



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

Company		Noble Energy	
Well		Wells Ranch AE20-65-1HN	
Field		Wattenberg	
County		Weld	
State		Colorado	
Location:		API # : 05-123-37221	
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		11077'	
Depth Logger		6798'	
Bottom Logged Interval		6786'	
Top Log Interval		Surface	
Open Hole Size		8.125	
Type Fluid		Fresh Water	
Density / Viscosity		8.33	
Max. Recorded Temp.		208 Deg F	
Estimated Cement Top		790'	
Time Well Ready		9:00	
Time Logger on Bottom		9:39	
Equipment Number		13033	
Location		Brighton	
Recorded By		C. Rail	
Witnessed By		Bill Mansfield	
Borehole Record		Tubing Record	
Run Number		Bit	
One		From	
Two		To	
Three		Size	
Four		Weight	
Casing Record		From	
Surface String		To	
Prot. String		Size	
Production String		Weight	
Liner		From	
Short Joint		To	

<<< Fold Here >>>

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 @ 790'

Short Joint @ 5560' To 5572'

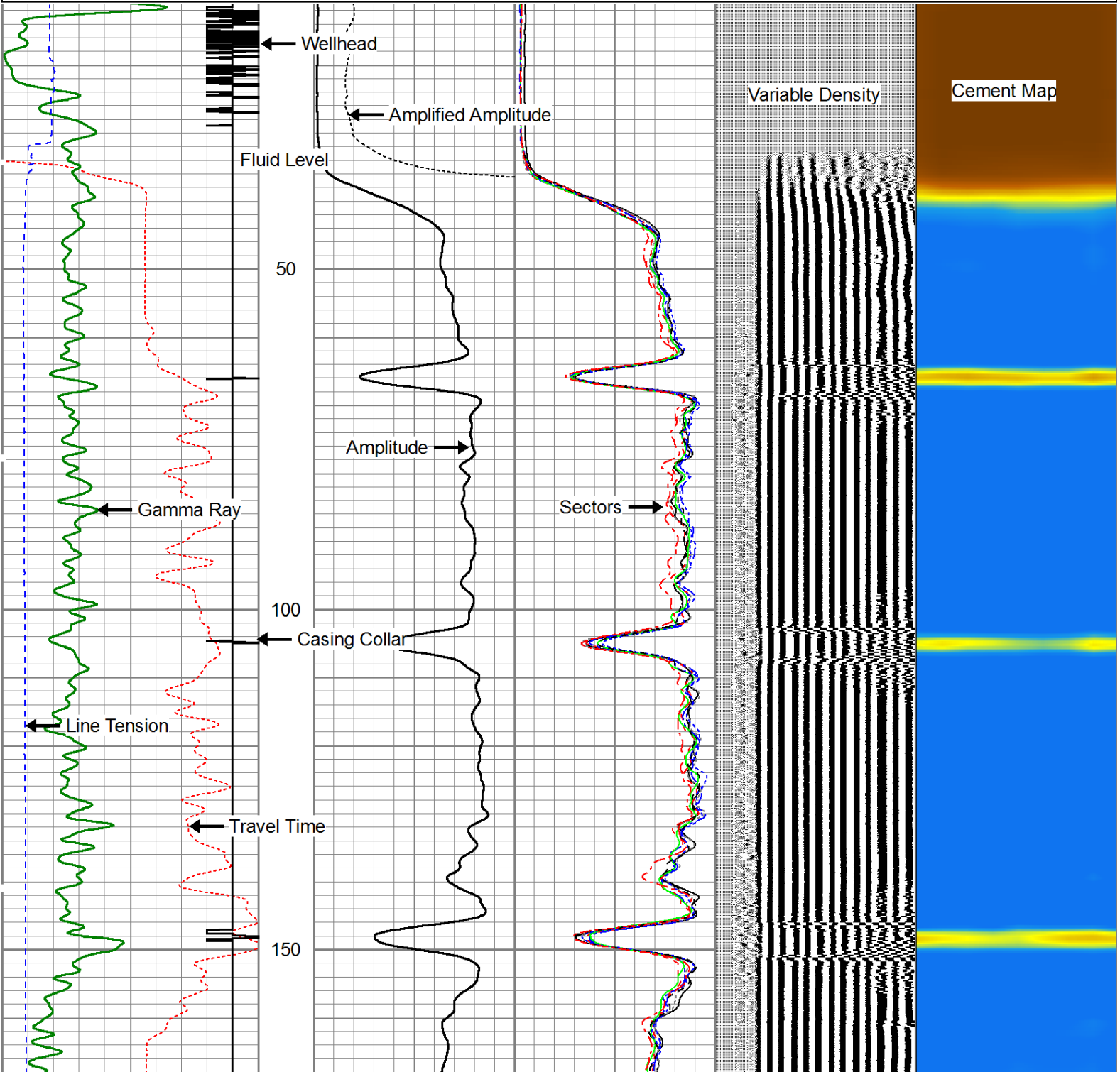
Thank you for using Allied Wireline.  
(303)659-4609

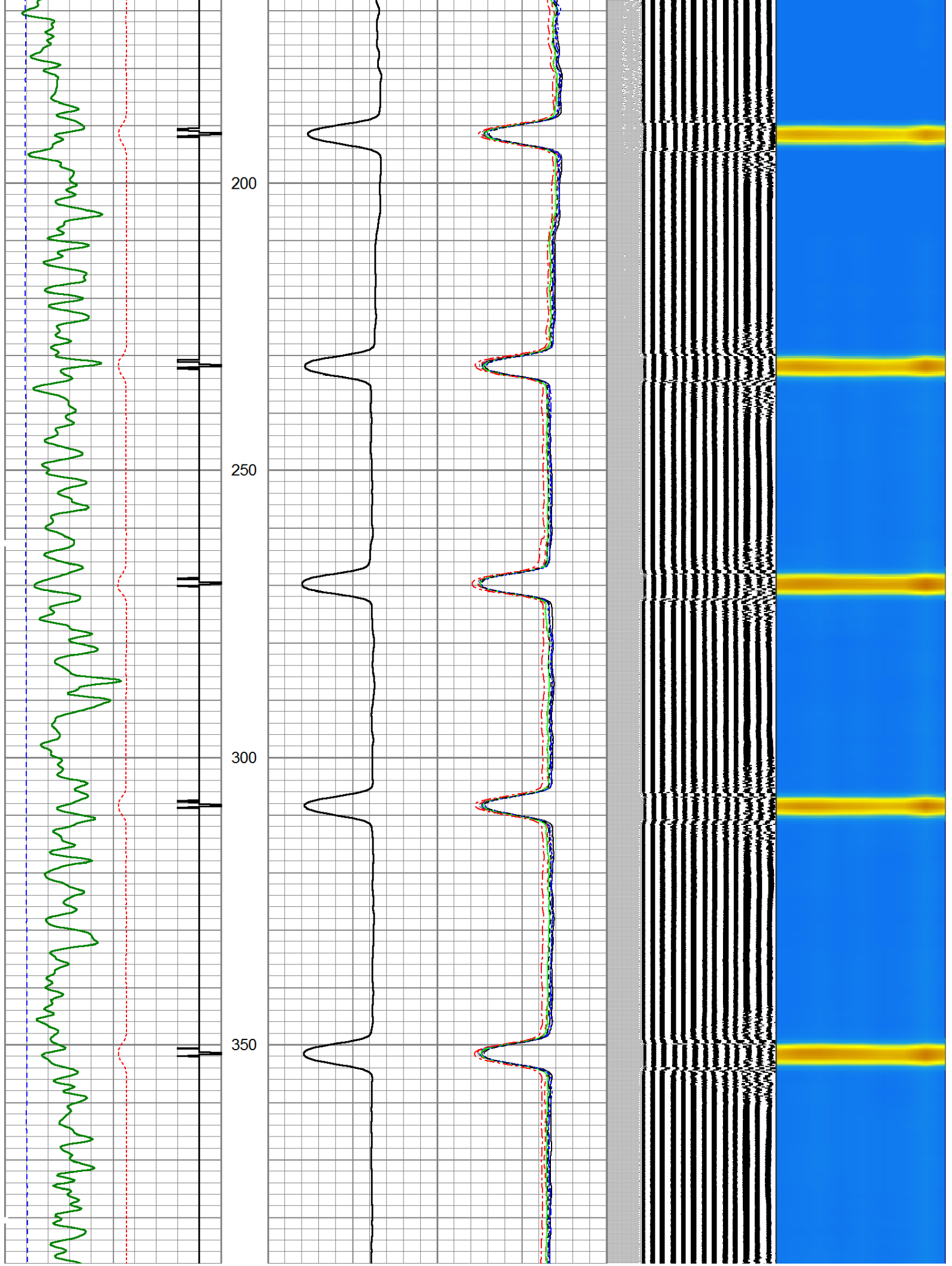


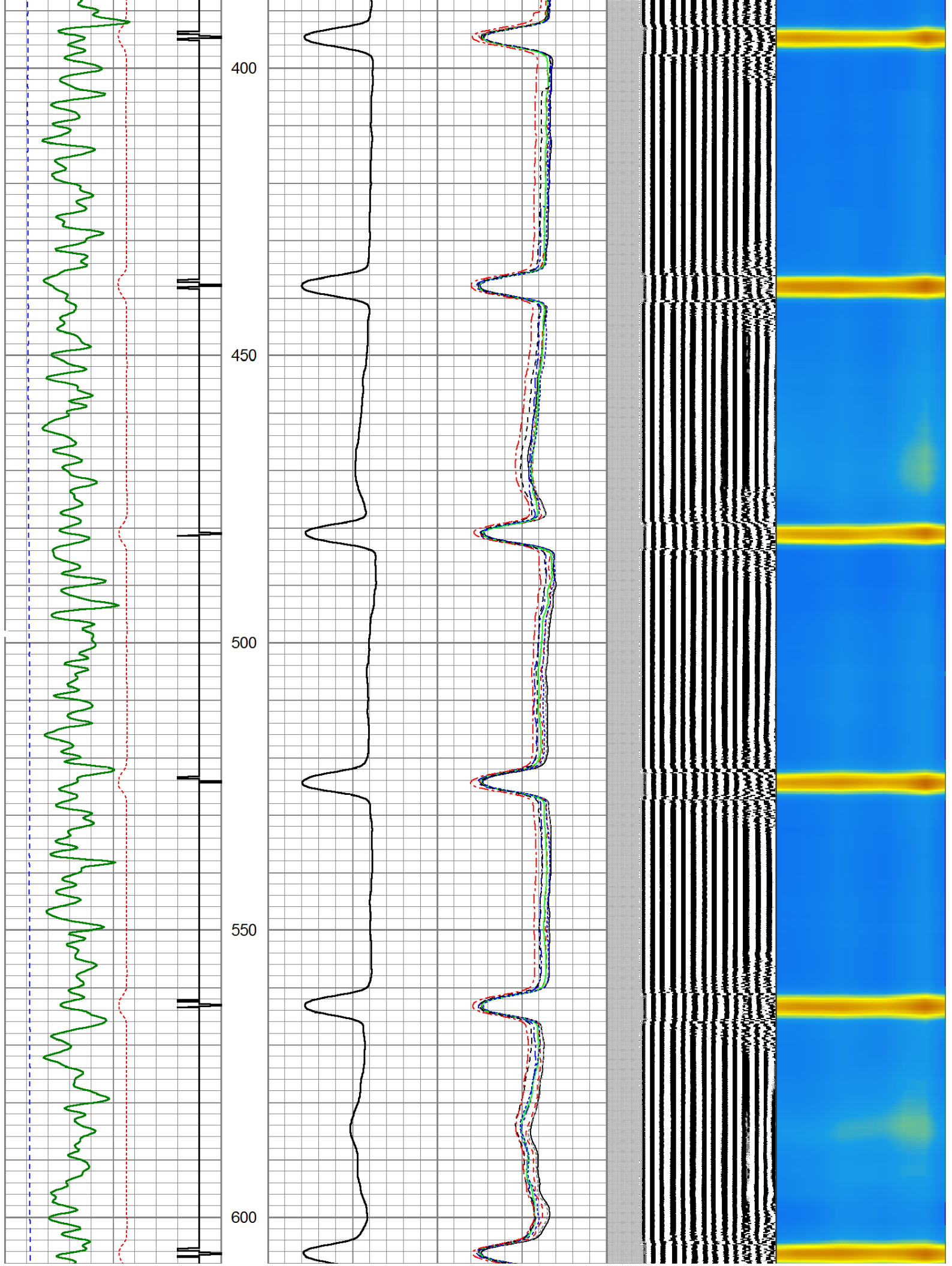
Main Pass ( 0 PSI )

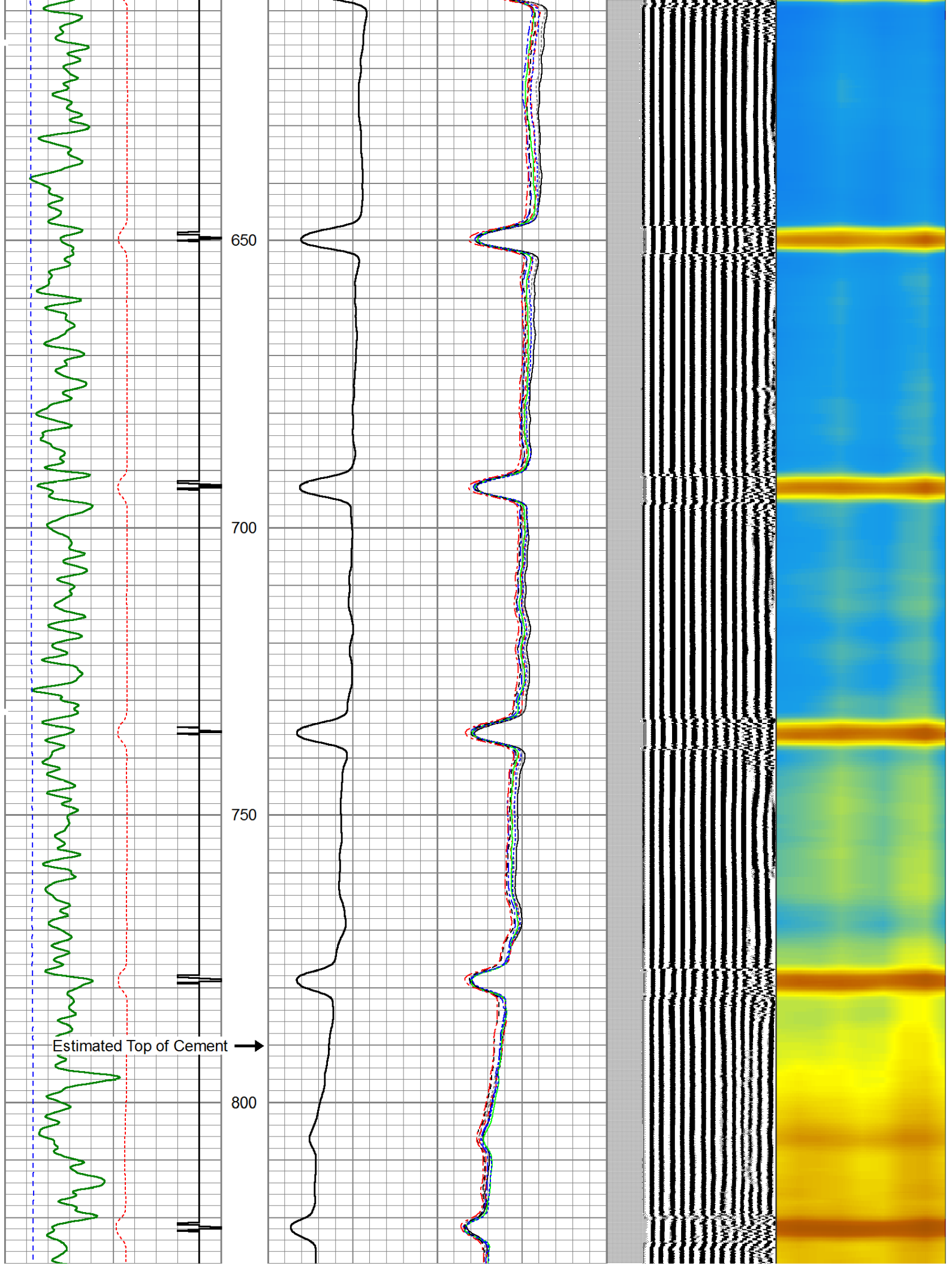
Database File: noble energy wells ranch ae20-65-1hn\_rcbl.db  
Dataset Pathname: pass5  
Presentation Format: scbl03  
Dataset Creation: Wed Nov 27 09:46:41 2013 by Log 0  
Charted by: Depth in Feet scaled 1:240

