RELIANCE OILFIELD SERVICES

Radial Cement Bond
Gamma Ray
Casing Collar Log

Company Whiting Oil & Gas Corporation
Well Horsetail 30G-3139
Field Wildcat
County Weld
State Colorado

Company Whiting Oil & Gas Corporation
Well Horsetail 30G-3139
Field Wildcat
County Weld State Colorado

Location: API # : 05-123-43032

SEC 30 TWP 10N RGE 57W

Other Services
GR/JB

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

Elevation
K.B. 4759'
D.F. 4758'
G.L. 4738'

Date	18-JAN-2017		
Run Number	Two		
Depth Driller	13980 FT		
Depth Logger	5130 FT		
Bottom Logged Interval	5125 FT		
Top Log Interval	Surface		
Open Hole Size	8.75"		
Type Fluid	Water		
Density / Viscosity	8.34 lb/gal		
Max. Recorded Temp.	190°F		
Estimated Cement Top	Surface		
Time Well Ready	ROA		
Time Logger on Bottom	09:45		
Equipment Number	HD-340		
Location	Fort Lupton, CO		
Recorded By	C. Bryan		
Witnessed By	Brad Kothe		

Borehole Record				Tubing Record			
Run Number	Bit	From	To	Size (in)	Weight (lb/ft)	From	To

Casing Record	Size (in)	Wgt (lb/ft)	Grade	Top	Bottom
Surface Casing	9 5/8	36	---	Surface	2098 FT
Intermediate #1	5 1/2	20	---	Surface	13967 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 5079 FT
Adjusted log -0.5 FT to correlate with Marker Joint
Log ran from just below Marker Joint to Surface
Log ran with 1500 PSI surface induced pressure
Gauge Ring/Junk Basket ran to 5110 FT with no debris
Logging tools were clean and free of any debris upon completion of operations

Thank you for choosing Reliance Oilfield Services, LLC!!

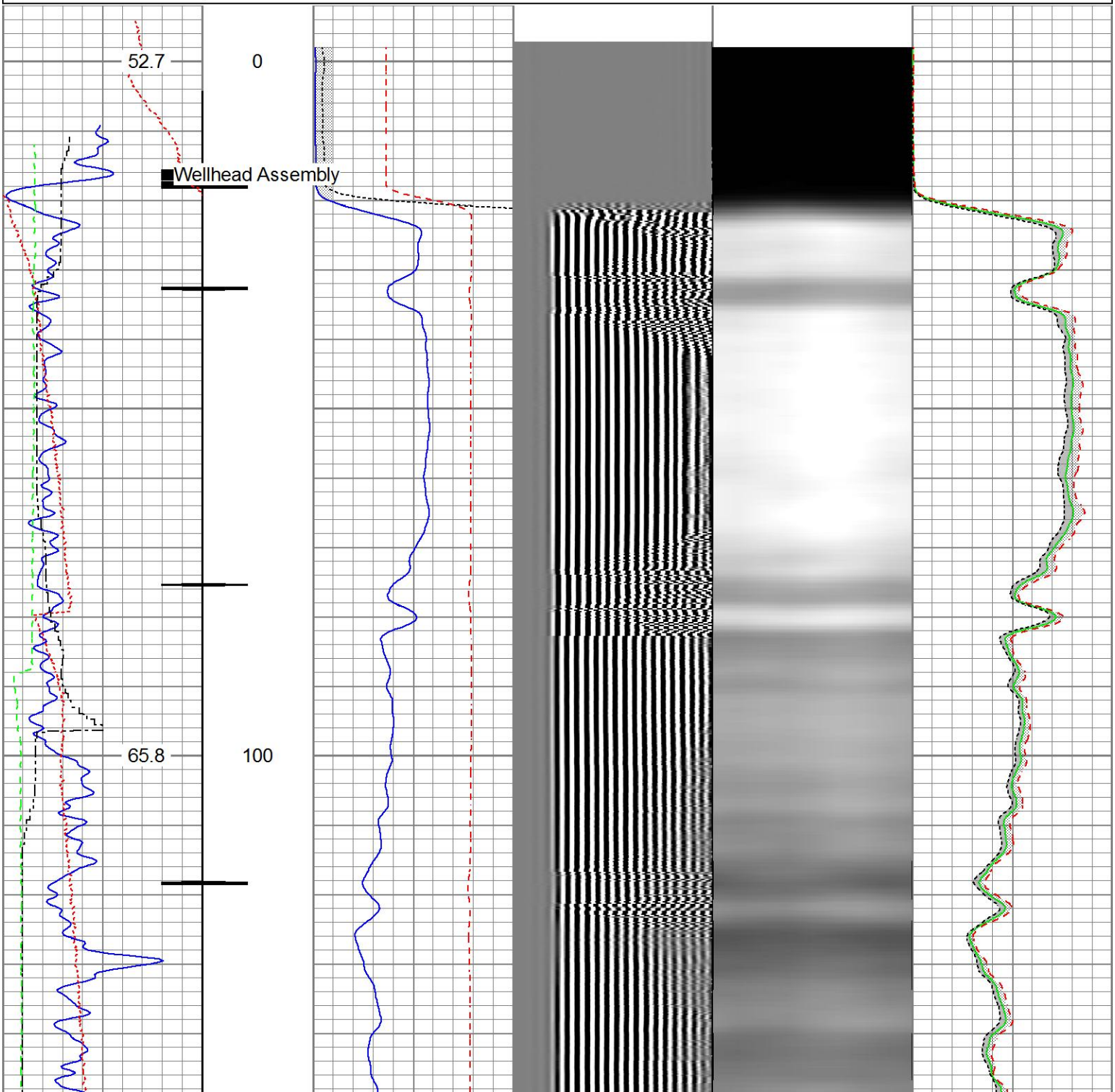
Main Pass

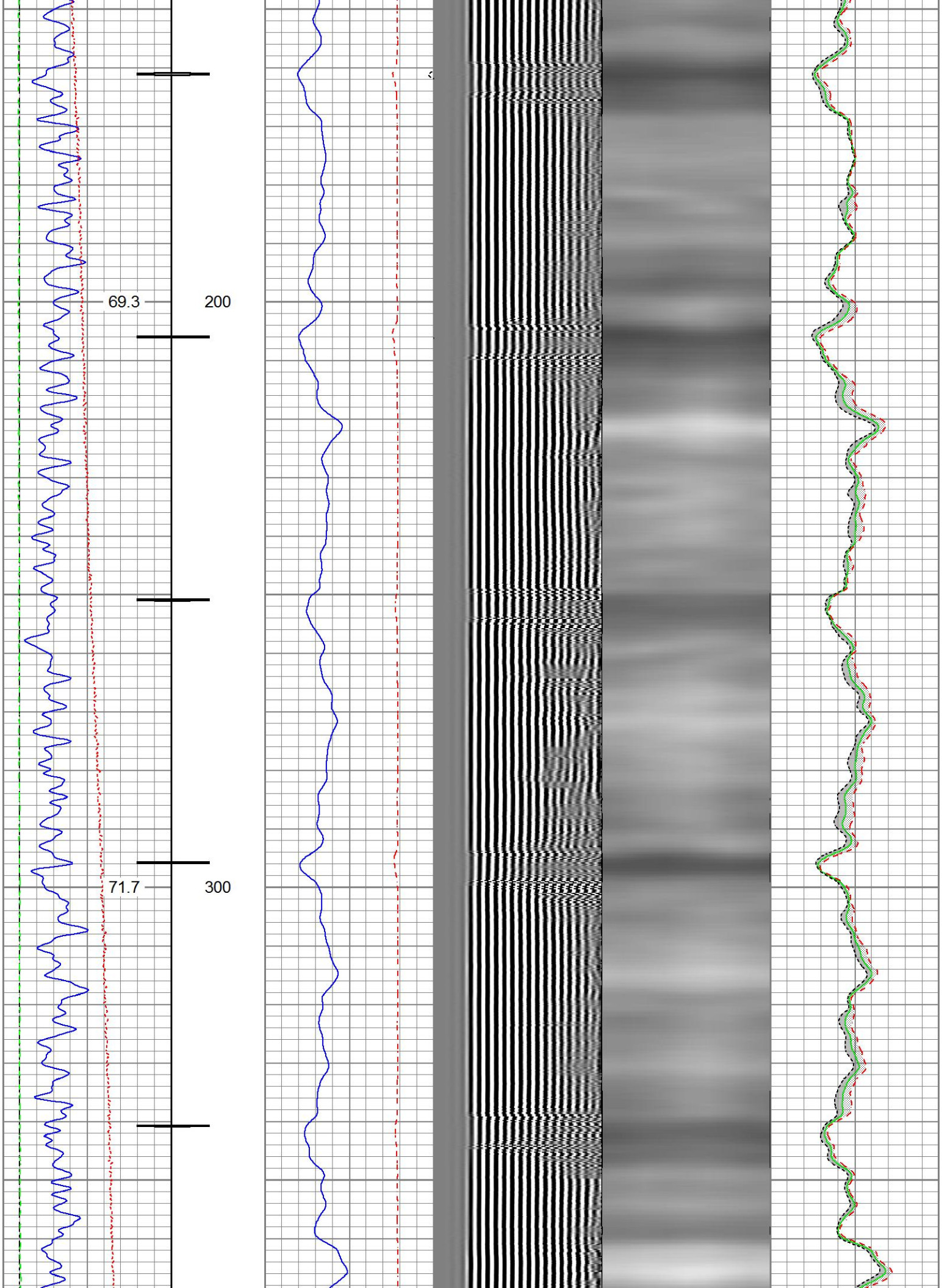
Recorded with 1500 PSI Surface Induced Pressure

RELIANCE OILFIELD SERVICES

Database File	whiting_horsetail 30g-3139_01-18-17_rbl\processed_whiting_horsetail 30g-3139_01-18-17_rbl.db
Dataset Pathname	main
Presentation Format	fmc_radii
Dataset Creation	Wed Jan 18 10:07:11 2017
Charted by	Depth in Feet scaled 1:240

