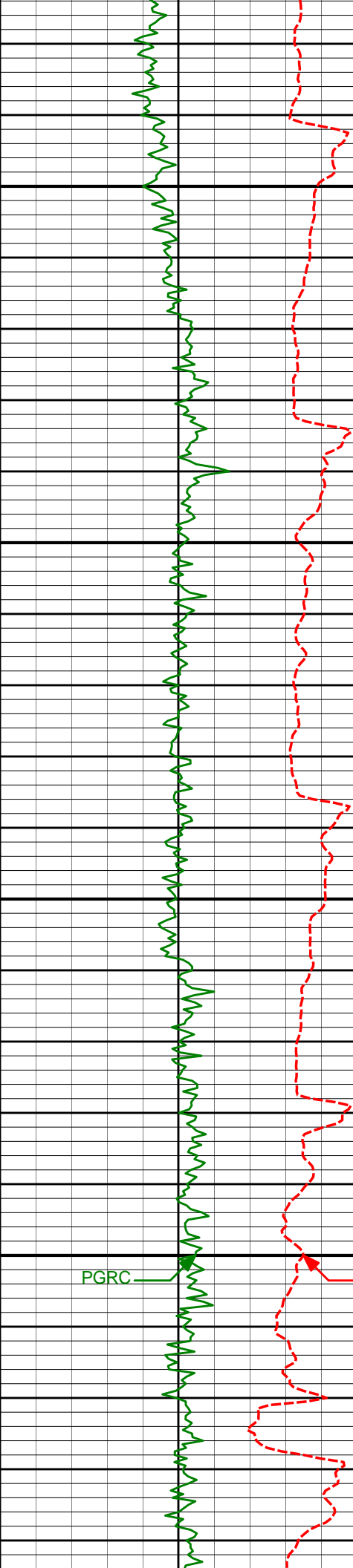
6790'

10.89°

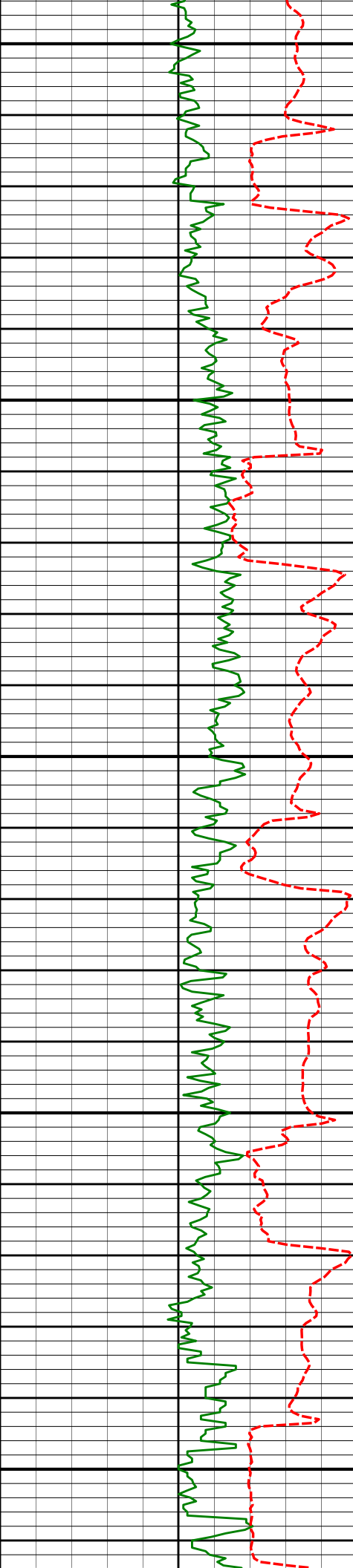
2.46°

6720.13'

-570.70'



6837'	16.34°	359.54°	6765.79'	-559.65'
6850				
6885'	23.03°	357.90°	6810.96'	-543.50'
6900				
6932'	28.46°	359.34°	6853.28'	-523.10'
6950				
6980'	34.76°	1.30°	6894.14'	-497.95'
7000				
7027'	39.54°	0.12°	6931.59'	-469.58'



7050

7075'

43.00°

0.16°

6967.66'

-437.92'

7100

7122'

46.31°

358.70°

7001.09'

-404.90'

7150

7170'

50.78°

358.81°

7032.86'

-368.94'

7200

7217'

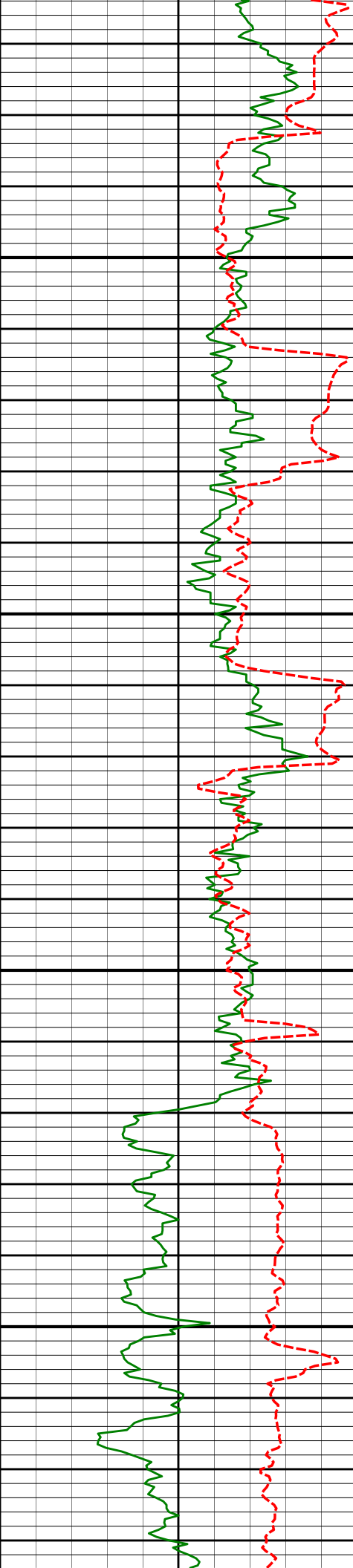
55.66°

359.99°

7061.00'

-331.31'

7250



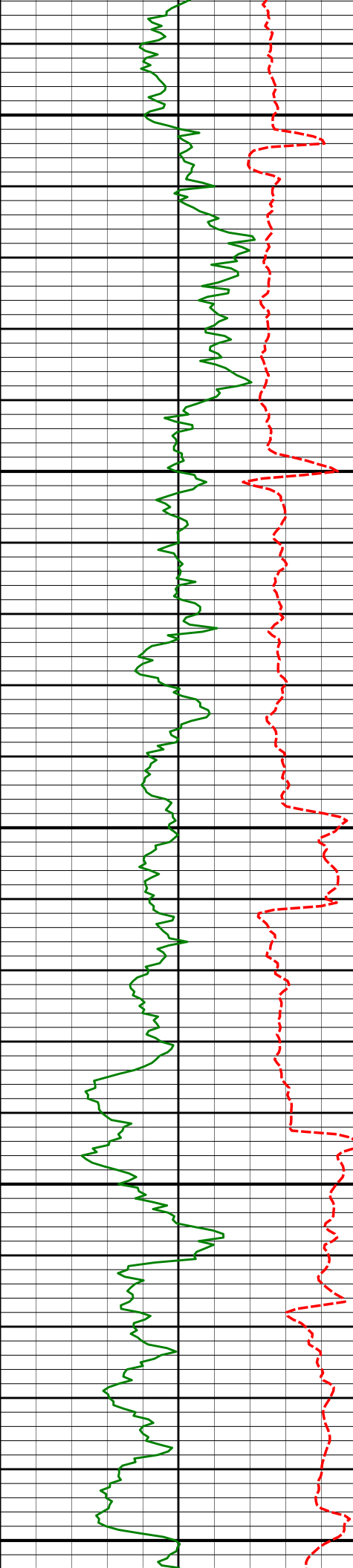
7300

7350

7400

7450

7265'	59.32°	1.99°	7086.79'	-290.85'
7312'	61.53°	3.46°	7109.99'	-250.02'
7360'	64.33°	4.51°	7131.83'	-207.39'
7407'	65.91°	5.01°	7151.60'	-164.90'
7455'	66.97°	5.02°	7170.79'	-121.06'



