



**Compensated Neutron
Gamma Ray
Casing Collar Log**

Company Kerr-McGee Oil & Gas Onshore, L.P.
Well Pioneer 23-12
Field Wattenberg
County Weld **State** Colorado

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Well Pioneer 23-12
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County Weld
State Colorado

Location: SEC 12 TWP 2N RGE 65W
 API #: 05-123-28177
 Other Services: JB/GR 4.5 CIBP
 Permanent Datum Ground Level Elevation 4889'
 Log Measured From Kelly Bushing 17 FT
 Drilling Measured From Kelly Bushing
 Elevation: K.B. 4906', D.F. 4905', G.L. 4889'

Date	22 Dec 2017	
Run Number	Three	
Depth Driller	7535 FT	
Depth Logger	4310 FT	
Bottom Logged Interval	4305 FT	
Top Log Interval	Surface	
Open Hole Size	7.875"	
Type Fluid	Water	
Density / Viscosity	8.34 lbm/gal	
Max. Recorded Temp.	154°F	
E. estimated Cement Top	See Log	
Time Well Ready	ROA	
Time Logger on Bottom	15:38	
E. equipment Number	HD-331	
Location	Fort Lupton, CO	
Recorded By	J Morrison	
Witnessed By	Nate Windholtz	
Run Number	Borehole Record	
	Bit	From To
Casing Record	Size (in)	Wgt (lbs/ft)
	Grade	Top Bottom
Surface Casing	8.5/8	24
Intermediate #1	4.1/2	11.6
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 Kelly Bushing 17 FT
Adjusted 0 FT to correlate with Kelly Bushing
Log ran from 4310 FT to Surface
Logging tools were clean and free of any debris upon completion of operations
Thank you for choosing Reliance Oilfield Services, LLC!!

