



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

Company Noble Energy

Well Rohn State LD09-65-1HN

Field Wattenberg

County Weld State Colorado

Location: API # : 05-123-37527

BHL: 2310" FSL & 660' FWL

SEC 9 TWP 9N RGE 58W

Permanent Datum Ground Level Elevation 4716'
Log Measured From 30' Kelly Bushing
Drilling Measured From KB

Other Services
None
Elevation
K.B. 4746'
D.F. 4745'
G.L. 4716'

Date November 15, 2013

Run Number 1

Depth Driller 9710'

Depth Logger 5940'

Bottom Logged Interval 5926'

Top Log Interval Surface

Open Hole Size 8.125

Type Fluid Fresh Water

Density / Viscosity 8.33

Max. Recorded Temp. -

Estimated Cement Top 844'

Time Well Ready 16:01

Time Logger on Bottom 16:37

Equipment Number 13033

Location Brighton

Recorded By C. Rall

Witnessed By B. Mansfield

Run Number Bit From To Size Weight From To

One

Two

Three

Four

Casing Record Size Wgt/Ft Top Bottom

Surface String 9 5/8 36# Surface 1289'

Prot. String 7" 26# Surface 6071'

Production String 4.5" 11.6# Surface 5992'

Comments

Primary Log on Well. Well logged using 30' KB.

Main Pass and Repeat Pass logged with zero pressure on surface

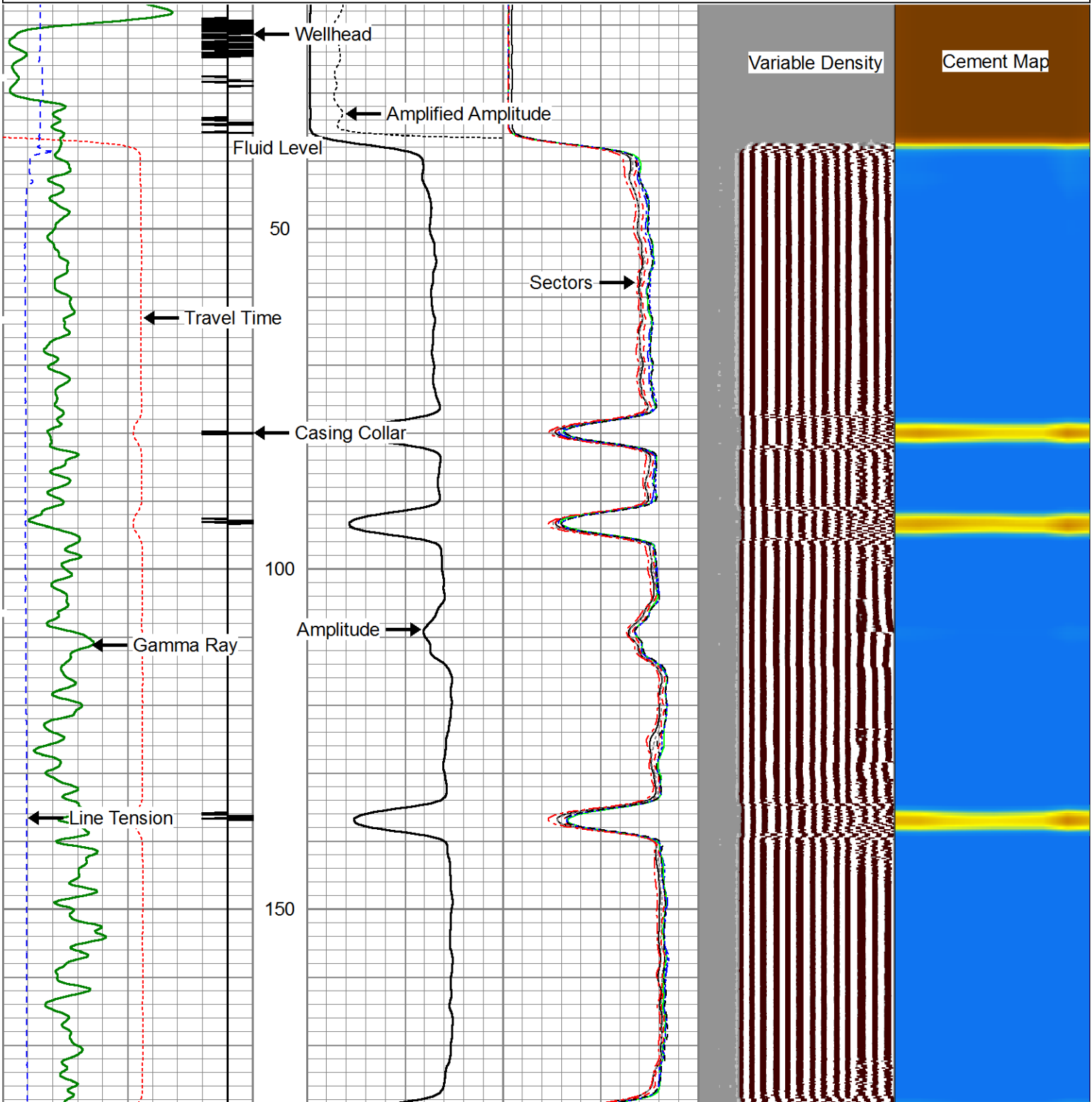
Estimated top of cement 844'

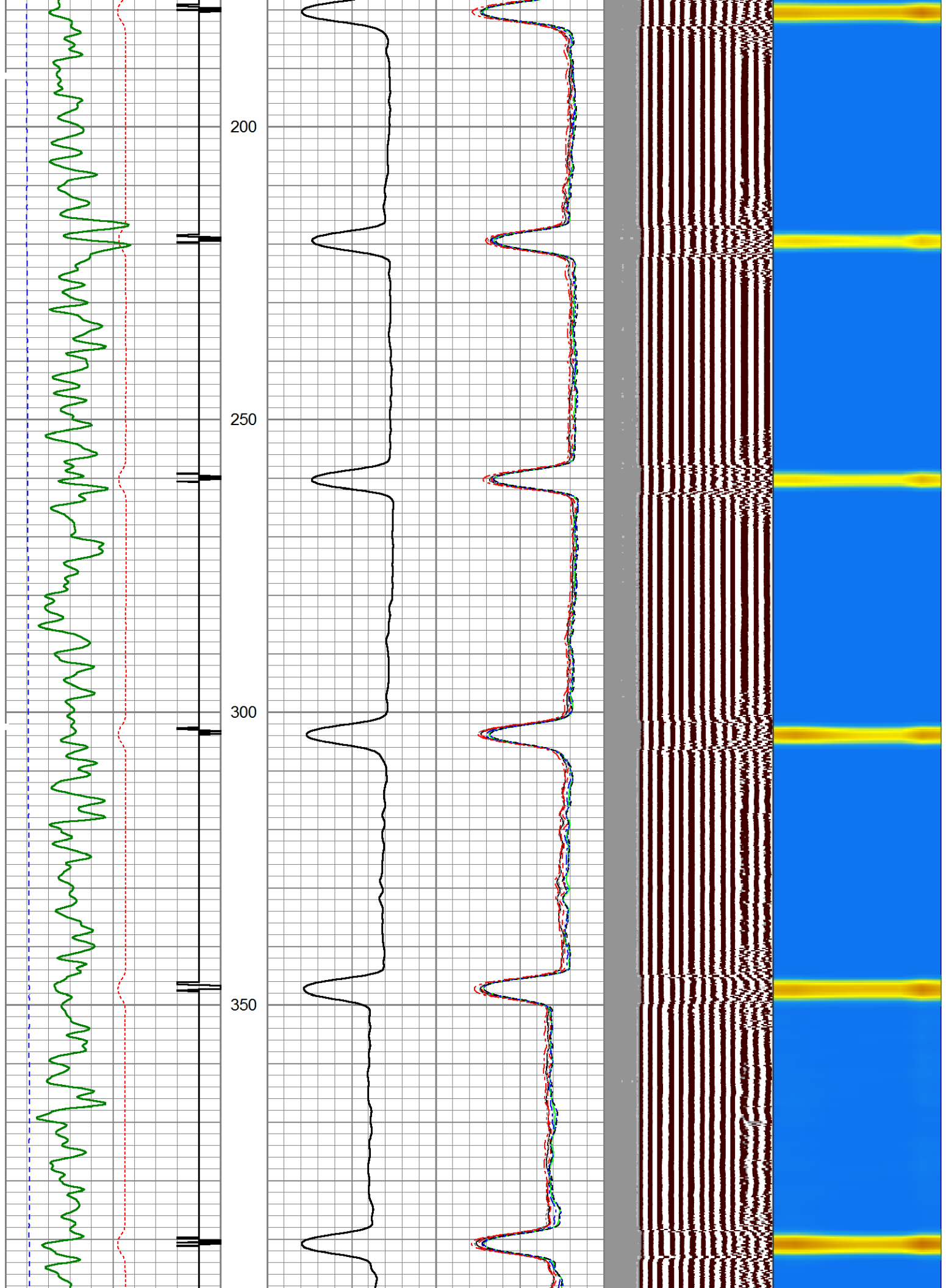
Thank you for using Allied Wireline.
(303)659-4609

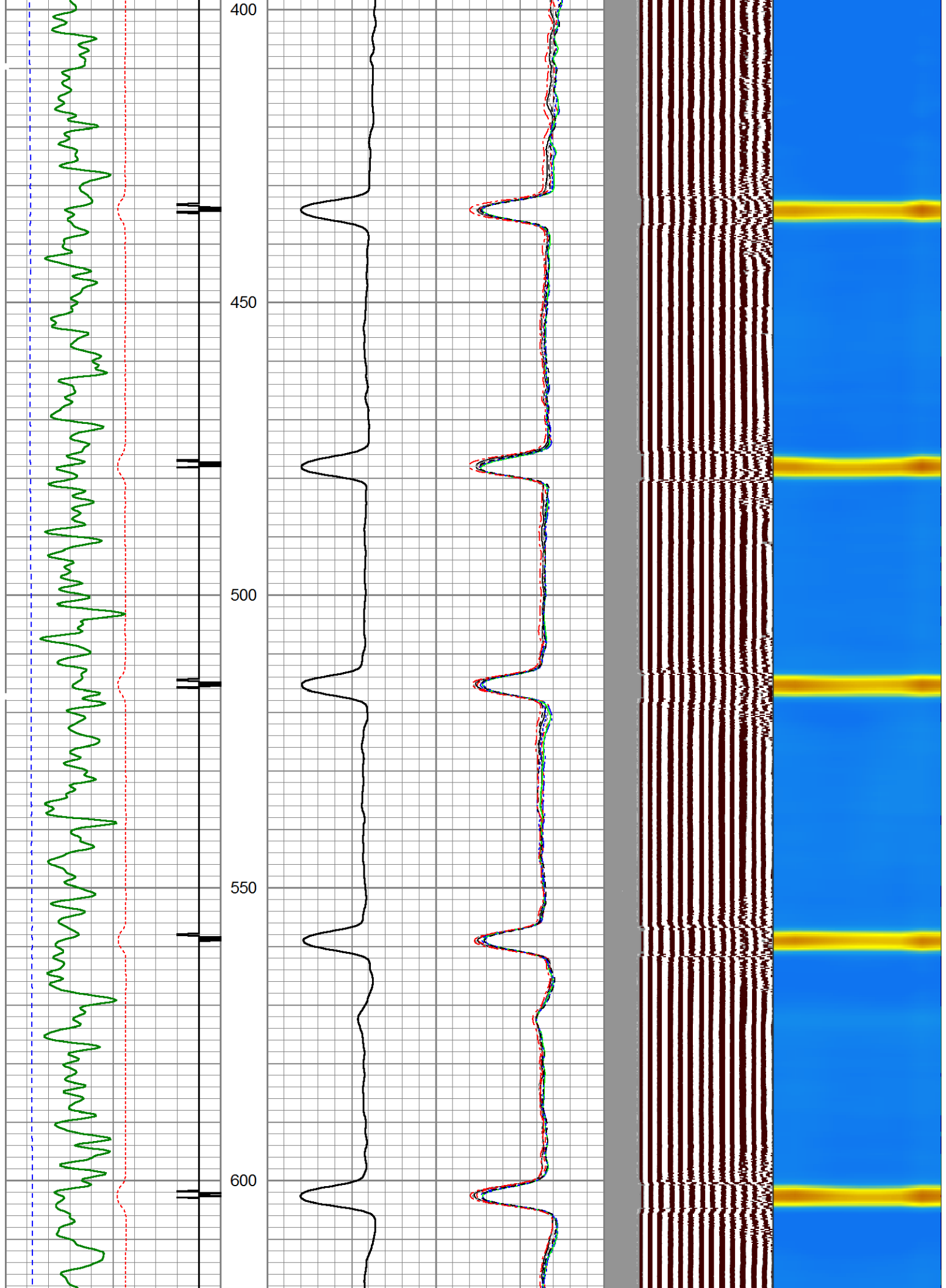


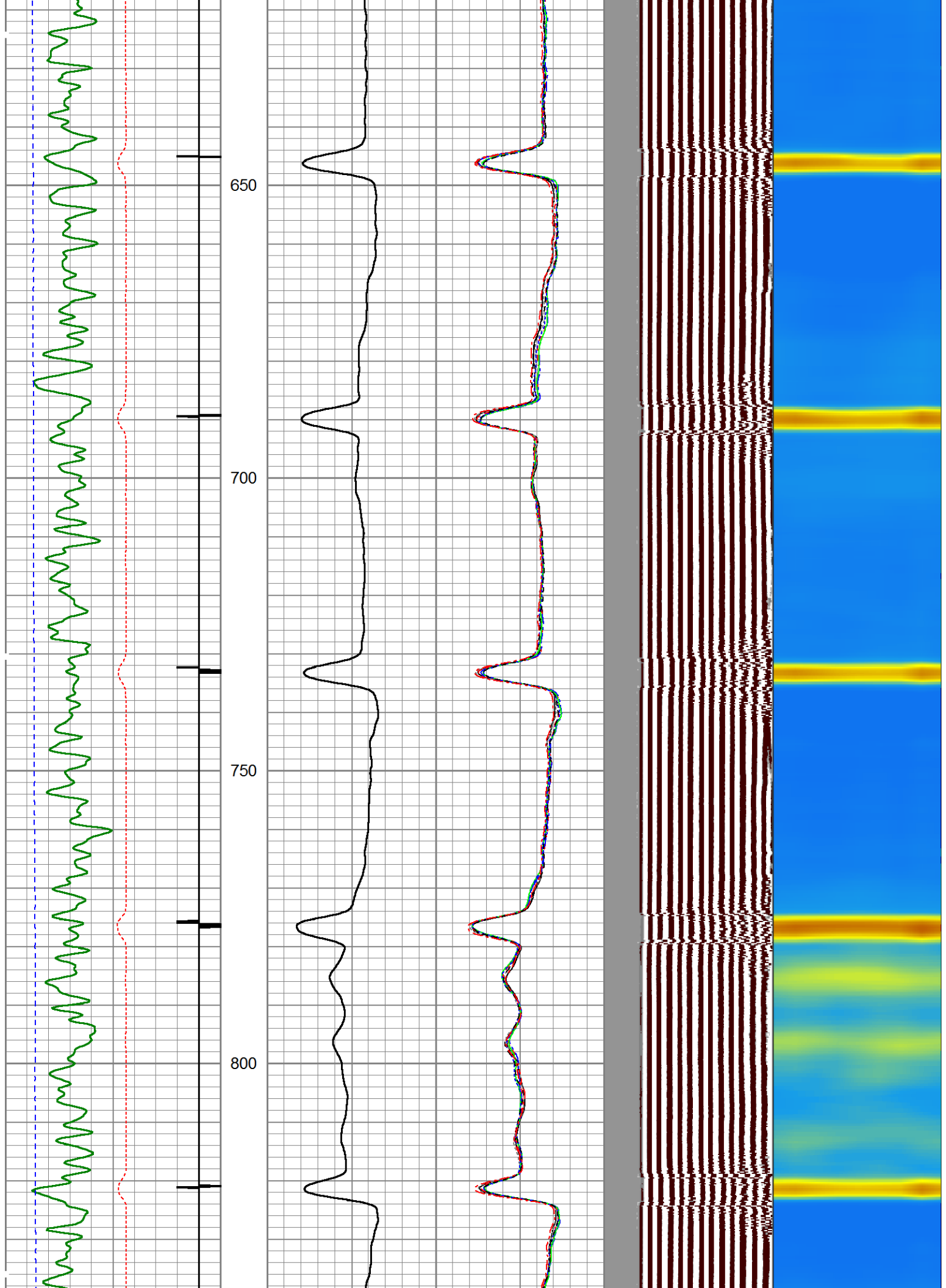
Main Pass (0 PSI)

