



Compensated Neutron
Gamma Ray
Casing Collar Log

Company Kerr-McGee Oil & Gas Onshore, L.P.
Well Butterball 32C-34HZ
Field Wattenberg
County Weld
State Colorado

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Location: API #: 05-123-44519

SEC 10 TWP 2N RGE 67W

Permanent Datum Ground Level Elevation 4947'
Log Measured From Kelly Bushing 26 FT
Drilling Measured From Kelly Bushing

Other Services
Gauge Ring
RBP
RBL
Elevation

K.B. 4973'
D.F. ---
G.L. 4947'

Date 04-AUG-2017

Run Number	Three		
Depth Driller	16182 FT		
Depth Logger	6730 FT		
Bottom Logged Interval	6729 FT		
Top Log Interval	Surface		
Open Hole Size	7.875"		
Type Fluid	Water		
Density / Viscosity	8.34 lb/gal		
Max. Recorded Temp.	216°F		
Estimated Cement Top	See Log		
Time Well Ready	ROA		
Time Logger on Bottom	10:31		
Equipment Number	HD-0325		
Location	Fort Lupton, CO		
Recorded By	Brandon Briscoe		
Witnessed By	Kyle Carver		

Borehole Record				Tubing Record			
Run Number	Bit	From	To	Size (in)	Weight (lb/ft)	From	To

Casing Record	Size (in)	Wgt (lb/ft)	Grade	Top	Bottom
Surface Casing	9 5/8	36	J-55	Surface	1845 FT
Intermediate #1	5 1/2	17	HCP-110	Surface	16170 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 at 6660 FT
Adjusted -7.5 FT to correlate with Marker Joint
Gauge Ring/Junk Basket ran to 7652 FT with no debris
RBP set at 6750 FT
Log ran from just above RBP to surface
Log ran with 2800 PSI surface induced pressure
Logging tools were clean and free of any debris upon completion of operations

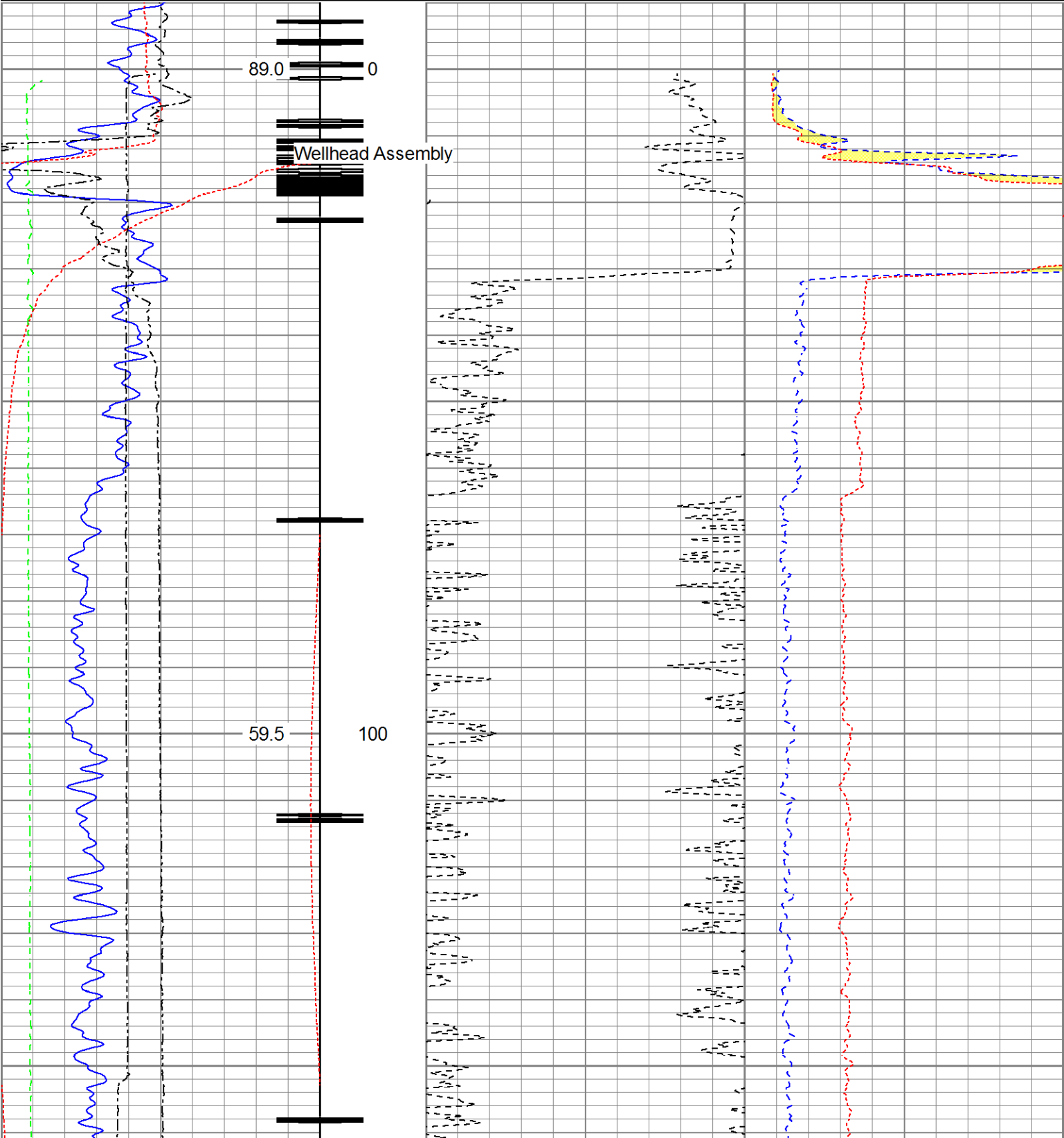
Thank you for choosing Reliance Oilfield Services, LLC!!

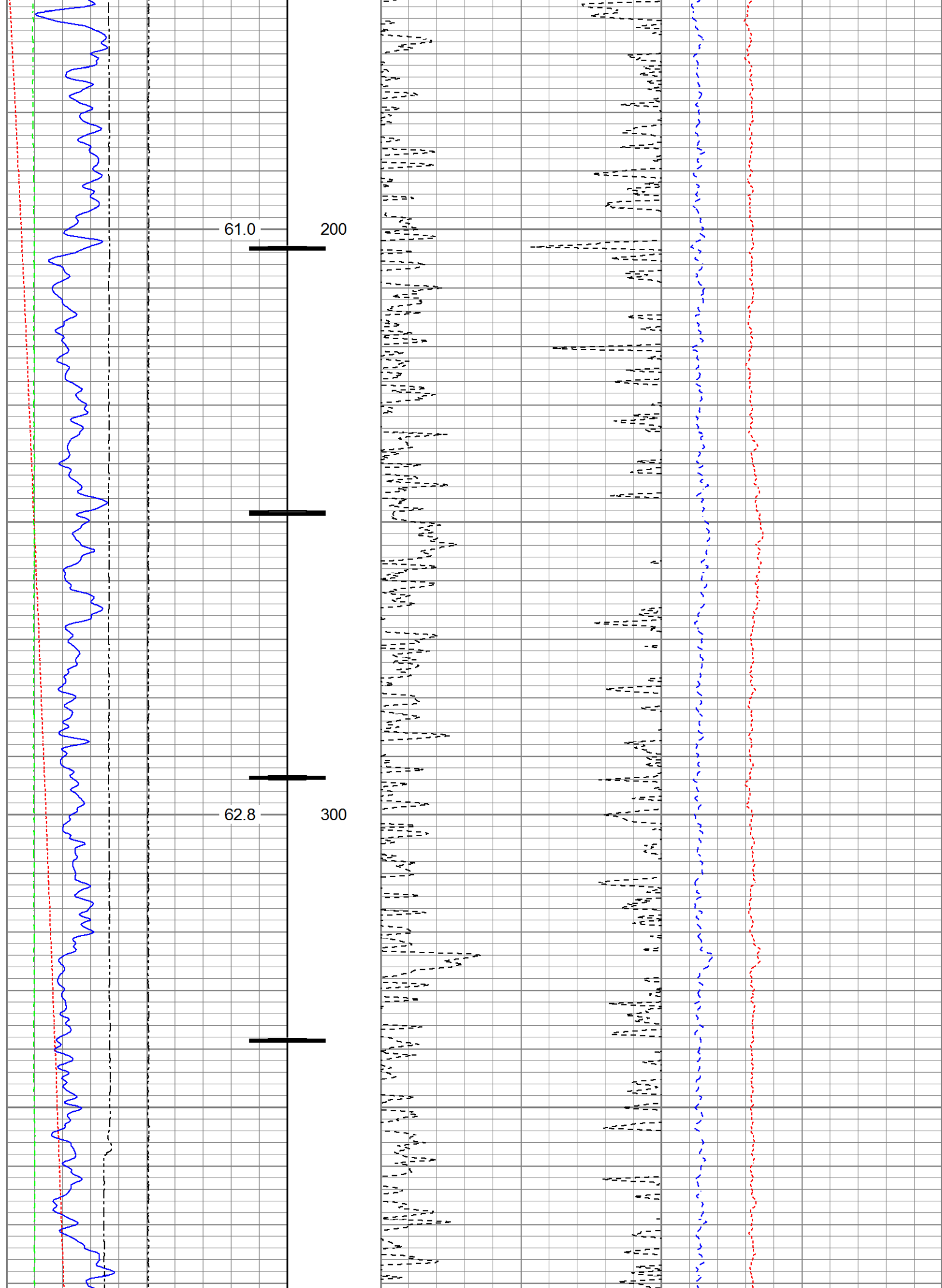


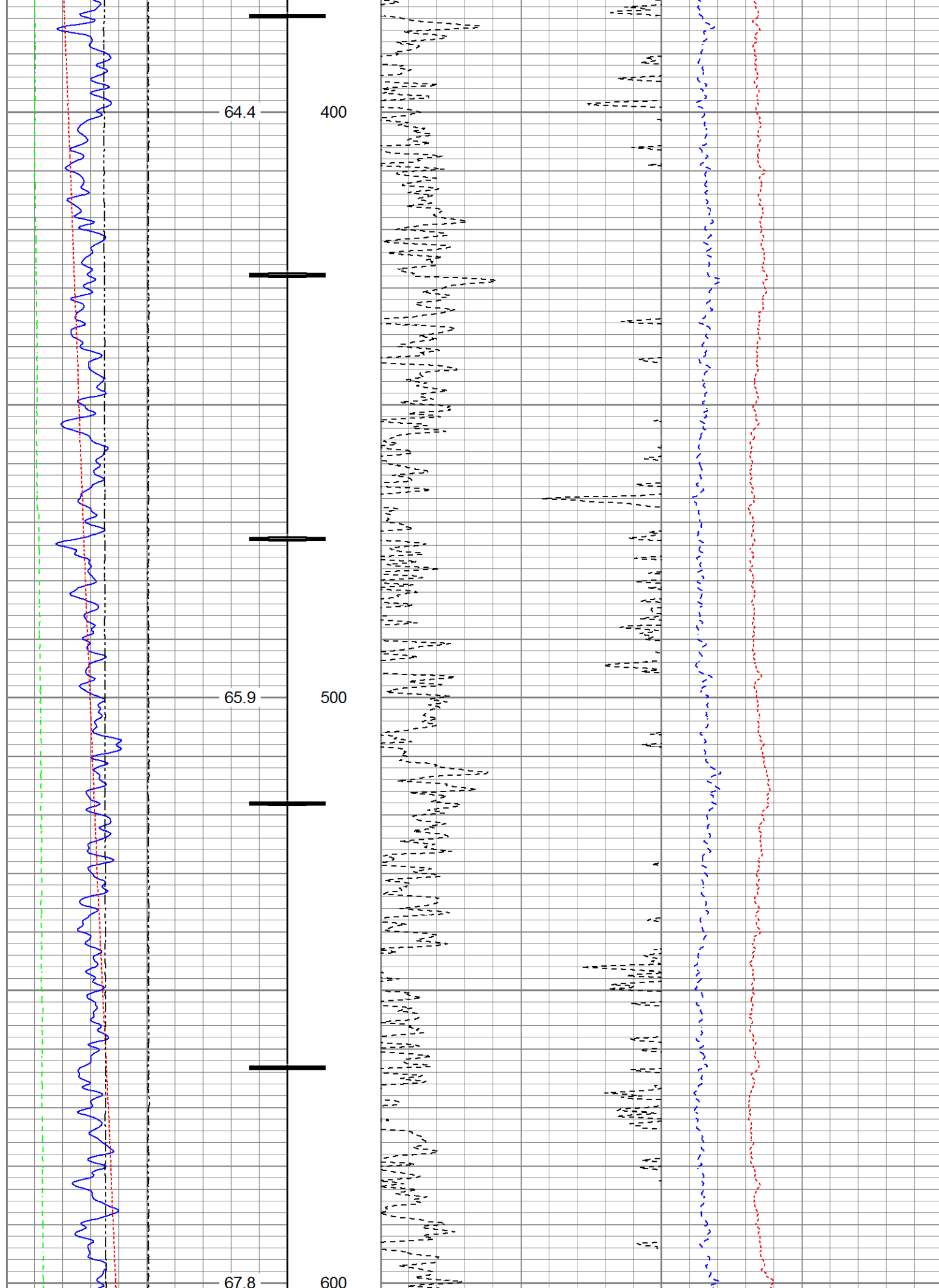
Main Pass

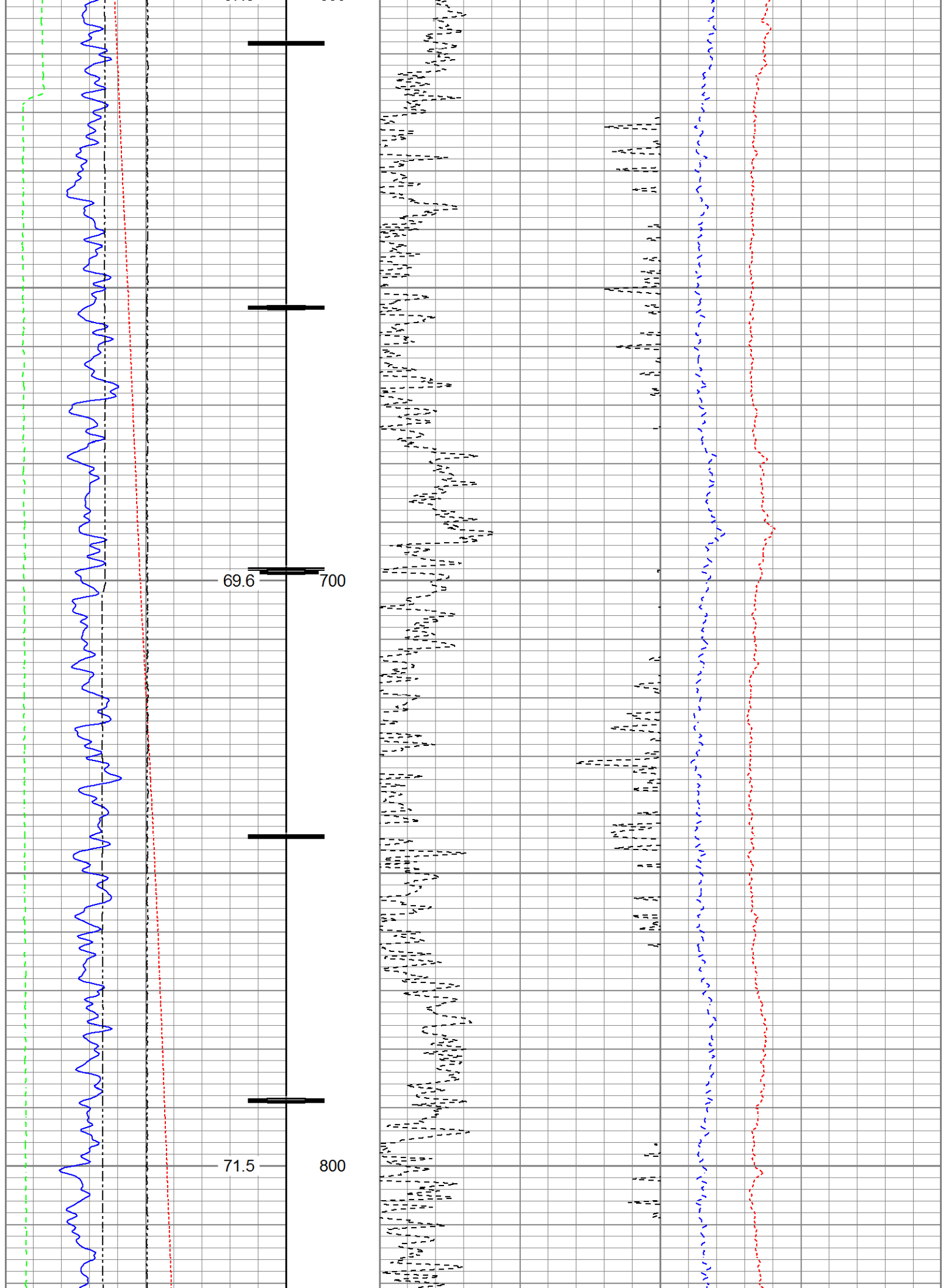
Recorded With 2800 PSI Surface Induced Pressure

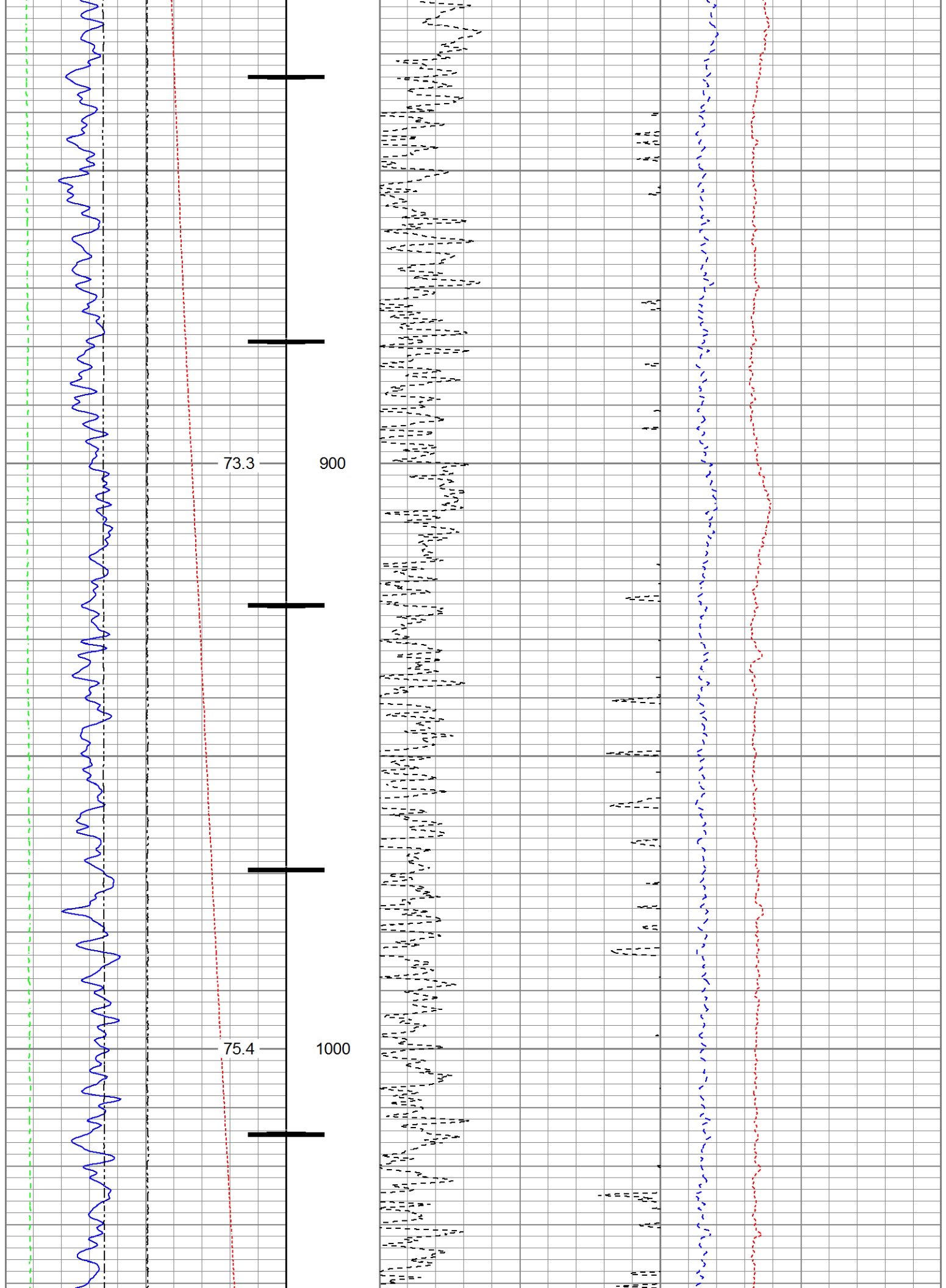
0	Gamma Ray (GAPI)	120	60	Neutron Porosity (pu)	0	0	Far Neutron (cps)	1000
Casing Collar Locator						0	Near Neutron (cps)	10000
0	Temperature (degF)	20						
-100	Line Speed (ft/min)	100						
0	Line Tension (lb)	2000						
-2	Differential Temperature (degF)	2						

