



Pulsed Neutron
Gamma Ray
Casing Collar Log

Company Ursa Operating Company LLC
Well Boies Ranch C-240 FED 31C-25-2-98
Field Sulphur Creek
County Rio Blanco State Colorado

Location: API #: 05-103-12339
SEC 24 TWP 2S RGE 98W
Permanent Datum Ground Level Elevation 6304.5'
Log Measured From Kelly Bushing 21 FT
Drilling Measured From Kelly Bushing
Other Services
RBL
Elevation
K.B. 6325.5'
D.F. 6324.5'
G.L. 6304.5'

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State Colorado

Date	15-FEB-2019			
Run Number	One			
Depth Driller	---			
Depth Logger	10520 FT			
Bottom Logged Interval	10520 FT			
Top Log Interval	5288 FT			
Open Hole Size	8.750"			
Type Fluid	Water			
Density / Viscosity	8.34 lb/gal			
Max. Recorded Temp.	---			
Estimated Cement Top	---			
Time Well Ready	ROA			
Time Logger on Bottom	0:30			
Equipment Number	HD-0359			
Location	Grand Junction, CO			
Recorded By	A. Ellsworth			
Witnessed By	Oscar Molinar			
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				
Inner				

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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

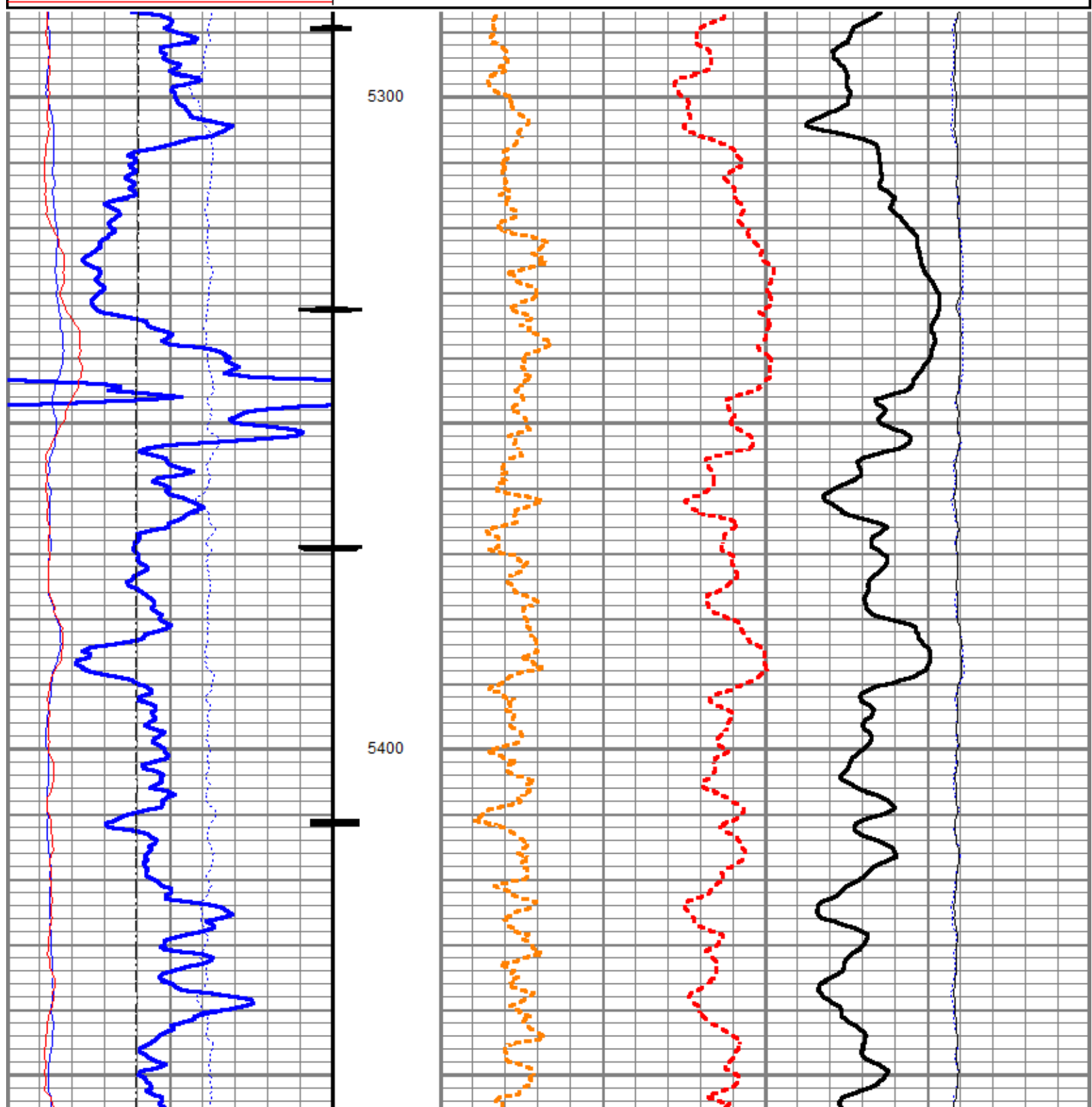
Log ran as per customer request
Depth referenced to Reliance Bond Log dated 14-FEB-2019
Log ran from 10520 FT to 5288 FT
Pulsed Neutron Data logged with the Hunter RAS Tool
Thank you for choosing Reliance Oilfield Services, LLC!

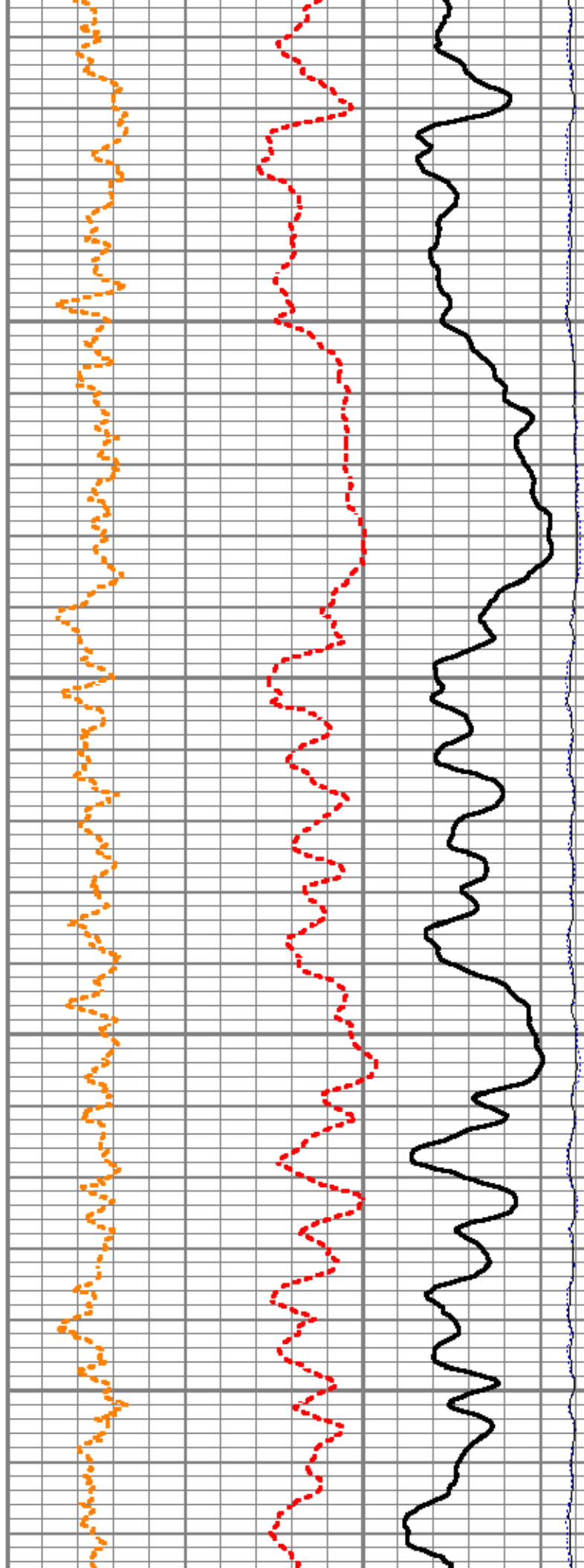
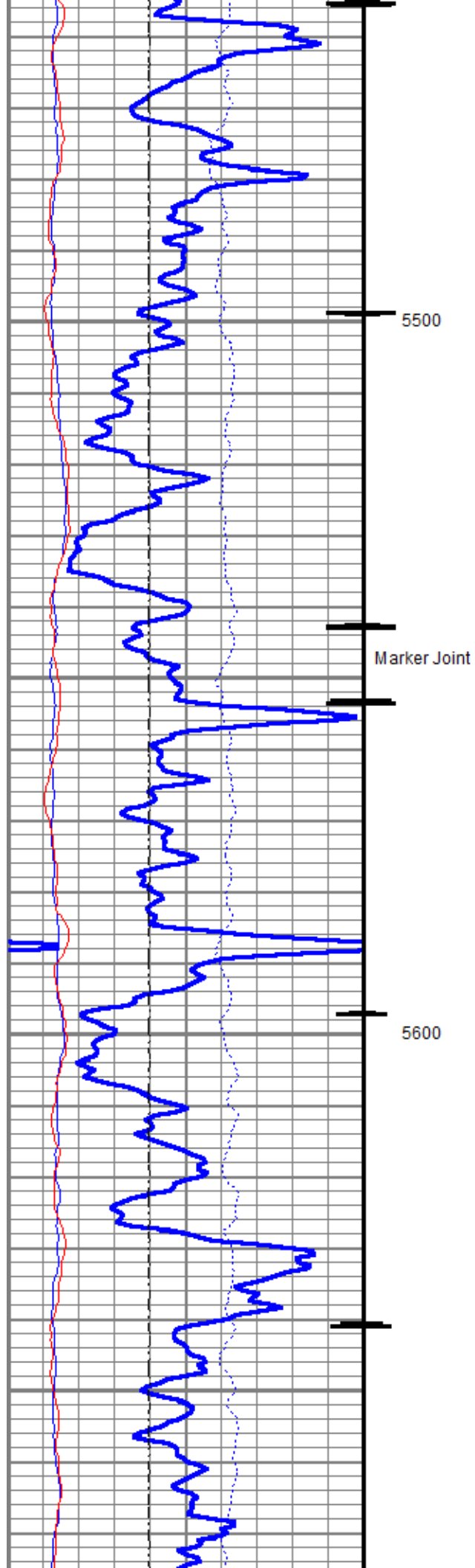


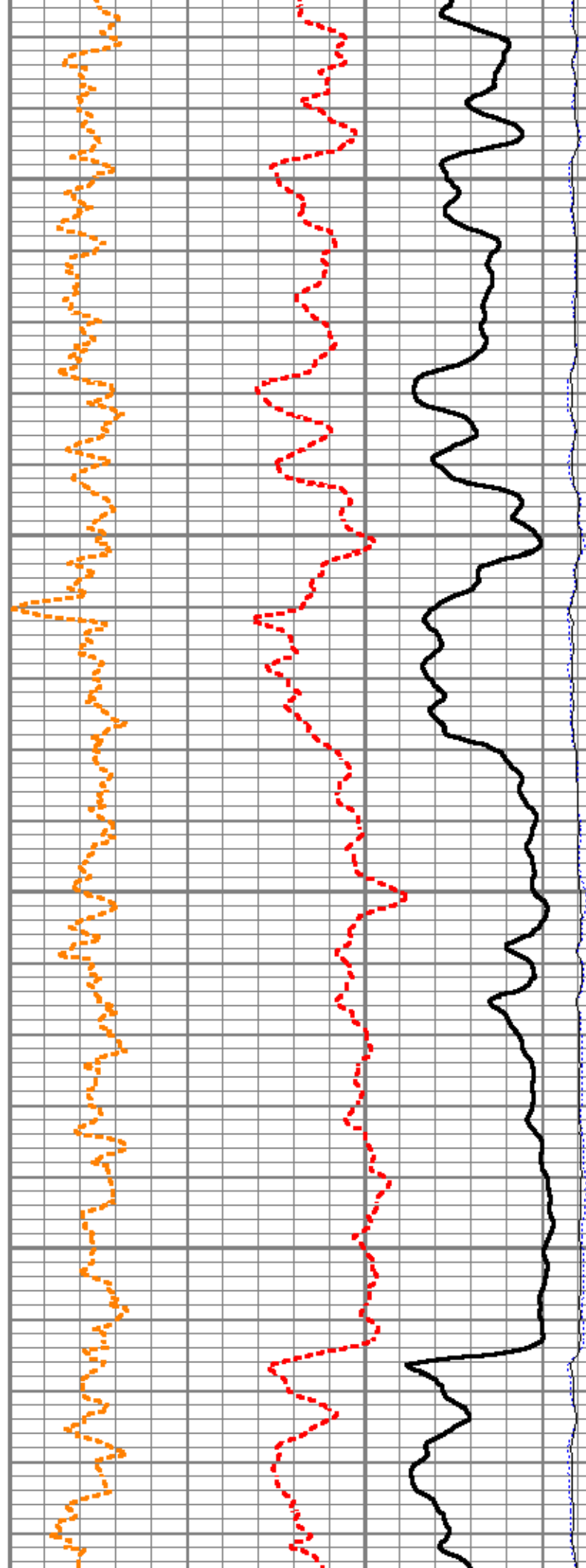
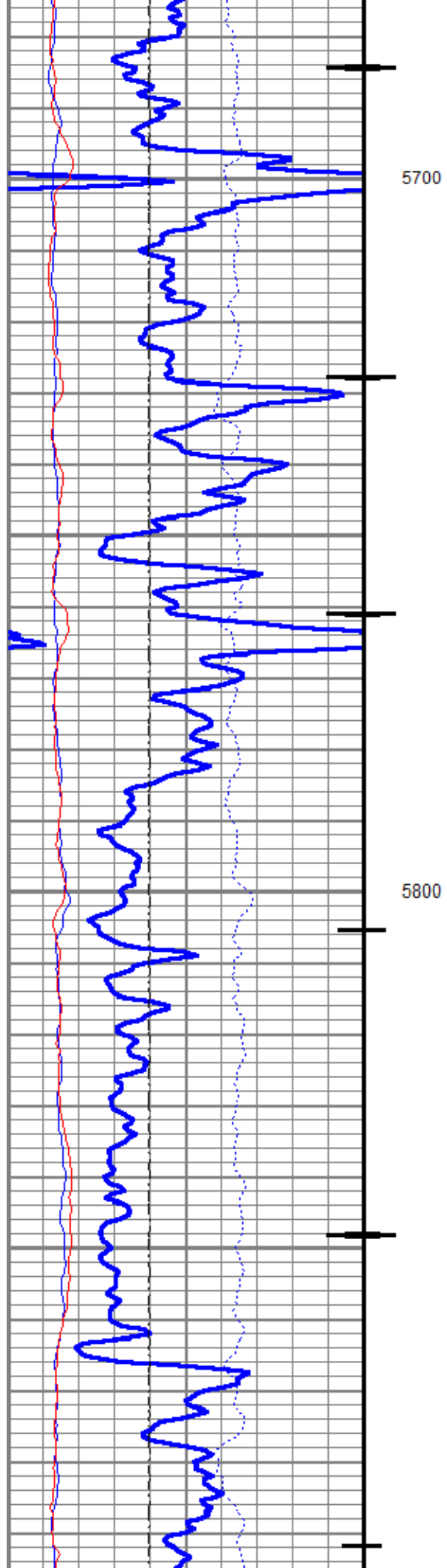
Main Pass

