



Compensated Neutron
Gamma Ray
Casing Collar Log

Company Kerr-McGee Oil & Gas Onshore, L.P.
Well Whisper Rock 2C-25HZ
Field Wattenberg
County Weld
State Colorado

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Location: API #: 05-123-41296

SEC 26 TWP 4N RGE 68W

Permanent Datum Ground Level Elevation 4992'
Log Measured From Kelly Bushing 20 FT
Drilling Measured From Kelly Bushing

Other Services
Gauge Ring
RBL
Elevation
K.B. 5012'
D.F. 5011'
G.L. 4992'

Date 14-FEB-2017

Run Number Two

Depth Driller 13611 FT

Depth Logger 7401 FT

Bottom Logged Interval 7400 FT

Top Log Interval Surface

Open Hole Size 7.875"

Type Fluid Water

Density / Viscosity 8.34 lb/gal

Max. Recorded Temp. 228°F

Estimated Cement Top Surface

Time Well Ready ROA

Time Logger on Bottom 11:57

Equipment Number HD-0311

Location Fort Lupton, CO

Recorded By Jason Morrison

Witnessed By Brian Jolly

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	J55 BTC	Surface	1840 FT		
Intermediate #1	5 1/2	17	HCP-110	Surface	13592 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 6661 FT
Adjusted -5.8 FT to correlate with Marker Joint
Gauge Ring/Junk Basket ran to 7526 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!!

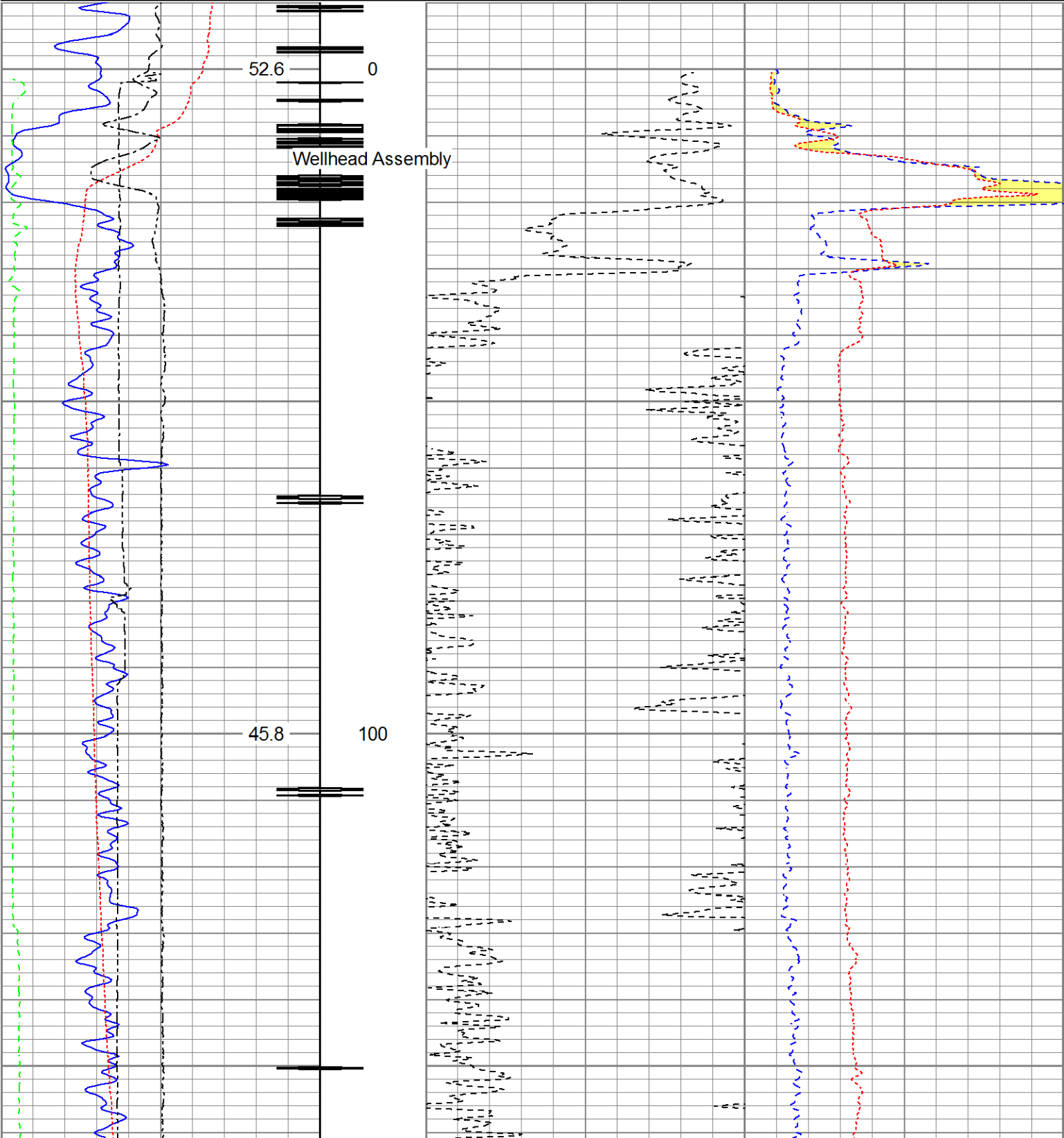


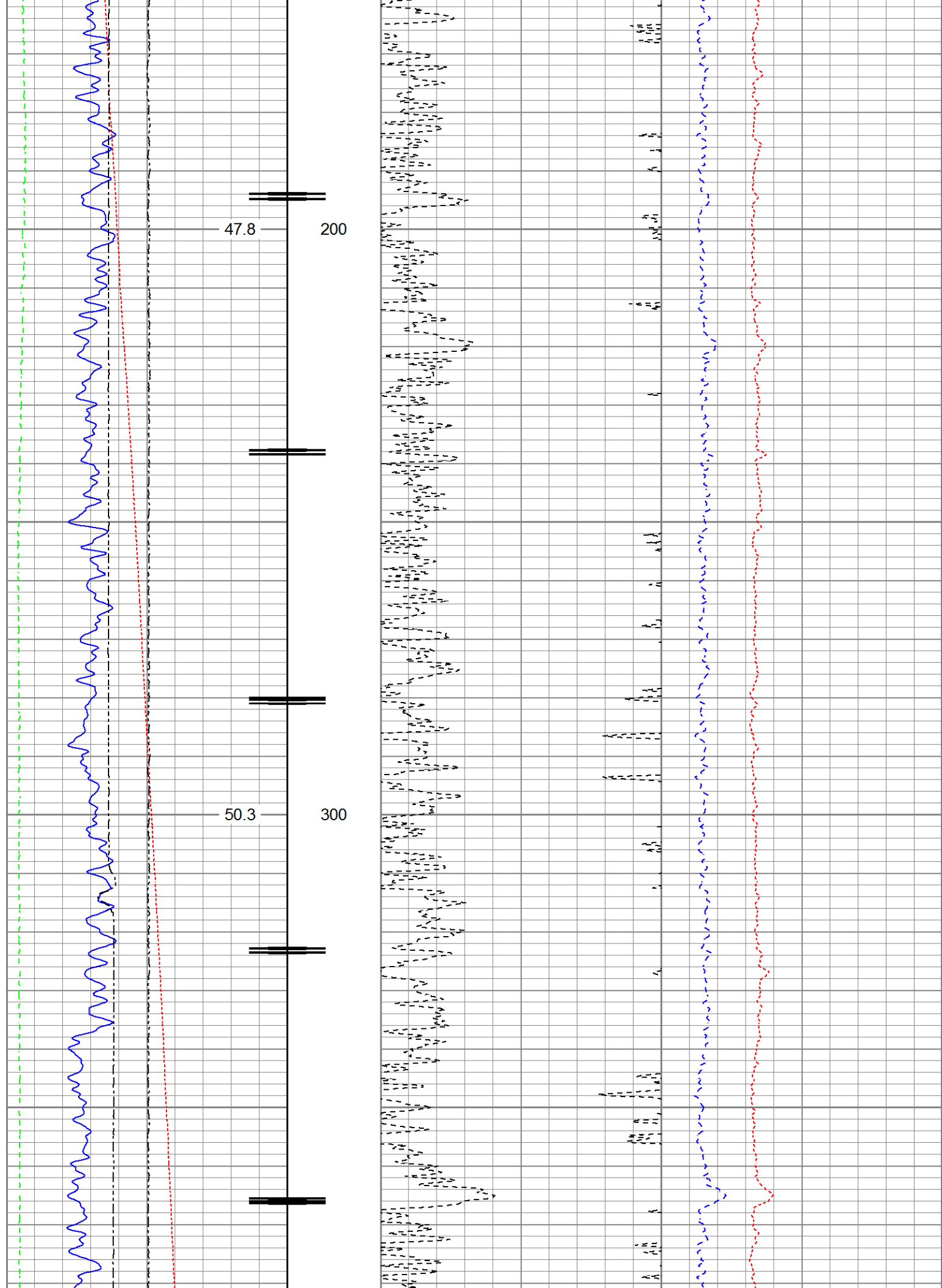
Main Pass

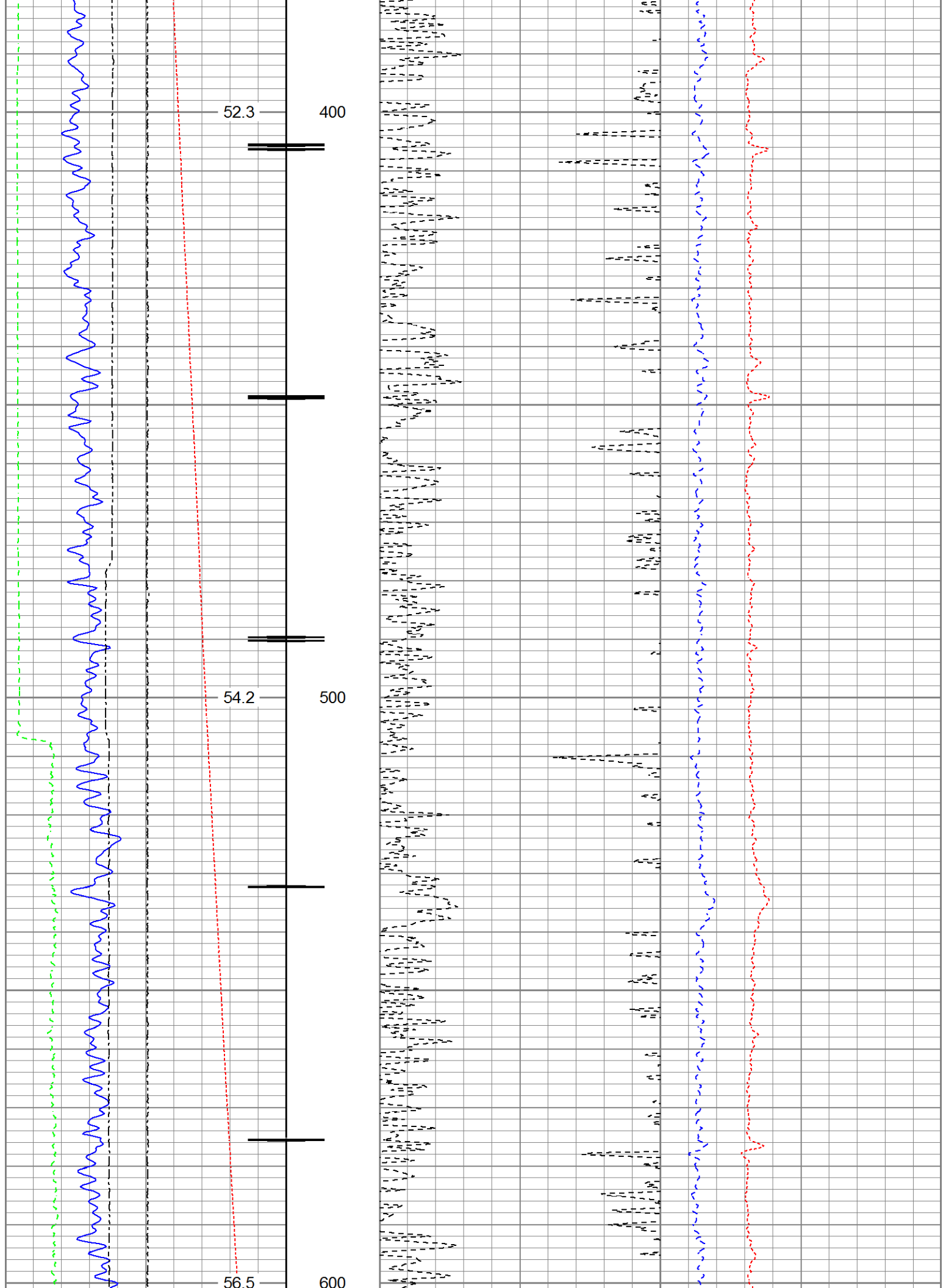
Recorded With 2800 PSI Surface Induced Pressure

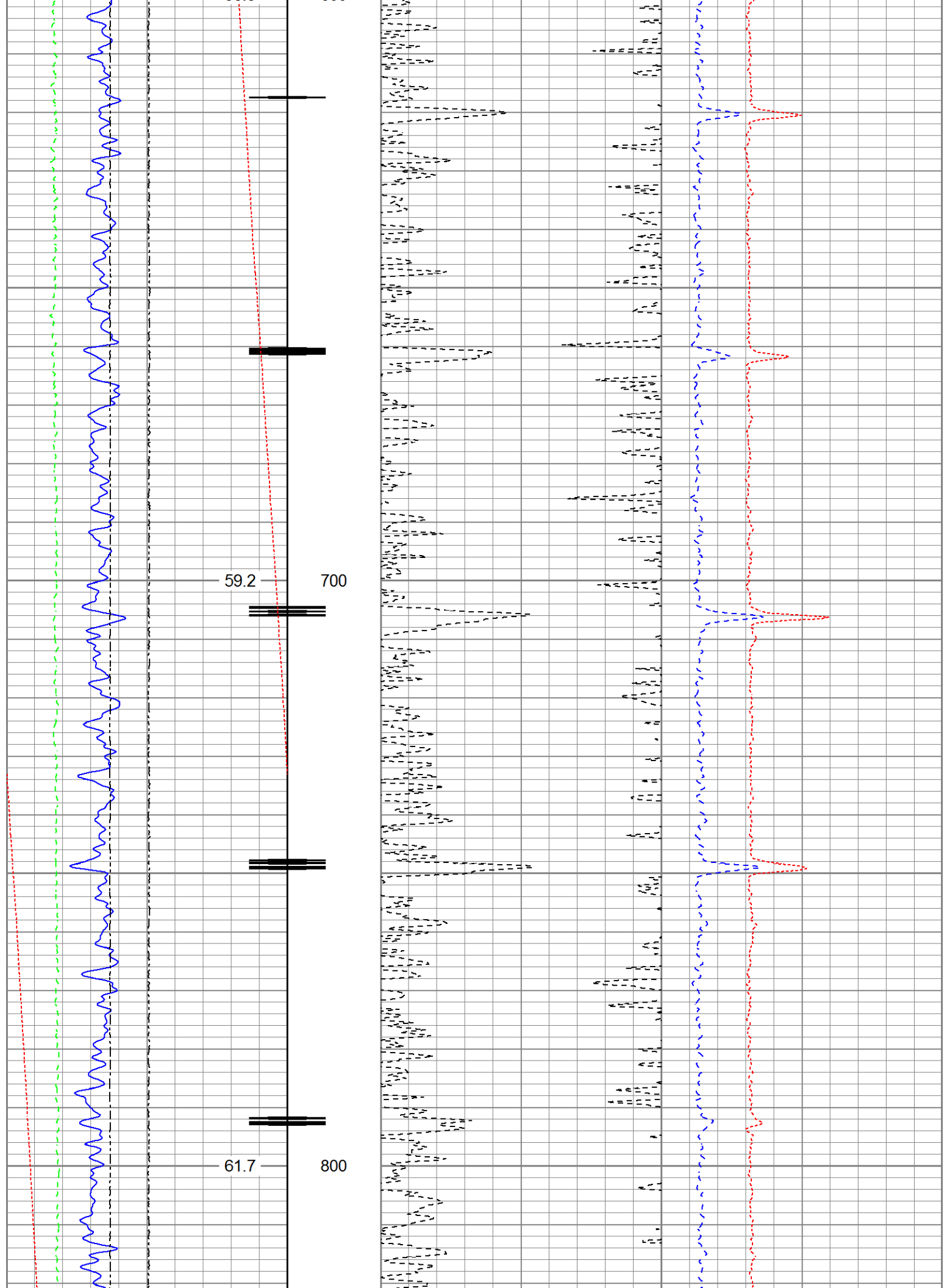
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Presentation Format	ros_cnl_sx
Dataset Creation	Tue Feb 14 17:47:29 2017
Charted by	Depth in Feet scaled 1:240

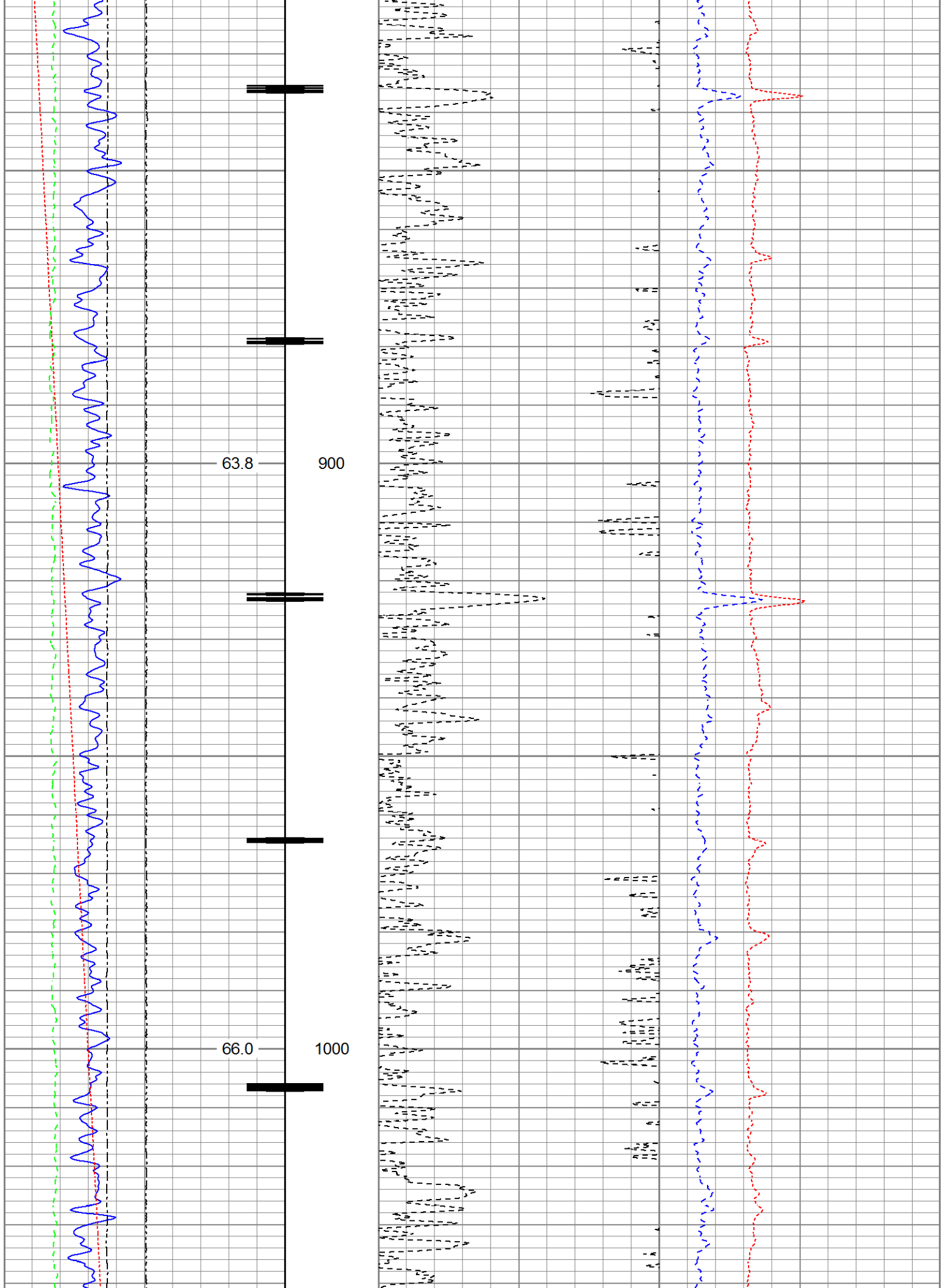
0	Gamma Ray (GAPI)	120	60	Neutron Porosity (pu)	0	0	Far Neutron (cps)	1000
Casing Collar Locator						0	Near Neutron (cps)	10000
0	Temperature (degF)	20						
-100	Line Speed (ft/min)	100						
0	Line Tension (lb)	2000						
-2	Differential Temperature (degF)	2						