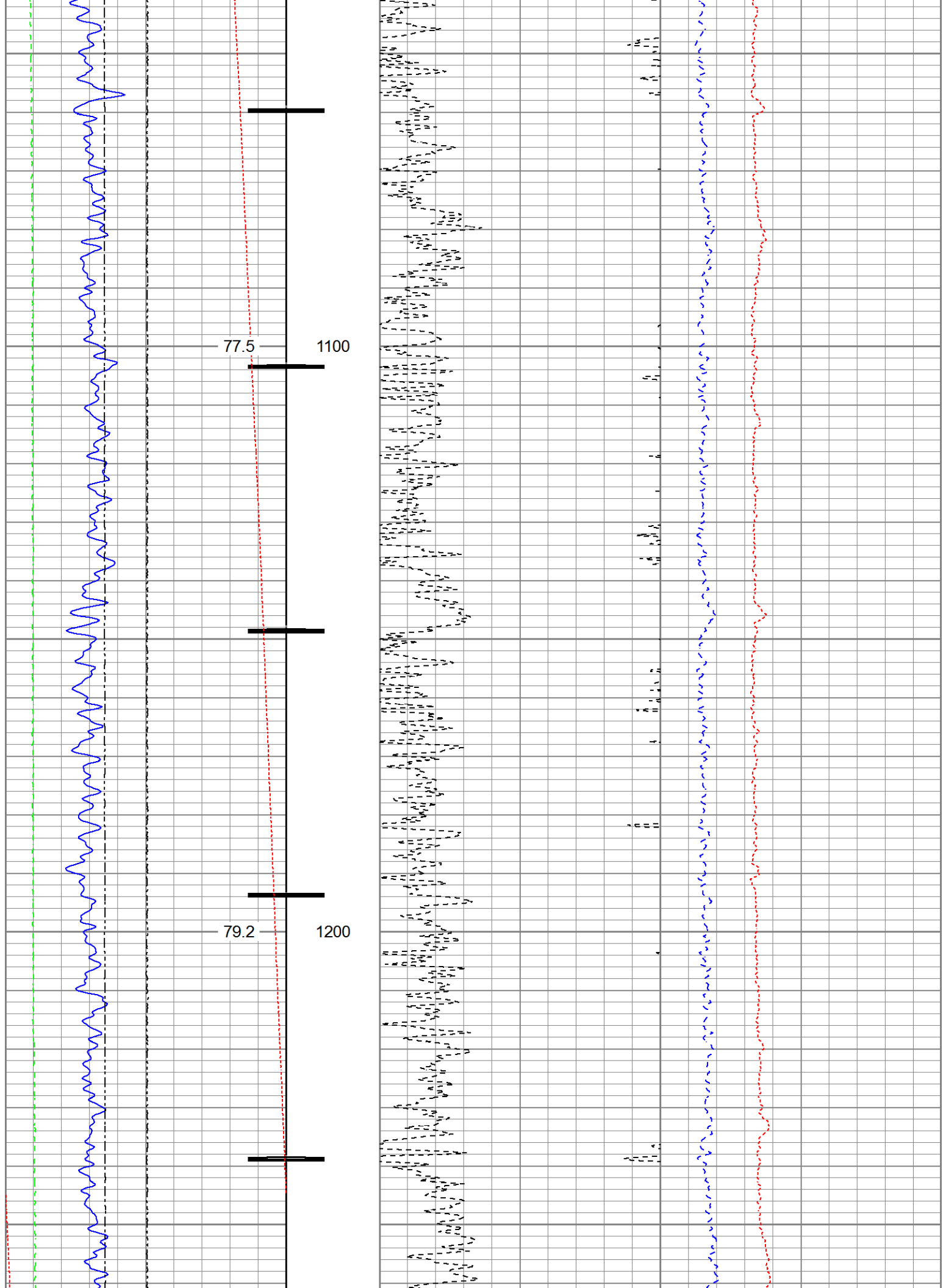


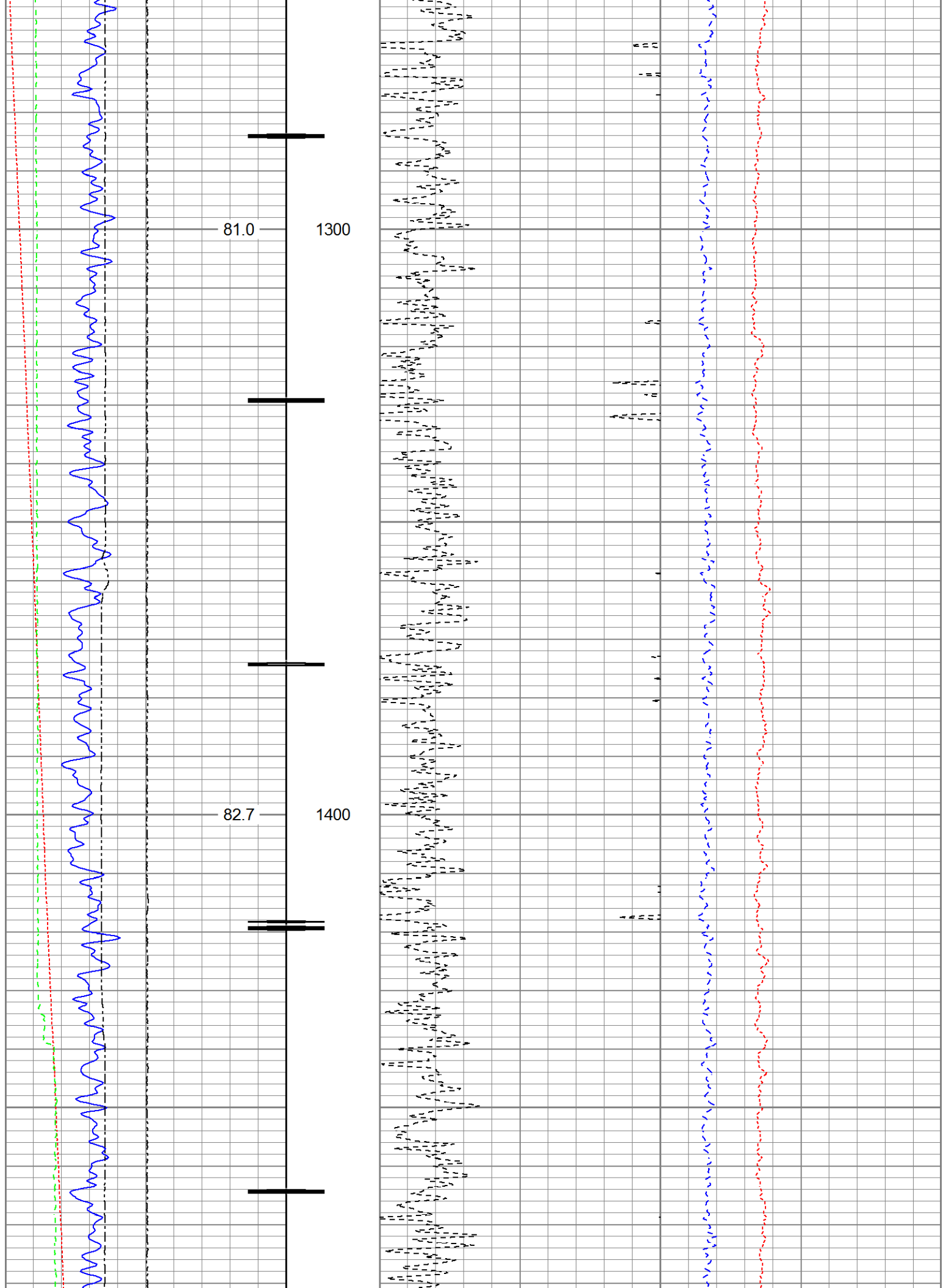


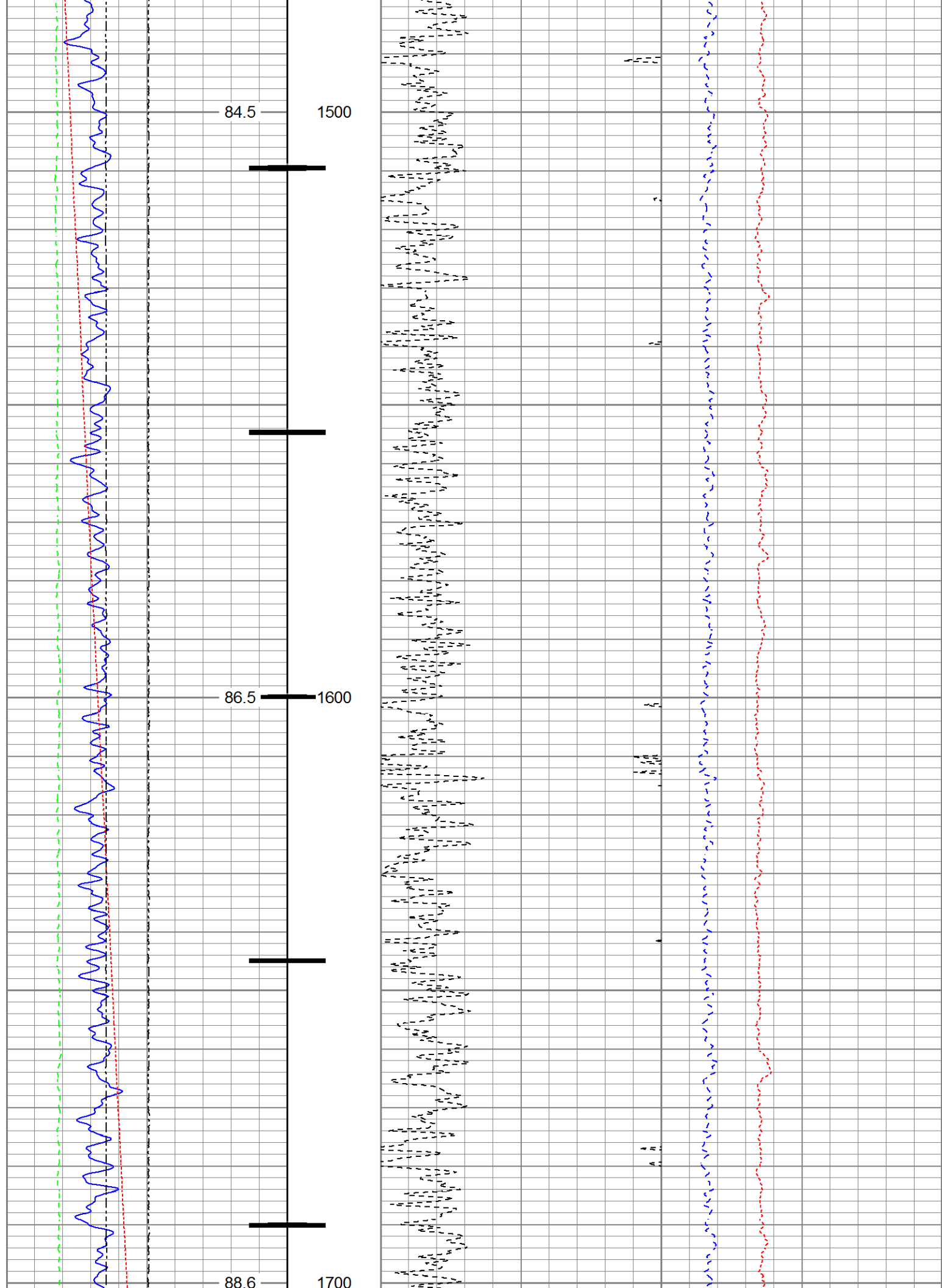


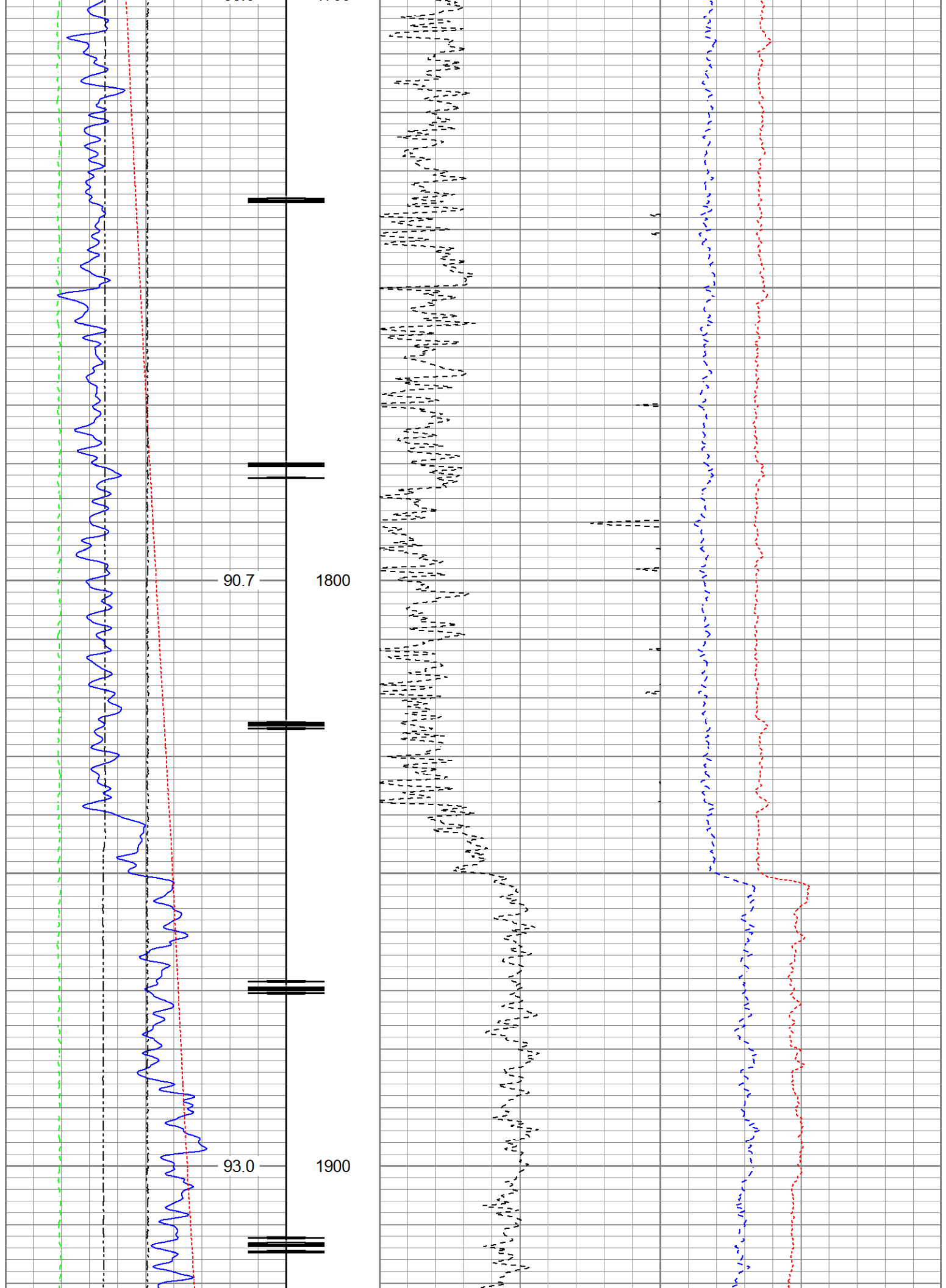


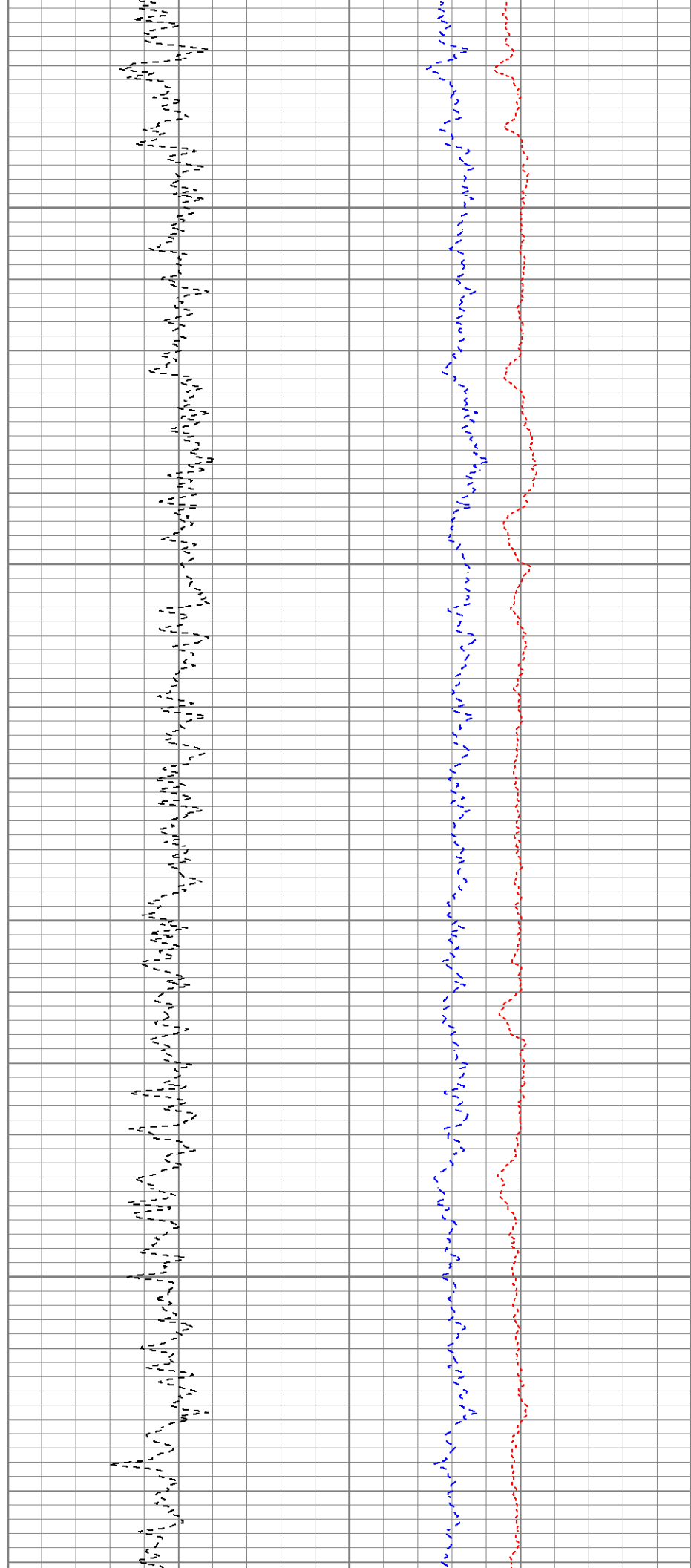
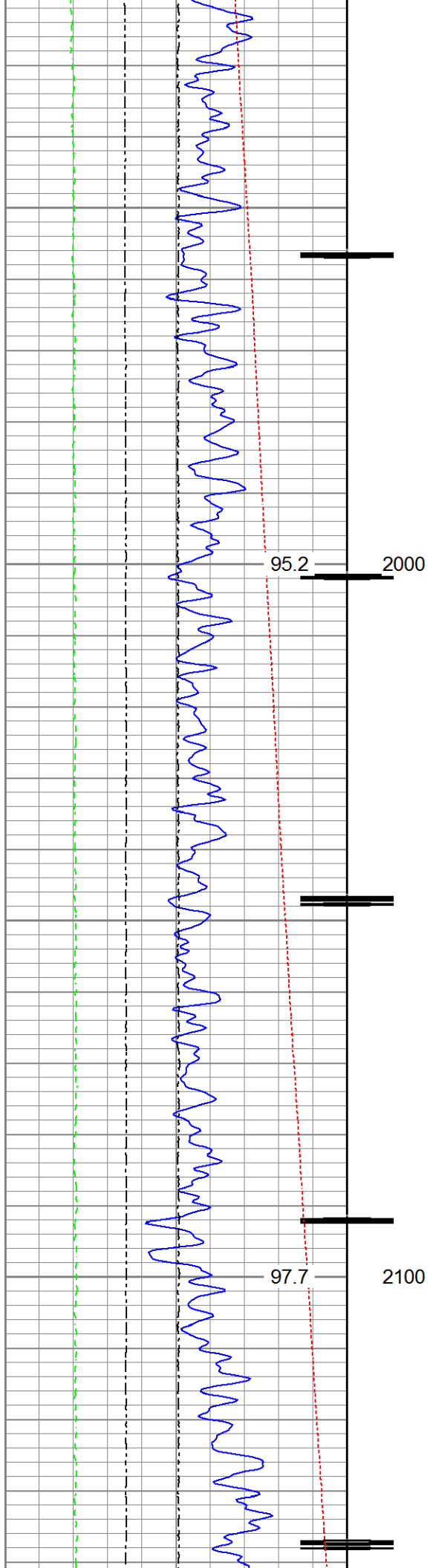


