



Compensated Neutron
Gamma Ray
Casing Collar Log

Company	Noble Energy Inc.		
Well	Wells Ranch AA11-628		
Field	Wattenberg		
County	Weld		
State	Colorado		
Location:	Company	Noble Energy Inc.	
	Well	Wells Ranch AA11-628	
	Field	Wattenberg	
	County	Weld	
Location:	State	Colorado	
	API #	05-123-41247	
	SEC	11	TWP 6N RGE 63W
	Permanent Datum	Ground Level	Elevation 4834'
Log Measured From	Kelly Bushing		
Drilling Measured From	Kelly Bushing		
Other Services			---
Elevation			K.B. 4858' D.F. 4857' G.L. 4834'

Date	24-SEP-2015		
Run Number	One		
Depth Driller	13844 FT		
Depth Logger	6639 FT		
Bottom Logged Interval	6635 FT		
Top Log Interval	Surface		
Open Hole Size	8.75"		
Type Fluid	Water		
Density / Viscosity	8.34 lbm/gal		
Max. Recorded Temp.	217°F		
Estimated Cement Top	144 FT		
Time Well Ready	ROA		
Time Logger on Bottom	3:20 PM		
Equipment Number	HD-0361		
Location	Fort Lupton, CO		
Recorded By	B. Kalkwarf		
Witnessed By	B. Murray		

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	Surface	592 FT		
Intermediate #1	7	26	P-110IC	Surface	7043 FT		
Intermediate #2							
Liner	4 1/2	11.6	P-110IC	6631 FT	13605 FT		

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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 liner top at 6631 FT
Adjusted +6 FT to correlate with liner top
Recorded with 0 PSI Surface Induced Pressure
Logging tools were clean and free of debris upon completion of operations

Thank you for choosing FMC Technologies Completion Services, Inc.

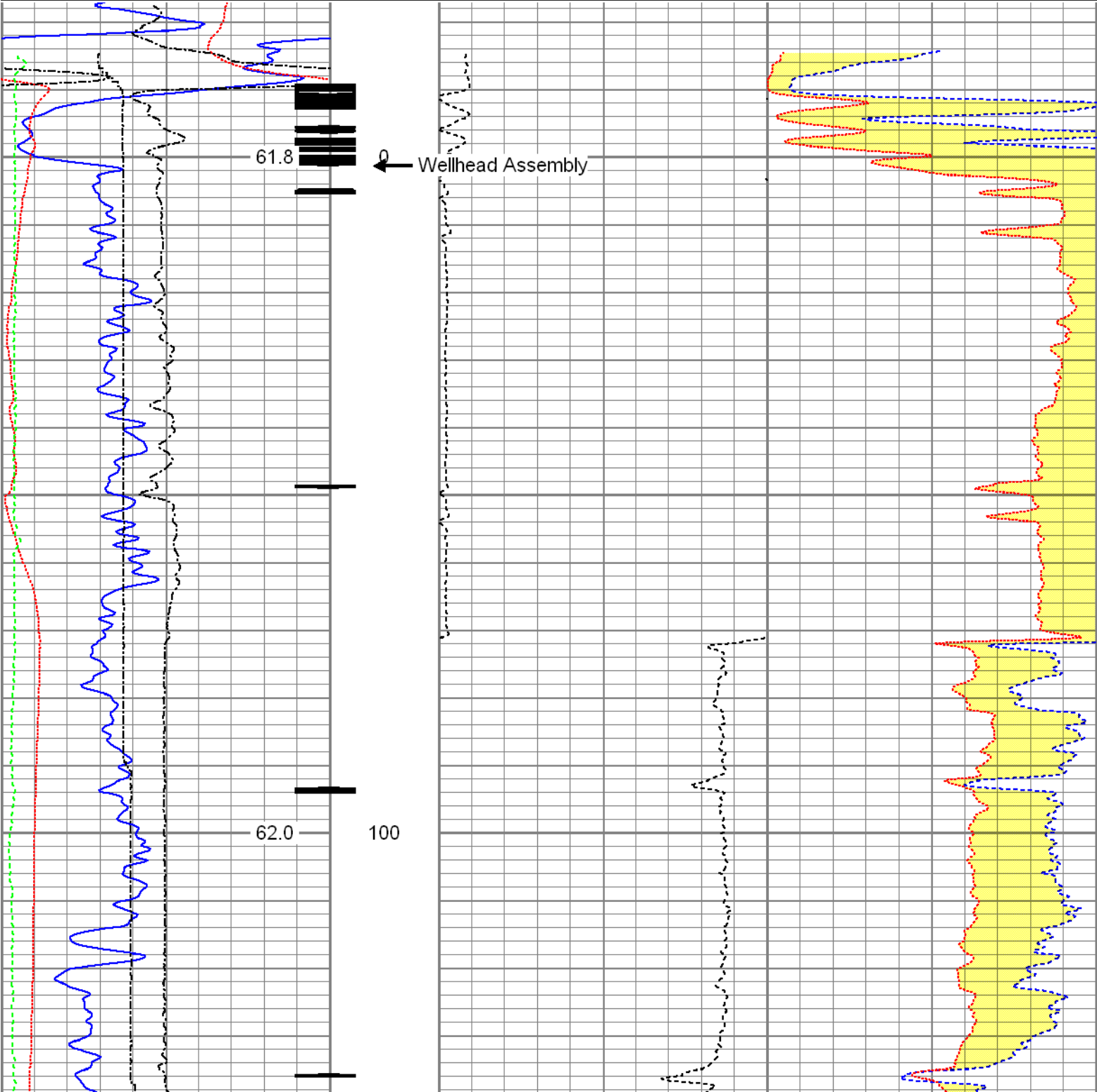


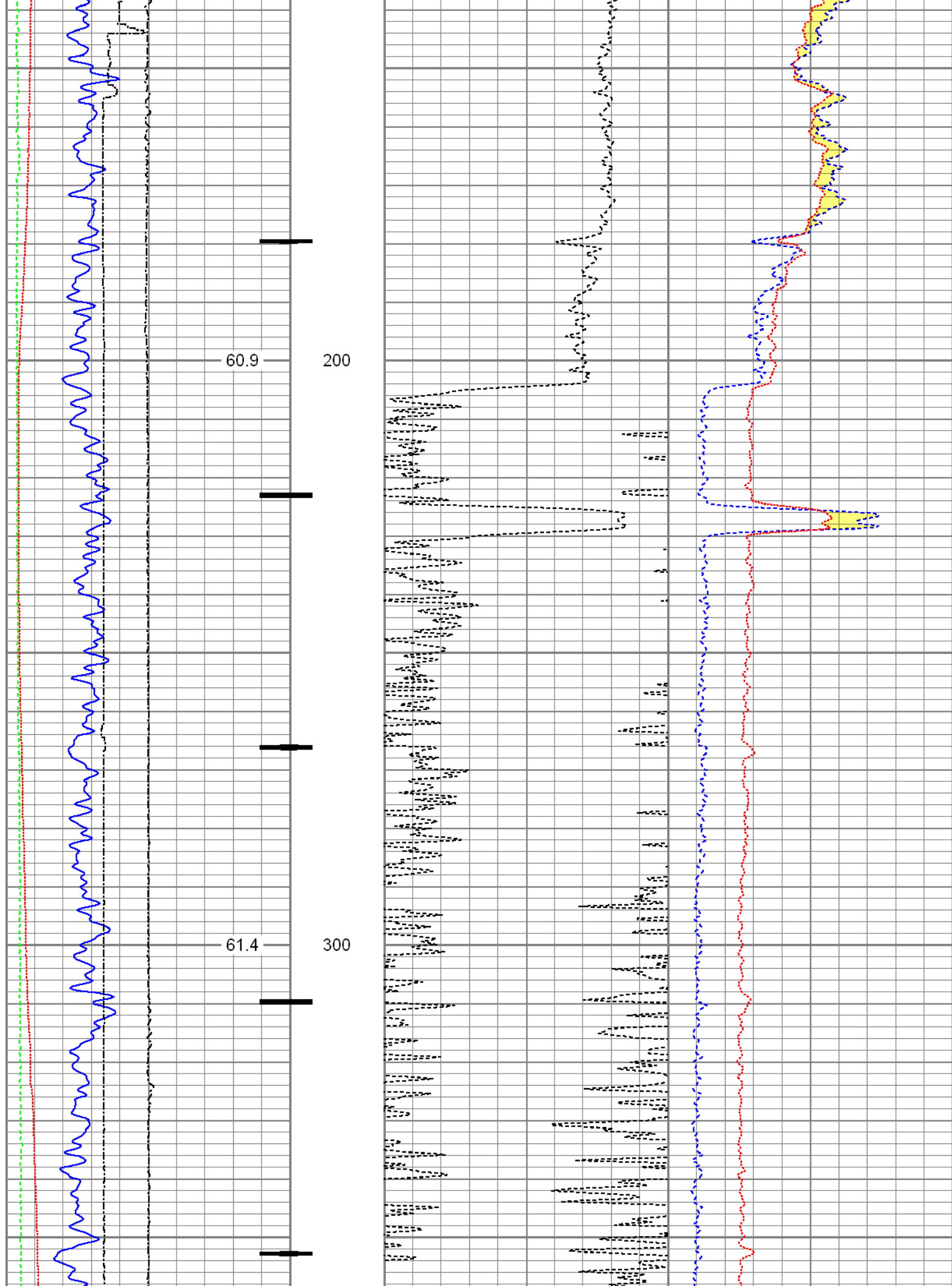
Main Pass

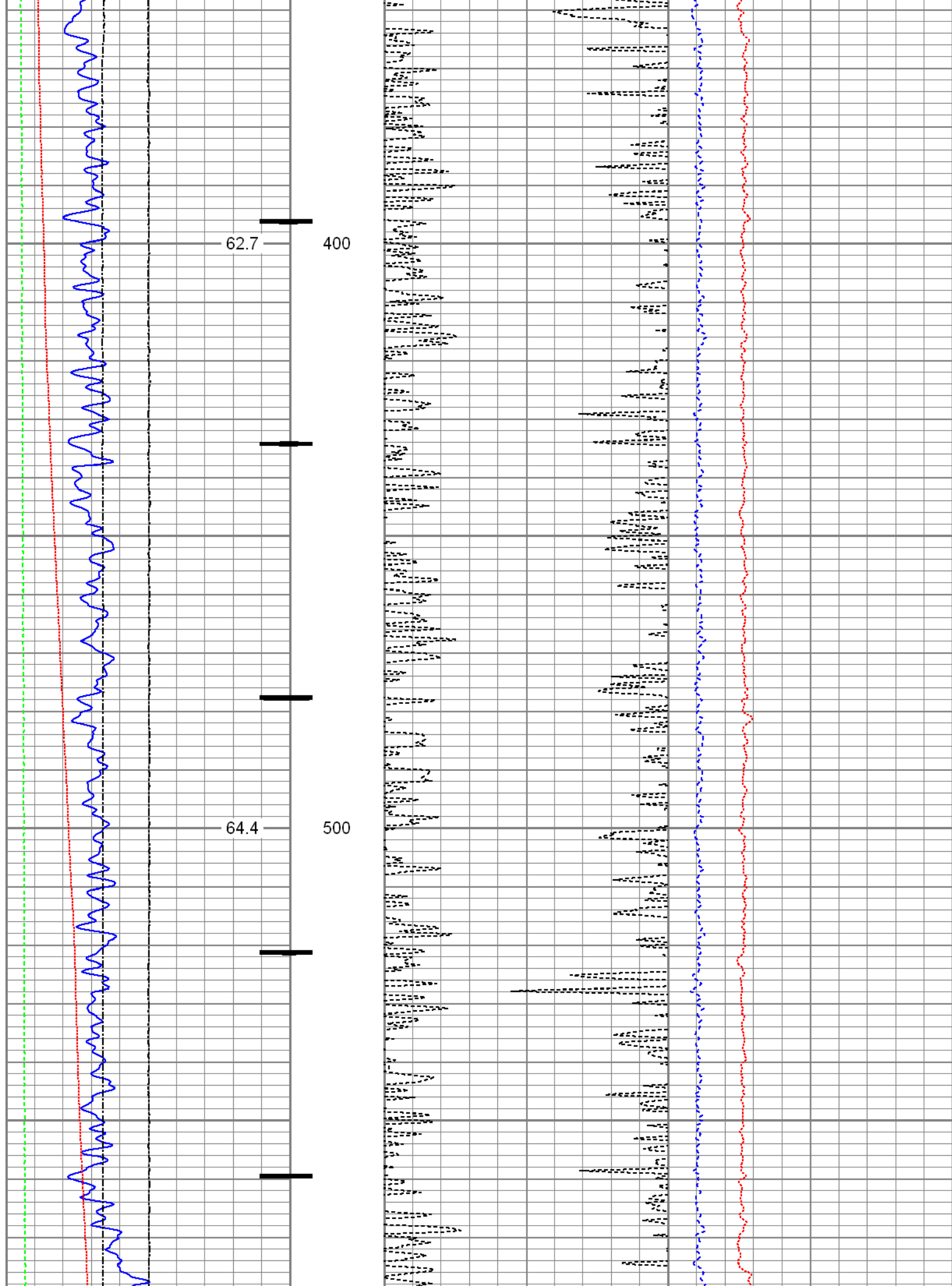
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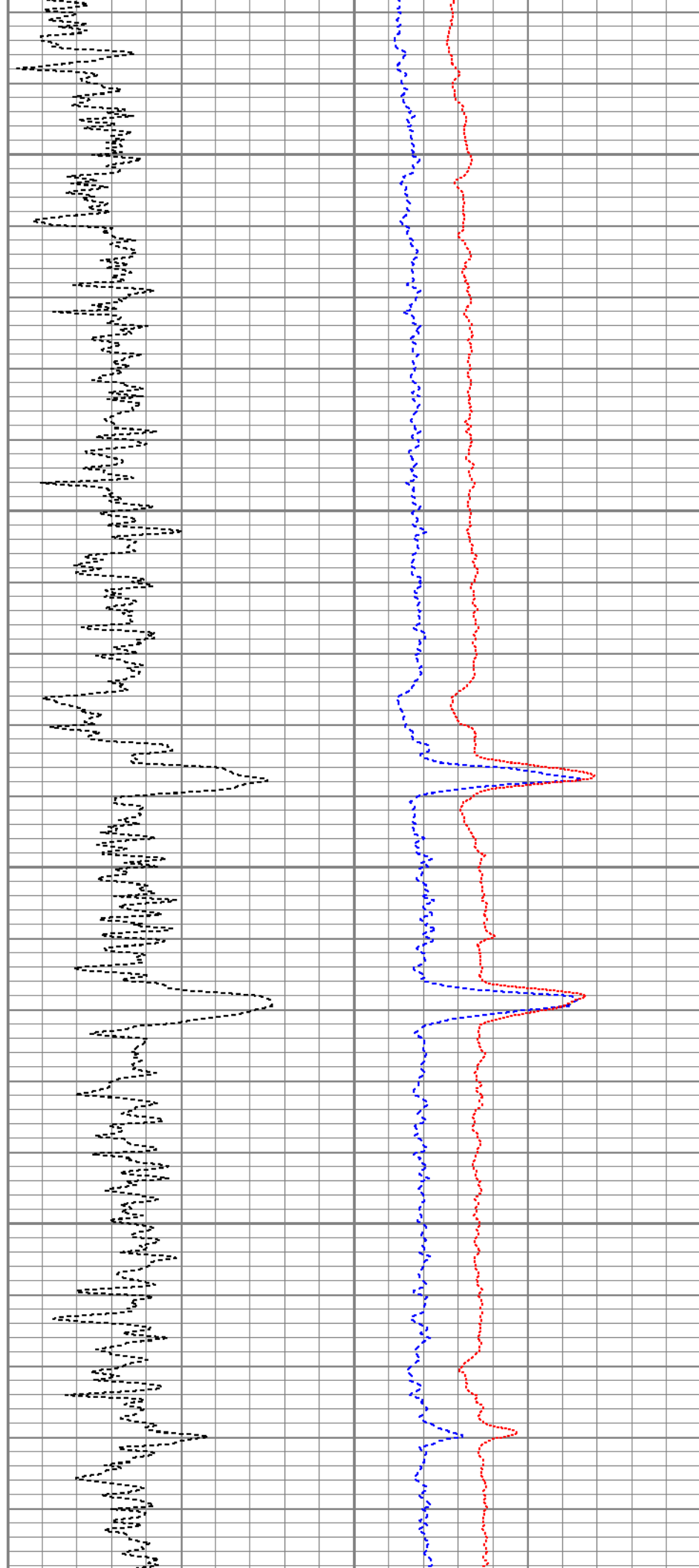
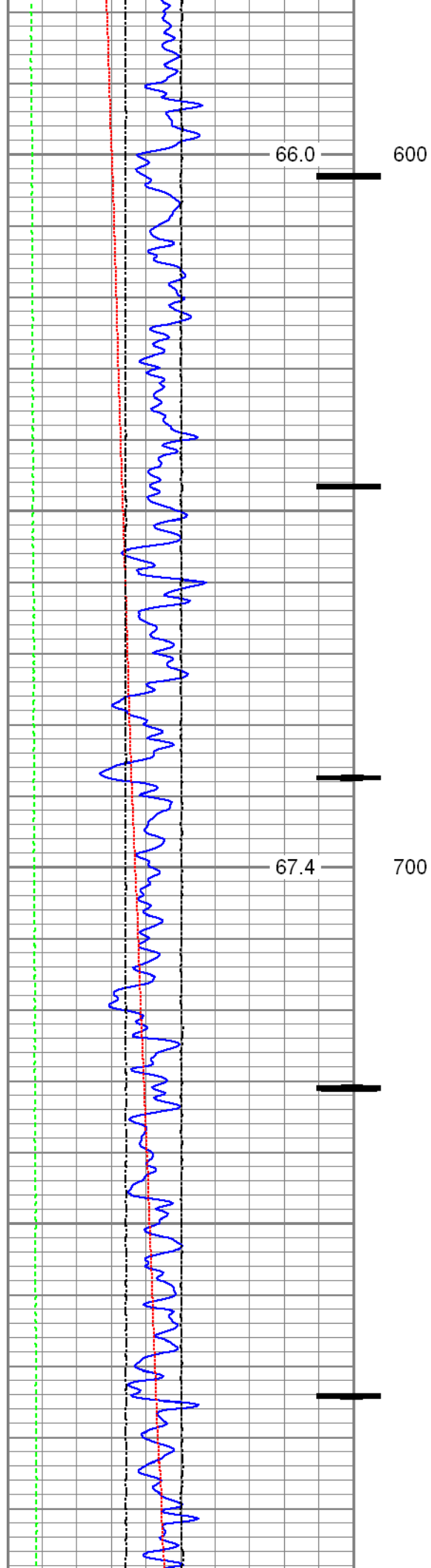
Database File: 09-24-15_noble energy_wells ranch aa11-628_cnl.db
Dataset Pathname: pass5.1
Presentation Format: cnl
Dataset Creation: Thu Sep 24 19:24:26 2015
Charted by: Depth in Feet scaled 1:240

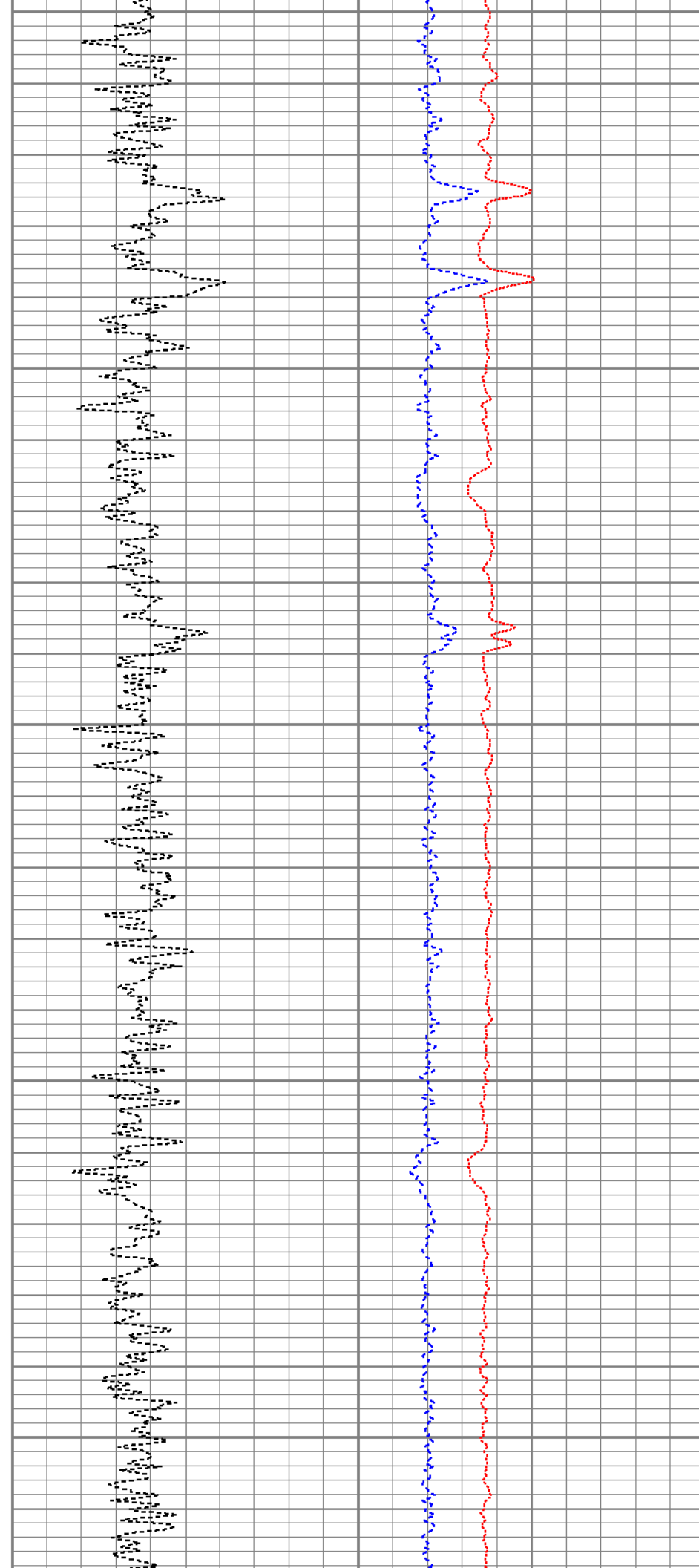
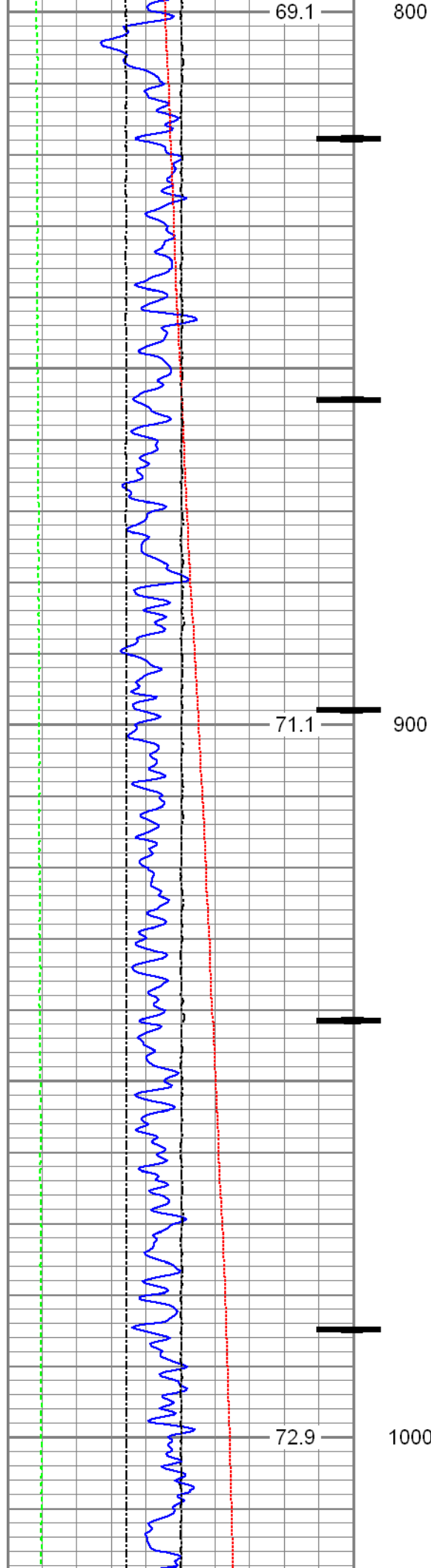
0	Gamma Ray (GAPI)	120	60	Neutron Porosity (pu)	0	0	Far Neutron (cps)	1000
0	Temperature (degF)	20				0	Near Neutron (cps)	10000
-100	Line Speed (ft/min)	100						
0	Line Tension (lb)	2000						
-2	Differential Temperature (degF)	2						
	Casing Collar Locator							