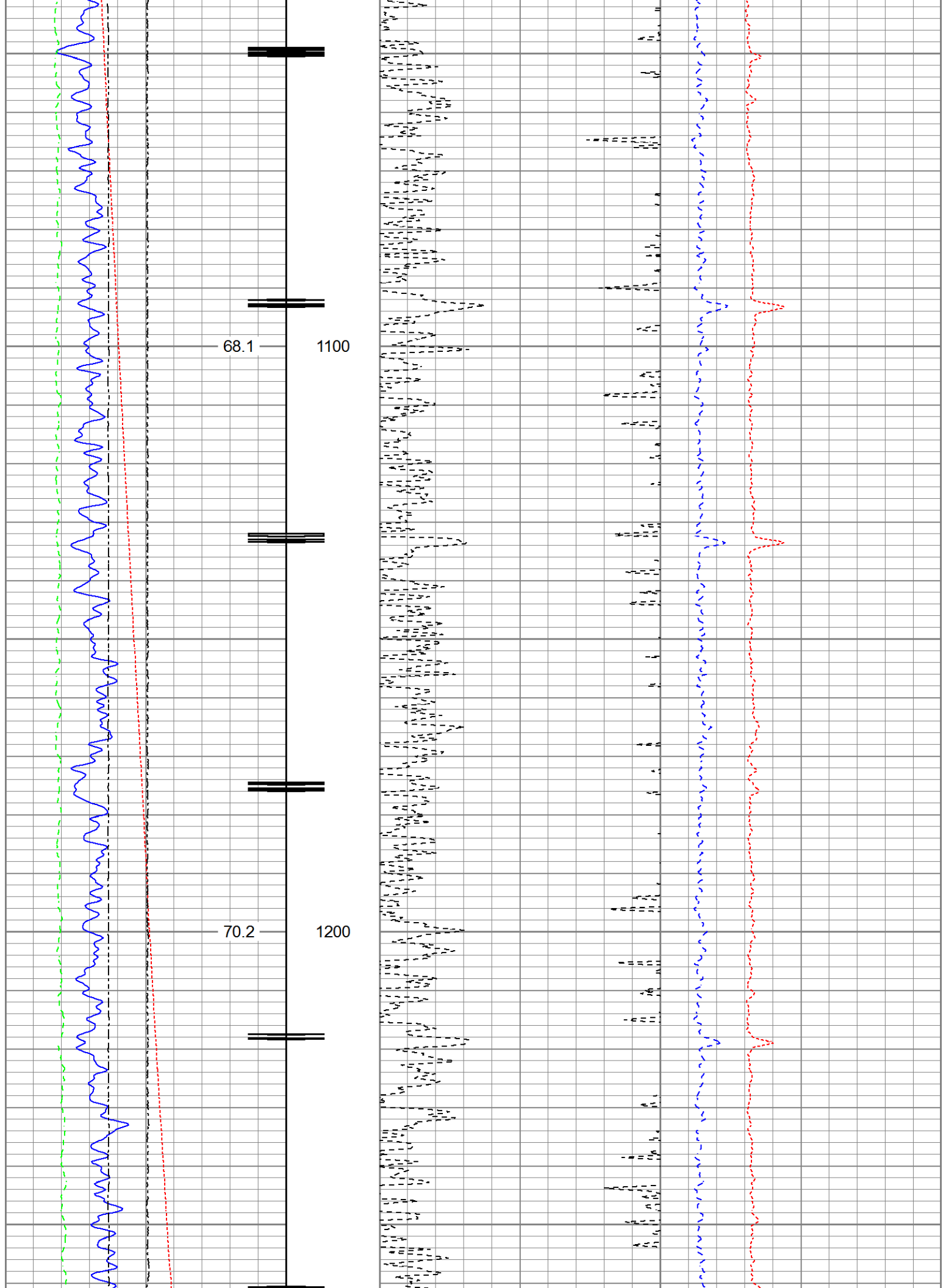


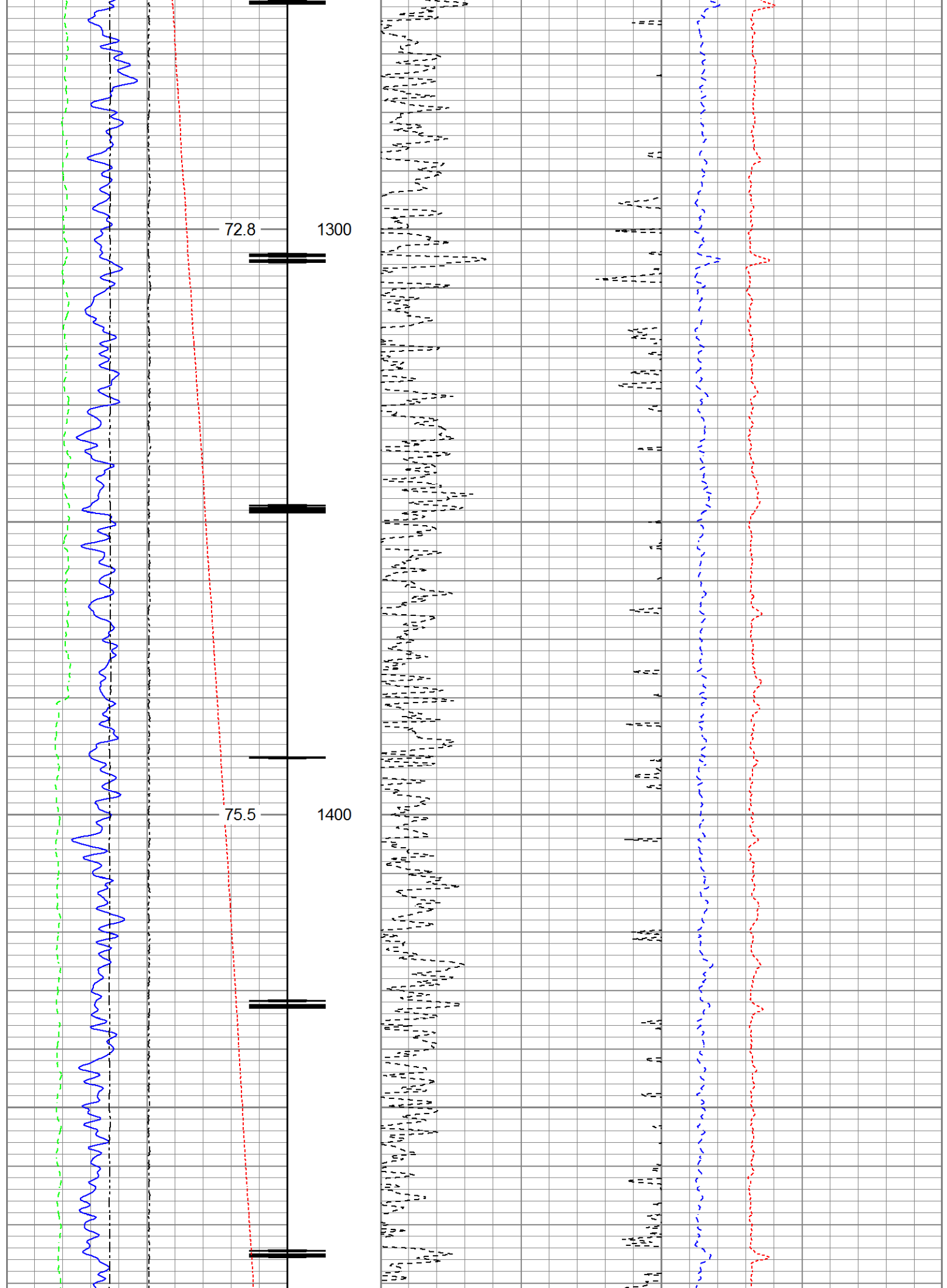


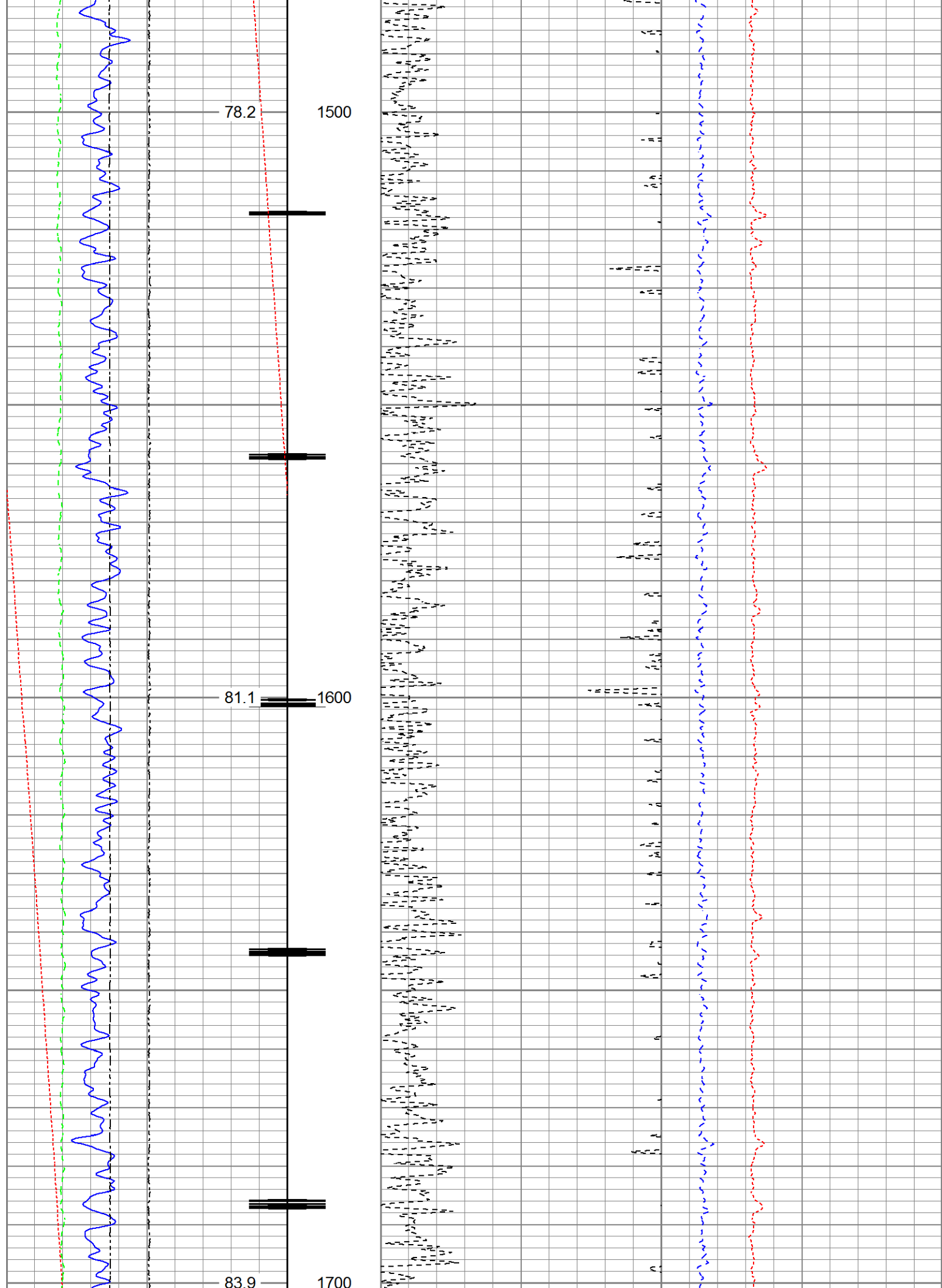


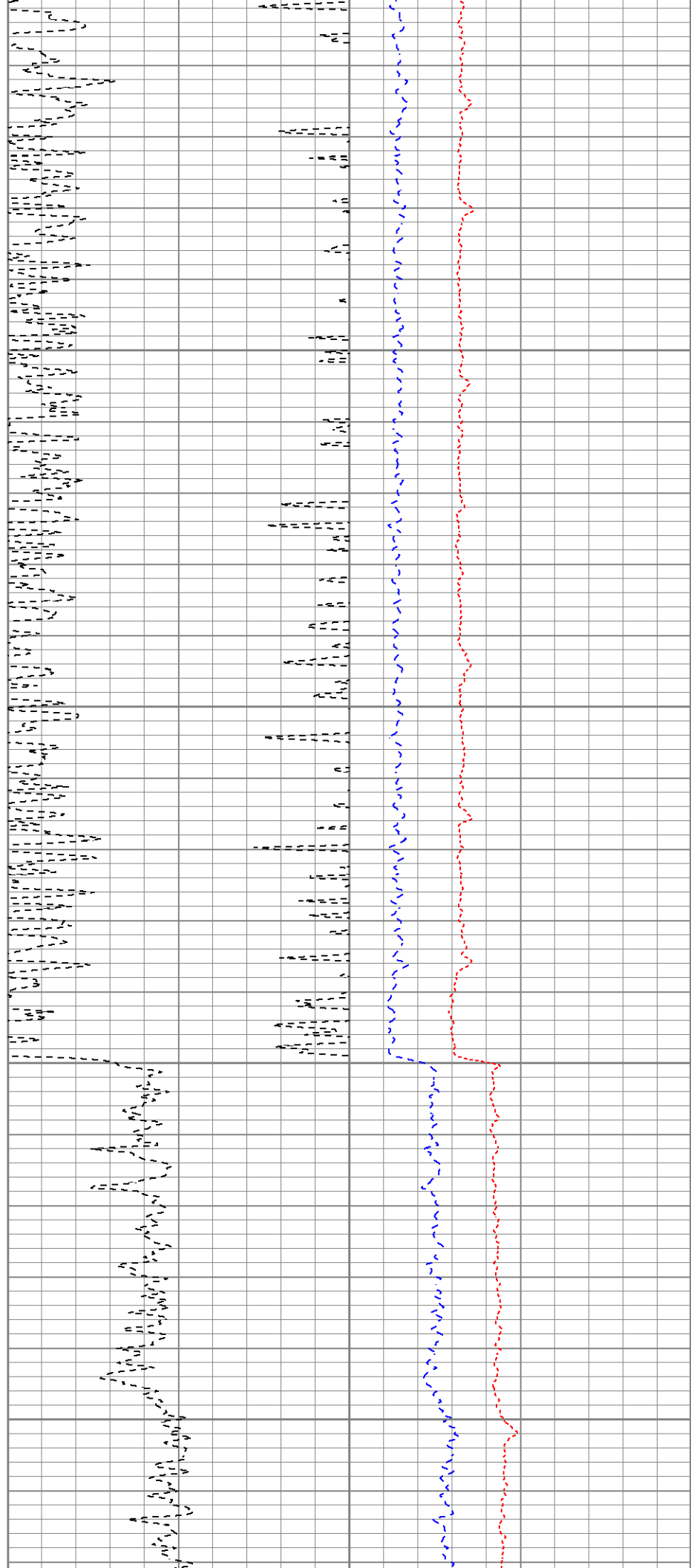
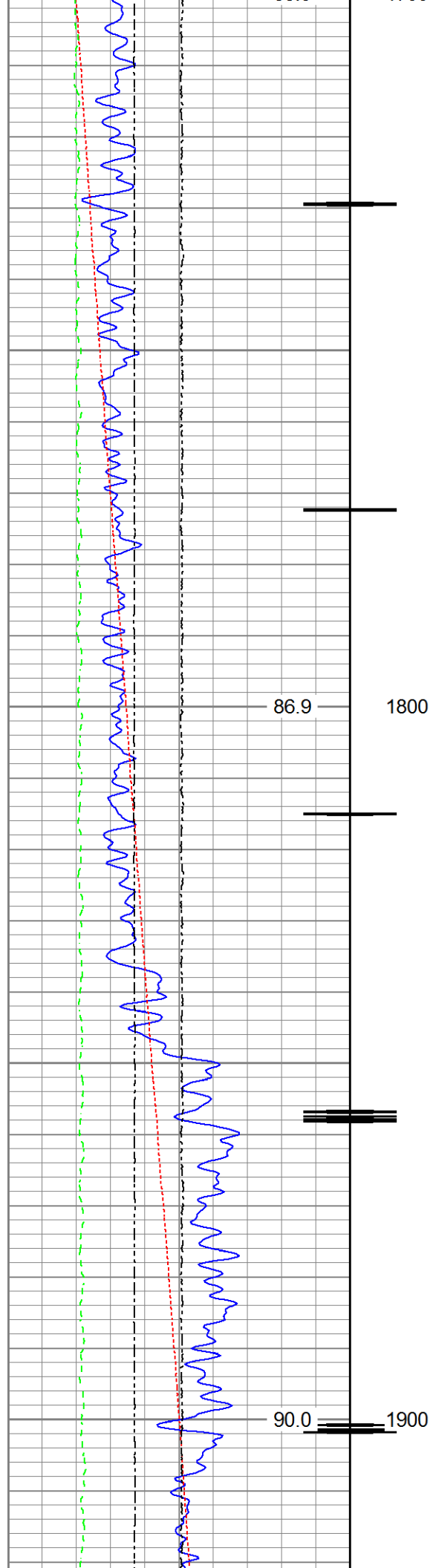


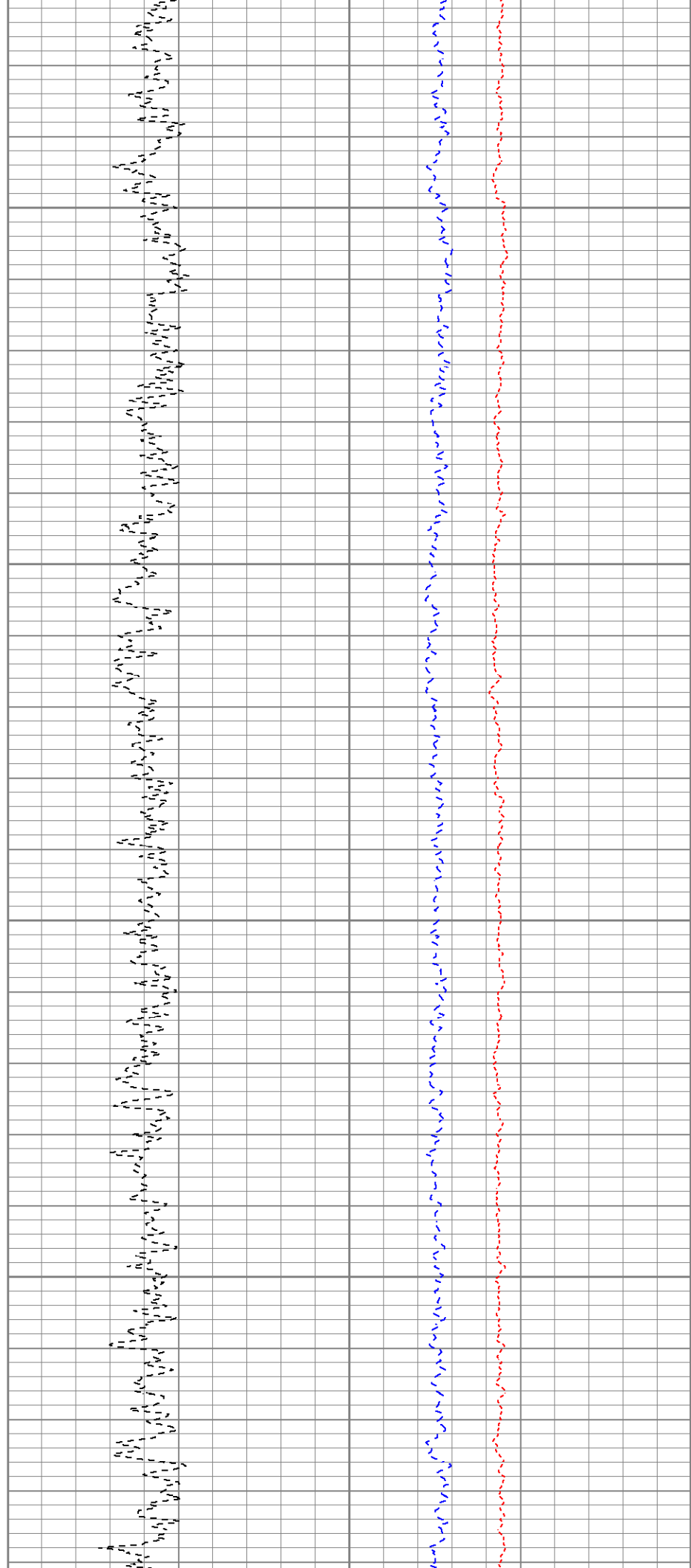
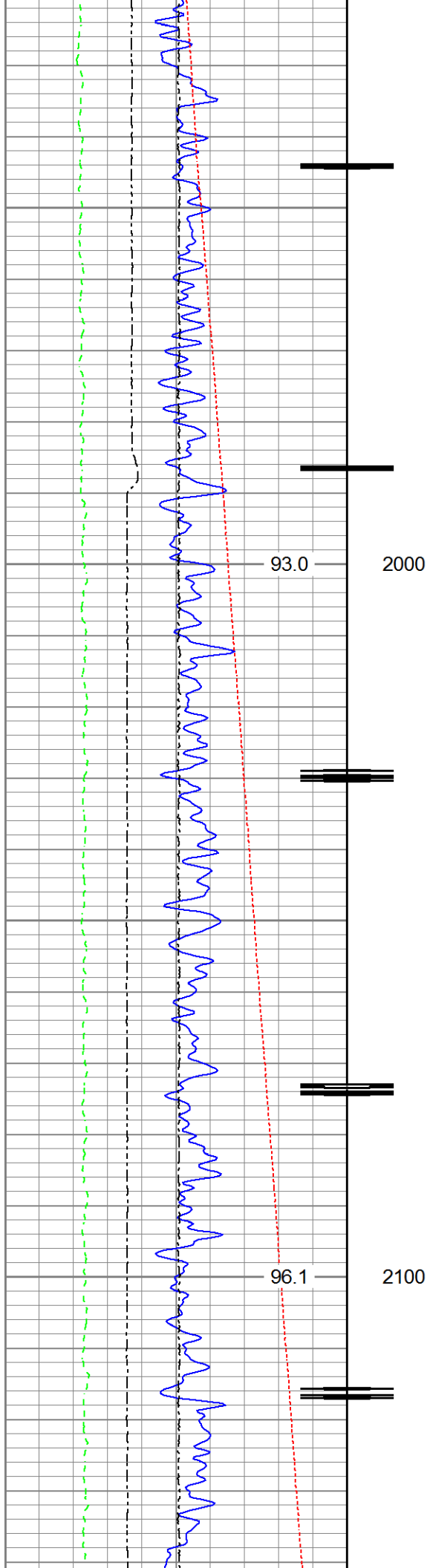


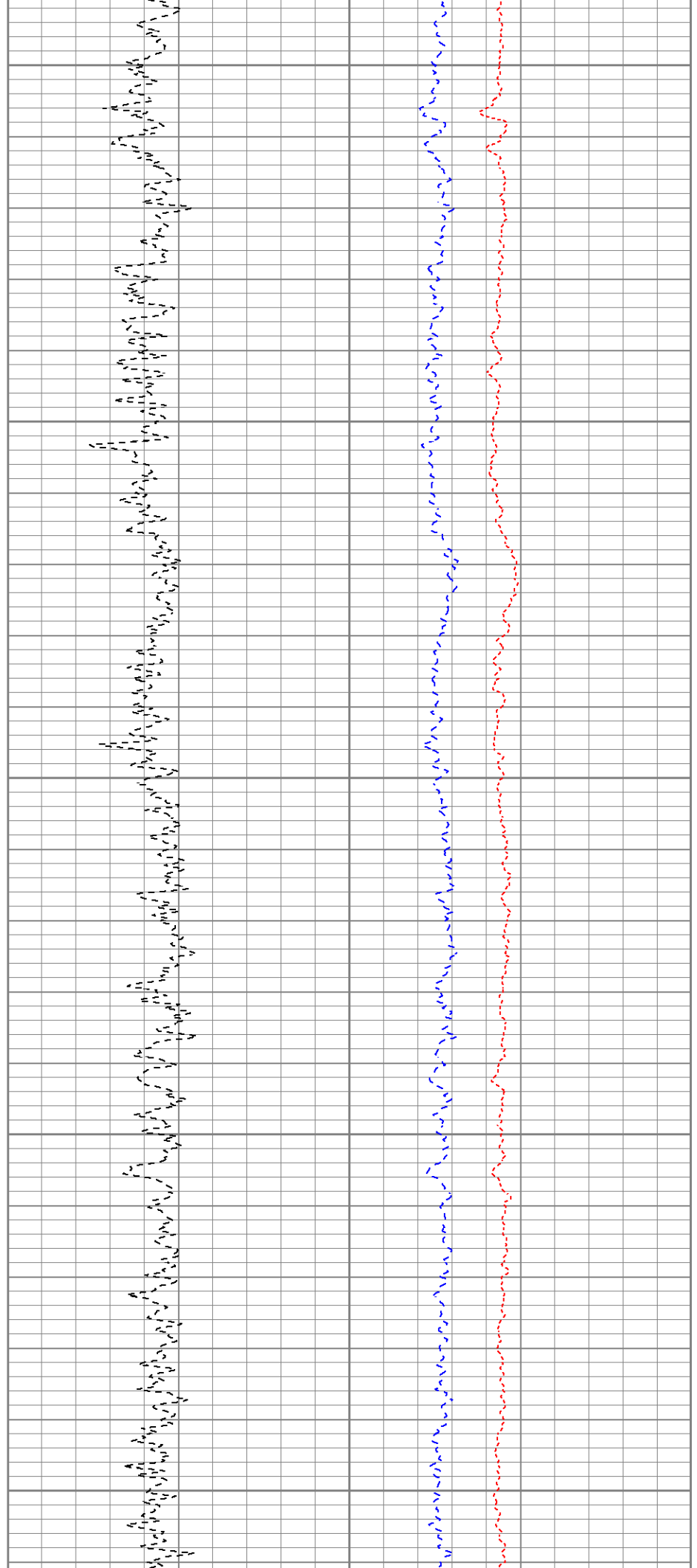
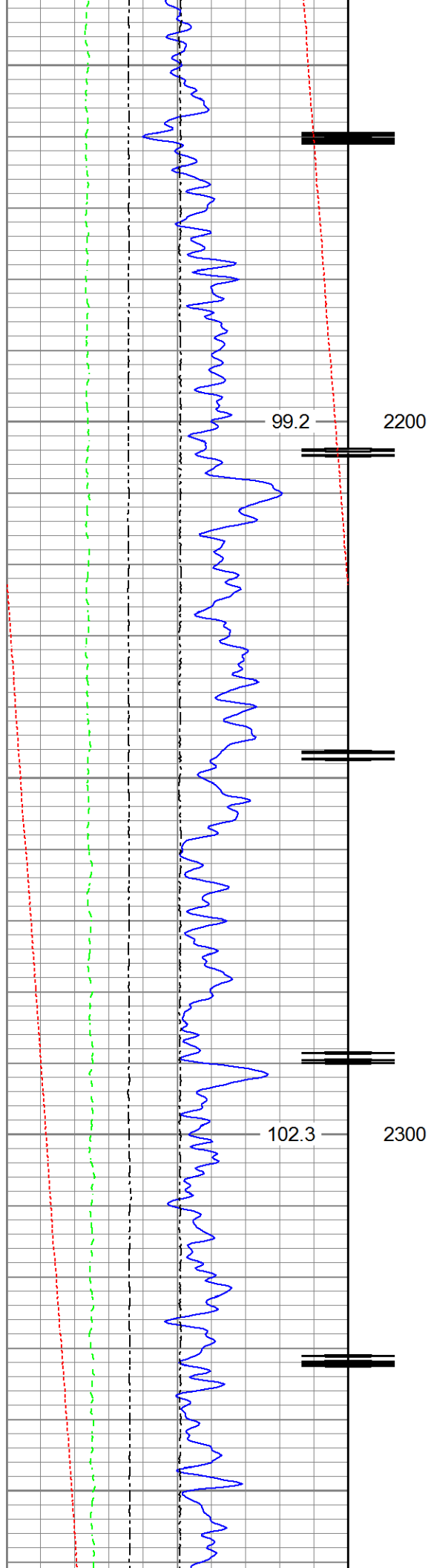