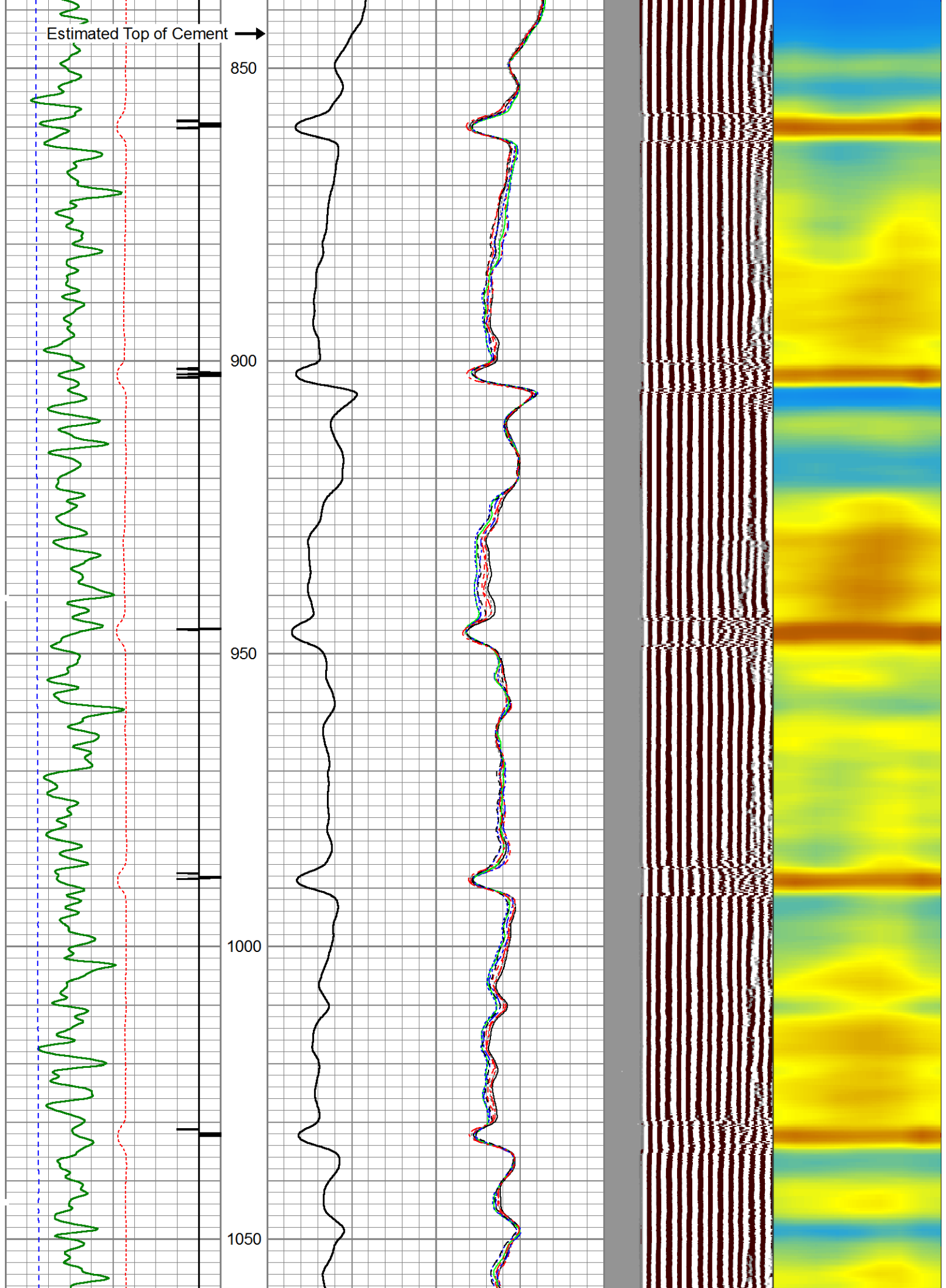
400	Travel Time (usec)	200	0	Amplitude (mV)	100	-5	AMPS1	150	Variable Density	1	Cement Map	8
9	Casing Collar	-1		Amplified Amplitude		-5	AMPS2	150	200	1200	0	100
0	Gamma Ray (GAPI)	150	0	(mV)	10	-5	AMPS3	150				
0	Line Tension (lb)	2000				-5	AMPS4	150				
						-5	AMPS5	150				
						-5	AMPS6	150		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