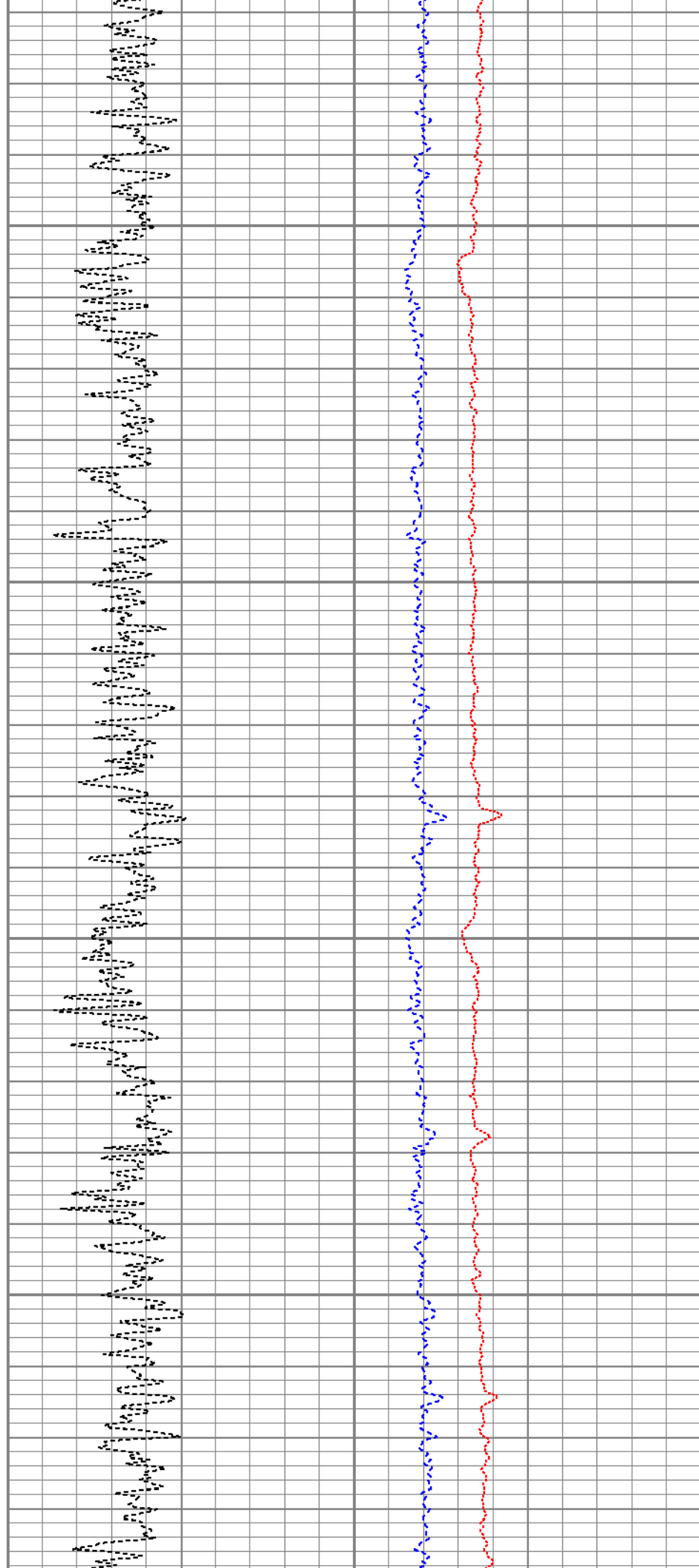
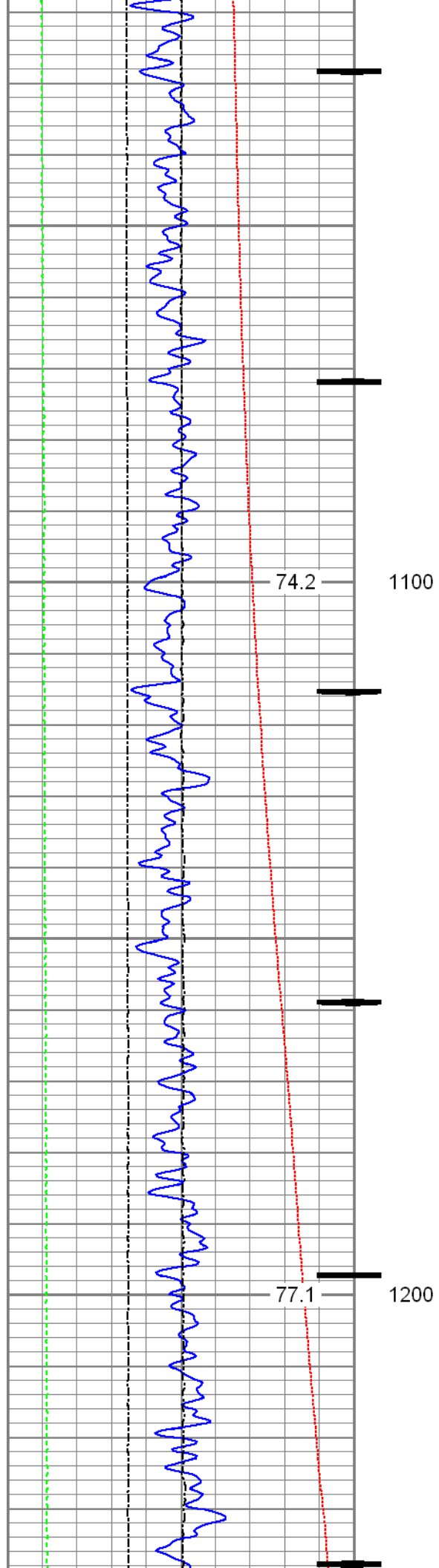


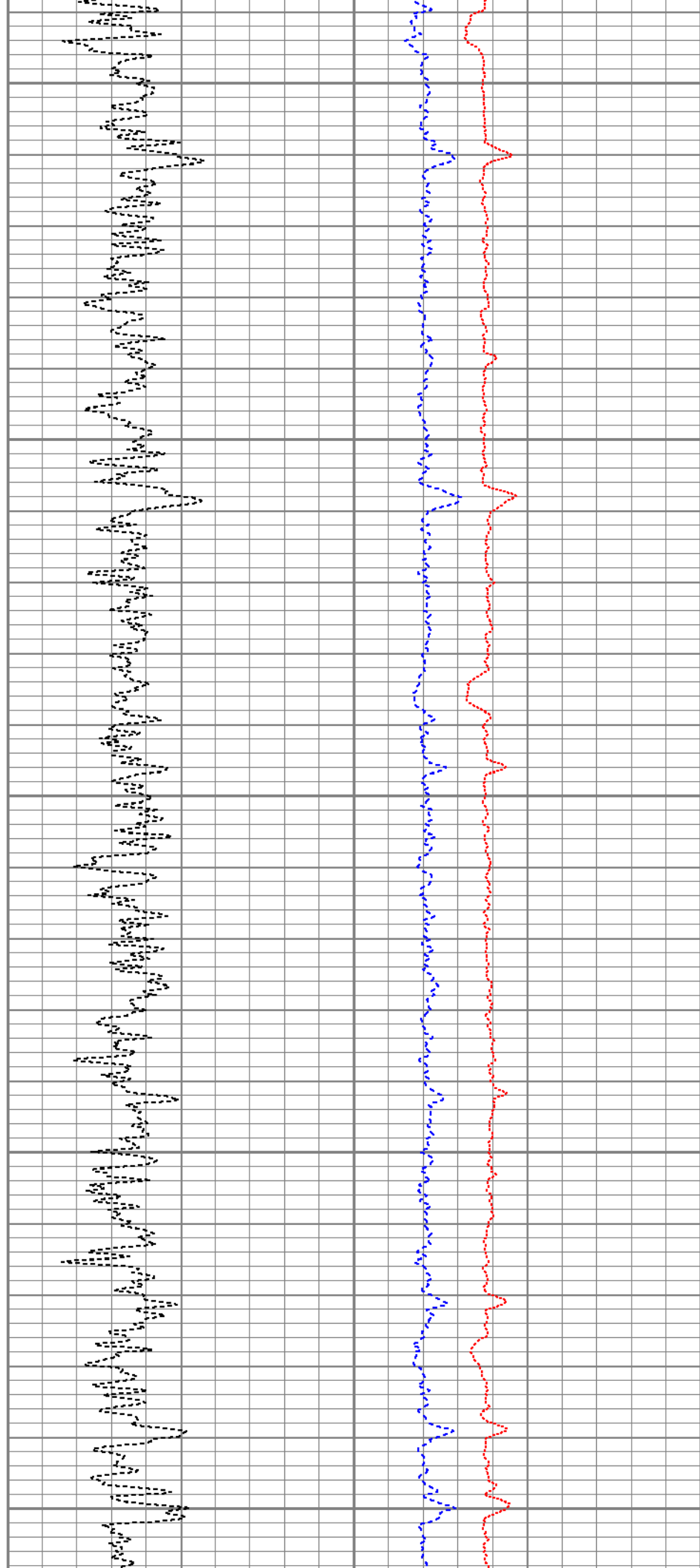
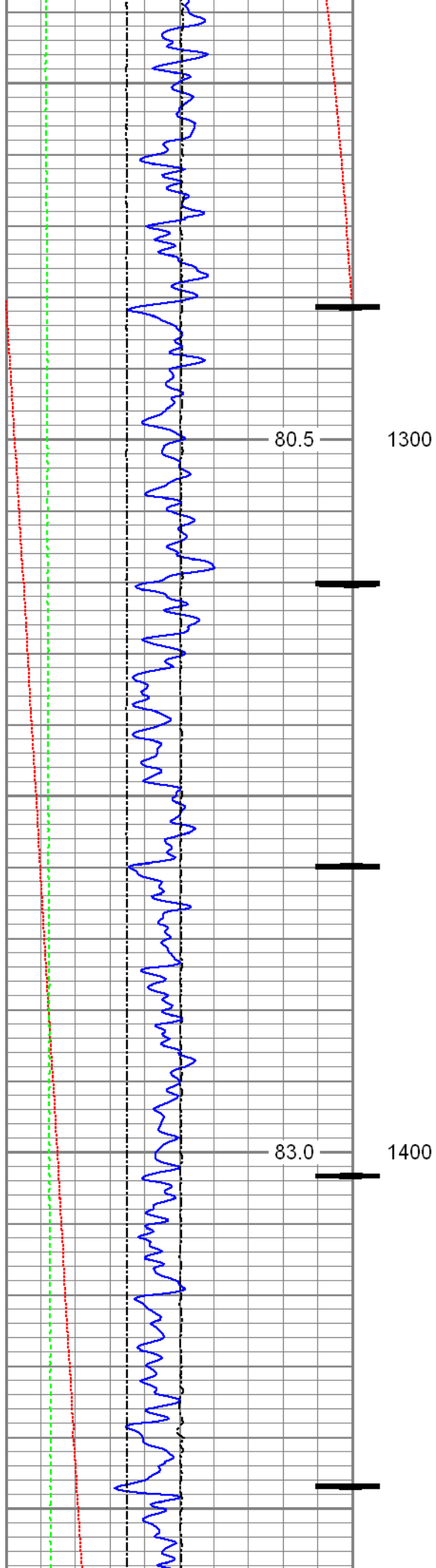


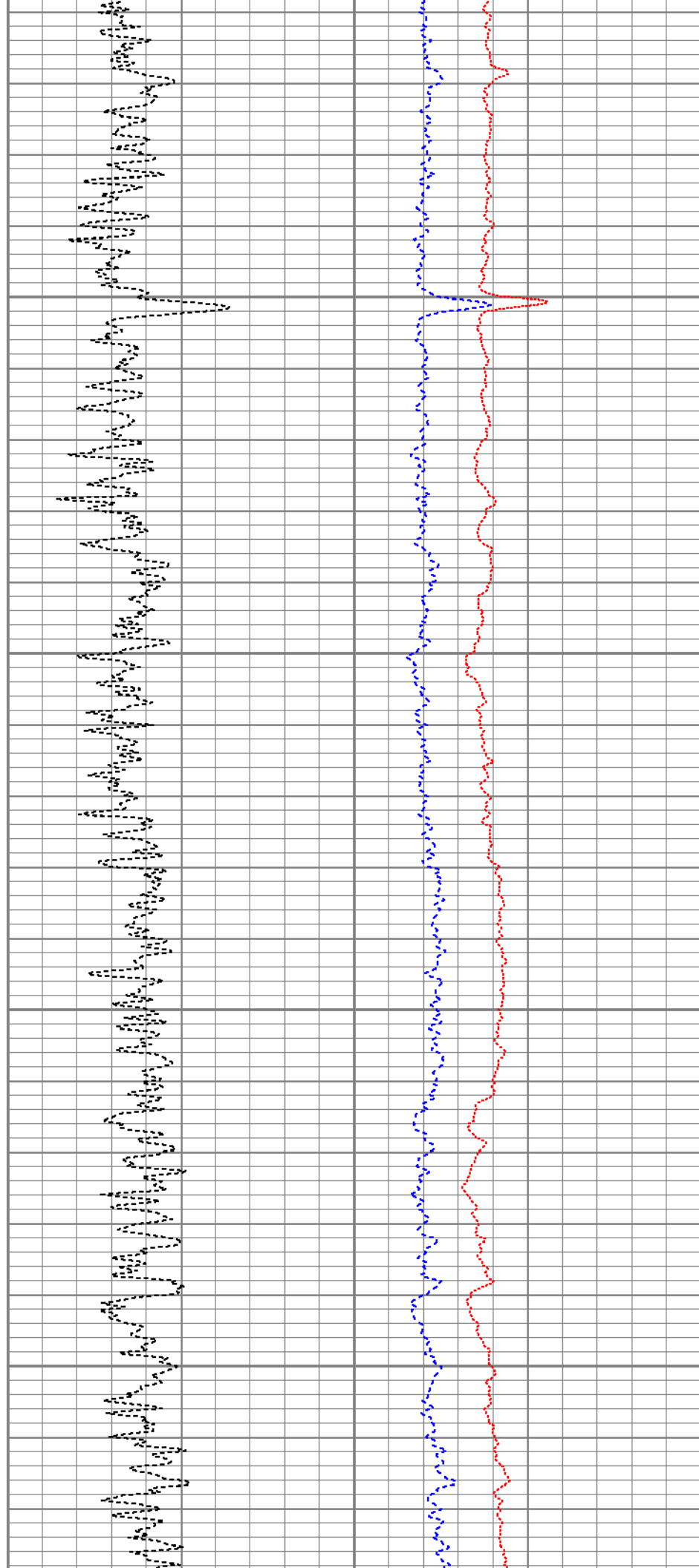
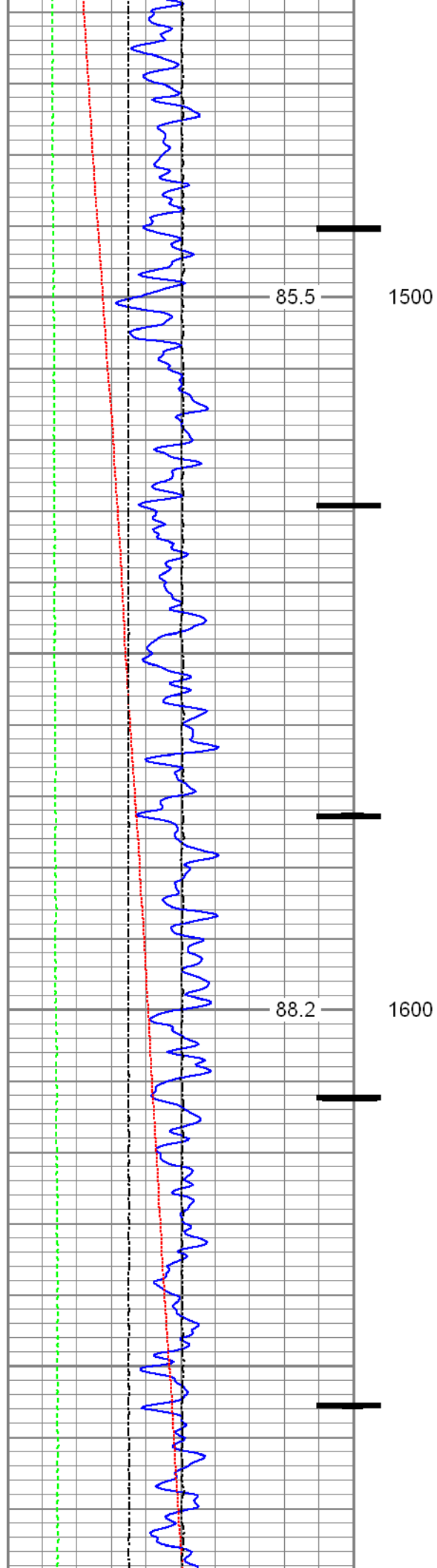


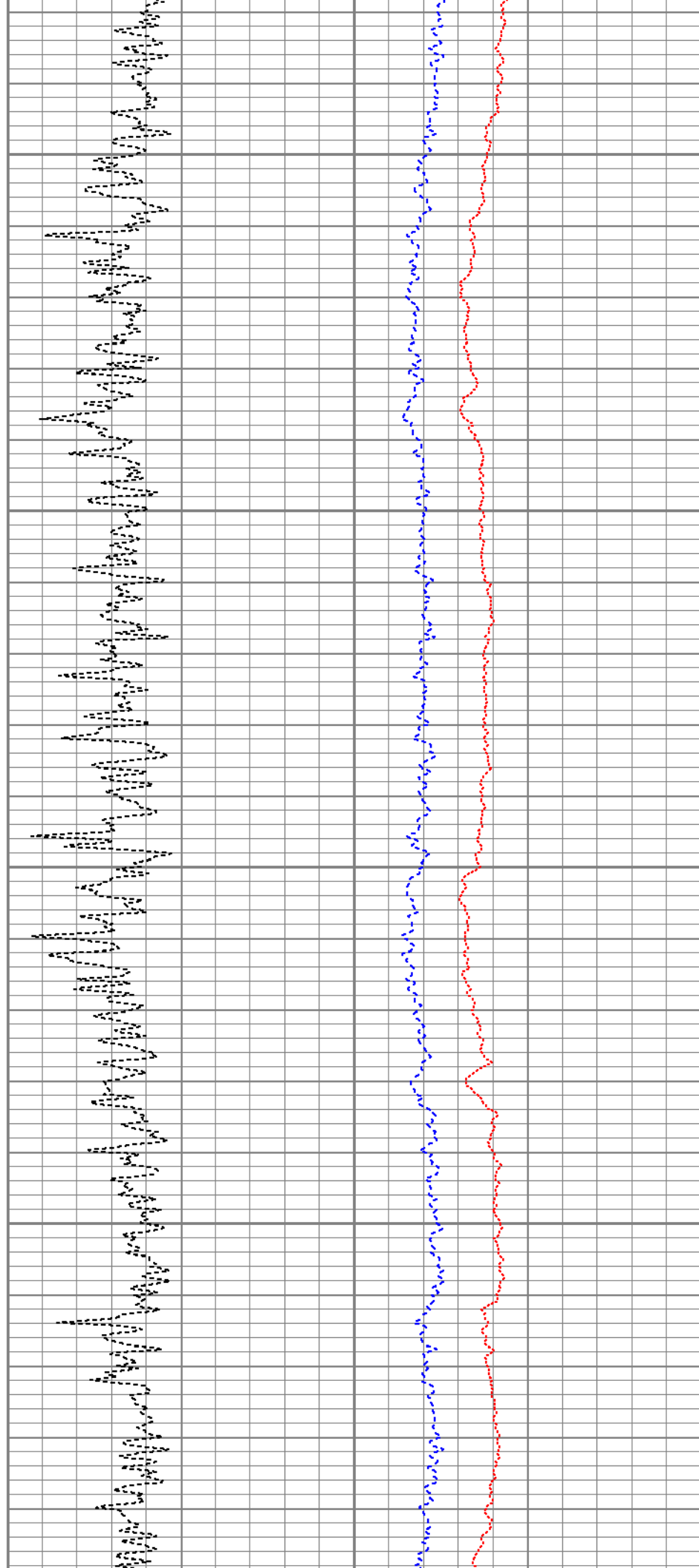
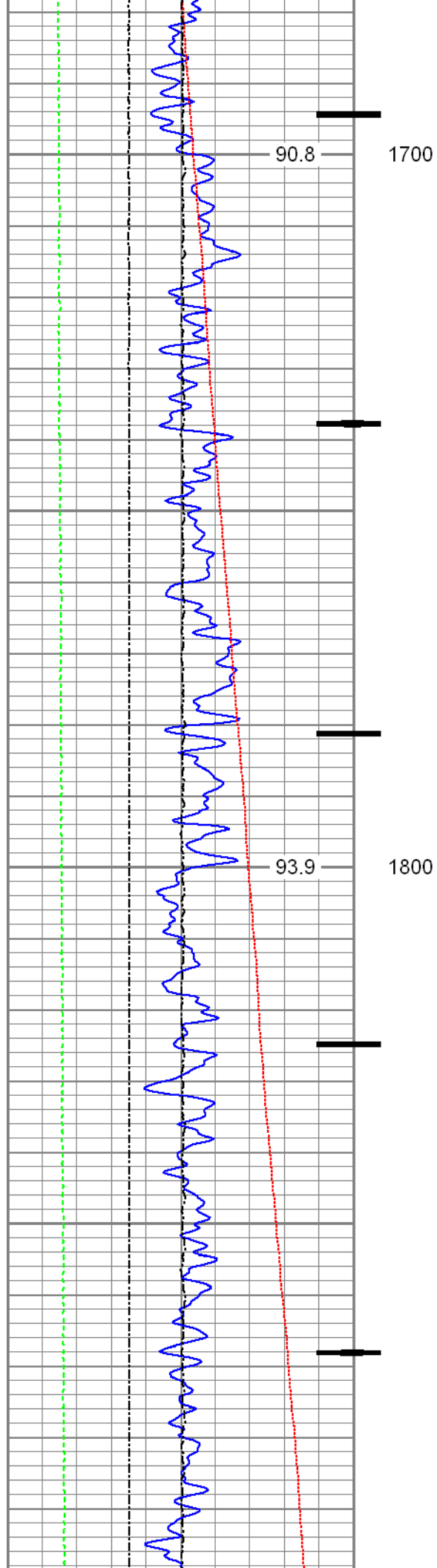