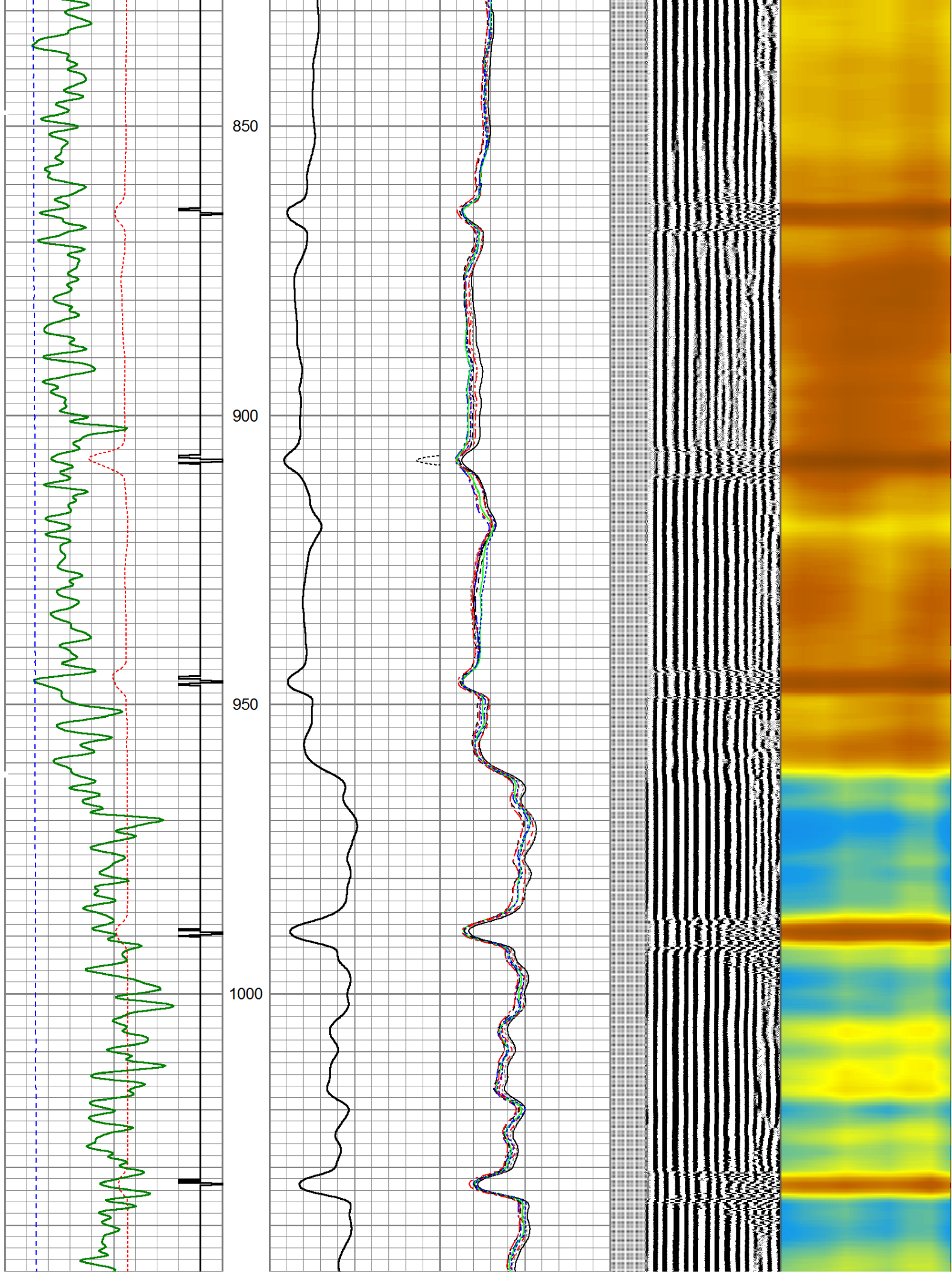
400	Travel Time (usec)	200	0	Amplitude (mV)	100	-5	AMPS1	150	Variable Density	1	Cement Map	8
9	Casing Collar	-1		Amplified Amplitude		-5	AMPS2	150	200	1200	0	100
0	Gamma Ray (GAPI)	150	0	(mV)	10	-5	AMPS3	150				
0	Line Tension (lb)	2000				-5	AMPS4	150				
						-5	AMPS5	150				
						-5	AMPS6	150		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

