



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

Company Antero Resources
Well George Scott Cortina Unit 2H
Field South Canton
County Doddridge
State West Virginia

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Well George Scott Cortina Unit 2H
Field South Canton
County Doddridge State West Virginia

Location: API #: 47-017-06890
Lat: 39.18° 27.143" N
Long: -80.44° 0.058" W
SEC TWP RGE
Permanent Datum Ground Level Elevation
Log Measured From Kelly Bushing 25.5' A.P.D.
Drilling Measured From Kelly Bushing
Other Services
K.B.
D.F.
G.L.

Date 04-Jan-2020
Run Number One
Depth Driller 18,595'
Depth Logger 7,590'
Bottom Logged Interval 7,590'
Top Log Interval Surface
Open Hole Size NA
Type Fluid Water
Density / Viscosity NA
Max. Recorded Temp. 153 Deg. F.
Estimated Cement Top 4,053'
Time Well Ready 10:00
Time Logger on Bottom 10:58
Equipment Number 104 (P1)(G3)
Location Bentleyville, PA
Recorded By Matt McNally
Witnessed By Chad Roy

Borehole Record				Tubing Record			
Run Number	Bit	From	To	Size	Weight	From	To
Casing Record							
Surface String		13 3/8"		54.5 lbs	Surface	Top	Bottom
Prot. String		9 5/8"		36 lbs	Surface	Surface	2,610'
Production String		5 1/2"		20 lbs	Surface	Surface	18,595'
Liner							

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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 (6,330' - 6,340')
Depth Correction (+ 21')
Main Pass 1,500 PSI
Repeat Pass 0 PSI

RECEIVED
Office of Oil and Gas
OCT 28 2020
WV Department of
Environmental Protection

Thank You For Choosing Nine Energy Service Wireline Bentleyville, PA



Main Pass 1,500 PSI

Database File antero_george_scott_cortina_2h_04_jan_2020.db
 Dataset Pathname south_canton/cortina2h/rcbl/pass4
 Presentation Format rcbl 2
 Dataset Creation Sat Jan 04 10:44:15 2020
 Charted by Depth in Feet scaled 1:240

270	Travel Time (usec)	170
Casing Collar		
0	Gamma Ray (GAPI)	120
0	LTEN (lb)	2500
-100	LSPD (ft/min)	100
Temp (degF)		

0	Amplitude (mV)	100	-5	Sector 1	150
Amplified Amplitude					
0	(mV)	10	-5	Sector 2	150

-5 Sector 3 150					

-5 Sector 4 150					

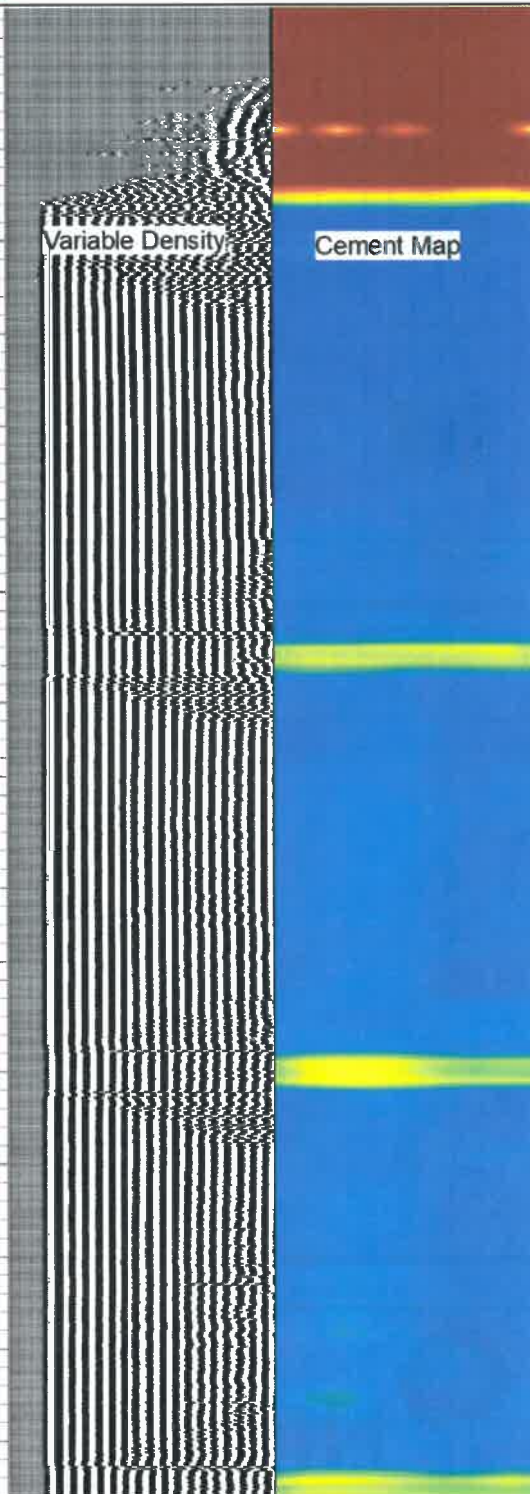
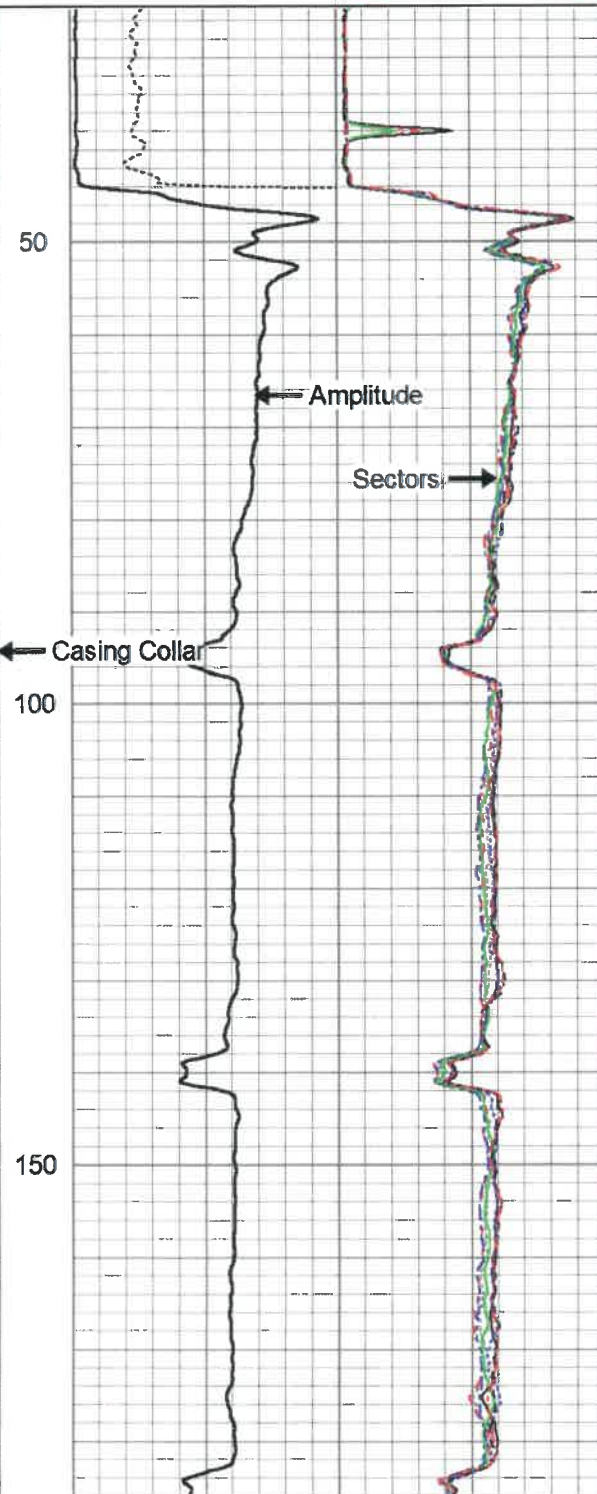
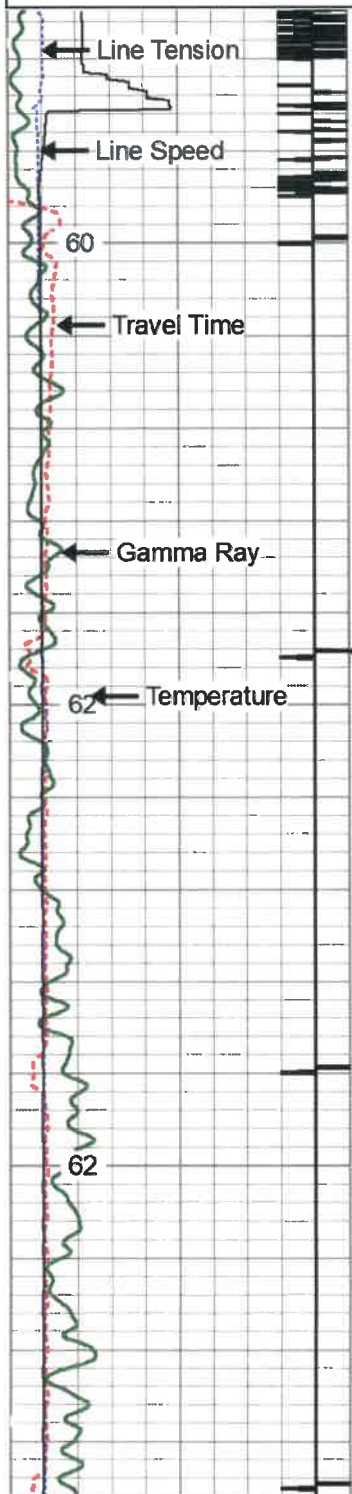
-5 Sector 5 150					

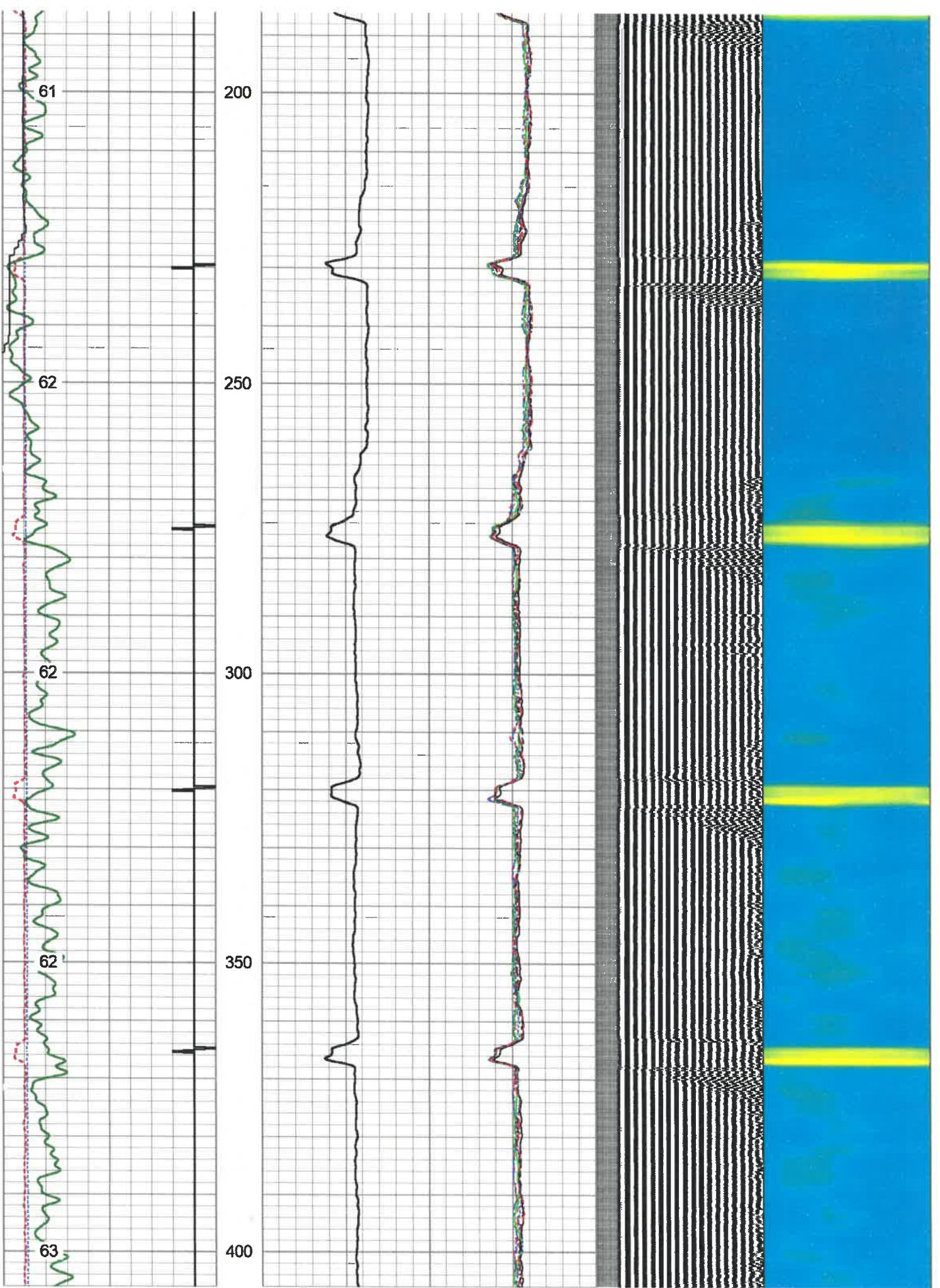
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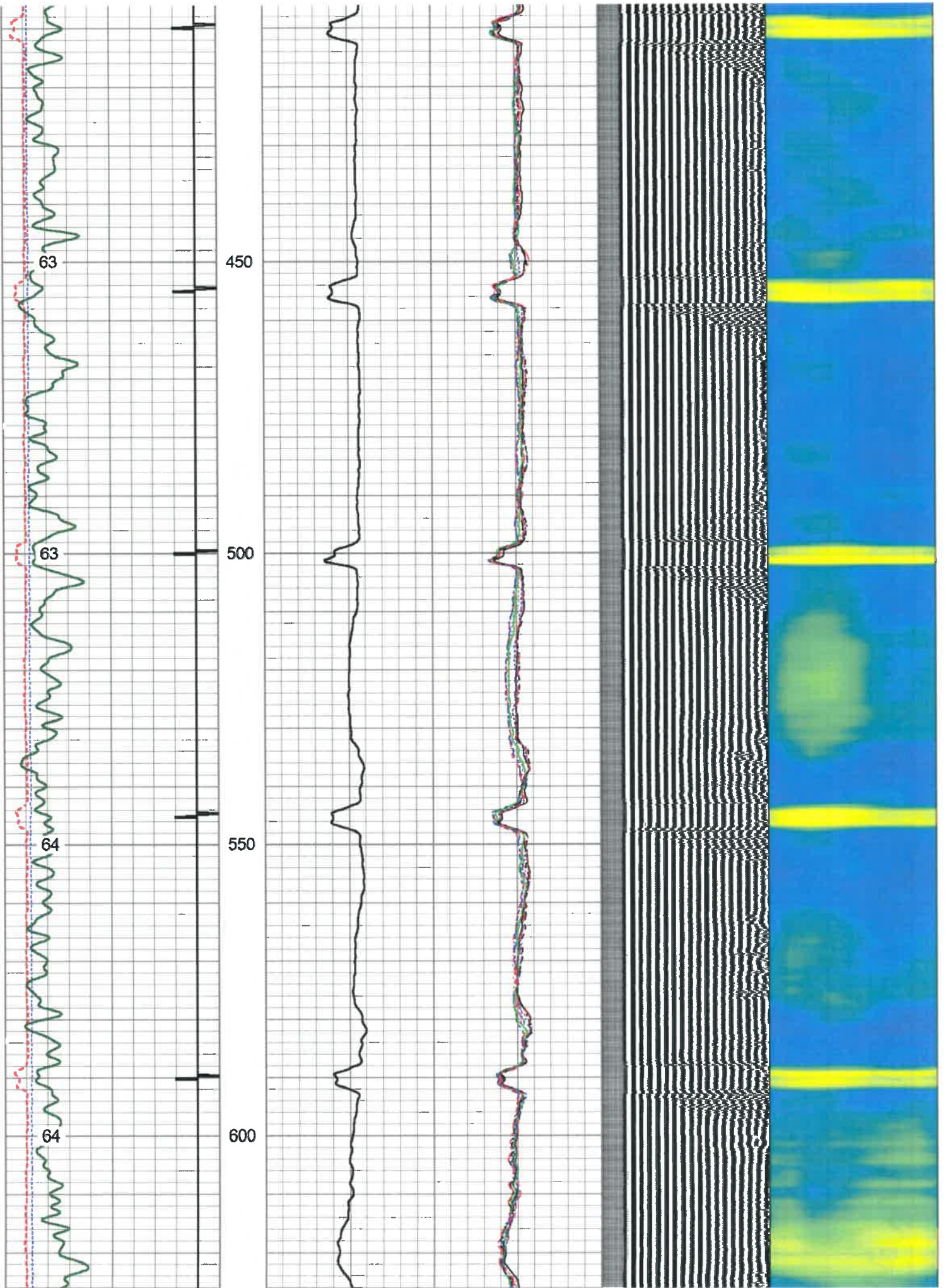
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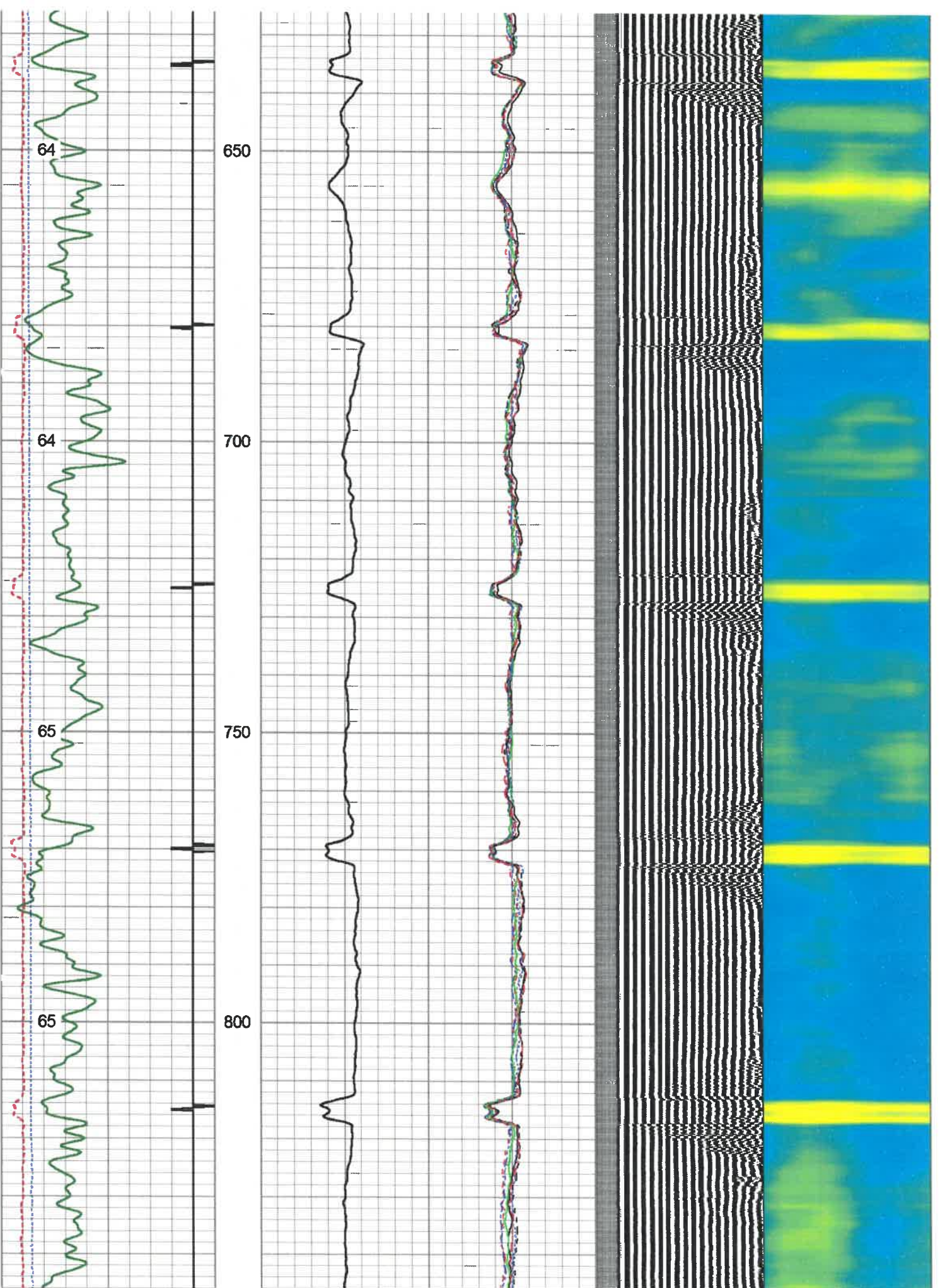
-5 Sector 8 150					

