



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

Company Antero Resources  
Well Gauge 2H  
Field Marcellus  
County Tyler  
State WV

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Well Gauge 2H  
Field Marcellus  
County Tyler State WV

Location: Rush Fork Pad Lat.: 39.4167  
Long.: -80.9697

Permanent Datum SEC TWP RGE  
Log Measured From Kelly Bushing  
Drilling Measured From Kelly Bushing

Ground Level Elevation  
Kelly Bushing 25' A.P.D.  
Kelly Bushing

Other Services  
JB/GR 4.50"  
Elevation  
K.B. 1,011'  
D.F. 1,010'  
G.L. 986'

Date 23-Jun-19

Run Number One

Depth Driller 18,490'

Depth Logger 6,329'

Bottom Logged Interval 6,329'

Top Log Interval Surface

Open Hole Size N/A

Type Fluid Water

Density / Viscosity N/A

Max. Recorded Temp. 140 Deg.F.

Estimated Cement Top 1,590'

Time Well Ready 22:15

Time Logger on Bottom 22:55

Equipment Number 104 (P4) (G4)

Location Washington, PA

Recorded By Matt McNally

Witnessed By Ryan Barik

Run Number

Bit From To

Size

Wgt/Ft

Top

Bottom

Borehole Record

Tubing Record

Weight From To

Size

Wgt/Ft

Top

Bottom

Surface String 23 LBS Surface 18,490'

Prot. String 5 1/2"

Production String 5,278' 5,288'

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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 (5,278' - 5,288' )  
Depth Correction ( +4 ' )

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

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

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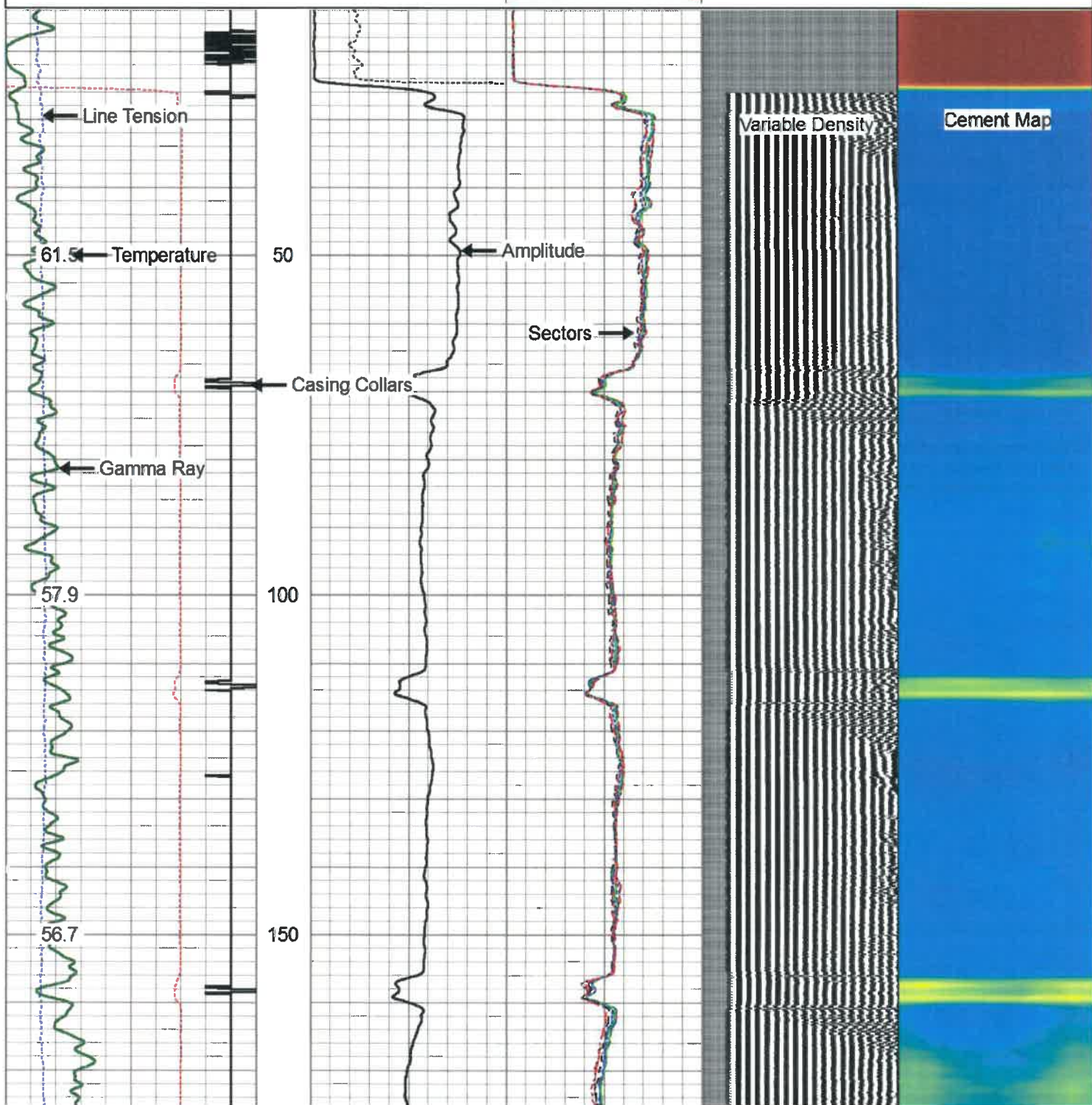
WV Department of  
Environmental Protection

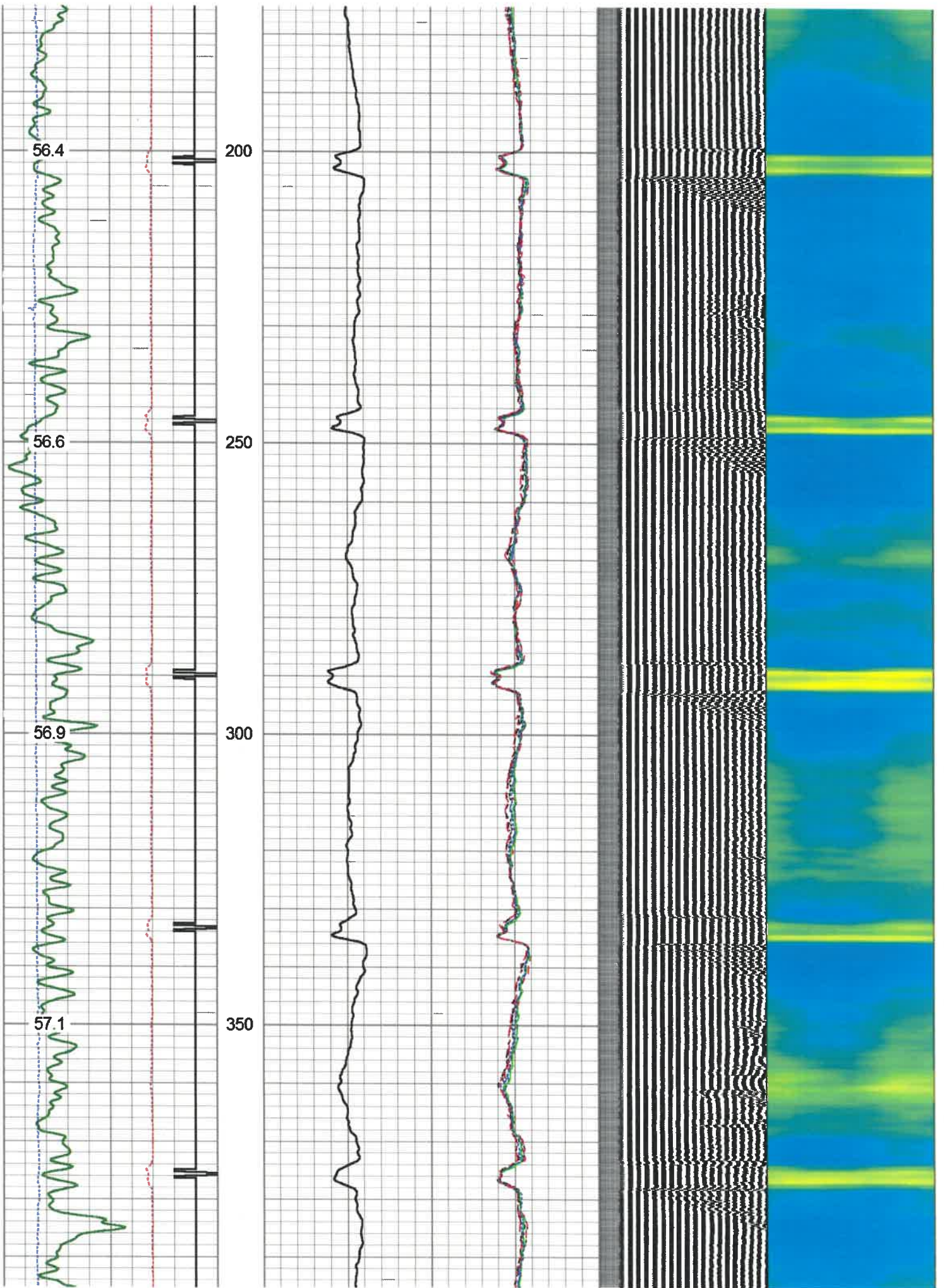


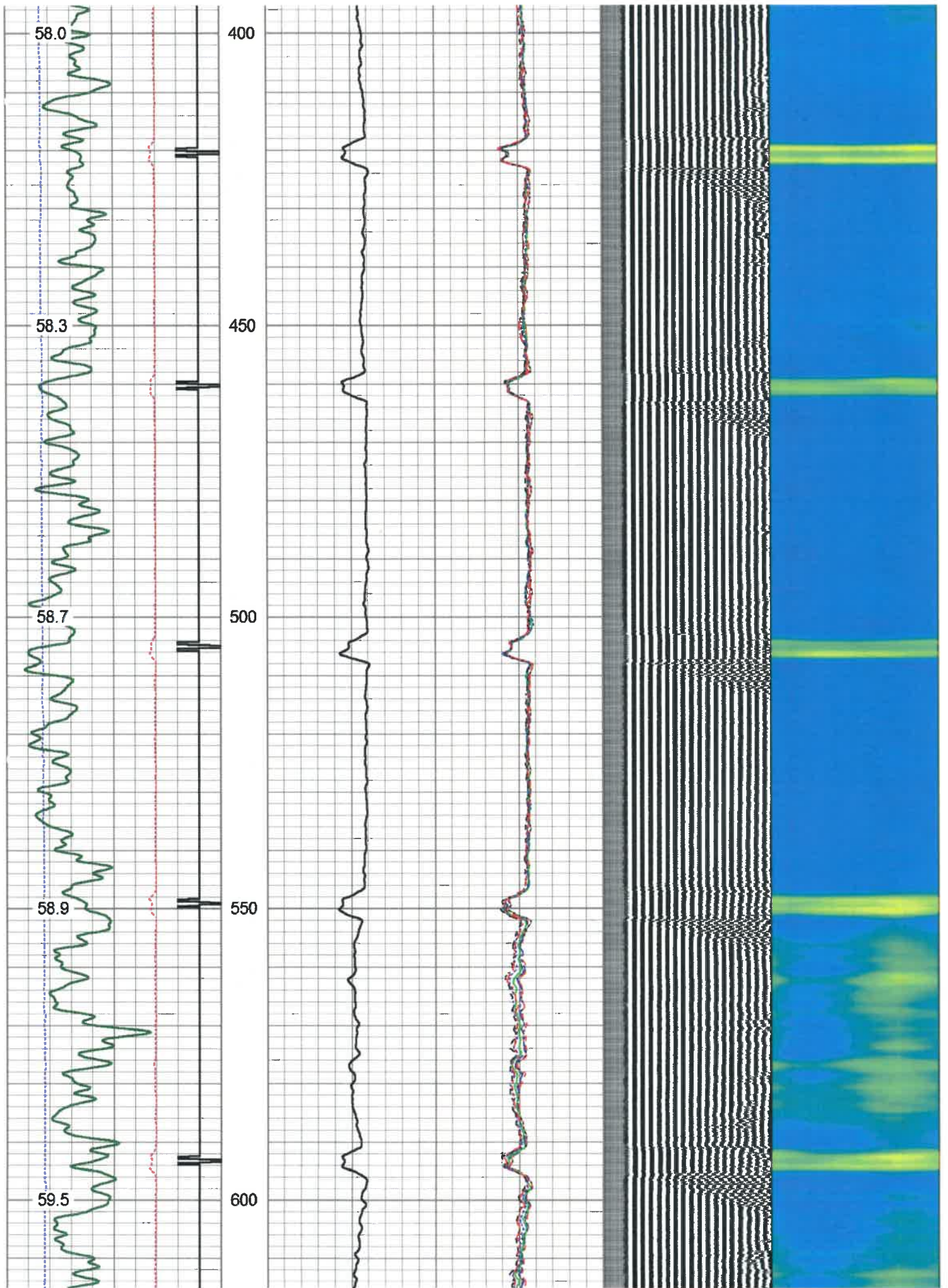
**Main Pass 1,500 PSI**

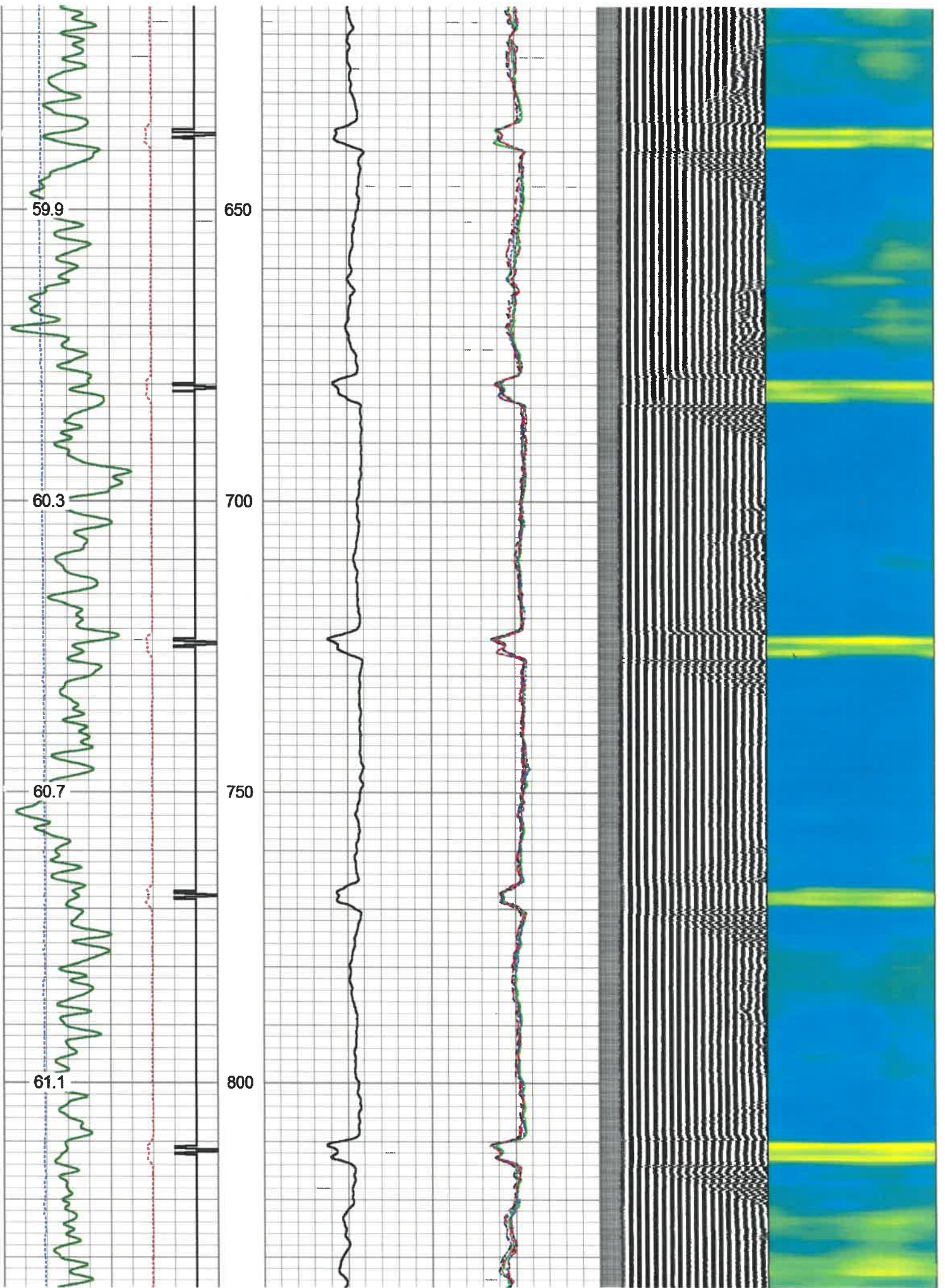
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 Presentation Format scbl03  
 Dataset Creation Sun Jun 23 22:39:54 2019  
 Charted by Depth in Feet scaled 1:240

