ALLIED WIRELINE

Radial Cement Bond
Variable Density Log
W/Gamma Ray/CCL

Company Noble Energy
Well Crow Creek State AC36-76HN
Field Wattenberg
County Weld State Colorado

Location: API # : 05-123-37132
535' FNL & 1980' FWL
SEC 36 TWP 7N RGE 63W

Other Services: None

Permanent Datum	Ground Level	Elevation	4789'
Log Measured From	Kelly Bushing	24' APD	
Drilling Measured From	Kelly Bushing		

Elevation: K.B. 4813' D.F. 4812' G.L. 4789'

Company	Noble Energy
Well	Crow Creek State AC36-76HN
Field	Wattenberg
County	Weld
State	Colorado

Date	November 5, 2013
Run Number	One
Depth Driller	11041'
Depth Logger	6868'
Bottom Logged Interval	6854'
Top Log Interval	Surface
Open Hole Size	8 3/4"
Type Fluid	Water
Density / Viscosity	8.34
Max. Recorded Temp.	-
Estimated Cement Top	2240'
Time Well Ready	6:50
Time Logger on Bottom	12:21
Equipment Number	13034
Location	Brighton, CO
Recorded By	C. Rall
Witnessed By	Bill Mansfield

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

	Size	Wgt/Ft	Top	Bottom
Casing Record				
Surface String	9 5/8"	36#	Surface	643'
Prot. String				
Production String	7"	26#	Surface	6962'
Liner	4.5"	11.6#	6849'	11041'
Short Joint			5721'	5741'

<<< Fold Here >>>

Comments

Well Logged using 24' KB

Main Pass and Repeat Pass logged with zero Pressure on surface

Short Joint: 5721' to 5741'

Estimated Top of Cement:2240'

Thank You for using Allied Wireline

(303)659-4609

ALLIED WIRELINE

Main Pass (0 PSI)

Database File:	c:\users\engineers\desktop\brtn logs\noble\crow creek state ac36-76hn_rcbl\noble energy crow creek stat
Dataset Pathname:	pass17
Presentation Format:	scbl03
Dataset Creation:	Tue Nov 05 13:38:28 2013 by Calc 7.0 B1
Charted by:	Depth in Feet scaled 1:240

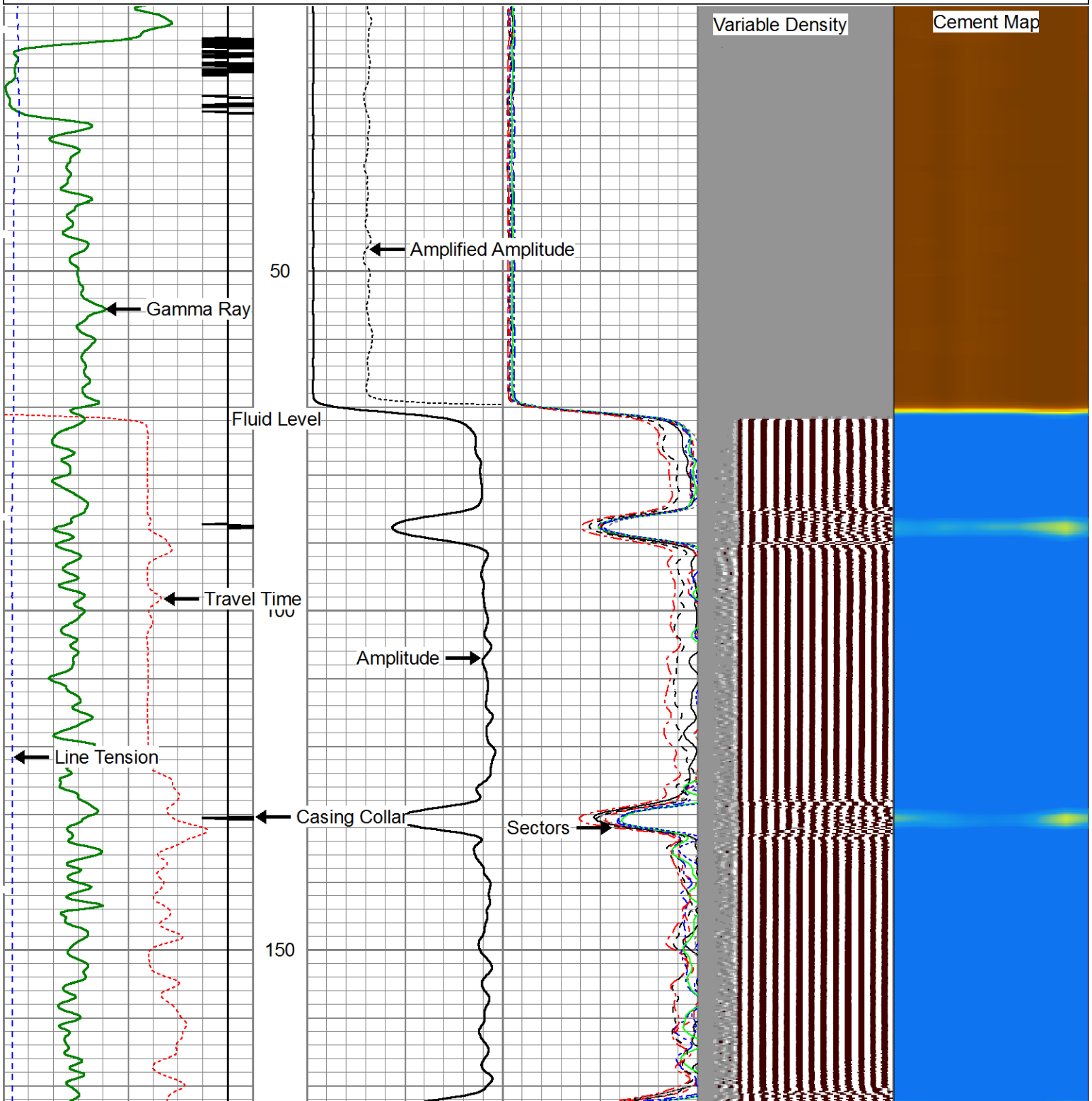
400	Travel Time (usec)	200
9	*Casing Collar*	-1
0	Gamma Ray (GAPI)	150
0	Line Tension (lb)	5000

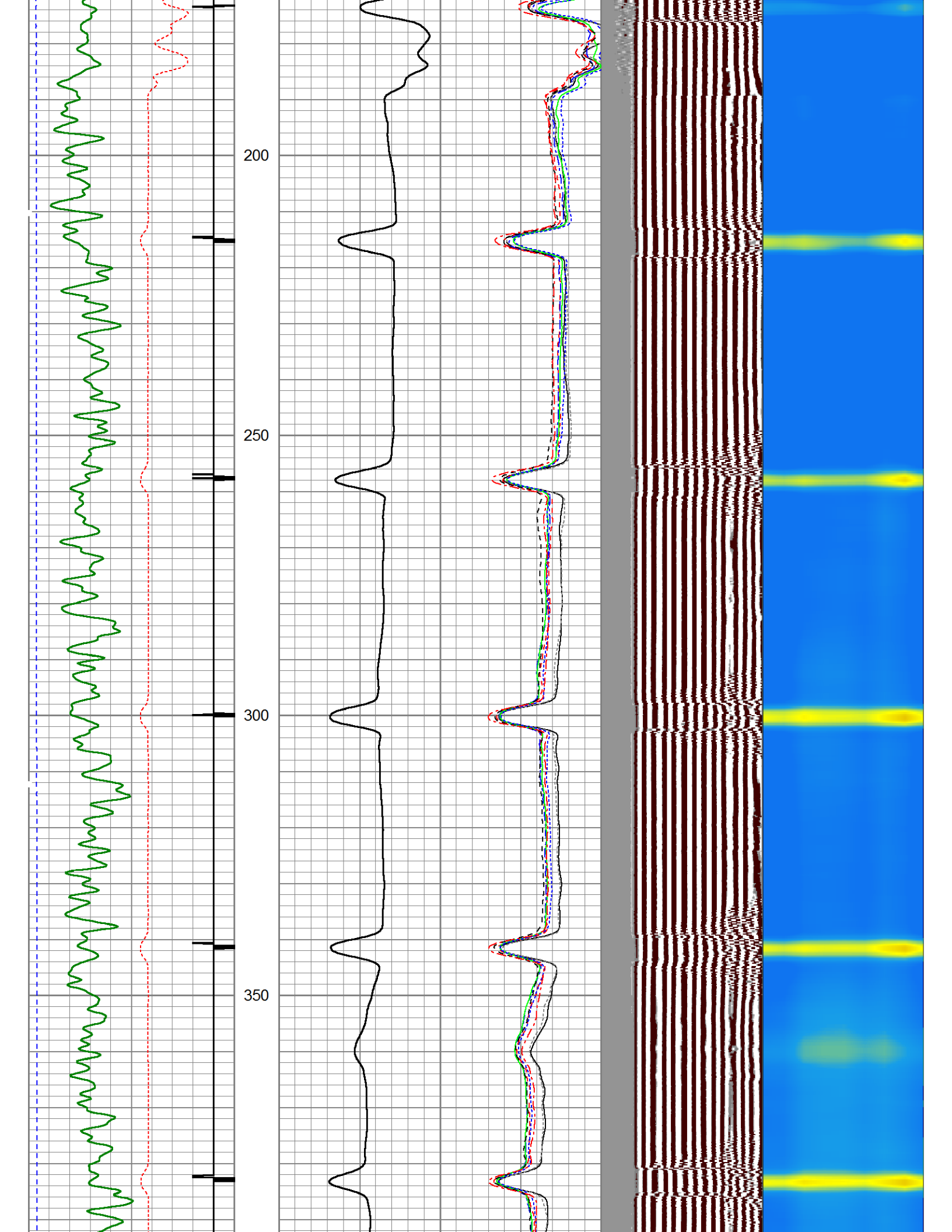
0	Amplitude (mV)	100
	Amplified Amplitude	
0	(mV)	10

