



**Radial Cement Bond  
Variable Density Log  
W/Gamma Ray/CCLTemp**

Company Antero Resources

Well Gauge 1H

Field Marcellus

County Tyler

State WV

Location: Rush Fork Pad API #: 47-095-02538

Other Services  
JB/GR  
4.50"

Lat.: 39.4167  
Long.: -80.9697

SEC TWP RGE

Elevation

Permanent Datum Ground Level Elevation  
Log Measured From Kelly Bushing 25' A.P.D.  
Drilling Measured From Kelly Bushing

K.B: 1,011'  
D.F: 1,010'  
G.L: 986'

Company Antero Resources  
Well Gauge 1H  
Field Marcellus  
County Tyler  
State WV

Date 24-Jun-19

Run Number One

Depth Driller 18,734'

Depth Logger 6,280'

Bottom Logged Interval 6,280'

Top Log Interval Surface

Open Hole Size N/A

Type Fluid Water

Density / Viscosity N/A

Max. Recorded Temp. 138 Deg.F.

Estimated Cement Top 1,862'

Time Well Ready 05:45

Time Logger on Bottom 06:13

Equipment Number 104 (P4) (G4)

Location Washington, PA

Recorded By Matt McNally

Witnessed By Barney Etcher

Run Number

Bit

From

To

Size

Weight

From

To

Size

Weight

From

To

Borehole Record

Tubing Record

Size

Wgt/Ft

Top

Bottom

5 1/2"

23 LBS

Surface

18,734'

5,152'

5,162'

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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

Log Correlated To Marker Joint at (5,152' - 5,162')  
Depth Correction (-5')

Main Pass Logged at 1,500 PSI  
Repeat Pass Logged at 0 PSI

Thank you for using Nine Energy Wireline Service. Washington, PA

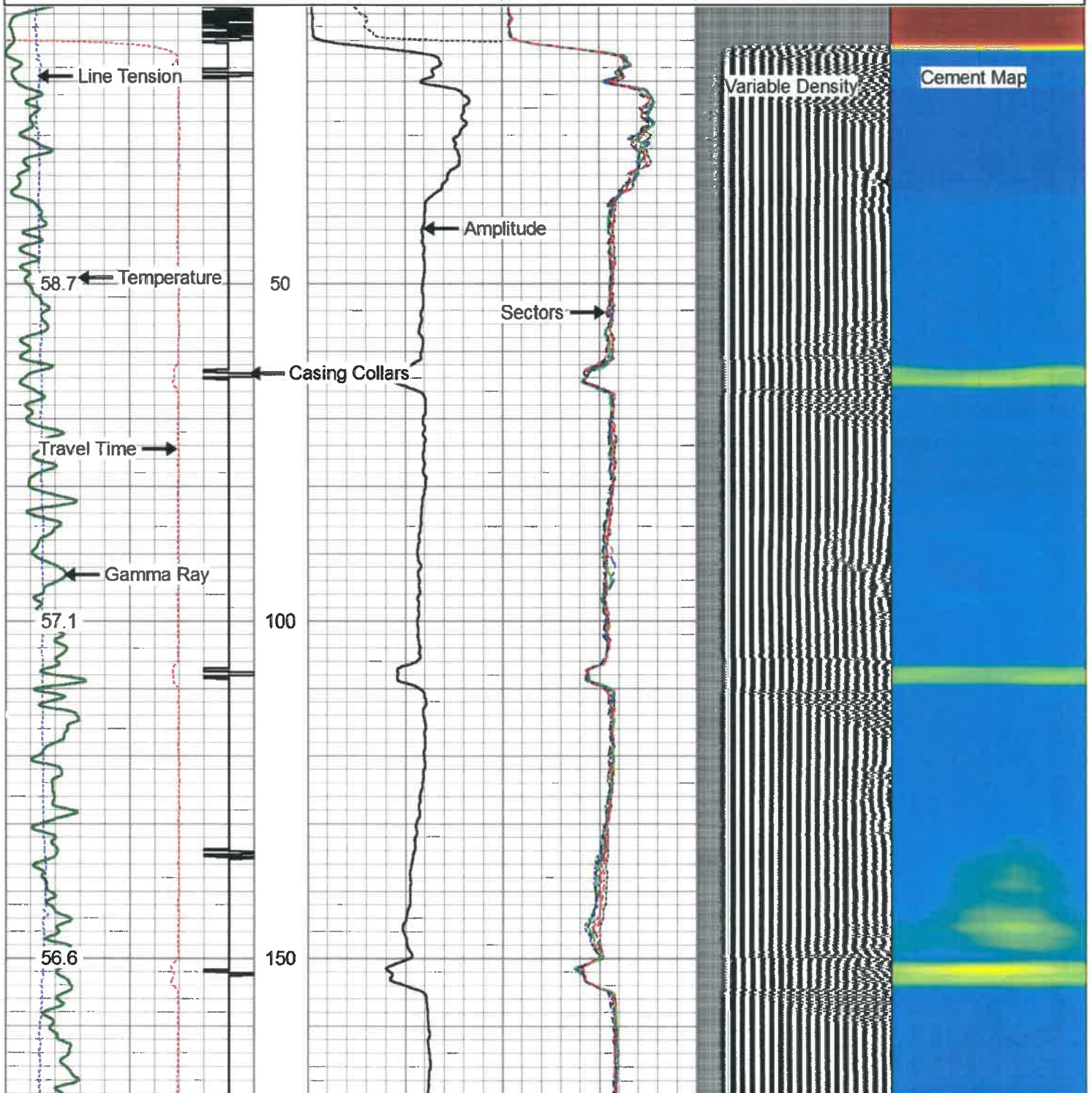
RECEIVED  
Office of Oil and Gas  
AUG 31 2020  
WV Department of  
Environmental Protection



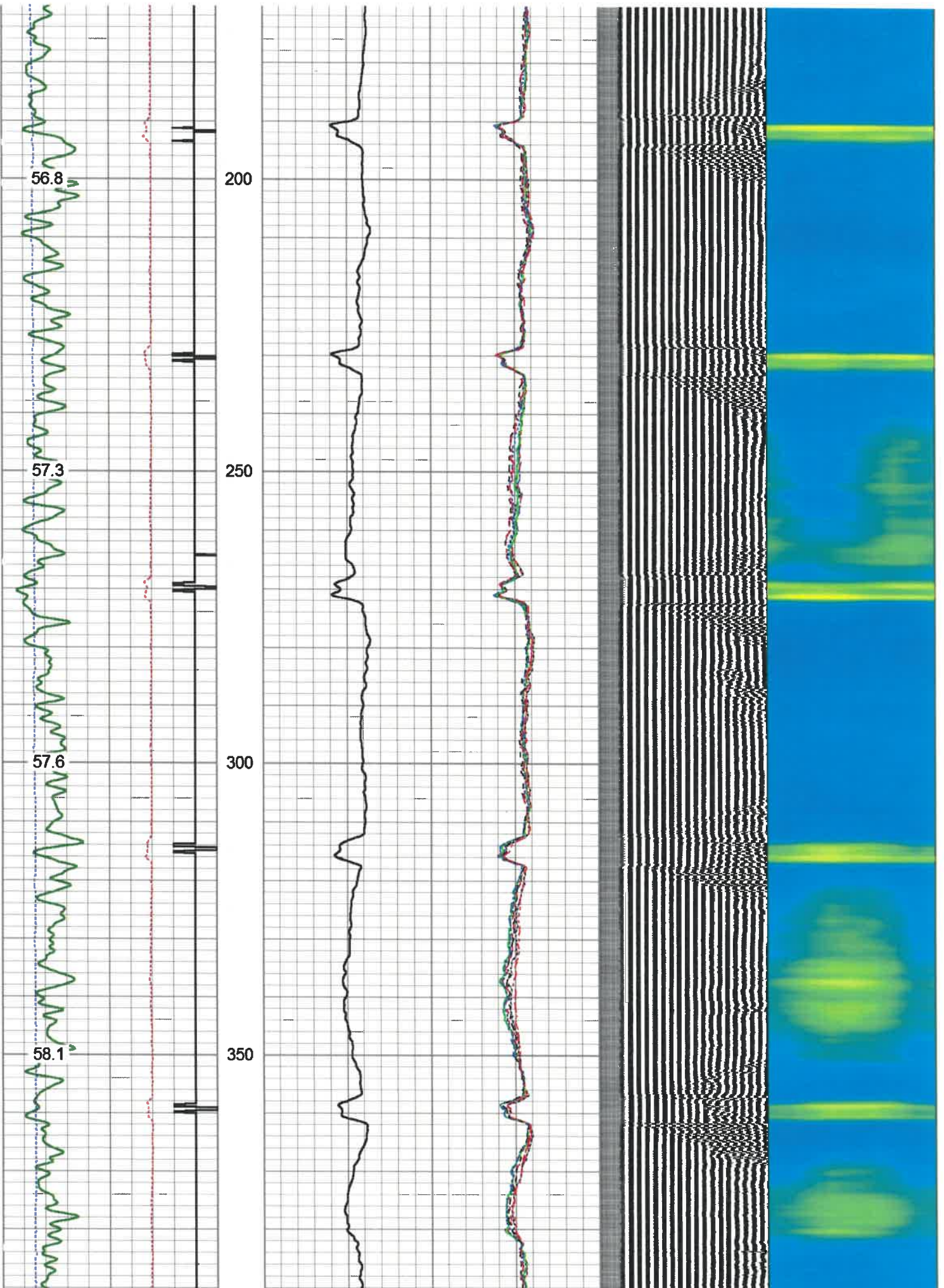
**Main Pass 1,500 PSI**

Database File antero\_gauge\_1h\_rcbl\_23\_jun\_19.db  
 Dataset Pathname marcellus/1h/rcbl/pass4  
 Presentation Format scbl03  
 Dataset Creation Mon Jun 24 06:11:46 2019  
 Charted by Depth in Feet scaled 1:240

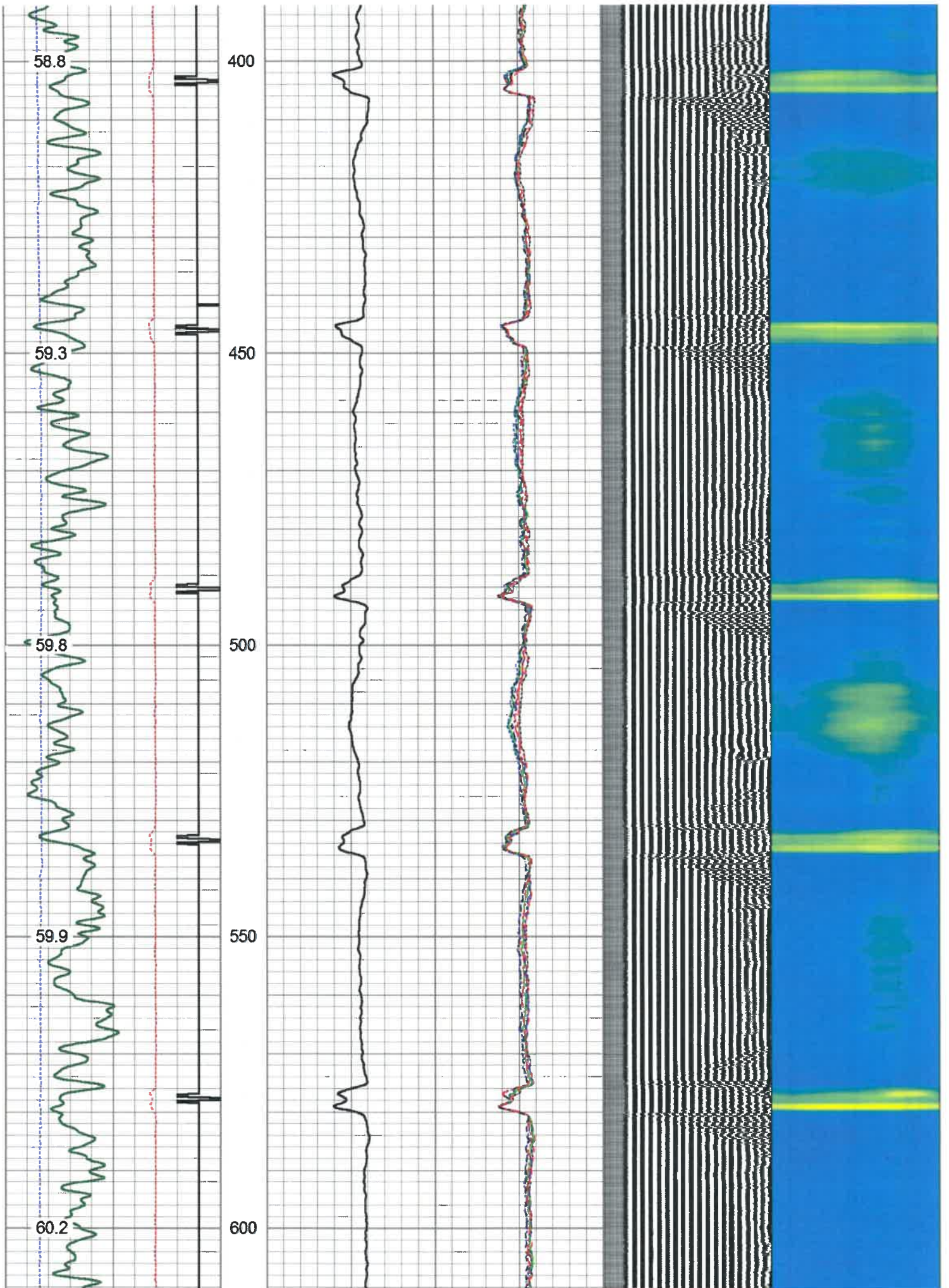
400	Travel Time (usec)	200	0	Amplitude (mV)	100	-5	Sector 1	150	Variable Density	1	Cement Map	8
Casing Collar			Amplified Amplitude			-5	Sector 2	150	200	(usec)	1200	
0	Gamma Ray (GAPI)	150	0	(mV)	10	-5	Sector 3	150				
0	LTEN (lb)	2500				-5	Sector 4	150				
Temp (degF)							-5	Sector 5	150			
							-5	Sector 6	150			
							-5	Sector 7	150			
							-5	Sector 8	150			



