



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

Company		Noble Energy	
Well		Wells Ranch AE20-63HN	
Field		Wattenberg	
County		Weld	
State		Colorado	
Location:		API # : 05-123-37222	
SEC 20 TWP 6N RGE 62W		TEMP	
Permanent Datum		Ground Level	
Log Measured From		24' Kelly Bushing	
Drilling Measured From		Kelly Bushing	
Elevation		4785'	
Other Services		Elevation	
K.B. 4809'		D.F. 4808'	
G.L. 4785'			
Date	November 27, 2013		
Run Number	1		
Depth Driller	10717'		
Depth Logger	6636'		
Bottom Logged Interval	6624'		
Top Log Interval	Surface		
Open Hole Size	8.125		
Type Fluid	Fresh Water		
Density / Viscosity	8.33		
Max. Recorded Temp.	210 Deg F		
Estimated Cement Top	943'		
Time Well Ready	15:23		
Time Logger on Bottom	15:55		
Equipment Number	13033		
Location	Brighton		
Recorded By	C. Rail		
Witnessed By	Bill Mansfield		
Borehole Record			
Run Number	Bit	From	To
One			
Two			
Three			
Four			
Casing Record	Size	Wgt/Ft	Top
Surface String	9 5/8	36#	Surface
Prot. String			
Production String	7	26#	Surface
Liner	4 1/2	11 6#	6754'
Short Joint			5619'

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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 @ 943'

Short Joint @ 5619' To 5632'

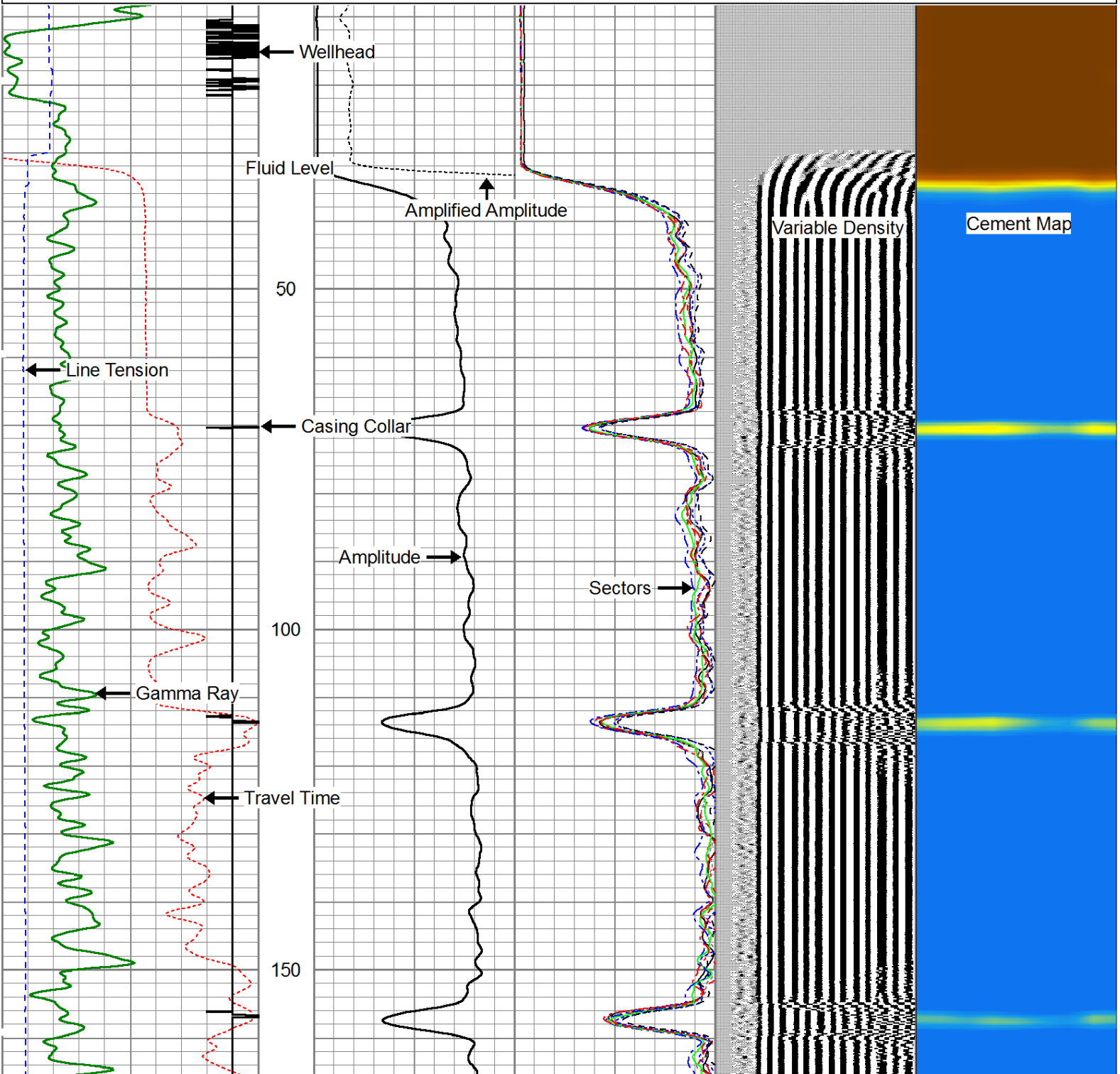
Thank you for using Allied Wireline.
(303)659-4609

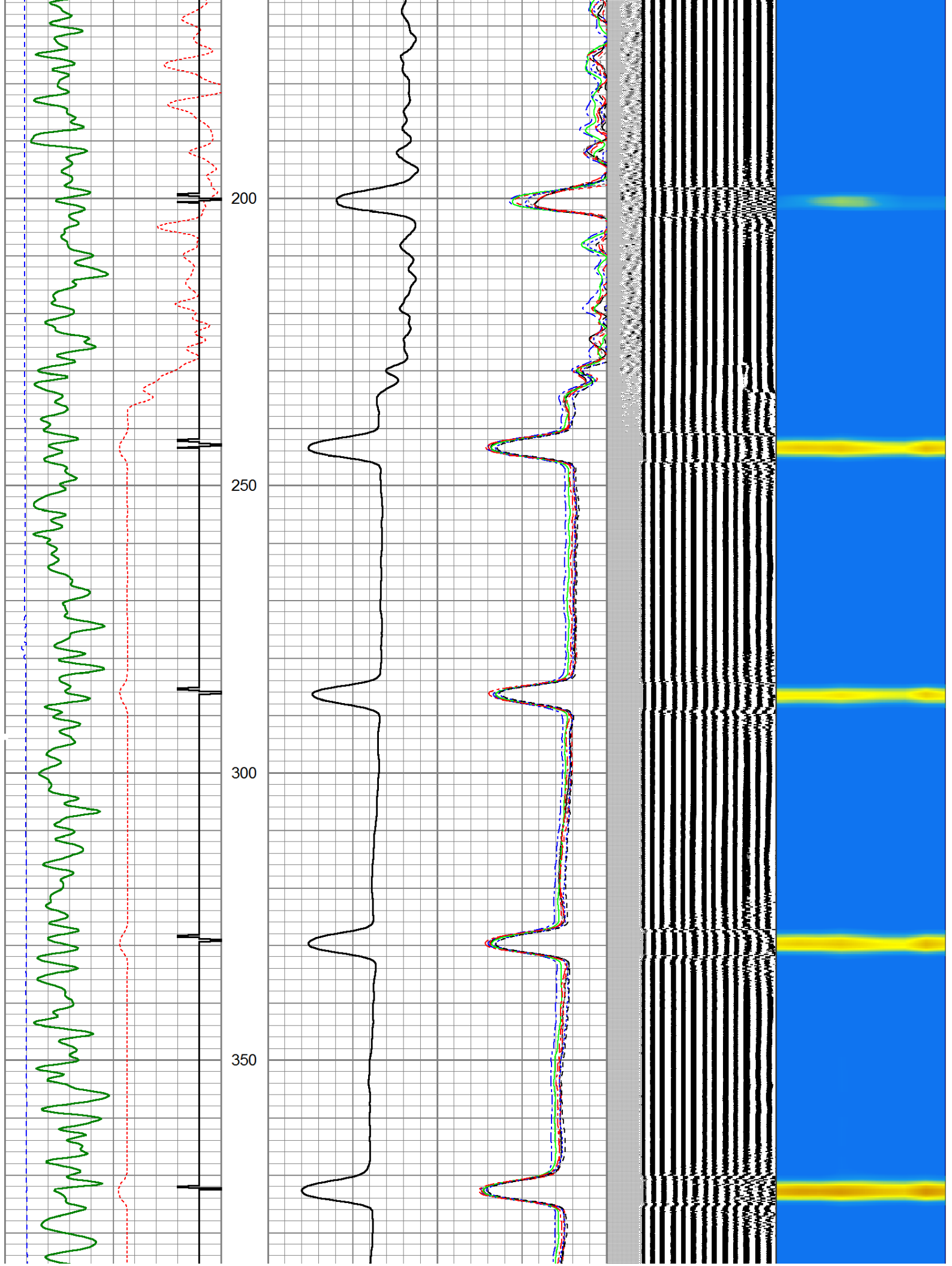


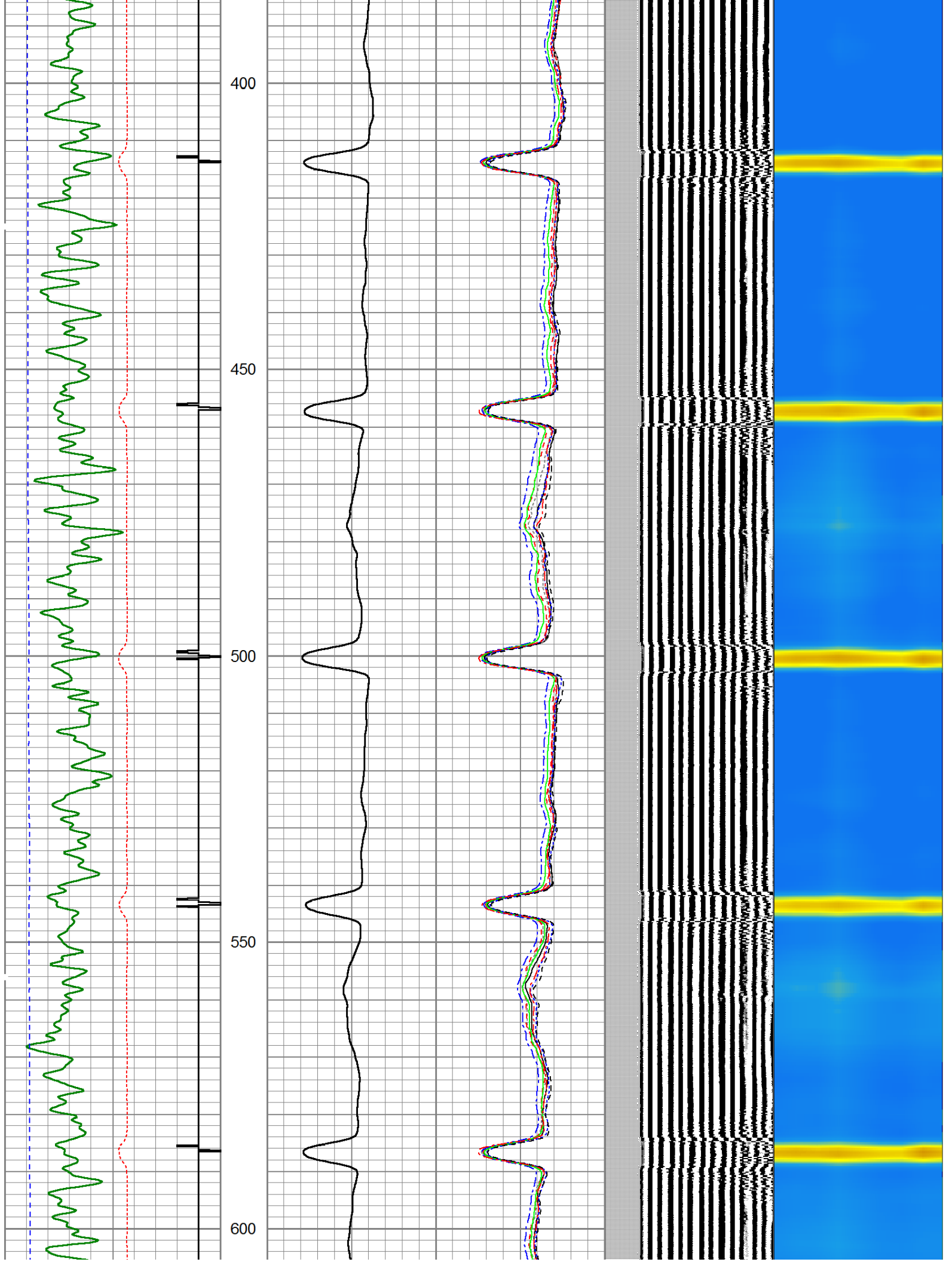
Main Pass (0 PSI)

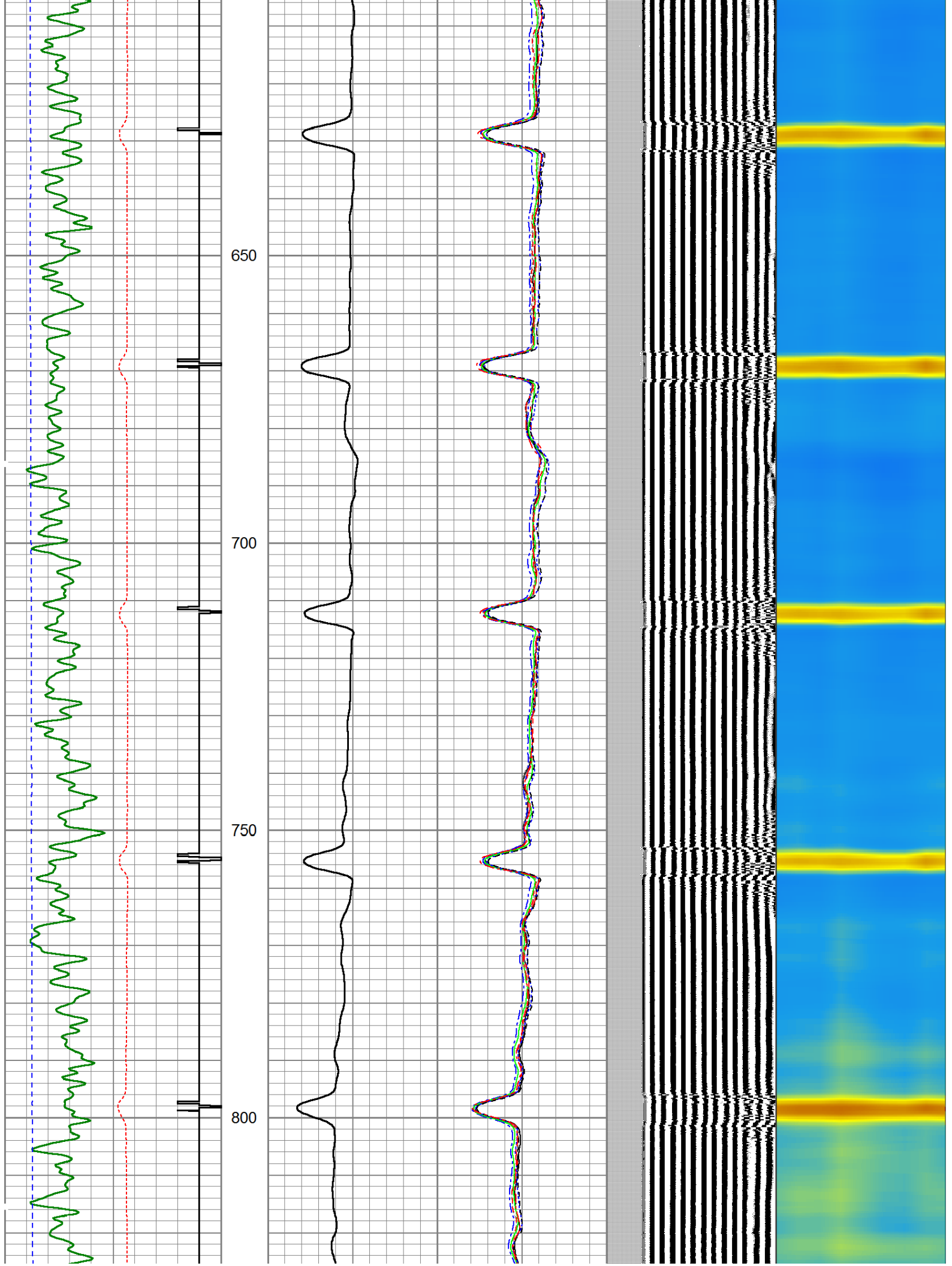
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Dataset Pathname: pass5
Presentation Format: scbl03
Dataset Creation: Wed Nov 27 16:06:43 2013 by Log 0
Charted by: Depth in Feet scaled 1:240