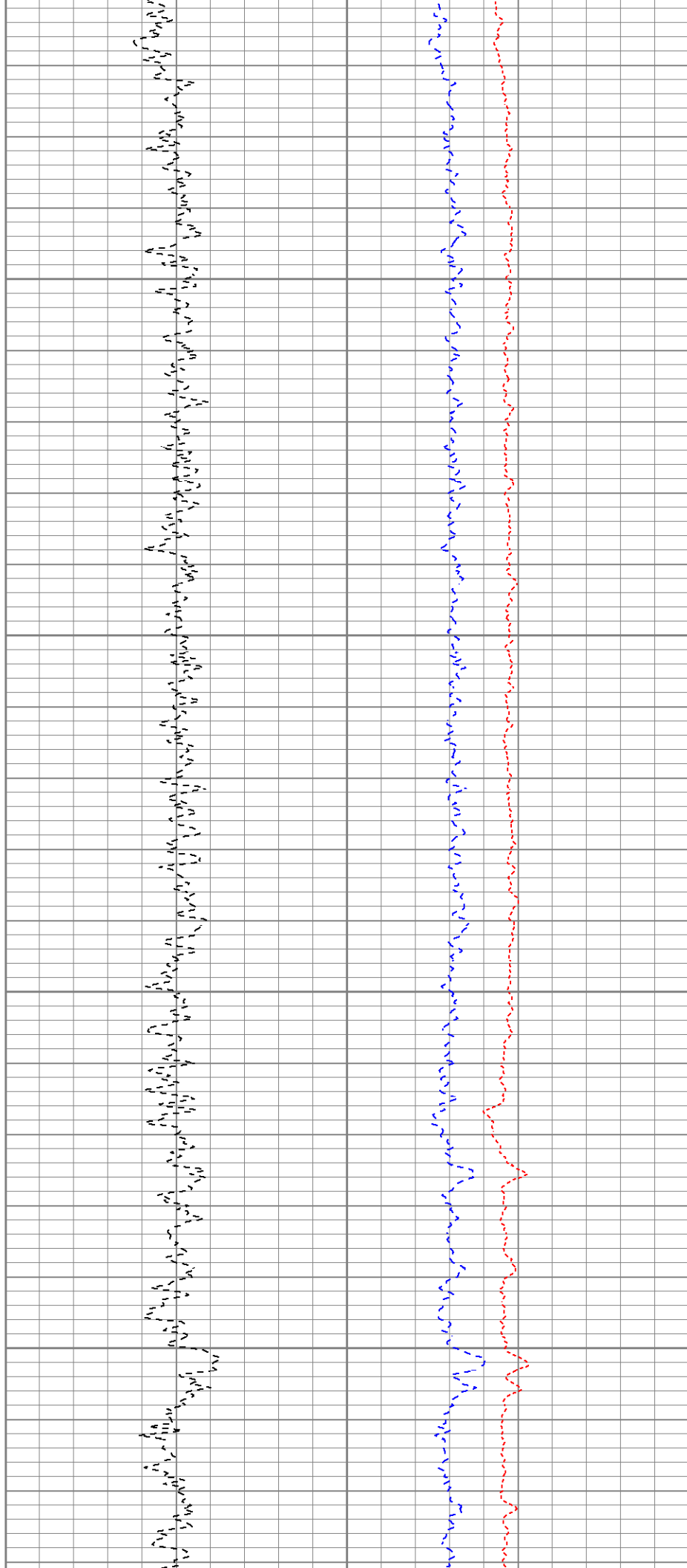
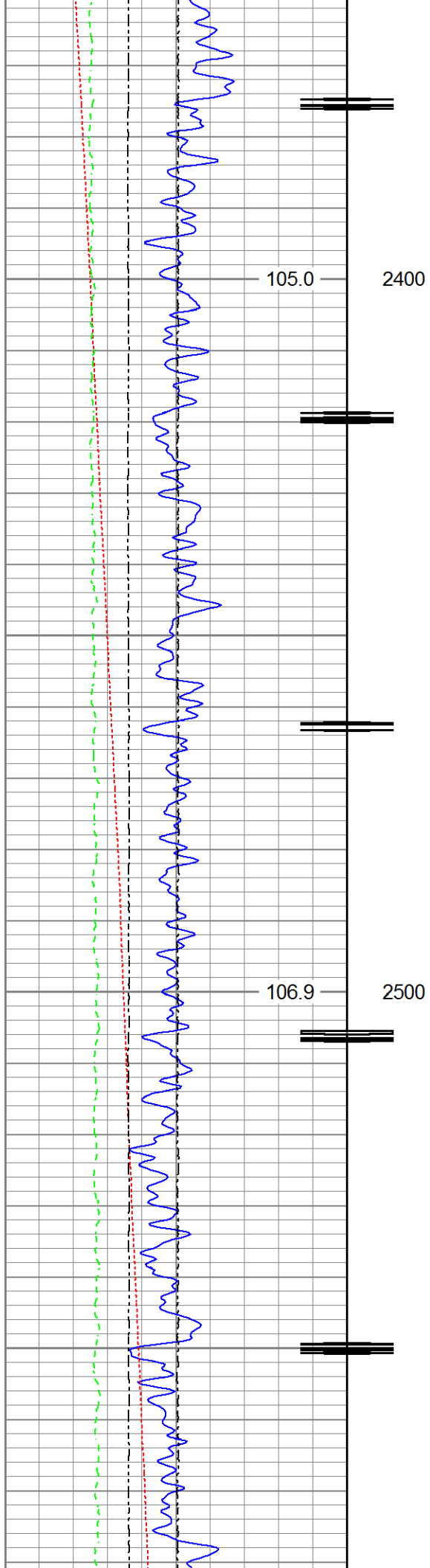


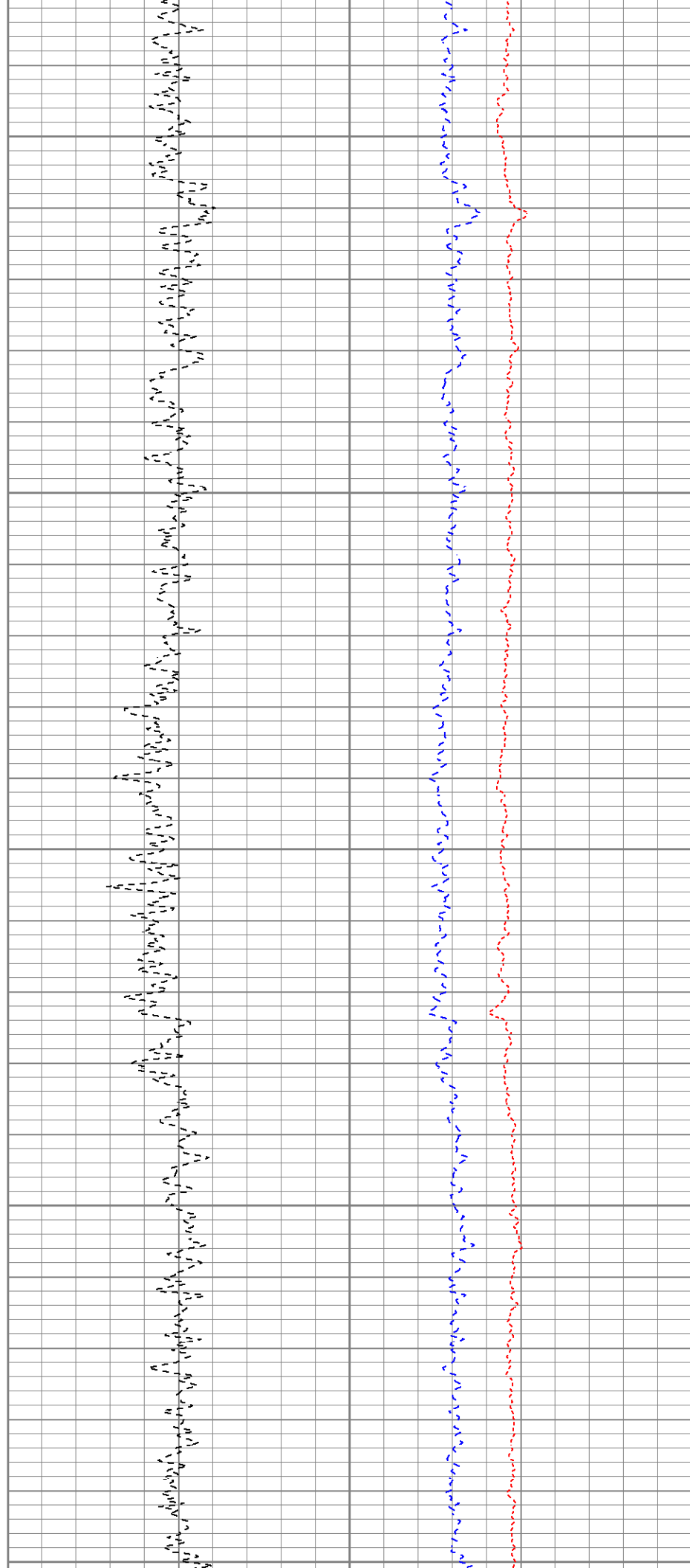
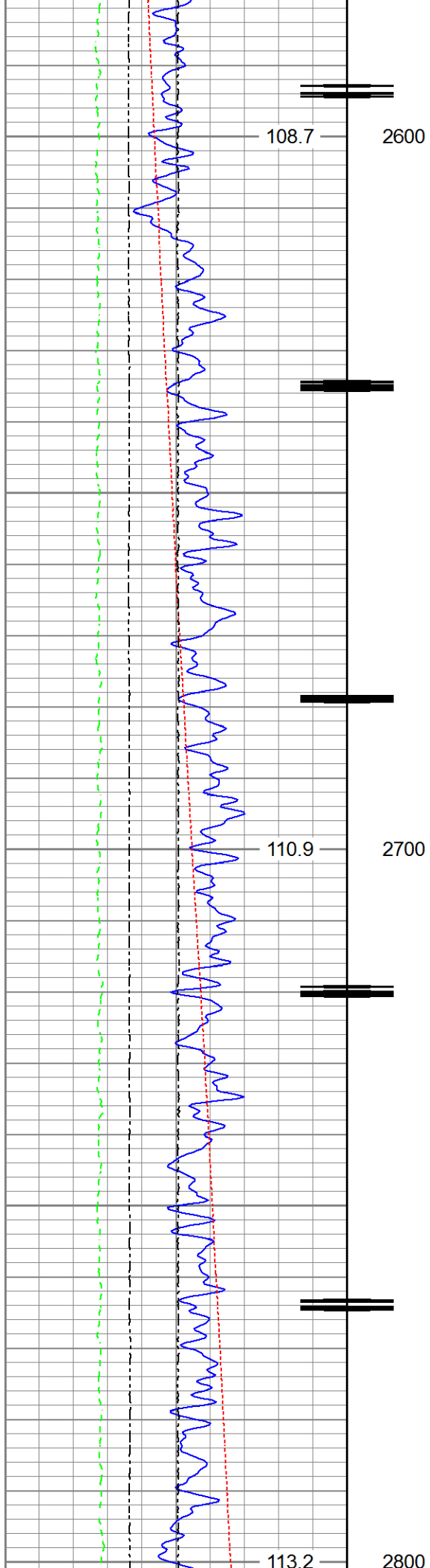


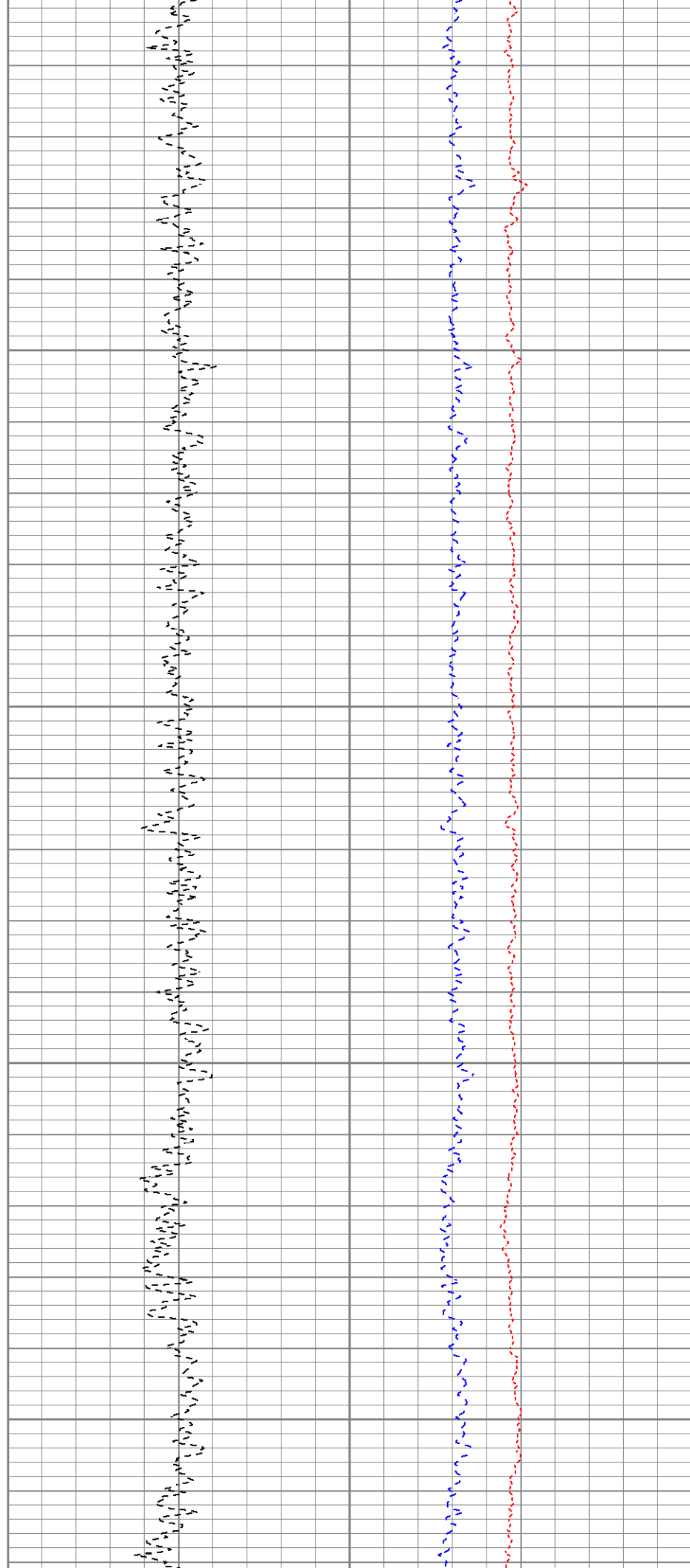
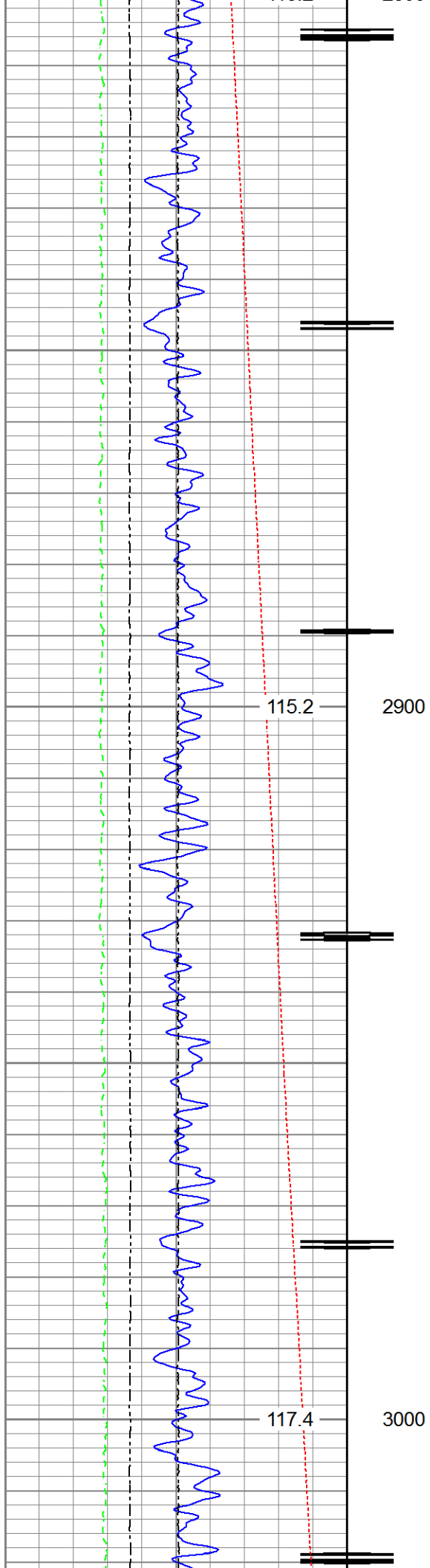


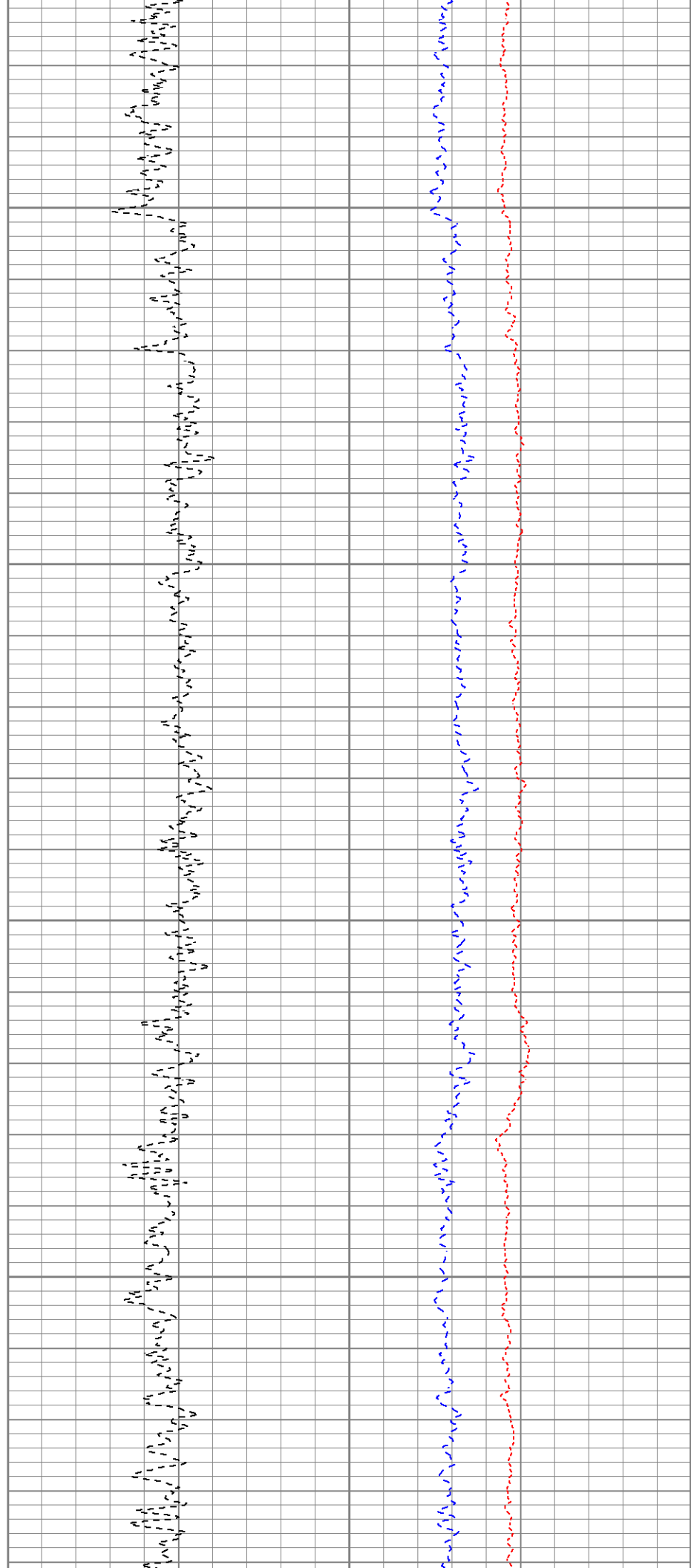
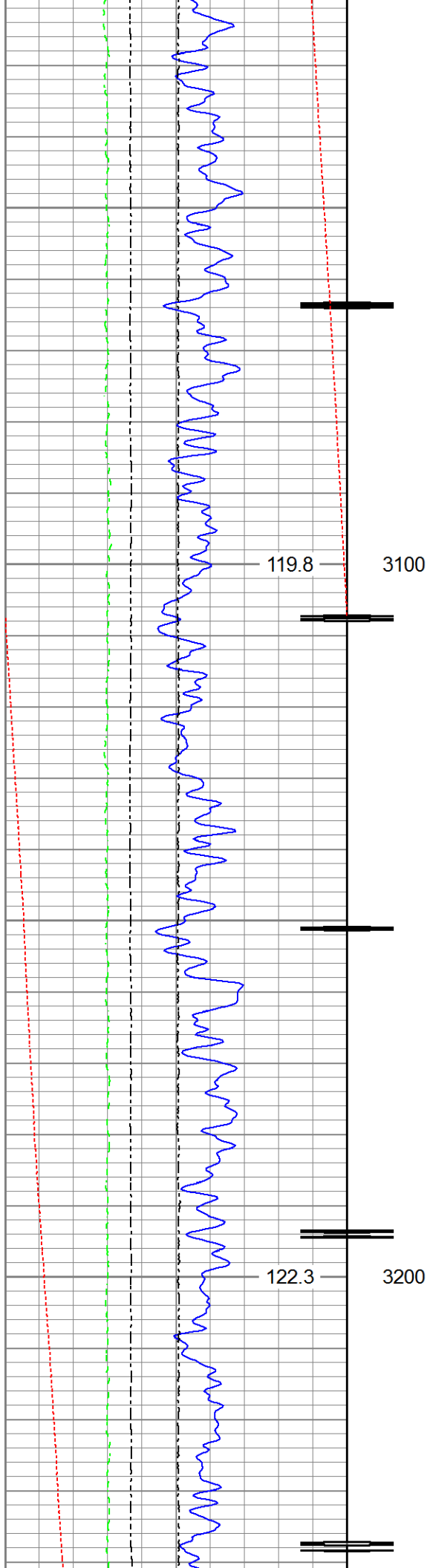


