



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

Company Noble Energy

Well Rohn State LD09-67HN

Field Wattenberg

County Weld State Colorado

Location: API #: 05-123-37542

BHL: 1320" FNL & 660' FWL

SEC 9 TWP 9N RGE 58W

Permanent Datum Ground Level Elevation 4729'  
Log Measured From 24' Kelly Bushing  
Drilling Measured From Kelly Bushing

Other Services  
None

Elevation  
K.B. 4753'  
D.F. 4752'  
G.L. 4729'

Date November 17, 2013

Run Number 1

Depth Driller 9687'

Depth Logger 6039

Bottom Logged Interval 6024

Top Log Interval Surface

Open Hole Size 8.125

Type Fluid Fresh Water

Density / Viscosity 8.33

Max. Recorded Temp. -

Estimated Cement Top 1194'

Time Well Ready 6:00

Time Logger on Bottom 7:50

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 1226'

Prot. String 7 26# Surface 6146'

Production String 4 1/2 11.6# Surface 9672'

Liner 4 1/2 11.6# Surface 9672'

Short Joint 4741' 4753'

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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

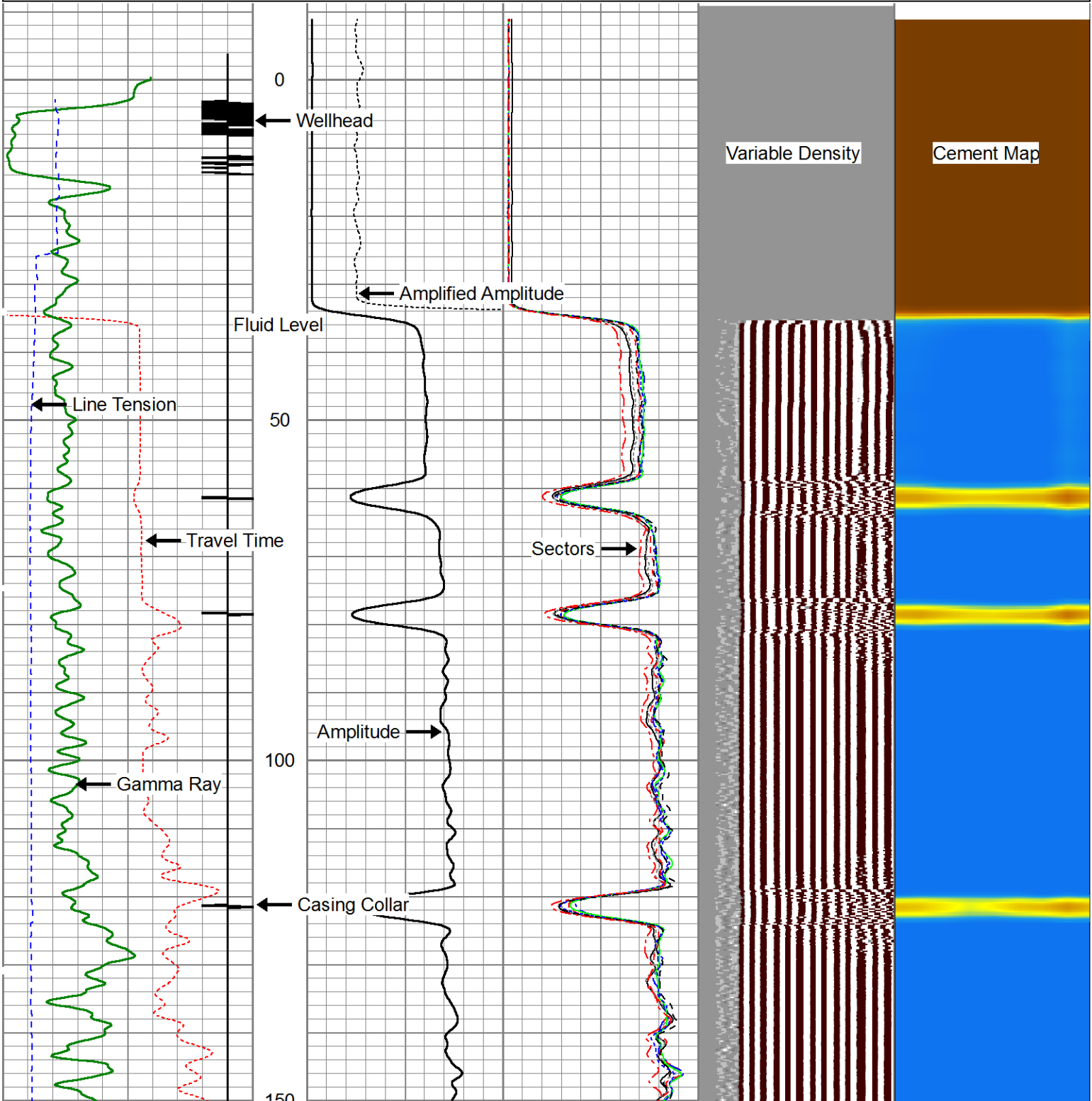
Estimated Top of Cement @ 1194'

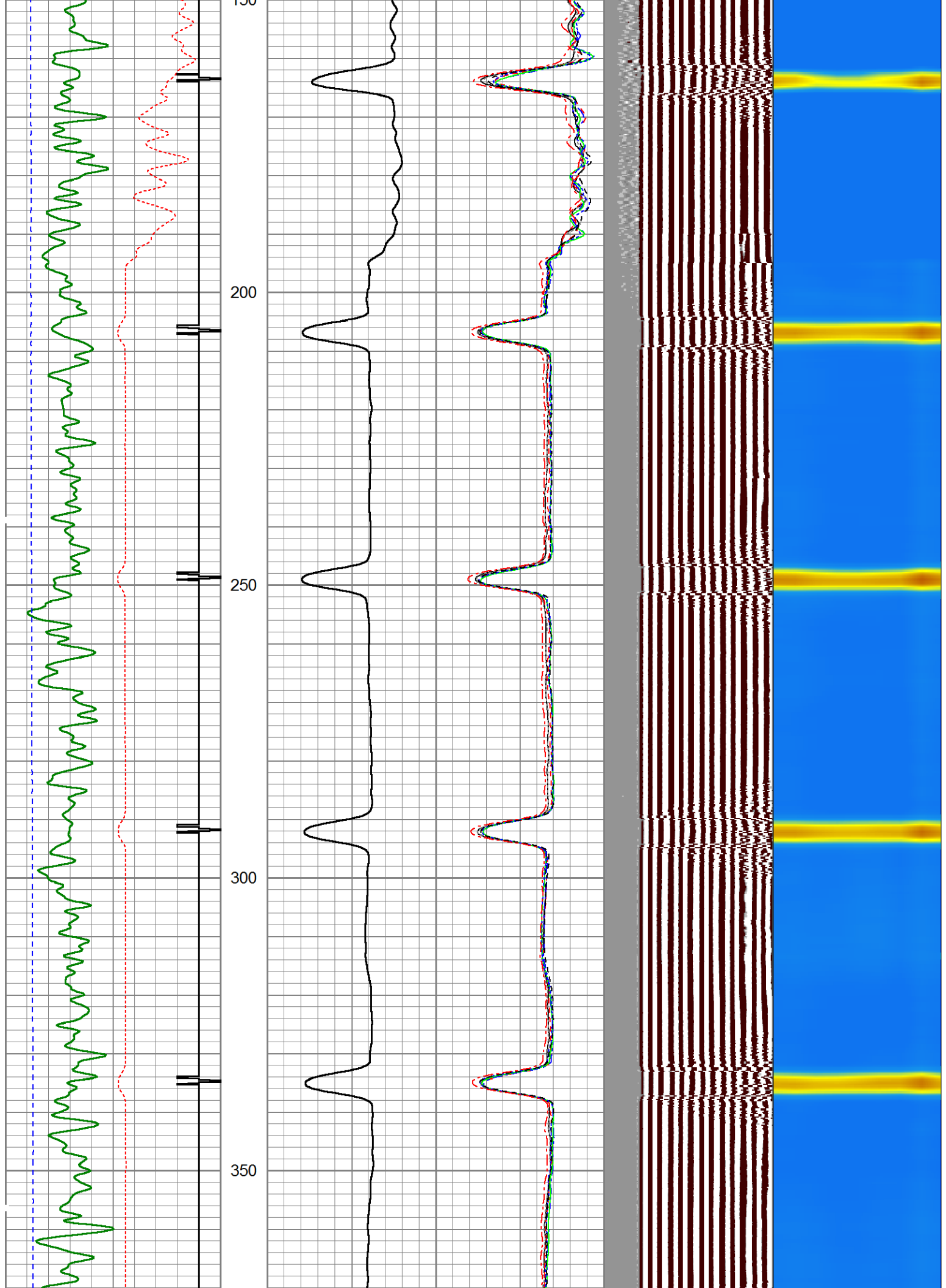
Thank you for using Allied Wireline.  
(303)659-4609

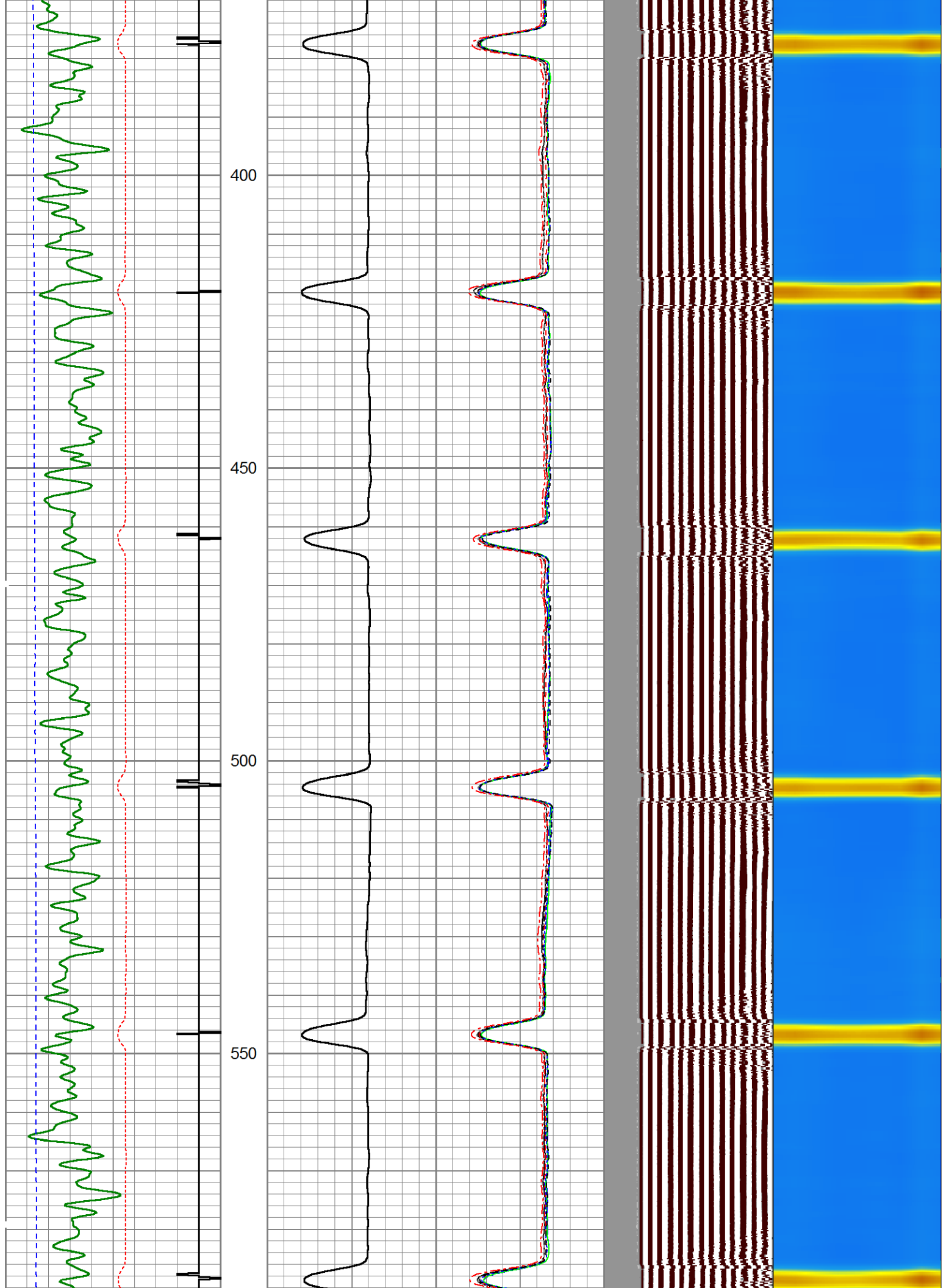


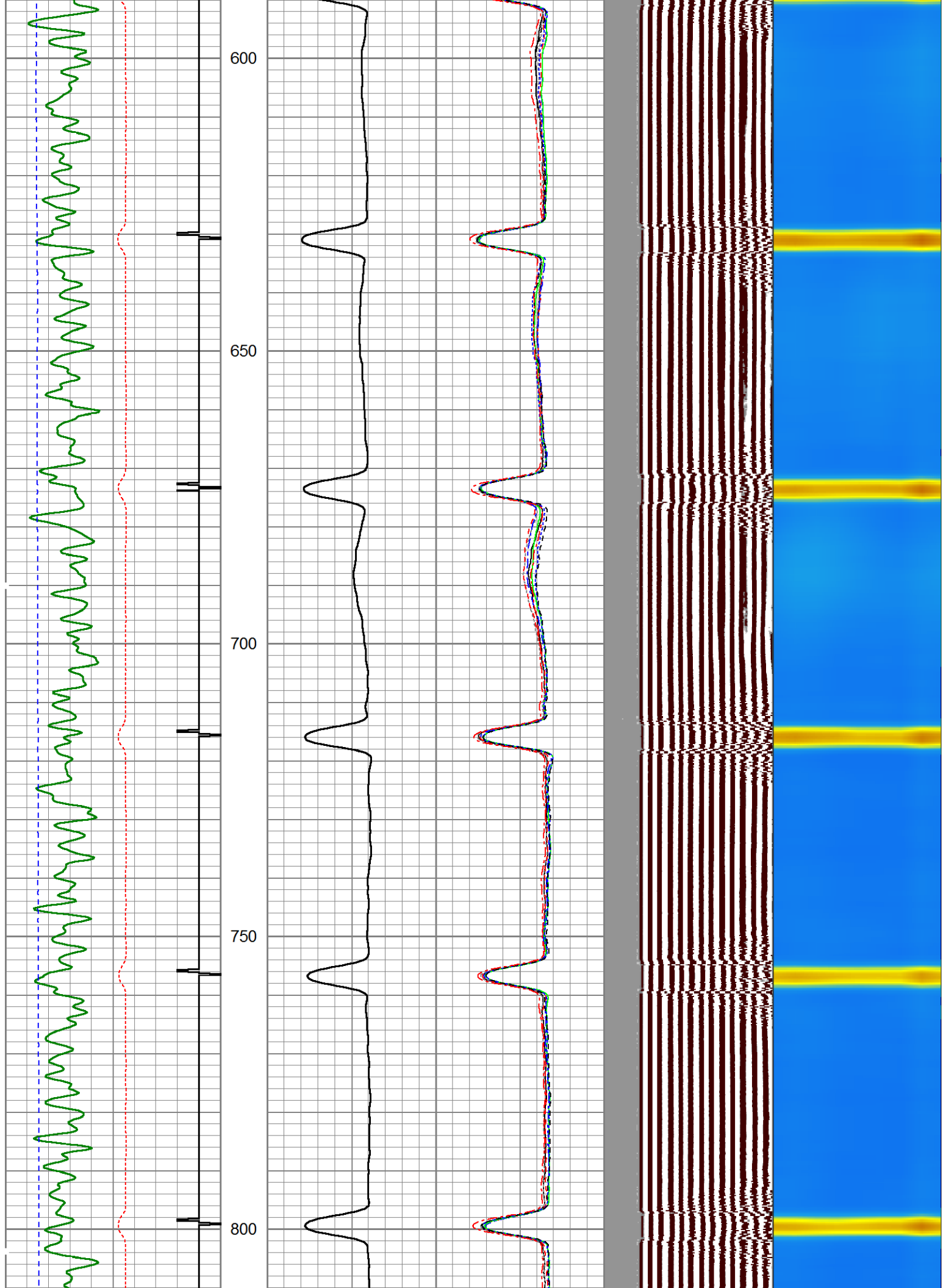
Main Pass ( 0 PSI )