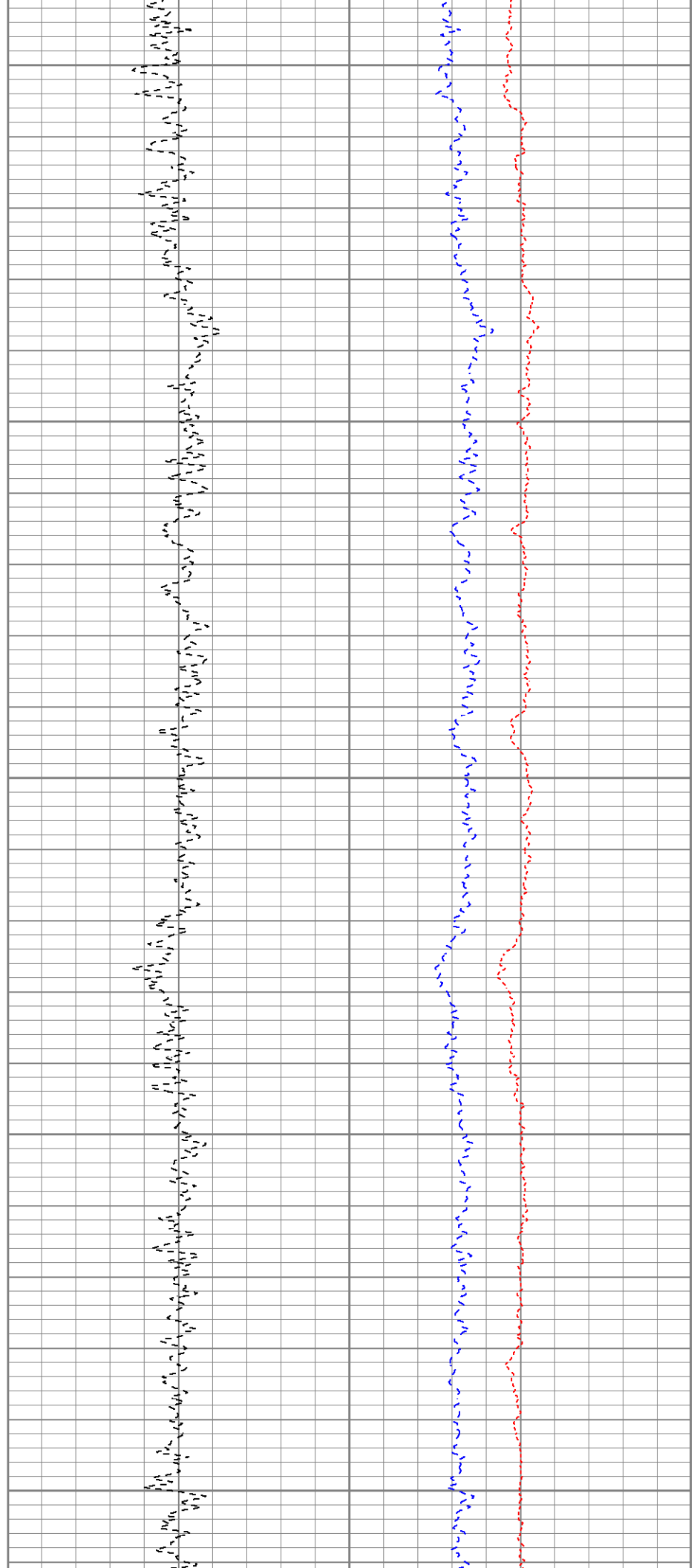
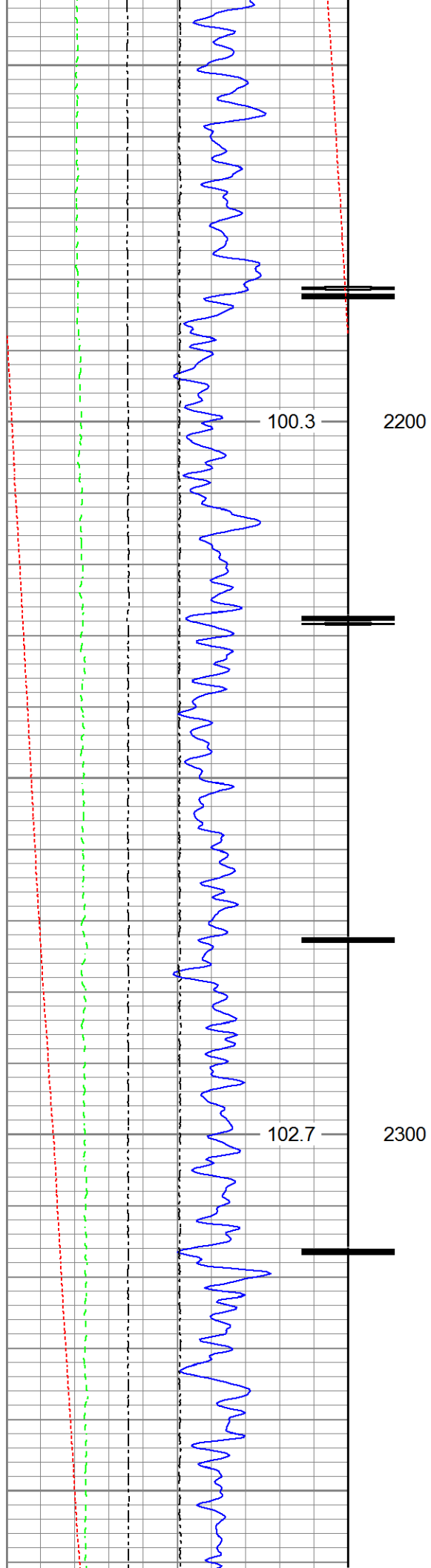


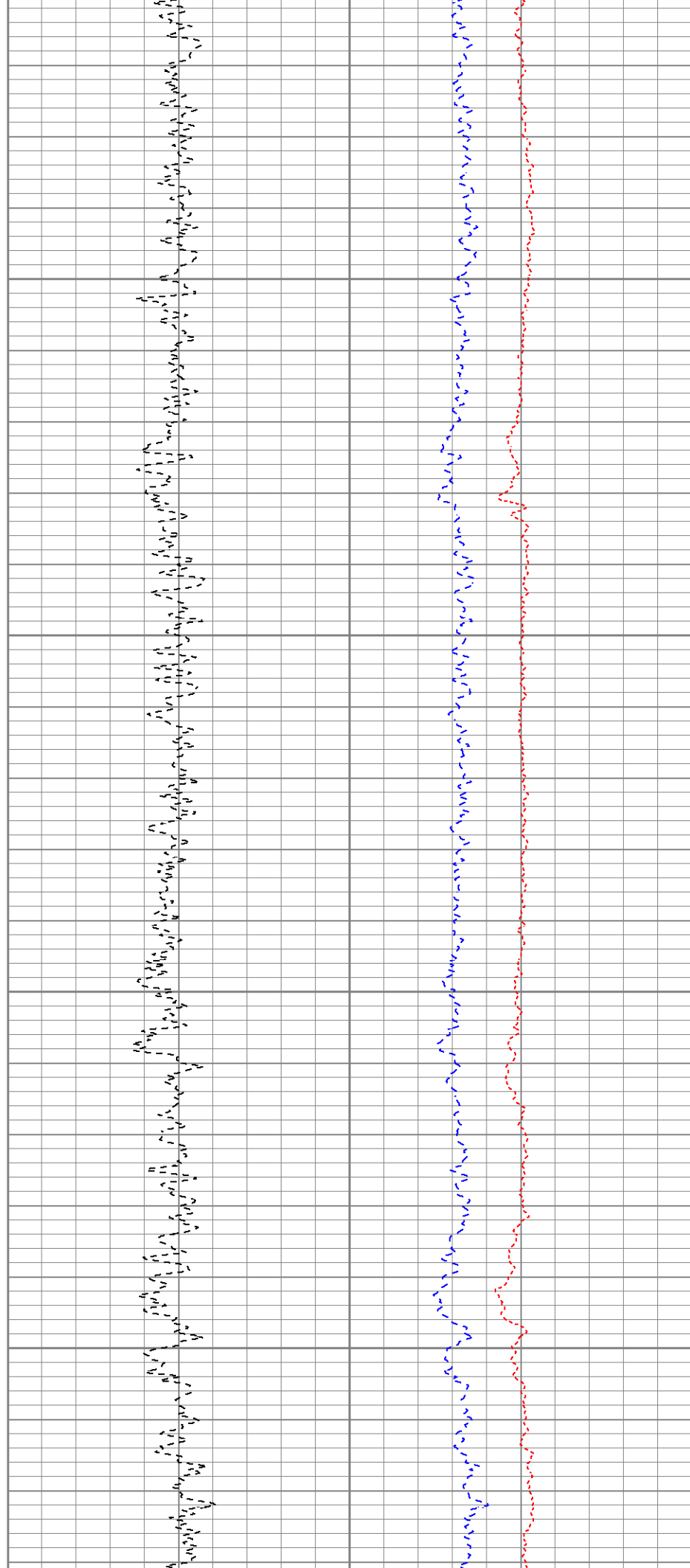
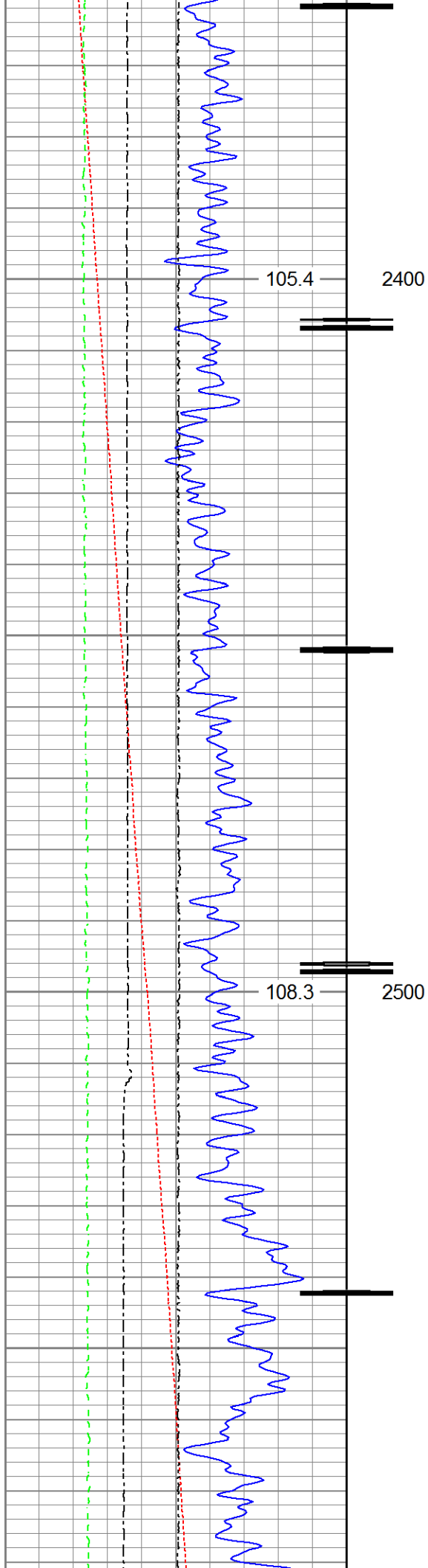


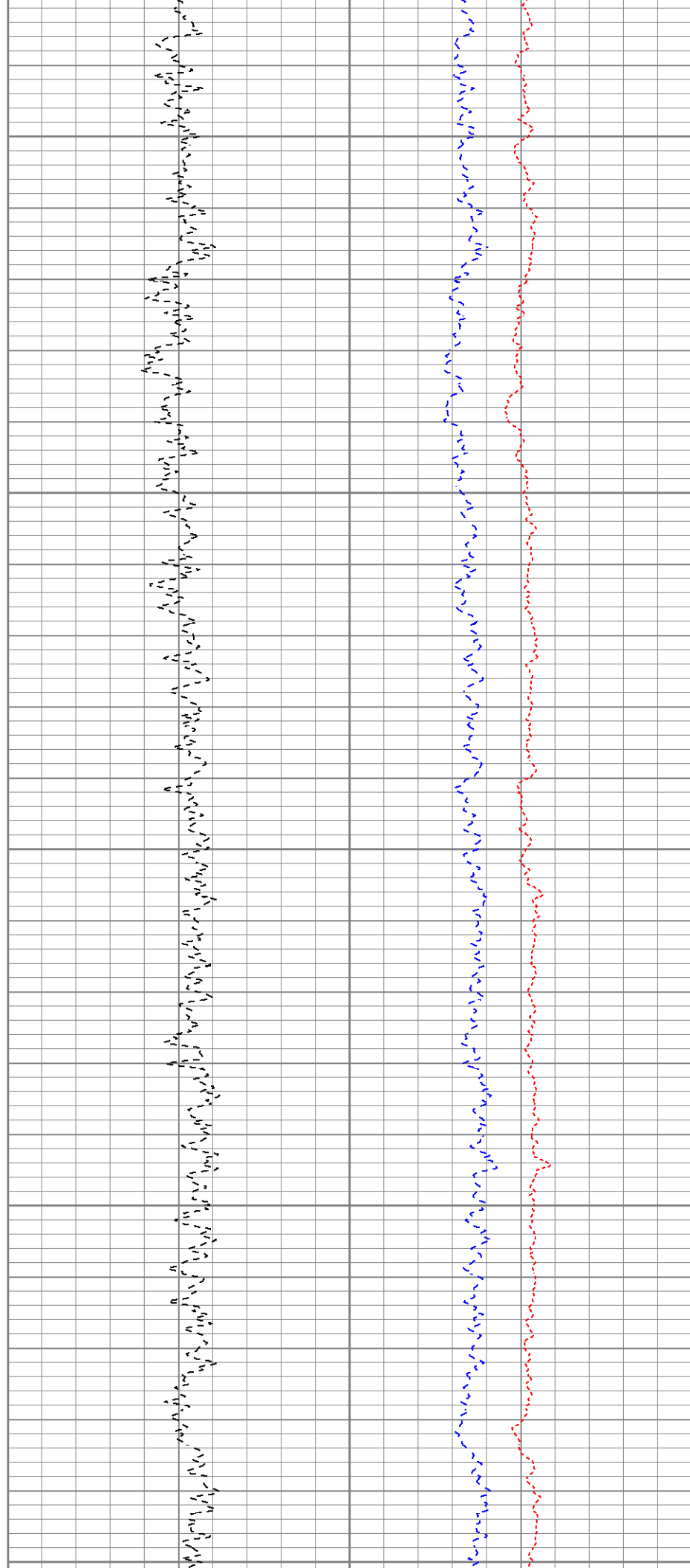
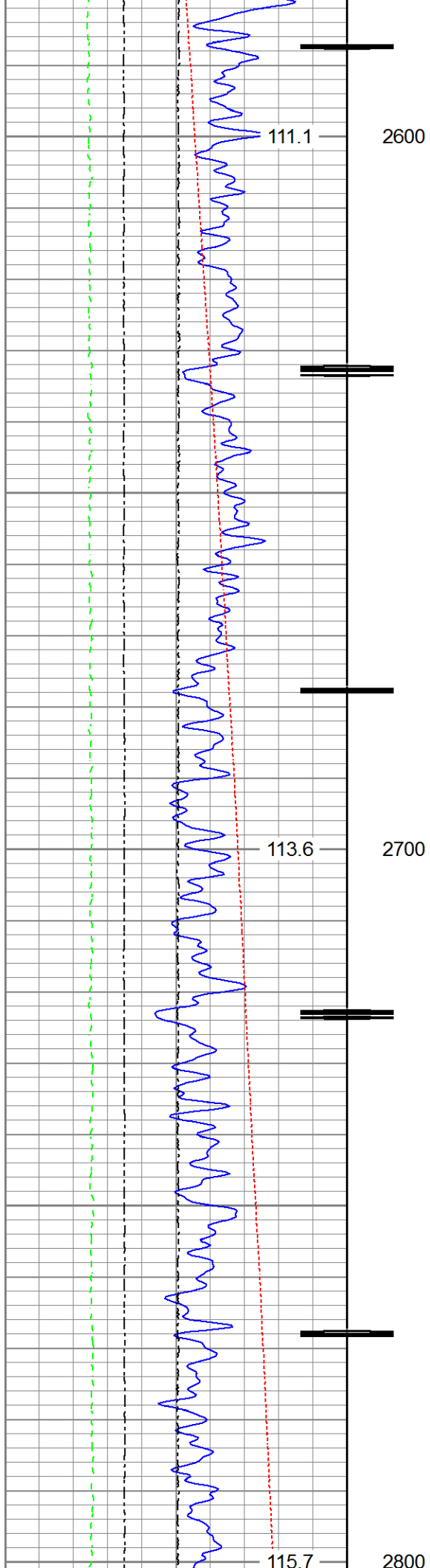


