



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

Company		Noble Energy	
Well		Rohn State LD09-66-1HN	
Field		Wattenberg	
County		Weld	
State		Colorado	
Location:		API # : 05-123-37540	
SEC 9 TWP 9N RGE 58W		TEMP	
Permanent Datum		Ground Level	
Log Measured From		24' Kelly Bushing	
Drilling Measured From		Kelly Bushing	
Elevation		4727'	
Other Services		Elevation	
K.B. 4751'		D.F. 4750'	
G.L. 4727'			
Date		November 19, 2013	
Run Number		1	
Depth Driller		9729'	
Depth Logger		5870'	
Bottom Logged Interval		5857'	
Top Log Interval		Surface	
Open Hole Size		8.125	
Type Fluid		Fresh Water	
Density / Viscosity		8.33	
Max. Recorded Temp.		205 Deg F	
Estimated Cement Top		1173'	
Time Well Ready		6:00	
Time Logger on Bottom		7:12	
Equipment Number		13033	
Location		Brighton	
Recorded By		C. Rail	
Witnessed By		B. Mansfield	
Borehole Record		Tubing Record	
Run Number		Bit	
One		From	
Two		To	
Three		Size	
Four		Weight	
Casing Record		From	
Surface String		To	
Size		Wgt/Ft	
9 5/8		36#	
Prot. String		Top	
Production String		Surface	
7		26#	
4 1/2		11 6#	
Liner		Surface	
11 6#		5862'	
Short Joint		9714'	
		4661'	
		4675'	

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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

Primary Log on Well. Well Logged using 24' KB.

Main Pass and Repeat Pass Logged with Zero Pressure on Surface

Estimated Top of Cement @ 1173'

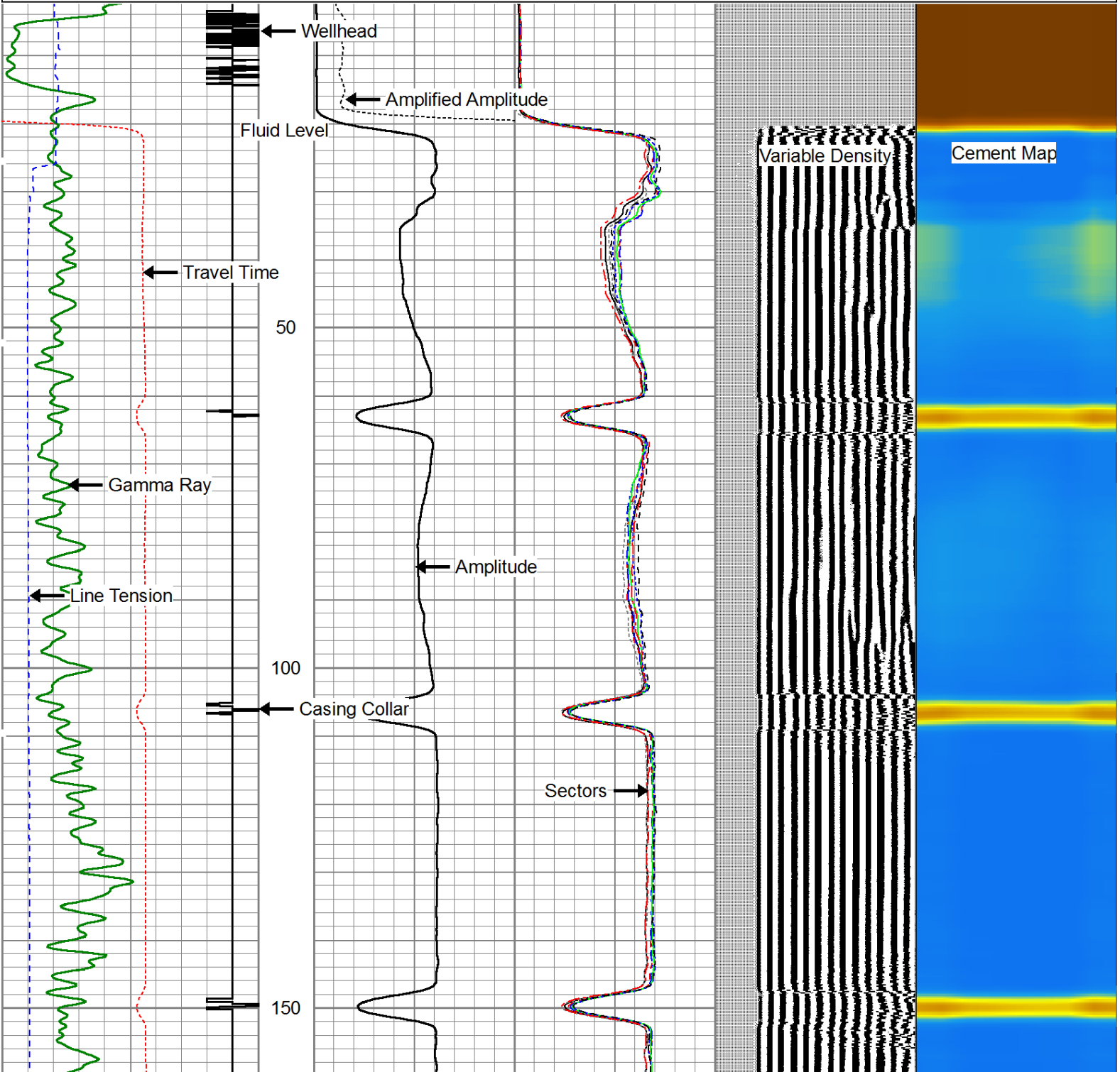
Thank you for using Allied Wireline.
(303)659-4609

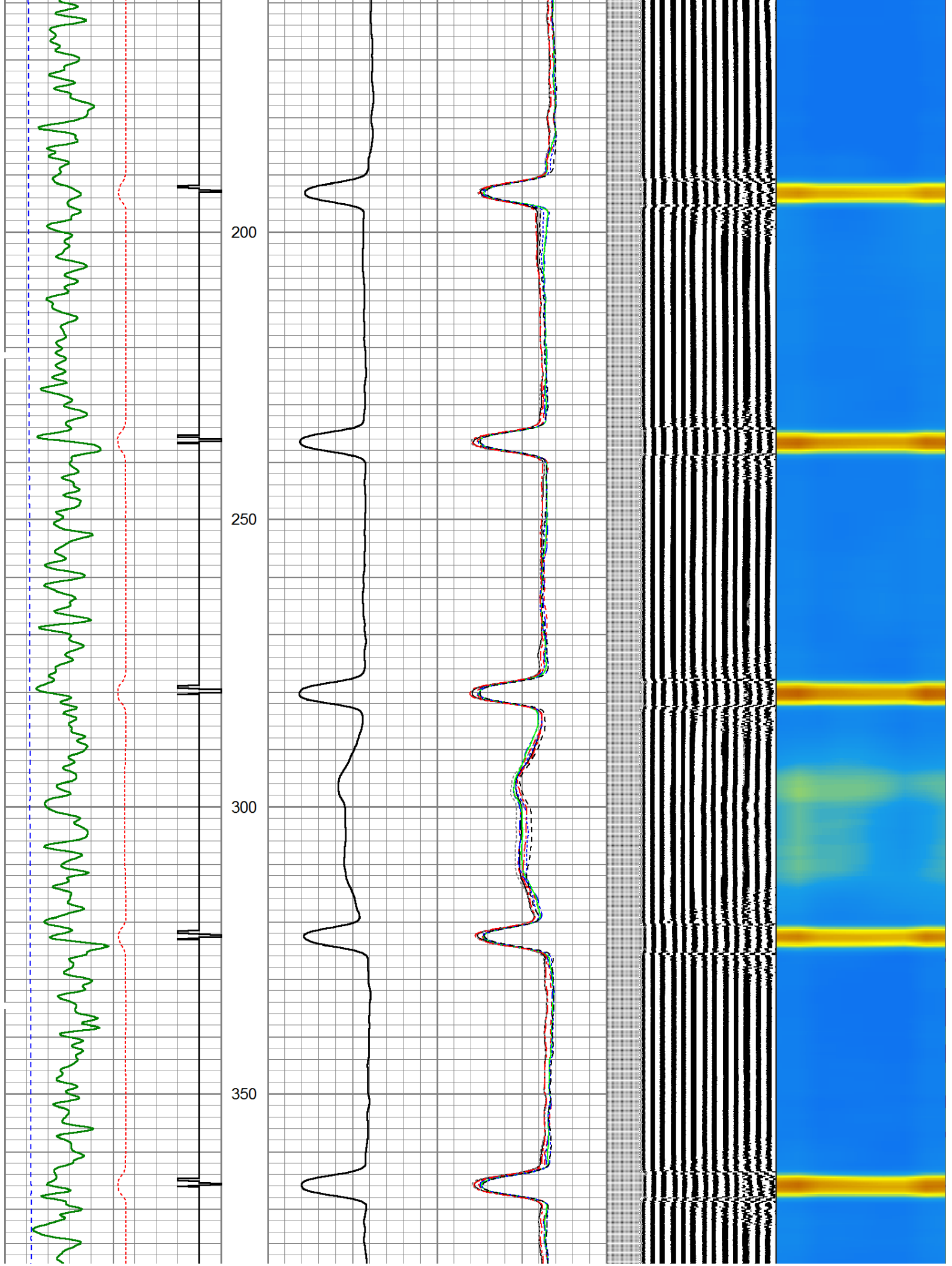


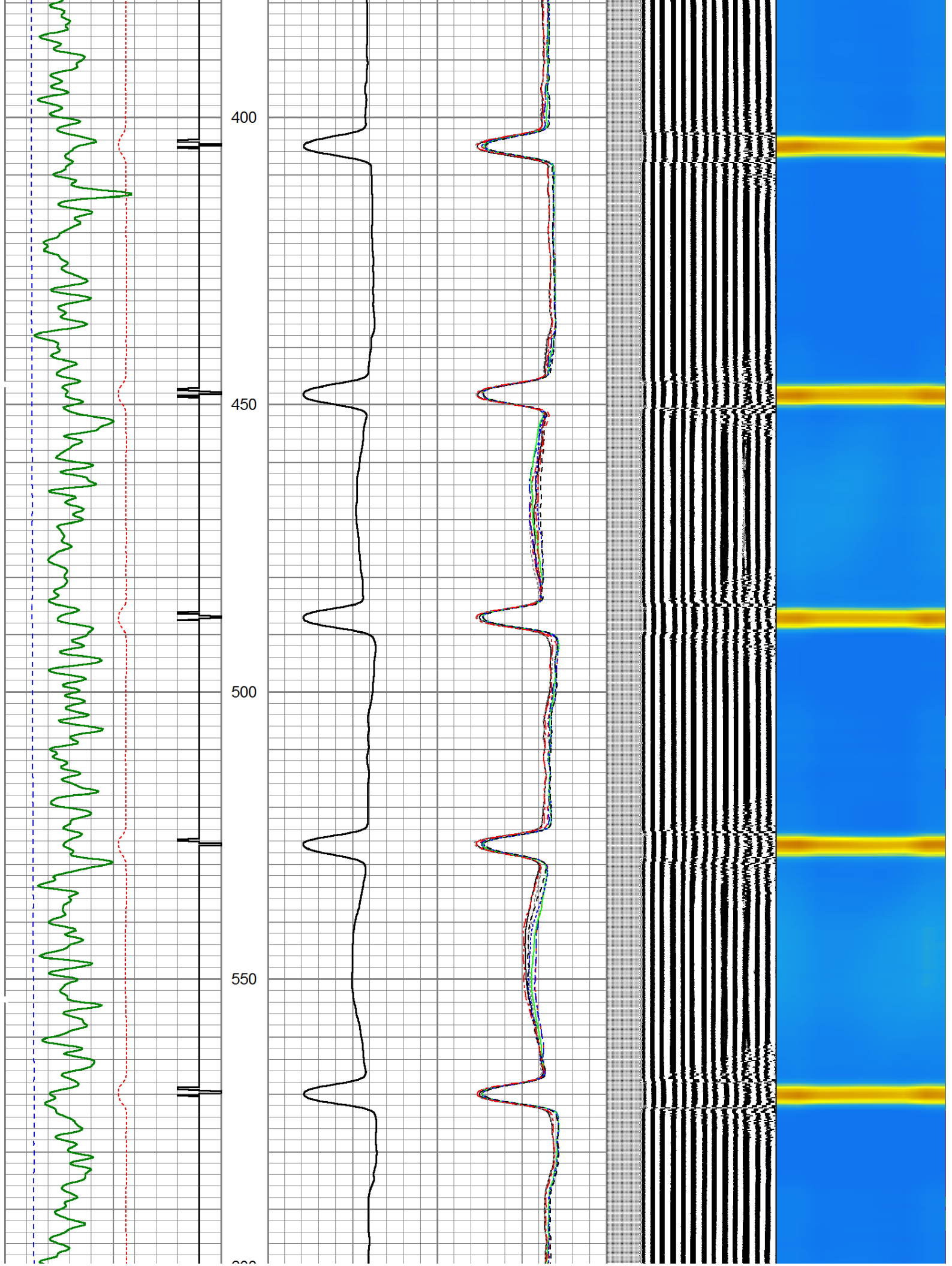
Main Pass (0 PSI)

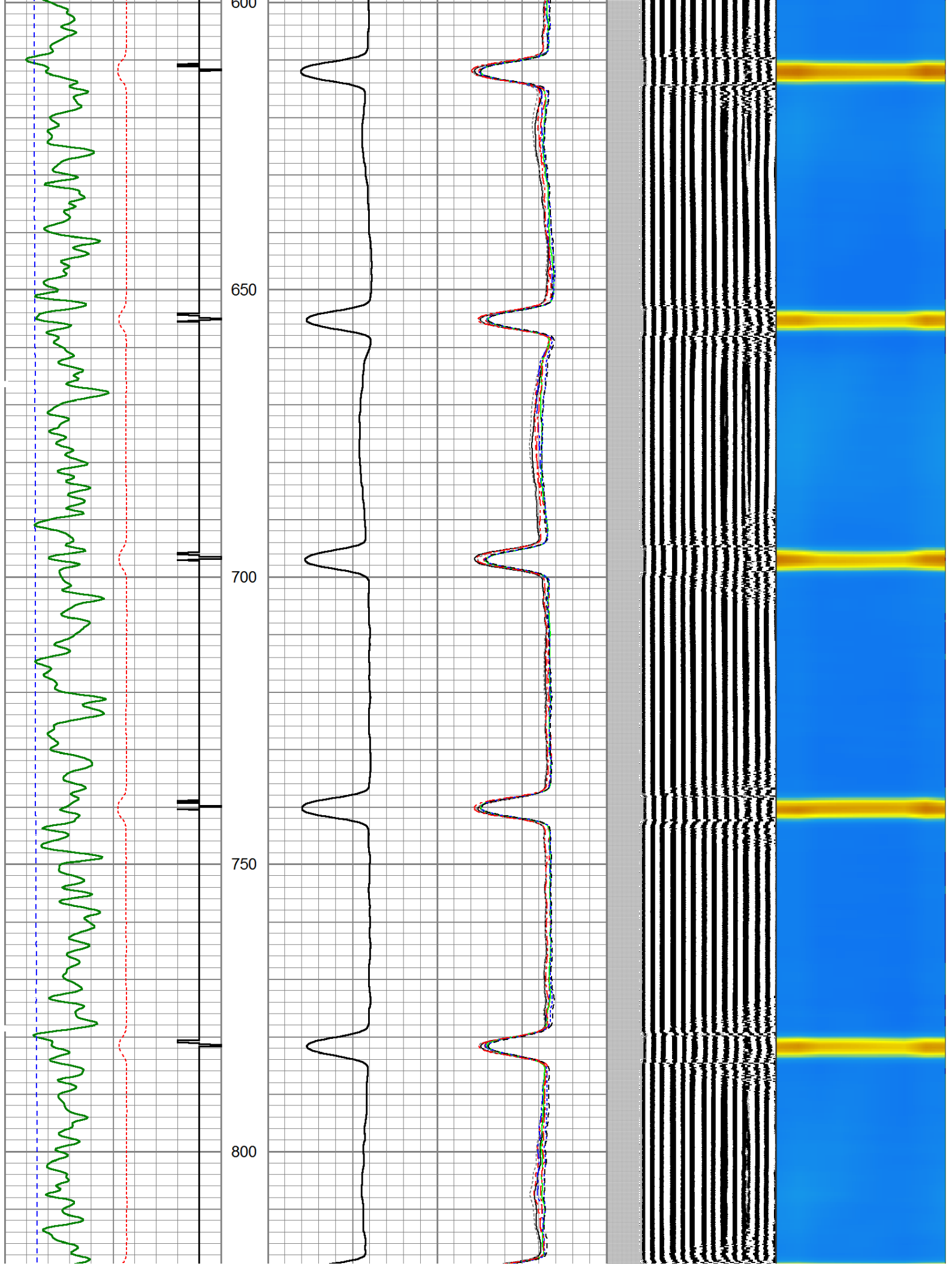
Database File: noble energy rohn state ld09-66-1hn_rcbl.db
Dataset Pathname: pass5.1
Presentation Format: scbl03
Dataset Creation: Tue Nov 19 08:25:47 2013 by Calc 0
Charted by: Depth in Feet scaled 1:240

