



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		Company : Apache Energy Ltd Rig : Ocean Patriot Well : Longtom-2 Field : Exploration Country : Australia DOE Number :	
Latitude : 38° 6' 11.89" South Longitude : 148° 19' 0.92" East UTM Easting = 615,462.43 m UTM Northing = 5,781,904.33 m		Other Services Surface Data Logging	
Permanent Datum : AHD		Elev. KB DF 21.50 m GL WD 56.80 m	
Log Measured From : Drill Floor		21.50 m Above Permanent Datum	
Drilling Measured From : Drill Floor		TVD LOG	
Depth Logged : 111.00 m To 2,406.63 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	
Borehole Record (TVD)		Borehole Record (TVD)	
Run No.	Size	From	To
2	311.000 mm	111.00 m	1,008.92 m
3	216.000 mm	1,008.92 m	2,299.09 m
4	216.000 mm	2,299.09 m	2,406.63 m
Casing Record (TVD)			
	Size	Weight	From To
	508.000 mm	198.00 kgpm	SURFACE 109.90 m
	340.000 mm	101.00 kgpm	SURFACE 995.22 m
	178.000 mm	43.00 kgpm	876.94 m 2,404.67 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 (TVD, m)	113	1008.92	2299.09		
Log End Depth (TVD, m)	1008.92	2299.09	2406.63		
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 (TVD, m)	0.25 @ 795.64	1.38 @ 1025.70	11.96 @ 2361.73		
Max Inc (deg) @ Depth (TVD, m)	1.07 @ 968.28	13.75 @ 2221.54	13.36 @ 2279.61		
Bit TFA(in2) / Bit Type	0.97 / 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	2947	44645	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

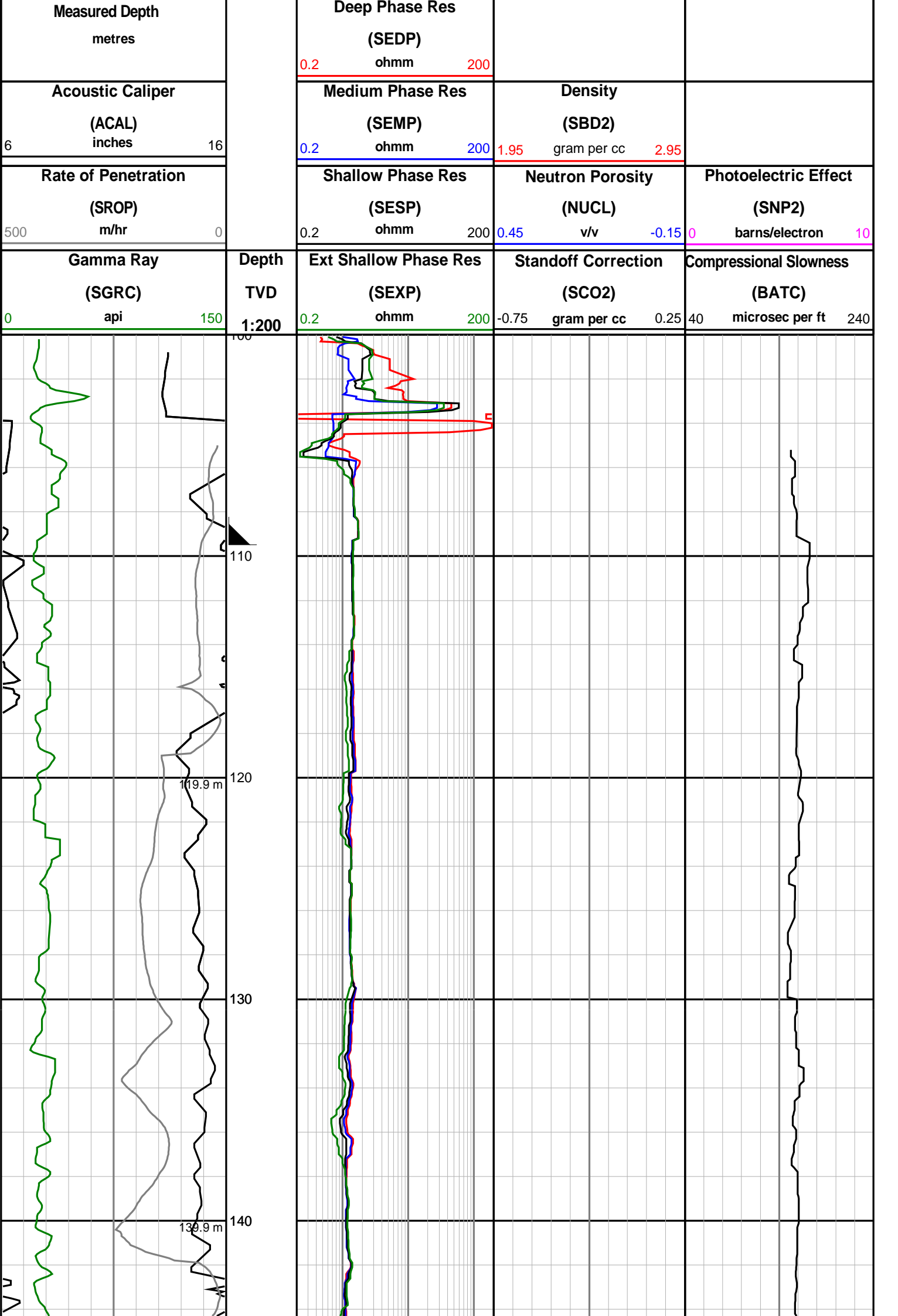
Tool Type	BAT	BAT	BAT		
Distance From Bit (m)	23.06	26.91	18.57		
Recorded Sample Period (sec)	18	18	18		
Software Version	4.00	4.00	4.00		
Sub Serial Number	144401	132327	132327		
Receiver Insert Serial Number	136555	161198	161198		
Transmitter Insert Serial Number	143996	116793	116793		

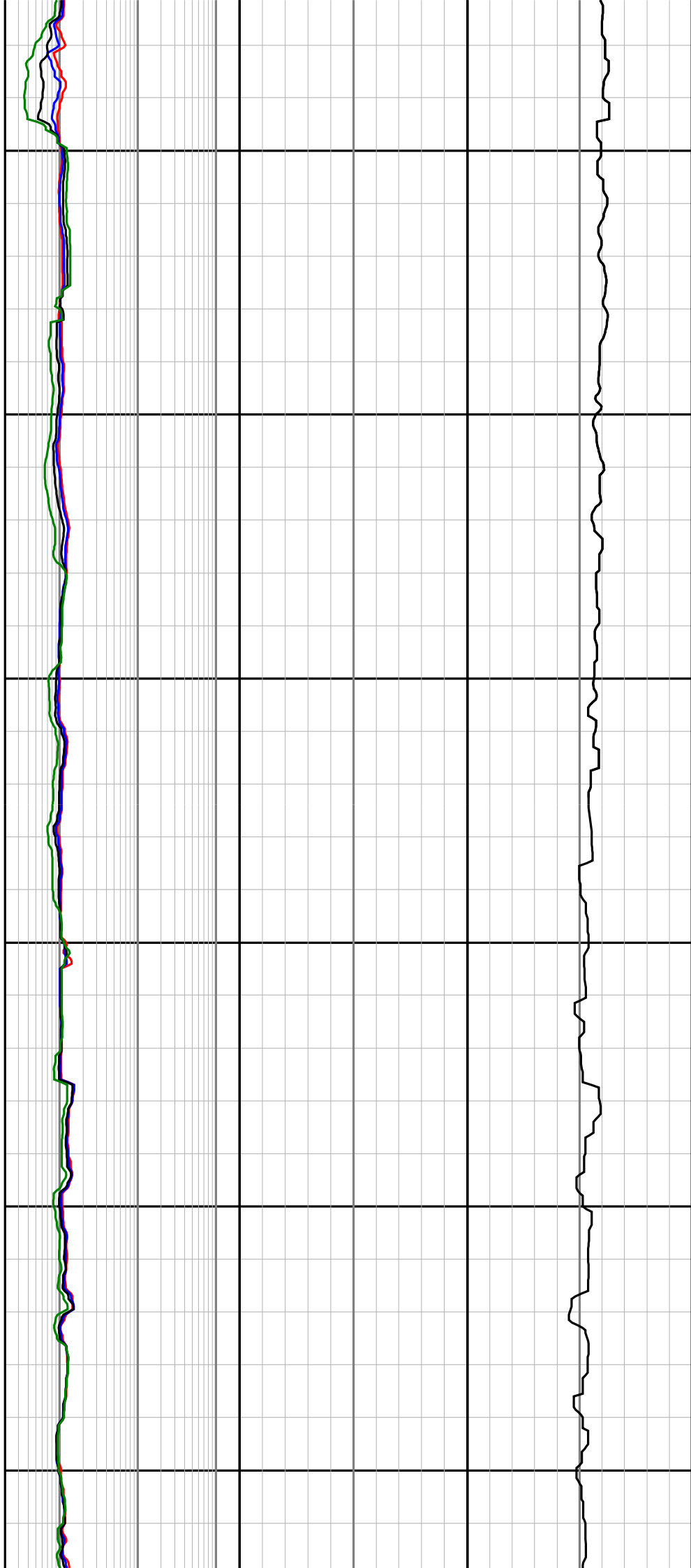
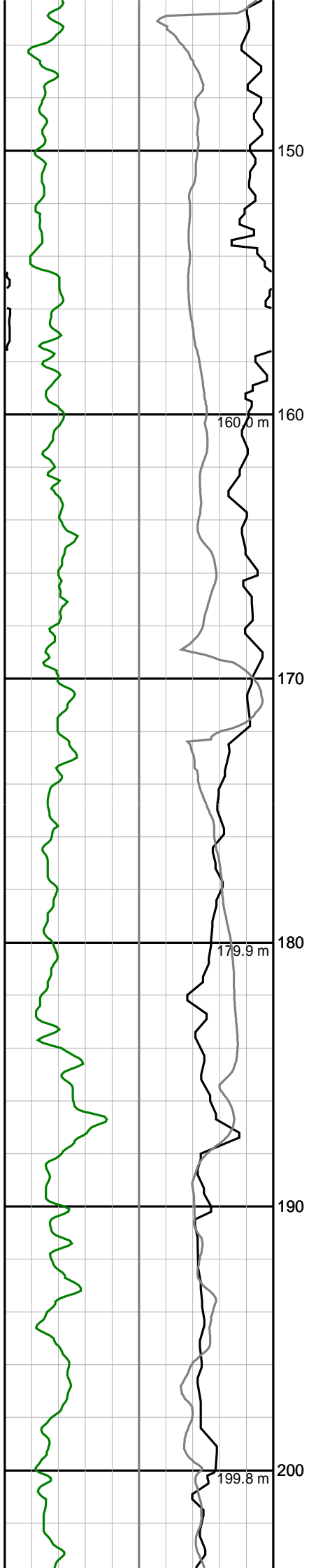
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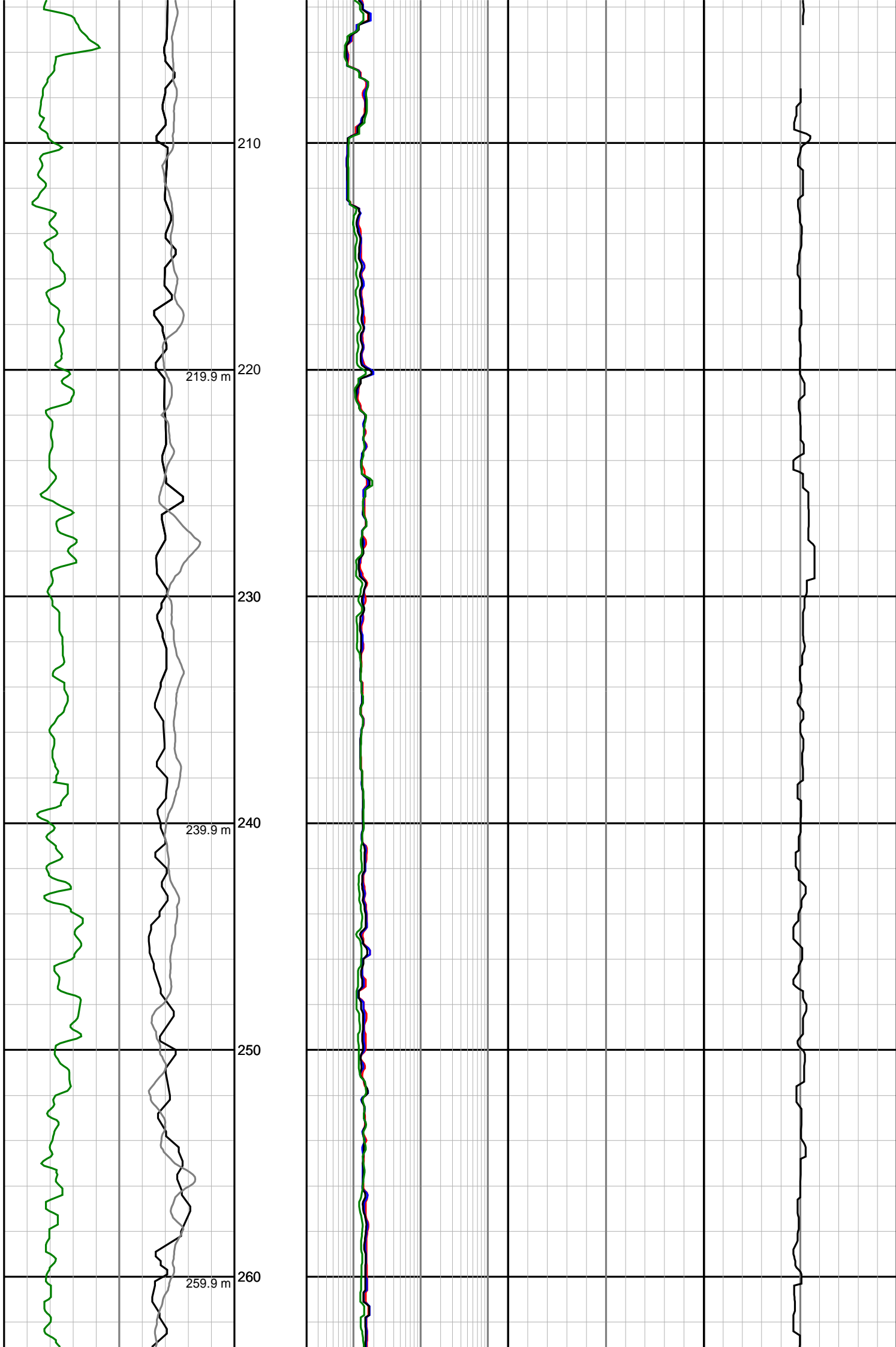
1. All depths are bit depths and referenced to the drillers pipe tally.
2. AV/CV is calculated at the MWD collar using the Powers Law for water based muds and the Bingham's Plastic Law for oil based muds.
3. Curve mnemonics are:
 SGRC - Smoothed Gamma Ray Combined, api
 SEXP - Smoothed Extra Shallow 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
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
5. CNP data has been reprocessed using data from the Caliper (ACAL) tool for borehole diameter.
6. Surface depth tracking system damaged.
7. Gap in density data due to intermittent problems with density (SLD) tool.
8. Density (SLD) tool failed while running in hole prior to Run 300.
9. Gaps in compressional slowness (BATC) data due to weak signal.
10. Repeat sections from 2092.9 to 2151.3 and 2199.9 to 2287.4 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

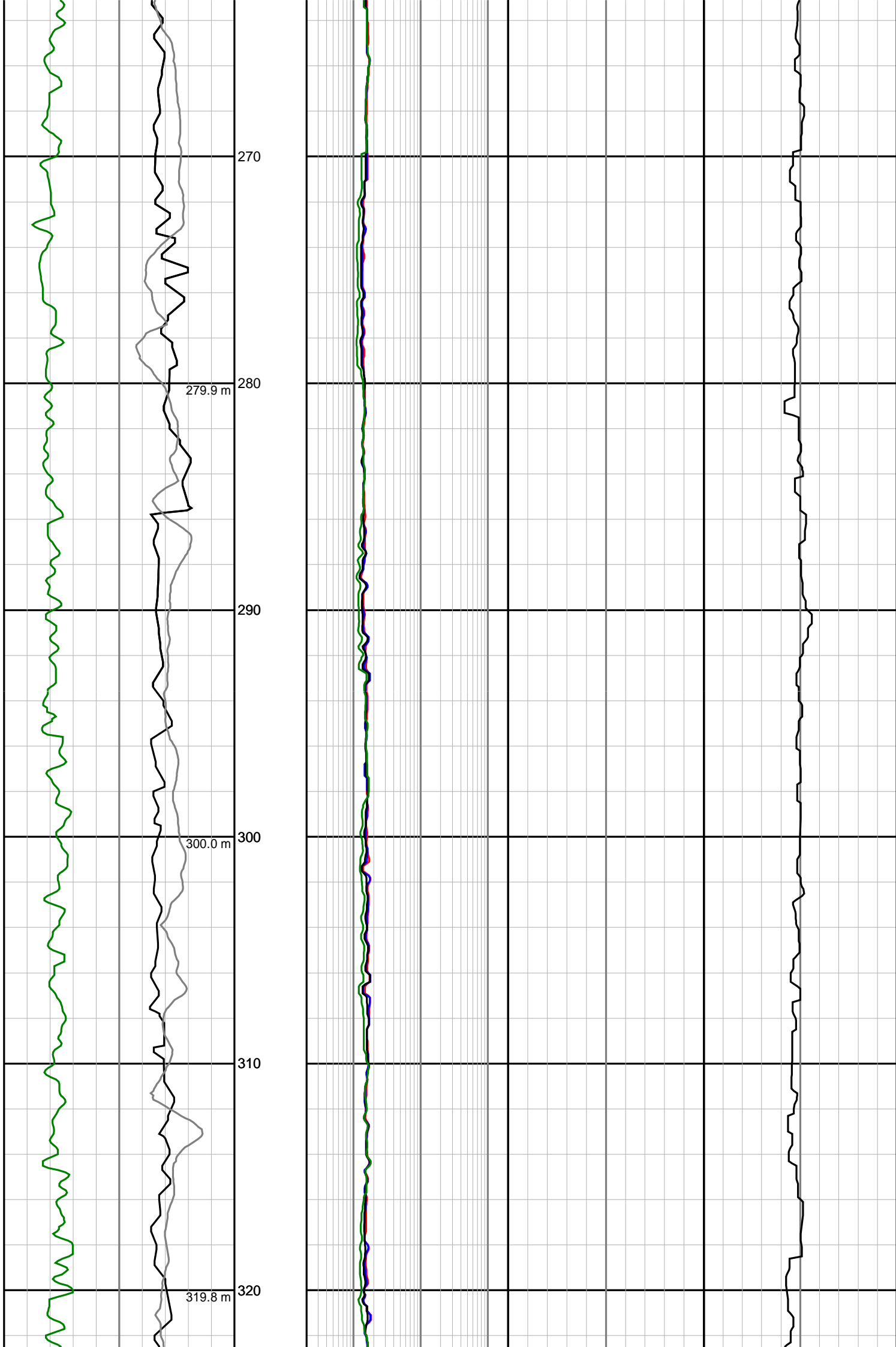
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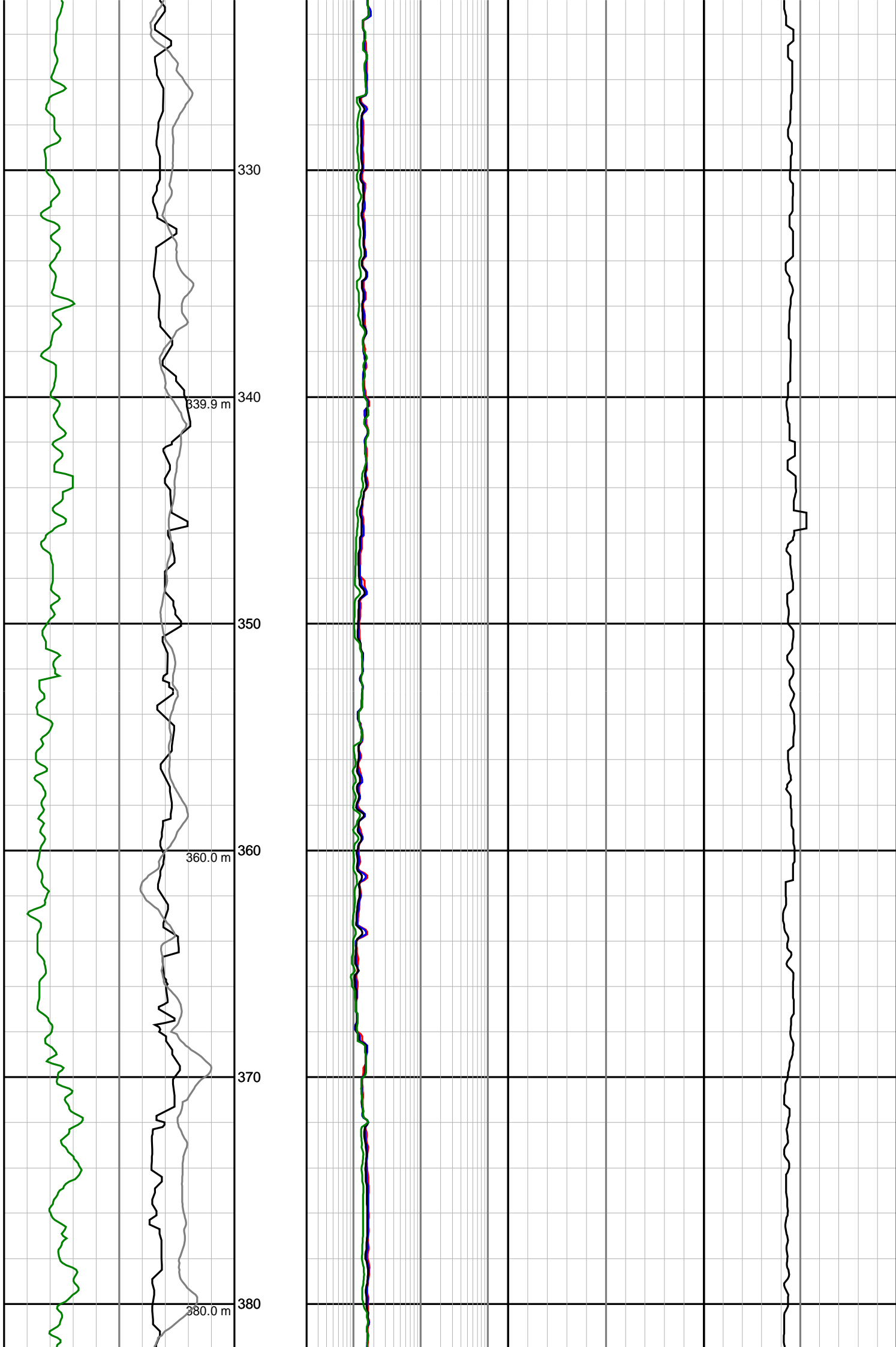
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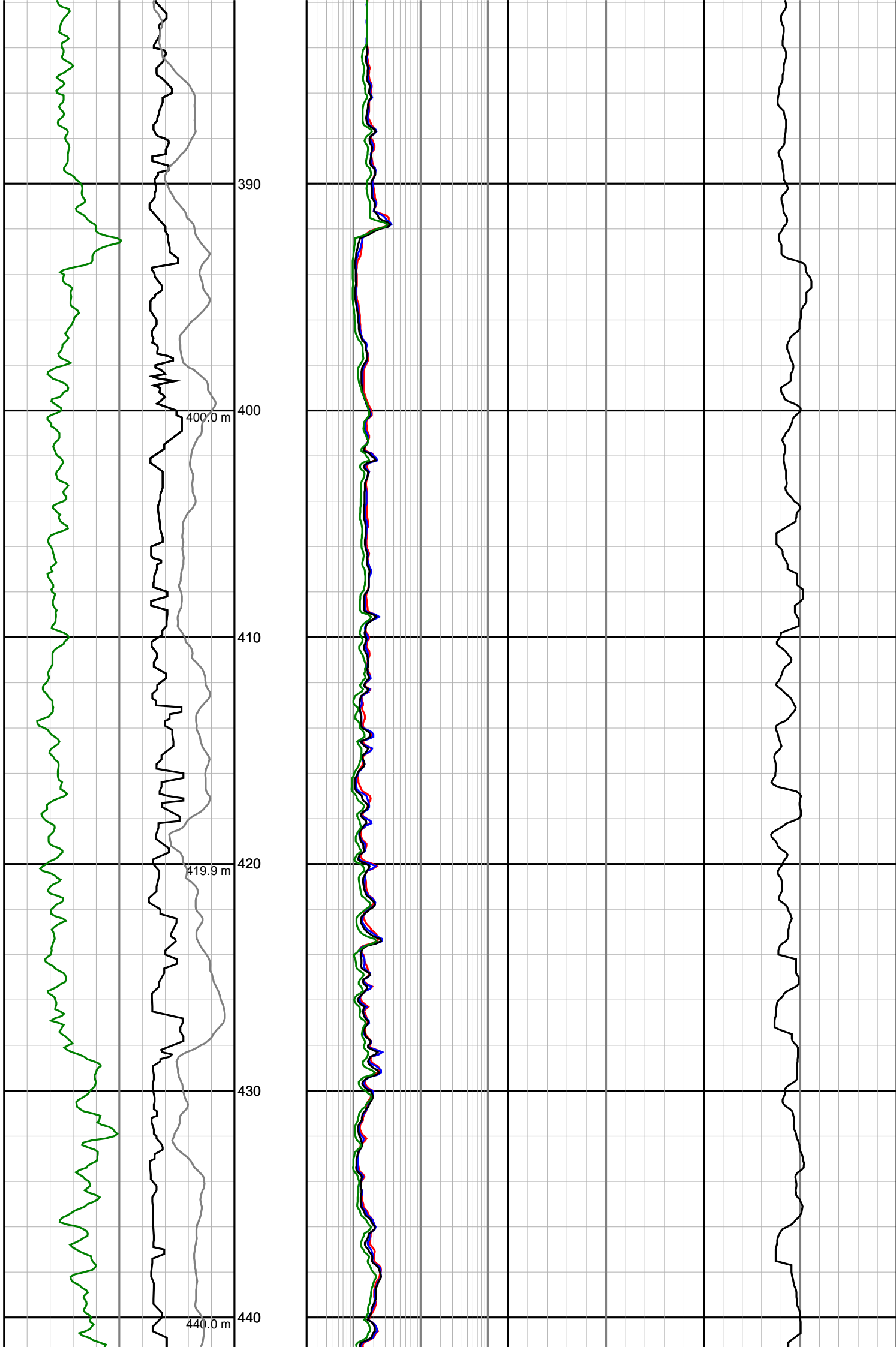


