



Pulsed Neutron
Gamma Ray
Casing Collar Log

Company TEP Rocky Mountain LLC		Well Federal RWF 332-11		Field Rulison		County Garfield		State Colorado	
Company TEP Rocky Mountain LLC		Well Federal RWF 332-11		Field Rulison		County Garfield		State Colorado	
Location:		API #: 05-045-24272		Other Services		RBL			
SEC 12 TWP 6S RGE 94W		Permanent Datum		Ground Level		Elevation		5486.8'	
Log Measured From		Kelly Bushing		24 FT		K.B. 5490.8'		D.F. 5489.8'	
Drilling Measured From		Kelly Bushing				G.L. 5486.8'			
Date	14-FEB-2020	Run Number		One		Depth Driller		9151 FT	
		Depth Driller		9109 FT		Bottom Logged Interval		9103 FT	
		Top Log Interval		4726 FT		Open Hole Size		8.750"	
		Type Fluid		Water		Density / Viscosity		8.34 lb/gal	
		Max. Recorded Temp.		---		Estimated Cement Top		---	
		Time Well Ready		---		Time Logger on Bottom		---	
		Equipment Number		HD-0359		Location		Grand Junction, CO	
		Recorded By		J. Donnelly		Witnessed By		---	
Borehole Record		Run Number		Bit		From		To	
Size (in)		Wgt (lbs/ft)		Grade		Top		Bottom	
9 5/8		36		J-55		Surface		1042 FT	
4 1/2		11.6		P-110		Surface		9109 FT	
Intermediate #1									
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-2020
Log ran from 9103 FT to 4726 FT
Pulsed Neutron Data logged with Hunter RAS Tool

Thank you for choosing Reliance Oilfield Services, LLC!

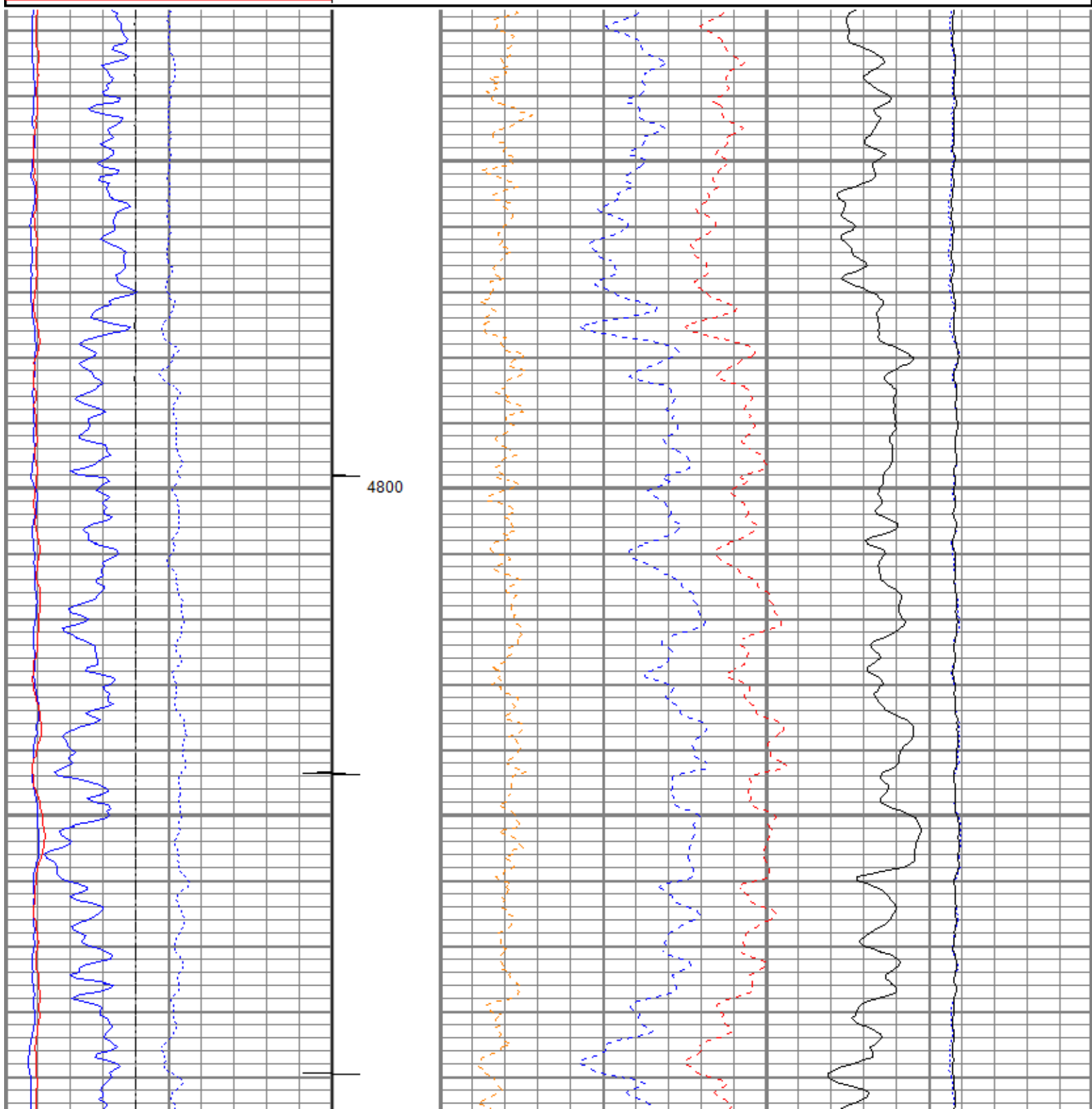


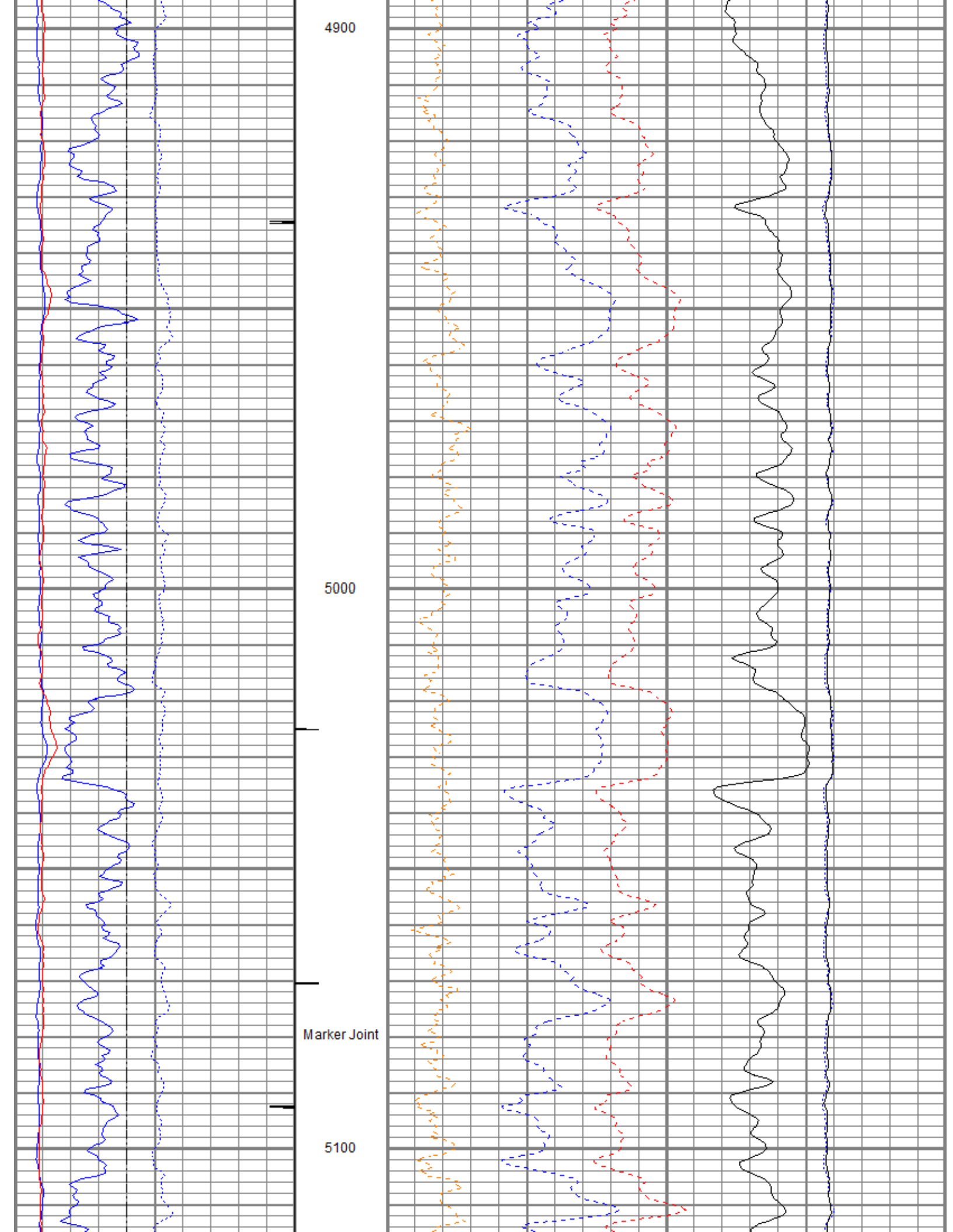
Main Pass

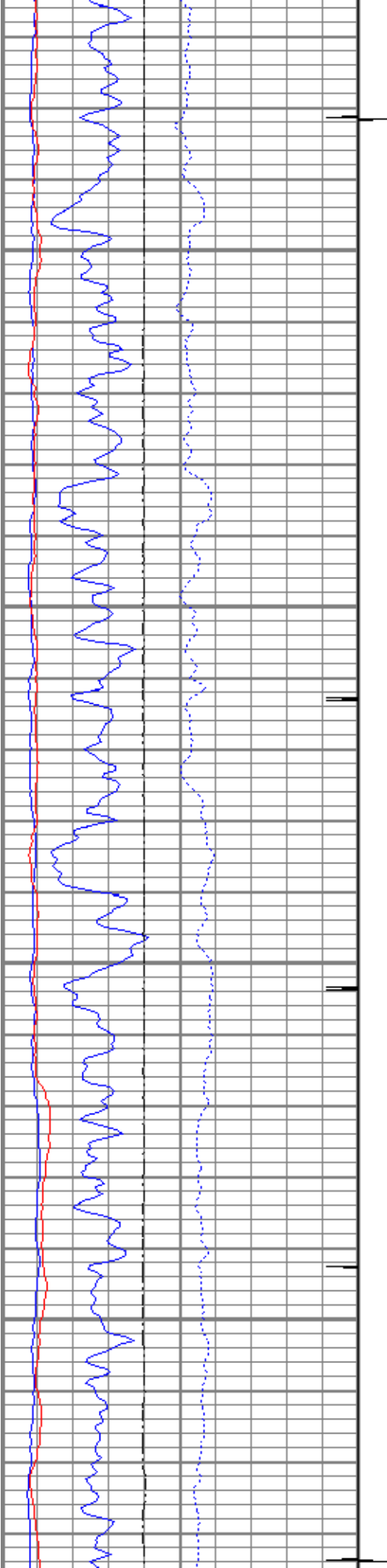
Database File	tep_federal rwf 332-11\tep_federal rwf 332-11_pn_02-14-20.db
Dataset Pathname	pn_final_final/merge1
Presentation Format	ros_pdn_hunter
Dataset Creation	Fri Feb 21 15:58:19 2020
Charted by	Depth in Feet scaled 1:240

0	GR (GAPI)	150
PN 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	-1
1	PN Porosity (Sandstone)	0
0	FIS2 (cps)	5000
0	NIS2 (cps)	10000

