



Pulsed Neutron  
Gamma Ray  
Casing Collar Log

Company Ursa Operating Company LLC  
Well Boies Ranch B-19N FED 23A-19-2-97  
Field Sulphur Creek  
County Rio Blanco State Colorado

Location: API #: 05-103-12307

Other Services  
RBL

SEC 19 TWP 2S RGE 97W

Permanent Datum Ground Level Elevation 6304.8'  
Log Measured From Kelly Bushing 21 FT  
Drilling Measured From Kelly Bushing  
K.B. 6325.8'  
D.F. 6324.8'  
G.L. 6304.8'

Date	01-DEC-2018			
Run Number	One			
Depth Driller	11184 FT			
Depth Logger	11085 FT			
Bottom Logged Interval	11079 FT			
Top Log Interval	5734 FT			
Open Hole Size	8.750"			
Type Fluid	Water			
Density / Viscosity	8.34 lb/gal			
Max. Recorded Temp.	---			
E. Estimated Cement Top	---			
Time Well Ready	ROA			
Time Logger on Bottom	10:51			
Equipment Number	HD-0359			
Location	Grand Junction, CO			
Recorded By	A. Ellsworth			
Witnessed By	Hank Christensen			
Borehole Record				
Run Number	Bit	From	To	Size
				Weight
				From
				To
Tubing Record				
Casing Record	Size (in)	Wgt (lbs/ft)	Grade	Top
Surface Casing	9 5/8	36	J-55	Surface
Intermediate #1	4 1/2	11.6	P-110	Surface
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 Reliance Bond Log dated 30-NOV-2018  
Log ran from 11079 FT to 5734 FT  
Pulsed Neutron Data logged with the Hunter RAS Tool

Thank you for choosing Reliance Oilfield Services, LLC!

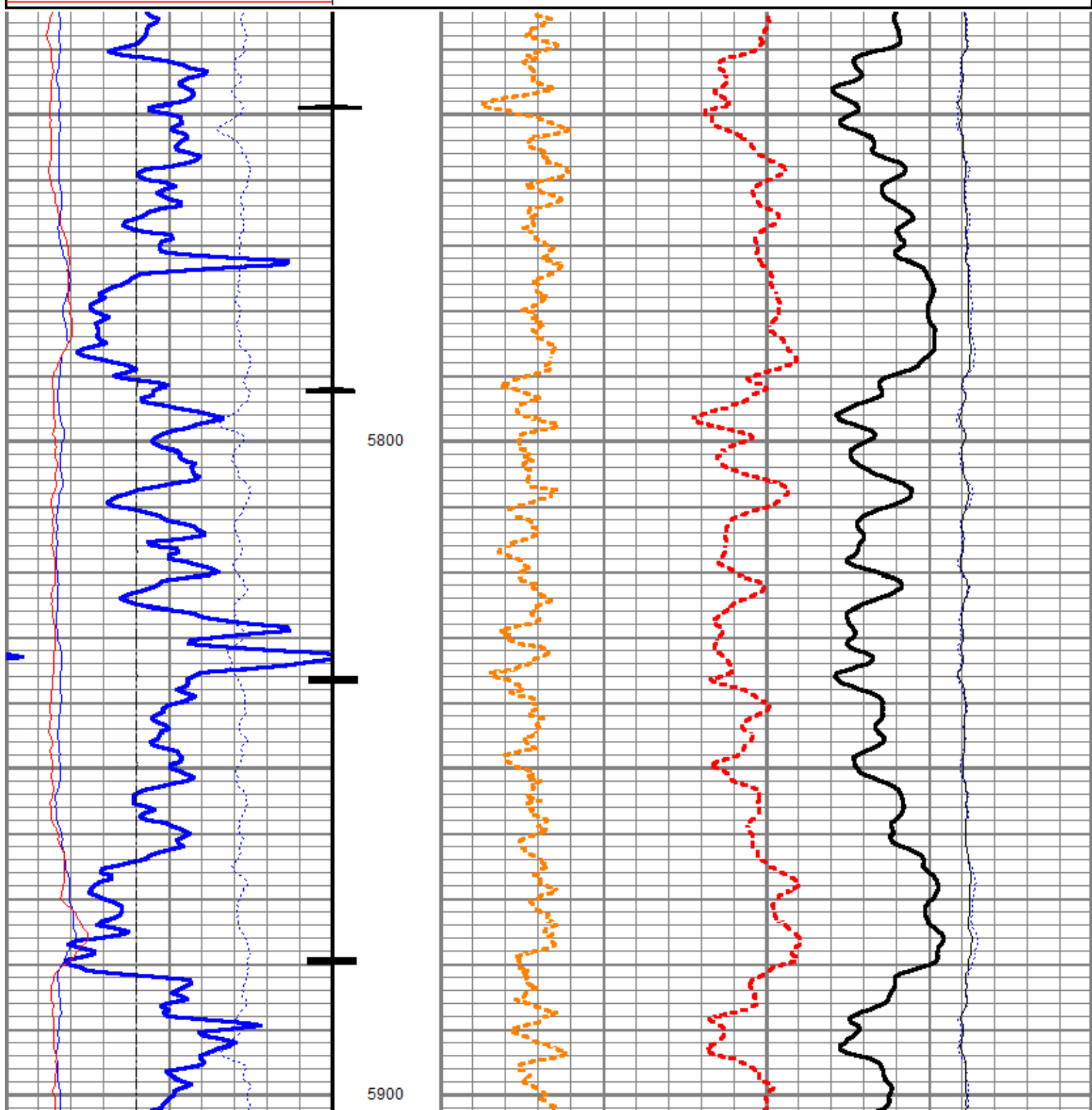


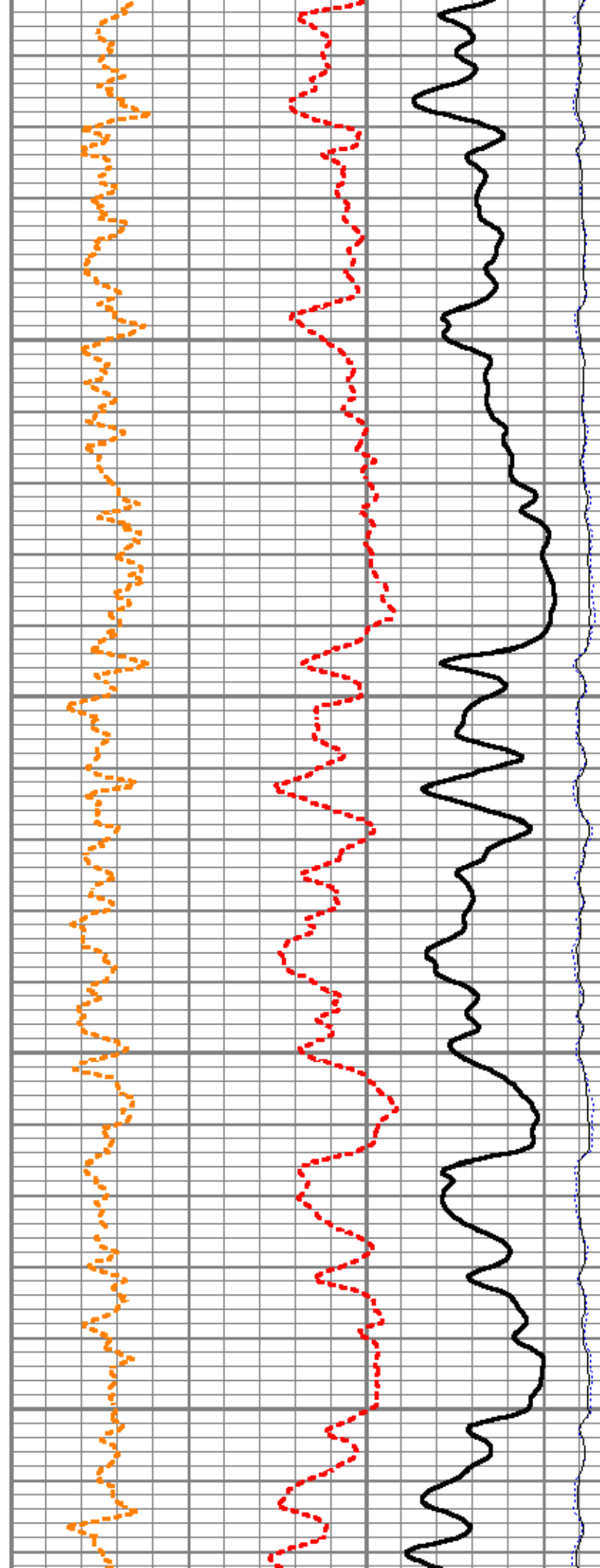
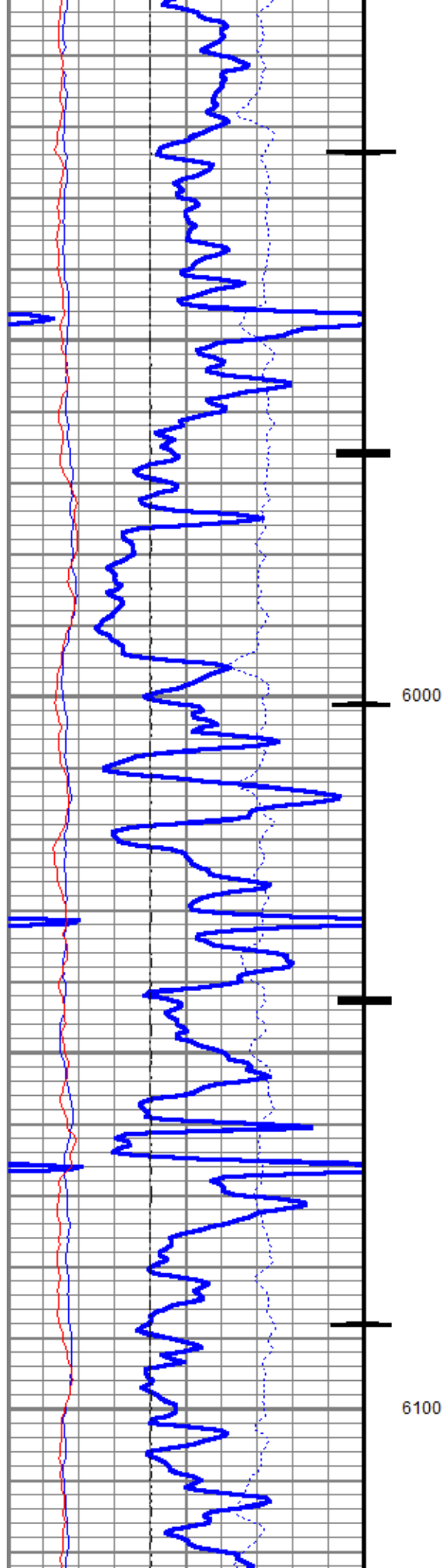
Main Pass

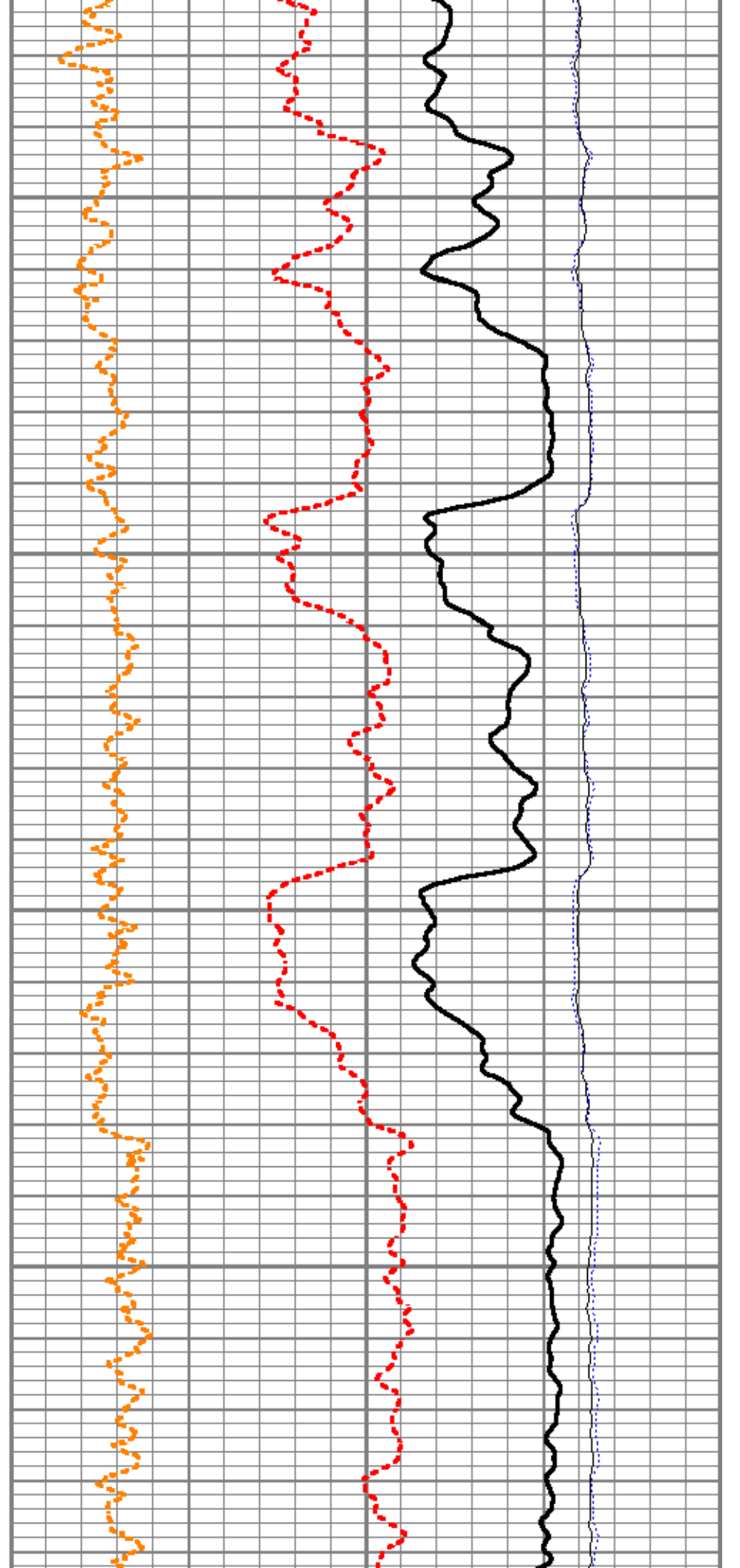
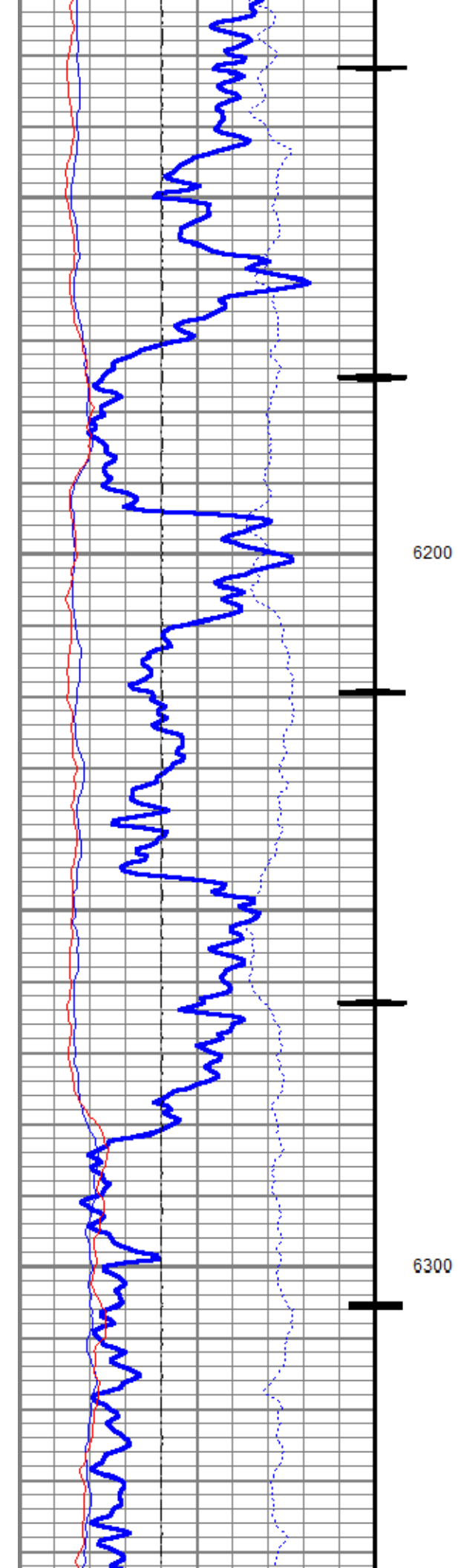
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Dataset Pathname	merge1
Presentation Format	ros_pdn_hunter
Dataset Creation	Mon Dec 03 14:13:30 2018
Charted by	Depth in Feet scaled 1:240