-5	AMPS1	150
-5	AMPS2	150
-5	AMPS3	150
-5	AMPS4	150
-5	AMPS5	150
-5	AMPS6	150
-5	AMPS7	150
-5	AMPS8	150

	Variable Density	
200		1200

1	Cement Map	8
0		100

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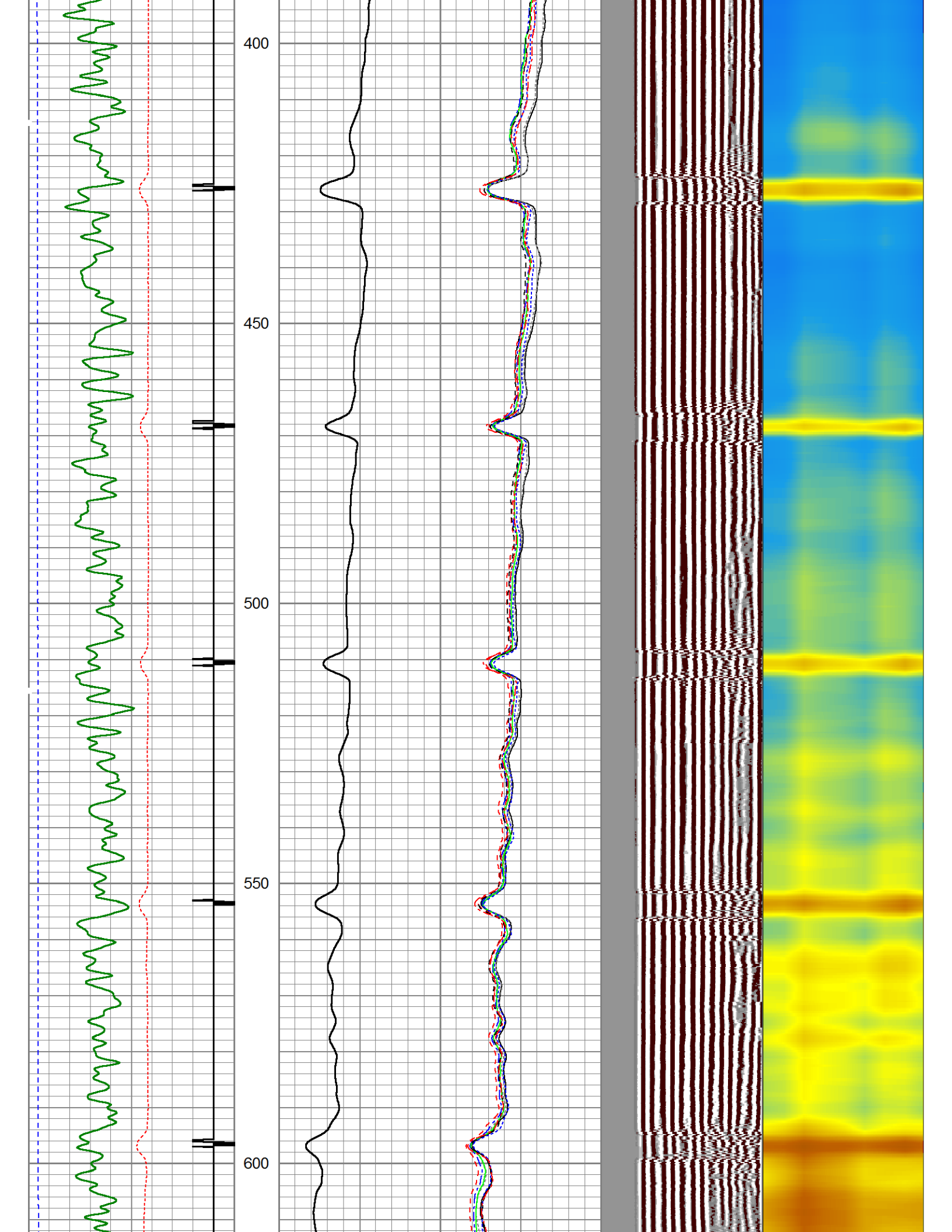
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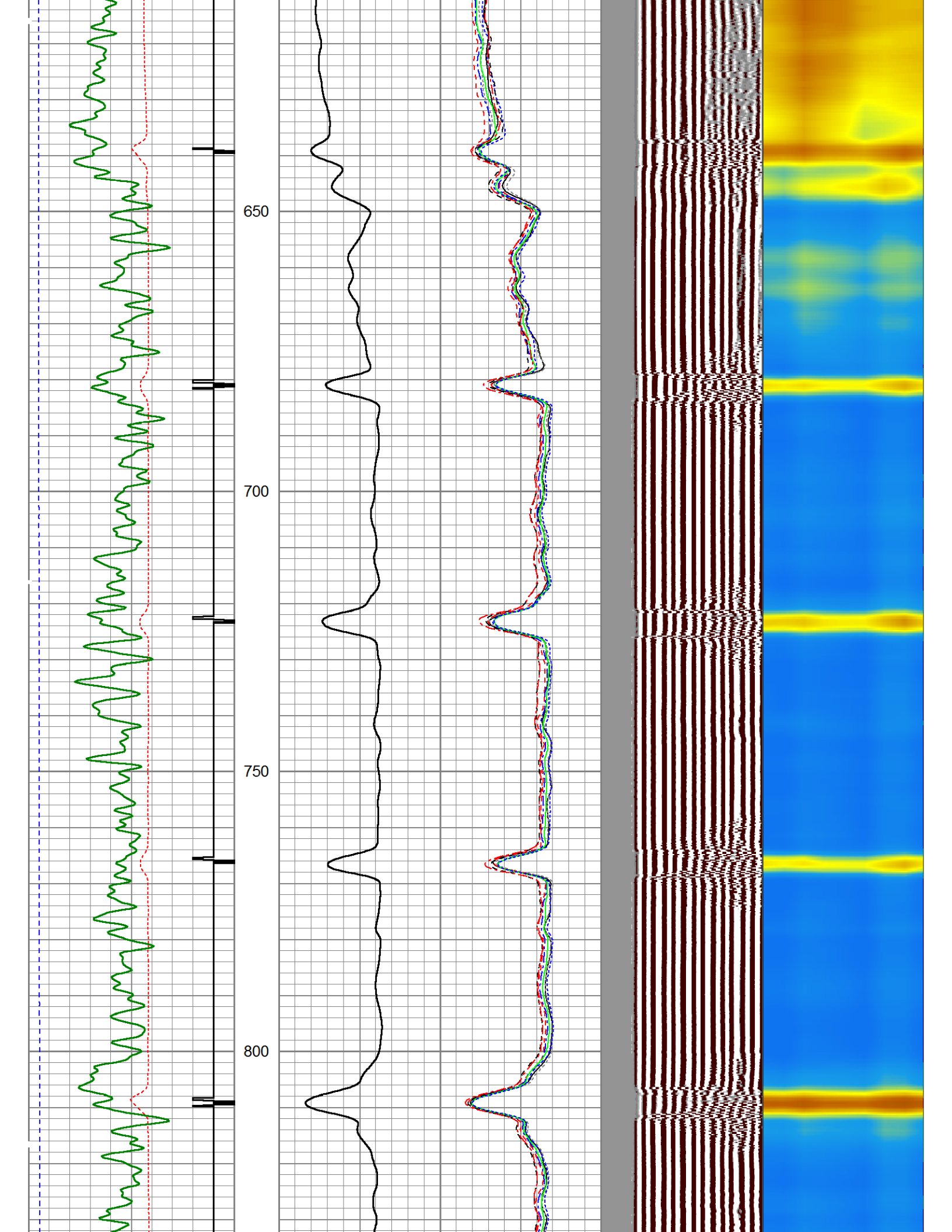
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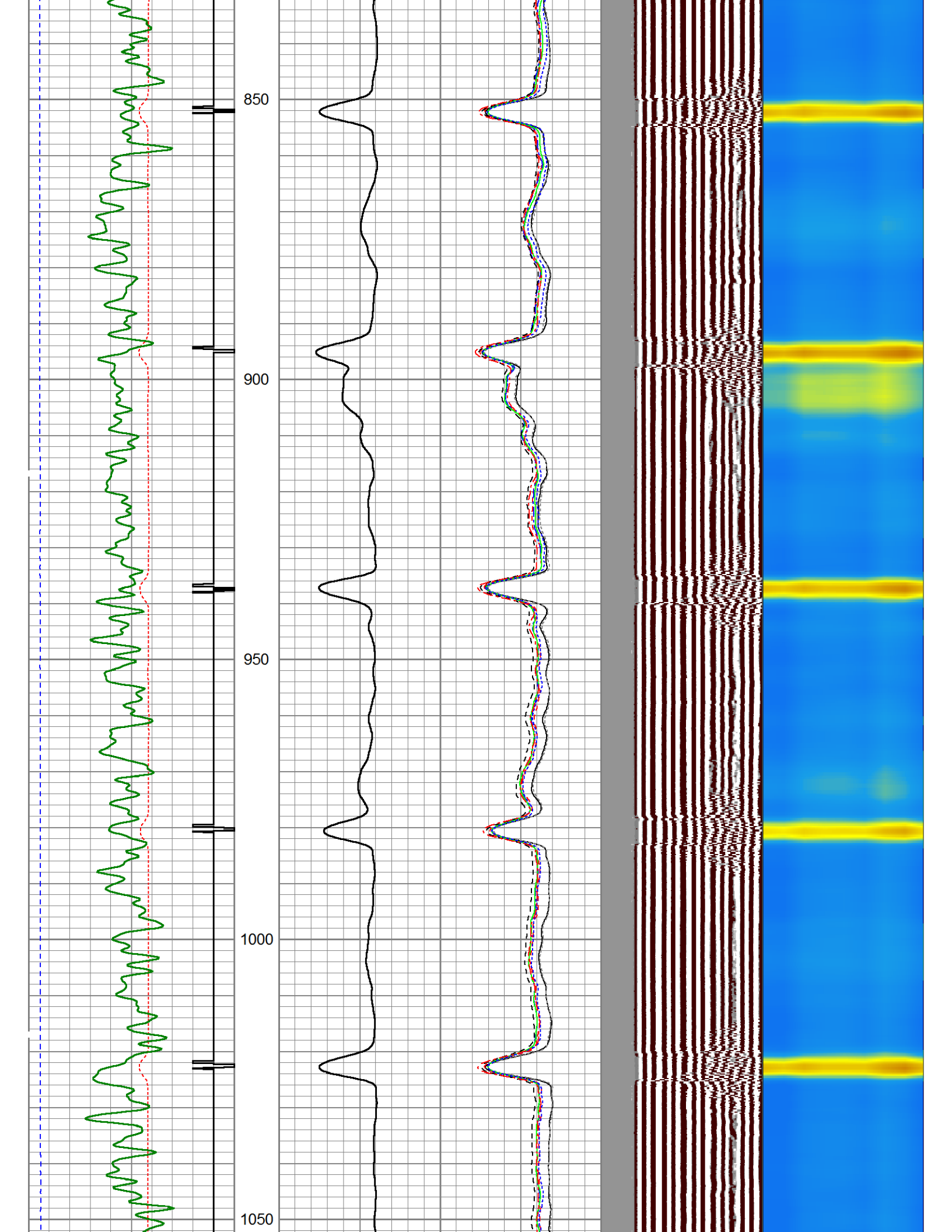
700
750
800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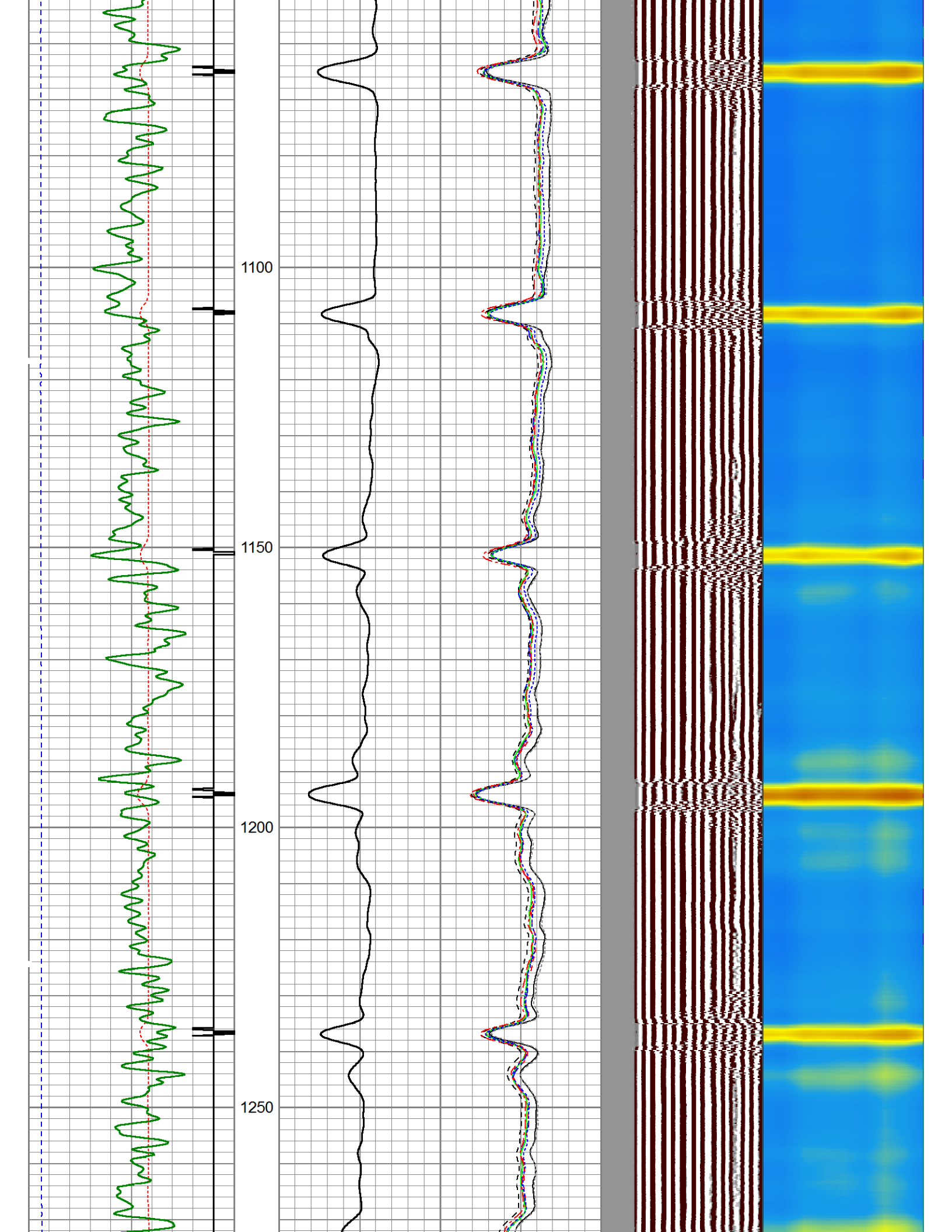