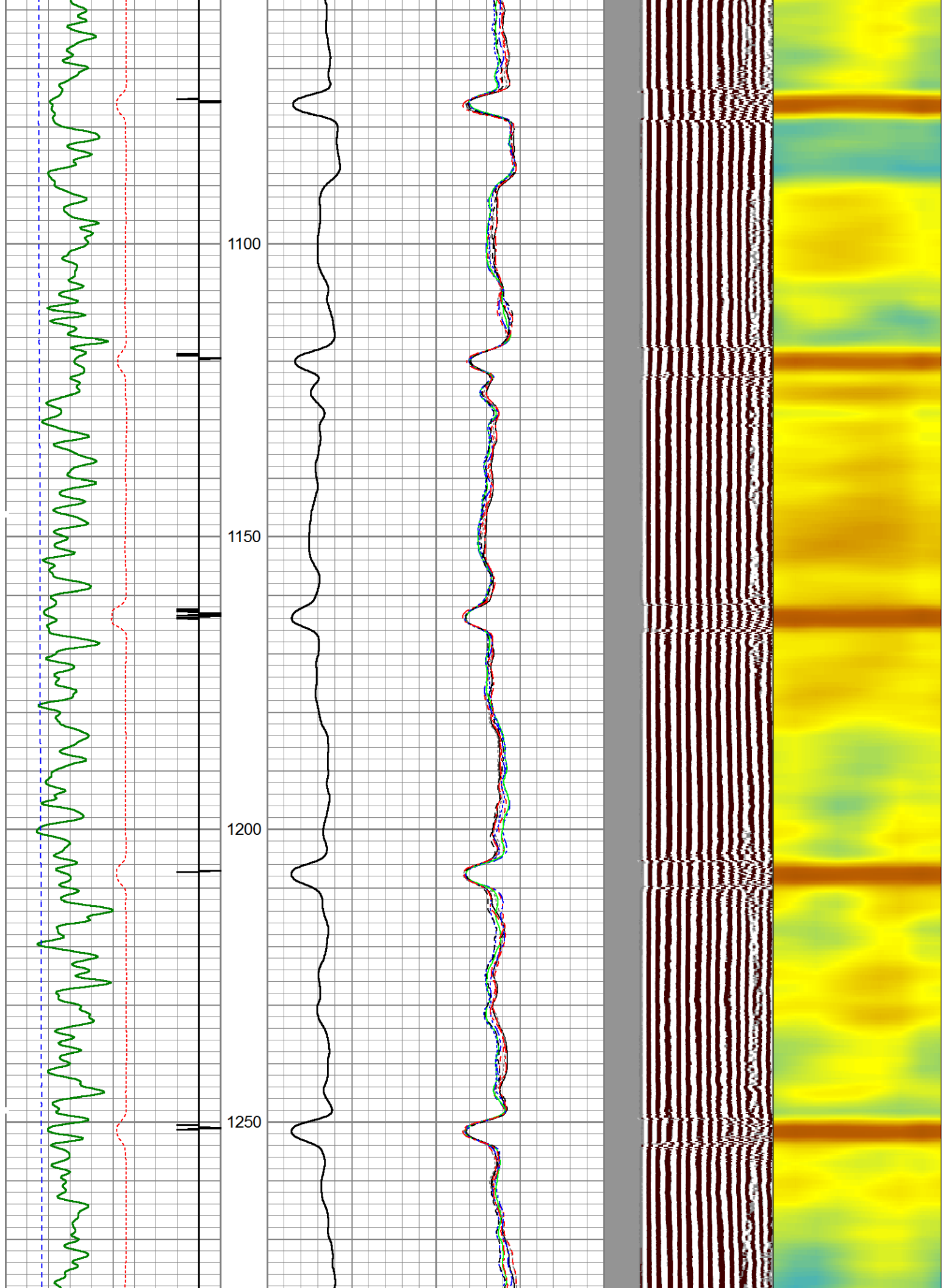


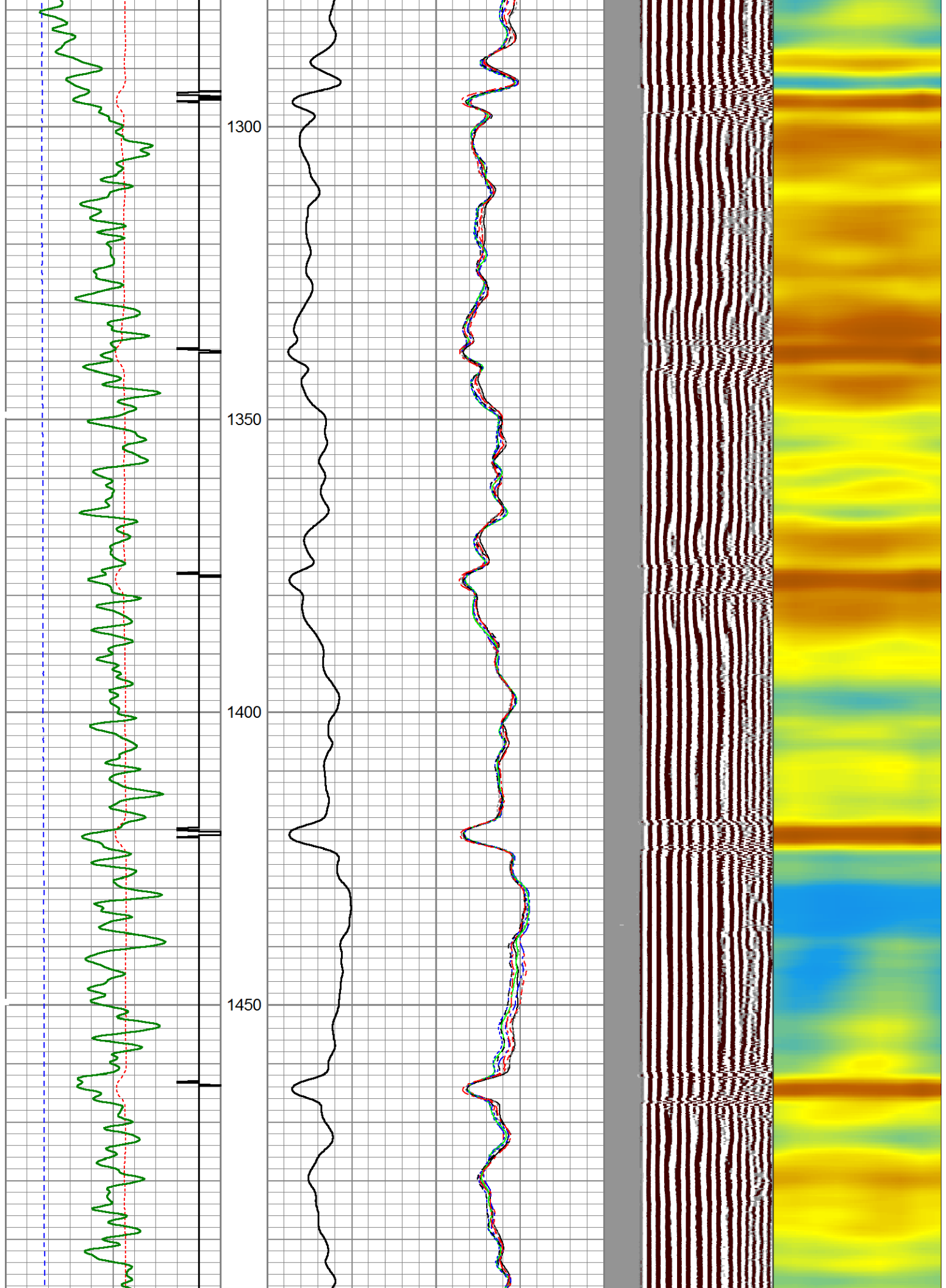


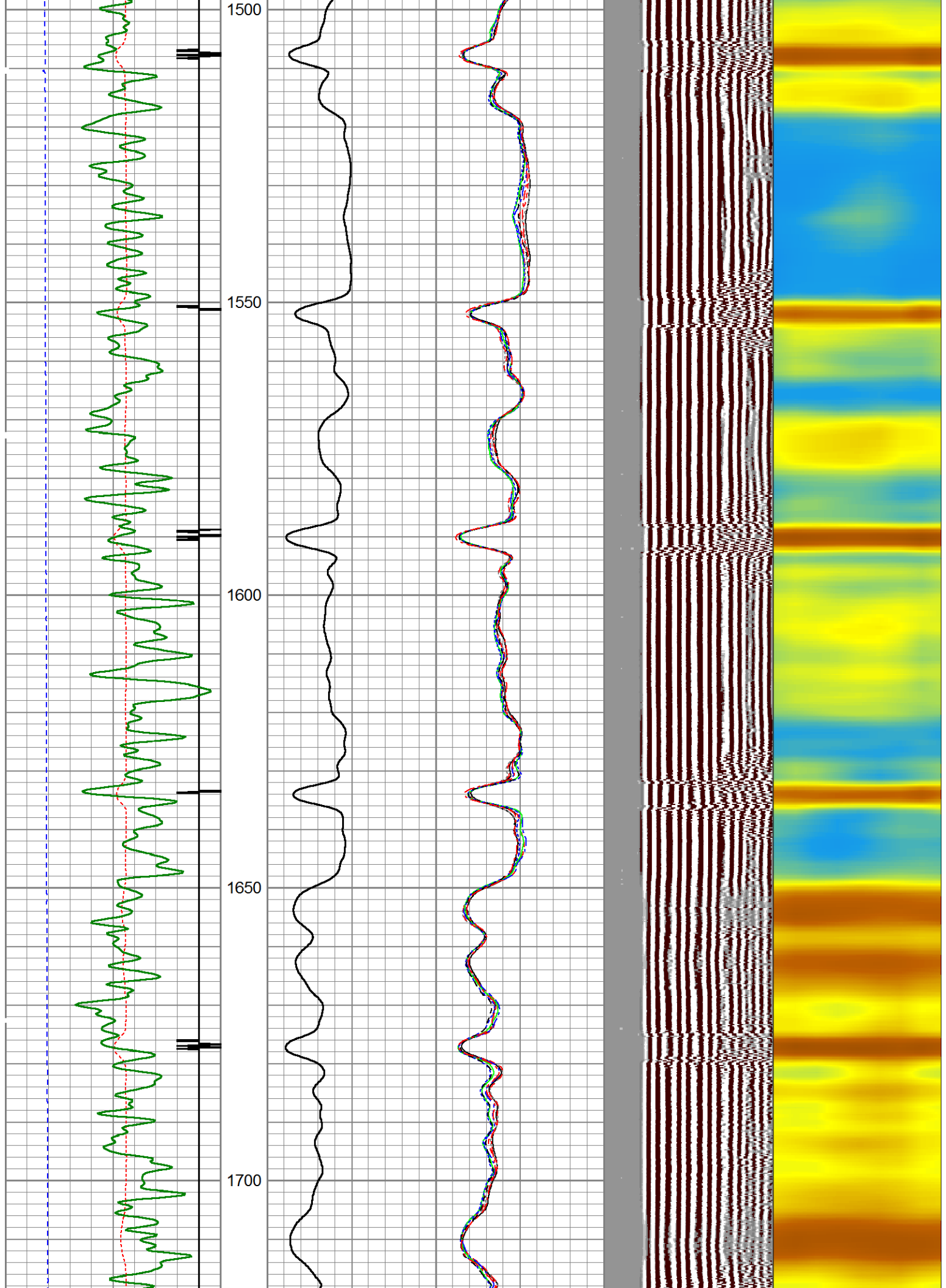


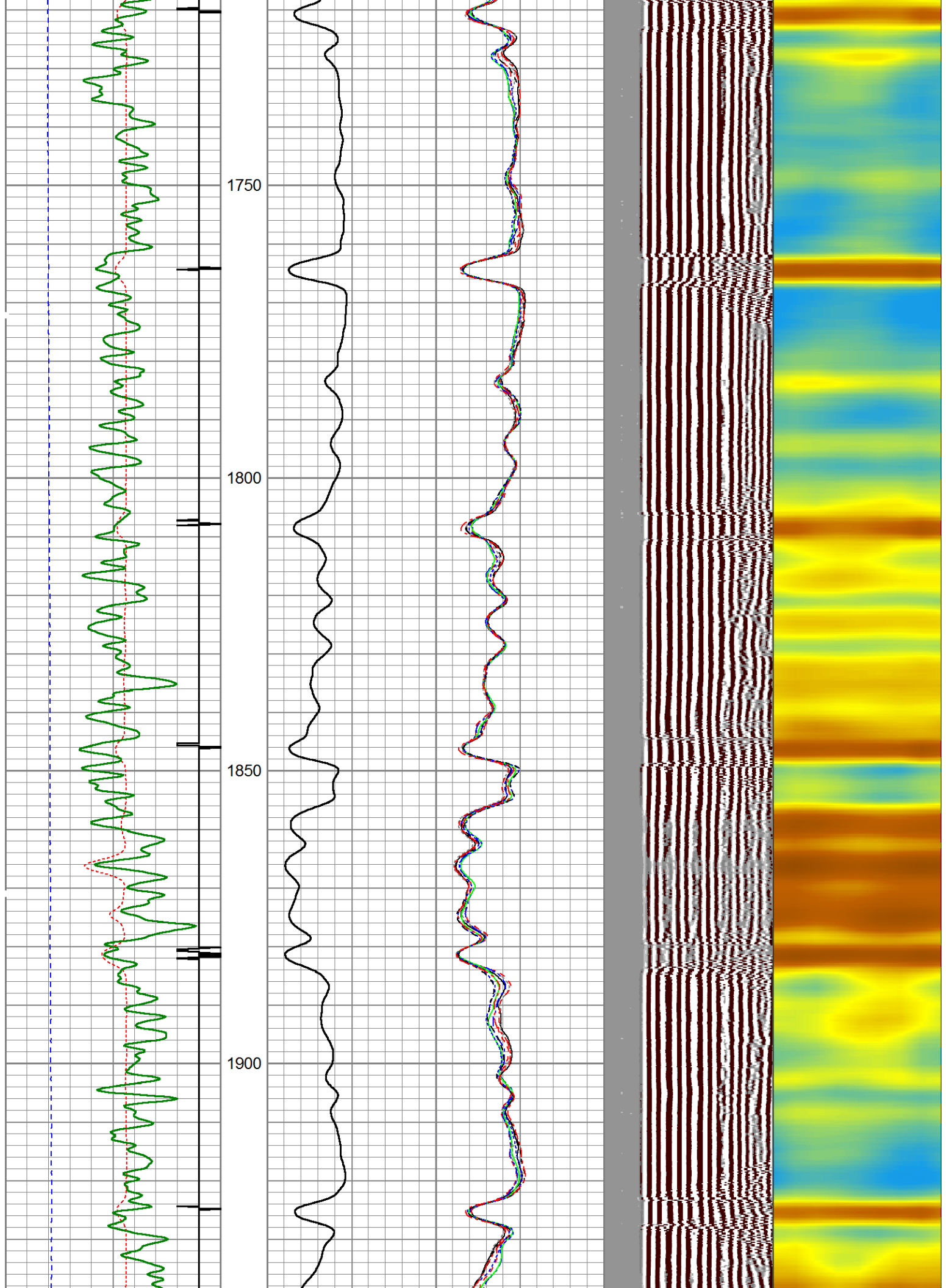


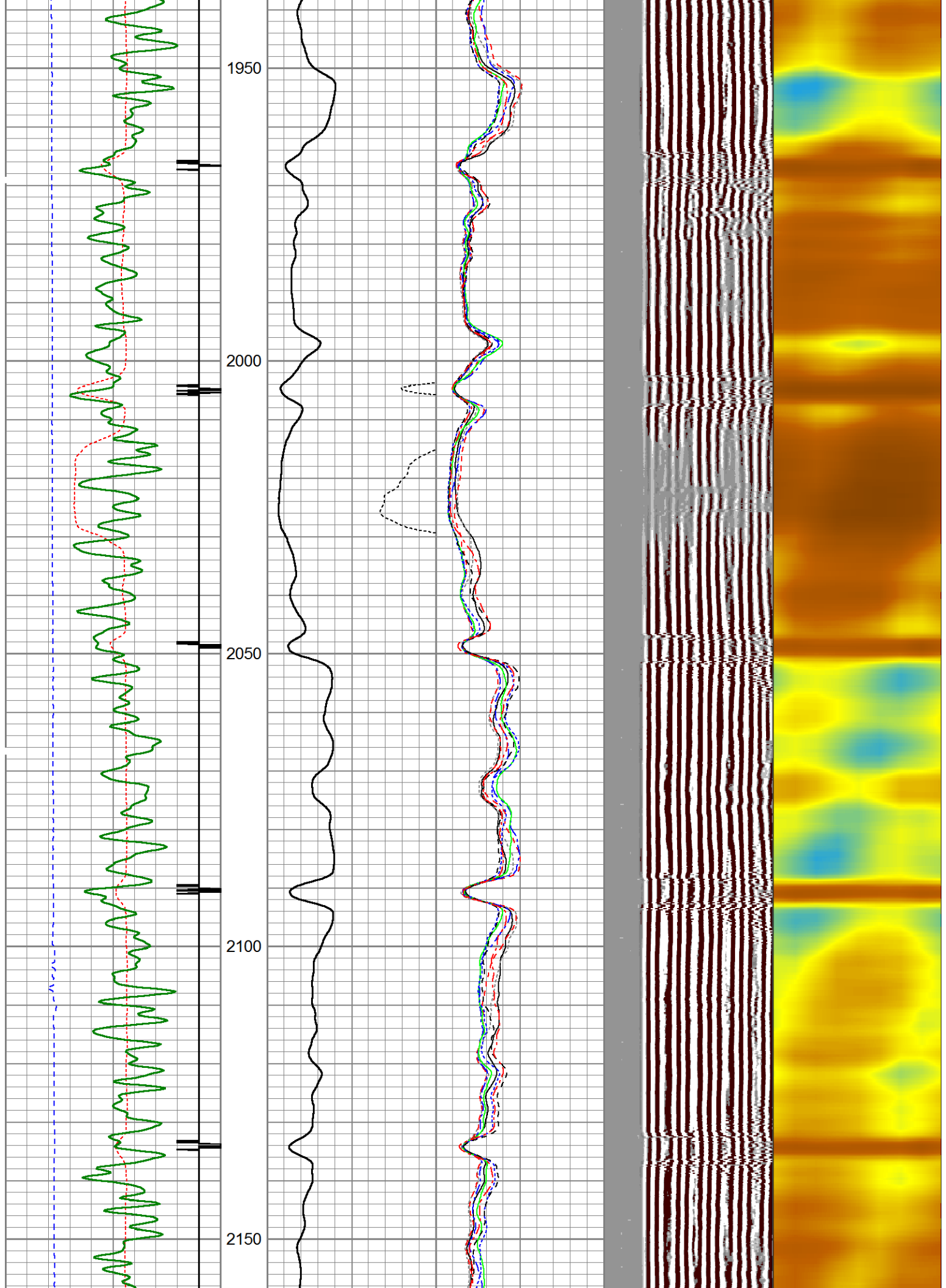