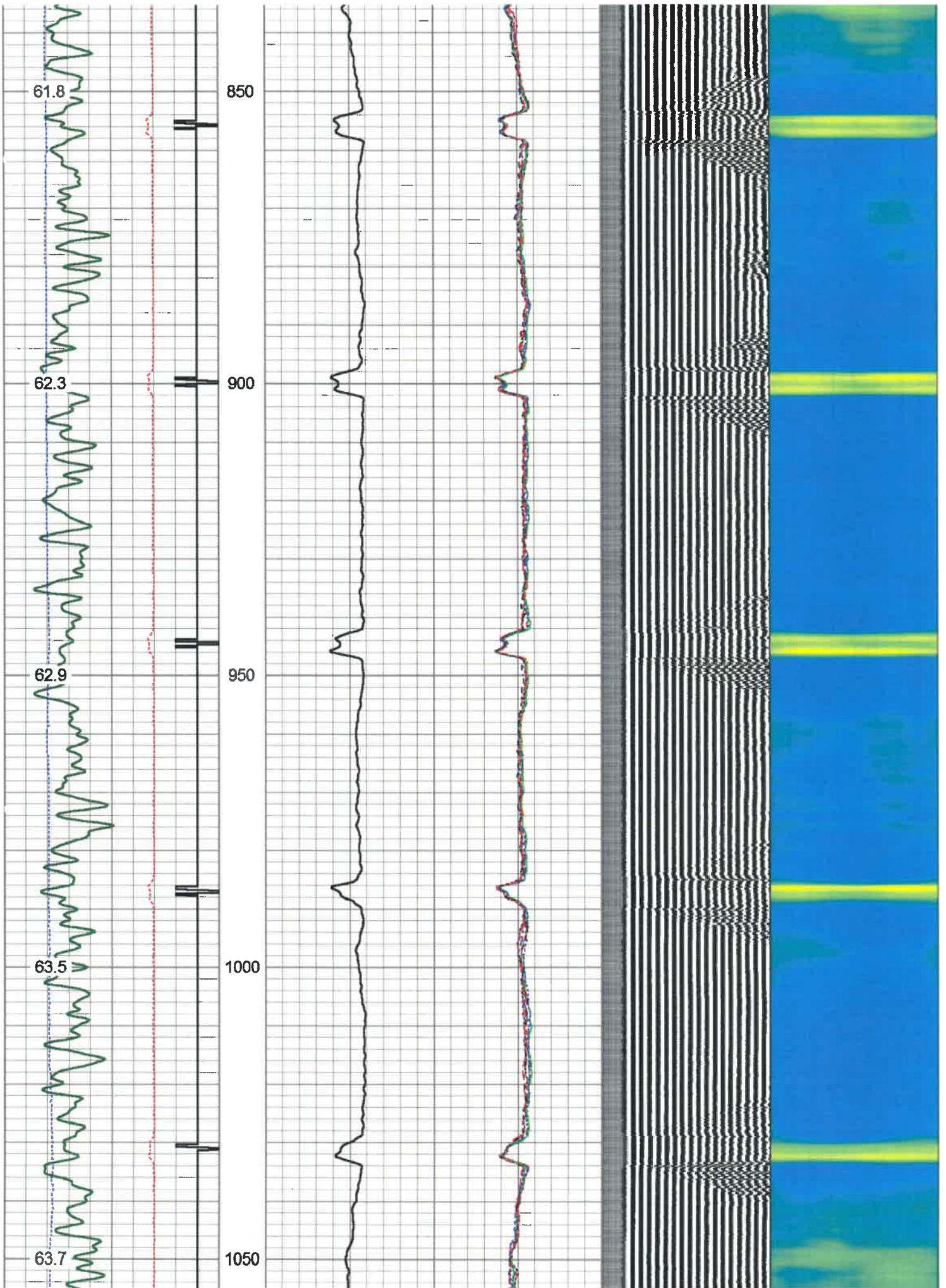
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Casing Collar			Amplified Amplitude			-5	Sector 2	150	200	(usec)	1200	
0	Gamma Ray (GAPI)	150	0	(mV)	10	-5	Sector 3	150				
0	LTEN (lb)	2500				-5	Sector 4	150				
Temp						-5	Sector 5	150				
(degF)						-5	Sector 6	150				
						-5	Sector 7	150				
						-5	Sector 8	150				