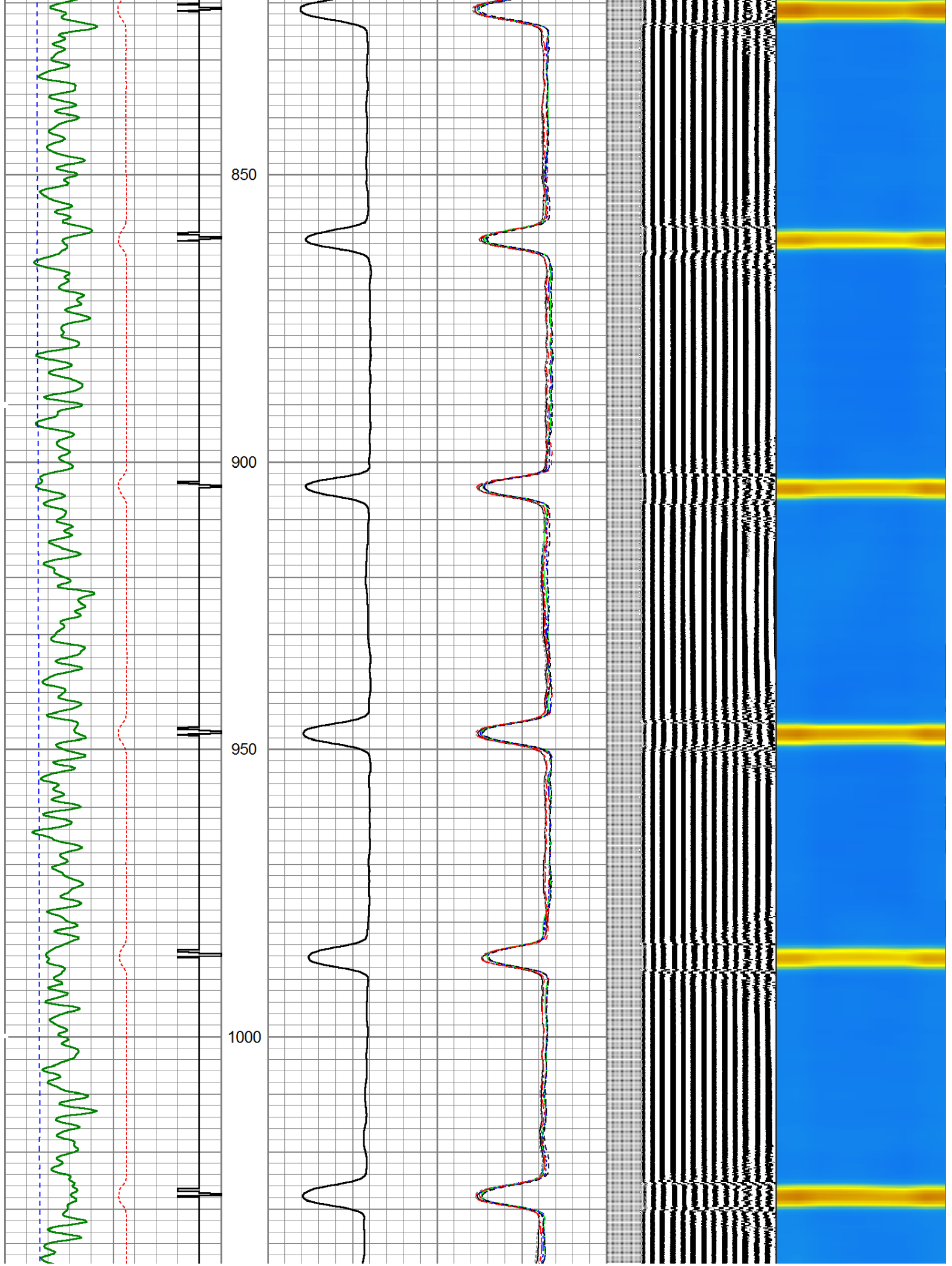
400	Travel Time (usec)	200	0	Amplitude (mV)	100	-5	AMPS1	150	Variable Density	1	Cement Map	8
9	Casing Collar	-1		Amplified Amplitude		-5	AMPS2	150	200	1200	0	100
0	Gamma Ray (GAPI)	150	0	(mV)	10	-5	AMPS3	150				
0	Line Tension (lb)	2000				-5	AMPS4	150				
						-5	AMPS5	150				
						-5	AMPS6	150				
						-5	AMPS7	150				
						-5	AMPS8	150				