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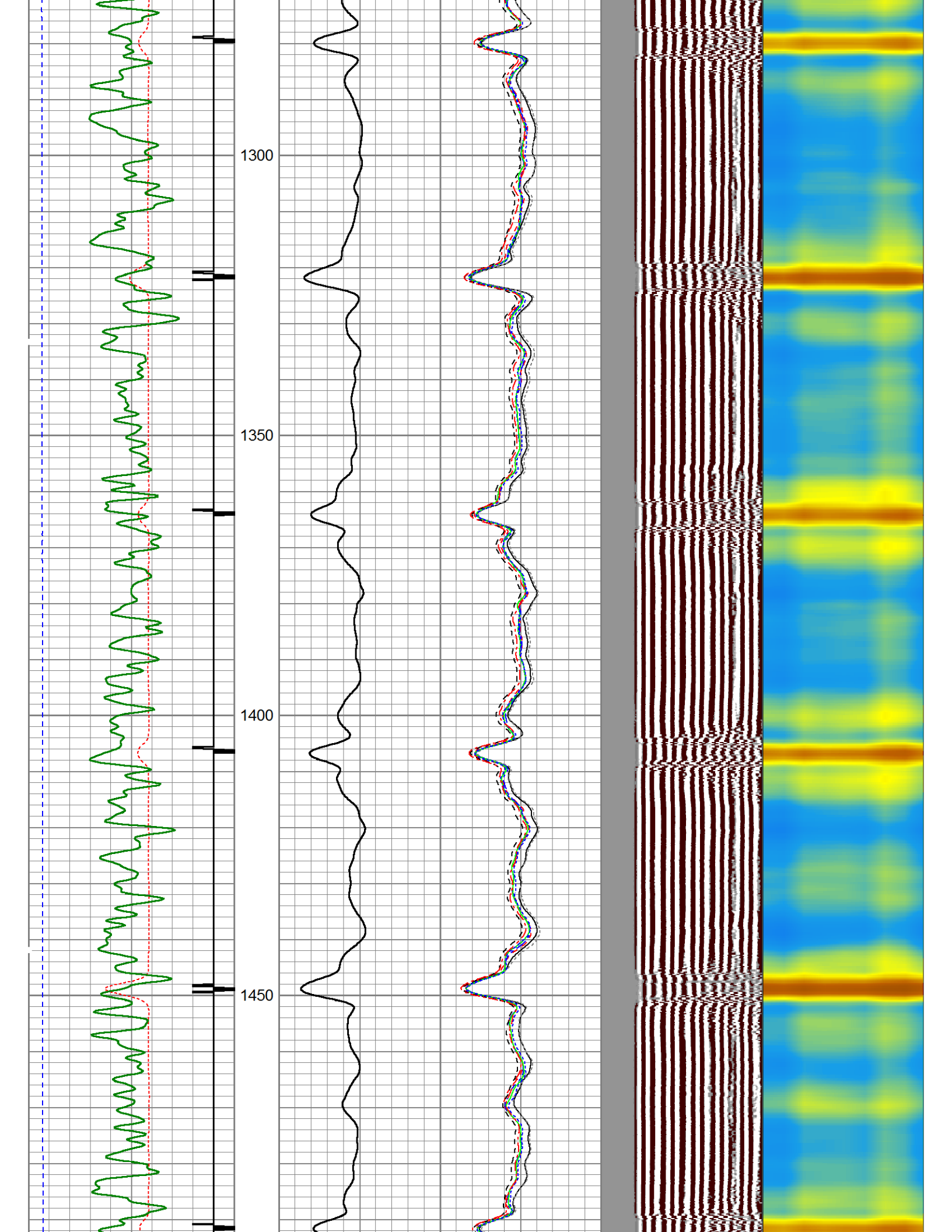
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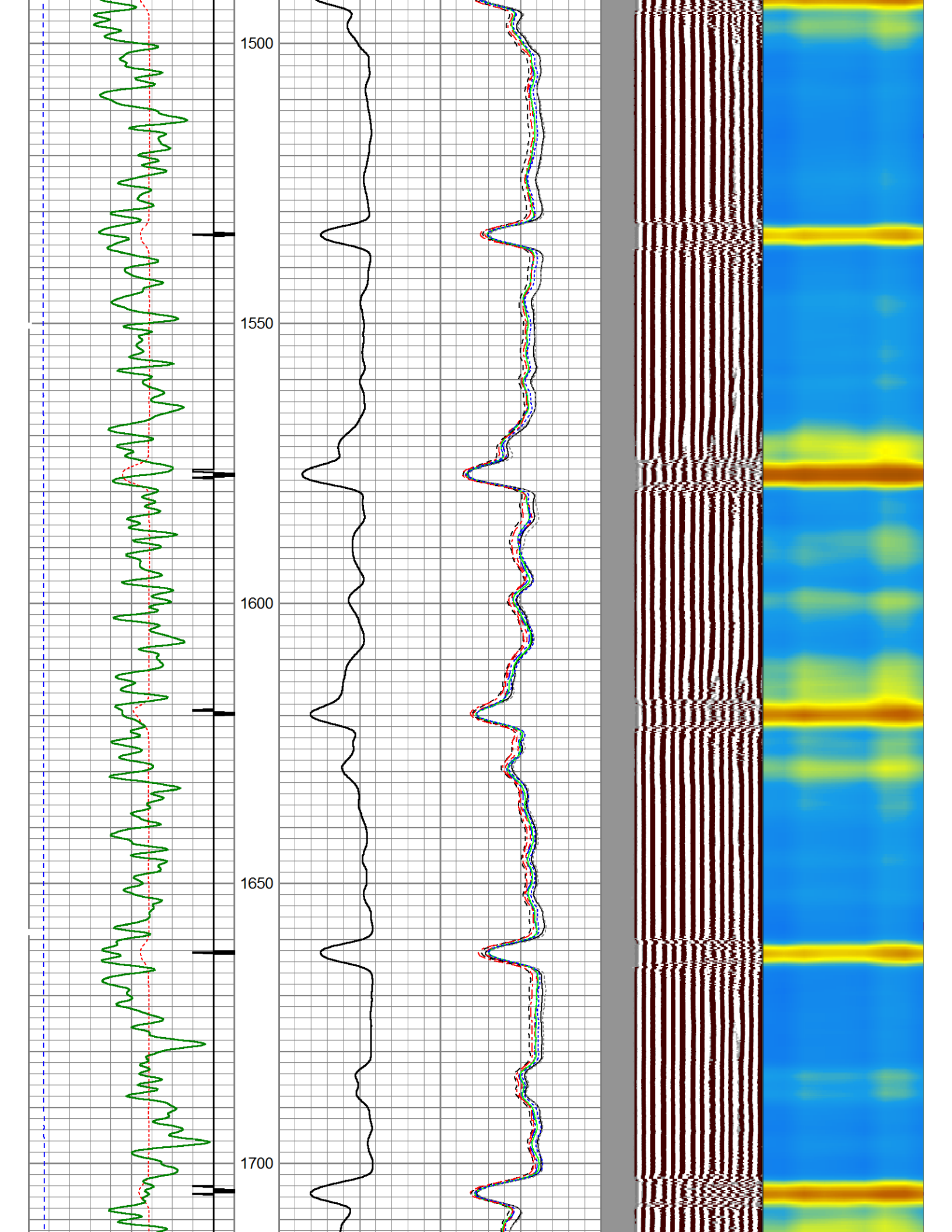
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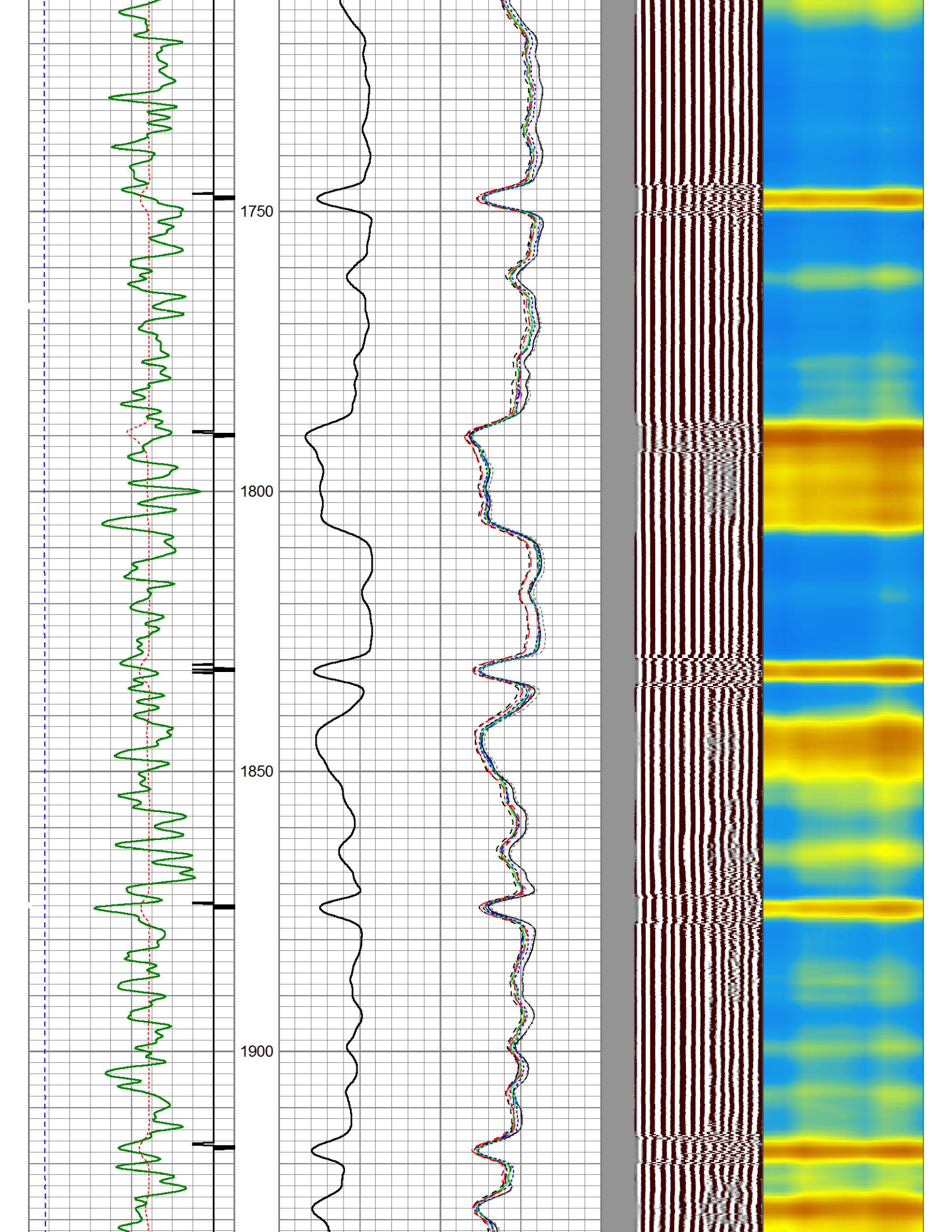
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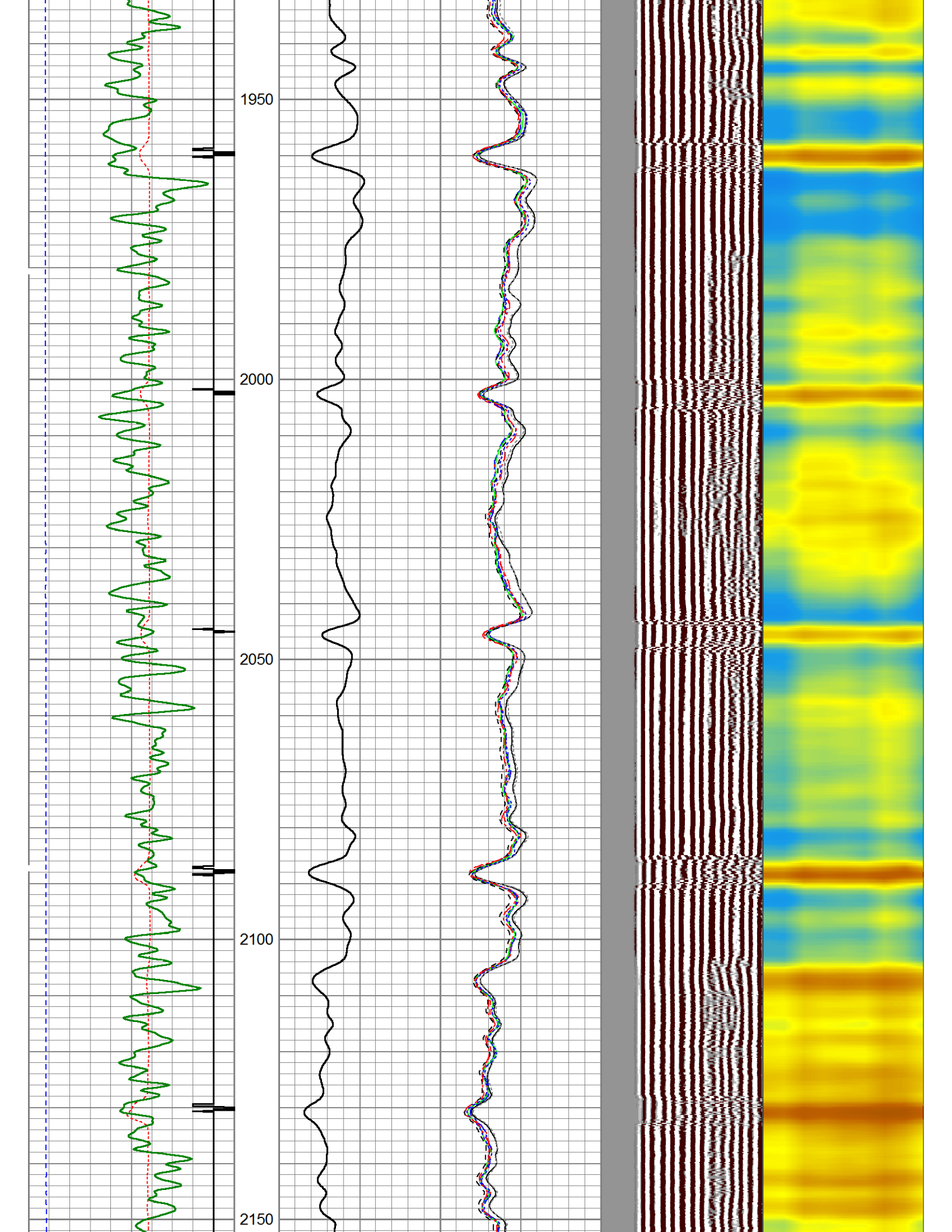
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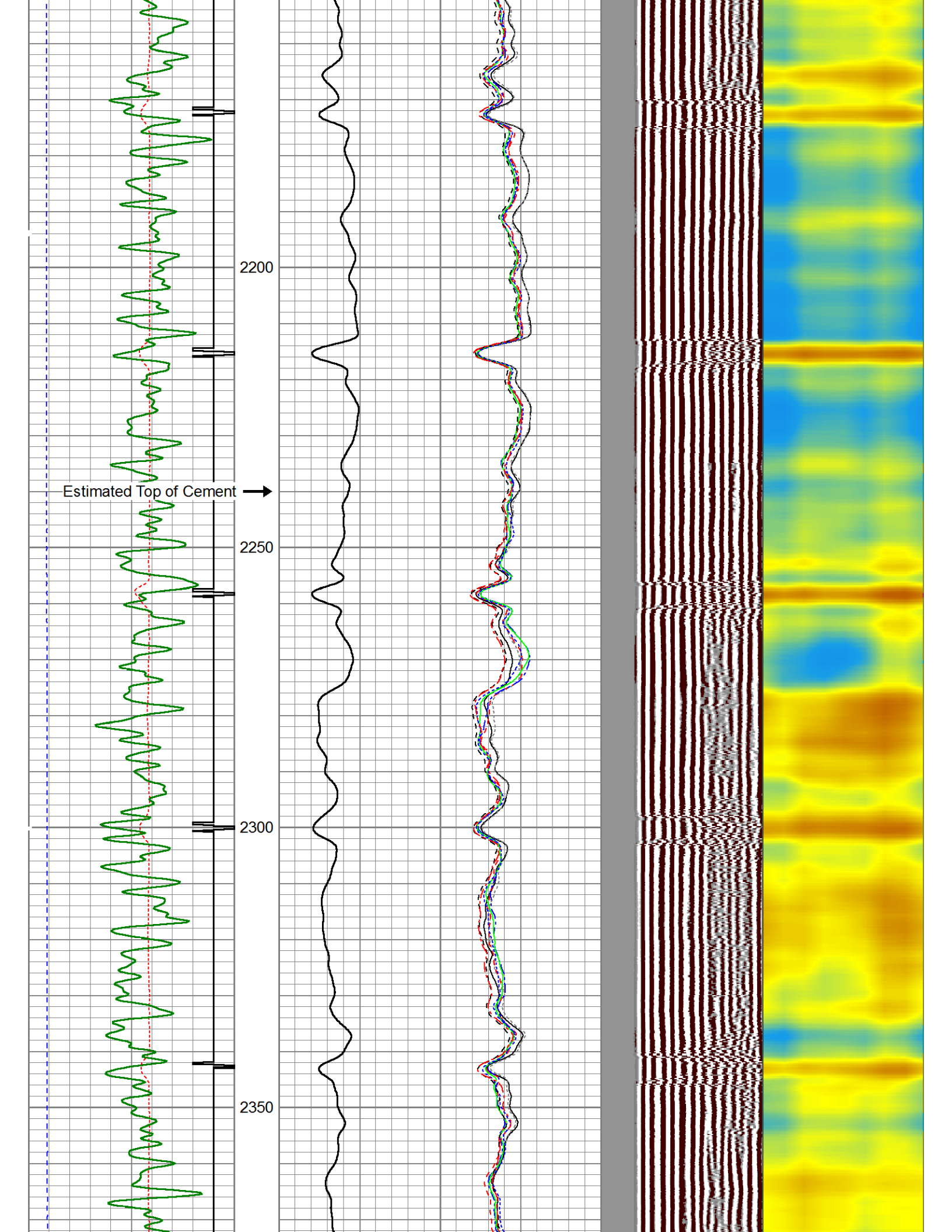
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Estimated Top of Cement