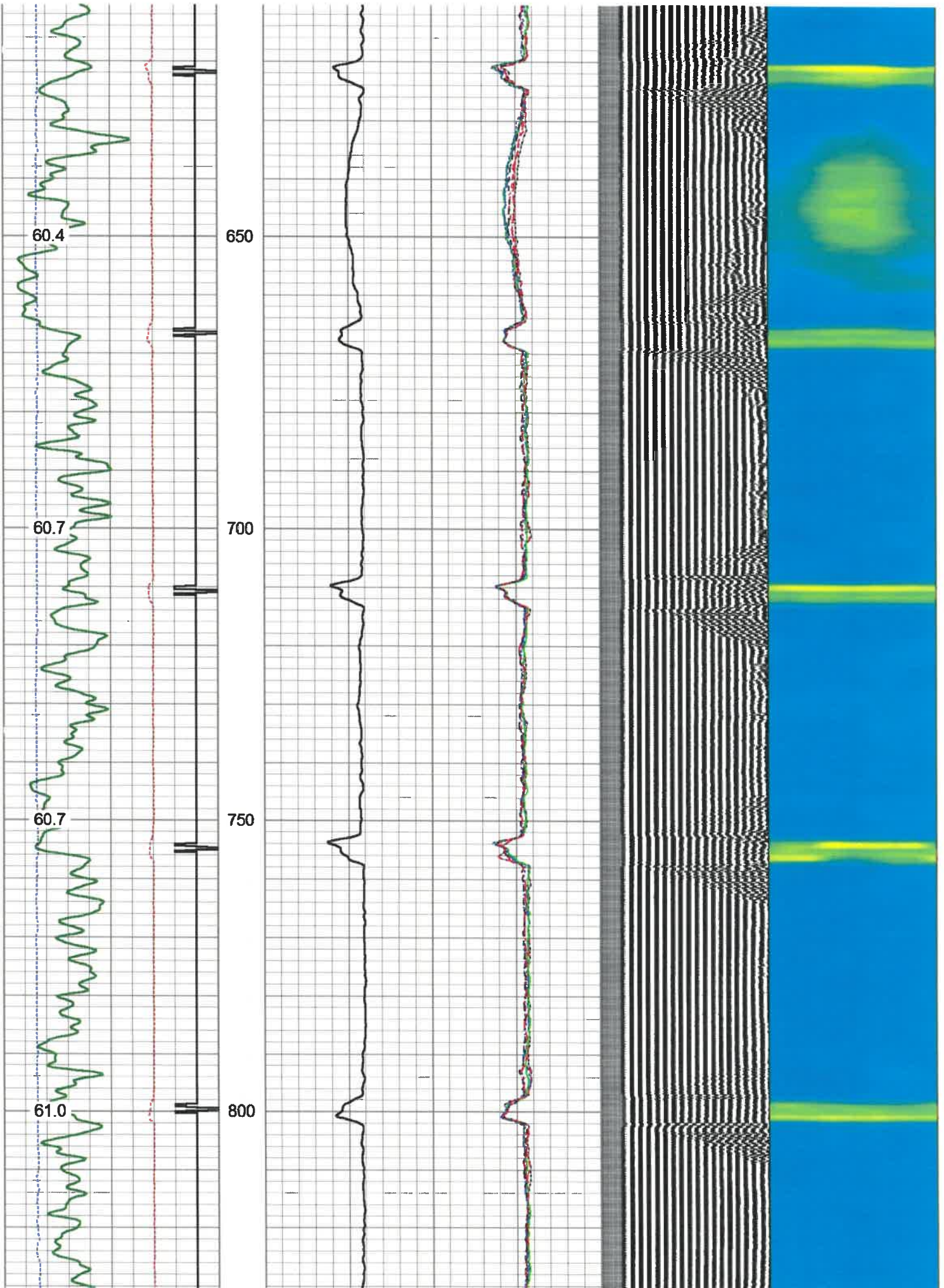




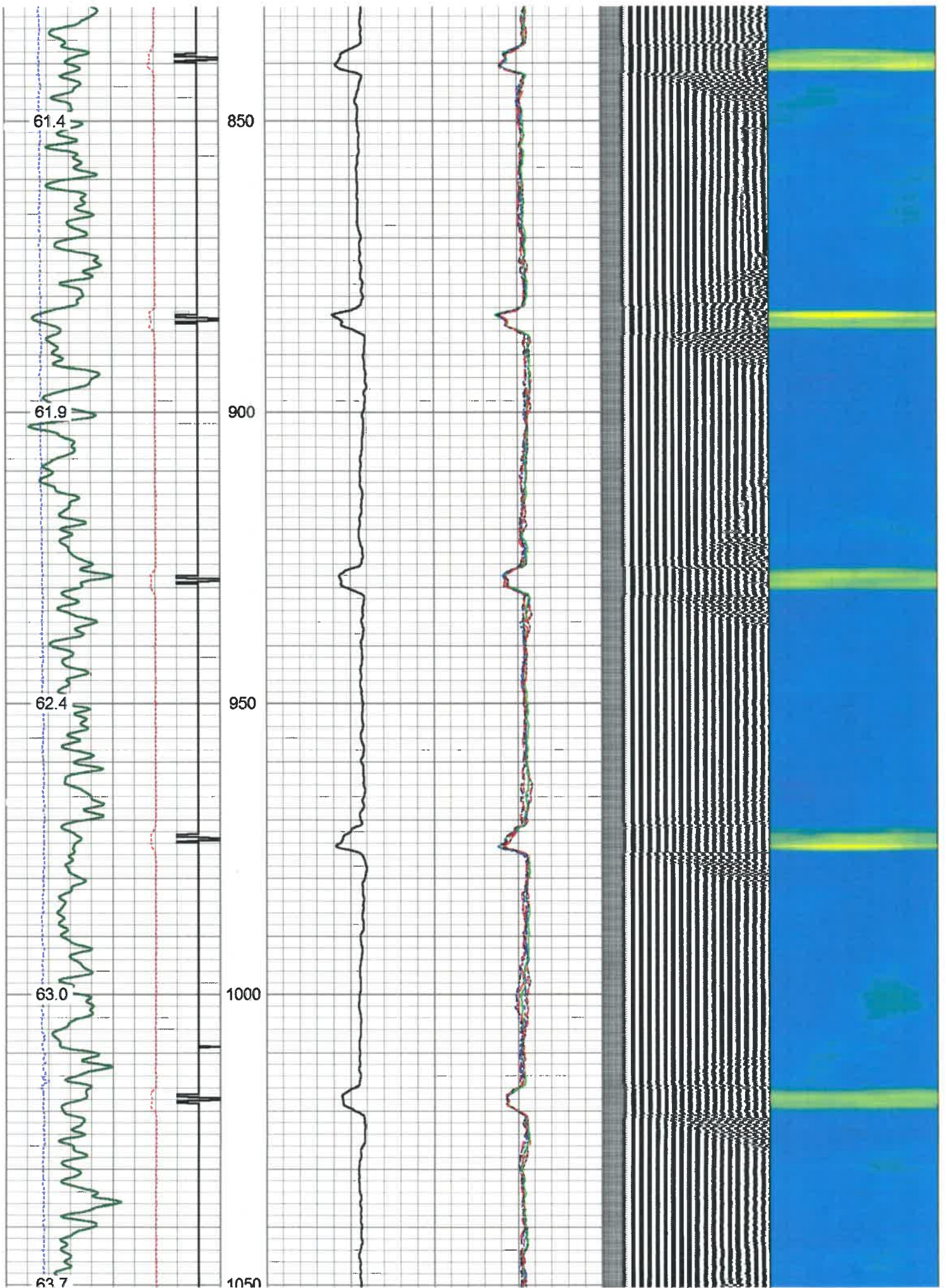




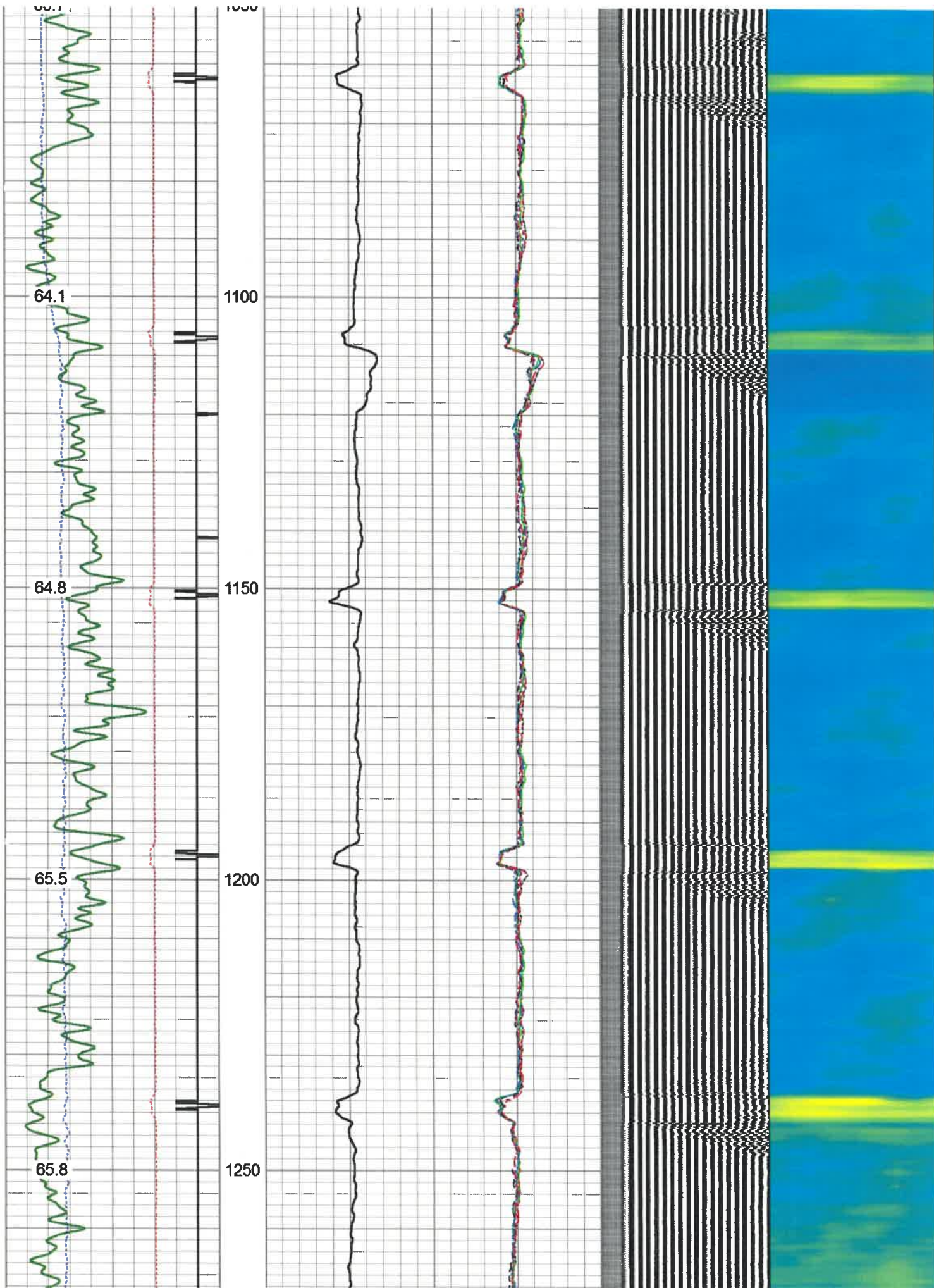




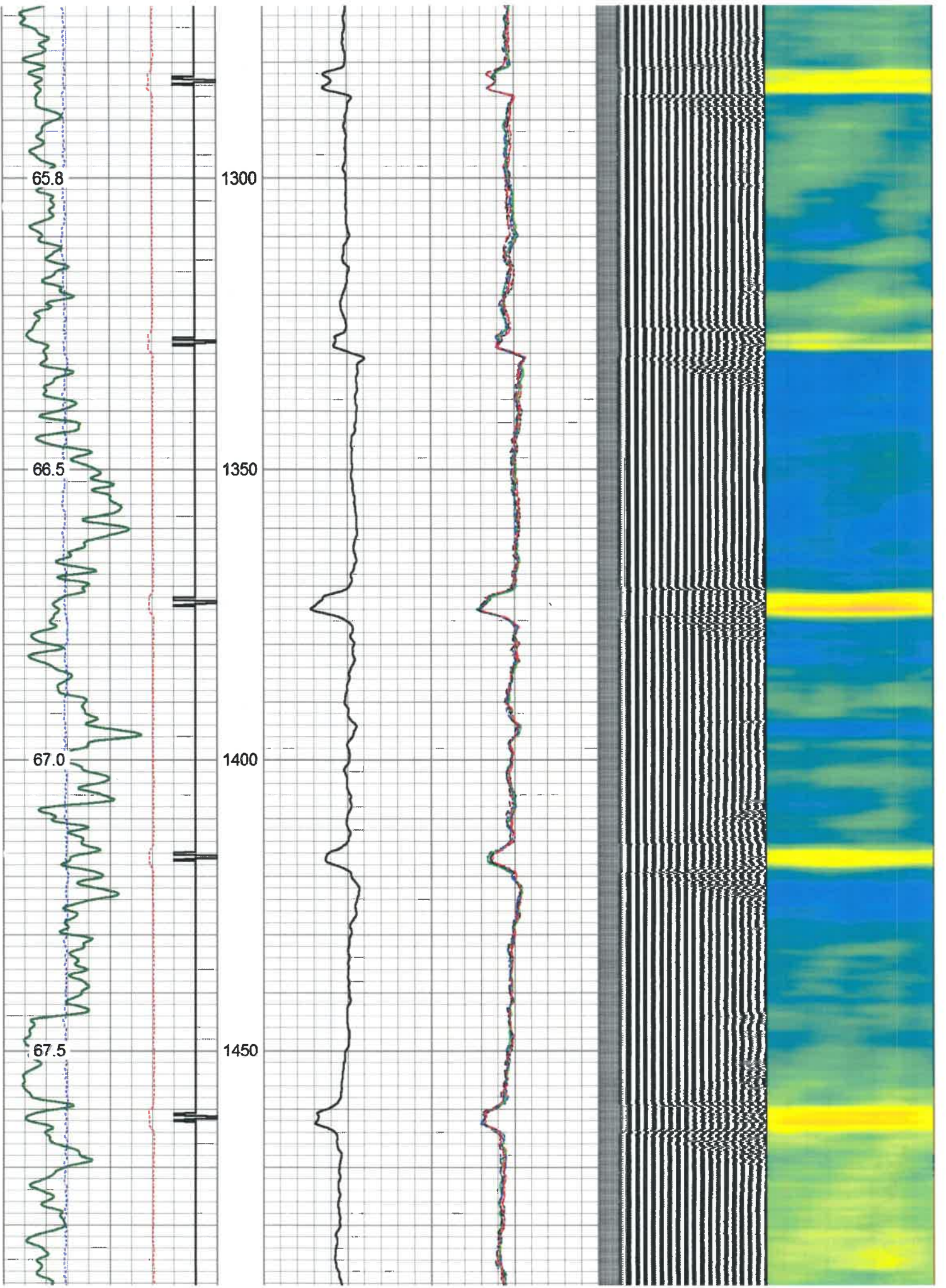