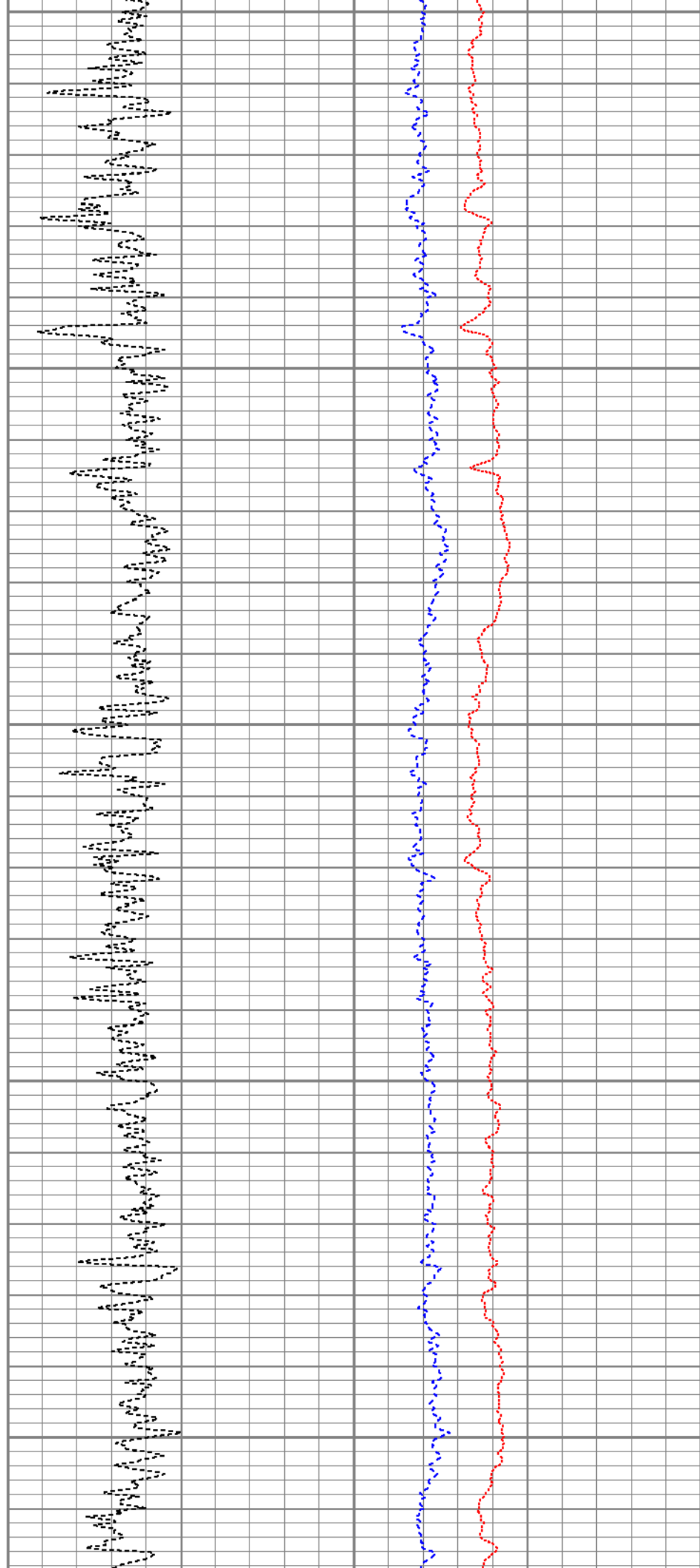
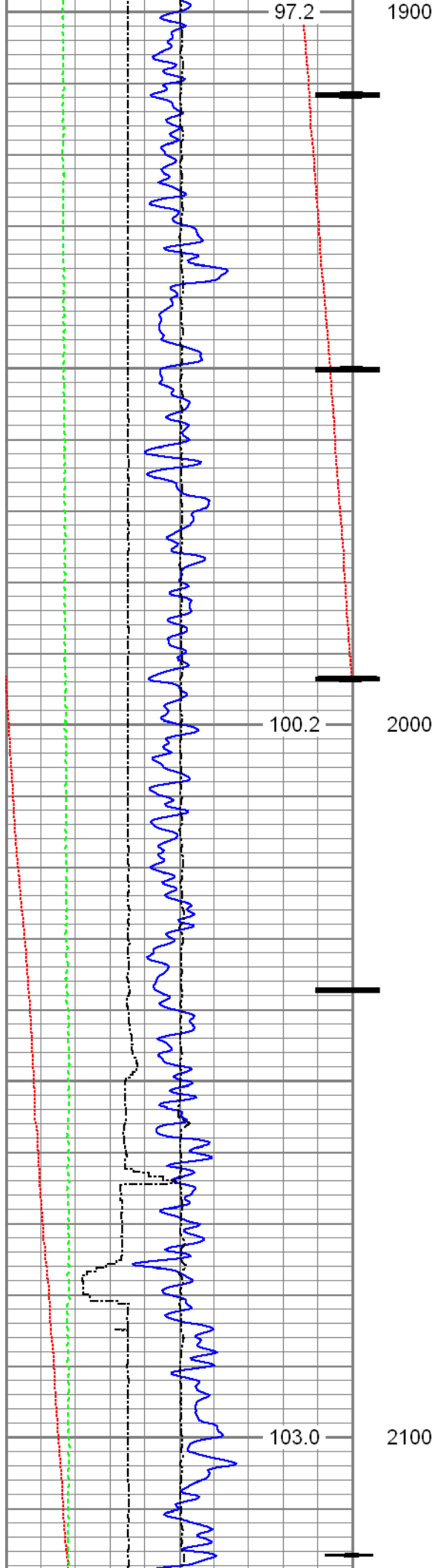


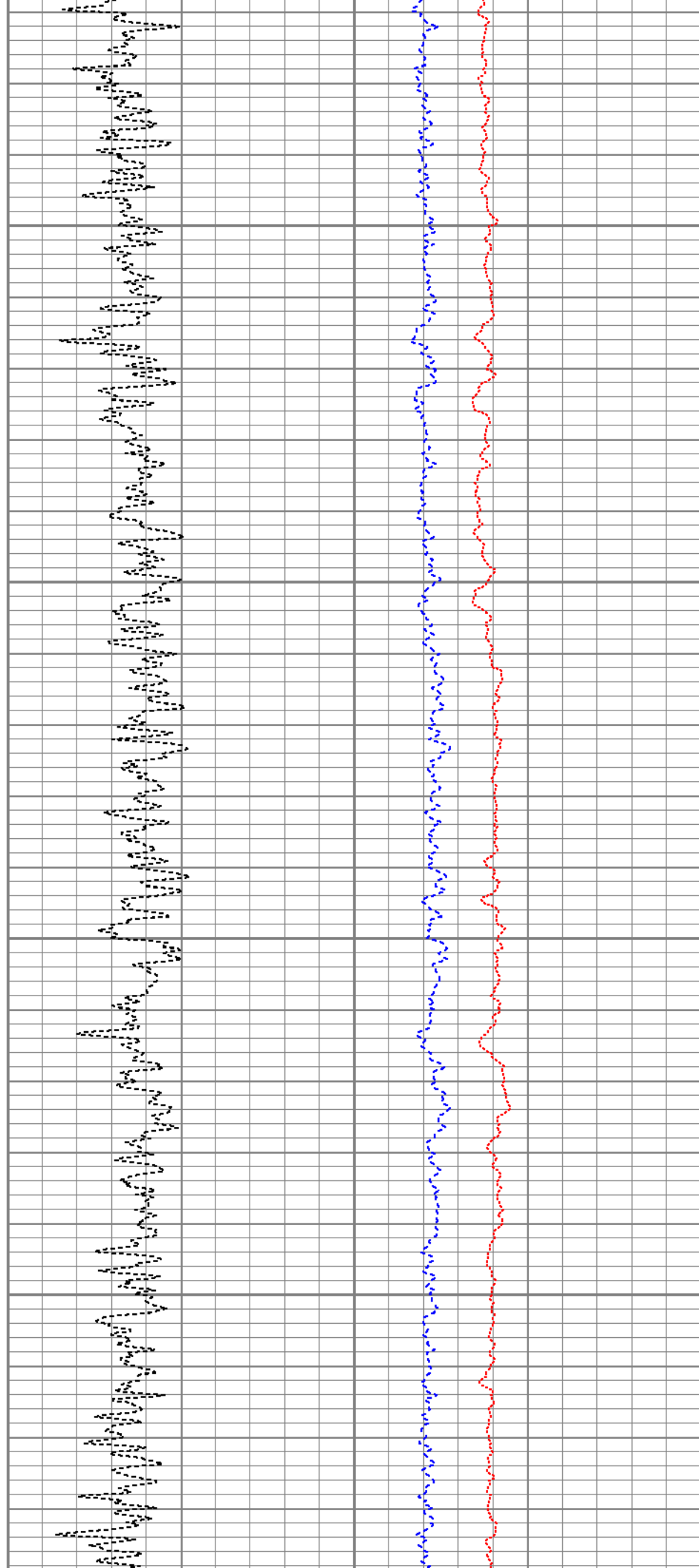
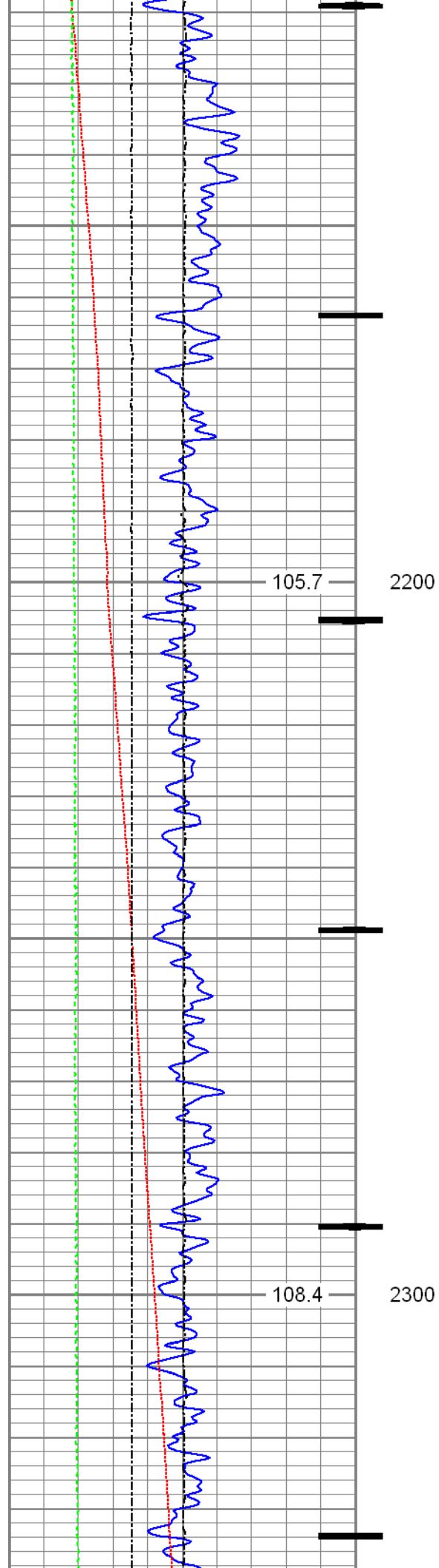


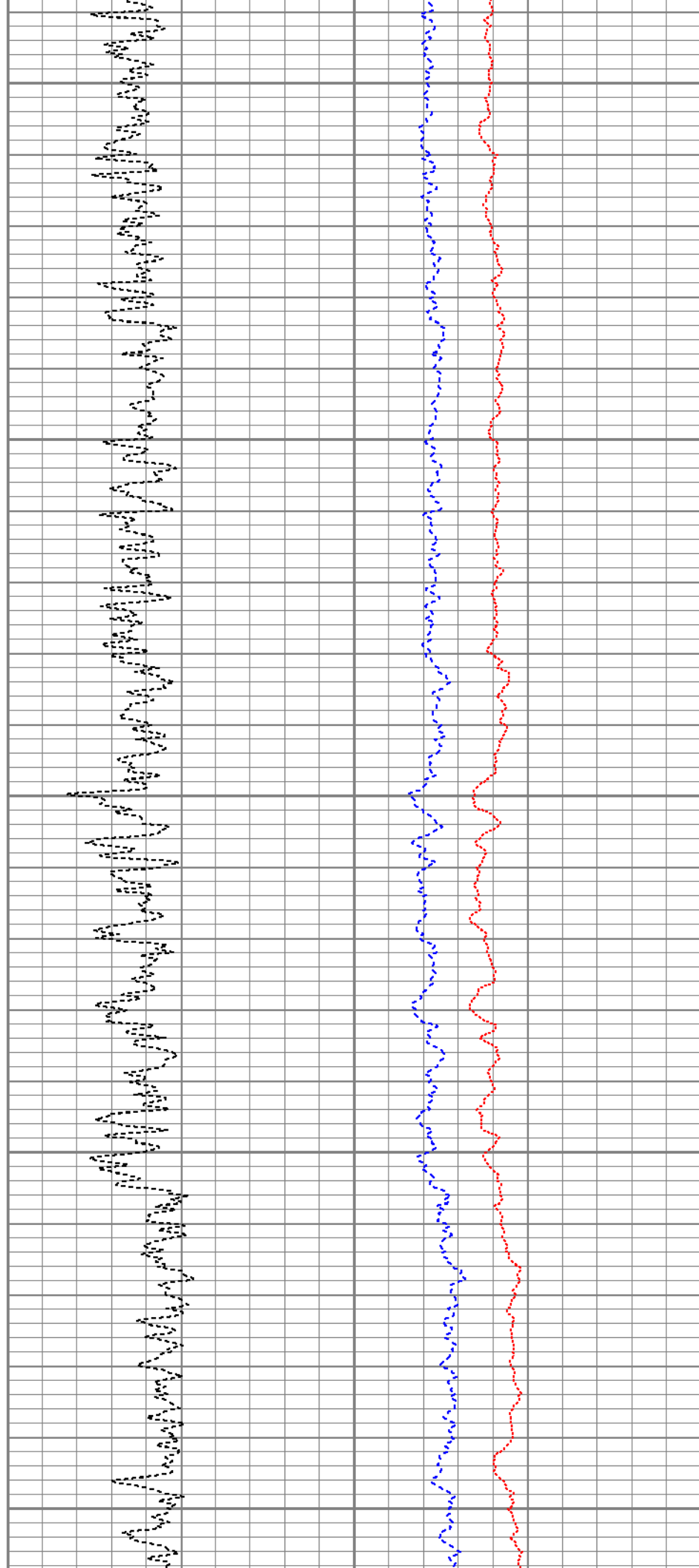
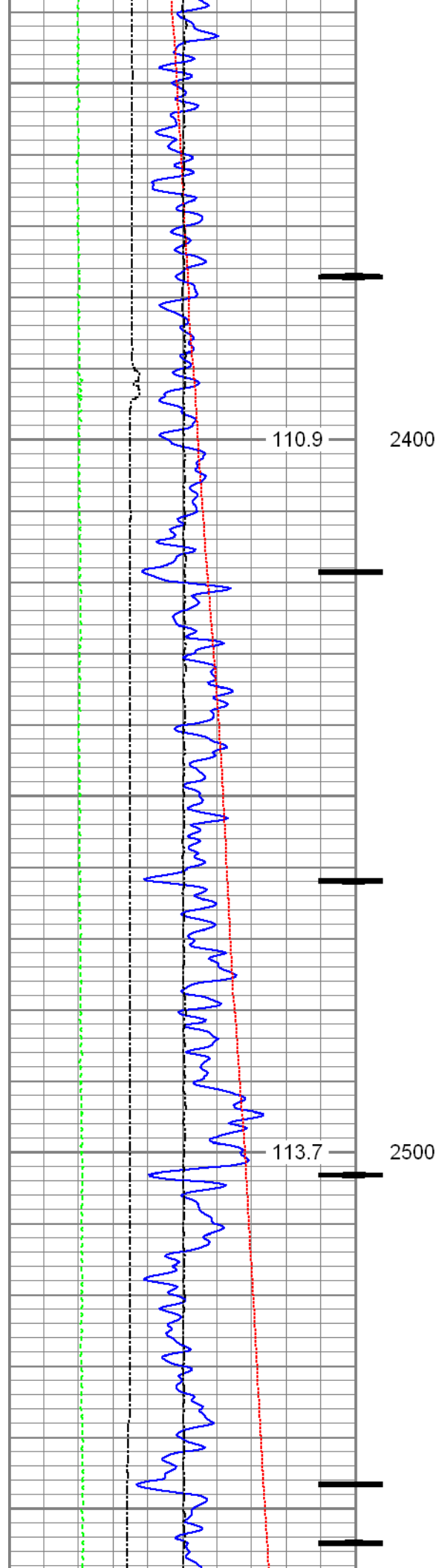


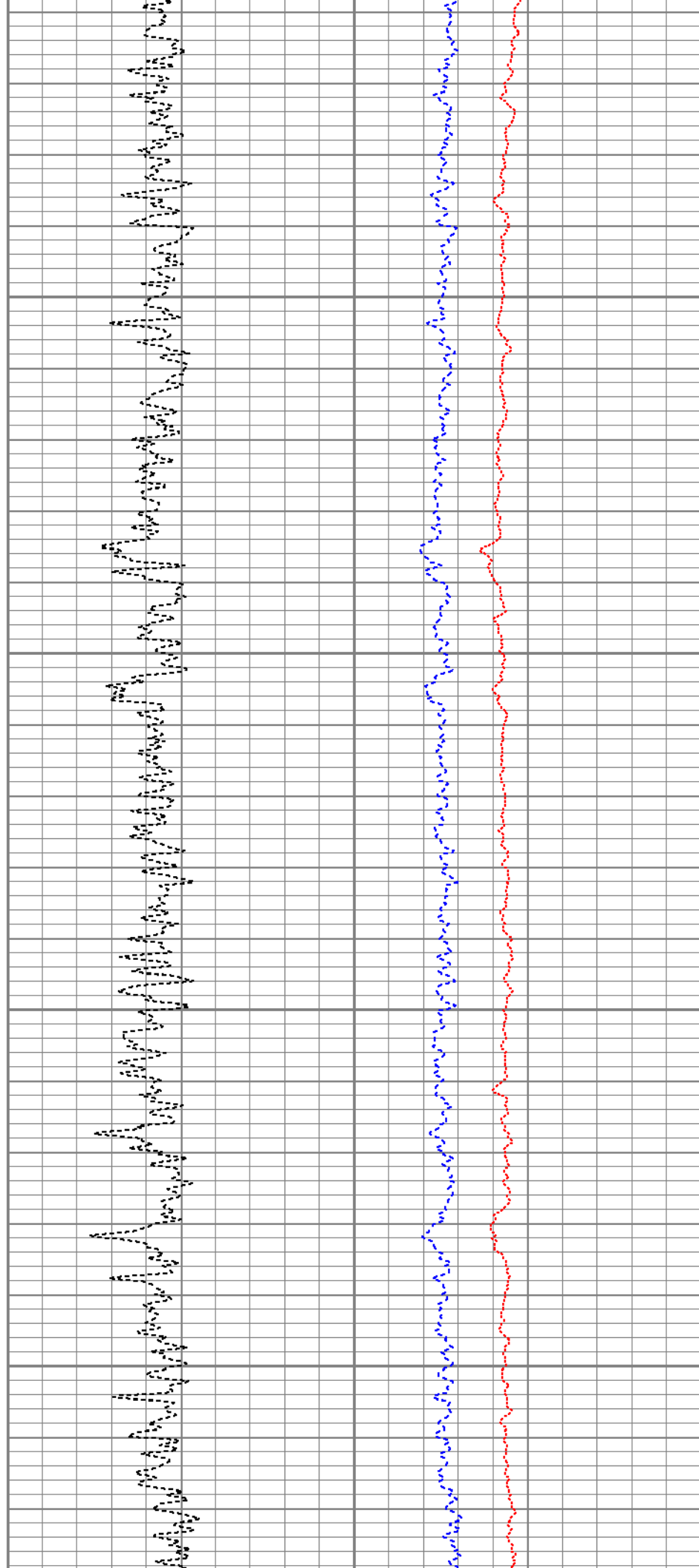
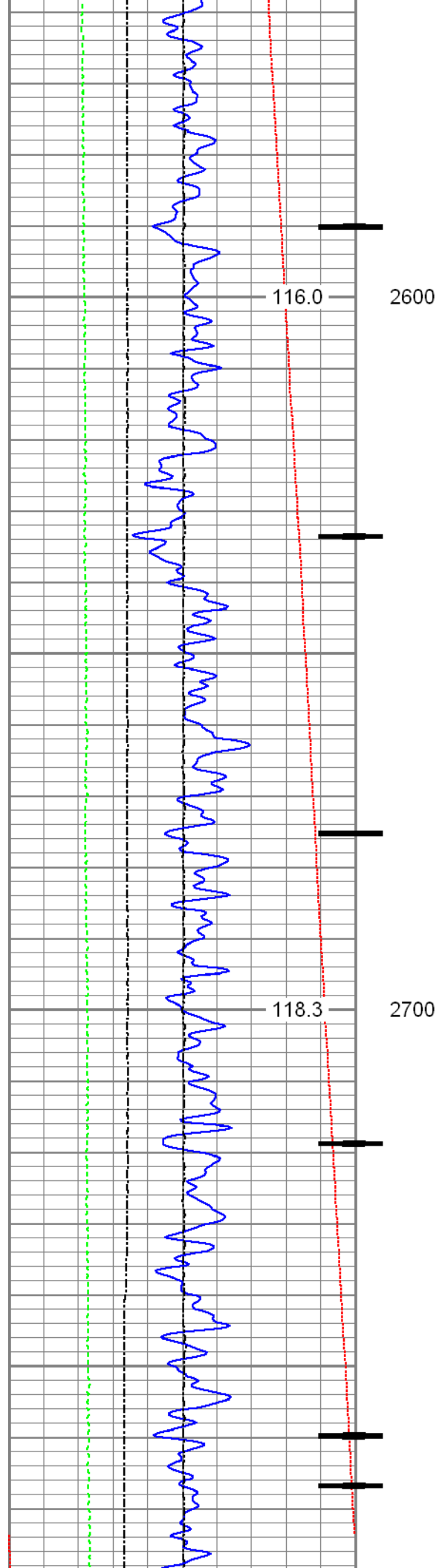