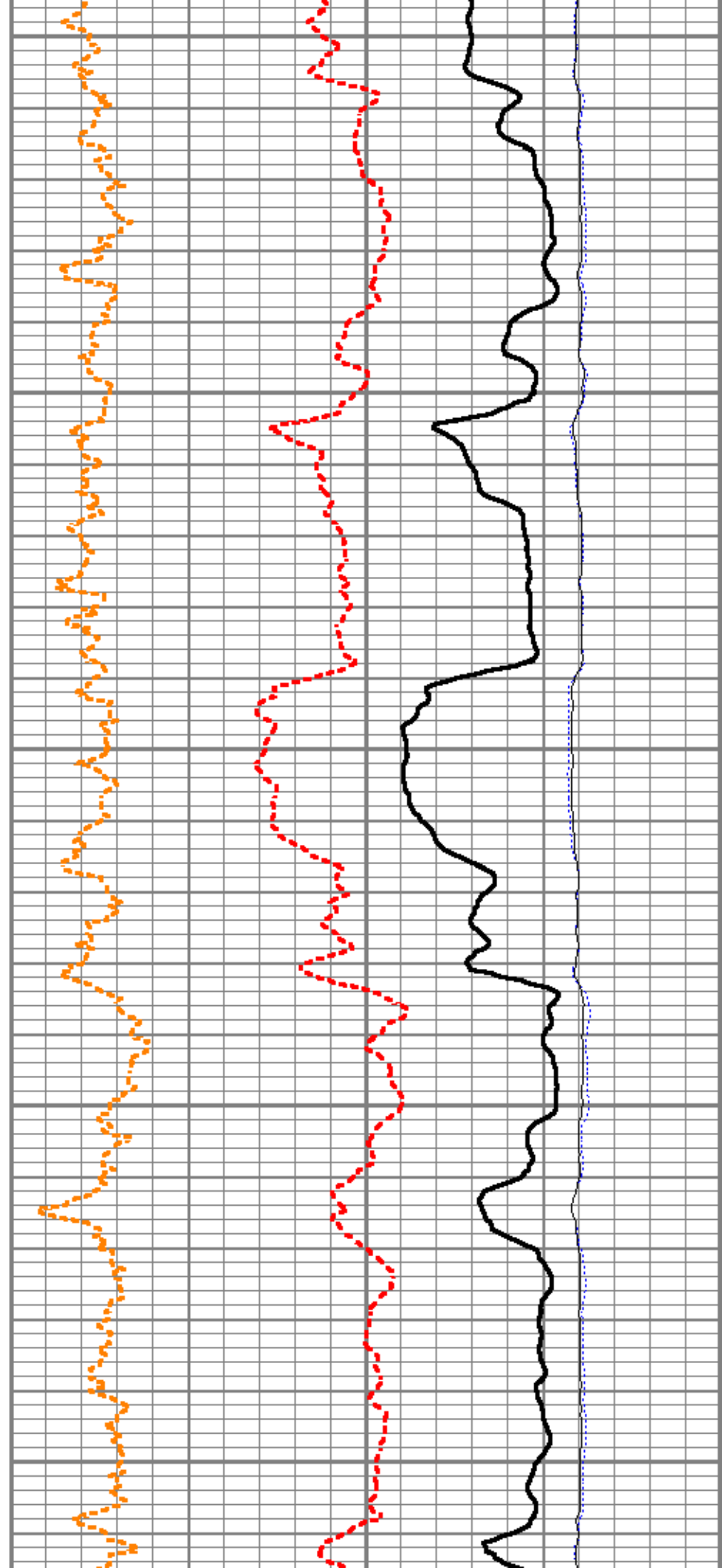
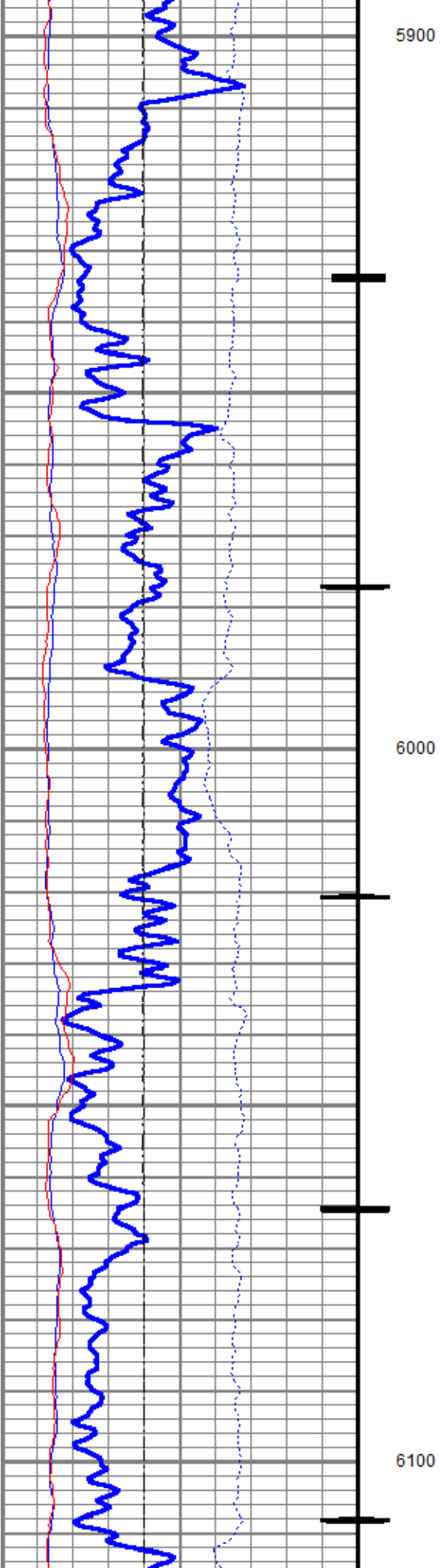
Database File	ursa\ursa_boies ranch c-240 fed 31c-25-2-98_pn_02-14-19\processed_ursa_boies ranch c-240 fed 31c-25-2-98_pn_02-14-19.
Dataset Pathname	merge1
Presentation Format	ros_pdn_hunter
Dataset Creation	Fri Feb 15 15:26:44 2019
Charted by	Depth in Feet scaled 1:240

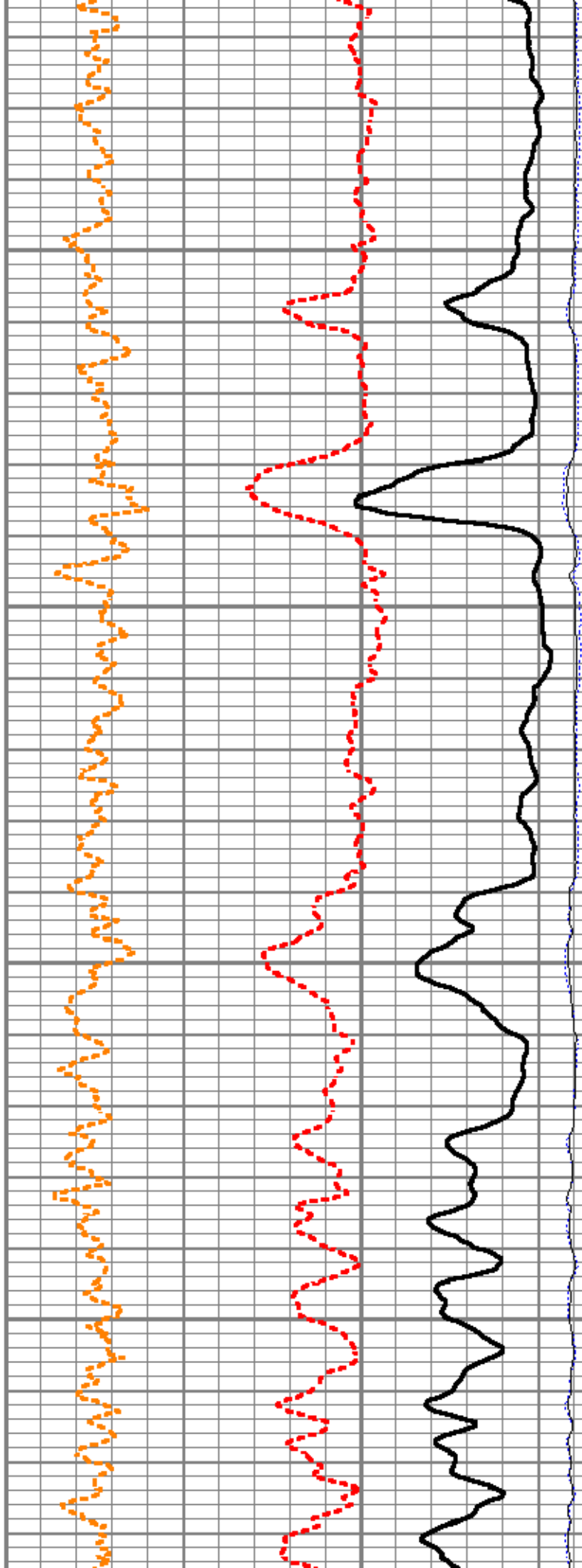
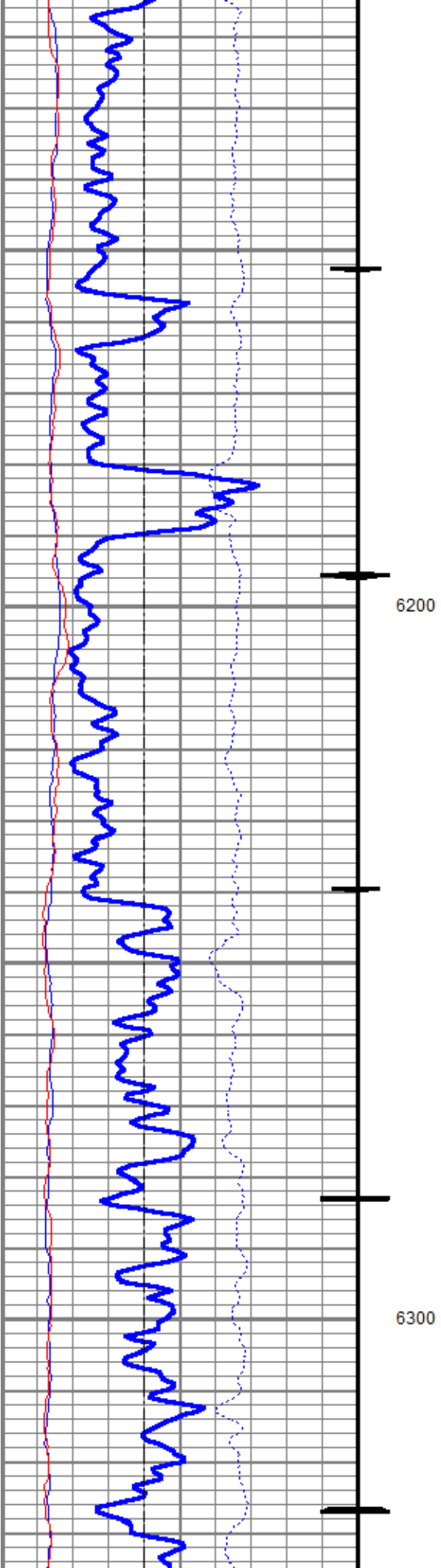
0	Gamma Ray (GAPI)	150	4	RNF2	0
	Casing Collar Locator		60	SIGMA (cu)	0
-100	Line Speed (ft/min)	100	4.5	RNFI	0
0	NIRS	400000			0 FIS2 45000
0	BKGN (cps)	4000			0 NIS2 100000
0	BKGF (cps)	2000			

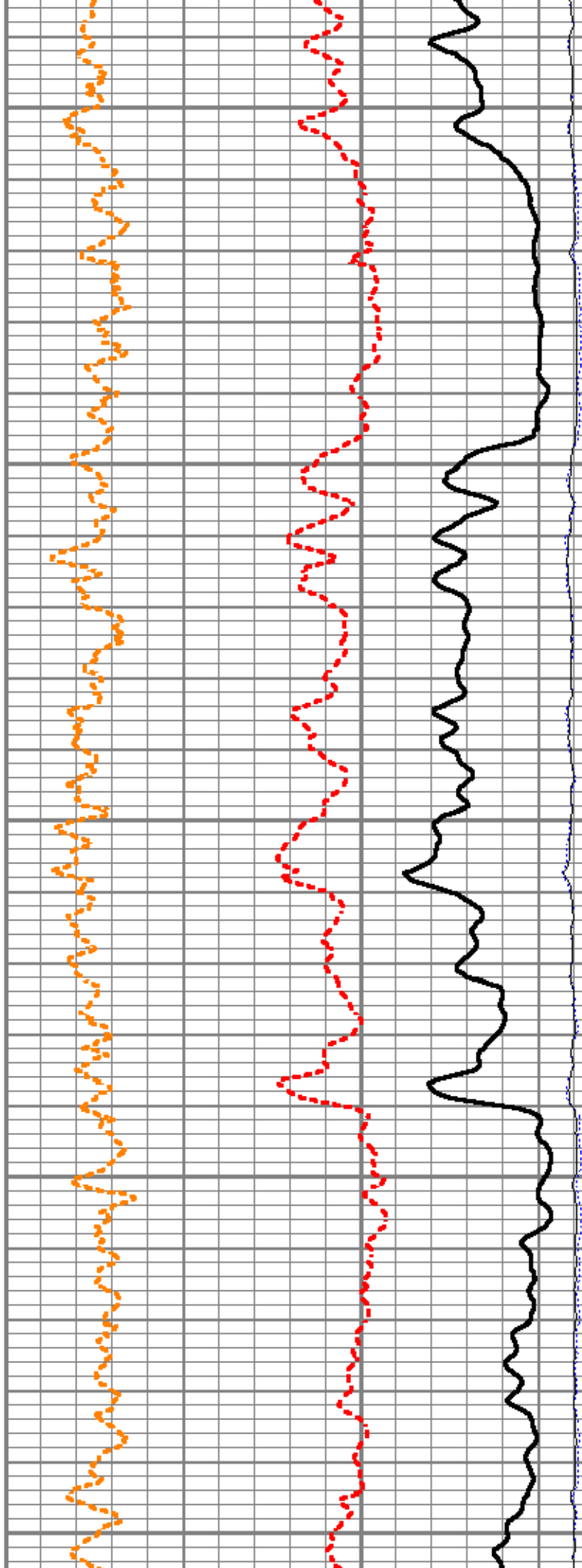
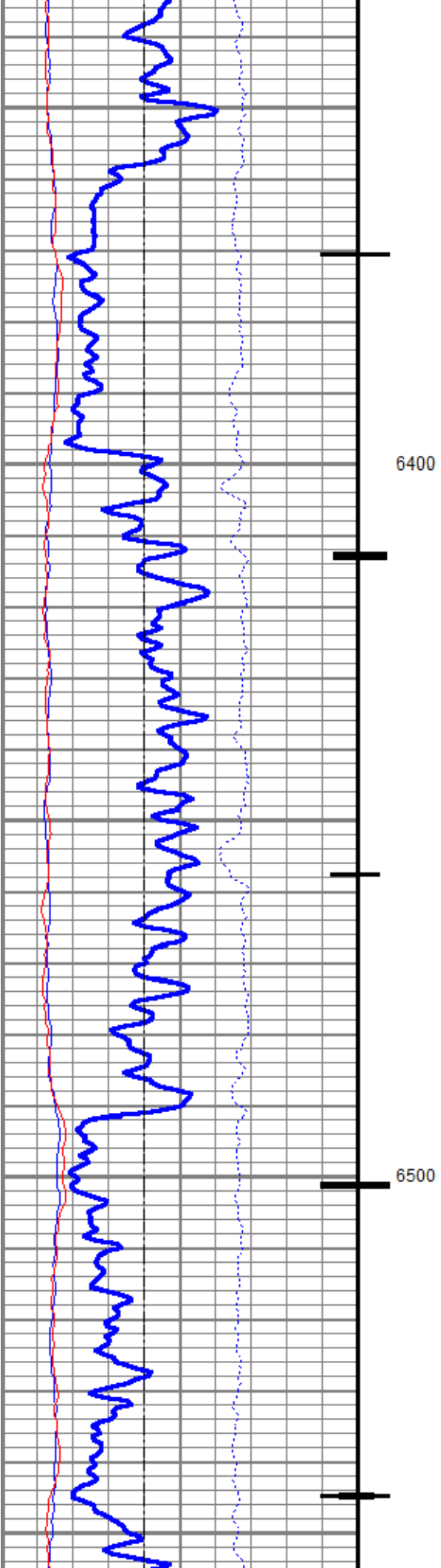