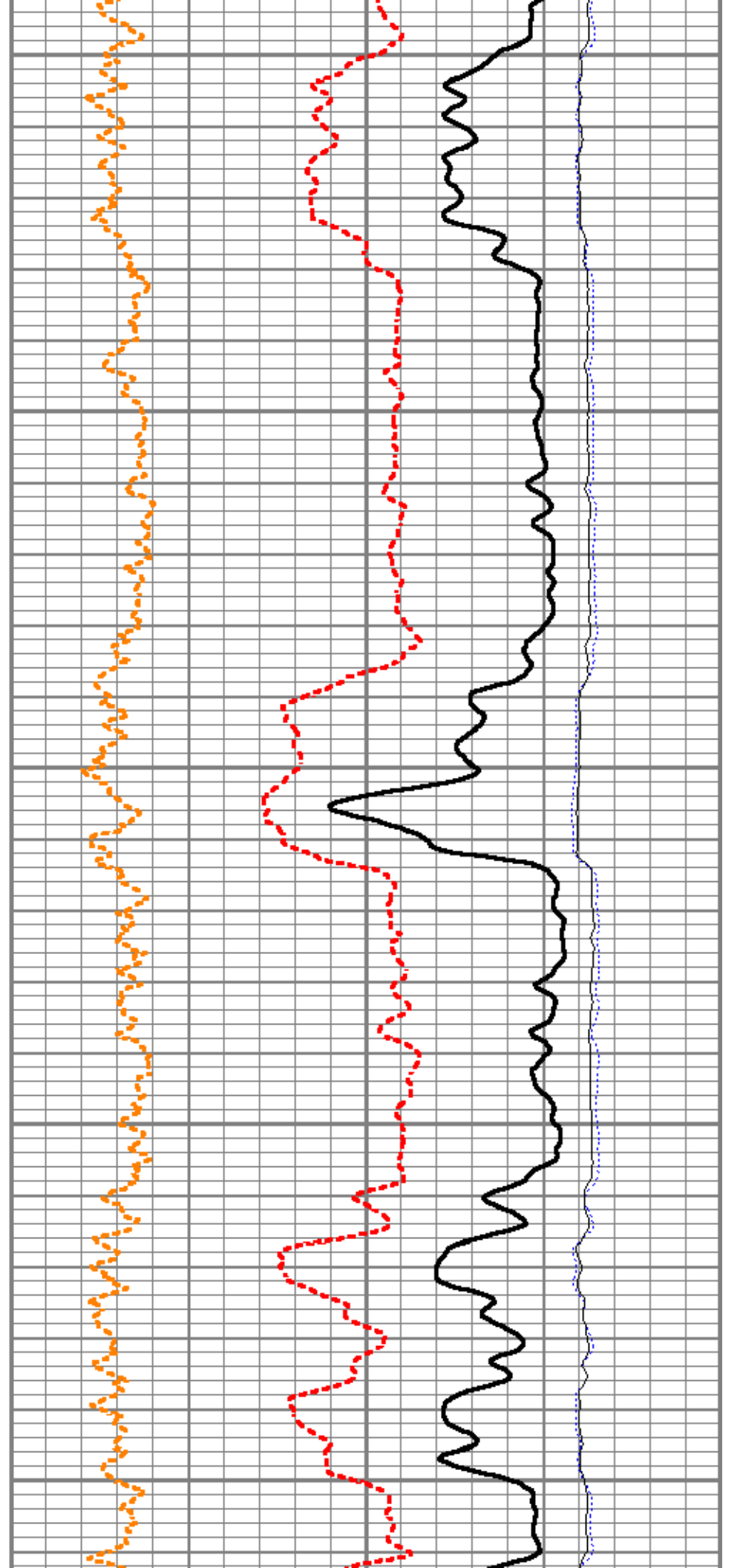
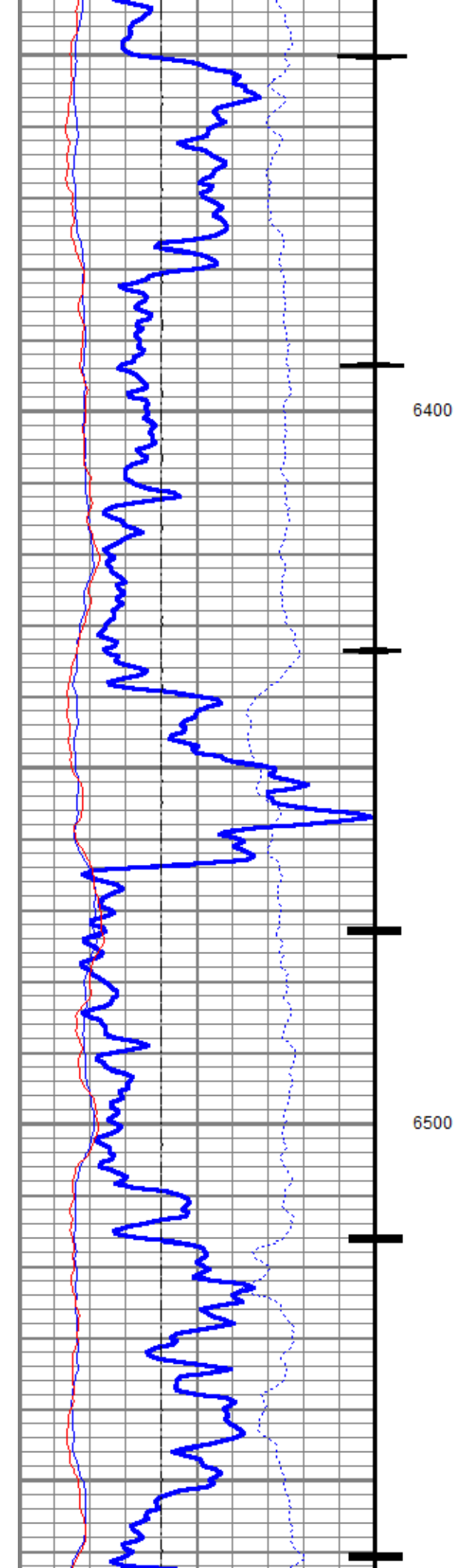
0	Gamma Ray (GAPI)	150
Casing Collar Locator		
-100	Line Speed (ft/min)	100
0	NIRS (cps)	400000
0	BKGN (cps)	4000
0	BKGF (cps)	2000

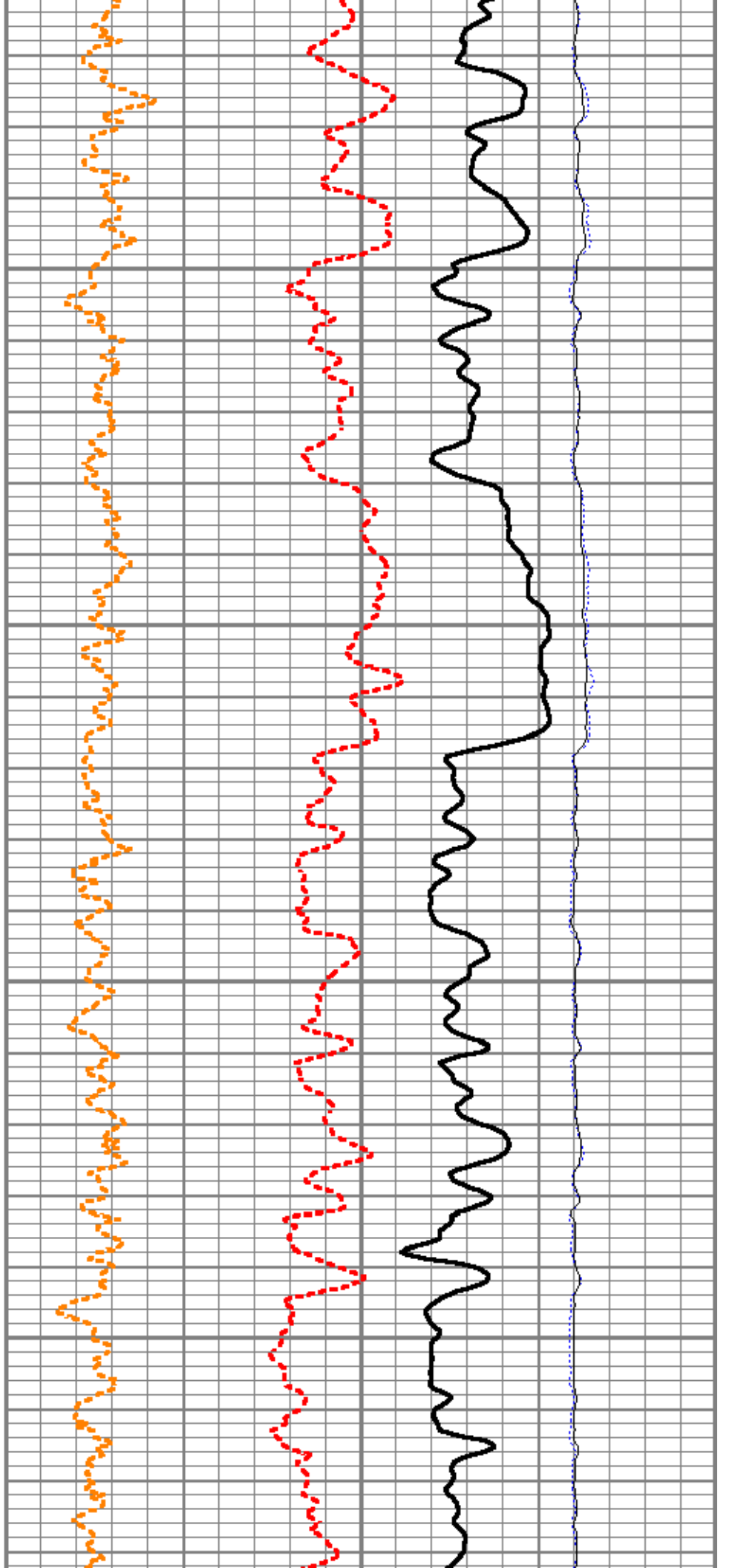
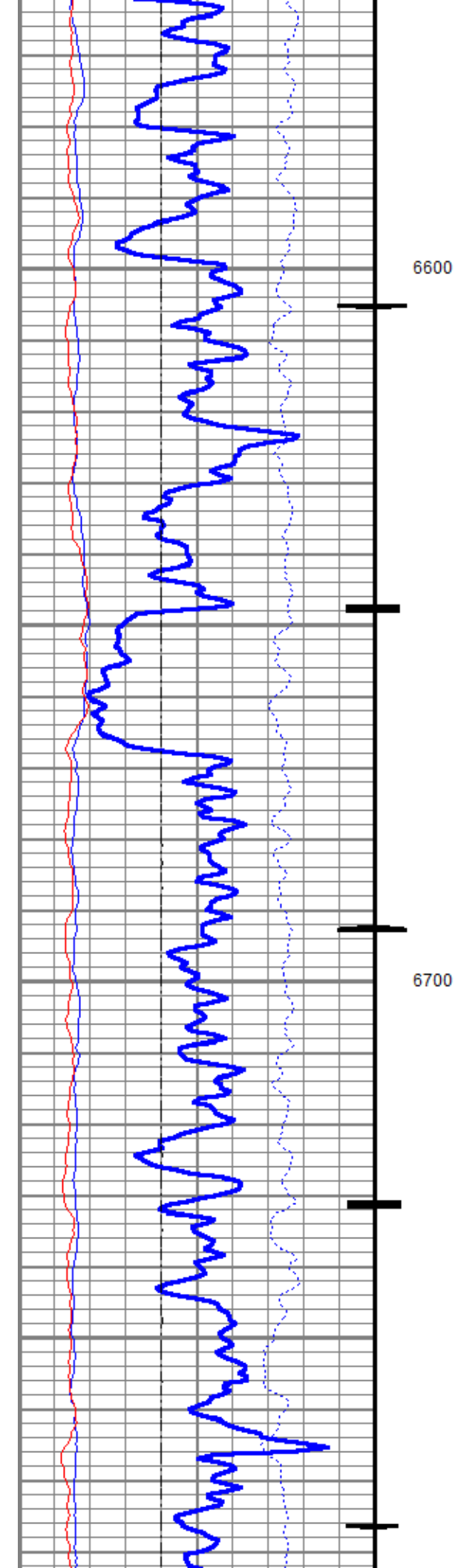
4	RNF2	0
60	SIGMA (cu)	0
4.5	RNFI	0
0	FIS2 (cps)	5000
0	NIS2 (cps)	10000

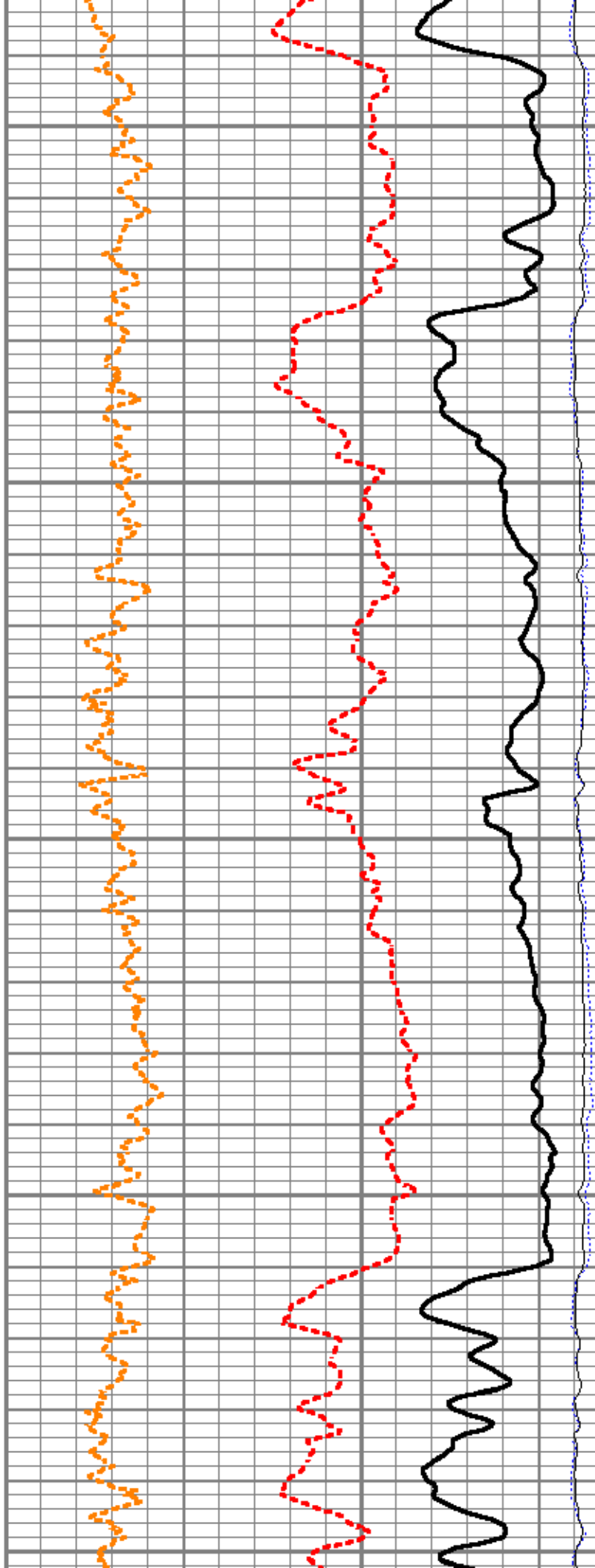
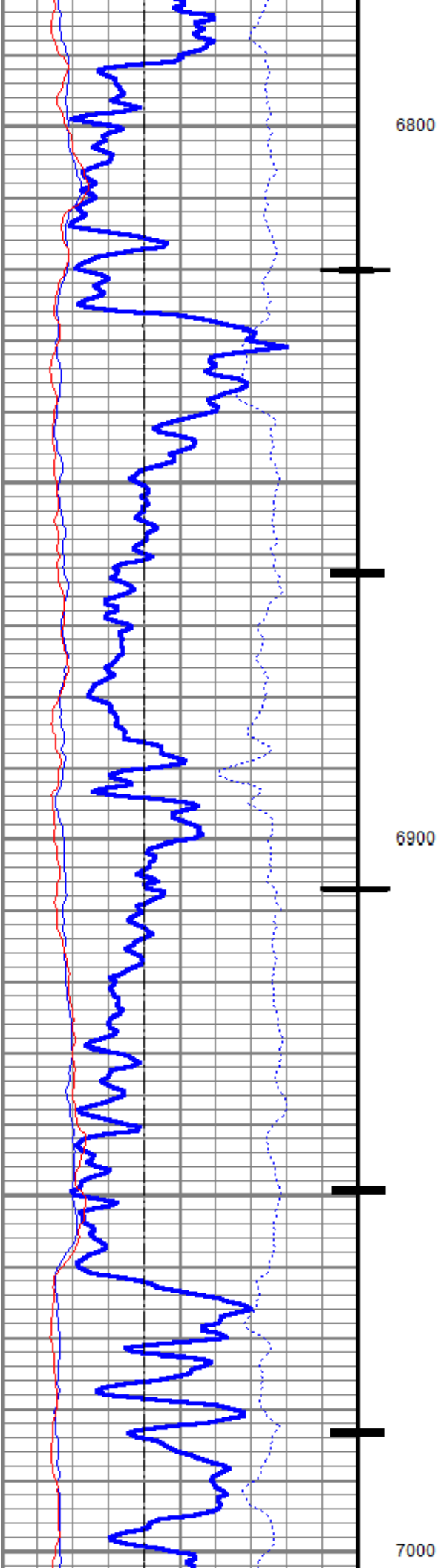