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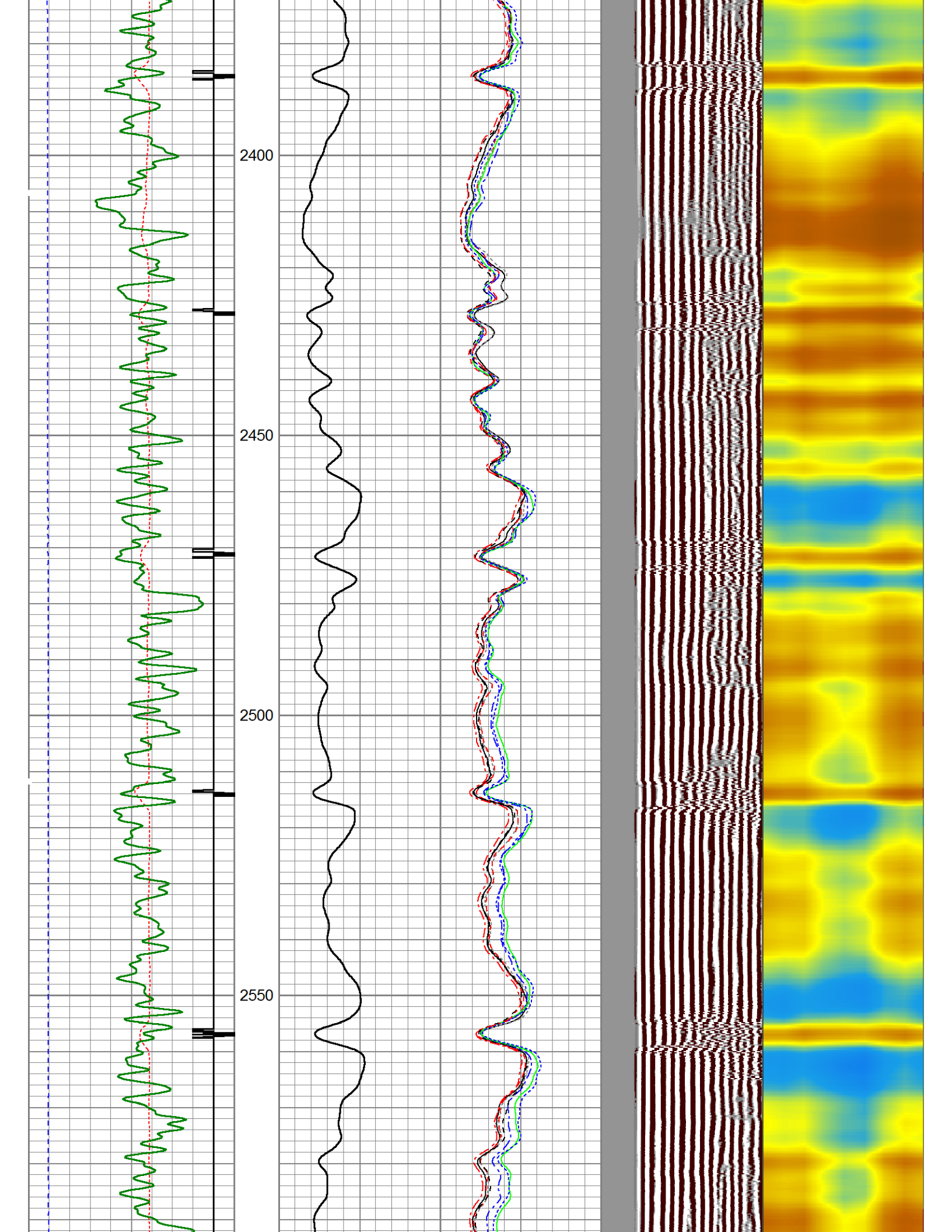
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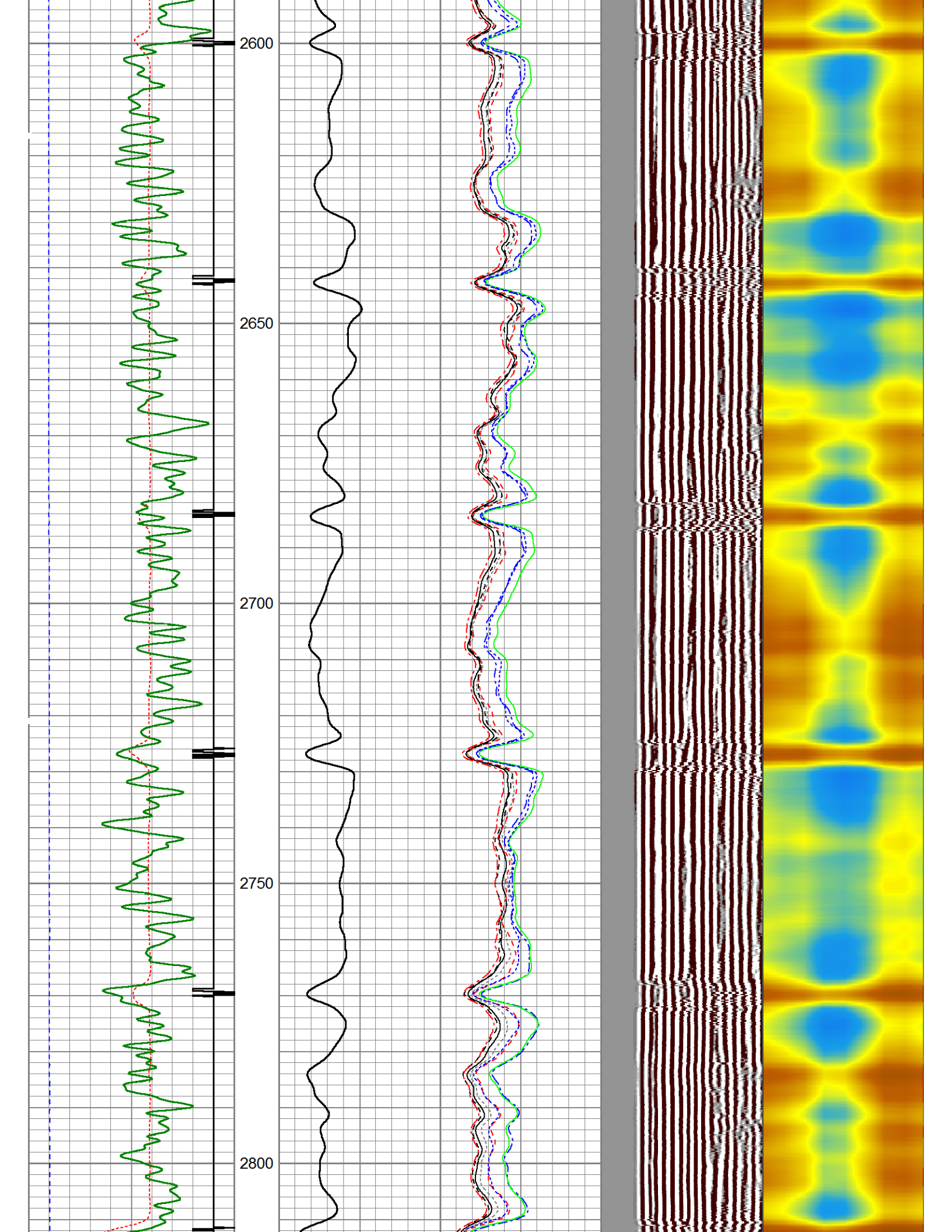
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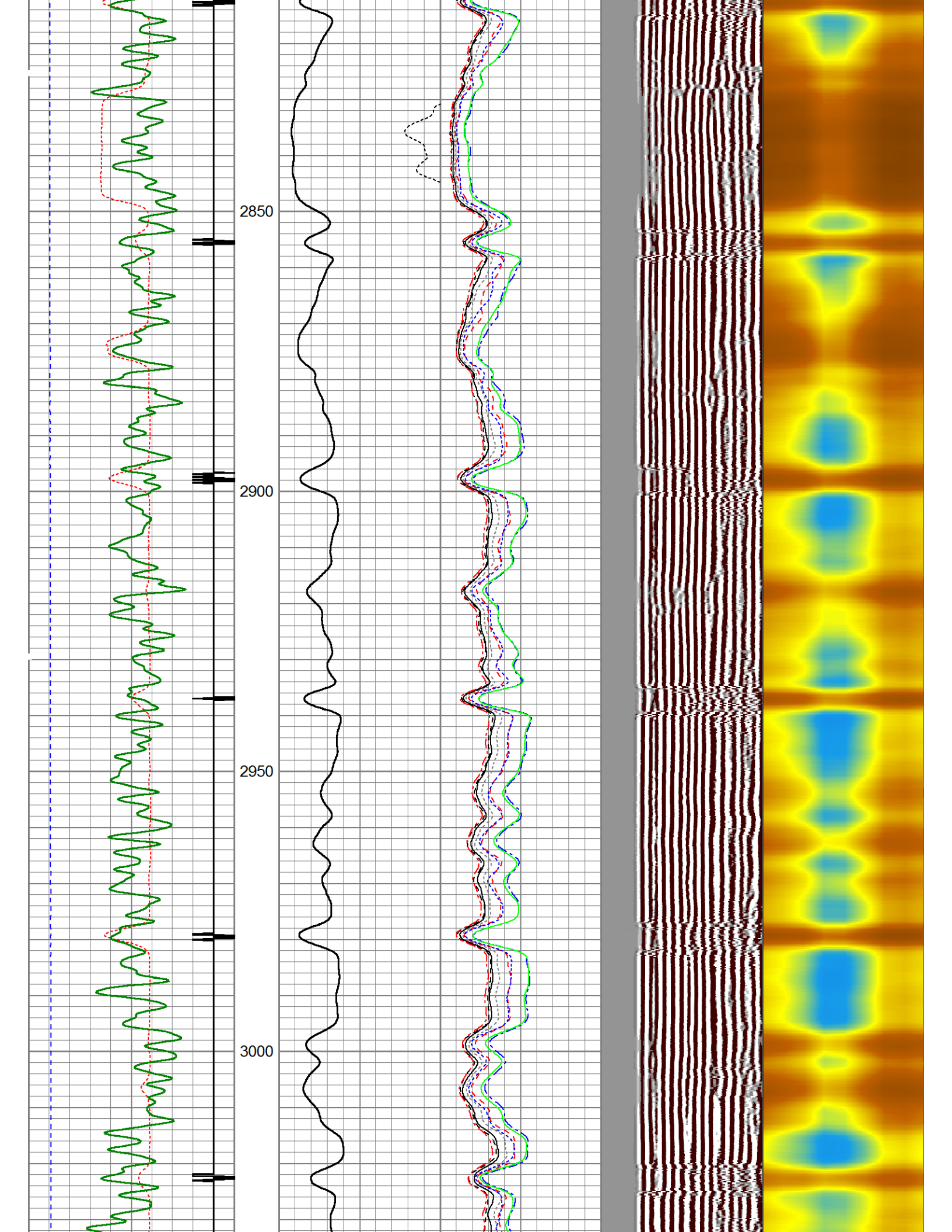
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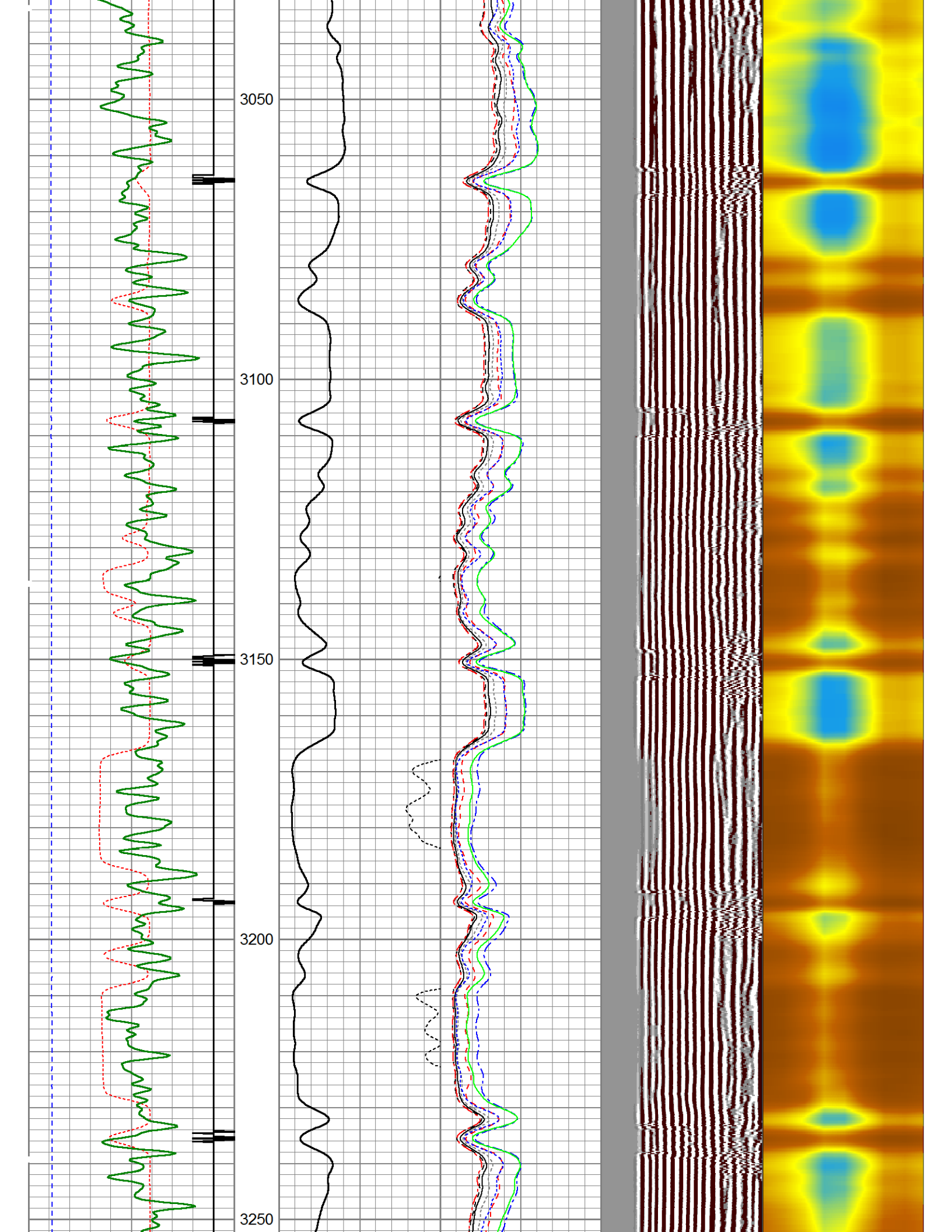
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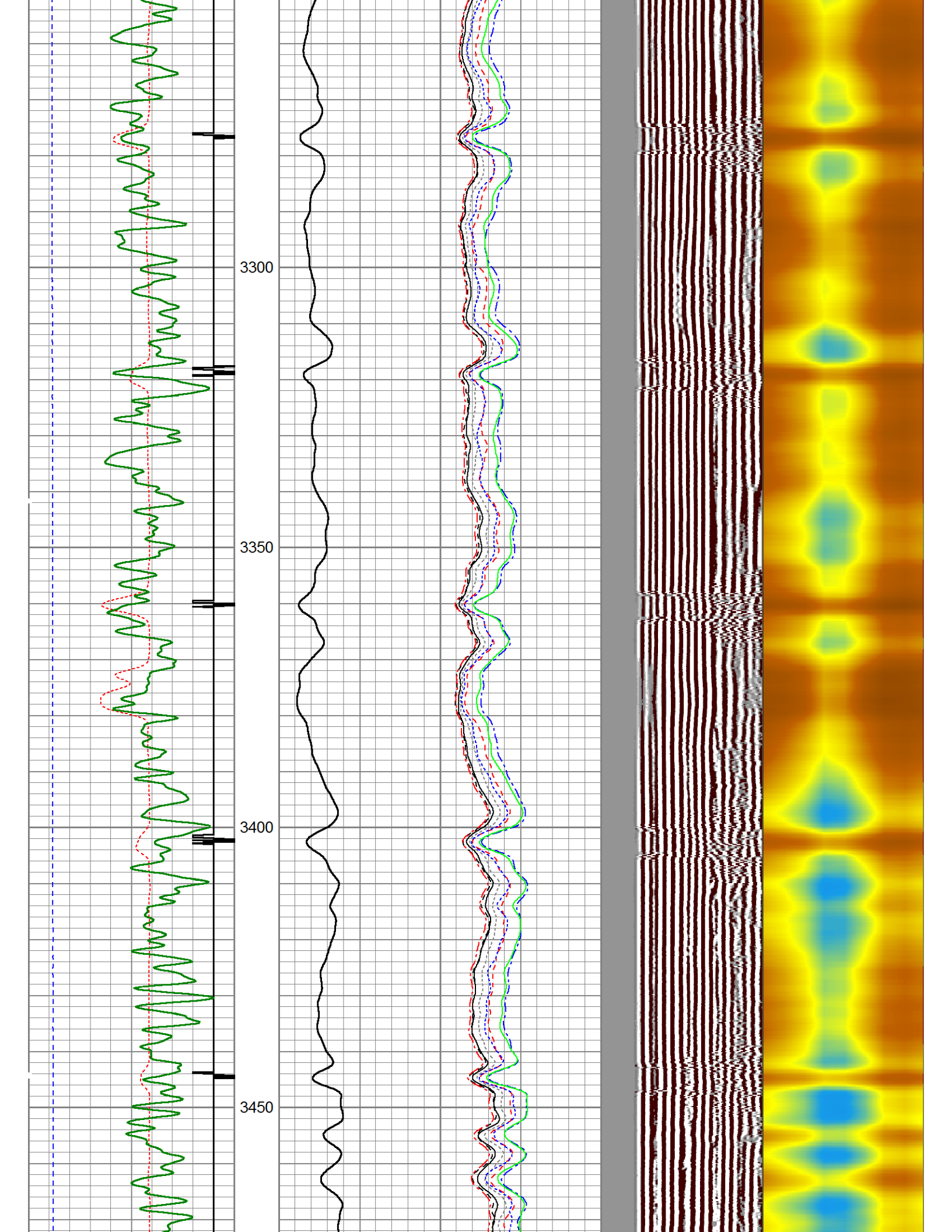