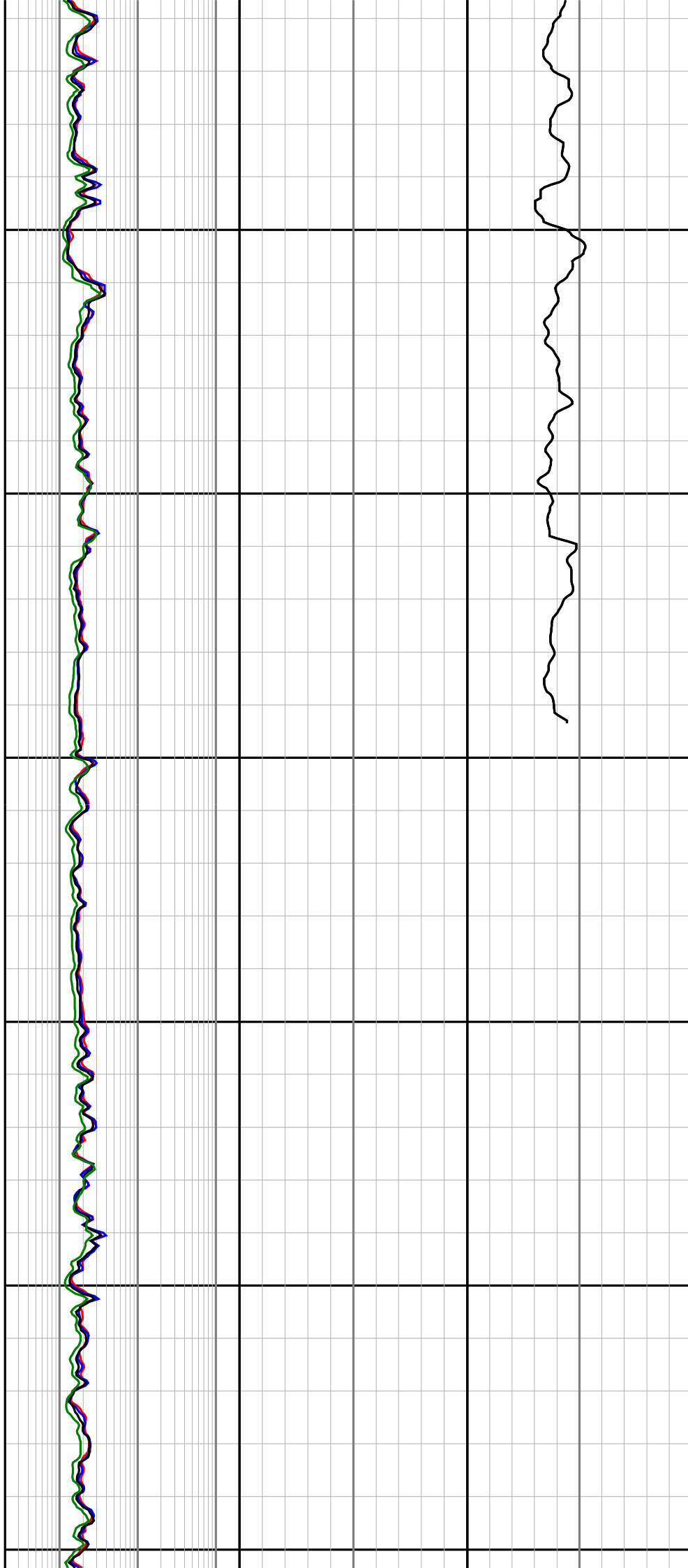
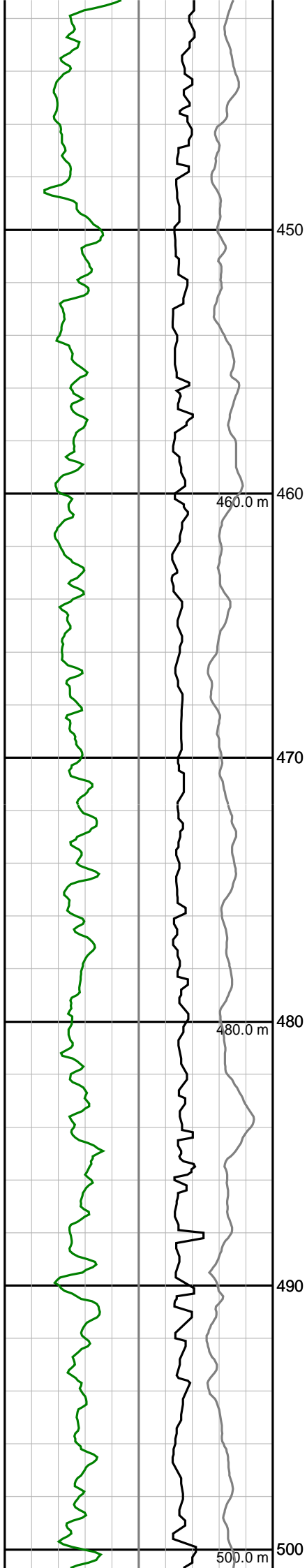


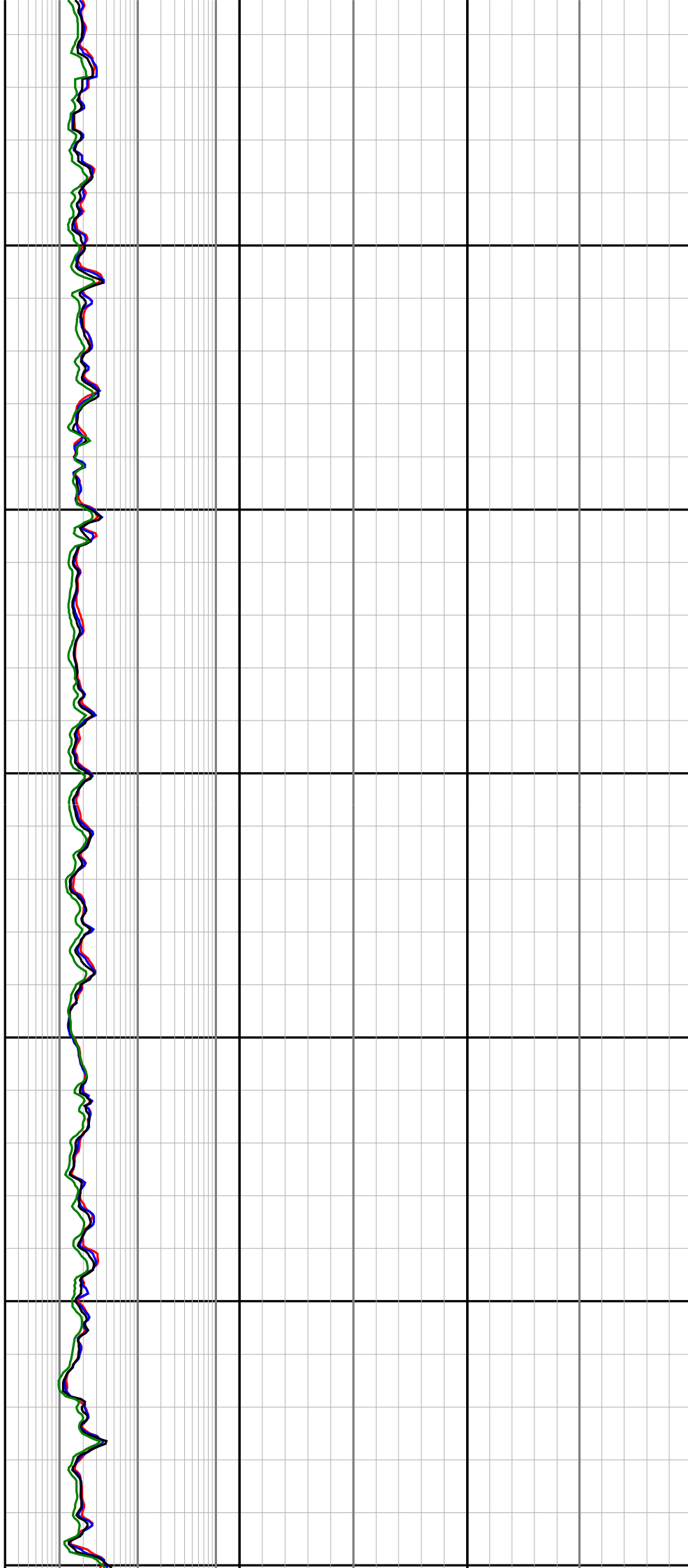
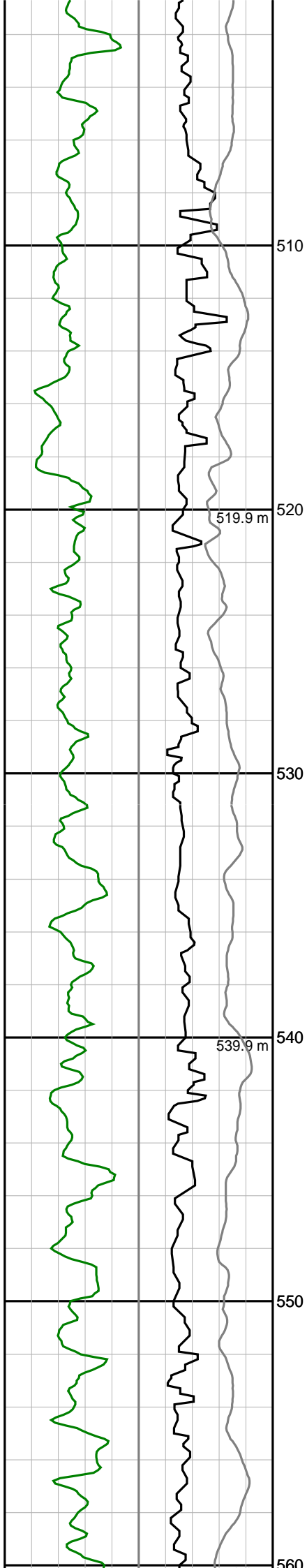


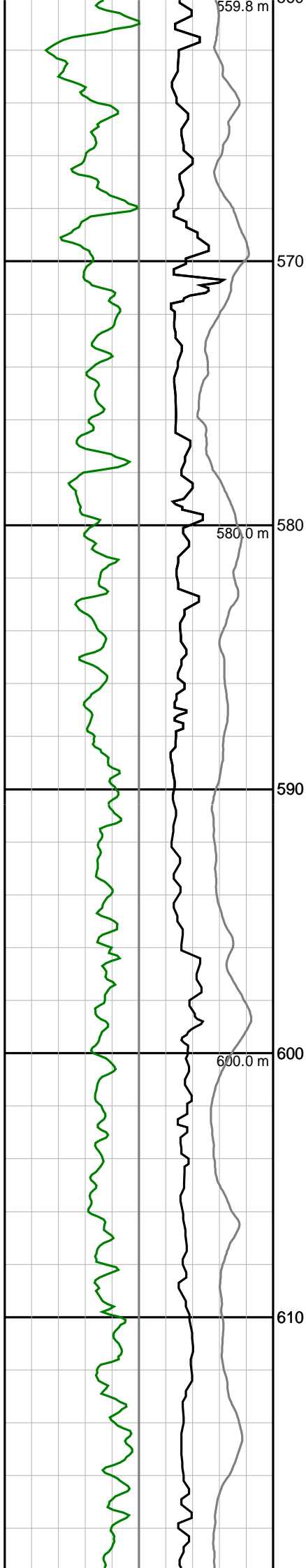


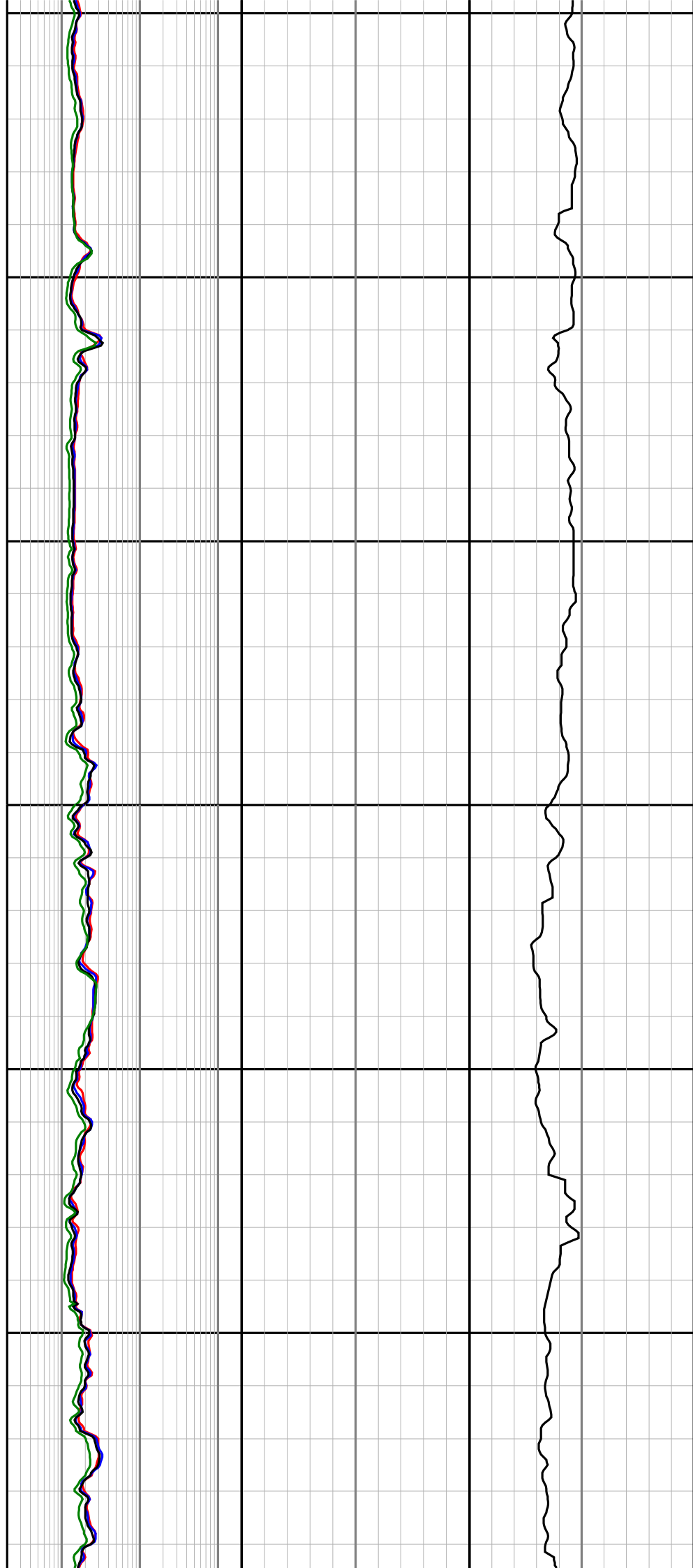
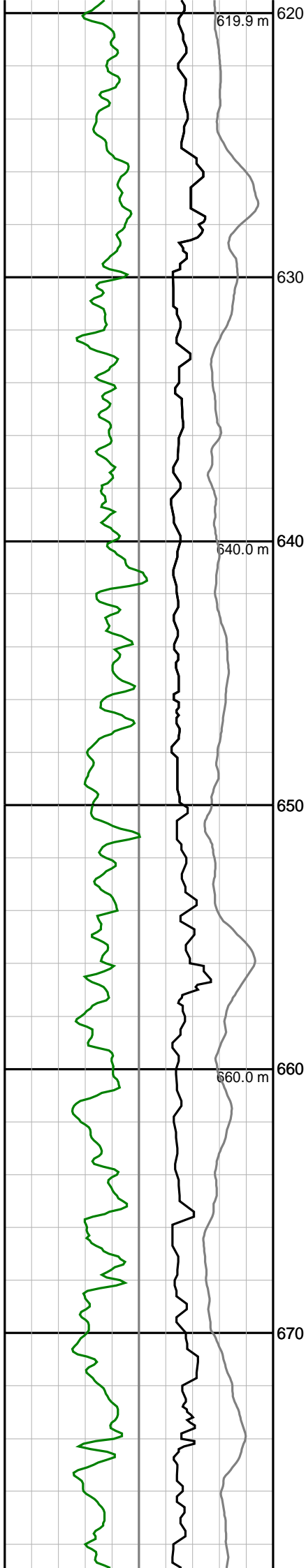


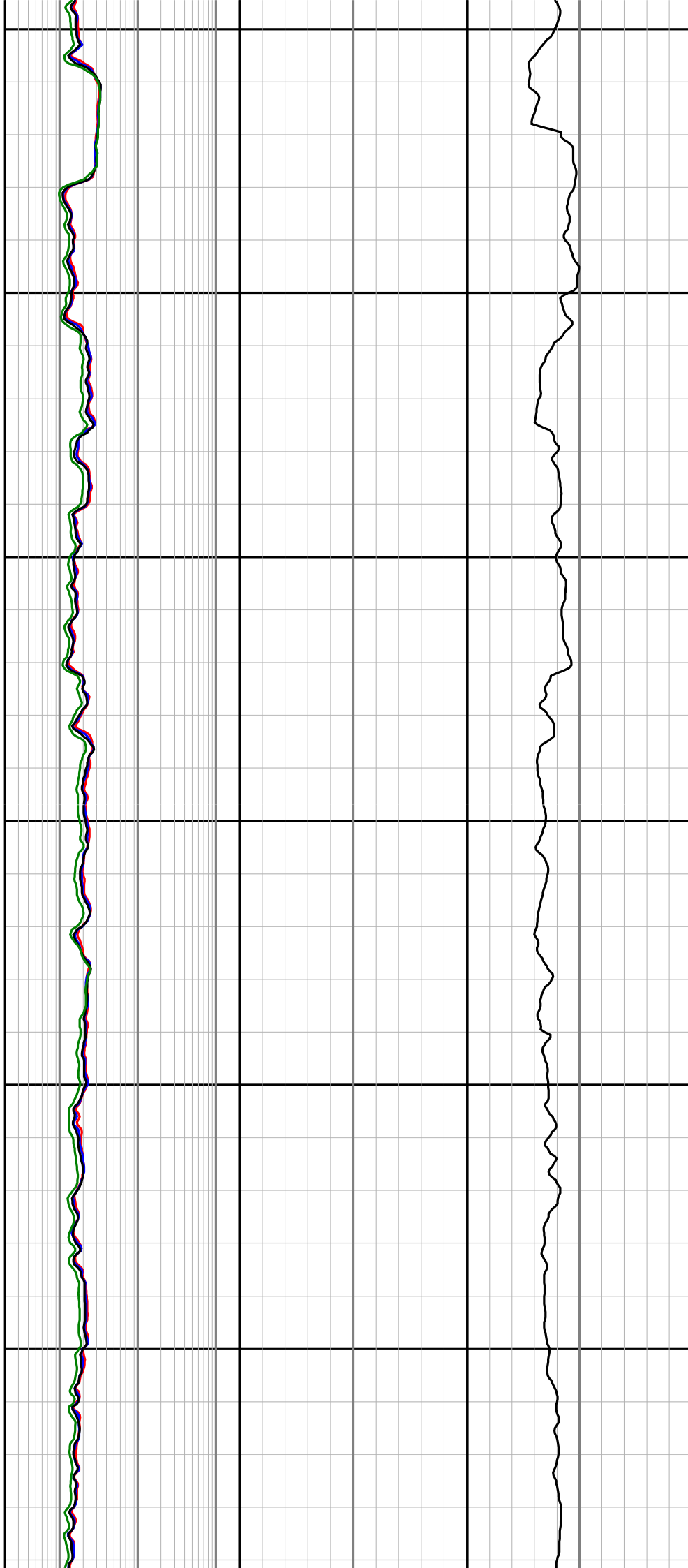
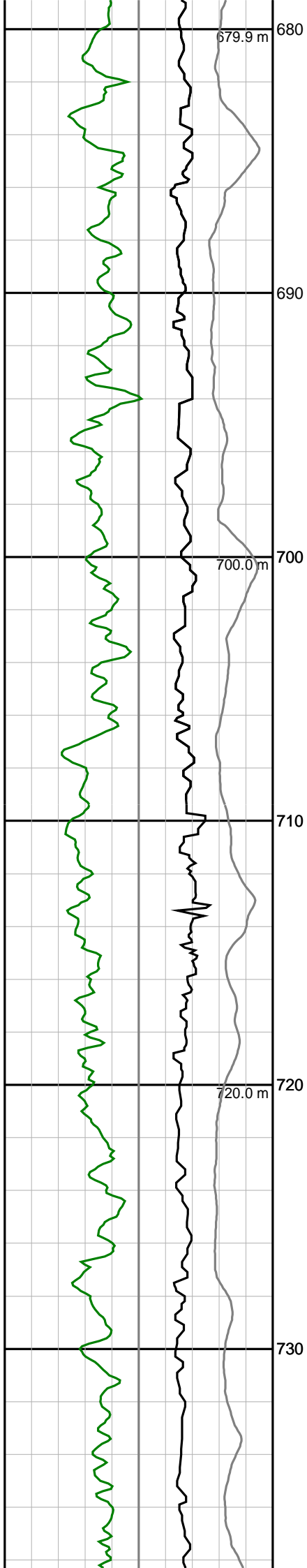