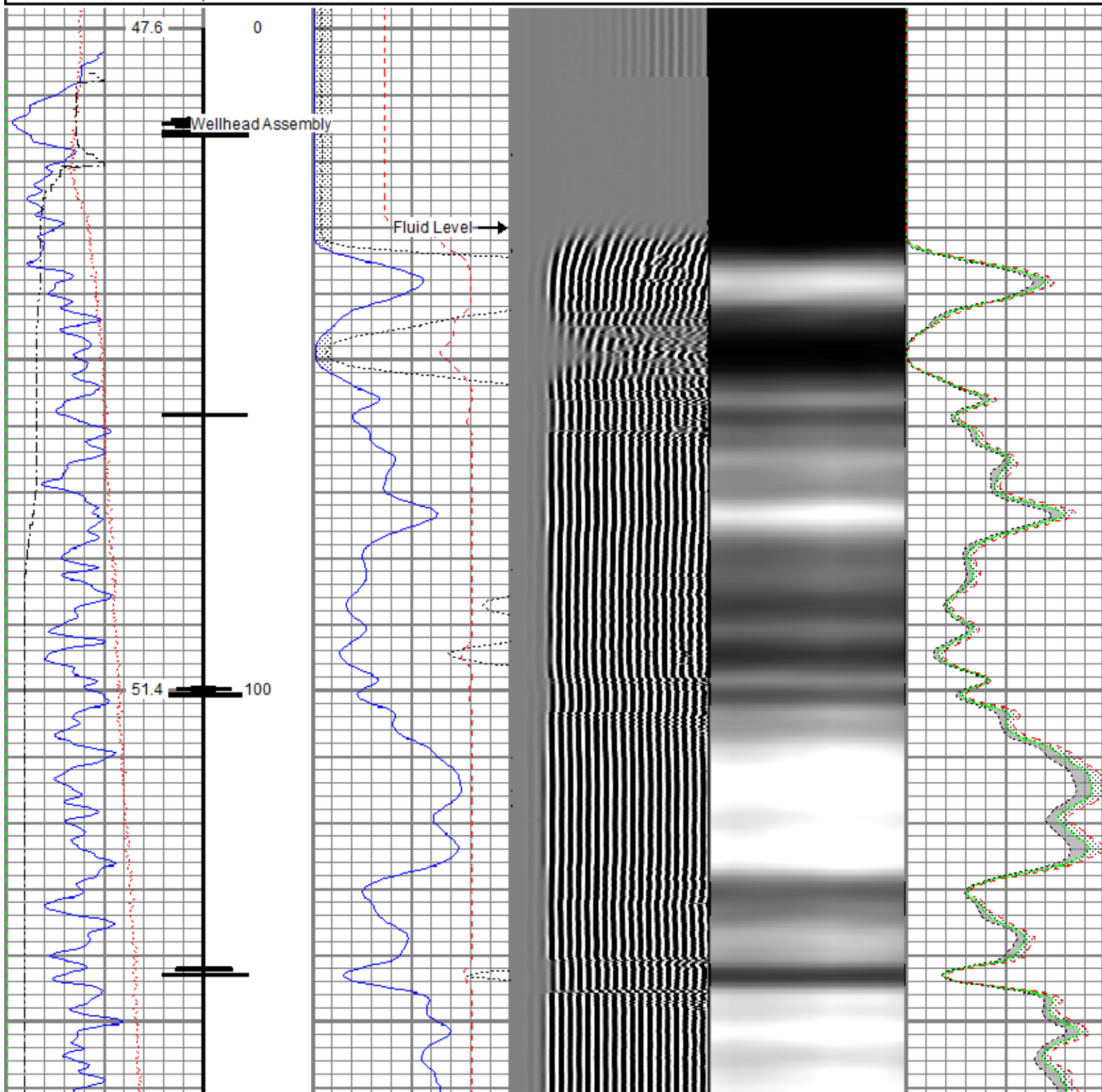
Main Pass

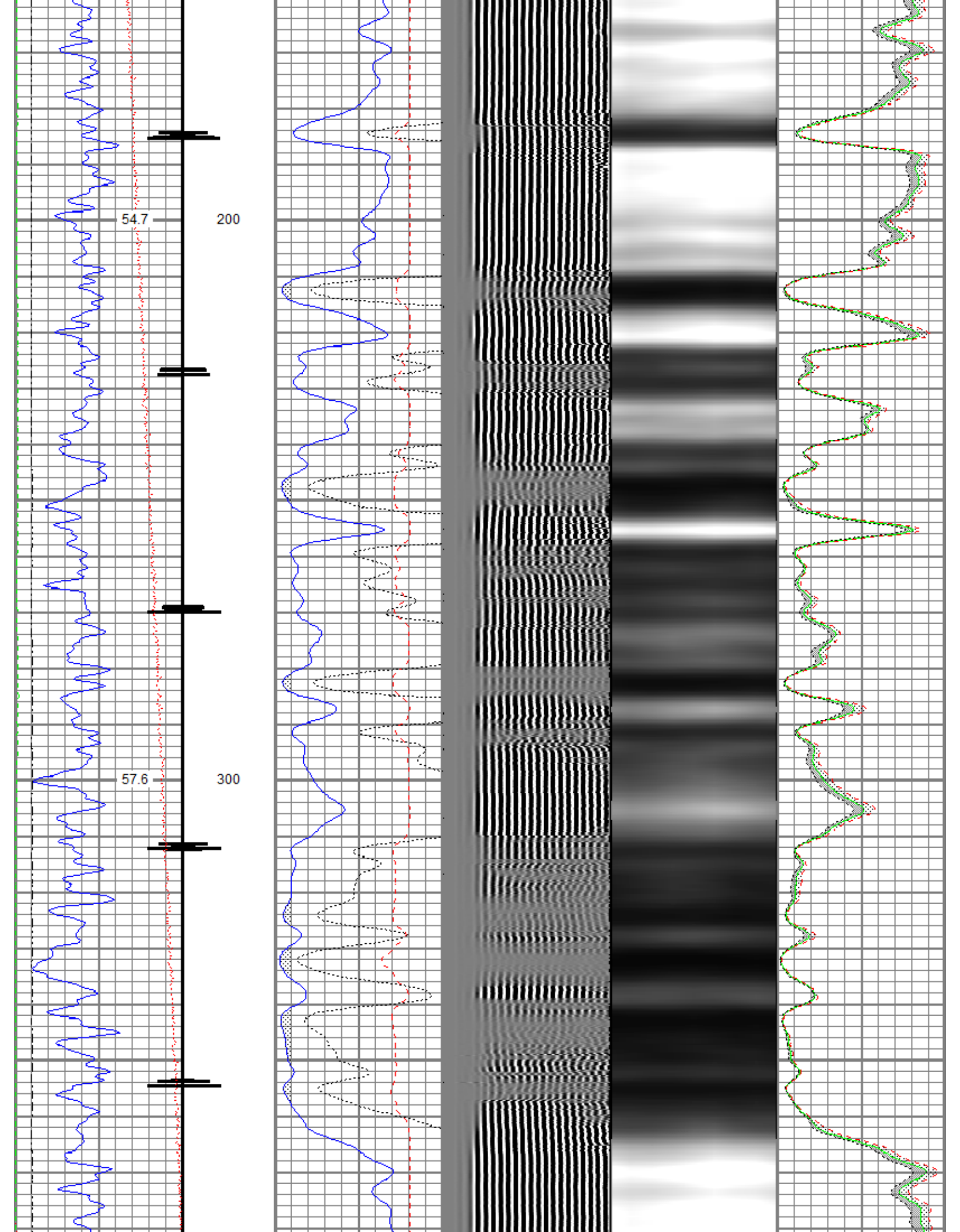


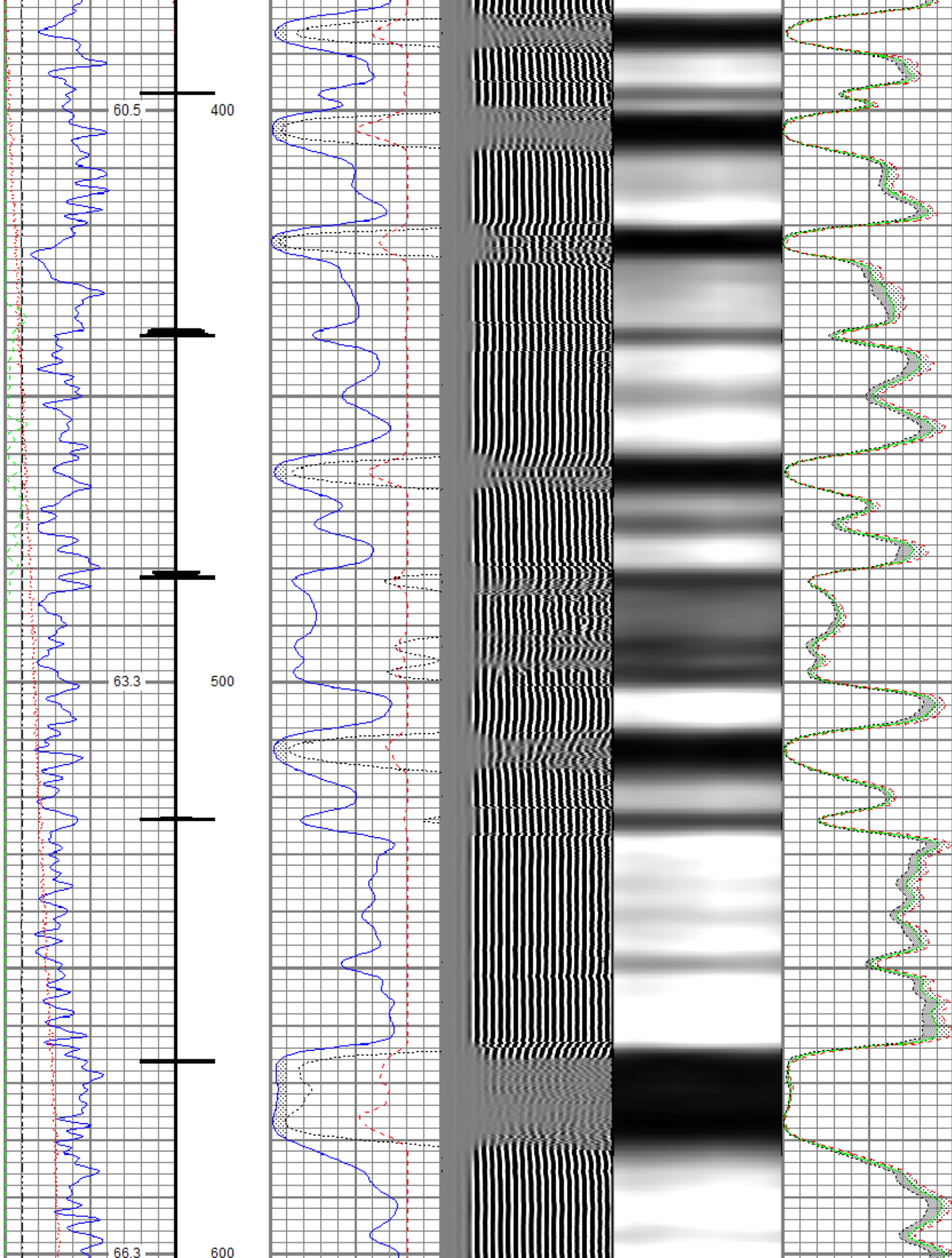
Records with API Surface Induced Pressure

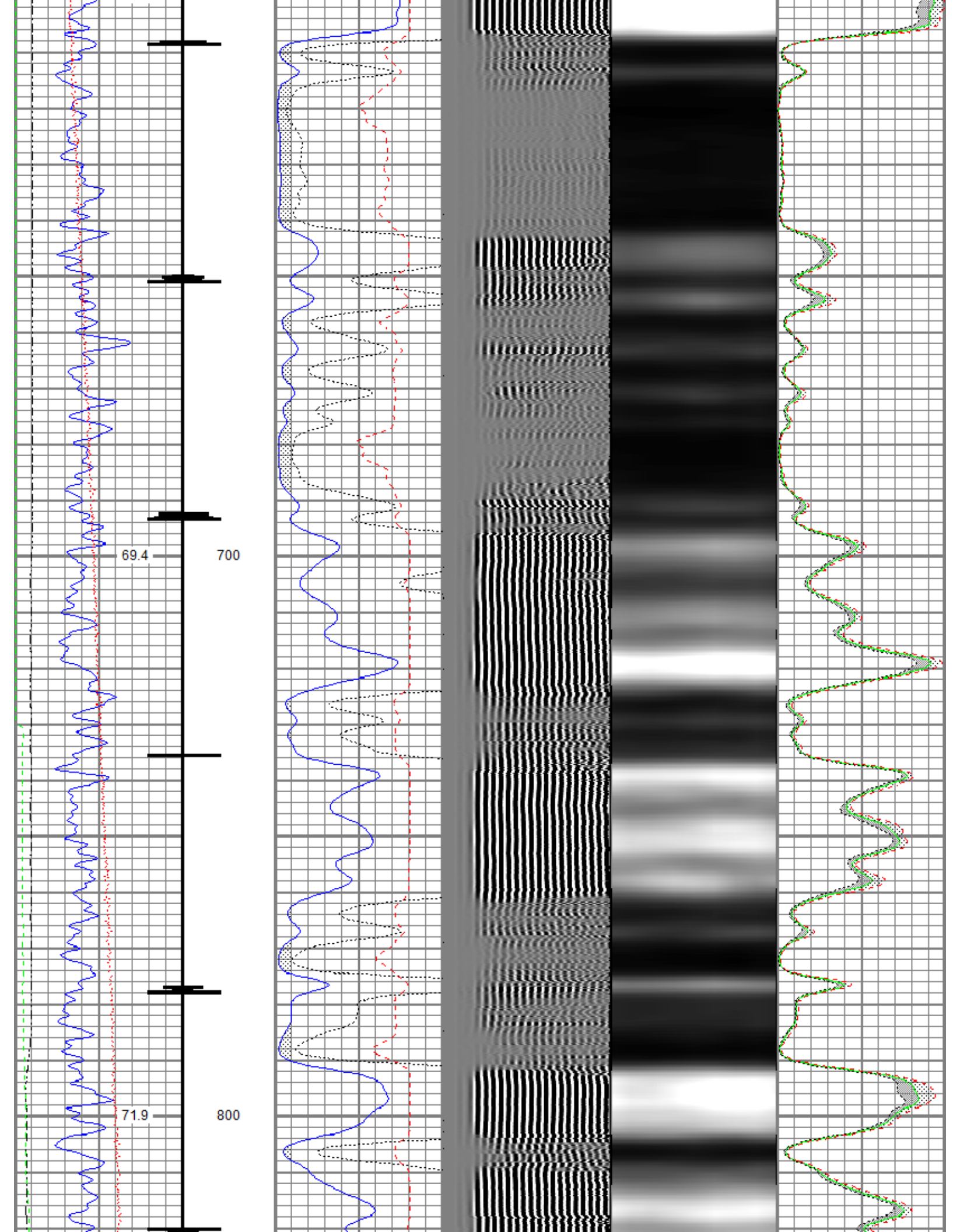
Database File anadarko_pioneer_23_12_cbl.db
 Dataset Pathname Main
 Presentation Format ros_radrii
 Dataset Creation Fri Dec 22 15:41:12 2017
 Charted by Depth in Feet scaled 1:240

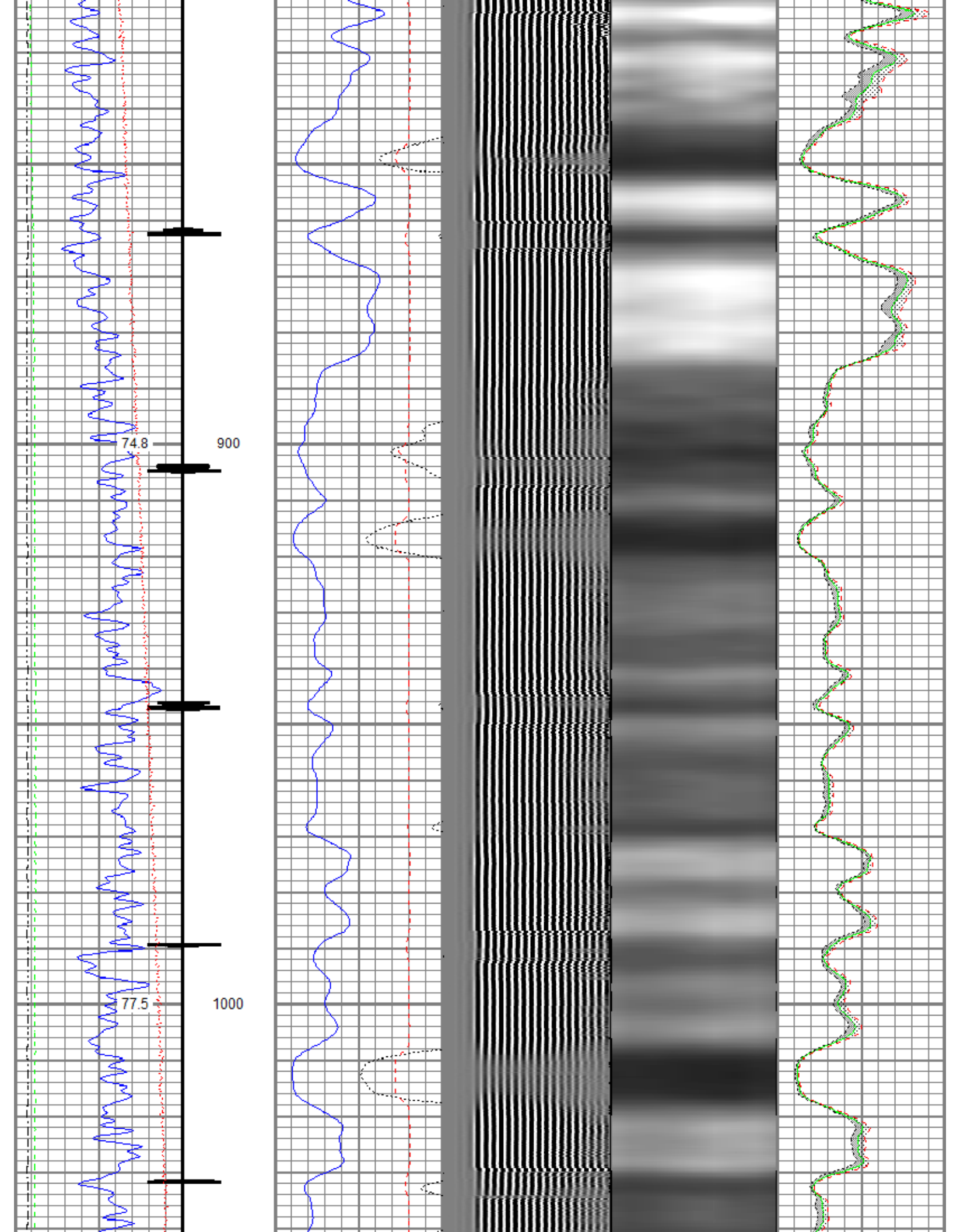
Gamma Ray (GAPI) 120	0 3' Amplitude (mV) 100	5' Variable Density Log 200 (usec) 1200	Sector Map	0 Average Amplitude 100
Casing Collar Locator	0 3' Amplitude x 5 (mV) 20			Minimum Amplitude
0 Temperature (degF) 20	0 3' Travel Time (usec) 150			0 100
Line Speed (ft/min) 150				Maximum Amplitude
0 Line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