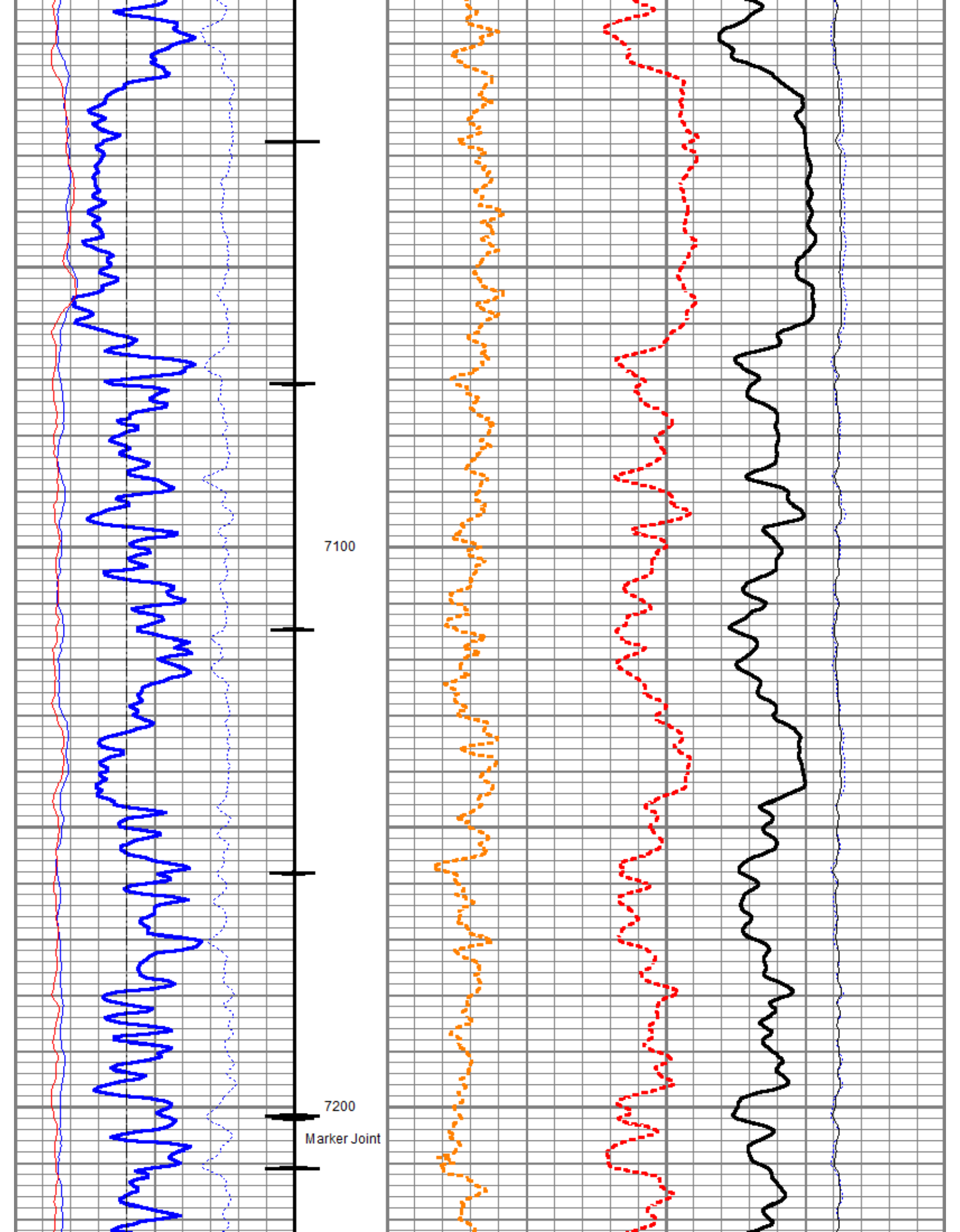


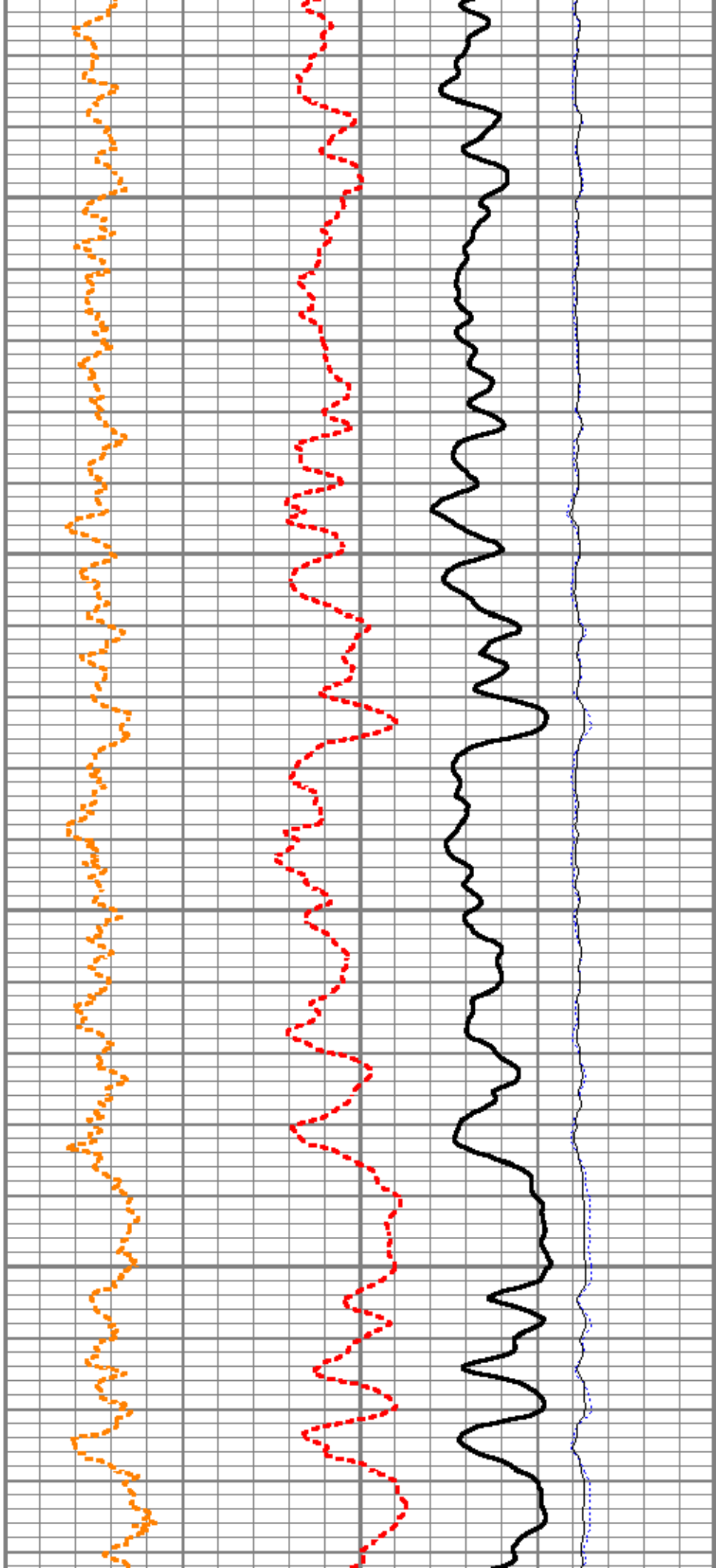
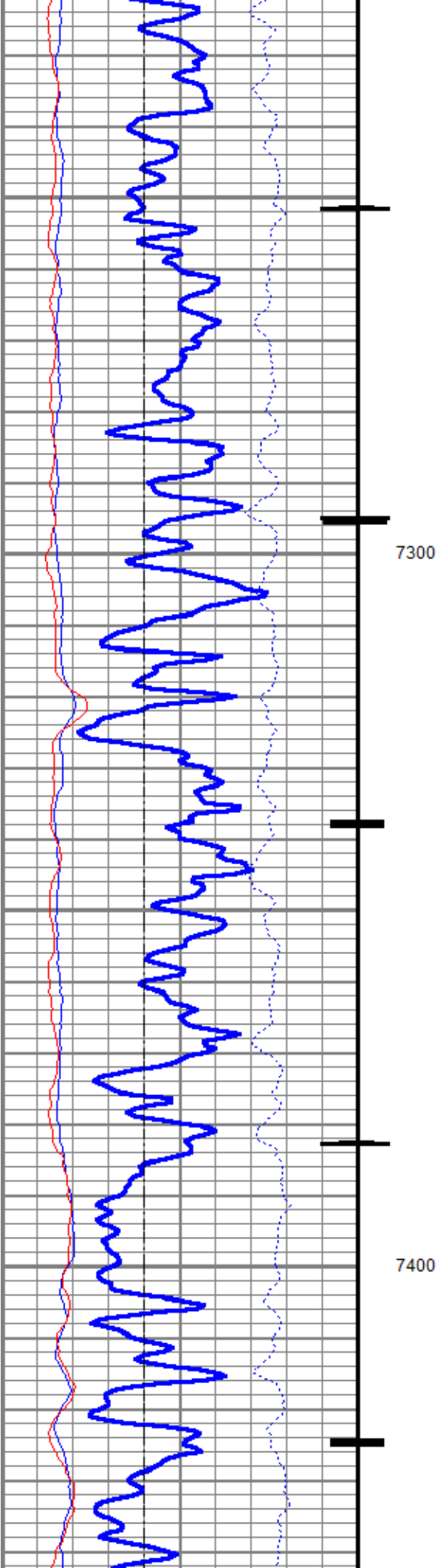


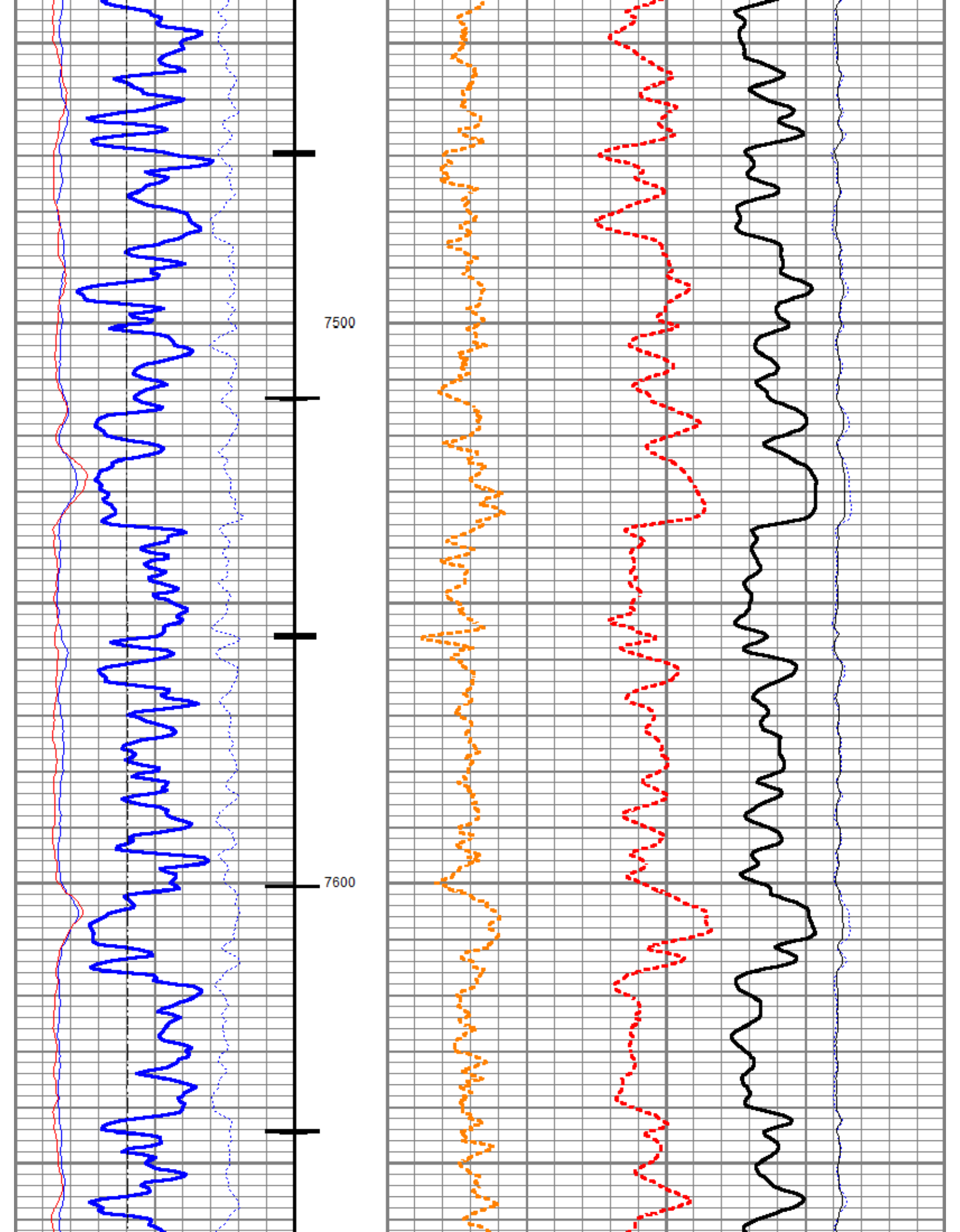


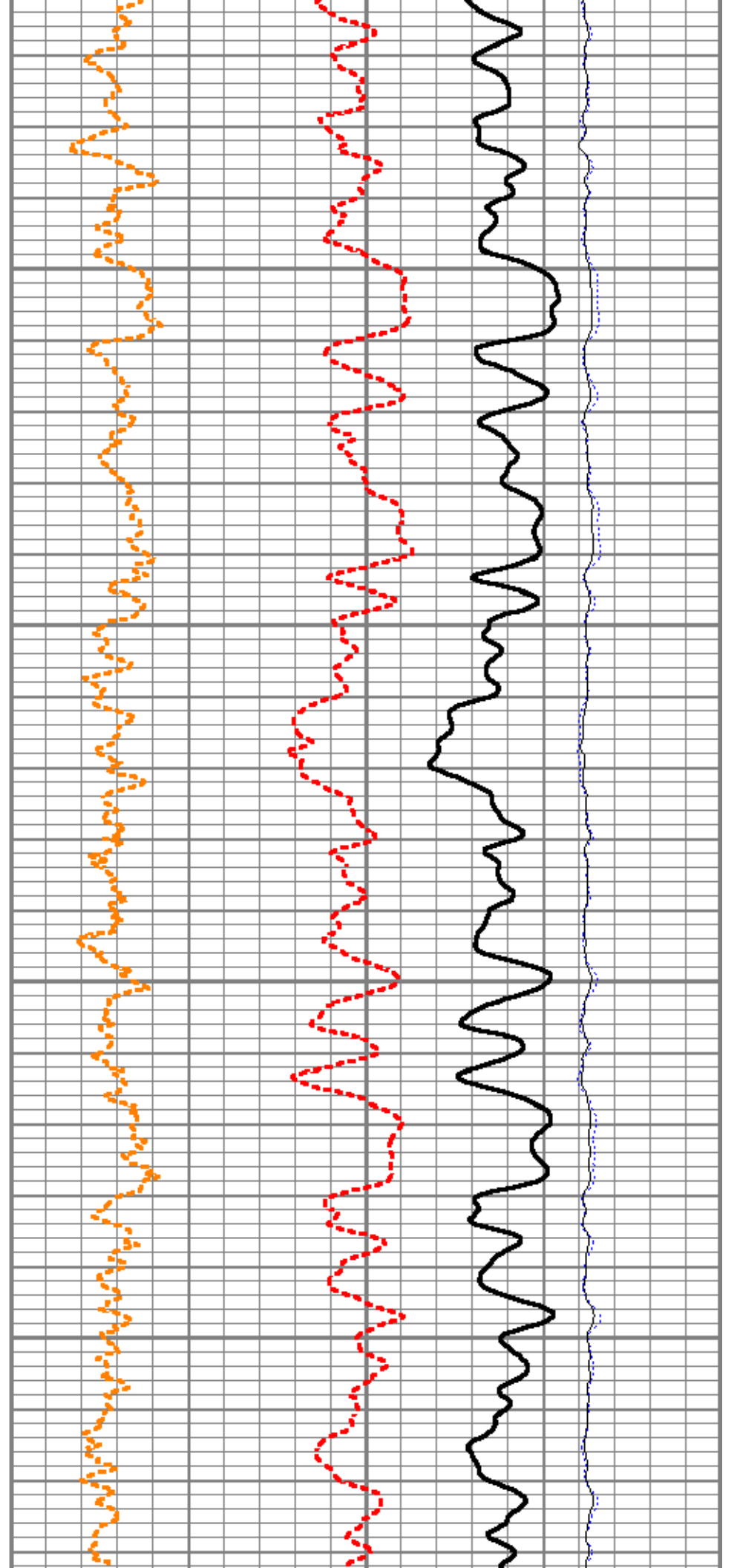
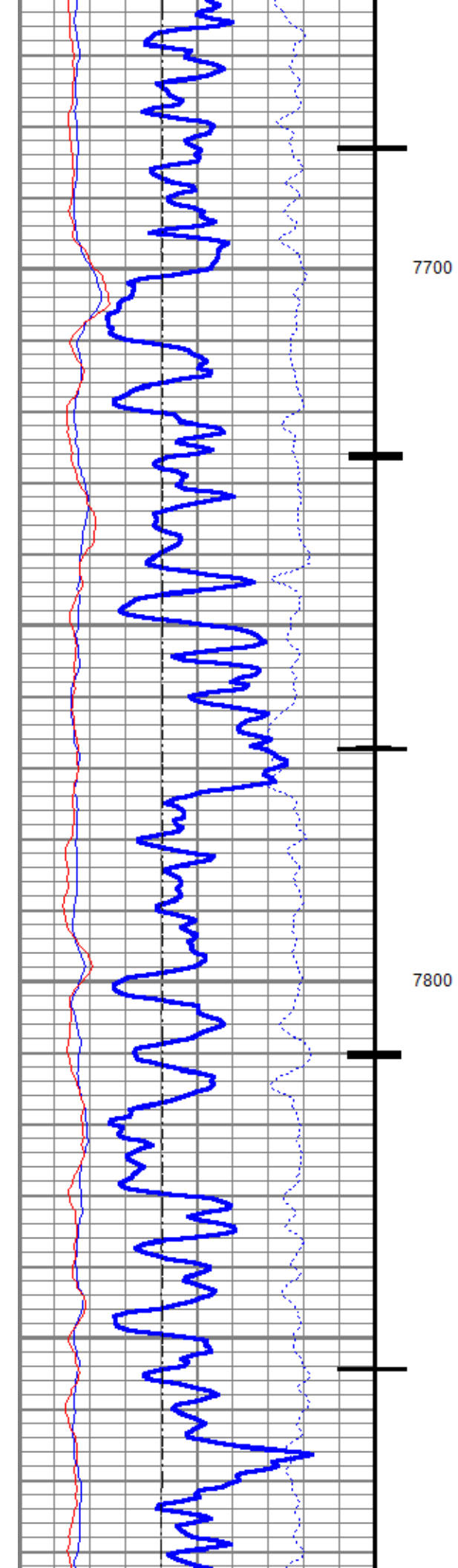