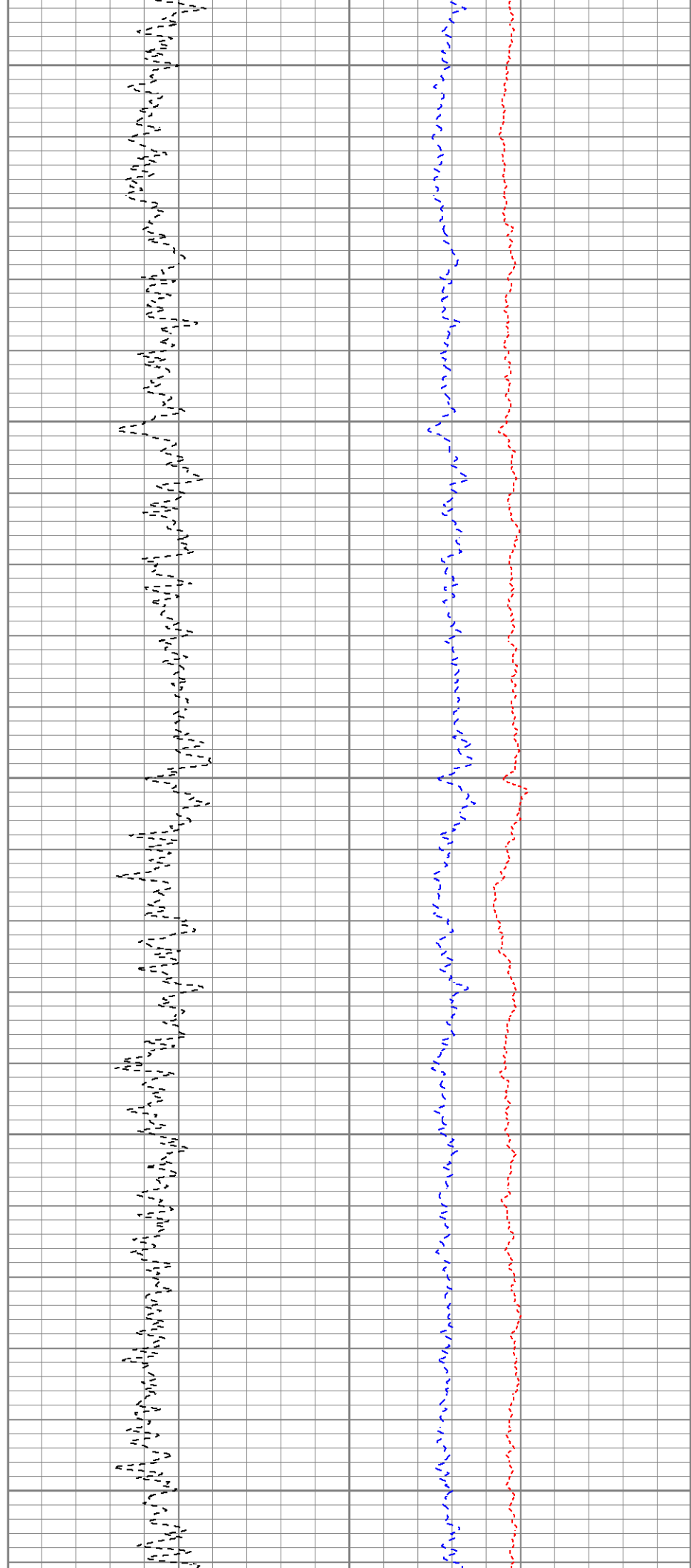
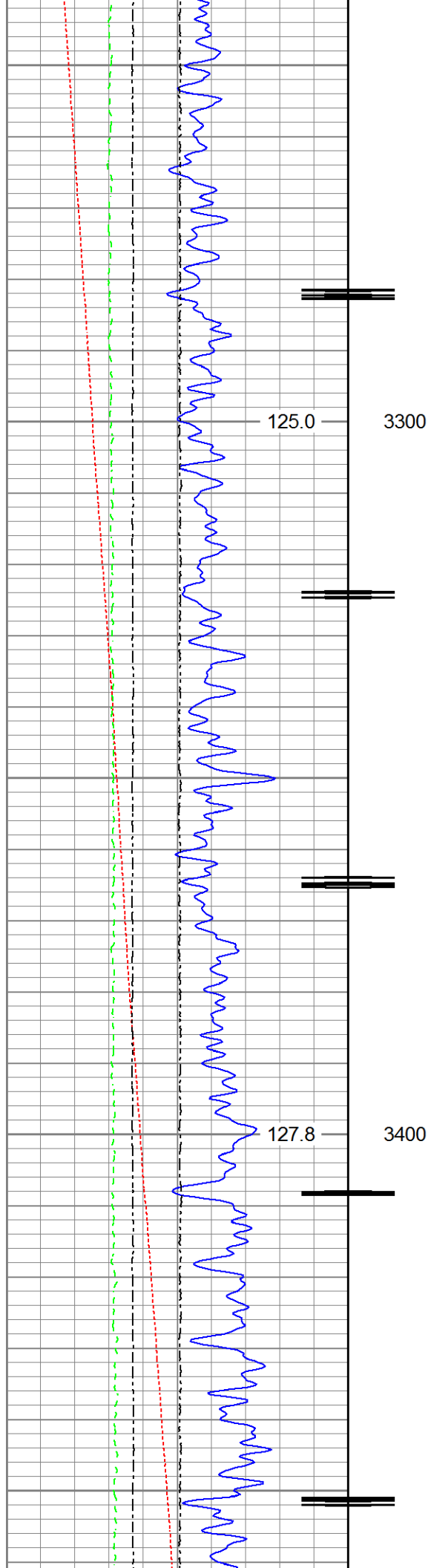


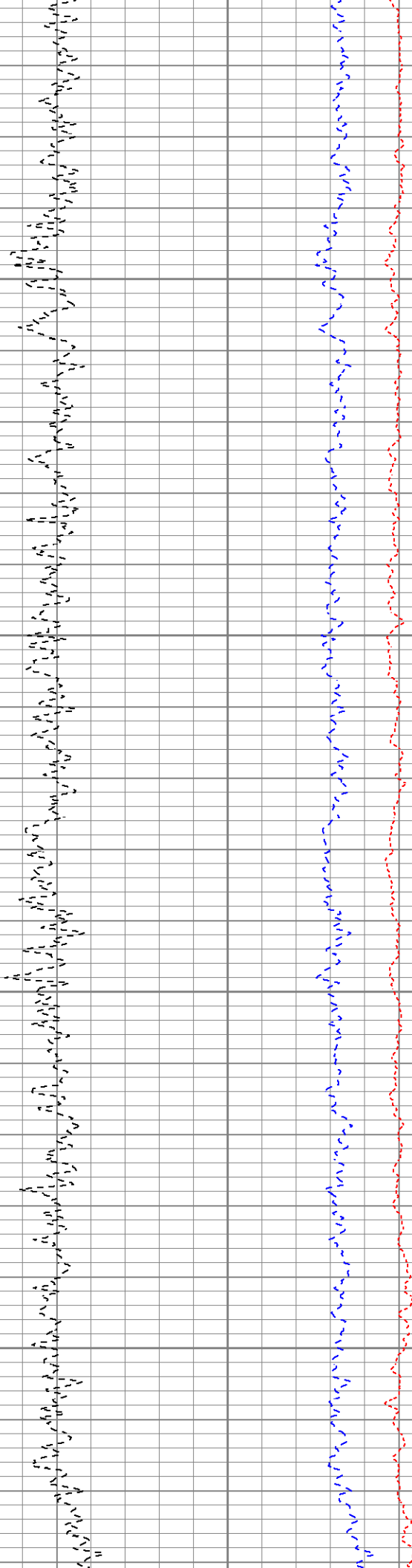
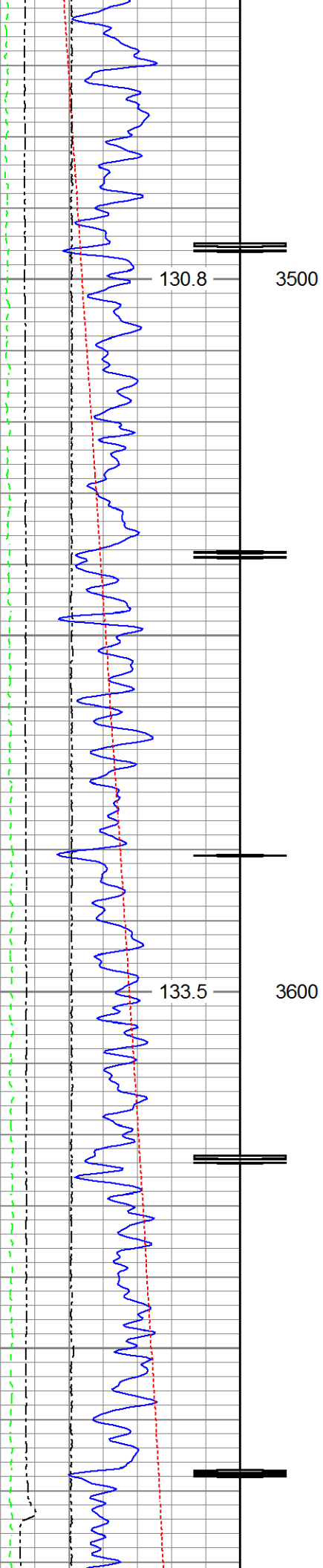


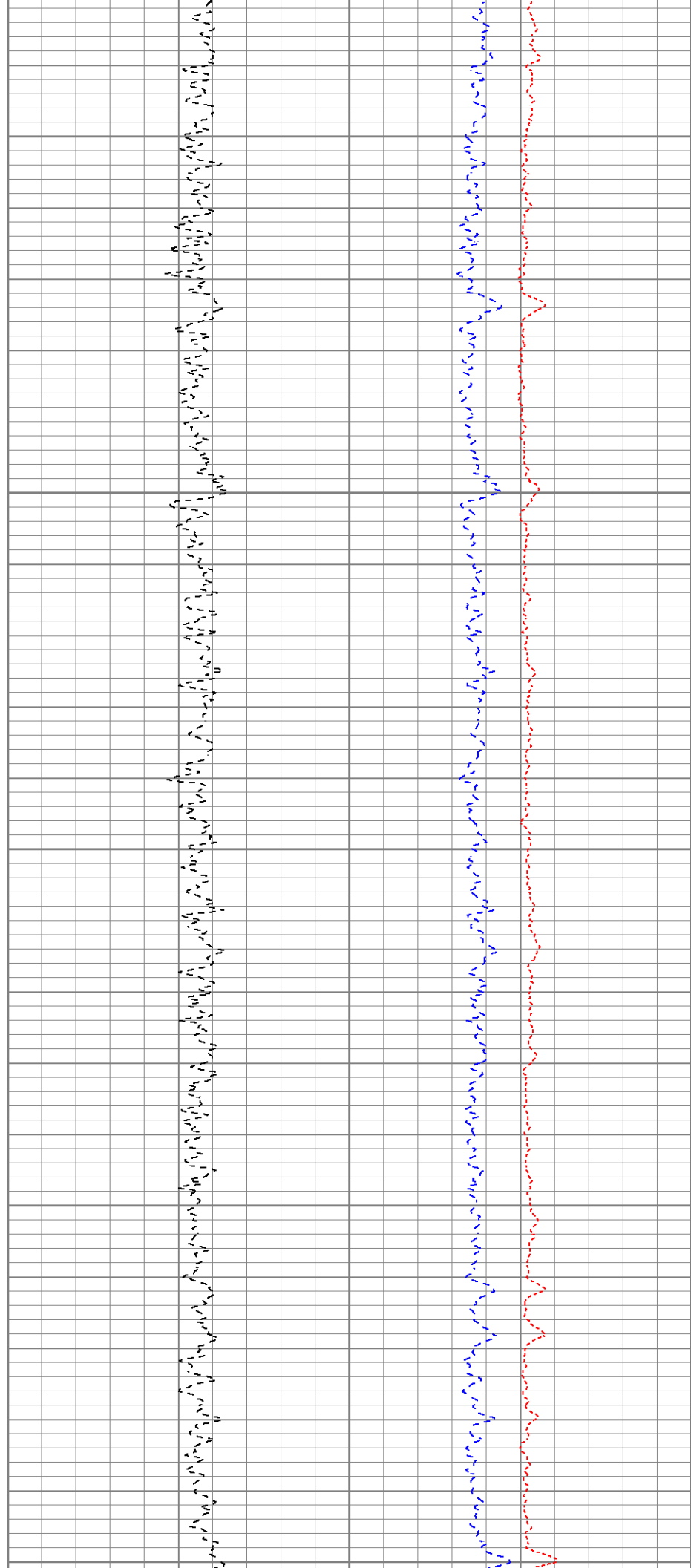
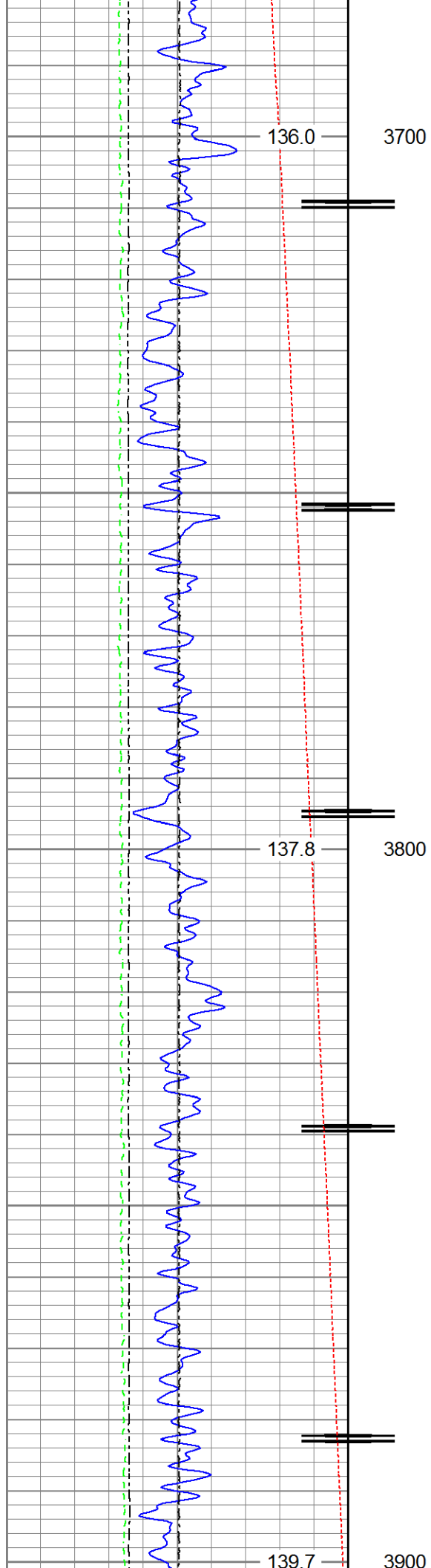


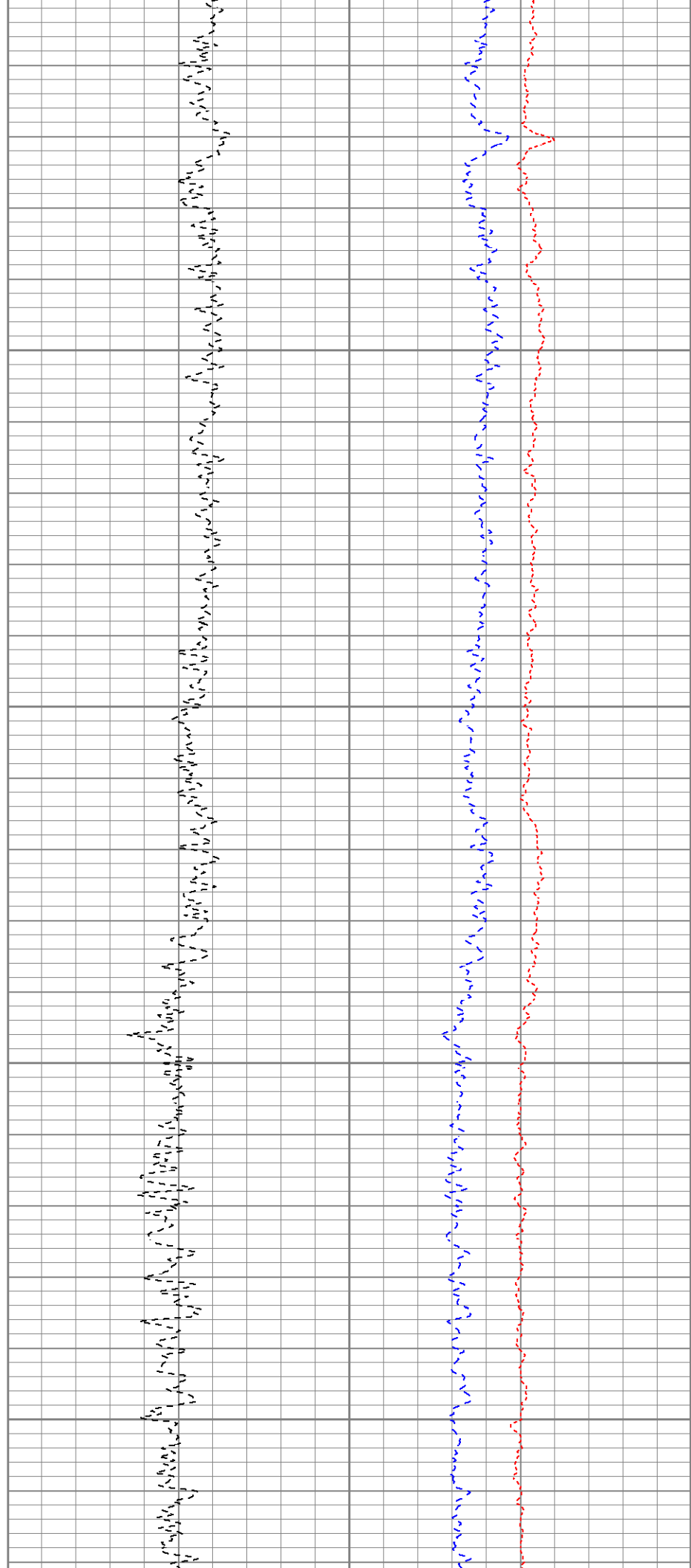
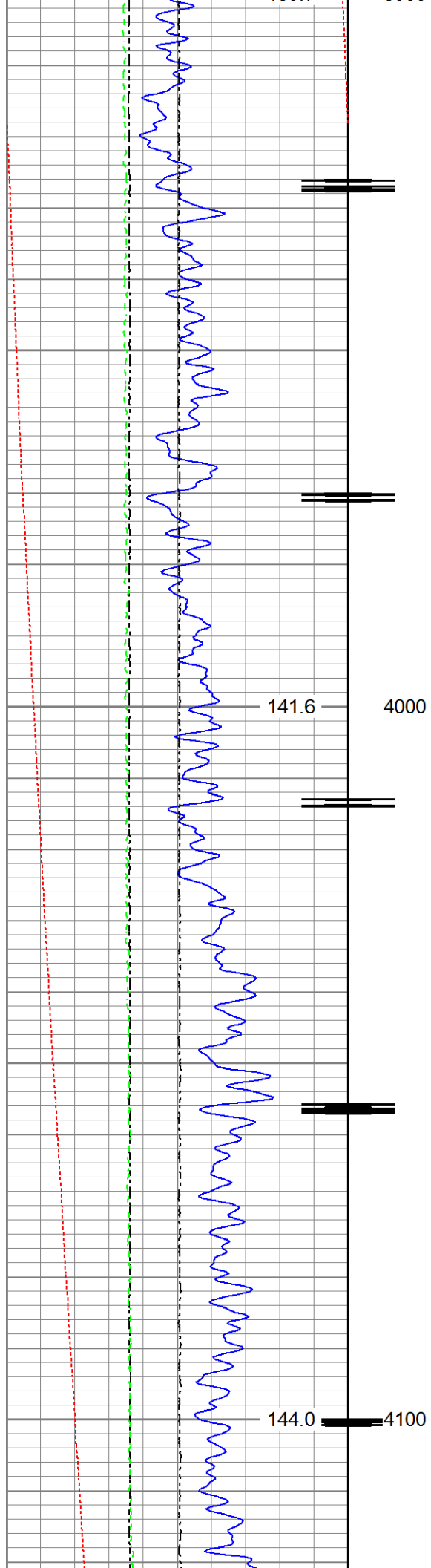


