



Compensated Neutron  
Gamma Ray  
Casing Collar Log

Company Kerr-McGee Oil & Gas Onshore, L.P.

Well RW 36N-32HZ

Field Wattenberg

County Weld State Colorado

Location: API #: 05-123-44753

SEC 29 TWP 3N RGE 65W

Permanent Datum Ground Level Elevation 4869'

Log Measured From Kelly Bushing 21 FT

Drilling Measured From Kelly Bushing

Other Services  
Gauge Ring  
RBL

Elevation  
K.B. 4890'  
D.F. ---  
G.L. 4869'

Date

Run Number 20-NOV-2017

Depth Driller Two

Depth Logger 13054 FT

Bottom Logged Interval 7200 FT

Top Log Interval 7199 FT

Open Hole Size Surface

Type Fluid Water

Density / Viscosity 8.34 lb/gal

Max. Recorded Temp. 251°F

E. Estimated Cement Top ---

Time Well Ready R.O.A.

Time Logger on Bottom 11:06 AM

Equipment Number HD-340

Location Fort Lupton, CO

Recorded By J. Fresquez

Witnessed By J. McMillen

Borehole Record

Run Number Bit From To

Size

Weight

From To

Size

Weight

Tubing Record

Run Number Bit From To

Size

Weight

From To

Size

<<< Fold Here >>>

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

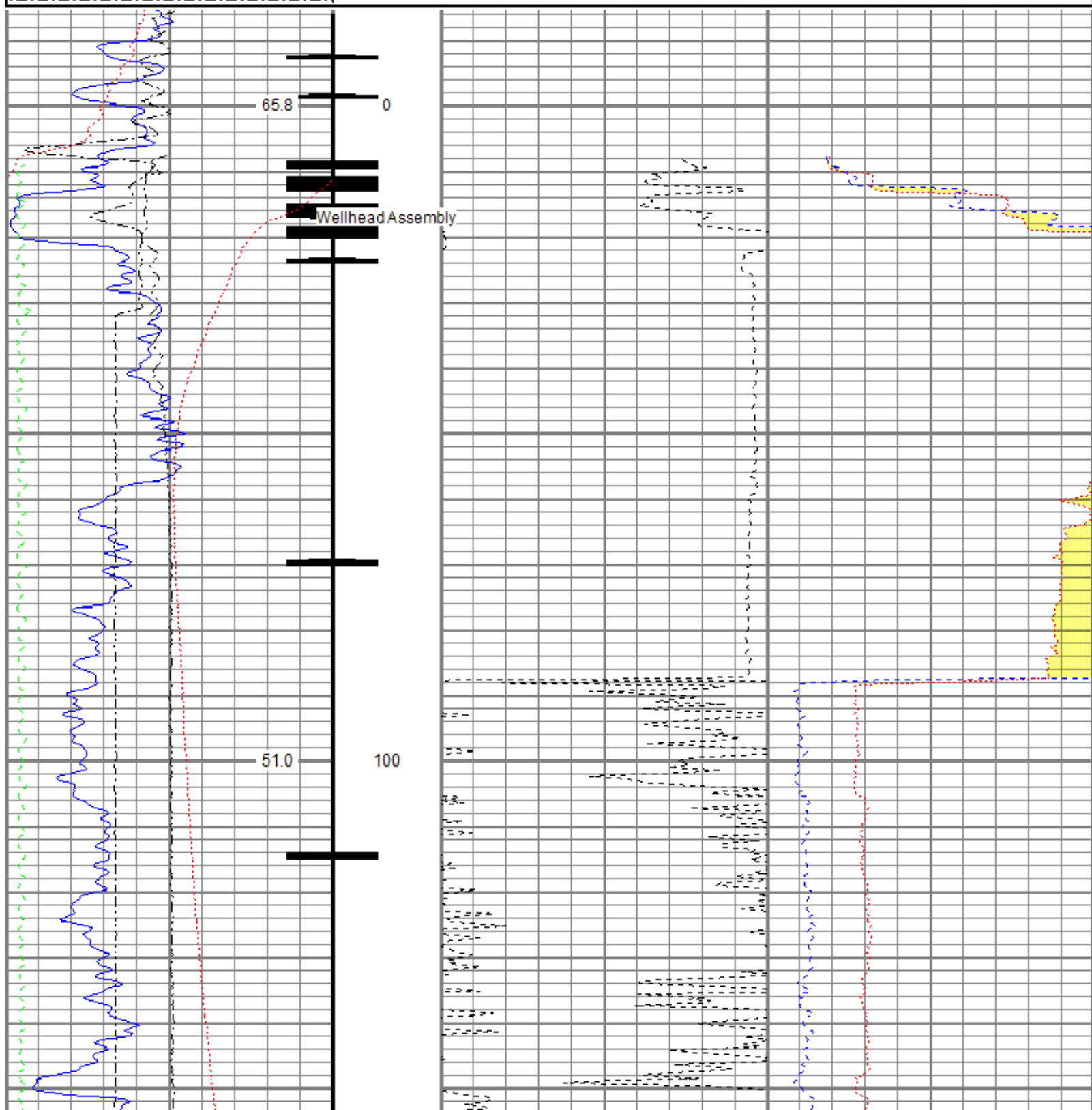
Log ran as per customer request  
Depth referenced to Casing Tally reported Marker Joint at 6501 FT  
Adjusted -5 FT to correlate with Marker Joint  
Gauge Ring/Junk Basket ran to 7250 FT with no debris  
Log ran from as deep as possible in heel to Surface  
Log ran with 2800 PSI Surface Induced Pressure  
Logging tools were clean and free of debris upon completion of operations  
Thank you for choosing Reliance Oilfield Services, LLC!!

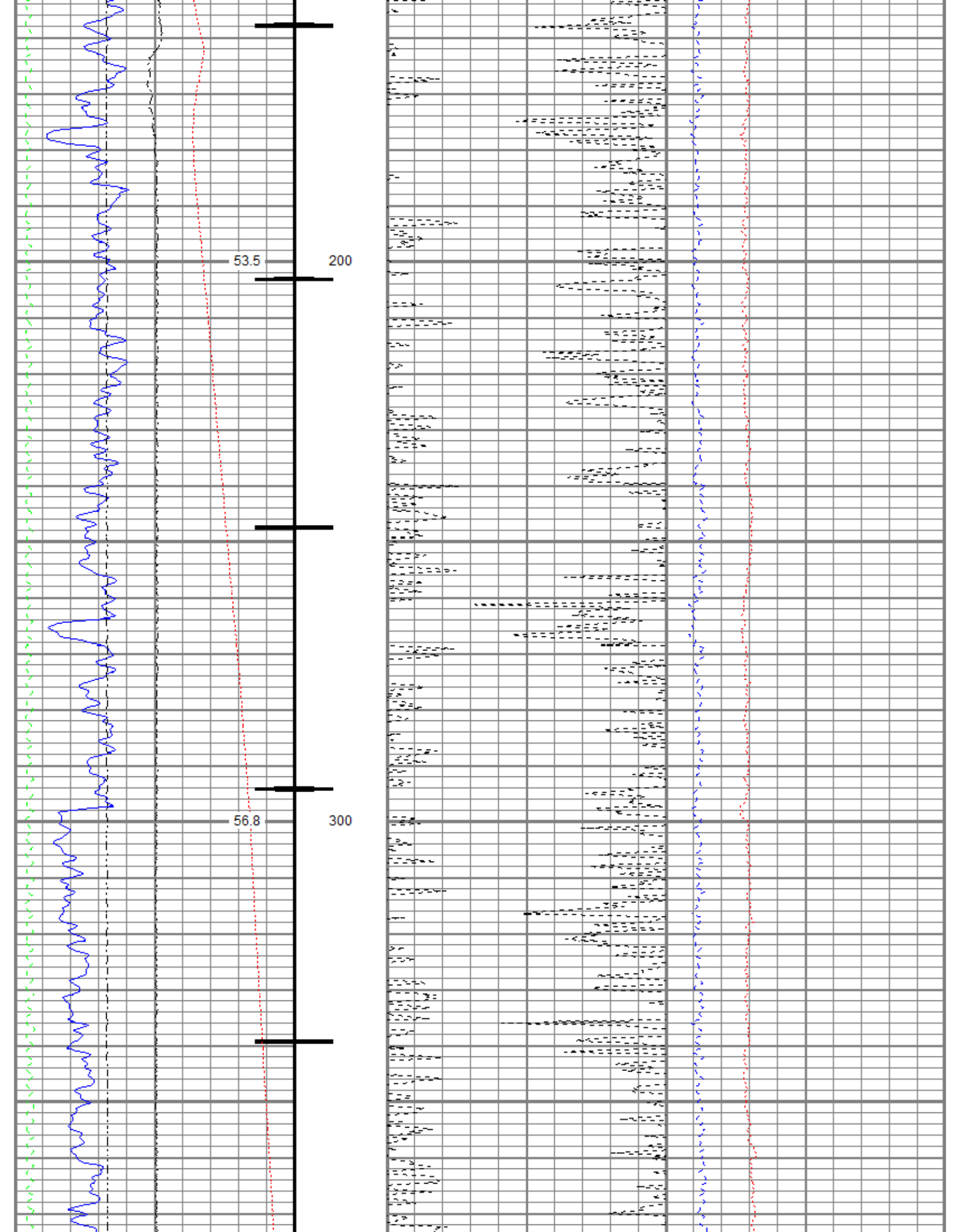
Main Pass

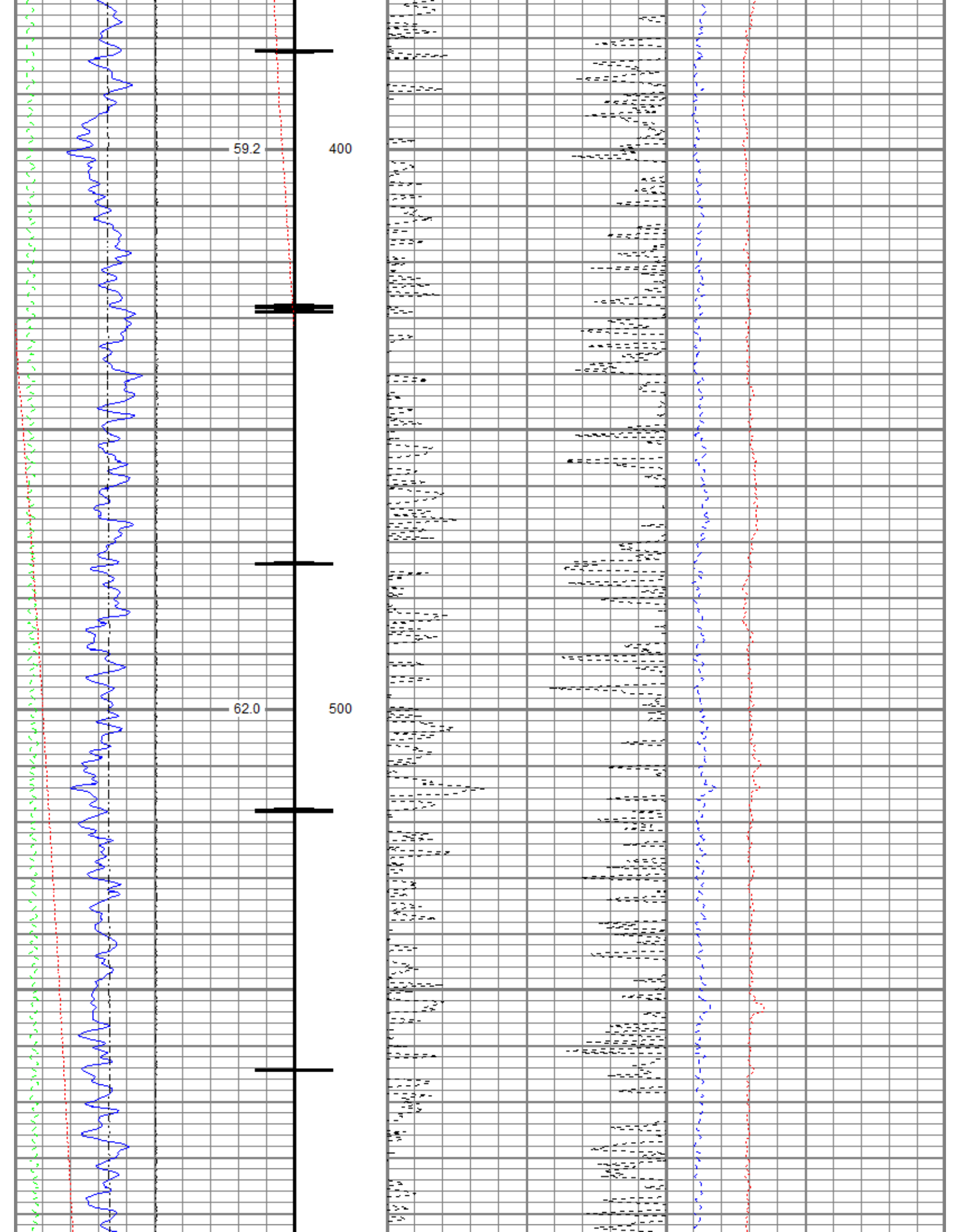


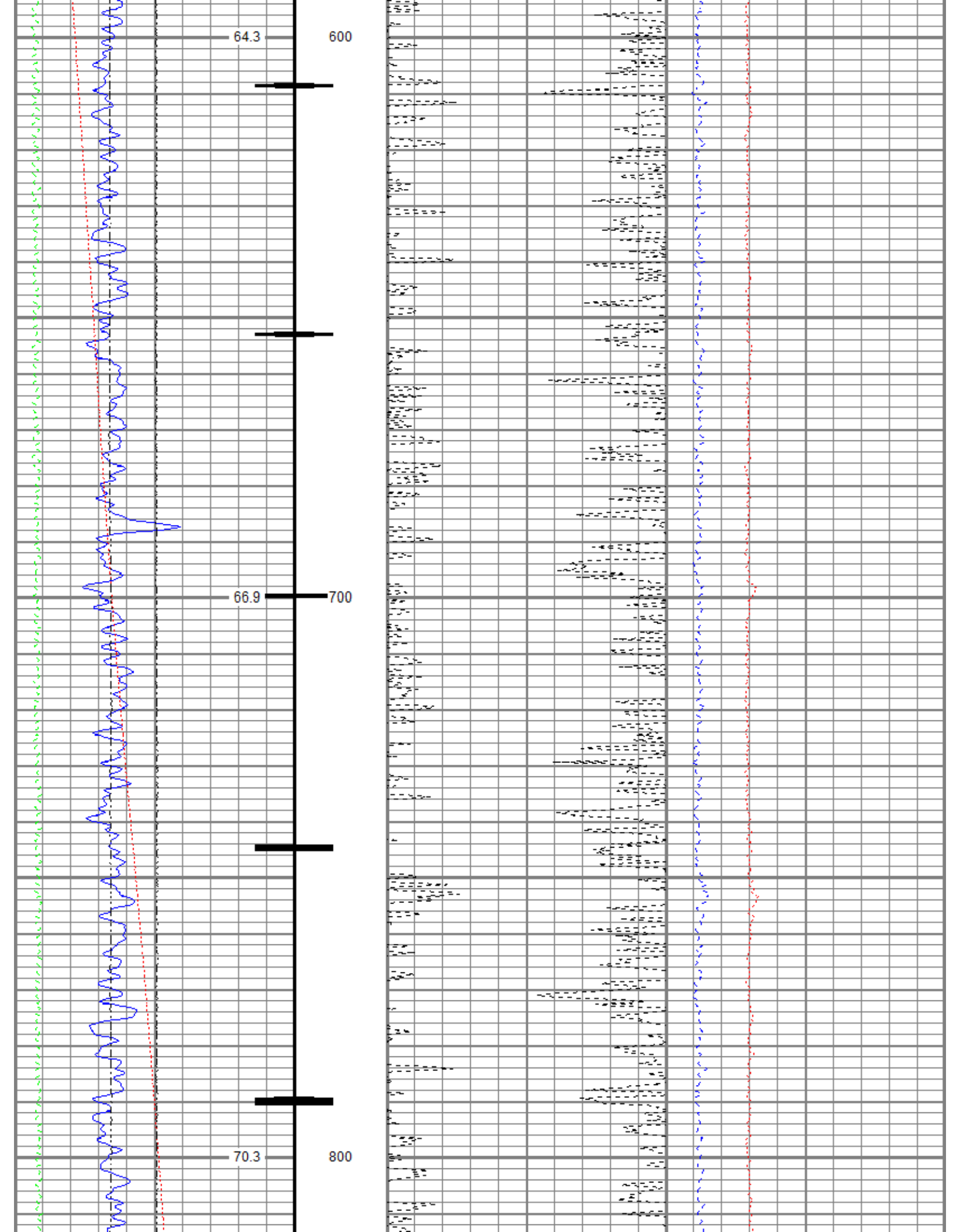
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Presentation Format	ros_cnl_sx
Dataset Creation	Mon Nov 20 14:56:49 2017
Charted by	Depth in Feet scaled 1:240

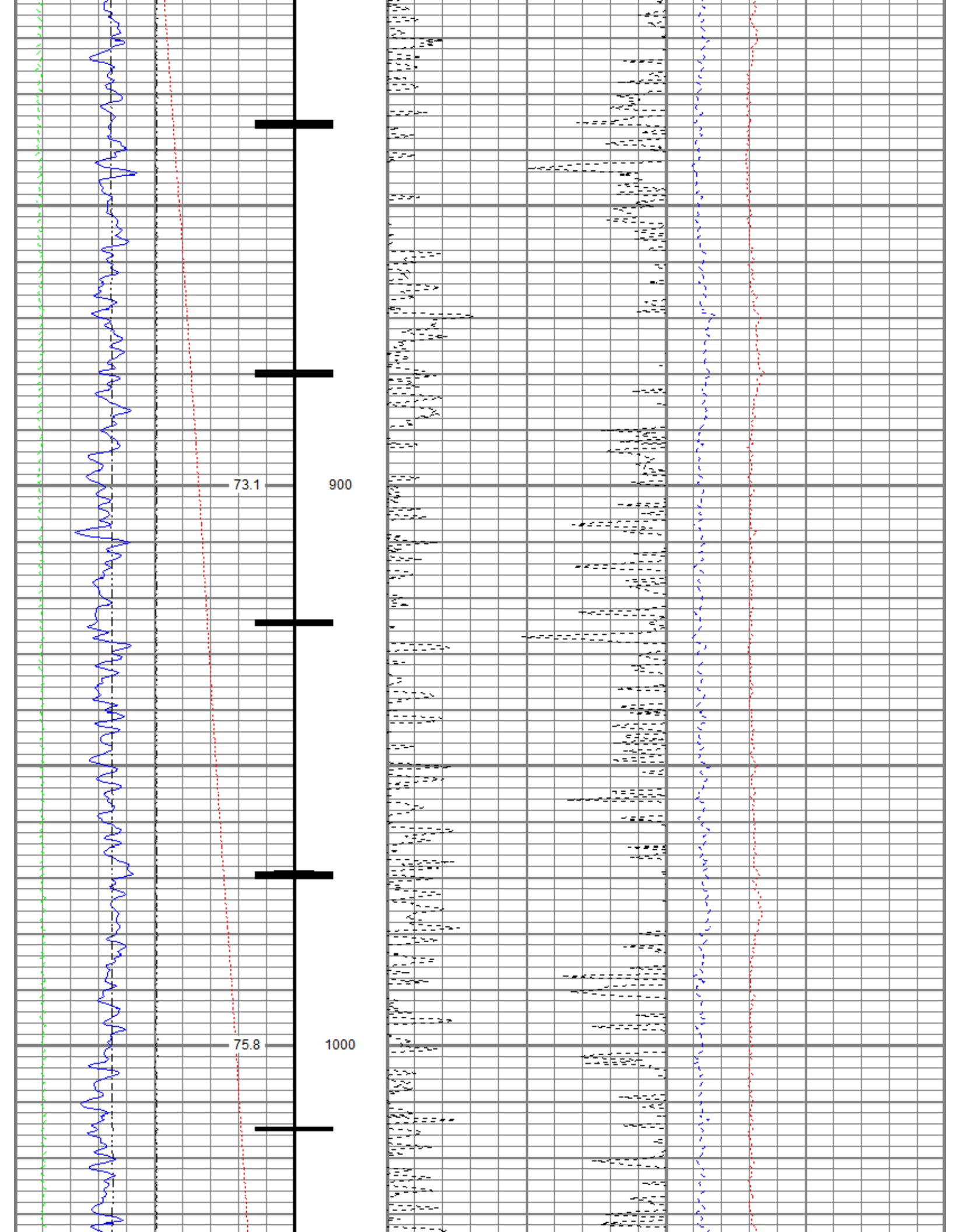
0	Gamma Ray (GAPI)	120	60	Neutron Porosity (pu)	0	0	Far Neutron (cps)	1000
Casing Collar Locator						0	Near Neutron (cps)	10000
0	Temperature (degF)	20						
-100	Line Speed (ft/min)	100						
0	Line Tension (lb)	2000						
-2	Differential Temperature (degF)	2						