7500

7502'

68.08°

5.45°

7188.76'

-77.81'

7550

7550'

69.31°

5.63°

7206.20'

-33.30'

7600

7597'

70.45°

5.59°

7222.36'

10.63'

7650

7645'

71.66°

5.16°

7237.95'

55.83'

7700

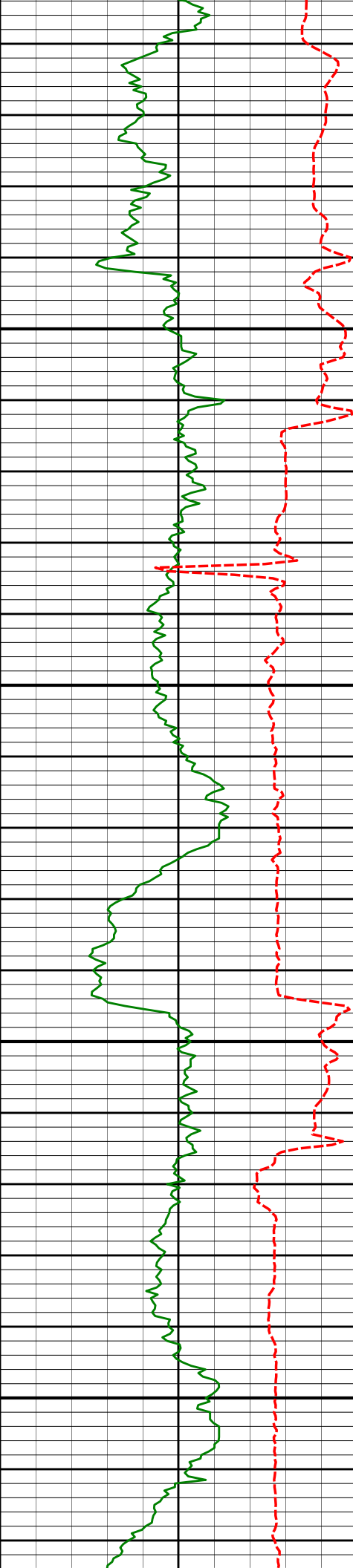
7692'

77.99°

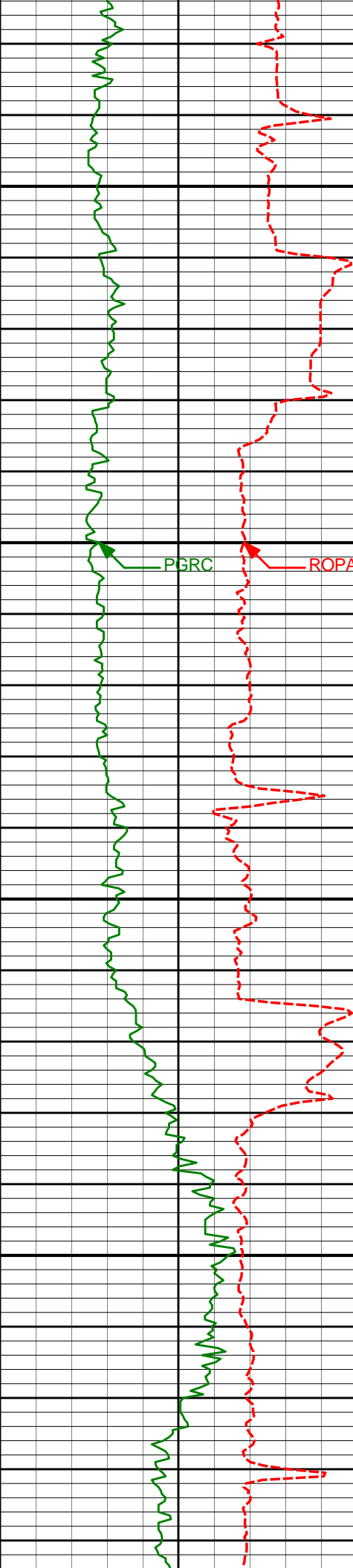
3.09°

7250.24'

101.05'



	7713'	81.24°	3.02°	7254.03'	121.68'
7" Casing Shoe @ 7713' MD / 7254.03' TVD					
7750					
Run 300					
7800	7802'	87.44°	2.91°	7262.80'	210.08'
7850					
7900	7897'	88.71°	1.67°	7265.99'	304.95'



7950

7992'

90.65°

1.00°

7266.52'

399.92'

8000

PGRC

ROPA

8050

8087'

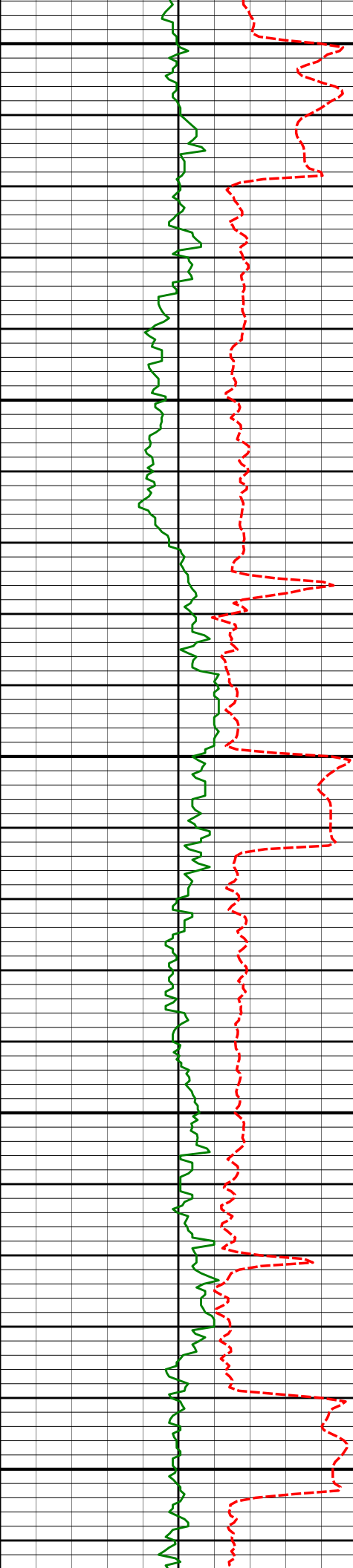
91.45°

359.58°

7264.78'

494.90'

8100



8150

8182'

91.76°

357.98°

7262.12'

589.84'

8200

8250

8277'

90.80°

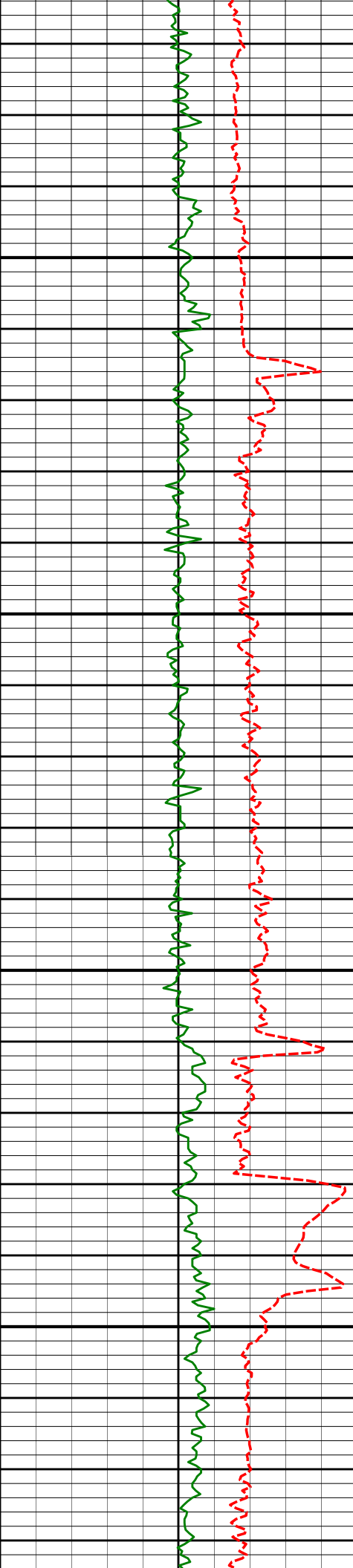
357.27°

7260.00'

