



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

Company Noble Energy

Well Wells Ranch AA26-65HN

Field Wattenberg

County Weld State Colorado

Location: API #: 05-123-37568

BHL: 2640' FSL & 150' FWL

SEC 25 TWP 6N RGE 63W

Permanent Datum Ground Level Elevation 4791'  
Log Measured From 24' Kelly Bushing  
Drilling Measured From Kelly Bushing

Other Services

TEMP

Elevation  
K.B. 4815'  
D.F. 4814'  
G.L. 4791'

Date December 5, 2013

Run Number 1

Depth Driller 10655'

Depth Logger 6676'

Bottom Logged Interval 6664'

Top Log Interval Surface

Open Hole Size 8.125

Type Fluid Fresh Water

Density / Viscosity 8.33

Max. Recorded Temp. 207 Deg F

Estimated Cement Top 704'

Time Well Ready 13:30

Time Logger on Bottom 14:17

Equipment Number 13033

Location Brighton

Recorded By C. Rall

Witnessed By Bill Mansfield

Borehole Record

Run Number

Bit

From

To

Size

Weight

From

To

Tubing Record

Run Number

Bit

From

To

Size

Weight

From

To

One

Two

Three

Four

Size

Wgt/Ft

9 5/8

36#

Top

Surface

Bottom

972'

7

26#

Surface

7058'

10640'

4 1/2

11.6#

6950'

5715'

5730'

5730'

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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 @ 704'

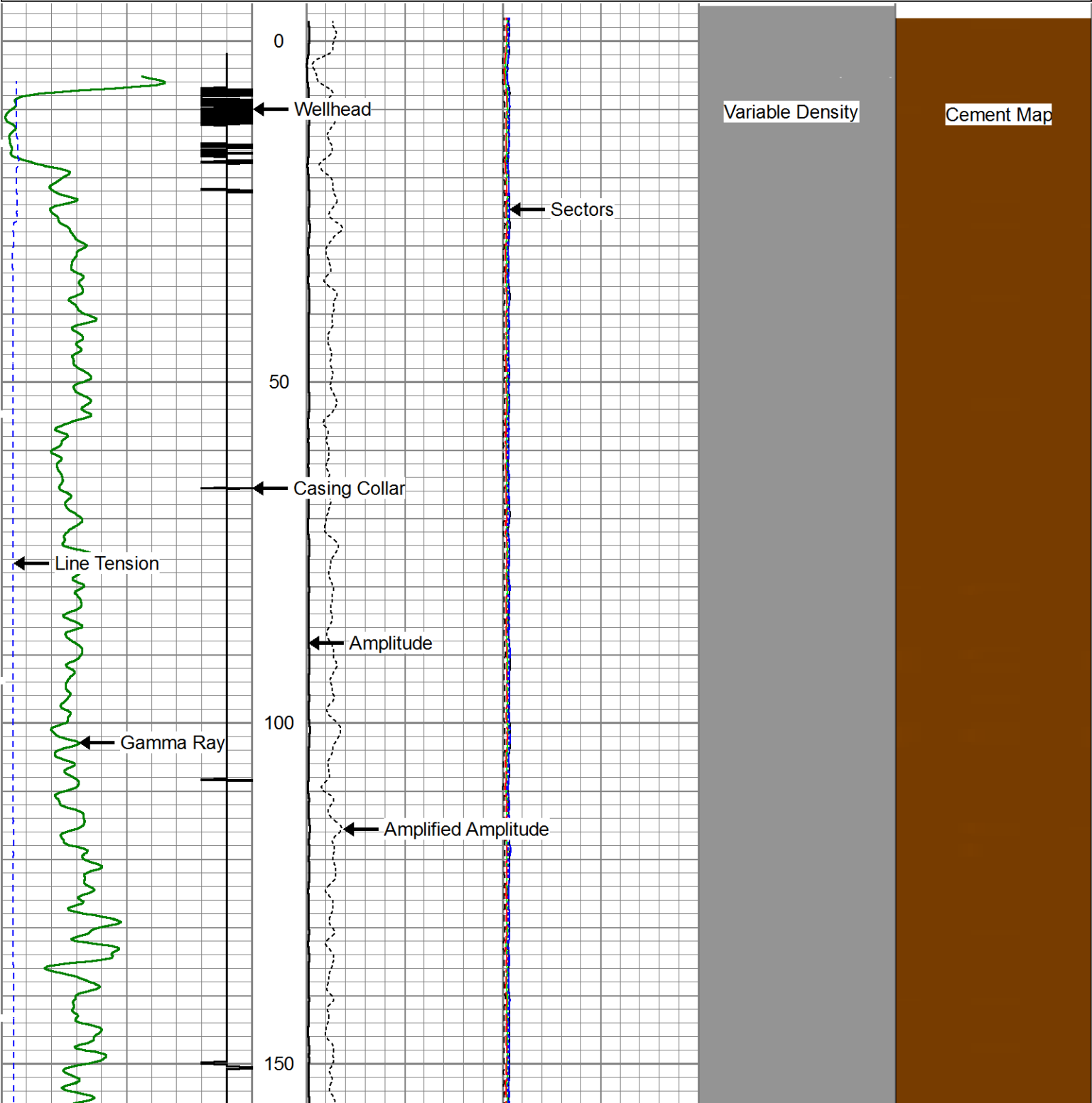
Short Joint @ 5715' To 5730'

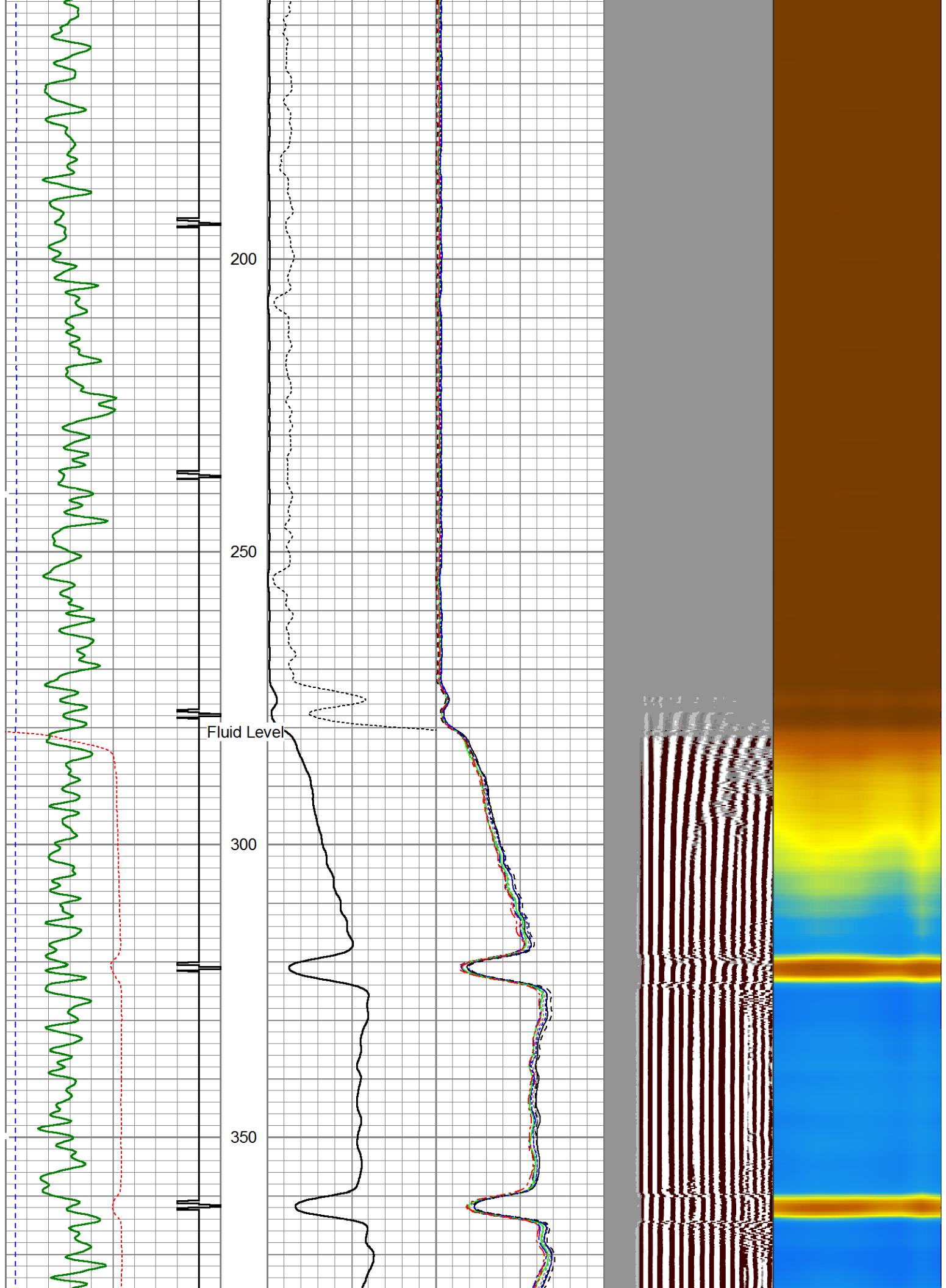
Thank you for using Allied Wireline.  
(303)659-4609

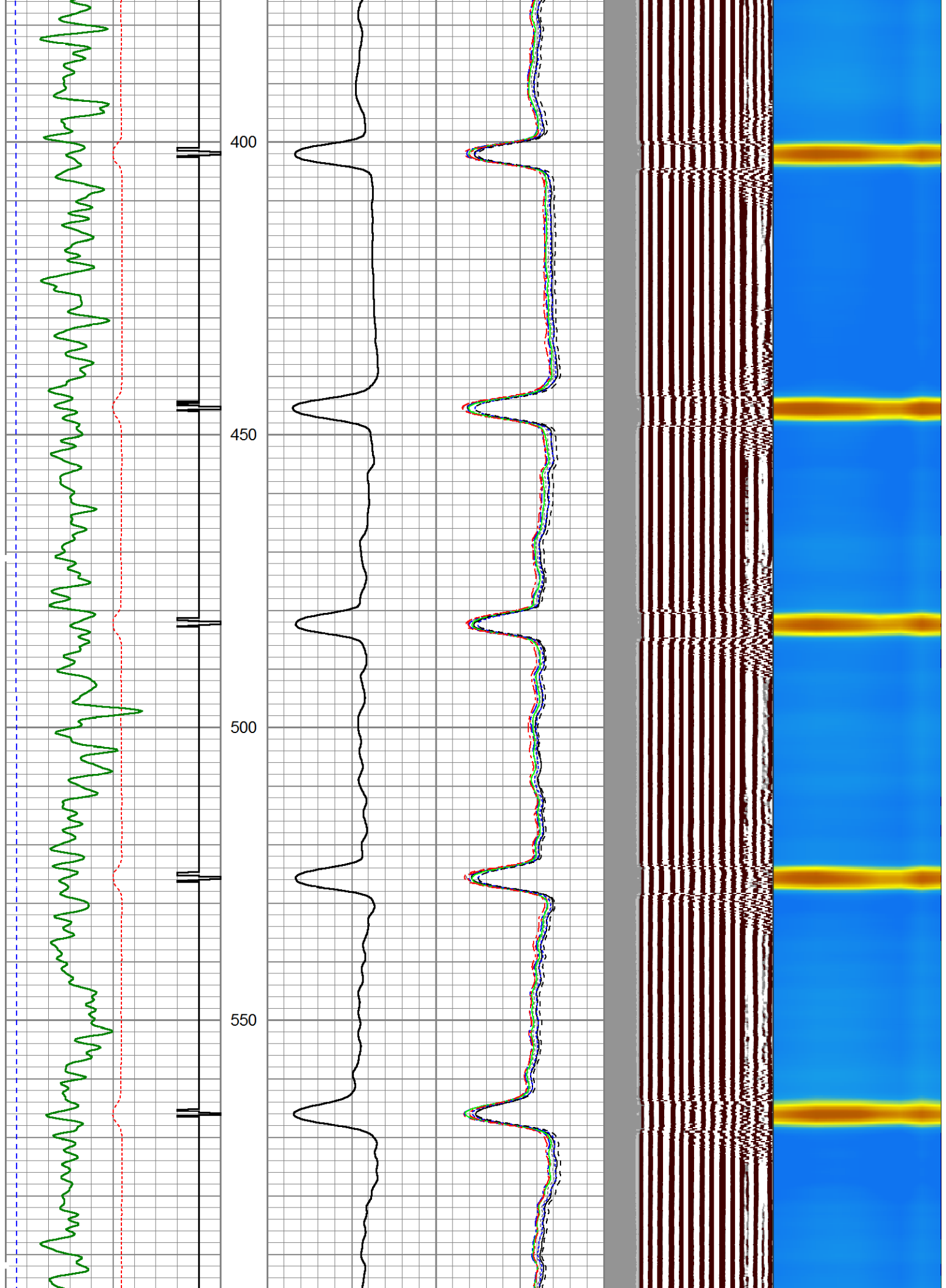


Main Pass ( 0 PSI )

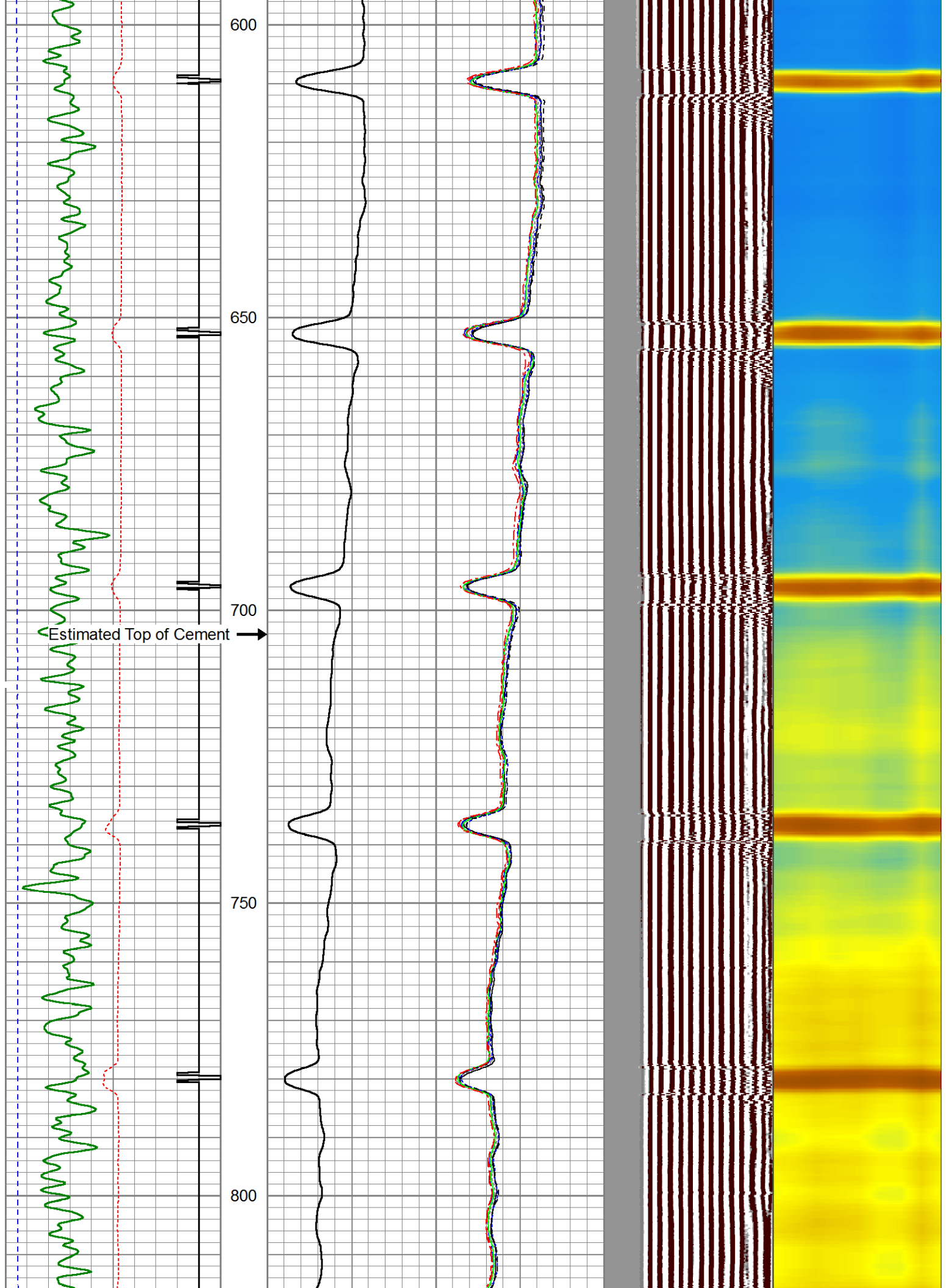
400	Travel Time (usec)	200	0	Amplitude (mV)	100	-5	AMPS1	150	Variable Density		1	Cement Map	8
9	Casing Collar	-1	Amplified Amplitude			-5	AMPS2	150	200	1200	0	100	
0	Gamma Ray (GAPI)	150	0	(mV)	10	-5	AMPS3	150					
Line Tension (lb)		5000			-5	AMPS4	150						
					-5	AMPS5	150						
					-5	AMPS6	150						
					-5	AMPS7	150						
					-5	AMPS8	150						