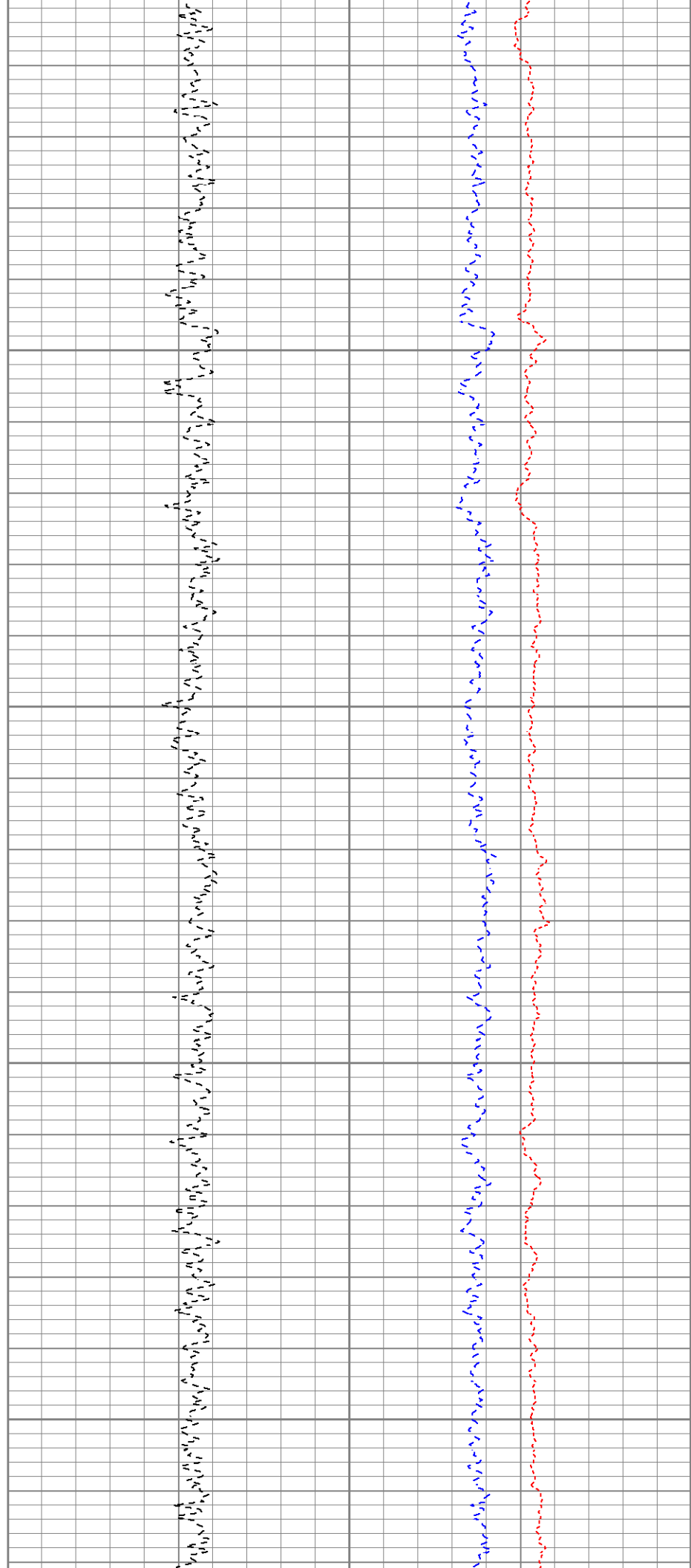
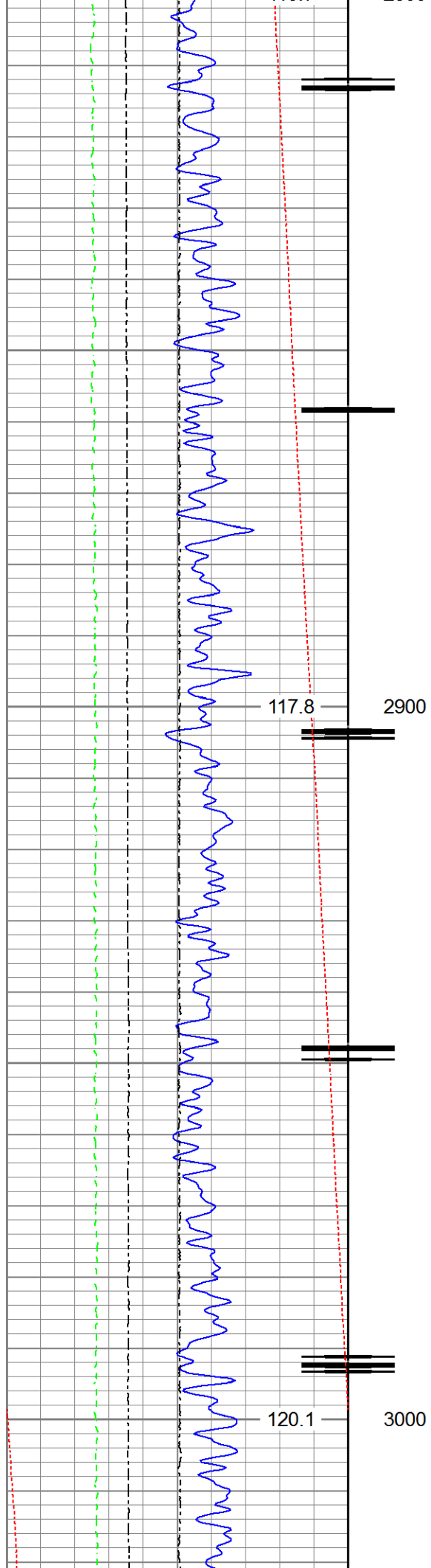


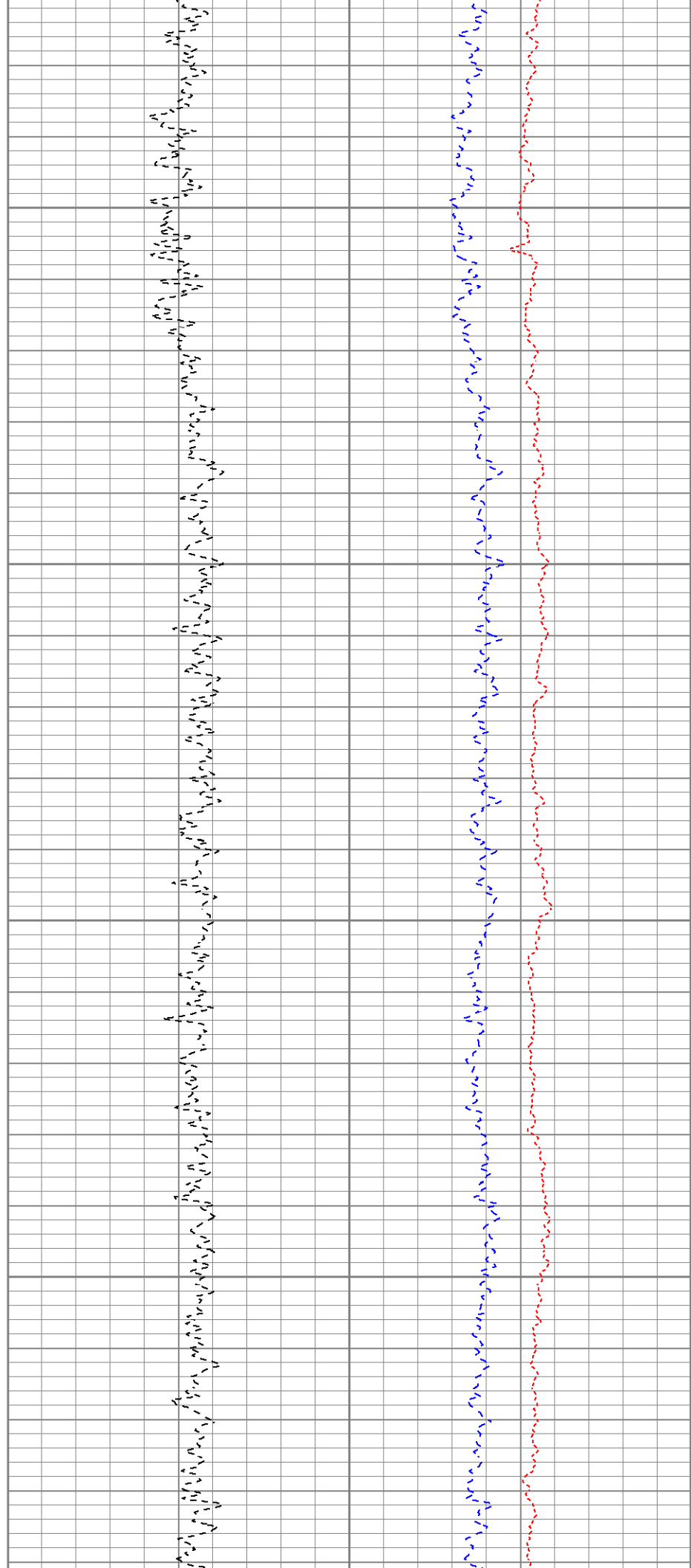
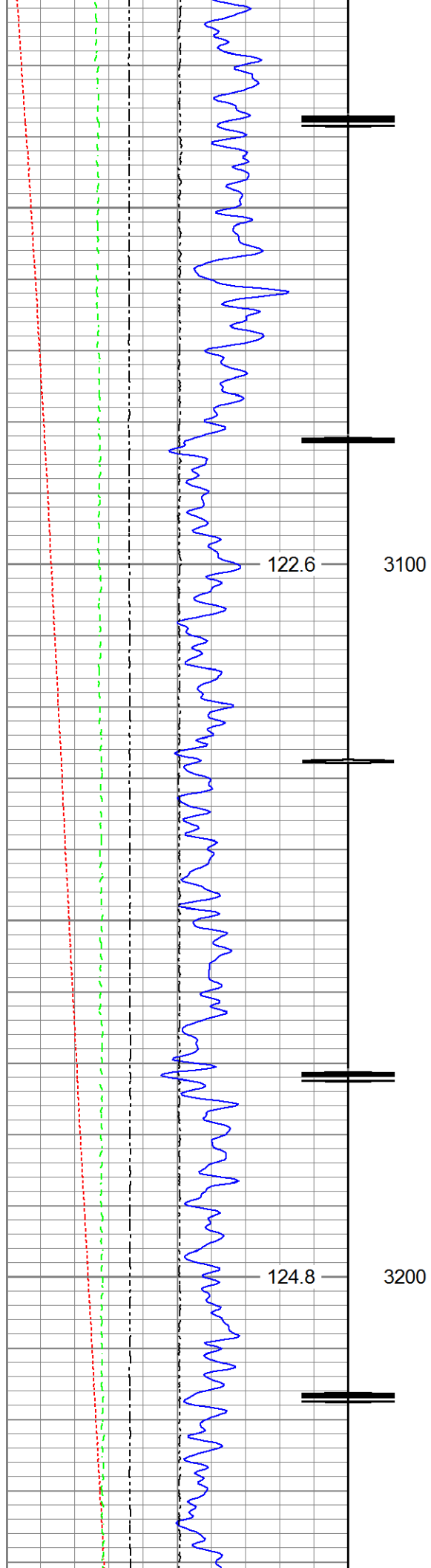


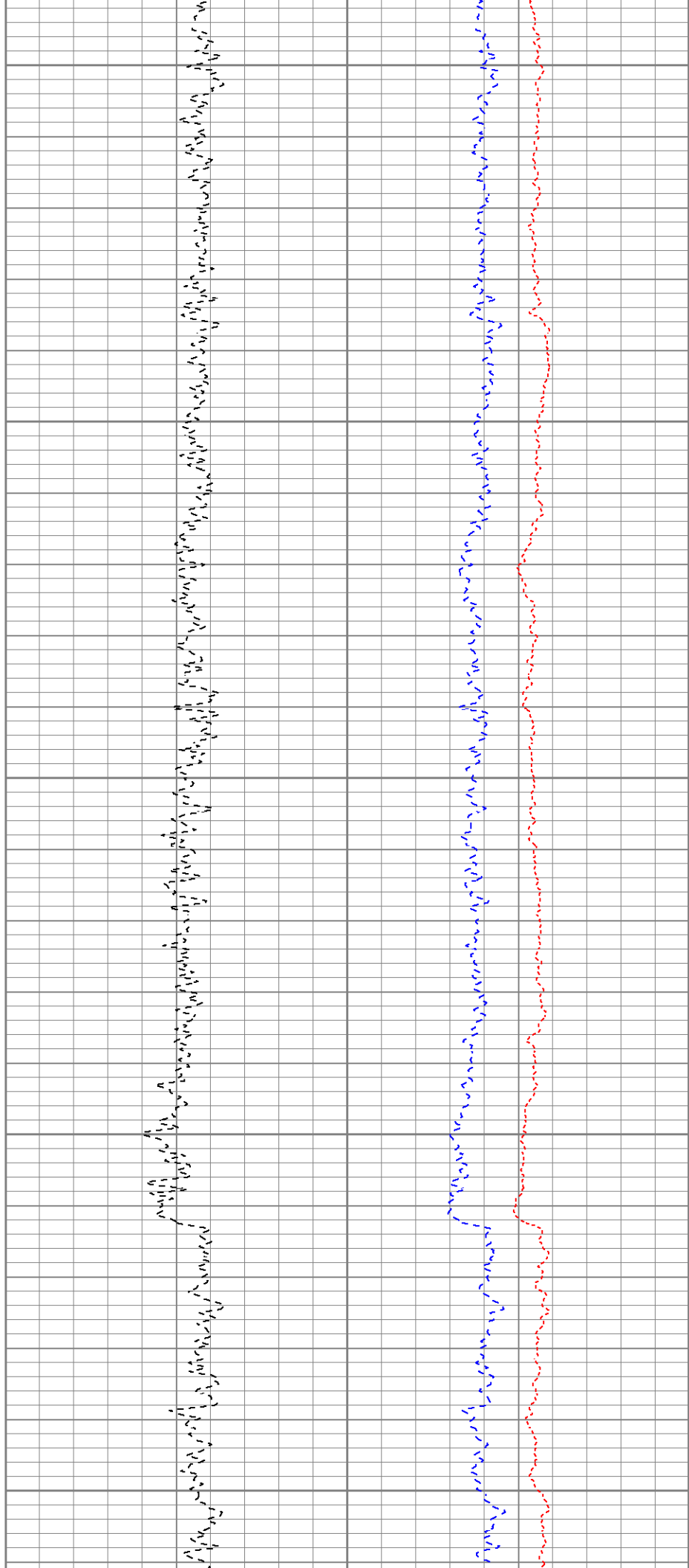
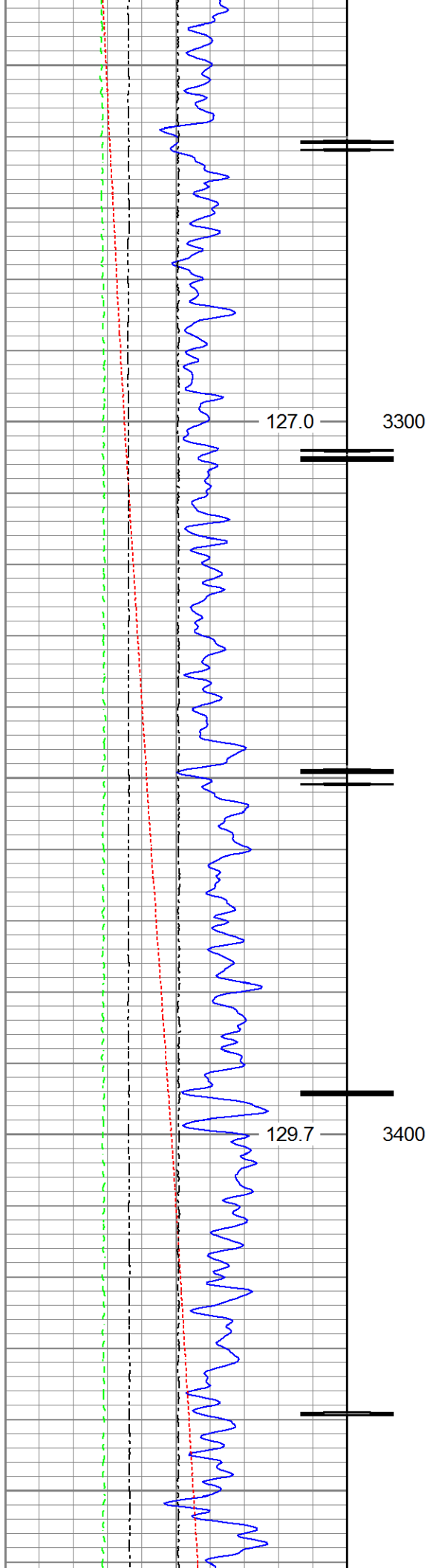


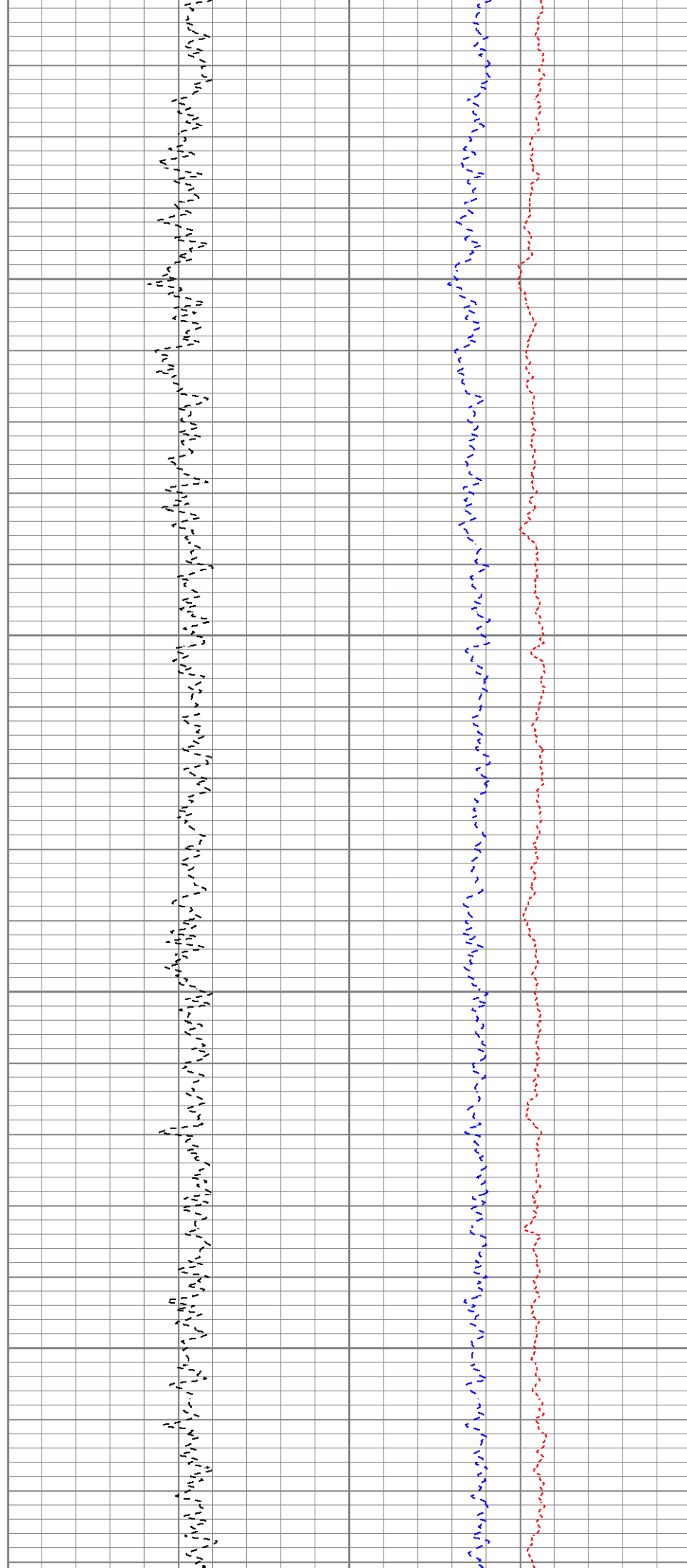
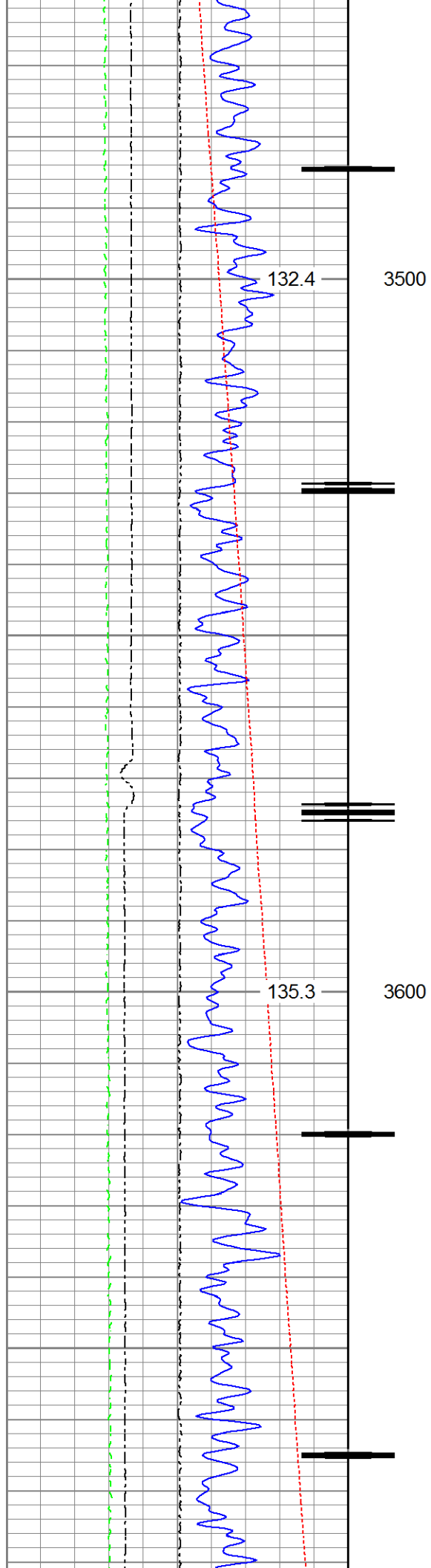


