



Compensated Neutron
Gamma Ray
Casing Collar Log

Company	Kerr-McGee Oil and Gas Onshore LP	Company	Kerr-McGee Oil and Gas Onshore LP
Well	Powers 13C-22HZ	Well	Powers 13C-22HZ
Field	Wattenberg	Field	Wattenberg
County	Weld	County	Weld
State	Colorado	State	Colorado
Location:	API #: 05-123-41902		
Permanent Datum	SEC 22 TWP 2N RGE 65W	Ground Level	Elevation 4885'
Log Measured From	Kelly Bushing	20 FT	Elevation 4885'
Drilling Measured From	Kelly Bushing		Elevation 4885'
		Other Services	Gauge Ring RBT

Date	08-DEC-2015
Run Number	Two
Depth Driller	12918 FT
Depth Logger	7502 FT
Bottom Logged Interval	7501 FT
Top Log Interval	Surface
Open Hole Size	7.875"
Type Fluid	Water
Density / Viscosity	8.34 lbm/gal
Max. Recorded Temp.	246°F
Estimated Cement Top	---
Time Well Ready	ROA
Time Logger on Bottom	9:30 AM
Equipment Number	HD-0331
Location	Ft. Lupton, CO
Recorded By	B. Kalkwarf
Witnessed By	Mario Torres

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	J55 LT&C	Surface	1882 FT		
Intermediate #1	5 1/2	17	P-110	Surface	12907 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 6829 FT
Adjusted log 5 FT to correlate with Marker Joint
Log ran from 7501 FT to surface
Recorded with 2800 PSI Surface Induced Pressure
Logging tools were clean and free of any debris upon completion of operations

Thank you for choosing FMC Technologies Surface Integrated Services.

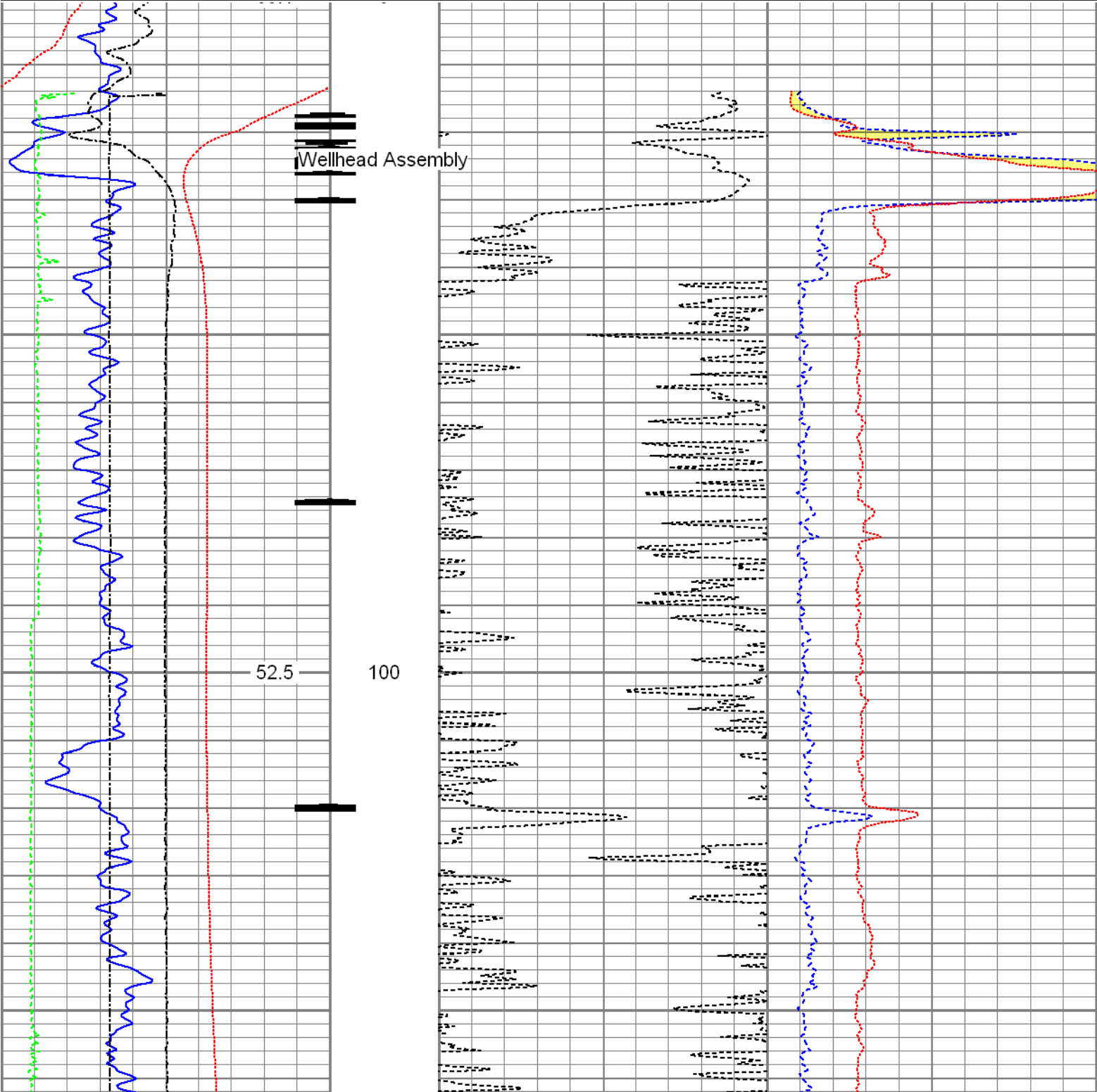


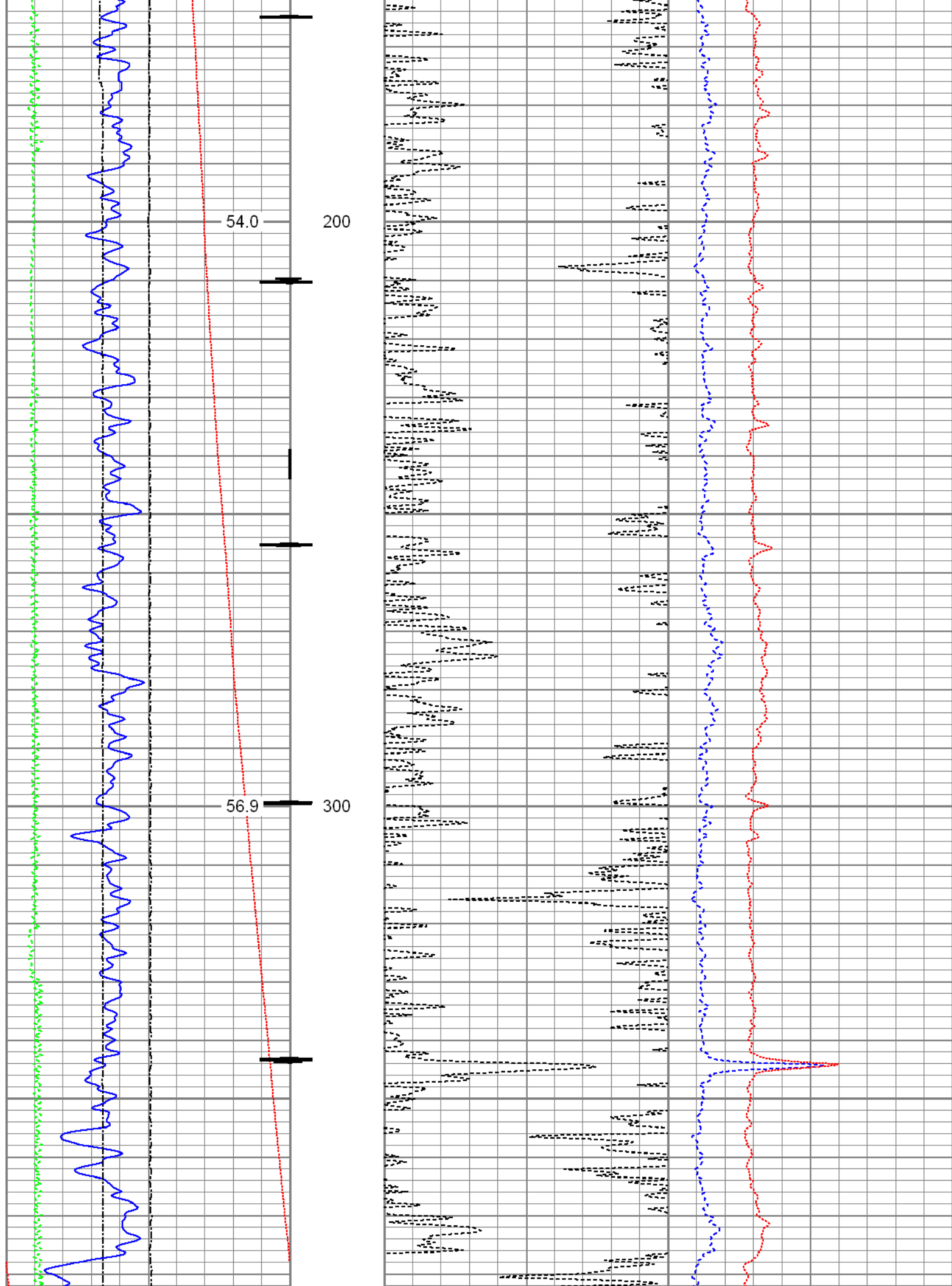
Main Pass

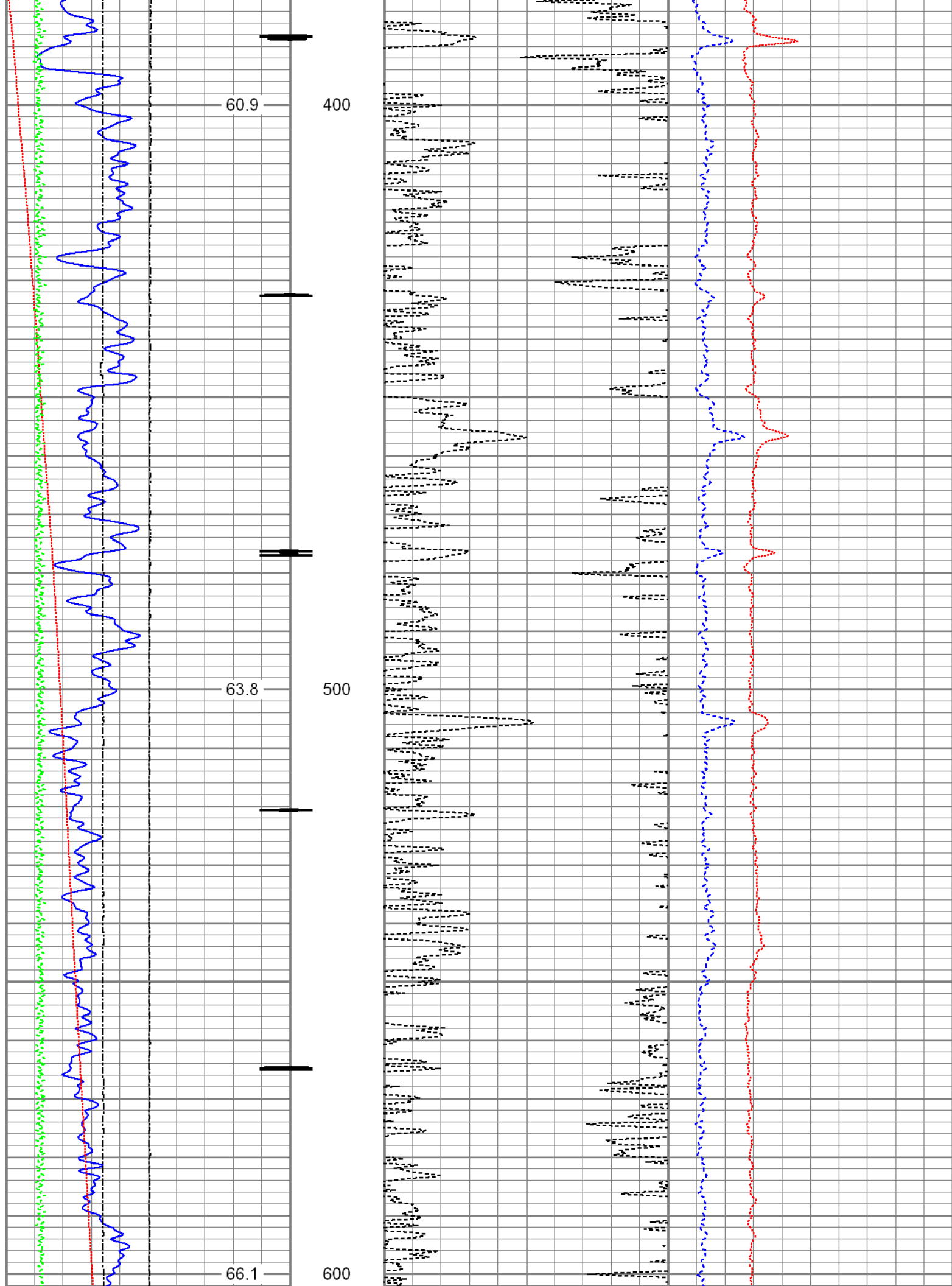
Recorded With 2800 PSI Surface Induced Pressure

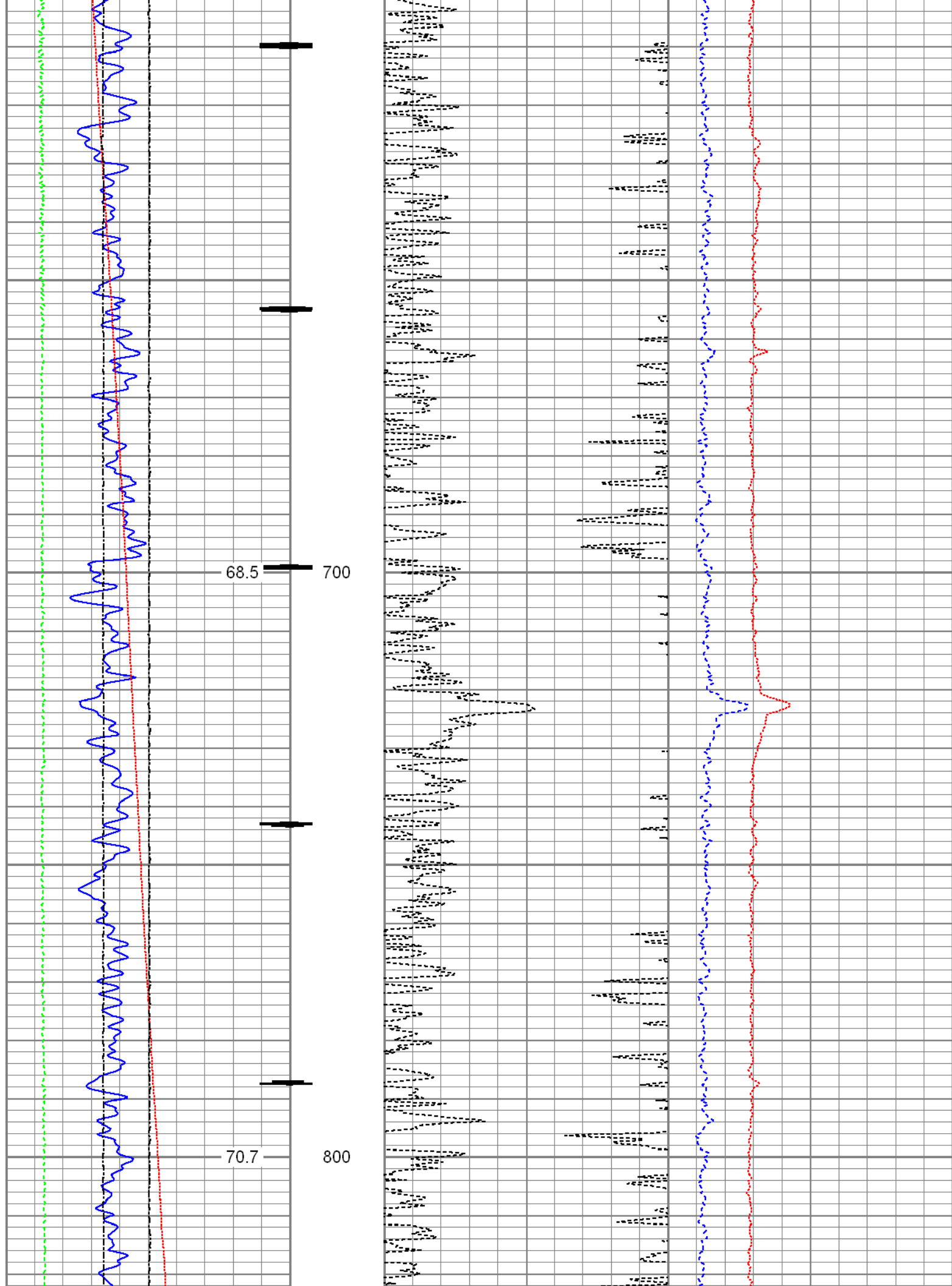
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Dataset Pathname: pass8
Presentation Format: cnl
Dataset Creation: Mon Dec 14 09:32:57 2015
Charted by: Depth in Feet scaled 1:240

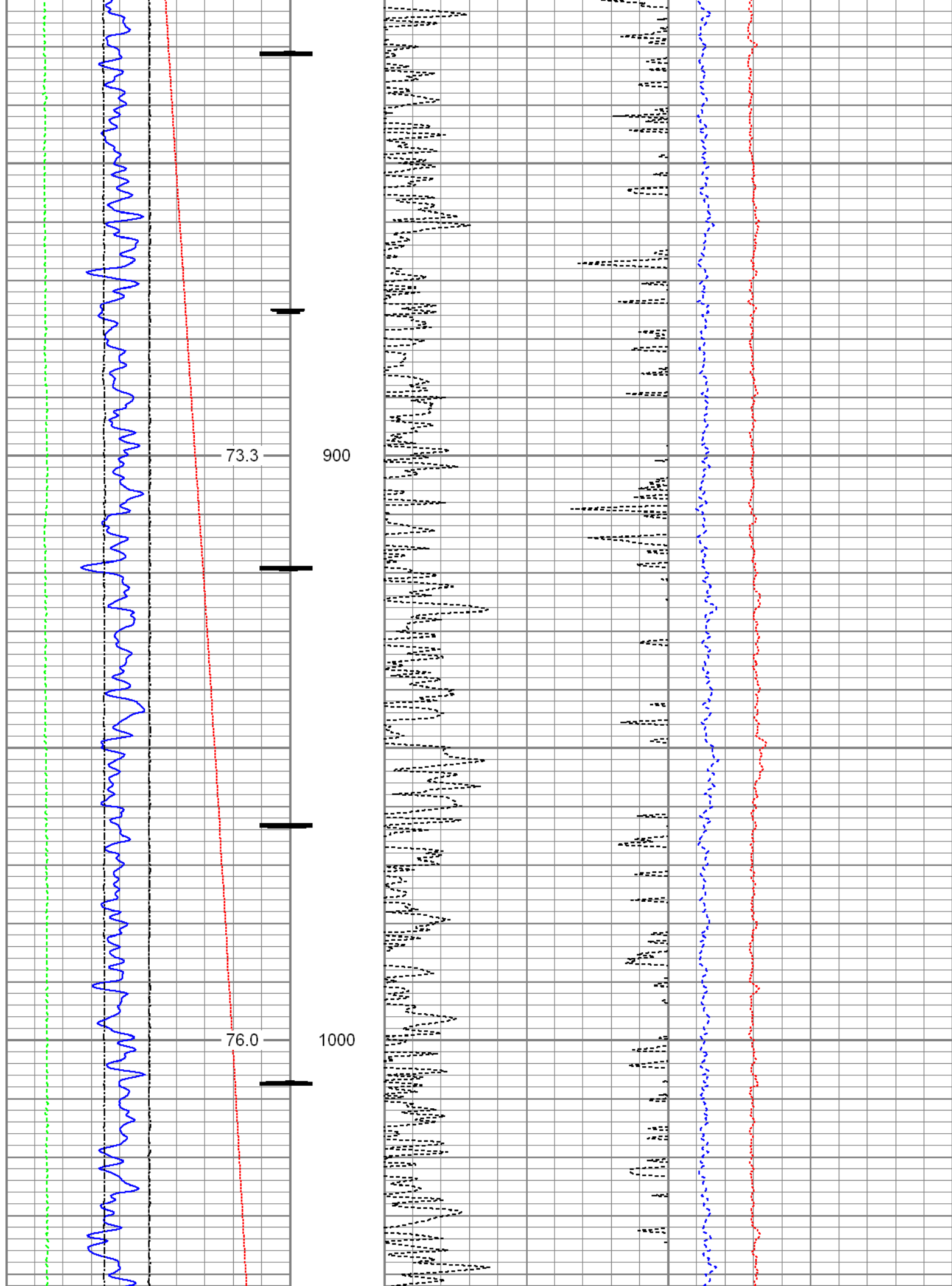
0	Gamma Ray (GAPI)	120	60	Neutron Porosity (pu)	0	0	Far Neutron (cps)	1000
0	Temperature (degF)	20				0	Near Neutron (cps)	10000
-100	Line Speed (ft/min)	100						
0	Line Tension (lb)	2000						
-2	Differential Temperature (degF)	2						
Casing Collar Locator								