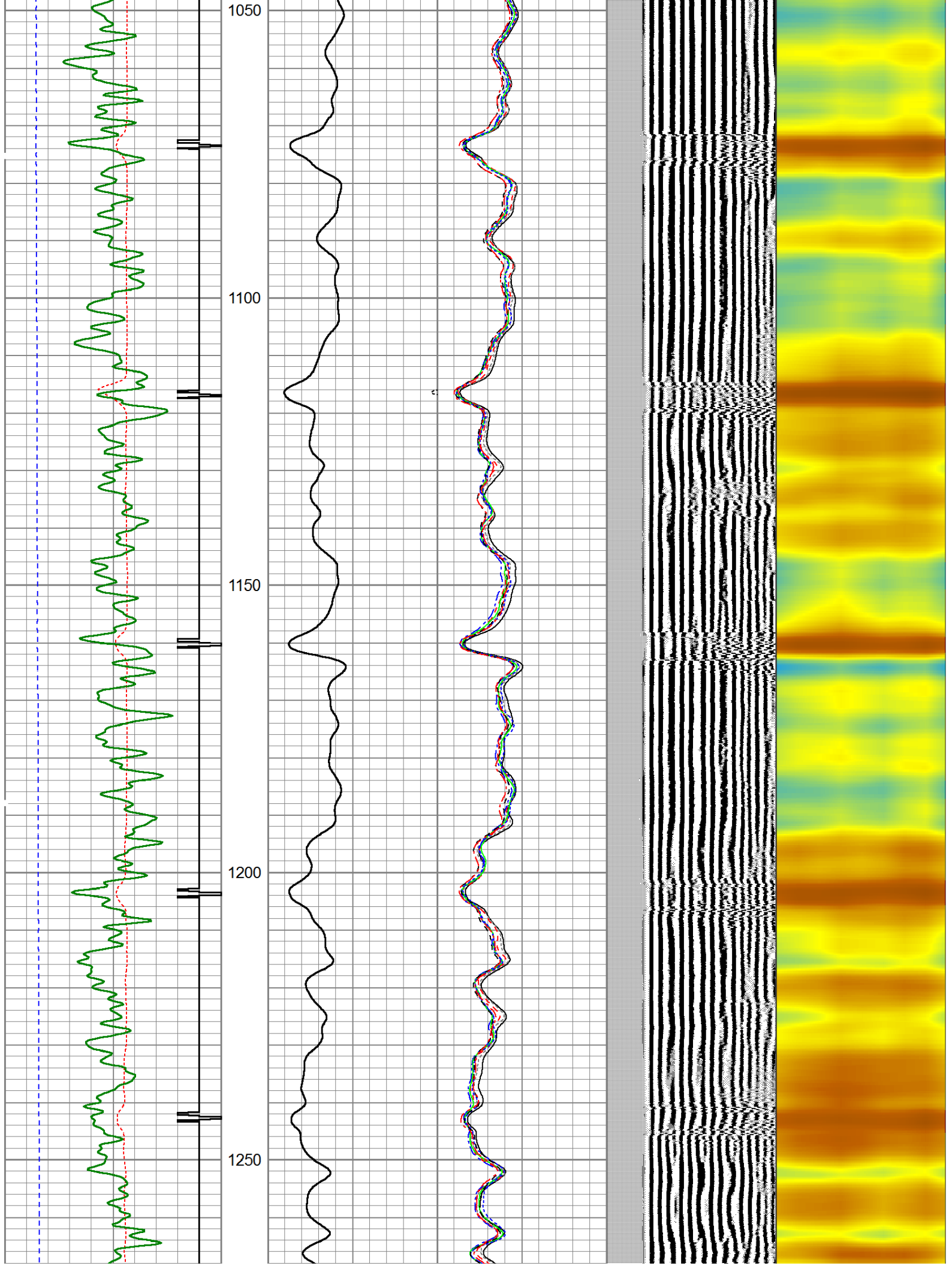


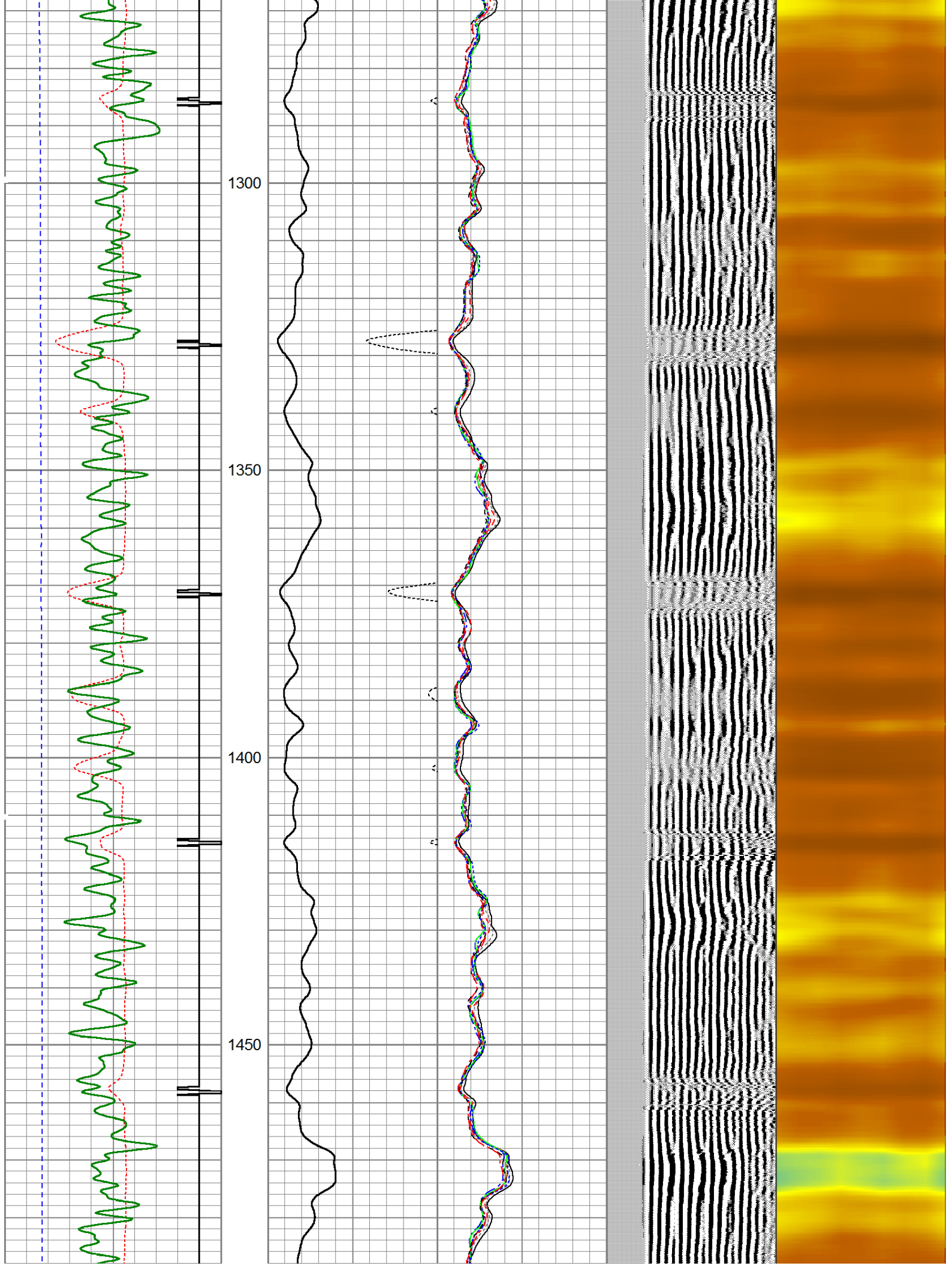


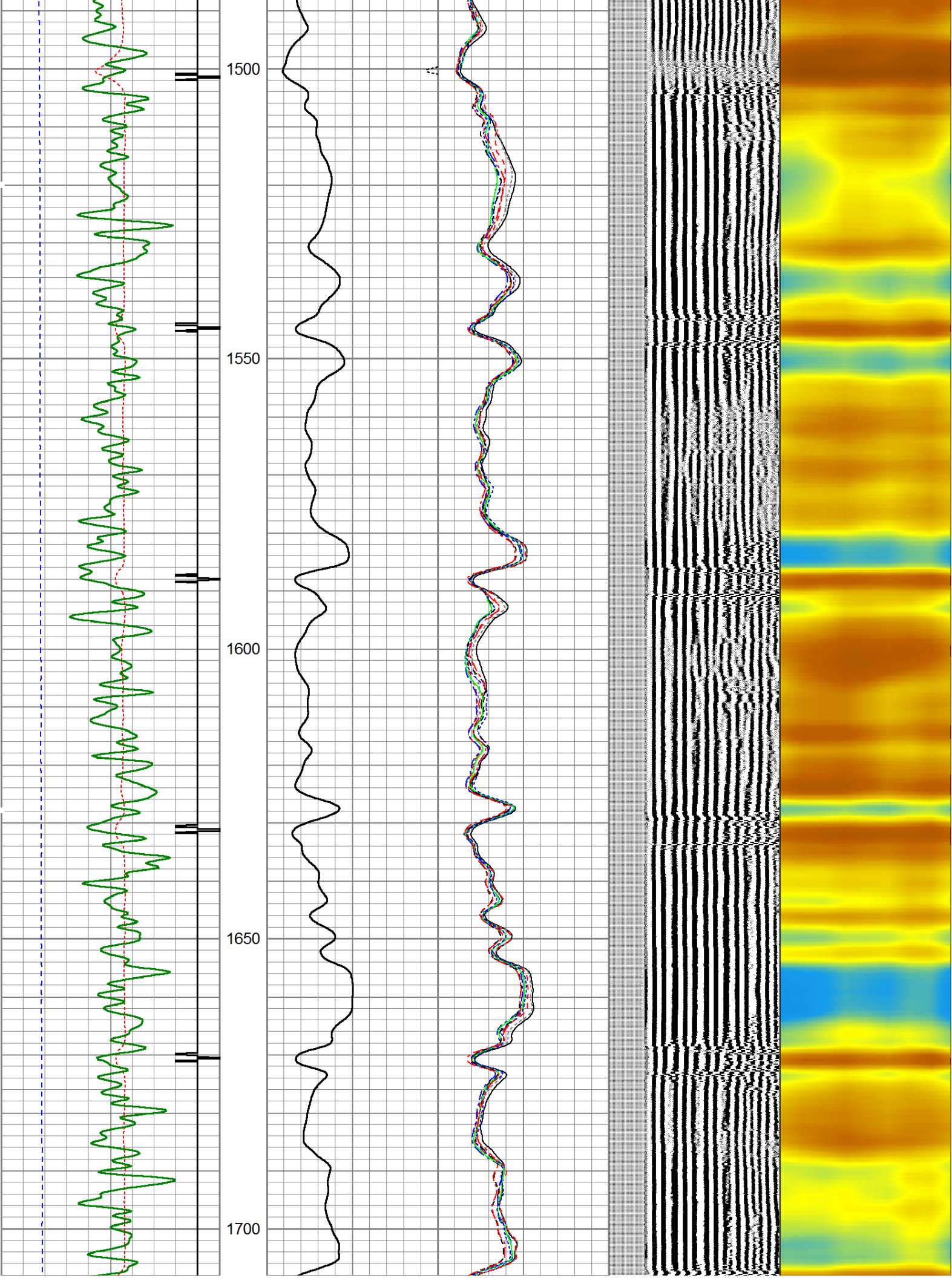


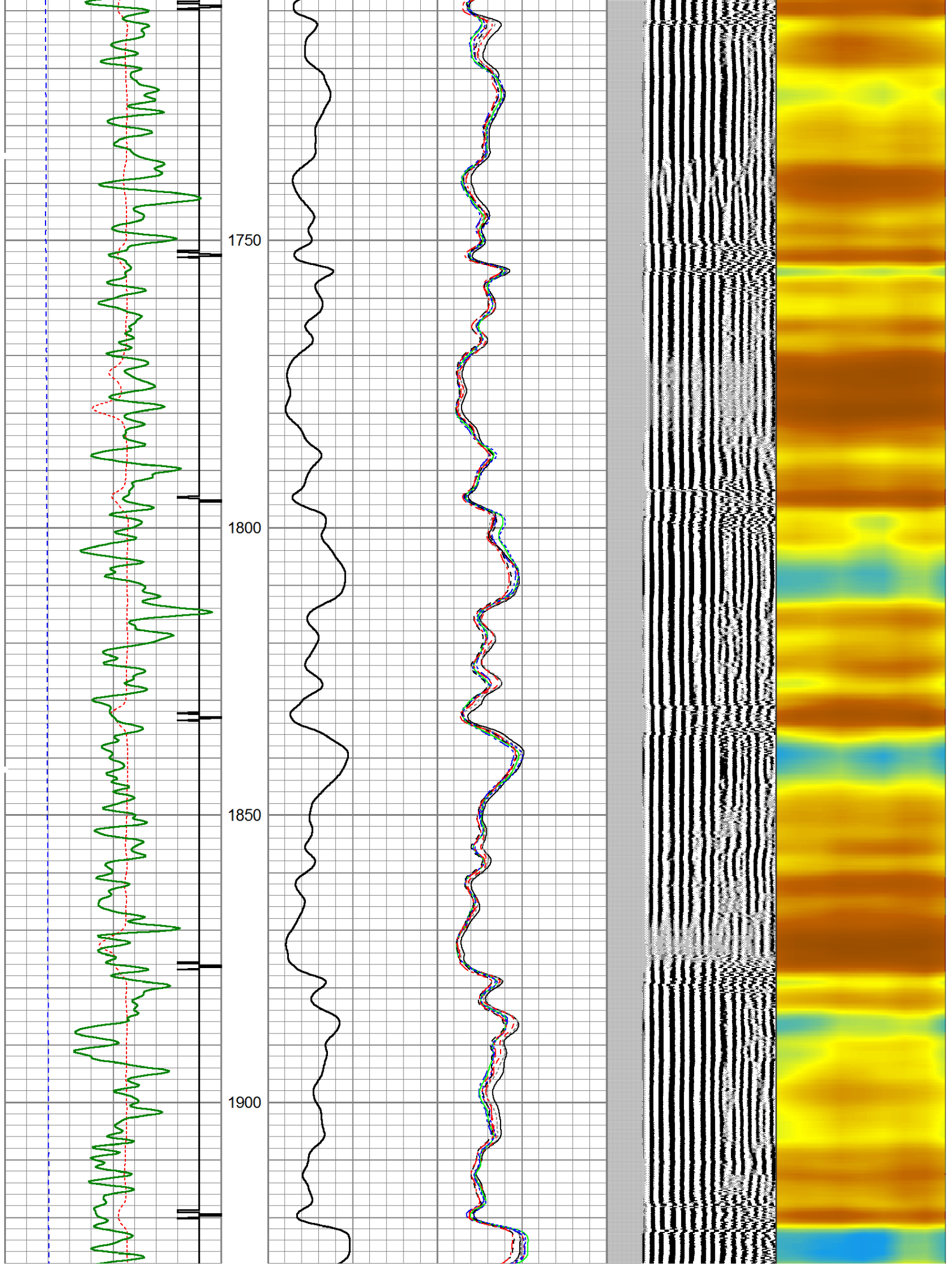


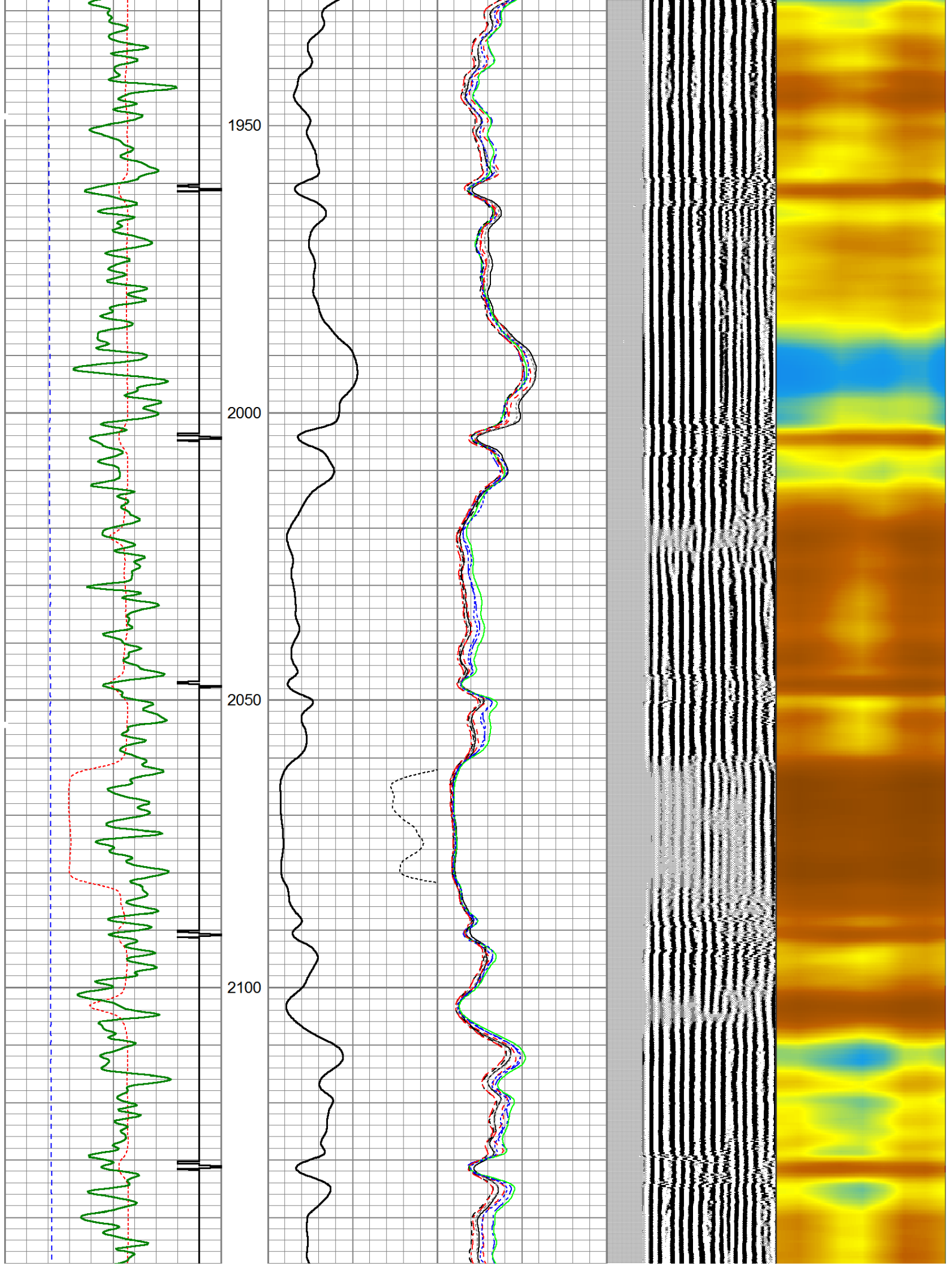


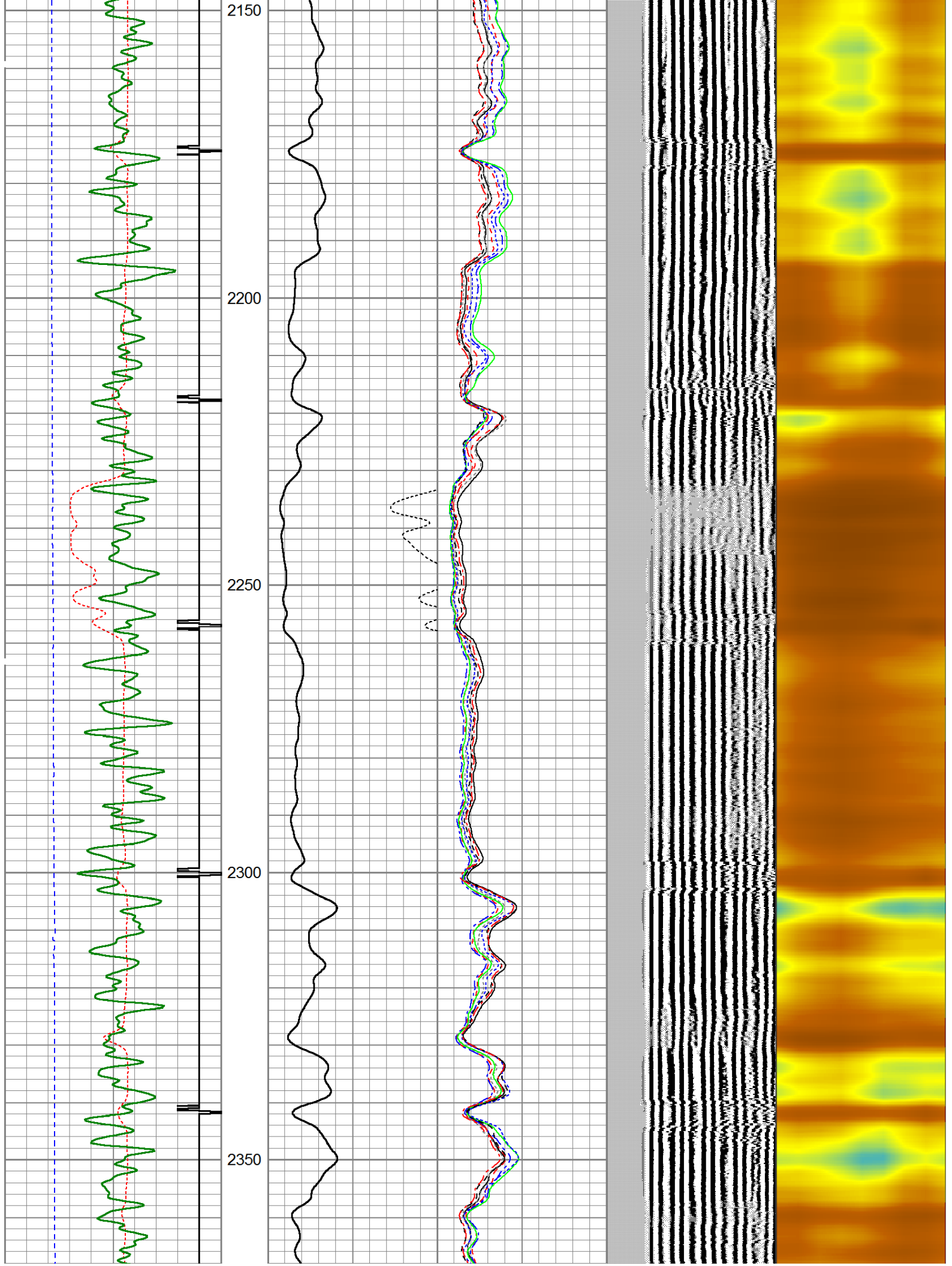


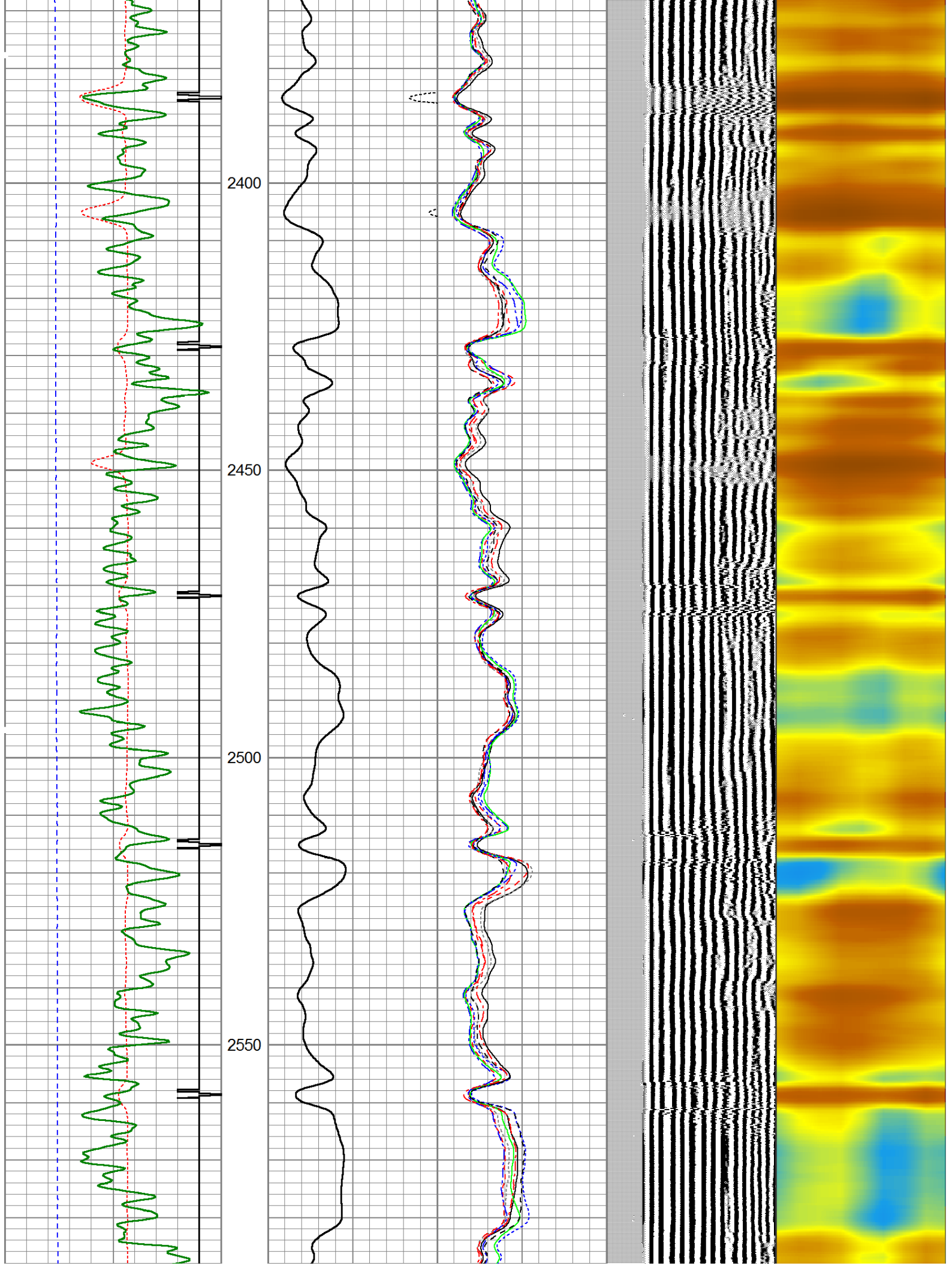


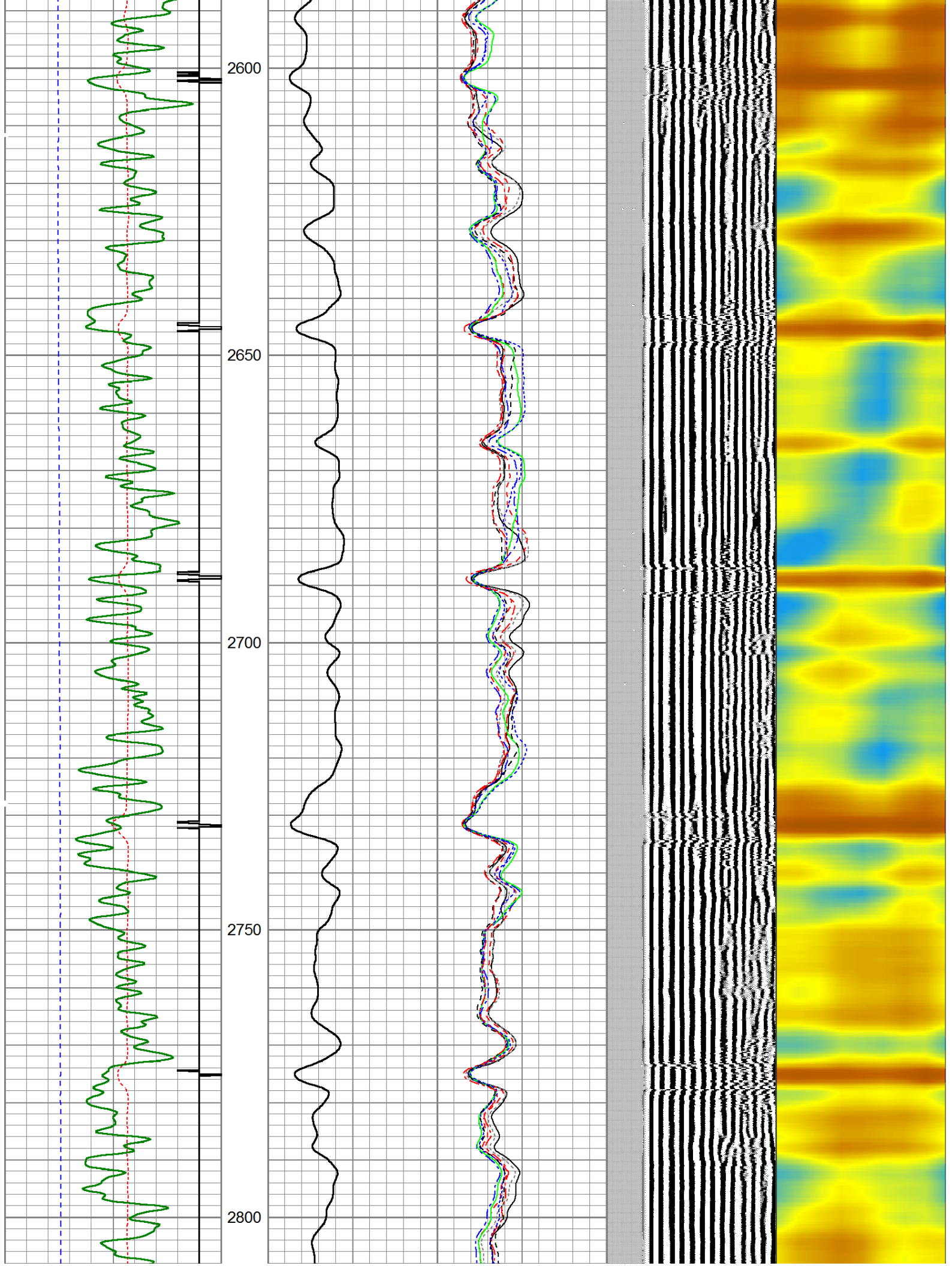


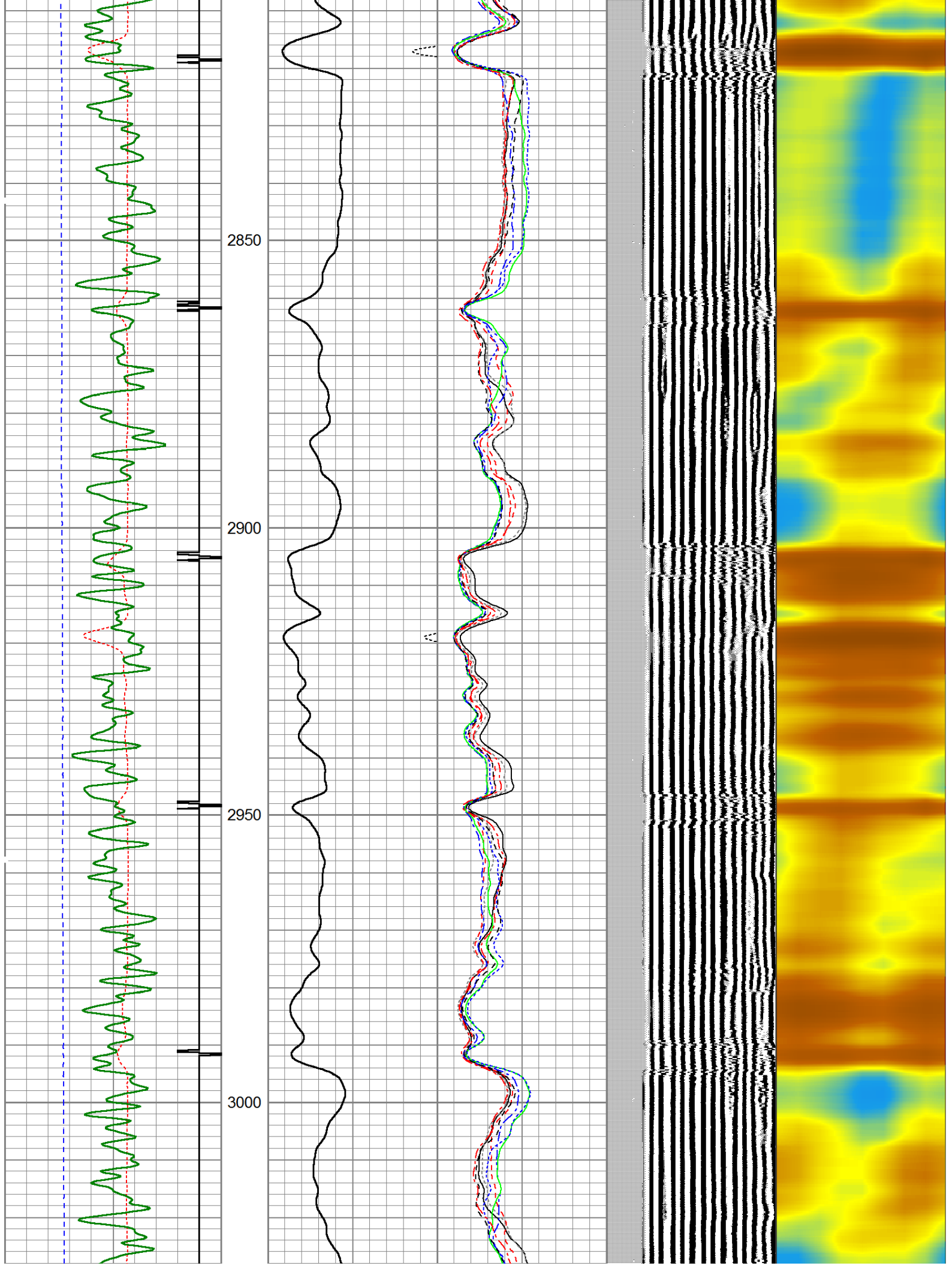


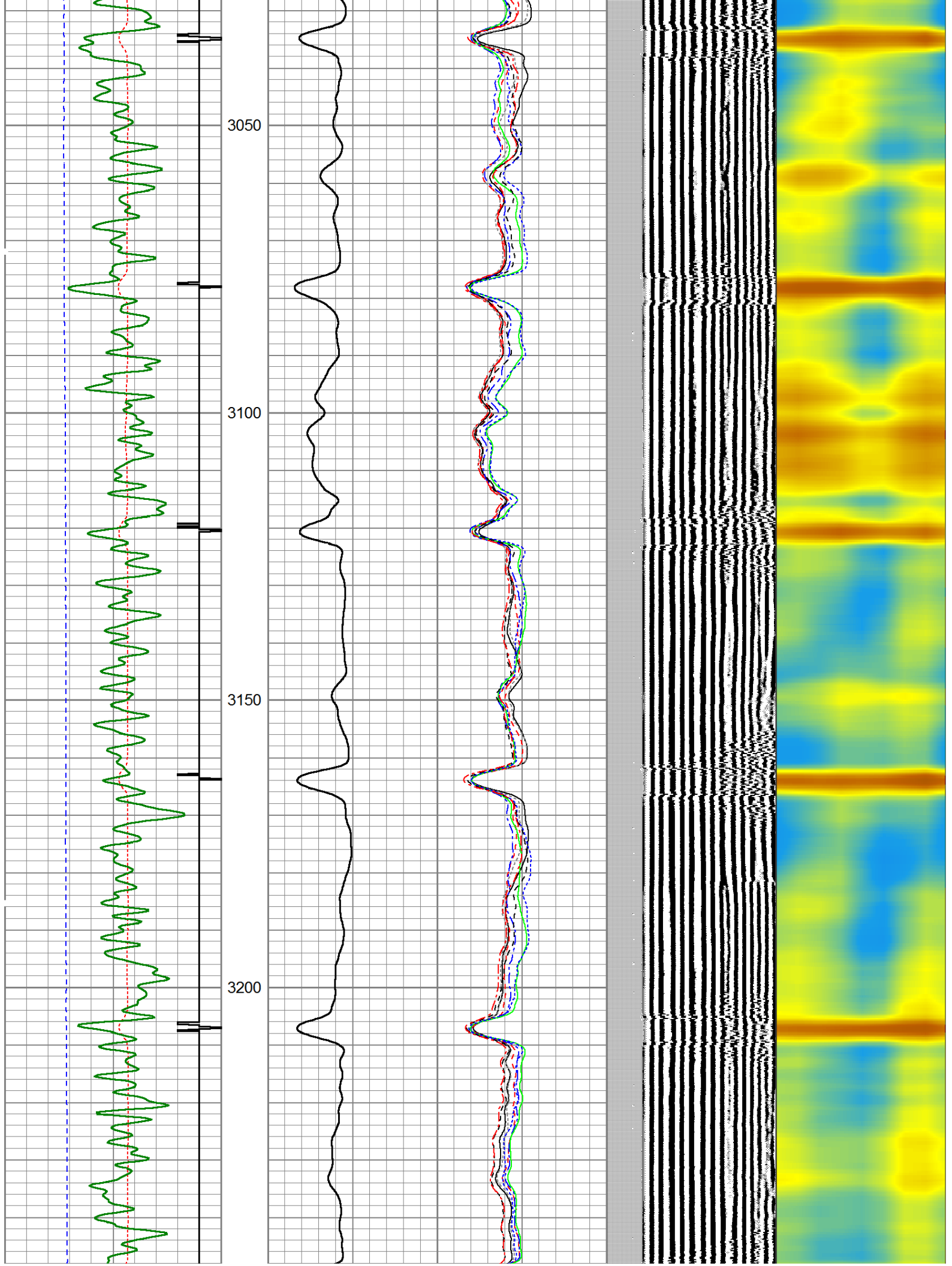


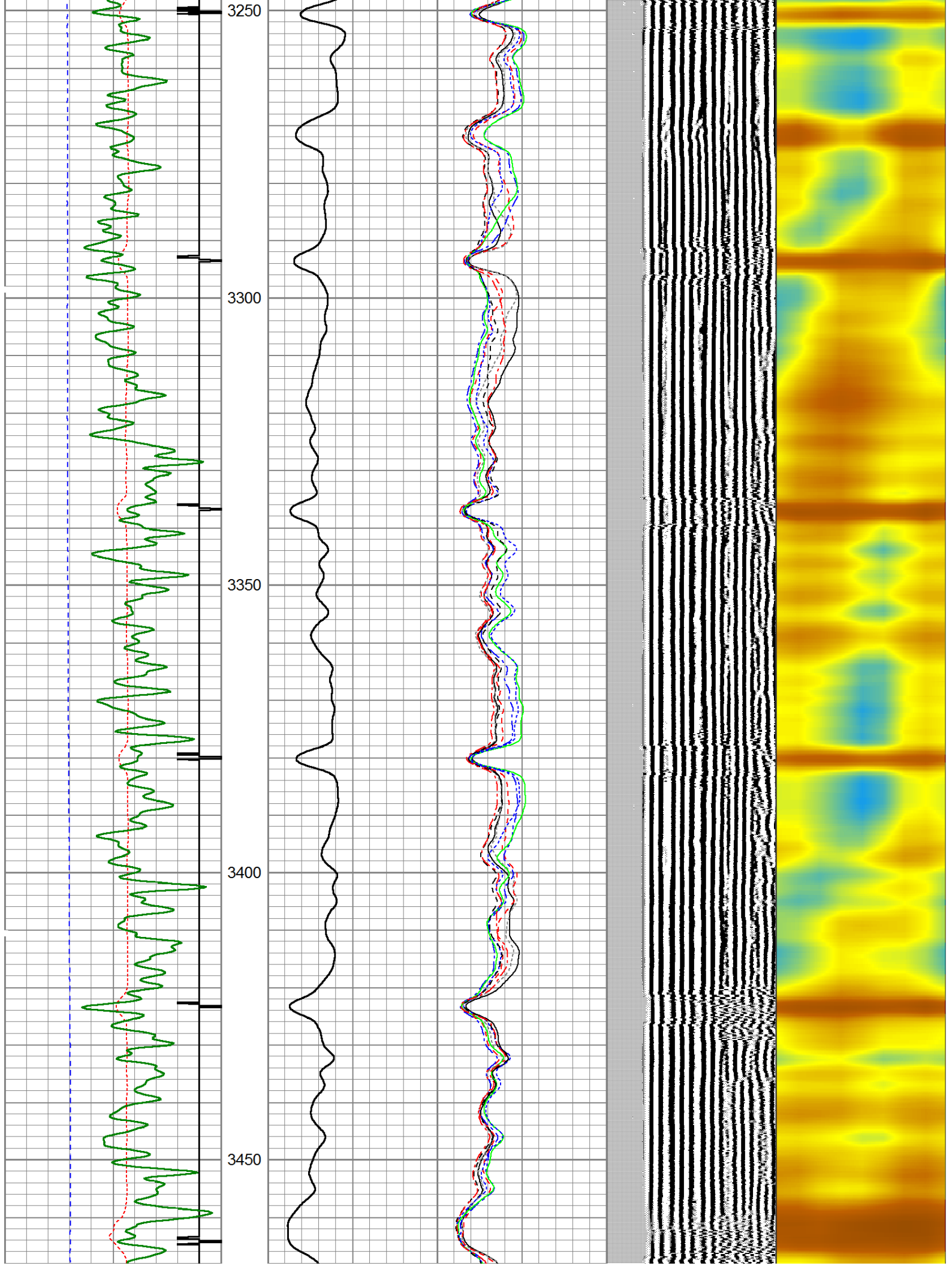


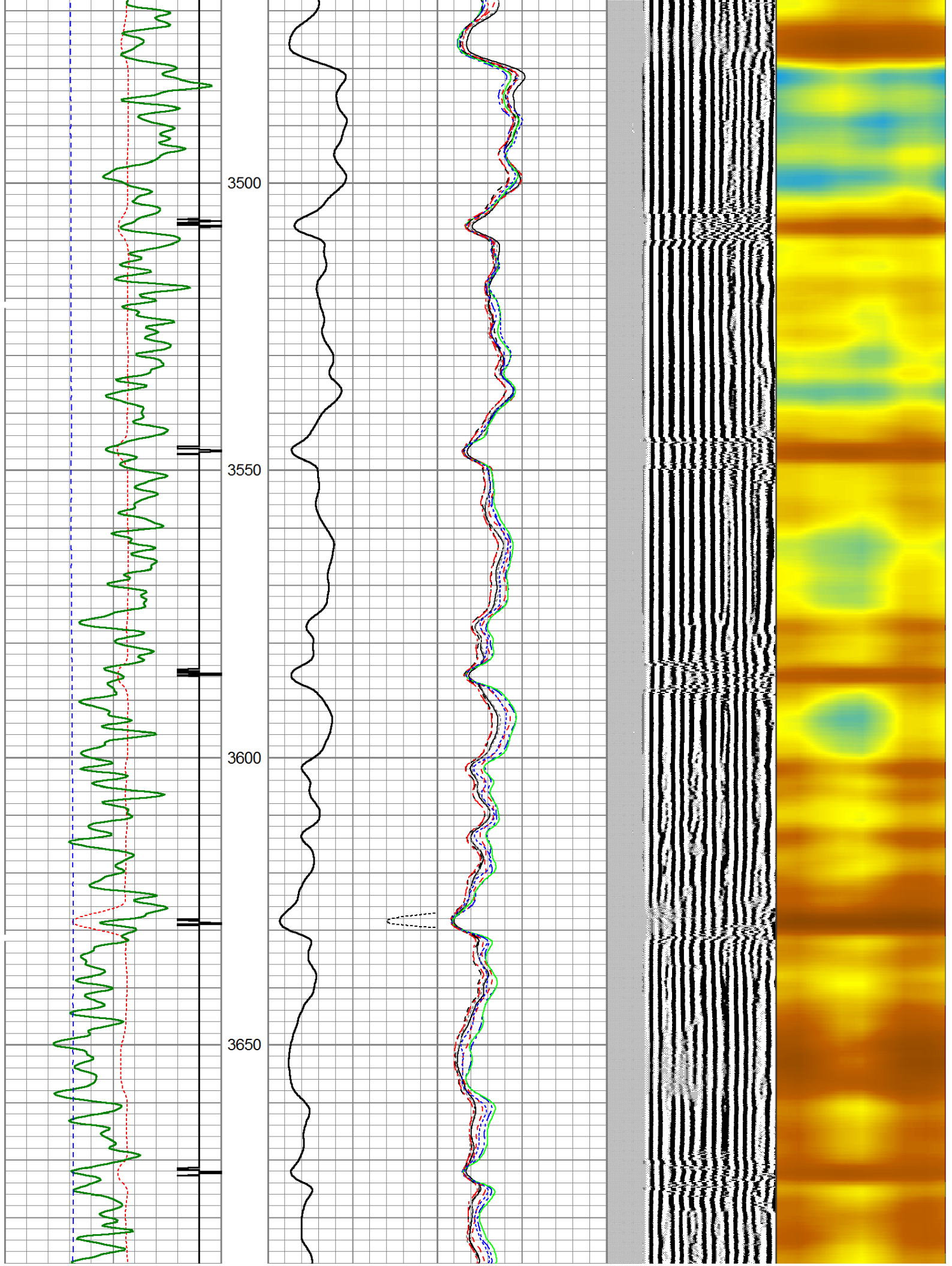