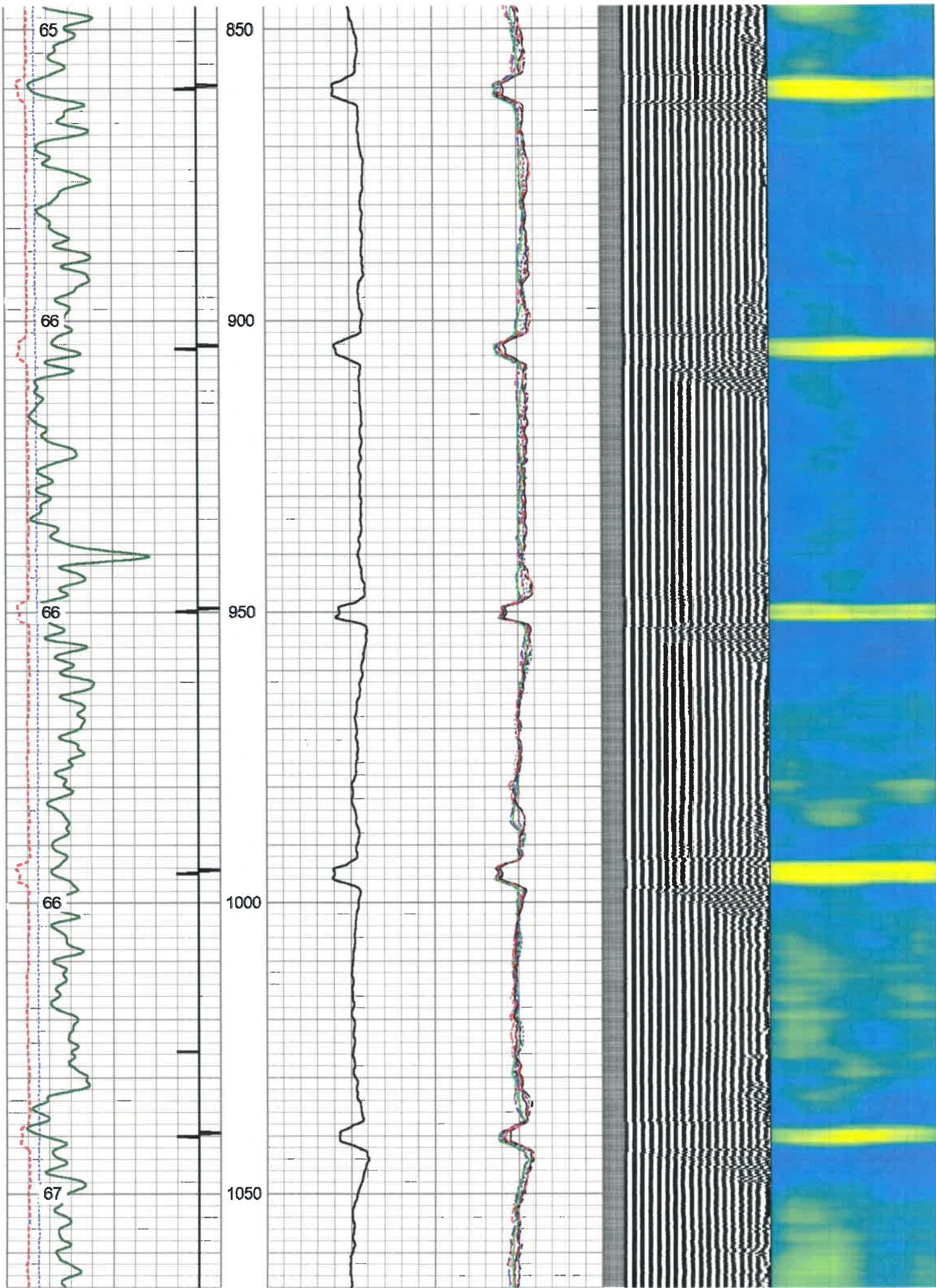
Variable Density 1 Cement Map 8
 200 (usec) 1200

