



MWD

**EWR Electromagnetic Wave Resistivity
DGR Dual Gamma Ray
SLD Stabilized Litho-Density
CNP Compensated Neutron Porosity
ACAL Acoustic Caliper
BAT Bi-Modal Acoustic Tool**

Country		: Australia	
Field		: Exploration	
Location		Lat: 38° 6' 11.89" South Long: 148° 19' 0.92" East	
Well		: Longtom-2	
Company		: Apache Energy Ltd	
Rig		: Ocean Patriot	
LOCATION		Other Services	
Latitude : 38° 6' 11.89" South Longitude : 148° 19' 0.92" East		Surface Data Logging	
UTM Easting = 615,462.43 m UTM Northing = 5,781,904.33 m			
Permanent Datum : AHD		Elev. KB	
Log Measured From : Drill Floor		DF 21.50 m	
Drilling Measured From : Drill Floor		GL WD 56.80 m	
MD LOG			
Depth Logged : 111.00 m To 2,422.00 m		Unit No. : 174	
Date Logged : 12-Nov-04 To 20-Nov-04		Job No. : AU-FE-000329847	
Total Depth MD : 2,422.00 m TVD: 2,406.63 m		Plot Type : Final	
Spud Date : 09-Nov-04		Plot Date : 22-Mar-05	
Run No.	Borehole Record (MD)		To
	Size	From	
2	311,000 mm	111.00 m	1,009.00 m
3	216,000 mm	1,009.00 m	2,312.00 m
4	216,000 mm	2,312.00 m	2,422.00 m
	Casing Record (MD)		To
	Size	Weight	
	508,000 mm	198.00 kgpm	SURFACE 109.90 m
	340,000 mm	101.00 kgpm	SURFACE 995.30 m
	178,000 mm	43.00 kgpm	877.00 m 2,420.00 m

WELL INFORMATION

MWD Run Number	100	200	300		
Date run completed	12-Nov-04	18-Nov-04	20-Nov-04		
Rig Bit Number	2	3	4		
Bit Size (mm)	311	216	216		
Tool Nominal OD (mm)	203	171	171		
Log Start Depth (MD, m)	111.00	1,009.00	2,312.00		
Log End Depth (MD, m)	1,009.00	2,312.00	2,422.00		
Drill or Wipe	Drilling	Drilling	Drilling		
Drill/Wipe Start Date and Time	11-Nov-04 12:45	14-Nov-04 23:23	18-Nov-04 17:05		
Drill/Wipe End Date and Time	12-Nov-04 04:45	16-Nov-04 17:00	19-Nov-04 15:00		
Min Inc (deg) @ Depth (MD, m)	0.25 @ 795.70	1.38 @ 1,025.79	11.96 @ 2,376.11		
Max Inc (deg) @ Depth (MD, m)	1.07 @ 968.35	13.75 @ 2,232.27	13.36 @ 2,292.01		
Bit TFA(in2) / Bit Type	0.79 / Hycalog PDC	0.57 / REED PDC	0.59 / Security MR6520		
Flow Rate (gpm)	910	550	550		
Max AV (mpm) / CV (mpm) @ MWD	73.8 / 13.2	168.0 / 129.0	154.3 / 117.6		
Fluid Type	Sea Water	KCl/Idecap	KCl/Idecap		
Density (sg) / Viscosity (spl)	1.0 / 1.06	1.3 / 47.00	1.4 / 45.00		
Filtrate CL (ppm)	42,000	48,000	54,000		
pH / Fluid Loss (cptm)	8.00 / 2.0	8.70 / 4.2	9.00 / 4.8		
PV (cp) / YP (pa)	20 / 0.5	19 / 10.50	21 / 16.50		
% Solids / % Sand	9 / N/A	11 / 0.4	16 / 0.65		
% Oil / Oil:Water Ratio	N/A / N/A:91	N/A / N/A:89	N/A / N/A:84		
Rm @ Measured Temp (degC)	N/A @ N/A	0.10 @ 28.00	0.11 @ 23.30		
Rmf @ Measured Temp (degC)	N/A @ N/A	0.08 @ 28.00	0.10 @ 20.00		
Rmc @ Measured Temp (degC)	N/A @ N/A	0.15 @ 28.00	0.40 @ 24.50		
Max Tool Temp (degC) / Source	26.00 / EWR-P4	99.00 / EWR-P4	90.00 / EWR-P4		
Rm @ Max Tool Temp (degC)	N/A @ 26.00	0.04 @ 99.00	0.04 @ 90.00		
Lead MWD Engineer	T.Oborne	T.Oborne	T.Oborne		
Customer Representative	H.Everhart	H.Everhart	H.Everhart		

SENSOR INFORMATION

Downhole Processor Information					
Tool Type	HCIM	HCIM	HCIM		
Software Version	67.88	67.88	67.88		
Sub Serial Number	198840	197929	197929		
Insert Serial Number	132884	161828	161828		
Logging String Serial Number	62057XHGV8	62270XH1NRGV6	62270XH1NRGV6		
Date and Time Initialized	11-Nov-04 09:40	14-Nov-04 08:42	18-Nov-04 06:54		
Date and Time Read	12-Nov-04 09:57:27	18-Nov-04 04:38:00	20-Nov-04 03:45:19		

Directional Sensor Information					
Tool Type	PM	PM	PM		
Distance From Bit (m)	30.19	33.62	25.28		
Software Version	1.08	1.08	1.08		
Sub Serial Number	111363	194447	194447		
Sonde Serial Number	134019	175717	175717		
Sensor ID Number	182591	149865	44645		
Survey String Serial Number	DM90061055M8	DM90062415M6	DM90062415M6		
Toolface Offset (deg)	N/A	N/A	N/A		

Gamma Ray Sensor Information					
Tool Type	DGR	DGR	DGR		
Distance From Bit (m)	17.71	11.49	3.15		
Recorded Sample Period (sec)	12	12	12		
Software Version	N/A	N/A	N/A		
Sub Serial Number	10505993	1	1		
Insert/Sonde Serial Number	172498	53520	53520		

Resistivity Sensor Information					
Tool Type	EWR-P4	EWR-P4	EWR-P4		
Distance From Bit (m)	14.68	17.54	9.20		
Recorded Sample Period (sec)	12	12	12		
Software Version	1.38	1.38	1.38		
Sub Serial Number	174309	60579	60579		
Receiver Insert Serial Number	123481	99881	99881		
Transmitter Insert Serial Number	159149	144695	144695		
Receiver Orientation	Down	Down	Down		

Neutron Sensor Information					
Tool Type		CNP	CNP		
Distance From Bit (m)		20.52	12.18		
Recorded Sample Period (sec)		12	12		
Sub Serial Number		177933	177933		
Insert Serial Number		87644	87644		
Source Serial Number		4070NK	4070NK		
Source Factor		1.1400	1.1400		
Pin Orientation		Down	Down		

Density Sensor Information					
Tool Type		SLD	SLD		
Distance From Bit (m)		14.79	6.45		
Recorded Sample Period (sec)		14	14		
Software Version		11.00	11.00		
Sub Serial Number		121000	121000		
Insert Serial Number		77135	77135		
Sensor ID Number		324	324		
Source Serial Number		3085GW	3085GW		
Pin Orientation		Up	Up		
Stabilizer Blade O.D. (mm)		209.550	209.550		
DPA Offset		N/A	N/A		

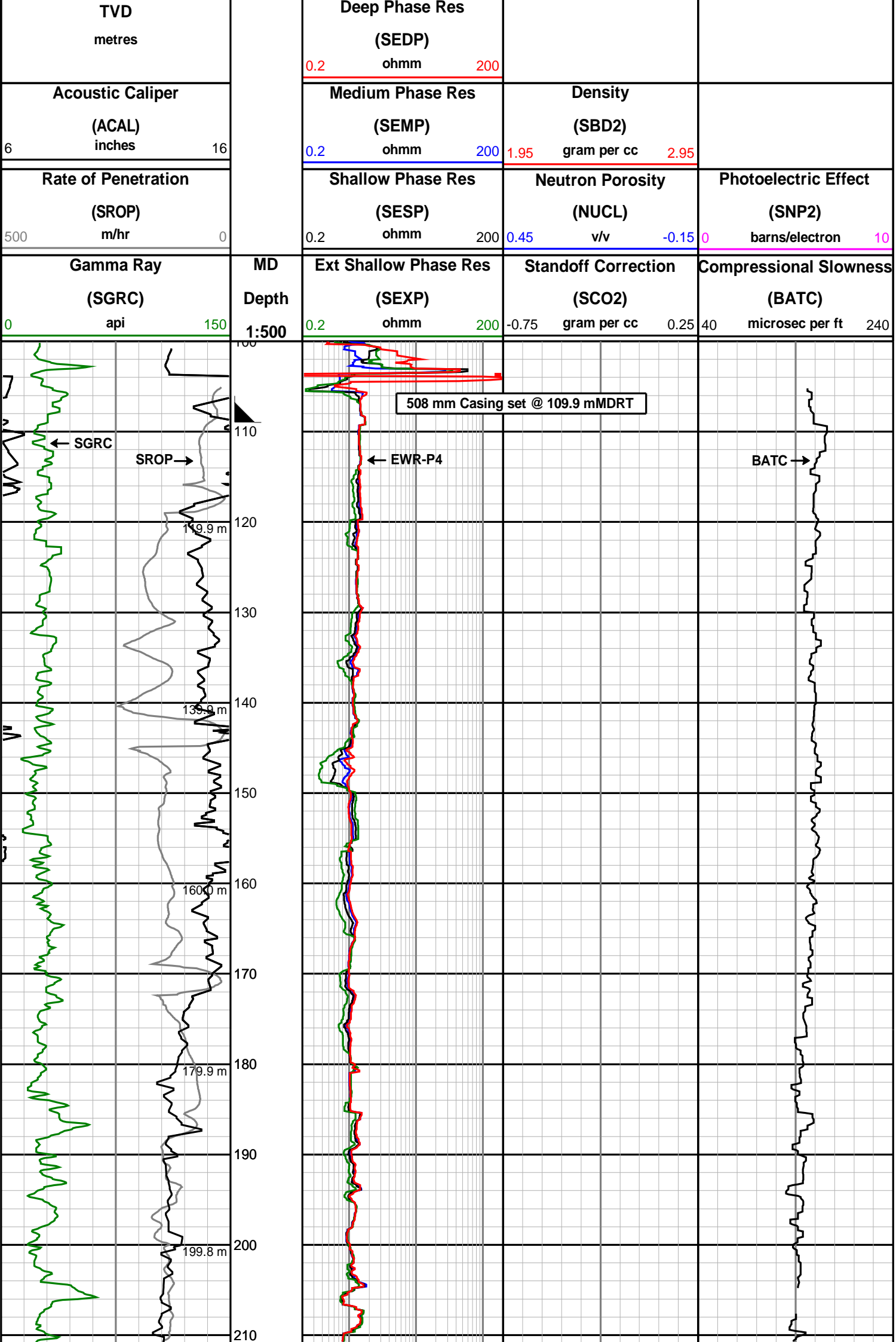
Caliper Sensor Information					
Tool Type	ACAL	ACAL	ACAL		

