



**Segmented Radial Cement Bond  
W/Gamma Ray, CCL  
Log**

Company	Antero Resources Corporation	Country	US
Well	Genny Unit 1H		
Field	Marcellus		
County	Ritchie		
State	WV		
Location:	Antero Resources Corporation	Country	US
	Genny Unit 1H		
	Marcellus		
	Ritchie		
	WV		
API # :	47085103820000		
Other Services			
SEC	TWP	RGE	Elevation
Permanent Datum	Ground Level		
Log Measured From	R.K.B. 25'		
Drilling Measured From	R.K.B.		

Date	16-NOV-2019						
Run Number	ONE						
Depth Driller	21805'						
Depth Logger	6910'						
Bottom Logged Interval	6910'						
Top Log Interval	Surface						
Open Hole Size	8.25"						
Type Fluid	F/W						
Density / Viscosity	8.6						
Max. Recorded Temp.	137 degF						
Estimated Cement Top	2900'						
Time Well Ready	N/A						
Time Logger on Bottom	N/A						
Equipment Number	214182						
Location	Bridgeport, WV						
Recorded By	S. Butler						
Witnessed By	Jerrako Evans						
Borehole Record		Tubing Record					
Run Number	Bit	From	To	Size	Weight	From	To
ONE	24"	Surface	80'				
TWO	17.5"	80'	576'				
THREE	12.25"	576'	2675'				
FOUR	8.25"	2675'	21805'				
Casing Record	Size	Wgt/Ft			Top	Bottom	
Surface String	13.375"	54.5			Surface	576'	
Prof. String	9.625"	40			Surface	2675'	
Production String	5.5"	20			Surface	21805'	
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**

Zero @ R.K.B. 25'  
Marker Joint 5983' - 5993'  
Log TD 6910'  
Cement Top @ 2900'  
Log Ran Under 1500 PSI

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



**Main Pass**

Database File antero\_genny\_1h.db  
 Dataset Pathname pass4.3  
 Presentation Format antero  
 Dataset Creation Sat Nov 16 12:47:28 2019  
 Charted by Depth in Feet scaled 1:240

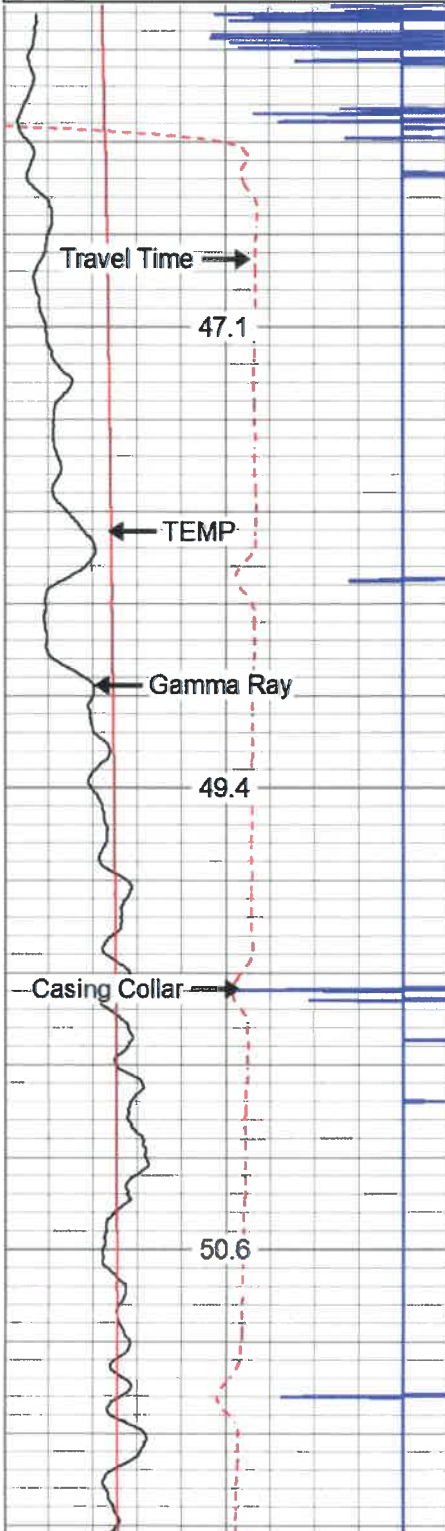
280	Travel Time (usec)	180
9	Casing Collar	-1
0	Gamma Ray	180
0	TEMP (degF)	200
180	GR	360

Amplitude		Sector Amp AVG	VDL
0	(mV) 100	Sector Amp MAX	200 (usec) 1200
Amp X5		Sector Amp MIN	
0	(mV) 20		
1	BONDIX	0	

