RELIANCE OILFIELD SERVICES

Radial Cement Bond
Gamma Ray
Casing Collar Log

Company Kerr-McGee Oil & Gas Onshore, L.P.
Well Reese 21-7HZ
Field Wattenberg
County Weld
State Colorado

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Location: API # : 05-123-47868

SEC 21 TWP 2N RGE 67W

Other Services
GR/JB
RBP

Permanent Datum	Ground Level	Elevation	4998'
Log Measured From	Kelly Bushing	21 FT	
Drilling Measured From	Kelly Bushing		

Elevation
K.B. 5019'
D.F. ---
G.L. 4998'

Date	13-APR-2019
Run Number	Three
Depth Driller	15889 FT
Depth Logger	7252 FT
Bottom Logged Interval	7237 FT
Top Log Interval	Surface
Open Hole Size	7.875"
Type Fluid	Water
Density / Viscosity	8.34 lb/gal
Max. Recorded Temp.	213°F
Estimated Cement Top	See Log
Time Well Ready	ROA
Time Logger on Bottom	15:30
Equipment Number	HD-0363
Location	Platteville, CO
Recorded By	M Hayes
Witnessed By	John McCarthy

Borehole Record				Tubing Record			
Run Number	Bit	From	To	Size	Weight	From	To

Casing Record	Size (in)	Wgt (lbs/Ft)	Grade	Top	Bottom
Surface Casing	9 5/8	36	J-55	Surface	1875 FT
Intermediate #1	5 1/2	17	HCP-110	Surface	15884 FT
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 7202 FT
Changed From Casing Tally reported 7159 FT as per John McCarthy
Adjusted -7 FT to correlate with Marker Joint
Gauge Ring/Junk Basket ran to 8102 FT
Retrievable Bridge Plug set at 7280 FT
Log ran with 0 PSI Surface Induced Pressure
Logging tools were clean and free of debris upon completion of operations

Thank you for choosing Reliance Oilfield Services, LLC!!

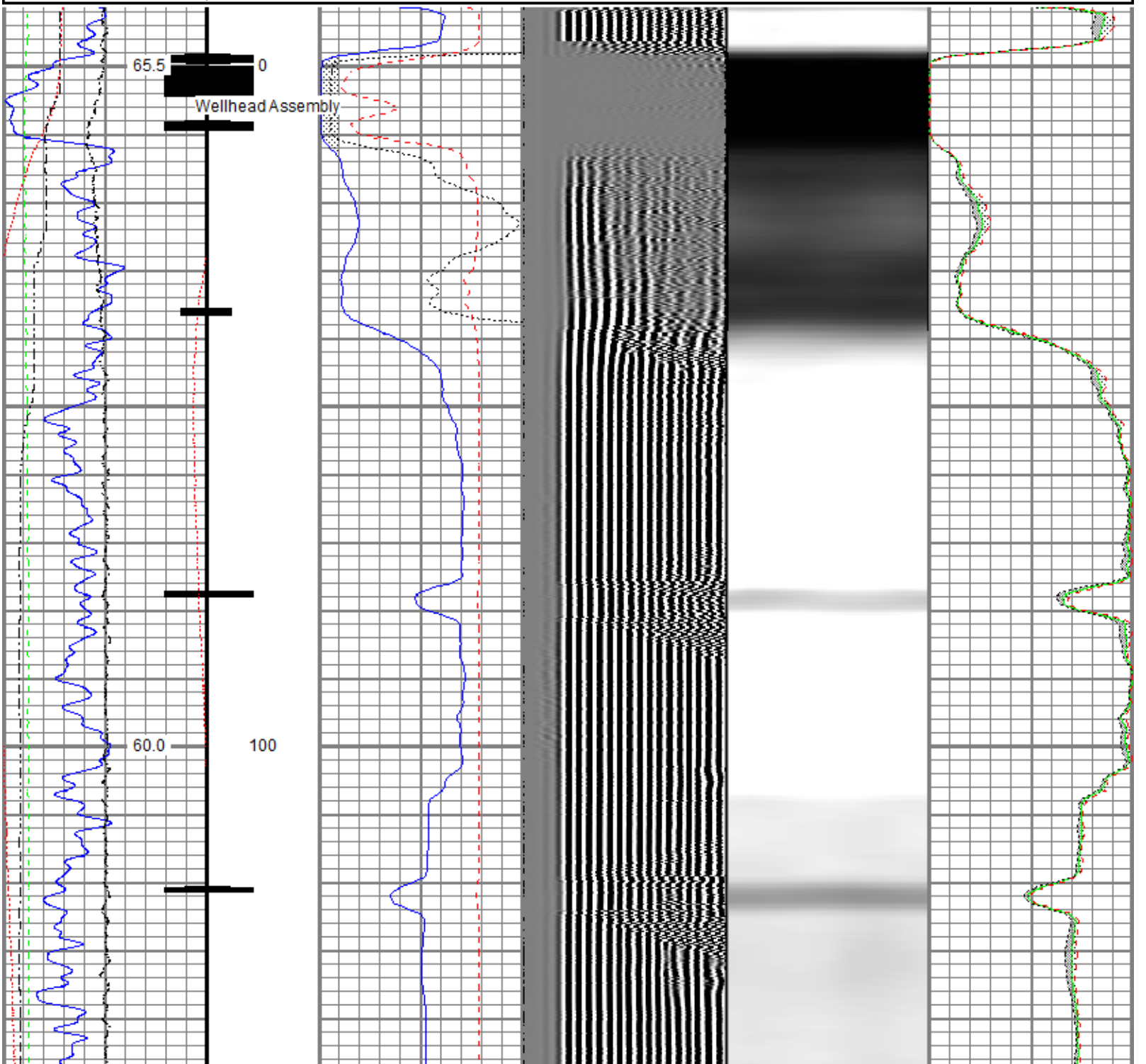
Main Pass

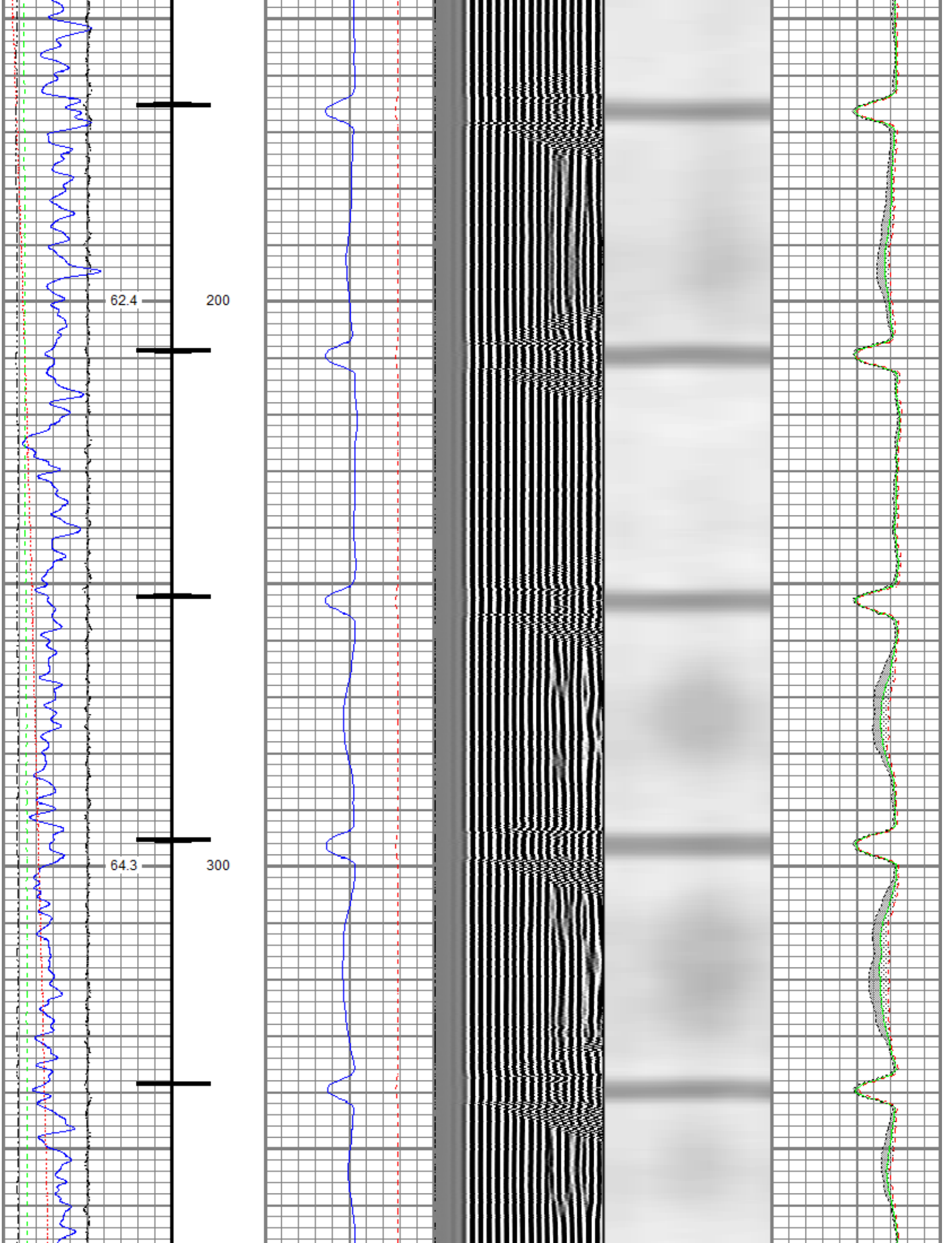
RELIANCE OILFIELD SERVICES

Recorded With 0 PSI Surface Induced Pressure

Database File	anadarko\0512347868_anadarko_reese 21-7hz_rbl_04-13-19\processed_0512347868_anadarko_reese 21-7hz_rbl_04-13-19
Dataset Pathname	pass4.1
Presentation Format	ros_radii
Dataset Creation	Sat Apr 13 16:29:31 2019
Charted by	Depth in Feet scaled 1:240