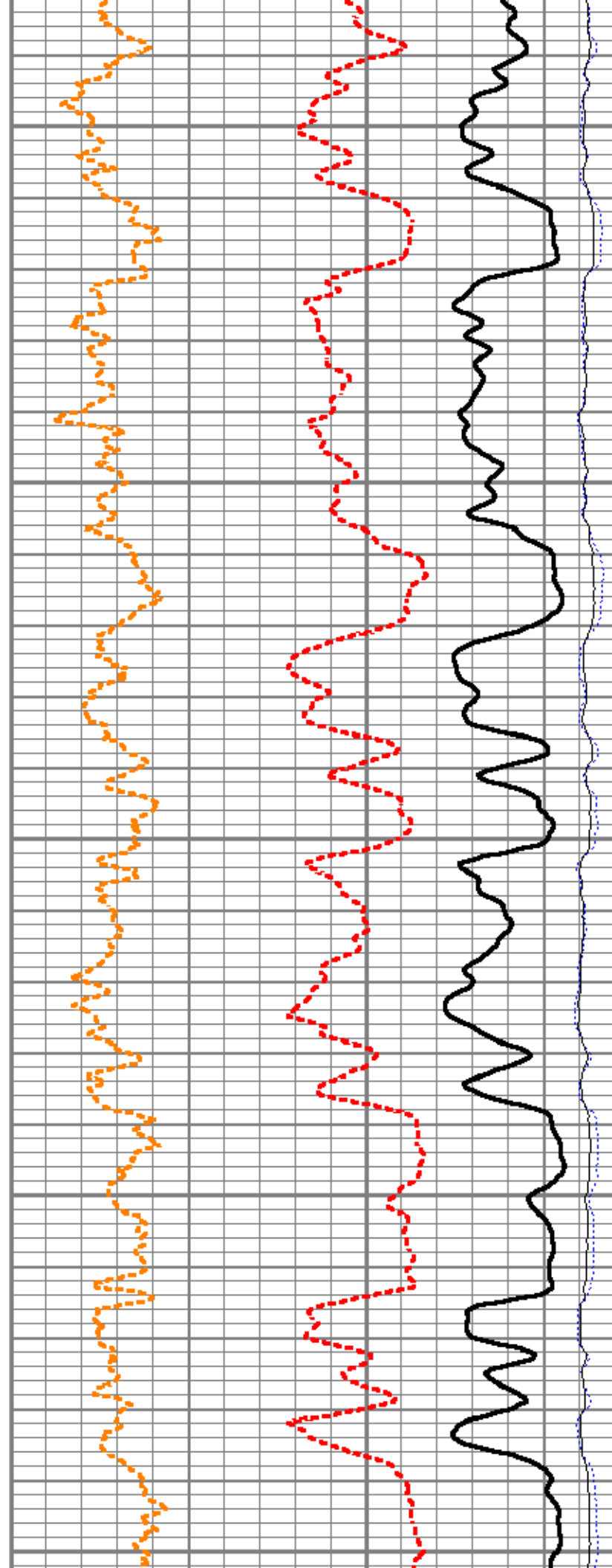
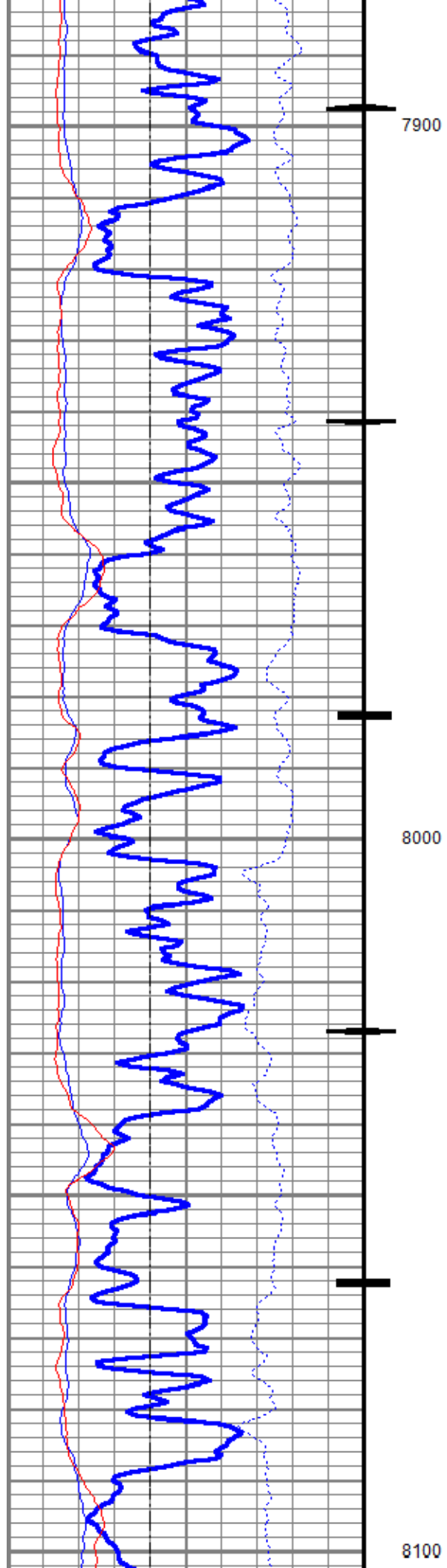


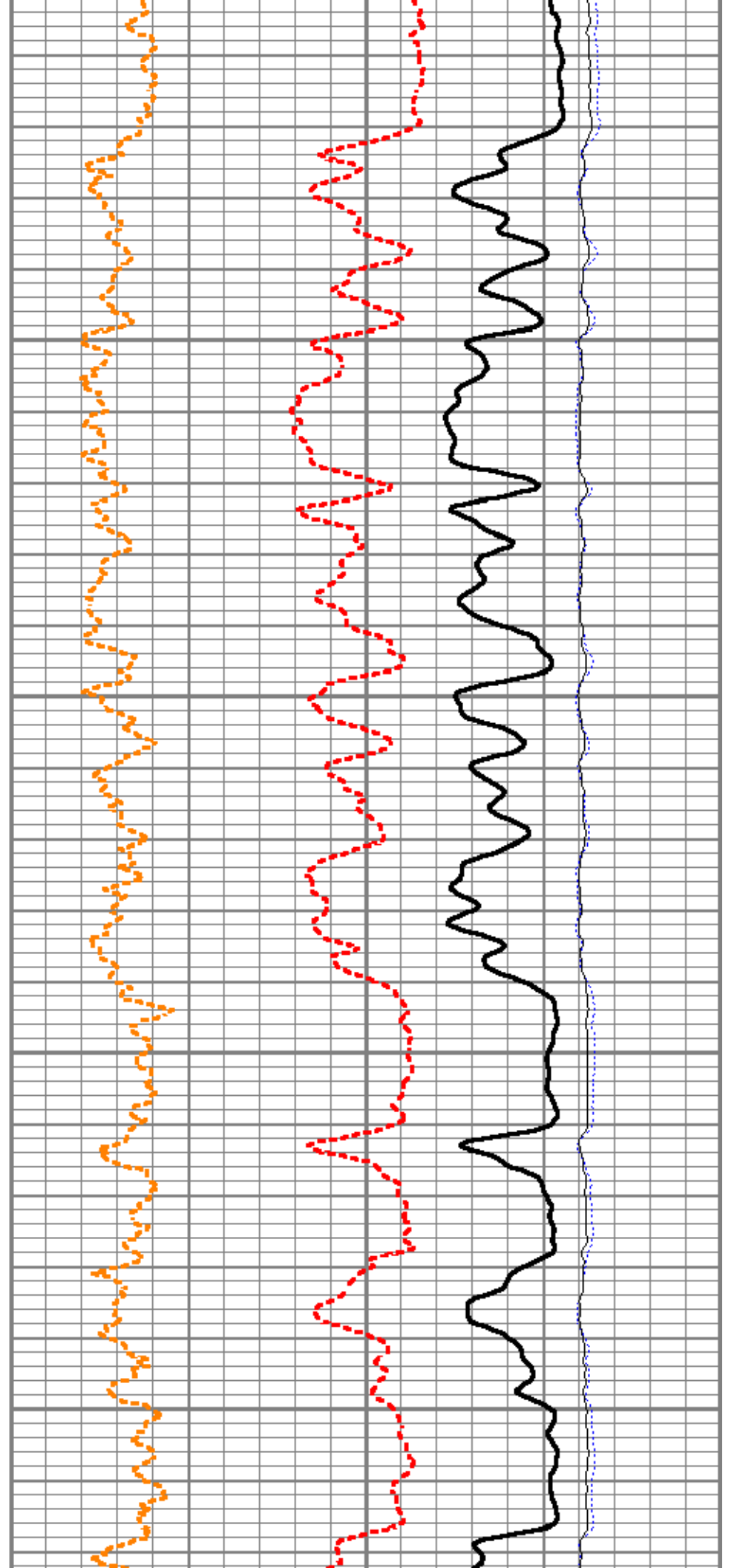
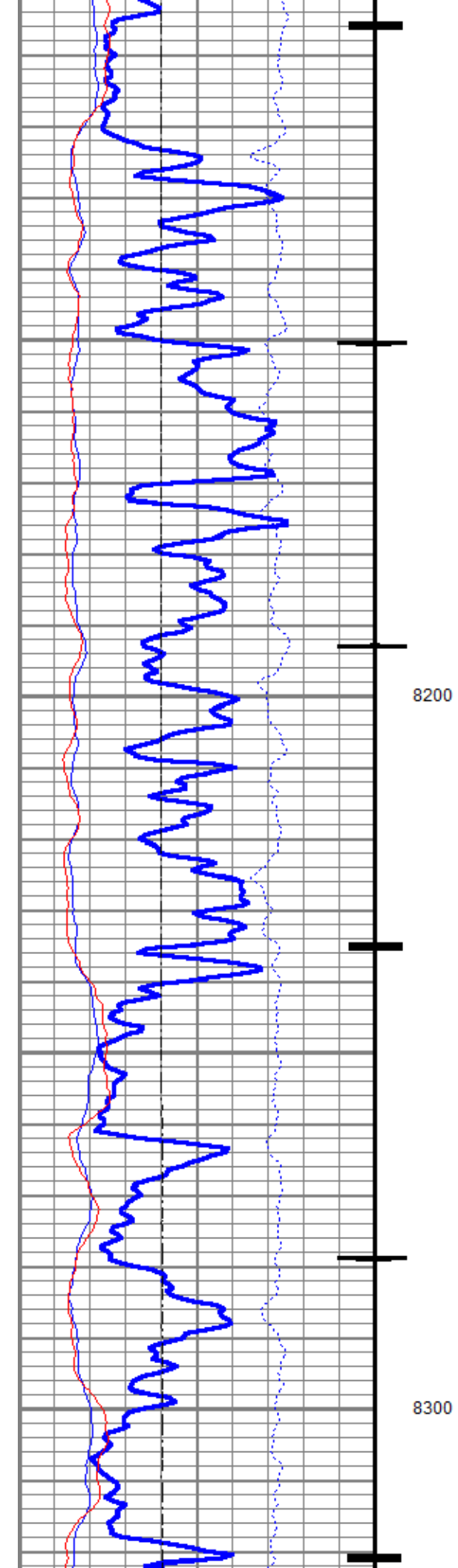


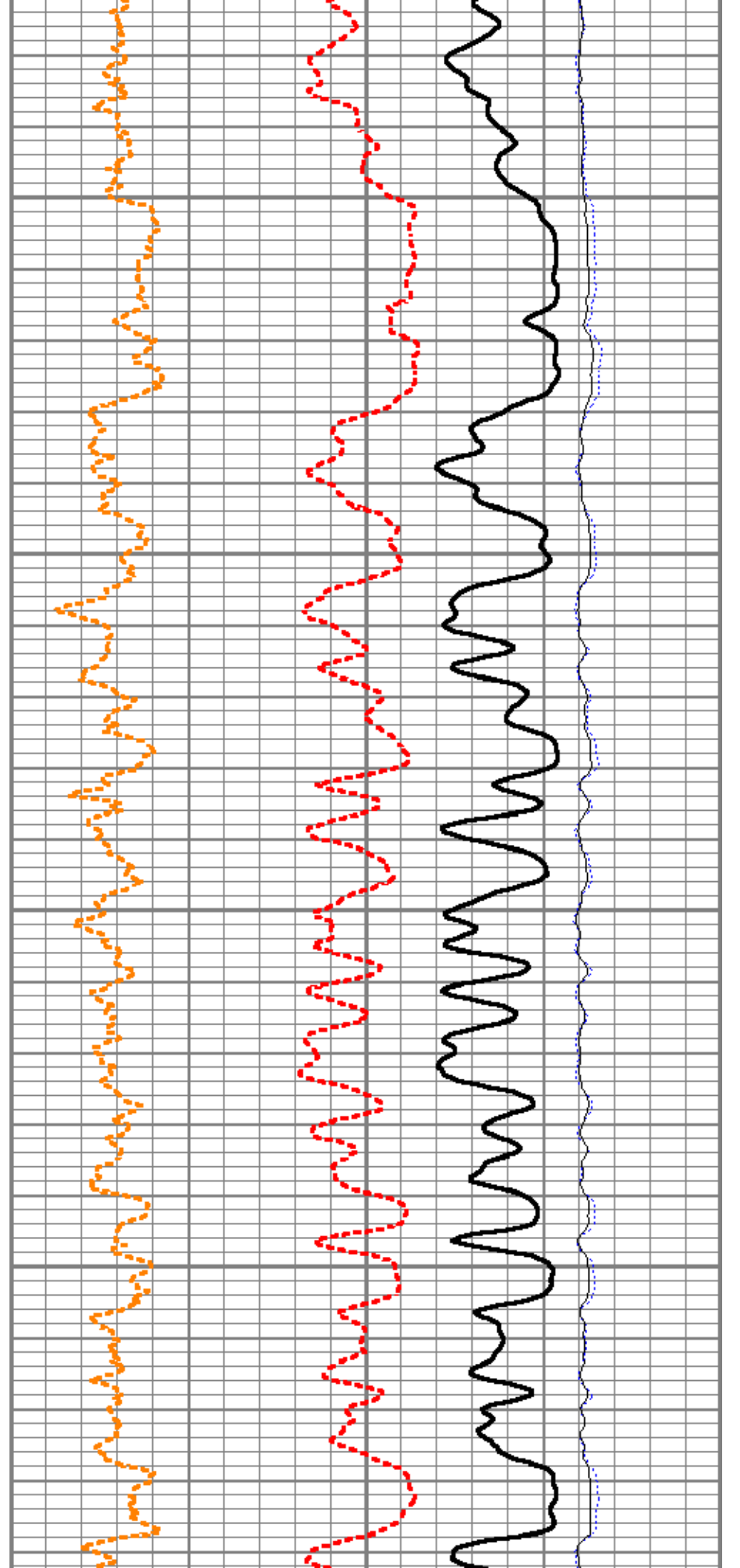
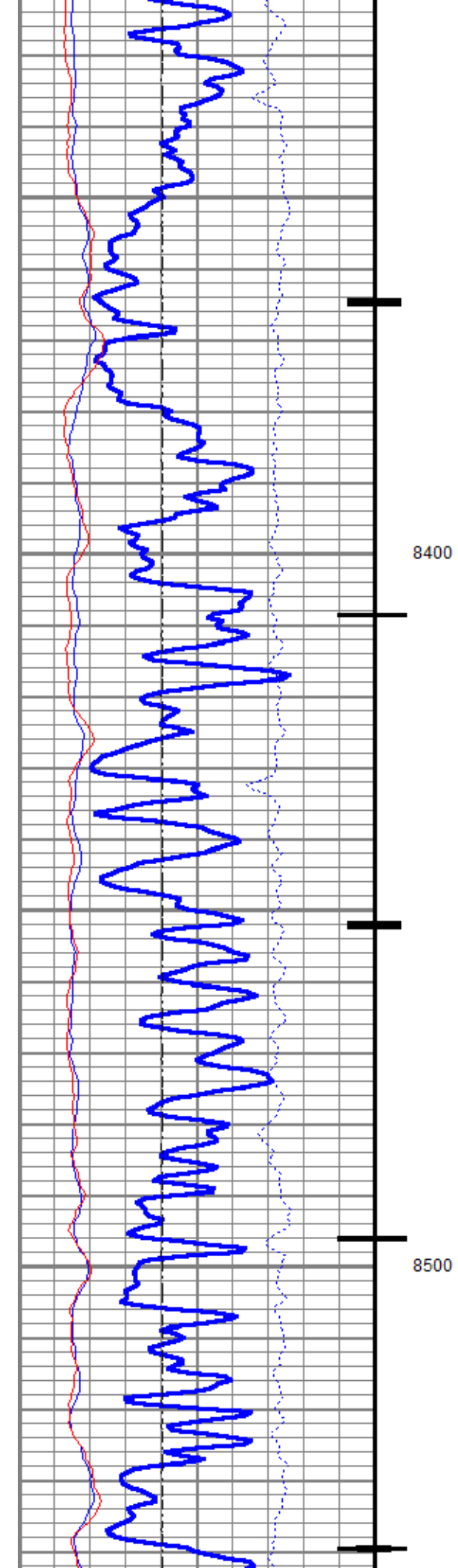