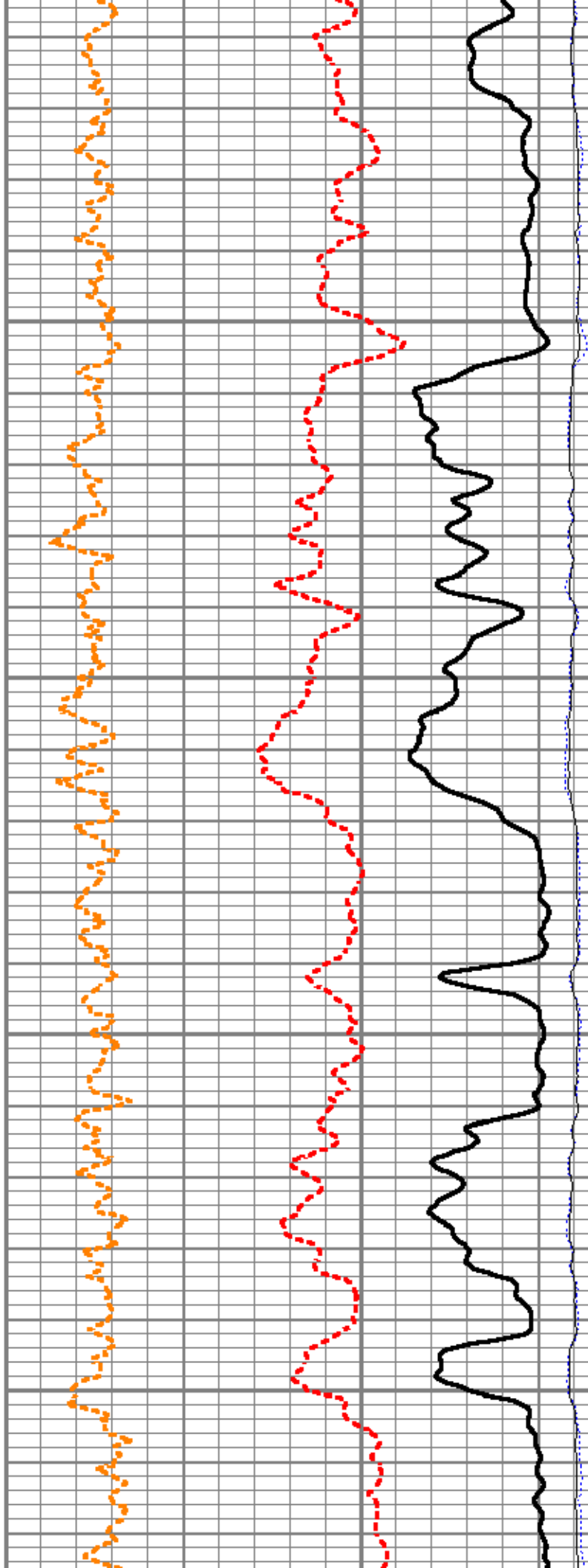
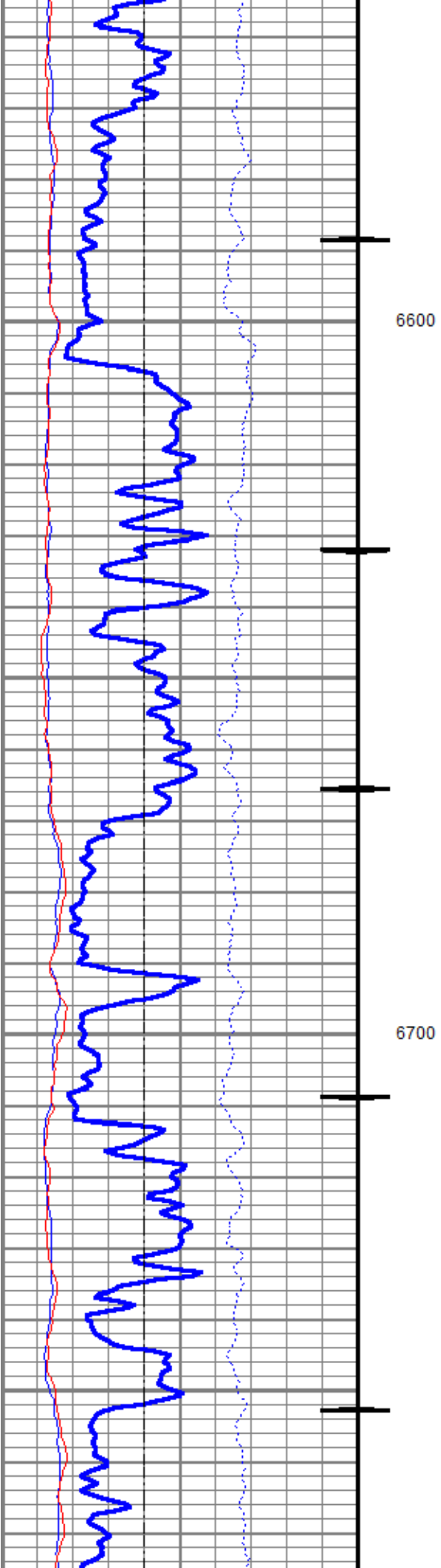