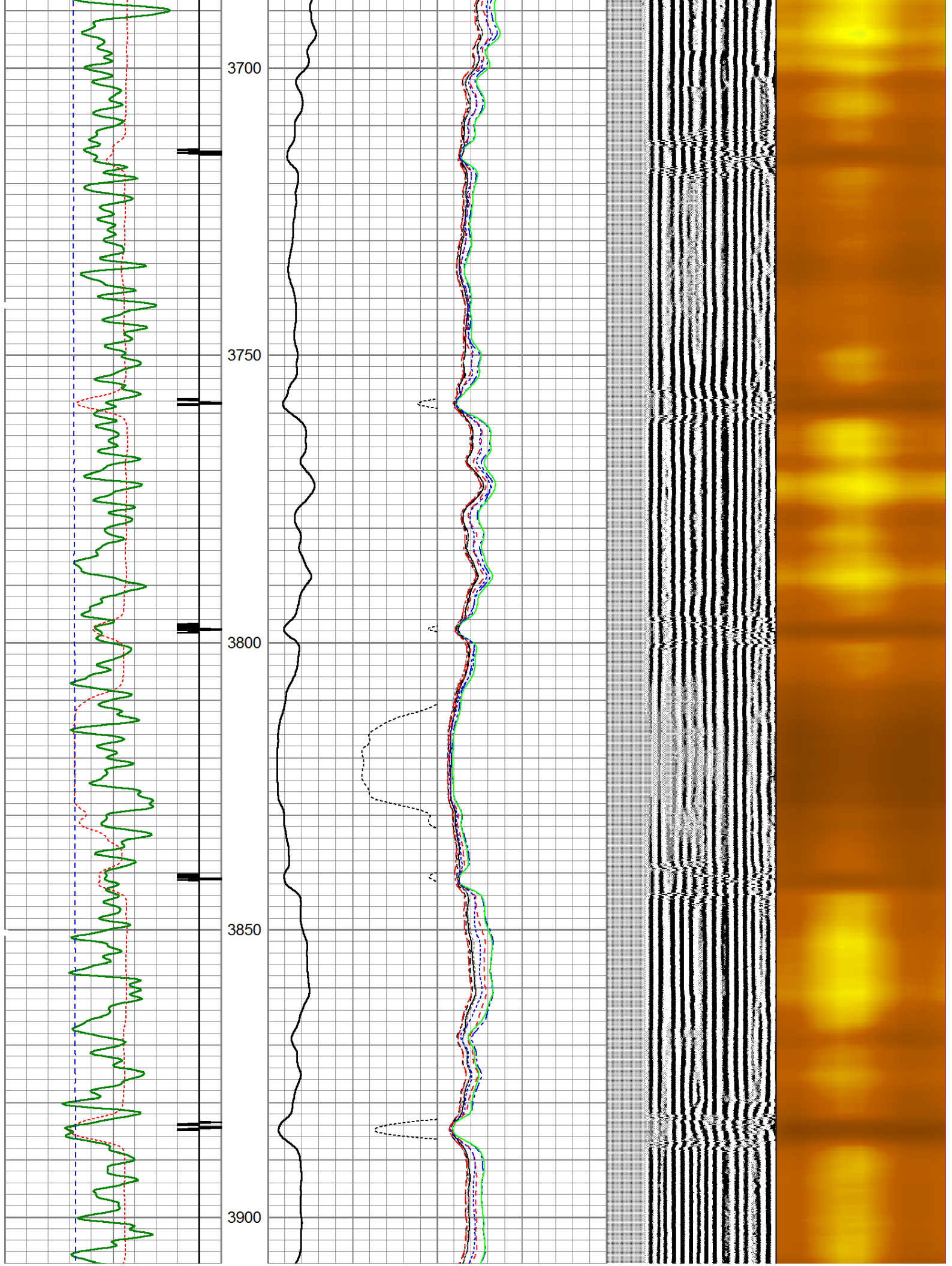


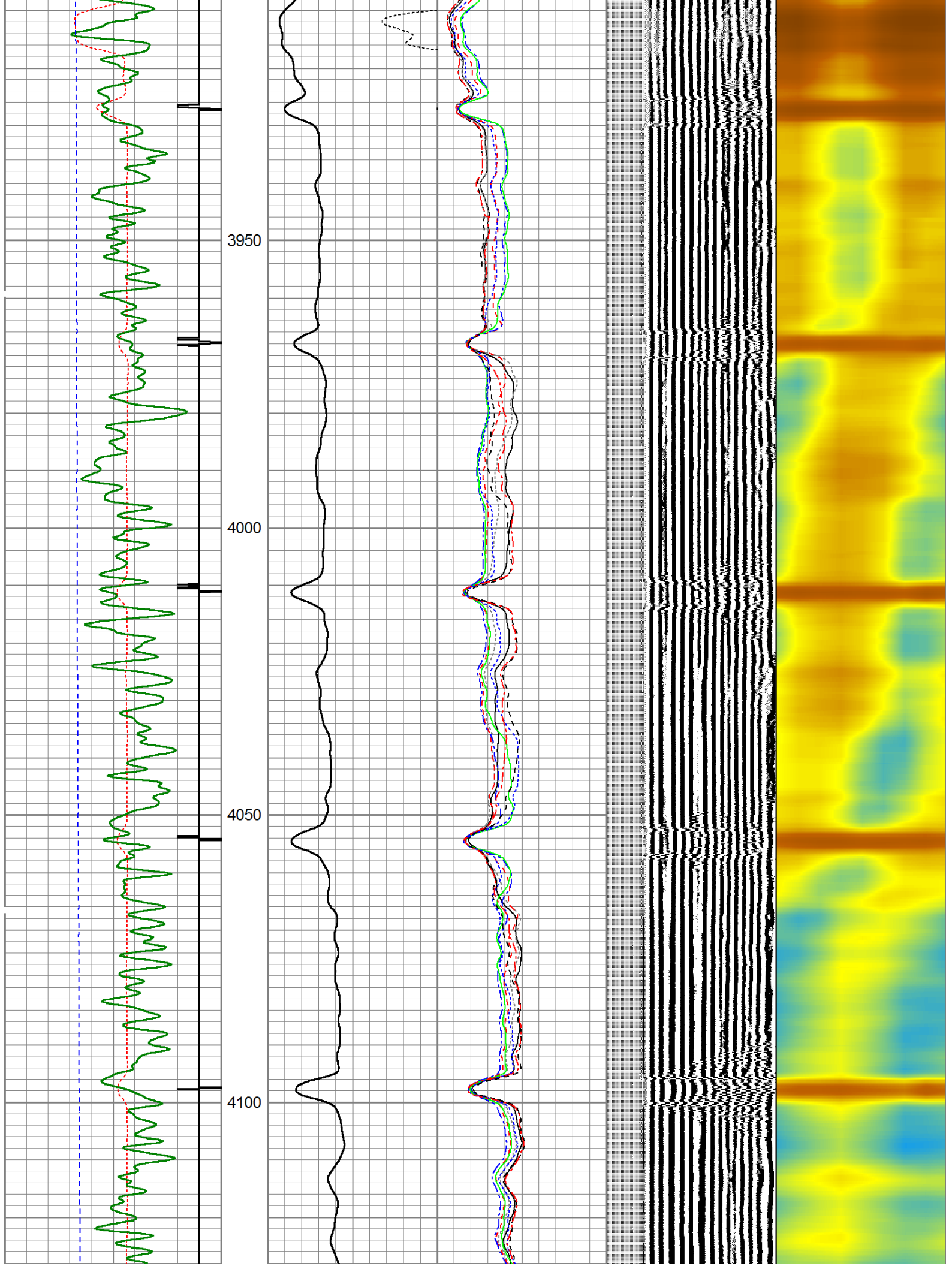


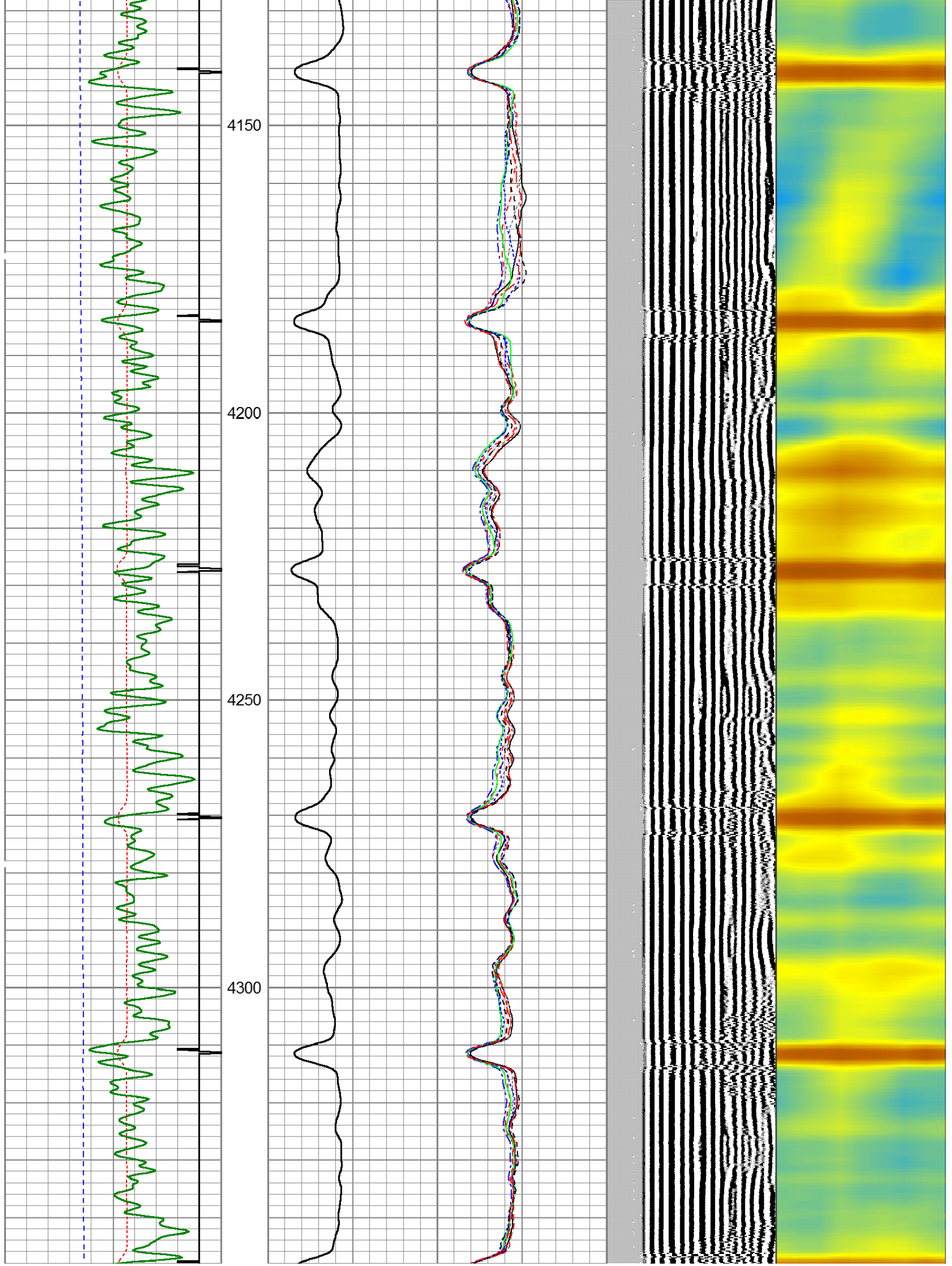


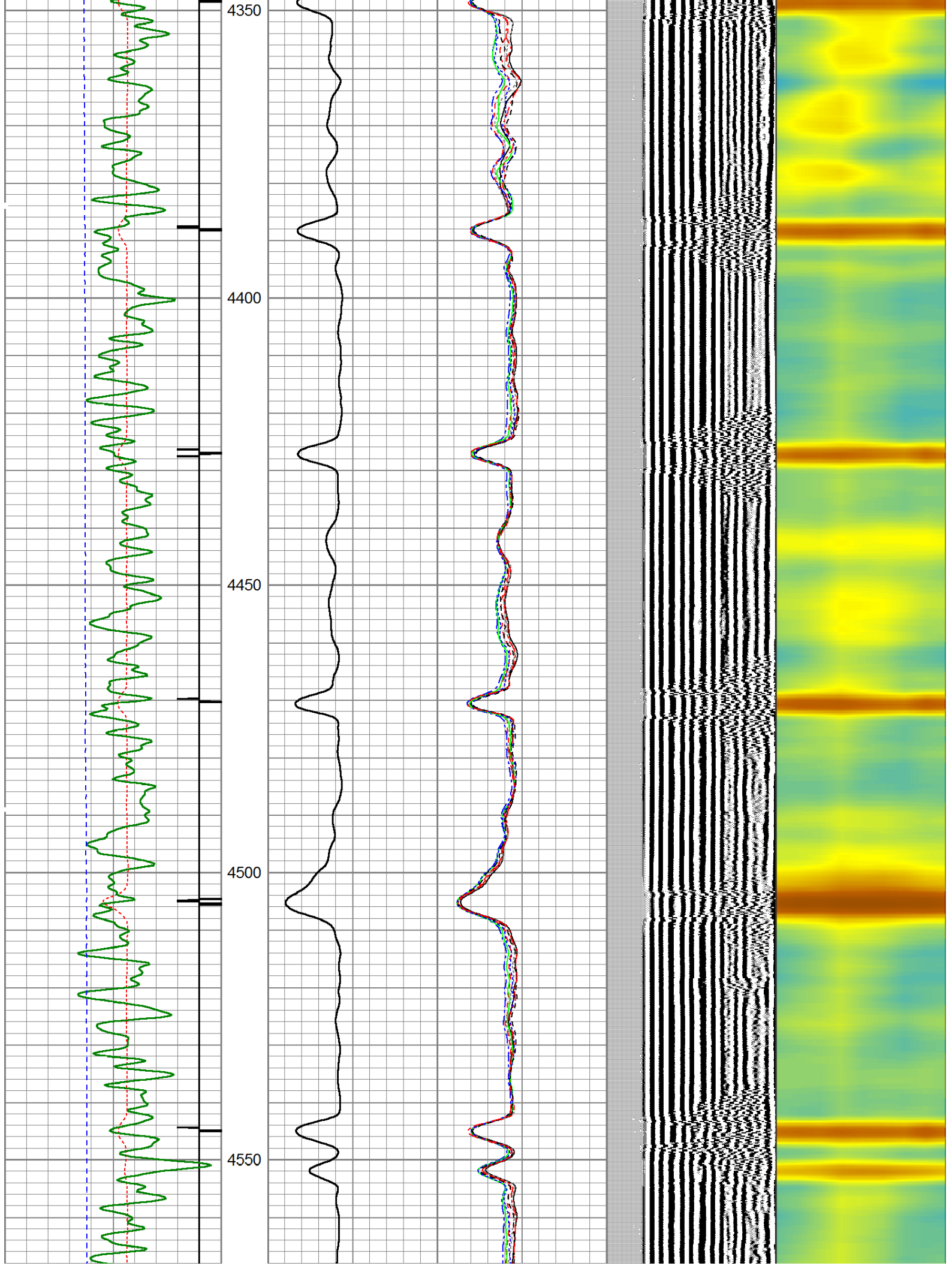


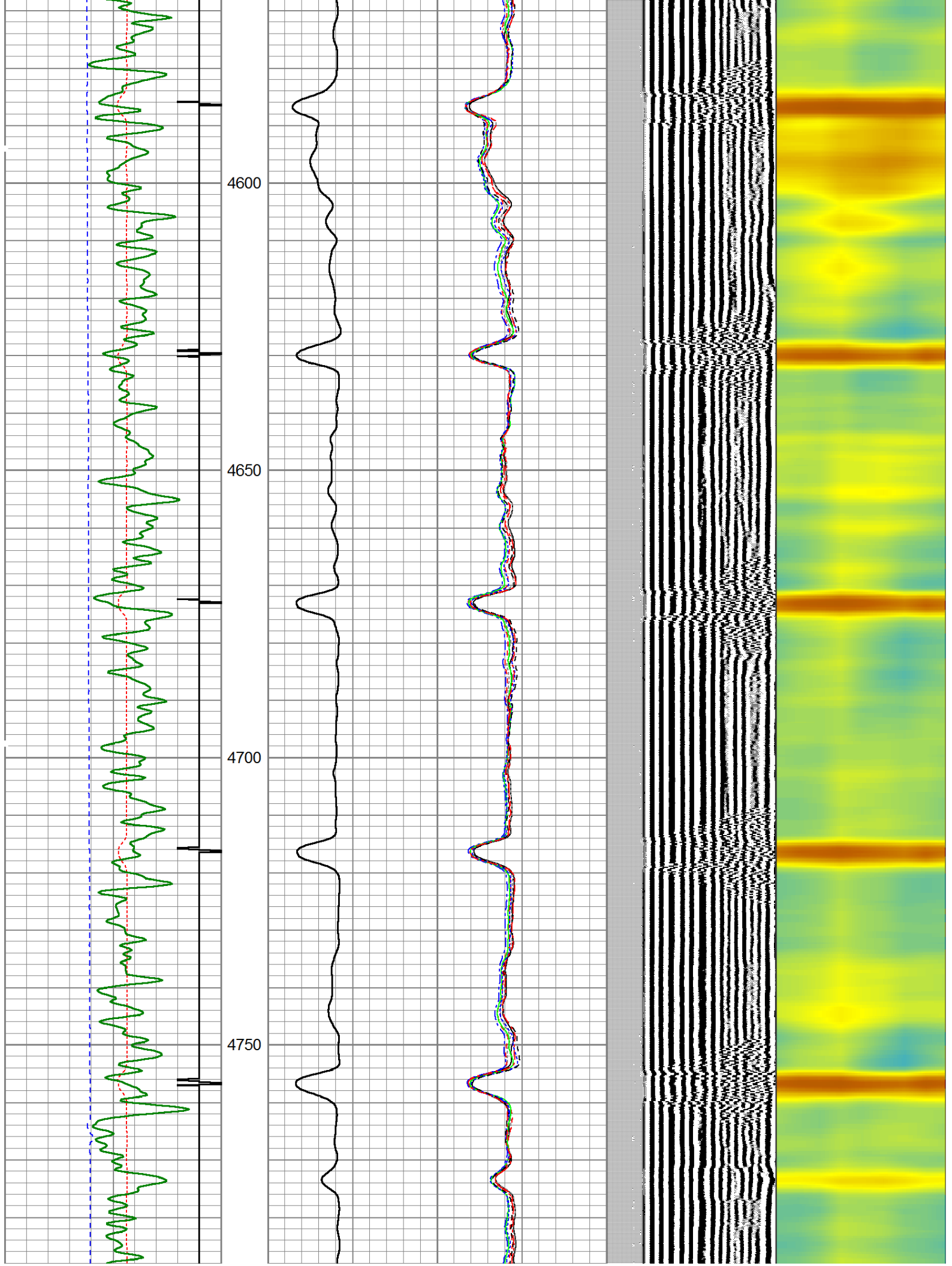


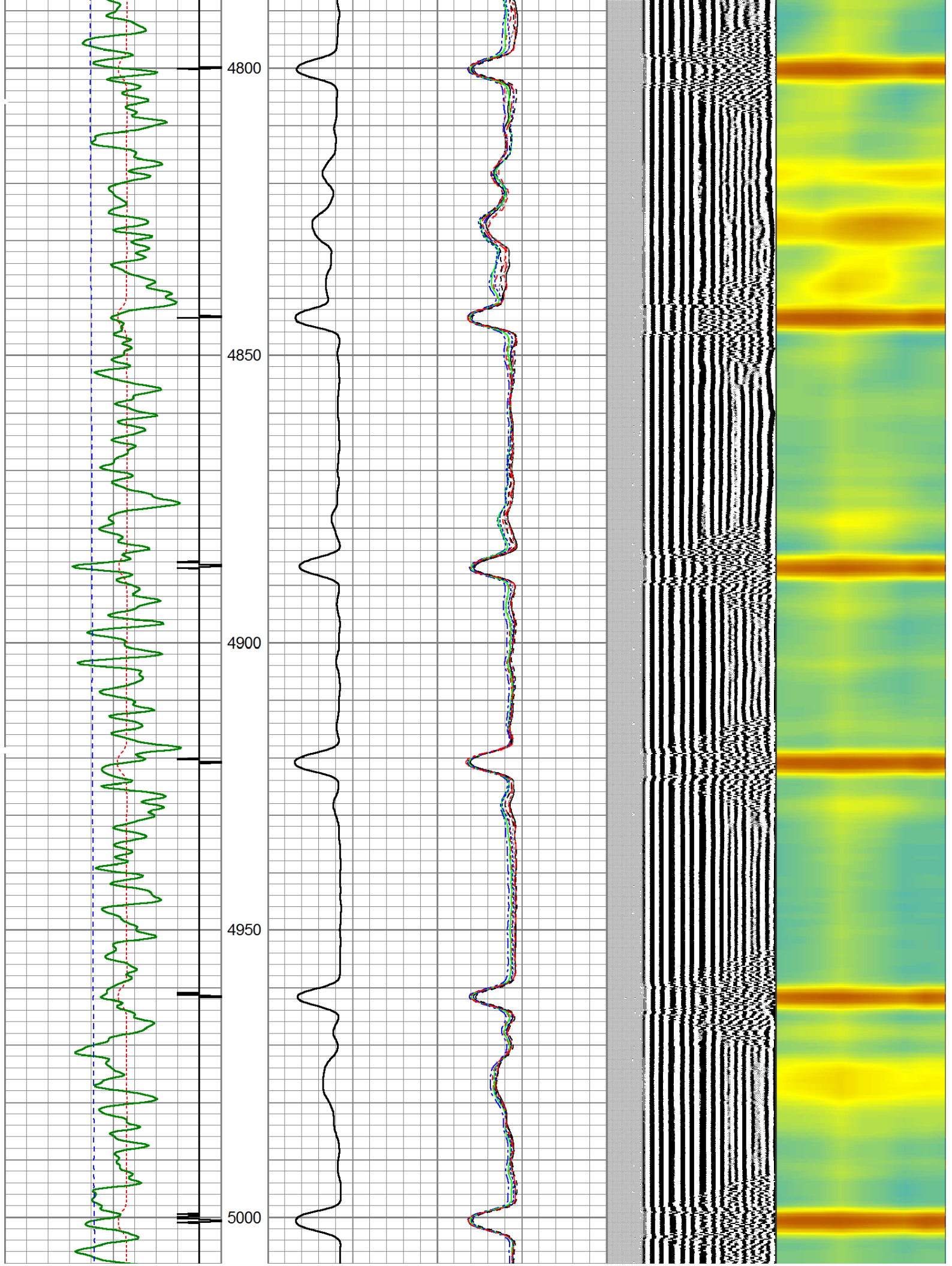


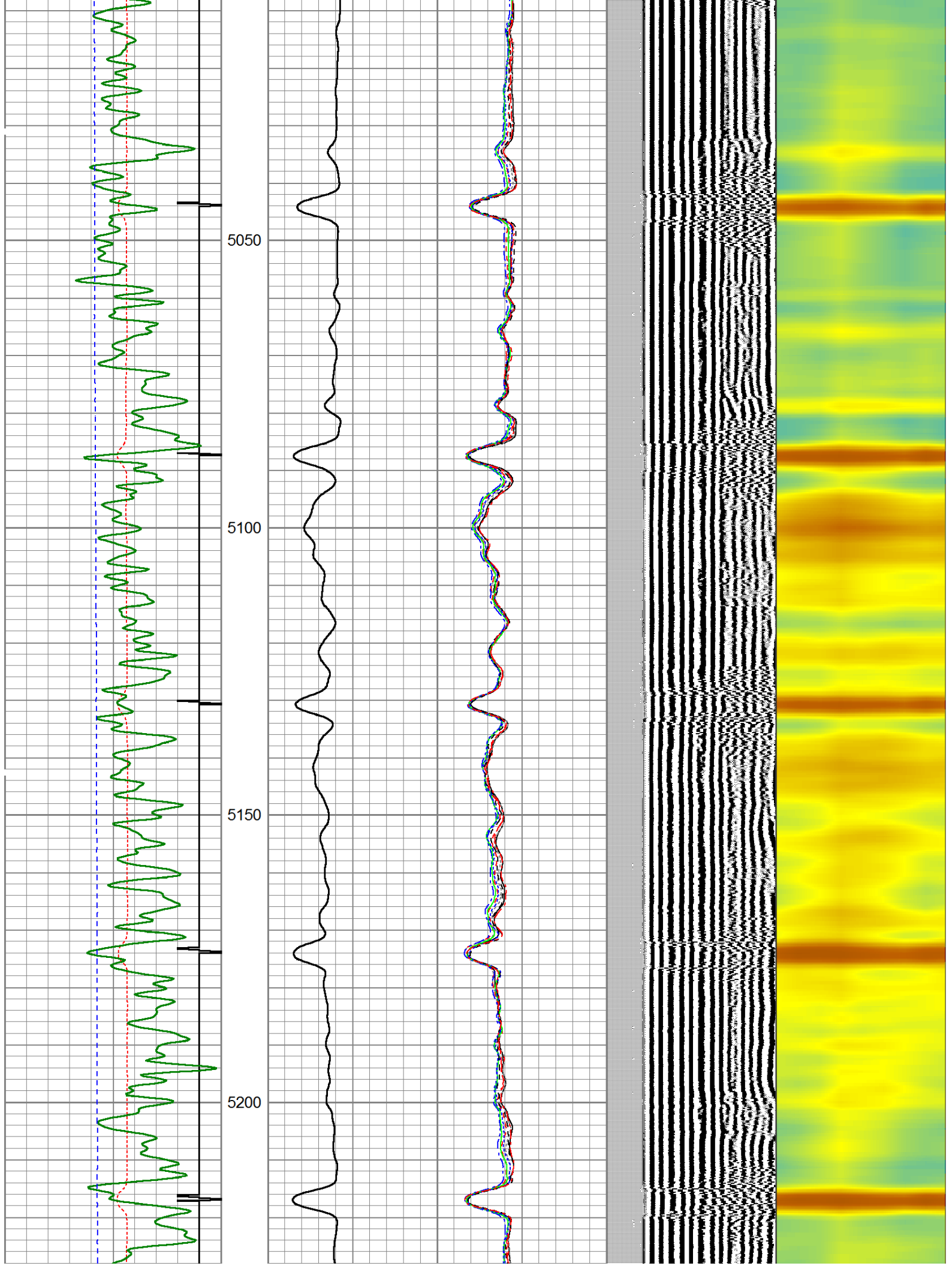


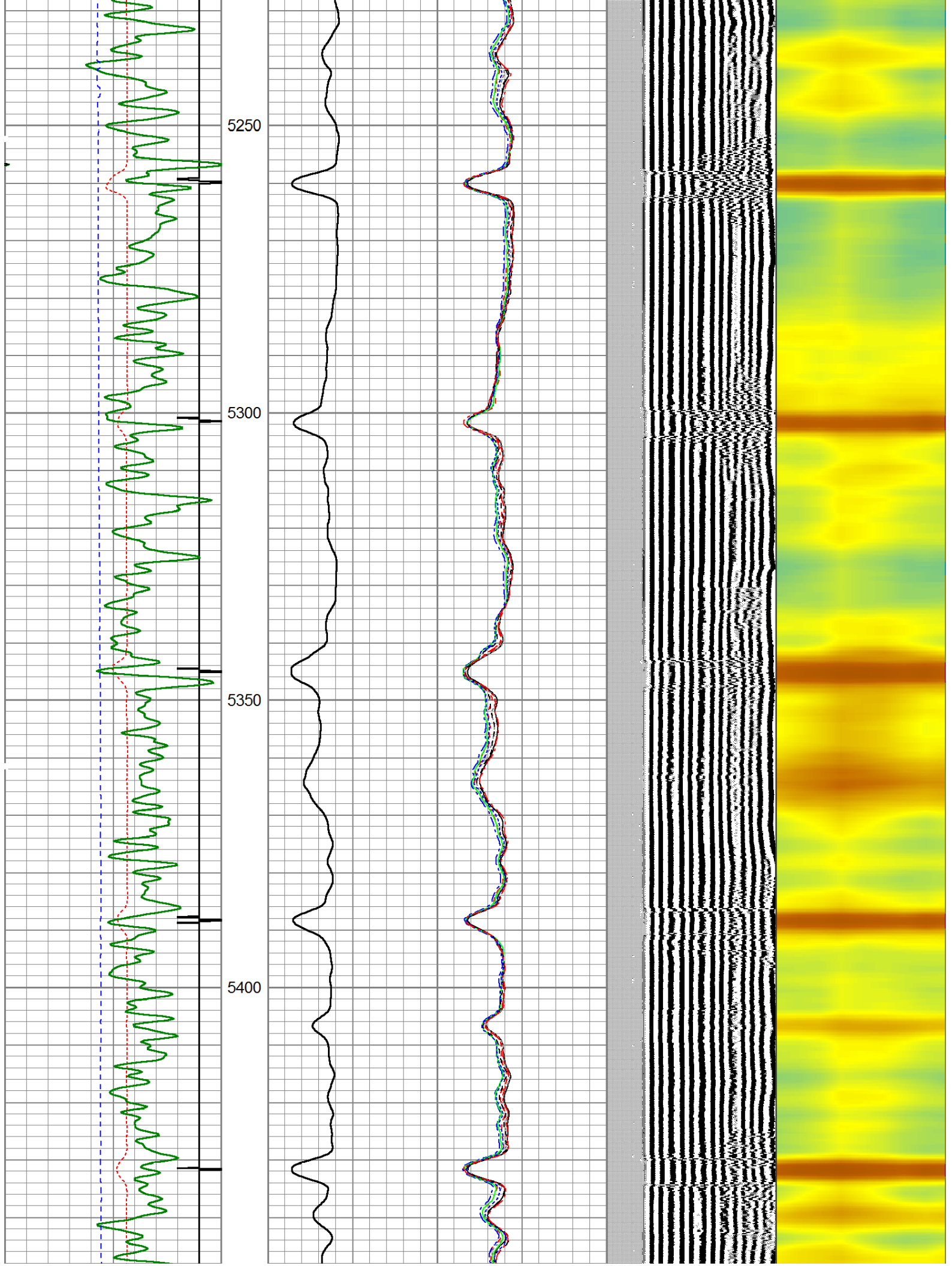


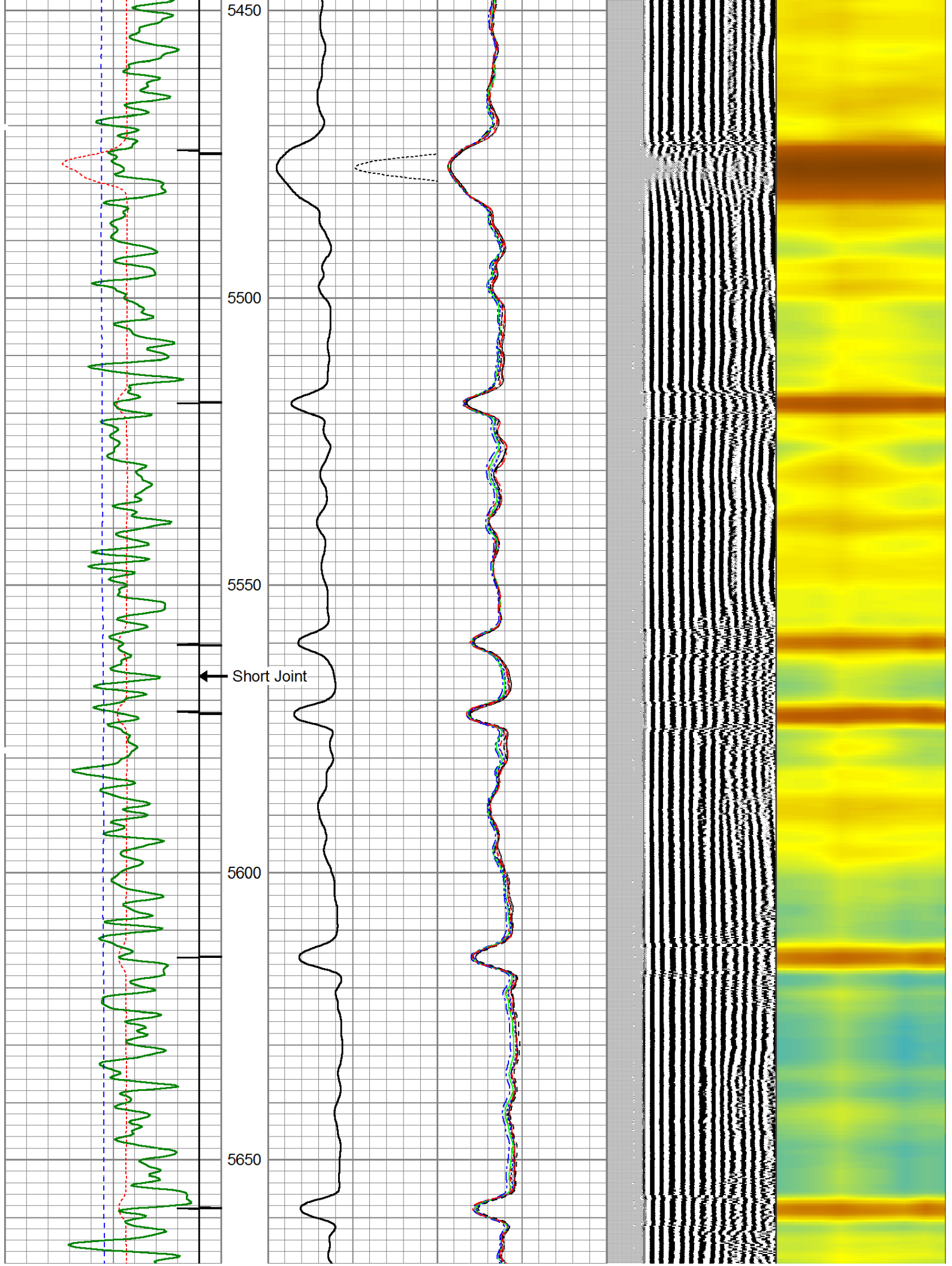


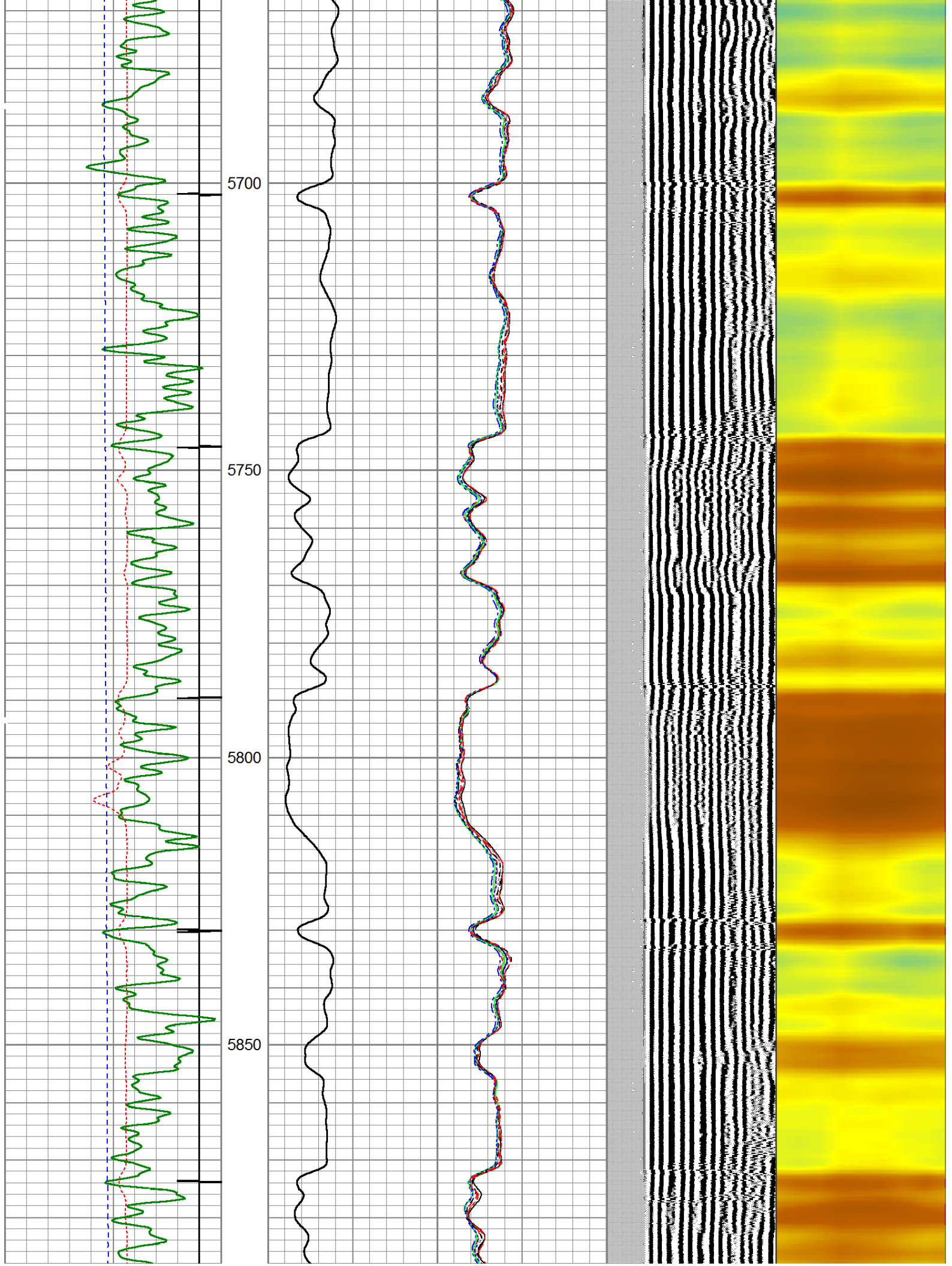


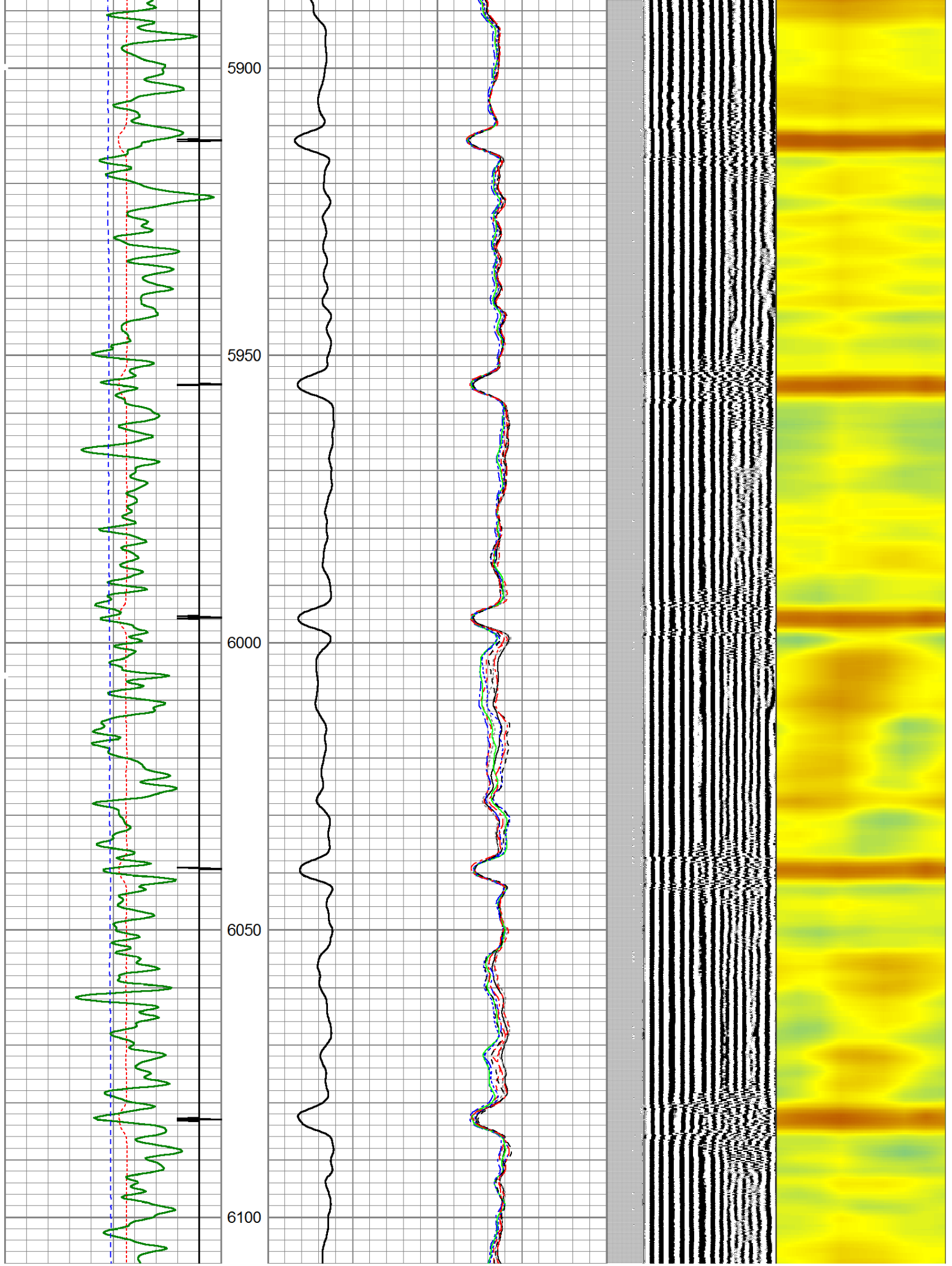


