



Radial Cement Bond
Gamma Ray
Casing Collar Log

Company Noble Energy Inc
Well Guttersen D09-785
Field Wattenberg
County Weld State Colorado

Location: API #: 05-123-48949
SEC 33 TWP 4N RGE 64W
Permanent Datum Ground Level Elevation 4725'
Log Measured From Ground Level
Drilling Measured From Kelly Bushing
Other Services
Elevation
K.B. 4755'
D.F. ---
G.L. 4725'

Date	20-DEC-2020			
Run Number	One			
Depth Driller	17511 FT			
Depth Logger	7218 FT			
Bottom Logged Interval	7206 FT			
Top Log Interval	Surface			
Open Hole Size	8.5"			
Type Fluid	Water			
Density / Viscosity	8.34 lb/gal			
Max. Recorded Temp.	246°F			
E. estimated Cement Top	See Log			
Time Well Ready	ROA			
Time Logger on Bottom	10:55			
E. equipment Number	HD- 361			
Location	Platteville, CO			
Recorded By	G. Lueck			
Witnessed By	A. Dockins			
Borehole Record				
Run Number	Bit	From	To	Size
Tubing Record				
Casing Record	Size (in)	Wgt (lbs/ft)	Grade	Top
Surface Casing	9 5/8	36	J-55	Surface
Intermediate #1	5 1/2	17	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 Marker Joint at 6300.0 FT
Adjusted -9 FT to correlate with Marker Joint
Log ran with 2500 PSI Surface Induced Pressure
Logging tools were clean and free of debris upon completion of operations

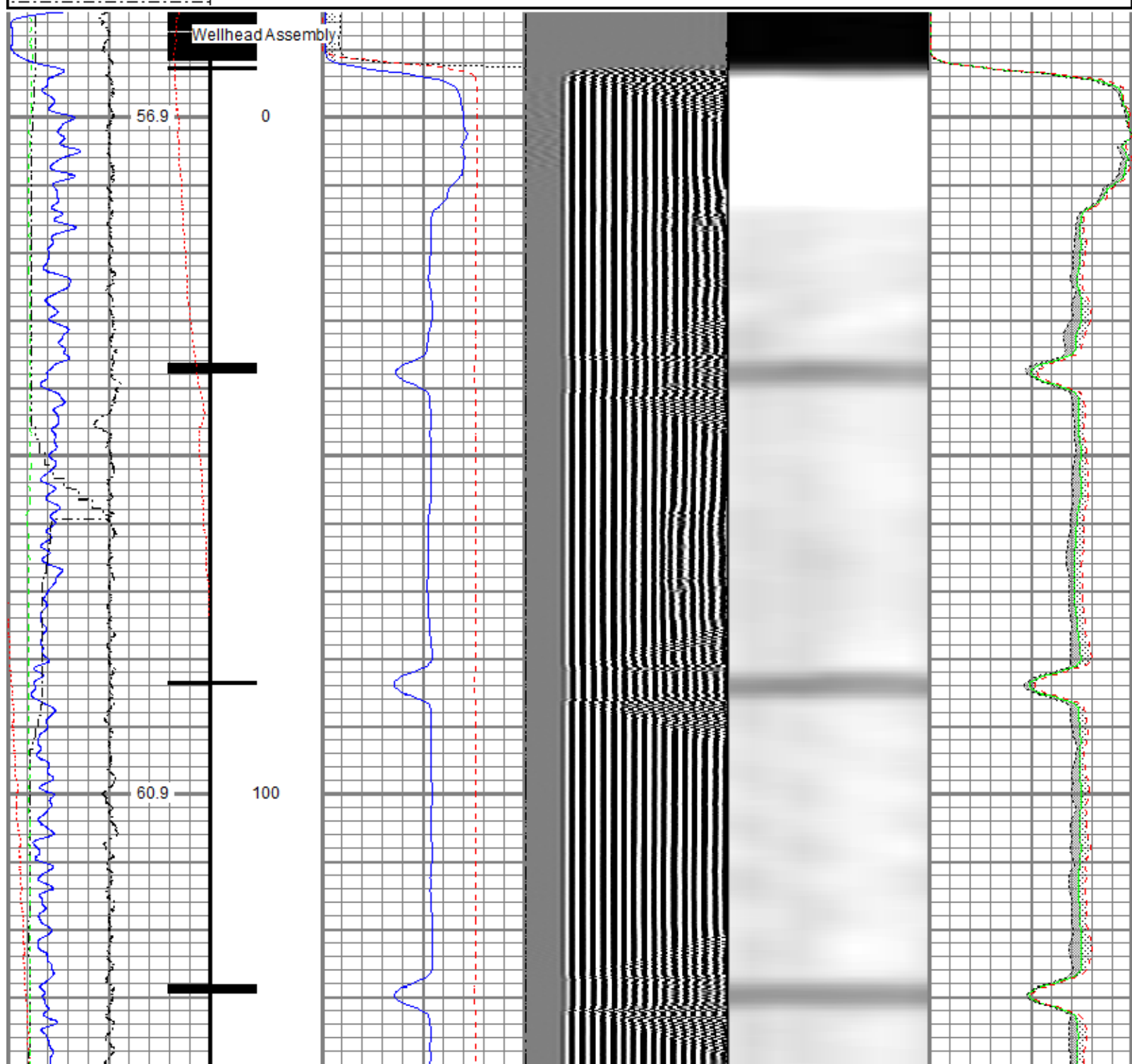
Thank you for choosing Reliance Oilfield Services, LLC!!

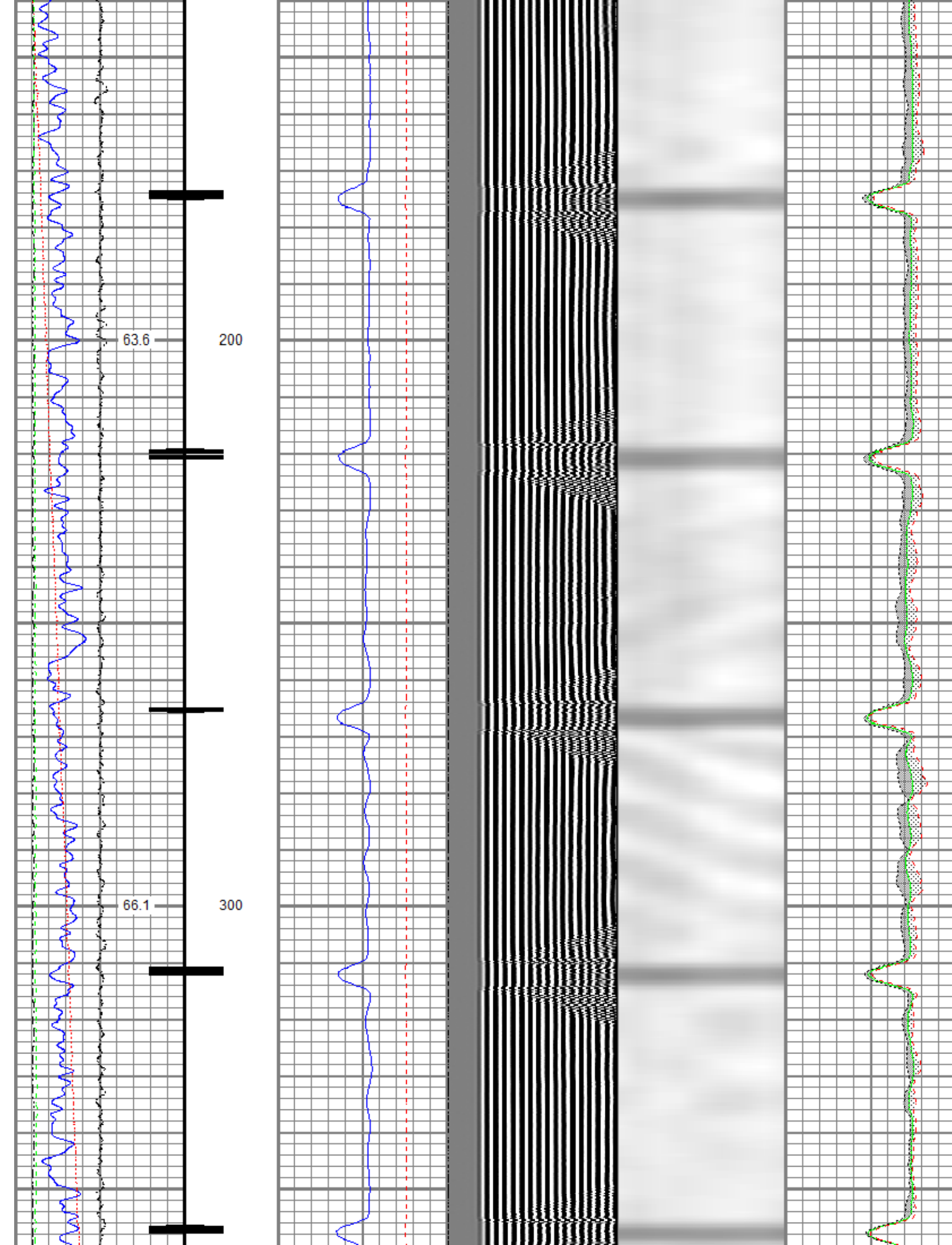
Main Pass

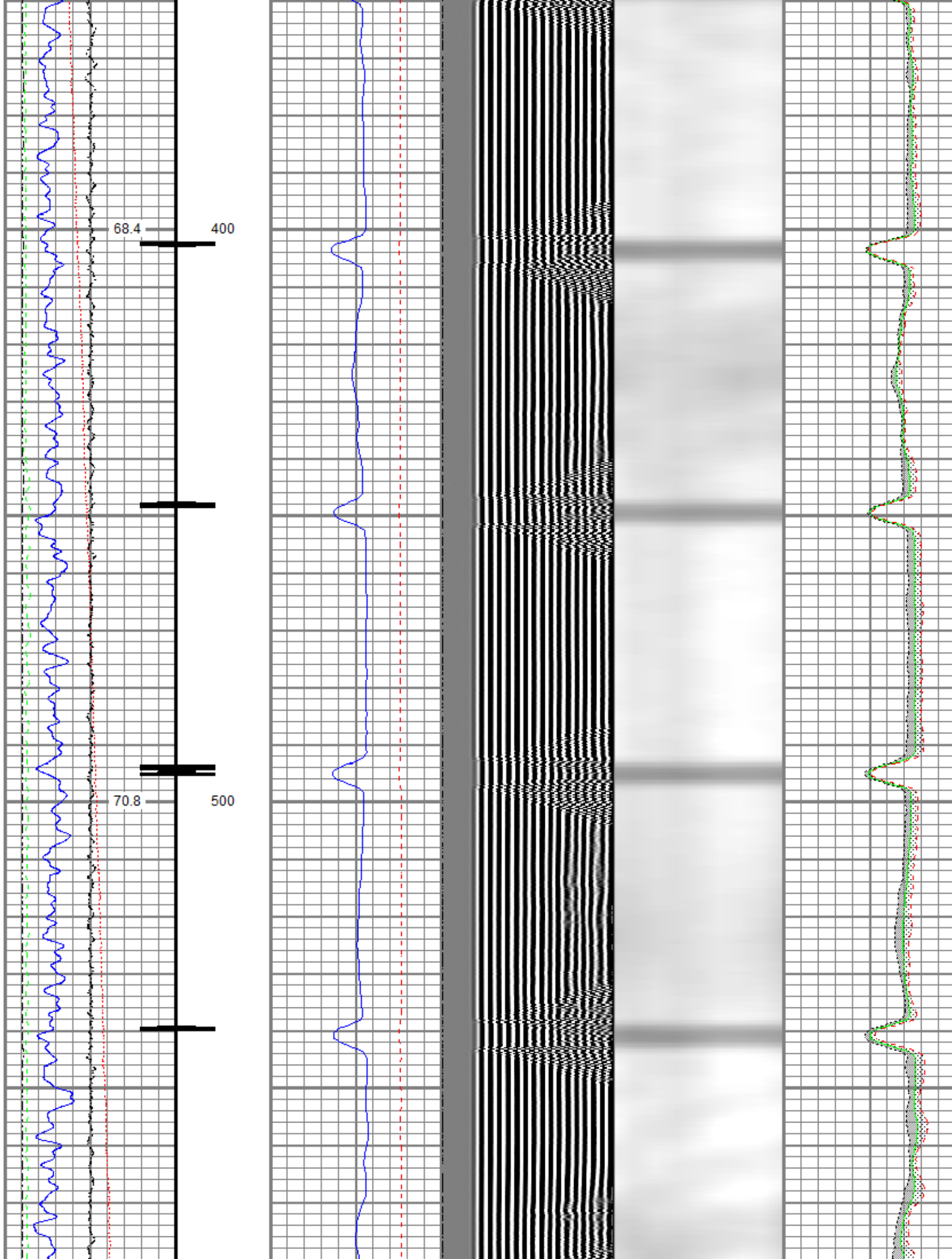


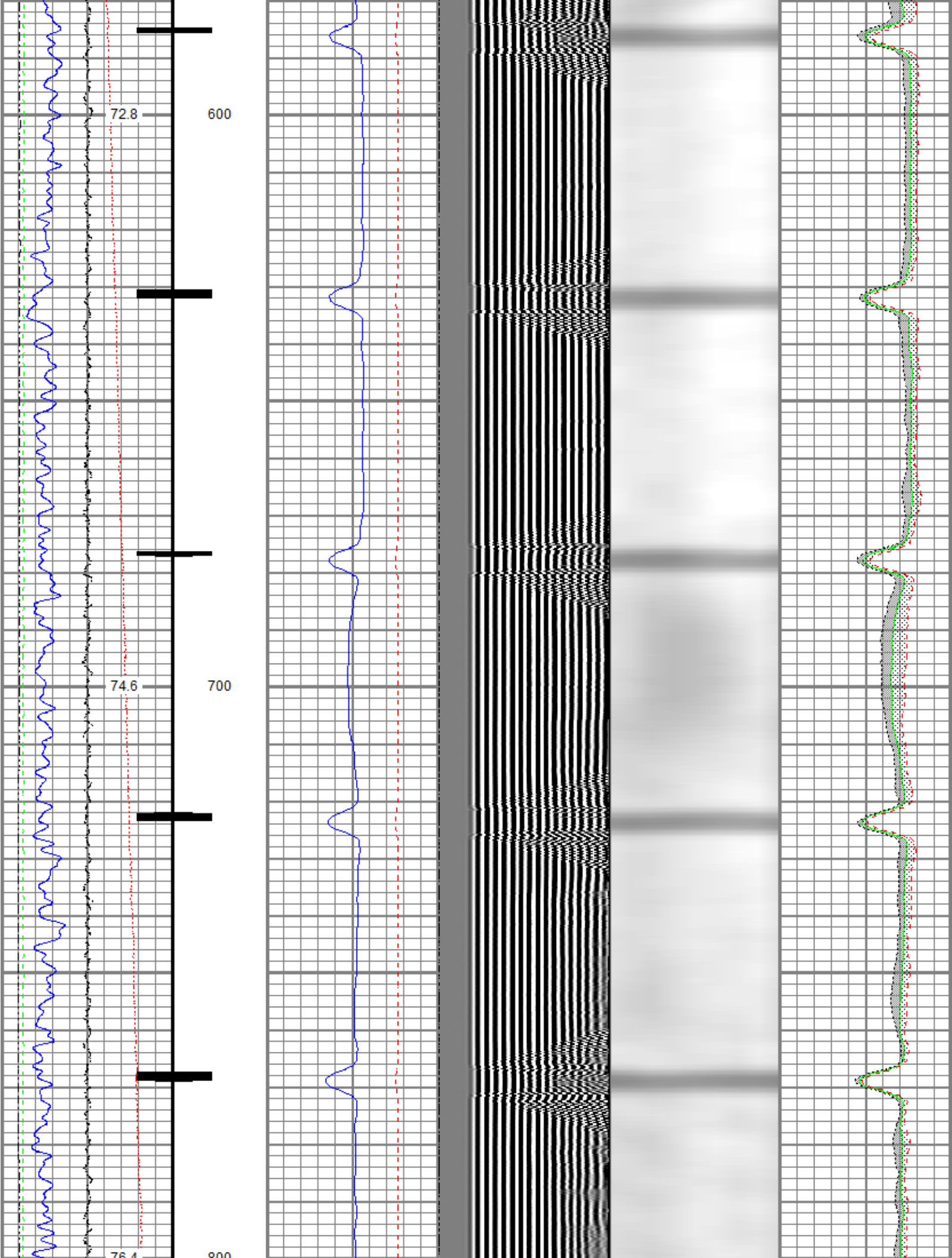
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 Dataset Pathname pass4.1
 Presentation Format ros_radri_noble
 Dataset Creation Sun Dec 20 12:02:39 2020
 Charted by Depth in Feet scaled 1:240