1 Sector Map 12



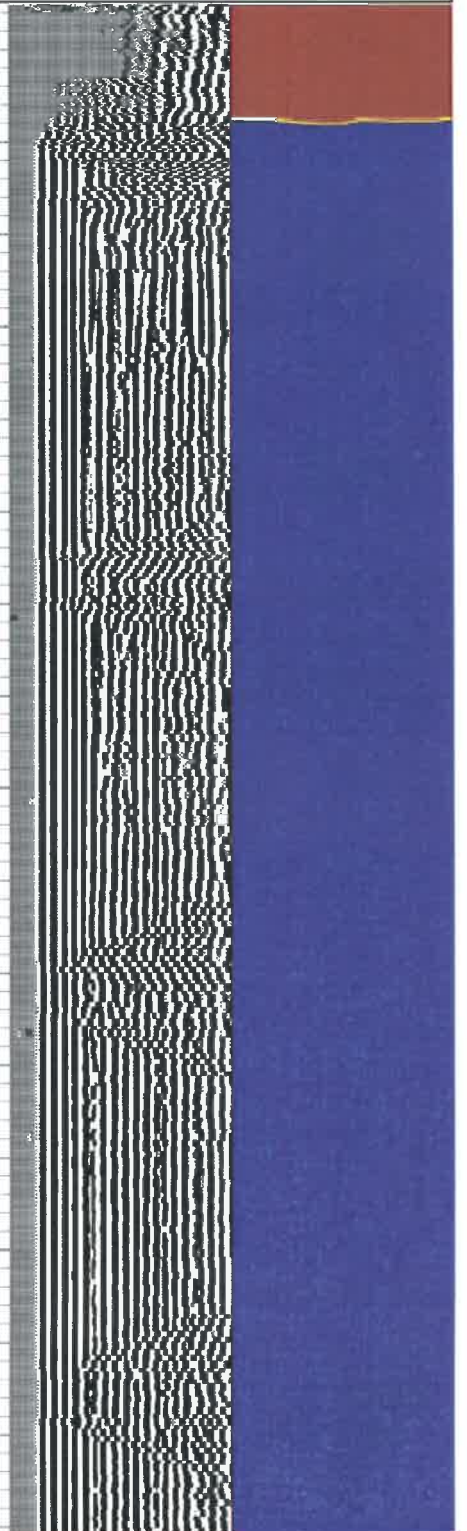
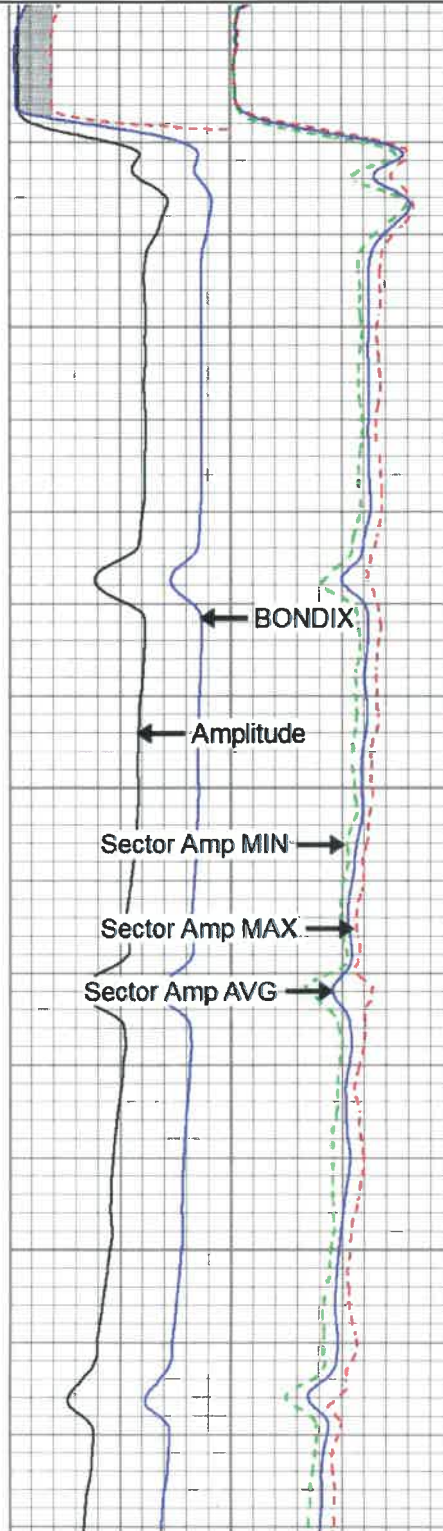
TEMP  
(degF)