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

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200
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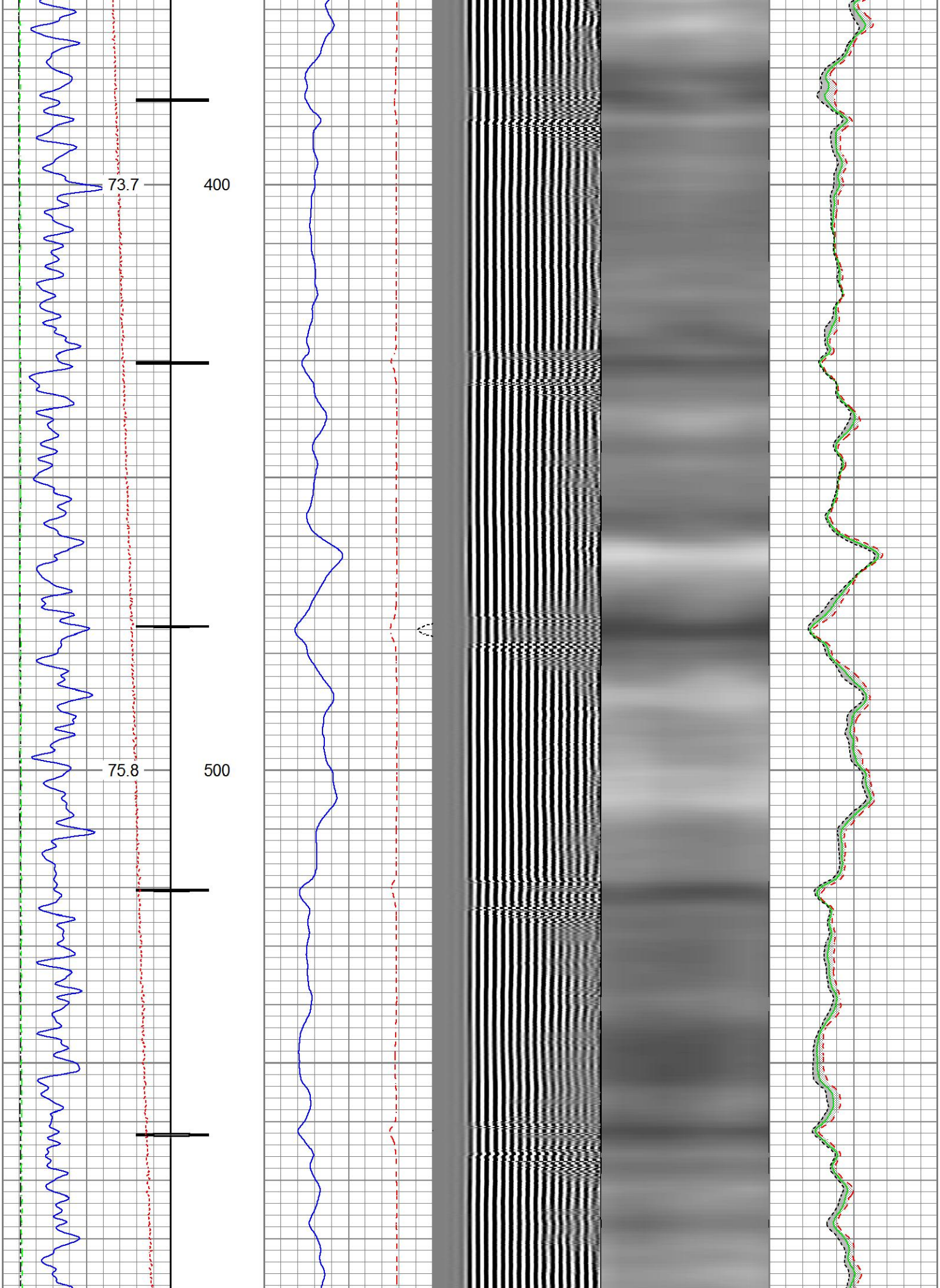
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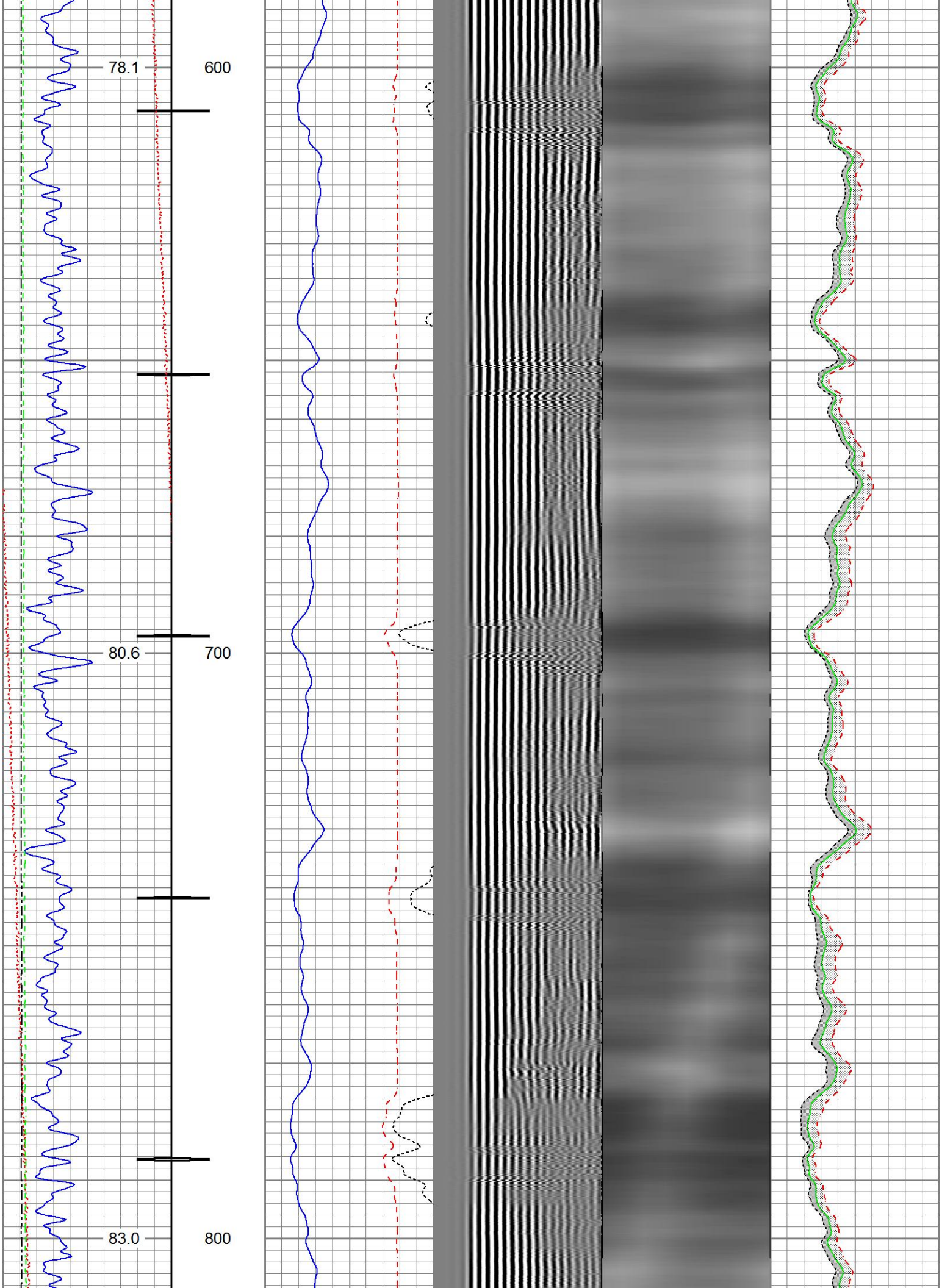
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600