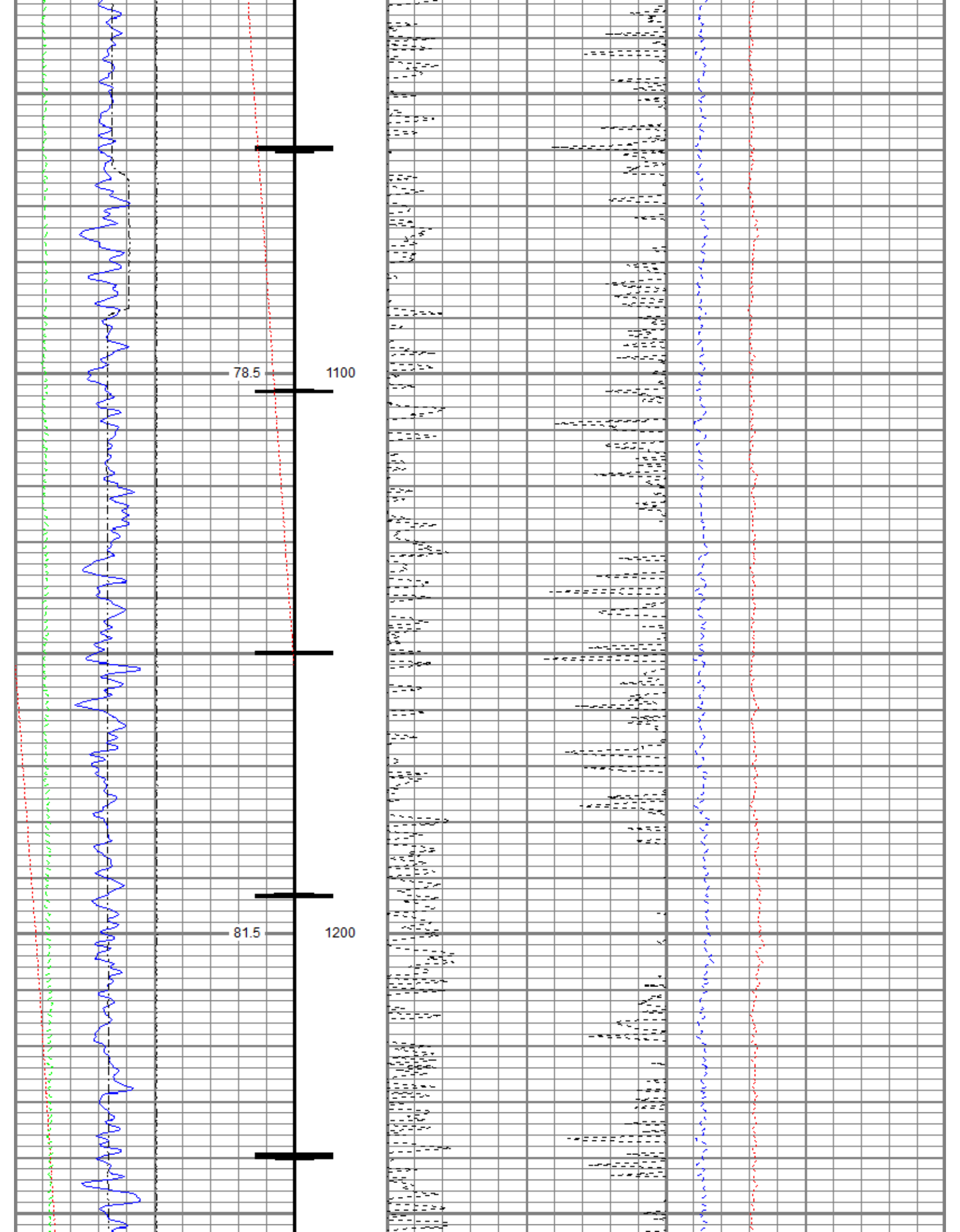


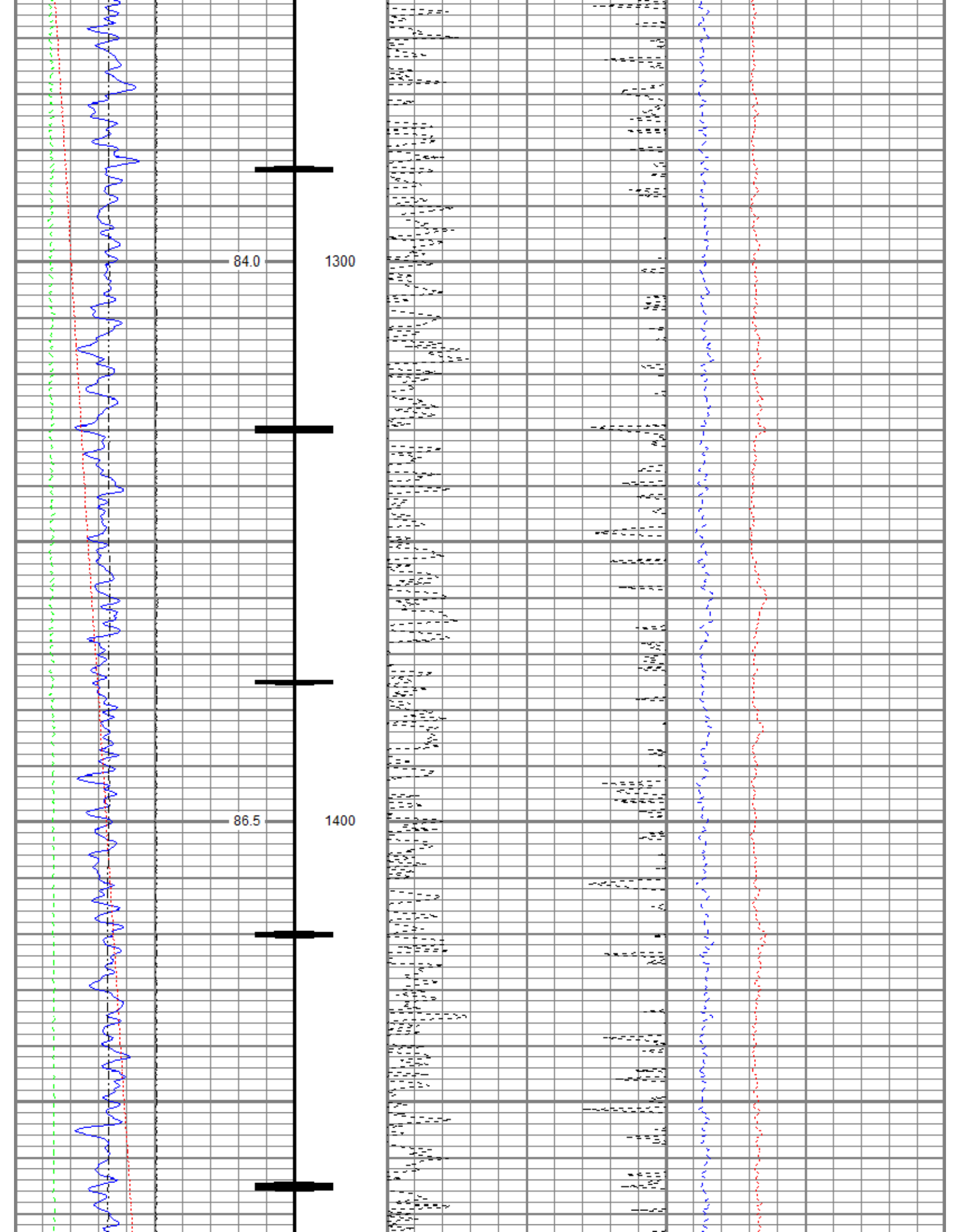




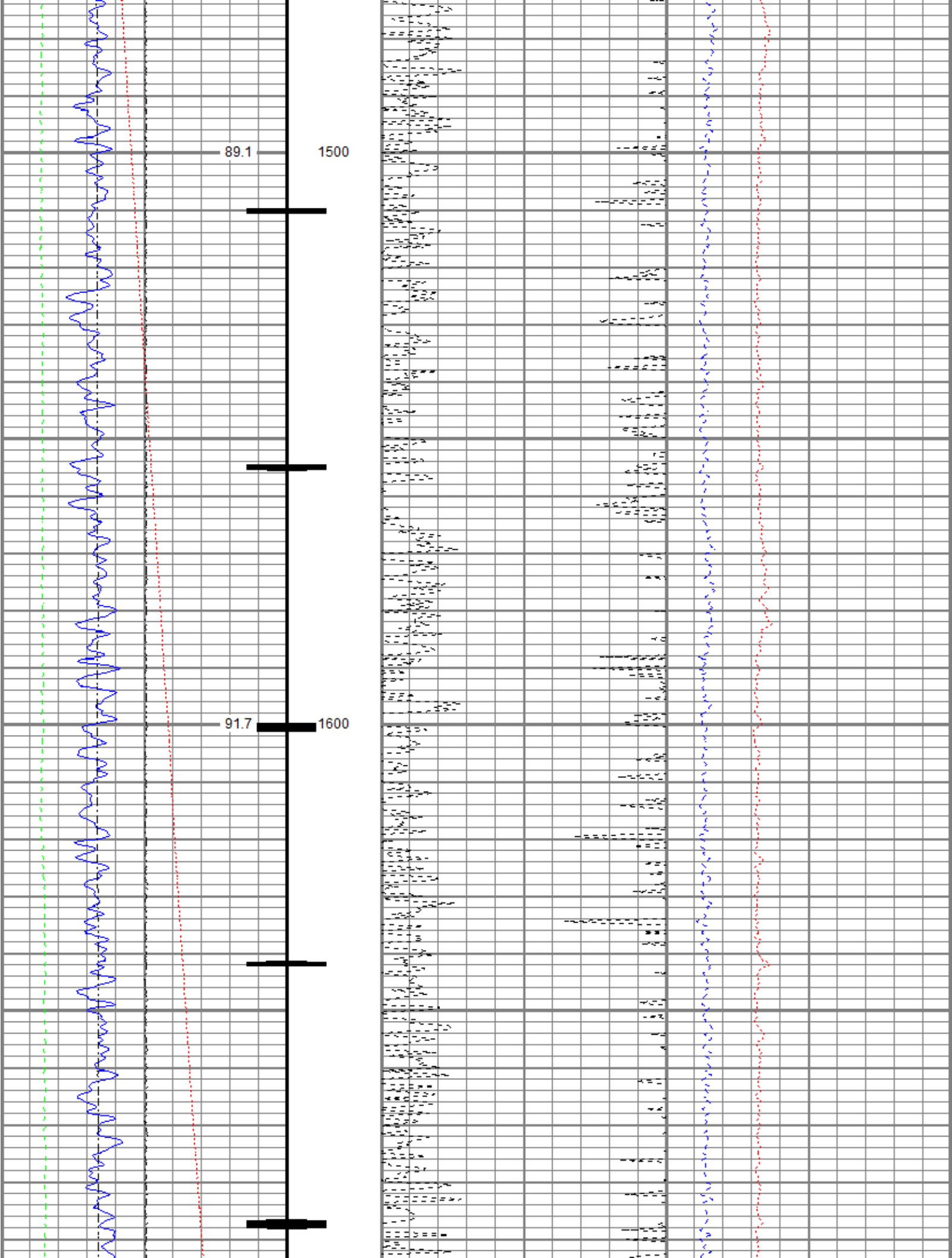


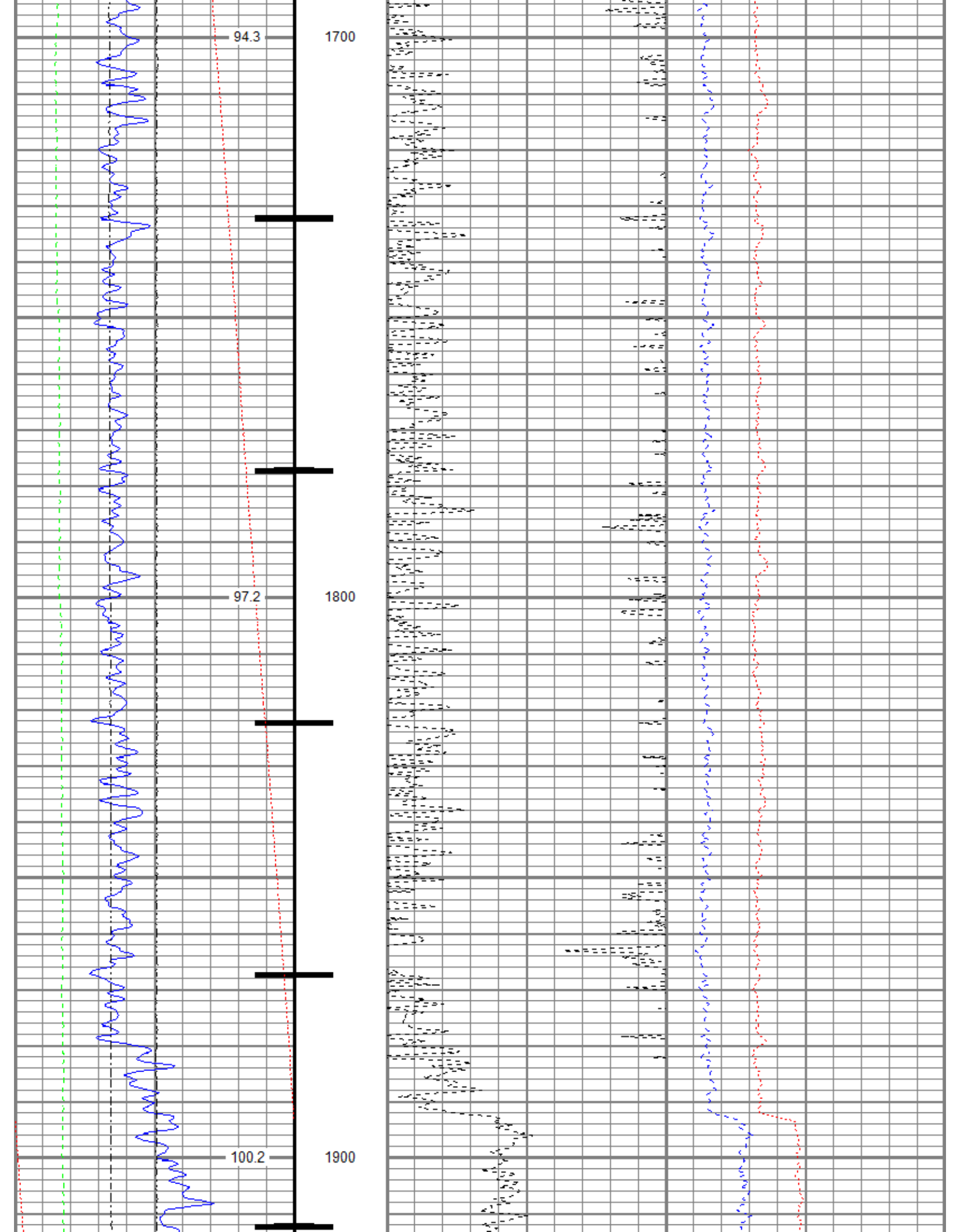


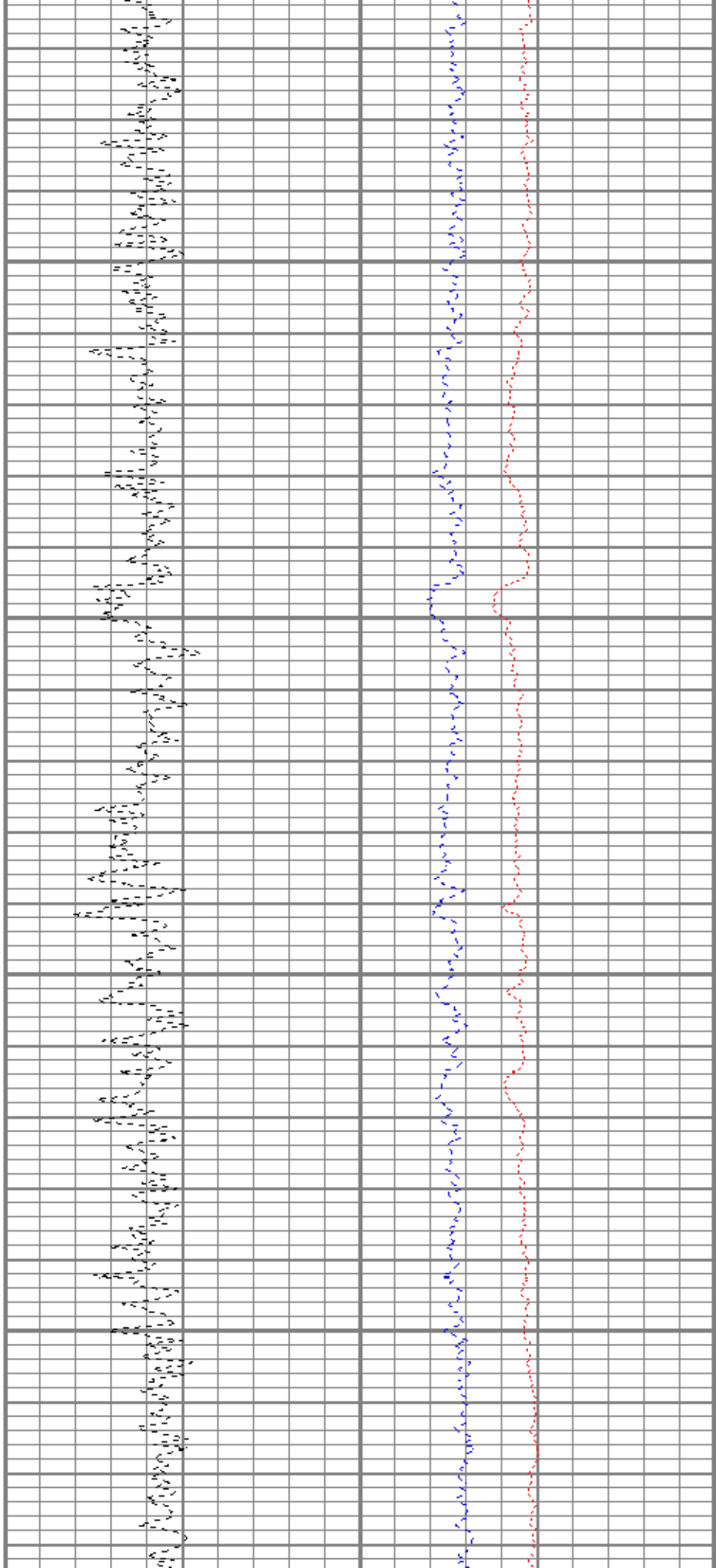
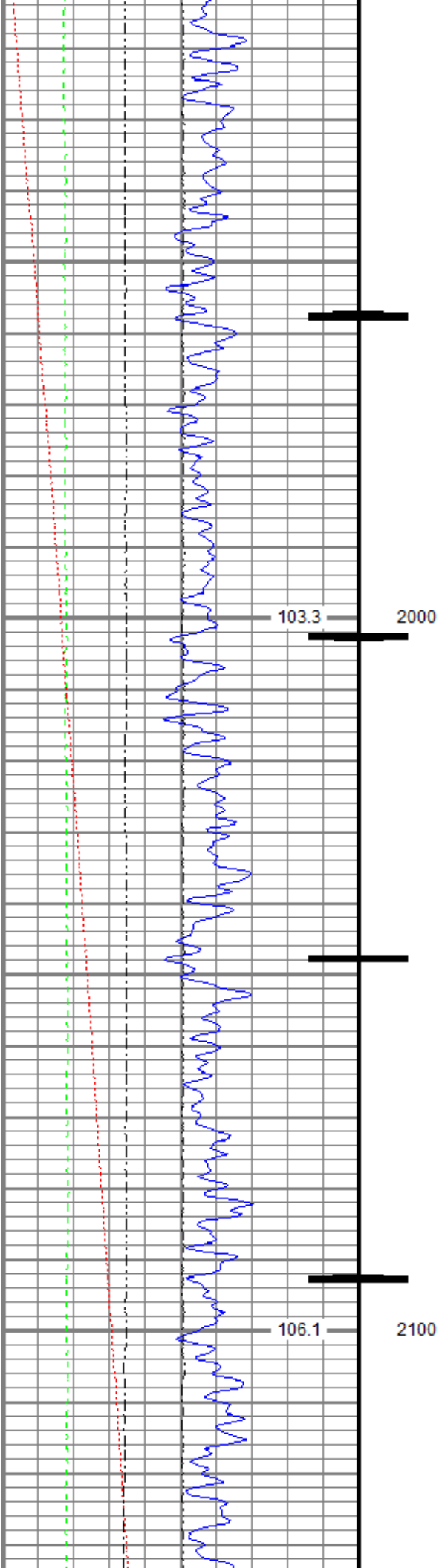