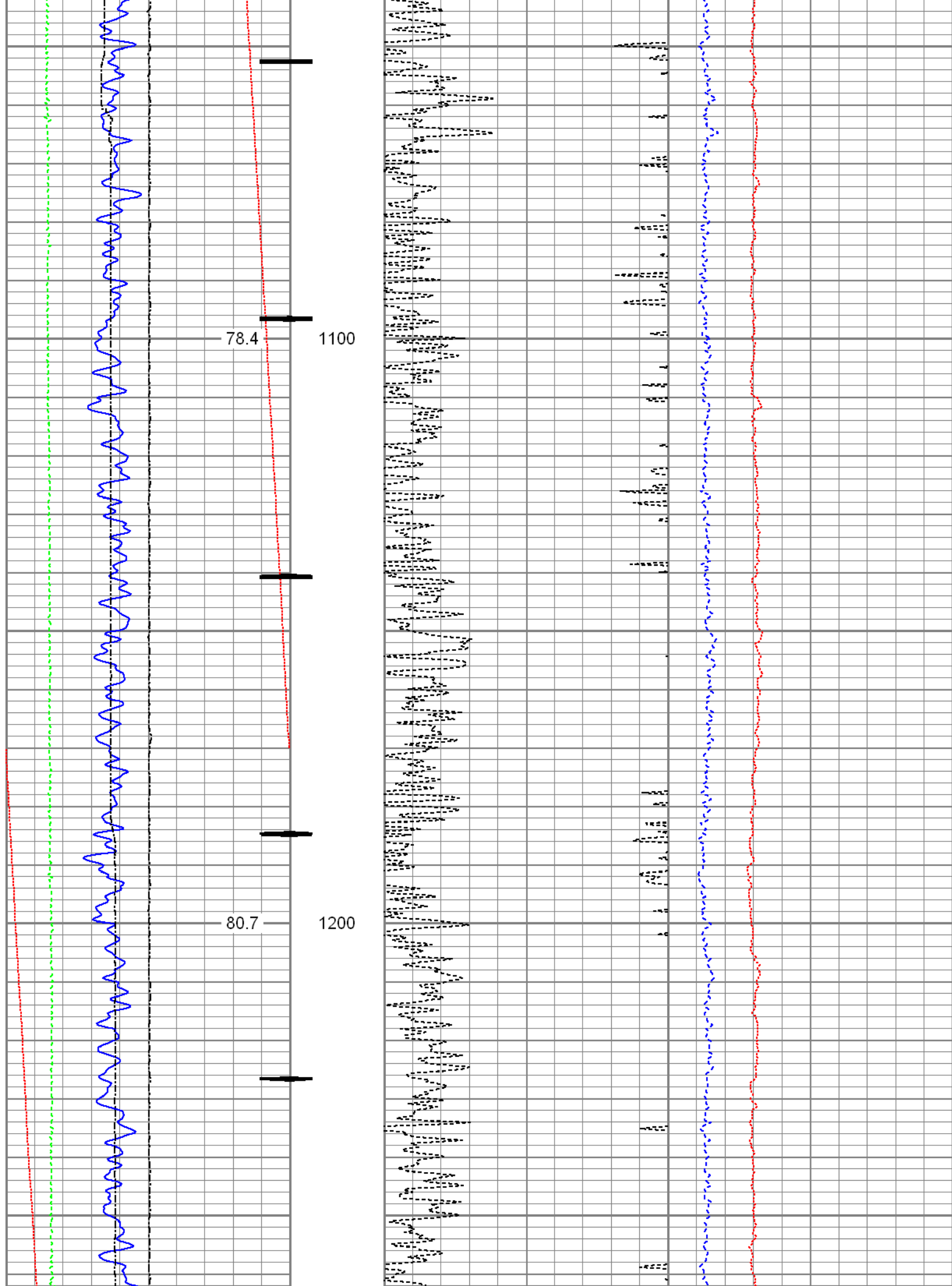


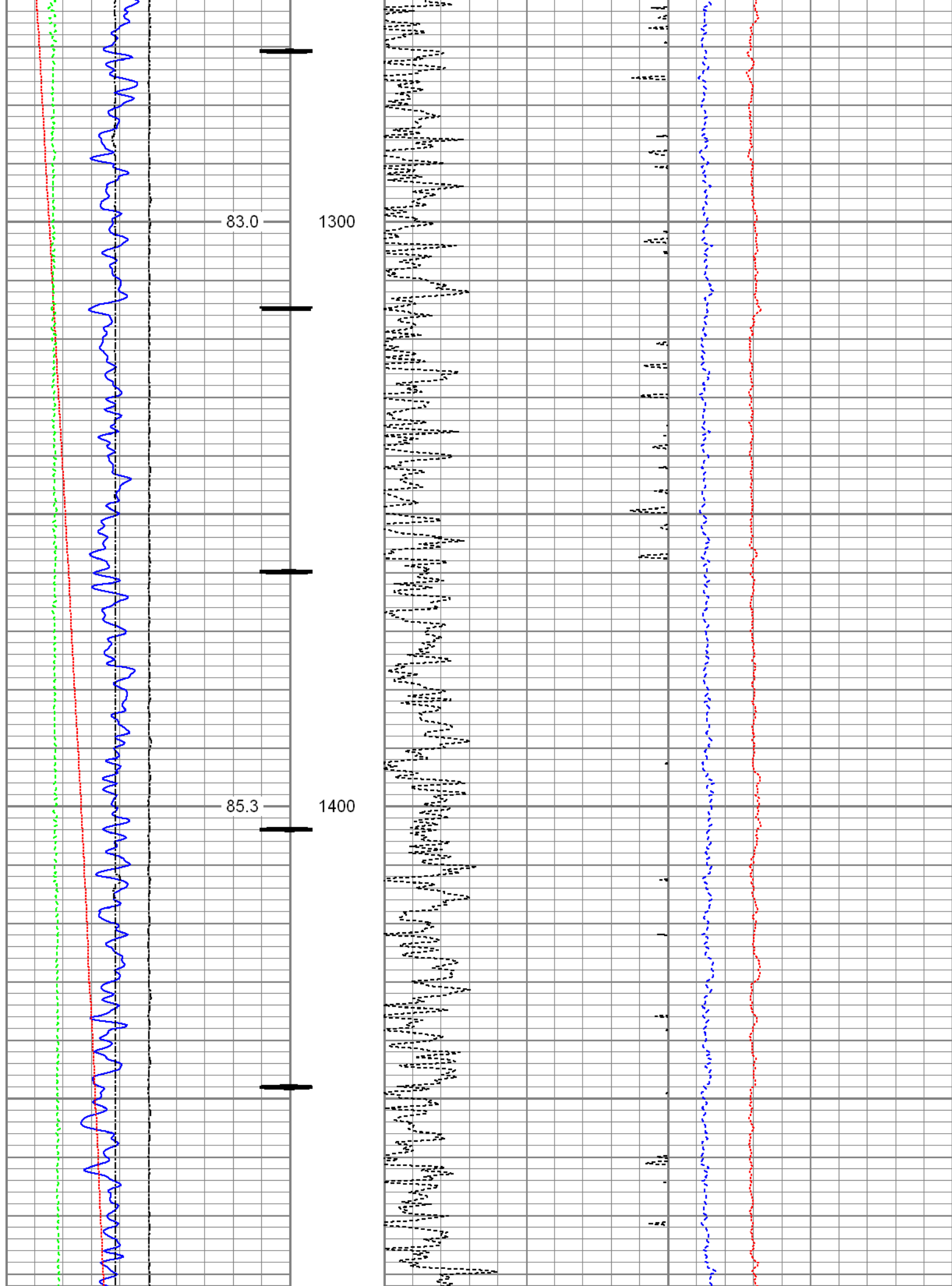


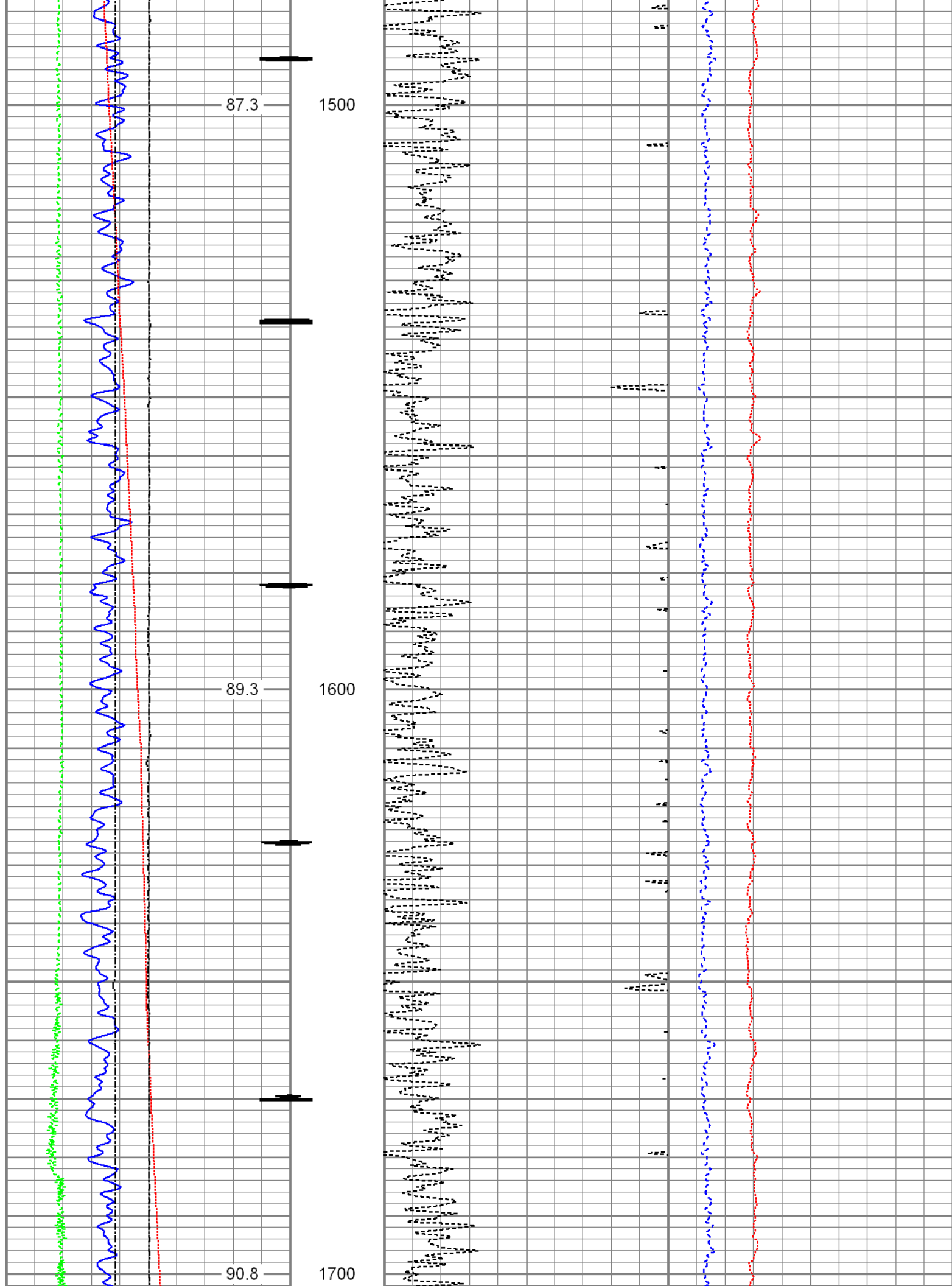


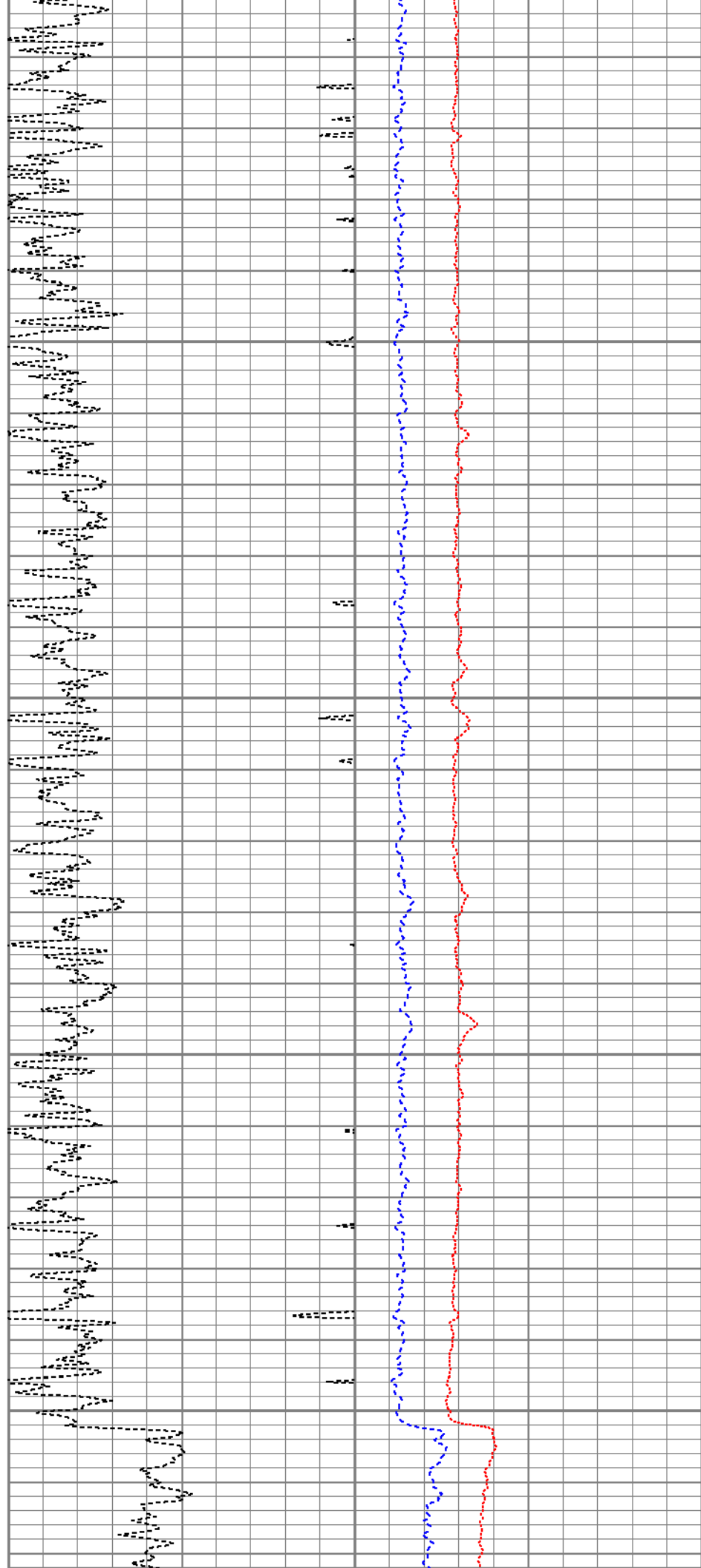
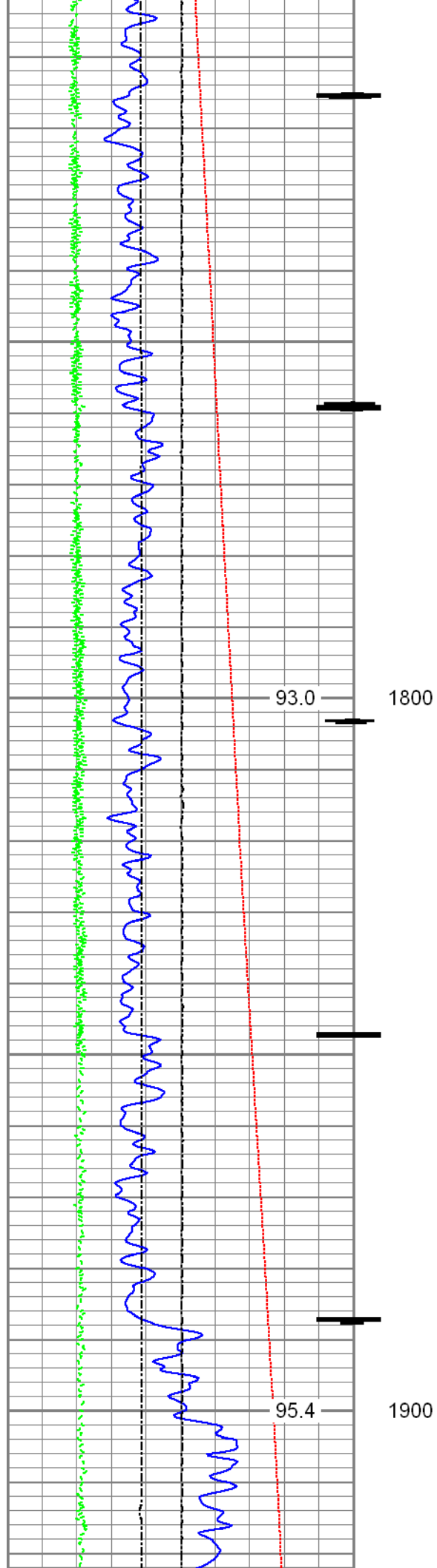


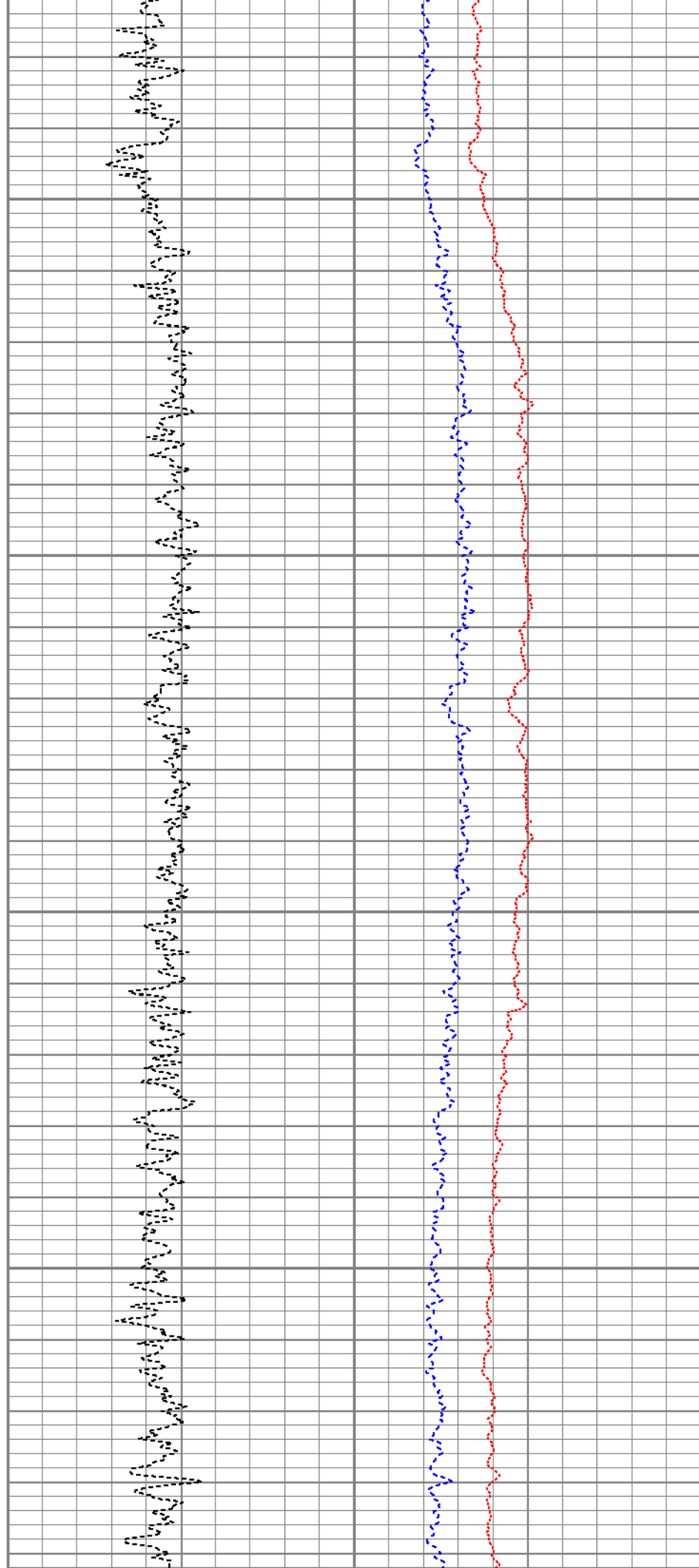
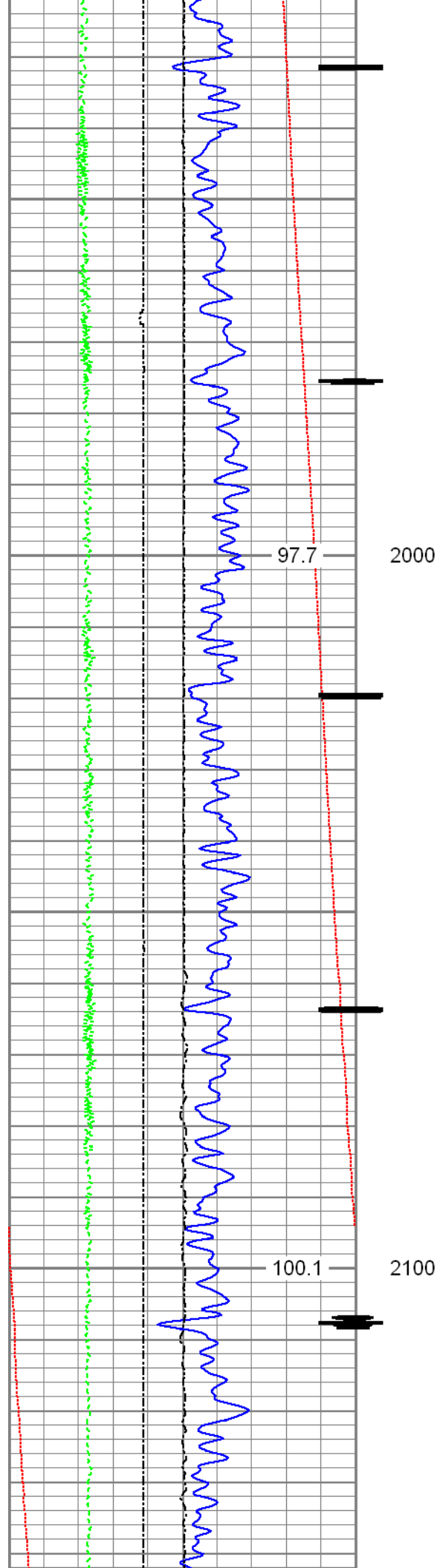


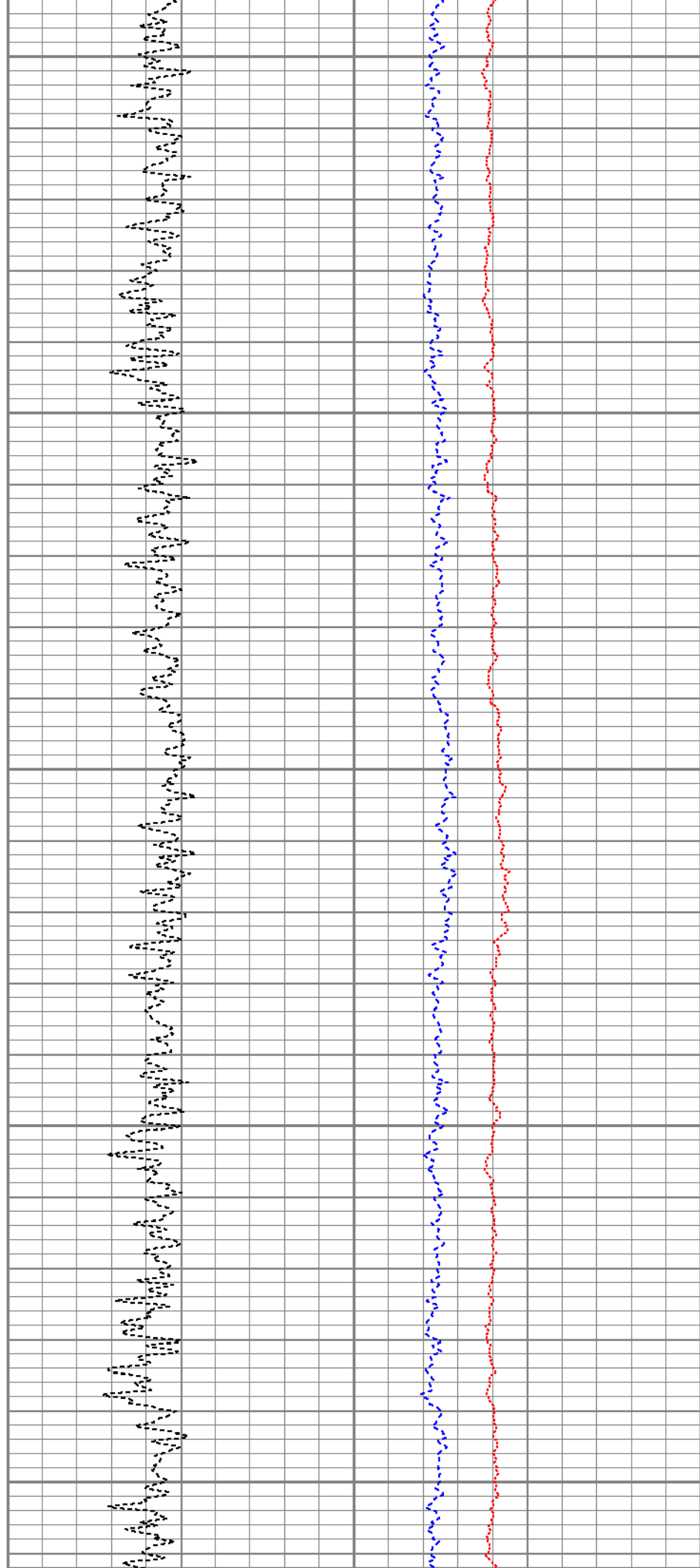
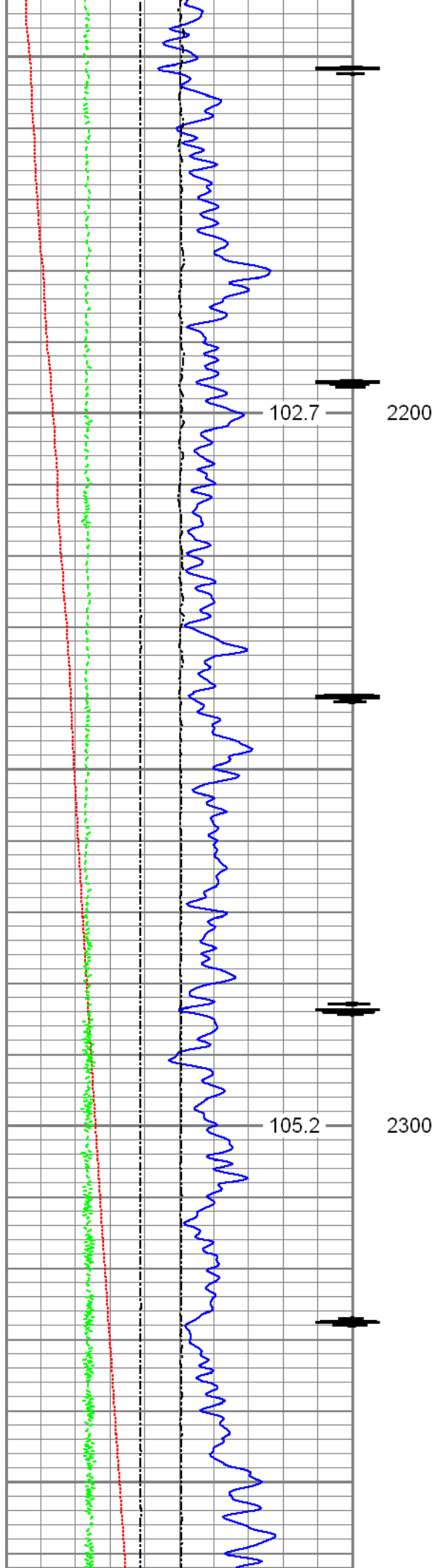