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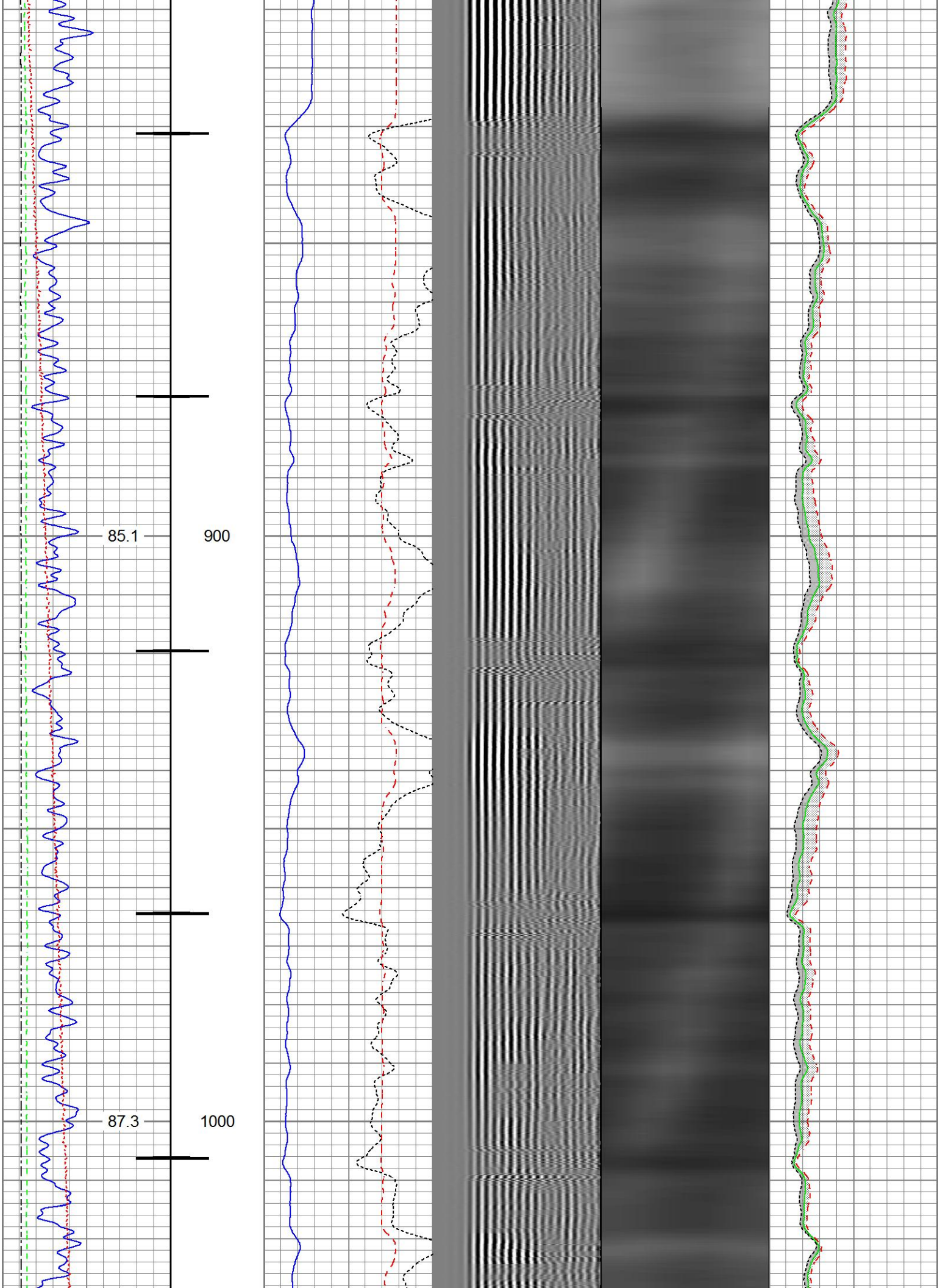
700
83.0
800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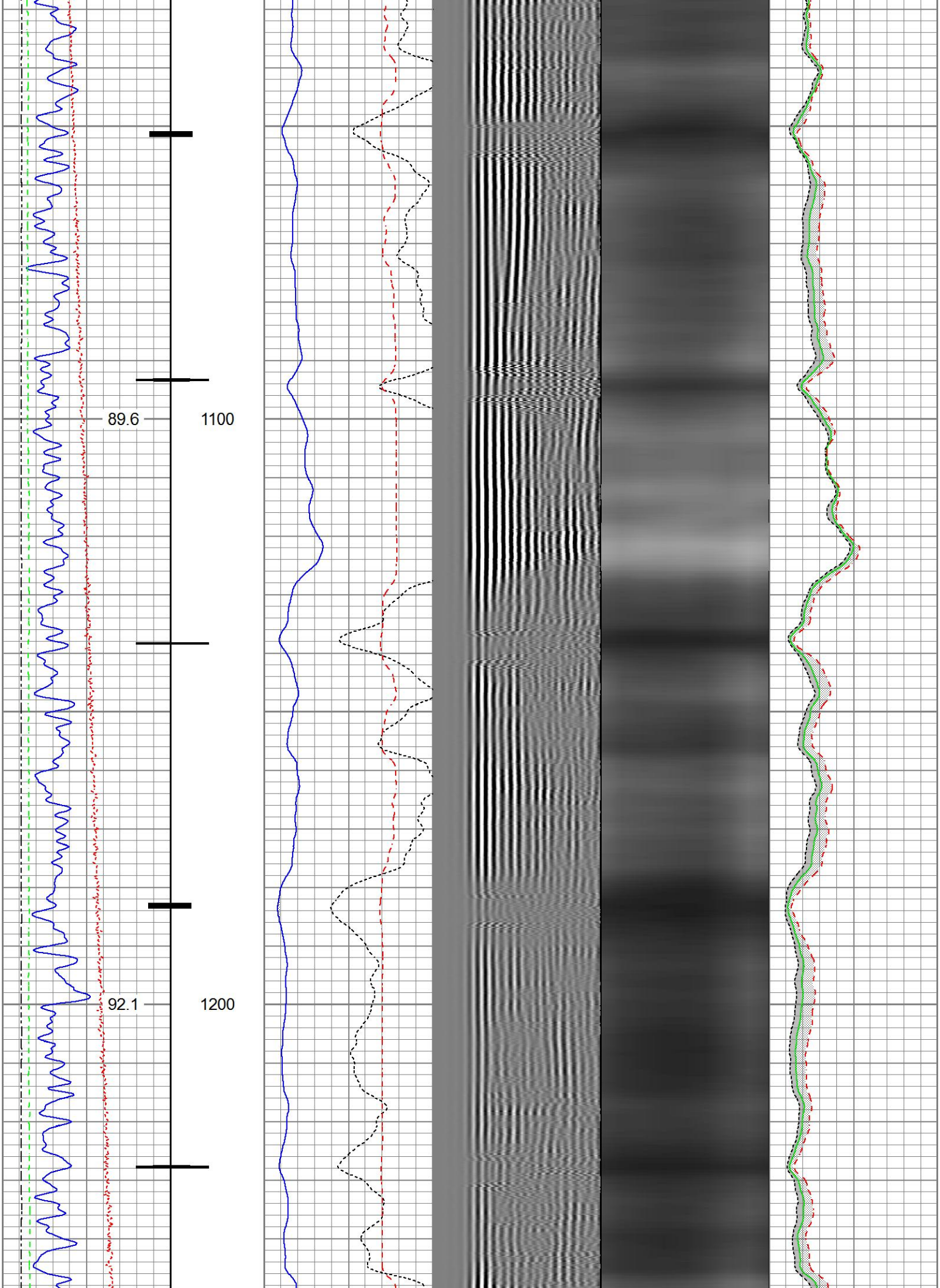
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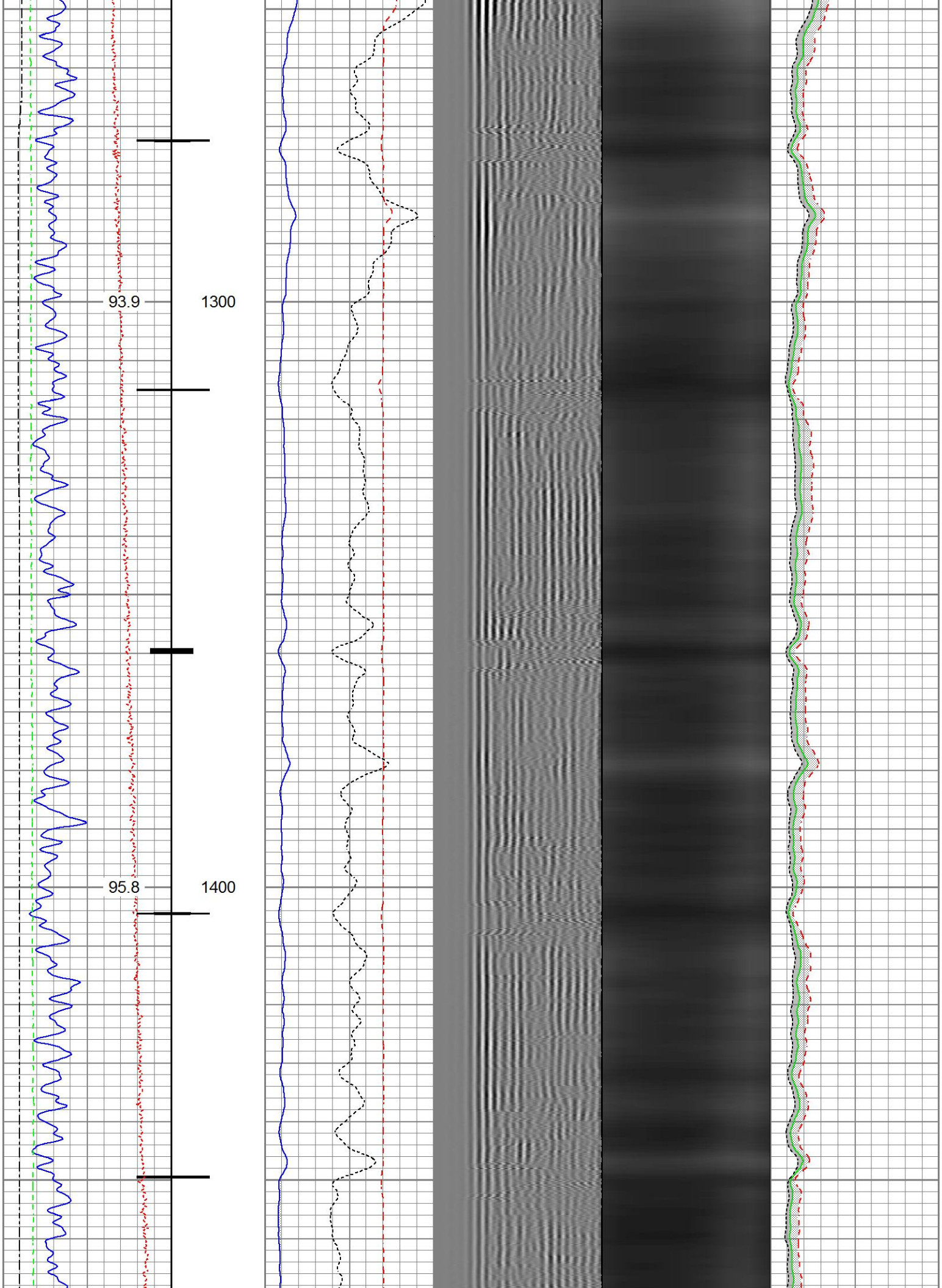
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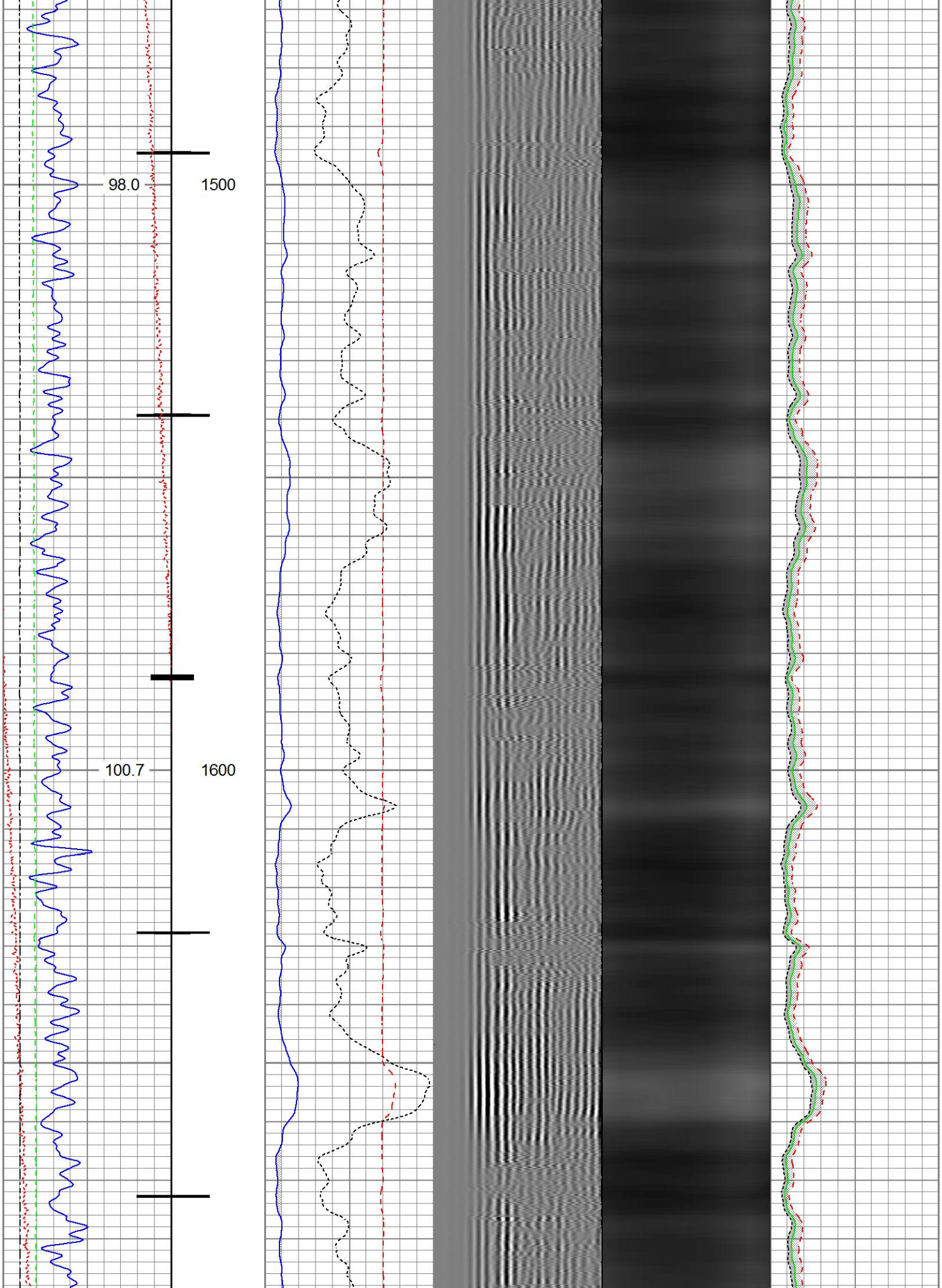