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

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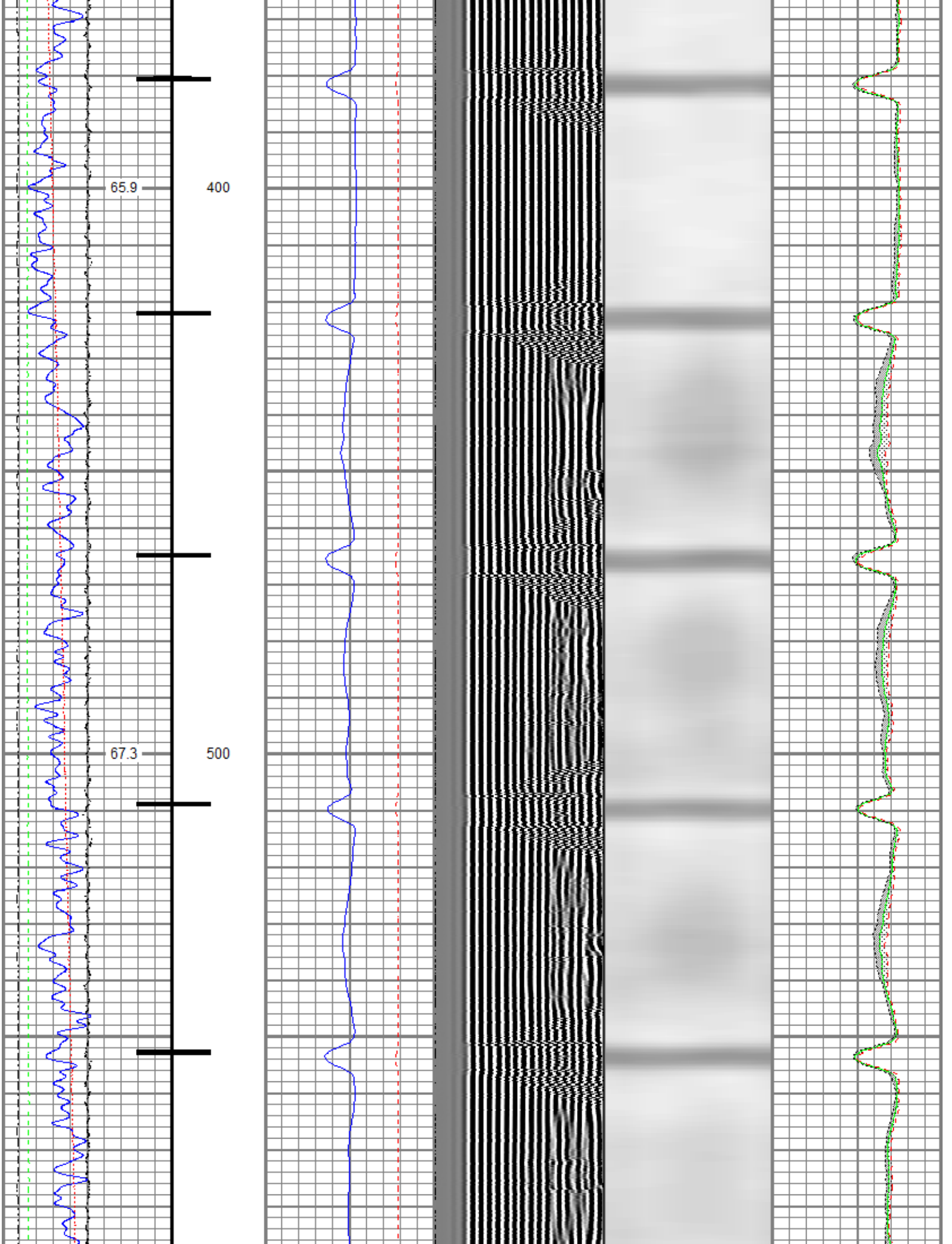
200
64.3
300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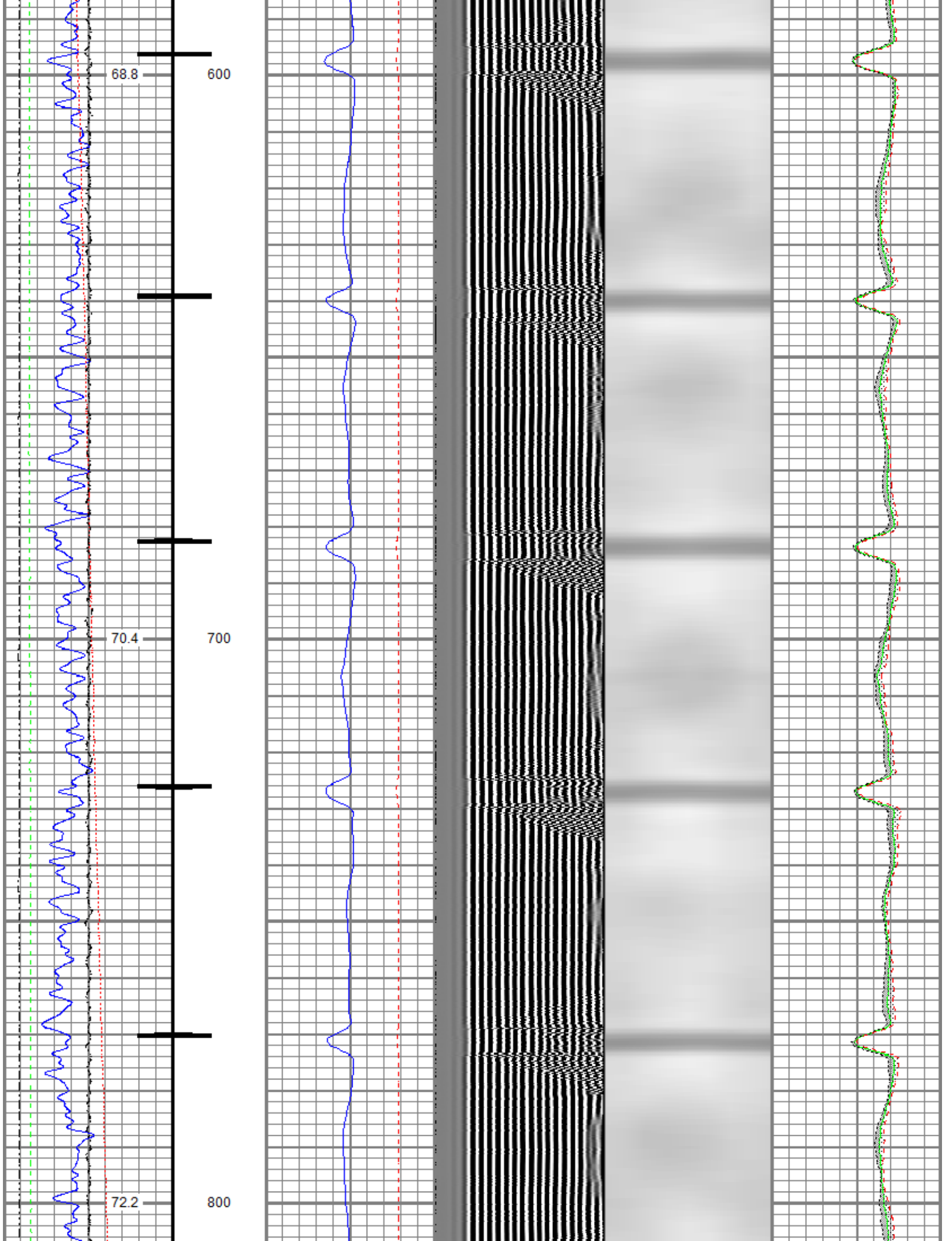
400
67.3
500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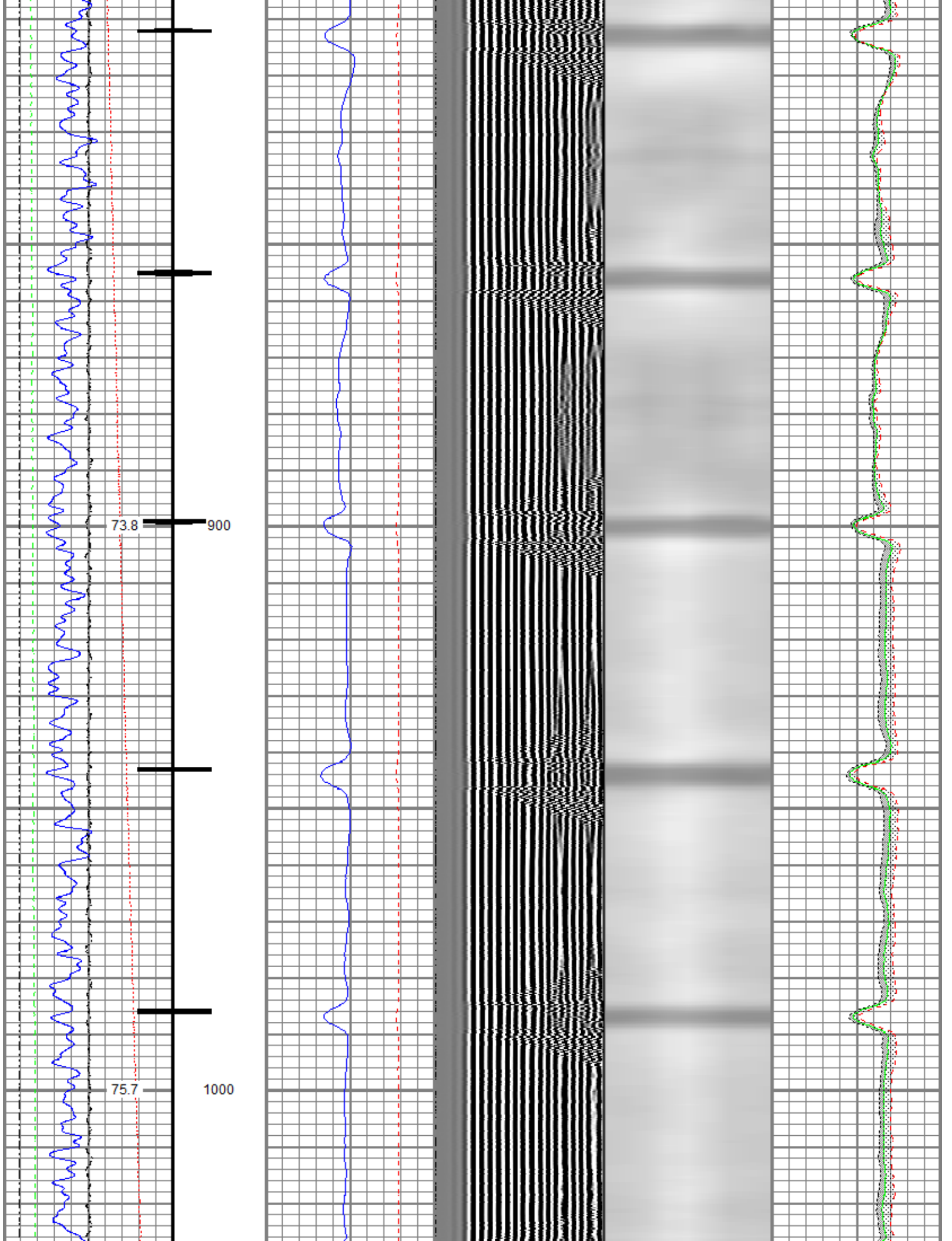
600
70.4
700
72.2
800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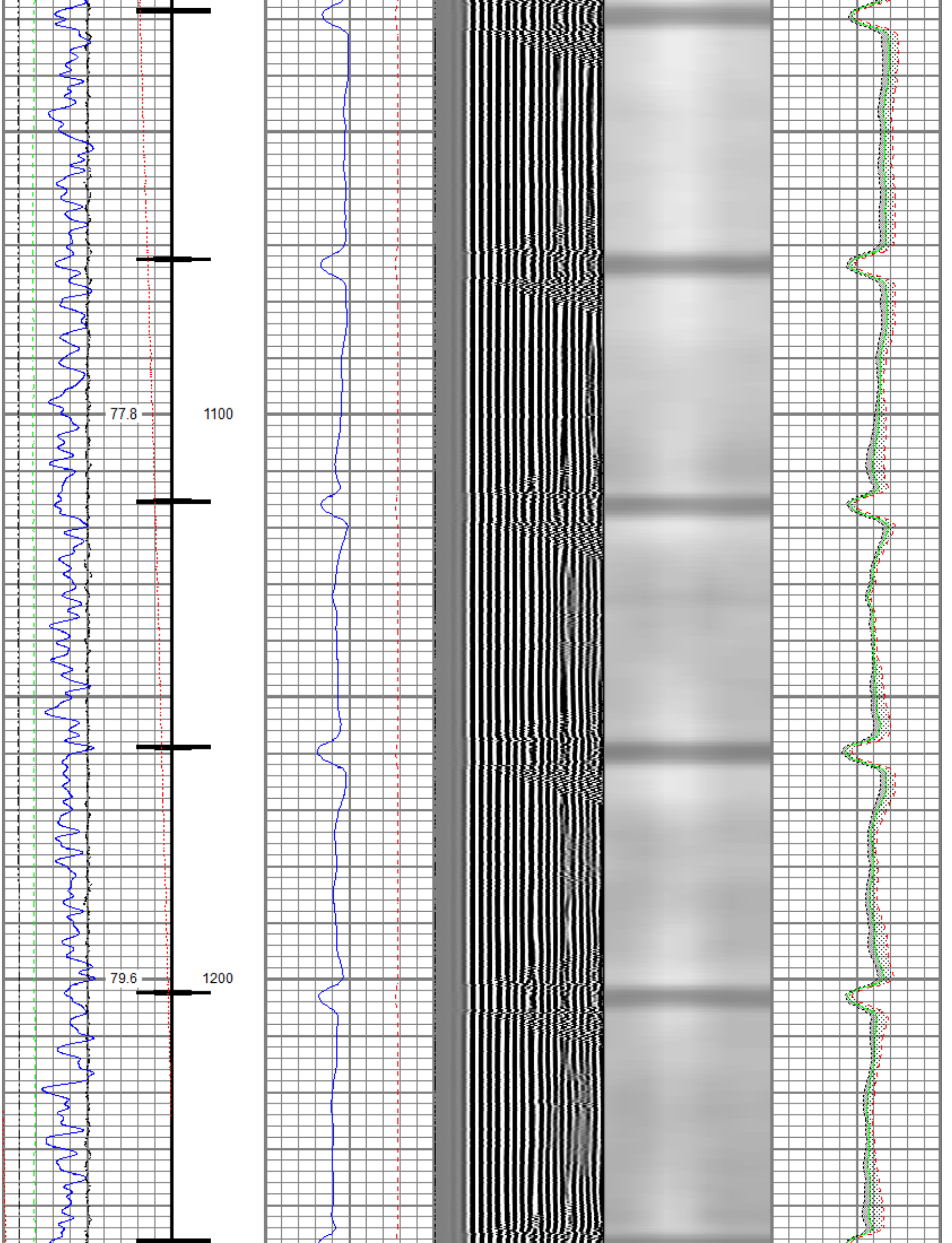
900
75.7
1000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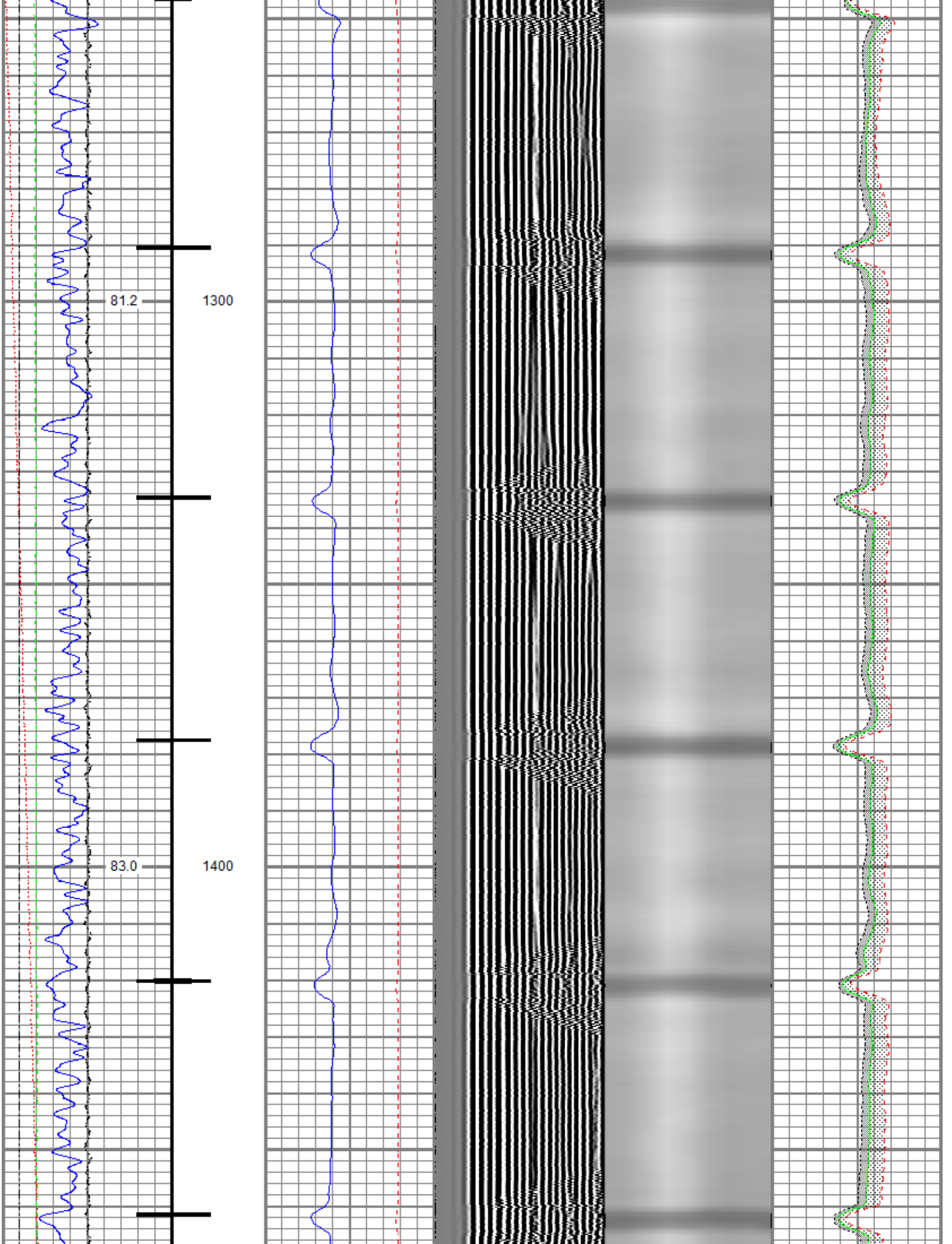
1100
79.6
1200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1300
83.0
