



Compensated Neutron Gamma Ray Casing Collar Log

Company	Kerr-McGee Oil & Gas Onshore, L.P.				
Well	Land Fed 35C-32HZ				
Field	Wattenberg				
County	Weld				
State	Colorado				
Location:	API # : 05-123-42397				Other Services
					Gauge Ring
					RBL
SEC 32	TWP 2N	RGE 66W			
Permanent Datum	Ground Level	Elevation	4899'		
Log Measured From	Kelly Bushing	20 FT			
Drilling Measured From	Kelly Bushing				
			Elevation		
			K.B. 4919'		
			D.F. 4918'		
			G.L. 4899'		

Run Number	18-AUG-2016						
Depth Driller	Two						
Depth Logger	13085 FT						
Bottom Logged Interval	7421 FT						
Top Log Interval	7420 FT						
Open Hole Size	Surface						
Type Fluid	7.875"						
Density / Viscosity	Water						
Max. Recorded Temp.	8.34 lbm/gal						
Estimated Cement Top	235°F						
Time Well Ready	---						
Time Logger on Bottom	ROA						
Equipment Number	08:45						
Location	HD-0361						
Recorded By	Fort Lupton, CO						
Witnessed By	Sam Hopper						
	Chris Hayes						
Borehole Record				Tubing Record			
Run Number	Bit	From	To	Size	Weight	From	To
Casing Record	Size (in)	Wgt (lbs/Ft)	Grade	Top	Bottom		
Surface Casing	9 5/8	36	J-55 BTC	Surface	1896 FT		
Intermediate #1	5 1/2	17	HCP-110 LTC	Surface	13074 FT		
Intermediate #2							
Liner							

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All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

Comments

Log ran as per customer request
Depth referenced to Casing Tally reported Marker Joint Top at 6993 FT
Adjusted log -11.6 FT to correlate with Marker Joint Top
Gauge Ring/Junk Basket ran to 7418 FT with no debris found
Log ran from as deep as possible in heel to surface
Log ran with 2800 PSI surface induced pressure
Logging tools were clean and free of any debris upon completion of operations

Thank you for choosing Reliance Oilfield Services, LLC!!

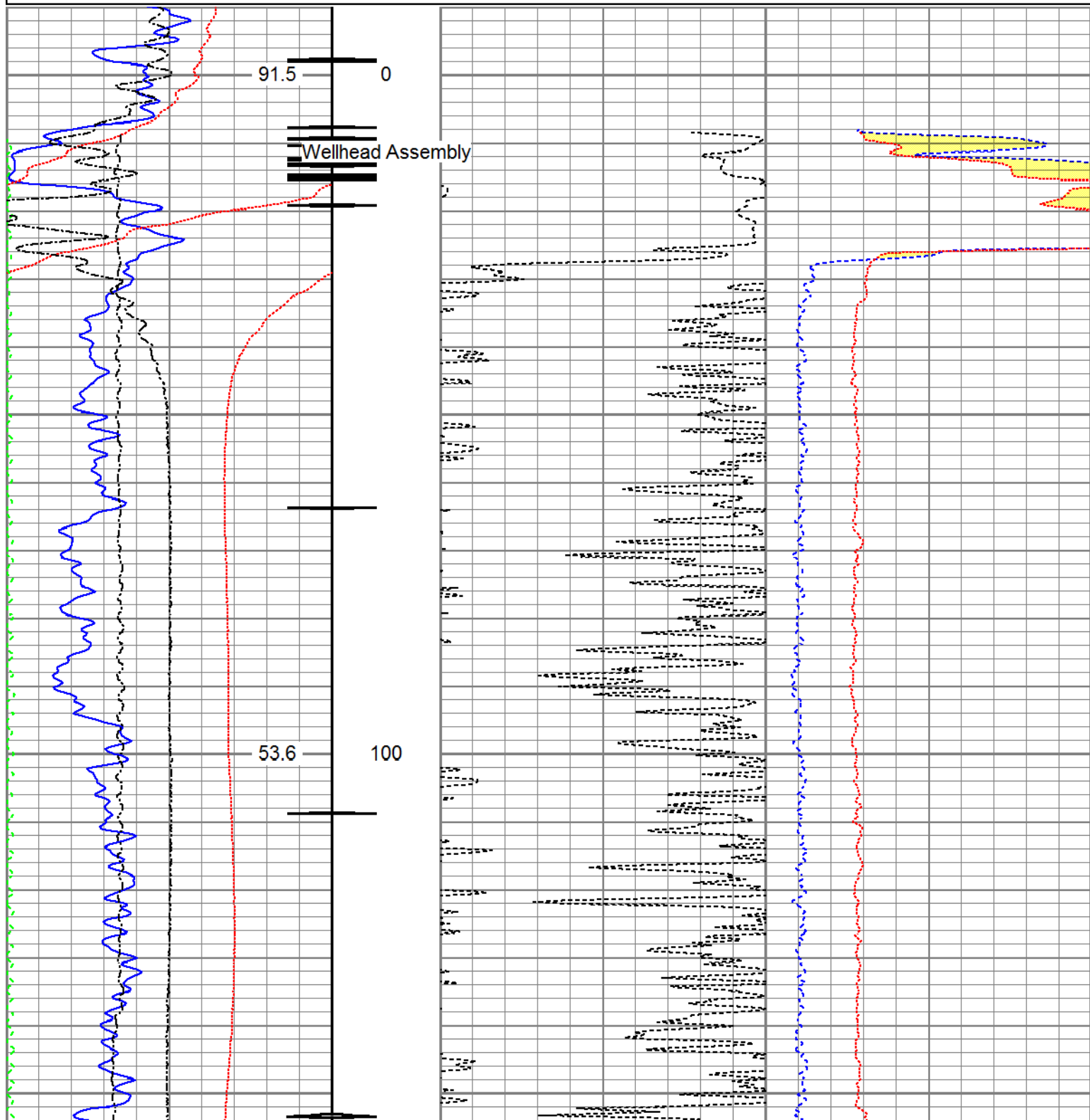


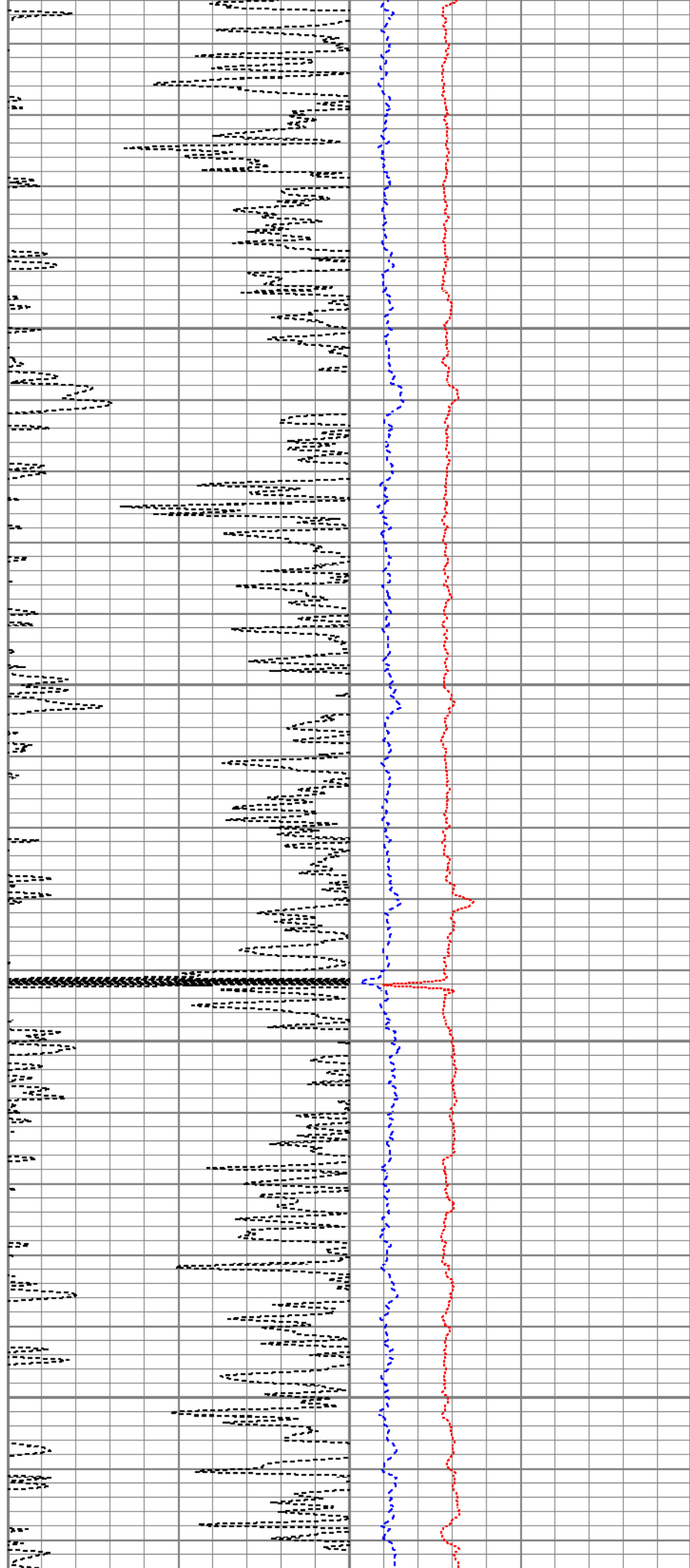
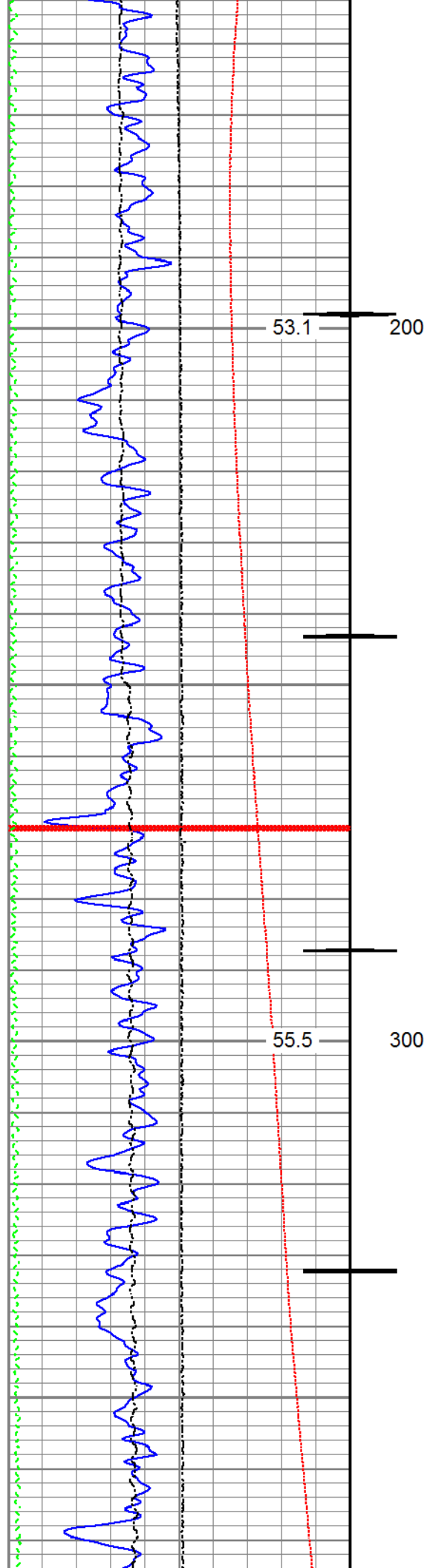
Main Pass

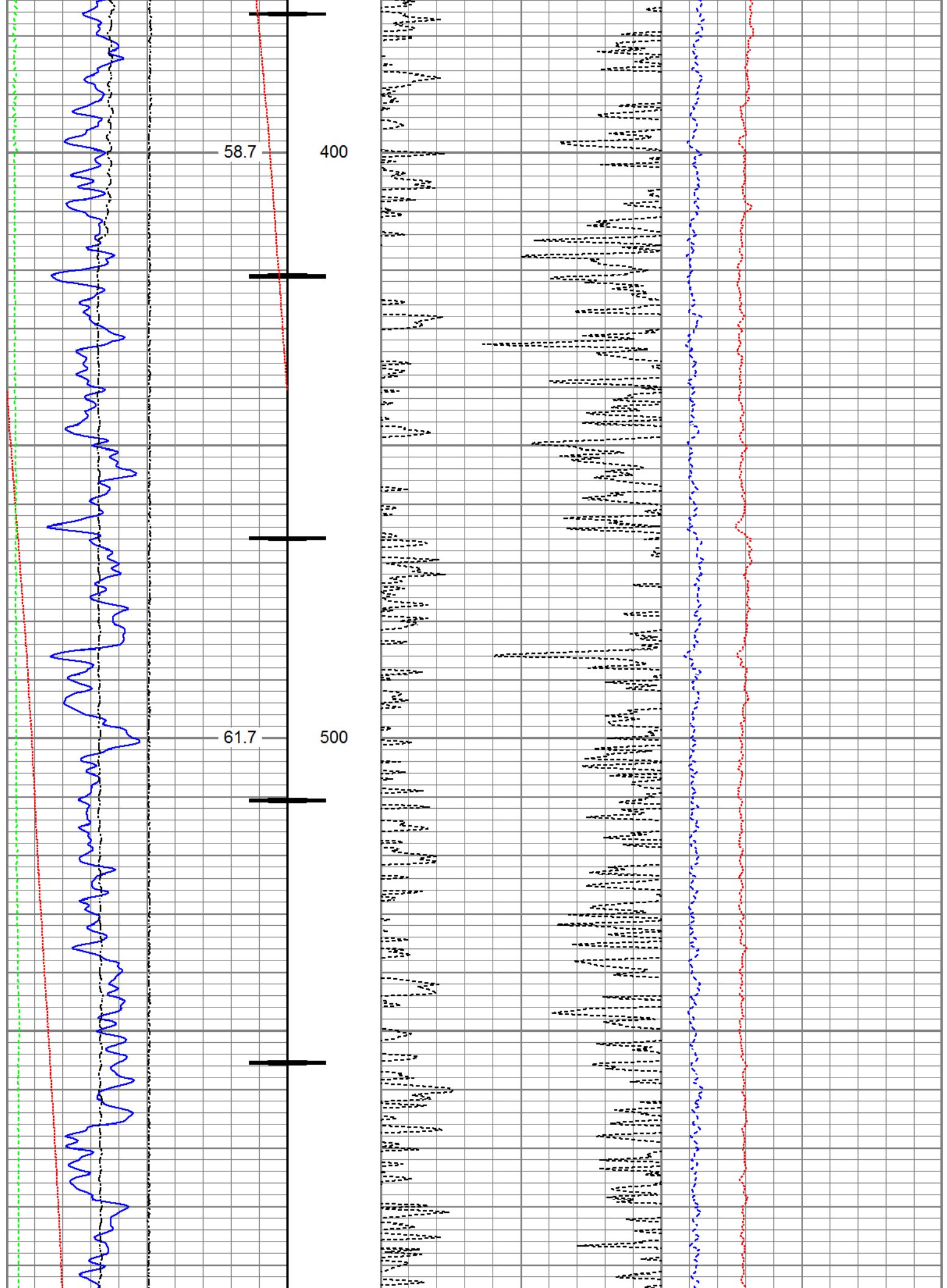
Recorded With 2800 PSI Surface Induced Pressure

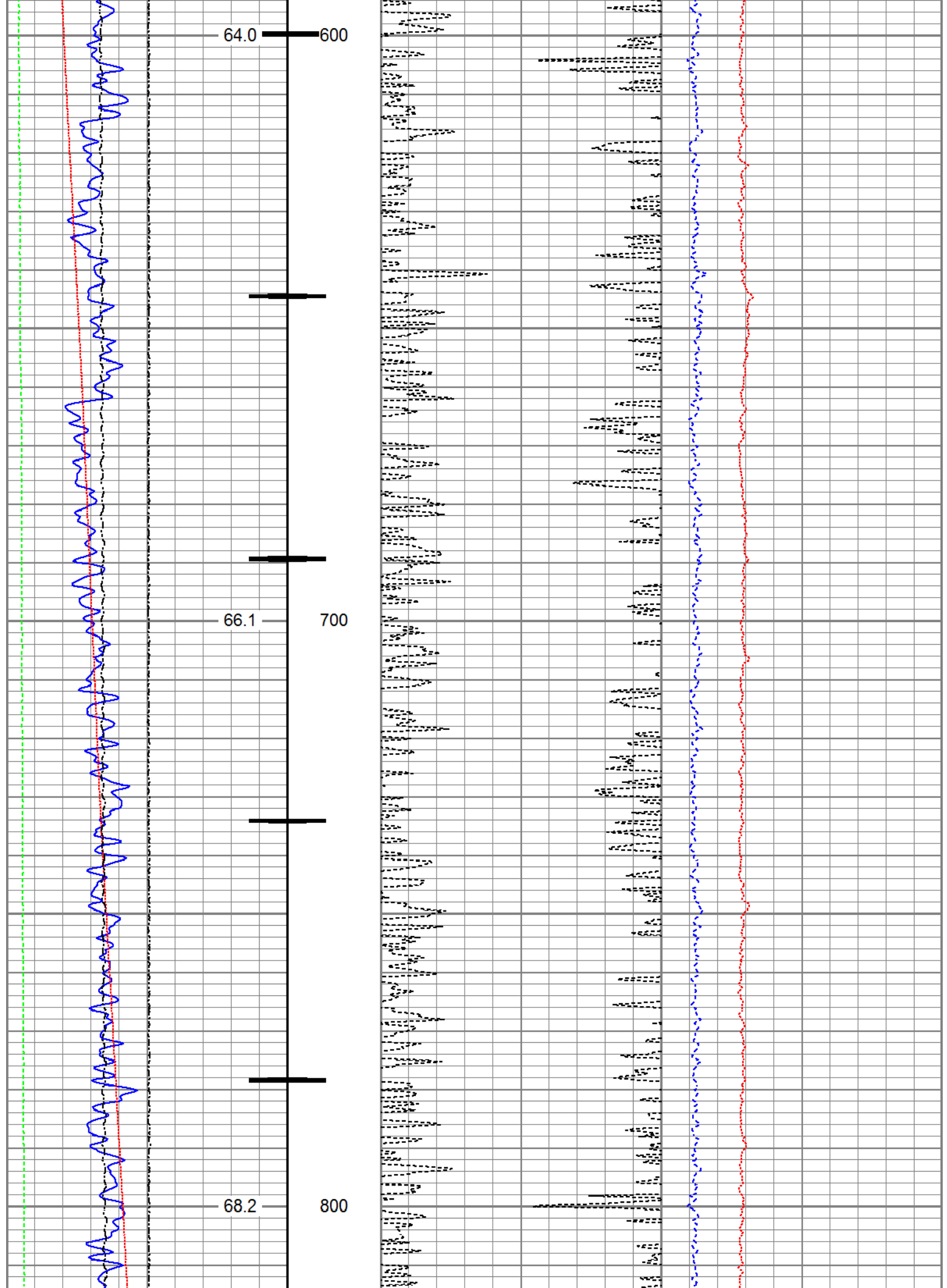
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Dataset Pathname	pass6.2
Presentation Format	ros_cnl_sx
Dataset Creation	Thu Aug 18 13:01:00 2016
Charted by	Depth in Feet scaled 1:240

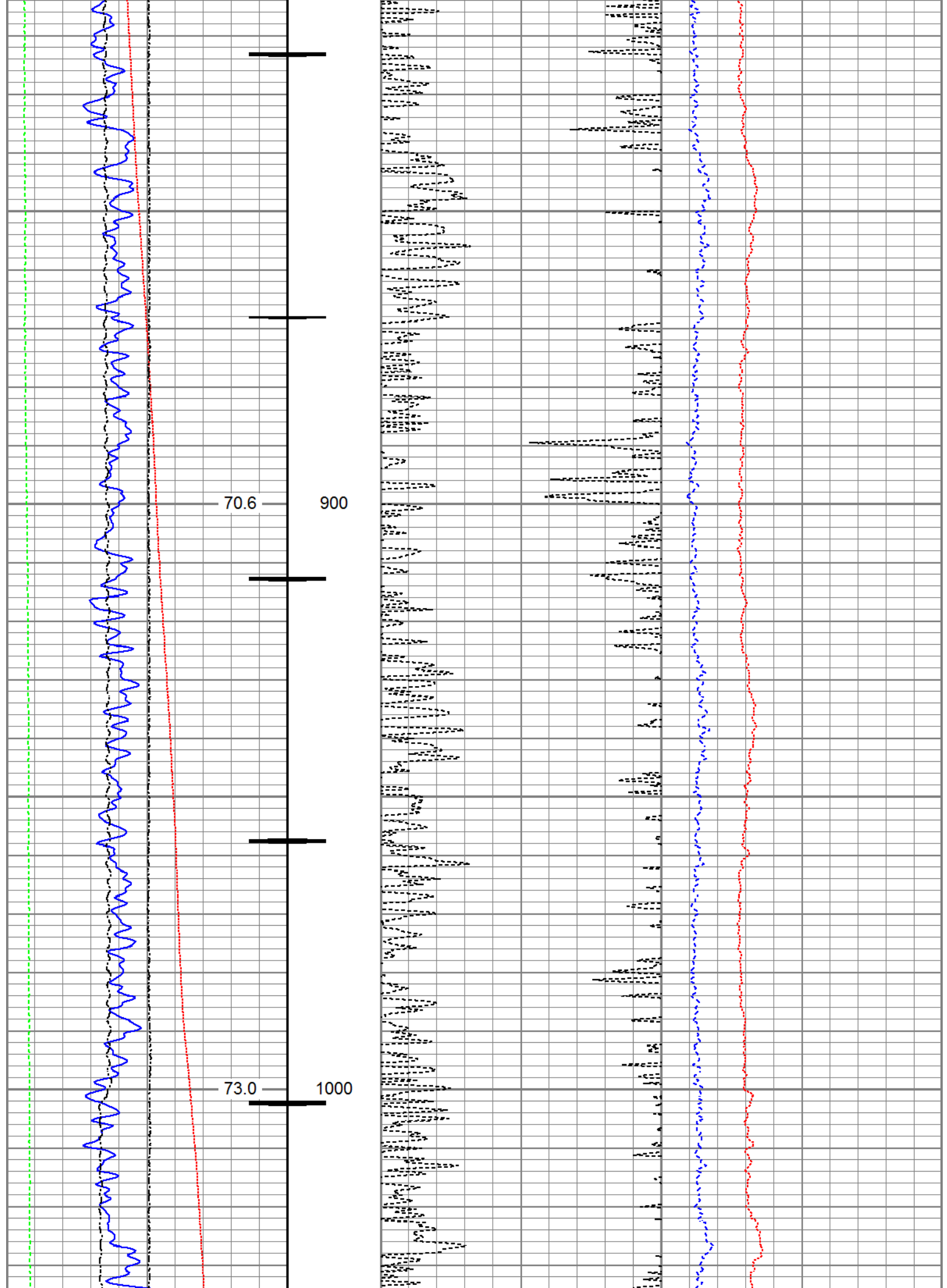
0	Gamma Ray (GAPI)	120	60	Neutron Porosity (pu)	0	0	Far Neutron (cps)	1000
Casing Collar Locator						0	Near Neutron (cps)	10000
0	Temperature (degF)	20						
-100	Line Speed (ft/min)	100						
0	Line Tension (lb)	2000						
Differential Temperature								
-2	(degF)	2						