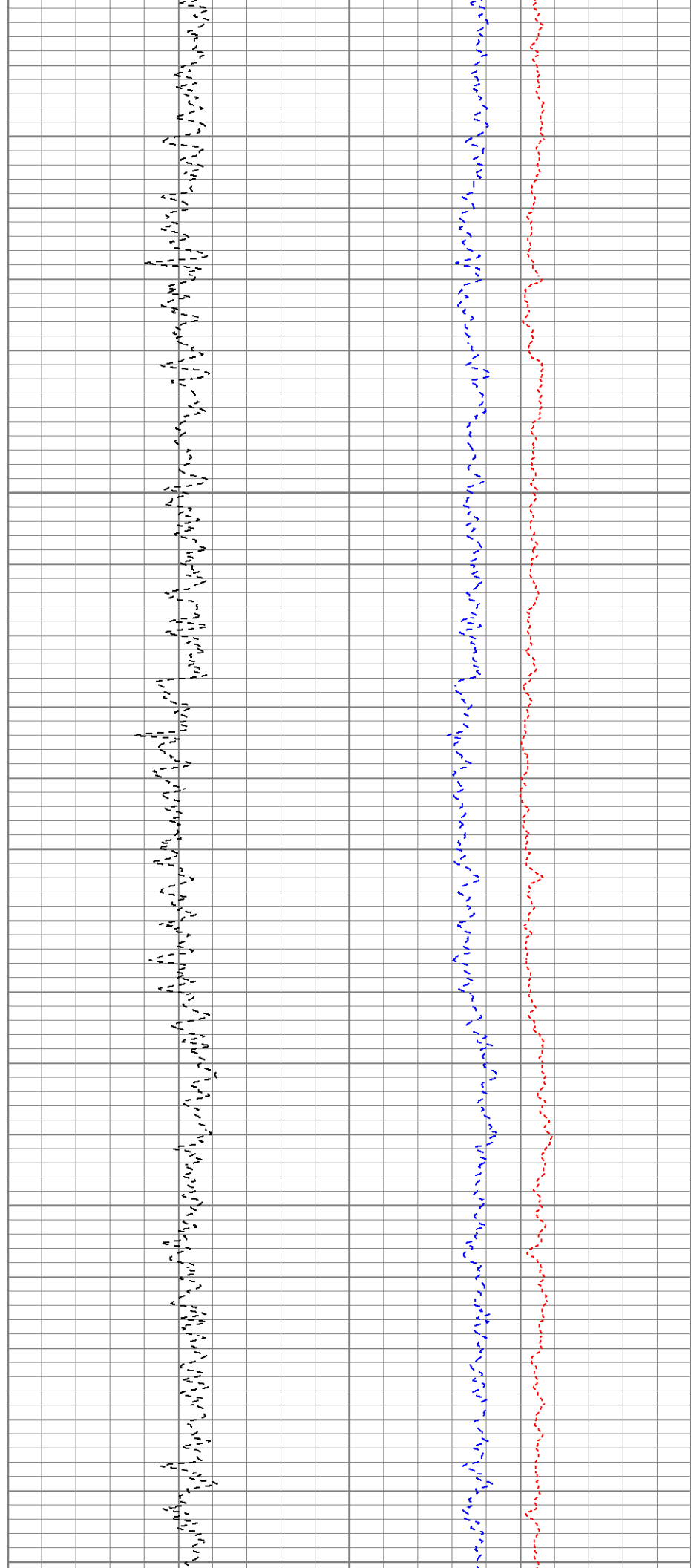
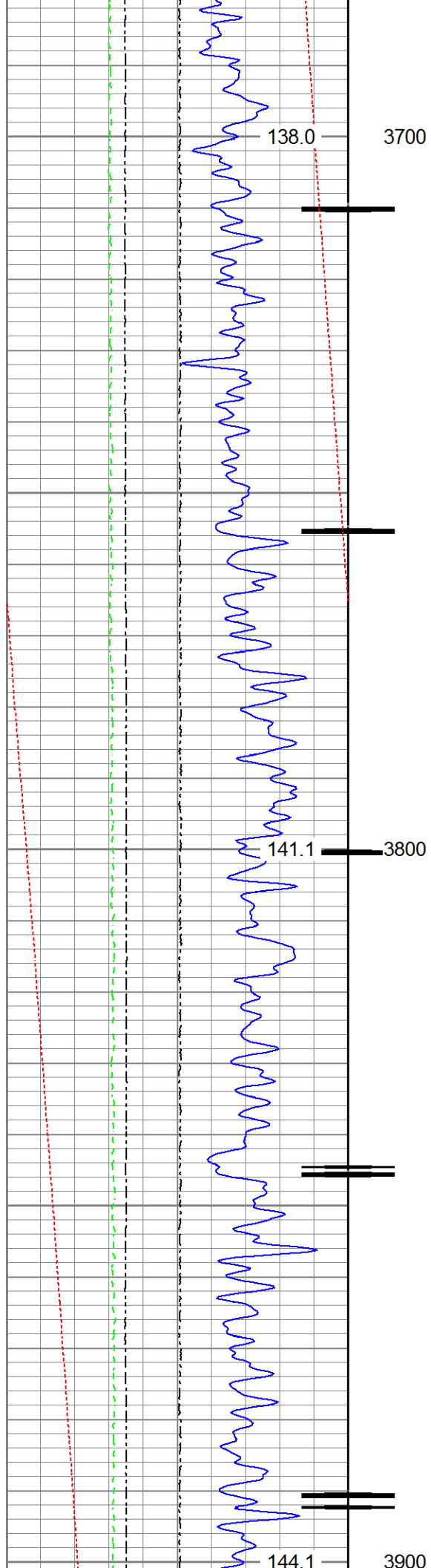


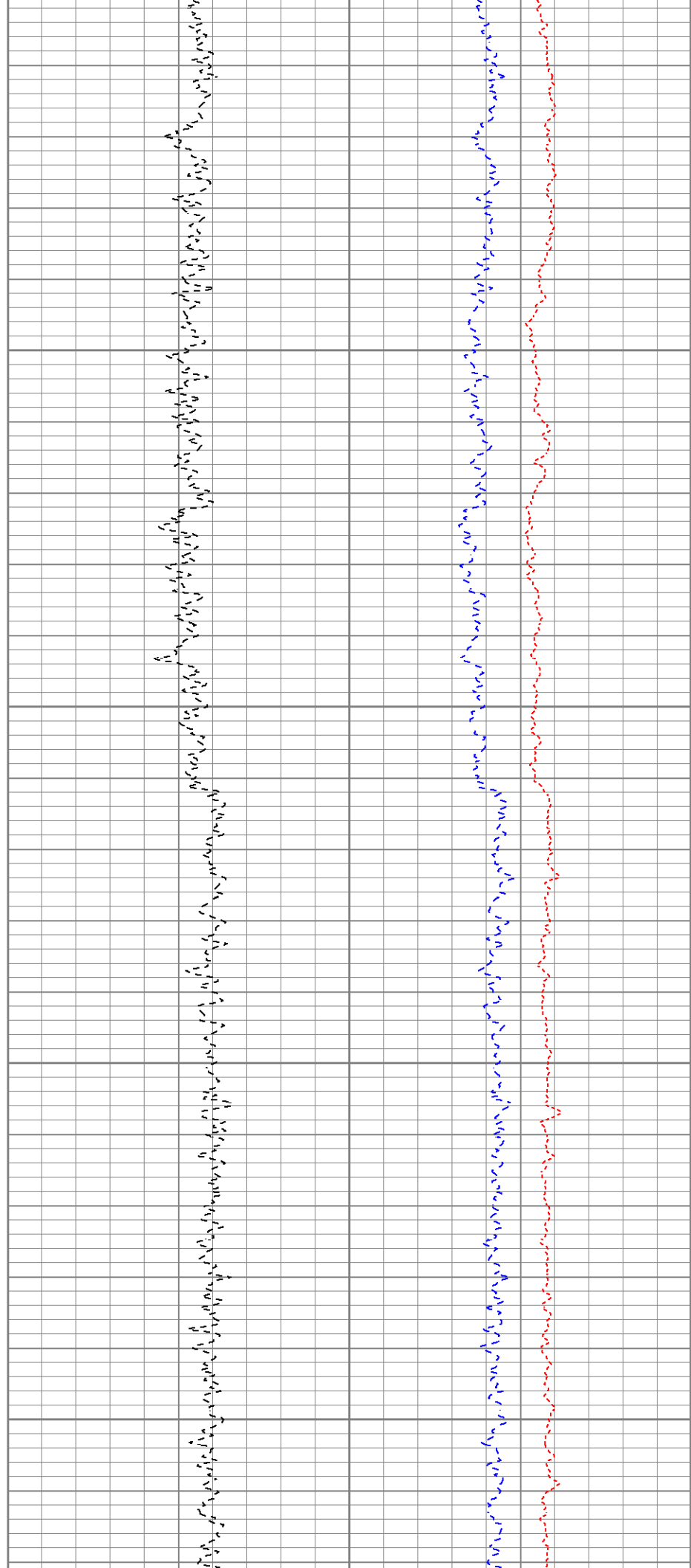
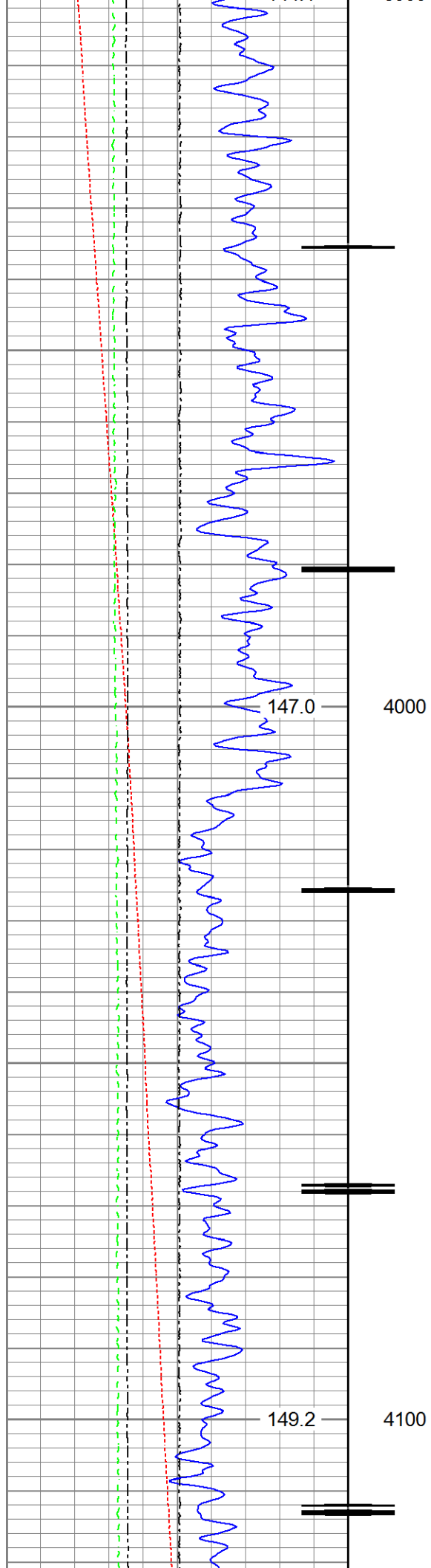


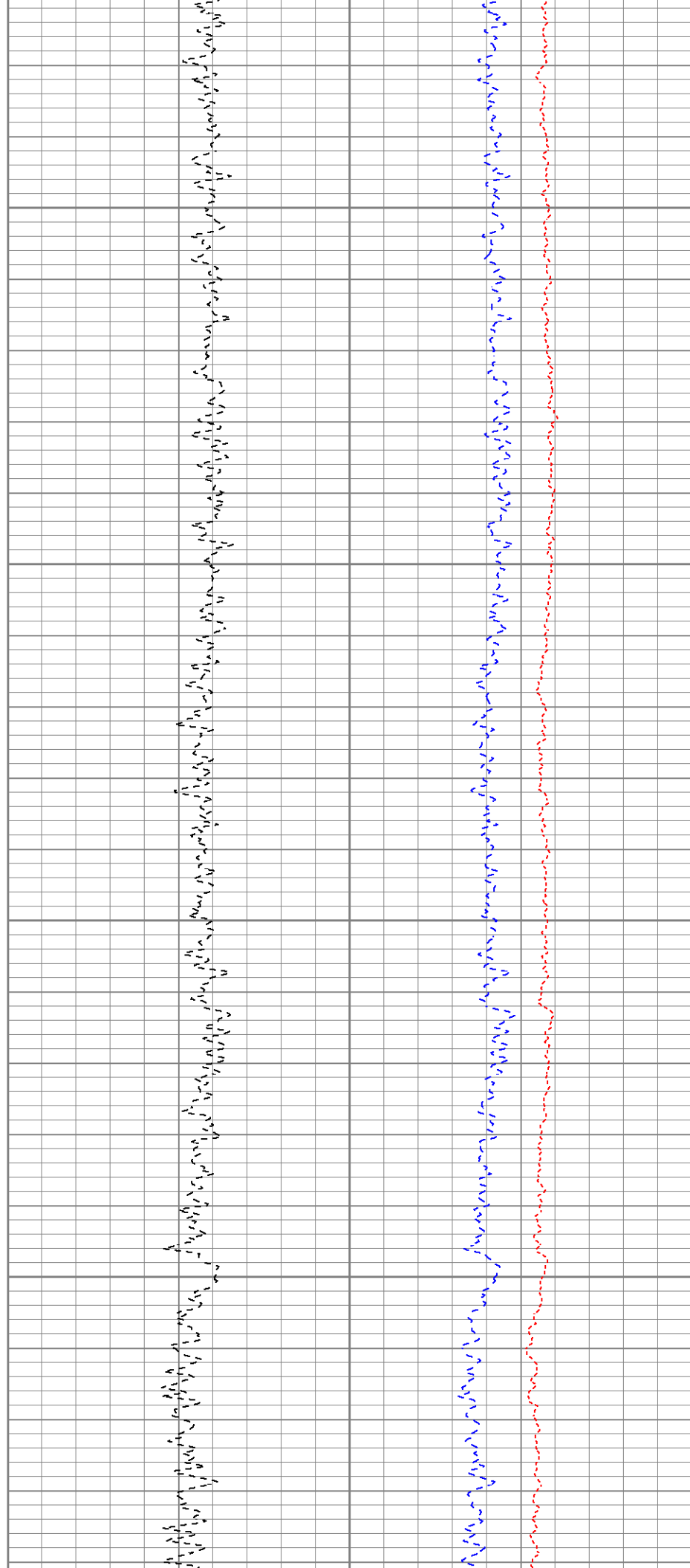
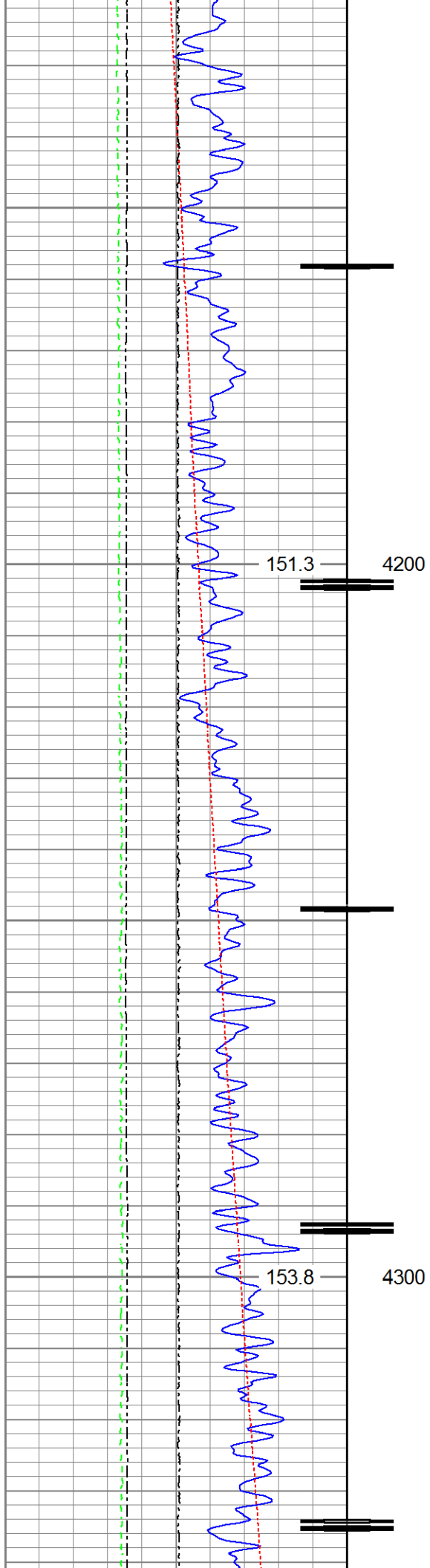


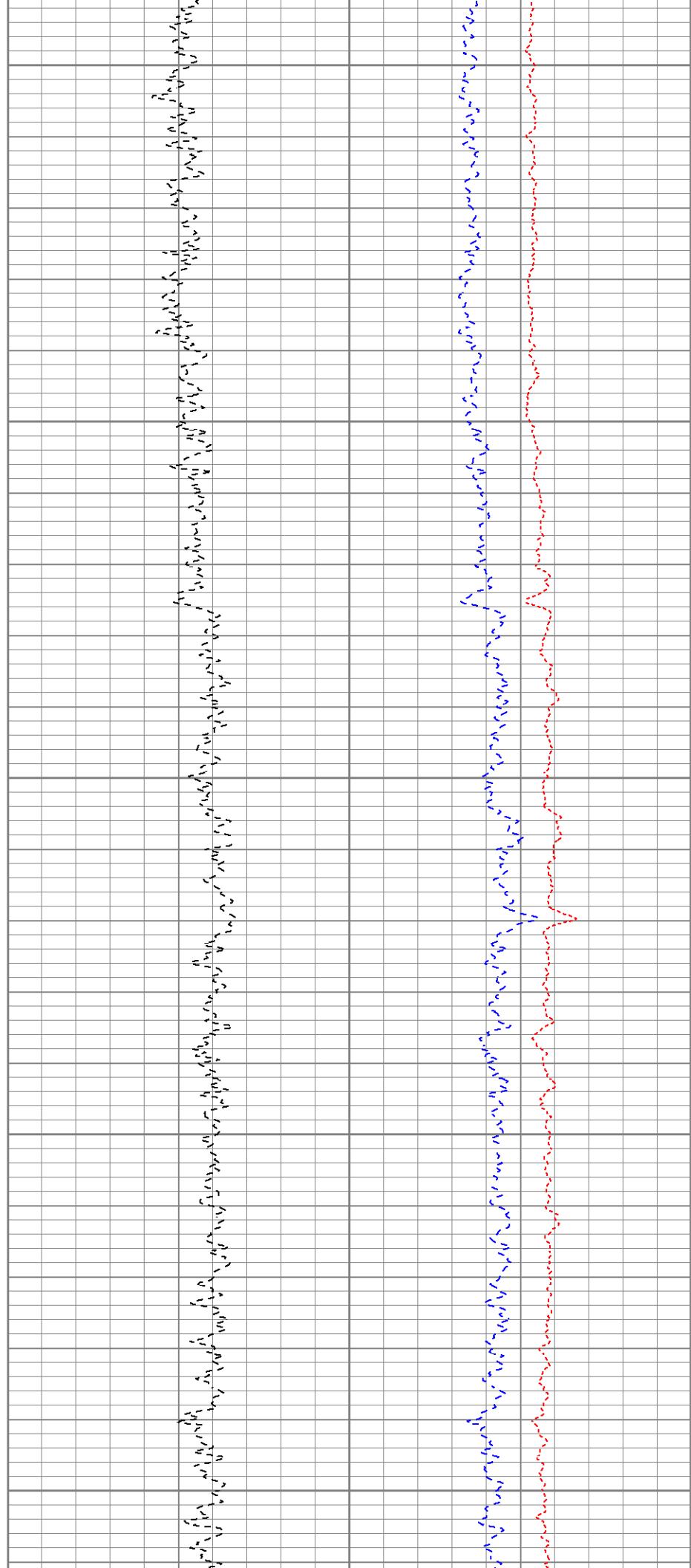
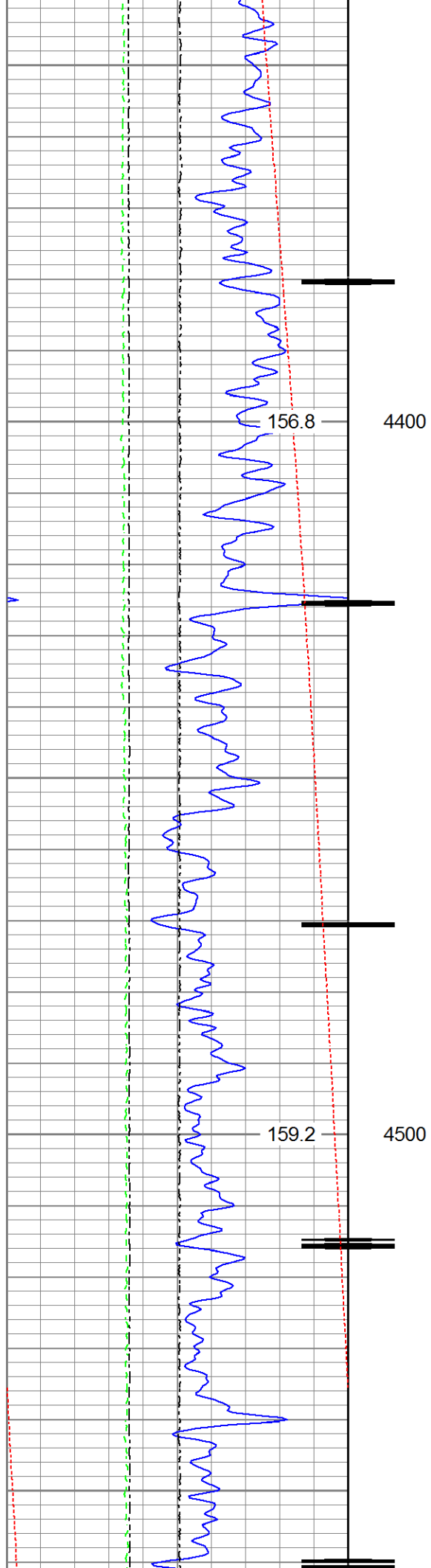