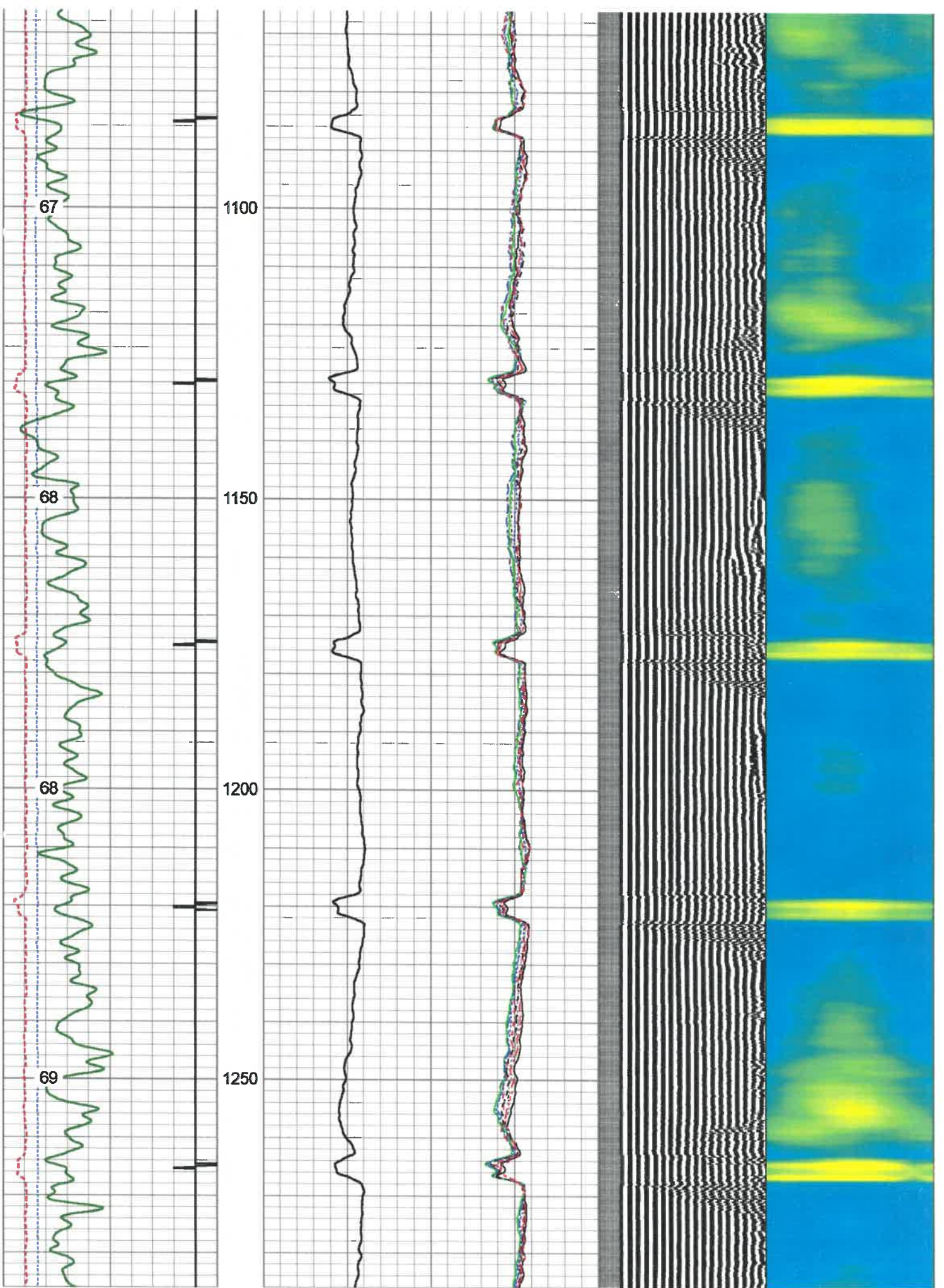


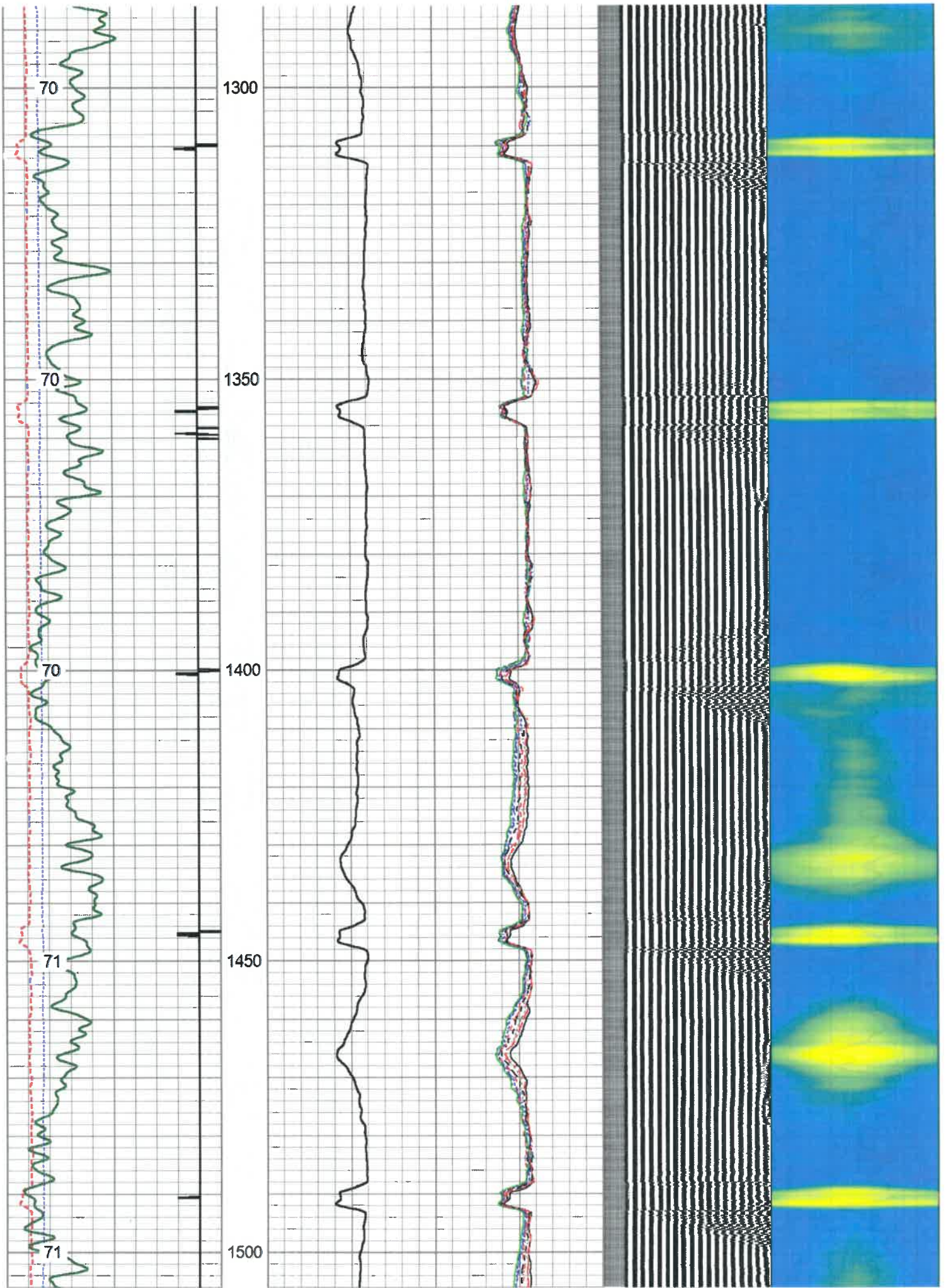


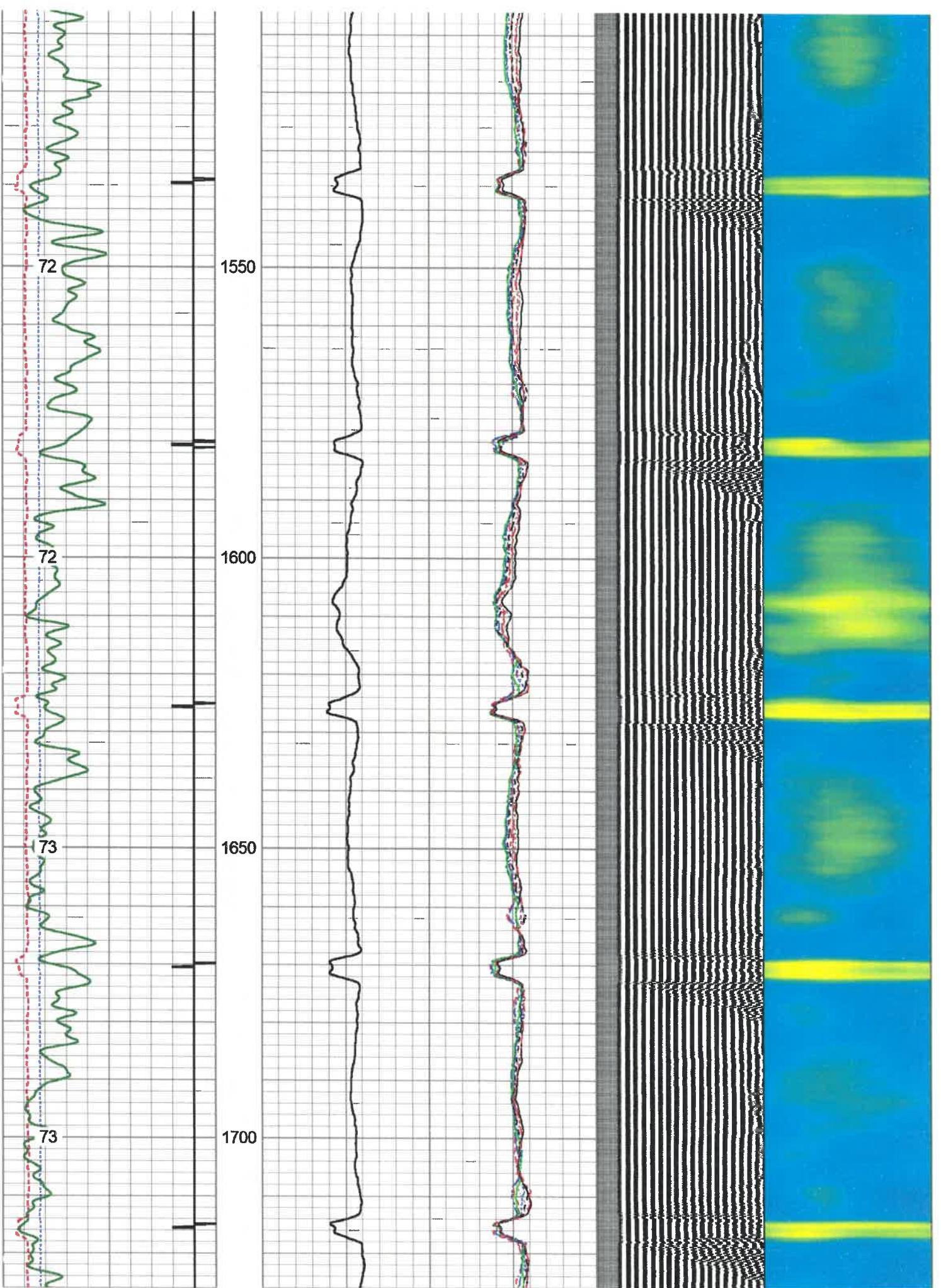


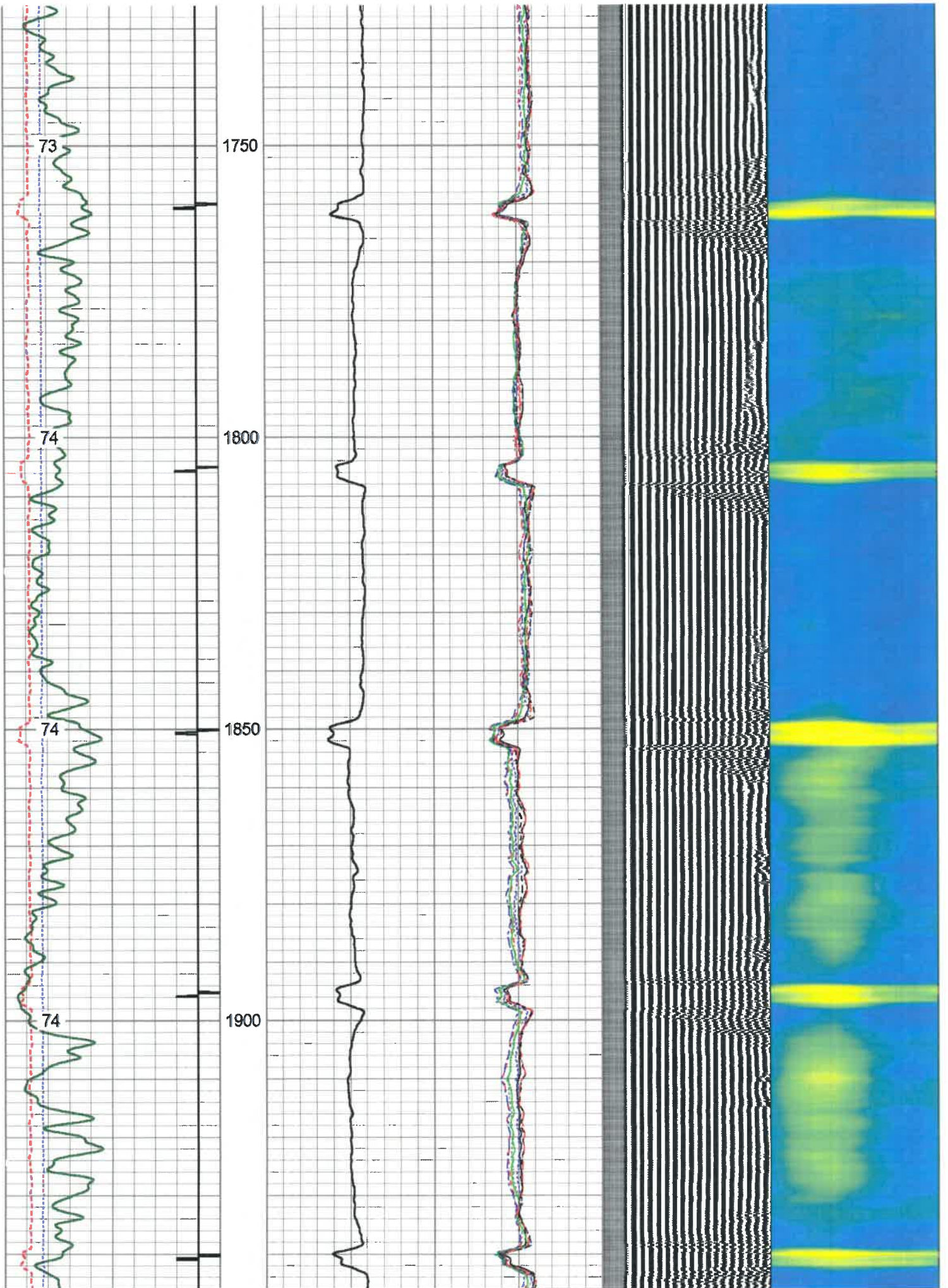


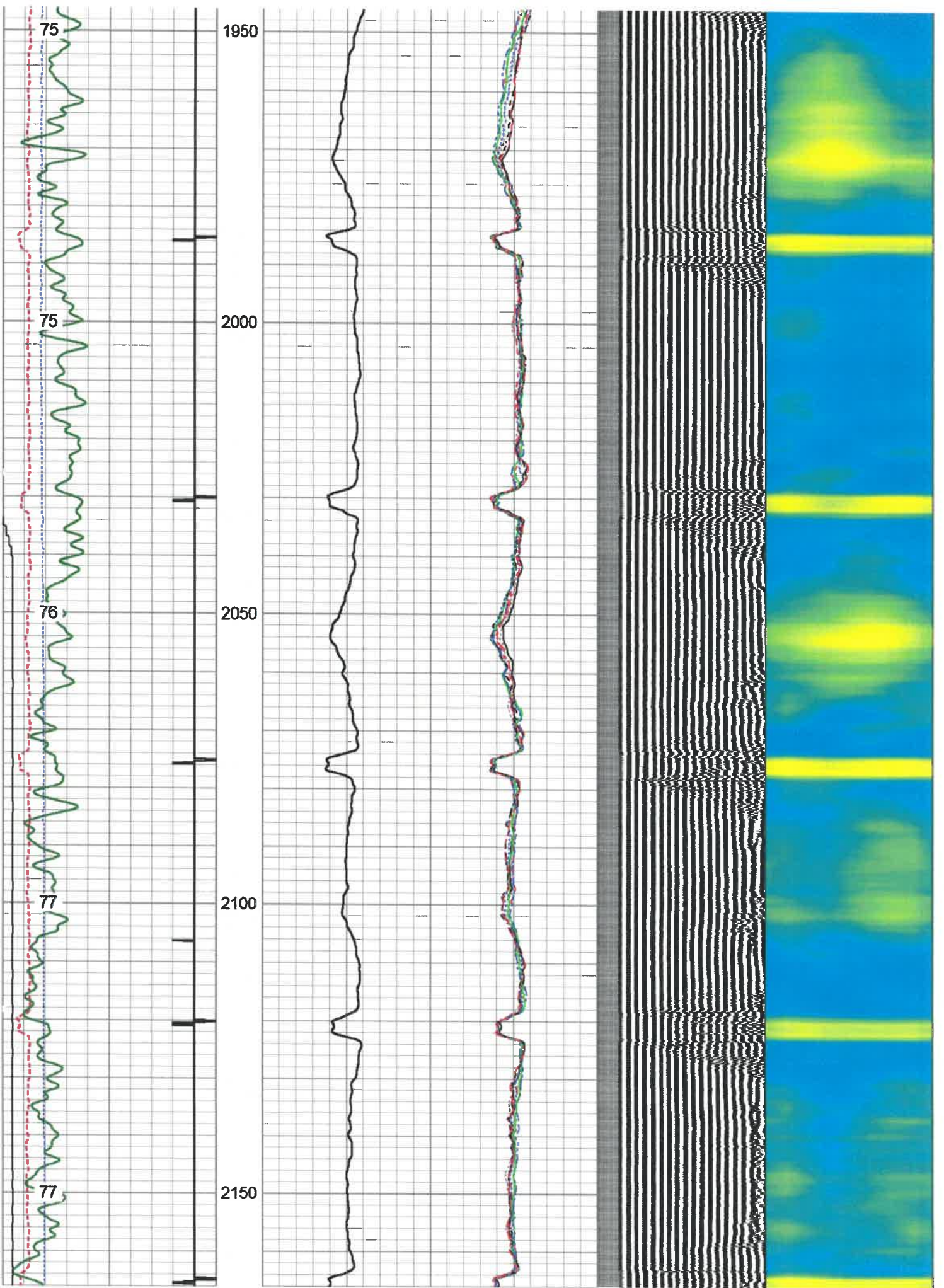


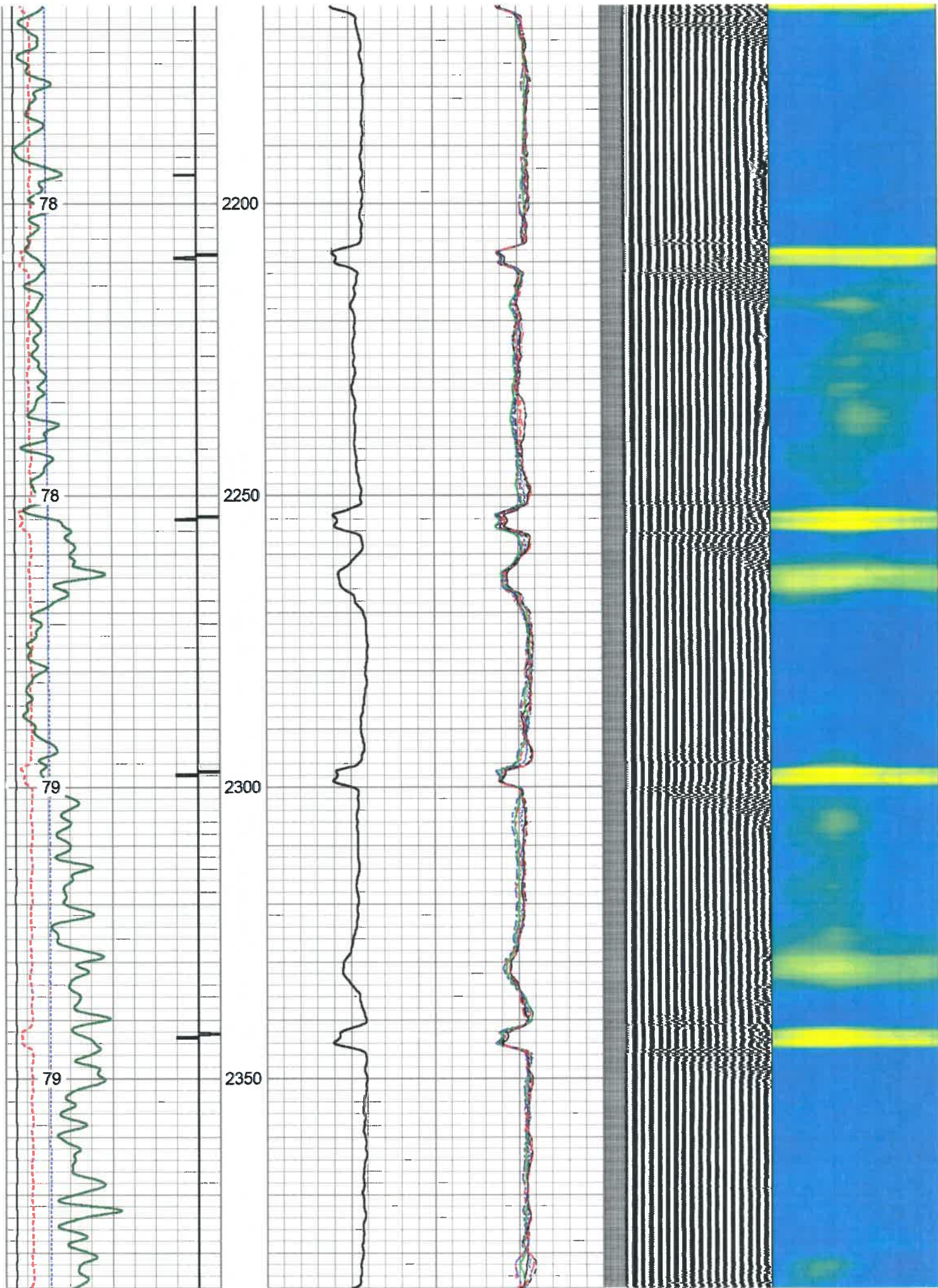


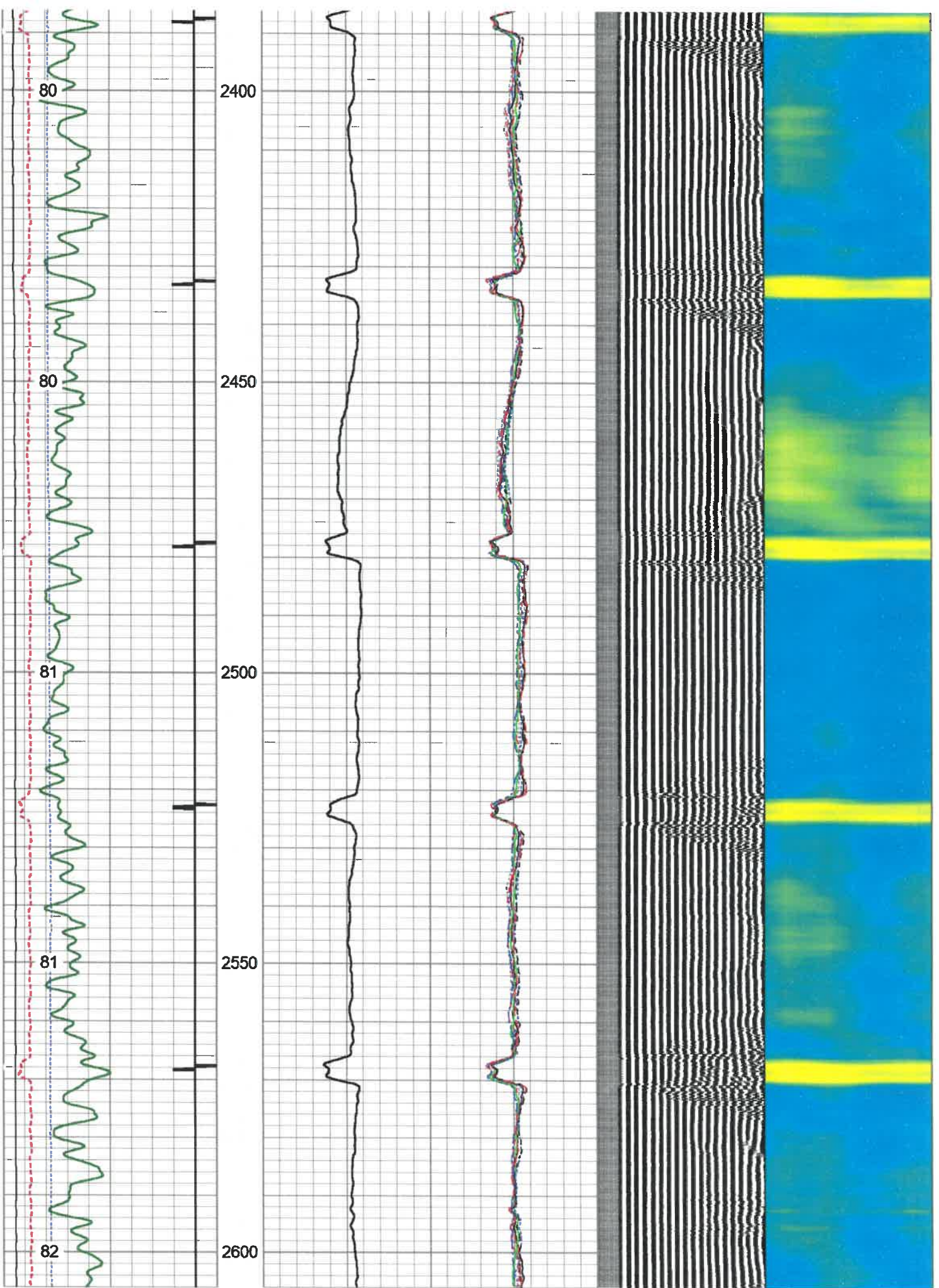


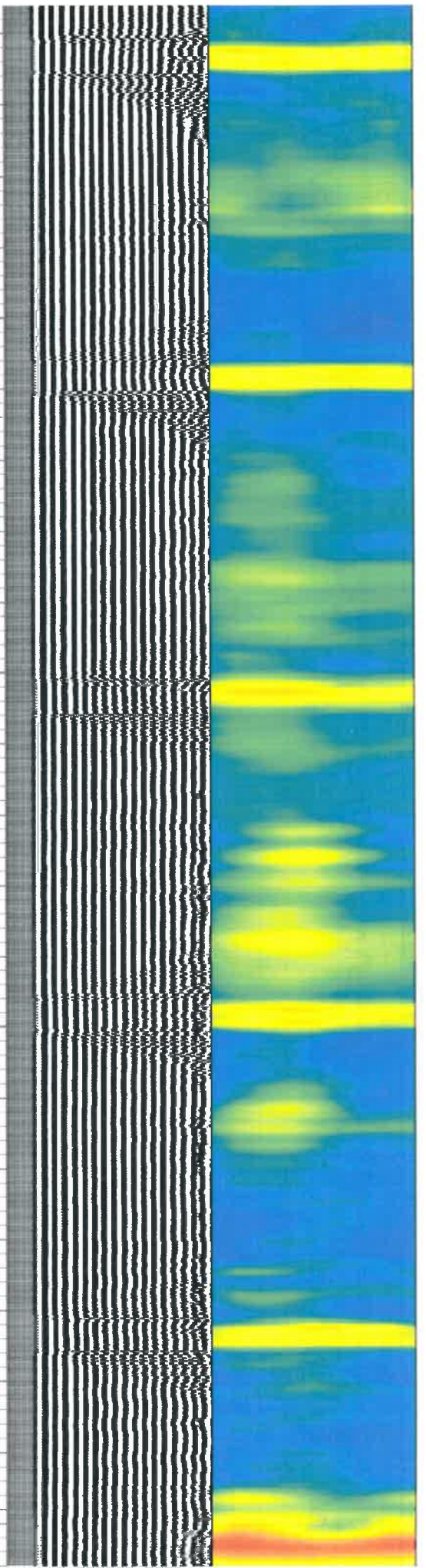
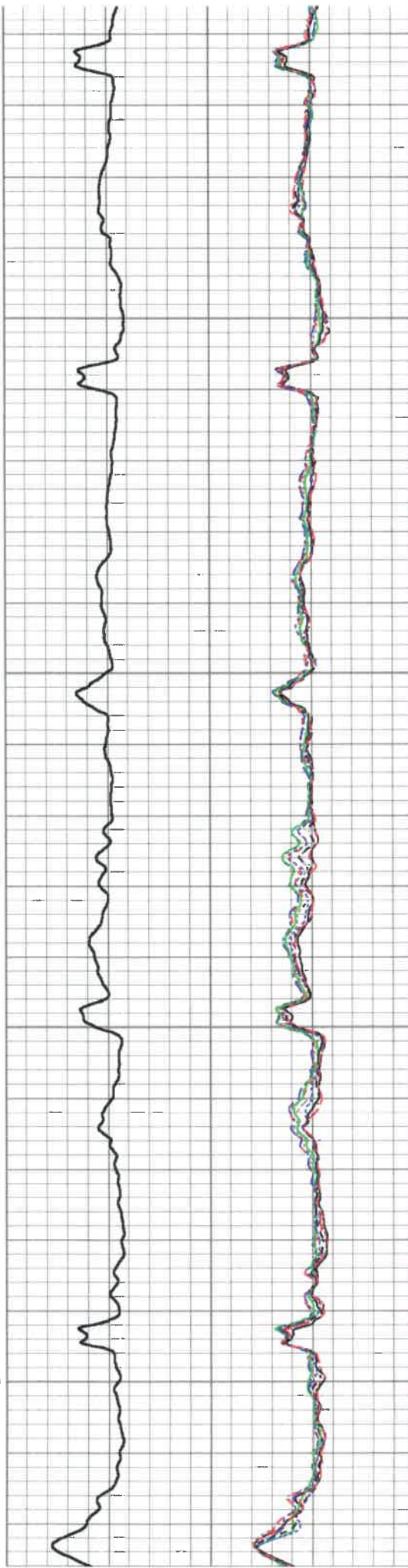
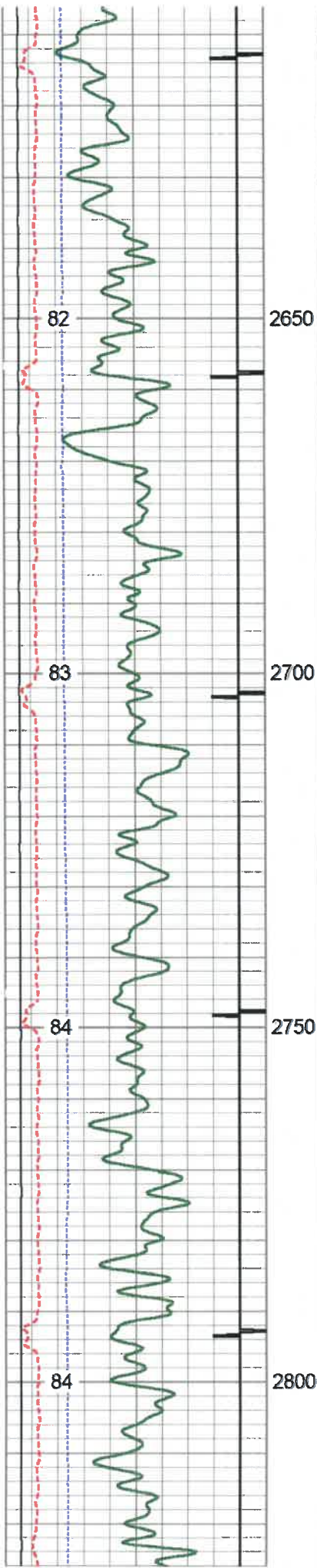