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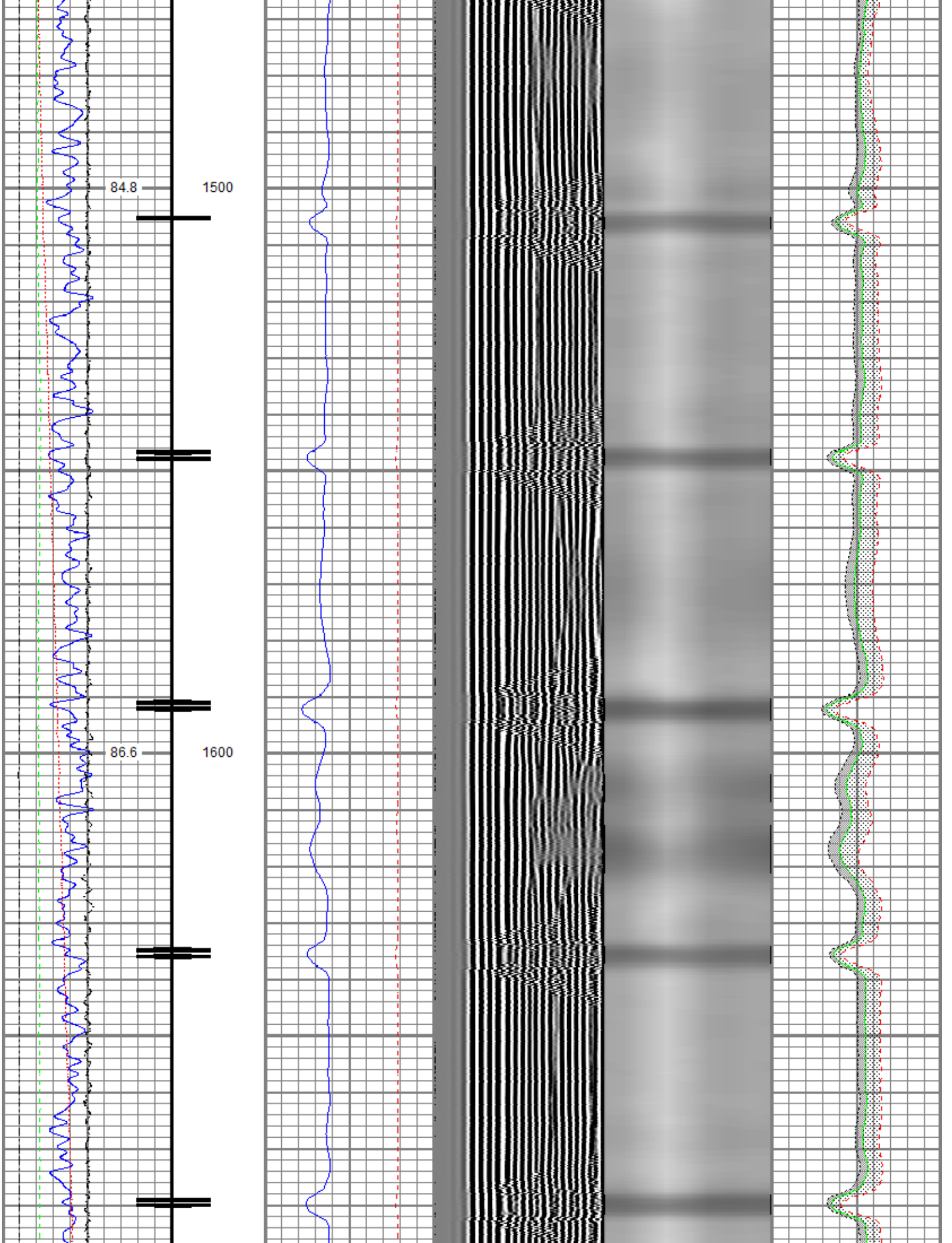
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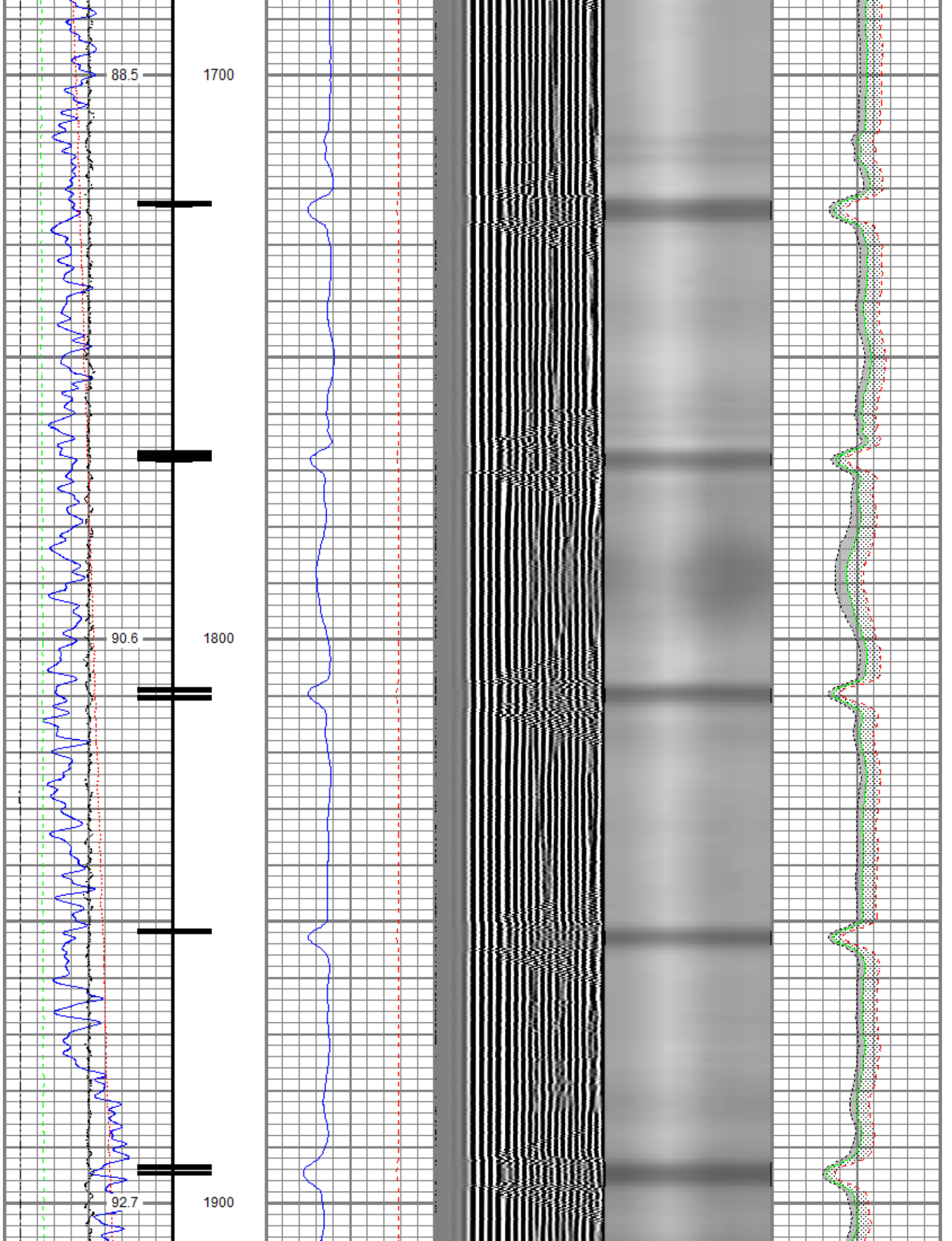
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1800
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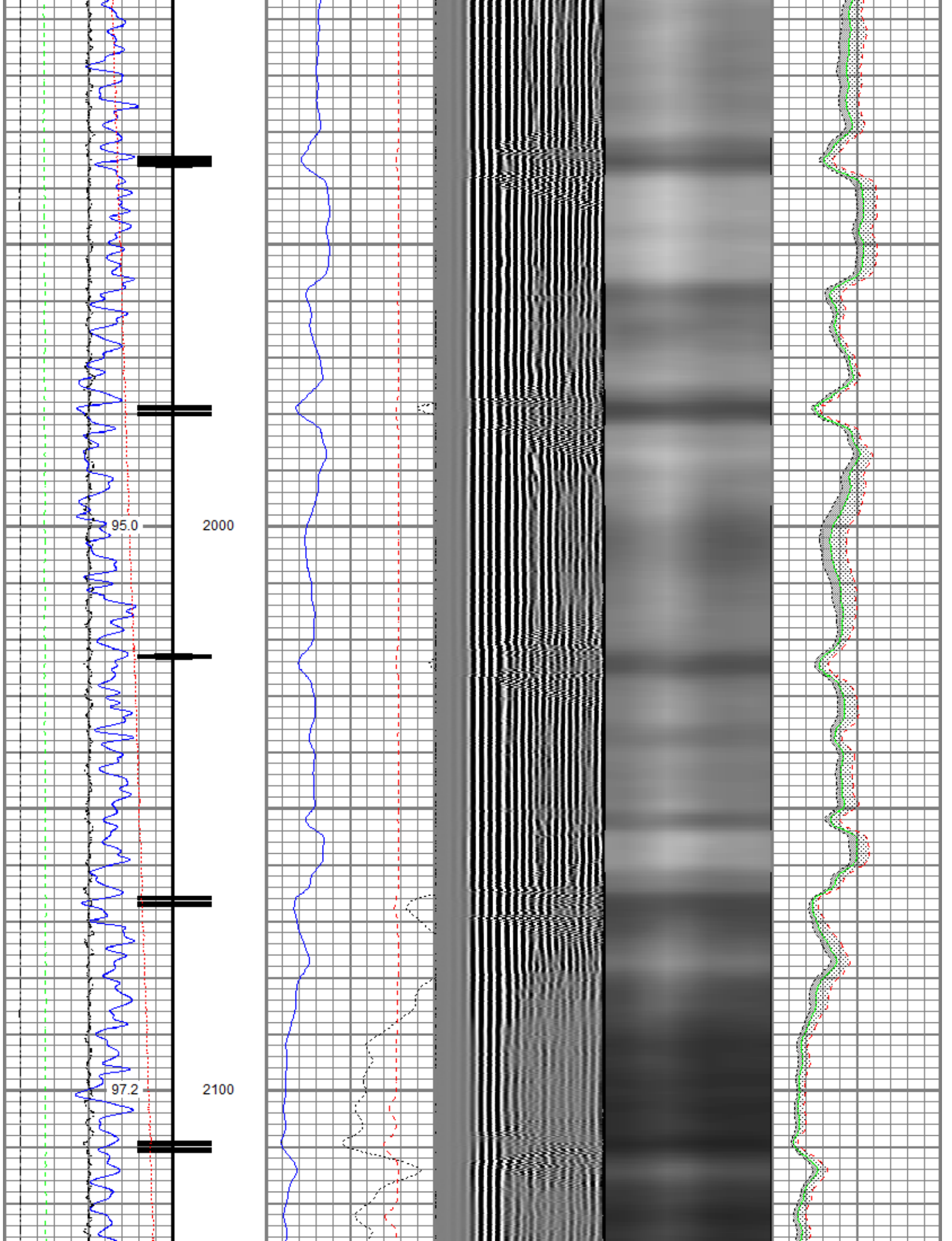
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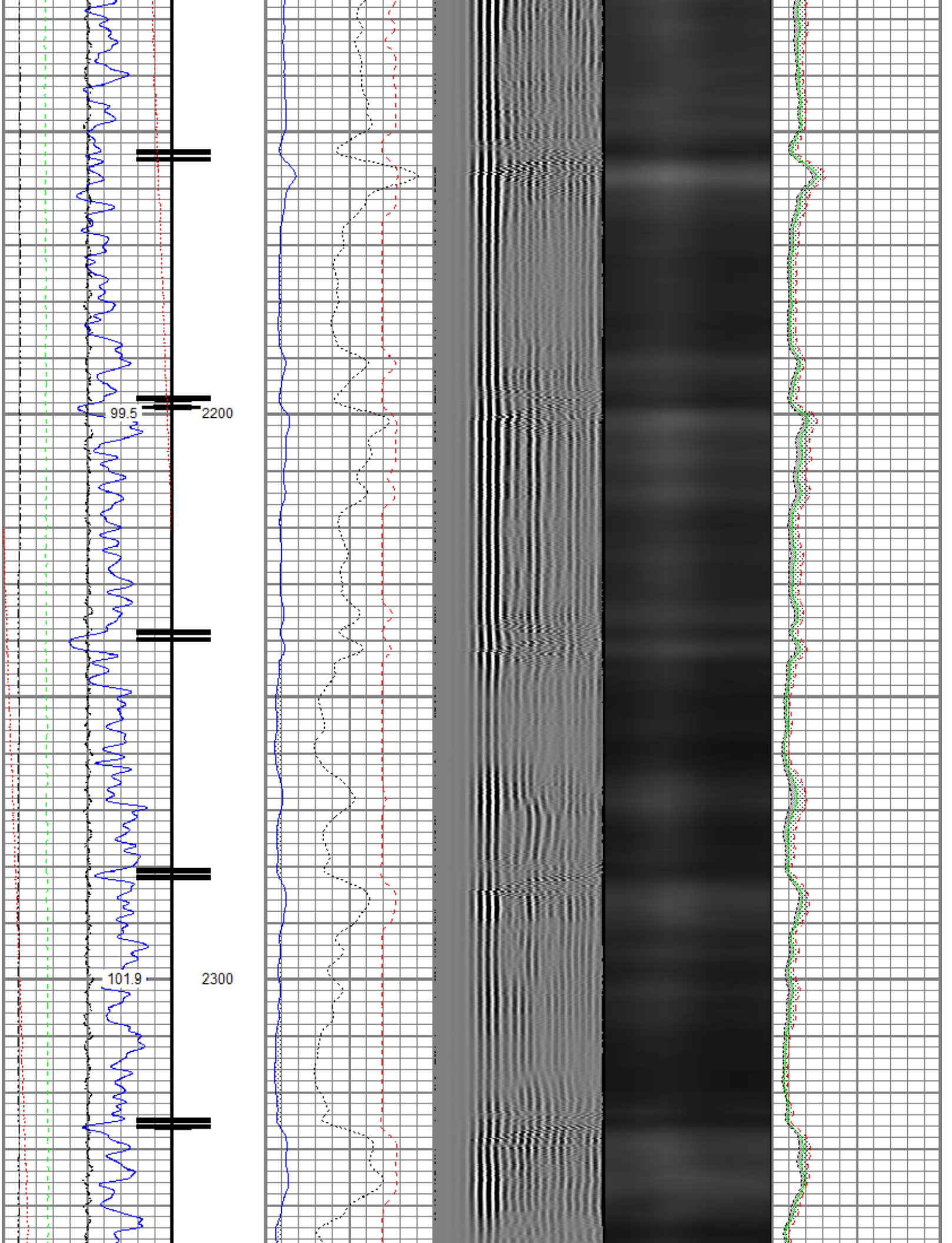
2000
97.2
2100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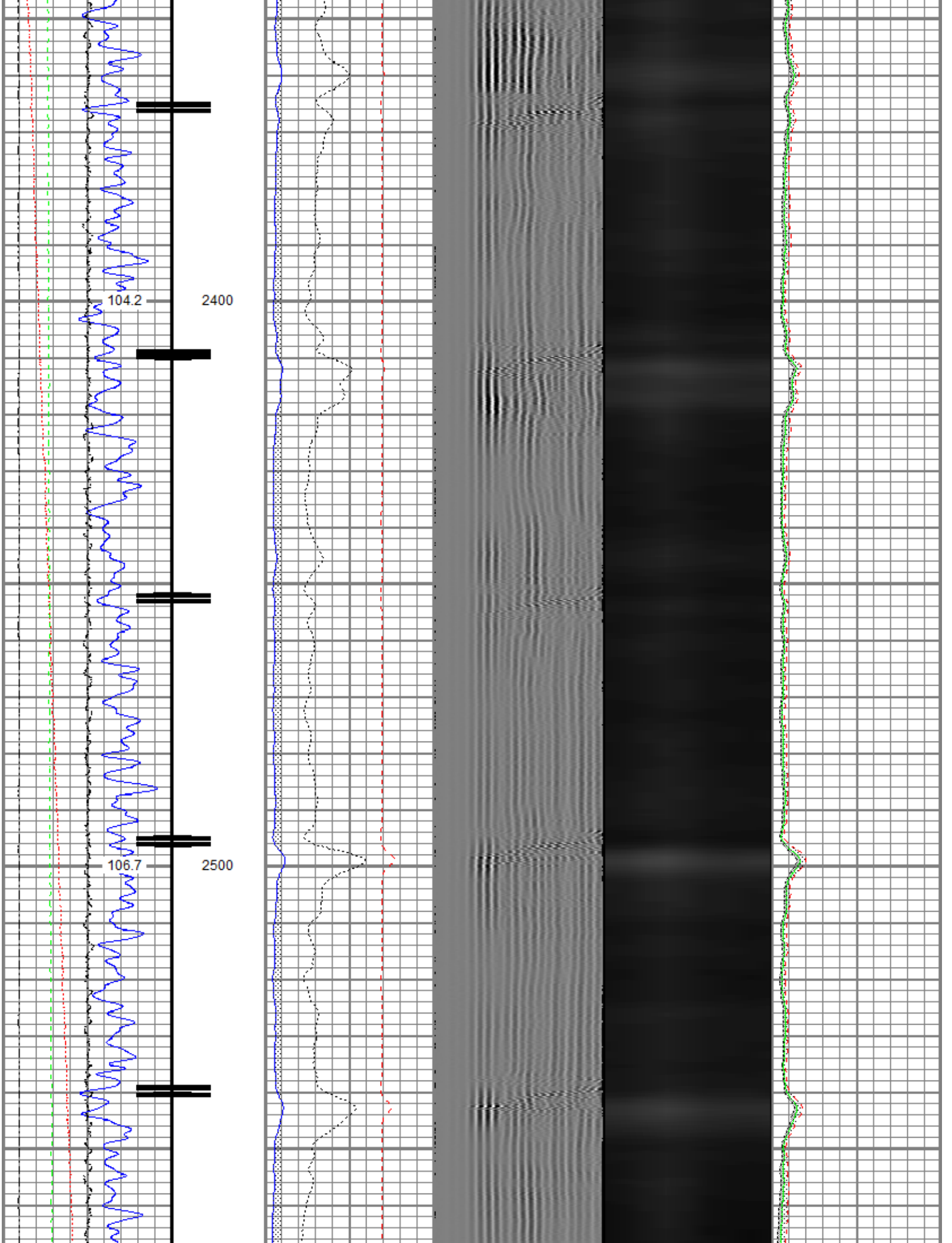
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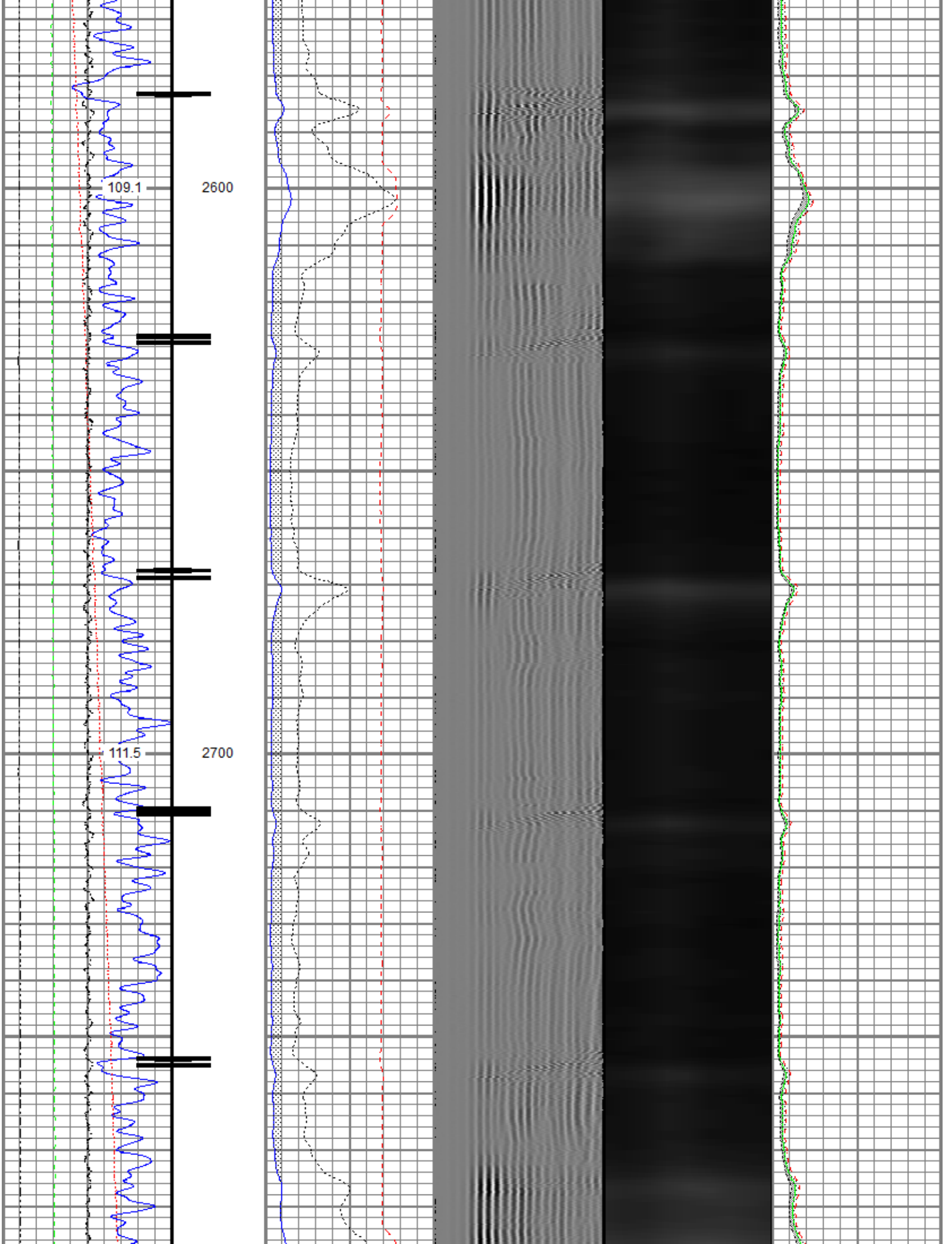
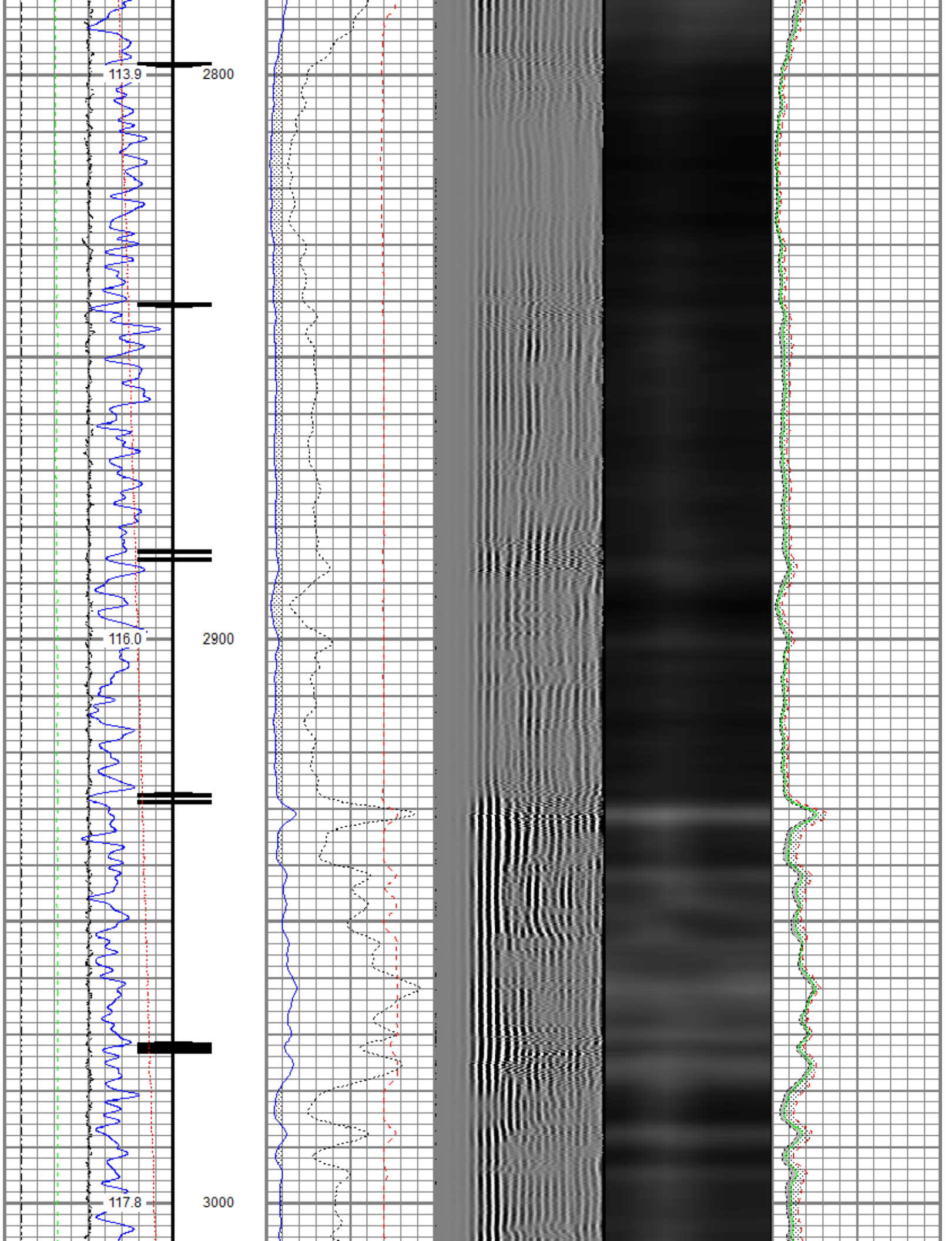