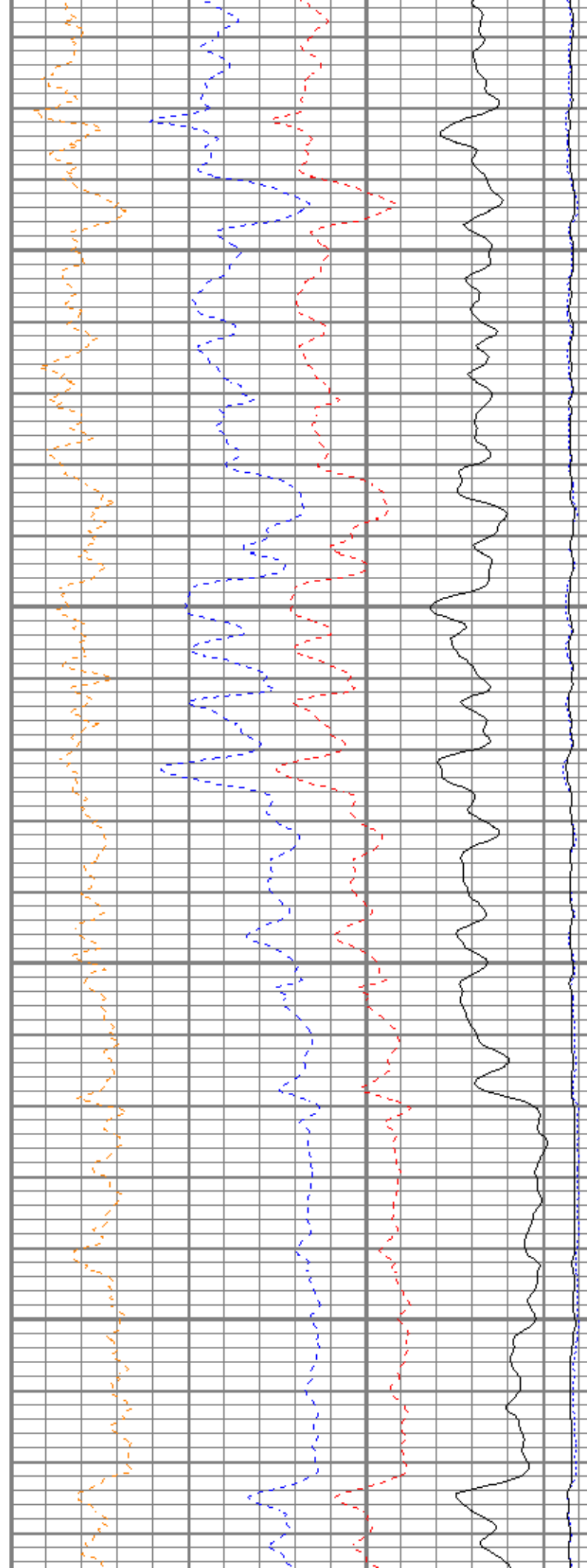


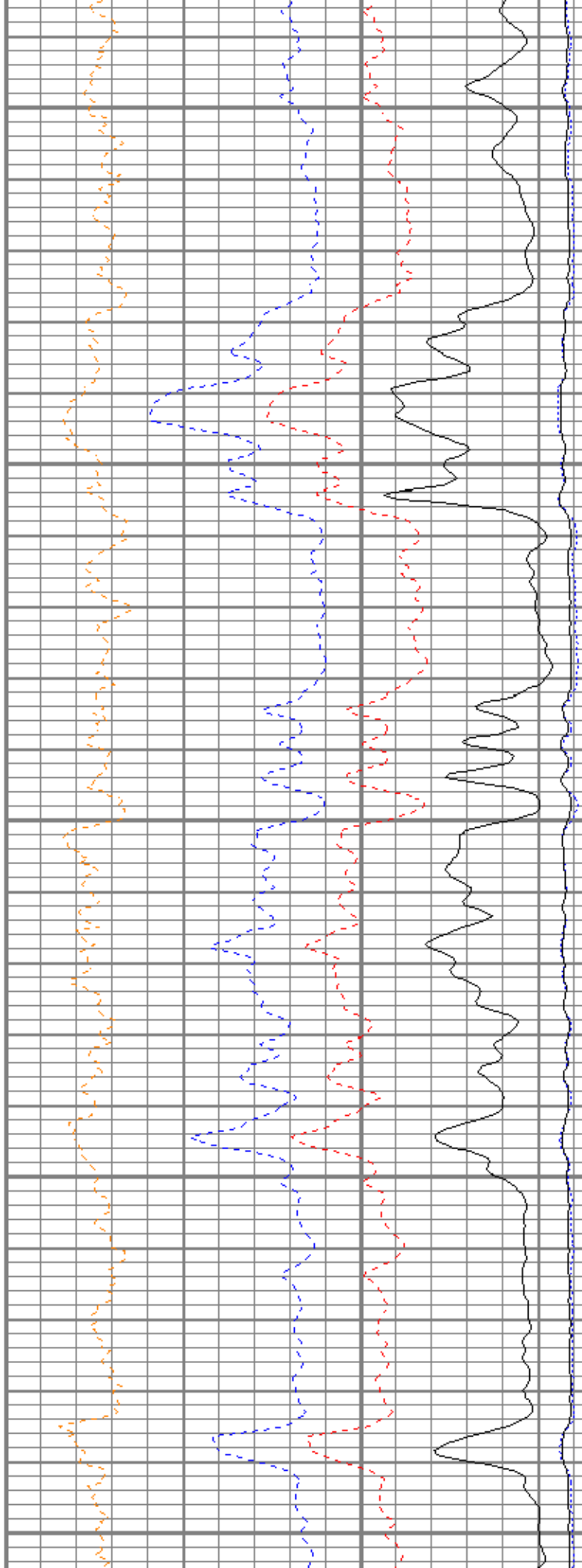
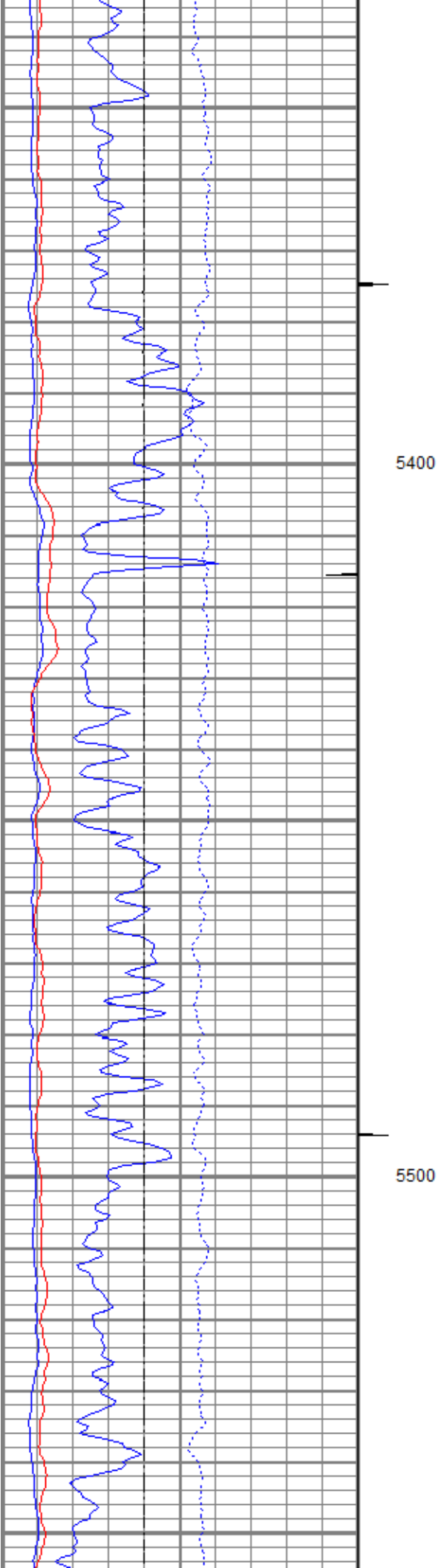