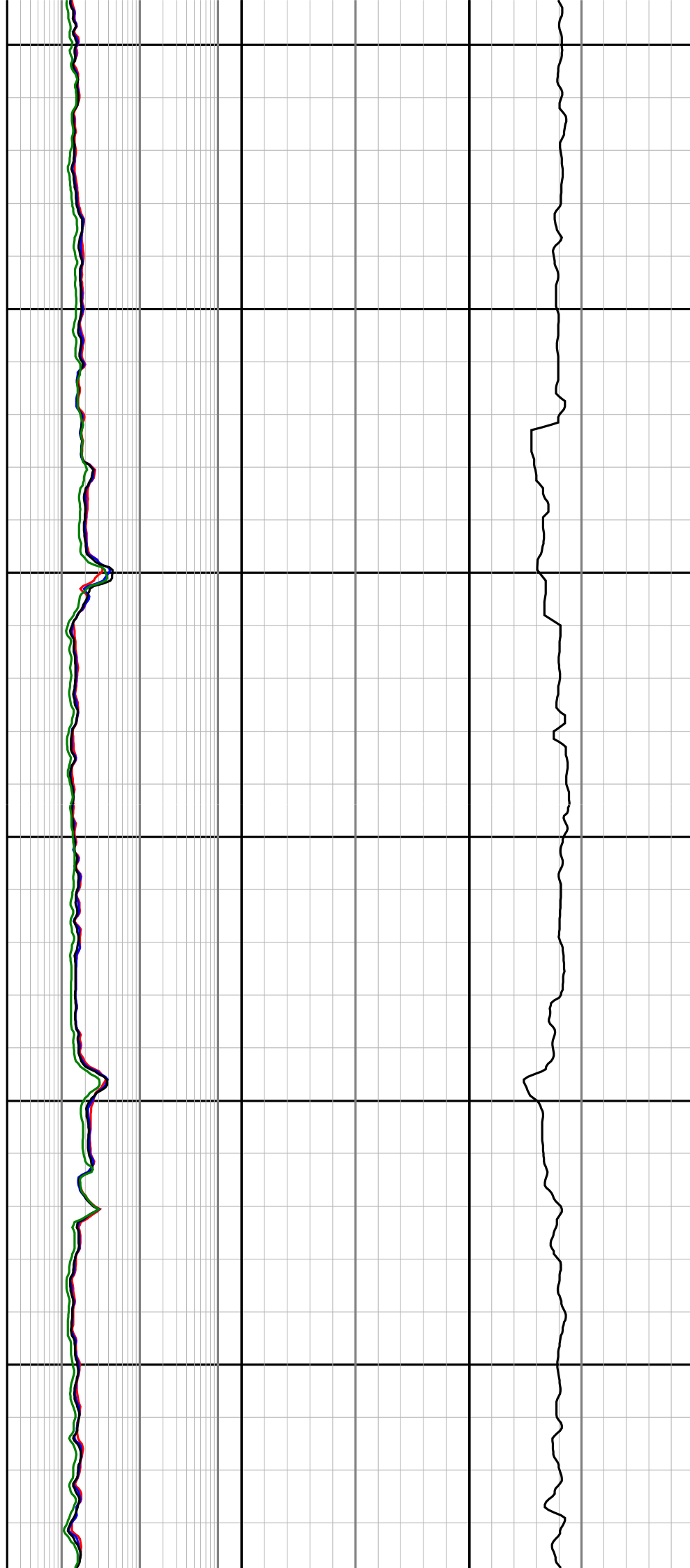
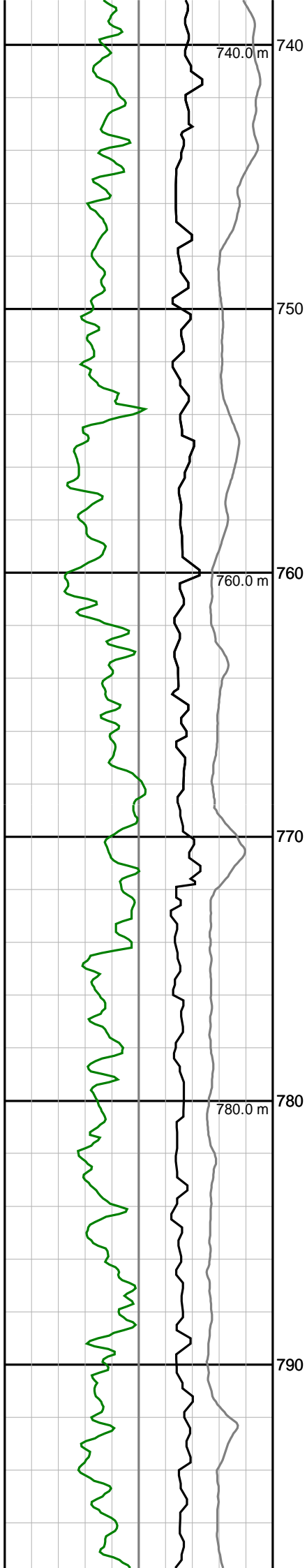


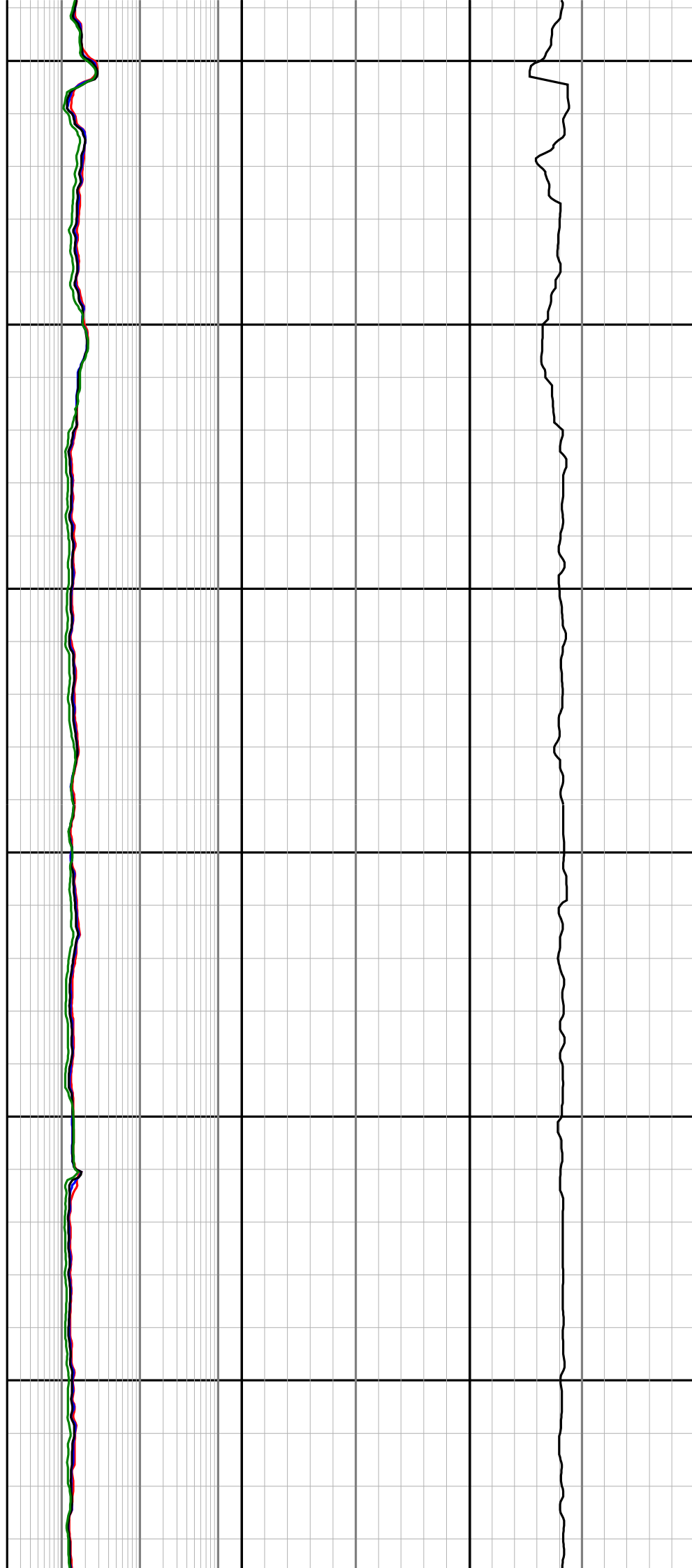
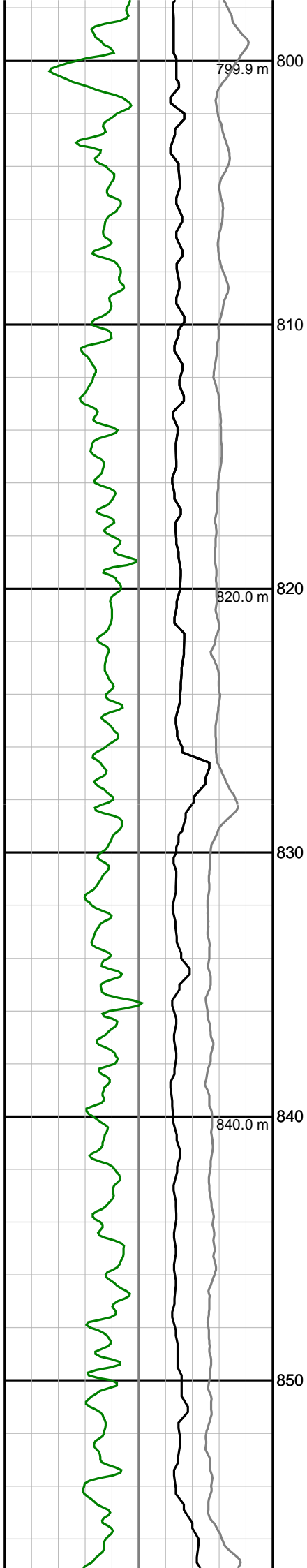


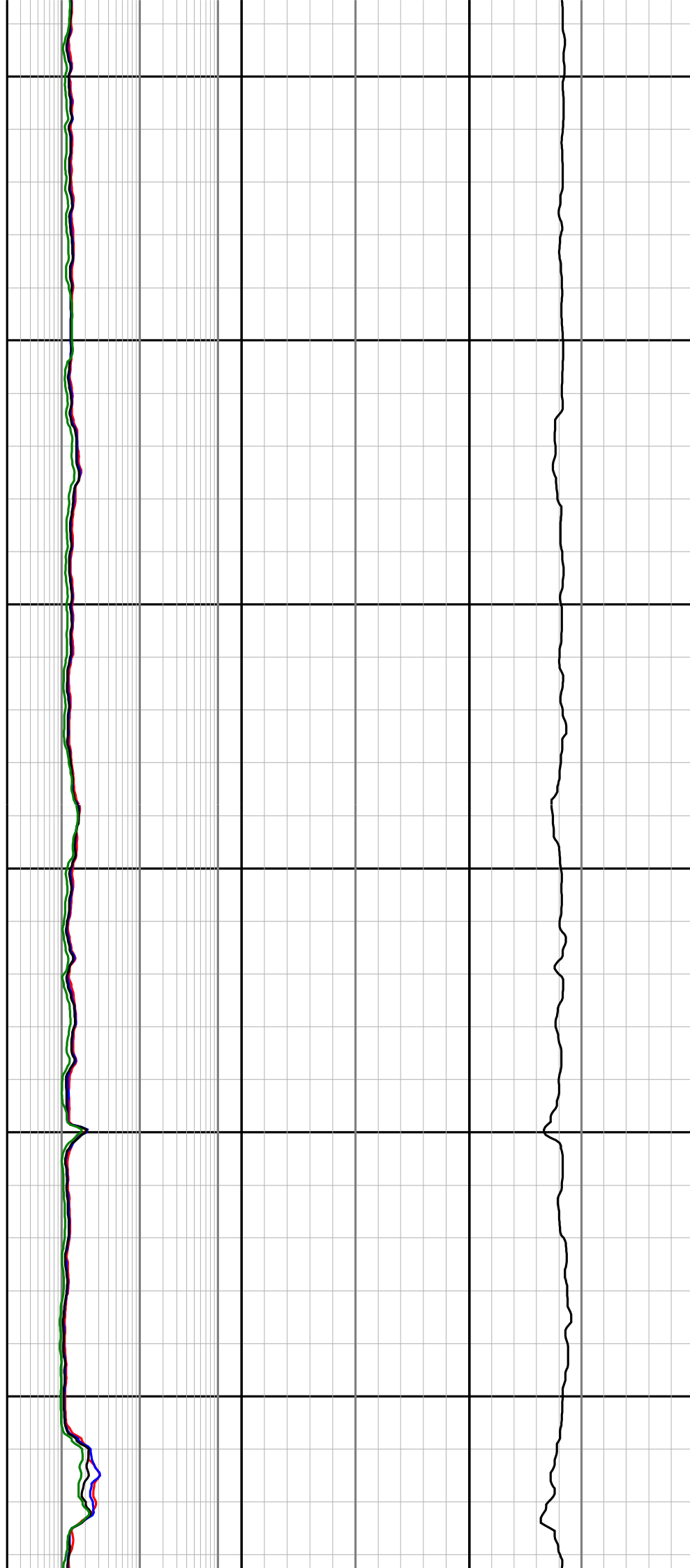
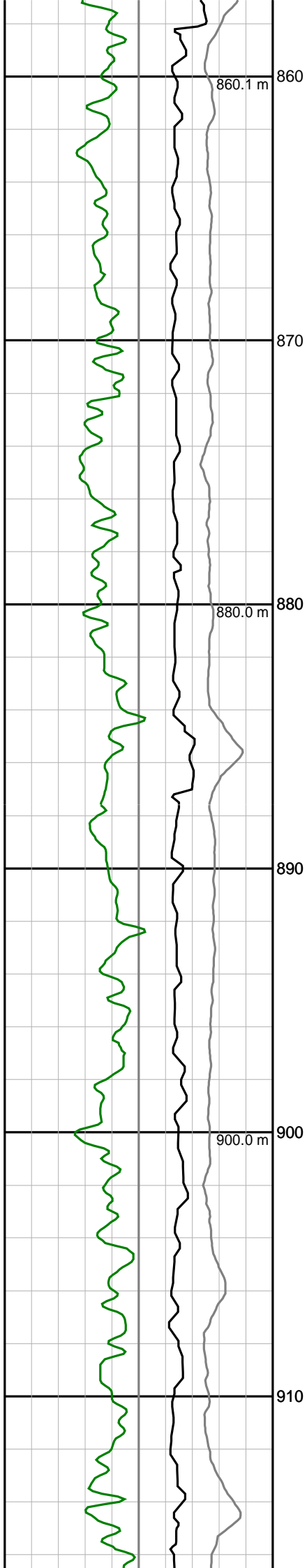


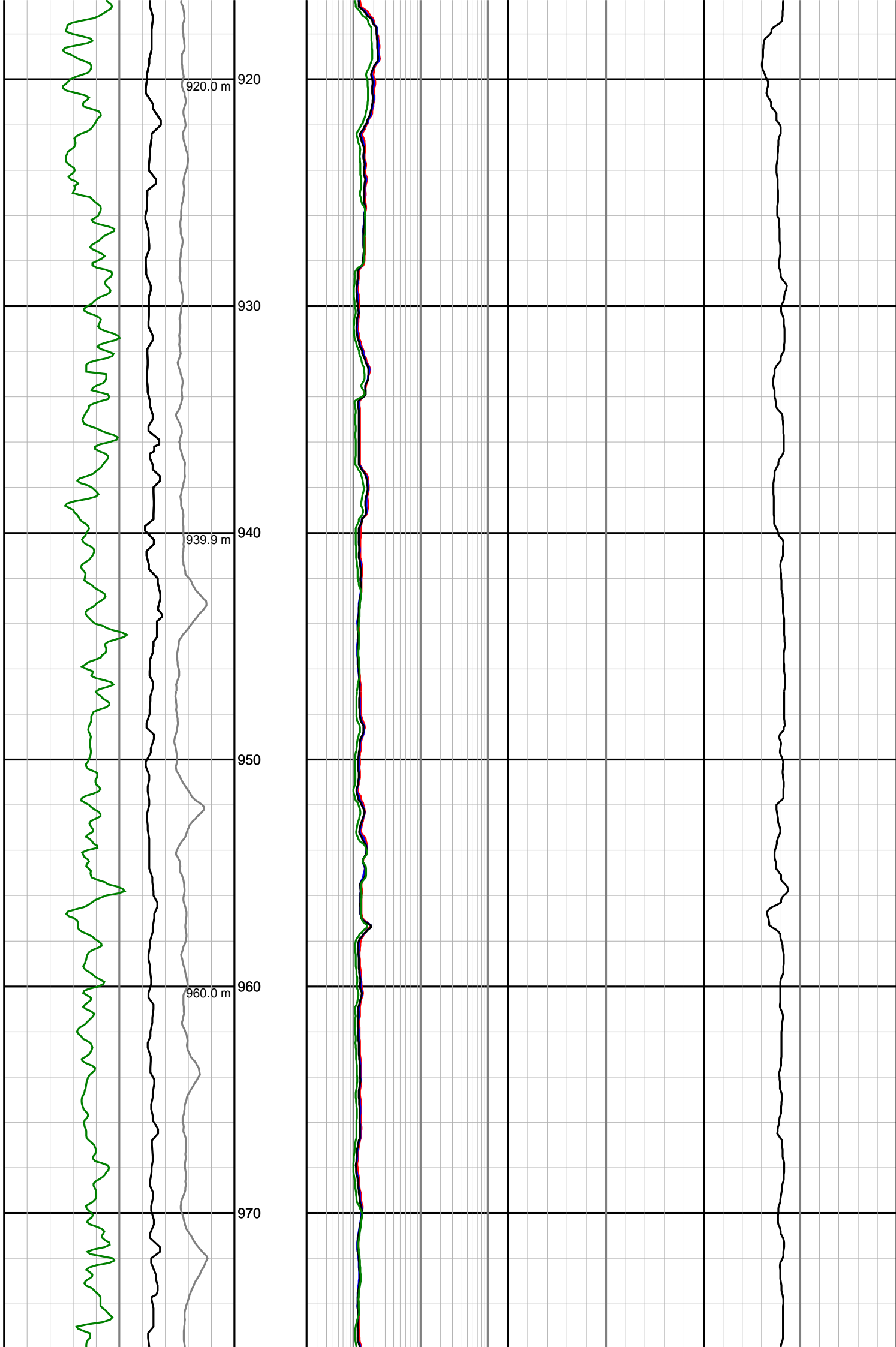


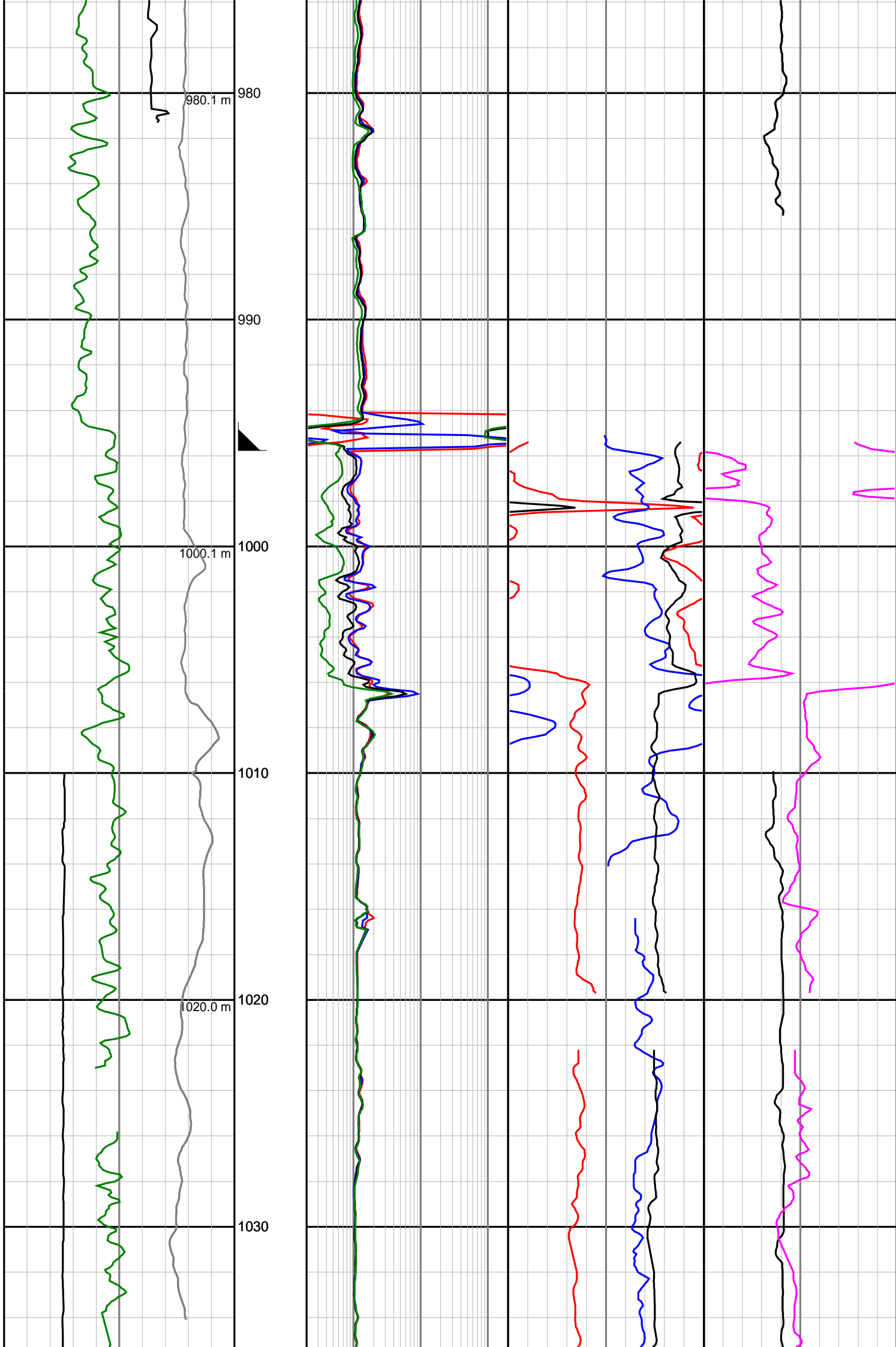


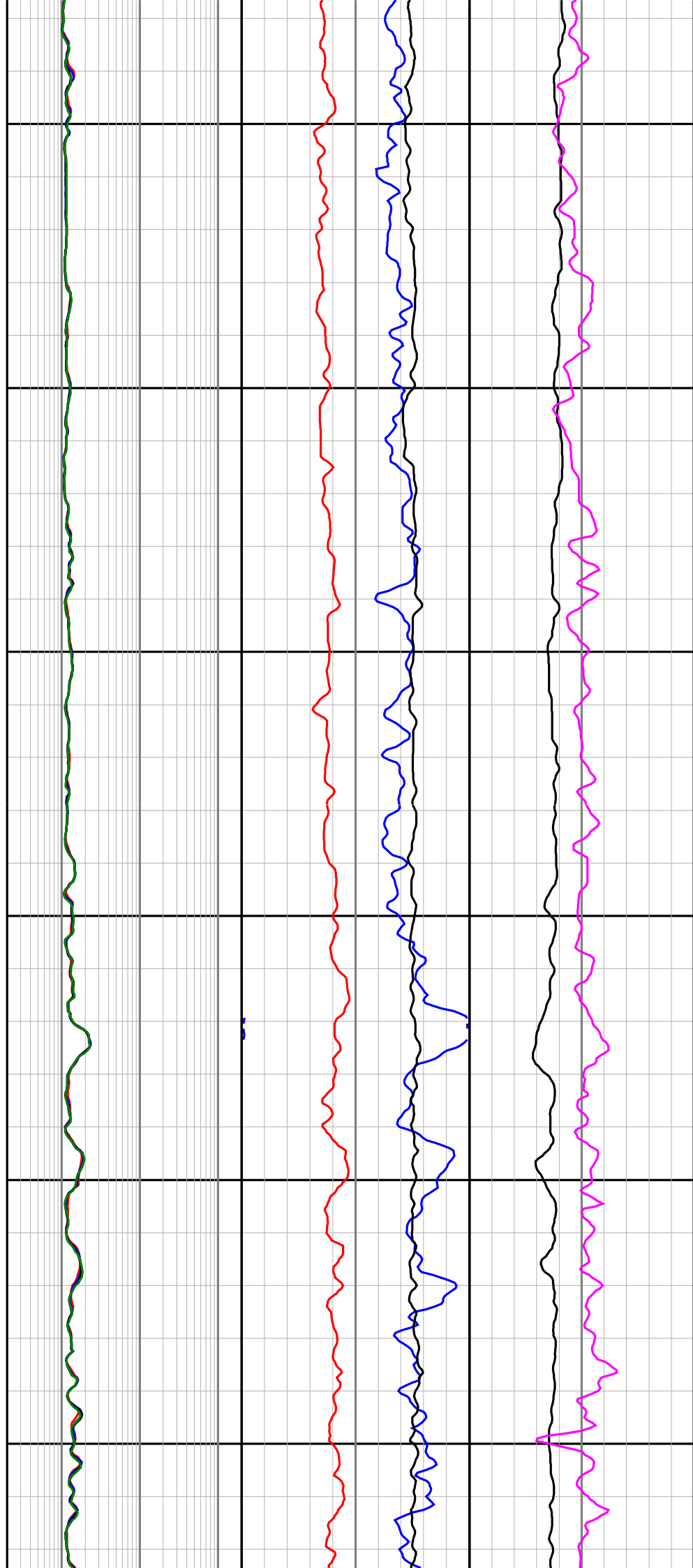
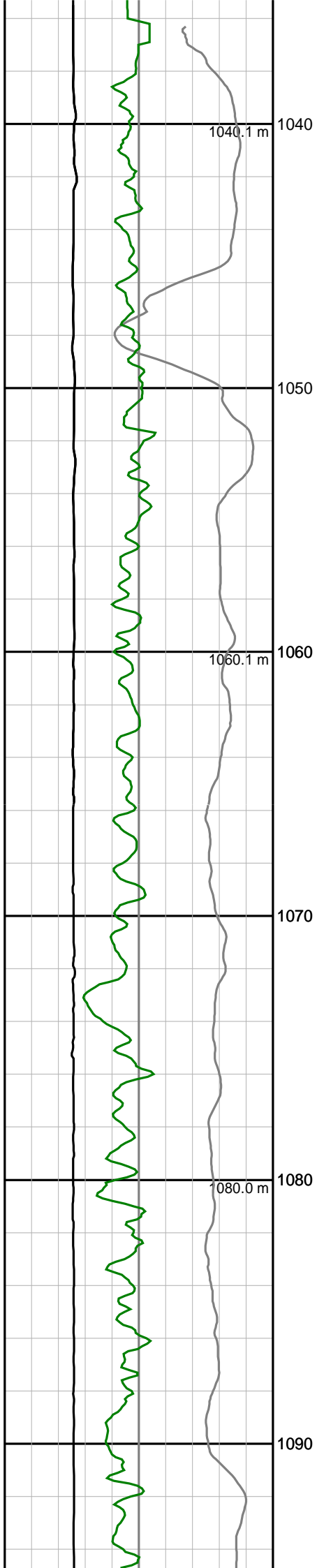