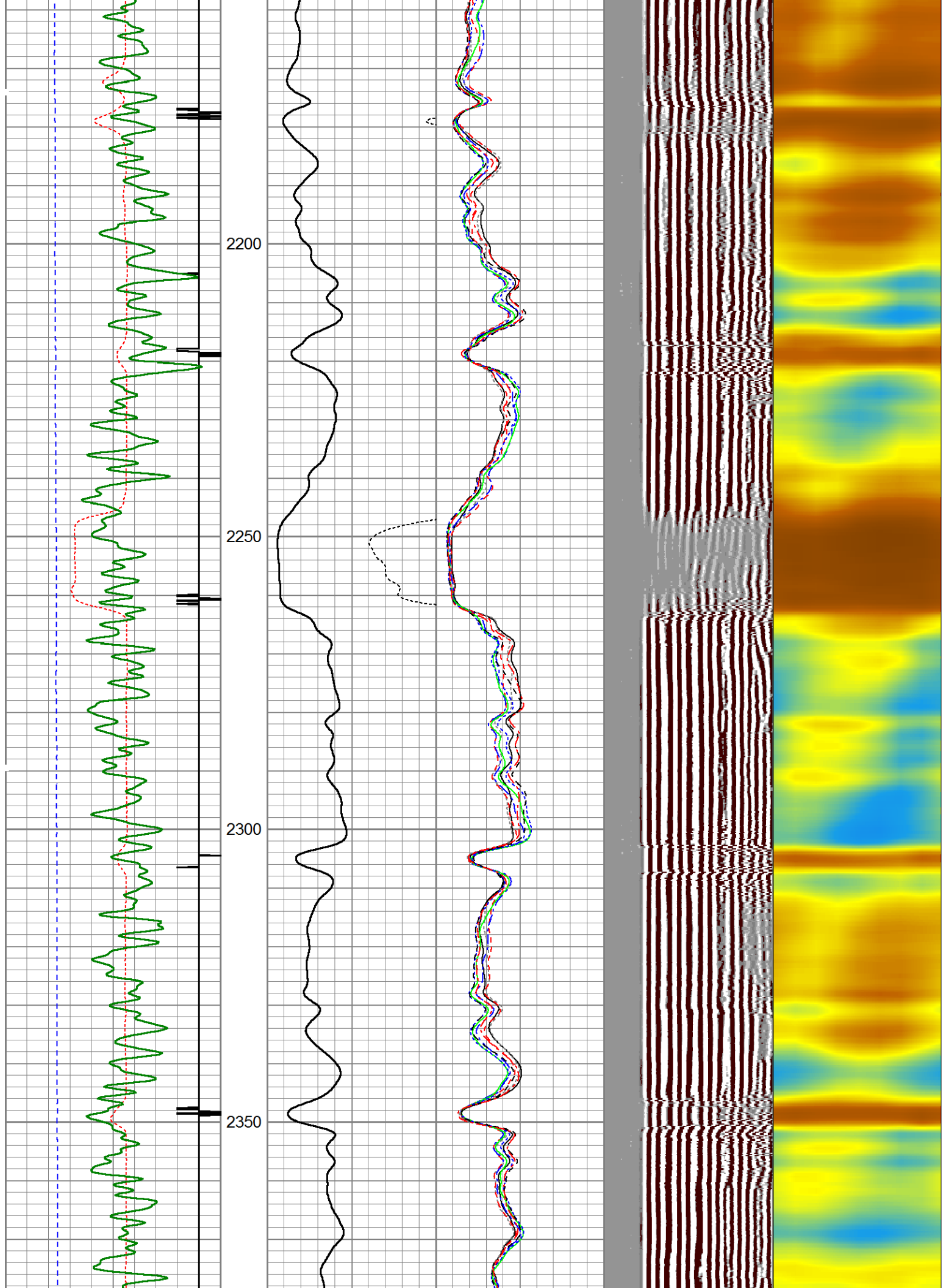


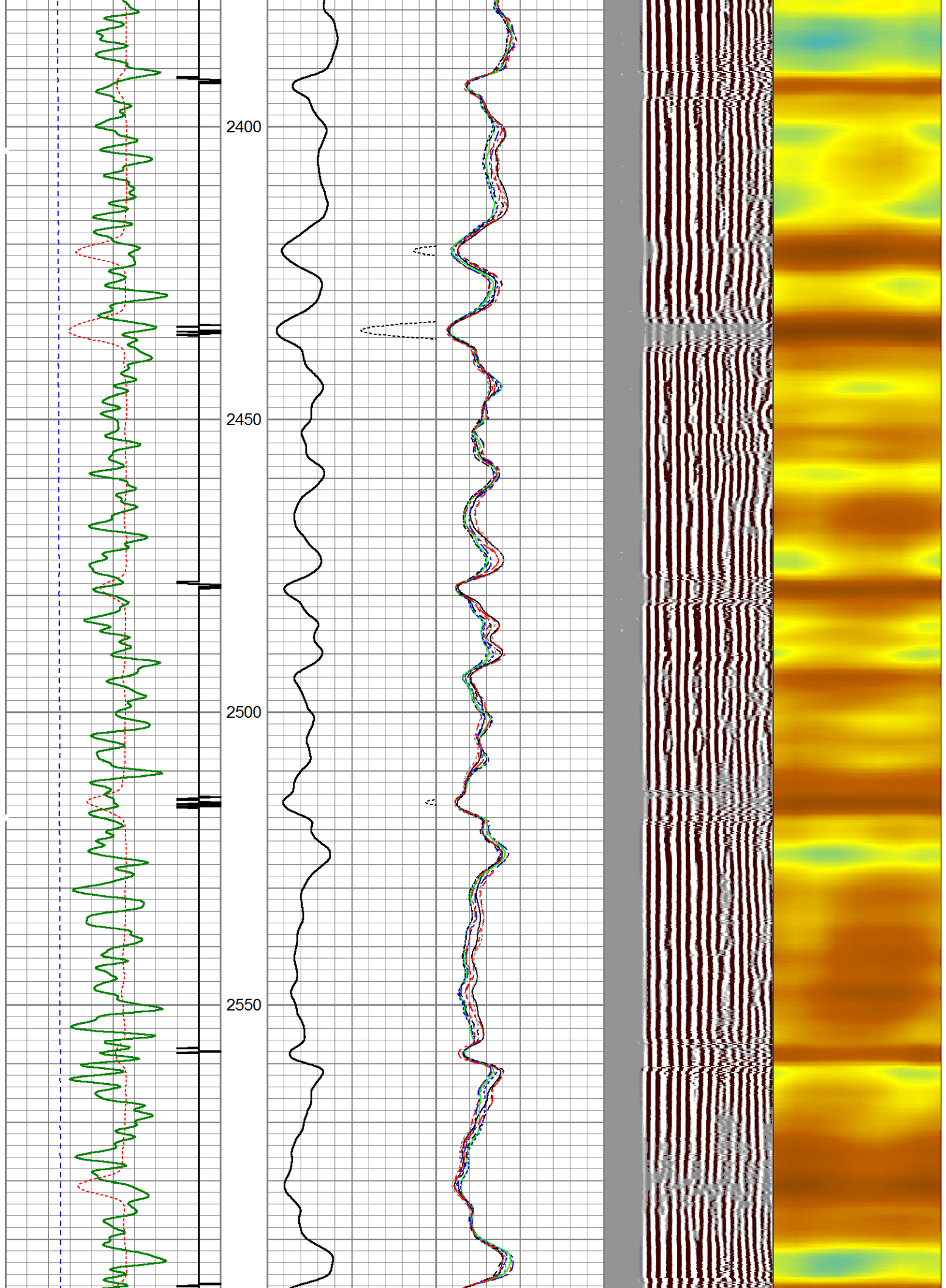


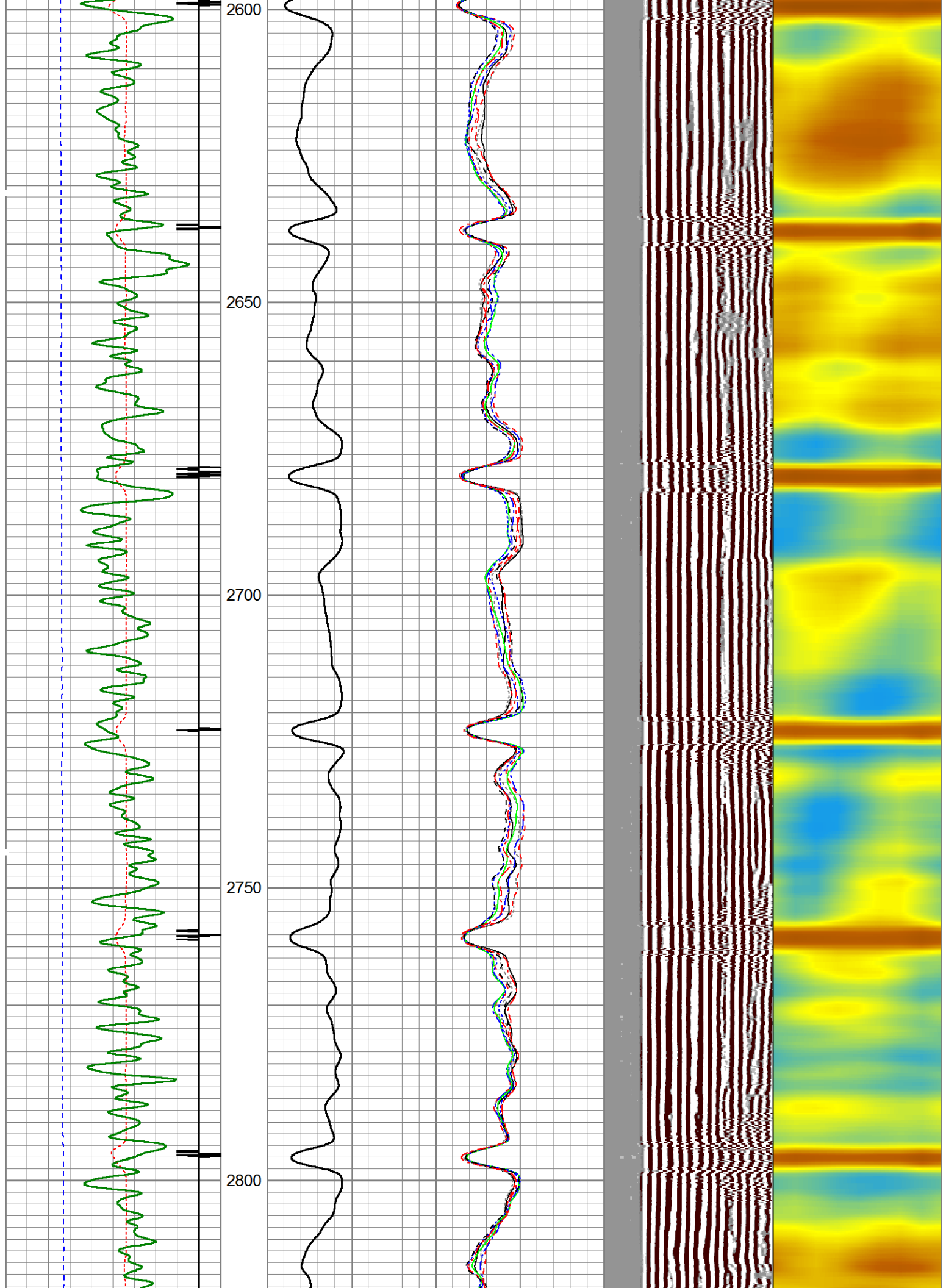


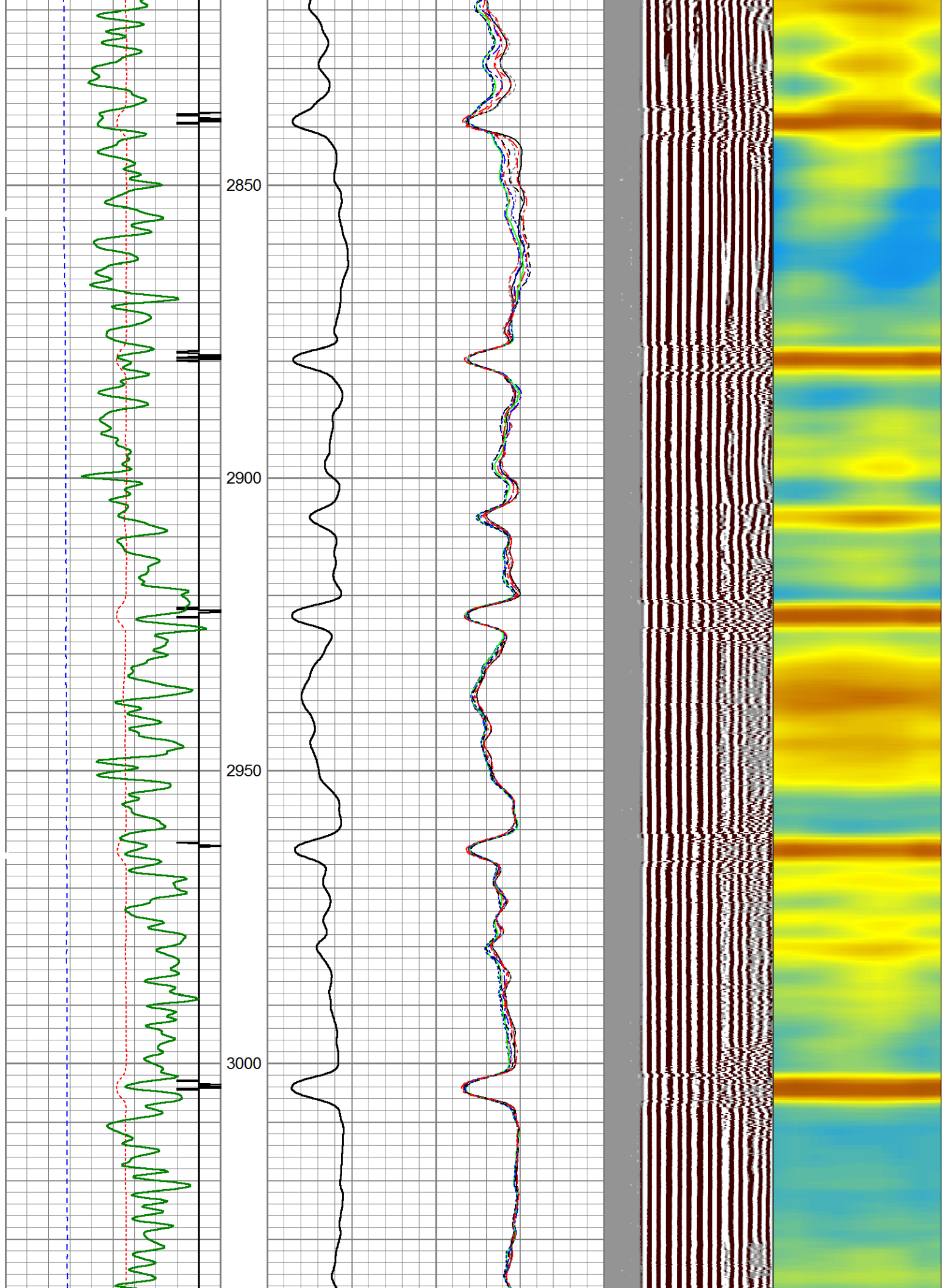