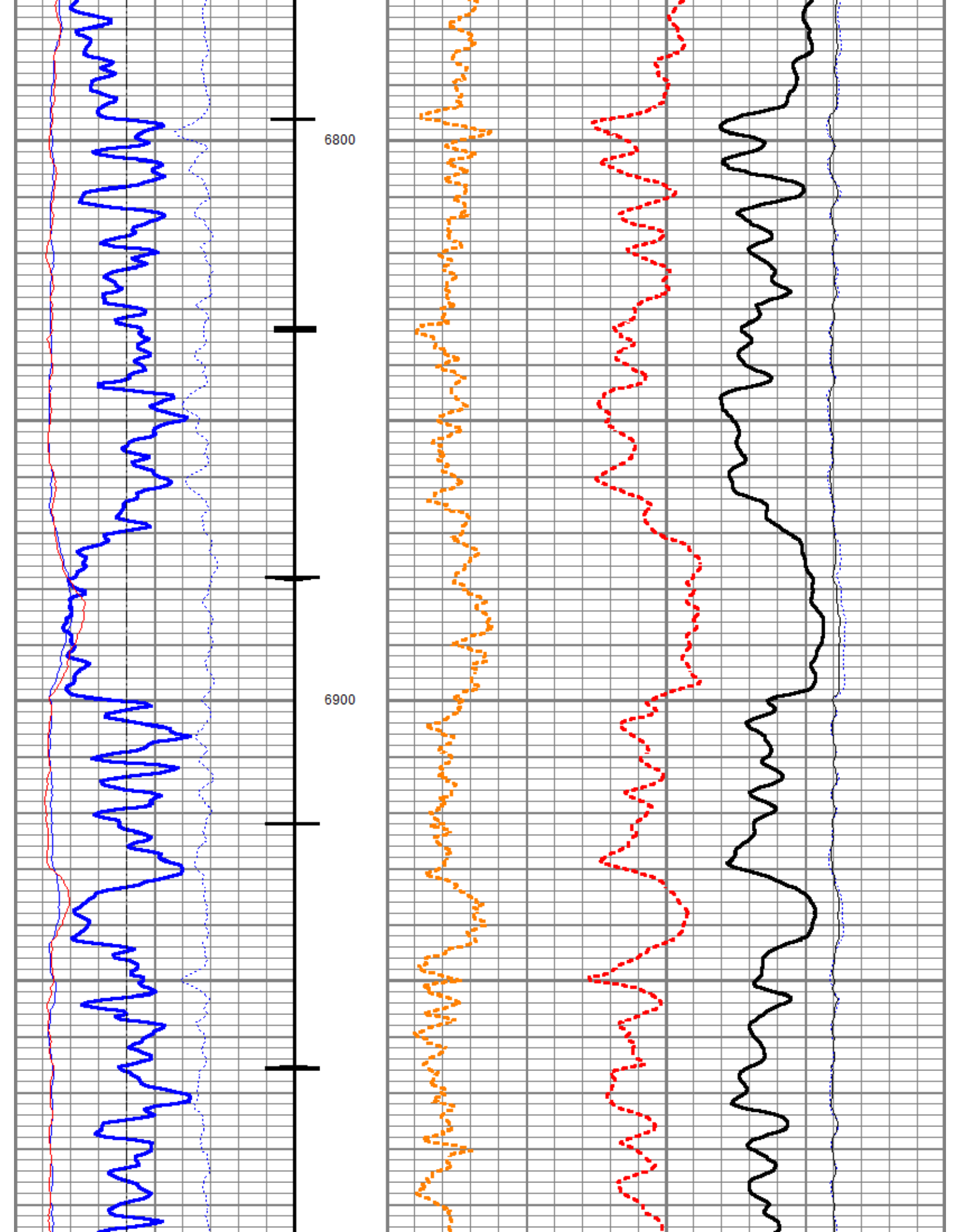


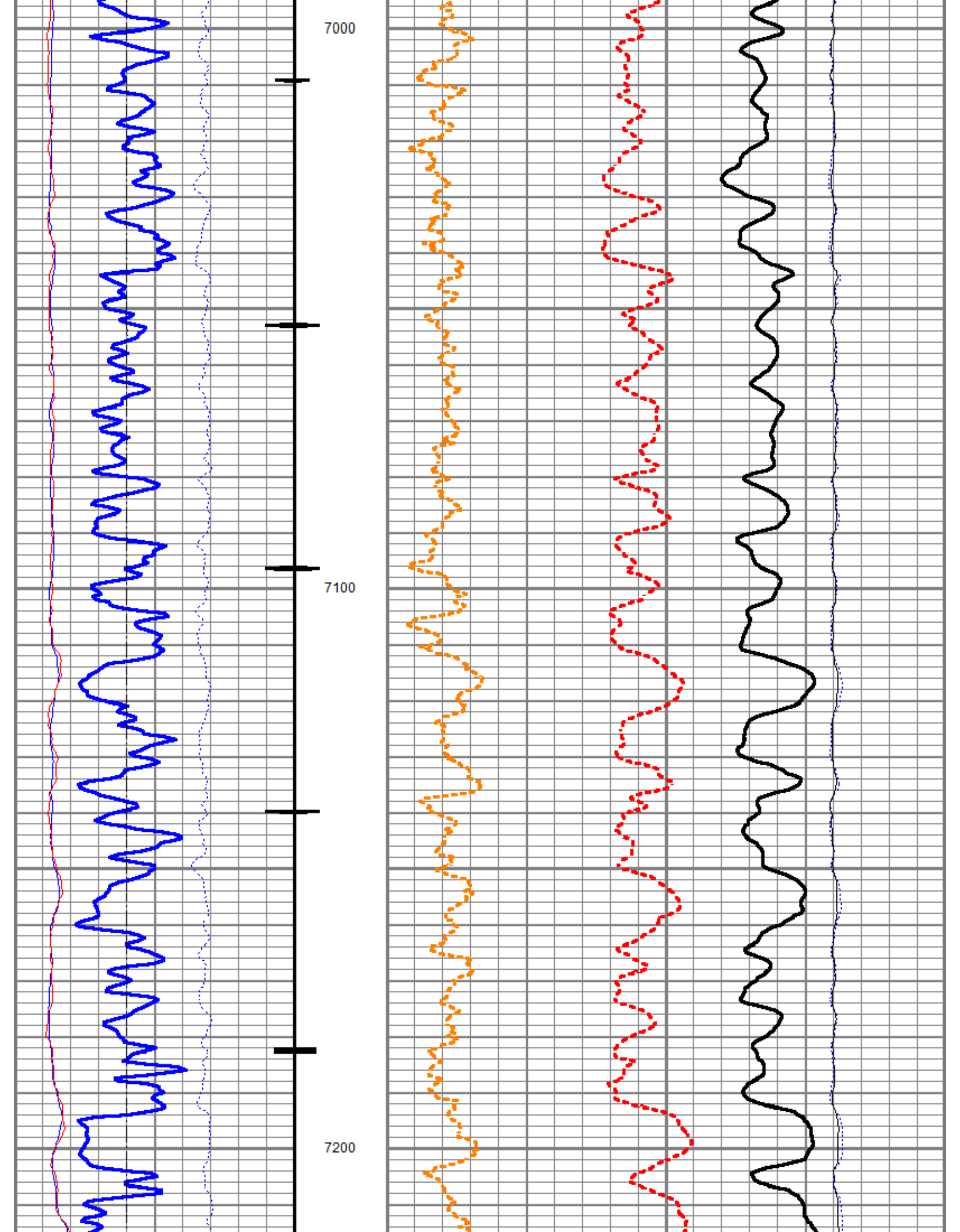


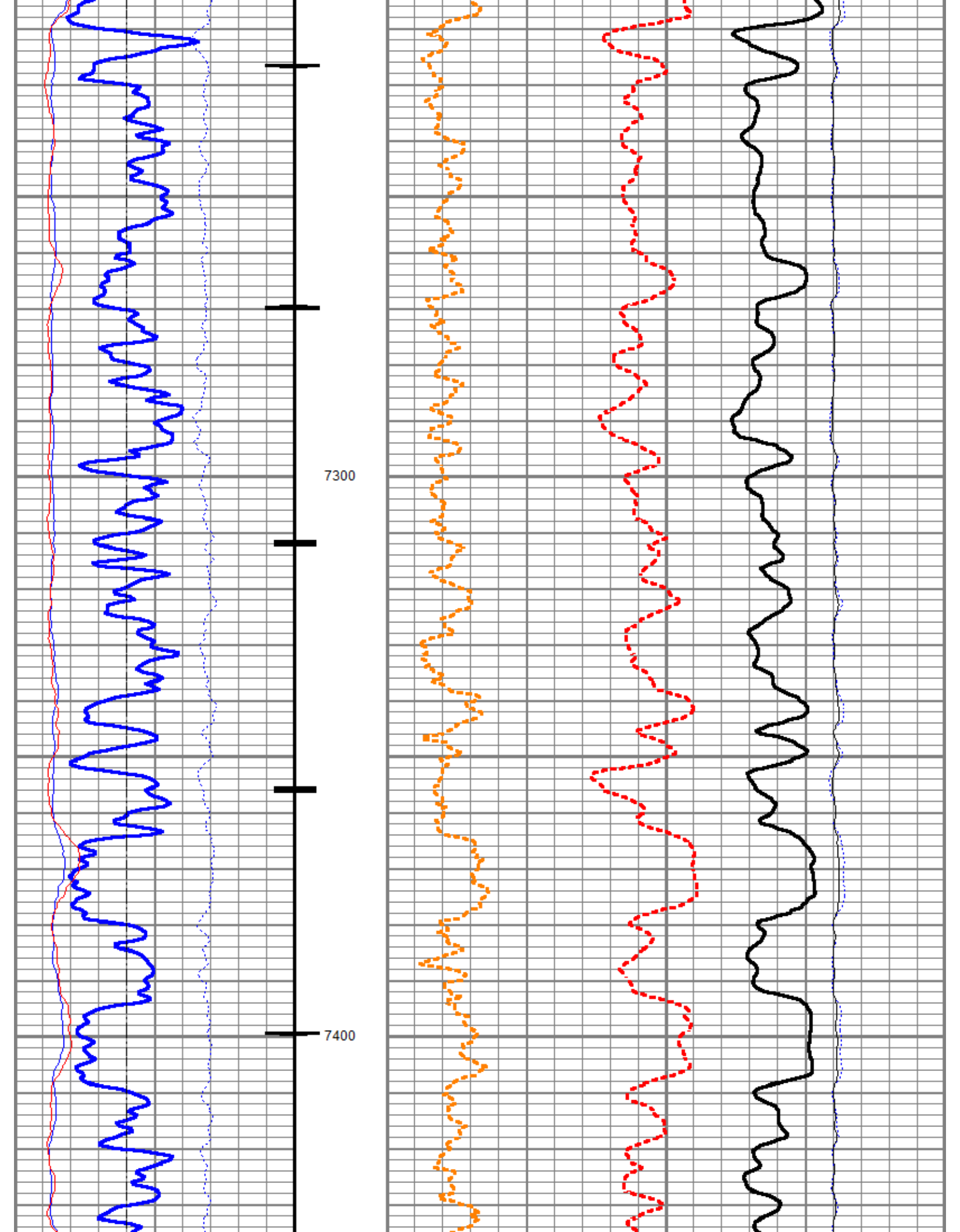


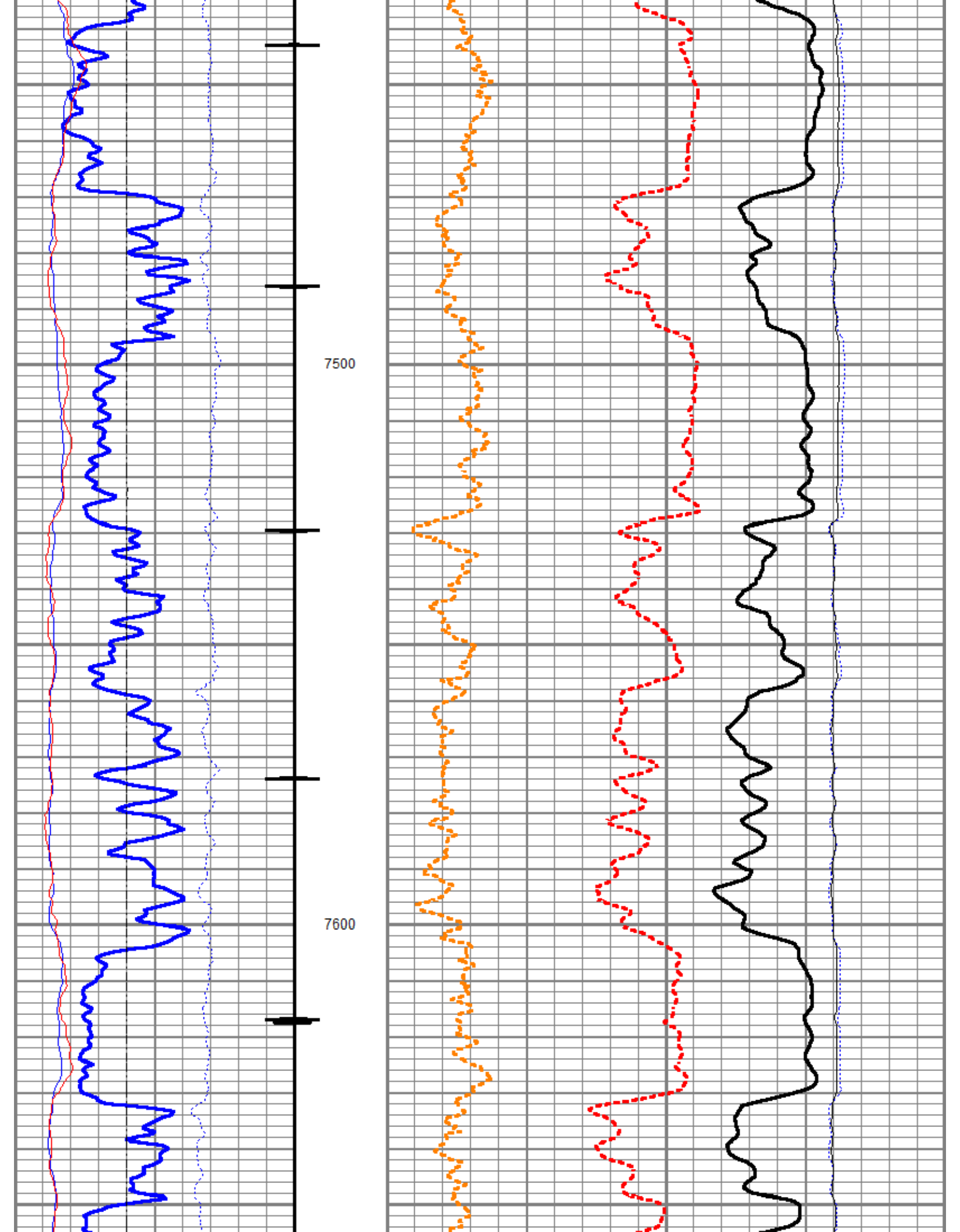


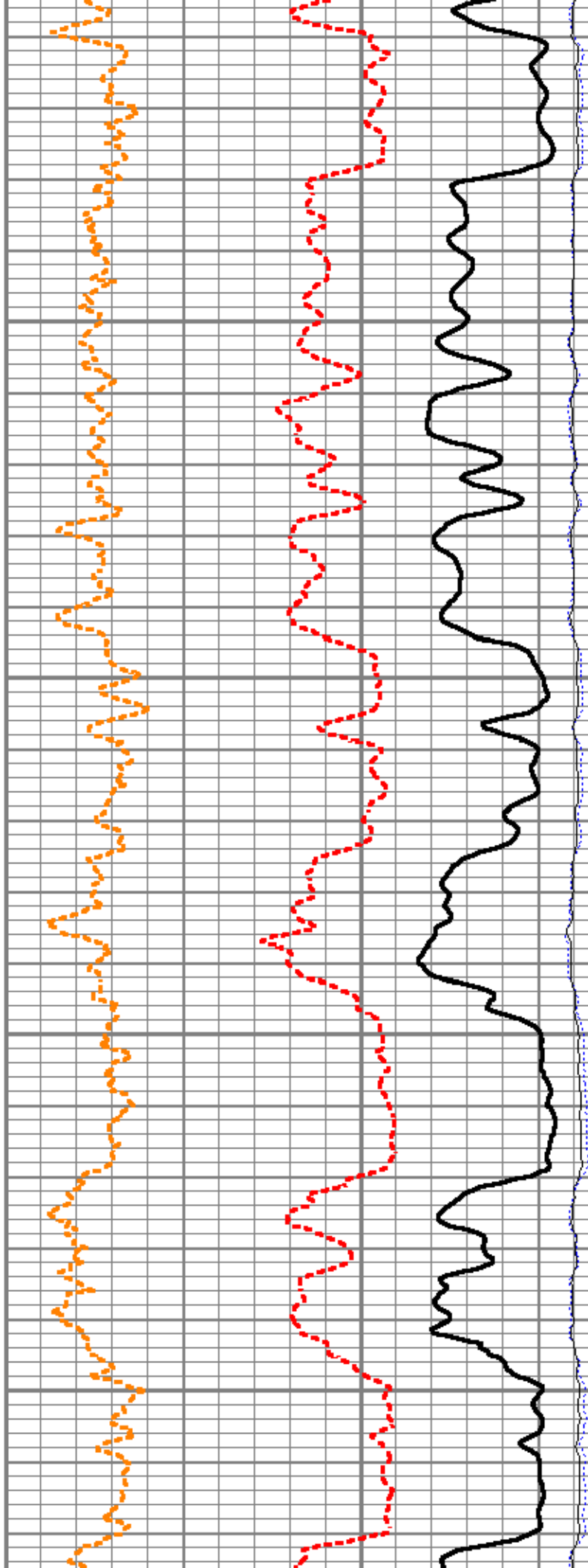
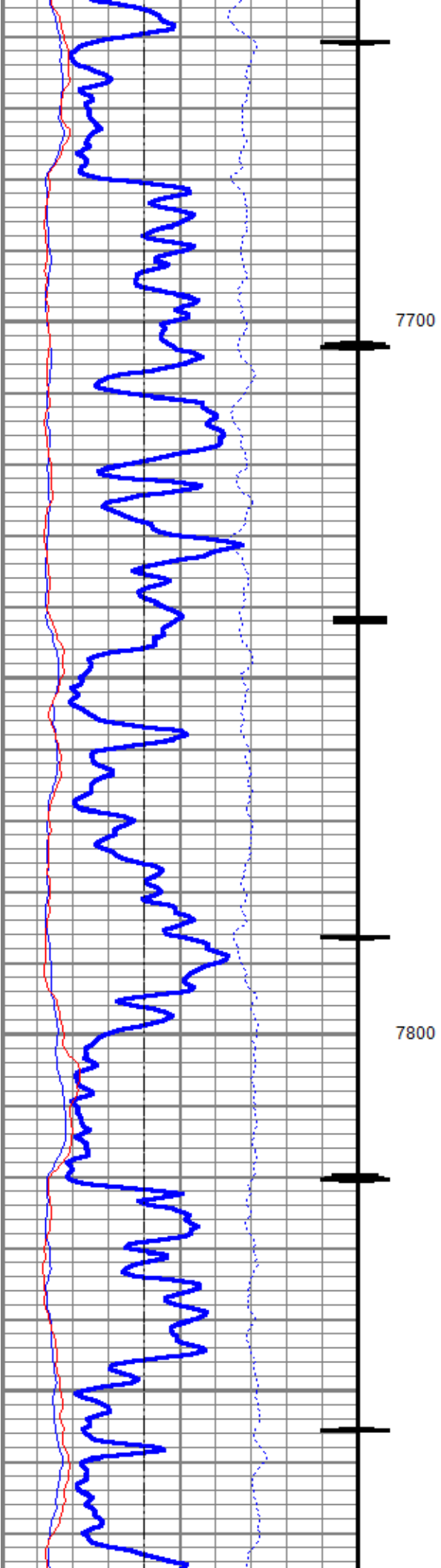


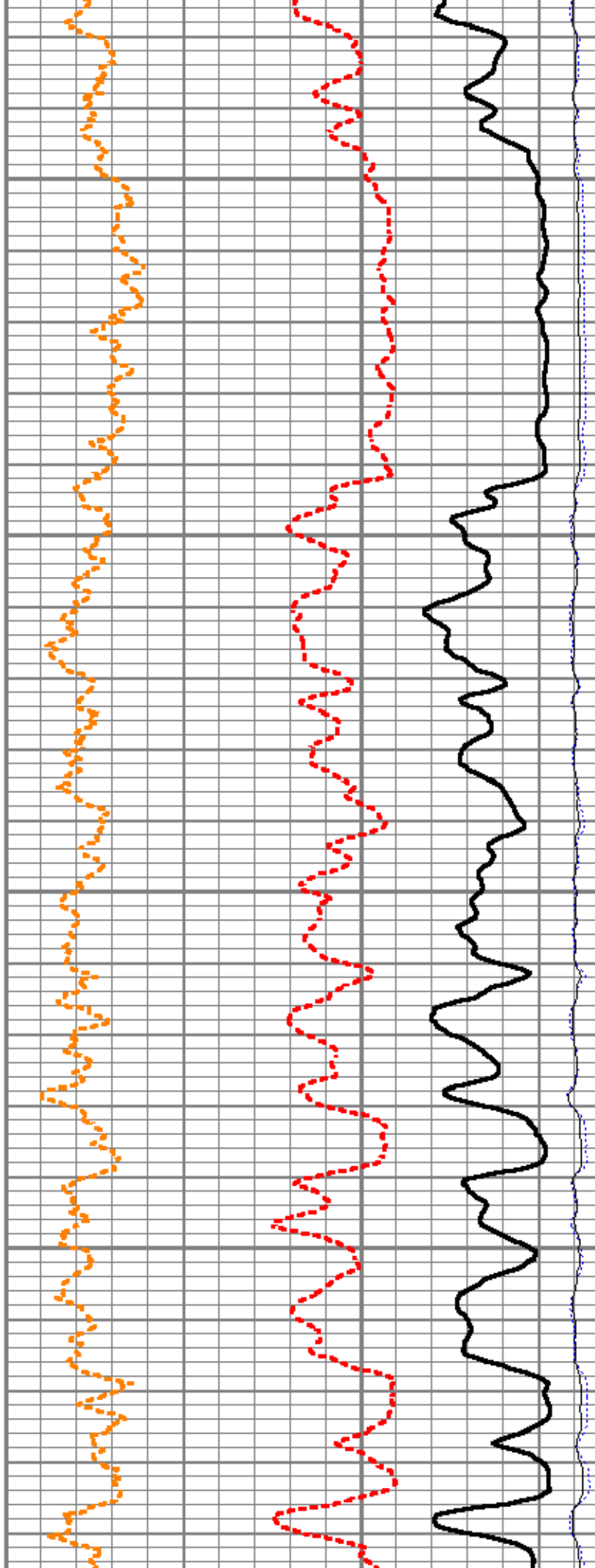
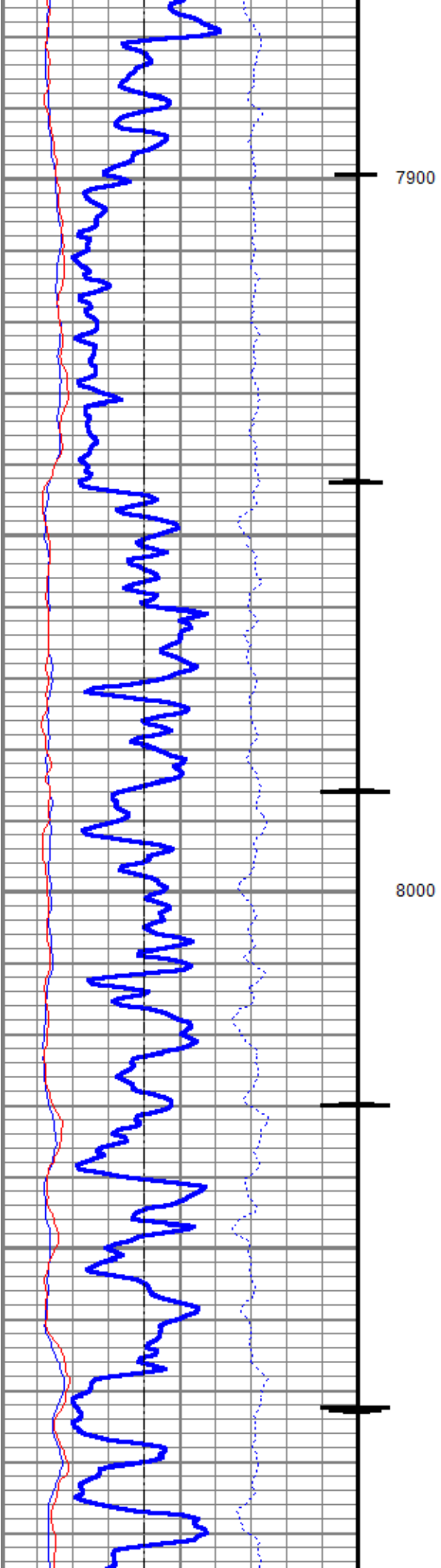