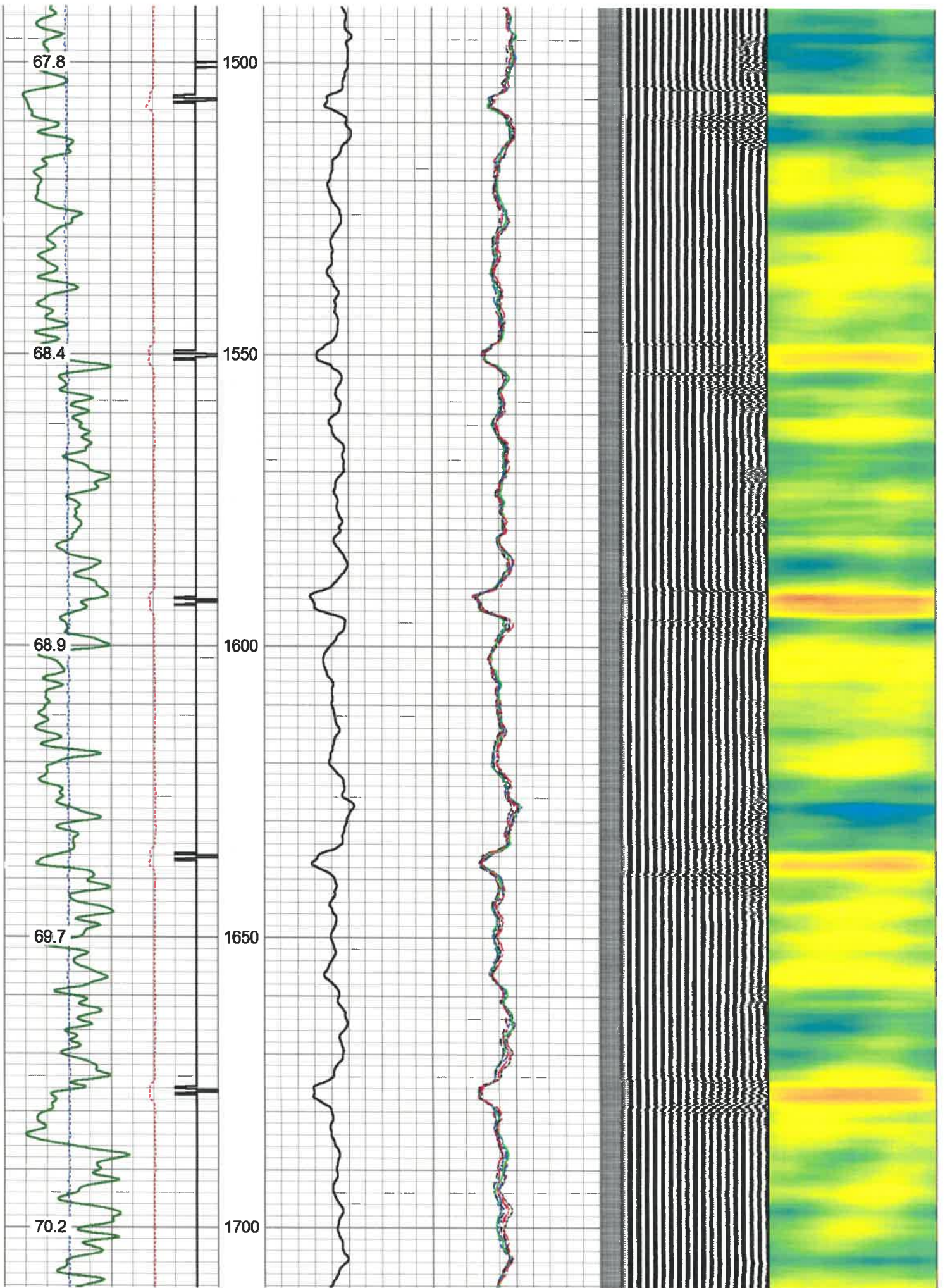




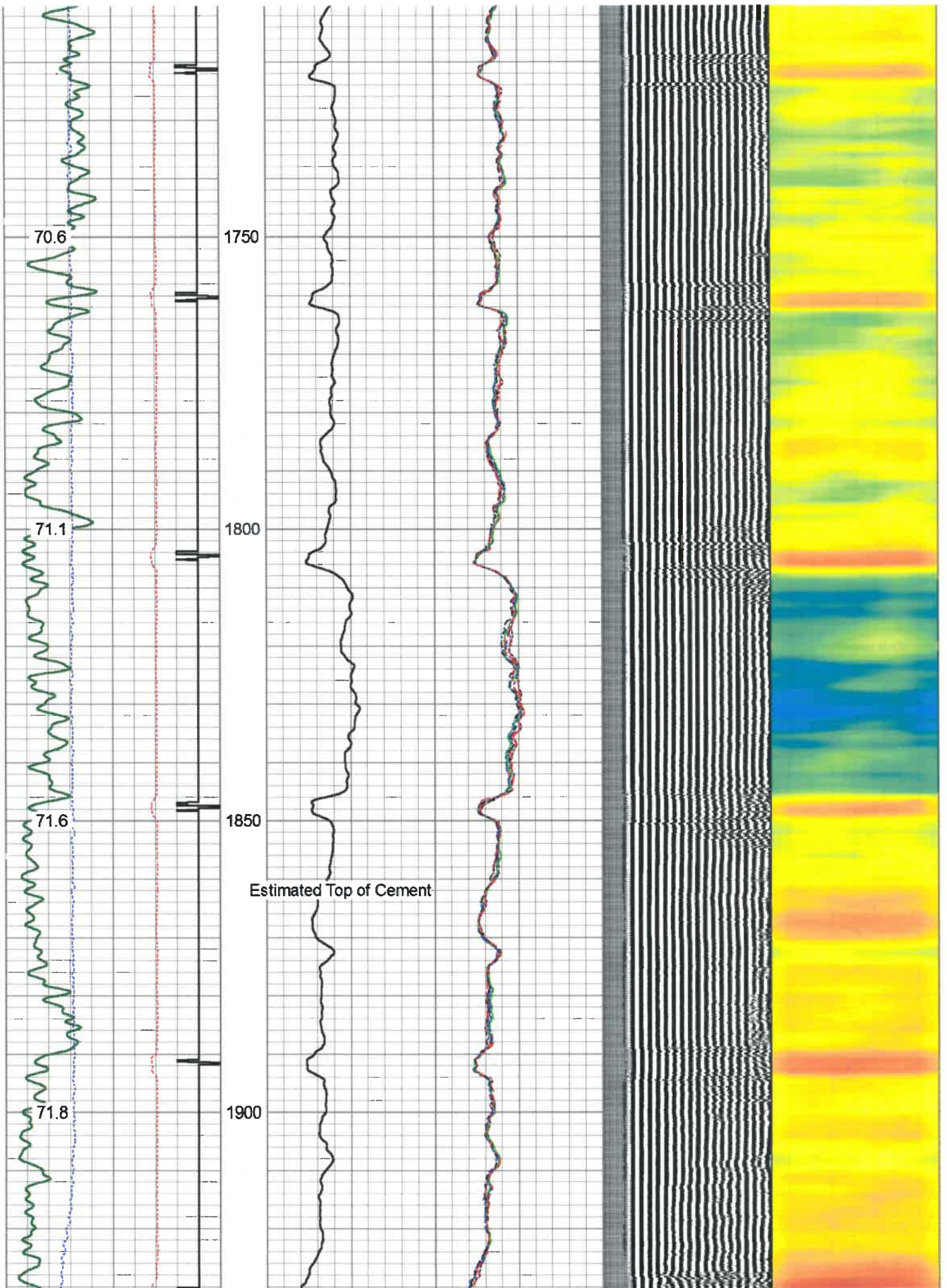




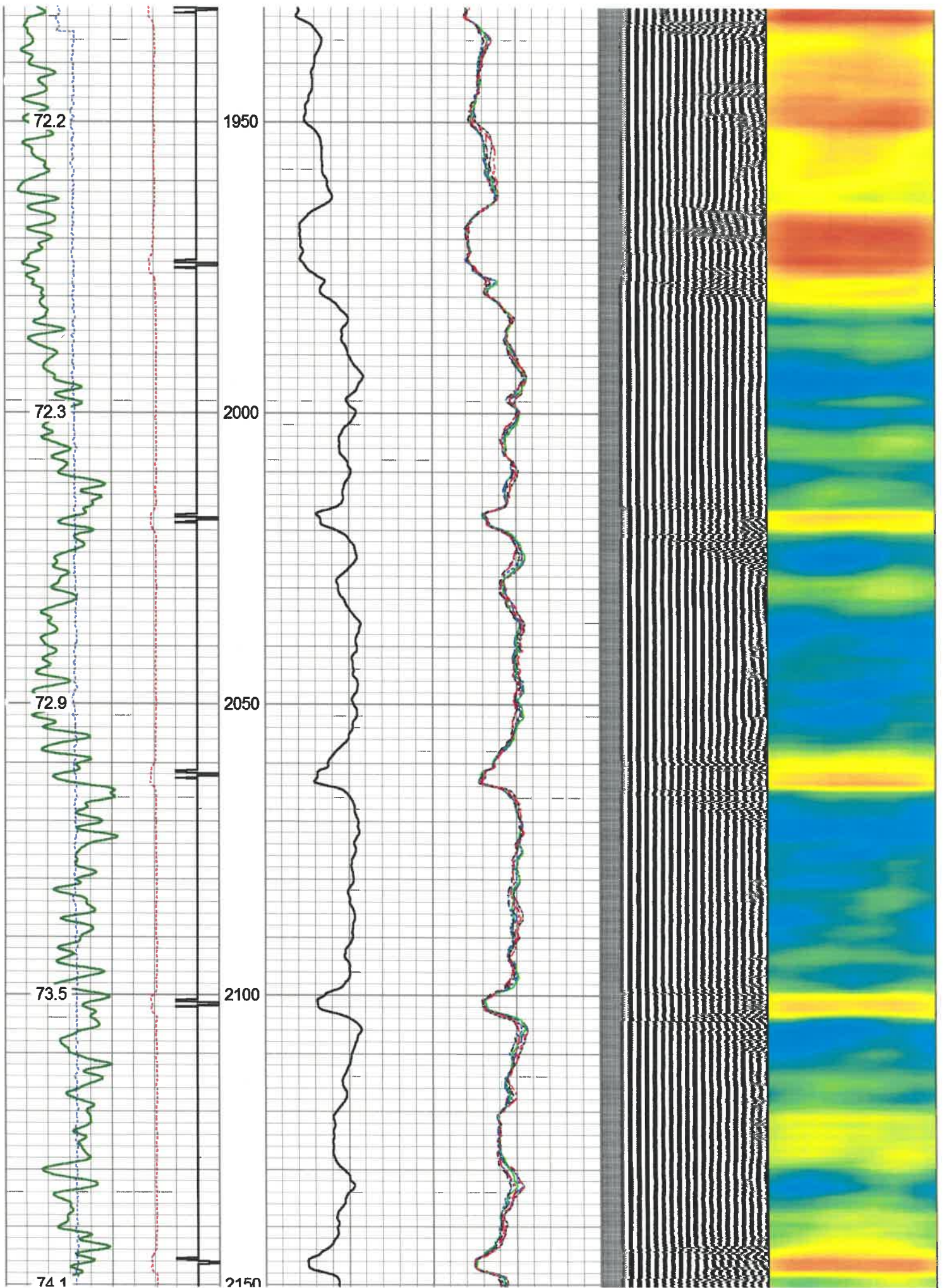




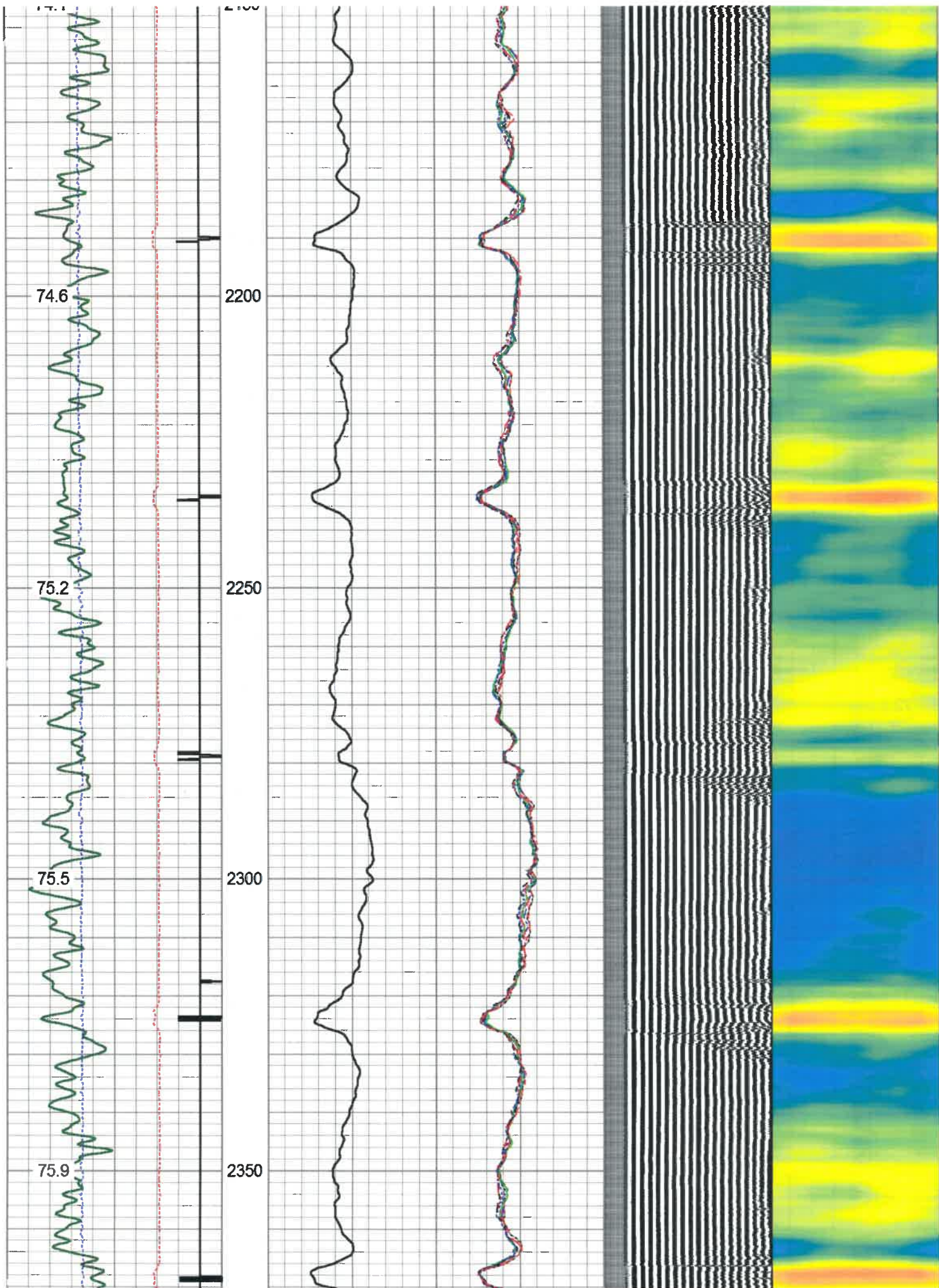




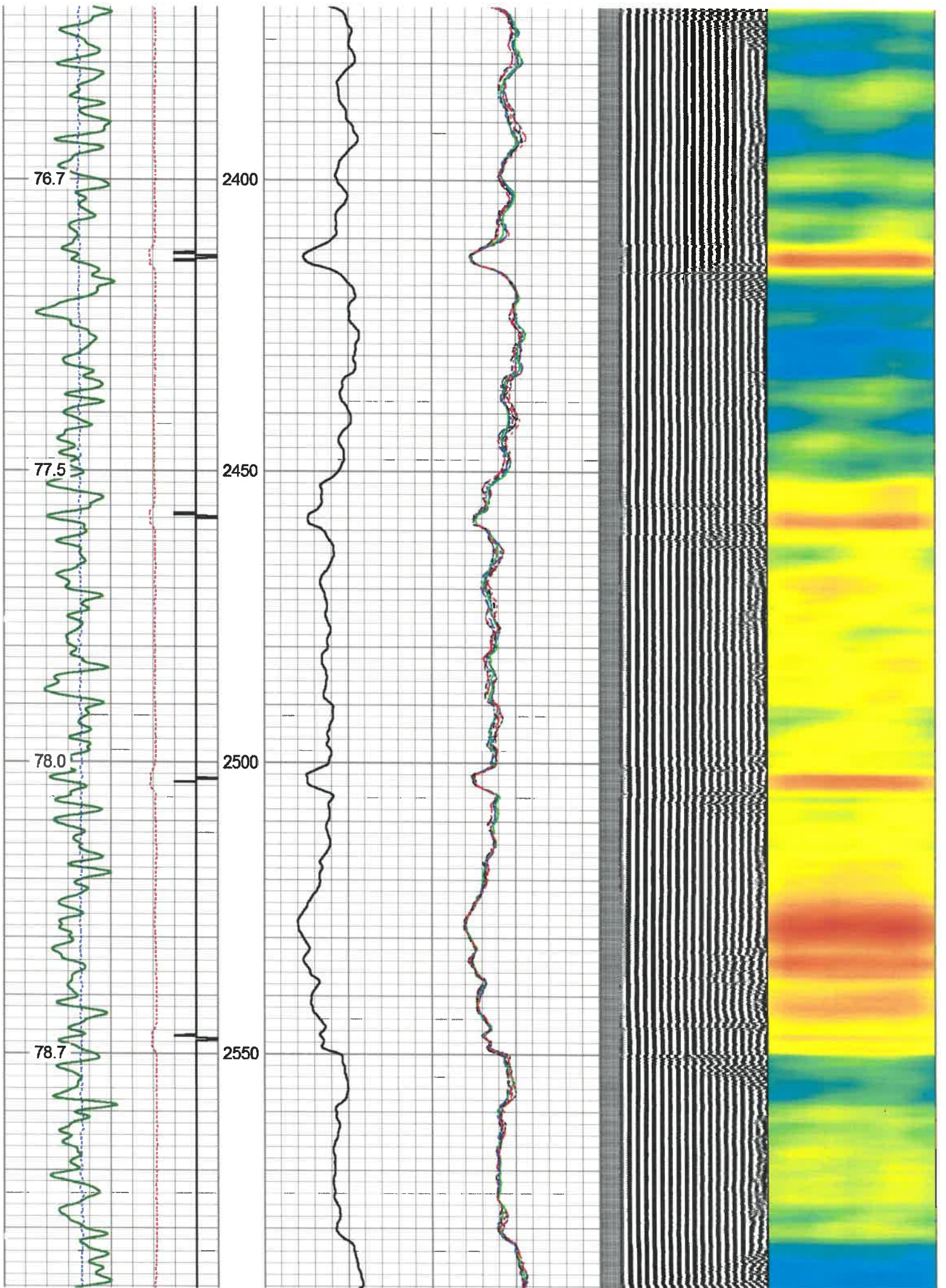