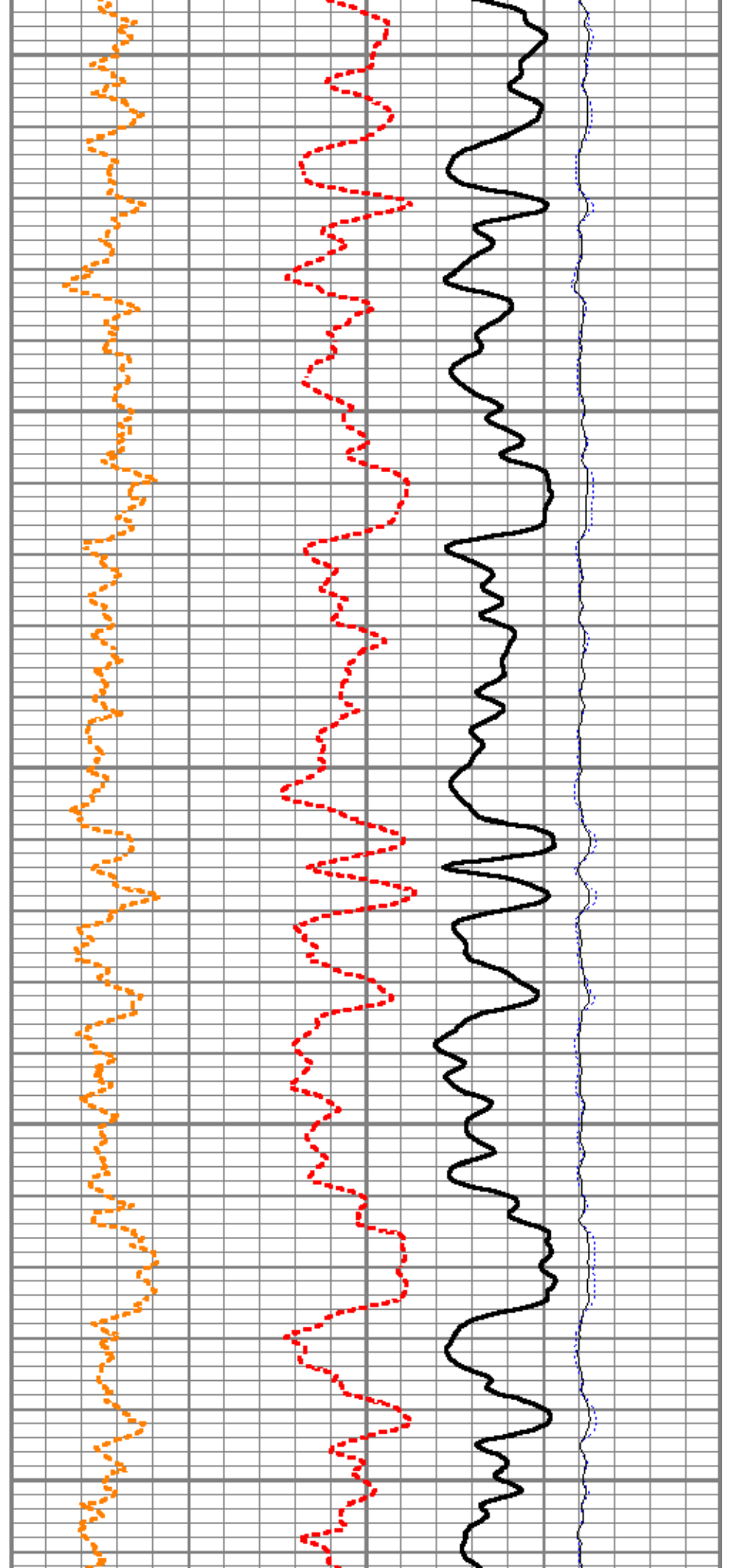
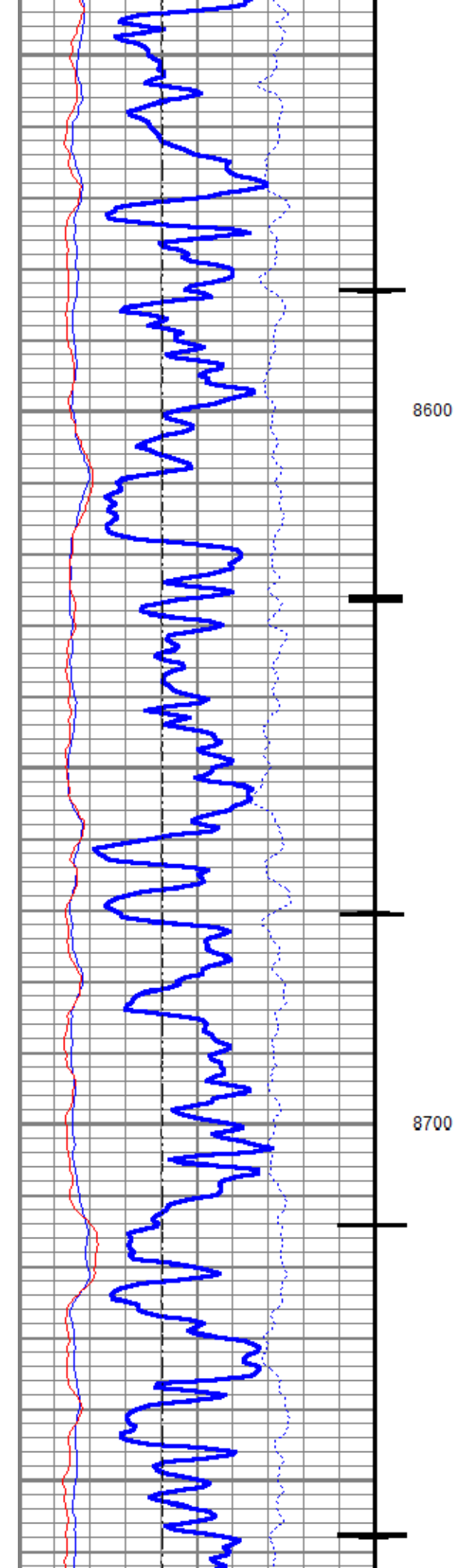


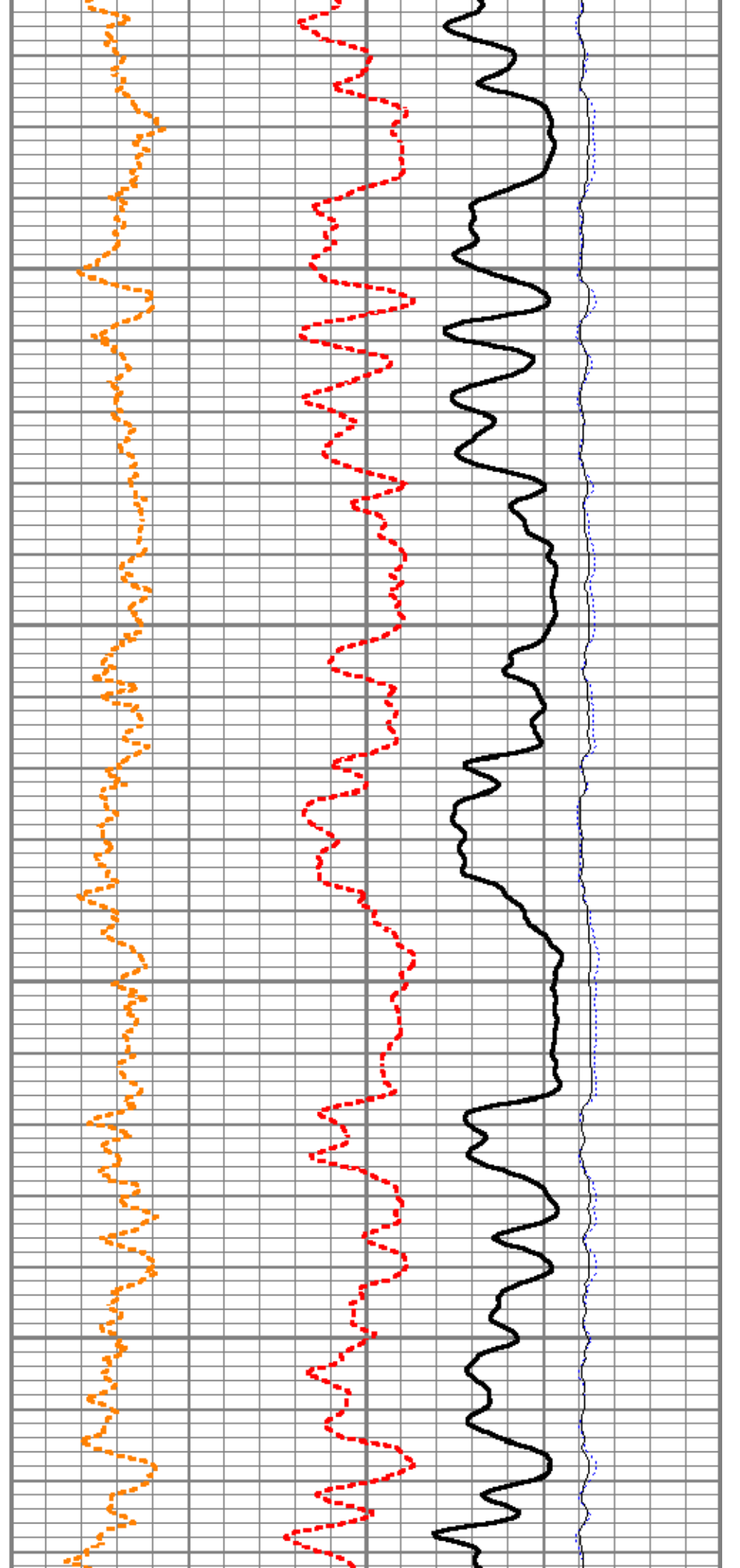
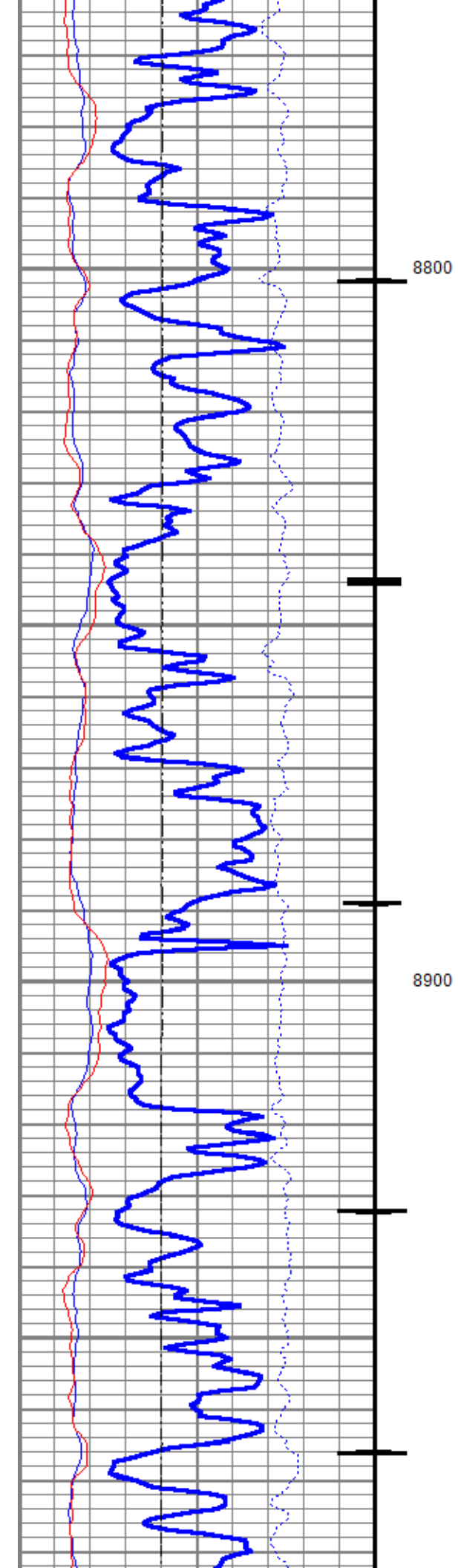