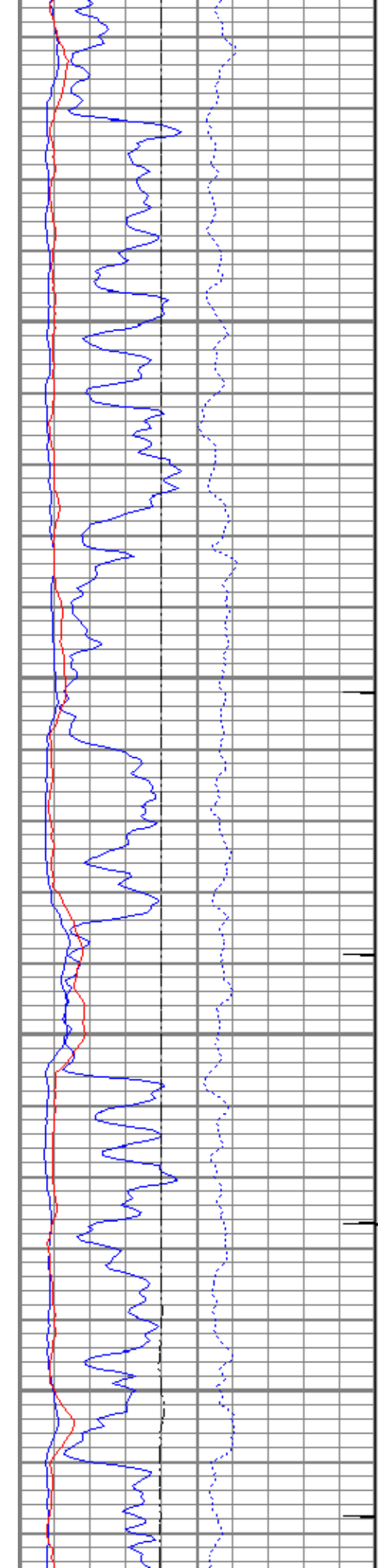


5200

5300

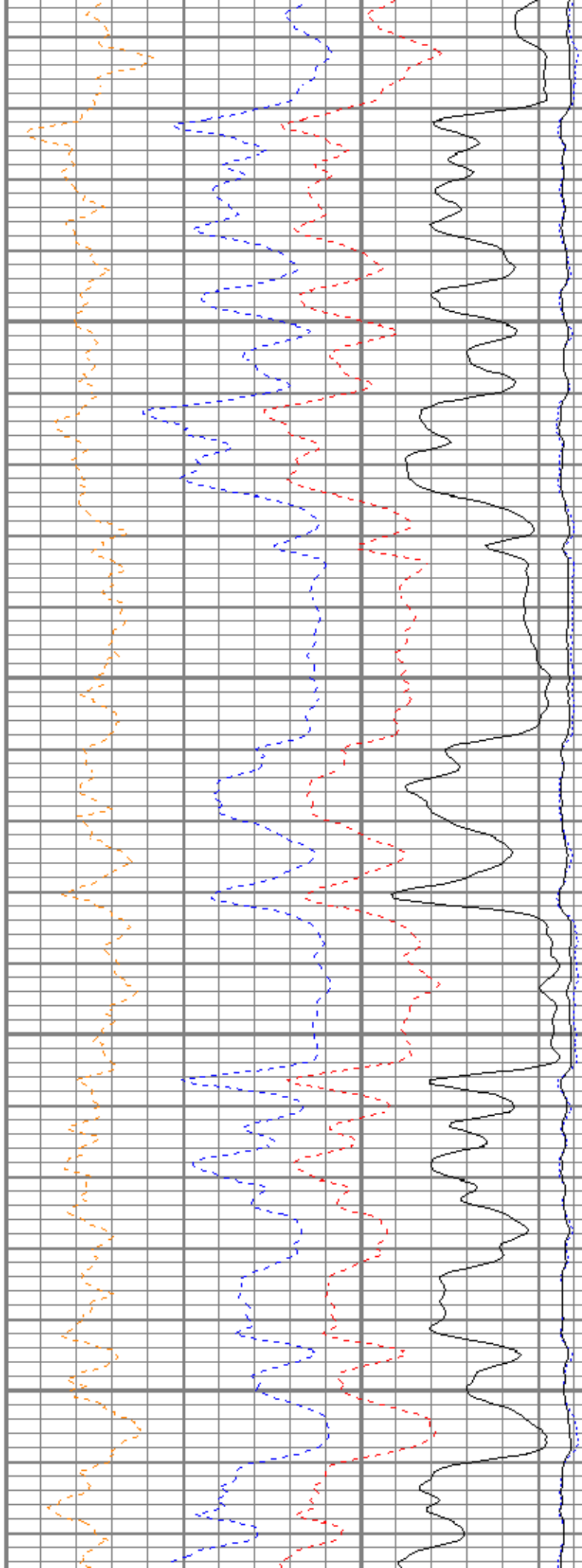


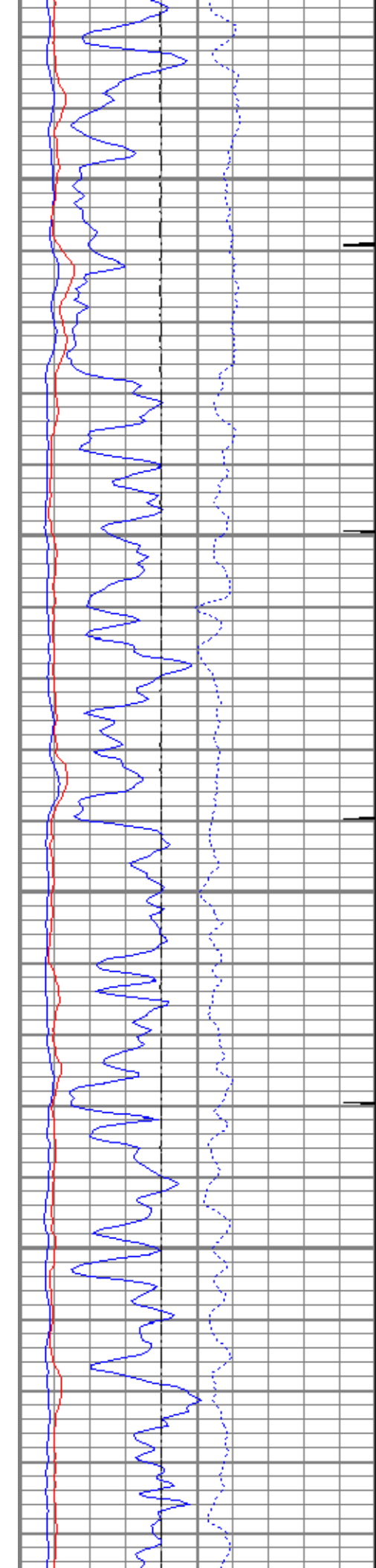




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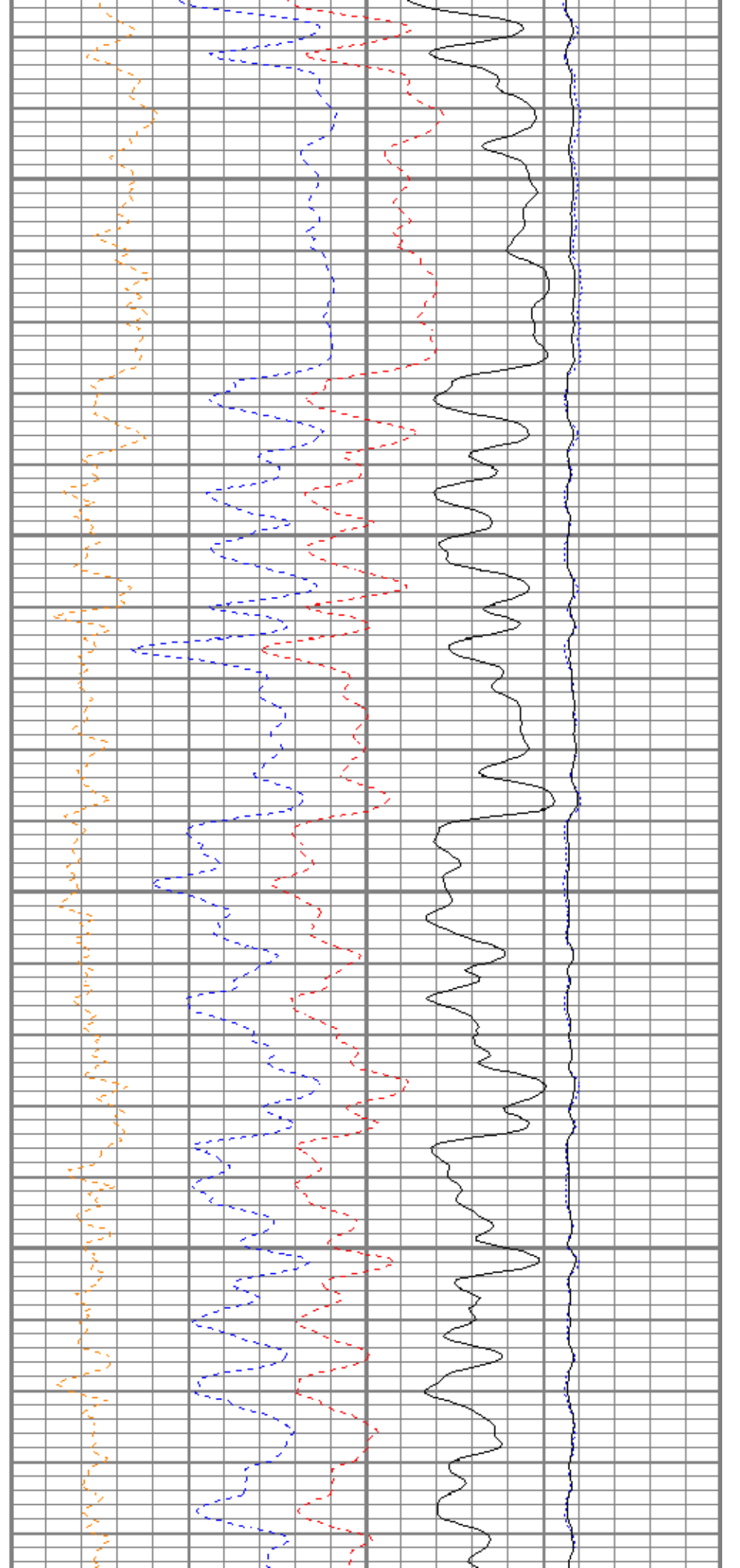
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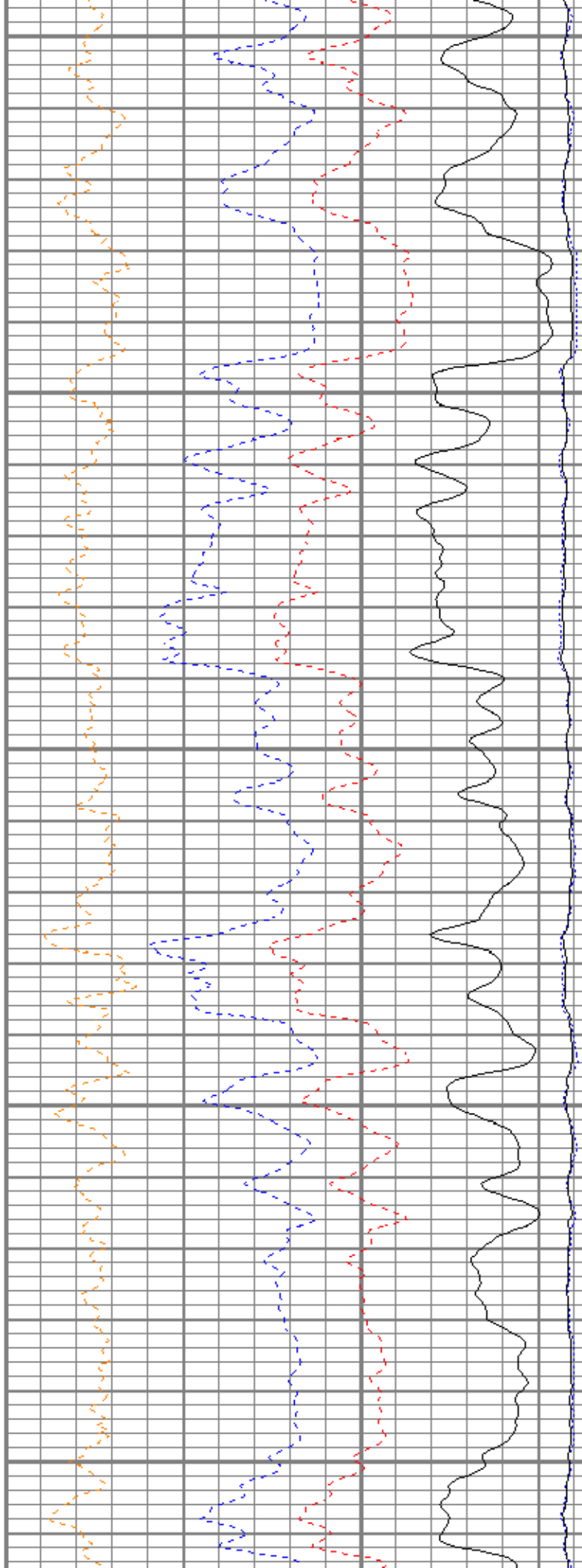
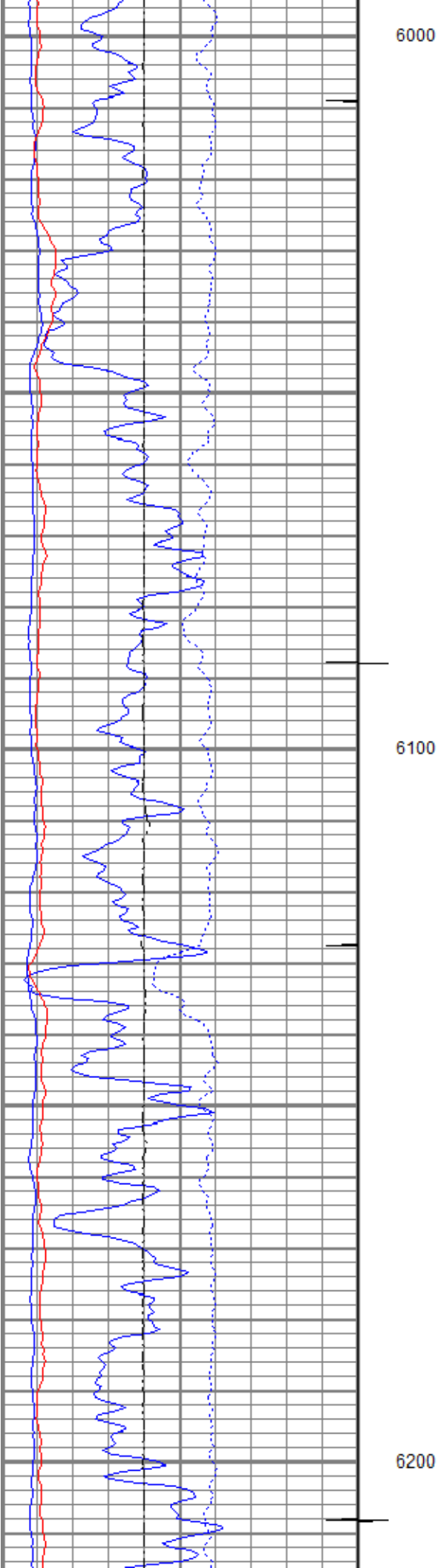