684.73'

8300

8350



8400

8450

8500

8550

8372'

89.63°

358.61°

7259.64'

779.66'

8467'

89.85°

359.99°

7260.08'

874.65'

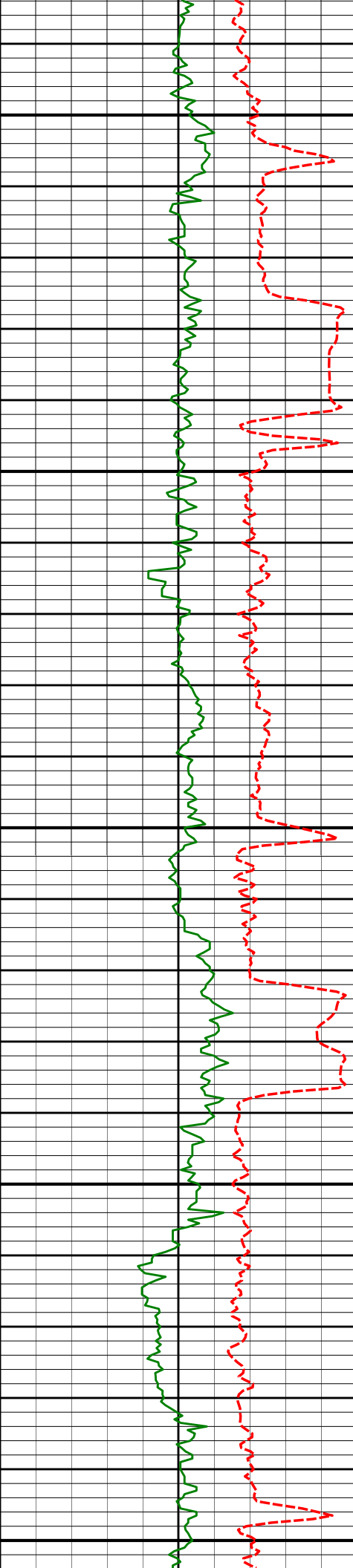
8562'

90.74°

0.93°

7259.59'

969.64'



8600

8650

8700

8750

8800

8658'

88.09°

358.06°

7260.57'

1065.62'

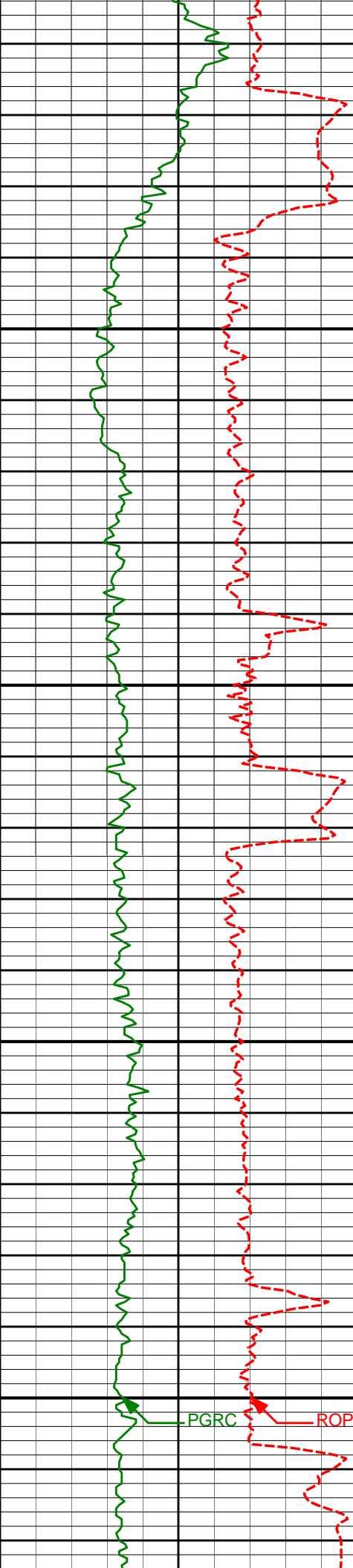
8753'

88.03°

357.07°

7263.78'

1160.47'



8850

8848'

89.29°

356.52°

7266.00'

1255.29'

8900

8950

8943'

88.61°

356.04°

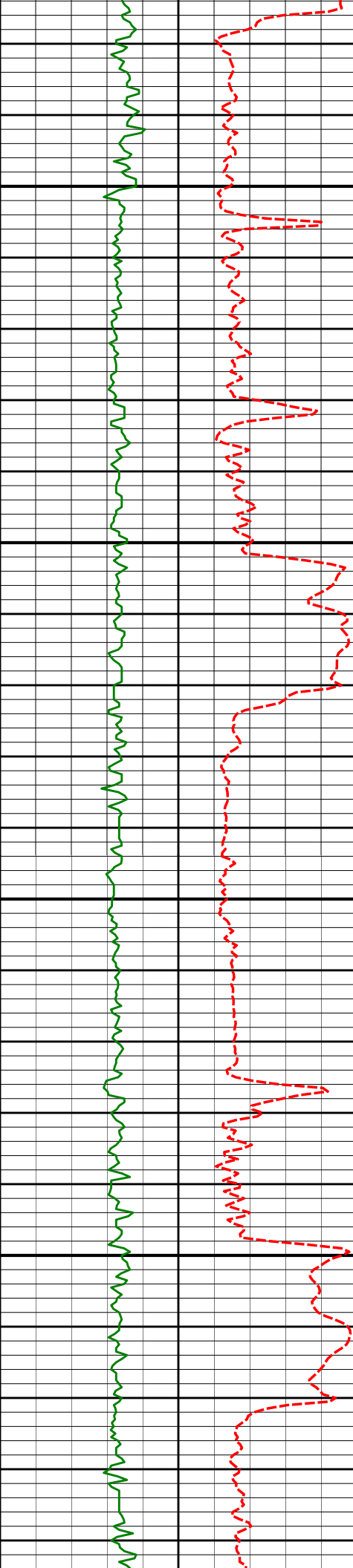
7267.75'

1350.07'

9000

PGRC

ROPA



9050

9100

9150

9200

9038'

90.52°

357.01°

7268.47'

1444.88'

9133'

90.43°

356.62°

7267.68'

1539.72'