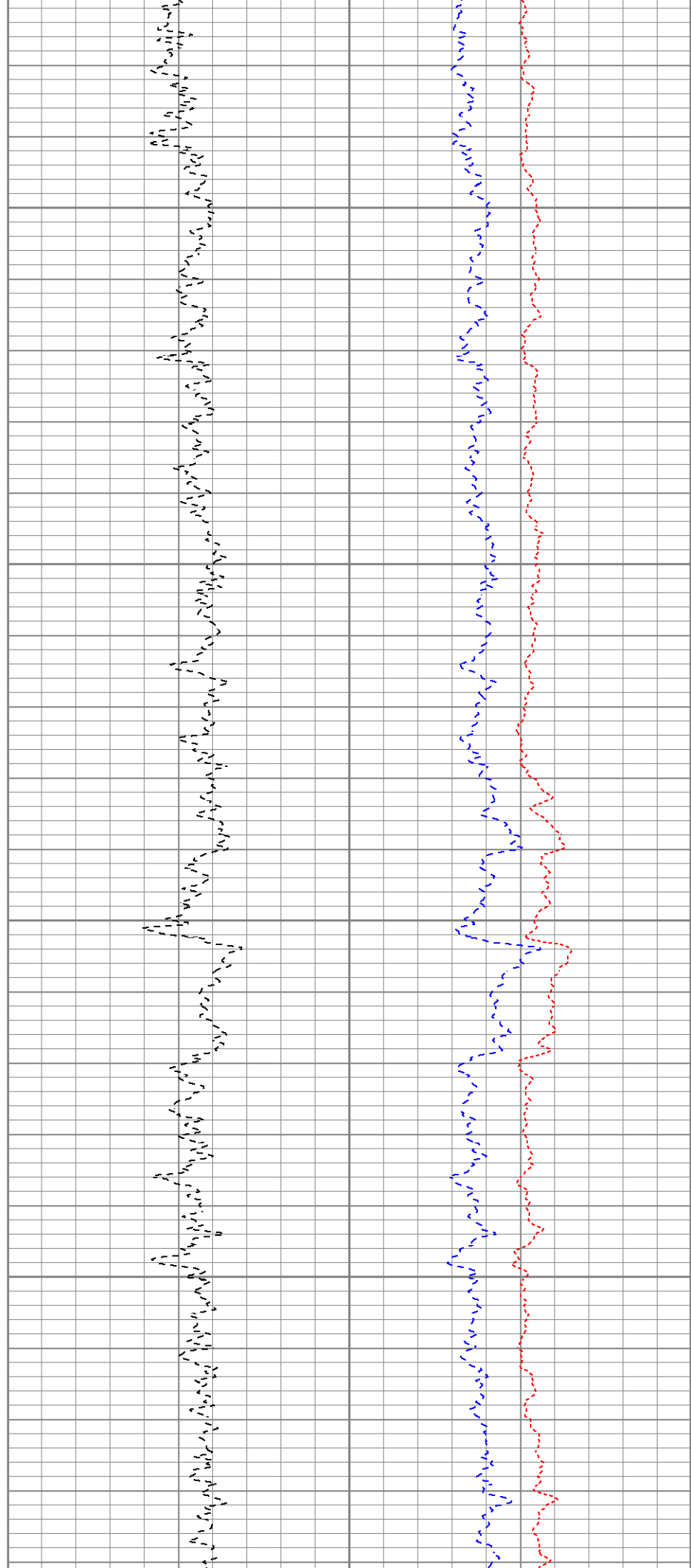
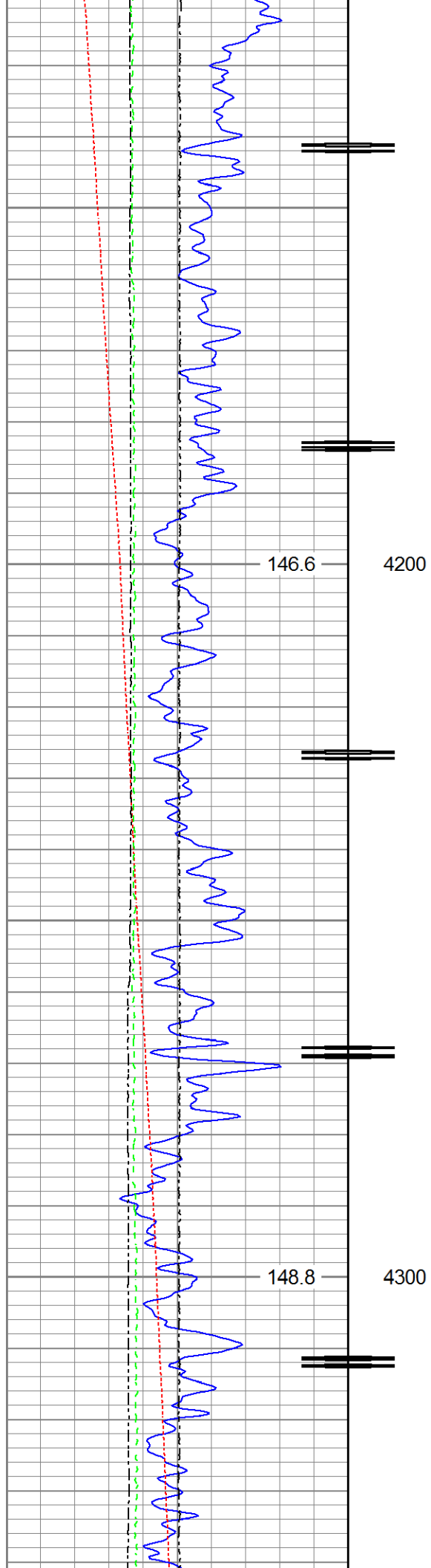


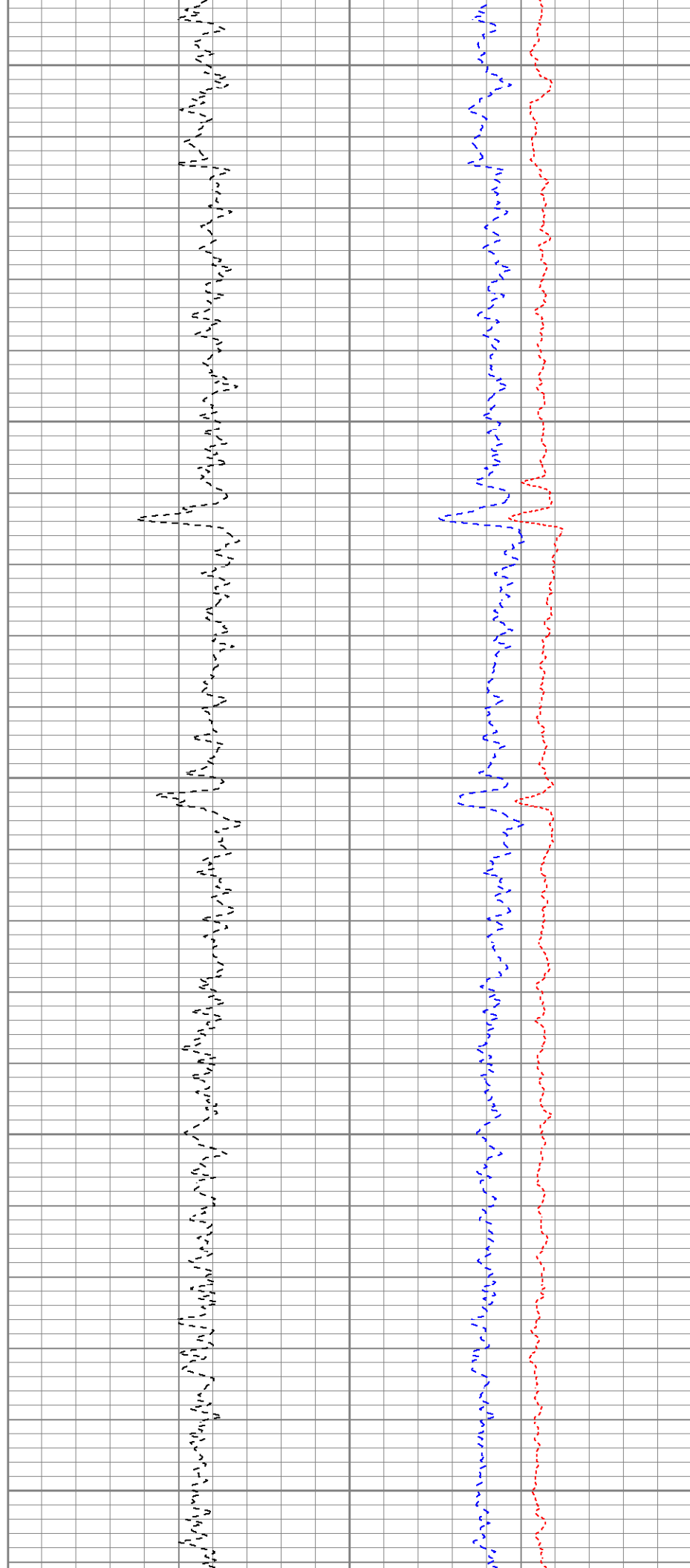
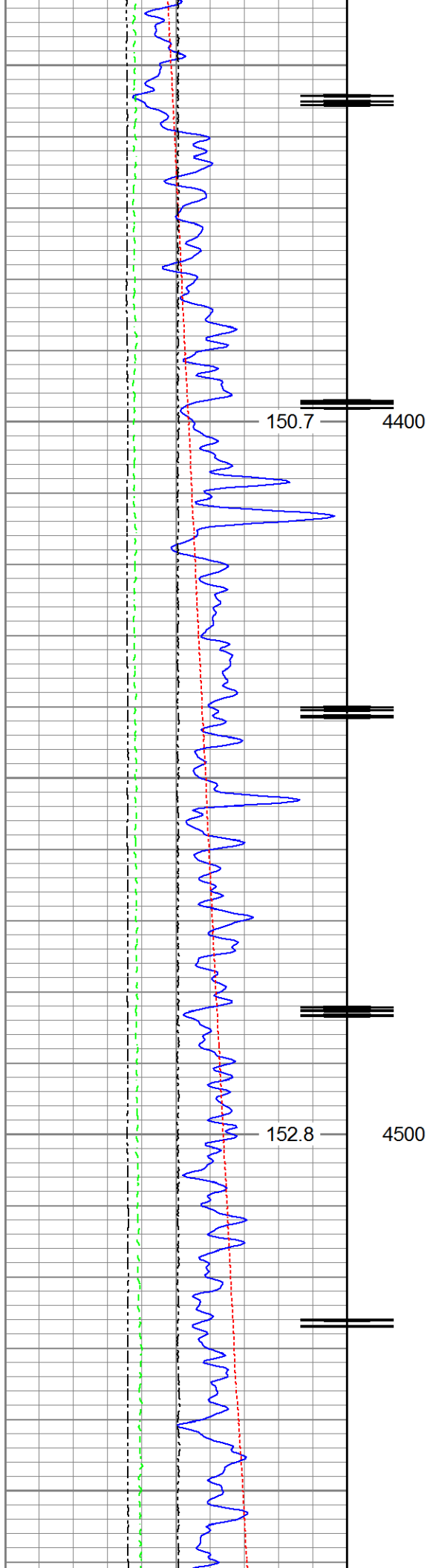


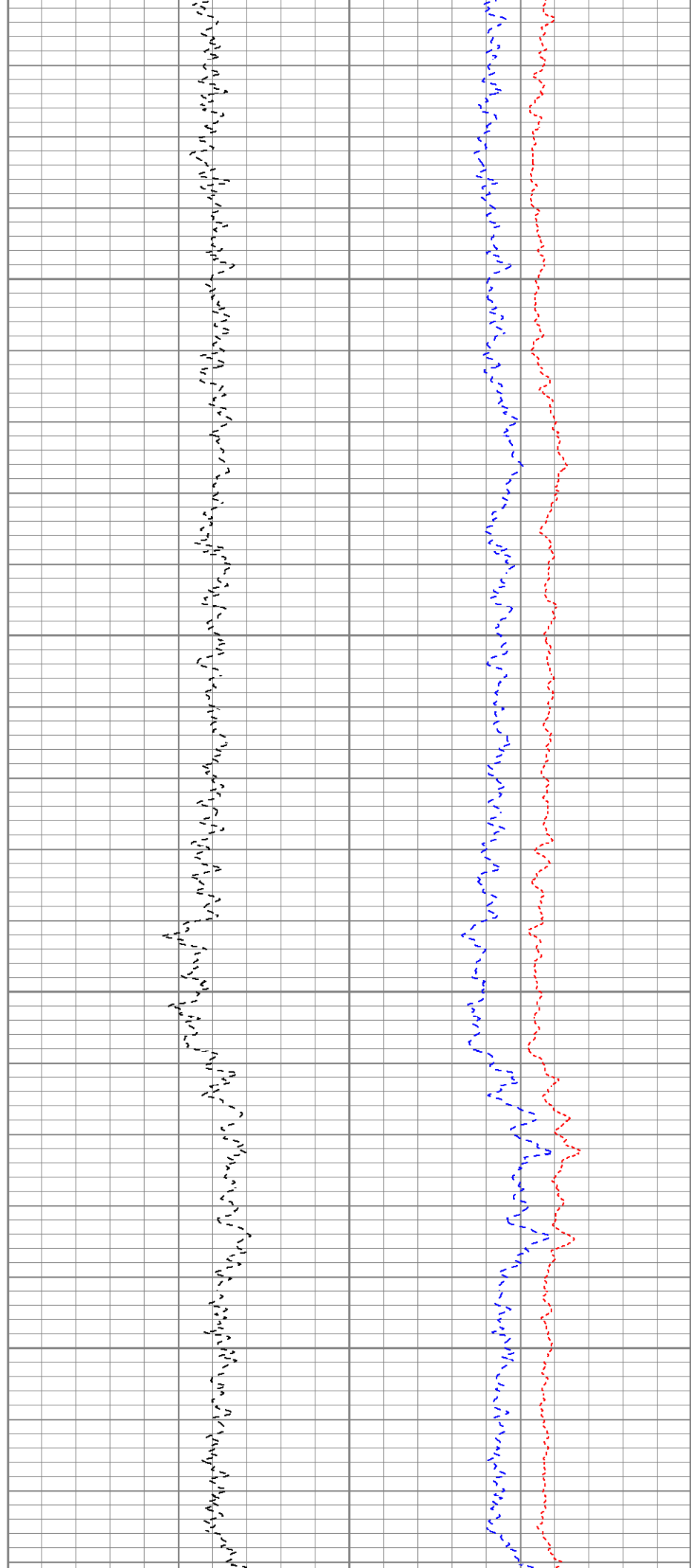
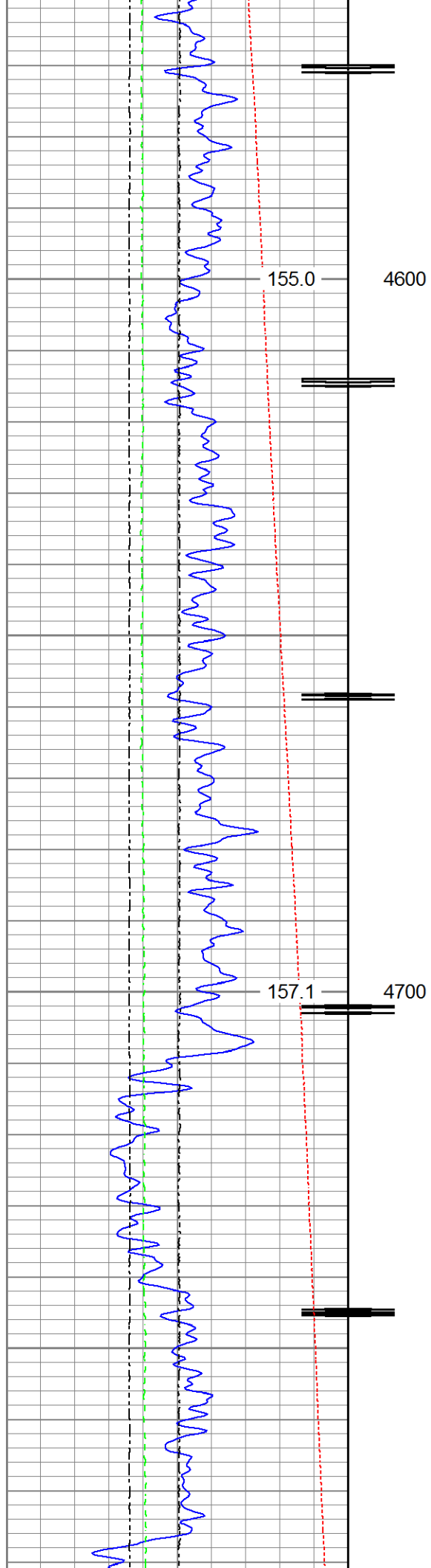


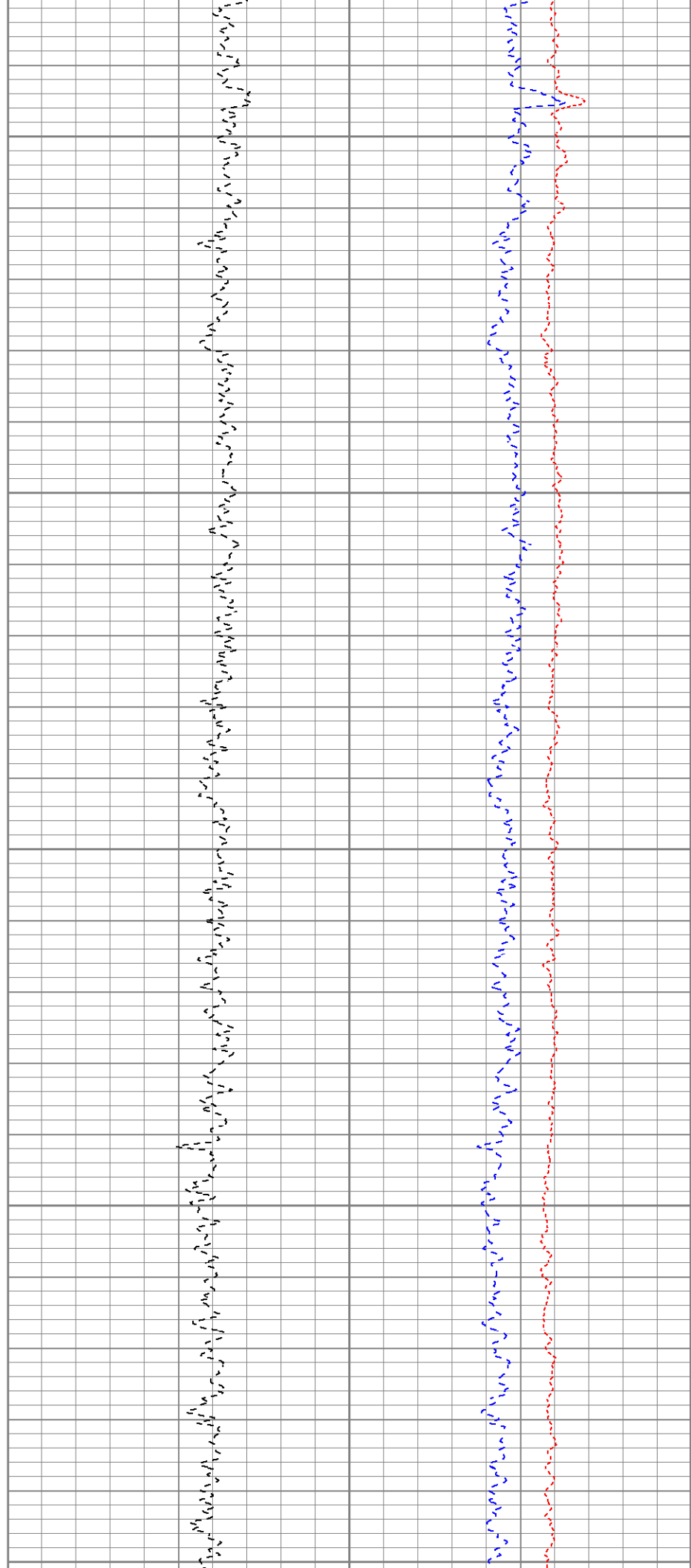
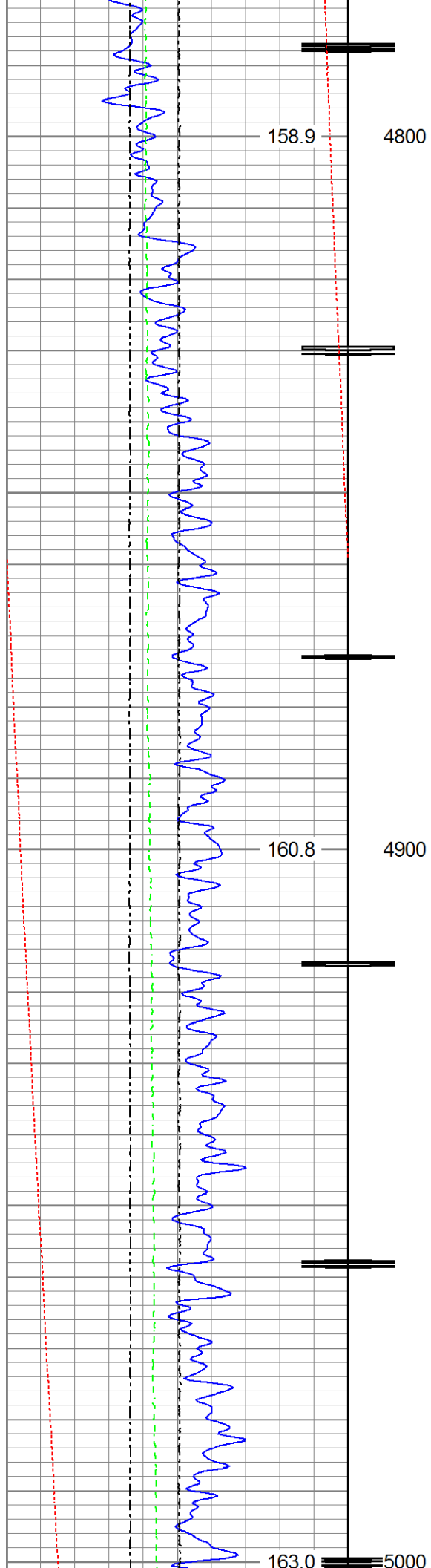