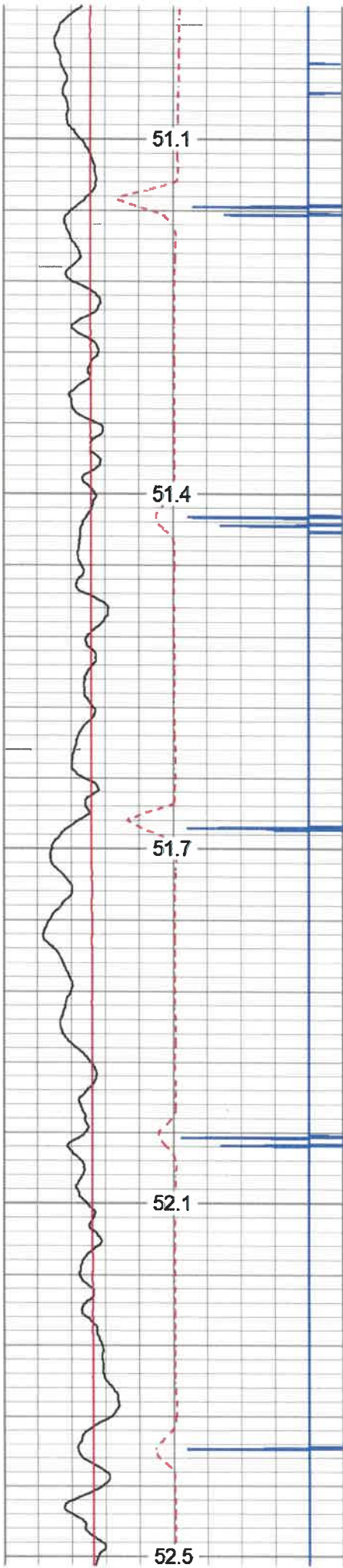


50

100

150





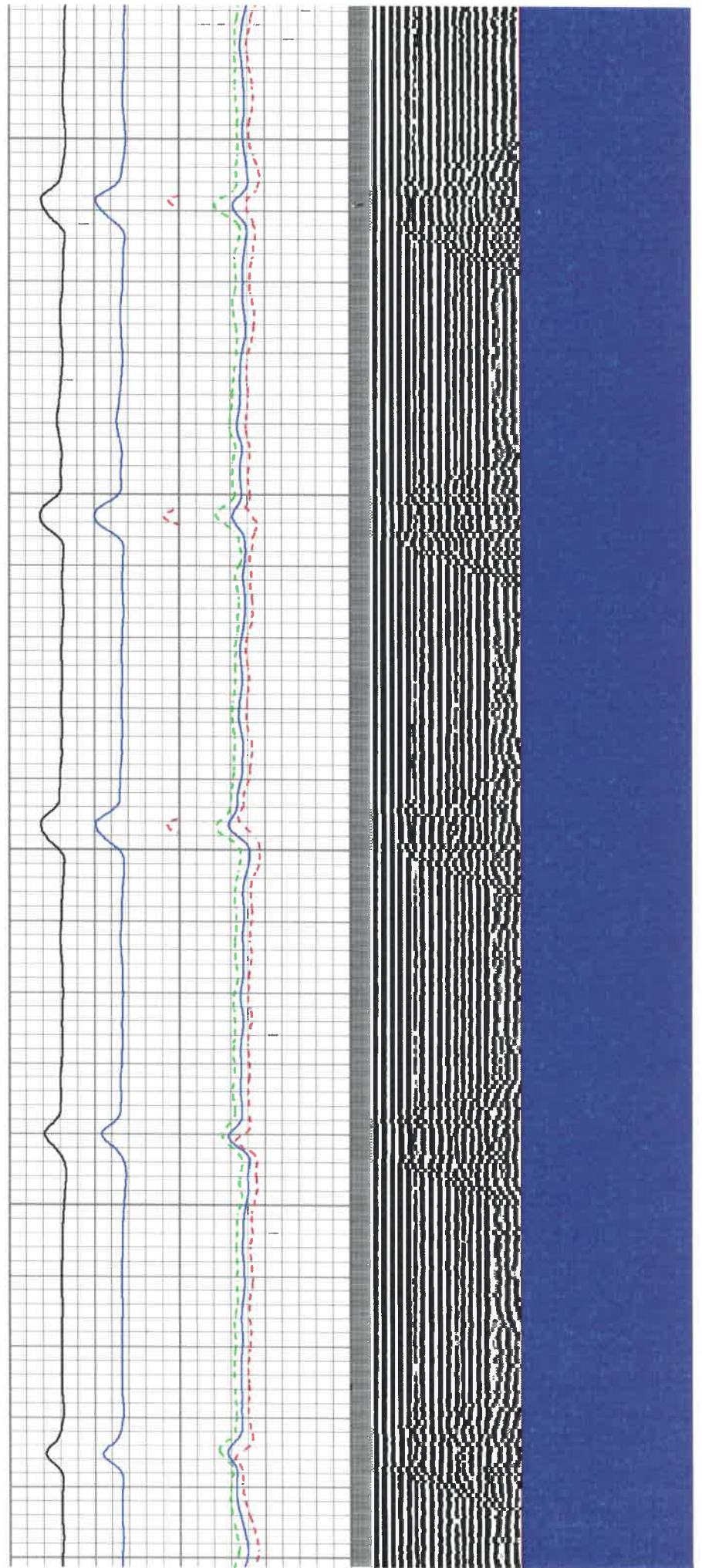
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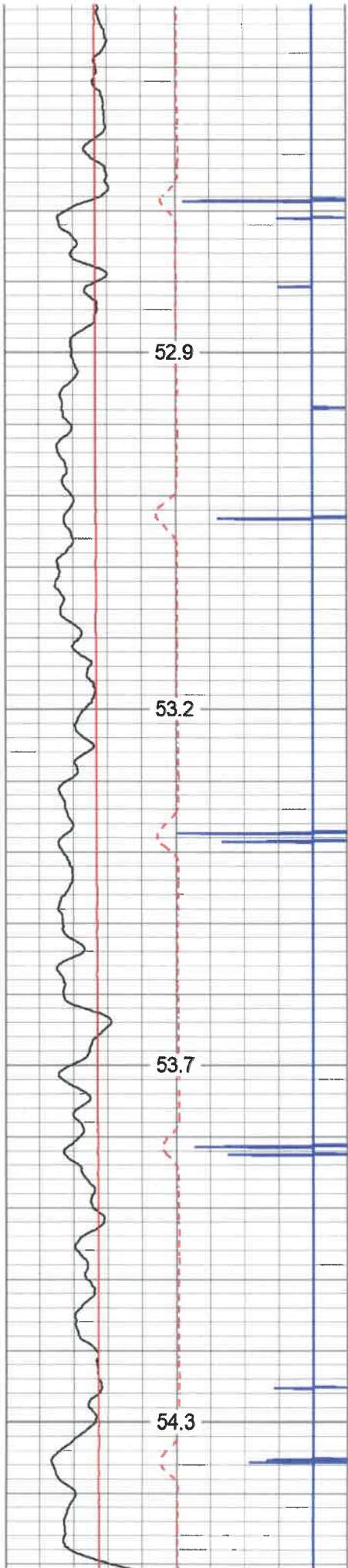
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300