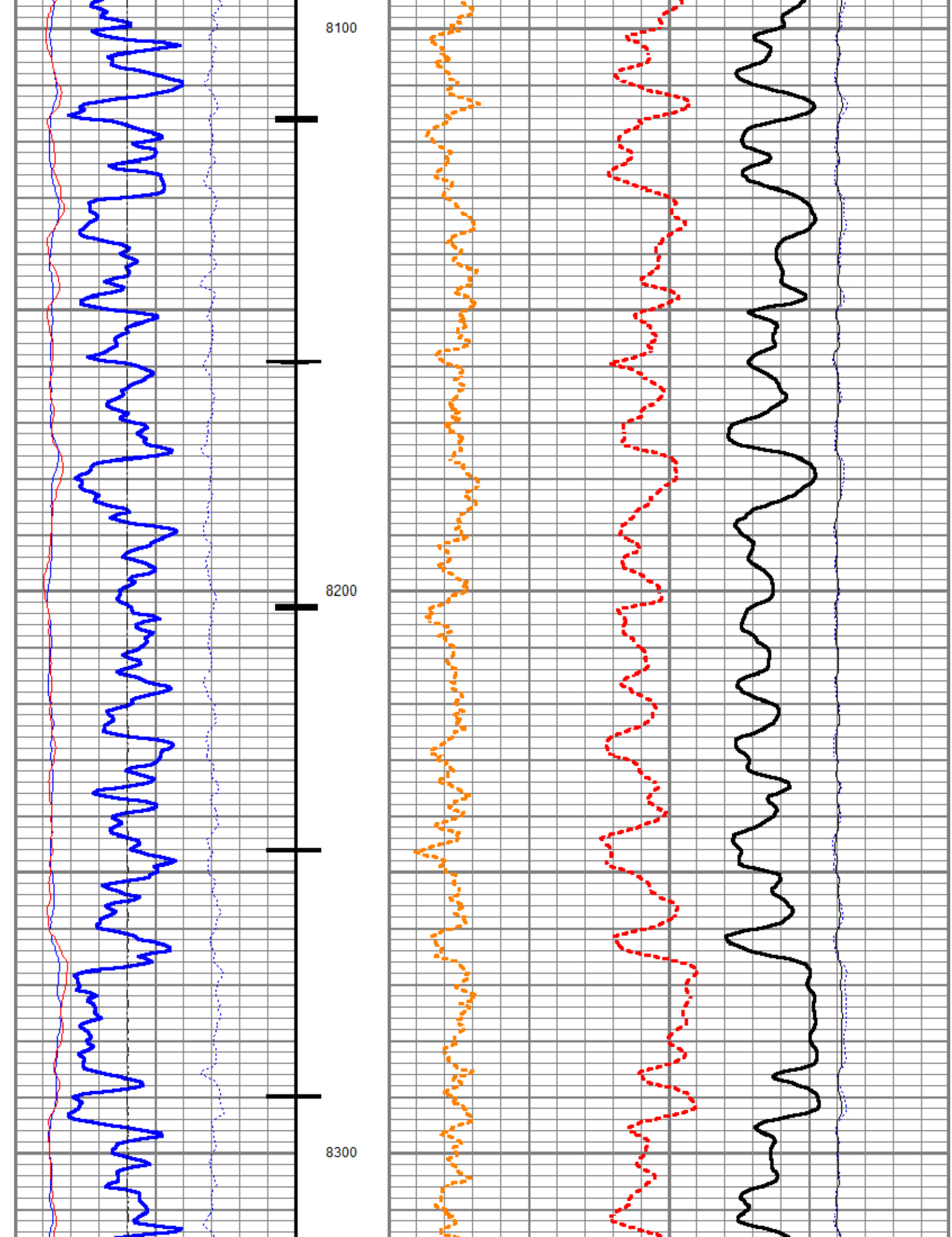


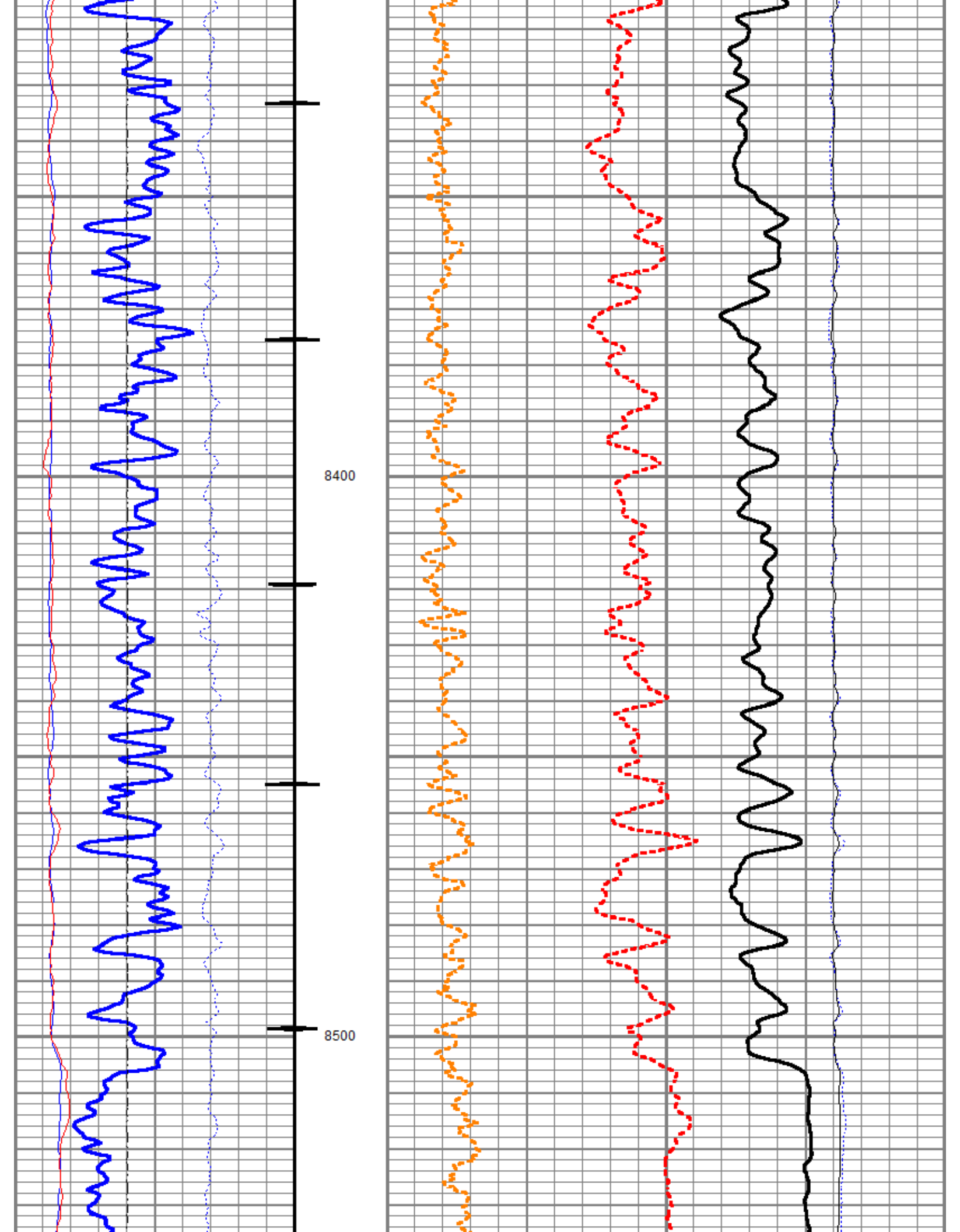


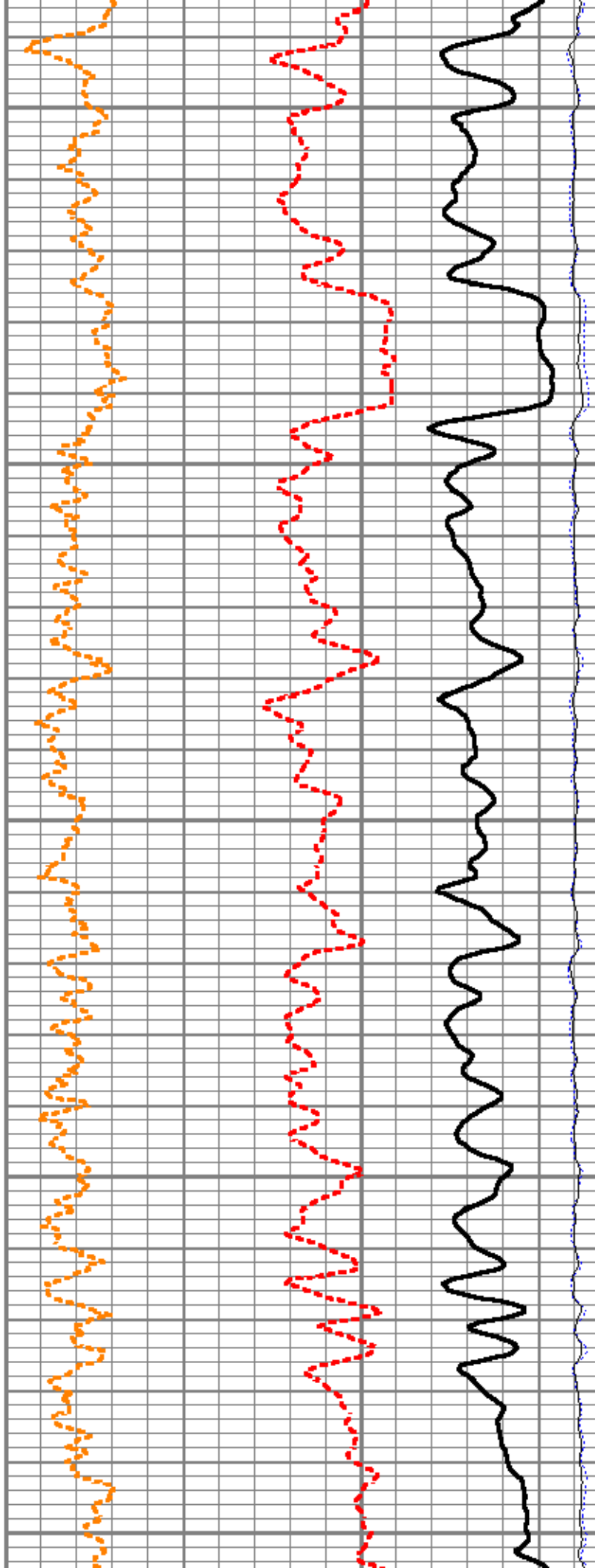
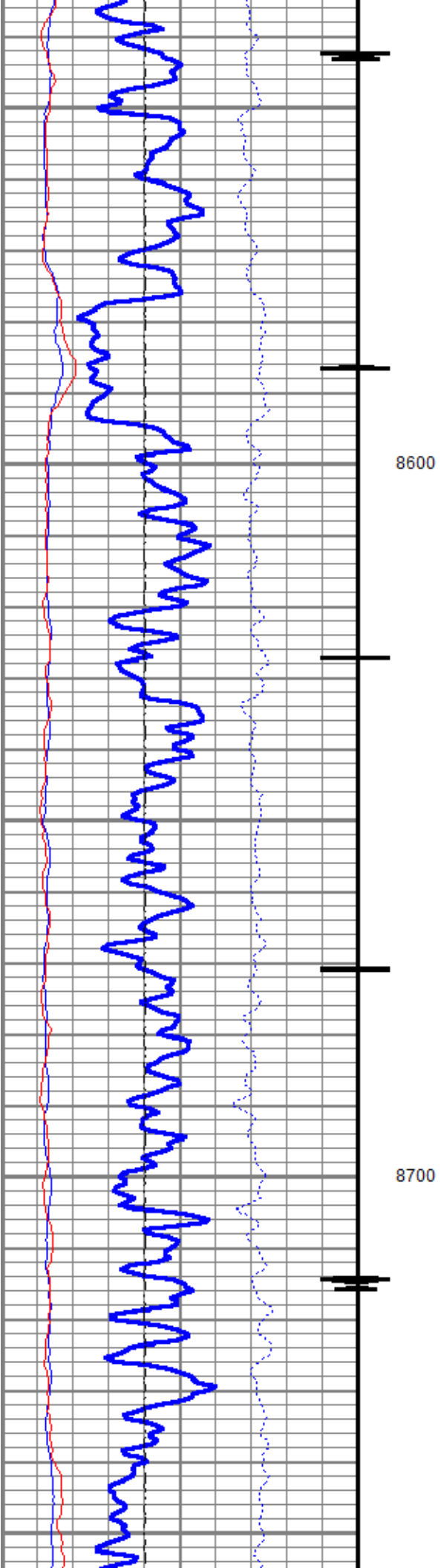