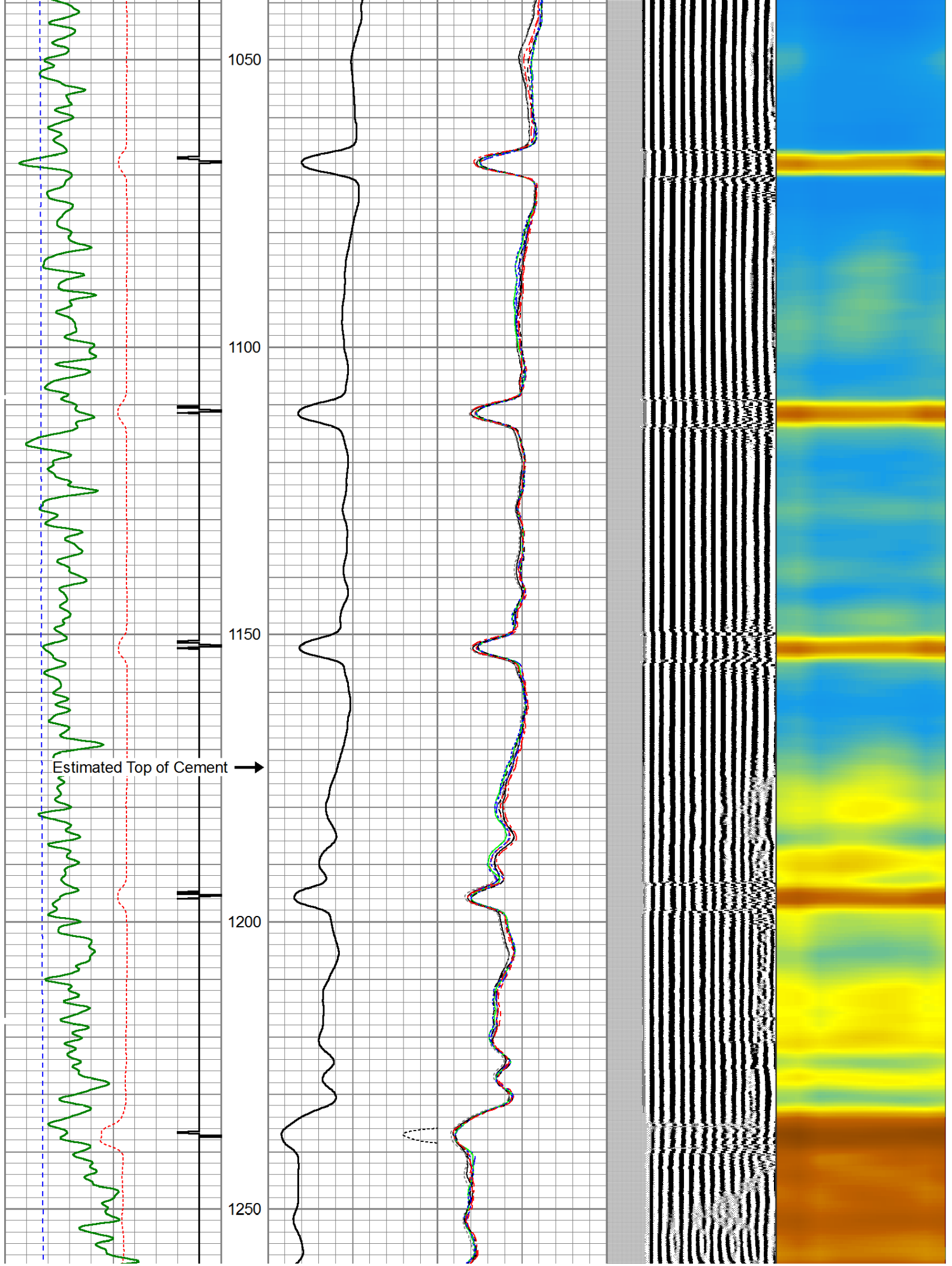


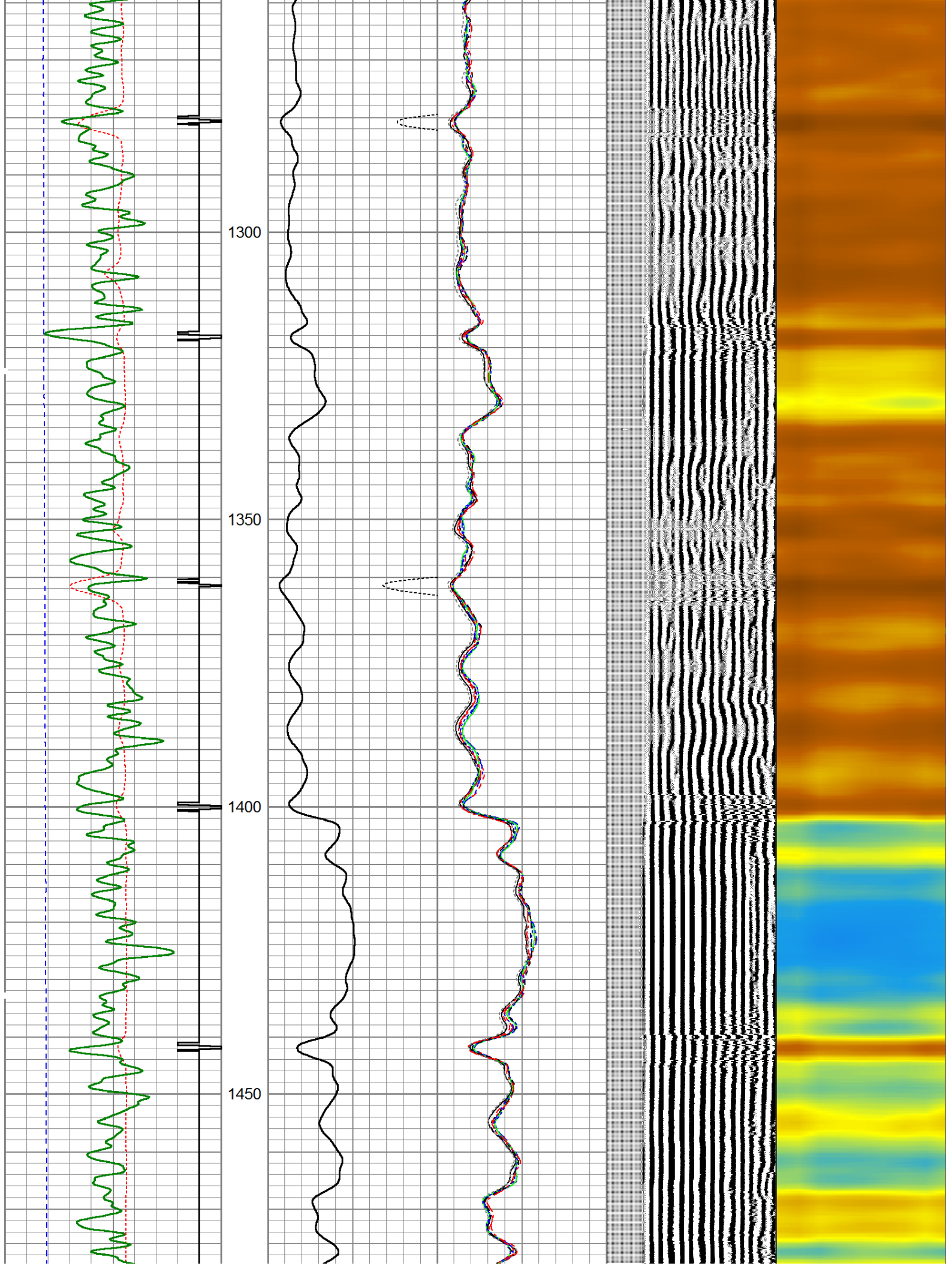


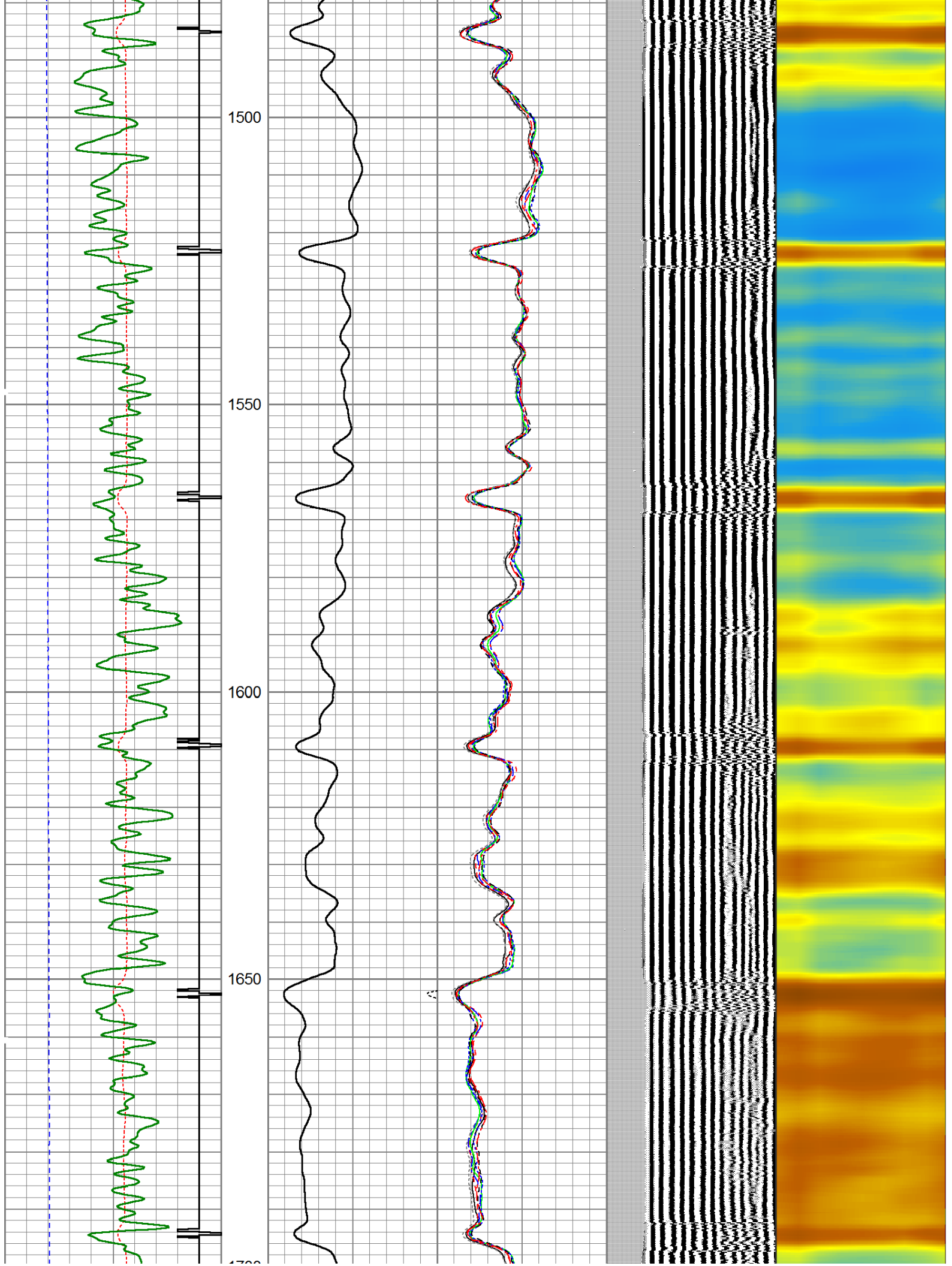


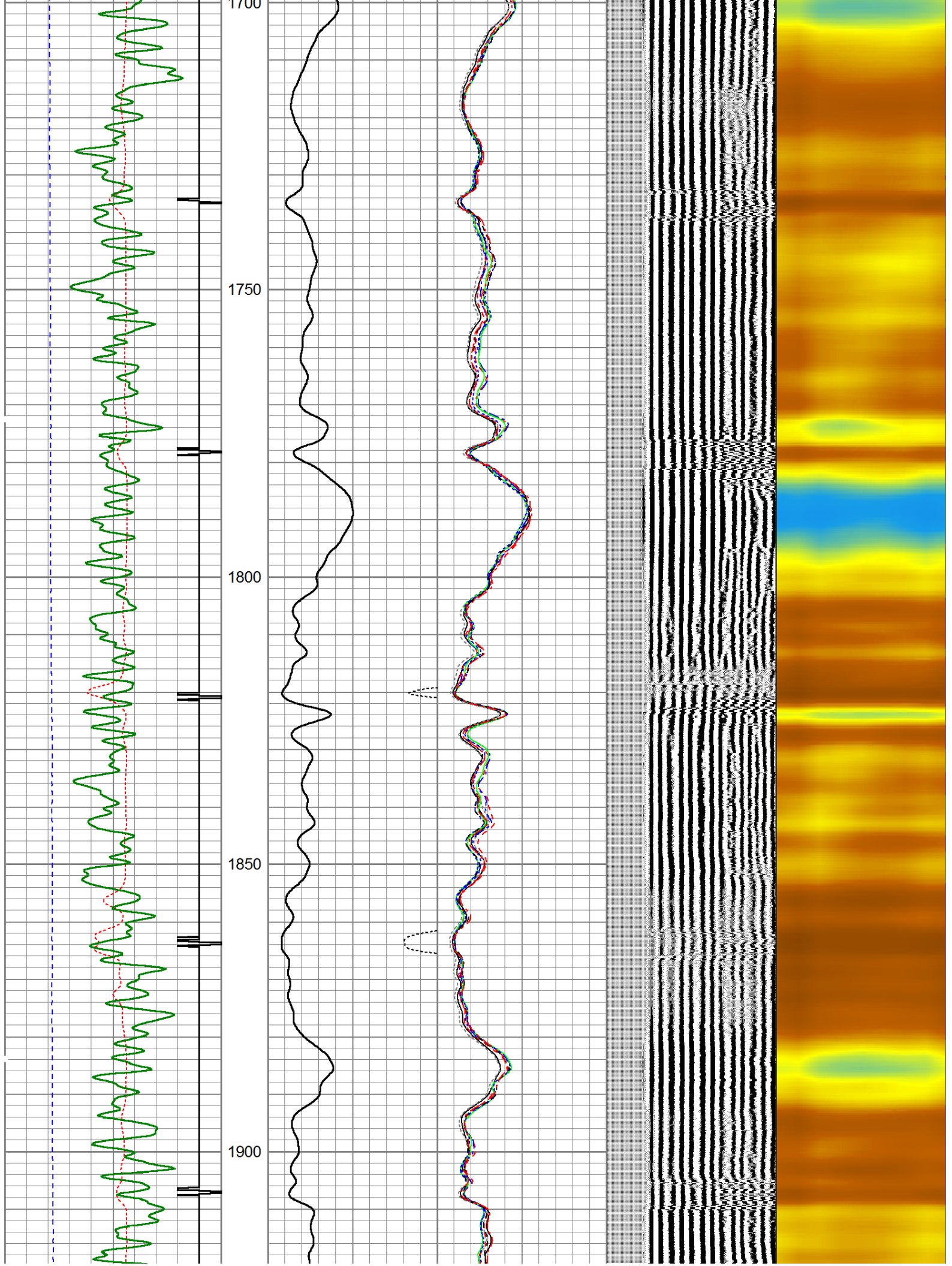