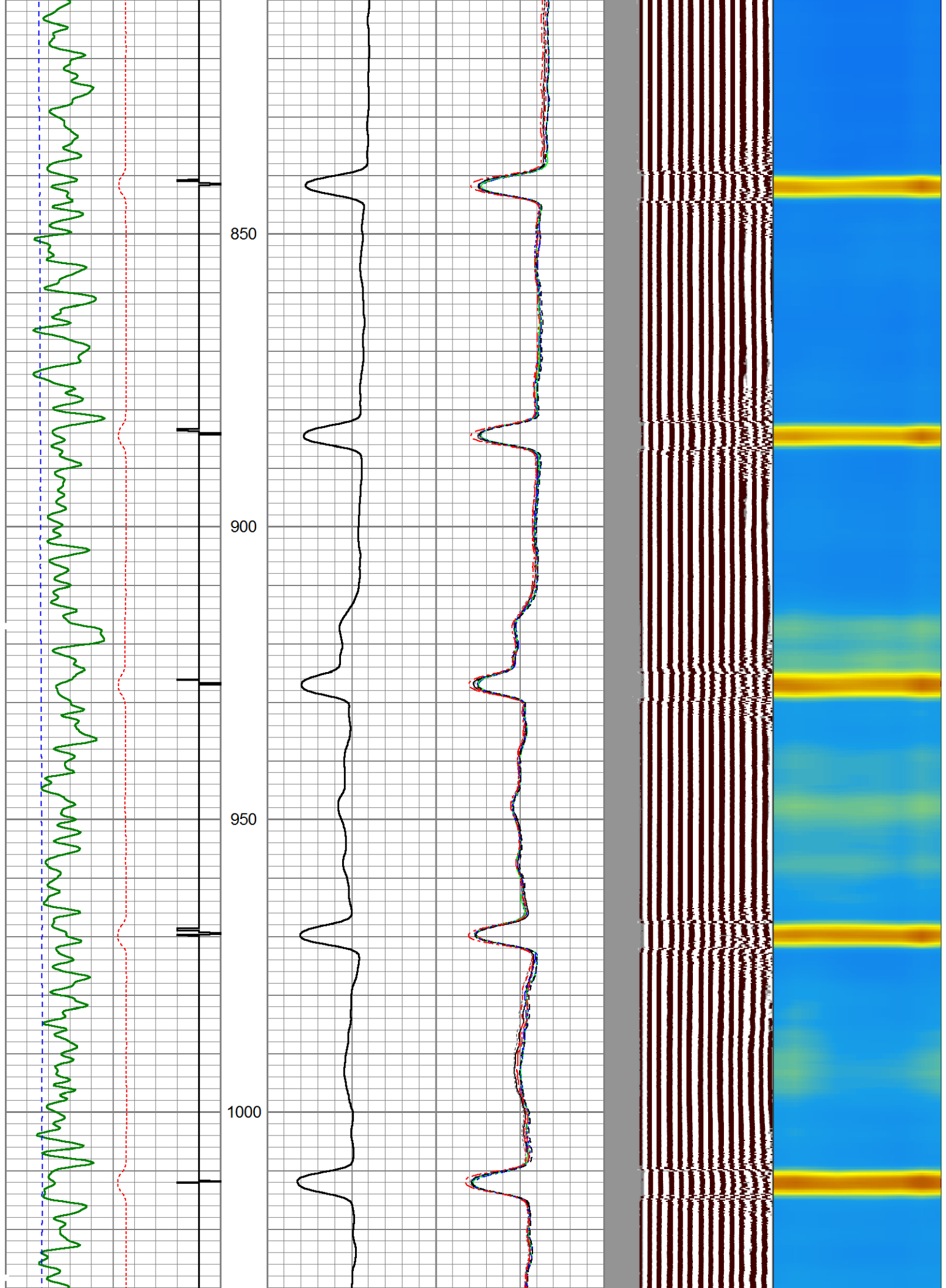
400	Travel Time (usec)	200	0	Amplitude (mV)	100	-5	AMPS1	150	Variable Density	1	Cement Map	8
9	Casing Collar	-1		Amplified Amplitude		-5	AMPS2	150	200	1200	0	100
0	Gamma Ray (GAPI)	150	0	(mV)	10	-5	AMPS3	150				
0	Line Tension (lb)	2000				-5	AMPS4	150				
						-5	AMPS5	150				
						-5	AMPS6	150		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