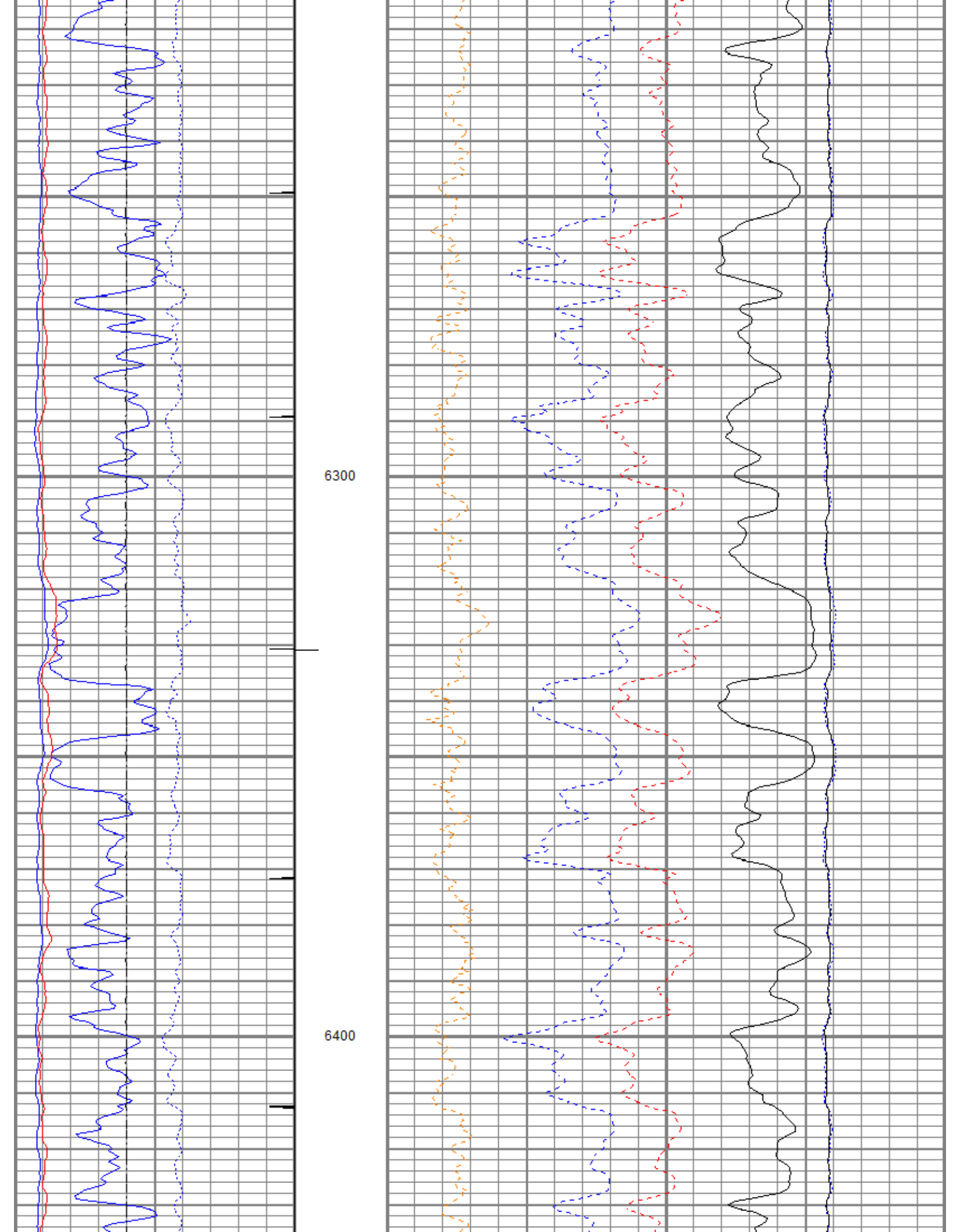


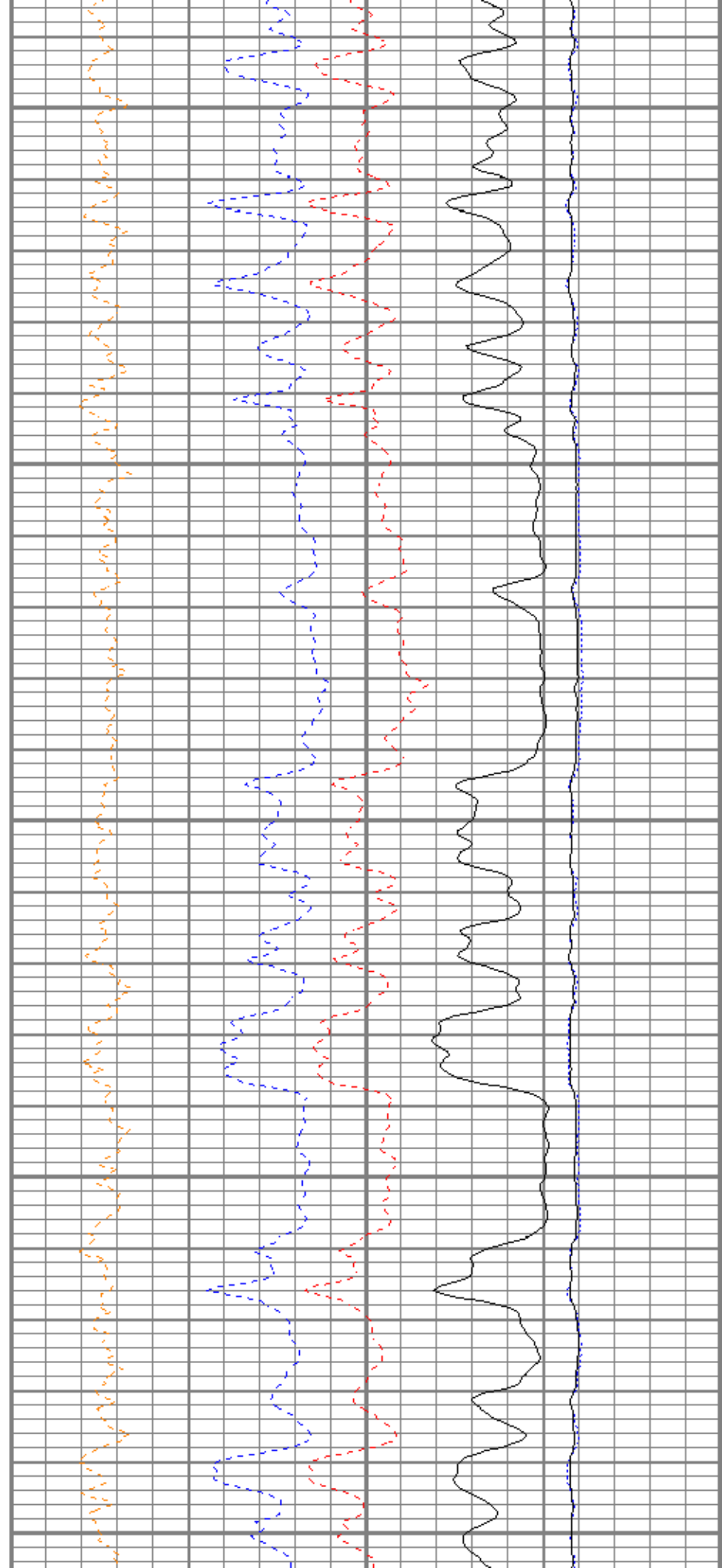
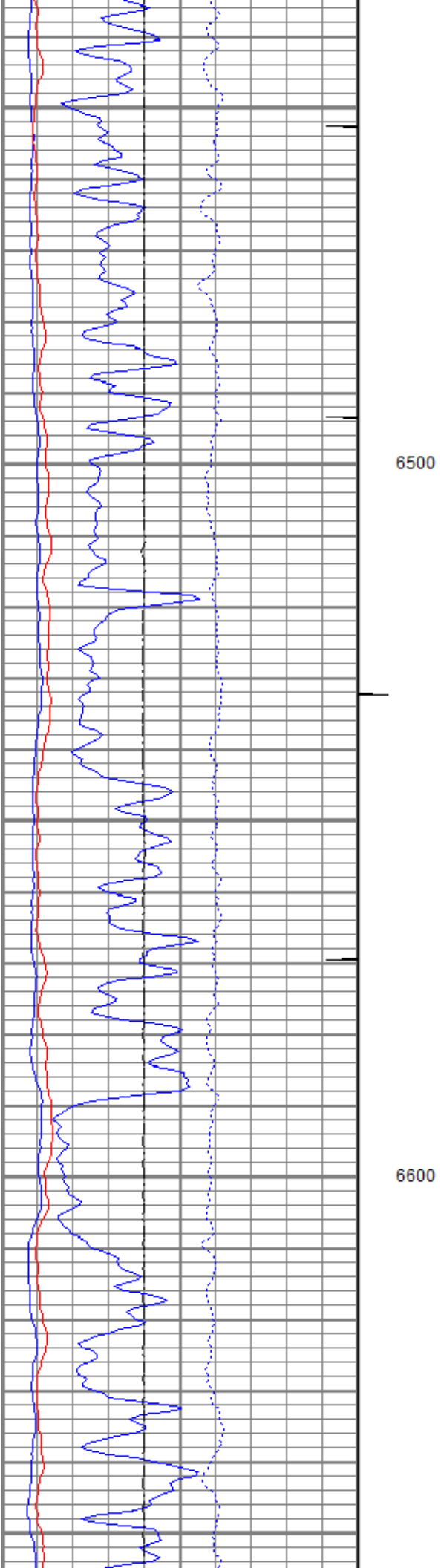
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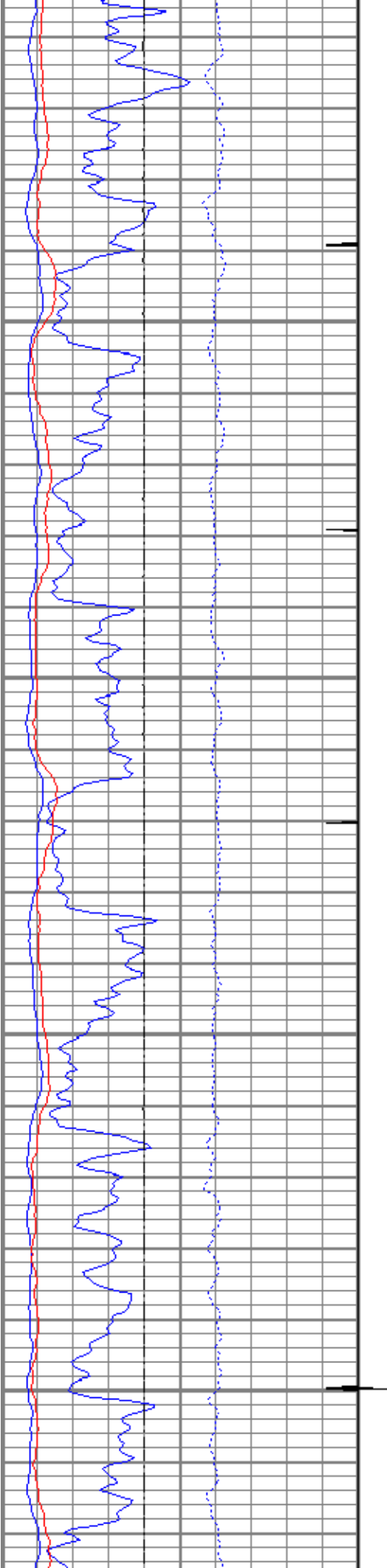
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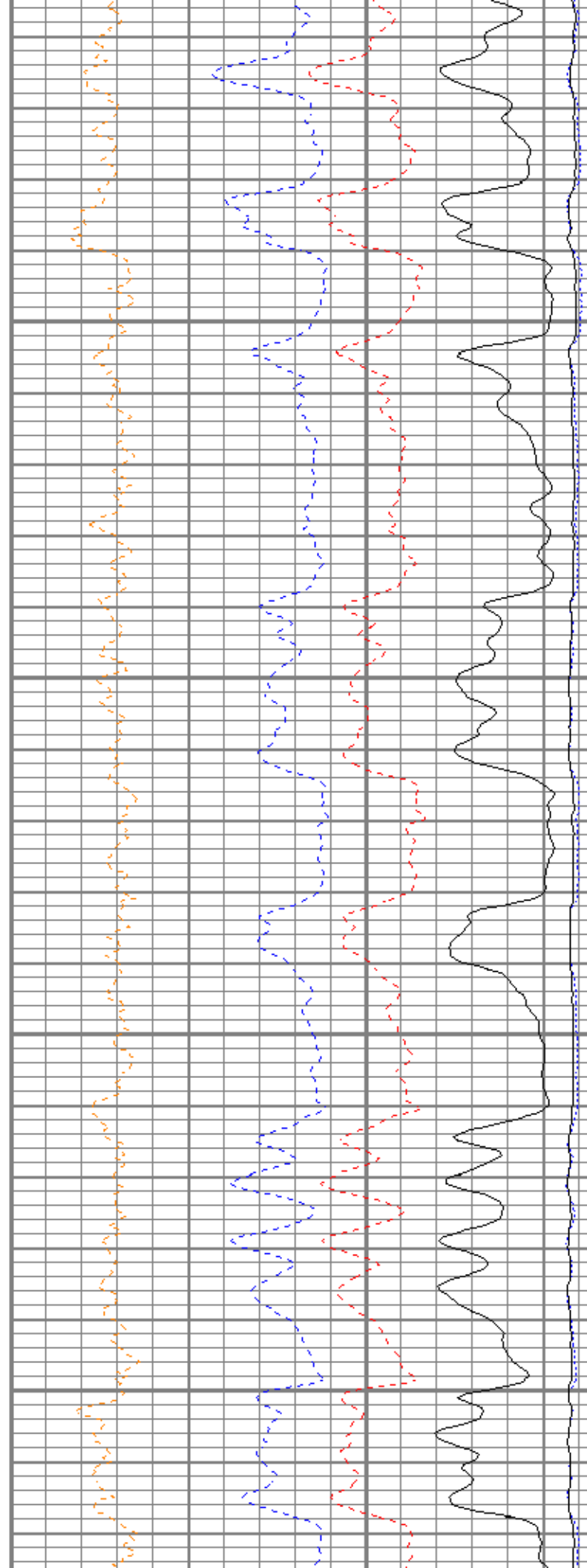


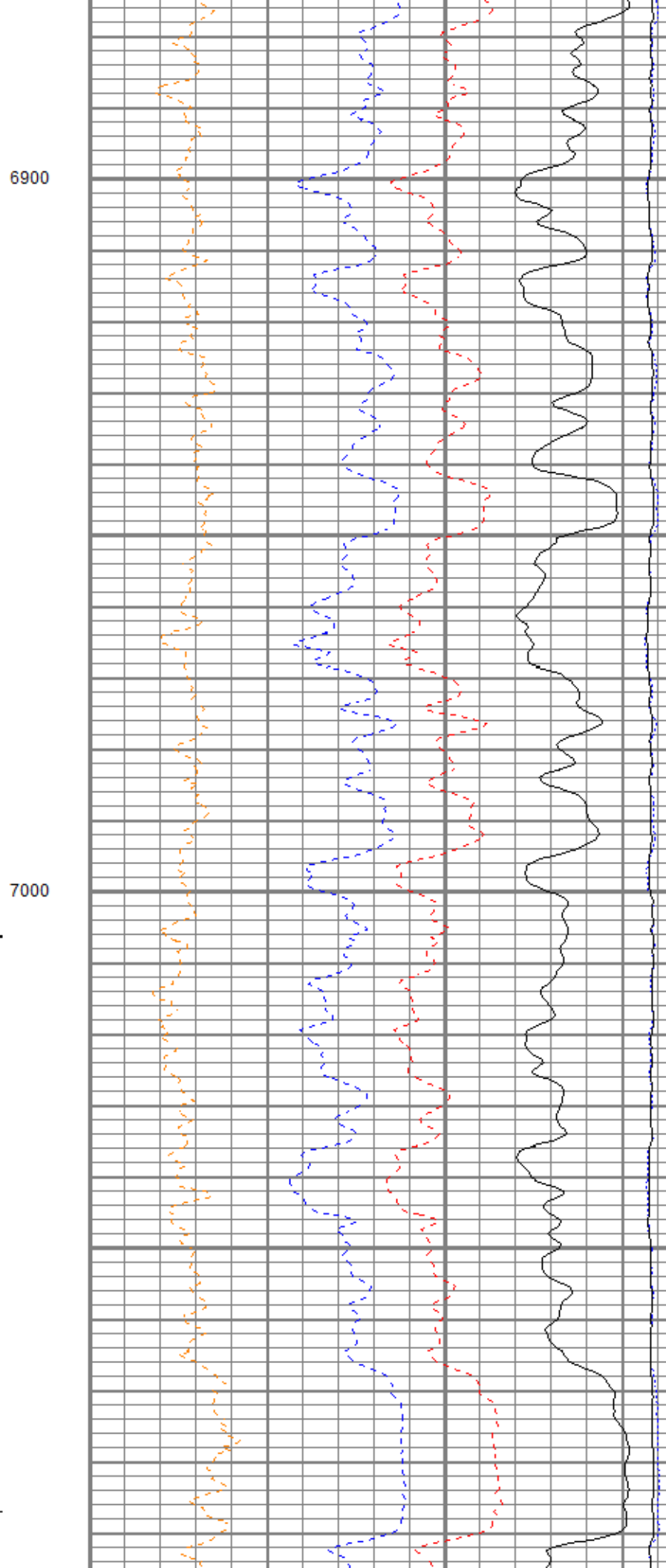
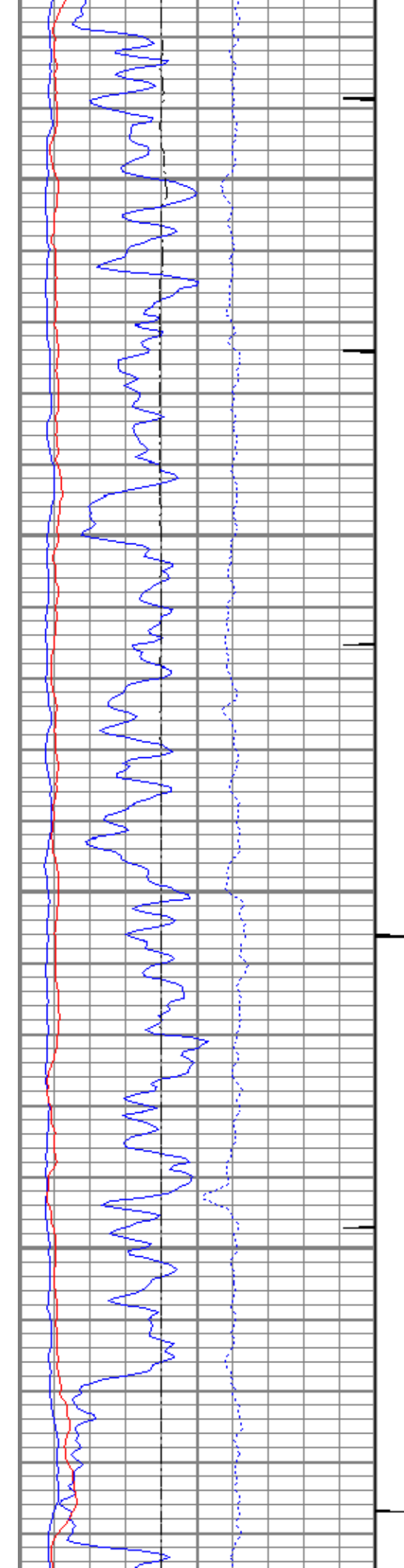