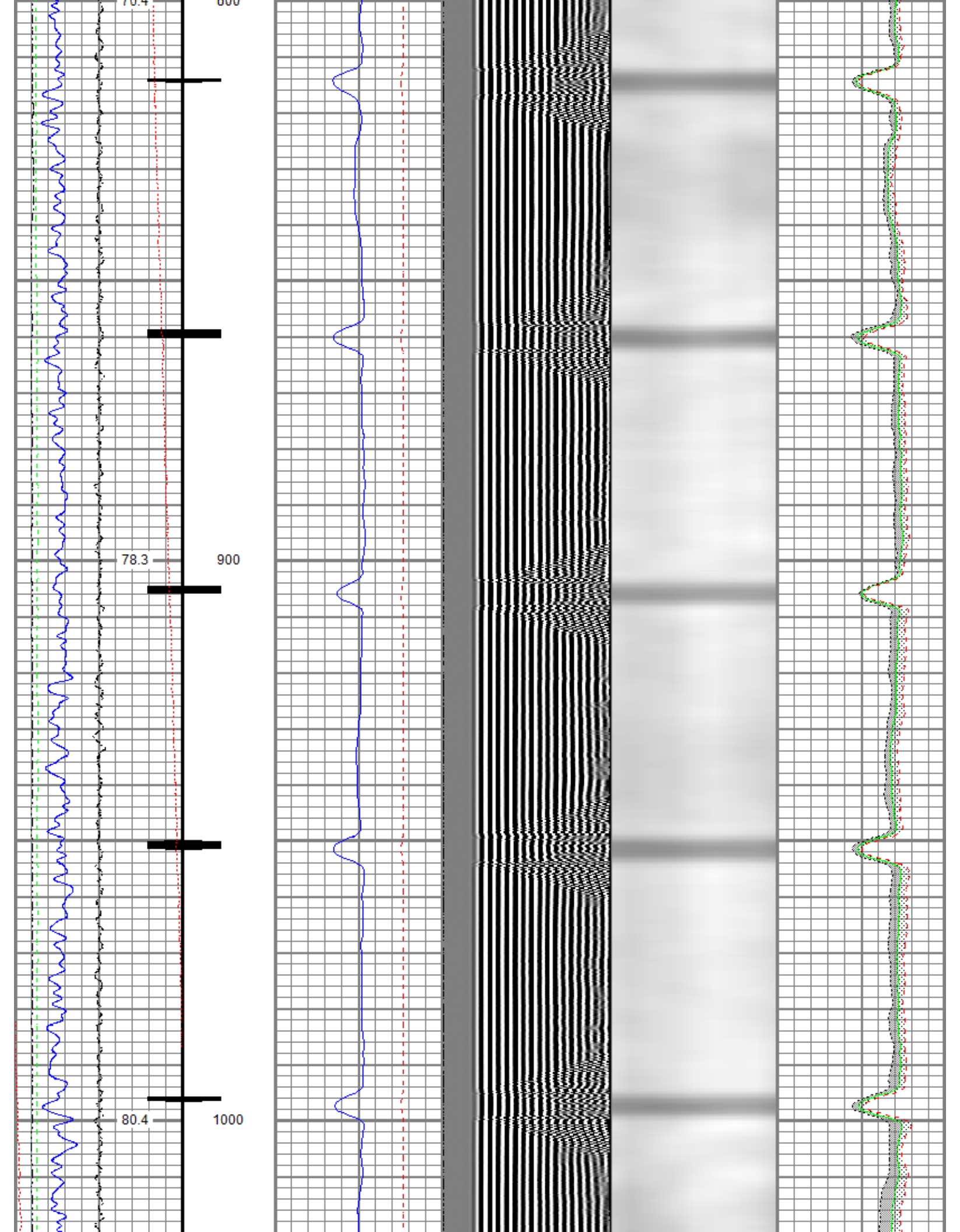
Gamma Ray (GAPI)	0	120	3' Amplitude (mV)	0	100	5' Variable Density Log (u sec)	200	1200	Sector Map	Average Amplitude	0	100
Casing Collar Log			3' Amplitude x 5 (mV)	0	20					Minimum Amplitude		
Temperature (degF)	0	20	3' Travel Time (u sec)	650	150					Maximum Amplitude		
Line Speed (ft/min)	-150	150										
Line Tension (lb)	0	2000										
Differential Temperature (degF)	-2	2										