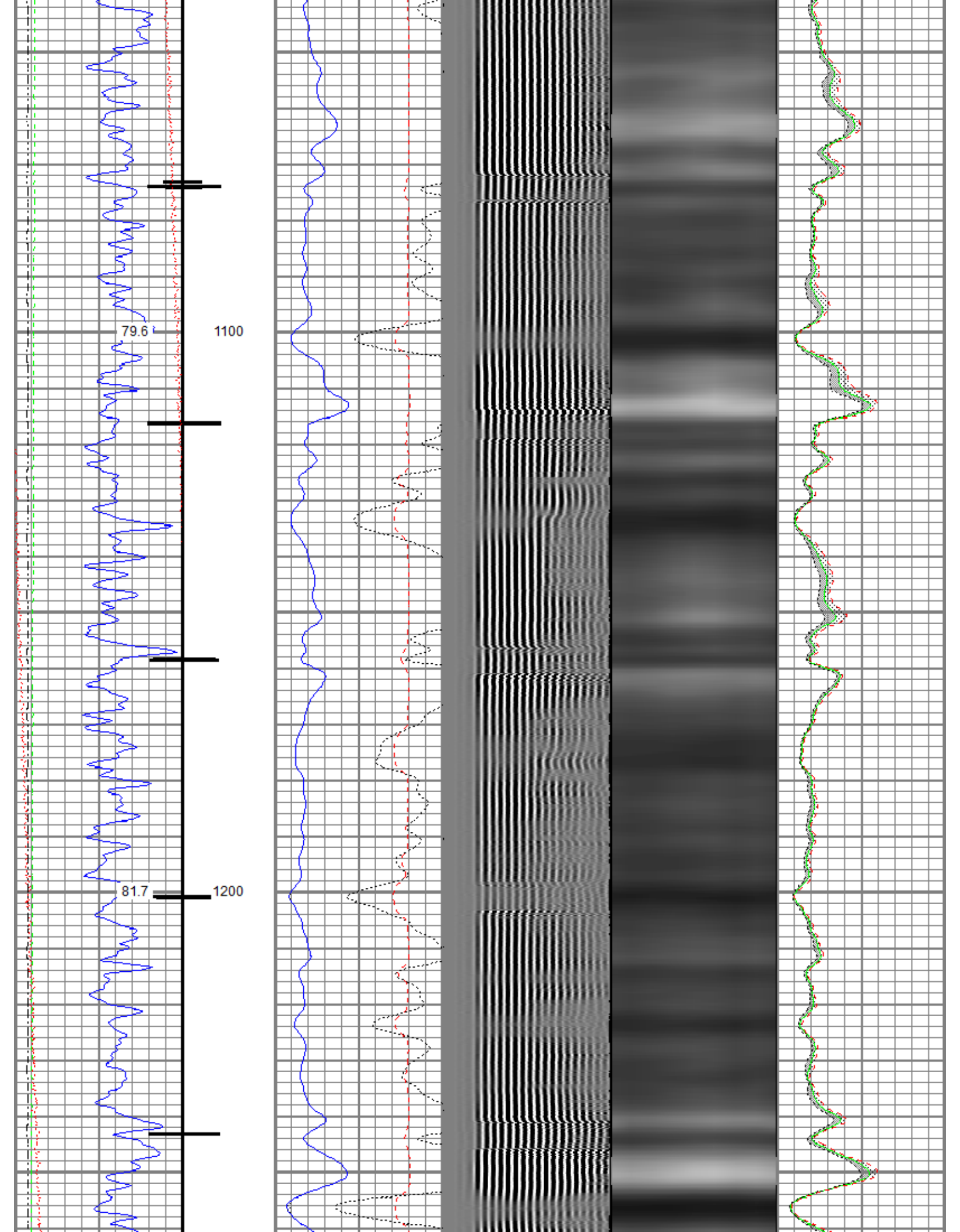


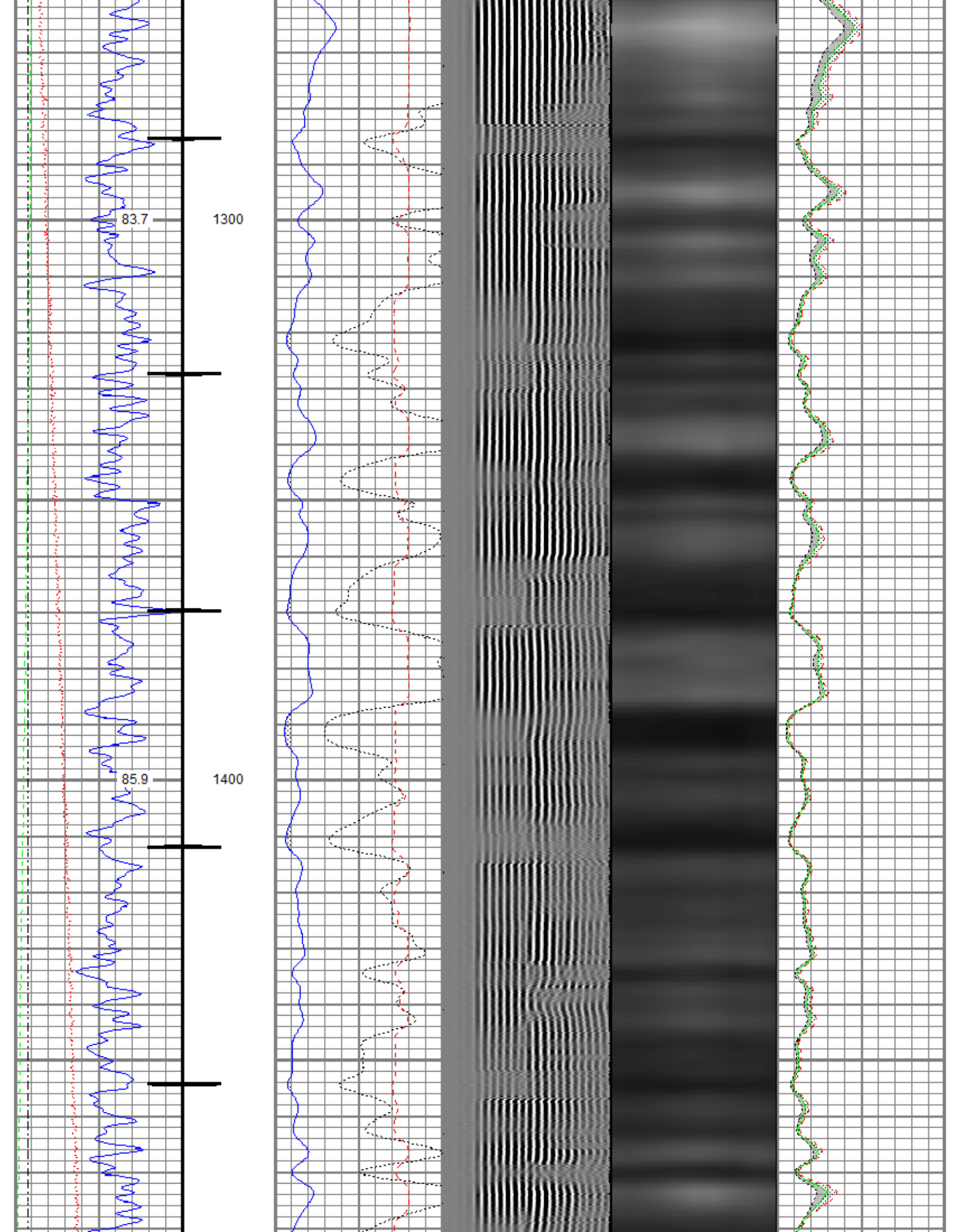


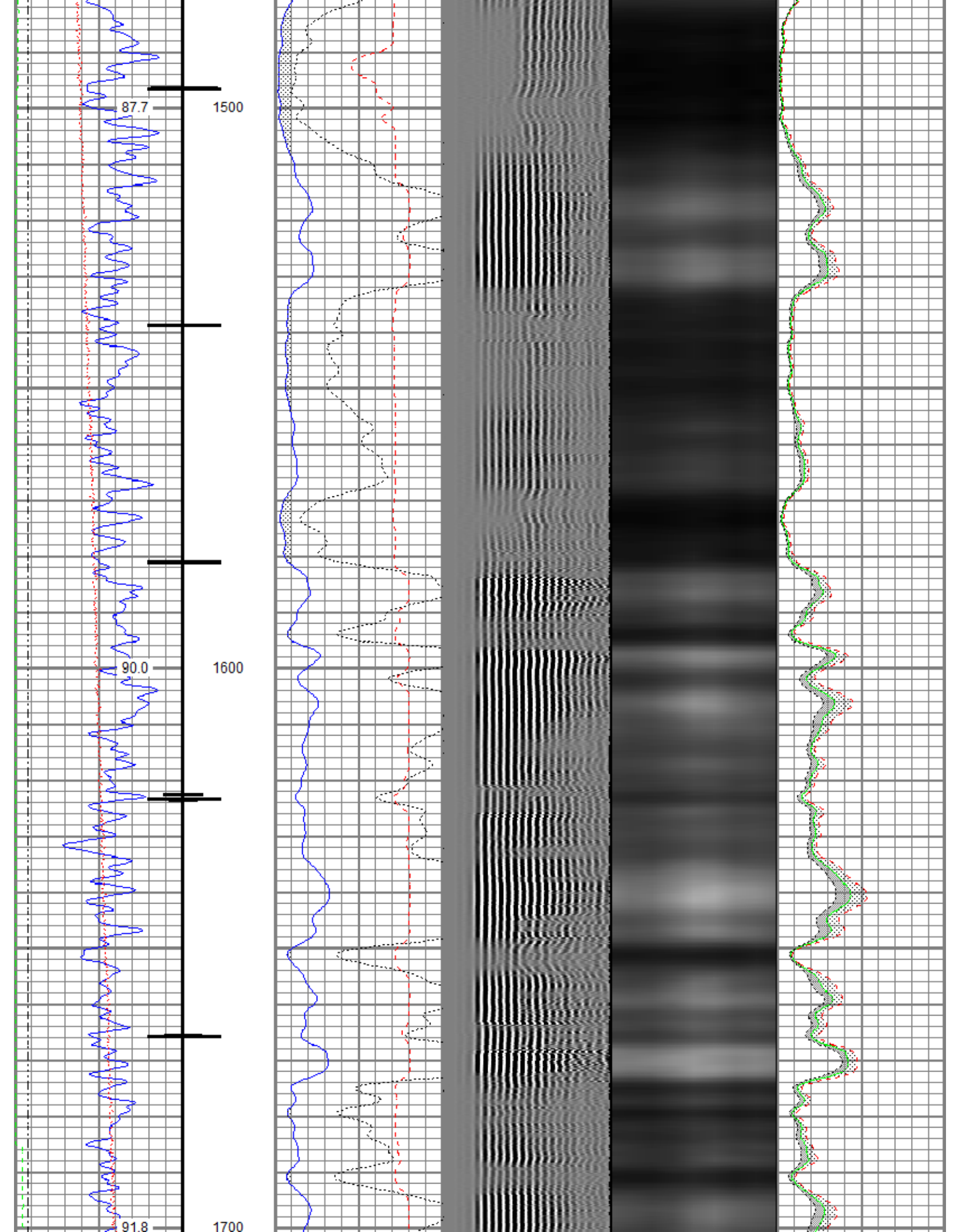


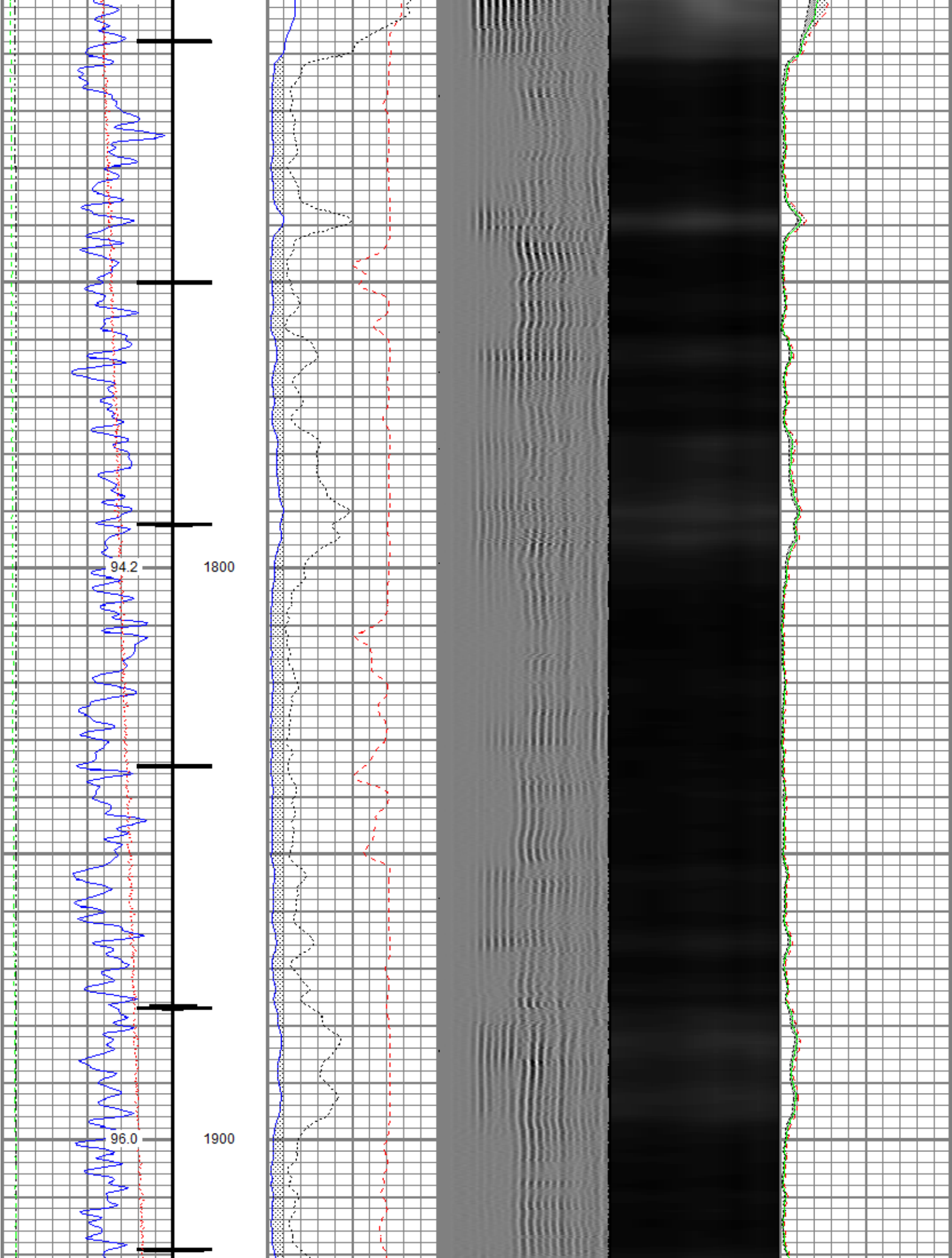