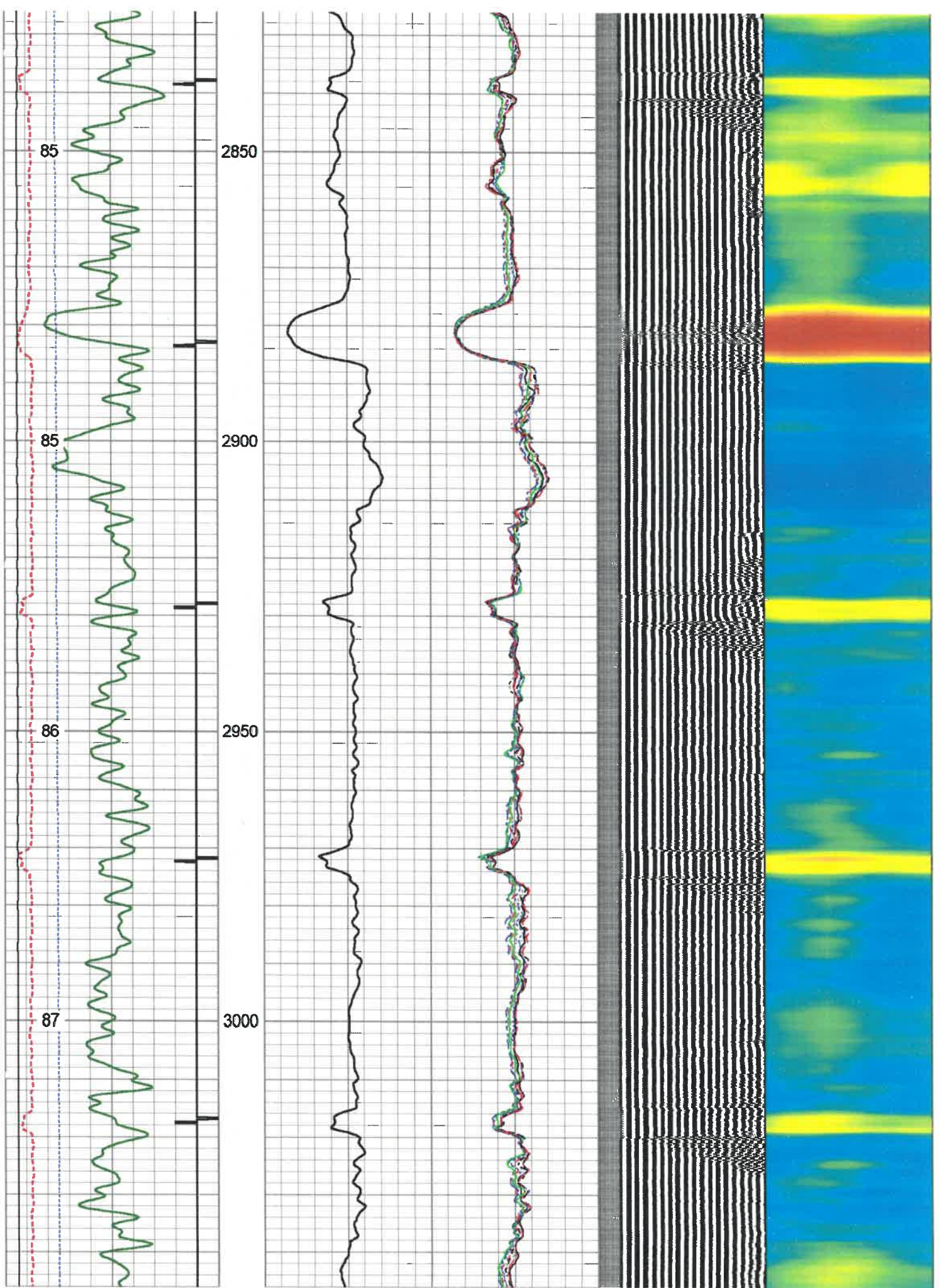


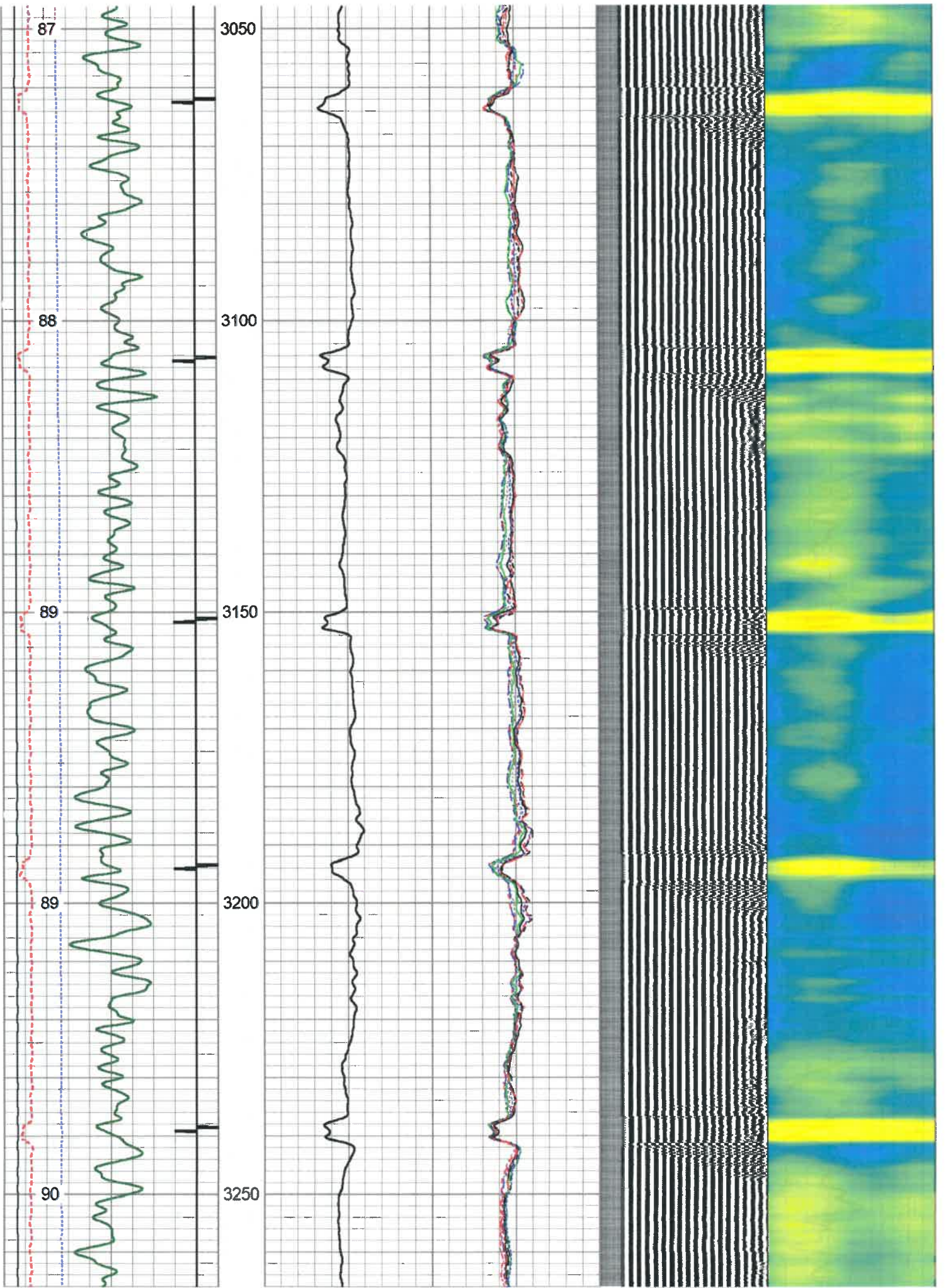


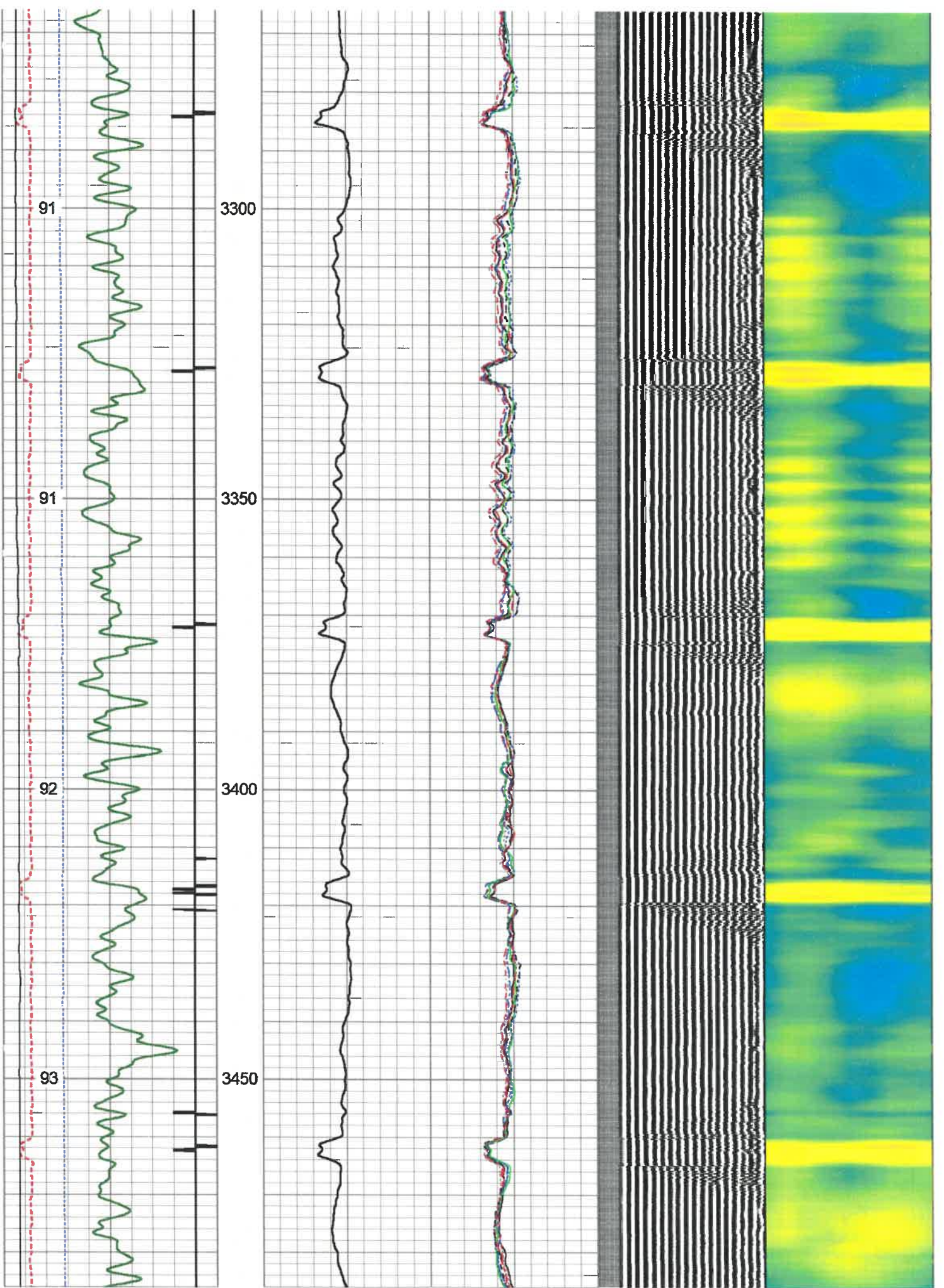


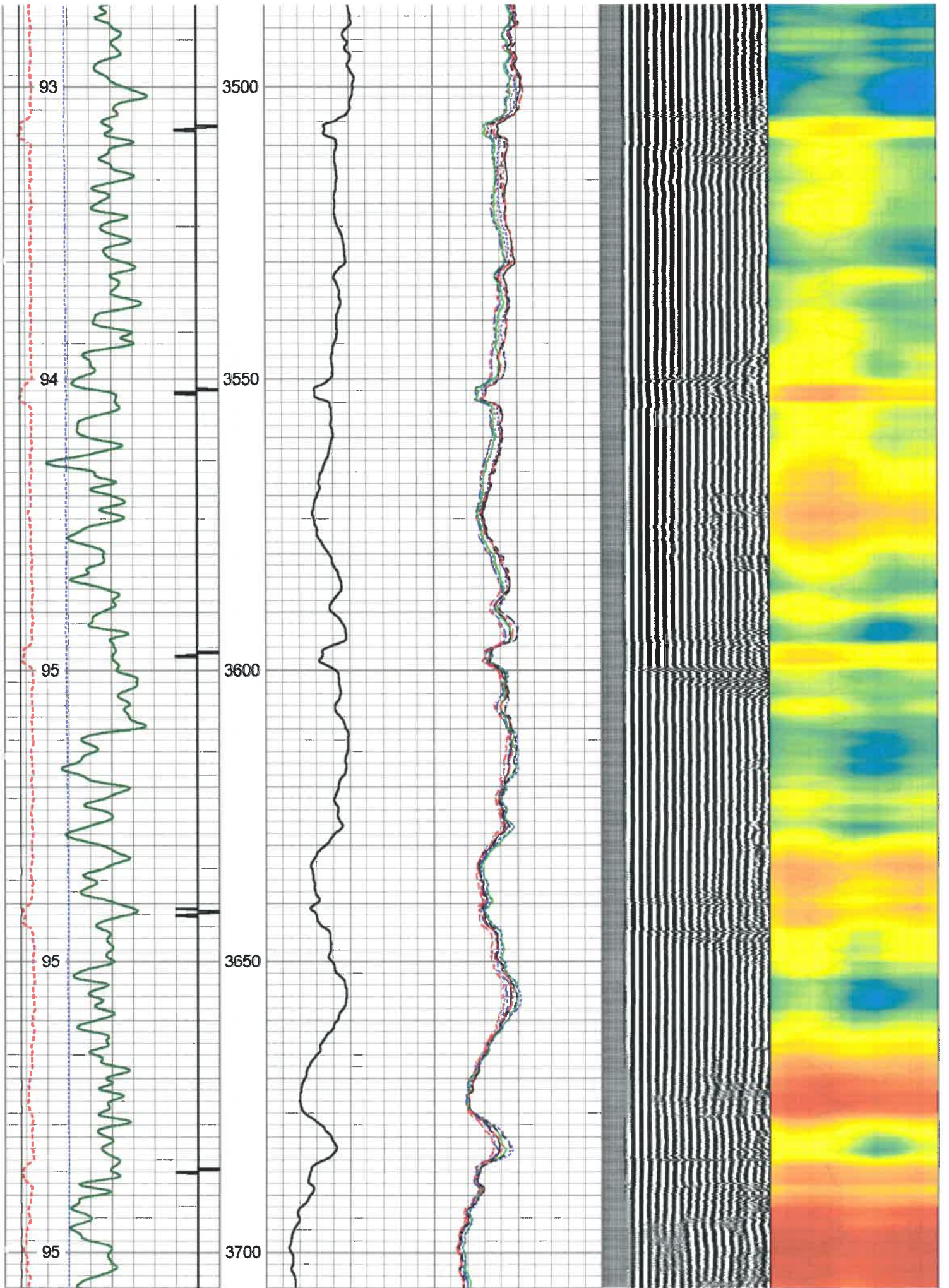


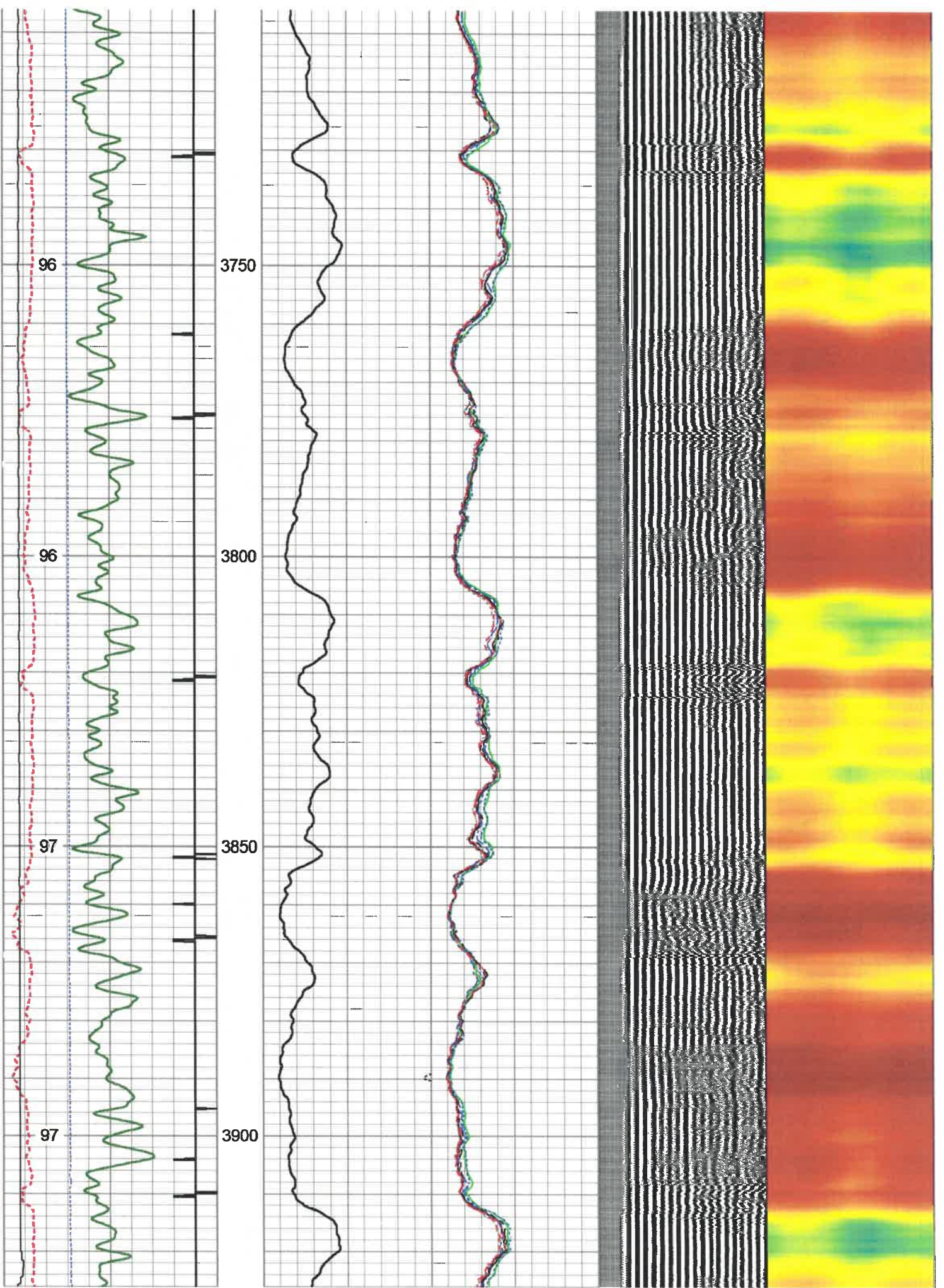