109.1
2600
111.5
2700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2900
117.8
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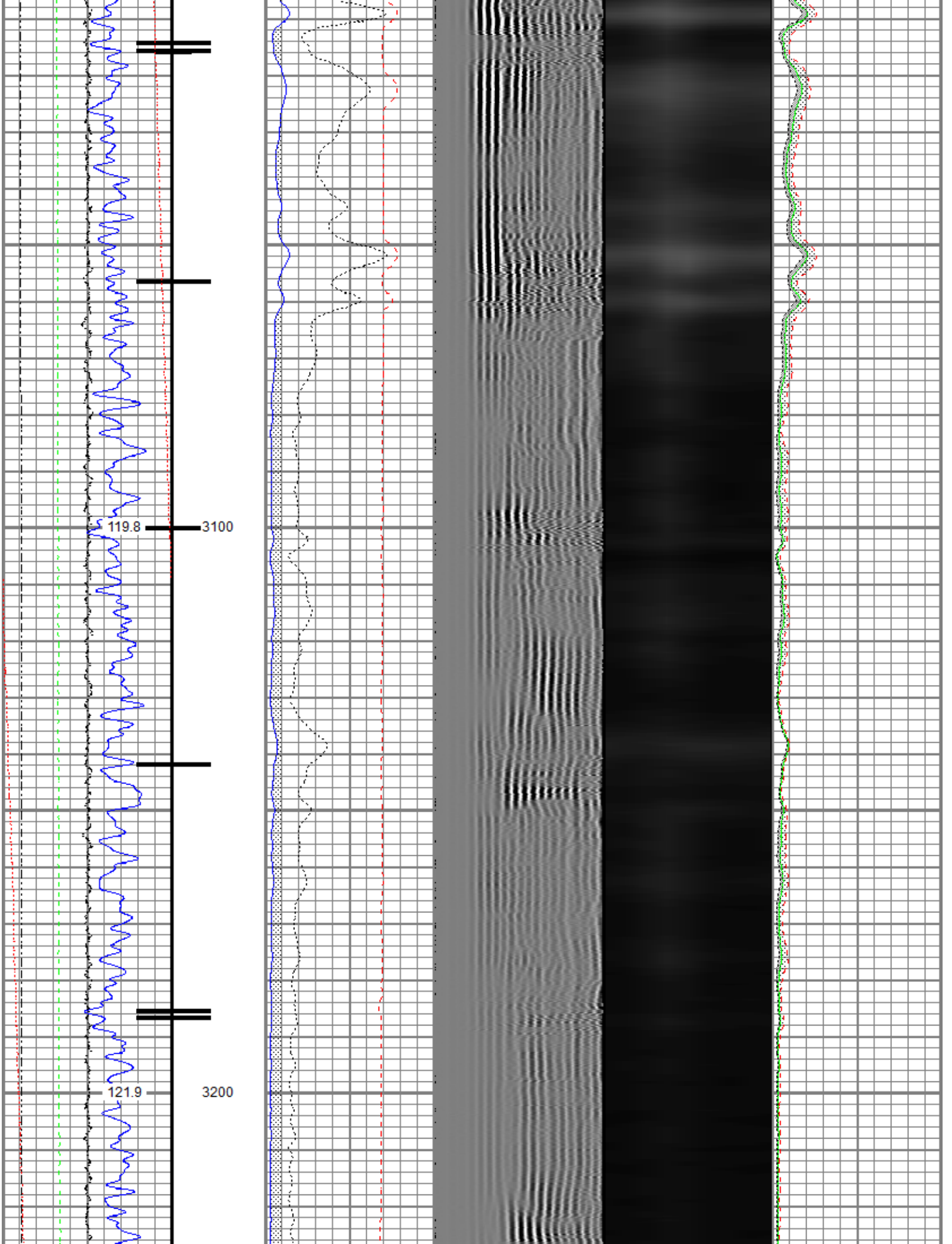
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121.9
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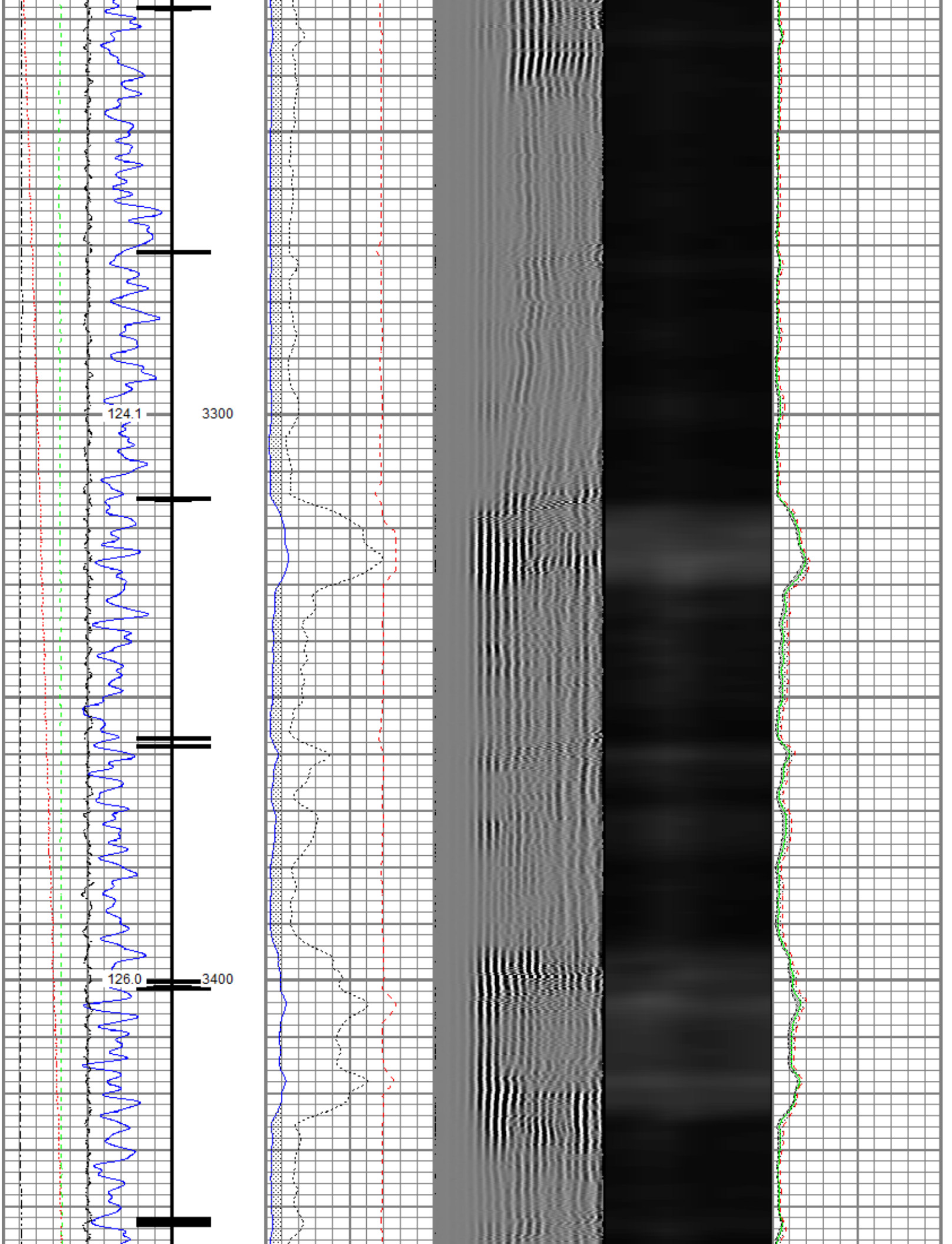
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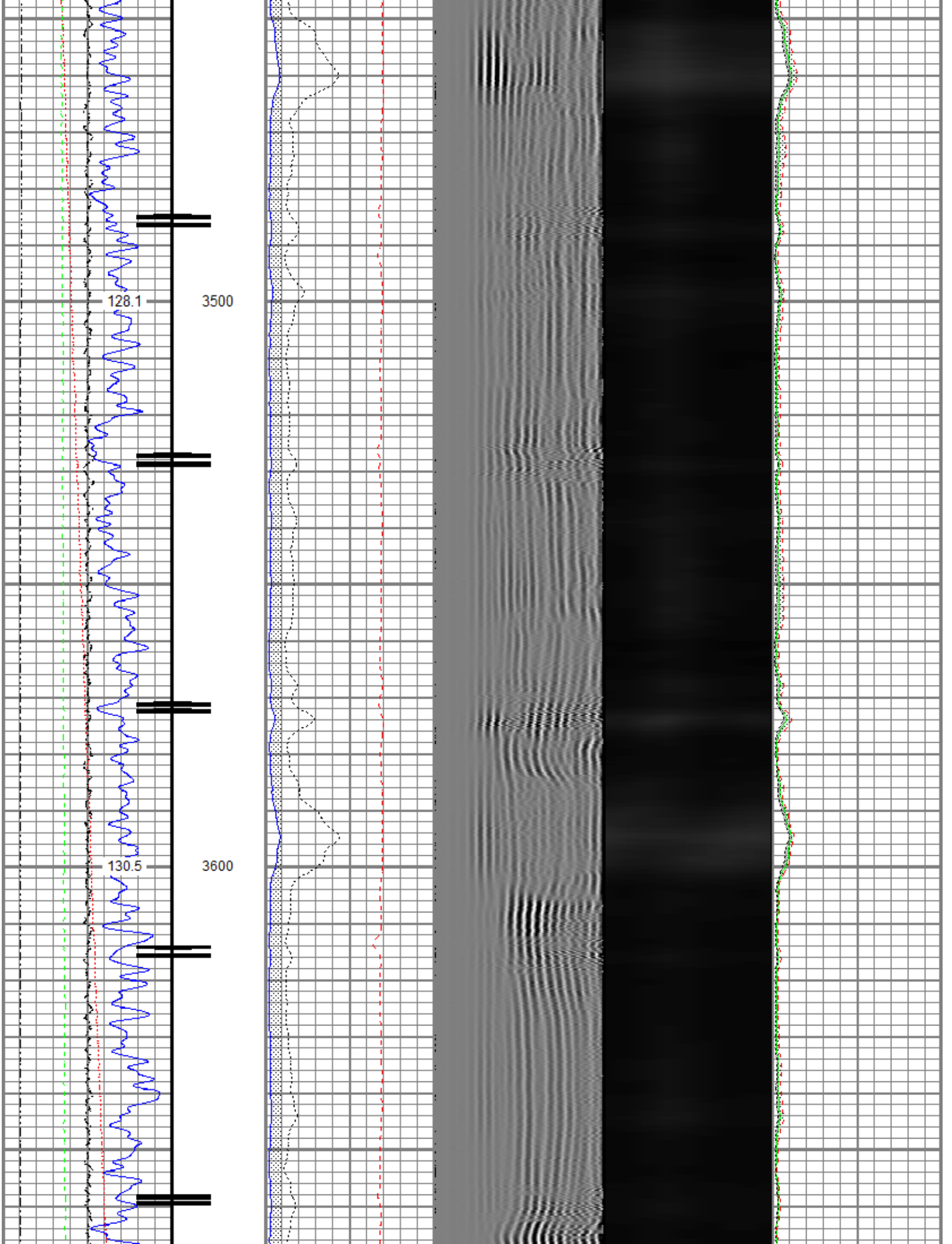
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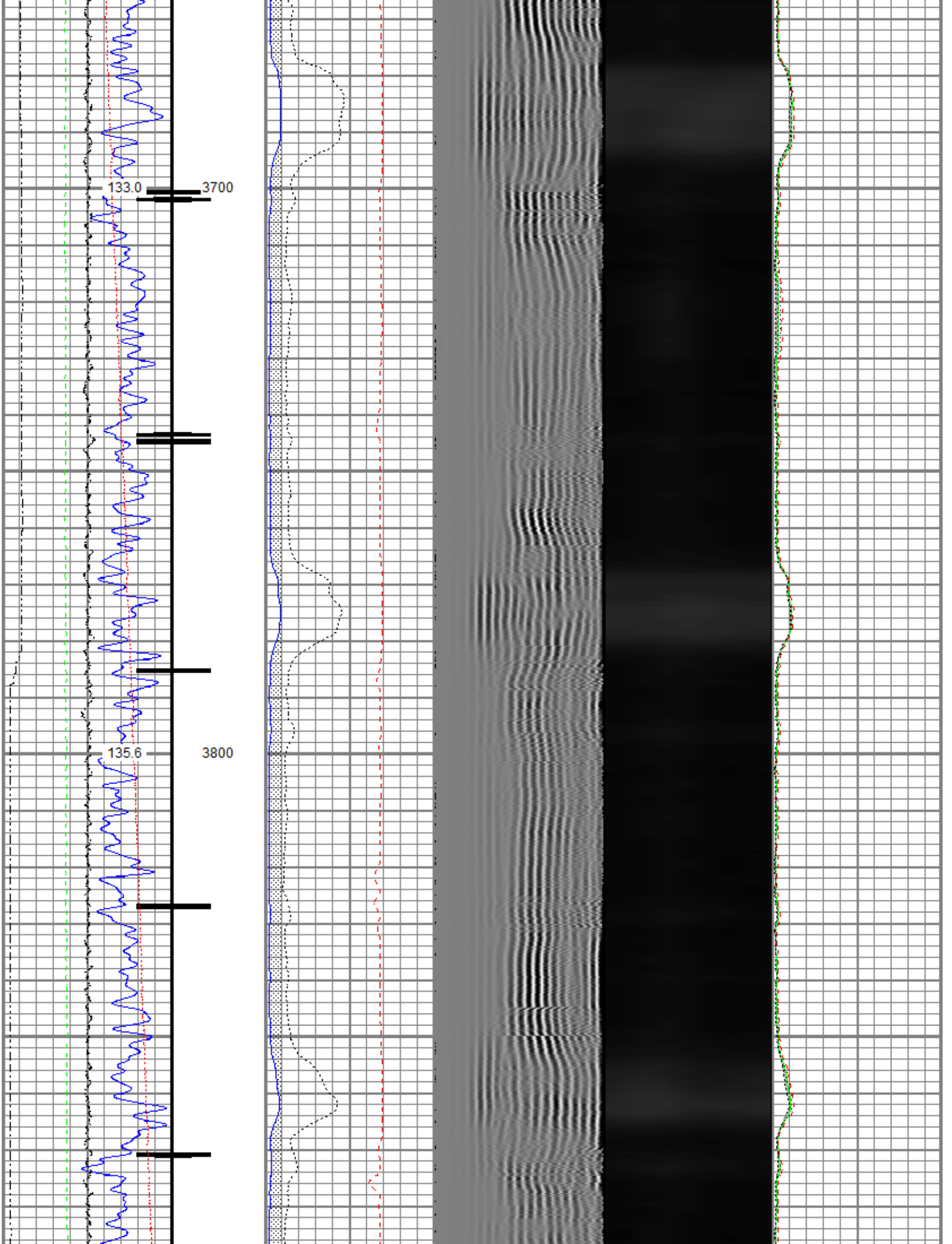
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3700