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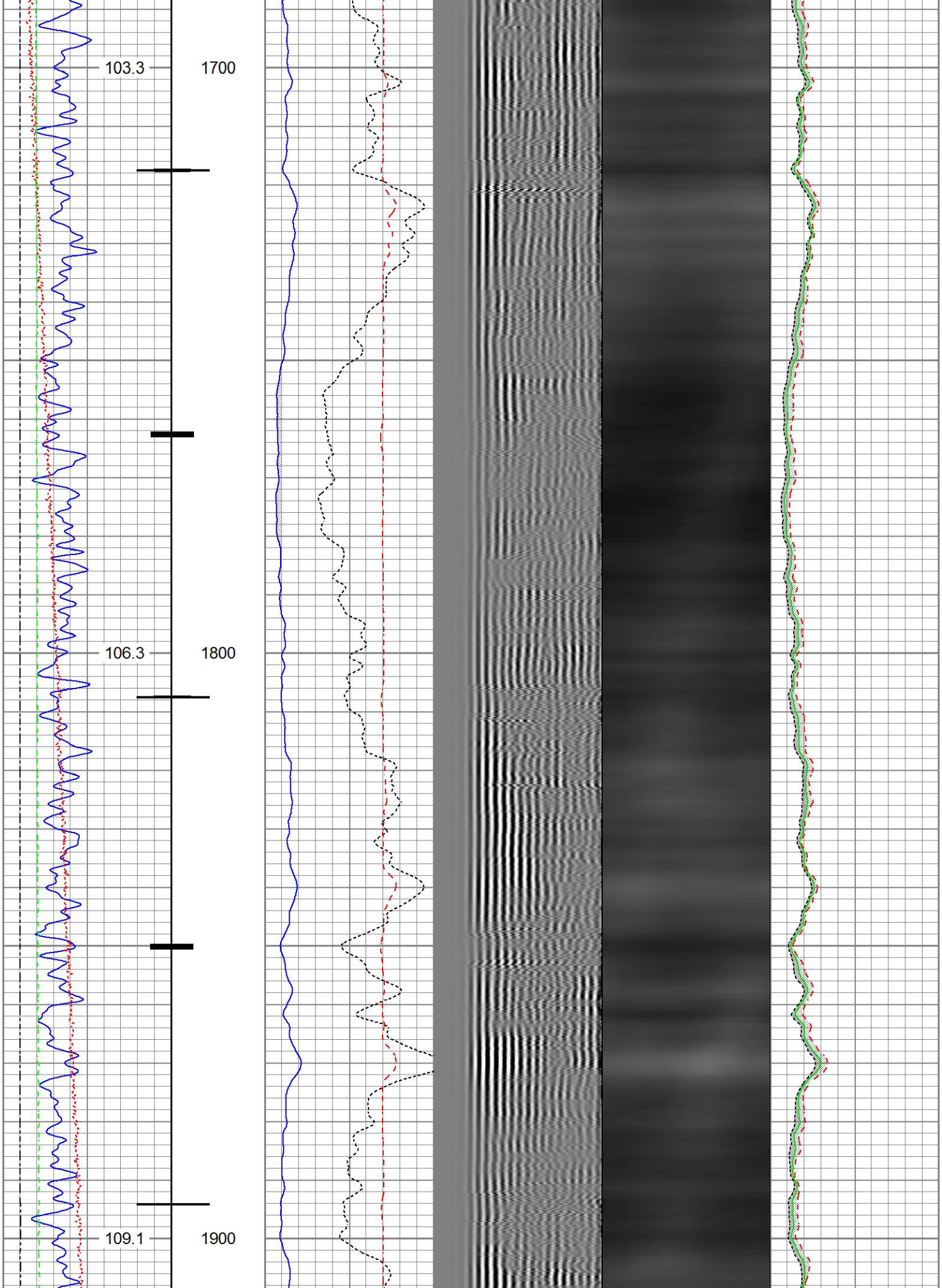
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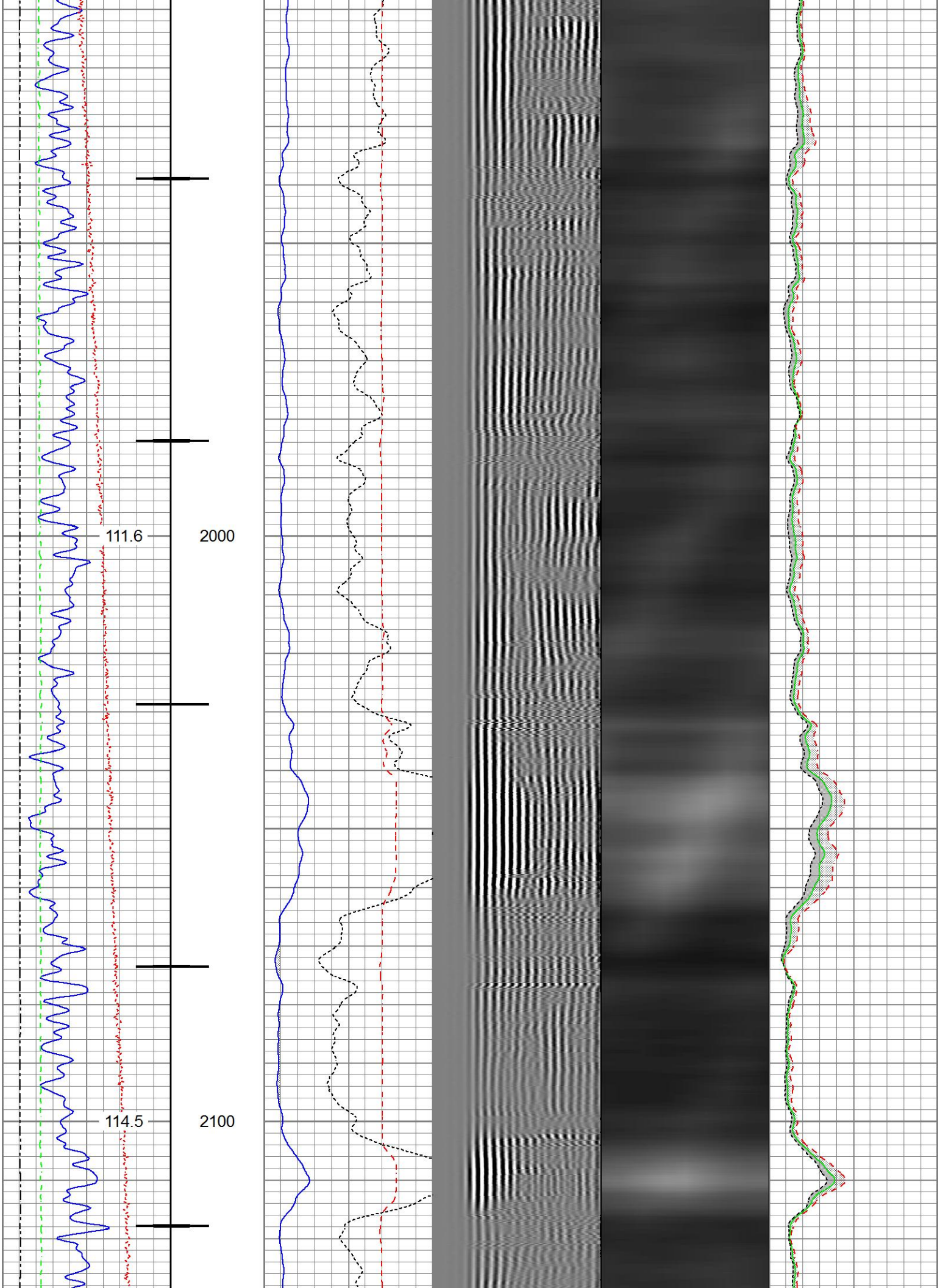
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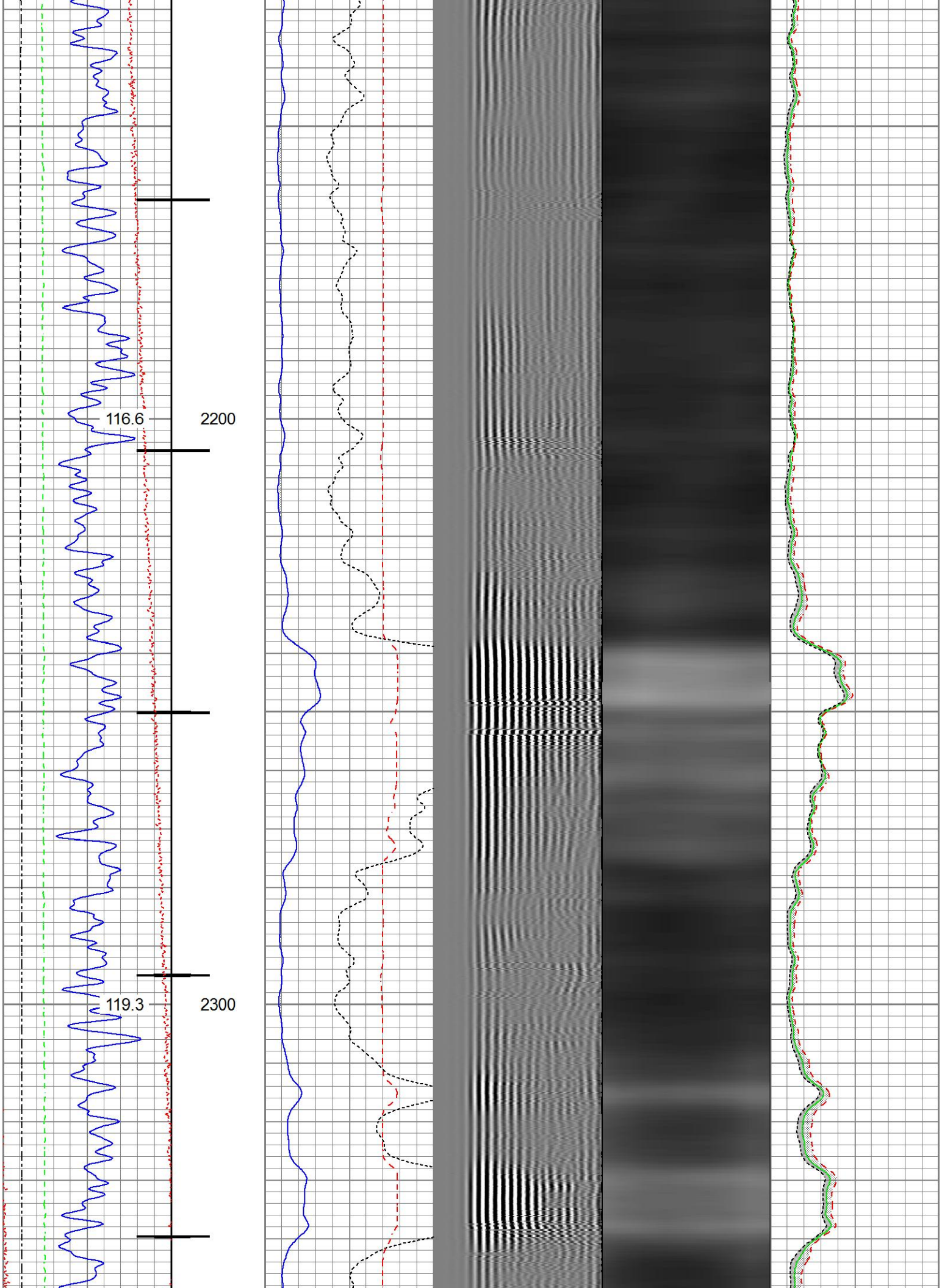
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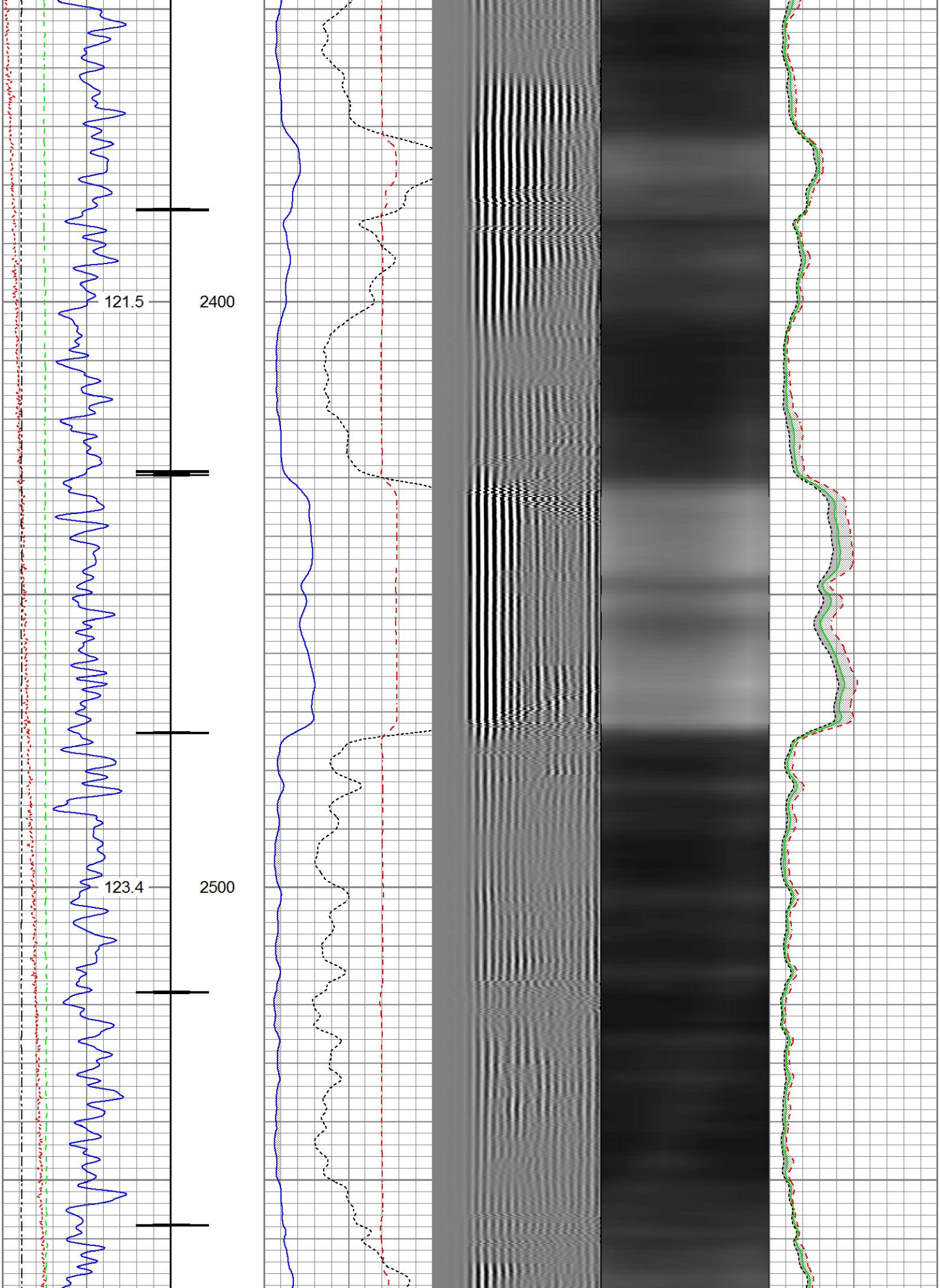