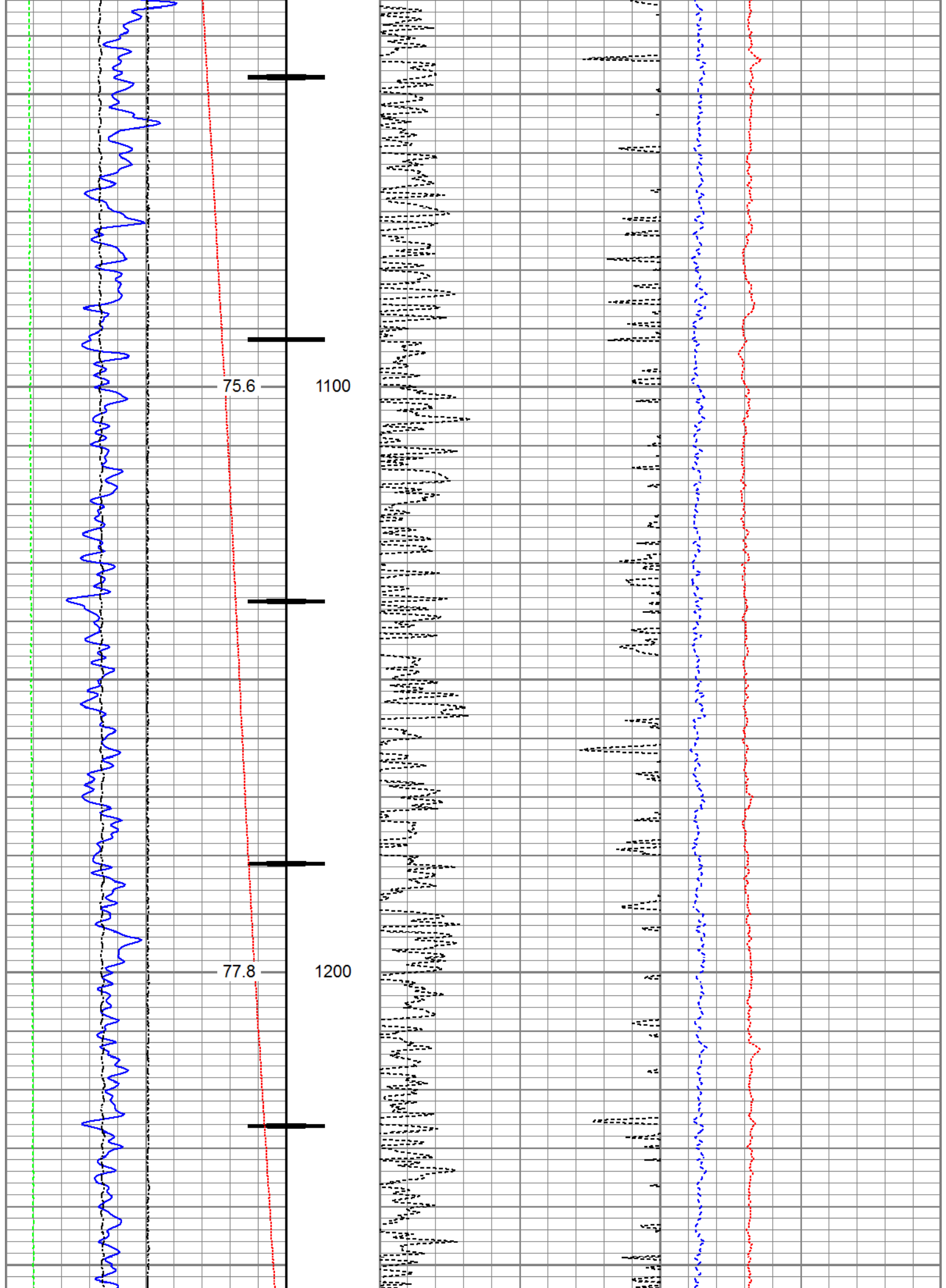


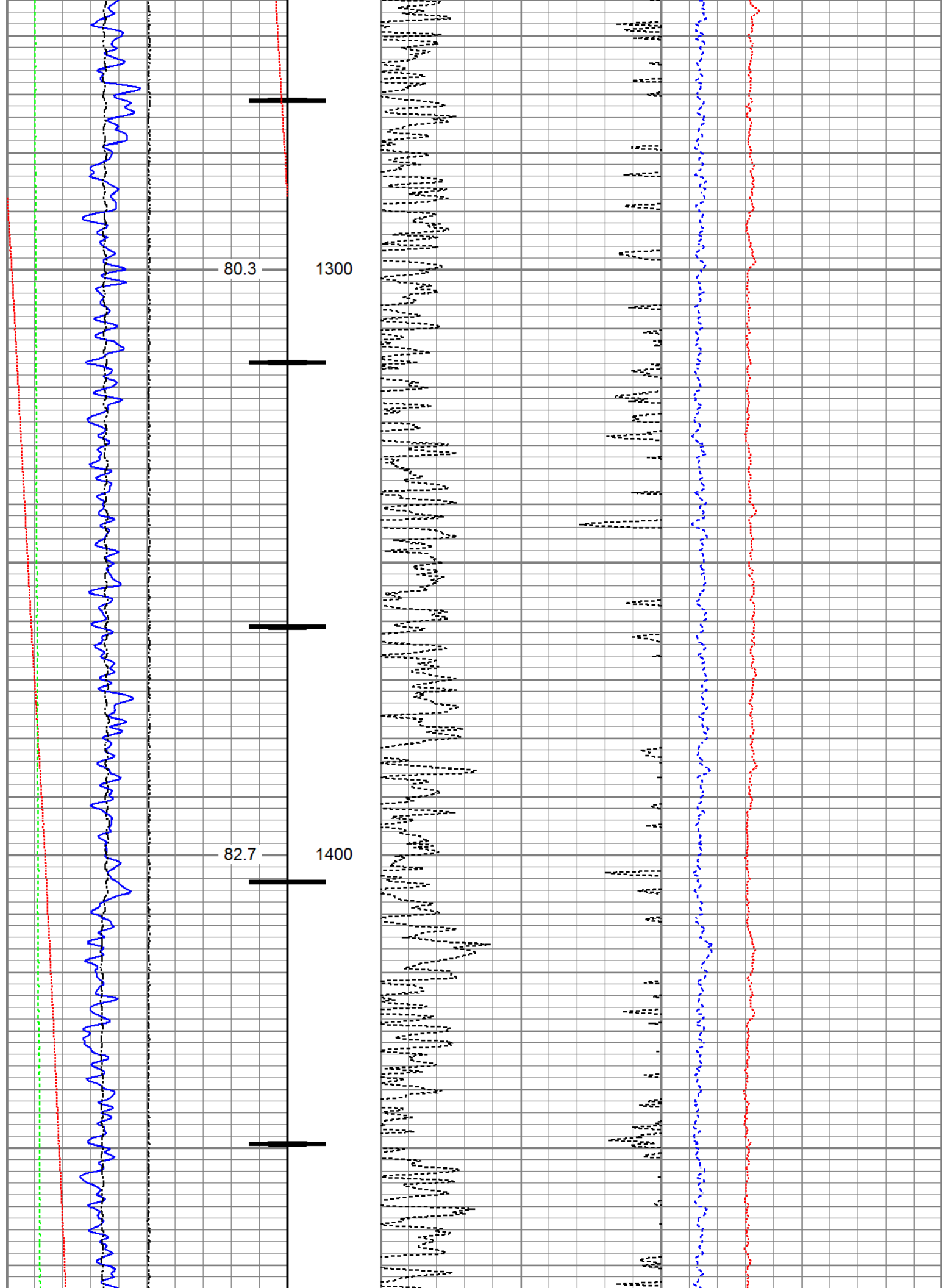


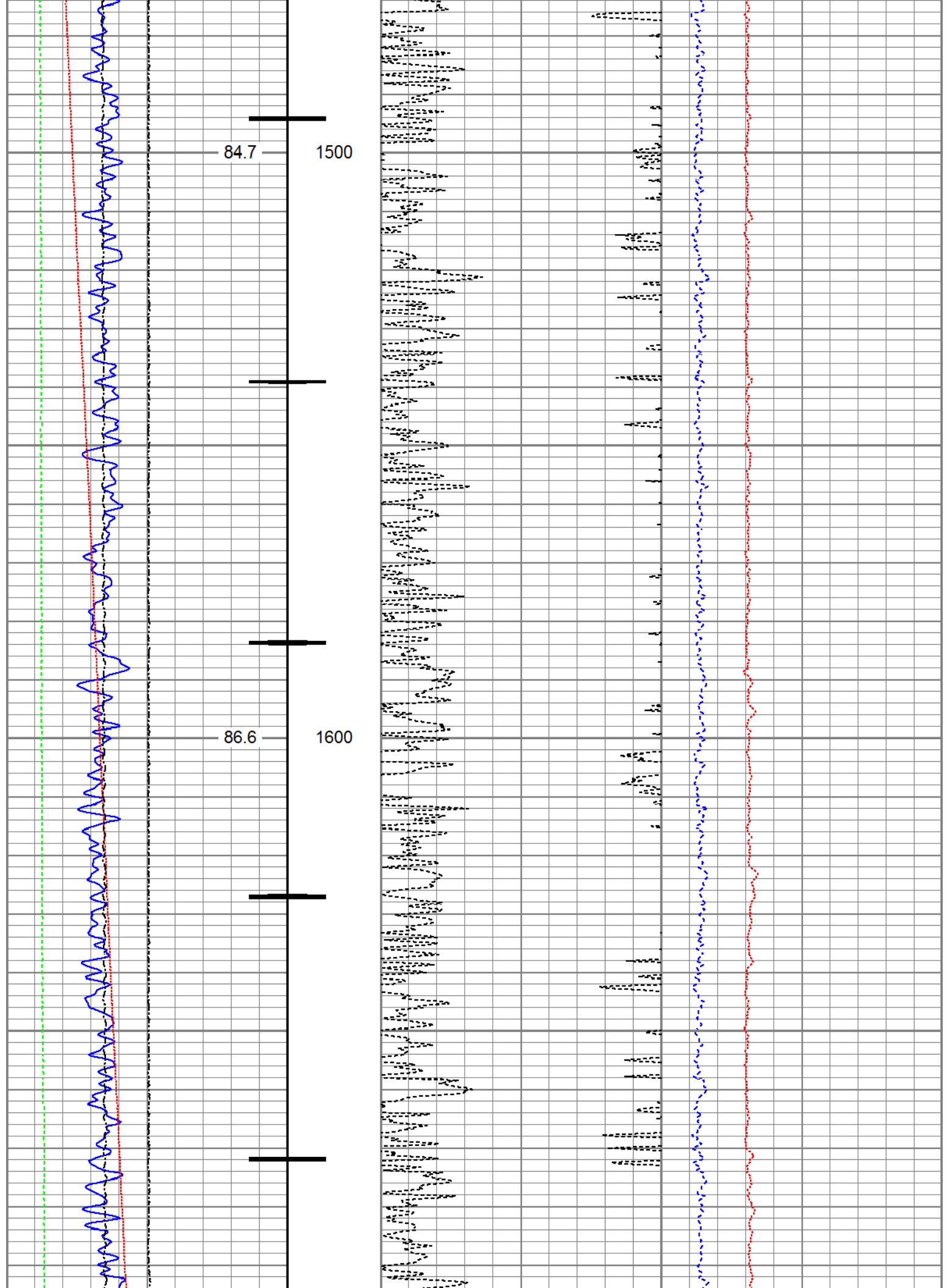


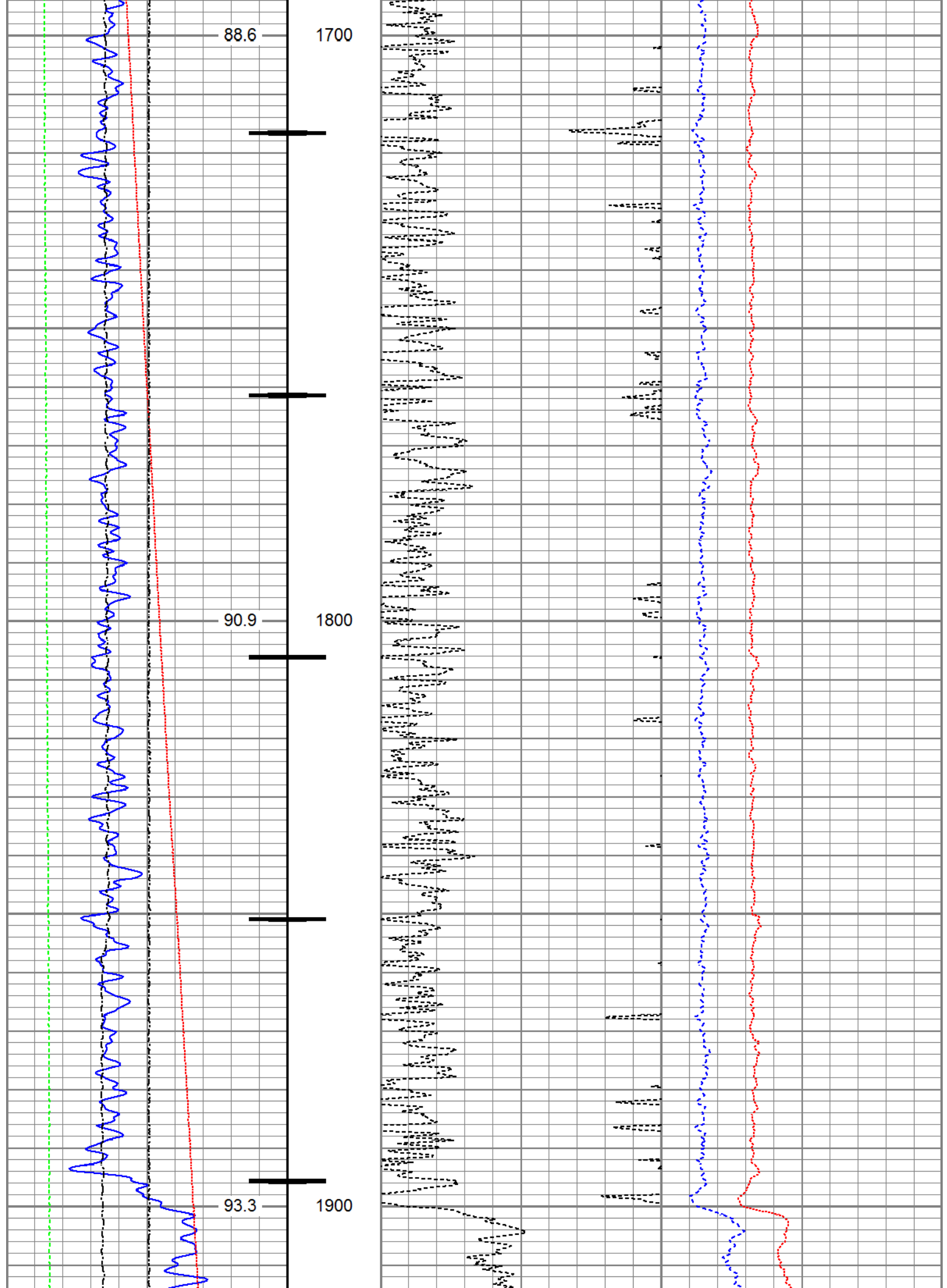


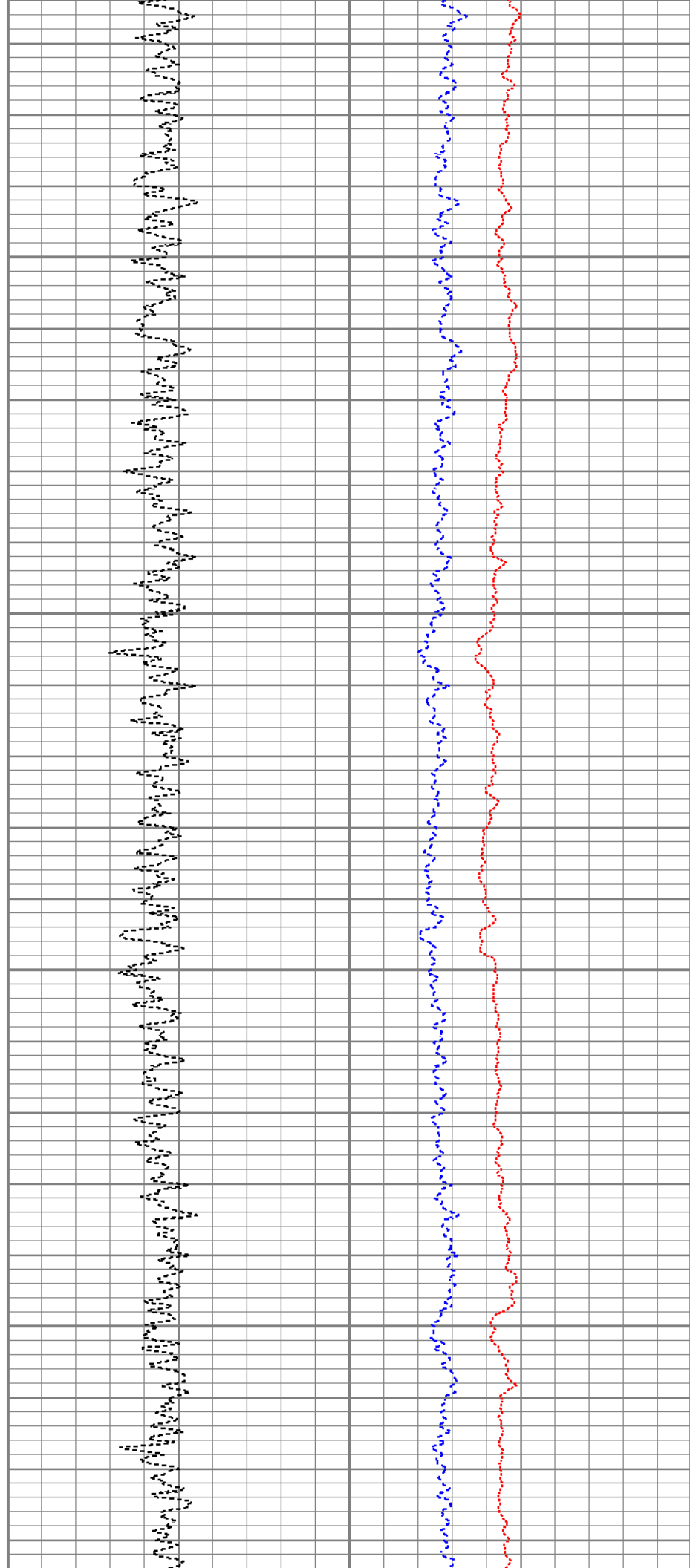
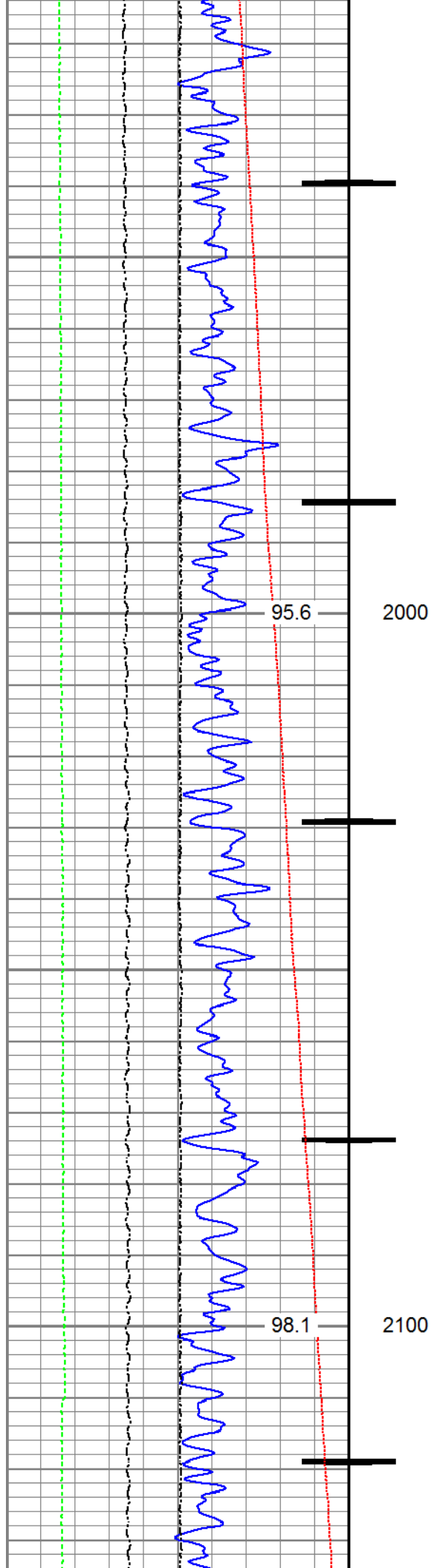


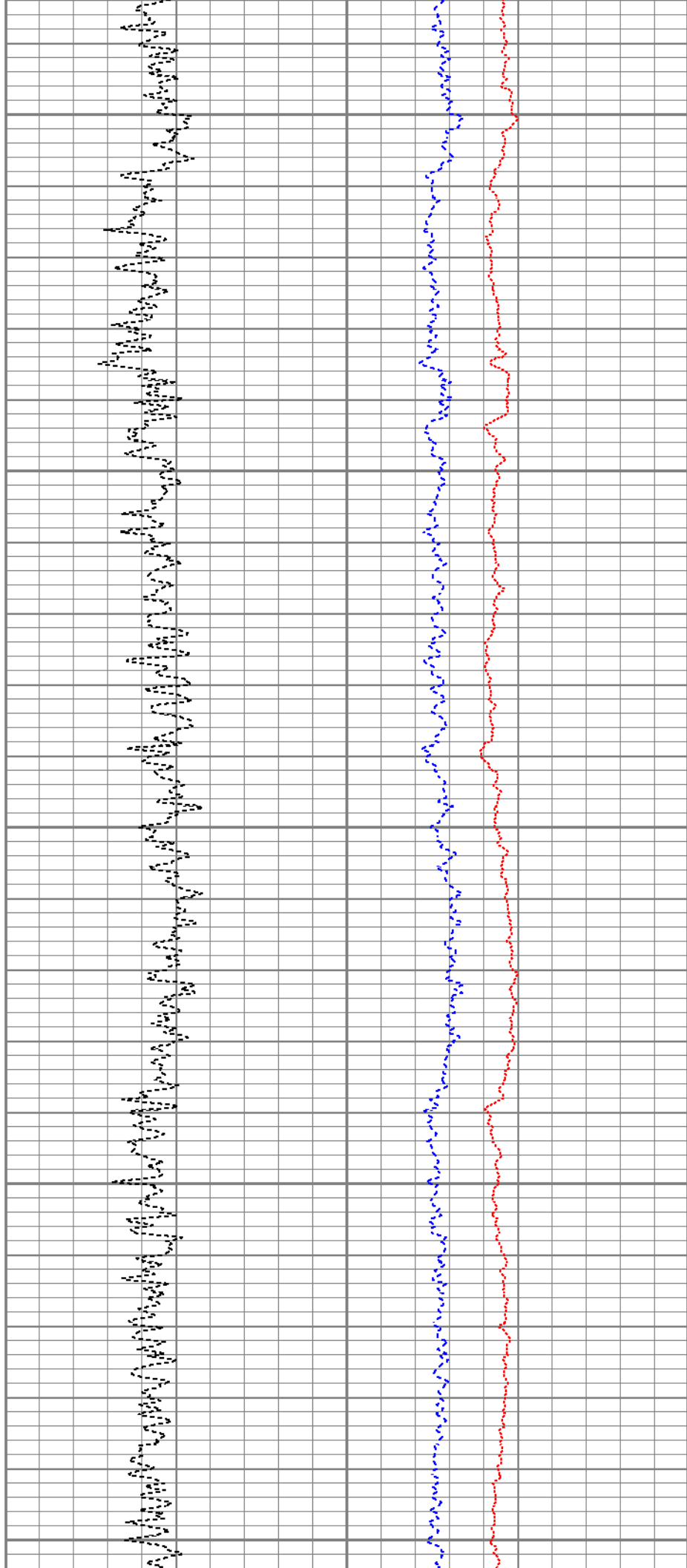
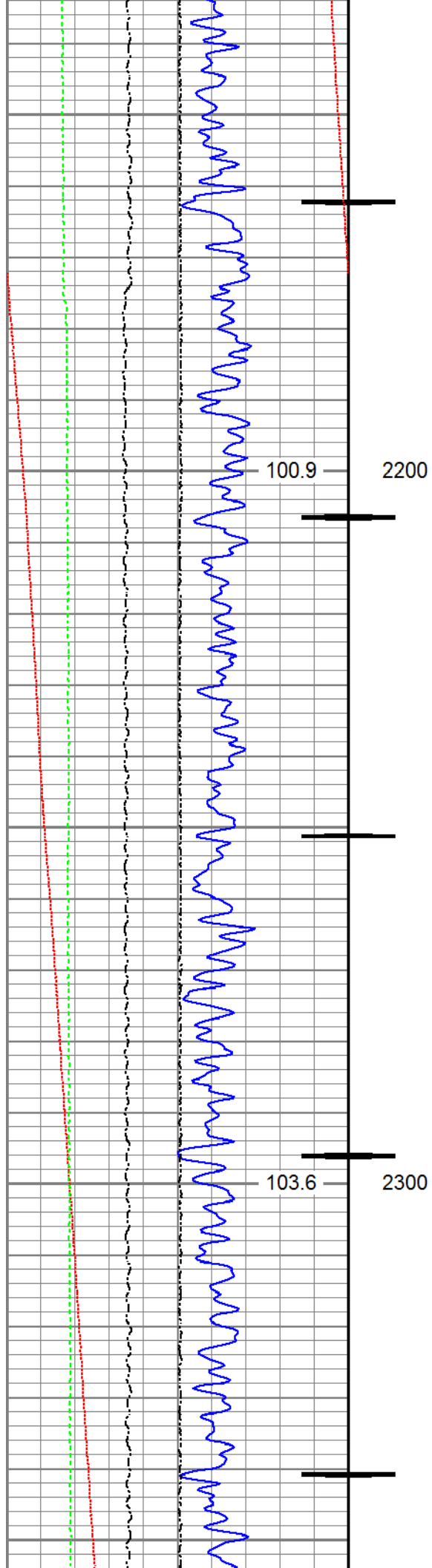