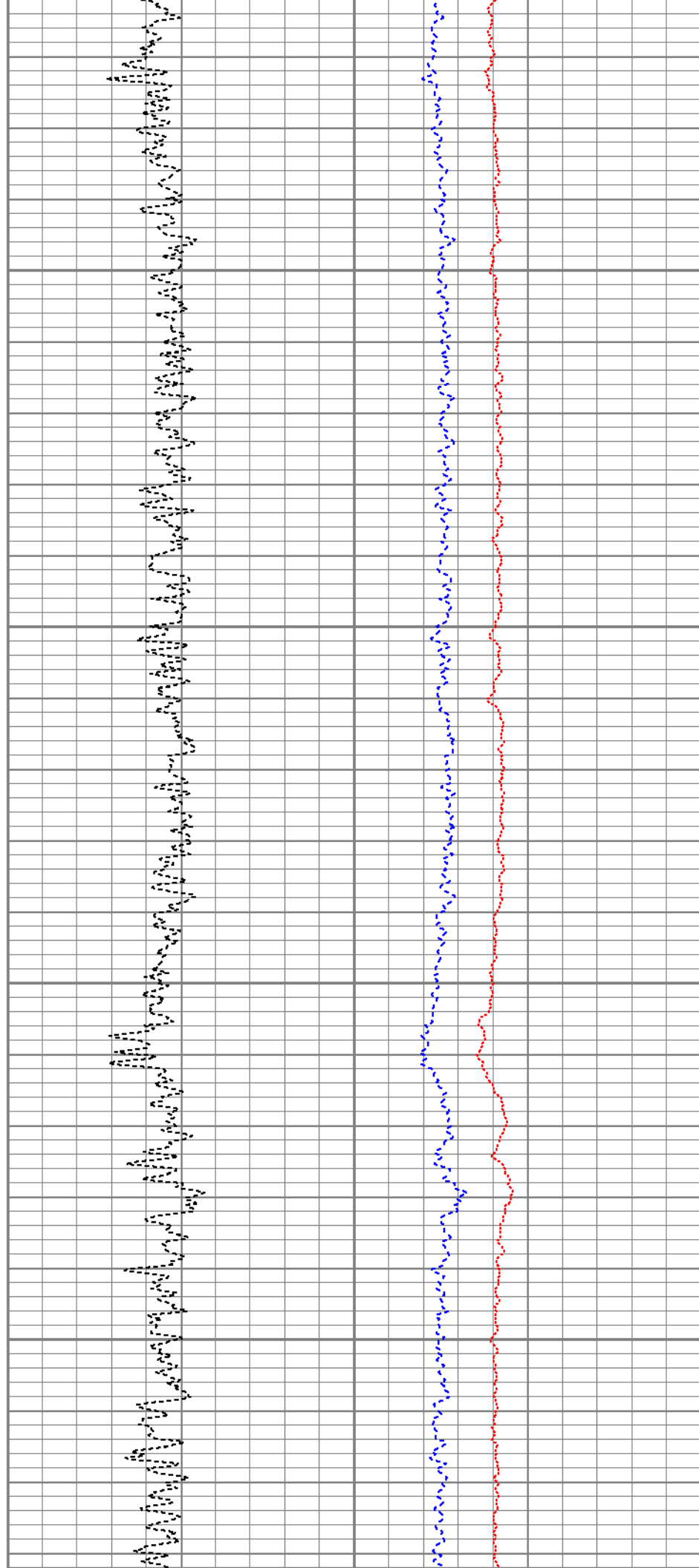
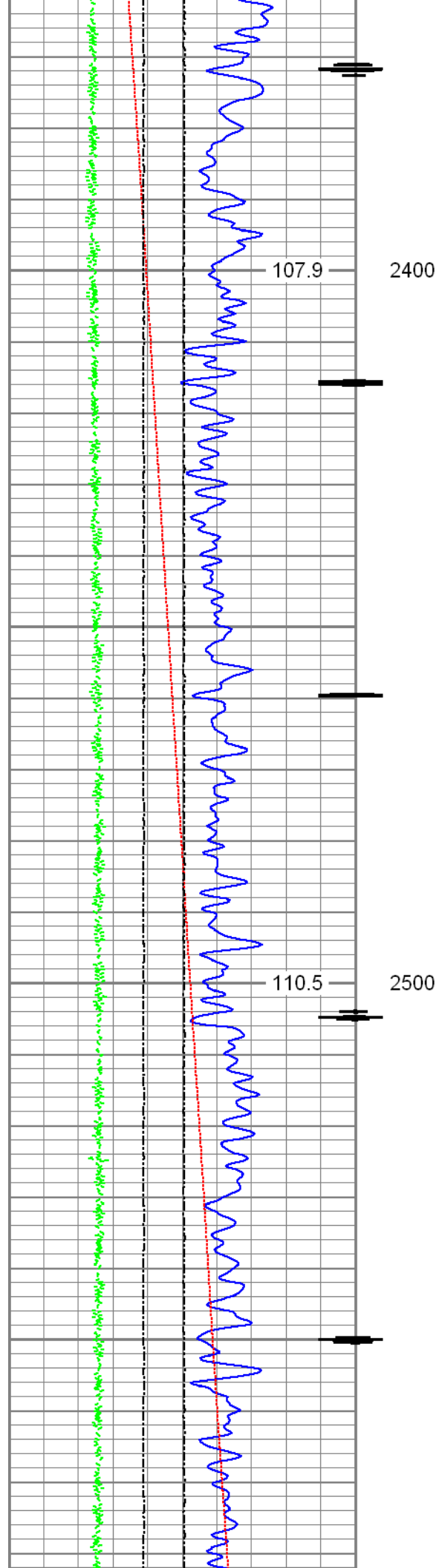


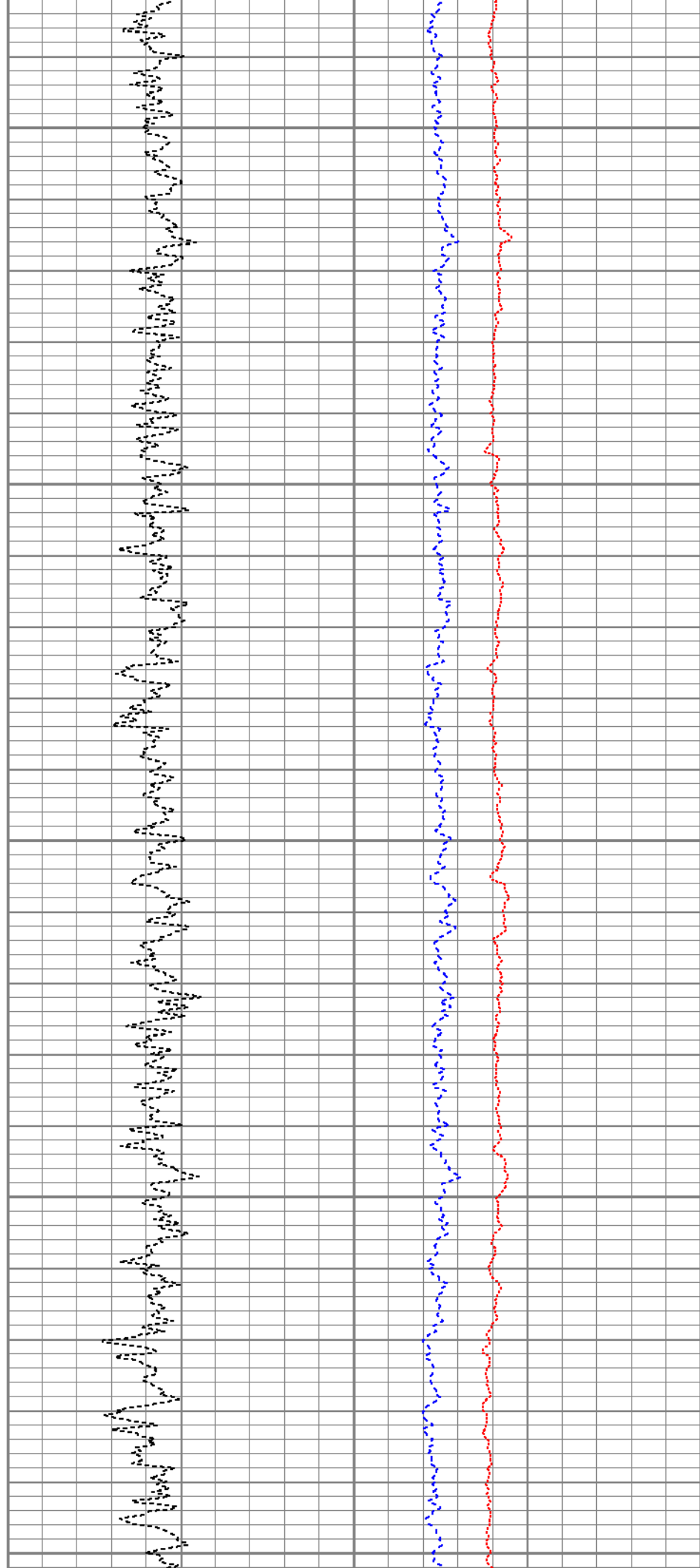
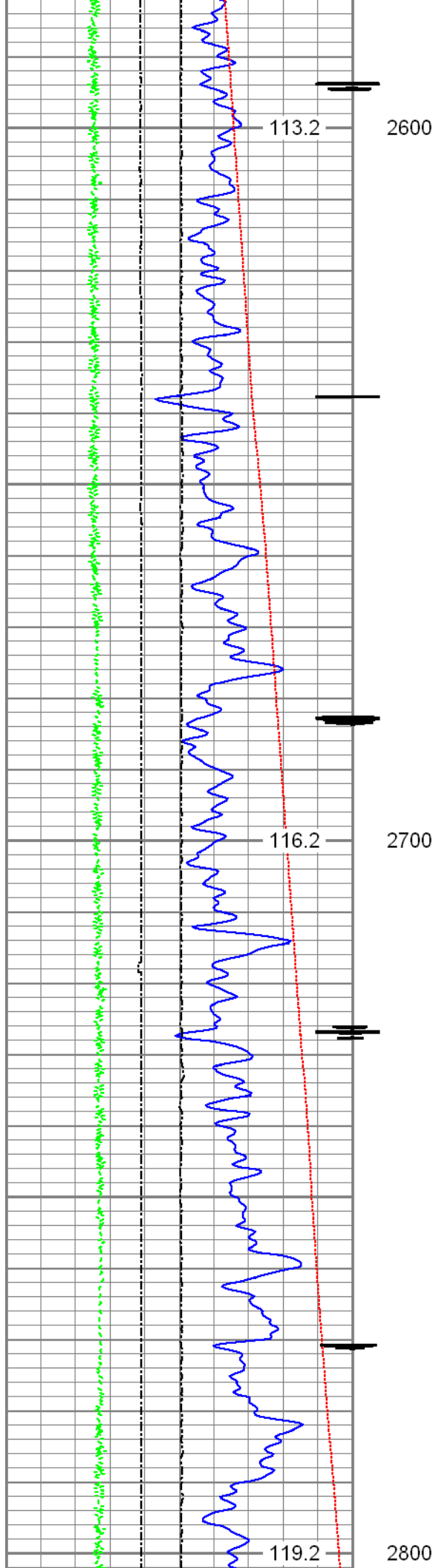


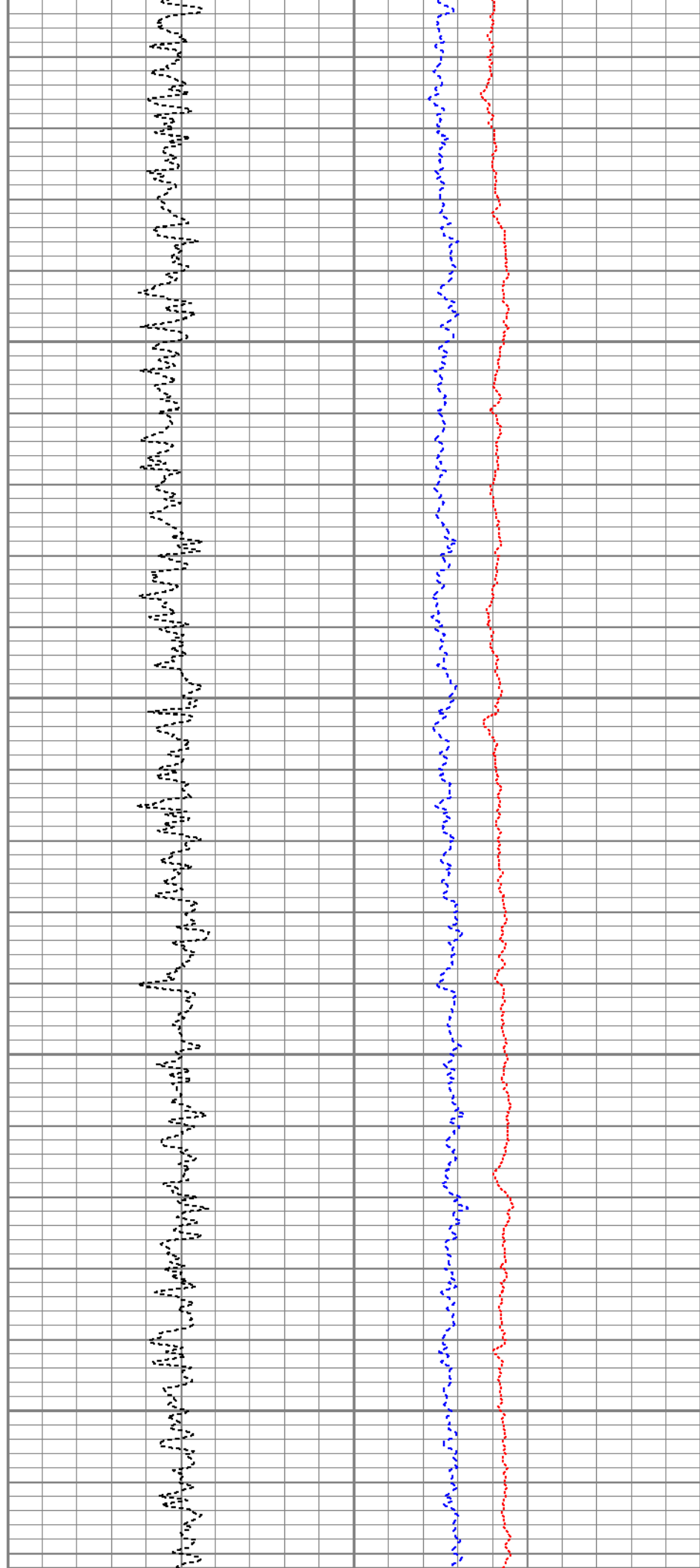
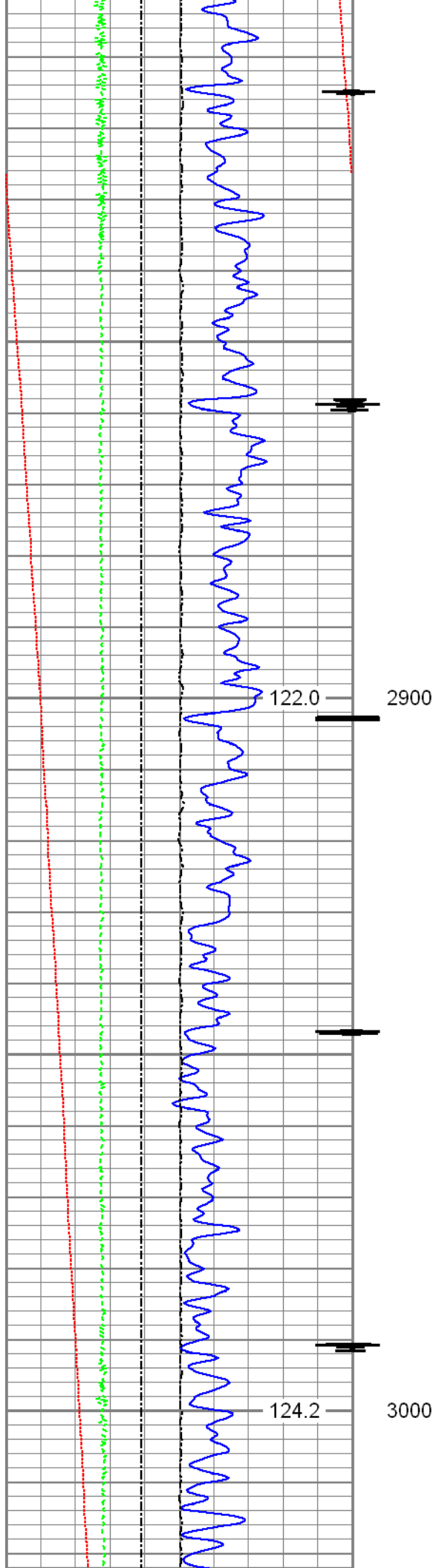


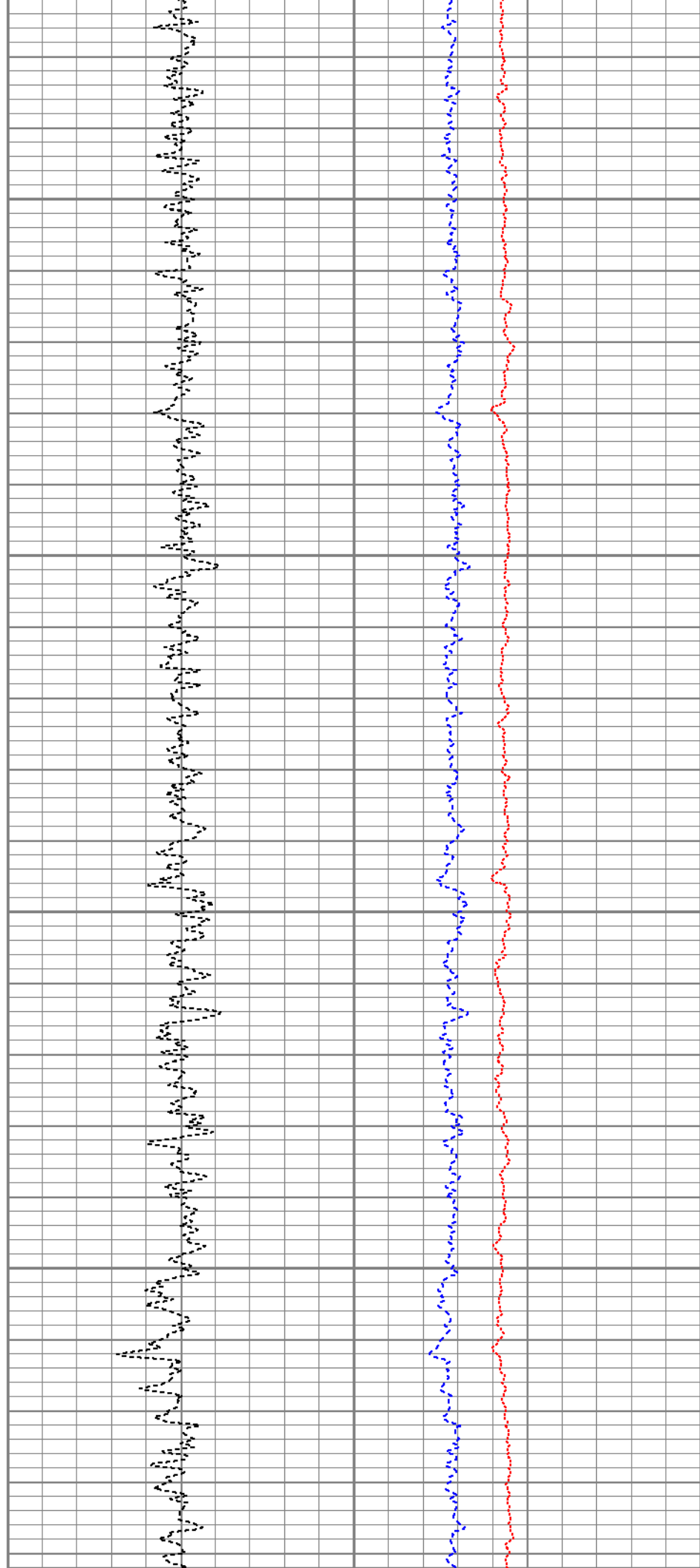
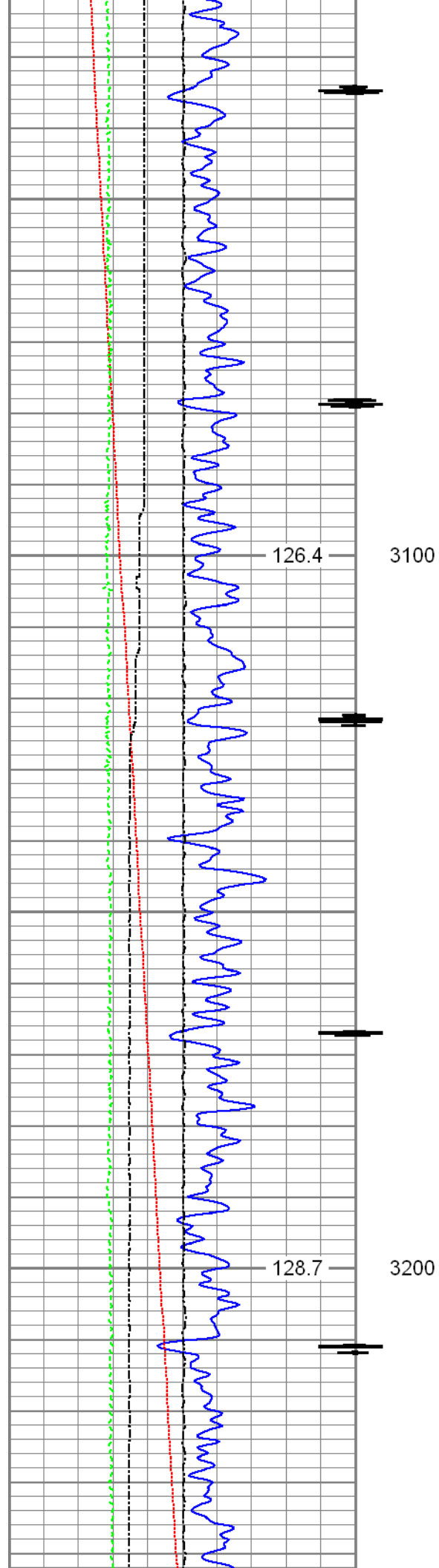