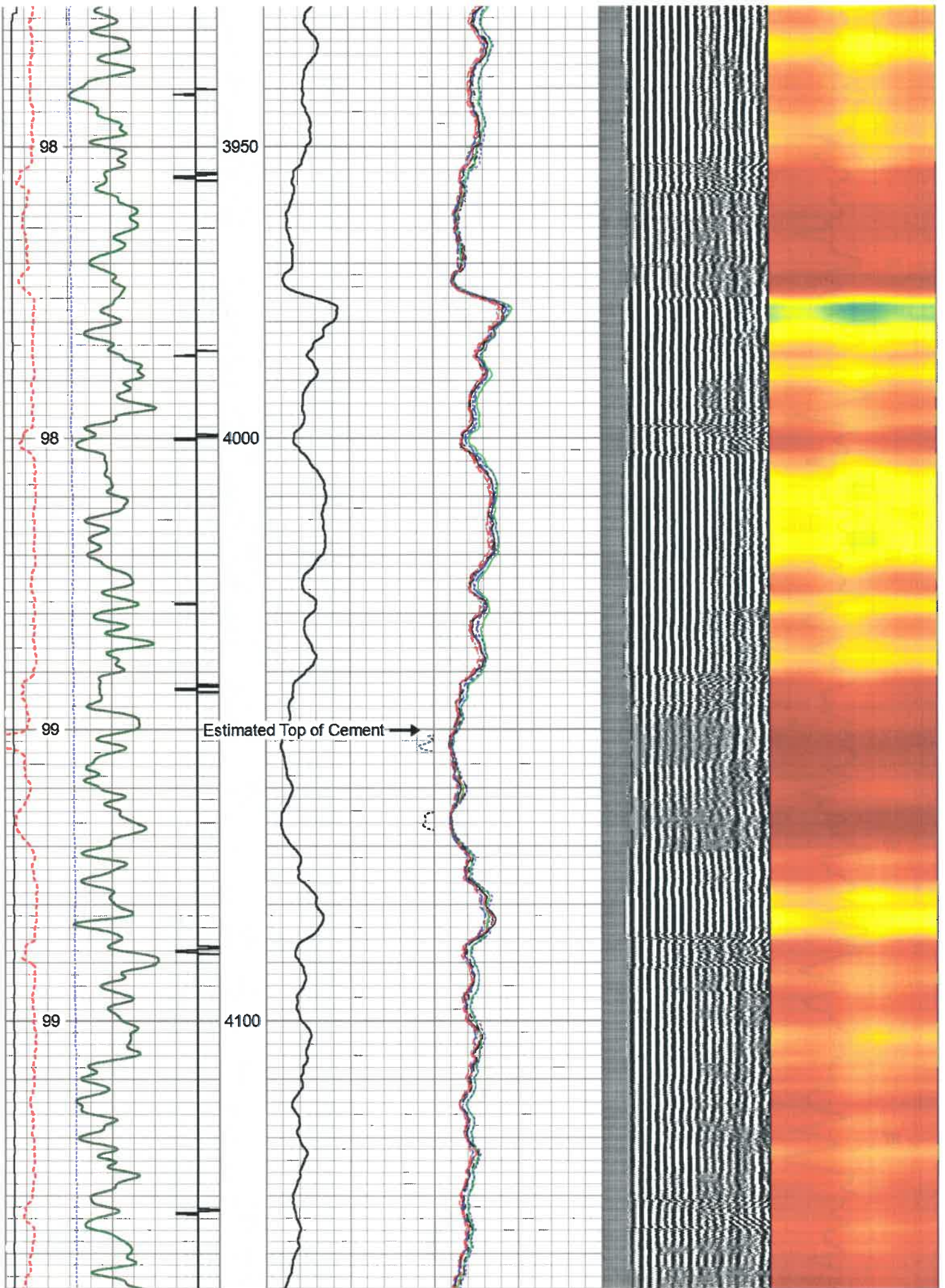


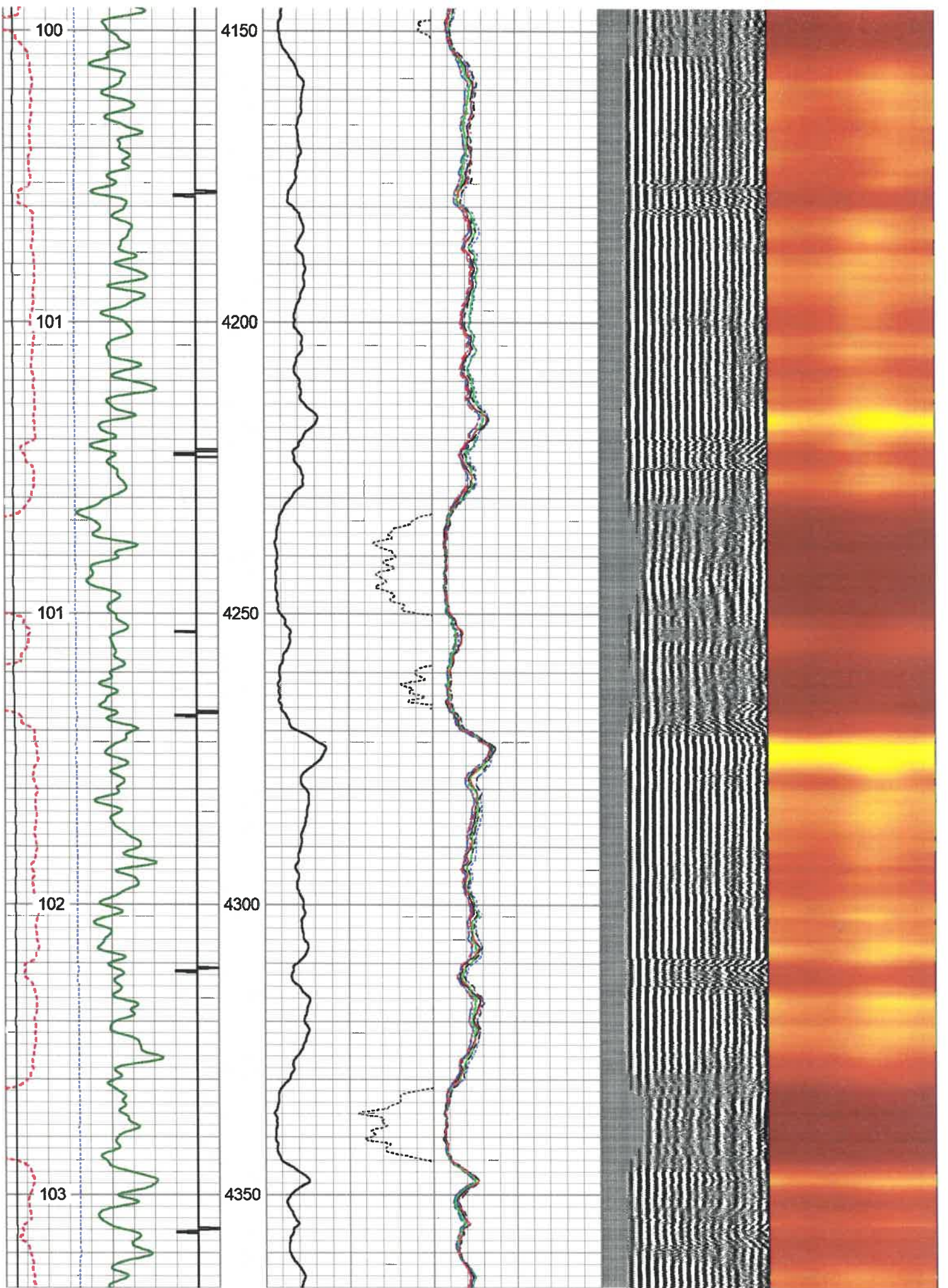


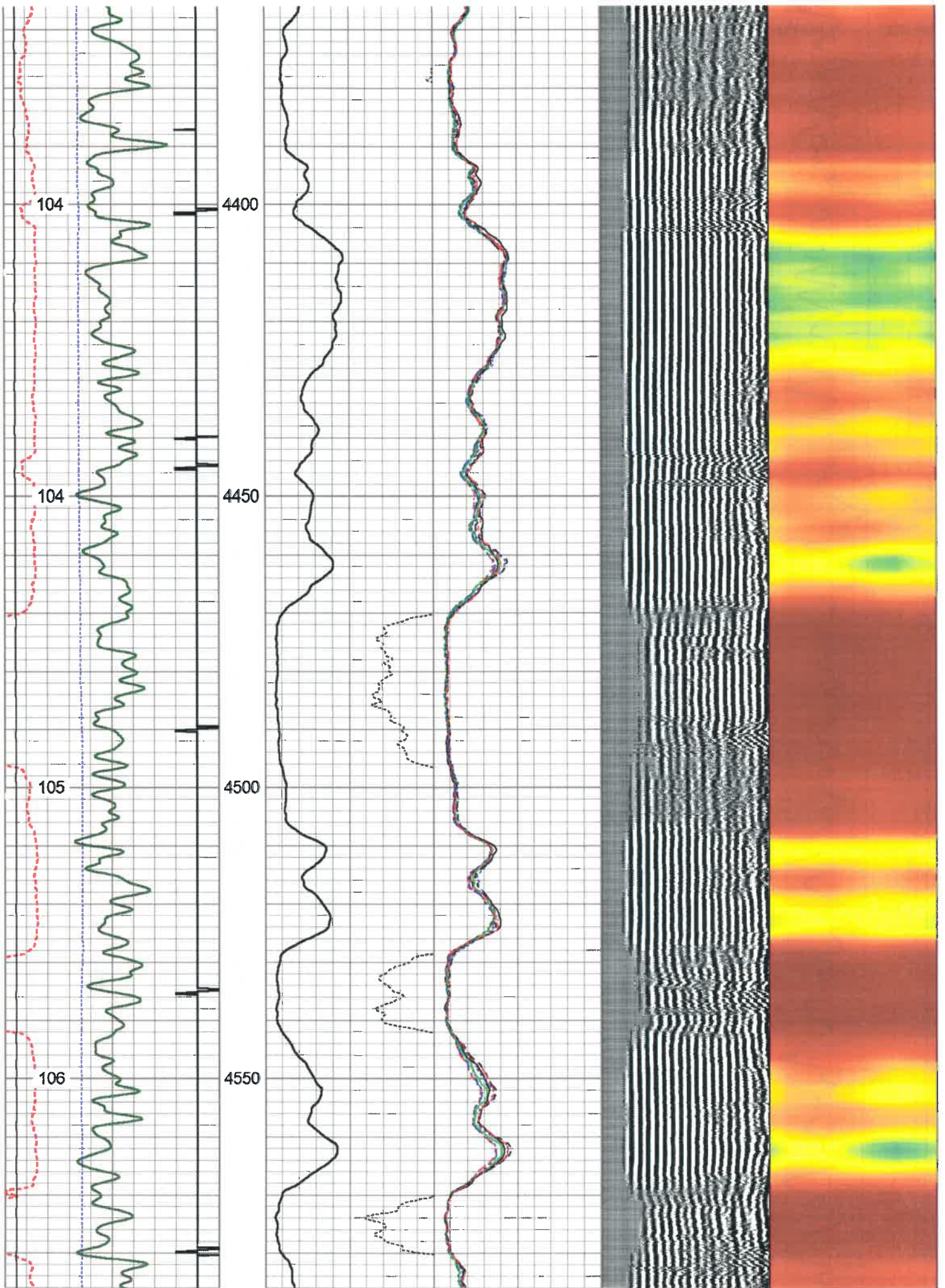


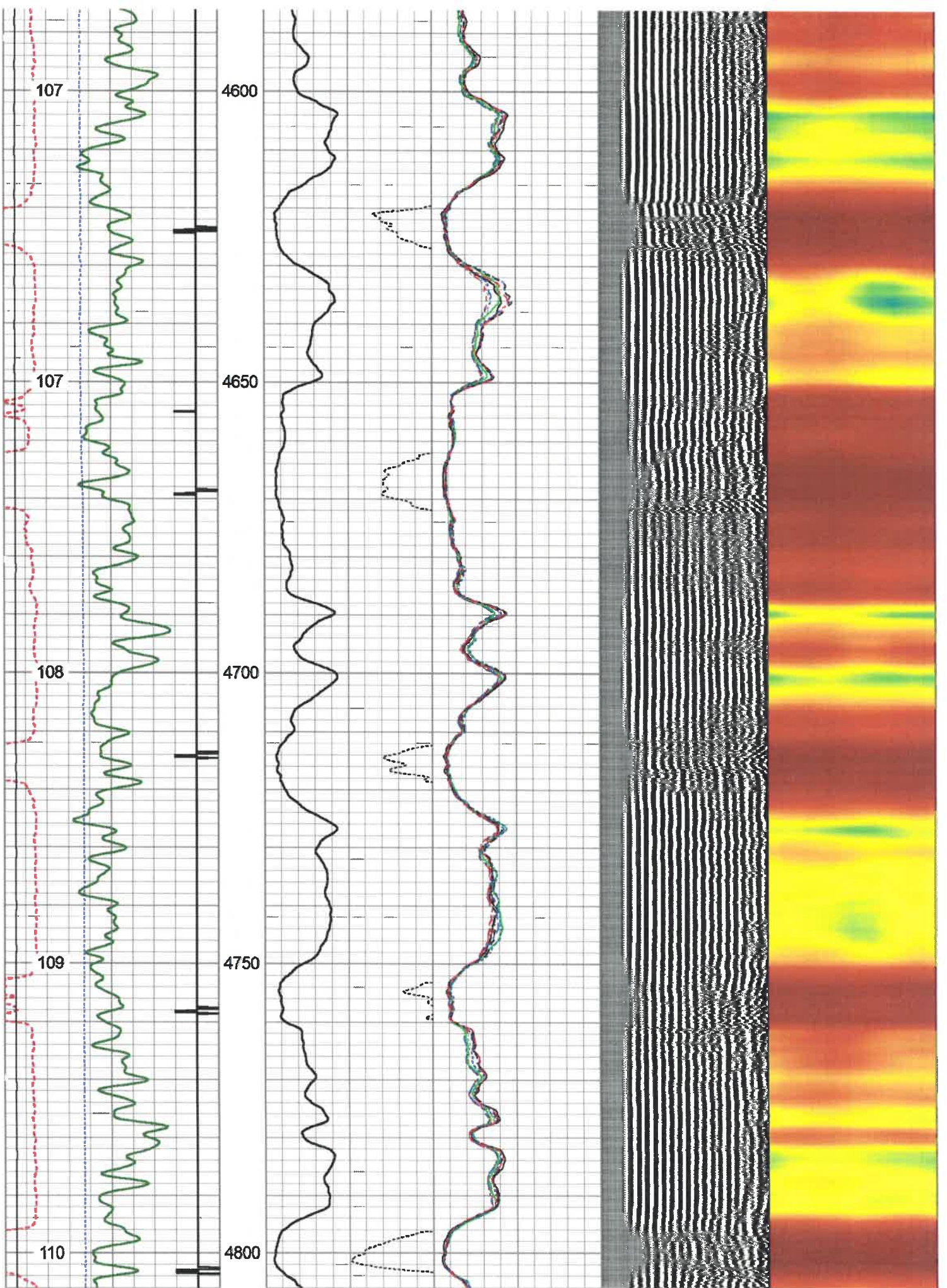


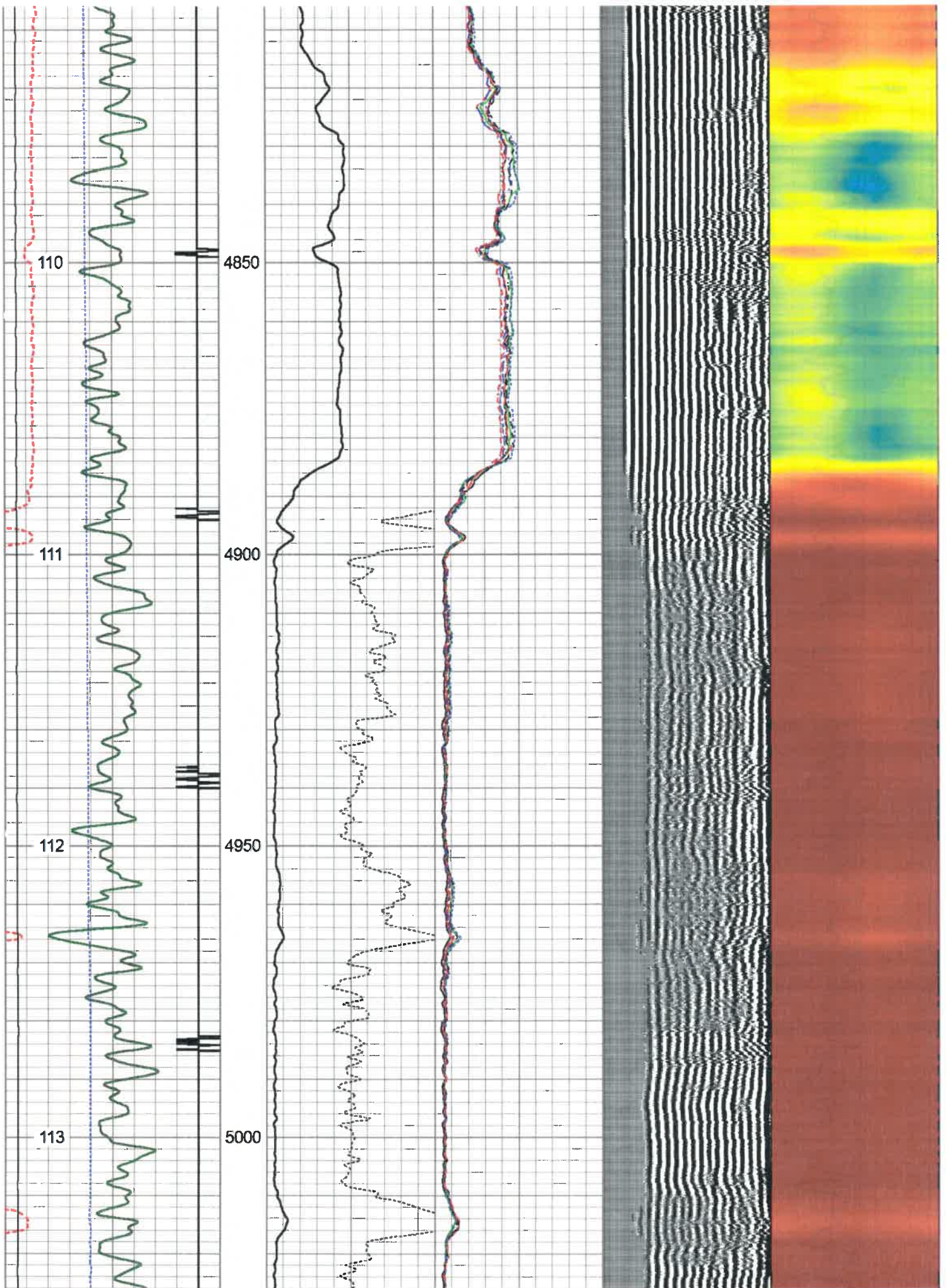


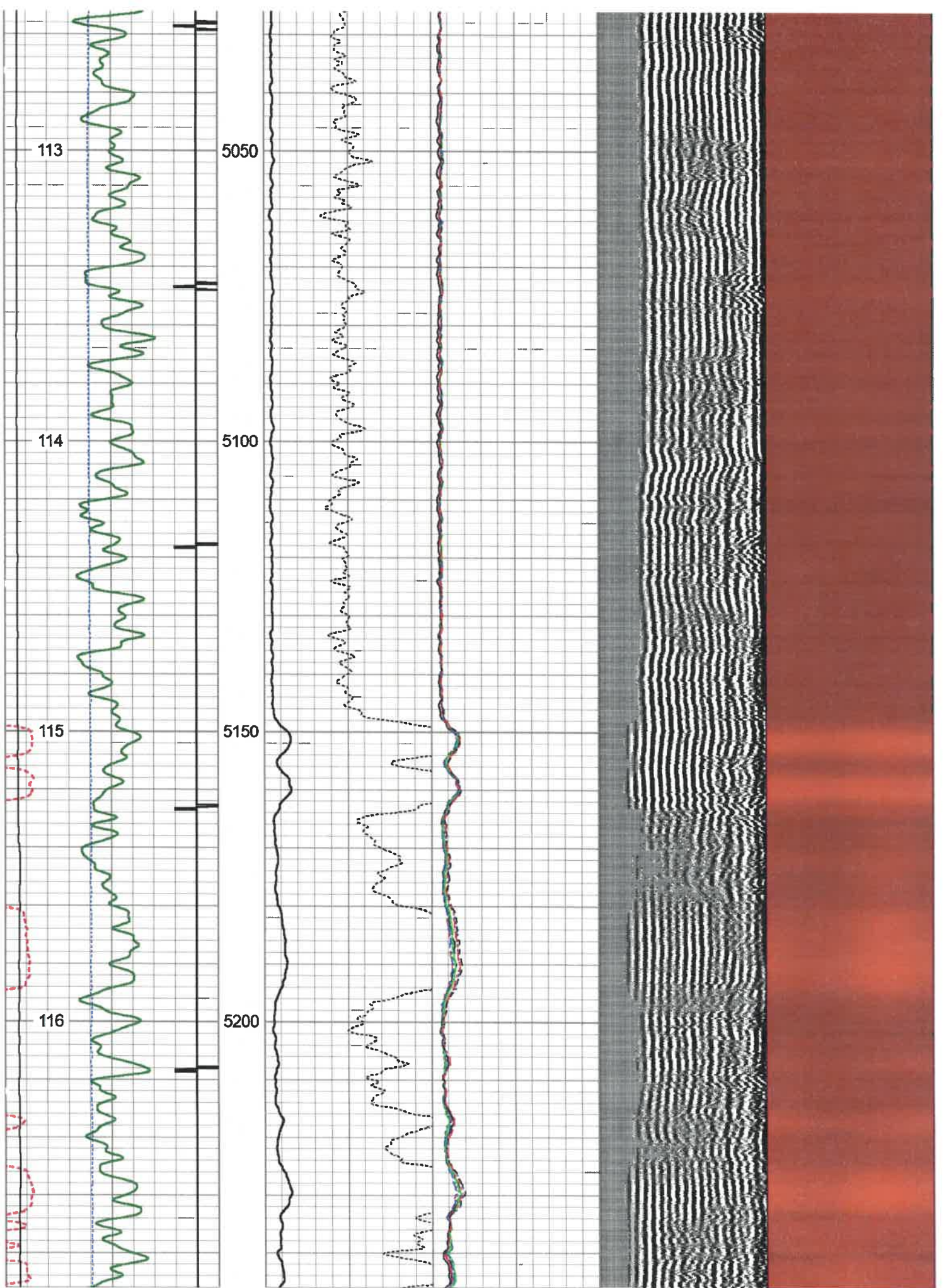