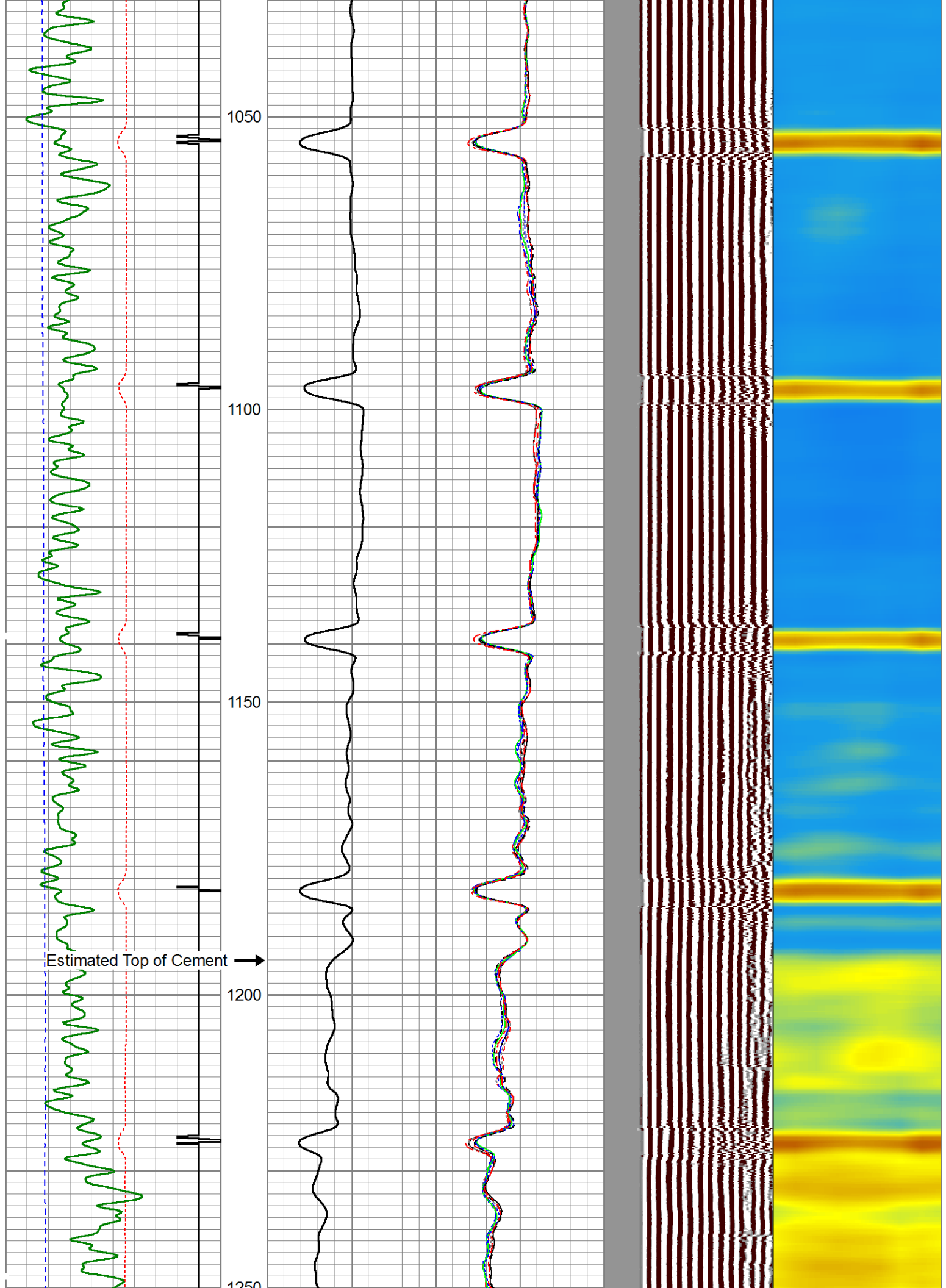


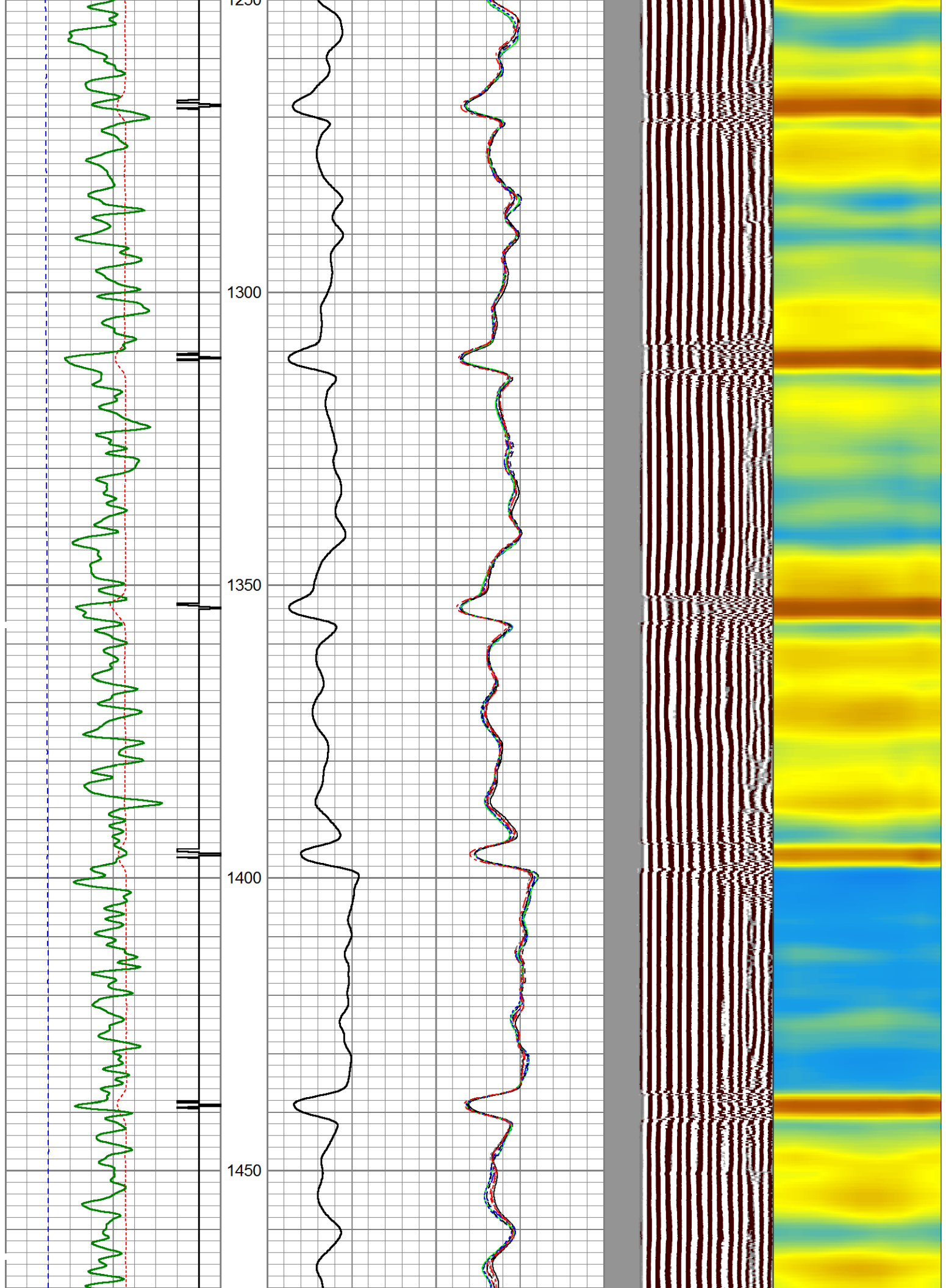




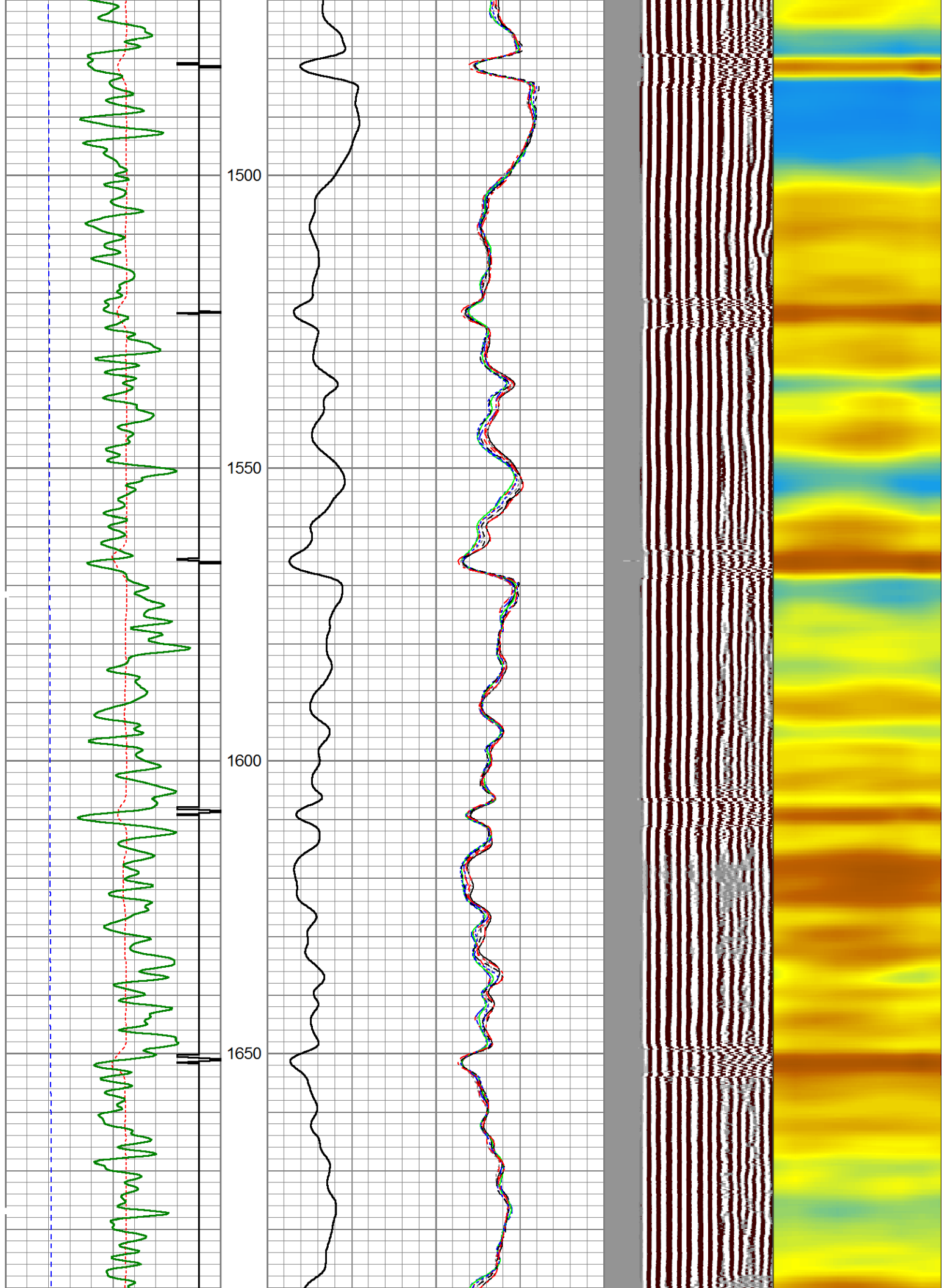


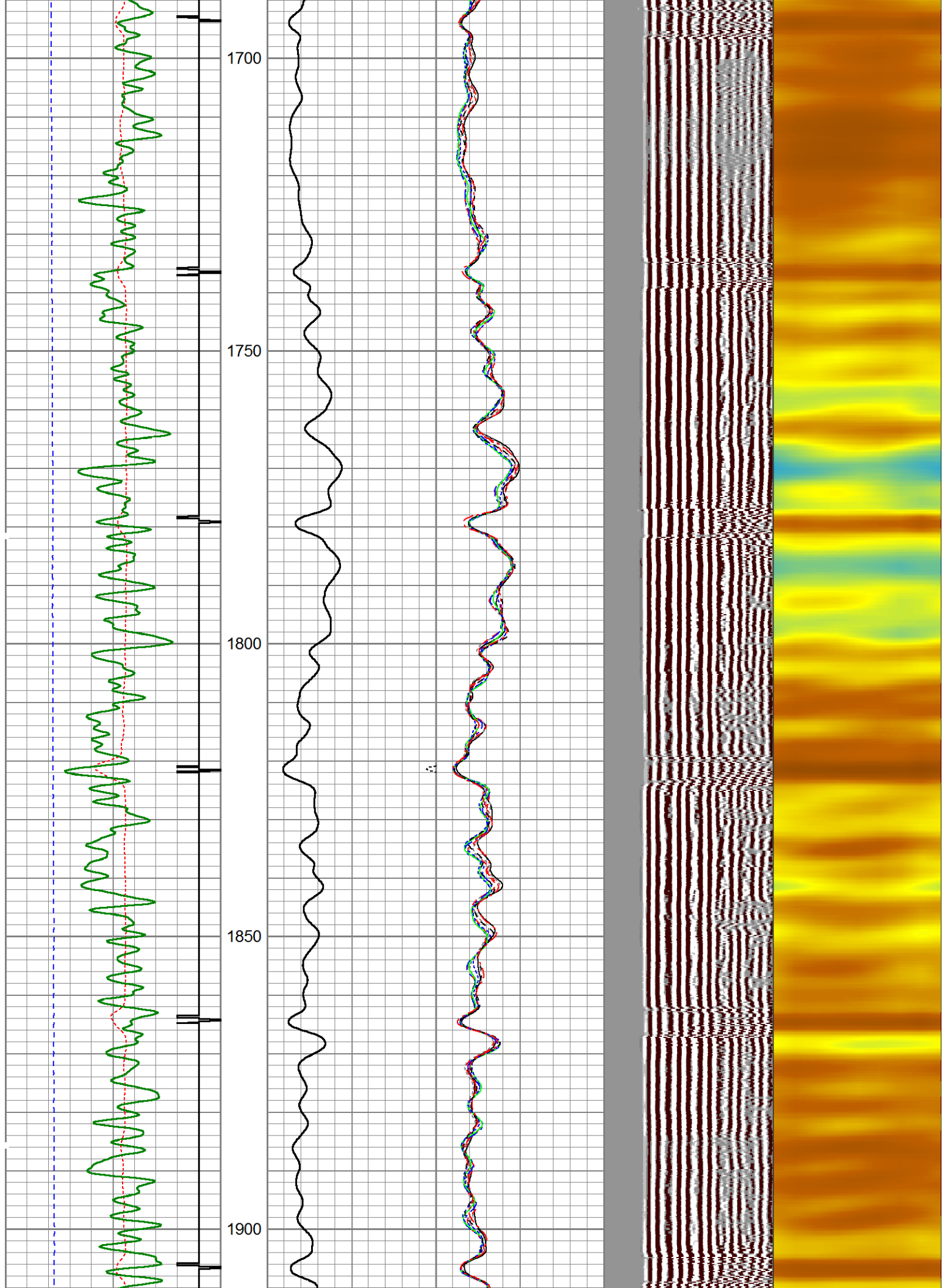


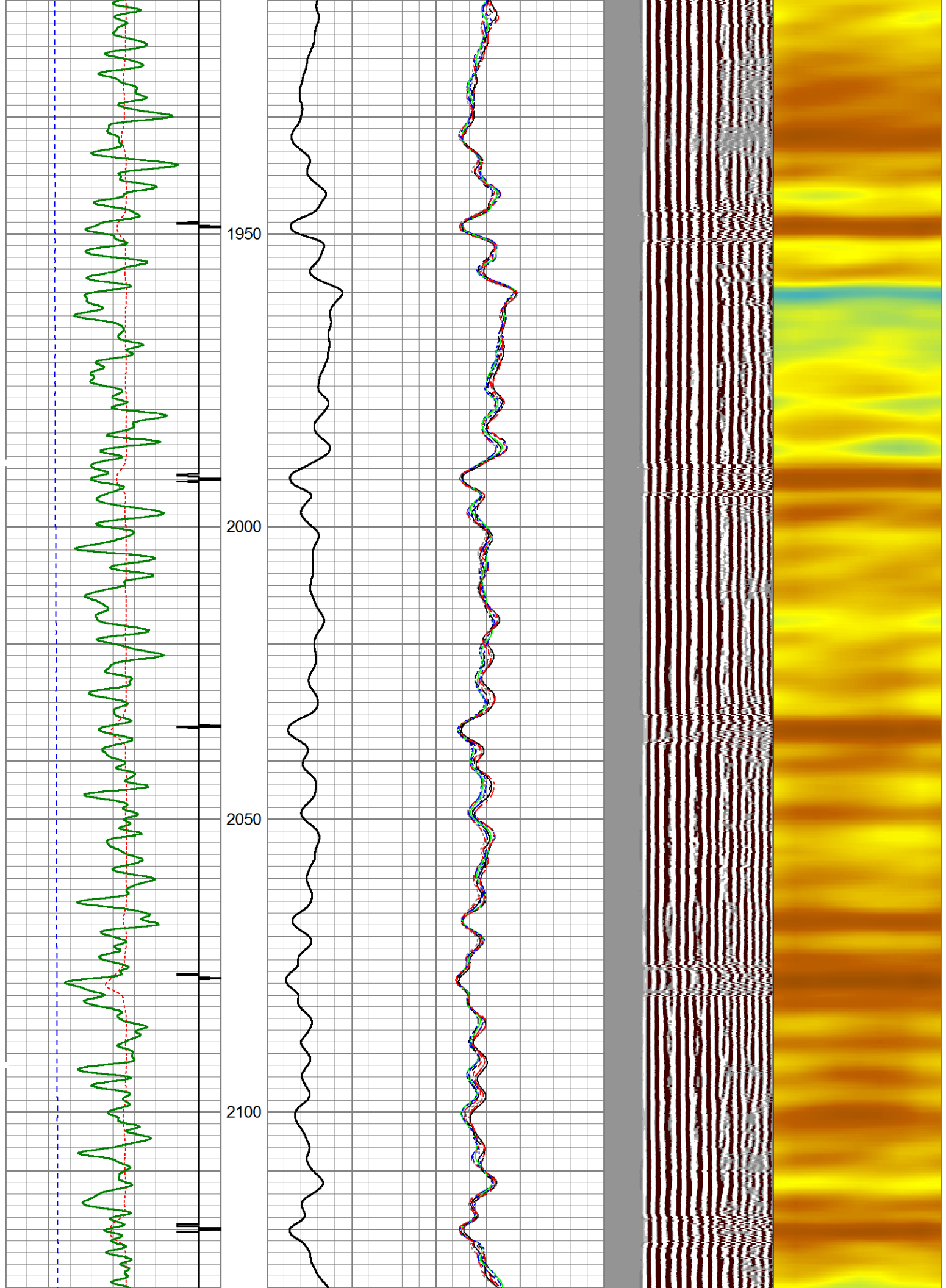


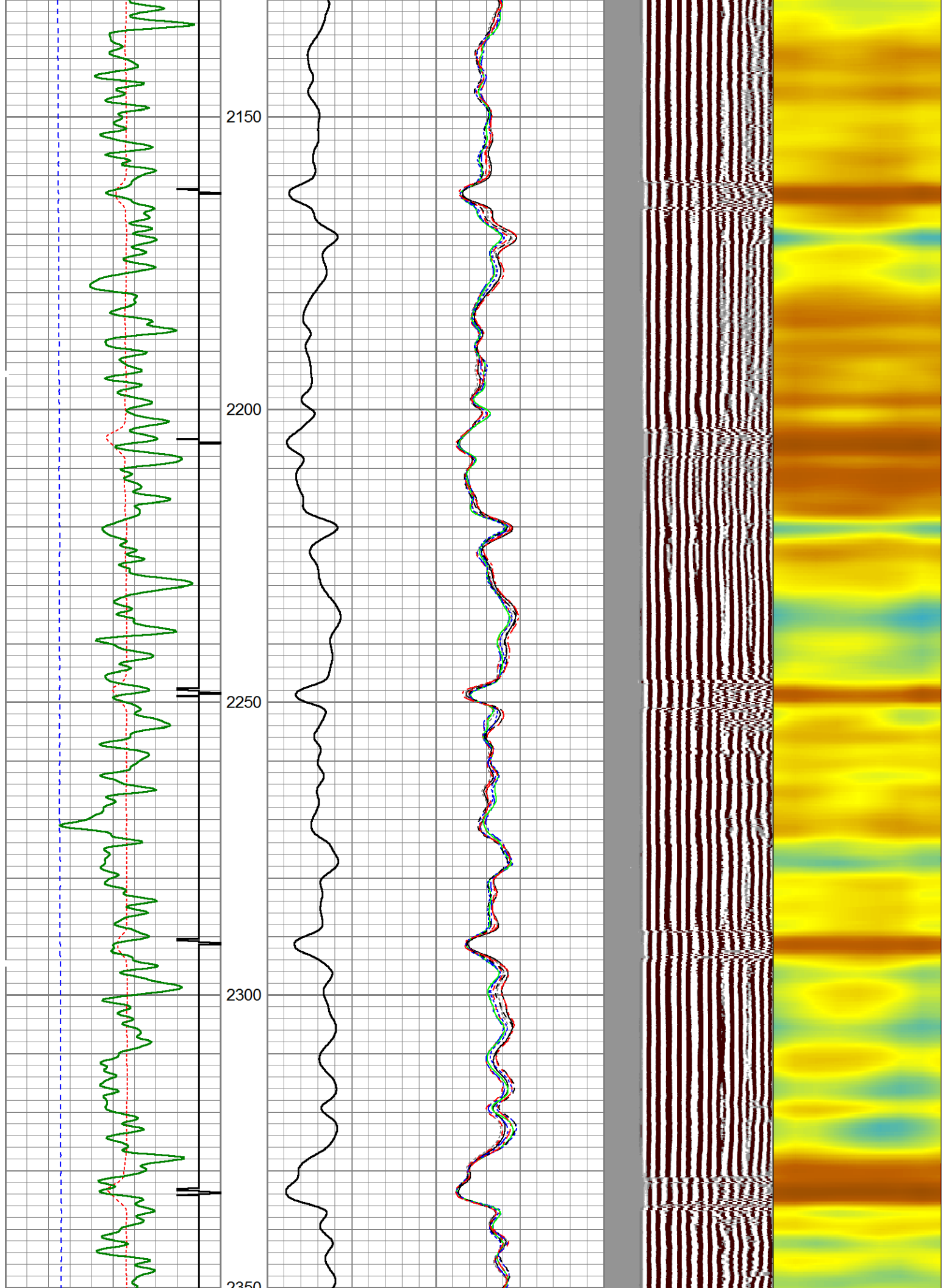