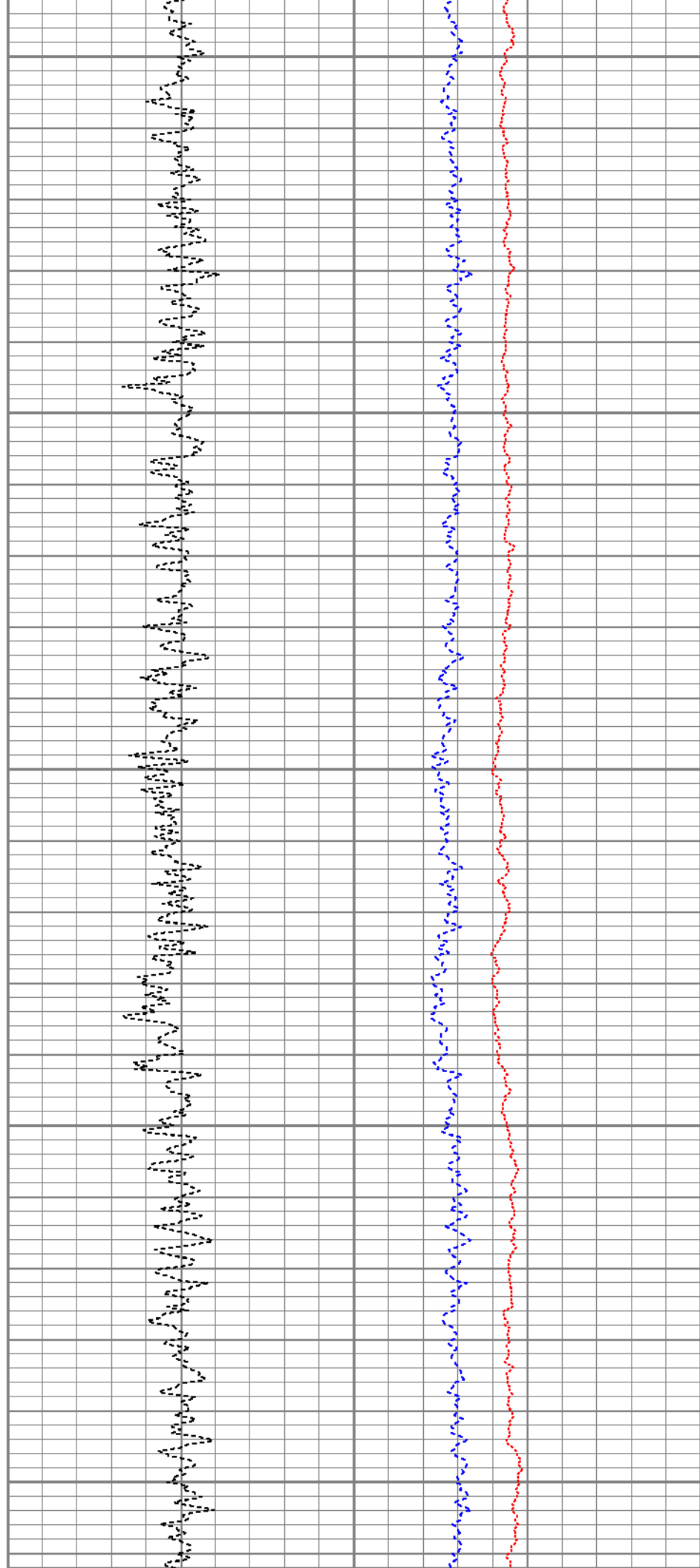
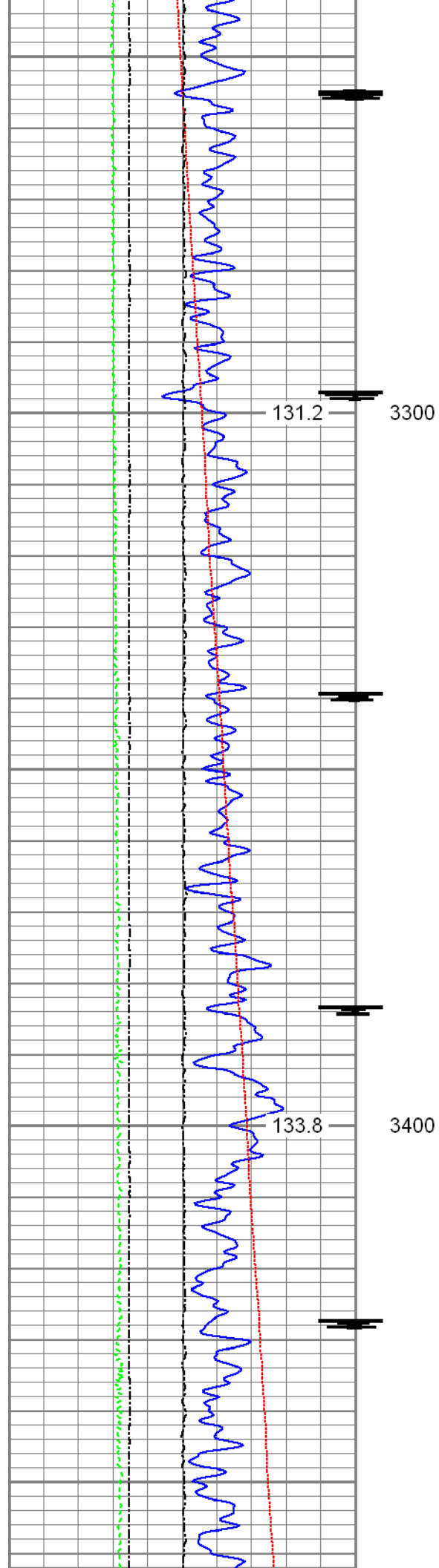


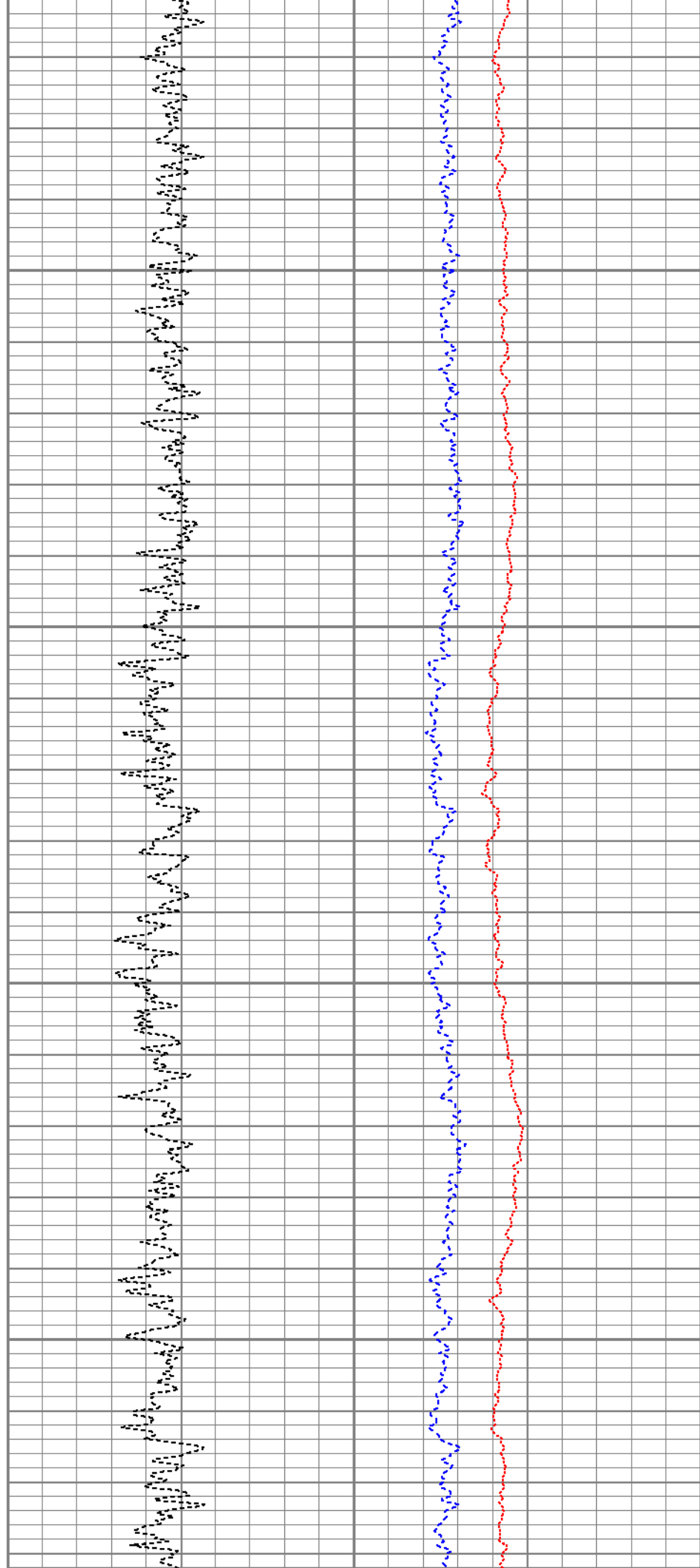
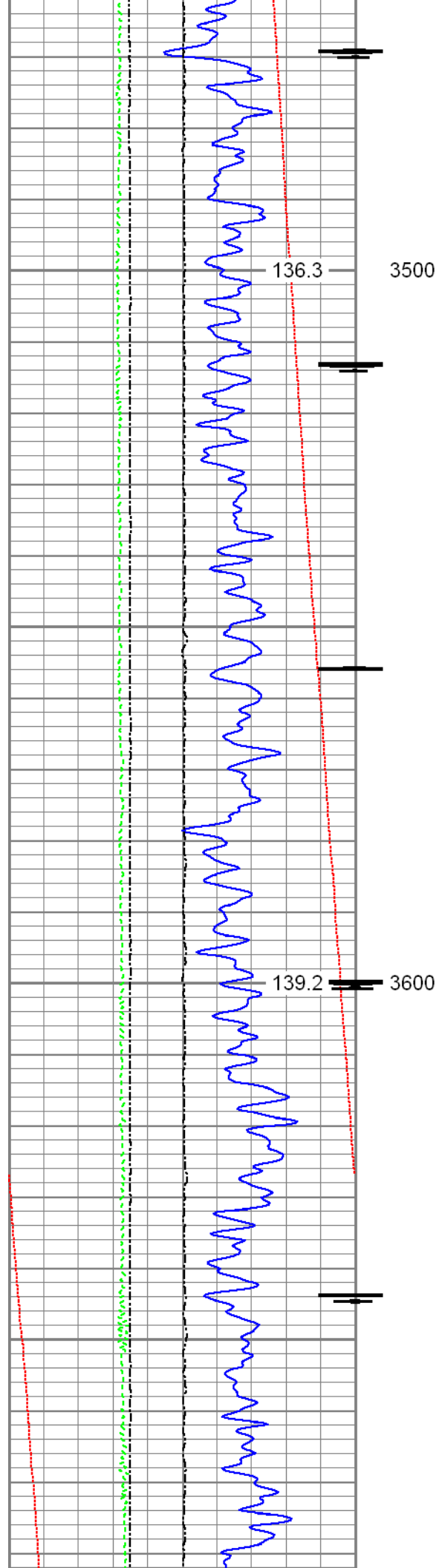


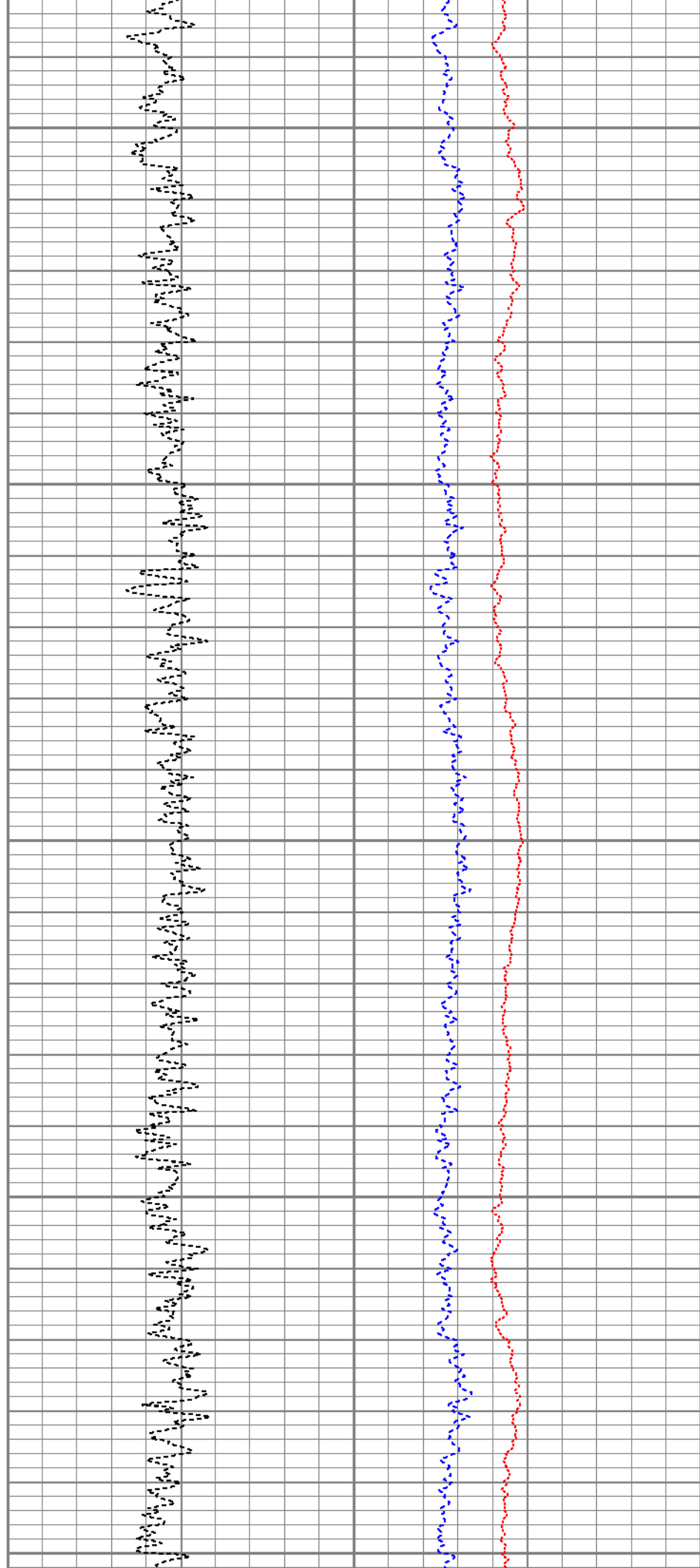
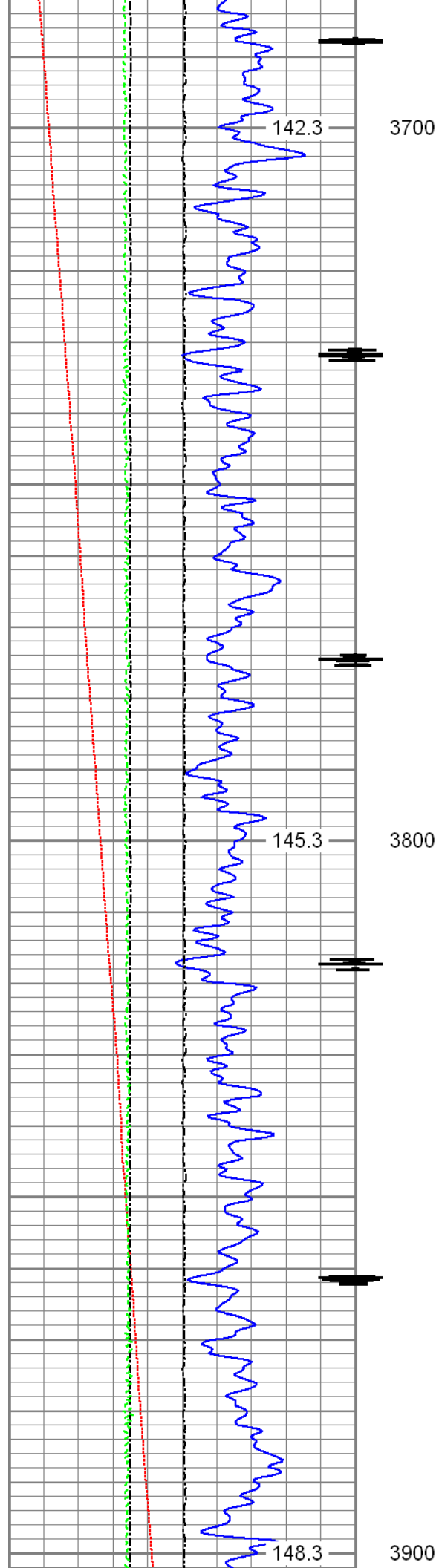


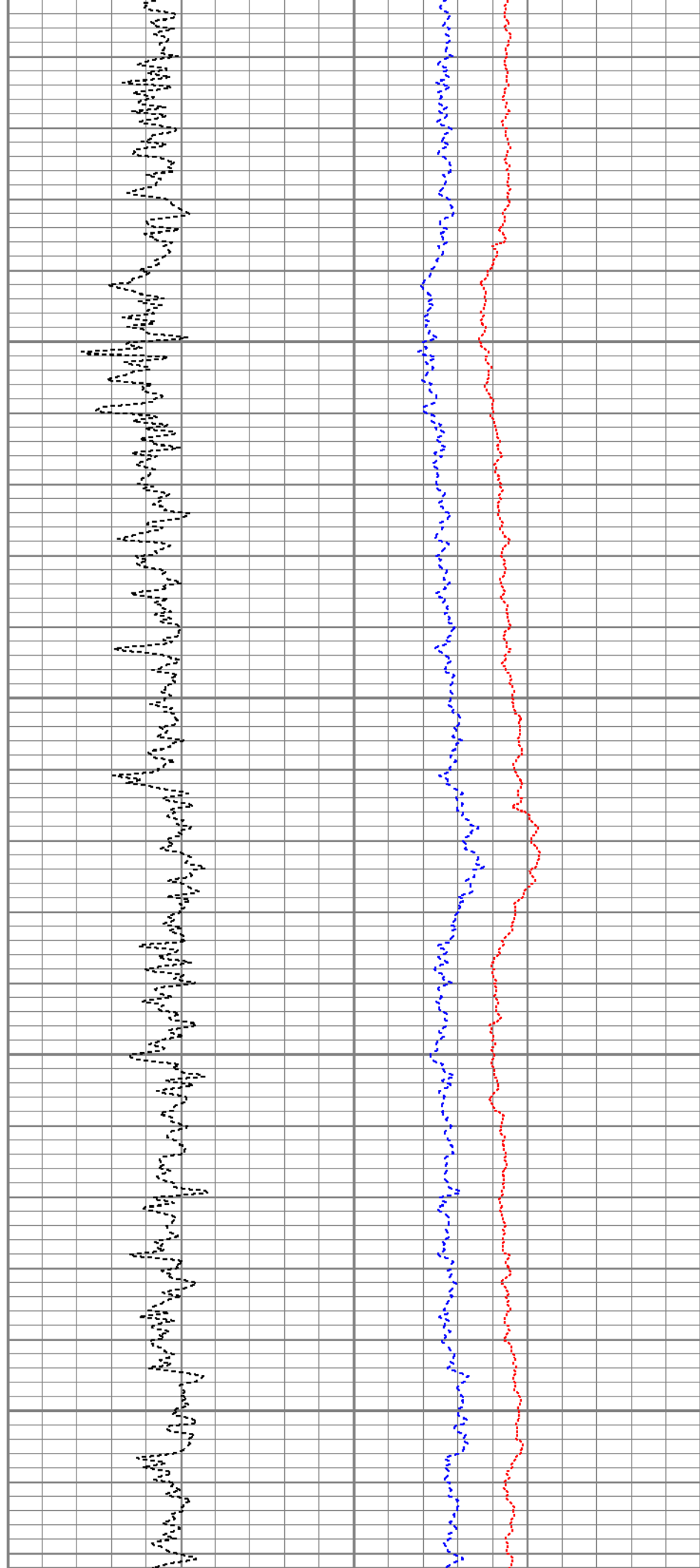
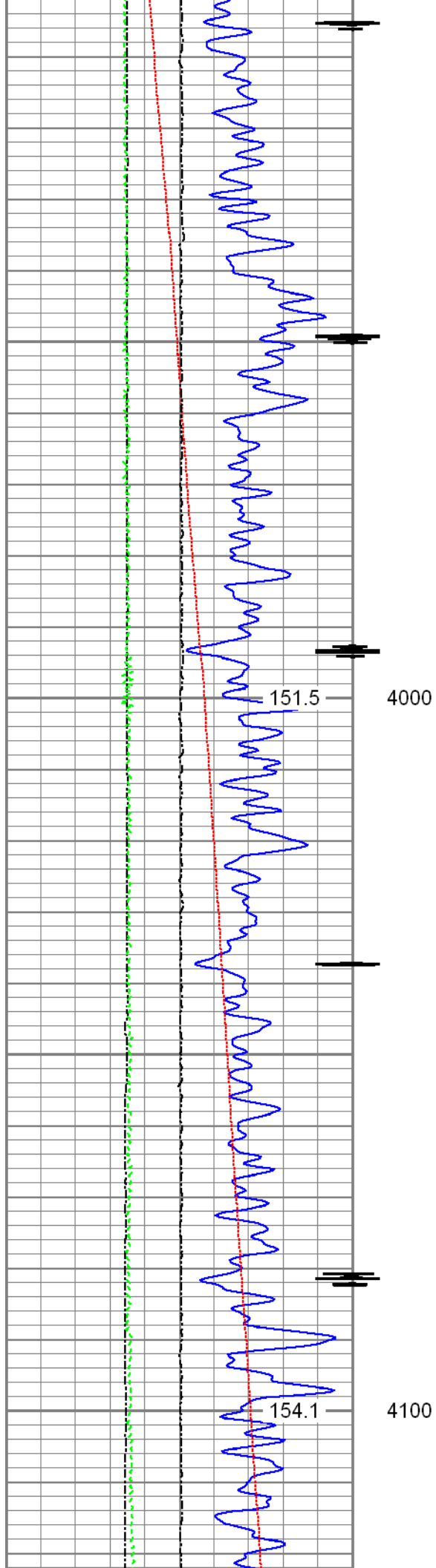


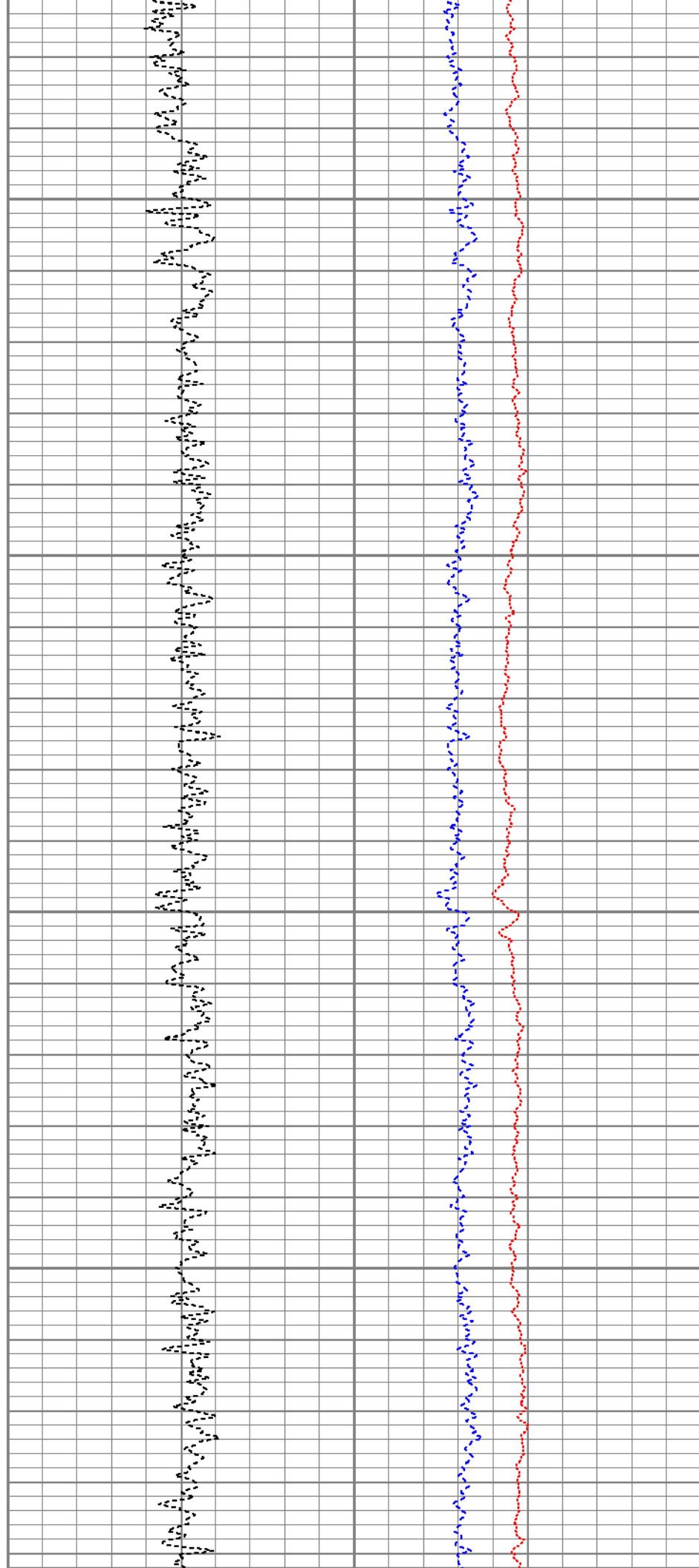
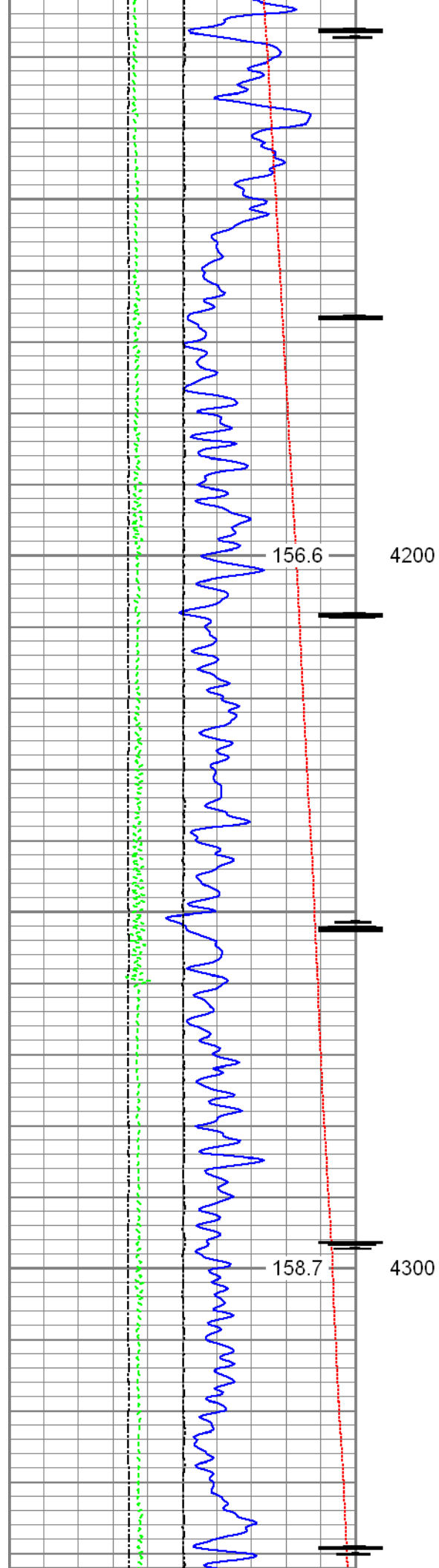