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400



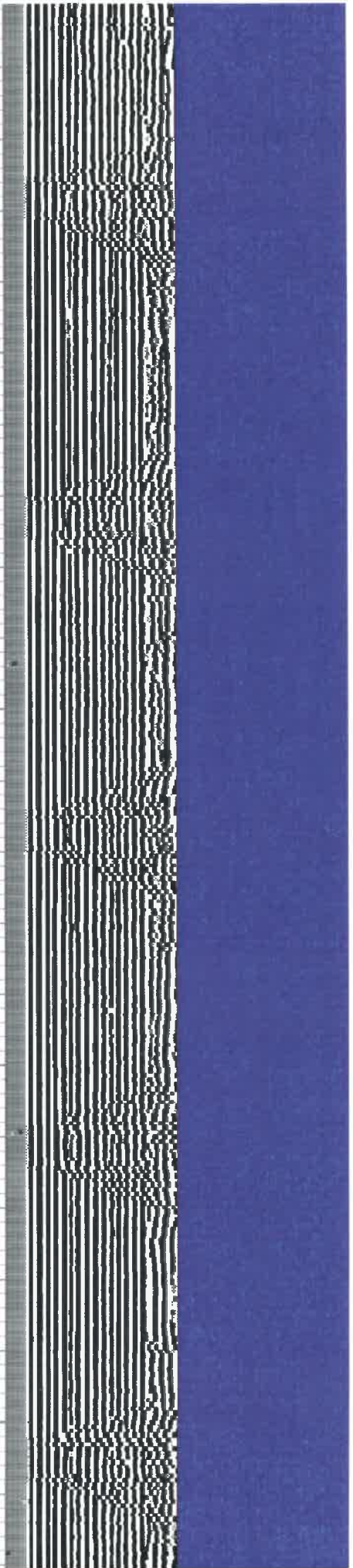
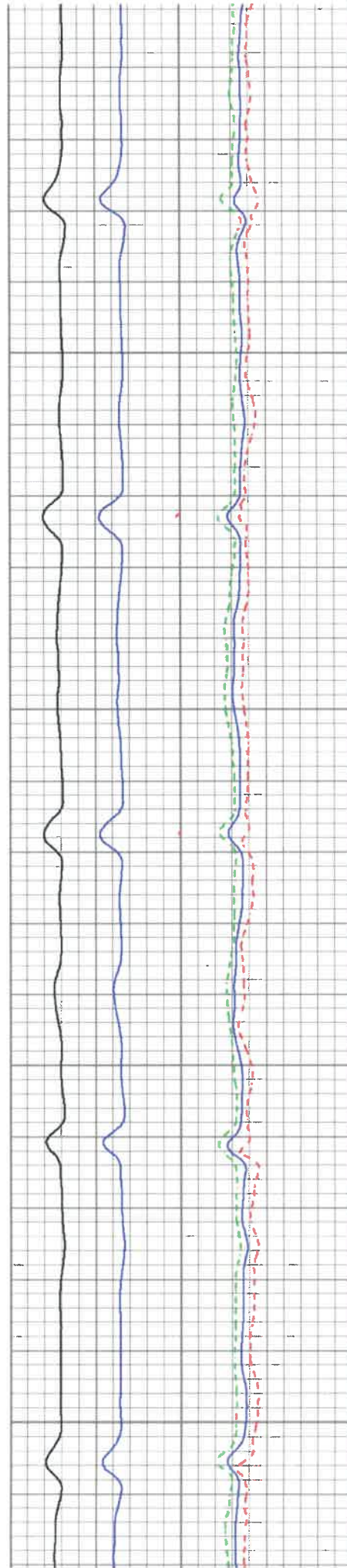


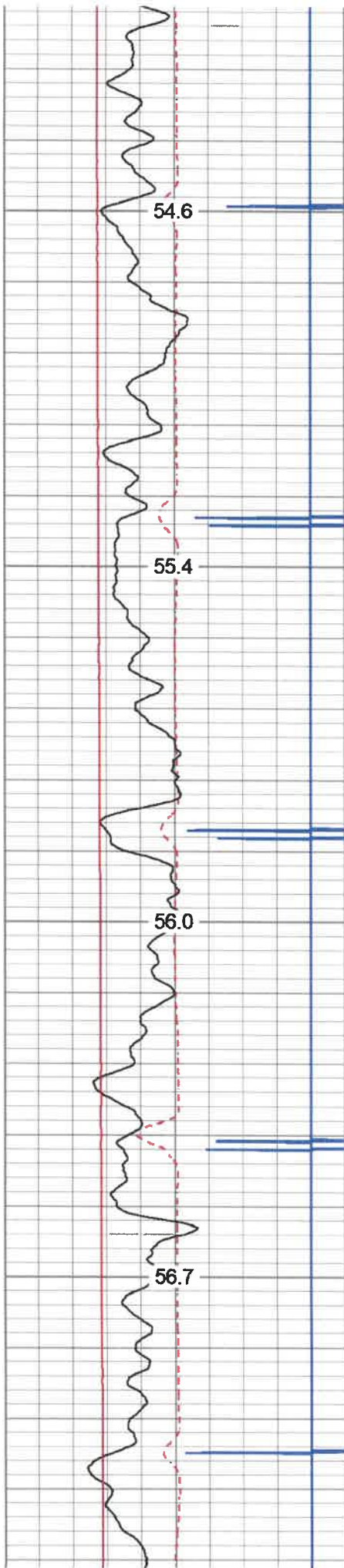