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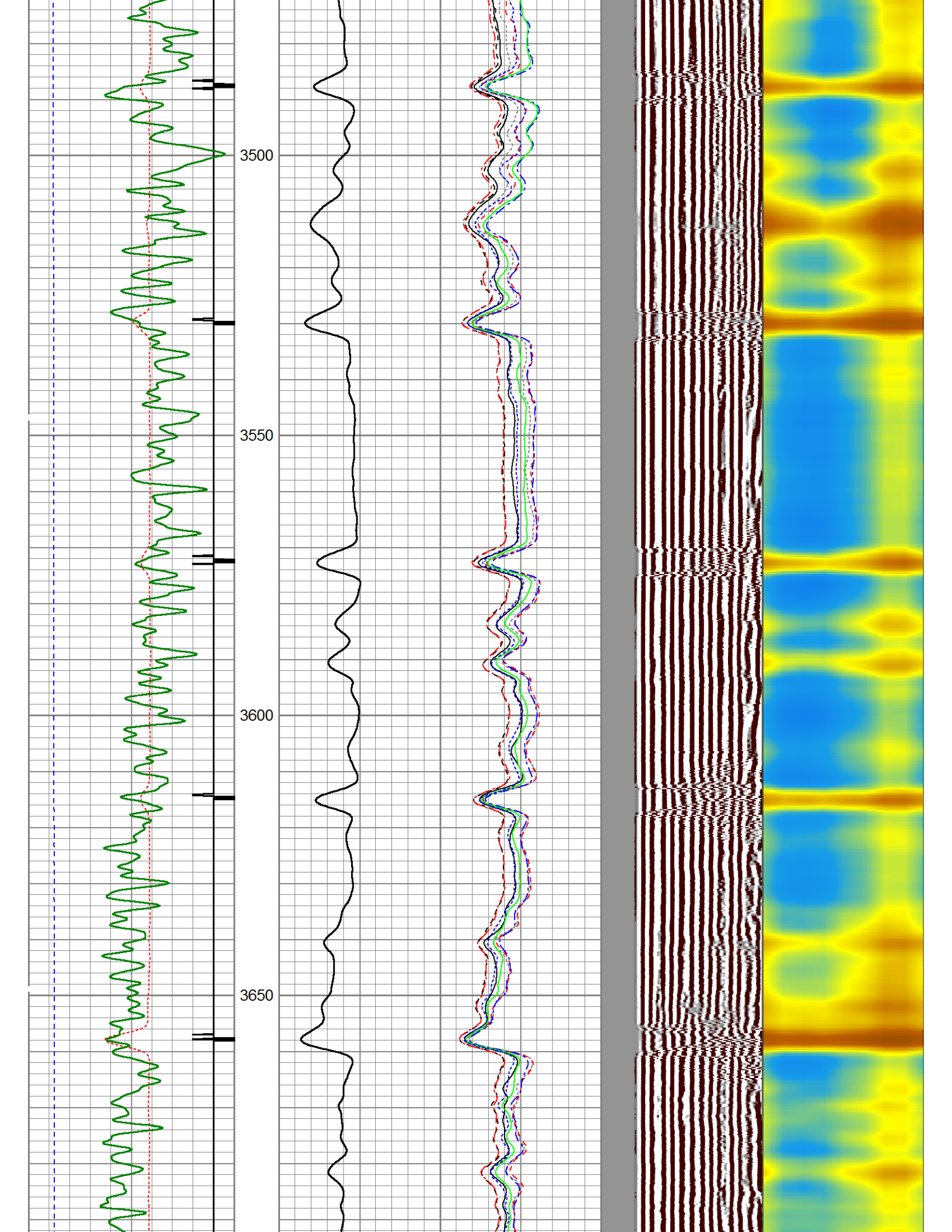
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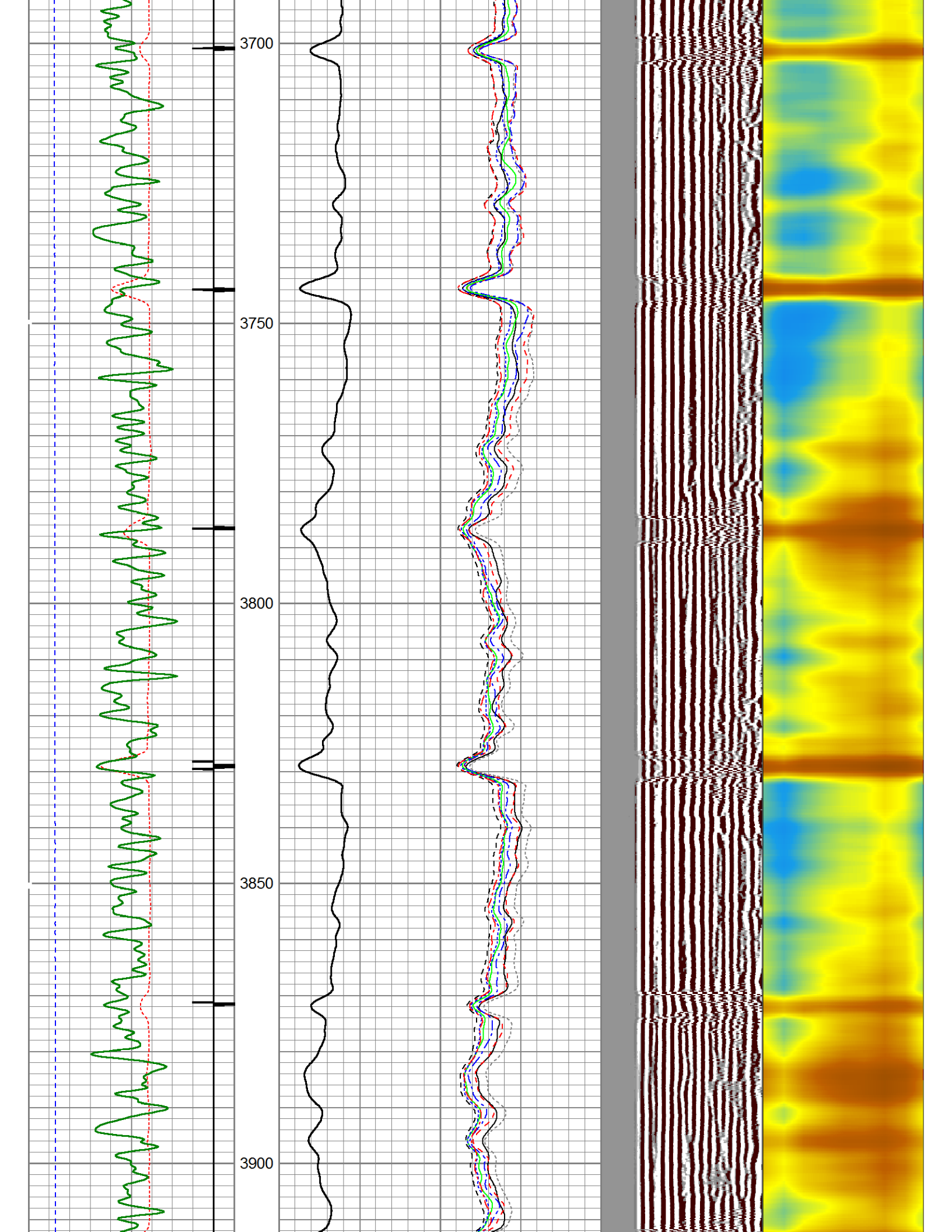
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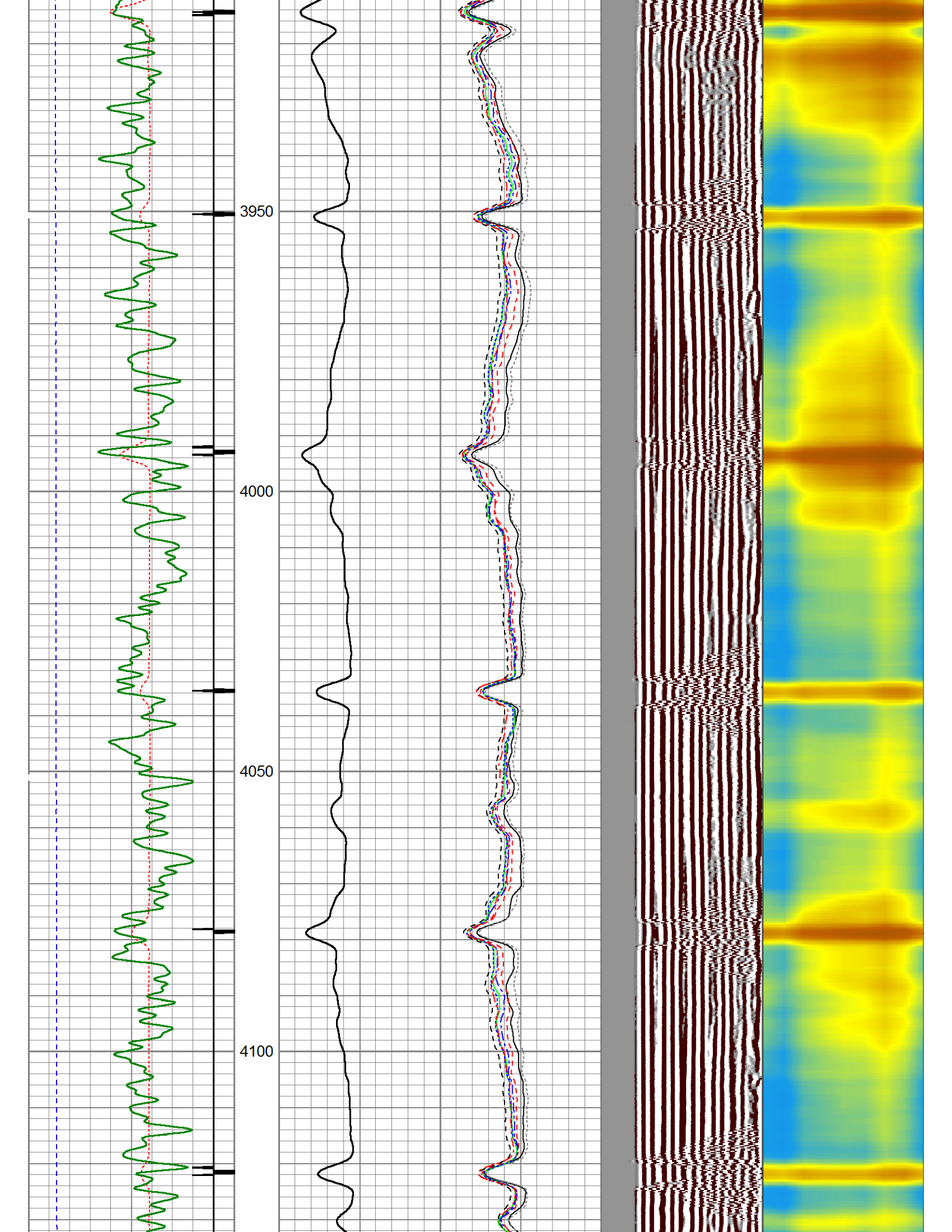
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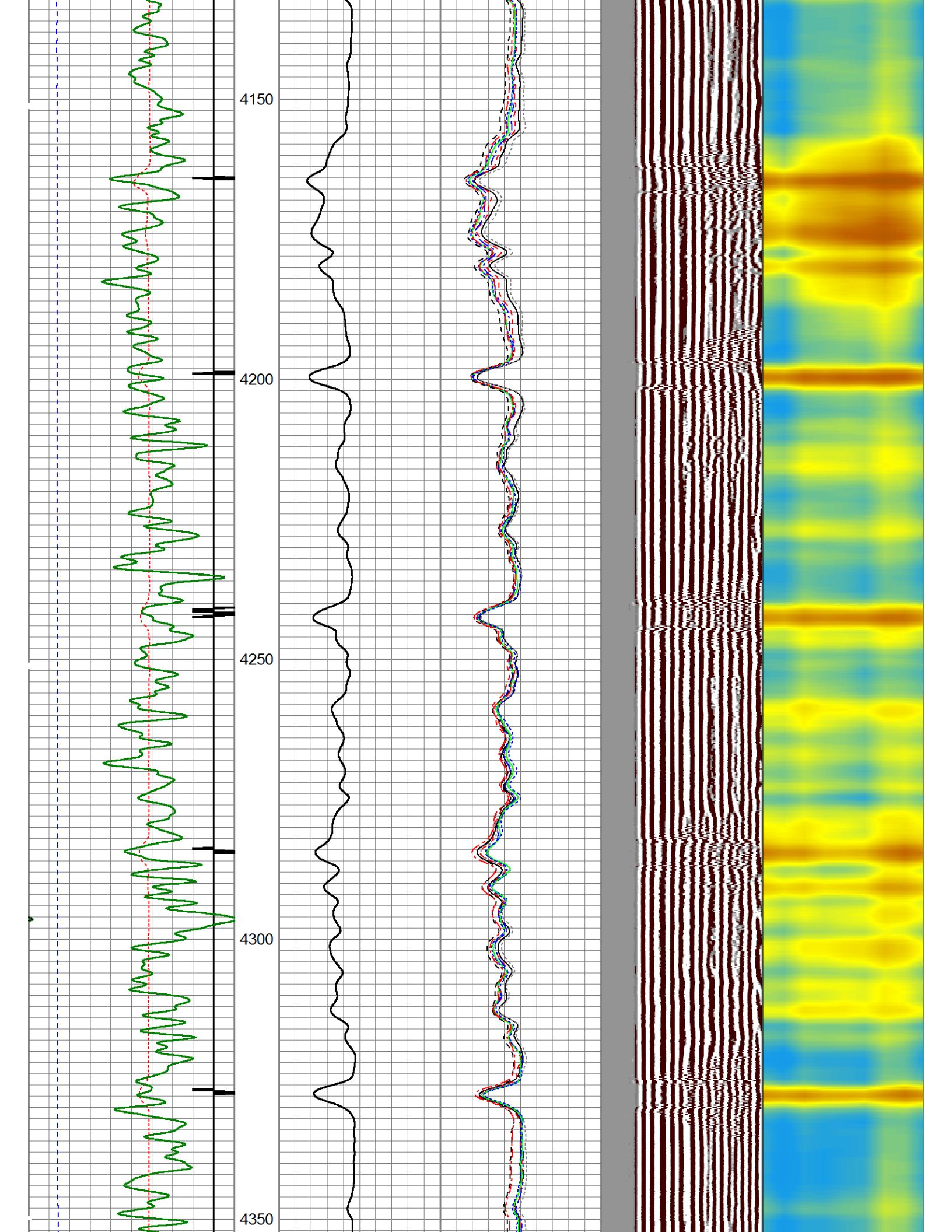
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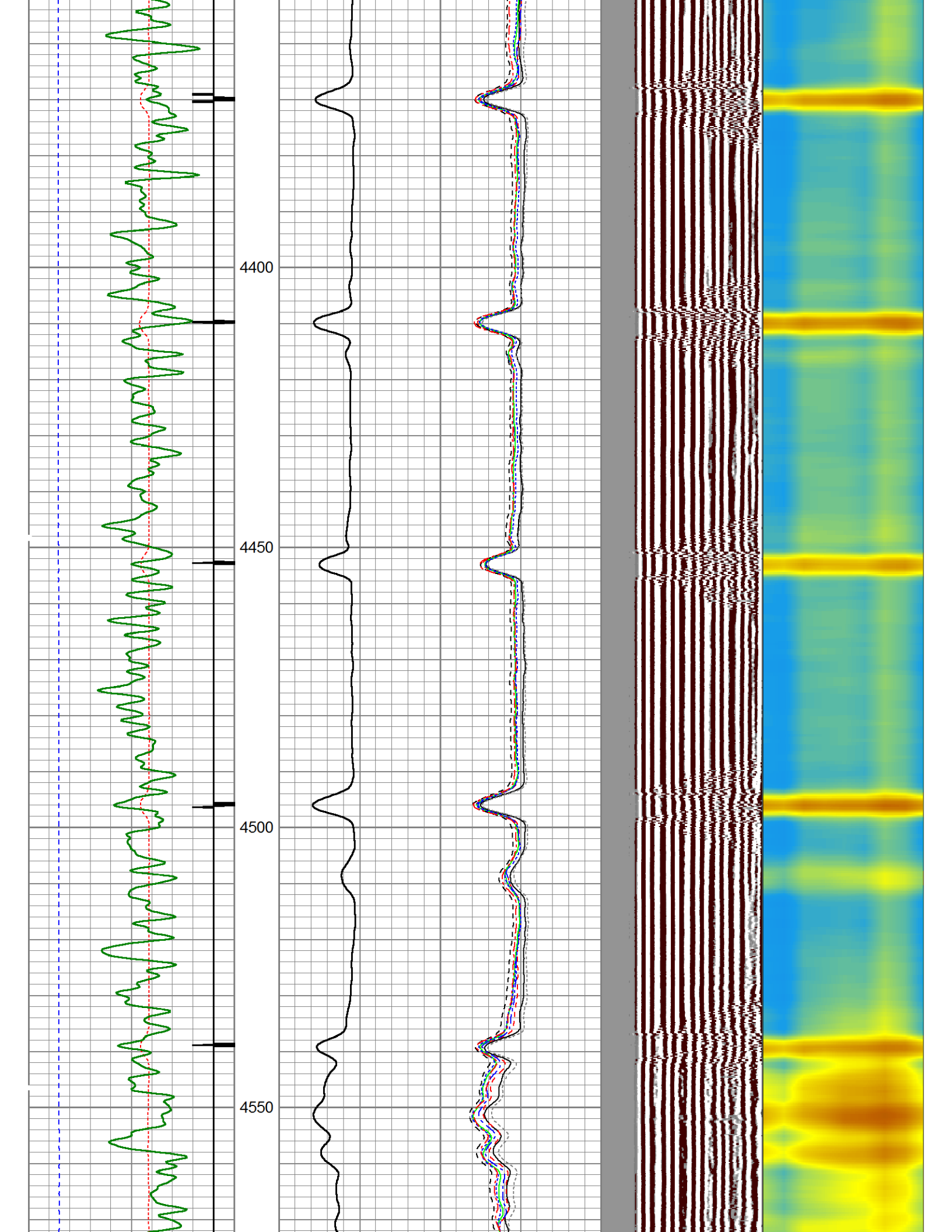
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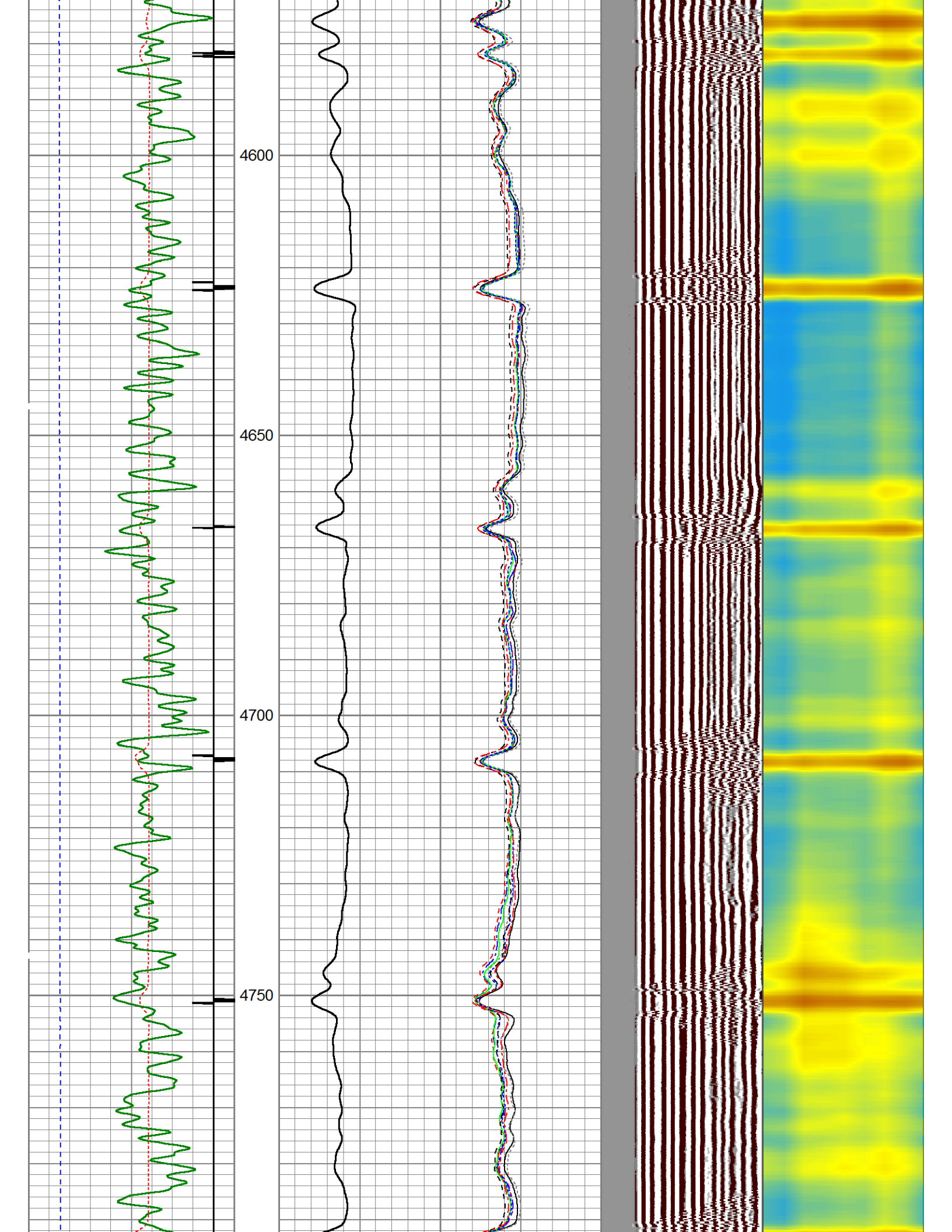