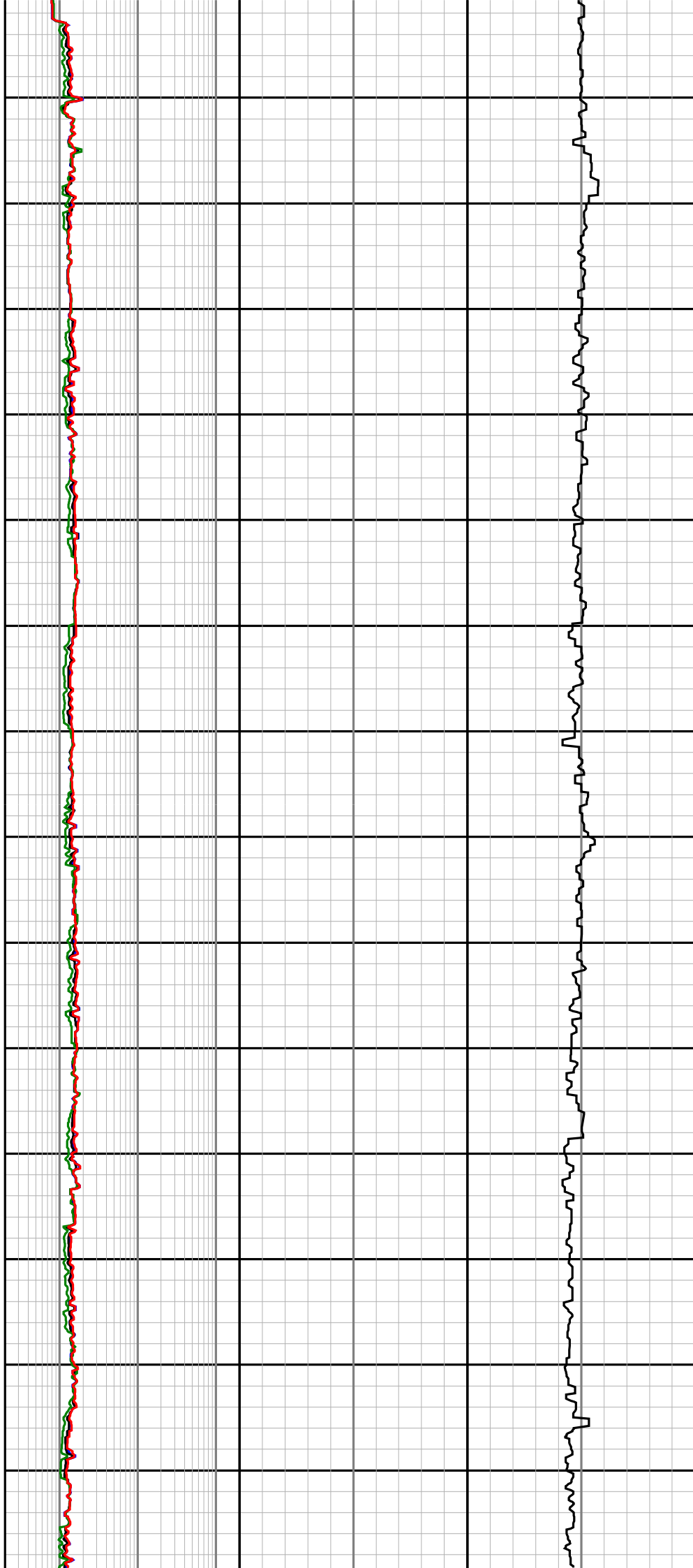
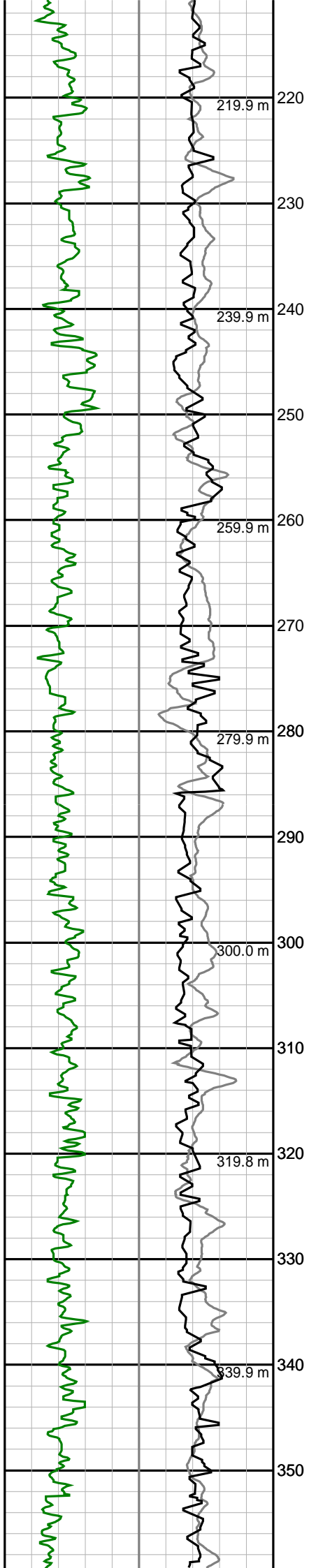
Distance From Bit (m)	27.26	30.70	22.36		
Software Version	2.05	2.05	2.05		
Sub Serial Number	165483	138157	138157		
Insert Serial Number	141729	113417	113417		

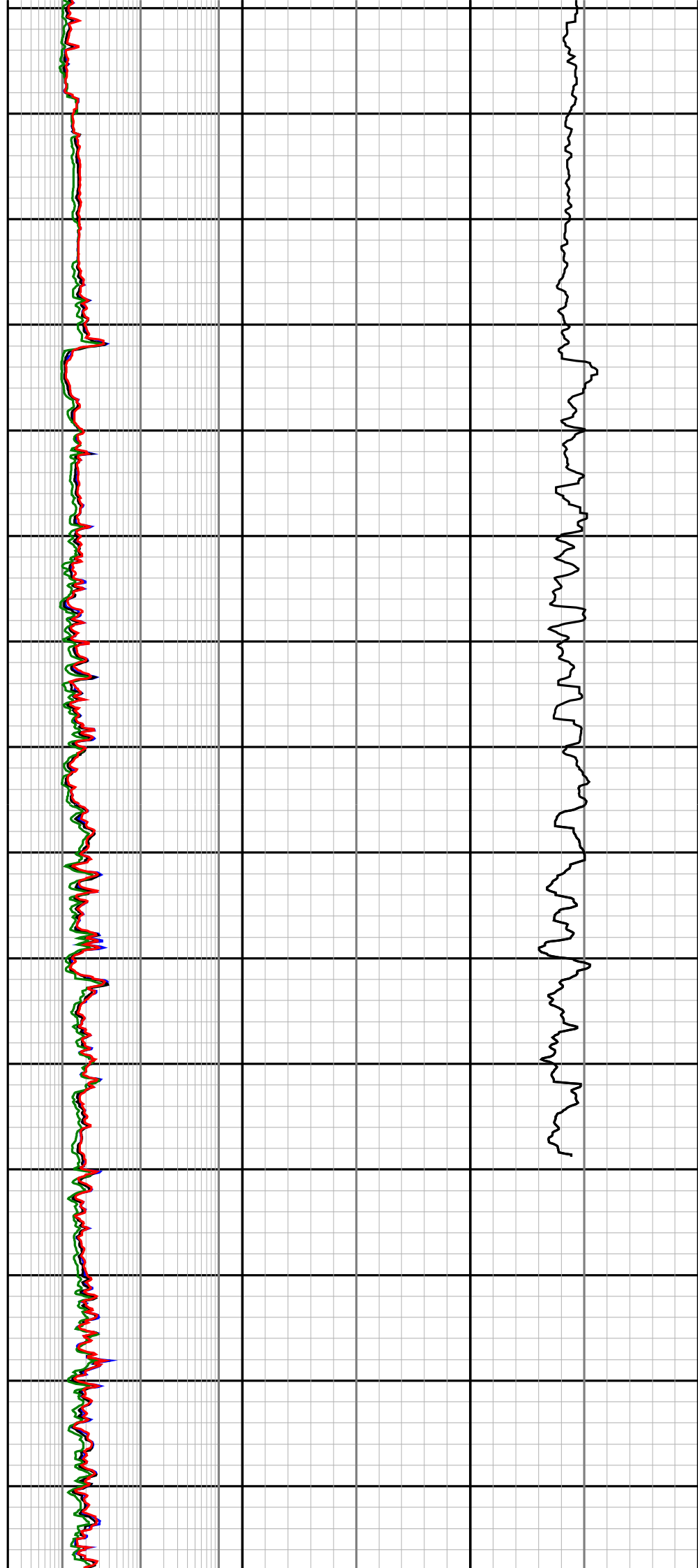
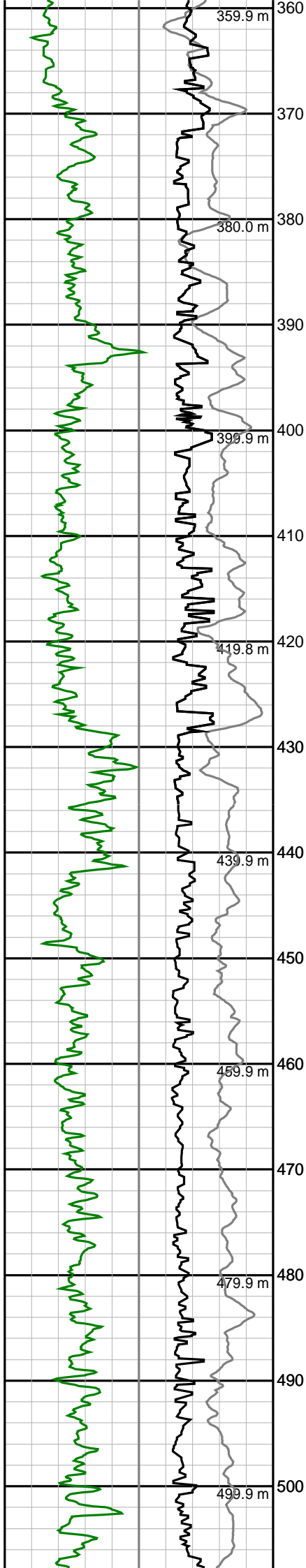
Sonic Sensor Information					
Tool Type	BAT	BAT	BAT		
Distance From Bit (m)	23.06	26.91	18.57		
Recorded Sample Period (sec)	18	18	18		
Software Version	4.00	4.00	4.00		
Sub Serial Number	144401	132327	132327		
Receiver Insert Serial Number	136555	161198	161198		
Transmitter Insert Serial Number	143996	116793	116793		

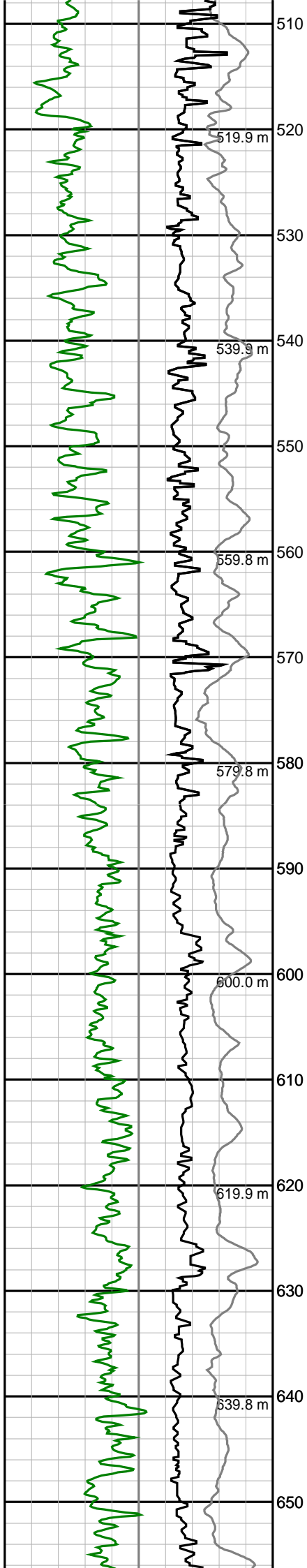
REMARKS	
<p>1. All depths are bit depths and referenced to the drillers pipe tally.</p> <p>2. AV/CV is calculated at the MWD collar using the Powers Law for water based muds and the Bingham's Plastic Law for oil based muds.</p> <p>3. Curve mnemonics are: SGRC - Smoothed Gamma Ray Combined, api SEXP - Smoothed Extra Shallow Phase Resistivity, ohm-m SESP - Smoothed Shallow Phase Resistivity, ohm-m SEMP - Smoothed Medium Phase Resistivity, ohm-m SEDP - Smoothed Deep Phase Resistivity, ohm-m SROP - Smoothed Rate of Penetration, m/hr ACAL - Acoustic Caliper, inches BATC - Bi-Modal Acoustic Compressional Slowness, usec/ft SBD2 - Smoothed Best Bin Bulk Density Compensated, g/cc SCO2 - Smoothed Best Bin Stand-off Correction, g/cc SNP2 - Smoothed Best Bin Near Photoelectric Effect, b/e NUCL - Smoothed Porosity (Limestone Matrix) corrected for Salinity, Temperature and Pressure, v/v STEM - Smoothed Medium Phase Resistivity Temperature, degC</p> <p>4. CNP data processed using the CNP-E algorithm using the following parameters and is based on a Limestone Matrix: MW = 1.25 - 1.40 sg Formation Salinity = 25000 ppm, Cl Mud Salinity = 43000 - 54000 ppm, Cl Matrix Density = 2.71 g/cc Fluid Density = 1.00 g/cc</p> <p>5. CNP data has been reprocessed using data from the Caliper (ACAL) tool for borehole diameter.</p> <p>6. Surface depth tracking system damaged.</p> <p>7. Gap in density data due to intermittent problems with density (SLD) tool.</p> <p>8. Density (SLD) tool failed while running in hole prior to Run 300.</p> <p>9. Gaps in compressional slowness (BATC) data due to weak signal.</p> <p>10. Repeat sections from 2100.0 to 2160.0 and 2210 to 2300 mMDRT @ 18:20 to 21:38 16-Nov-04 was wiped while pulling out of hole with no rotary and no pumps after LWD Run 200.</p>	