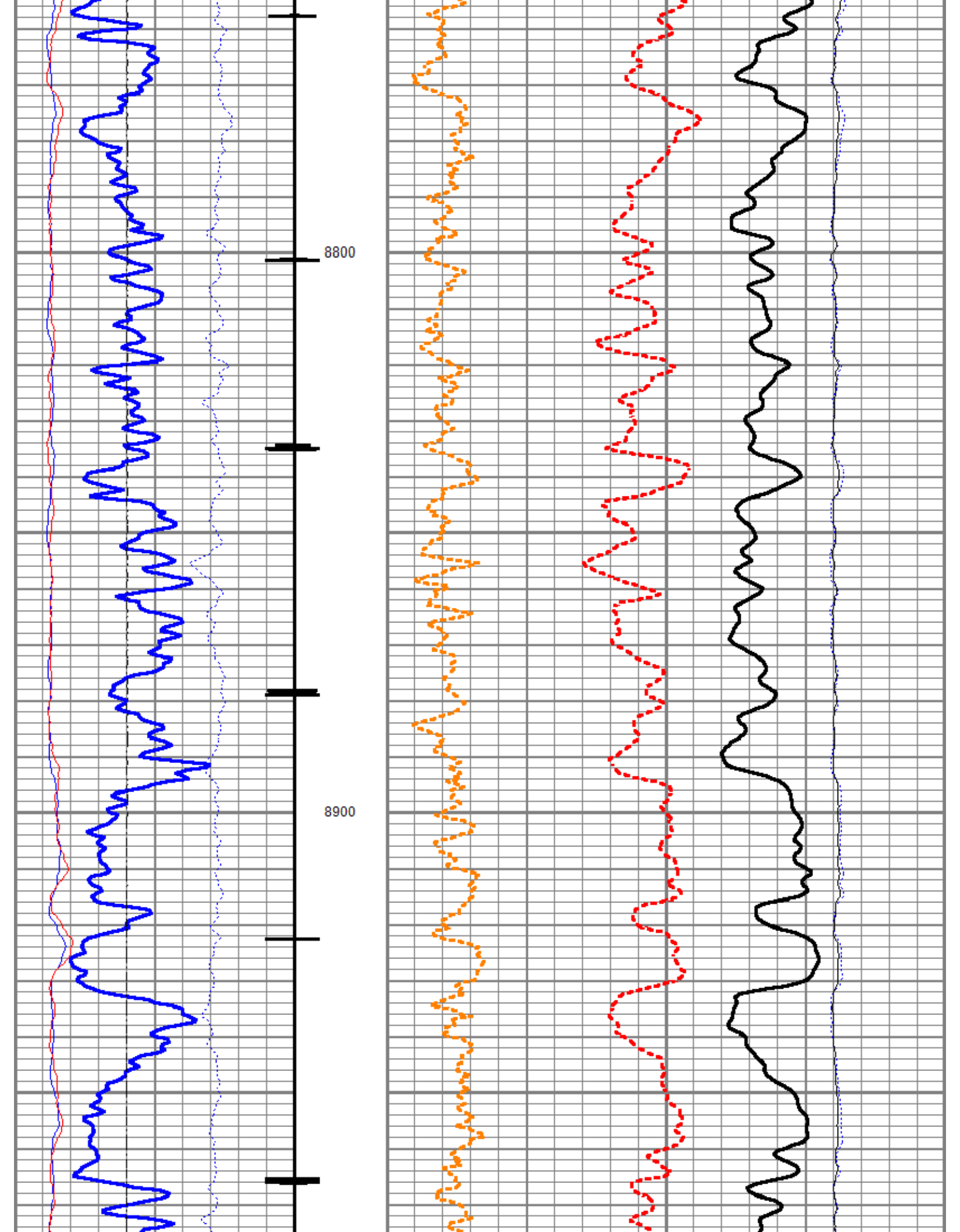


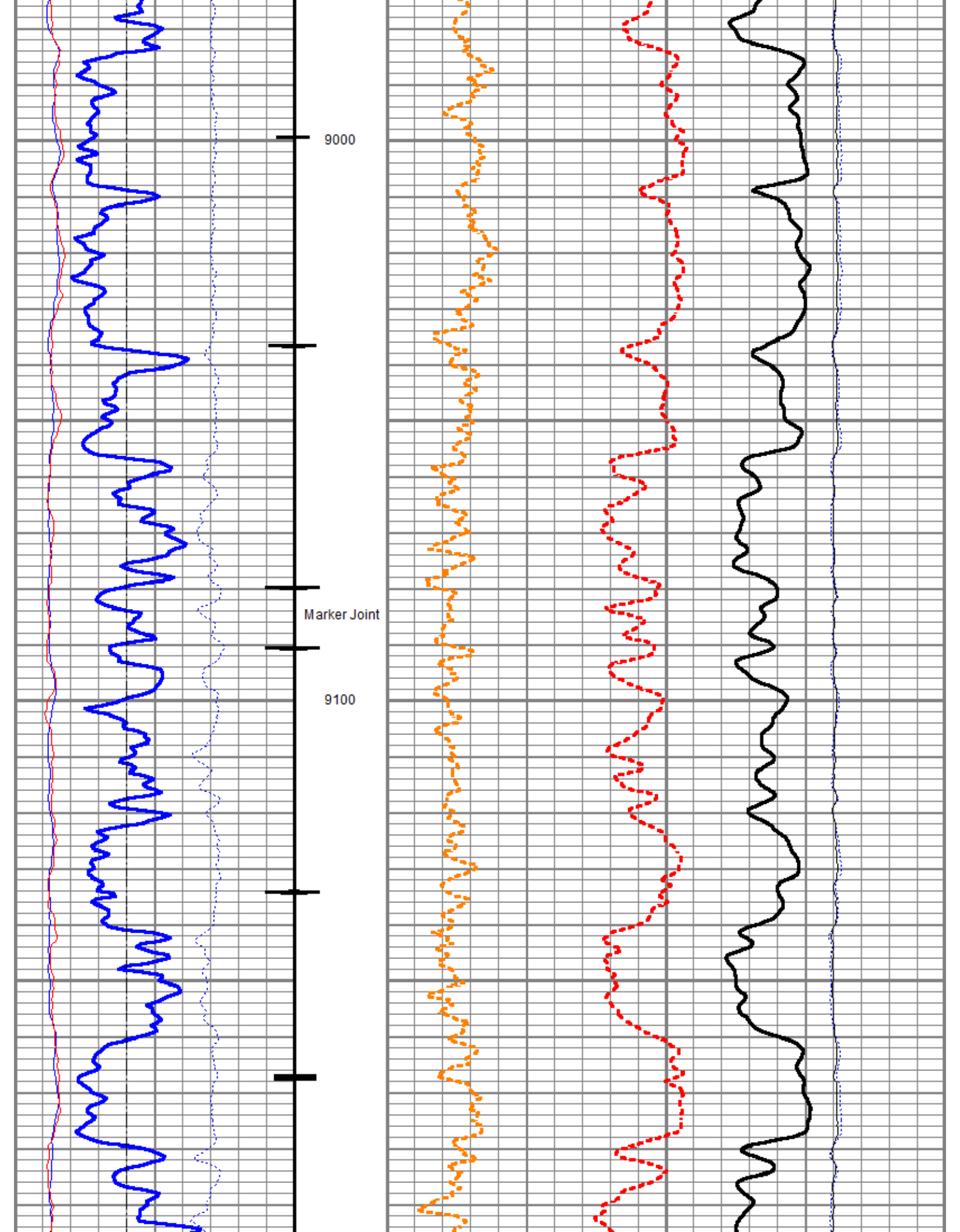


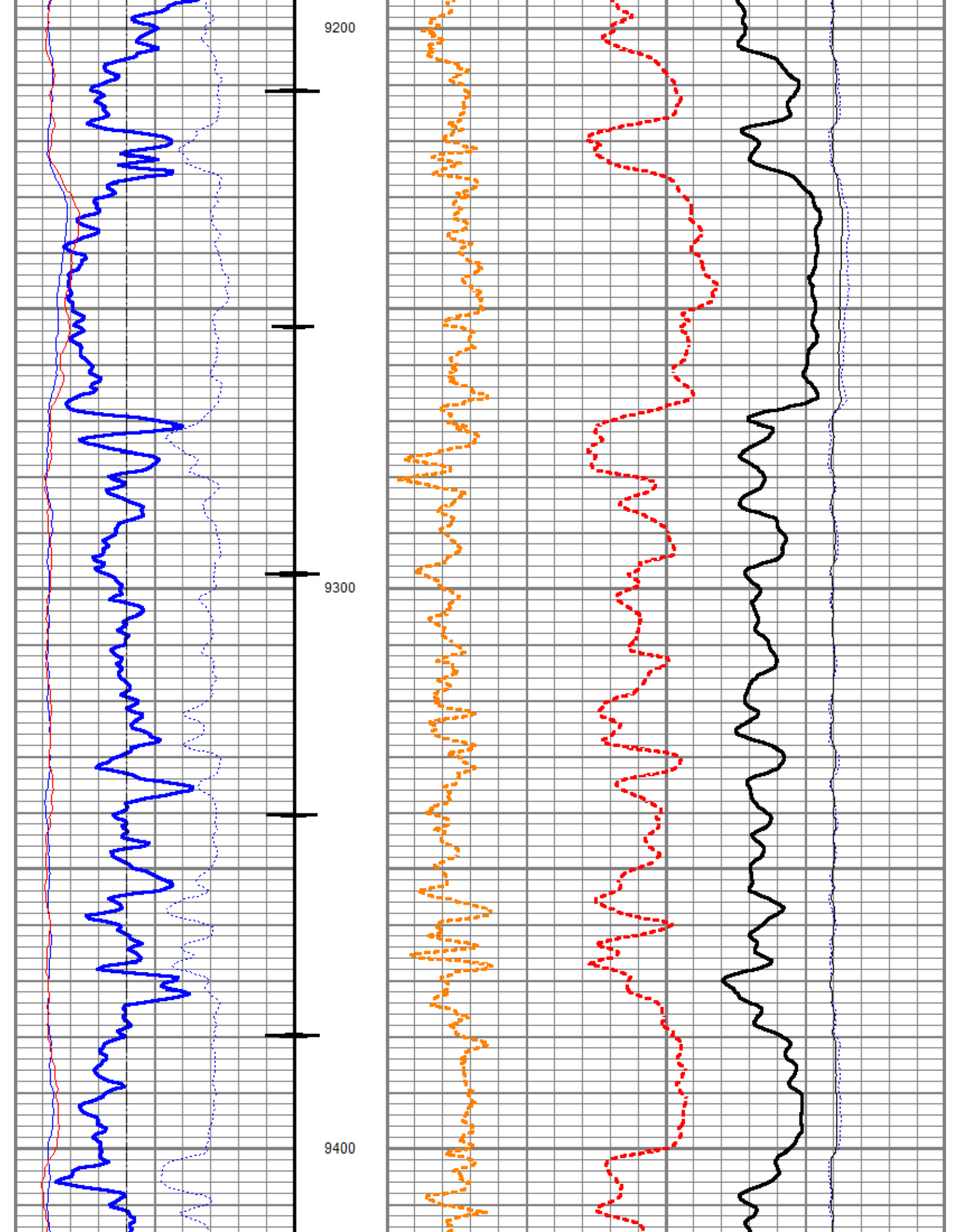


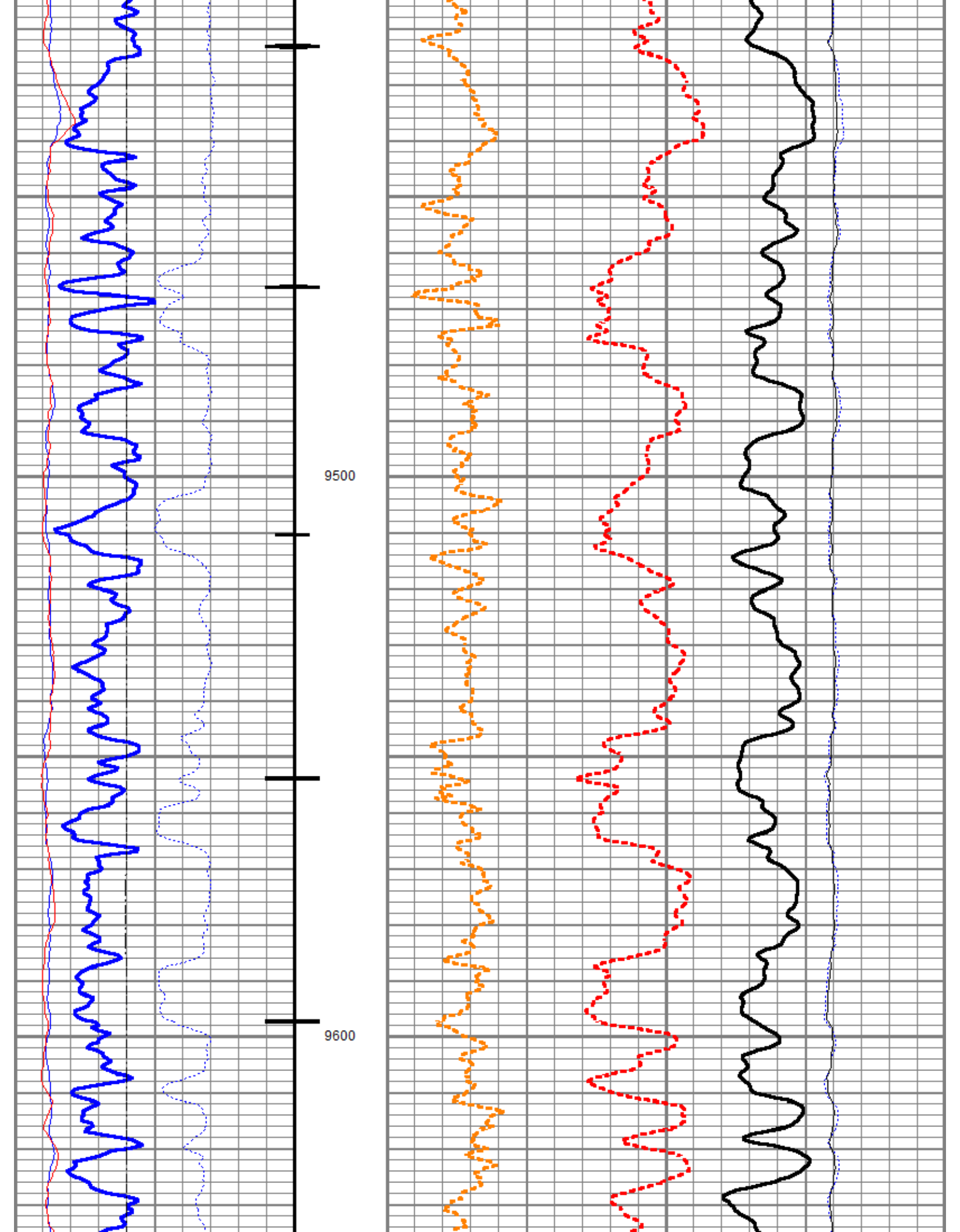


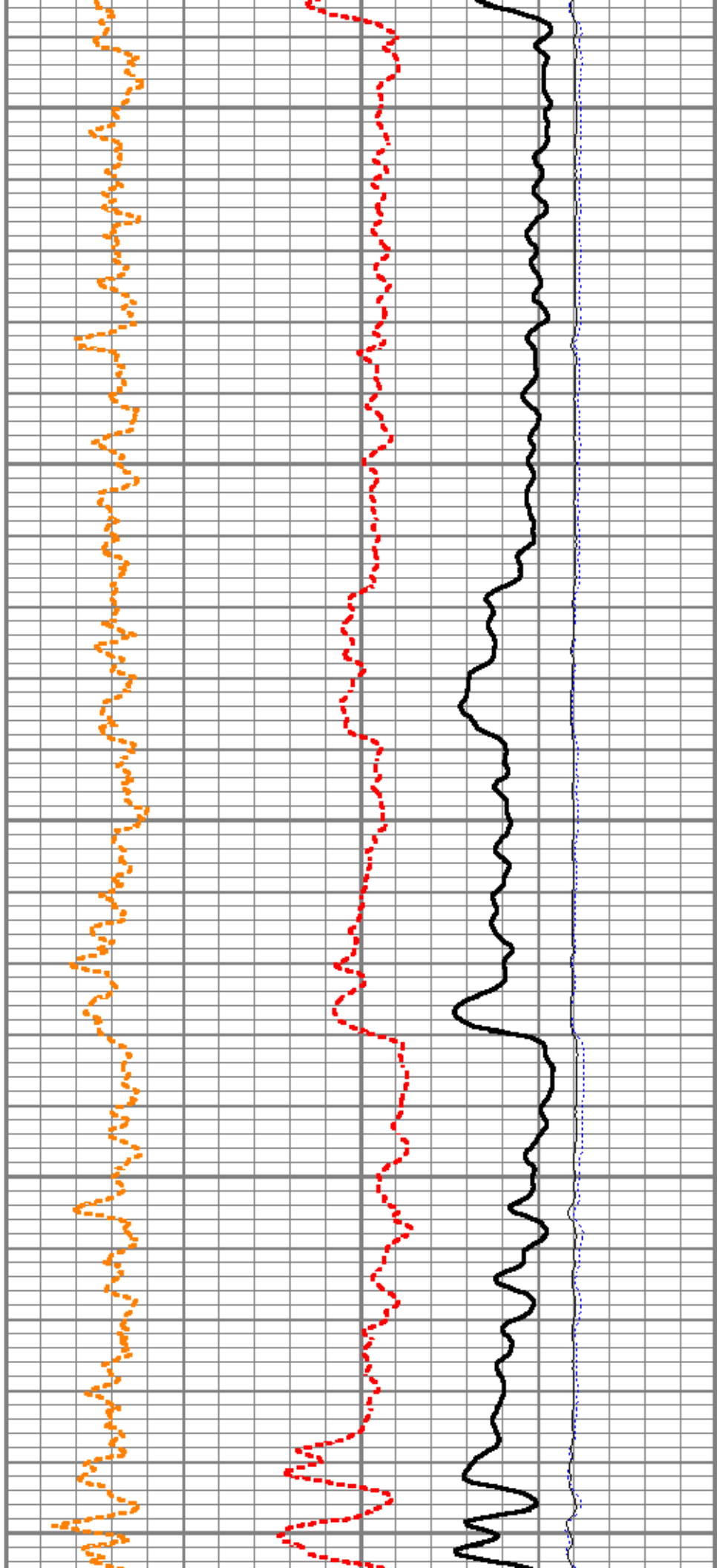