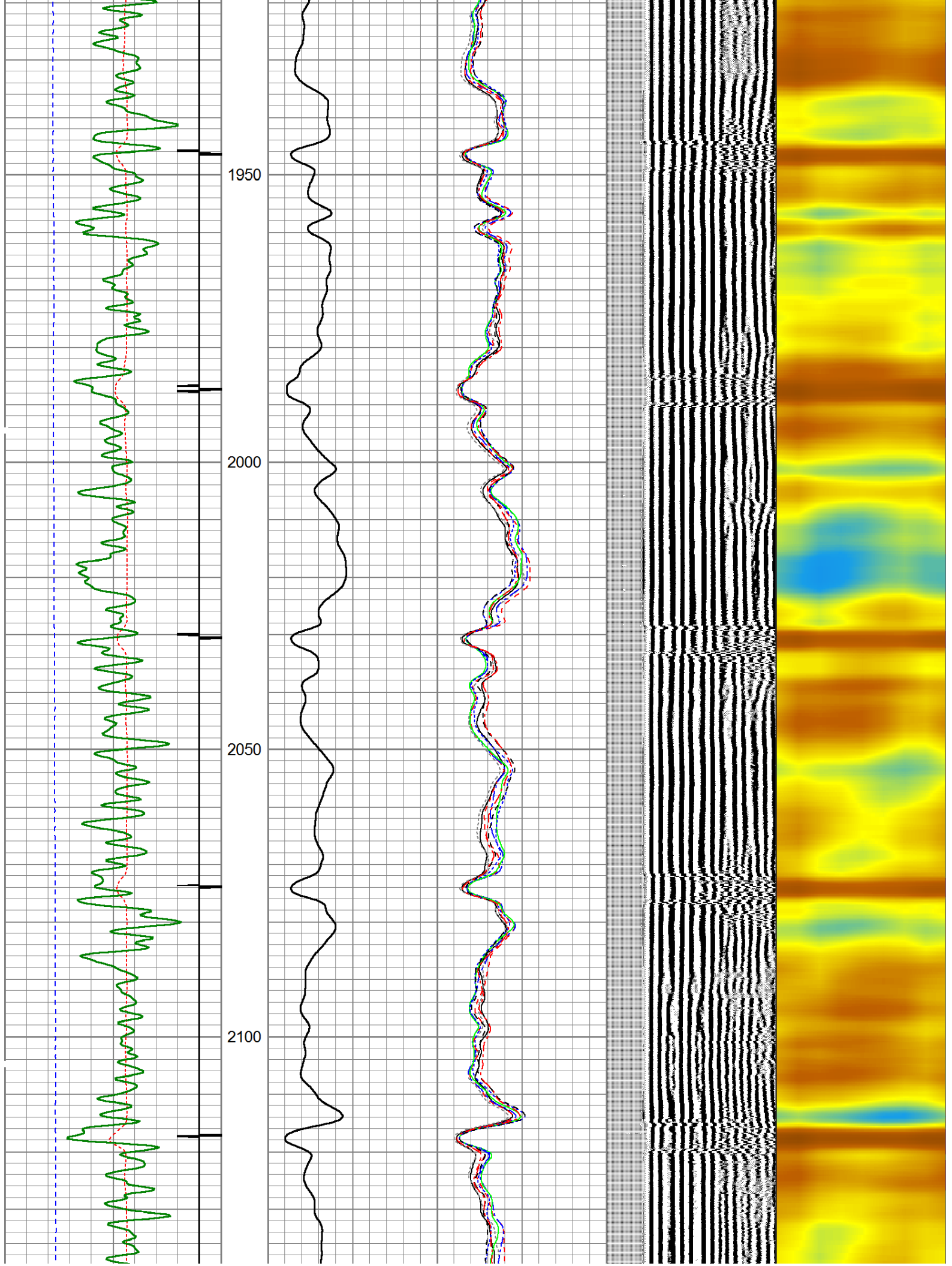


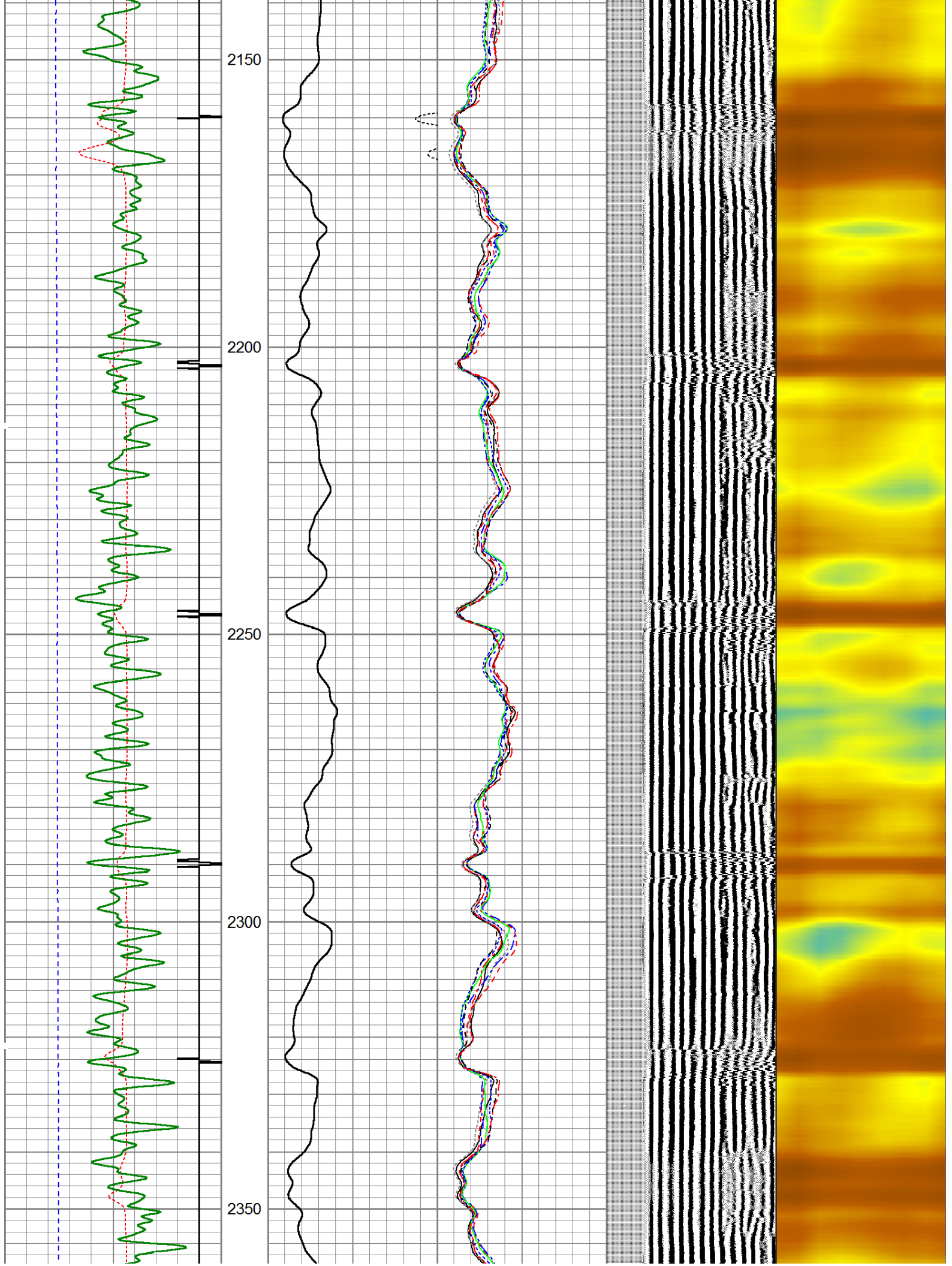


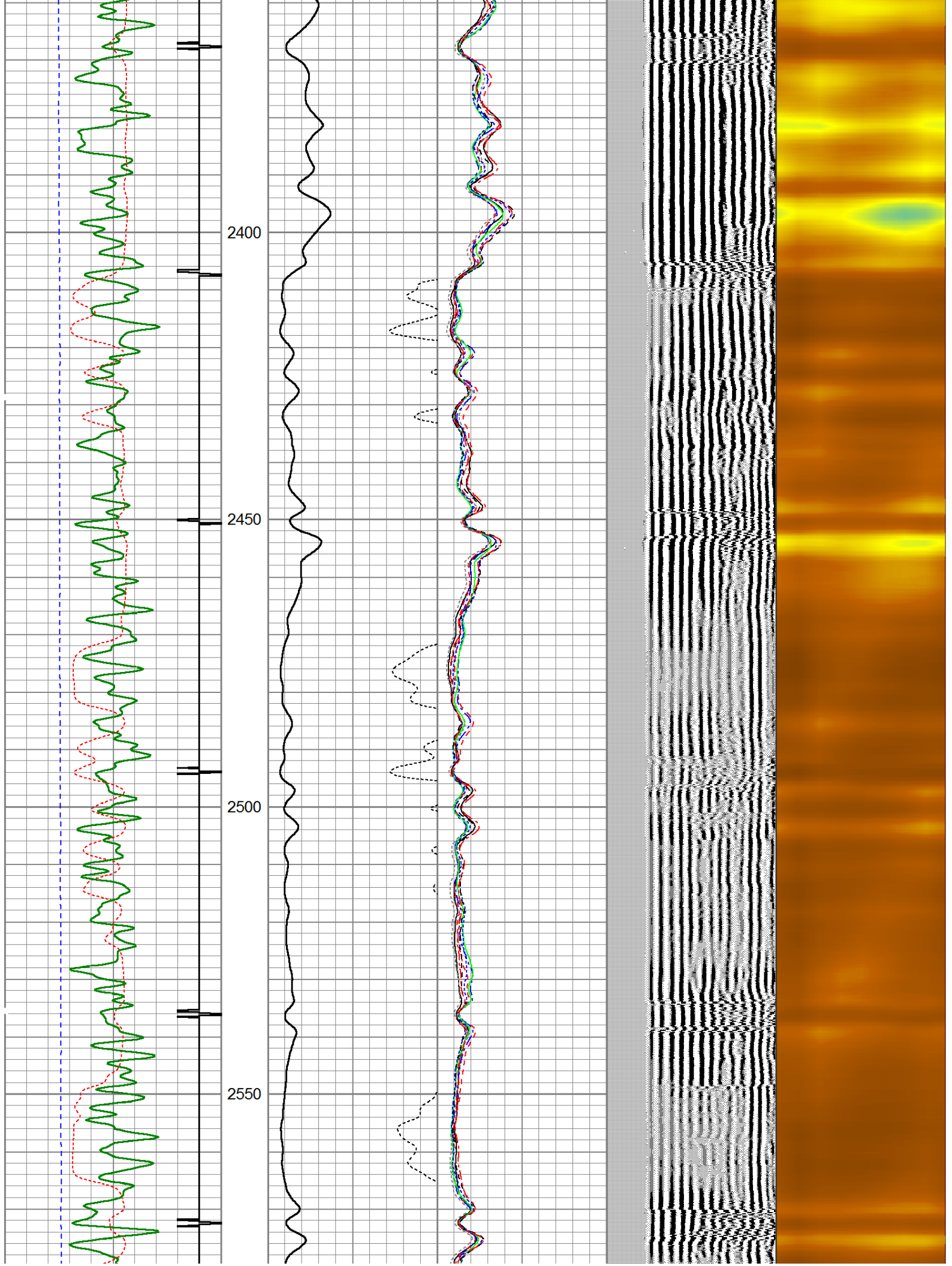


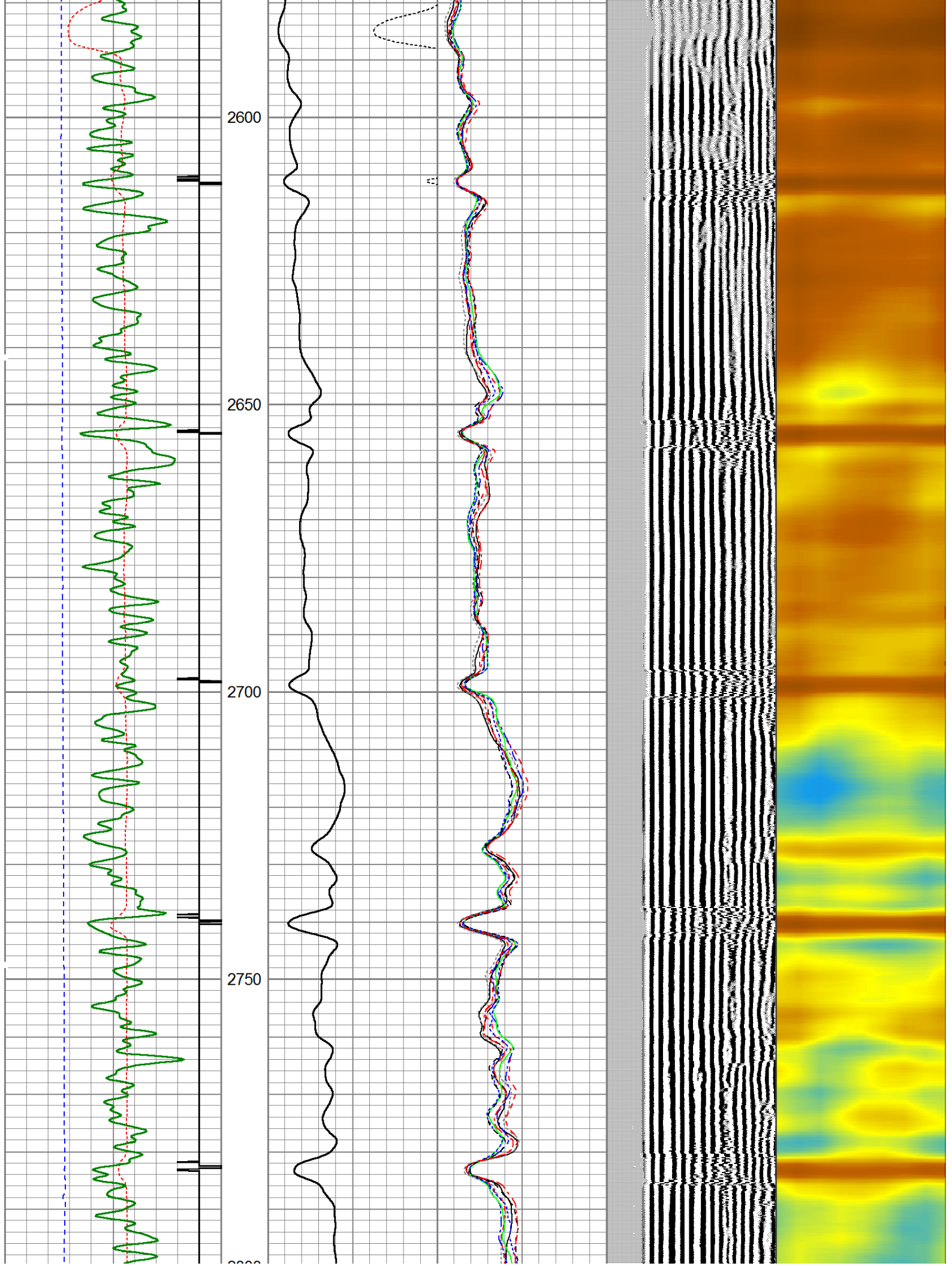


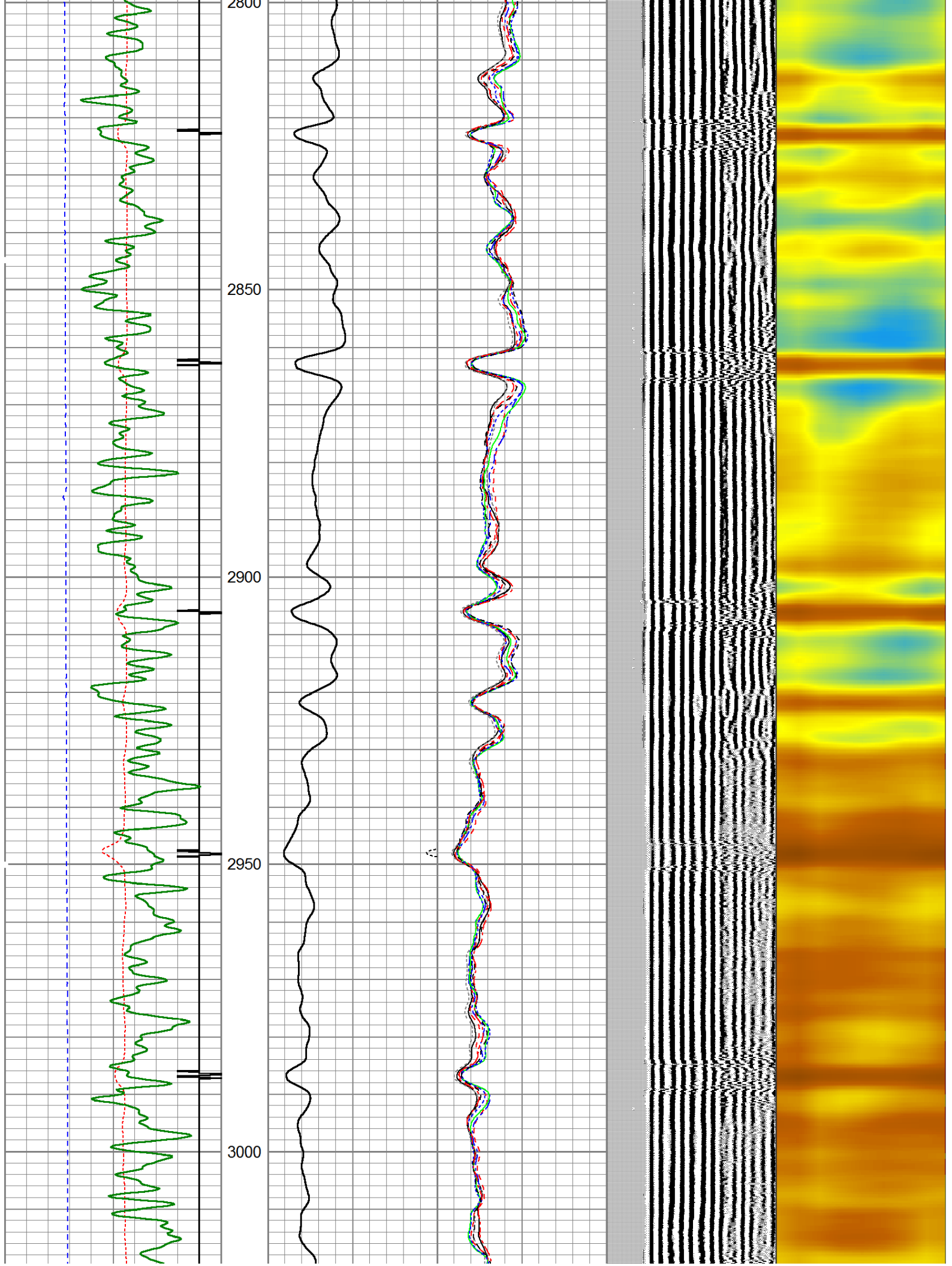