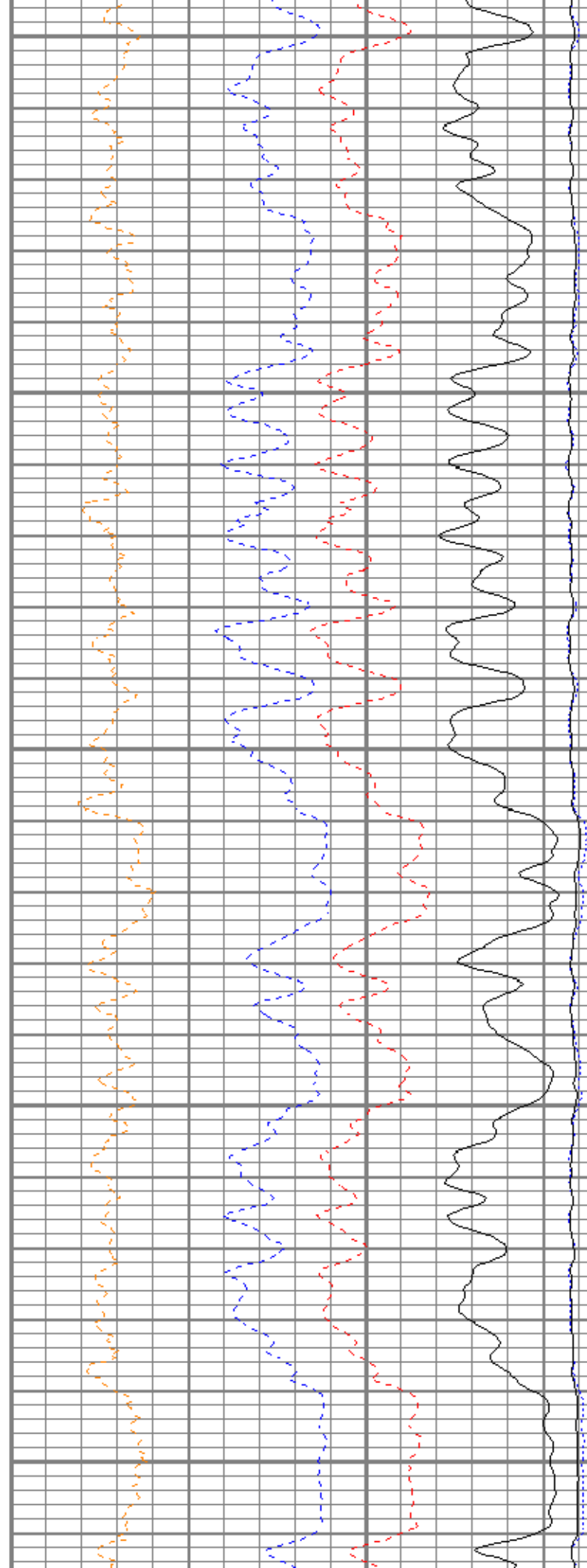
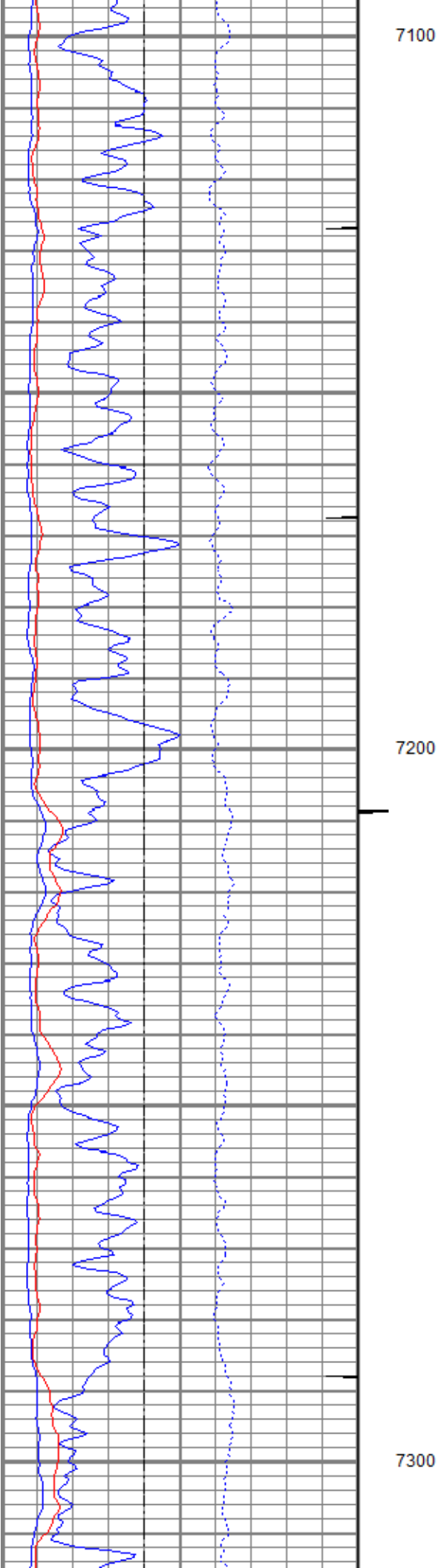


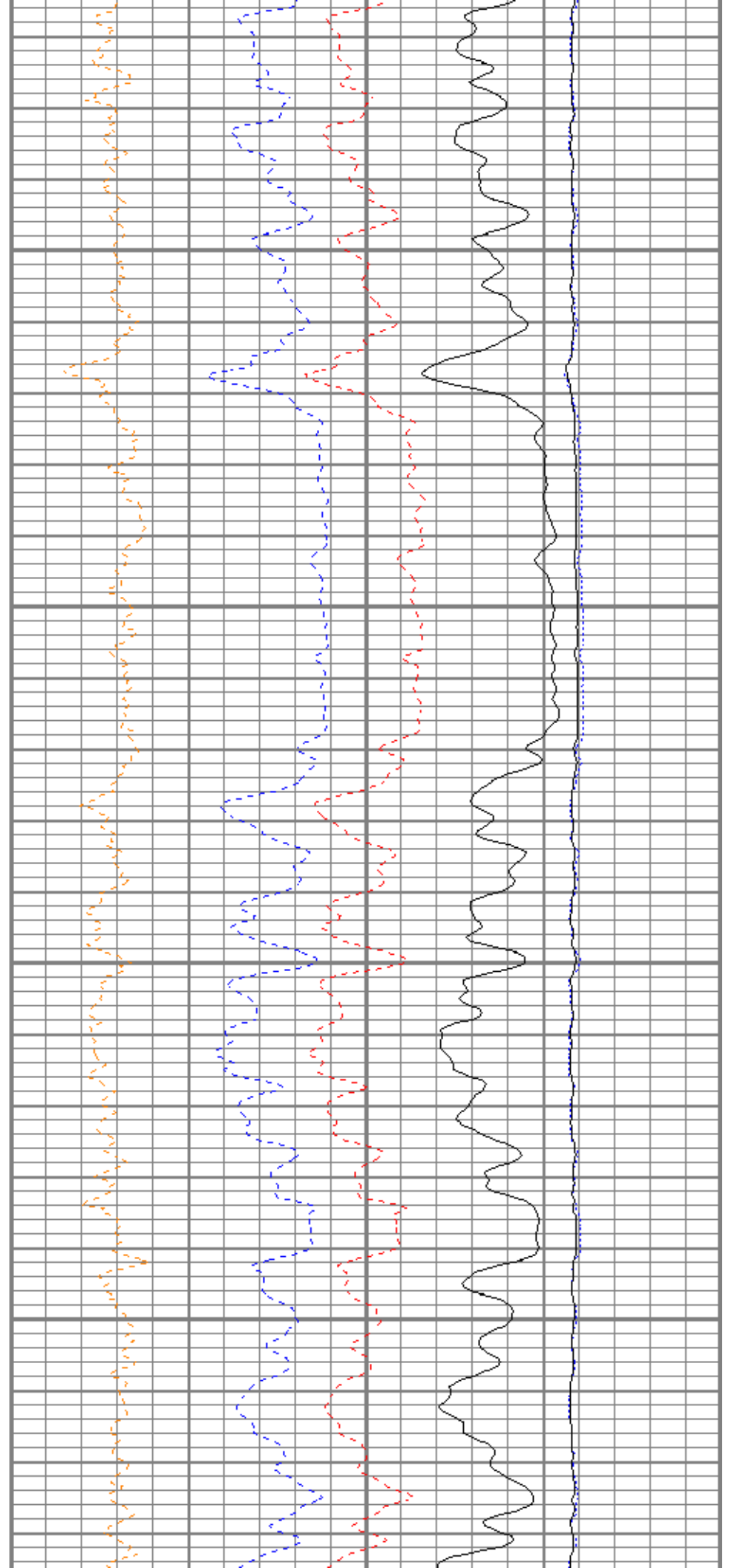
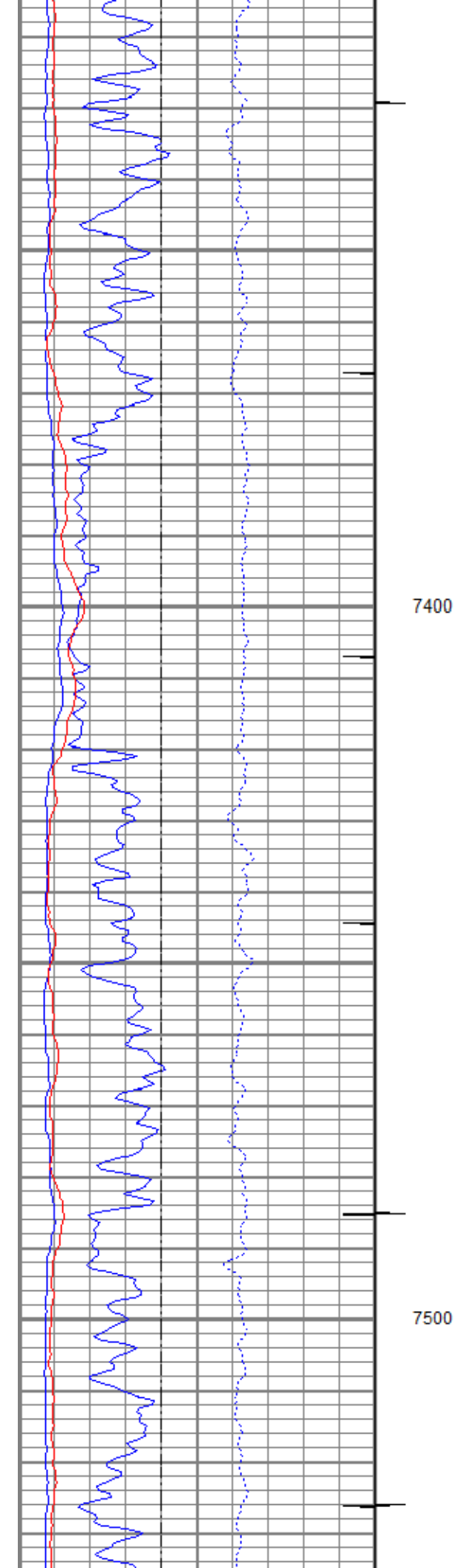
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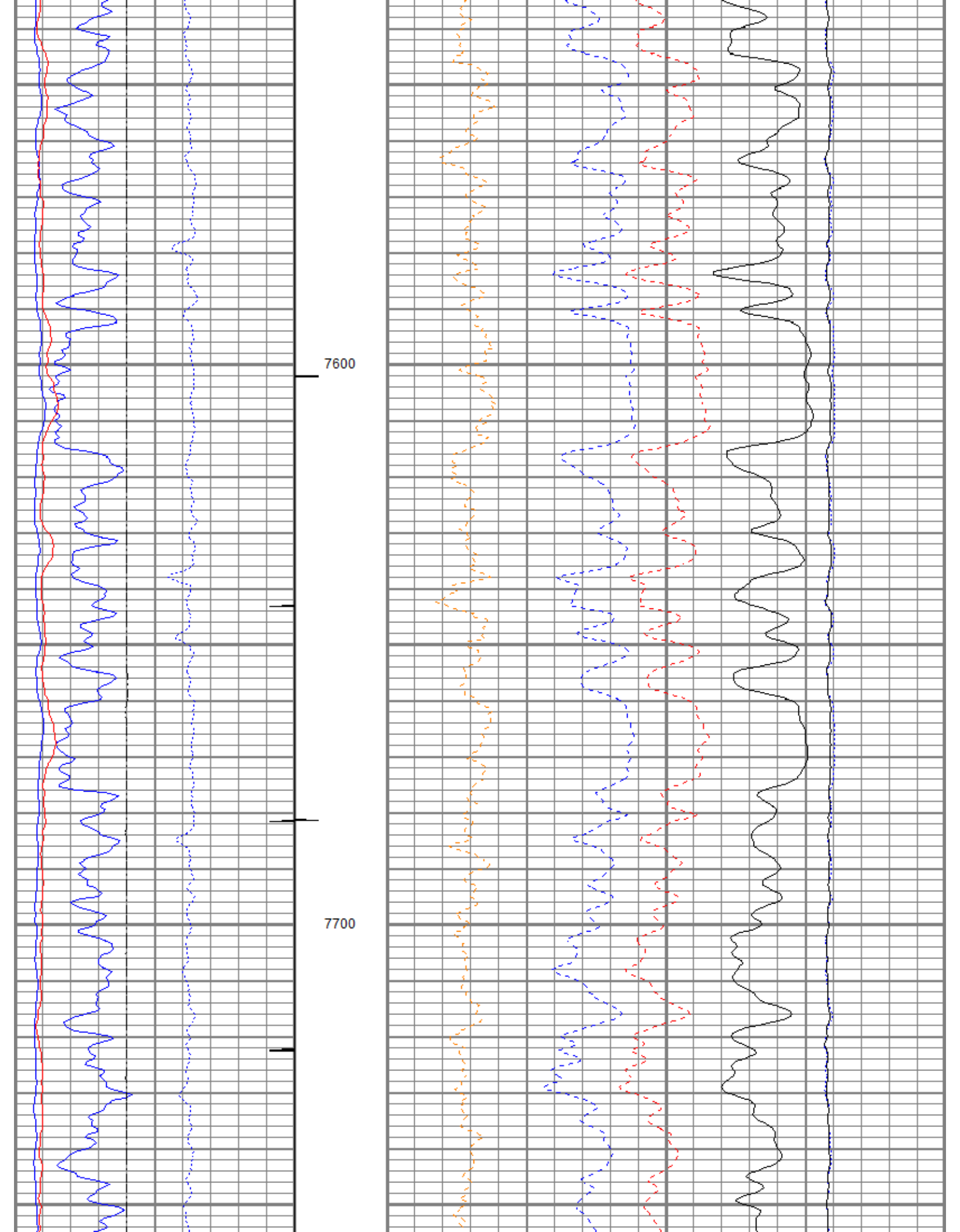
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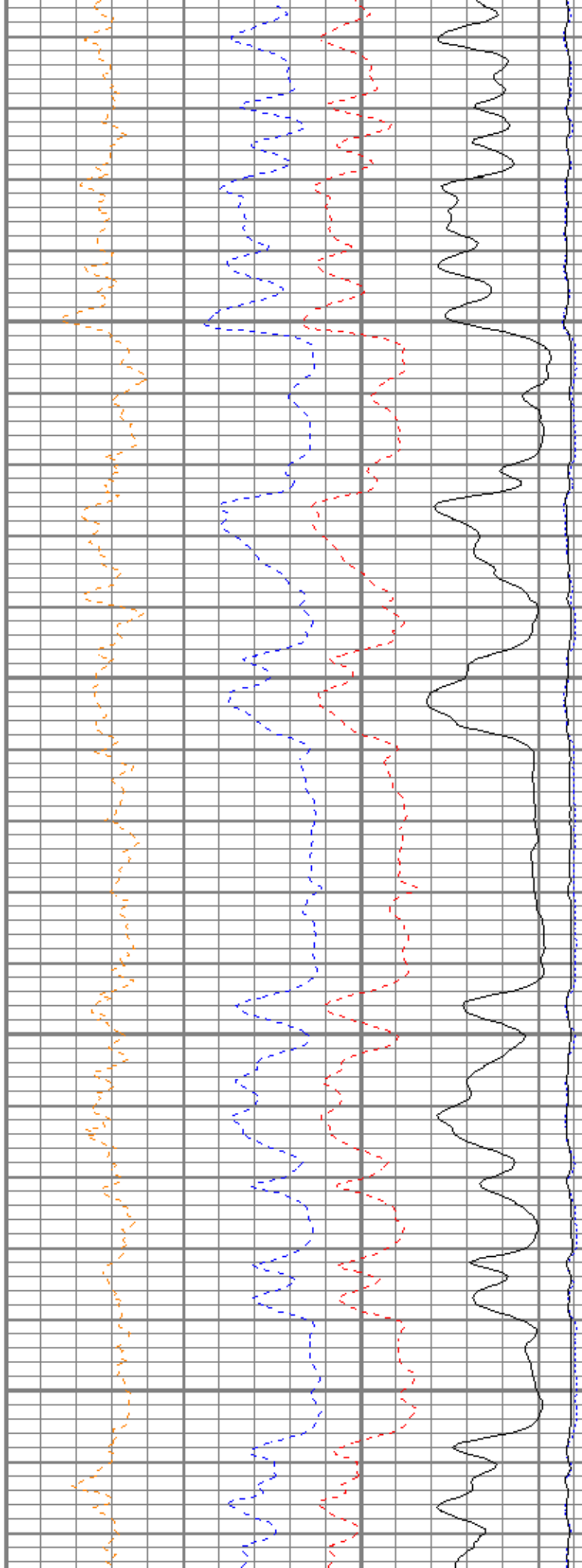
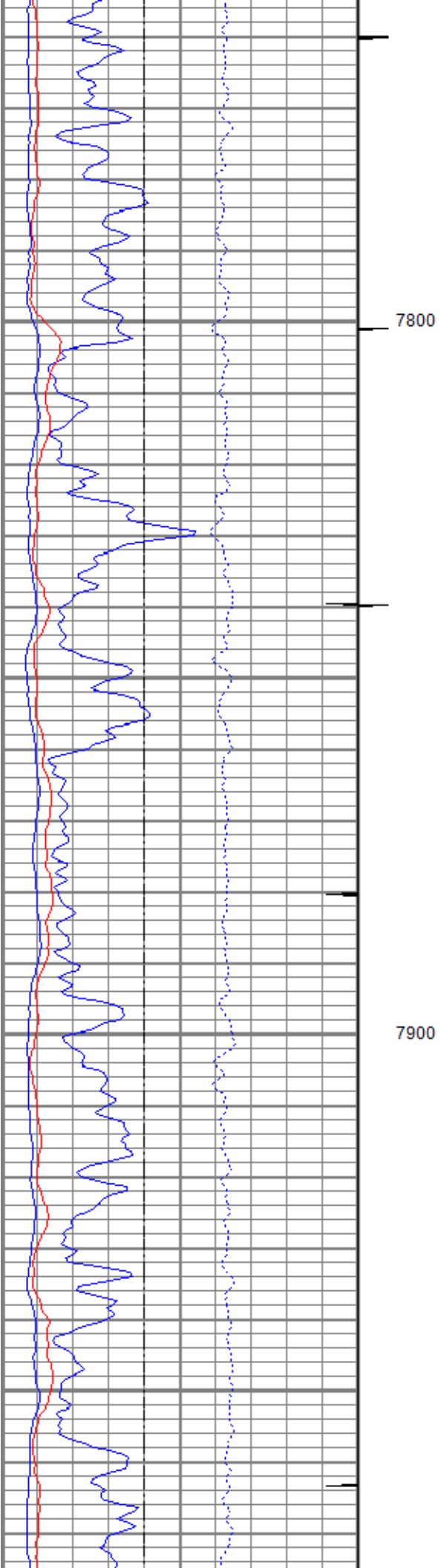