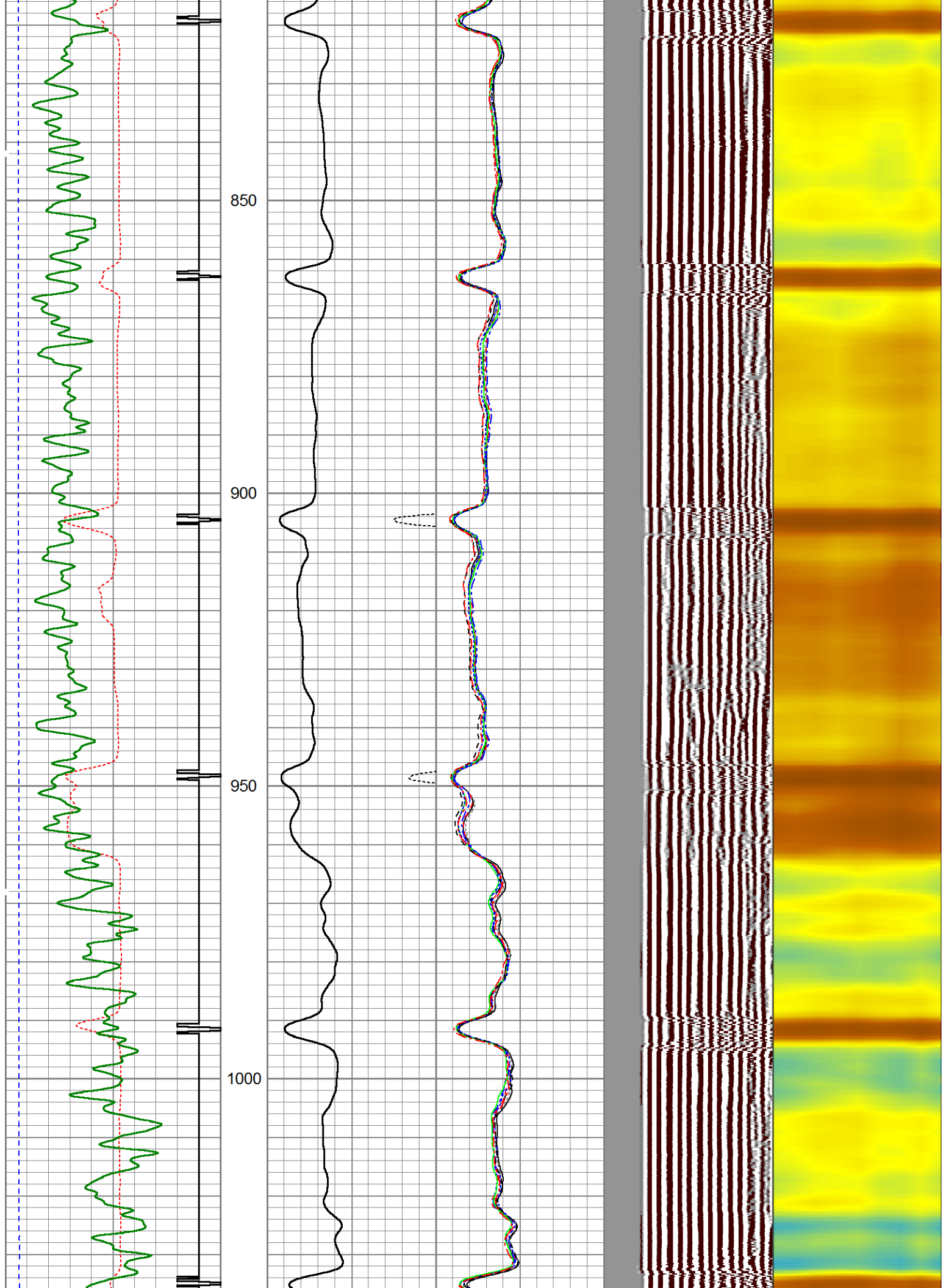


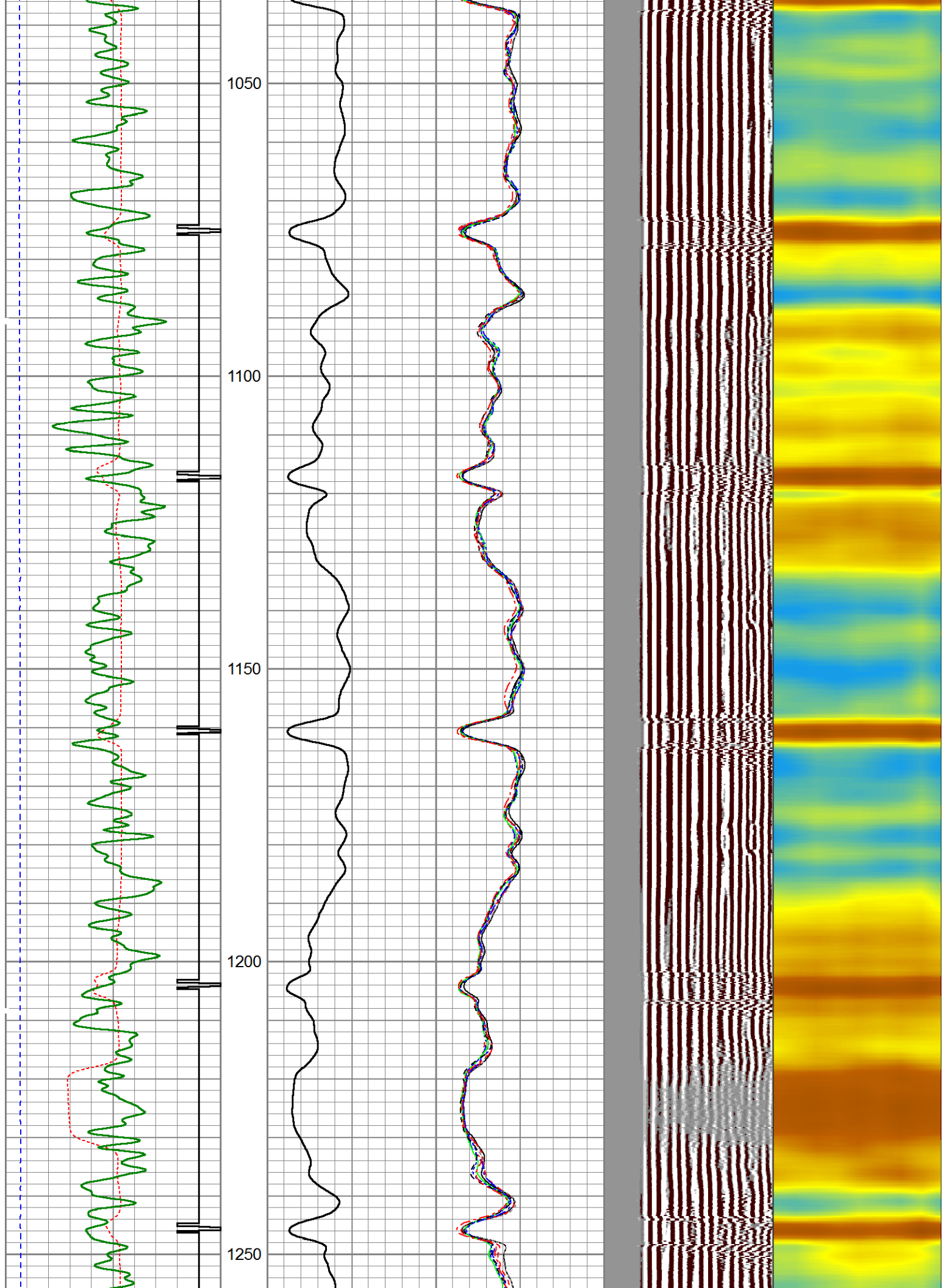


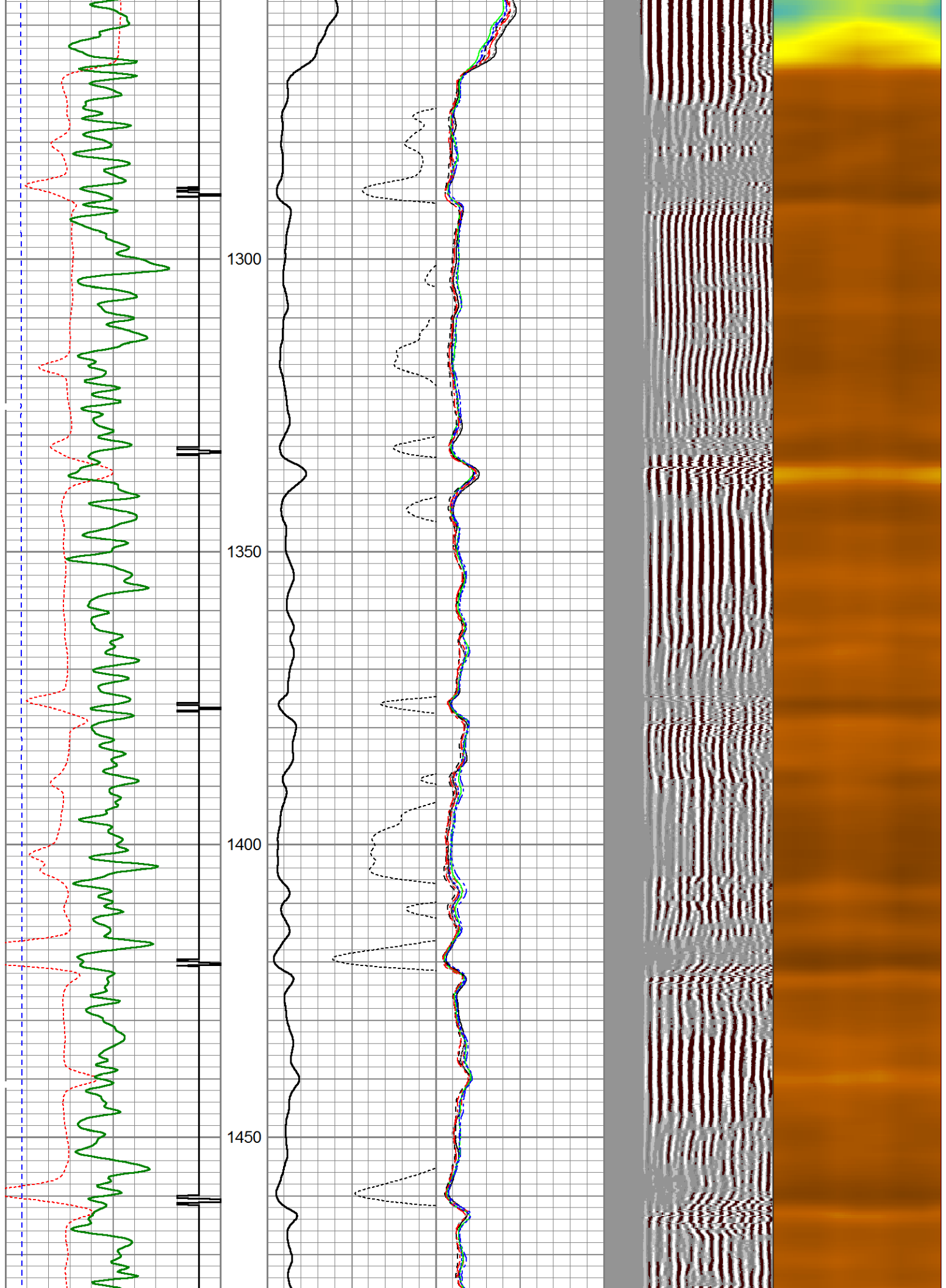


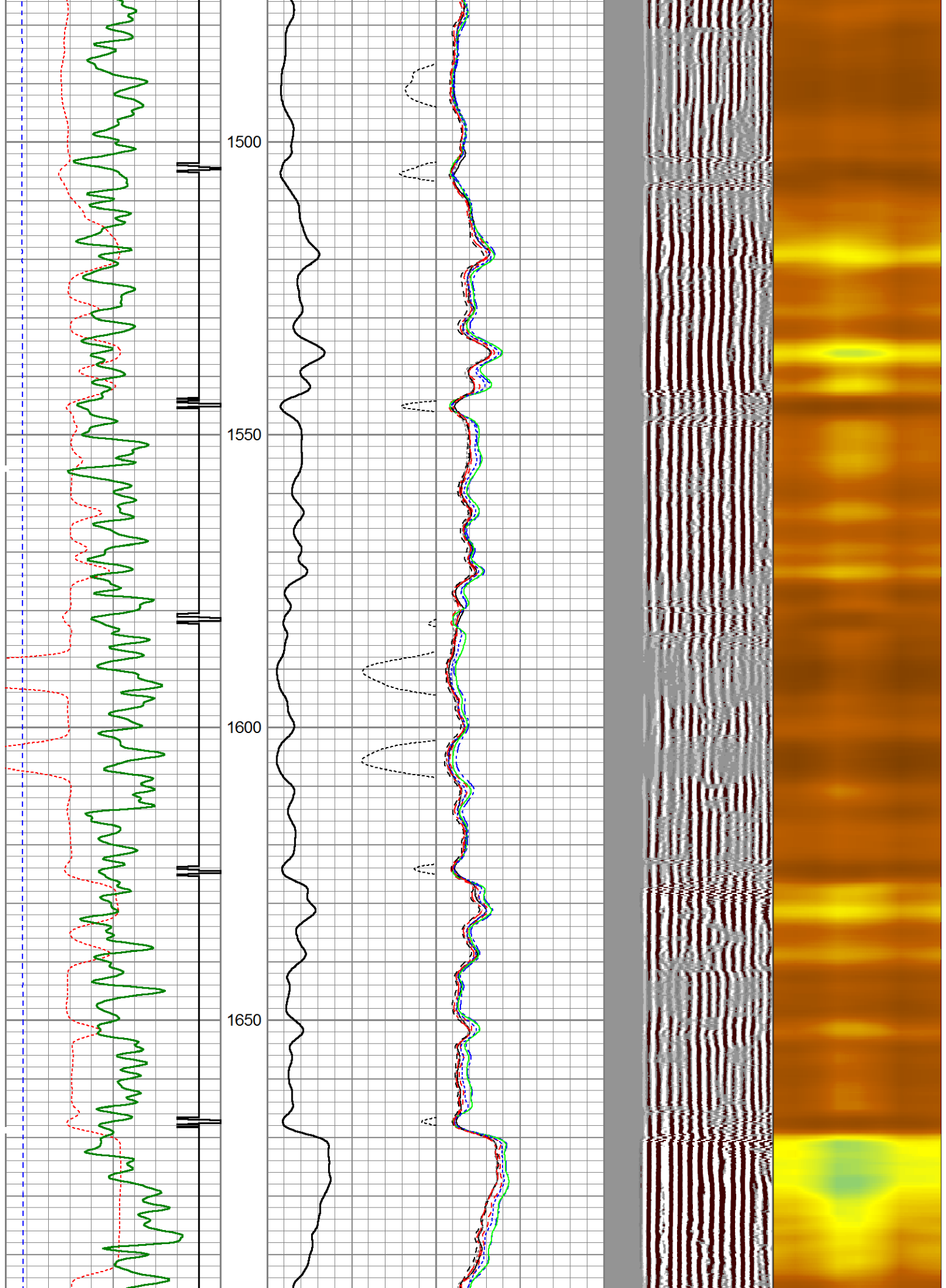




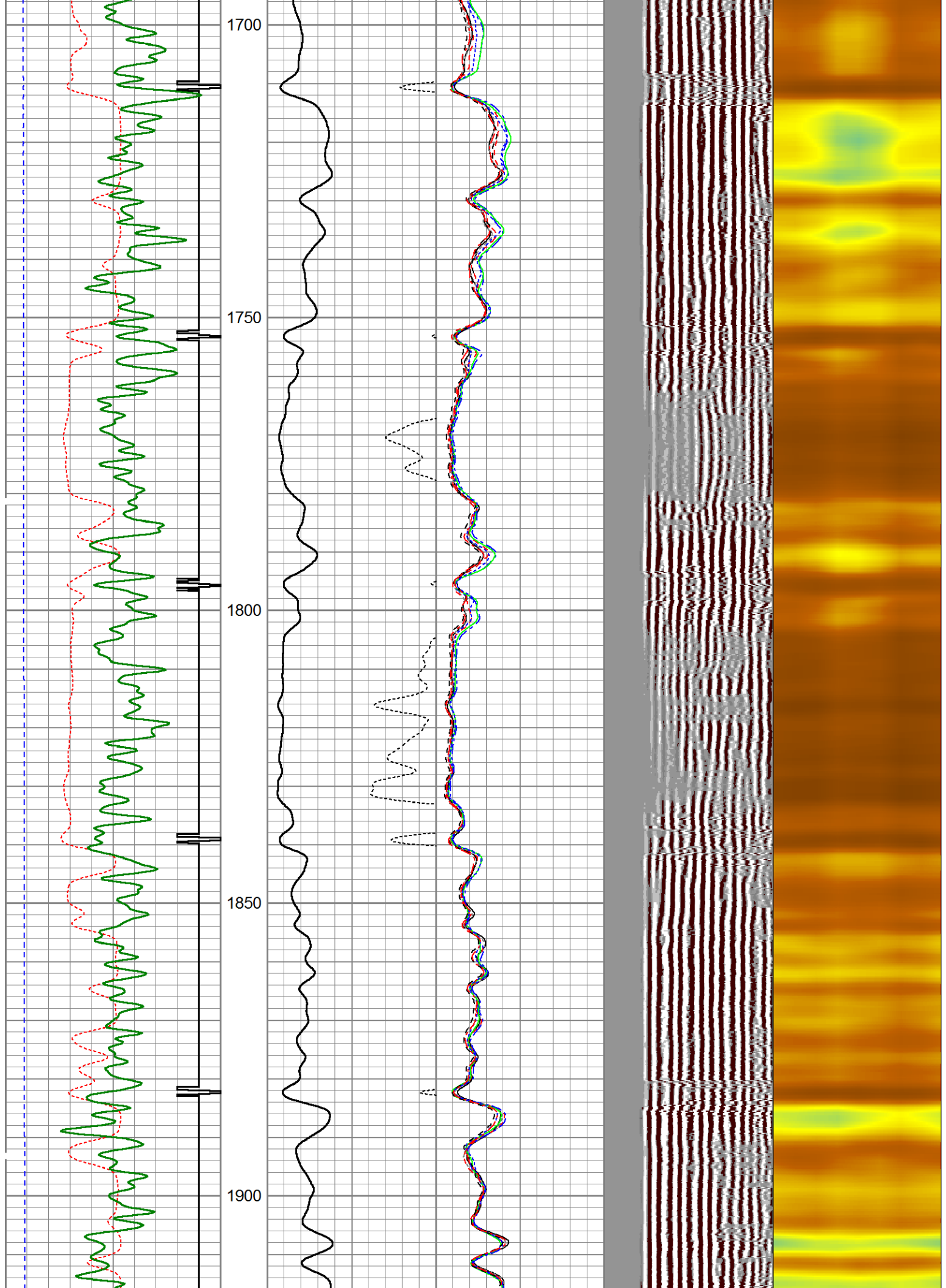


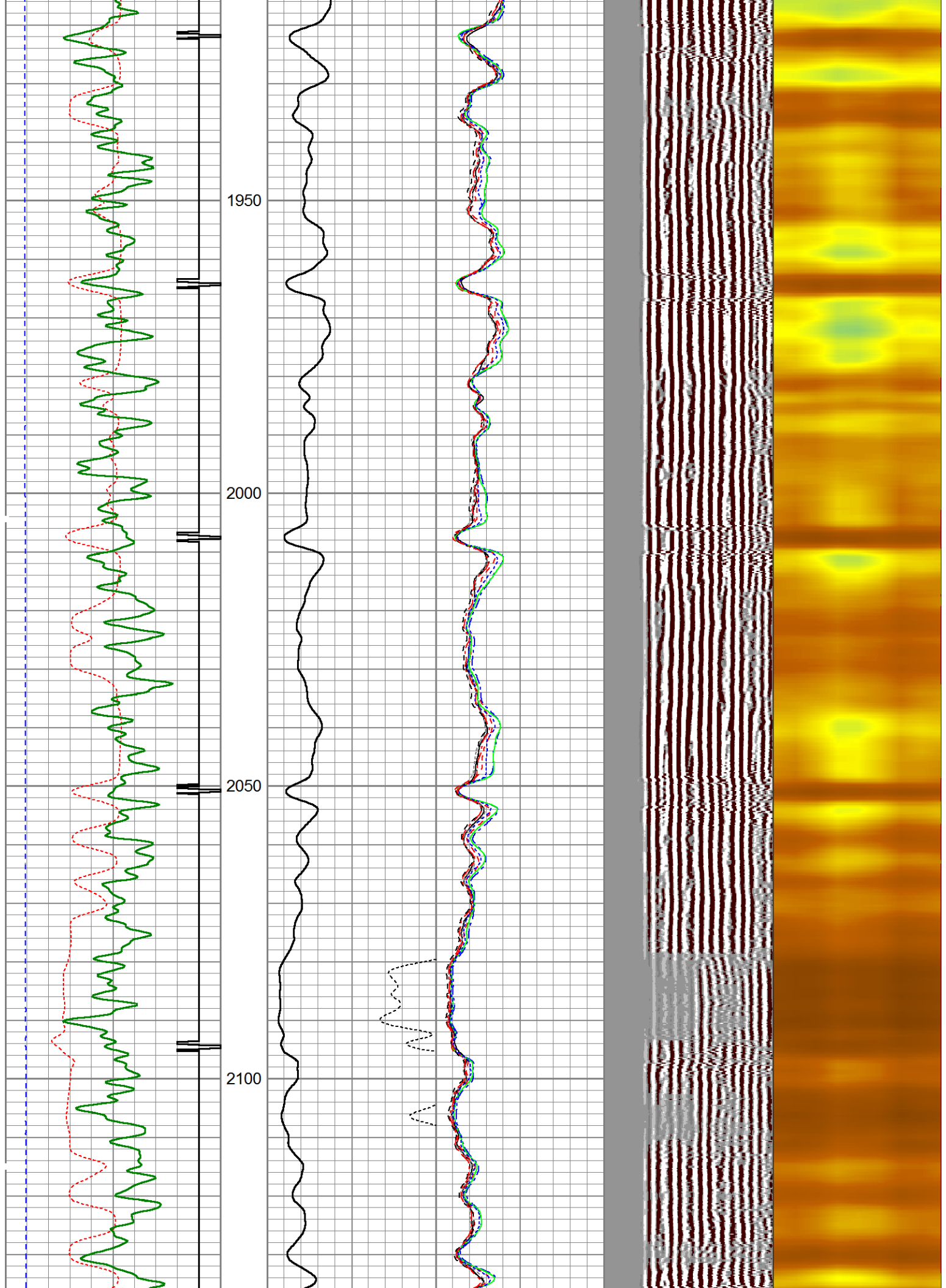




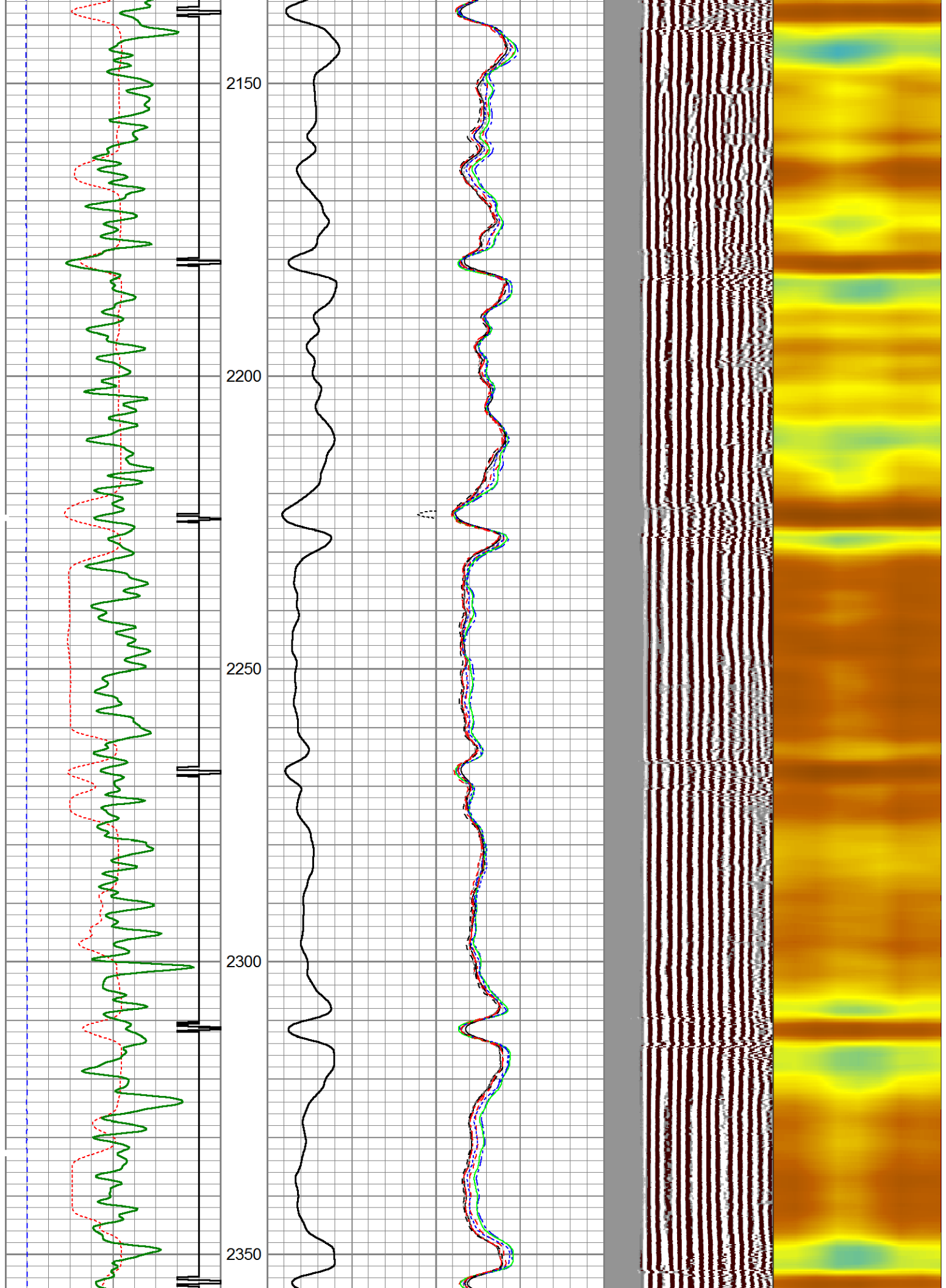


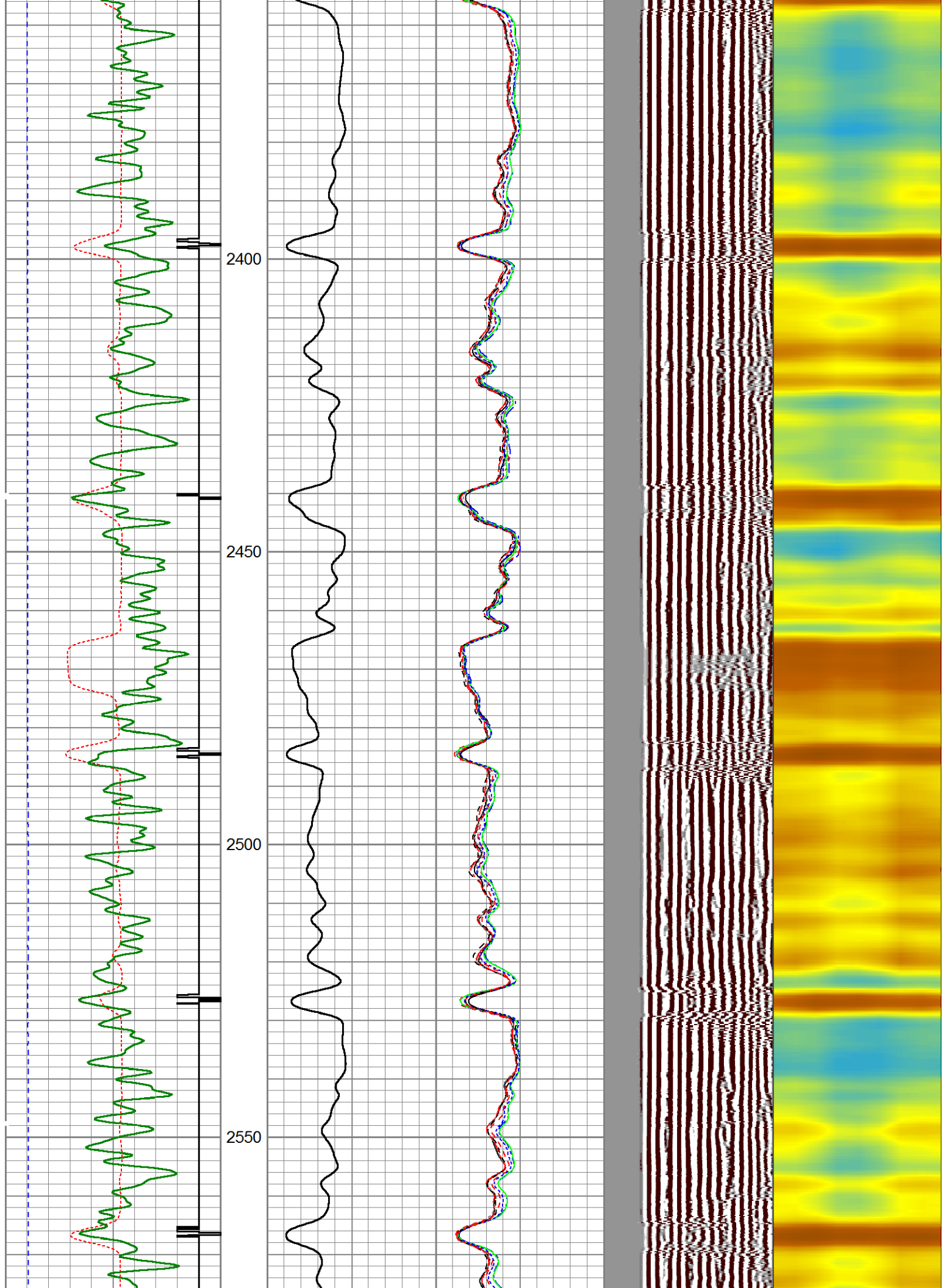


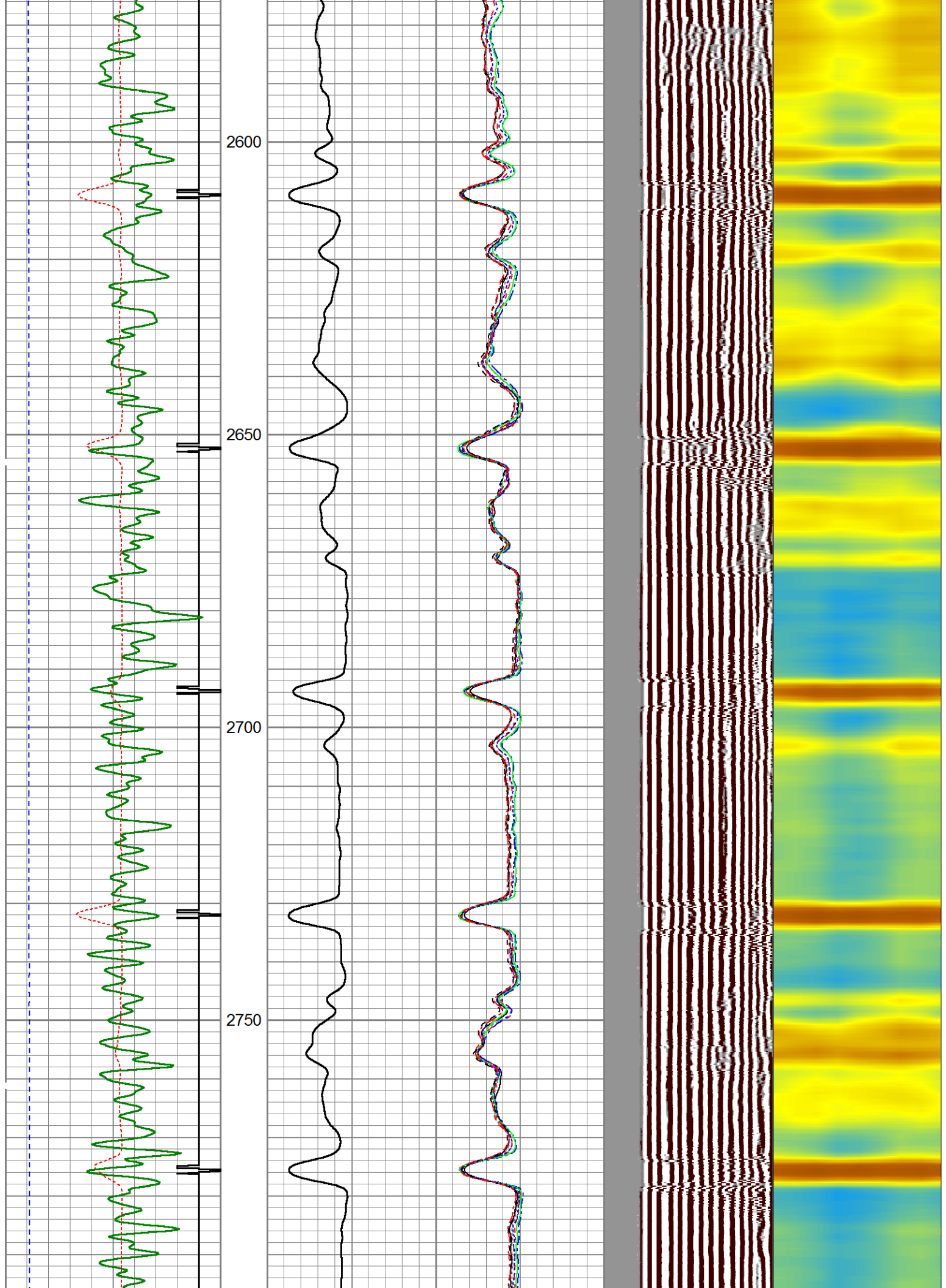


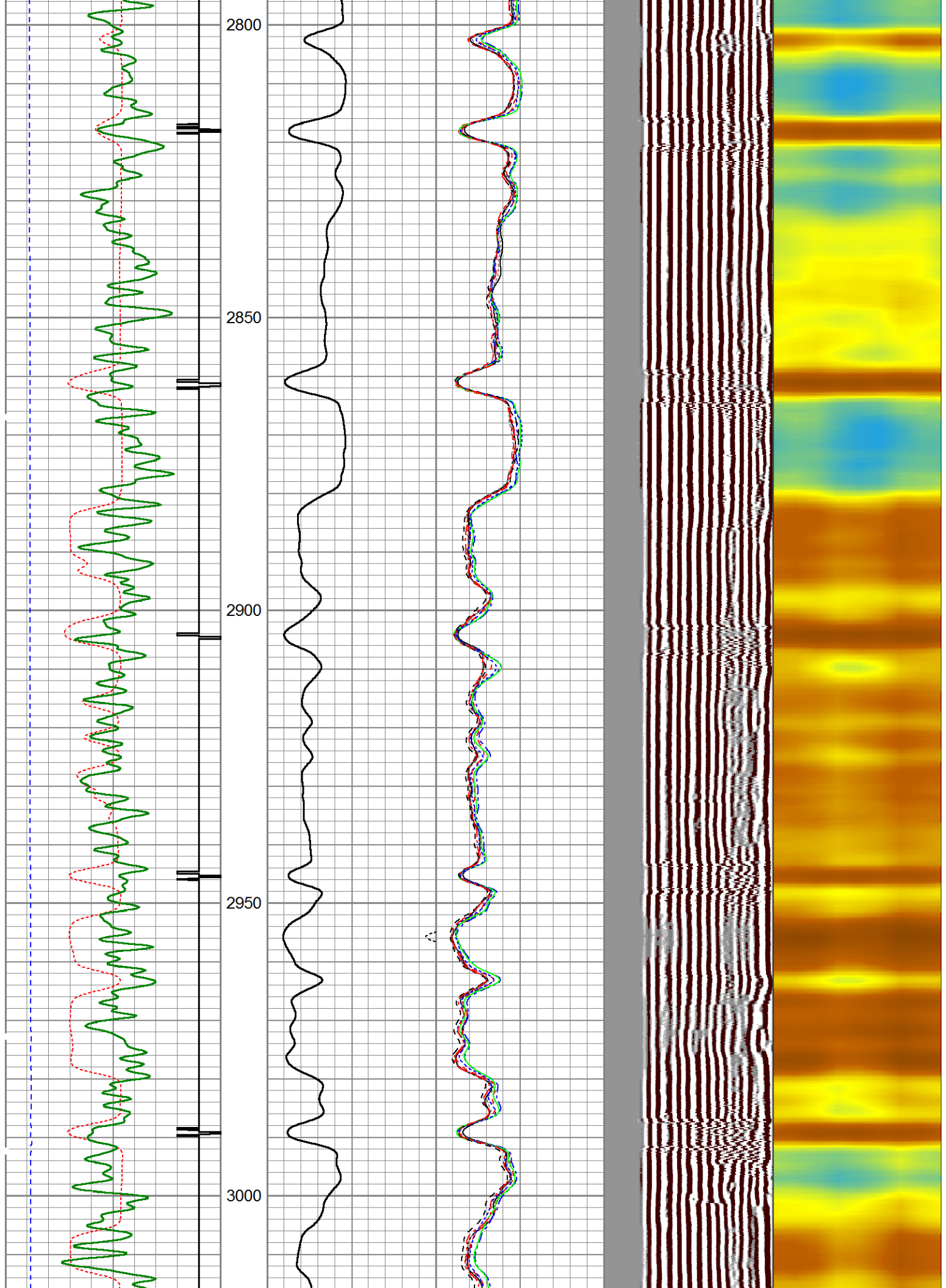




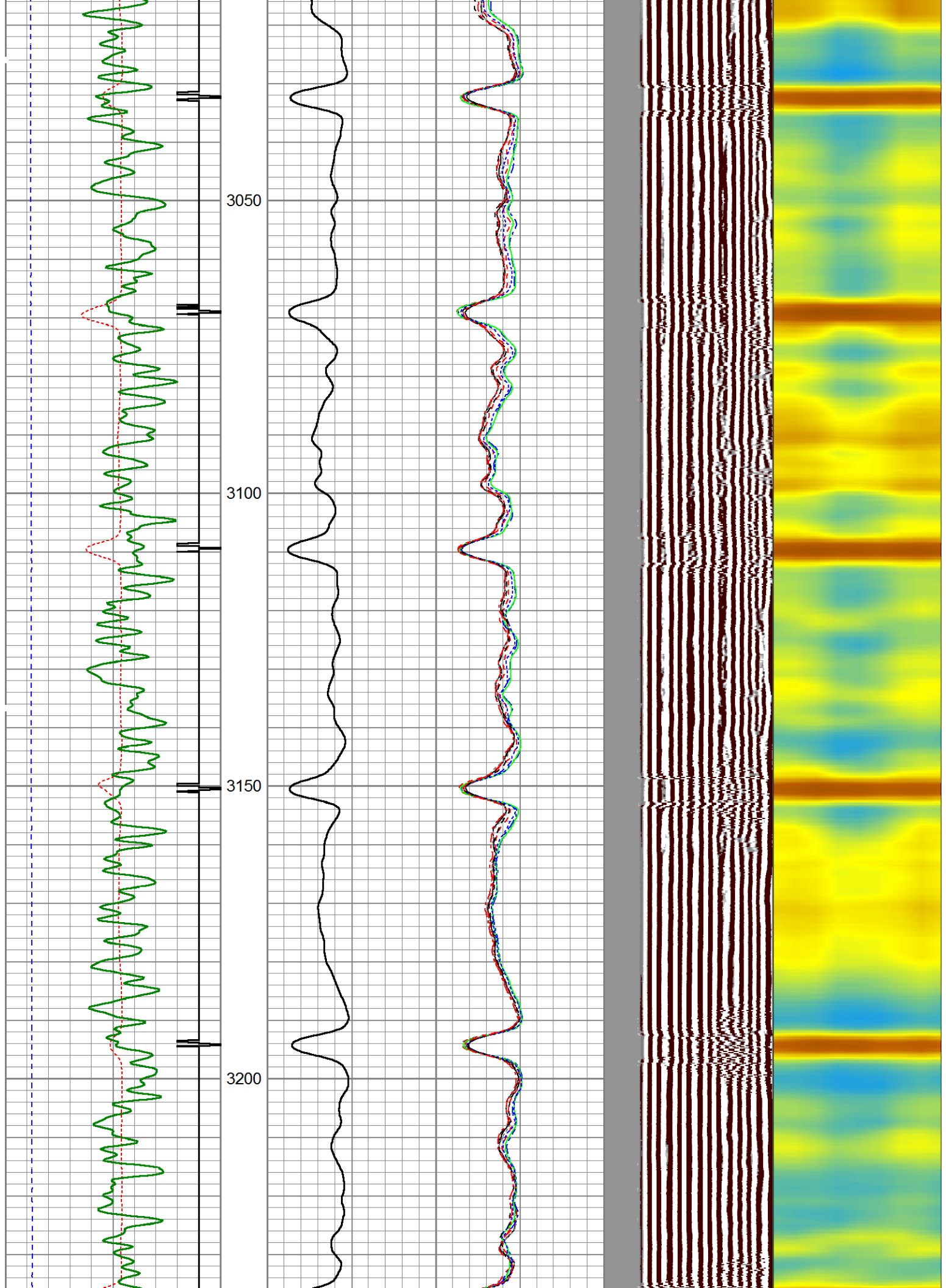


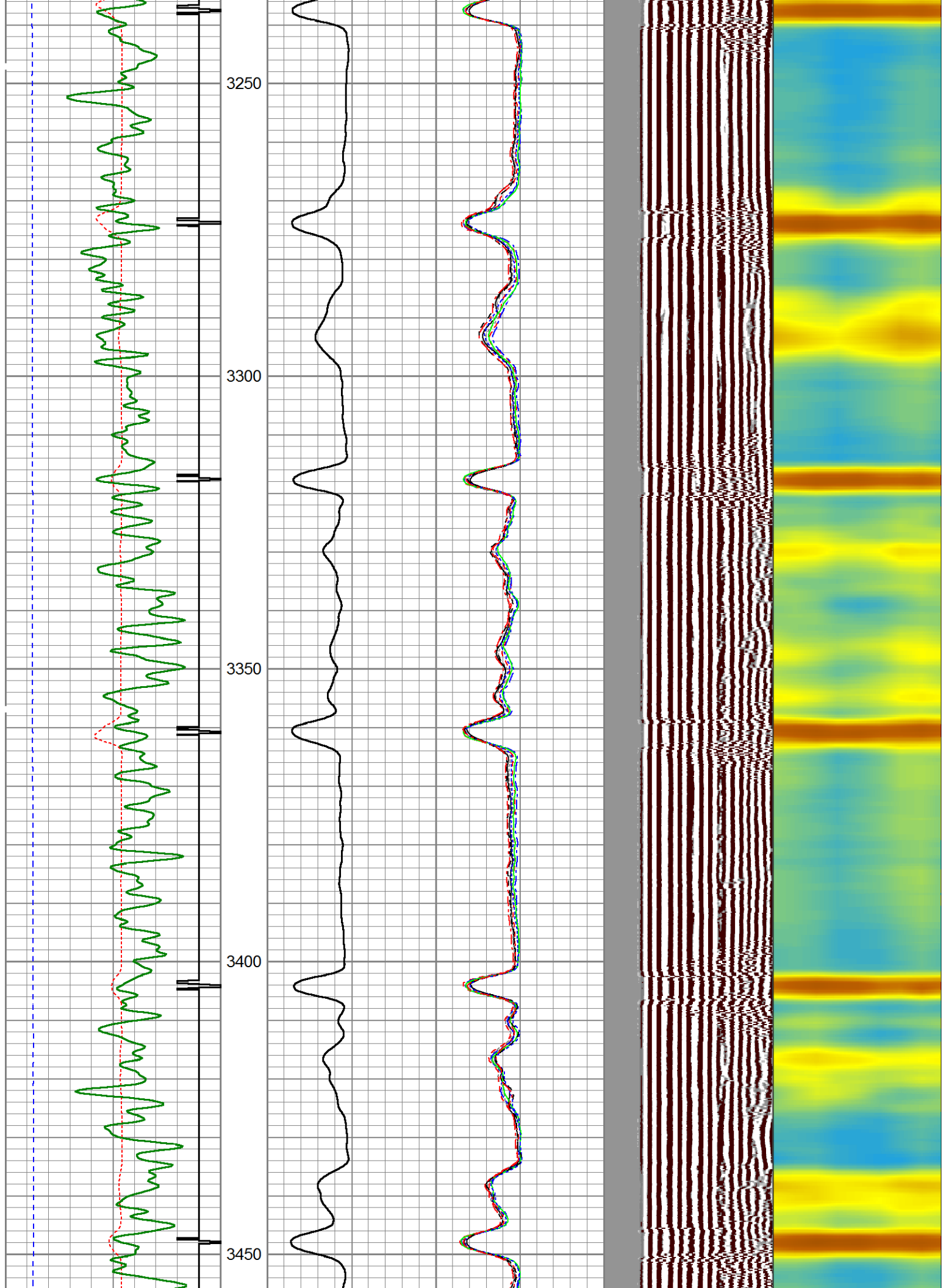


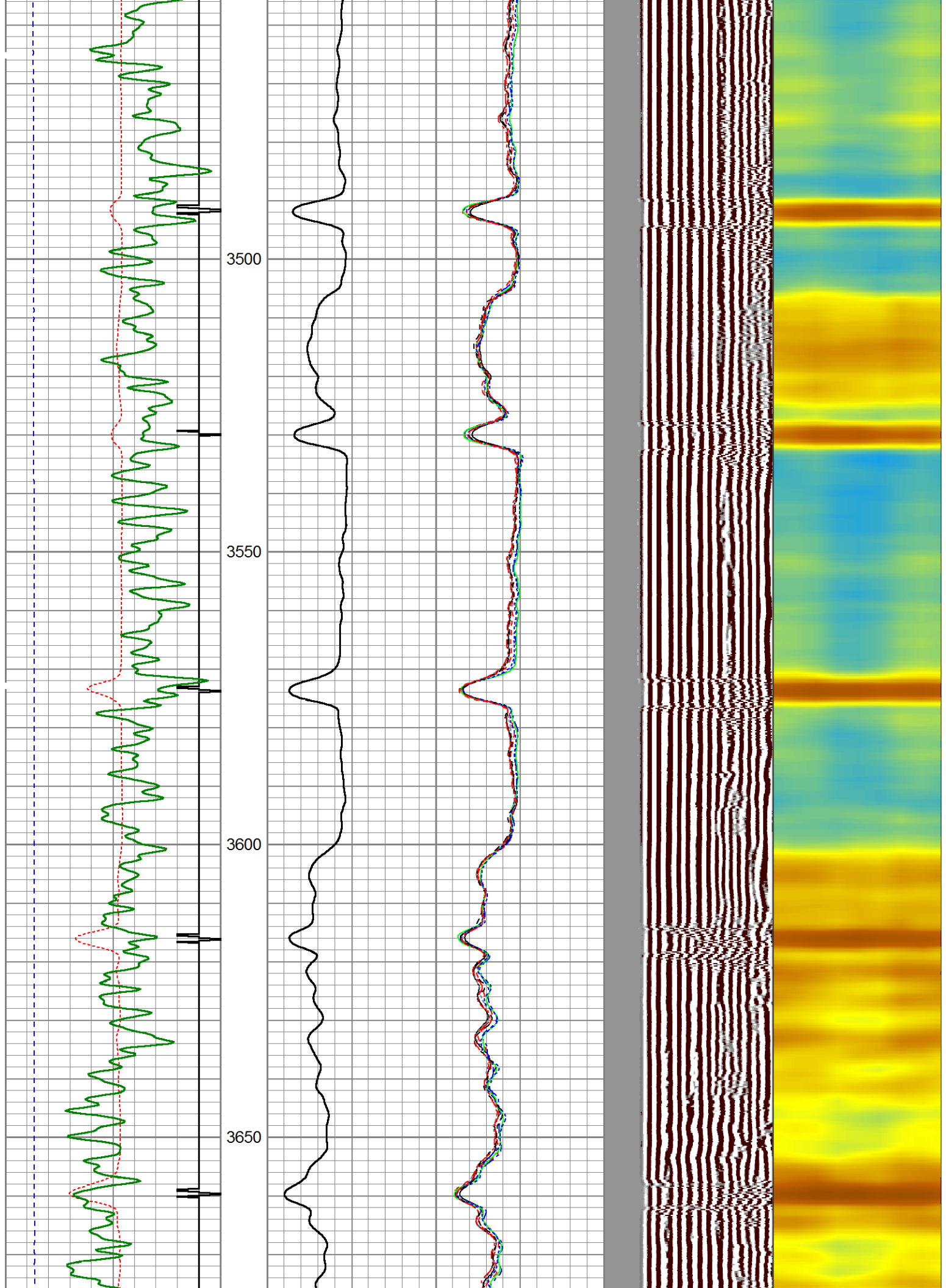