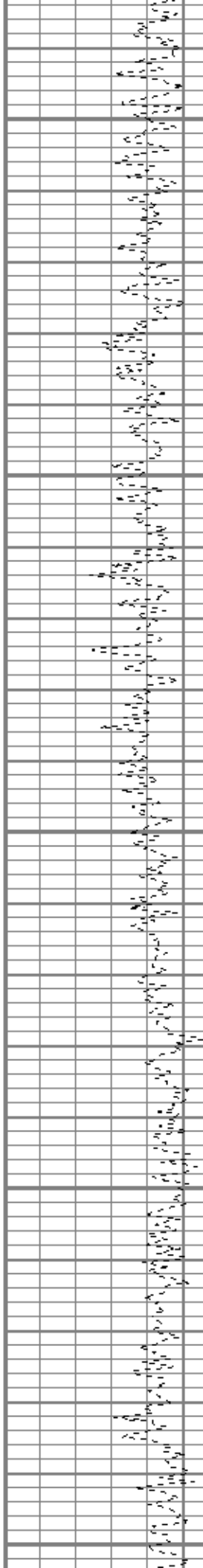
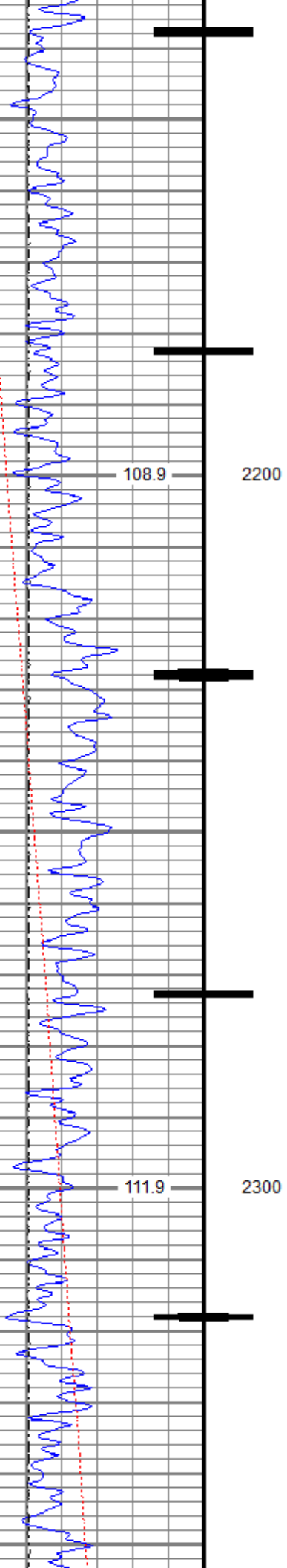


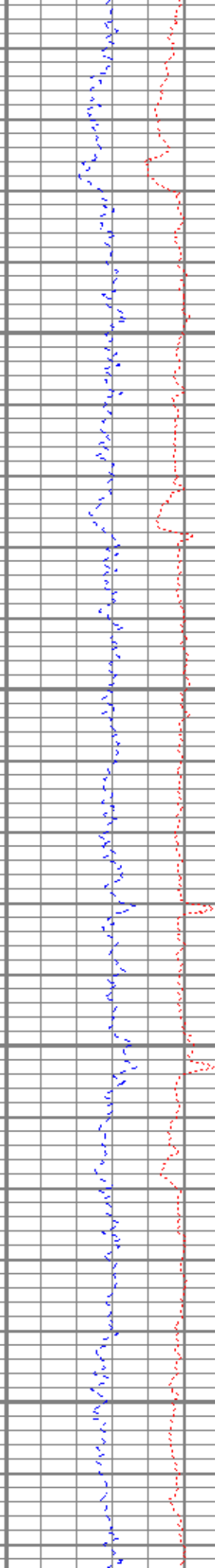
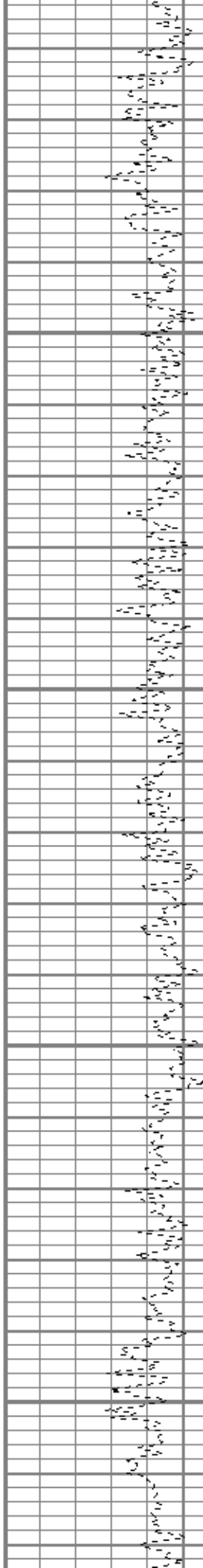
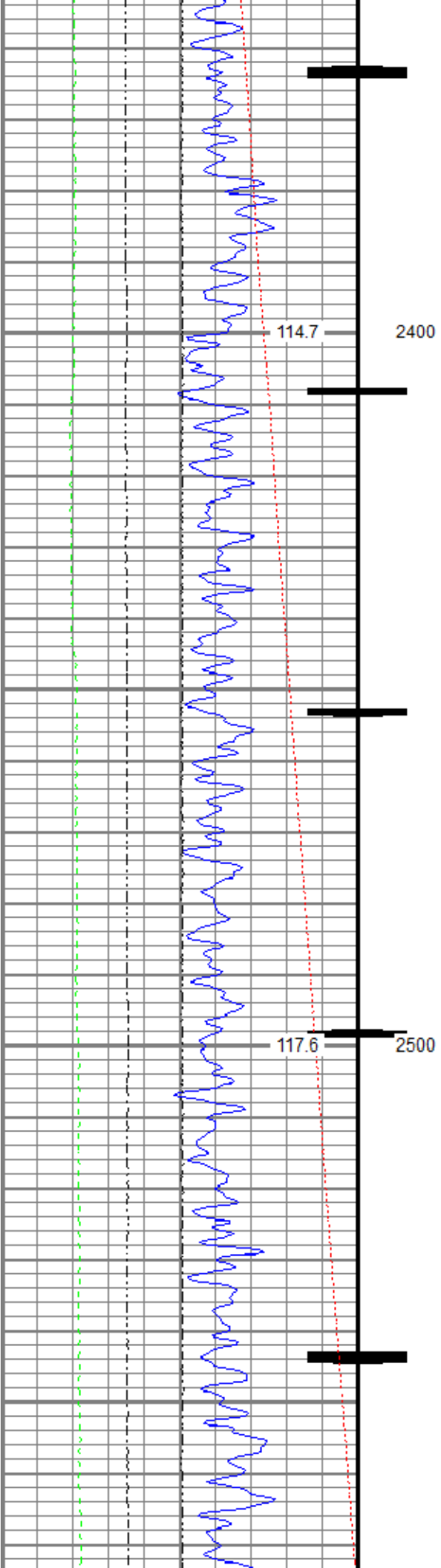


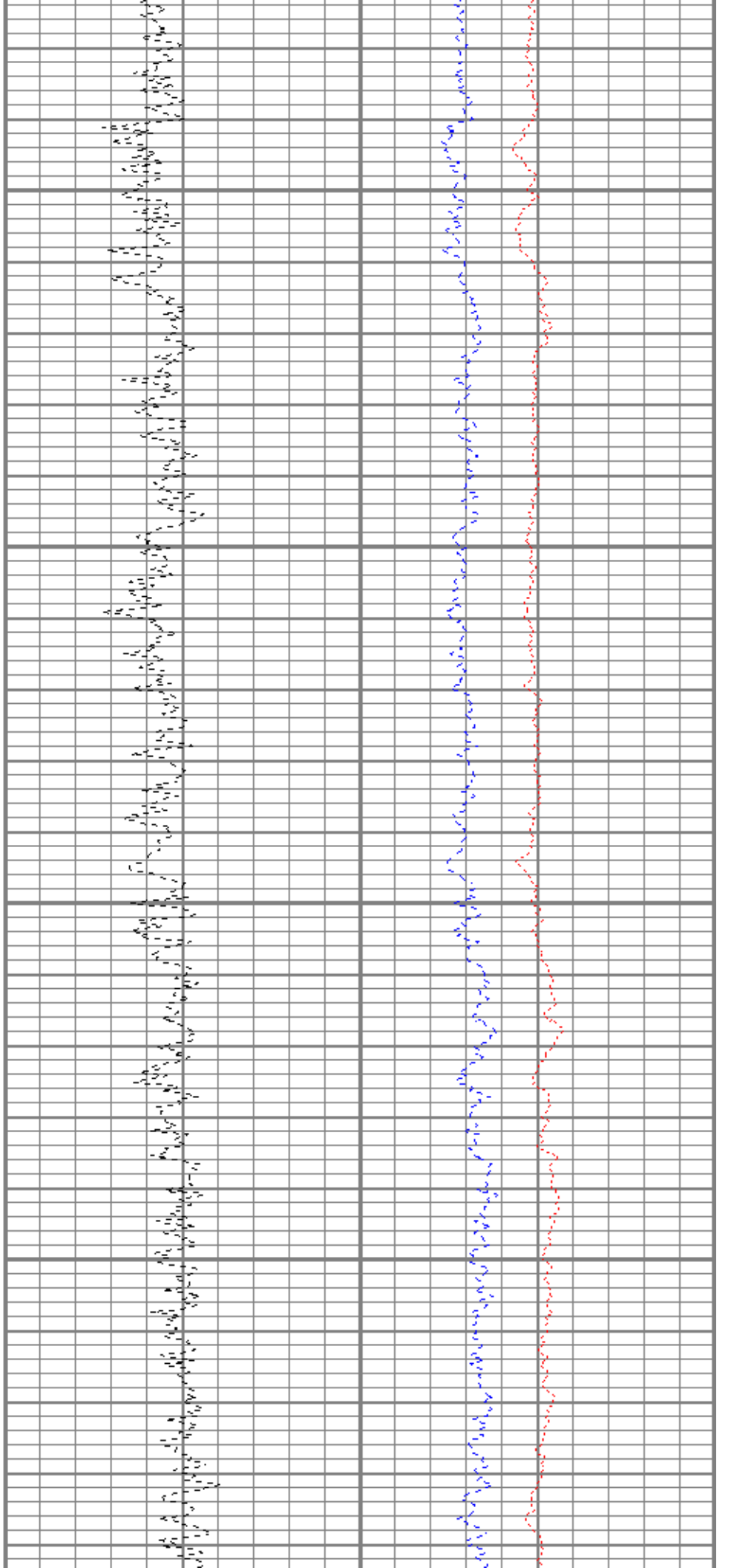
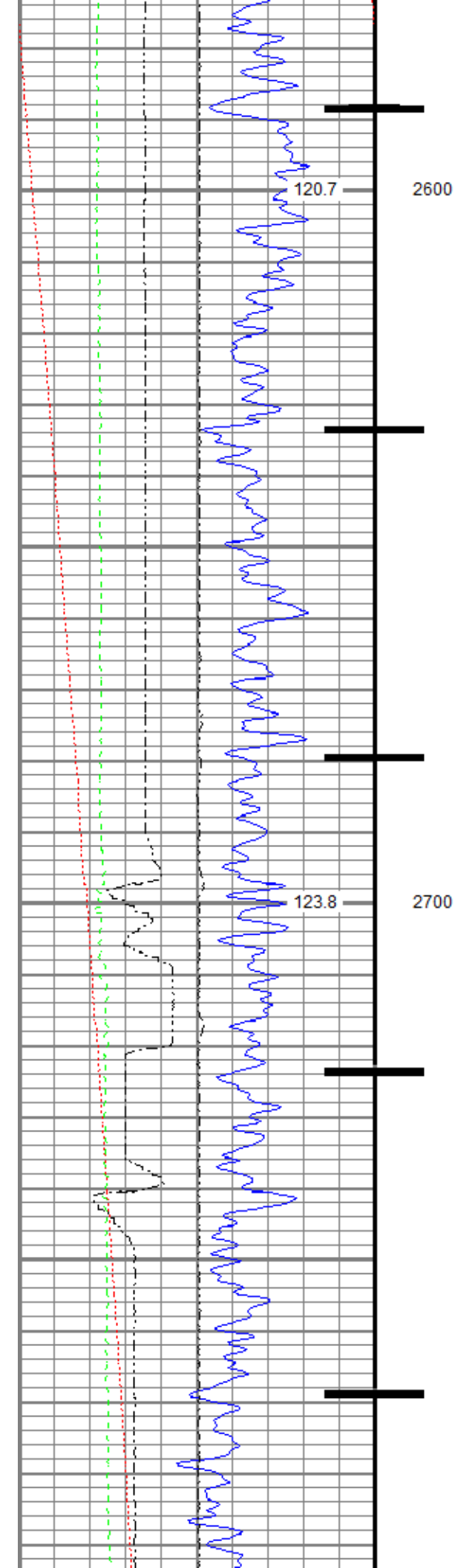




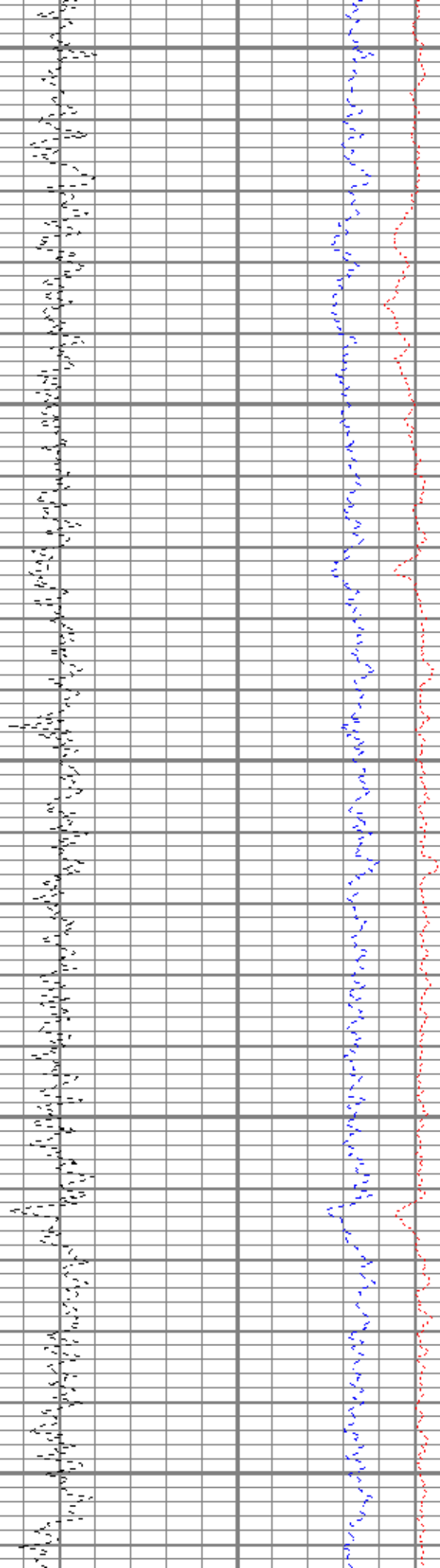
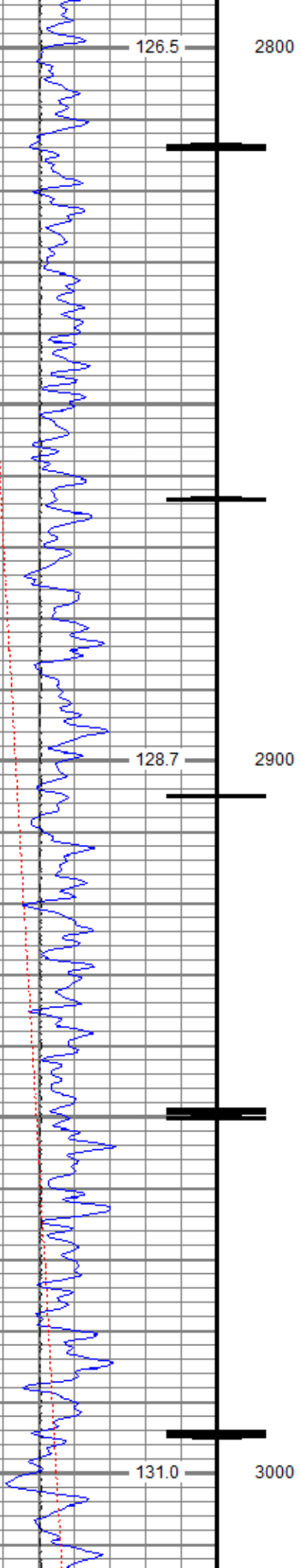