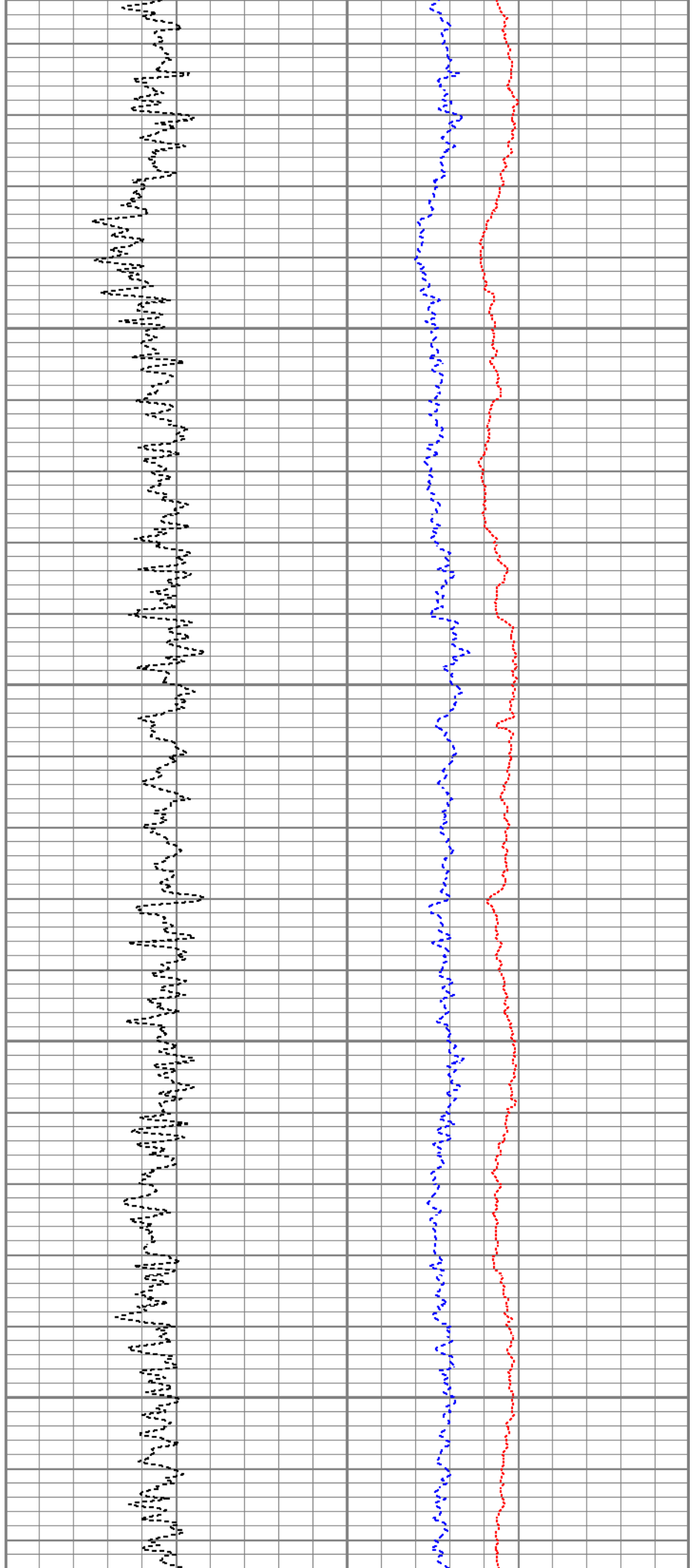
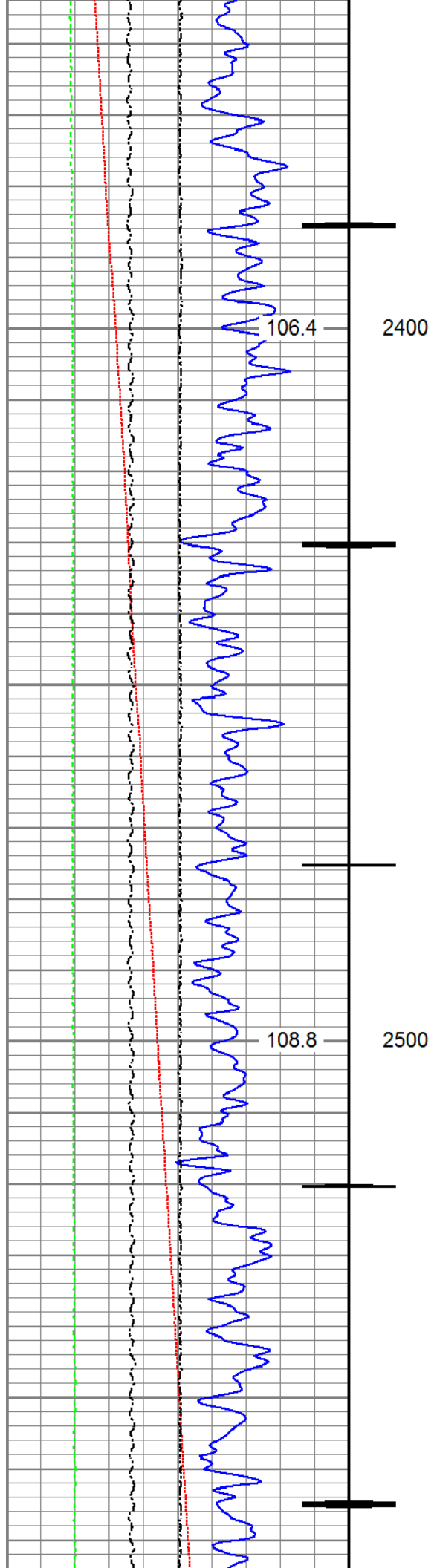


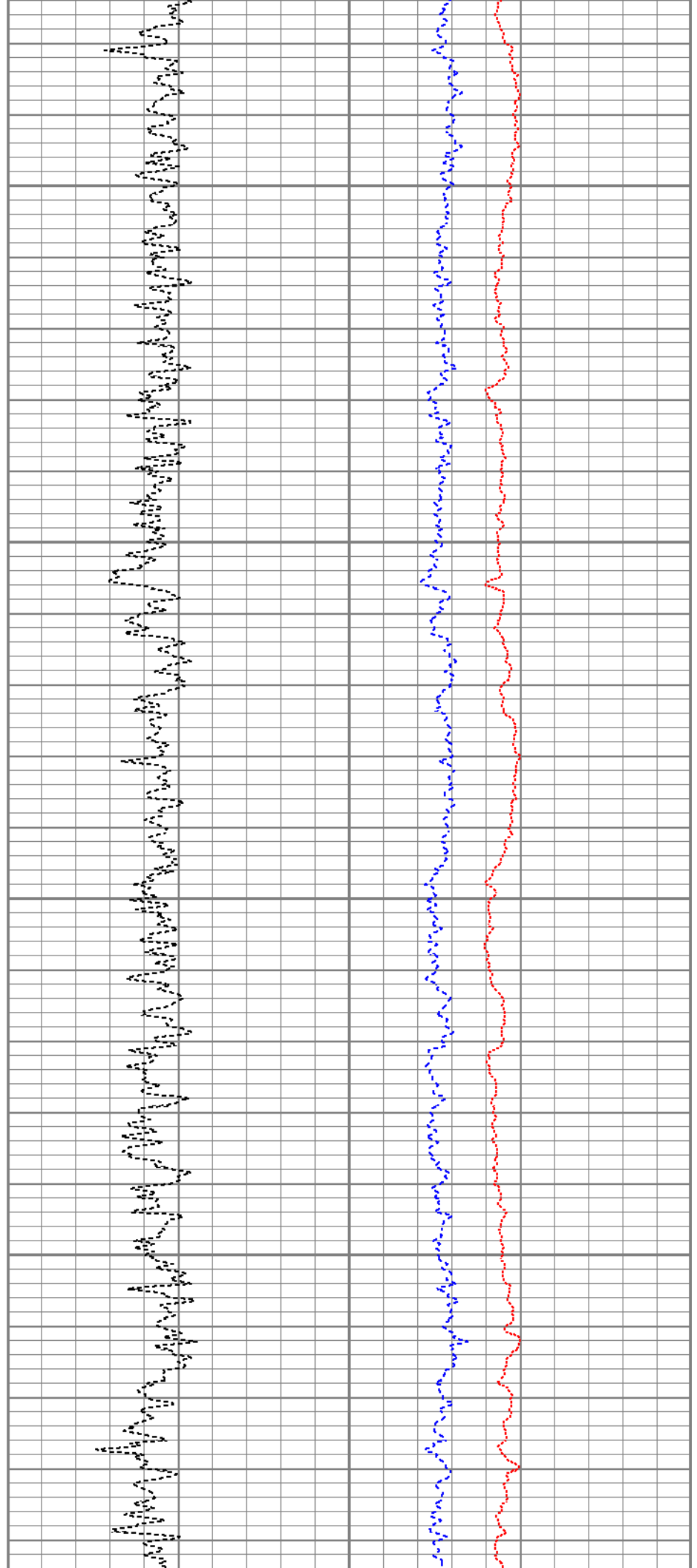
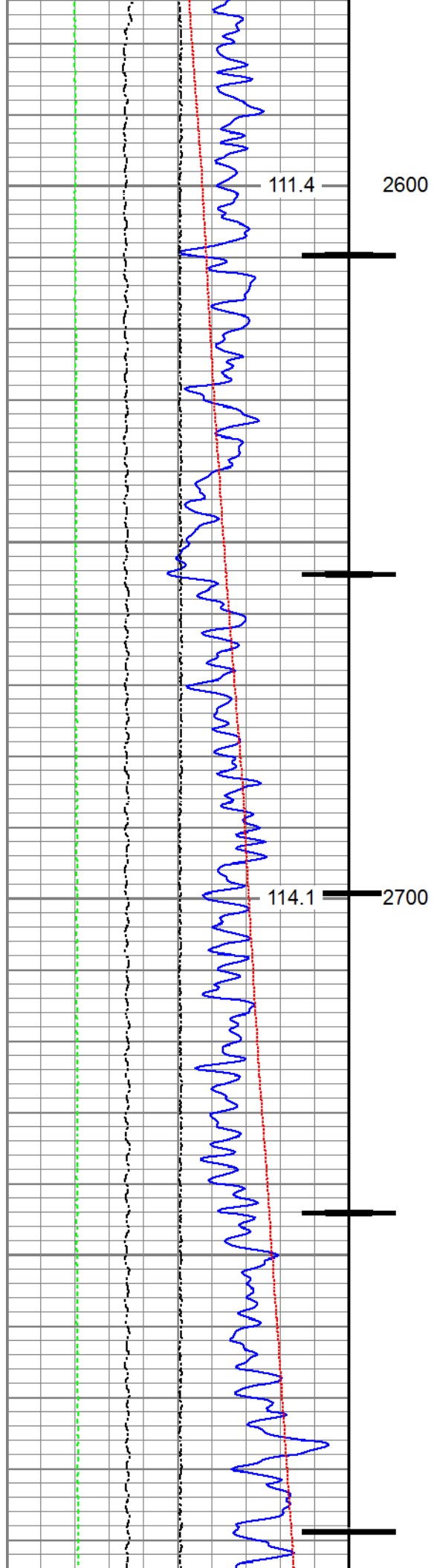


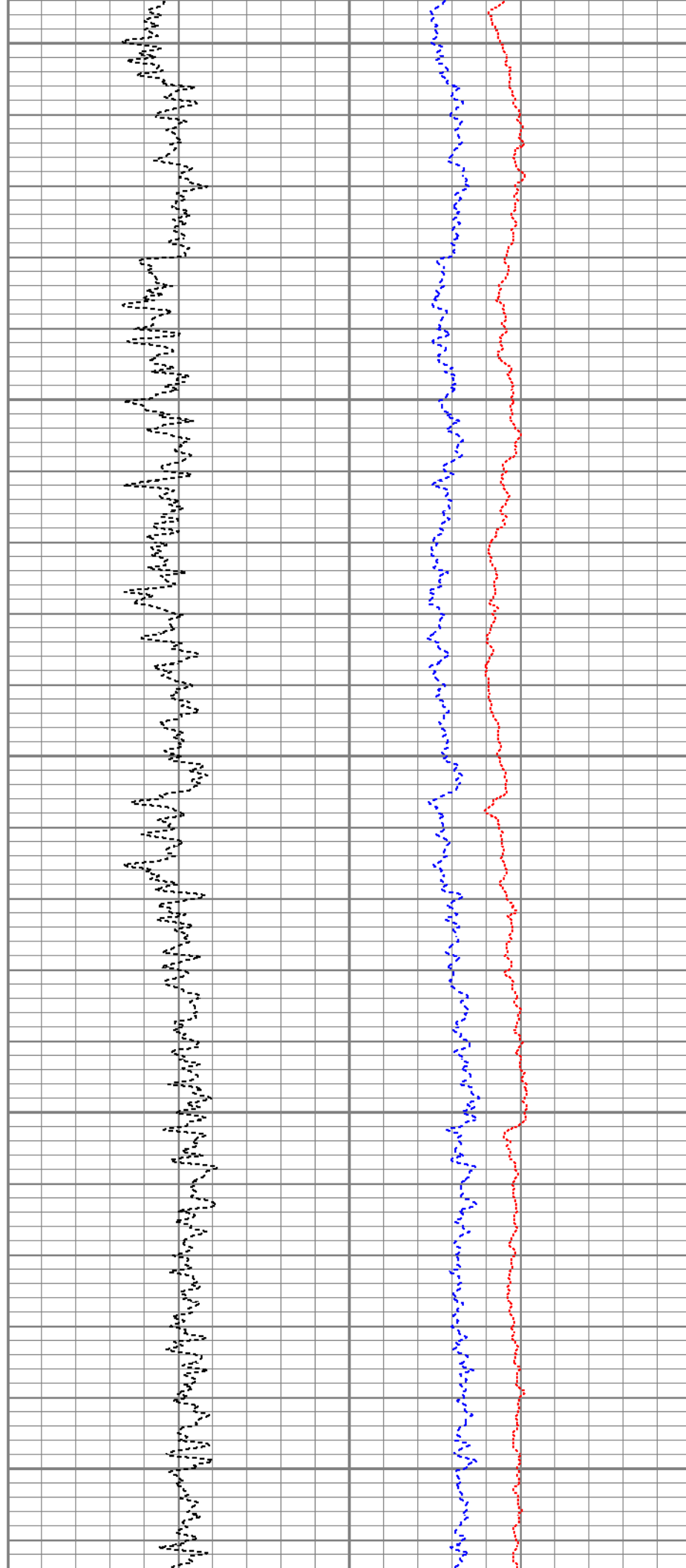
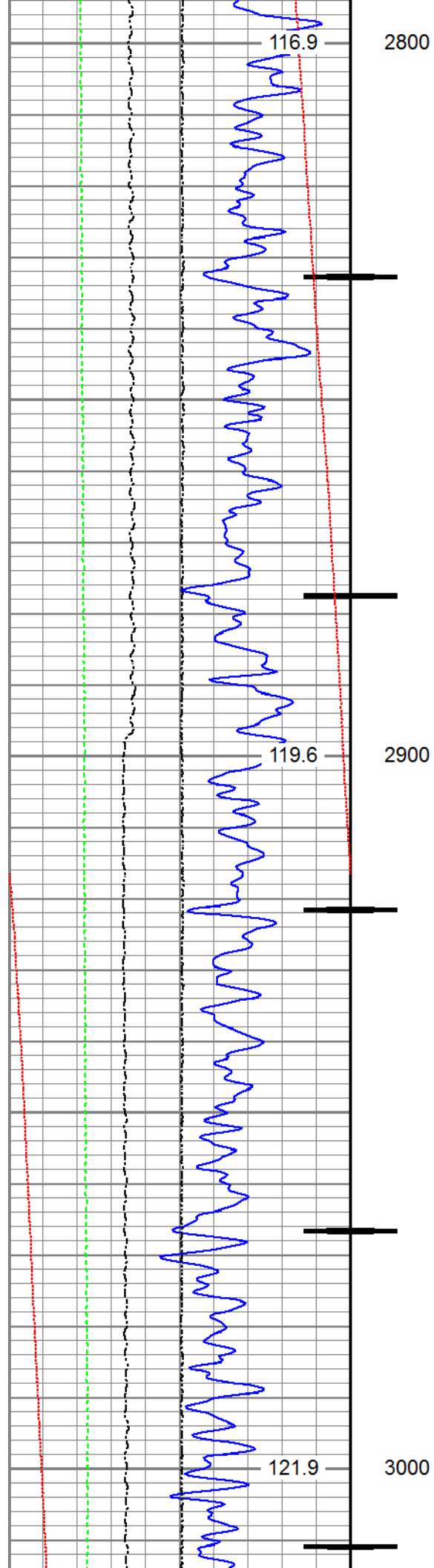


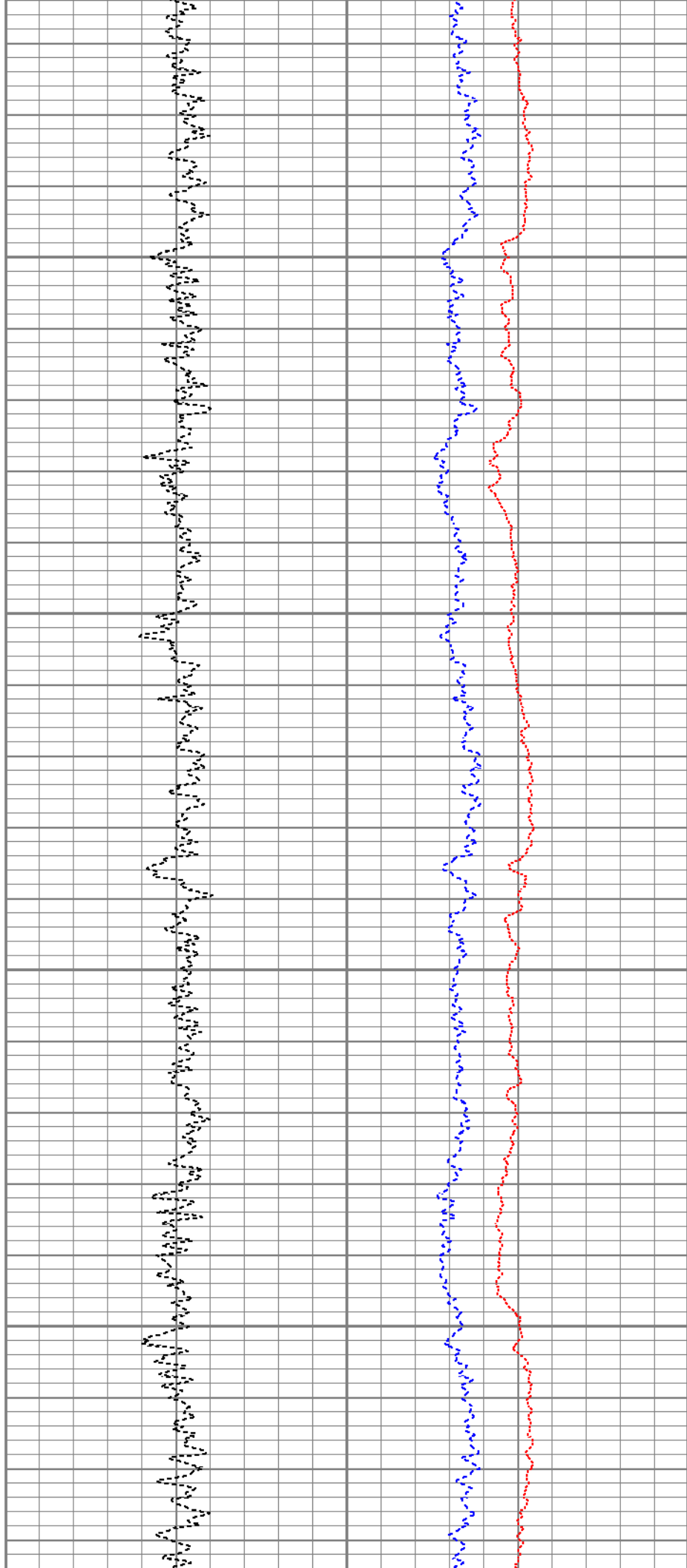
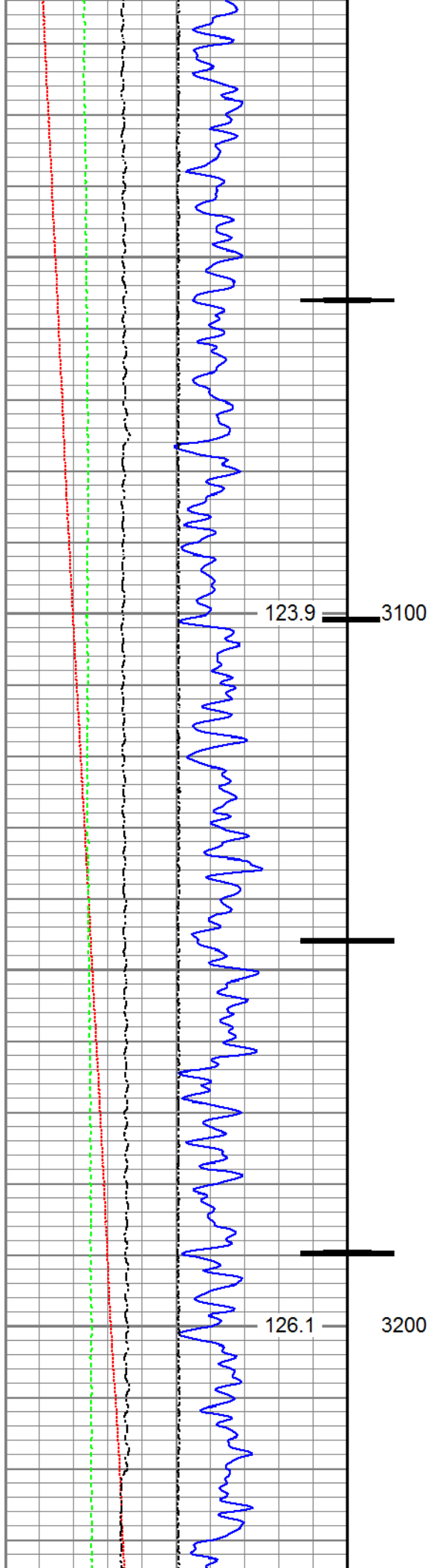