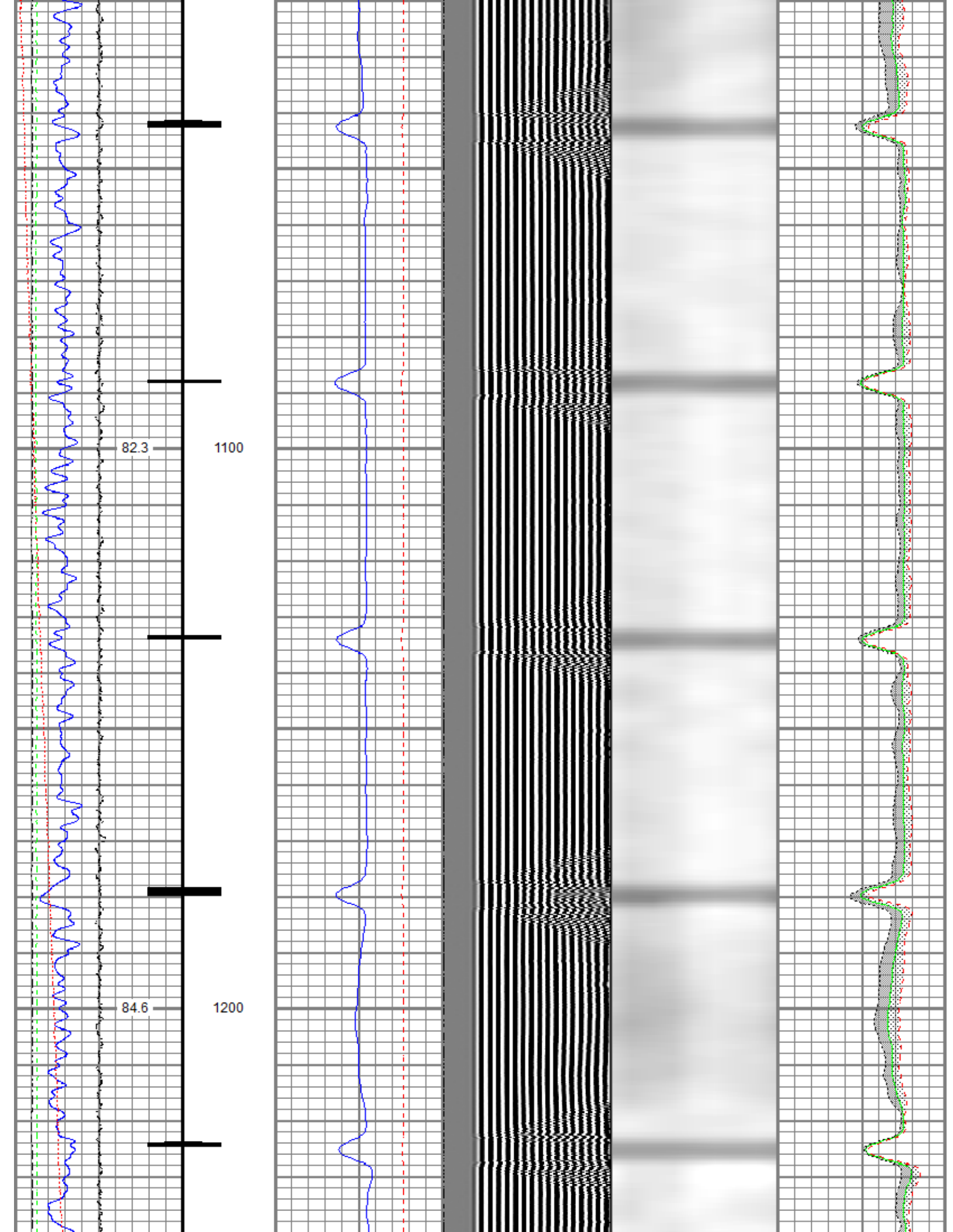


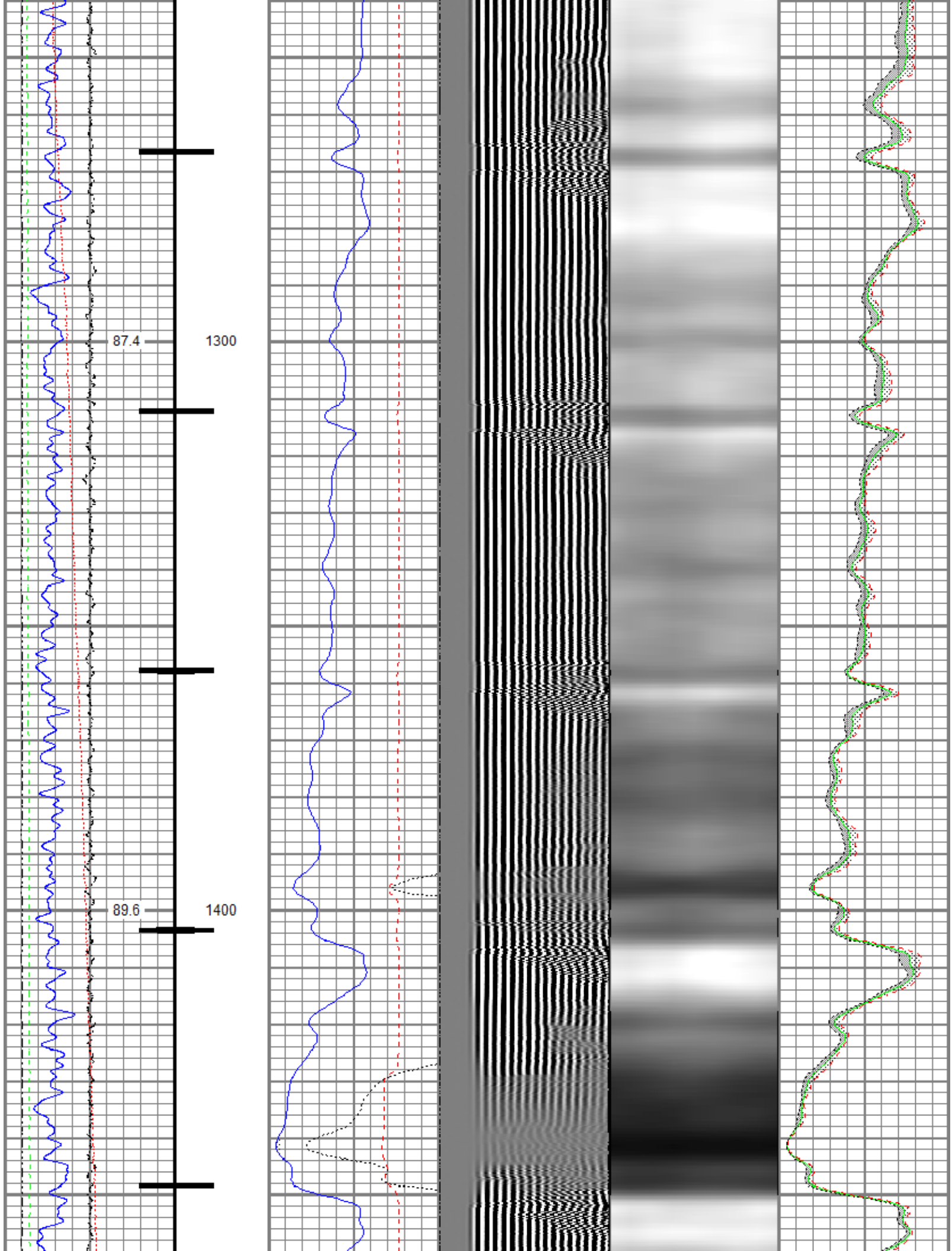


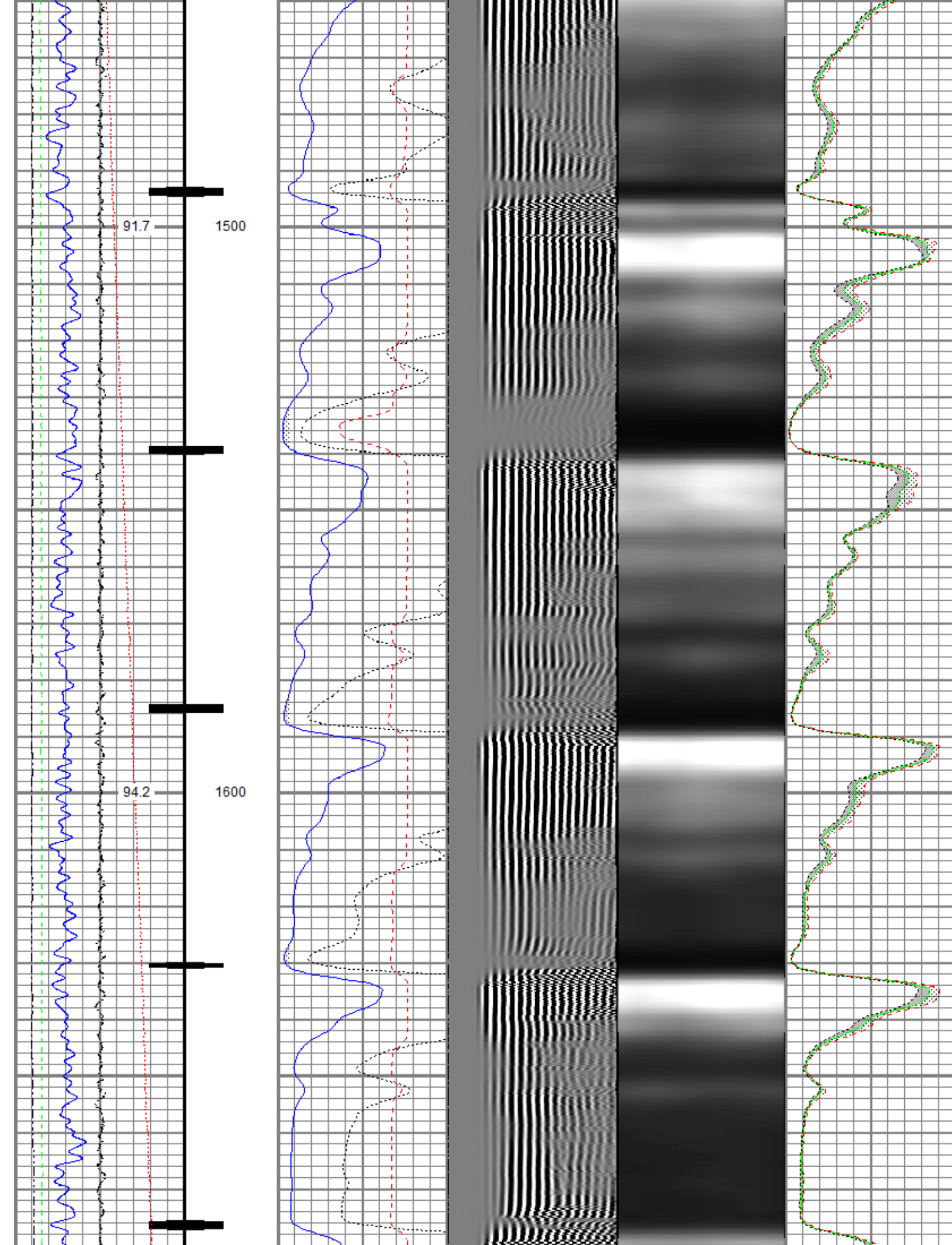


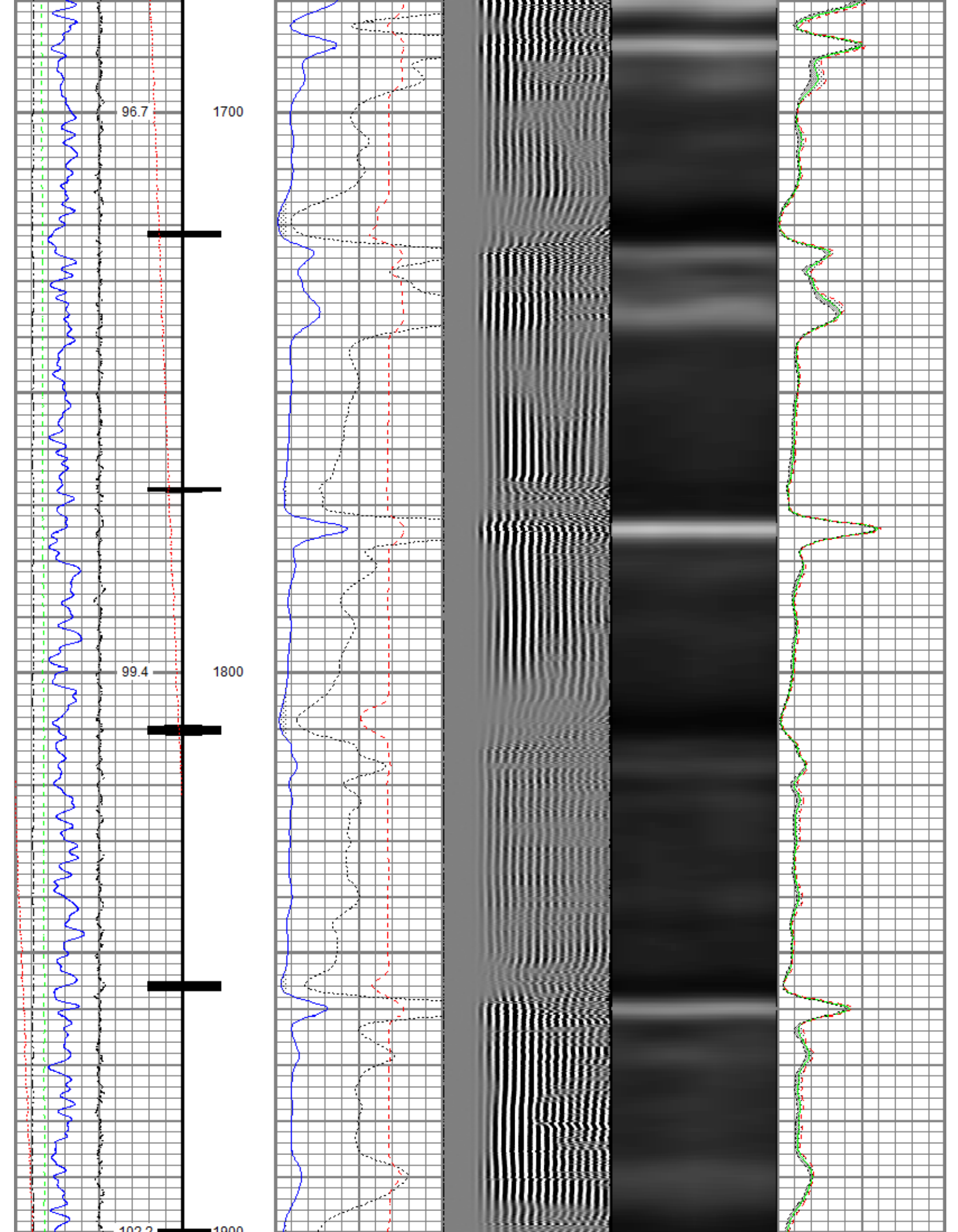


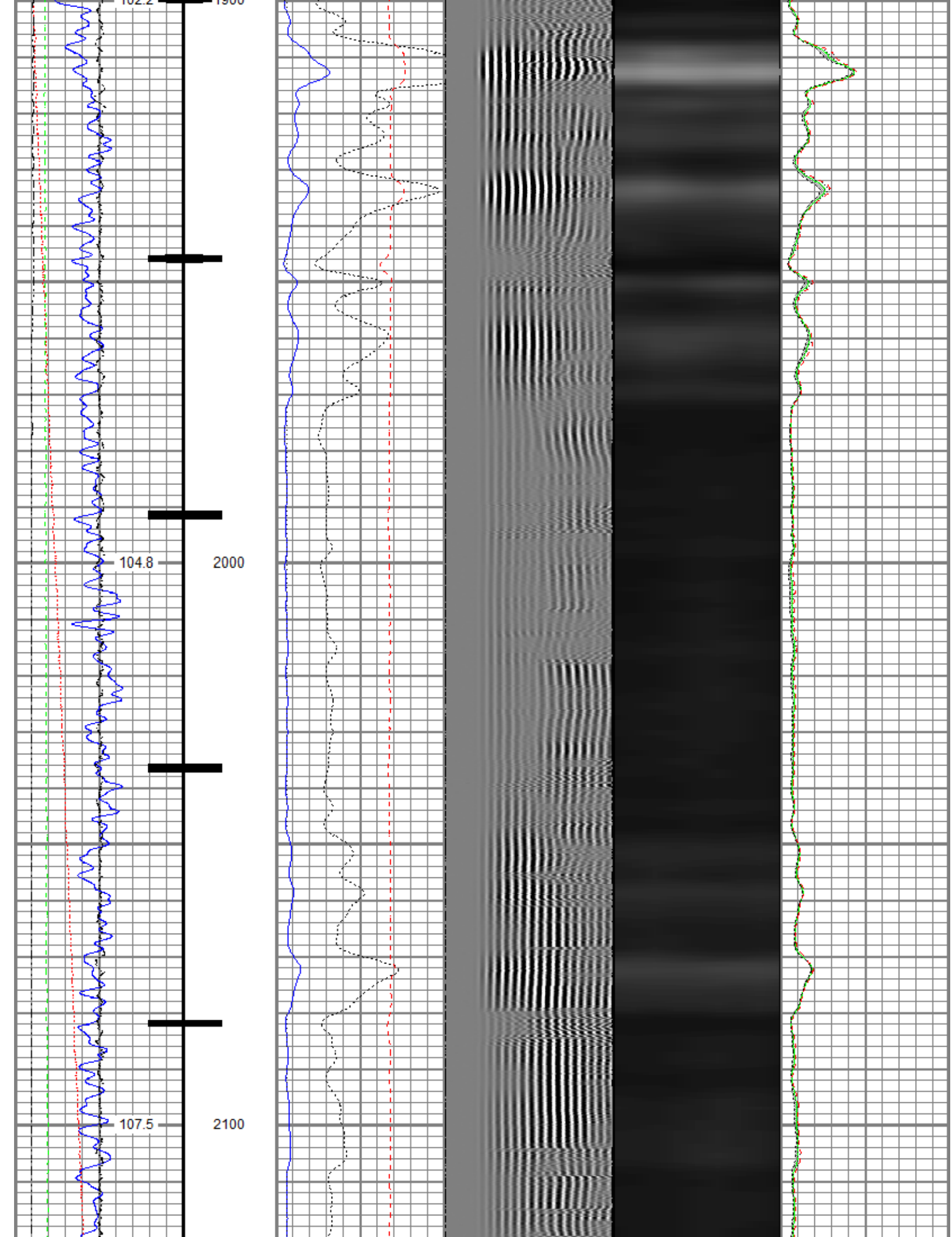


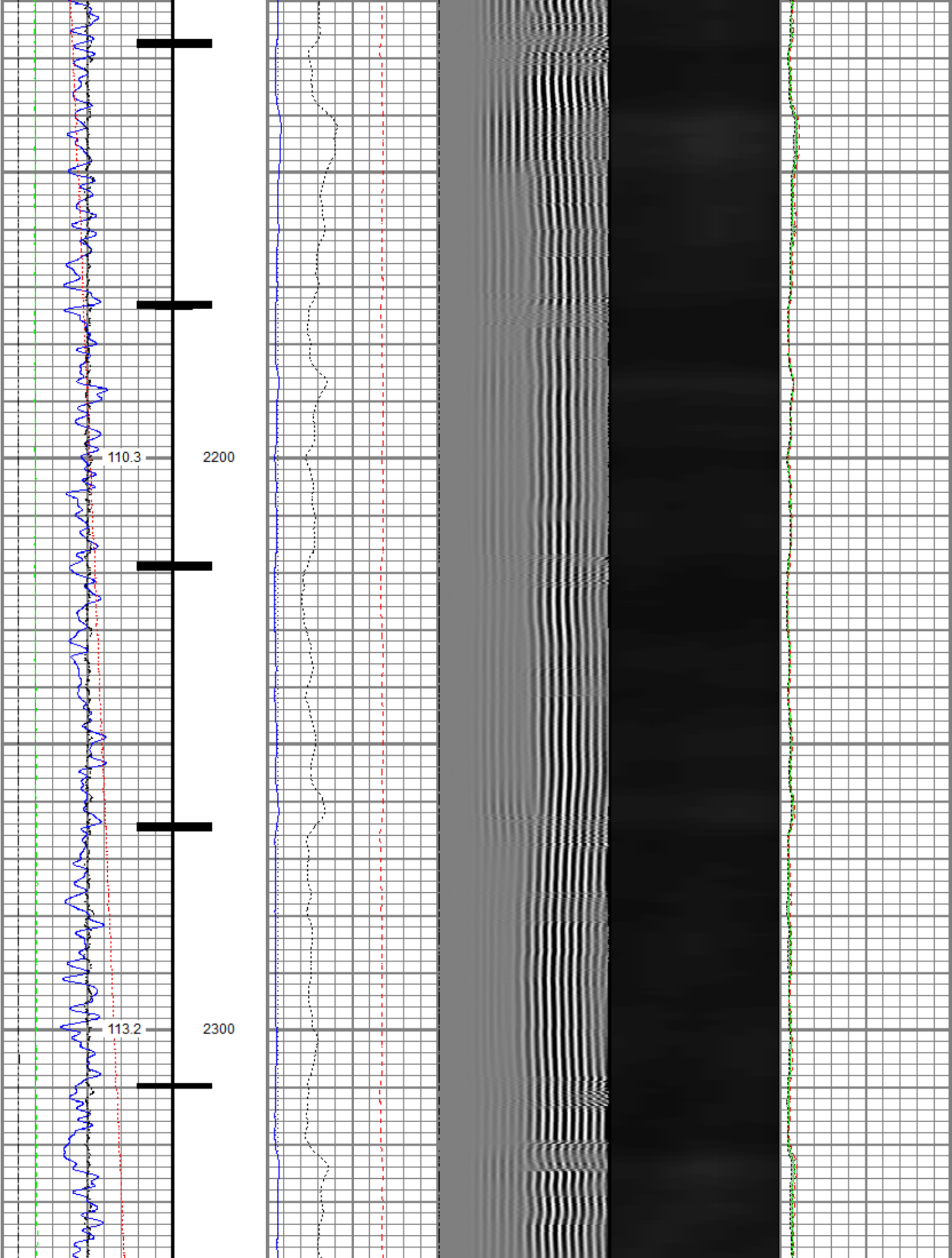


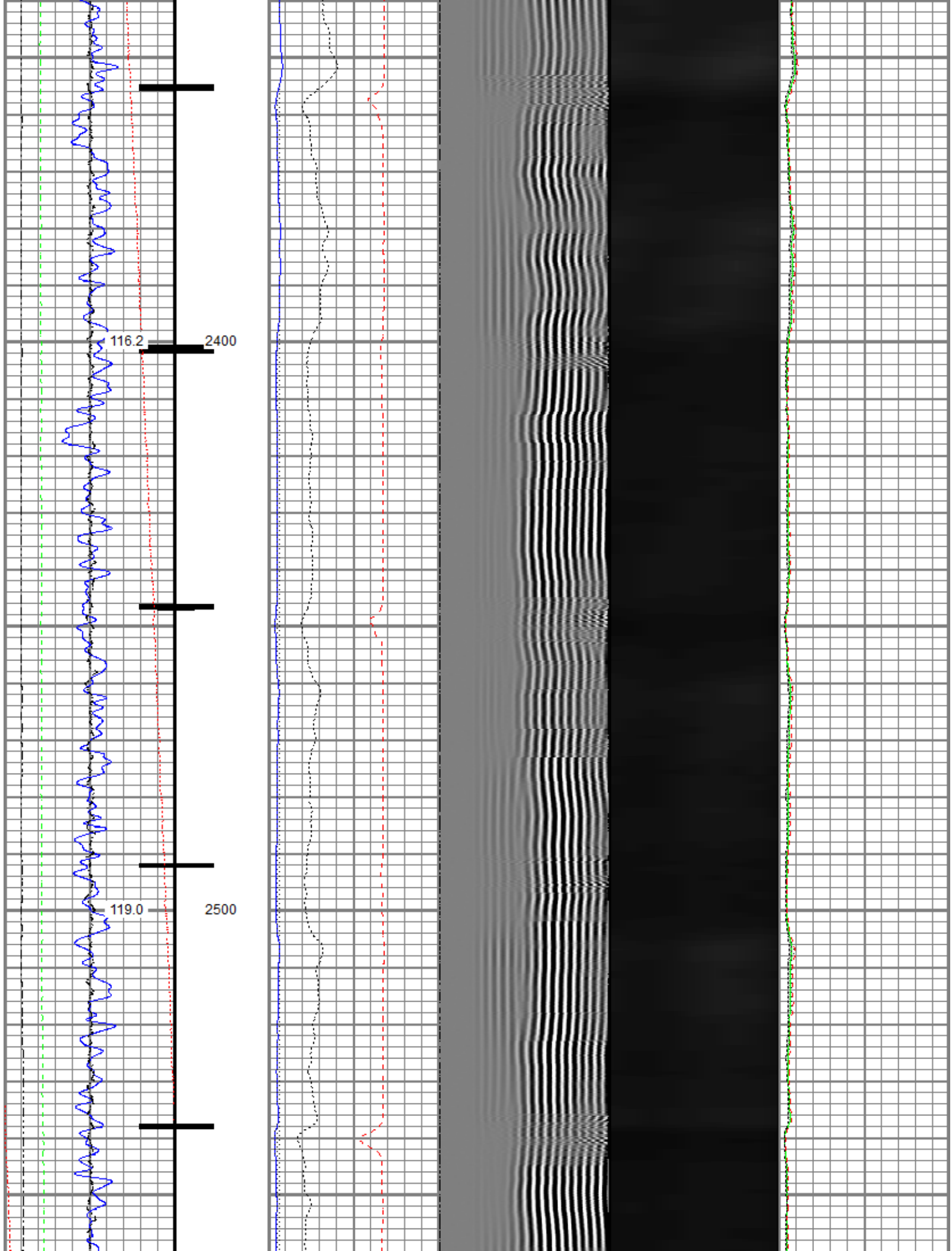


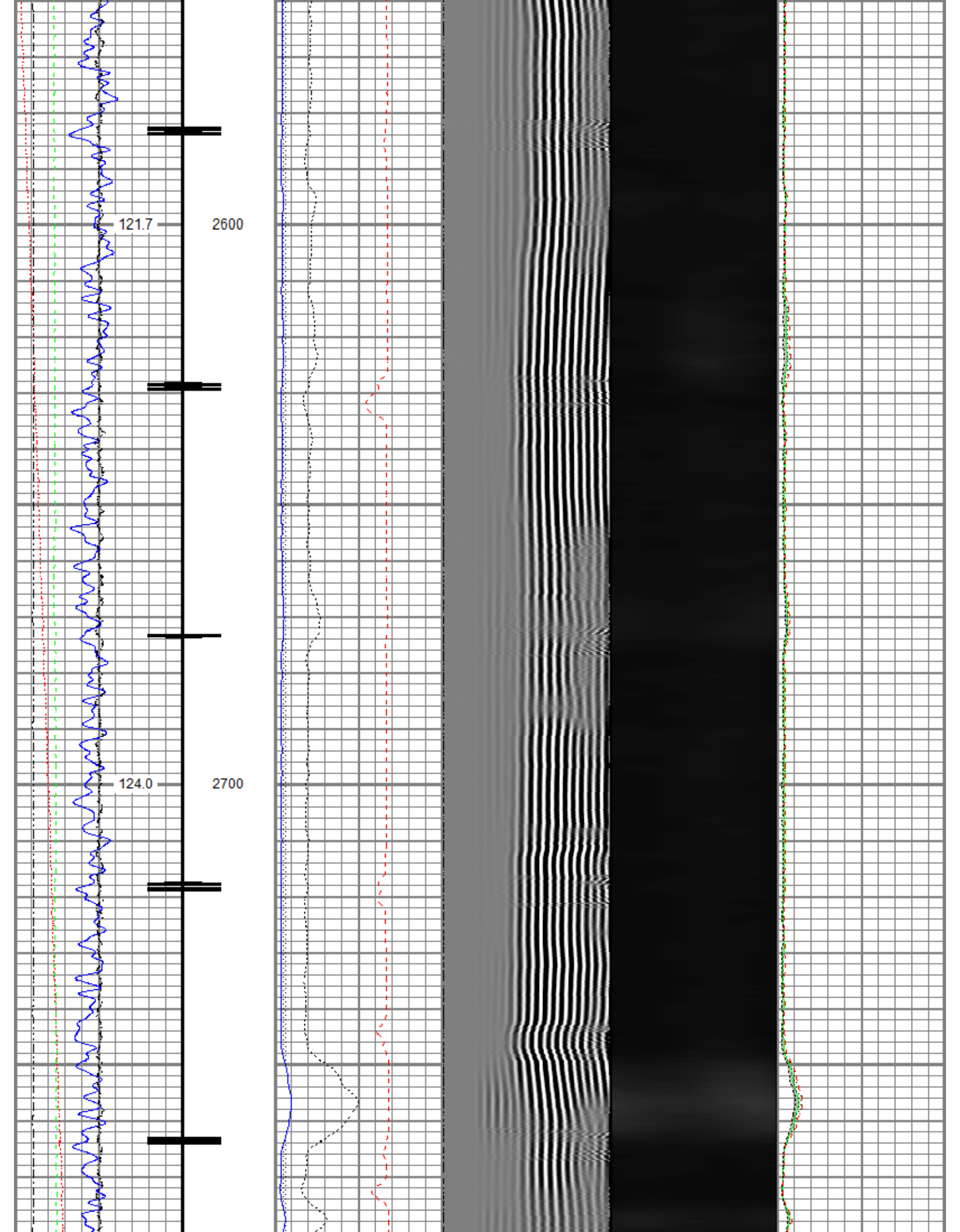


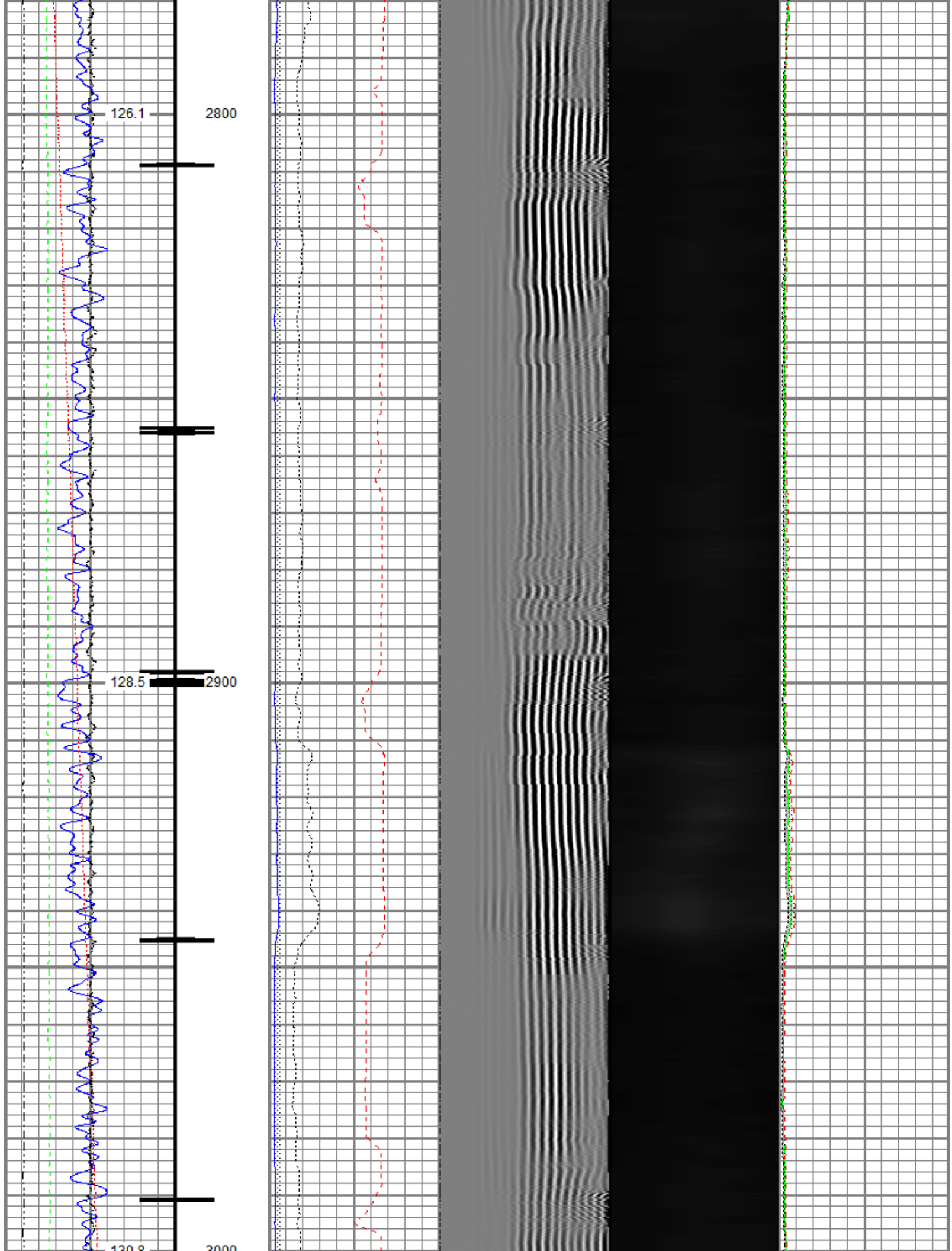


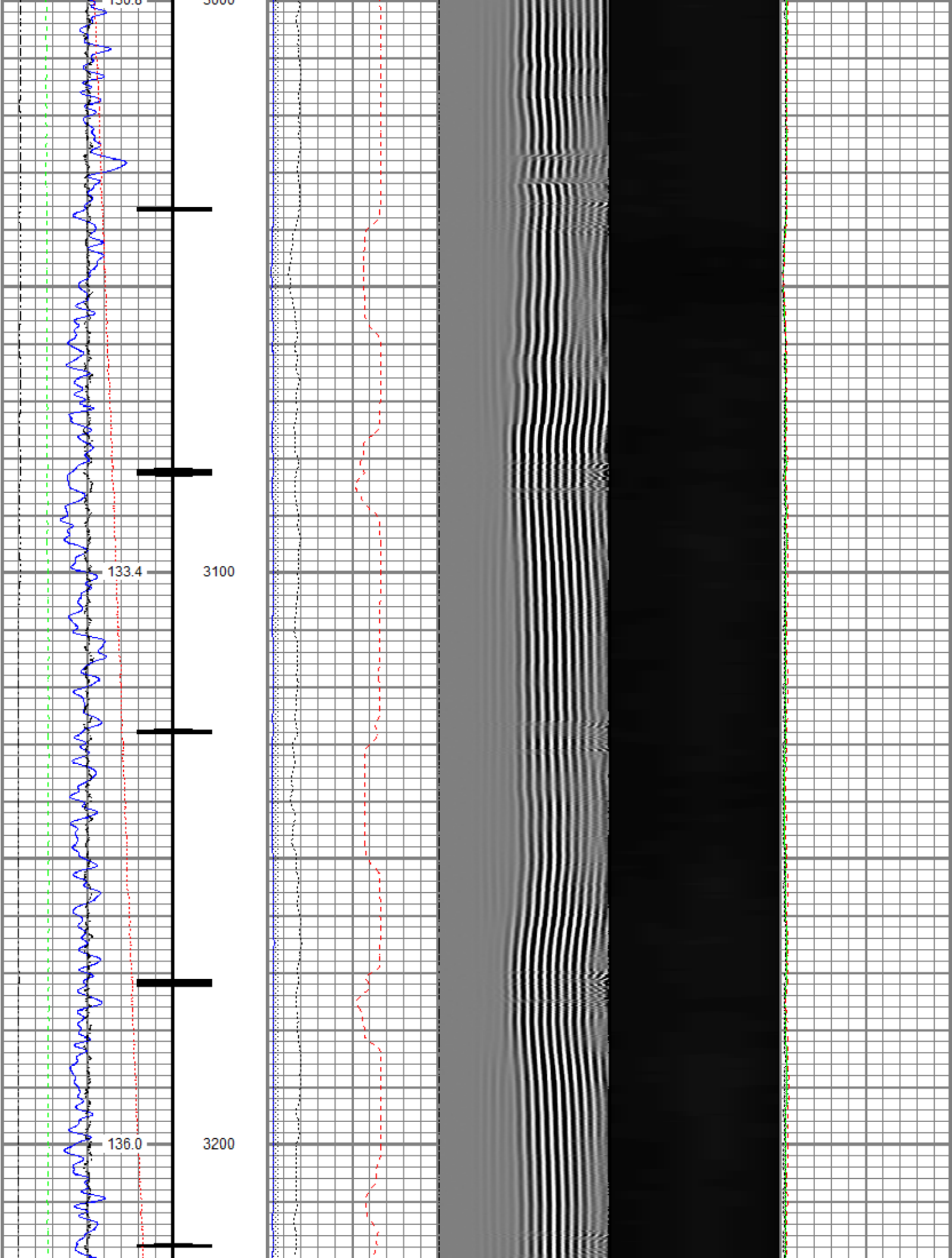


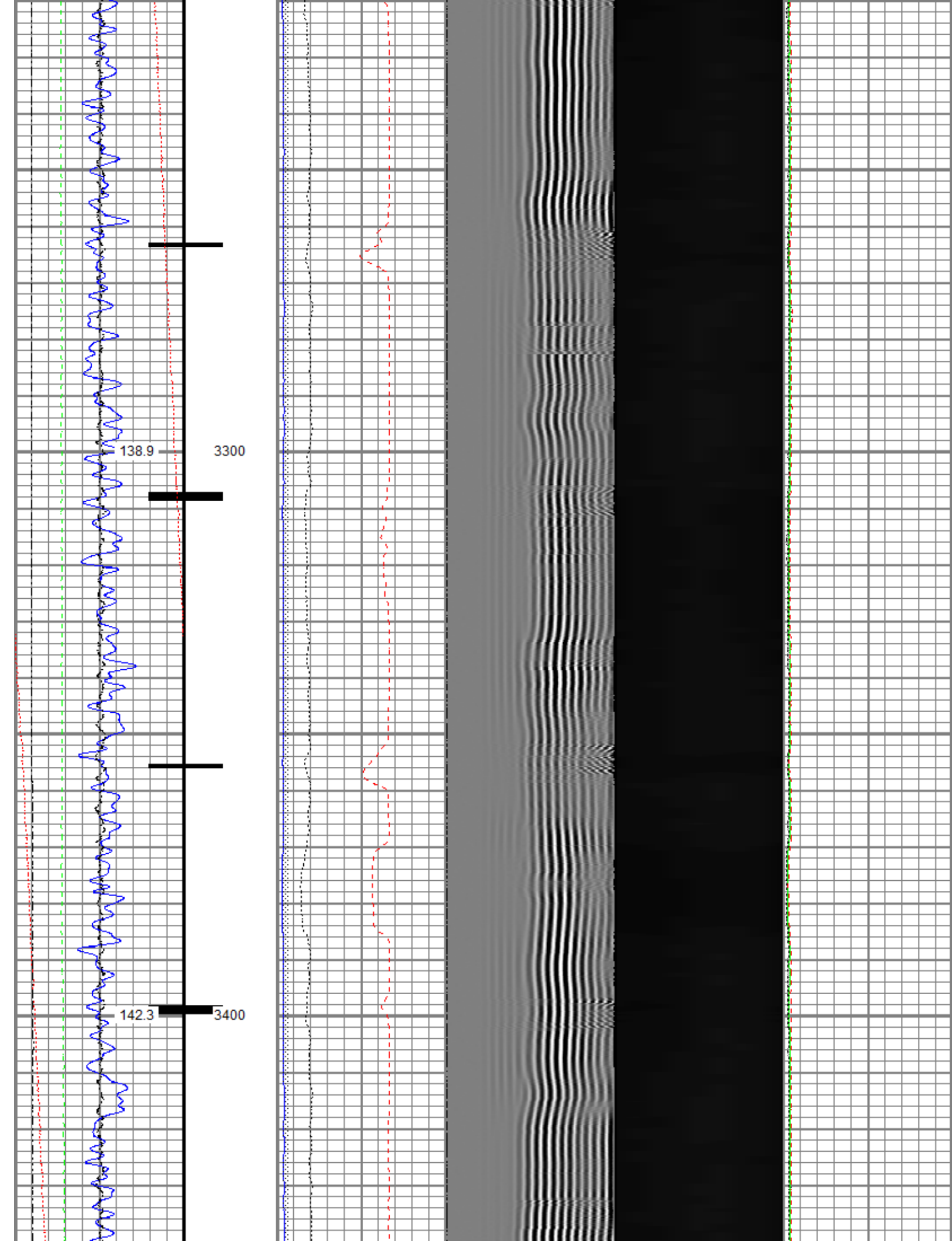


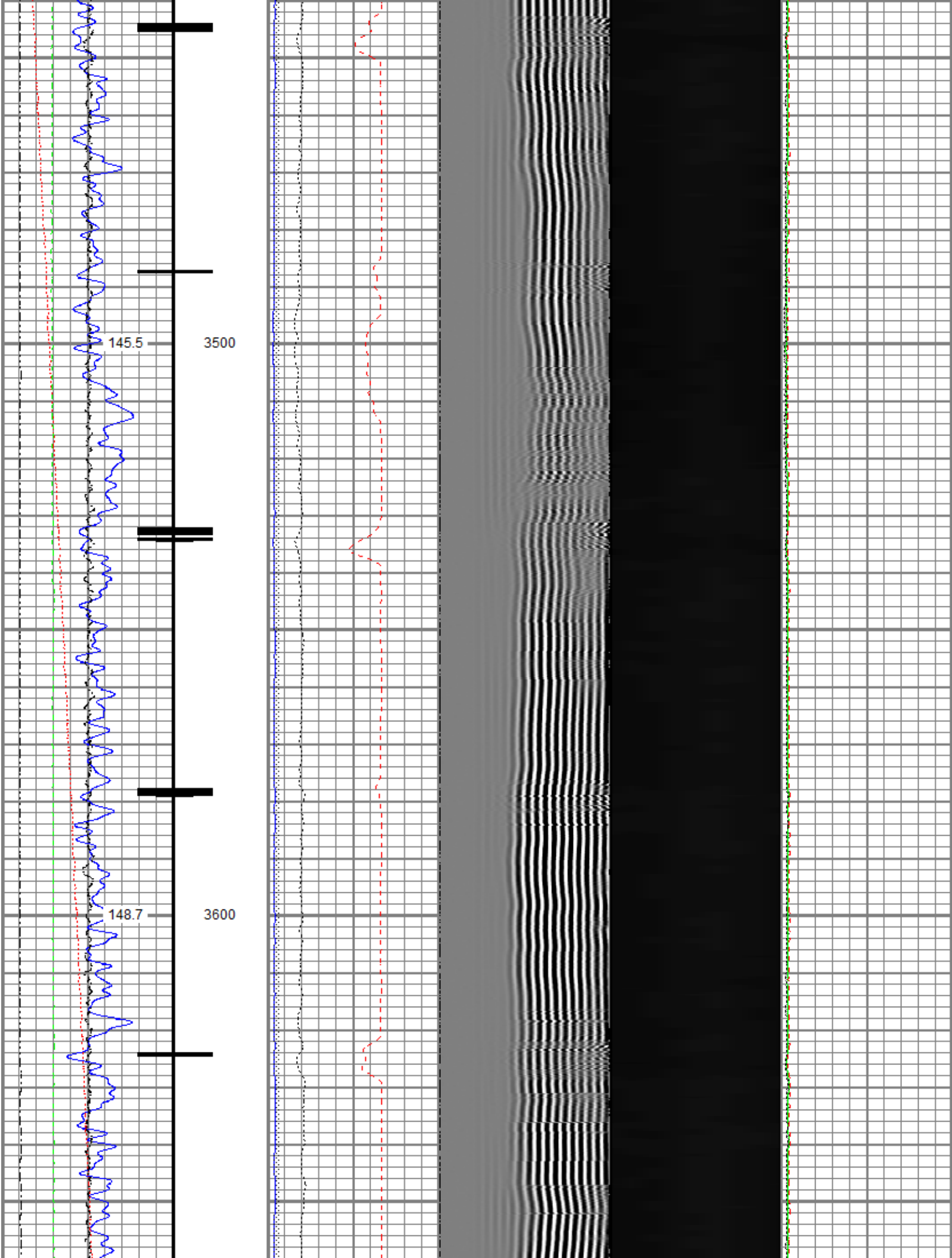


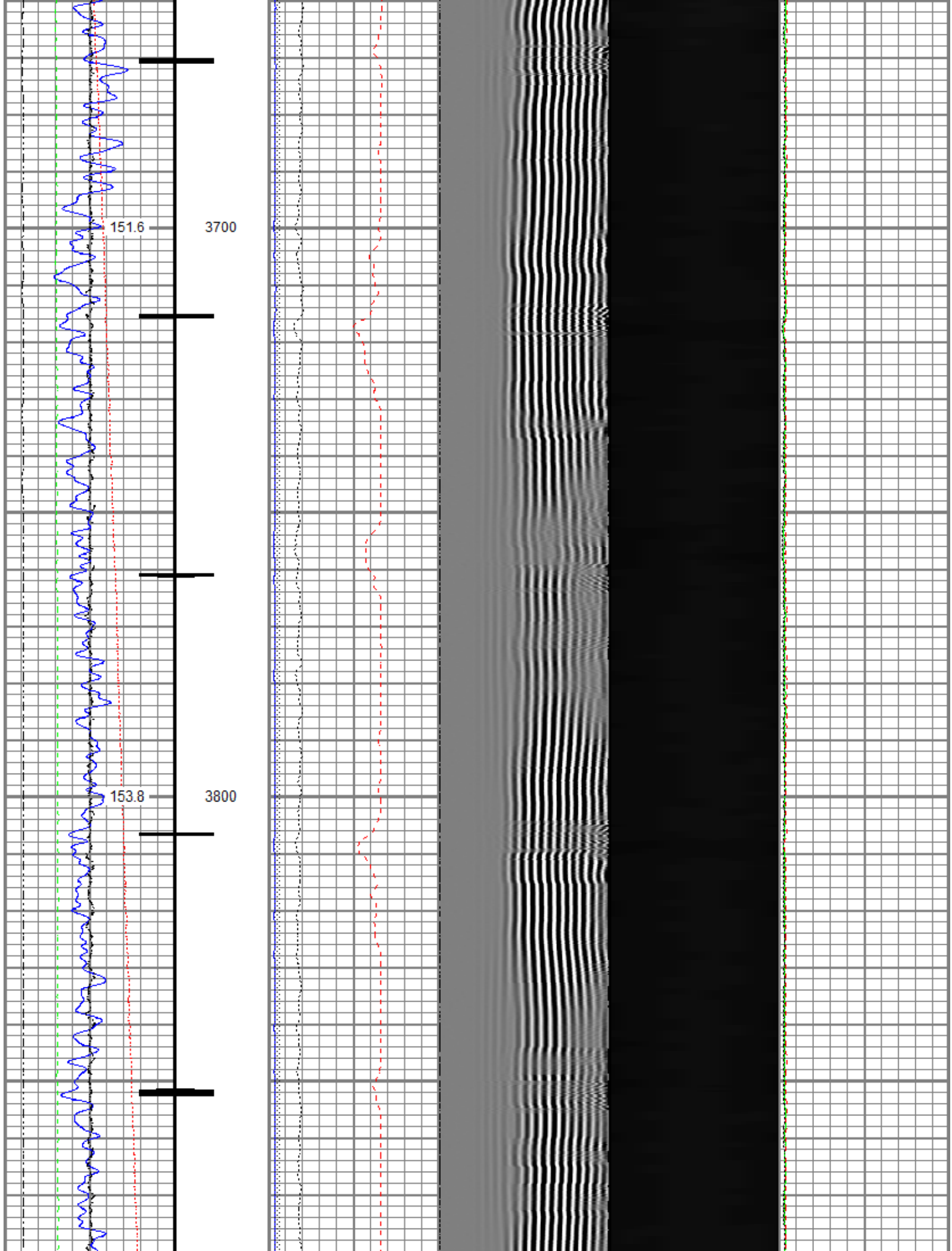


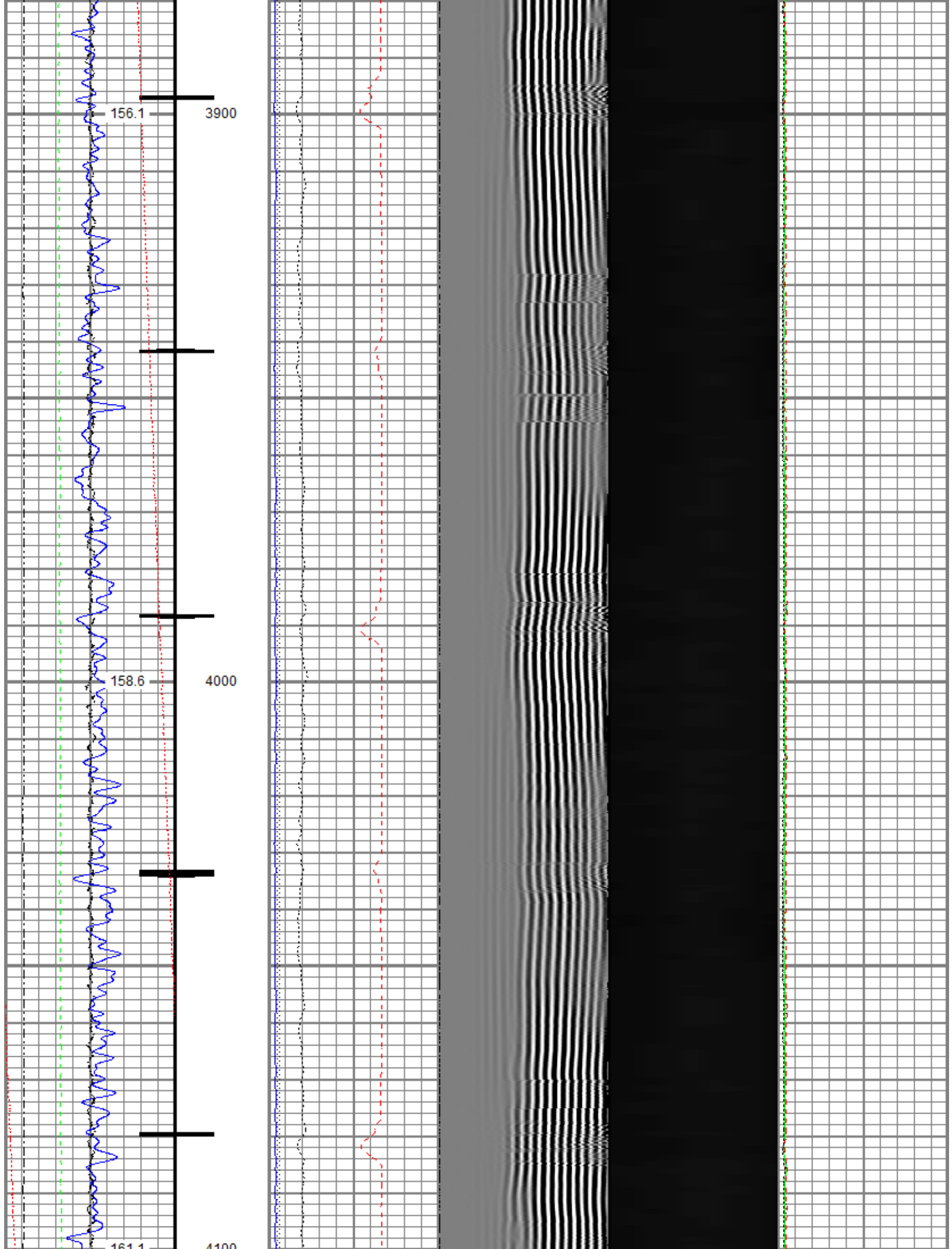


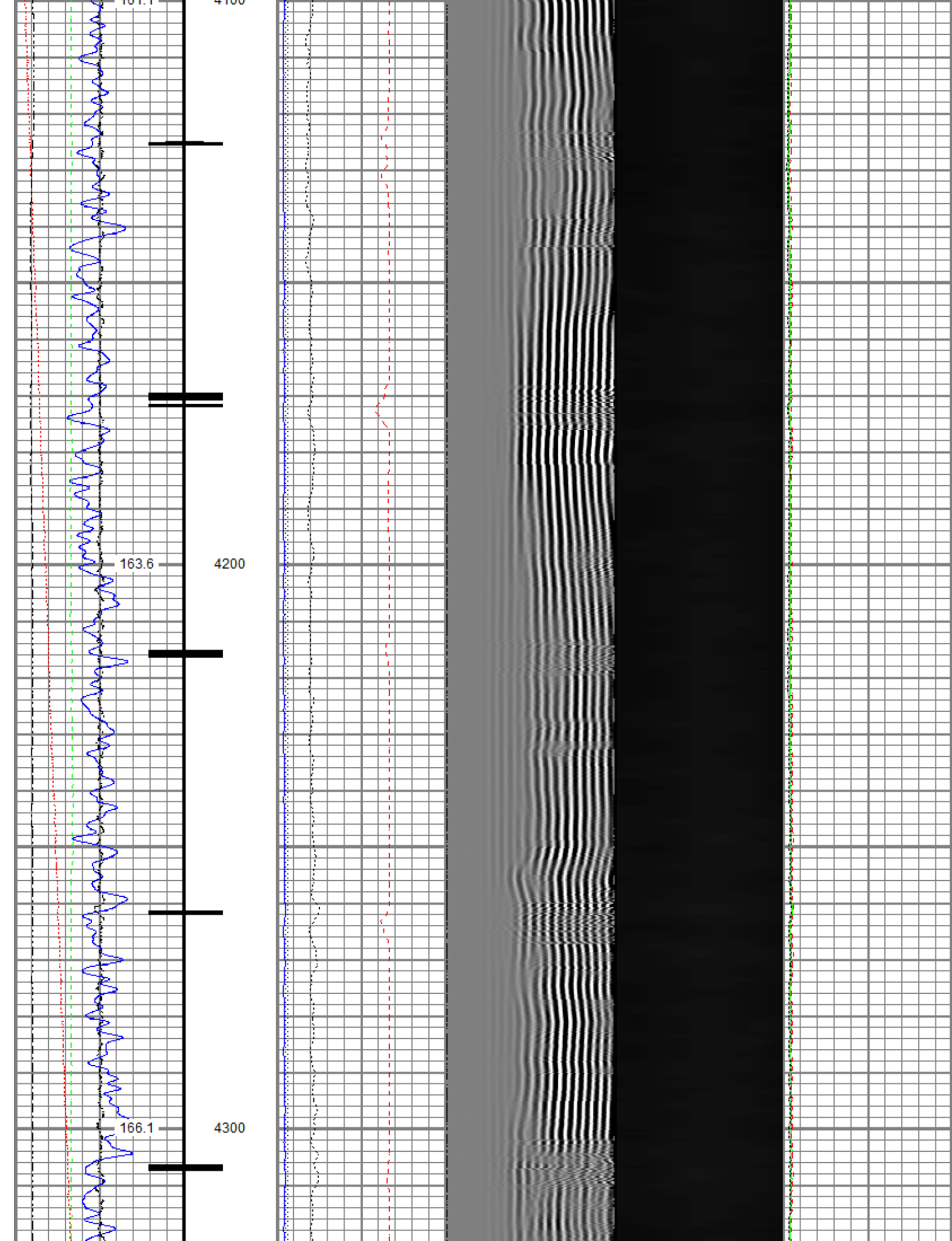


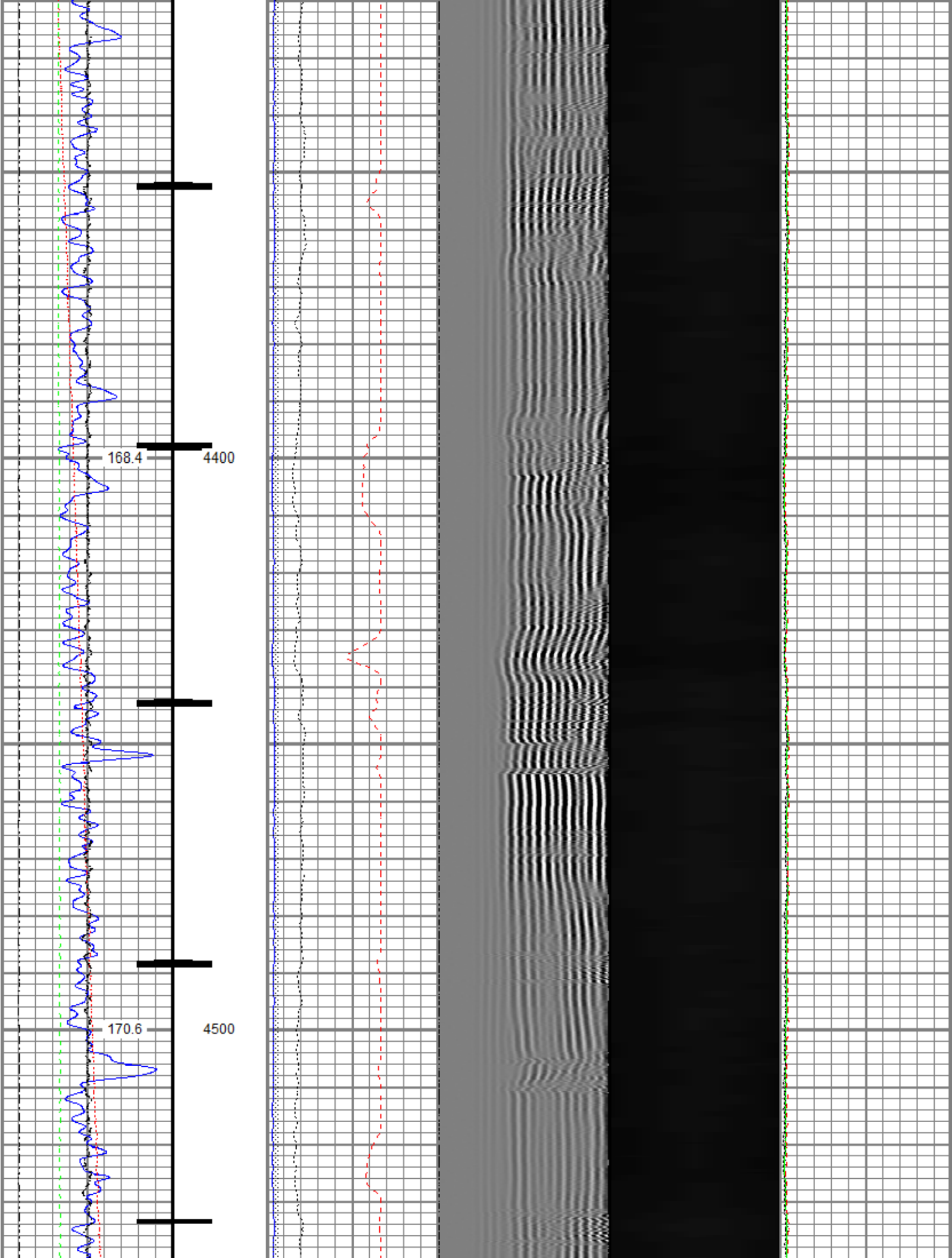


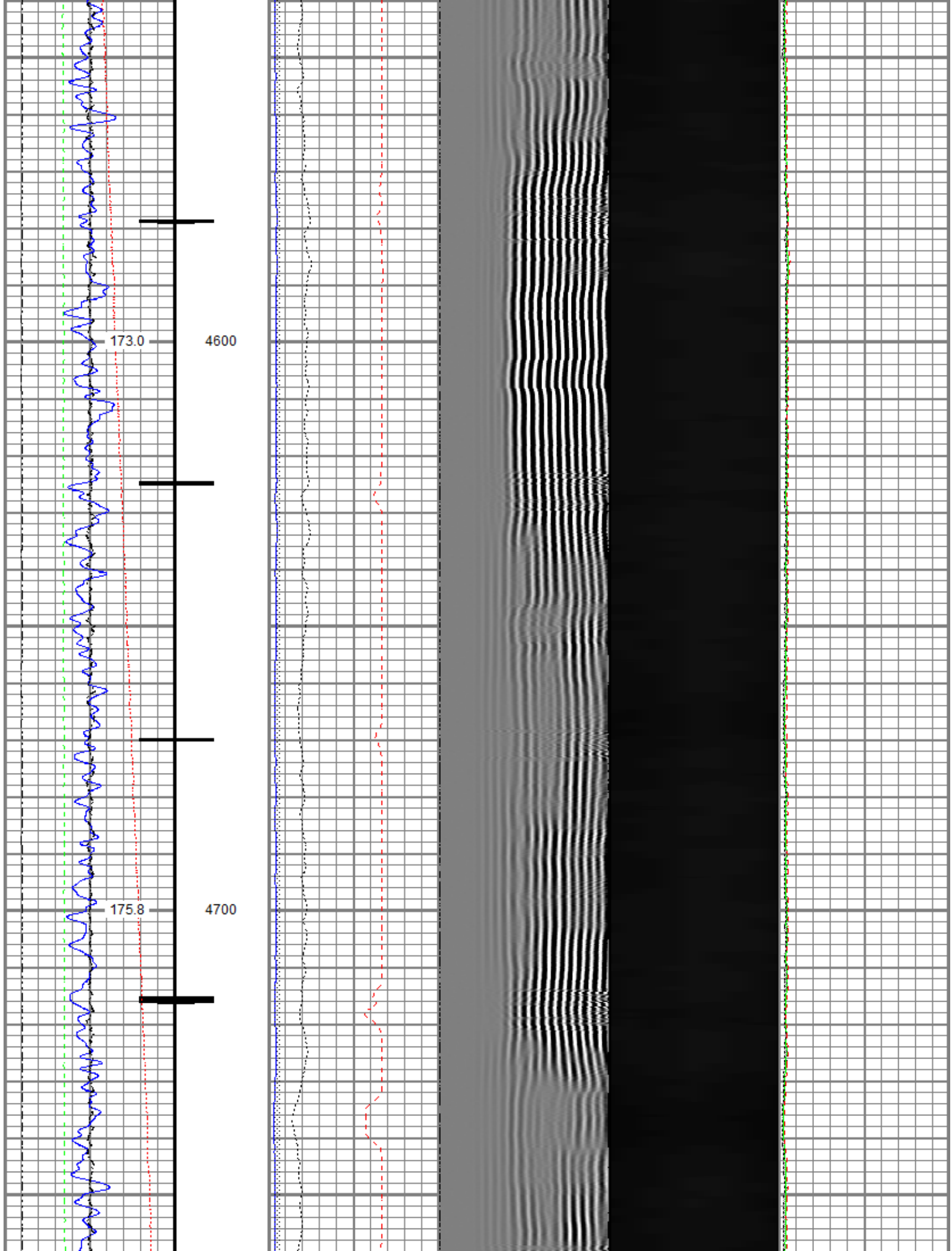


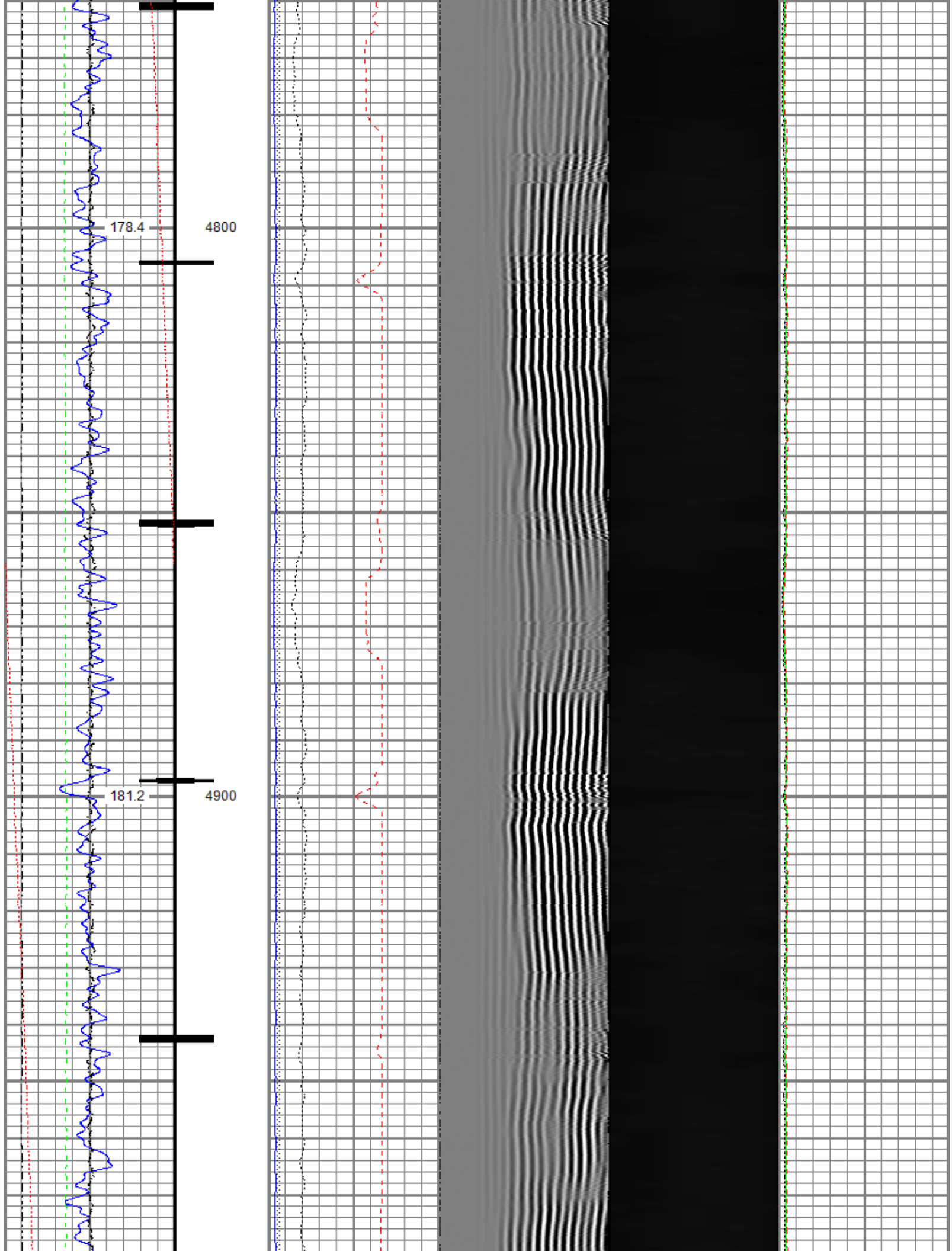