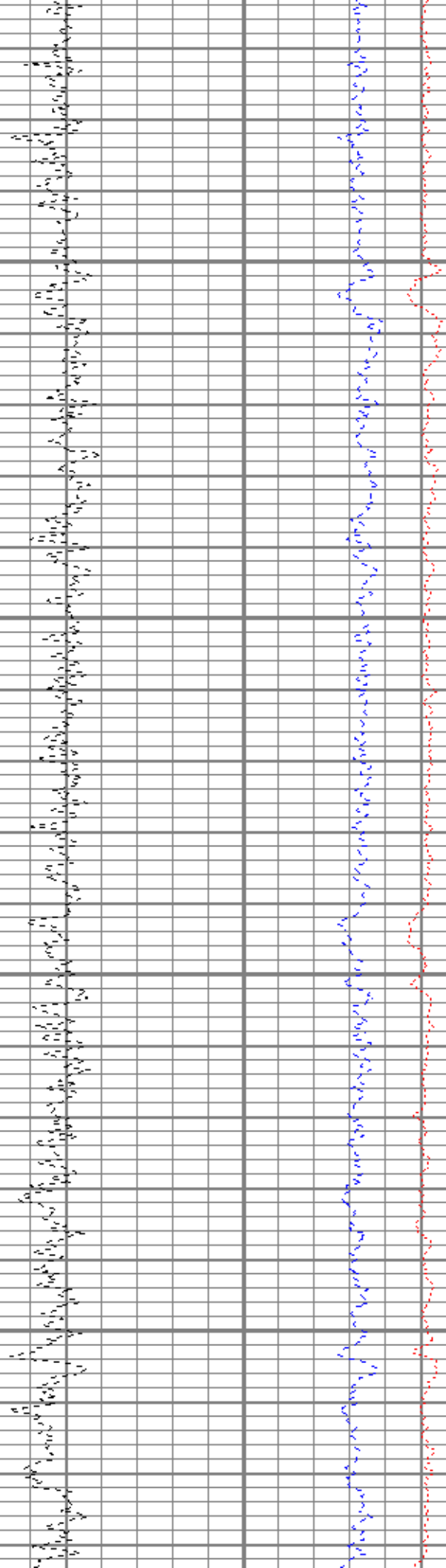
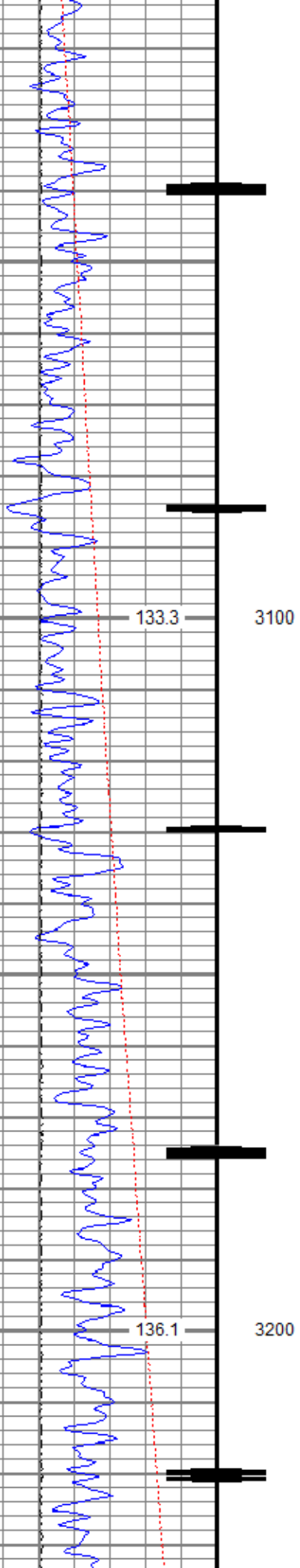


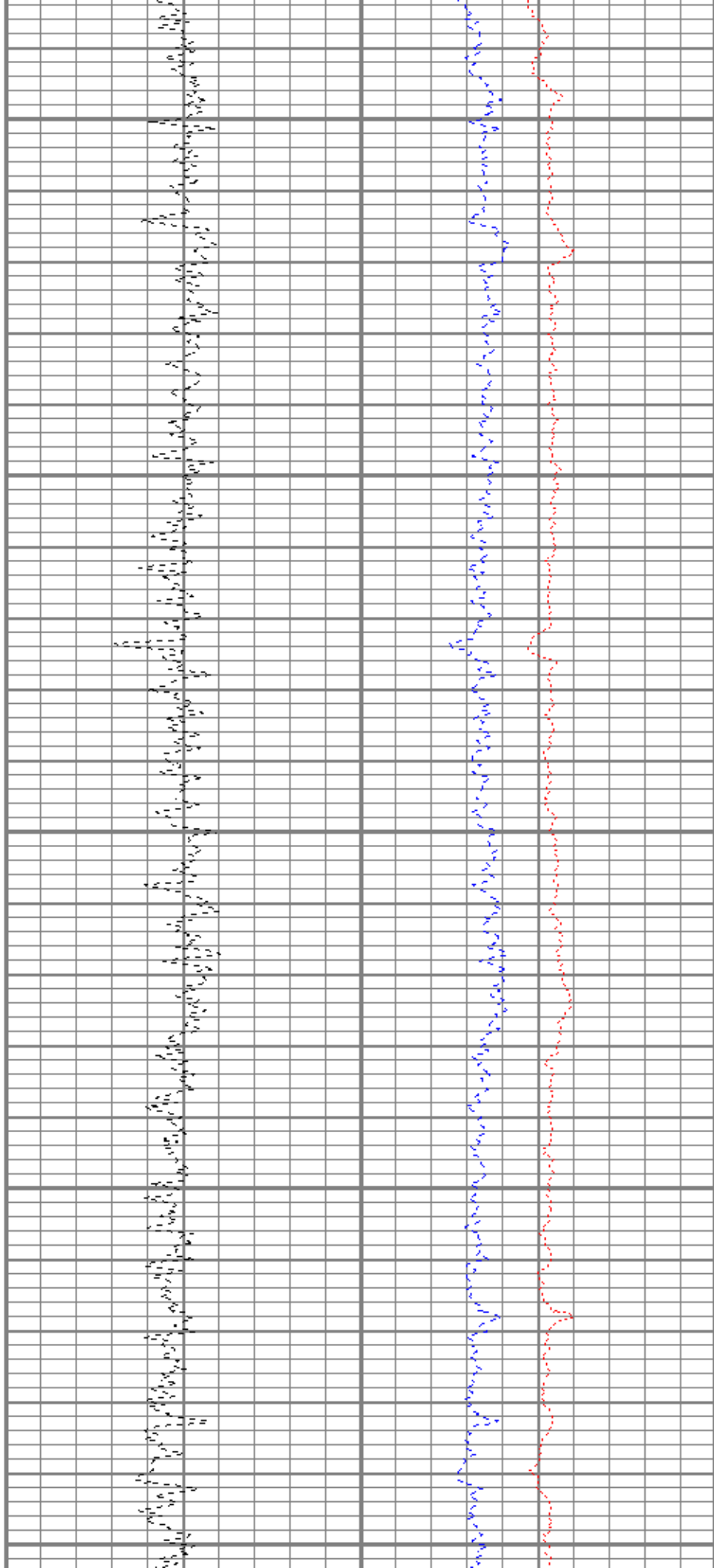
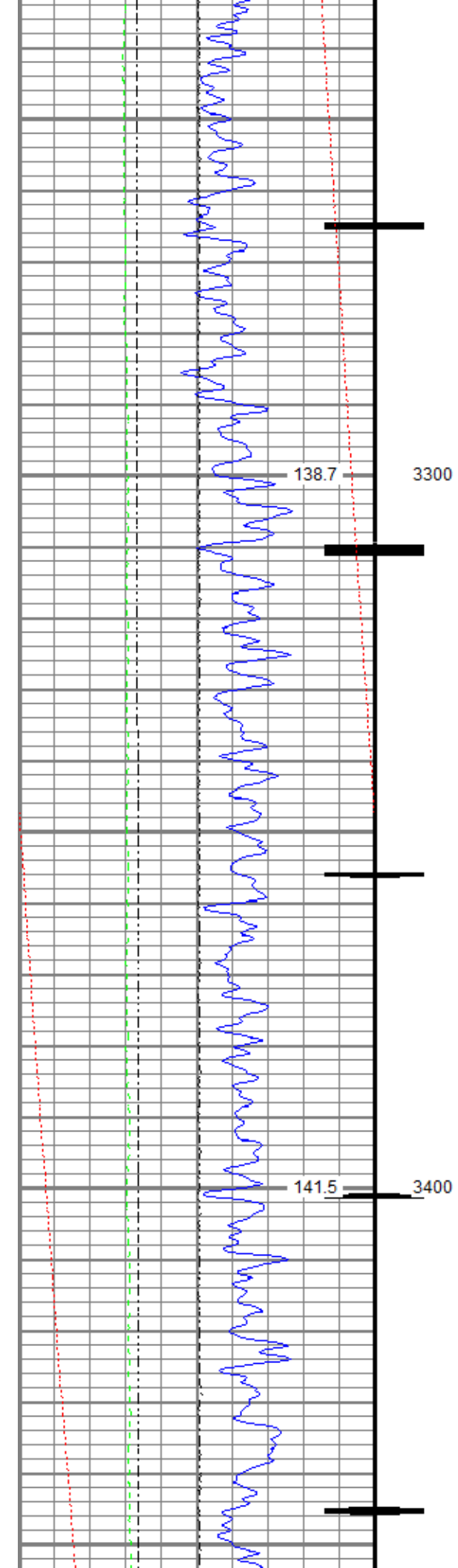


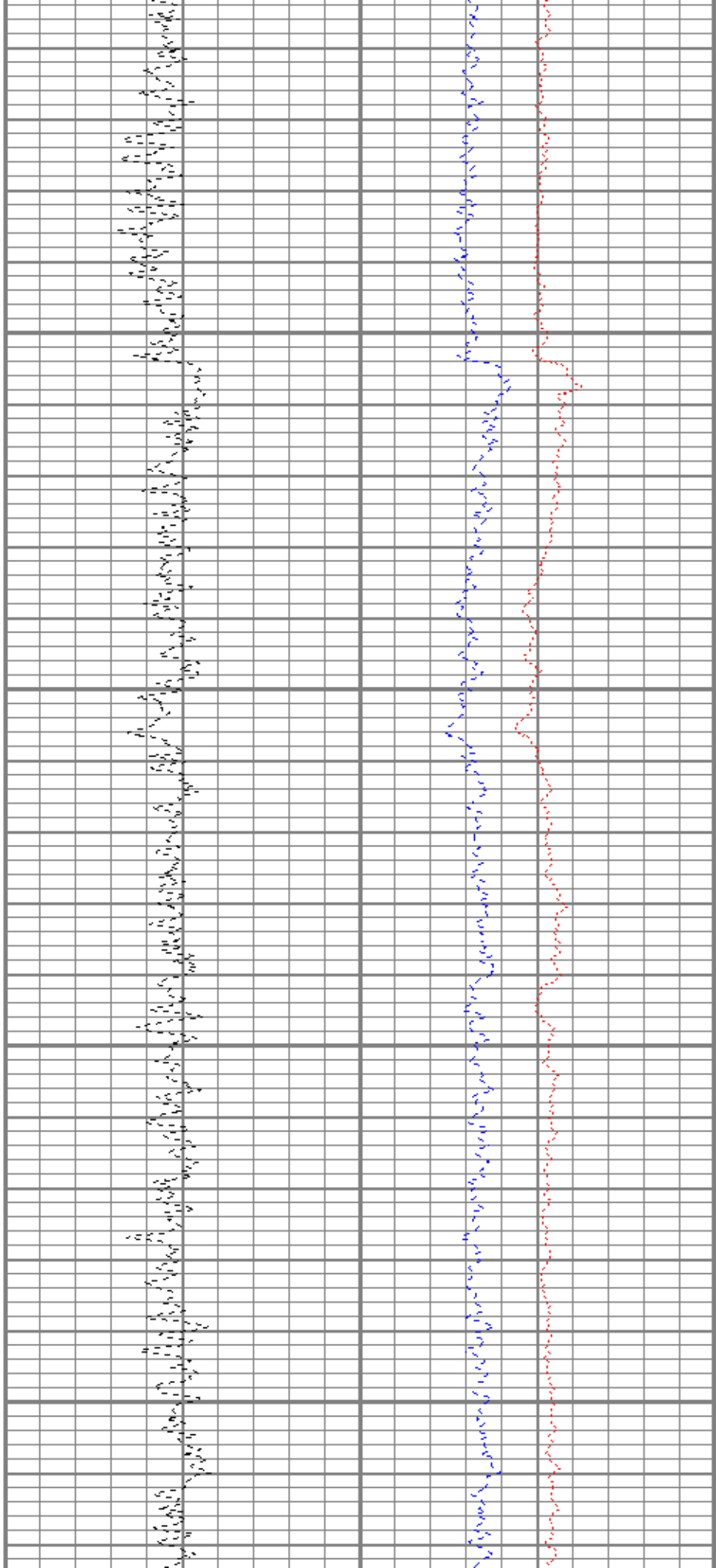
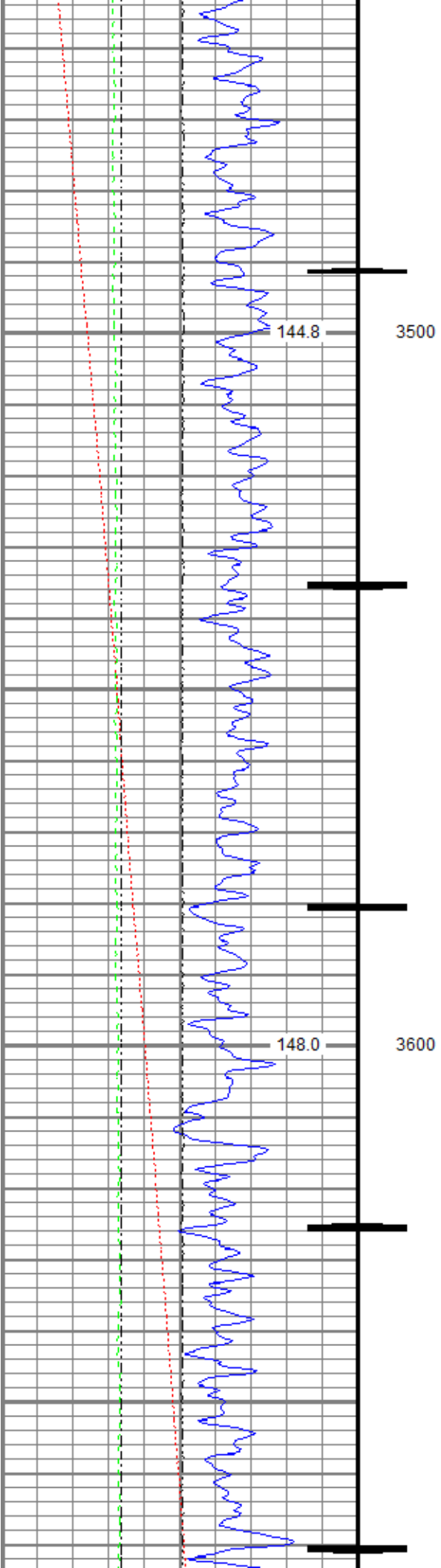


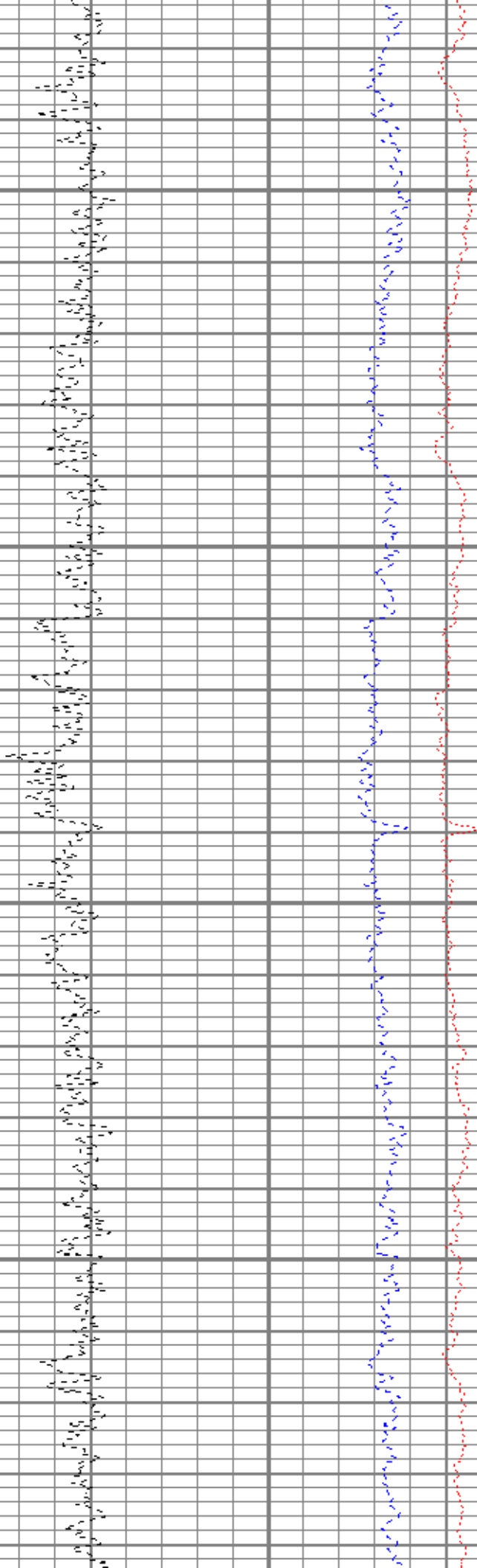
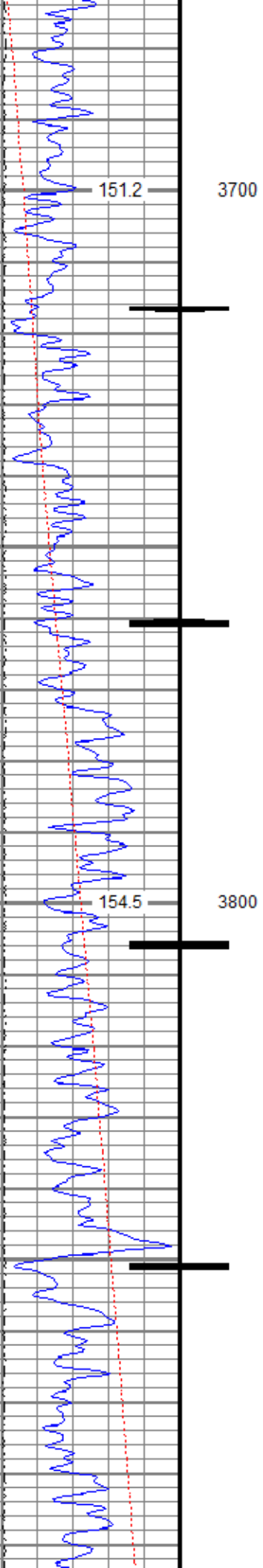