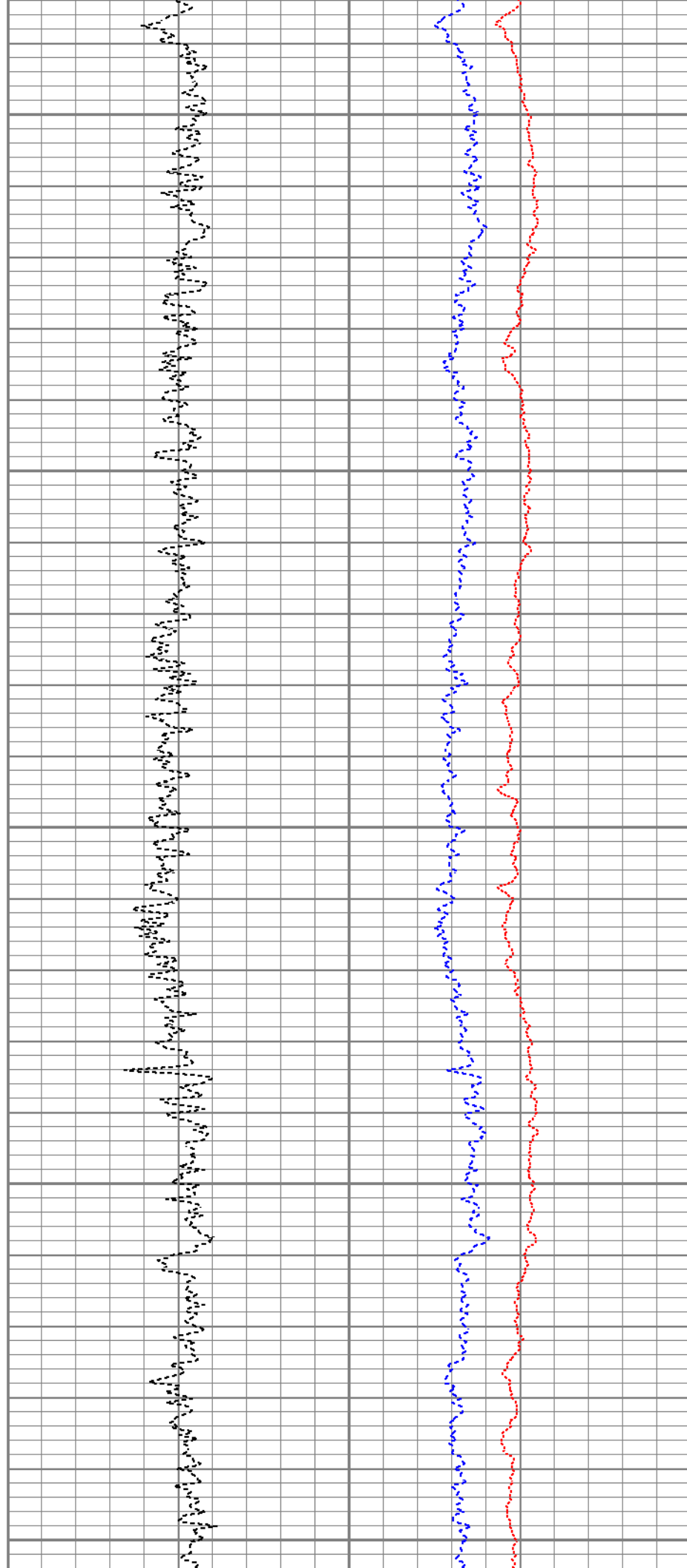
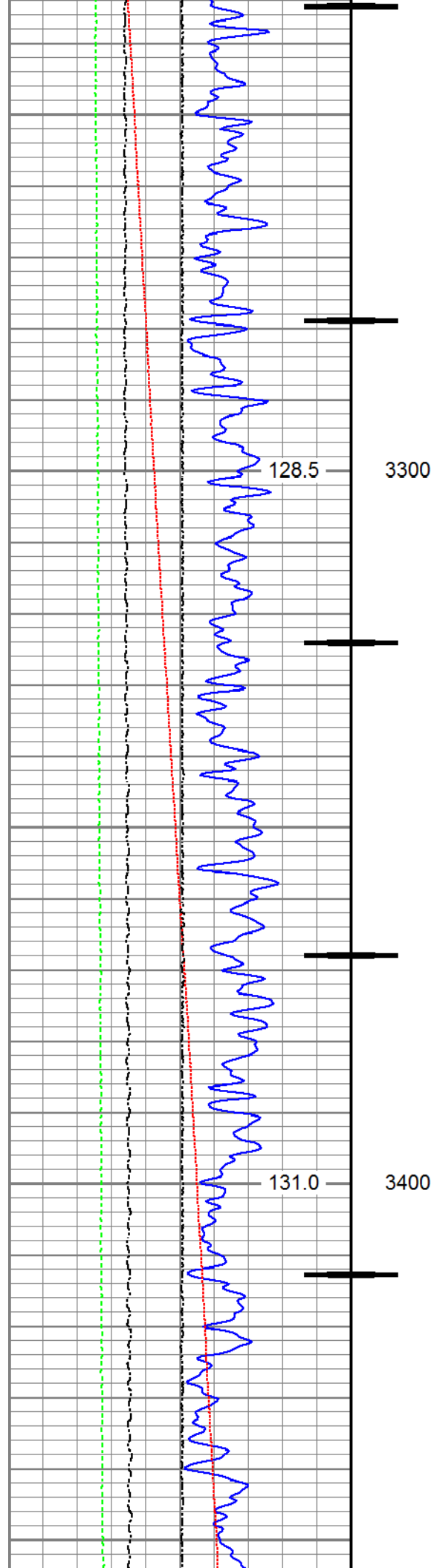


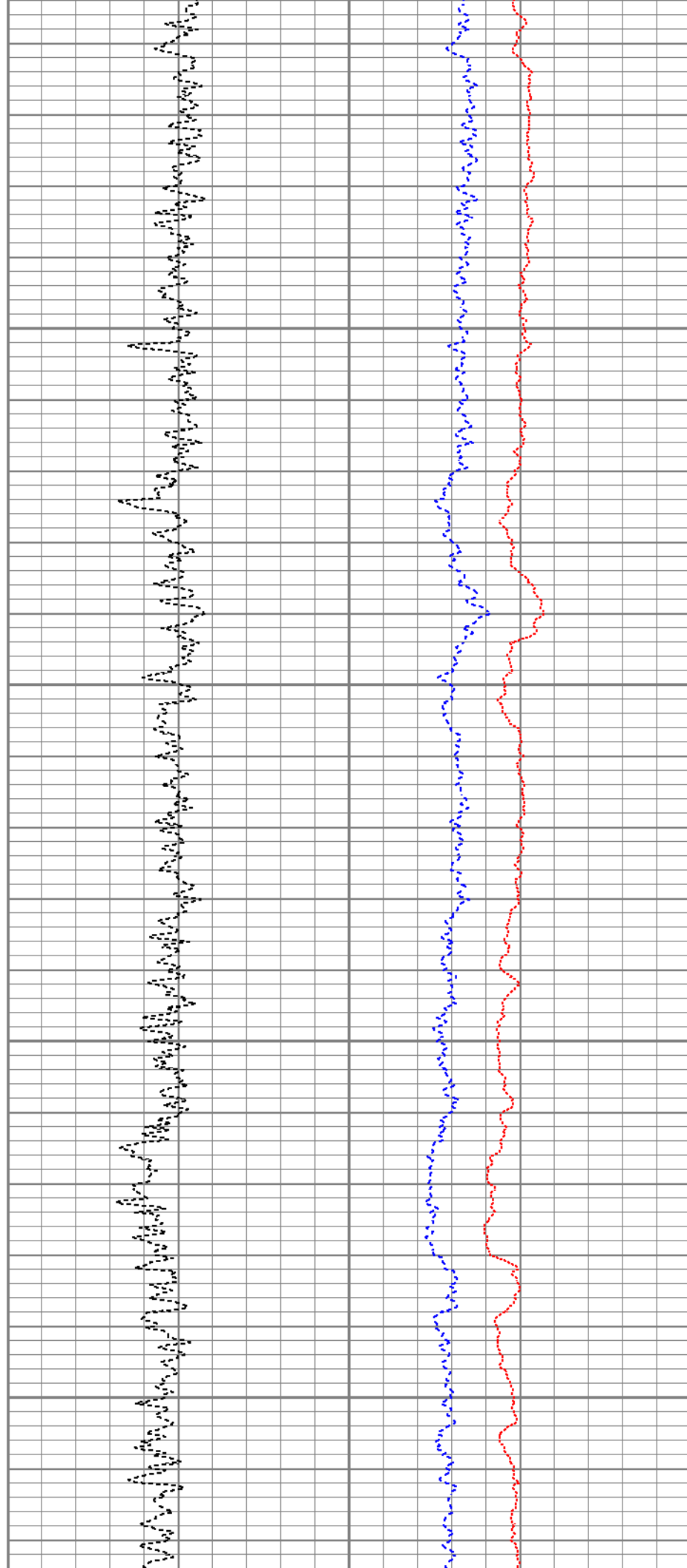
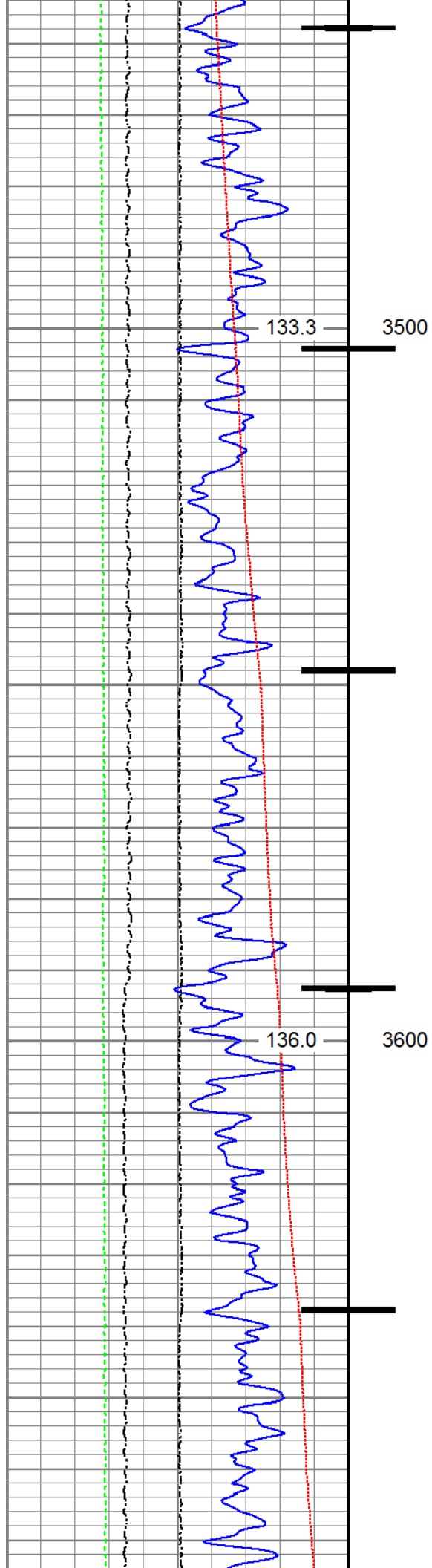


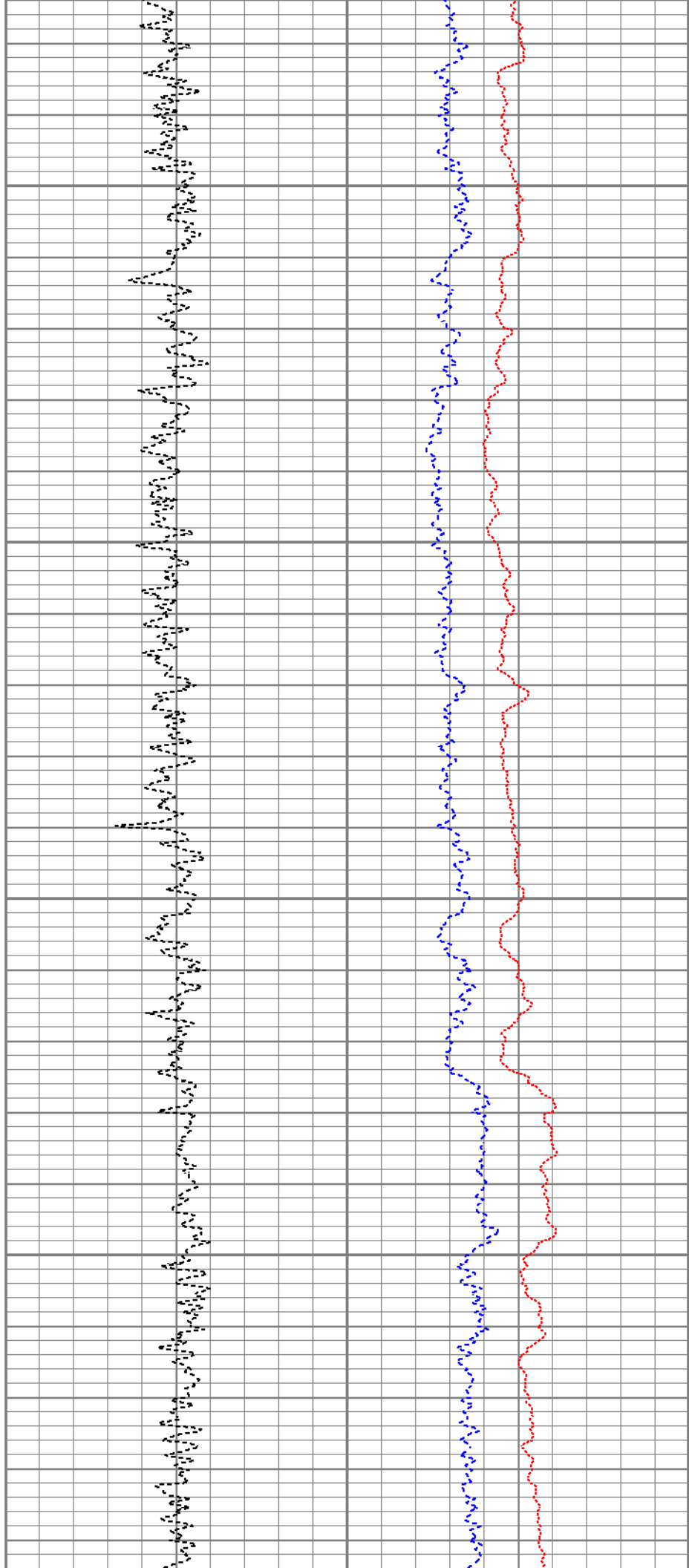
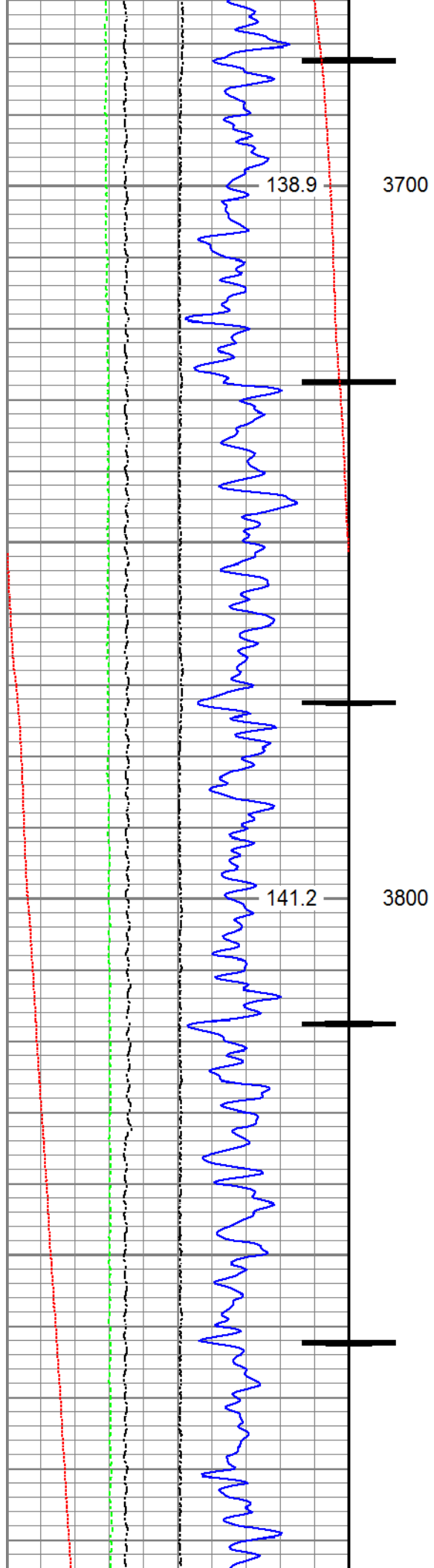


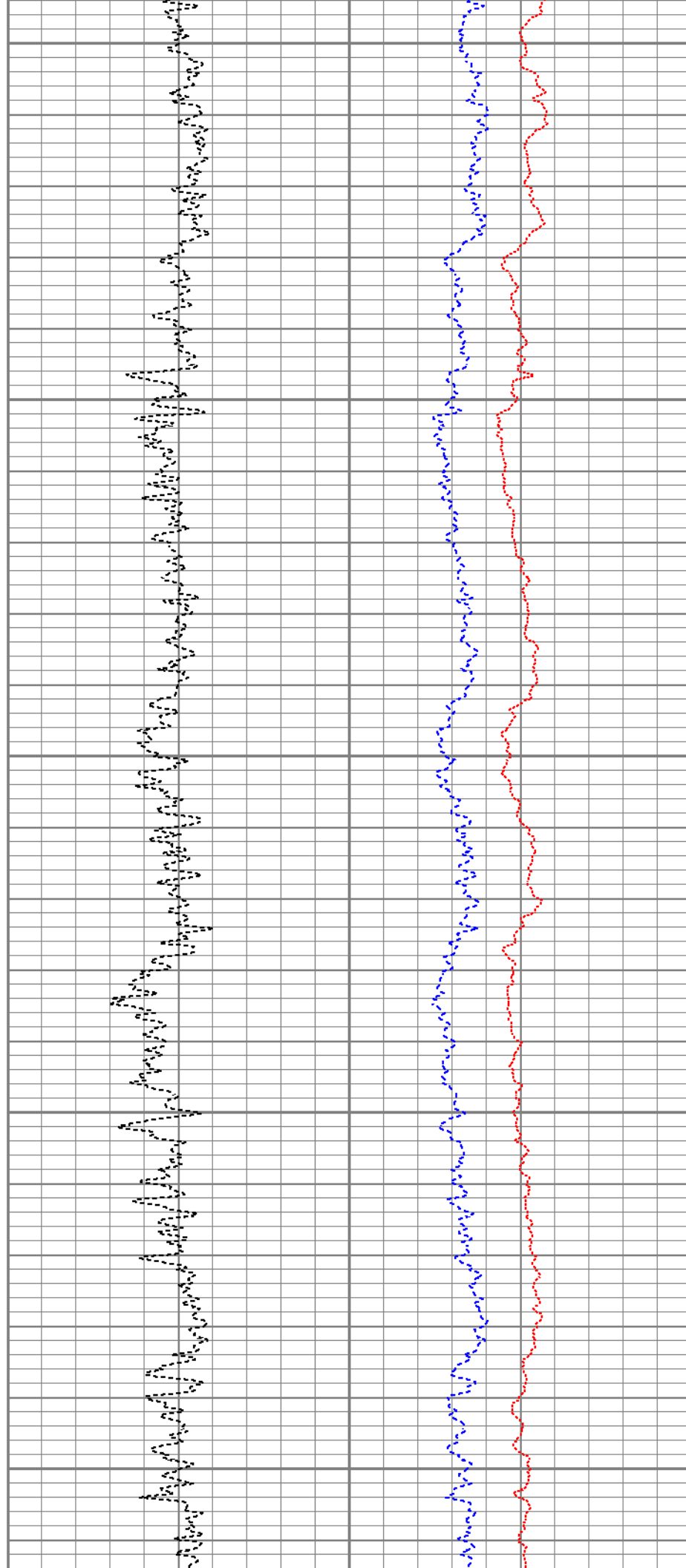
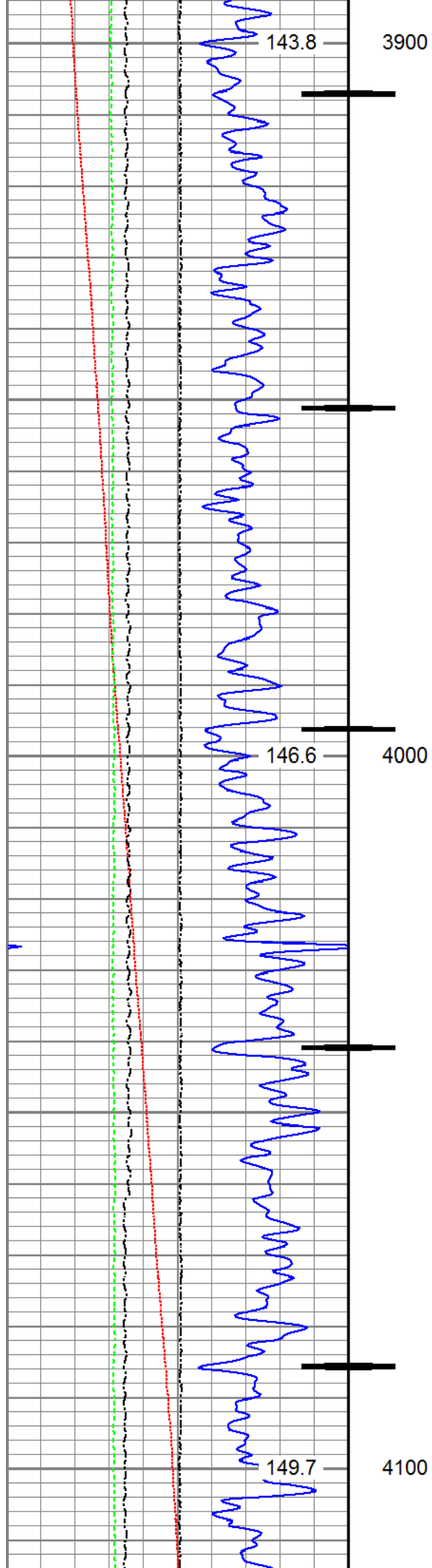