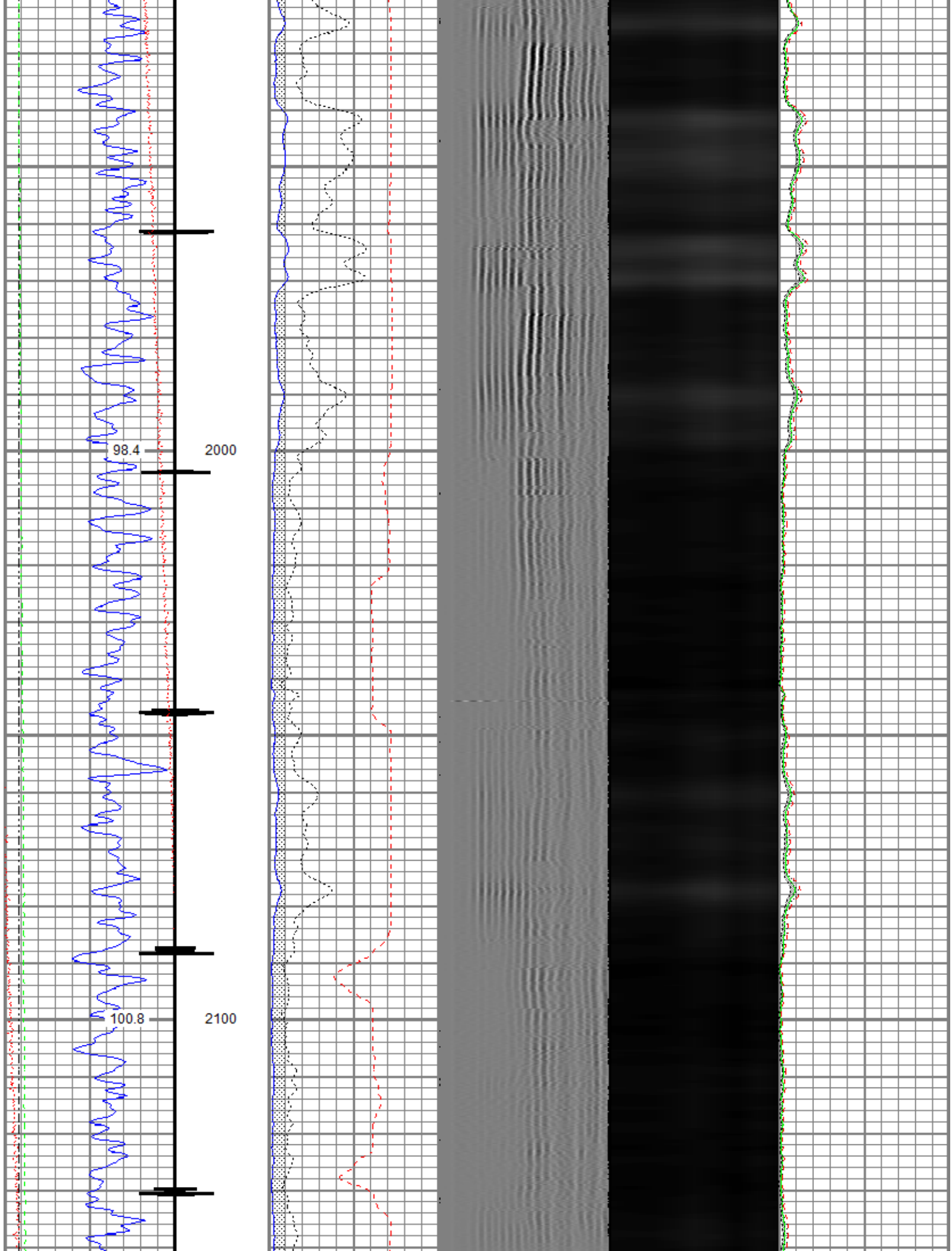


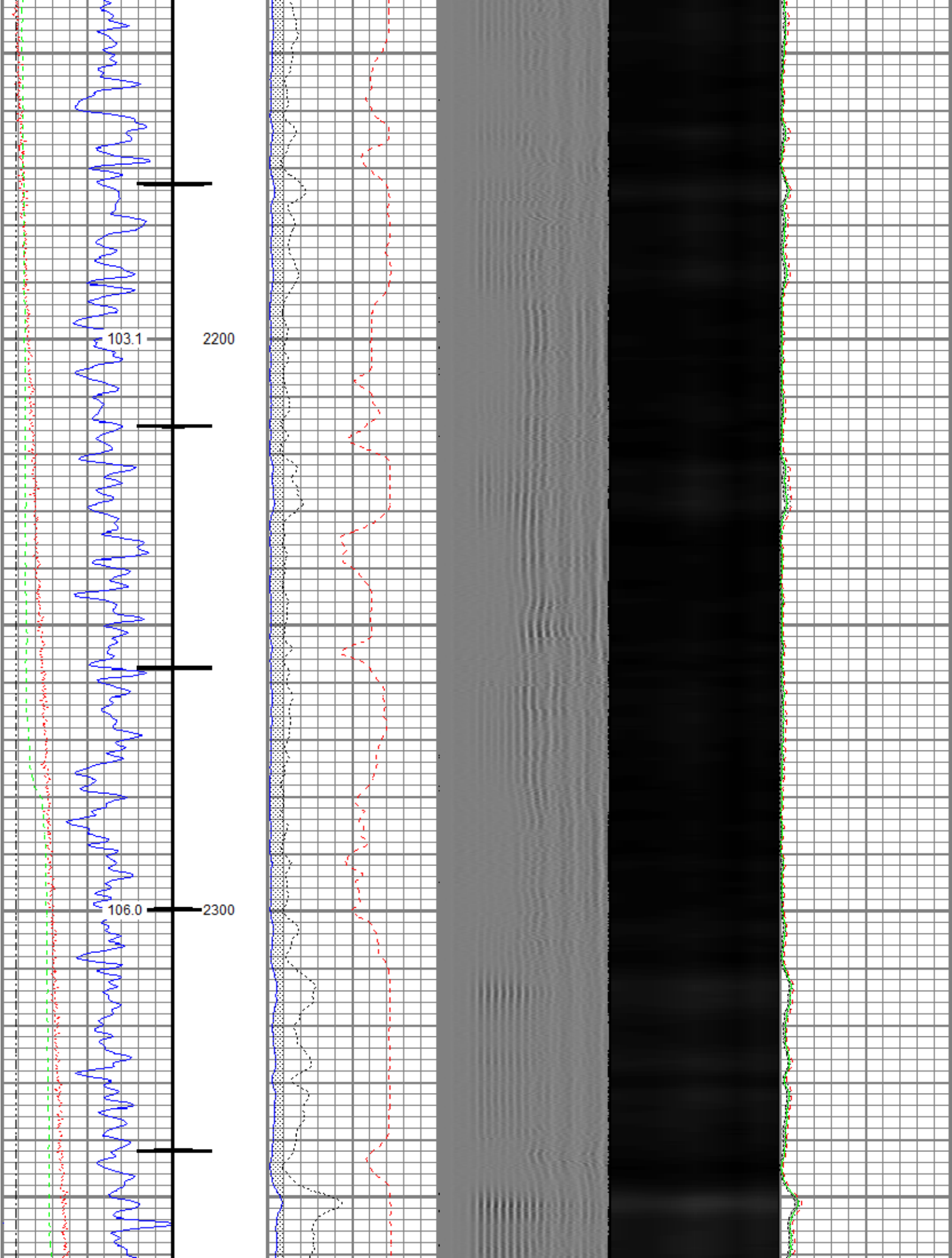


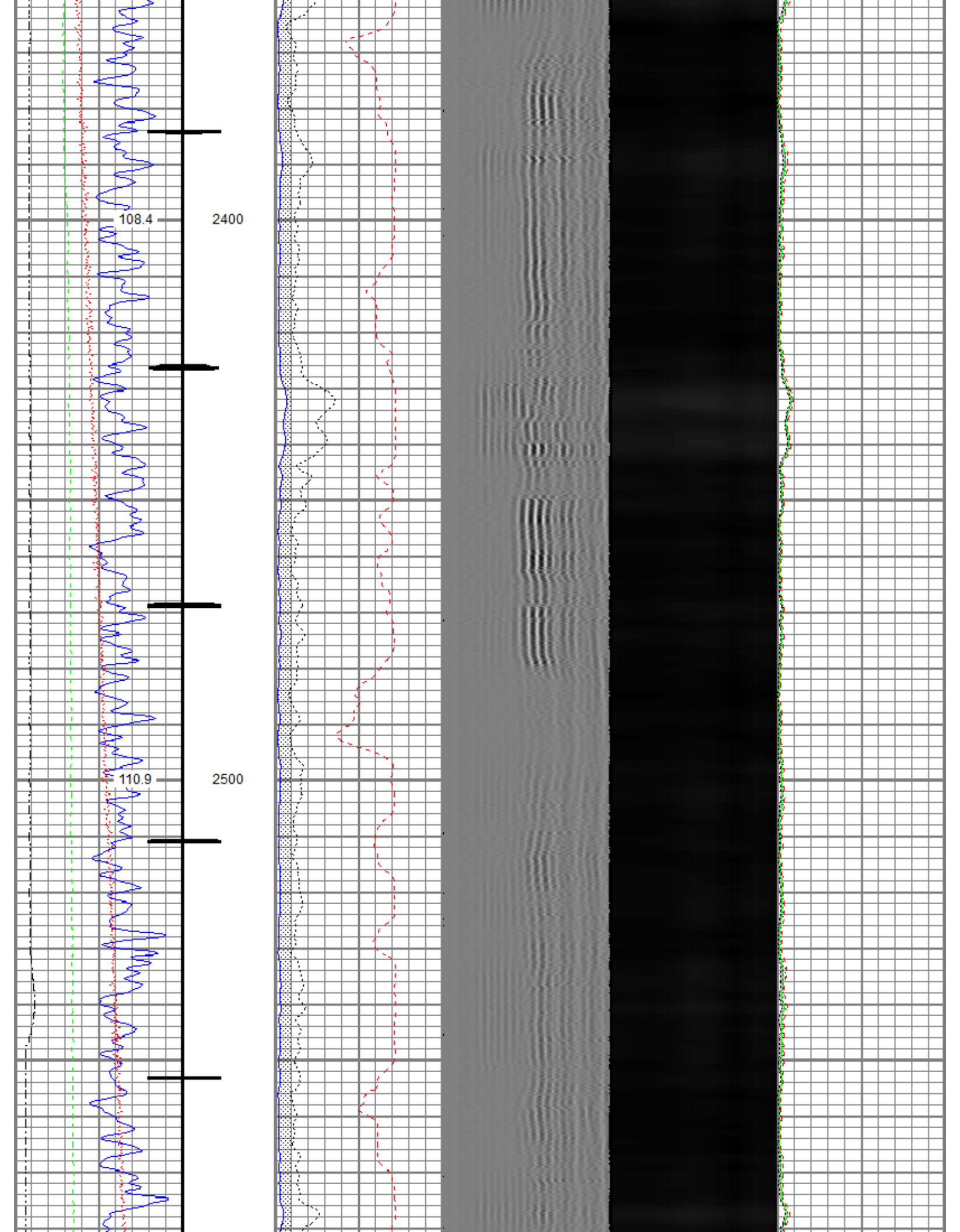


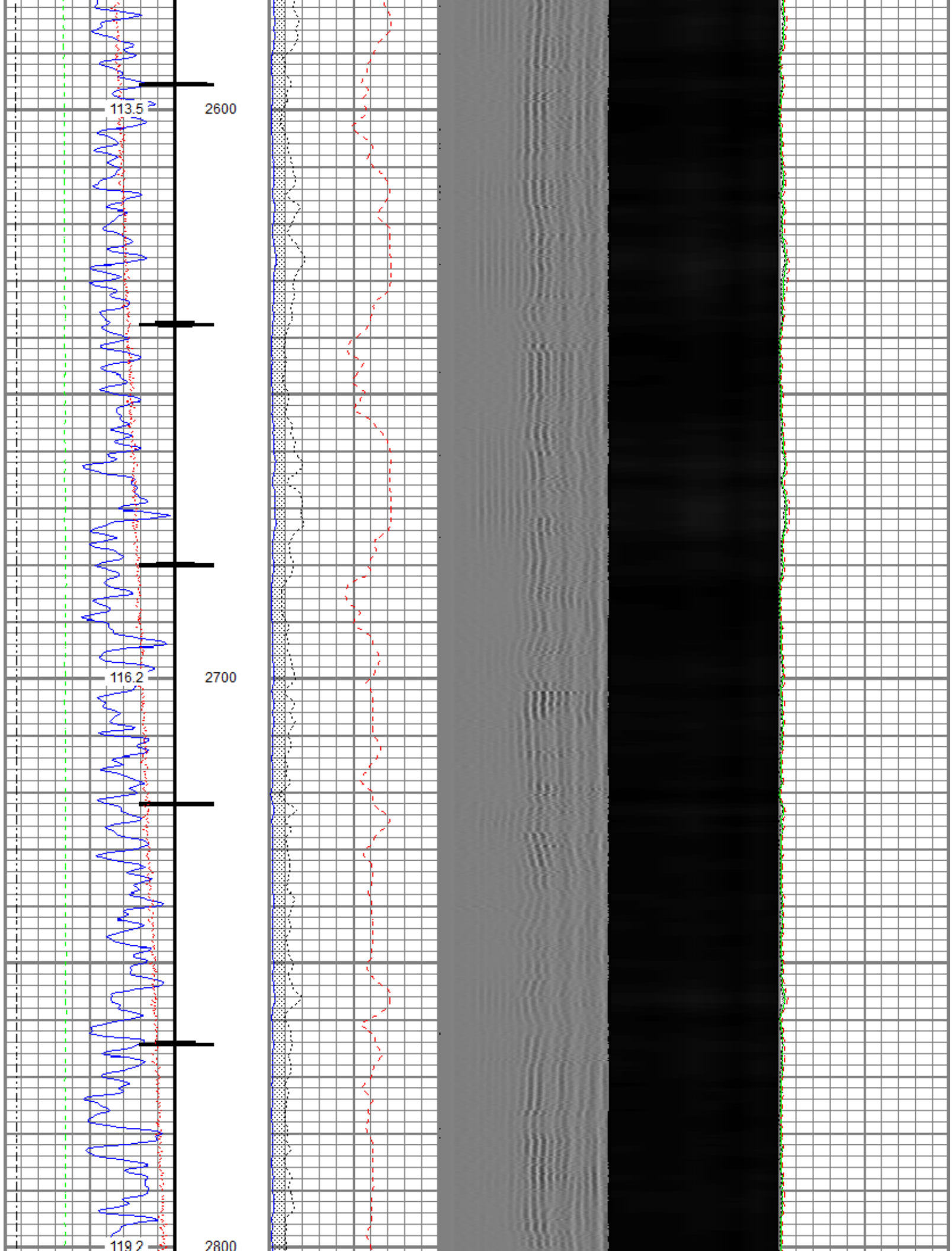


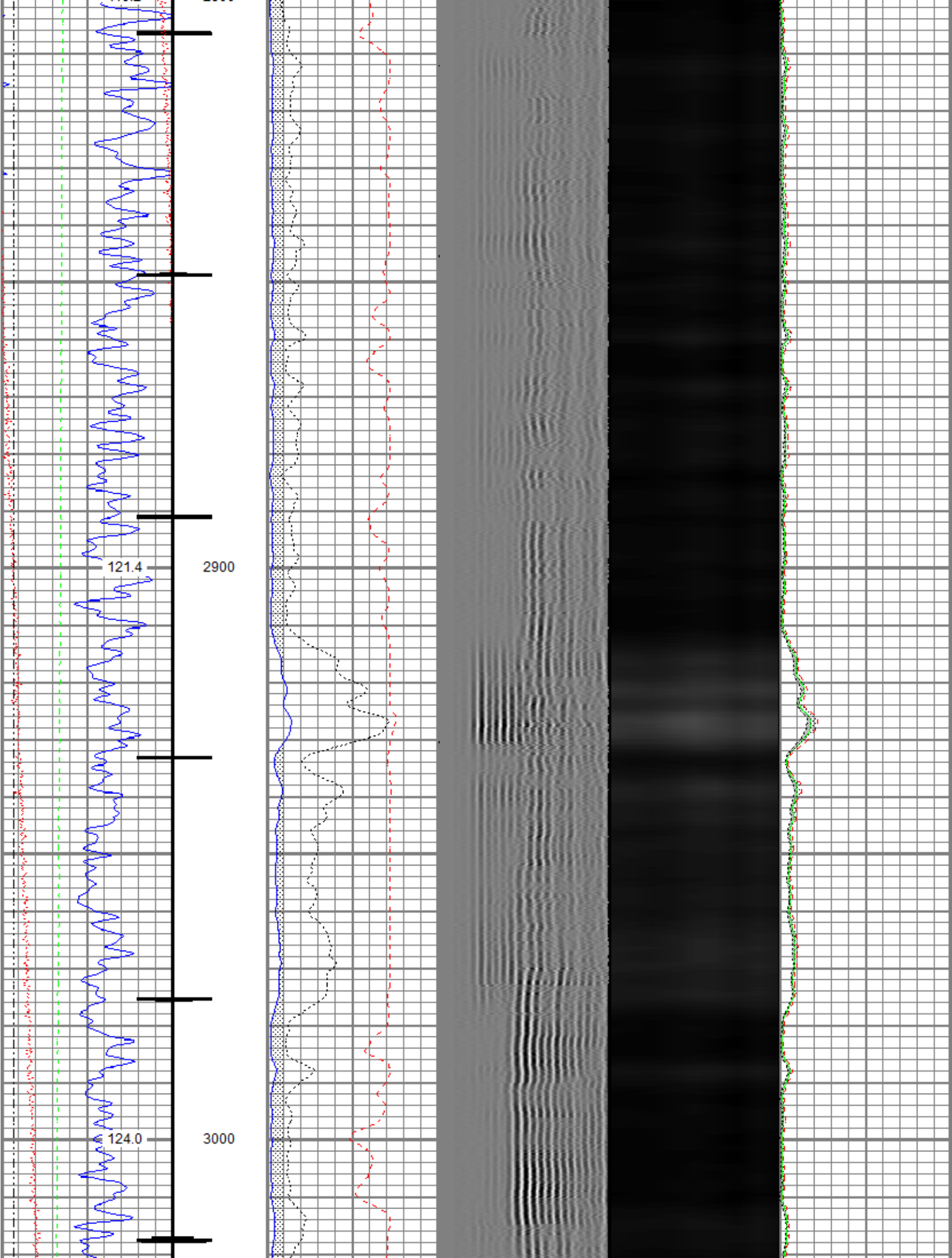