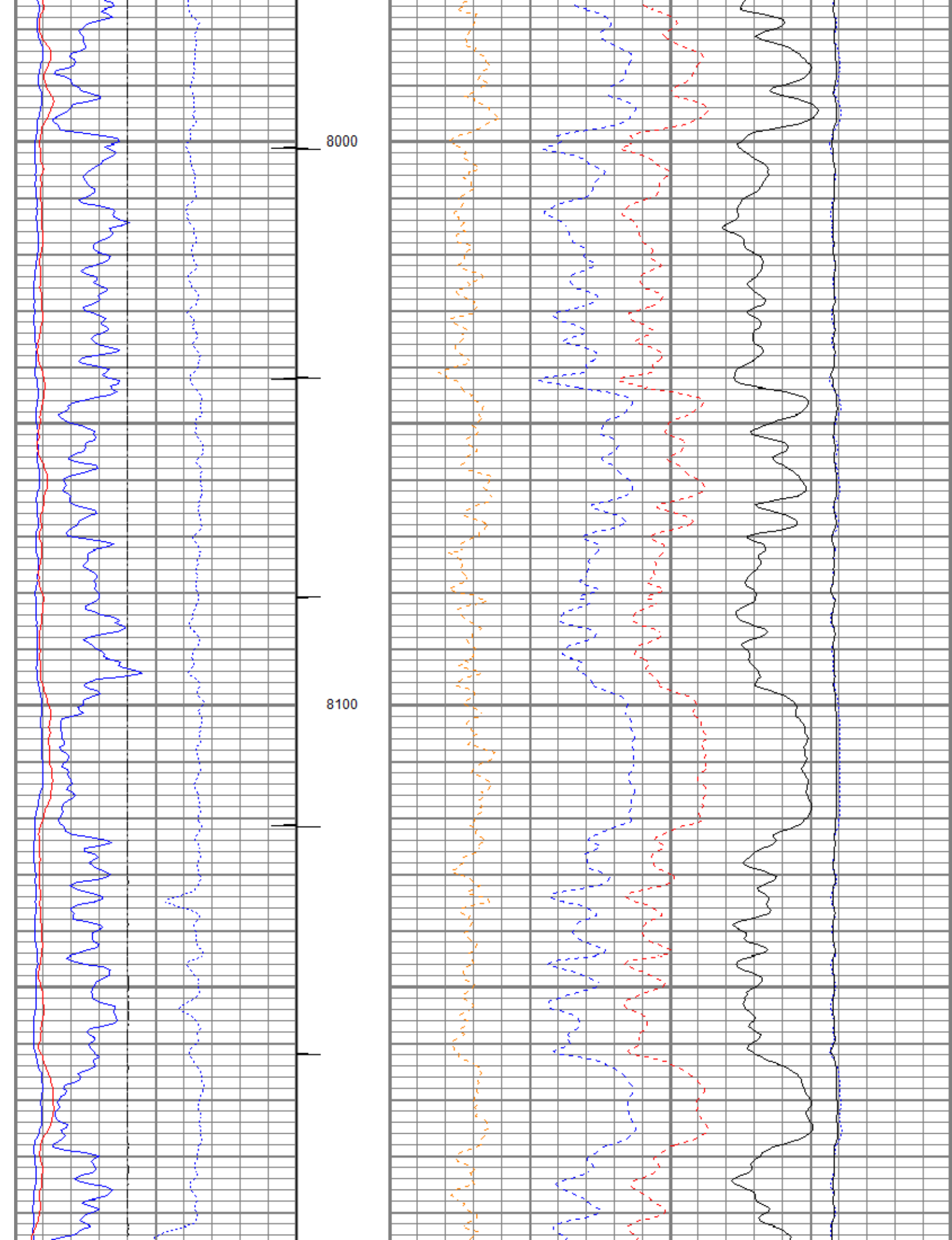


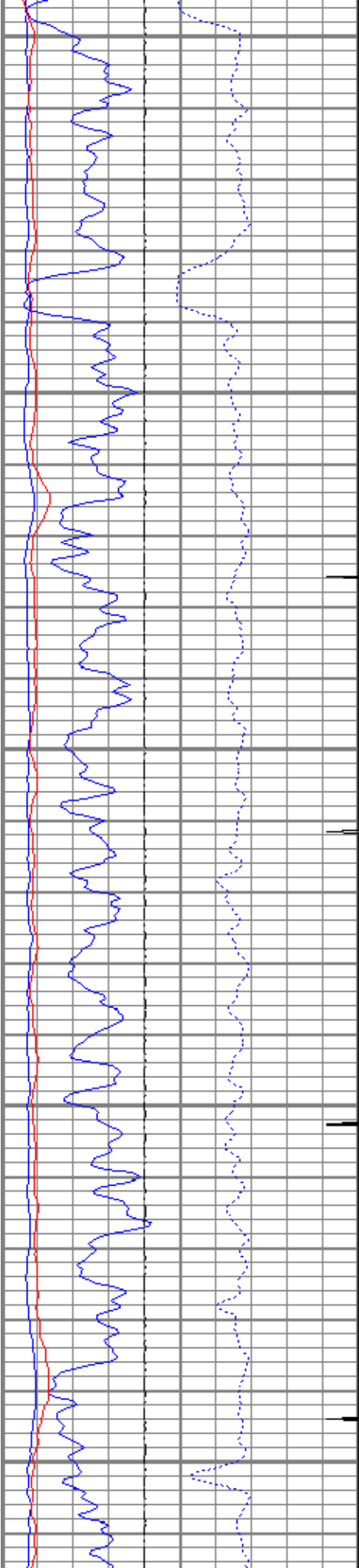








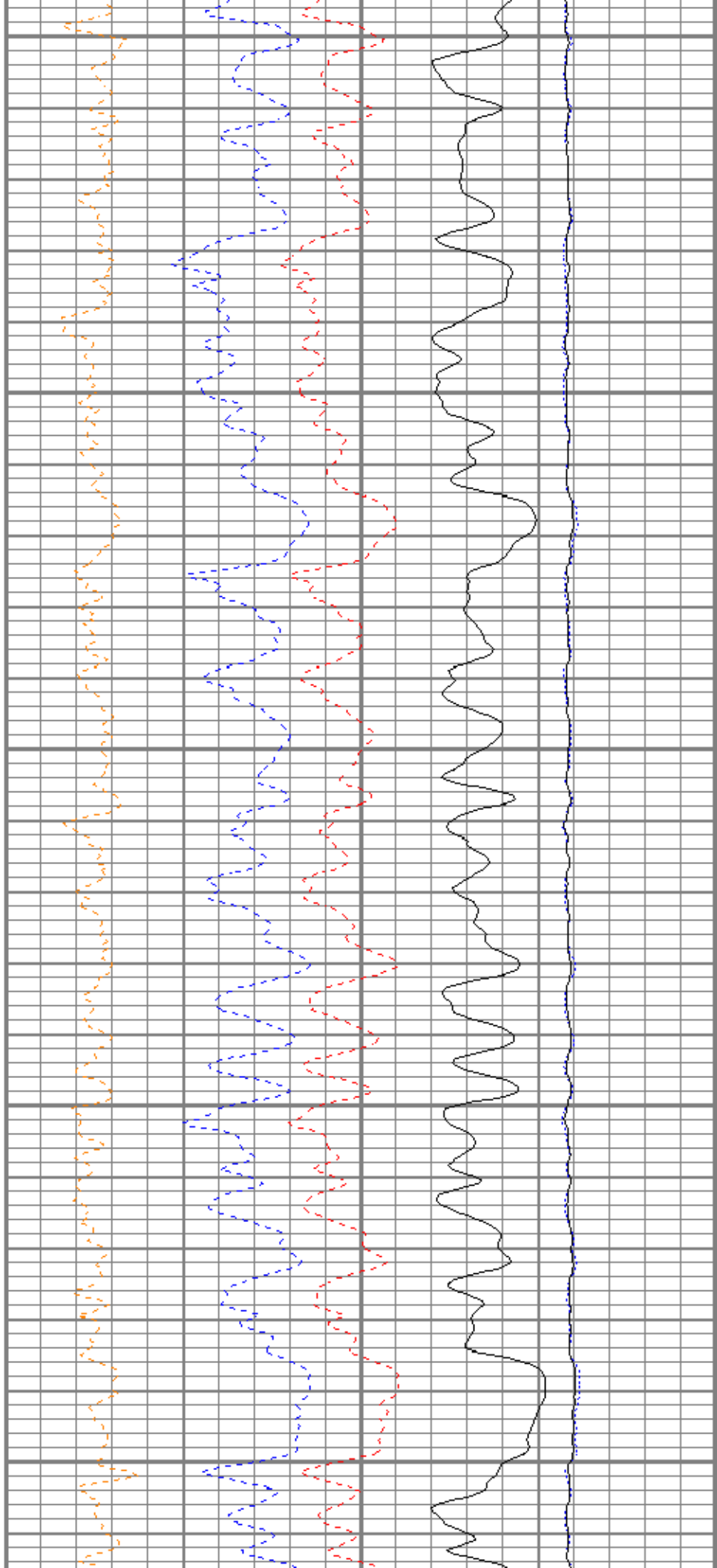


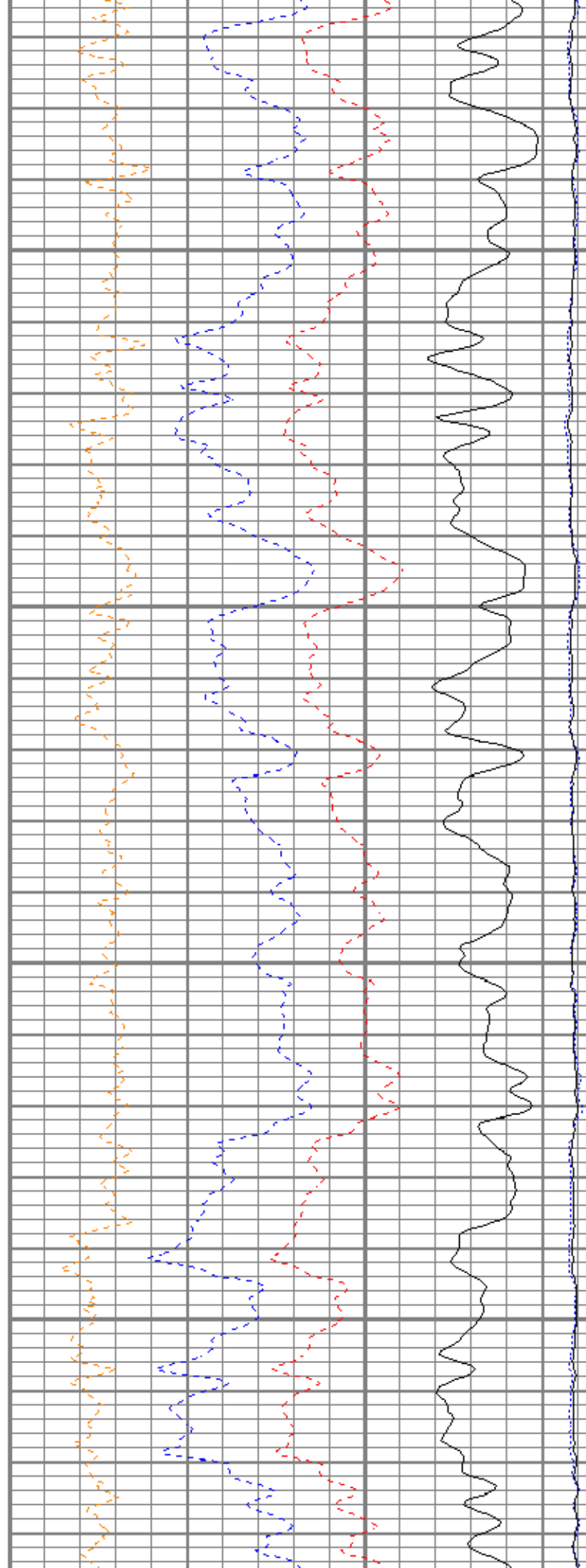
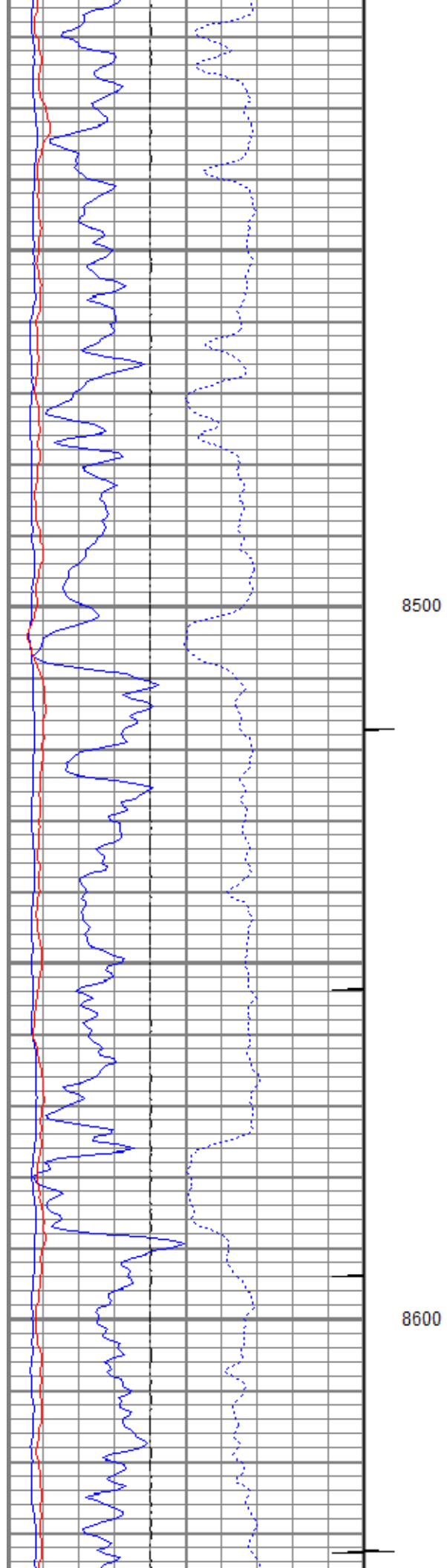


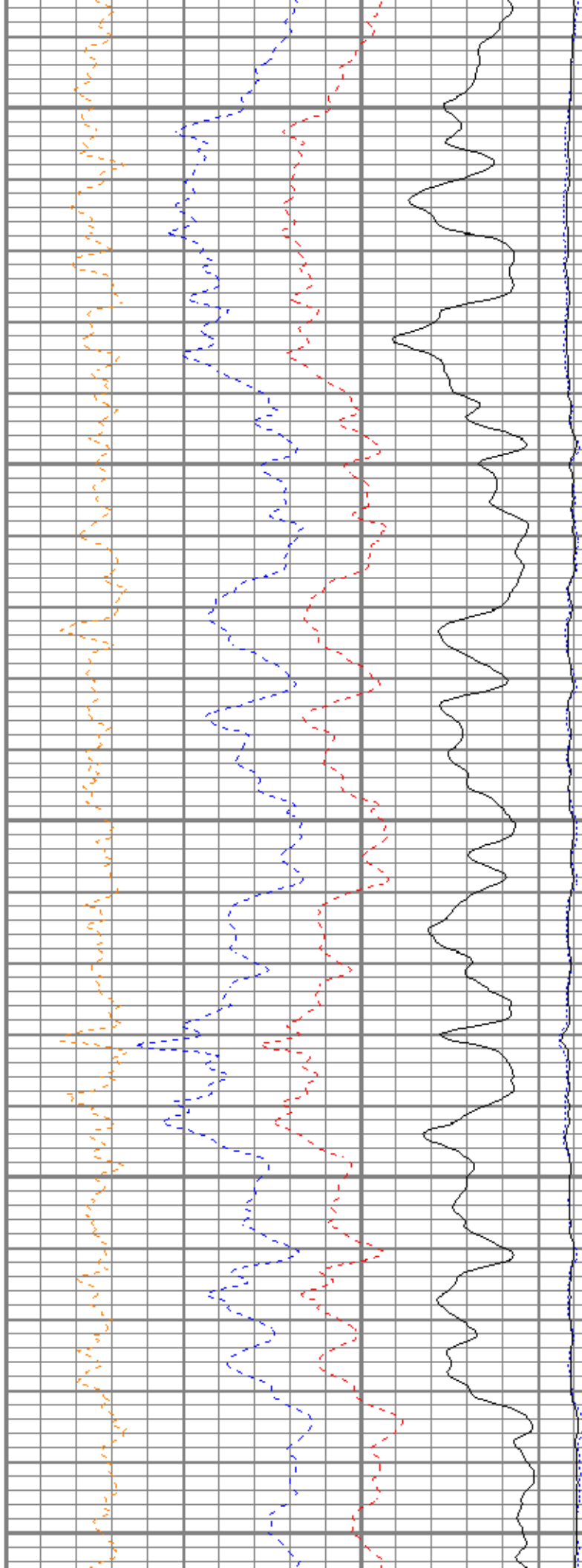