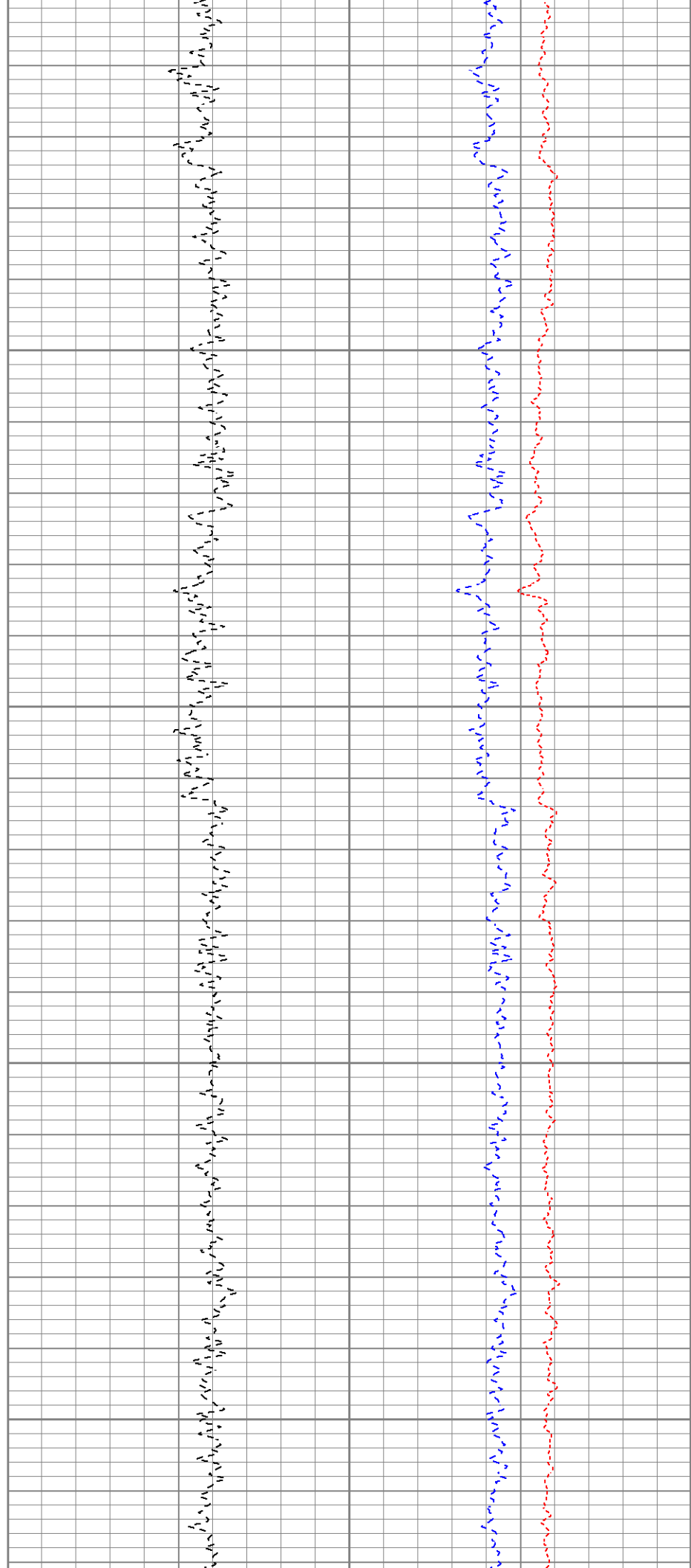
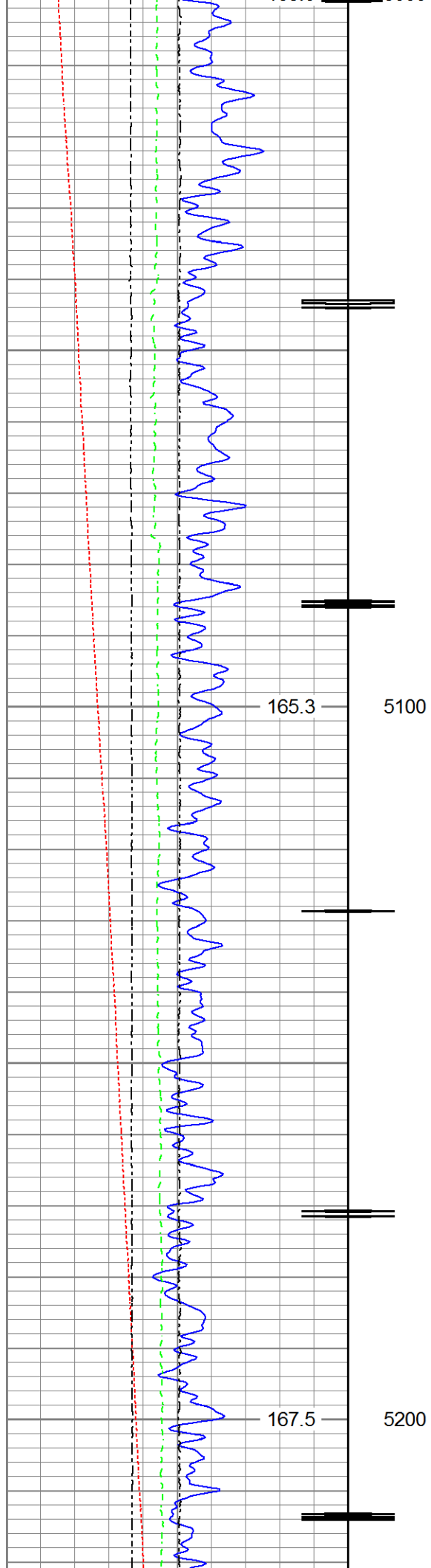


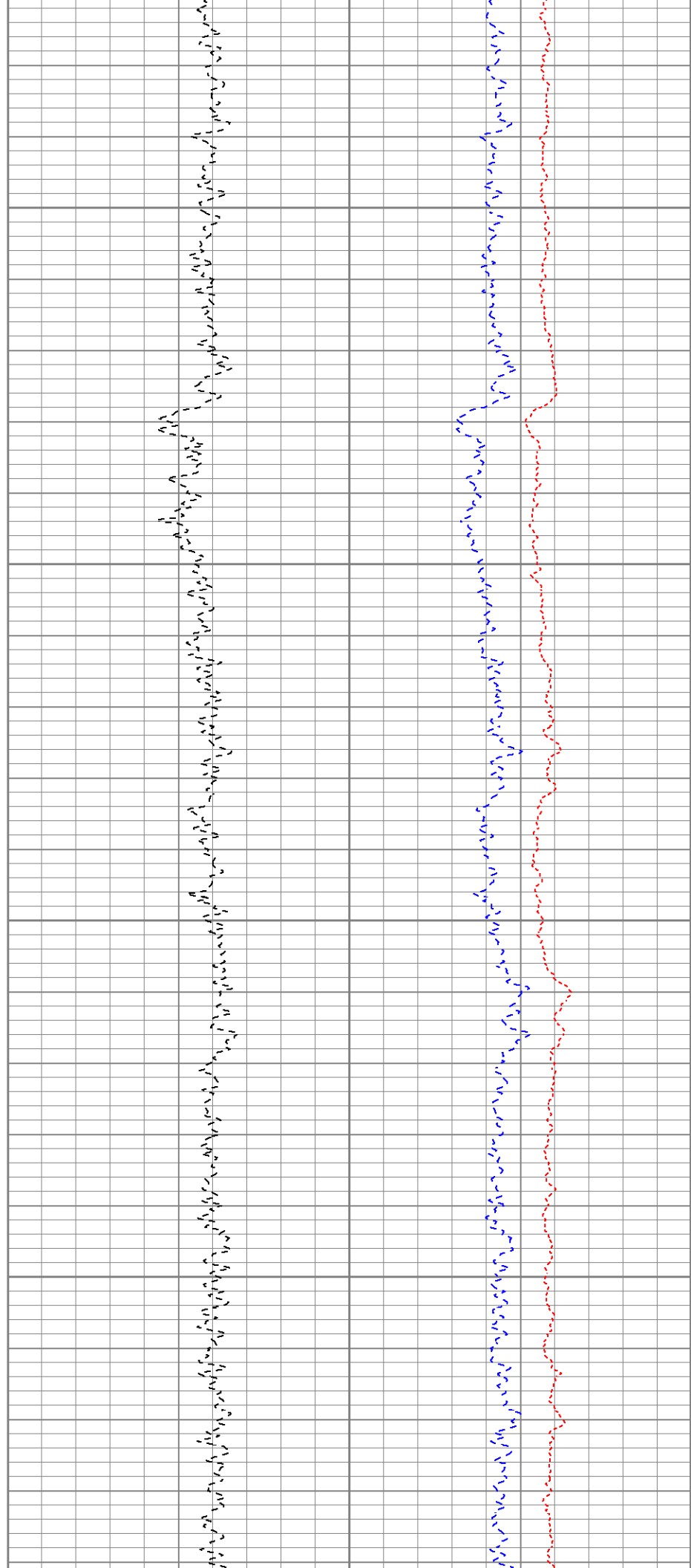
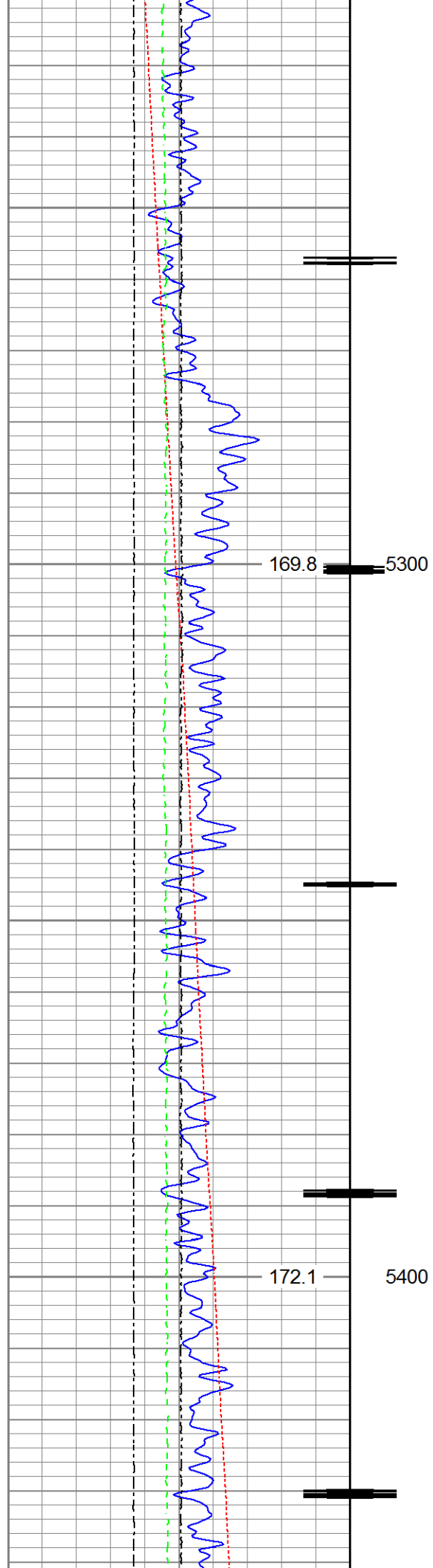


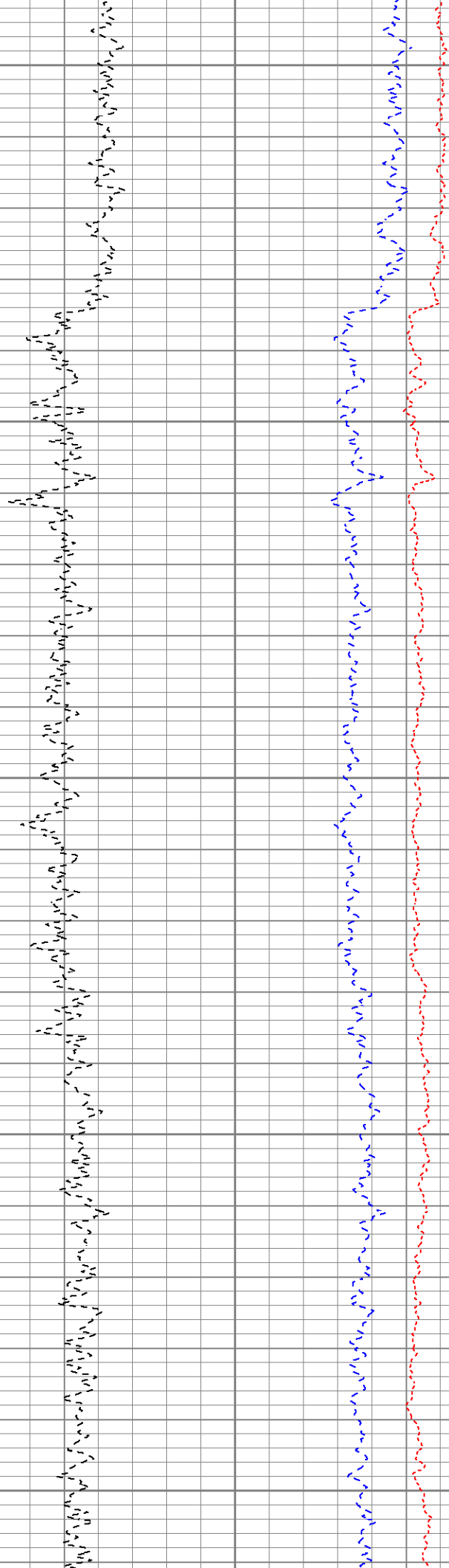
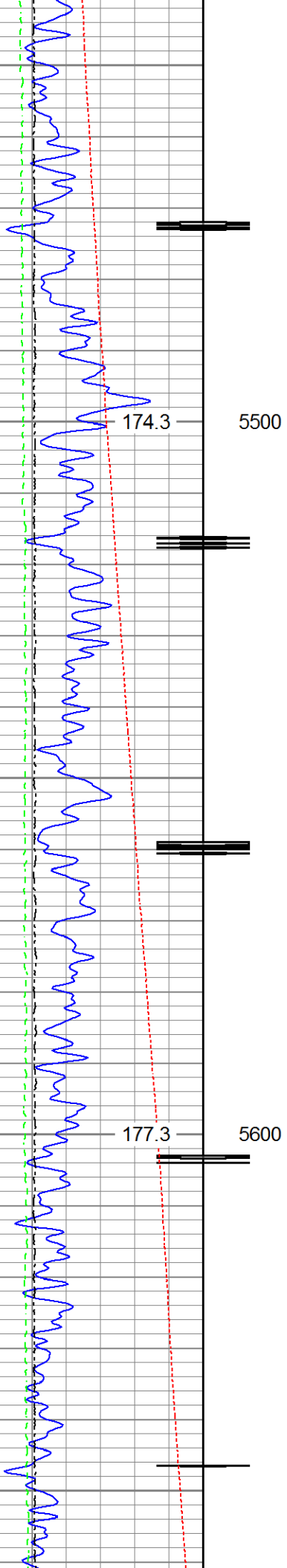


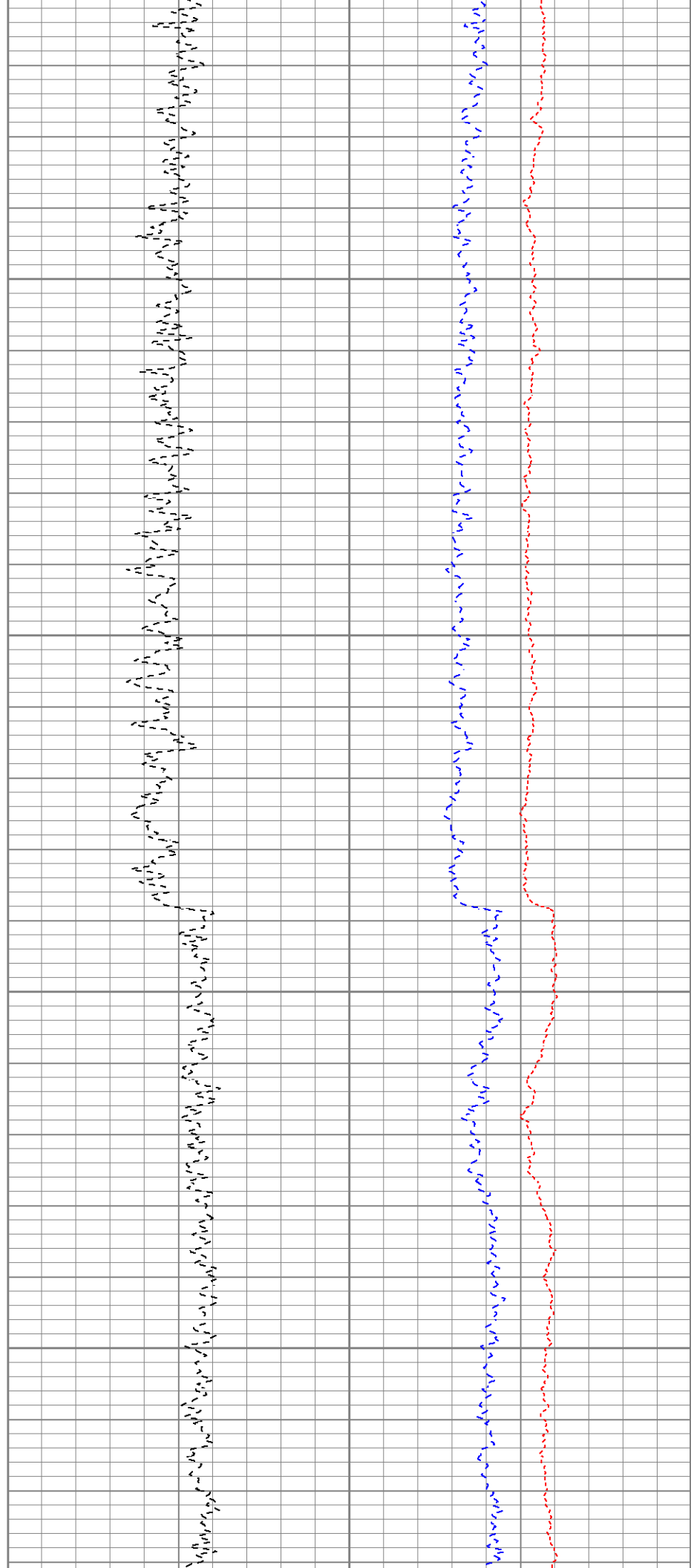
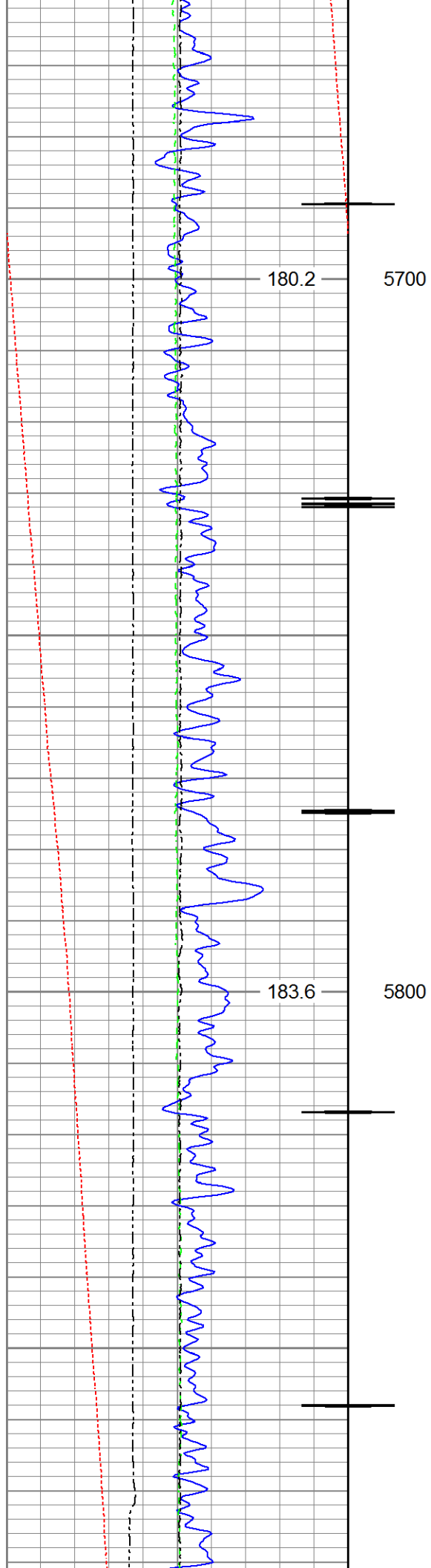


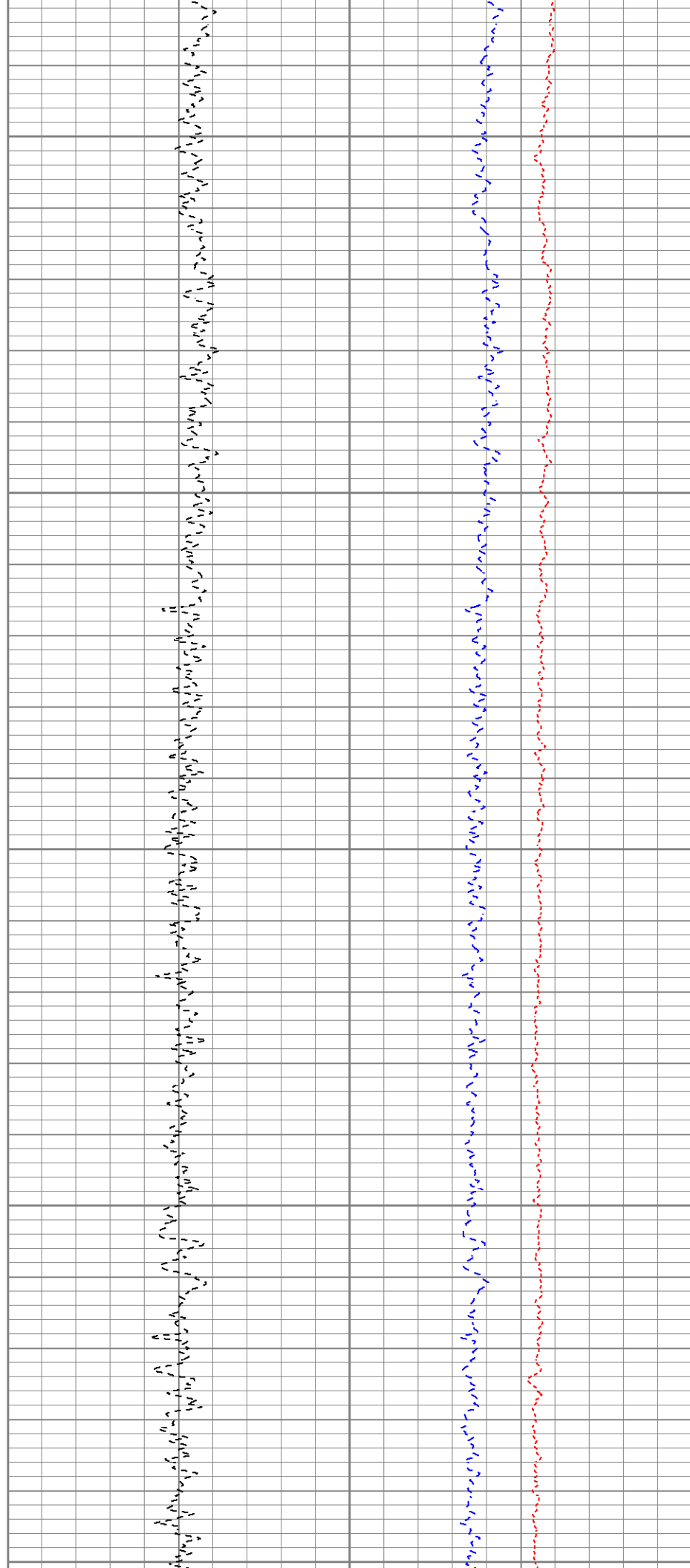
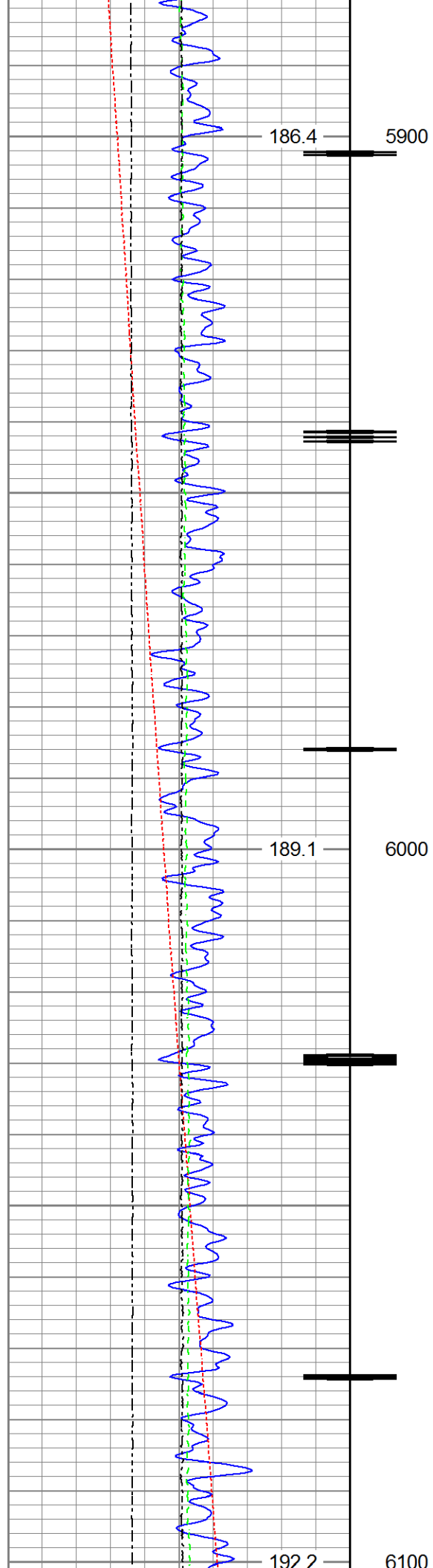