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500

550

600



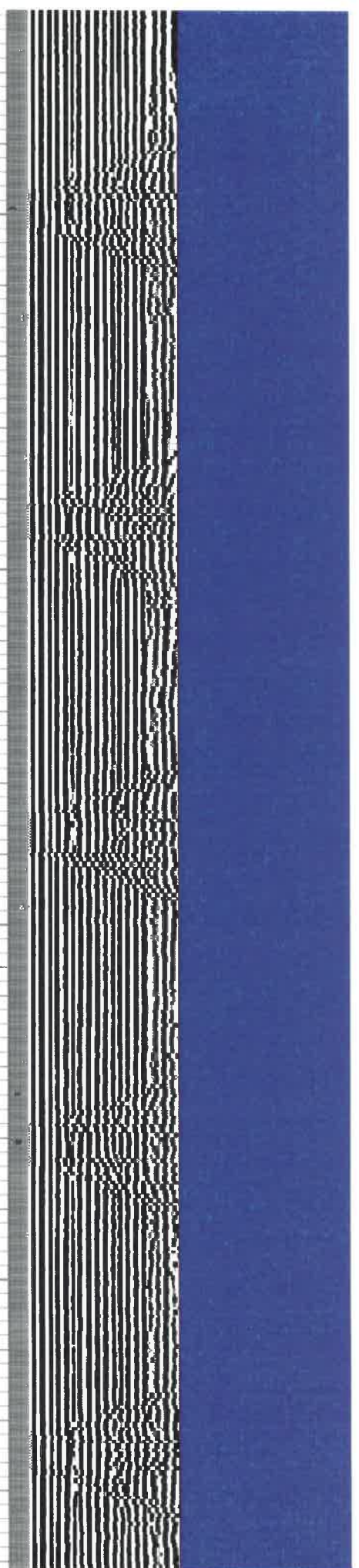
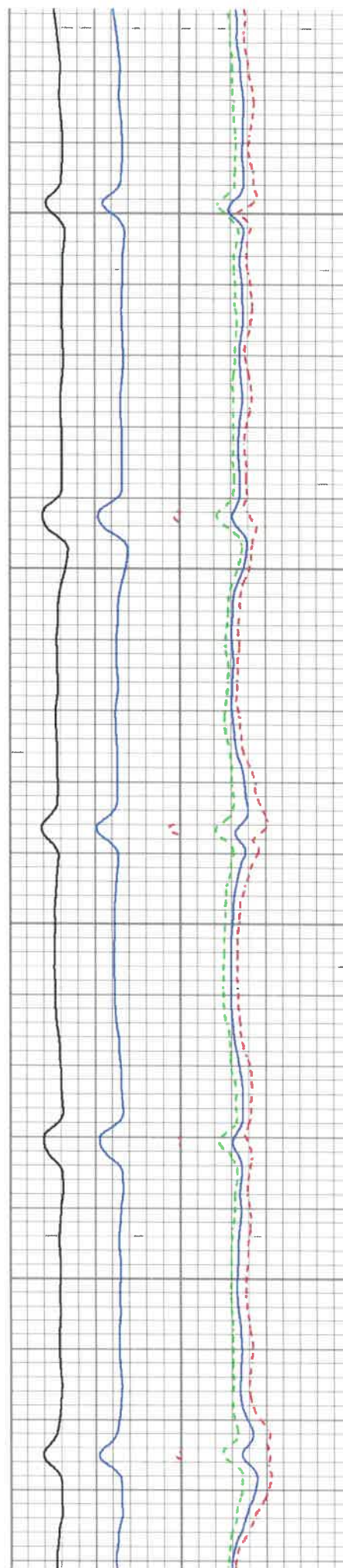