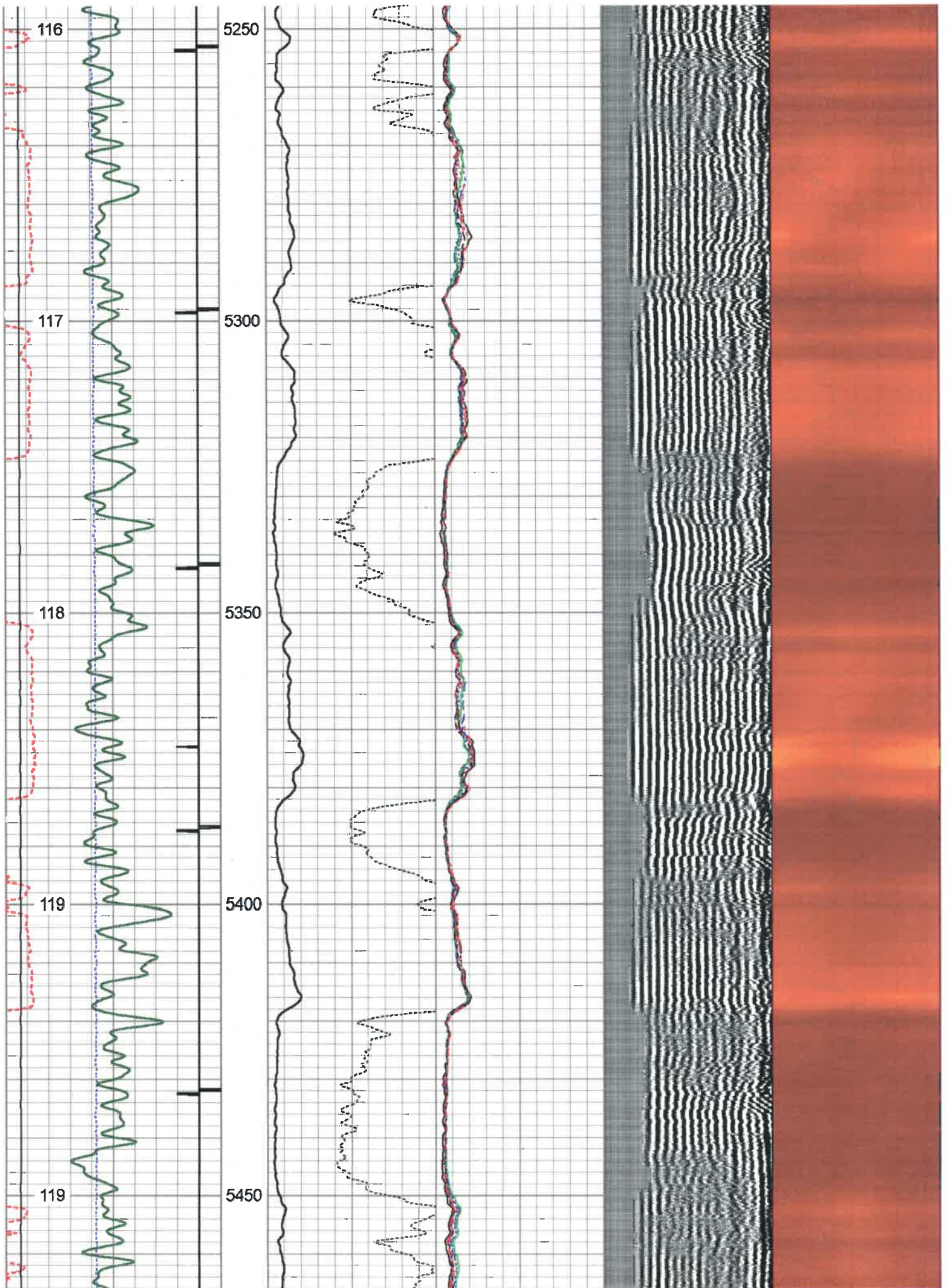


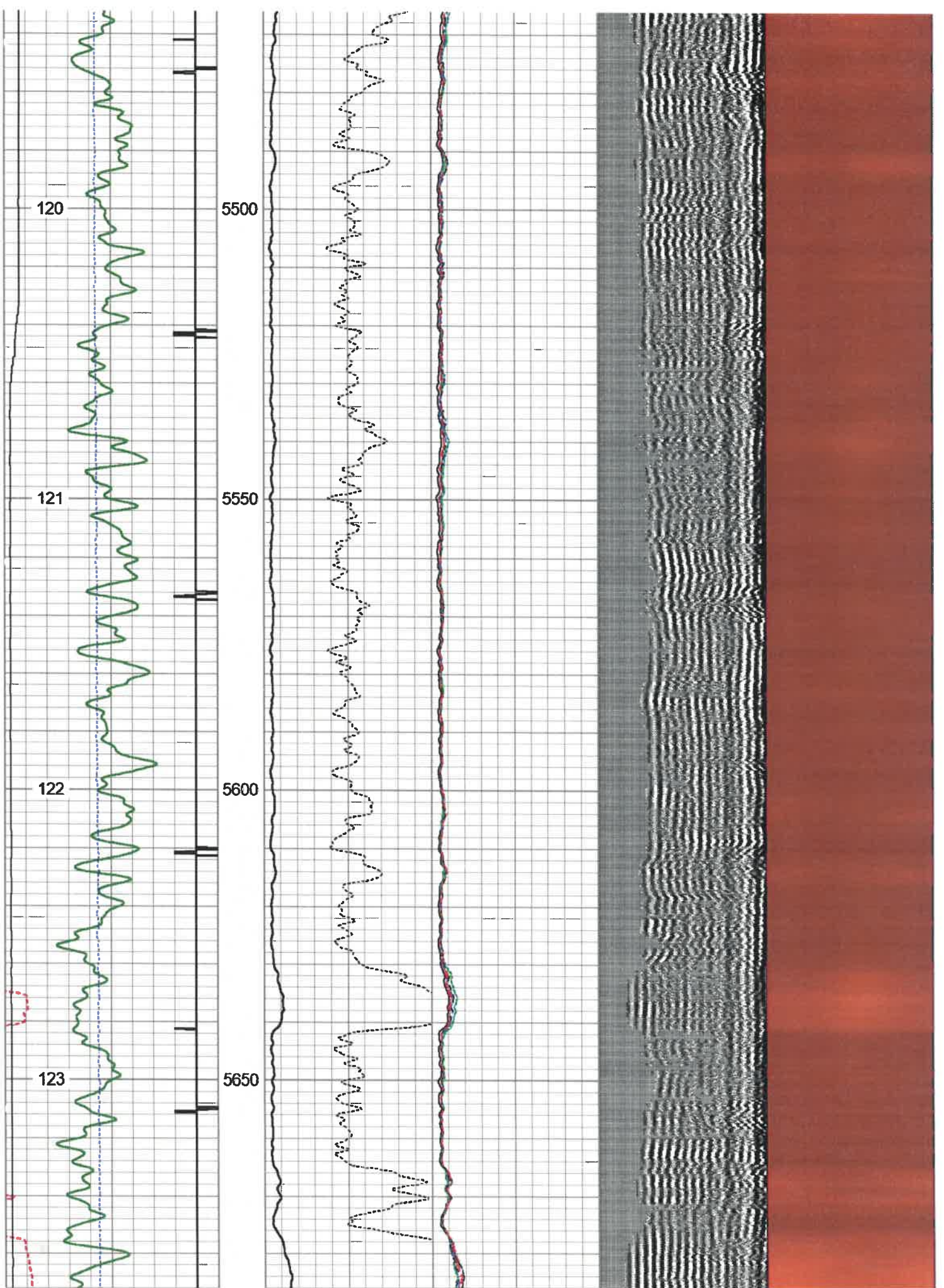


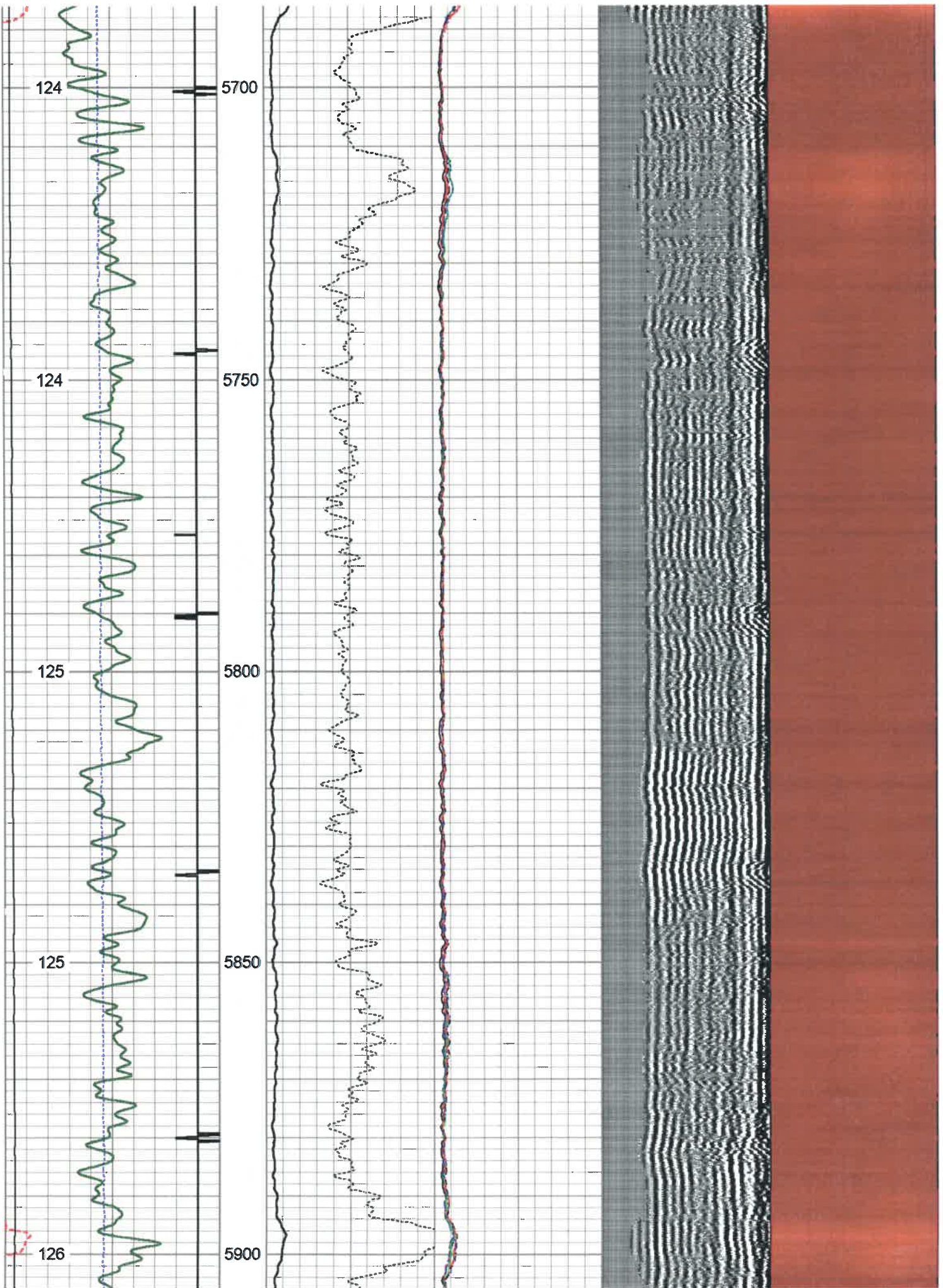


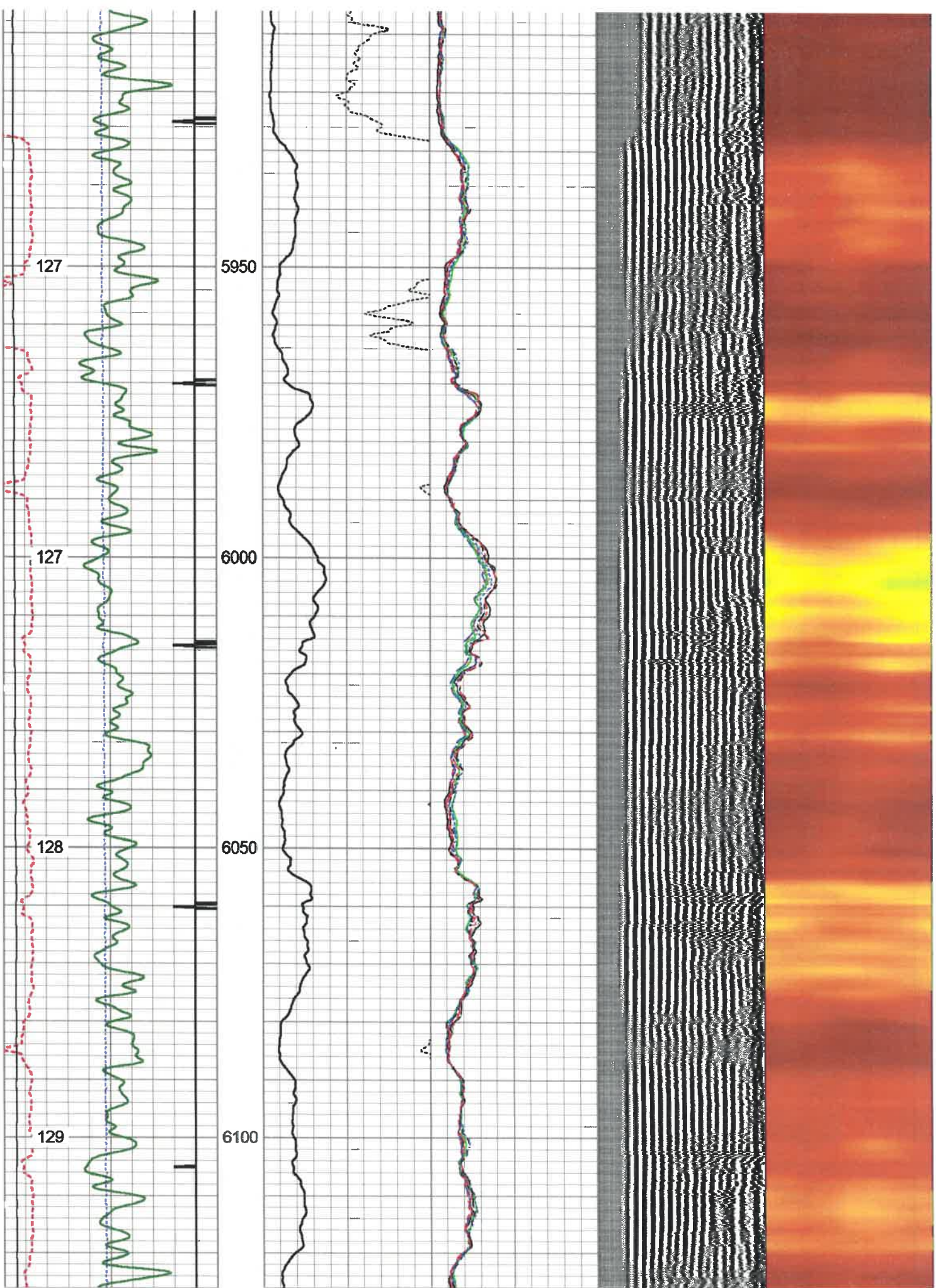


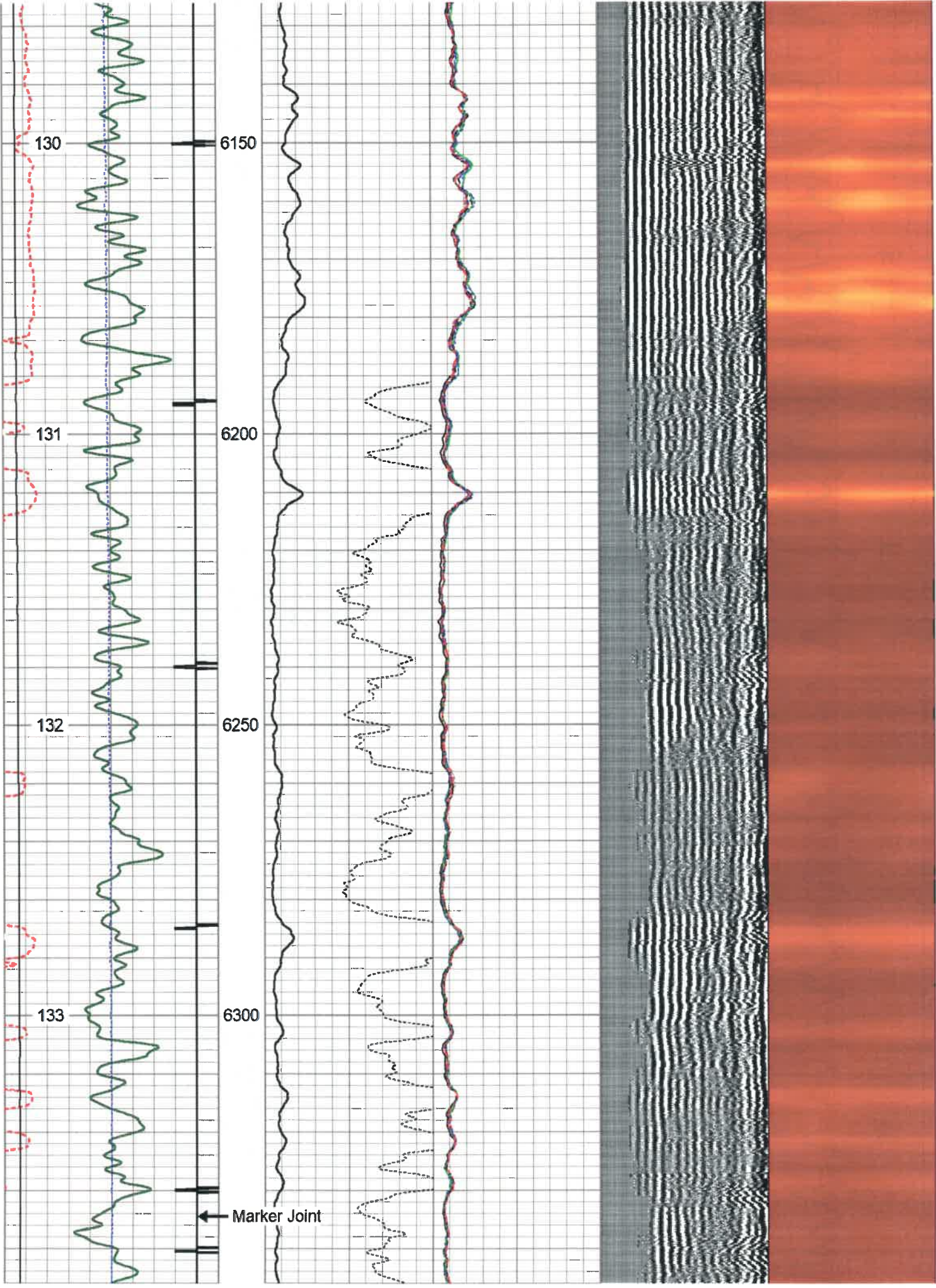