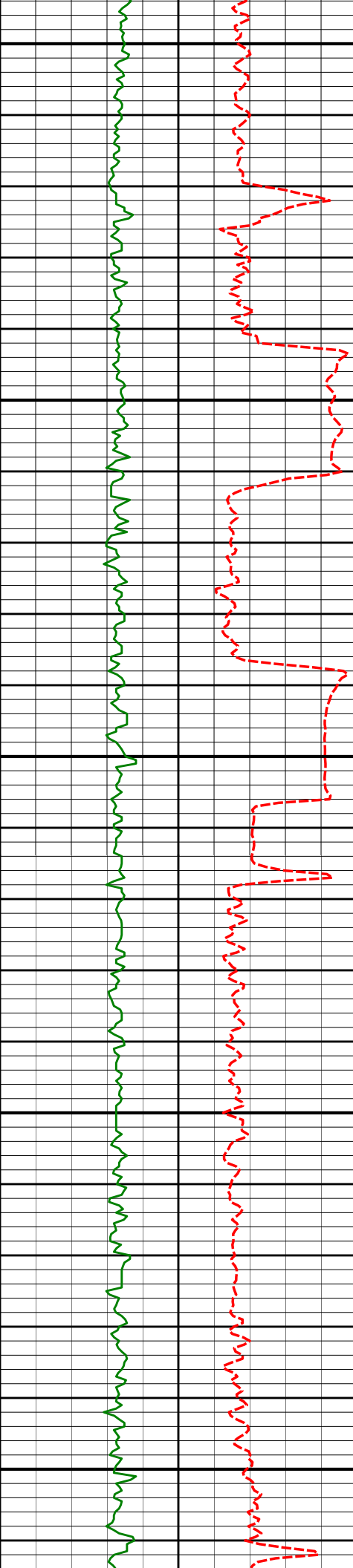
9228'

91.08°

358.00°

7266.43'

1634.60'



9250

9300

9350

9400

9450

9323'

90.77°

0.07°

7264.89'

1729.57'

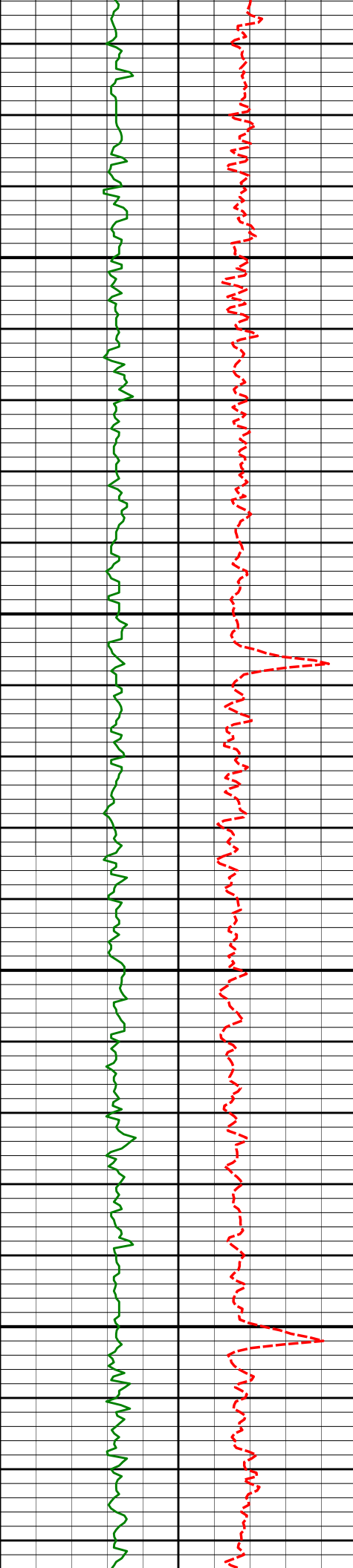
9418'

90.03°

1.09°

7264.23'

1824.56'



9500

9513'

90.49°

0.95°

7263.80'

1919.55'

9550

9600

9608'

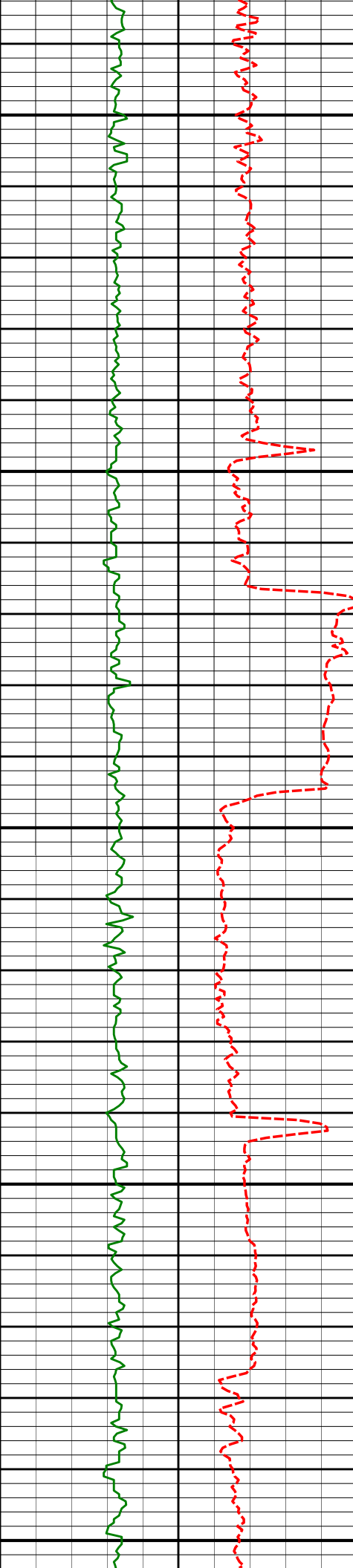
90.68°

0.36°

7262.83'

2014.54'

9650



9700

9703'

90.31°

358.90°

7262.01'

2109.53'

9750

9800

9798'

90.25°

1.03°

7261.54'

2204.52'

9850

9900

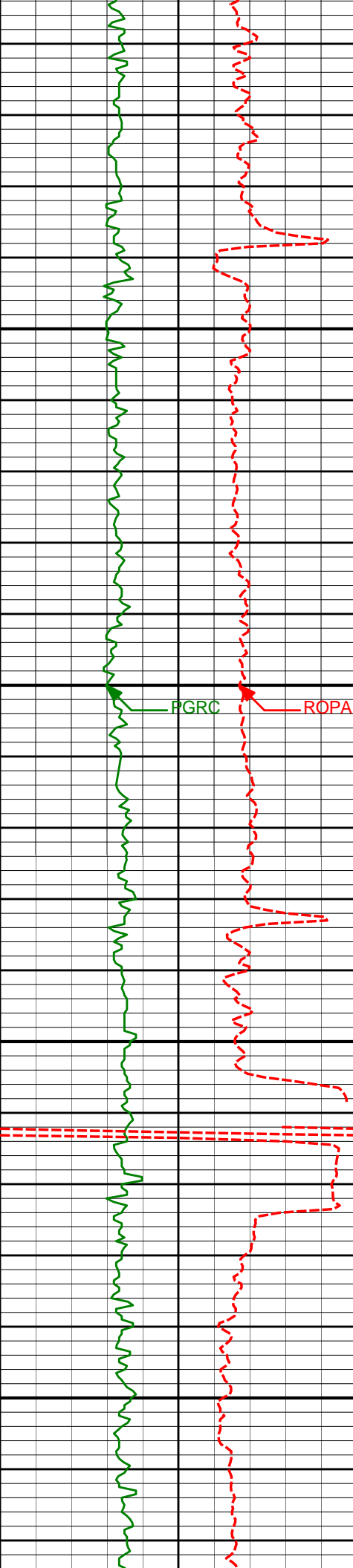
9894'

90.43°

0.59°

7260.97'

2300.51'



9950

10000

10050

10100

9989'

89.75°

359.56°

7260.82'

2395.51'

10084'