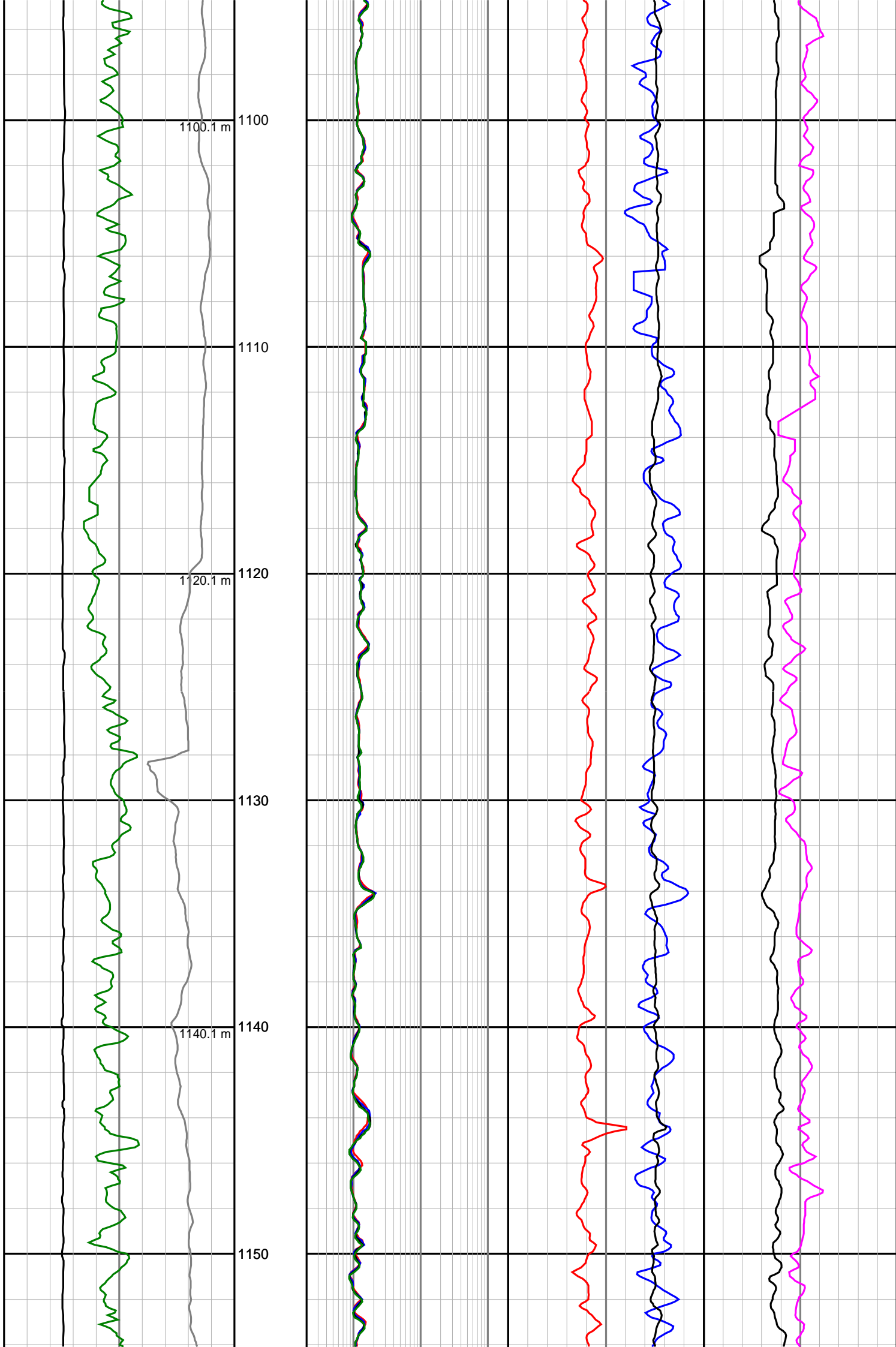


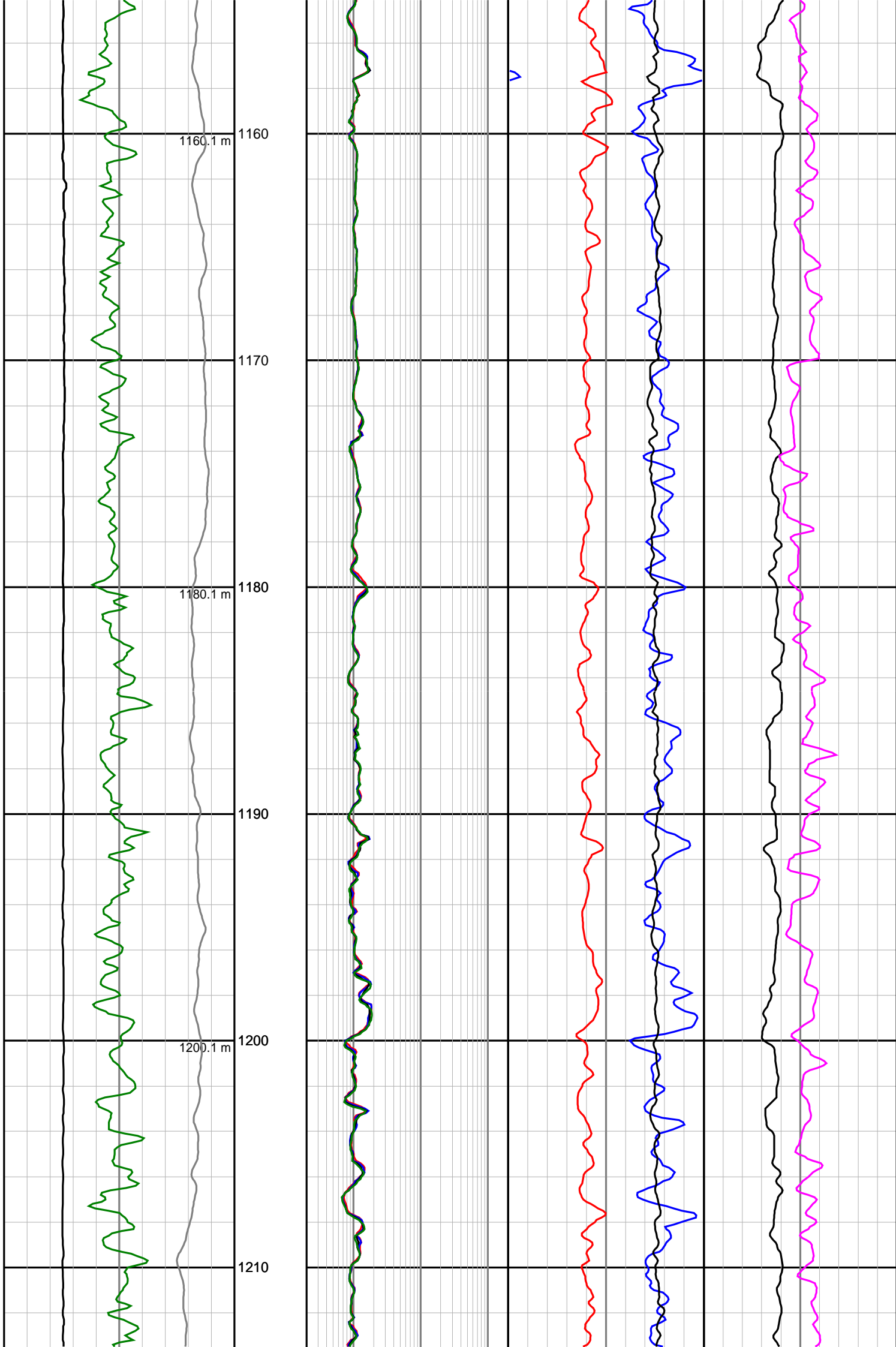


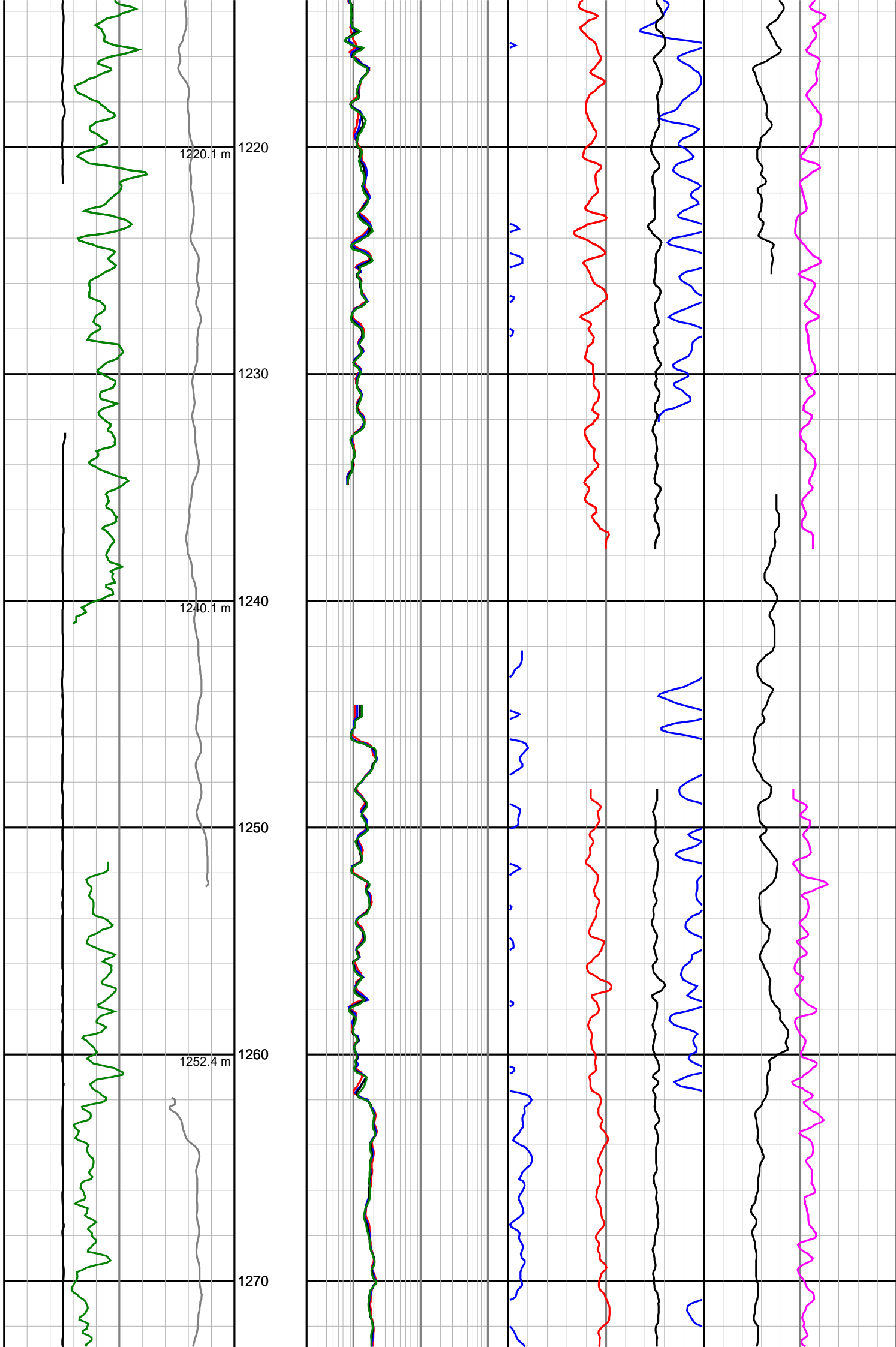


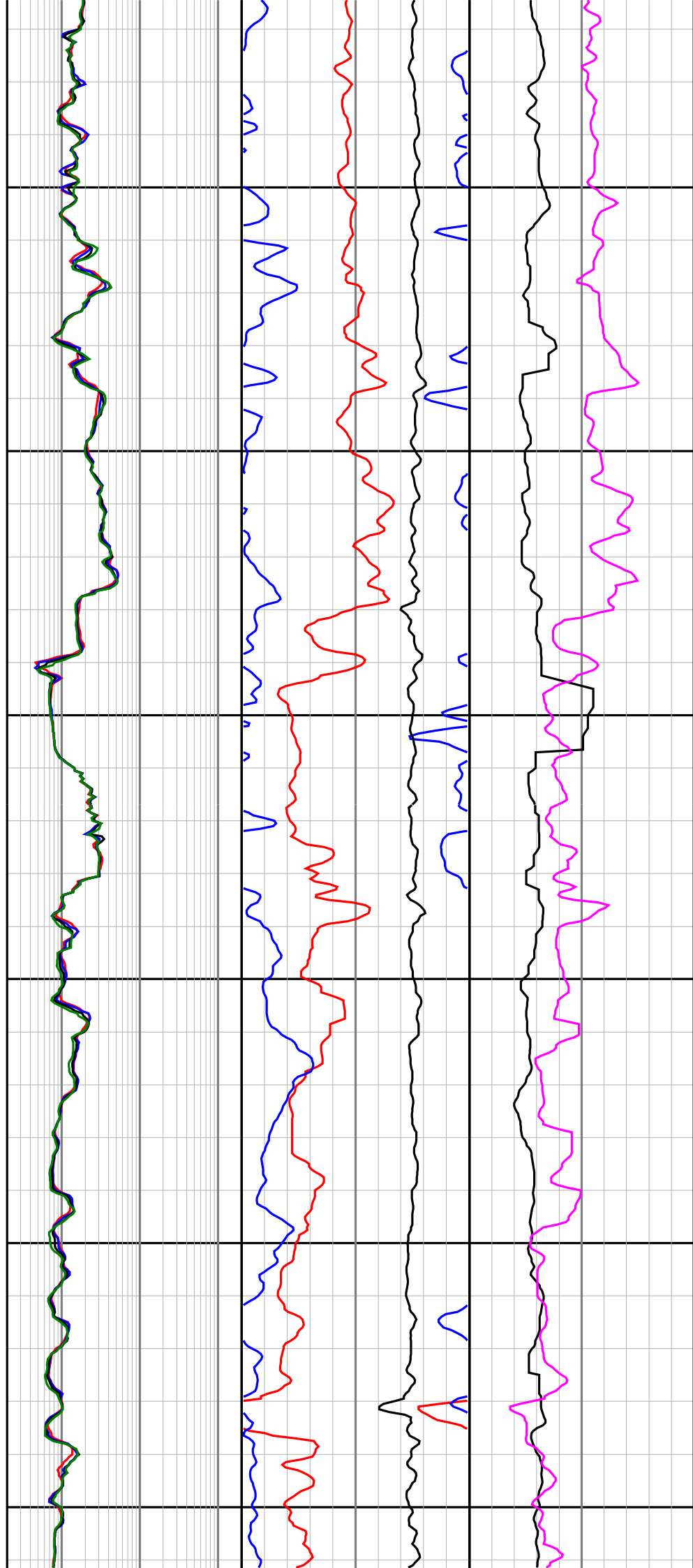
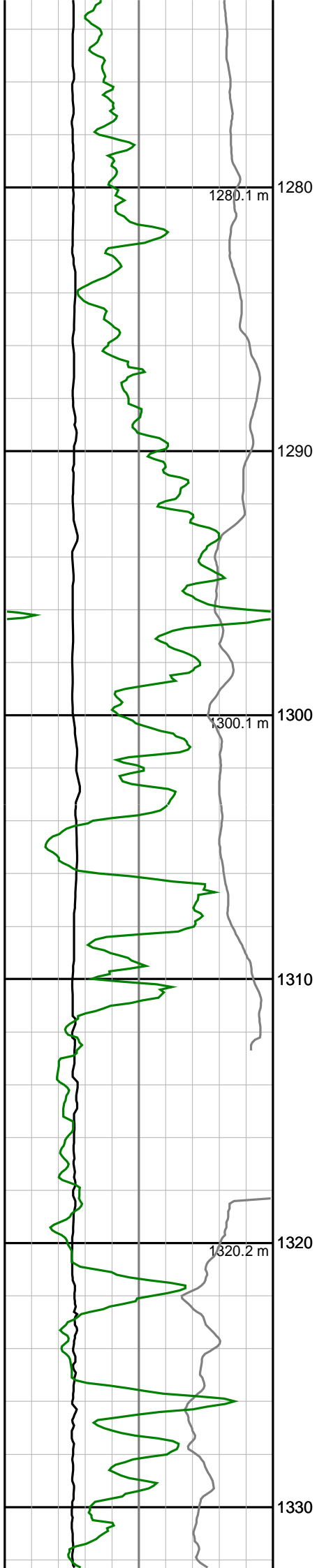


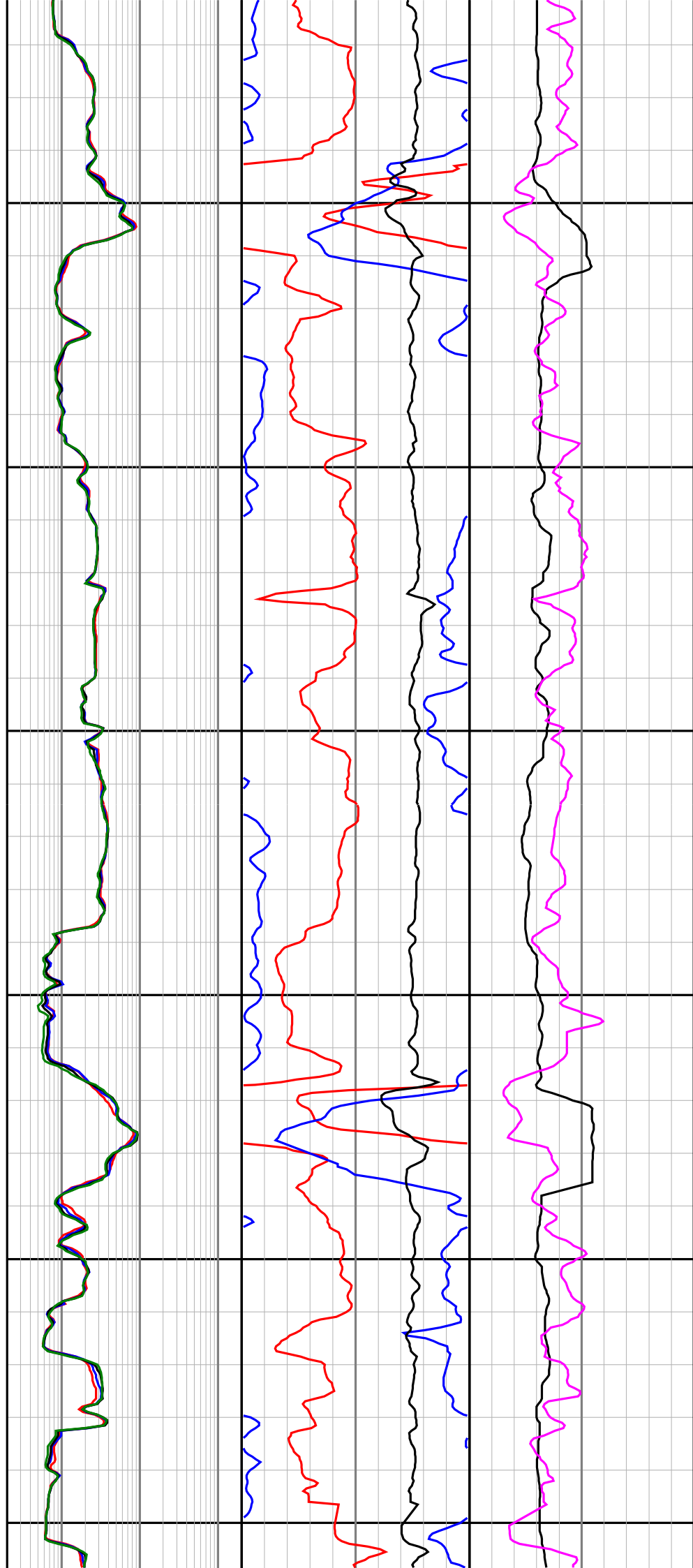


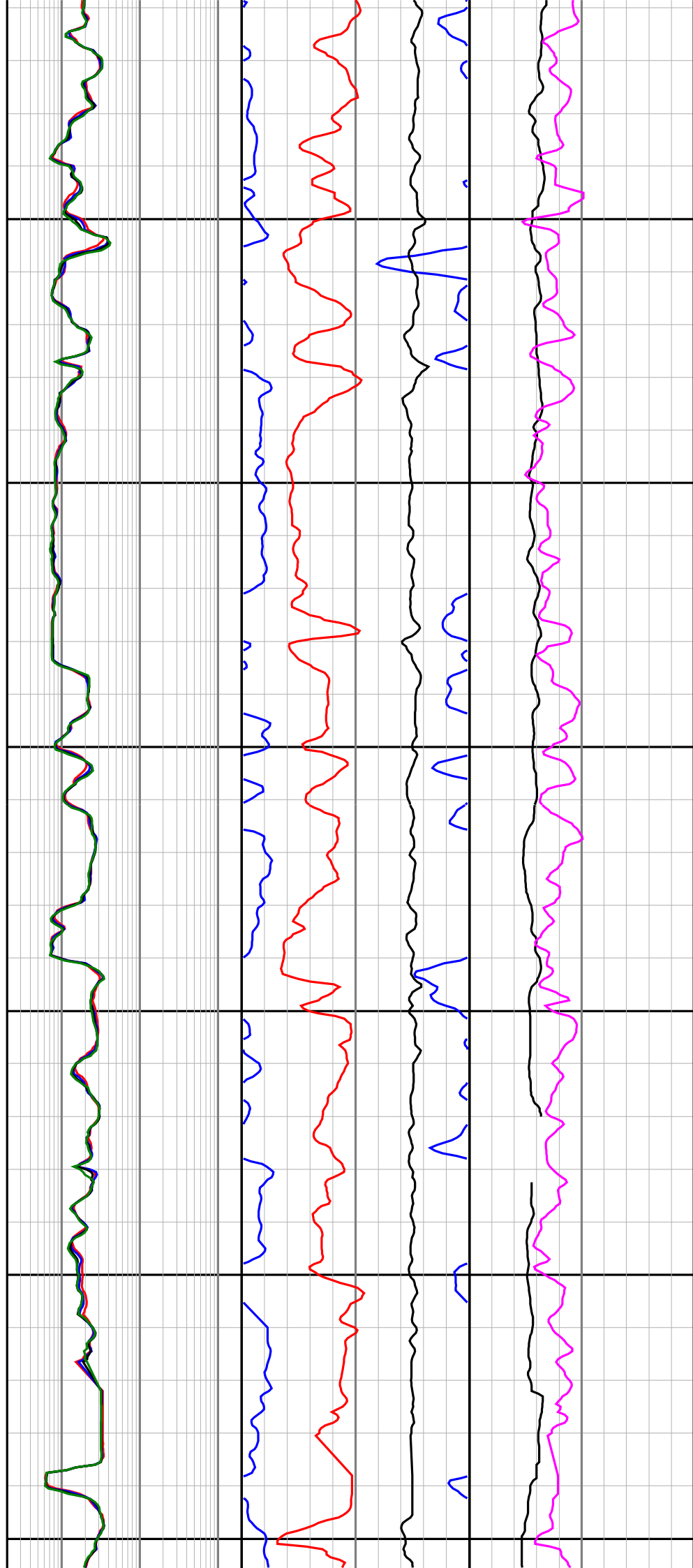
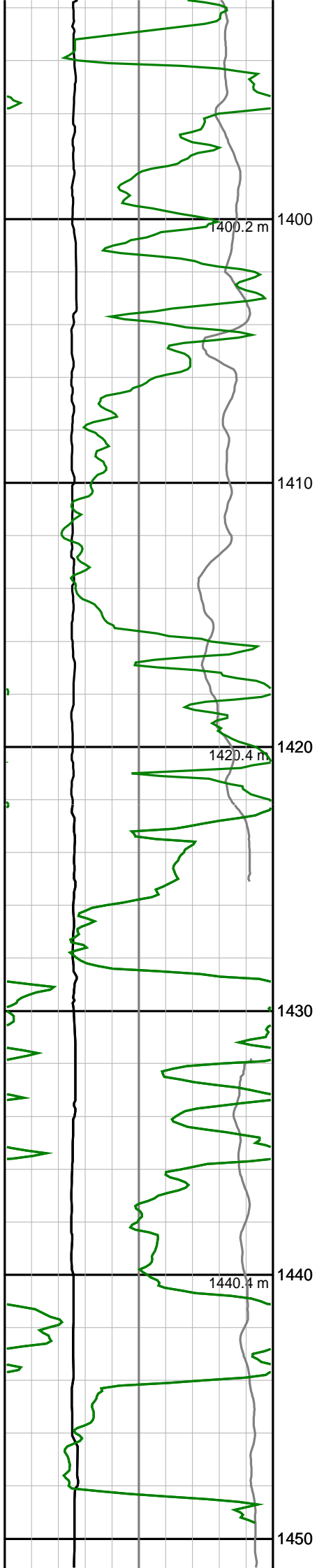