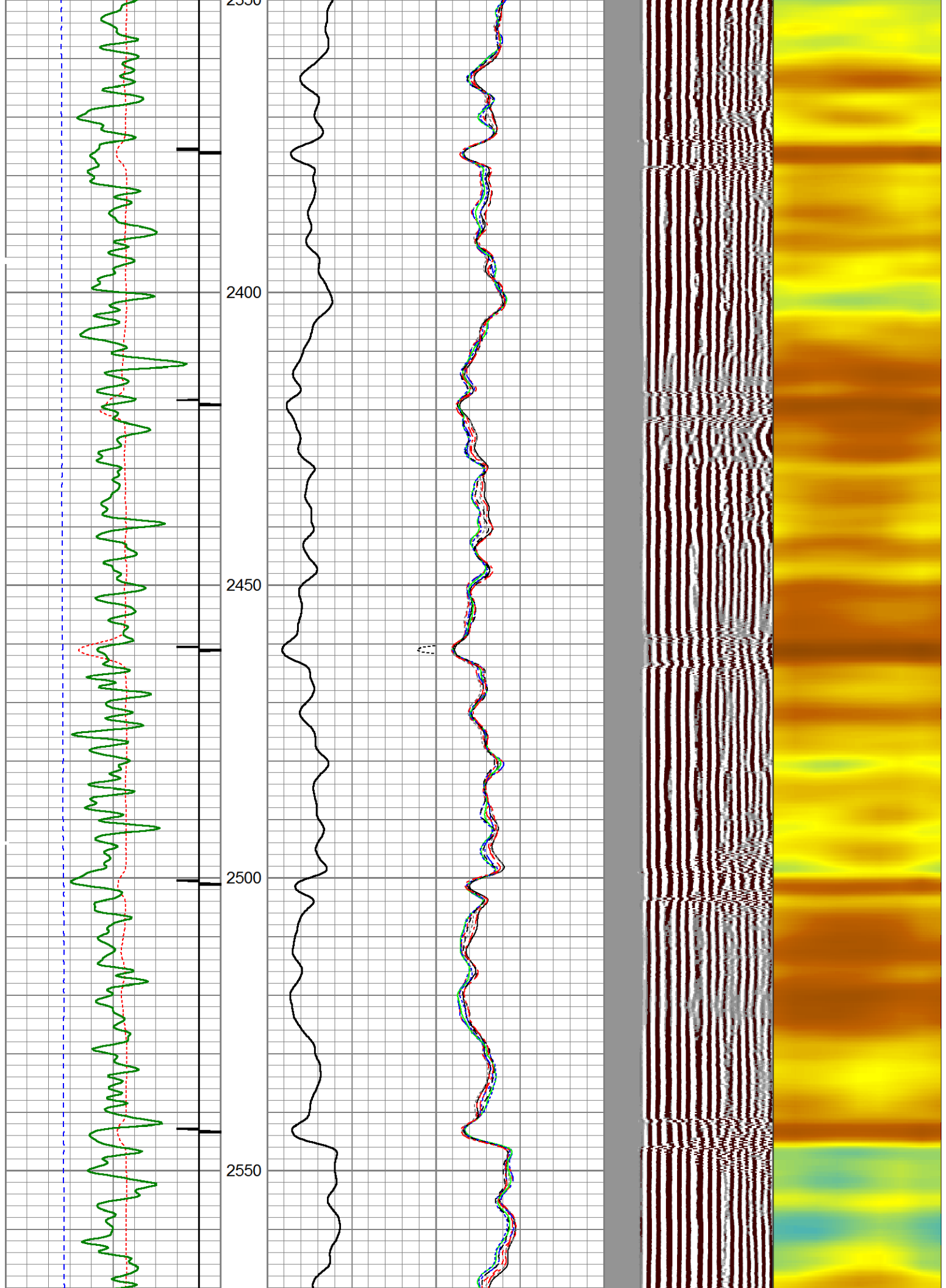


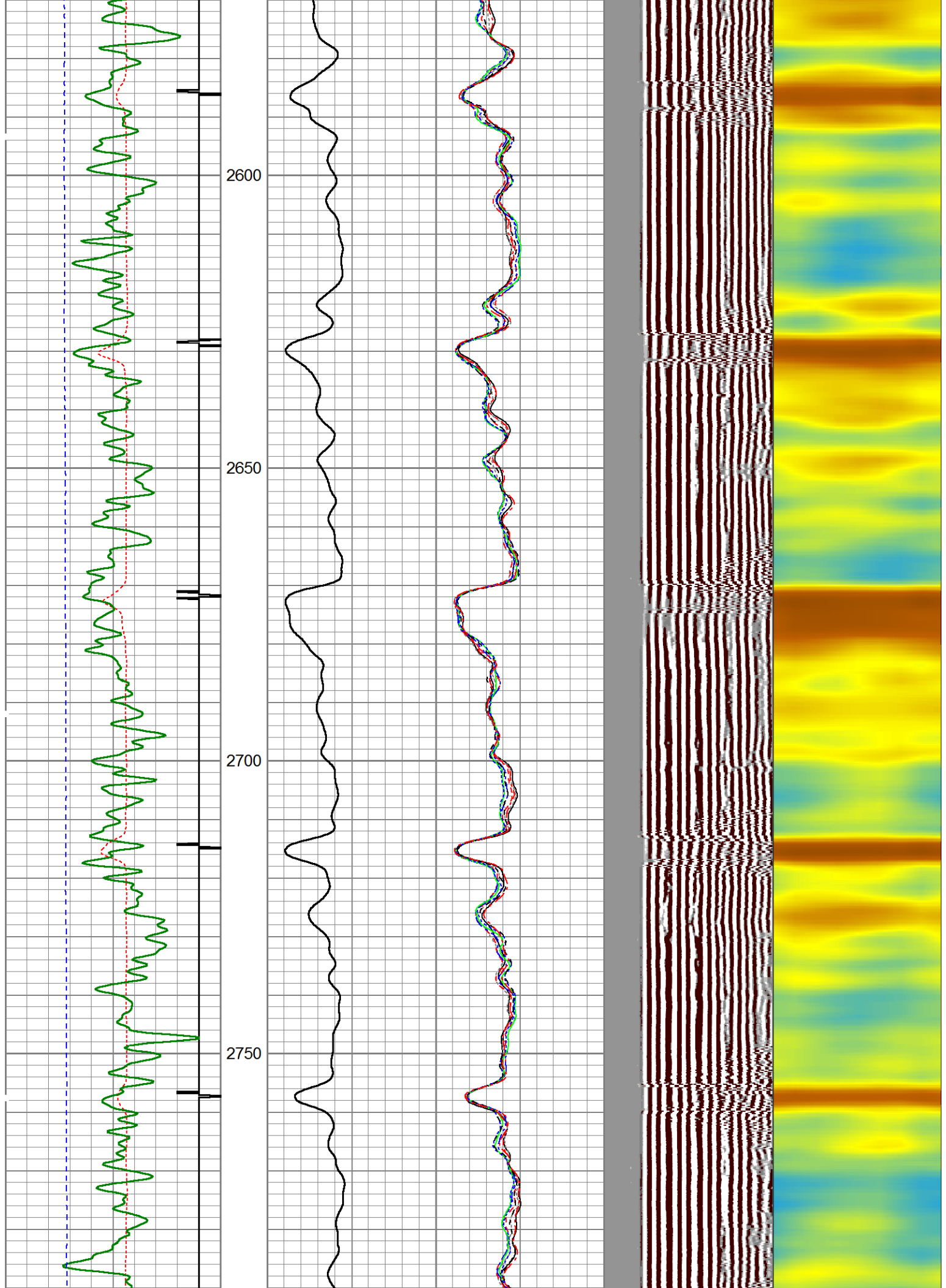




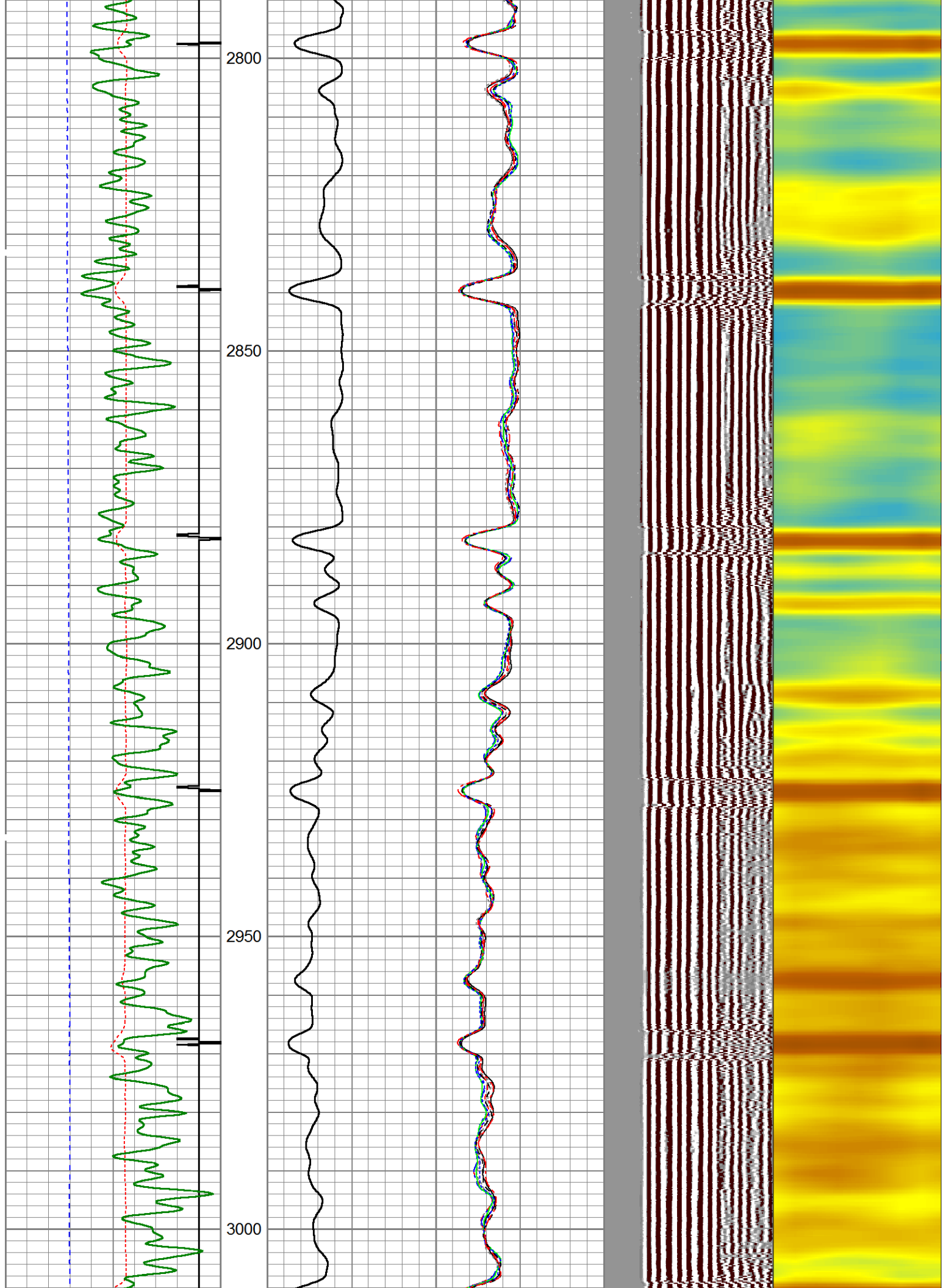


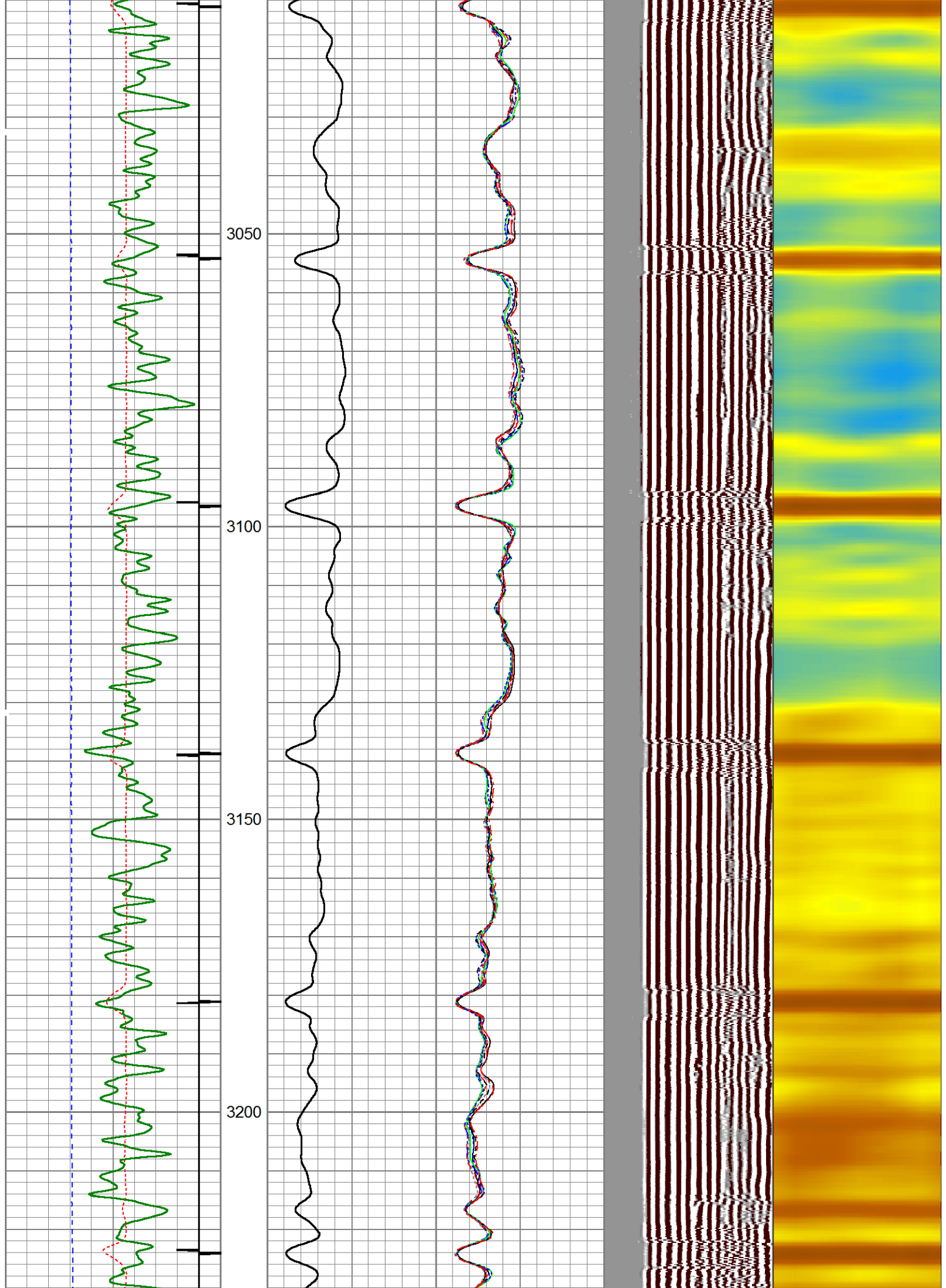


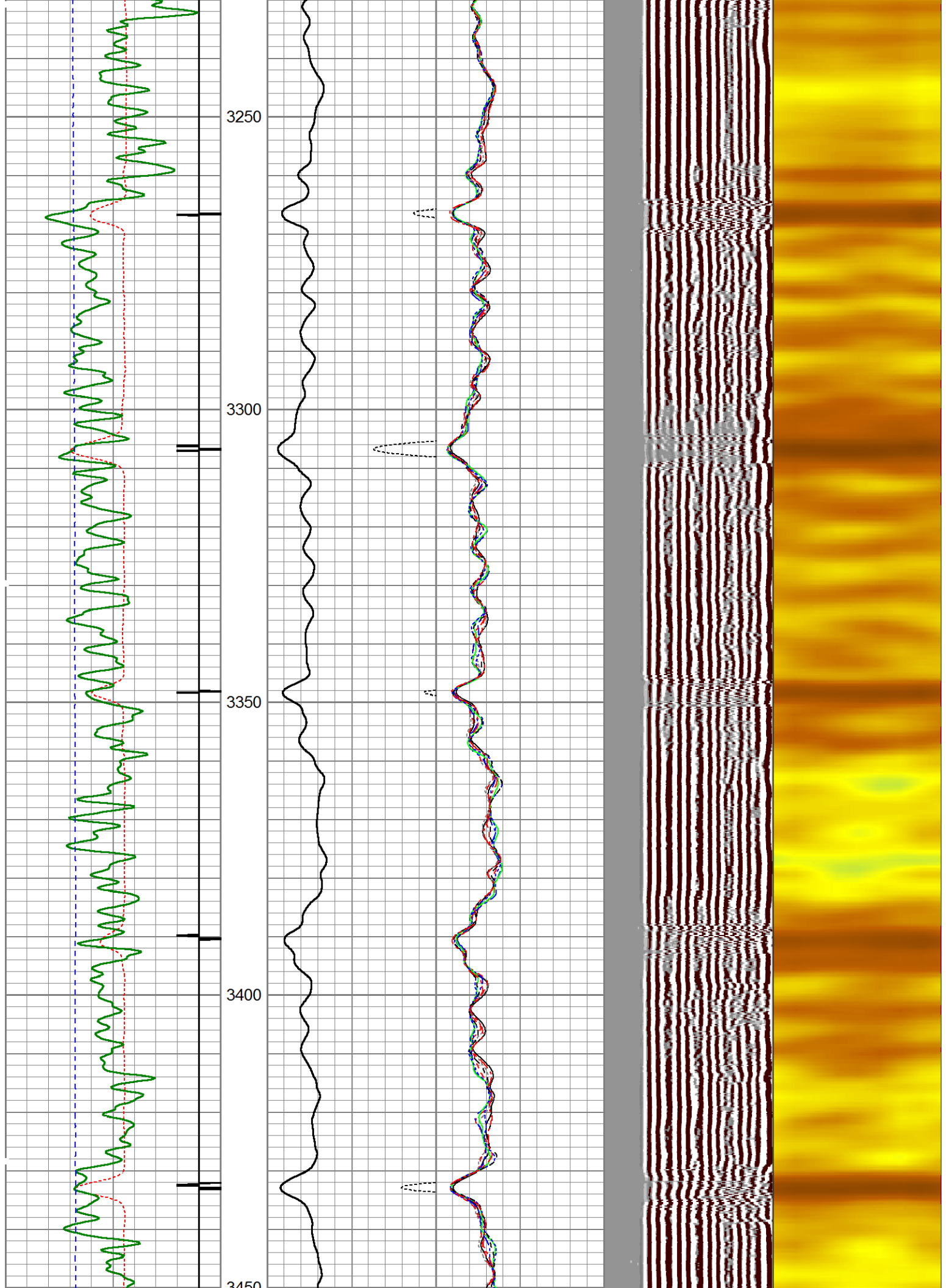