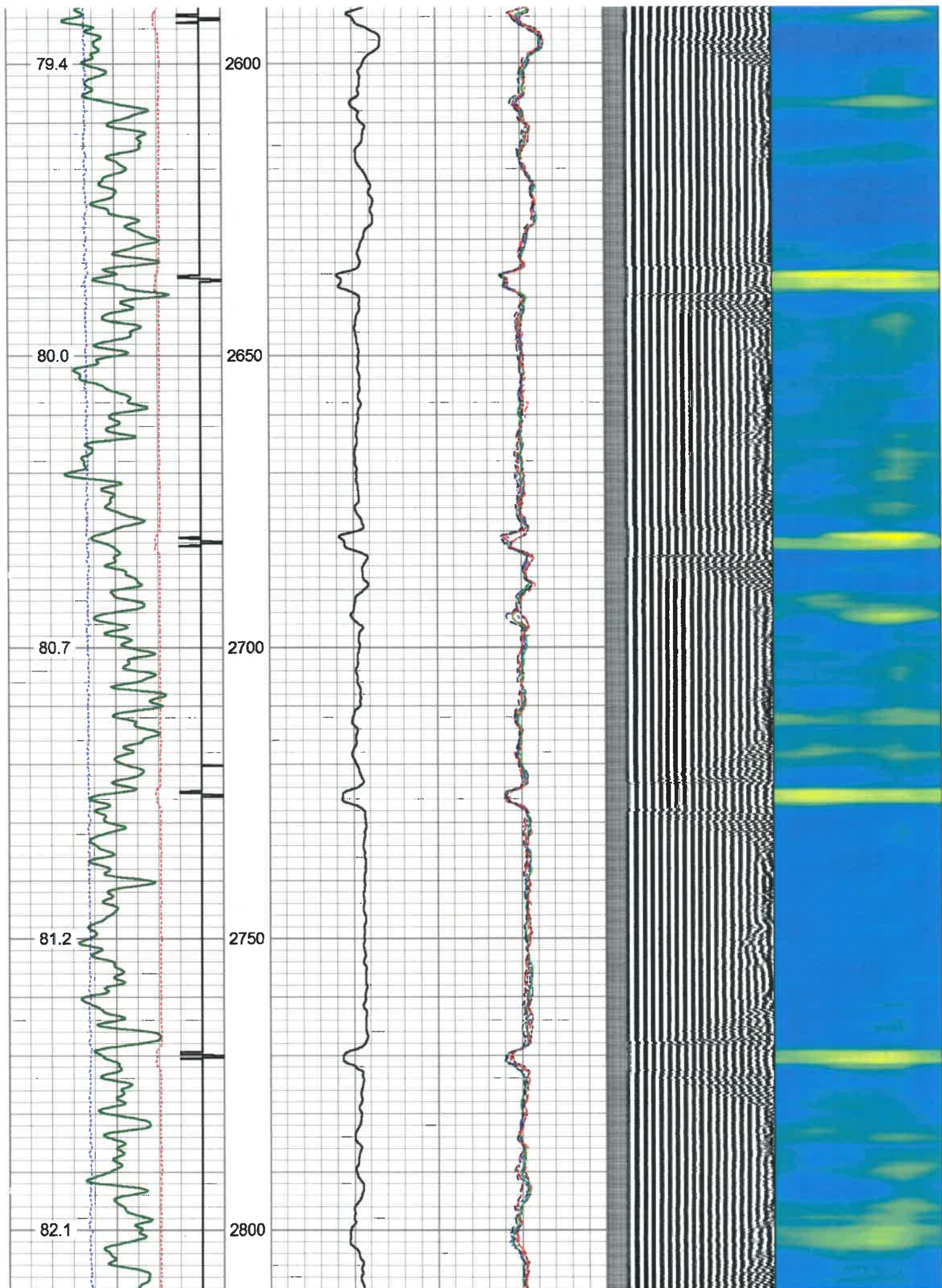




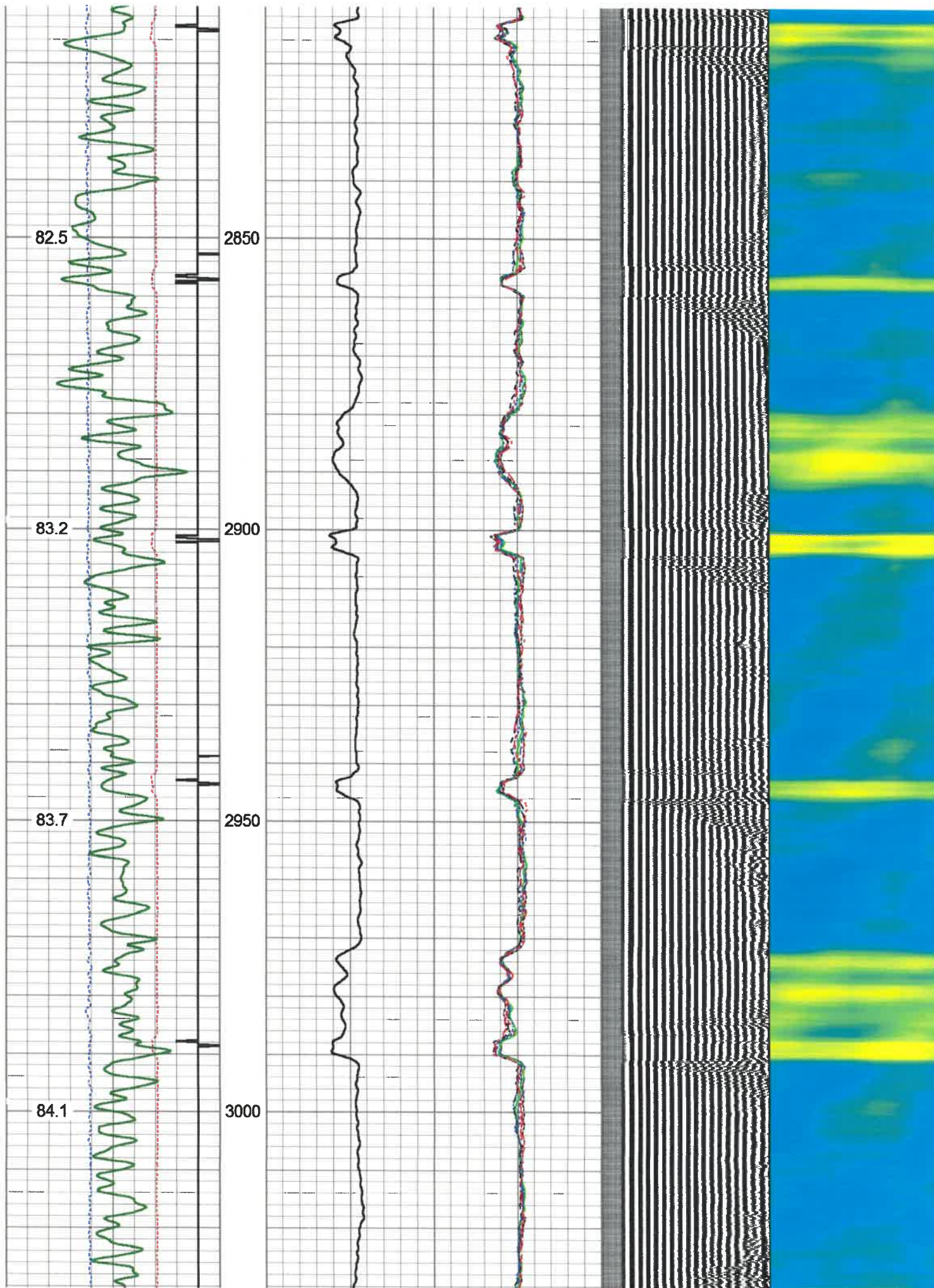




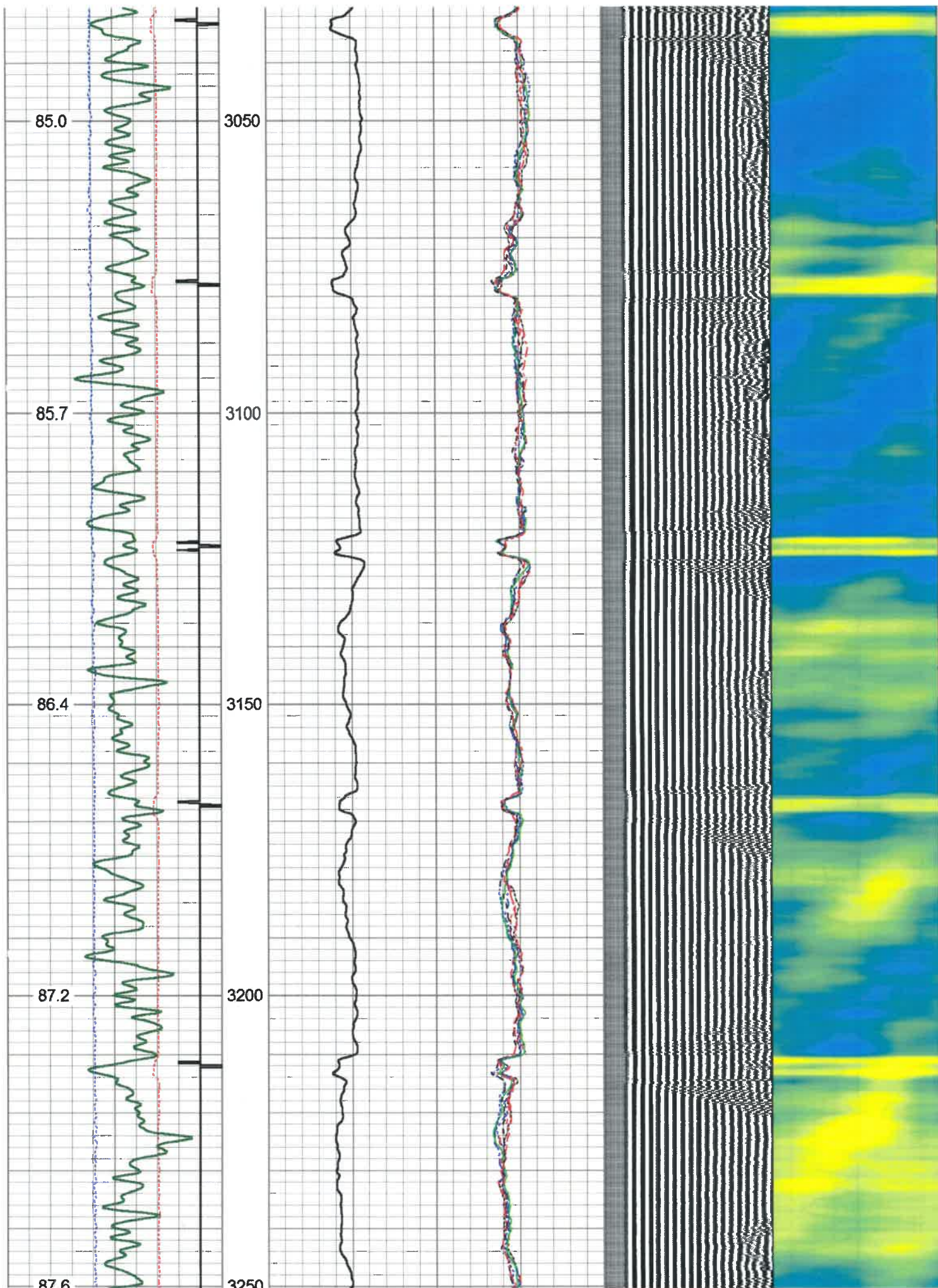




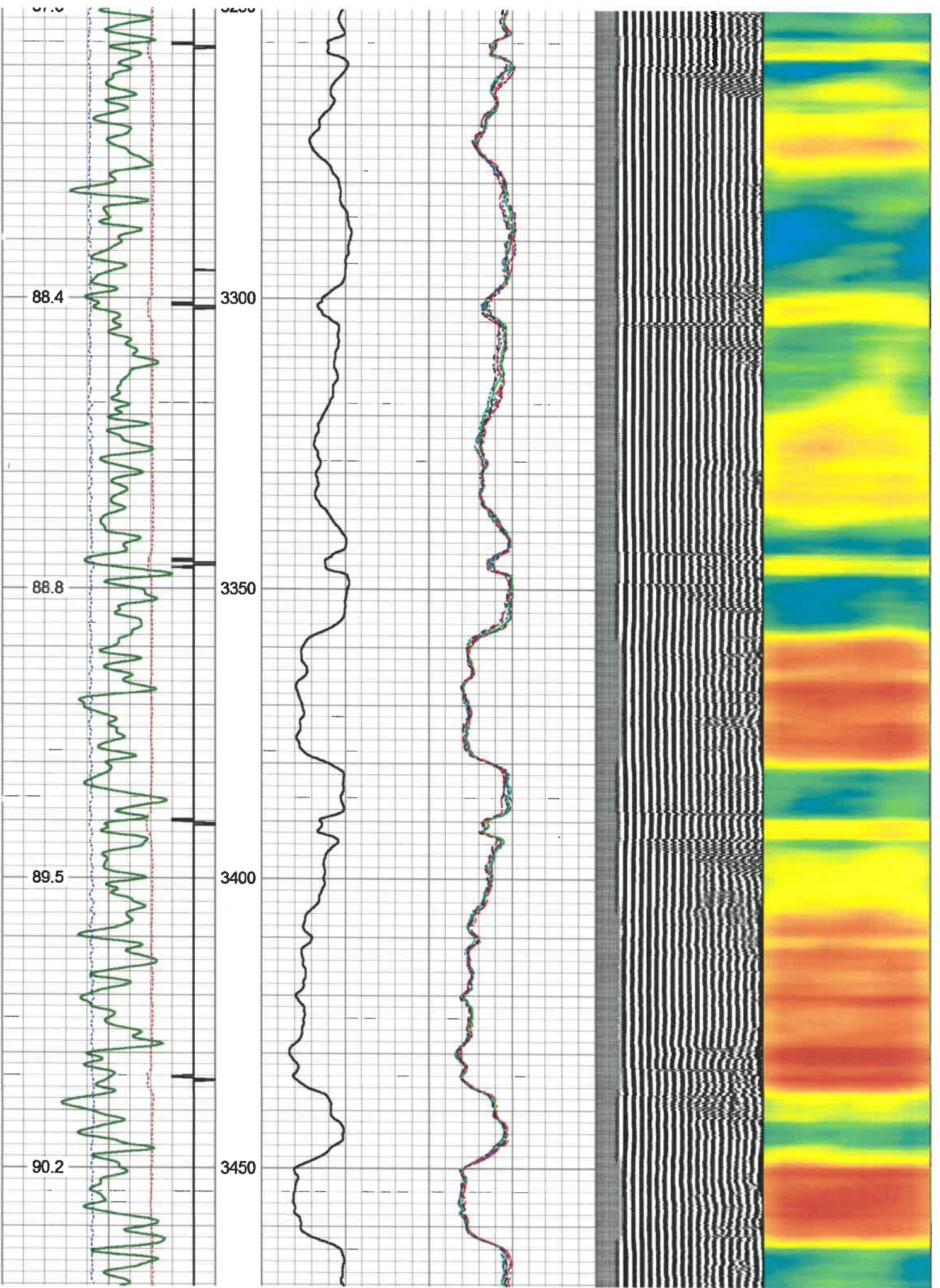