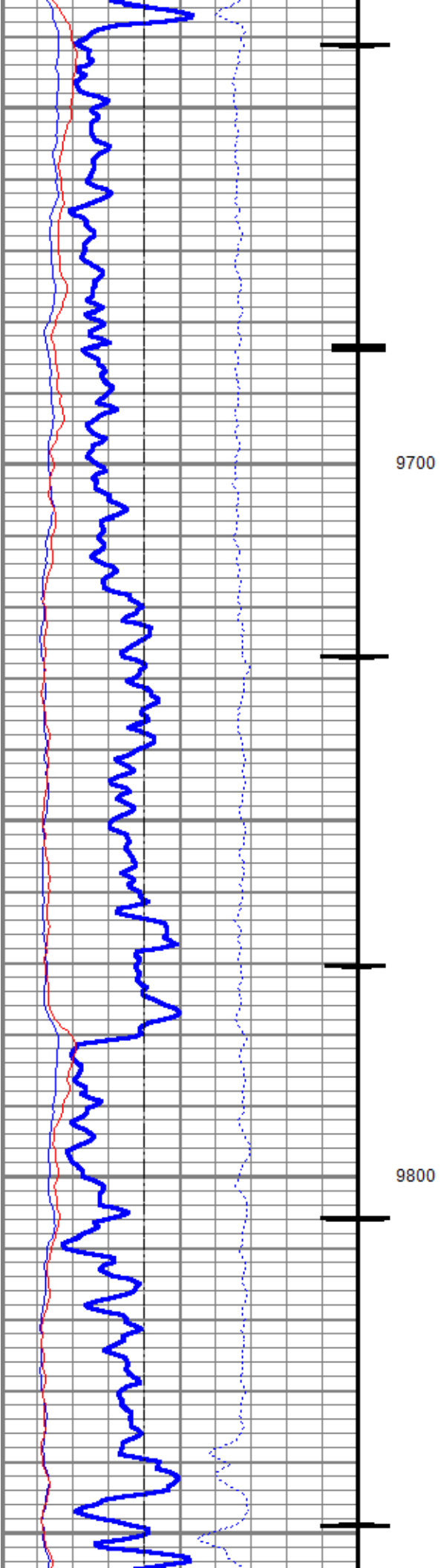


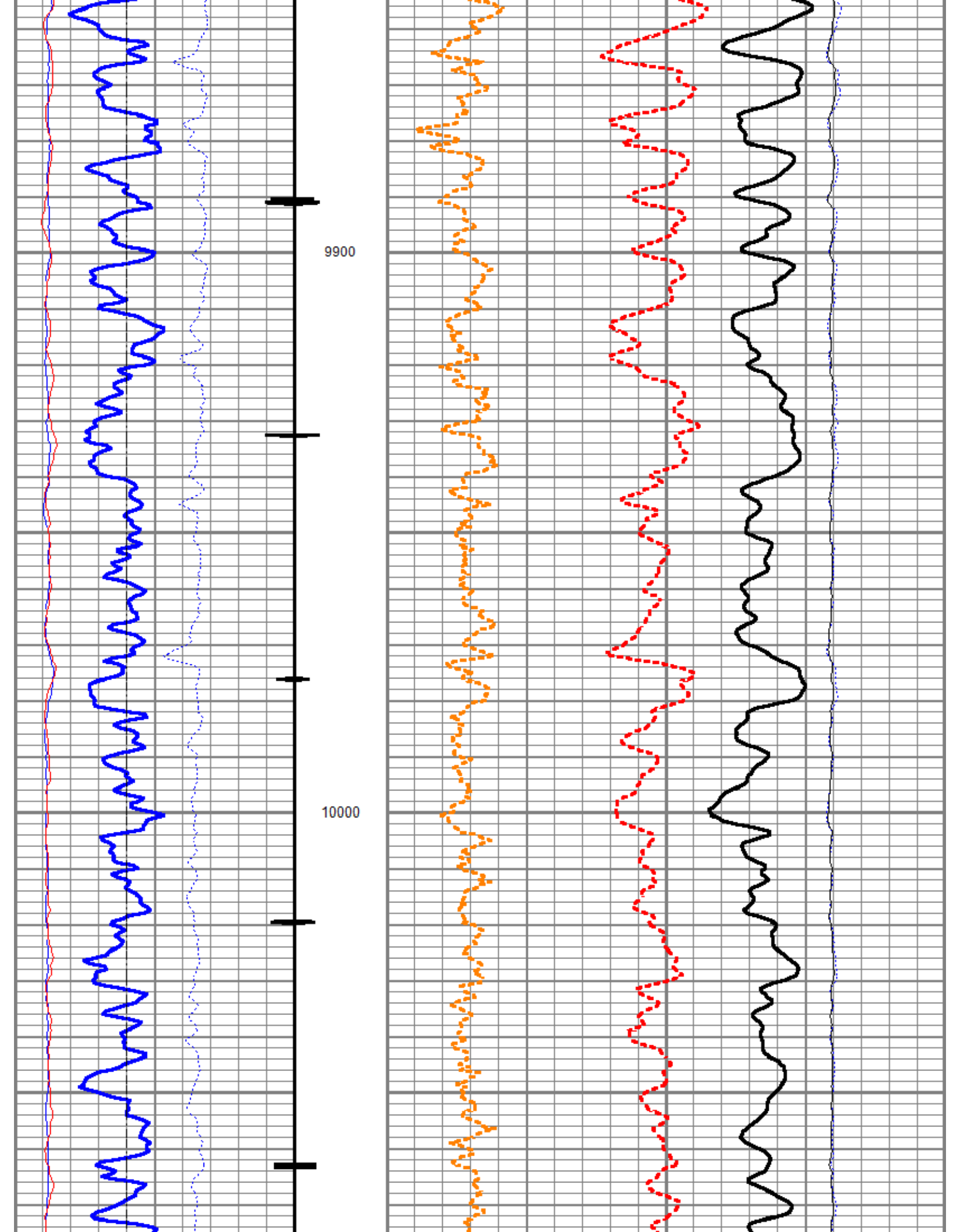


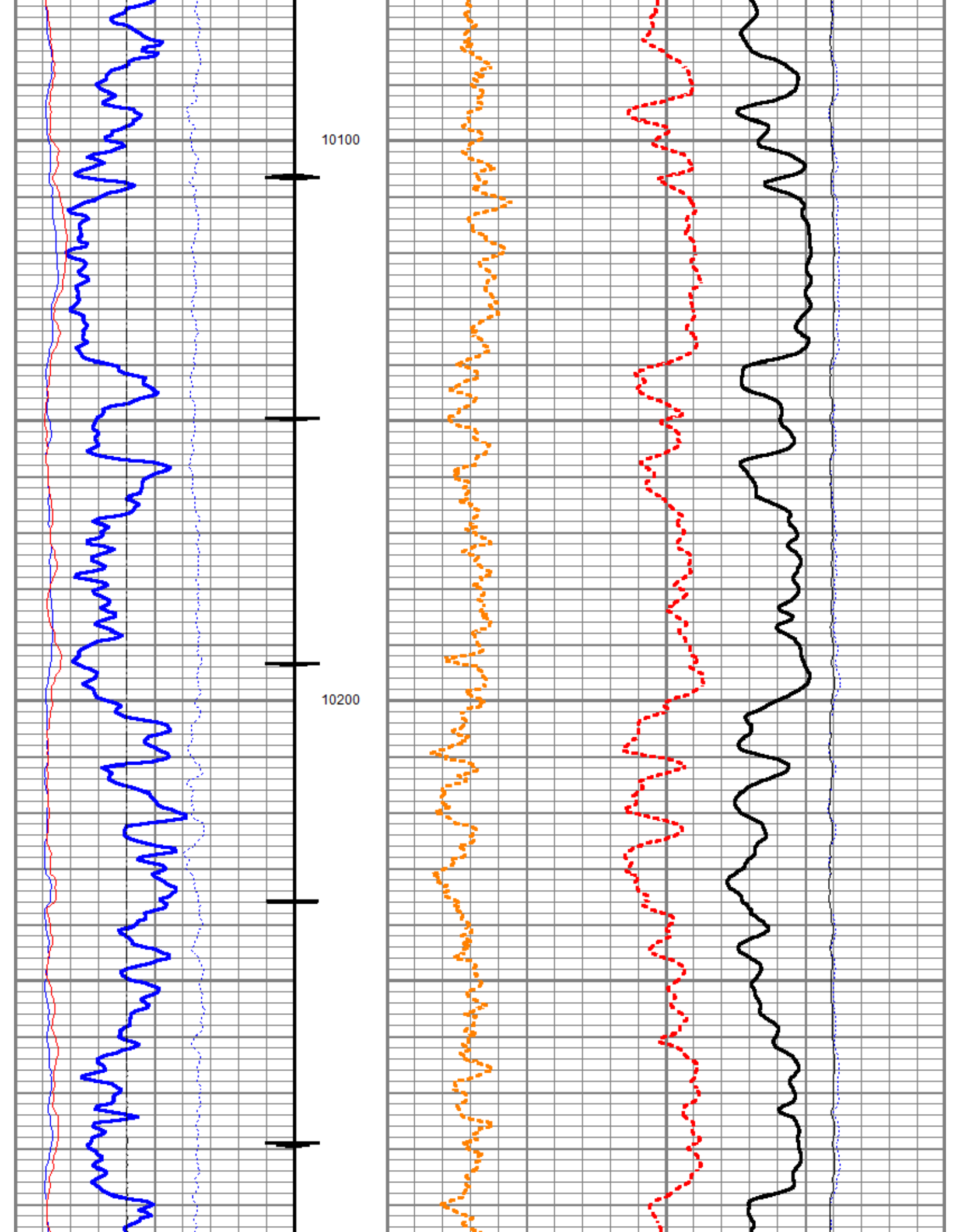


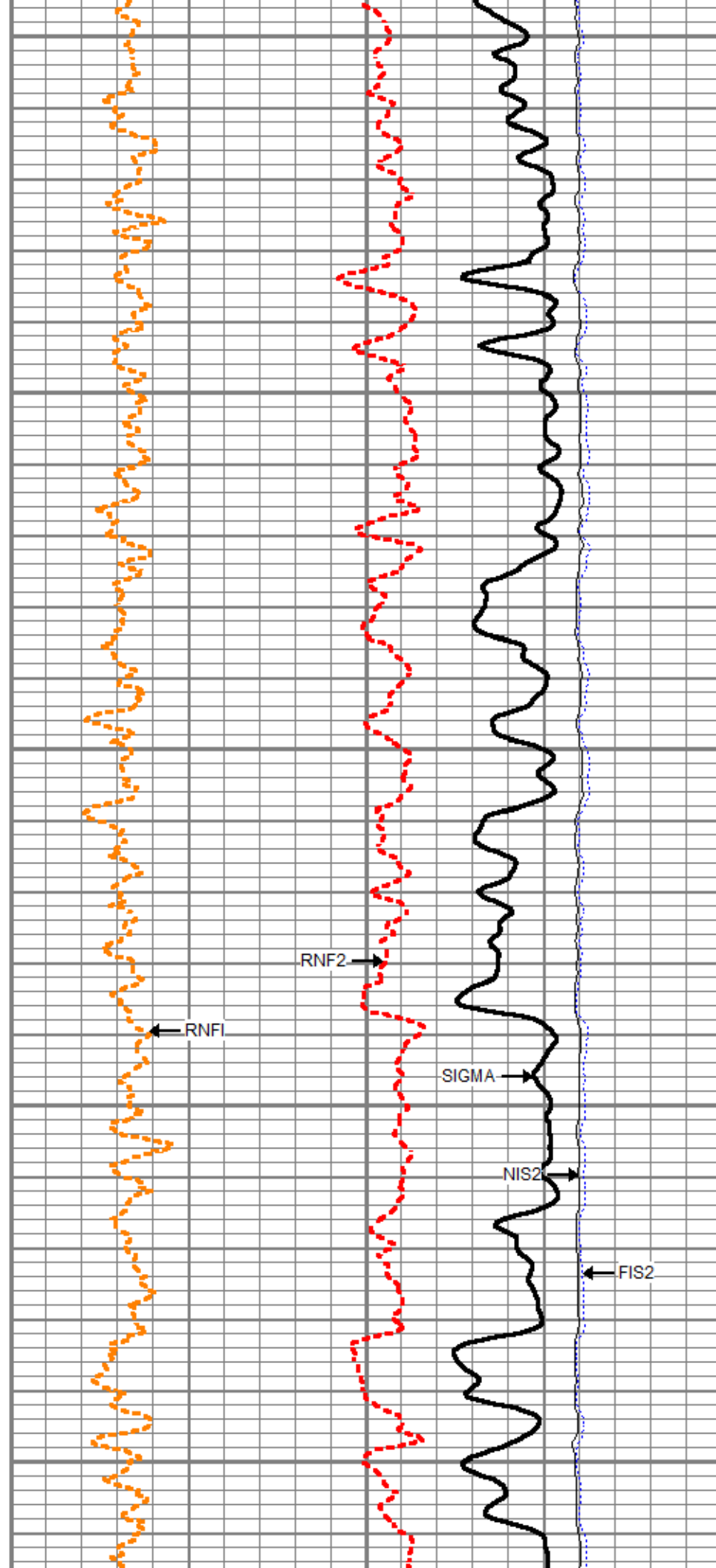
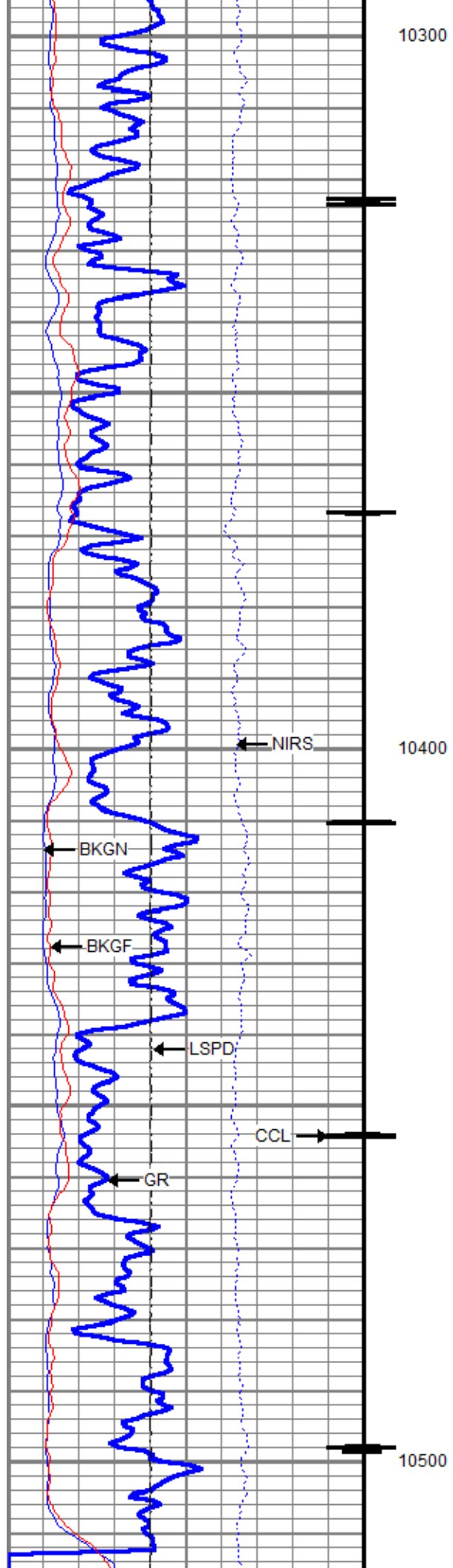