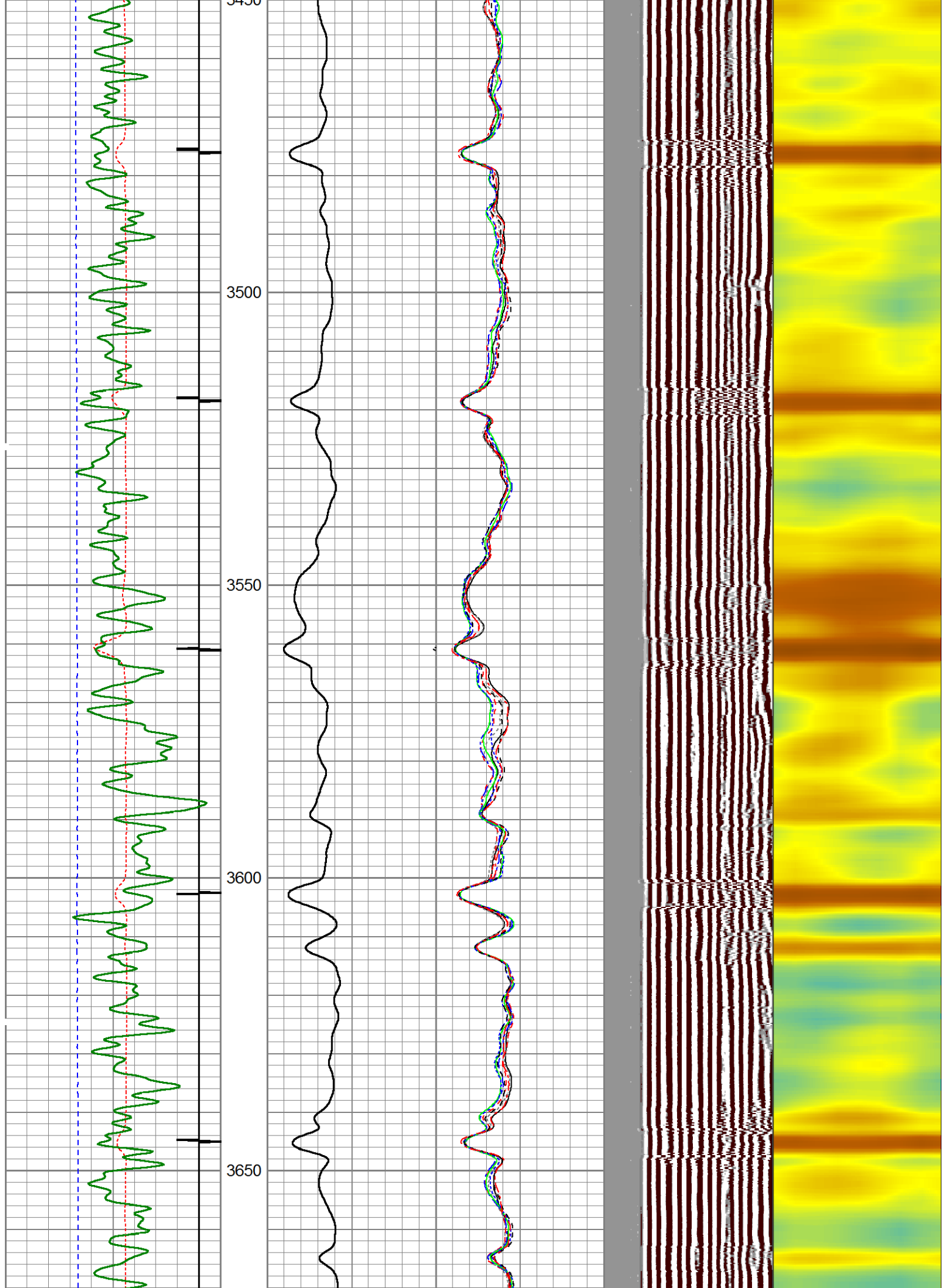




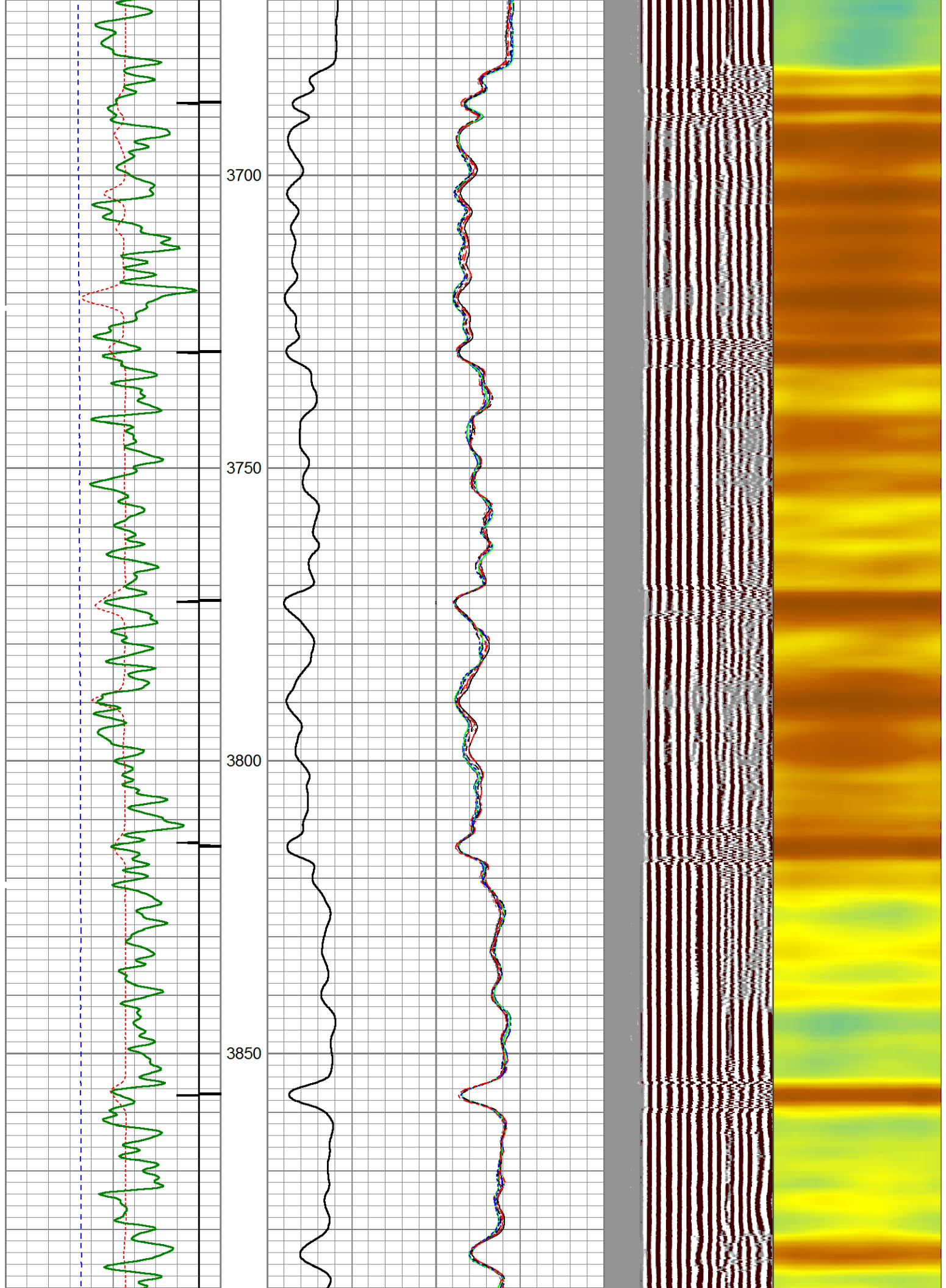


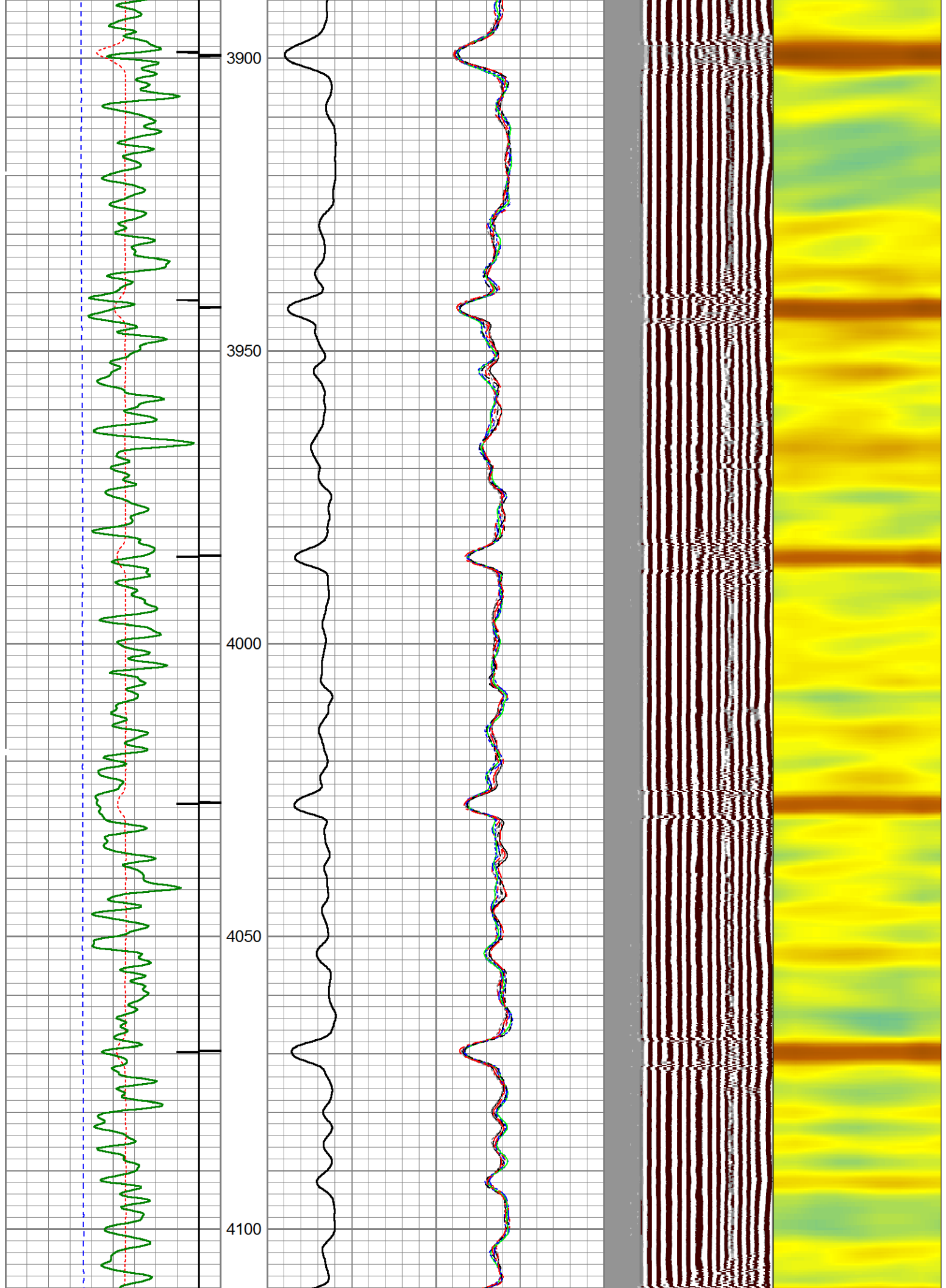




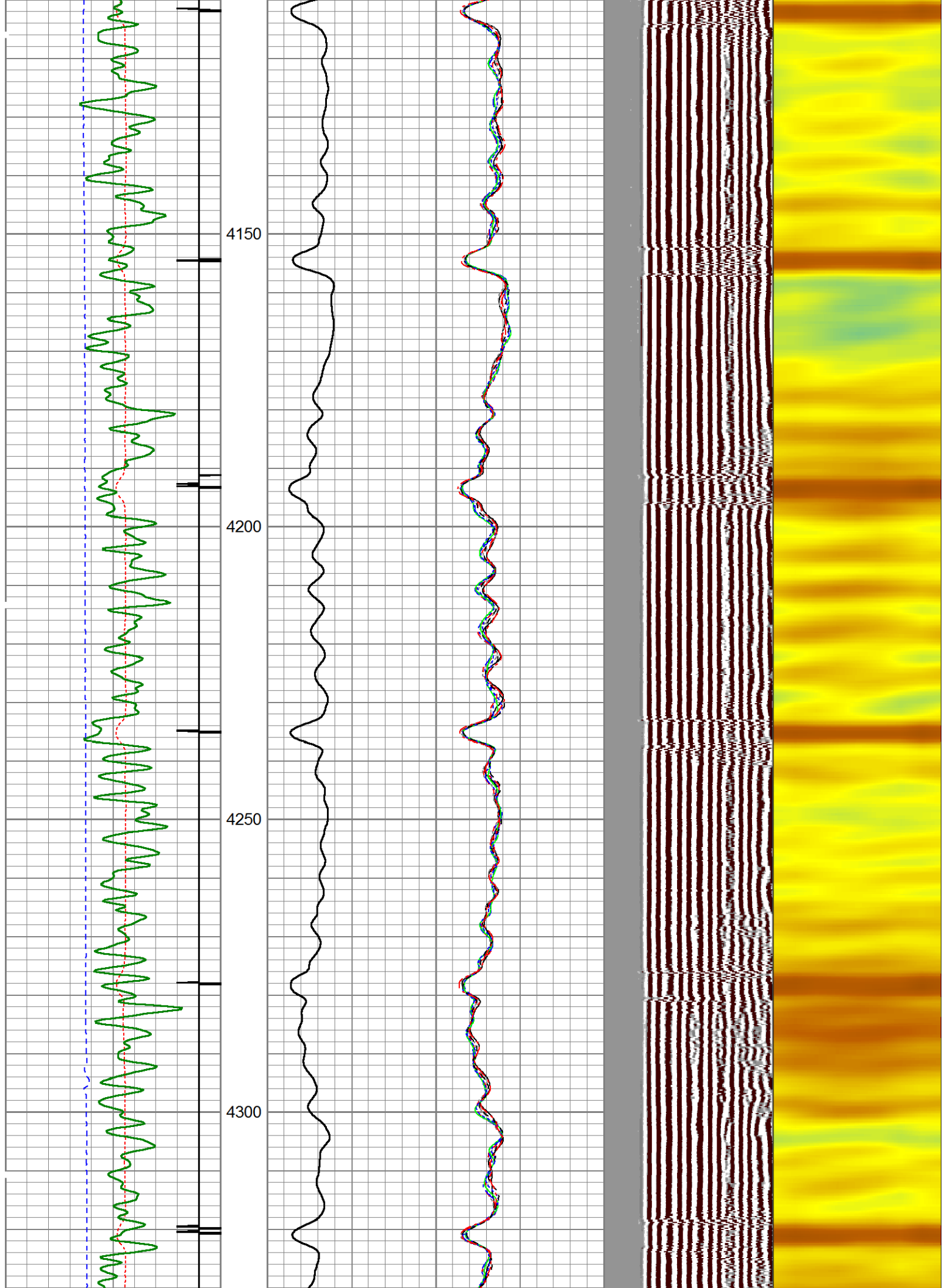


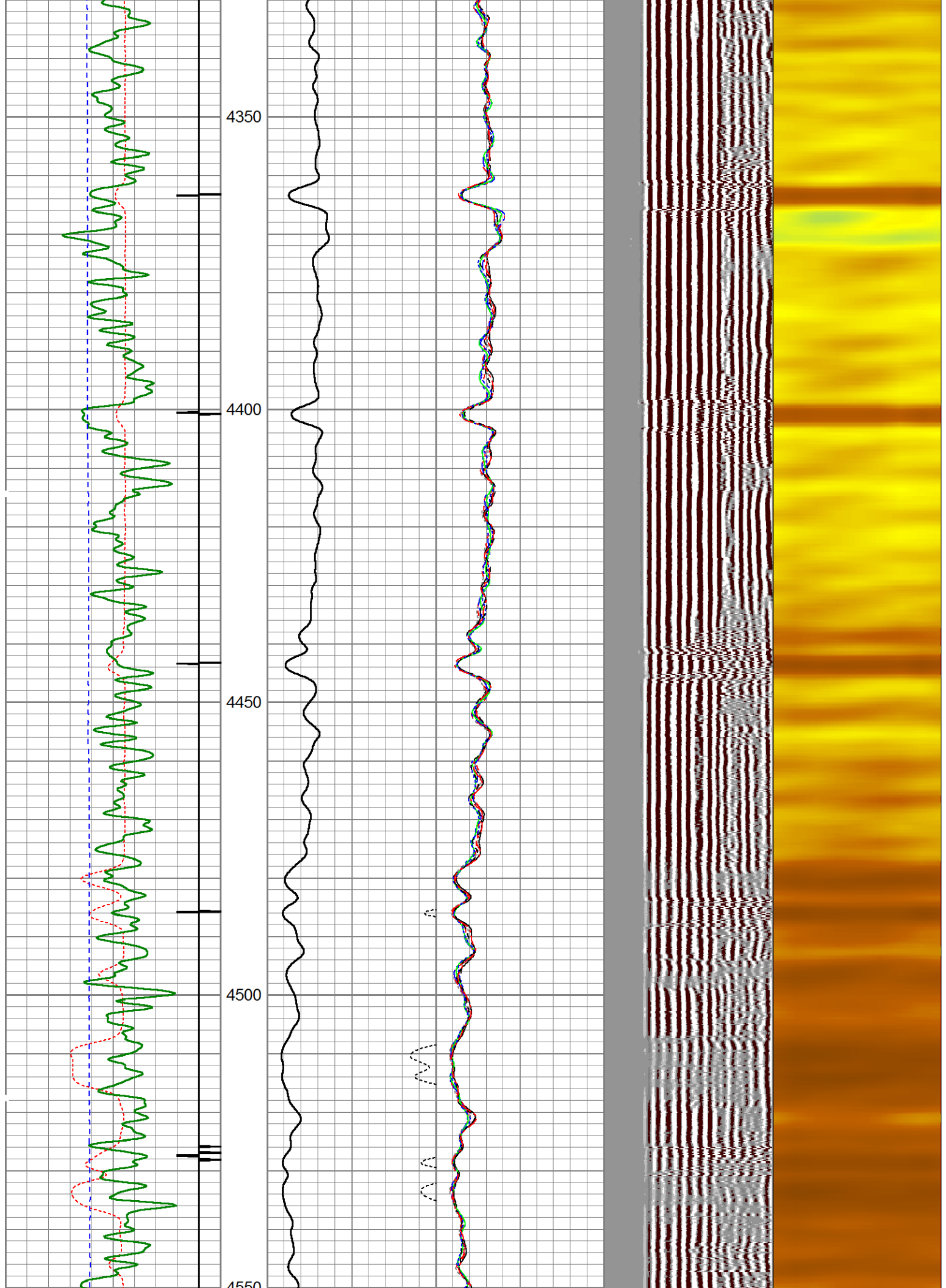


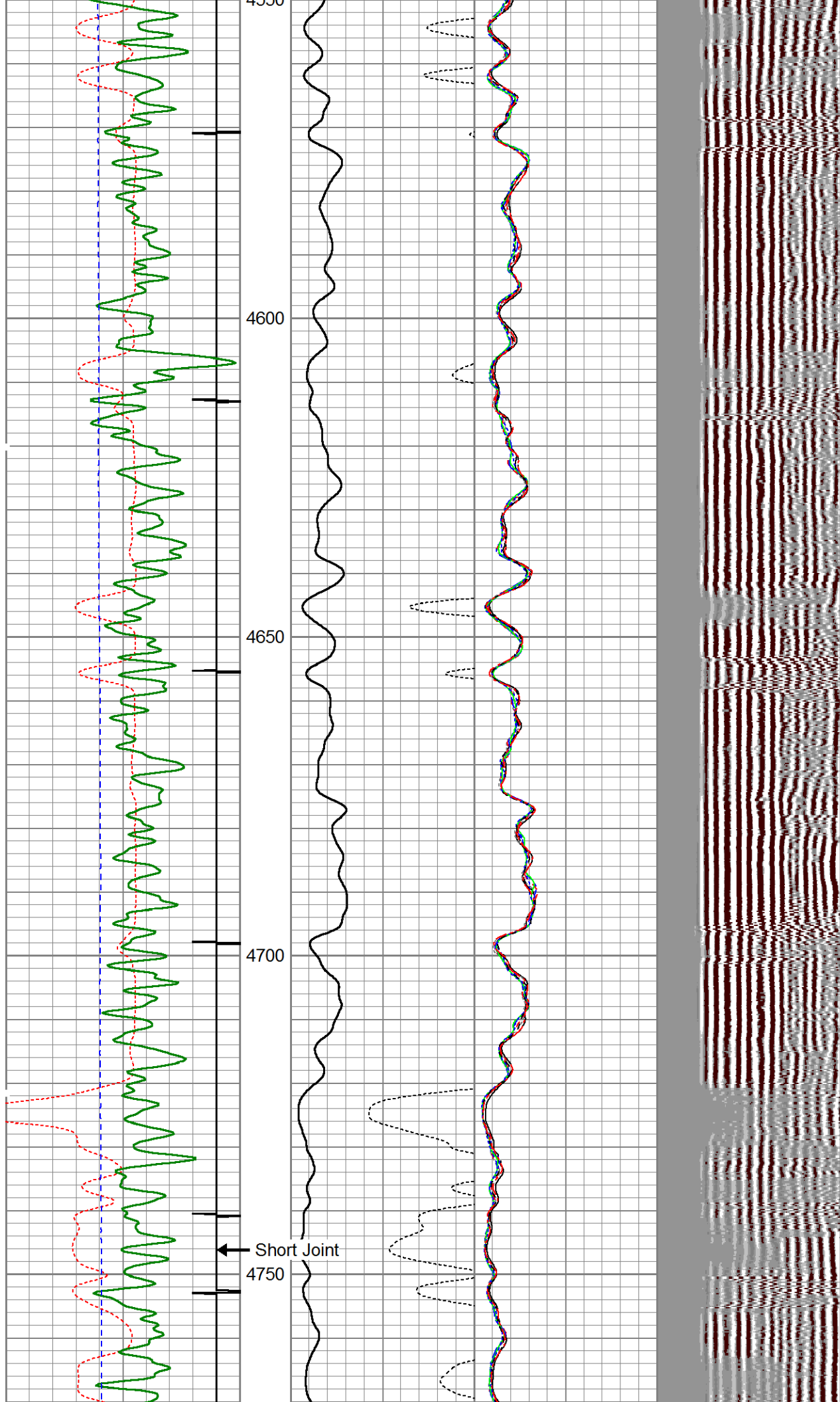