90.65°

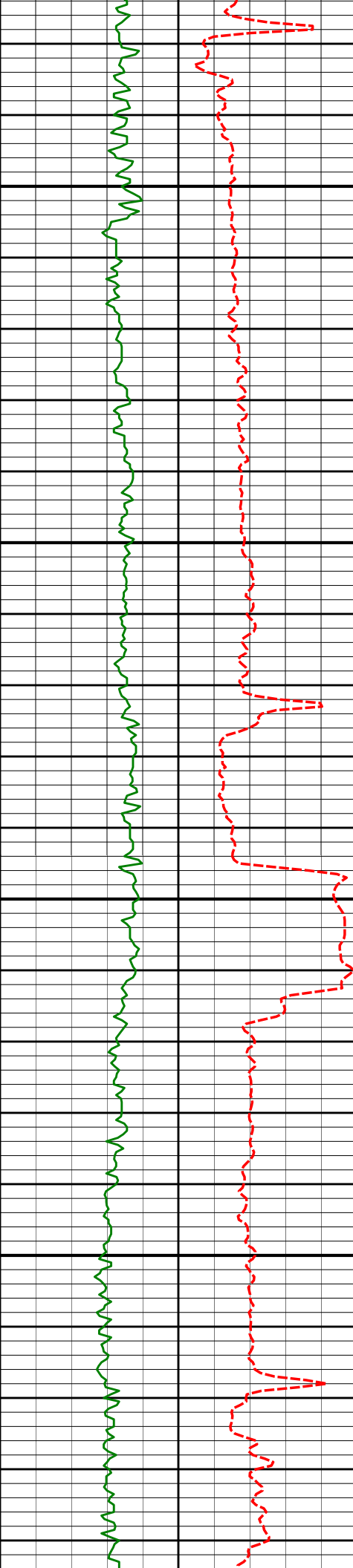
0.35°

7260.49'

2490.51'

FGRC

ROPA



10150

10179'

89.97°

0.07°

7259.98'

2585.50'

10200

10250

10274'

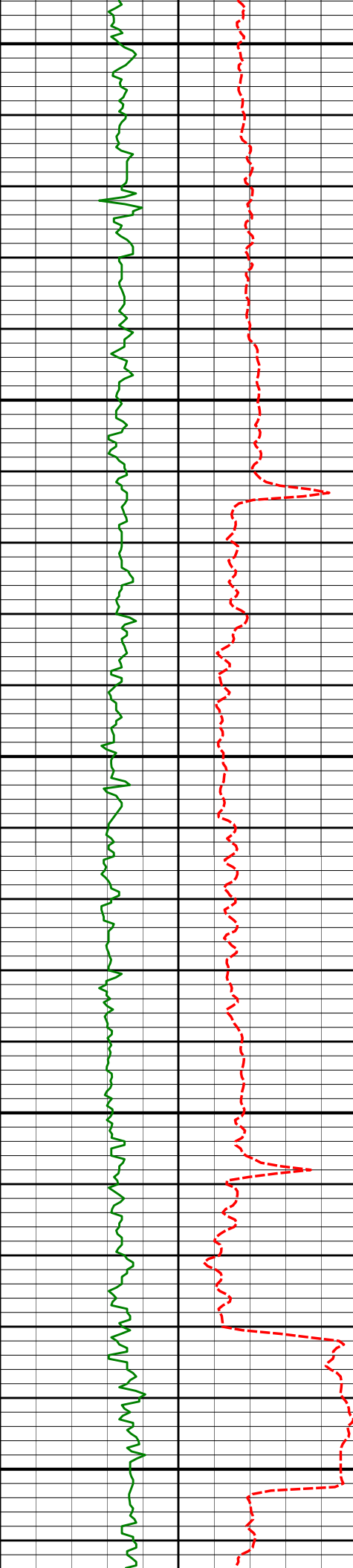
89.75°

0.75°

7260.21'

2680.50'

10300



10350

10369'

90.99°

0.27°

7259.60'

2775.49'

10400

10450

10464'

90.93°

358.51°

7258.01'

2870.47'

10500

10550

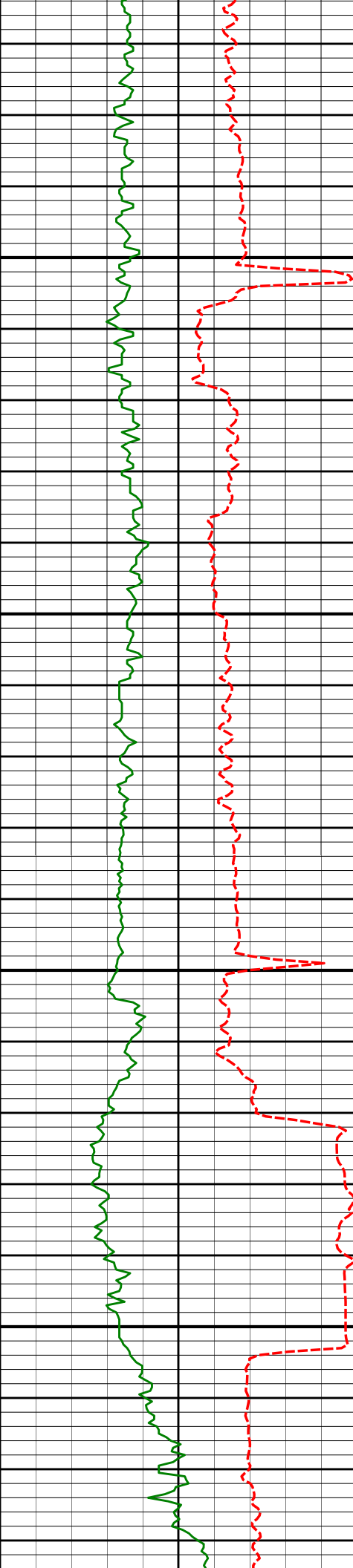
10559'

91.05°

0.31°

7256.36'

2965.45'



10600

10650

10700

10750

10654'

90.56°

358.66°

7255.03'

3060.43'

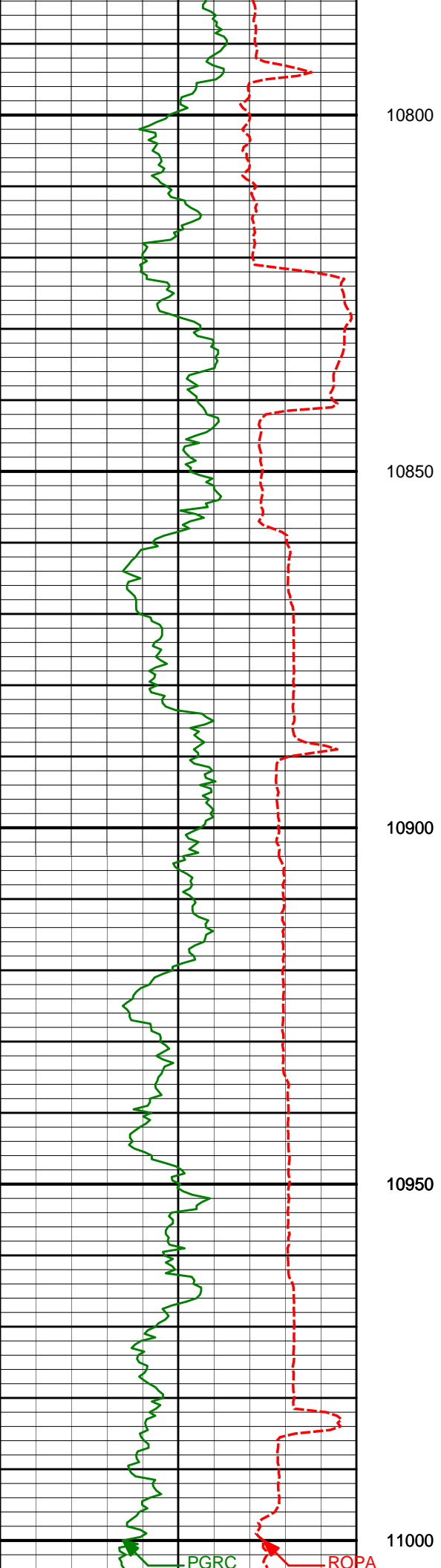
10749'

90.12°

0.99°

7254.47'

3155.42'



10800

10850

10900

10950

11000

10844'

90.43°

2.24°

7254.01'

3250.38'

10939'