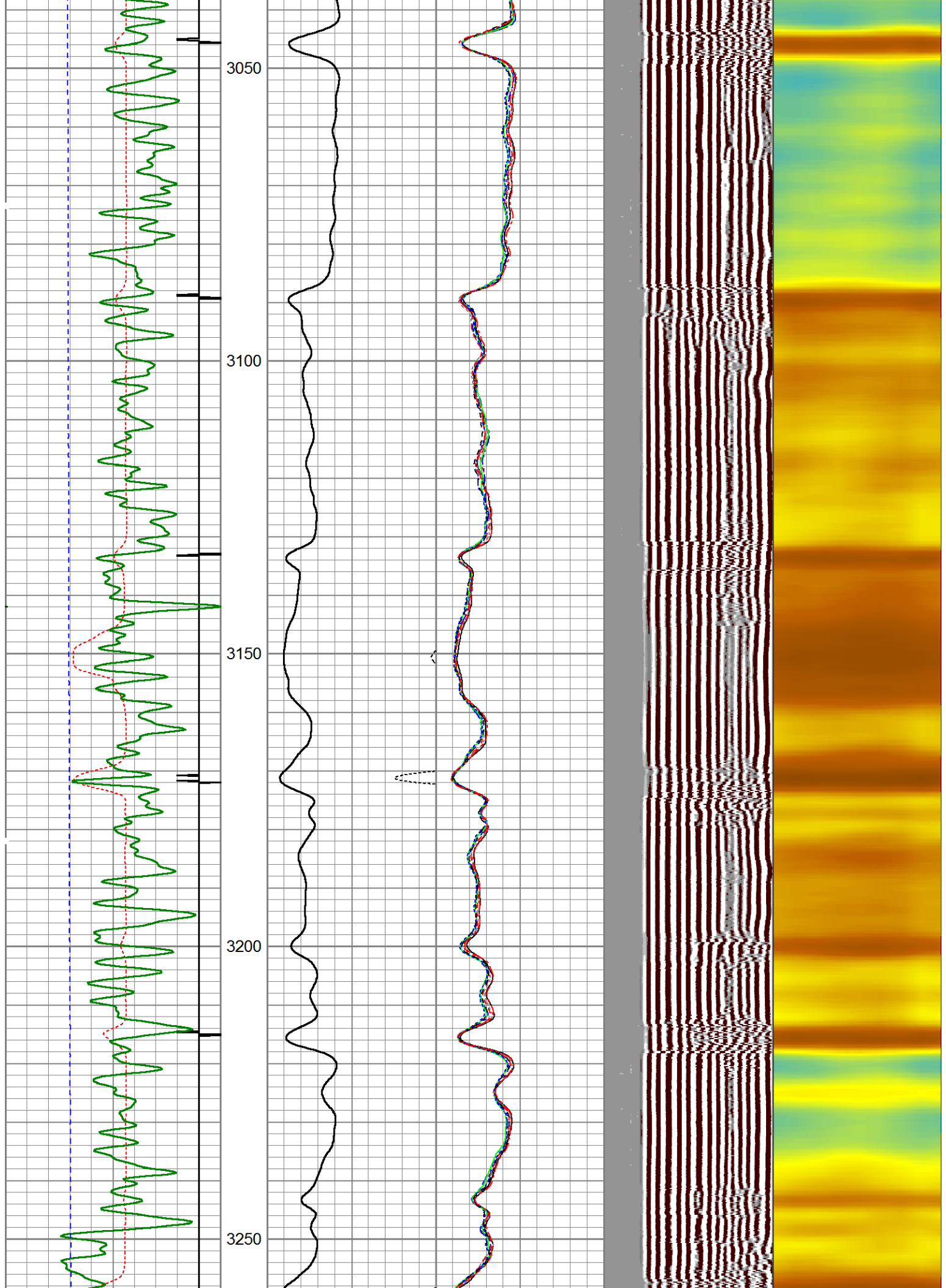


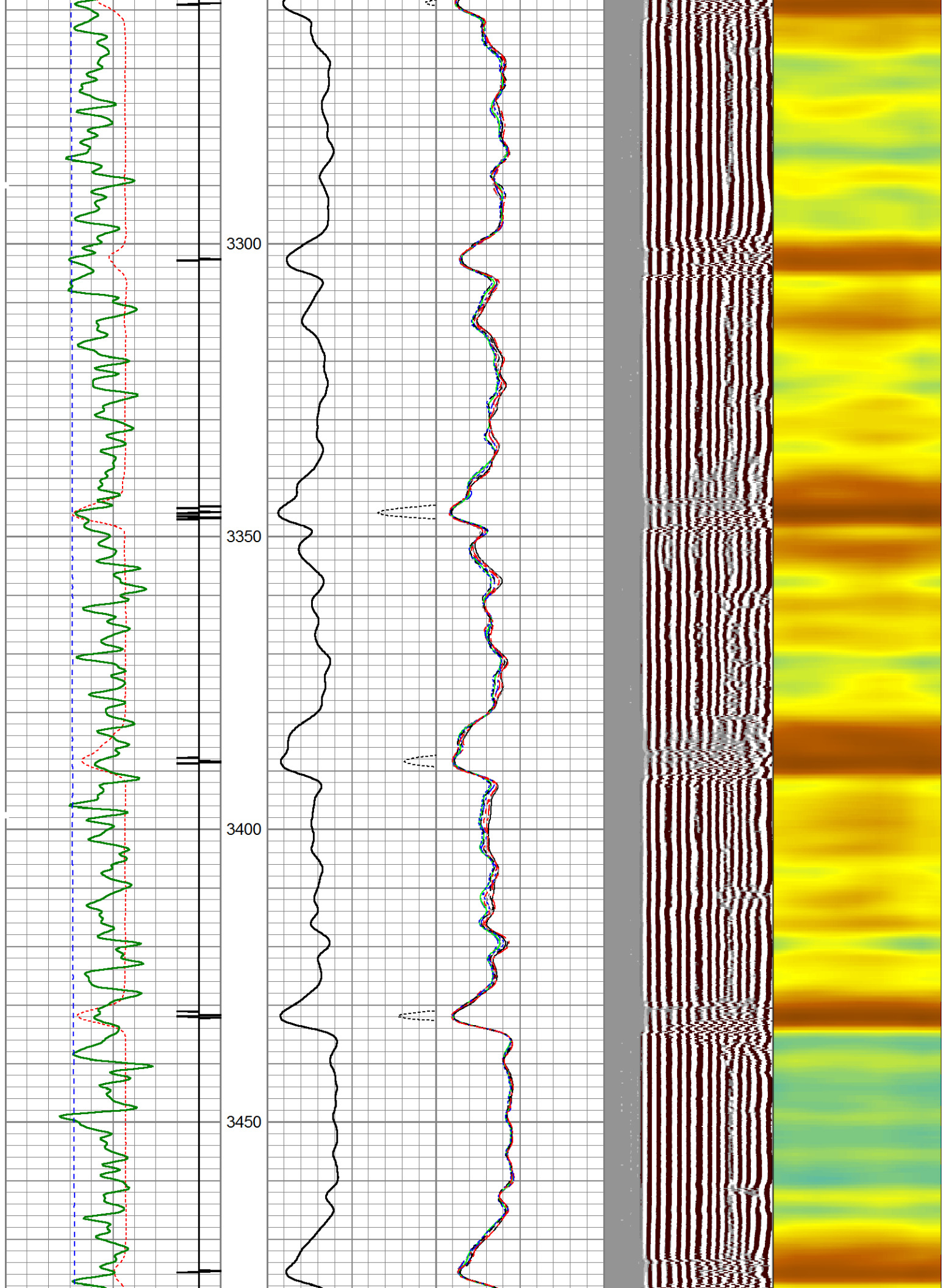


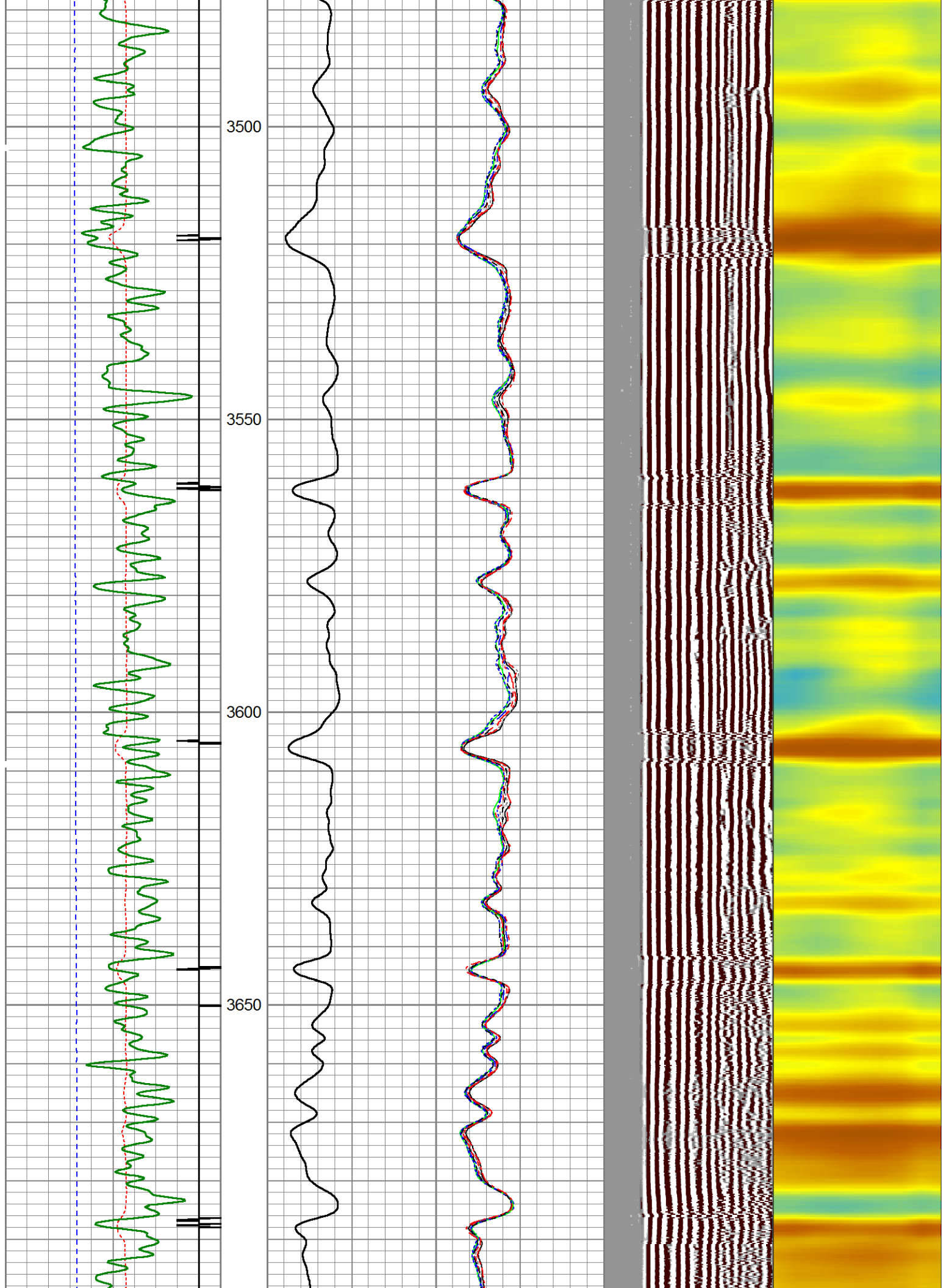


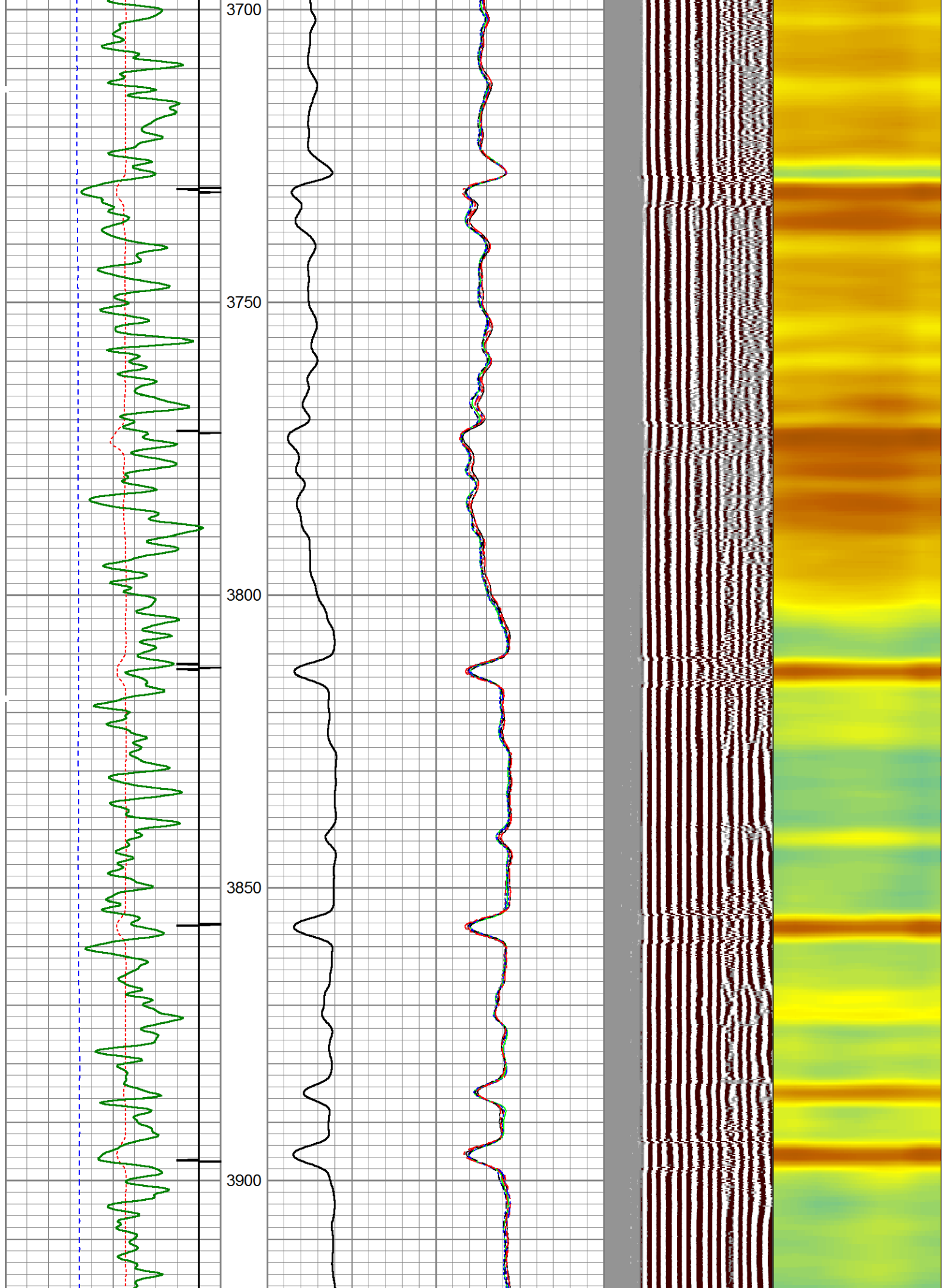


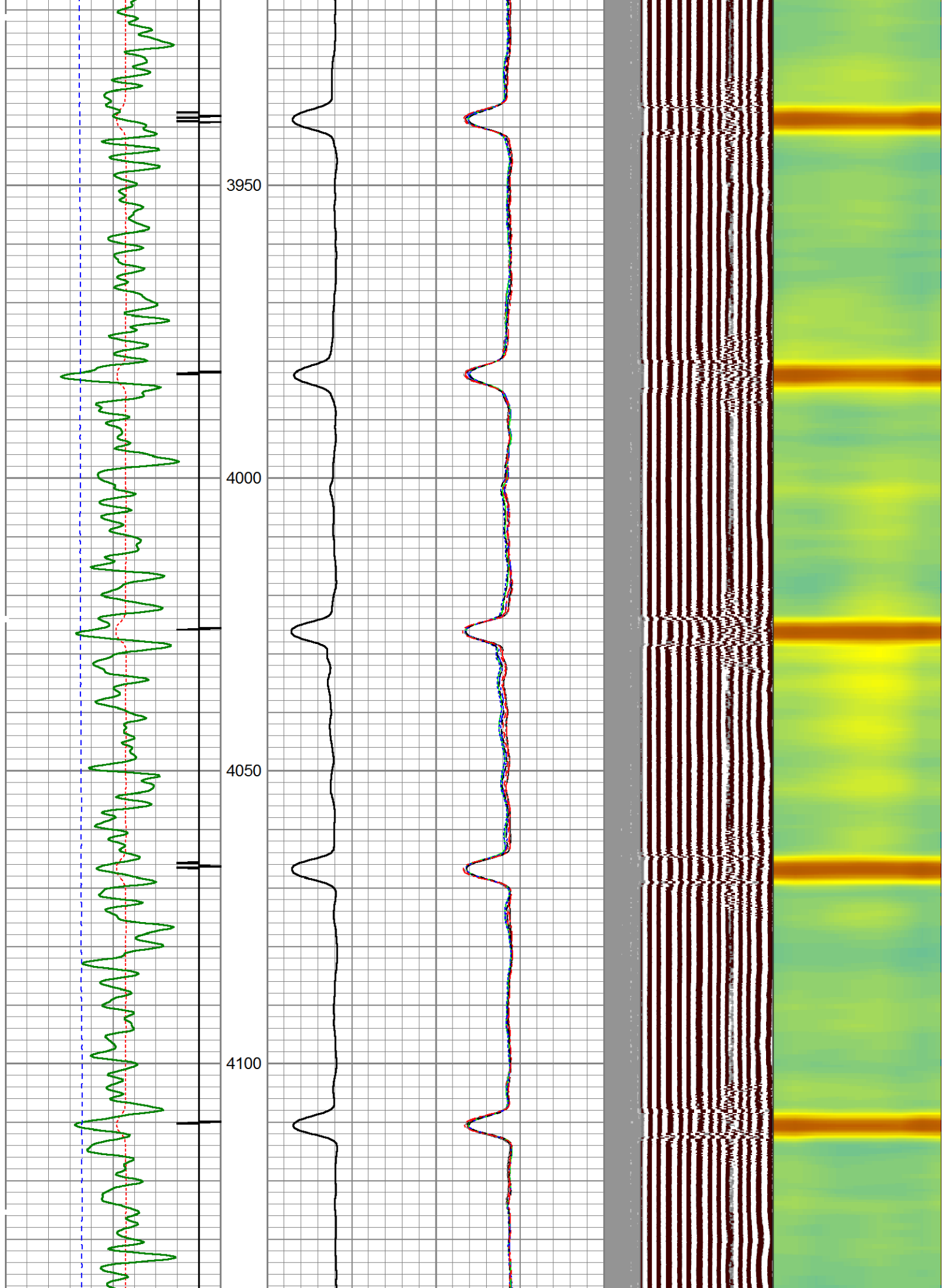