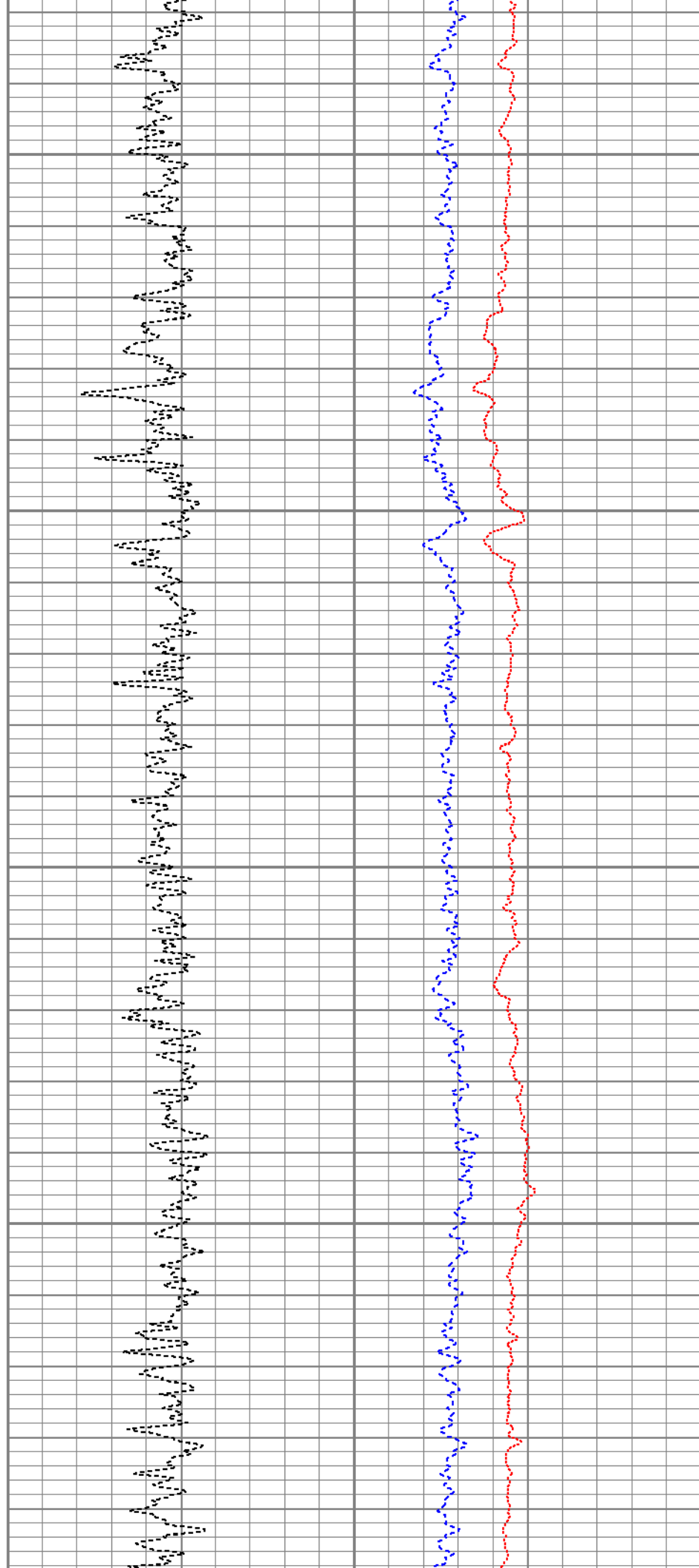
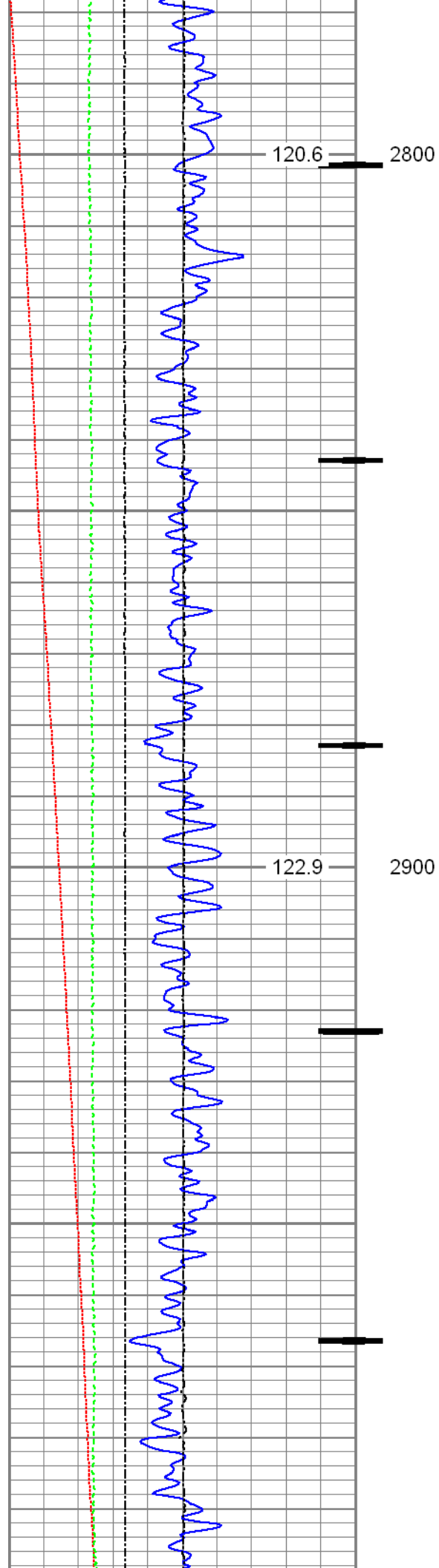


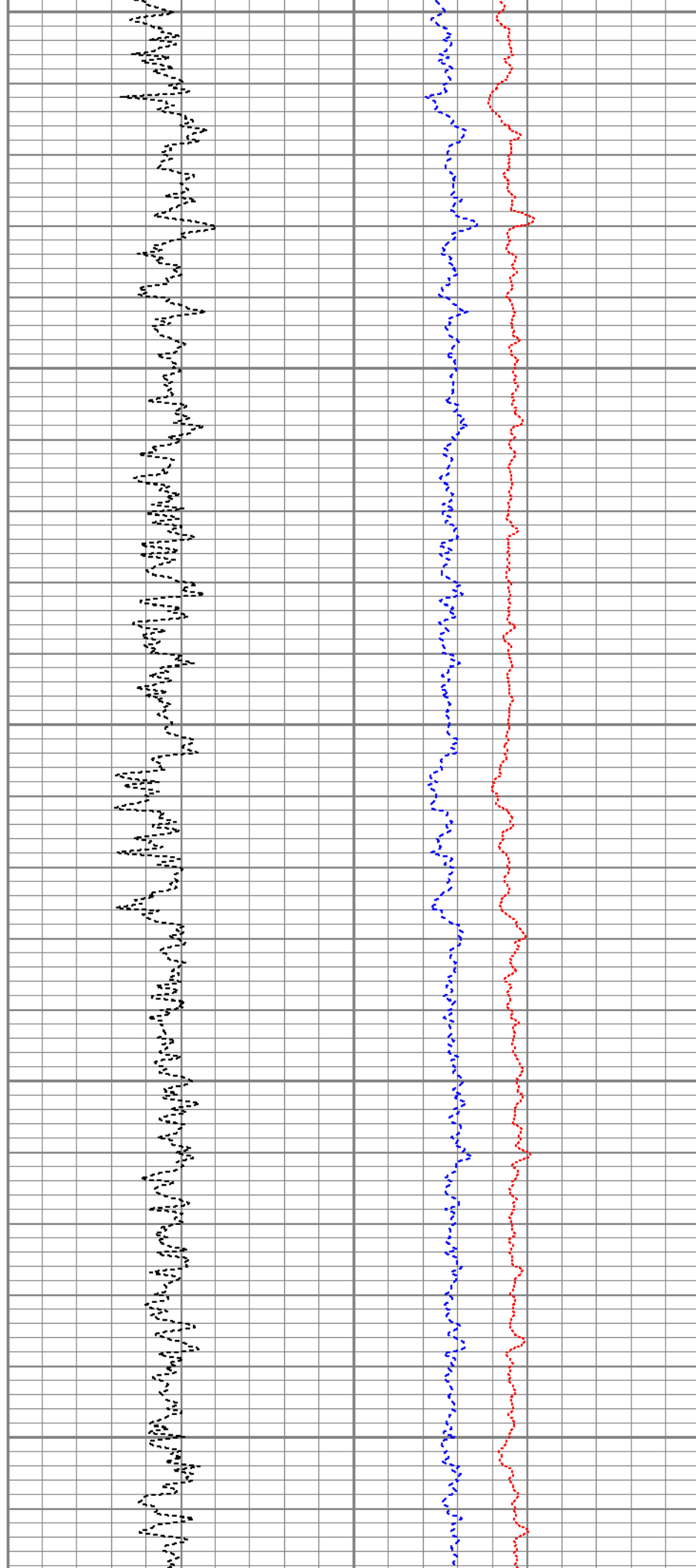
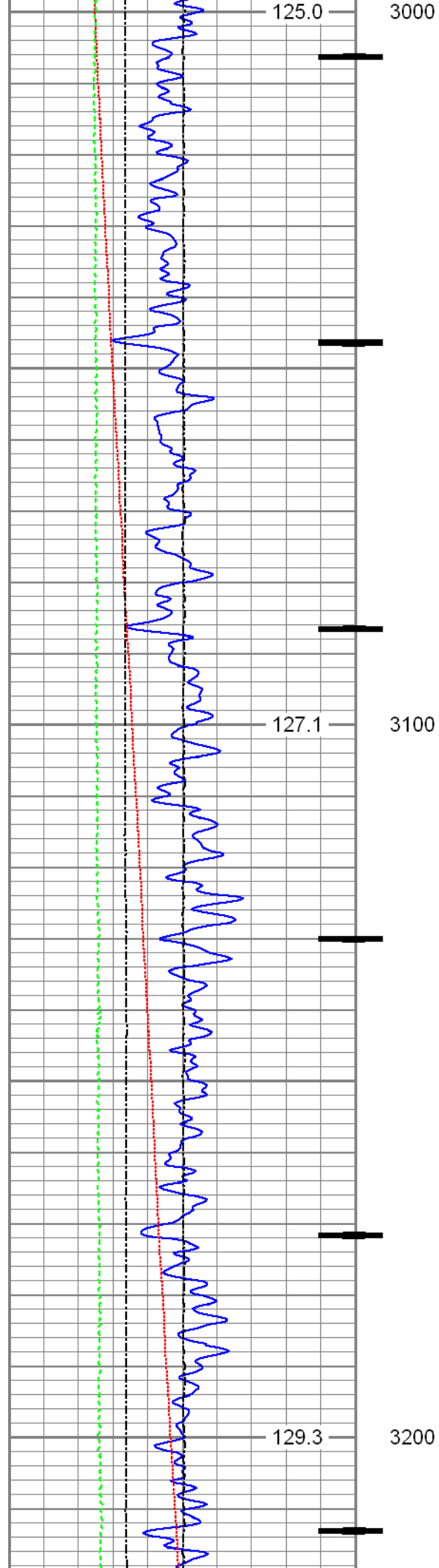


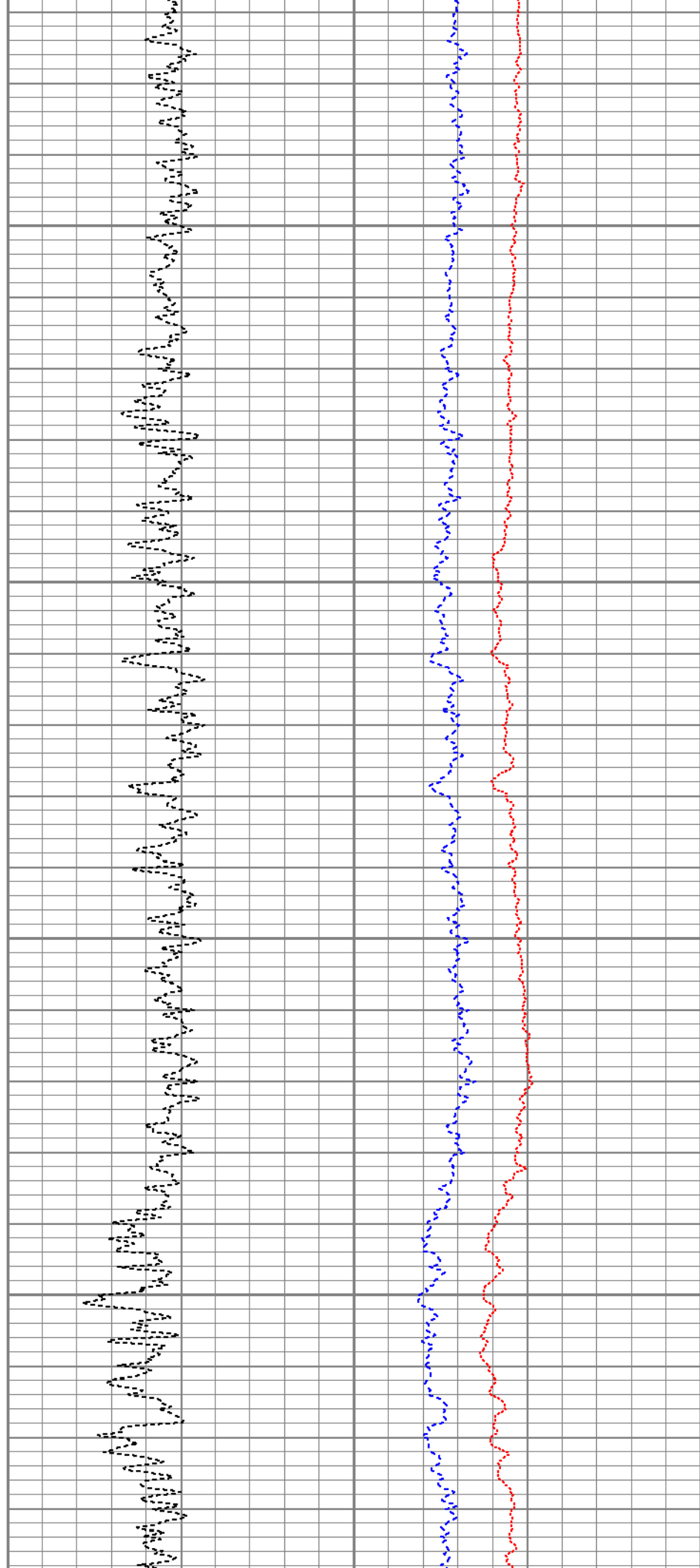
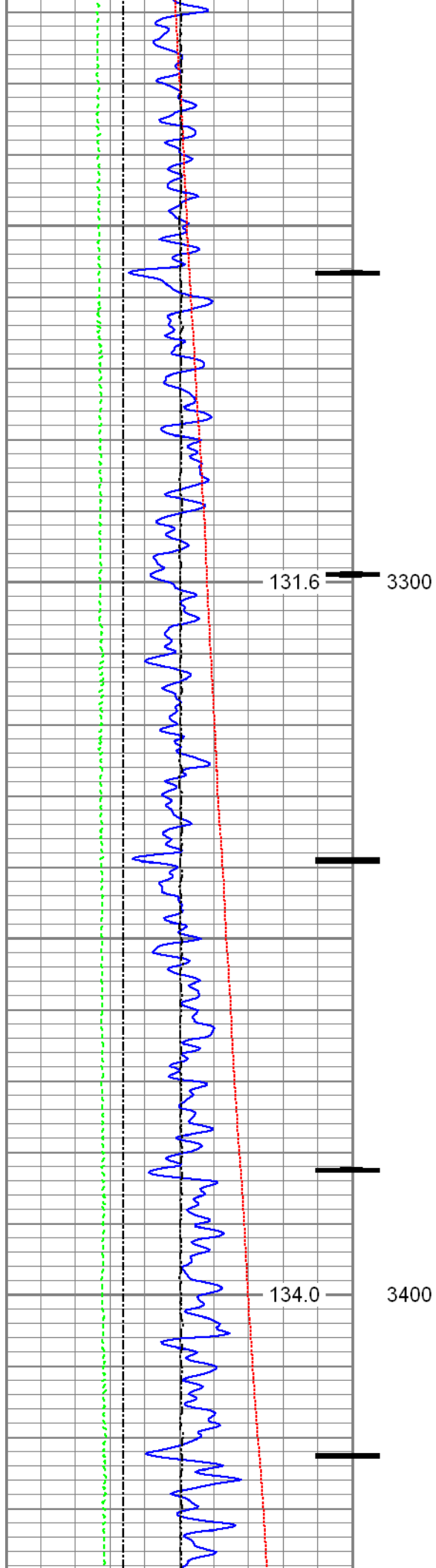


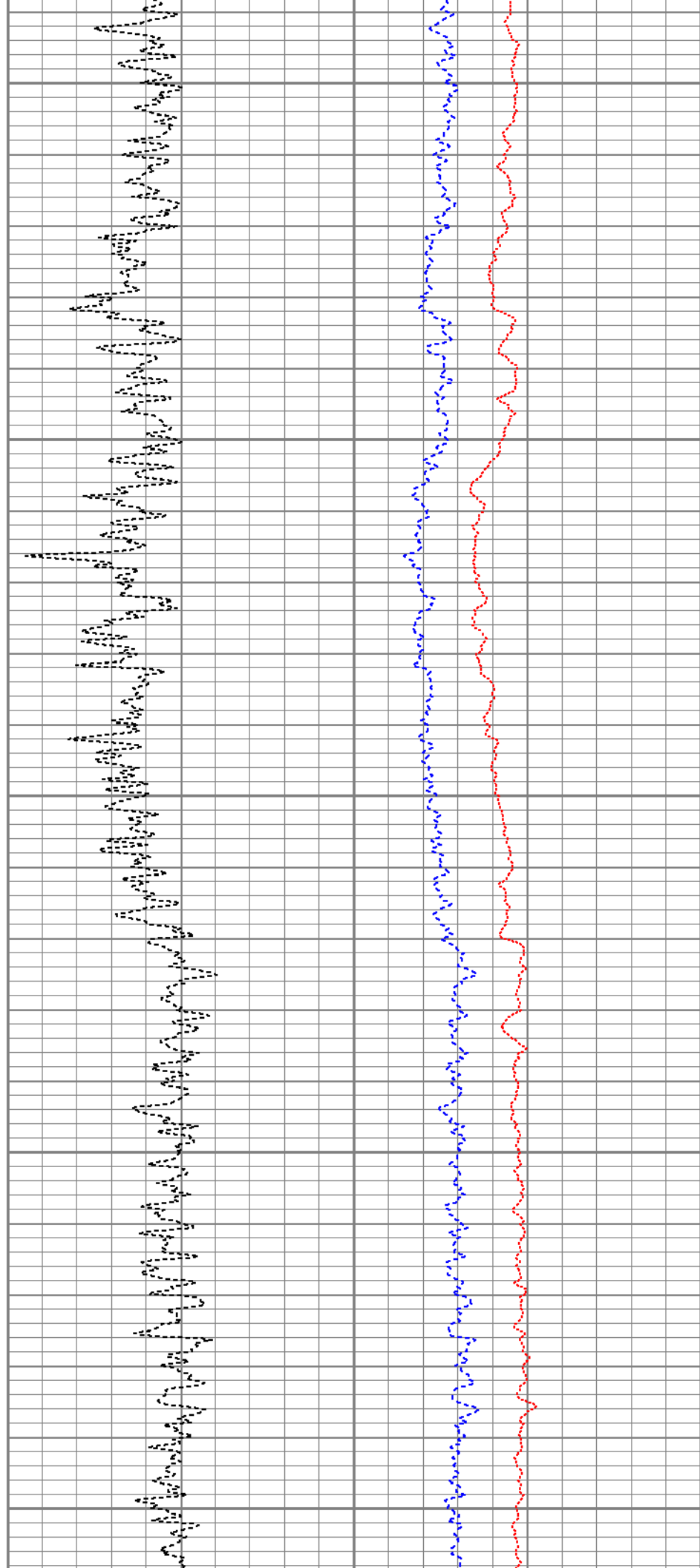
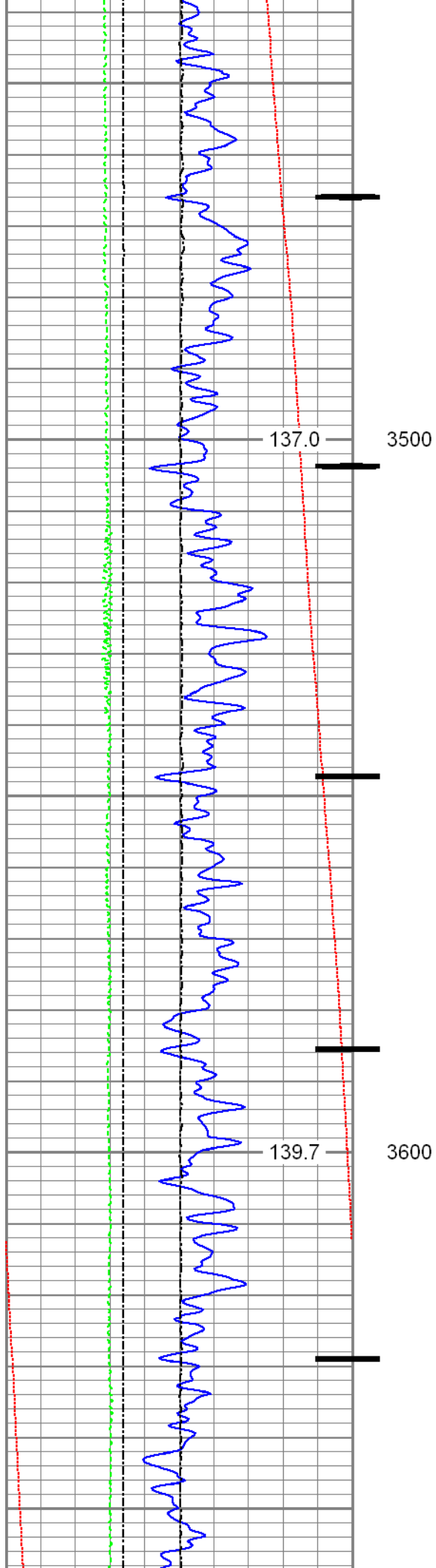