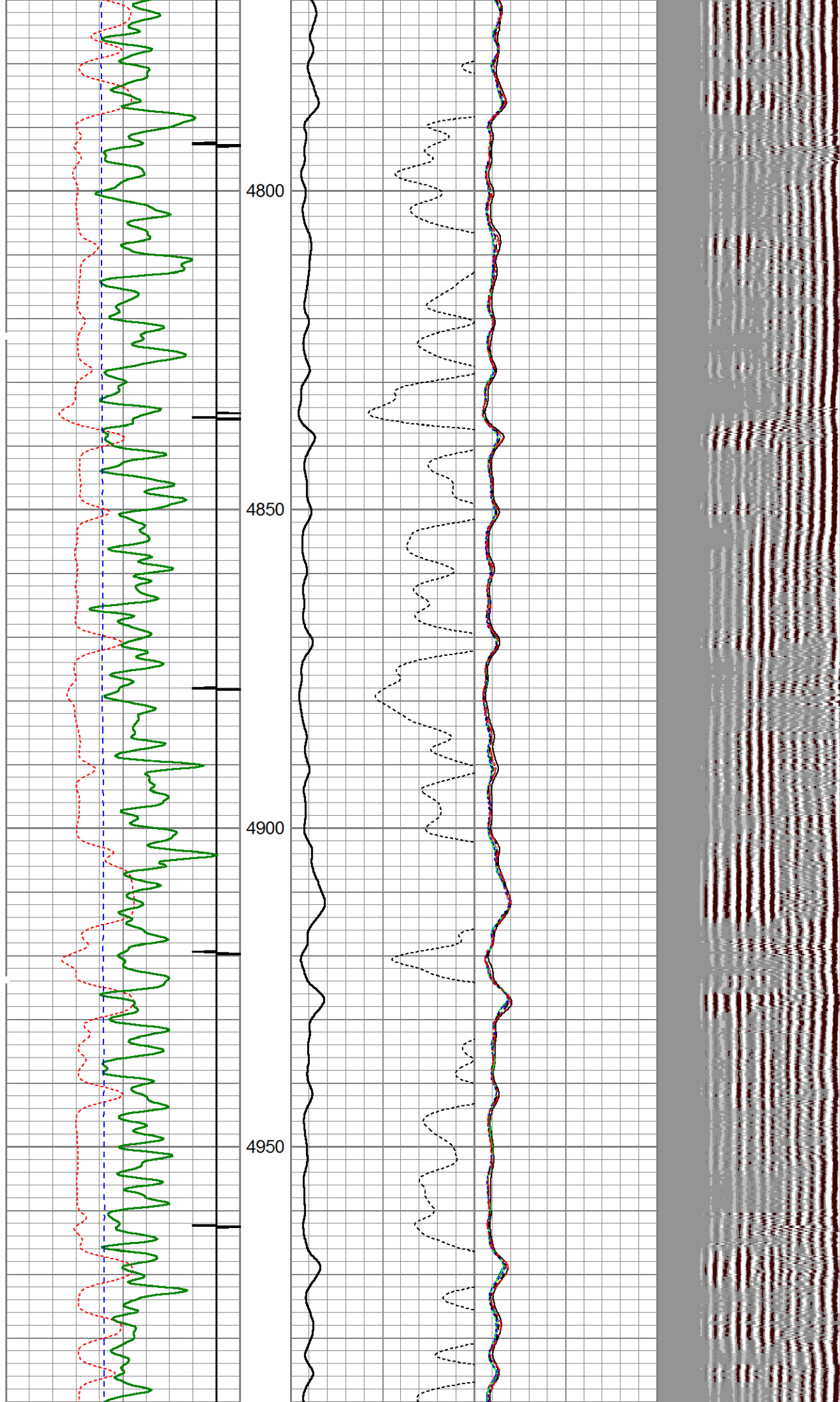




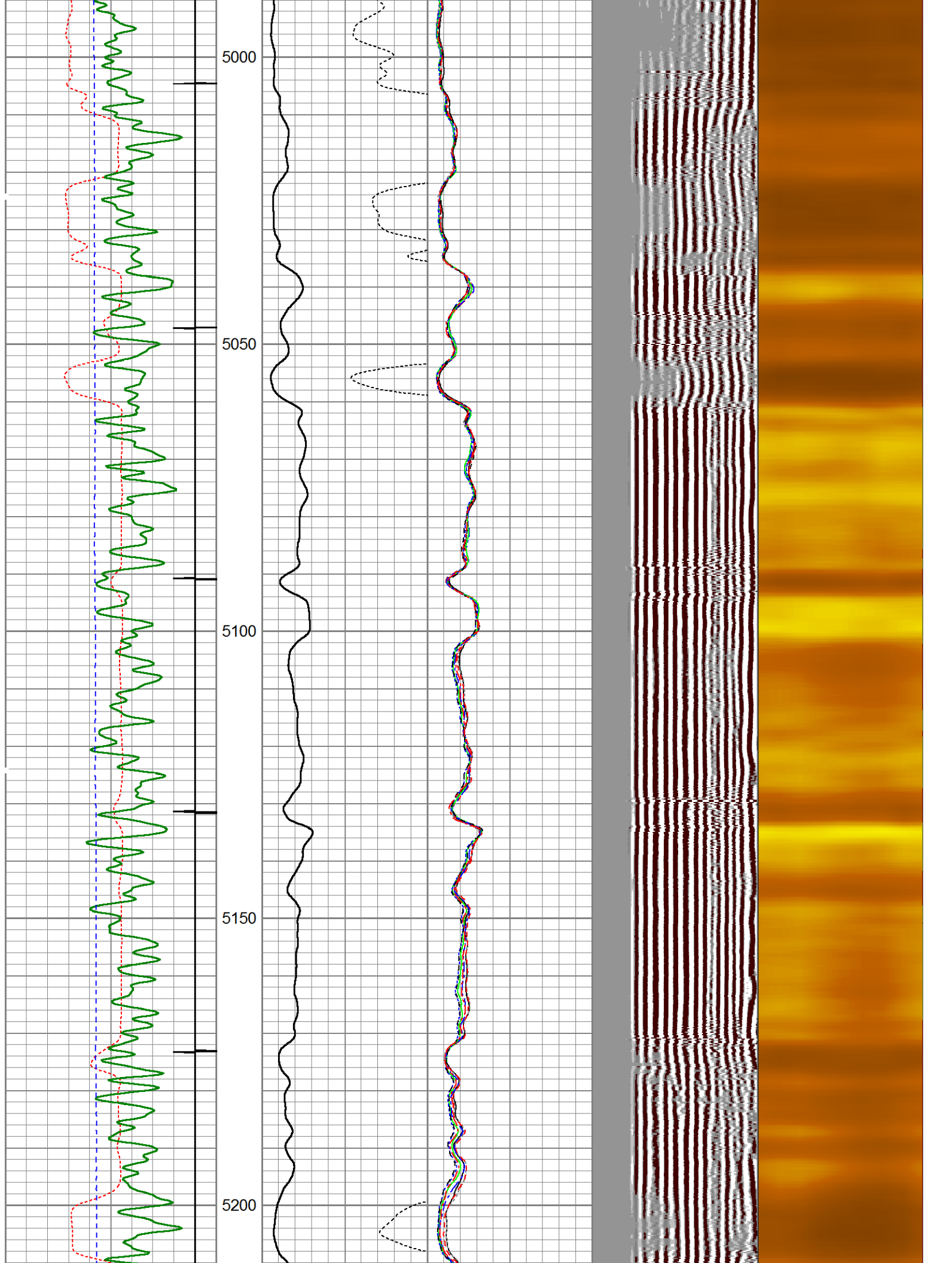


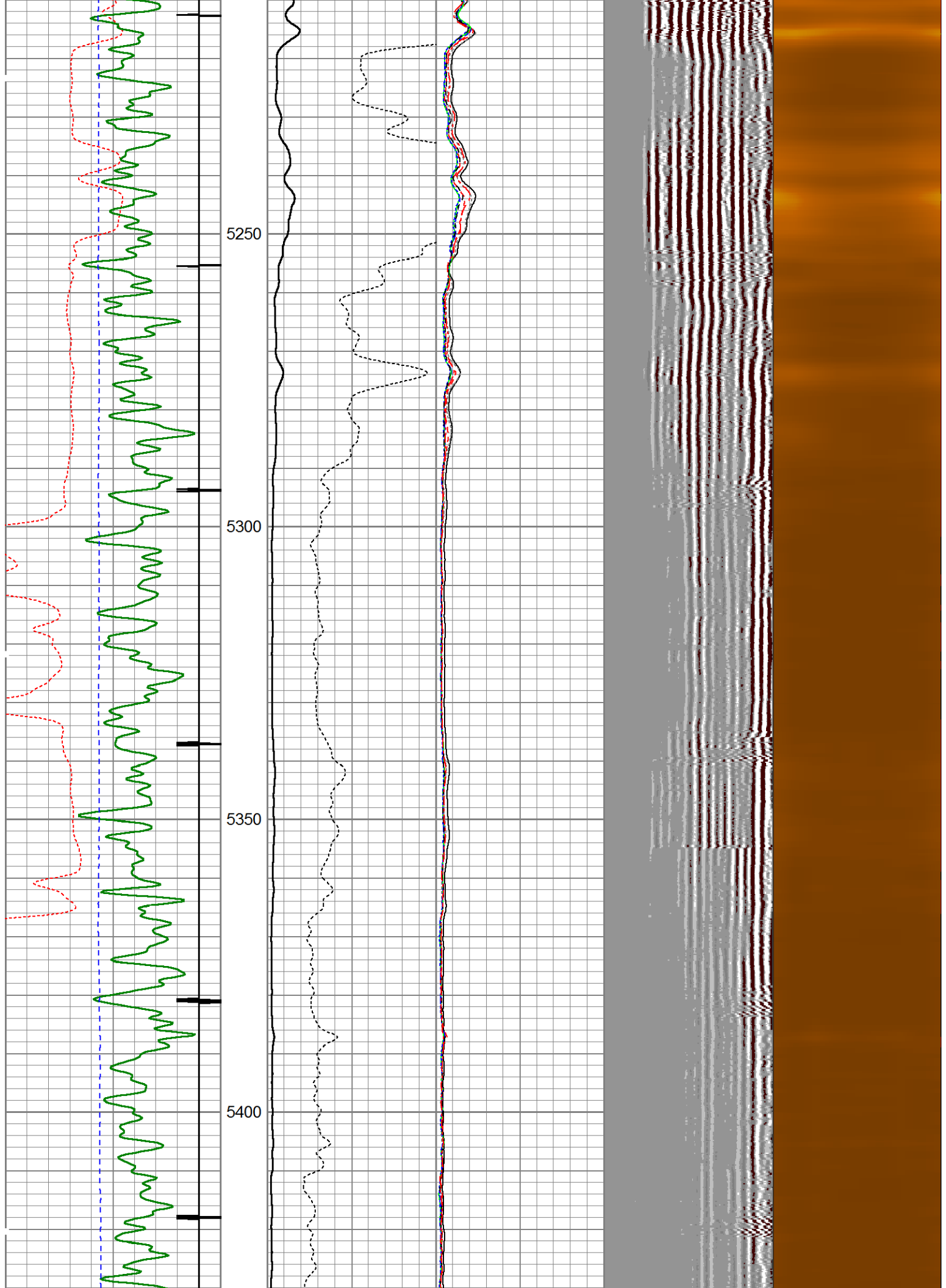




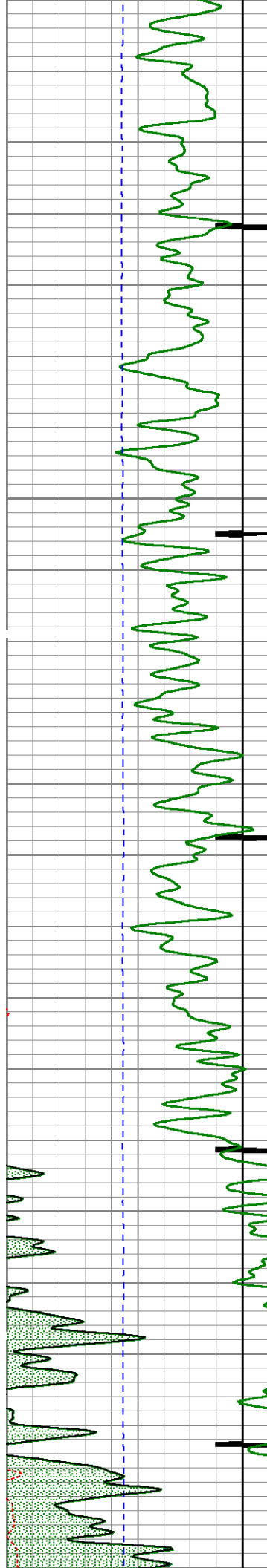




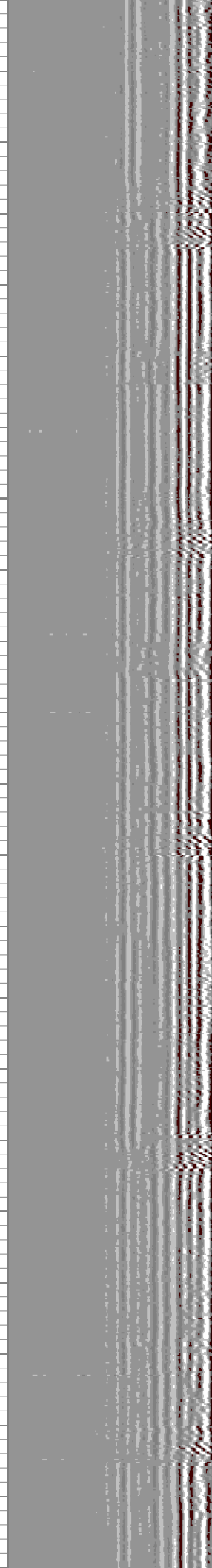