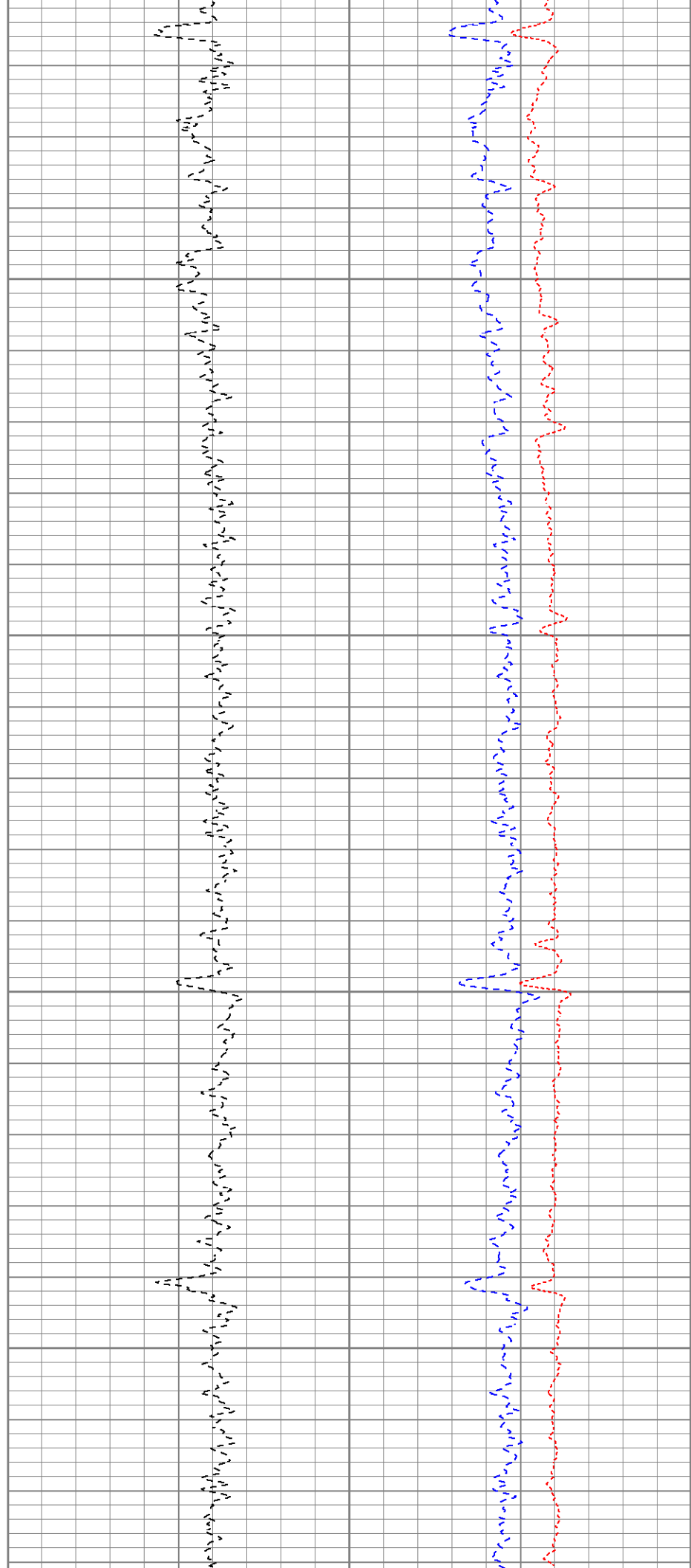
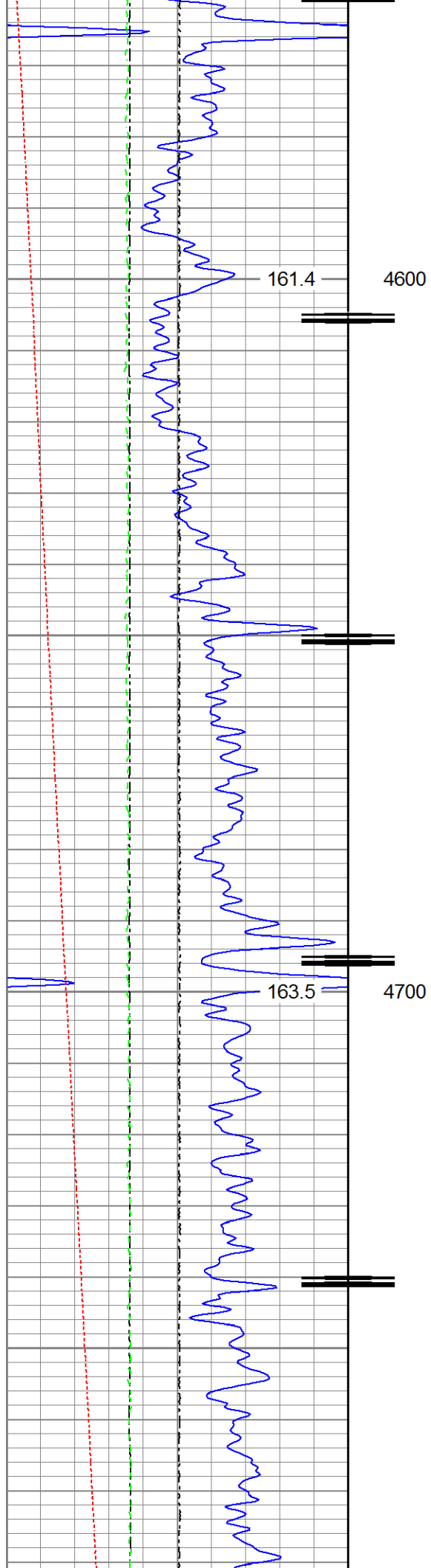


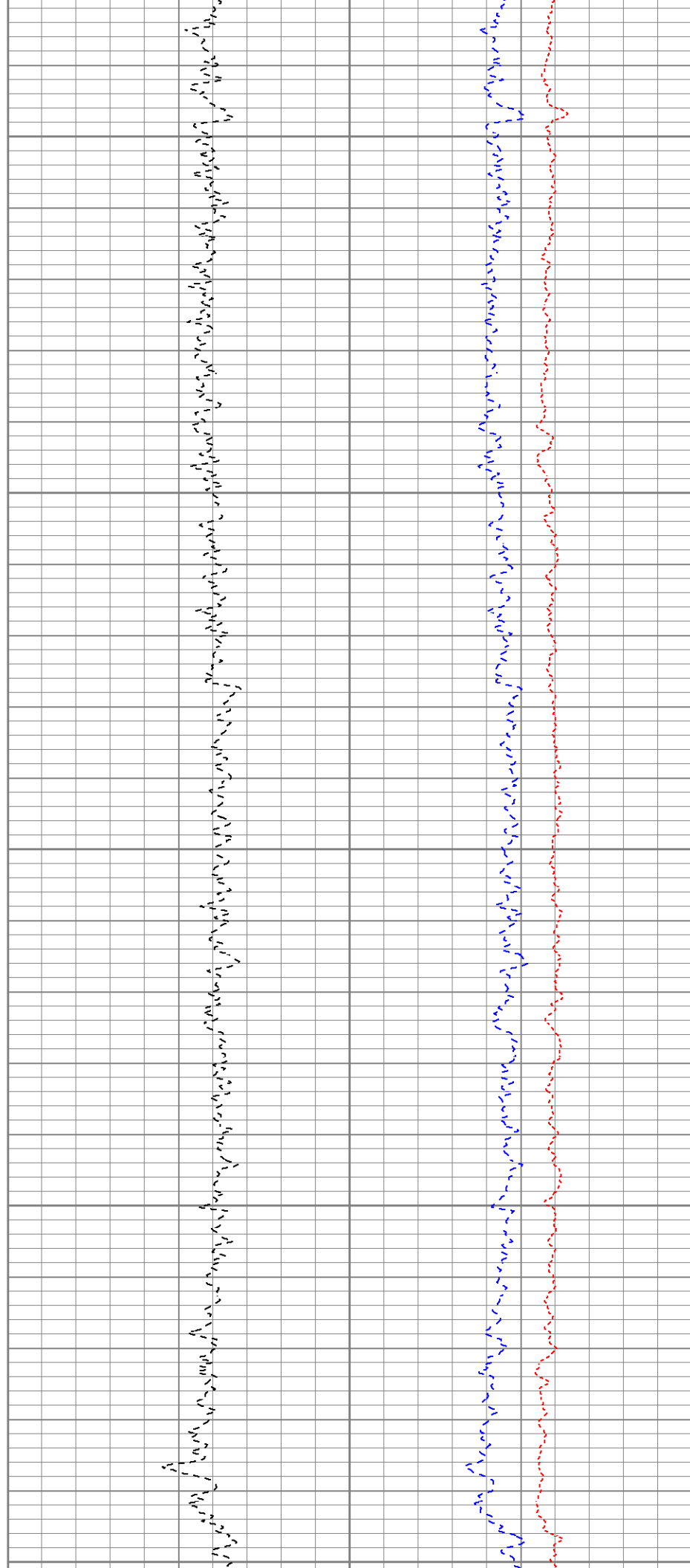
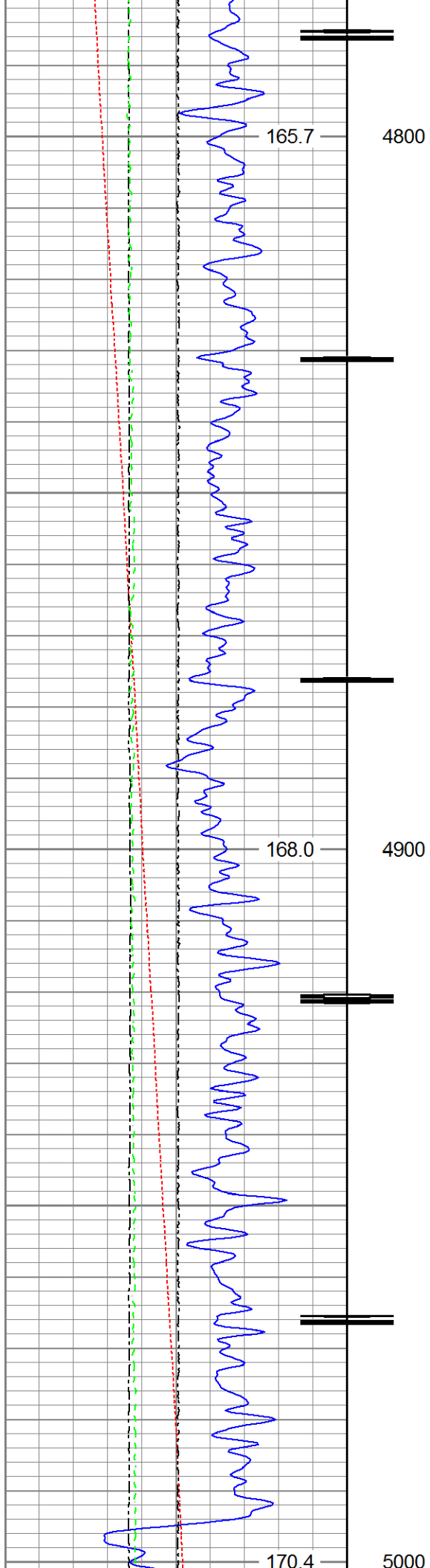


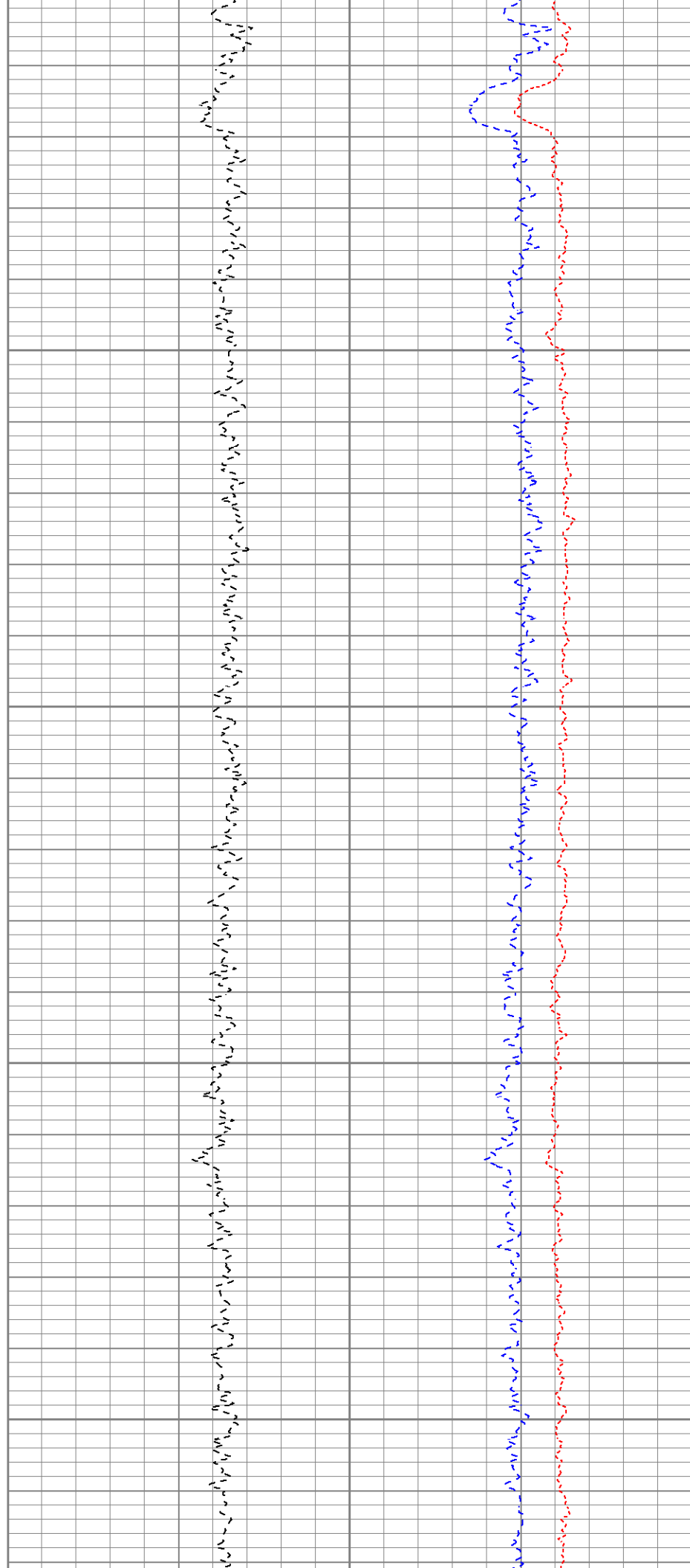
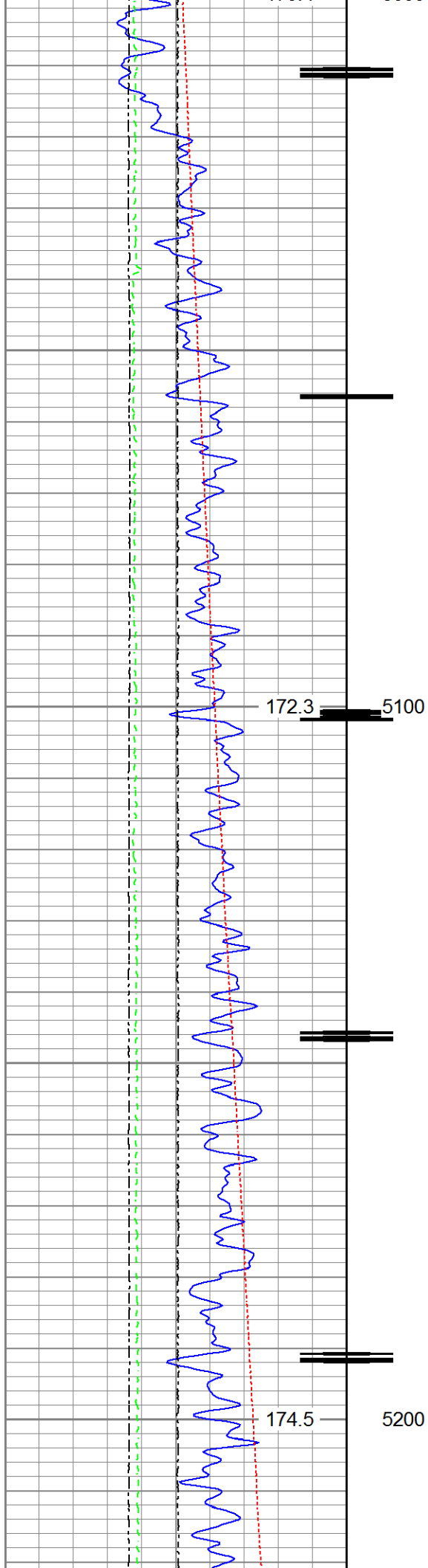


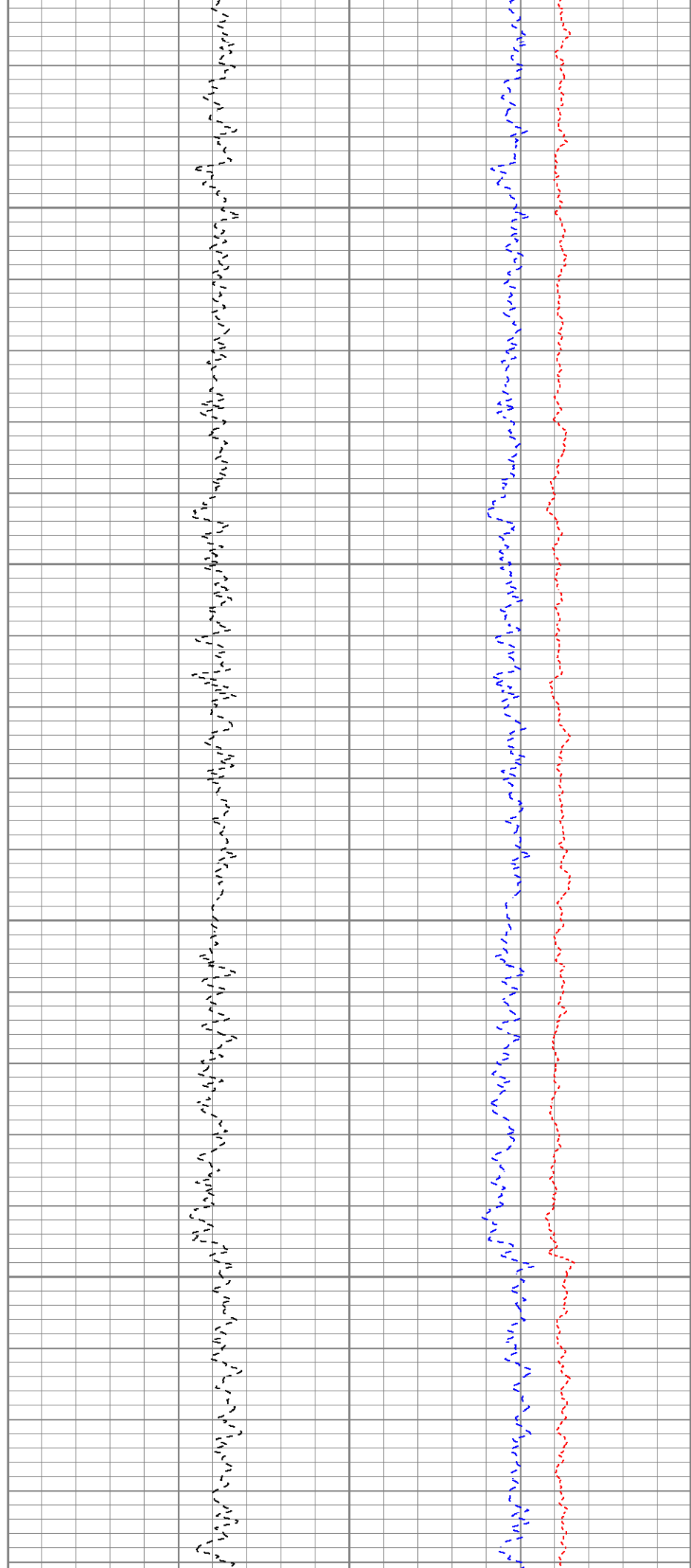
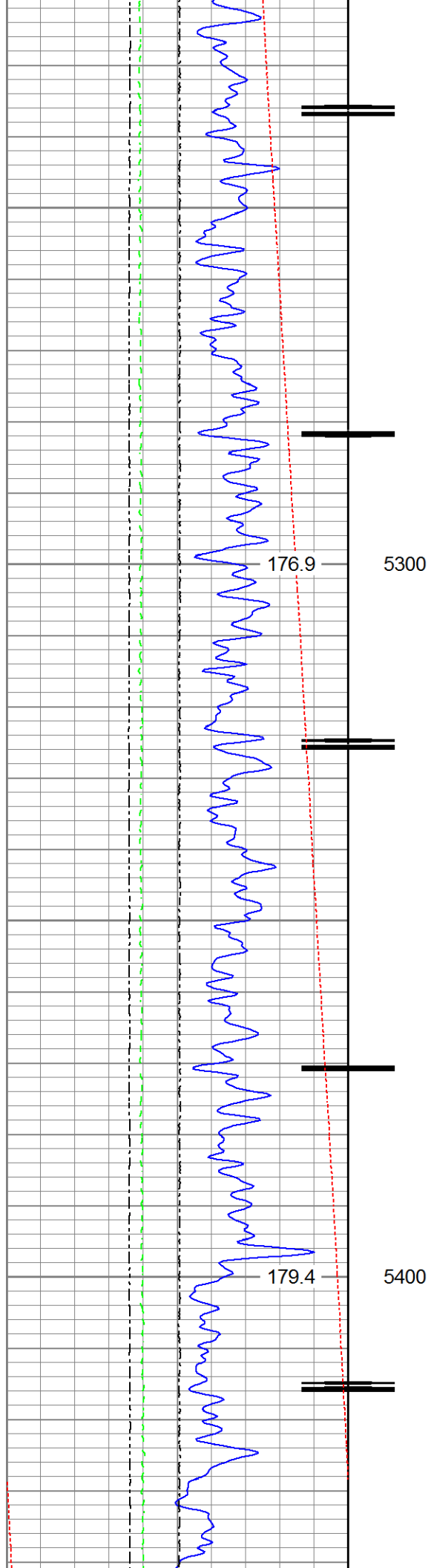