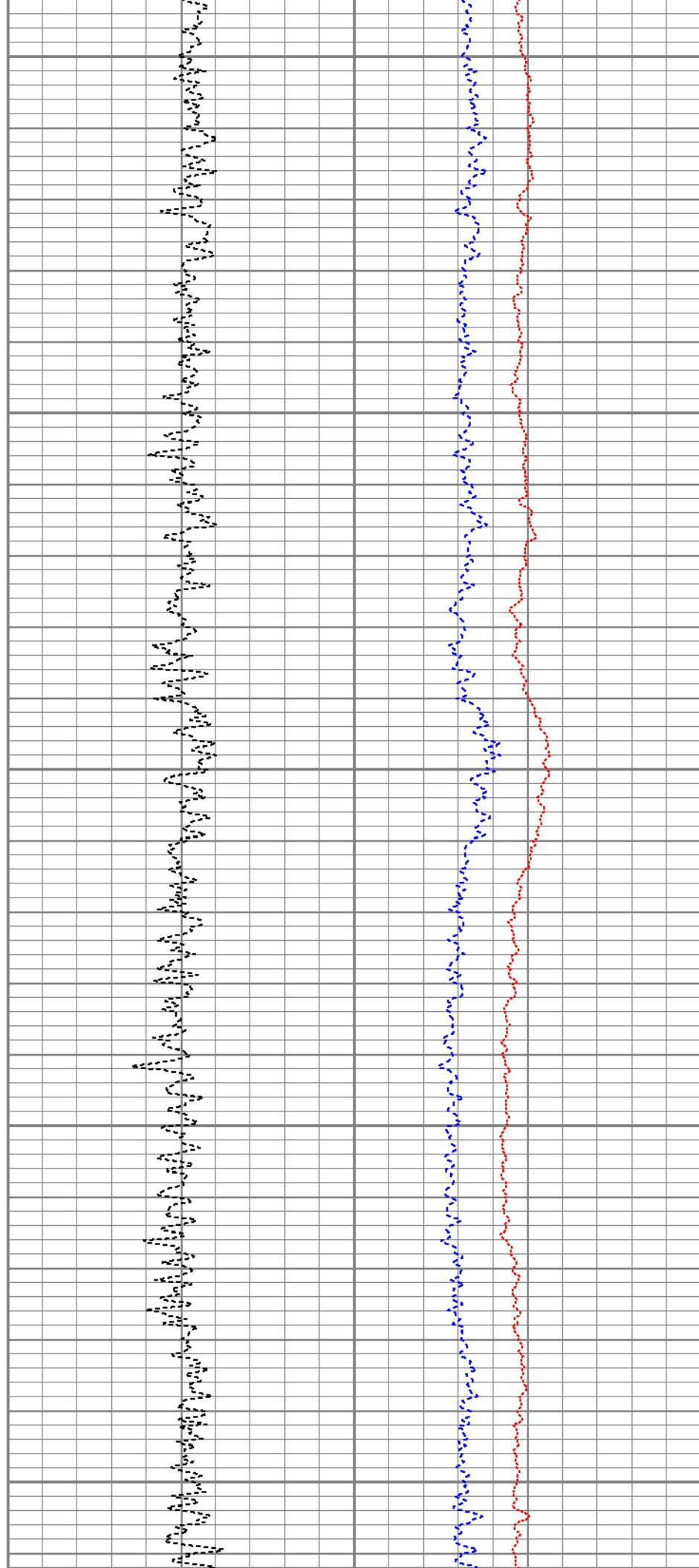
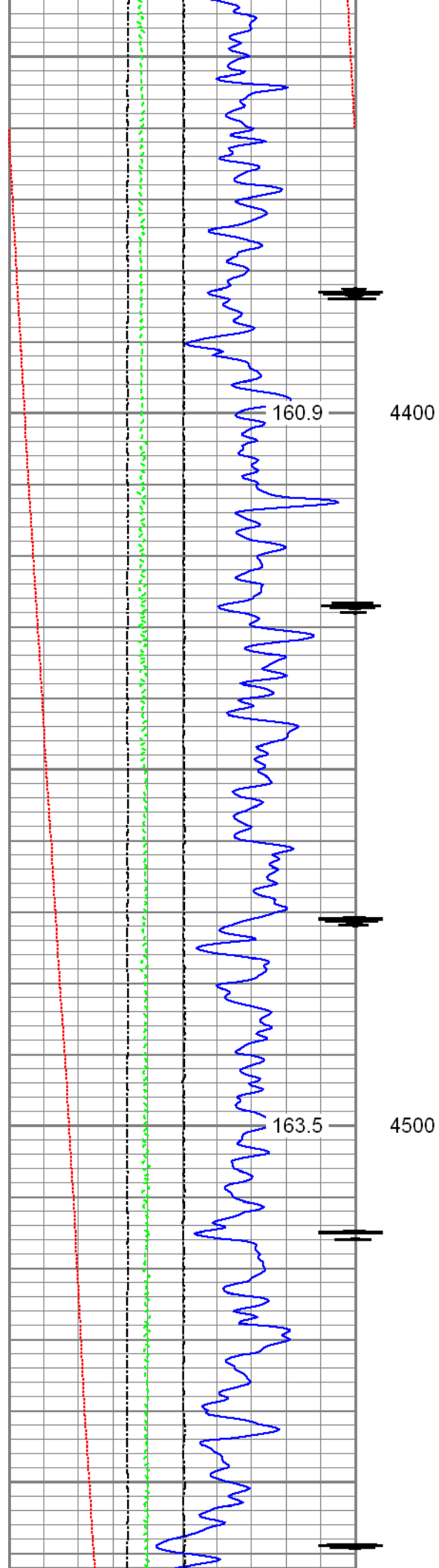


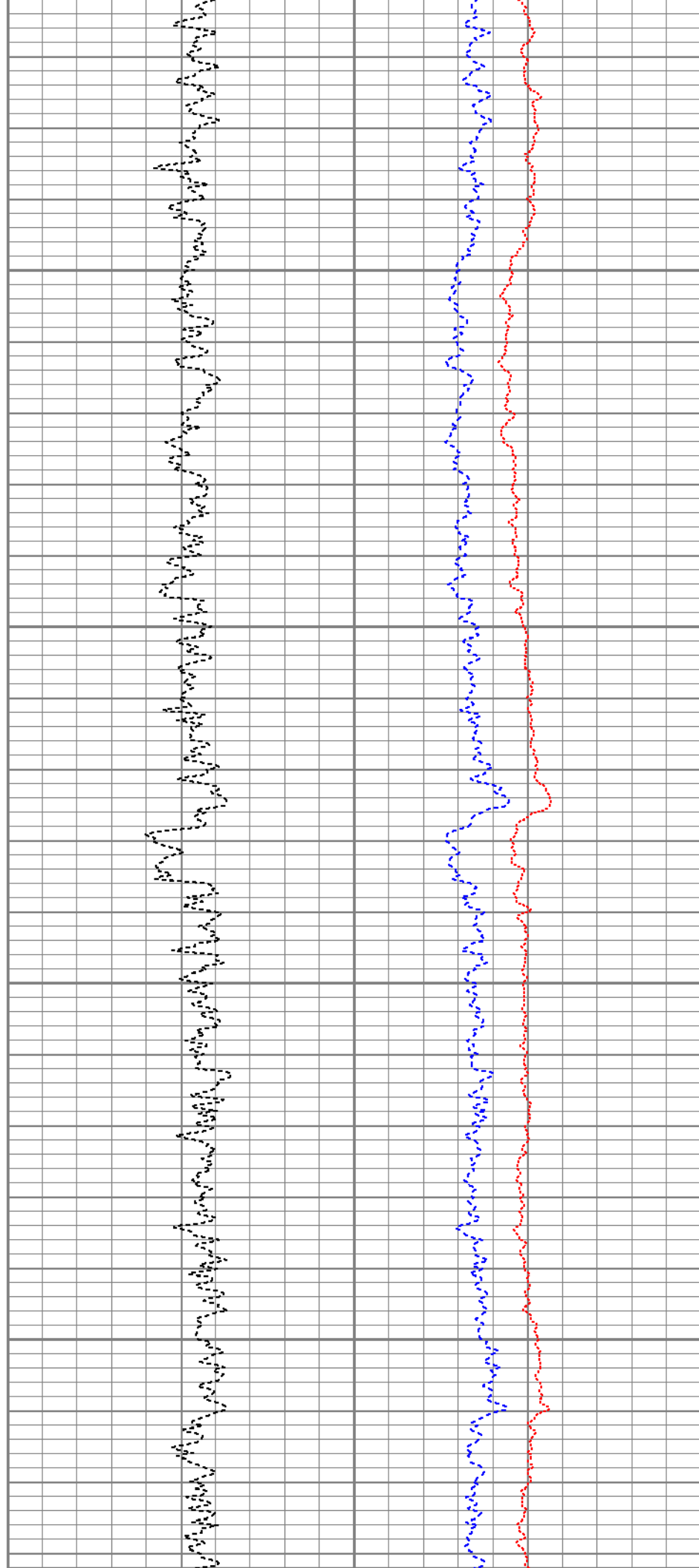
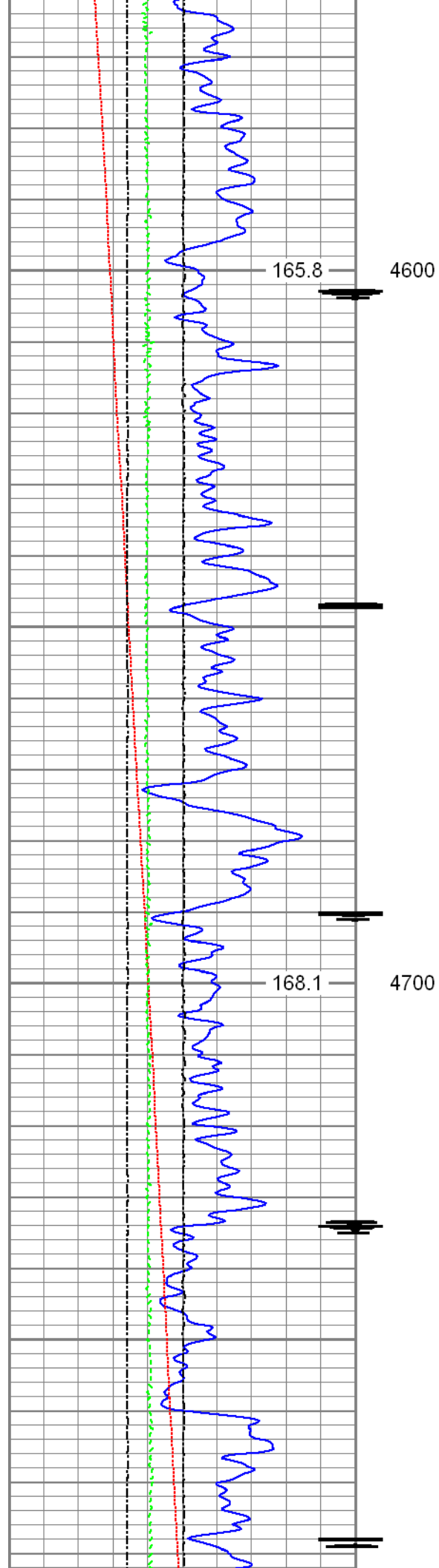


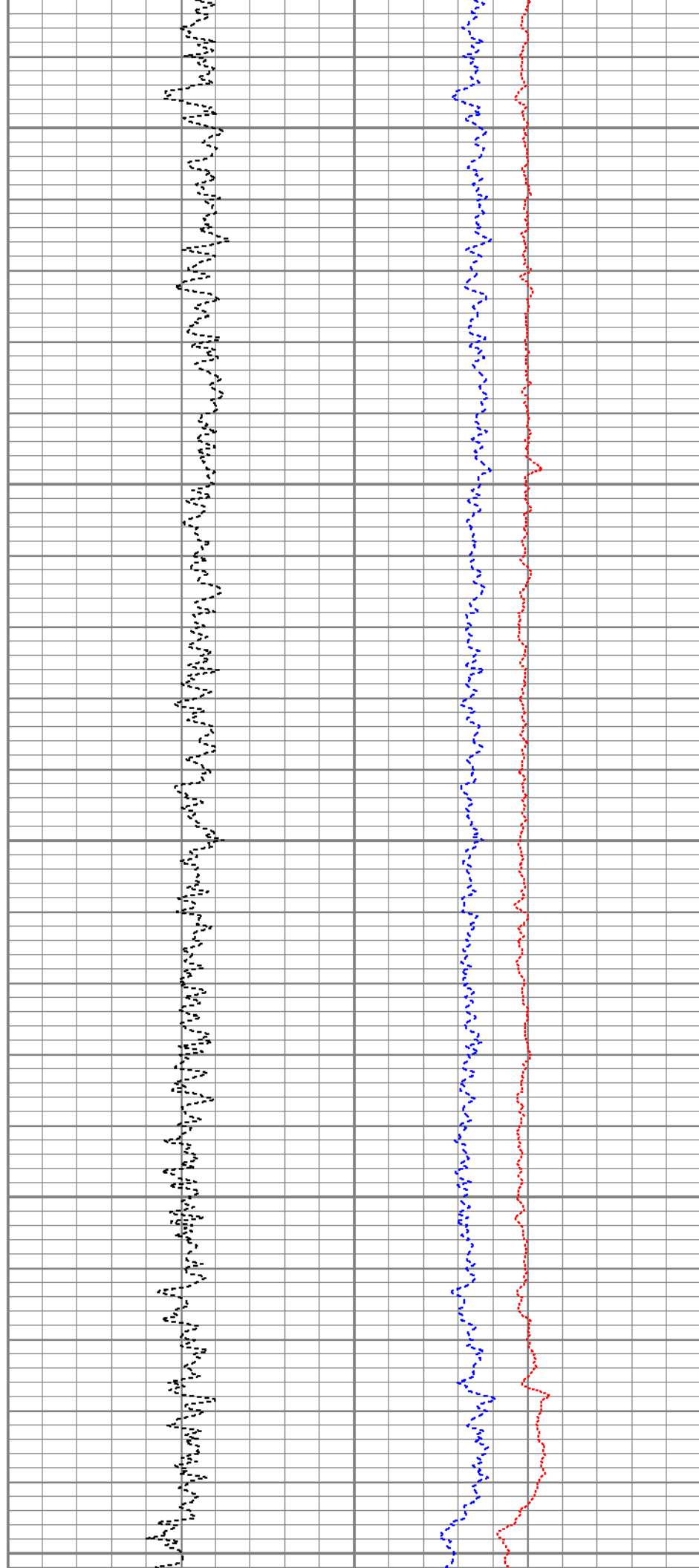
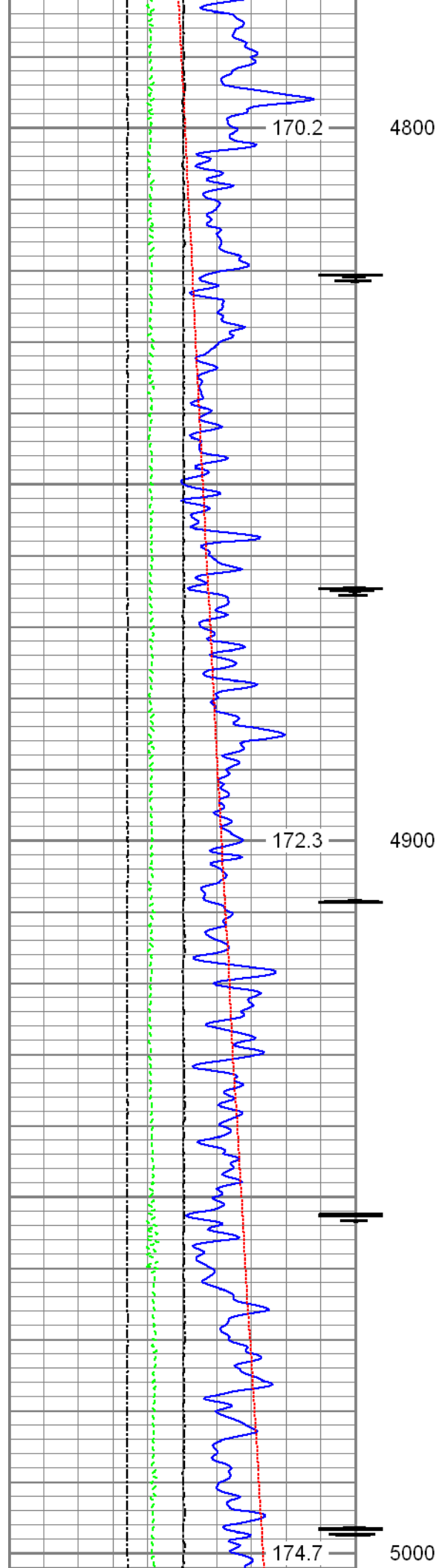


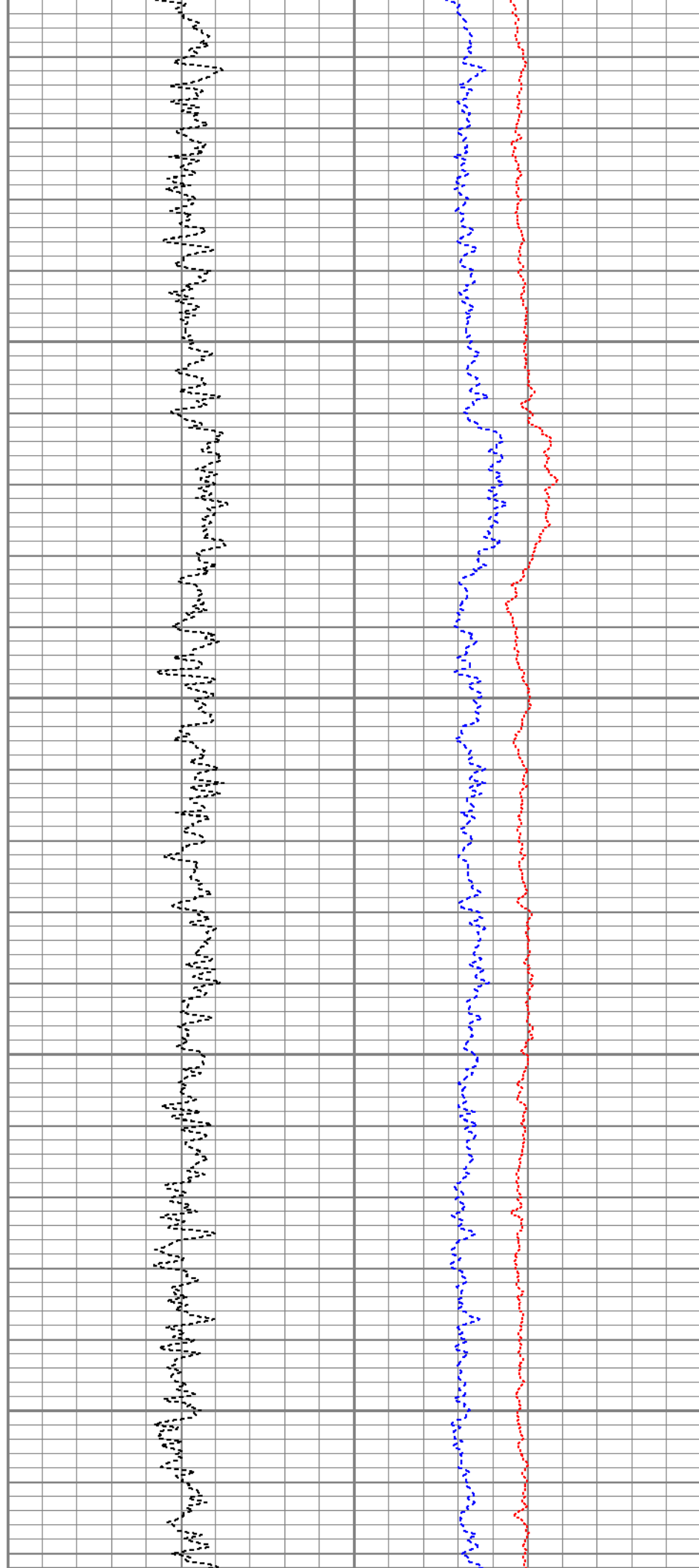
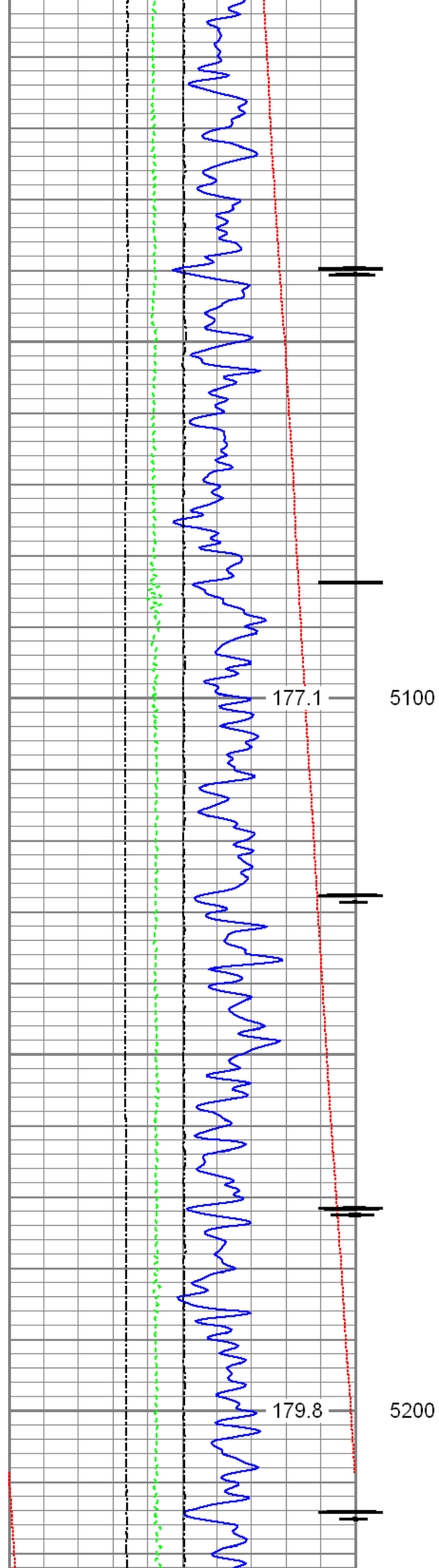