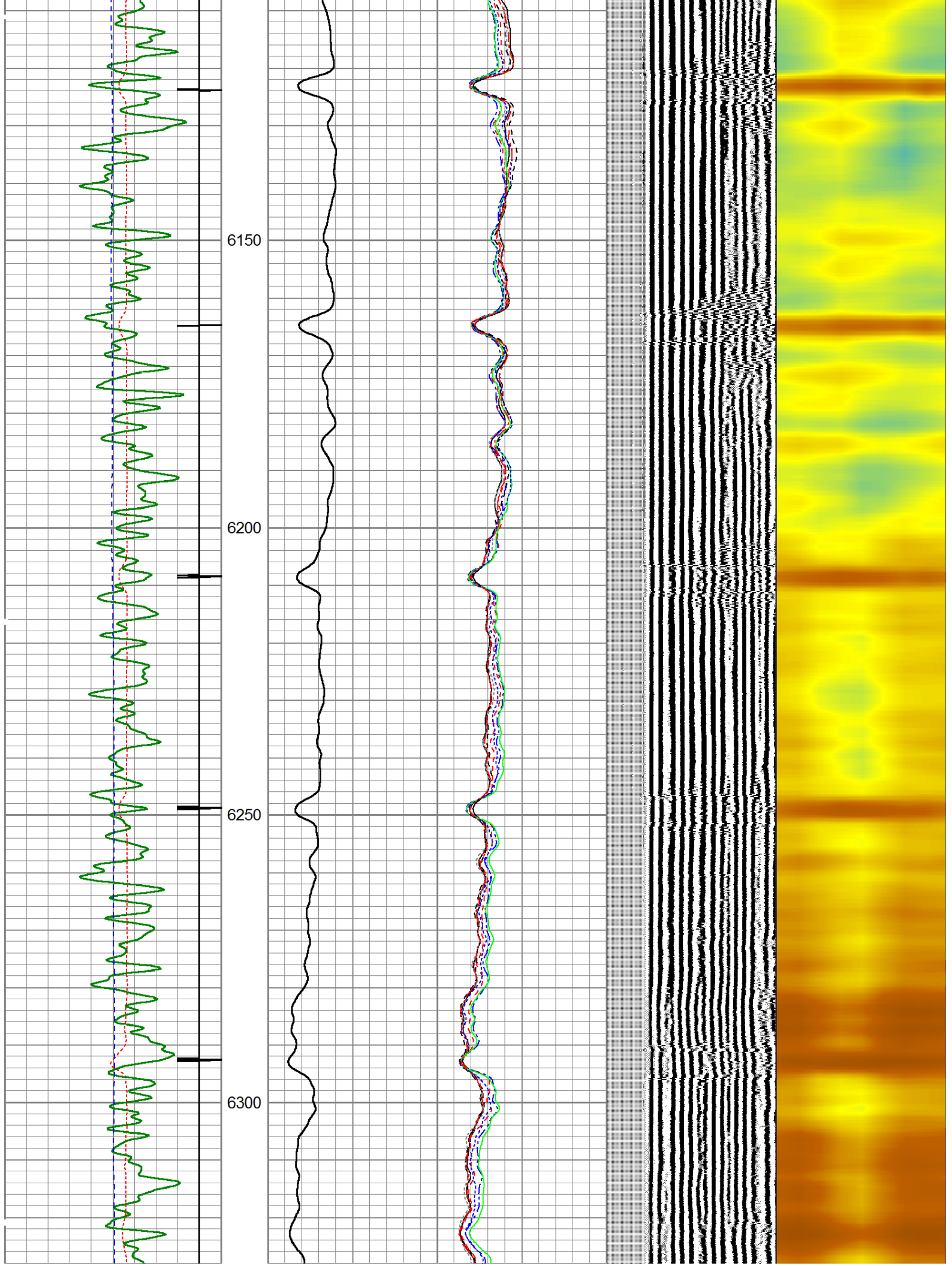


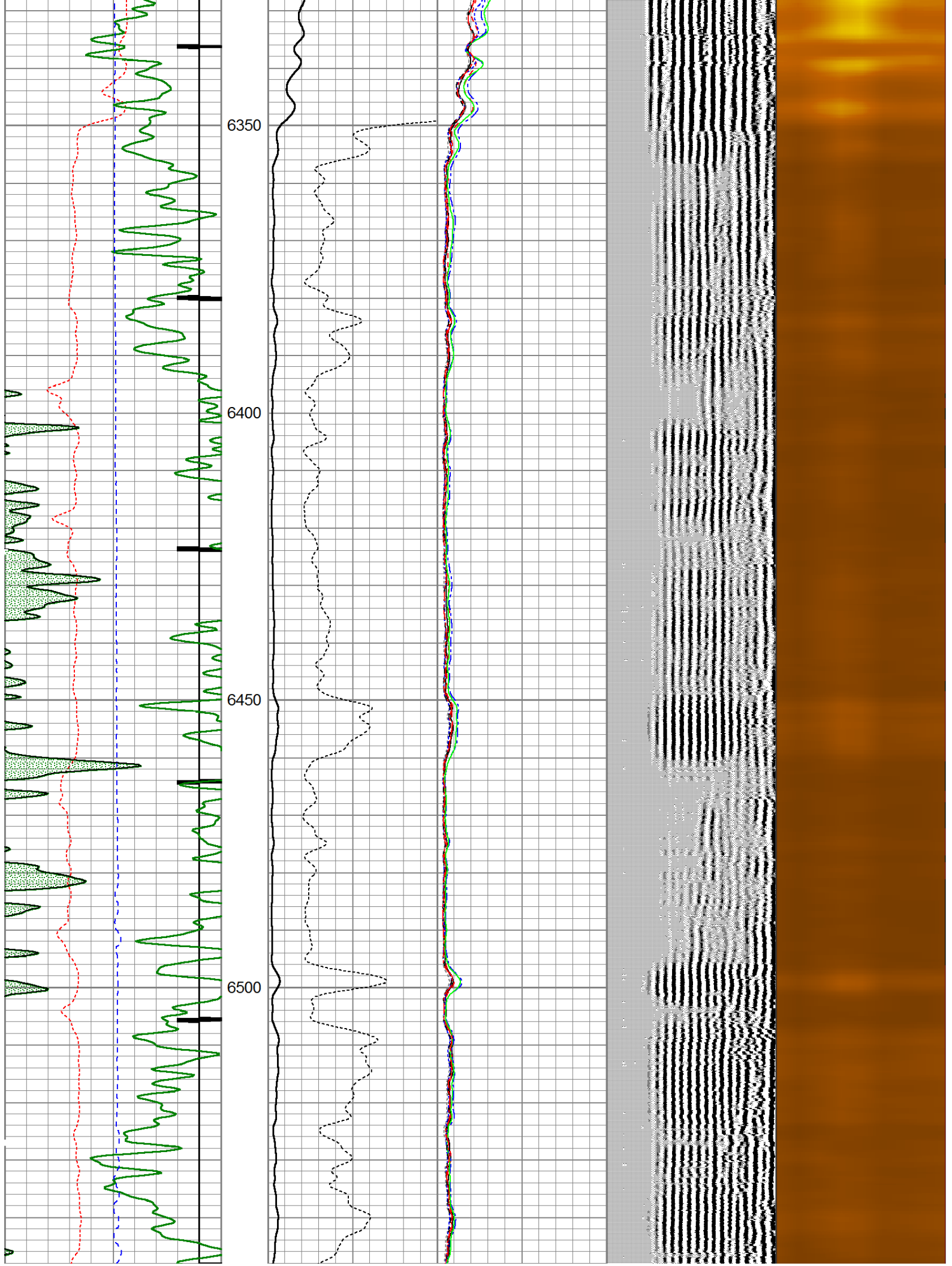


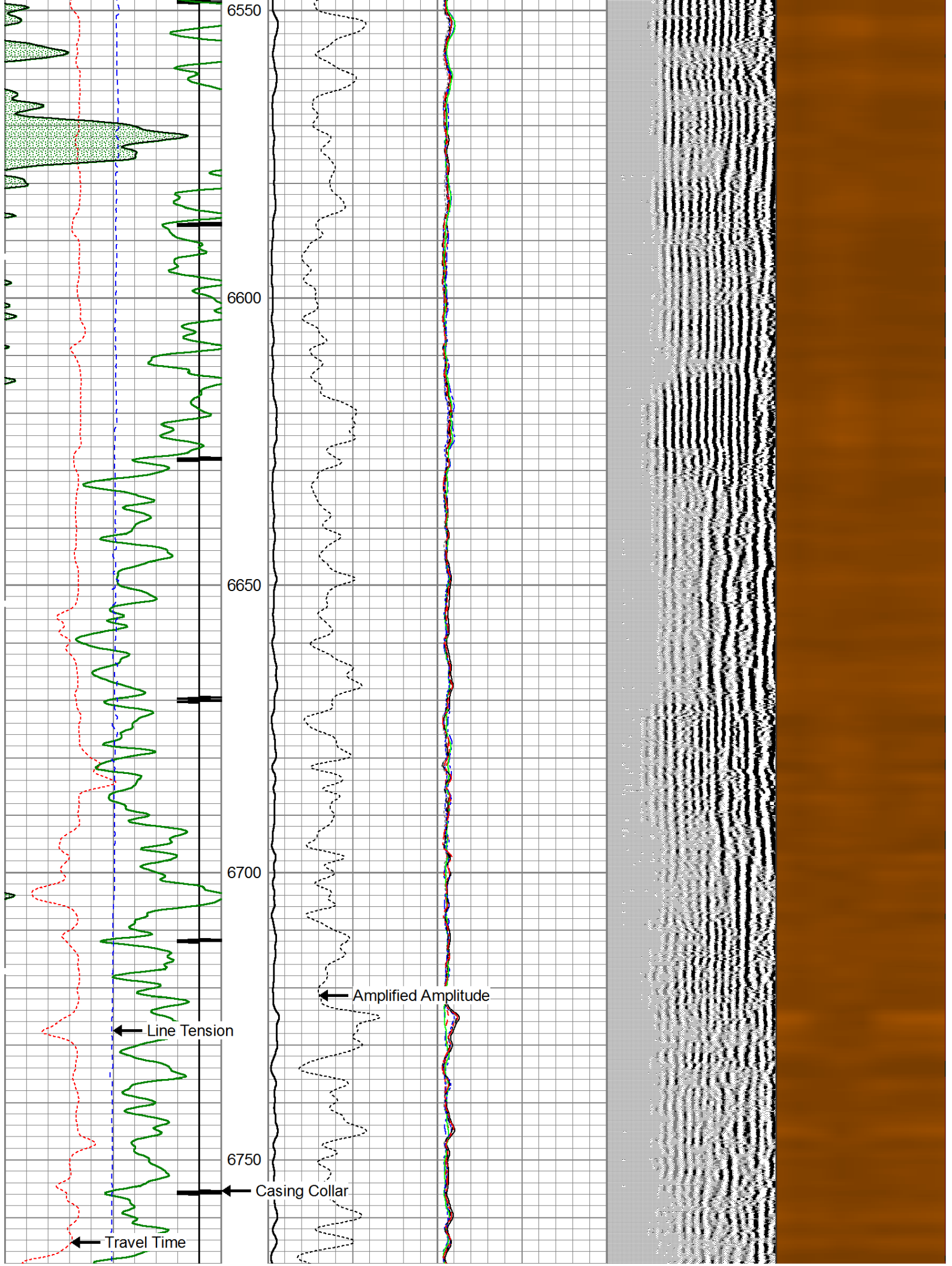


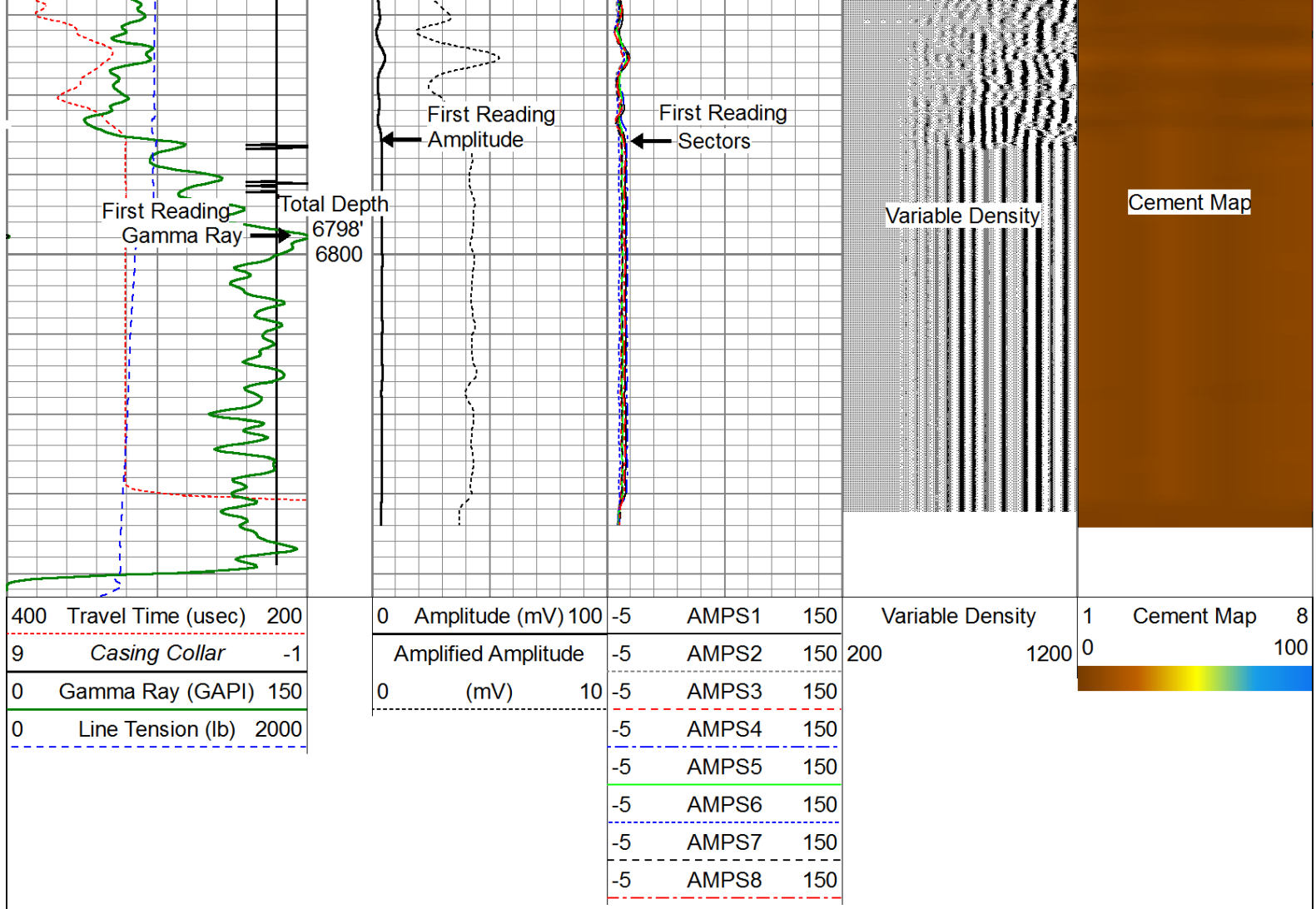






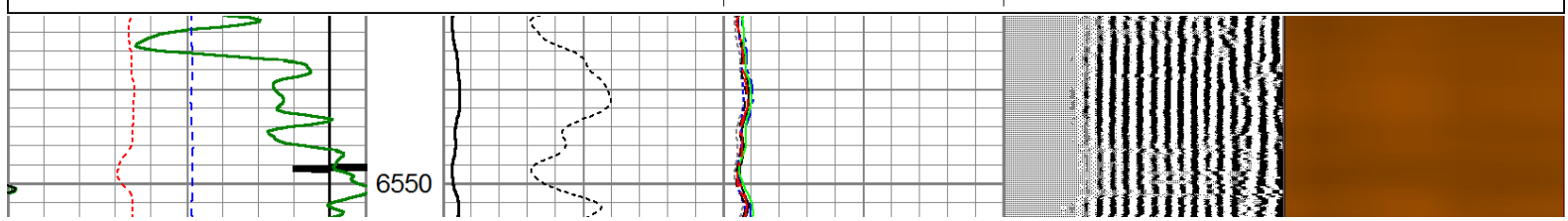
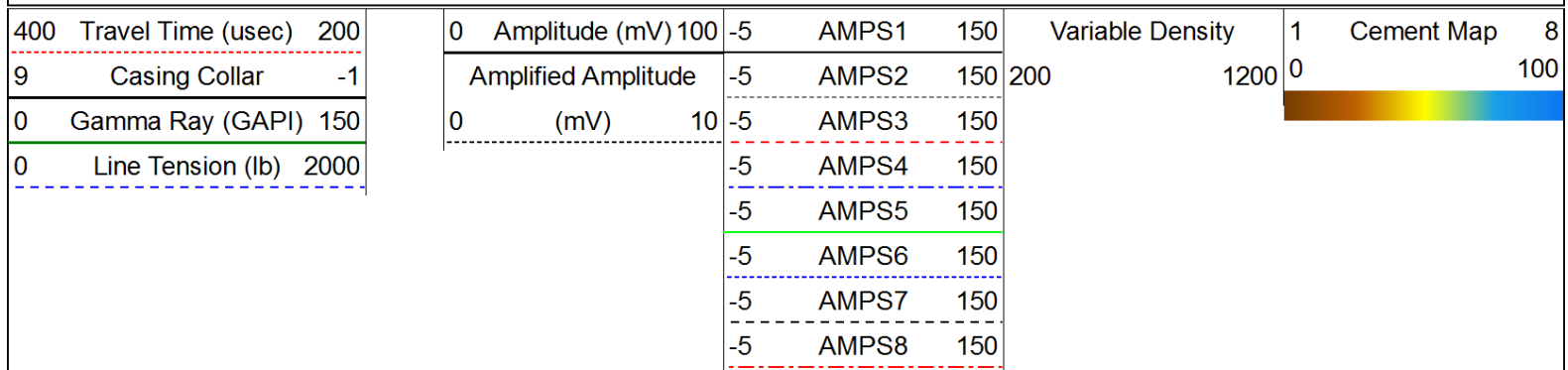


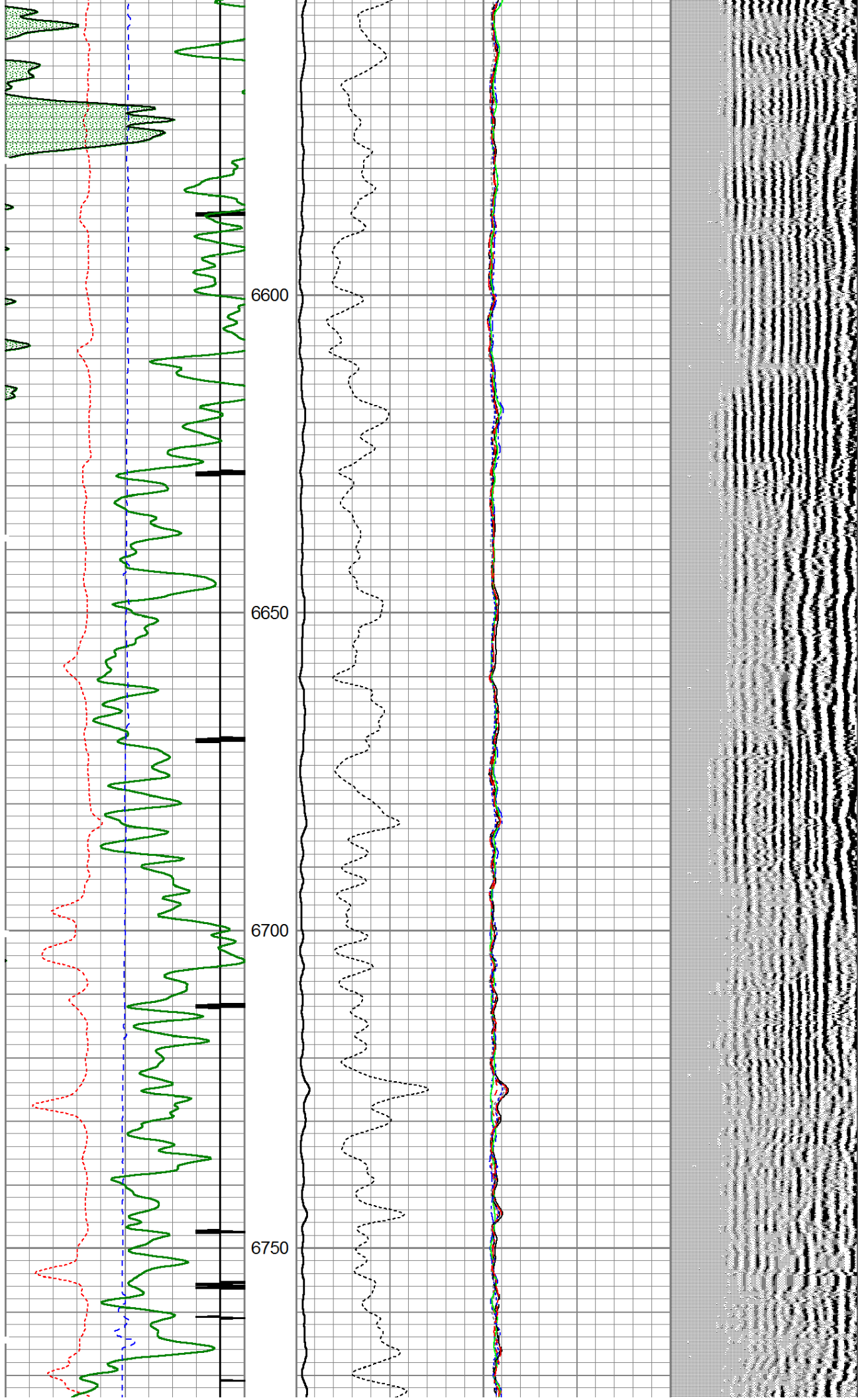


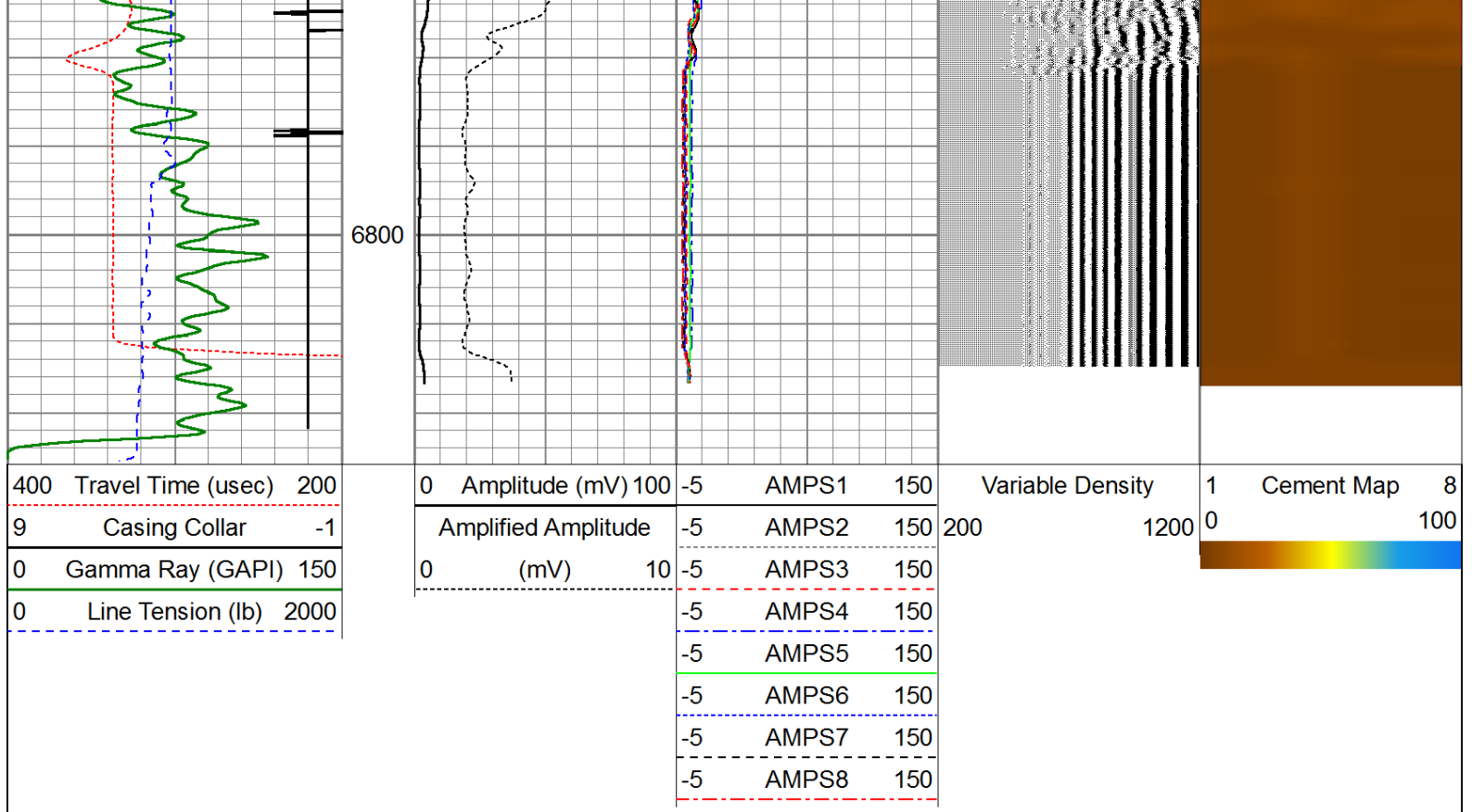


# Repeat Pass ( 0 PSI )

Database File: noble energy wells ranch ae20-65-1hn\_rcbl.db  
 Dataset Pathname: pass3  
 Presentation Format: scbl03  