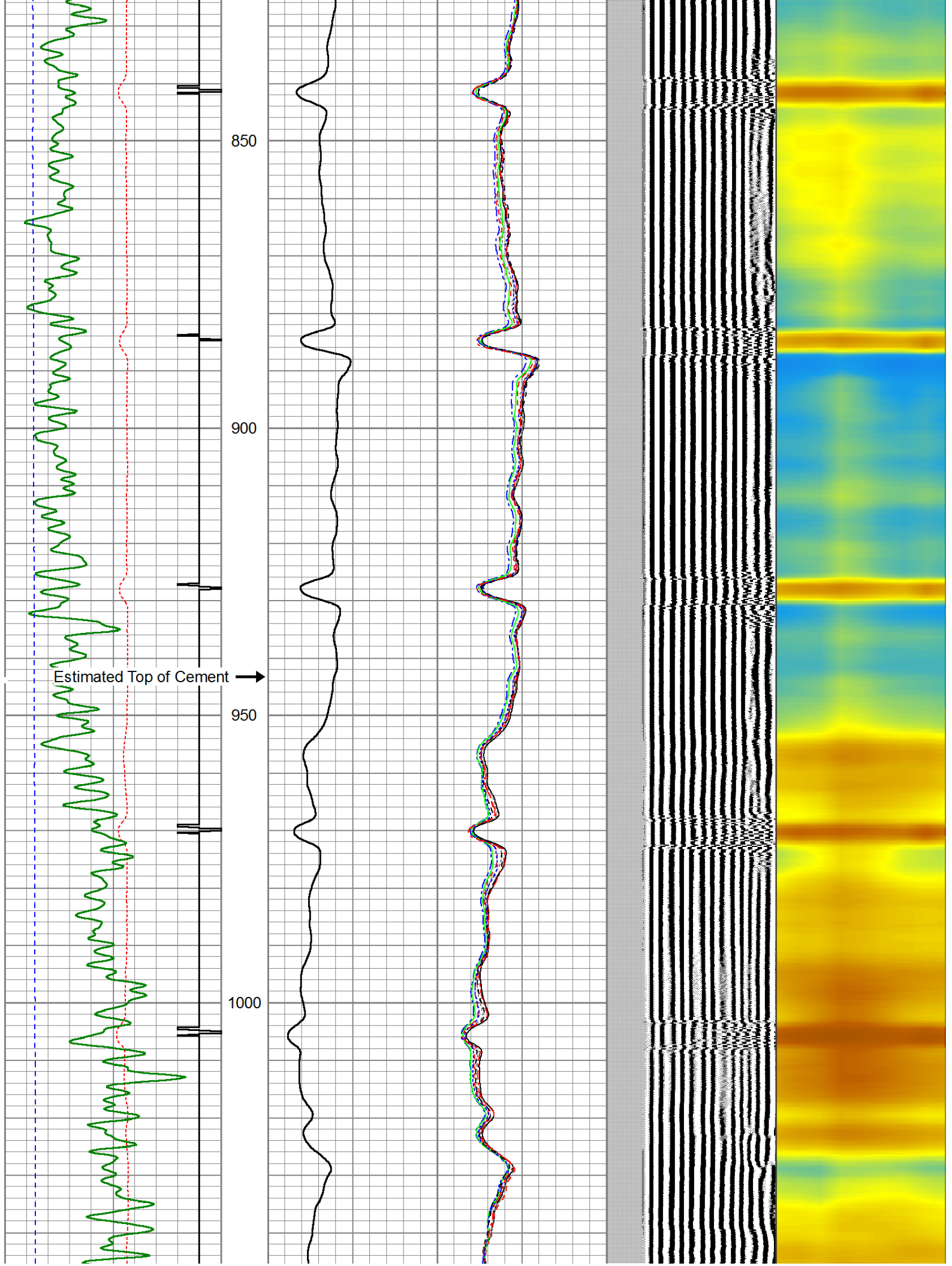
400	Travel Time (usec)	200	0	Amplitude (mV)	100	-5	AMPS1	150	Variable Density	1	Cement Map	8
9	Casing Collar	-1		Amplified Amplitude		-5	AMPS2	150	200	1200	0	100
0	Gamma Ray (GAPI)	150	0	(mV)	10	-5	AMPS3	150				
0	Line Tension (lb)	2000				-5	AMPS4	150				
						-5	AMPS5	150				
						-5	AMPS6	150		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