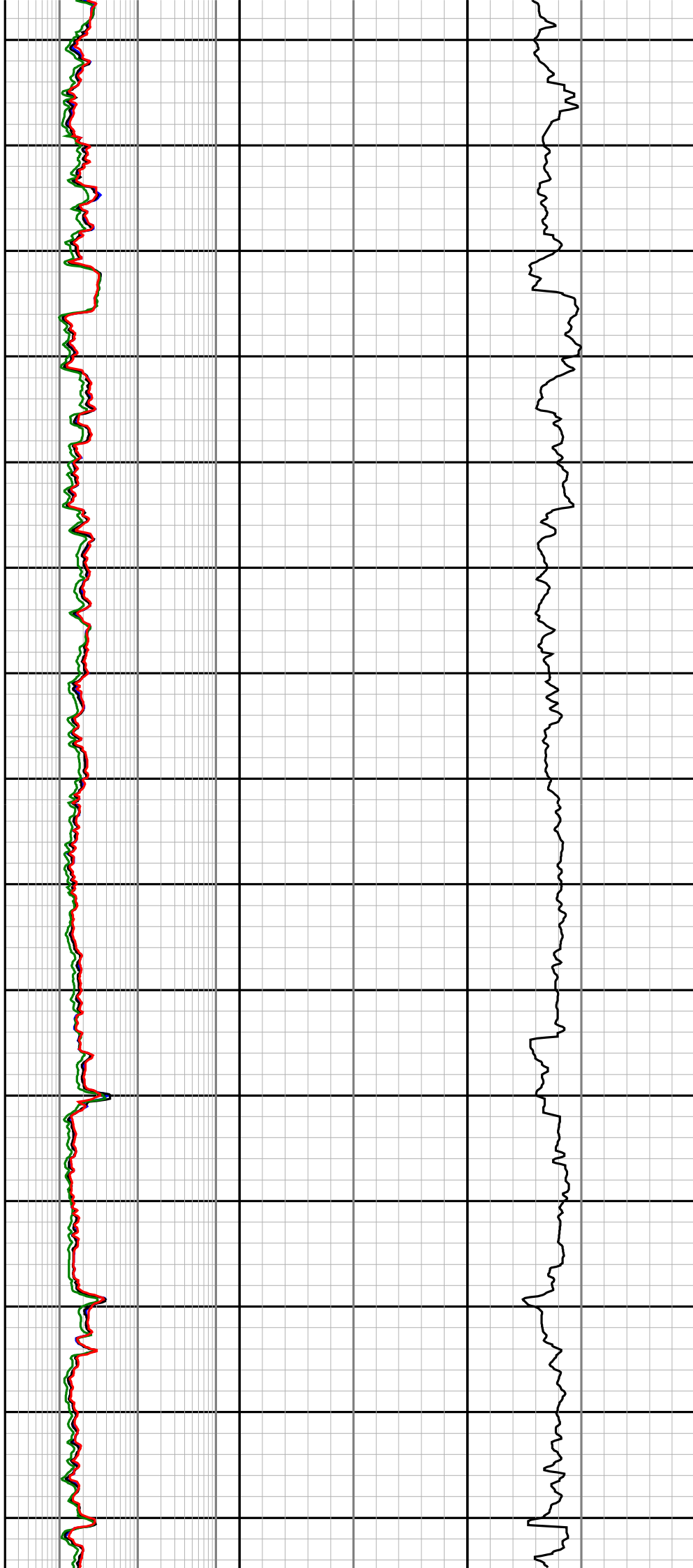
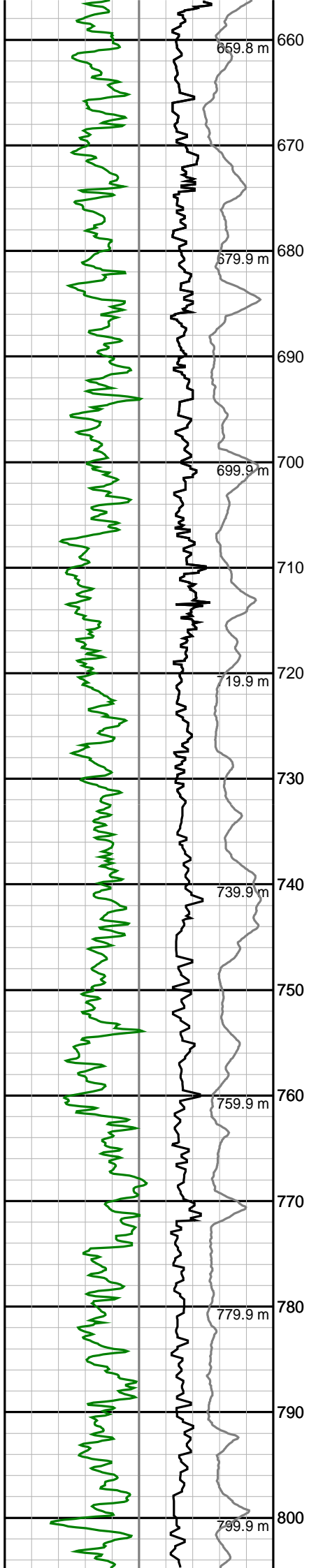
WARRANTY	
<p>HALLIBURTON ENERGY SERVICES (HES) WILL USE ITS BEST EFFORTS TO FURNISH CUSTOMERS WITH ACCURATE INFORMATION AND INTERPRETATIONS THAT ARE PART OF, AND INCIDENT TO, THE SERVICES PROVIDED. HOWEVER, HES CANNOT AND DOES NOT WARRANT THE ACCURACY OR CORRECTNESS OF SUCH INFORMATION AND INTERPRETATIONS. 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. HES 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 HES 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 HES.</p>	

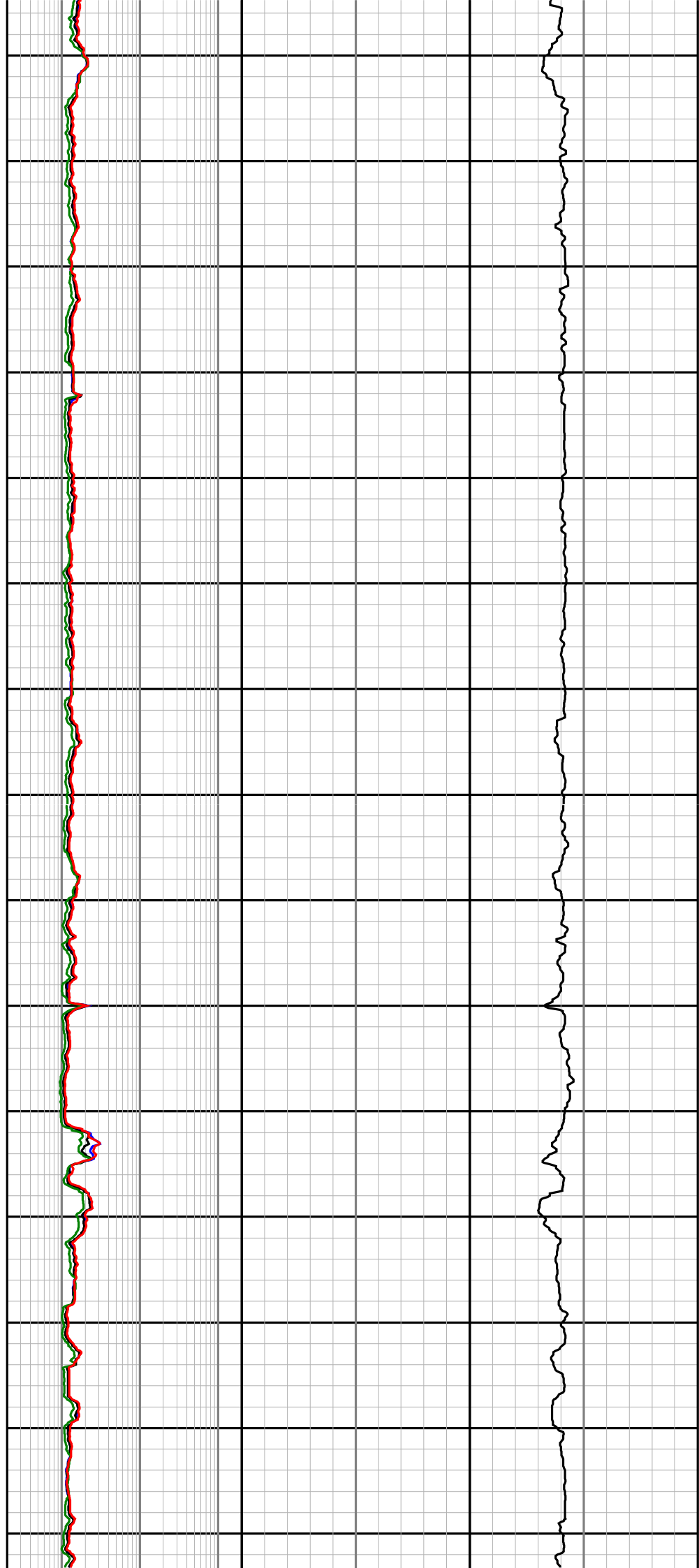
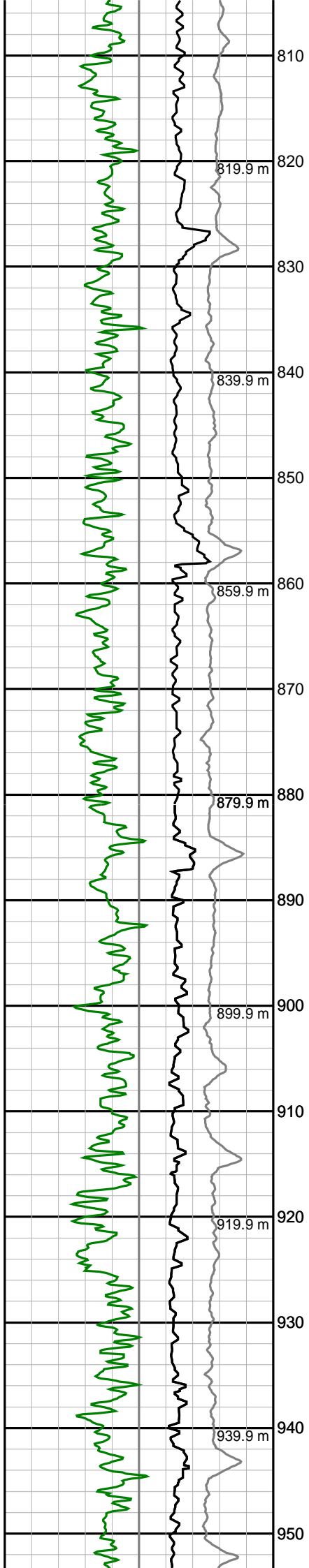