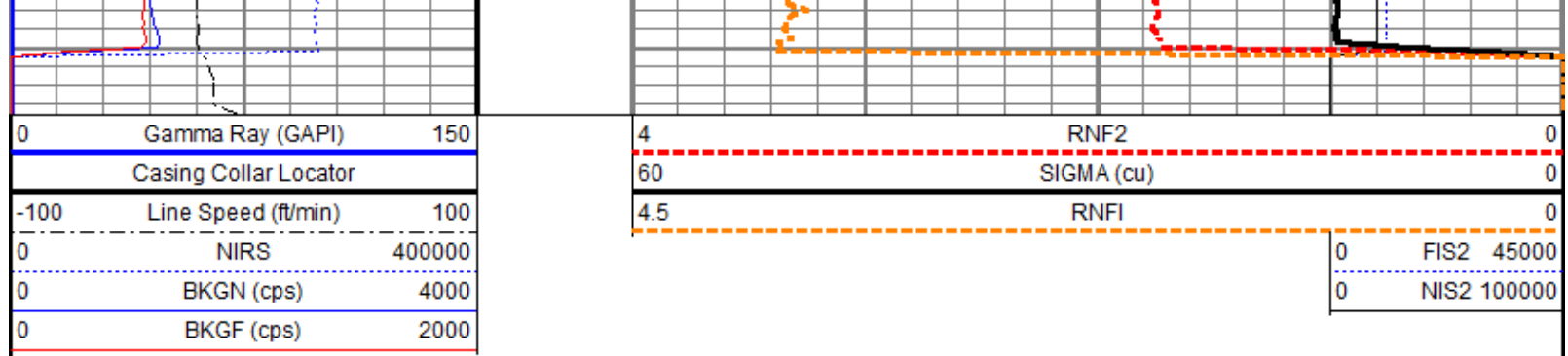






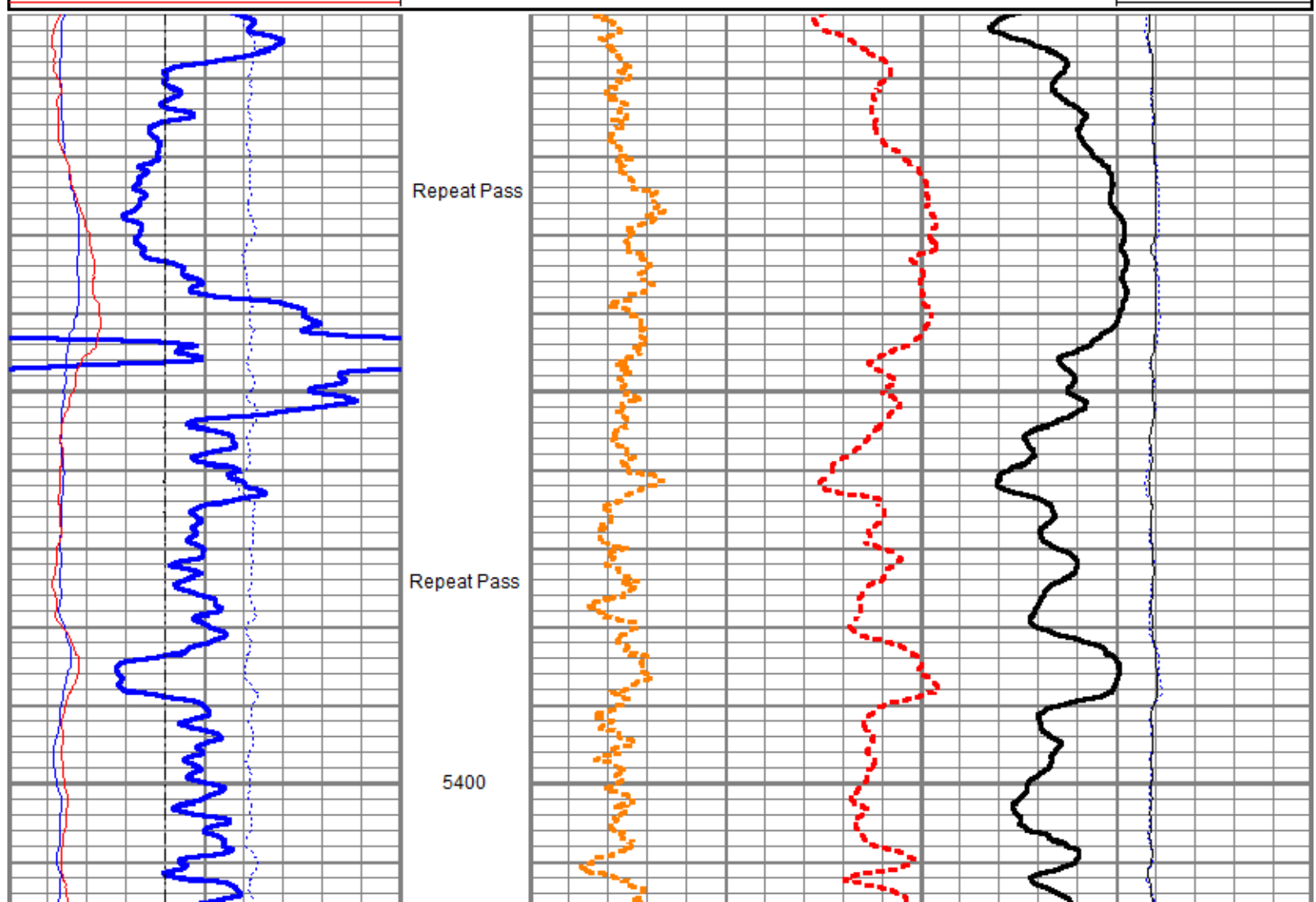
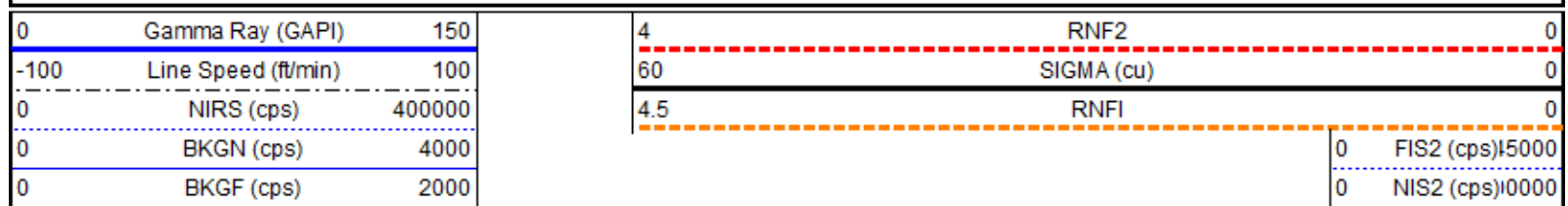


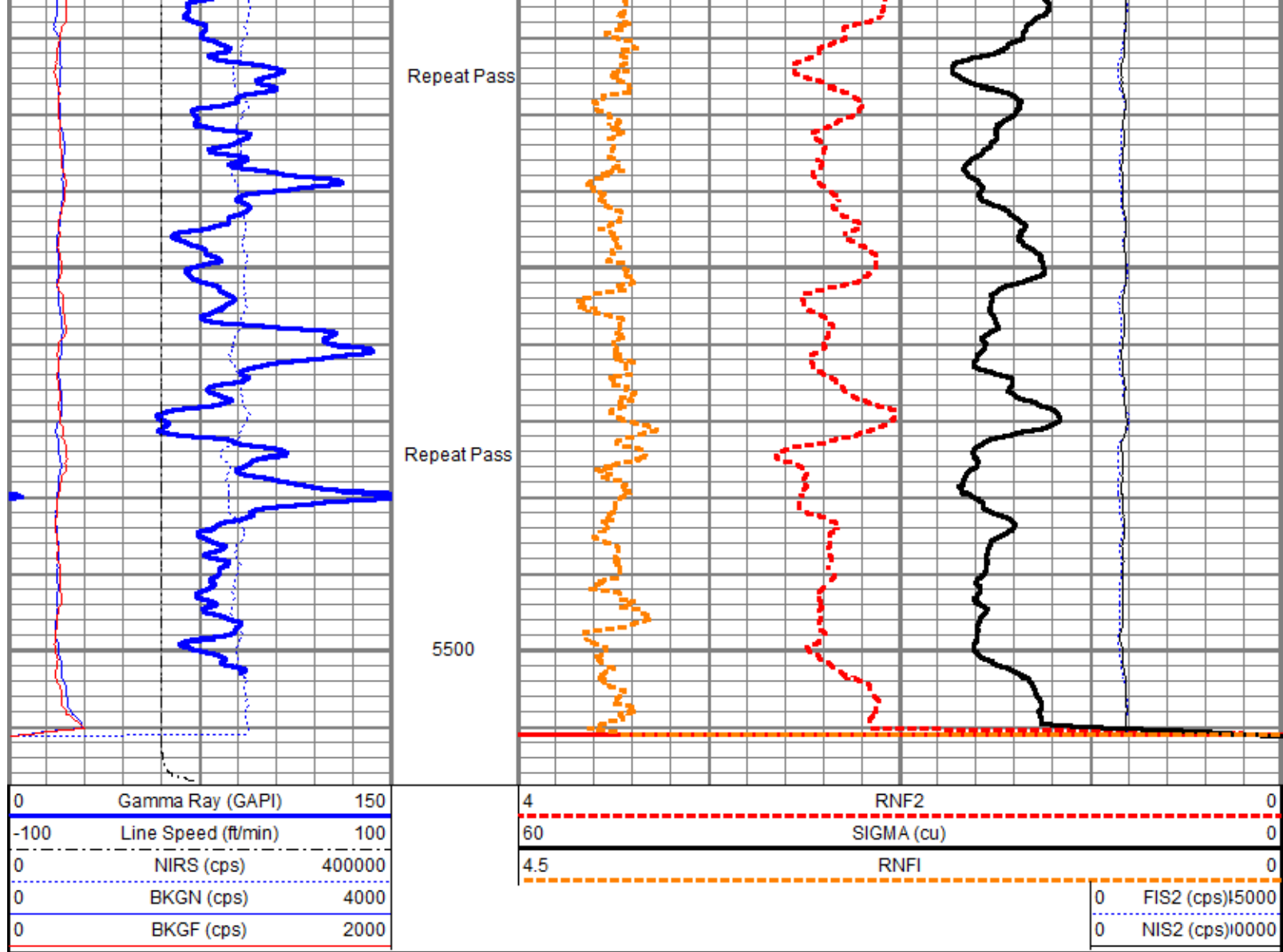




Repeat Pass

Database File: ursalursa_boies ranch c-240 fed 31c-25-2-98_pn_02-14-19\processed_ursa_boies ranch c-240 fed 31c-25-2-98_pn_02-14-19.
 Dataset Pathname: repeat.2
 Presentation Format: ros_pdn_hunter
 Dataset Creation: Fri Feb 15 05:30:11 2019
 Charted by: Depth in Feet scaled 1:240





Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
TCUTEMP TCUVOLT GCL_CCL	14.69		Titan CHD-16875 GO	1.03	1.69	5.40
	14.69		Titan 1-11/16" Assembled Electric Cable Head w/ 1" Fishing Neck			
	13.97		HWS_TCU-002 (001705) HWS Telemetry Control Unit (TCU002)	2.30	1.69	10.87
GCL_GR GCL_GR	12.50 12.50		HWS_GCL-001 (001475) HWS Gamma Ray Collar Locator (1.6875")	2.69	1.69	13.40

Long	6.25					
Far	6.25					
Near	6.25					
Anci	6.25					
			HWS_RAS-RAS002 (003040) 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
Dataset: processed_ursa_boies ranch c-240 fed 31c-25-2-98_pn_02-14-19.db: field/well/run1/repeat.2 Total length: 18.02 ft Total weight: 86.48 lb O.D.: 1.69 in						

Calibration Report	
Database File	c:\programdata\warrior\data\ursa\ursa_boies ranch c-240 fed 31c-25-2-98_pn_02-14-19\processed_ursa_boies ranch c-240 fed 3
Dataset Pathname	repeat.2
Dataset Creation	Fri Feb 15 05:30:11 2019

RAS Calibration Report	
Calibration Date:	Fri Mar 07 14:07 2019
Meas #:	003040

Water Tank				
Description	Curve	Standard	Mean	Dev
Sigma Near	SIGN	23.1	24.1	0.26
Sigma Far	SIGF	22.8	23.6	0.46
Ratio Near-Long Capture	RNL2	5.79	6.61	0.06
Ratio Near-Long Burst	RNLB	6.49	6.90	0.05
Ratio Near-Far Capture	RNF2	1.85	1.97	0.02
Ratio Near-Far Burst	RNFB	2.03	2.13	0.01
Spectral Hydrogen Index	HIS2	12.84	13.69	0.21
Carbon-Oxygen Ratio	CORS	1.34	1.48	0.07
Ratio Burst-Capture Near	RNBC	1.46	1.68	0.02
Ratio Burst-Capture Far	RFBC	1.50	1.62	0.02

Hydrocarbon Tank

Description	Curve	Standard	Mean	Dev
Sigma Near	SIGN	25.7	26.8	0.39
Sigma Far	SIGF	25.1	26.0	0.43
Ratio Near-Long Capture	RNL2	1.78	3.05	0.02
Ratio Near-Long Burst	RNLB	2.57	4.46	0.02
Ratio Near-Far Capture	RNF2	0.98	1.29	0.01
Ratio Near-Far Burst	RNFB	1.30	1.64	0.01
Spectral Hydrogen Index	HIS2	16.68	18.56	0.34
Carbon-Oxygen Ratio	CORS	1.51	1.69	0.07
Ratio Burst-Capture Near	RNBC	2.23	2.39	0.02
Ratio Burst-Capture Far	RFBC	2.09	2.09	0.02

Gamma Ray Calibration Report

Serial Number:	001475	
Tool Model:	001	
Performed:	Fri Oct 19 14:55:00 2018	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	
Calibrator Reading:	1.0	
Sensitivity:	1.0000	GAPI/



Company	Ursa Operating Company LLC
Well	Boies Ranch C-240 FED 31C-25-2-98
Field	Sulphur Creek
County	Rio Blanco
State	Colorado