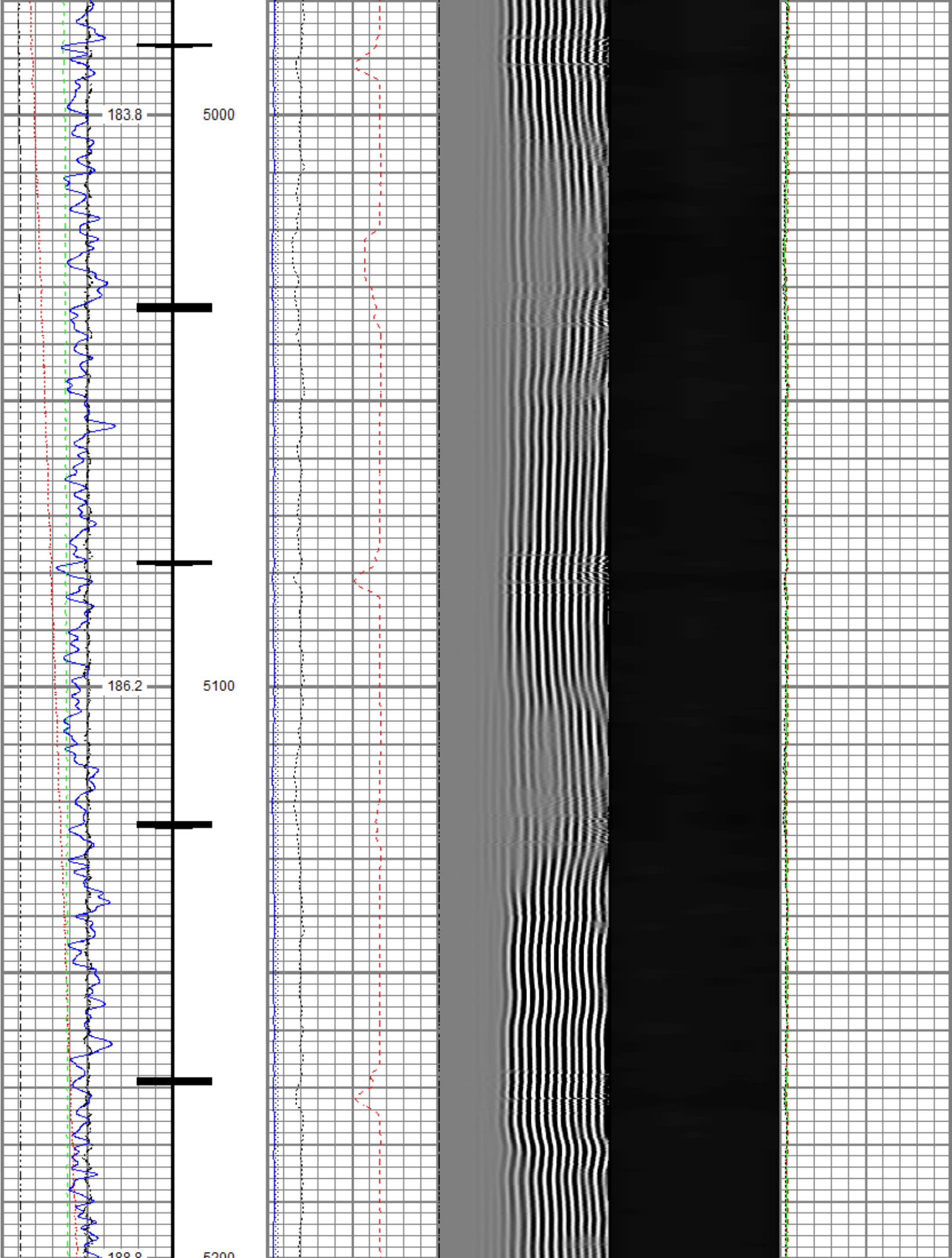


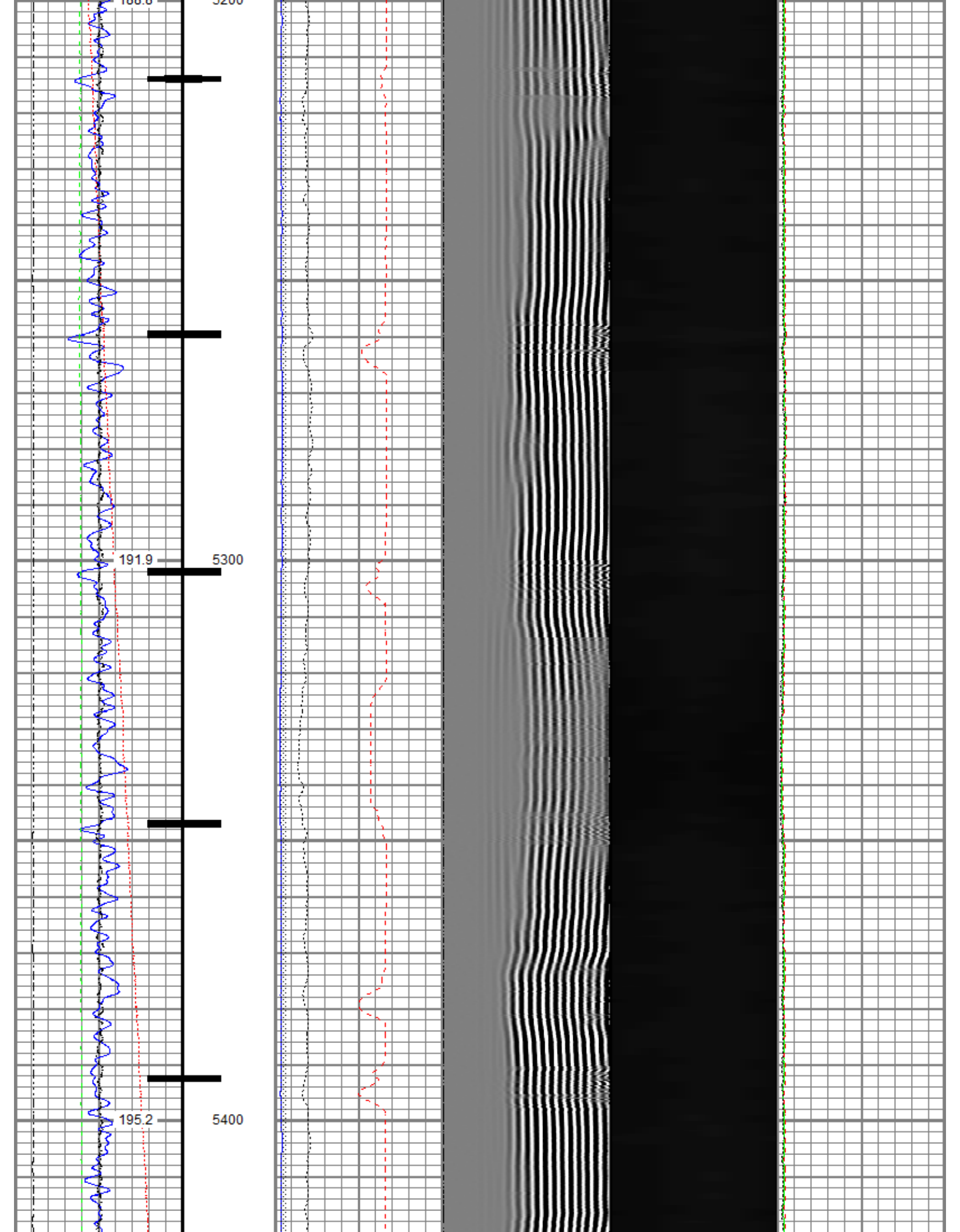


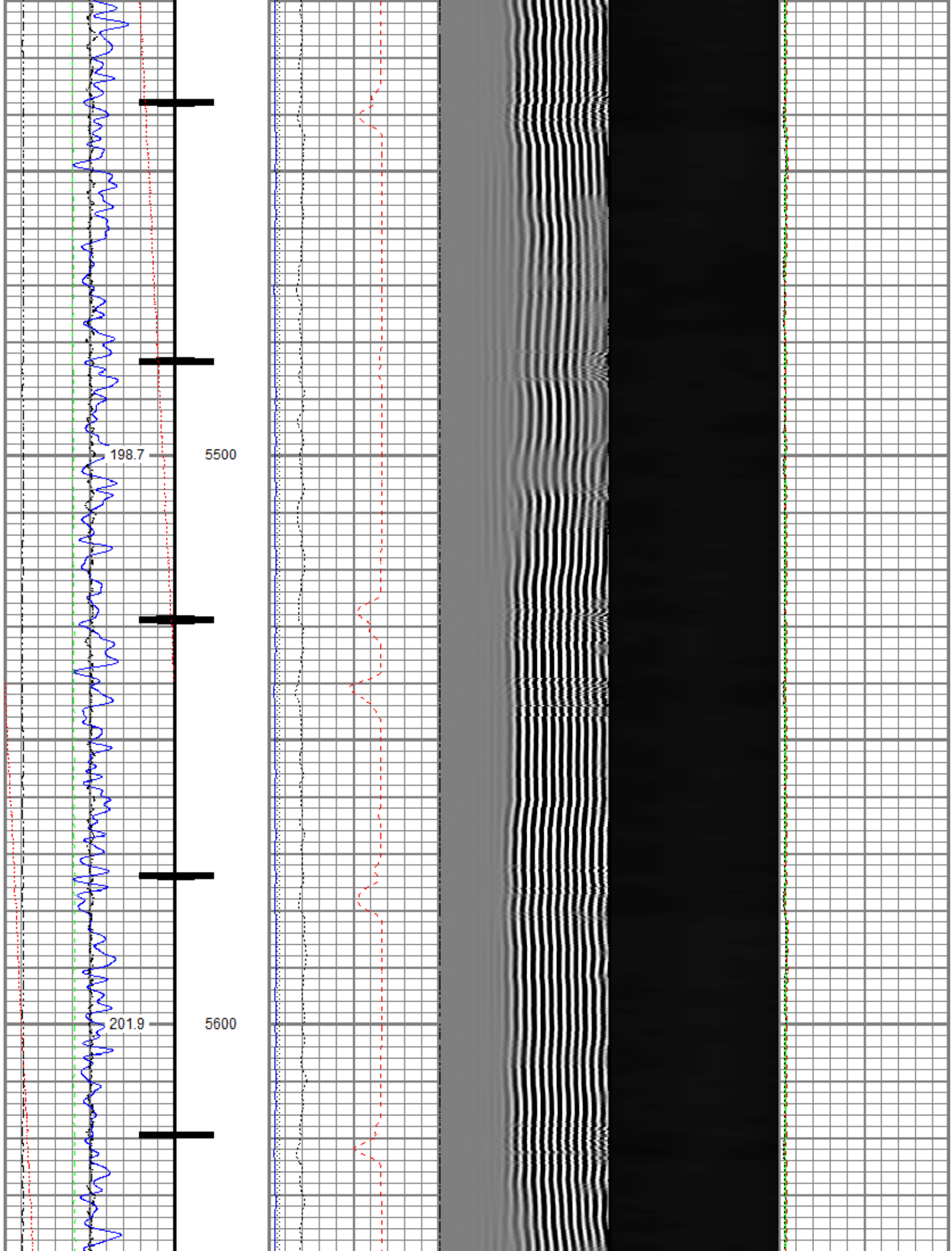


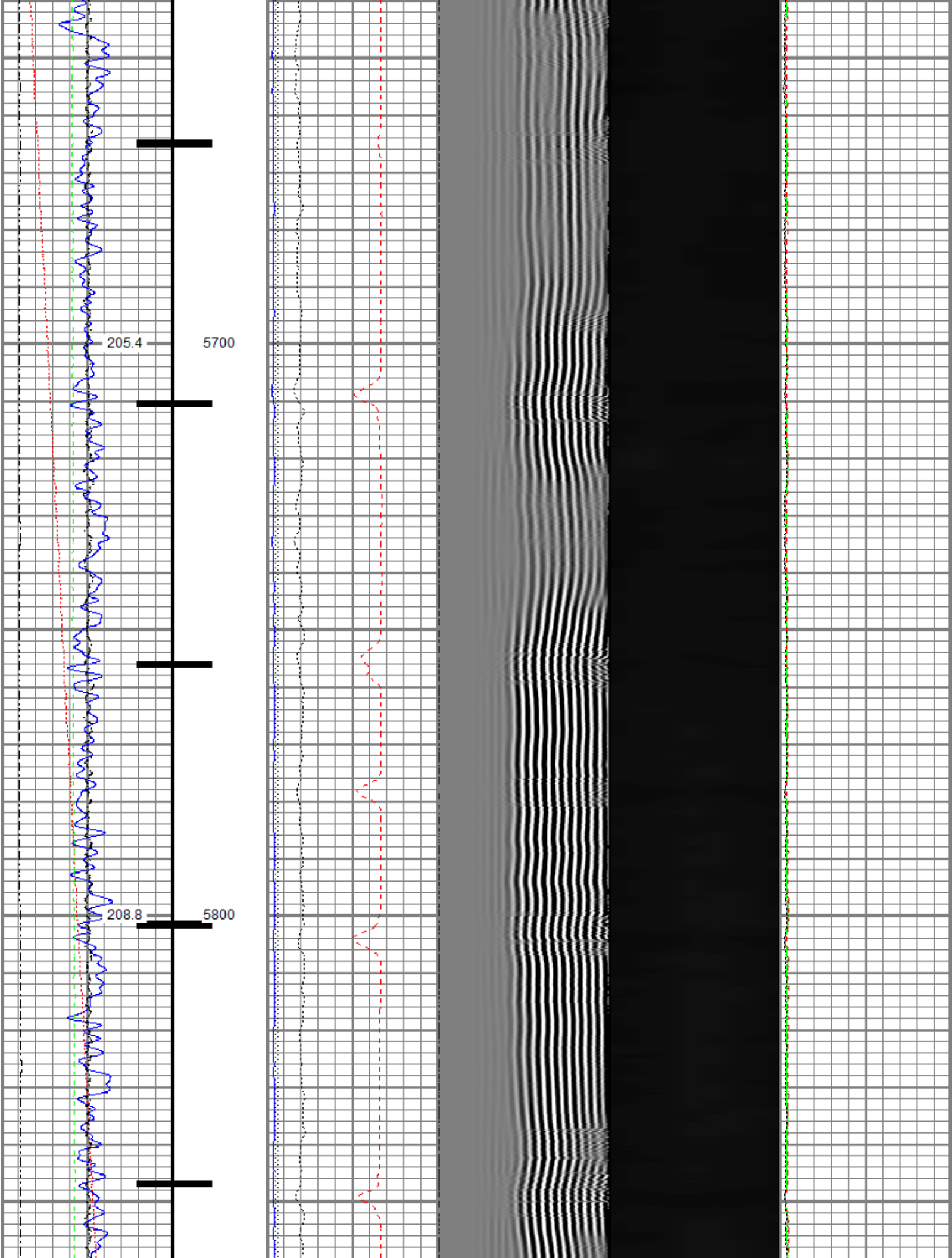


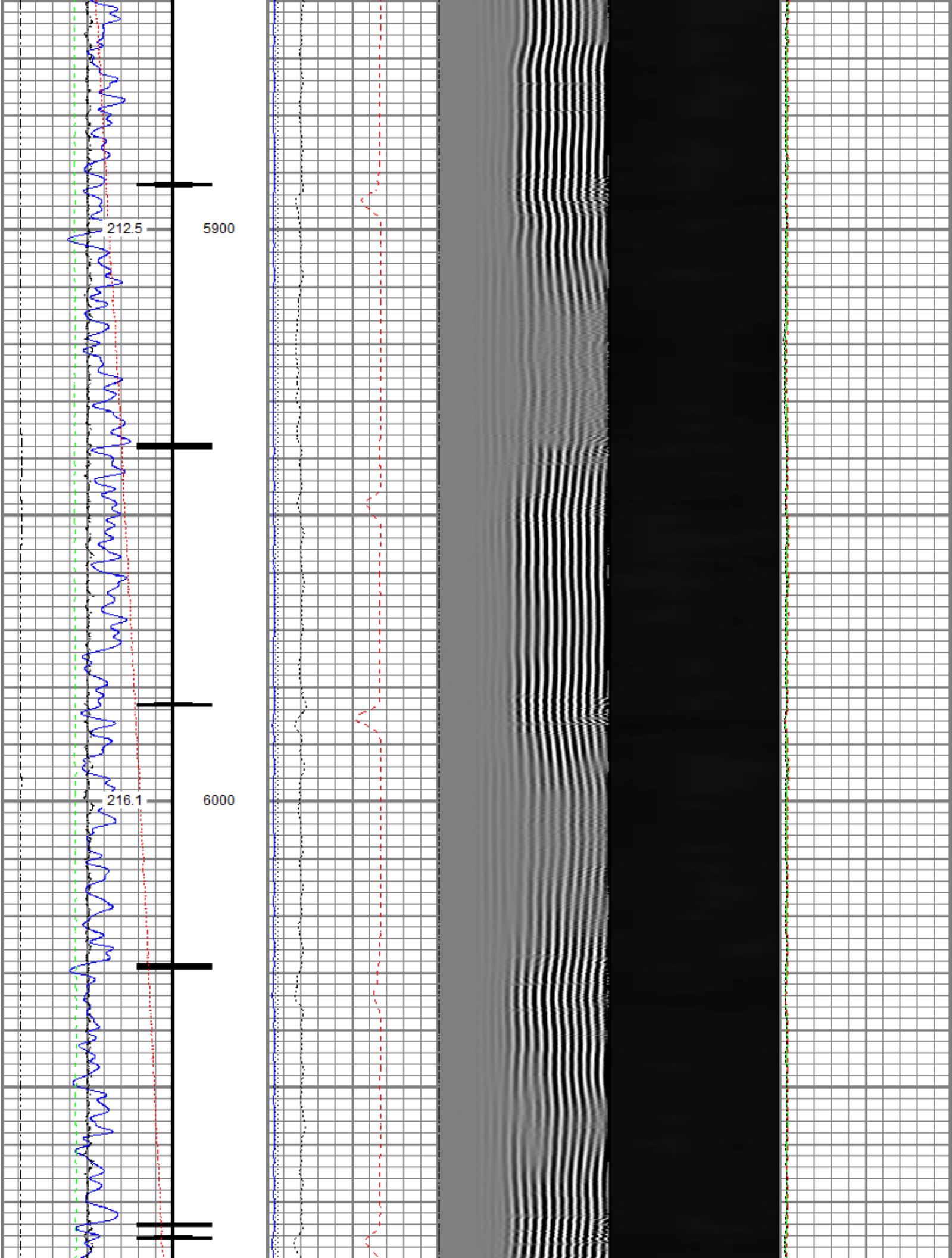


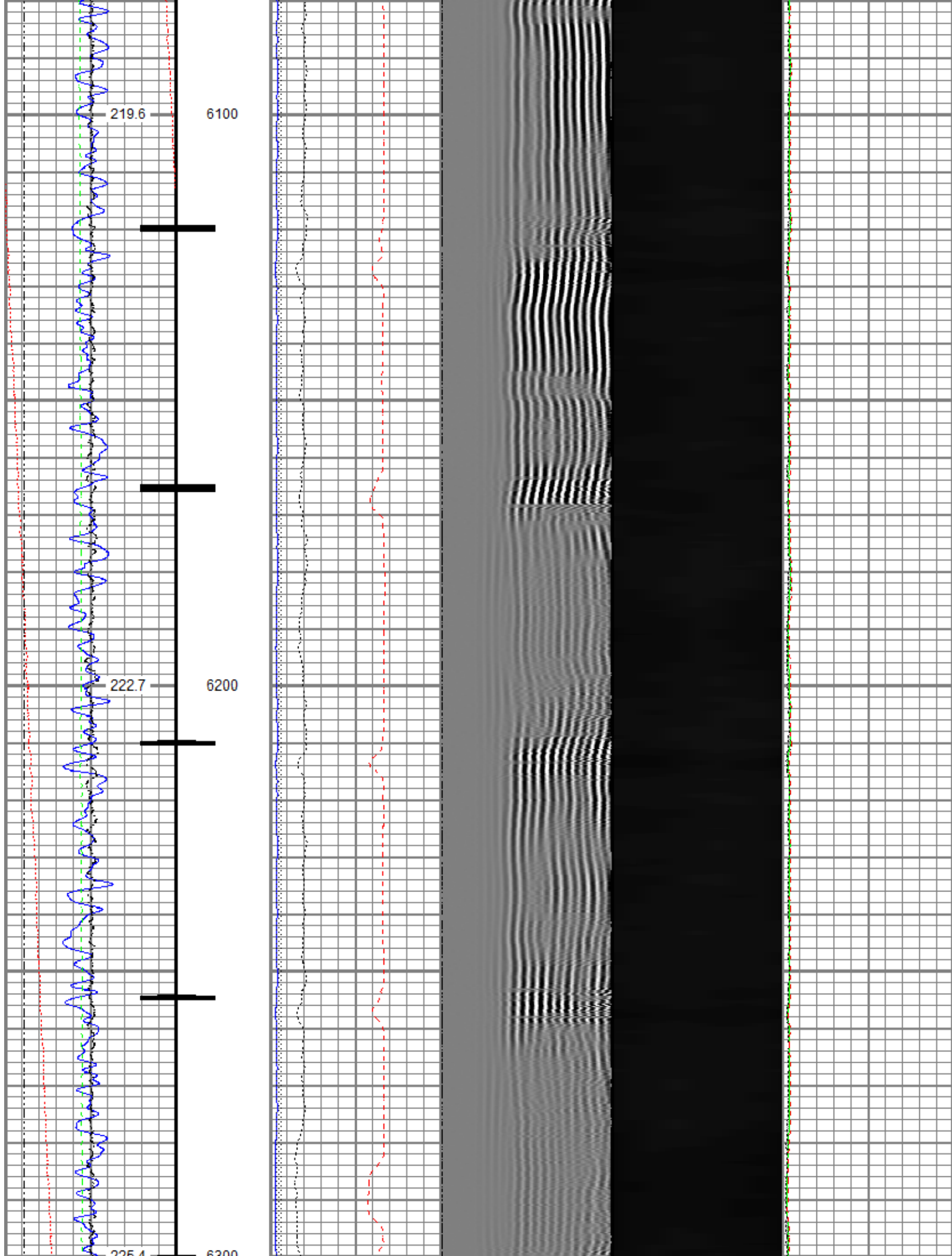












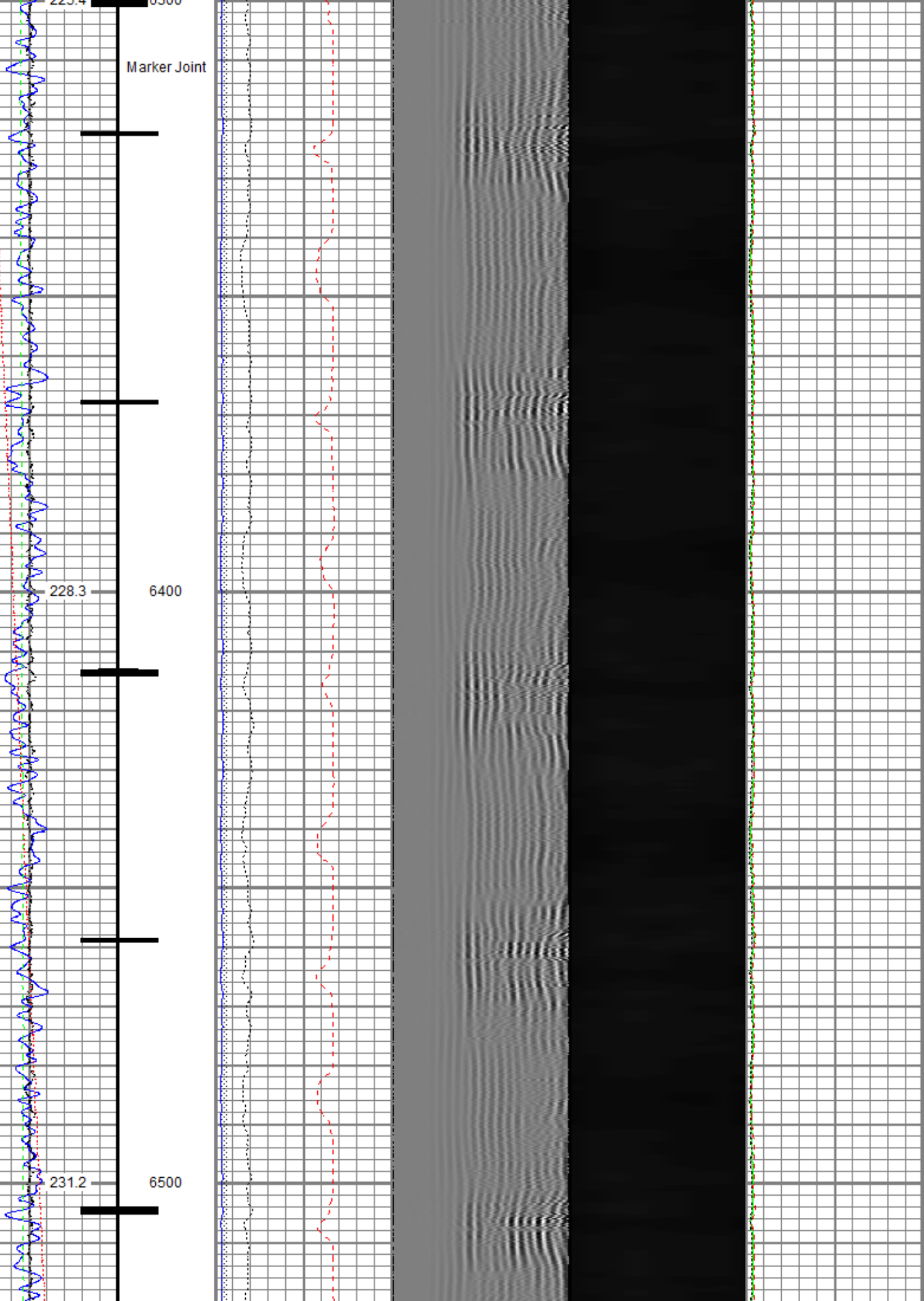
Marker Joint

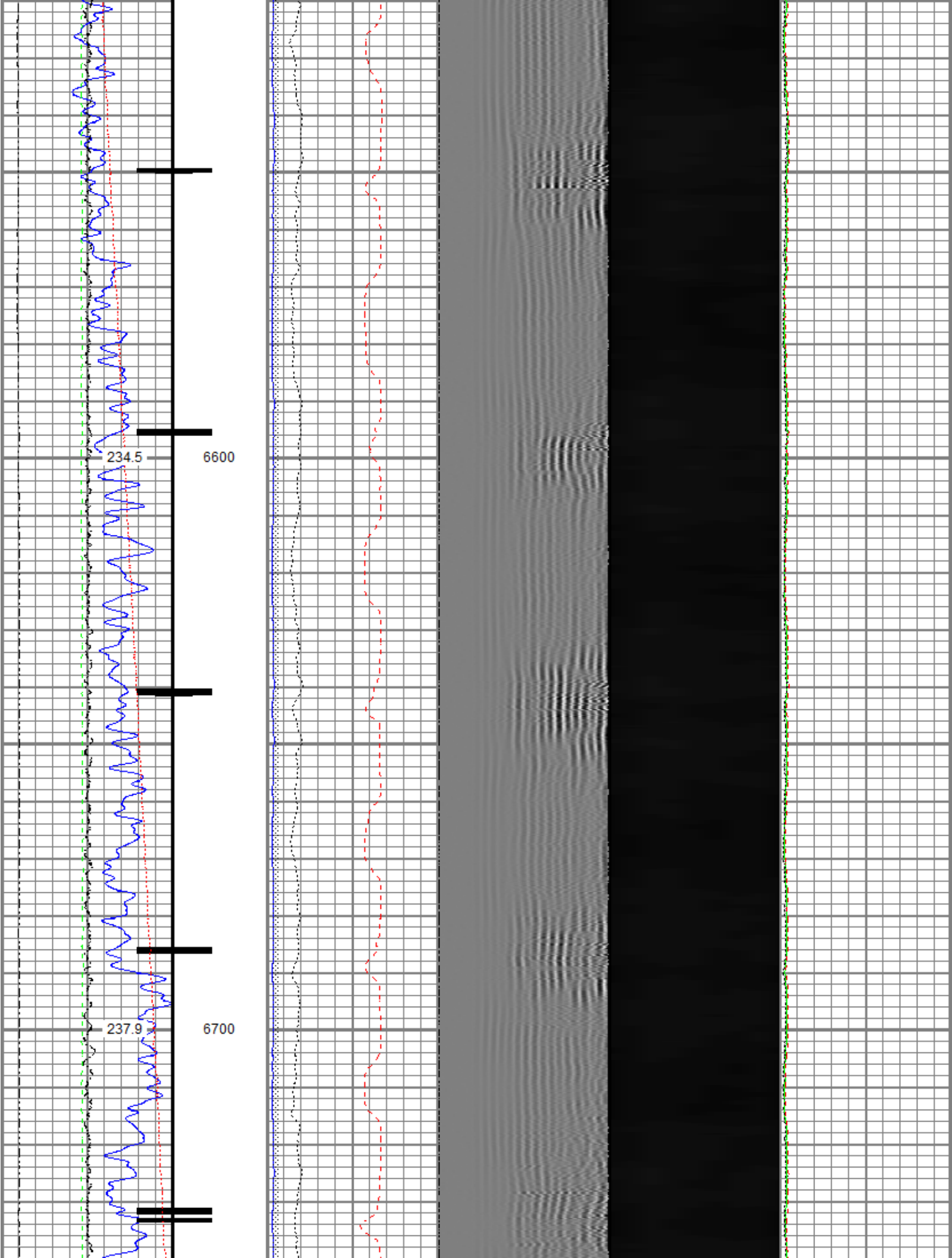
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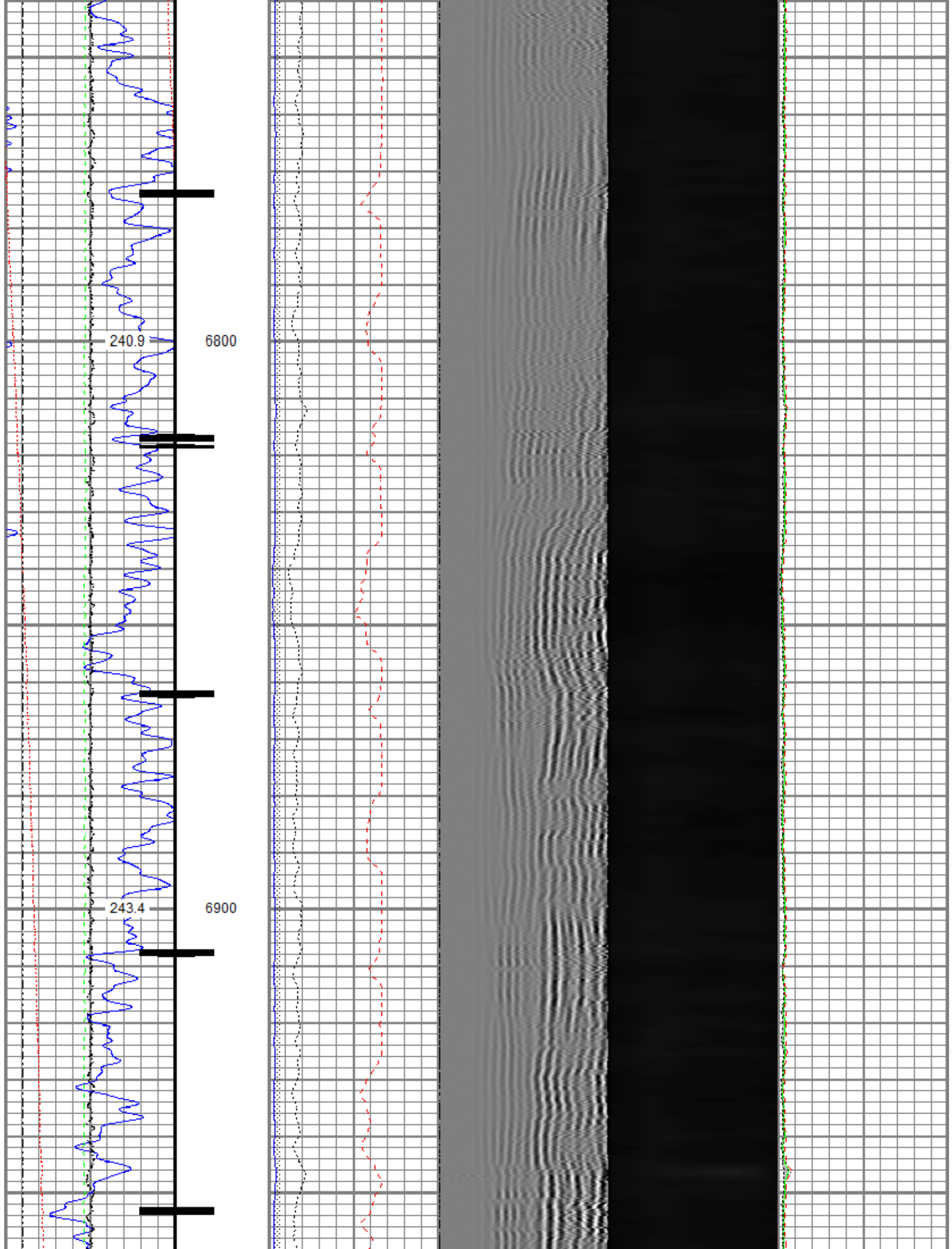
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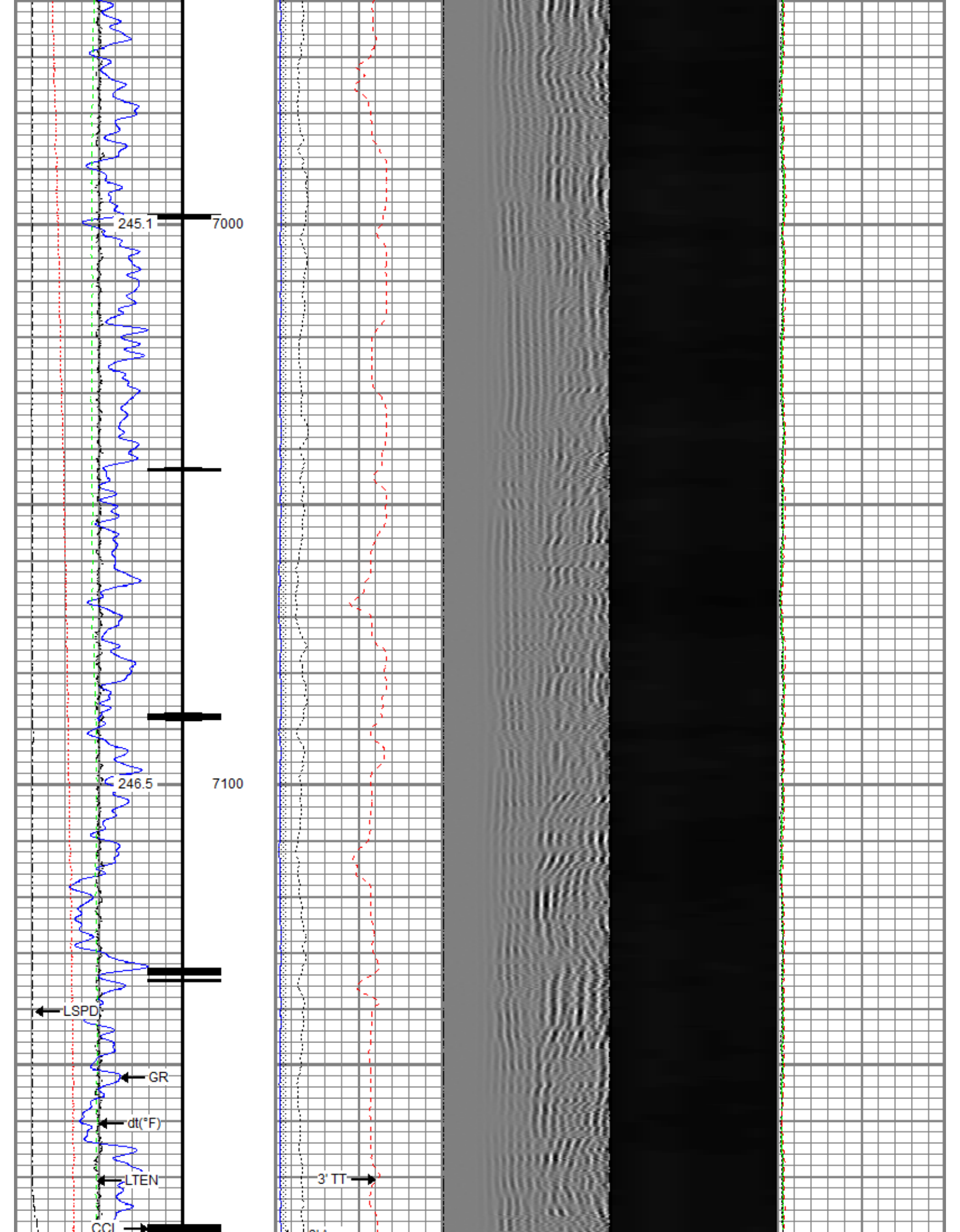
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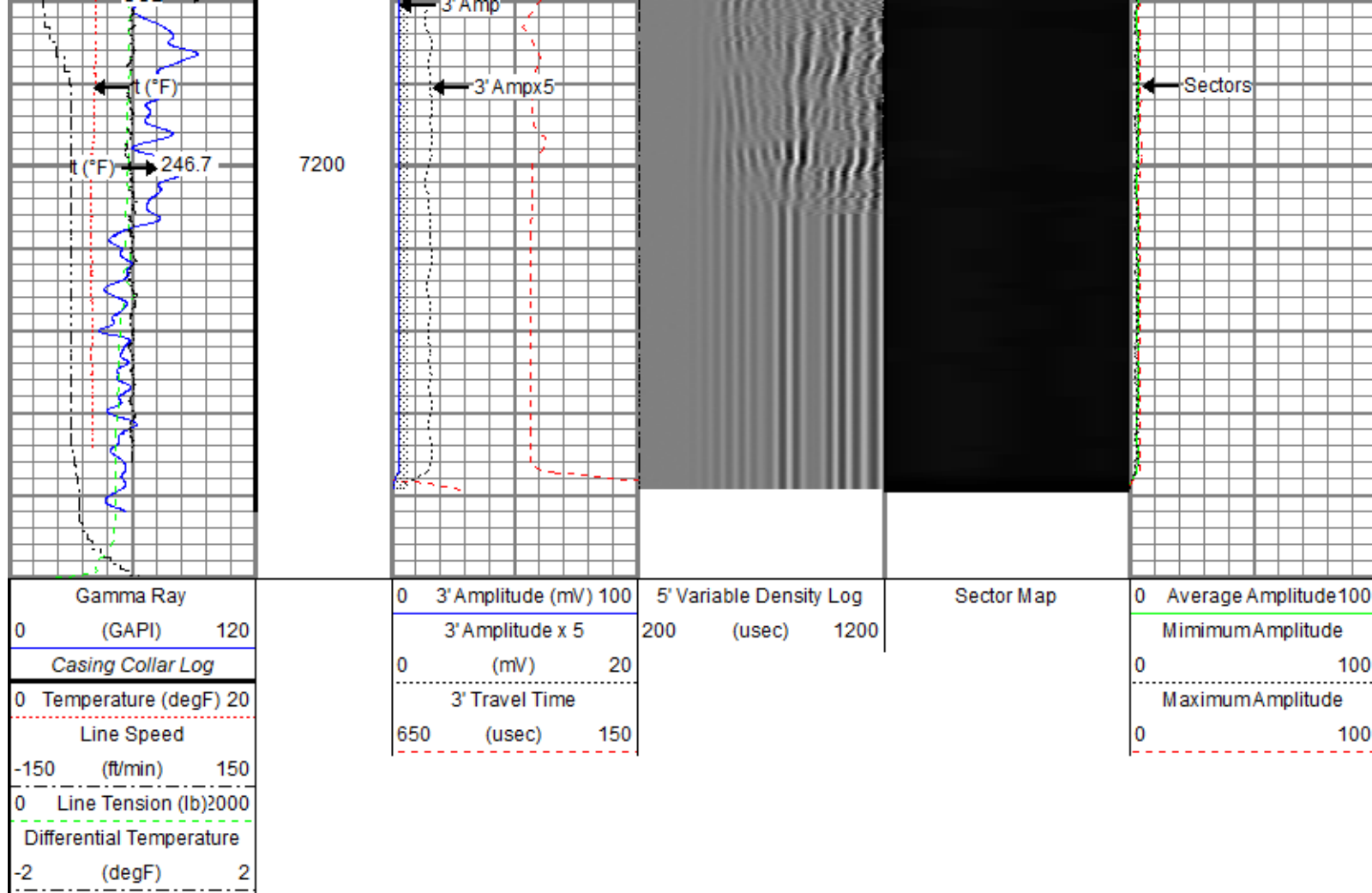
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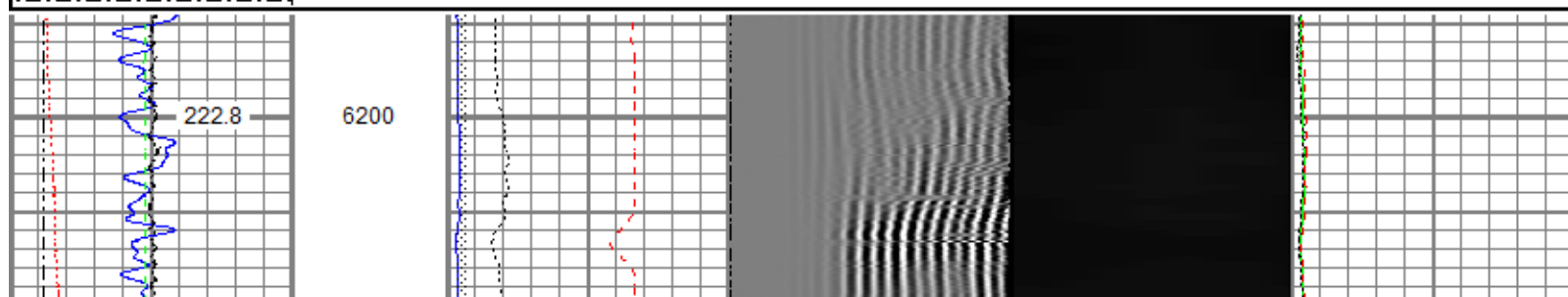
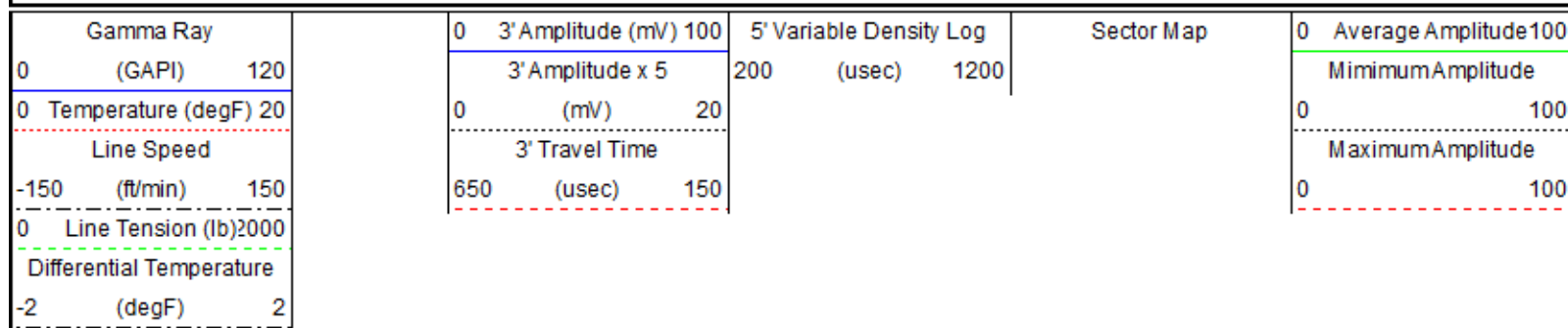