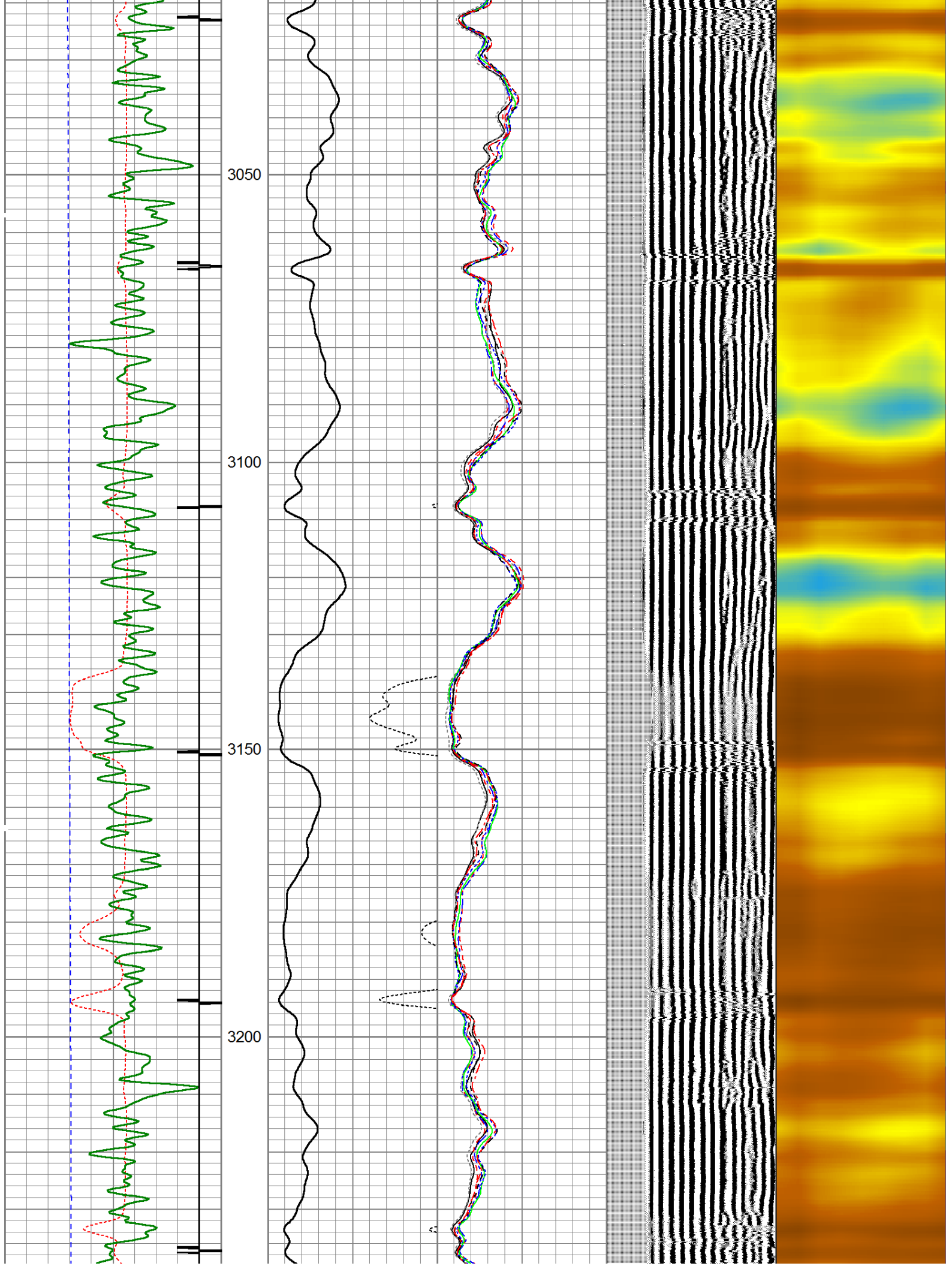


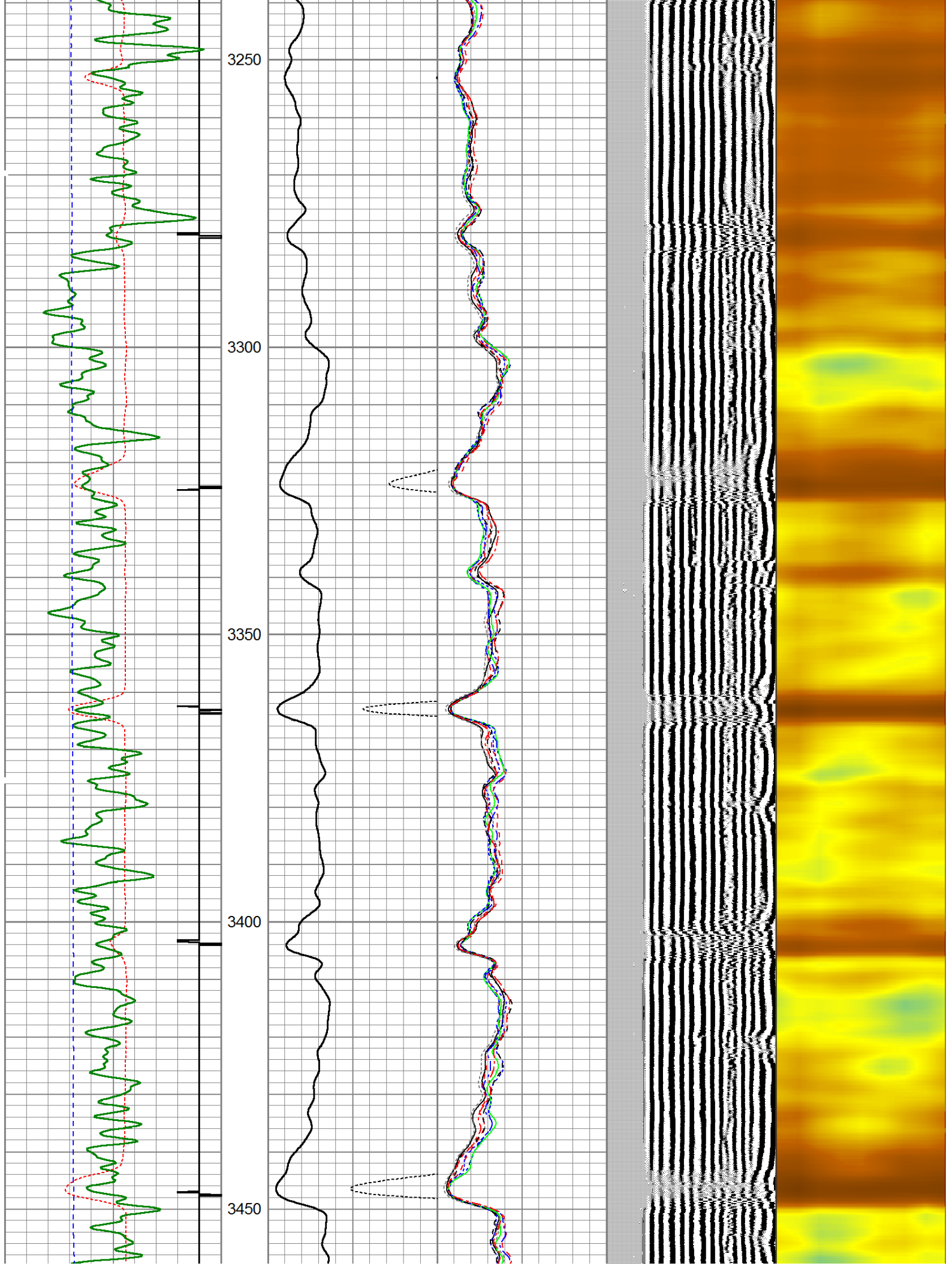


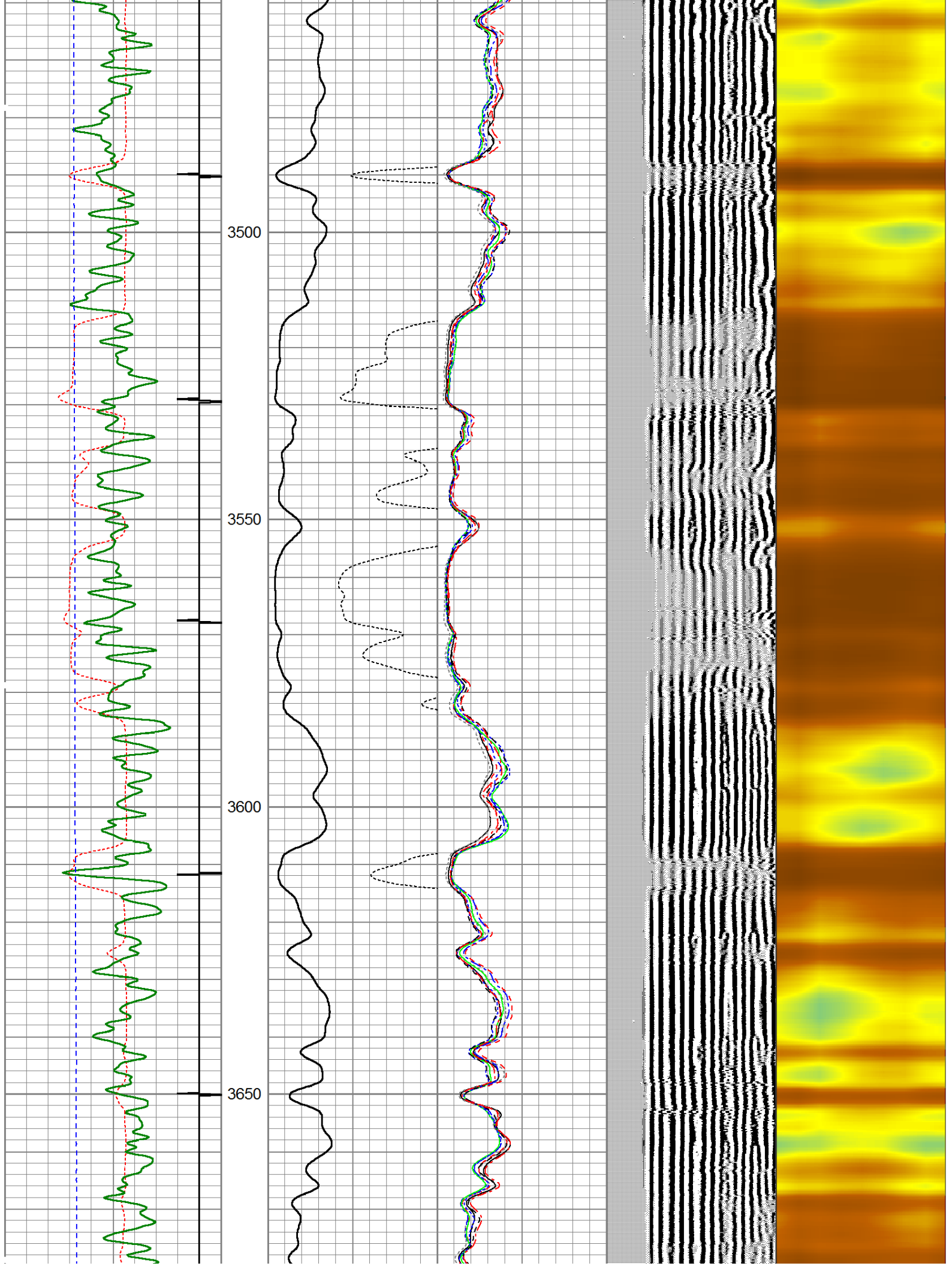


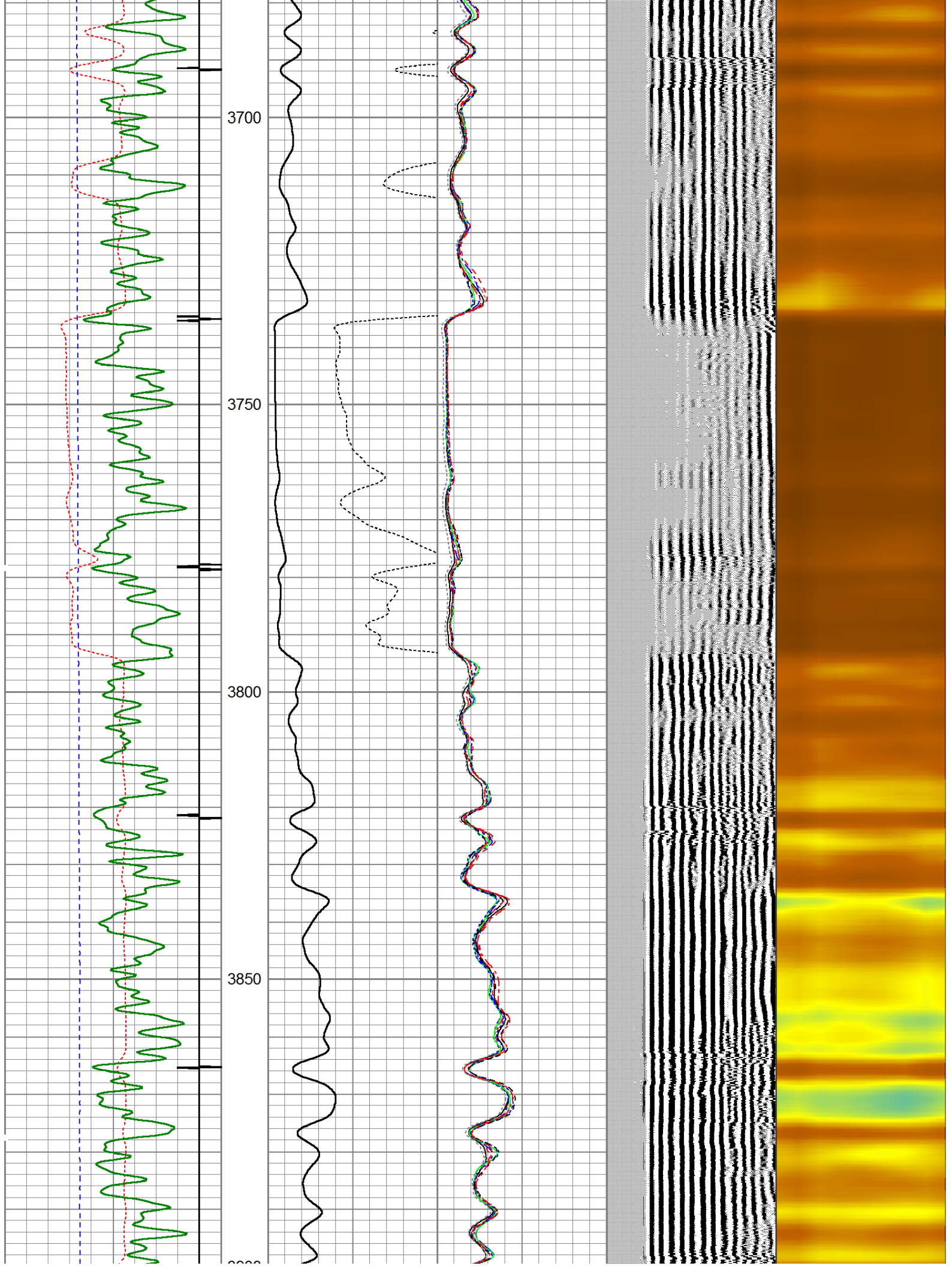