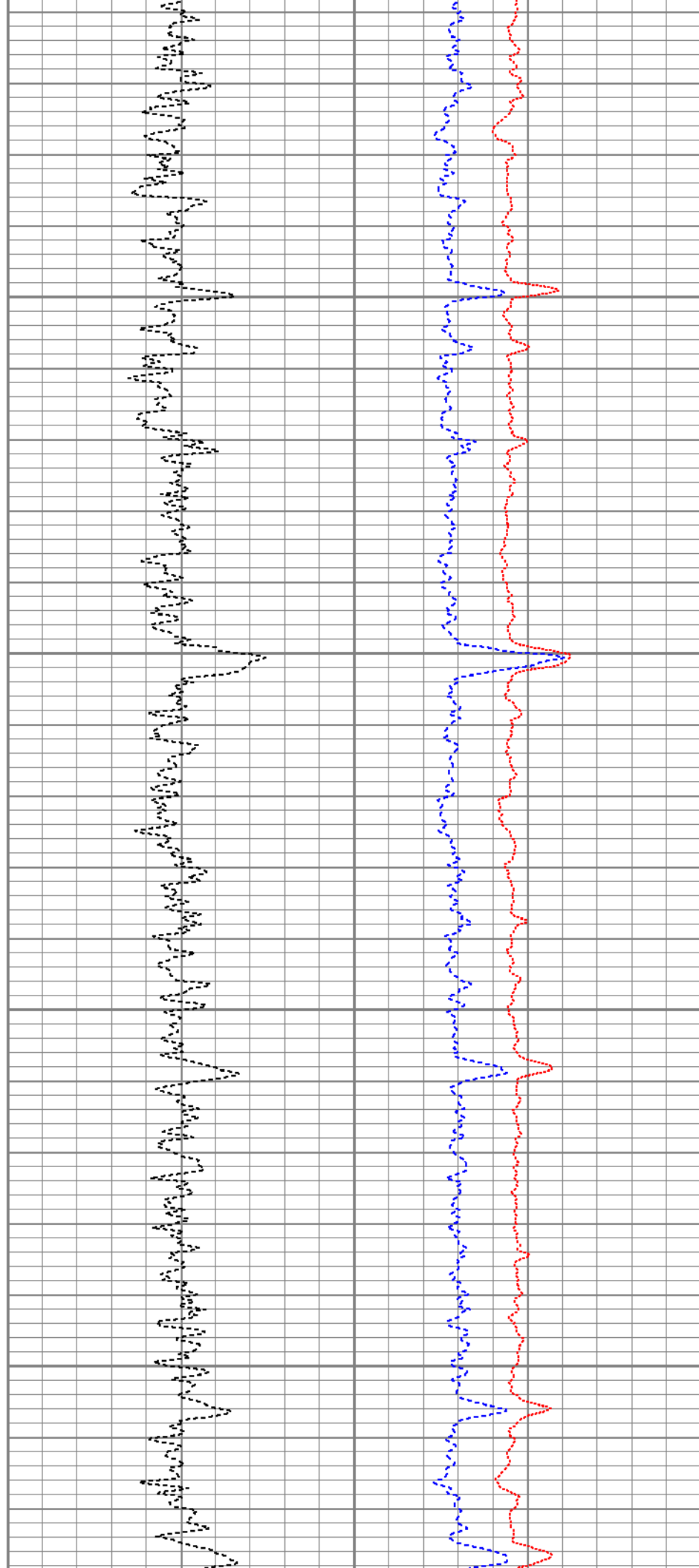
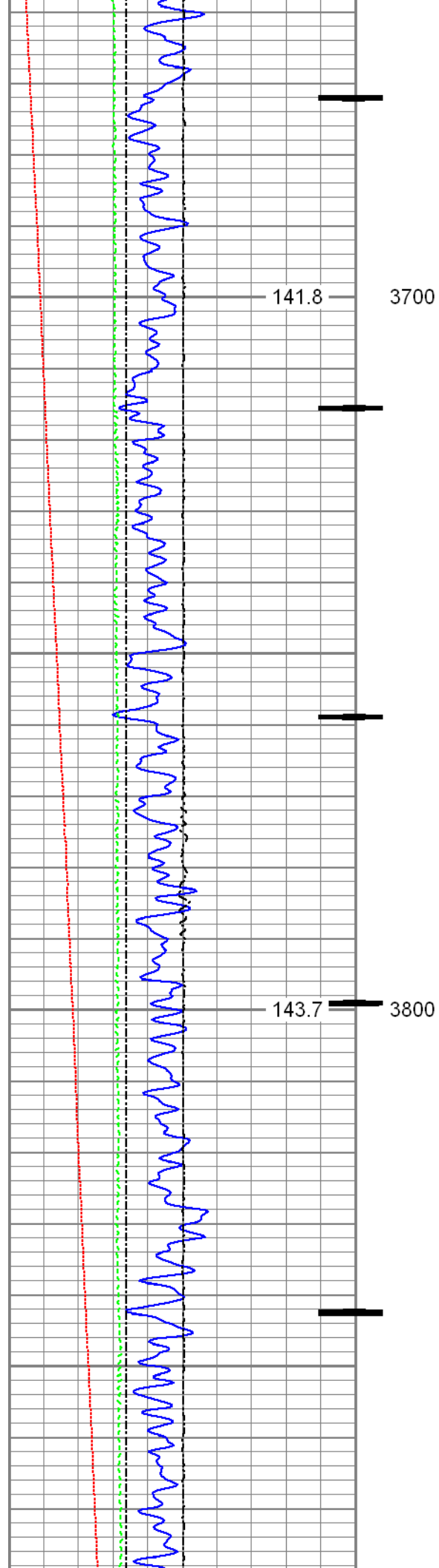


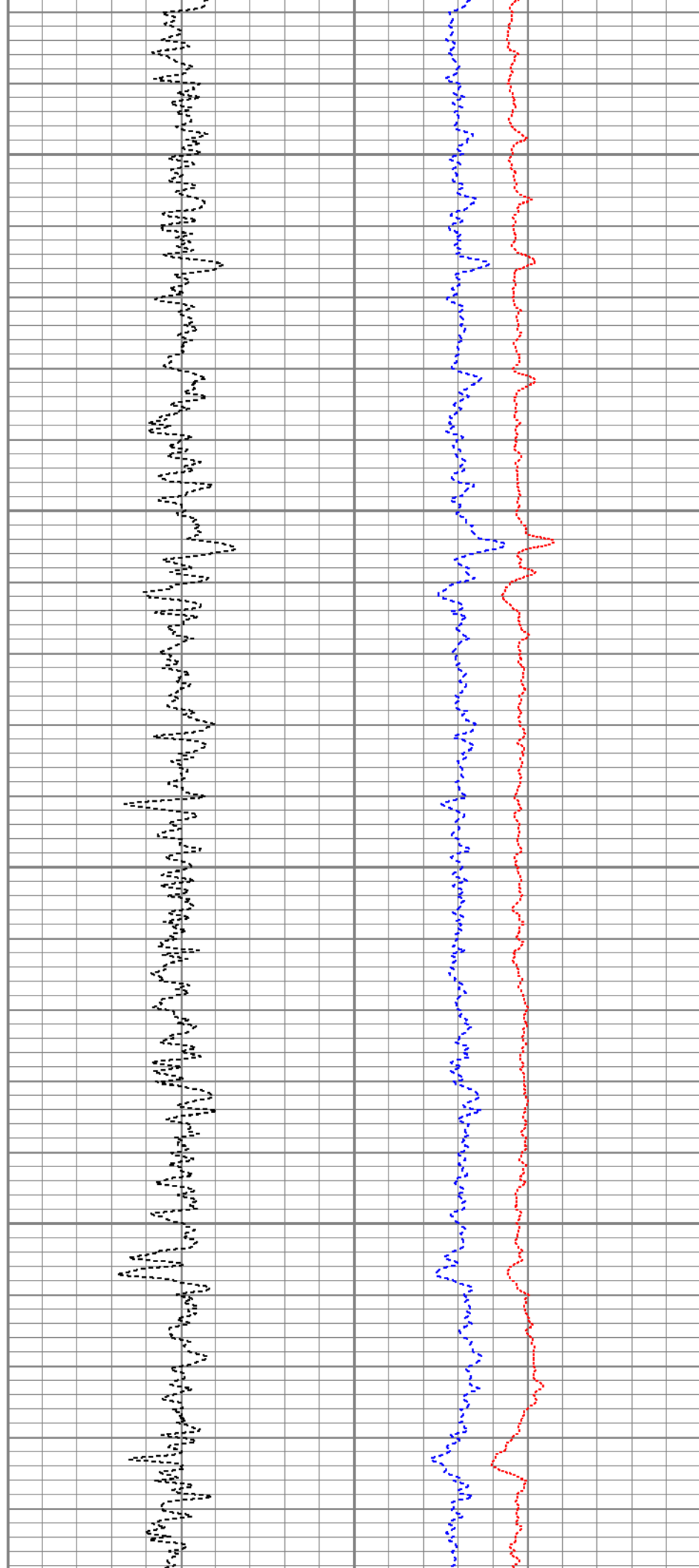
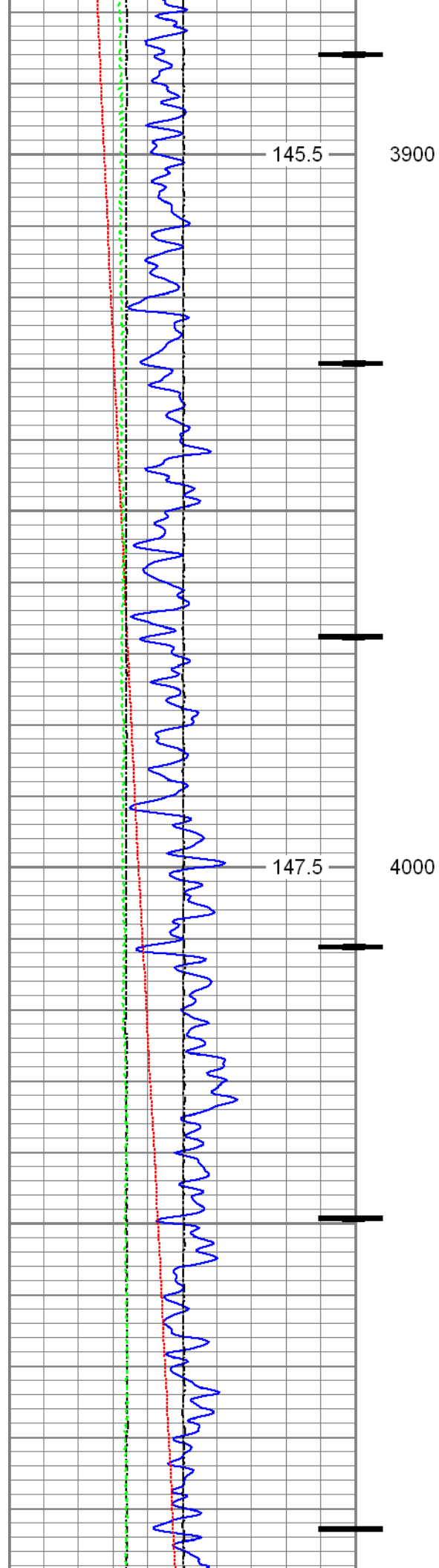


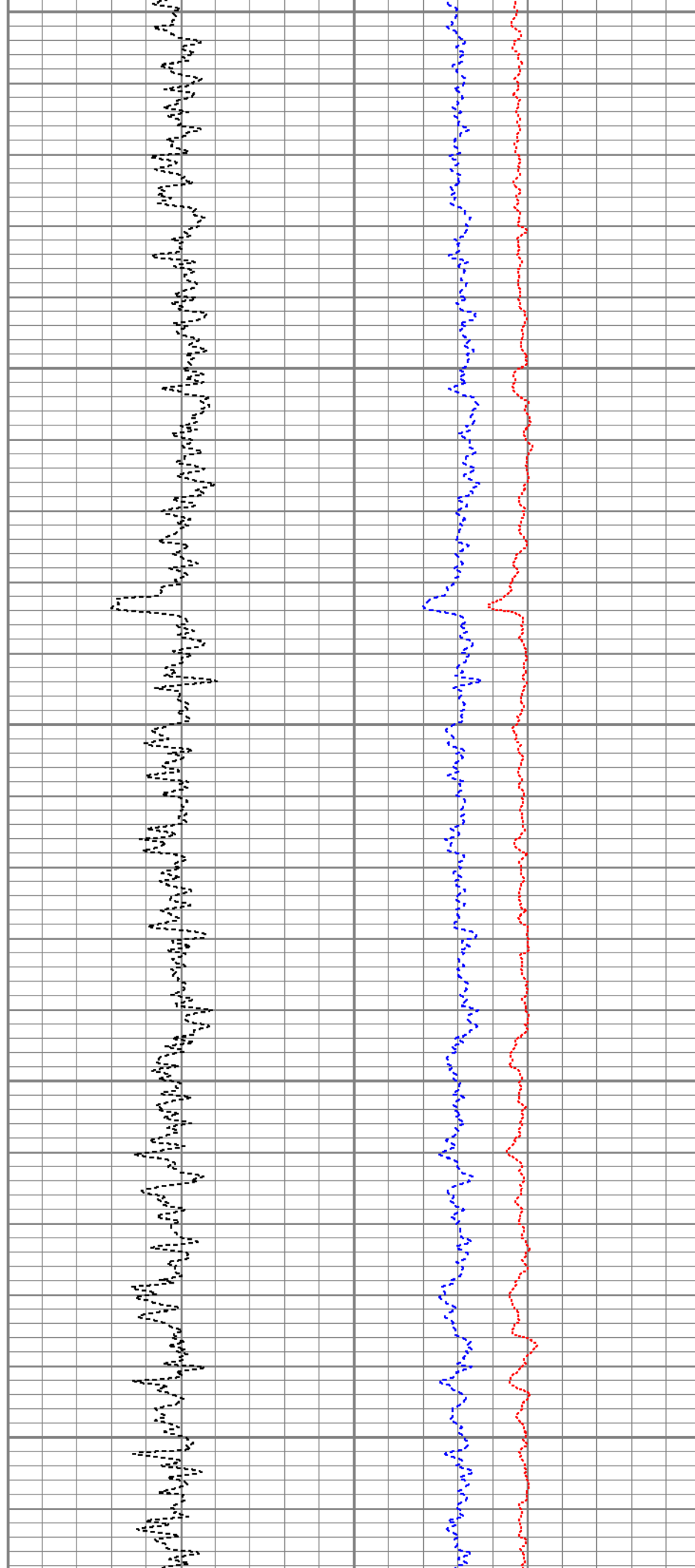
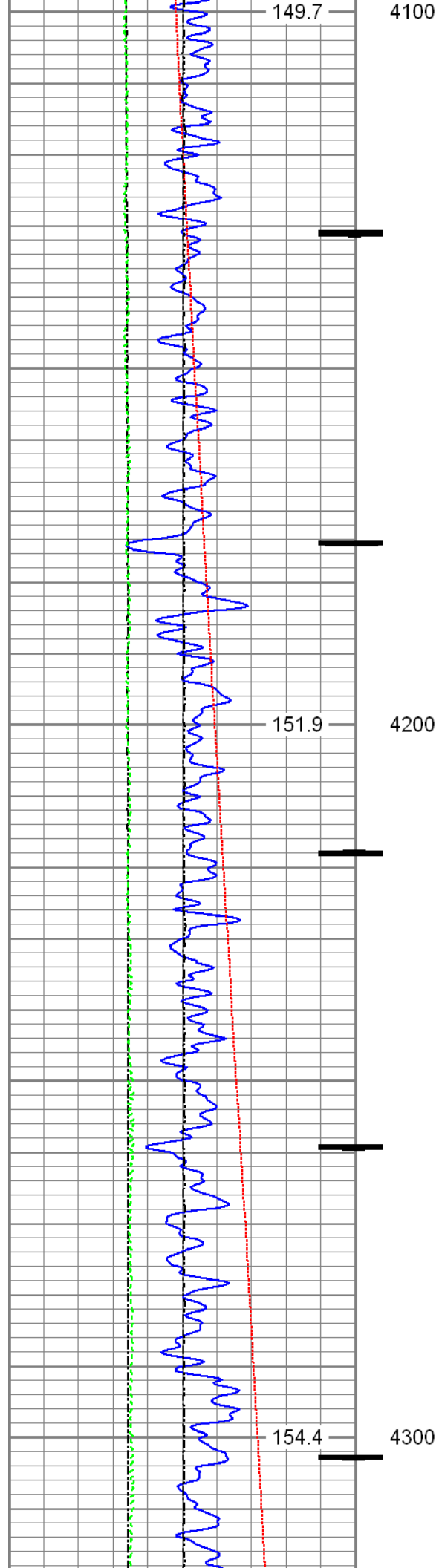


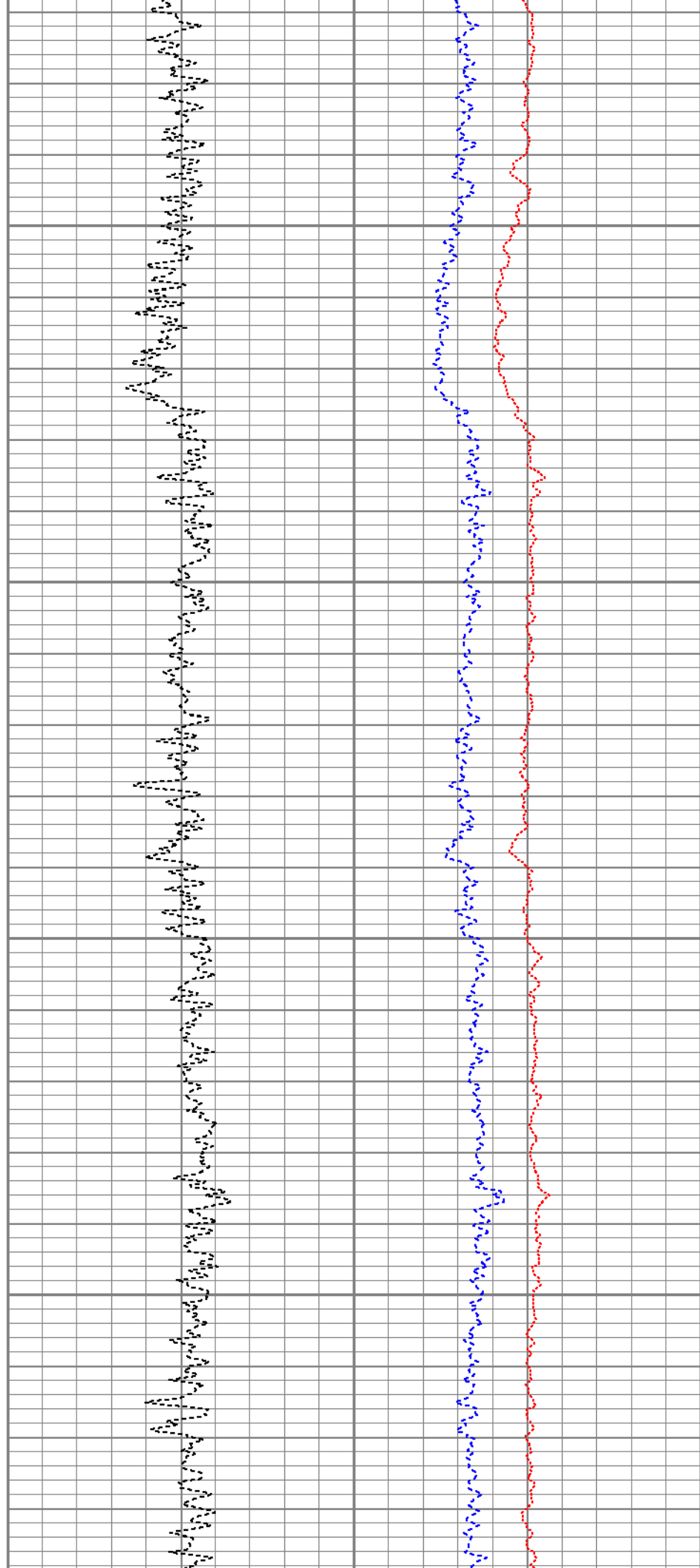
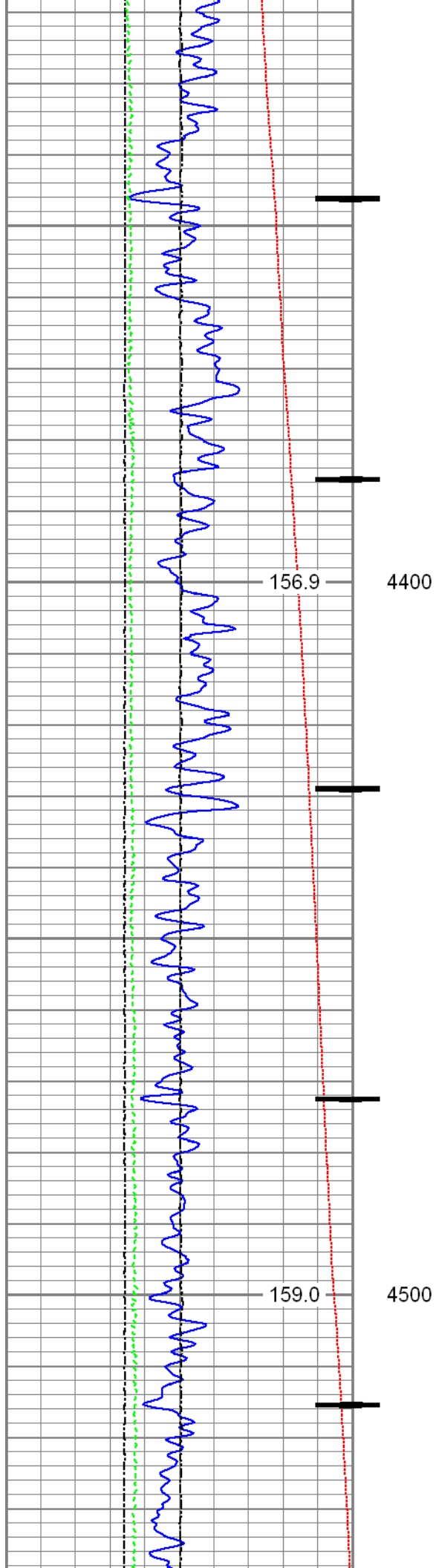