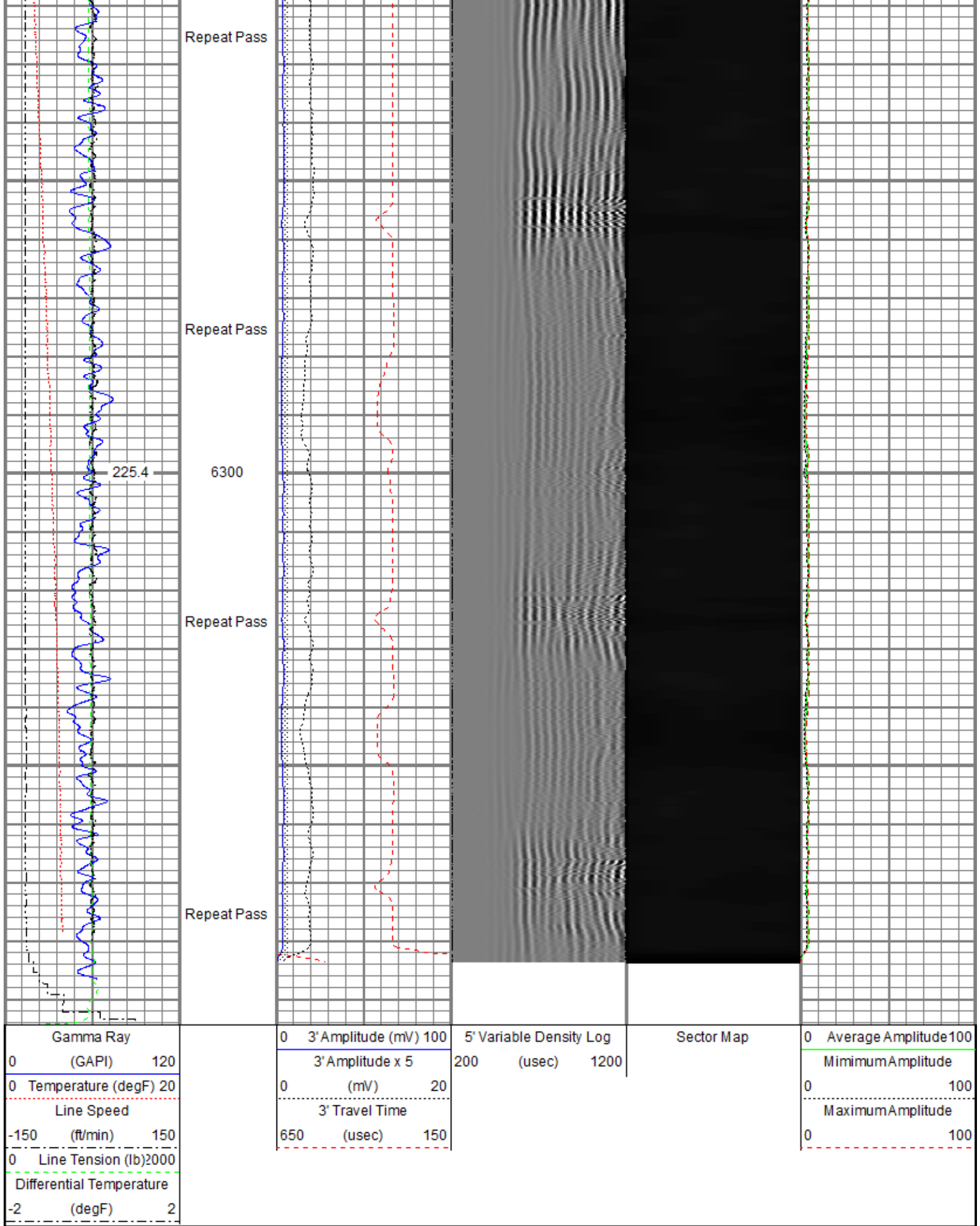




RELIANCE OILFIELD SERVICES Repeat Pass Recorded With 2500 PSI Surface Induced Pressure

Database File	noble_guttersen d09 785\noble_guttersen d09-785_rbl_12-20-20.db
Dataset Pathname	pass2.1
Presentation Format	ros_radii_noble
Dataset Creation	Sun Dec 20 19:48:13 2020
Charted by	Depth in Feet scaled 1:240





Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
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ErrCt	18.10		1.03	1.69	5.40
RBT_HV	17.07				
TEMP	14.16				
RBT_ACCZ	11.93				
RBT_ACCY	11.93				
RBT_ACCX	11.93				
WVFSYNC	11.93				
WVFS8	11.93				
WVFS7	11.93				
WVFS6	11.93				
WVFS5	11.93				
WVFS4	11.93				
WVFS3	11.93				
WVFS2	11.93				
WVFS1	11.93				
WVFCAL	11.93				