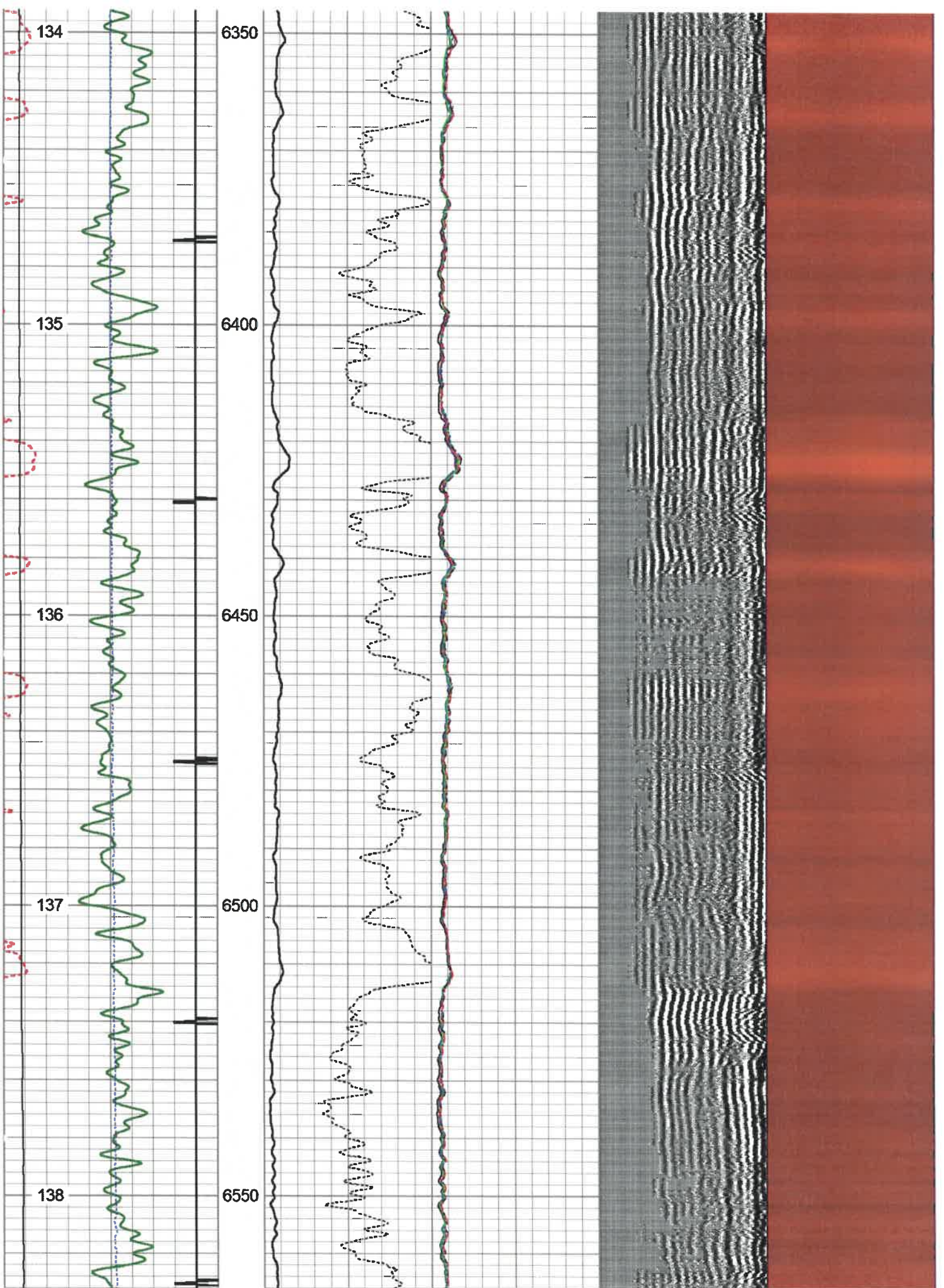


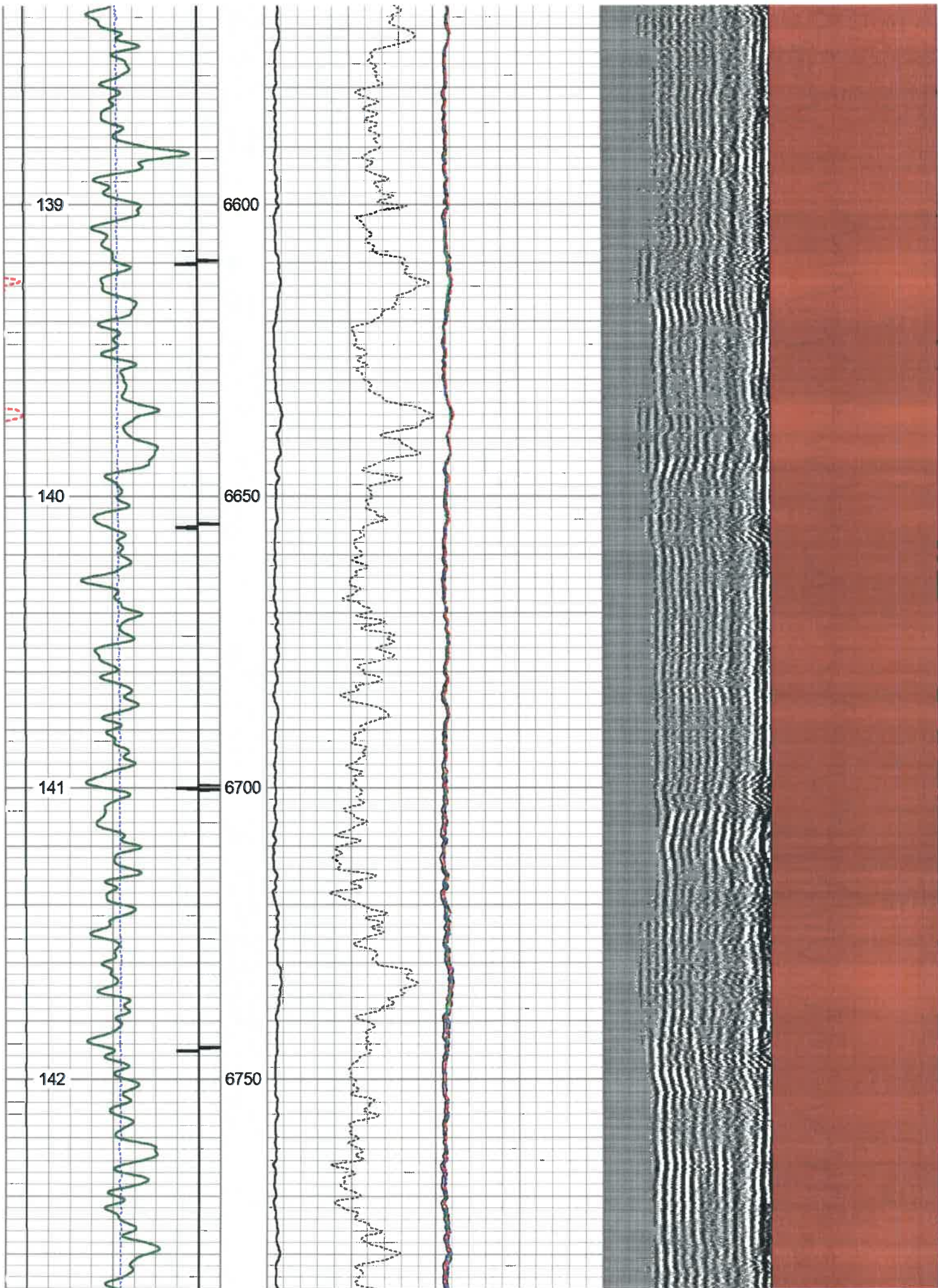


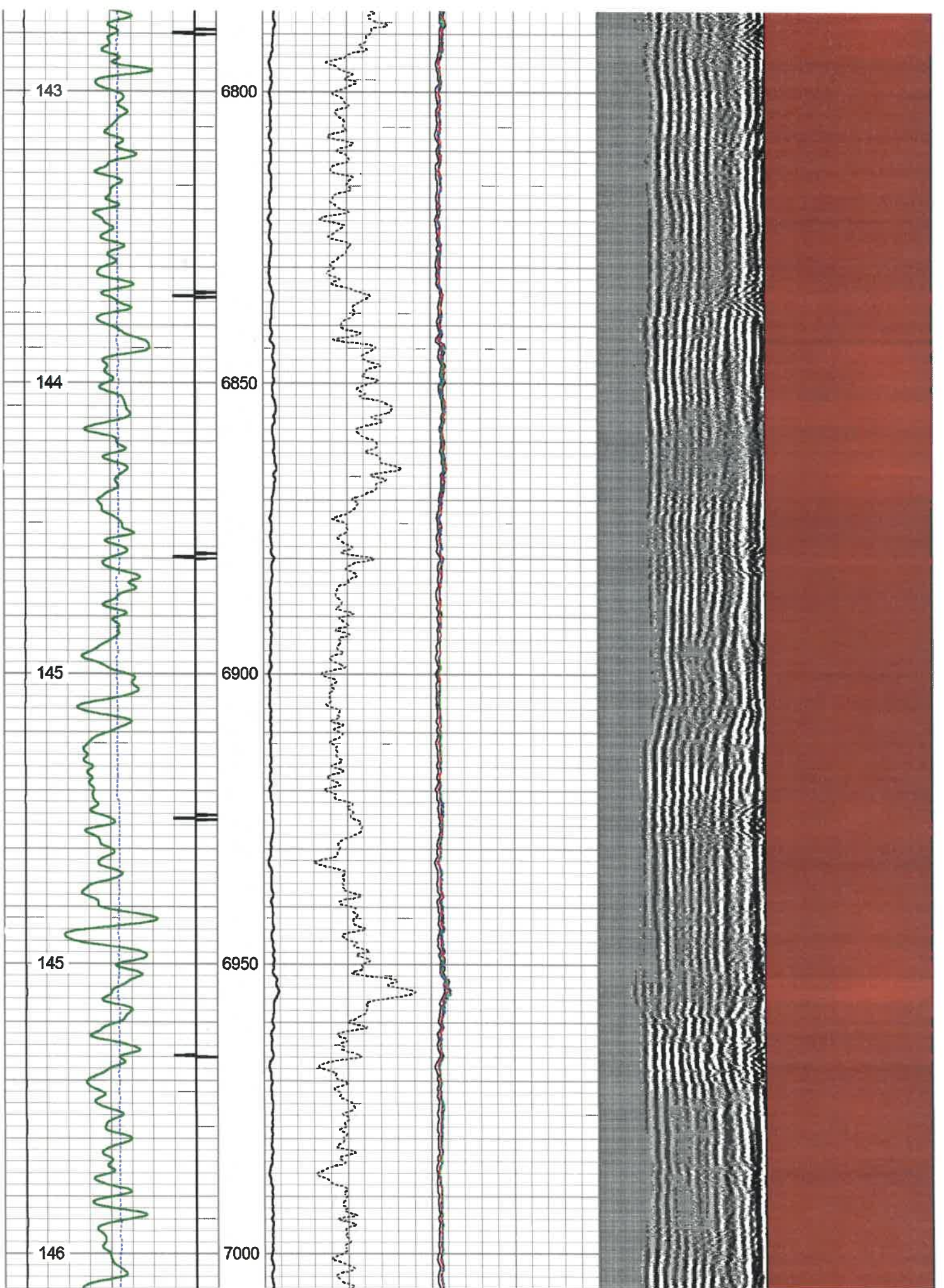


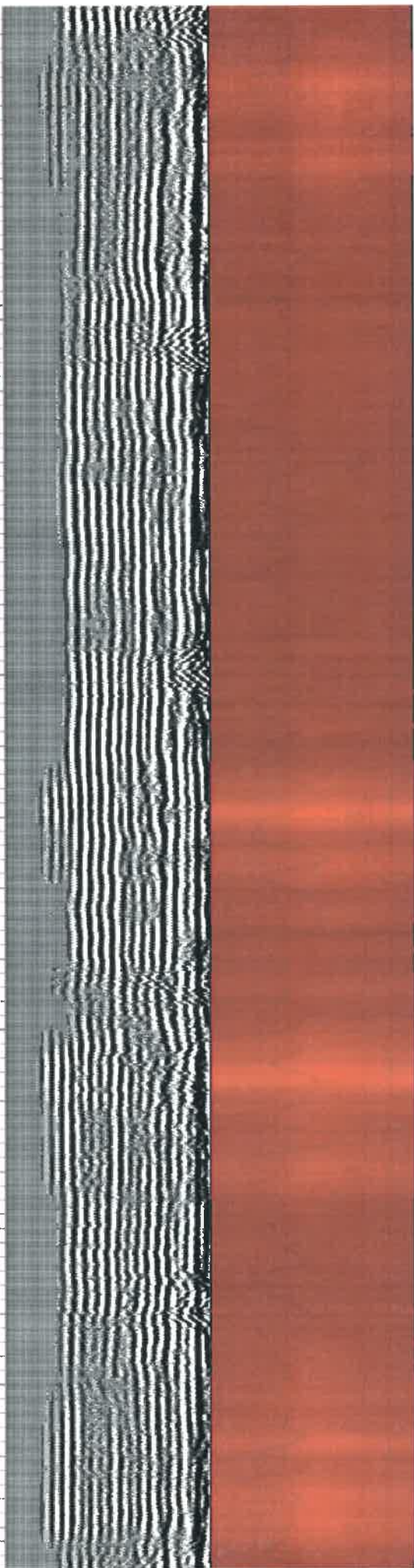
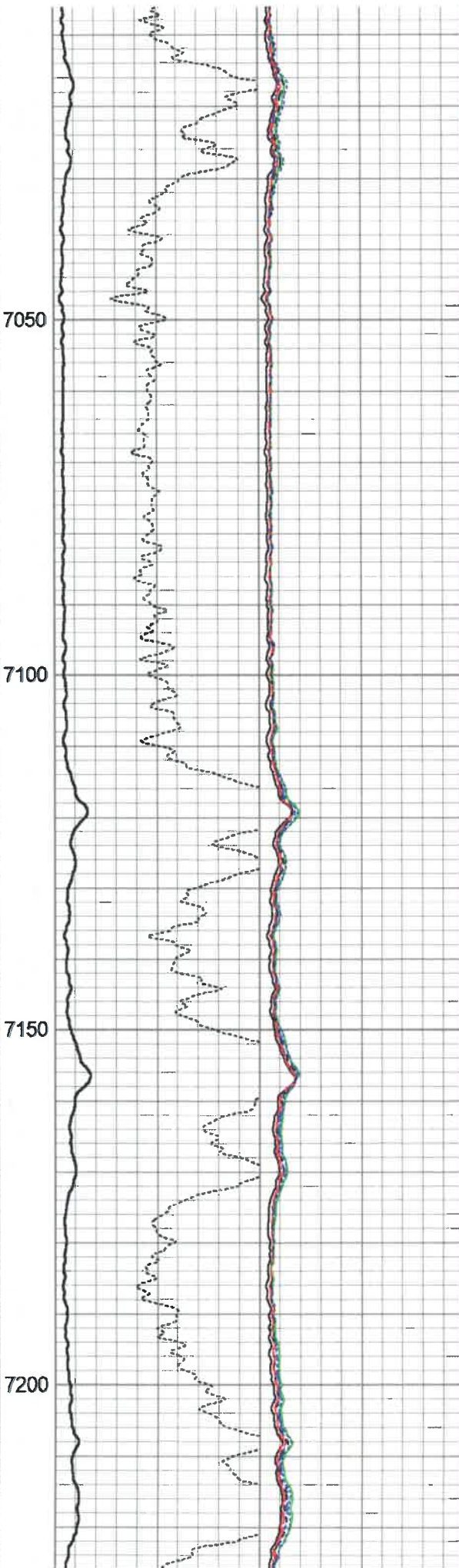
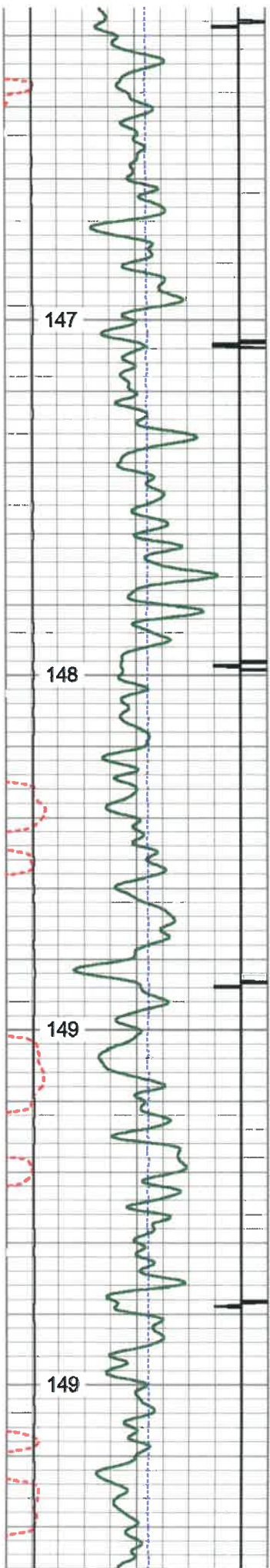