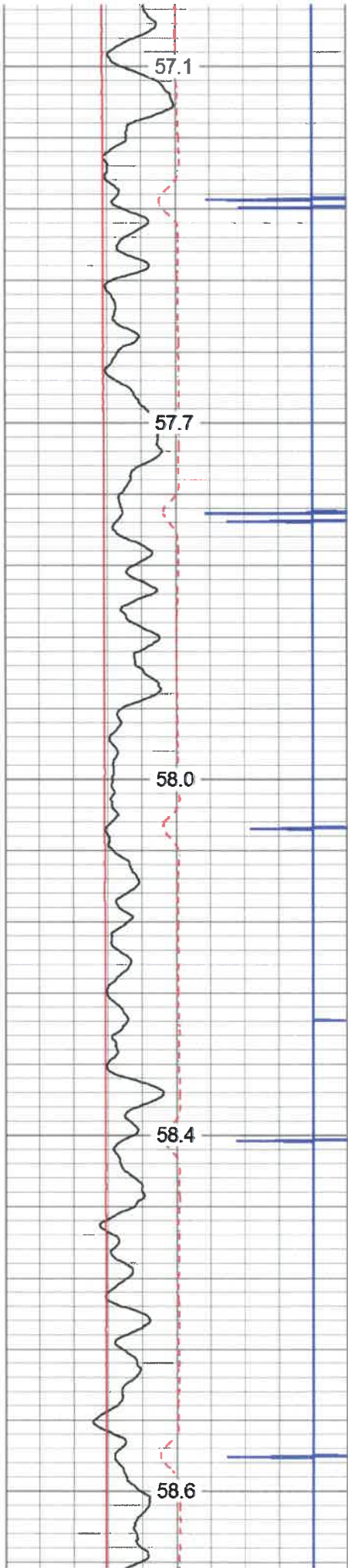
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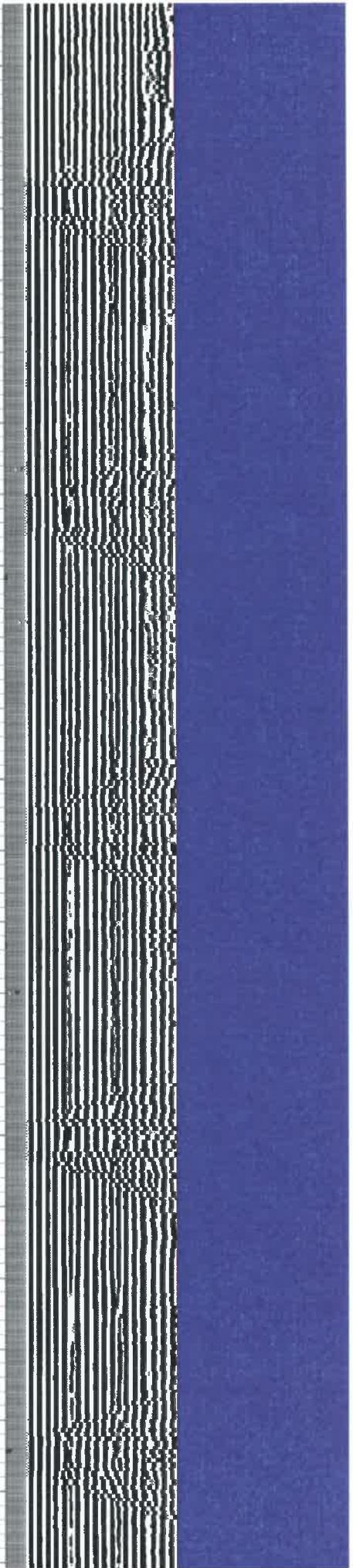
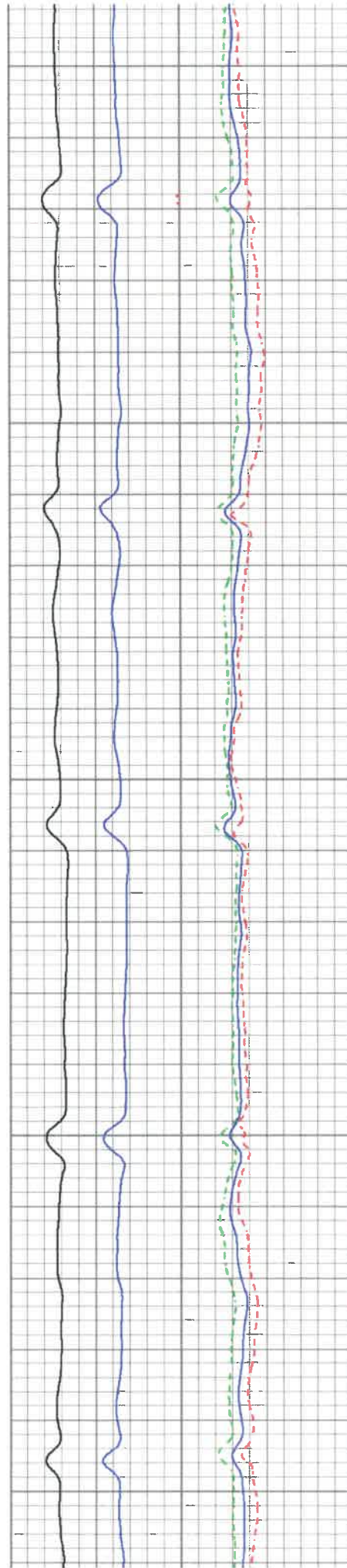
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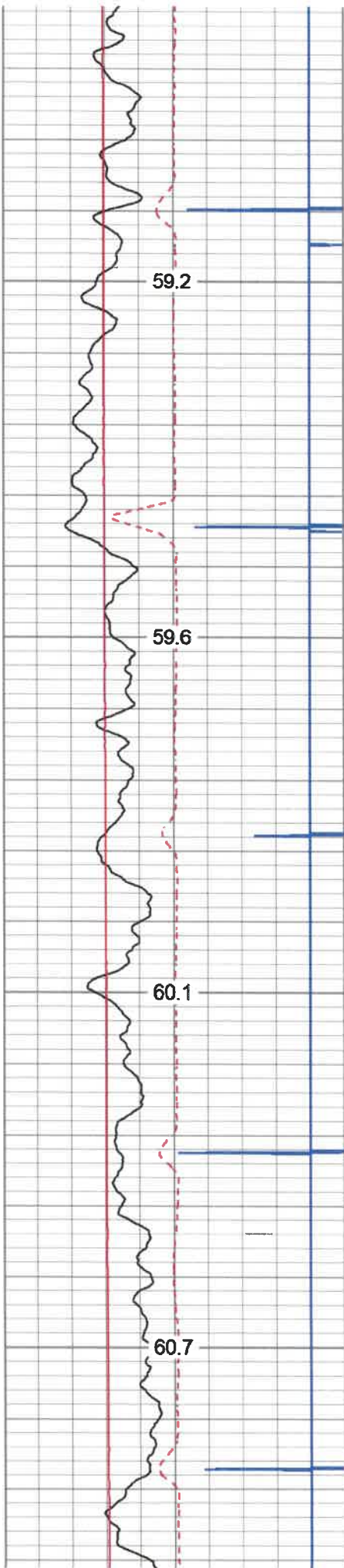
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950