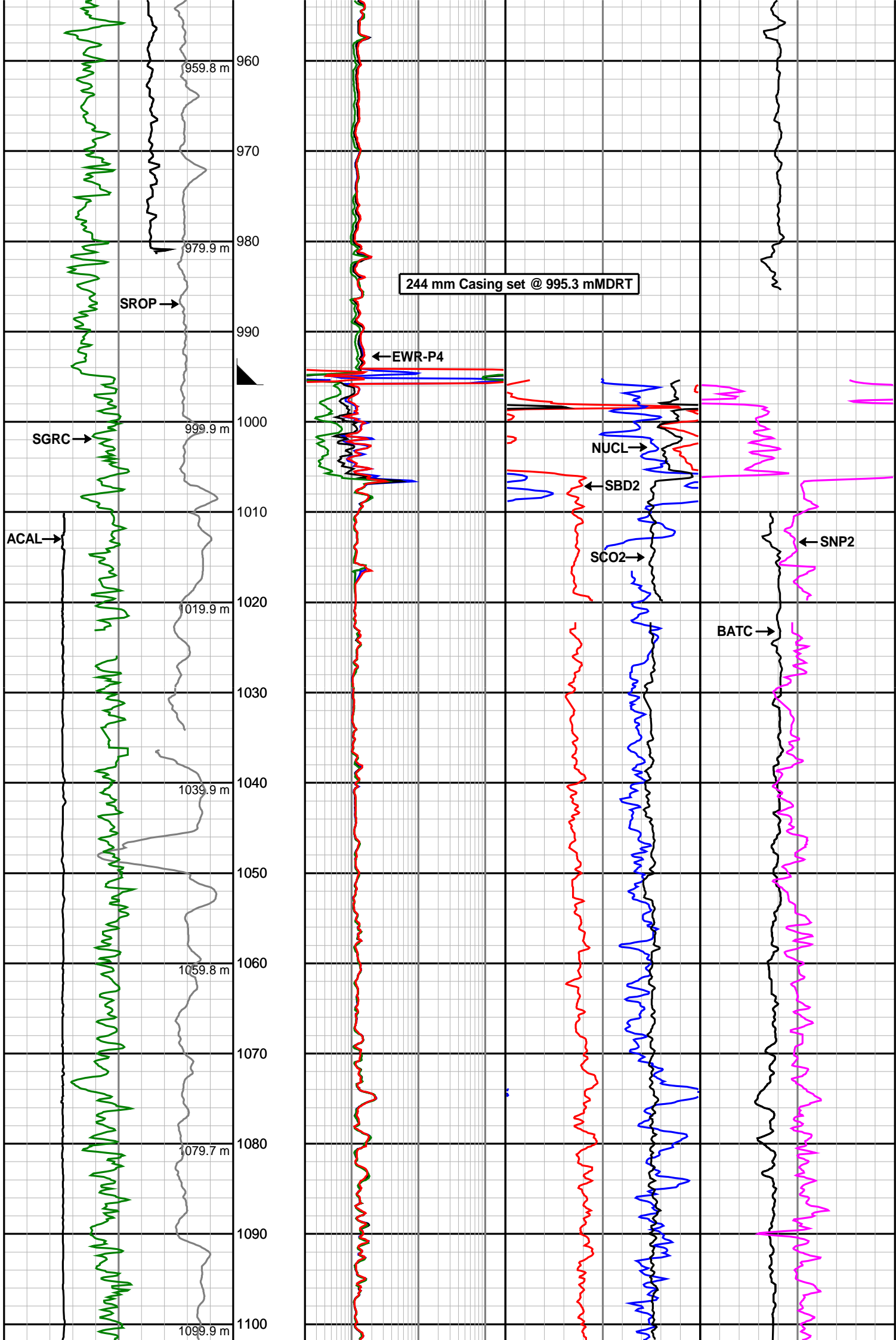


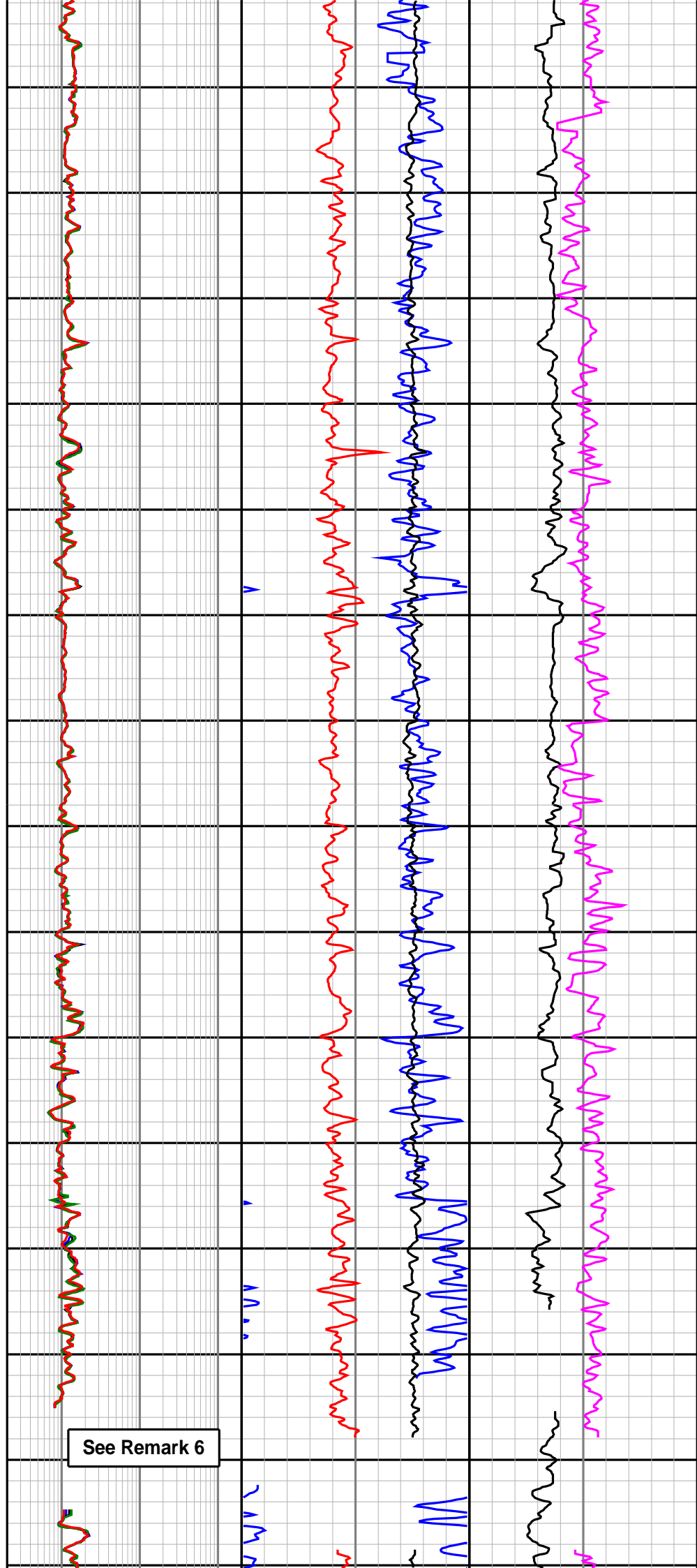
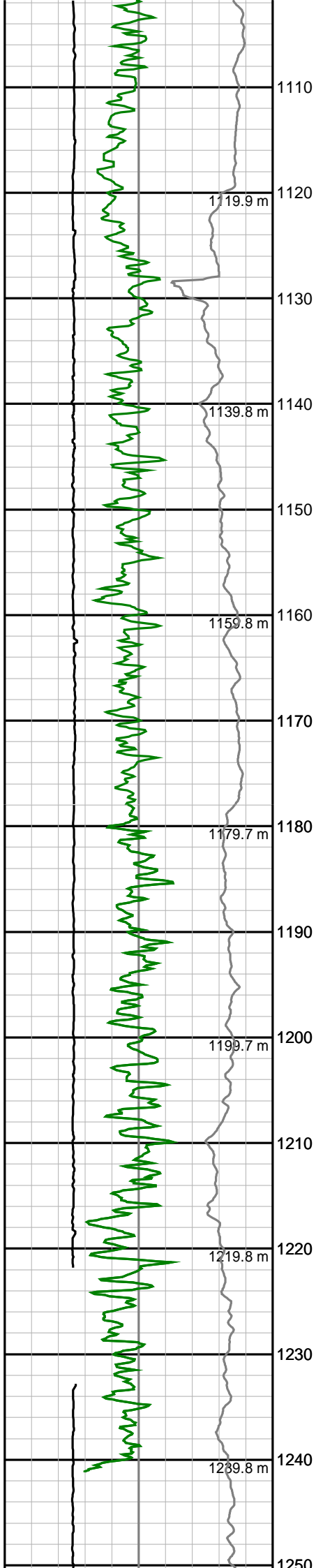


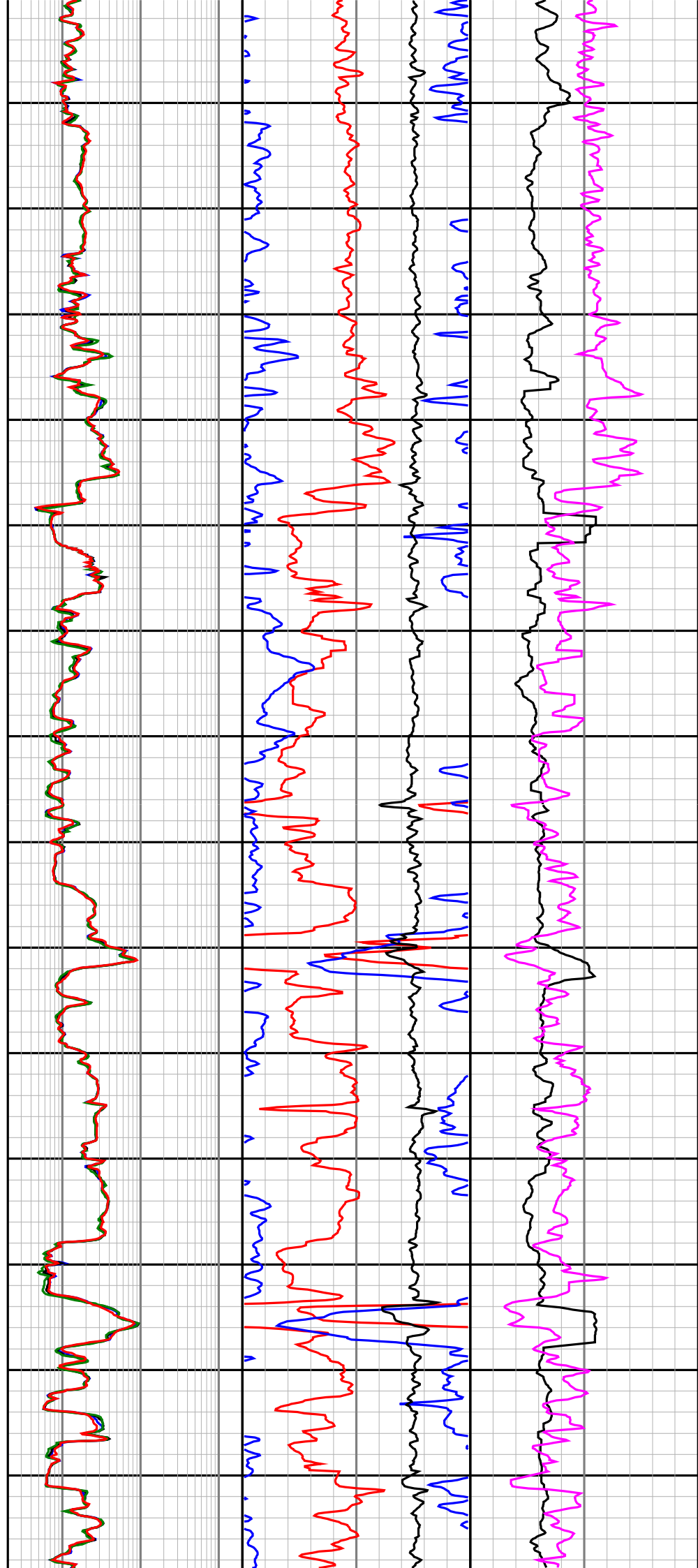
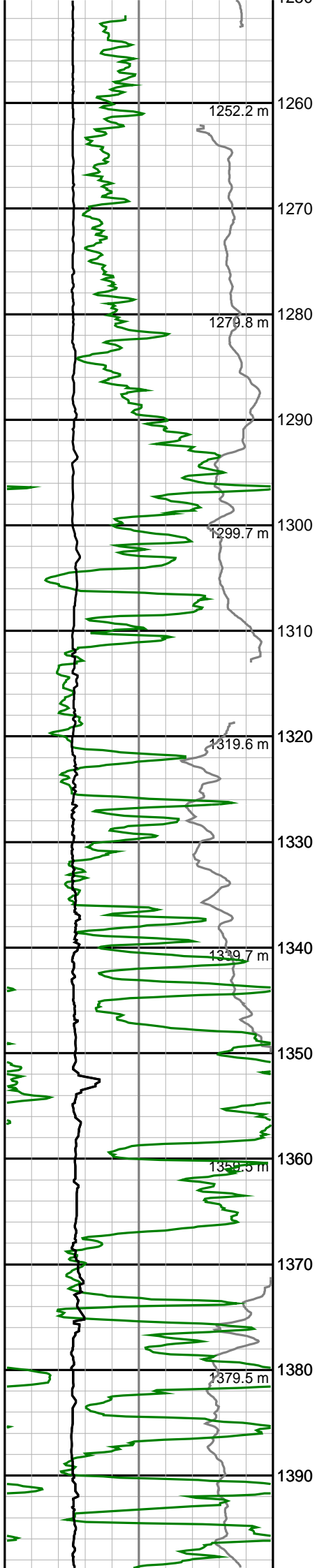