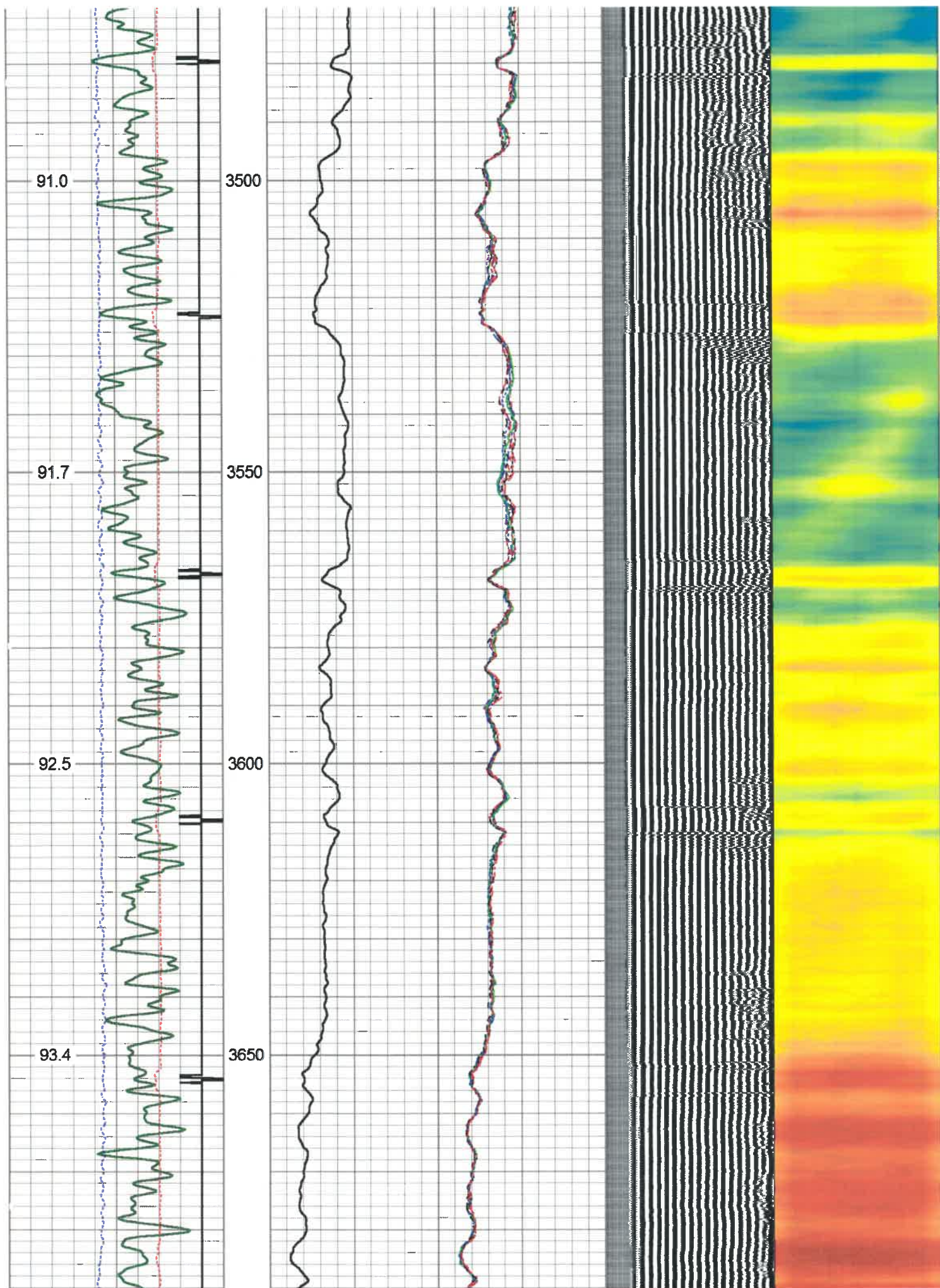




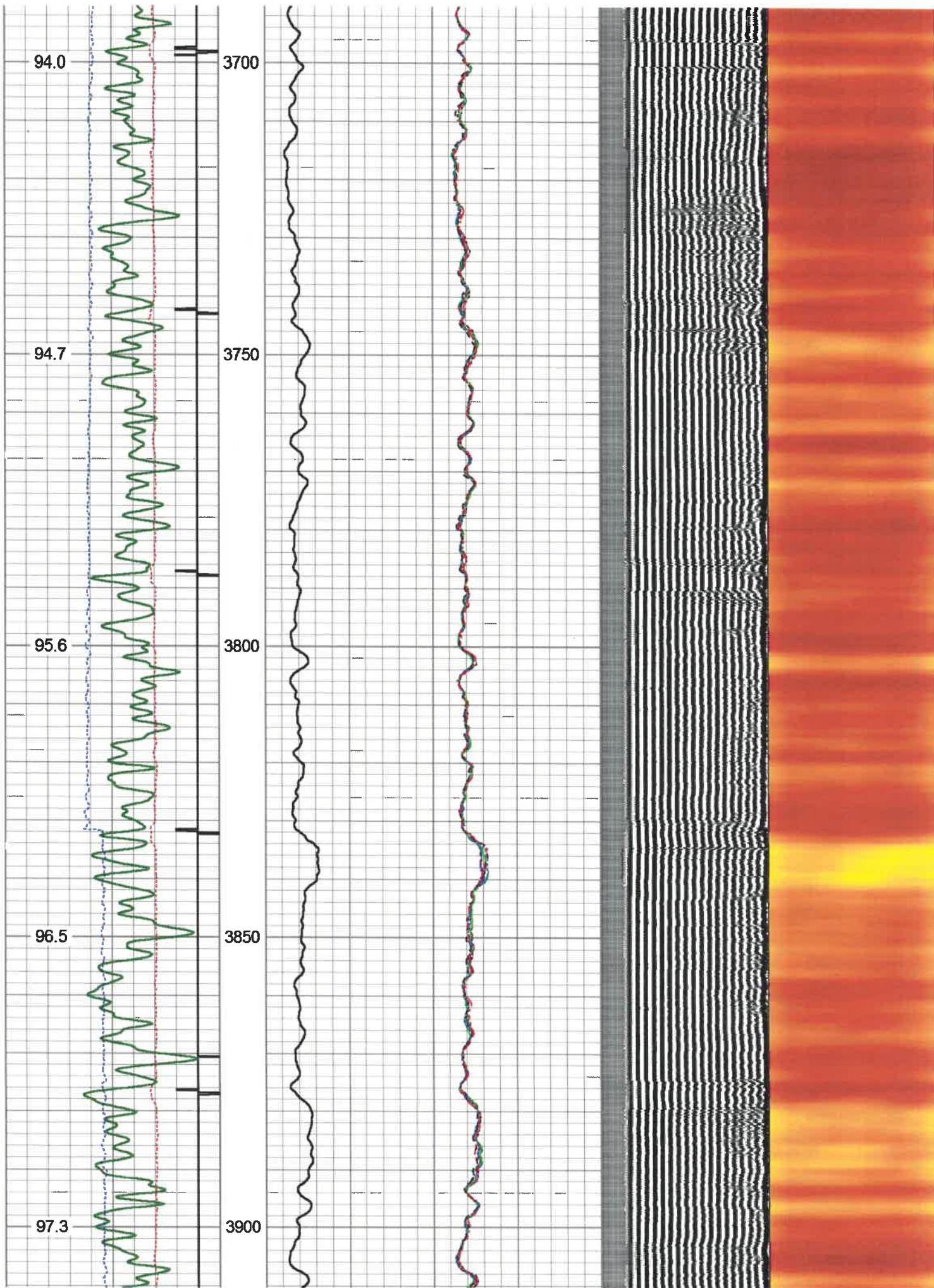




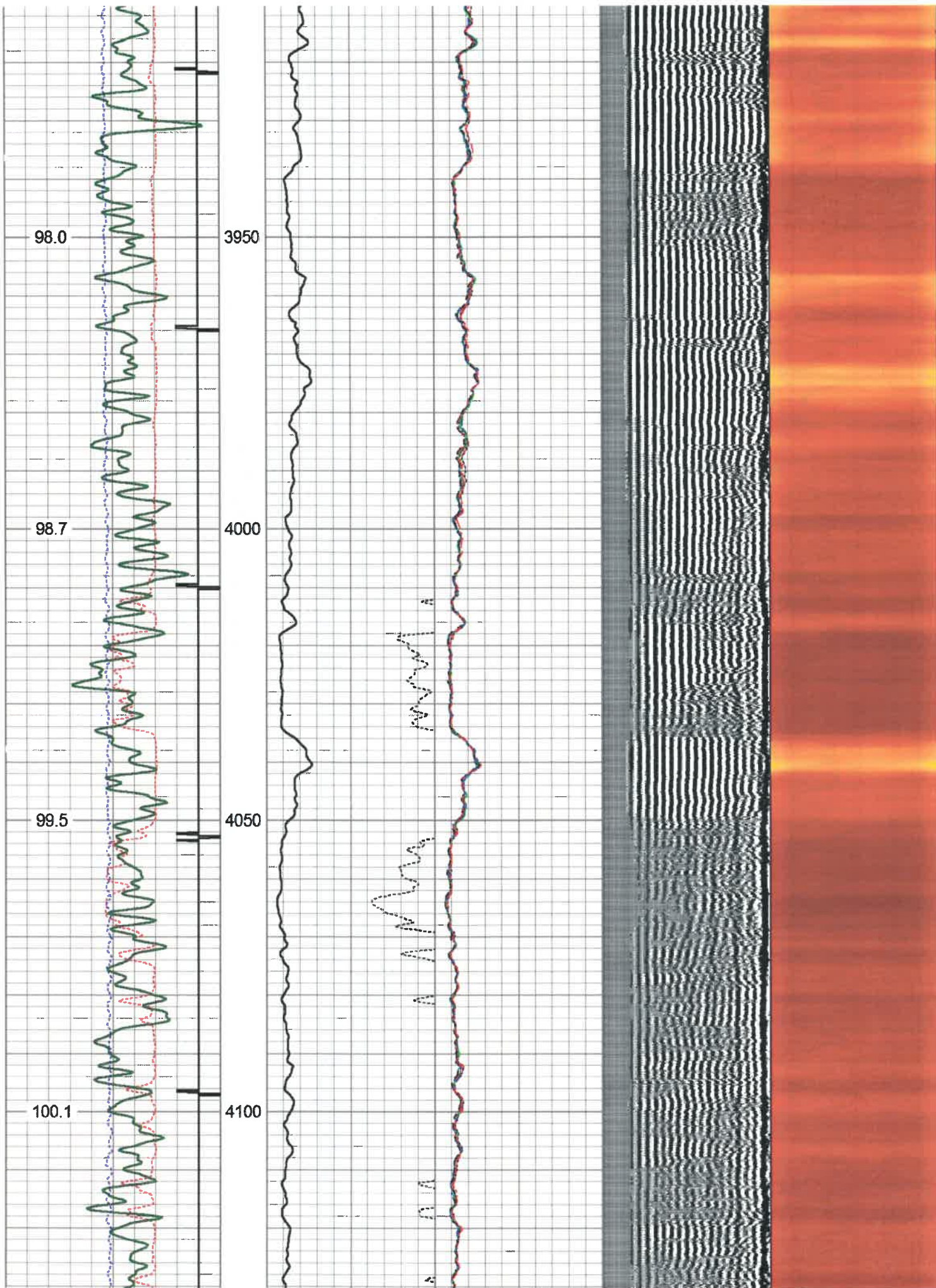




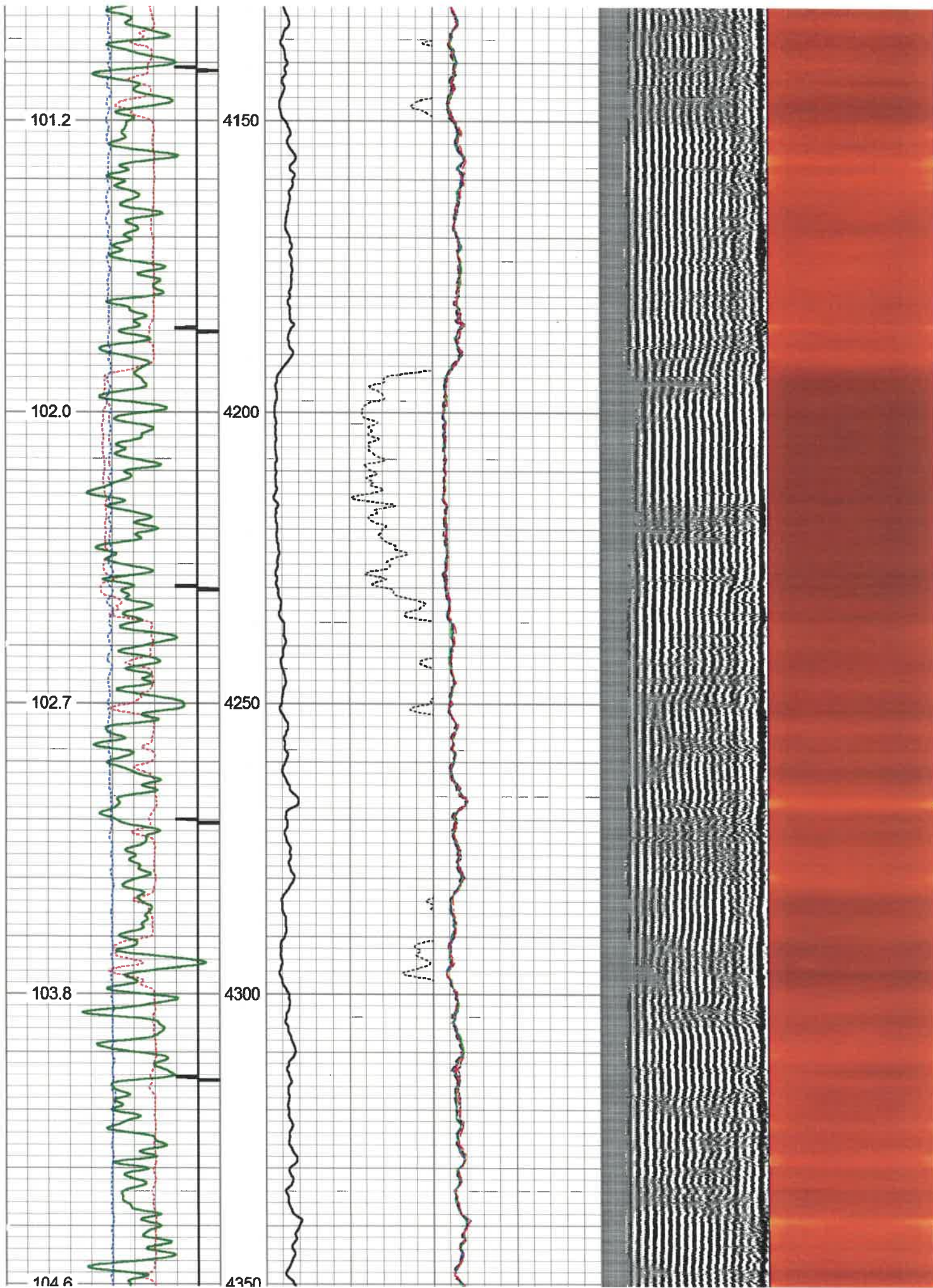