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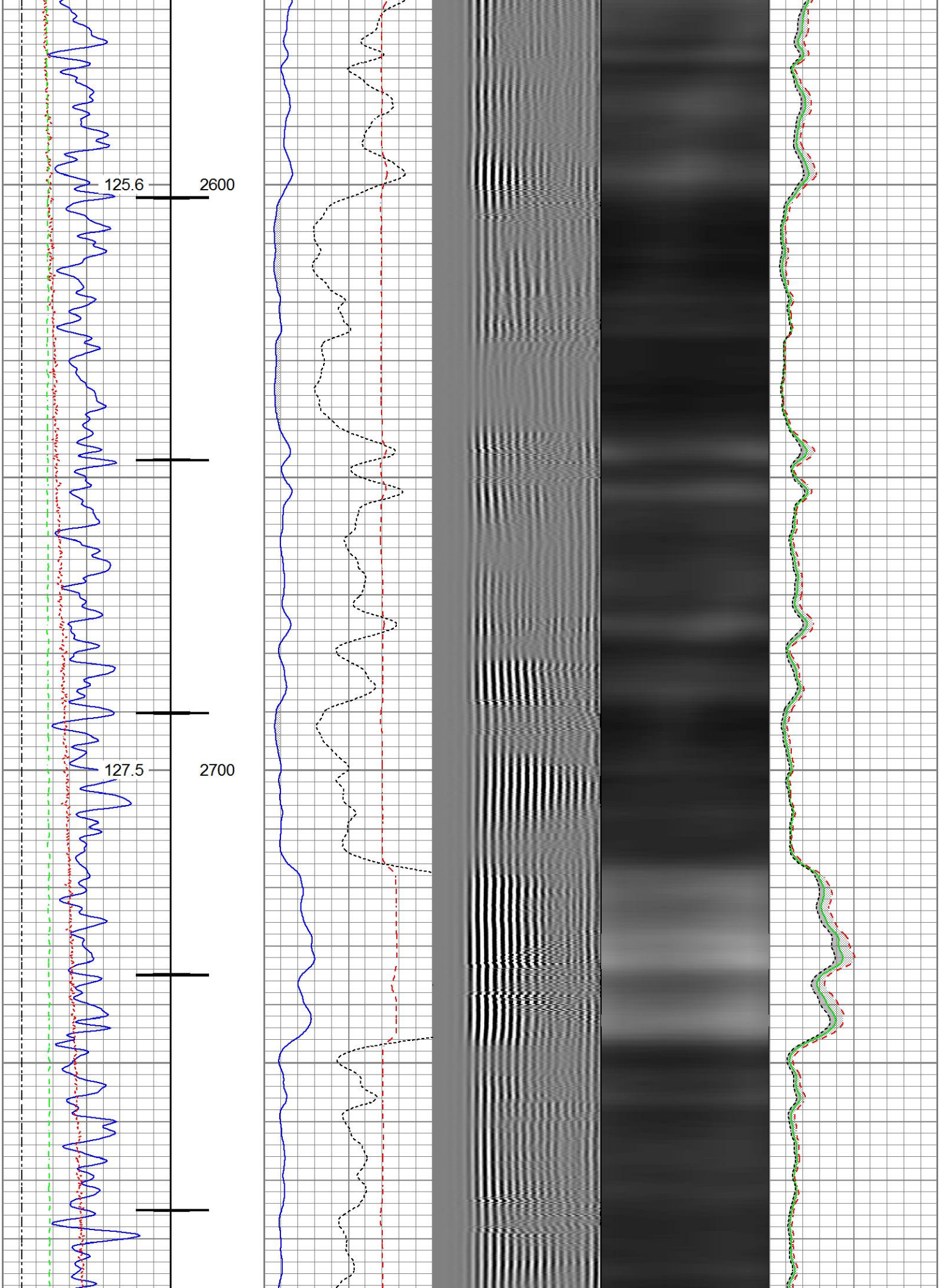
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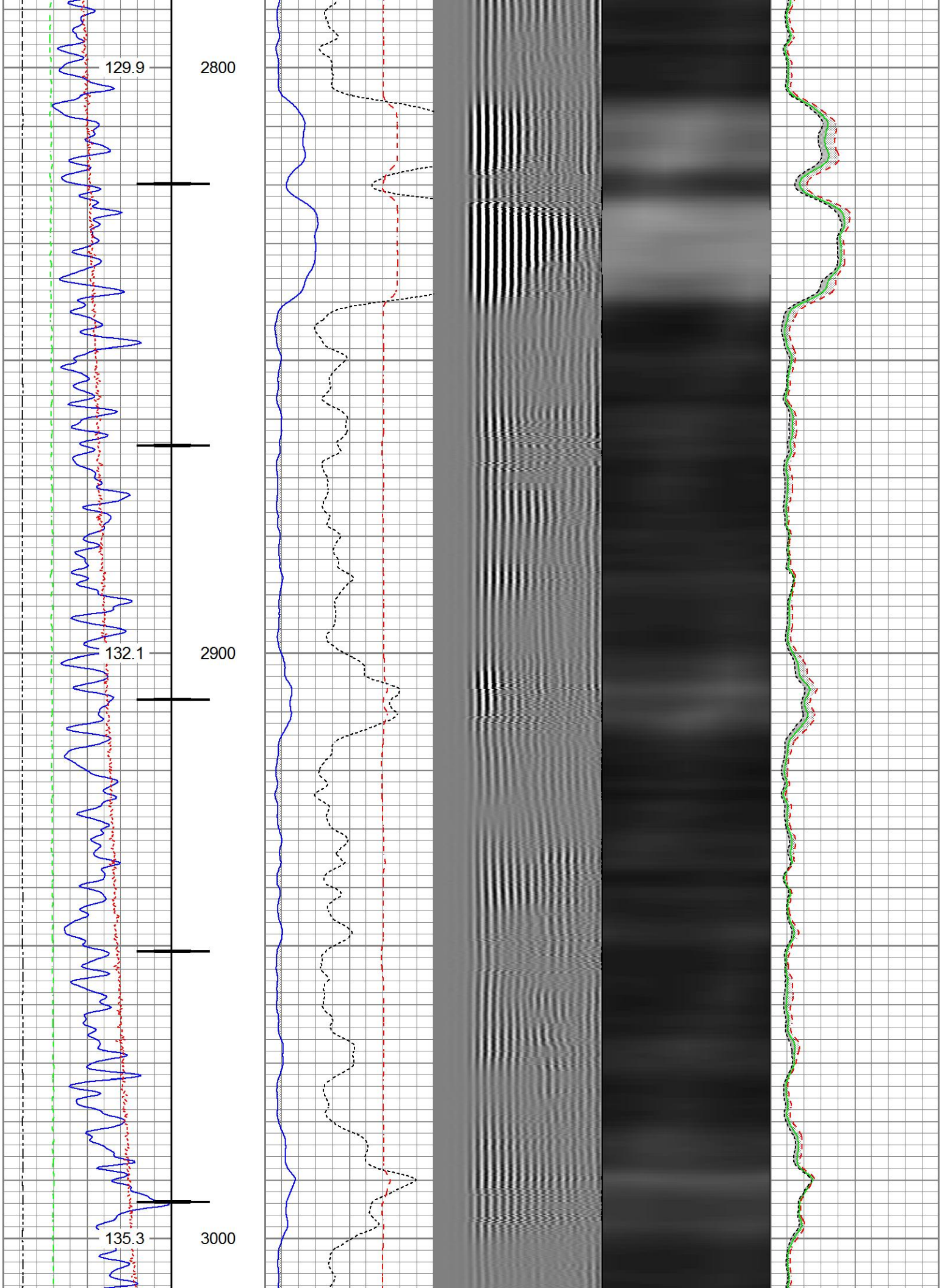
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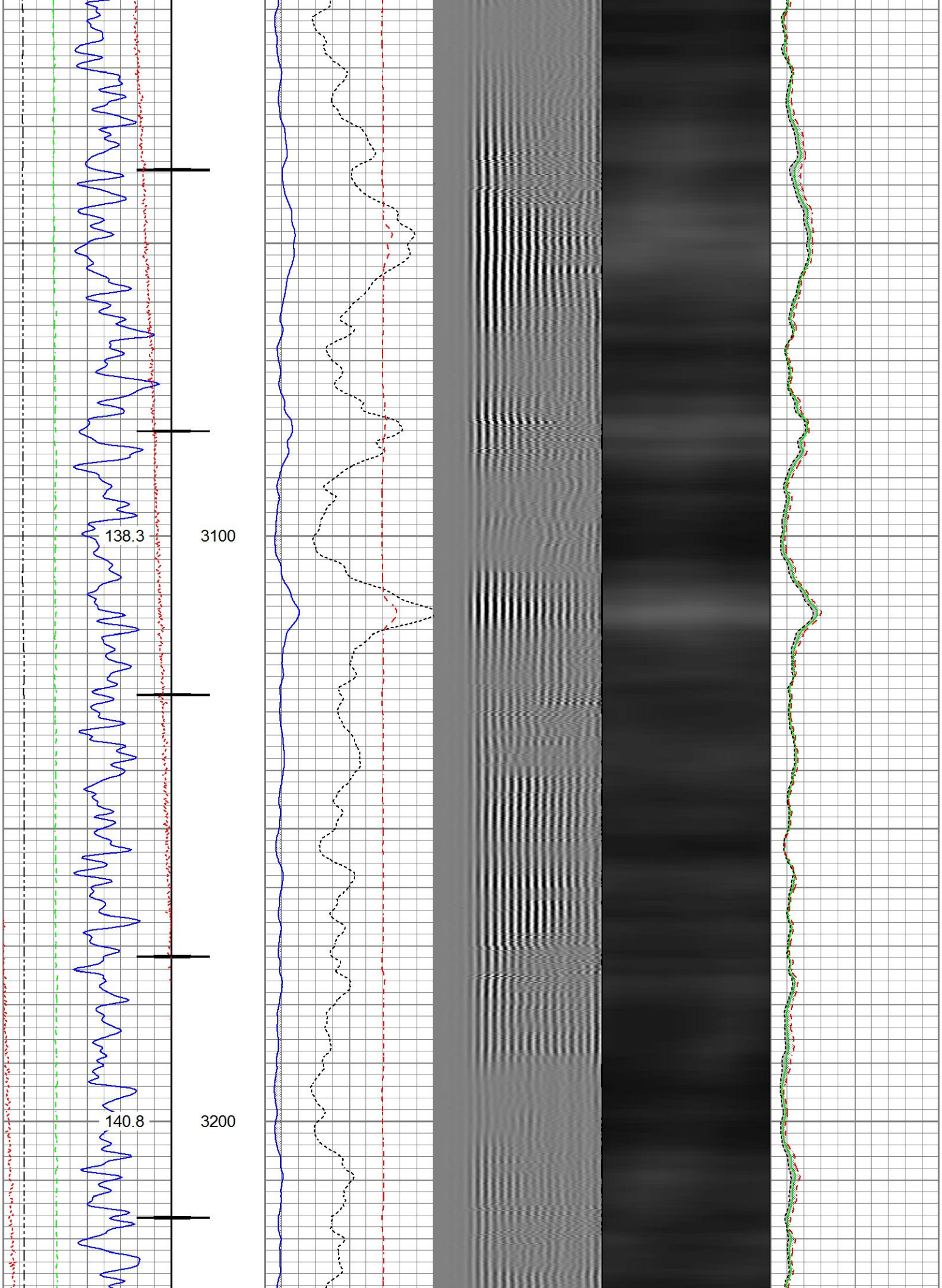
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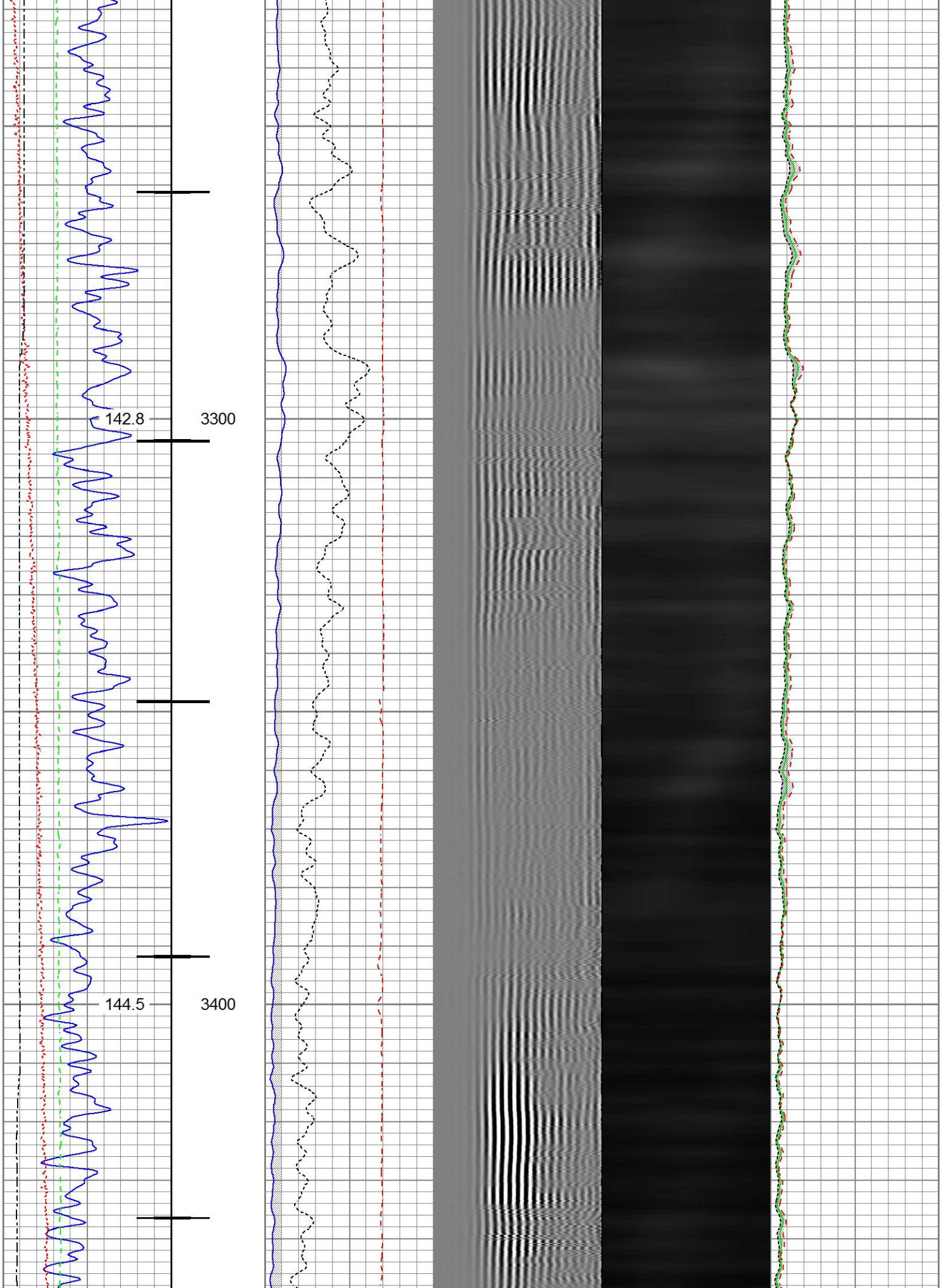