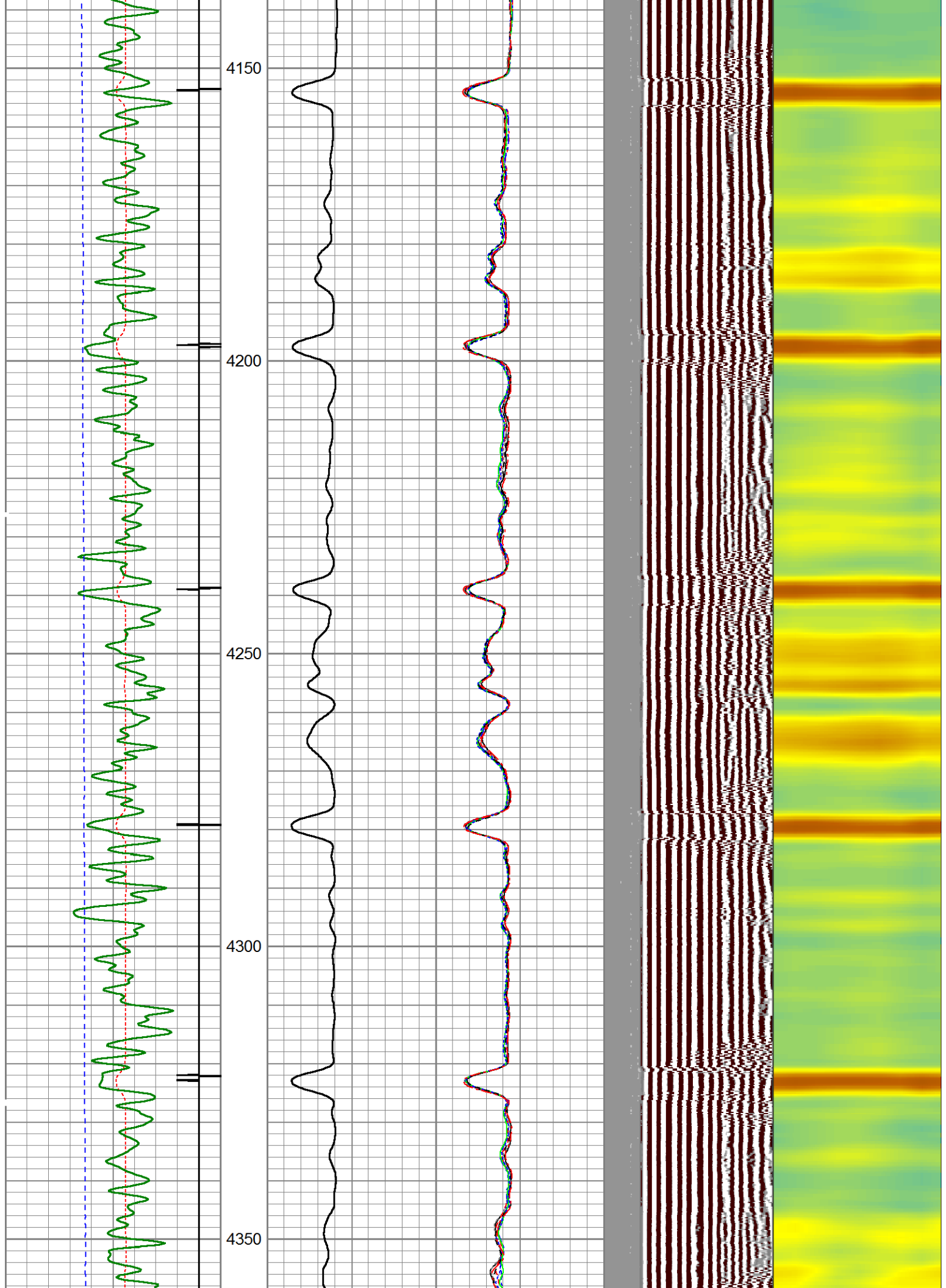


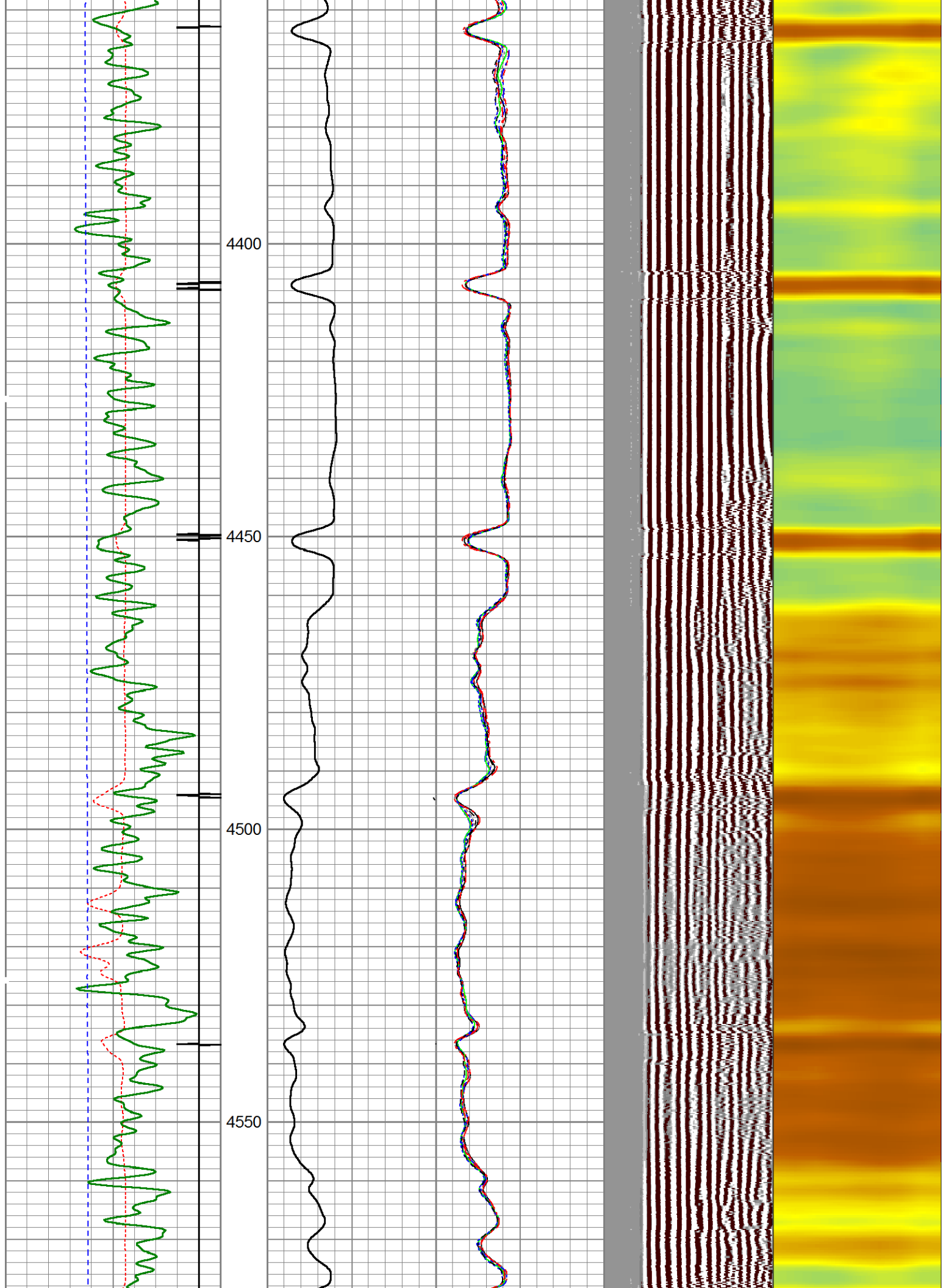


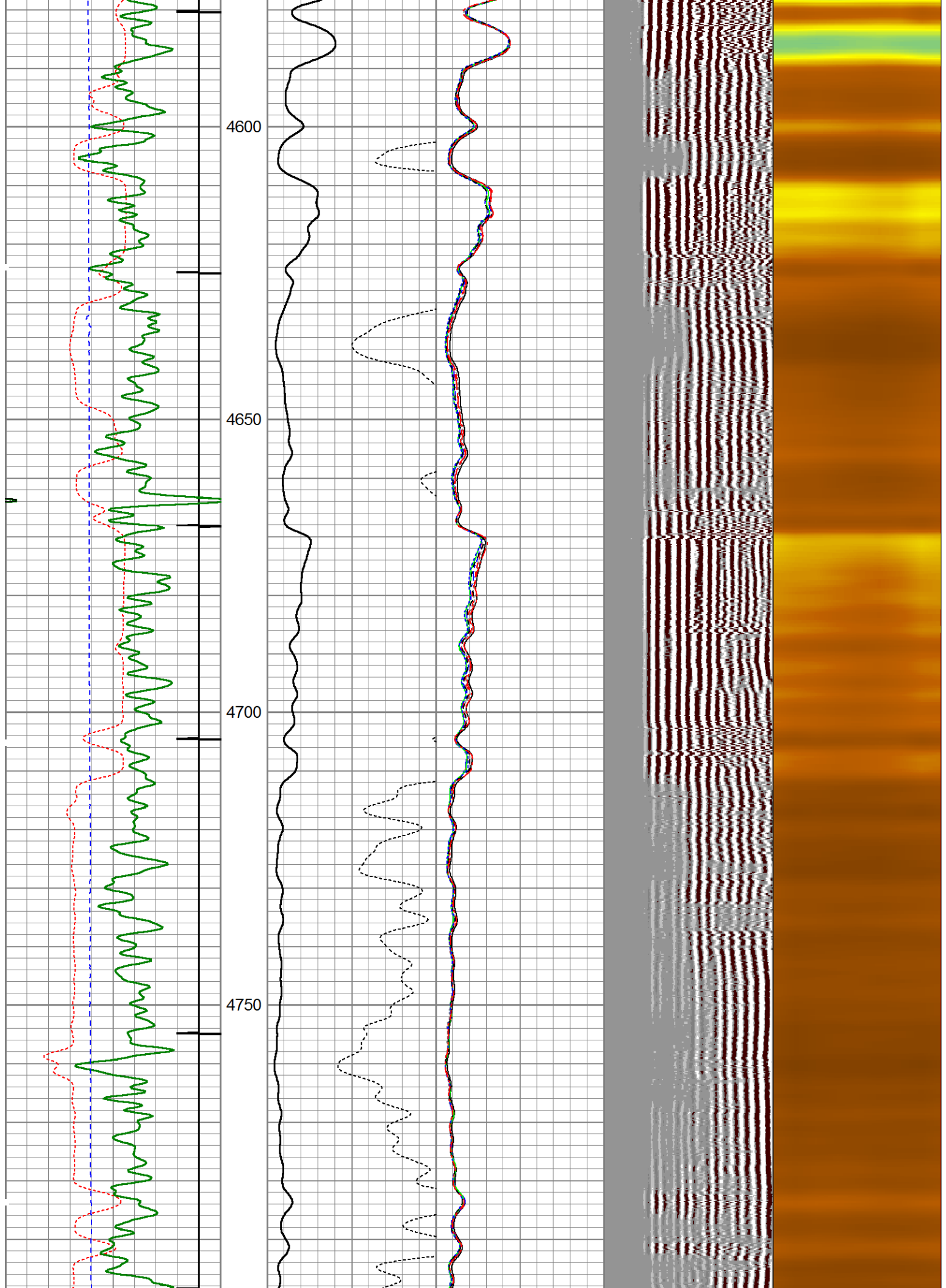


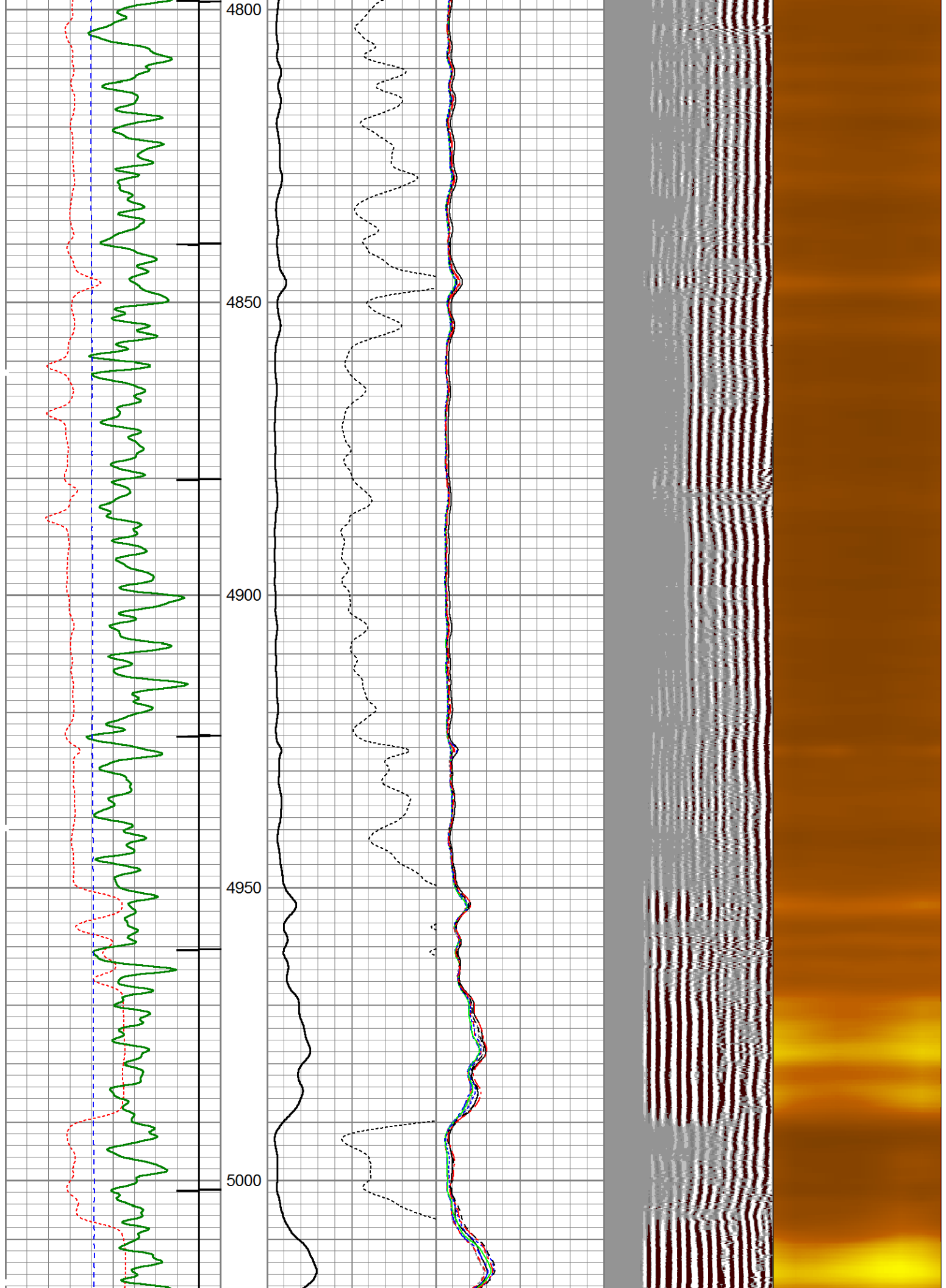


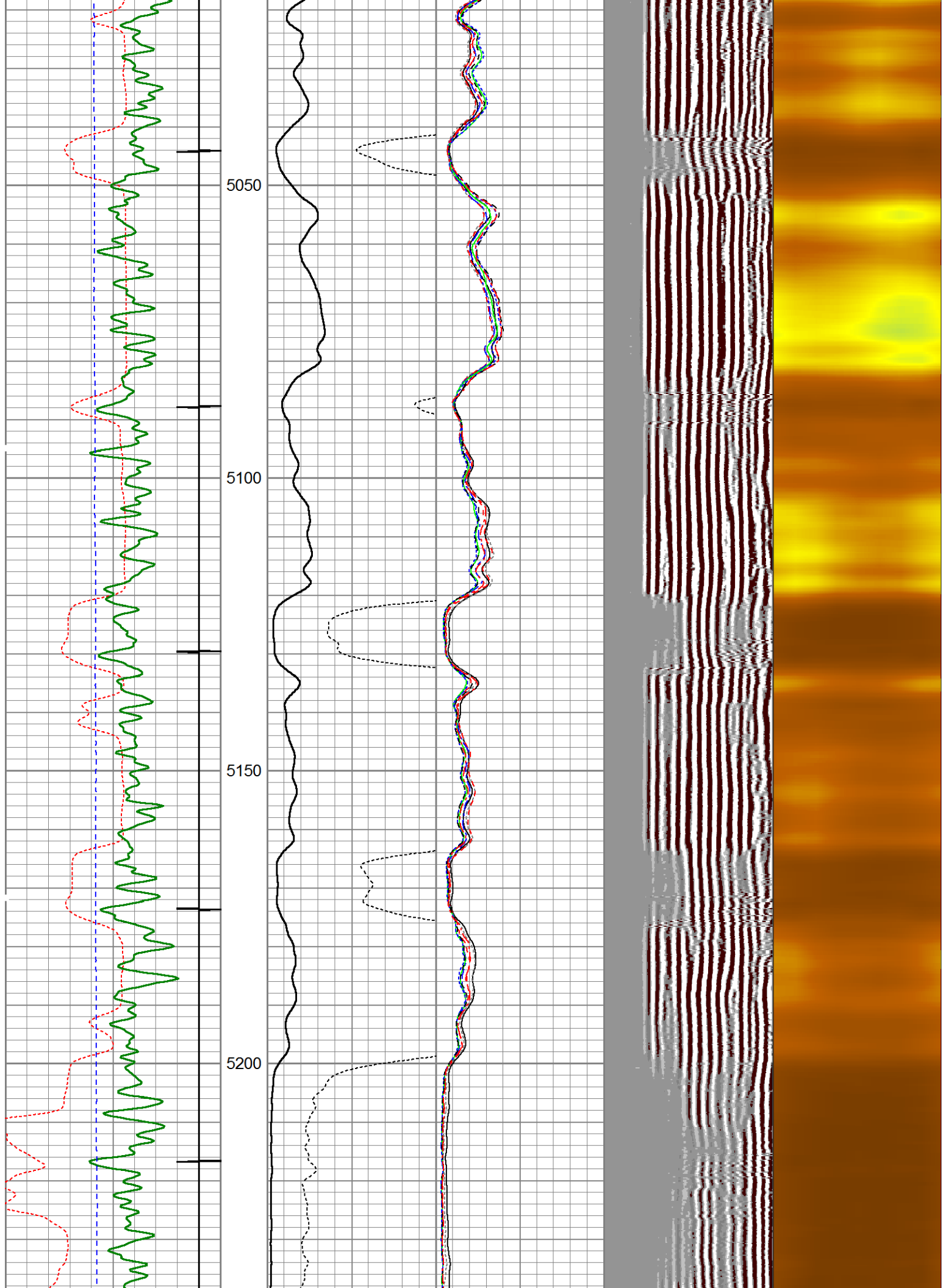