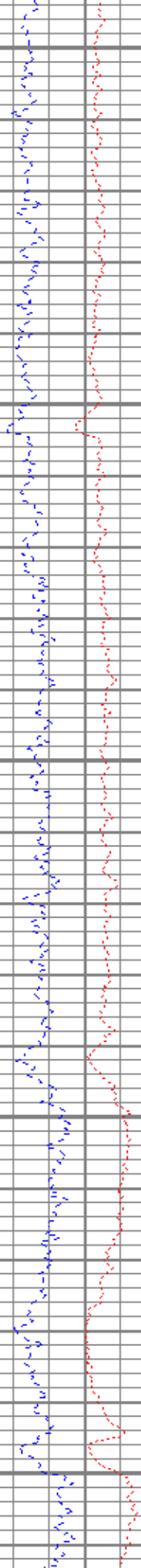
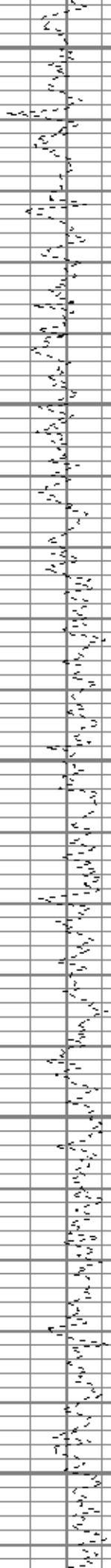
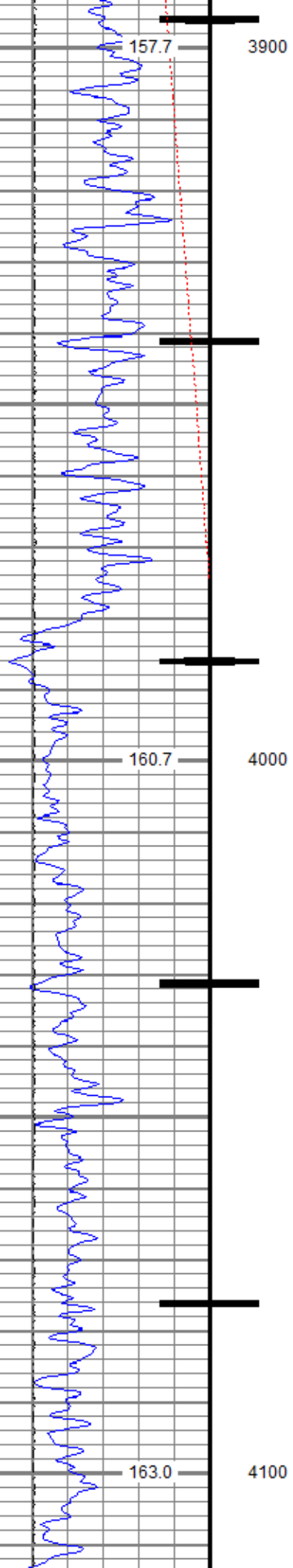




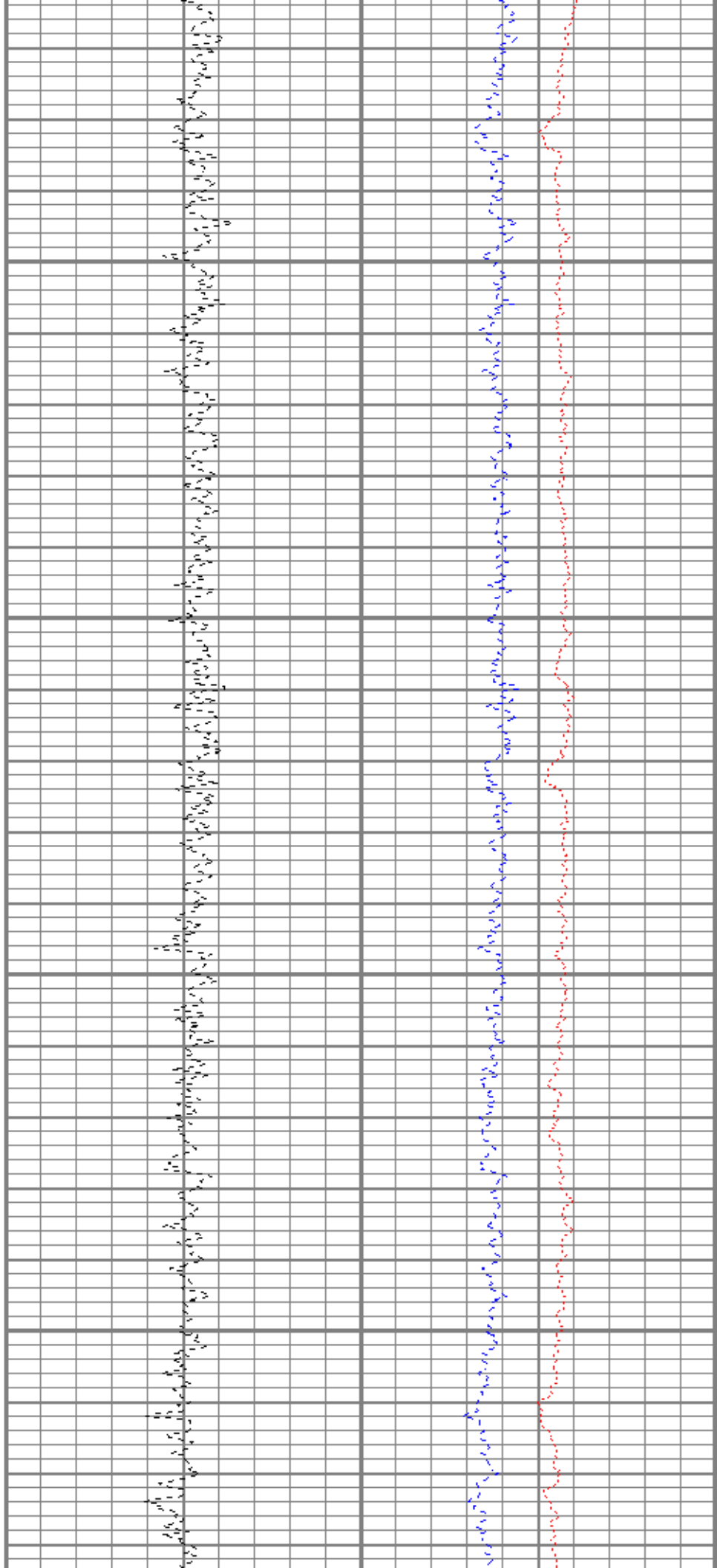
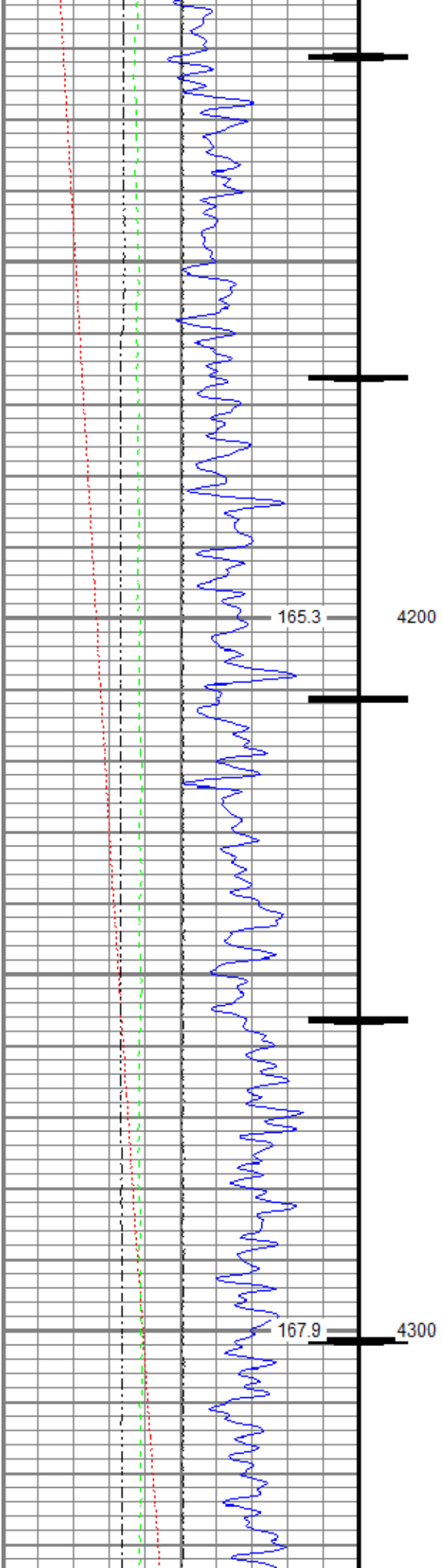


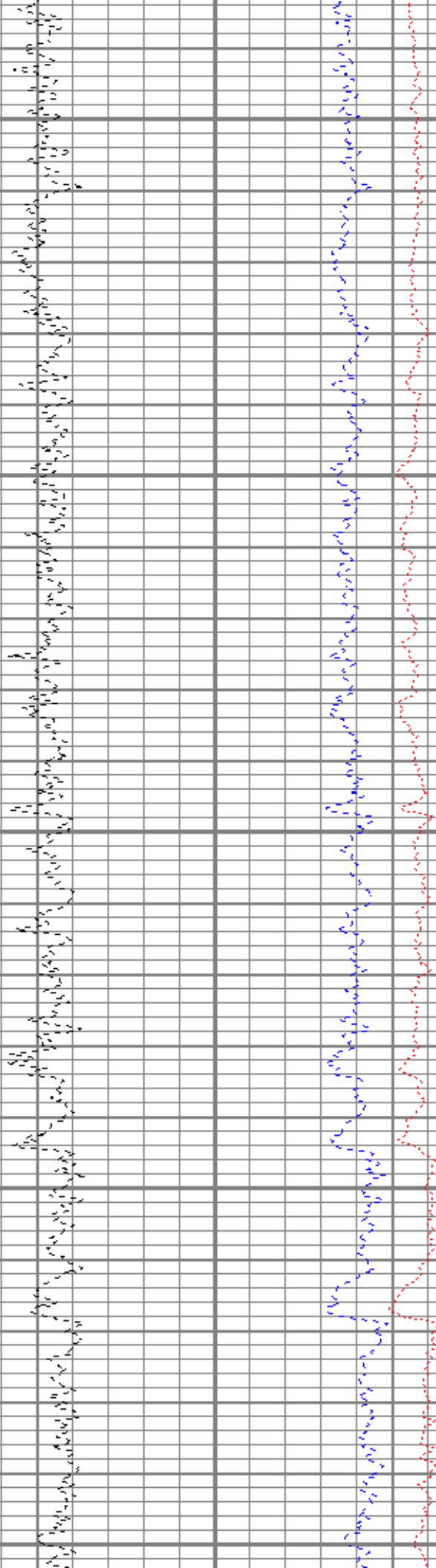
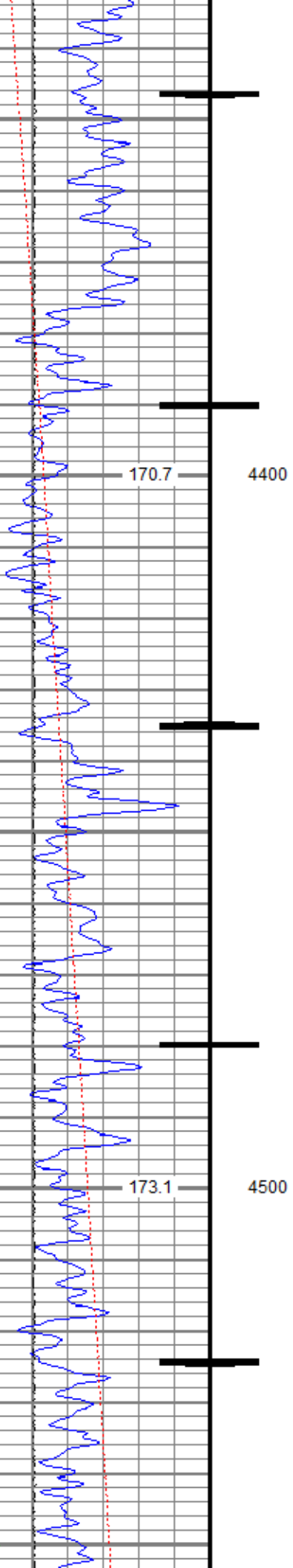


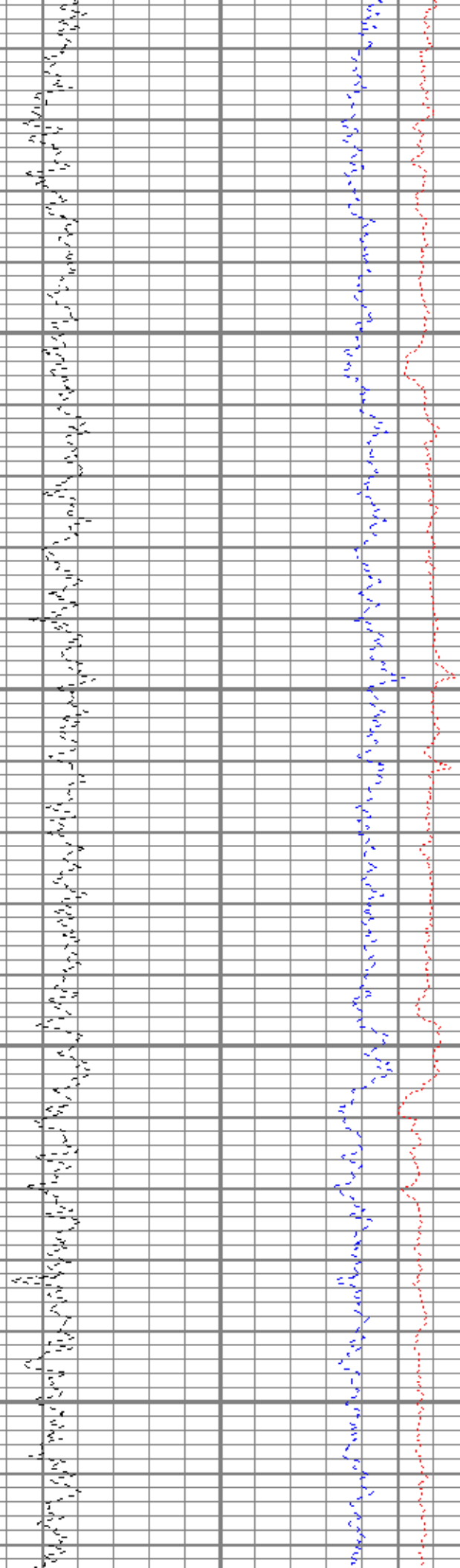
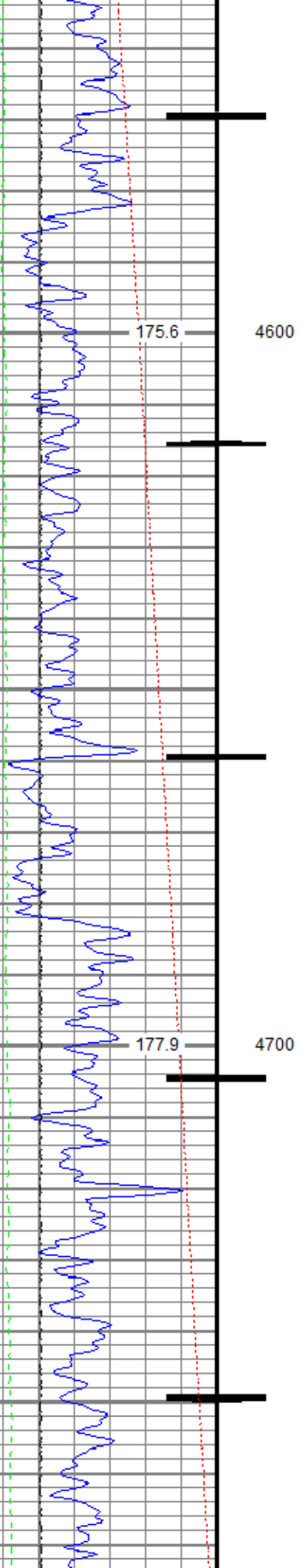


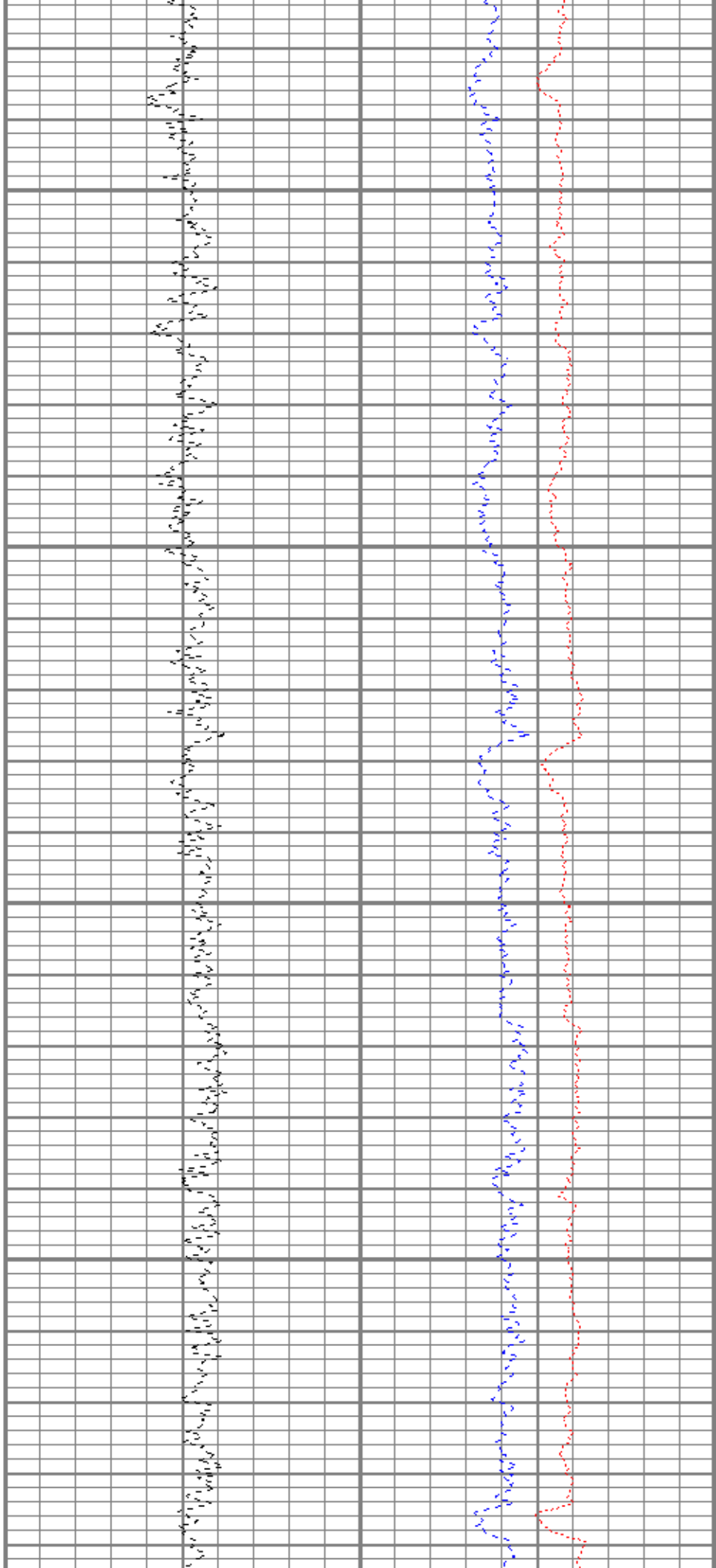
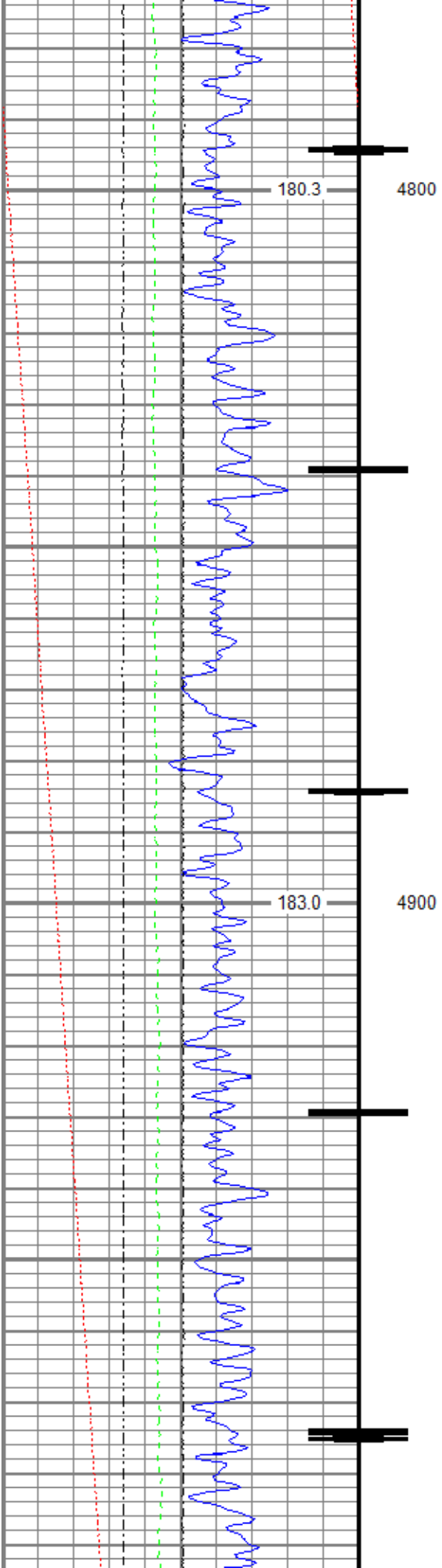