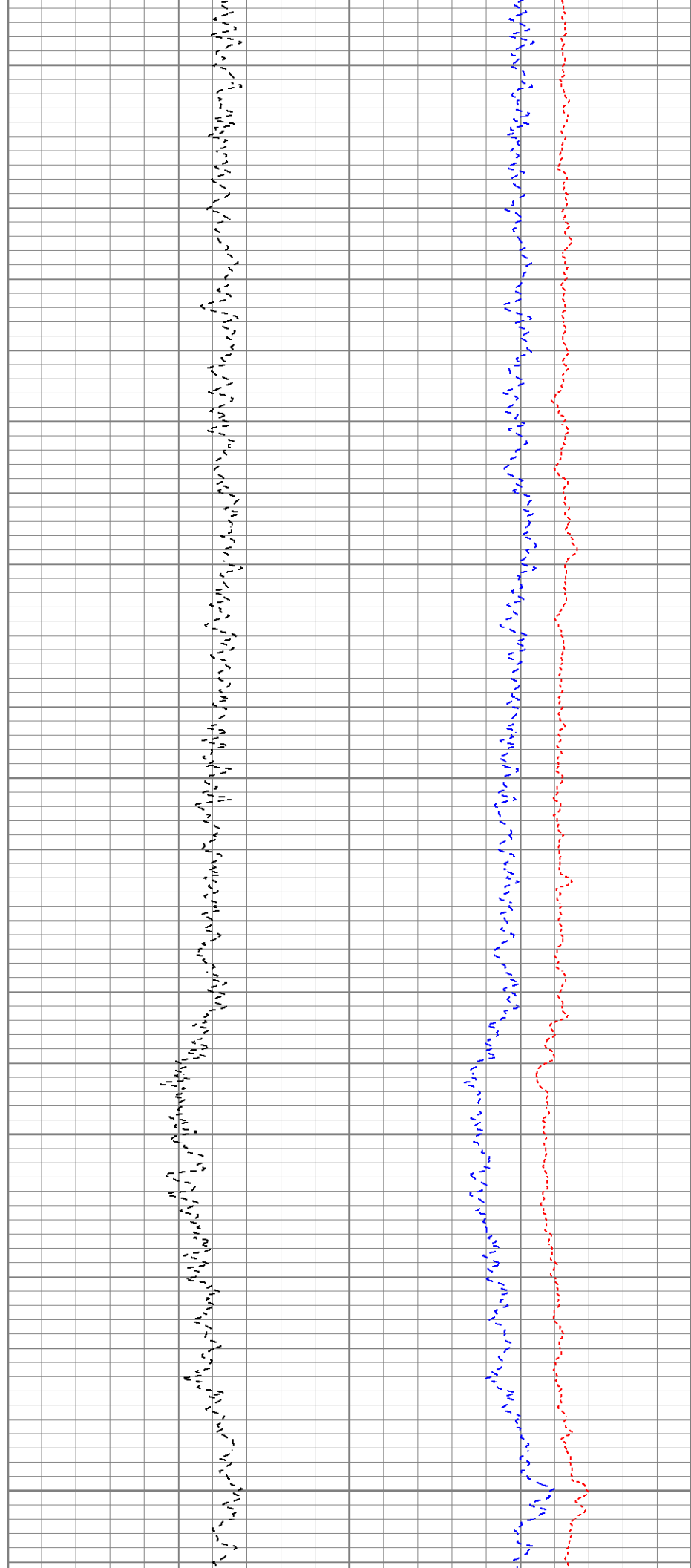
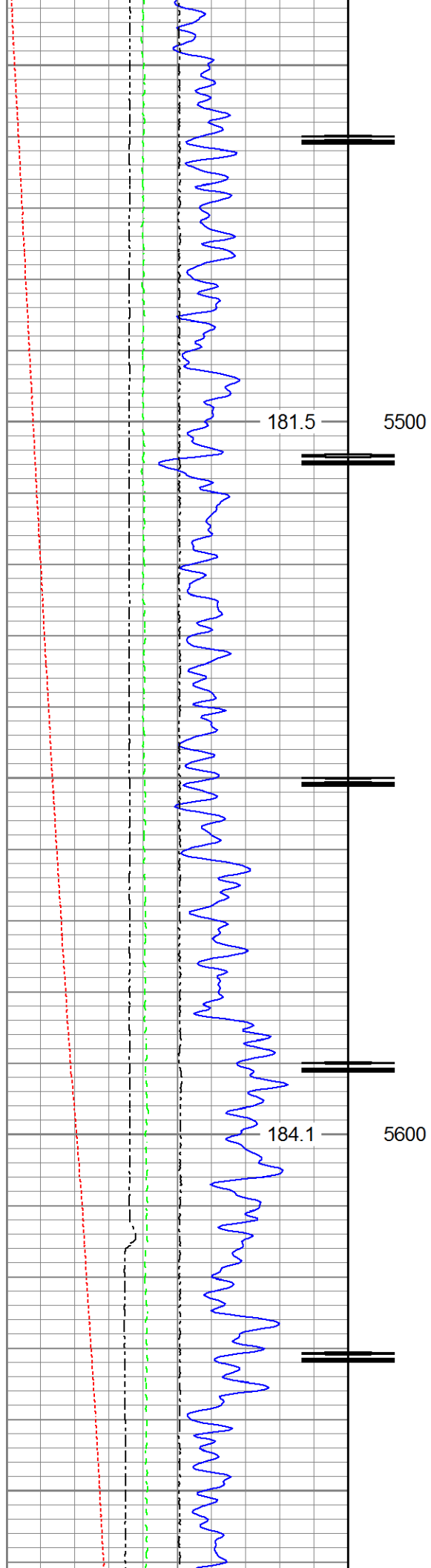


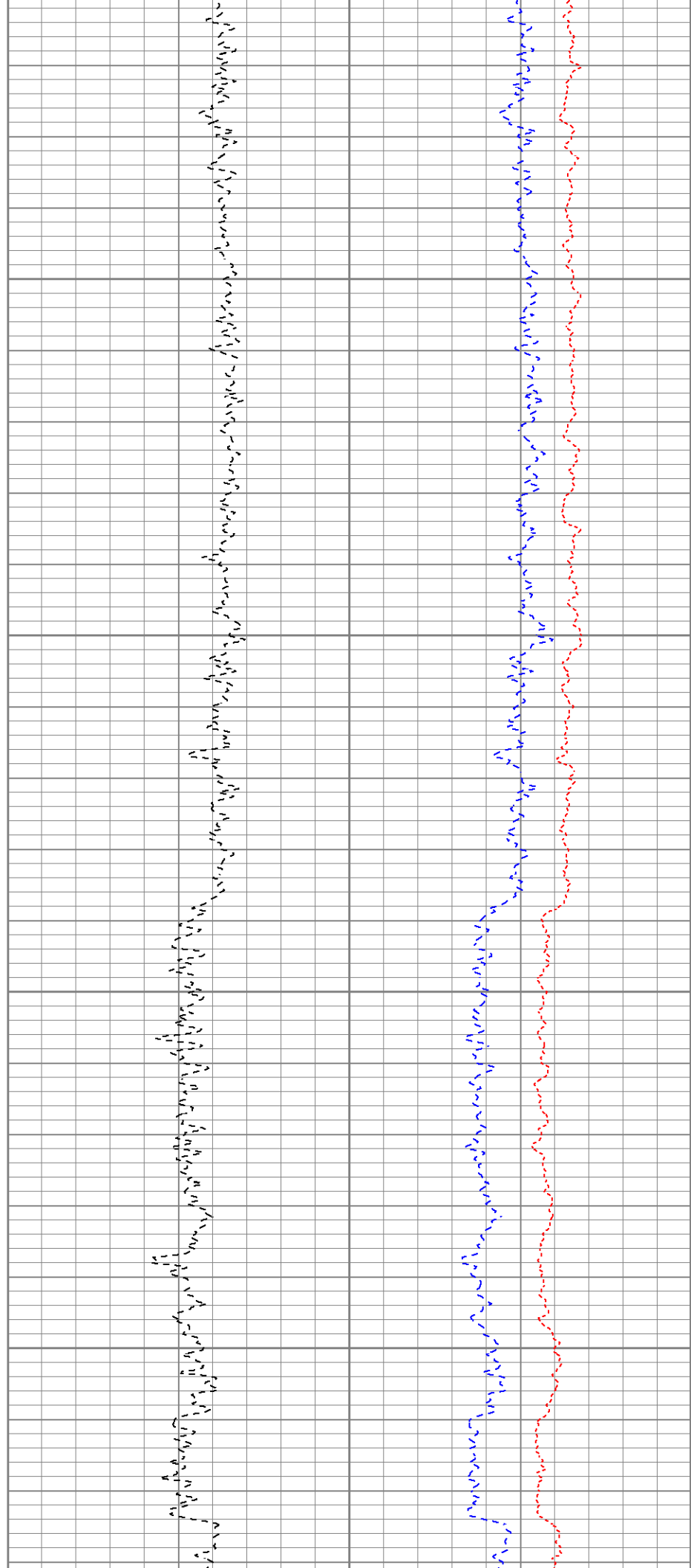
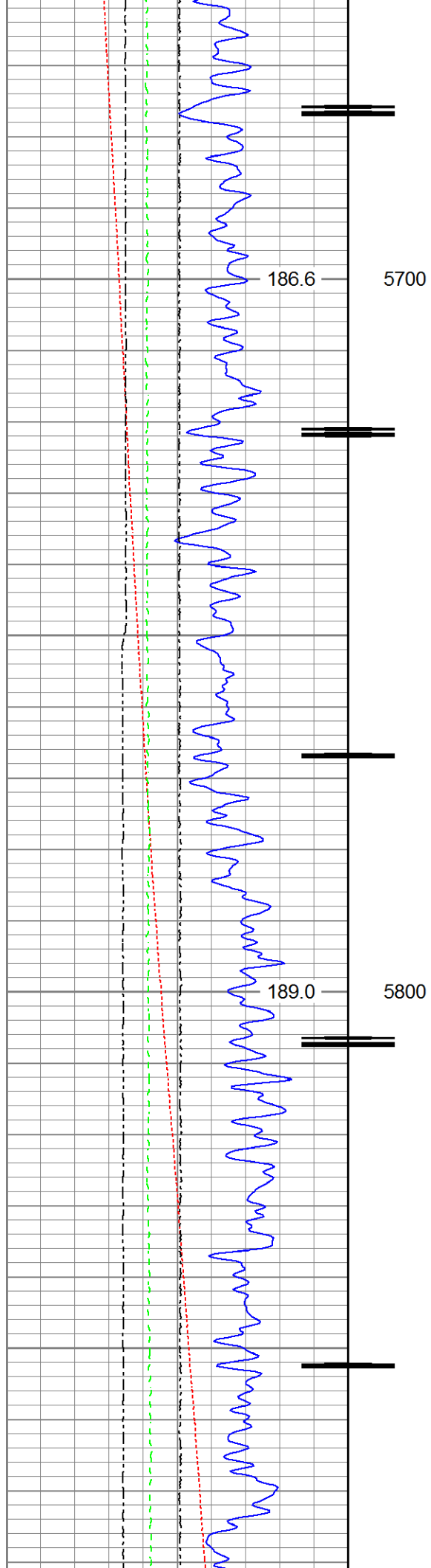


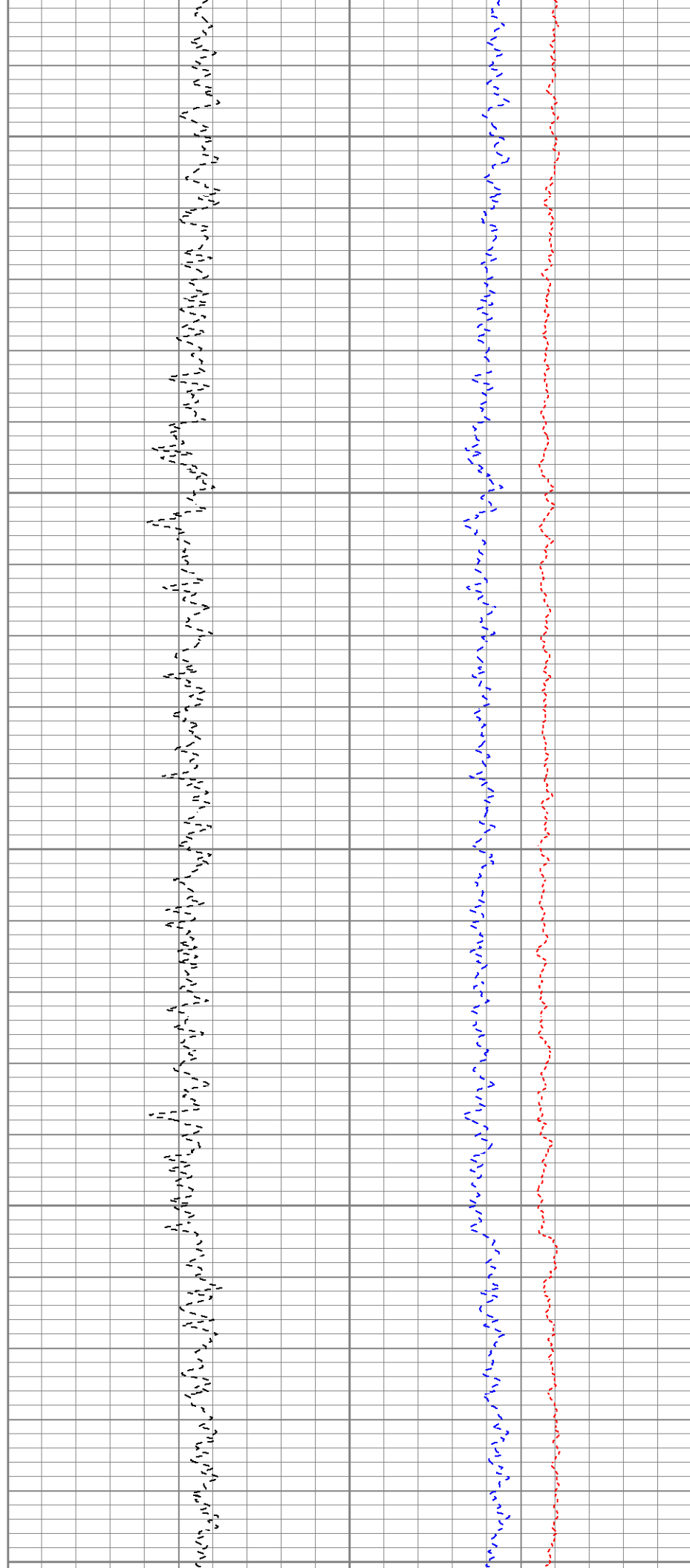
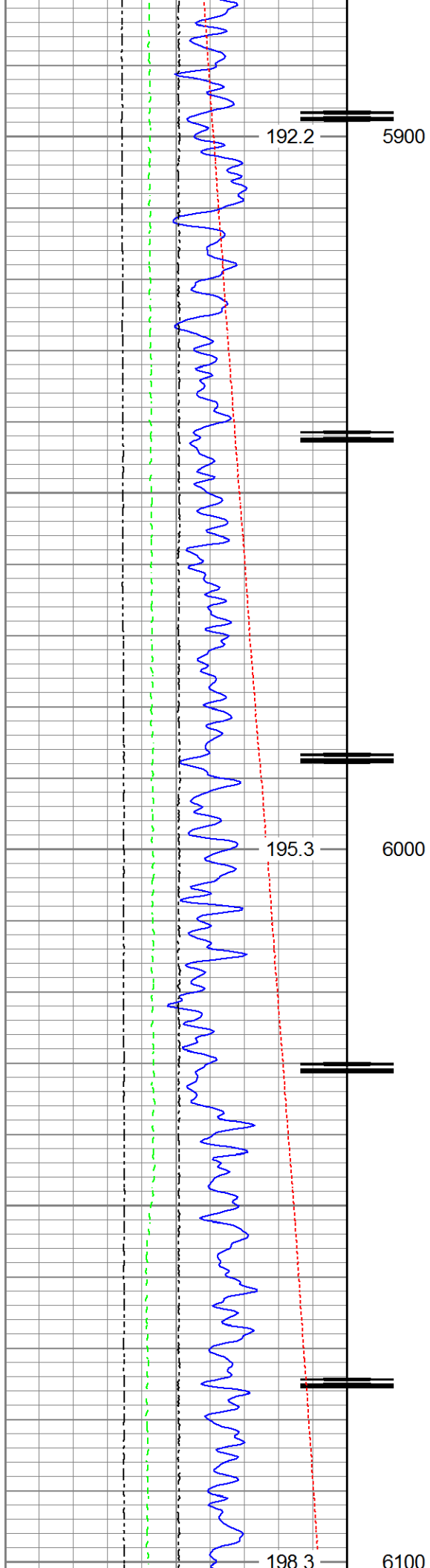