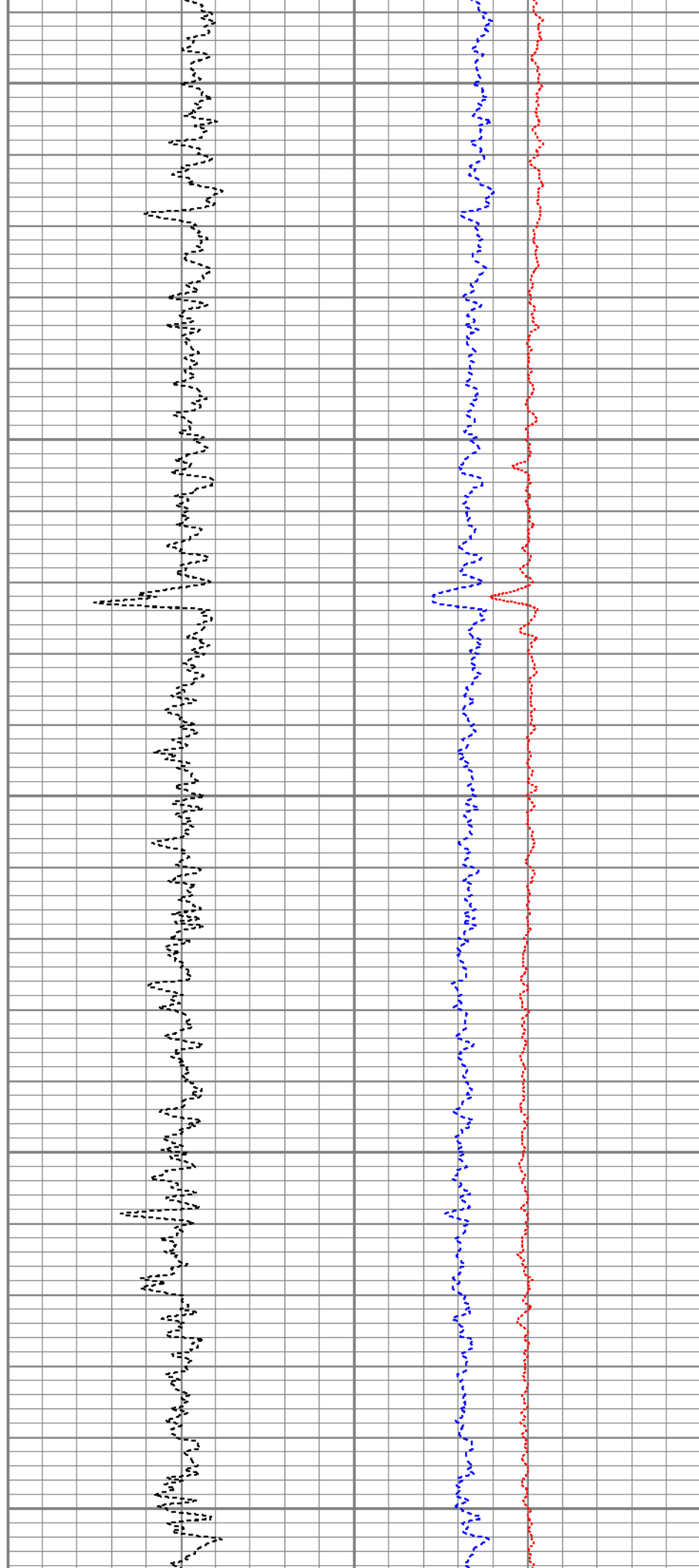
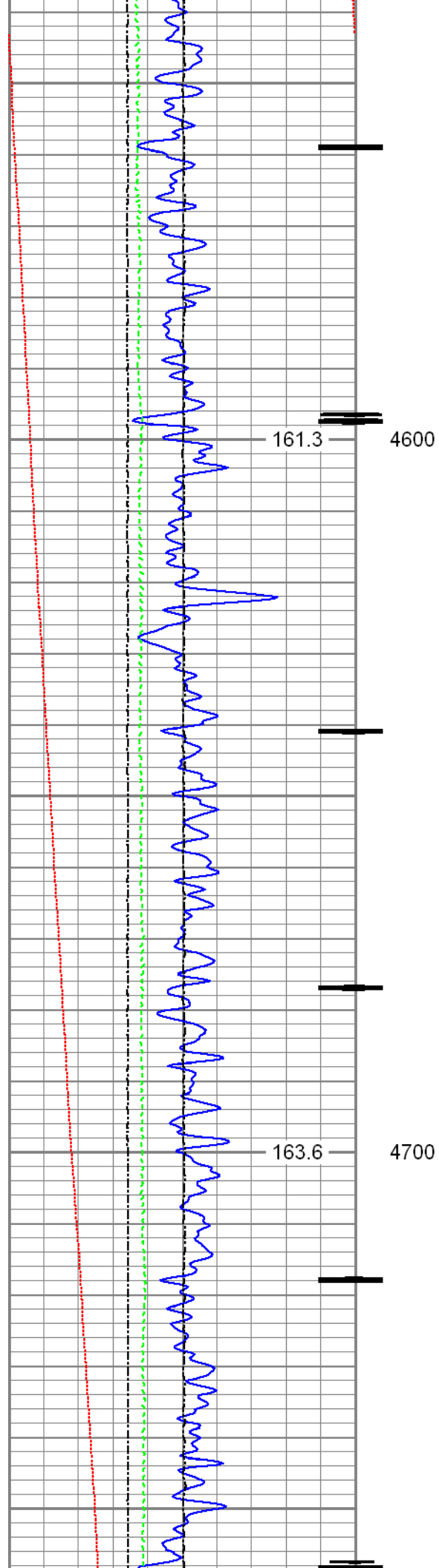


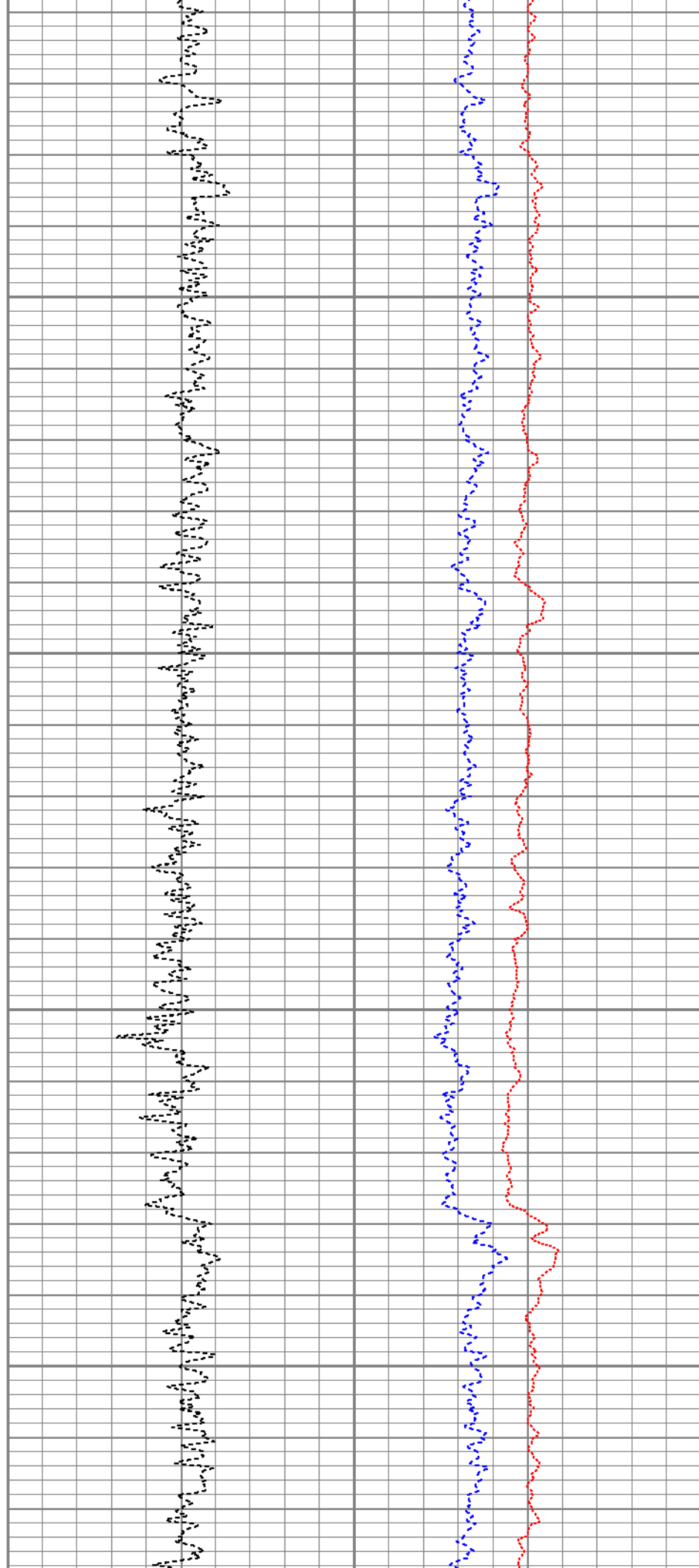
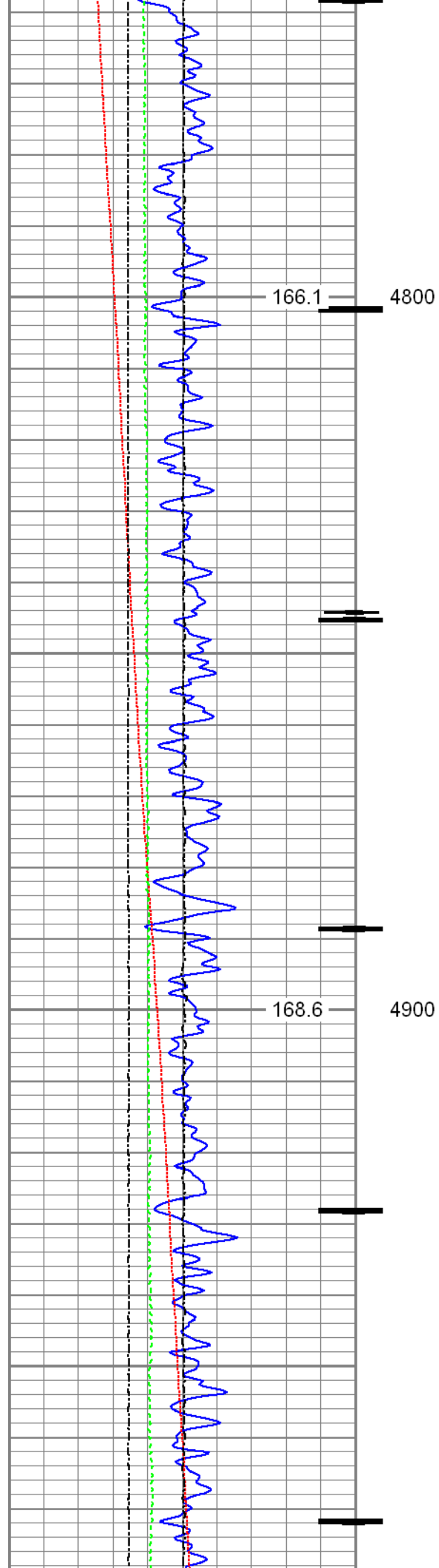


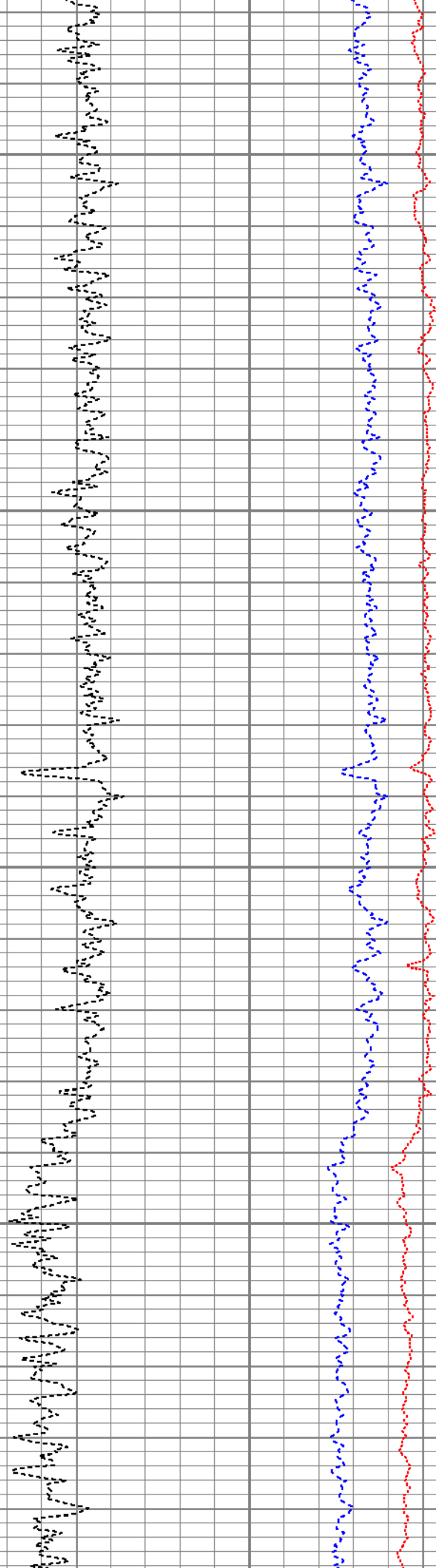
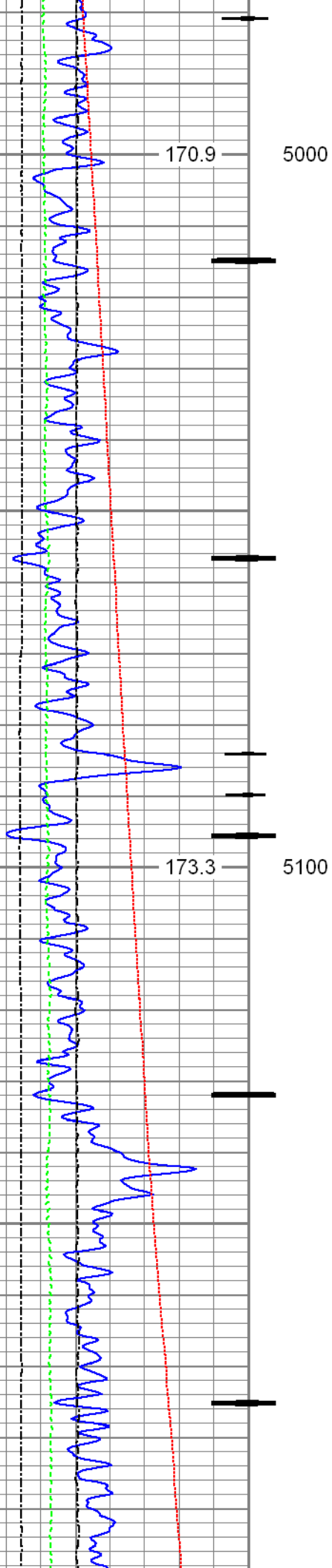


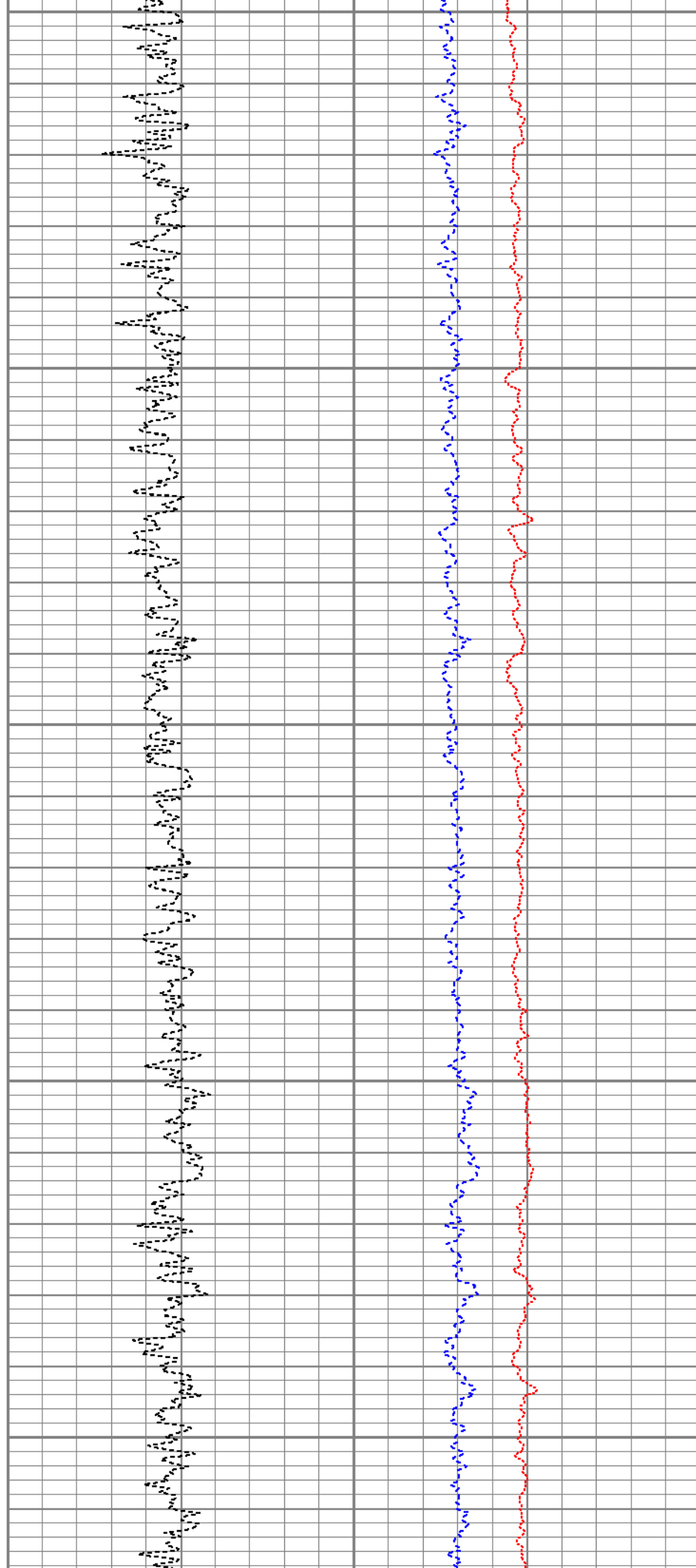
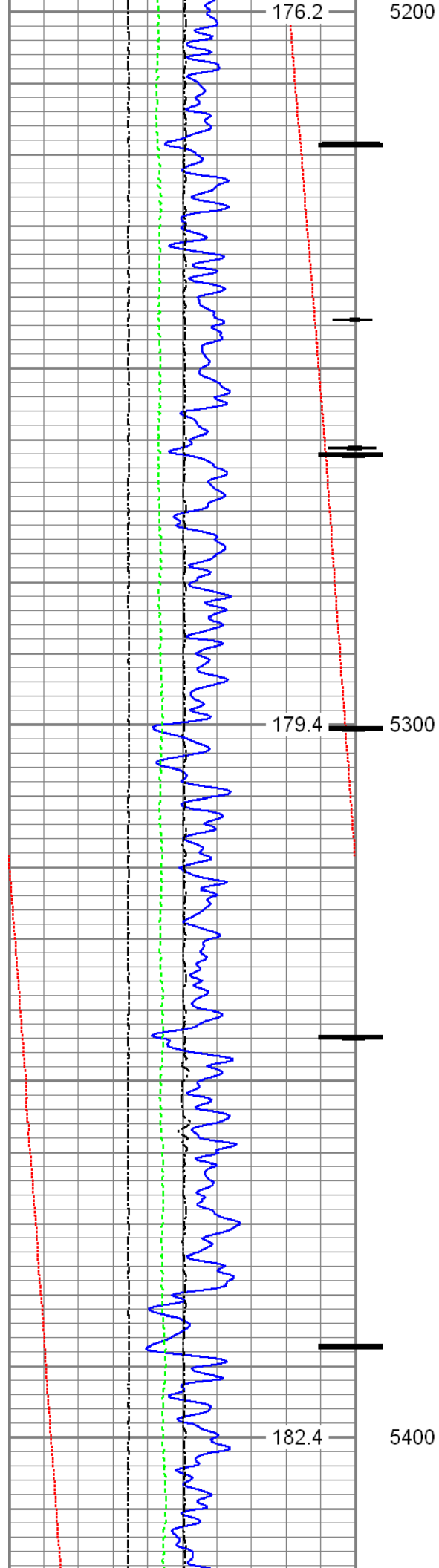