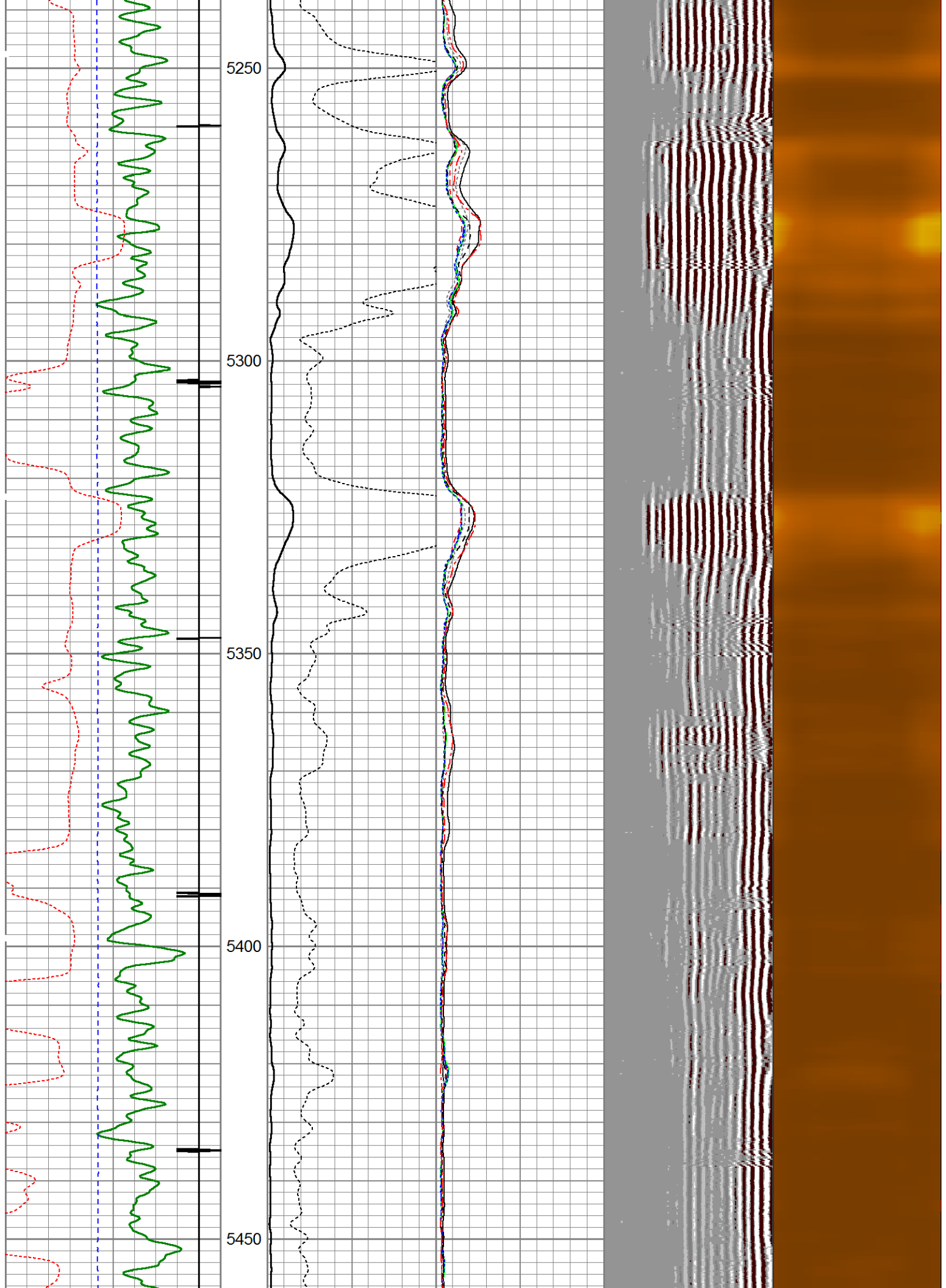


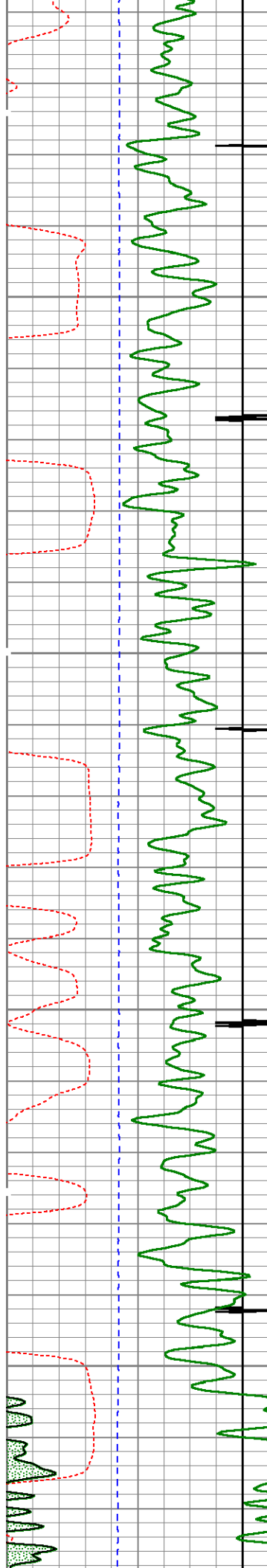










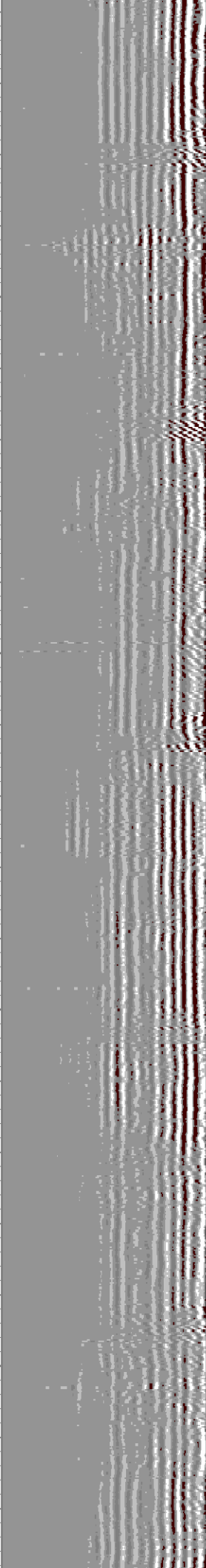
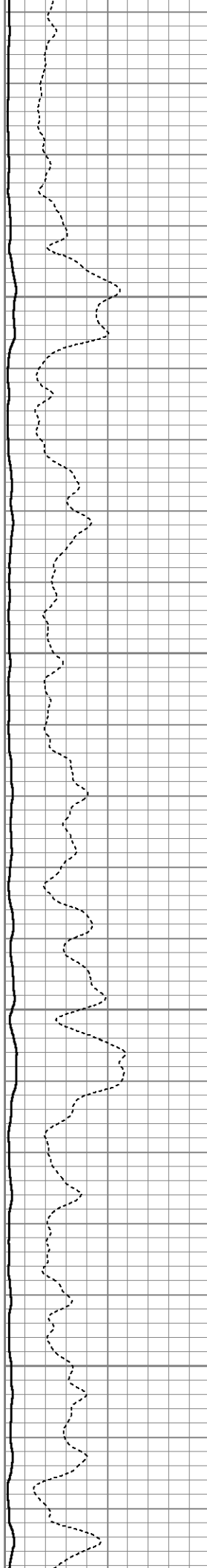