 Dataset Creation: Wed Nov 27 09:39:59 2013 by Log 0  
 Charted by: Depth in Feet scaled 1:240







Calibration Report				
Database File:	noble energy wells ranch ae20-65-1hn_rcbl.db			
Dataset Pathname:	pass5			
Dataset Creation:	Wed Nov 27 09:46:41 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: 1071.333 ft

Master Calibration, performed Tue Nov 26 12:03:27 2013:

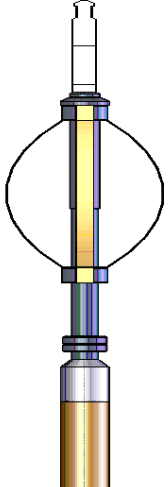
	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	-0.029	0.614	1.000	62.165	95.232	3.718
CAL	-0.028	0.834				
5'	-0.021	0.537	1.000	62.165	109.446	3.343
SUM						
S1	-0.017	0.654	0.000	100.000	149.057	2.575
S2	-0.016	0.687	0.000	100.000	137.286	2.256
S3	-0.022	0.681	0.000	100.000	130.326	3.075
S4	-0.018	0.661	0.000	100.000	138.298	2.704
S5	-0.020	0.614	0.000	100.000	145.666	3.162
S6	-0.021	0.575	0.000	100.000	162.914	3.470
S7	-0.022	0.547	0.000	100.000	170.964	3.823
S8	-0.021	0.545	0.000	100.000	170.689	3.721

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	-0.028	0.834	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)	Length (ft)	Weight (lb)	O.D. (in)
WVF3FT	11.84	11.84			
WVFCAL	11.84	11.84			
WVFS1	11.84	11.84			
WVFS2	11.84	11.84			
WVFS3	11.84	11.84			
WVFS4	11.84	11.84			
WVFS5	11.84	11.84			
WVFS6	11.84	11.84			
WVFS7	11.84	11.84			
WVFS8	11.84	11.84			
WVF5FT	10.84	11.84	1.00		
CCL	3.88	3.88			
TEMP	3.00	3.00			
GR	2.54	2.54			
Dataset: noble energy wells ranch ae20-65-1hn_rcbl.db: field/well/run1/pass5 Total Length: 20.28 ft Total Weight: 197.00 lb O.D.: 2.75 in					