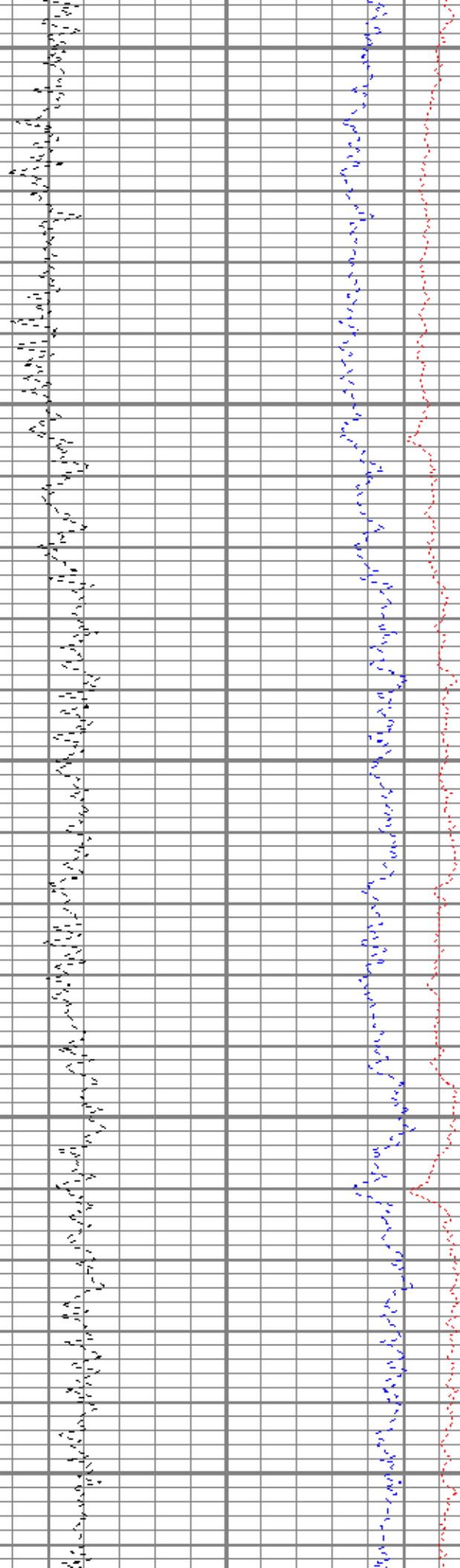
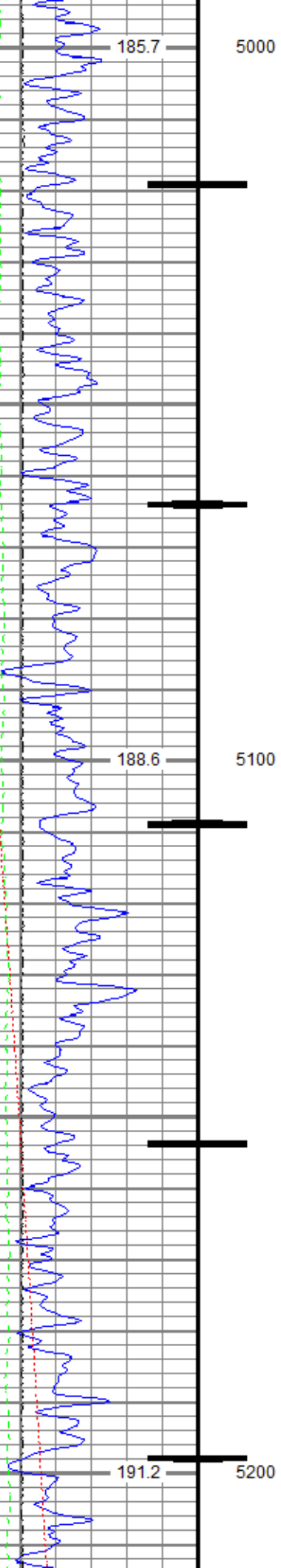


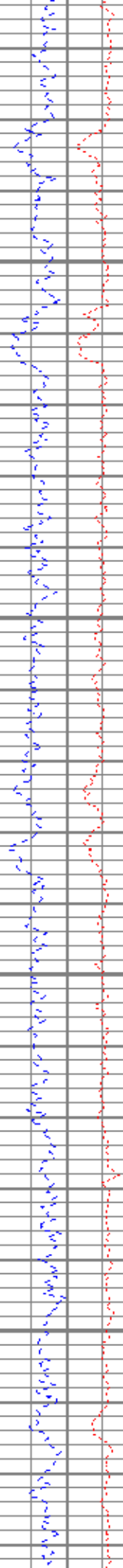
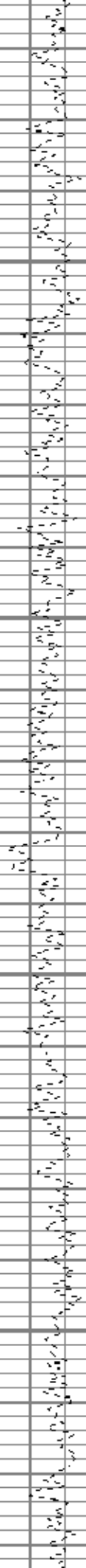
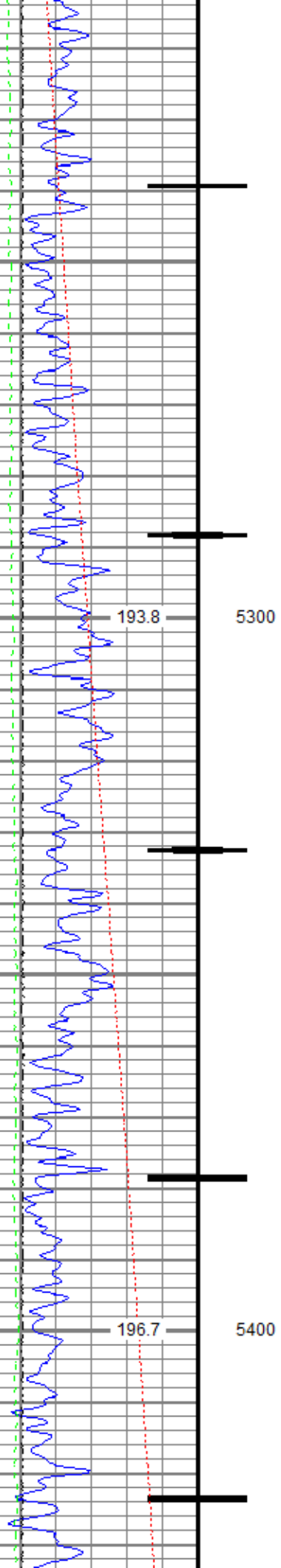




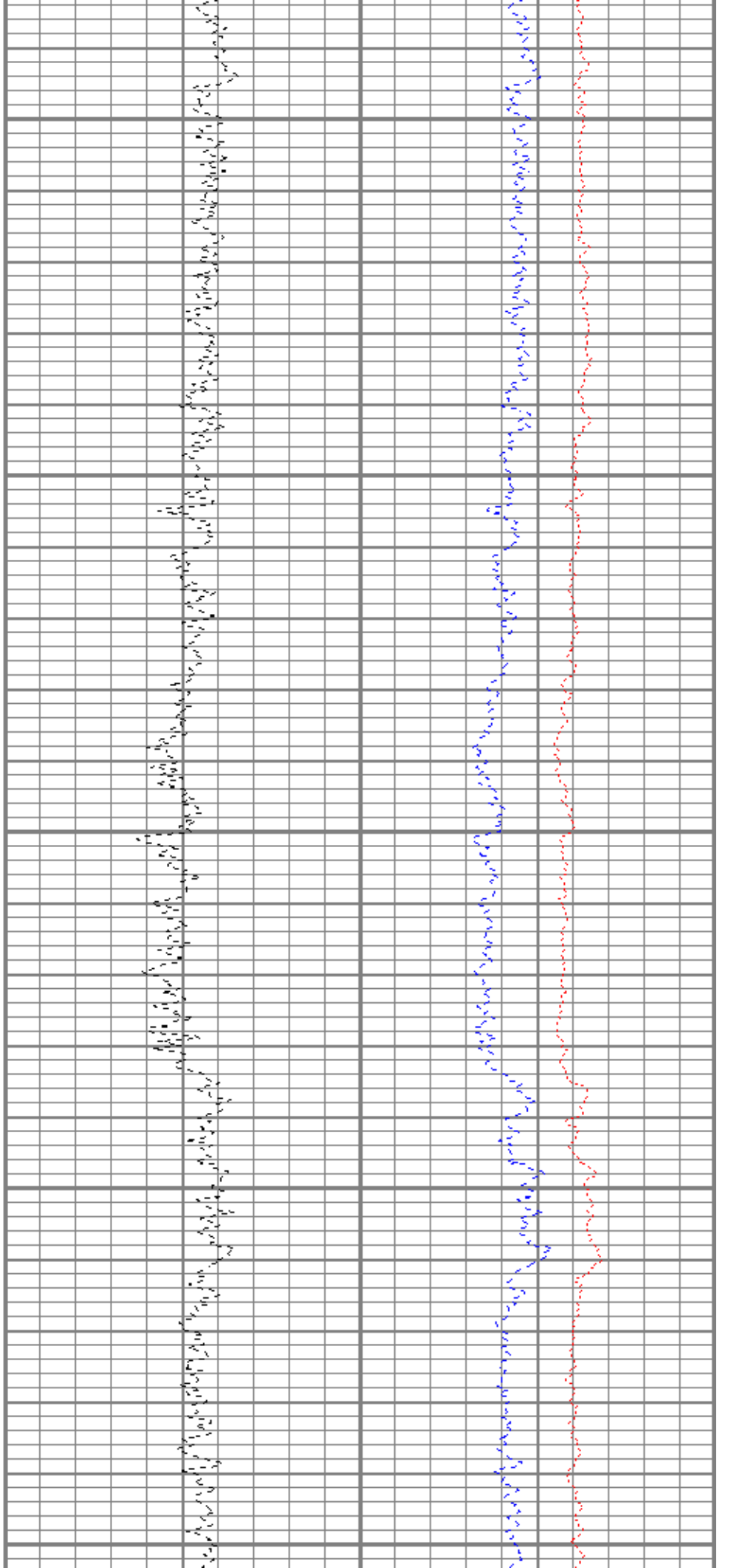
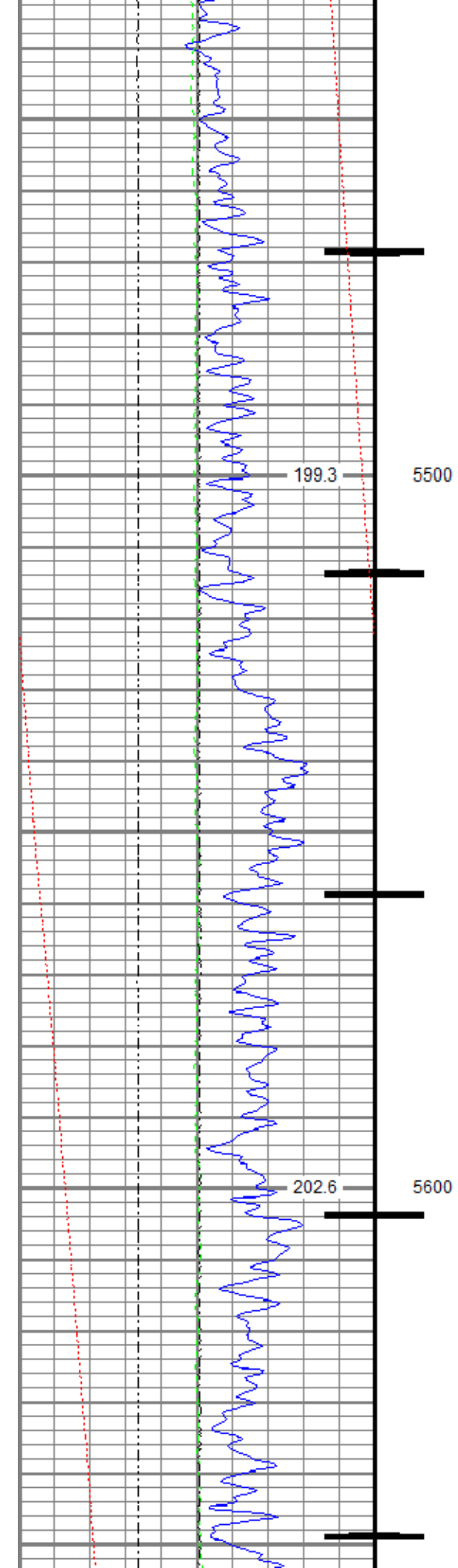


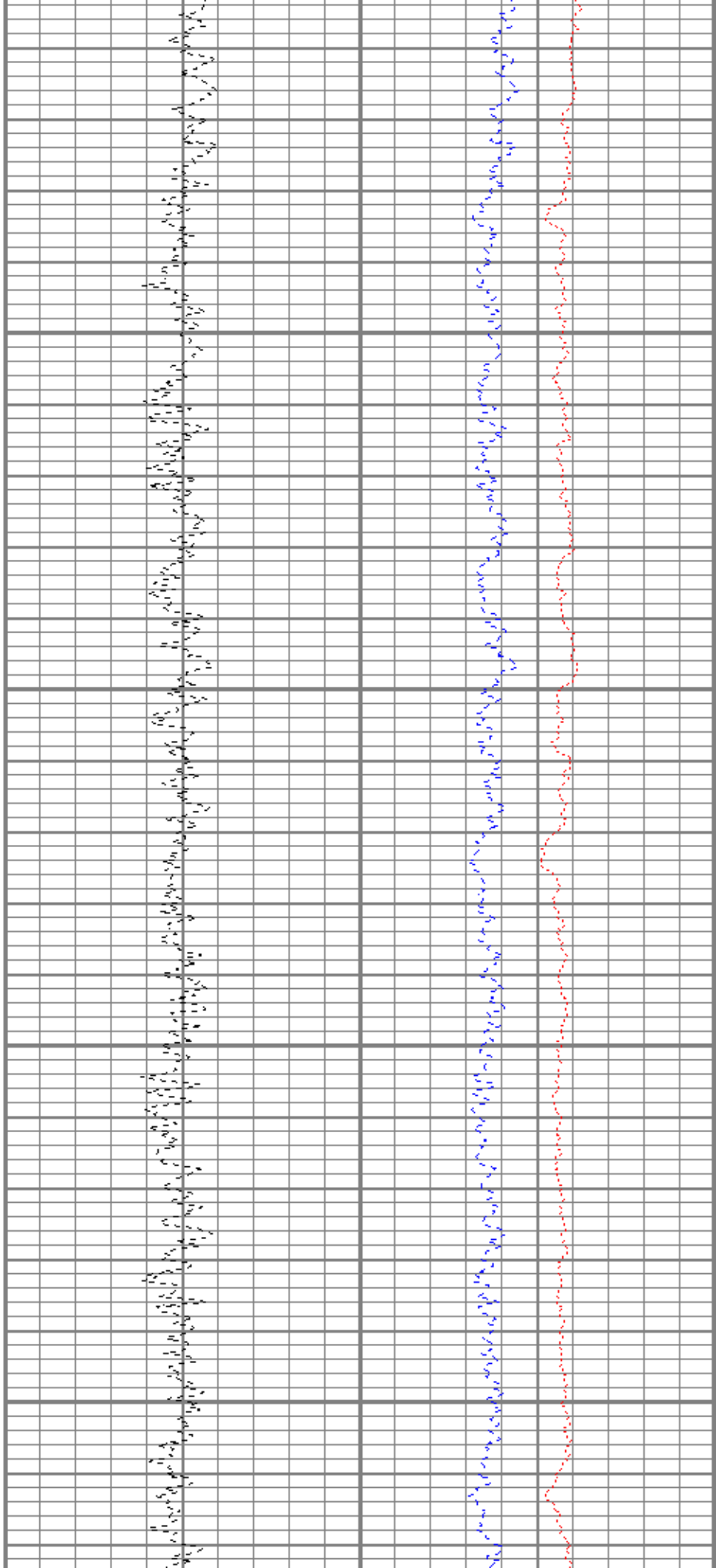
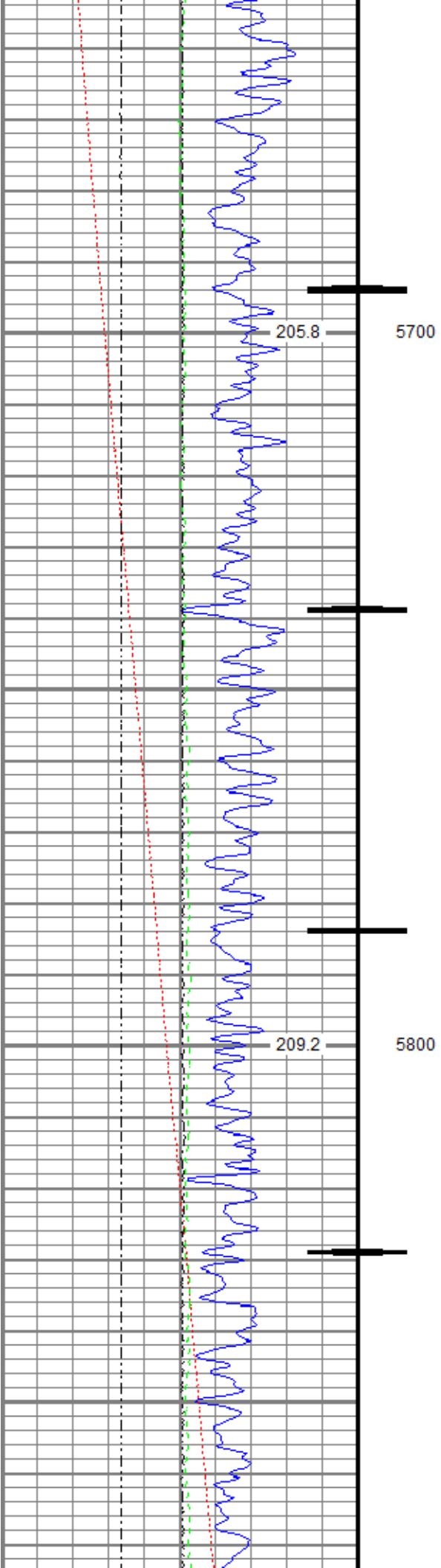