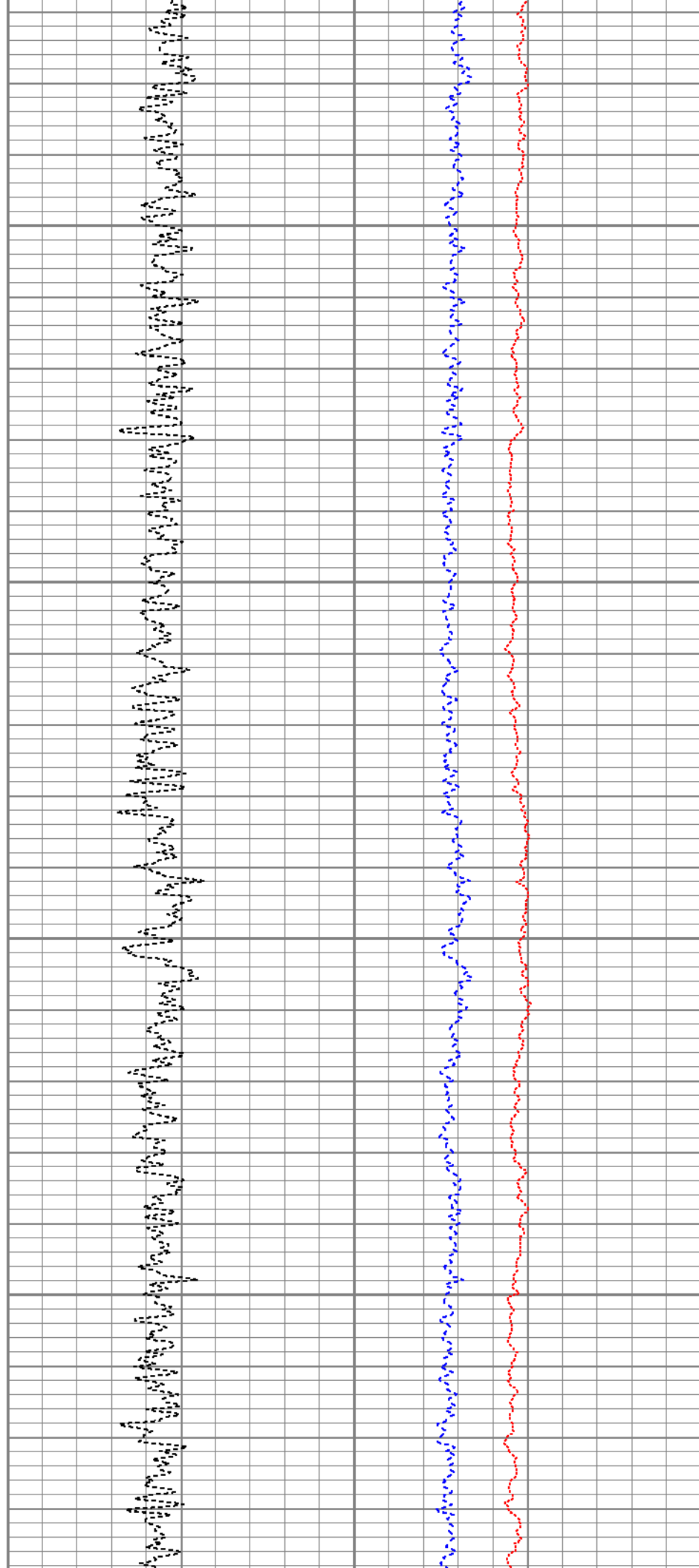
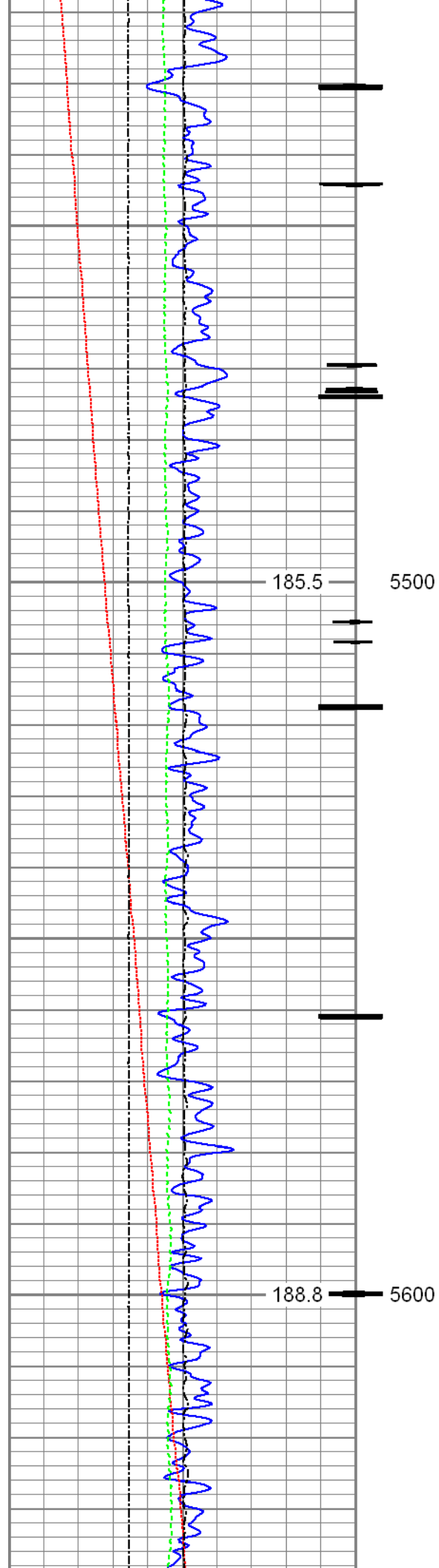


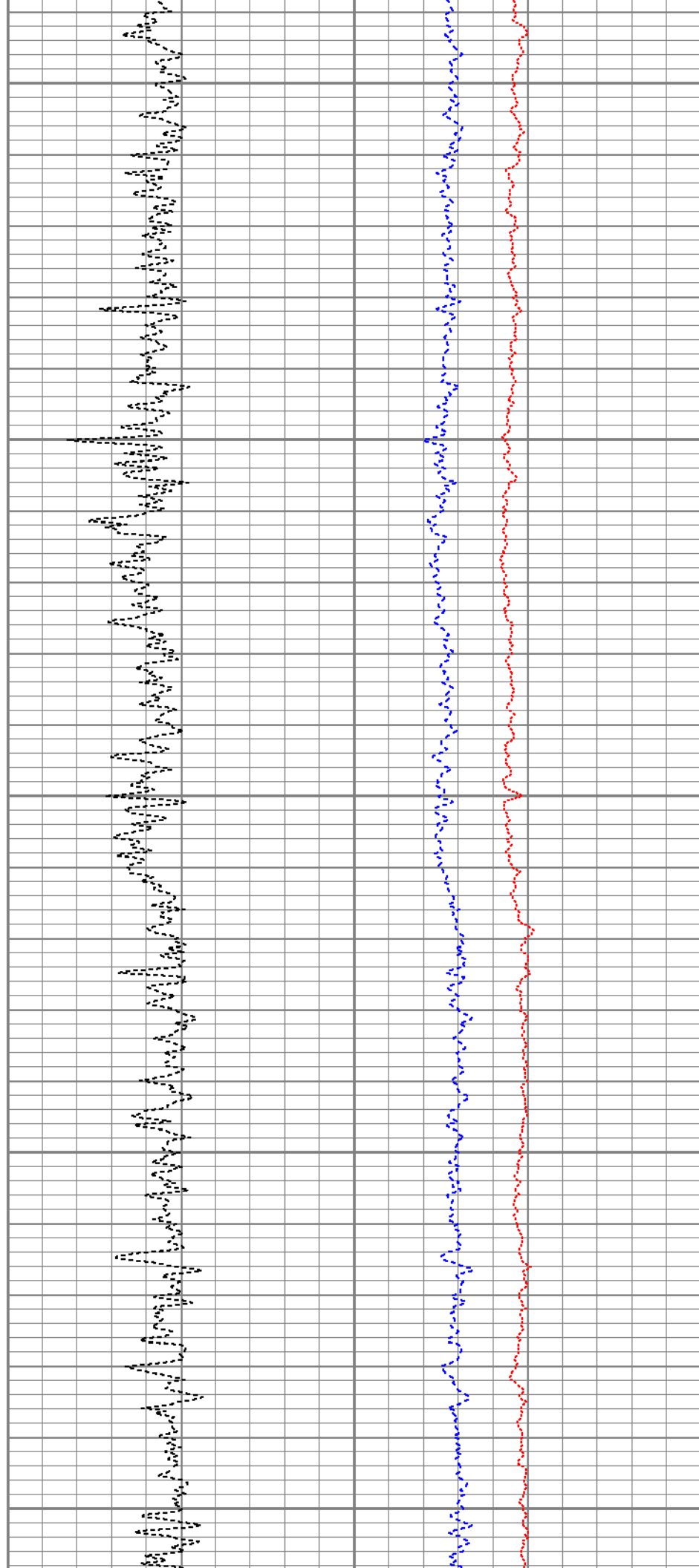
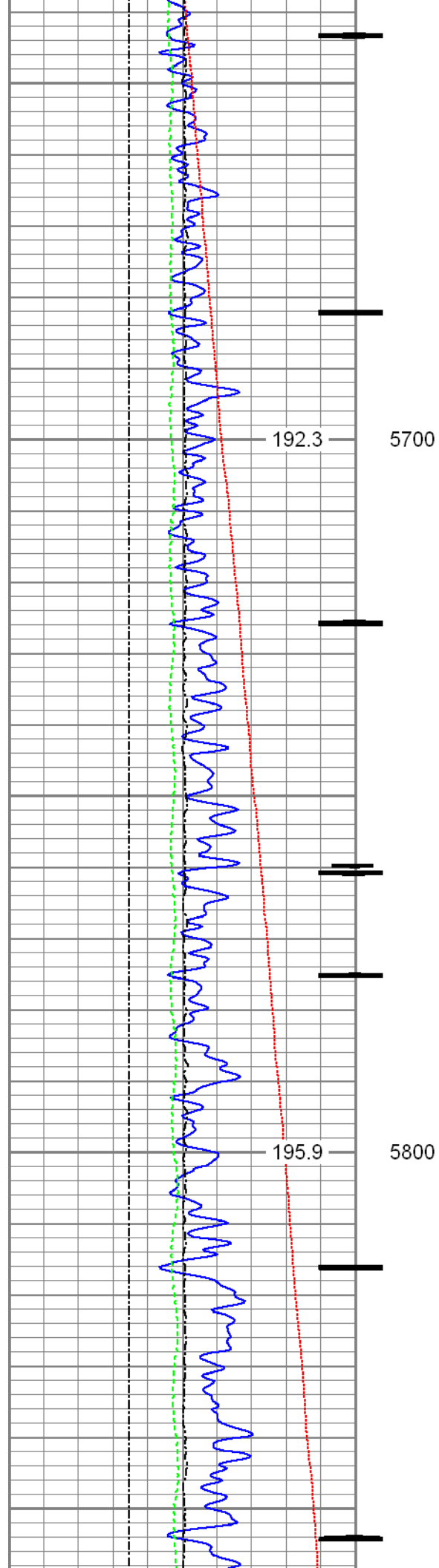


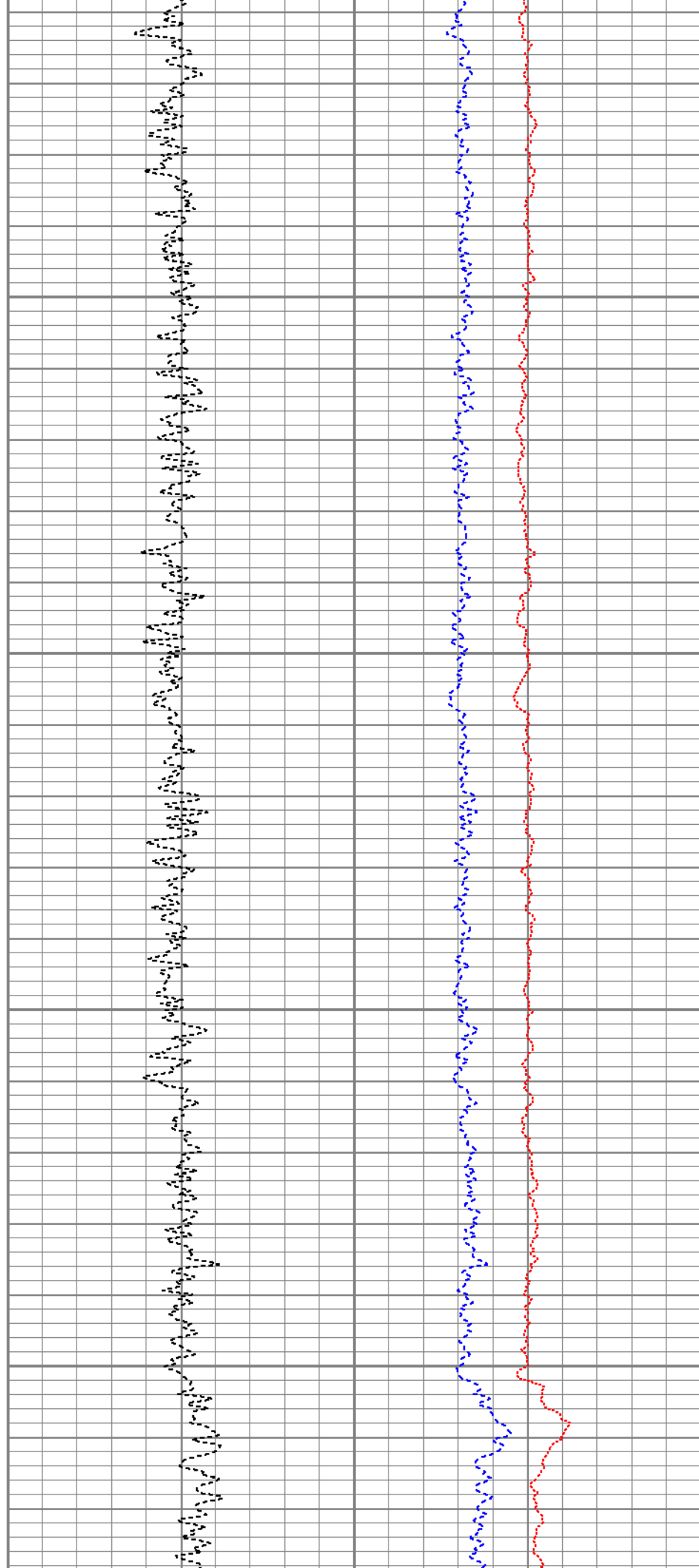
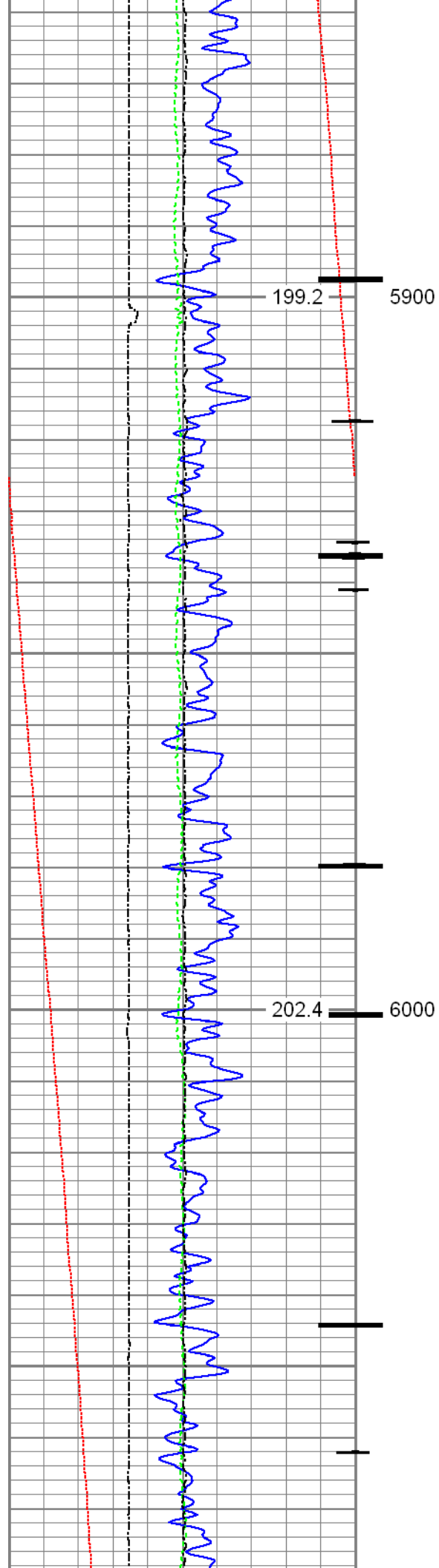


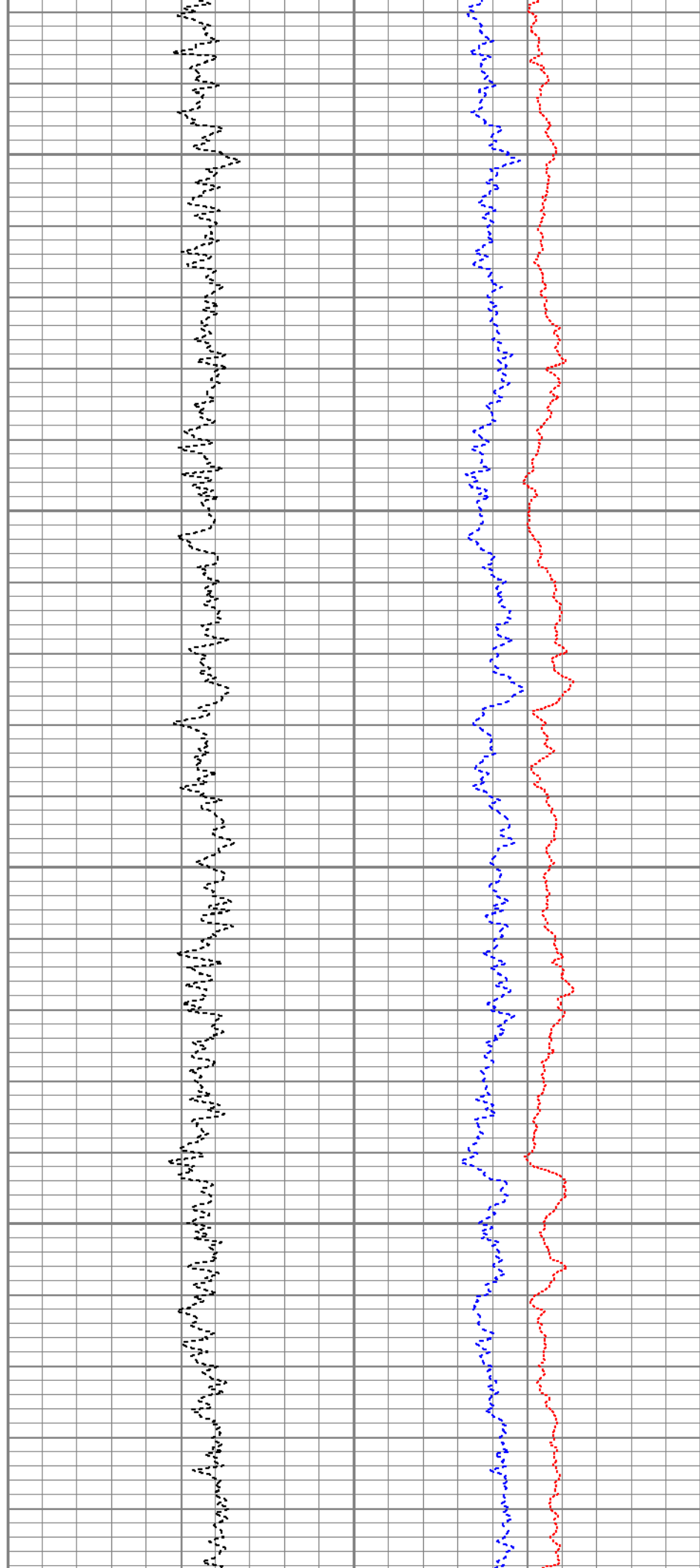
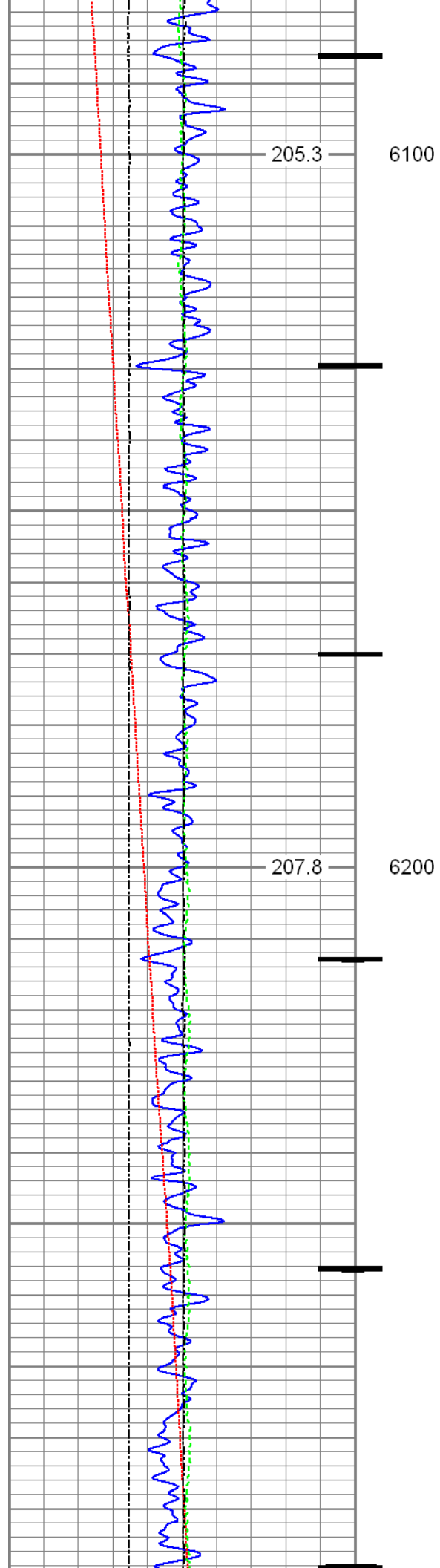