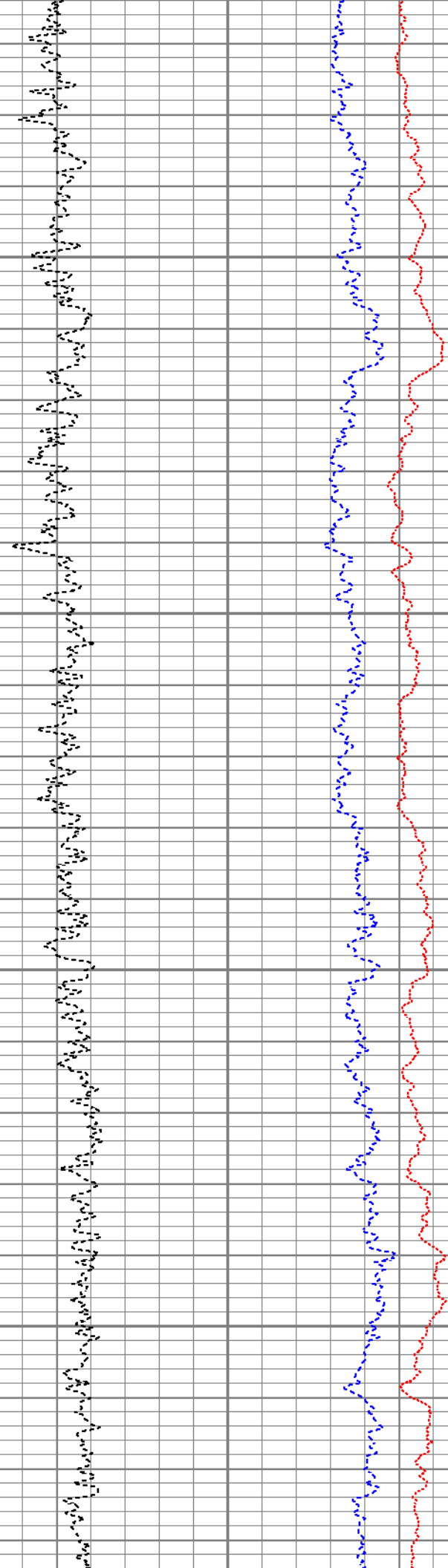
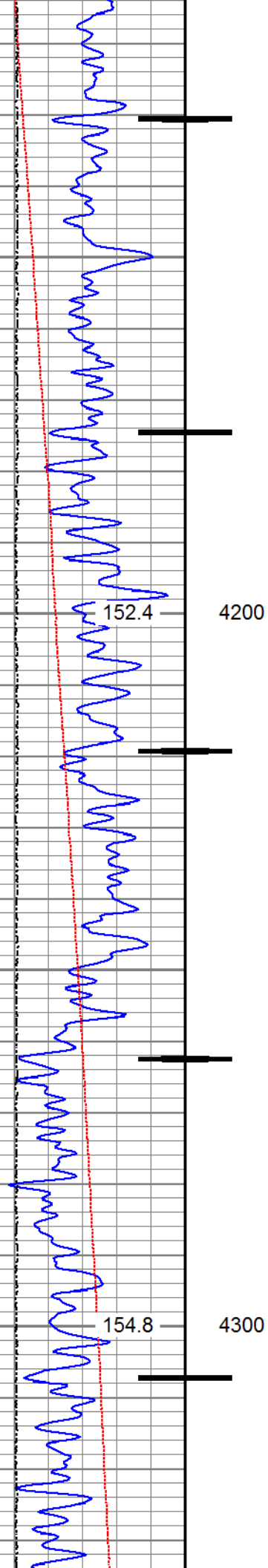


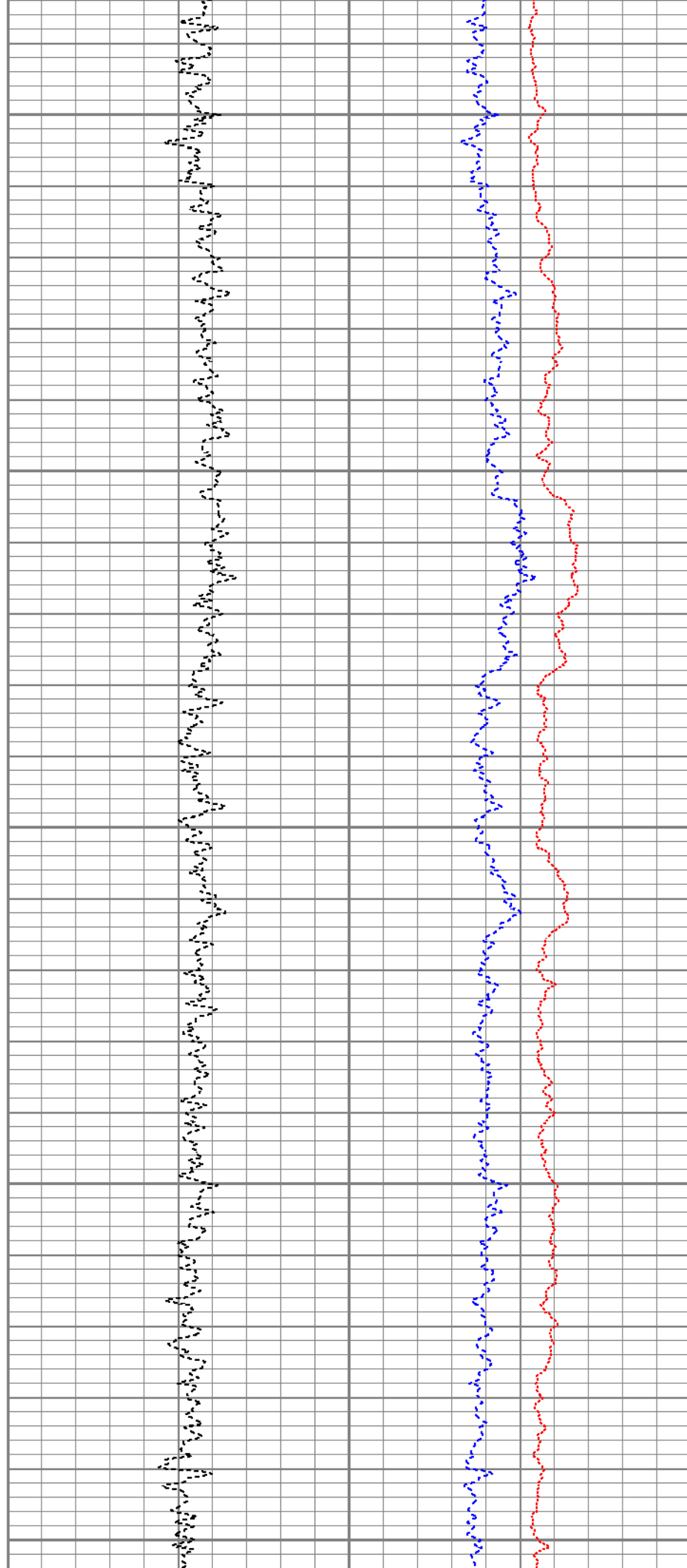
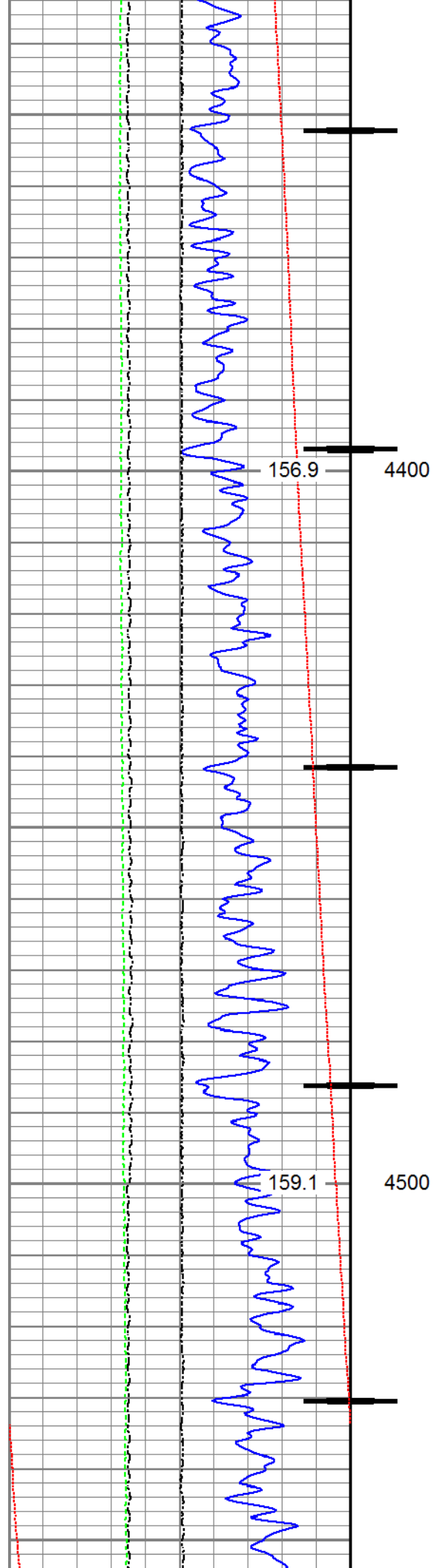


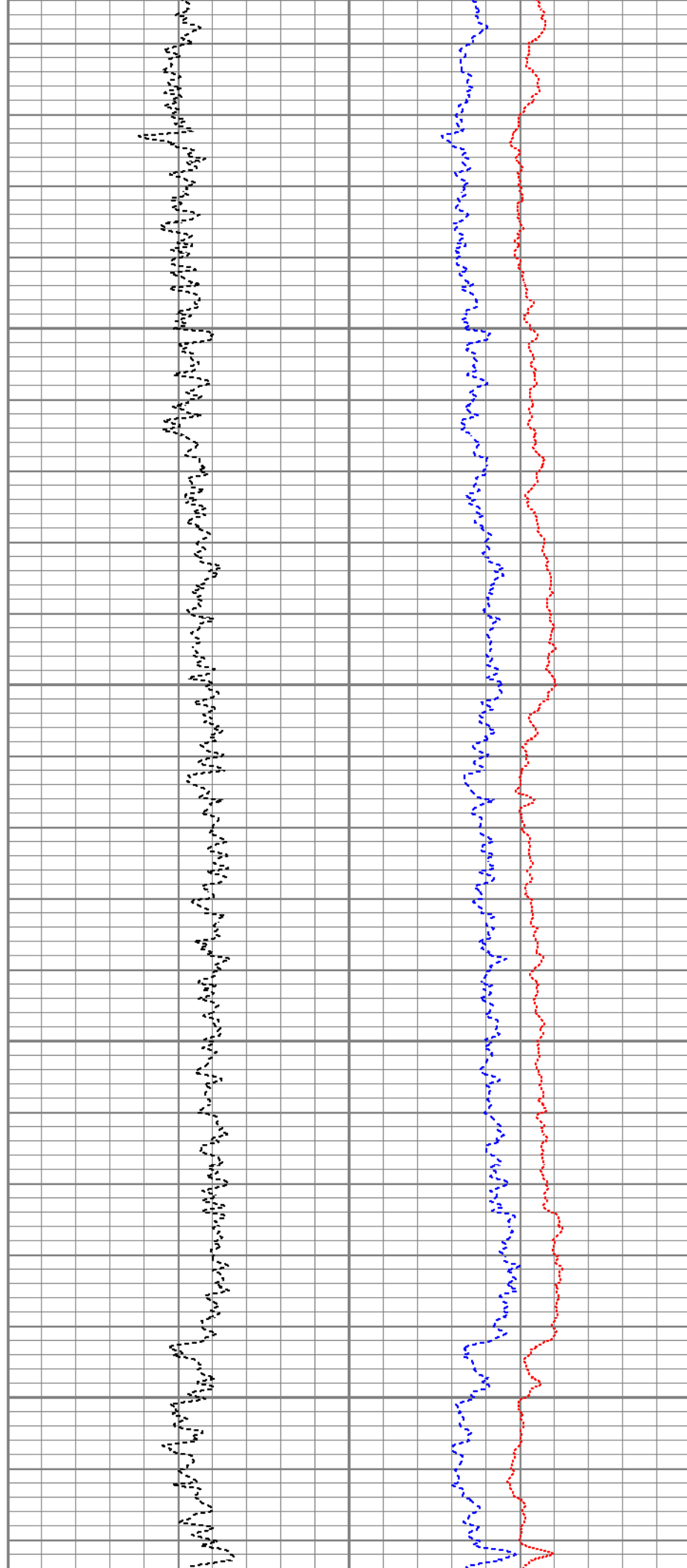
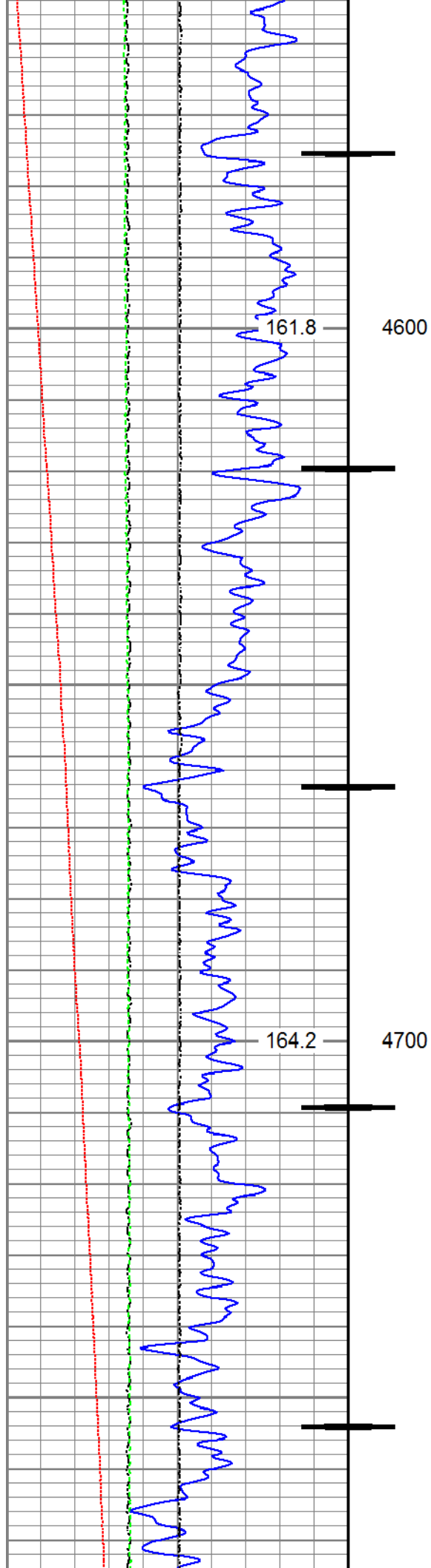


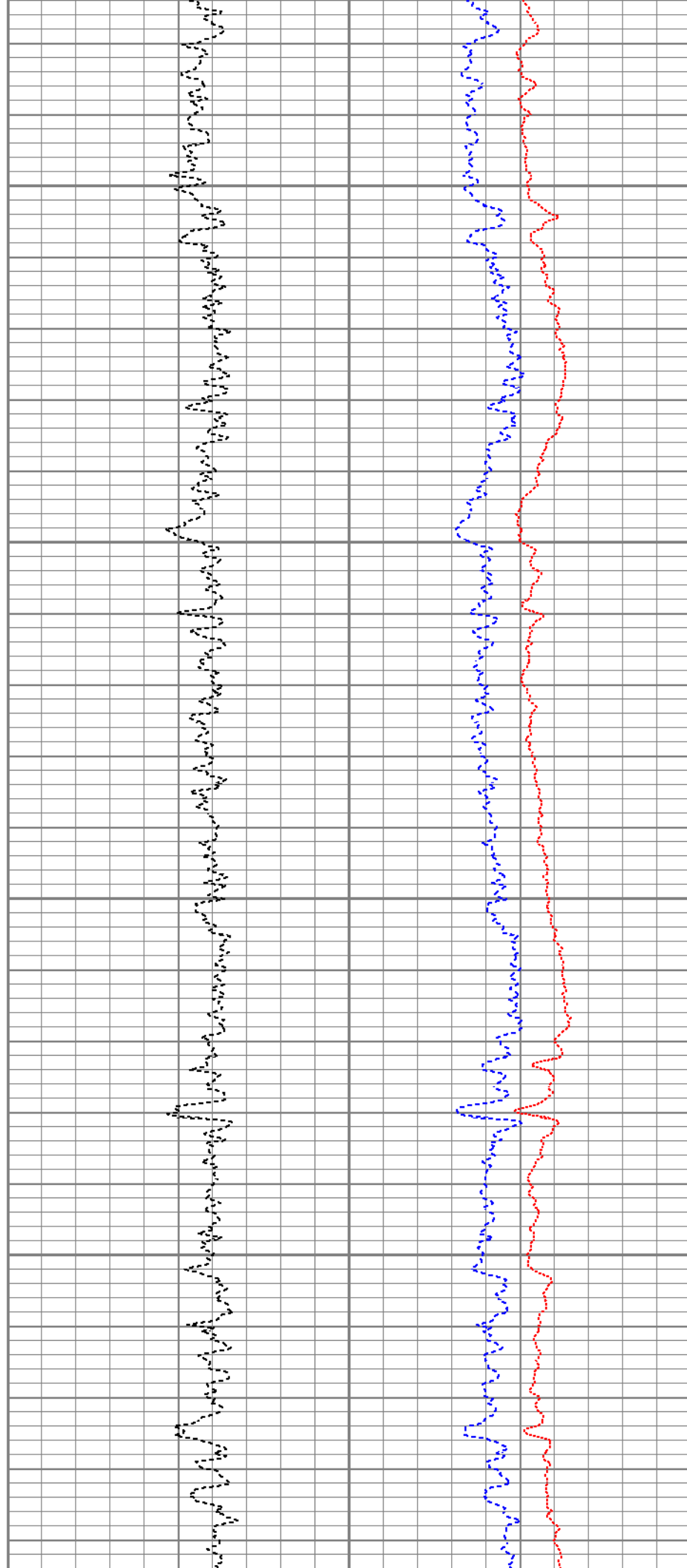
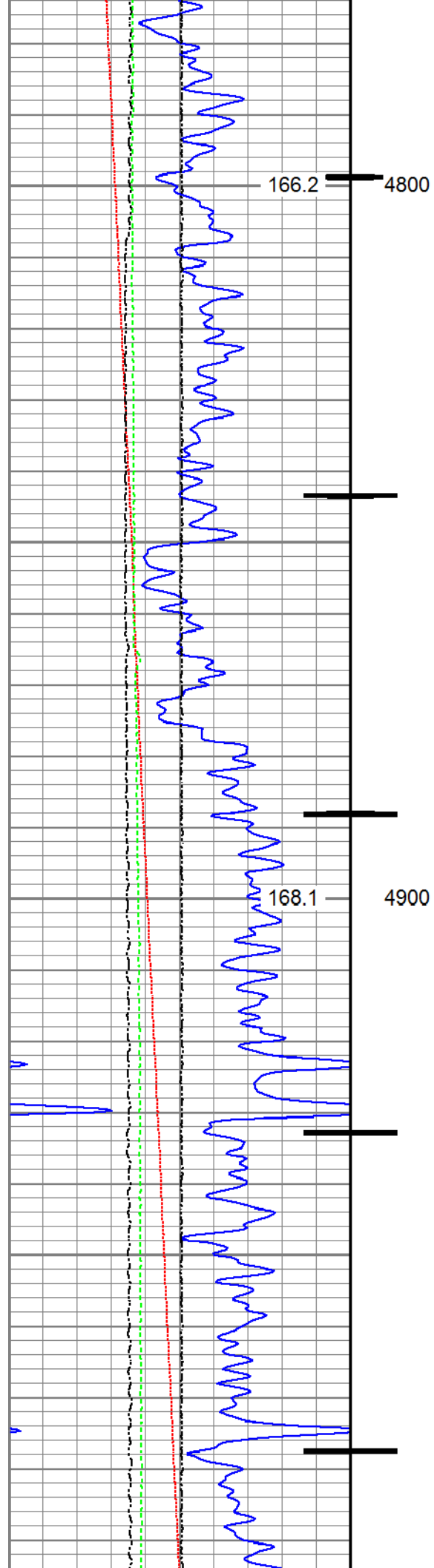


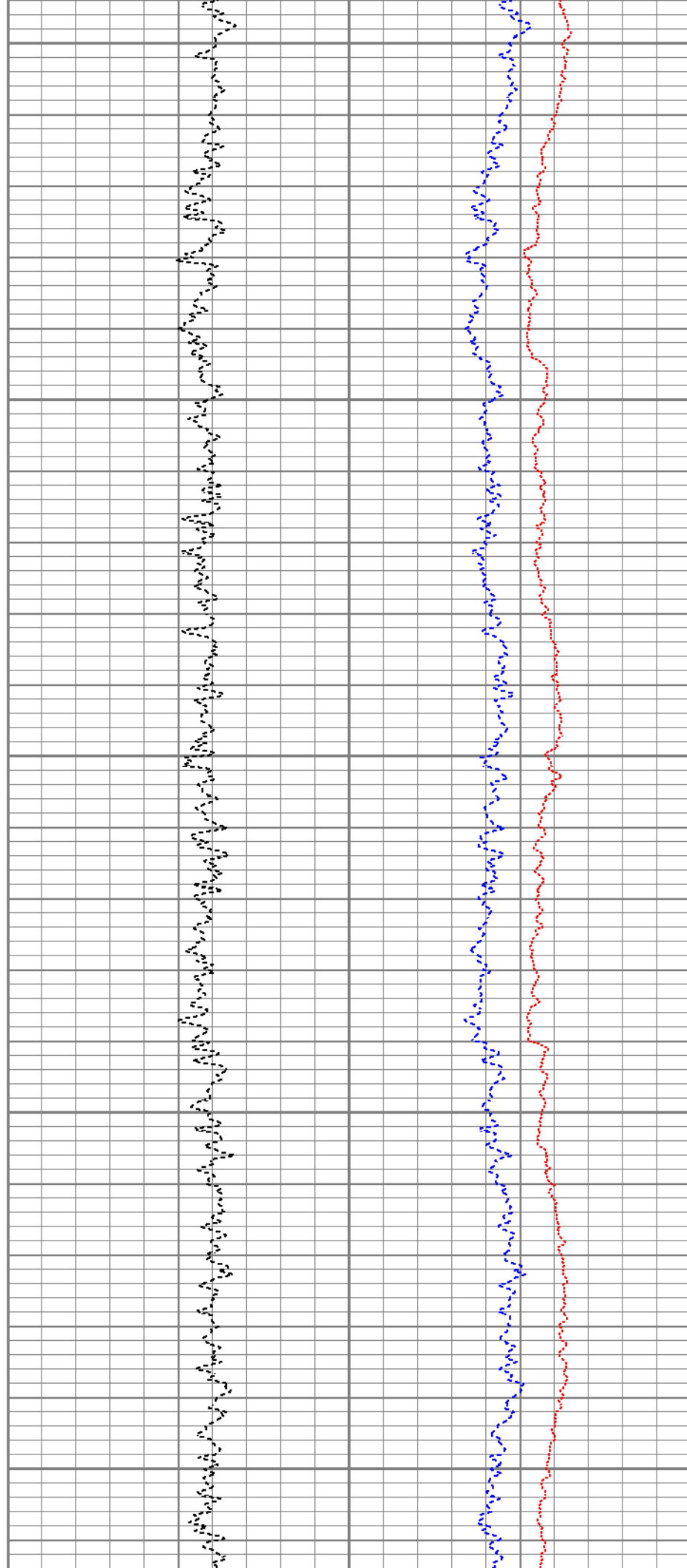
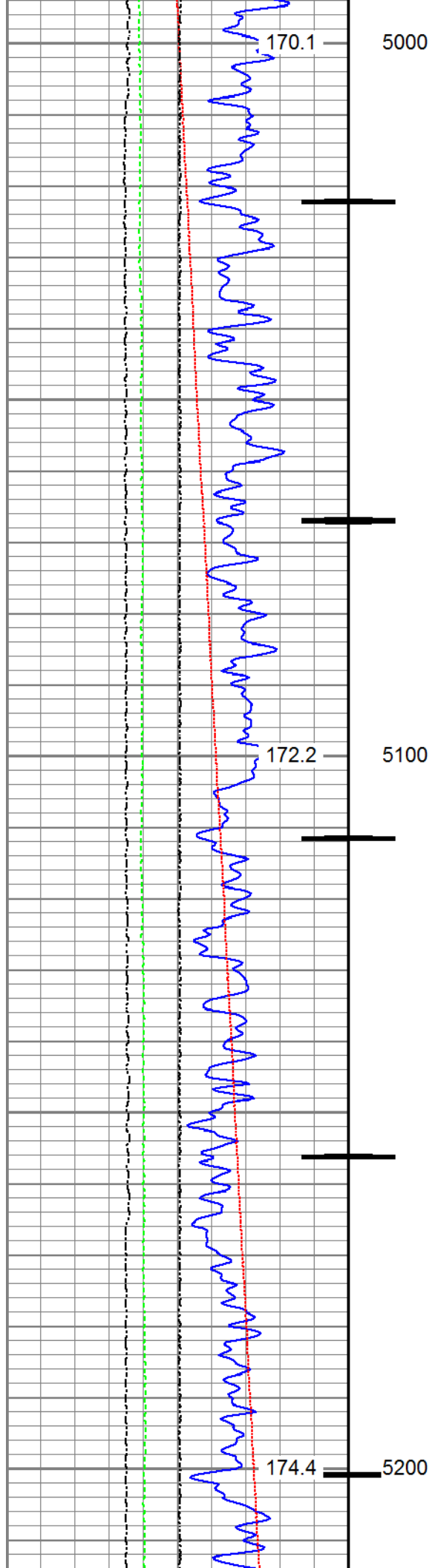