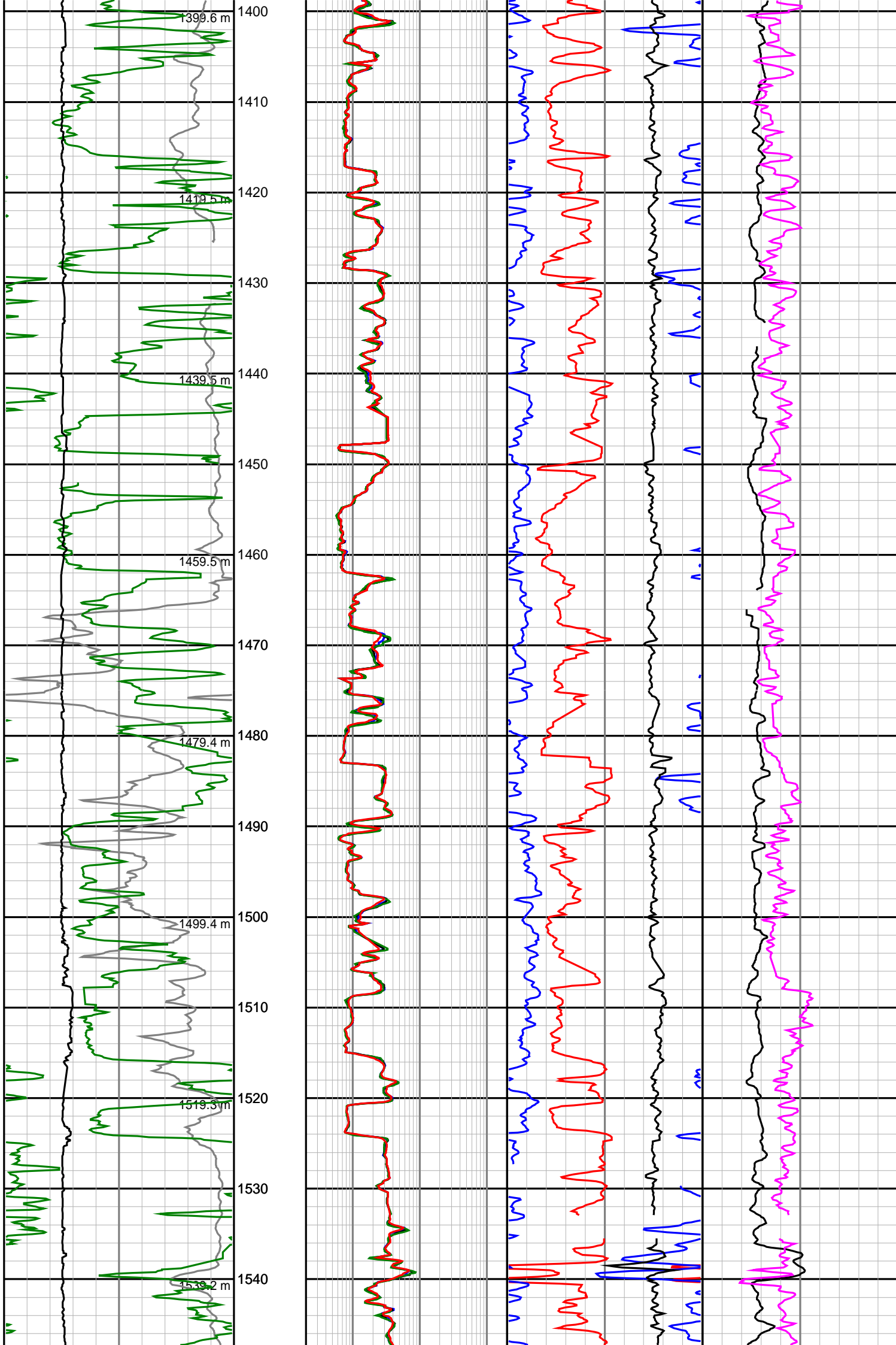


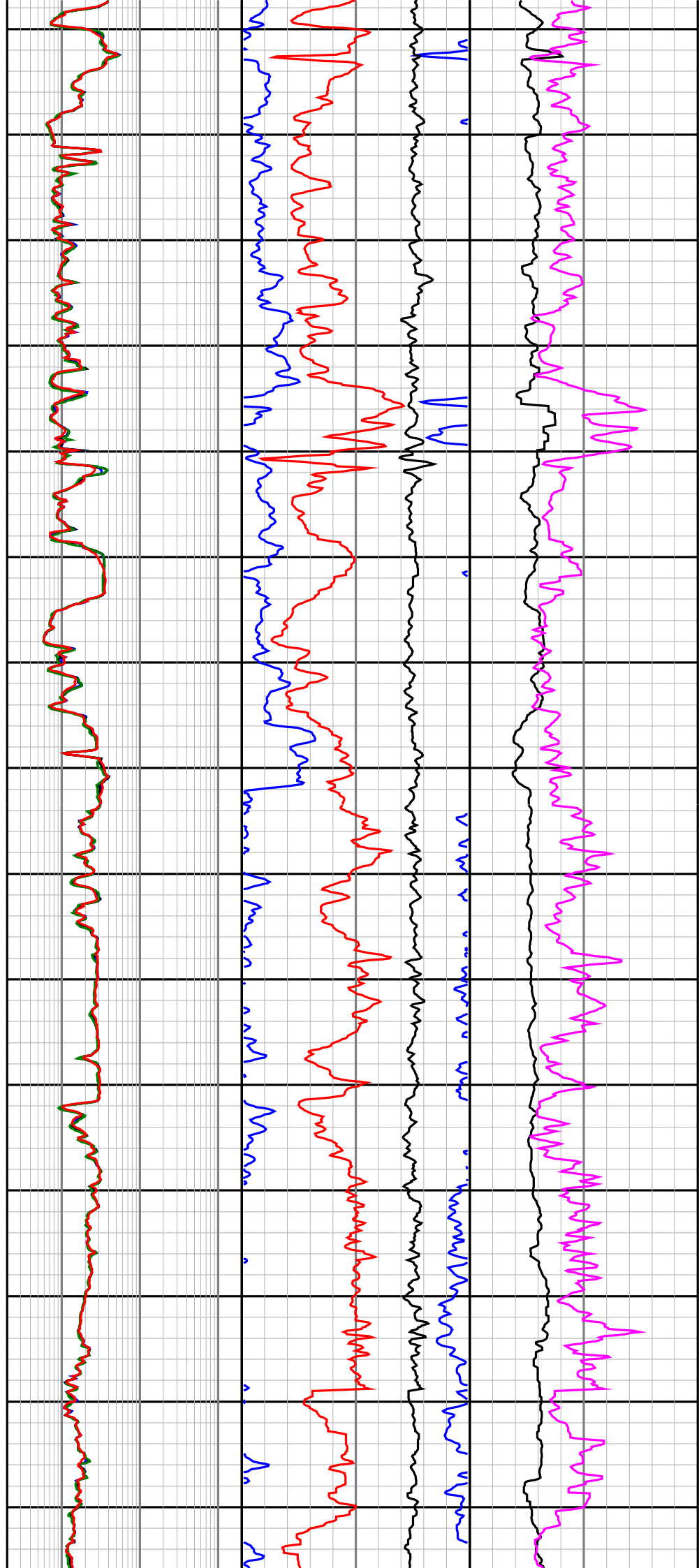
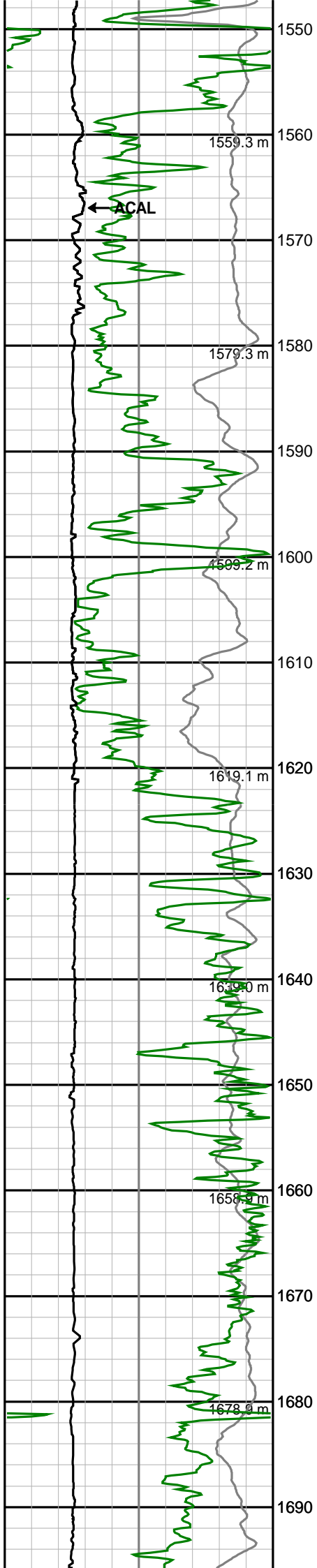


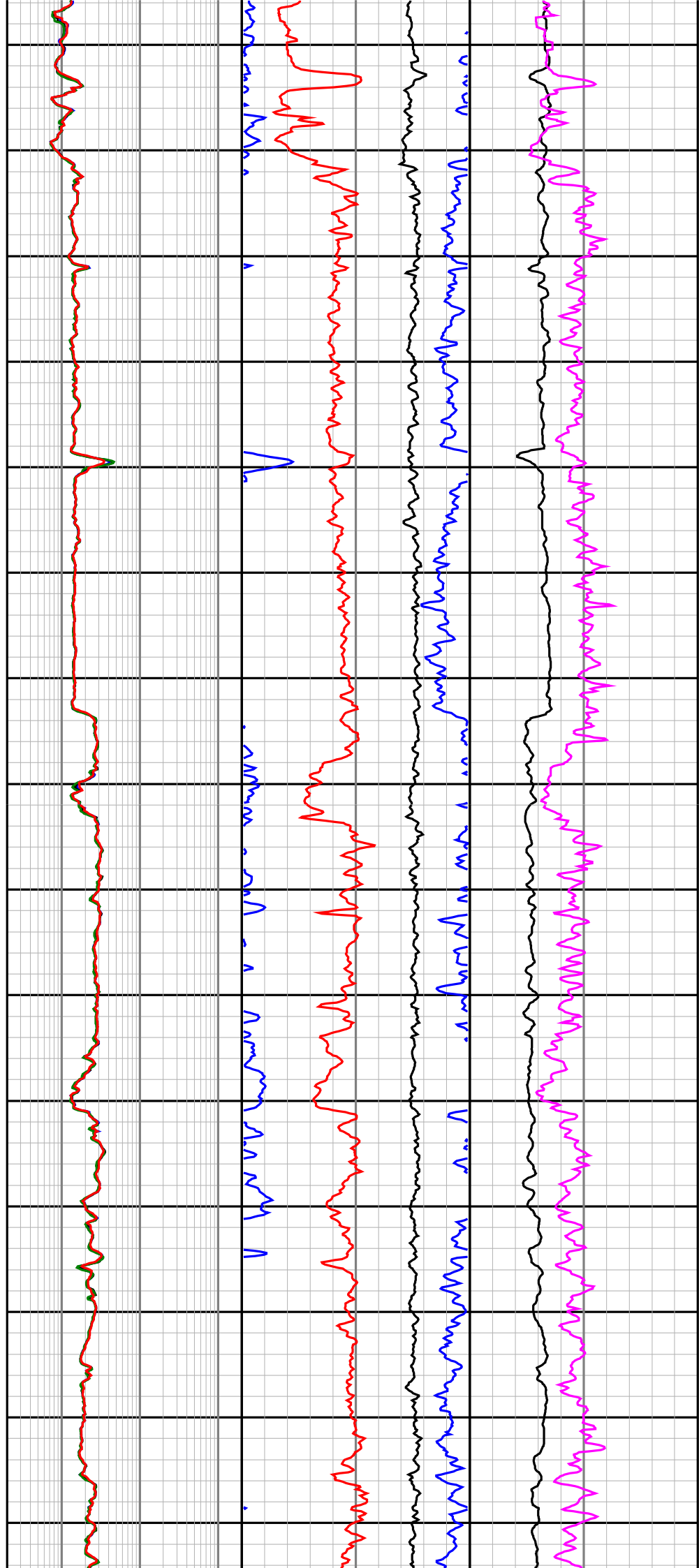
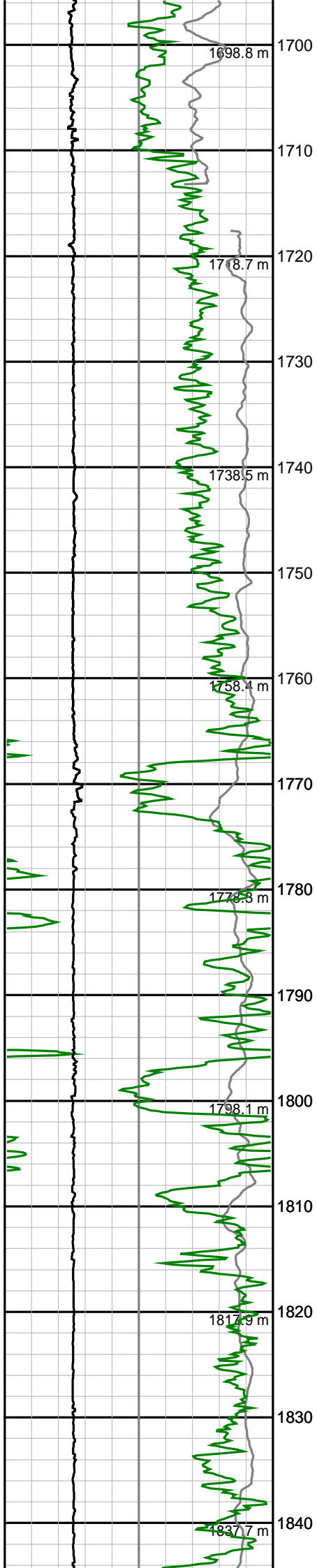