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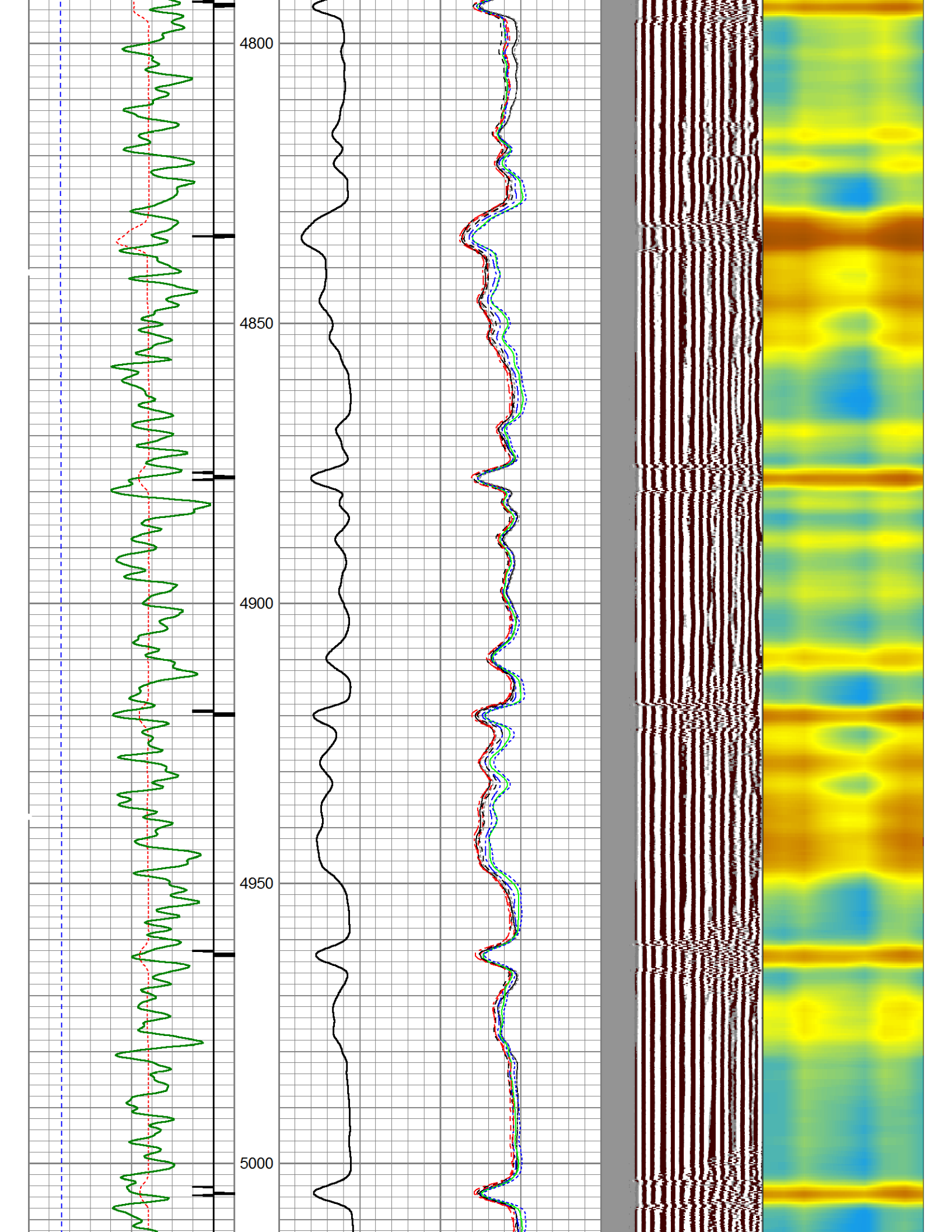
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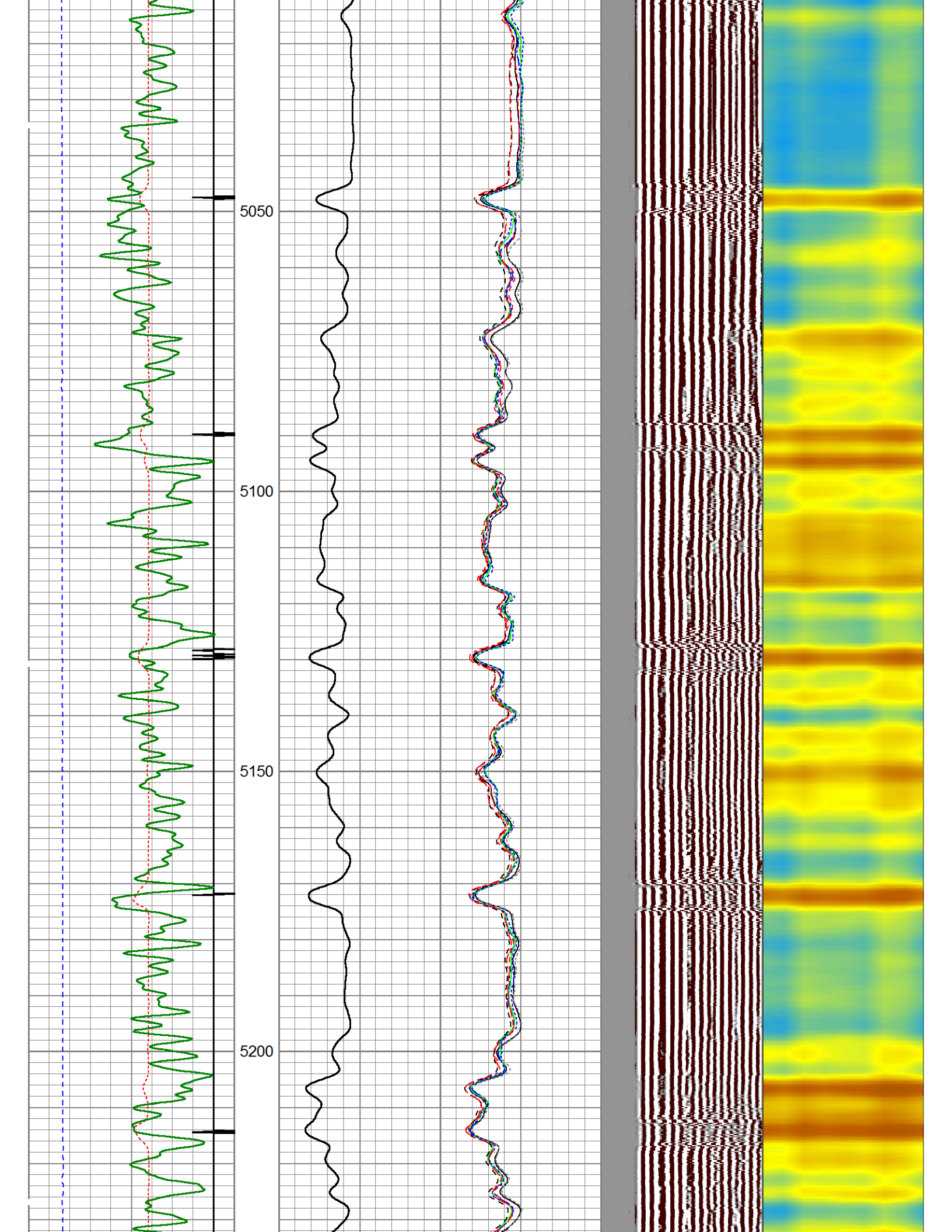
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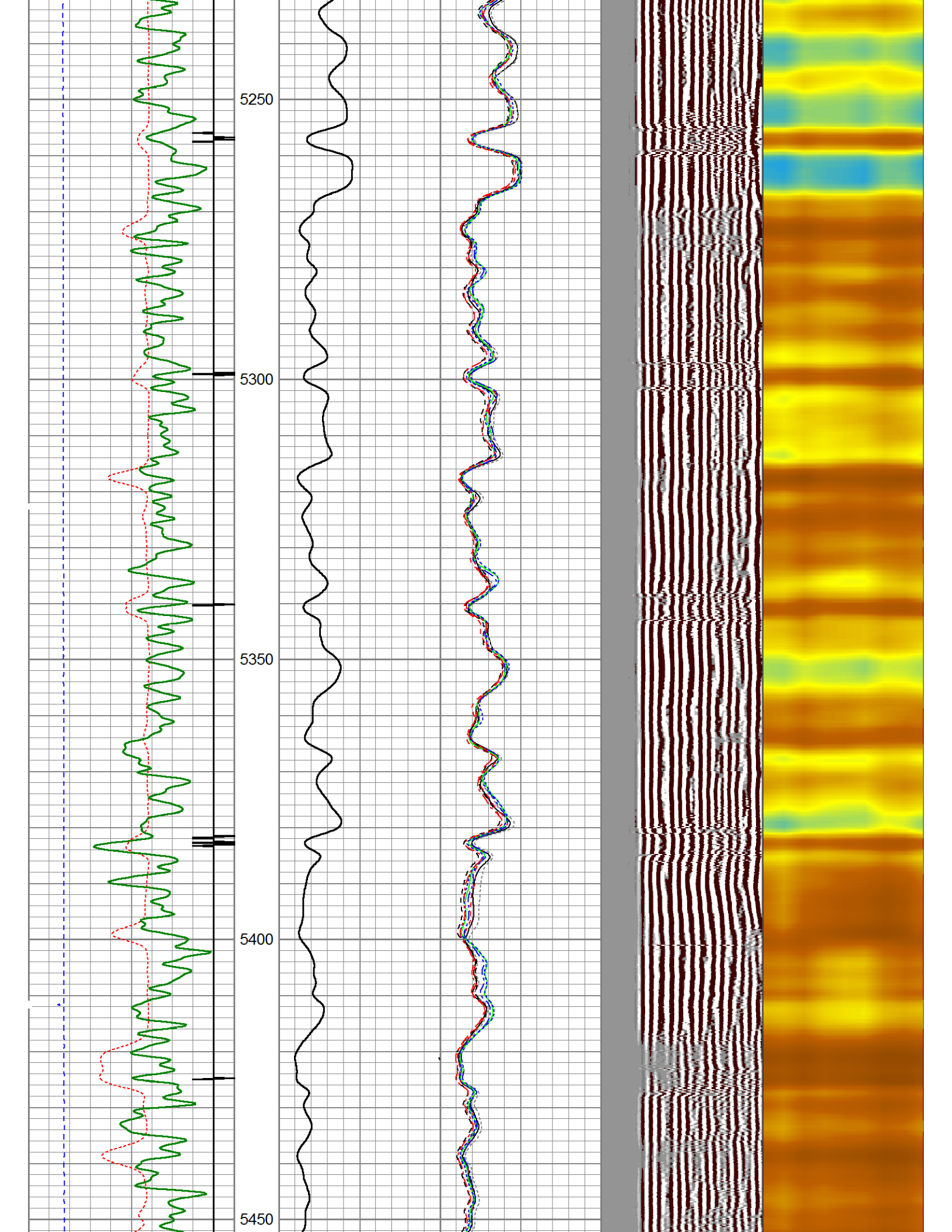
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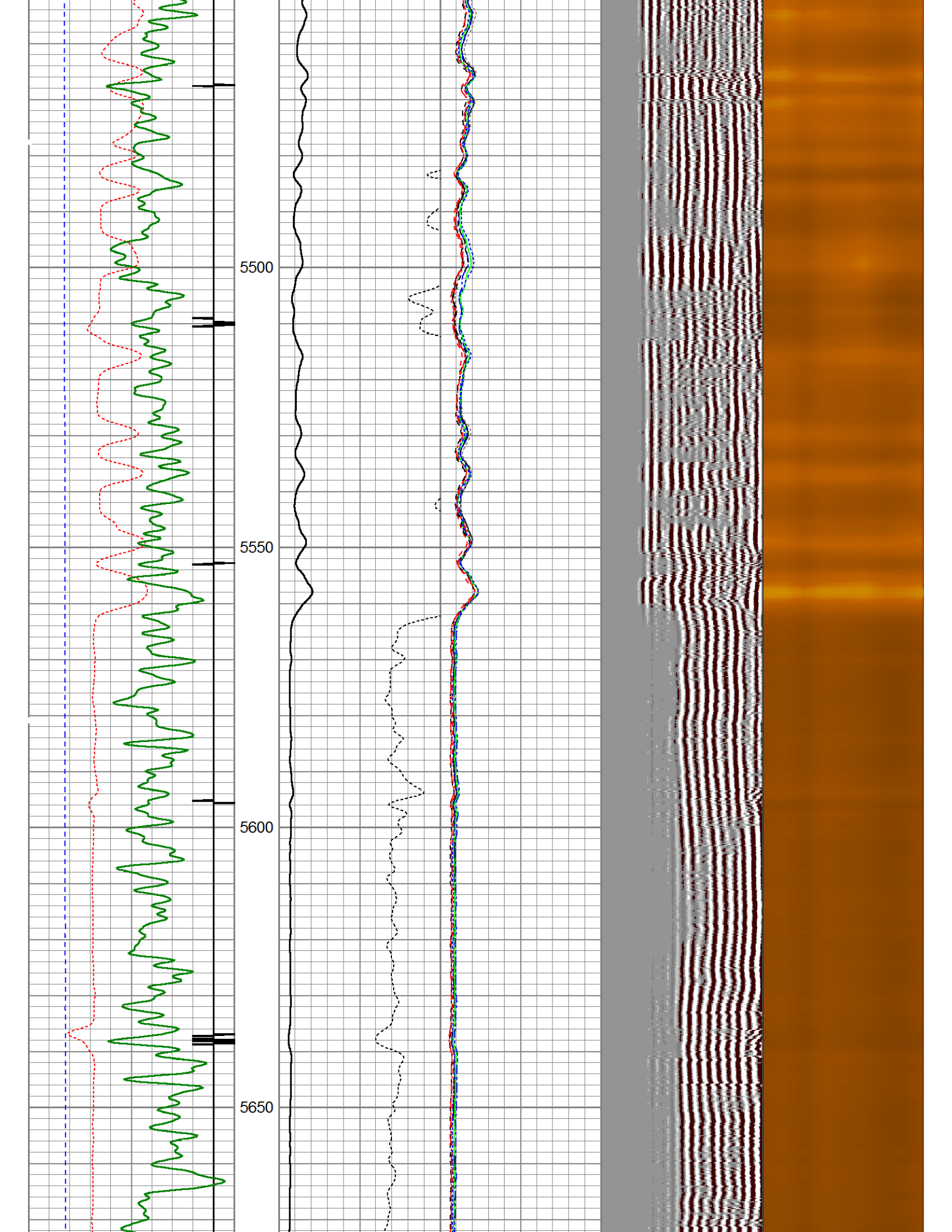
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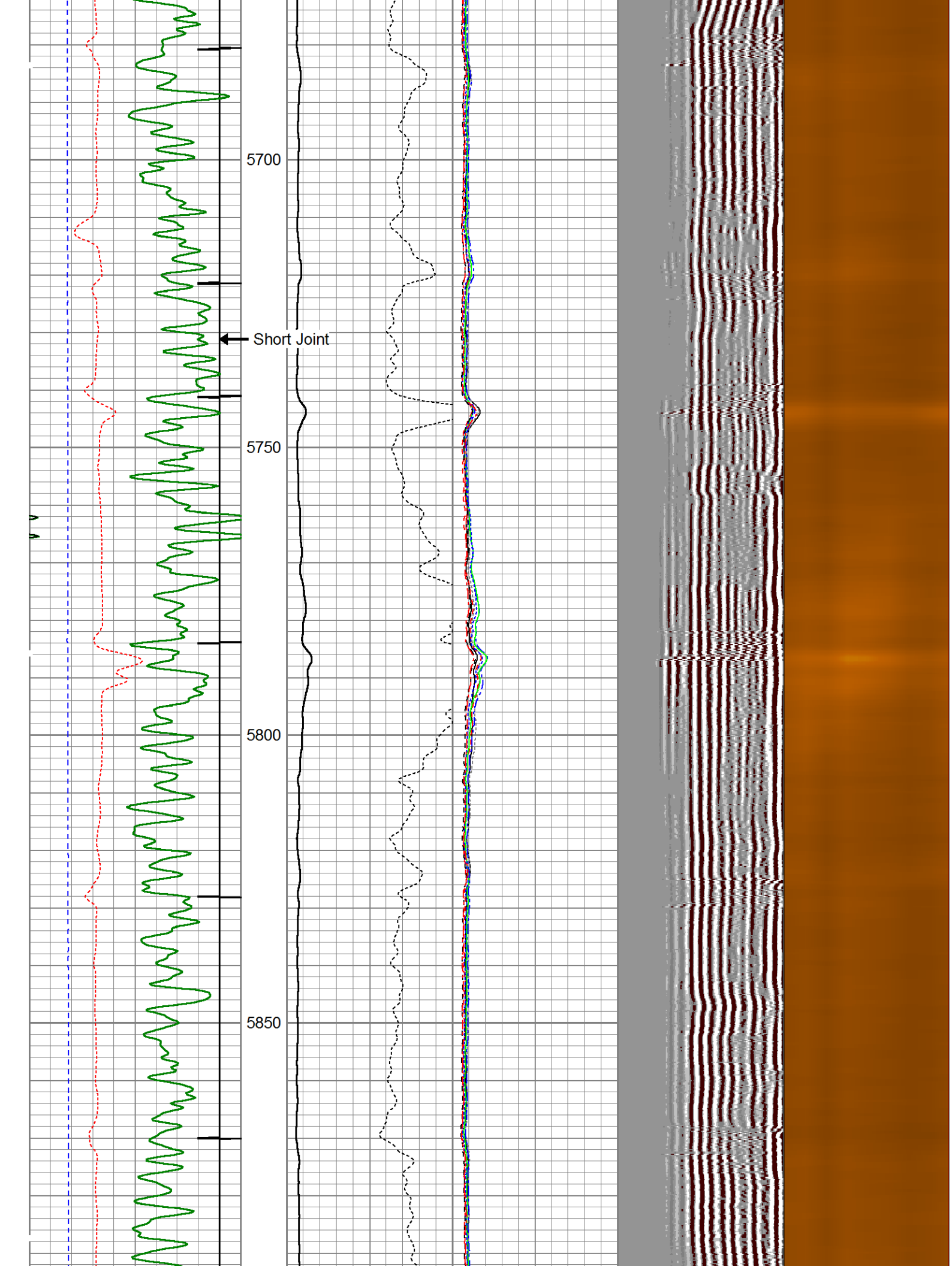
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Short Joint