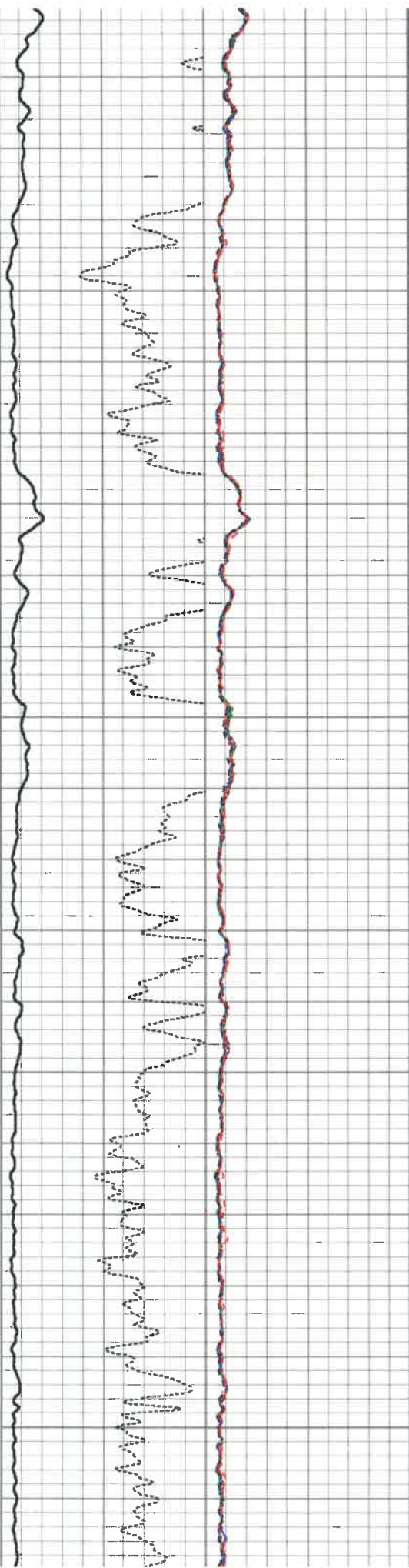
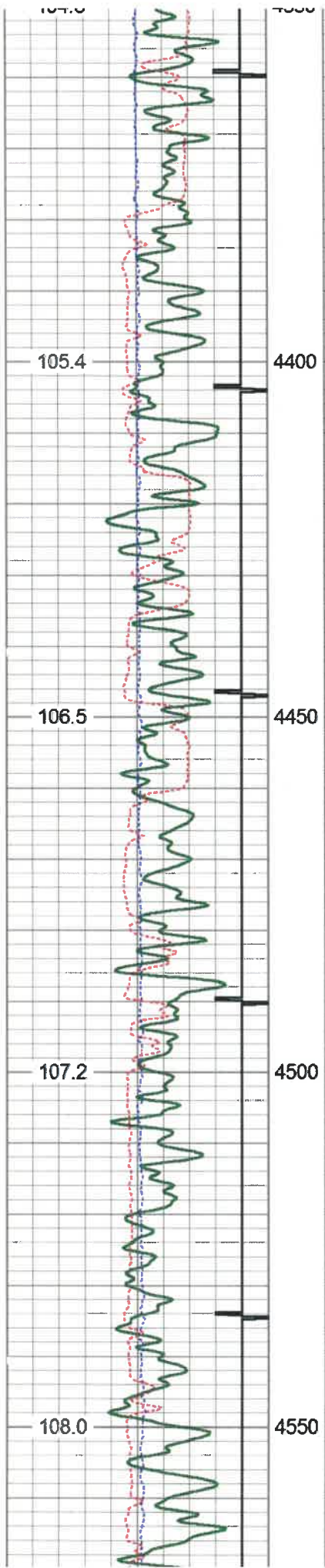




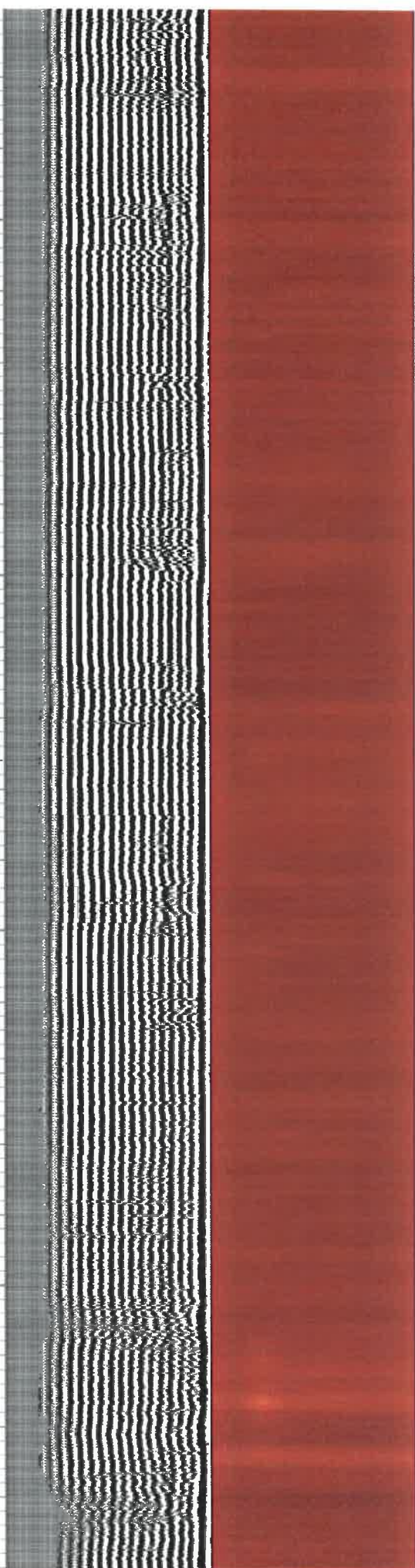
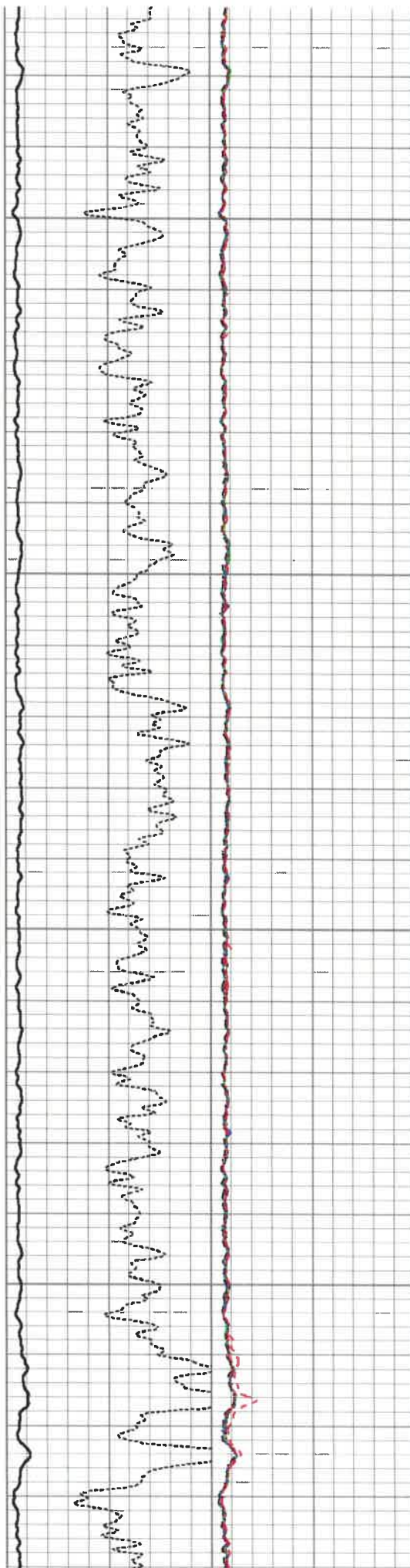
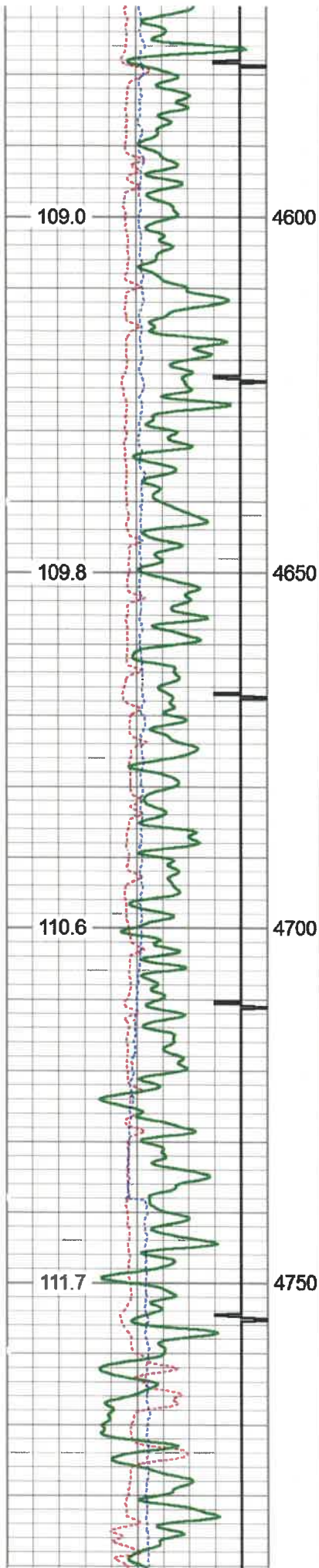