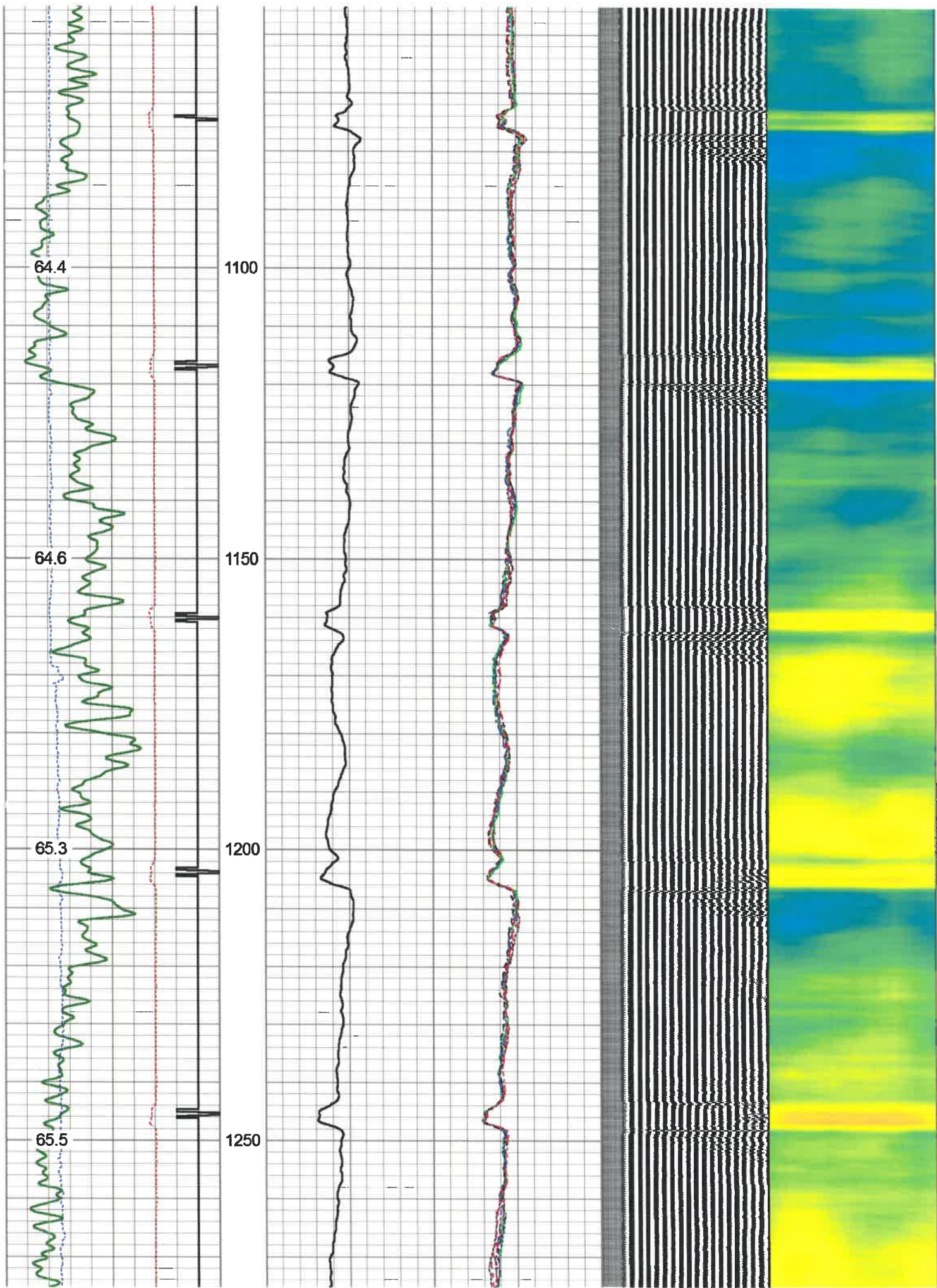


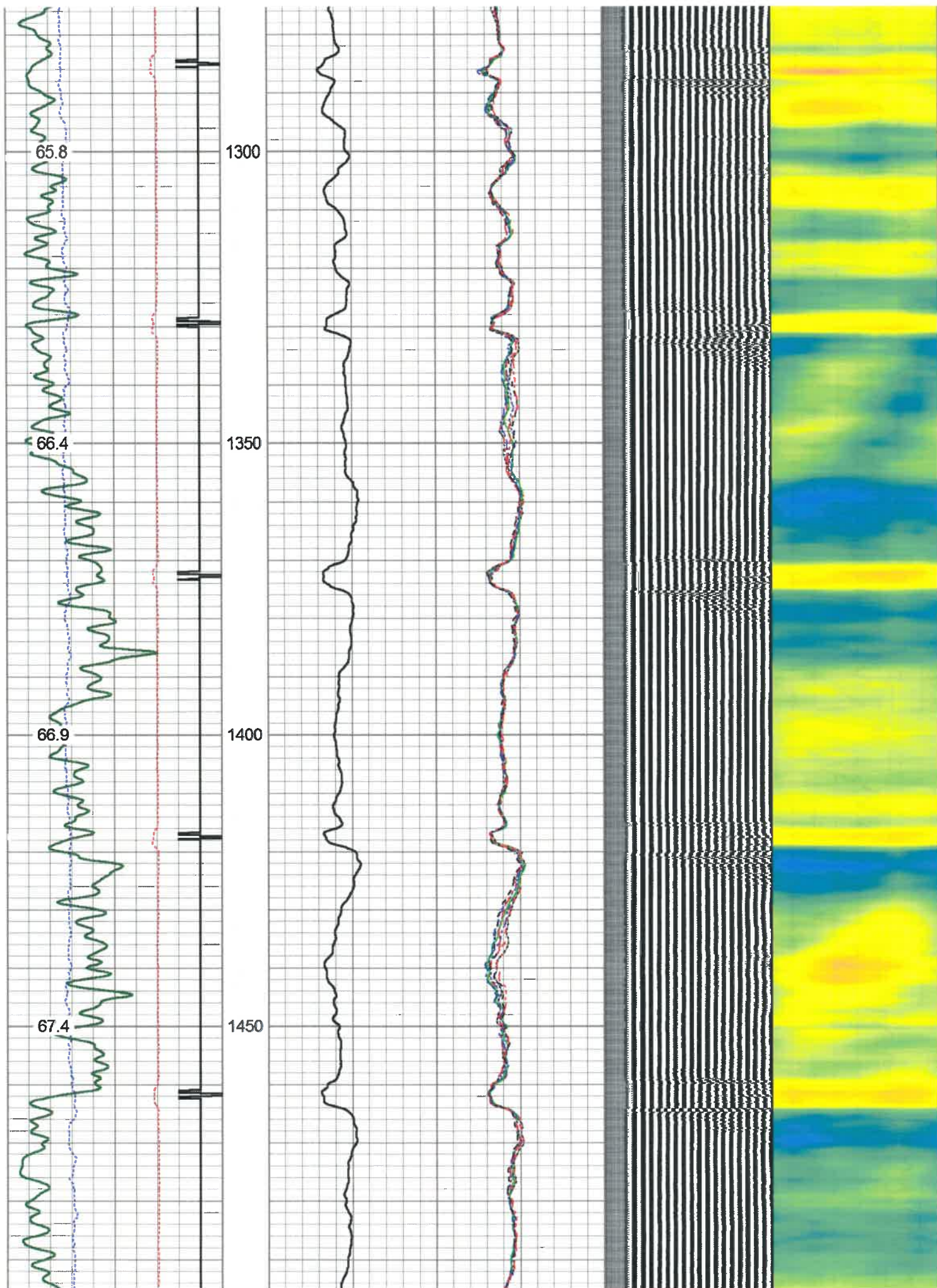






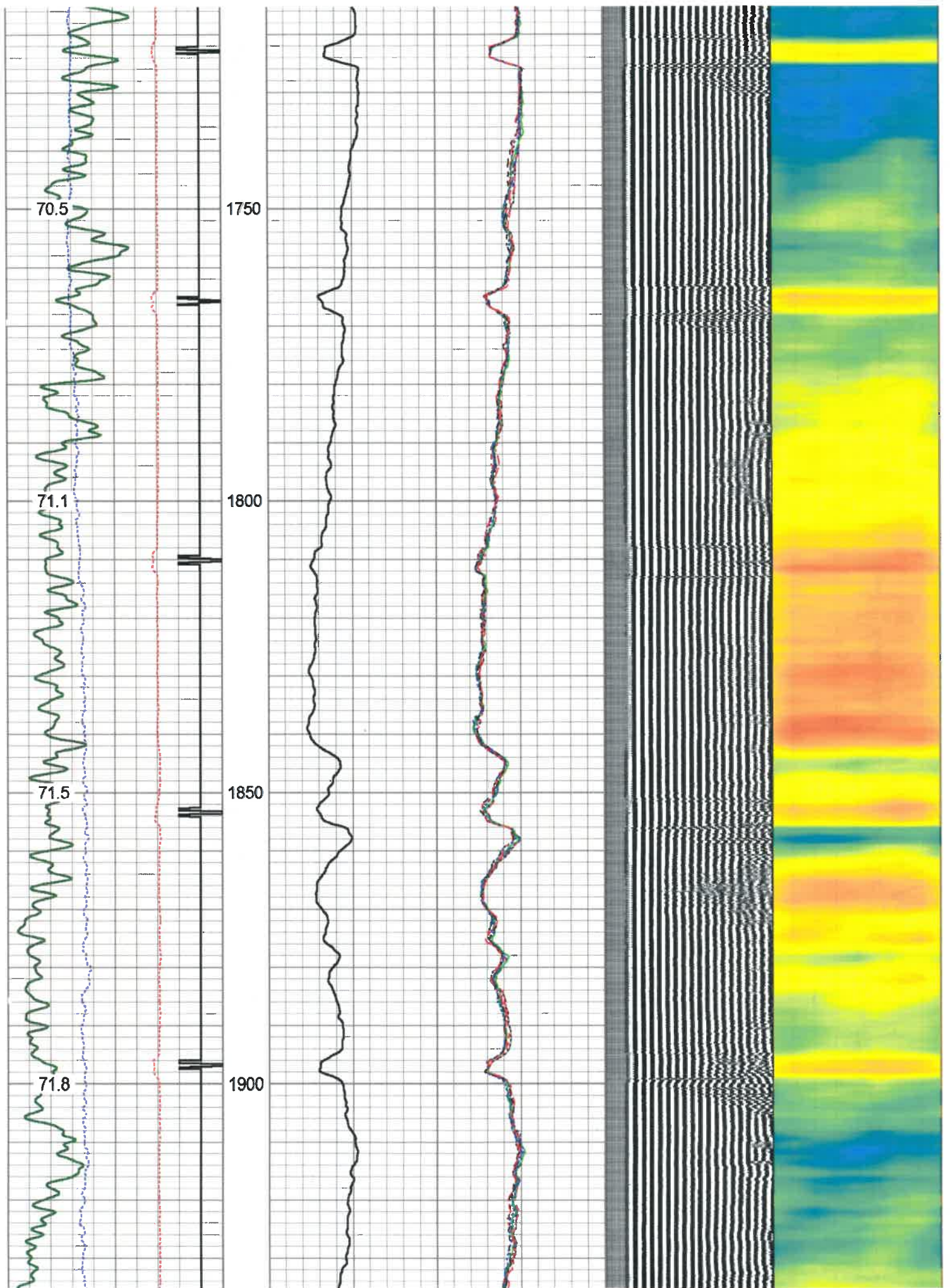


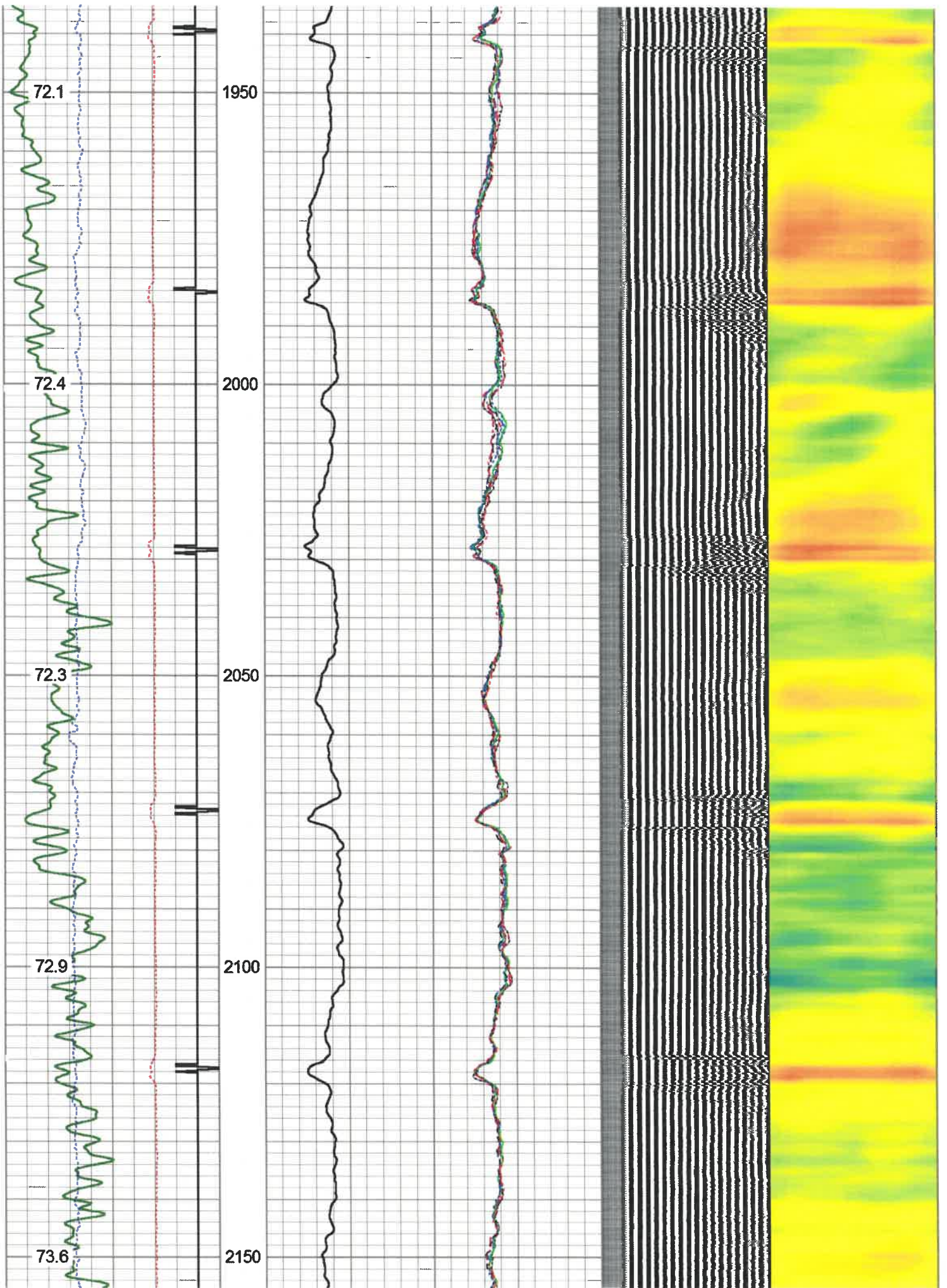


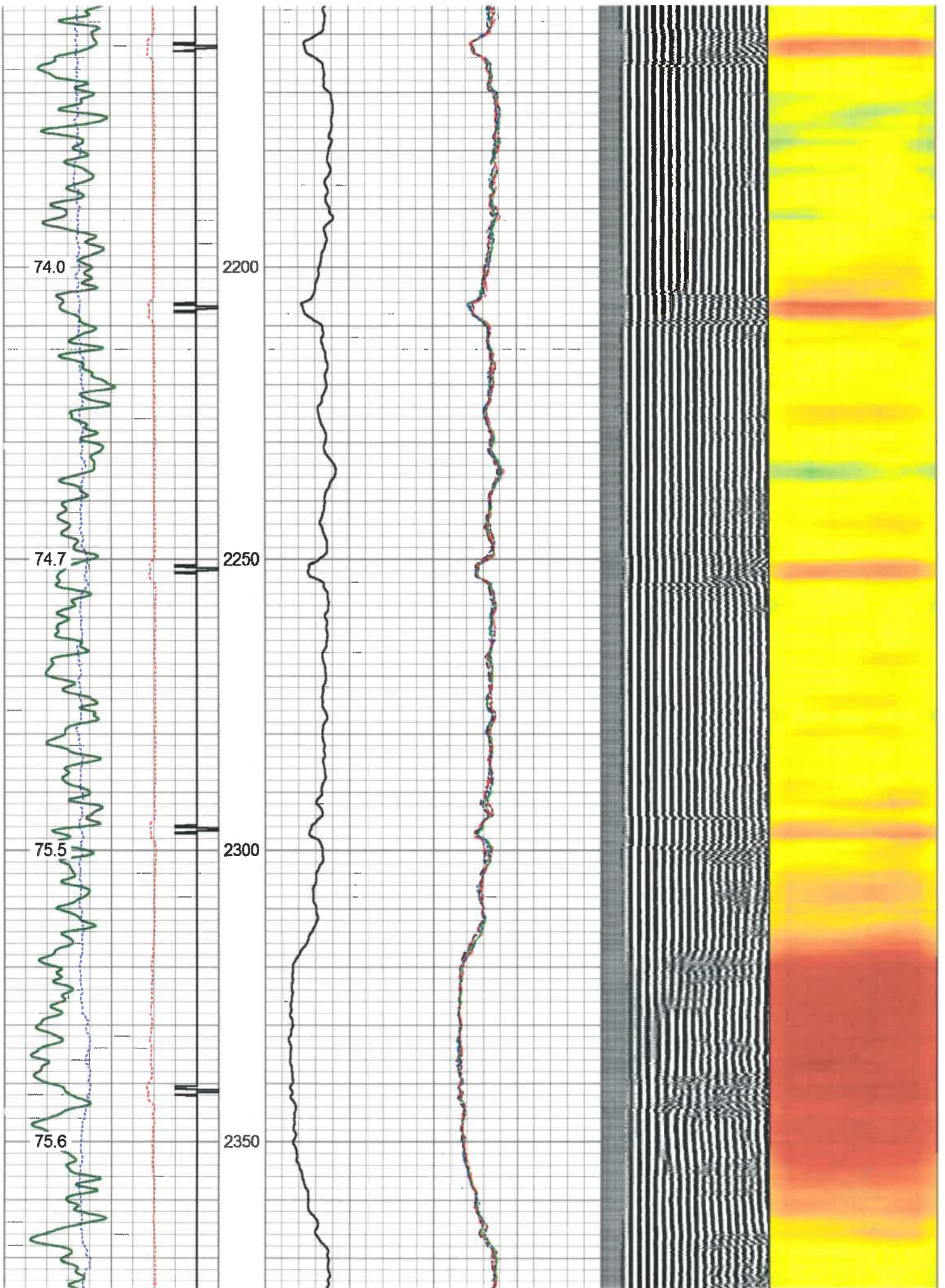


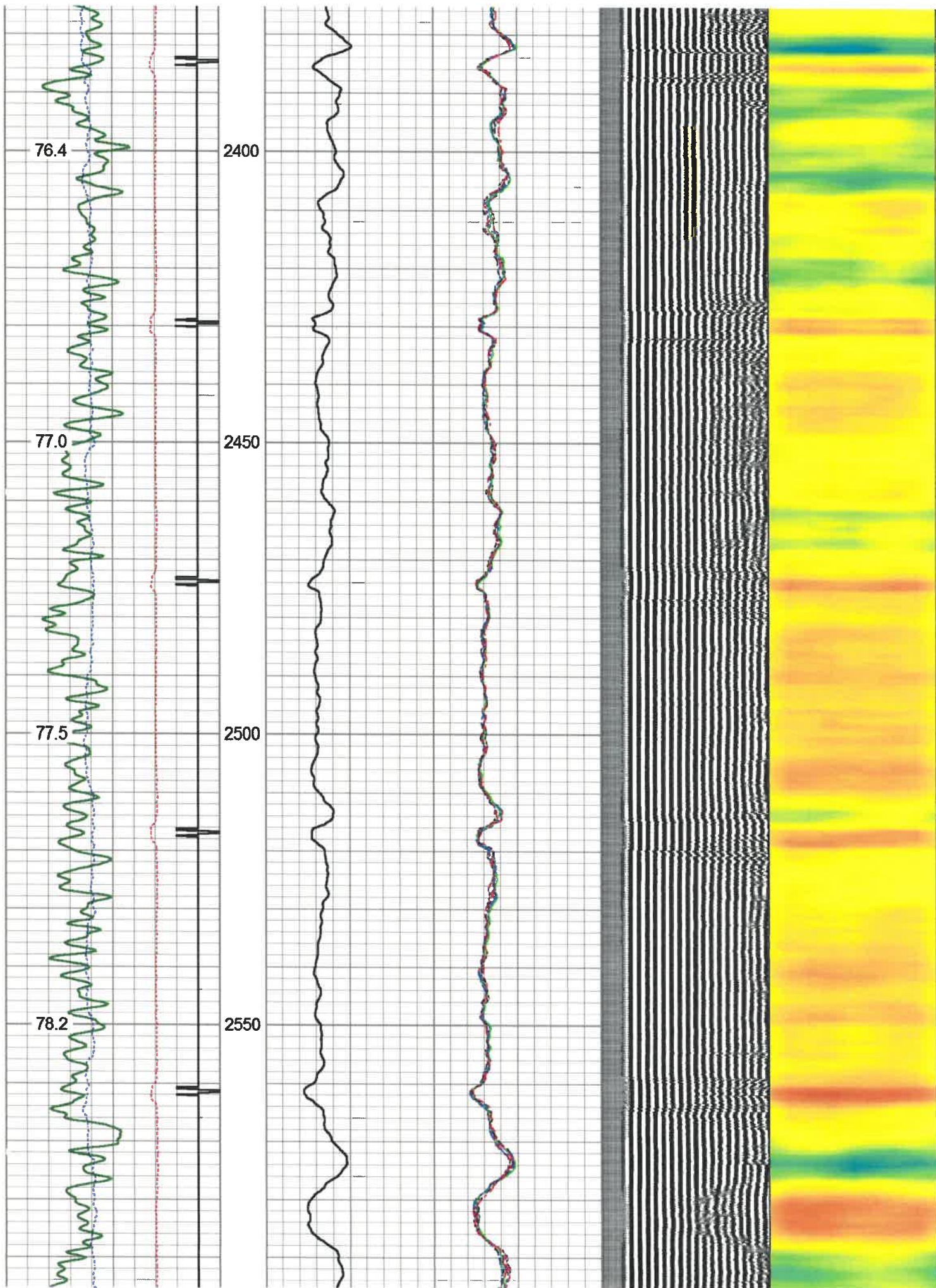


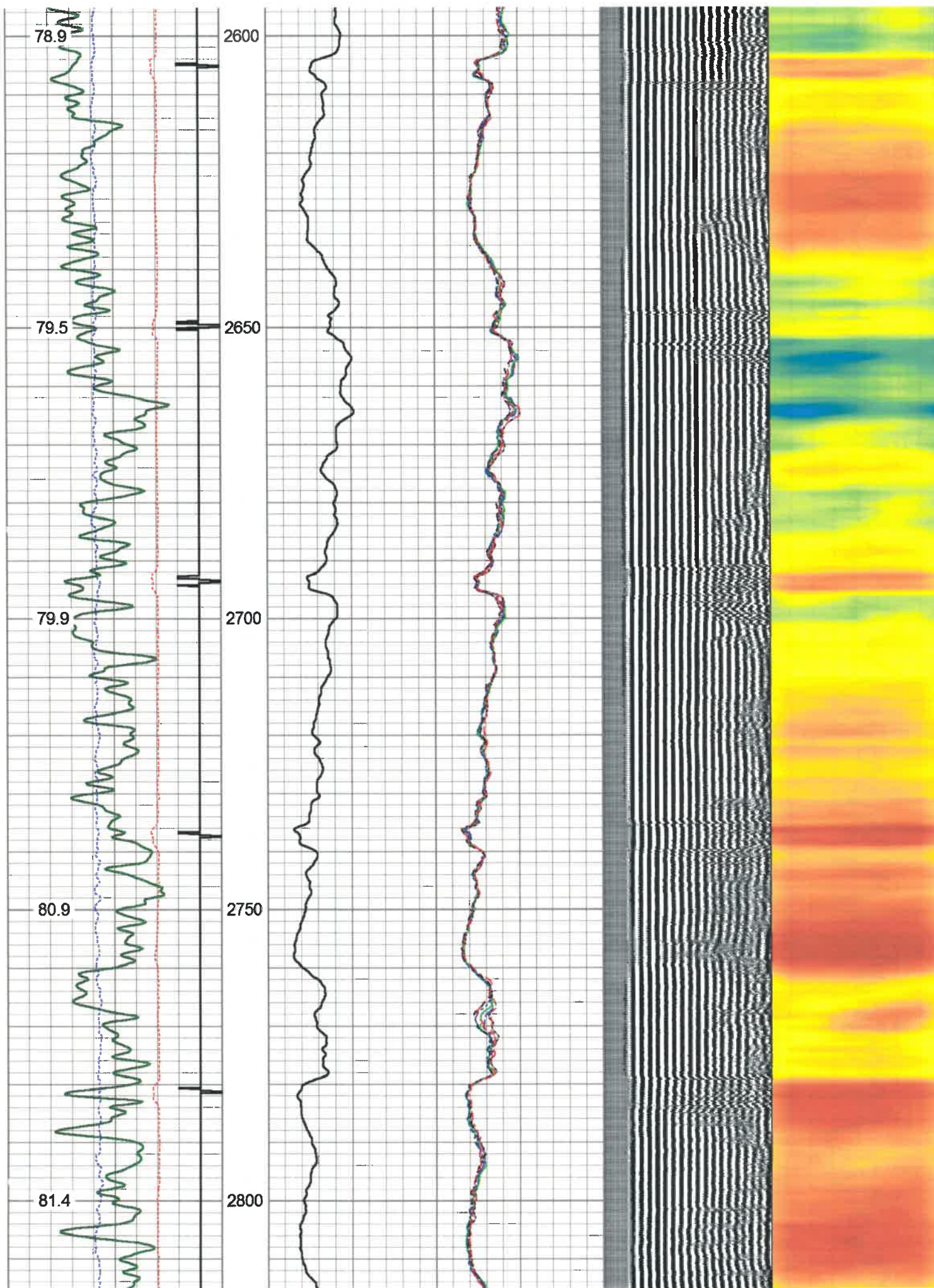


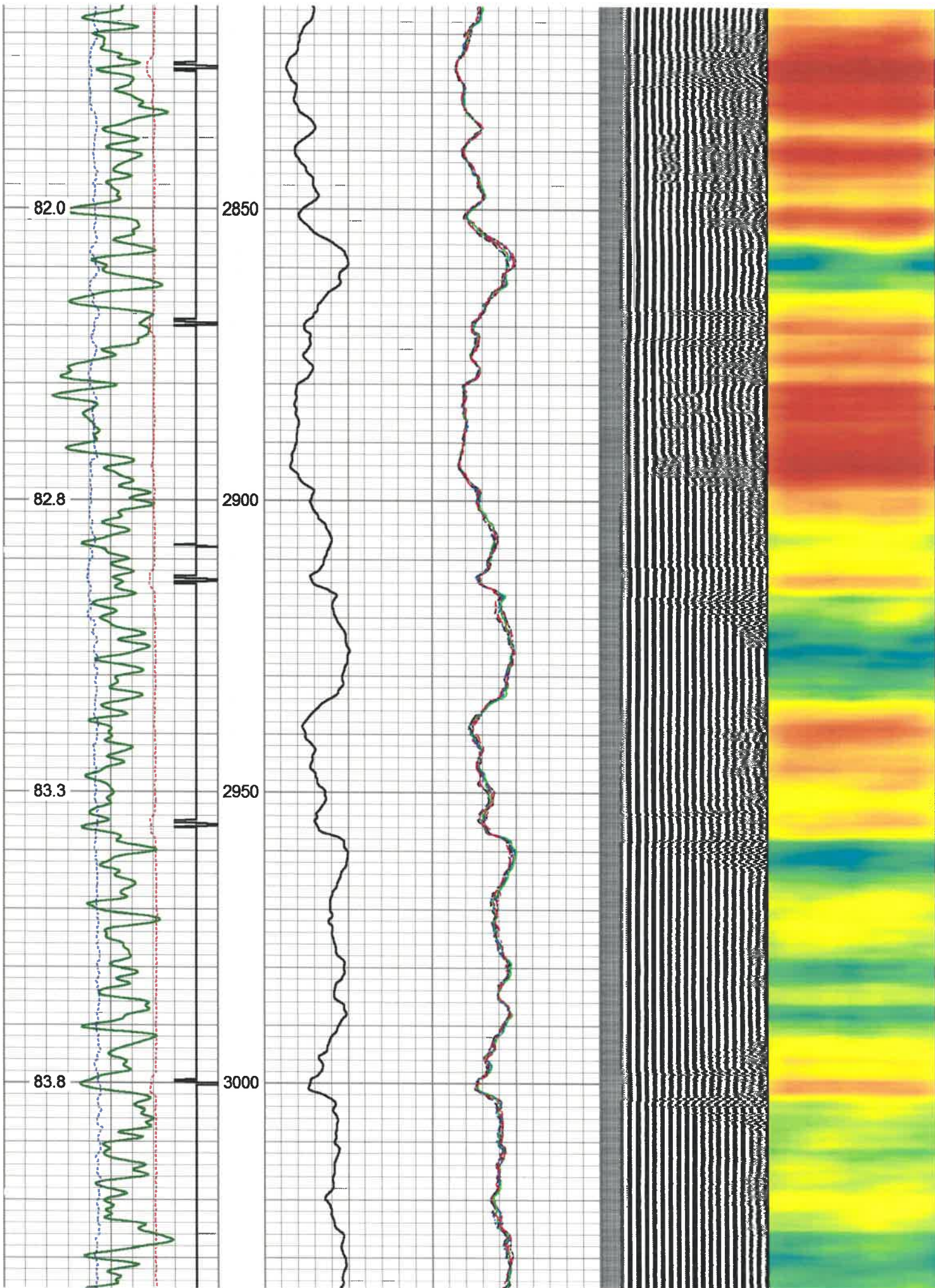


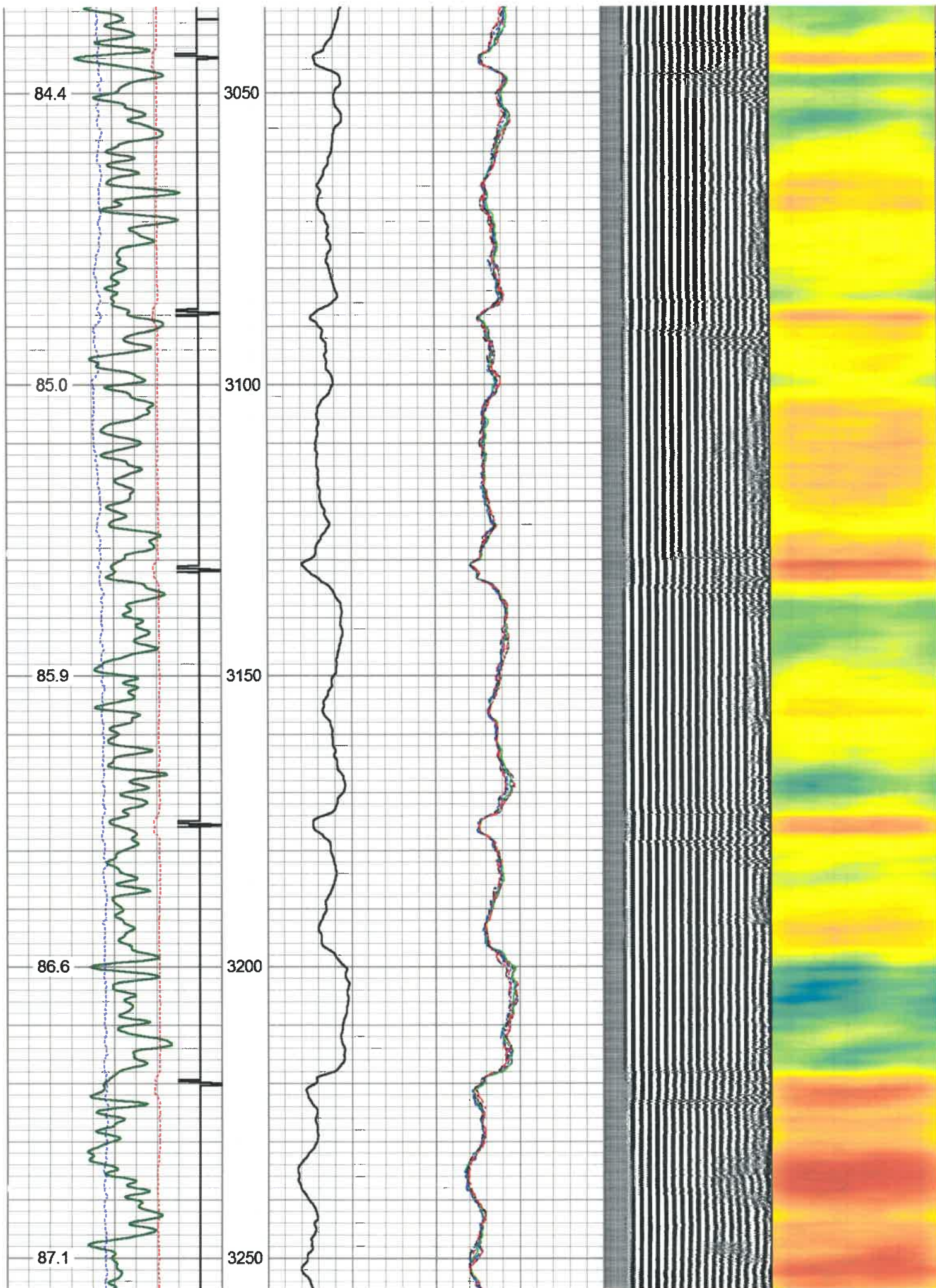




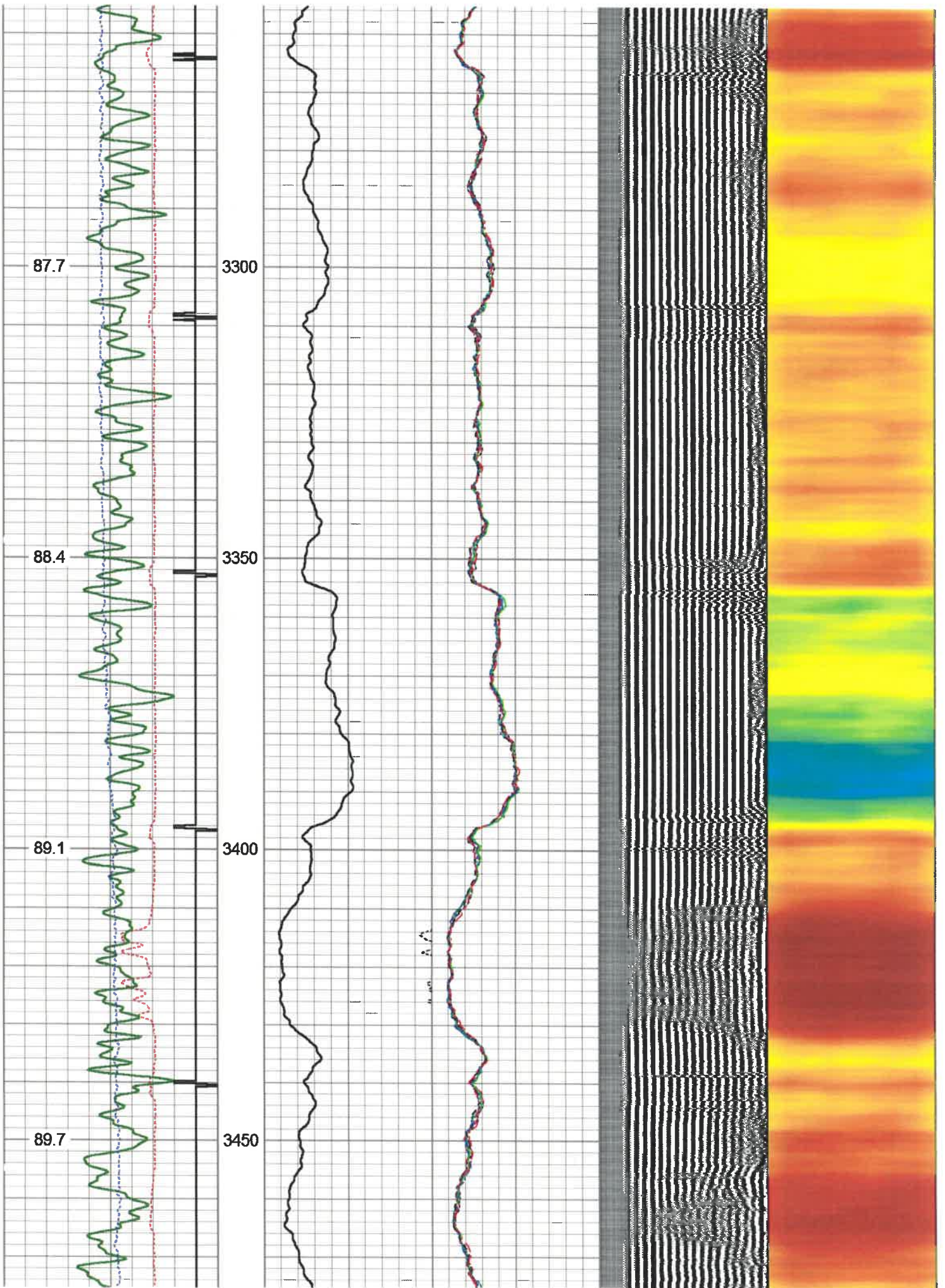


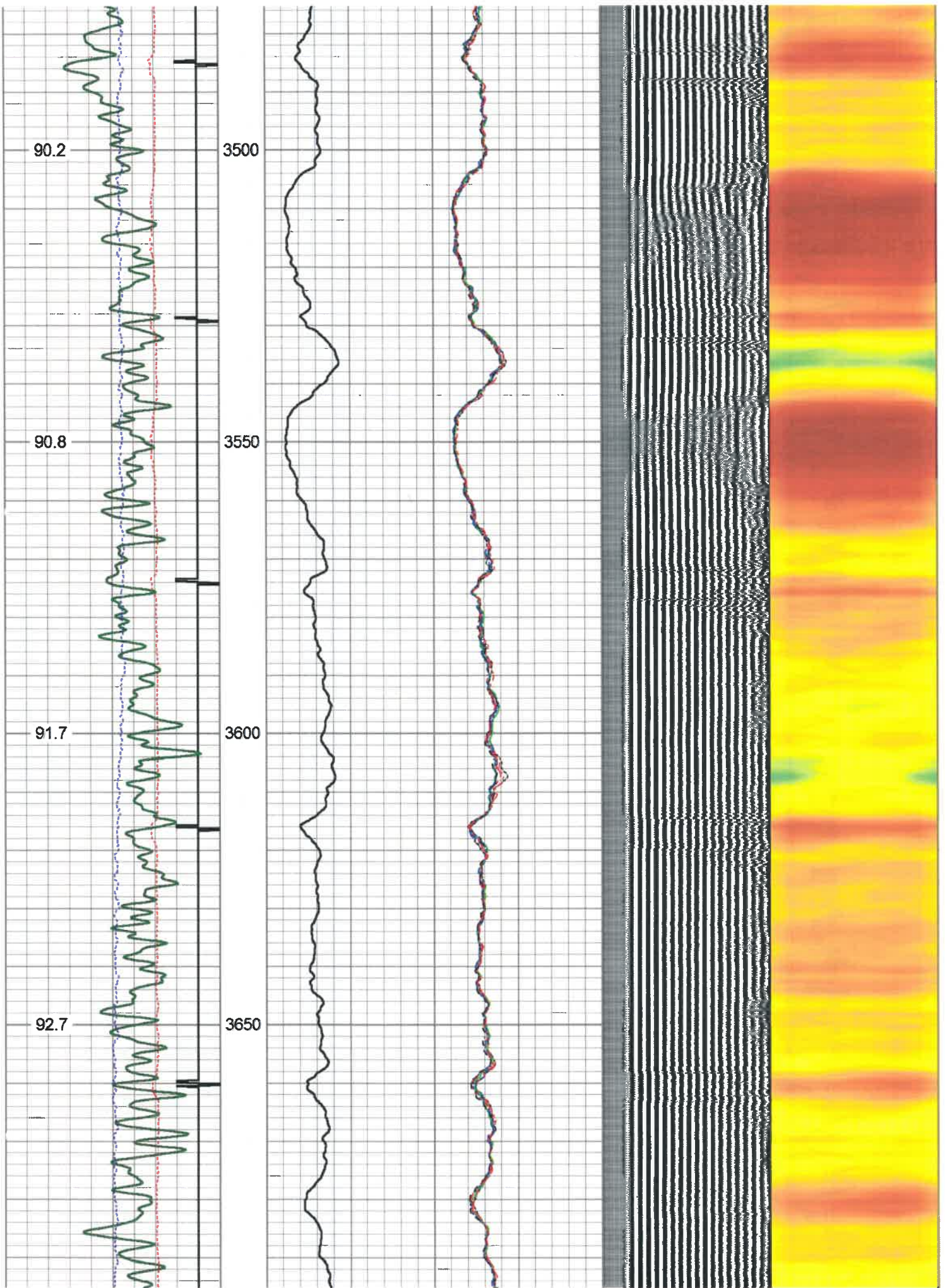


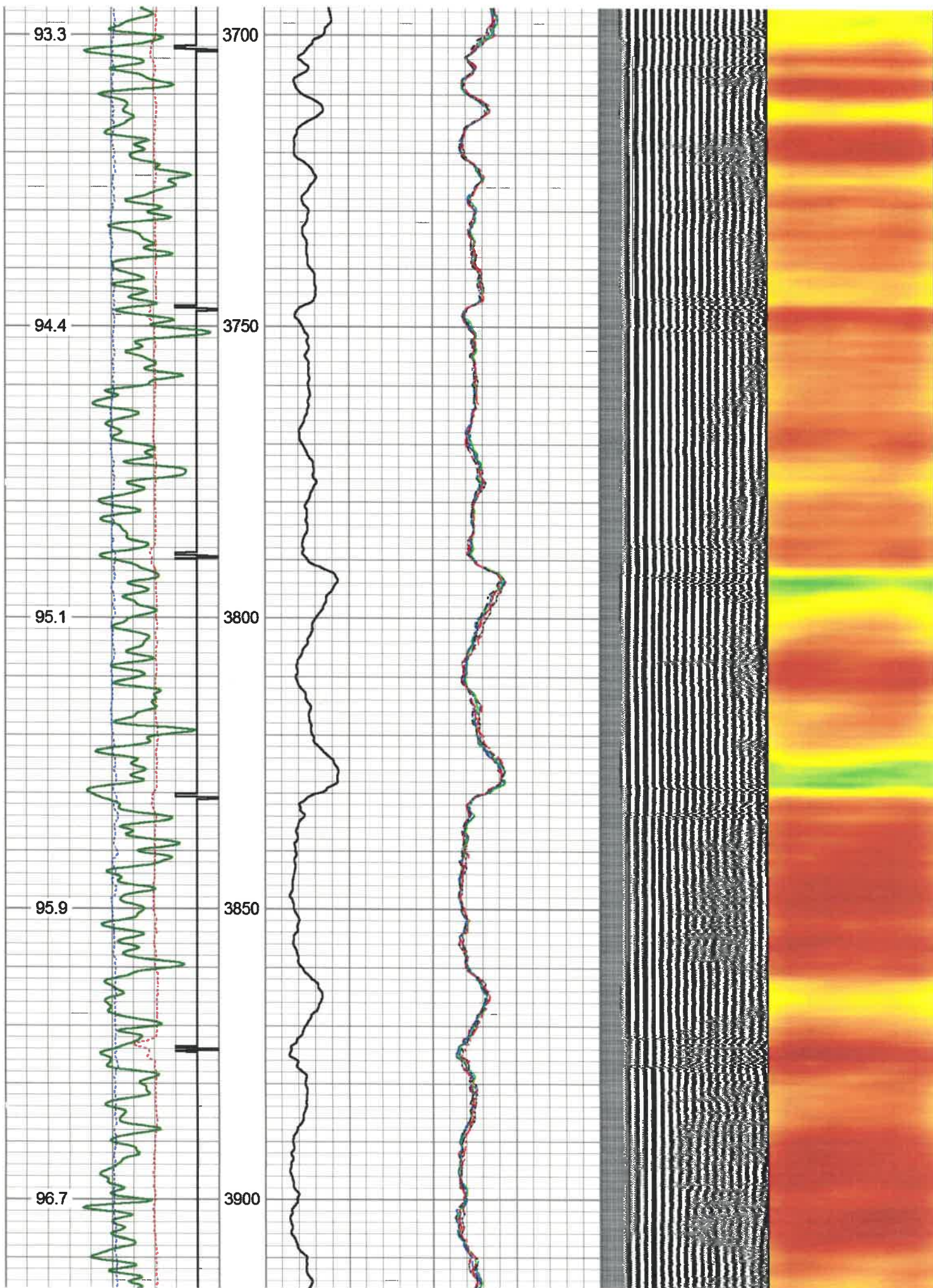