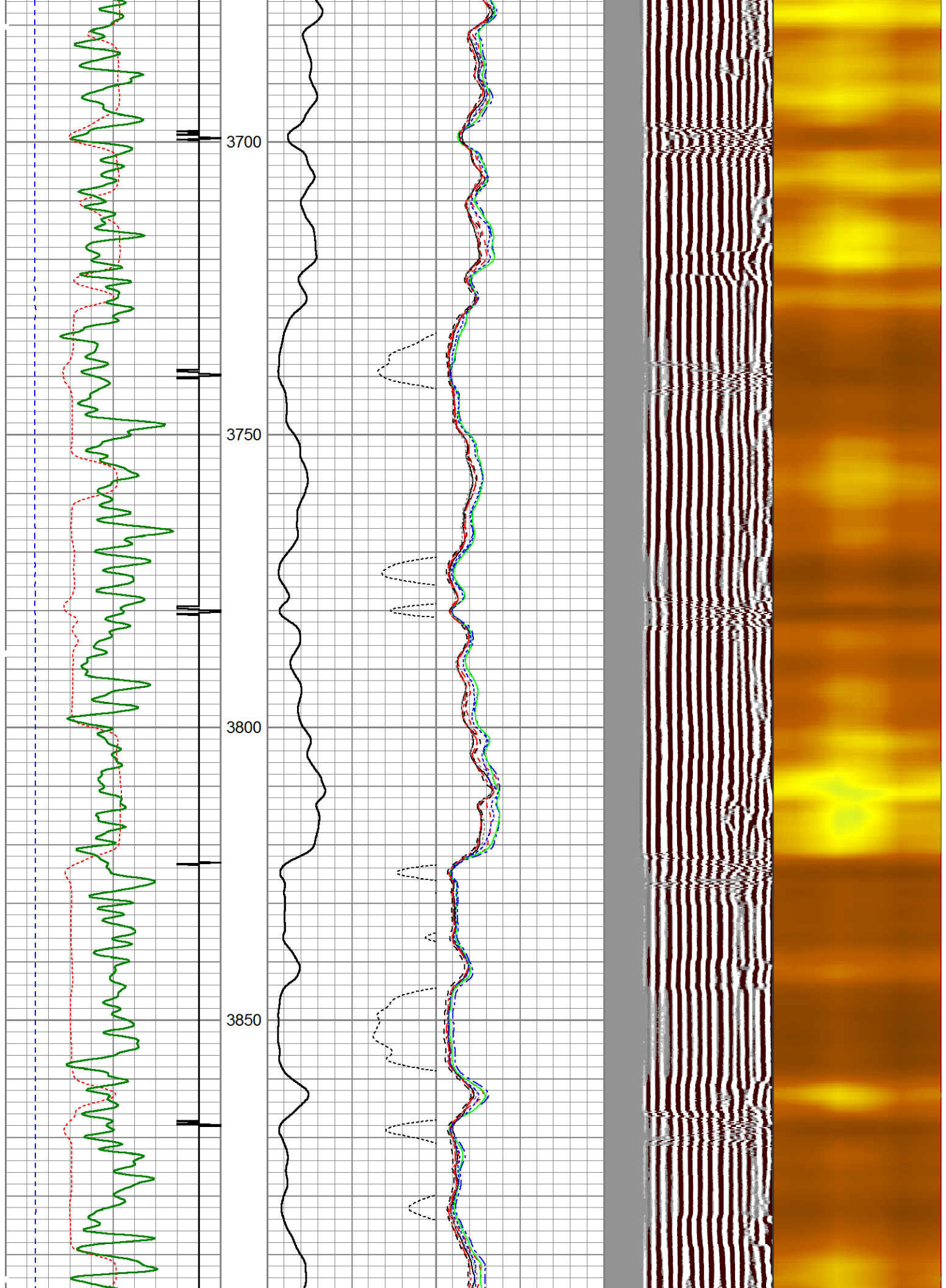


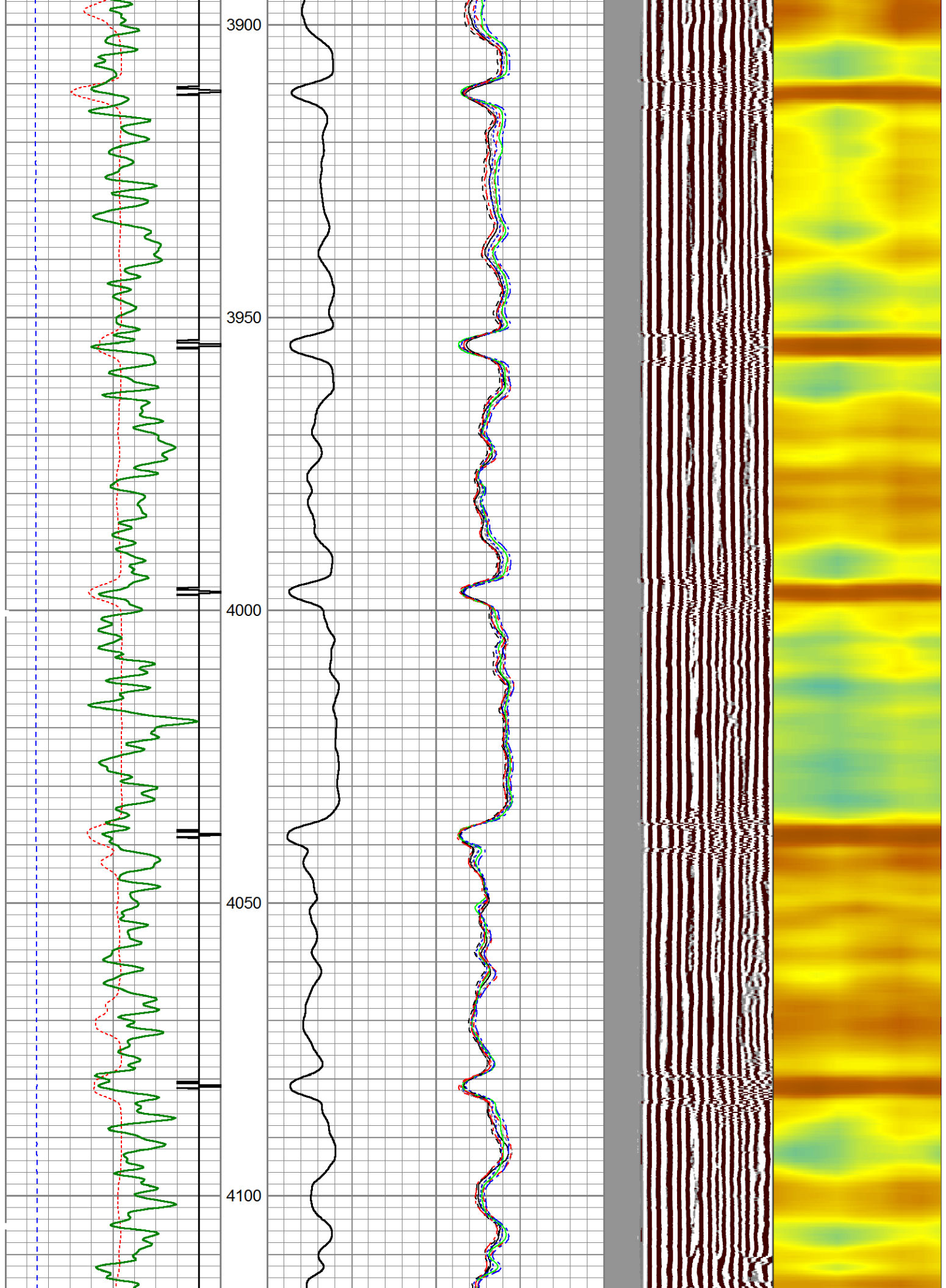


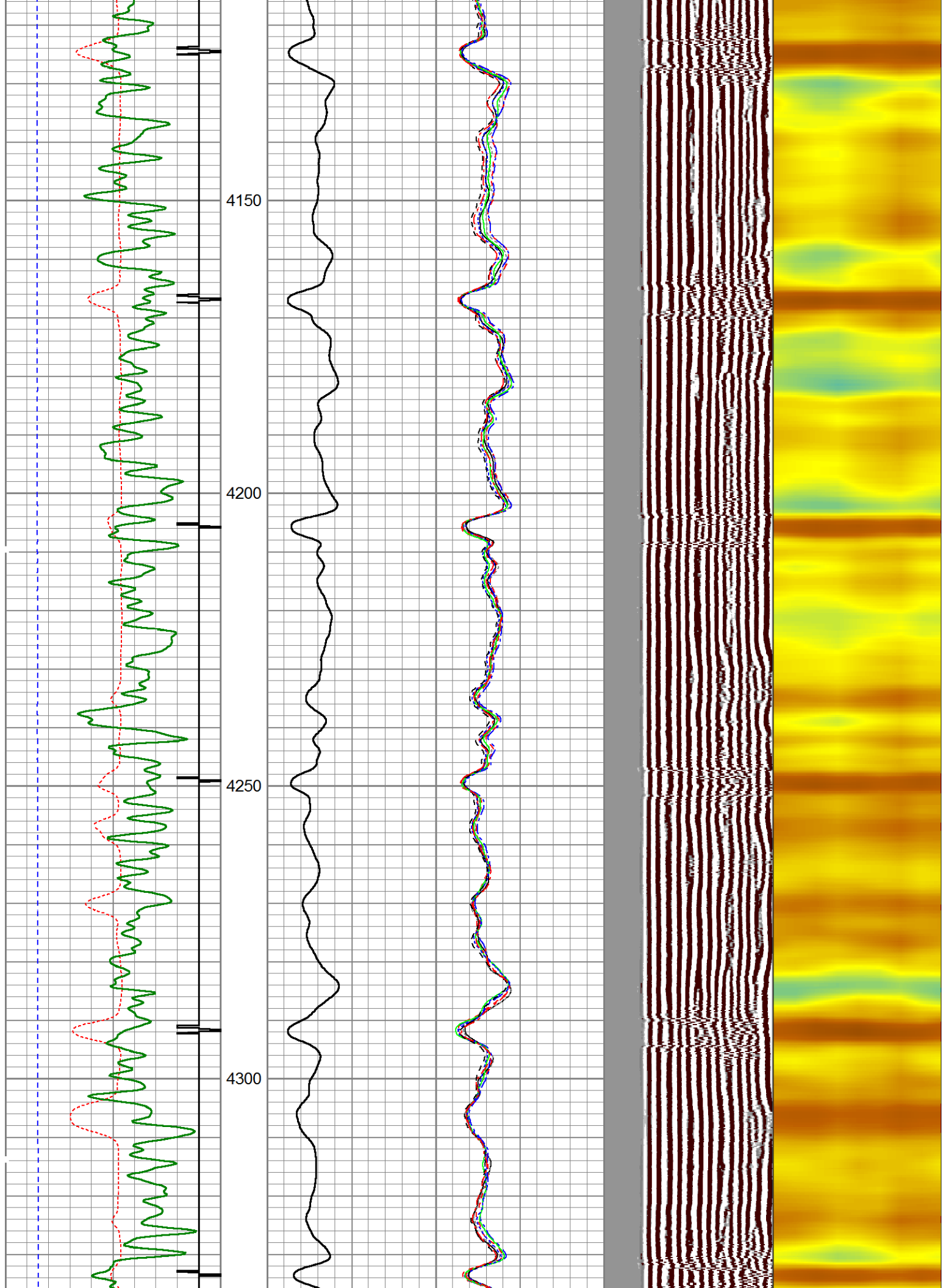


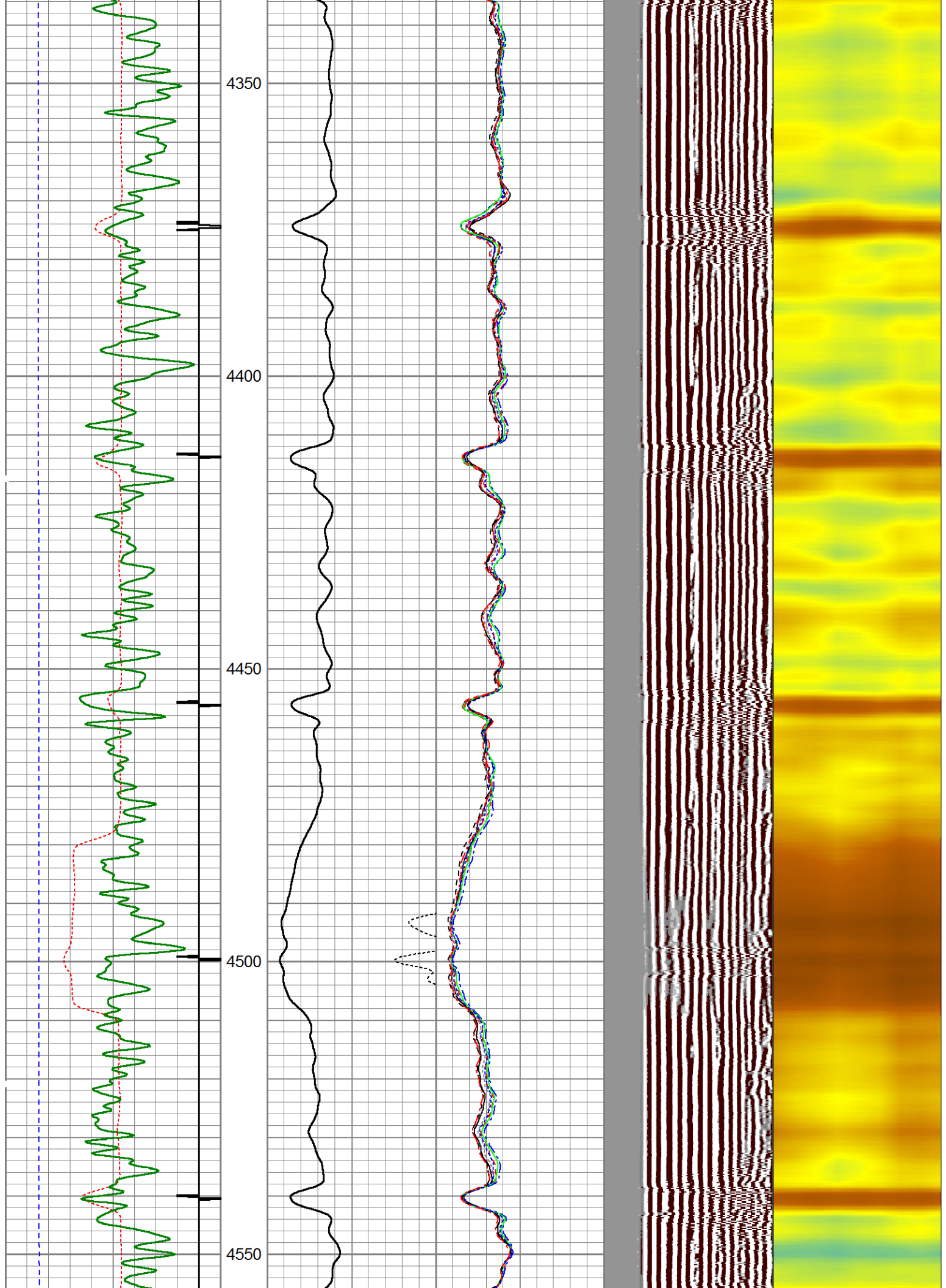


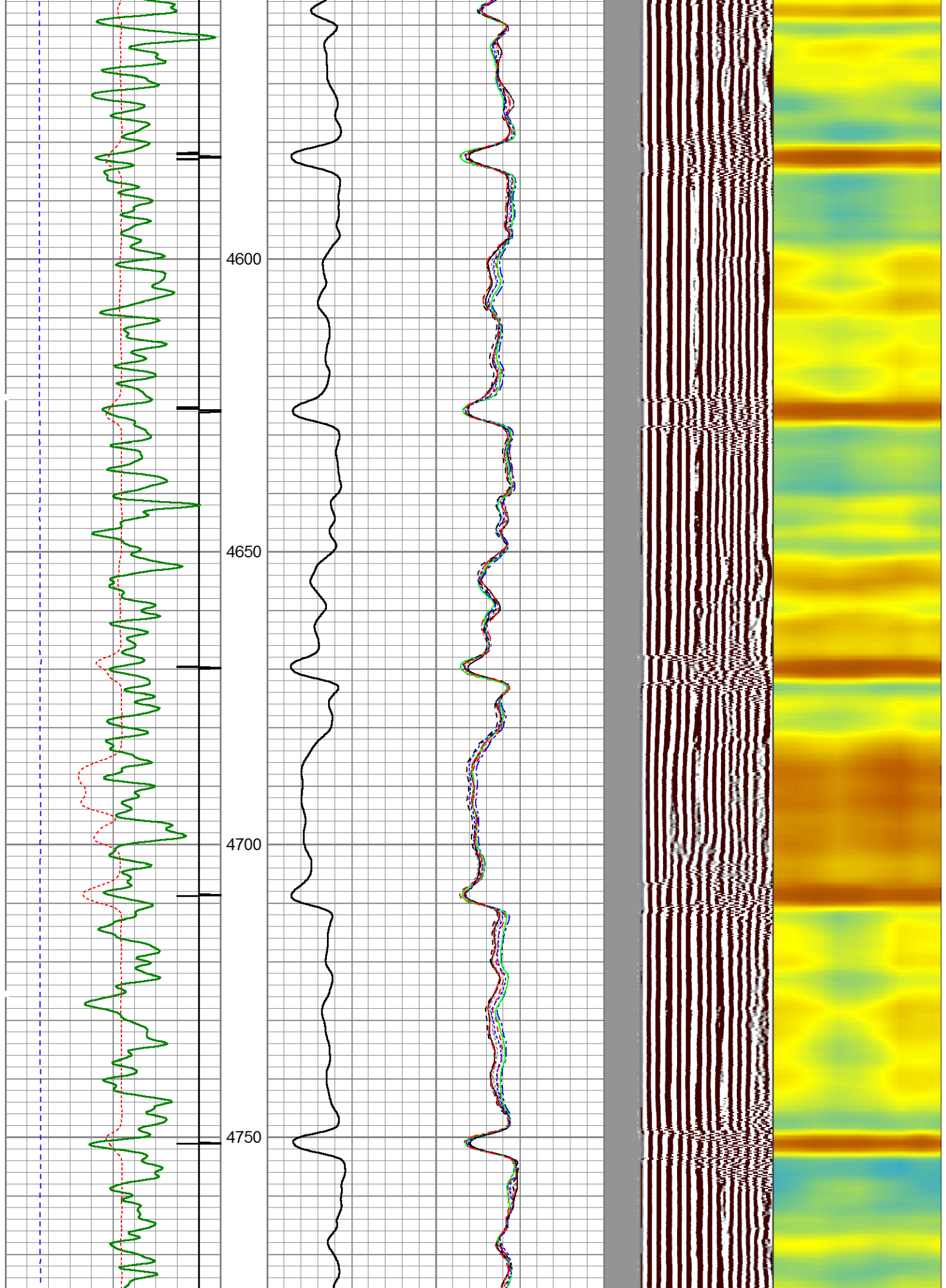




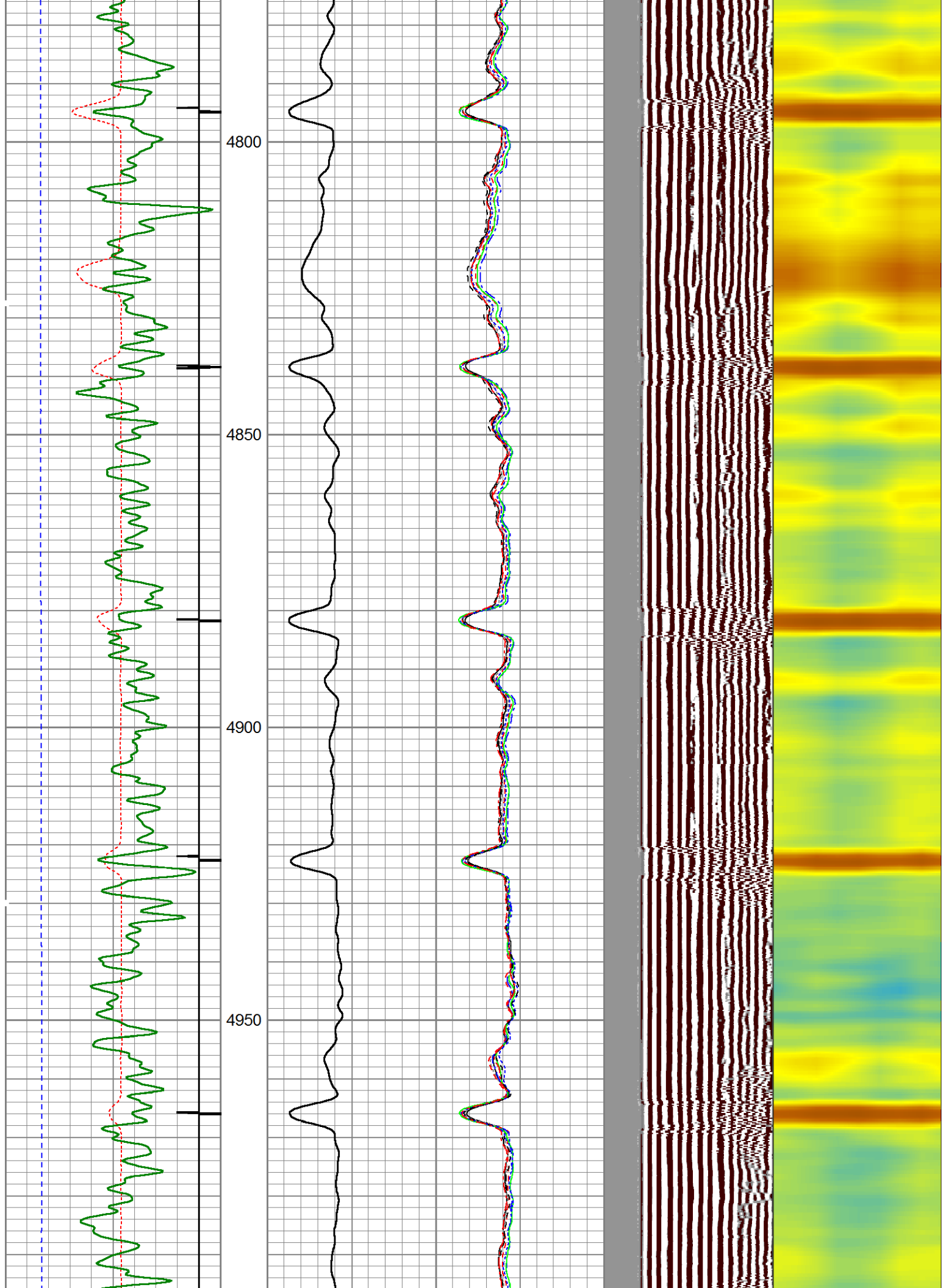


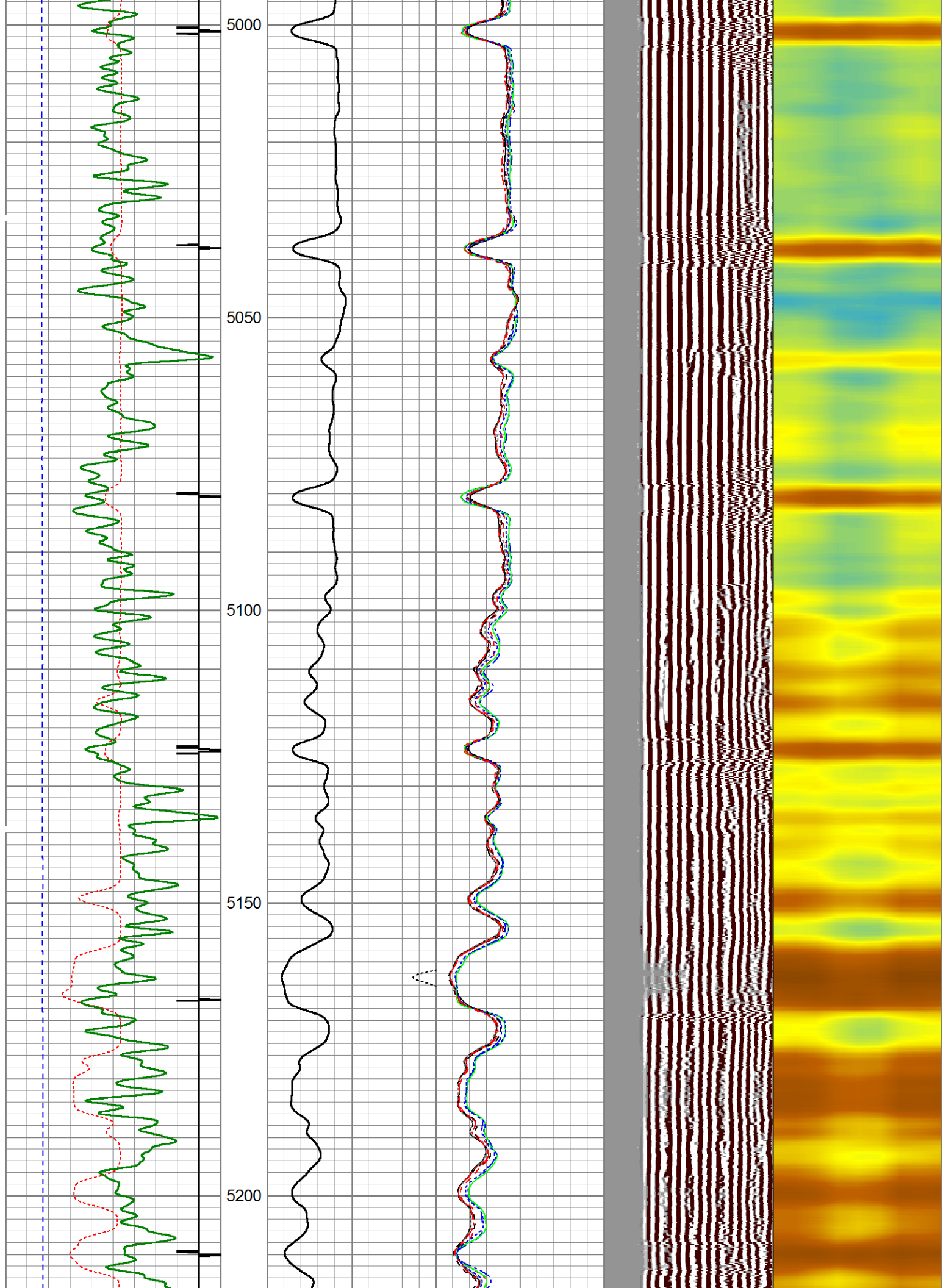




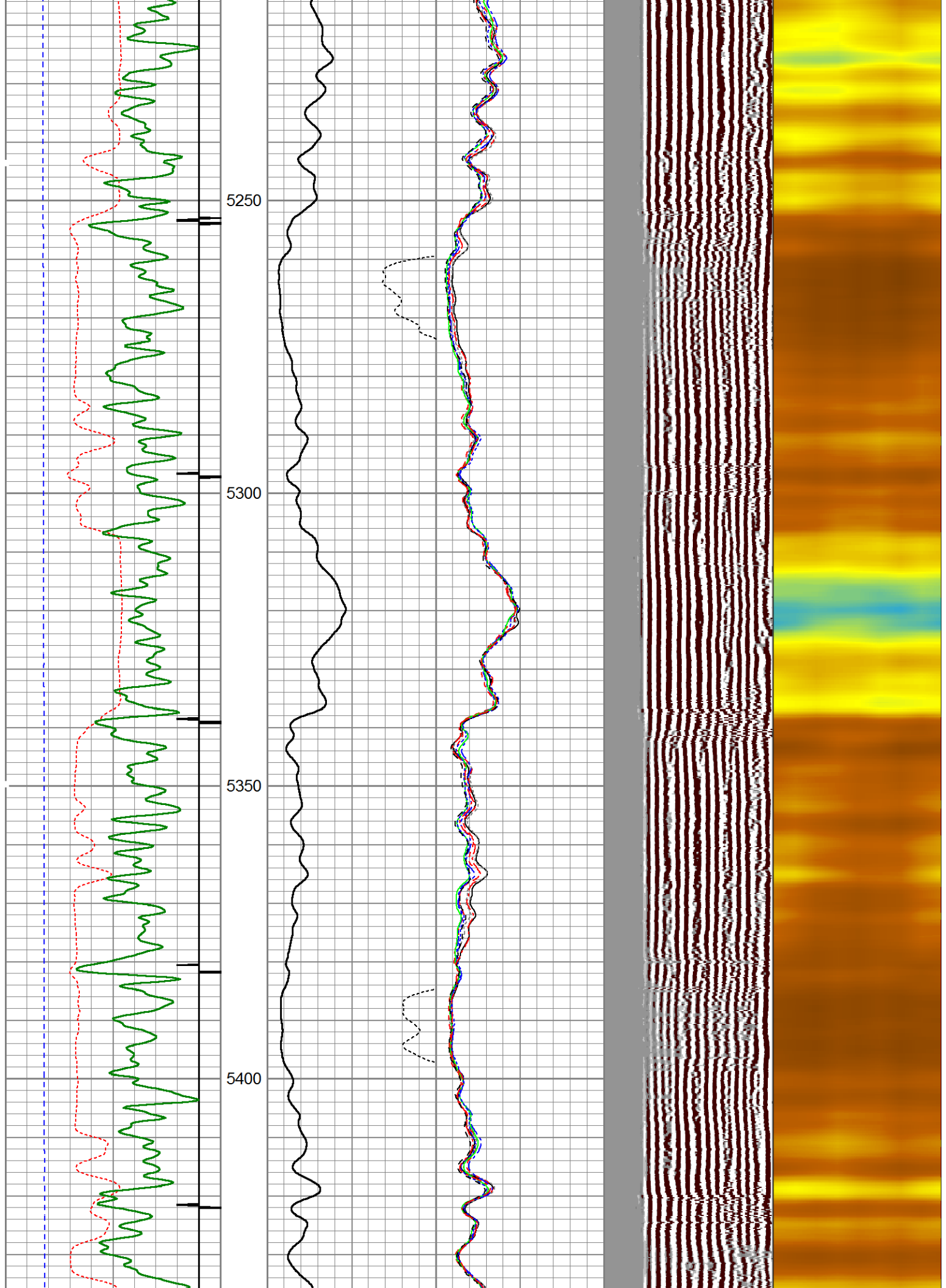


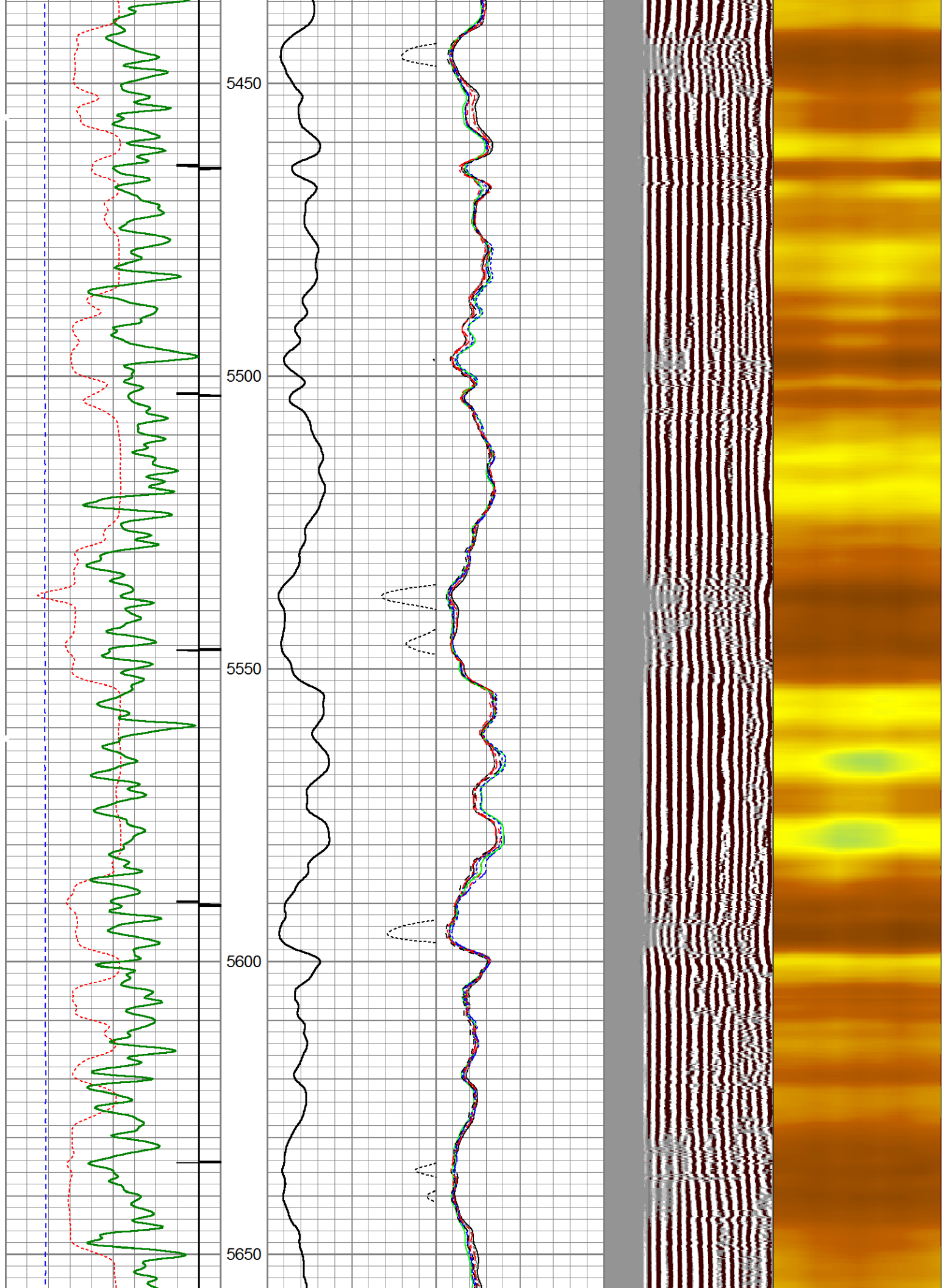


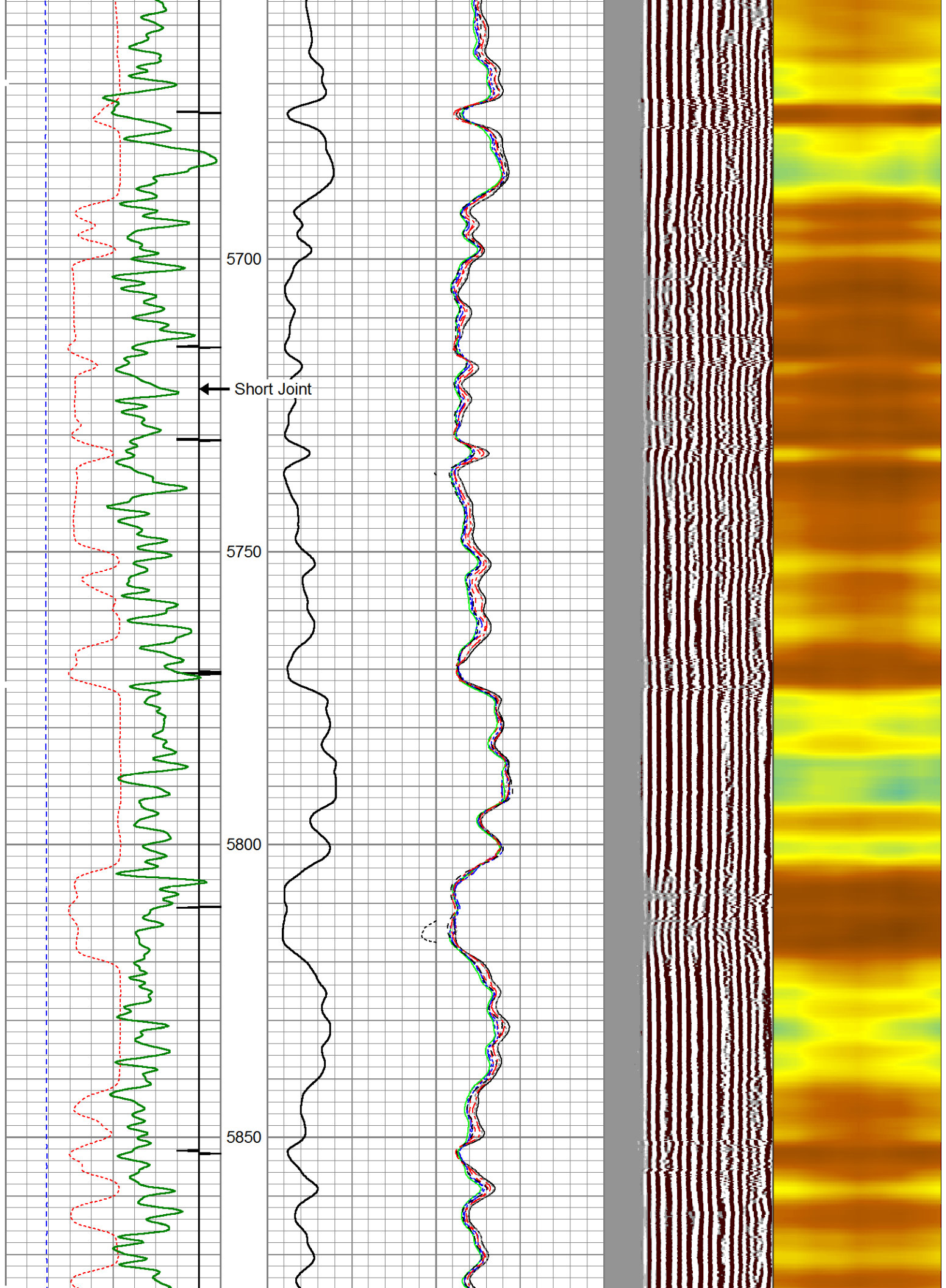


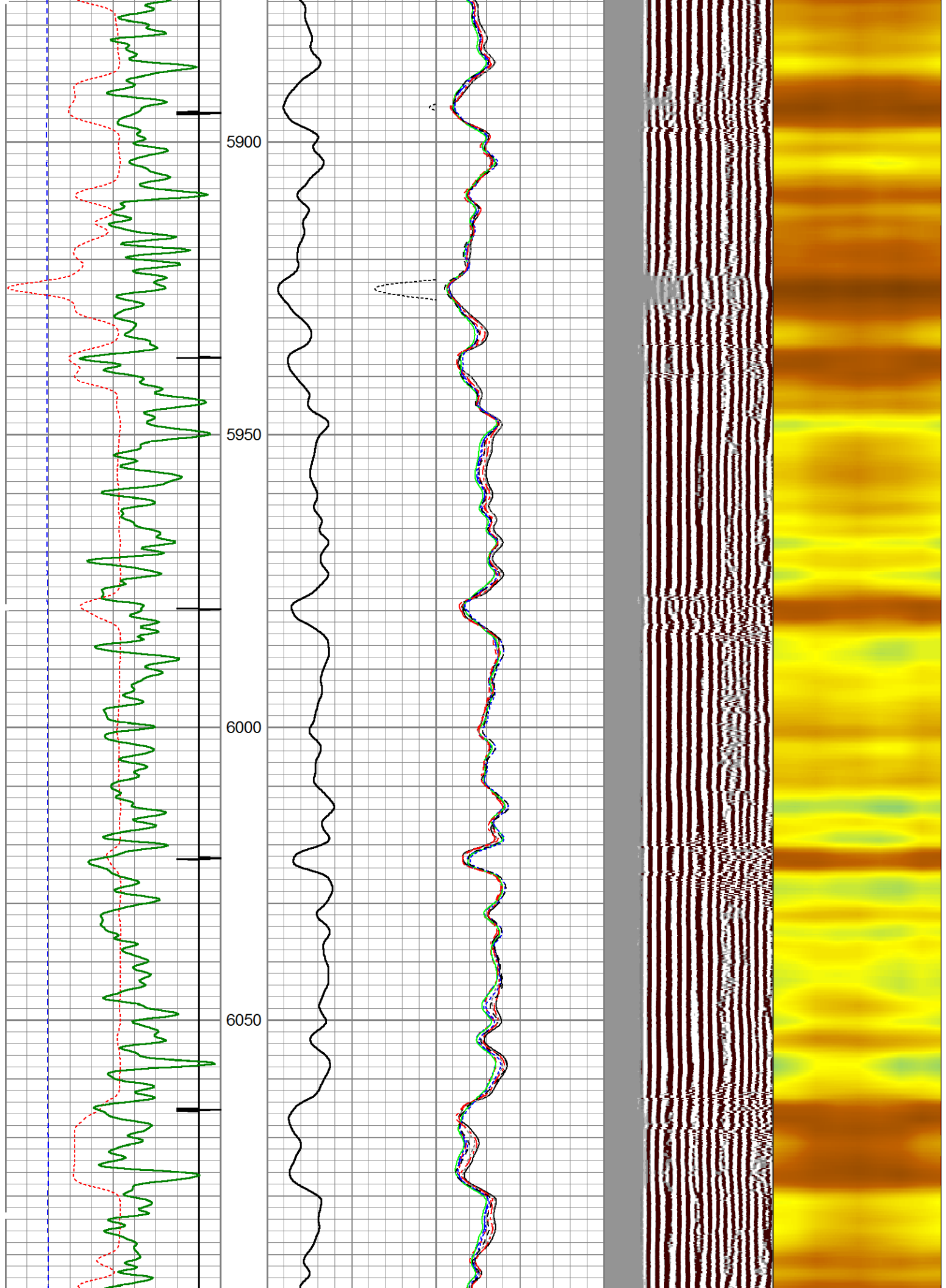




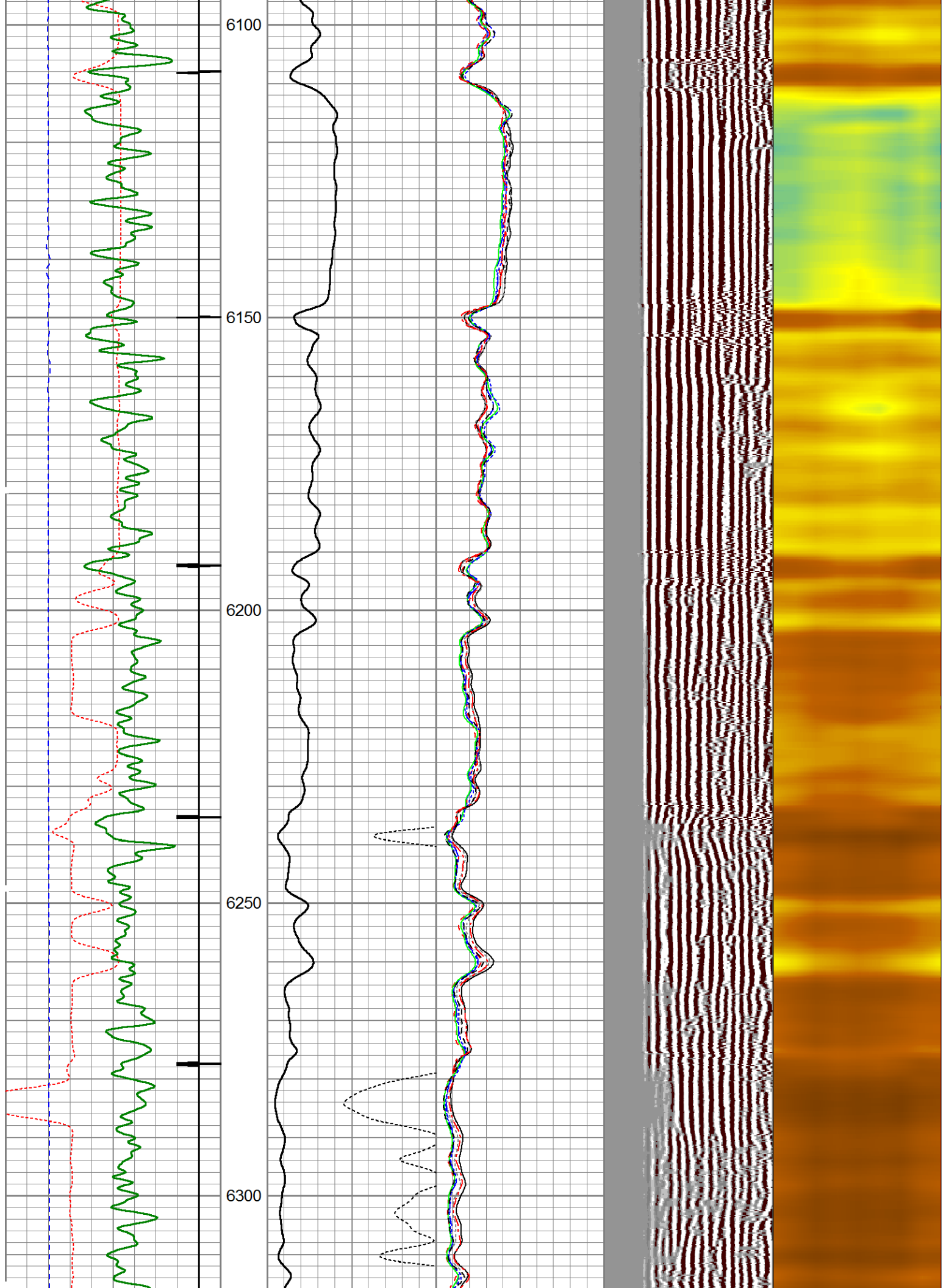


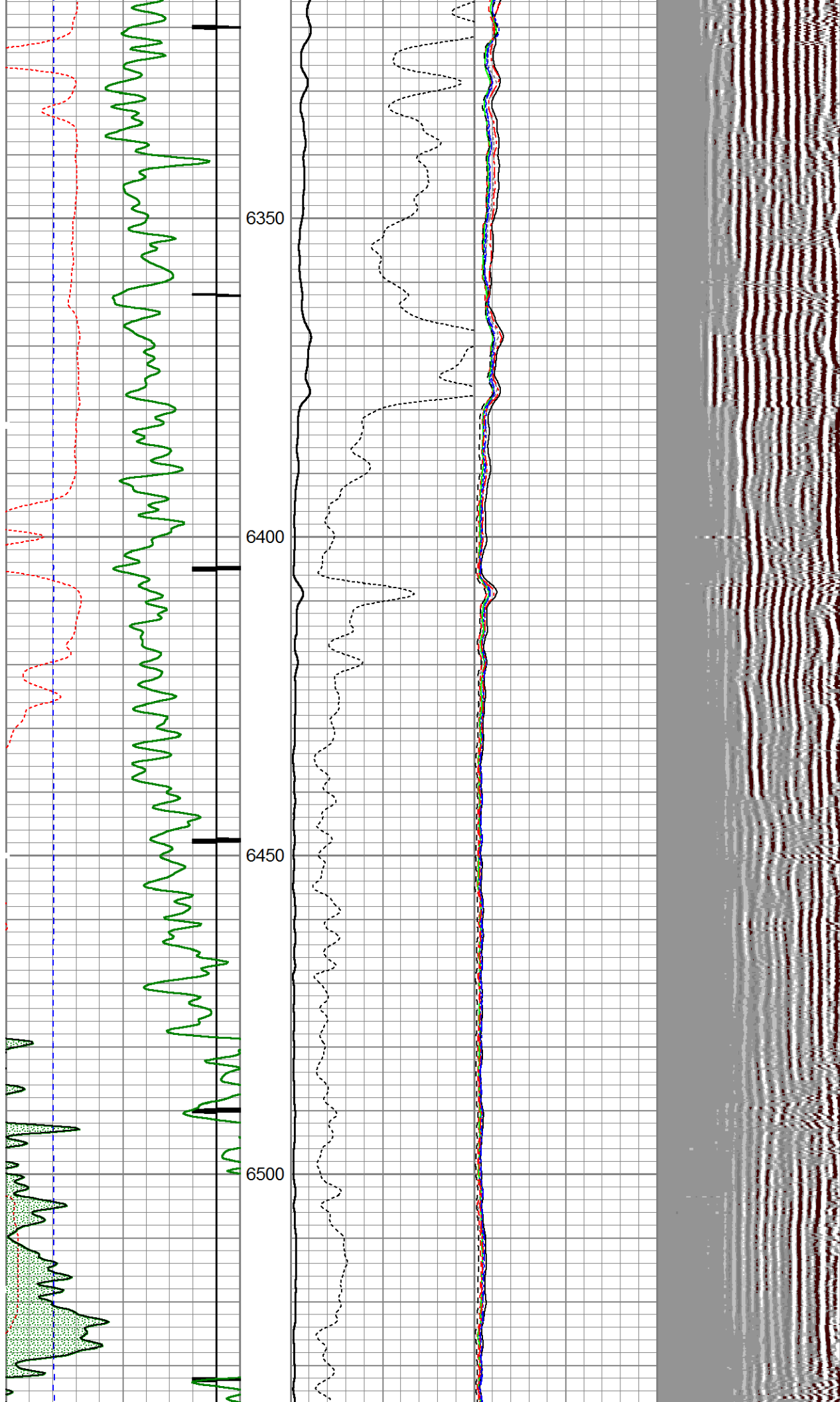