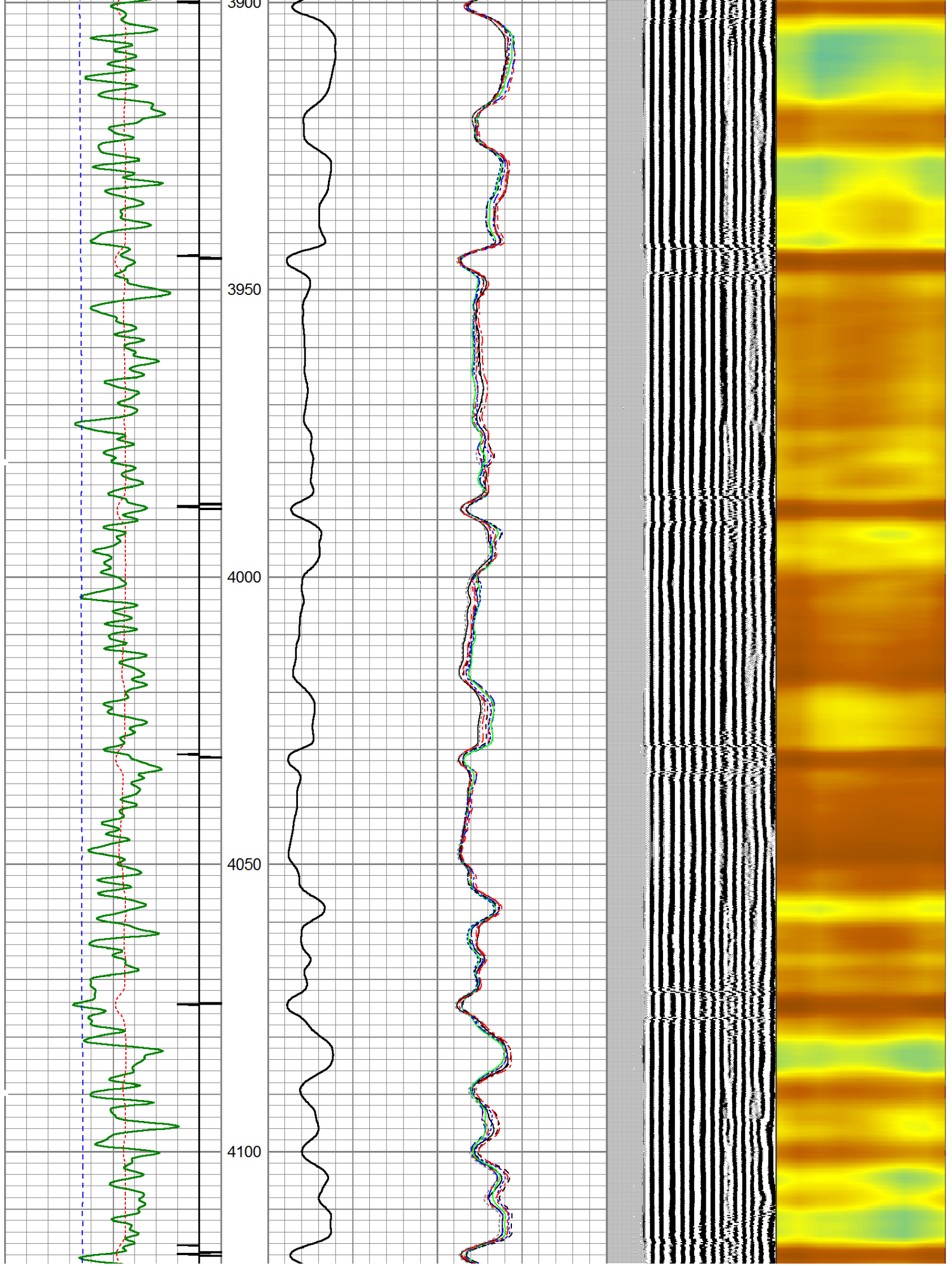


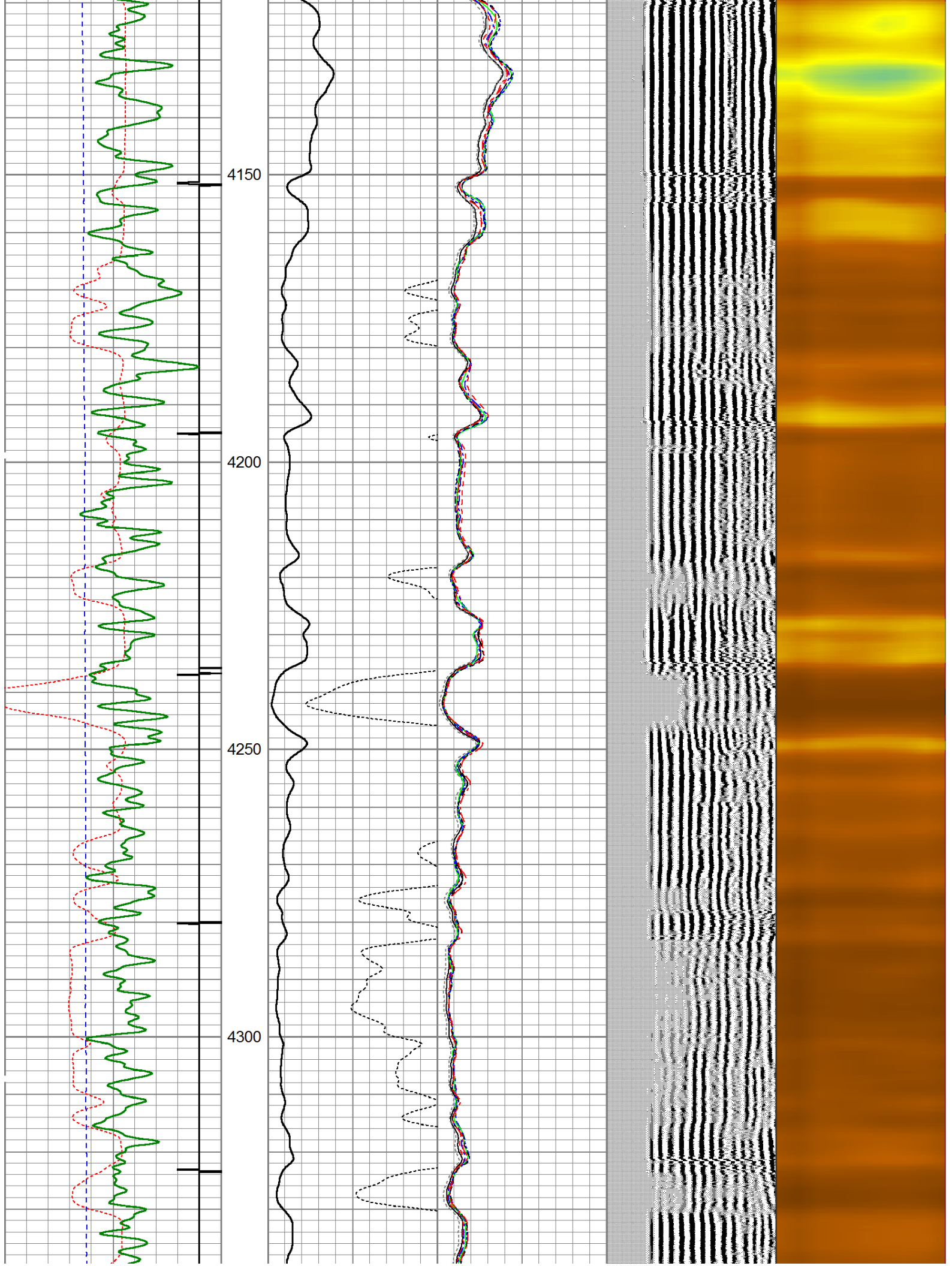


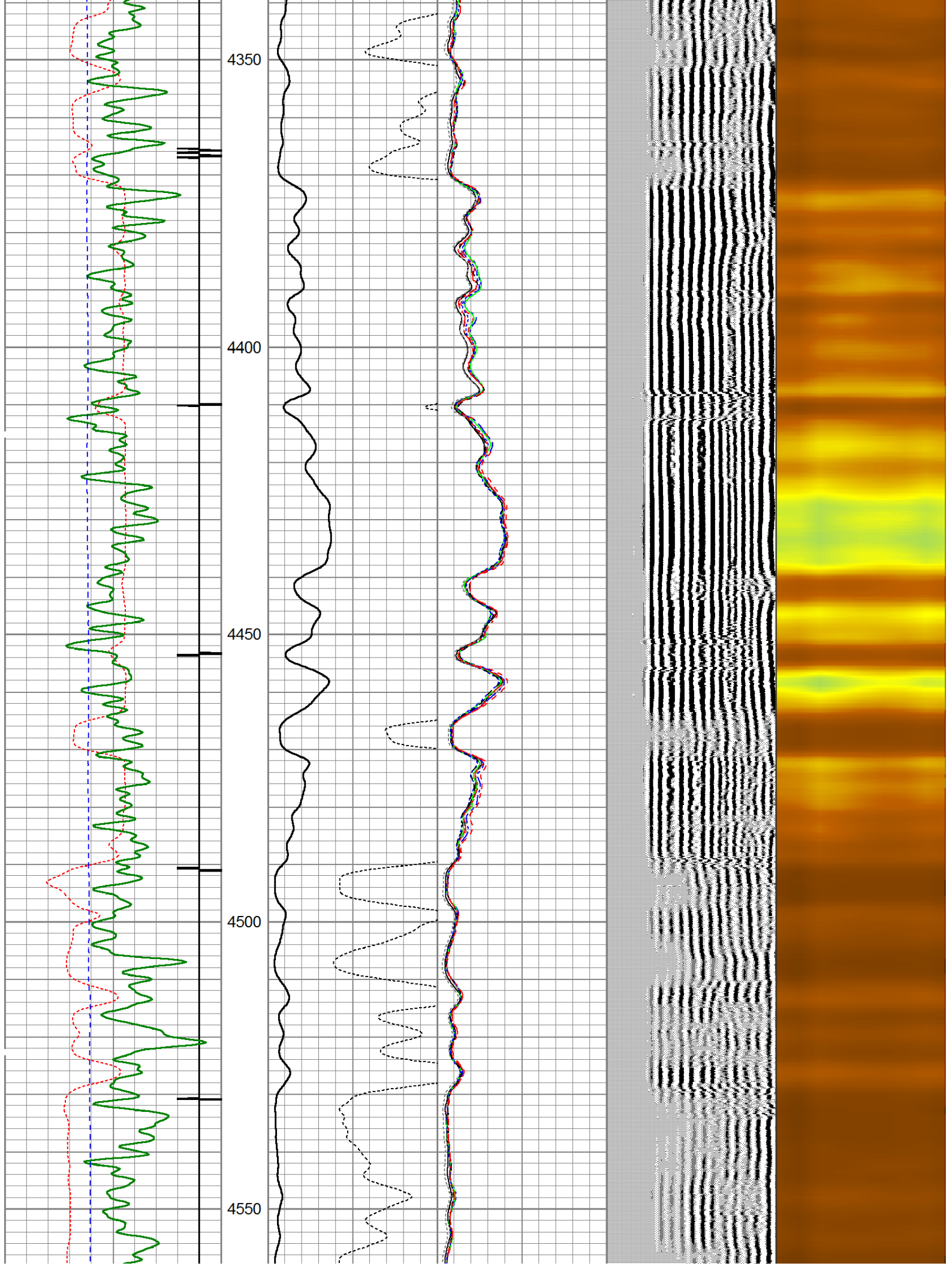


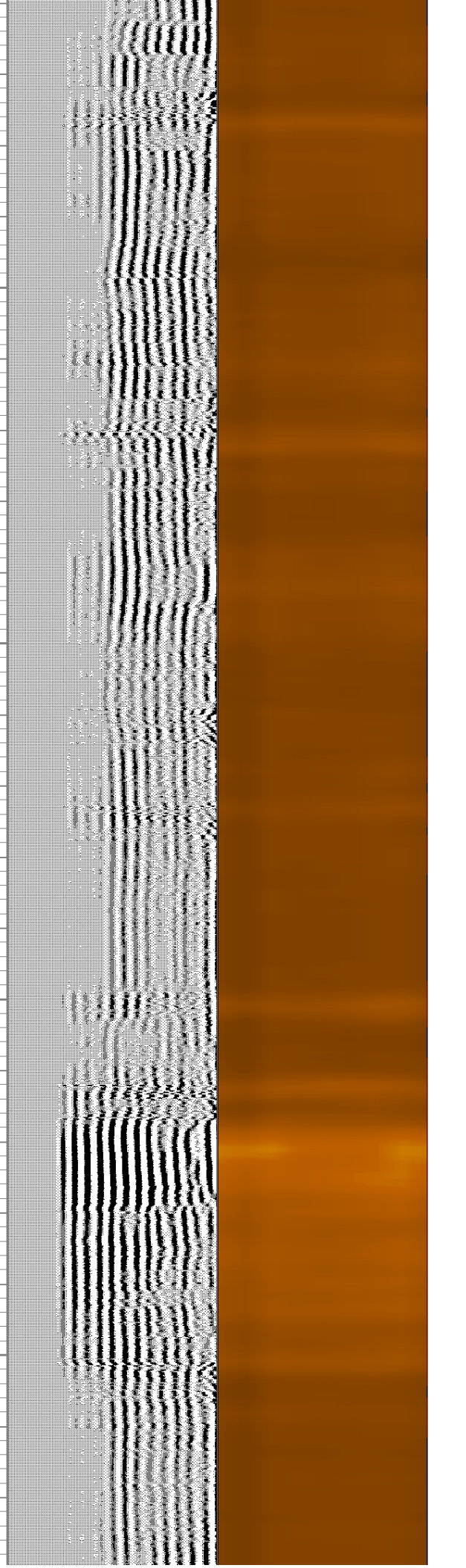
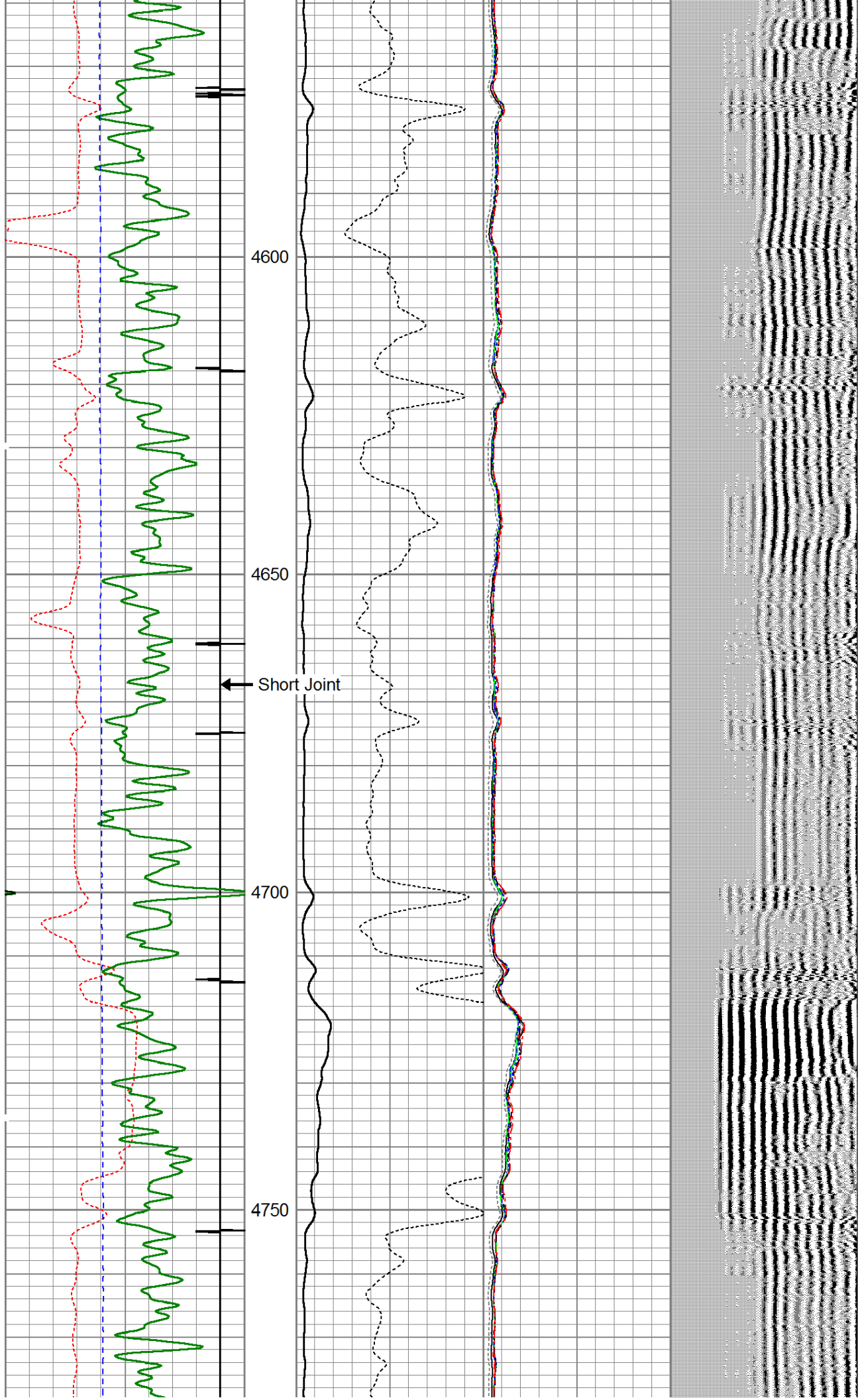