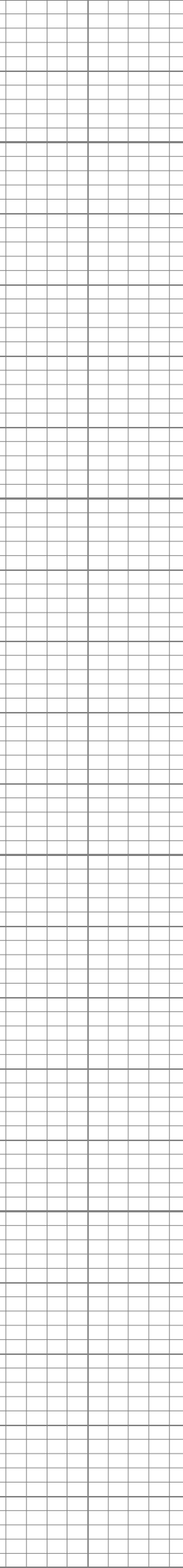
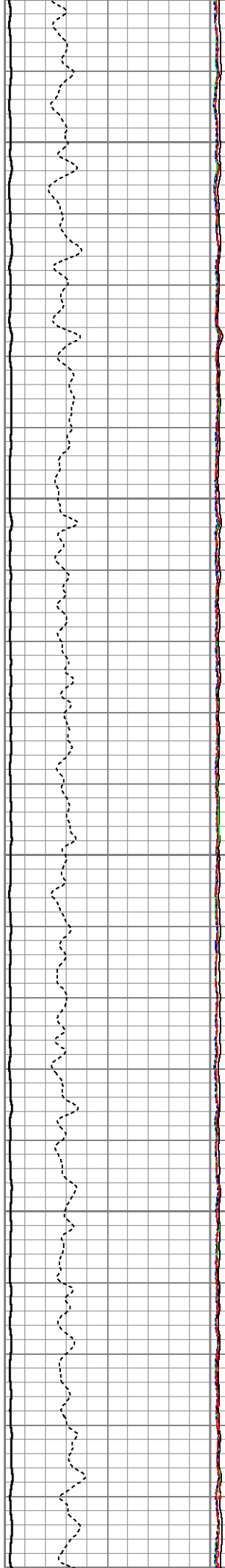


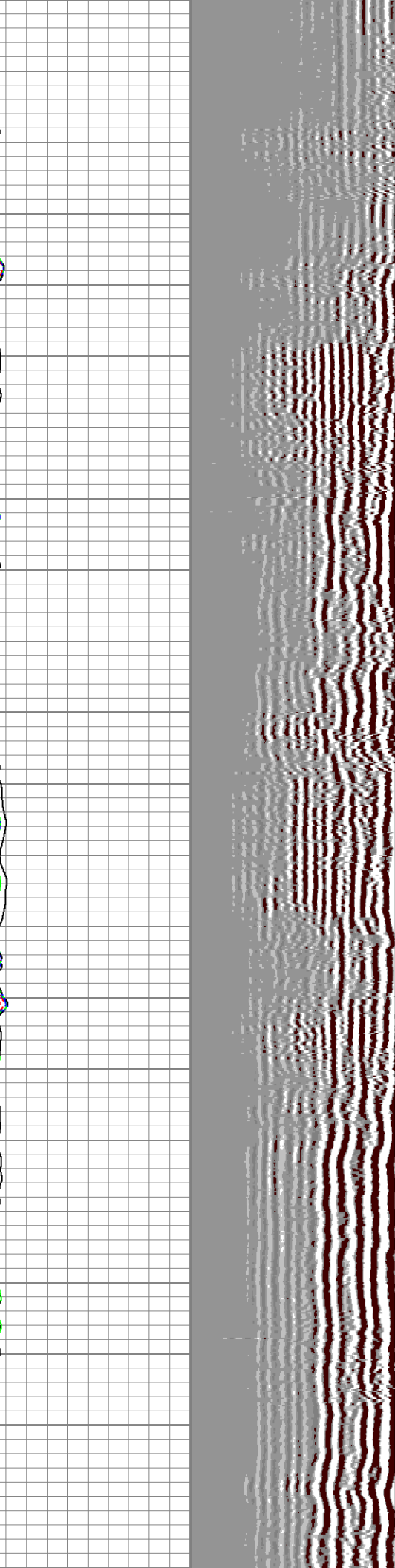
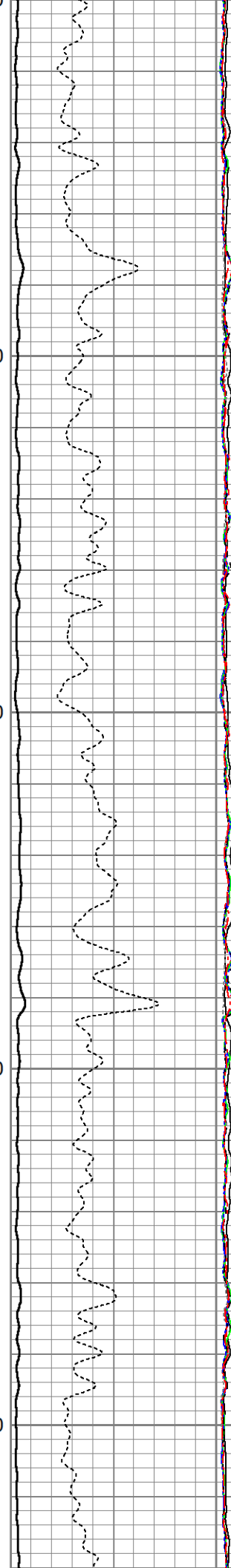
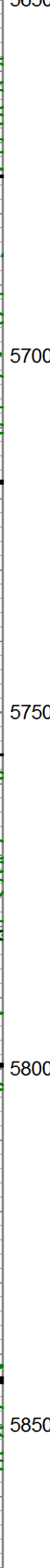
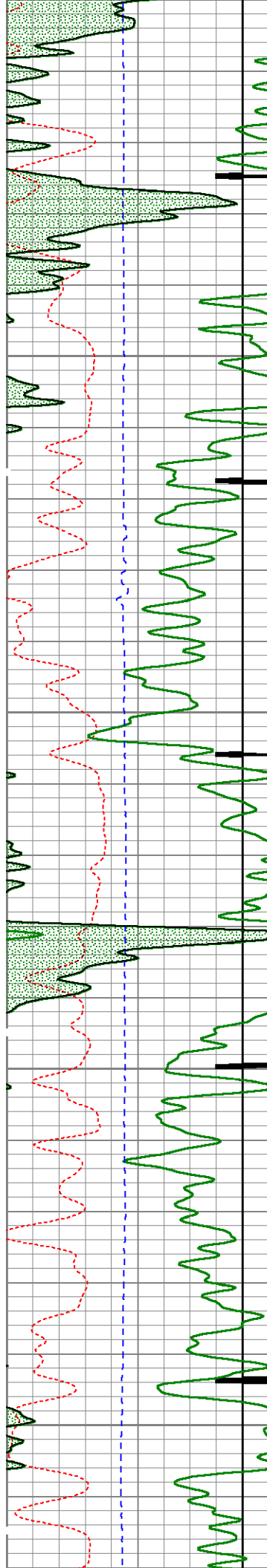