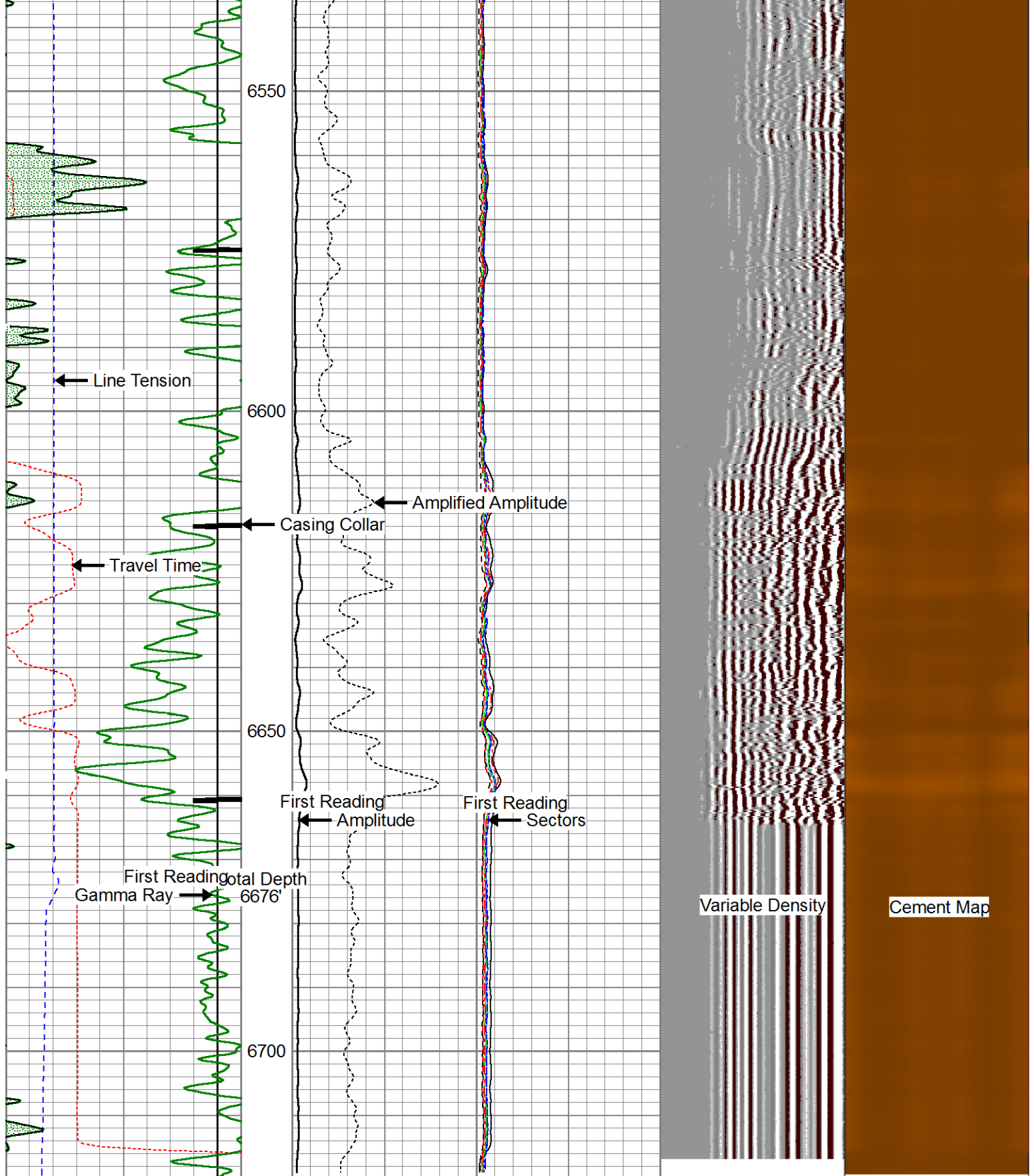












400	Travel Time (usec)	200
9	Casing Collar	-1
0	Gamma Ray (GAPI)	150
0	Line Tension (lb)	5000

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

Variable Density	1	Cement Map	8
200	1200	0	100



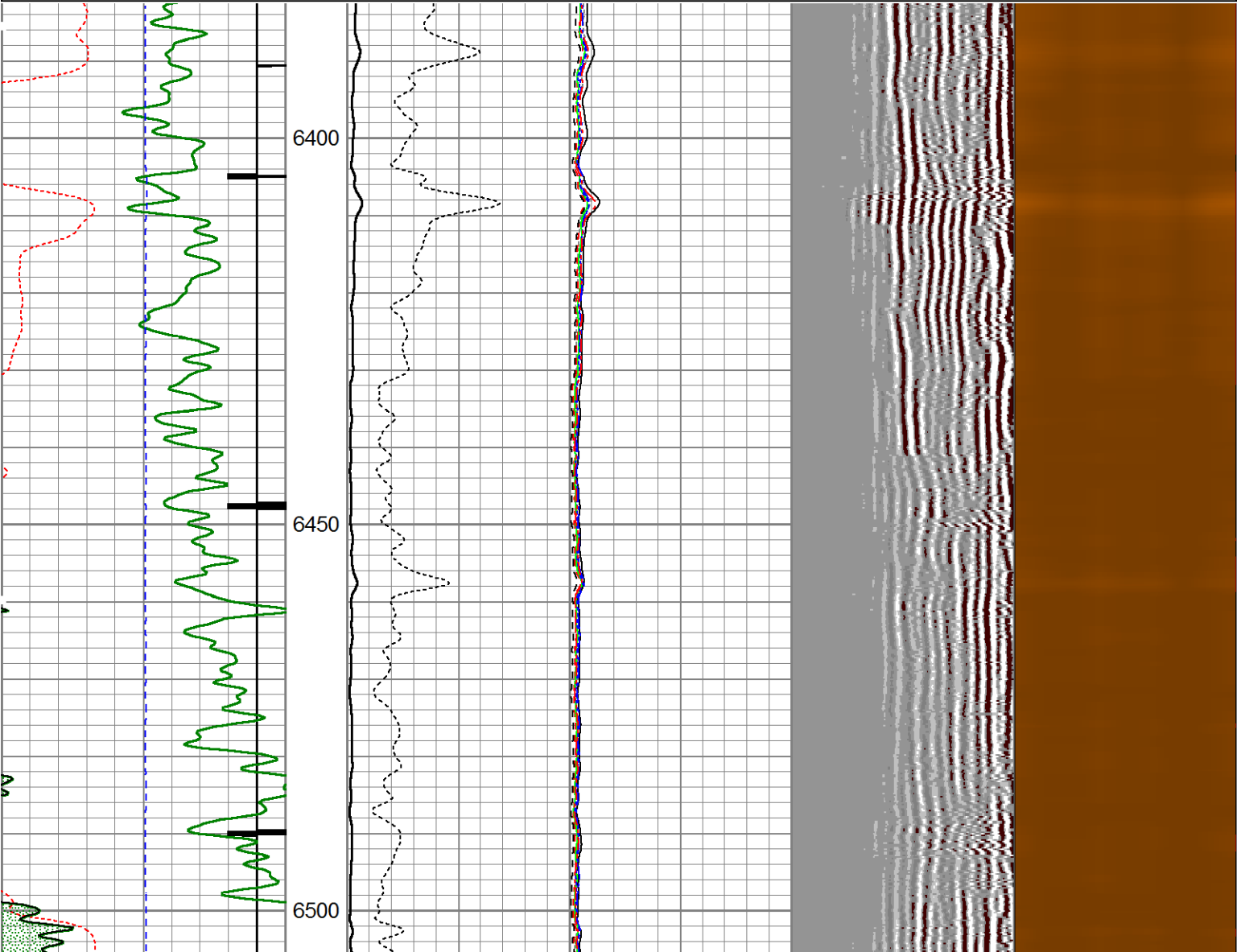
-5	AMPS7	150
-5	AMPS8	150

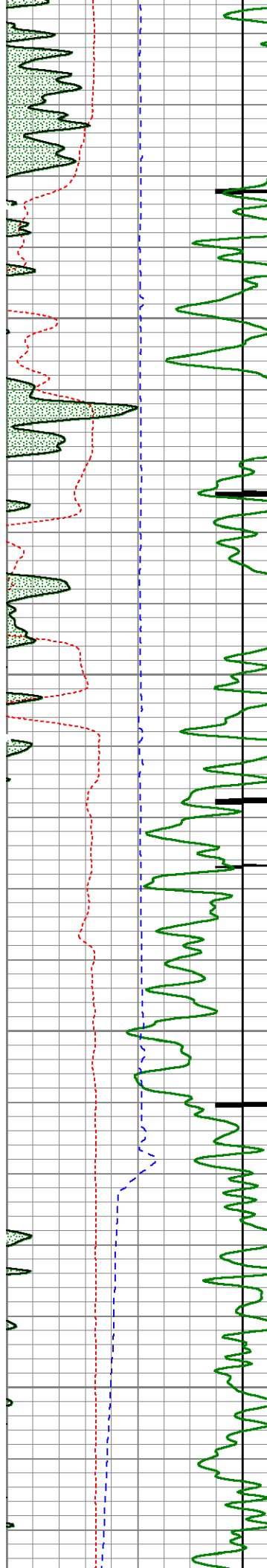


# Repeat Pass ( 0 PSI )

Database File: e:\noble energy wells ranch aa26-65hn\_rcbl.db  
Dataset Pathname: pass5  
Presentation Format: scbl03  