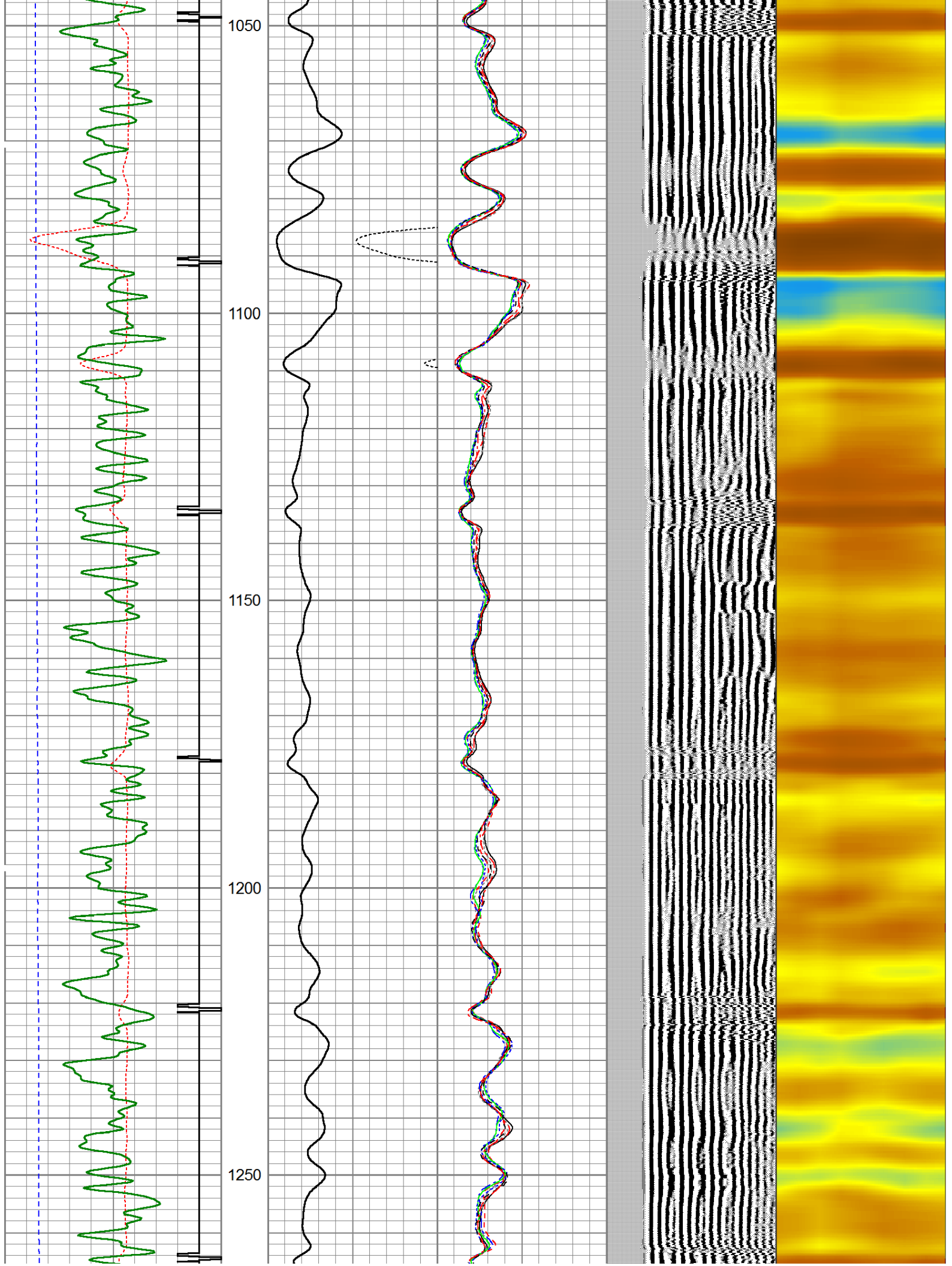


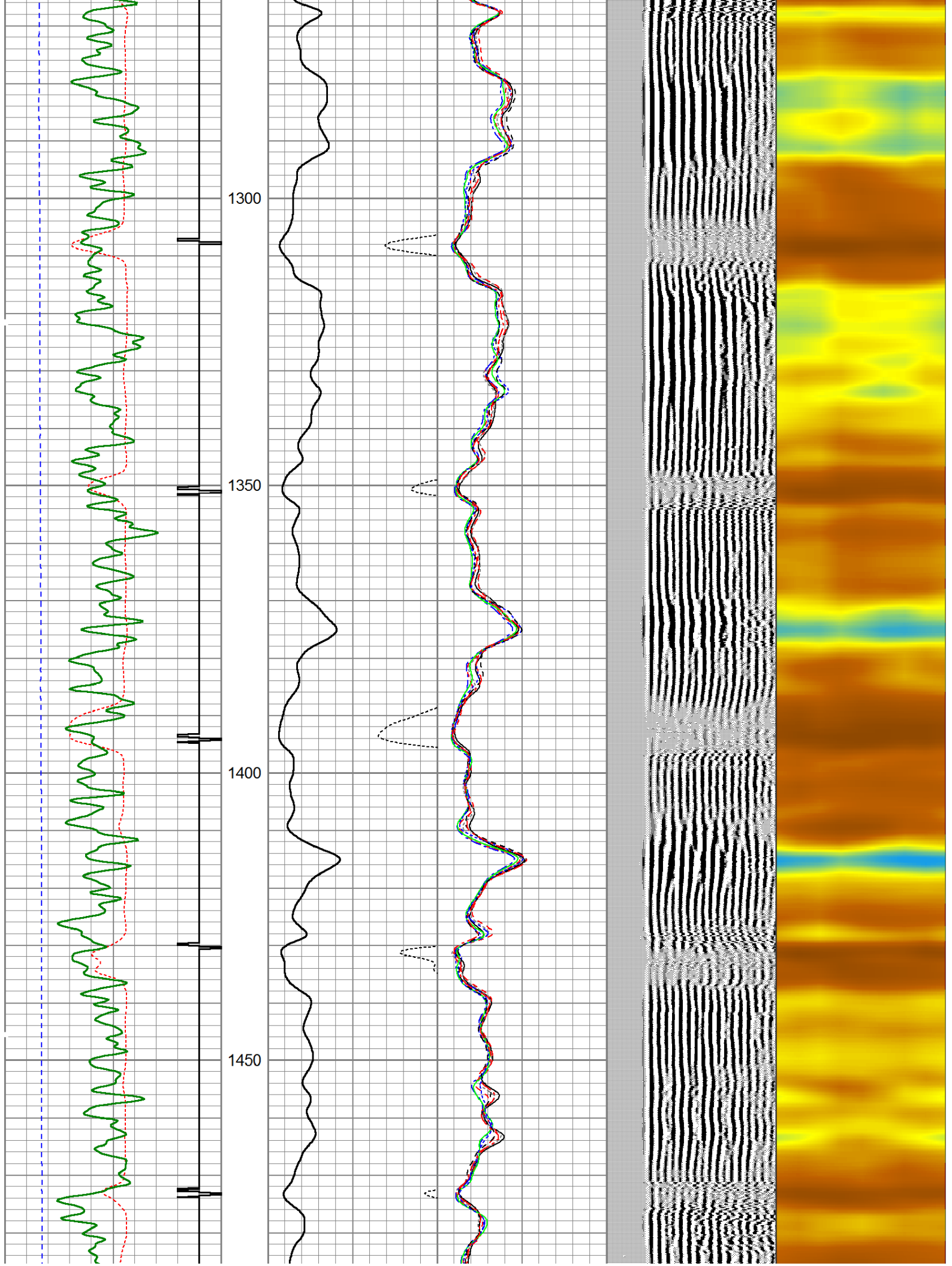


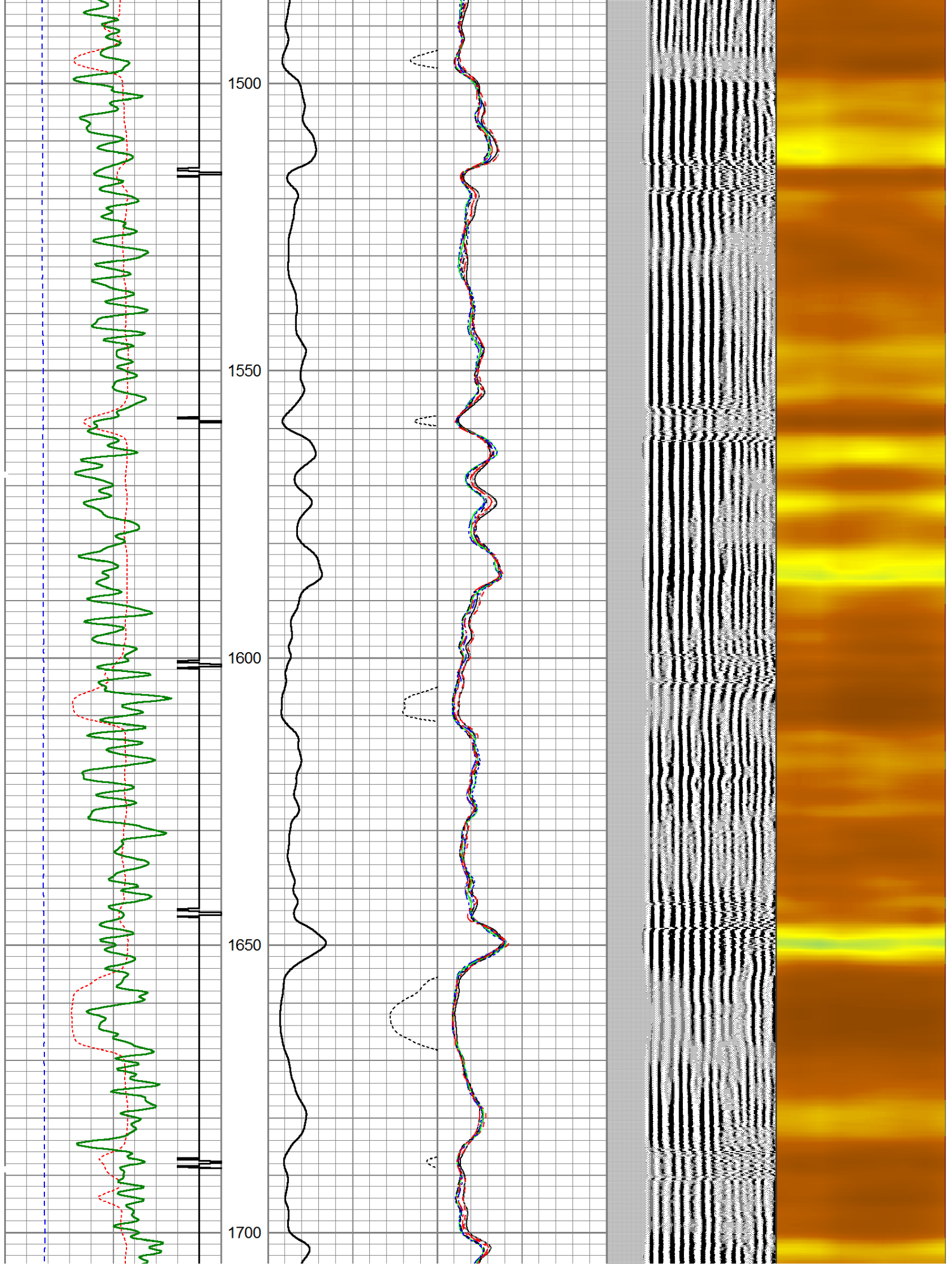


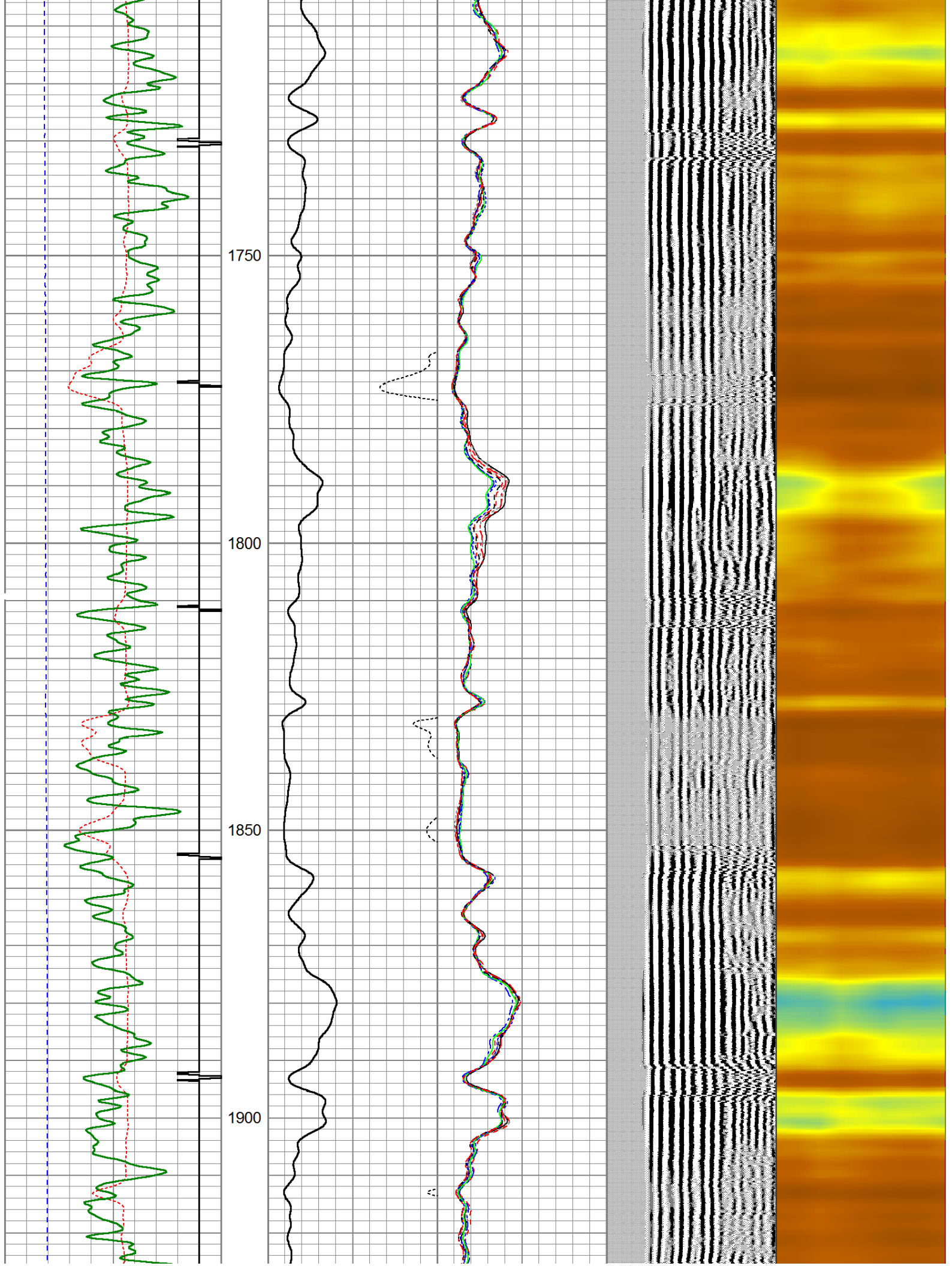


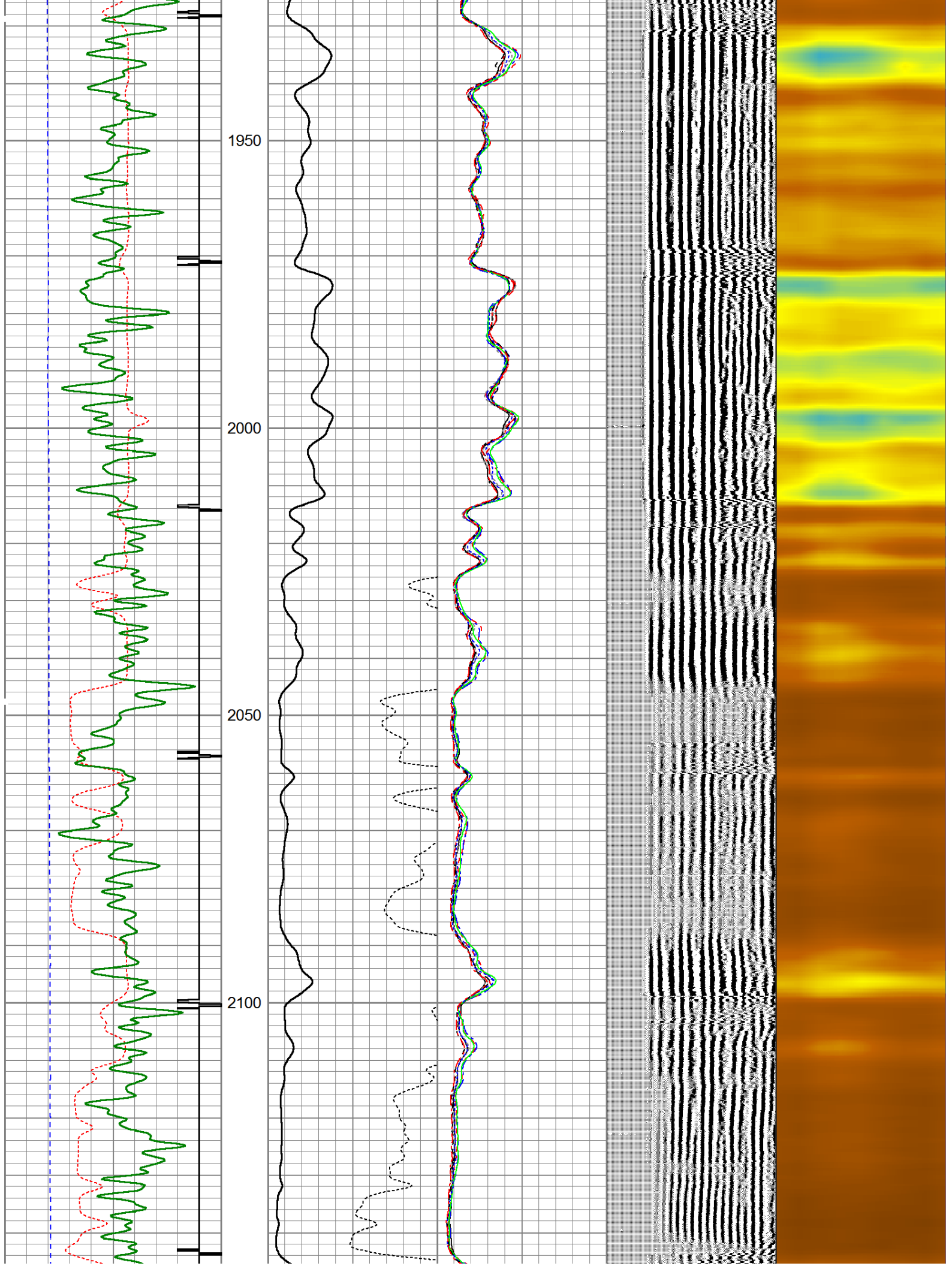


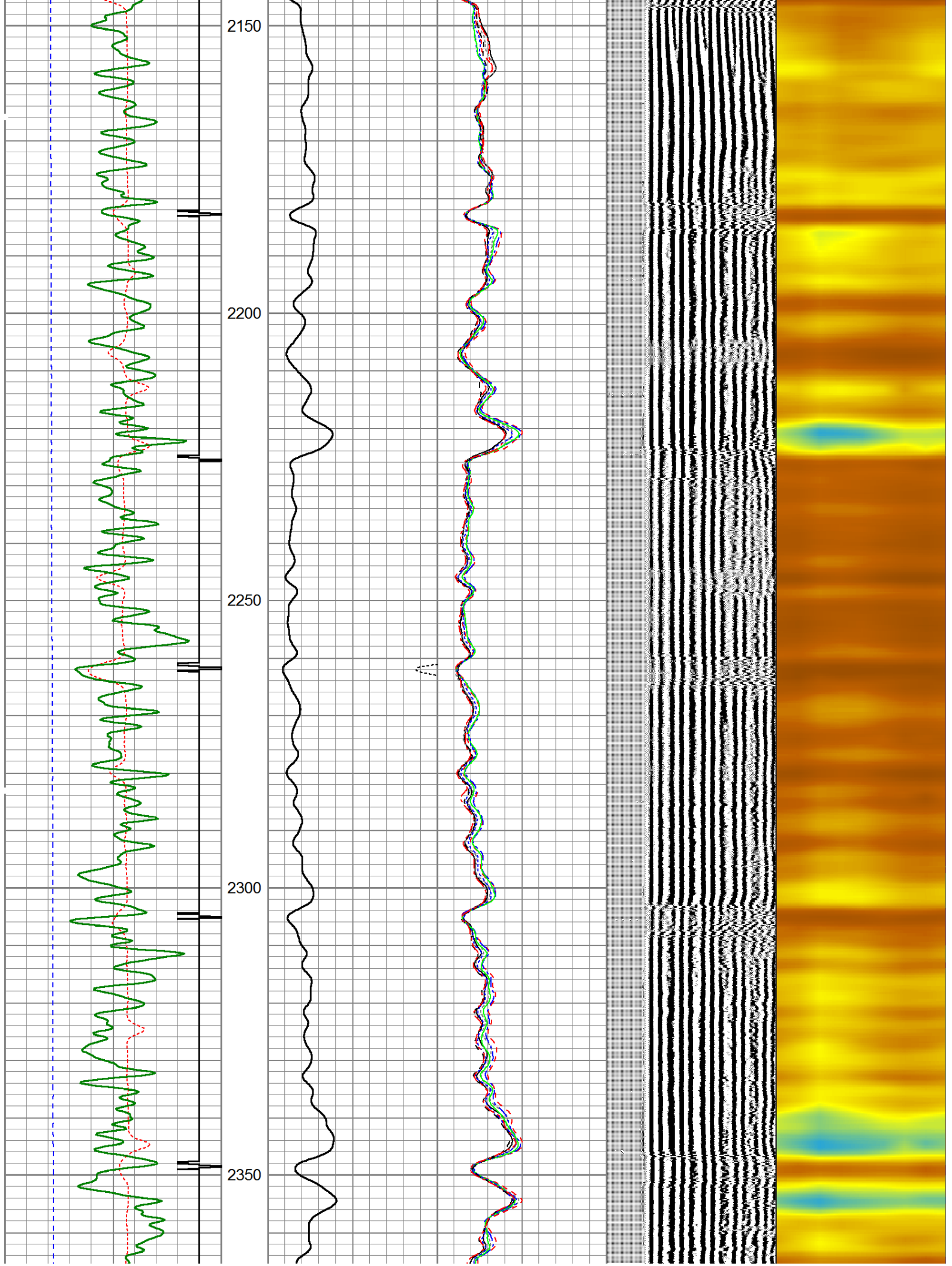


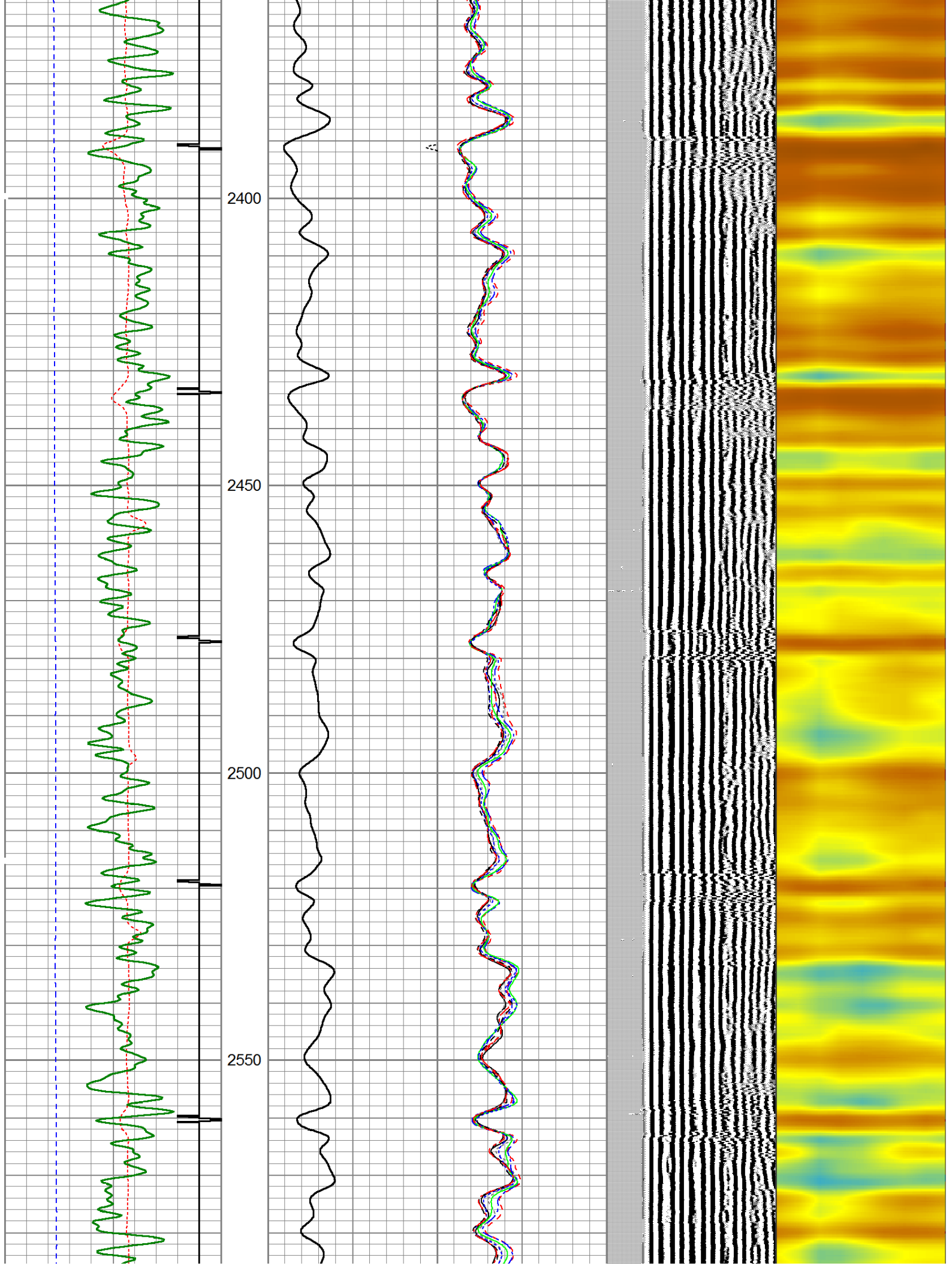


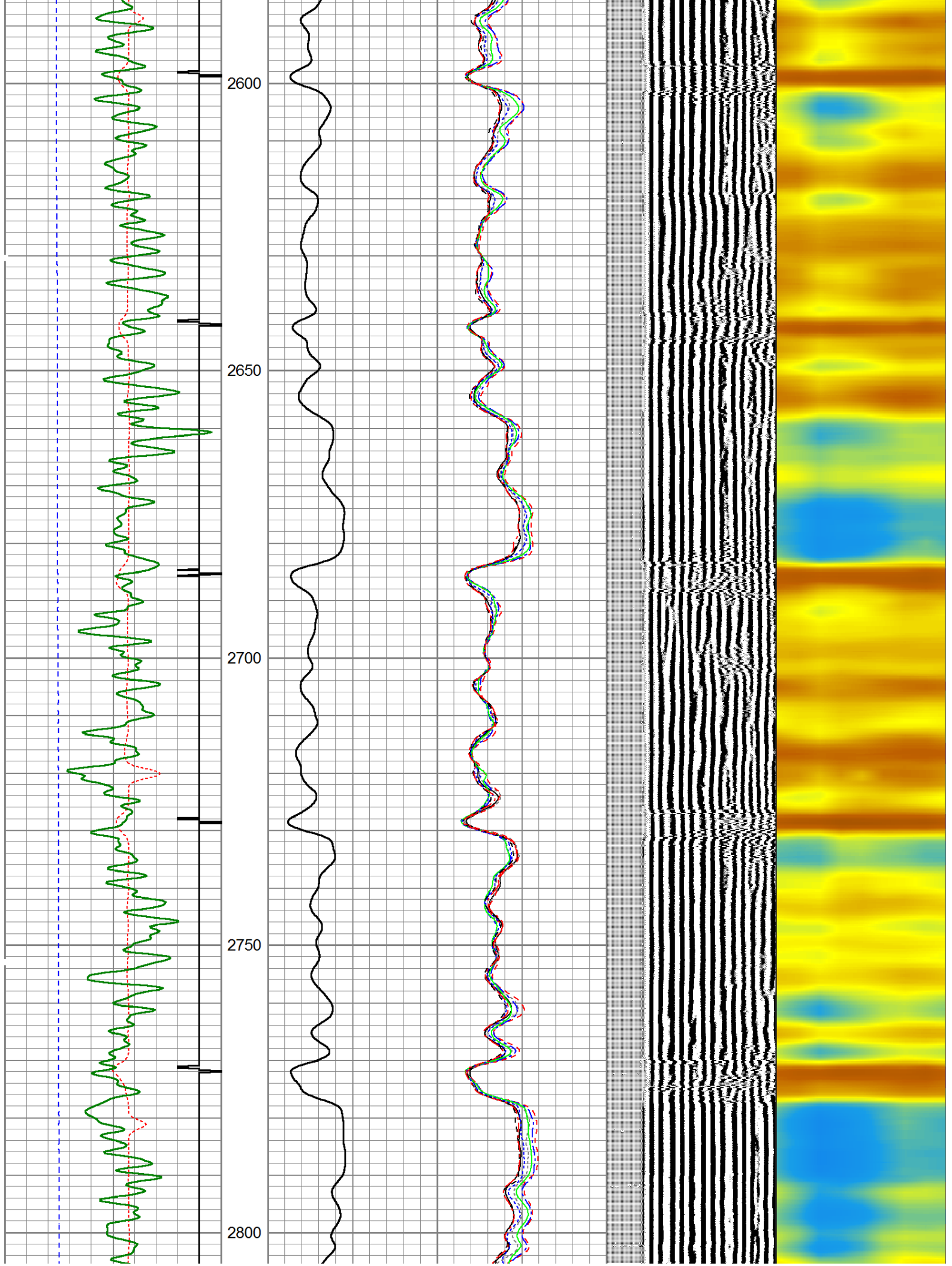


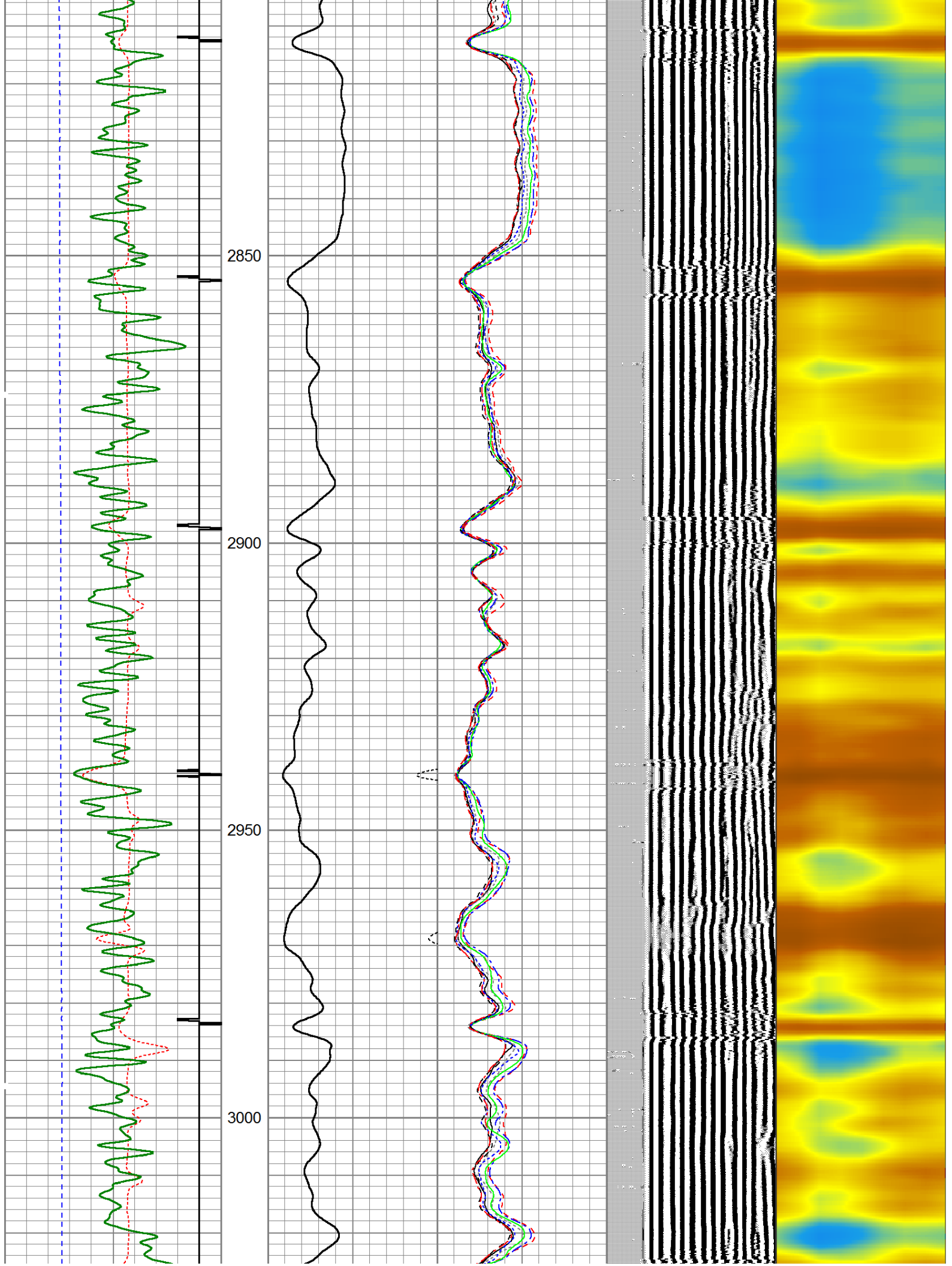


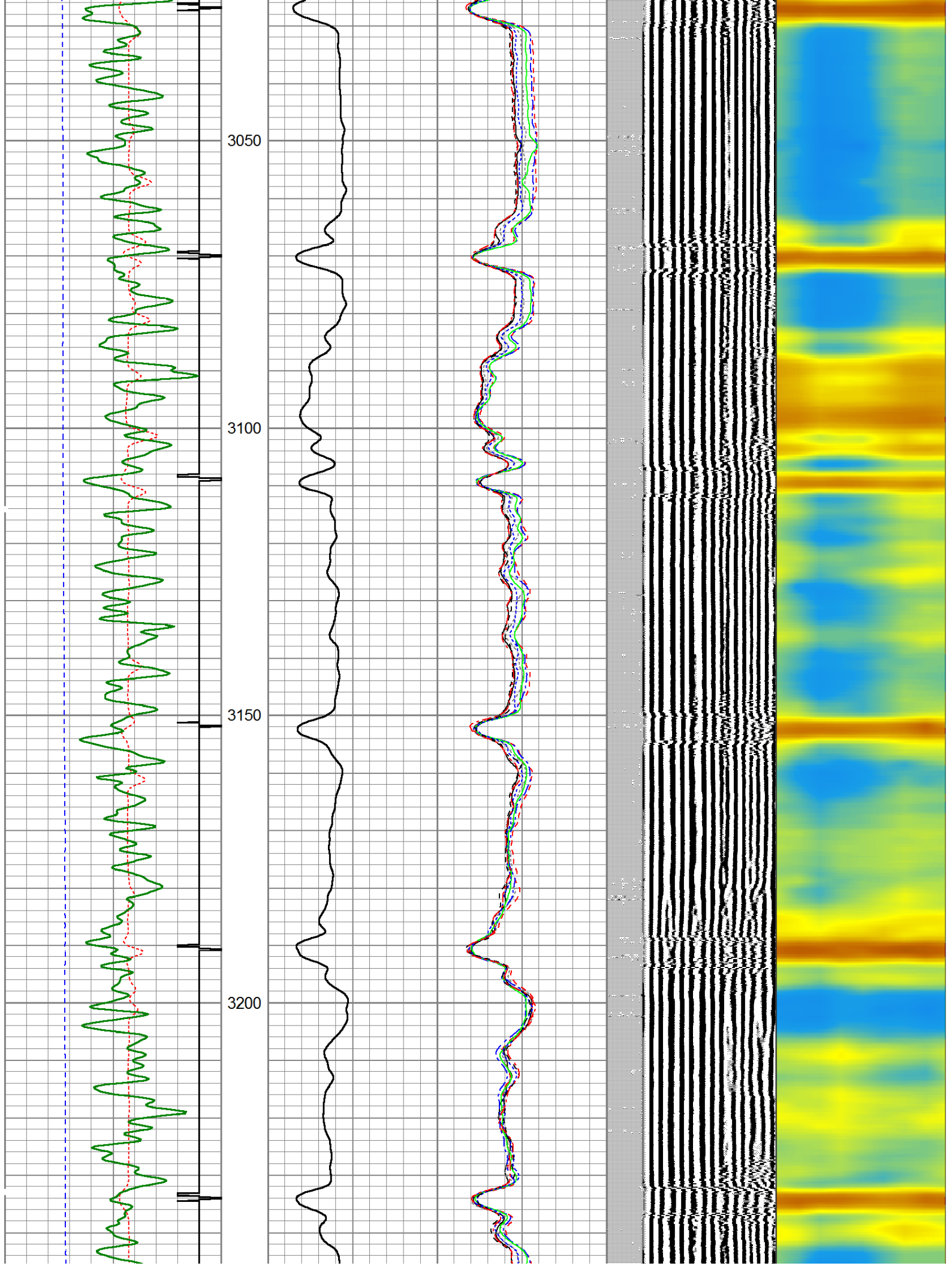


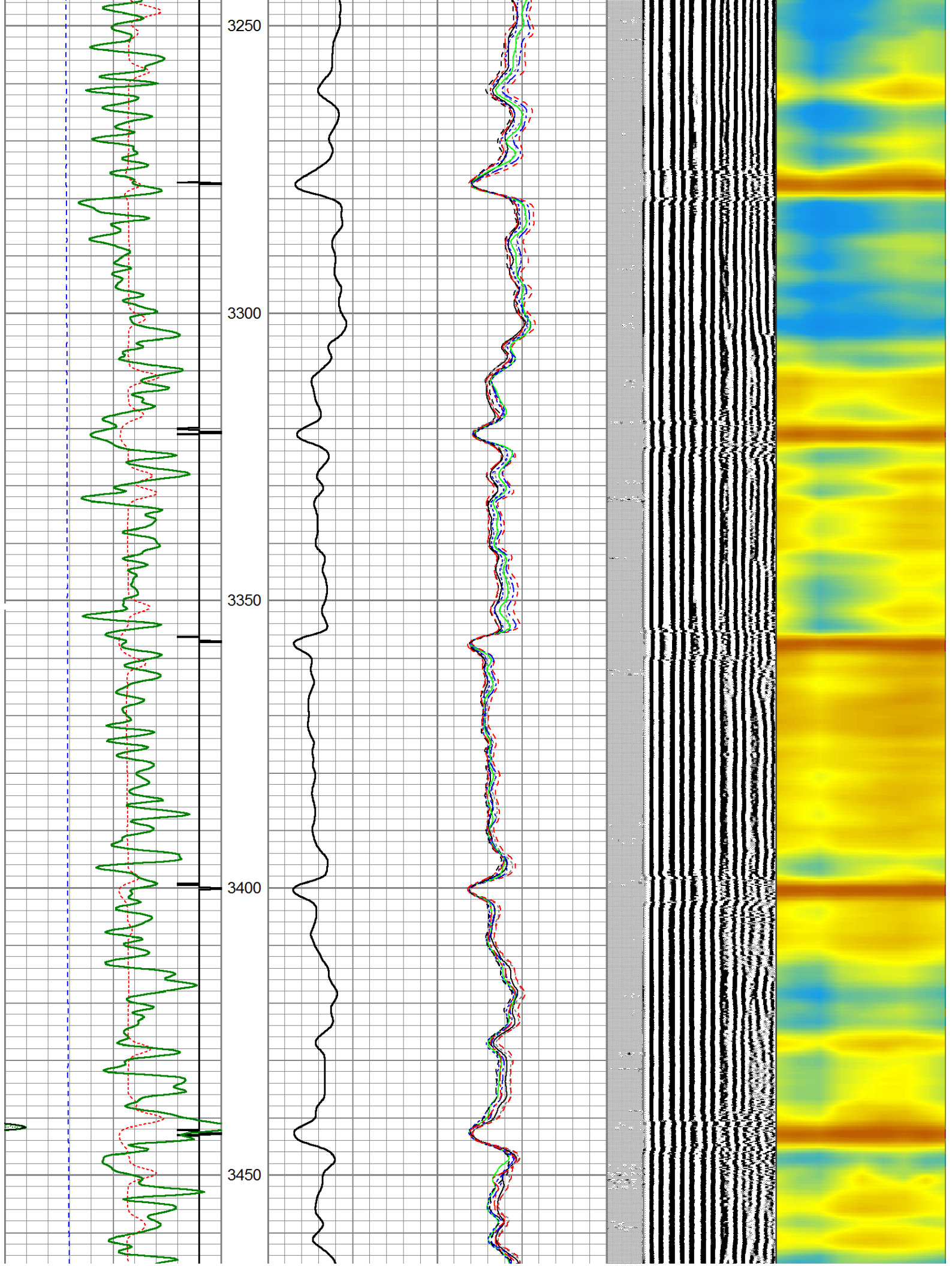


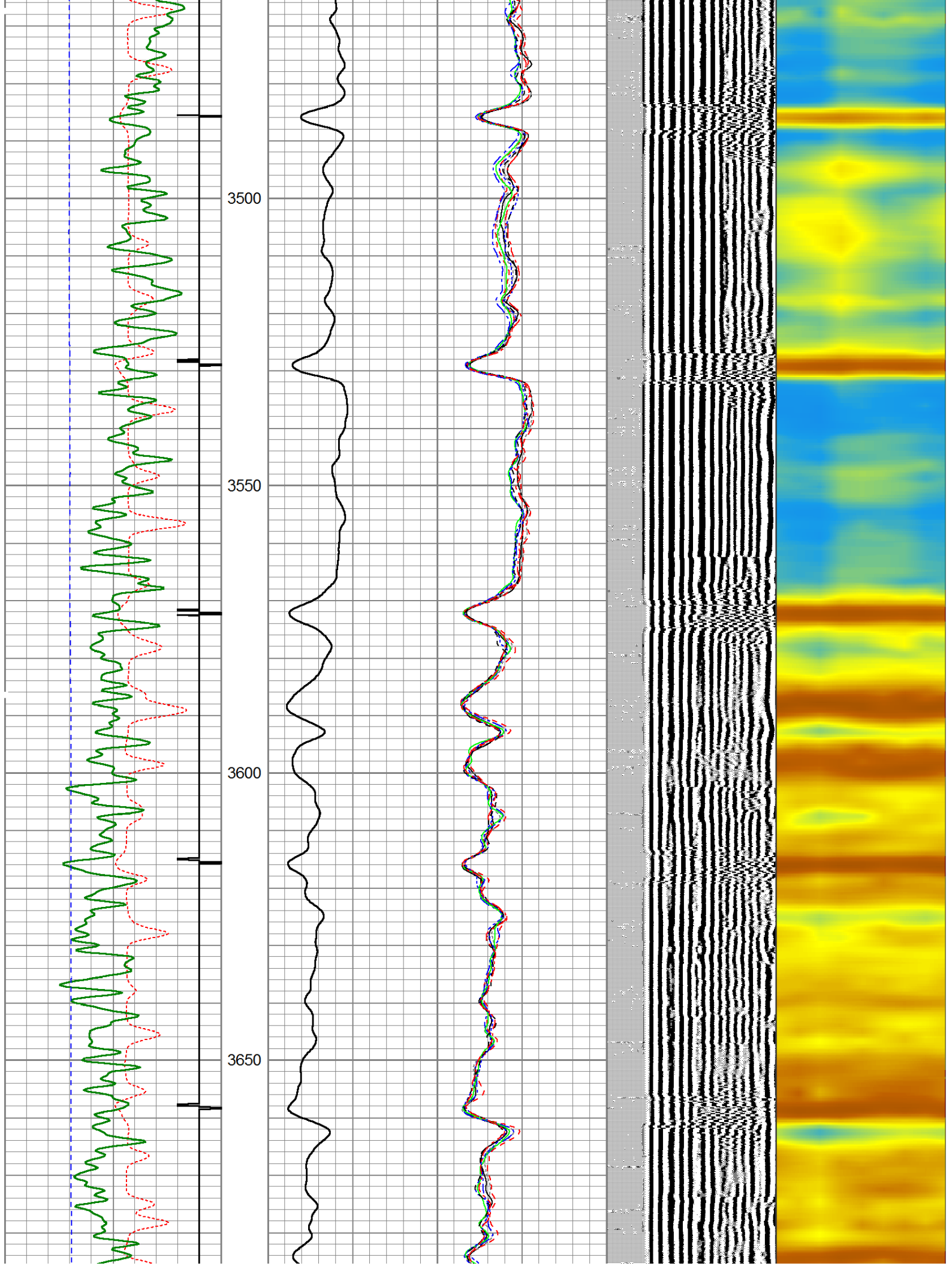