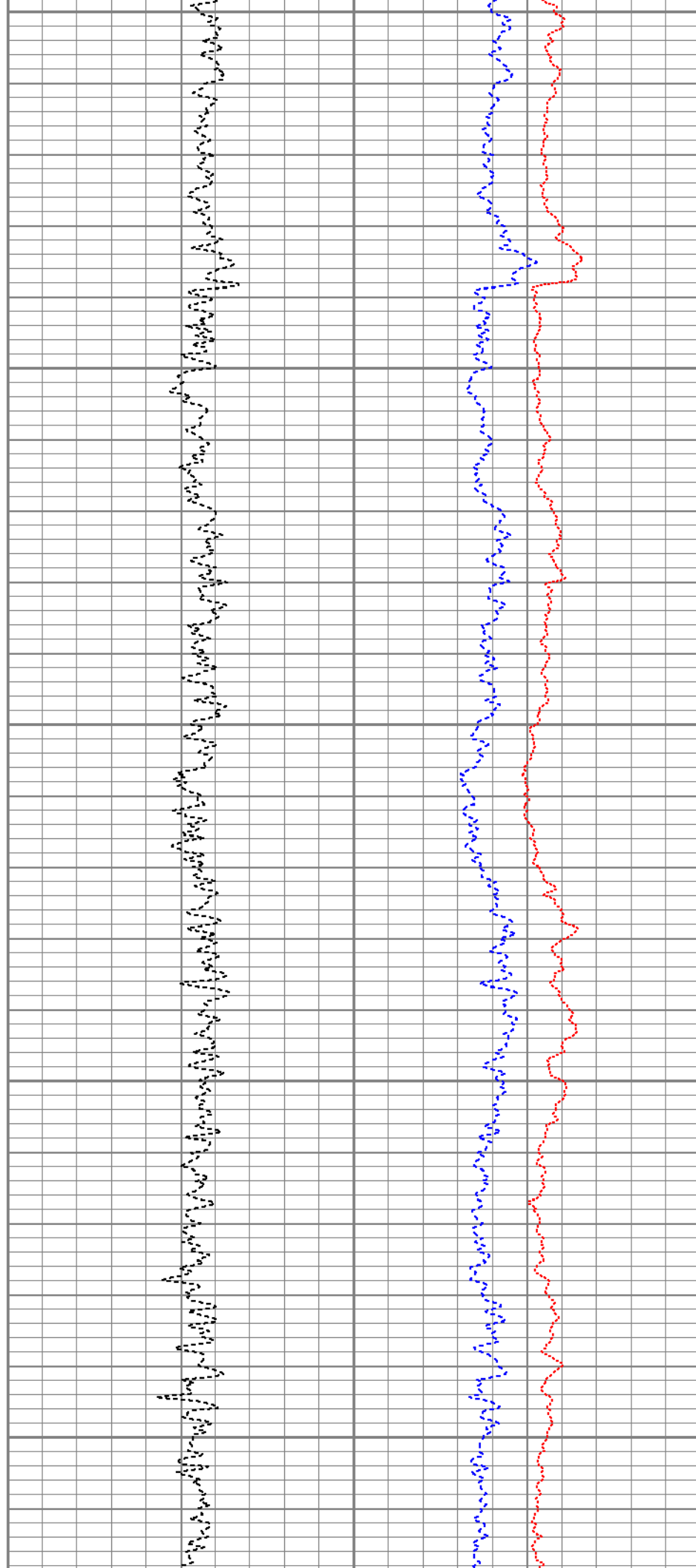
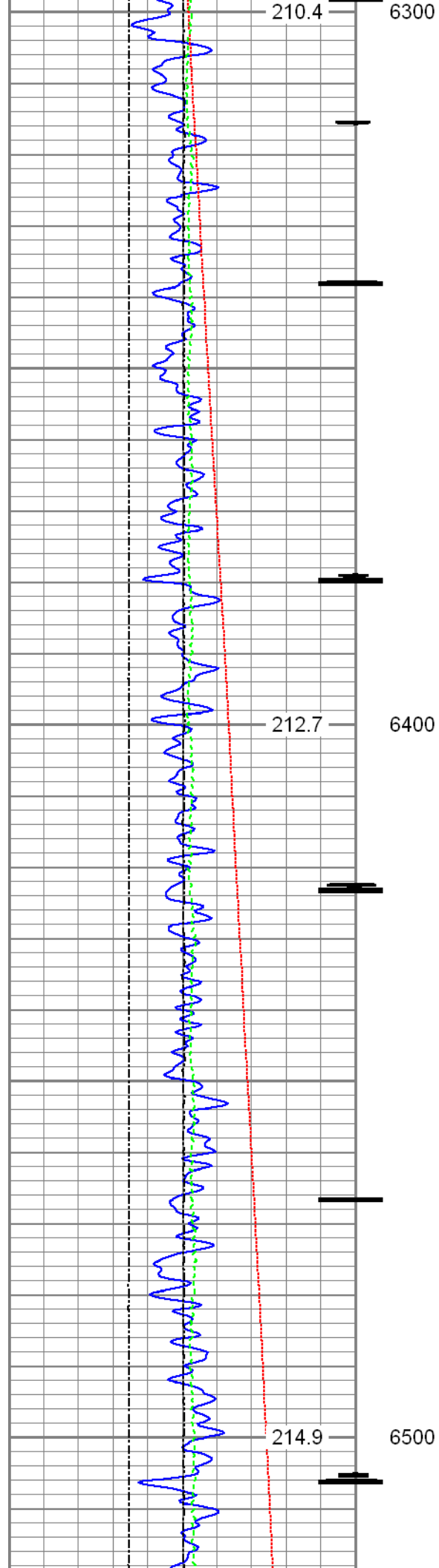


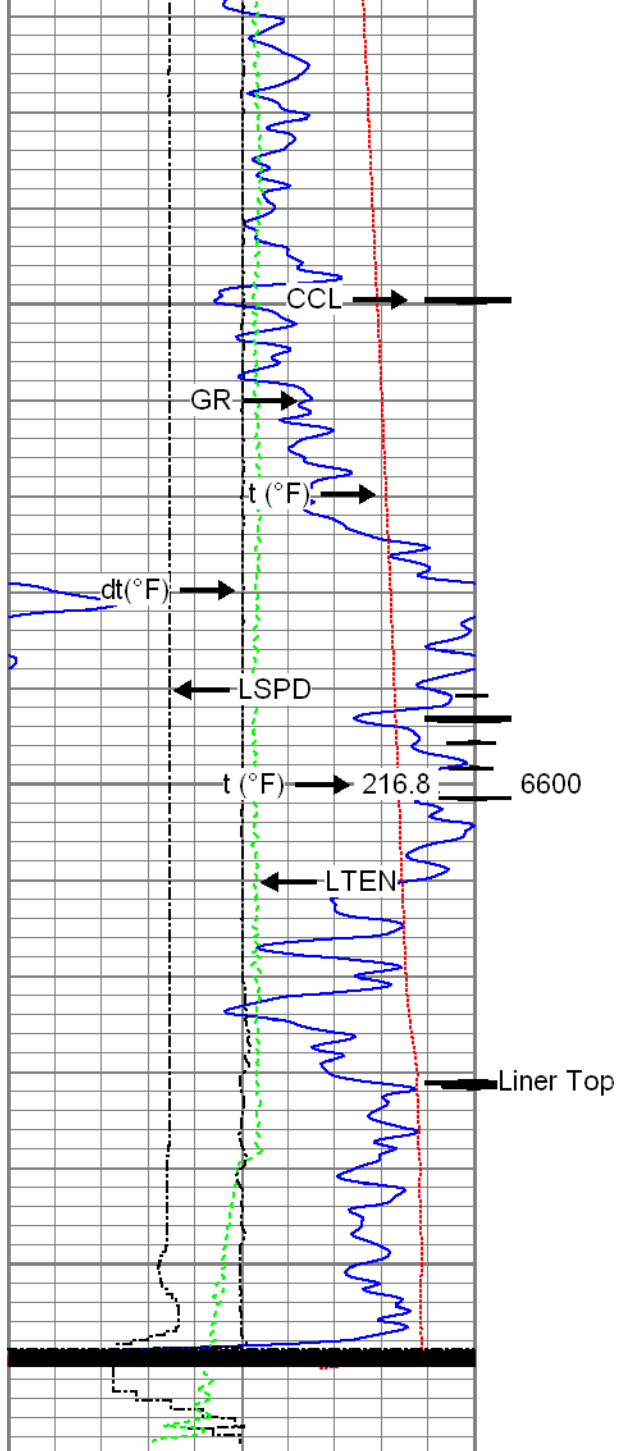




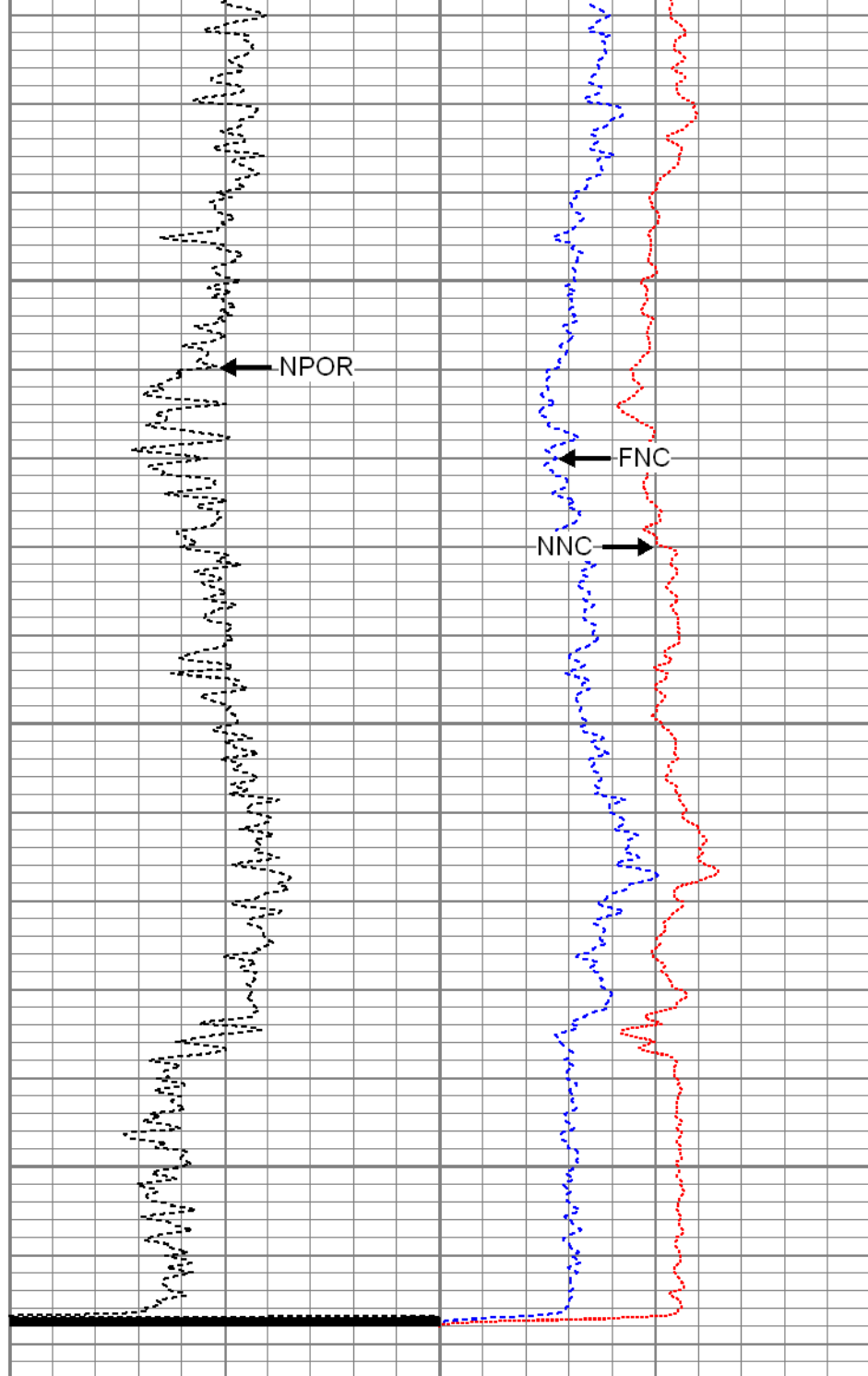








0	Gamma Ray (GAPI)	120
0	Temperature (degF)	20
-100	Line Speed (ft/min)	100
0	Line Tension (lb)	2000
-2	Differential Temperature (degF)	2
	Casing Collar Locator	



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

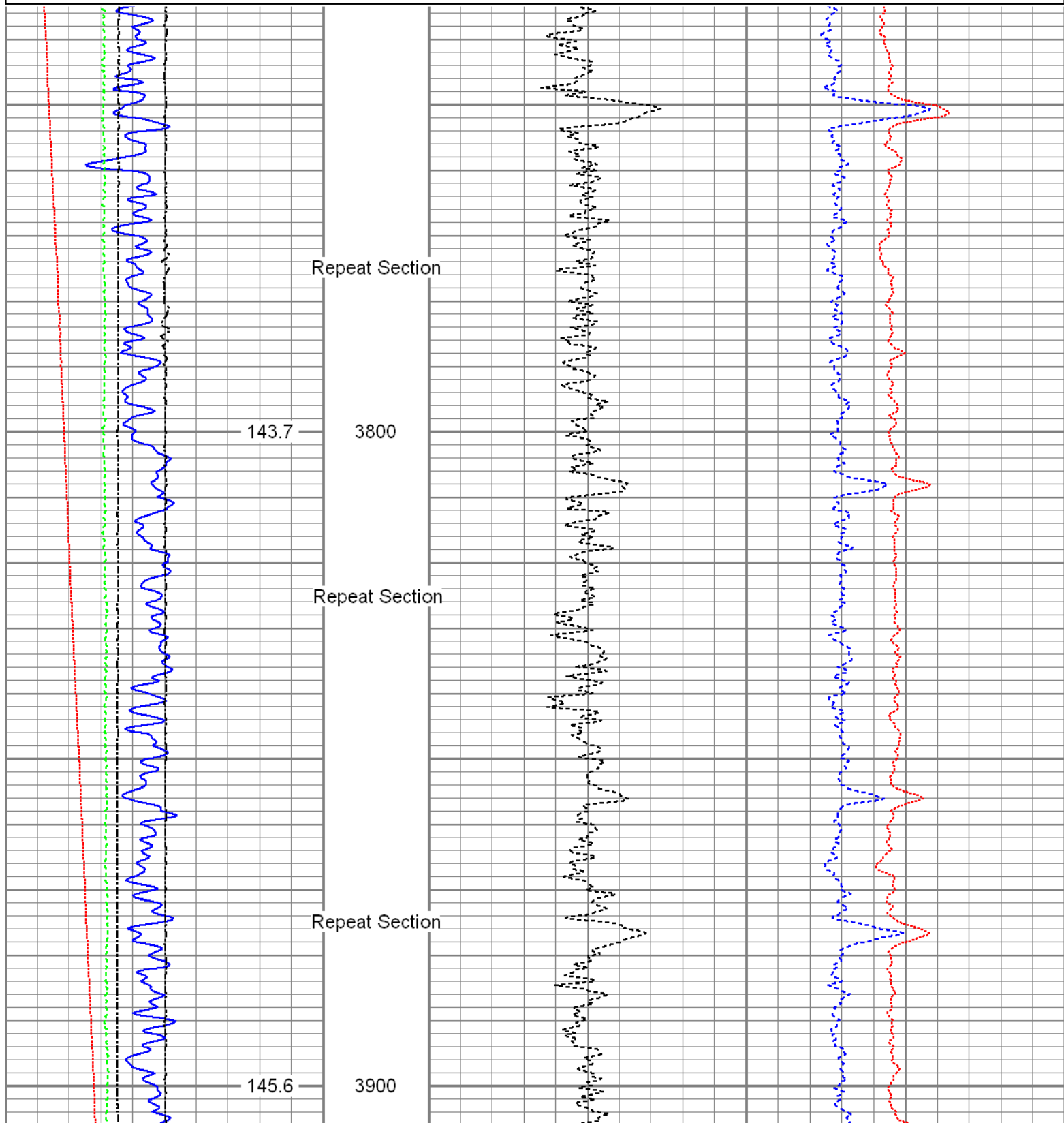


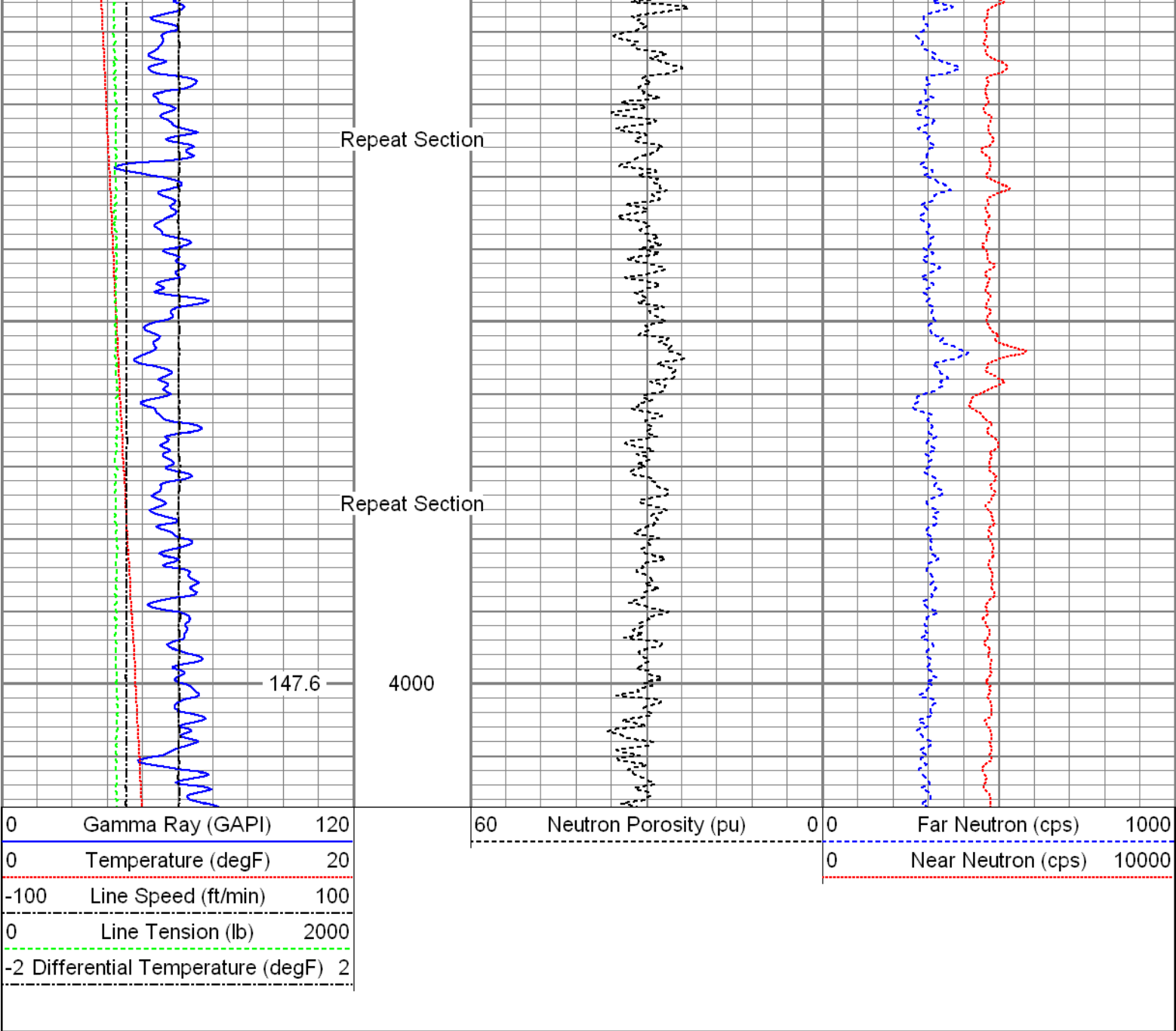
Repeat Pass


Recorded with 0 PSI surface induced pressure


Database File: 09-24-15_noble energy_wells ranch aa 11-628_cnl.db
Dataset Pathname: pass3
Presentation Format: cnl
Dataset Creation: Thu Sep 24 14:56:44 2015 by Log 7.0 B1
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						
-2	Differential Temperature (degF)	2						





Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
GR	9.77		T_CH14375_1_GO Titan 1-7/16" Assembled Electric Cable Head with 1" Fishing Neck	1.03	1.44	4.00
			UW_AGS-UW_AGS_001 (215017) Sondex Adapter - GO Box to Sondex Pin	0.21	1.69	1.00
			UW_XTU-UW_XTU_002 (211461) Crossover Ultrawire Toolbus to Ultralink	1.58	1.69	6.50
			UW_PGR-UW_PGR_020 (10024770) Production Gamma Ray	1.93	1.69	9.50

TEMP	8.37		UW_PRT-UW_PRT_016 (10025097) Platinum Resistance Thermometer	1.04	1.69	5.20
CCL	7.12		UW_CCL-UW_CCL_028 (10009470) Ultrawire 3-1/8" CCL	1.61	3.13	36.00
			CNL-007 (1004) Compensated Neutron Logging Tool	6.61	1.69	30.00
CNLSC	1.53					
CNSSC	1.12					
TSTAMP	0.00					
Dataset: 09-24-15_Noble Energy_Wells Ranch AA11-628_CNL.db: field/well/run1/pass5 Total Length: 14.01 ft Total Weight: 92.20 lb O.D.: 3.13 in						

Calibration Report			
Database File:	09-24-15_Noble Energy_Wells Ranch AA11-628_CNL.db		
Dataset Pathname:	pass5.1		
Dataset Creation:	Thu Sep 24 19:24:26 2015		
Compensated Neutron Calibration Report			
Serial Number:	1004		
Tool Model:	007		
Master Calibration	Tue Jun 03 14:35:57 2014		
Detector	Readings		
Short Space	241.46	cps	
Long Space	300.95	cps	
Ratio	Measured	Reference	
	0.8150	Sleeve: 1.0000	
CNRAT Gain K	1.0158		

Before Survey

Detector

Readings

Short Space

cps

Long Space

cps

Ratio

Measured

Reference

After Survey

Detector

Readings

Short Space

cps

Long Space

cps

Ratio

Measured

Reference

Temperature Calibration Report

Serial Number:

10025097

Tool Model:

UW_PRT_016

Performed:

Wed Feb 11 13:44:44 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:

10024770

Tool Model:

UW_PGR_020

Performed:

Sun Jun 13 13:33:21 1993

Calibrator Value:

1.0

GAPI

Background Reading:

0.0

cps

Calibrator Reading:

1.0

cps

Sensitivity:

1.0000

GAPI/cps



Company

Noble Energy Inc.

Well

Wells Ranch AA11-628

Field

Wattenberg

County

Weld

State

Colorado