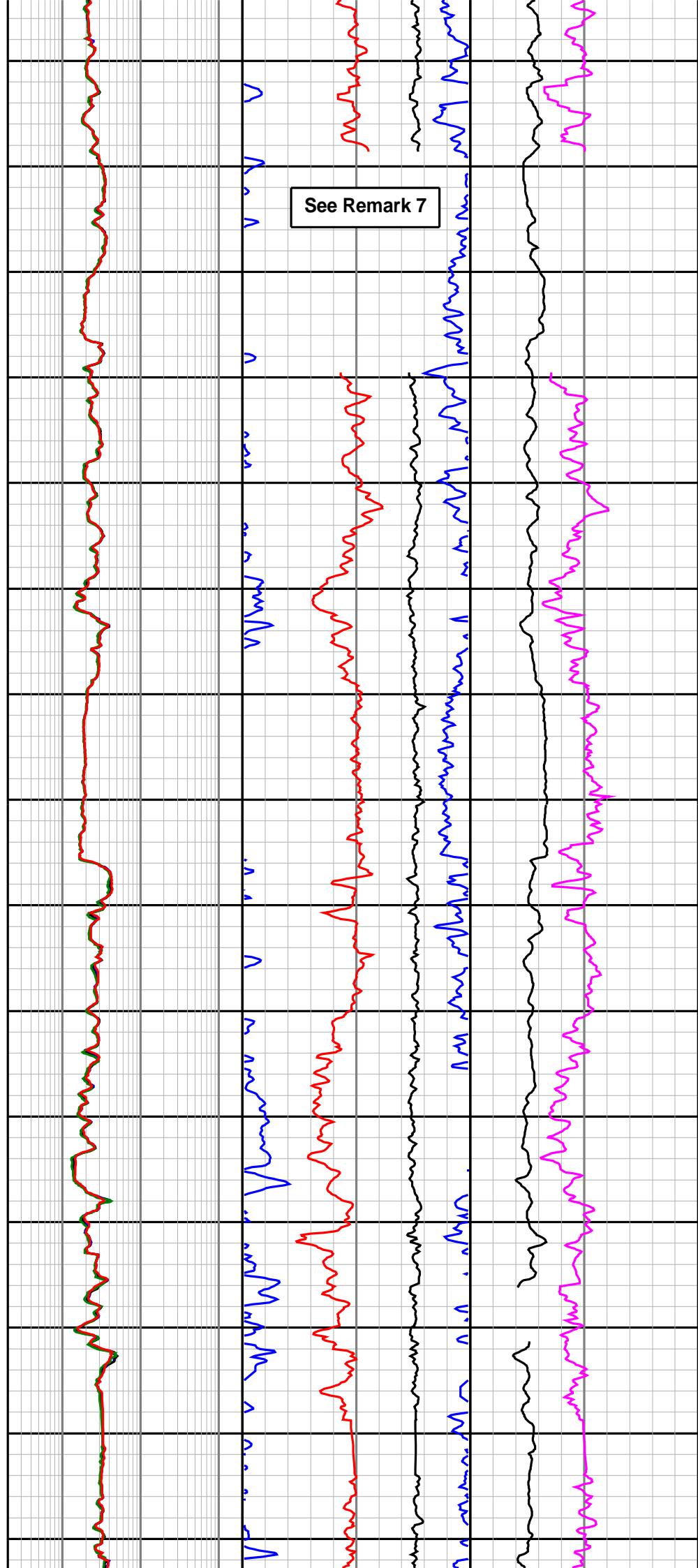
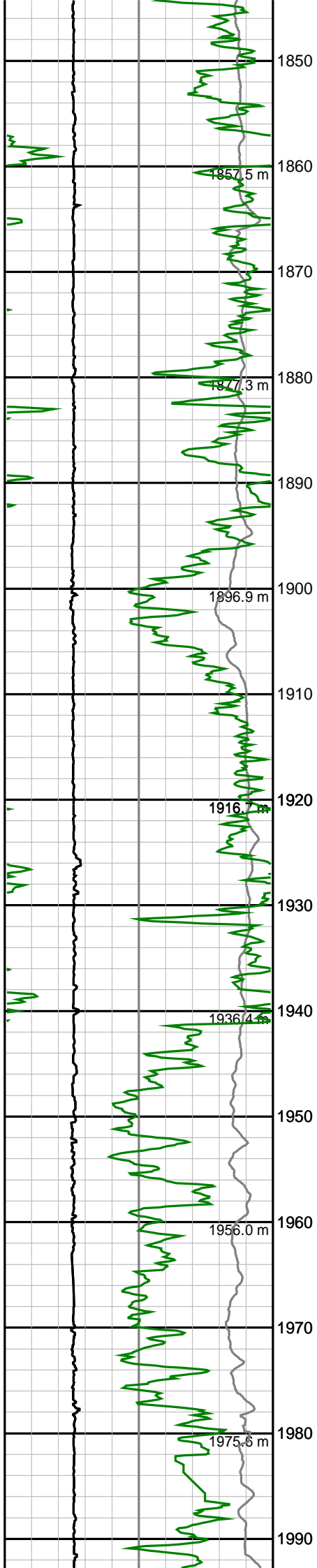


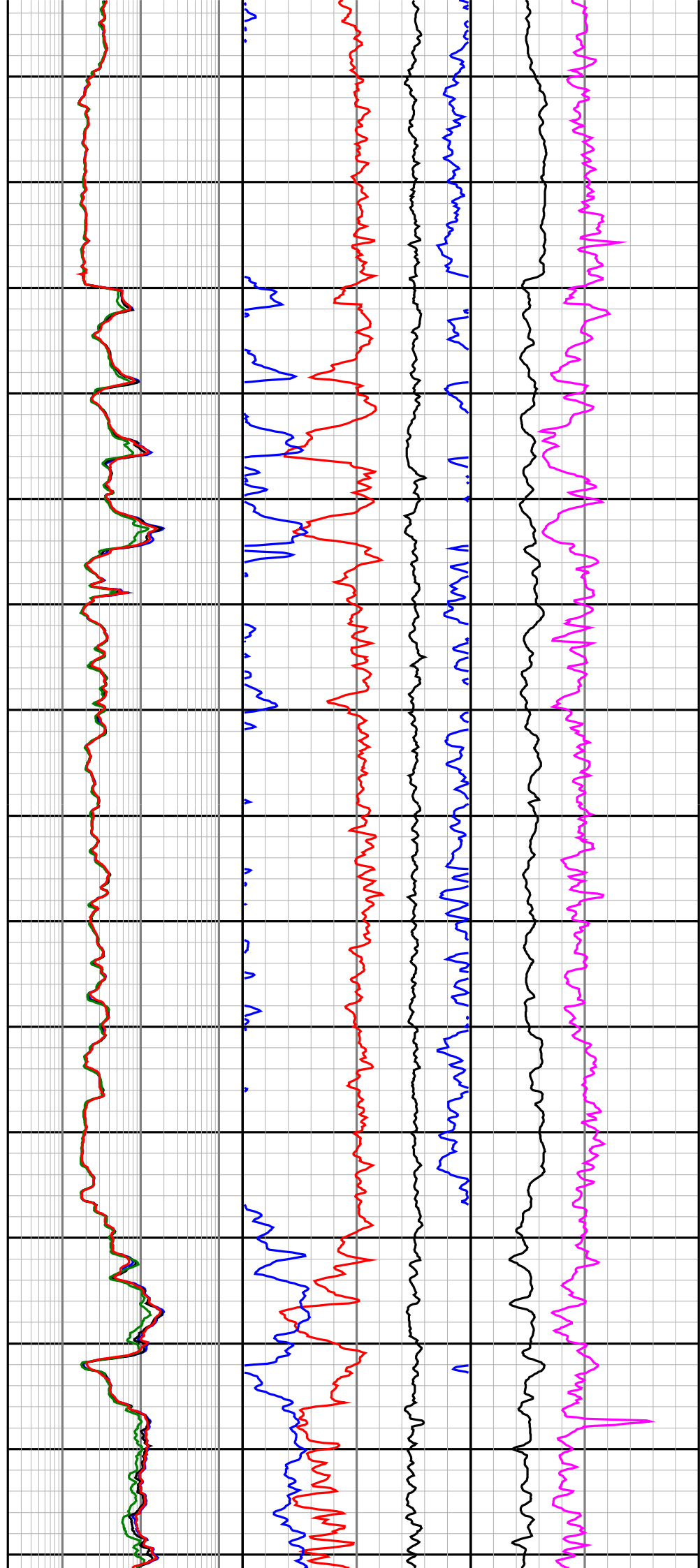
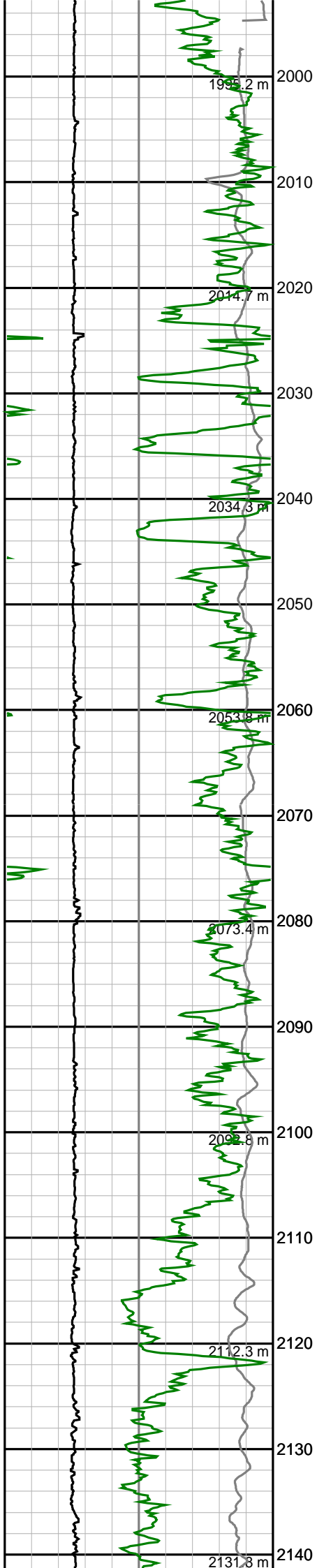


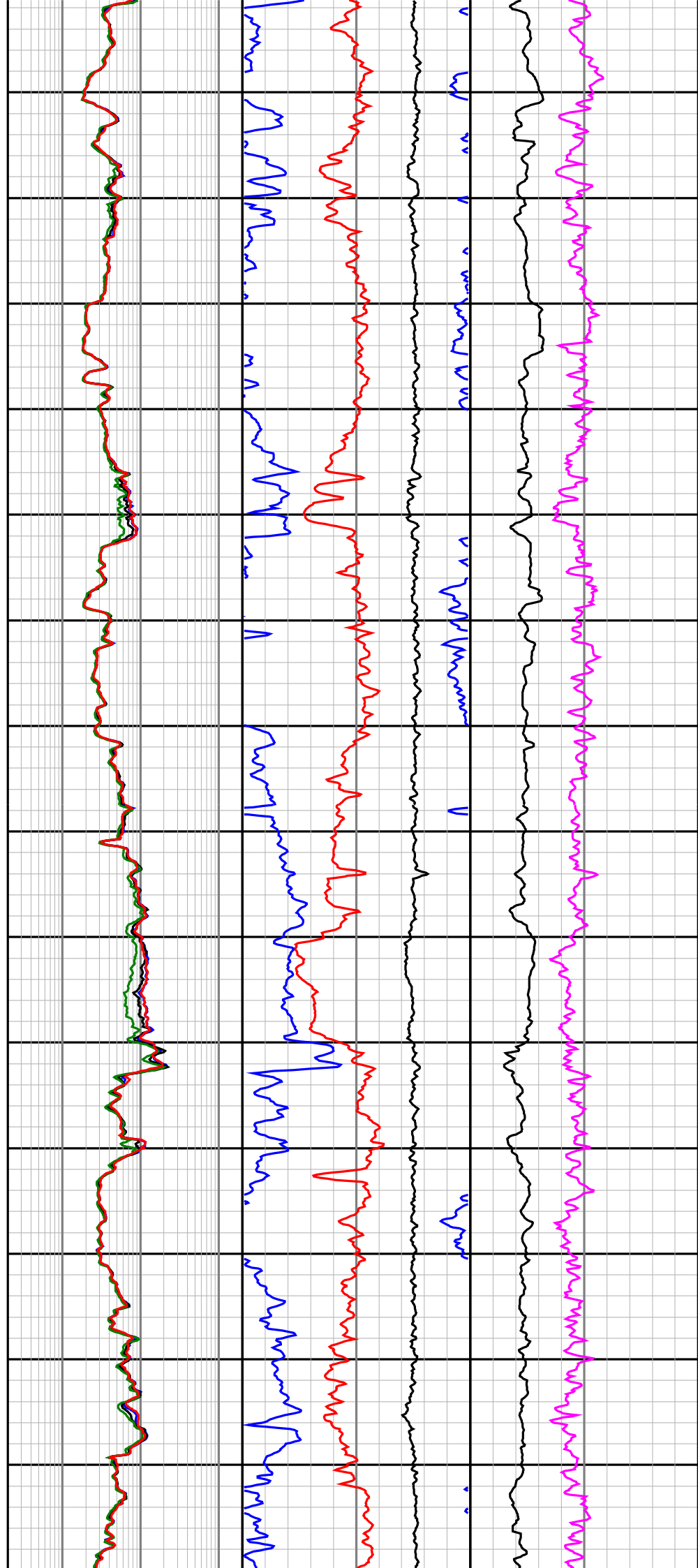
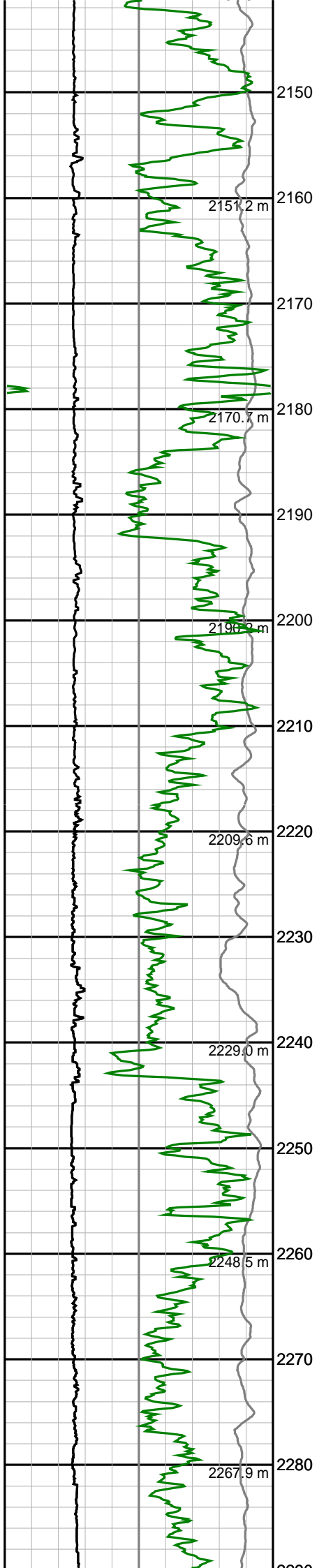