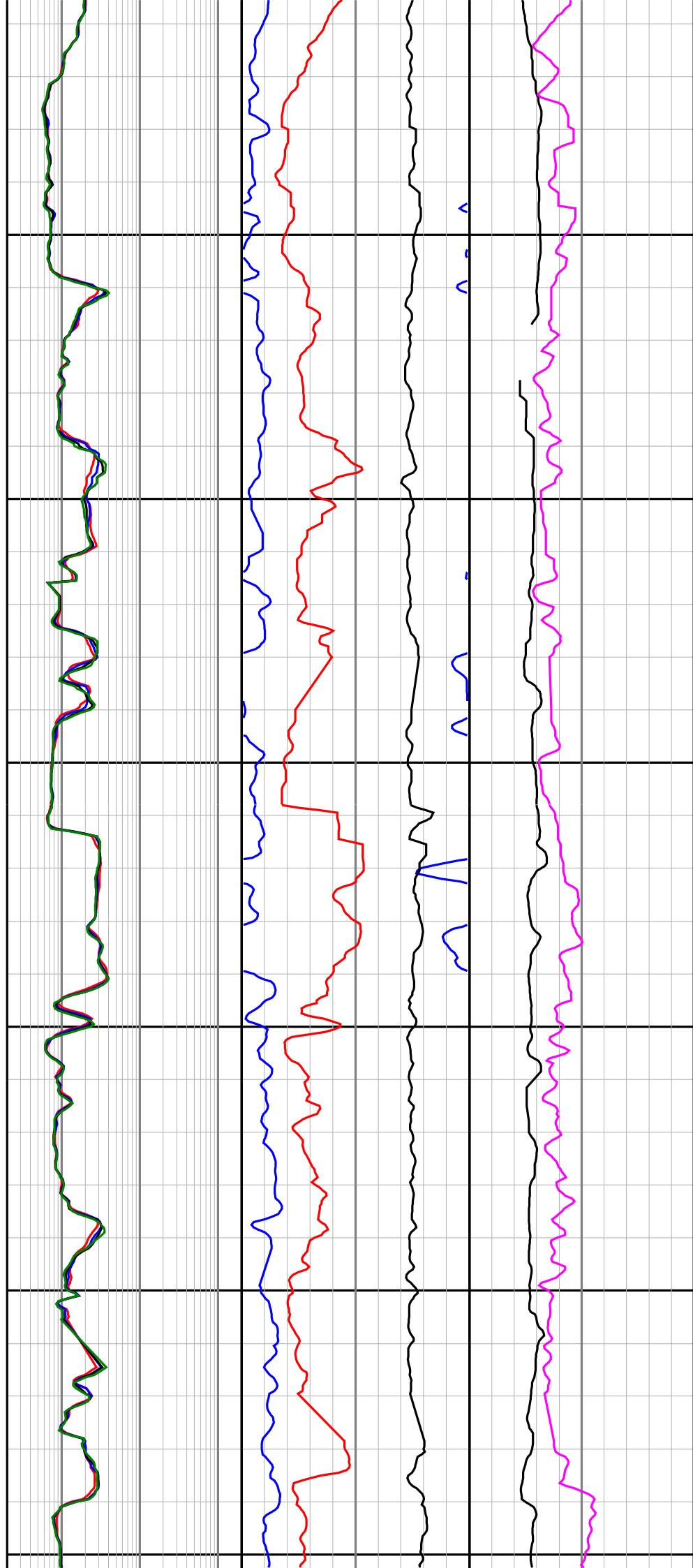
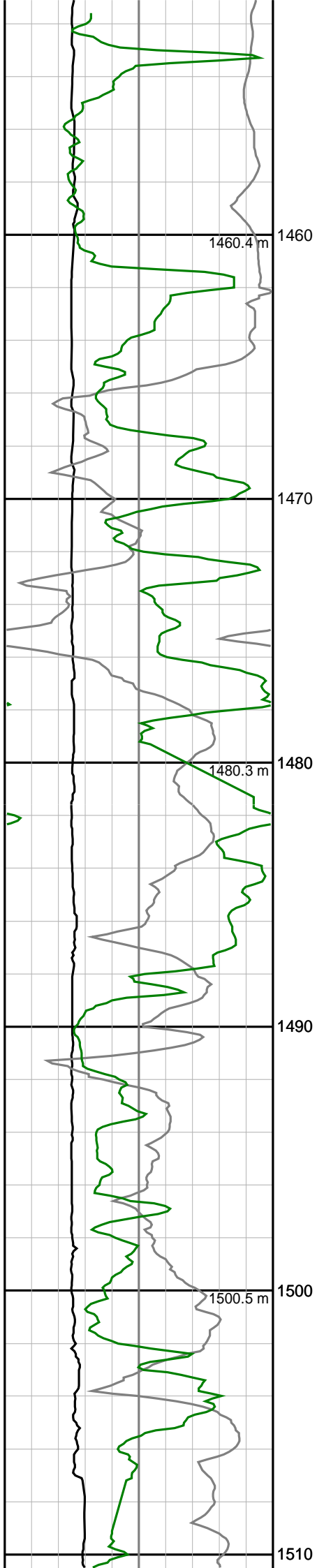


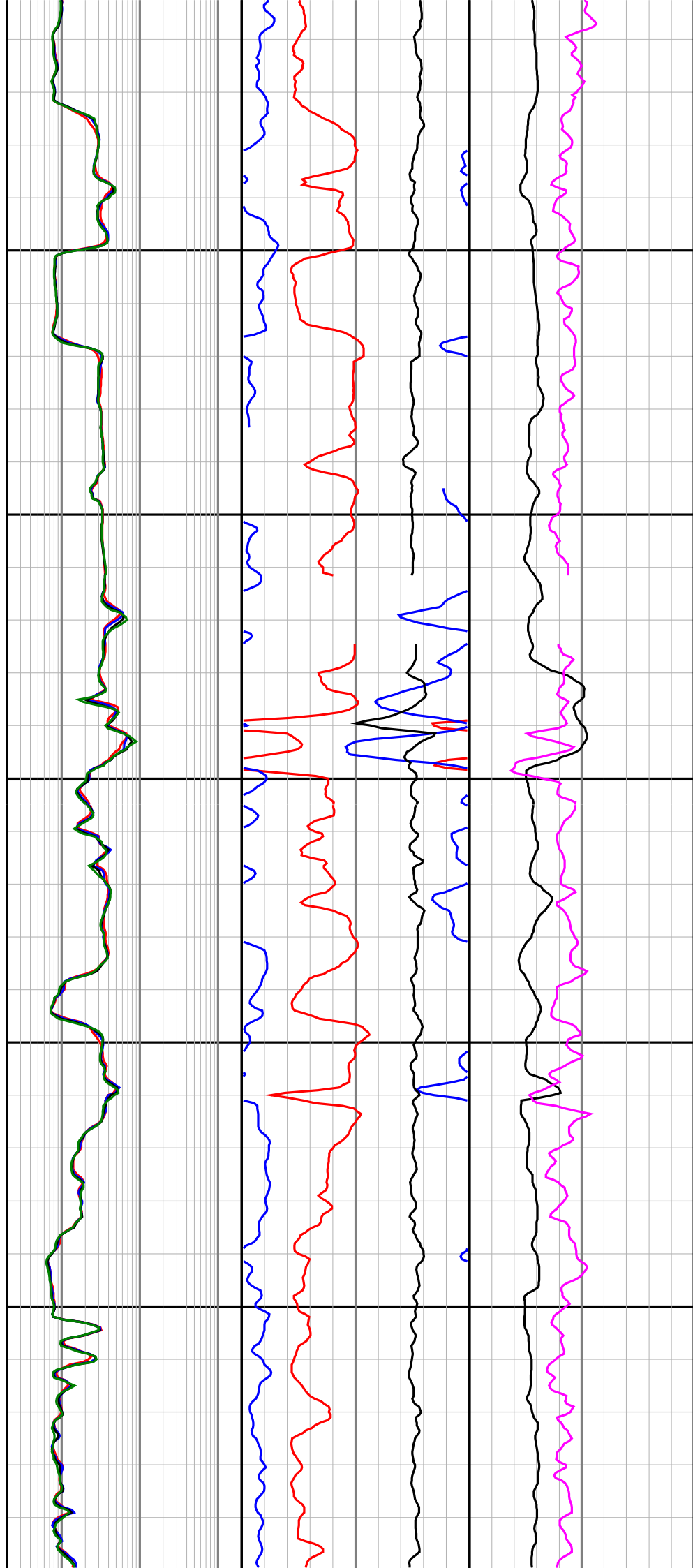
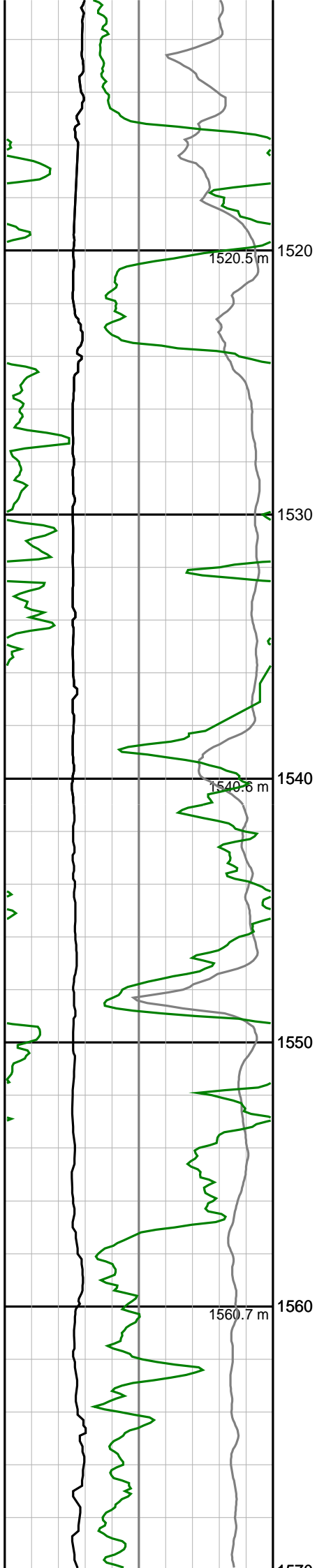


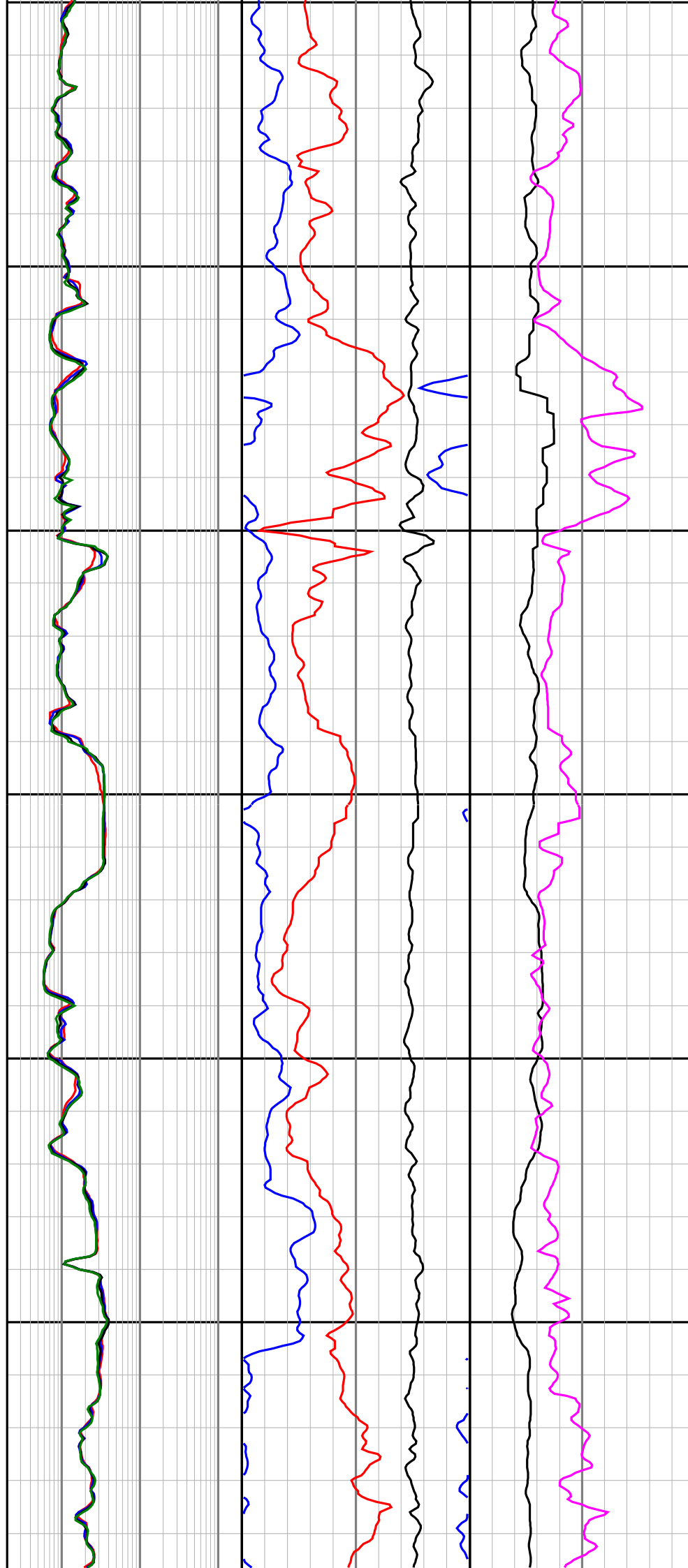
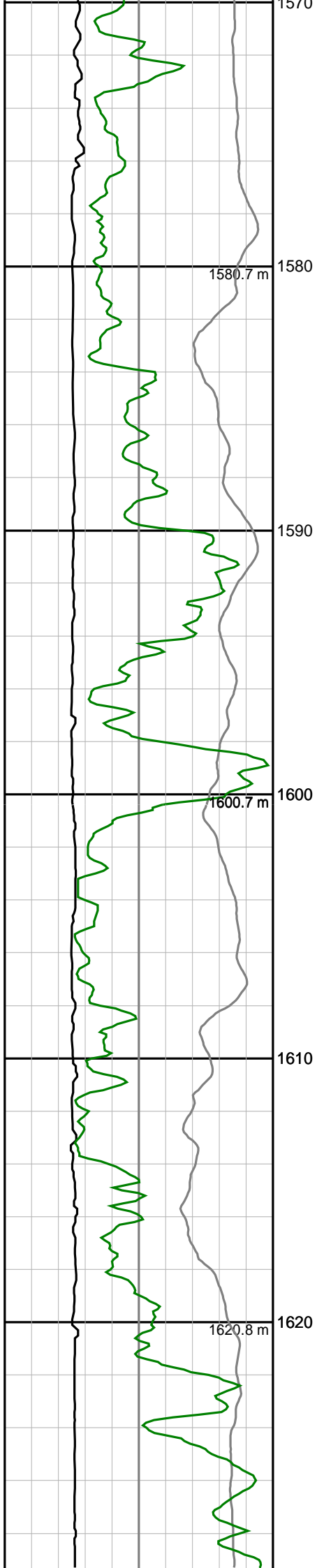


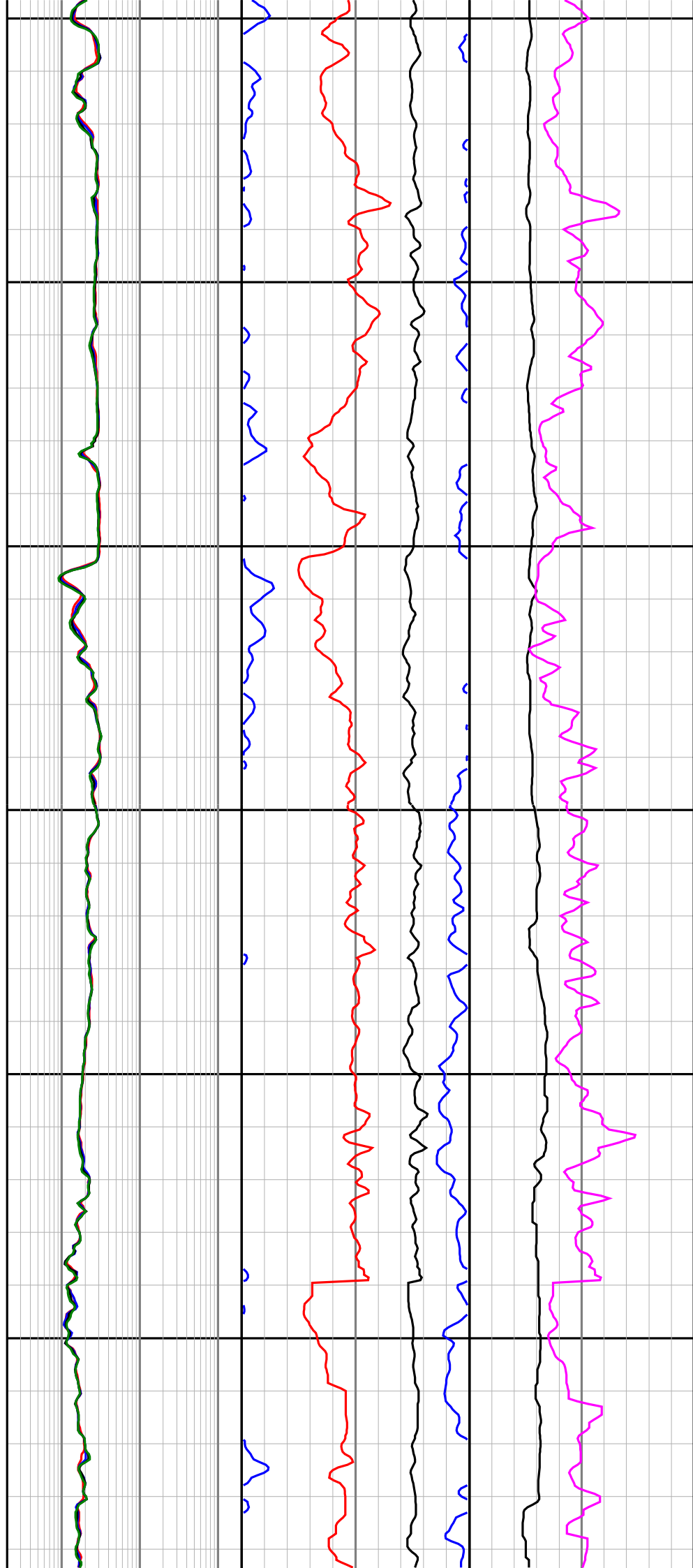
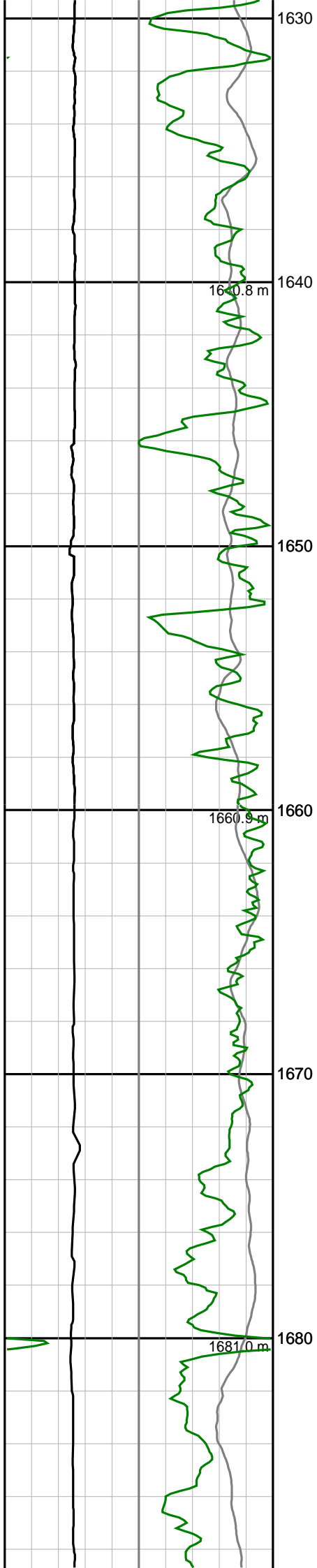