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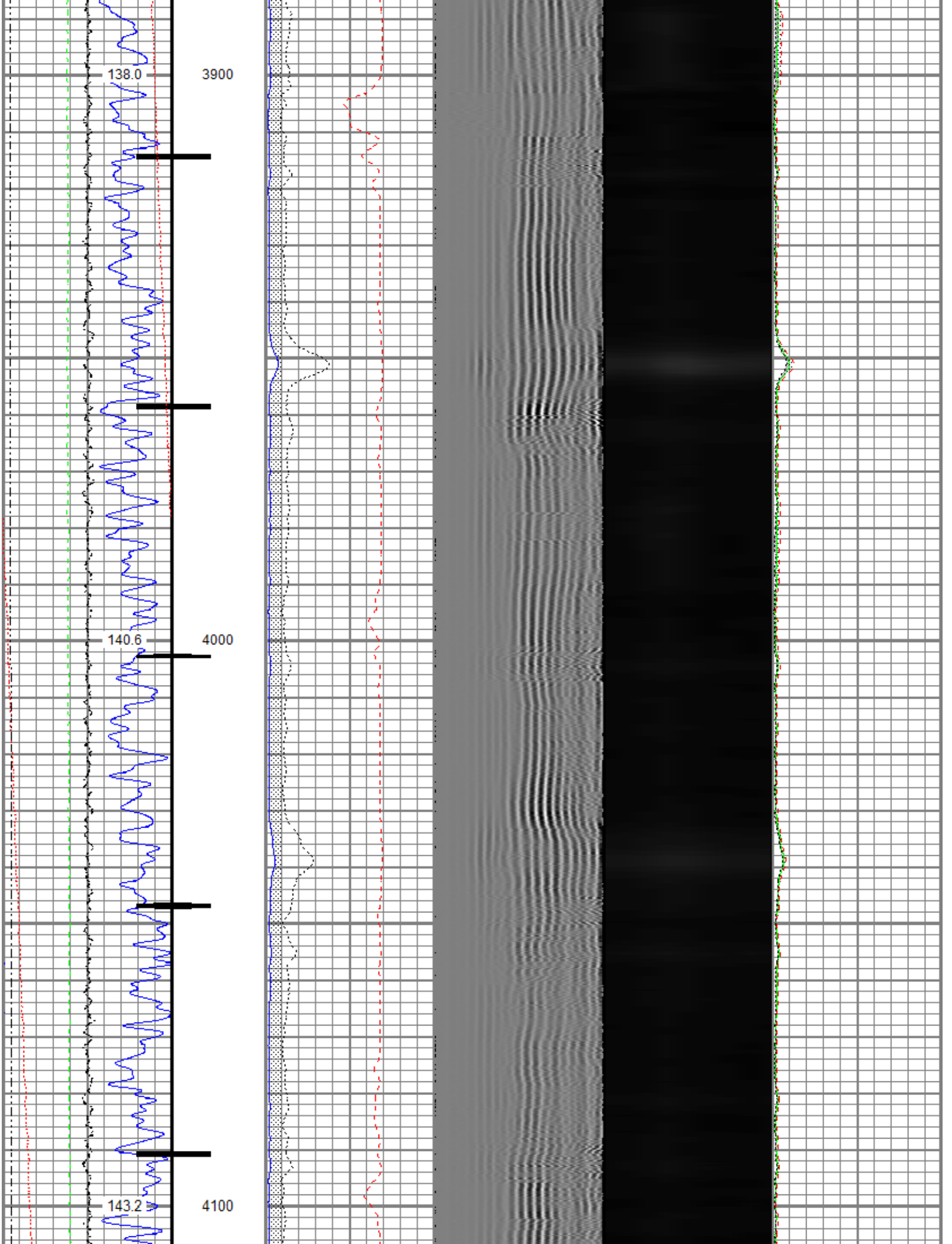
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143.2
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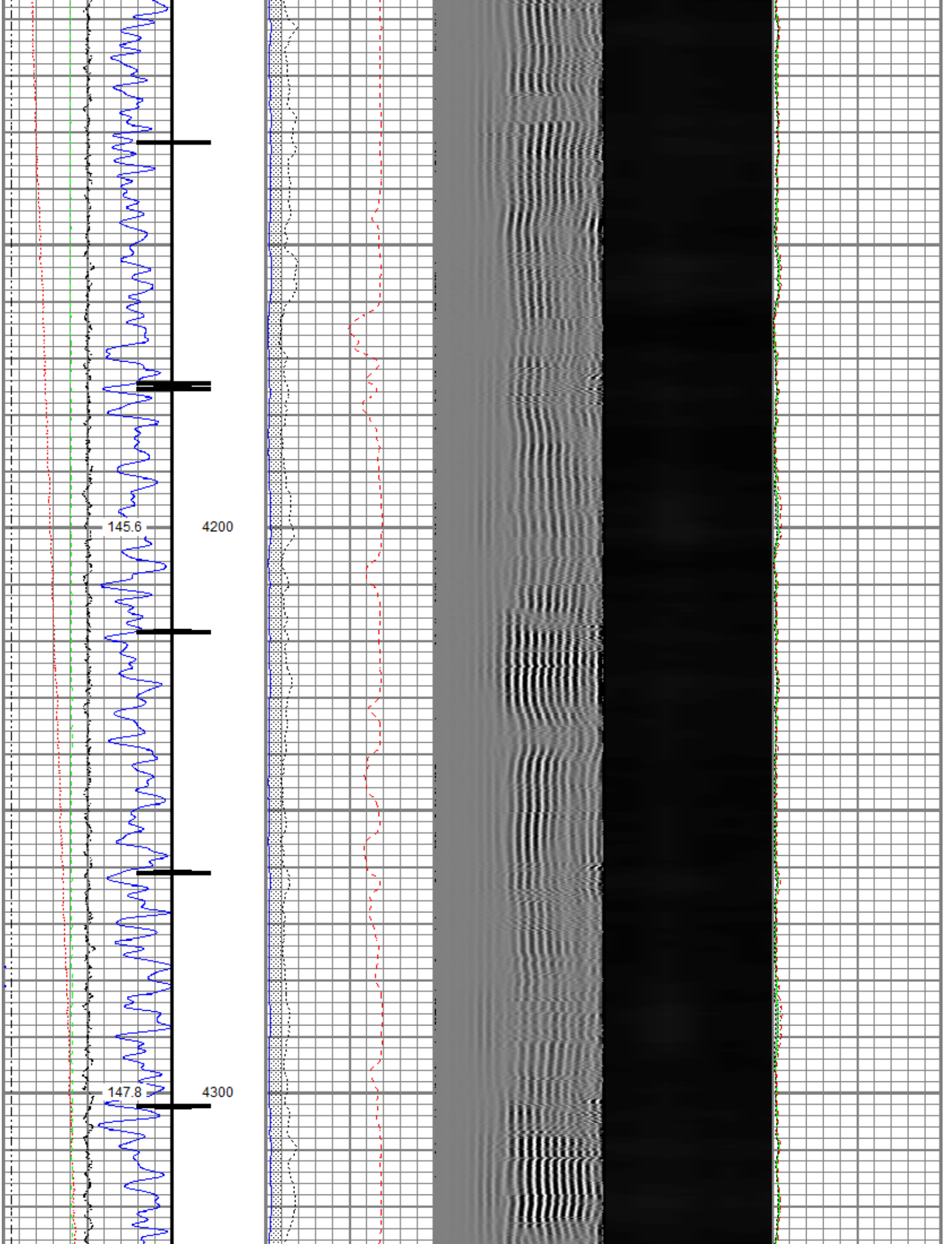
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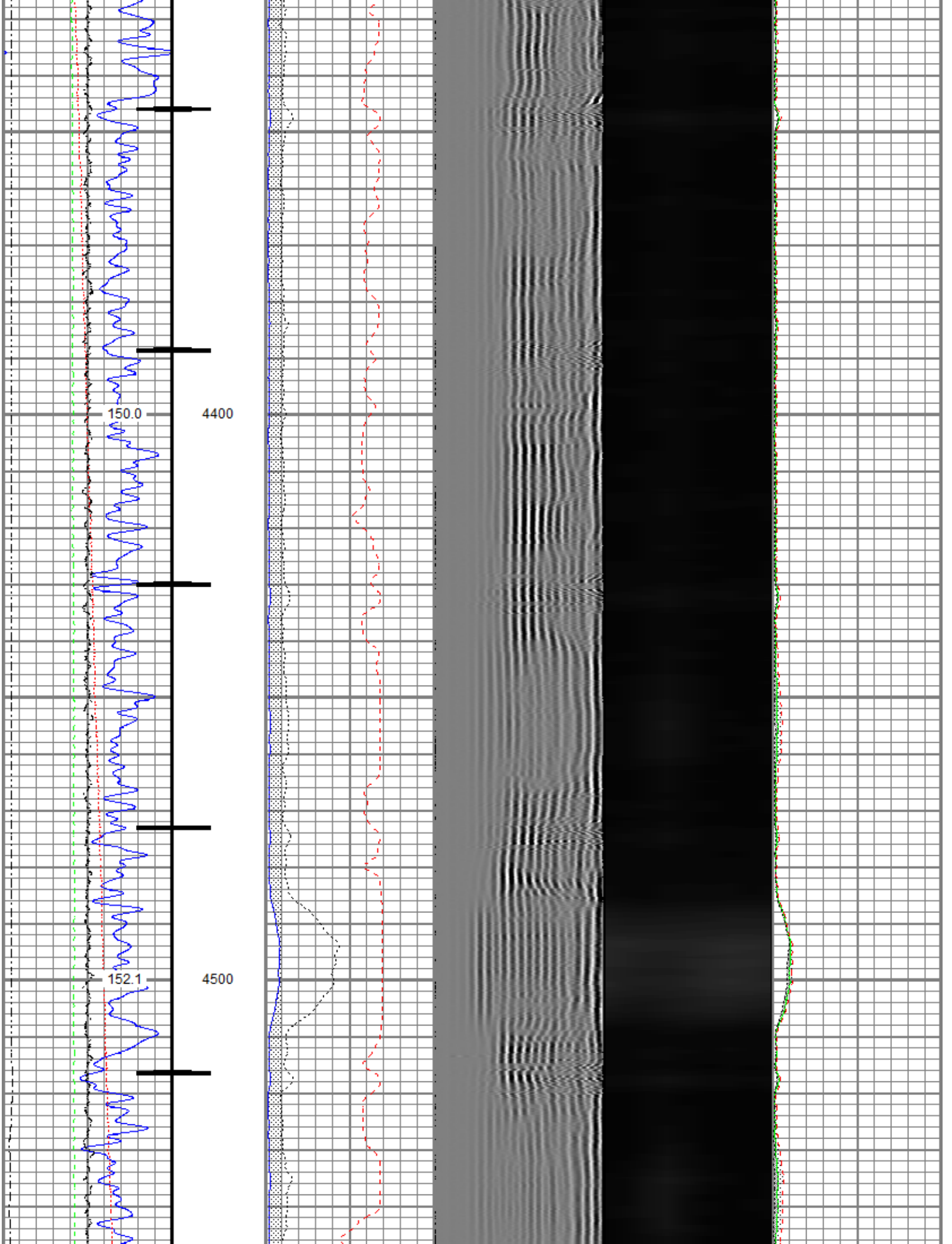
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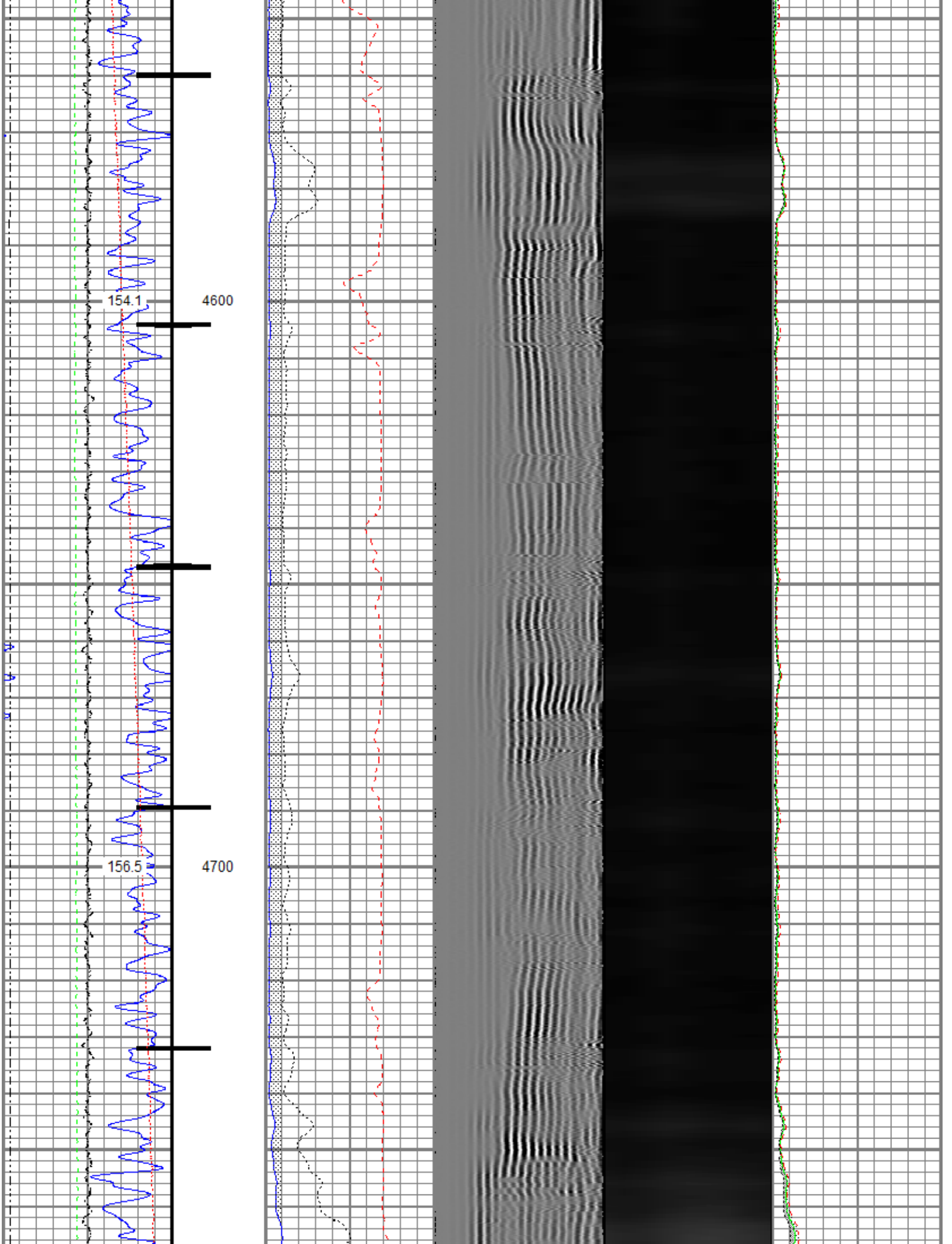
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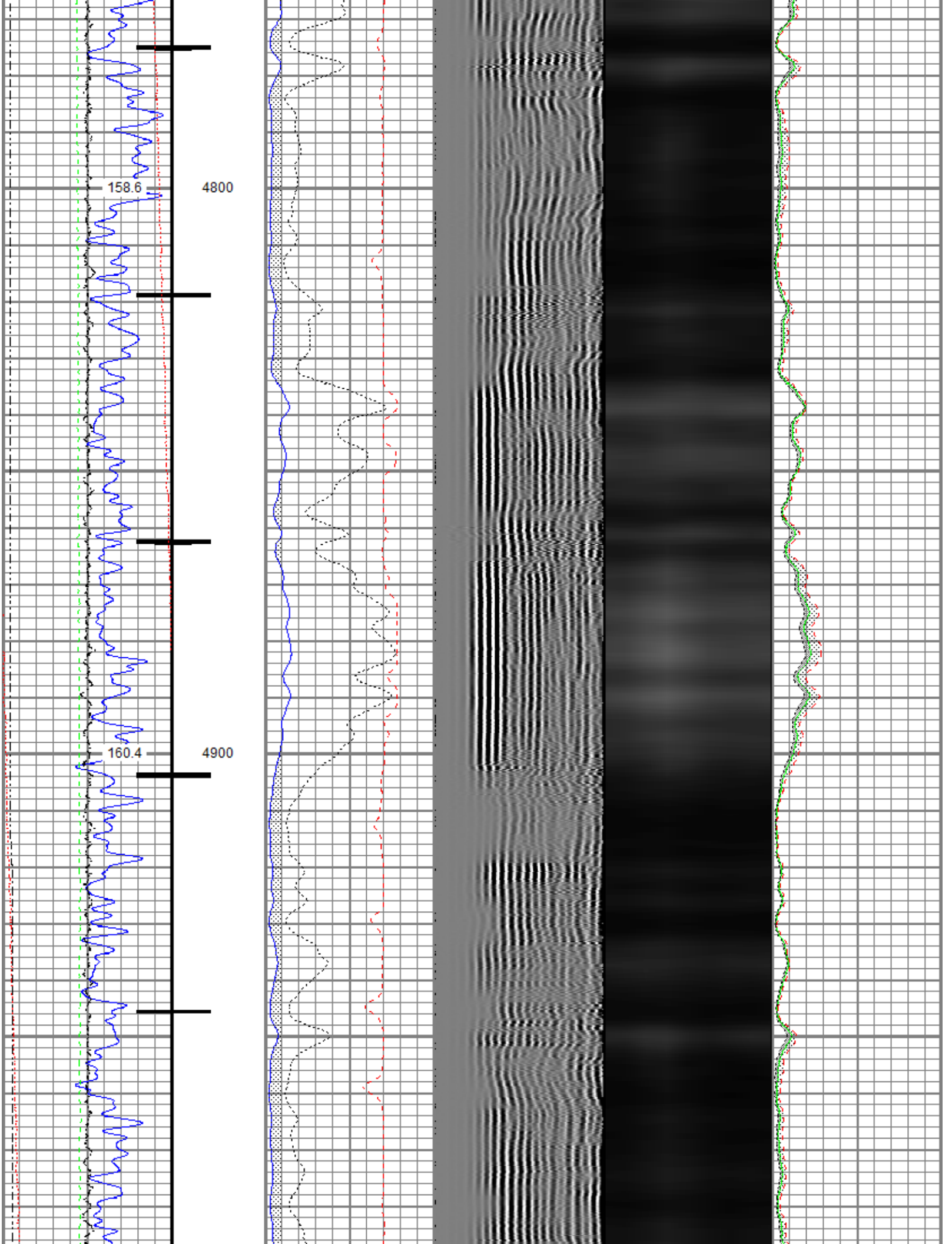