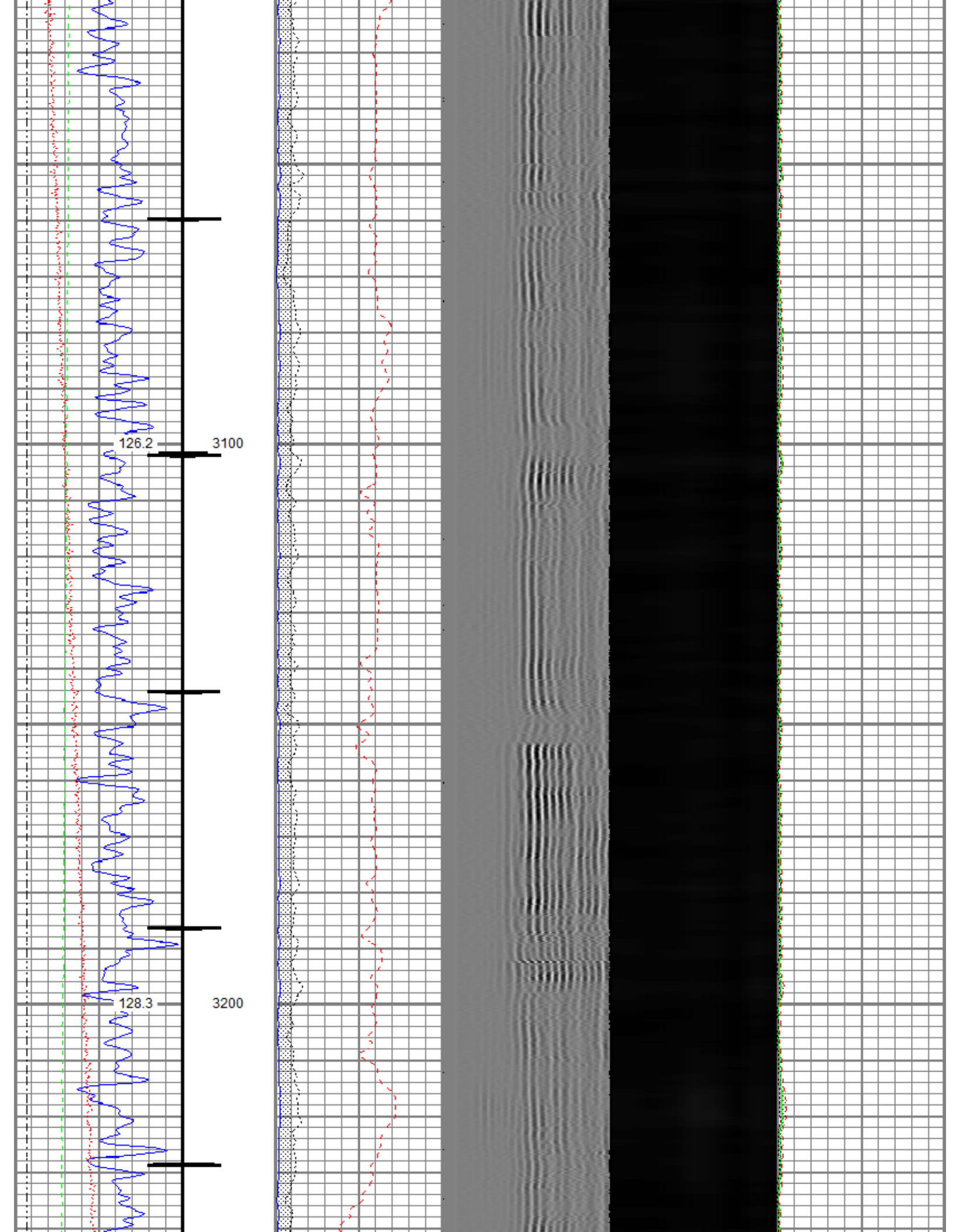


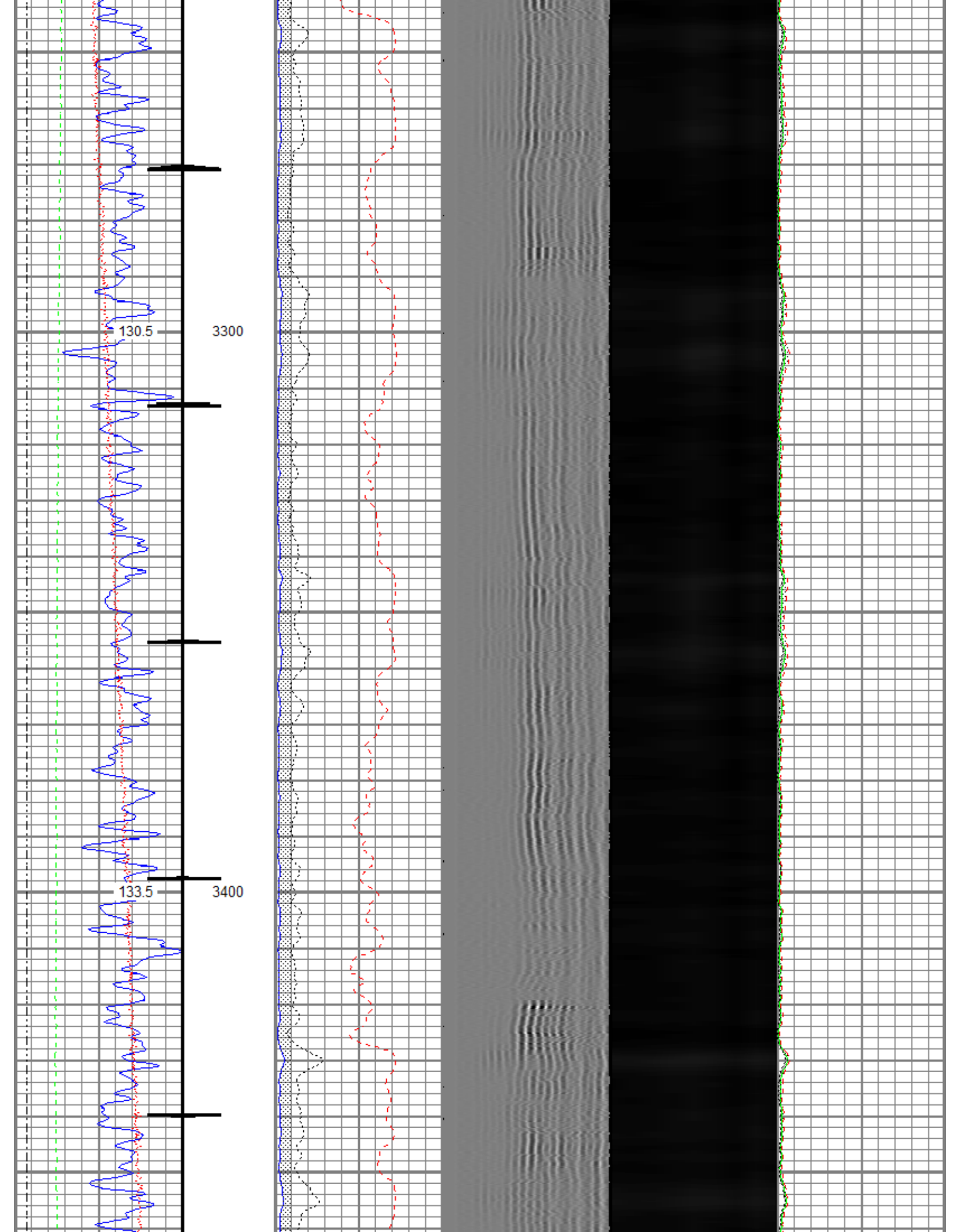


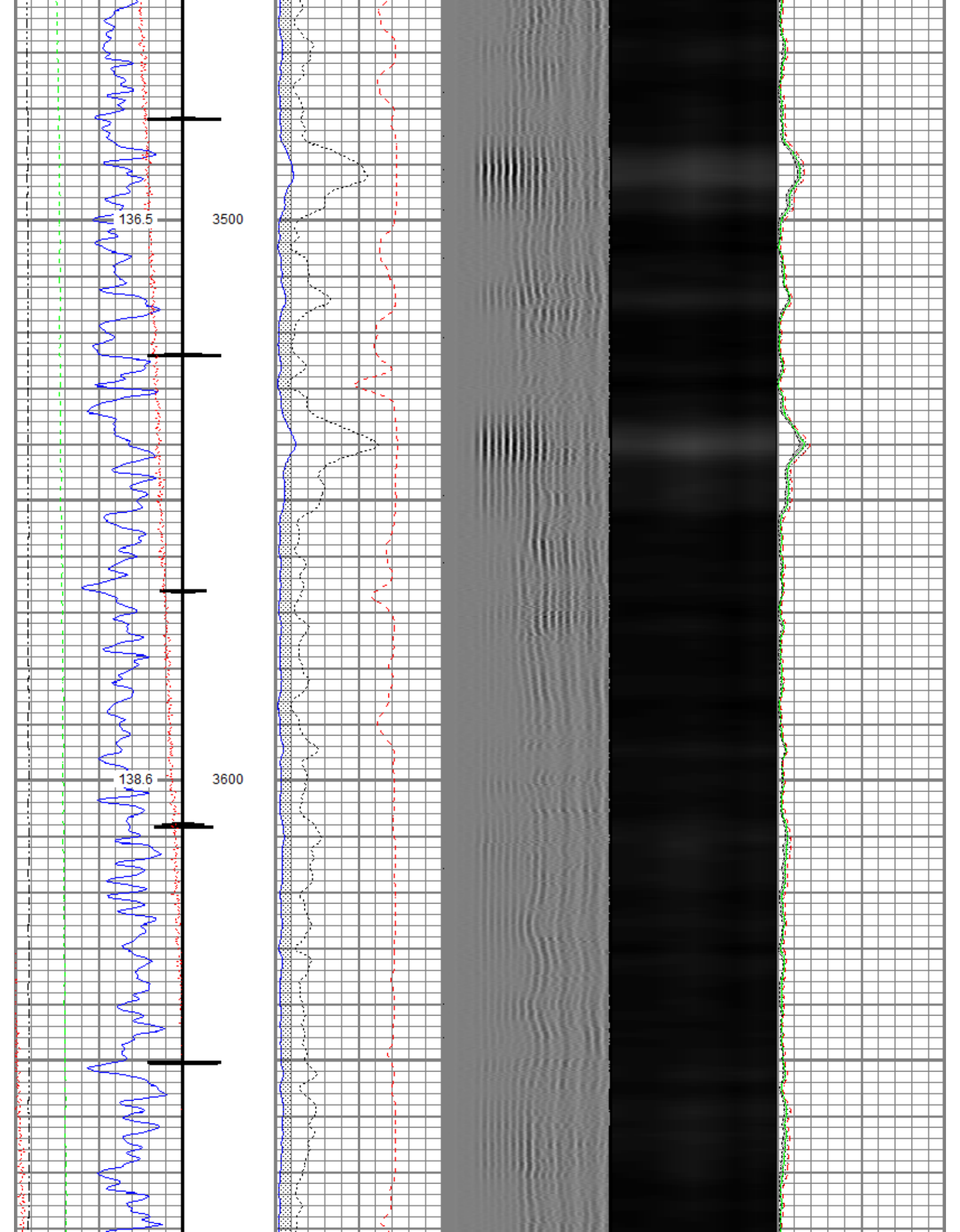


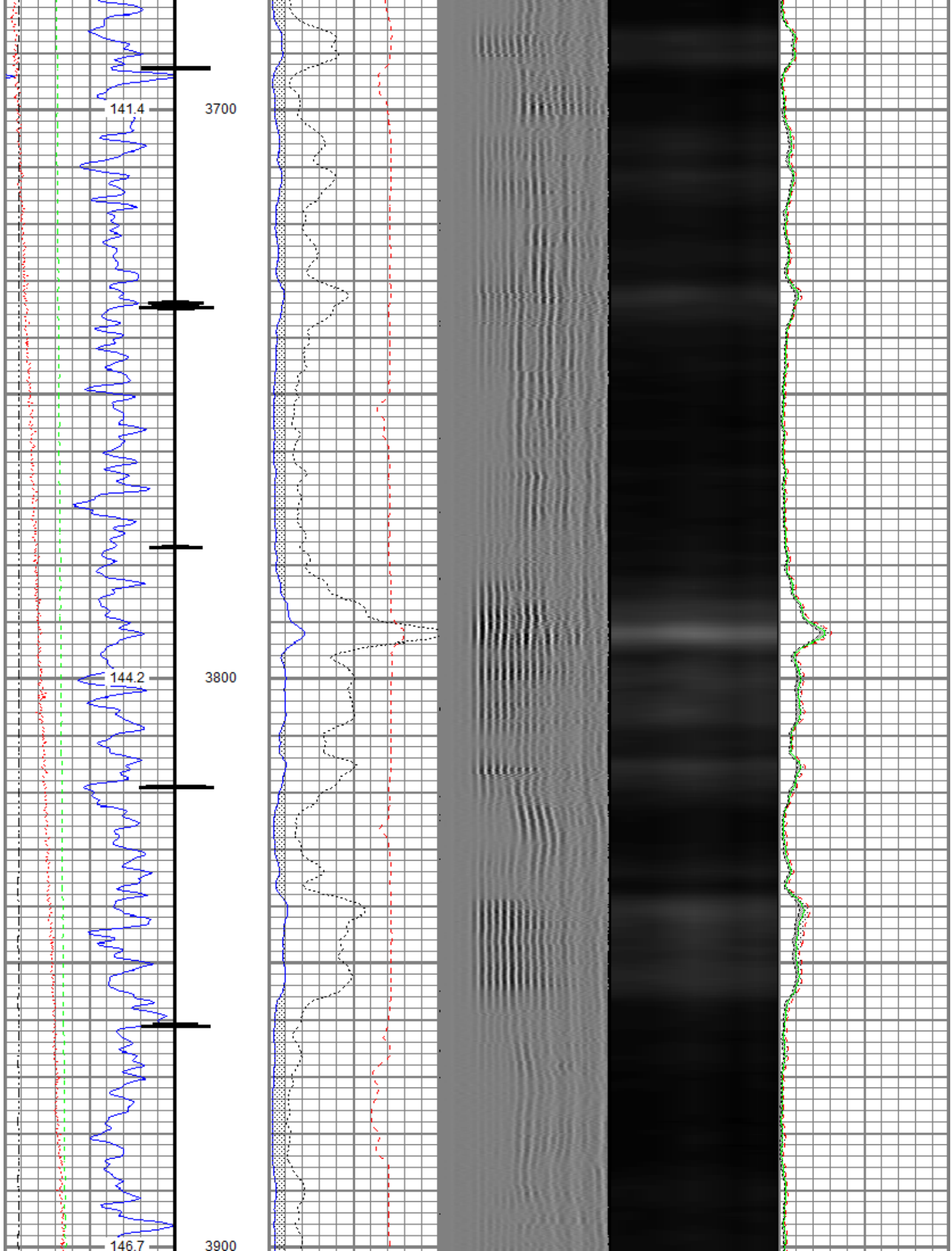