1000

1050



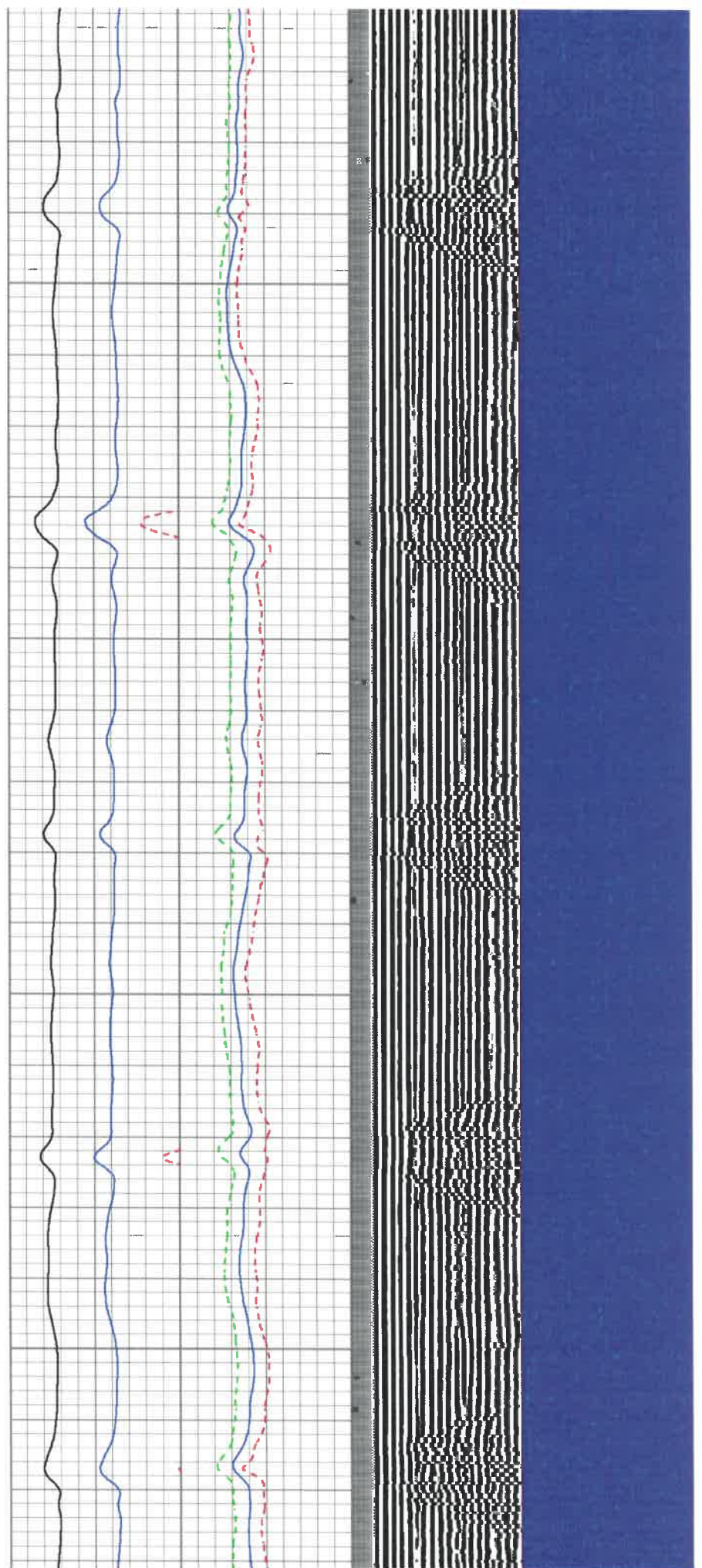


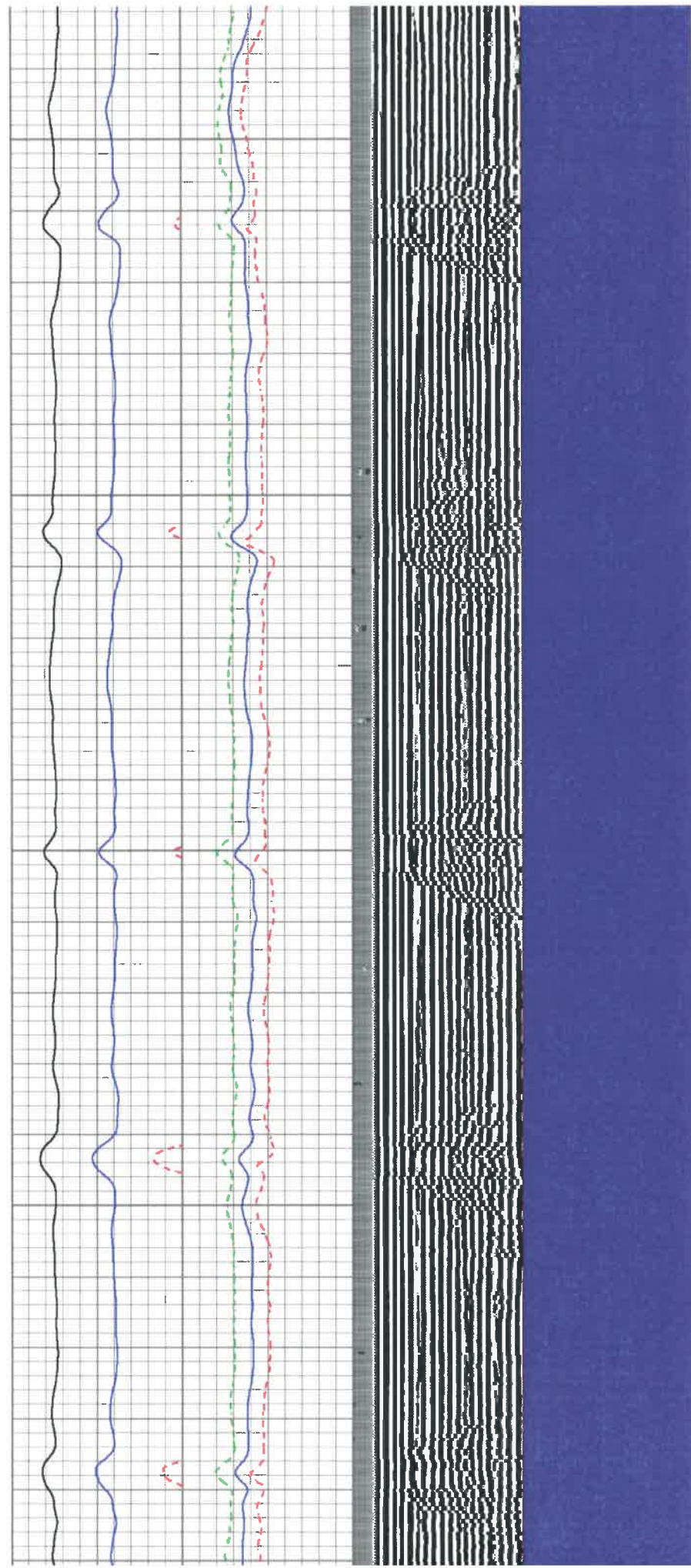
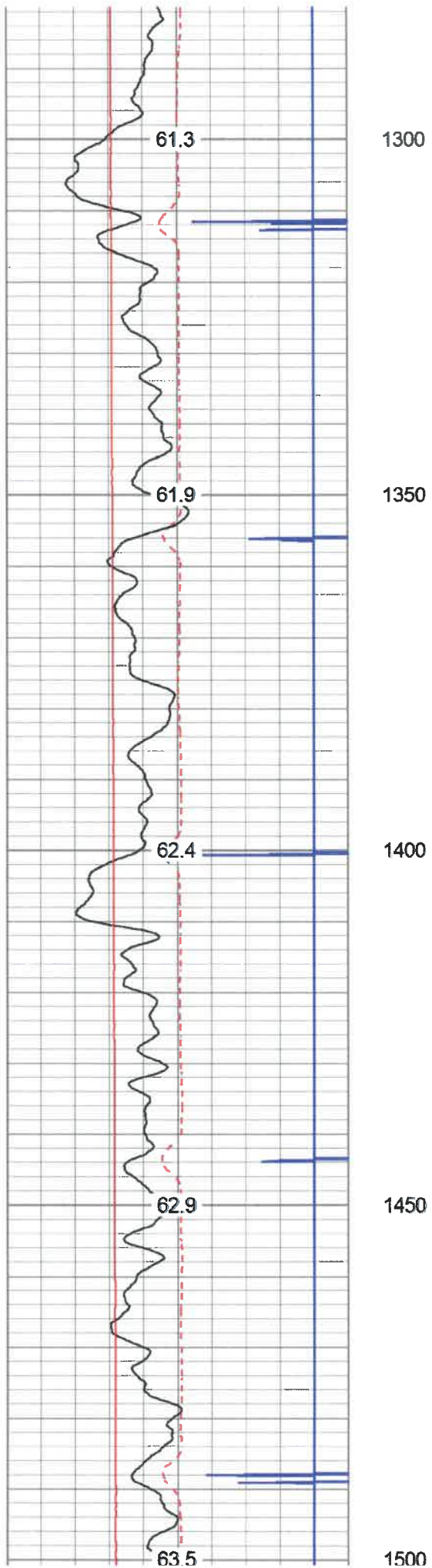
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