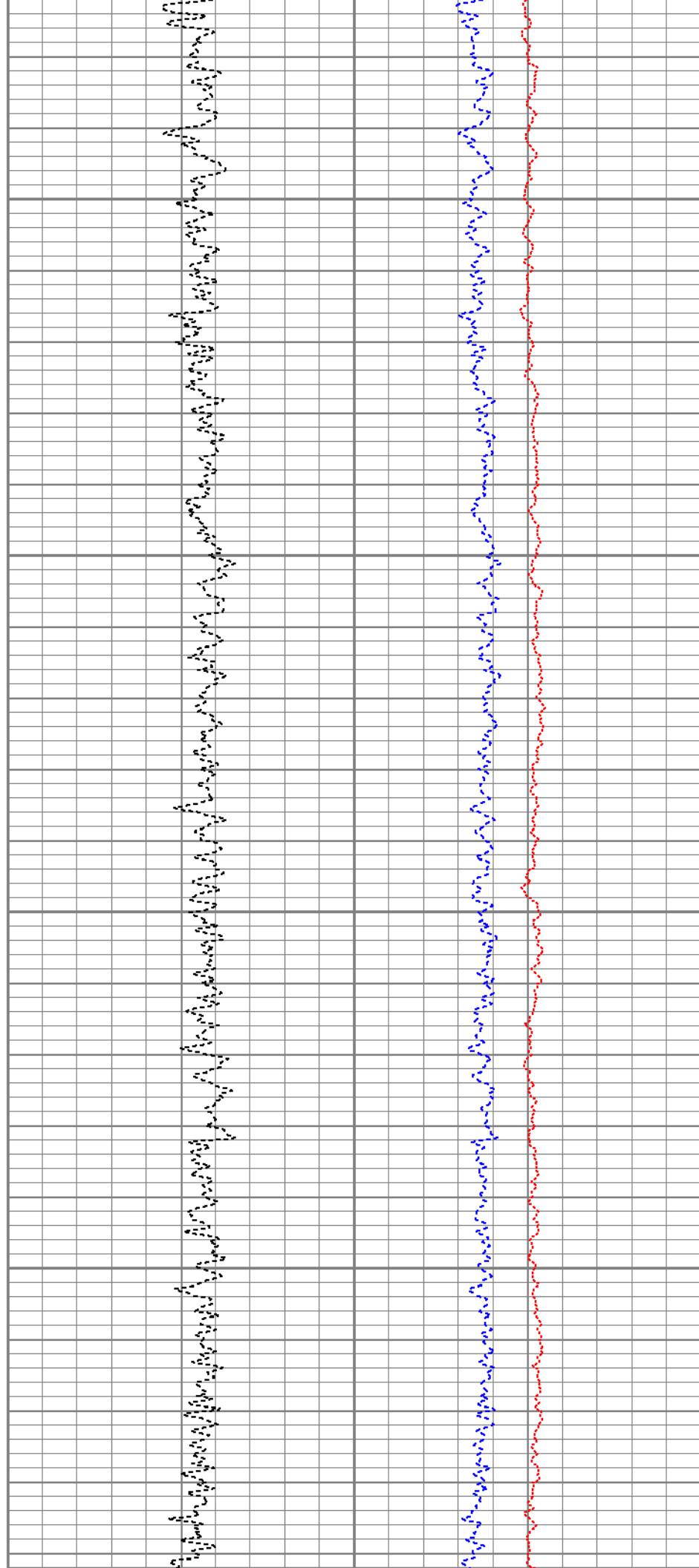
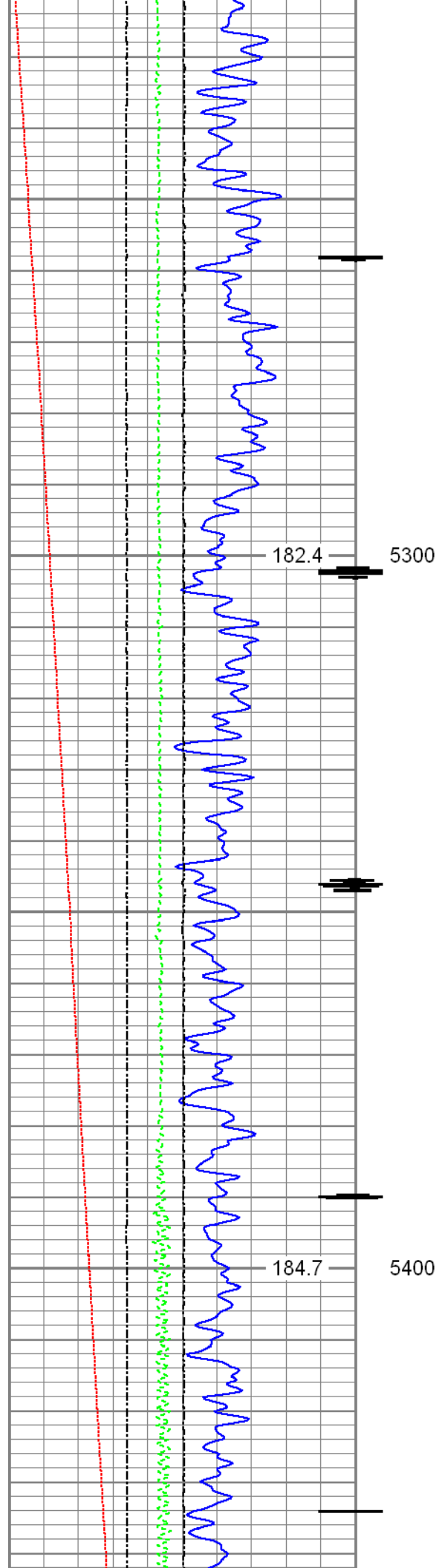


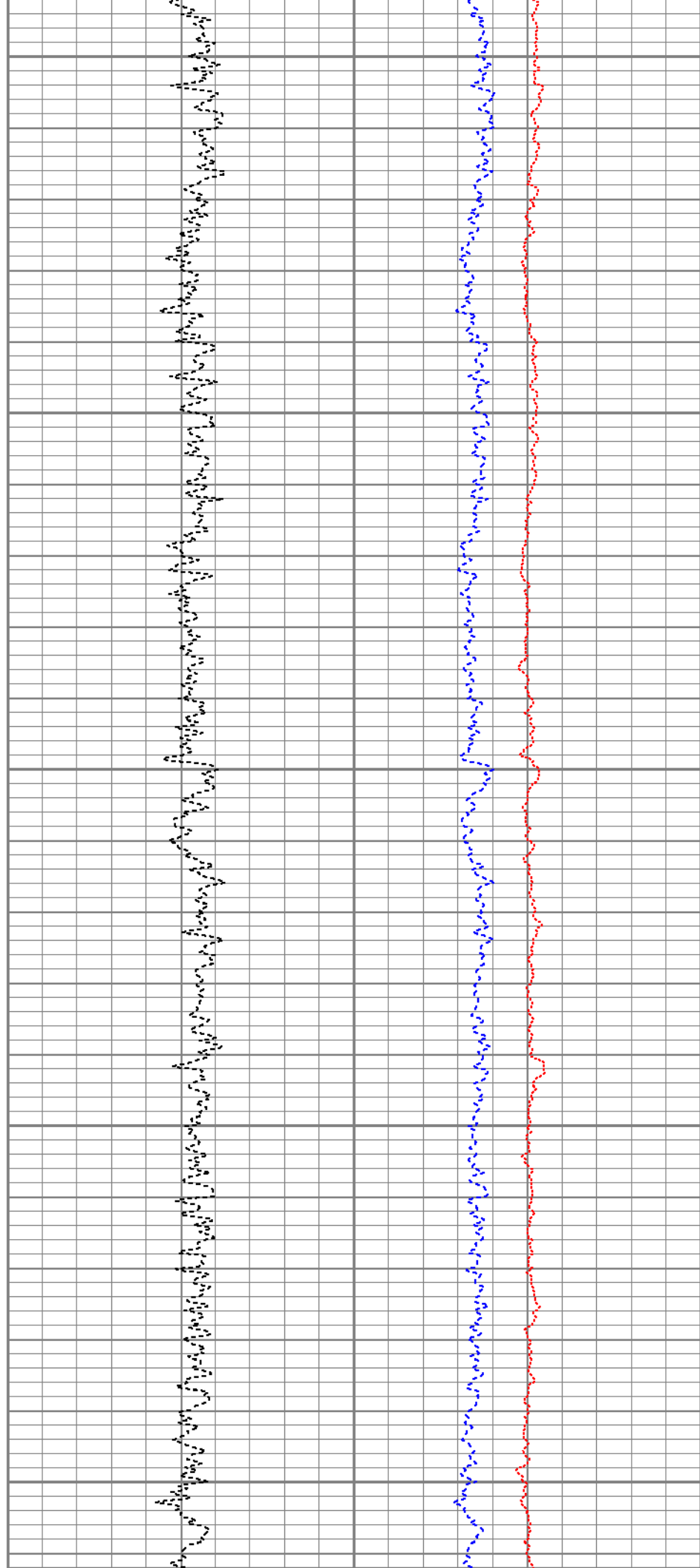
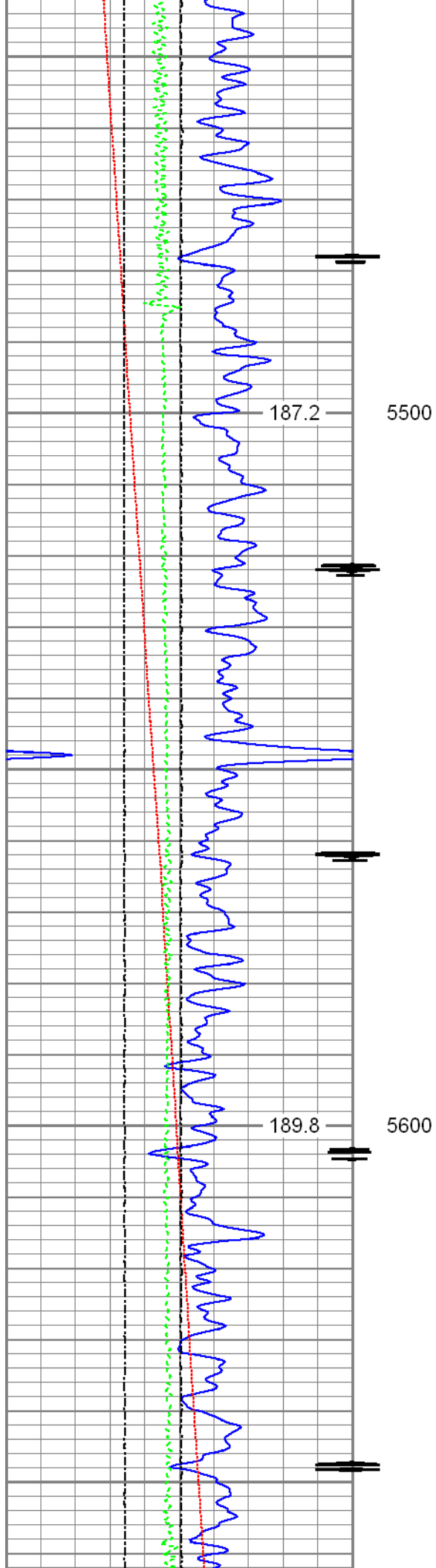


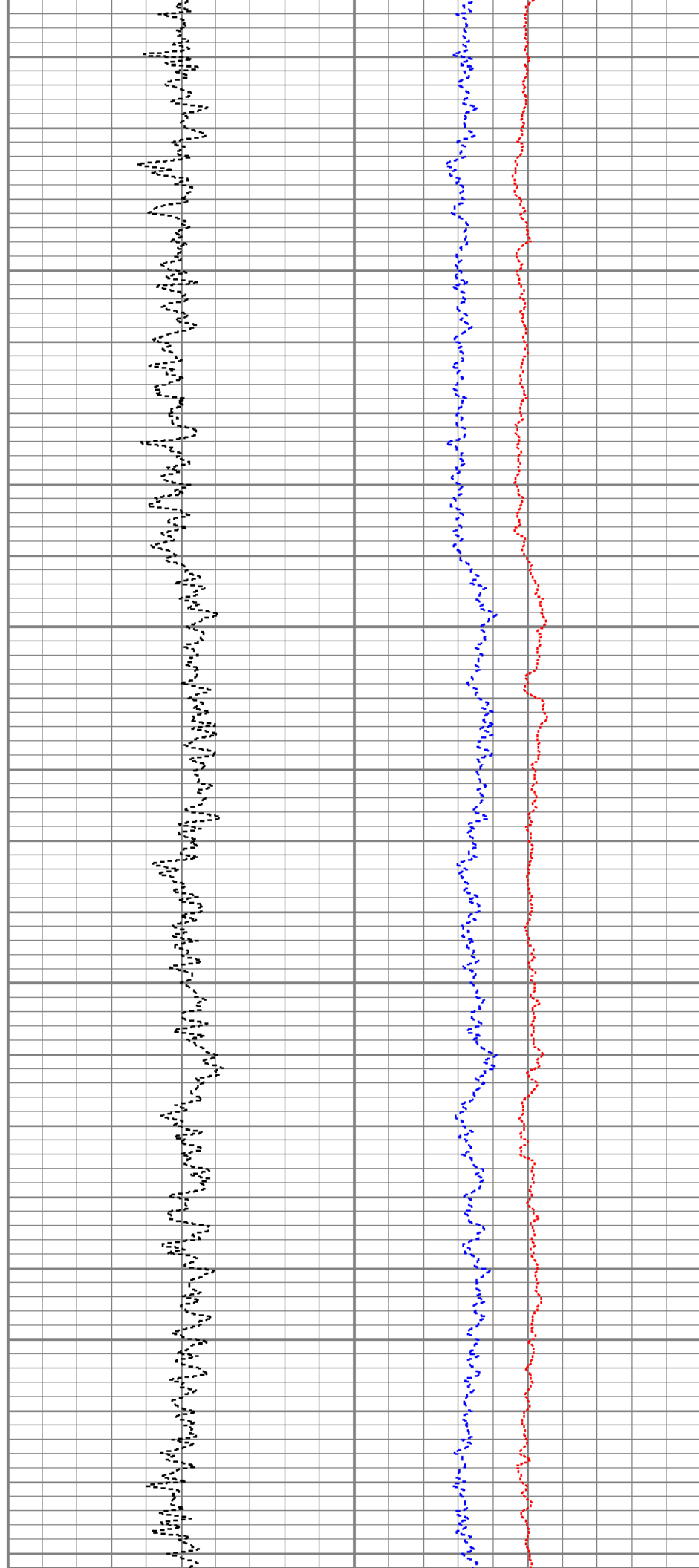
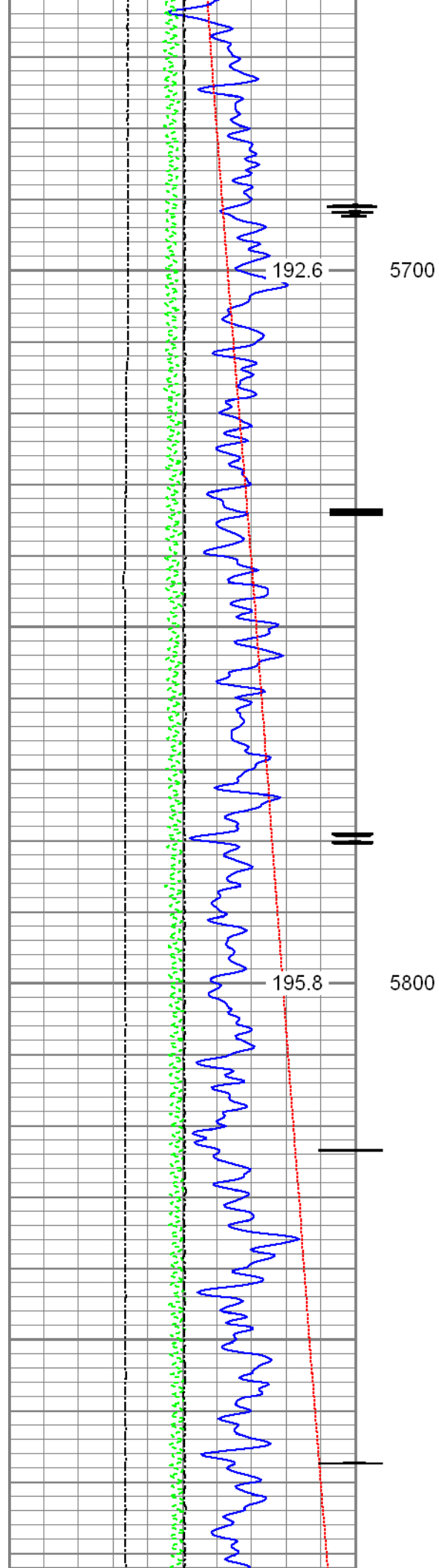


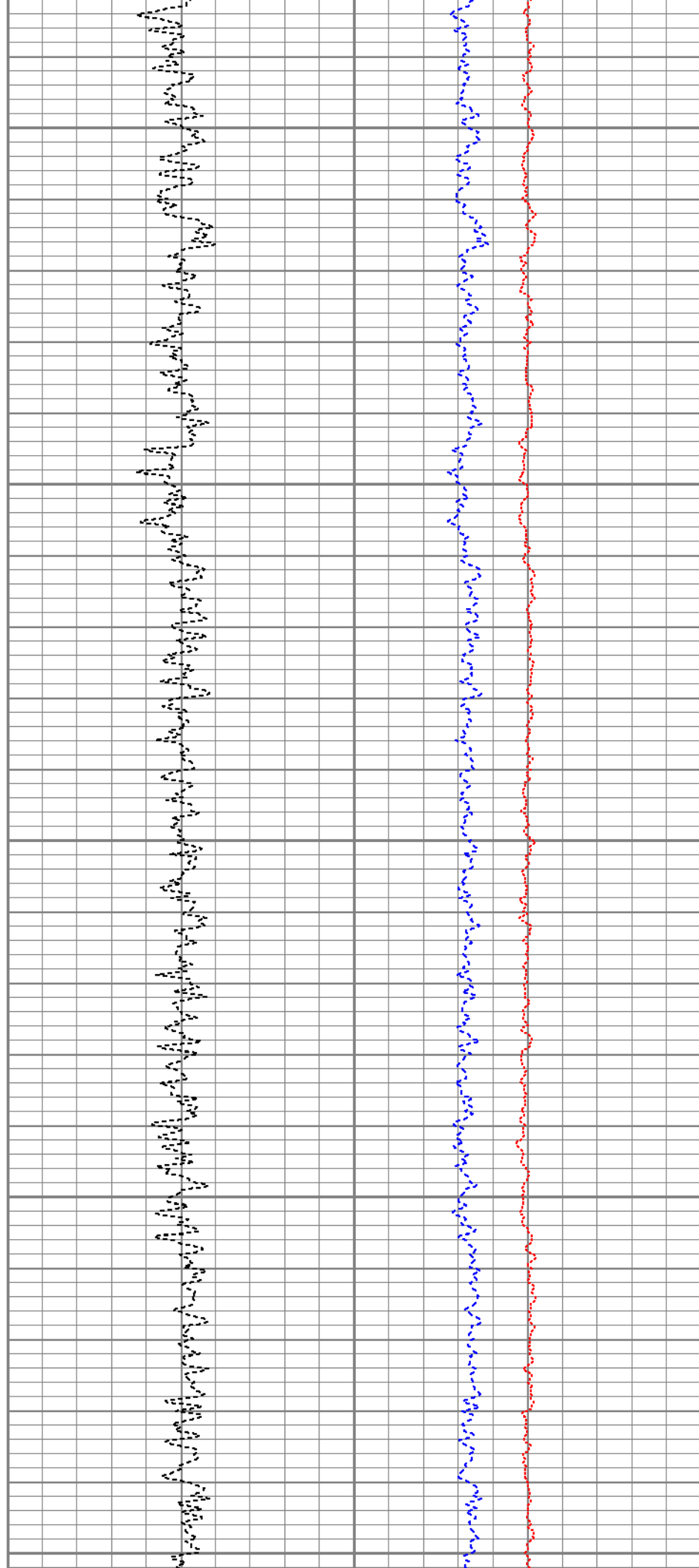
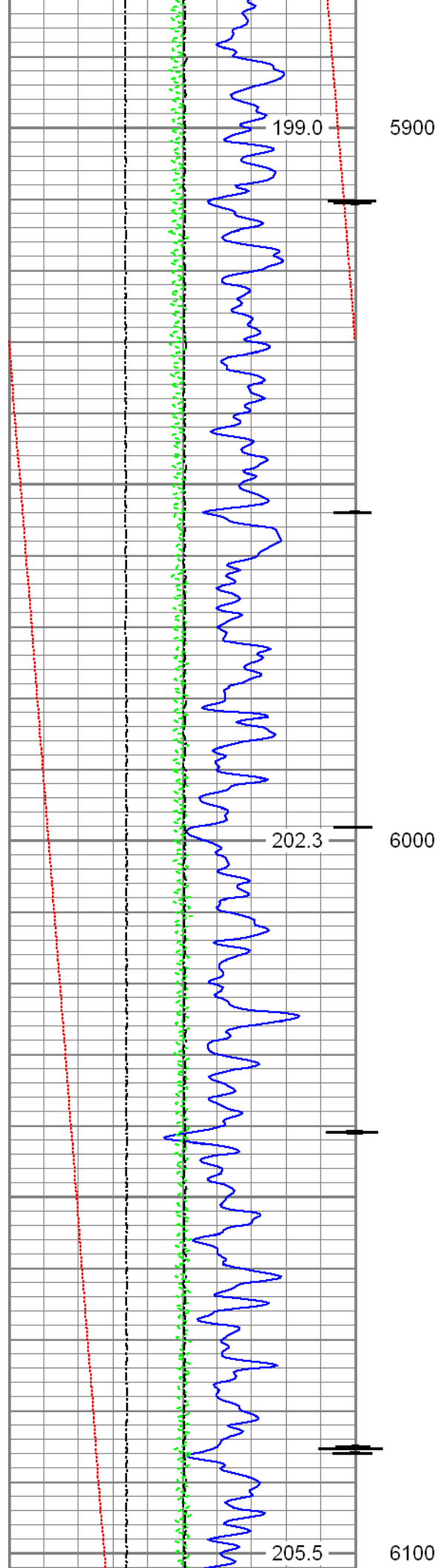