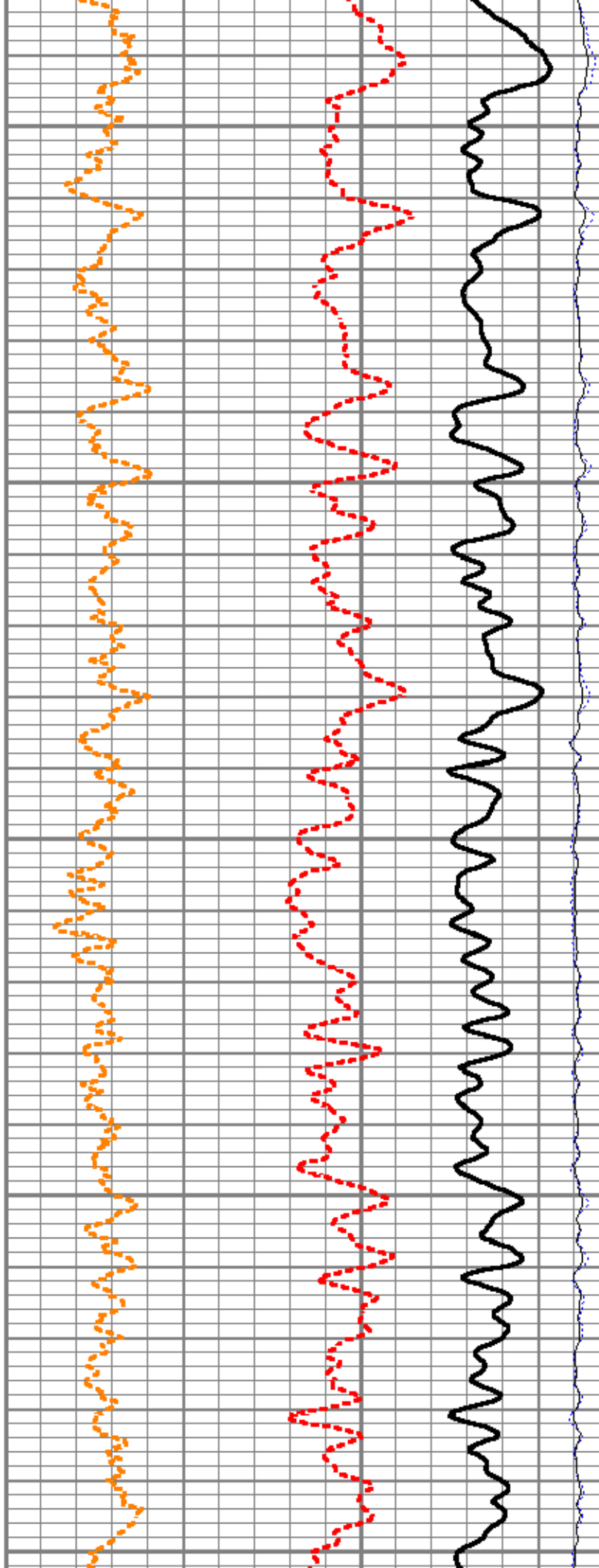
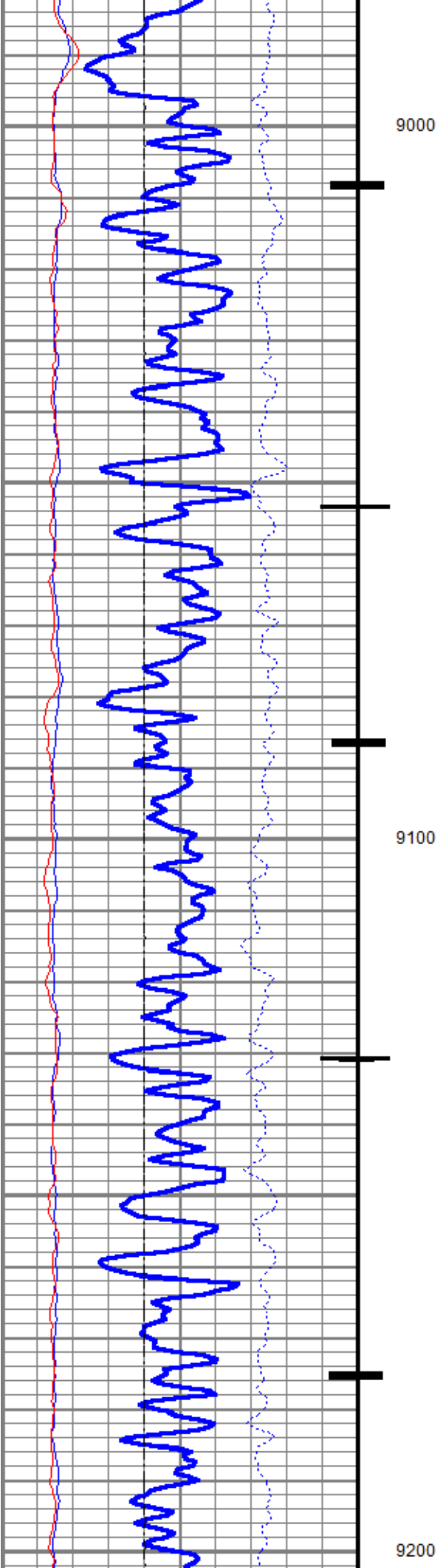


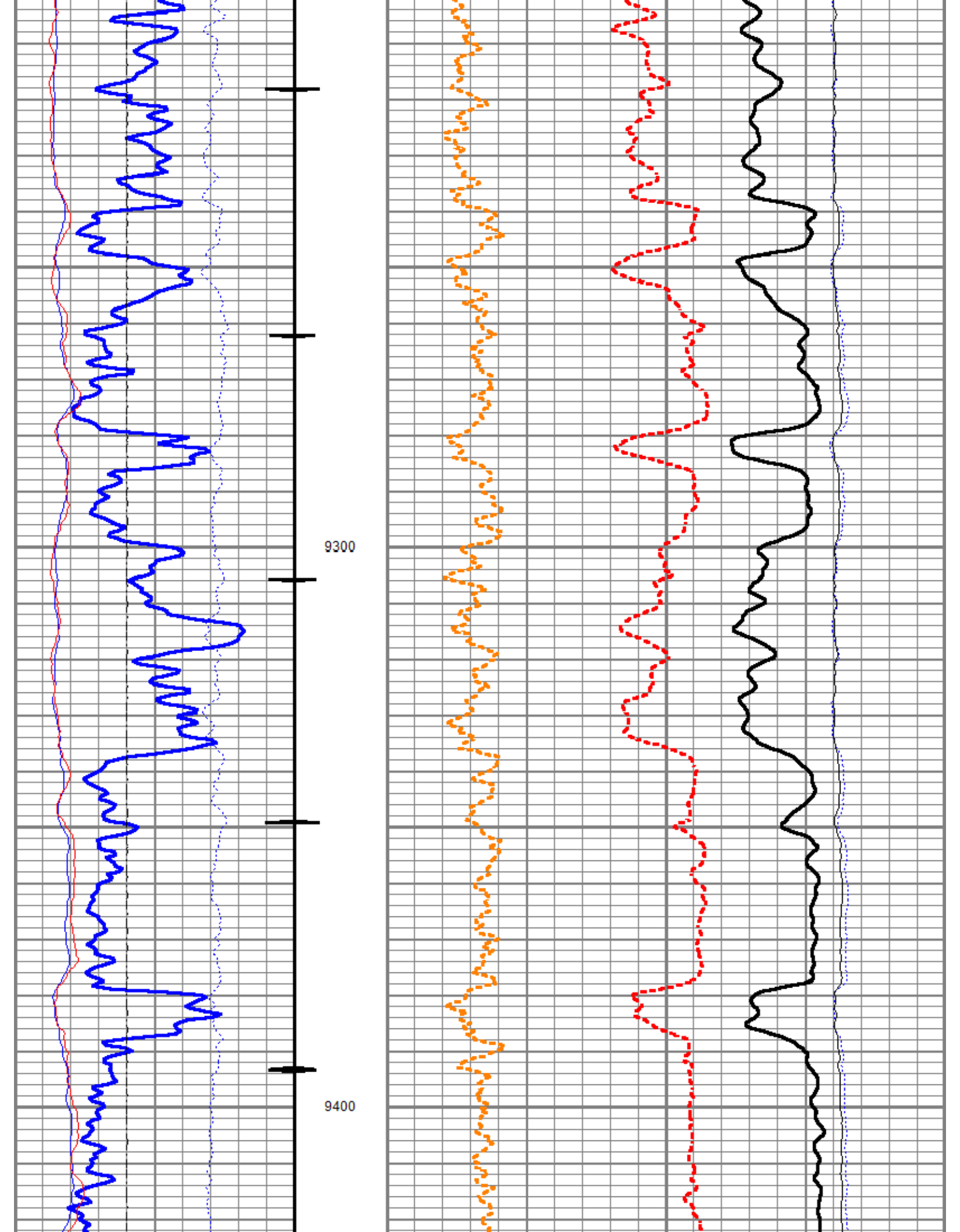


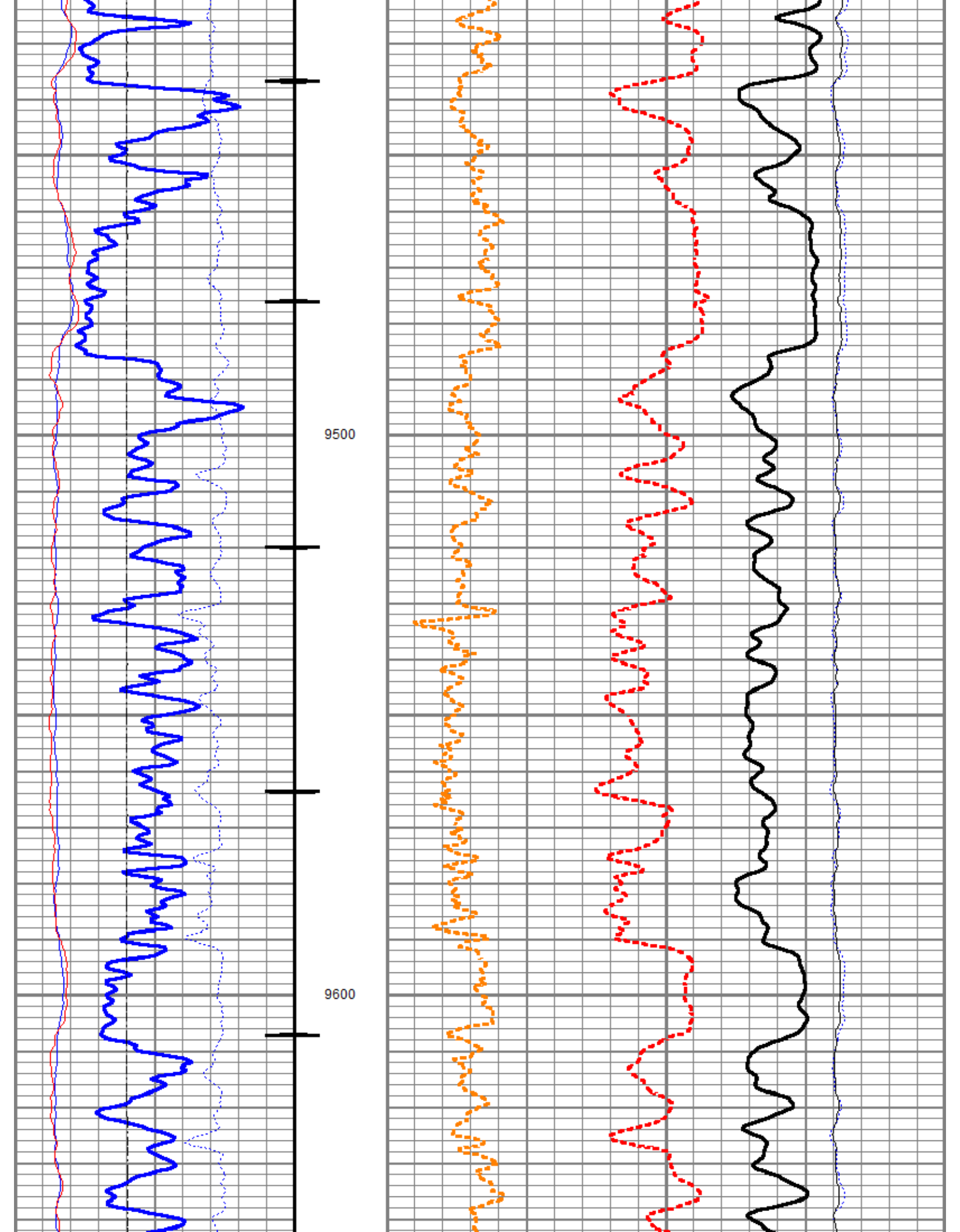


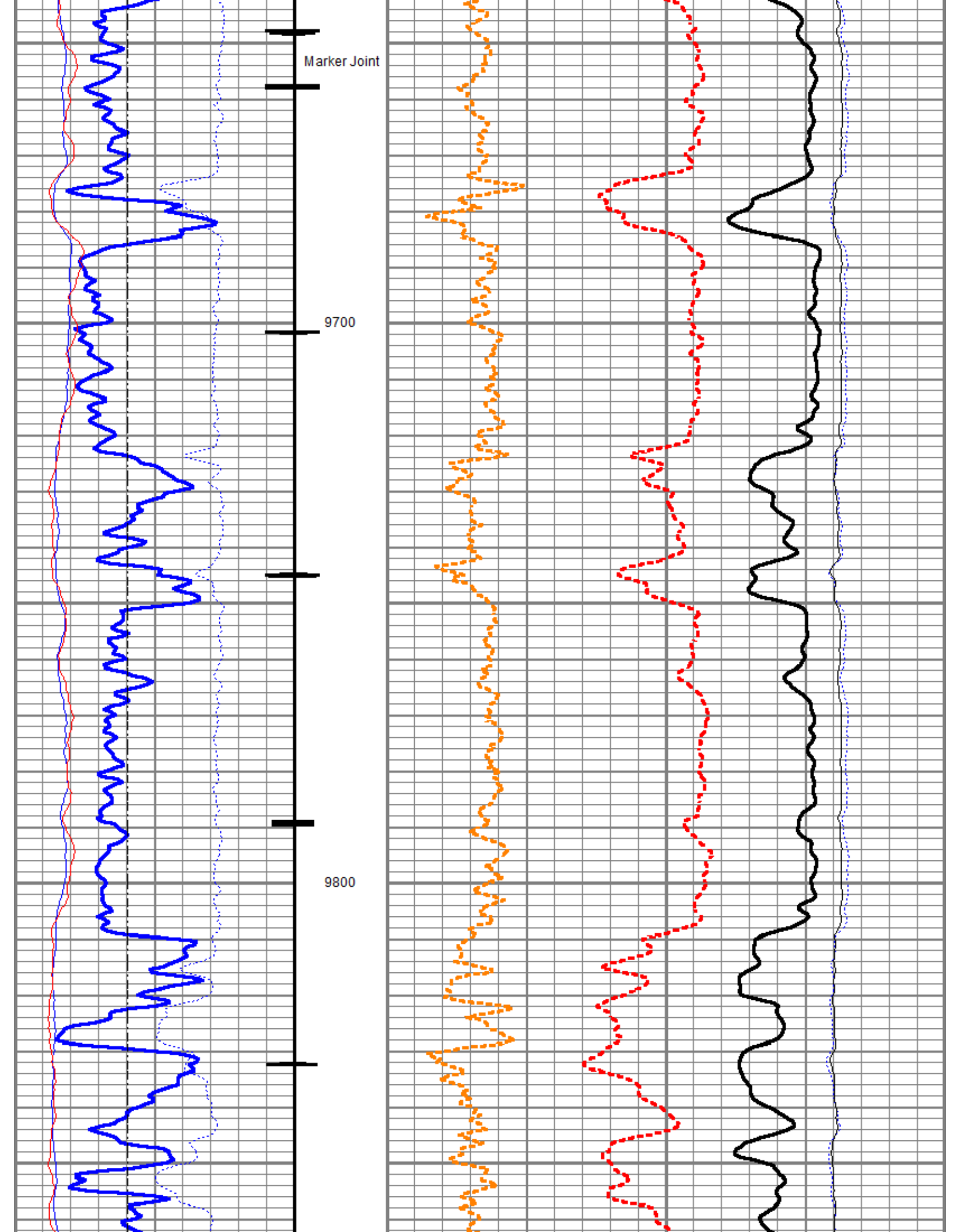


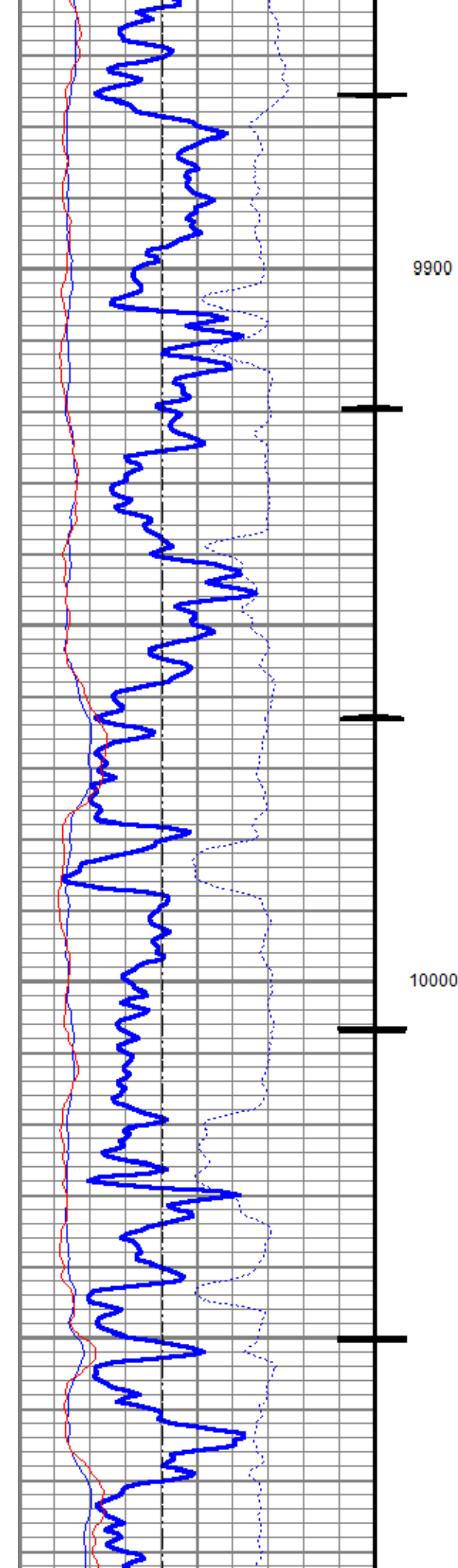
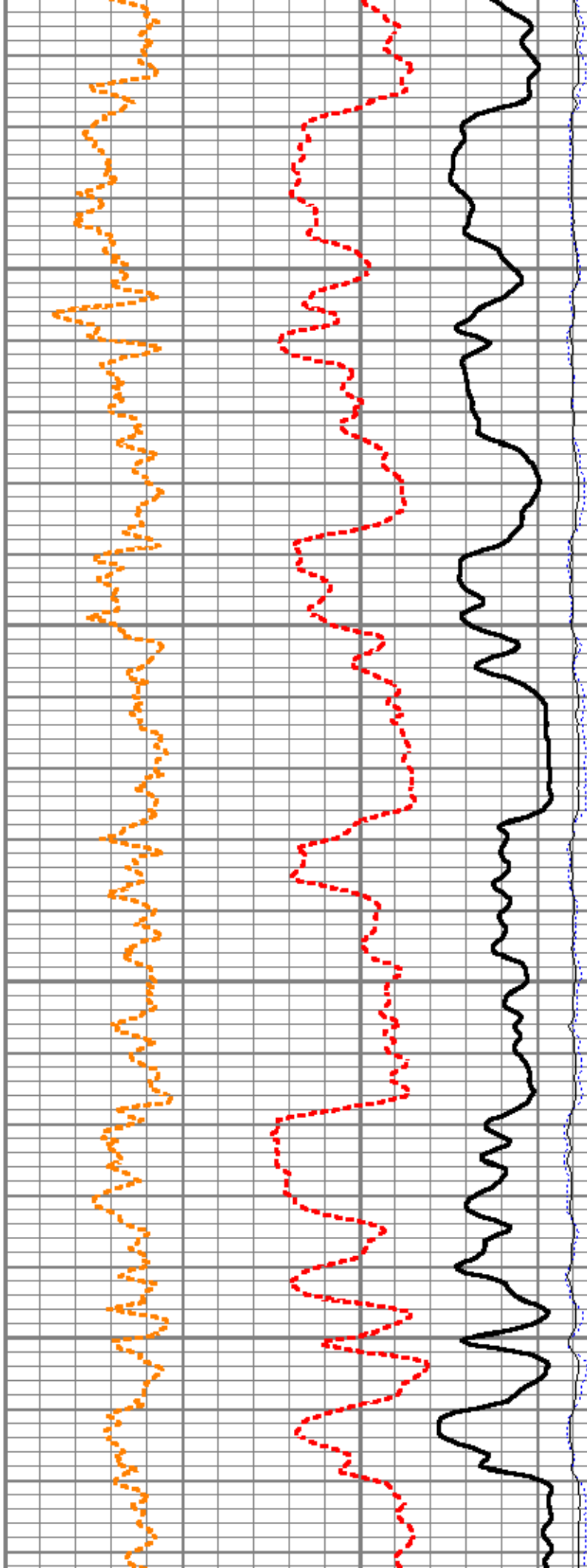