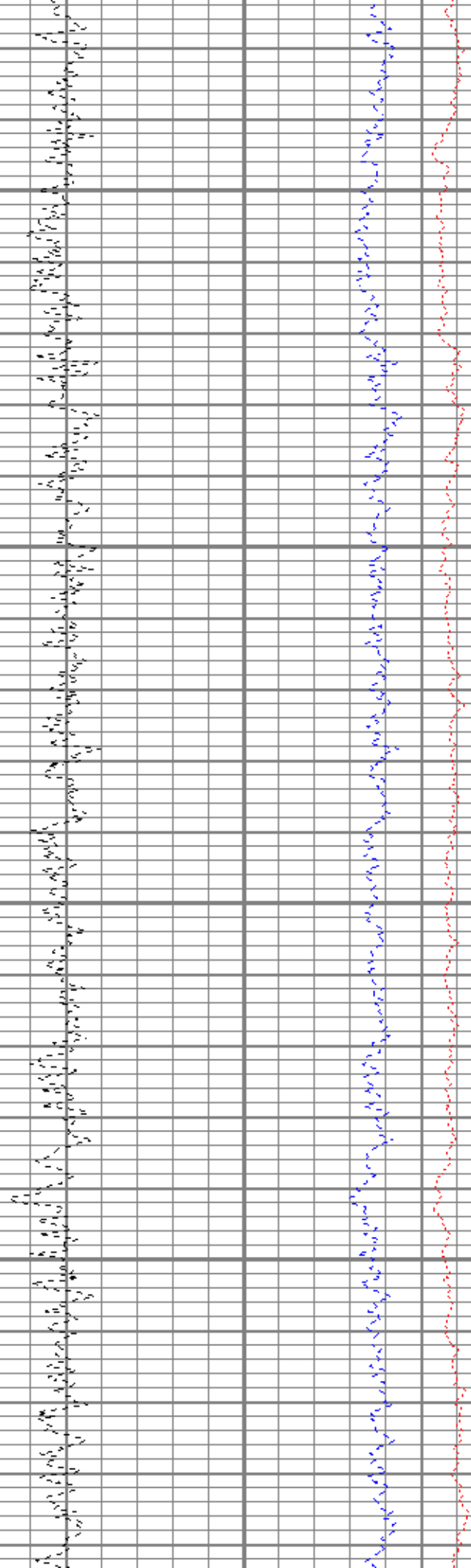
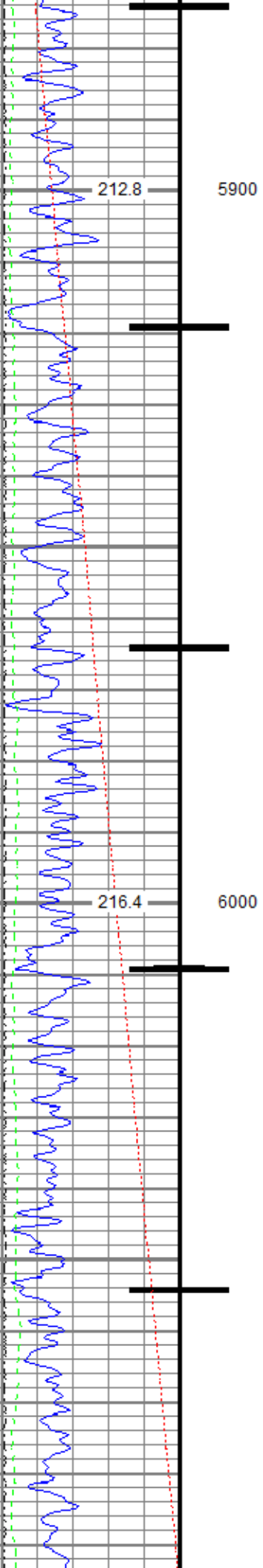


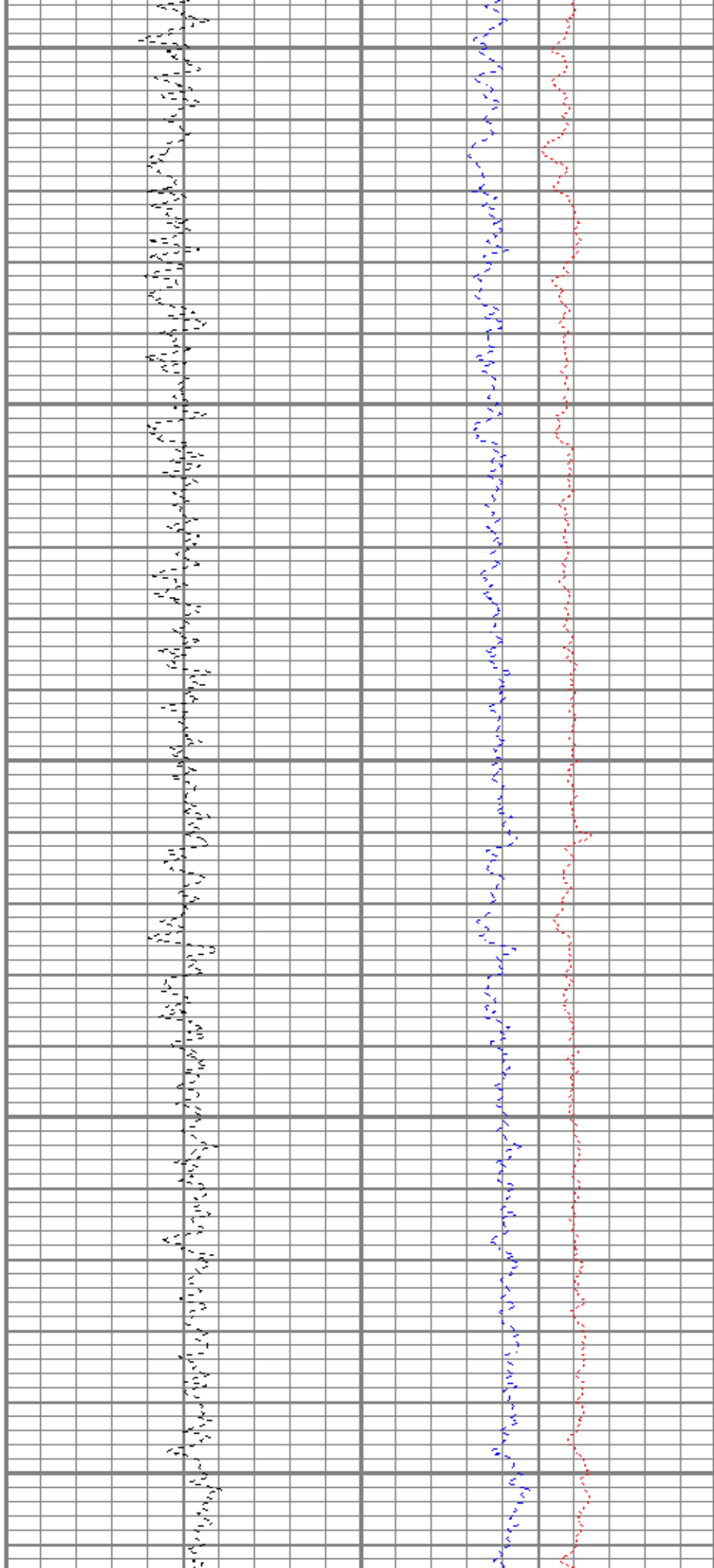
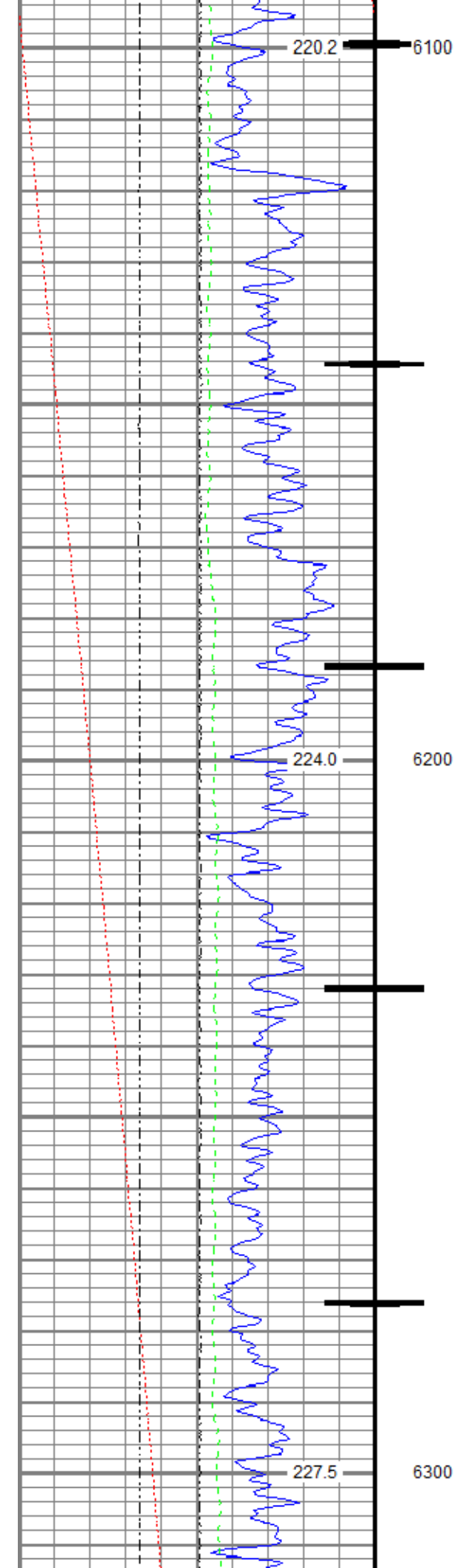


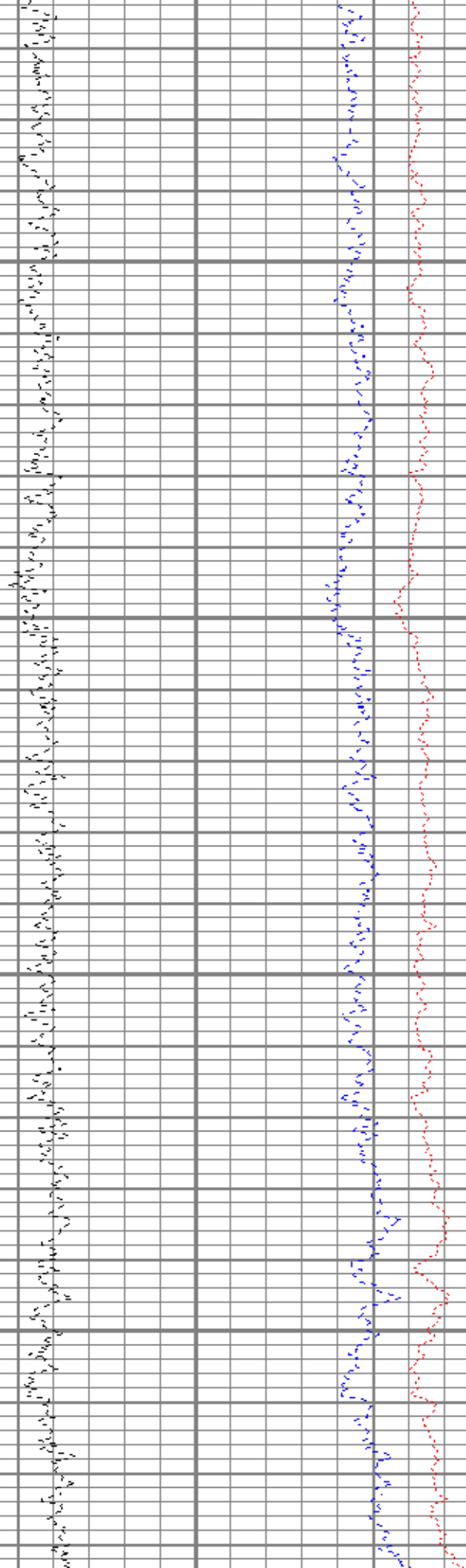
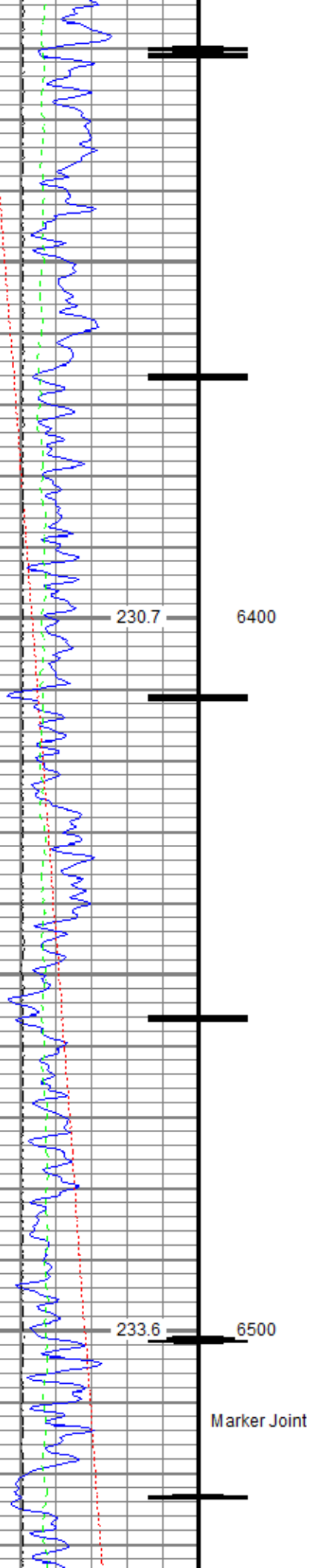


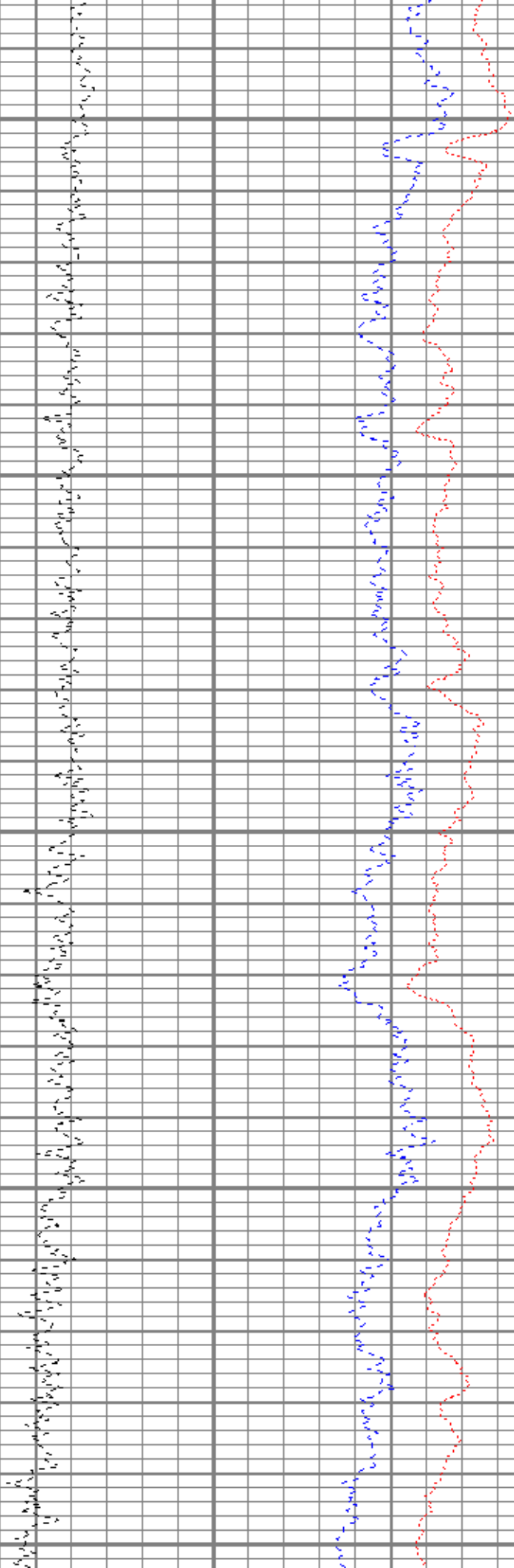
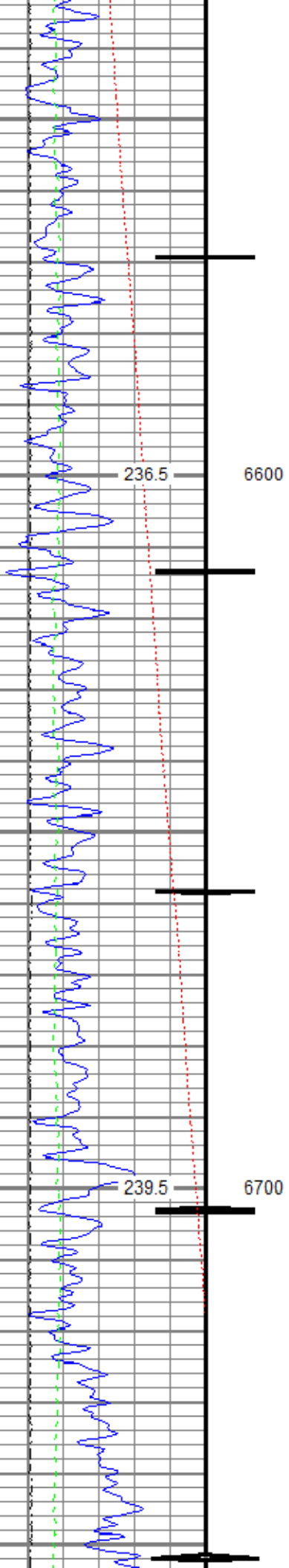