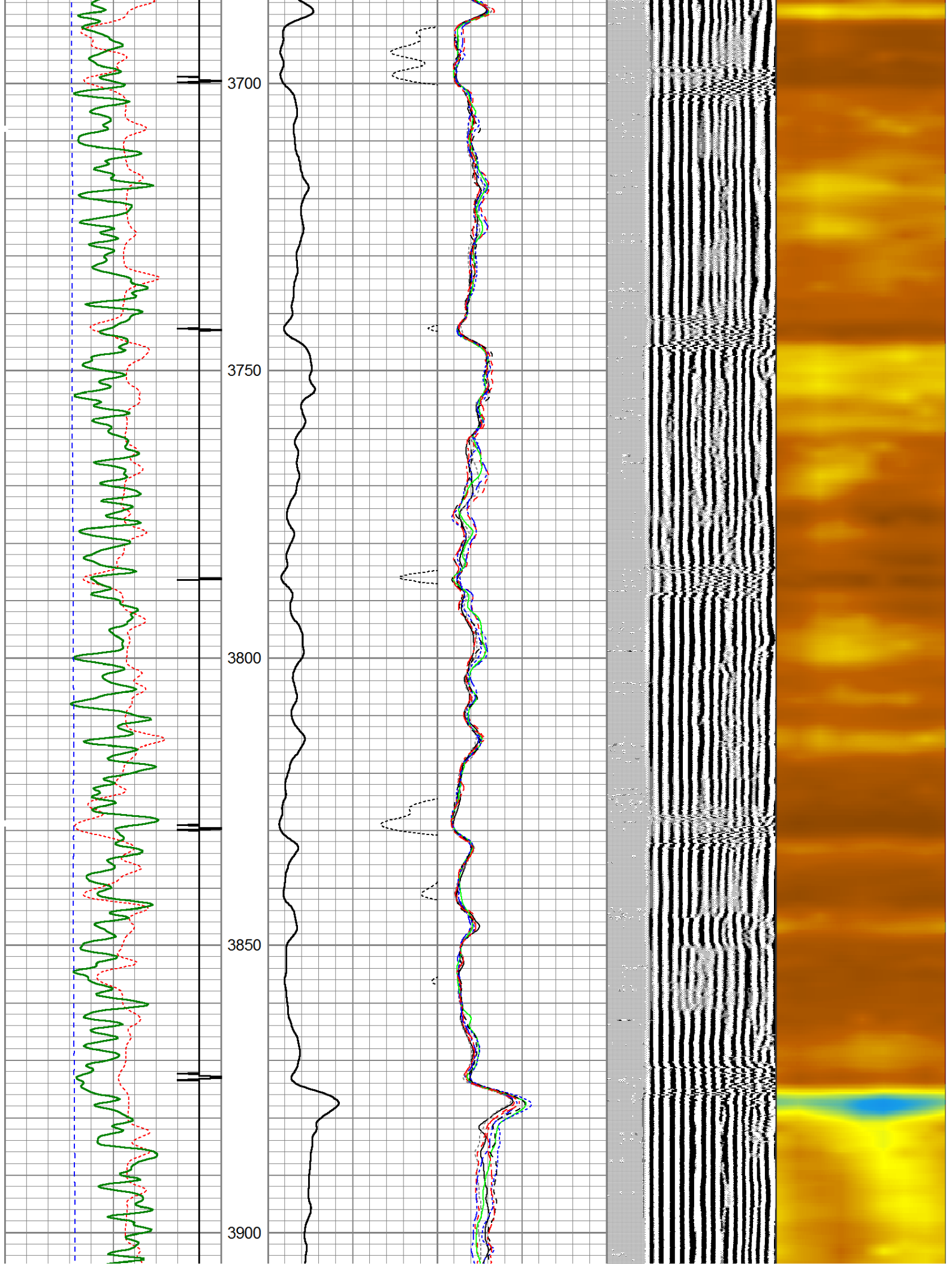


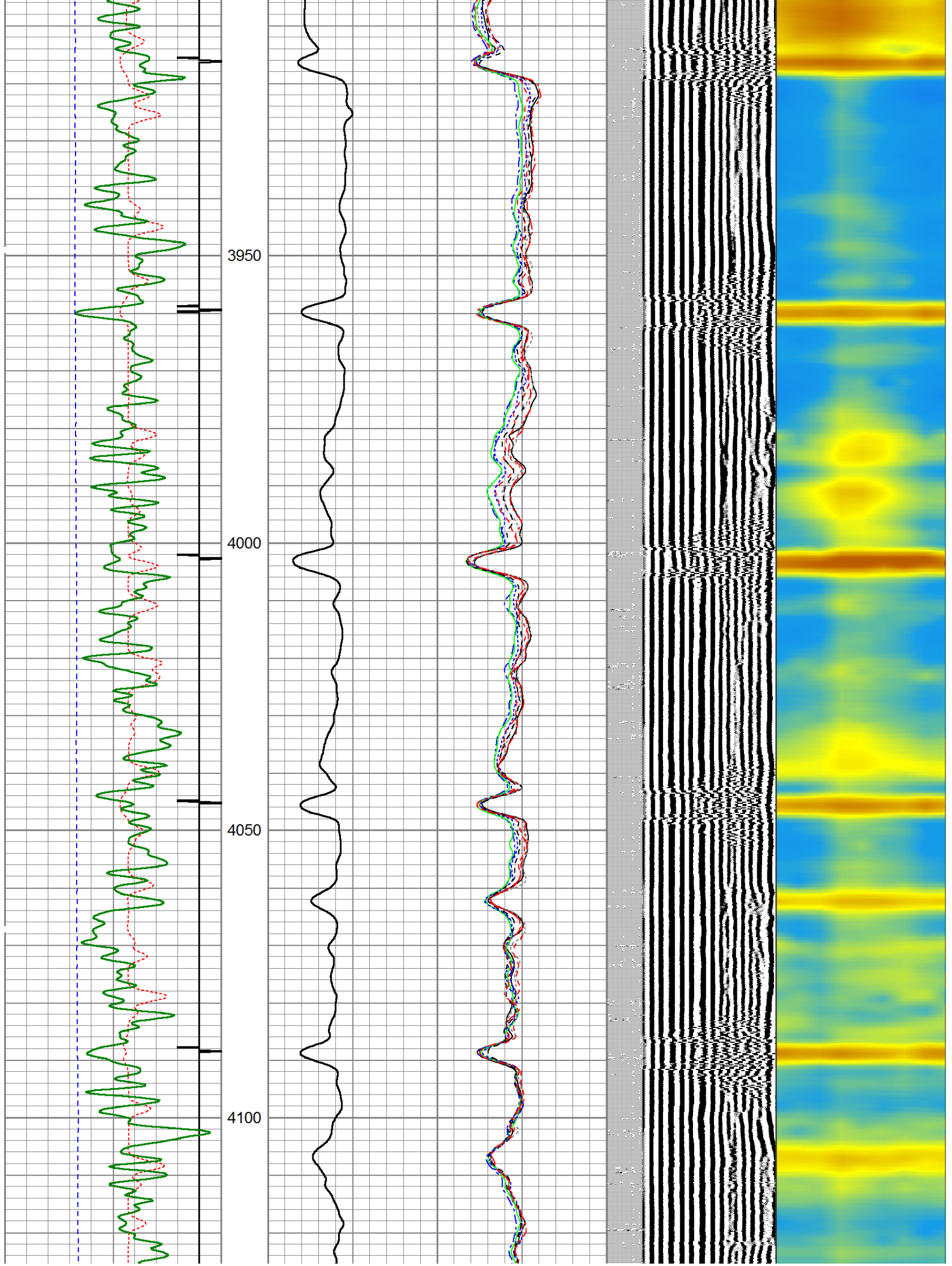


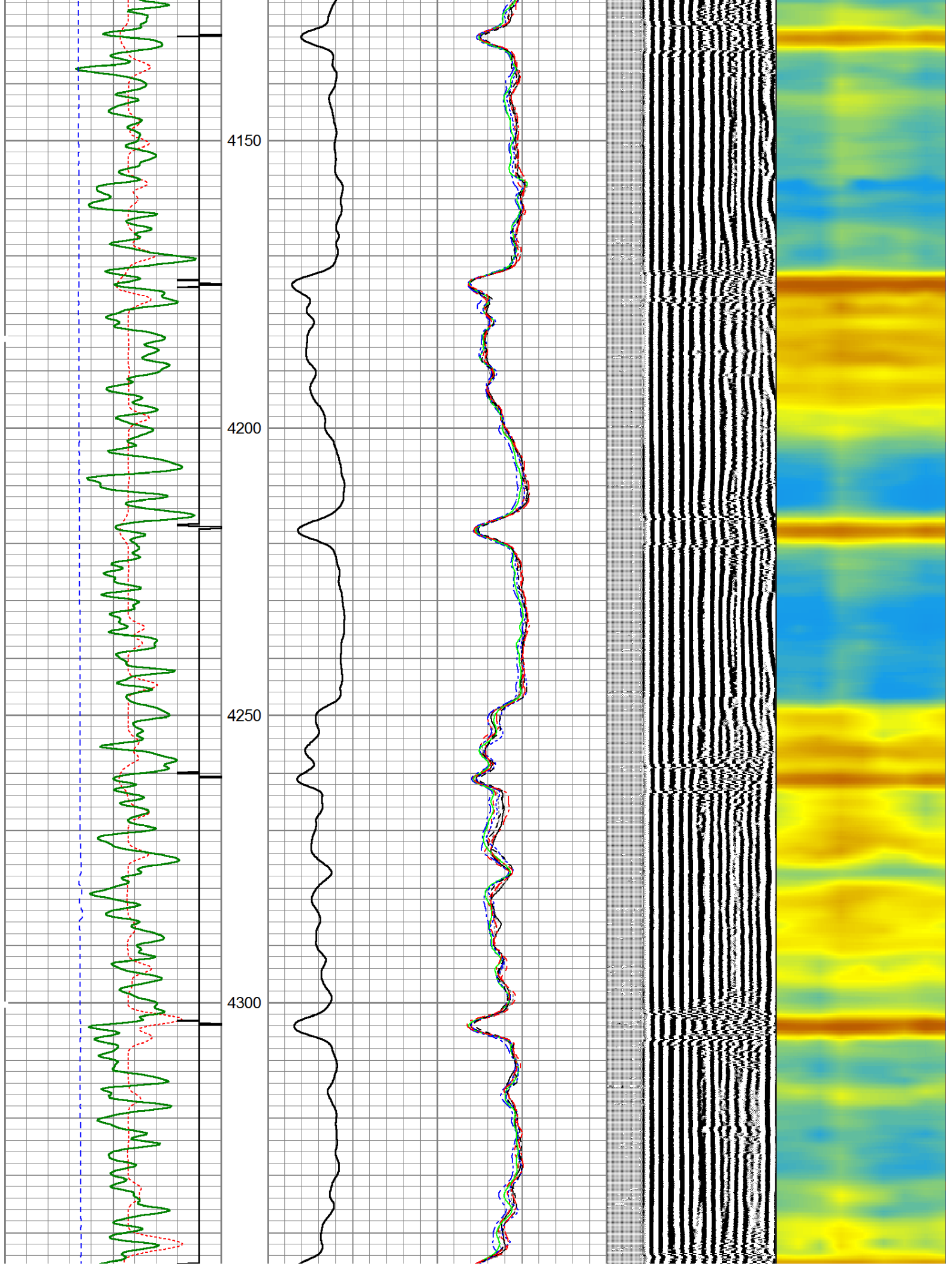


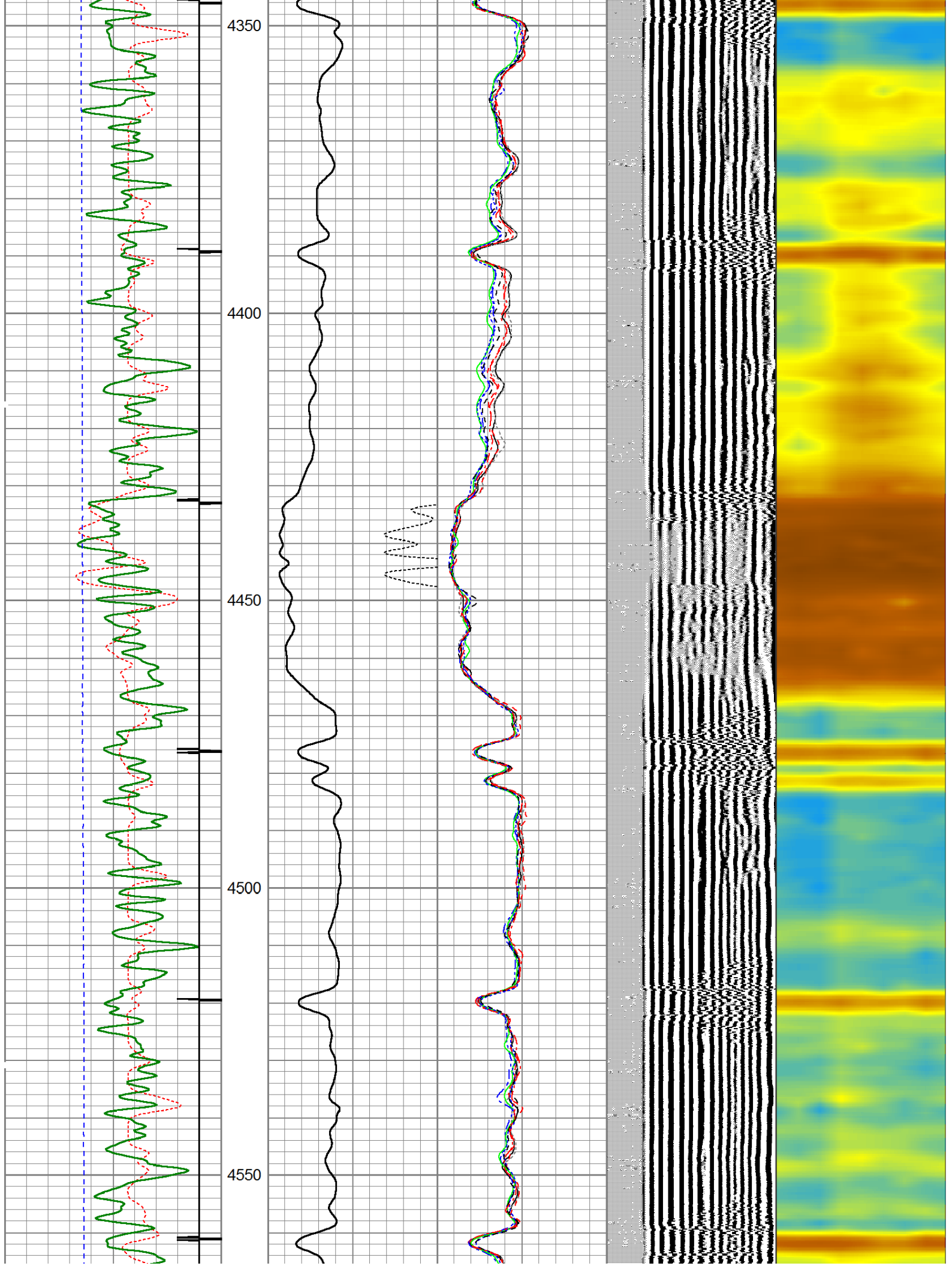


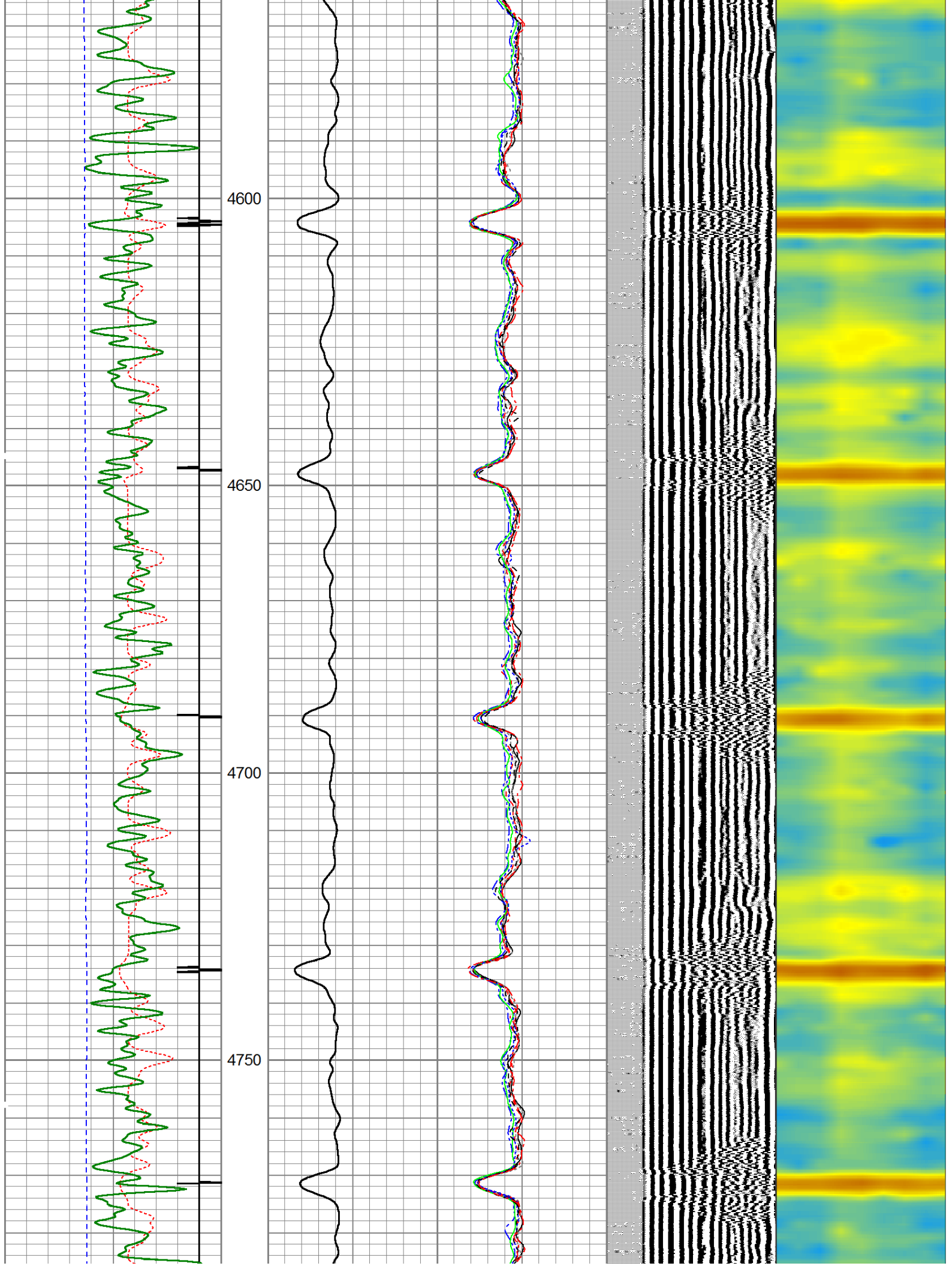


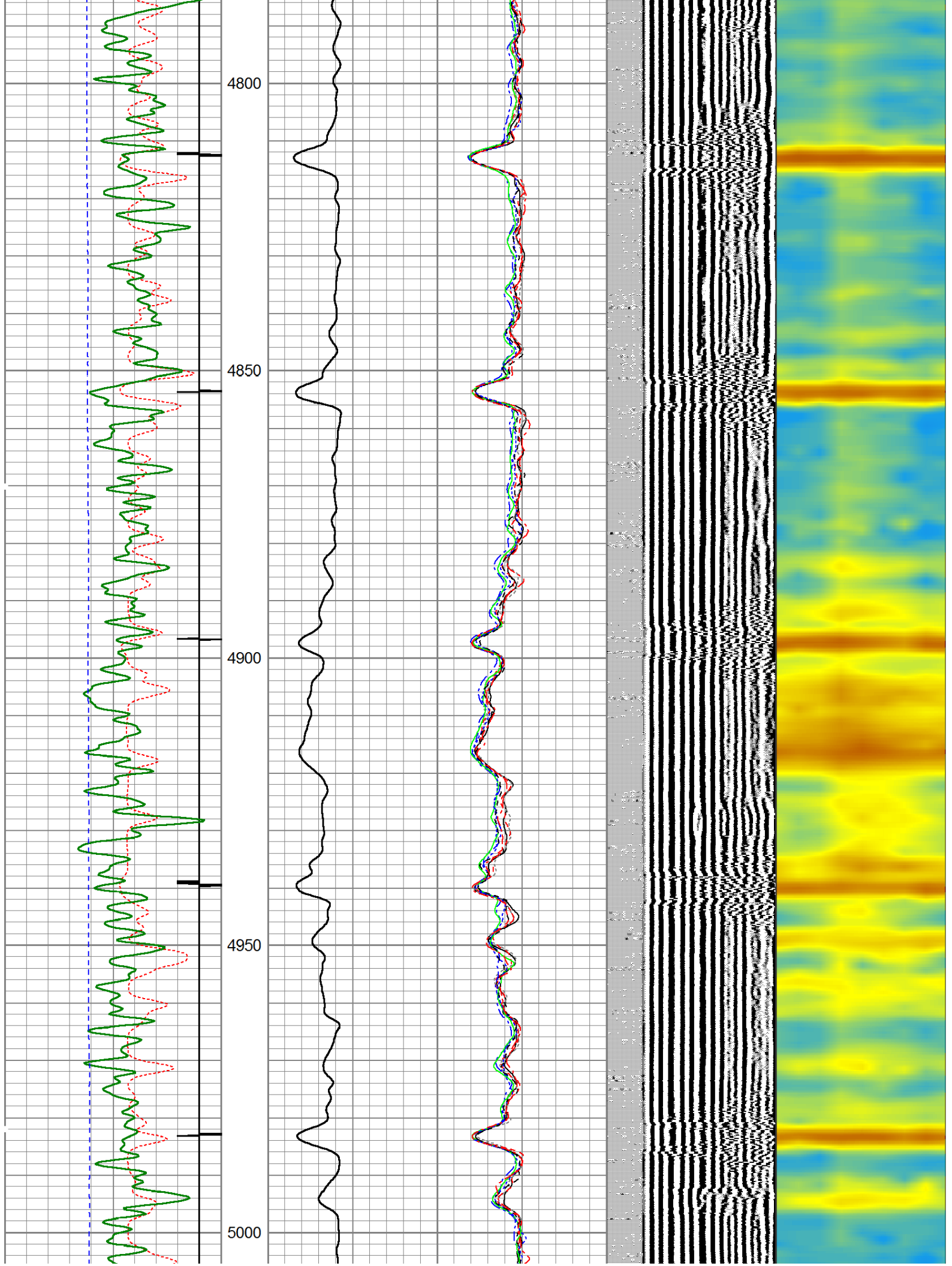


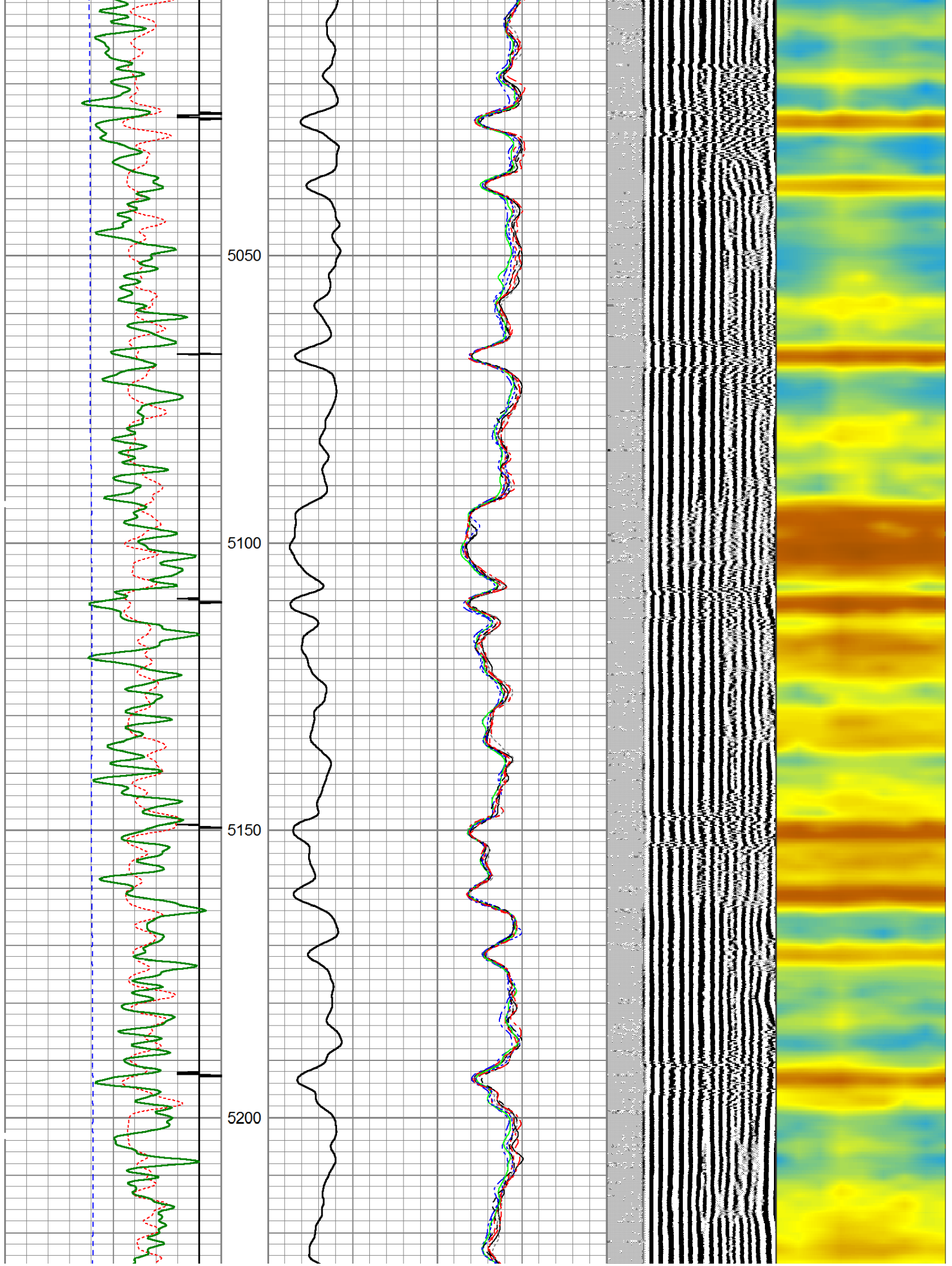


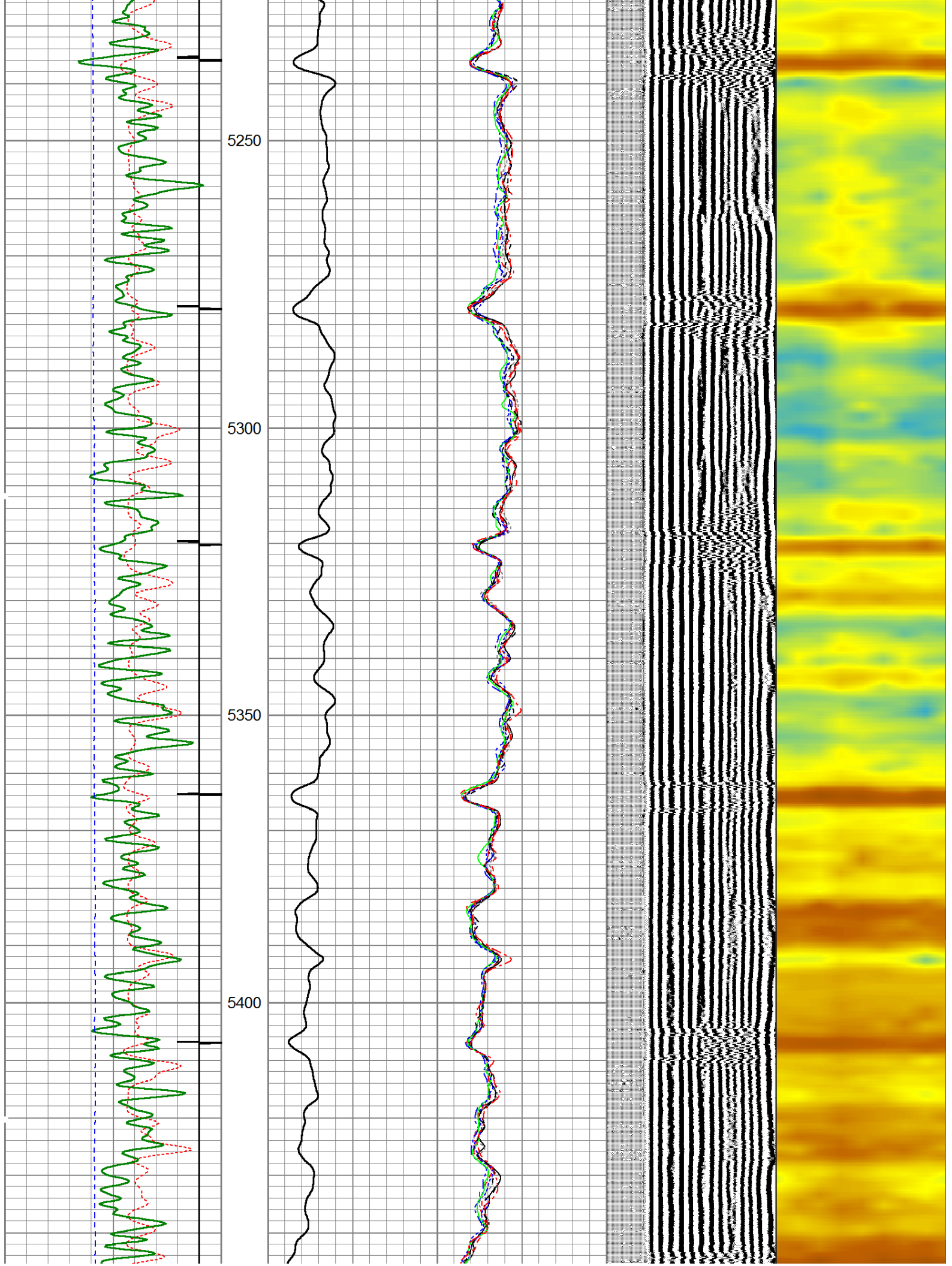


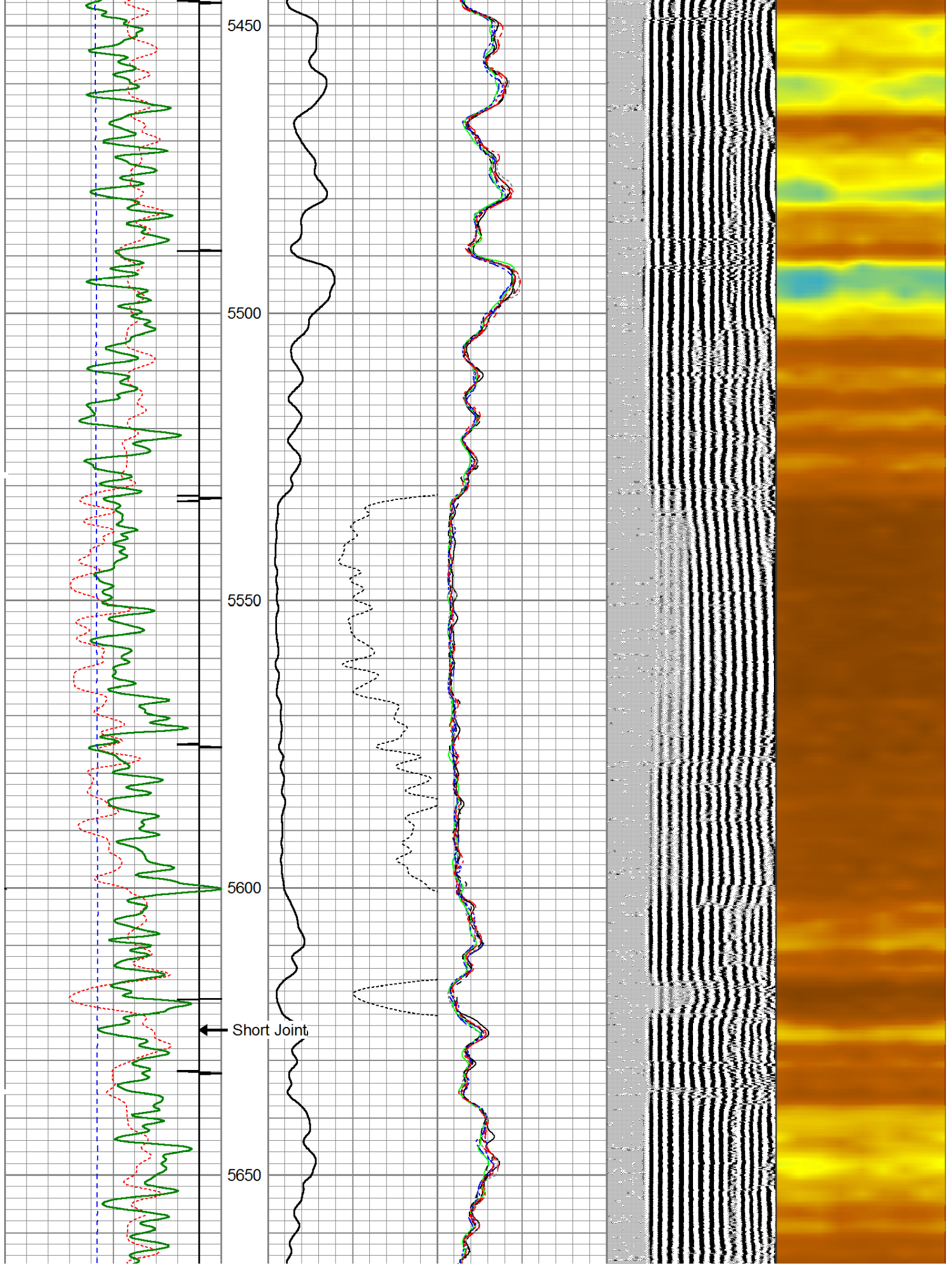


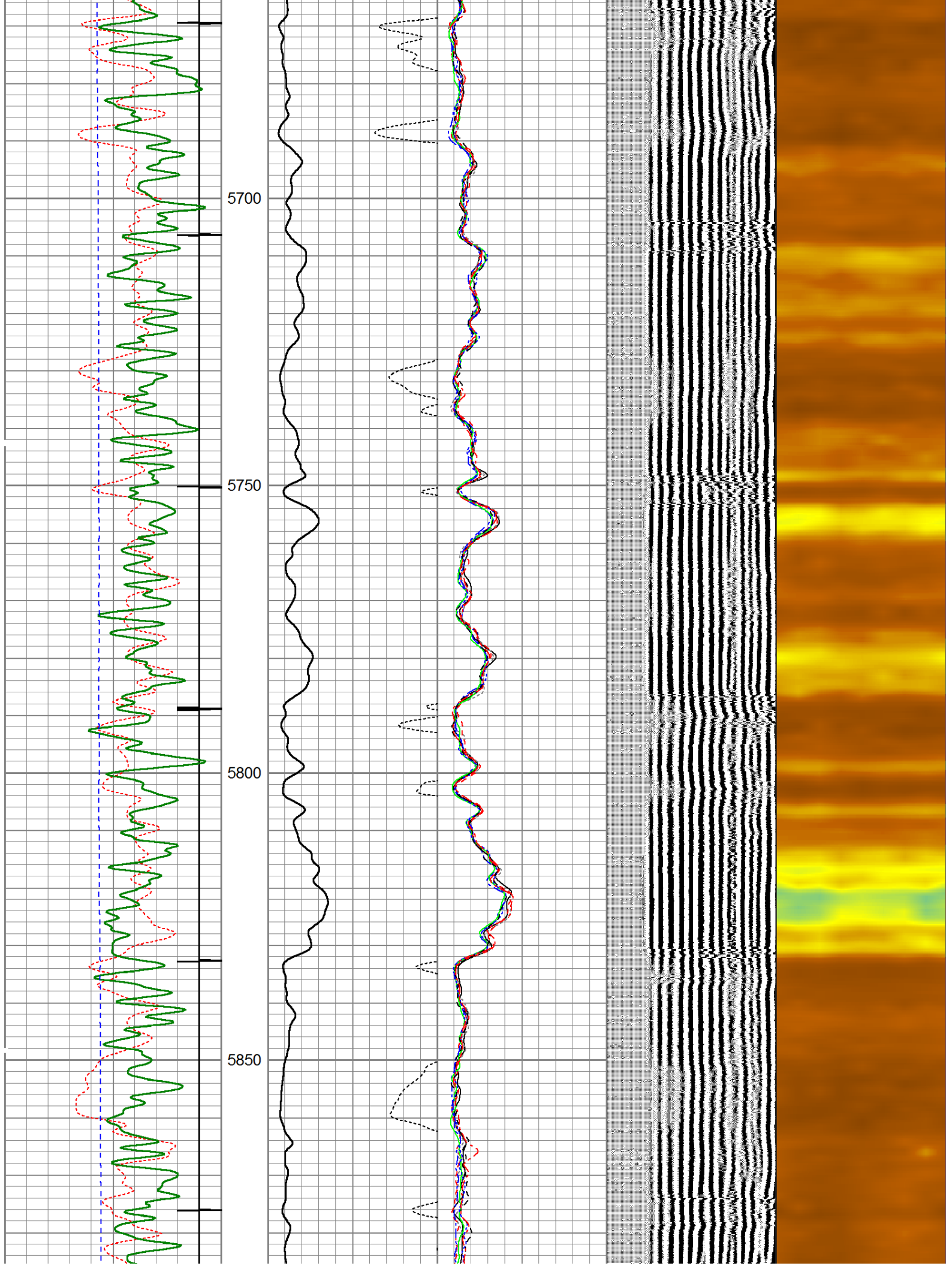


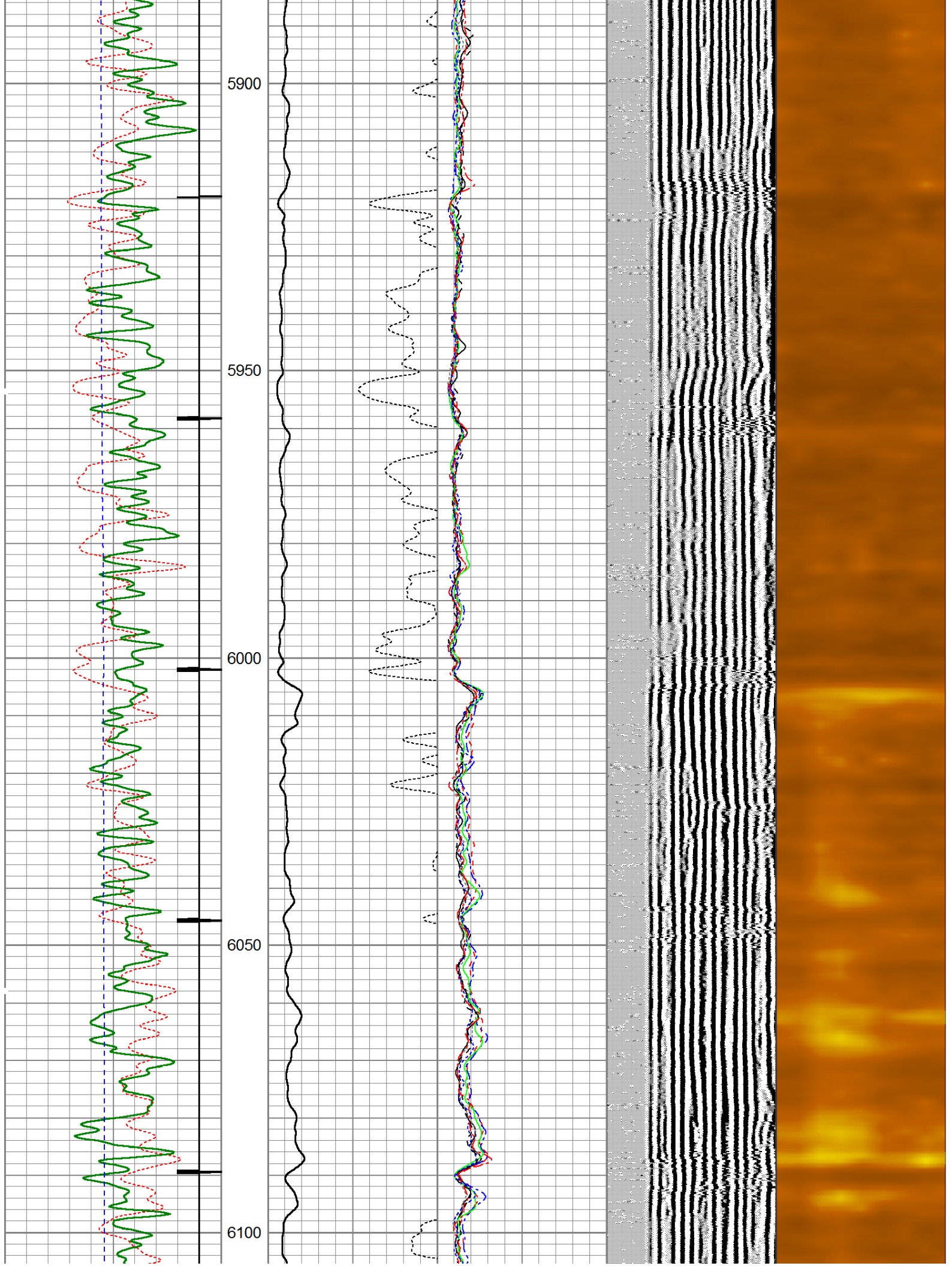


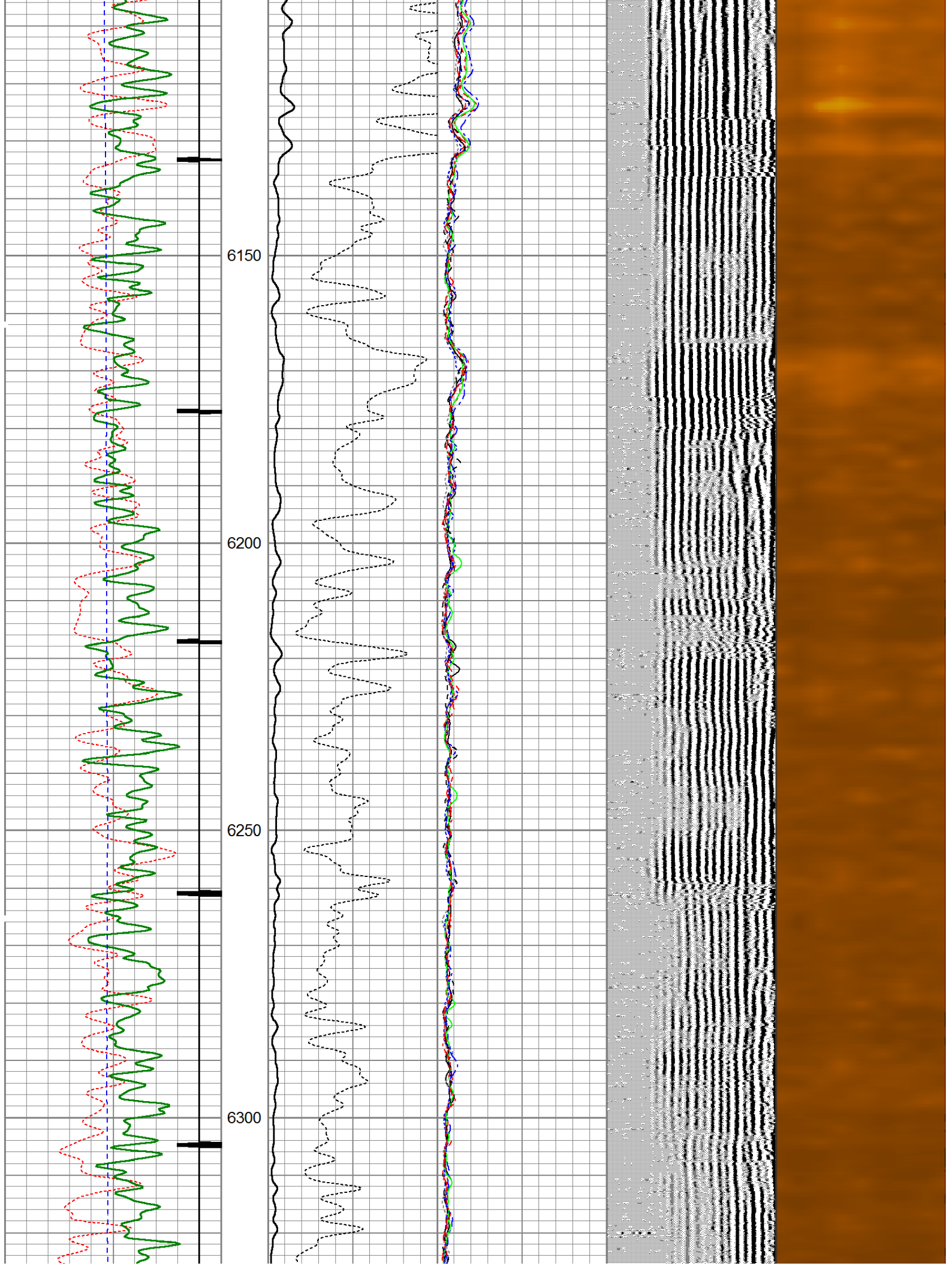