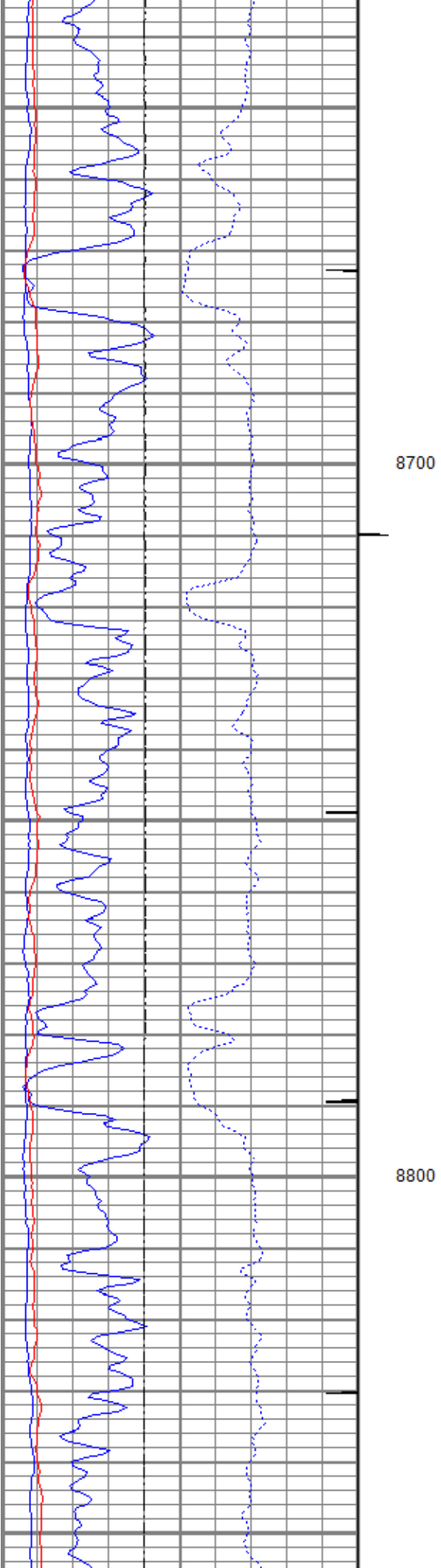
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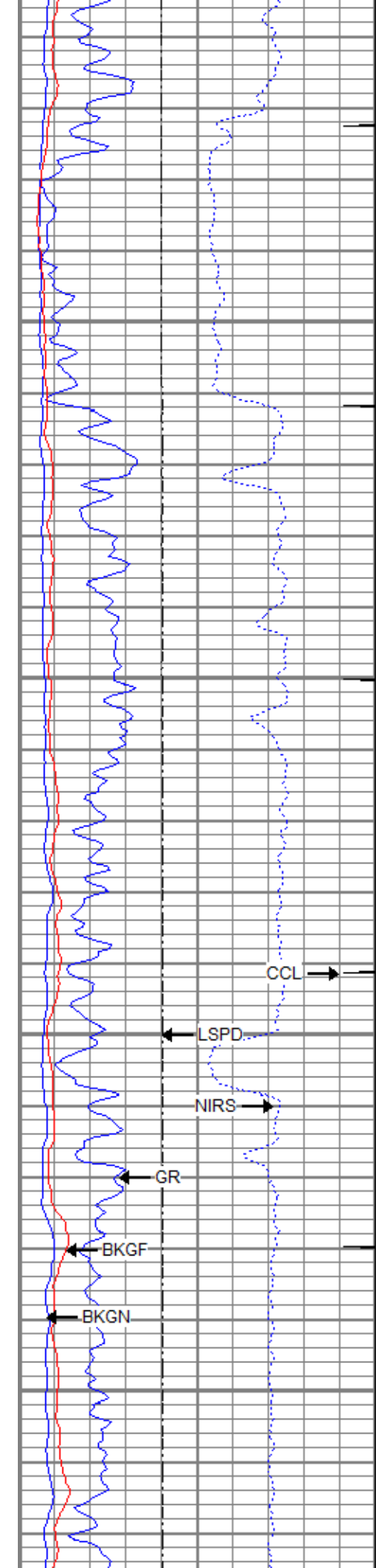
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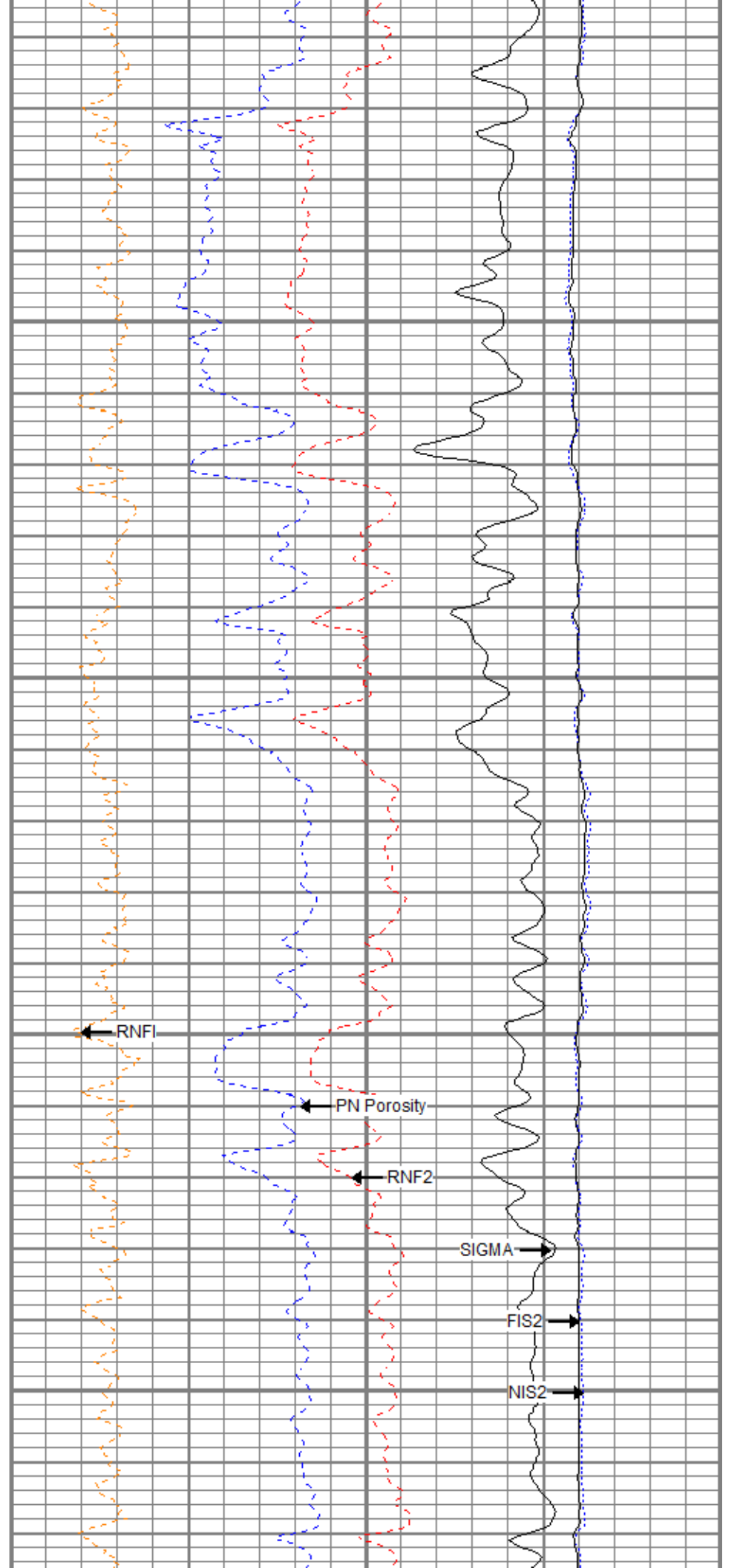