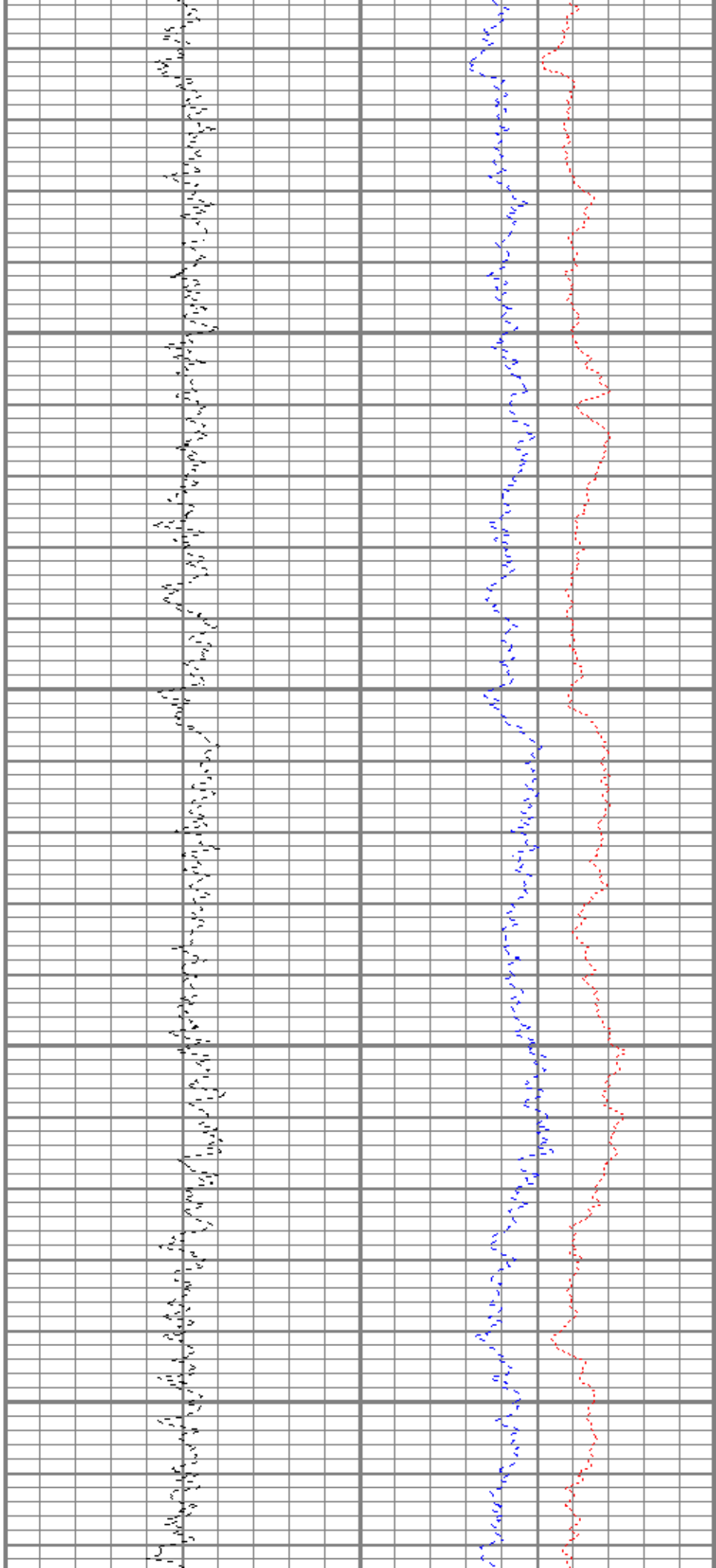
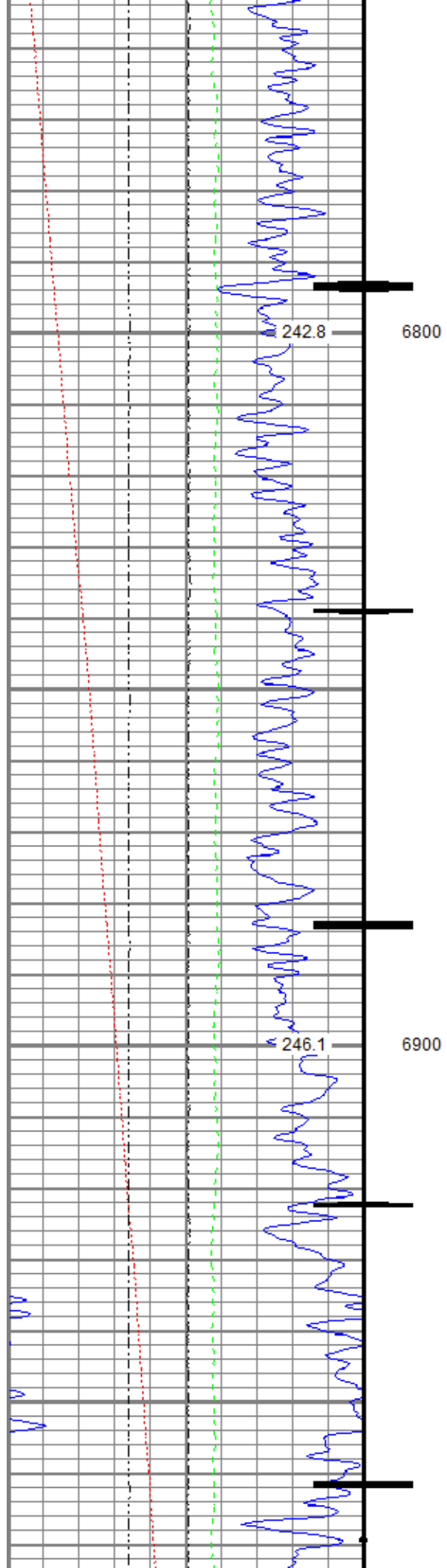


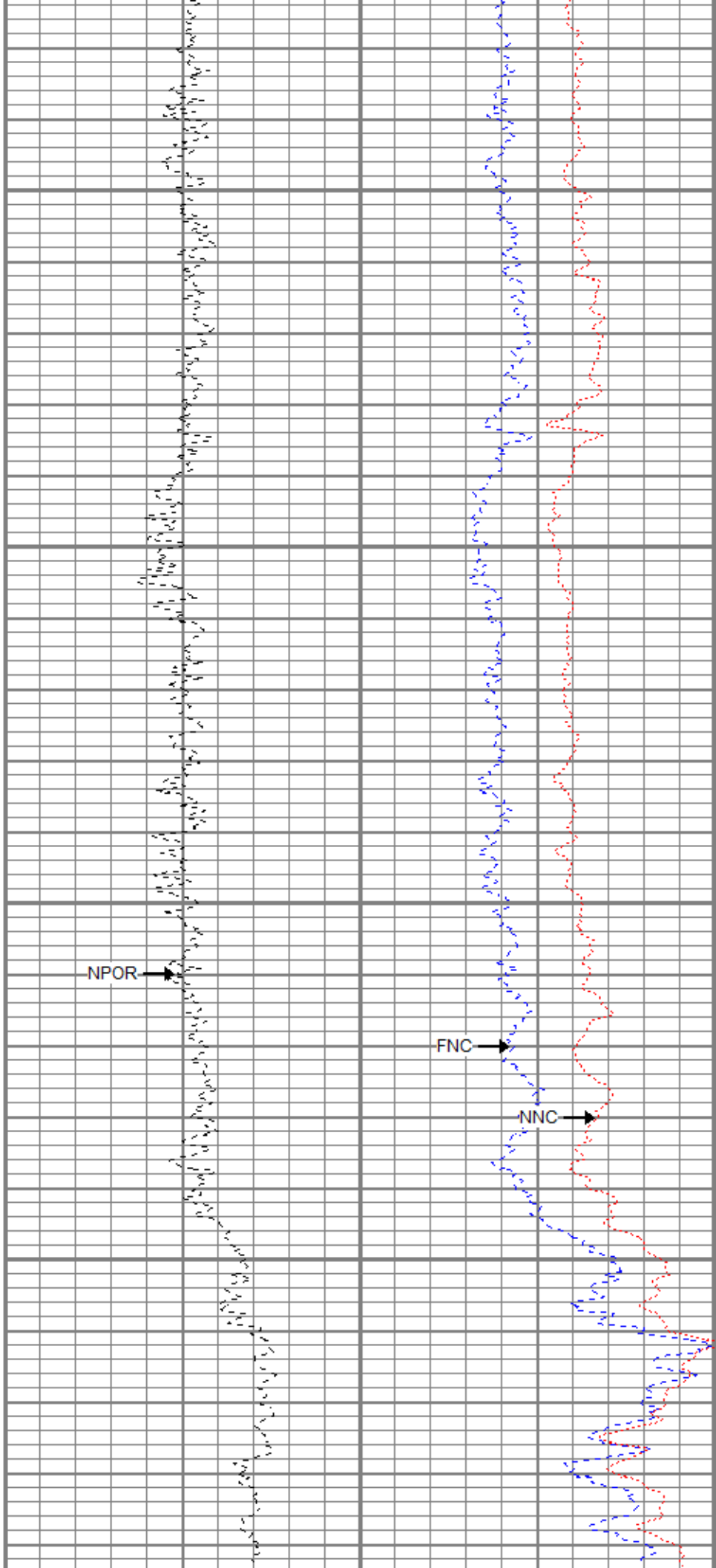
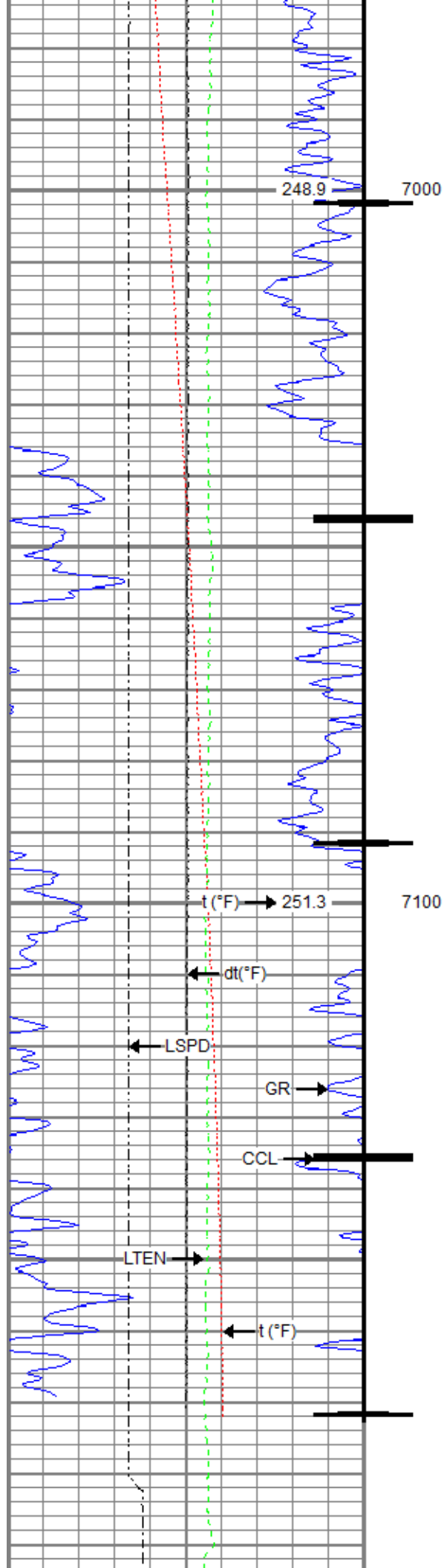


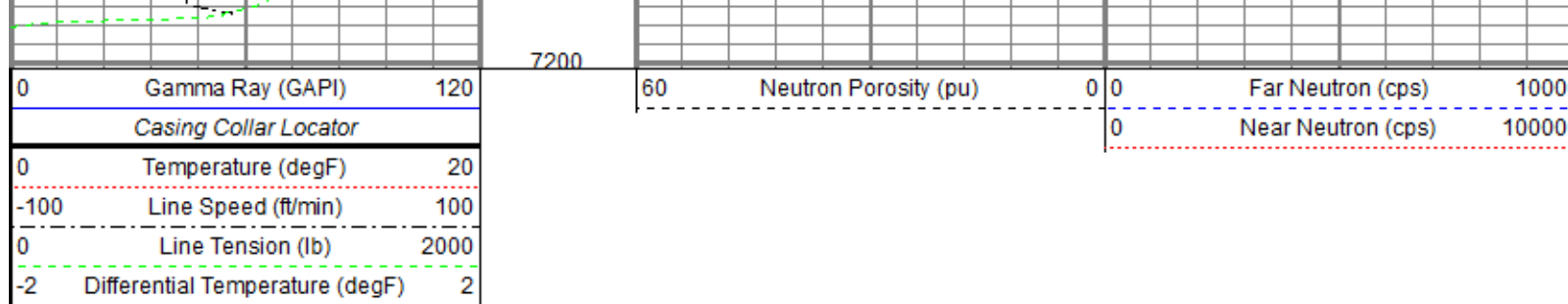


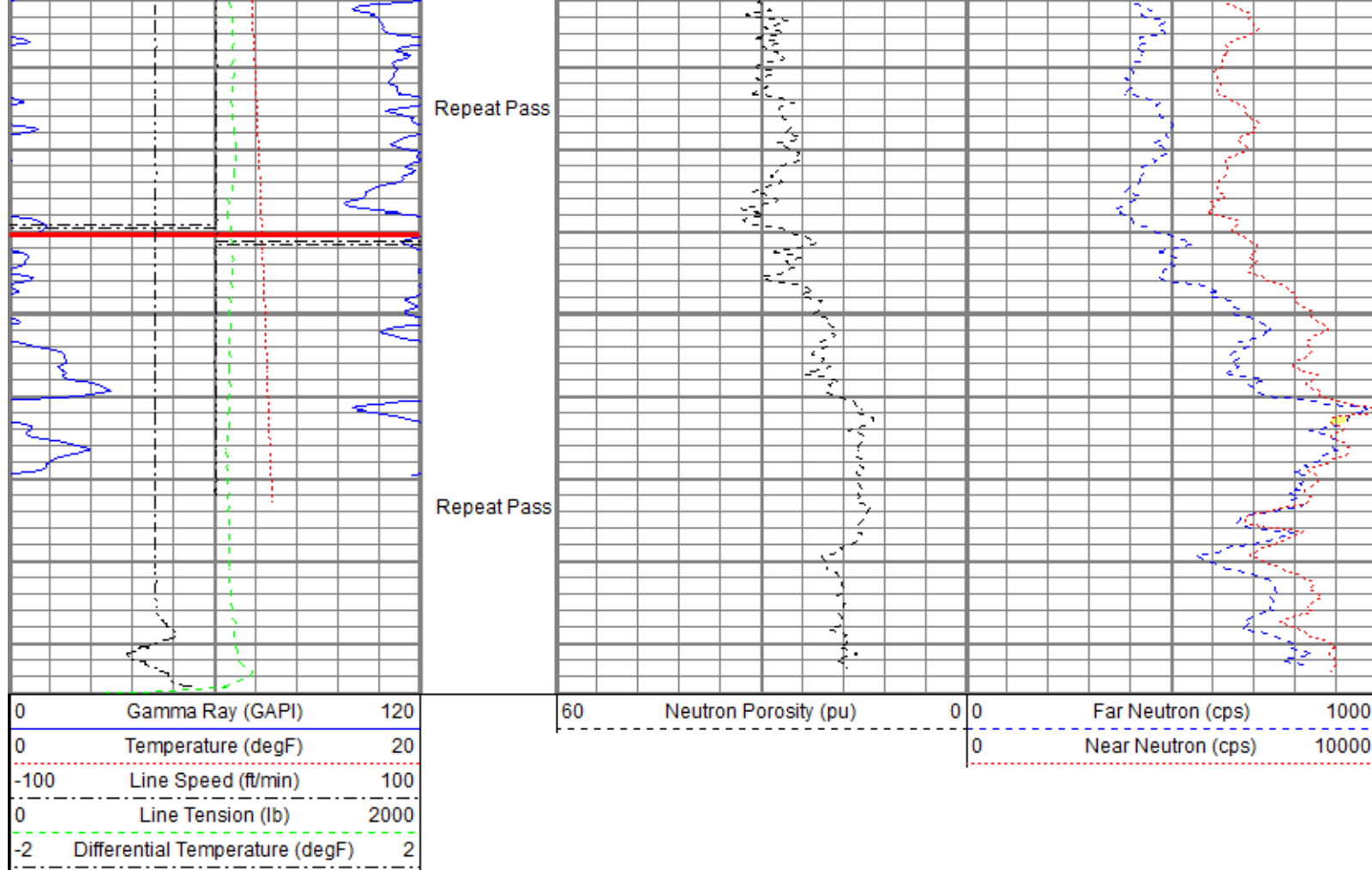




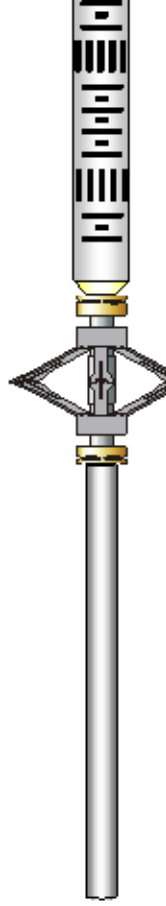
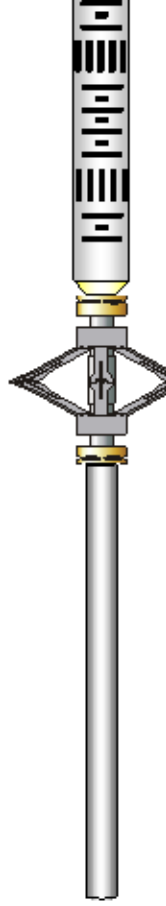








Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)	
GR	24.33		Titan_Electric_Cable_Heads-Titan_1-11/16" Electric Cable Head with 1" Fishing Neck	1.03	1.69	5.40	
			UW_AGS-UW_AGS_001 (218874) Sondex Adapter - GO Box to Sondex Pin	0.21	1.69	1.00	
			UW_XTU-UW_XTU_002 (218874) Crossover 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 (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 (1066)	9.48	3.13	140.00
WVES8	14.29						

WVFS7	14.29		Sondex Ultrawire 3-1/8" Radial Bond Tool					
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 (1007) Sondex Compensated Neutron Logging Tool	6.61	1.69	30.00		
CNLS	1.53							
CNSSC	1.12							
HVOLT	0.00							
ITEMPX	0.00							
TSTAMP	0.00							
Dataset:		PROCESSED_0512344753_Anadarko_RW 36N-32HZ_RBL_CNL_11-20-17.db: field/well/run1/pass4.3						
Total length:		28.58 ft						
Total weight:		297.60 lb						
O.D.:		3.13 in						

Calibration Report			
Database File	C:\ProgramData\Warrior\Data\0512344753_Anadarko_RW 36N-32HZ_RBL_CNL_11-20-17\PROCESSED_0512344753_Anadarko_RW 36N-32HZ_RBL_CNL_11-20-17		
Dataset Pathname	pass4.3		
Dataset Creation	Mon Nov 20 14:56:49 2017		
Compensated Neutron Calibration Report			
Serial Number:	1007		
Tool Model:	UW_CNL_007		
Master Calibration	Sun Feb 07 11:32:29 2016		
Detector	Readings		
Short Space	240.97	cps	
Long Space	302.45	cps	
Ratio	Measured	Reference	
CNRAT Gain K	0.8150	Sleeve: 1.0000	
	1.0211		
Before Survey			
Detector	Readings		
Short Space		cps	
Long Space		cps	
Ratio	Measured	Reference	
After Survey			
Detector	Readings		

Short Space  
Long Space

cps  
cps

Ratio

Measured

Reference

### Segmented Cement Bond Log Calibration Report

Serial Number: 1066  
Tool Model: UW\_RBT\_004  
Calibration Casing Diameter: 5.500 in  
Calibration Depth: 3.524 ft

### Master Calibration, performed (Derived):

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	-0.000	0.959	0.800	71.921	74.159	0.809
5FT	-0.006	0.848	0.800	71.921	83.302	1.315
S1	-0.001	0.999	0.000	100.000	100.075	0.066
S2	-0.002	0.982	0.000	100.000	101.626	0.190
S3	-0.001	0.947	0.000	100.000	105.537	0.108
S4	-0.002	0.951	0.000	100.000	104.972	0.162
S5	-0.000	0.906	0.000	100.000	110.355	0.054
S6	-0.001	0.913	0.000	100.000	109.366	0.133
S7	-0.000	0.987	0.000	100.000	101.272	0.033
S8	-0.001	1.011	0.000	100.000	98.884	0.058

### 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: 10013902  
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 RW 36N-32HZ  
Field Wattenberg

County  
State

Weld  
Colorado