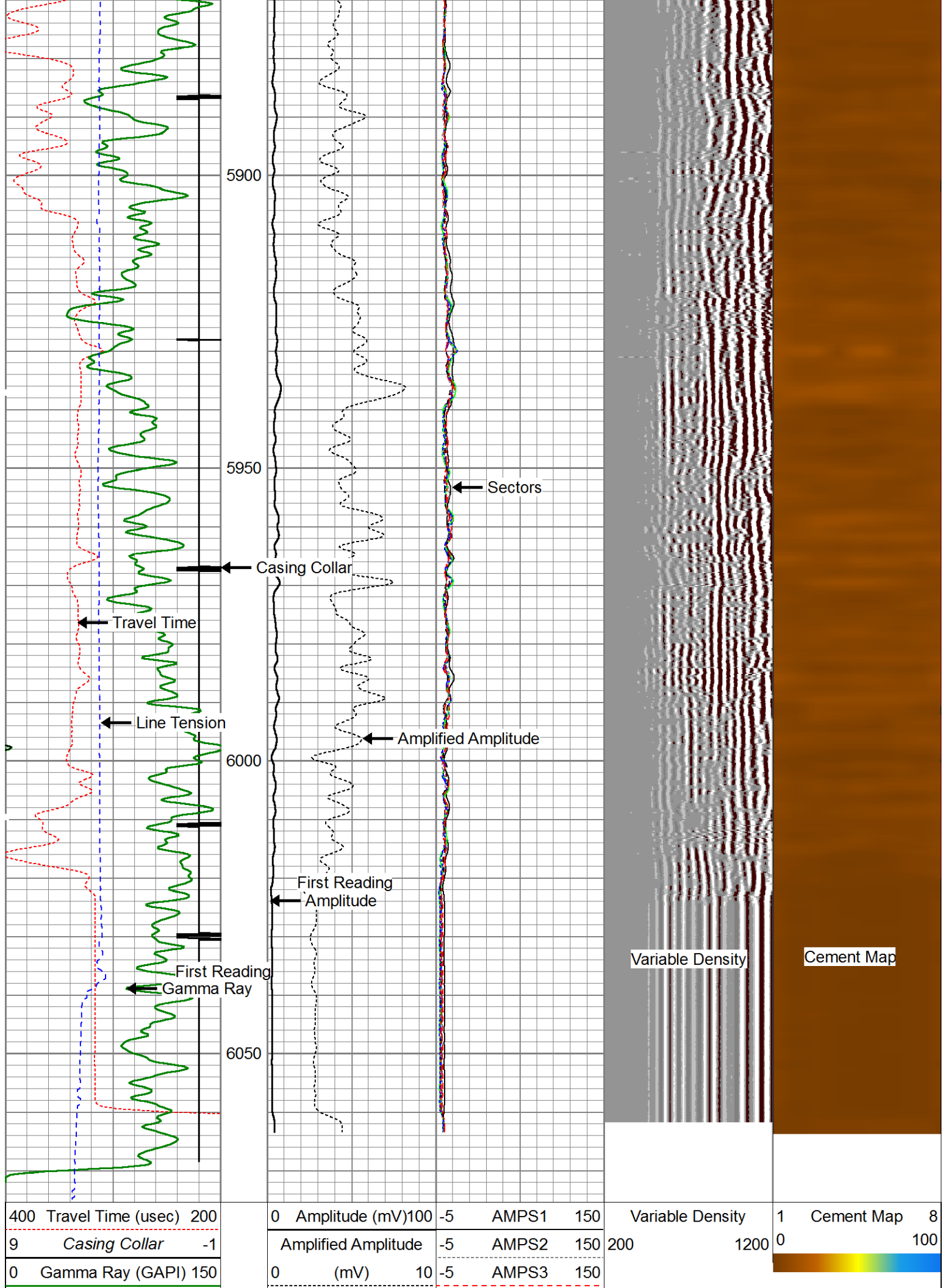




5450  
5500  
5550  
5600  
5650







0 Line Tension (lb) 2000

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



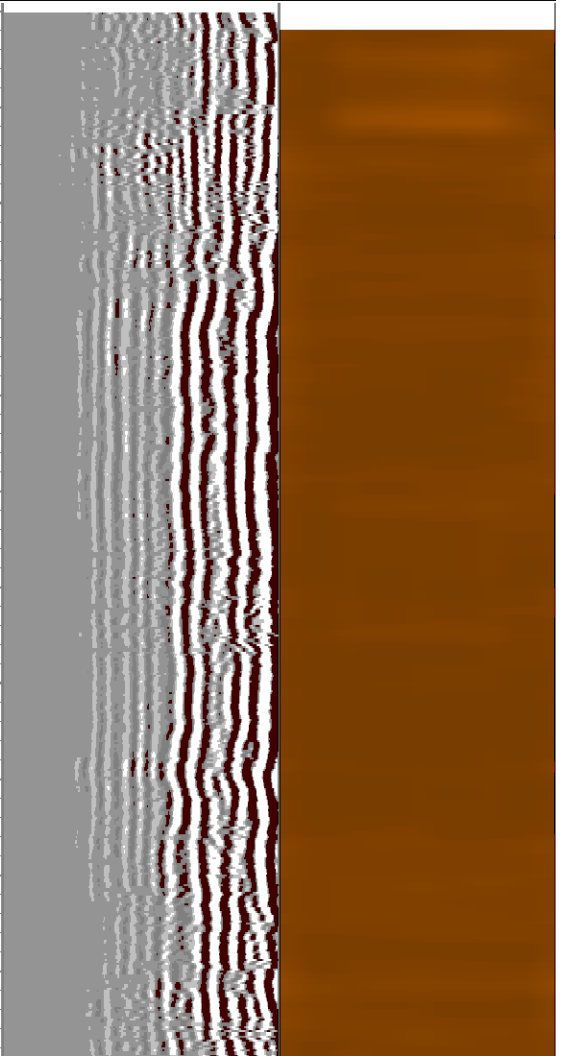
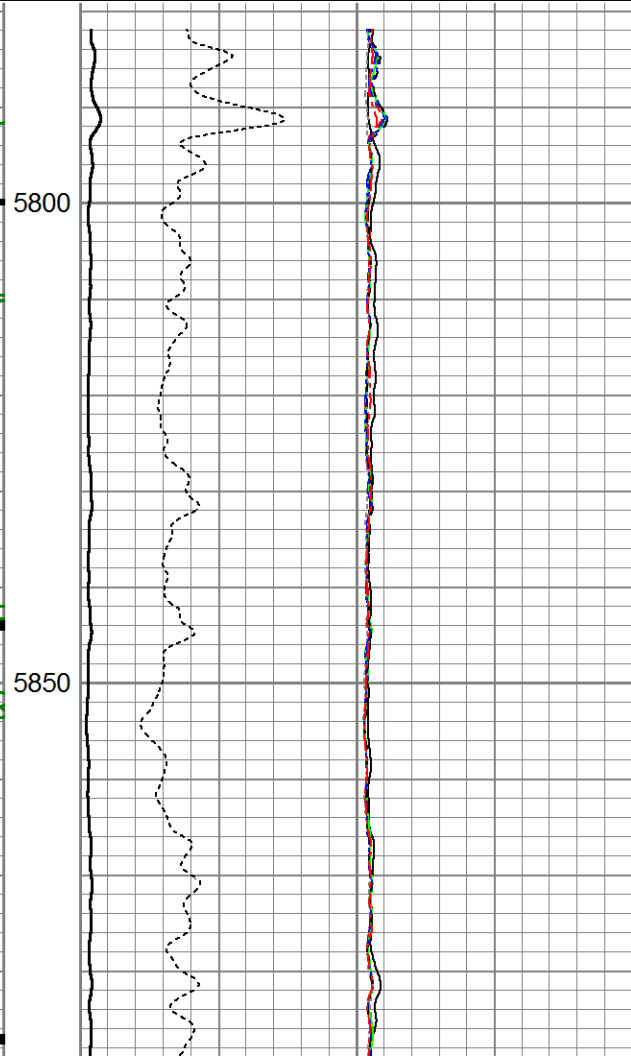
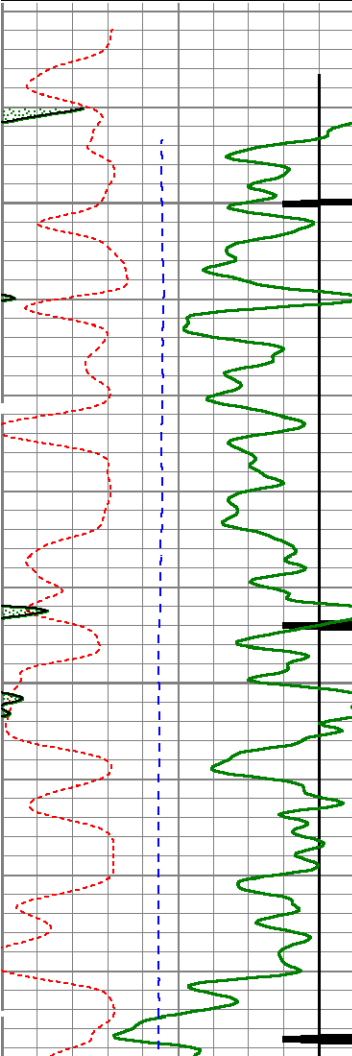
# Repeat Pass ( 0 PSI )

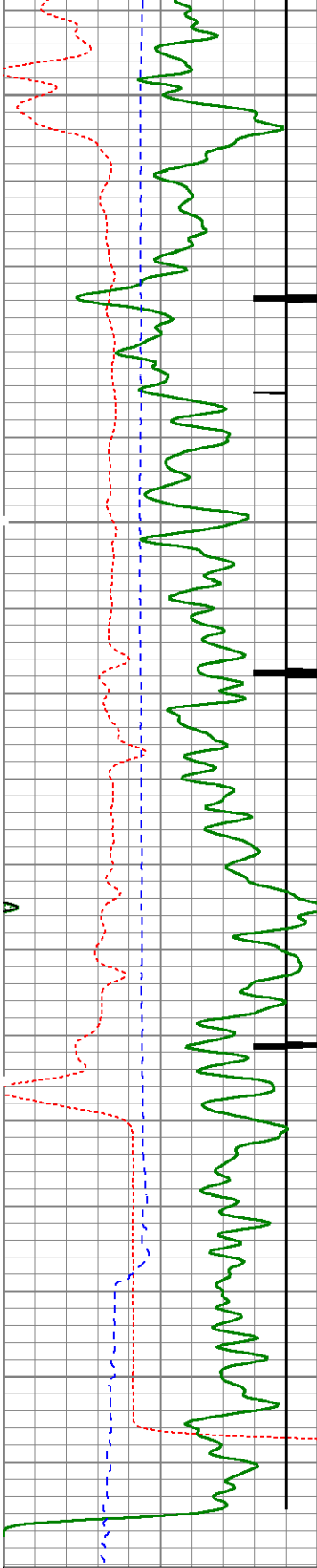
Database File: c:\users\engineers\desktop\brtn logs\noble\rohn state ld09-67hn\noble energy rohn state ld09-67hn\_rcbl.d  
Dataset Pathname: pass2  
Presentation Format: scbl03  
Dataset Creation: Sun Nov 17 07:53:55 2013 by Log 0  
Charted by: Depth in Feet scaled 1:240

400 Travel Time (usec) 200  
9 Casing Collar -1  
0 Gamma Ray (GAPI) 150  
0 Line Tension (lb) 2000

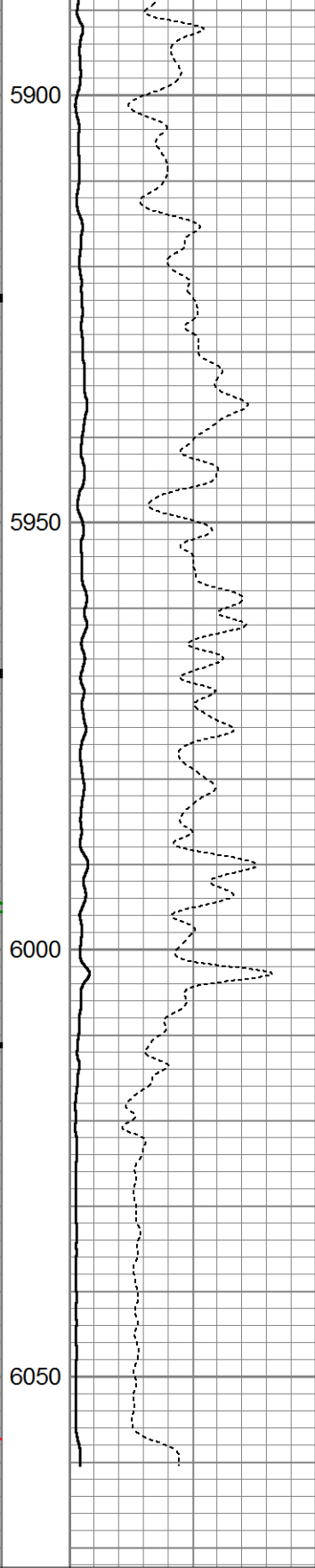
0 Amplitude (mV)100	-5	AMPS1	150
Amplified Amplitude	-5	AMPS2	150
0 (mV) 10	-5	AMPS3	150
	-5	AMPS4	150
	-5	AMPS5	150
	-5	AMPS6	150
	-5	AMPS7	150
	-5	AMPS8	150

Variable Density 1 Cement Map 8  
200 1200 0 100



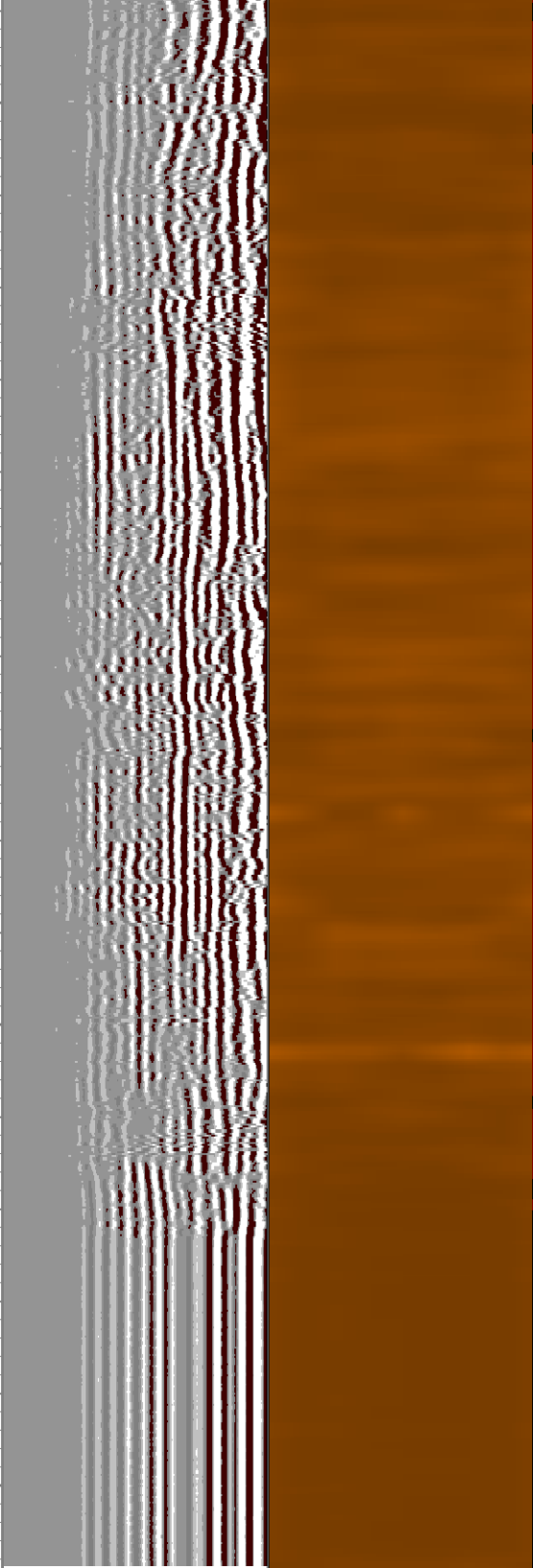


400	Travel Time (usec)	200
9	Casing Collar	-1
0	Gamma Ray (GAPI)	150
0	Line Tension (lb)	2000



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	1	Cement Map	8
200	1200	0	100

# Calibration Report

Database File: c:\users\engineers\desktop\brtn logs\noble\rohn state ld09-67hn\noble energy rohn state ld09-67hn\_rcbl.db  
 Dataset Pathname: pass4  
 Dataset Creation: Sun Nov 17 08:01:12 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  
 Tool Model: Probe

Calibration Casing Diameter: 7.000 in  
 Calibration Depth: 774.827 ft

Master Calibration, performed Sun Nov 17 07:52:52 2013:

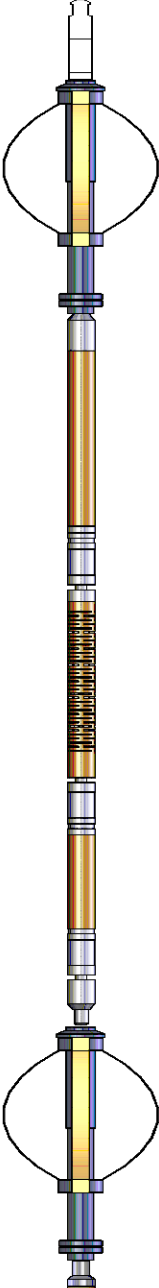
	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	-0.026	0.618	1.000	62.165	95.032	4.478
CAL	-0.033	0.835				
5'	-0.018	0.558	1.000	62.165	106.288	2.889
SUM						
S1	-0.012	0.667	0.000	100.000	147.153	1.823
S2	-0.013	0.714	0.000	100.000	137.547	1.834
S3	-0.020	0.709	0.000	100.000	137.132	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

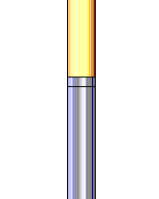
Internal Reference Calibration, performed Wed Dec 31 17:00:00 1969:

Raw (v)	Calibrated (v)	Results
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	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
WVF3FT	14.72		RBT-Probe (111107) Probe Radii Bond Tool with Digital Telemetry	8.75	2.75	90.00
WVFCAL	14.72					
WVFS1	14.72					
WVFS2	14.72					
WVFS3	14.72					
WVFS4	14.72					
WVFS5	14.72					
WVFS6	14.72					
WVFS7	14.72					
WVFS8	14.72					
WVF5FT	13.72		Probe275 2.75" Centralizer	2.88	2.75	20.00

CCL	6.75			4.78	2.75	57.00
TEMP	5.88					
GR	5.42					
Dataset: noble energy rohn state ld09-67hn_rcbl.db: field/well/run1/pass4 Total Length: 23.16 ft Total Weight: 217.00 lb O.D. 2.75 in						