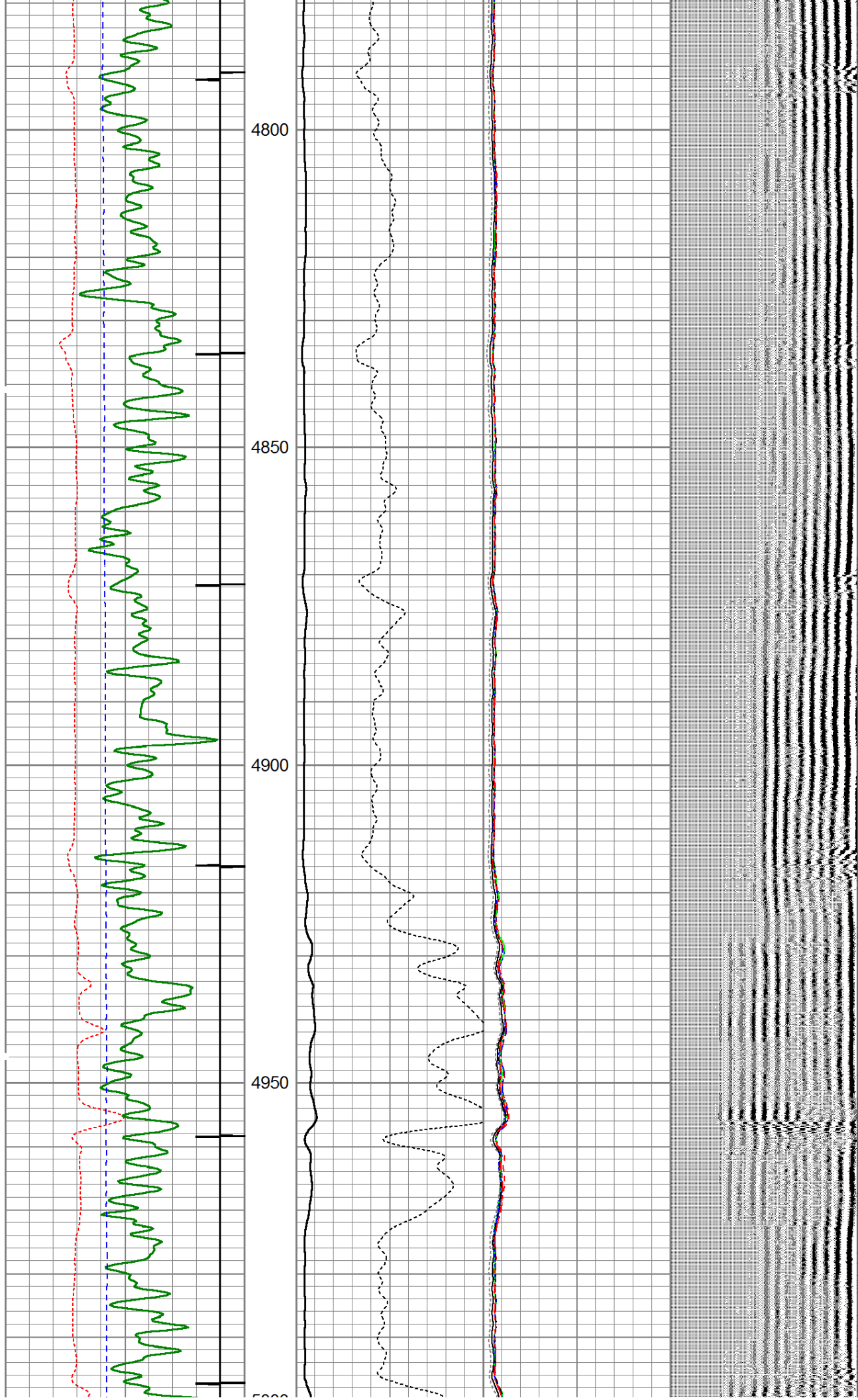


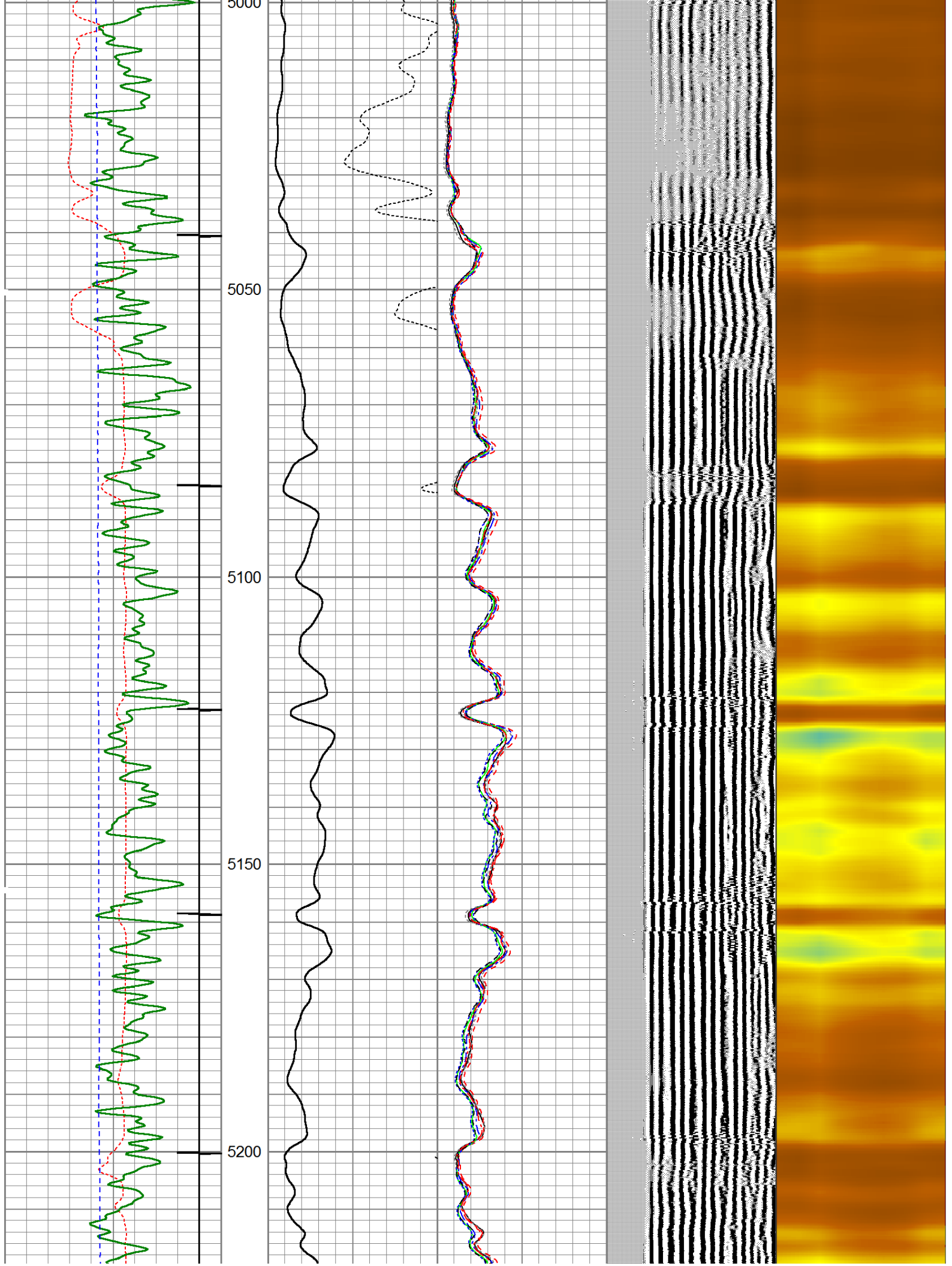


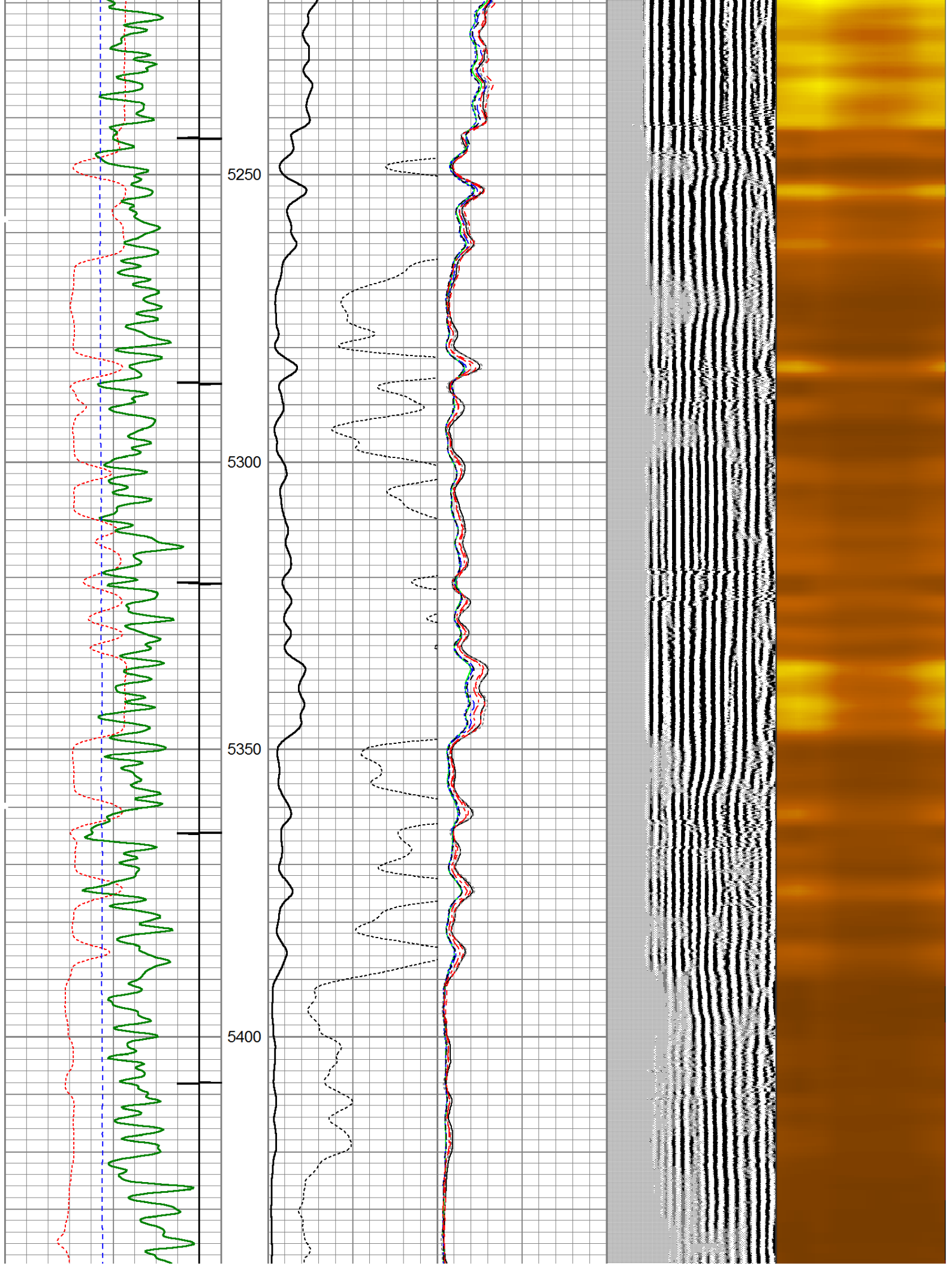


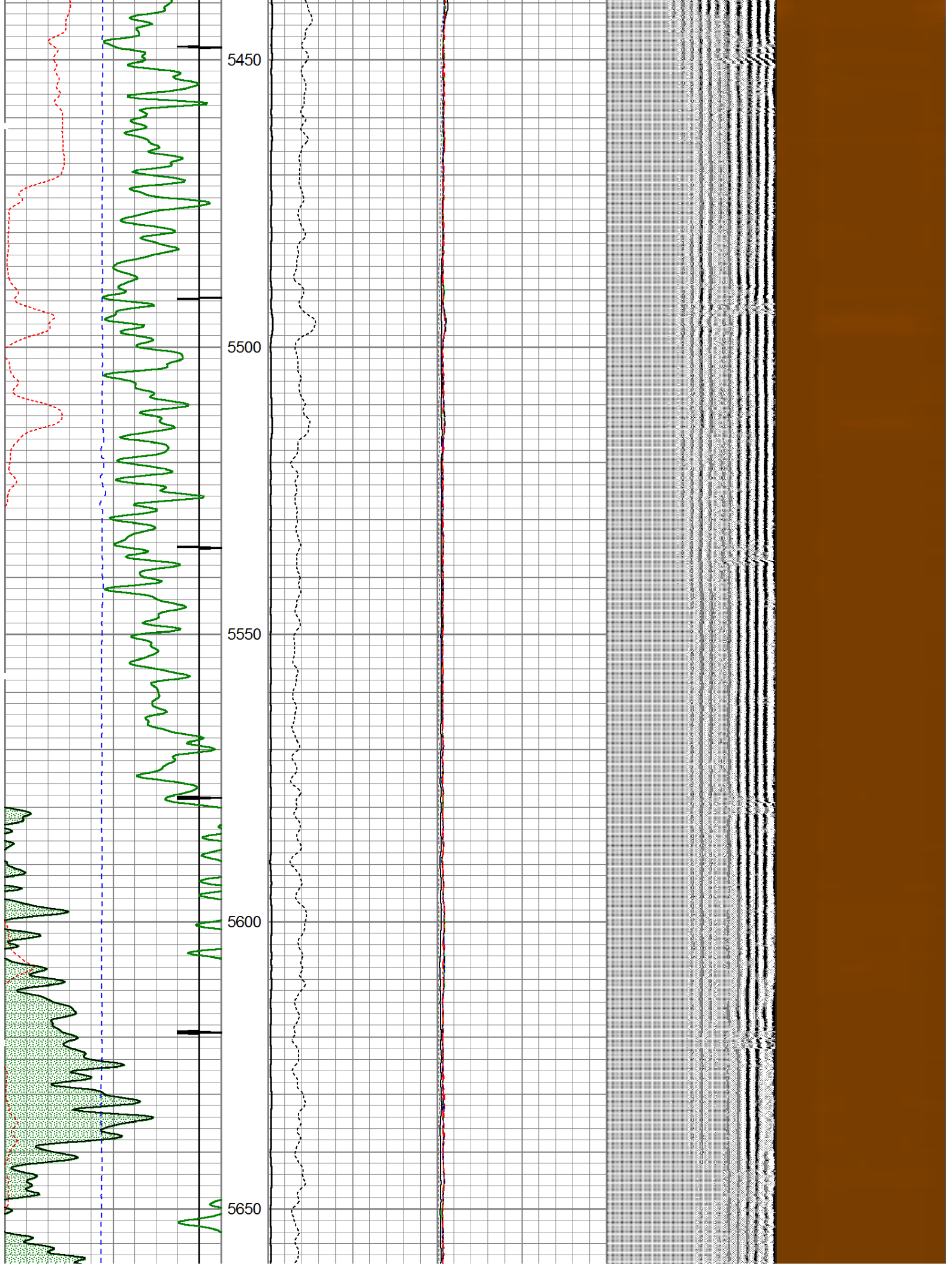


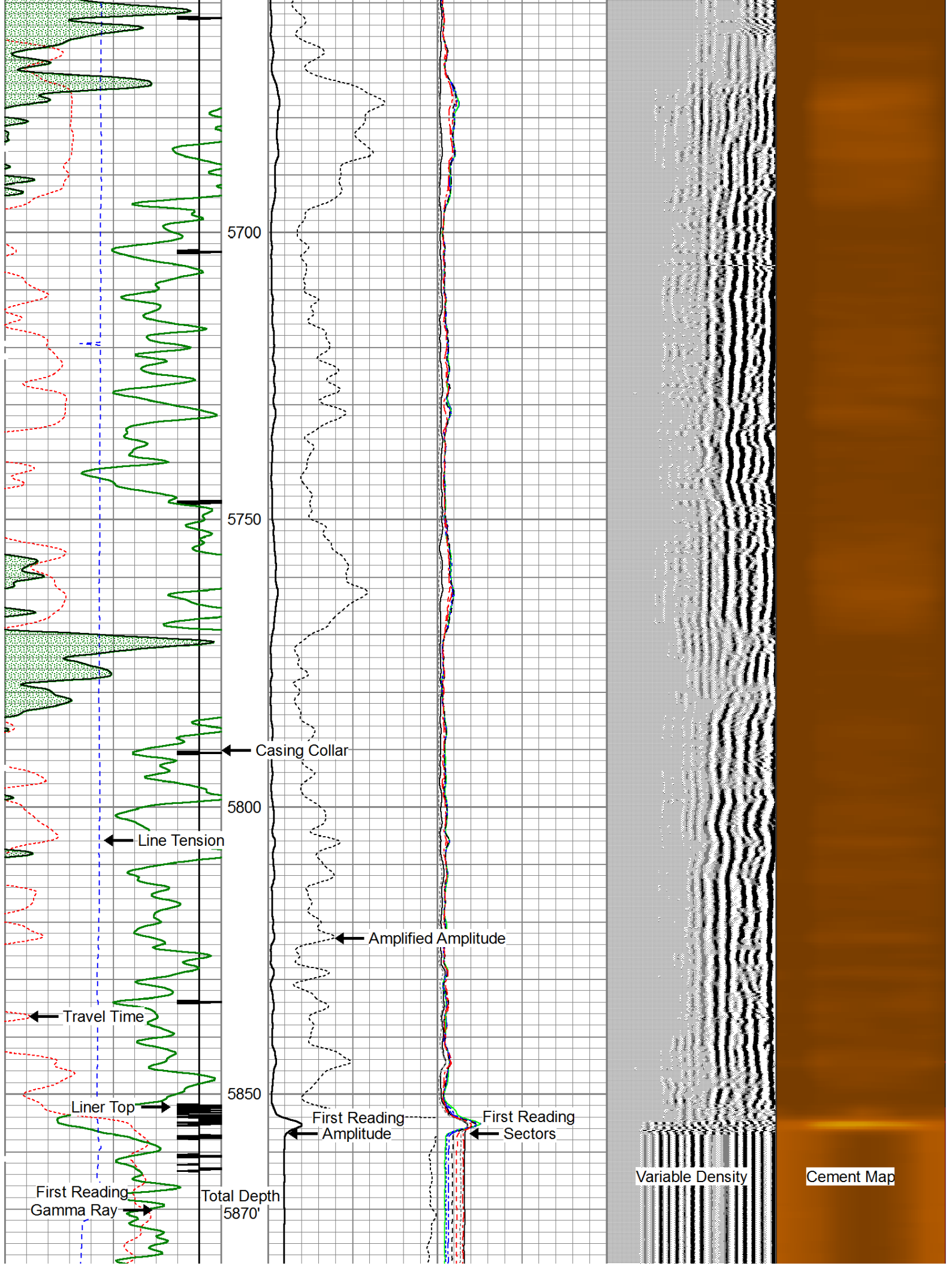


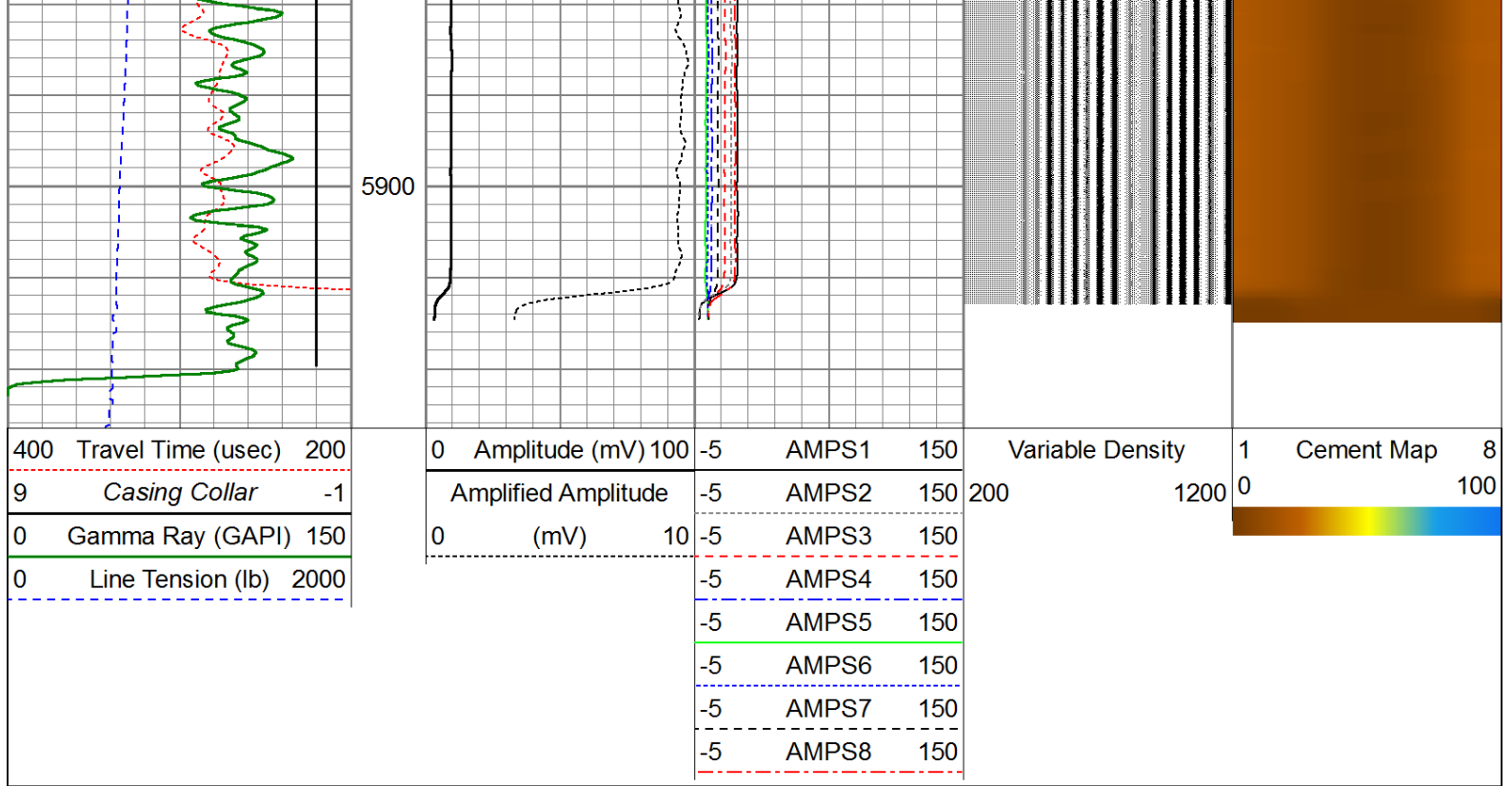






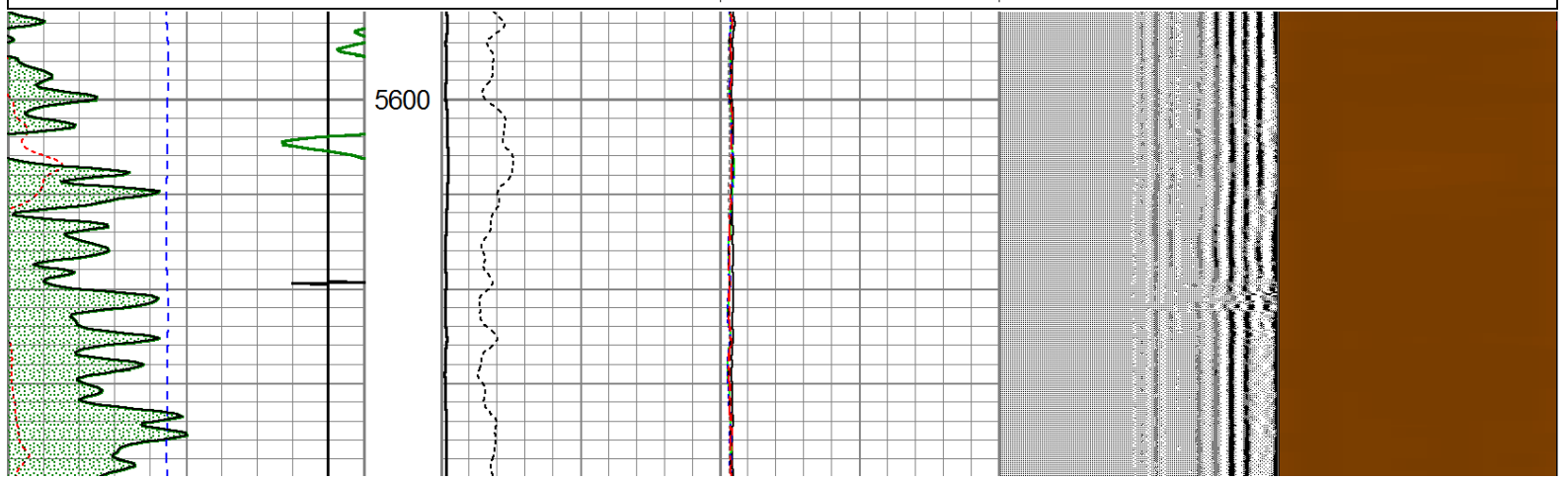
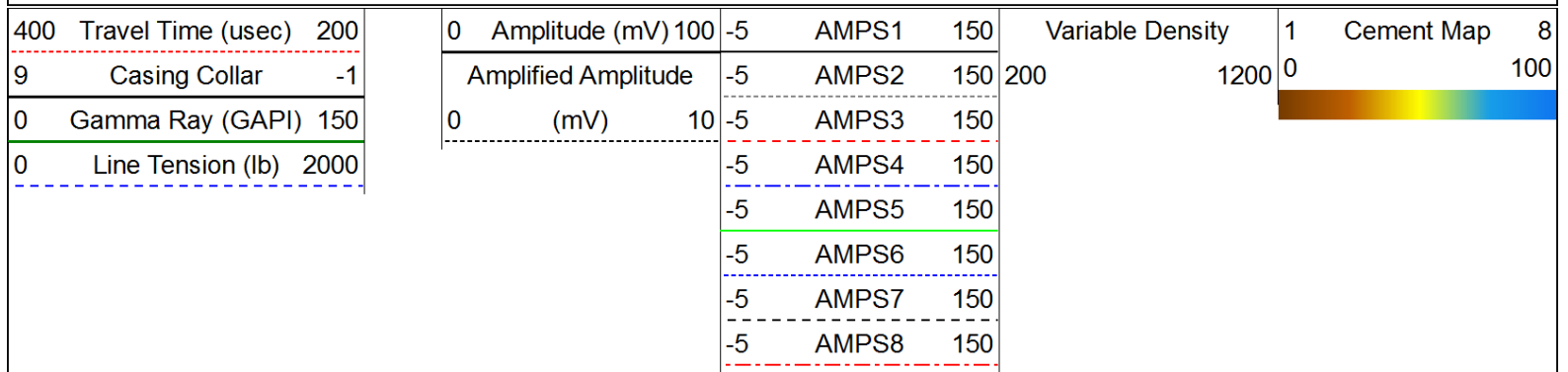


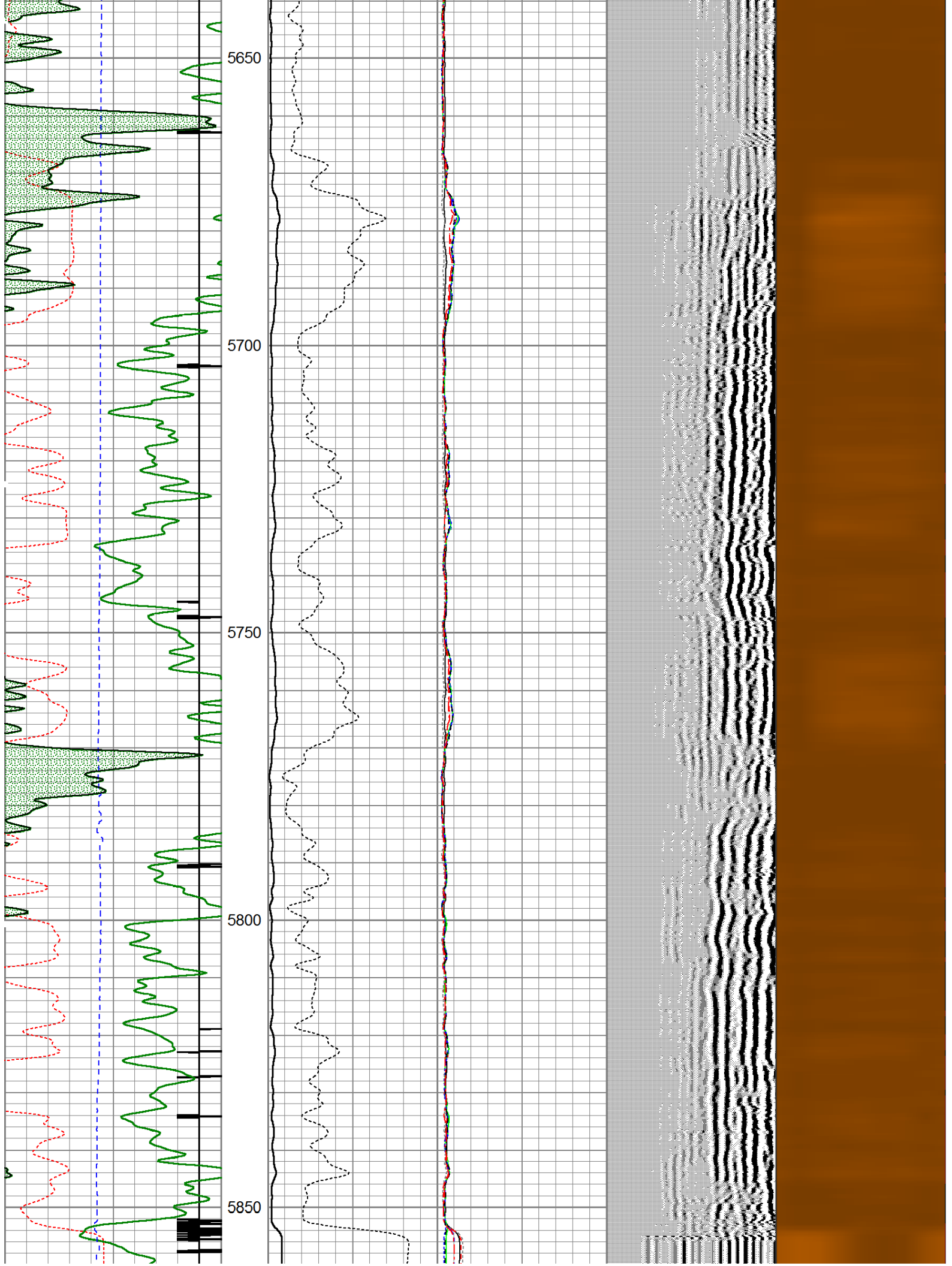


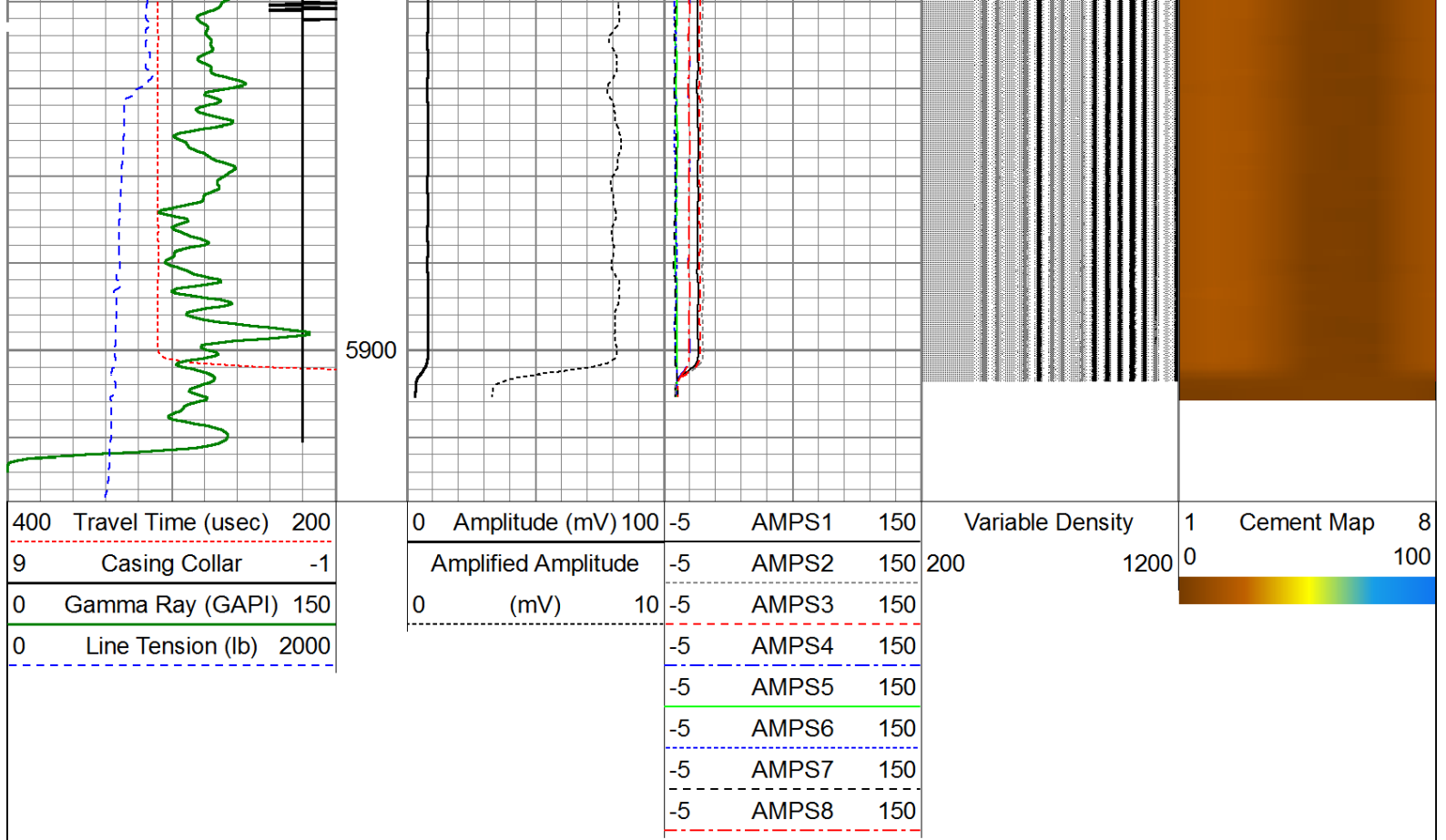


Repeat Pass (0 PSI)

Database File: noble energy rohn state ld09-66-1hn_rcbl.db
Dataset Pathname: pass3
Presentation Format: scbl03
Dataset Creation: Tue Nov 19 07:09:39 2013 by Log 0
Charted by: Depth in Feet scaled 1:240







Calibration Report					
Database File:	noble energy rohn state ld09-66-1hn_rcbl.db				
Dataset Pathname:	pass5.1				
Dataset Creation:	Tue Nov 19 08:25:47 2013 by Calc 0				
Gamma Ray Calibration Report					
Serial Number:	110108-Dig				
Tool Model:	Probe275				
Performed:	Mon Jul 01 16:56:15 2013				
Calibrator Value:	1.0	GAPI			
Background Reading:	0.0	cps			
Calibrator Reading:	1.0	cps			
Sensitivity:	0.8500	GAPI/cps			
Temperature Calibration Report					
Serial Number:	110108-Dig				
Tool Model:	Probe275				
Performed:	Sun Jun 13 13:33:21 1993				
	Reference		Reading		
Low Reference:	0.00	degF	0.00	cps	
High Reference:	1.00	degF	1.00	cps	
Gain:	1.00				
Offset:	0.00				
Delta Spacing	2				
Segmented Cement Bond Log Calibration Report					
Serial Number:	111107				
Tool Model:	Probe				

Calibration Casing Diameter: 7.000 in
 Calibration Depth: 986.182 ft

Master Calibration, performed Tue Nov 19 06:51:41 2013:

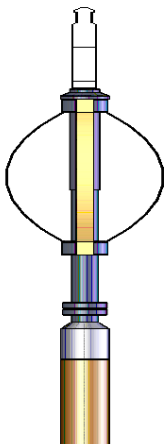
	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	-0.025	0.621	1.000	62.165	94.746	3.341