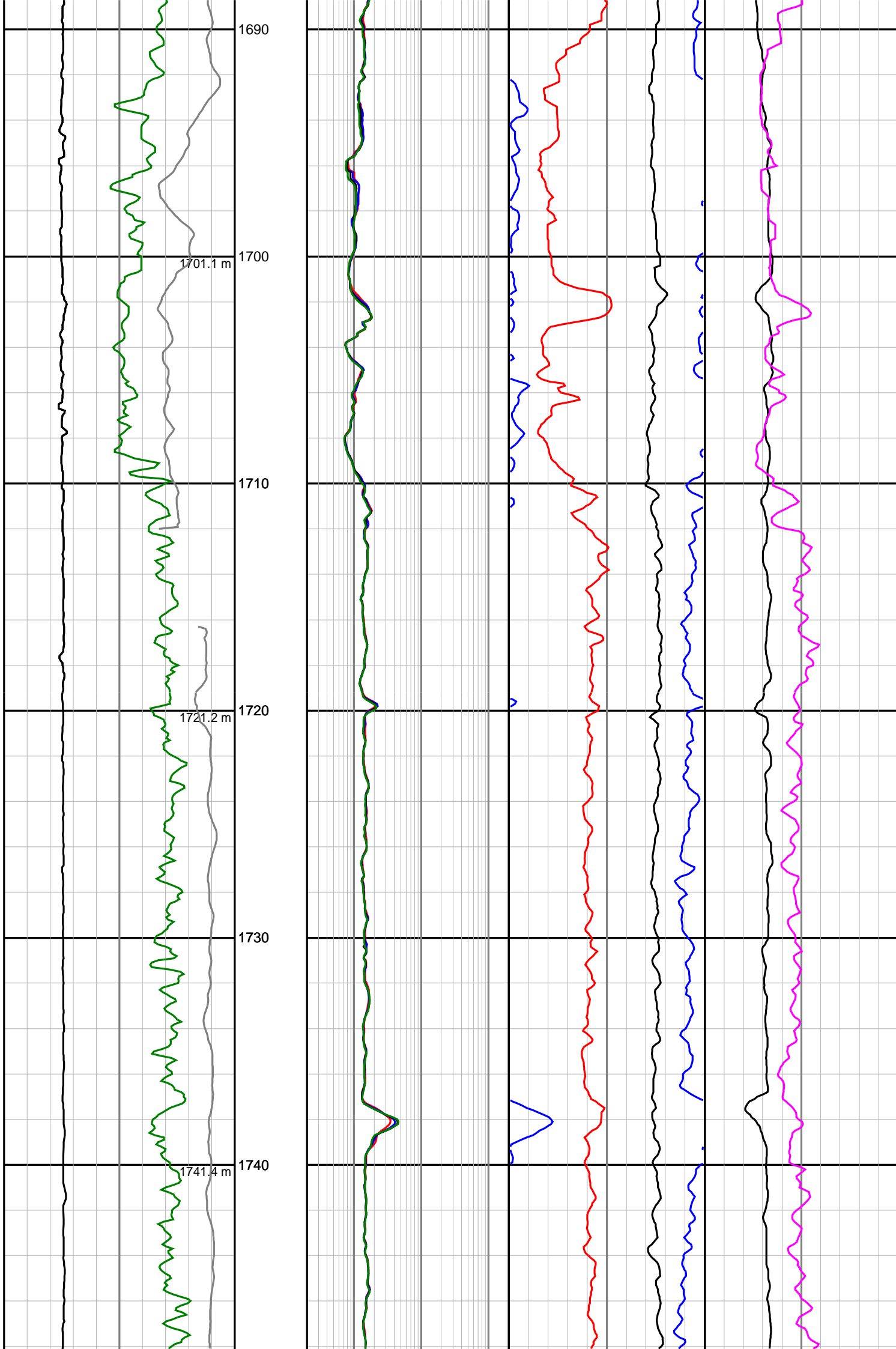


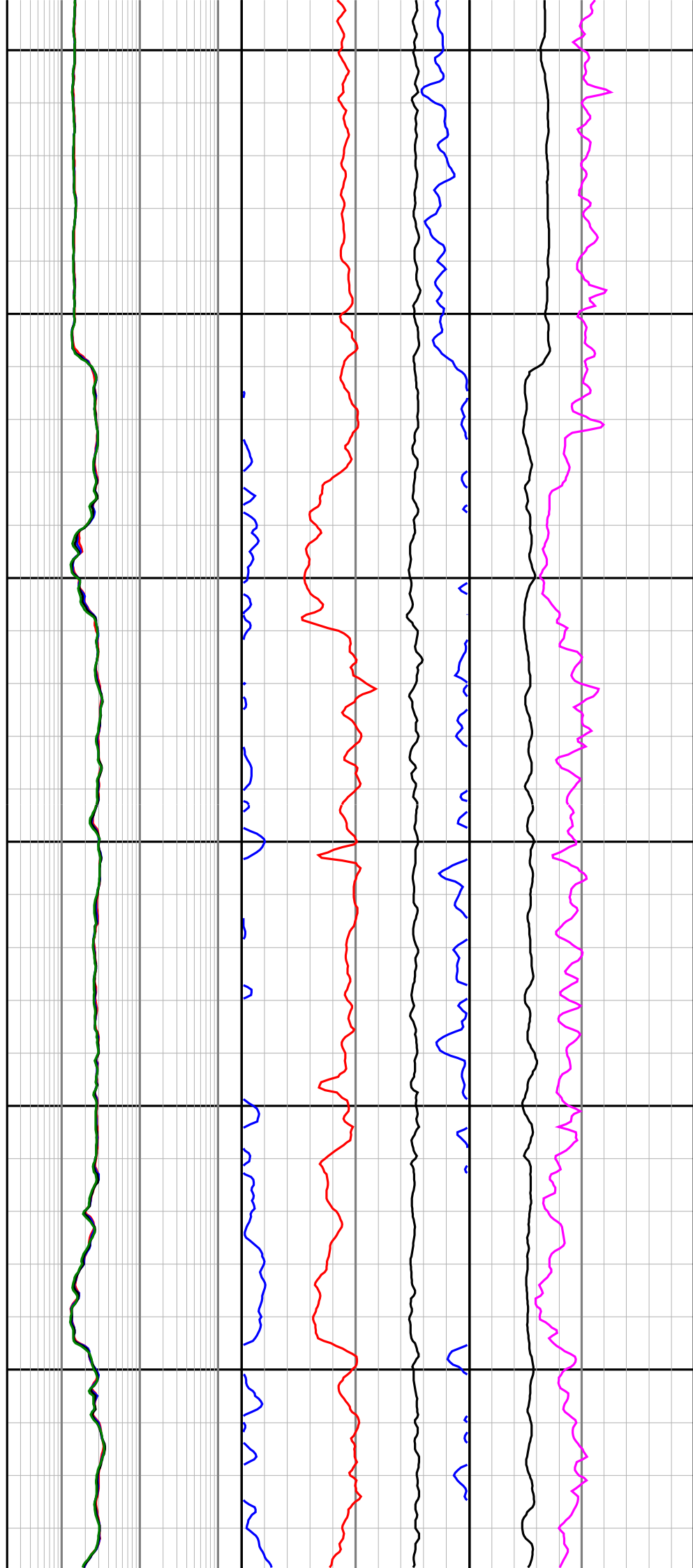
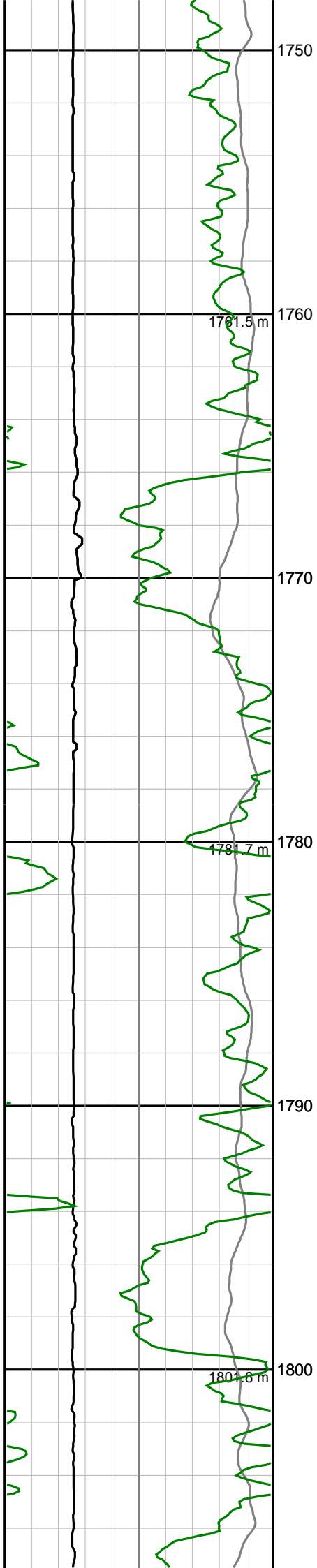


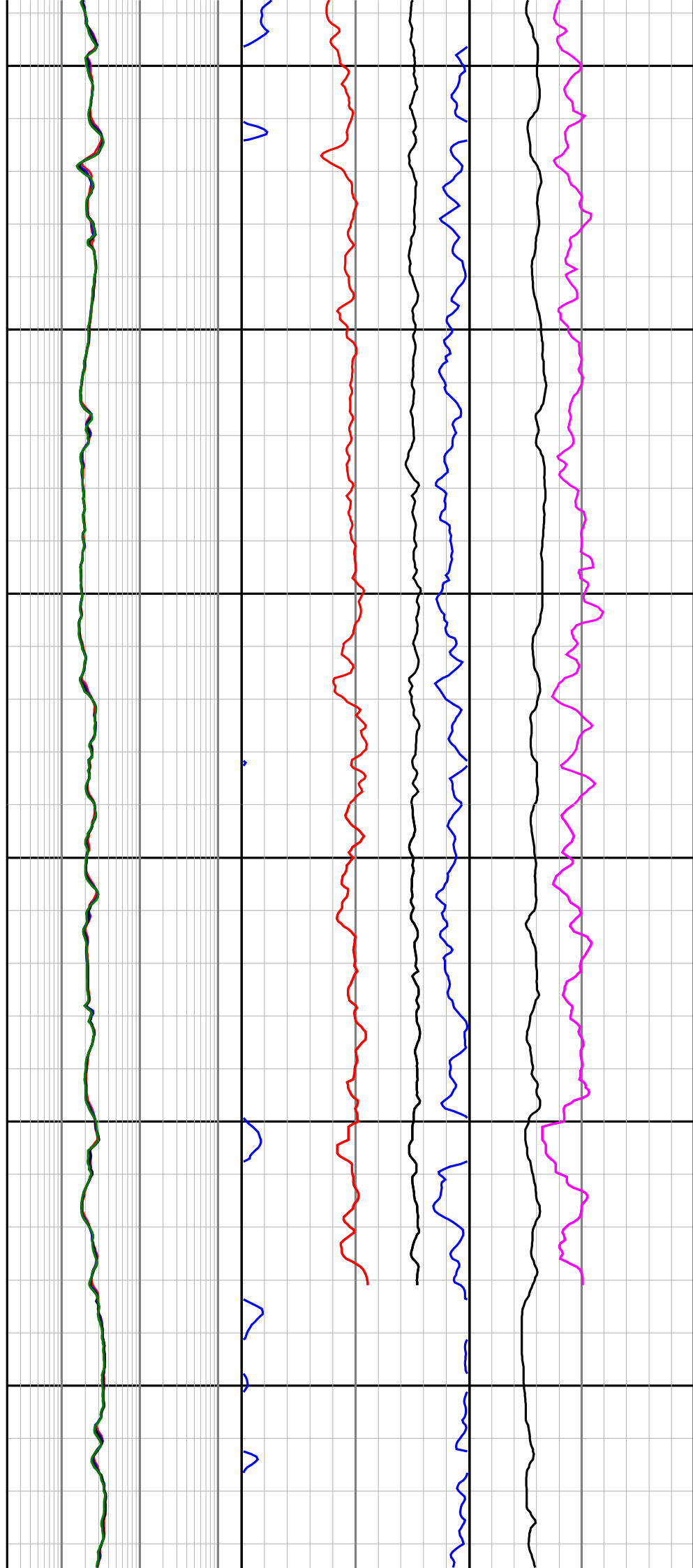
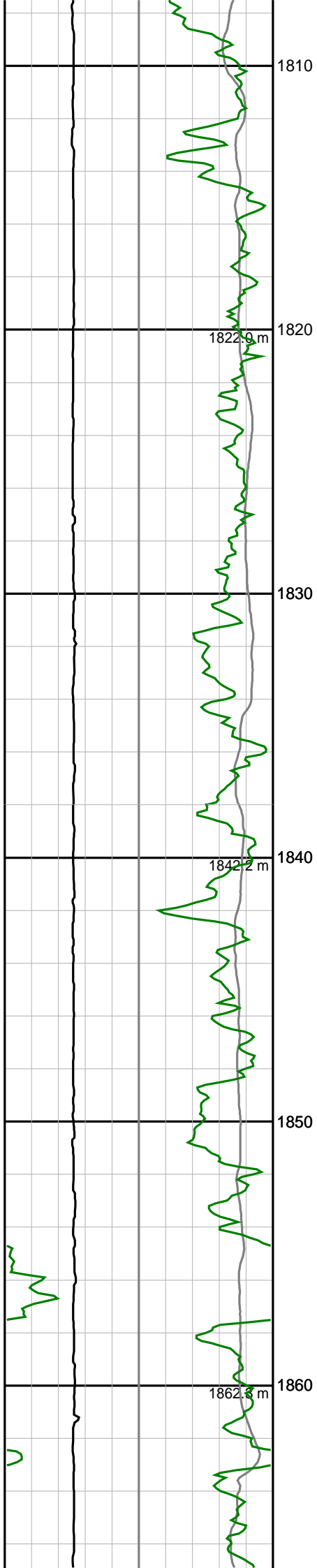


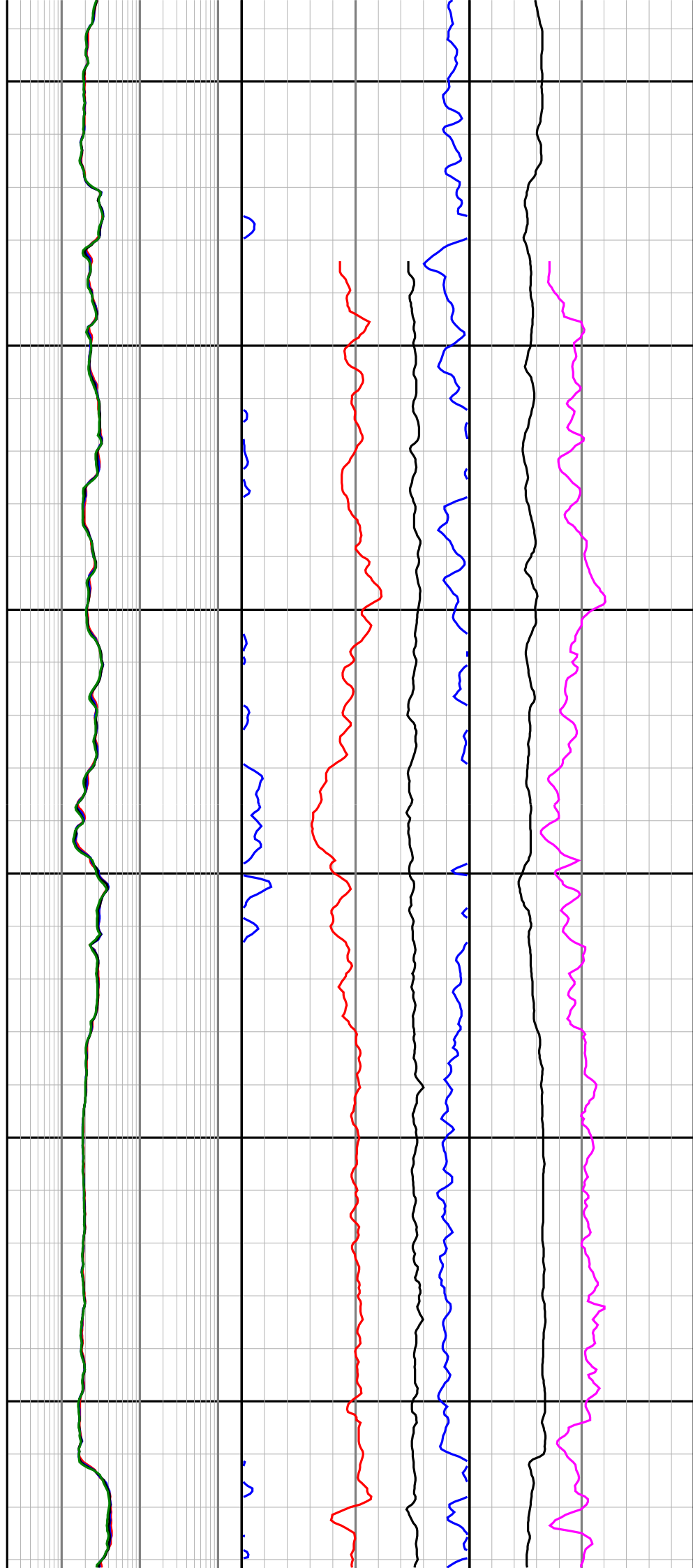
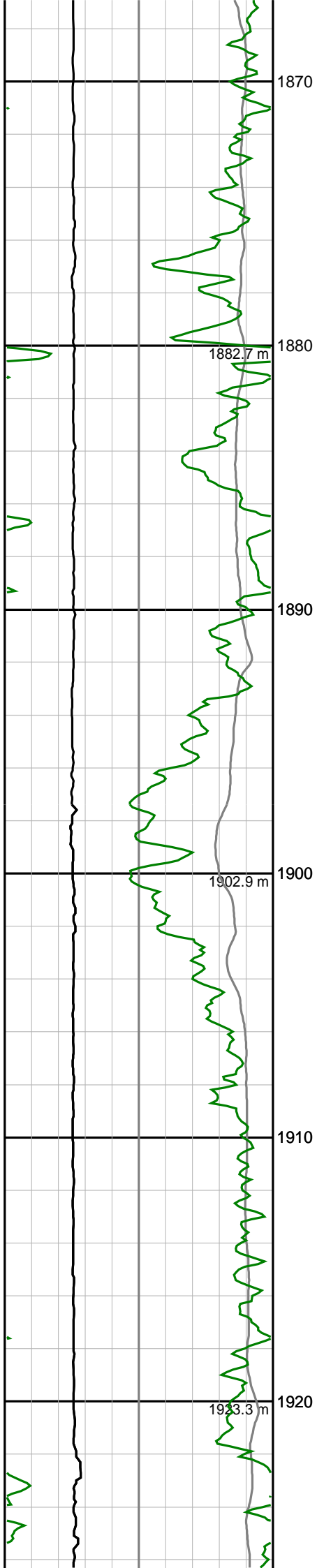


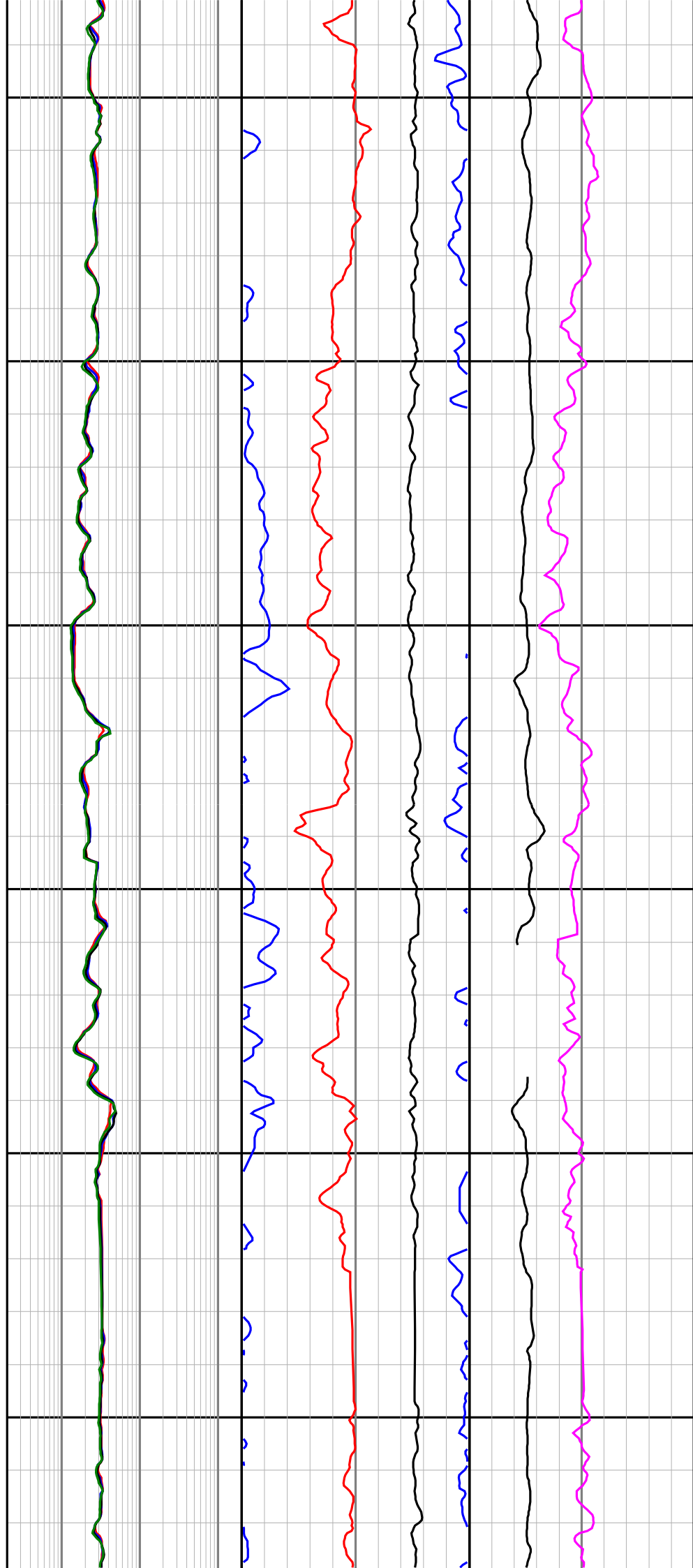
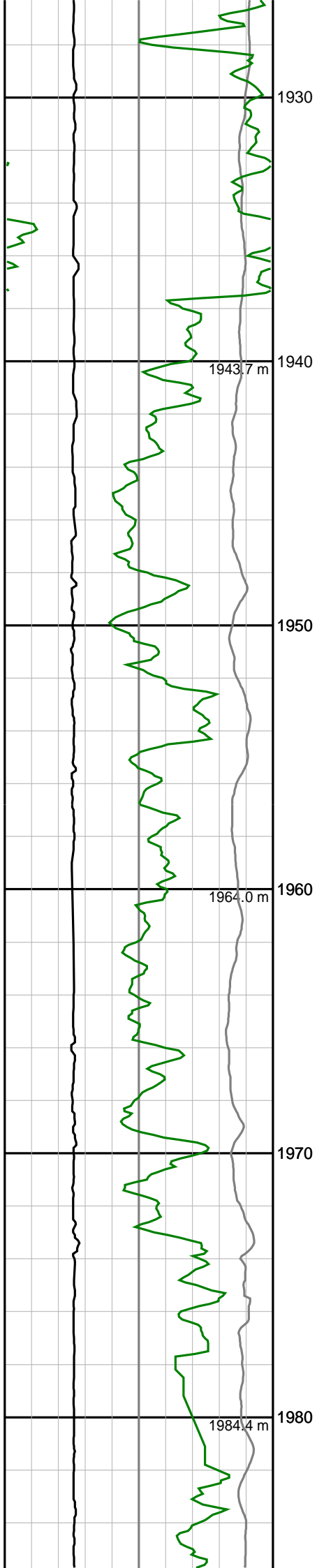


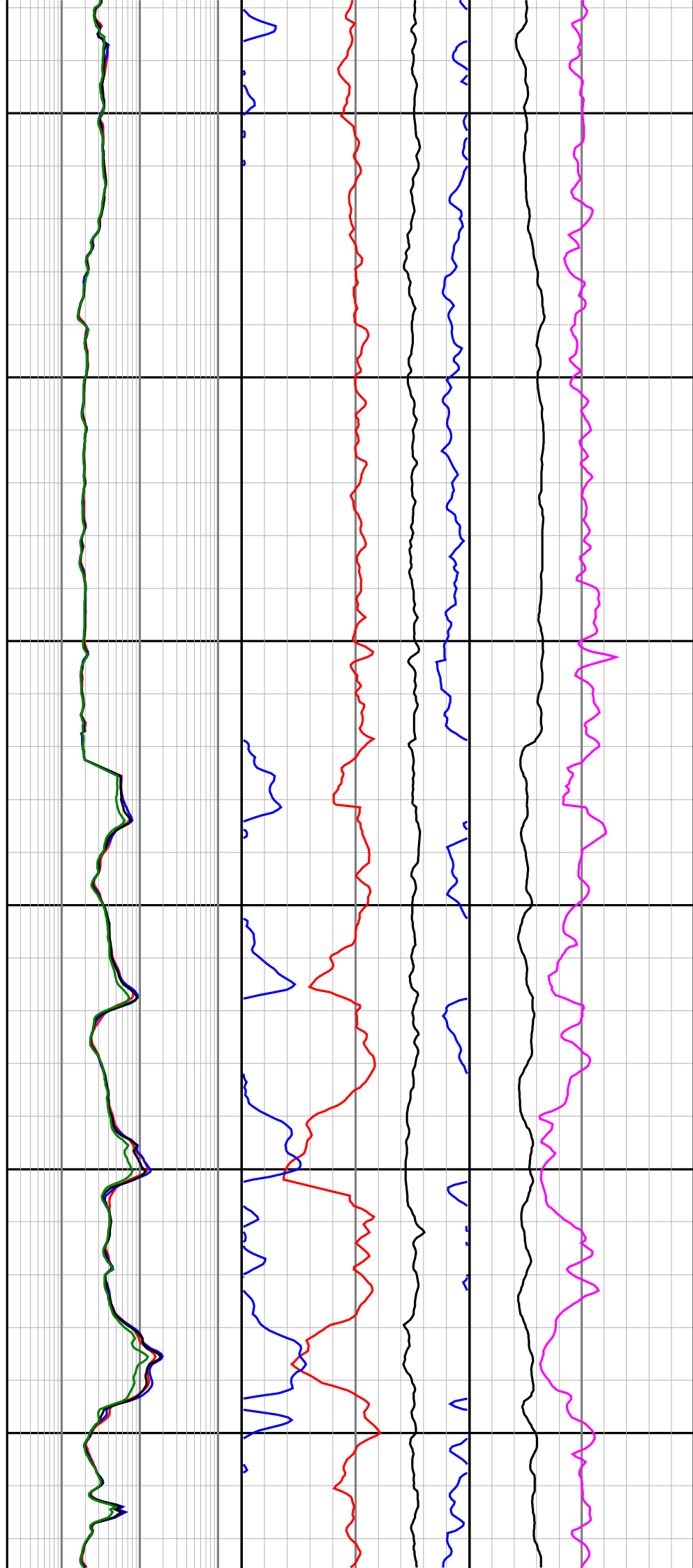
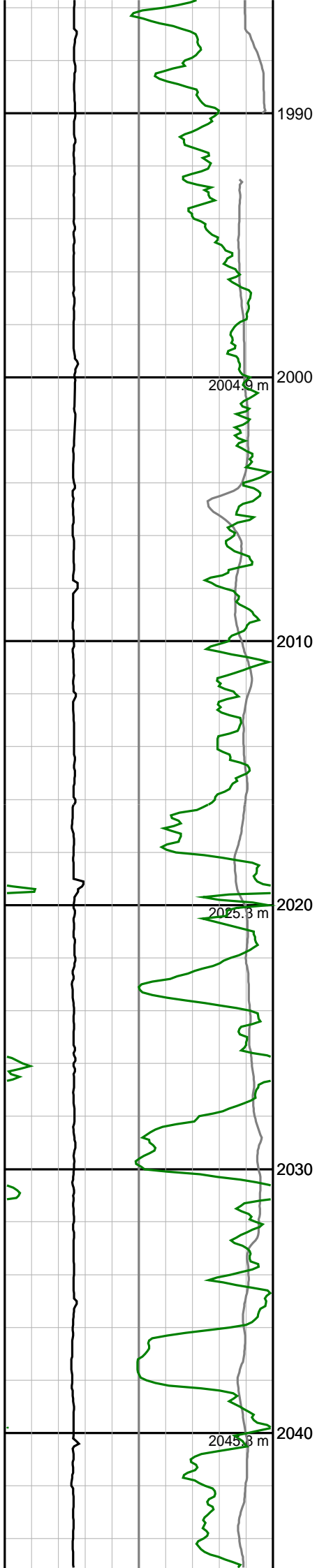