Dataset Creation: Thu Dec 05 14:17:44 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 2001200	1 0 Cement Map 8 100		
9	Casing Collar	-1	Amplified Amplitude			-5	AMPS2	150				
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				



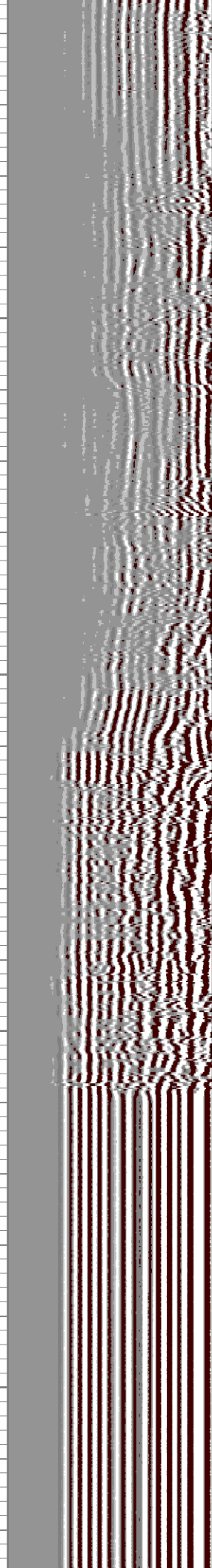
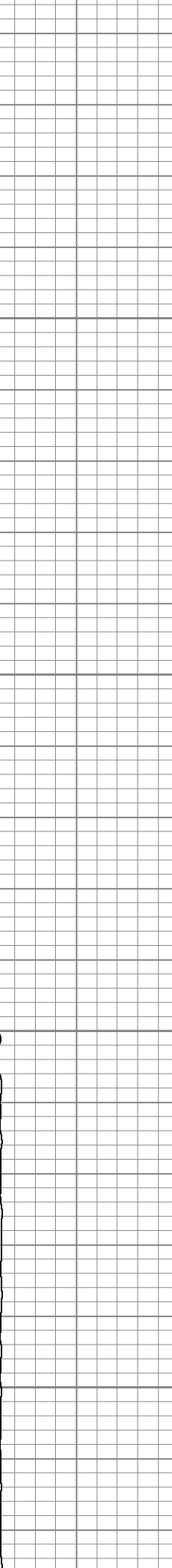


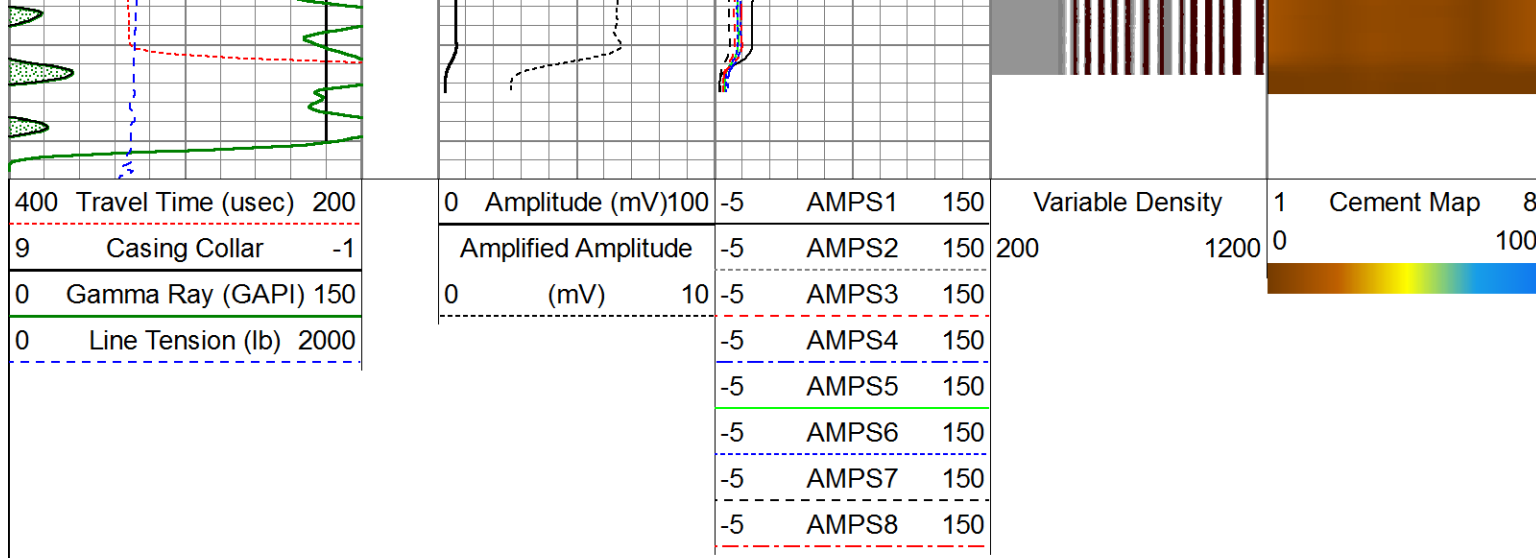
6550

6600

6650

6700





**Calibration Report**

Database File: C:\Warrior\Data\Cased Hole\Noble\Noble RCBL\Wells Ranch AA26-65HN\wells ranch aa26-65hn\_rcbl\_Mer  
 Dataset Pathname: pass10  
 Dataset Creation: Fri Dec 06 08:52:39 2013