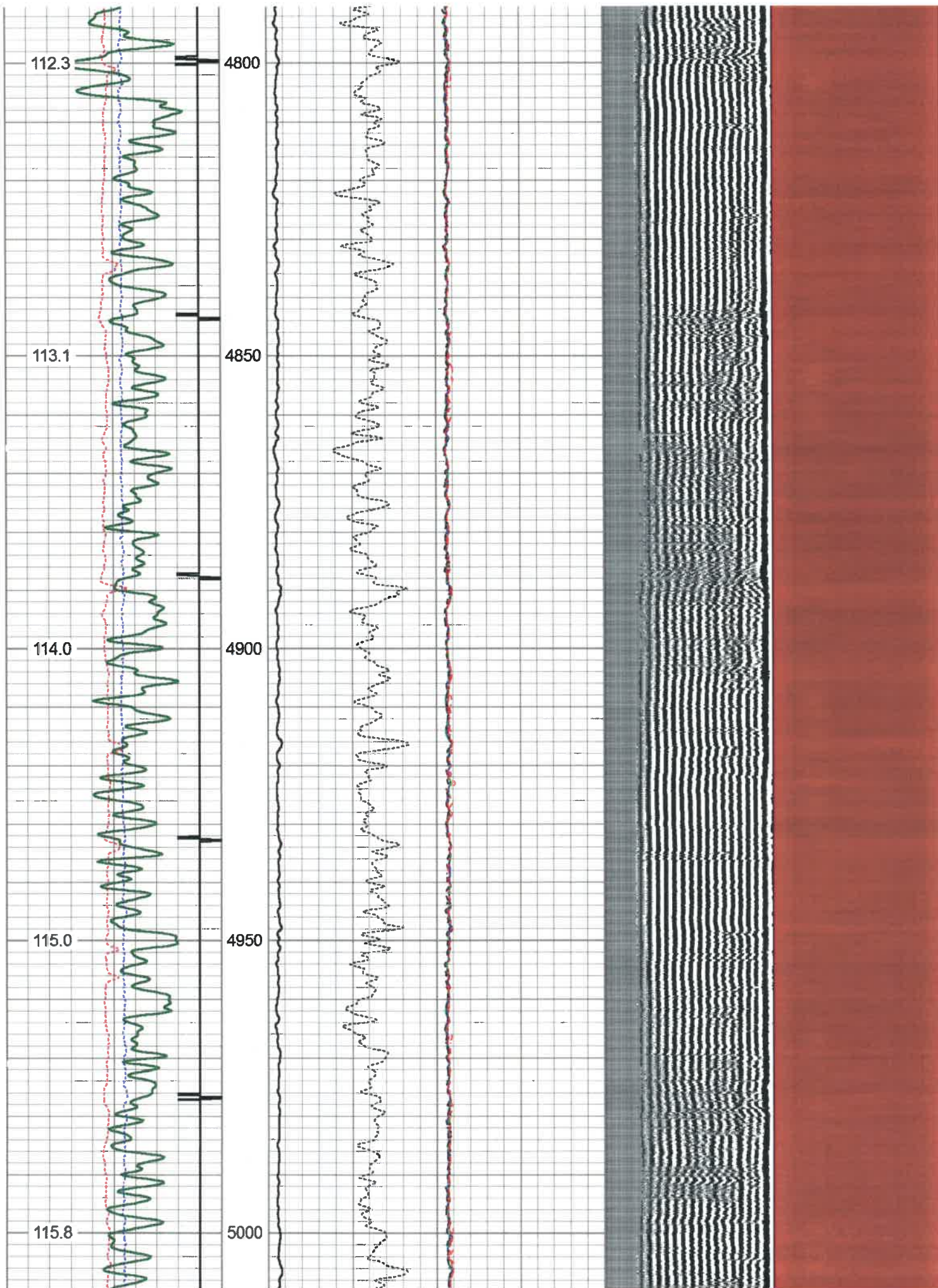




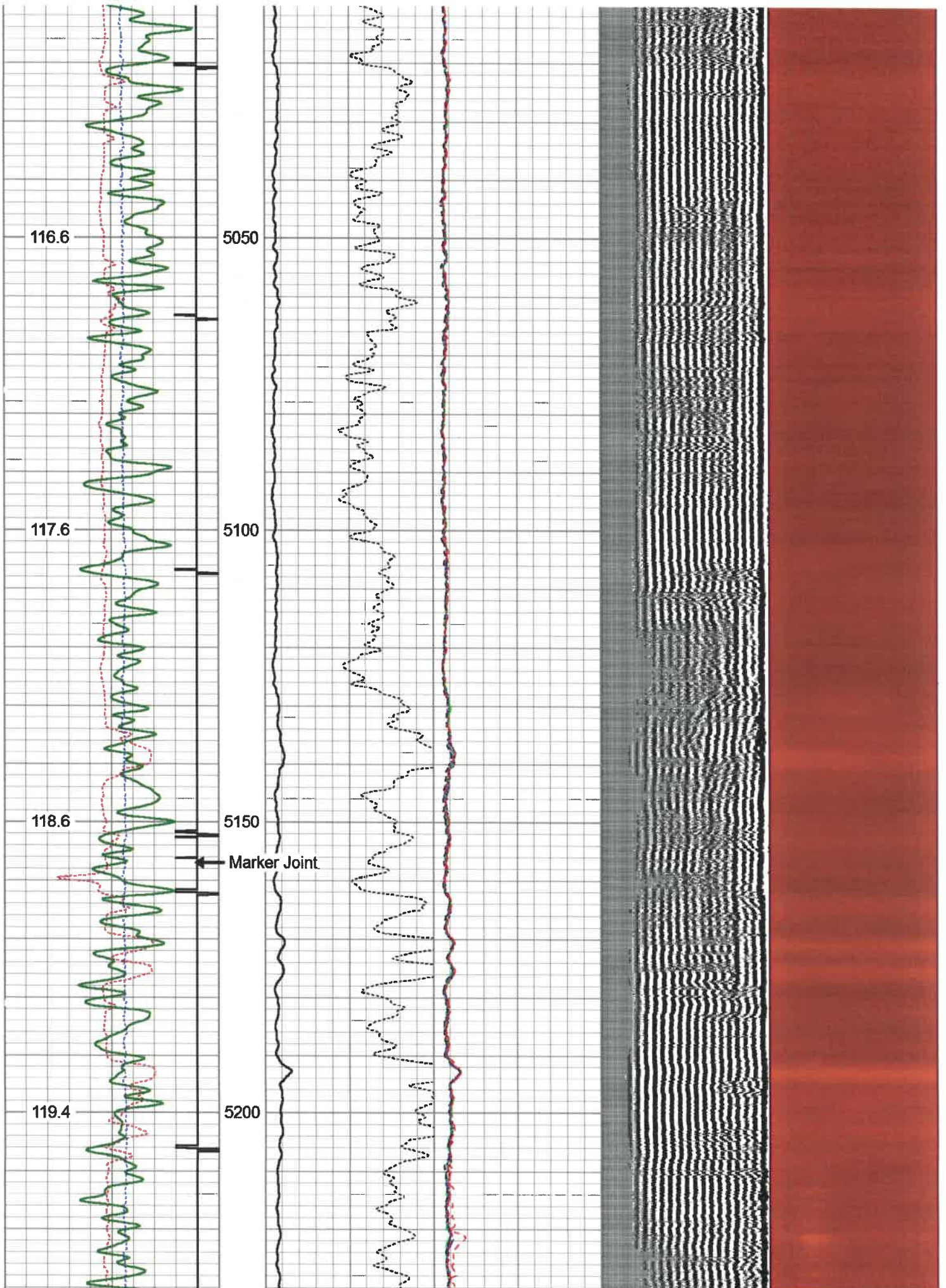




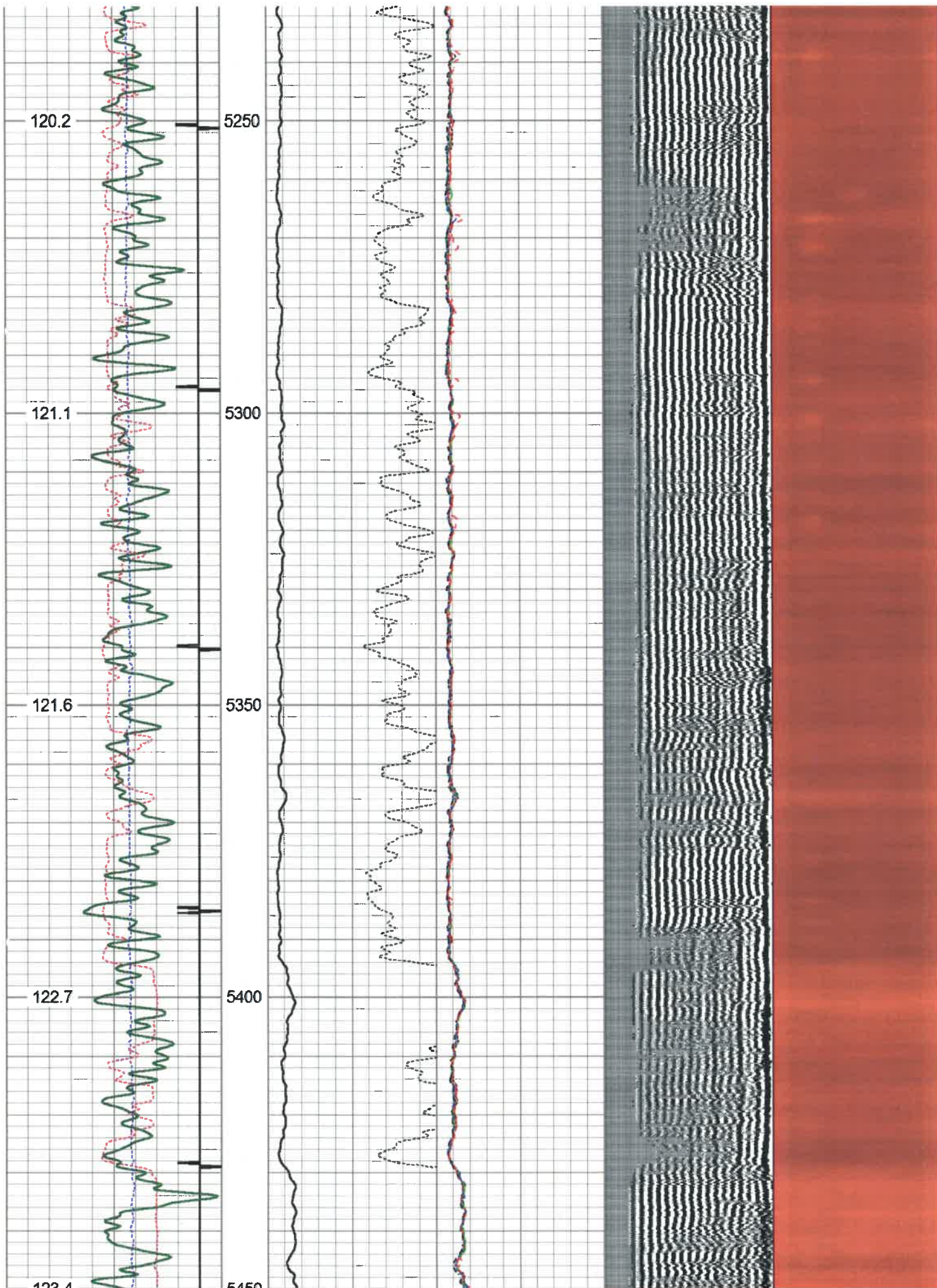




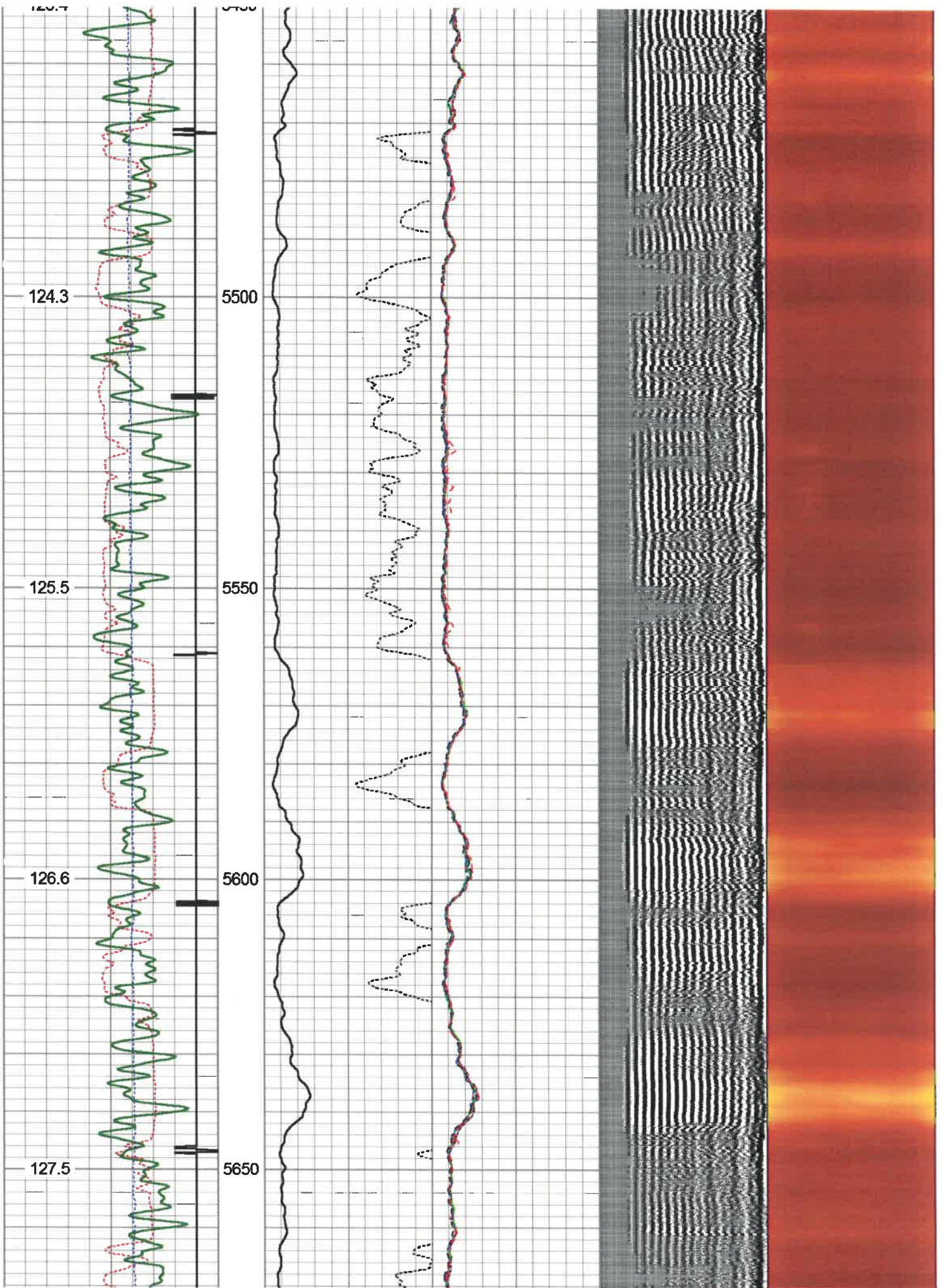




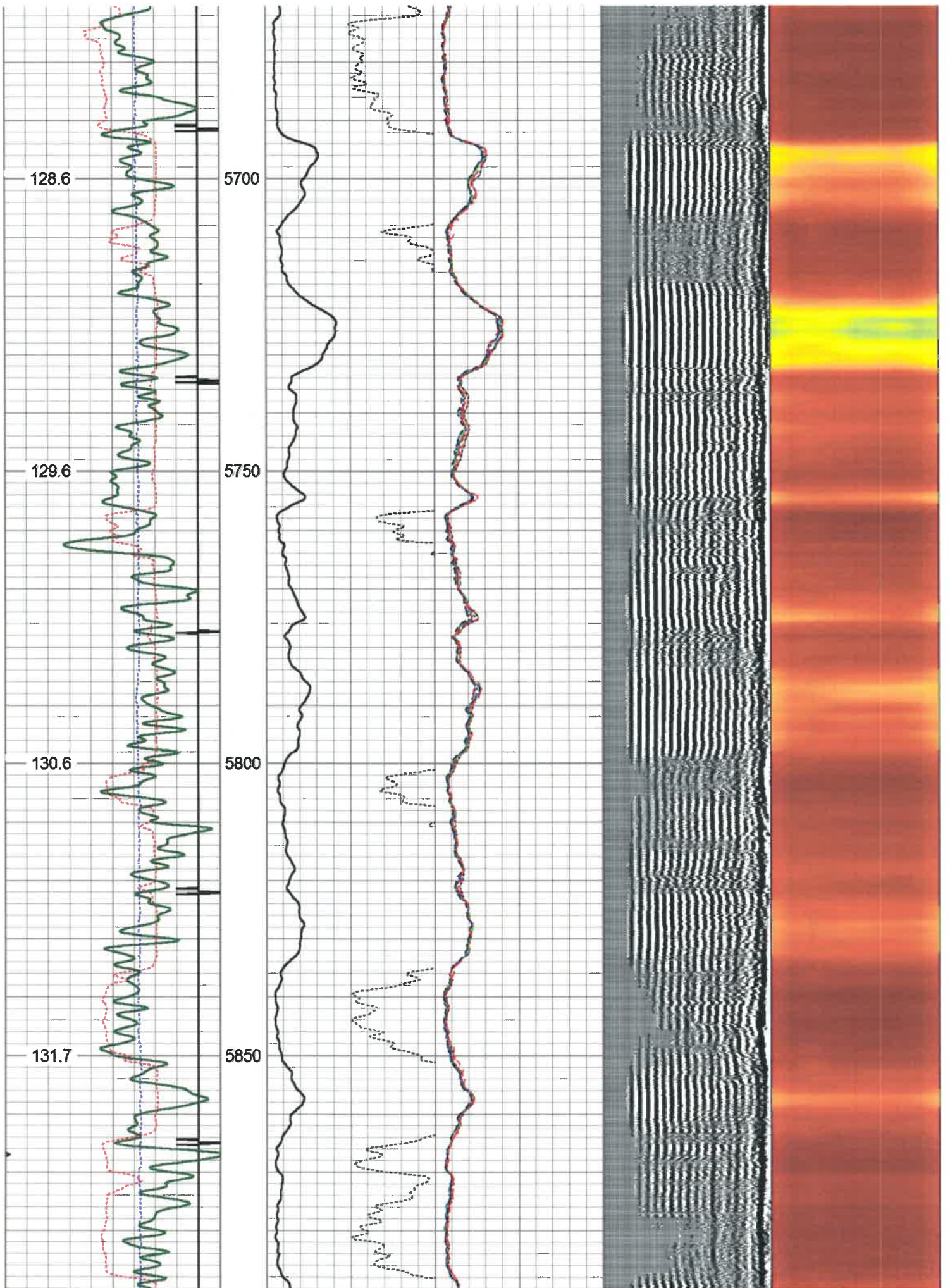




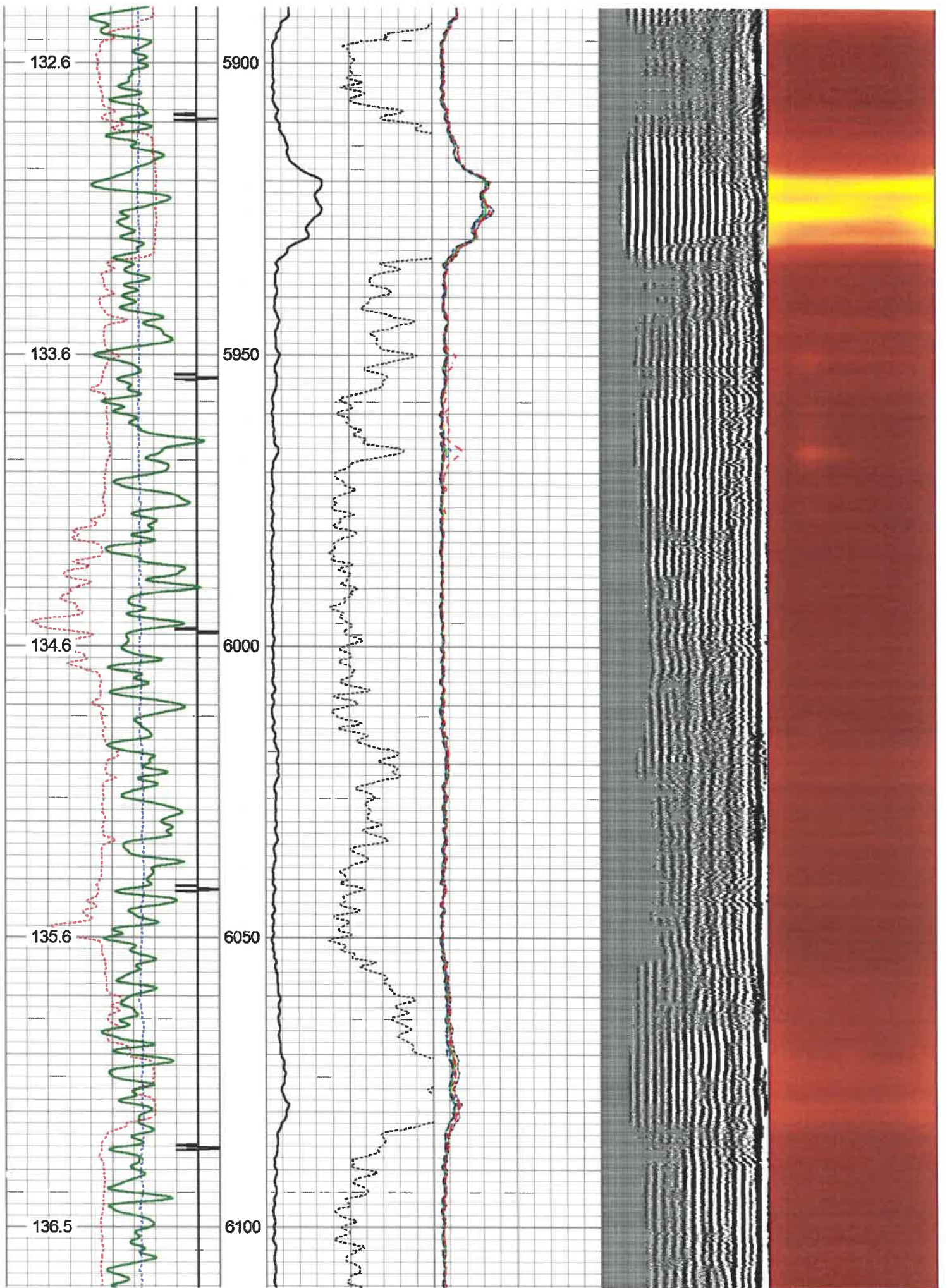




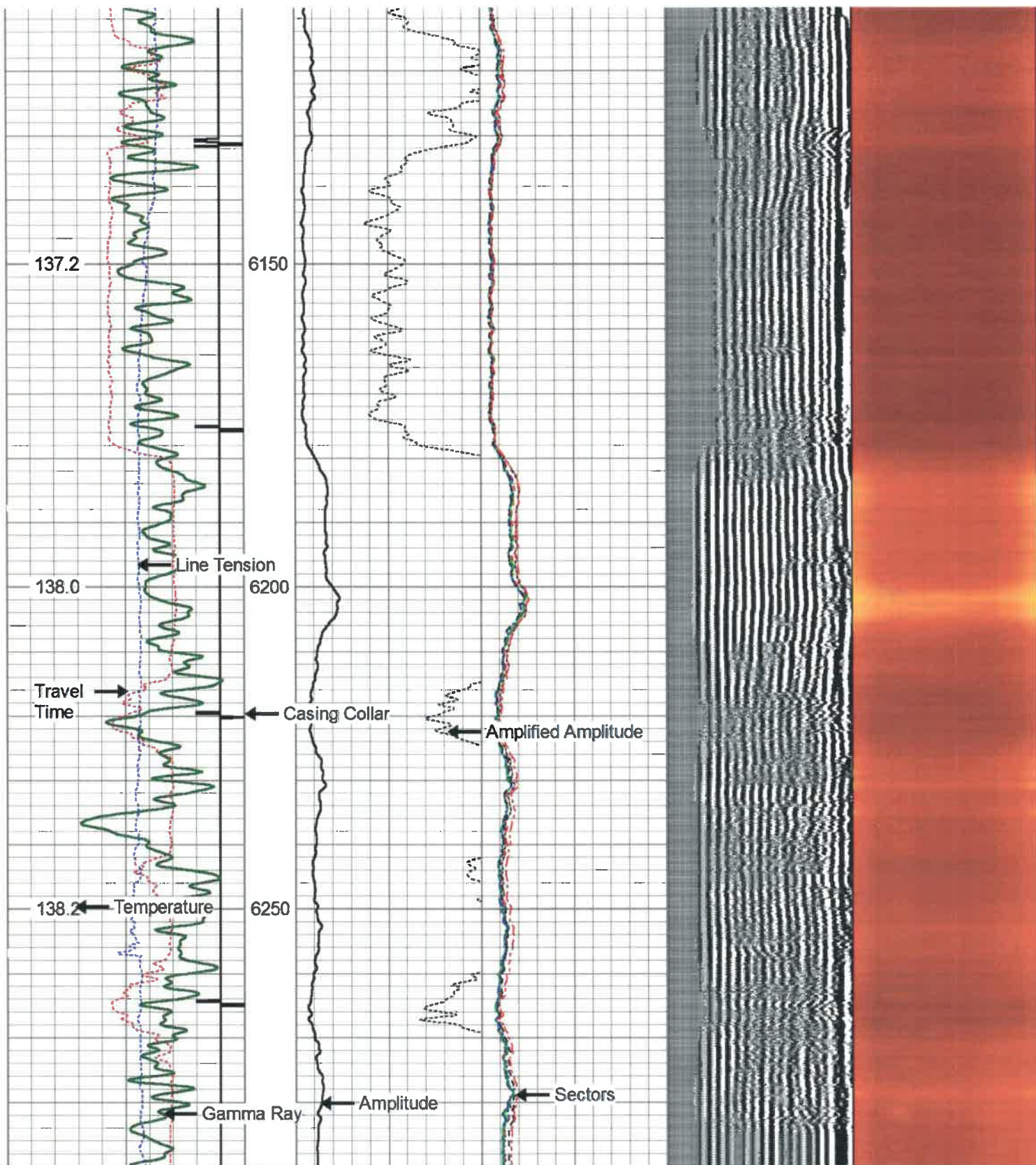












400	Travel Time (usec)	200
Casing Collar		
0	Gamma Ray (GAPI)	150
0	LTEN (lb)	2500

Temp
(degF)

0	Amplitude (mV)	100	-5	Sector 1	150
Amplified Amplitude					
0	(mV)	10	-5	Sector 2	150
Amplitude					
-5			-5	Sector 3	150
-5			-5	Sector 4	150
-5			-5	Sector 5	150
-5			-5	Sector 6	150
-5			-5	Sector 7	150
-5			-5	Sector 8	150

Variable Density	200	(usec)	1200
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1	Cement Map	8
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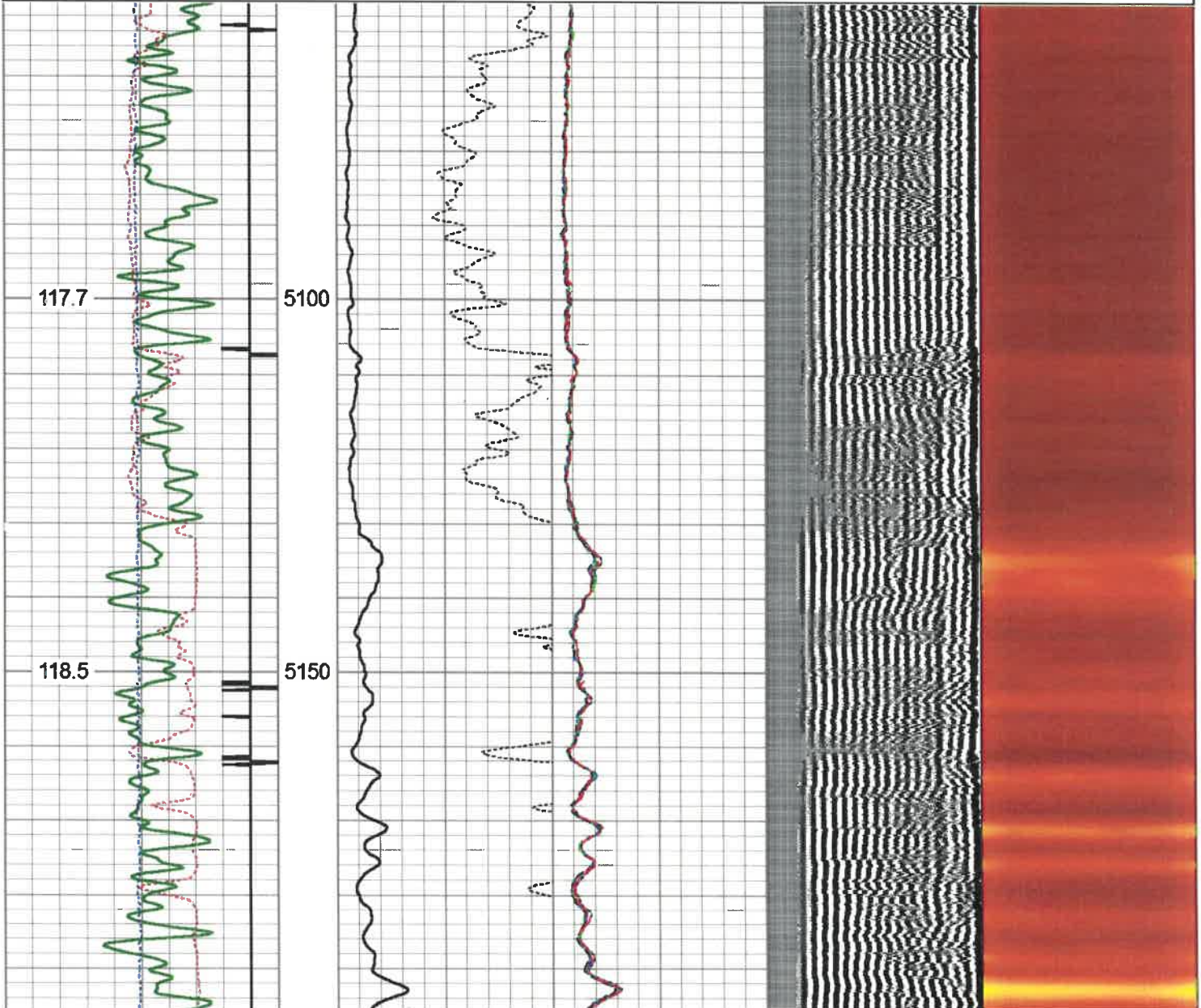




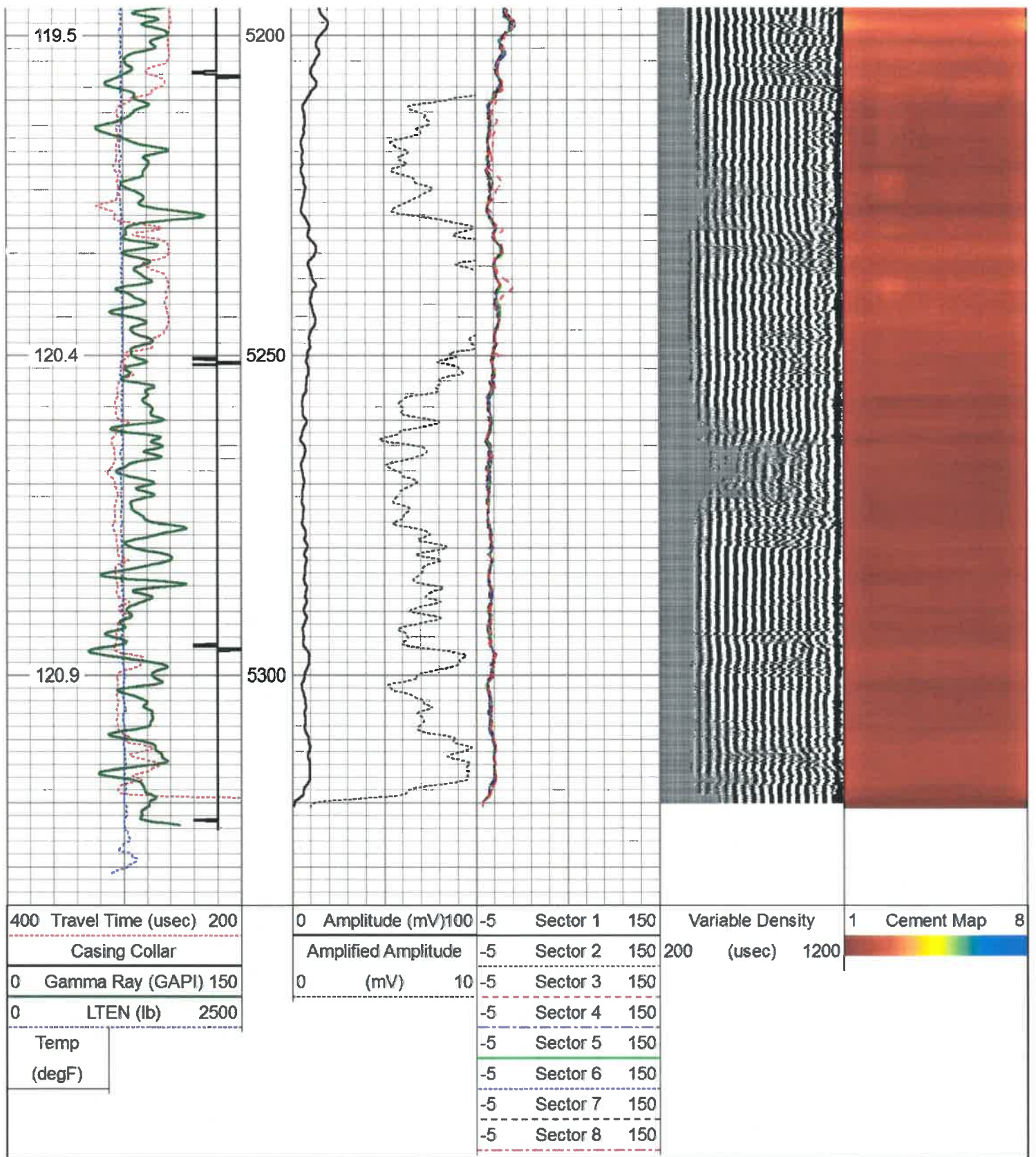
# Repeat Pass 0 PSI

Database File antero\_gauge\_1h\_rcbl\_23\_jun\_19.db  
 Dataset Pathname marcellus/1h/rcbl/pass2  
 Presentation Format scbl03  
 Dataset Creation Mon Jun 24 06:04:11 2019  
 Charted by Depth in Feet scaled 1:240

400	Travel Time (usec)	200	0	Amplitude (mV)	100	-5	Sector 1	150	Variable Density	1	Cement Map	8
Casing Collar			Amplified Amplitude			-5	Sector 2	150	200	(usec)		
0	Gamma Ray (GAPI)	150	0	(mV)	10	-5	Sector 3	150				
0	LTEN (lb)	2500				-5	Sector 4	150				
Temp (degF)						-5	Sector 5	150				
						-5	Sector 6	150				
						-5	Sector 7	150				
						-5	Sector 8	150				







Calibration Report

Database File antero\_gauge\_1h\_rcbl\_23\_jun\_19.db  
 Dataset Pathname marcellus/1h/rcbl/pass4  
 Dataset Creation Mon Jun 24 06:11:46 2019

Gamma Ray Calibration Report

Serial Number: FW1211-86  
 Tool Model: Probe  
 Performed: Sun May 19 12:22:44 2019



Calibrator Value: 1.0 GAPI  
 Background Reading: 0.0 cps  
 Calibrator Reading: 1.0 cps  
 Sensitivity: 0.7000 GAPI/cps

Segmented Cement Bond Log Calibration Report