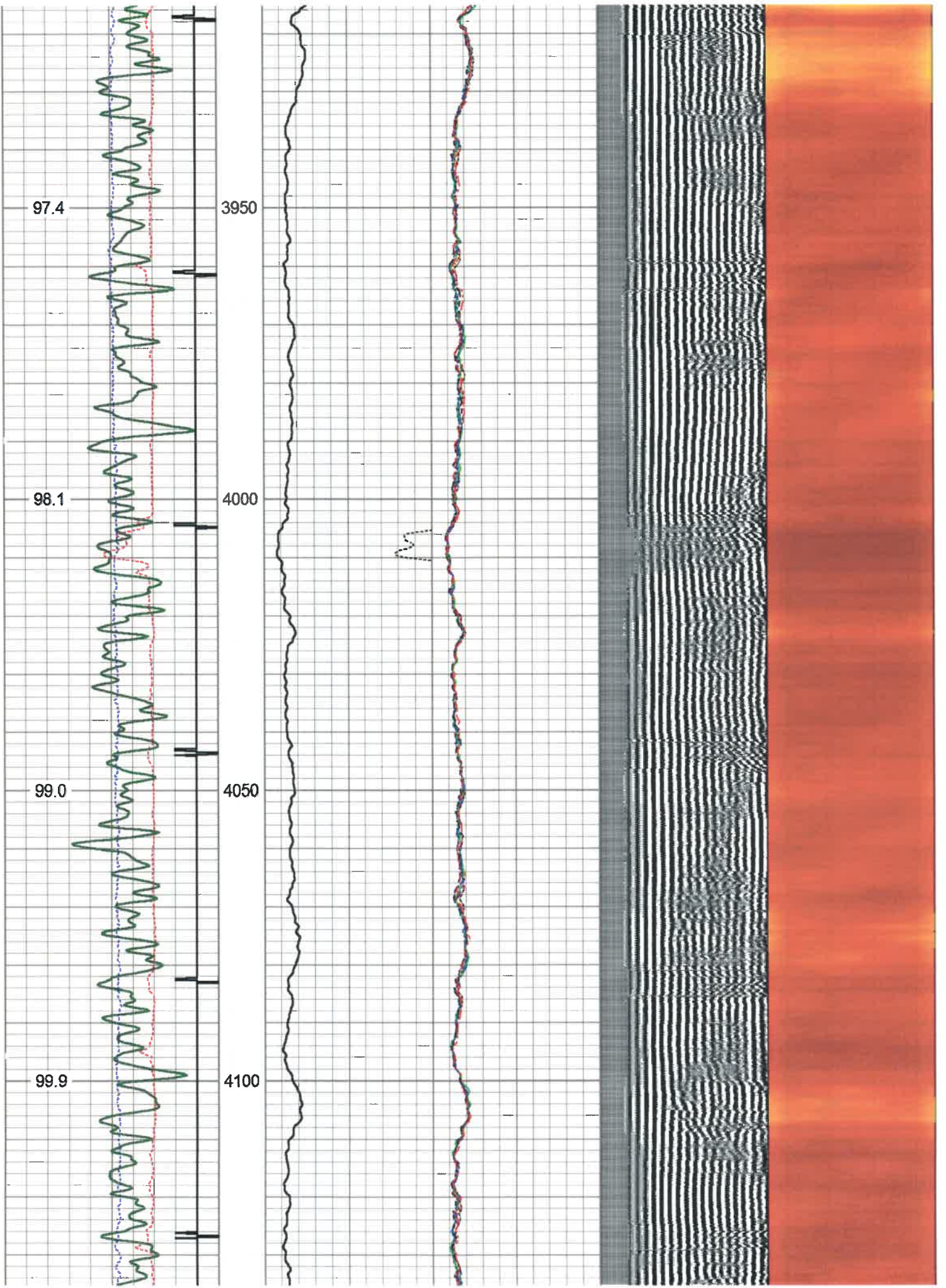




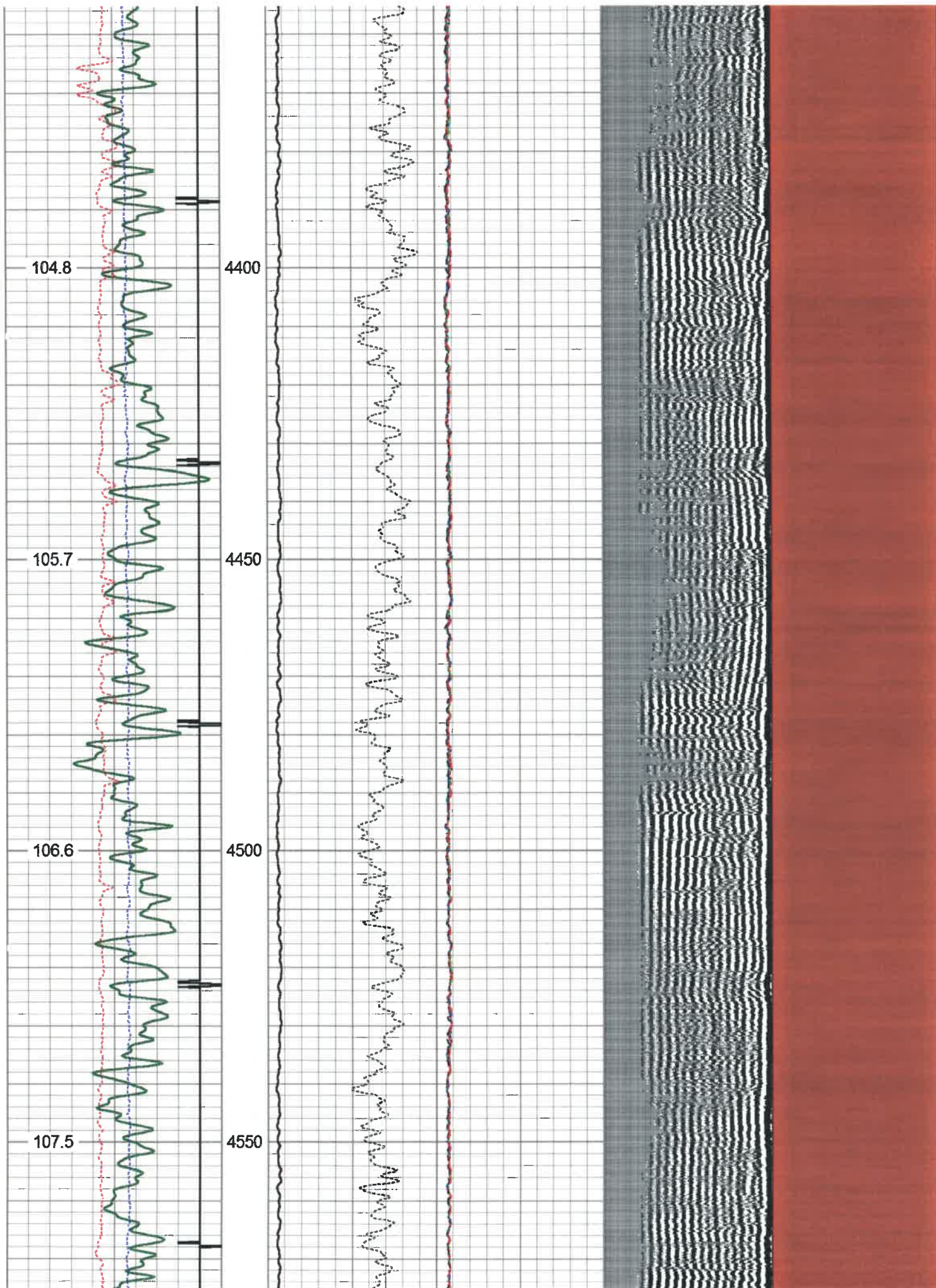


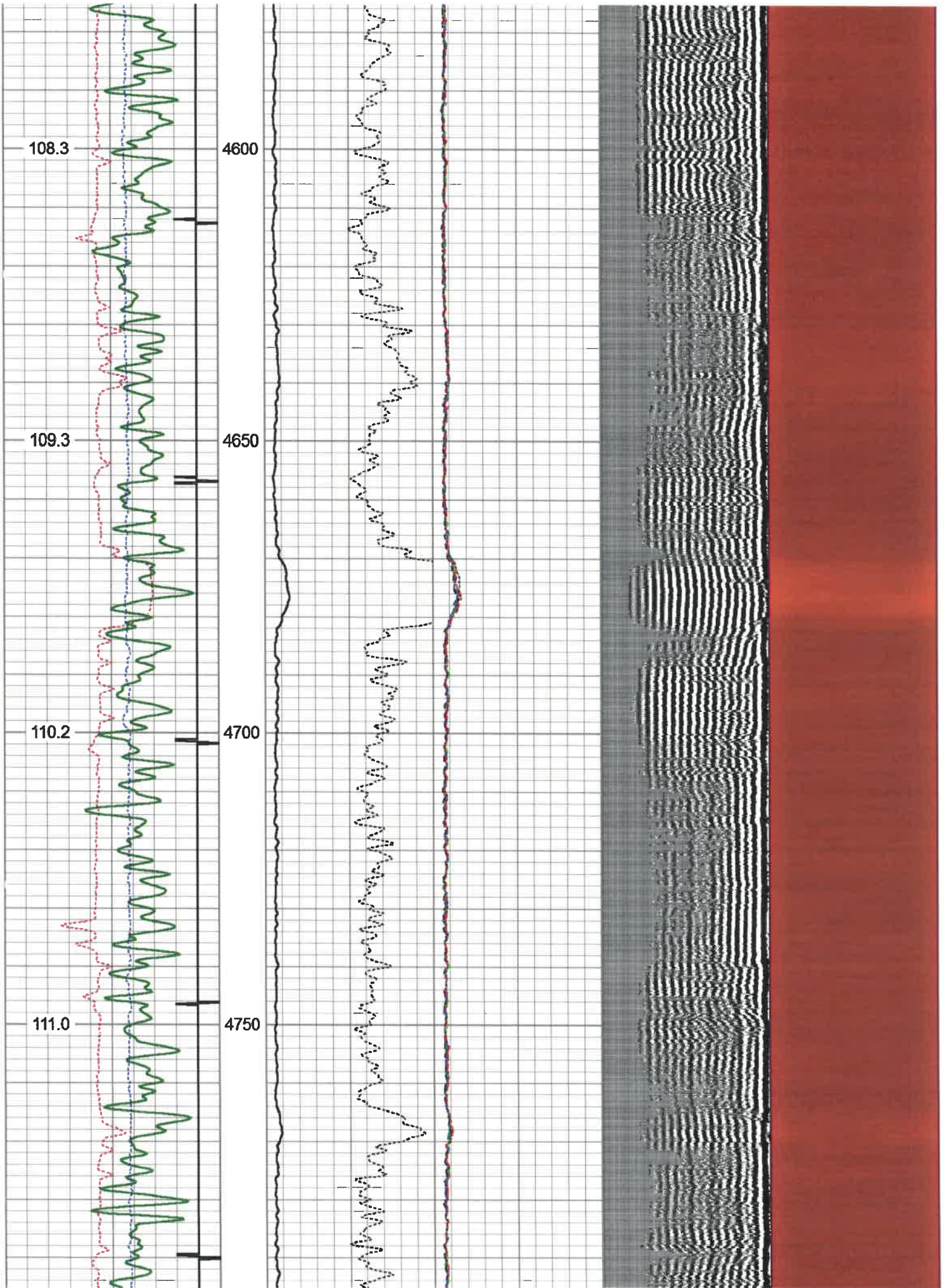


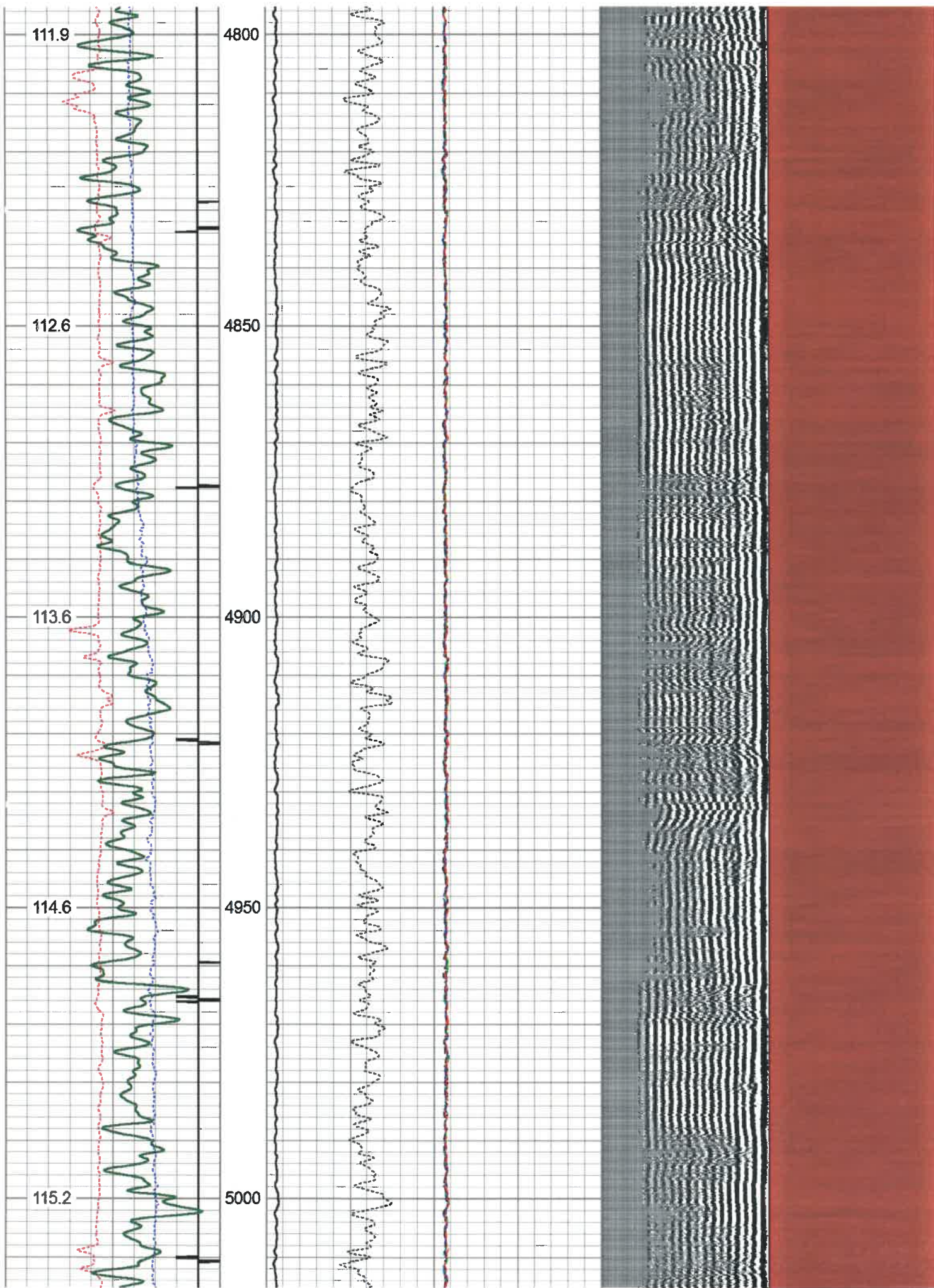




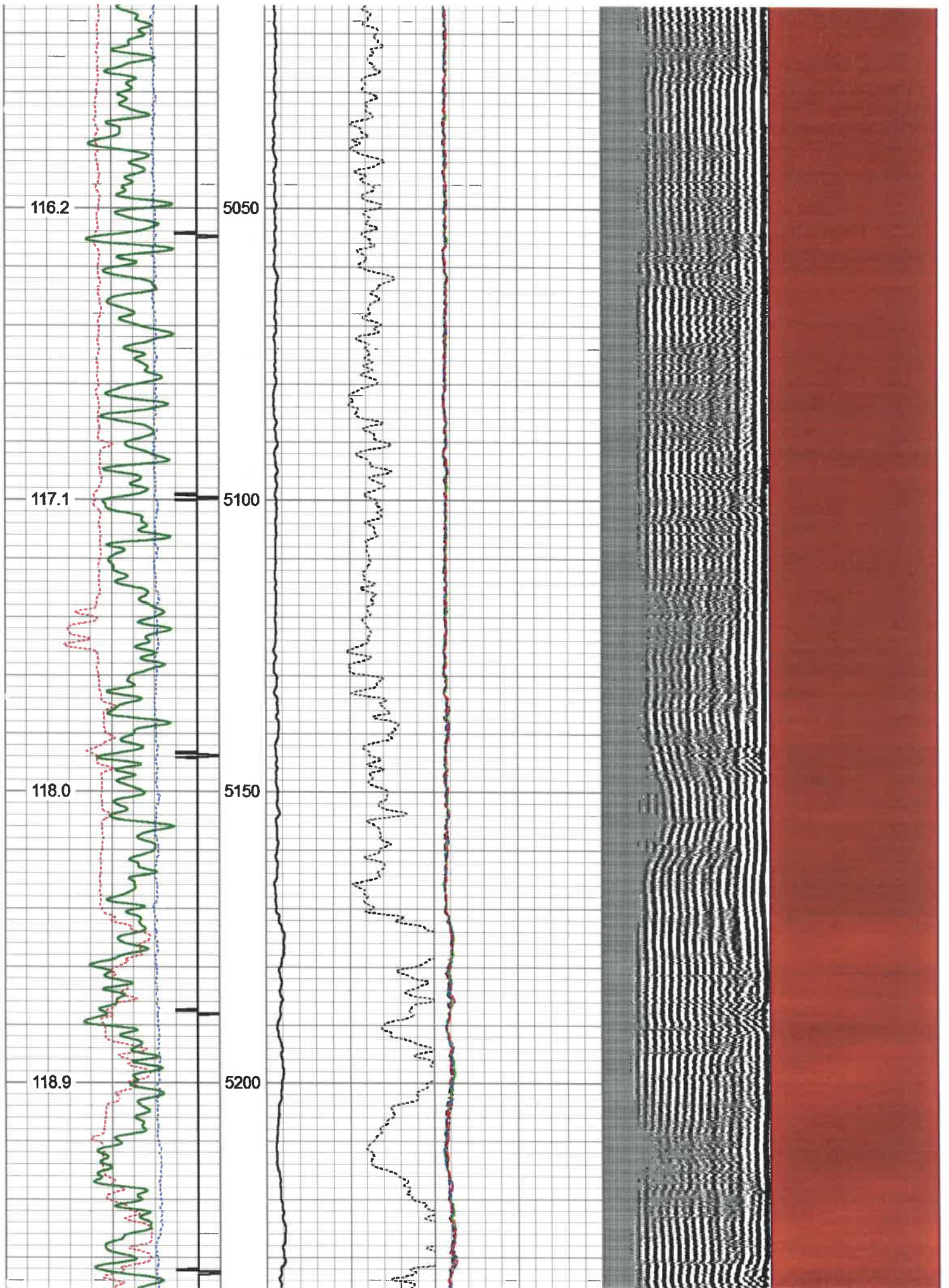


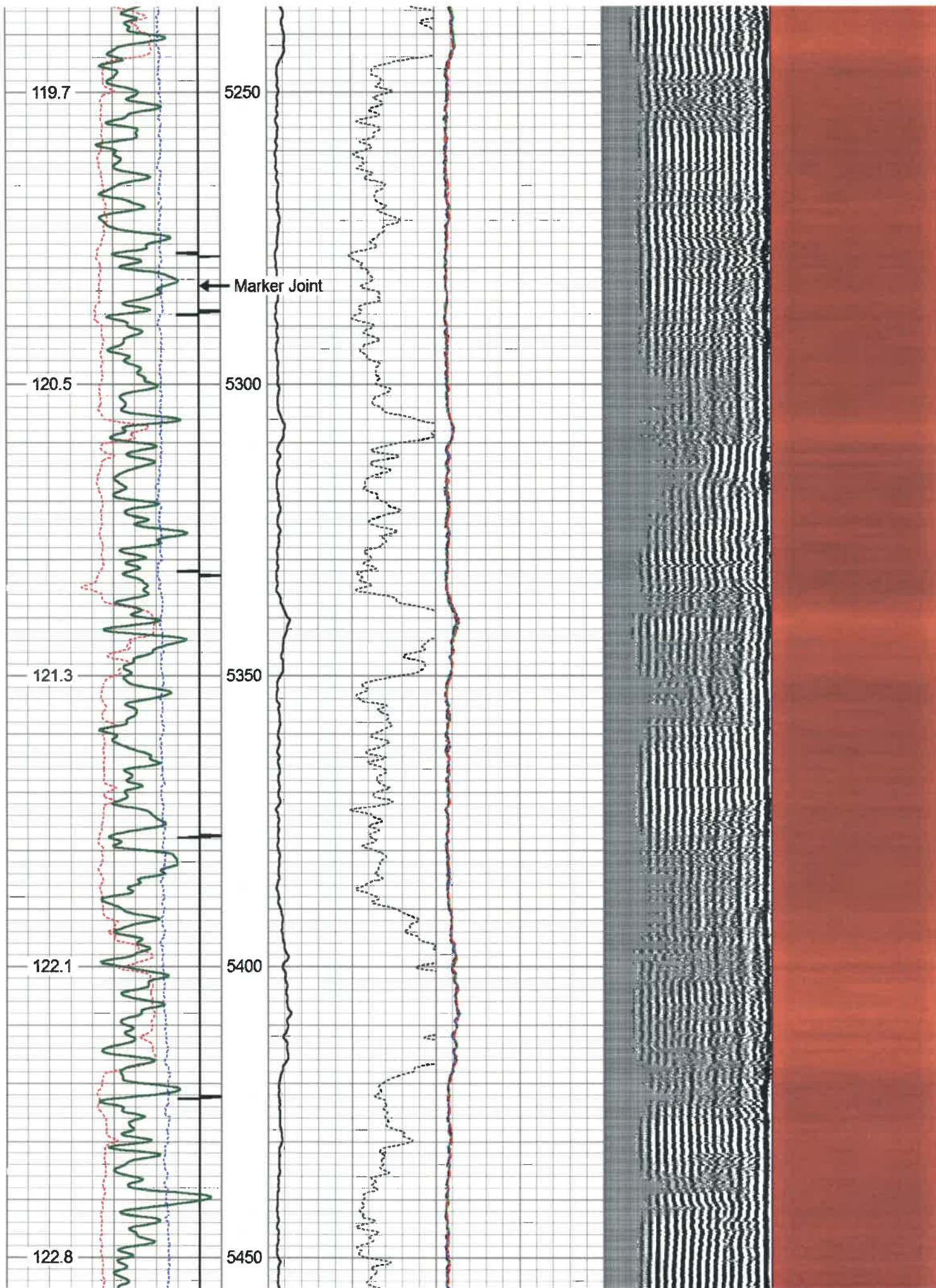


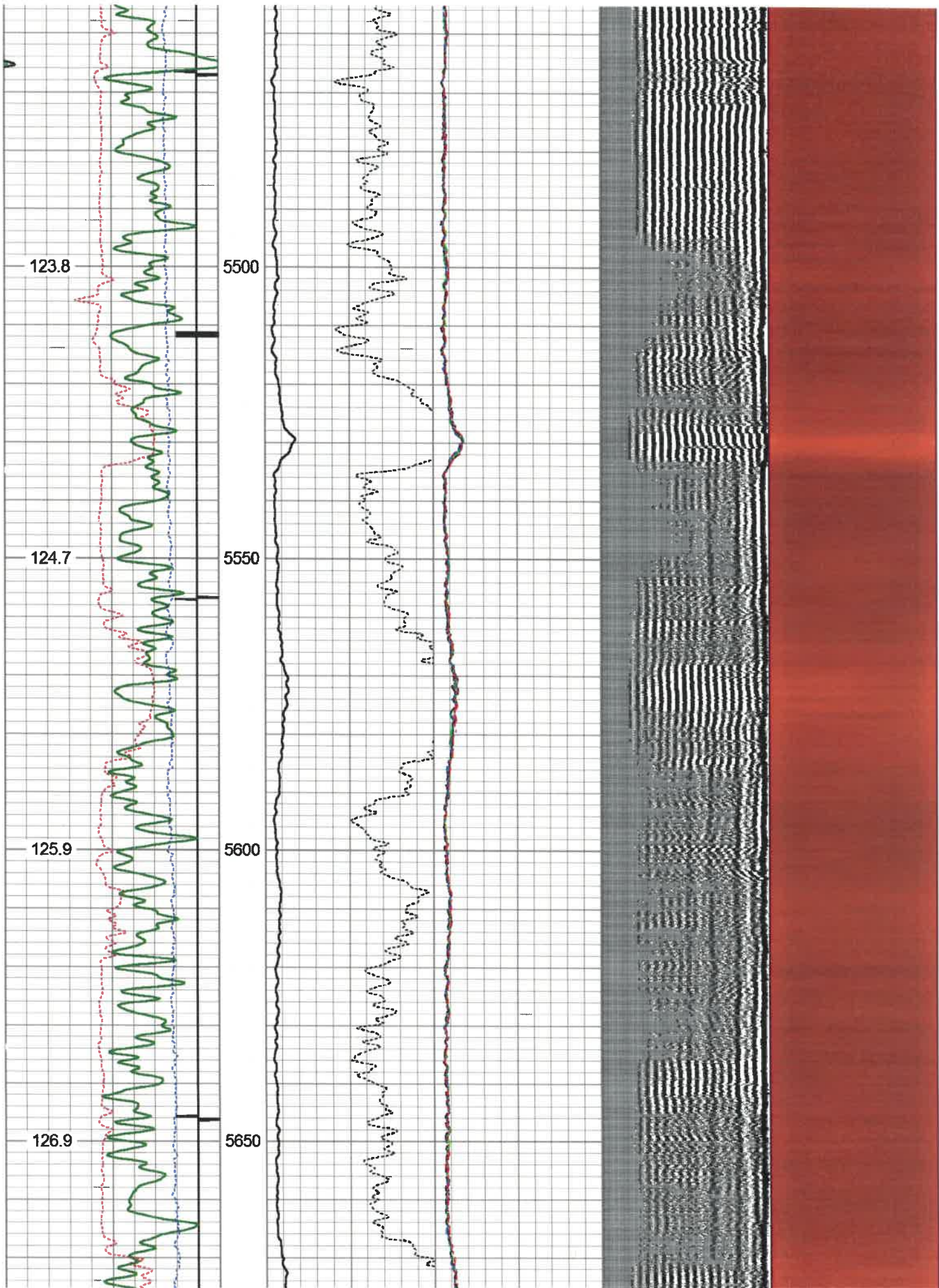


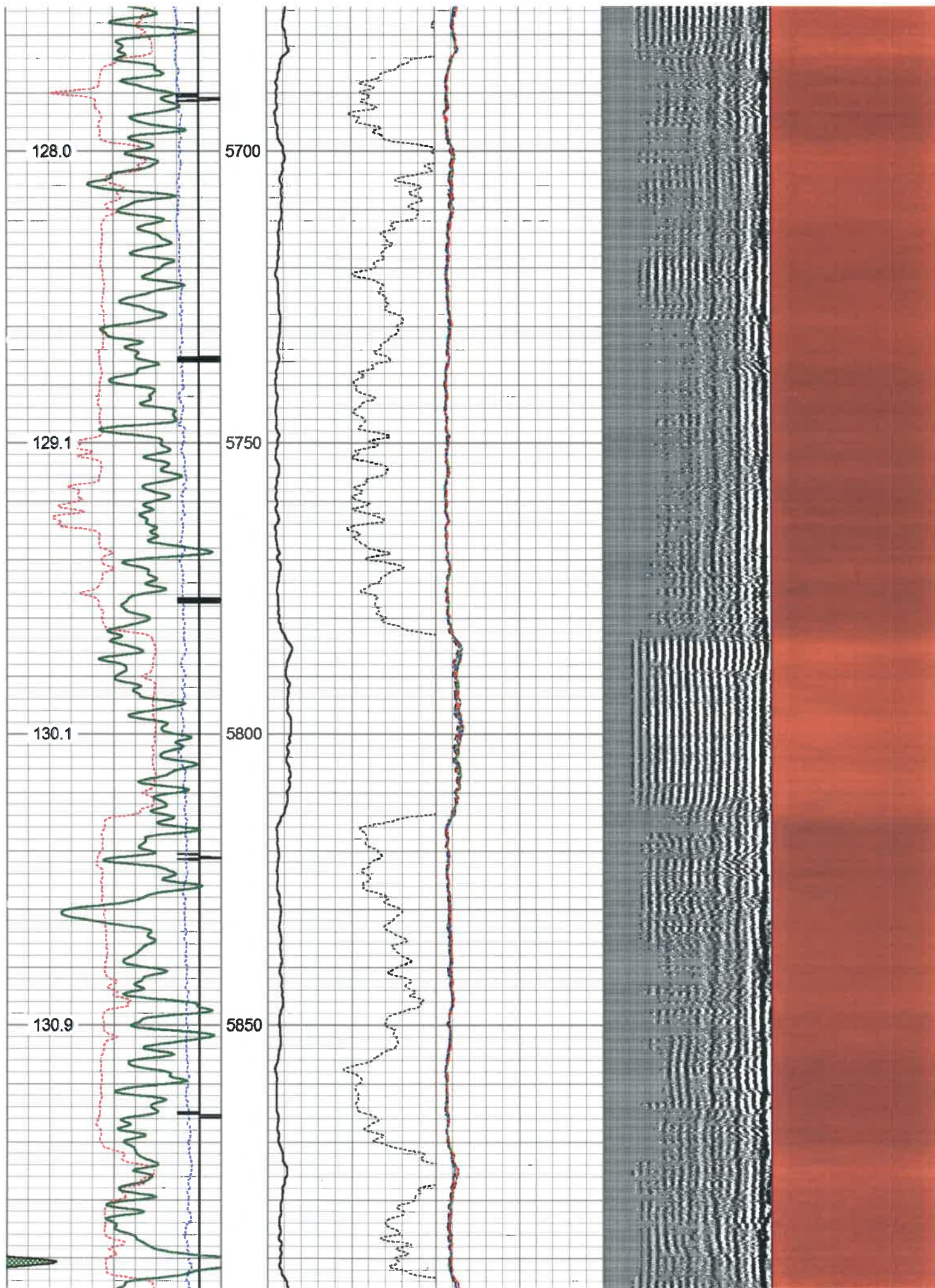


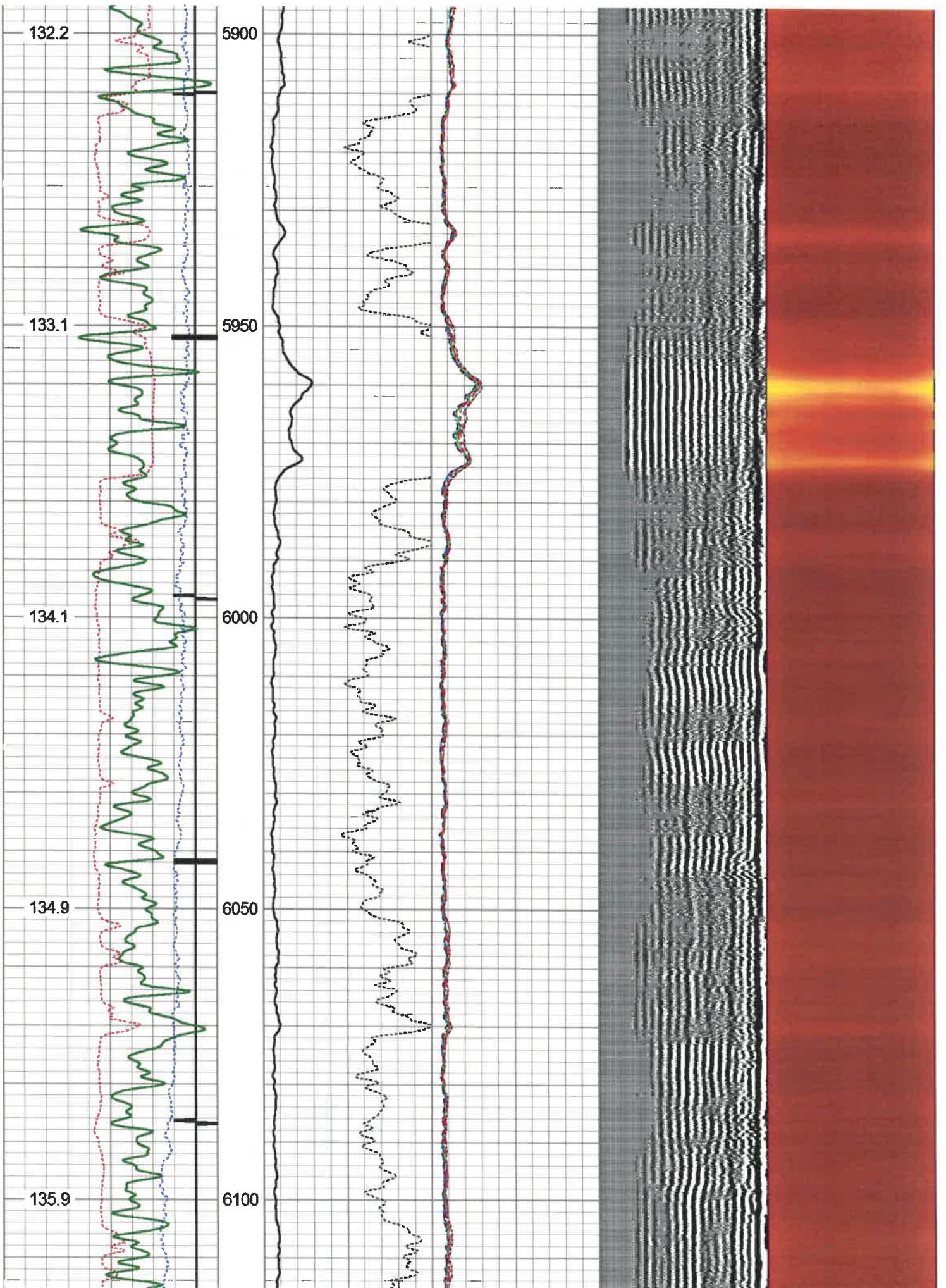


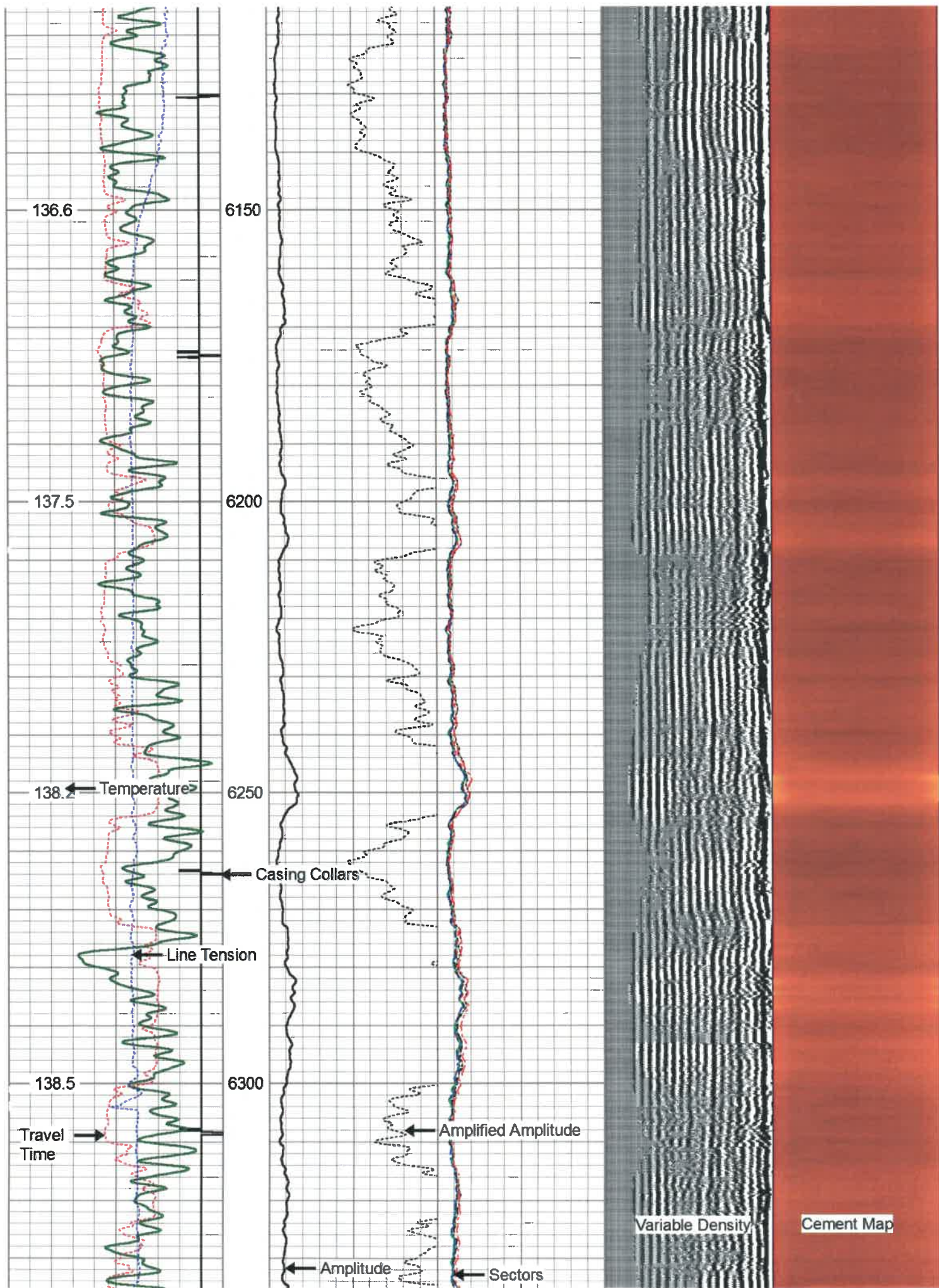


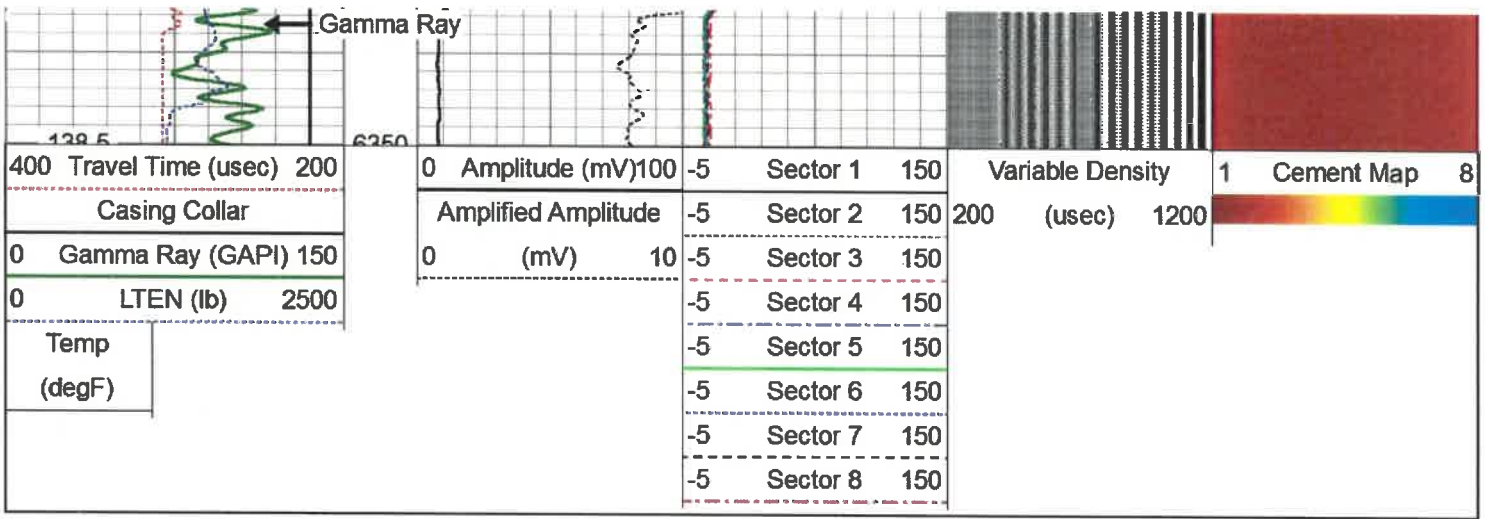






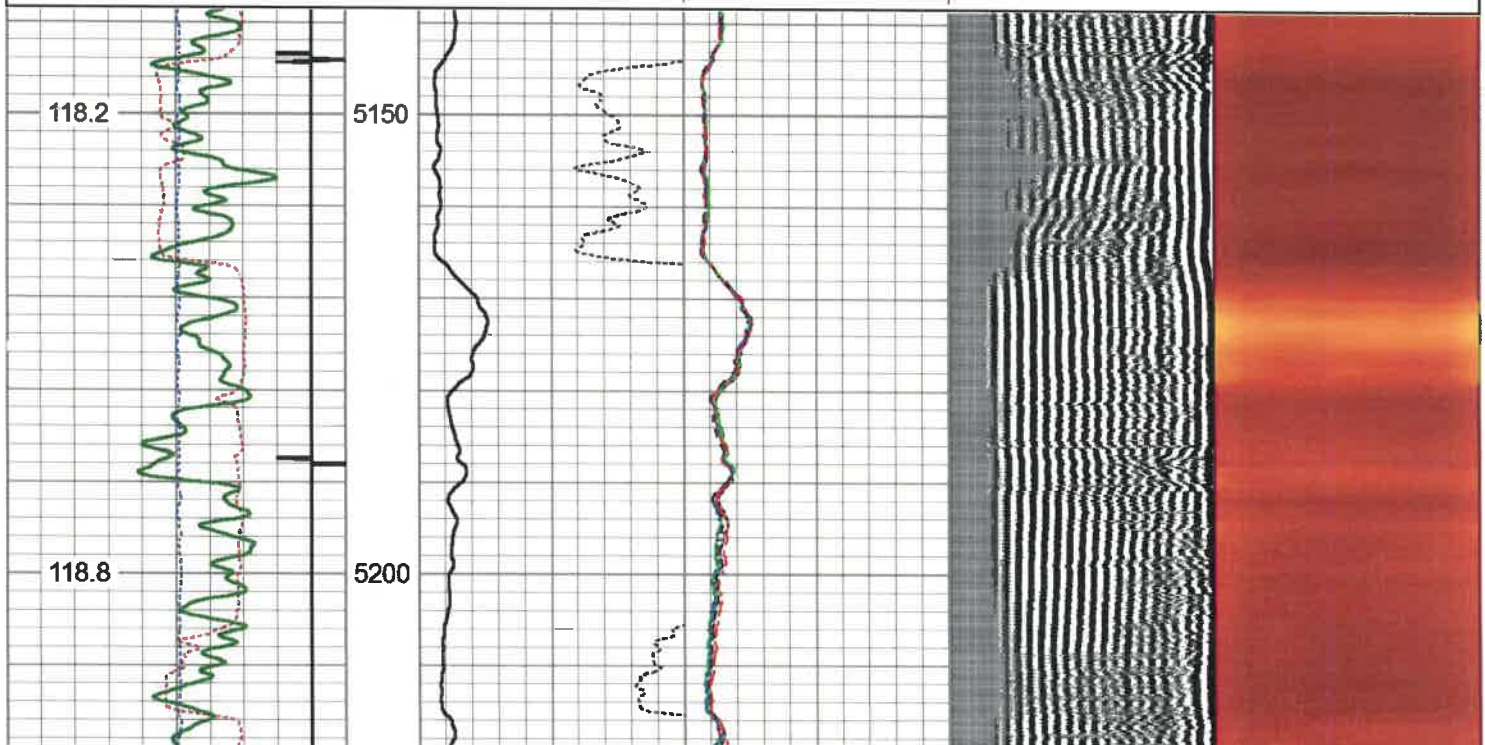
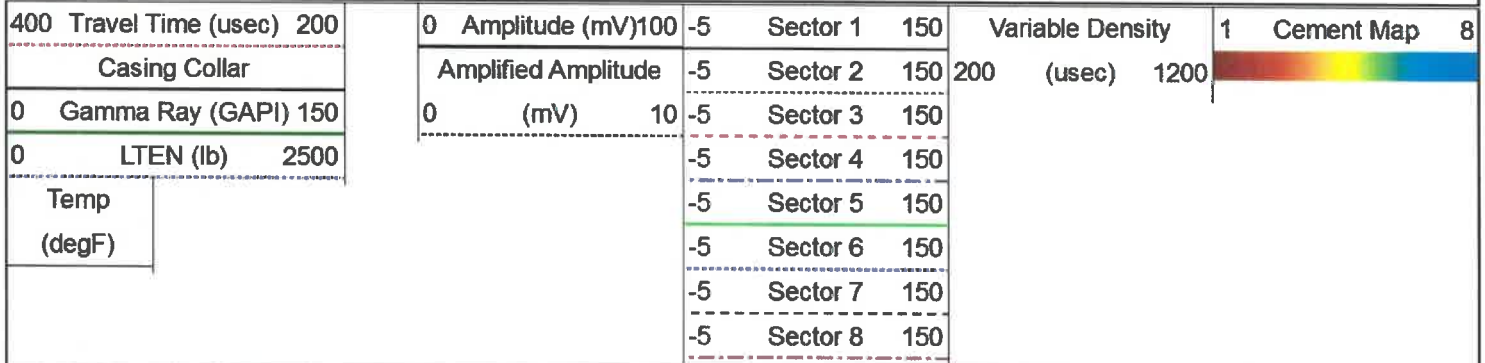