89.72°

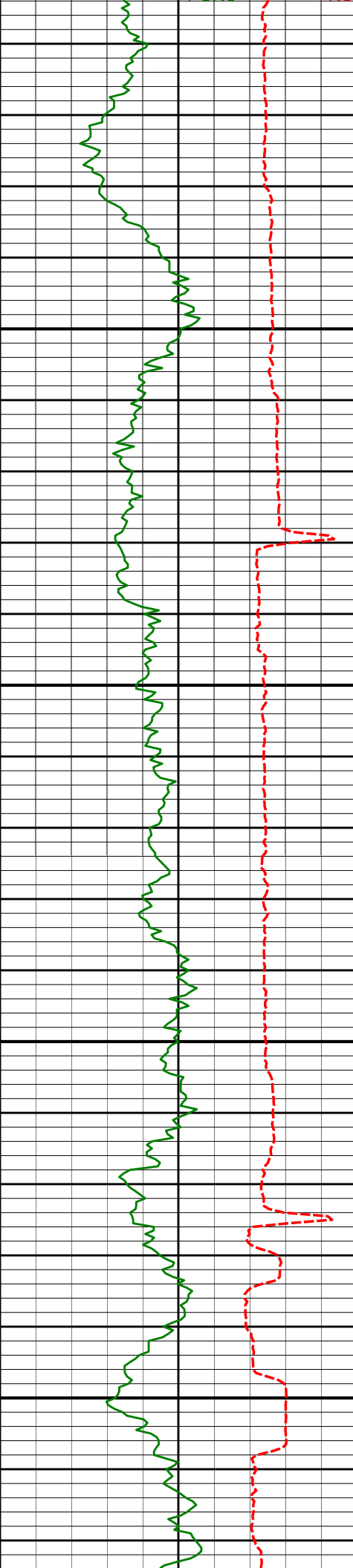
1.92°

7253.89'

3345.32'

PGRC

ROPA



11050

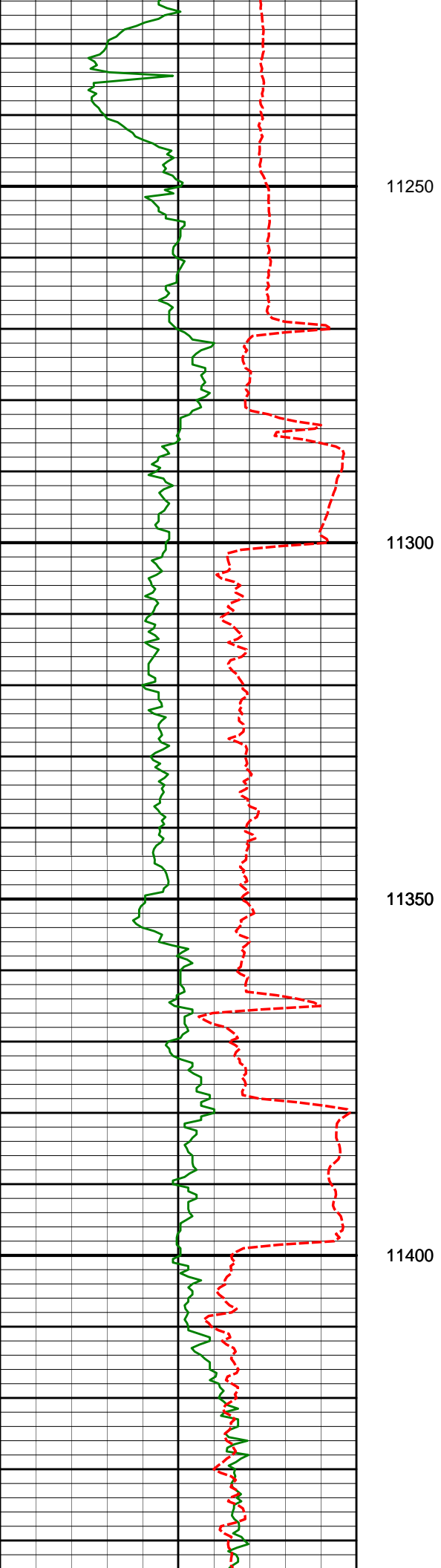
11100

11150

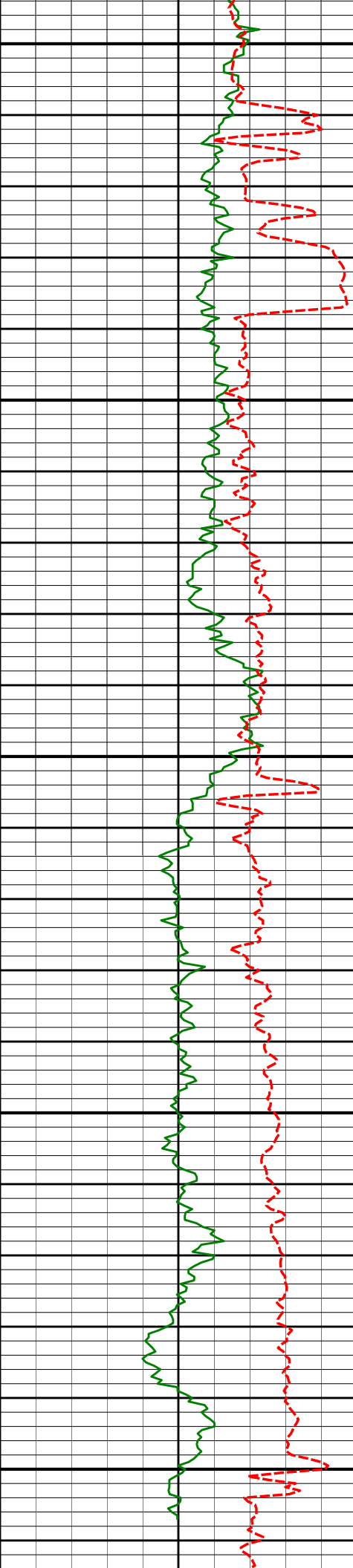
11200

11034'	89.05°	0.98°	7254.91'	3440.29'
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11129'	88.67°	0.21°	7256.80'	3535.26'
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11224	87.84	359.32	7259.69	3630.22
11320'	88.92°	359.32°	7262.40'	3726.17'
11415'	89.72°	359.71°	7263.53'	3821.16'



11450

11500

11550

11600

11650

11510'

90.12°

0.08°

7263.66'

3916.16'

11605'

89.54°

359.13°

7263.94'

4011.15'