CAL	-0.025	0.824				
5'	-0.018	0.570	1.000	62.165	103.895	2.900
SUM						
S1	-0.013	0.653	0.000	100.000	150.320	-1.892
S2	-0.014	0.697	0.000	100.000	140.585	-1.956
S3	-0.021	0.709	0.000	100.000	137.107	2.822
S4	-0.020	0.693	0.000	100.000	140.248	2.828
S5	-0.020	0.637	0.000	100.000	152.171	3.078
S6	-0.020	0.584	0.000	100.000	165.609	3.281
S7	-0.020	0.546	0.000	100.000	176.586	3.602
S8	-0.019	0.544	0.000	100.000	177.470	3.436

Internal Reference Calibration, performed Wed Dec 31 17:00:00 1969:

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	-0.025	0.824	1.000	0.000

Air Zero Calibration, performed Thu Oct 17 08:50:08 2013:

	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

Tool Name	Start Depth (ft)	End Depth (ft)	Tool Length (ft)	Tool Weight (lb)	Tool O.D. (in)
WVFS3FT	14.72	14.72	0.00	0.00	0.00
WVFCAL	14.72	14.72	0.00	0.00	0.00
WVFS1	14.72	14.72	0.00	0.00	0.00
WVFS2	14.72	14.72	0.00	0.00	0.00
WVFS3	14.72	14.72	0.00	0.00	0.00
WVFS4	14.72	14.72	0.00	0.00	0.00
WVFS5	14.72	14.72	0.00	0.00	0.00
WVFS6	14.72	14.72	0.00	0.00	0.00
WVFS7	14.72	14.72	0.00	0.00	0.00
WVFS8	14.72	14.72	0.00	0.00	0.00
WVFS5FT	13.72	14.72	1.00	90.00	2.75
RBT-Probe (111107)	8.75	14.72	5.97	217.00	2.75
Probe Radii Bond Tool with Digital Telemetry					
Probe275	2.88	5.76	2.88	20.00	2.75
2.75" Centralizer					
CCL	6.75	12.63	5.88	57.00	2.75
TEMP	5.88	12.63	6.75	217.00	2.75
GR	5.42	12.63	7.21	217.00	2.75
GR-Probe275 (110108-Dig)	4.78	12.63	7.85	217.00	2.75
Probe 2 3/4" Logging Gamma Ray					
Probe275	2.88	5.76	2.88	20.00	2.75
2.75" Centralizer					

Dataset: noble energy rohn state ld09-66-1hn_rcbl.db: field/well/run1/pass5.1

Total Length: 23.16 ft

Total Weight: 217.00 lb

O.D. 2.75 in