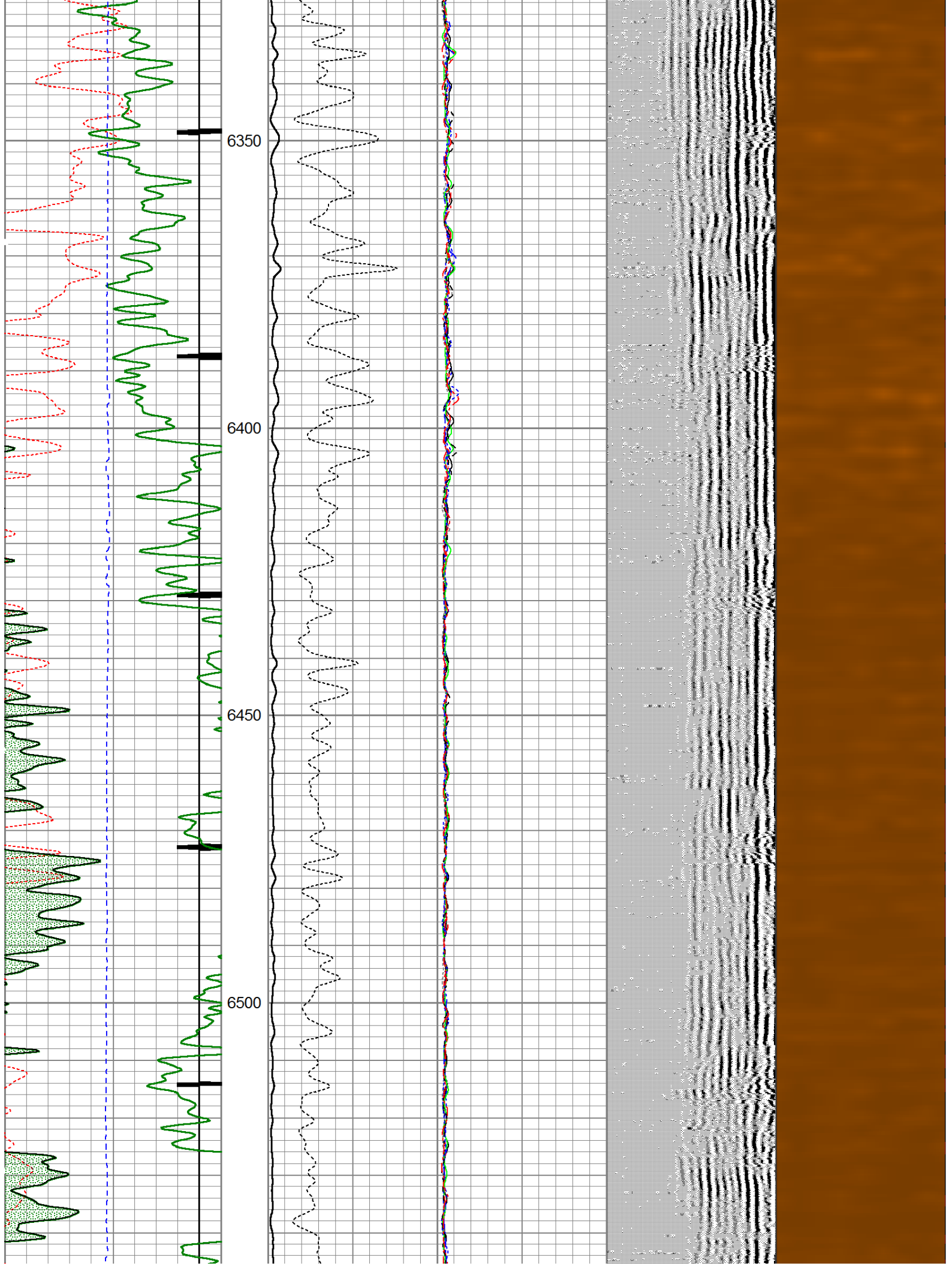


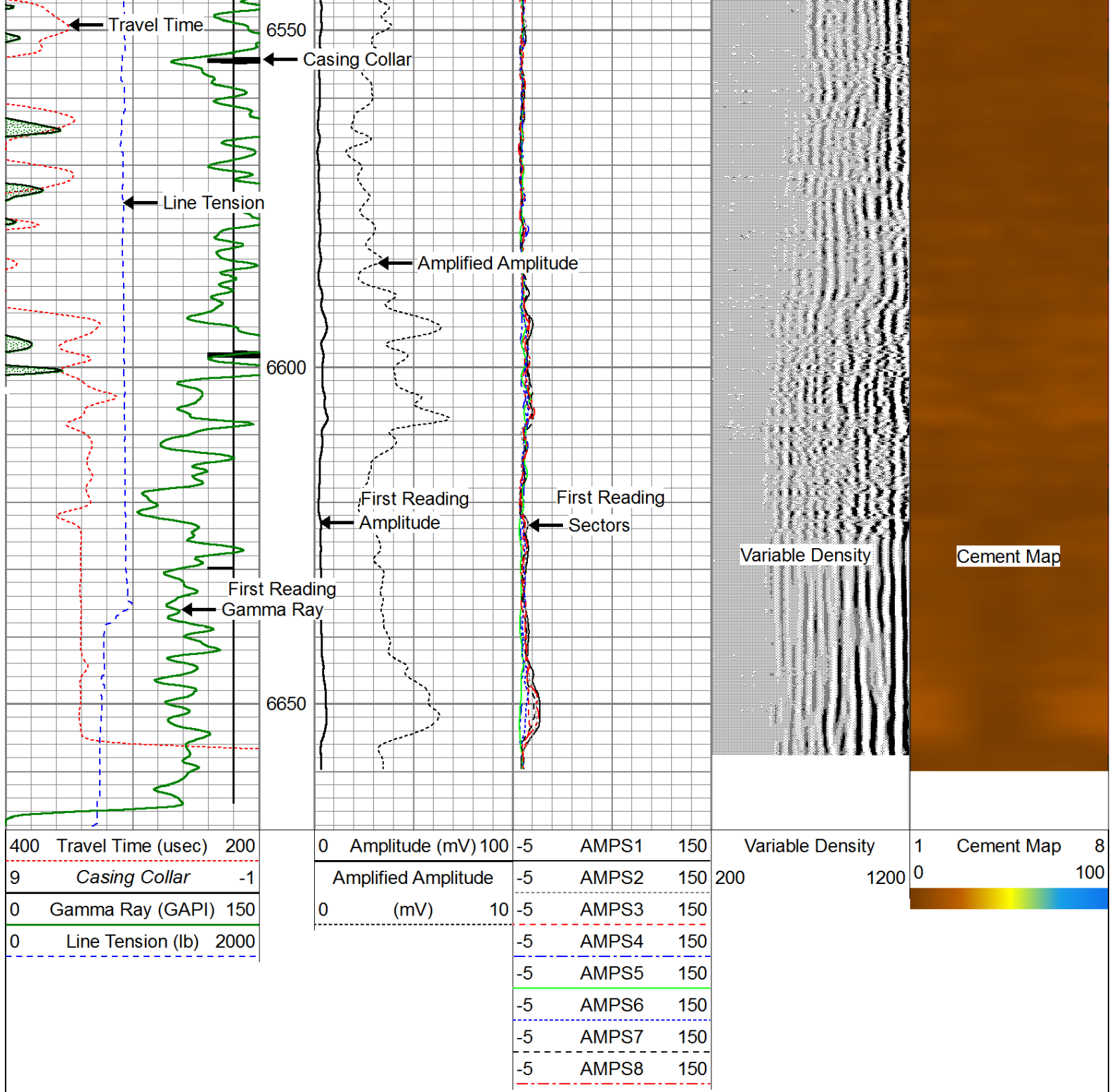






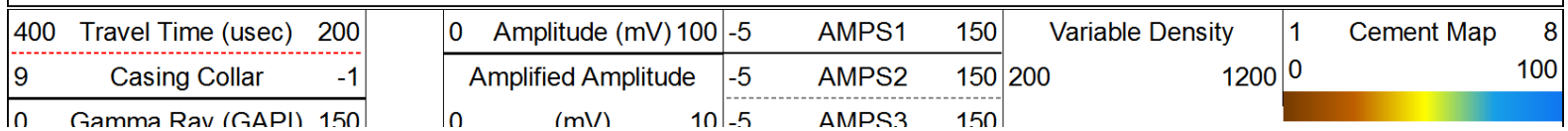




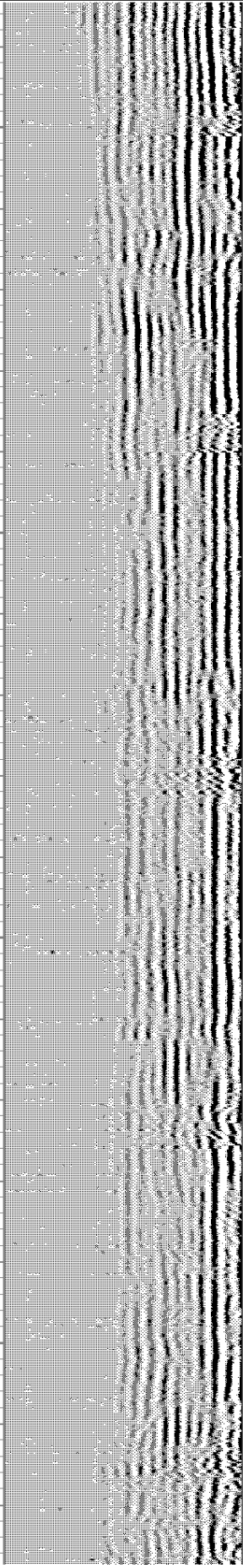
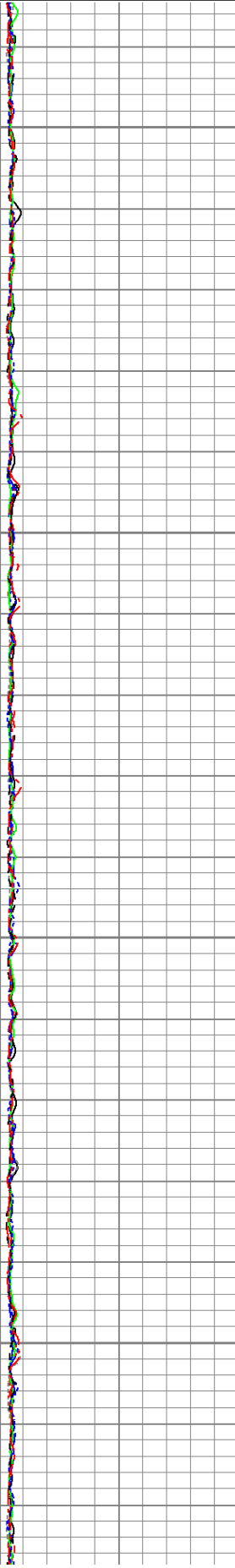
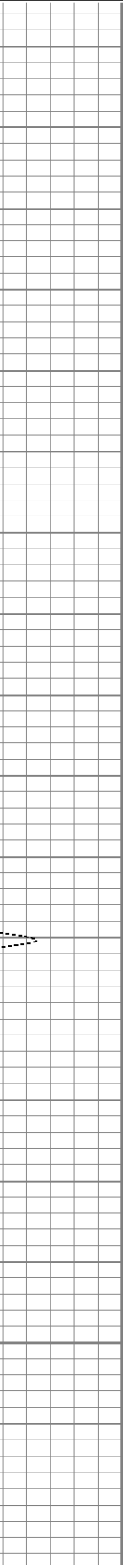
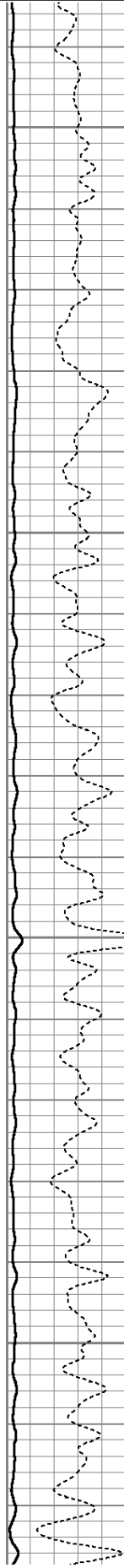
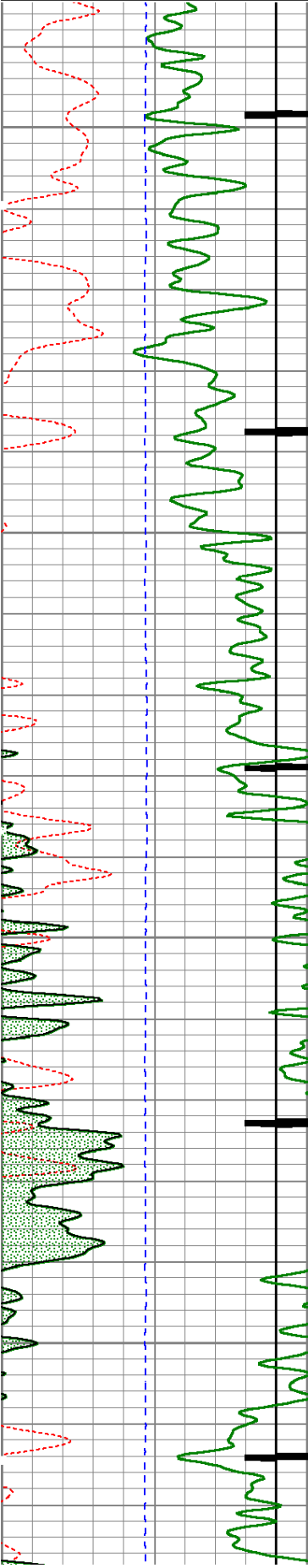


Repeat Pass (0 PSI)

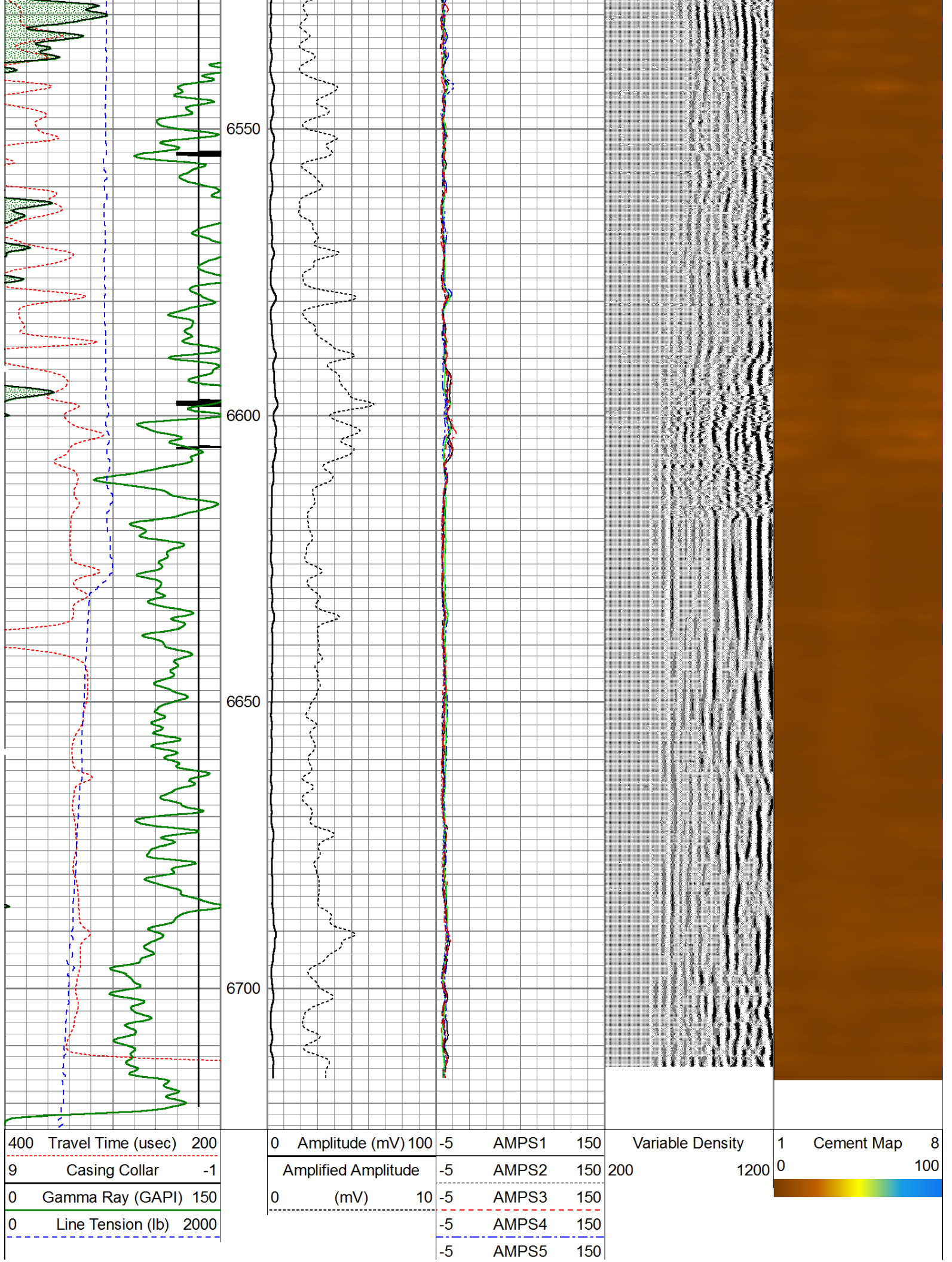
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 Dataset Pathname: pass3