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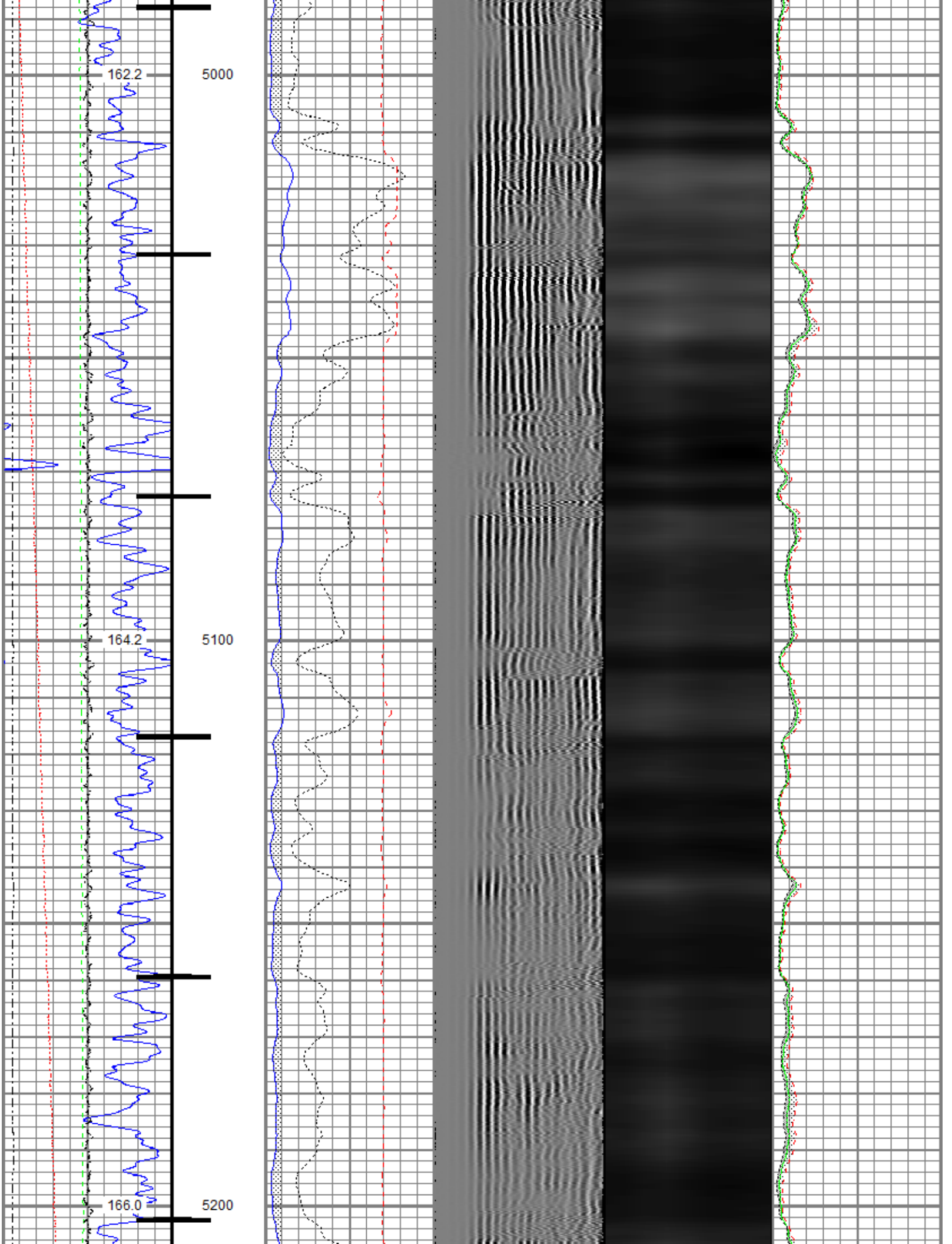
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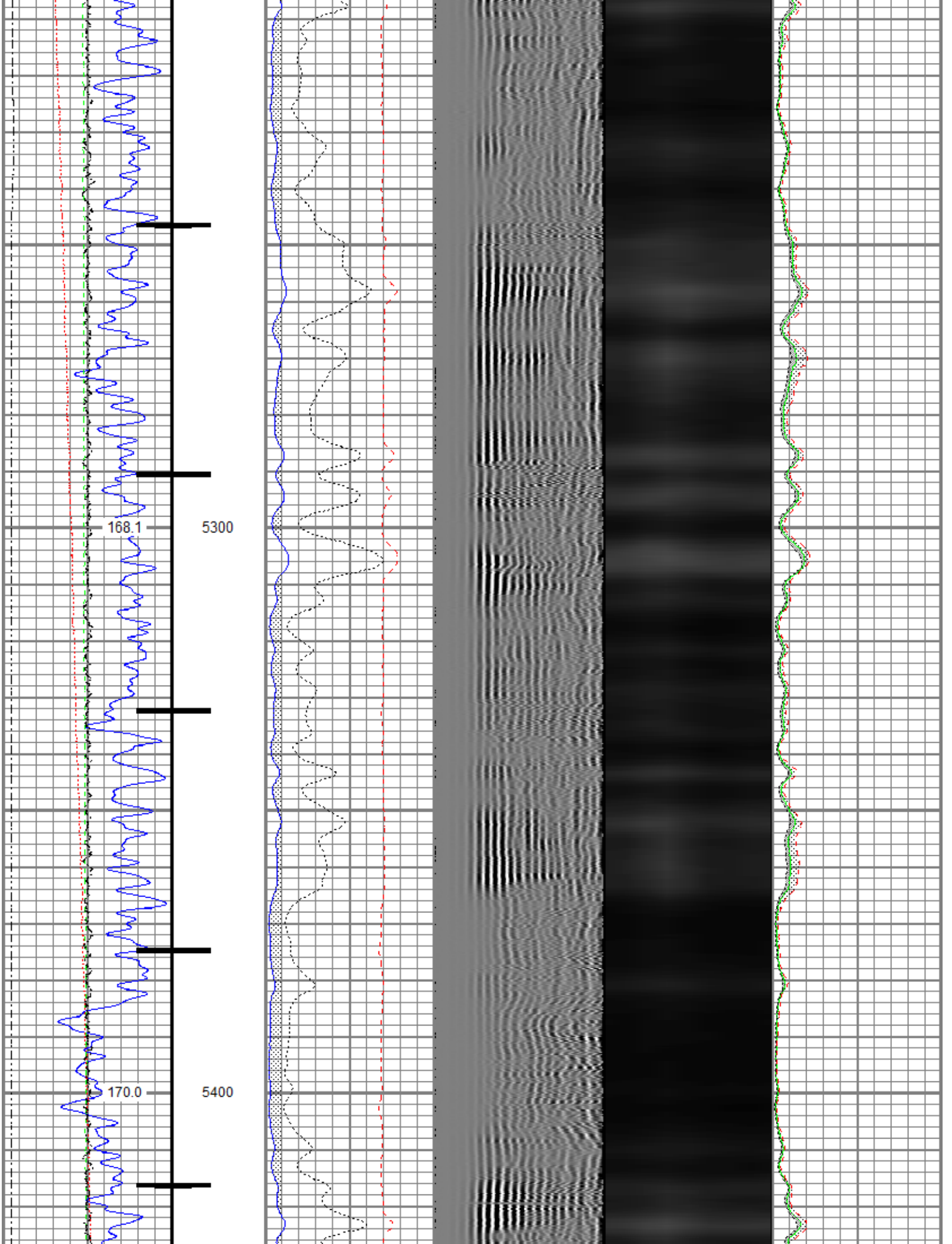
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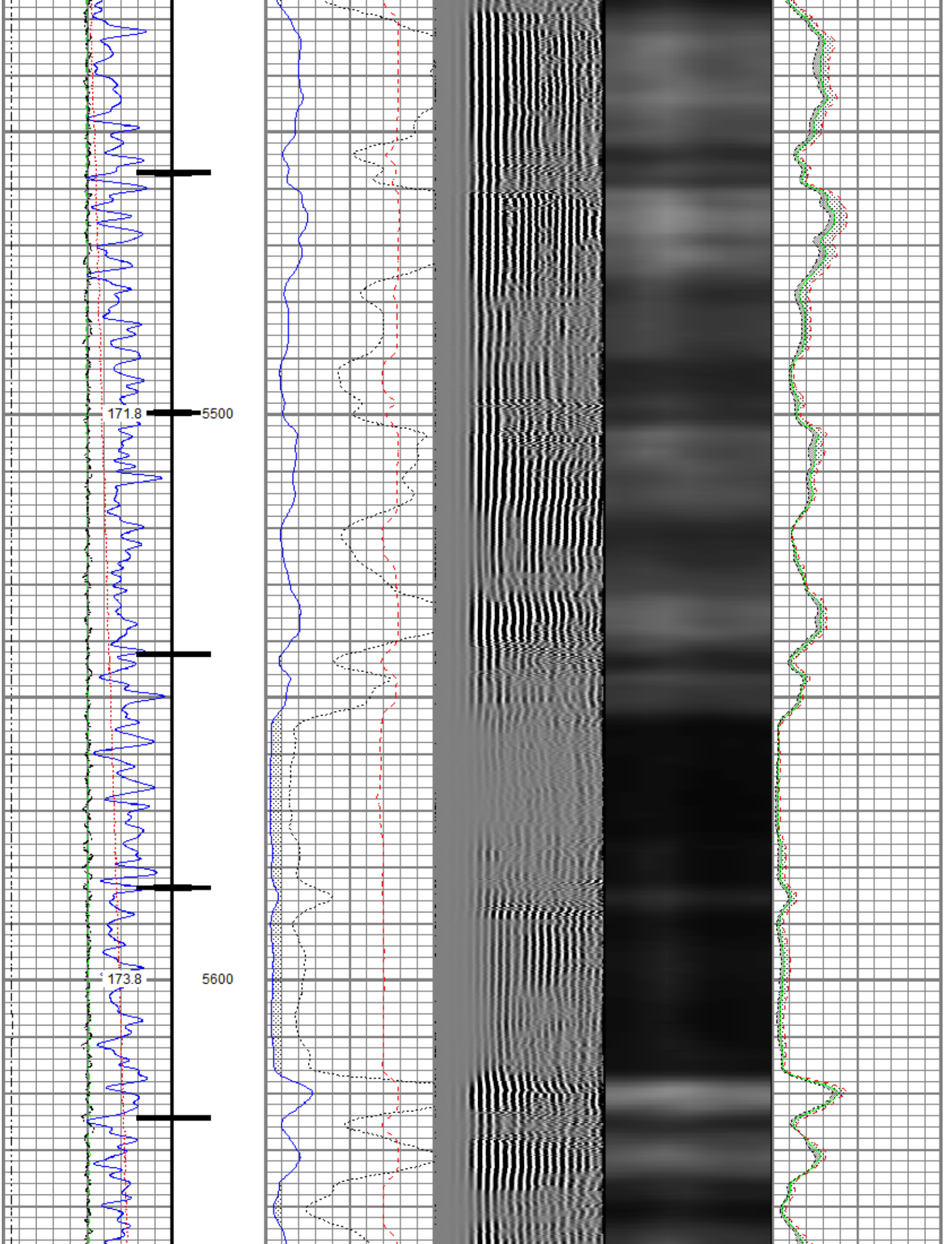
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173.8
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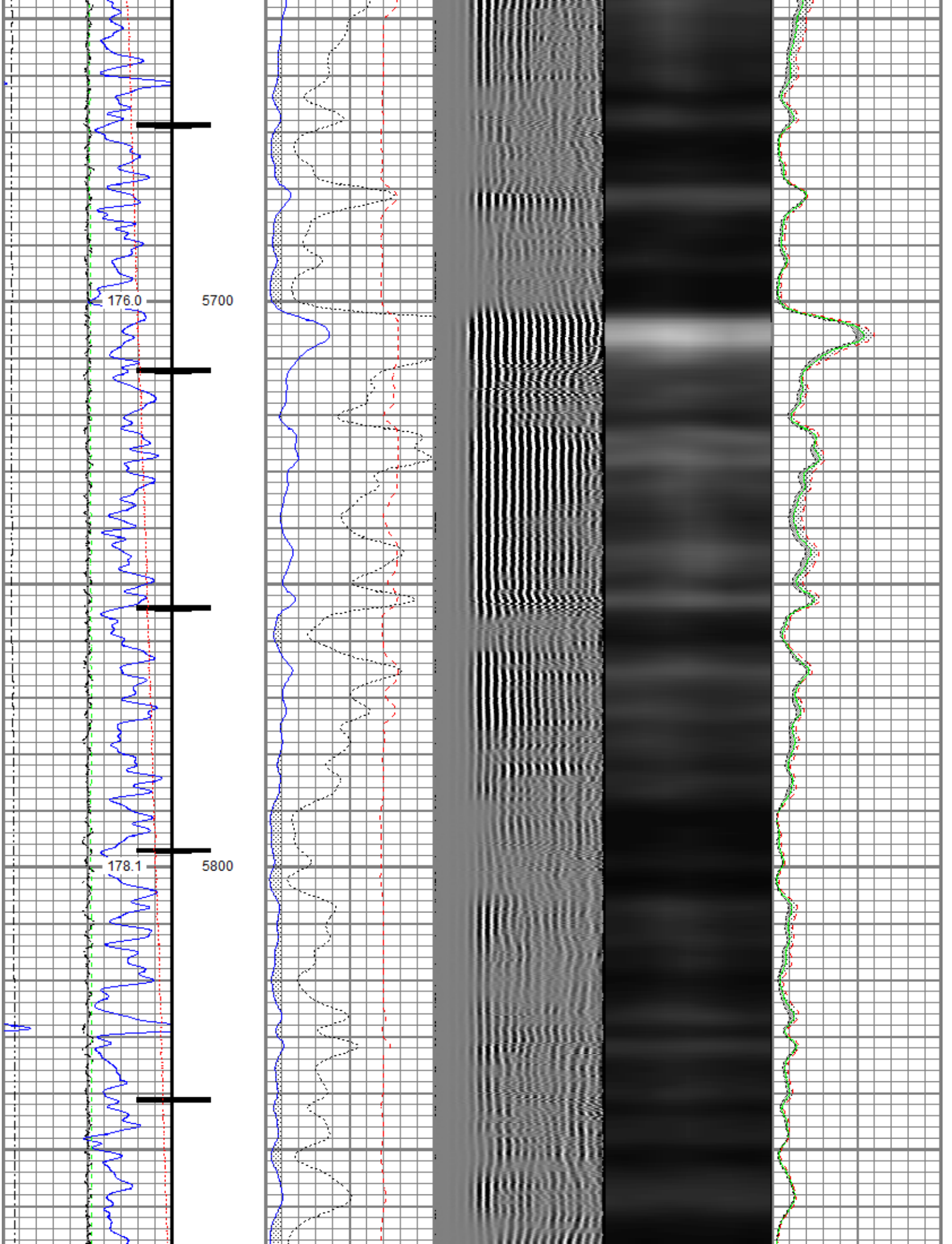
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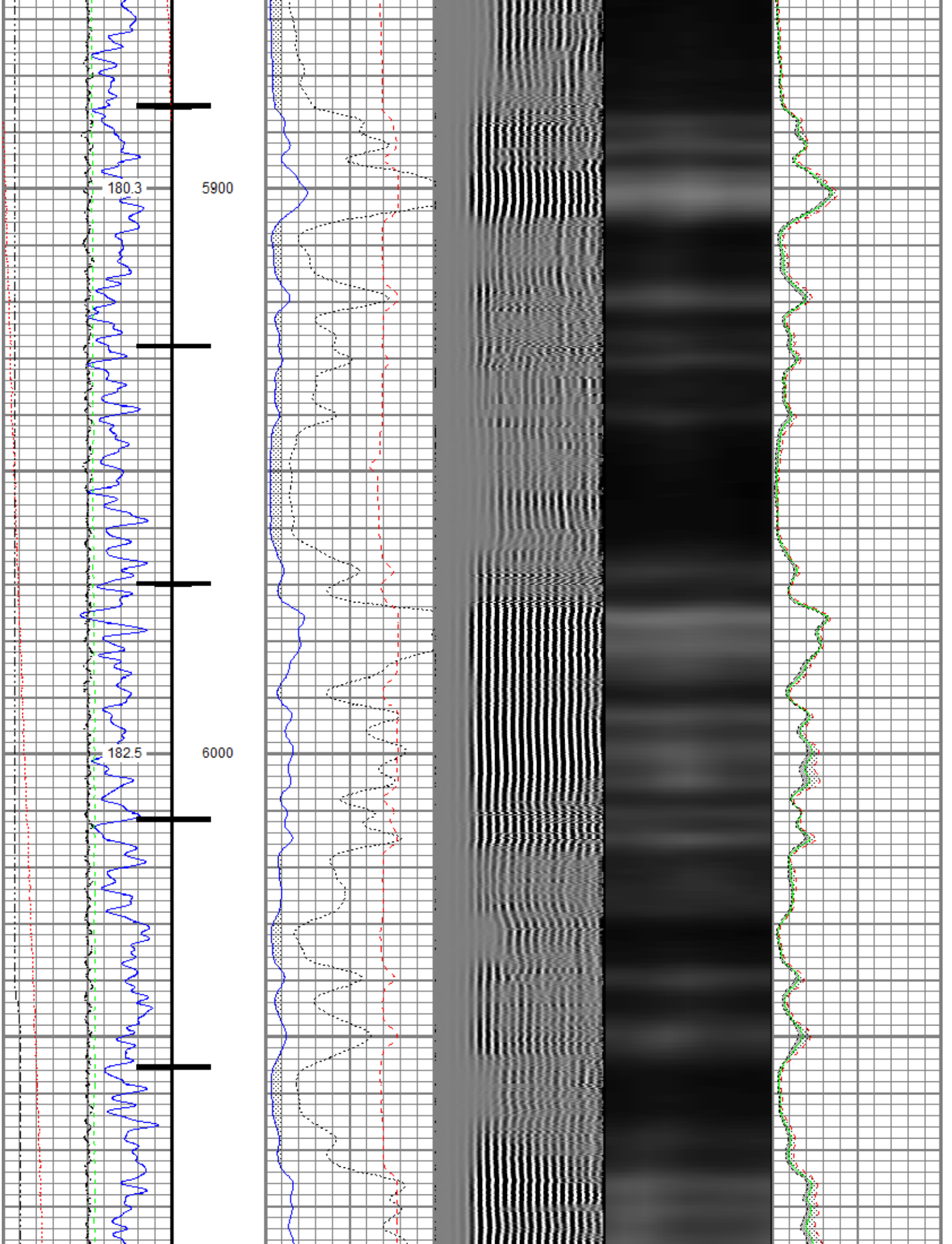