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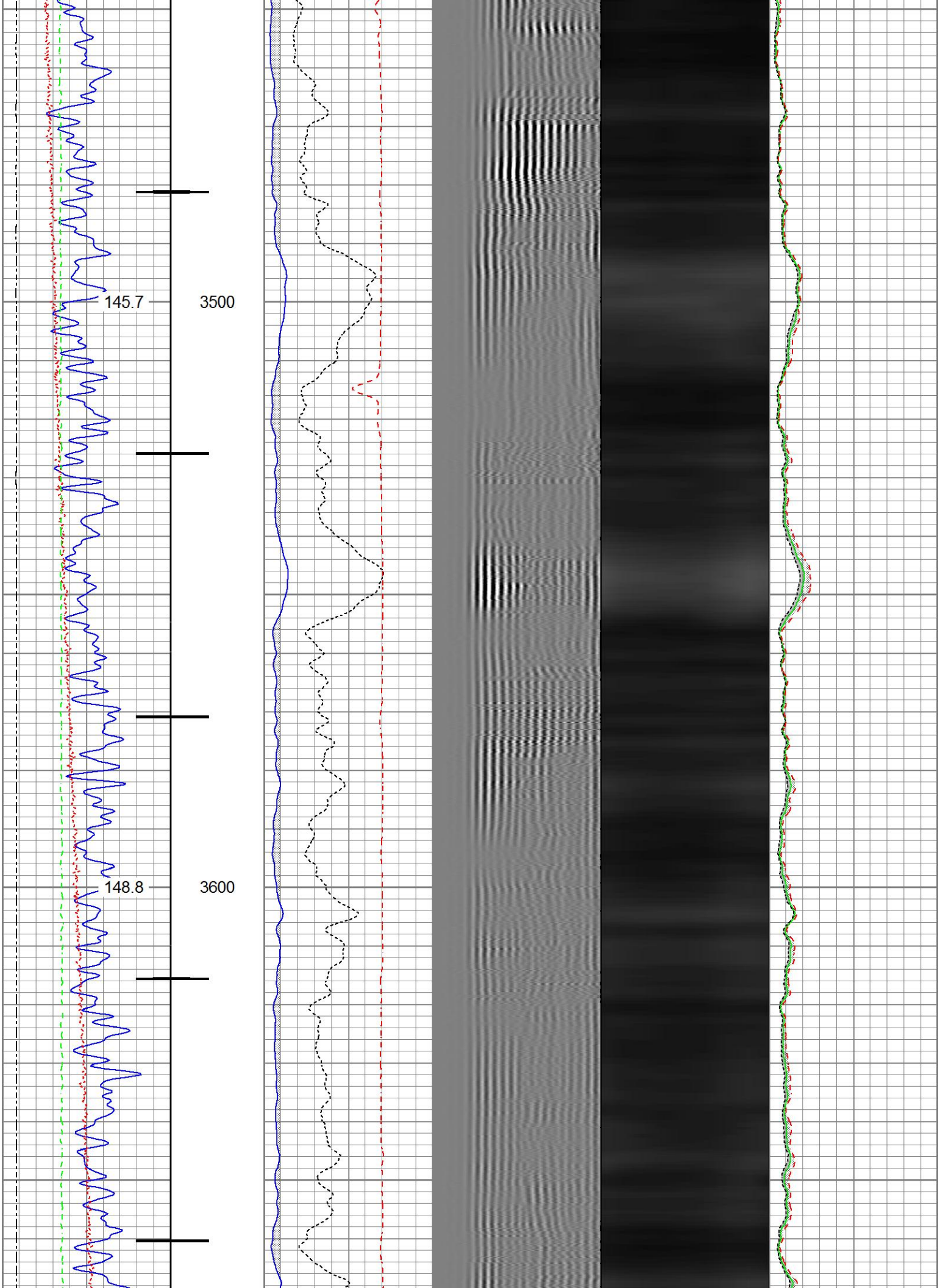
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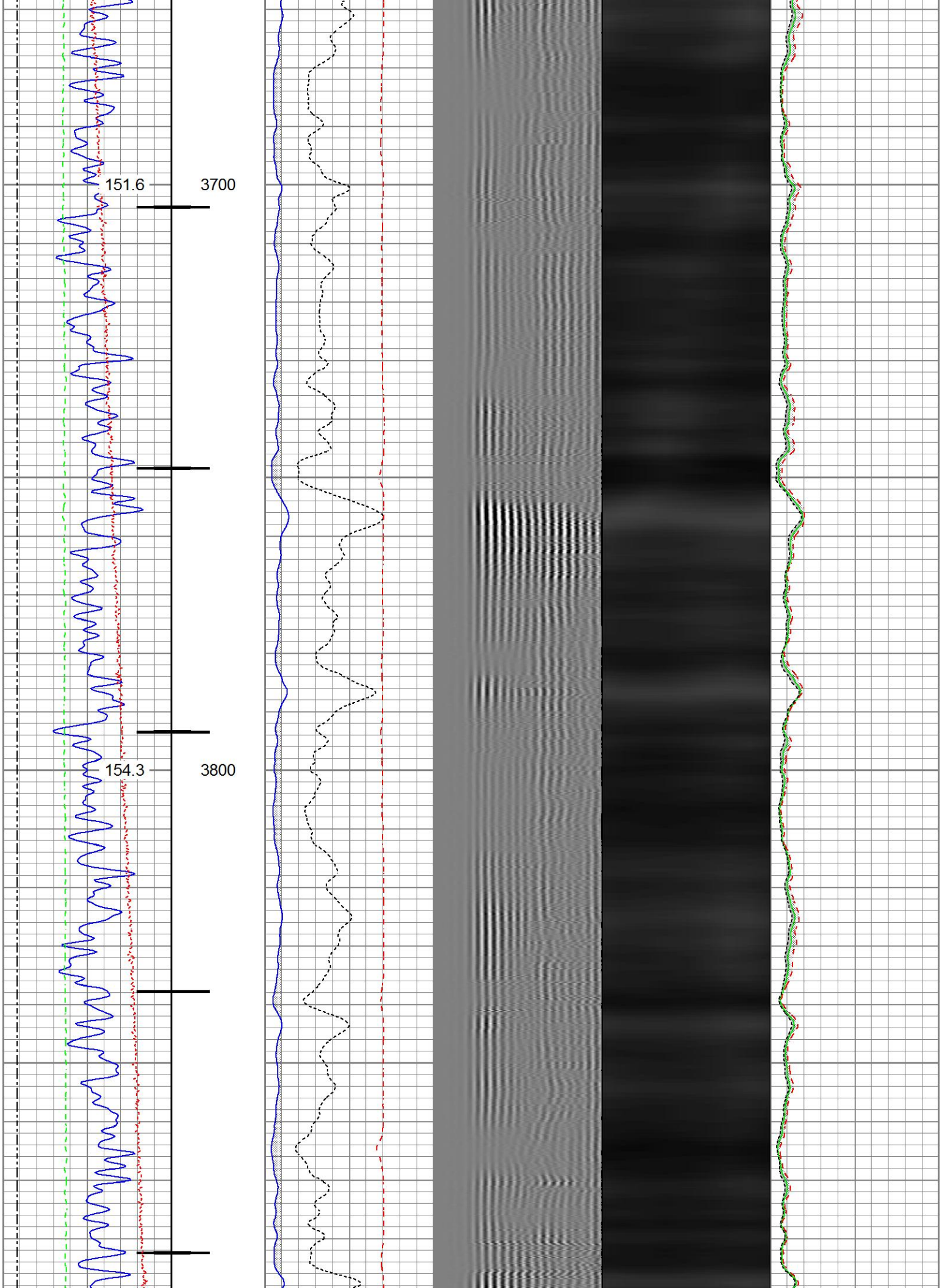
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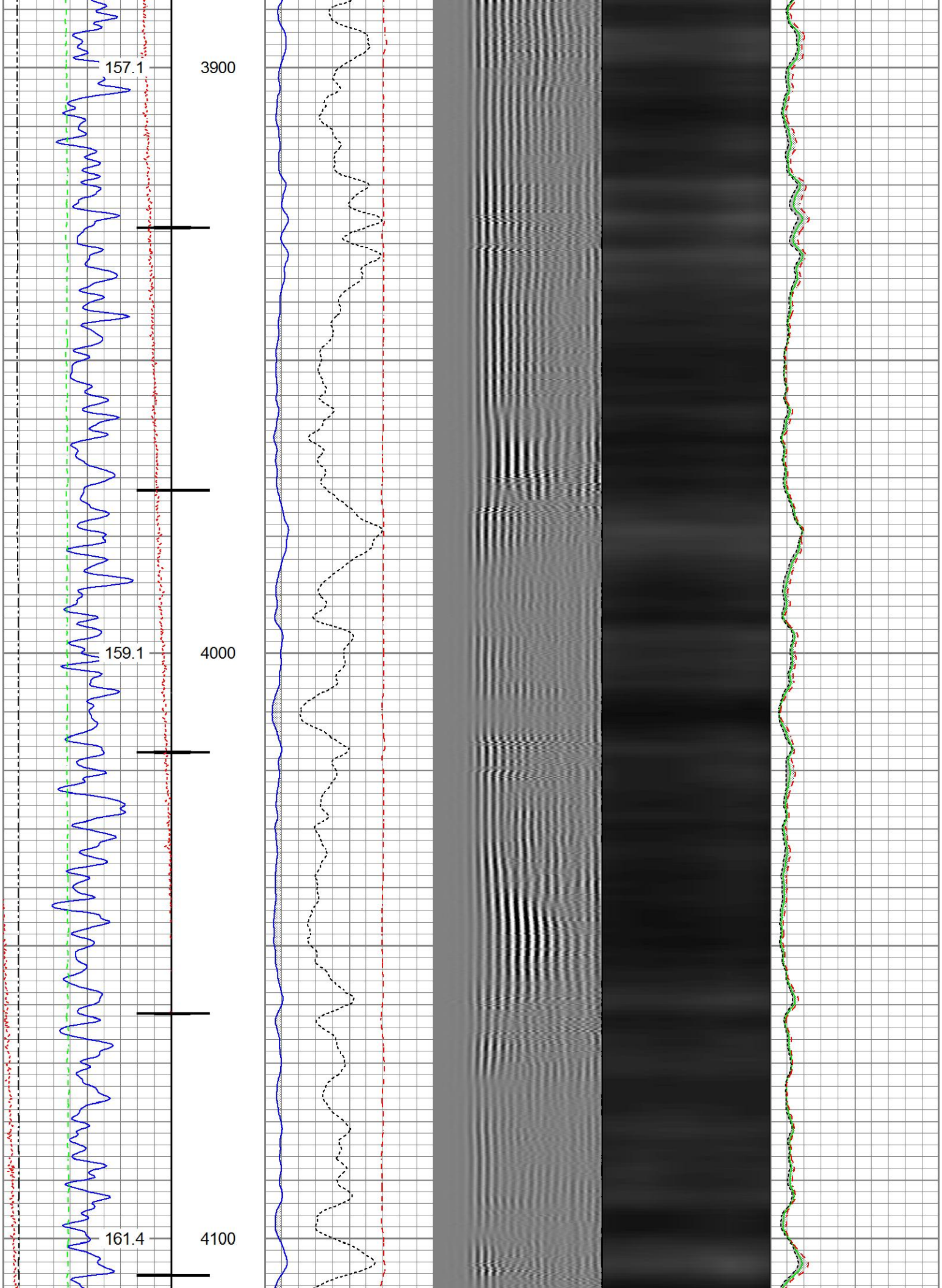
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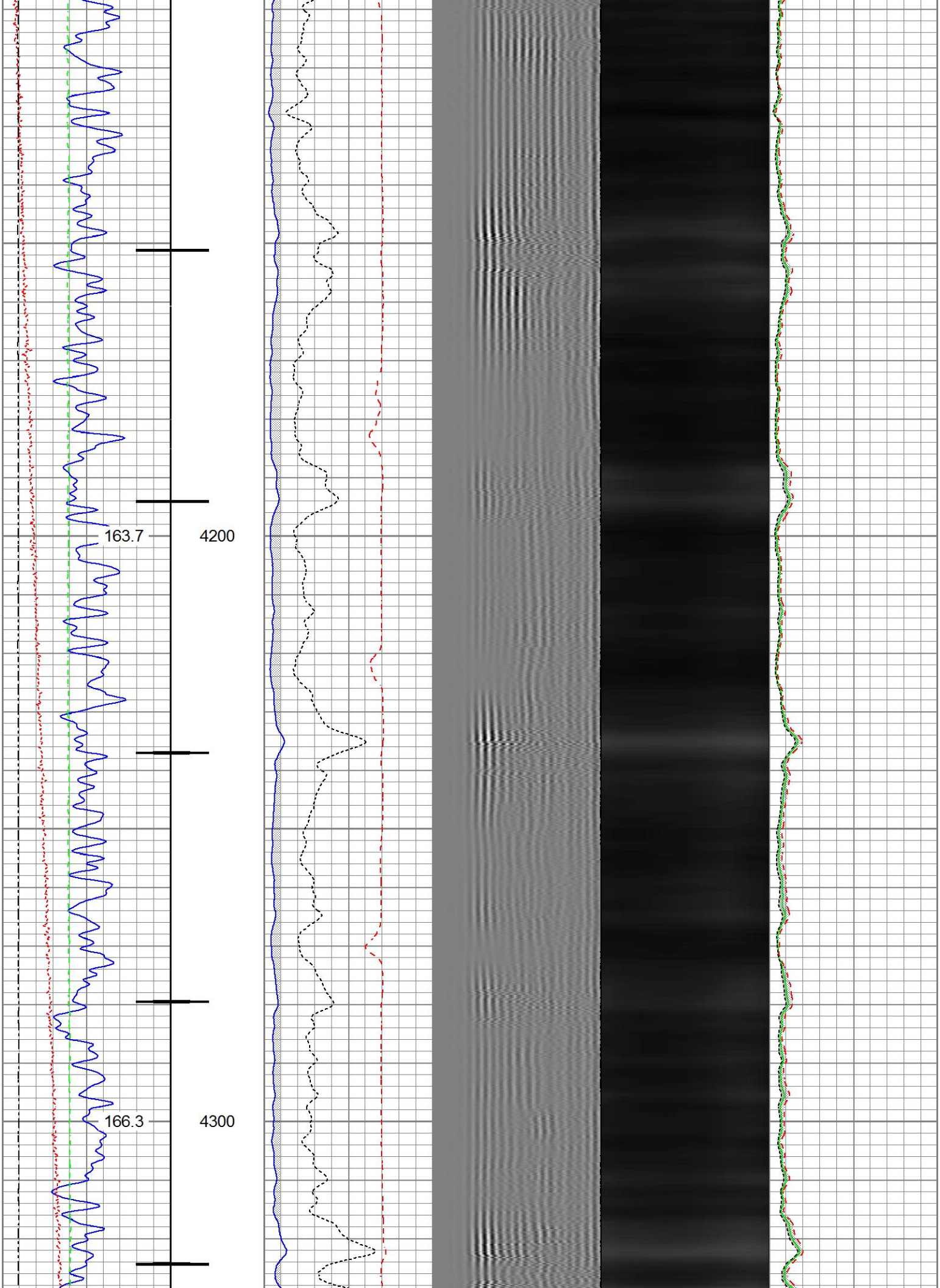