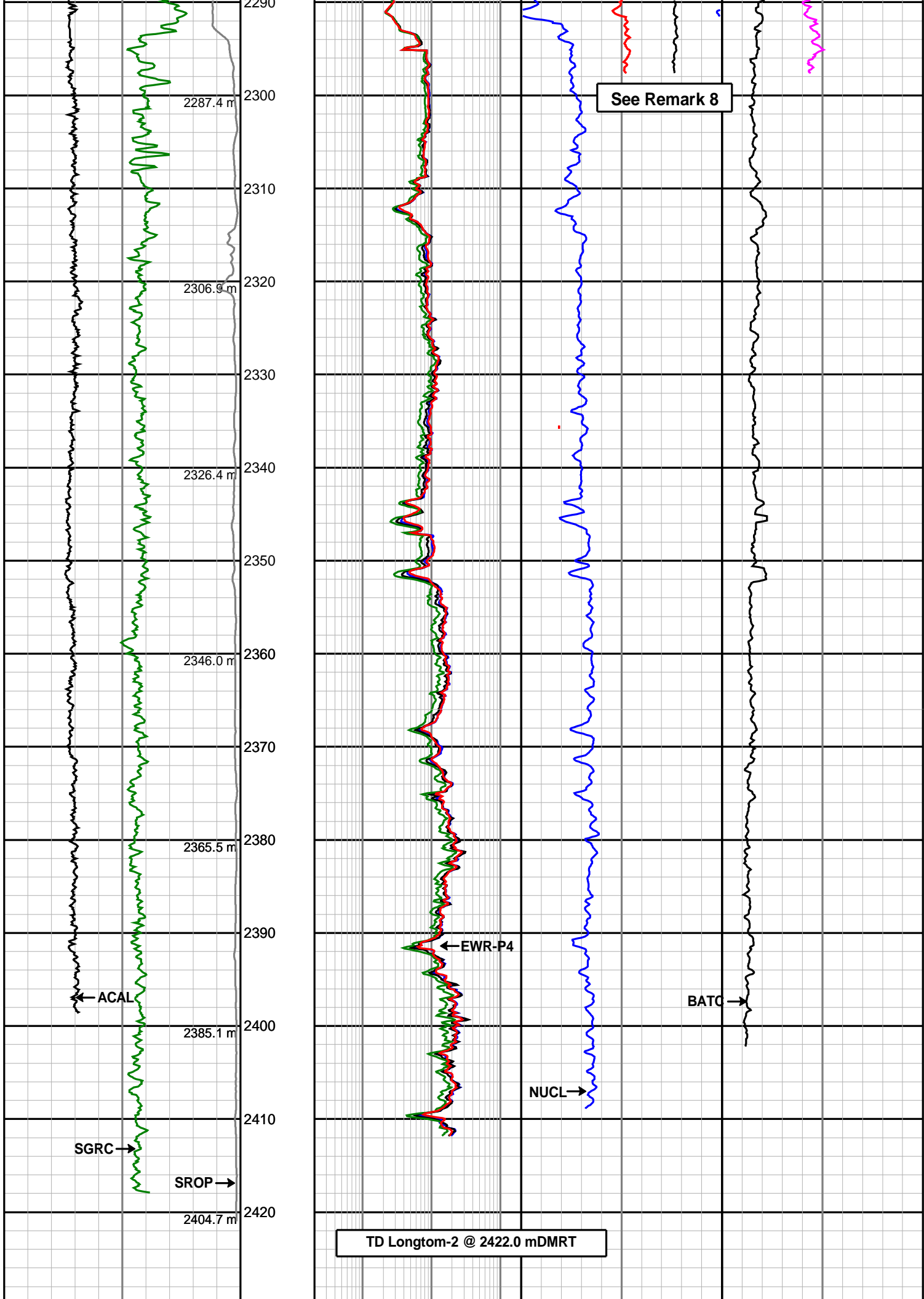












Gamma Ray (SGRC)	MD Depth	Ext Shallow Phase Res (SEXP)	Standoff Correction (SCO2)	Compressional Slowness (BATC)
api	1-500	ohmm	gram per cc	microsec per ft
0	150	0.2	200	40
		-0.75	0.25	240

<div>Rate of Penetration</div> <div>(SROP)</div> <div>500 m/hr 0</div>	1:500	<div>Shallow Phase Res</div> <div>(SESP)</div> <div>0.2 ohmm 200</div>	<div>Neutron Porosity</div> <div>(NUCL)</div> <div>0.45 v/v -0.15 0</div>	<div>Photoelectric Effect</div> <div>(SNP2)</div> <div>barns/electron 10</div>
<div>Acoustic Caliper</div> <div>(ACAL)</div> <div>6 inches 16</div>		<div>Medium Phase Res</div> <div>(SEMP)</div> <div>0.2 ohmm 200</div>	<div>Density</div> <div>(SBD2)</div> <div>1.95 gram per cc 2.95</div>	
<div>TVD</div> <div>metres</div>		<div>Deep Phase Res</div> <div>(SEDP)</div> <div>0.2 ohmm 200</div>		