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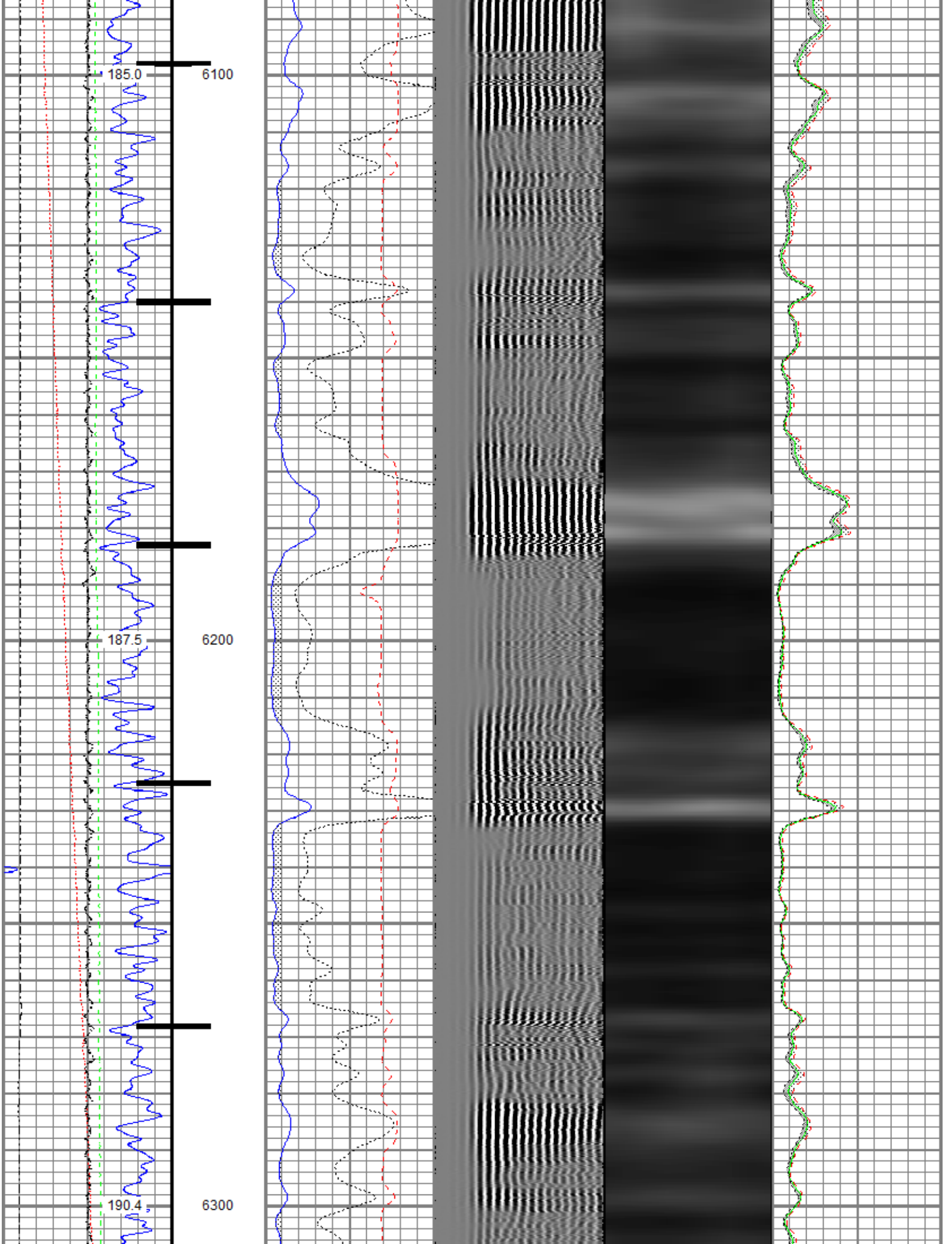
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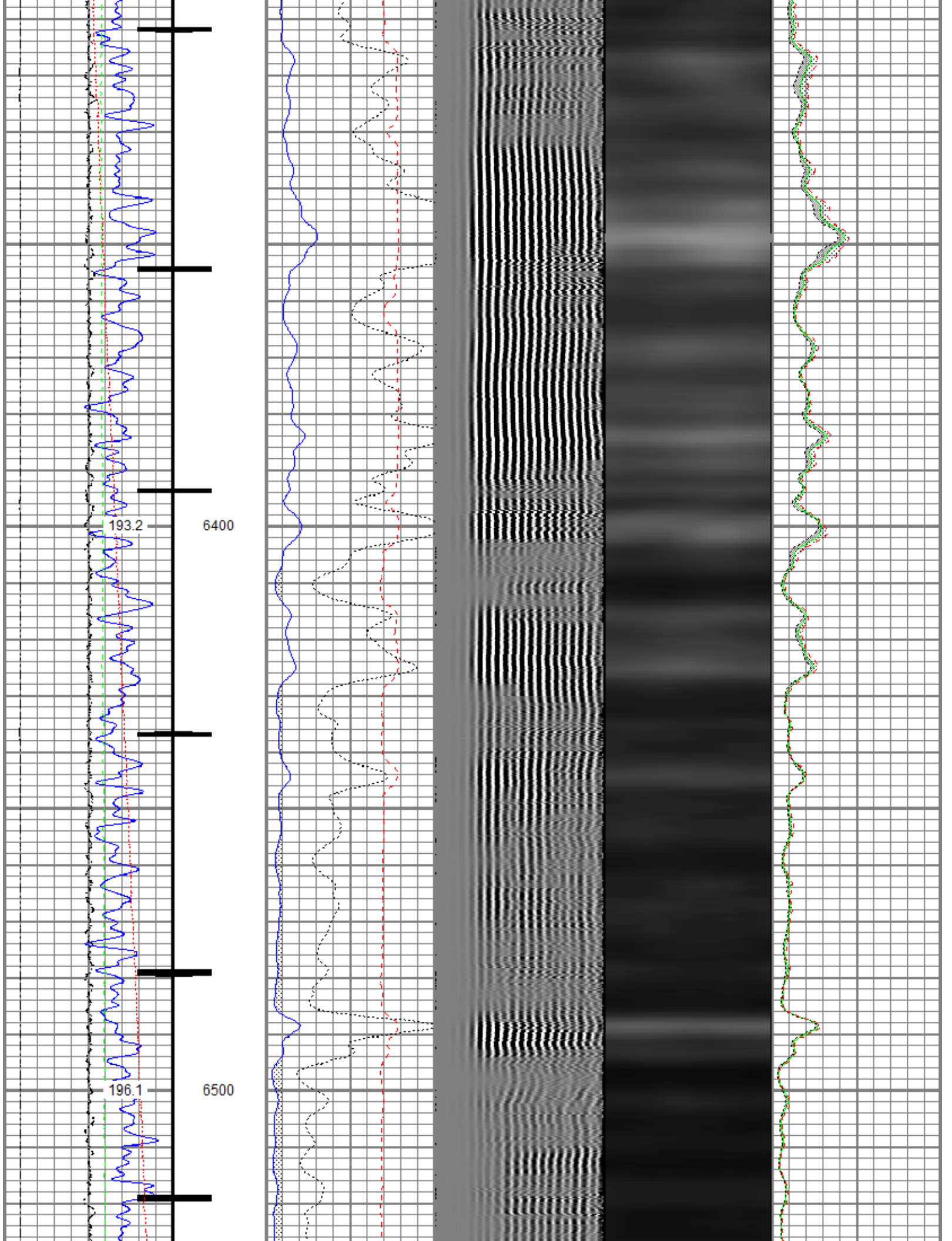
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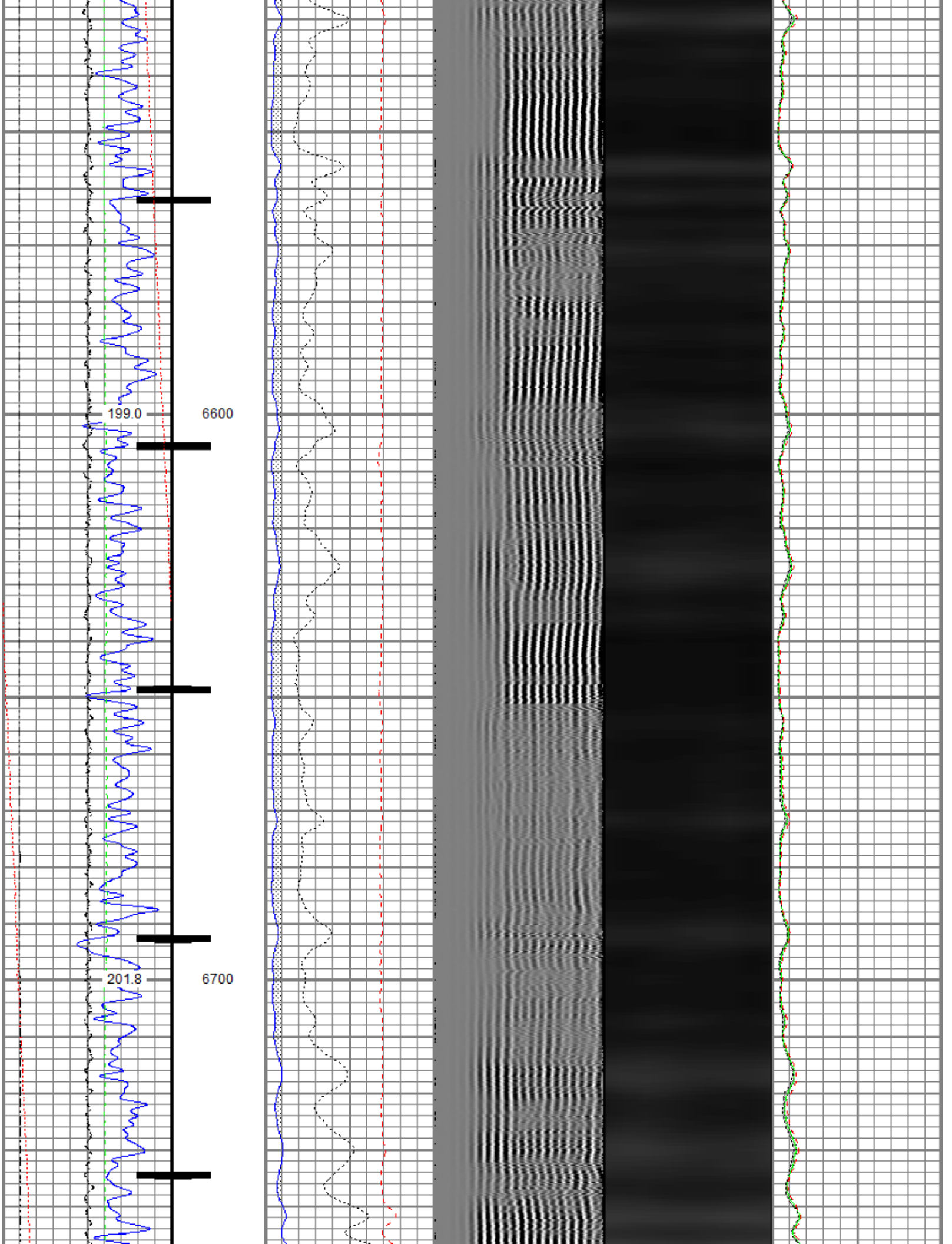
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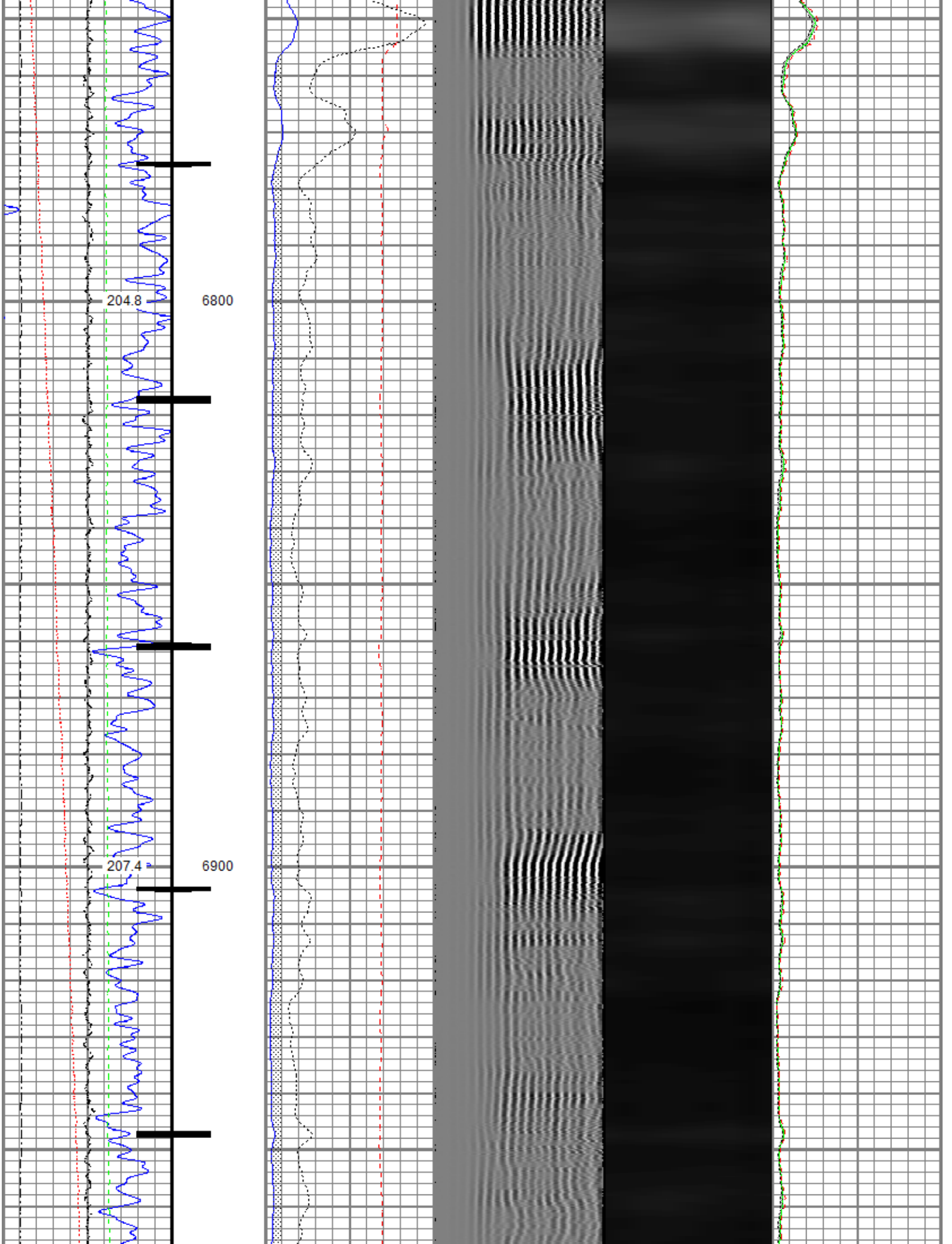
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6800
207.4
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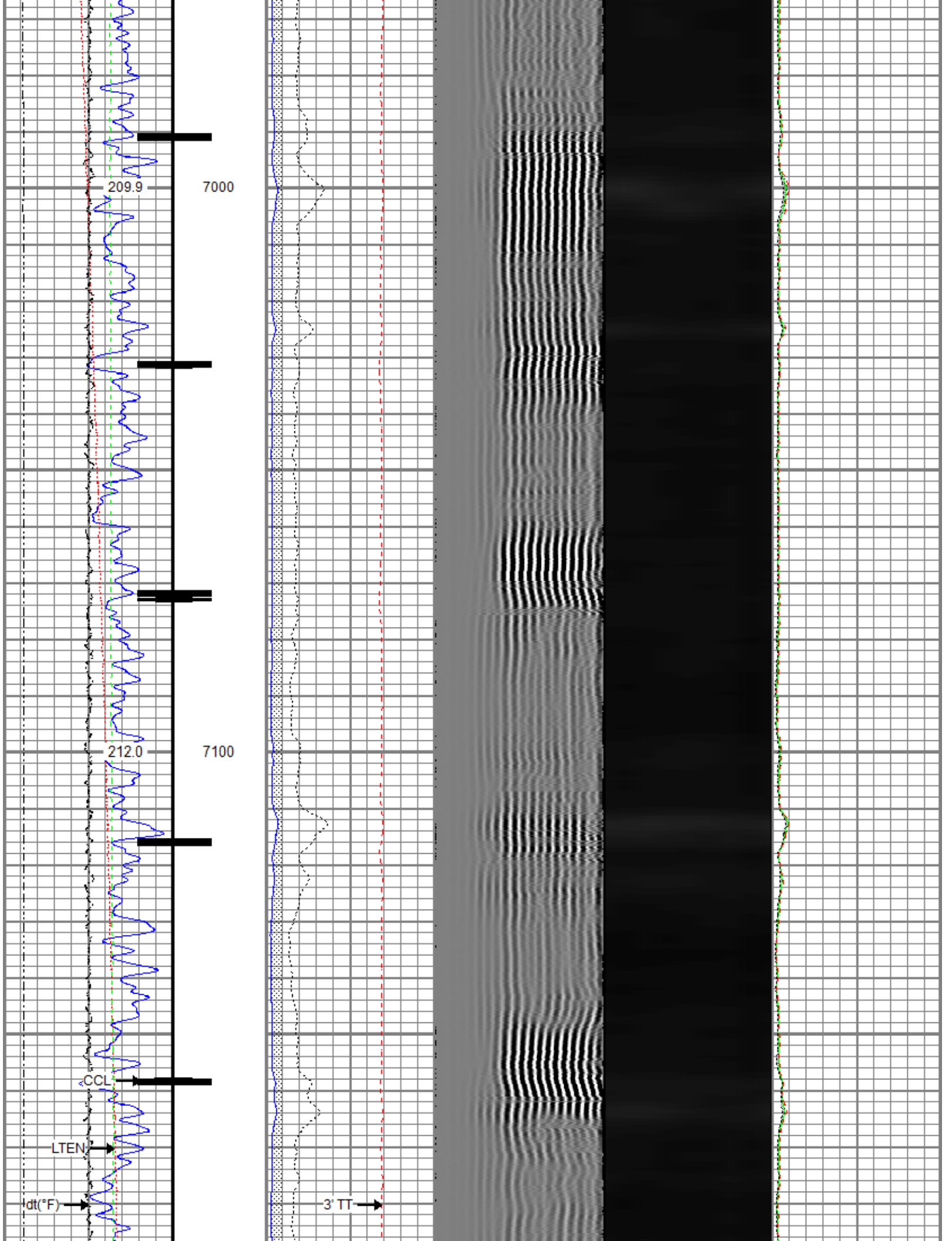
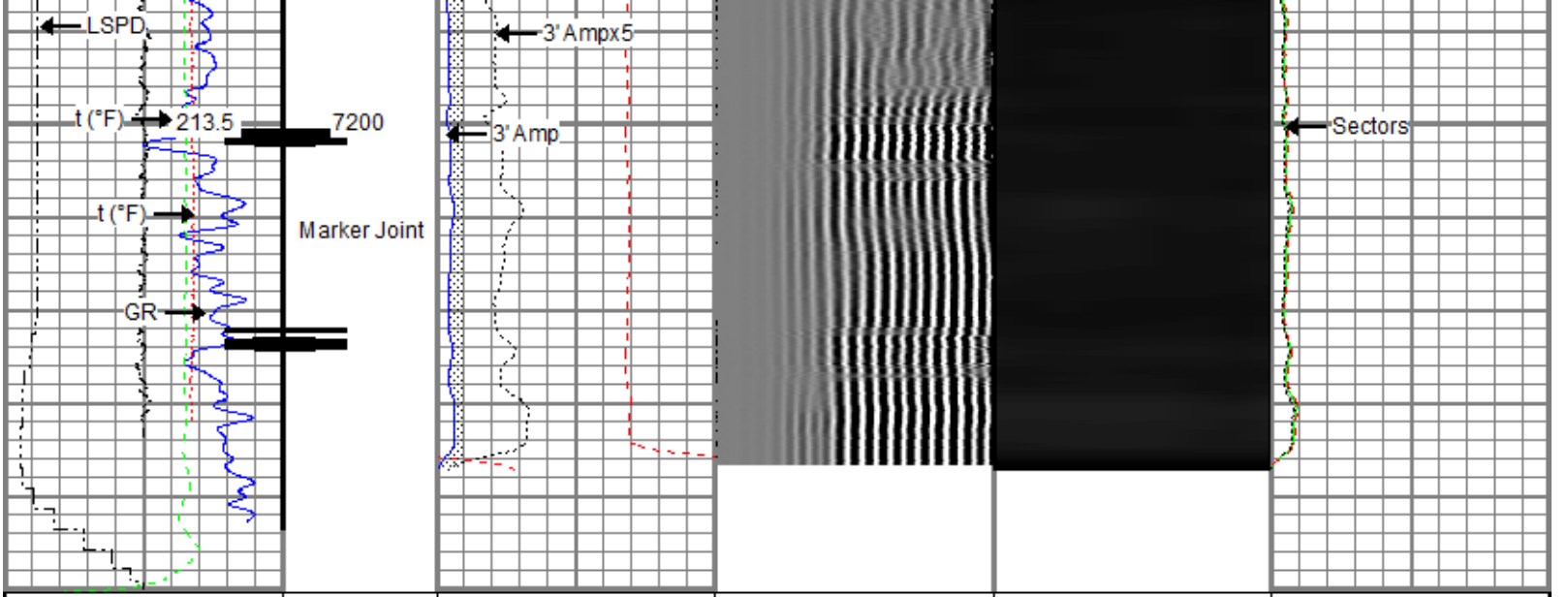