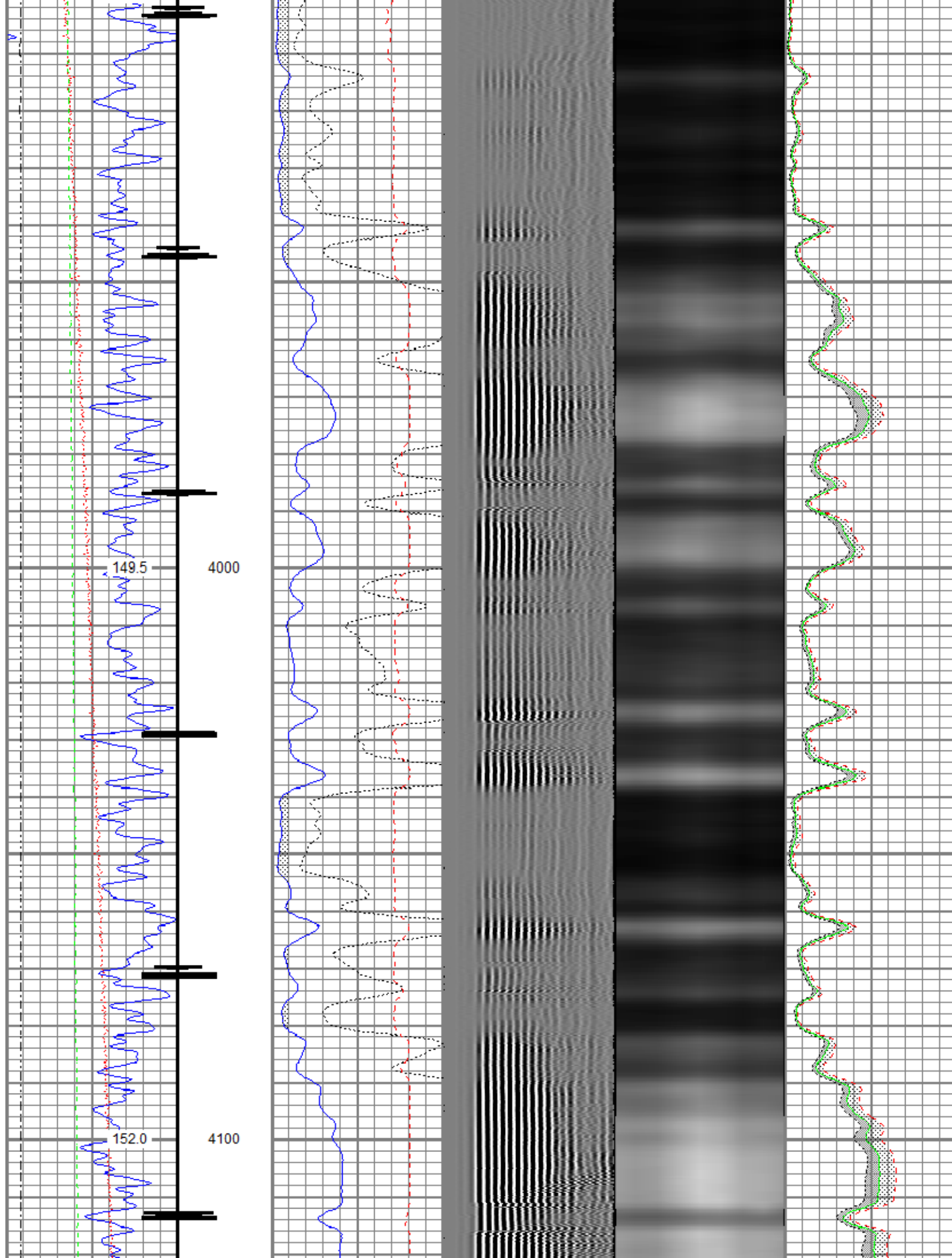


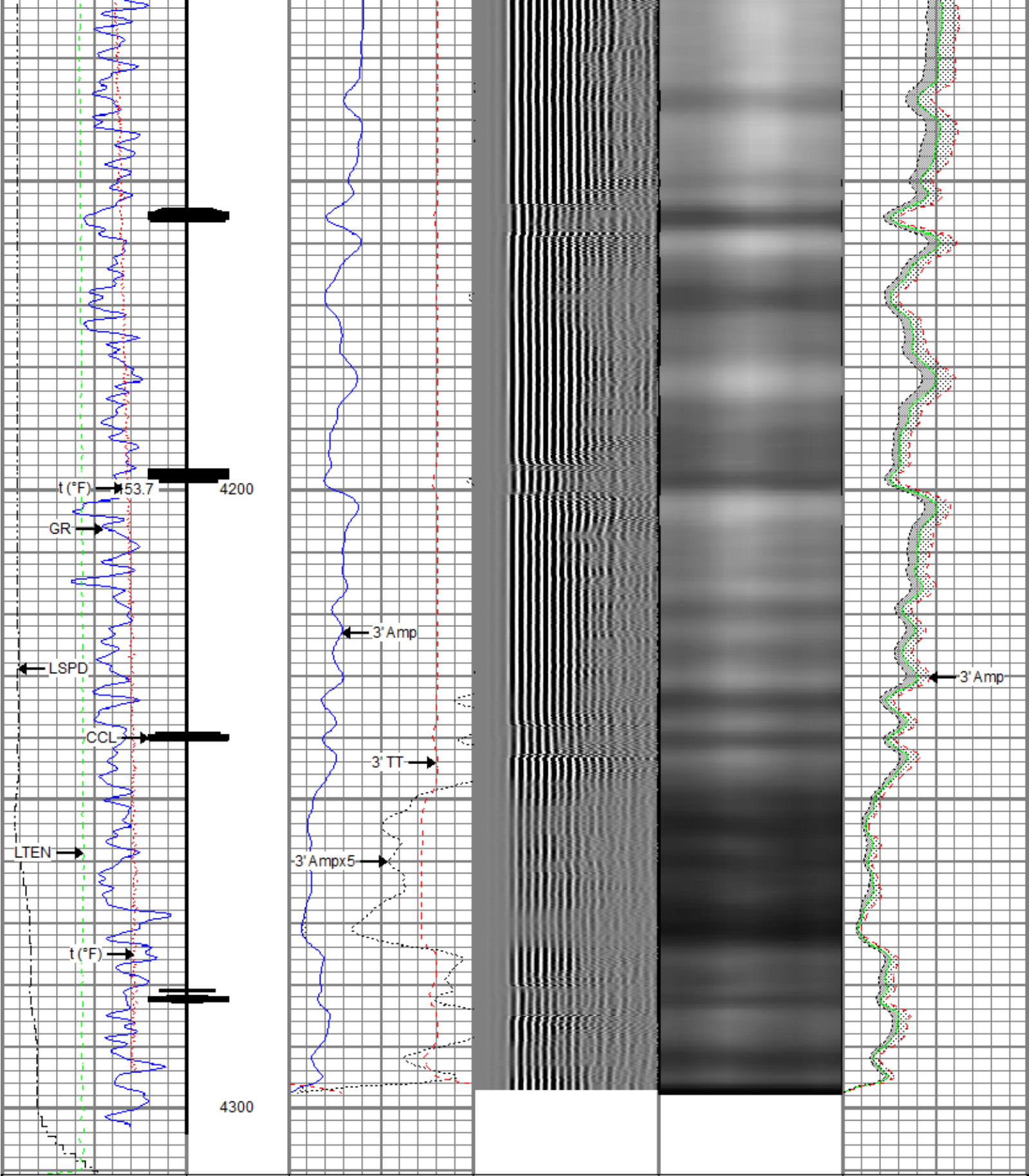












Gamma Ray (GAPI)	0	120	5' Variable Density Log (usec)	200	1200	Sector Map	0	100
Casing Collar Locator	0	20	3' Amplitude x 5	0	20	Average Amplitude	0	100
Temperature (degF)	0	20	3' Travel Time	650	150	Minimum Amplitude	0	100
Line Speed (ft/min)	-150	150				Maximum Amplitude	0	100
Line Tension (lb)	0	2000						