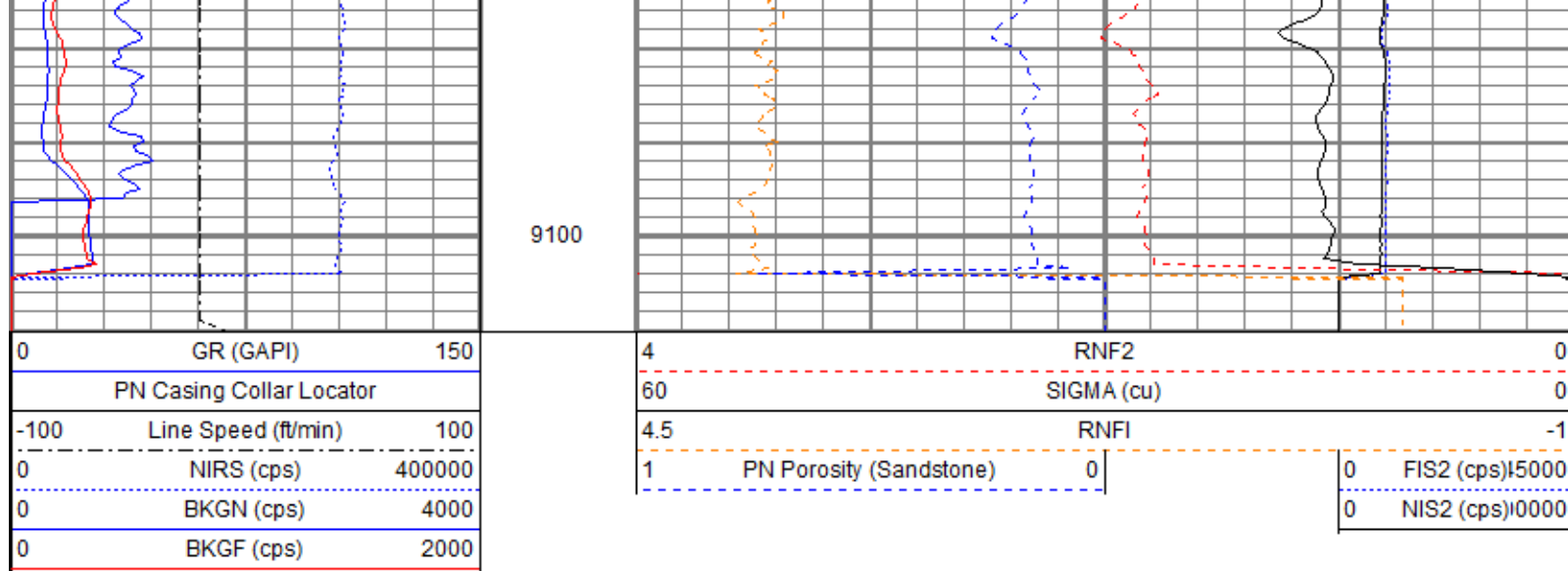




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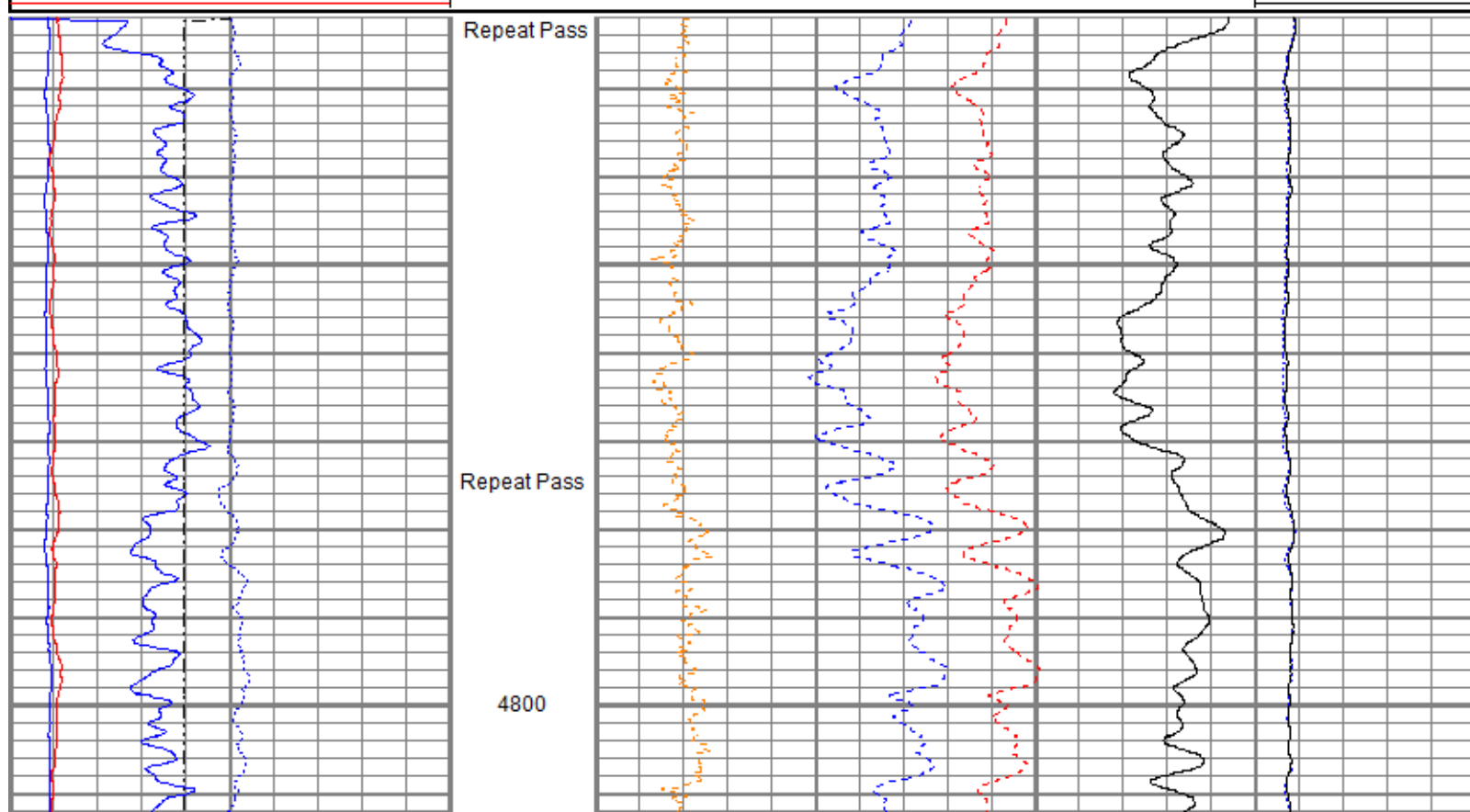
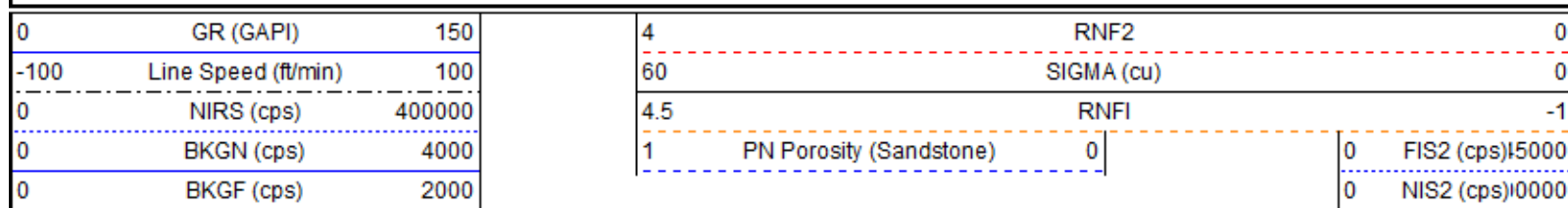
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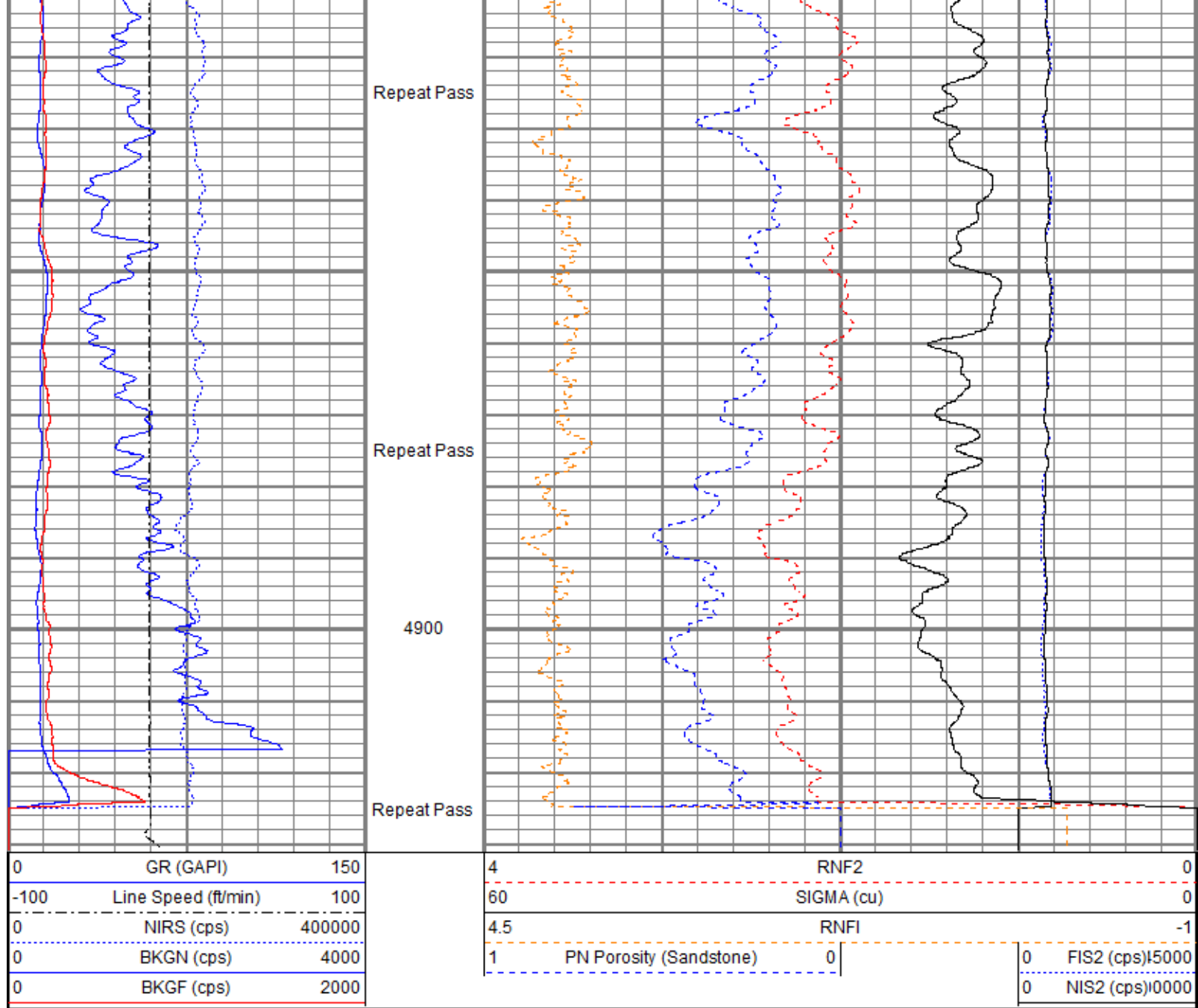









Repeat Pass

Database File tep_federal rwf 332-11\tep_federal rwf 332-11_pn_02-14-20.db
 Dataset Pathname repeat\tep__rwf_332-11_pn_2-14-20_run1_repeat_
 Presentation Format ros_pdn_hunter
 Dataset Creation Fri Feb 21 13:13:17 2020
 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 14.69 13.97		Titan CHD-16875 GO	1.03	1.69	5.40
			Titan 1-11/16" Assembled Electric Cable Head w/ 1" Fishing Neck			
			HWS_TCU-001 (000279) HWS Telemetry Control Unit	1.52	1.69	7.80
			HWS_GCL-001 (001681) HWS Gamma Ray Collar Locator (1.6875")	2.69	1.69	13.40
GCL_GR	12.50					

Long	6.25			HWS_RAS-RAS002 (003040) Hunter Well Science Pulsed Neutron Tool	11.75	1.69	55.82
Far	6.25						
Near	6.25						
Anci	6.25						
LOCTIM	0.00			HWS_TBN-001 (001724) HWS Terminator Bull Nose (1.6875")	0.25	1.69	0.99
UTCTIM	0.00						
Dataset: tep_federal rwf 332-11_pn_02-14-20.db: field/well/run1/toolstring Total length: 17.24 ft Total weight: 83.41 lb O.D.: 1.69 in							

Calibration Report	
Database File	c:\programdata\warrior\data\tep_federal rwf 332-11\tep_federal rwf 332-11_pn_02-14-20.db
Dataset Pathname	main.2
Dataset Creation	Mon Feb 17 08:26:38 2020

RAS Calibration Report	
Calibration Date:	Mon Sep 16 14:23 2019
Meas #:	003040

Water Tank				
Description	Curve	Standard	Mean	Dev
Sigma Near	SIGN	23.1	24.1	0.18
Sigma Far	SIGF	22.8	23.5	0.20
Ratio Near-Long Capture	RNL2	5.79	7.46	0.05
Ratio Near-Long Burst	RNLB	6.49	7.82	0.04
Ratio Near-Far Capture	RNF2	1.85	2.03	0.01
Ratio Near-Far Burst	RNFB	2.03	2.19	0.01

Spectral Hydrogen Index	HIS2	12.84	13.86	0.22
Carbon-Oxygen Ratio	CORS	1.34	1.85	0.07
Ratio Burst-Capture Near	RNBC	1.46	1.68	0.01
Ratio Burst-Capture Far	RFBC	1.50	1.61	0.01

Hydrocarbon Tank

Description	Curve	Standard	Mean	Dev
Sigma Near	SIGN	25.7	27.8	0.27
Sigma Far	SIGF	25.1	26.1	0.23
Ratio Near-Long Capture	RNL2	1.78	3.38	0.02
Ratio Near-Long Burst	RNLB	2.57	5.01	0.02
Ratio Near-Far Capture	RNF2	0.98	1.32	0.01
Ratio Near-Far Burst	RNFB	1.30	1.68	0.01
Spectral Hydrogen Index	HIS2	16.68	19.26	0.36
Carbon-Oxygen Ratio	CORS	1.51	2.04	0.06
Ratio Burst-Capture Near	RNBC	2.23	2.37	0.02
Ratio Burst-Capture Far	RFBC	2.09	2.09	0.02

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/



Company TEP Rocky Mountain LLC
Well Federal RWF 332-11
Field Rulison
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