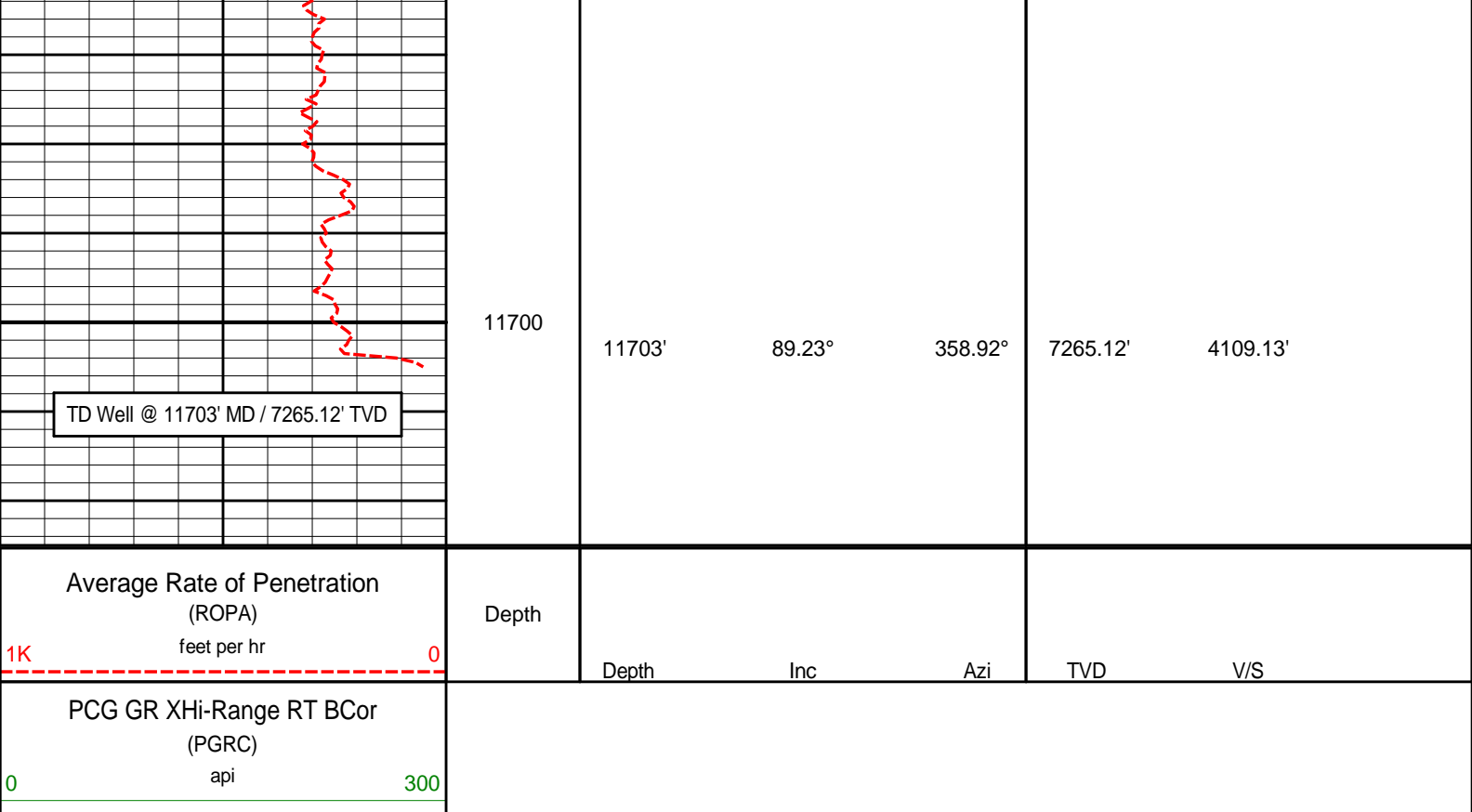
11658'

89.23°

358.92°

7264.51'

4064.14'



HALLIBURTON

DIRECTIONAL SURVEY REPORT

Anadarko Petroleum Corporation
USA Fed 28N-36HZ
Wattenberg
Weld Colorado
USA
CA-XX-0900512978

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
236.00	0.44	351.96	236.00	0.90 N	0.13 W	0.90	0.19
360.00	0.35	356.32	359.99	1.75 N	0.22 W	1.75	0.08
451.00	0.49	339.56	450.99	2.39 N	0.37 W	2.39	0.20
545.00	0.52	348.96	544.99	3.18 N	0.59 W	3.18	0.09
638.00	0.83	341.51	637.98	4.24 N	0.89 W	4.24	0.35
731.00	0.58	329.53	730.98	5.28 N	1.34 W	5.28	0.31
825.00	0.90	305.50	824.97	6.12 N	2.18 W	6.12	0.47
917.00	0.85	301.99	916.96	6.90 N	3.35 W	6.90	0.08
1066.00	0.55	331.25	1065.95	8.11 N	4.63 W	8.11	0.31
1158.00	0.56	357.05	1157.94	8.95 N	4.87 W	8.95	0.27
1250.00	0.46	345.90	1249.94	9.76 N	4.98 W	9.75	0.15
1341.00	0.50	347.90	1340.93	10.50 N	5.15 W	10.50	0.05
1433.00	0.62	346.00	1432.93	11.38 N	5.36 W	11.37	0.13
1617.00	0.65	342.14	1616.92	13.33 N	5.92 W	13.33	0.03
1708.00	0.77	346.30	1707.91	14.42 N	6.22 W	14.41	0.14
1800.00	0.91	335.43	1799.90	15.68 N	6.67 W	15.68	0.23
1891.00	0.90	326.65	1890.89	16.94 N	7.36 W	16.93	0.15
1986.00	1.19	152.29	1985.89	16.69 N	7.32 W	16.68	2.20
2081.00	3.59	138.98	2080.80	13.57 N	4.90 W	13.57	2.58
2176.00	5.65	145.37	2175.48	7.48 N	0.29 W	7.48	2.23
2272.00	7.53	141.68	2270.84	1.35 S	6.29 E	-1.34	2.01
2367.00	9.21	143.56	2364.83	12.35 S	14.67 E	-12.33	1.79
2462.00	11.00	141.60	2458.35	25.57 S	24.81 E	-25.54	1.92
2557.00	9.37	139.94	2551.85	38.59 S	35.42 E	-38.56	1.74