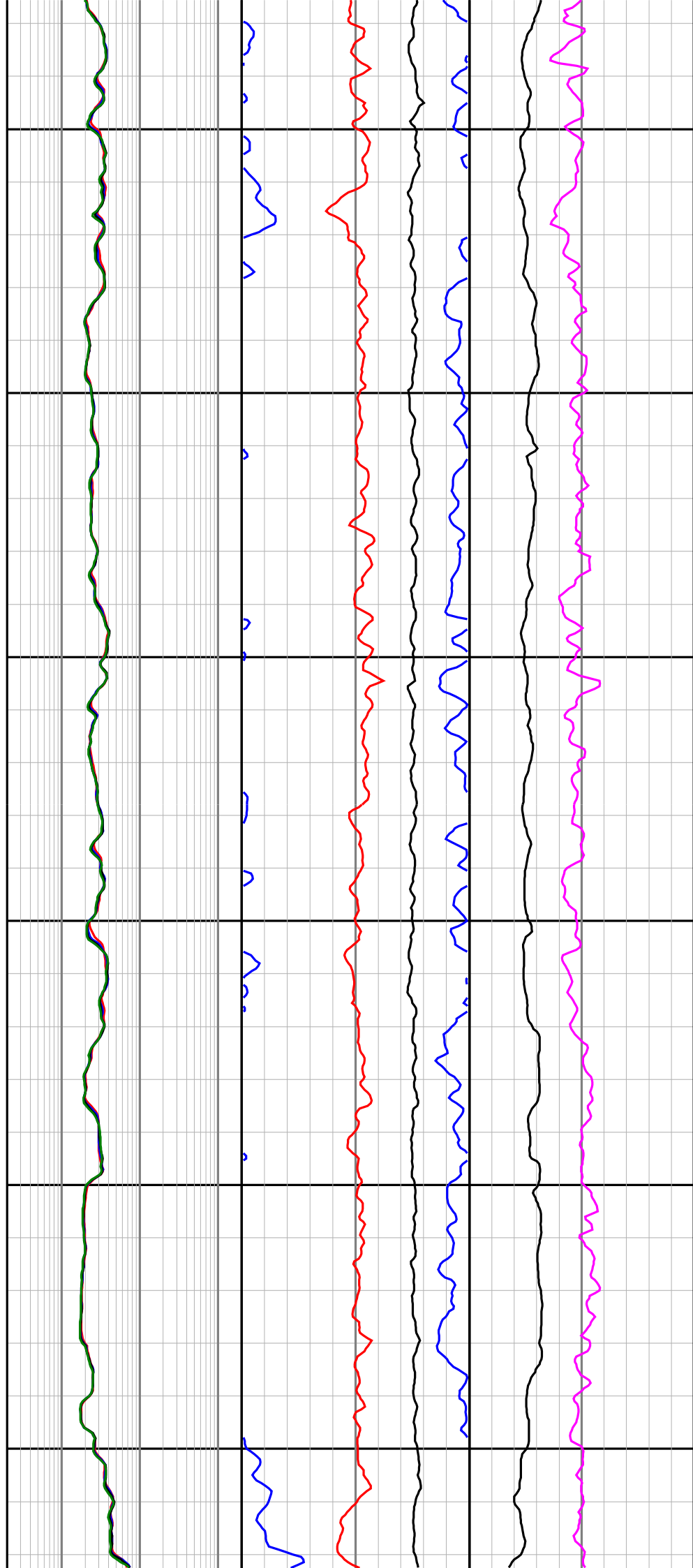
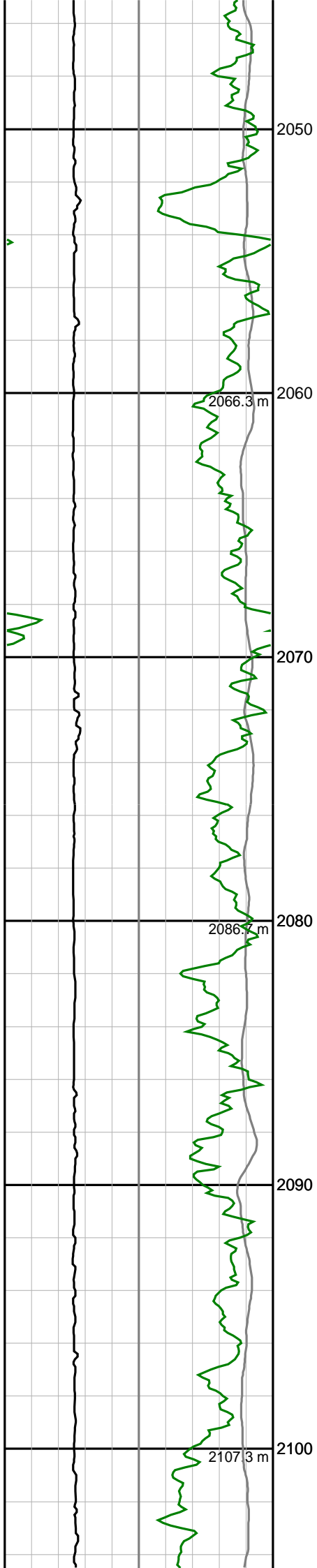


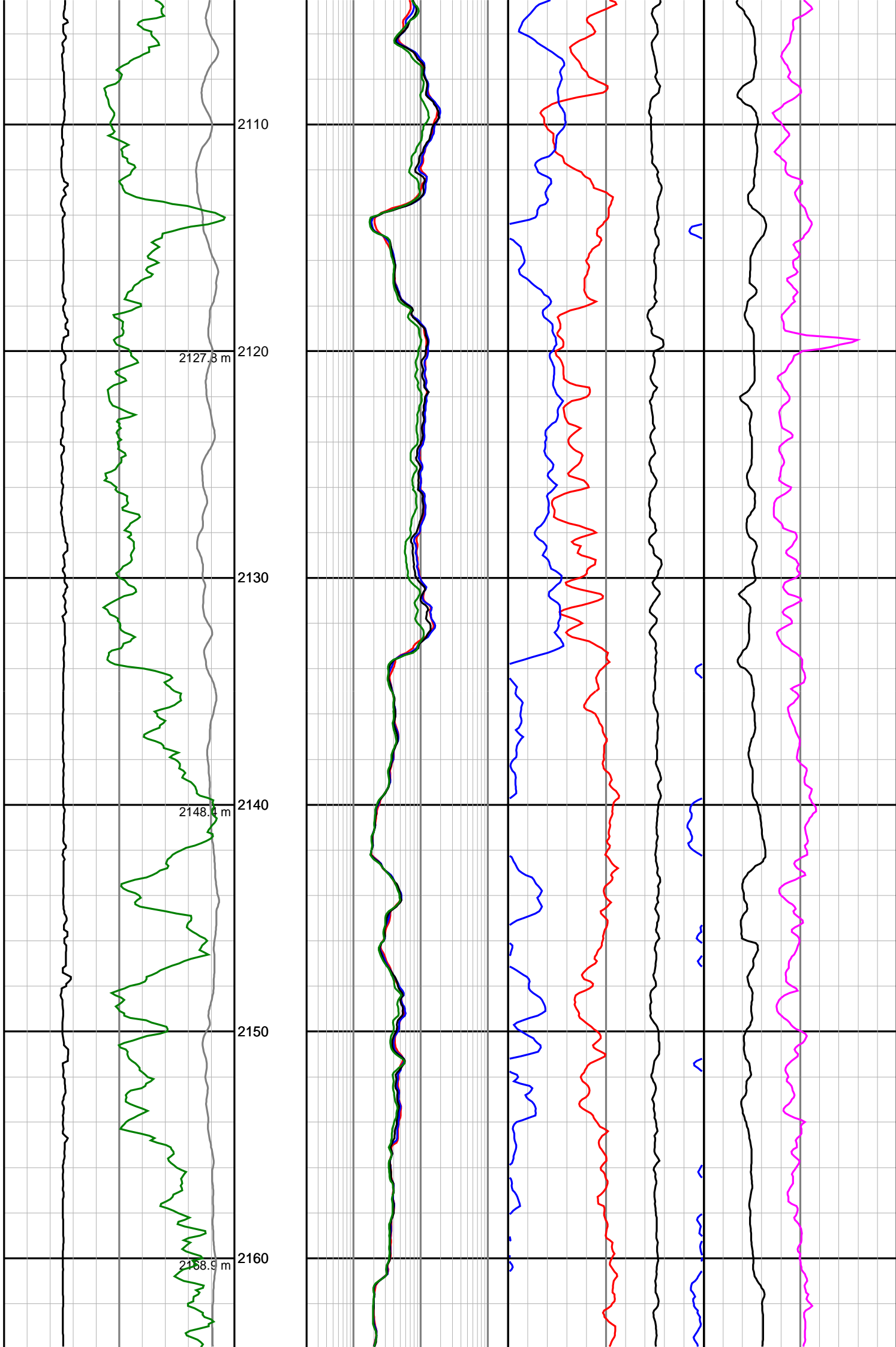


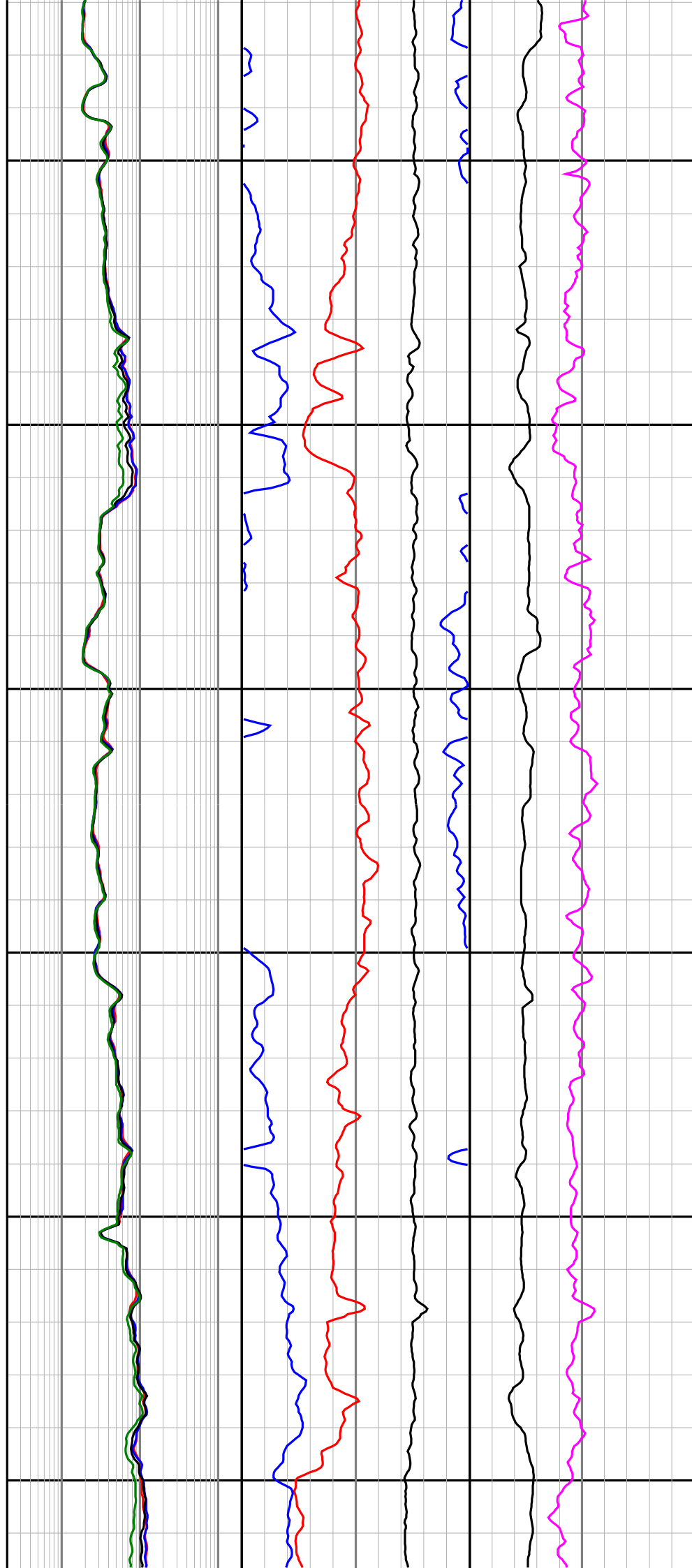
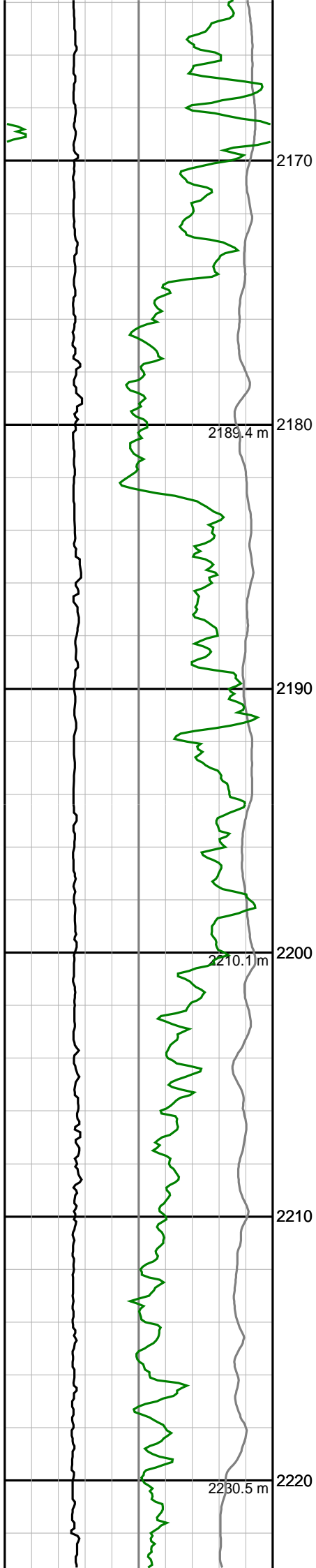


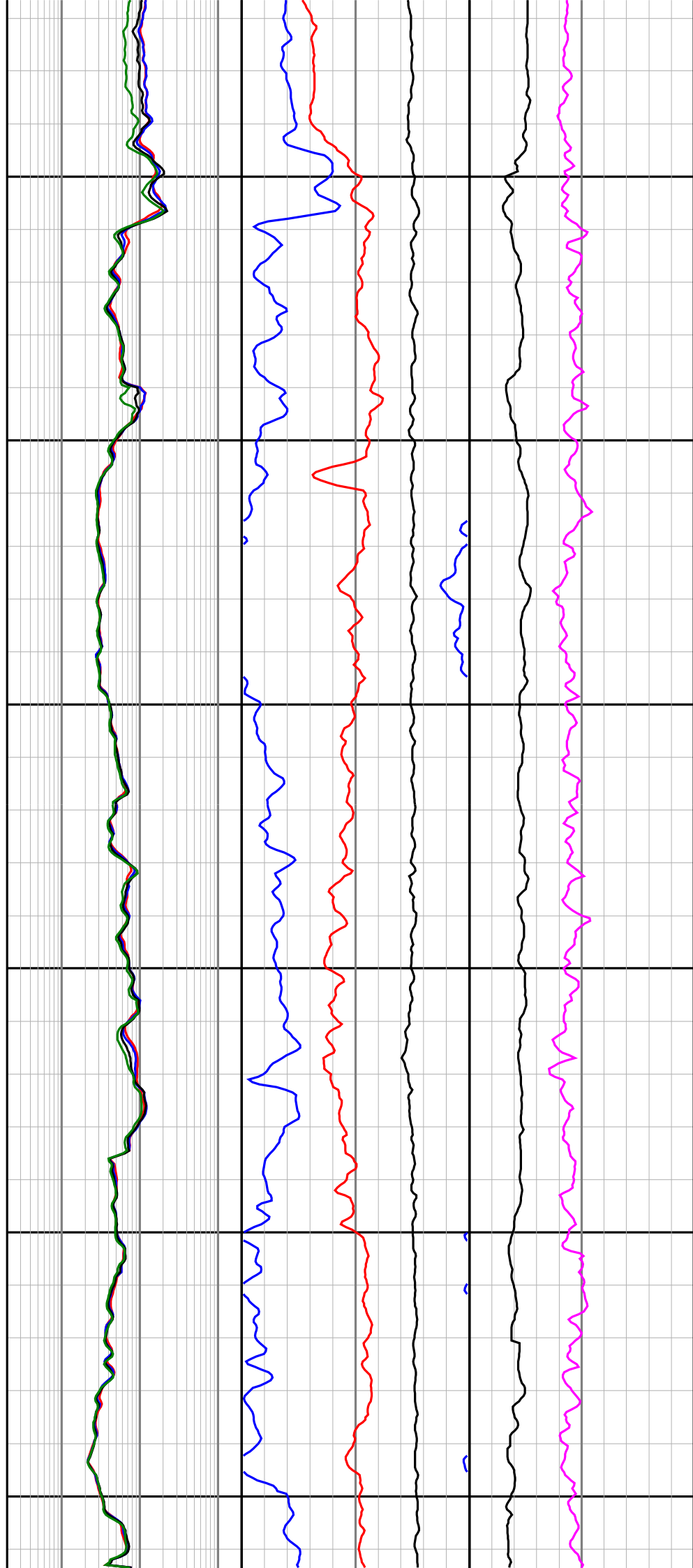
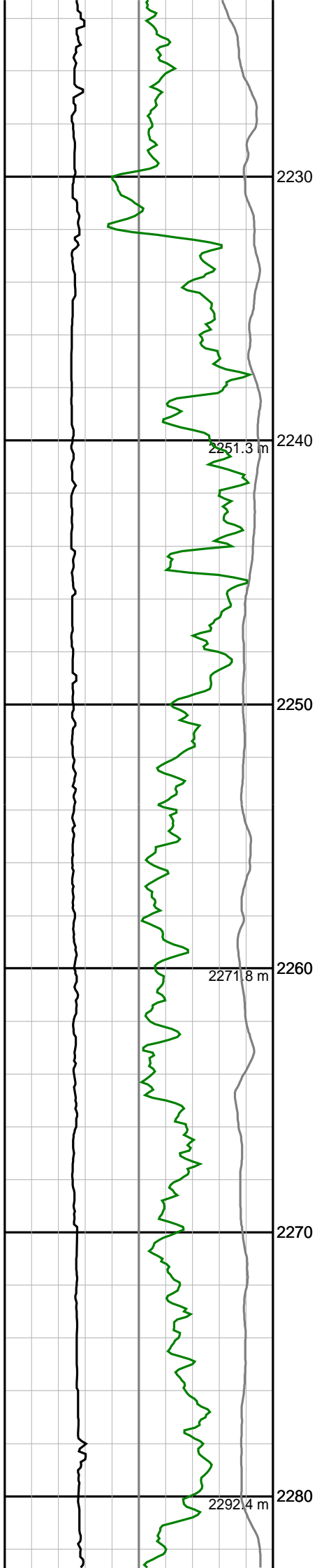