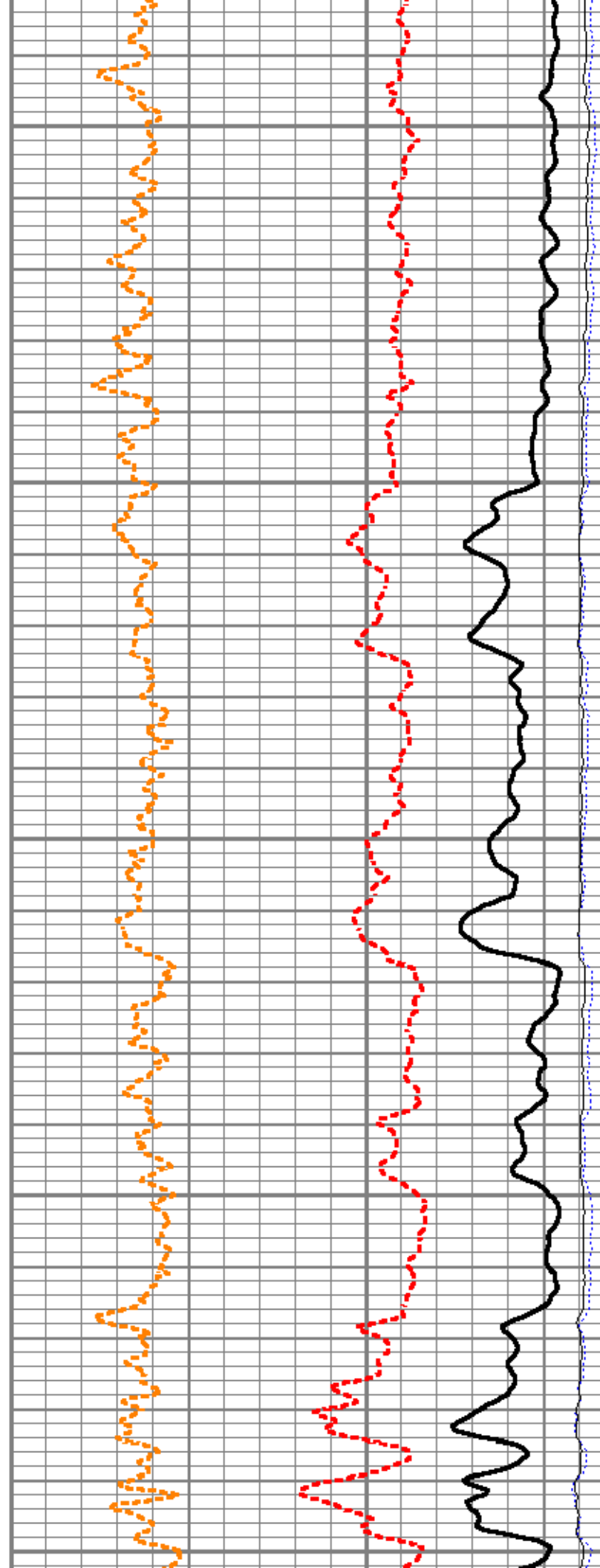
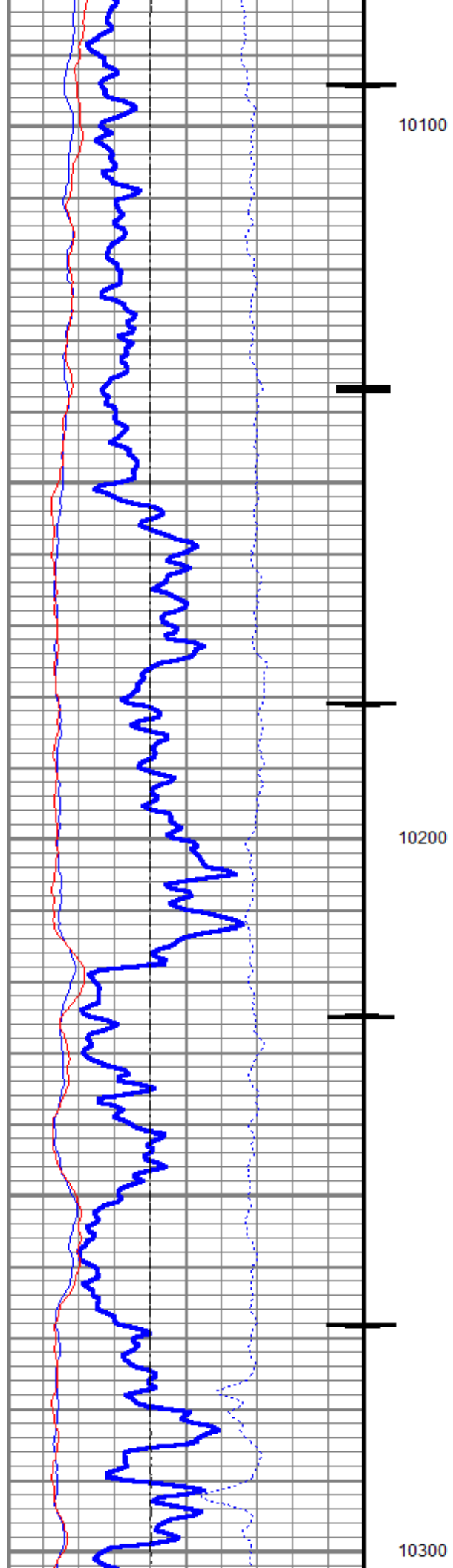


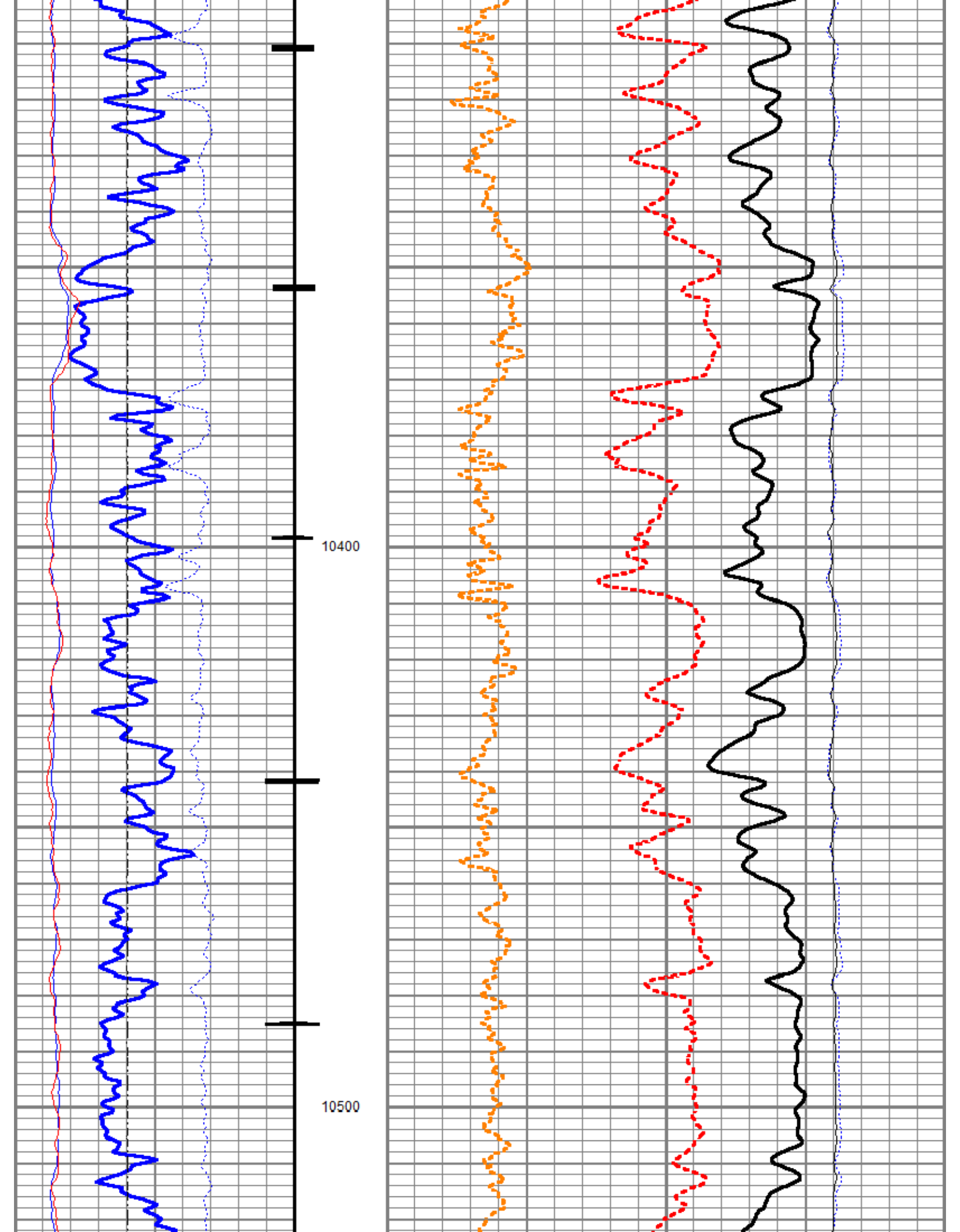


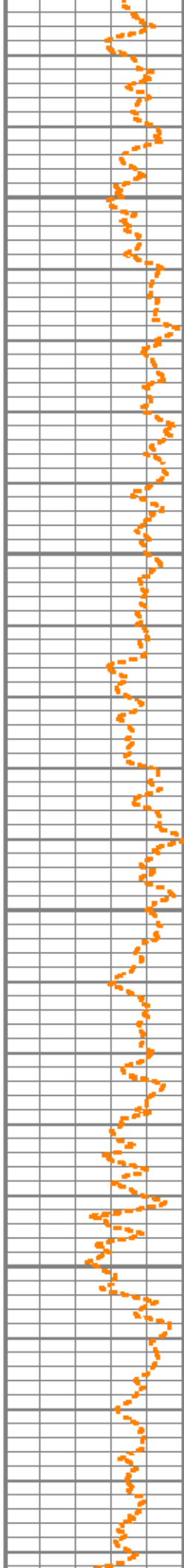
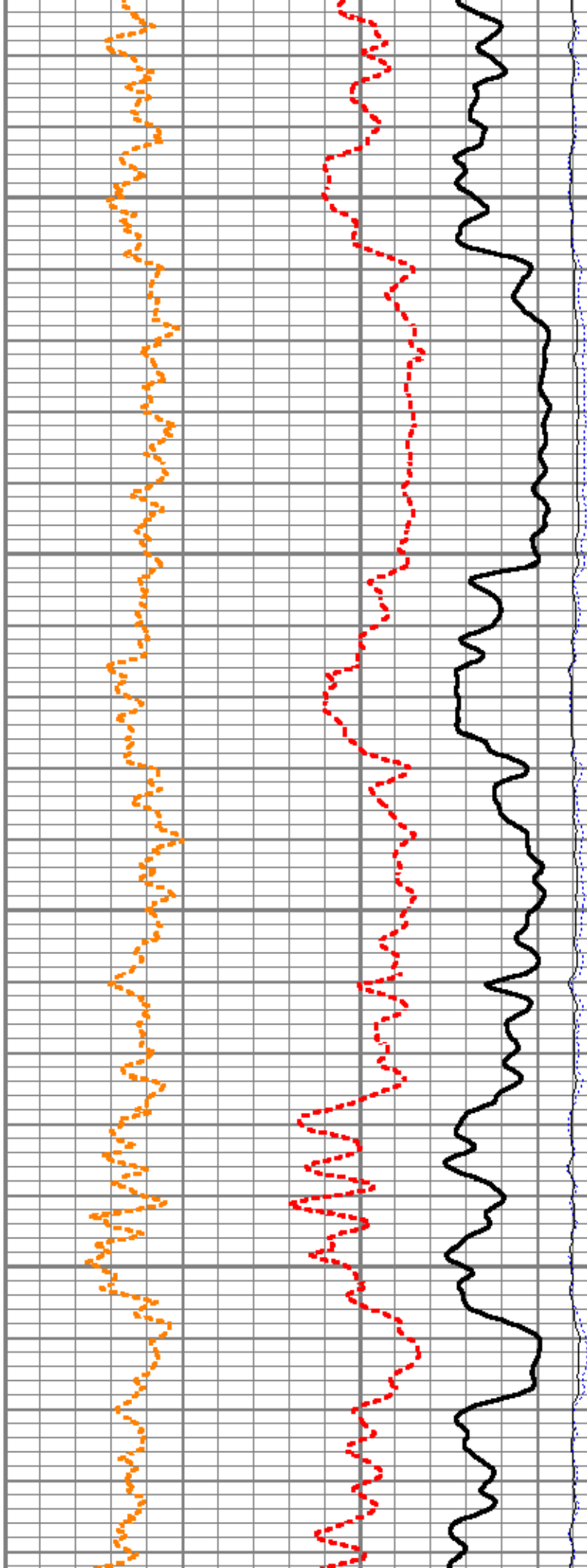
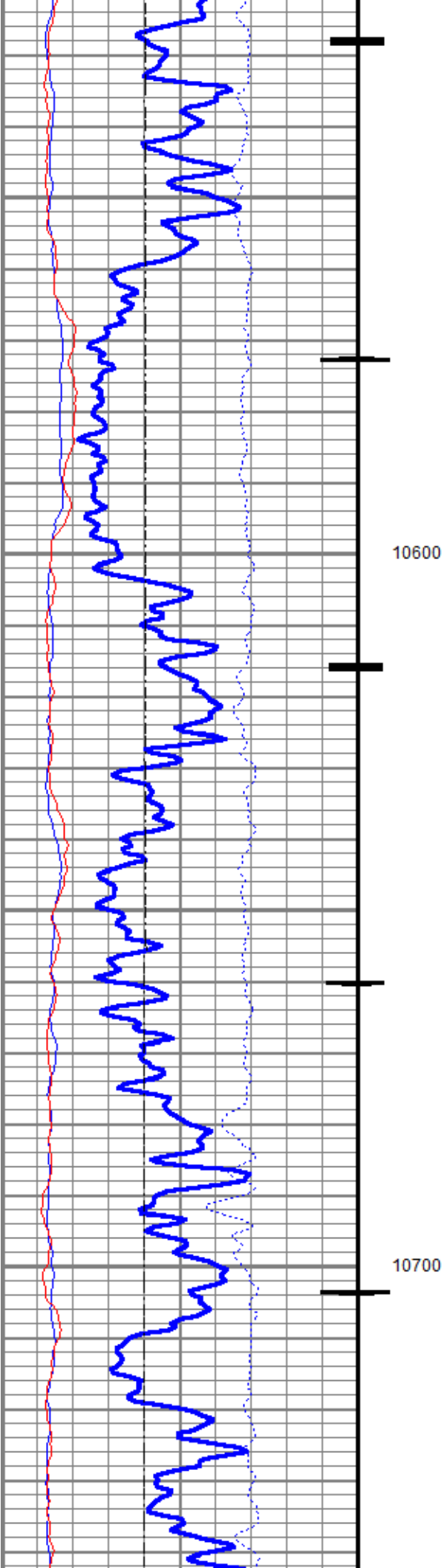