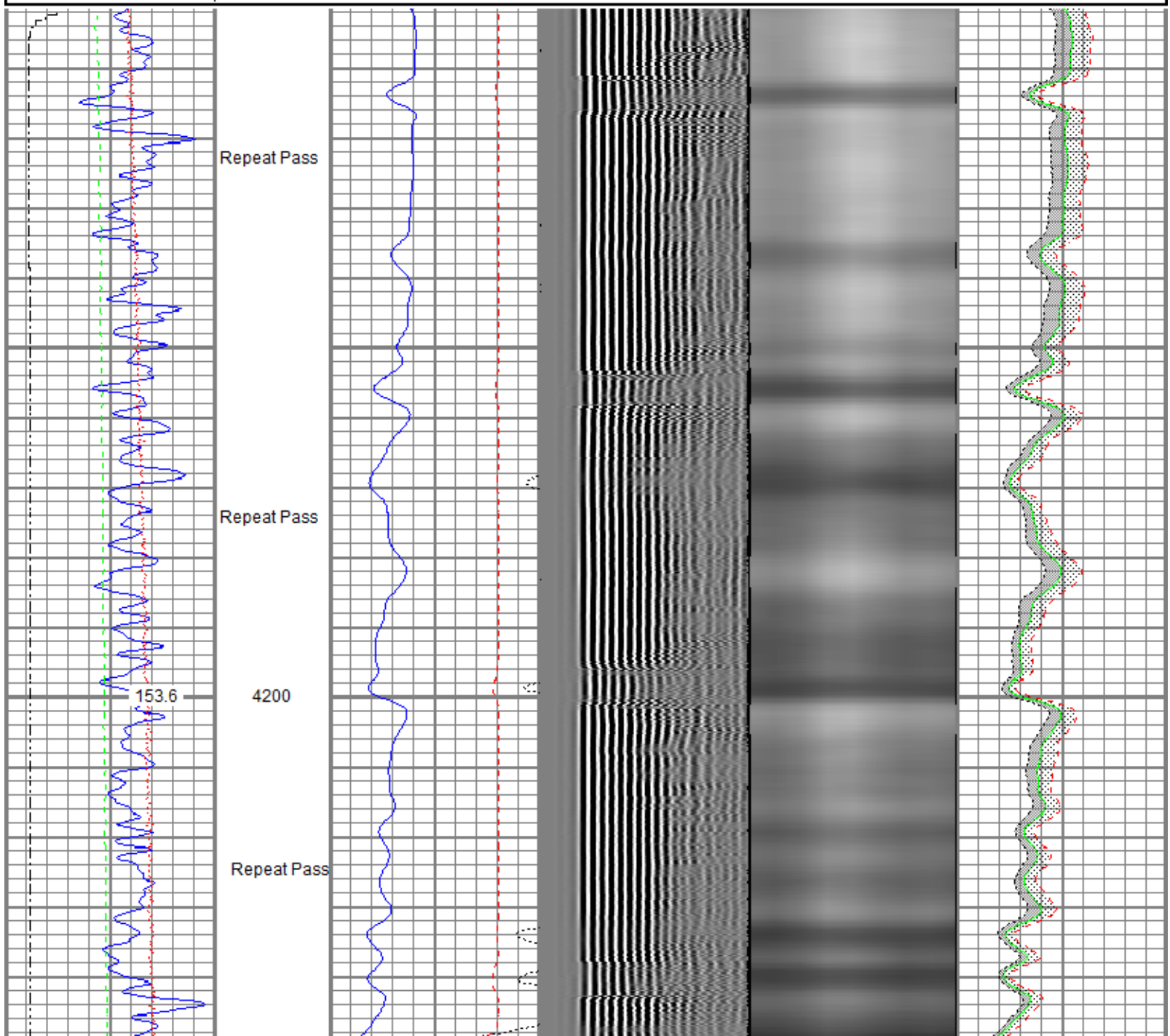


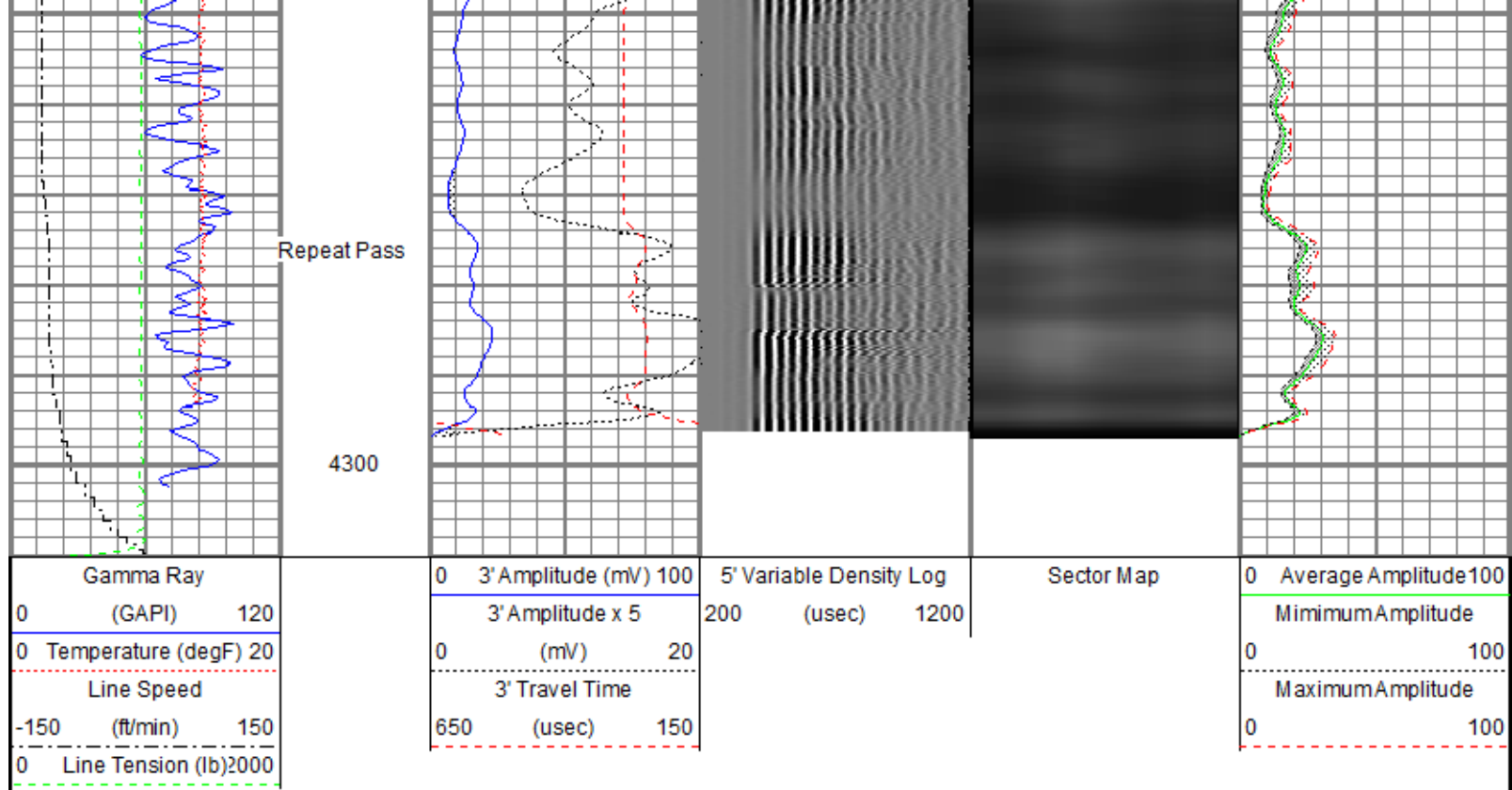
Repeat Pass

Recorded with 0 PSI Surface Induced Pressure

Database File anadarko_pioneer_23_12_cbl.db
 Dataset Pathname Repeat
 Presentation Format ros_radii
 Dataset Creation Fri Dec 22 15:38:10 2017
 Charted by Depth in Feet scaled 1:240

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





Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
			Titan_Electric_Cable_Heads-Titan_1-11/16" Electric Cable Head with 1" Fishing Neck	1.03	1.69	5.40
			Probe_ELine_BowSpring_Centralizer-P_EBSC_2.88 Probe 2-3/4" Electric Inline Bowspring Centralizer		2.75	20.00
HeadVolt	19.53					
Temp	16.73					
WVFS8	14.57		Probe_RADII-C-P_RBT_2750 (FW1302-001) Probe 2-3/4" Sector Cement Bond Tool with Temperature Probe	9.19	2.75	105.00
WVFS7	14.57					
WVFS6	14.57					
WVFS5	14.57					
WVFS4	14.57					
WVFS3	14.57					
WVFS2	14.57					
WVFS1	14.57					
WVFCAL	14.57					
WV3FT	14.57					
WV5FT	13.57					
HEADVOLT	10.32					

			Probe_ELine_BowSpring_Centralizer-P_EBSC_2.88 Probe 2-3/4" Electric Inline Bowspring Centralizer	2.88	2.75	20.00
DCCL	6.53					
CCL	6.53					
GR	5.31		Probe_GR_CCL-P_CGR_2750_S (FW1212-026) Probe 2-3/4" Digital CCL / Gamma Ray Combined	4.54	2.75	55.00
			CSS_ELine_BowSpring_Centralizer-C_EBSC_2.90 CSS 2-3/4" Electric Inline Bowspring Centralizer	2.90	2.75	20.00

Dataset: anadarko_pioneer_23_12_cbl.db: field/well/run1/Main
 Total length: 23.42 ft
 Total weight: 225.40 lb
 O.D.: 2.75 in

Calibration Report

Database File anadarko_pioneer_23_12_cbl.db
 Dataset Pathname Main
 Dataset Creation Fri Dec 22 15:41:12 2017

Gamma Ray Calibration Report

Serial Number: FW1212-026
 Tool Model: P_CGR_2750_S
 Performed: Mon Aug 28 09:21:28 2017
 Calibrator Value: 1.0 GAPI
 Background Reading: 0.0 cps
 Calibrator Reading: 1.6 cps
 Sensitivity: 0.6061 GAPI/cps

Segmented Cement Bond Log Calibration Report

Serial Number: FW1302-001
 Tool Model: P_RBT_2750
 Calibration Casing Diameter: 4.500 in
 Calibration Depth: 0.000 ft

Master Calibration, performed Fri Dec 22 14:02:57 2017:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.003	0.739	0.800	81.196	109.297	0.436
CAL	0.781	0.791				
5'	0.008	0.700	0.800	81.196	116.142	-0.110
SUM						
S1	-0.000	0.730	0.000	100.000	136.864	0.040
S2	0.004	0.732	0.000	100.000	137.314	-0.498
S3	0.003	0.725	0.000	100.000	138.493	-0.426

S4	0.003	0.735	0.000	100.000	136.732	-0.456
S5	0.003	0.777	0.000	100.000	129.244	-0.410
S6	0.003	0.779	0.000	100.000	128.947	-0.414
S7	0.004	0.763	0.000	100.000	131.687	-0.522
S8	0.004	0.729	0.000	100.000	137.871	-0.493

Internal Reference Calibration, performed (Not Performed):

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.781	0.791	1.000	0.000

Air Zero Calibration, performed Fri Dec 22 14:02:00 2017:

	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	



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Well Pioneer 23-12
Field Wattenberg
County Weld
State Colorado