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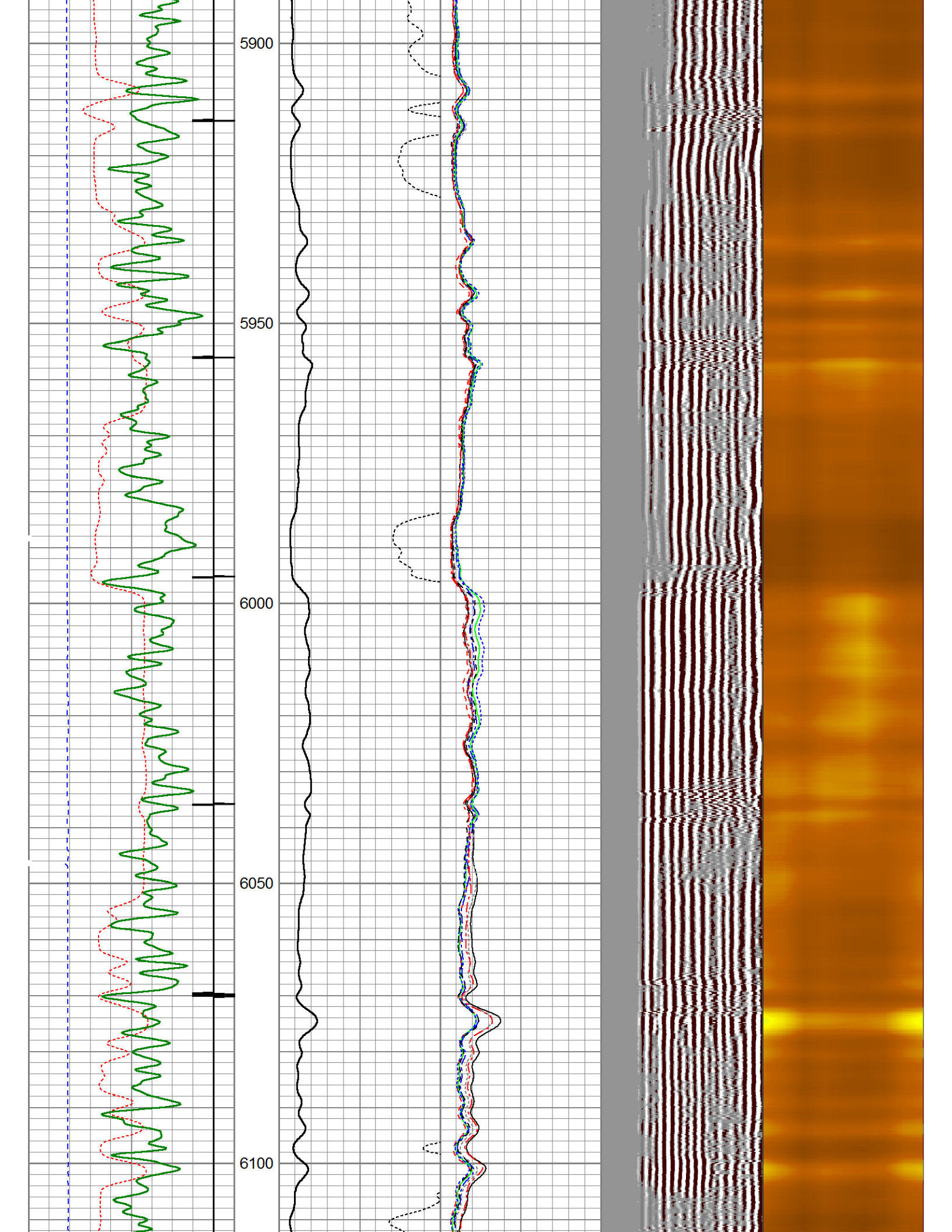
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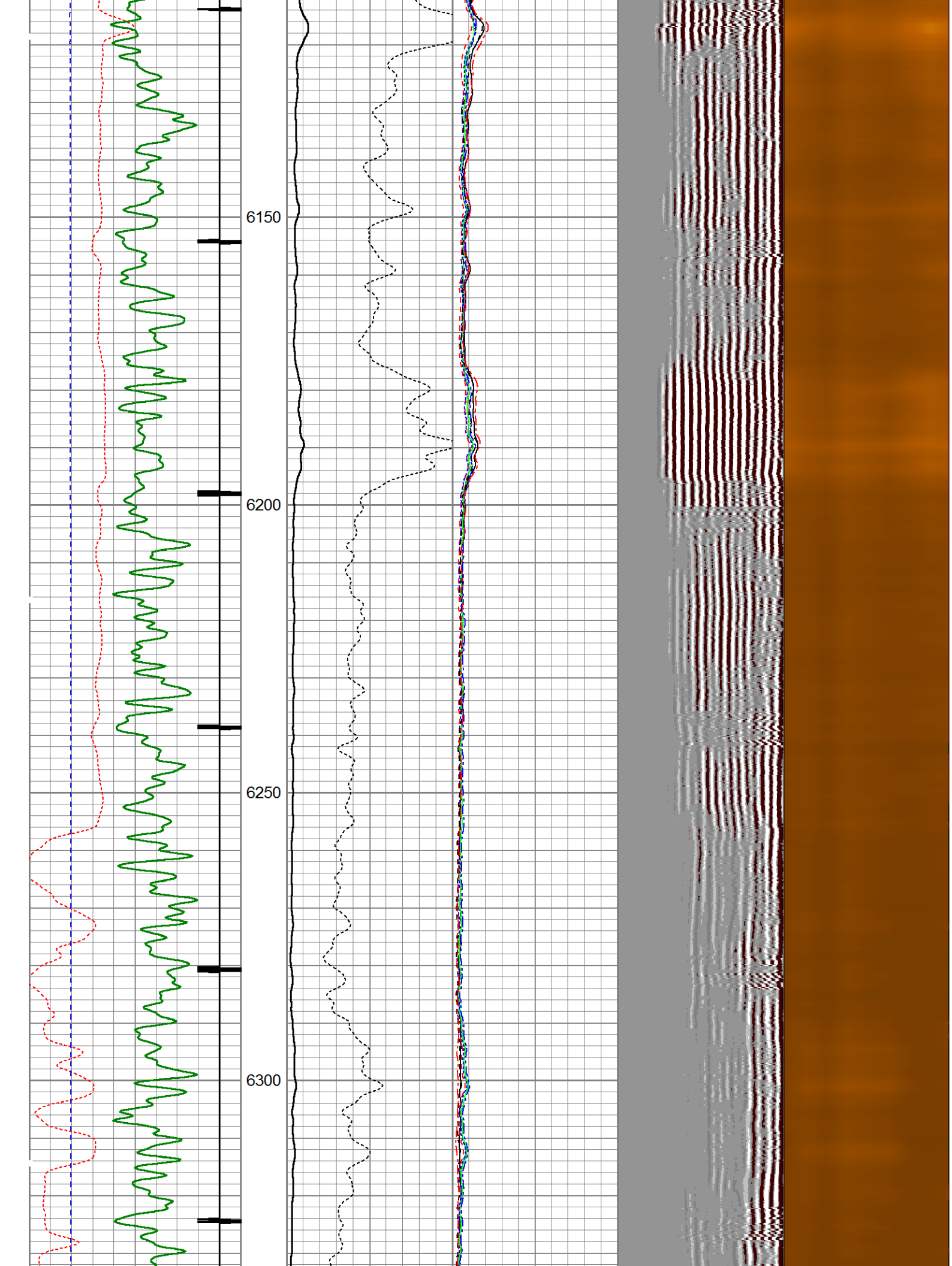
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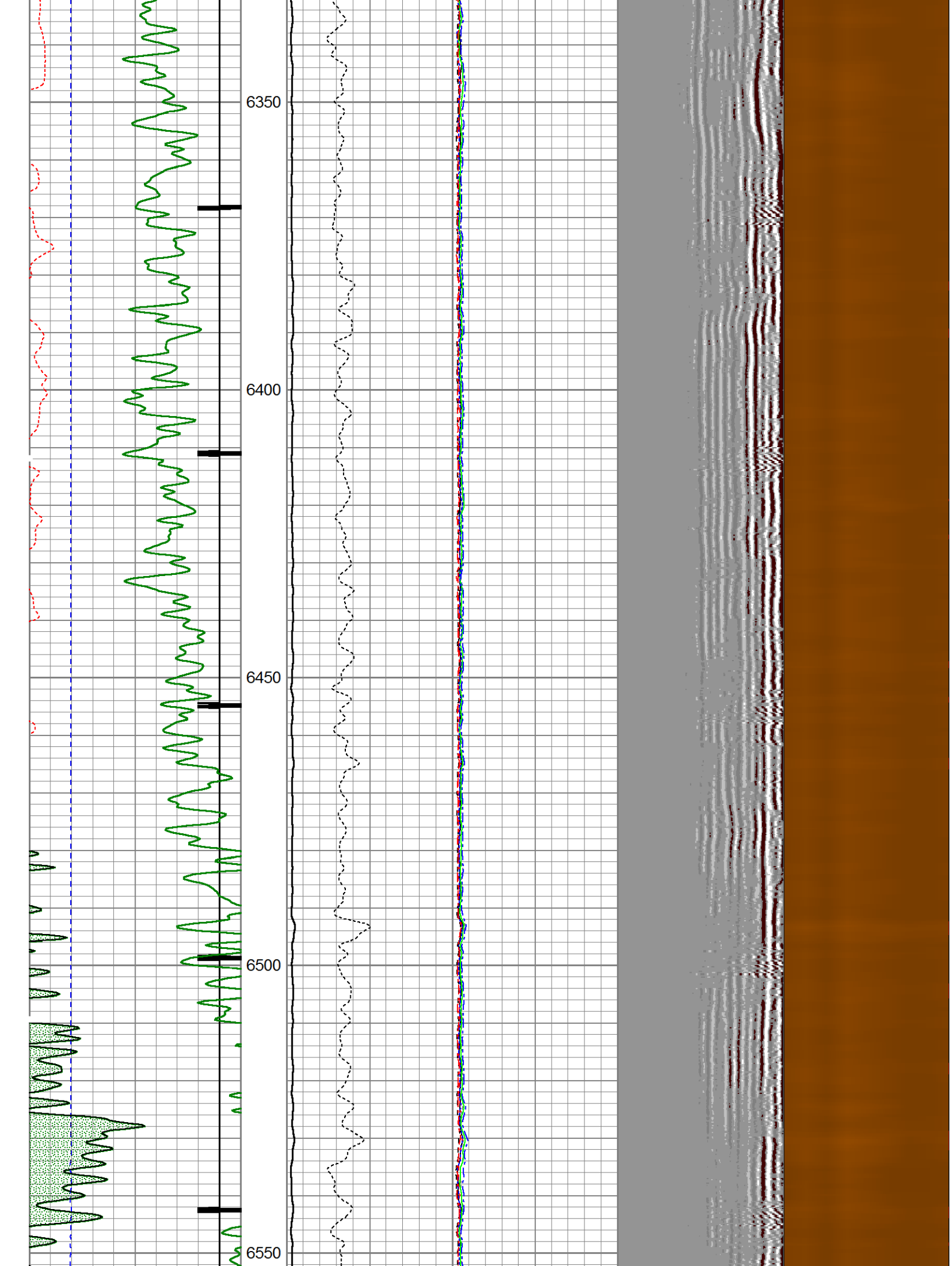
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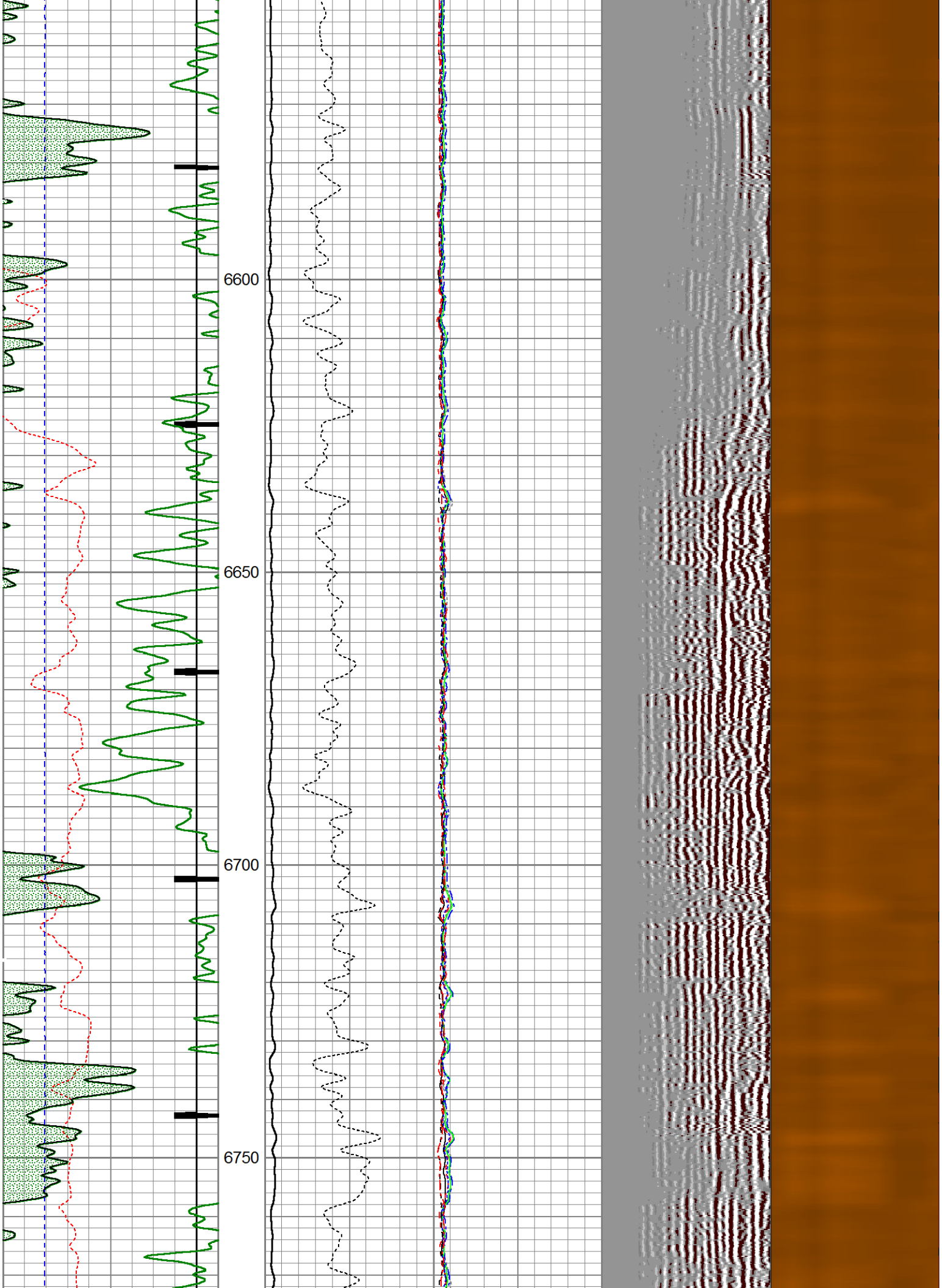
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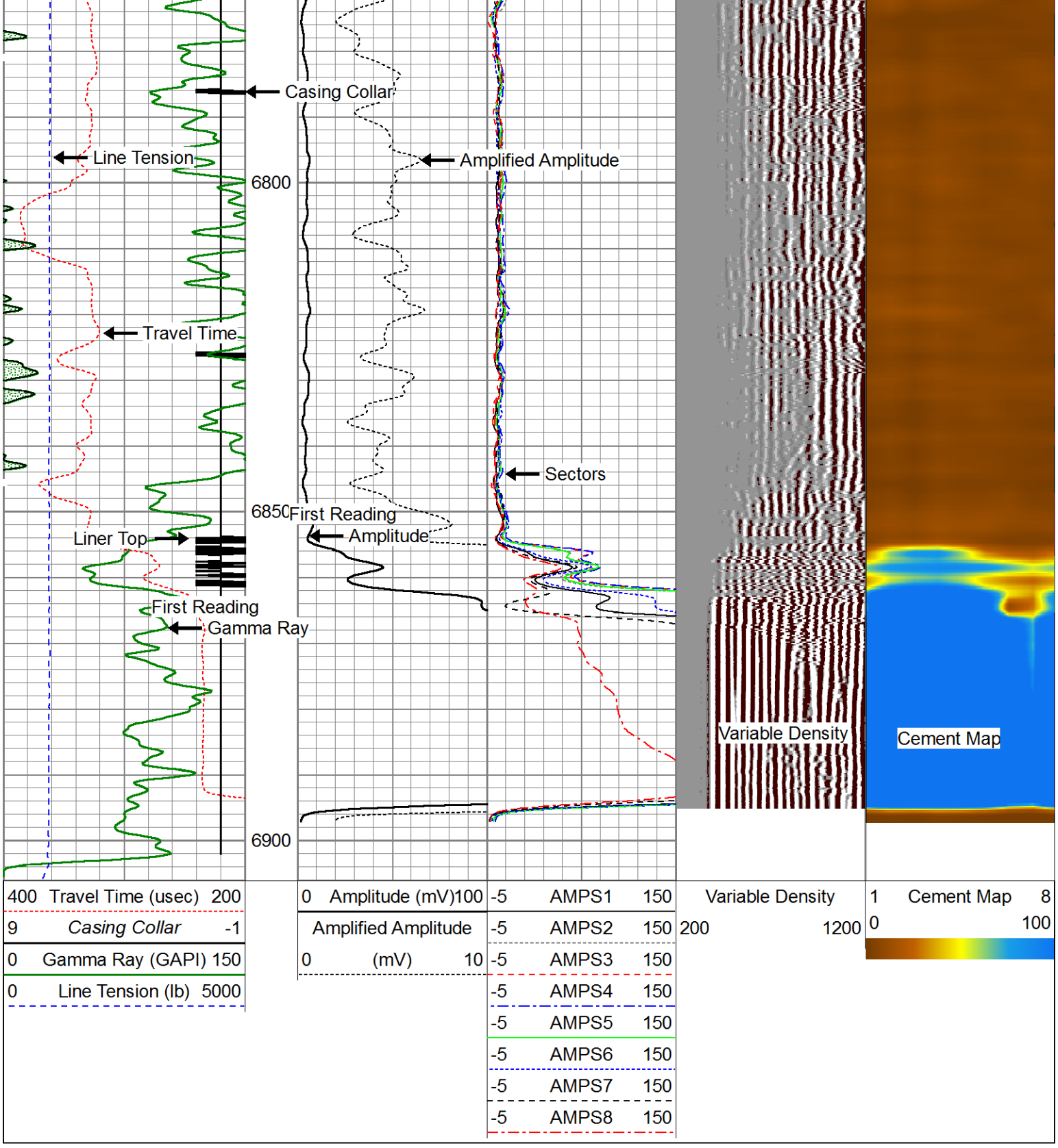
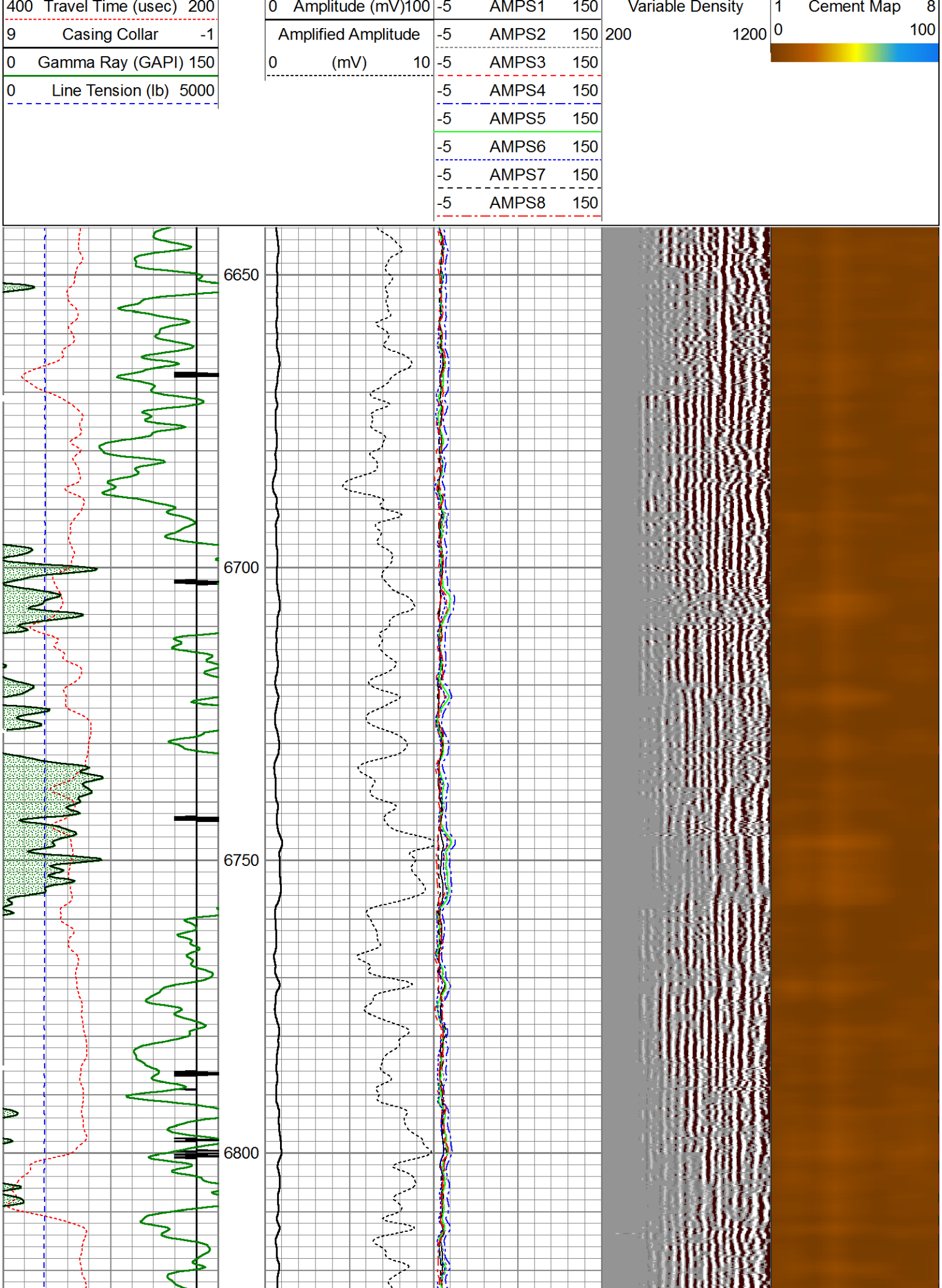