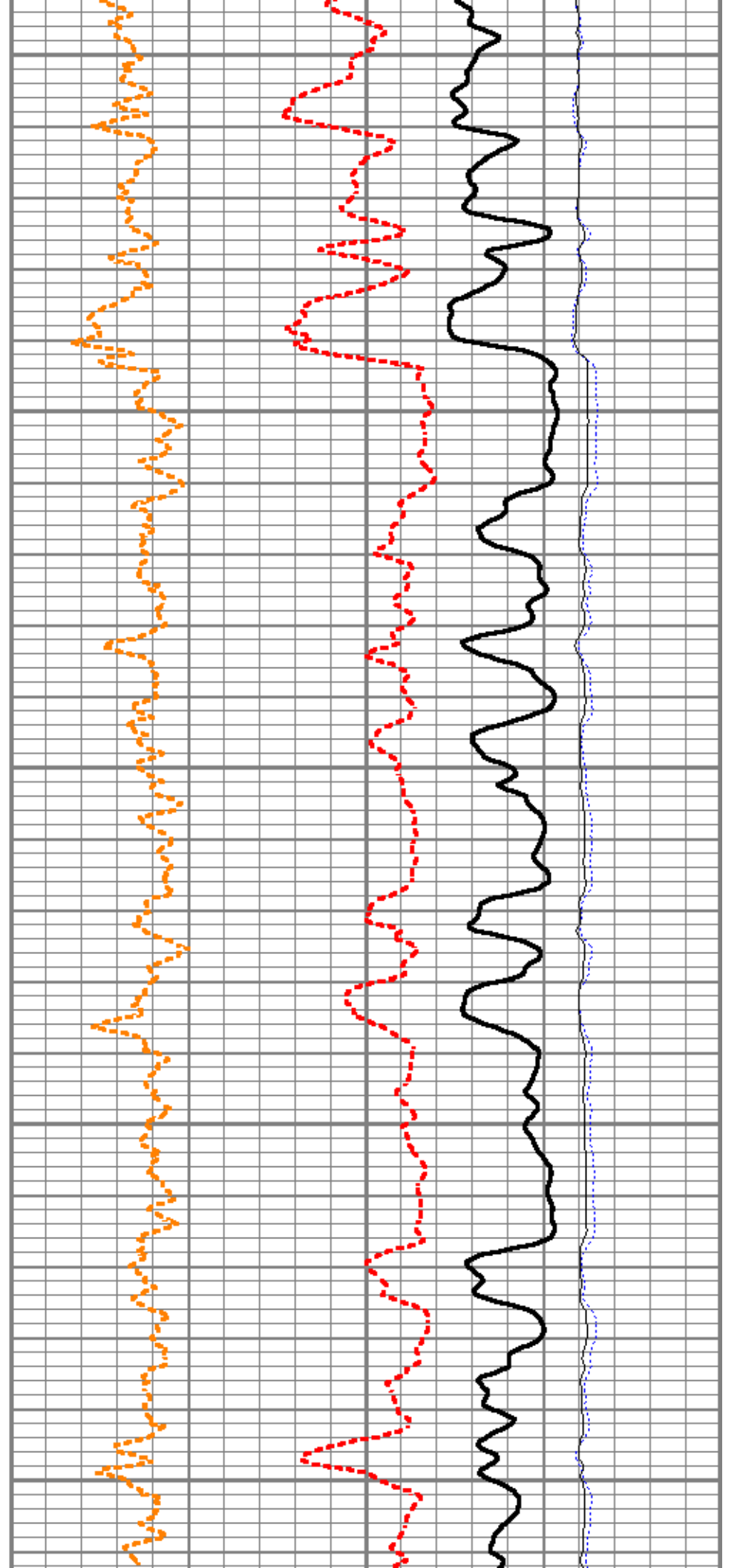
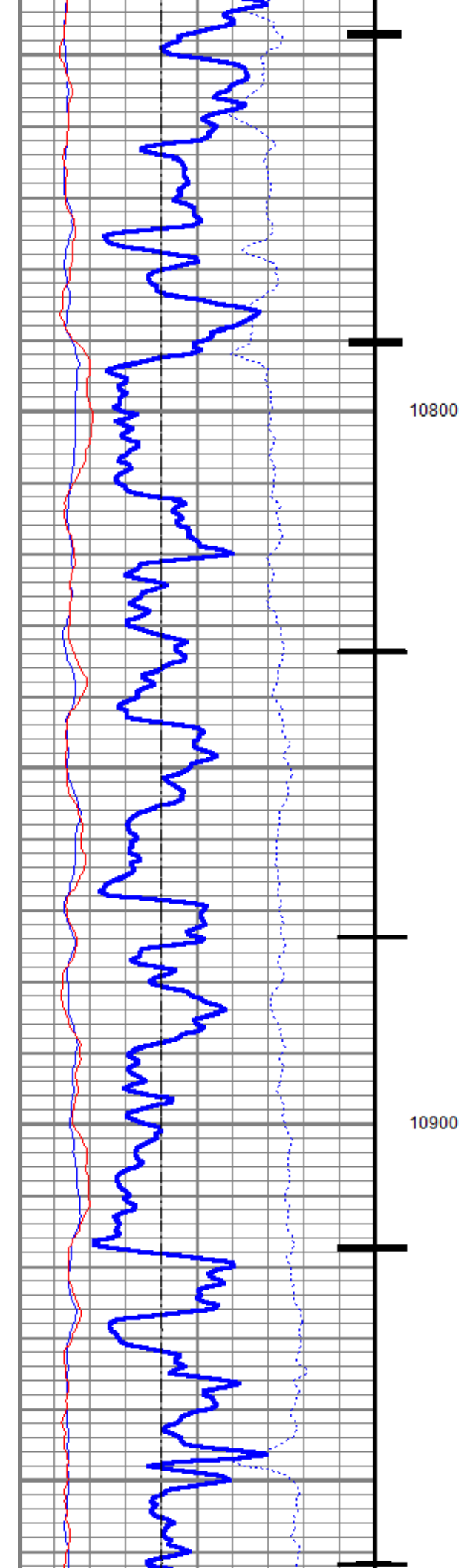


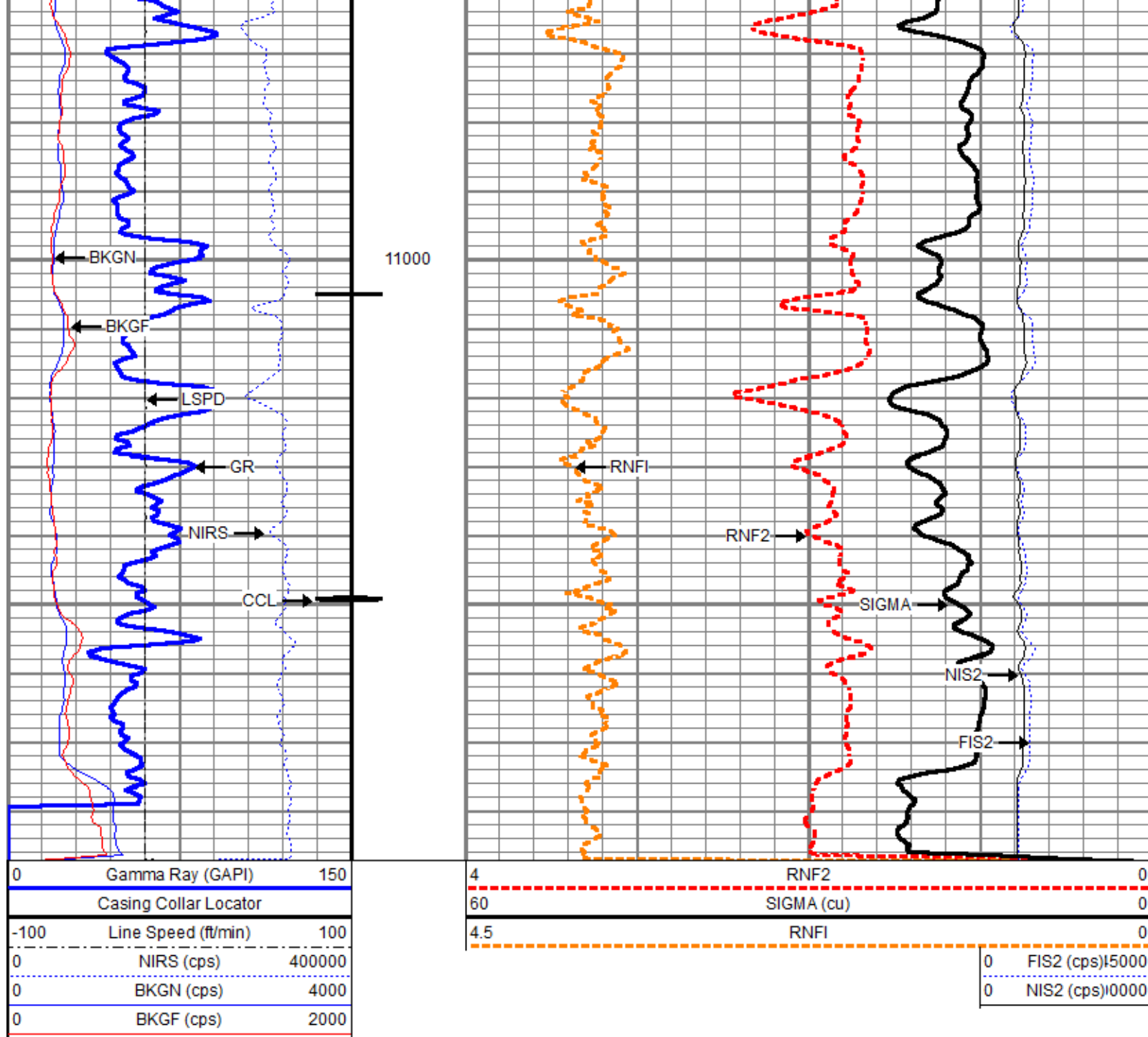






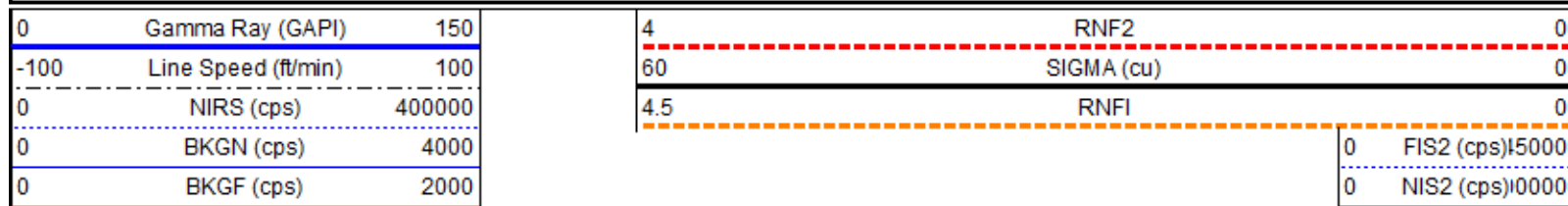


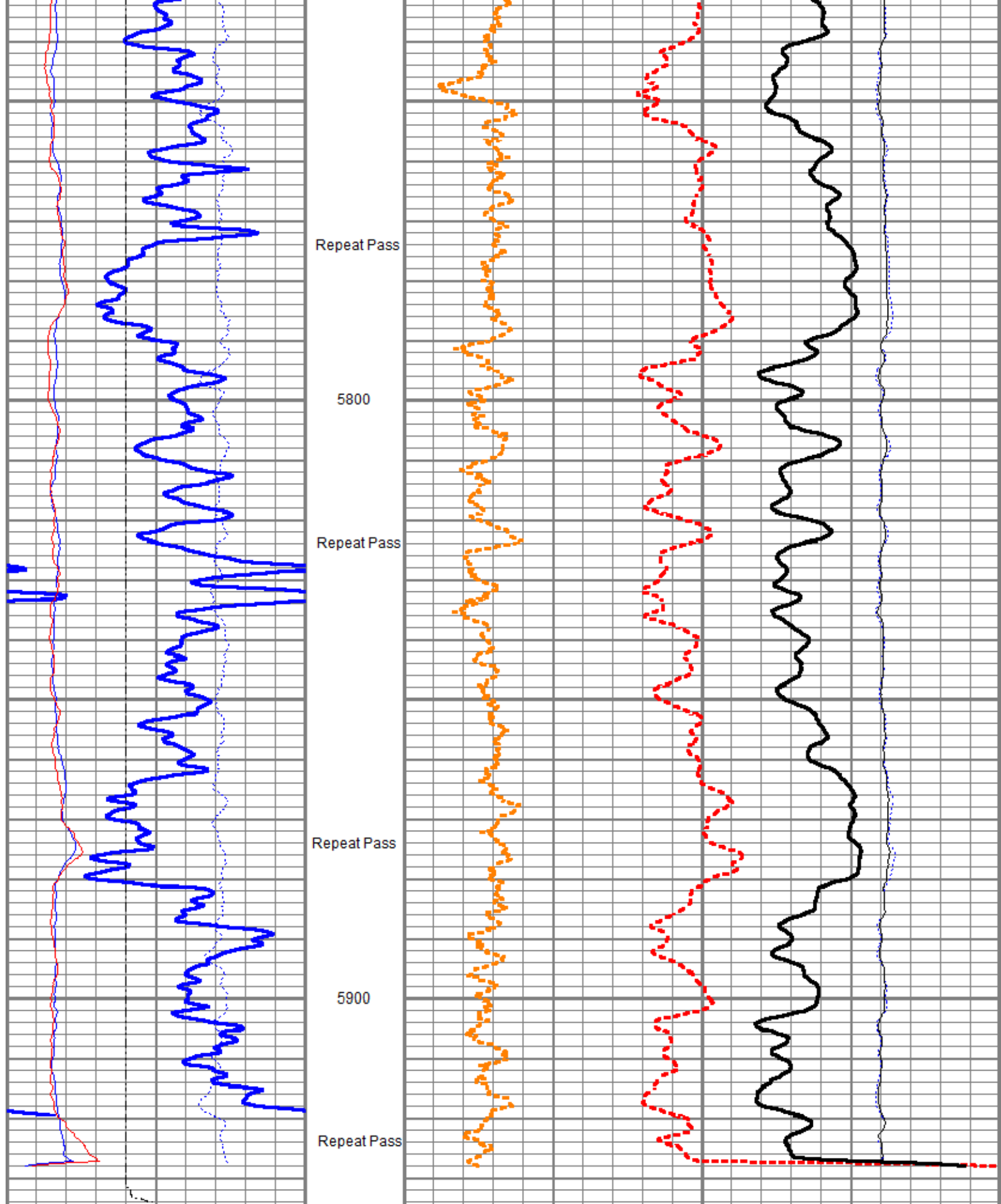









# Repeat Pass

Database File: c:\techlog-projects\ursa\_boies ranch b-19n fed pad\_emulations\data\export\23a\processed\_ursa\_boies ranch b-19n fed 23a-19  
 Dataset Pathname: repeat.2  
 Presentation Format: ros\_pdn\_hunter  
 Dataset Creation: Sat Dec 01 15:47:23 2018  
 Charted by: Depth in Feet scaled 1:240





0	Gamma Ray (GAPI)	150	4	RNF2	0	0	FIS2 (cps)	15000
-100	Line Speed (ft/min)	100	60	SIGMA (cu)	0	0	NIRS (cps)	40000
0	NIRS (cps)	400000	4.5	RNF1	0	0		
0	BKGN (cps)	4000						
0	BKGN (cps)	4000						

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
TCUTEMP TCUVOLT GCL_CCL	14.69 14.69 13.97		Titan CHD-16875 GO Titan 1-11/16" Assembled Electric Cable Head w/ 1" Fishing Neck	1.03	1.69	5.40
			HWS_TCU-002 (001704) HWS Telemetry Control Unit (TCU002)	2.30	1.69	10.87
			HWS_GCL-001 (001681) HWS Gamma Ray Collar Locator (1.6875")	2.69	1.69	13.40
GCL_GR GCL_GR	12.50 12.50					
Long Far Near Anci	6.25 6.25 6.25 6.25		HWS_RAS-RAS002 (003041) Hunter Well Science Pulsed Neutron Tool	11.75	1.69	55.82
						
			HWS_TBN-001 (001725) HWS Terminator Bull Nose (1.6875")	0.25	1.69	0.99

Total length: 10.02 ft  
Total weight: 86.48 lb  
O.D.: 1.69 in

#### Calibration Report

Database File c:\techlog-projects\ursa\_boies ranch b-19n fed pad\_emulations\data\export\23a\processed\_ursa\_boies ranch b-19n fed 23a-19-2  
Dataset Pathname main.2  
Dataset Creation Sat Dec 01 15:48:25 2018

#### Gamma Ray Calibration Report

Serial Number:	001681	
Tool Model:	001	
Performed:	(Not Performed)	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	
Calibrator Reading:	1.0	
Sensitivity:	1.0000	GAPI/



<b>Company</b>	Ursa Operating Company LLC
<b>Well</b>	Boies Ranch B-19N FED 23A-19-2-97
<b>Field</b>	Sulphur Creek
<b>County</b>	Rio Blanco
<b>State</b>	Colorado