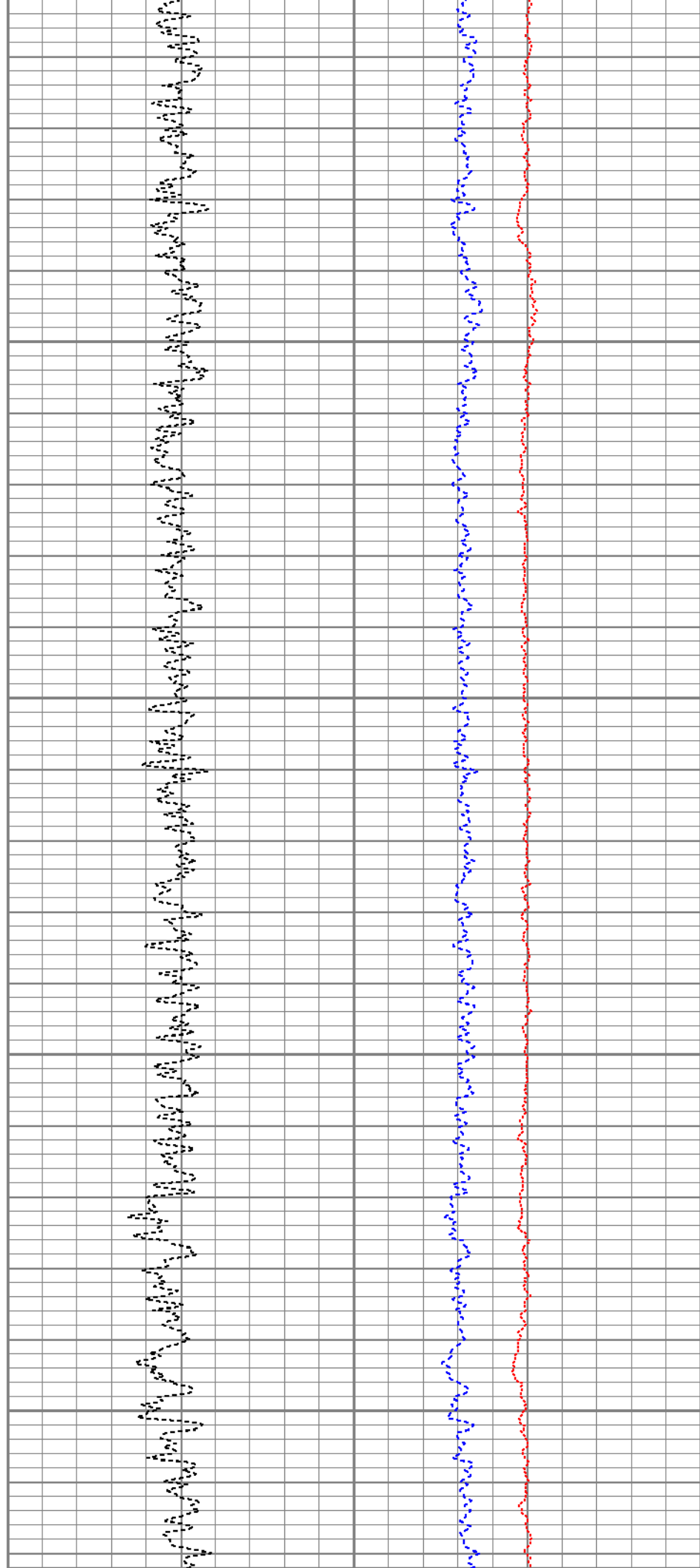
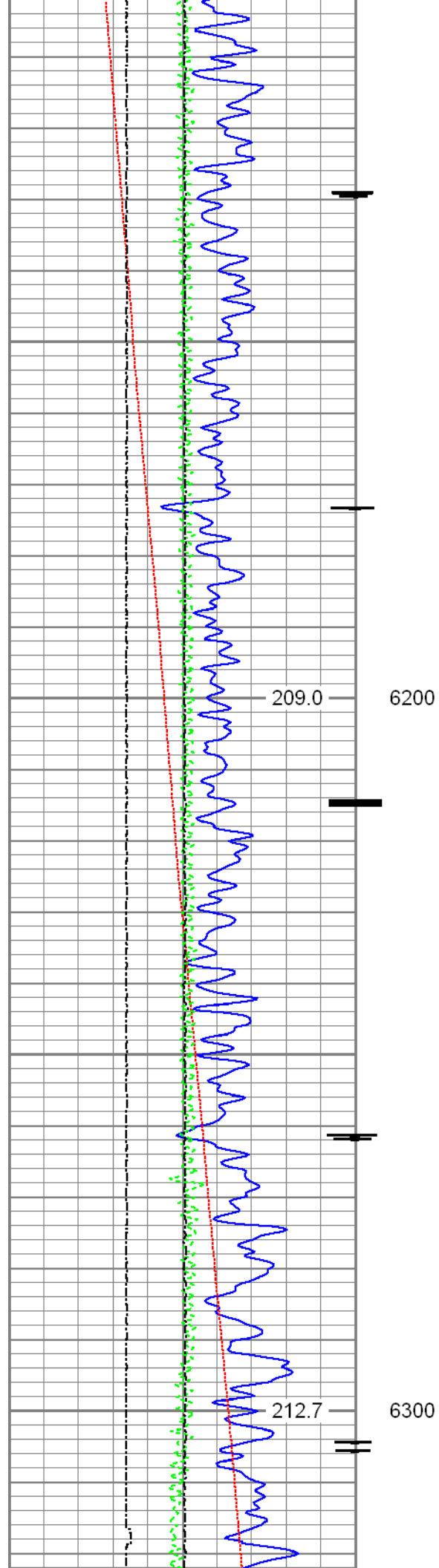


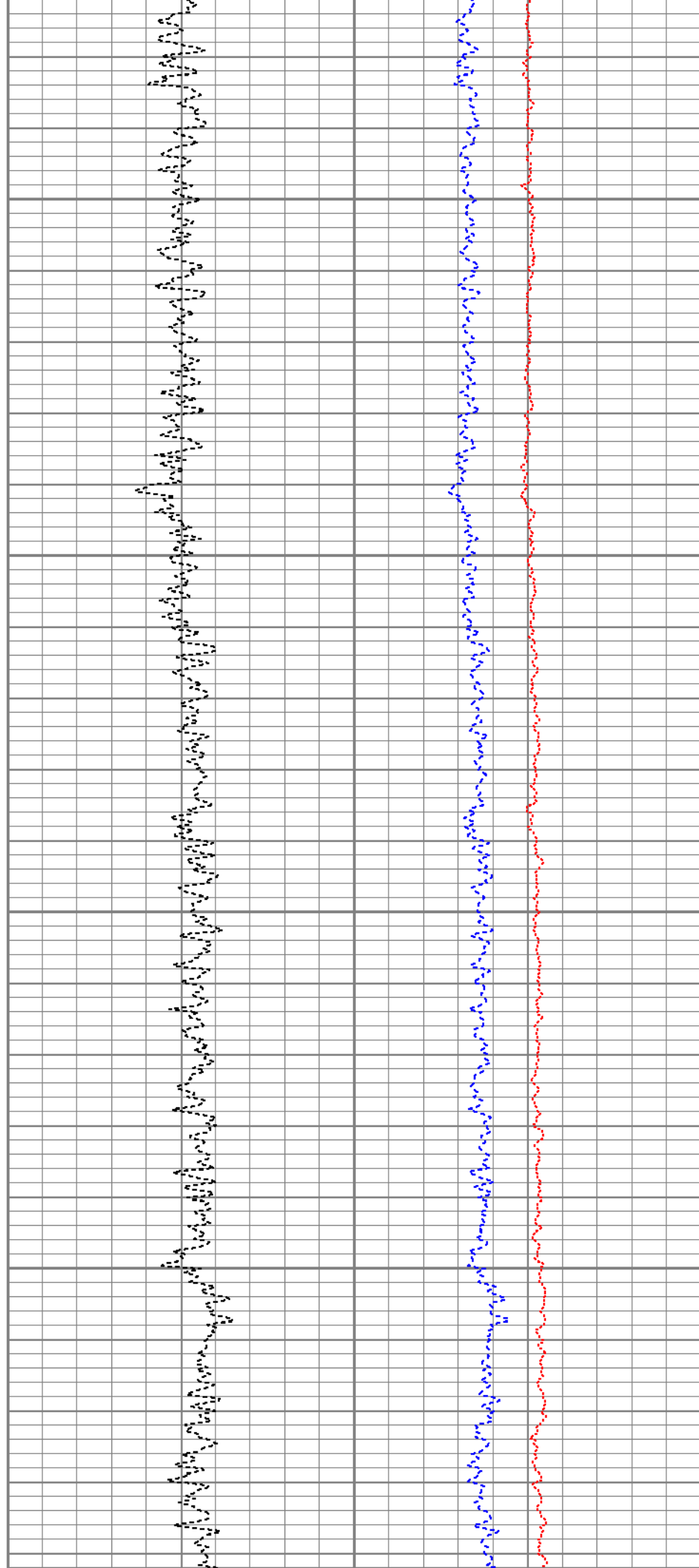
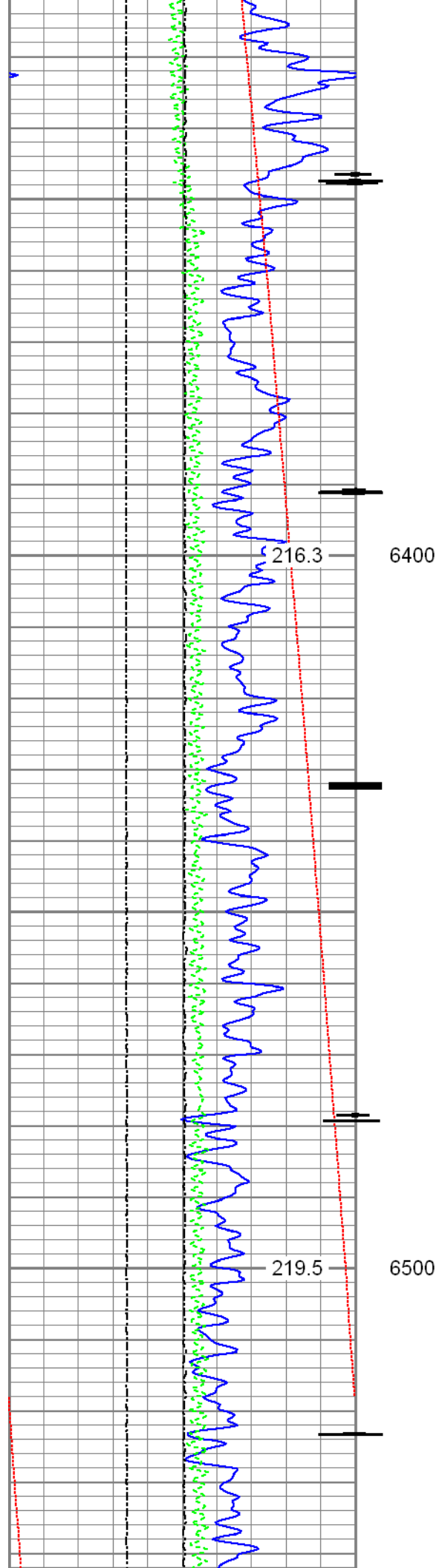


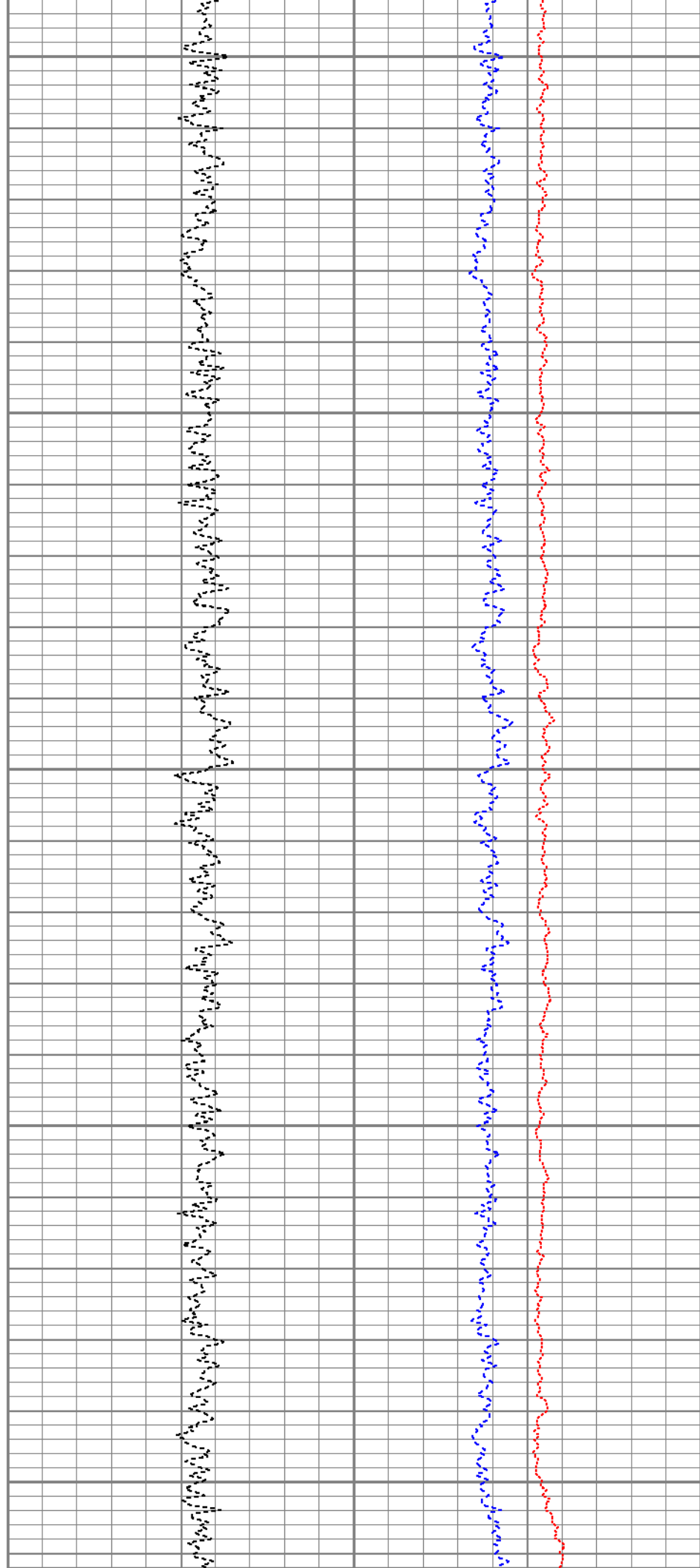
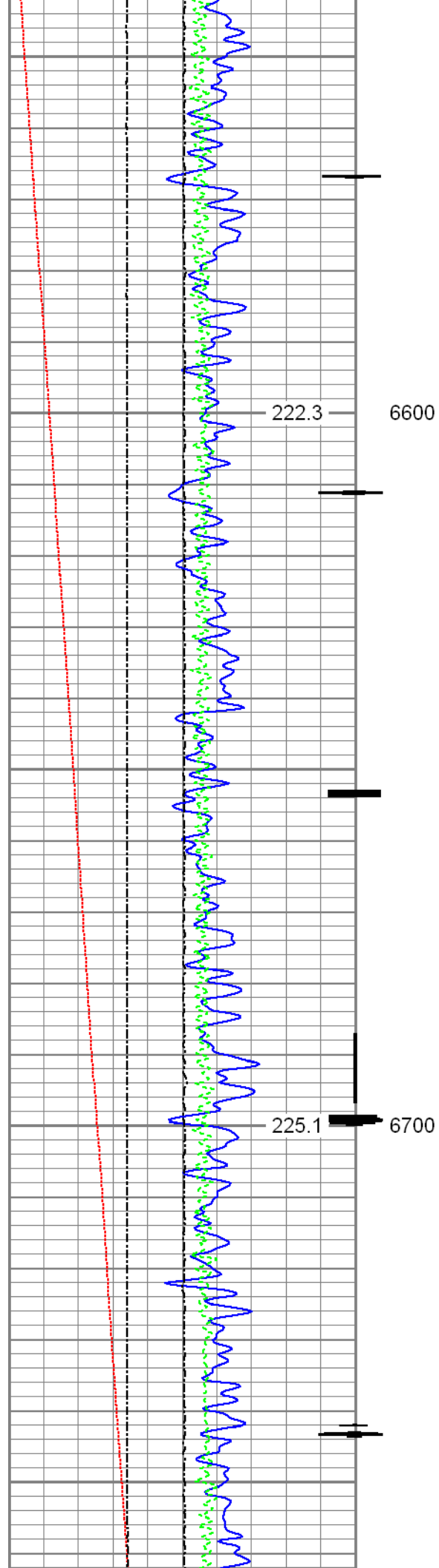


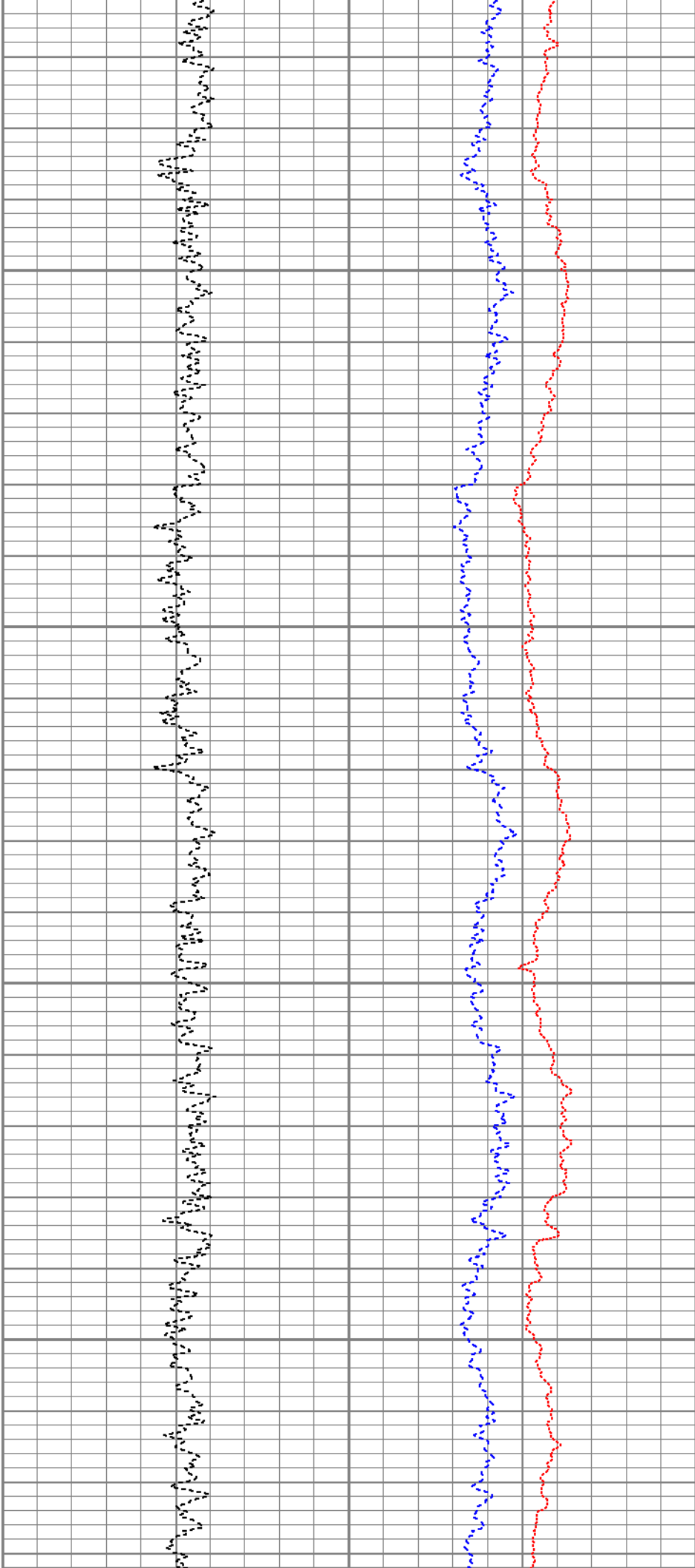
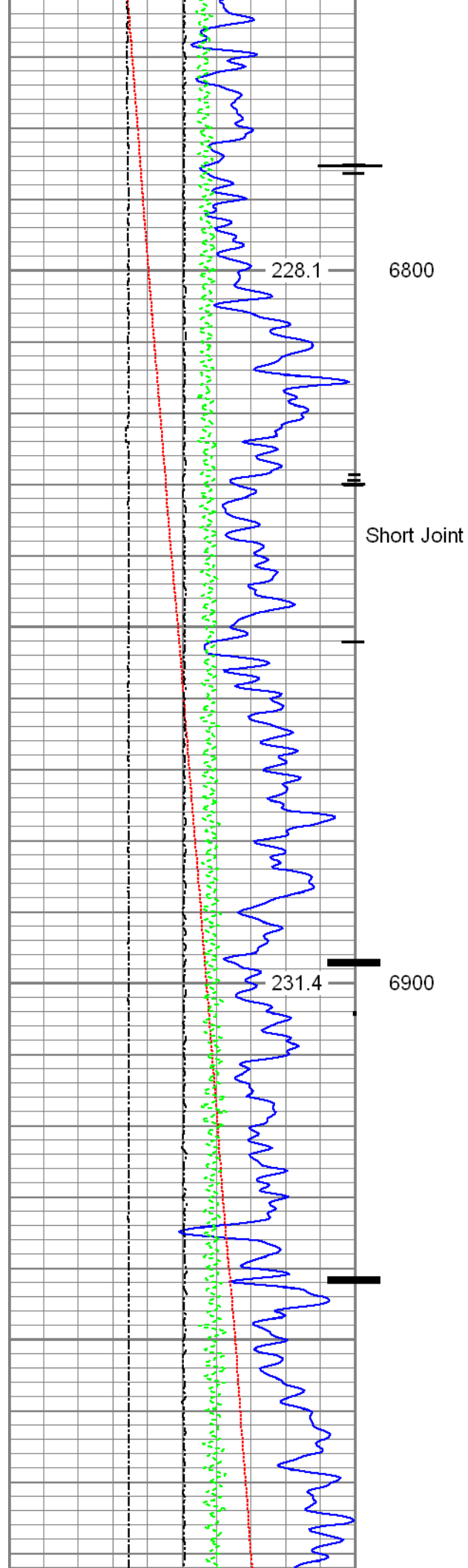


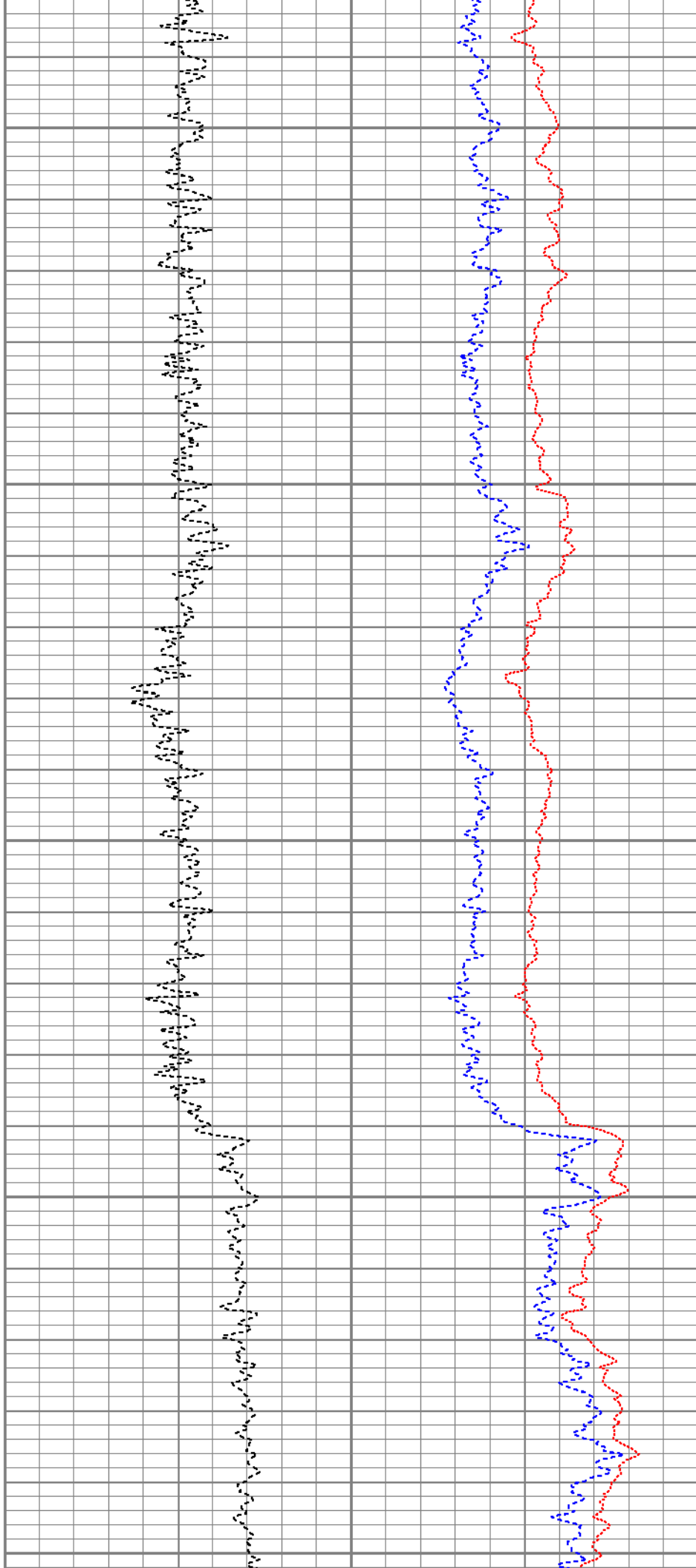
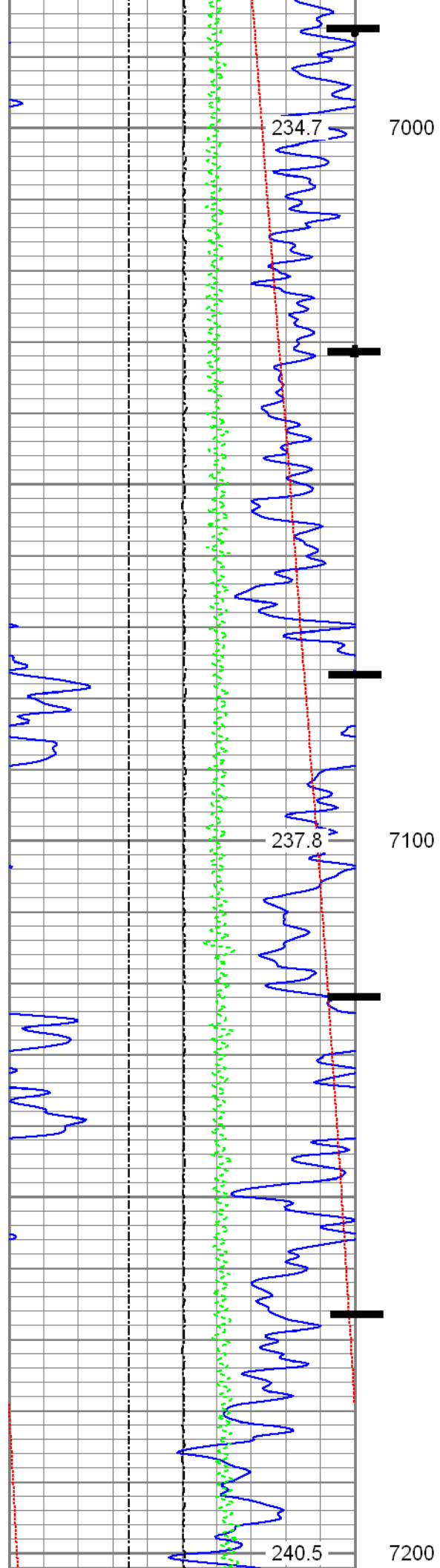