2652.00	10.37	144.64	2645.45	51.48 S	45.35 E	-51.44	1.35
2747.00	11.31	145.99	2738.75	66.18 S	55.51 E	-66.13	1.02
2842.00	10.80	145.92	2831.99	81.27 S	65.70 E	-81.21	0.54
2937.00	11.85	141.67	2925.14	96.30 S	76.74 E	-96.23	1.41
3032.00	13.28	139.45	3017.86	112.24 S	89.89 E	-112.16	1.59
3127.00	13.05	139.27	3110.36	128.66 S	103.98 E	-128.57	0.25
3223.00	12.76	138.73	3203.94	144.84 S	118.04 E	-144.74	0.33
3318.00	11.62	138.89	3296.80	159.93 S	131.25 E	-159.82	1.20
3413.00	11.15	140.09	3389.93	174.19 S	143.44 E	-174.06	0.55
3508.00	9.73	141.86	3483.35	187.55 S	154.29 E	-187.41	1.53
3603.00	9.09	137.52	3577.07	199.40 S	164.32 E	-199.25	1.01
3698.00	9.12	141.85	3670.88	210.85 S	174.03 E	-210.70	0.72
3793.00	10.80	145.51	3764.44	224.11 S	183.73 E	-223.95	1.89
3888.00	10.31	145.20	3857.84	238.43 S	193.62 E	-238.26	0.52
3984.00	10.98	154.73	3952.19	253.75 S	202.42 E	-253.57	1.96
4079.00	11.46	150.81	4045.38	270.17 S	210.89 E	-269.99	0.95
4174.00	11.72	150.73	4138.44	286.83 S	220.21 E	-286.63	0.27
4269.00	12.70	145.22	4231.29	303.82 S	230.88 E	-303.62	1.60
4364.00	12.30	139.69	4324.04	320.12 S	243.39 E	-319.90	1.33
4459.00	11.57	141.80	4416.99	335.32 S	255.83 E	-335.10	0.90
4554.00	9.81	141.63	4510.34	349.15 S	266.74 E	-348.92	1.85
4650.00	10.42	137.81	4604.85	362.00 S	277.65 E	-361.75	0.94
4745.00	9.38	137.35	4698.43	374.06 S	288.66 E	-373.80	1.10
4840.00	10.74	137.28	4791.97	386.25 S	299.92 E	-385.99	1.43
4935.00	11.66	138.31	4885.16	399.93 S	312.31 E	-399.65	0.99
5030.00	9.87	135.93	4978.48	412.95 S	324.35 E	-412.66	1.94
5125.00	10.15	136.82	5072.04	424.90 S	335.75 E	-424.61	0.34
5220.00	10.96	139.69	5165.43	437.89 S	347.32 E	-437.59	1.02
5315.00	10.61	141.28	5258.75	451.60 S	358.63 E	-451.29	0.48
5411.00	10.13	135.33	5353.18	464.50 S	370.09 E	-464.18	1.22
5506.00	10.17	142.54	5446.70	477.10 S	381.07 E	-476.77	1.34
5601.00	10.66	132.77	5540.14	489.73 S	392.62 E	-489.38	1.93
5696.00	10.98	132.84	5633.45	501.84 S	405.70 E	-501.49	0.34
5791.00	9.41	133.78	5726.95	513.37 S	417.95 E	-513.00	1.66
5886.00	8.36	142.06	5820.81	524.19 S	427.80 E	-523.82	1.74
5981.00	7.37	143.24	5914.92	534.52 S	435.69 E	-534.14	1.06
6076.00	6.33	138.33	6009.24	543.31 S	442.82 E	-542.93	1.26
6171.00	7.23	144.57	6103.58	552.10 S	449.77 E	-551.70	1.22
6266.00	6.78	135.33	6197.87	560.95 S	457.18 E	-560.56	1.28
6362.00	4.97	133.76	6293.36	567.86 S	464.16 E	-567.46	1.89
6457.00	4.35	133.34	6388.05	573.18 S	469.76 E	-572.77	0.65
6552.00	3.52	133.06	6482.82	577.64 S	474.51 E	-577.23	0.87
6647.00	1.90	111.04	6577.72	580.20 S	478.11 E	-579.78	2.00
6695.00	1.09	56.85	6625.70	580.24 S	479.23 E	-579.82	3.21
6742.00	5.25	4.48	6672.62	577.85 S	479.78 E	-577.43	9.93
6790.00	10.89	2.46	6720.13	571.12 S	480.14 E	-570.70	11.76
6837.00	16.34	359.54	6765.79	560.07 S	480.28 E	-559.65	11.68
6885.00	23.03	357.90	6810.96	543.91 S	479.88 E	-543.50	13.98
6932.00	28.46	359.34	6853.28	523.51 S	479.42 E	-523.10	11.63
6980.00	34.76	1.30	6894.14	498.37 S	479.60 E	-497.95	13.30
7027.00	39.54	0.12	6931.59	470.00 S	479.93 E	-469.58	10.28
7075.00	43.00	0.16	6967.66	438.34 S	480.01 E	-437.92	7.21
7122.00	46.31	358.70	7001.09	405.32 S	479.67 E	-404.90	7.37
7170.00	50.78	358.81	7032.86	369.36 S	478.89 E	-368.94	9.31
7217.00	55.66	359.99	7061.00	331.73 S	478.51 E	-331.31	10.58
7265.00	59.32	1.99	7086.79	291.27 S	479.22 E	-290.85	8.40
7312.00	61.53	3.46	7109.99	250.44 S	481.17 E	-250.02	5.43
7360.00	64.33	4.51	7131.83	207.81 S	484.14 E	-207.39	6.15
7407.00	65.91	5.01	7151.60	165.32 S	487.68 E	-164.90	3.50
7455.00	66.97	5.02	7170.79	121.49 S	491.53 E	-121.06	2.21
7502.00	68.08	5.45	7188.76	78.24 S	495.49 E	-77.81	2.51
7550.00	69.31	5.63	7206.20	33.73 S	499.81 E	-33.30	2.59
7597.00	70.45	5.59	7222.36	10.19 N	504.12 E	10.63	2.43
7645.00	71.66	5.16	7237.95	55.39 N	508.37 E	55.83	2.66
7692.00	77.99	3.09	7250.24	100.60 N	511.62 E	101.05	14.12
7713.00	81.24	3.02	7254.03	121.23 N	512.72 E	121.68	15.48
7802.00	87.44	2.91	7262.80	209.63 N	517.30 E	210.08	6.97
7897.00	88.71	1.67	7265.99	304.50 N	521.10 E	304.95	1.87
7992.00	90.65	1.00	7266.52	399.47 N	523.31 E	399.92	2.16
8087.00	91.45	359.58	7264.78	494.45 N	523.79 E	494.90	1.72
8182.00	91.76	357.98	7262.12	589.38 N	521.77 E	589.84	1.71
8277.00	90.80	357.27	7260.00	684.28 N	517.83 E	684.73	1.26
8372.00	89.63	358.61	7259.64	779.21 N	514.42 E	779.66	1.87
8467.00	89.85	359.99	7260.08	874.20 N	513.26 E	874.65	1.47
8562.00	90.74	0.93	7259.59	969.19 N	514.02 E	969.64	1.36

8658.00	88.09	358.06	7260.57	1065.17 N	513.17 E	1065.62	4.07
8753.00	88.03	357.07	7263.78	1160.03 N	509.14 E	1160.47	1.04
8848.00	89.29	356.52	7266.00	1254.85 N	503.83 E	1255.29	1.45
8943.00	88.61	356.04	7267.75	1349.63 N	497.67 E	1350.07	0.88
9038.00	90.52	357.01	7268.47	1444.45 N	491.91 E	1444.88	2.25
9133.00	90.43	356.62	7267.68	1539.30 N	486.63 E	1539.72	0.42
9228.00	91.08	358.00	7266.43	1634.18 N	482.17 E	1634.60	1.61
9323.00	90.77	0.07	7264.89	1729.15 N	480.57 E	1729.57	2.20
9418.00	90.03	1.09	7264.23	1824.14 N	481.54 E	1824.56	1.33
9513.00	90.49	0.95	7263.80	1919.13 N	483.23 E	1919.55	0.51
9608.00	90.68	0.36	7262.83	2014.12 N	484.31 E	2014.54	0.65
9703.00	90.31	358.90	7262.01	2109.11 N	483.70 E	2109.53	1.59
9798.00	90.25	1.03	7261.54	2204.10 N	483.64 E	2204.52	2.24
9894.00	90.43	0.59	7260.97	2300.09 N	485.00 E	2300.51	0.50
9989.00	89.75	359.56	7260.82	2395.09 N	485.12 E	2395.51	1.30
10084.00	90.65	0.35	7260.49	2490.08 N	485.05 E	2490.51	1.26
10179.00	89.97	0.07	7259.98	2585.08 N	485.40 E	2585.50	0.77
10274.00	89.75	0.75	7260.21	2680.08 N	486.08 E	2680.50	0.75
10369.00	90.99	0.27	7259.60	2775.07 N	486.92 E	2775.49	1.40
10464.00	90.93	358.51	7258.01	2870.05 N	485.91 E	2870.47	1.85
10559.00	91.05	0.31	7256.36	2965.03 N	484.93 E	2965.45	1.90
10654.00	90.56	358.66	7255.03	3060.01 N	484.08 E	3060.43	1.81
10749.00	90.12	0.99	7254.47	3155.00 N	483.79 E	3155.42	2.50
10844.00	90.43	2.24	7254.01	3249.96 N	486.47 E	3250.38	1.36
10939.00	89.72	1.92	7253.89	3344.90 N	489.91 E	3345.32	0.82
11034.00	89.05	0.98	7254.91	3439.86 N	492.32 E	3440.29	1.22
11129.00	88.67	0.21	7256.80	3534.83 N	493.30 E	3535.26	0.90
11224.00	87.84	359.52	7259.69	3629.79 N	493.08 E	3630.22	1.14
11320.00	88.92	359.32	7262.40	3725.74 N	492.11 E	3726.17	1.14
11415.00	89.72	359.71	7263.53	3820.73 N	491.30 E	3821.16	0.94
11510.00	90.12	0.08	7263.66	3915.73 N	491.13 E	3916.16	0.57
11605.00	89.54	359.13	7263.94	4010.73 N	490.48 E	4011.15	1.17
11658.00	89.23	358.92	7264.51	4063.72 N	489.57 E	4064.14	0.71
11703.00	89.23	358.92	7265.12	4108.70 N	488.73 E	4109.13	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 0.05 DEGREES (TRUE)
A TOTAL CORRECTION OF 8.57 DEG FROM MAGNETIC NORTH TO TRUE NORTH HAS BEEN APPLIED**

**HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.
HORIZONTAL DISPLACEMENT(CLOSURE) AT 11703.00 FEET
IS 4137.67 FEET ALONG 6.78 DEGREES (TRUE)**

All directional surveys tied to surface. Final survey is a straight-line projection to the bit.