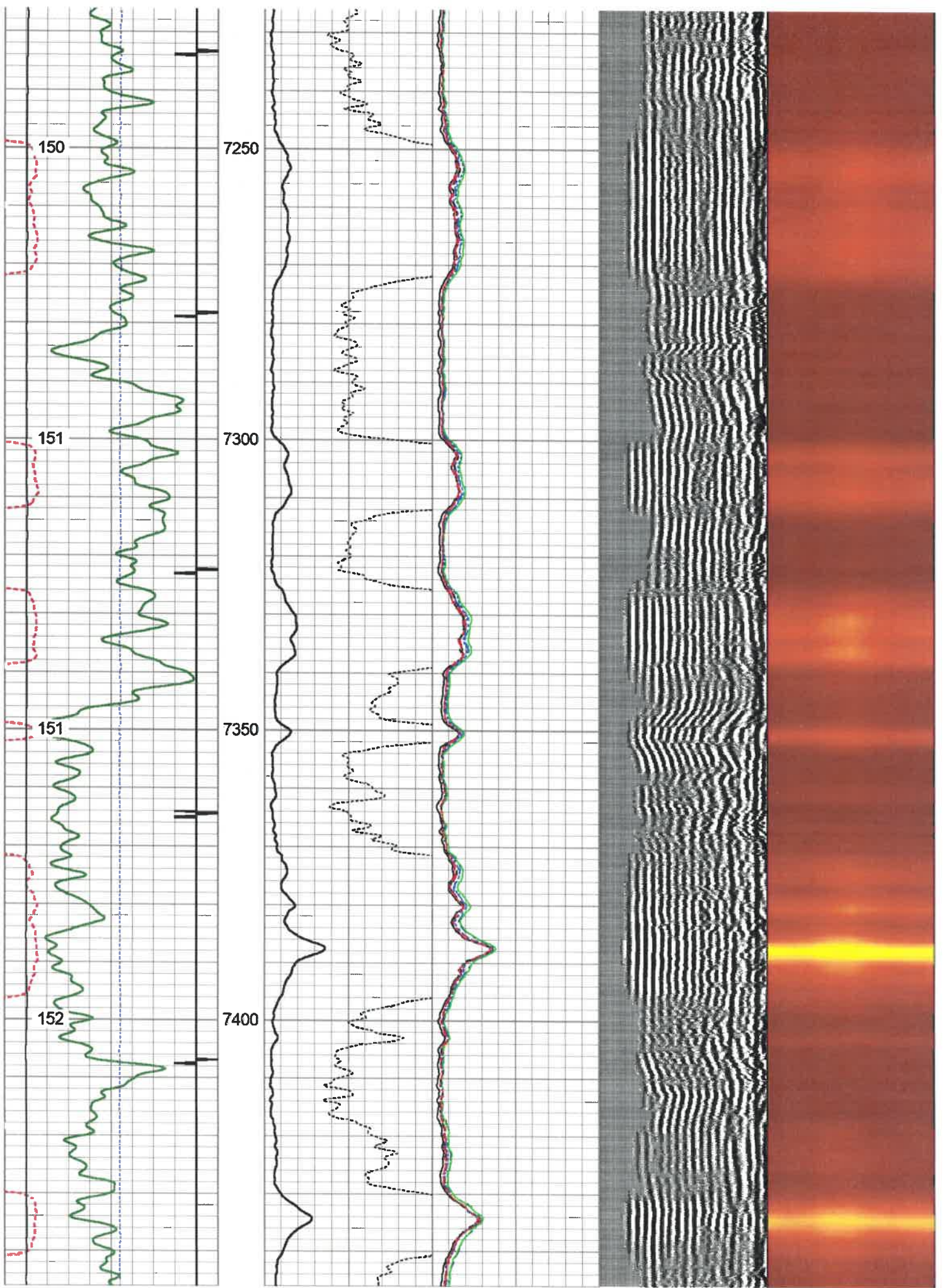


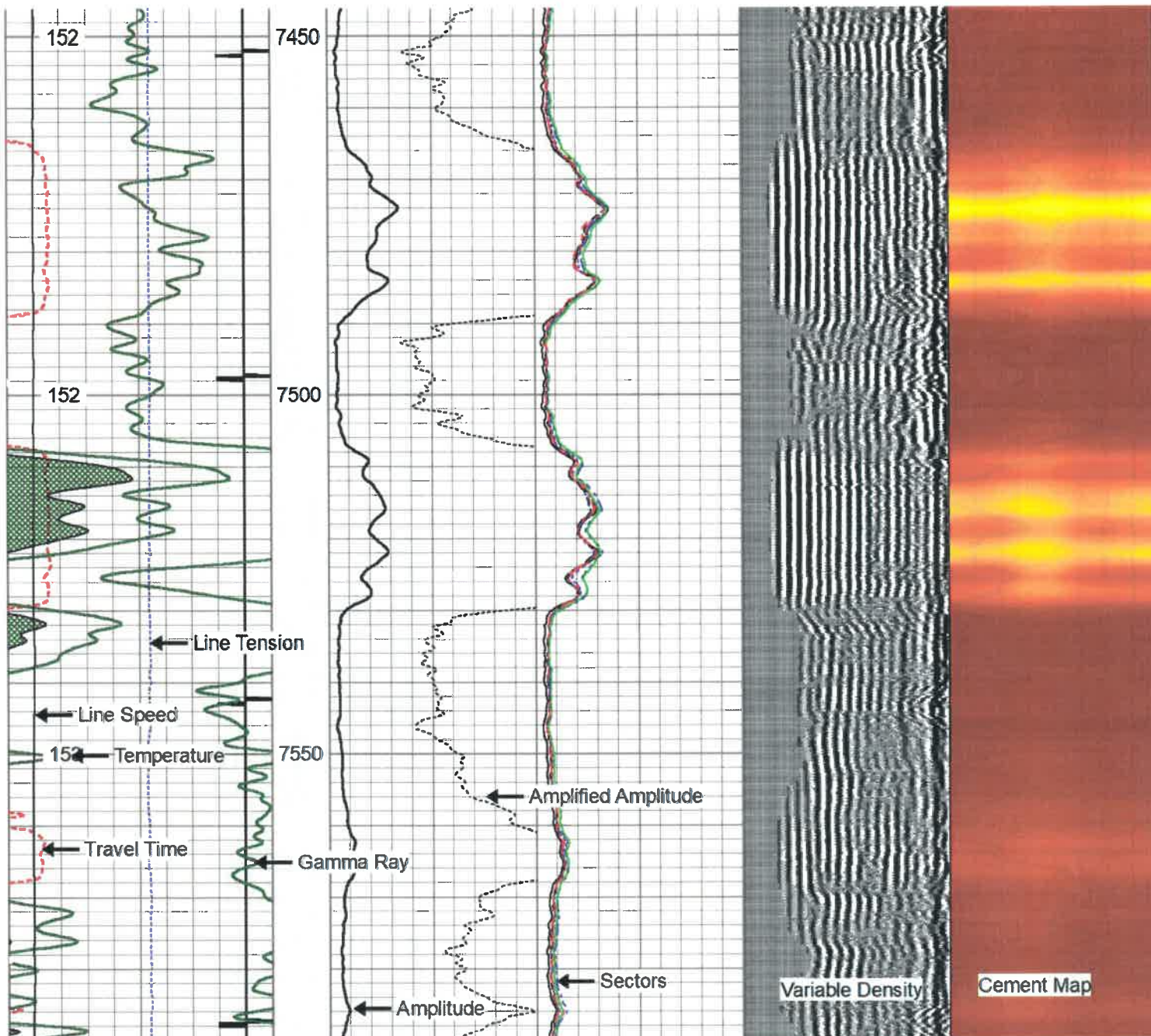












270	Travel Time (usec)	170
Casing Collar		
0	Gamma Ray (GAPI)	120
0	LTEN (lb)	2500
-100	LSPD (ft/min)	100
Temp		
(degF)		

0	Amplitude (mV)	100	-5	Sector 1	150
Amplified Amplitude					
0	(mV)	10	-5	Sector 2	150

			-5	Sector 3	150

			-5	Sector 4	150

			-5	Sector 5	150

			-5	Sector 6	150

			-5	Sector 7	150

			-5	Sector 8	150

Variable Density	1	Cement Map	8
200	(usec)	1200	



Repeat Pass 0 PSI

Database File antero_george_scott_cortina_2h_04_jan_2020.db
 Dataset Pathname south_canton/cortina2h/rcbl/pass2
 Presentation Format rcbl 2

270	Travel Time (usec)	170
Casing Collar		
0	Gamma Ray (GAPI)	120
0	LTEN (lb)	2500
-100	LSPD (ft/min)	100

0	Amplitude (mV)	100	-5	Sector 1	150
Amplified Amplitude					
0	(mV)	10	-5	Sector 2	150

-5 Sector 3 150					

-5 Sector 4 150					

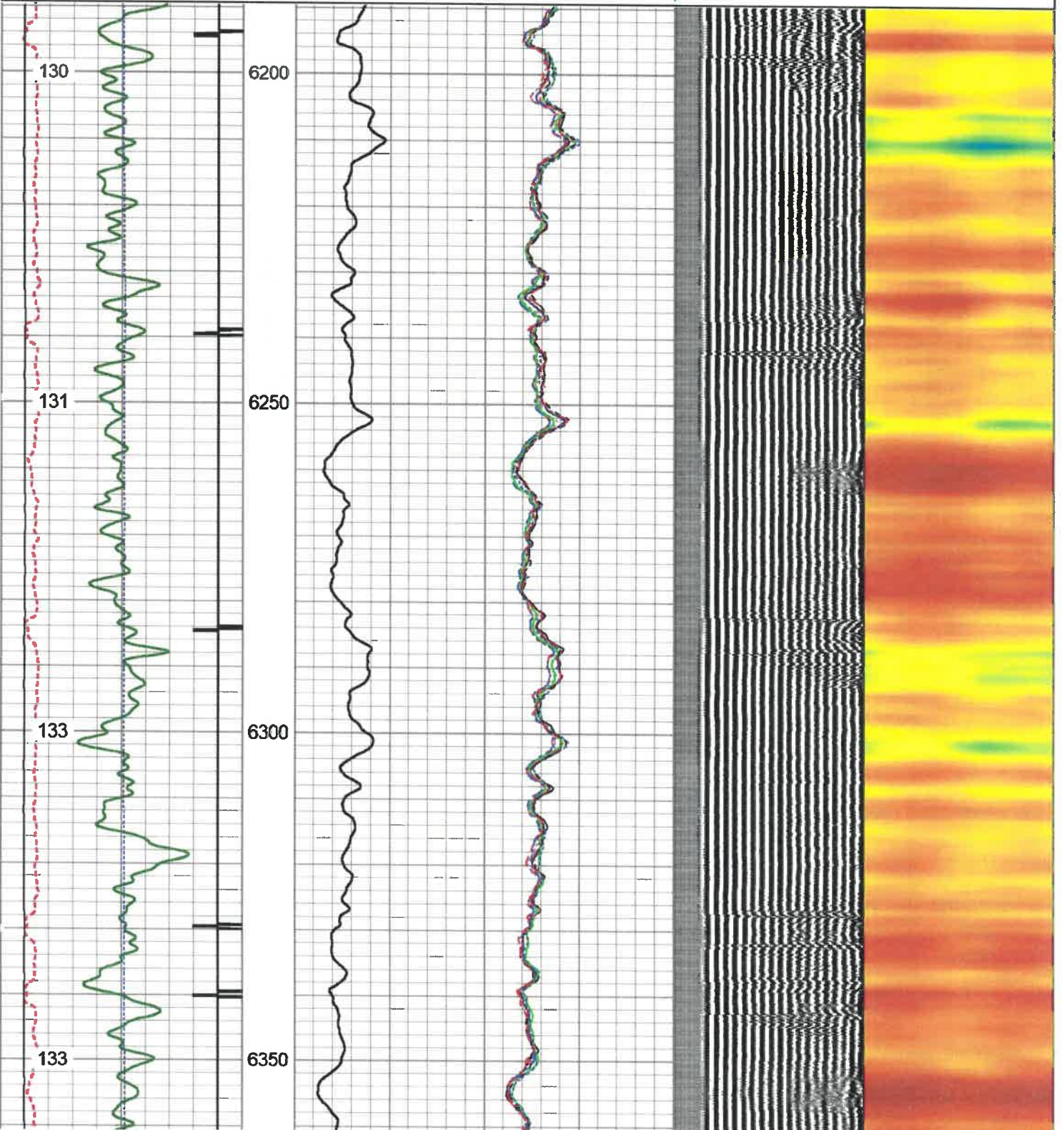
-5 Sector 5 150					

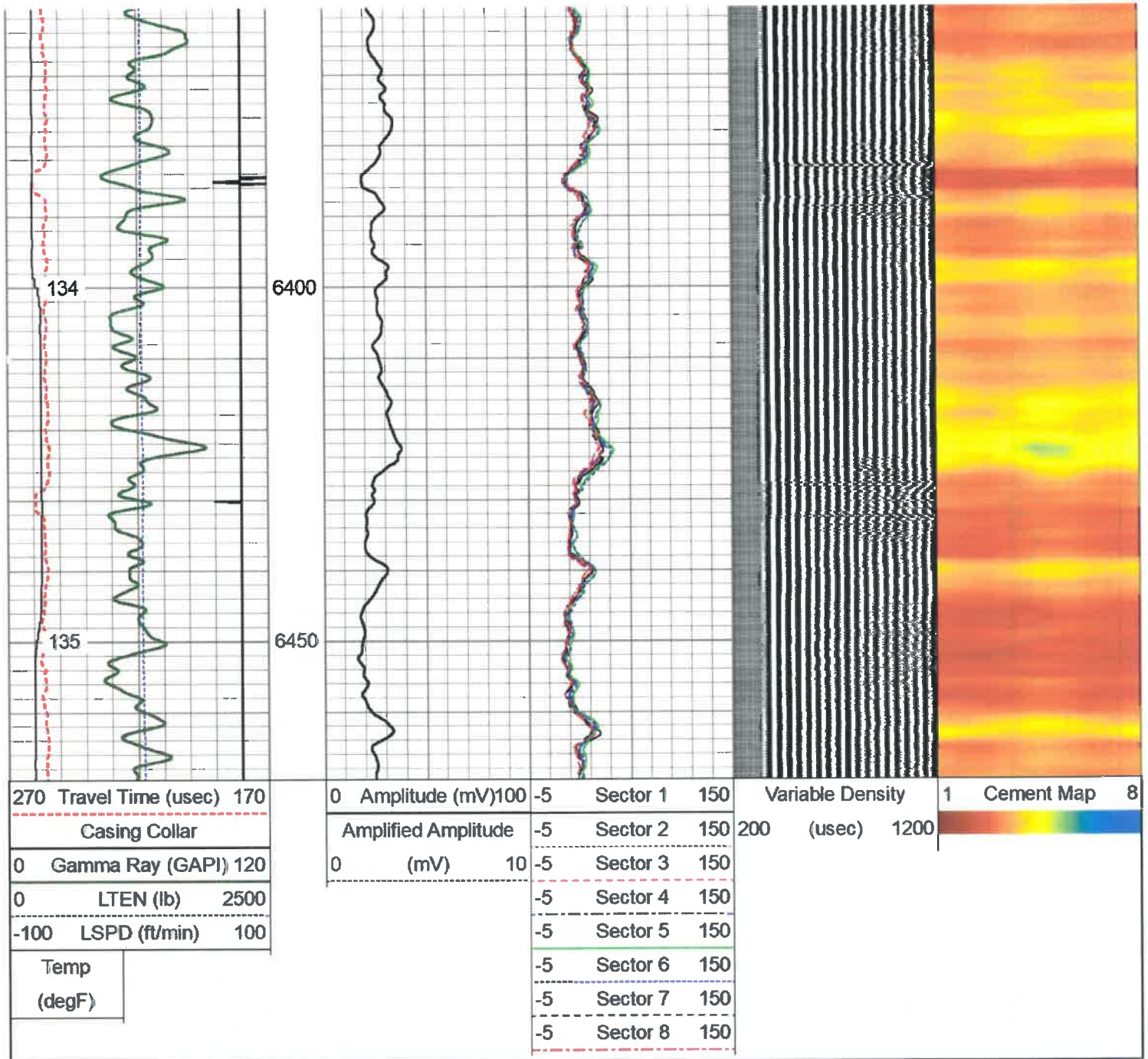
-5 Sector 6 150					

-5 Sector 7 150					

-5 Sector 8 150					

Variable Density	1	Cement Map	8
200	(usec)	1200	





Log Variables

DatabaseC:\ProgramData\WarrionData\antero_george_scott_cortina_2h_04_jan_2020.db
 Dataset south_canton/cortina2h/rcbl/pass4/_vars_

Top - Bottom

BHTEMP_Src	BOREID	BOTTEMP	CASEOD	CASETHCK	CASEWGHT	MAXAMPL	MINAMPL
	in	degF	in	in	lb/ft	mV	mV
TEMP	8.75	153	5.5	0.361	20	72	2.2
MINATTN	PERFS	PPT	SRFTEMP	TDEPTH			
db/ft		uSec	degF	ft			
10.6	No	261	55	7590			

Variable Description

BHTEMP_Src : BHTEMP Input Source Selector
 BOREID : Borehole I.D.
 BOTTEMP : Bottom Hole Temperature
 CASEOD : Casing O.D.

MINAMPL : Minimum Amplitude
 MINATTN : Minimum Attenuation
 PERFS : Perforation Flag
 PPT : Predicted Pipe Time

CASETHCK : Casing Thickness
CASEWGHT : Casing Weight
MAXAMPL : Maximum Amplitude

SRTEMP : Surface Temperature
TDEPTH : Total Depth

Calibration Report

Database File antero_george_scott_cortina_2h_04_jan_2020.db
Dataset Pathname south_canton/cortina2h/rcbl/pass4
Dataset Creation Sat Jan 04 10:44:15 2020

Gamma Ray Calibration Report

Serial Number: FW1211-86
Tool Model: Probe
Performed: Sat Jan 04 04:26:07 2020

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: 3784.908 ft

Master Calibration, performed Fri Jan 03 19:26:54 2020:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.002	1.186	2.200	71.921	58.898	2.092
CAL	0.419	1.217				
5'	0.003	0.908	2.200	71.921	77.042	2.000
SUM						
S1	0.022	1.079	0.000	100.000	94.578	-2.045
S2	0.000	1.269	0.000	100.000	78.834	-0.034
S3	-0.002	1.288	0.000	100.000	77.510	0.140
S4	-0.000	1.291	0.000	100.000	77.425	0.011
S5	-0.002	1.238	0.000	100.000	80.633	0.166
S6	-0.002	1.137	0.000	100.000	87.804	0.154
S7	-0.001	1.073	0.000	100.000	93.051	0.114
S8	-0.002	1.098	0.000	100.000	90.918	0.139

Internal Reference Calibration, performed Thu Sep 27 16:01:58 2018:

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.419	1.217	1.000	0.000

Air Zero Calibration, performed Fri Jan 03 15:06:42 2020:

	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 Antelope (SP-919-0233)	1.67	4.88	5.00	
		GR-Probe (FW1211-86) Probe 2 3/4" Logging Gamma Ray	4.78	2.75	57.00	



CENT-Probe275
2.75\"

2.88 2.75 20.00

Dataset: antero_george_scott_cortina_2h_04_jan_2020.db: south_canton/cortina2h/rcbl/pass4
Total length: 18.05 ft
Total weight: 182.00 lb
O.D.: 4.88 in



Company Antero Resources
Well George Scott Cortina Unit 2H
Field South Canton
County Doddridge
State West Virginia