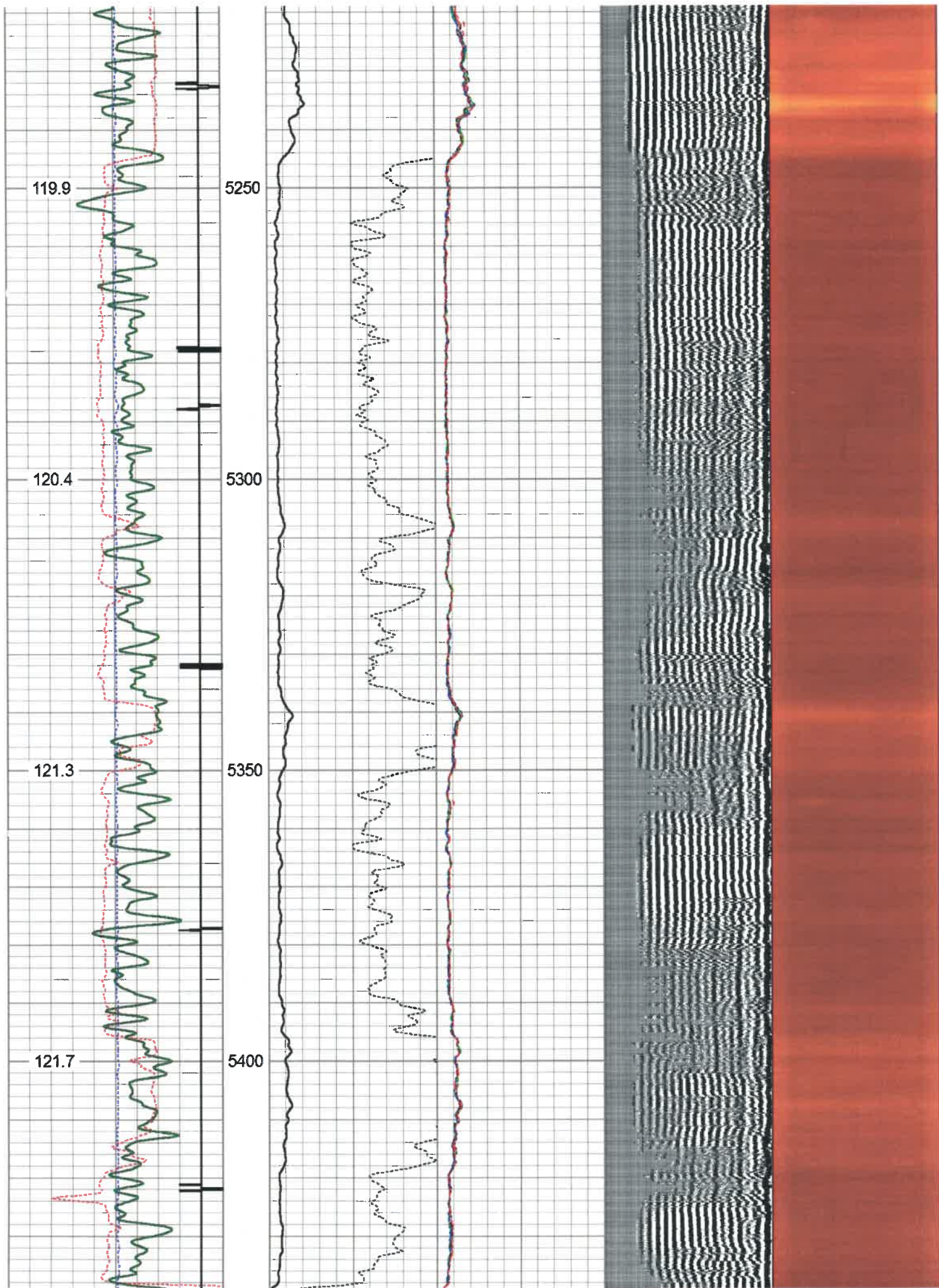




# Repeat Pass 0 PSI

Database File antero\_gauge\_2h\_rcbl\_23\_jun\_19.db  
 Dataset Pathname marcellus/2h/rcbl/pass2  
 Presentation Format scbl03  
 Dataset Creation Sun Jun 23 22:31:46 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				
0	Gamma Ray (GAPI)	150	0	(mV)	10	-5	Sector 3	150				
0	LTEN (lb)	2500			-5	Sector 4	150					
Temp					-5	Sector 5	150					
(degF)					-5	Sector 6	150					
					-5	Sector 7	150					
					-5	Sector 8	150					
					-5	Sector 8	150					
					-5	Sector 8	150					