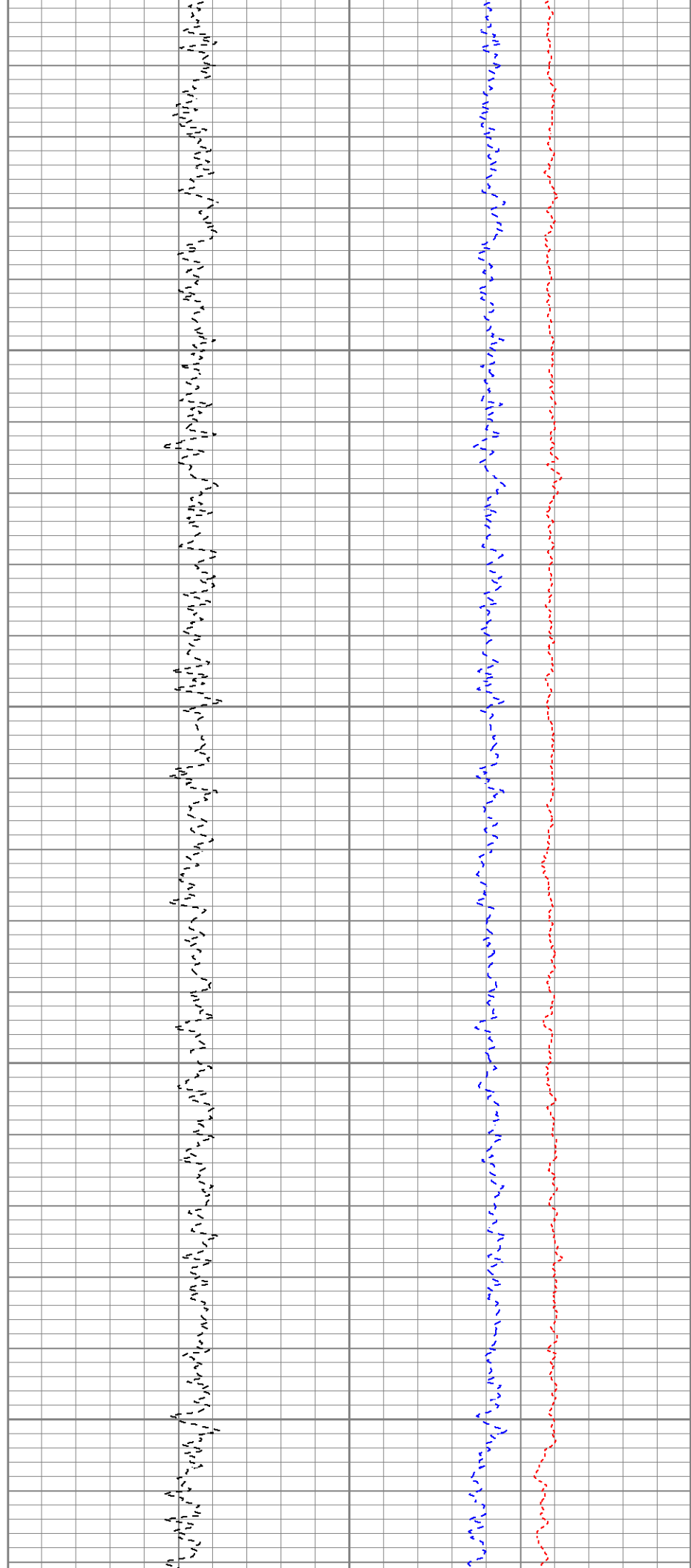
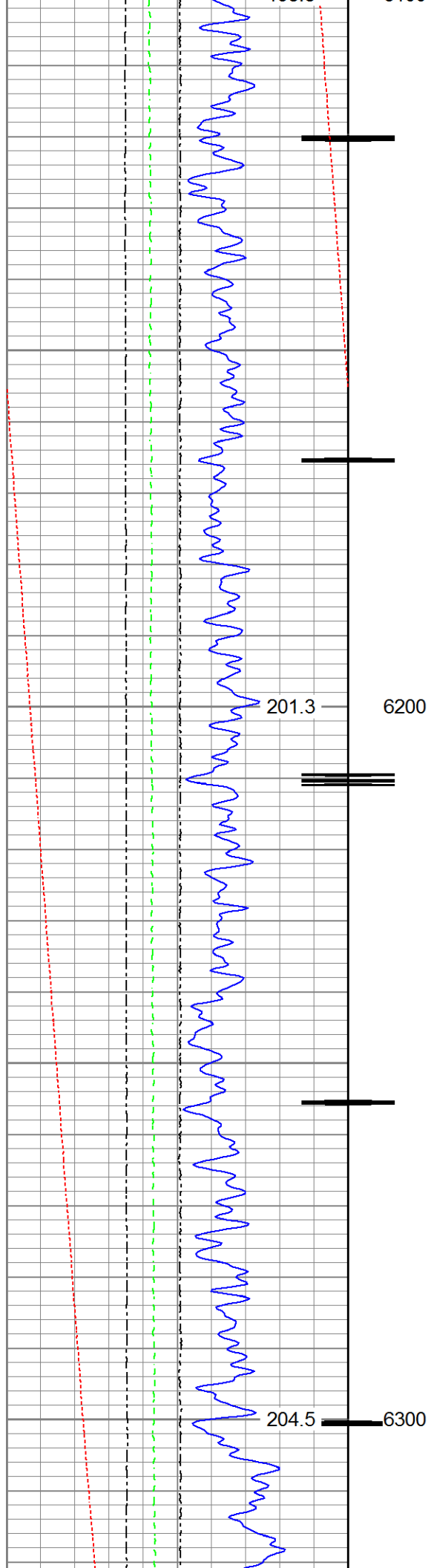


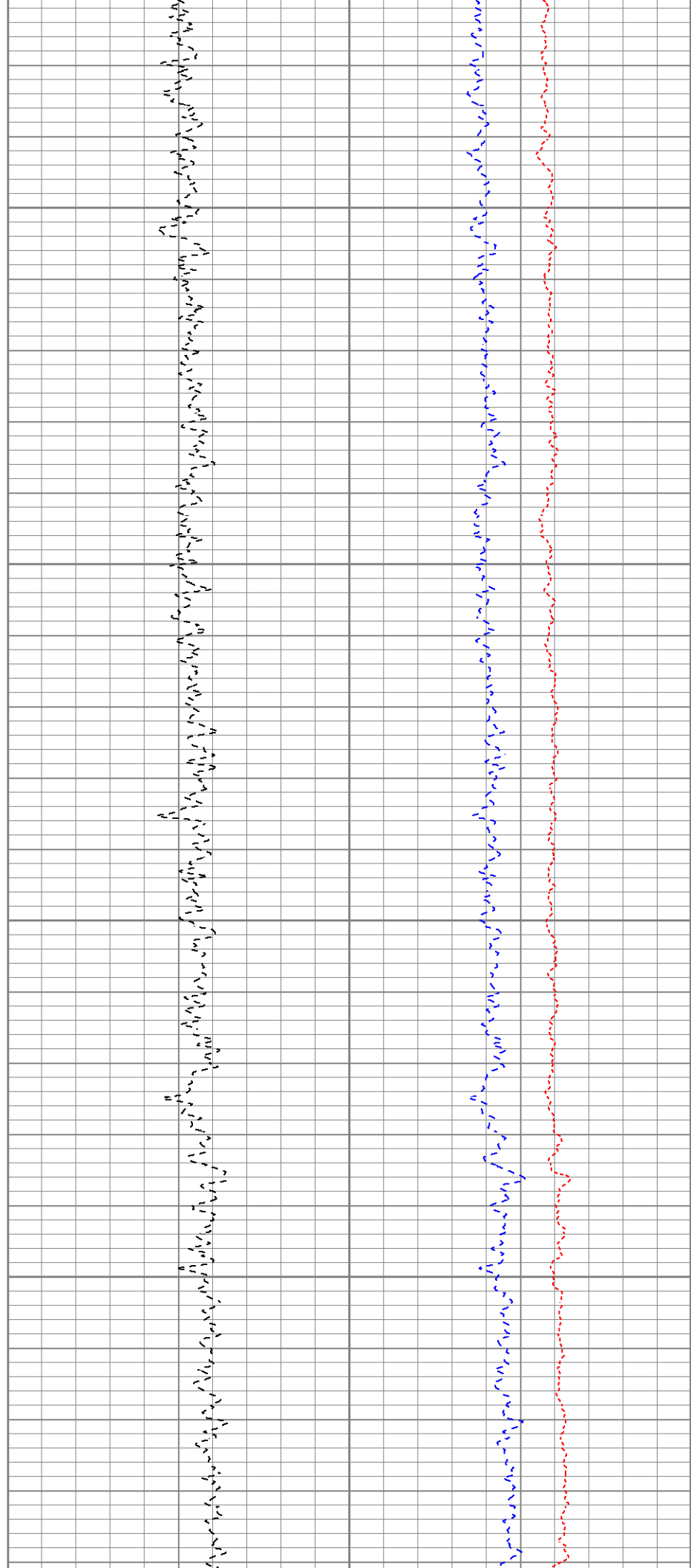
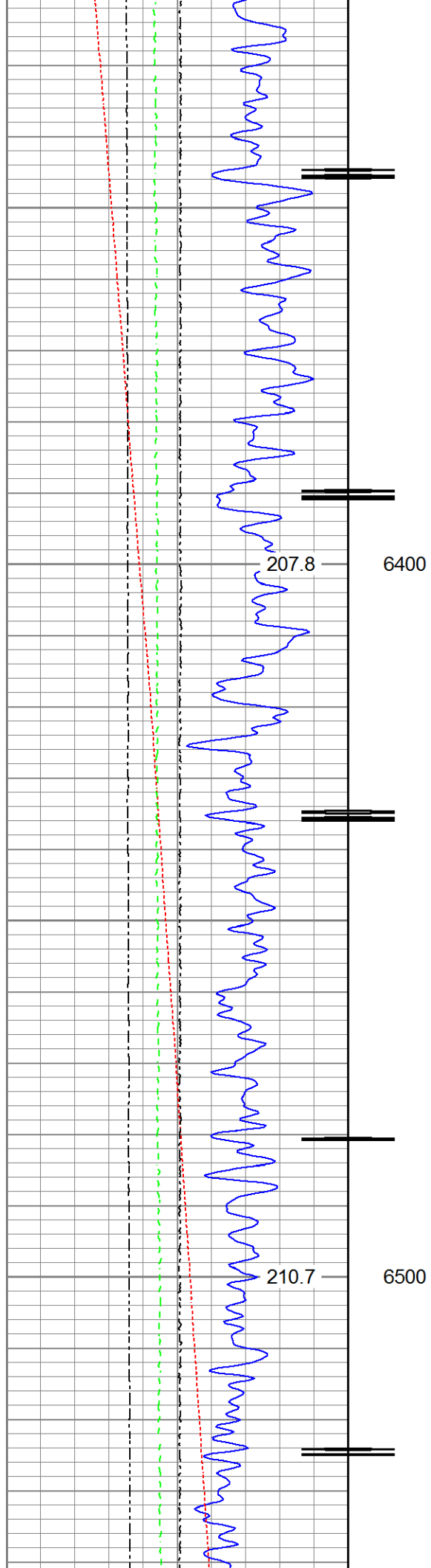












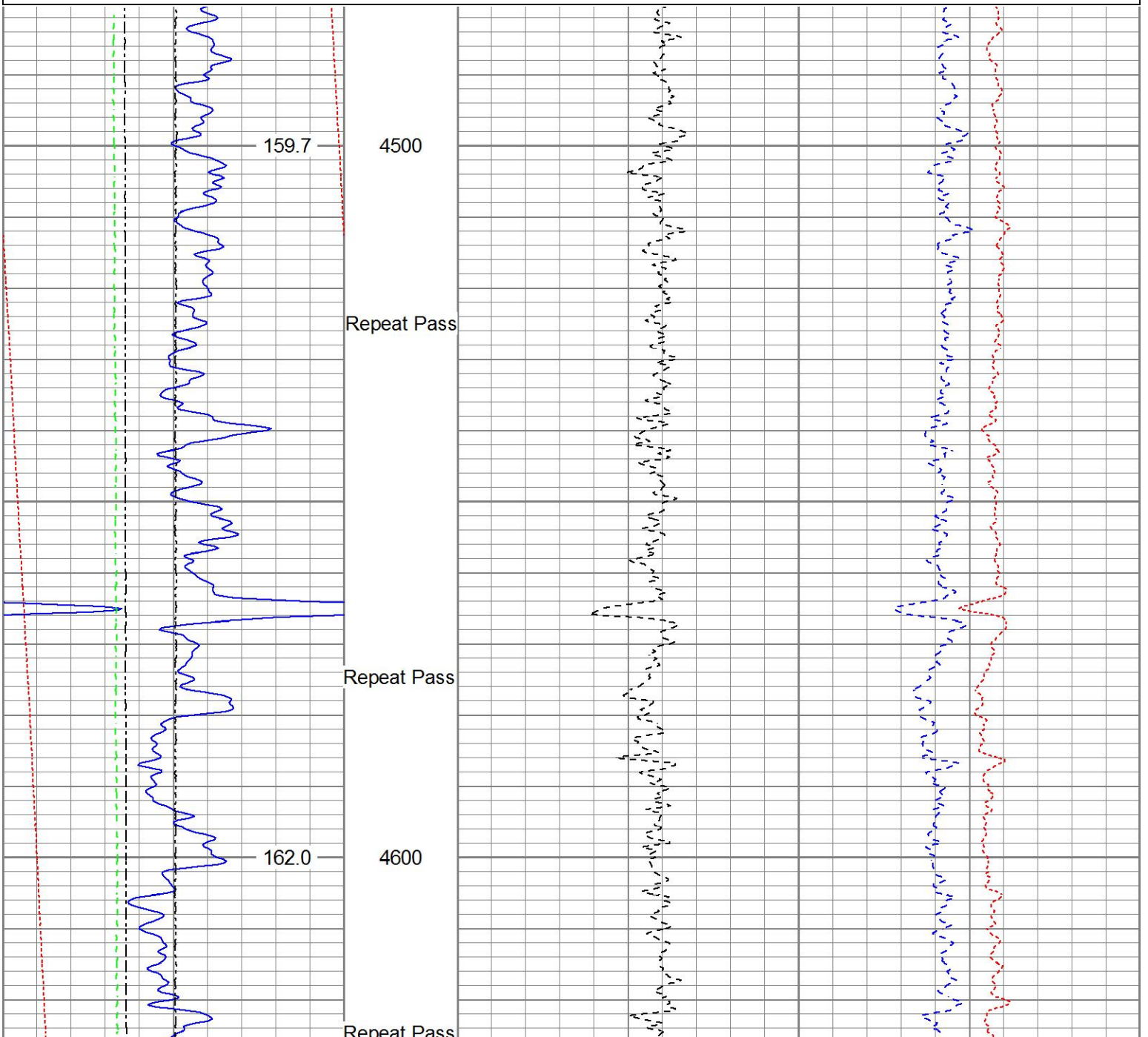


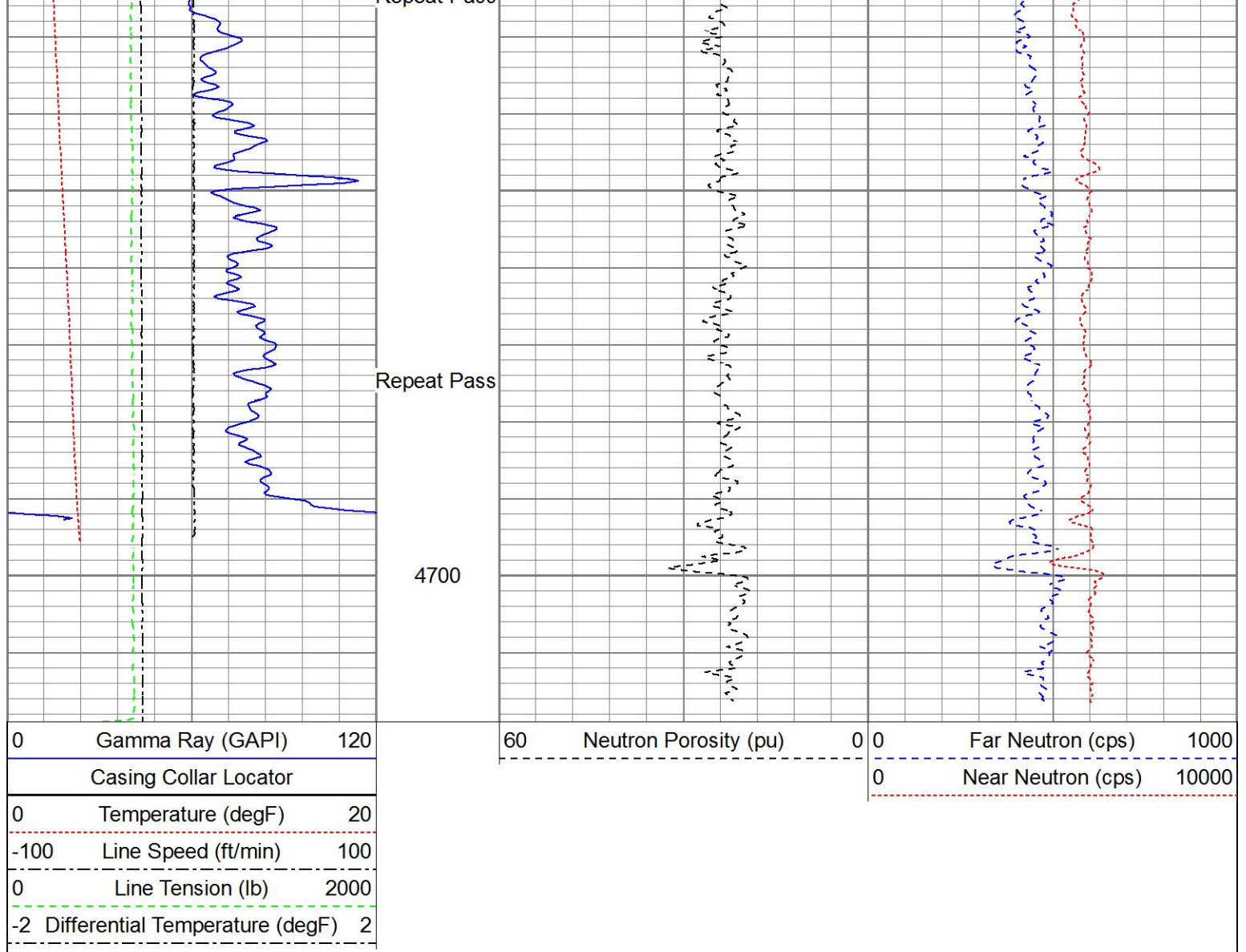
Repeat Pass



Recorded With 2800 PSI Surface Induced Pressure

Database File anadarko_butterball 32c-34hz\0512344519_anadarko_butterball 32c-34hz_cnl_08-04-17.db
Dataset Pathname pass3
Presentation Format ros_cnl_sx
Dataset Creation Fri Aug 04 09:57:00 2017
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						
-2	Differential Temperature (degF)	2						





Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
GR	24.33		Titan_Electric_Cable_Heads-Titan_1-11/161.03 Electric Cable Head with 1" Fishing Neck	161.03	1.69	5.40
			UW_AGS-UW_AGS_001 (218874) Sondex Adapter - GO Box to Sondex Pin	0.21	1.69	1.00
			UW_XTU-UW_XTU_002 (218874) Crossover Ultrawire Toolbus to Ultralink	1.58	1.69	6.50
			UW_PGR-UW_PGR_020 (10013902) Production Gamma Ray	1.92	1.69	9.50
TEMP	22.93		UW_PRT-PRT_016 (10024052) Platinum Resistance Thermometer	1.04	1.69	5.20
CCL	21.69		UW_CCL-UW_CCL_028 (10026417) 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

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

Segmented Cement Bond Log Calibration Report		
Serial Number:	1063	
Tool Model:	UW_RBT_004	
Calibration Casing Diameter:	5.500	in
Calibration Depth:	-46.053	ft

Master Calibration, performed Fri Aug 04 08:43:56 2017:						
	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	-0.002	1.011	0.800	71.921	70.203	0.971
5FT	-0.006	0.917	0.800	71.921	77.065	1.270
S1	-0.003	0.992	0.000	100.000	100.407	0.351
S2	-0.002	1.001	0.000	100.000	99.633	0.244
S3	-0.002	1.012	0.000	100.000	98.559	0.241
S4	-0.003	1.045	0.000	100.000	95.419	0.292
S5	-0.002	1.037	0.000	100.000	96.316	0.163
S6	-0.003	1.024	0.000	100.000	97.385	0.250
S7	-0.002	0.995	0.000	100.000	100.228	0.242
S8	-0.003	0.967	0.000	100.000	103.103	0.272

Temperature Calibration Report					
Serial Number:	10024052				
Tool Model:	PRT_016				
Performed:	Sun Oct 11 12:16:39 2015				
Point #	Reading		Reference		
1	12242.00	cps	68.00	degF	
2	18329.00	cps	104.00	degF	
3	29563.00	cps	176.00	degF	
4	41222.00	cps	248.00	degF	
5	52988.00	cps	320.00	degF	
6	58824.00	cps	356.00	degF	
7		cps		degF	
8		cps		degF	
9		cps		degF	
10		cps		degF	

Gamma Ray Calibration Report		
Serial Number:	10013902	
Tool Model:	UW_PGR_020	
Performed:	(Not Performed)	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps

Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	1.0000	GAPI/cps



Company	Kerr-McGee Oil & Gas Onshore, L.P.
Well	Butterball 32C-34HZ
Field	Wattenberg
County	Weld
State	Colorado