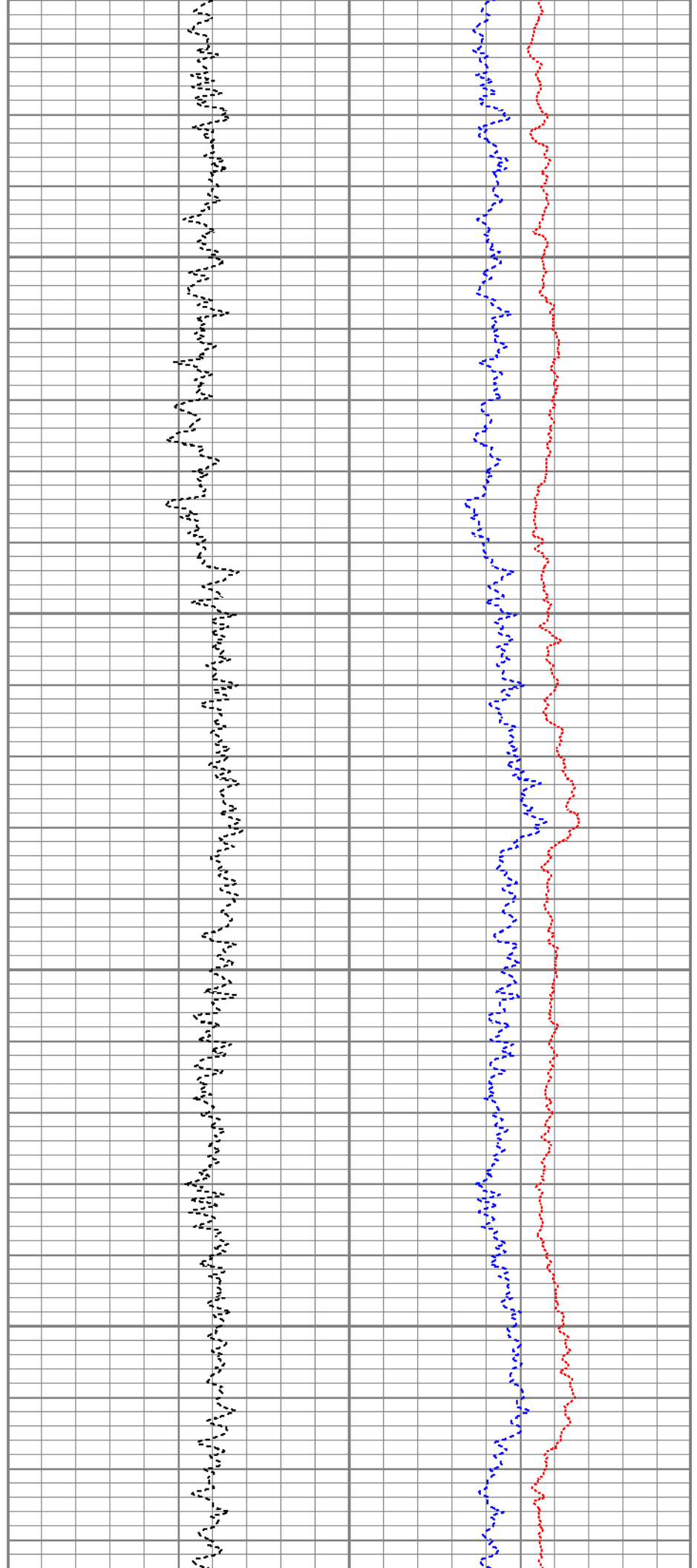
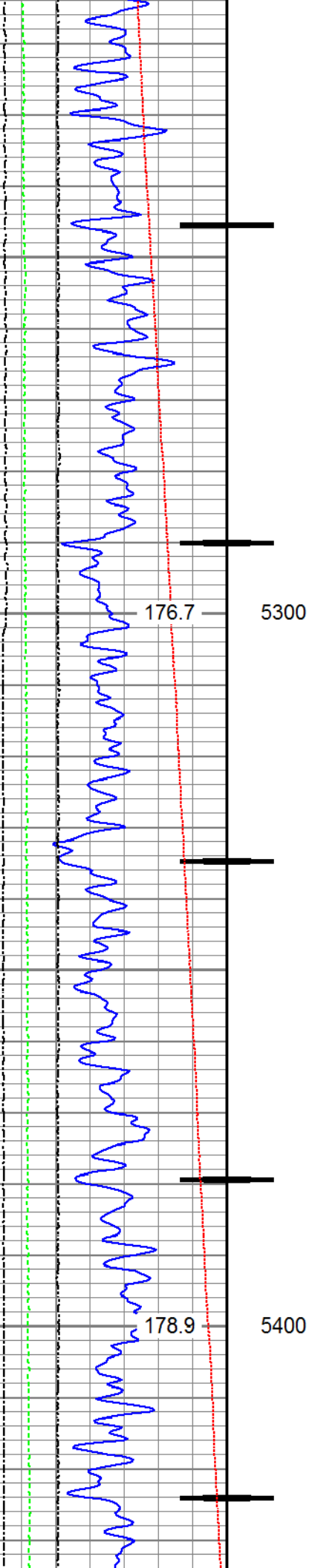


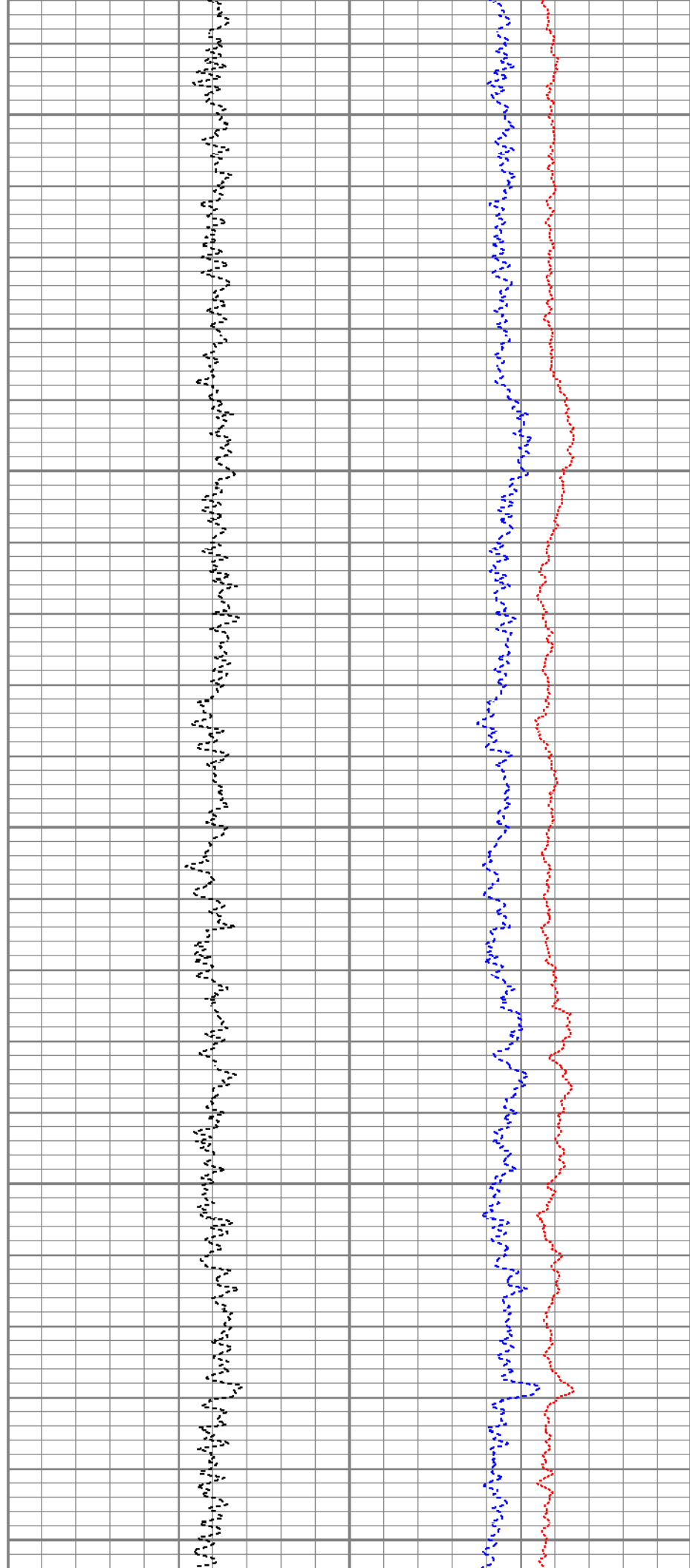
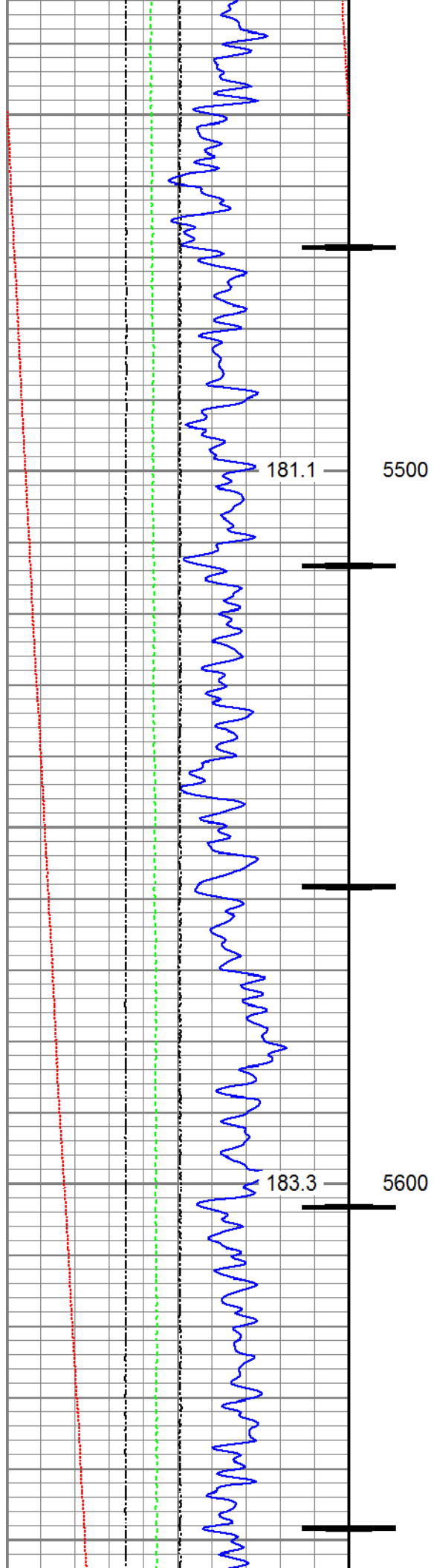


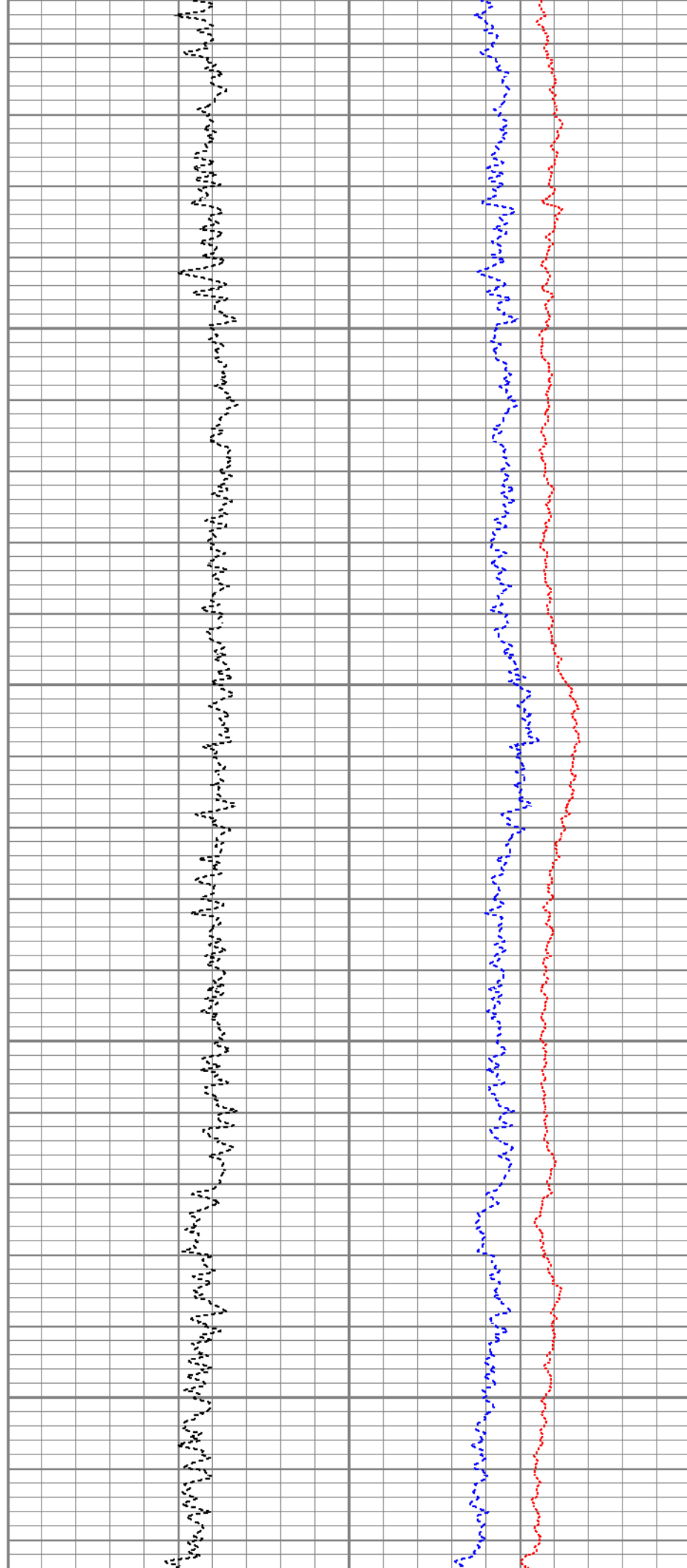
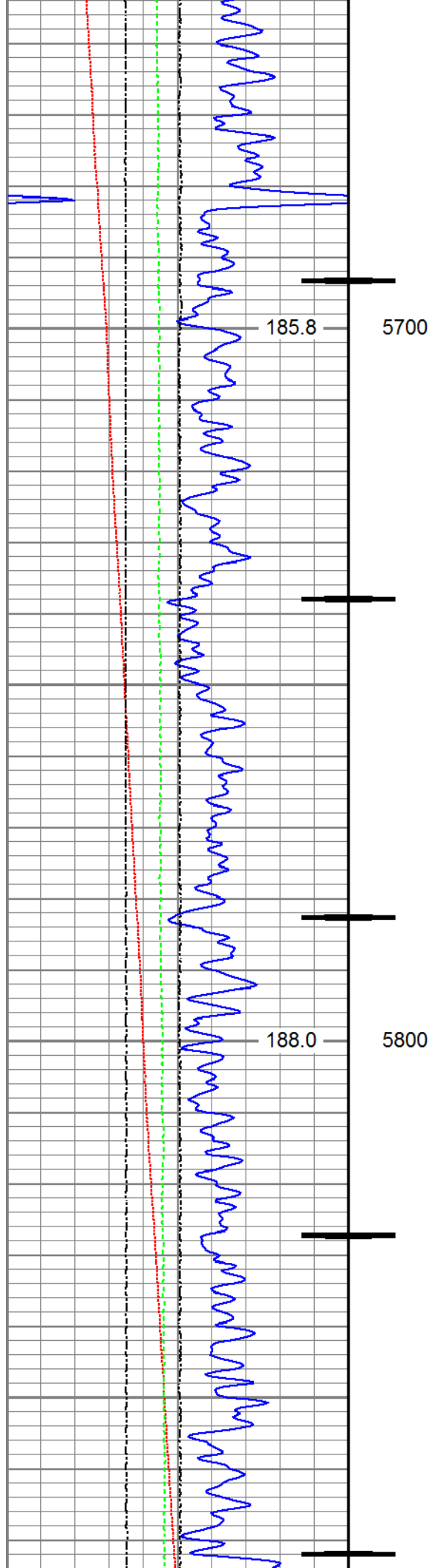


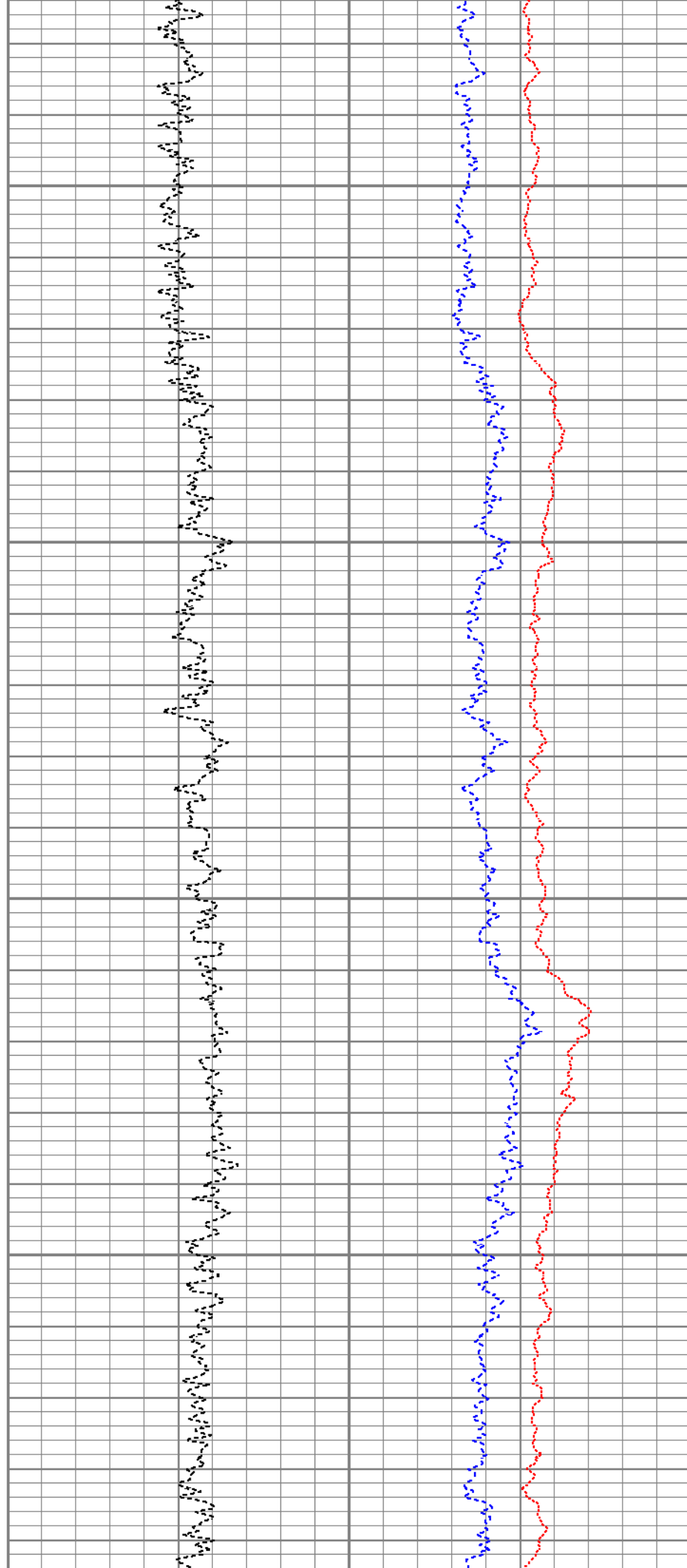
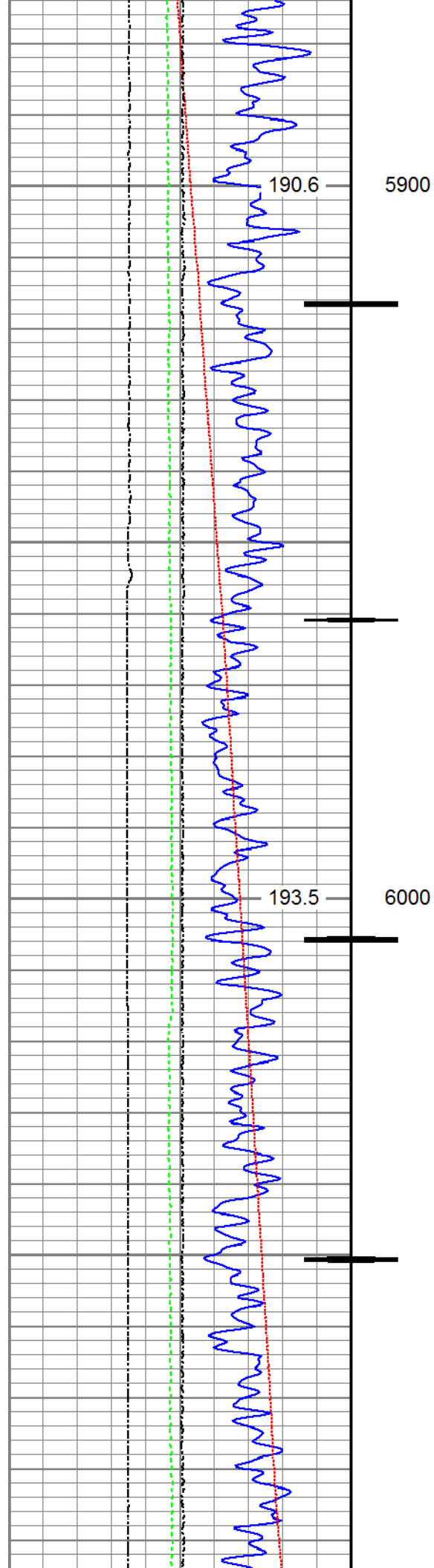