**Calibration Report**

Database File      antero\_gauge\_2h\_rcbl\_23\_jun\_19.db  
Dataset Pathname    marcellus/2h/rcbl/pass4  
Dataset Creation     Sun Jun 23 22:39:54 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

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**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):**

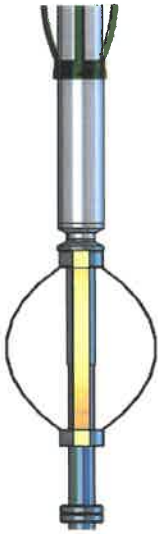
	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset

	Zero	Gain	Zero	Gain	Zero	Gain
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)
HeadVolt	16.99		CHD-Titan Titan 1 7/16" GO Cablehead	1.00	1.44	5.00
Temp	14.14		CENT-Overbody Antelope (SP-919-0233)	1.67	4.88	5.00
WVFS8	11.91		RBT-Probe275T (FW1312-32) Probe 2.75" Radial with Integral Temperature Sub	9.39	2.75	90.00
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	1.67	4.88	5.00	

			Antelope (SP-919-0233) GR-Probe (FW1211-86) Probe 2 3/4" Logging Gamma Ray	4.78	2.75	57.00
			CENT-Probe275 2.75" Centralizer	2.88	2.75	20.00

Dataset: antero\_gauge\_2h\_rcbl\_23\_jun\_19.db: marcellus/2h/rcbl/pass4  
 Total length: 18.05 ft  
 Total weight: 182.00 lb  
 O.D.: 4.88 in

	<table> <tr> <td>Company</td> <td>Antero Resources</td> </tr> <tr> <td>Well</td> <td>Gauge 2H</td> </tr> <tr> <td>Field</td> <td>Marcellus</td> </tr> <tr> <td>County</td> <td>Tyler</td> </tr> <tr> <td>State</td> <td>WV</td> </tr> </table>	Company	Antero Resources	Well	Gauge 2H	Field	Marcellus	County	Tyler	State	WV
Company	Antero Resources										
Well	Gauge 2H										
Field	Marcellus										
County	Tyler										
State	WV										

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