**Gamma Ray Calibration Report**

Serial Number: 110108-Dig  
 Tool Model: Probe275  
 Performed: Fri Nov 29 14:39:10 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: 101225  
 Tool Model: Probe

Calibration Casing Diameter: 7.000                      in  
 Calibration Depth: 644.807                      ft

Master Calibration, performed Thu Dec 05 14:17:24 2013:

Raw (v)		Calibrated (mv)		Results	
Zero	Cal	Zero	Cal	Gain	Offset

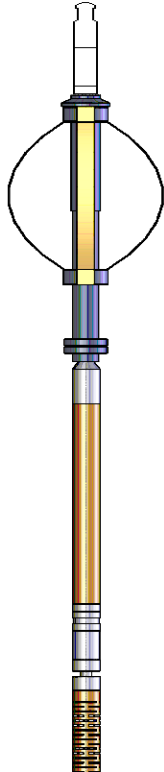
3'	0.026	0.632	1.000	62.165	100.995	2.644
CAL	-0.028	1.038				
5'	-0.019	0.672	1.000	62.165	88.515	2.681
SUM						
S1	0.013	0.676	0.000	100.000	150.916	-1.969
S2	-0.003	0.633	0.000	100.000	157.155	0.503
S3	-0.002	0.600	0.000	100.000	166.173	0.270
S4	-0.017	0.582	0.000	100.000	166.857	2.823
S5	-0.006	0.628	0.000	100.000	157.614	0.956
S6	-0.011	0.694	0.000	100.000	141.890	1.592
S7	0.012	0.723	0.000	100.000	140.705	-1.694
S8	-0.001	0.671	0.000	100.000	148.778	0.114

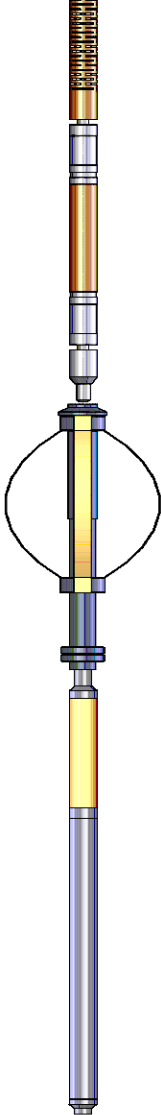
Internal Reference Calibration, performed Mon Oct 10 09:42:03 2005:

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	-0.028	1.038	1.000	0.000

Air Zero Calibration, performed Thu Dec 05 13:36:03 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 (101225)	8.75	2.75	90.00

WVF3FT	11.84		Probe Radii Bond Tool with Digital Telemetry	0.75	2.75	30.00
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					
			Probe275 2.75" Centralizer	2.88	2.75	20.00
CCL	3.88					
TEMP	3.00					
GR	2.54		GR-Probe275 (110108-Dig) Probe 2 3/4" Logging Gamma Ray	4.78	2.75	57.00
Dataset: wells ranch aa26-65hn_rcbl_Merge.db: field/well/run1/pass10						
Total Length: 20.28 ft						
Total Weight: 197.00 lb						
O.D. 2.75 in						