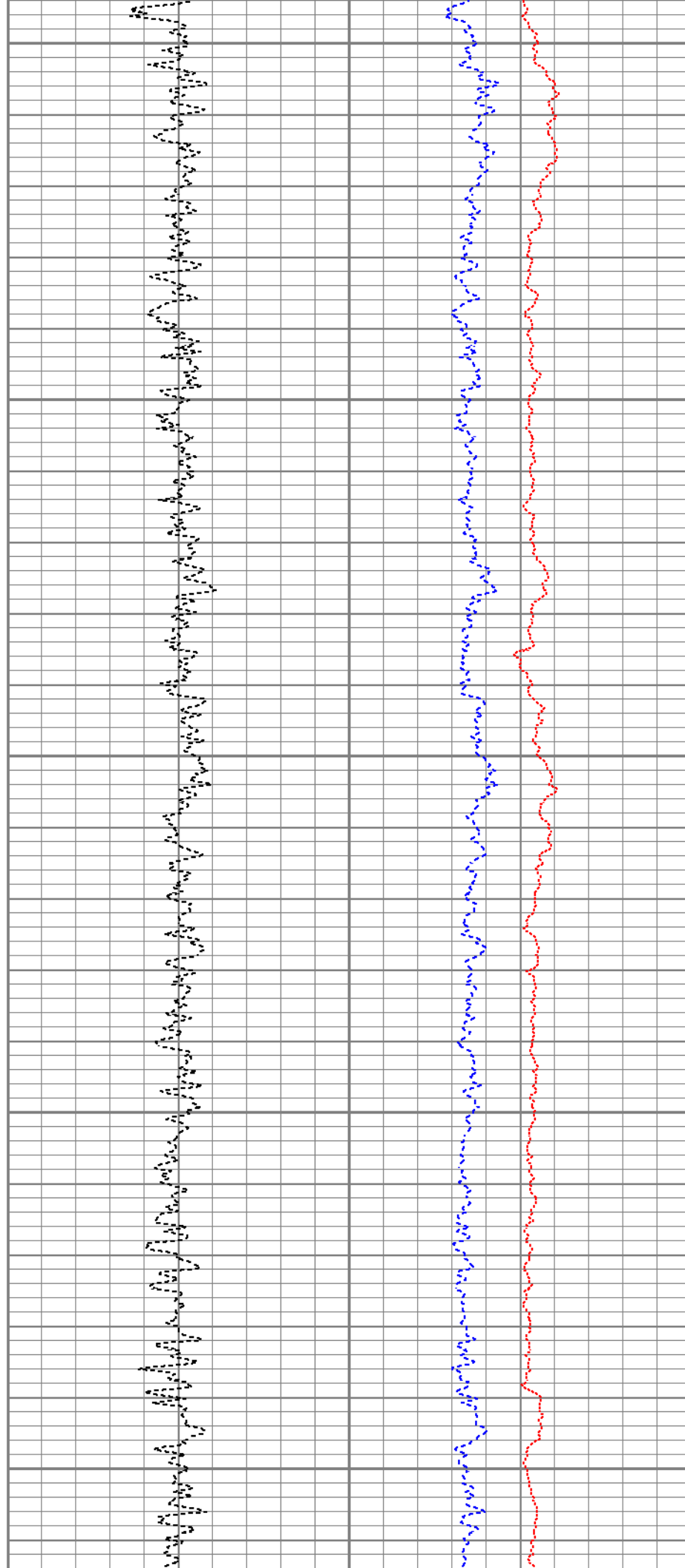
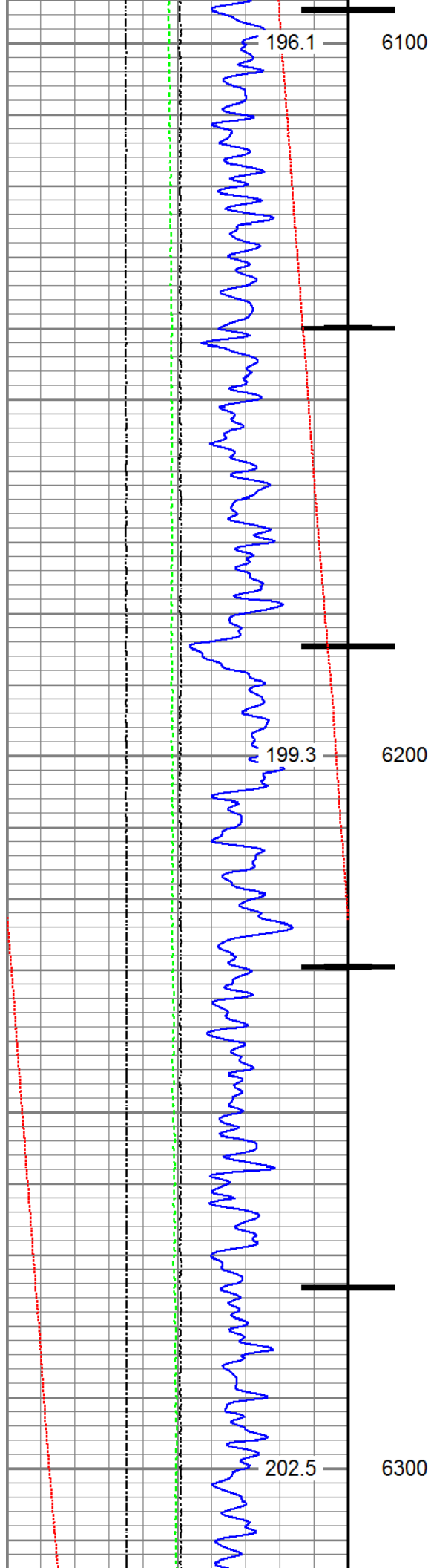


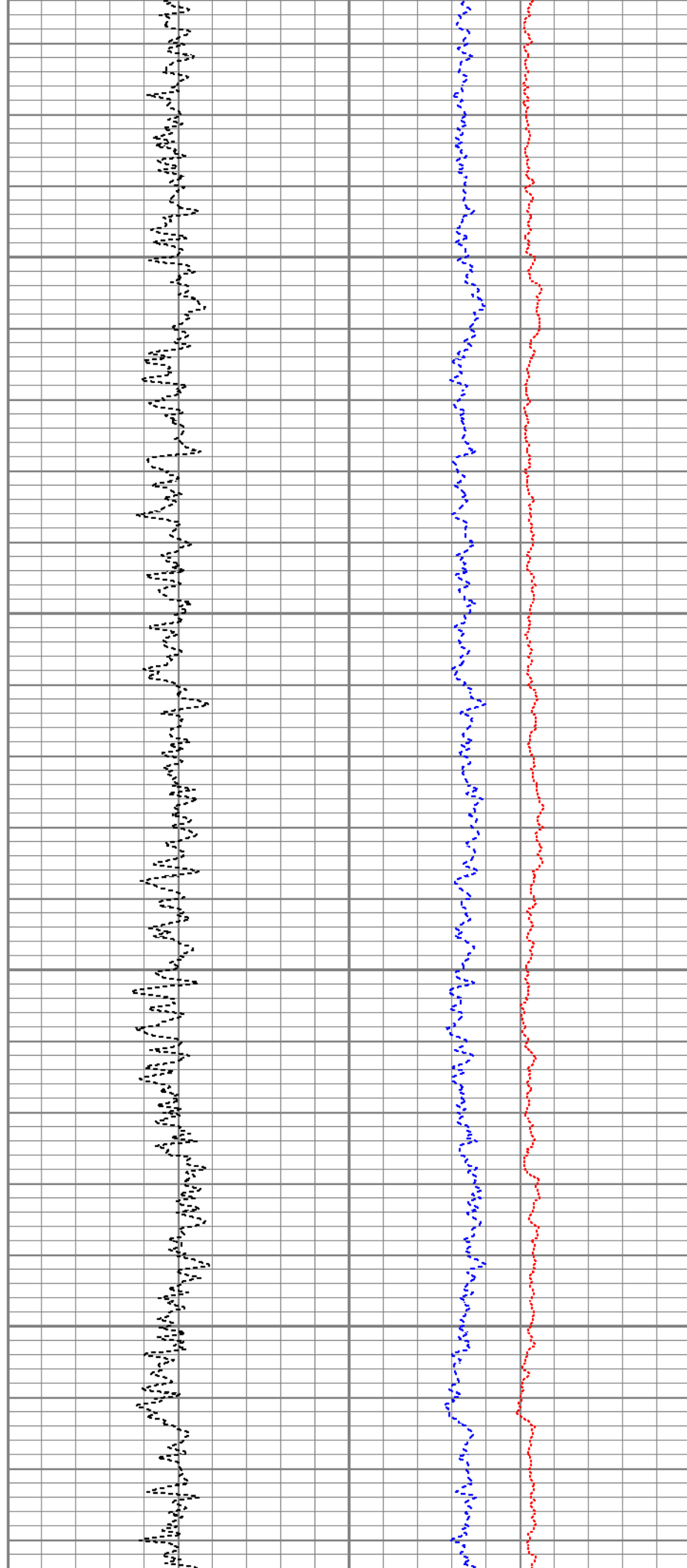
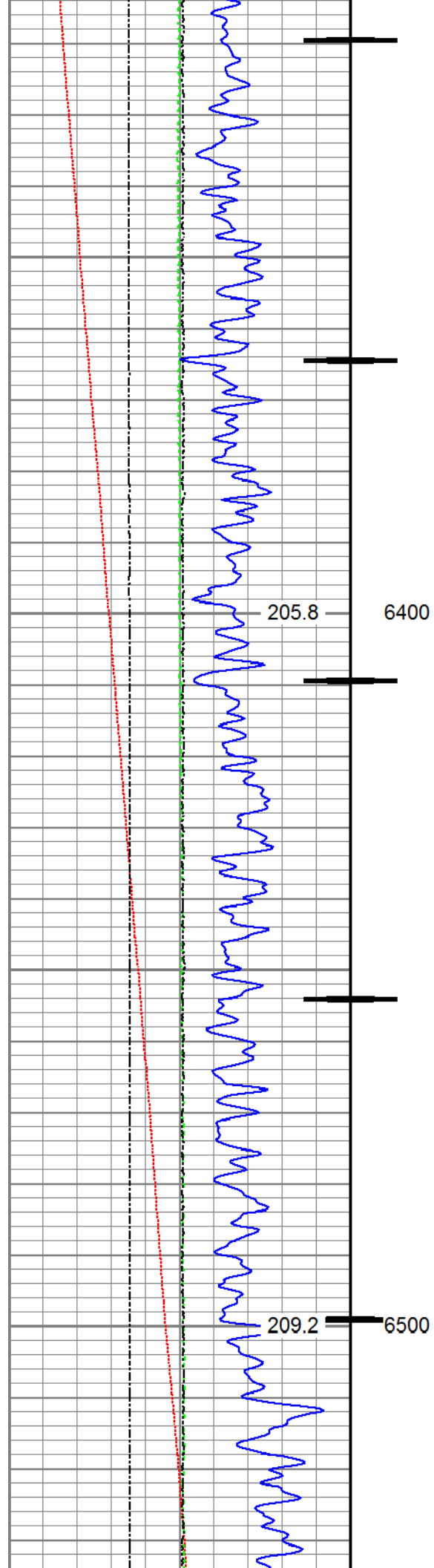


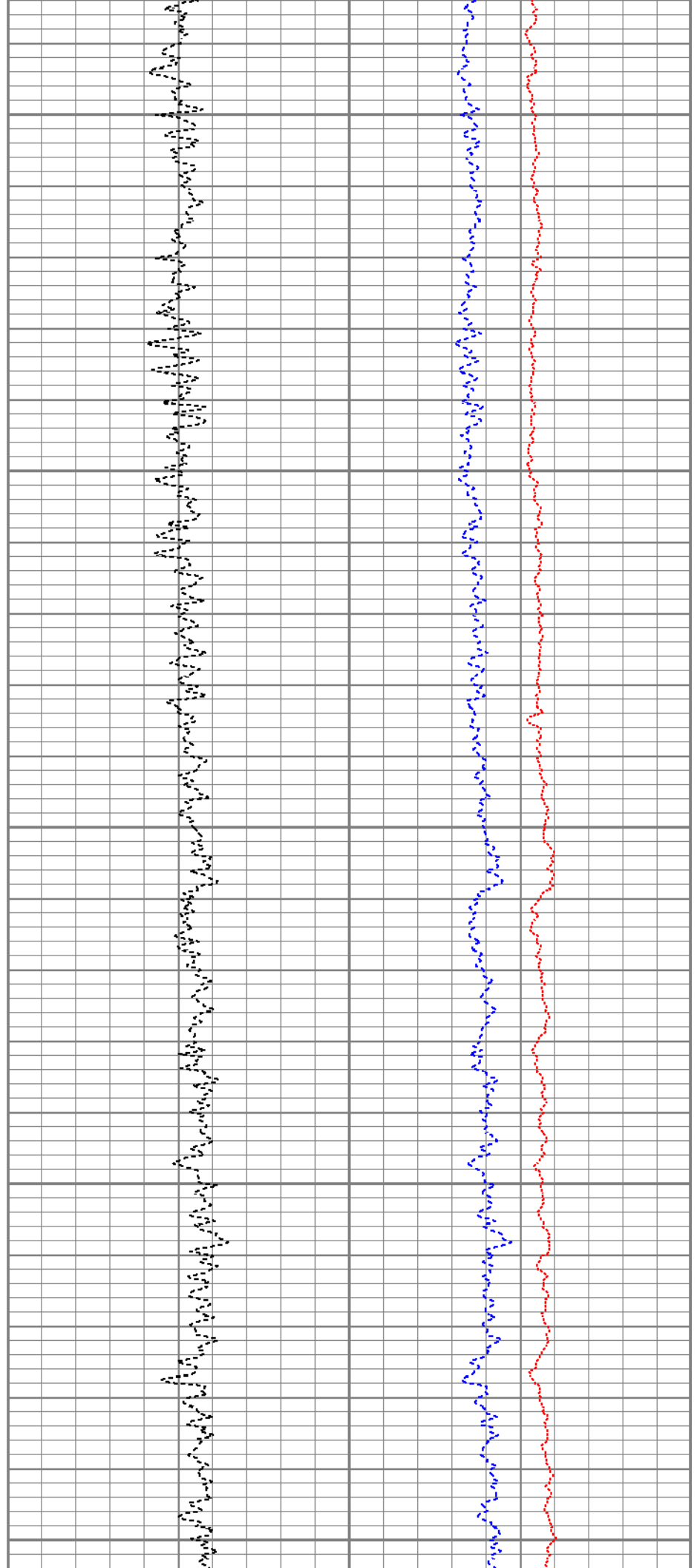
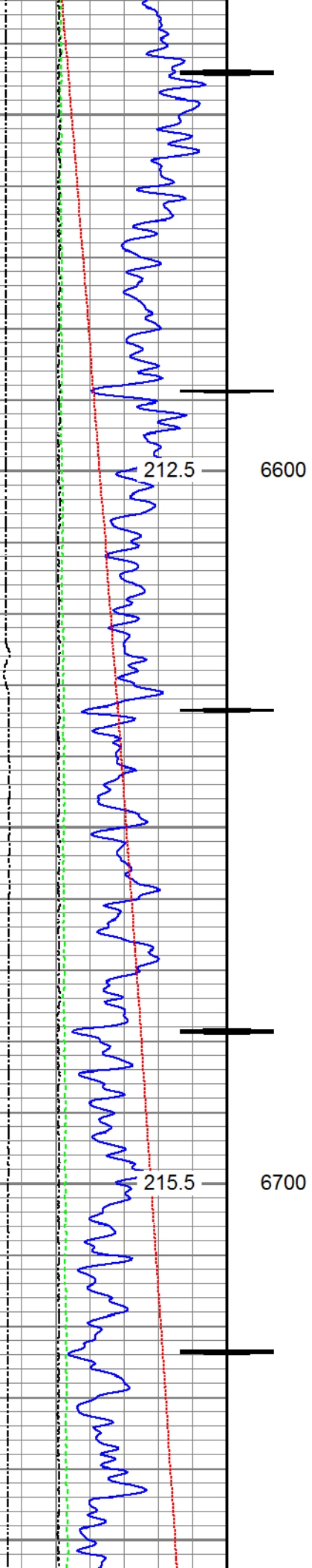


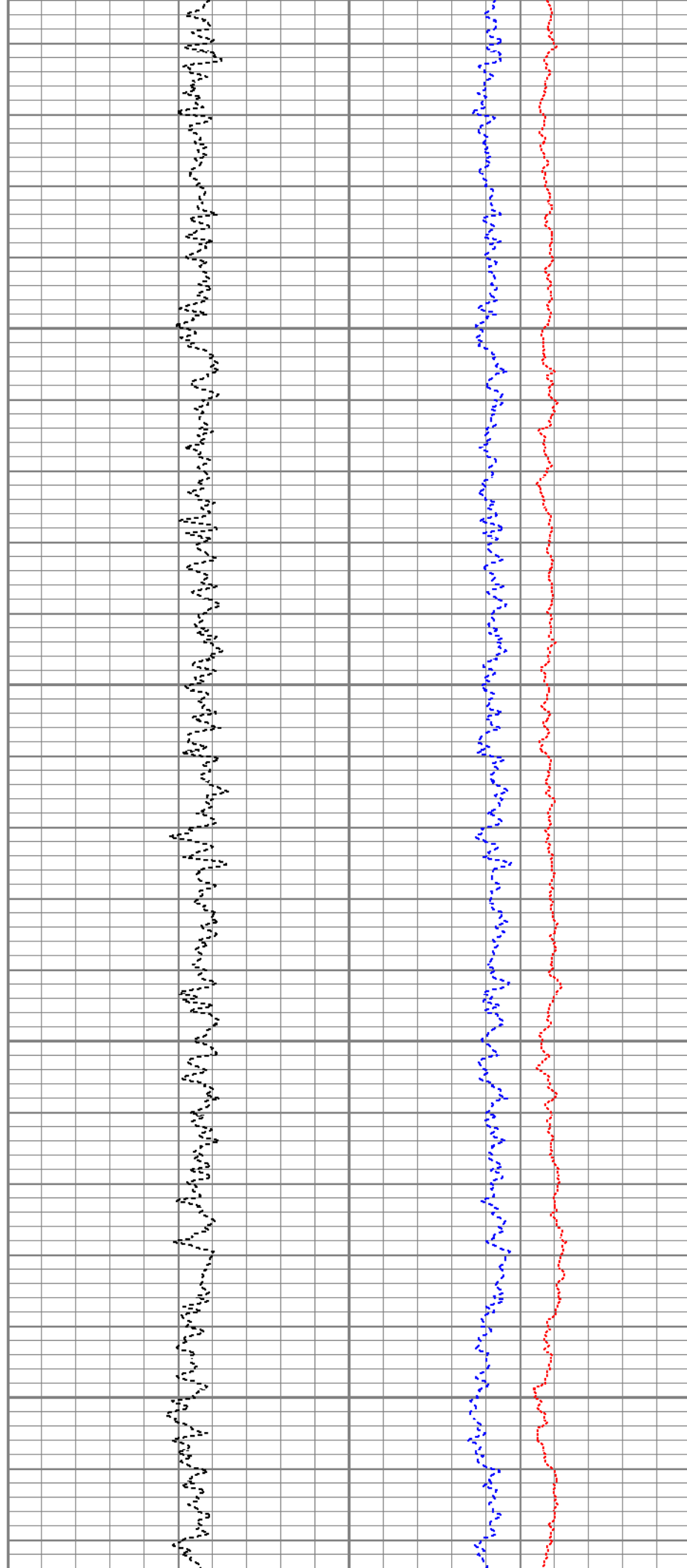
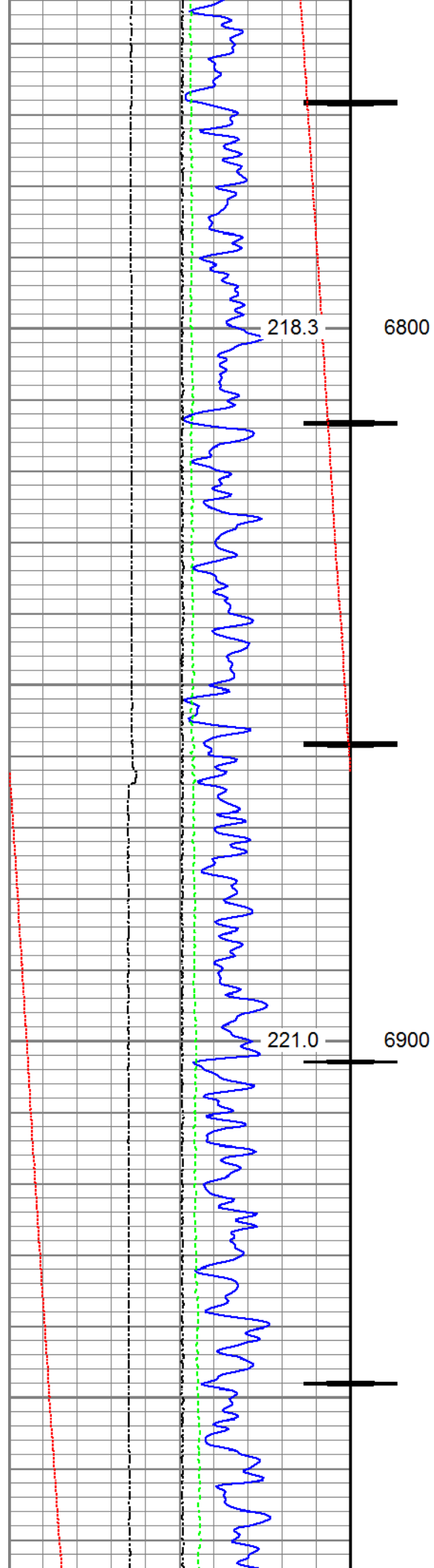