 Presentation Format: scbl03
 Dataset Creation: Wed Nov 27 15:58:32 2013 by Log 0
 Charted by: Depth in Feet scaled 1:240



0 Line Tension (lb) 2000



-5	AMPS4	150
-5	AMPS5	150
-5	AMPS6	150
-5	AMPS7	150
-5	AMPS8	150



-5	AMPS6	150
-5	AMPS7	150
-5	AMPS8	150

Calibration Report

Database File: noble energy wells ranch ae20-63hn_rcbl.db
Dataset Pathname: pass5
Dataset Creation: Wed Nov 27 16:06:43 2013 by Log 0

Gamma Ray Calibration Report

Serial Number: 110108-Dig
Tool Model: Probe275
Performed: Wed Nov 20 14:47:41 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: 621.188 ft

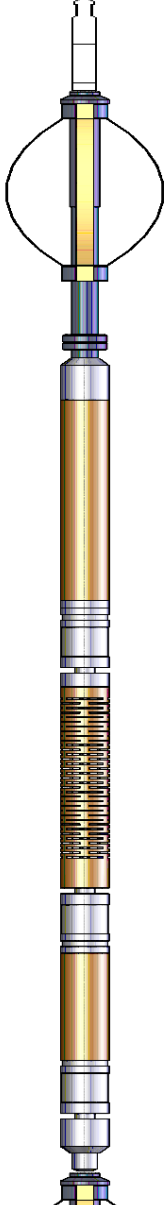
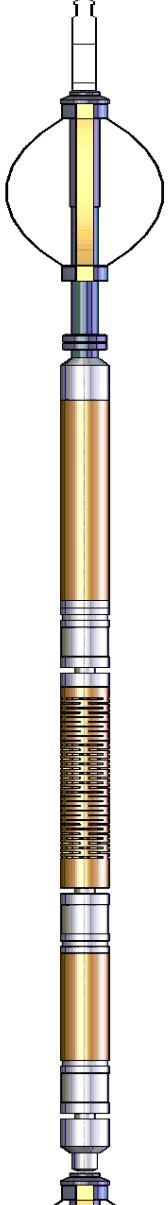
Master Calibration, performed Wed Nov 27 15:14:36 2013:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	-0.026	0.618	1.000	62.165	86.580	3.497
CAL	-0.030	0.913				
5'	-0.019	0.514	1.000	62.165	114.794	3.152
SUM						
S1	-0.012	0.646	0.000	100.000	152.050	1.839
S2	-0.016	0.696	0.000	100.000	140.406	2.307
S3	-0.022	0.709	0.000	100.000	136.738	2.993
S4	-0.020	0.687	0.000	100.000	131.351	2.866
S5	-0.021	0.625	0.000	100.000	148.700	3.246
S6	-0.021	0.566	0.000	100.000	170.276	3.590
S7	-0.022	0.520	0.000	100.000	184.521	4.036
S8	-0.021	0.534	0.000	100.000	180.258	3.743

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	-0.030	0.913	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
			RBT-Probe (111107) Probe Radii Bond Tool with Digital Telemetry	8.75	2.75	90.00
WVF3FT	11.84					
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					