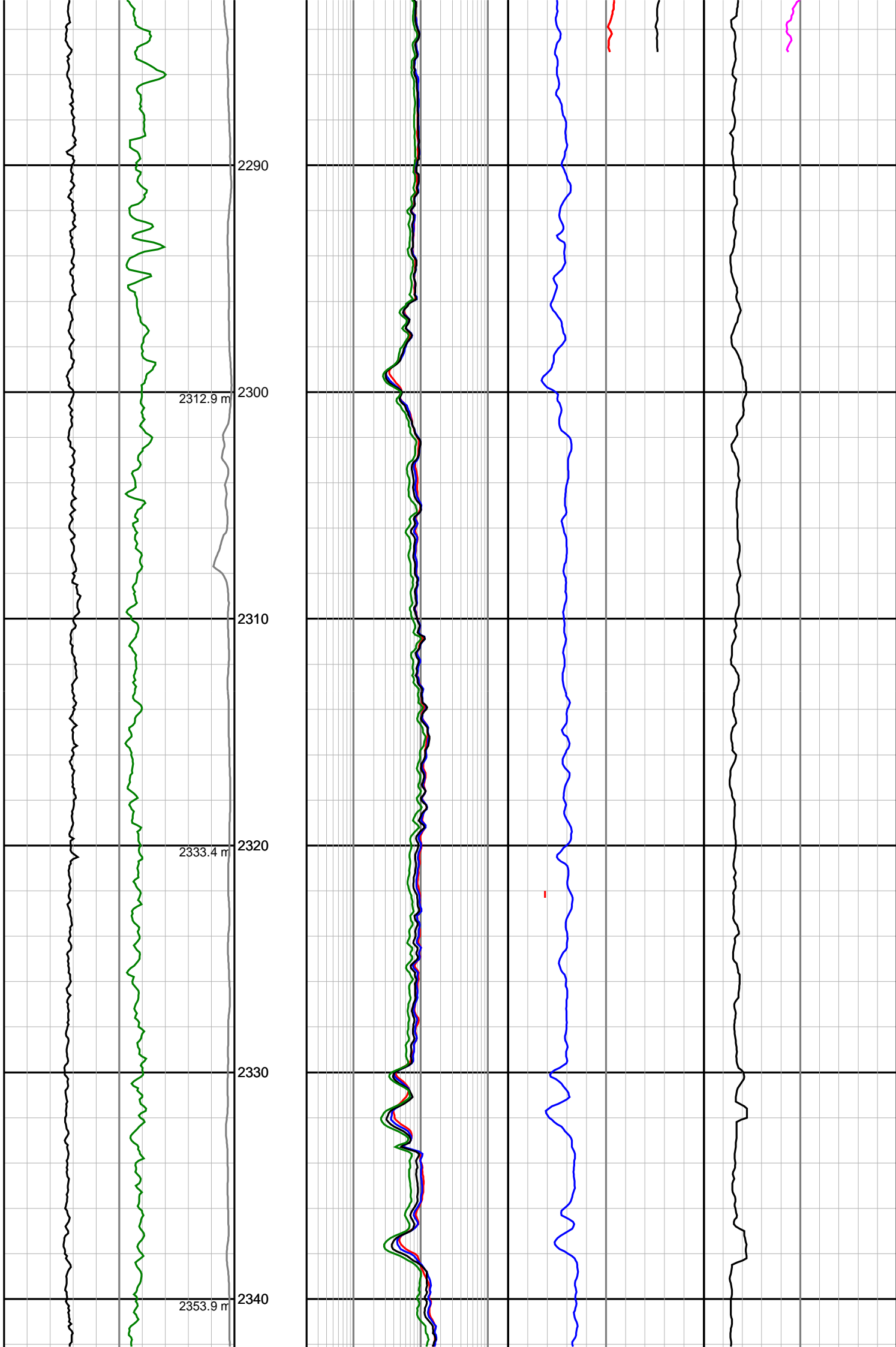


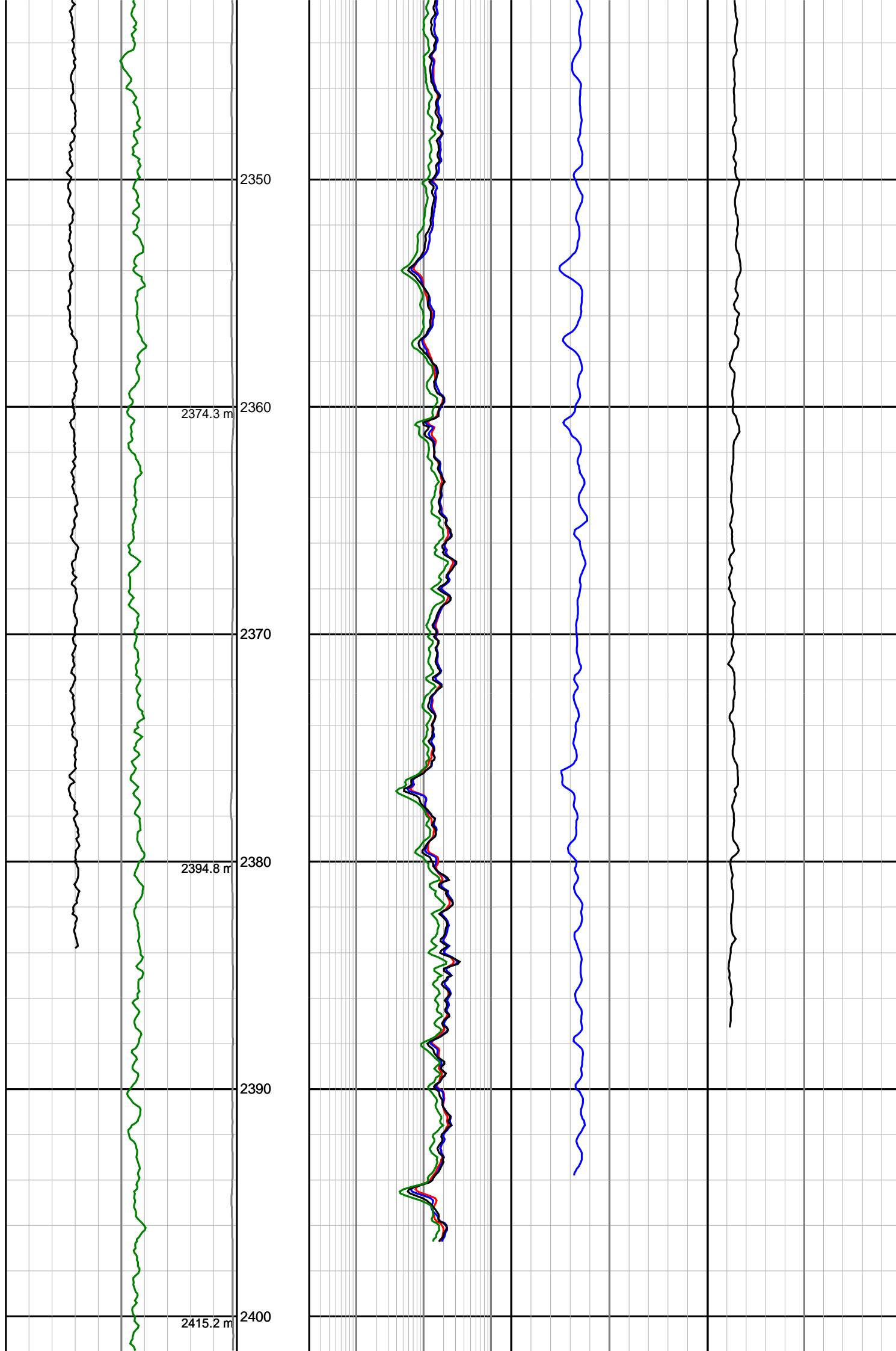


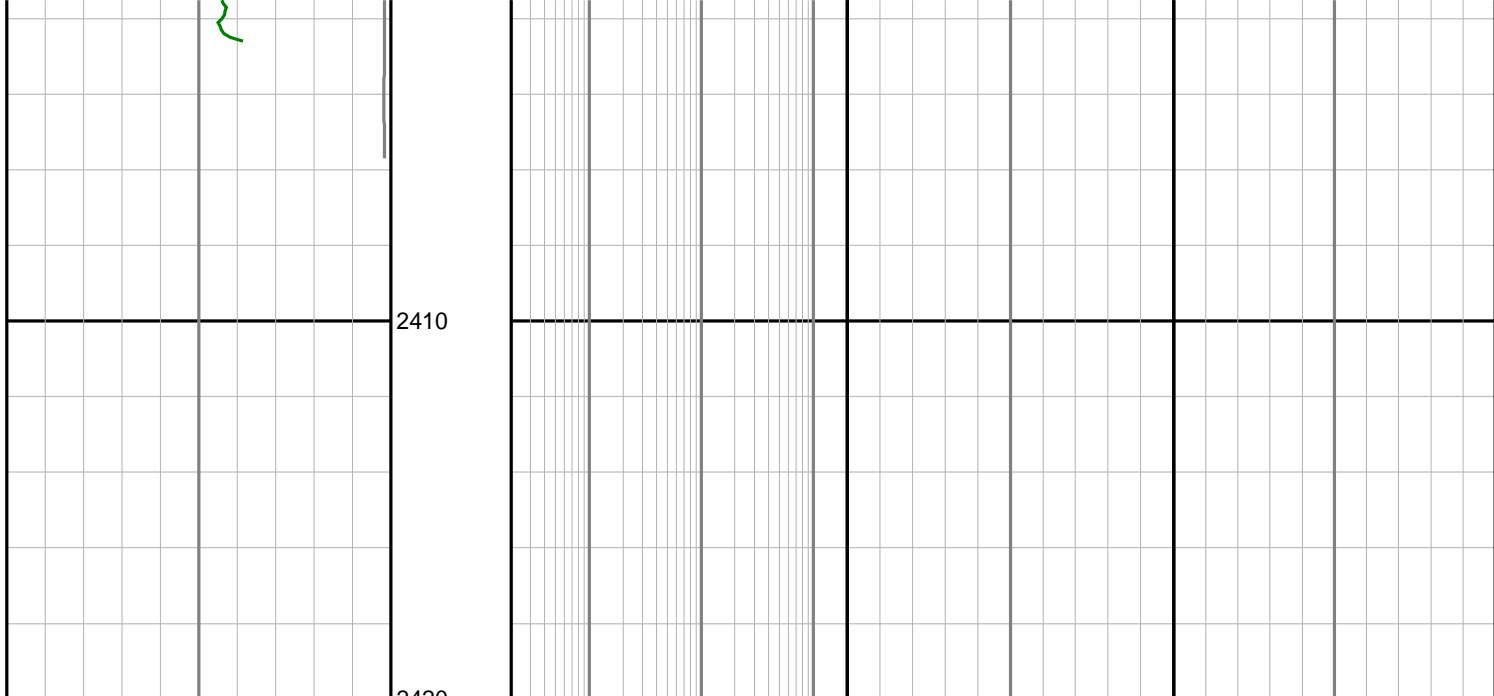












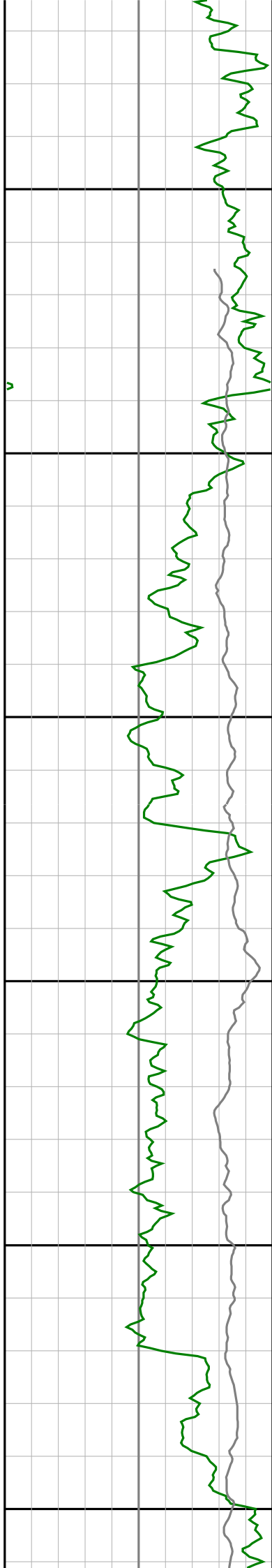
Gamma Ray (SGRC) 0 150 api	Depth TVD 1:200	Ext Shallow Phase Res (SEXP) 0.2 200 ohmm	Standoff Correction (SCO2) -0.75 0.25 gram per cc	Compressional Slowness (BATC) 40 240 microsec per ft
Rate of Penetration (SROP) 500 0 m/hr		Shallow Phase Res (SESP) 0.2 200 ohmm	Neutron Porosity (NUCL) 0.45 -0.15 v/v	Photoelectric Effect (SNP2) 0 10 barns/electron
Acoustic Caliper (ACAL) 6 16 inches		Medium Phase Res (SEMP) 0.2 200 ohmm	Density (SBD2) 1.95 2.95 gram per cc	
Measured Depth metres		Deep Phase Res (SEDP) 0.2 200 ohmm		

Apache Energy Ltd Longtom-2

Repeat Section - 1, 2199.9 - 2287.4 mTVDRT
Repeat Section - 2, 2092.9 - 2151.3 mTVDRT

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

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



2090

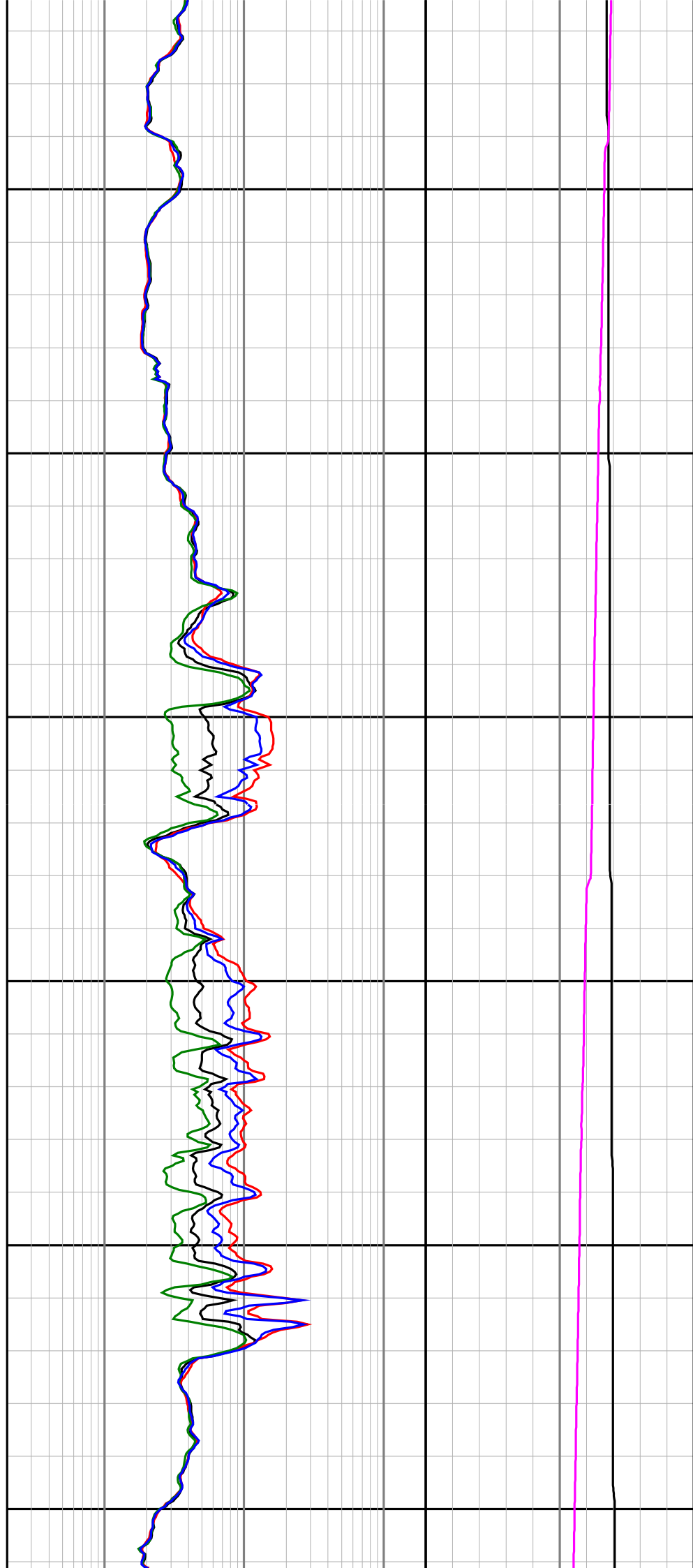
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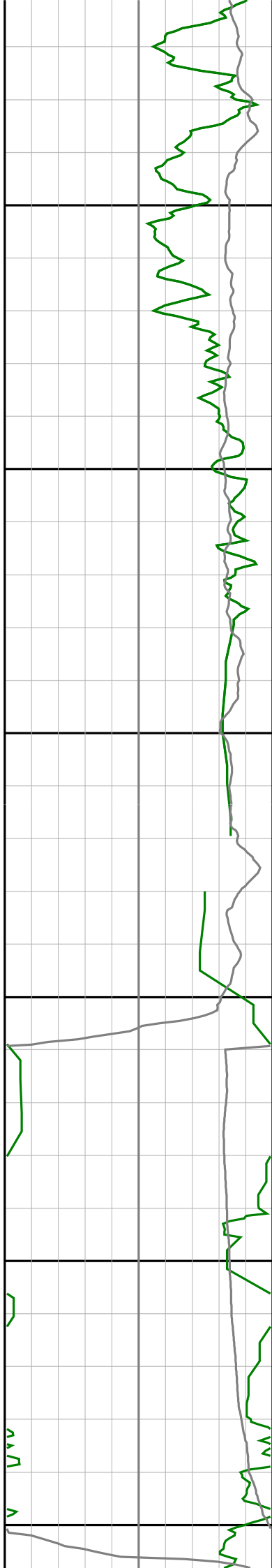
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2120

2130

2140





2150

2160

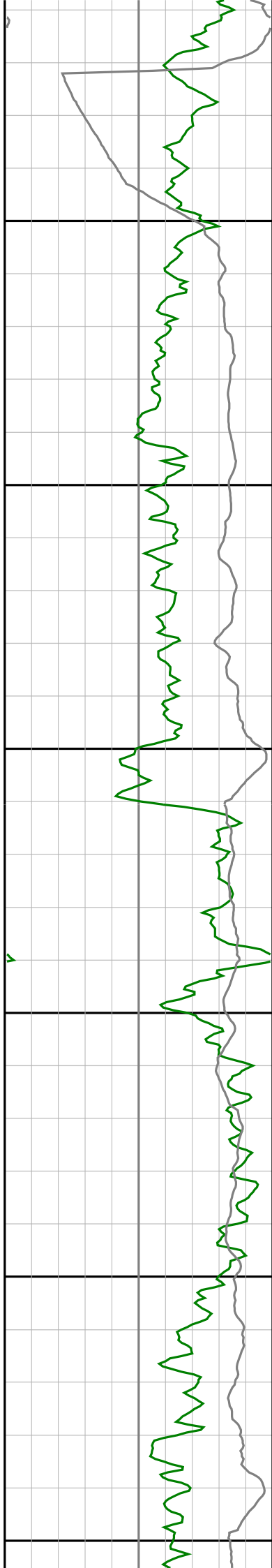
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2180

2190

2200





2210

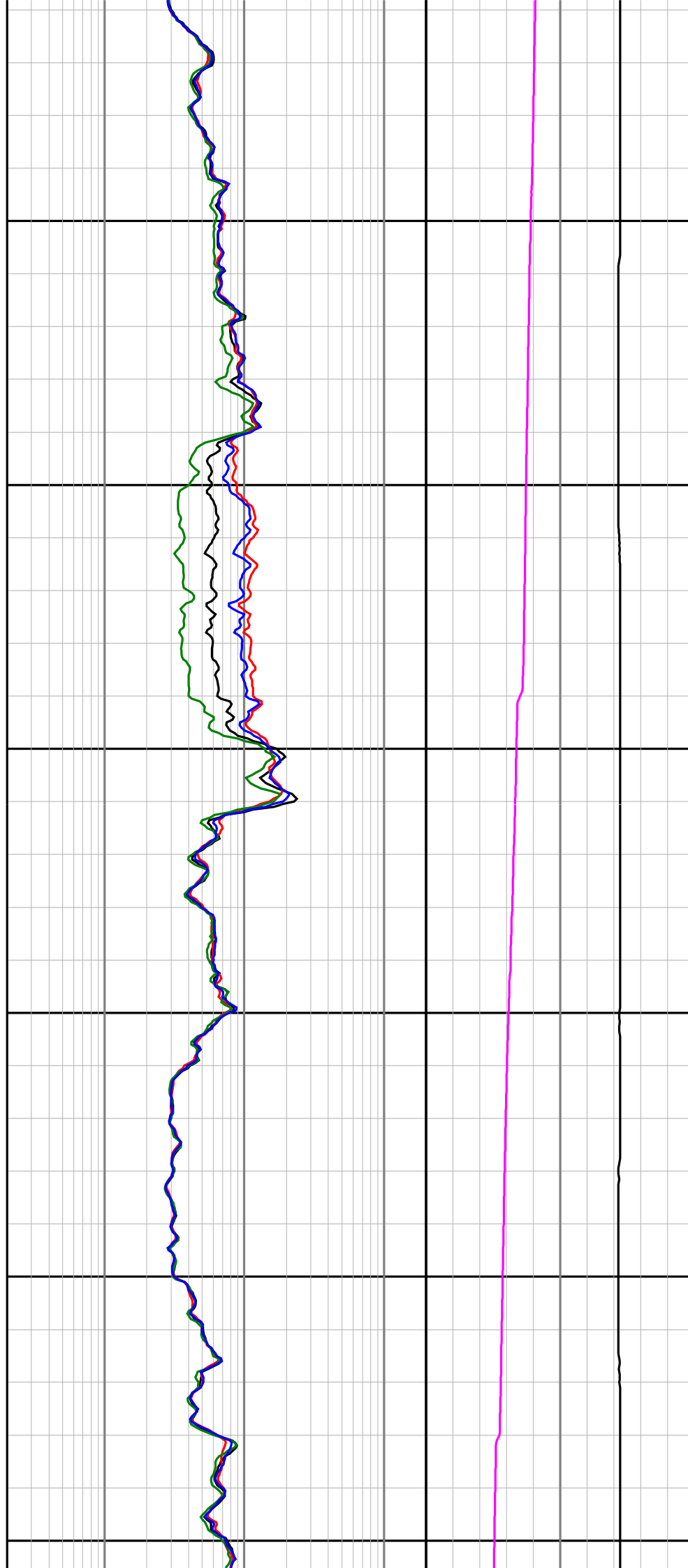
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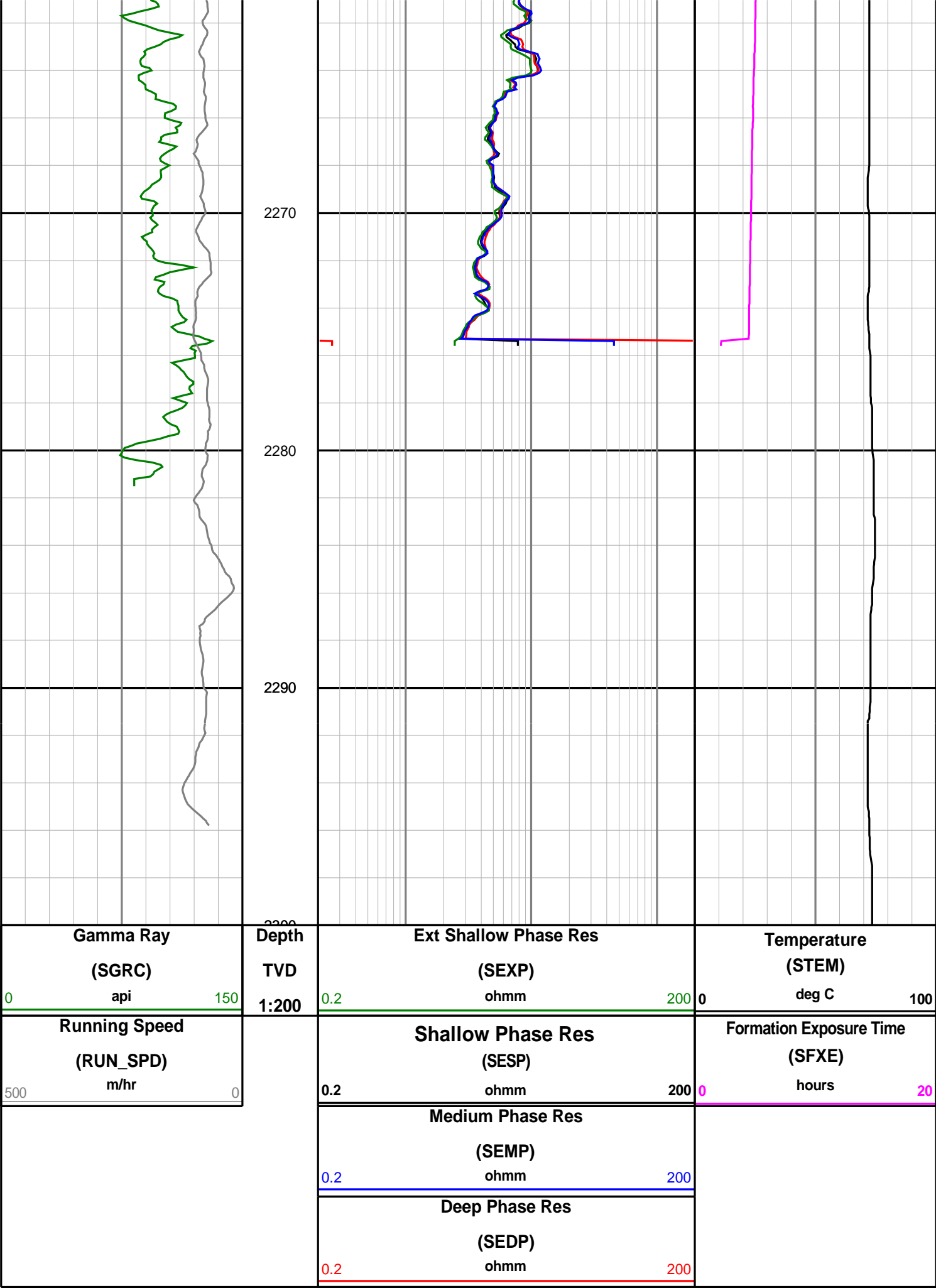
2230

2240

2250

2260







DIRECTIONAL SURVEY REPORT

Apache Energy Ltd
Longtom-2
Exploration
Victoria
Australia
AU-FE-0003298447
Final survey is projected to TD.

<i>Measured Depth (metres)</i>	<i>Inclination (degrees)</i>	<i>Direction (degrees)</i>	<i>Vertical Depth (metres)</i>	<i>Latitude (metres)</i>	<i>Departure (metres)</i>	<i>Vertical Section (metres)</i>	<i>Dogleg (deg/30m)</i>
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
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

<i>Measured Depth (metres)</i>	<i>Inclination (degrees)</i>	<i>Direction (degrees)</i>	<i>Vertical Depth (metres)</i>	<i>Latitude (metres)</i>	<i>Departure (metres)</i>	<i>Vertical Section (metres)</i>	<i>Dogleg (deg/30m)</i>
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)**

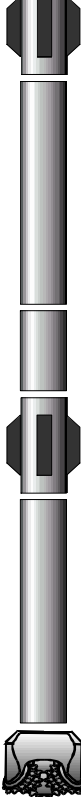
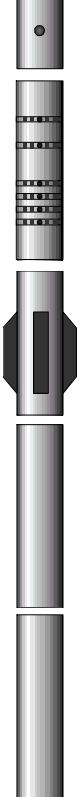
MWD RUN 100 - BHA
MWD RUN 100 - MWD

	Cumulative Length (m)		Sensor Measure Point Distance To Bit (m)
HWDP	257.54	8 DGWD 650 System	
Cross Over Sub	118.47		
Drill Collar	117.34	PM	30.190
Drilling Jars	90.29	ACAL	27.260
Drill collar	80.43	BAT	
	34.61		

MWD			HCIM		
Float Sub		12.83			
Integral Blade Stabilizer		12.05	DGR		17.710
Cross Over Sub		9.74			
		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
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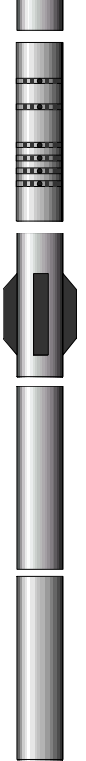
	Cumulative Length (m)		Sensor Measure Point Distance To Bit (m)
Drill Pipe (E)	390.90	Positive Pulser	
	290.90	TM	
HWDP		Hang-off Sub	
	151.53	PM	33.620
Drill Collar			
		ACAL	30.700
	132.74		
Drilling Jars		BAT	
	123.23	HCIM	
Drill Collar			
		CNP	20.520
Integral Blade Stabilizer	39.66		

Integral Blade Stabilizer						
		38.03				20.320
MWD			EWR-P4			17.540
Float Sub		10.43	SLD			14.790
Integral Blade Stabilizer		9.93				
			DDS			0
		7.91				
6-3/4" SperryDrill Lobe 1/2 - 3M						
			DGR			11.490
PDC		0.23				

MWD RUN 300 - BHA

MWD RUN 300 - MWD

		Cumulative Length (m)			Sensor Measure Point Distance To Bit (m)
		382.10			
Drill Pipe (E)			Positive Pulser		
		282.10	TM		
HWDP			Hang-off Sub		
		143.09	PM		25.280
Drill Collar			ACAL		22.360
		124.30	BAT		
Drilling Jars					
			HCIM		
		114.79			
Drill Collar			CNP		12.180

	Integral Blade Stabilizer	31.32	EWR-P4		9.200
		29.69			
	MWD		SLD		6.450
	Float Sub	2.09	DDS		0
	Integral Blade Stabilizer	1.59			
			DGR		
	Tricone	0.25			3.150