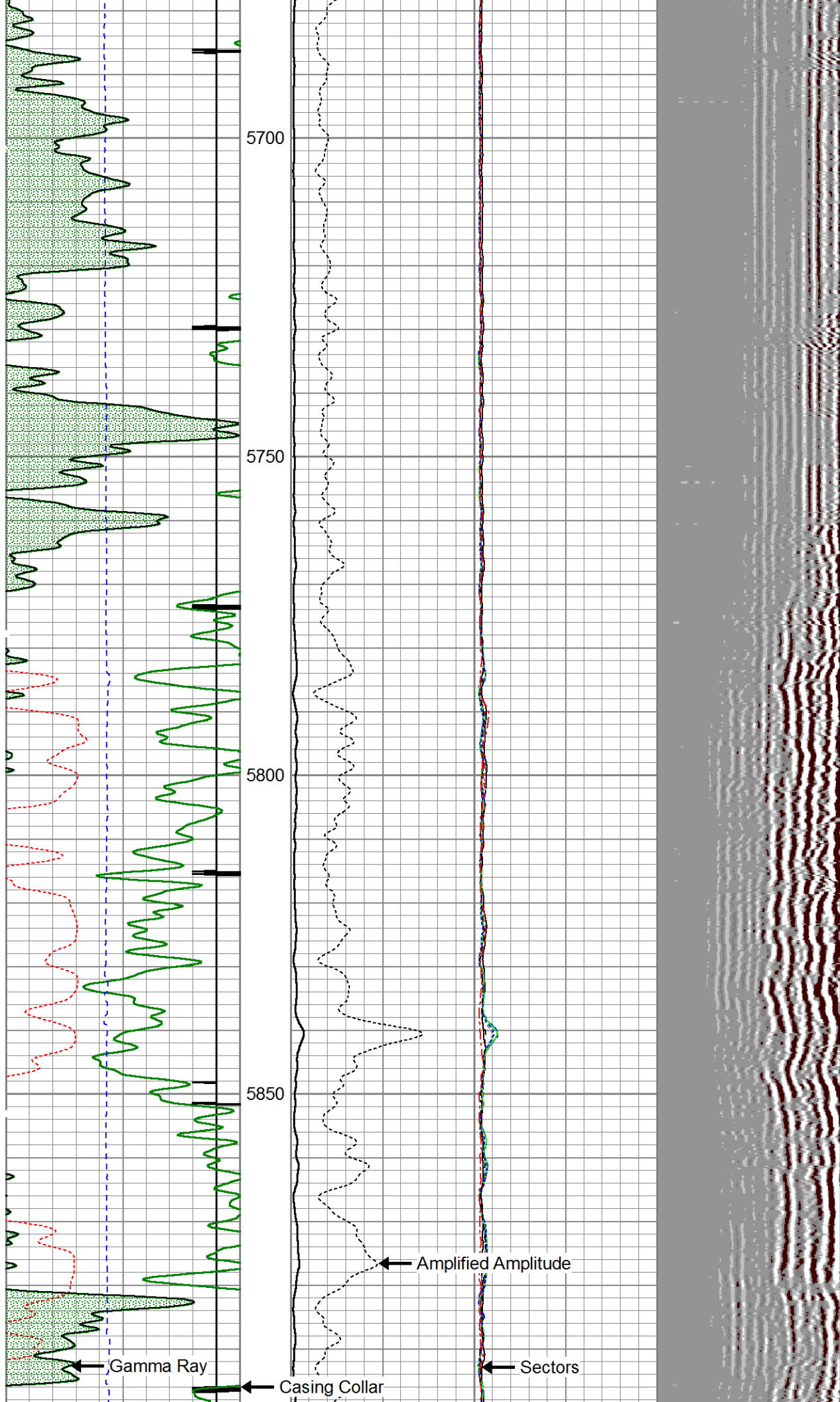
5500

5550

5600

5650



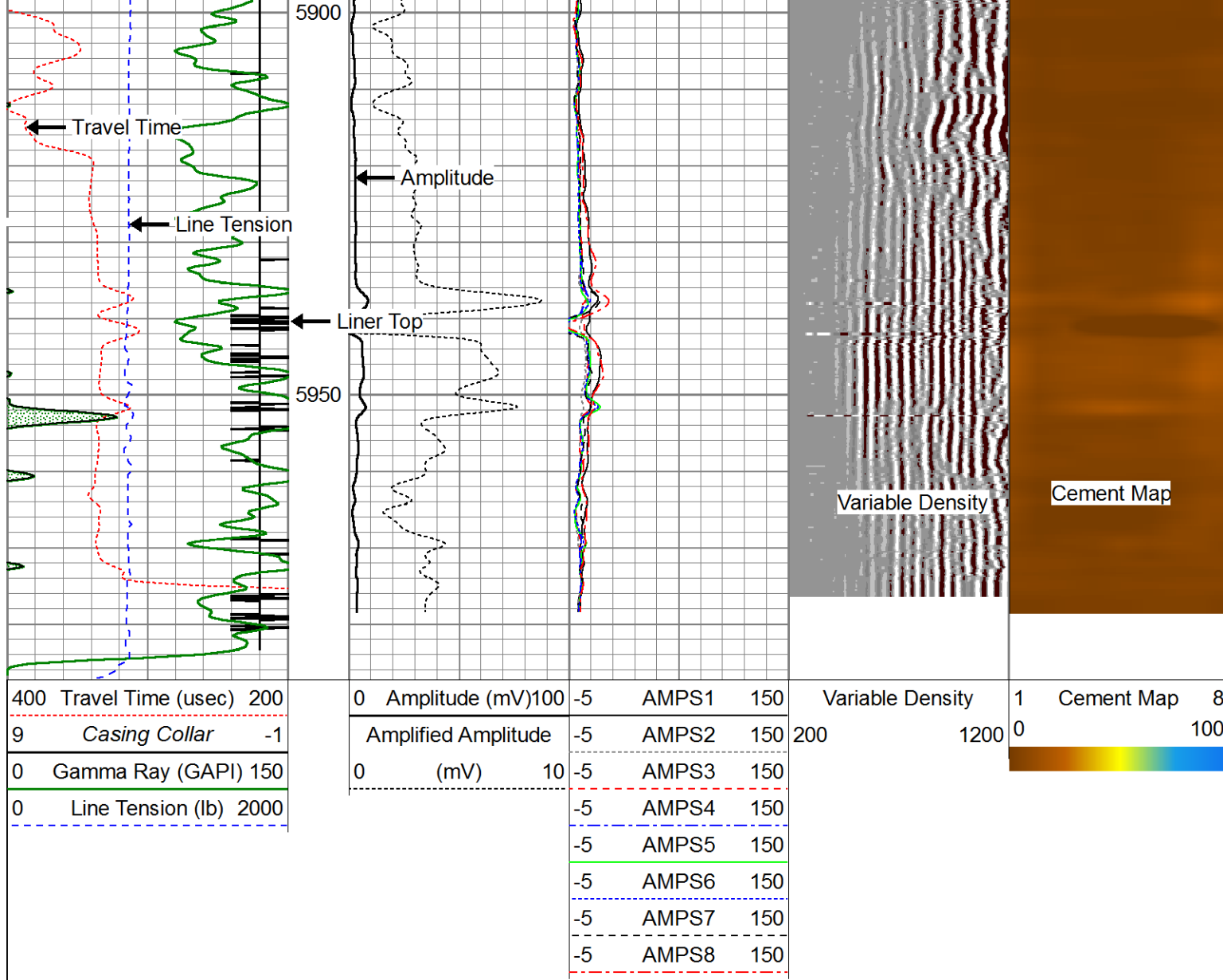


Gamma Ray

Casing Collar

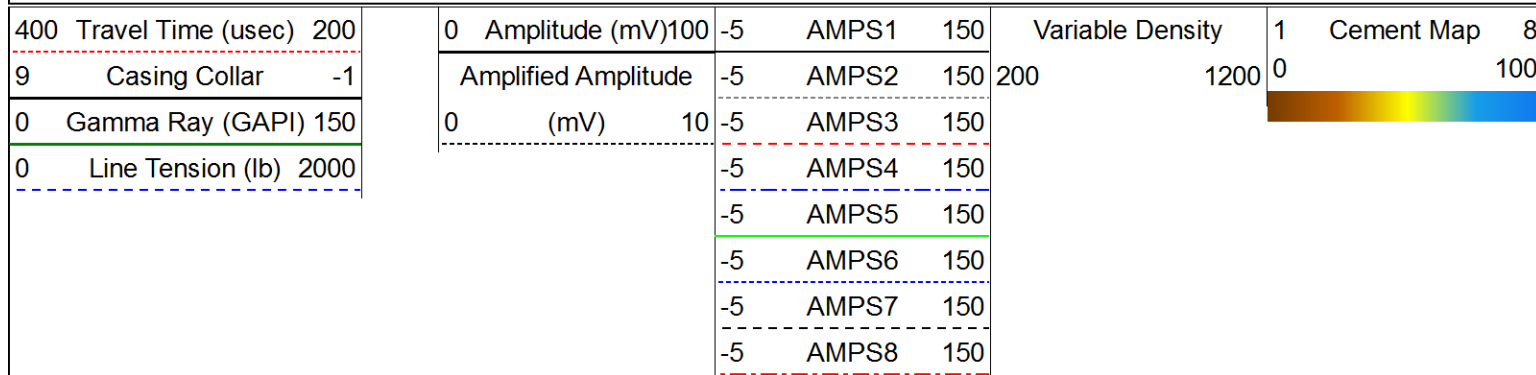
Amplified Amplitude

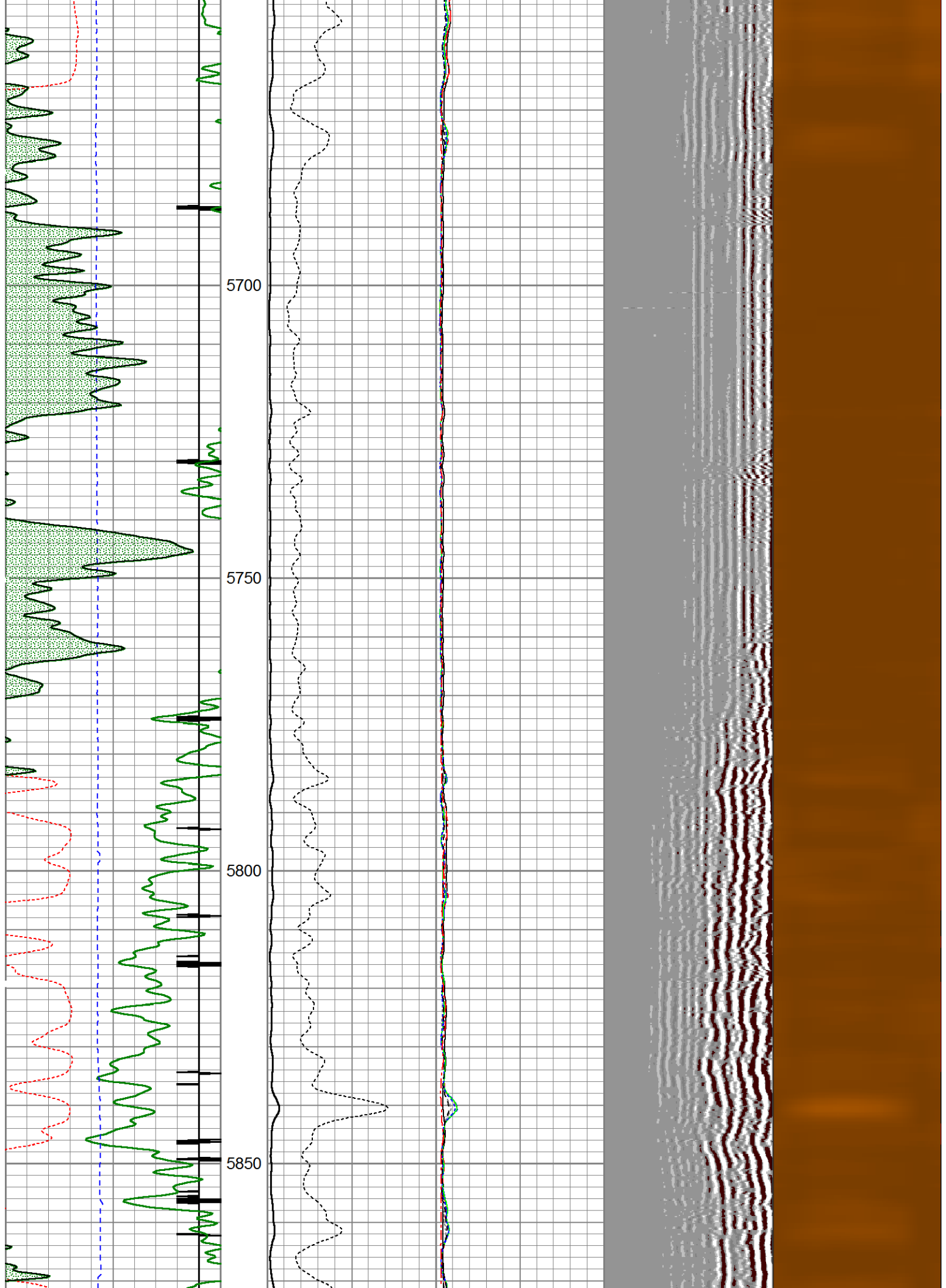
Sectors

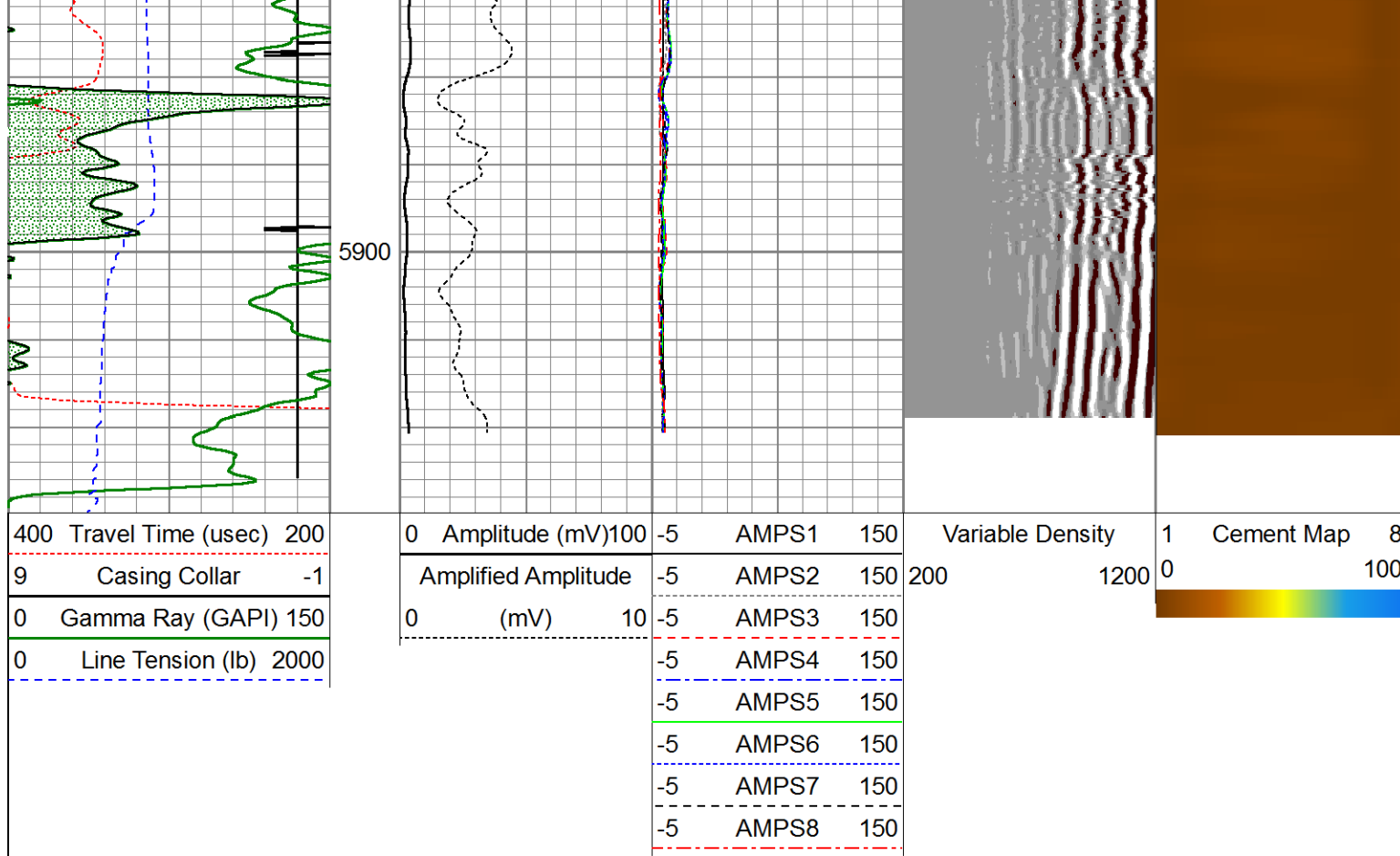


Repeat Pass (0 PSI)

Database File: c:\users\engineers\desktop\brtn logs\noble\rohn state ld09-65-1hn\noble energy rohn state ld09-65-1hd_rc
 Dataset Pathname: pass3
 Presentation Format: scbl03
 Dataset Creation: Fri Nov 15 16:38:04 2013 by Log 0
 Charted by: Depth in Feet scaled 1:240







Calibration Report

Database File: C:\Users\Engineers\Desktop\BRTN LOGS\Noble\Rohn State LD09-65-1HN\noble energy rohn state ld09-6
 Dataset Pathname: pass5
 Dataset Creation: Fri Nov 15 16:45:30 2013 by Log 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

Serial Number: 111107
 Tool Model: Probe
 Calibration Casing Diameter: 7.000 in
 Calibration Depth: 774.827 ft

Master Calibration, performed Fri Nov 15 16:18:15 2013:

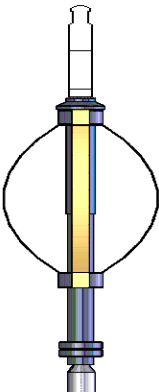
	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	-0.026	0.618	1.000	62.165	95.032	3.478
CAL	-0.033	0.835				
5'	-0.018	0.558	1.000	62.165	106.288	2.889
SUM						
S1	-0.012	0.667	0.000	100.000	147.153	1.823
S2	-0.013	0.714	0.000	100.000	137.547	1.834
S3	-0.020	0.709	0.000	100.000	137.132	2.752
S4	-0.018	0.677	0.000	100.000	143.939	2.551
S5	-0.019	0.622	0.000	100.000	156.002	2.916
S6	-0.018	0.578	0.000	100.000	167.700	3.042
S7	-0.020	0.545	0.000	100.000	176.864	3.575
S8	-0.018	0.543	0.000	100.000	178.296	3.267

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	-0.033	0.835	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)
WVF3FT	11.84	11.84	0.00	0.00	0.00
WVFCAL	11.84	11.84	0.00	0.00	0.00
WVFS1	11.84	11.84	0.00	0.00	0.00
WVFS2	11.84	11.84	0.00	0.00	0.00
WVFS3	11.84	11.84	0.00	0.00	0.00
WVFS4	11.84	11.84	0.00	0.00	0.00
WVFS5	11.84	11.84	0.00	0.00	0.00
WVFS6	11.84	11.84	0.00	0.00	0.00
WVFS7	11.84	11.84	0.00	0.00	0.00
WVFS8	11.84	11.84	0.00	0.00	0.00
WVF5FT	10.84	11.84	1.00	0.00	0.00
CCL	3.88	3.88	0.00	0.00	0.00
TEMP	3.00	3.00	0.00	0.00	0.00
GR	2.54	2.54	0.00	0.00	0.00
RBT-Probe (111107)	8.75	11.84	3.09	90.00	2.75
Probe275	2.88	3.88	1.00	20.00	2.75
GR-Probe275 (110108-Dig)	4.78	7.54	2.76	57.00	2.75

Diagram illustrating the wellbore layout and tool placement. The wellbore is shown with a central axis and a surrounding casing. The tools are placed at the following depths:

- RBT-Probe (111107) is located between 8.75 ft and 11.84 ft.
- Probe275 is located between 2.88 ft and 3.88 ft.
- GR-Probe275 (110108-Dig) is located between 4.78 ft and 7.54 ft.

Dataset: noble energy rohn state ld09-65-1hd_rcbl.db: field/well/run1/pass5

Total Length: 20.28 ft

Total Weight: 197.00 lb

O.D.: 2.75 in