209.9
7000
212.0
7100
CCL
LTEN
dt(°F)
3' TT



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

RELIANCE OILFIELD SERVICES

Repeat Pass

Recorded With 0 PSI Surface Induced Pressure

Database File	anadarko\0512347868_anadarko_reese 21-7hz_rbl_04-13-19\processed_0512347868_anadarko_reese 21-7hz_rbl_04-13-19
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Presentation Format	ros_radii
Dataset Creation	Sun Apr 14 11:25:08 2019
Charted by	Depth in Feet scaled 1:240

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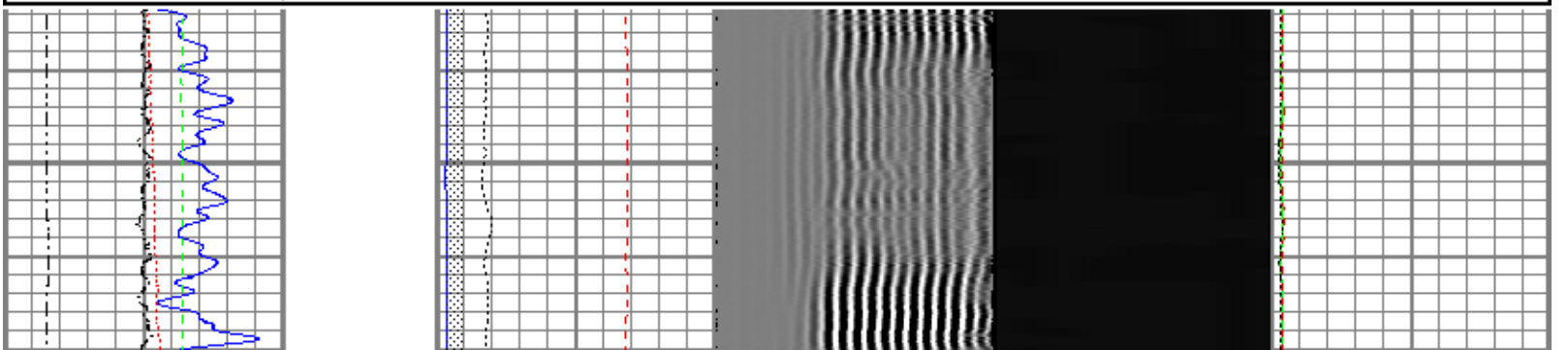
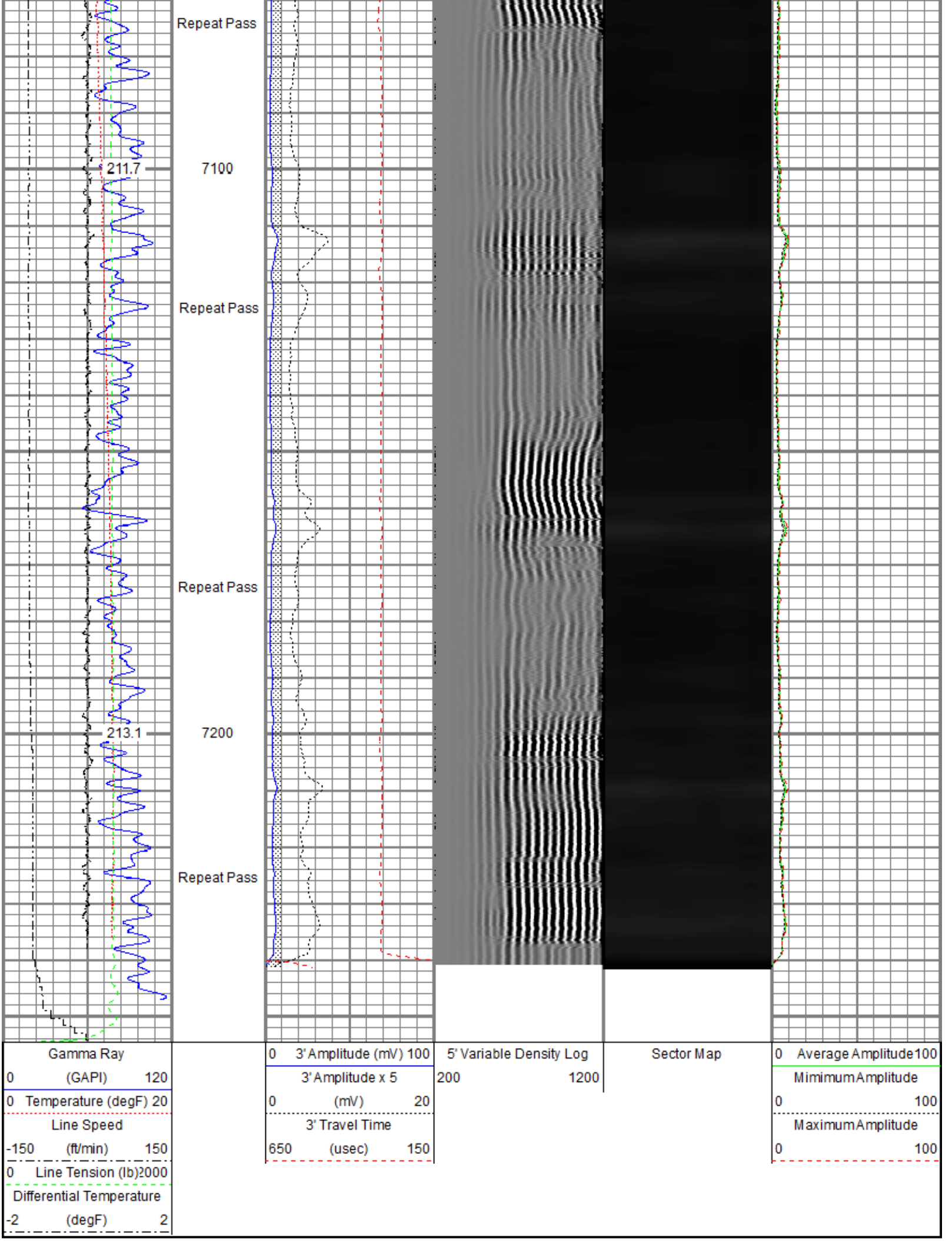
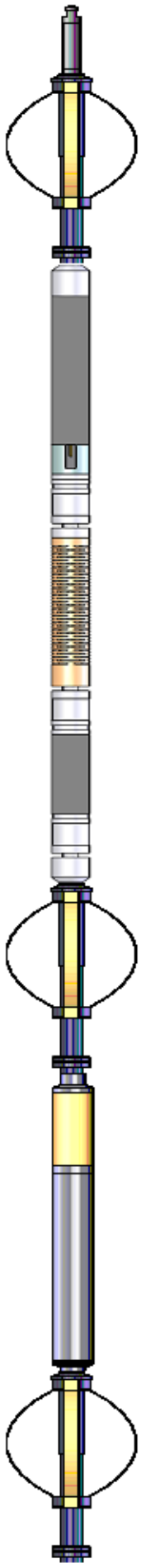
	3' Amplitude x 5 0 (mV) 20	200 1200		Mimimum Amplitude 0 100
0 Temperature (degF) 20	3' Travel Time 650 (usec) 150			Maximum Amplitude 0 100
Line Speed -150 (ft/min) 150				
0 Line Tension (lb) 2000				
Differential Temperature -2 (degF) 2				




Repeat Pass
211.7
7100
Repeat Pass
Repeat Pass
213.1
7200
Repeat Pass
Gamma Ray
0 (GAPI) 120
0 Temperature (degF) 20
Line Speed
-150 (ft/min) 150
0 Line Tension (lb) 2000
Differential Temperature
-2 (degF) 2
0 3' Amplitude (mV) 100
3' Amplitude x 5
0 (mV) 20
3' Travel Time
650 (usec) 150
5' Variable Density Log
200 1200
Sector Map
0 Average Amplitude 100
Mimimum Amplitude
0 100
Maximum Amplitude
0 100

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
			Titan CHD-14375 GO Titan 1-7/16" Assembled Electric Cable Head w/ 1" Fishing Neck	1.03	1.44	3.60
			Probe CENT-2750 Probe 2-3/4" Electric Inline Bowspring Centralizer	2.88	2.75	20.00
TEMP	16.75					
			Probe Radii-2750 RBT (FW1302-001) Probe 2-3/4" Radial Cement Bond Tool with Integral Temperature Sub	9.39	2.75	105.00
WVFS8	14.52					
WVFS7	14.52					
WVFS6	14.52					
WVFS5	14.52					
WVFS4	14.52					
WVFS3	14.52					
WVFS2	14.52					
WVFS1	14.52					
WVFCAL	14.52					
WVF3FT	14.52					
WVF5FT	13.52					
			Probe CENT-2750 Probe 2-3/4" Electric Inline Bowspring Centralizer	2.88	2.75	20.00
CCL$2	6.51					
CCL$1	6.51					
GR	5.26		Probe GR-CCL-2750 GOB (FW1212-026) Probe 2-3/4" rev.2 Digital Scintillation Gamma Ray/CCL Combined with GO Bottom	4.51	2.75	55.00
			Probe CENT-2750 Probe 2-3/4" Electric Inline Bowspring Centralizer	2.88	2.75	20.00

Dataset: processed_0512347868_anadarko_reese 21-7hz_rbl_04-13-19.db: field/well/run1/pass4.1
Total length: 23.57 ft
Total weight: 223.60 lb

O.D.: 2.75 in

Calibration Report

Database File c:\programdata\warrior\data\anadarko\0512347868_anadarko_reese 21-7hz_rbl_04-13-19\processed_0512347868_anadarko_r
Dataset Pathname pass4.1
Dataset Creation Sat Apr 13 16:29:31 2019

Gamma Ray Calibration Report

Serial Number:	FW1212-026	
Tool Model:	2750 GOB	
Performed:	Mon Oct 01 11:32:38 2018	
Calibrator Value:	637.0	GAPI
Background Reading:	113.7	cps
Calibrator Reading:	1029.1	cps
Sensitivity:	0.6959	GAPI/cps

Segmented Cement Bond Log Calibration Report

Serial Number:	FW1302-001	
Tool Model:	2750 RBT	
Calibration Casing Diameter:	5.500	in
Calibration Depth:	-157.776	ft

Master Calibration, performed (Derived):

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.001	0.868	0.800	71.921	82.050	0.709
CAL	0.005	0.757				
5'	0.001	0.910	0.800	71.921	78.239	0.735
SUM						
S1	0.002	0.821	0.000	100.000	121.968	-0.189
S2	0.002	0.809	0.000	100.000	123.807	-0.195
S3	0.002	0.824	0.000	100.000	121.609	-0.189
S4	0.002	0.871	0.000	100.000	115.043	-0.209
S5	0.002	0.959	0.000	100.000	104.514	-0.181
S6	0.002	0.987	0.000	100.000	101.525	-0.158
S7	0.001	0.937	0.000	100.000	106.931	-0.144
S8	0.001	0.872	0.000	100.000	114.888	-0.125

Internal Reference Calibration, performed (Not Performed):

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.005	0.757	1.000	0.000

Air Zero Calibration, performed Sat Apr 13 12:56:40 2019:

	Raw (v)	Calibrated (v)	Results
	Zero	Zero	Offset
3'	0.005	0.000	-0.000
5'	0.005	0.000	0.000
SUM			
S1	0.005	0.000	0.000
S2	0.005	0.000	0.000
S3	0.005	0.000	0.000
S4	0.005	0.000	0.000

S5	0.005	0.000	0.000
S6	0.005	0.000	-0.000
S7	0.005	0.000	-0.000
S8	0.005	0.000	-0.000

Temperature Calibration Report

Serial Number:	FW1302-001
Tool Model:	2750 RBT
Performed:	Mon Oct 01 11:32:14 2018

	Reference	Reading
Low Reference:	100.00 degF	107.47 degF
High Reference:	350.00 degF	404.08 degF

Gain:	0.84
Offset:	9.42
Delta Spacing	1

RELIANCE OILFIELD SERVICES

Company	Kerr-McGee Oil & Gas Onshore, L.P.
Well	Reese 21-7HZ
Field	Wattenberg
County	Weld
State	Colorado