Serial Number: FW1312-32  
 Tool Model: Probe275T  
 Calibration Casing Diameter: 5.500 in  
 Calibration Depth: 195.825 ft

Master Calibration, performed (Derived):


	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.000	1.119	1.000	71.921	63.356	0.998
CAL	-0.046	1.834				
5'	0.000	1.092	1.000	71.921	64.955	0.999
SUM						
S1	0.000	1.214	0.000	100.000	82.371	-0.003
S2	0.000	1.084	0.000	100.000	92.236	-0.003
S3	0.000	1.065	0.000	100.000	93.925	-0.003
S4	0.000	1.067	0.000	100.000	93.691	-0.003
S5	0.000	1.095	0.000	100.000	91.356	-0.003
S6	0.000	1.162	0.000	100.000	86.094	-0.003
S7	0.000	1.198	0.000	100.000	83.452	-0.003
S8	0.000	1.187	0.000	100.000	84.263	-0.003

Internal Reference Calibration, performed (Not Performed):

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	-0.046	1.834	1.000	0.000

Air Zero Calibration, performed Sat Jun 22 12:51:05 2019:

	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	Length (ft)	O.D. (in)	Weight (lb)
			CHD-Titan	1.00	1.44	5.00



HeadVolt	16.99		Titan 1 7/16" GO Cablehead			
			CENT-Overbody Antelope (SP-919-0233)	1.67	4.88	5.00
Temp	14.14		RBT-Probe275T (FW1312-32) Probe 2.75" Radial with Integral Temperature Sub	9.39	2.75	90.00
WVFS8	11.91					
WVFS7	11.91					
WVFS6	11.91					
WVFS5	11.91					
WVFS4	11.91					
WVFS3	11.91					
WVFS2	11.91					
WVFS1	11.91					
WVF3FT	11.91					
WVF5FT	10.91					
WVFCAL	7.66					
HEADVOLT	7.66					
CCL	6.75					
GR	5.42		CENT-Overbody Antelope (SP-919-0233) GR-Probe (FW1211-86) Probe 2 3/4" Logging Gamma Ray	1.67	4.88	5.00
				4.78	2.75	57.00
		CENT-Probe275 2.75" Centralizer	2.88	2.75	20.00	

Dataset: antero\_gauge\_1h\_rcbl\_23\_jun\_19.db: marcellus/1h/rcbl/pass4  
 Total length: 18.05 ft  
 Total weight: 182.00 lb  
 O.D.: 4.88 in





Nine

Well  
Field  
County  
State

Gauge 1H  
Marcellus  
Tyler  
WV

RECEIVED  
Office of Oil and Gas  
AUG 31 2020  
WV Dept. of Environmental Protection