ALLIED WIRELINE

Repeat Pass (0 PSI)

Database File:	c:\users\engineers\desktop\brtn logs\noble\crow creek state ac36-76hn_rcbl\noble energy crow creek stat
Dataset Pathname:	pass14
Presentation Format:	scbl03
Dataset Creation:	Tue Nov 05 12:15:17 2013 by Log 7.0 B1
Charted by:	Depth in Feet scaled 1:240


400 Travel Time (usec) 200
9 Casing Collar -1
0 Gamma Ray (GAPI) 150
0 Line Tension (lb) 5000
0 Amplitude (mV)100
Amplified Amplitude
0 (mV) 10
-5 AMPS1 150
-5 AMPS2 150
-5 AMPS3 150
-5 AMPS4 150
-5 AMPS5 150
-5 AMPS6 150
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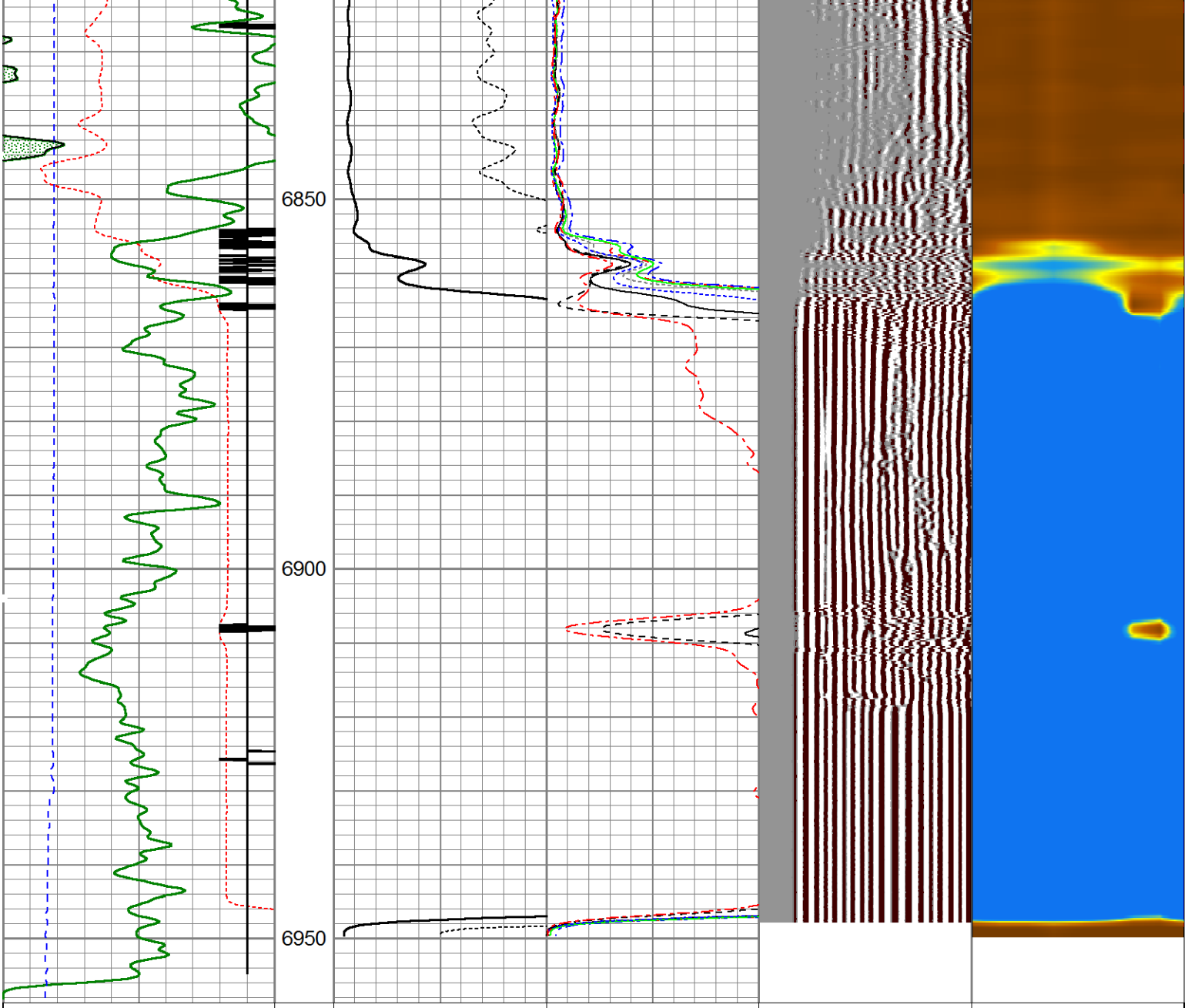
-5 AMPS8 150
Variable Density
200 1200
1 Cement Map 8
0 100
6650
6700
6750
6800



Calibration Report

Database File: C:\Users\Engineers\Desktop\BRTN LOGS\Noble\Crow Creek State AC36-76HN_RCBL\noble energy crow
Dataset Pathname: pass17
Dataset Creation: Tue Nov 05 13:38:28 2013 by Calc 7.0 B1

Gamma Ray Calibration Report

Serial Number:	110108-Dig
Tool Model:	Probe275
Performed:	Tue Nov 05 09:42:00 2013
Calibrator Value:	1.0 GAPI

Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.8500	GAPI/cps

Segmented Cement Bond Log Calibration Report

Serial Number:	101224	
Tool Model:	Probe	
Calibration Casing Diameter:	7.000	in
Calibration Depth:	338.092	ft

Master Calibration, performed Tue Nov 05 12:31:41 2013:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.000	0.622	1.000	62.165	99.346	1.972
CAL	0.004	0.750				
5'	0.006	0.628	1.000	62.165	98.443	0.374
SUM						
S1	0.042	0.683	0.000	100.000	155.943	-2.524
S2	0.039	0.604	0.000	100.000	177.075	0.969
S3	0.018	0.552	0.000	100.000	187.160	-1.381
S4	-0.002	0.561	0.000	100.000	177.420	2.429
S5	0.011	0.595	0.000	100.000	171.152	0.822
S6	0.029	0.640	0.000	100.000	163.588	-0.679
S7	0.021	0.667	0.000	100.000	140.680	-2.182
S8	0.026	0.684	0.000	100.000	138.948	-1.916

Internal Reference Calibration, performed Mon Oct 10 09:42:03 2005:

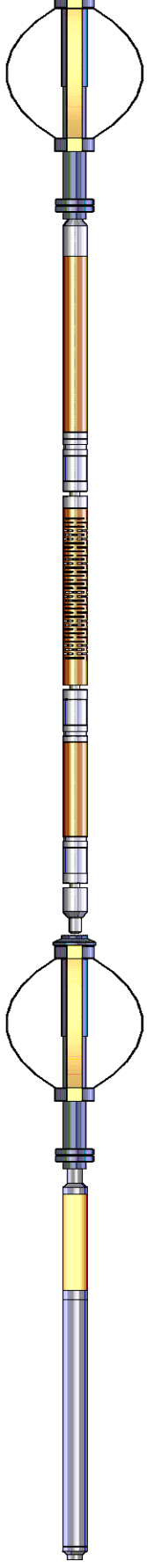
	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.004	0.750	1.000	0.000

Air Zero Calibration, performed Mon Oct 10 09:41:05 2005:

	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

Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
			Titan Cable_head	1.00	1.44	10.00

		Probe275 2.75" Centralizer	2.88	2.75	20.00
WVF3FT	11.84	RBT-Probe (101224) Probe Radii Bond Tool with Digital Telemetry	8.75	2.75	90.00
WVFCAL	11.84				
WVFS1	11.84				
WVFS2	11.84				
WVFS3	11.84				
WVFS4	11.84				
WVFS5	11.84				
WVFS6	11.84				
WVFS7	11.84				
WVFS8	11.84				
WVF5FT	10.84				
		Probe275 2.75" Centralizer	2.88	2.75	20.00
CCL	3.88				
GR	2.54	GR-Probe275 (110108-Dig) Probe 2 3/4" Logging Gamma Ray	4.78	2.75	57.00



Dataset:	noble energy crow creek state ac36-76hn.db: field/well/run1/pass17
Total Length:	20.28 ft
Total Weight:	197.00 lb
O.D.	2.75 in