WVF3FT	11.93				
WVF5FT	10.93				
CCL\$2	6.80				
CCL\$1	6.80				
GR	5.46				
LOCTIM	0.00				
UTCTIM	0.00				
Dataset: Noble_Guttersen D09-785_RBL_12-20-20.db: field/well/run1/pass4.1 Total length: 18.10 ft Total weight: 226.40 lb O.D.: 3.25 in					

Gamma Ray Calibration Report

Serial Number:	FW1810-001	
Tool Model:	2750 6PB	
Performed:	Tue Dec 03 09:24:53 2019	
Calibrator Value:	637.0	GAPI
Background Reading:	100.1	cps
Calibrator Reading:	1264.5	cps
Sensitivity:	0.5471	GAPI/cps

Segmented Cement Bond Log Calibration Report

Serial Number:	FW1302-002	
Tool Model:	2750 RBTa	
Calibration Casing Diameter:	5.500	in
Calibration Depth:	-6.608	ft

Master Calibration, performed (Derived):

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.001	0.649	0.800	71.921	109.815	0.652
CAL	0.006	0.665				
5'	0.000	0.628	0.800	71.921	113.301	0.744
SUM						
S1	0.001	0.627	0.000	100.000	159.924	-0.199
S2	0.002	0.701	0.000	100.000	143.089	-0.242
S3	0.002	0.755	0.000	100.000	132.758	-0.238
S4	0.002	0.744	0.000	100.000	134.705	-0.255
S5	0.002	0.689	0.000	100.000	145.459	-0.228
S6	0.001	0.634	0.000	100.000	158.097	-0.205
S7	0.001	0.605	0.000	100.000	165.515	-0.190
S8	0.001	0.594	0.000	100.000	168.581	-0.202

Internal Reference Calibration, performed (Not Performed):

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.006	0.665	1.000	0.000

Air Zero Calibration, performed Sat Dec 19 07:44:50 2020:

	Raw (v)	Calibrated (v)	Results
	Zero	Zero	Offset
3'	0.000	0.000	0.000
5'	0.000	0.000	0.000
SUM			
S1	0.000	0.000	0.000
S2	0.000	0.000	0.000
S3	0.000	0.000	0.000
S4	0.000	0.000	0.000
S5	0.000	0.000	0.000
S6	0.000	0.000	0.000
S7	0.000	0.000	0.000
S8	0.000	0.000	0.000

S8

0.000

0.000

0.000

Inclinometer Calibration Report

Performed:	Tue Dec 03 09:24:53 2019				
	Low Read.	High Read.	Low Ref.	High Ref.	
X Accelerometer	-891.00	891.00	-1.00	1.00	gee
Y Accelerometer	-899.00	877.00	-1.00	1.00	gee
Z Accelerometer	-7.47	873.36	0.00	1.00	gee

Temperature Calibration Report

Serial Number:	FW1302-002			
Tool Model:	2750 RBTa			
Performed:	Tue Dec 03 09:24:53 2019			
	Reference		Reading	
Low Reference:	100.00	degF	110.72	degF
High Reference:	350.00	degF	409.18	degF
Gain:	0.84			
Offset:	7.26			
Delta Spacing	1			



Company	Noble Energy Inc
Well	Guttersen D09-785
Field	Wattenberg
County	Weld
State	Colorado