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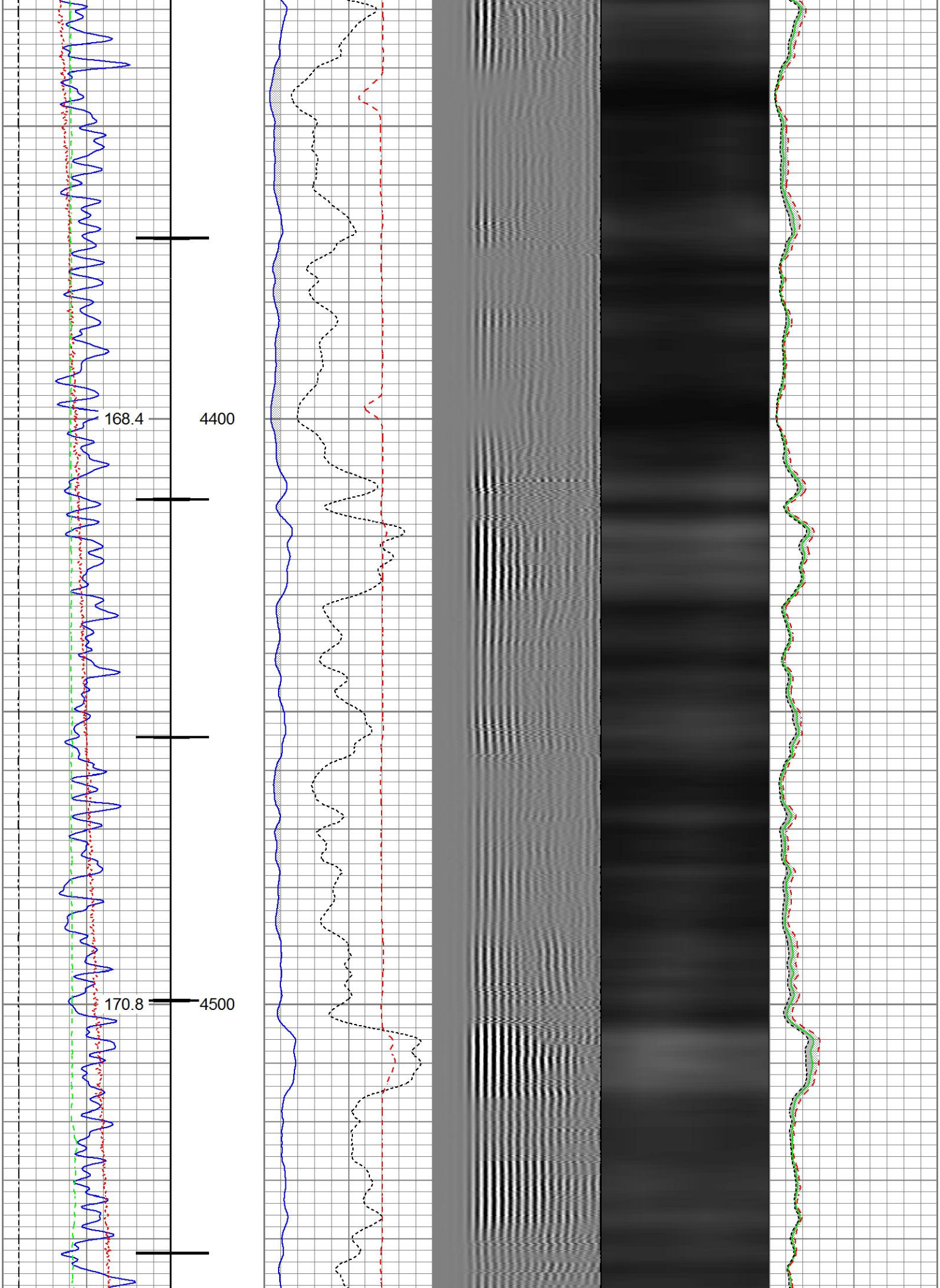
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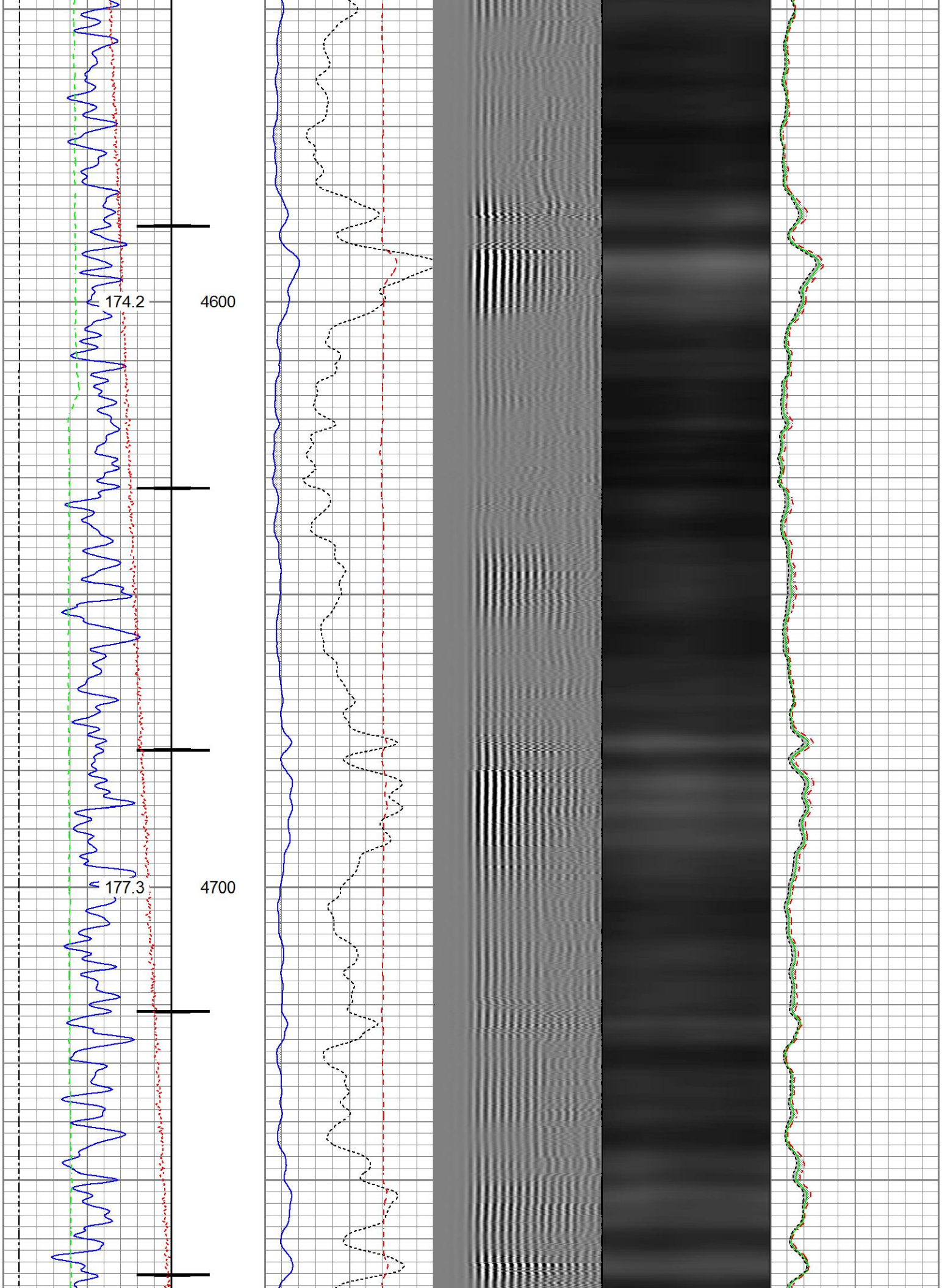
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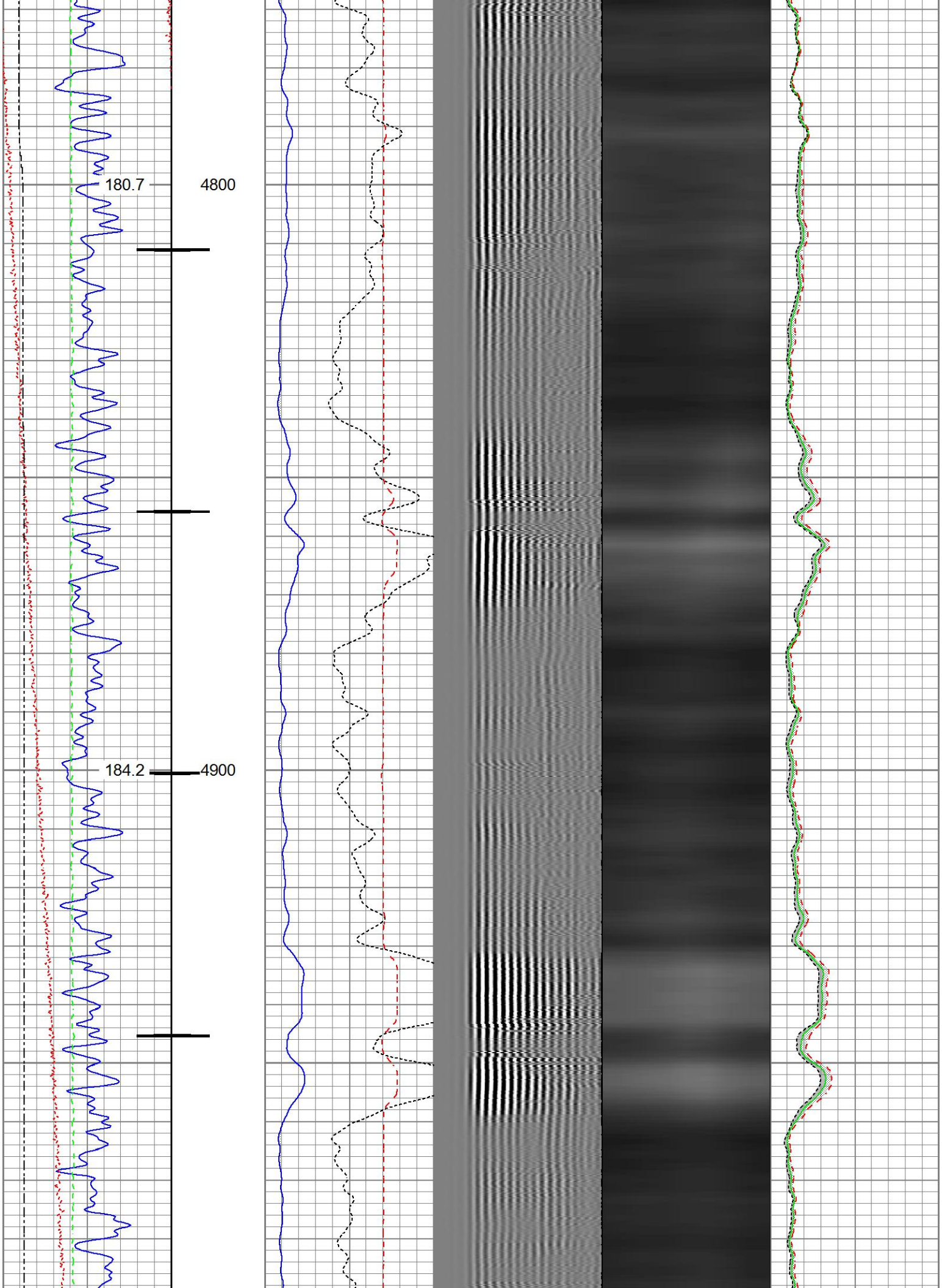
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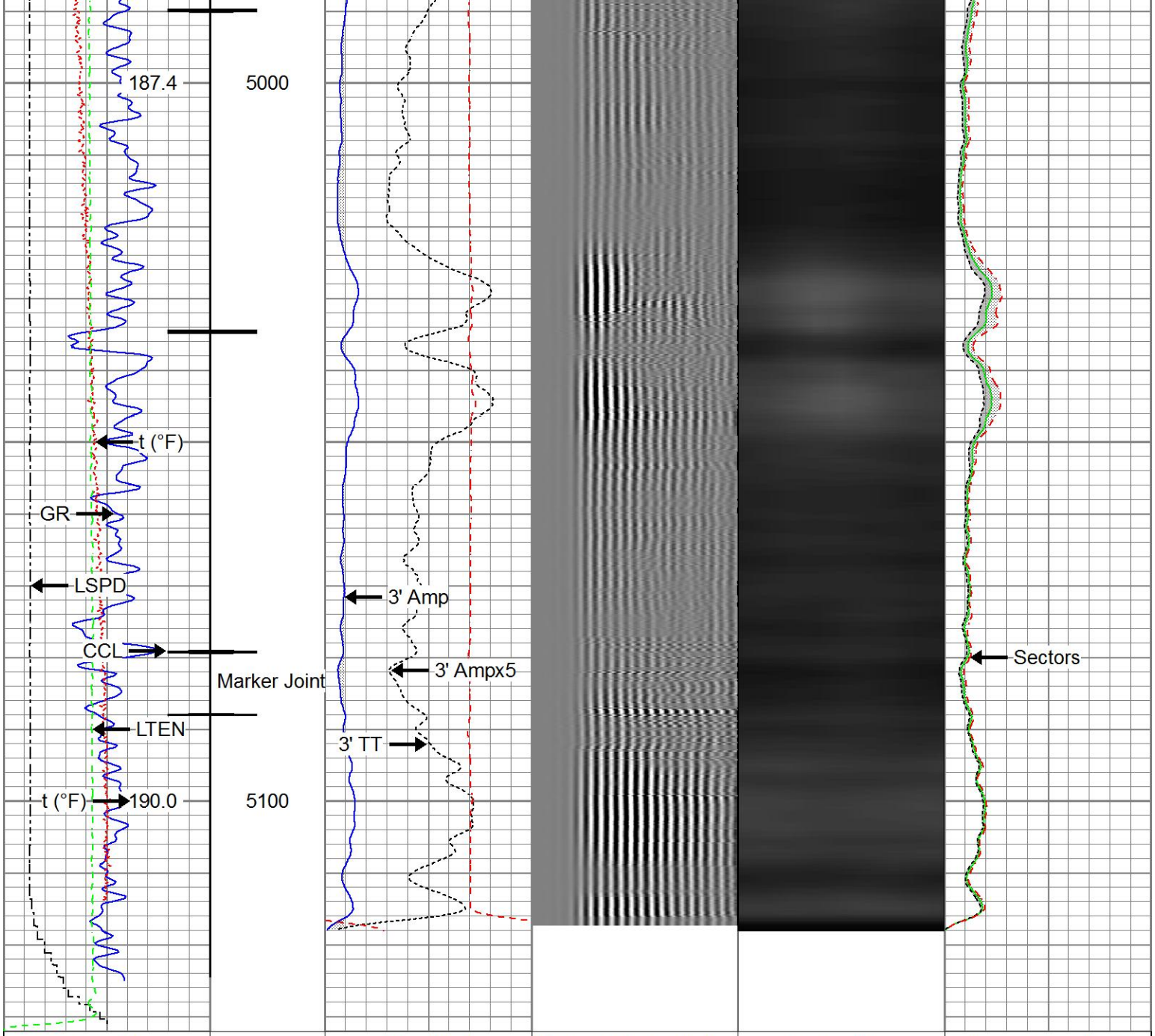