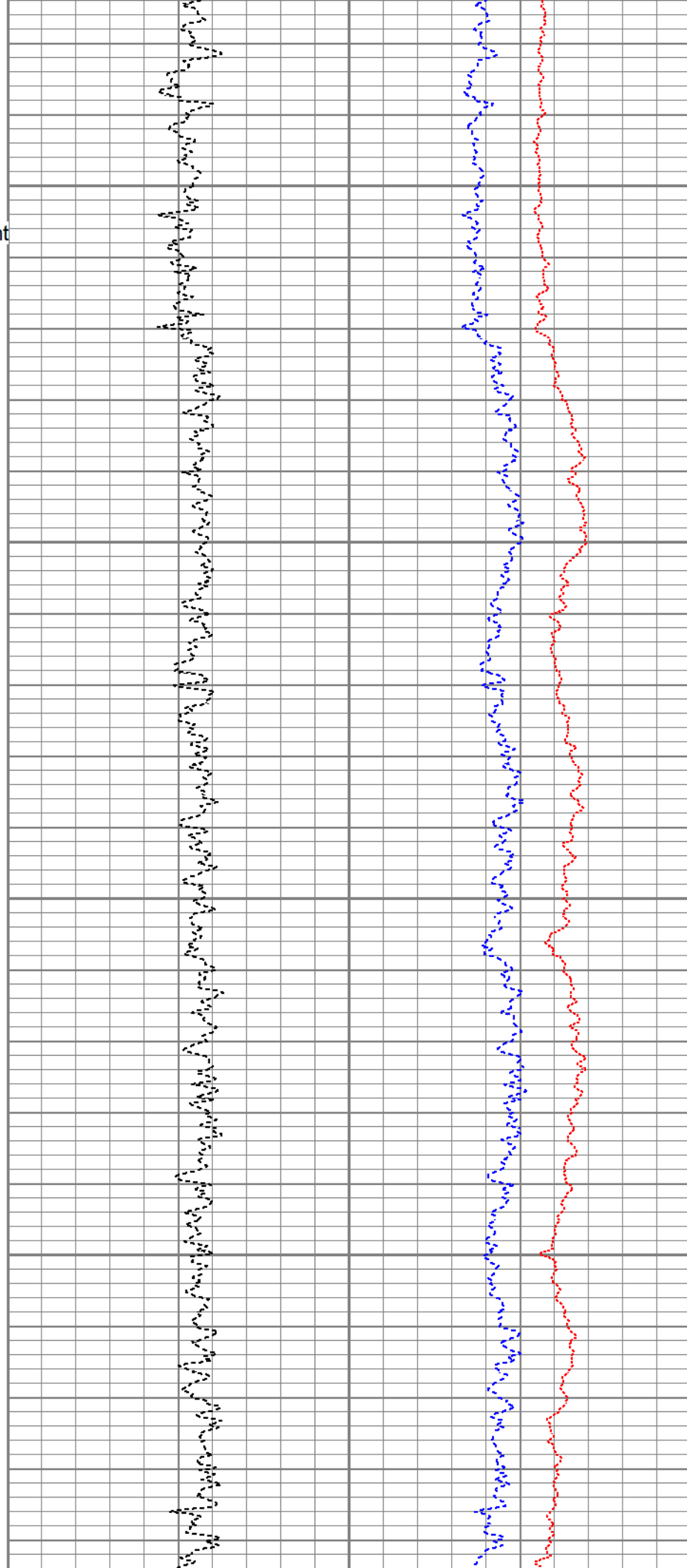
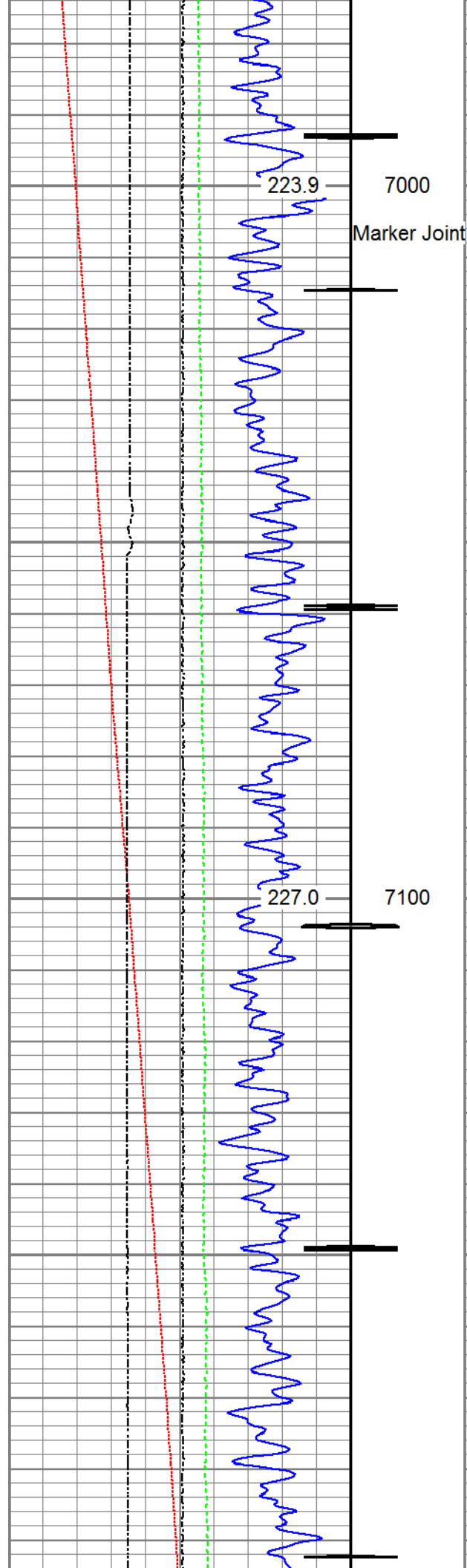


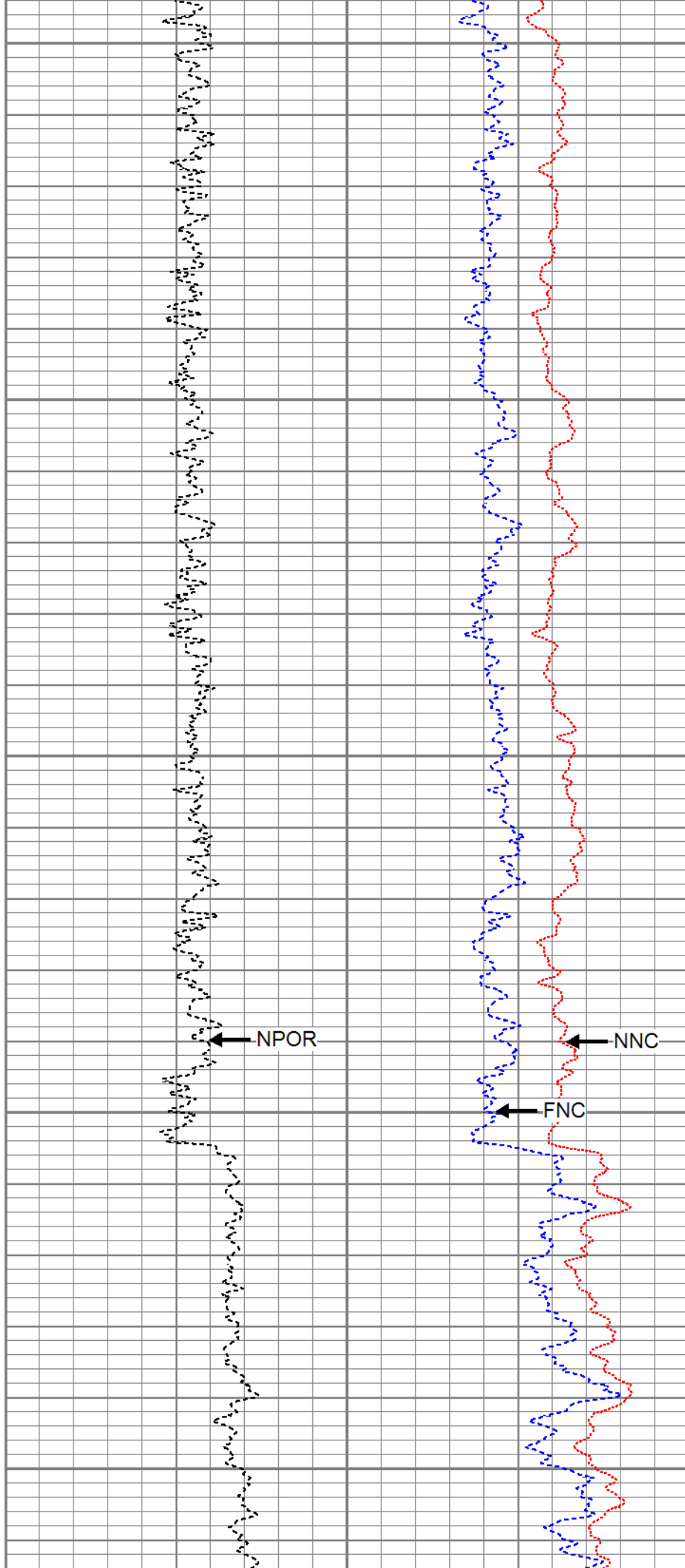
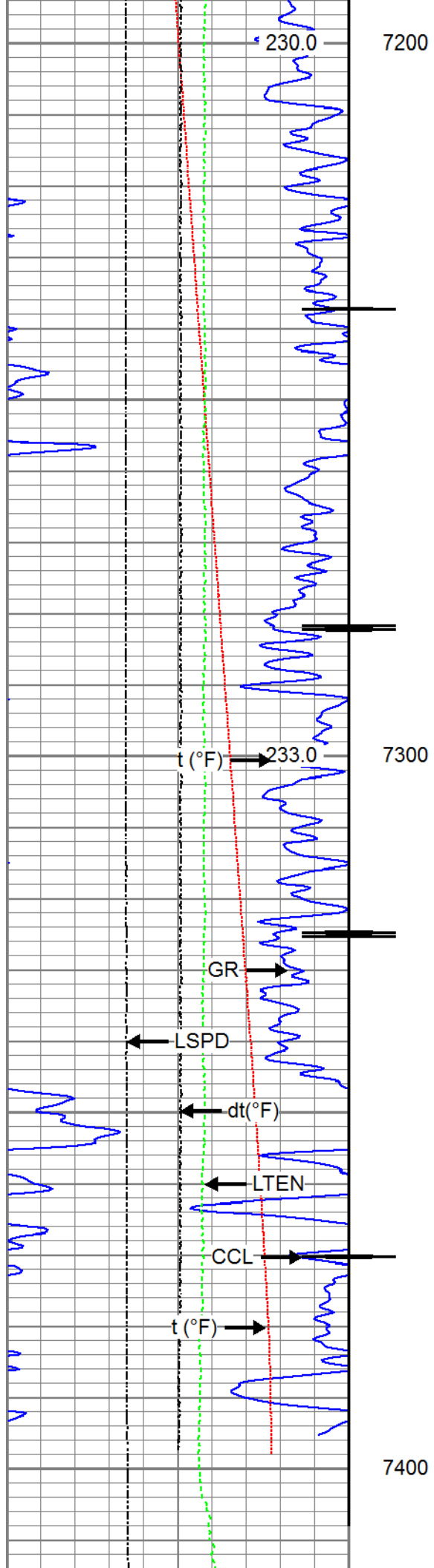












0	Gamma Ray (GAPI)	120	60	Neutron Porosity (pu)	0	0	Far Neutron (cps)	1000
Casing Collar Locator						0	Near Neutron (cps)	10000
0	Temperature (degF)	20						
-100	Line Speed (ft/min)	100						
0	Line Tension (lb)	2000						
Differential Temperature								
-2	(degF)	2						

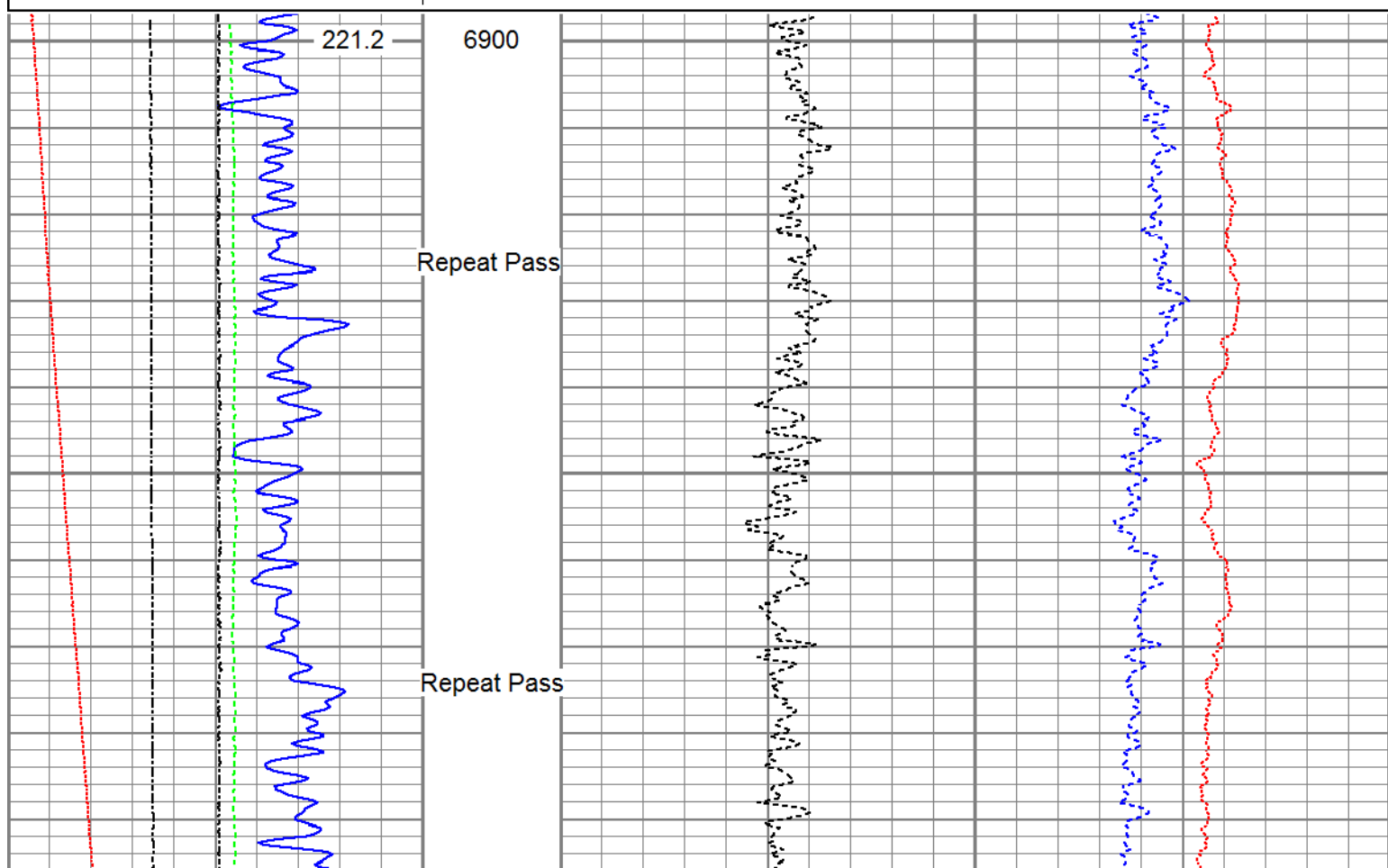


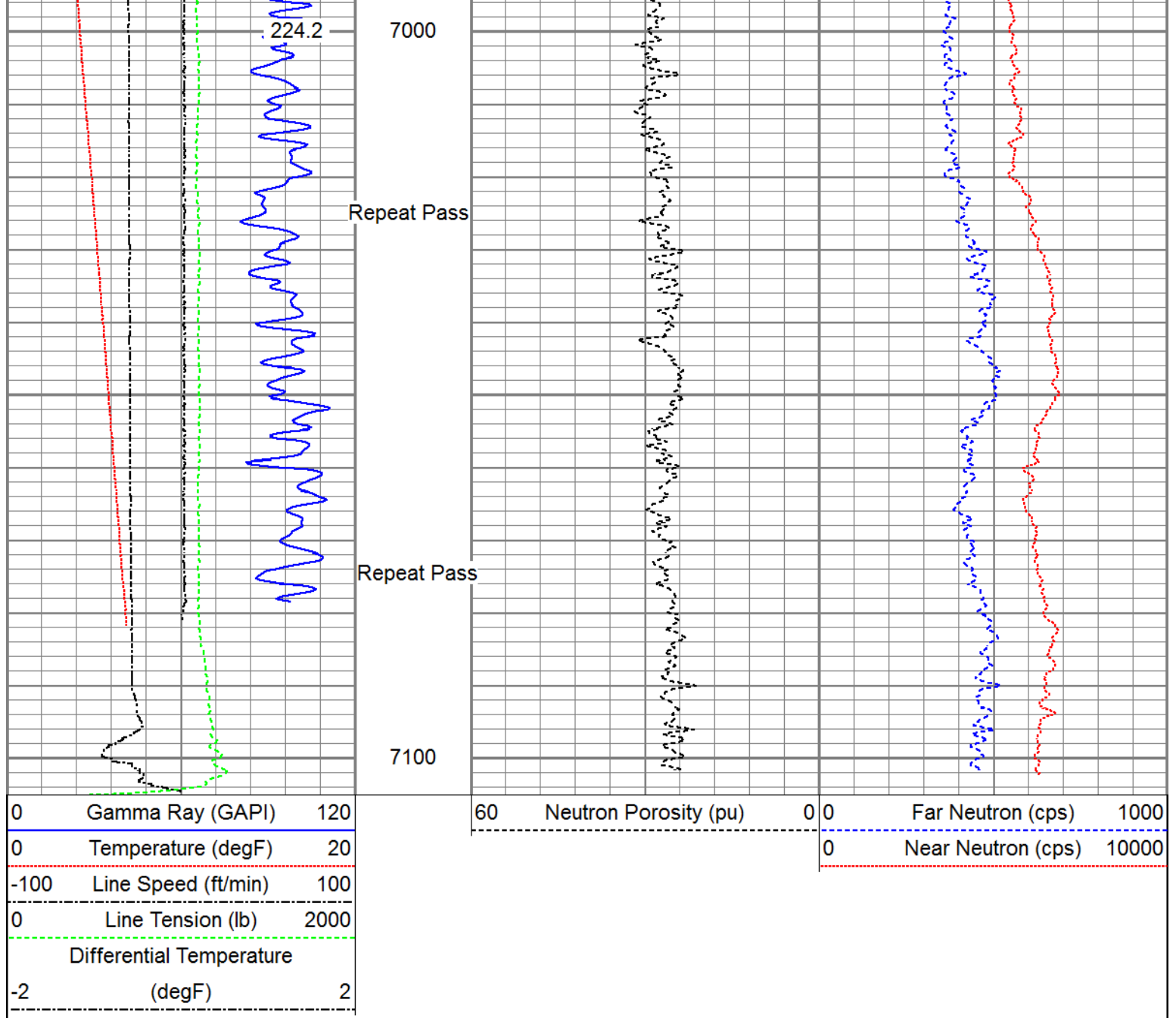
Repeat Pass

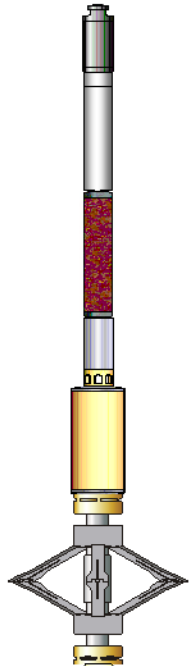
Recorded With 2800 PSI Surface Induced Pressure

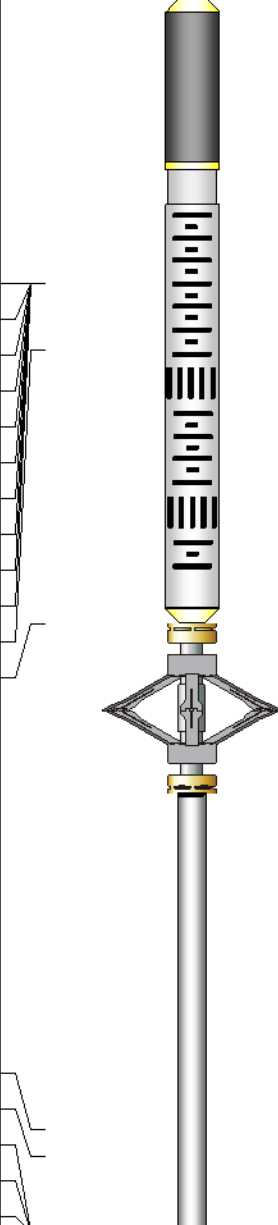
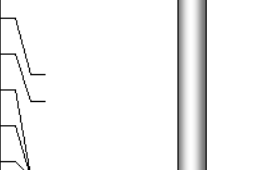
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 Dataset Pathname: pass3
 Presentation Format: ros_cnl_sx
 Dataset Creation: Thu Aug 18 08:33:21 2016
 Charted by: Depth in Feet scaled 1:240

0	Gamma Ray (GAPI)	120	60	Neutron Porosity (pu)	0	0	Far Neutron (cps)	1000
0	Temperature (degF)	20				0	Near Neutron (cps)	10000
-100	Line Speed (ft/min)	100						
0	Line Tension (lb)	2000						
Differential Temperature								
-2	(degF)	2						





Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)	
GR	24.33		Titan_Electric_Cable_Heads-Titan_1-11/16" Electric Cable Head with 1" Fishing Neck	1.03	1.69	5.40	
			UW_AGS-UW_AGS_001 (219135) Sondex Adapter - GO Box to Sondex Pin	0.21	1.69	1.00	
			UW_XTU-UW_XTU_002 (219135) Crossover Ultrawire Toolbus to Ultralink	1.58	1.69	6.50	
			UW_PGR-UW_PGR_020 (10013899) Production Gamma Ray	1.92	1.69	9.50	
TEMP	22.93			UW_PRT-PRT_016 (10025097) Platinum Resistance Thermometer	1.04	1.69	5.20
CCL	21.69			UW_CCL-UW_CCL_028 (10018437) 3-1/8" Ultrawire Casing Collar Locator	1.61	3.13	36.00
				UW_PRC-DSS_RAC 5 Arm 2-3/4" Roller Centralizer	2.55	2.75	32.00

CBLROT	14.29		UW_RBT-UW_RBT_004 (10013454) Sondex Ultrawire 3-1/8" Radial Bond Tool	9.48	3.13	140.00
WVFS8	14.29					
WVFS7	14.29					
WVFS6	14.29					
WVFS5	14.29					
WVFS4	14.29					
WVFS3	14.29					
WVFS2	14.29					
WVFS1	14.29					
WVF3FT	14.29					
WVF5FT	13.29					
CBLTEMP	9.16					
CNLSC	1.53		UW_PRC-DSS_RAC 5 Arm 2-3/4" Roller Centralizer	2.55	2.75	32.00
CNSSC	1.12					
HVOLTX	0.00					
ITEMPX	0.00					
TSTAMP	0.00					
			UW_CNL-UW_CNL_007 (1005) Sondex Compensated Neutron Logging Tool	6.61	1.69	30.00
Dataset: PROCESSED_0512342397_Anadarko_Land Fed 35C-32HZ_08-18-16_RBL_CNL_W8.db: field/well/run1/pass6.2 Total length: 28.58 ft Total weight: 297.60 lb O.D.: 3.13 in						

Calibration Report			
Database File	C:\ProgramData\Warrior\Data\Anadarko_Land Fed 35C-32HZ_18-AUG-2016_RBL_CNL\PROCESS		
Dataset Pathname	pass6.2		
Dataset Creation	Thu Aug 18 13:01:00 2016		
Compensated Neutron Calibration Report			
Serial Number:	1005		
Tool Model:	UW_CNL_007		
Master Calibration	Sun Feb 07 11:39:11 2016		
Detector	Readings		
Short Space	240.87	cps	
Long Space	303.55	cps	
Ratio	Measured	Reference	
	0.8150	Sleeve: 1.0000	
CNRAT Gain K	1.0271		

Before Survey			
Detector		Readings	
Short Space		cps	
Long Space		cps	
		Measured	Reference
Ratio			

After Survey			
Detector		Readings	
Short Space		cps	
Long Space		cps	
		Measured	Reference
Ratio			

Segmented Cement Bond Log Calibration Report			
Serial Number:		10013454	
Tool Model:		UW_RBT_004	
Calibration Casing Diameter:		5.500	in
Calibration Depth:		206.009	ft

Master Calibration, performed (Derived):						
	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	-0.004	0.874	0.800	71.921	80.940	1.139
5FT	-0.012	0.836	0.800	71.921	83.914	1.801
S1	-0.004	0.909	0.000	100.000	109.629	0.392
S2	-0.005	0.942	0.000	100.000	105.532	0.552
S3	-0.006	0.927	0.000	100.000	107.202	0.644
S4	-0.007	0.903	0.000	100.000	109.943	0.720
S5	-0.005	0.919	0.000	100.000	108.229	0.502
S6	-0.006	0.912	0.000	100.000	109.026	0.604
S7	-0.005	0.888	0.000	100.000	111.999	0.526
S8	-0.005	0.915	0.000	100.000	108.710	0.539

Temperature Calibration Report					
Serial Number:		10025097			
Tool Model:		PRT_016			
Performed:		Sun Oct 11 12:34:58 2015			
Point #	Reading			Reference	
1	13053.00	cps	68.00	degF	
2	18014.00	cps	104.00	degF	
3	29668.00	cps	176.00	degF	
4	41181.00	cps	248.00	degF	
5	52983.00	cps	320.00	degF	
6	58931.00	cps	356.00	degF	
7		cps		degF	
8		cps		degF	
9		cps		degF	
10		cps		degF	

Gamma Ray Calibration Report

Serial Number:	10013899	
Tool Model:	UW_PGR_020	
Performed:	(Not Performed)	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	1.0000	GAPI/cps



Company	Kerr-McGee Oil & Gas Onshore, L.P.
Well	Land Fed 35C-32HZ
Field	Wattenberg
County	Weld
State	Colorado