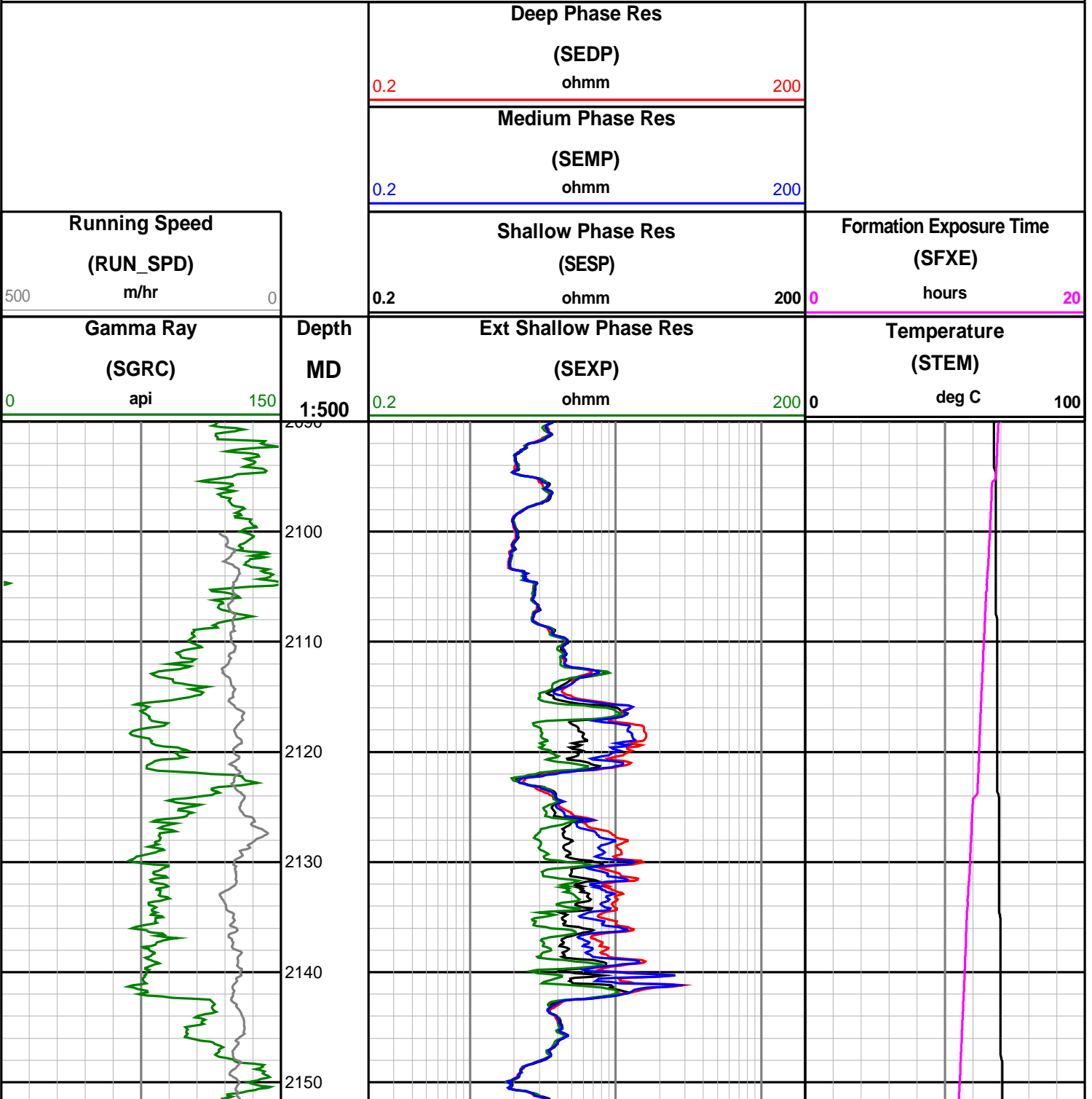
Apache Energy Ltd

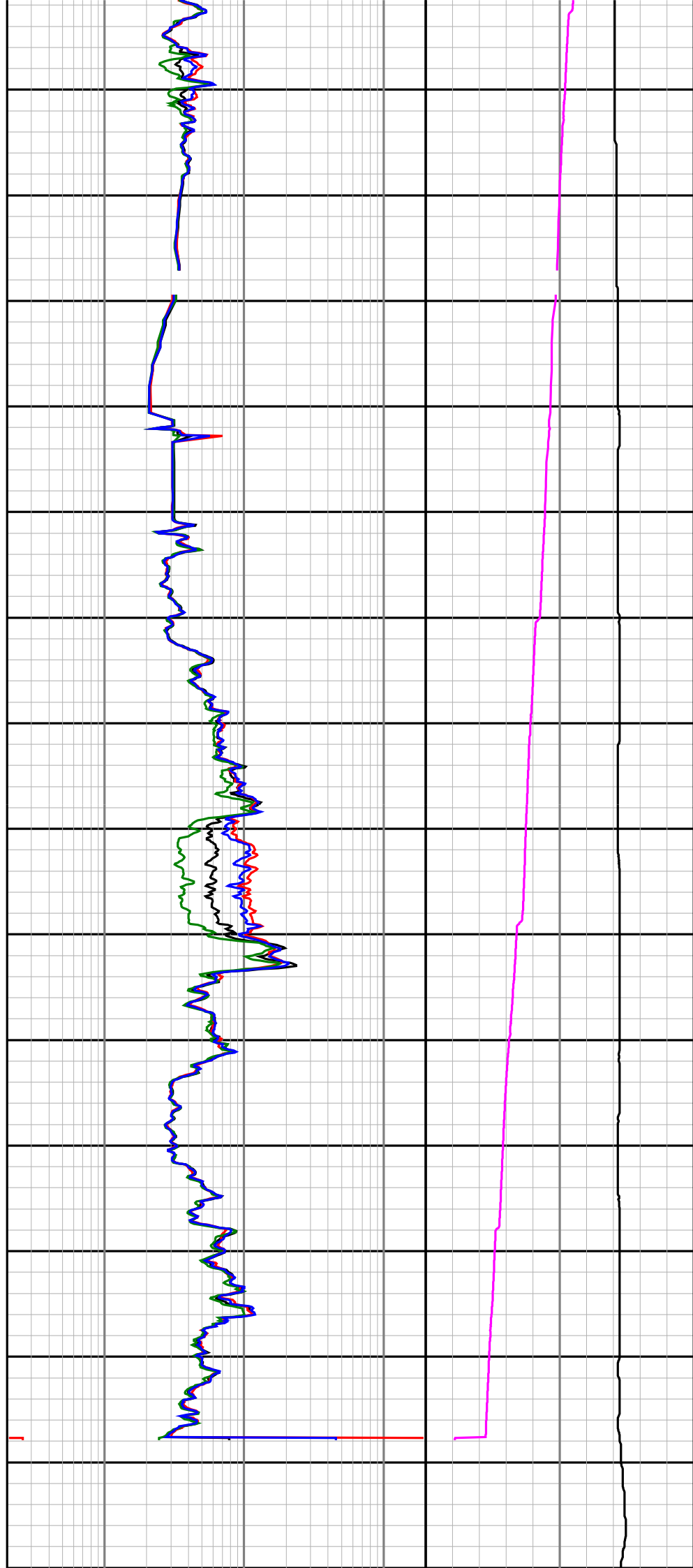
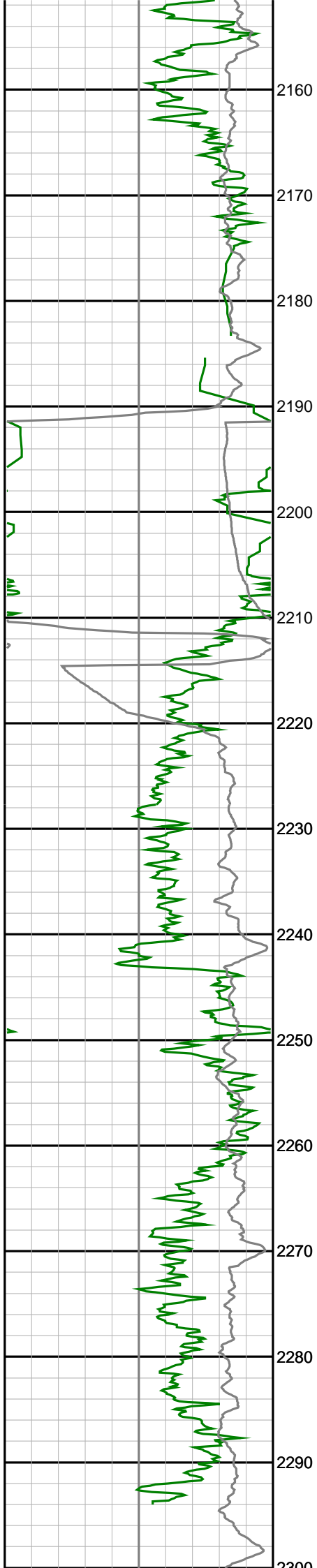
Longtom-2

Repeat Section - 1, 2210.0 to 2300.0 mMDRT

Repeat Section - 2, 2100.0 to 2160.0 mMDRT

Wiped at 18:20 to 21:38 while pulling out of the whole with no rotary and no pumps after LWD Run 200





Gamma Ray (SGRC) api	Depth MD 1:500	Ext Shallow Phase Res (SEXP) ohmm	Temperature (STEM) deg C
0 150		0.2 200	0 100
Running Speed (RUN_SPD) m/hr		Shallow Phase Res (SESP) ohmm	Formation Exposure Time (SFXE) hours
500 0		0.2 200	0 20
		Medium Phase Res (SEMP) ohmm	
		0.2 200	
		Deep Phase Res (SEDP) ohmm	
		0.2 200	



DIRECTIONAL SURVEY REPORT

Apache Energy Ltd

Longtom-2

Exploration

Victoria

Australia

AU-FE-0003298447

Final survey is projected to TD.

Measured Depth (metres)	Inclination (degrees)	Direction (degrees)	Vertical Depth (metres)	Latitude (metres)	Departure (metres)	Vertical Section (metres)	Dogleg (deg/30m)
78.300	0.00	0.00	78.300	0.000 N	0.000 E	0.000	TIE-IN
82.553	0.97	258.66	82.553	0.007 S	0.035 W	-0.031	6.83
112.760	0.85	147.07	112.758	0.244 S	0.164 W	-0.287	1.49
141.180	0.89	146.91	141.174	0.605 S	0.070 E	-0.362	0.05
167.690	1.01	154.86	167.681	0.990 S	0.282 E	-0.469	0.21
195.240	1.07	154.25	195.226	1.442 S	0.497 E	-0.620	0.06
280.640	0.94	157.28	280.613	2.804 S	1.113 E	-1.098	0.05
309.214	0.77	146.69	309.184	3.183 S	1.310 E	-1.212	0.24
337.704	0.79	157.77	337.671	3.526 S	1.490 E	-1.315	0.16
366.421	0.60	172.17	366.386	3.859 S	1.586 E	-1.472	0.27
424.641	0.46	168.46	424.604	4.391 S	1.674 E	-1.770	0.07
481.270	0.60	185.70	481.230	4.907 S	1.691 E	-2.110	0.11
566.250	0.73	188.21	566.205	5.883 S	1.569 E	-2.864	0.05
594.890	0.71	181.73	594.842	6.241 S	1.538 E	-3.131	0.09
623.800	0.70	174.98	623.750	6.597 S	1.548 E	-3.367	0.09
651.930	0.71	178.96	651.878	6.944 S	1.566 E	-3.590	0.05
680.500	0.56	173.05	680.446	7.261 S	1.587 E	-3.791	0.17
709.360	0.46	168.63	709.305	7.515 S	1.627 E	-3.936	0.12
738.170	0.32	152.68	738.114	7.700 S	1.686 E	-4.018	0.18
767.010	0.31	146.16	766.954	7.837 S	1.767 E	-4.052	0.04
795.700	0.25	96.83	795.644	7.909 S	1.873 E	-4.024	0.25
824.740	0.30	87.28	824.683	7.913 S	2.011 E	-3.926	0.07
853.150	0.47	59.73	853.093	7.851 S	2.185 E	-3.756	0.26
881.850	0.65	65.06	881.791	7.723 S	2.434 E	-3.487	0.20
910.570	0.94	47.41	910.509	7.494 S	2.756 E	-3.095	0.40
968.350	1.07	52.66	968.280	6.844 S	3.536 E	-2.081	0.08
1025.790	1.38	33.86	1025.707	5.944 S	4.349 E	-0.873	0.26
1055.310	1.47	38.91	1055.218	5.354 S	4.785 E	-0.152	0.16
1084.150	1.45	38.45	1084.048	4.779 S	5.245 E	0.577	0.02
1110.420	1.50	43.02	1110.309	4.267 S	5.686 E	1.249	0.14

Measured Depth (metres)	Inclination (degrees)	Direction (degrees)	Vertical Depth (metres)	Latitude (metres)	Departure (metres)	Vertical Section (metres)	Dogleg (deg/30m)
1140.980	1.63	41.28	1140.858	3.649 S	6.245 E	2.079	0.14
1169.600	1.90	39.20	1169.464	2.976 S	6.813 E	2.954	0.29
1198.150	2.05	43.59	1197.997	2.239 S	7.465 E	3.932	0.22
1227.480	1.96	42.91	1227.309	1.492 S	8.168 E	4.956	0.10
1285.120	2.78	45.34	1284.900	0.212 N	9.833 E	7.336	0.43
1342.670	2.75	51.91	1342.383	2.044 N	11.911 E	10.106	0.17
1428.080	3.43	52.87	1427.668	4.852 N	15.563 E	14.691	0.24
1457.250	3.55	48.99	1456.784	5.972 N	16.941 E	16.463	0.27
1515.810	3.87	57.08	1515.222	8.236 N	19.967 E	20.220	0.31
1601.750	4.29	57.36	1600.944	11.544 N	25.106 E	26.235	0.15
1630.370	4.38	57.32	1629.482	12.711 N	26.927 E	28.362	0.10
1659.040	5.12	55.38	1658.054	14.028 N	28.900 E	30.703	0.79
1687.660	5.81	50.90	1686.544	15.666 N	31.074 E	33.410	0.85
1716.340	5.98	52.62	1715.072	17.488 N	33.387 E	36.344	0.26
1773.640	6.99	49.61	1772.005	21.558 N	38.413 E	42.796	0.56
1802.390	7.25	48.26	1800.534	23.899 N	41.098 E	46.356	0.32
1831.130	8.02	46.49	1829.019	26.486 N	43.904 E	50.173	0.84
1888.710	9.67	44.64	1885.912	32.695 N	50.218 E	59.025	0.87
1917.470	10.45	43.25	1914.229	36.314 N	53.704 E	64.042	0.85
1946.130	11.23	41.77	1942.377	40.288 N	57.343 E	69.415	0.86
1974.870	11.30	41.50	1970.564	44.484 N	61.073 E	75.004	0.10
2001.480	11.64	41.34	1996.642	48.452 N	64.573 E	80.270	0.38
2031.150	12.13	40.39	2025.676	53.073 N	68.570 E	86.345	0.54
2088.390	12.90	39.67	2081.556	62.571 N	76.545 E	98.655	0.41
2174.270	13.47	40.33	2165.172	77.574 N	89.136 E	118.096	0.21
2203.500	13.66	40.55	2193.587	82.794 N	93.584 E	124.908	0.20
2232.270	13.75	40.70	2221.538	87.967 N	98.022 E	131.682	0.09
2292.010	13.36	41.52	2279.614	98.516 N	107.226 E	145.608	0.22
2319.460	12.54	43.59	2306.365	103.050 N	111.383 E	151.740	1.03
2348.120	12.18	45.64	2334.361	107.418 N	115.692 E	157.870	0.59
2376.110	11.96	45.76	2361.732	111.507 N	119.881 E	163.723	0.24
2422.000	11.96	45.76	2406.625	118.142 N	126.695 E	173.232	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 CLOSURE OF 47.00 DEGREES (GRID)
A TOTAL CORRECTION OF 13.97 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED

HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.
HORIZONTAL DISPLACEMENT(CLOSURE) AT 2422.000 METRES
IS 173.232 METRES ALONG 47.00 DEGREES (GRID)







MWD RUN 100 - BHA

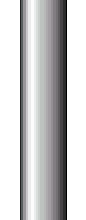




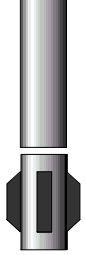


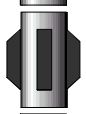

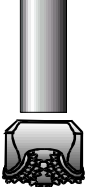
MWD RUN 100 - MWD

	Cumulative Length (m)	Sensor Measure Point Distance To Bit (m)
HWDP	257.54	
Cross Over Sub	118.47	
	117.34	
8 DGWD 650 System		
PM		

Drill Collar					30.190
		90.29			
Drilling Jars			ACAL		27.260
		80.43			
Drill collar			BAT		
		34.61			
MWD			HCIM		
		12.83			
Float Sub					
Integral Blade Stabilizer		12.05	DGR		17.710
		9.74			
Cross Over Sub					
		8.87			
9-5/8" SperryDrill Lobe 3/4 - 4M			EWR-P4		14.680
PDC		0.29			




MWD RUN 200 - BHA	MWD RUN 200 - MWD
-------------------	-------------------

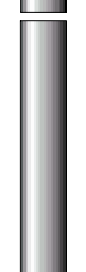



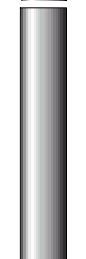
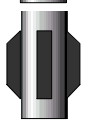


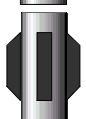

		Cumulative Length (m)			Sensor Measure Point Distance To Bit (m)
Drill Pipe (E)		390.90	Positive Pulser		
		290.90	TM		
HWDP			Hang-off Sub		
		151.50	PM		

		151.53			33.620
Drill Collar				ACAL	
		132.74			30.700
Drilling Jars				BAT	
					
		123.23		HCIM	
Drill Collar					
		39.66		CNP	
Integral Blade Stabilizer					20.520
		38.03		EWR-P4	
MWD					17.540
		10.43		SLD	
Float Sub					14.790
		9.93			
Integral Blade Stabilizer				DDS	
		7.91			0
6-3/4" SperryDrill Lobe 1/2 - 3M					
		0.23		DGR	
PDC					11.490

MWD RUN 300 - BHA

MWD RUN 300 - MWD

		Cumulative Length (m) 382.10			Sensor Measure Point Distance To Bit (m)
Drill Pipe (E)					
		282.10		TM	
HWDP				Hang-off Sub	
				PM	
					25.280

		143.09			
Drill Collar				ACAL	22.360
		124.30		BAT	
Drilling Jars					
				HCIM	
		114.79		CNP	
Drill Collar					12.180
		31.32		EWR-P4	
Integral Blade Stabilizer					9.200
		29.69		SLD	
MWD					6.450
		2.09		DDS	
Float Sub					0
		1.59		DGR	
Integral Blade Stabilizer					3.150
Tricone		0.25			