RELIANCE OILFIELD SERVICES

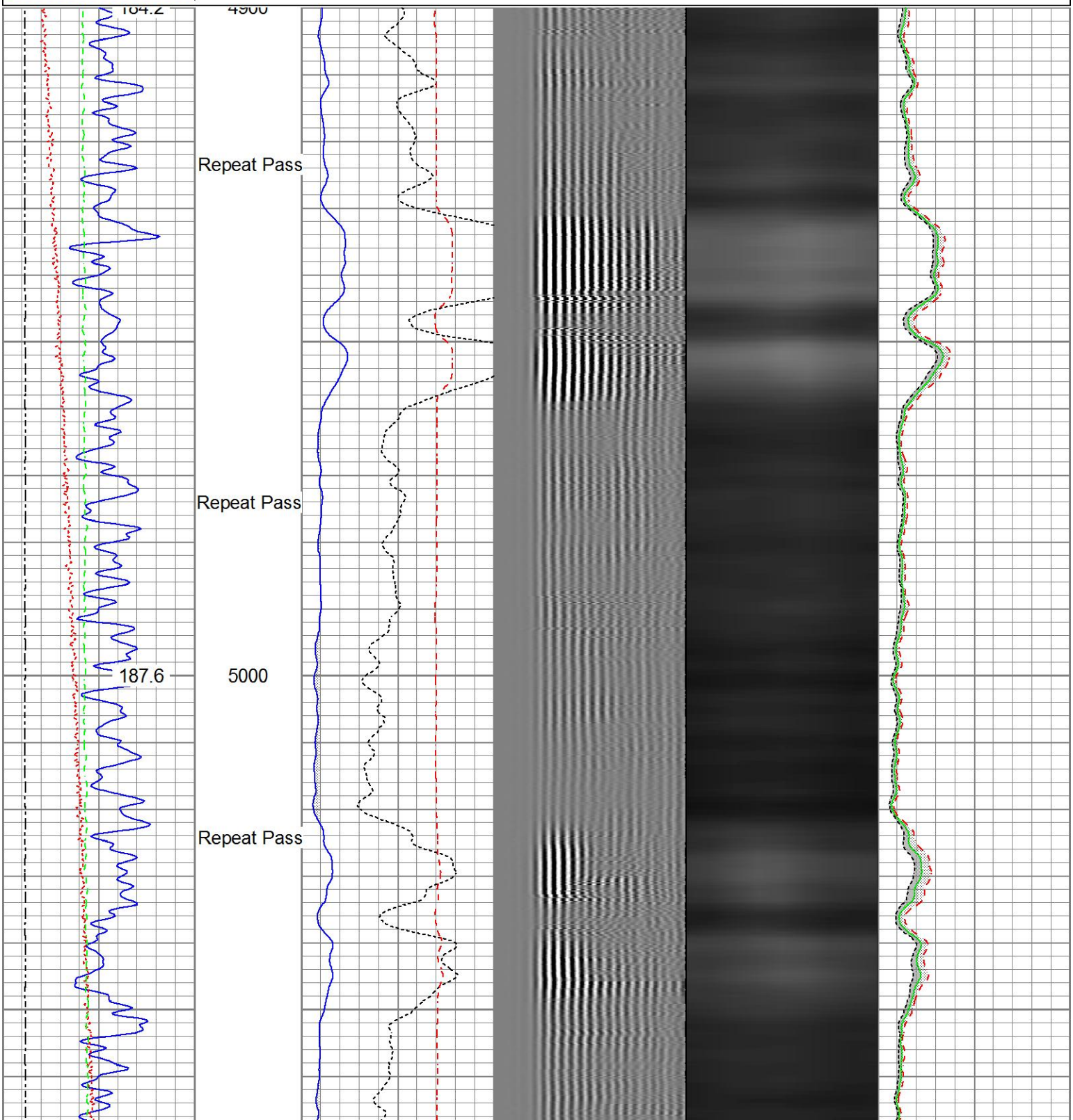
Repeat Pass

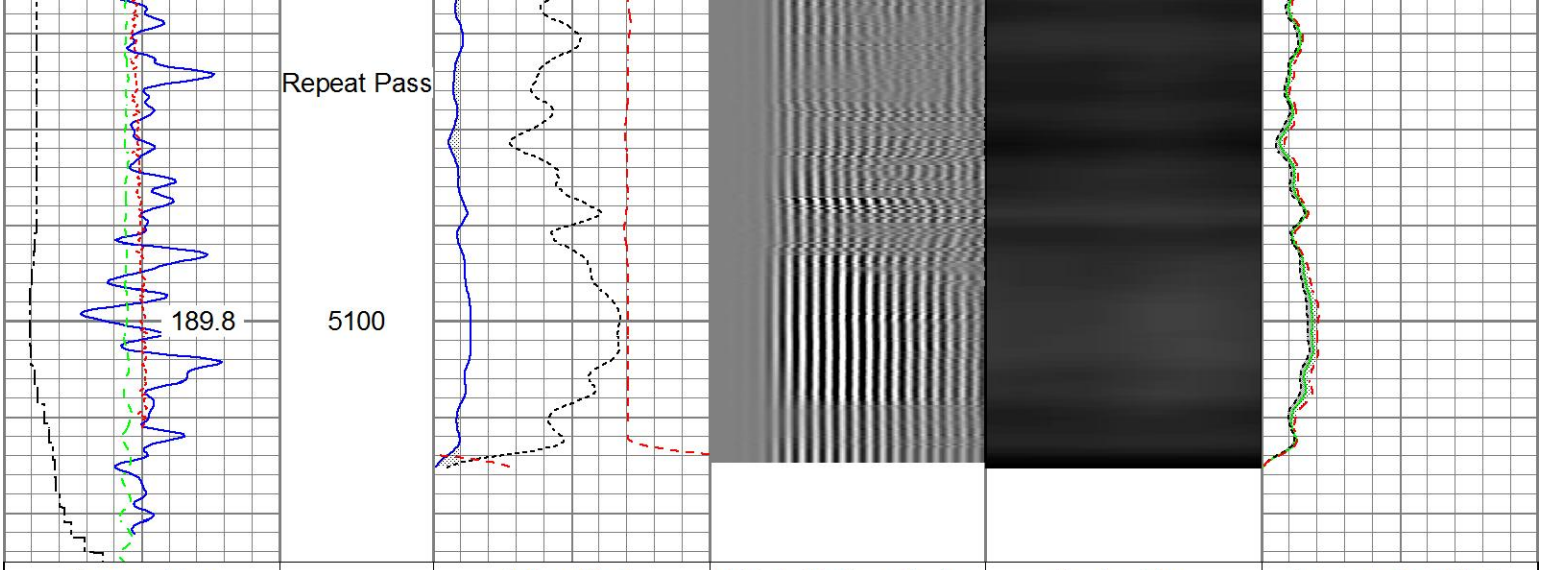
Recorded with 1500 PSI Surface Induced Pressure

Database File	whiting_horsetail 30g-3139_01-18-17_rbl\processed_whiting_horsetail 30g-3139_01-18-17_rbl.db
Dataset Pathname	repeat

Dataset Pathname	repeat
Presentation Format	fmc_radii
Dataset Creation	Wed Jan 18 10:01:32 2017
Charted by	Depth in Feet scaled 1:240

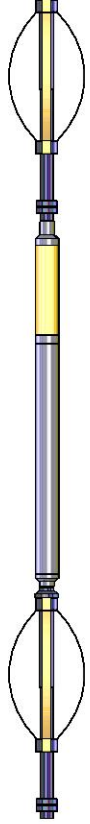
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120	0 (mV) 100	200 1200		0 100
Temperature	3' Amplitude x 5			Mimimum Amplitude
0 (degF) 20	0 (mV) 20			0 100
Line Speed	3' Travel Time			Maximum Amplitude
-150 (ft/min) 150	650 (usec) 150			0 100
Line Tension				
0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





Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb
			Titan_Electric_Cable_Heads-Titan_1-11 Electric Cable Head with 1" Fishing Neck	1/16	1.03	1.69	5.40
			Probe_ELine_BowSpring_Centralizer-P_EE Probe 2-3/4" Electric Inline Bowspring Centralizer	2.88	2.75	20.00
HeadVolt	19.51					
Temp	16.72					
			Probe_RADII-C-P_RBT_2750 (FW1305-0 Probe 2-3/4" Sector Cement Bond Tool with Temperature Probe	99.19	2.75	105.00
WVFS8	14.55					
WVFS7	14.55					
WVFS6	14.55					
WVFS5	14.55					
WVFS4	14.55					
WVFS3	14.55					
WVFS2	14.55					
WVFS1	14.55					
WVFCAL	14.55					
WVF3FT	14.55					

WVF5FT	13.55				
HEADVOLT	10.30				
		Probe_ELine_BowSpring_Centralizer-P_EE2.88.275 Probe 2-3/4" Electric Inline Bowspring Centralizer	2.75	20.00
DCCL	6.51				
CCL	6.51				
		Probe_GR_CCL-P_CGR_2750_S (FW1304.543) Probe 2-3/4" Digital CCL / Gamma Ray Combined	2.75	55.00
GR	3.77				
		Probe_ELine_BowSpring_Centralizer-P_EE2.88.275 Probe 2-3/4" Electric Inline Bowspring Centralizer	2.75	20.00



Dataset:	PROCESSED_Whiting_Horsetail 30G-3139_01-18-17_RBL.db: field/well/run1/main
Total length:	23.40 ft
Total weight:	225.40 lb
O.D.:	2.75 in

Calibration Report

Database File	D:\Warrior\Data\Whiting_Horsetail 30G-3139_01-18-17_RBL\PROCESSED_Whiting_Horsetail 30G-3139_0
Dataset Pathname	main
Dataset Creation	Wed Jan 18 10:07:11 2017

Gamma Ray Calibration Report

Serial Number:	FW1307-038	
Tool Model:	P_CGR_2750_S	
Performed:	Sat Feb 06 11:43:09 2016	
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:	FW1305-096	
Tool Model:	P_RBT_2750	
Calibration Casing Diameter:	5.500	in
Calibration Depth:	24.760	ft

Master Calibration, performed Wed Jan 18 08:56:04 2017:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.000	0.560	0.800	71.921	126.958	0.771

CAL	0.001	0.584				
5'	0.001	0.546	0.800	71.921	130.437	0.725
SUM						
S1	0.001	0.555	0.000	100.000	180.369	-0.097
S2	0.000	0.555	0.000	100.000	180.333	-0.051
S3	0.000	0.550	0.000	100.000	181.992	-0.038
S4	0.000	0.555	0.000	100.000	180.274	-0.029
S5	-0.000	0.558	0.000	100.000	179.162	0.009
S6	0.000	0.560	0.000	100.000	178.498	-0.013
S7	0.000	0.563	0.000	100.000	177.758	0.000
S8	0.000	0.565	0.000	100.000	176.971	-0.028

Internal Reference Calibration, performed (Not Performed):

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.001	0.584	1.000	0.000

Air Zero Calibration, performed Wed Jan 18 08:56:25 2017:

	Raw (v)	Calibrated (v)	Results
	Zero	Zero	Offset
3'	0.001	0.000	-0.000
5'	0.000	0.000	0.000
SUM			
S1	0.001	0.000	-0.000
S2	0.000	0.000	-0.000
S3	0.001	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

RELIANCE
OILFIELD SERVICES

Company	Whiting Oil & Gas Corporation
Well	Horsetail 30G-3139
Field	Wildcat
County	Weld
State	Colorado