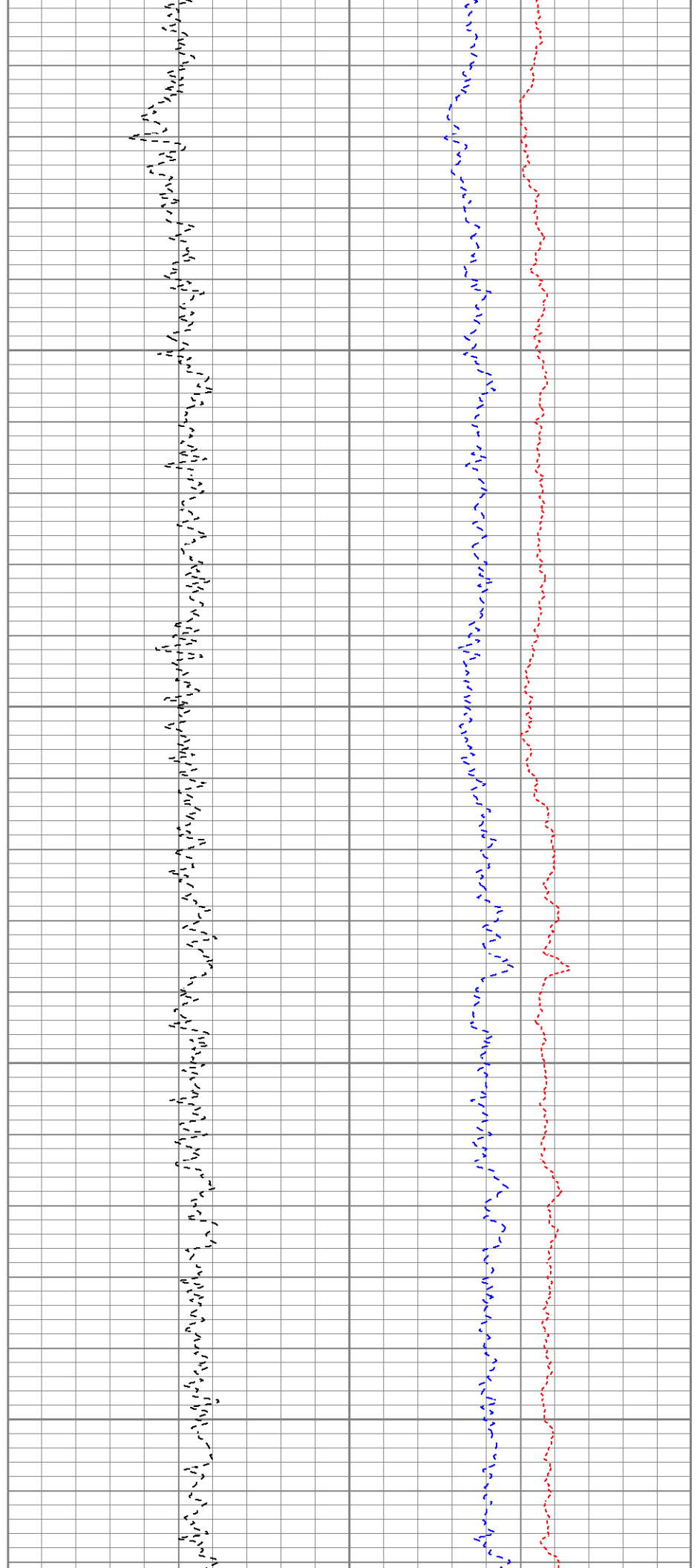
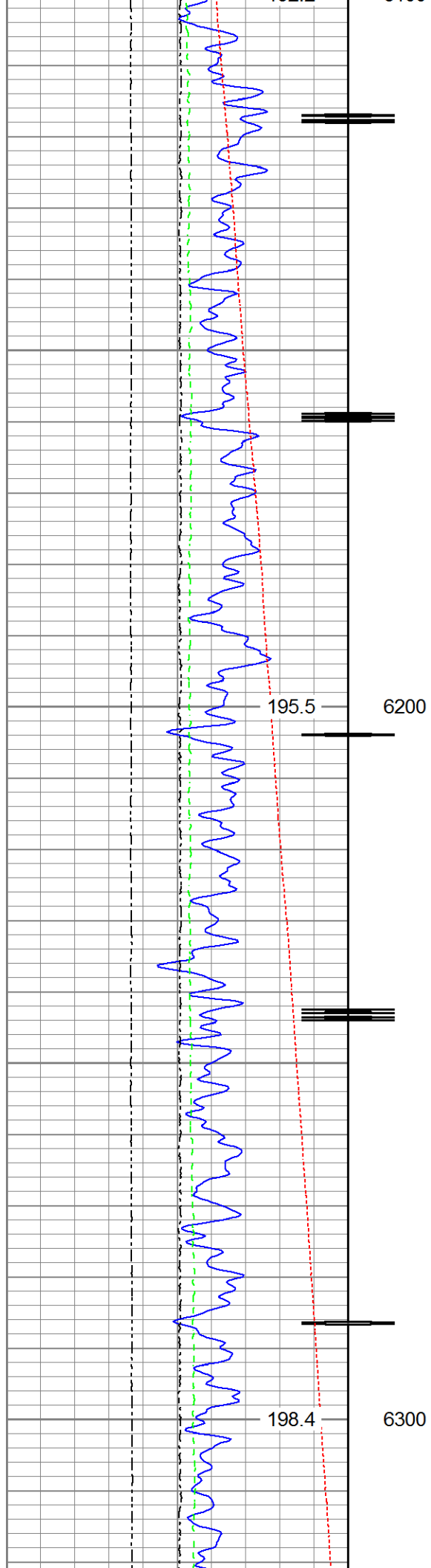


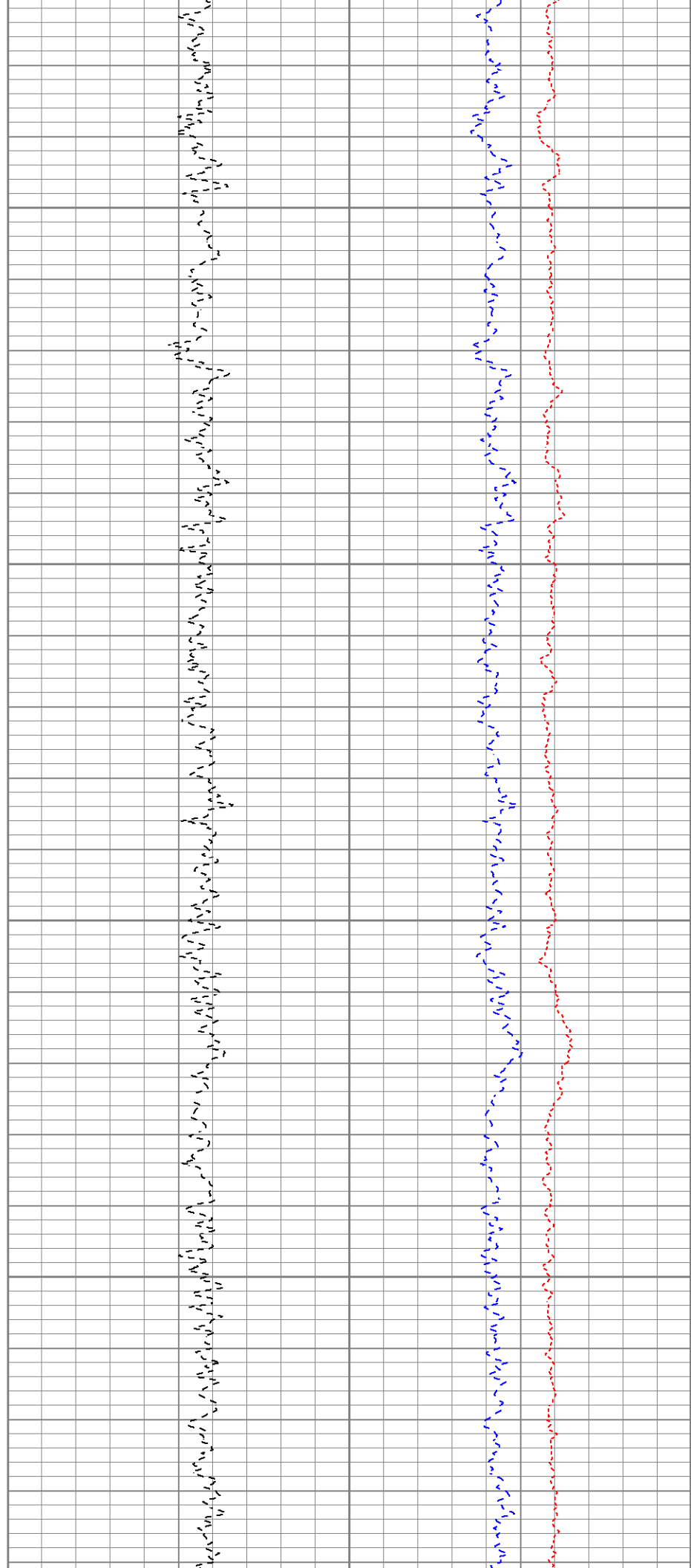
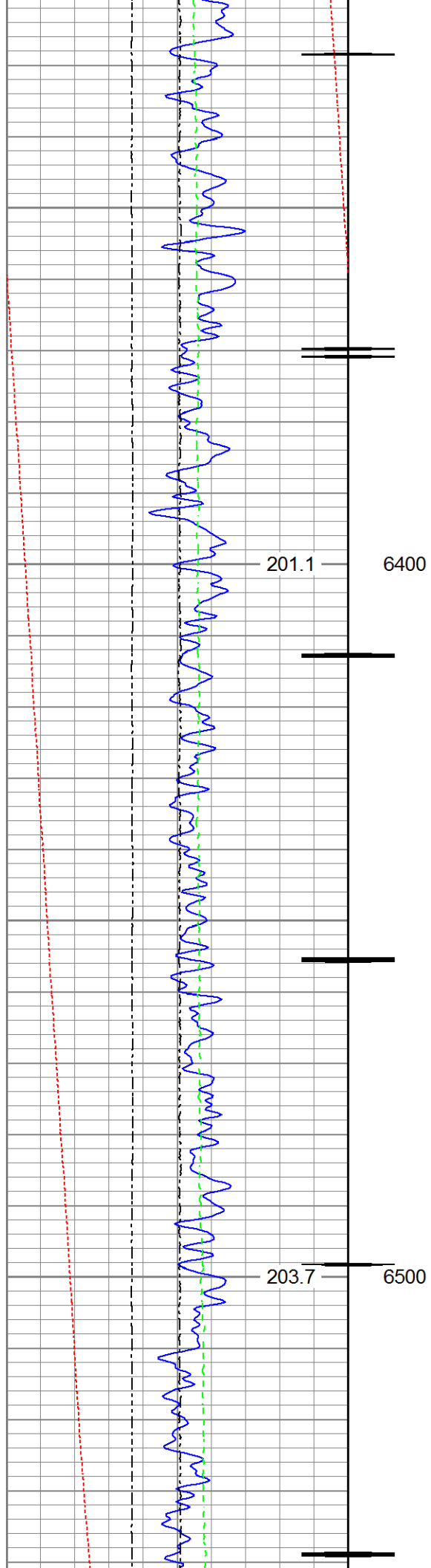


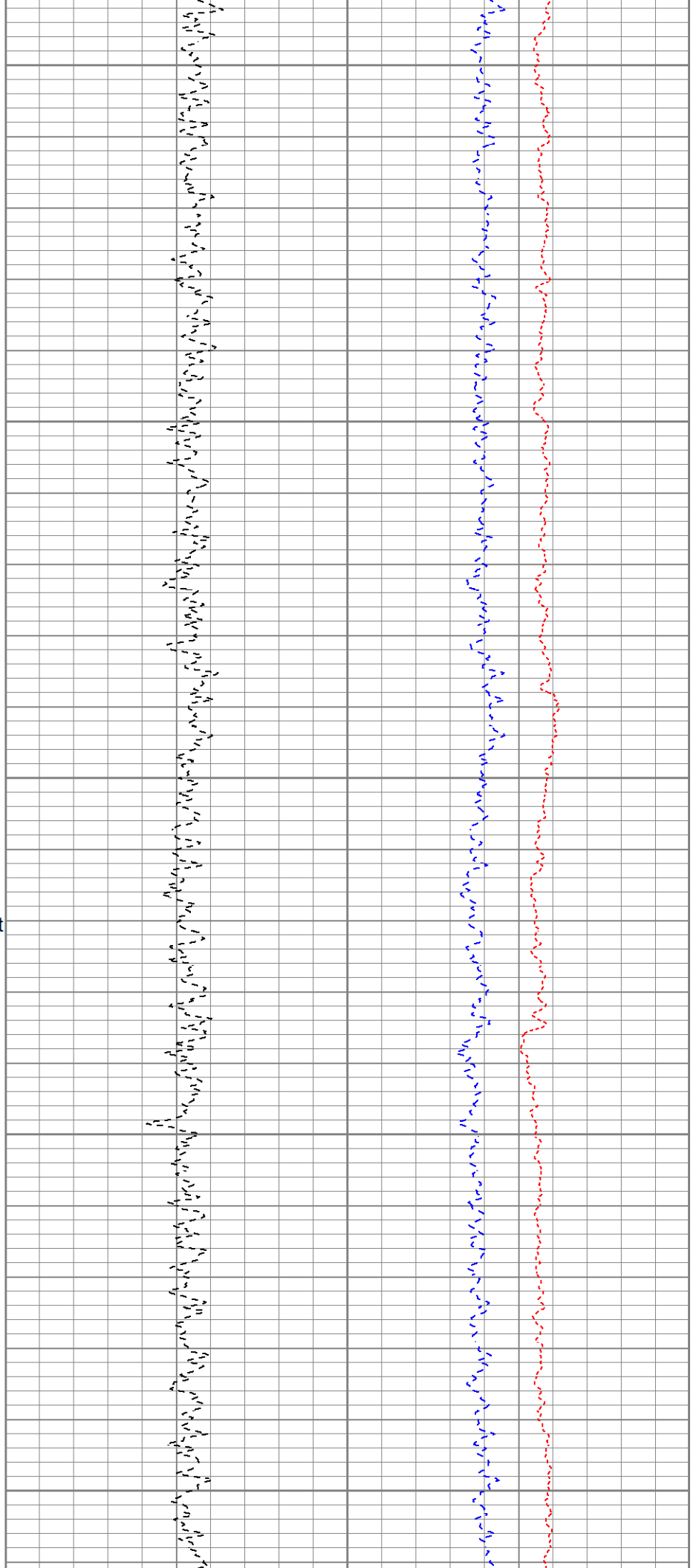
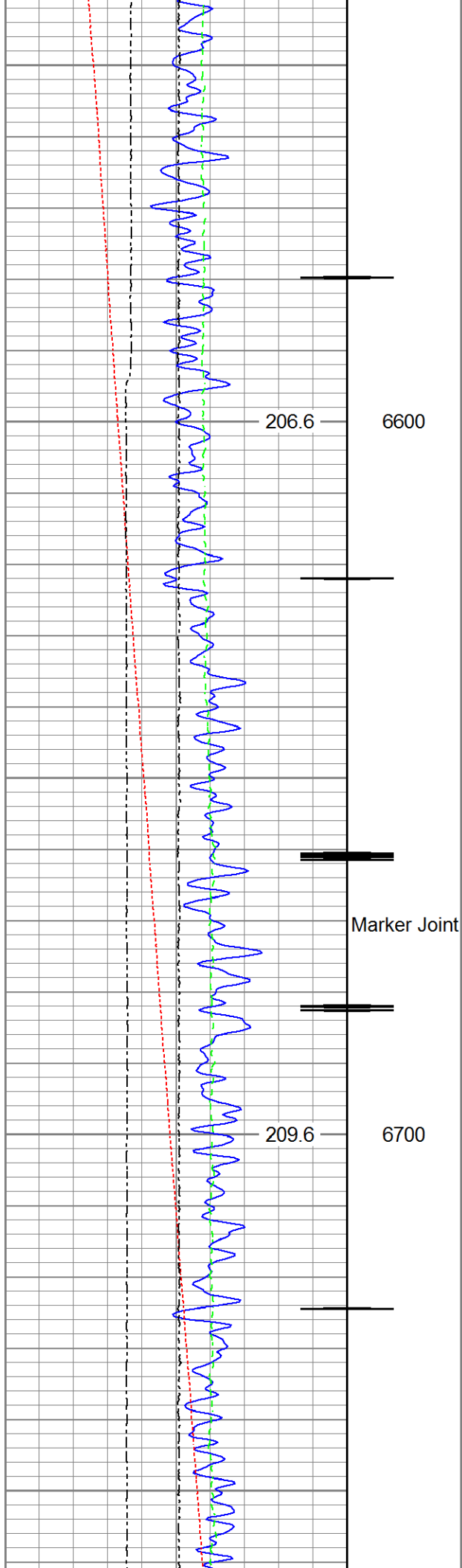


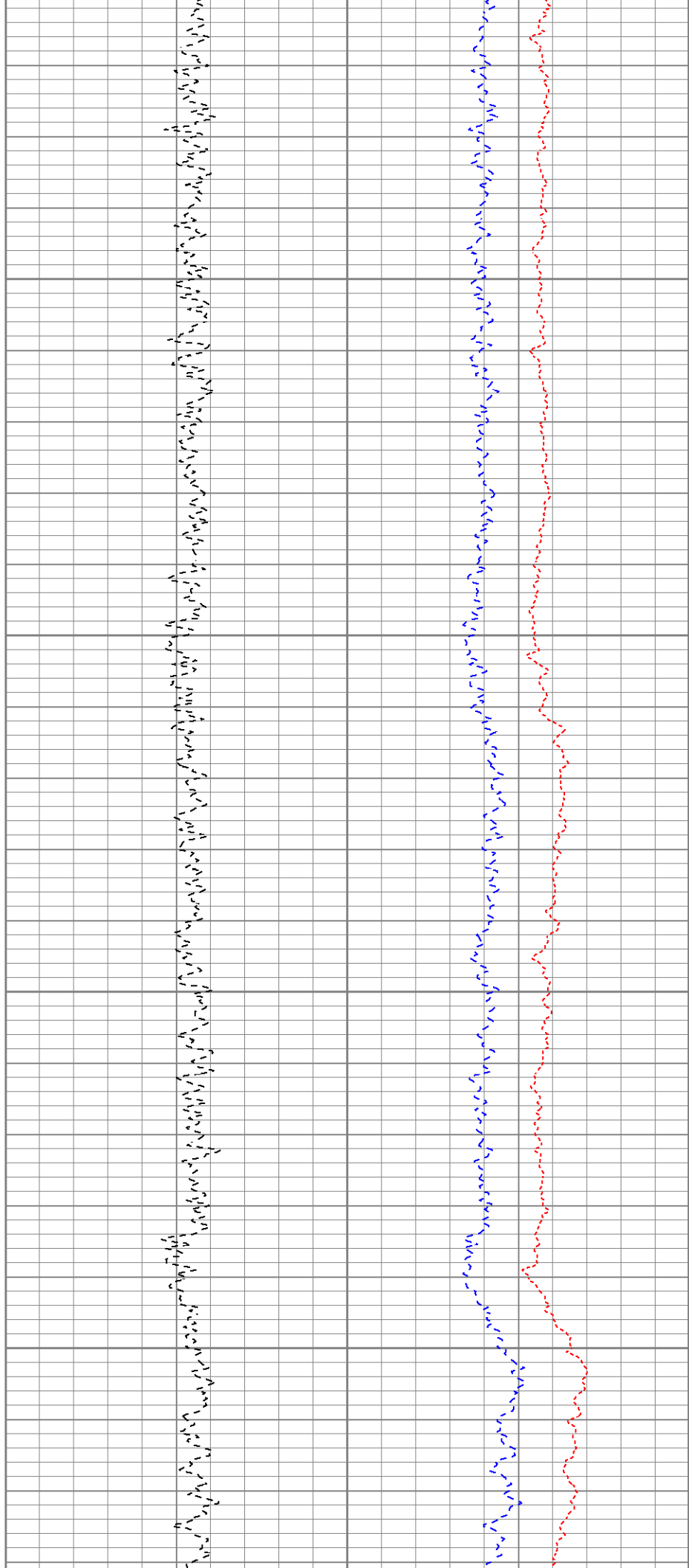
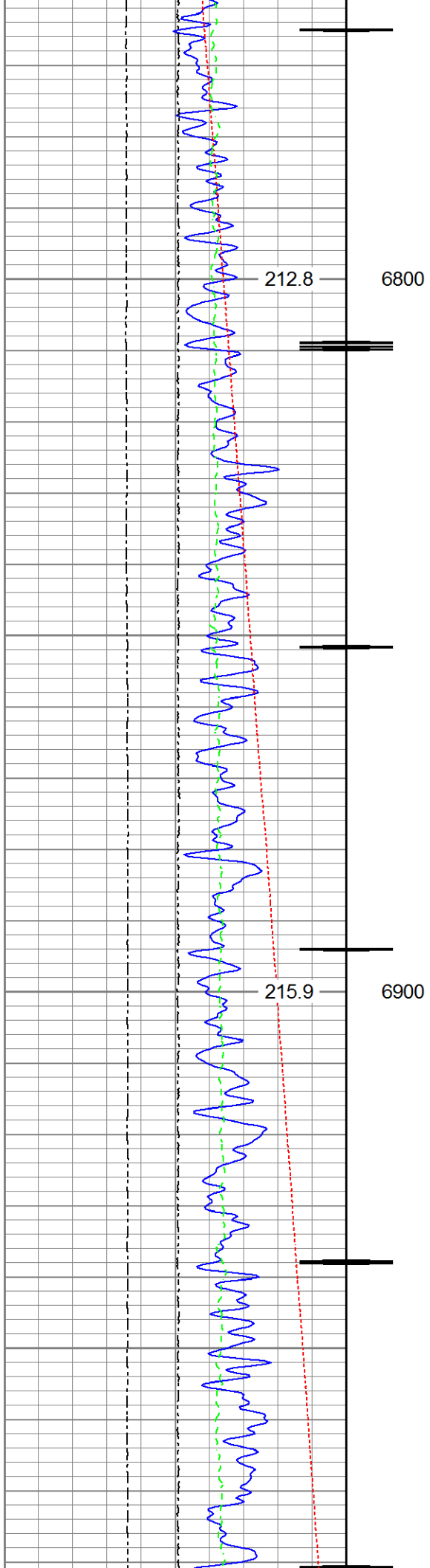