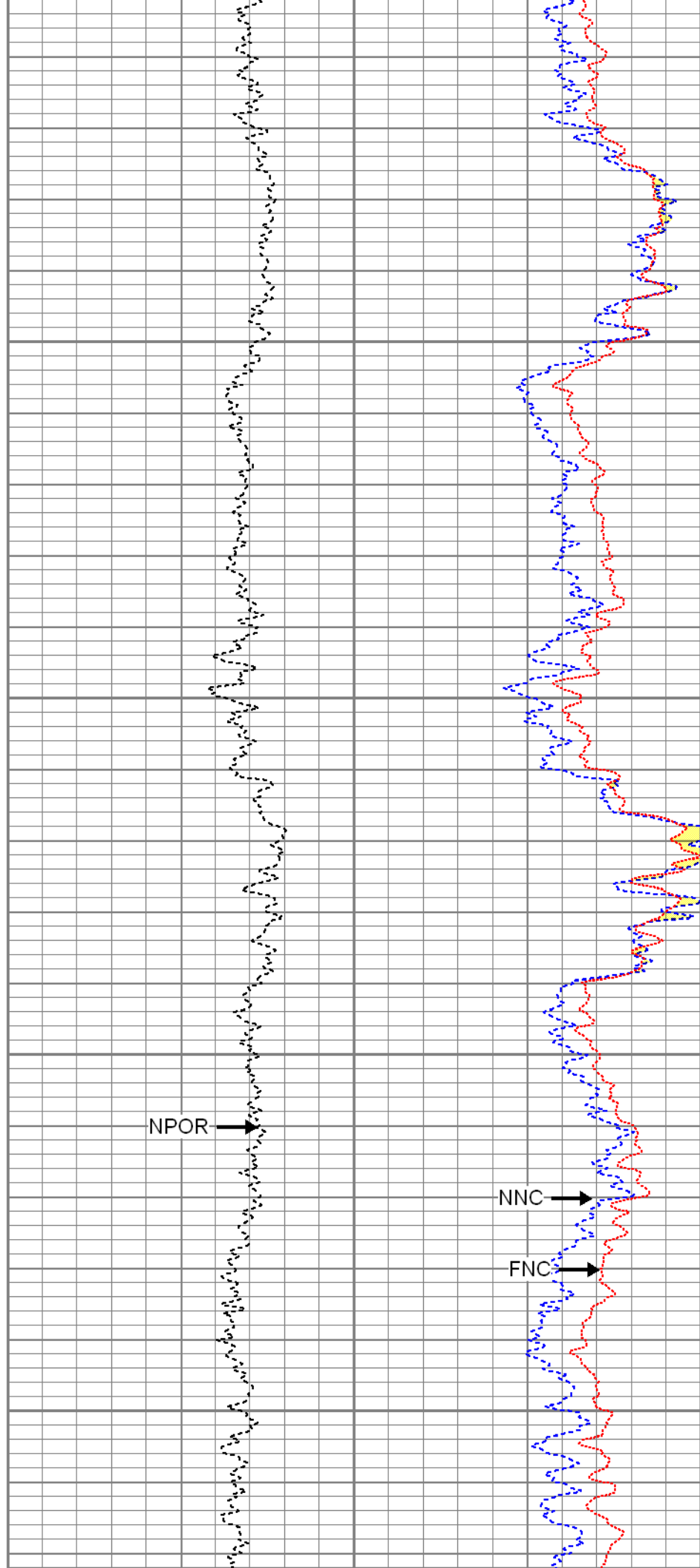
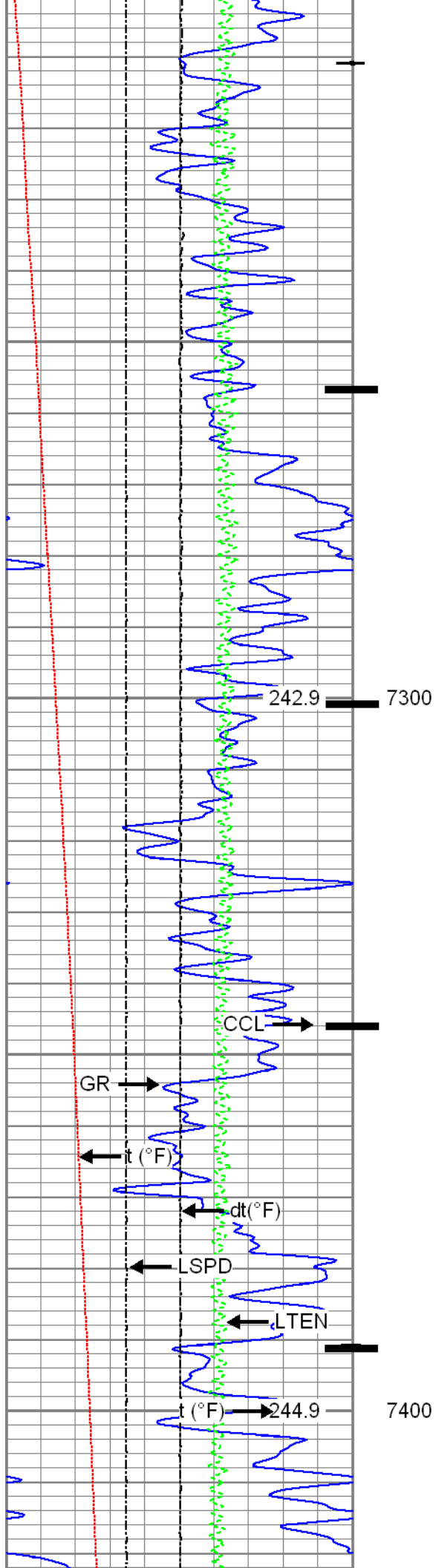


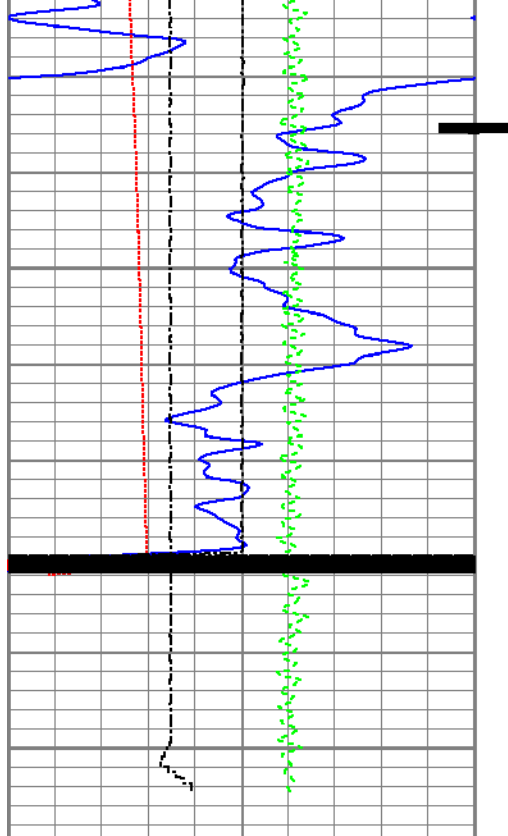






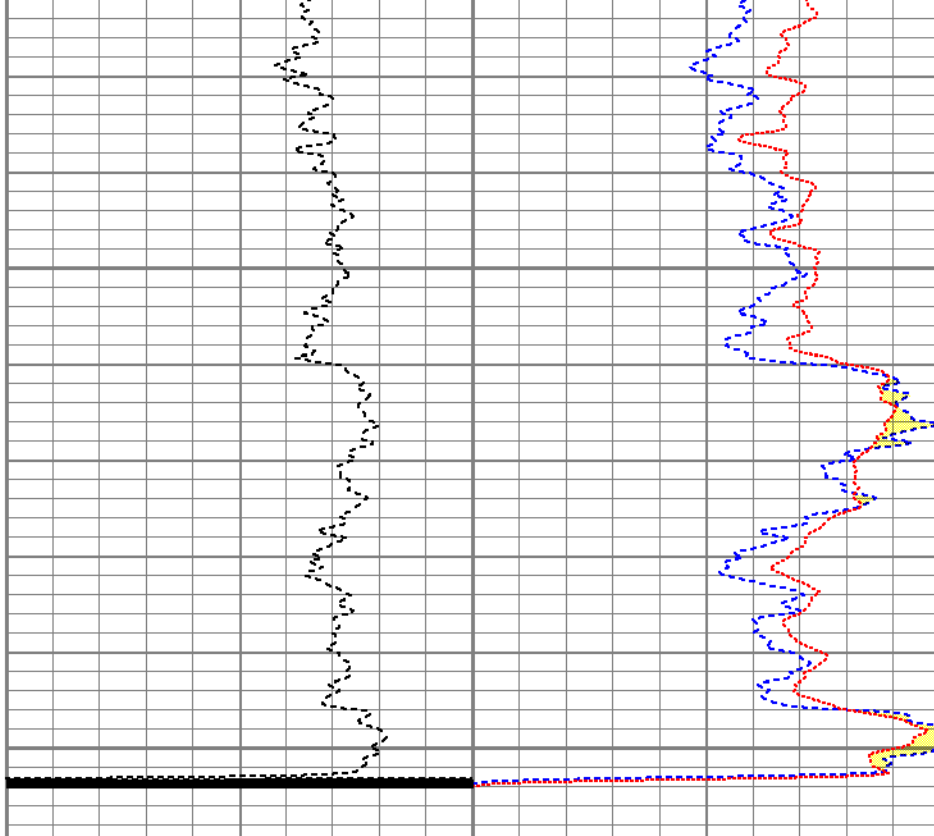






7500

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



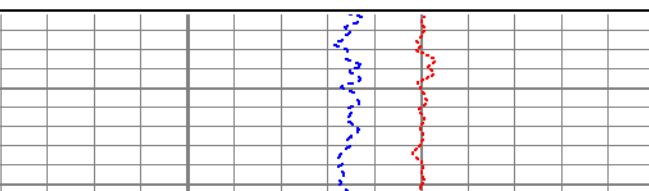
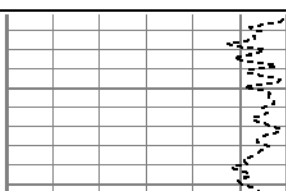
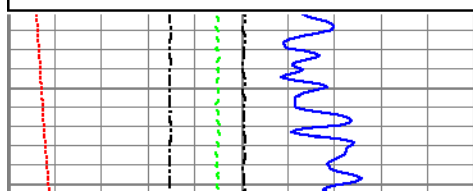
Repeat Pass

Recorded With 2800 PSI Surface Induced Pressure

Database File: 0512341902_anadarko_powers 13c-22hz_12-08-15_rbl_cnl.db
 Dataset Pathname: pass4
 Presentation Format: cnl
 Dataset Creation: Tue Dec 08 09:07:04 2015 by Log 7.0 B1
 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



Repeat Section

182.5

5300

Repeat Section

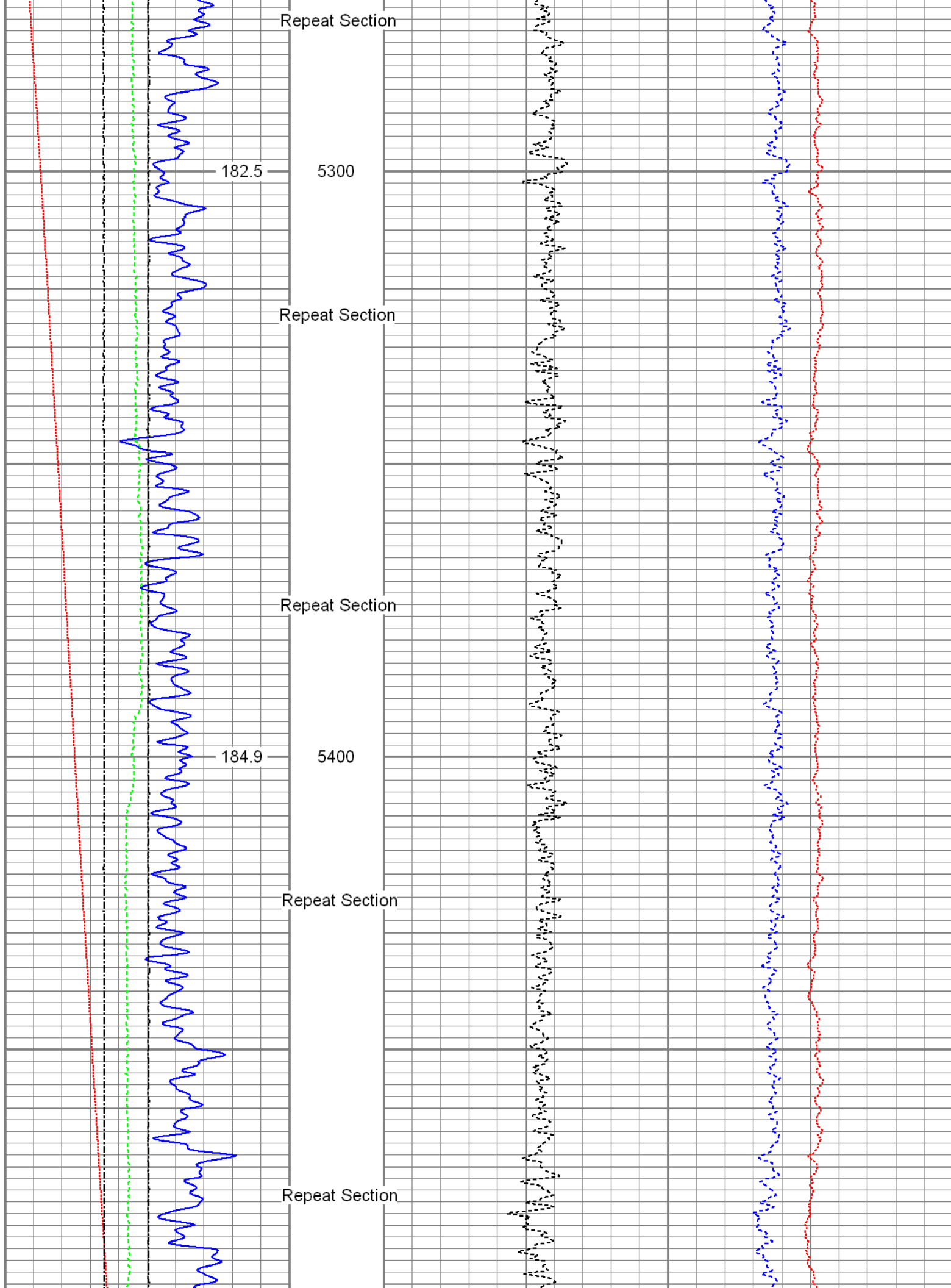
Repeat Section

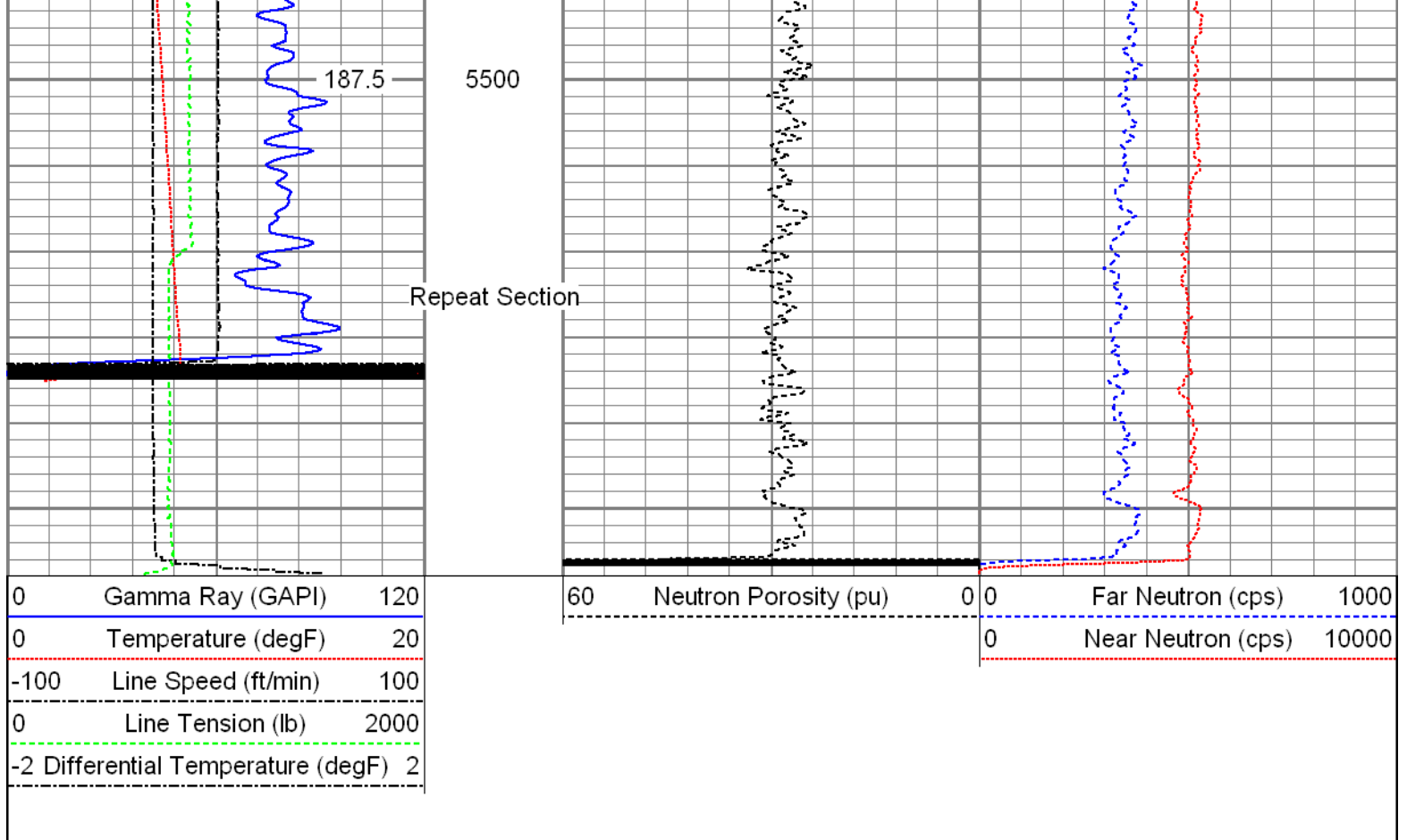
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5400

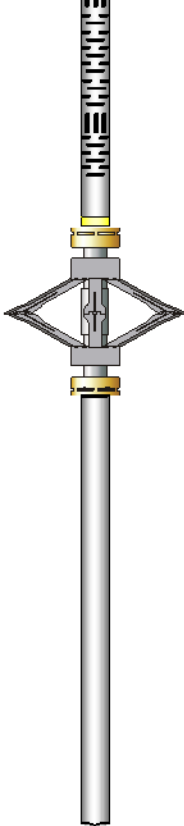
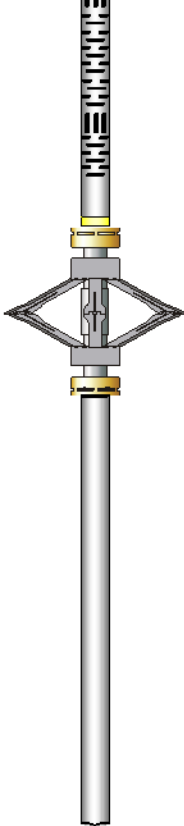
Repeat Section

Repeat Section





Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
GR	24.79		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	23.39		UW_PRT-UW_PRT_016 (10025095) Platinum Resistance Thermometer	1.04	1.69	5.20
CCL	22.14		UW_CCL-UW_CCL_028 (10009470) Ultrawire 3-1/8" CCL	1.61	3.13	36.00
			UW_PRC-DSSRAC (082) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00
WVF3FT	14.21		UW_RBT-UW_RBT_003 (Default003) Sondex Ultrawire 1-11/16" Radial Bond Tool	9.93	1.69	42.00
WVFS1	14.21					
WVFS2	14.21					
WVFS3	14.21					

WVFS3	14.21		UW_PRC #3 -DSSRAC (080) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00
WVFS4	14.21					
WVFS5	14.21					
WVFS6	14.21					
CBLTEMP	14.21					
CBLROT	14.21					
WVF5FT	13.21					
CNLSC	1.53		CNL-007 (1005) Compensated Neutron Logging Tool	6.61	1.69	30.00
CNSSC	1.12					
TSTAMP	0.00					
Dataset: 0512341902_anadarko_powers 13c-22hz_12-08-15_rbl_cnl.db: field/well/run1/pass8						
Total Length: 29.03 ft						
Total Weight: 198.20 lb						
O.D. 3.13 in						

Calibration Report			
Database File:	0512341902_anadarko_powers 13c-22hz_12-08-15_rbl_cnl.db		
Dataset Pathname:	pass8		
Dataset Creation:	Mon Dec 14 09:32:57 2015		
Compensated Neutron Calibration Report			
Serial Number:	1005		
Tool Model:	007		
Master Calibration	Tue Jun 03 09:29:29 2014		
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		
Short Space		cps	
Long Space		cps	
	Measured	Reference	
Ratio			
After Survey			

Detector	Readings	
Short Space		cps
Long Space		cps
Ratio	Measured	Reference

Segmented Cement Bond Log Calibration Report		
Serial Number:	Default003	
Tool Model:	UW_RBT_003	
Calibration Casing Diameter:	5.500	in
Calibration Depth:	2229.767	ft

Master Calibration, performed Tue Dec 08 08:53:43 2015:						
	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	0.001	2.012	1.000	71.921	35.260	0.967
5FT	-0.003	1.928	1.000	71.921	36.721	1.126
S1	0.001	2.289	0.000	100.000	43.713	-0.065
S2	0.000	2.279	0.000	100.000	43.877	-0.008
S3	0.007	1.948	0.000	100.000	51.524	-0.346
S4	-0.000	1.921	0.000	100.000	52.058	0.008
S5	-0.000	1.882	0.000	100.000	53.135	0.018
S6	0.015	2.079	0.000	100.000	48.458	-0.731

Temperature Calibration Report					
	Serial Number:	10025095			
	Tool Model:	UW_PRT_016			
	Performed:	Wed Feb 11 13:43:20 2015			
	Point #	Reading		Reference	
	1	12798.00	cps	68.00	degF
	2	18136.00	cps	104.00	degF
	3	29513.00	cps	176.00	degF
	4	40905.00	cps	248.00	degF
	5	52487.00	cps	320.00	degF
	6	58362.00	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	Kerr-McGee Oil and Gas Onshore LP
Well	Powers 13C-22HZ
Field	Wattenberg
County	Weld
State	Colorado