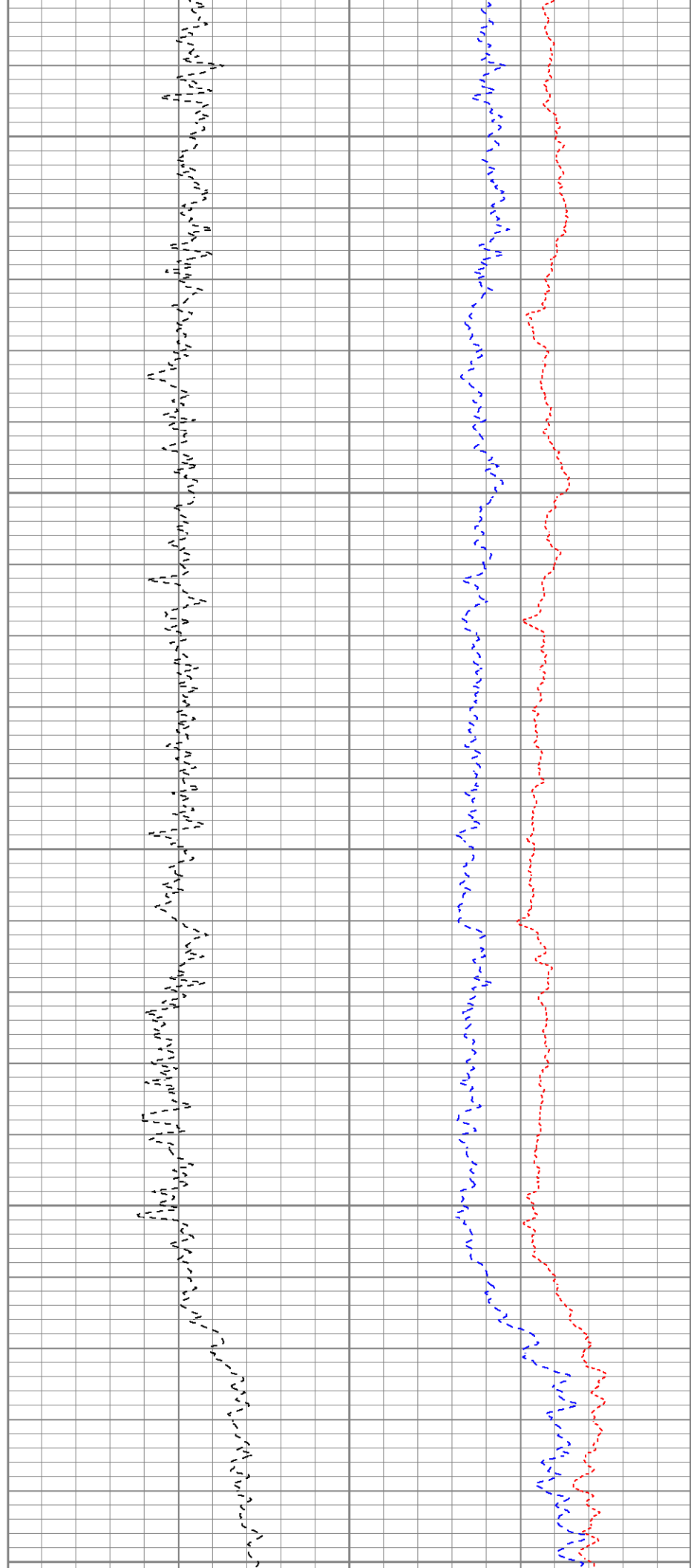
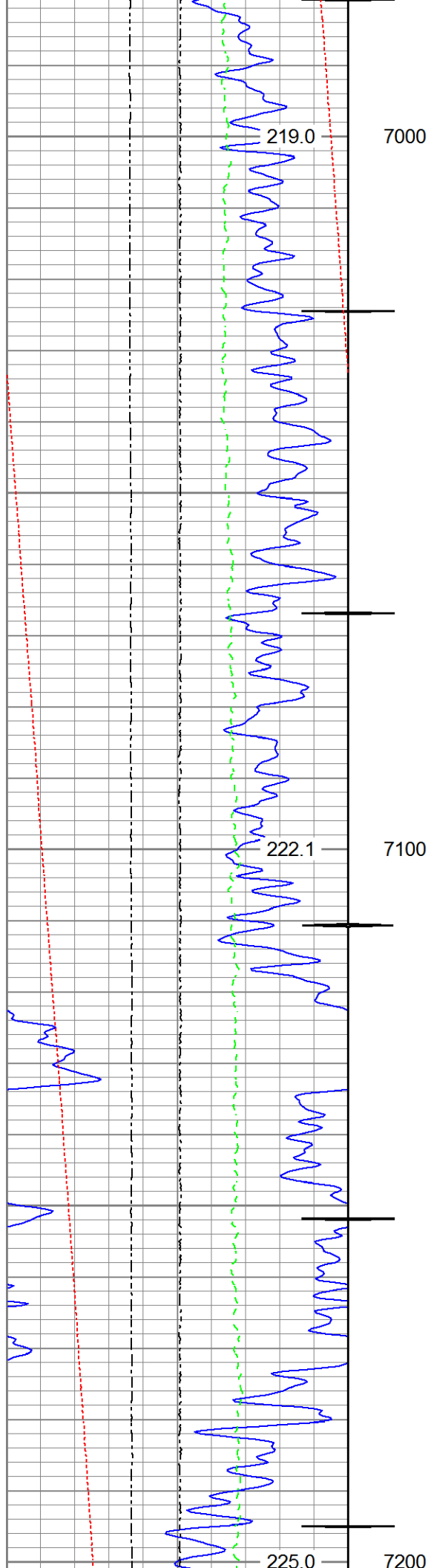


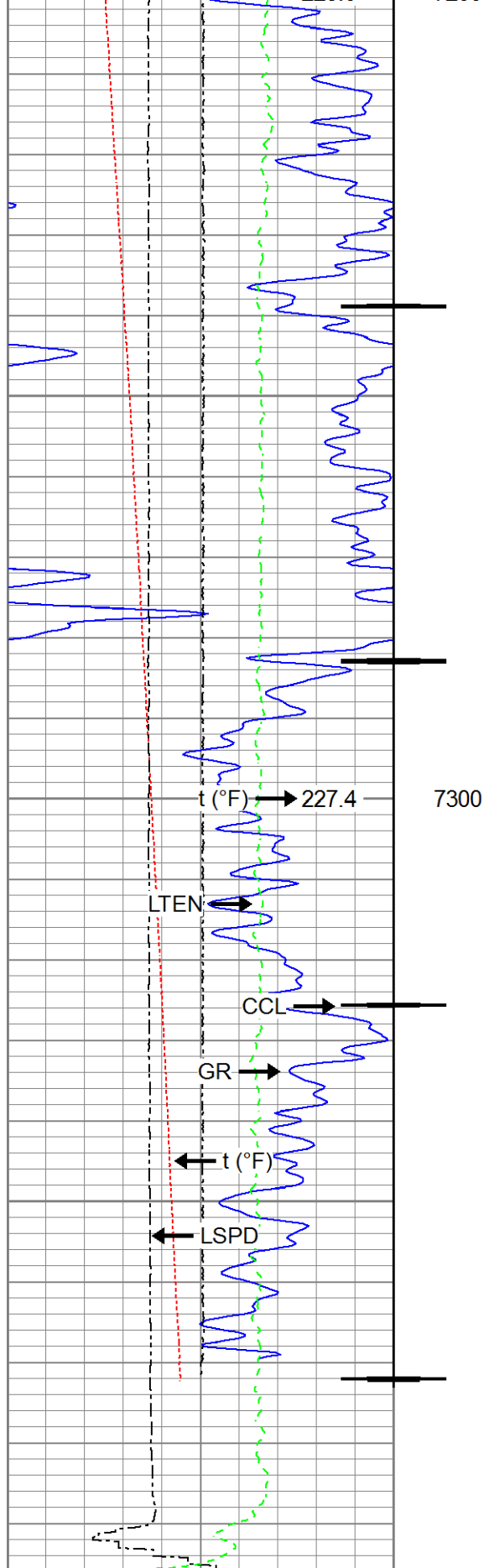




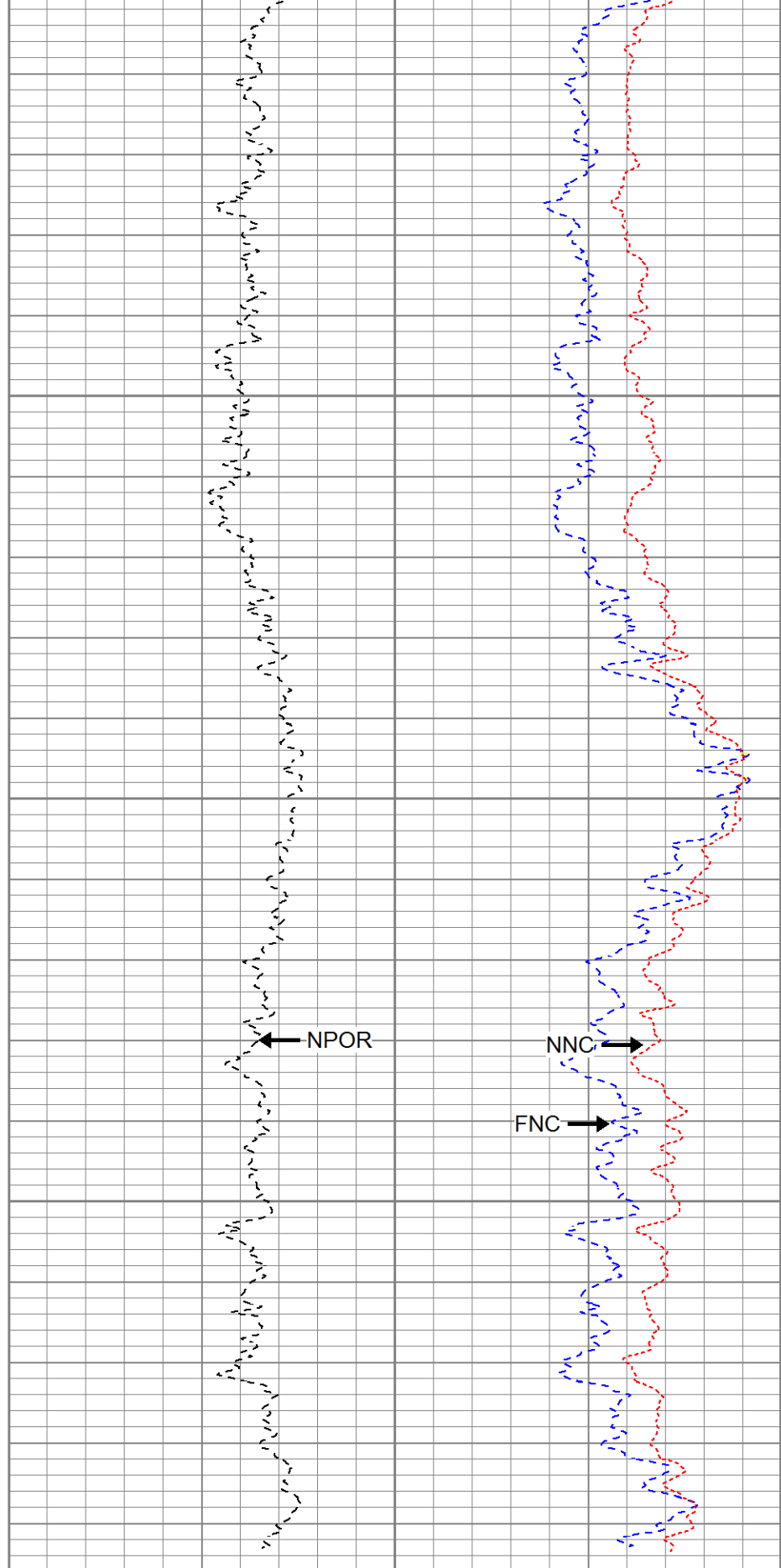








0	Gamma Ray (GAPI)	120
Casing Collar Locator		
0	Temperature (degF)	20
-100	Line Speed (ft/min)	100
0	Line Tension (lb)	2000



60	Neutron Porosity (pu)	0	0	Far Neutron (cps)	1000
Near Neutron (cps)					
0					10000



Repeat Pass

Recorded With 2800 PSI Surface Induced Pressure

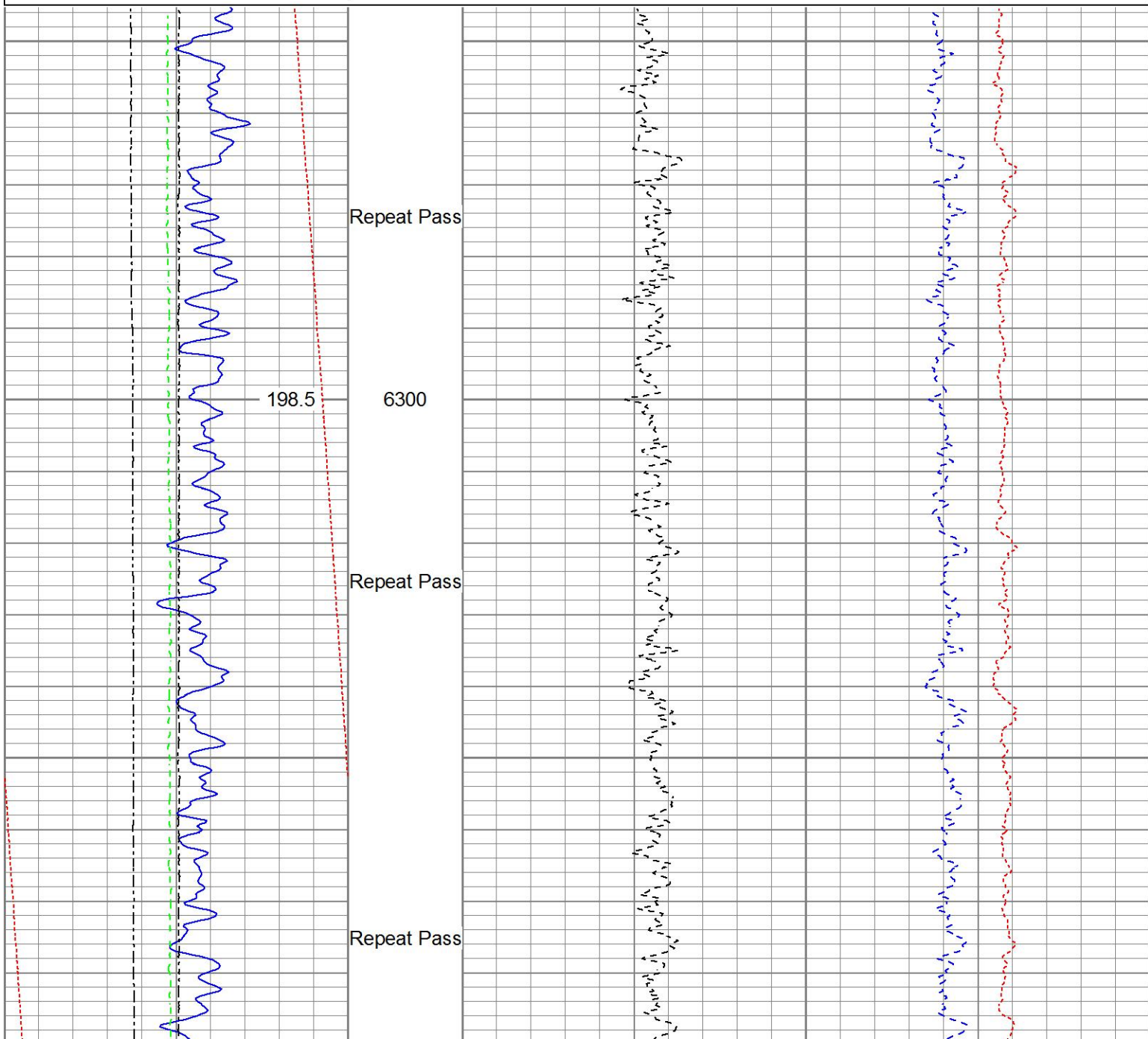
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 Presentation Format ros_cnl_sx
 Dataset Creation Tue Feb 14 11:42:57 2017
 Charted by Depth in Feet scaled 1:240

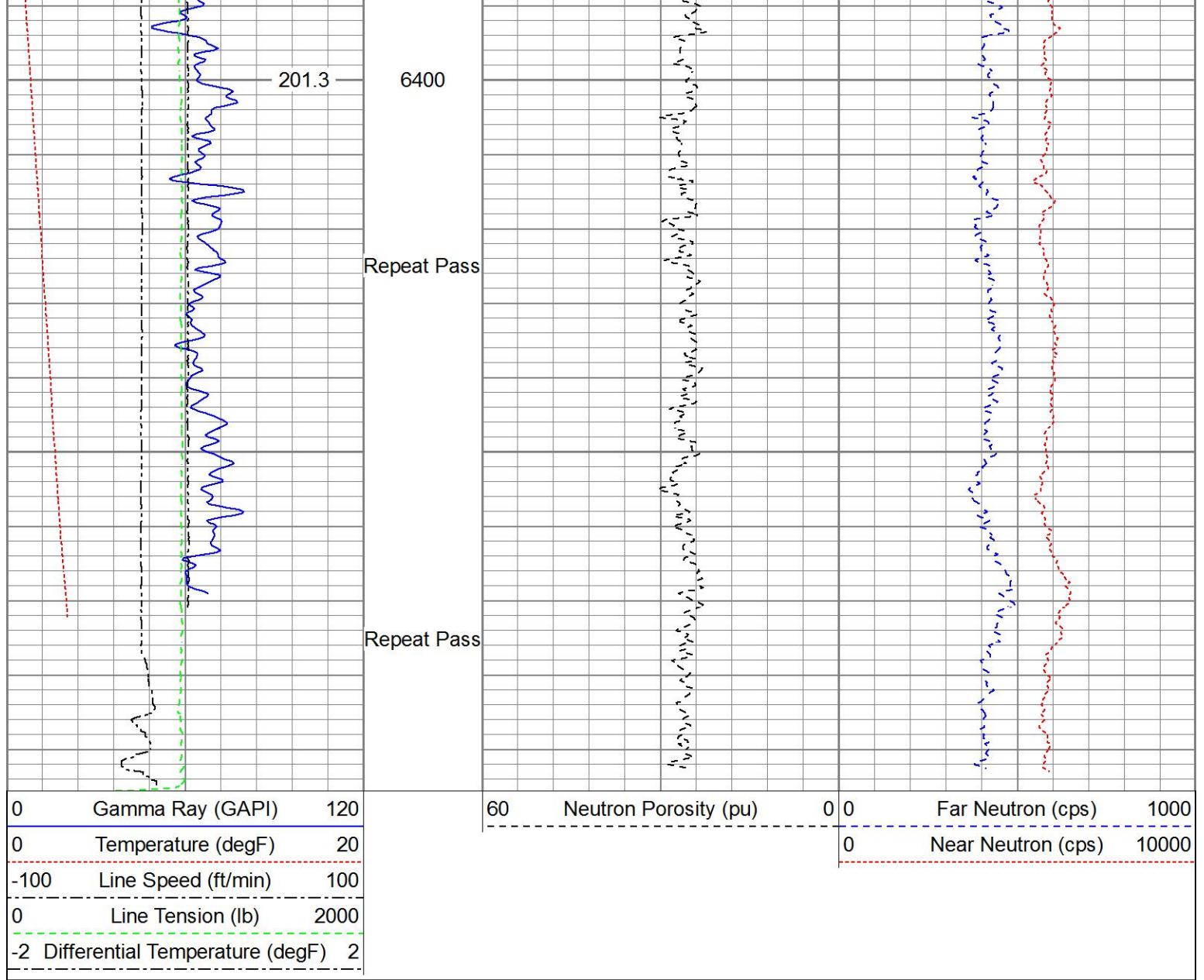
0	Gamma Ray (GAPI)	120
0	Temperature (degF)	20
-100	Line Speed (ft/min)	100
0	Line Tension (lb)	2000
-2	Differential Temperature (degF)	2

60 Neutron Porosity (pu) 0

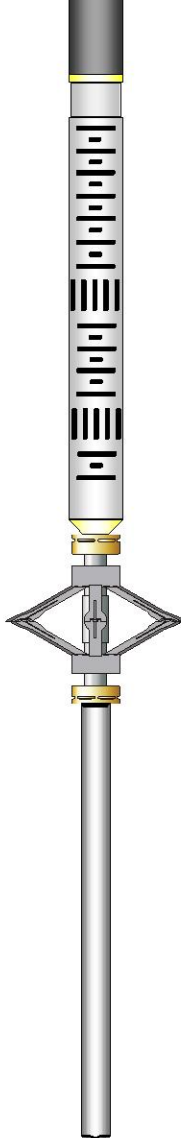
0 Far Neutron (cps) 1000

0 Near Neutron (cps) 10000





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	161.03	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 (10026420) 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					
			UW_PRC-DSS_RAC 5 Arm 2-3/4" Roller Centralizer	2.55	2.75	32.00
			UW_CNL-UW_CNL_007 (1005) Sondex Compensated Neutron Logging Tool	6.61	1.69	30.00
CNLSC	1.53					
CNSSC	1.12					
TSTAMP	0.00					
Dataset: 0512341296_Anadarko_Whisper Rock 2C-25HZ_02-14-17_CNL.db: field/well/run1/Main2.2 Total length: 28.58 ft Total weight: 297.60 lb O.D.: 3.13 in						

Calibration Report			
Database File	D:\Warrior\Data\Anadarko_Whisper Rock 2C-25HZ\0512341296_Anadarko_Whisper Rock 2C-25HZ_02-14-		
Dataset Pathname	Main2.2		
Dataset Creation	Tue Feb 14 17:47:29 2017		
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	
CNRAT Gain K	0.8150	Sleeve: 1.0000	
	1.0271		
Before Survey			
Detector	Readings		

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:	7.000	in
	Calibration Depth:	305.118	ft

Master Calibration, performed (Derived):						
	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	-0.002	0.835	0.800	71.921	84.926	0.981
5FT	-0.007	0.842	0.800	71.921	83.831	1.355
S1	-0.001	0.715	0.000	100.000	139.543	0.207
S2	-0.003	0.749	0.000	100.000	132.870	0.440
S3	-0.004	0.746	0.000	100.000	133.371	0.515
S4	-0.004	0.802	0.000	100.000	124.139	0.488
S5	-0.003	0.792	0.000	100.000	125.861	0.315
S6	-0.003	0.733	0.000	100.000	135.893	0.392
S7	-0.002	0.702	0.000	100.000	141.893	0.342
S8	-0.003	0.700	0.000	100.000	142.099	0.466

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	Whisper Rock 2C-25HZ
Field	Wattenberg
County	Weld
State	Colorado