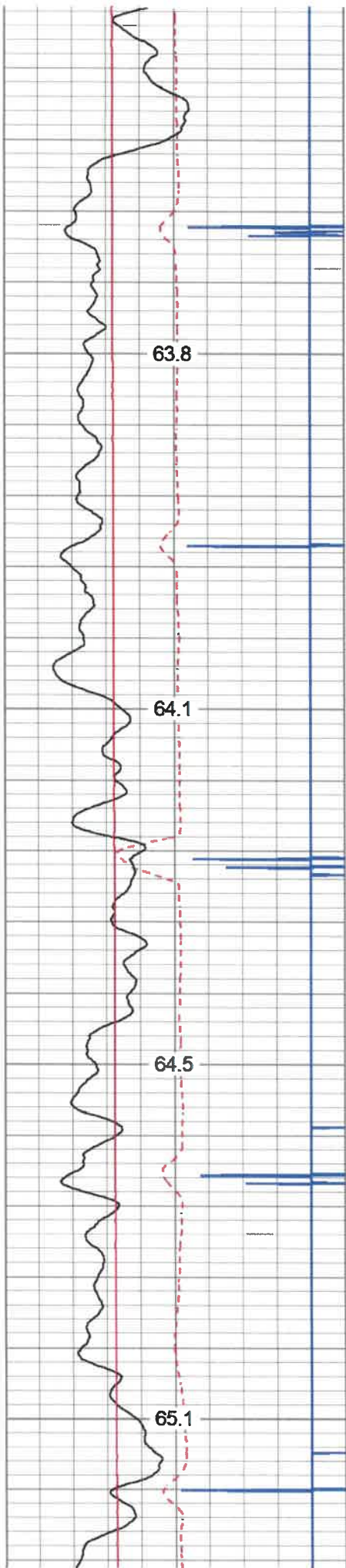
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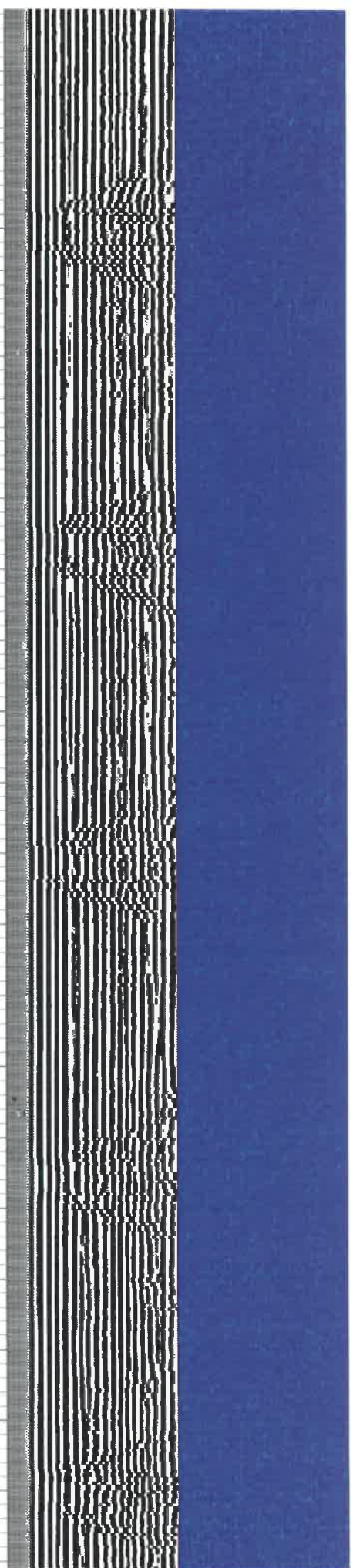
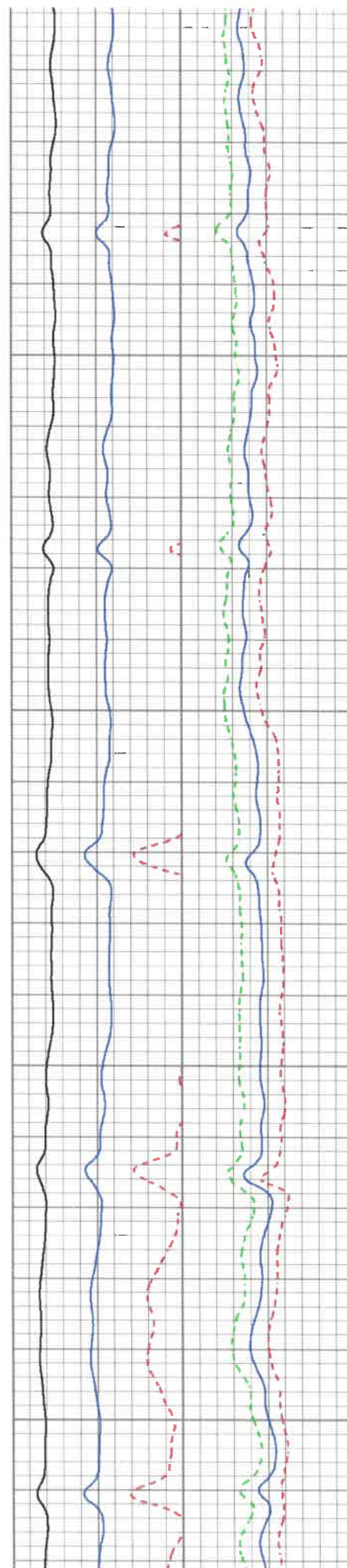


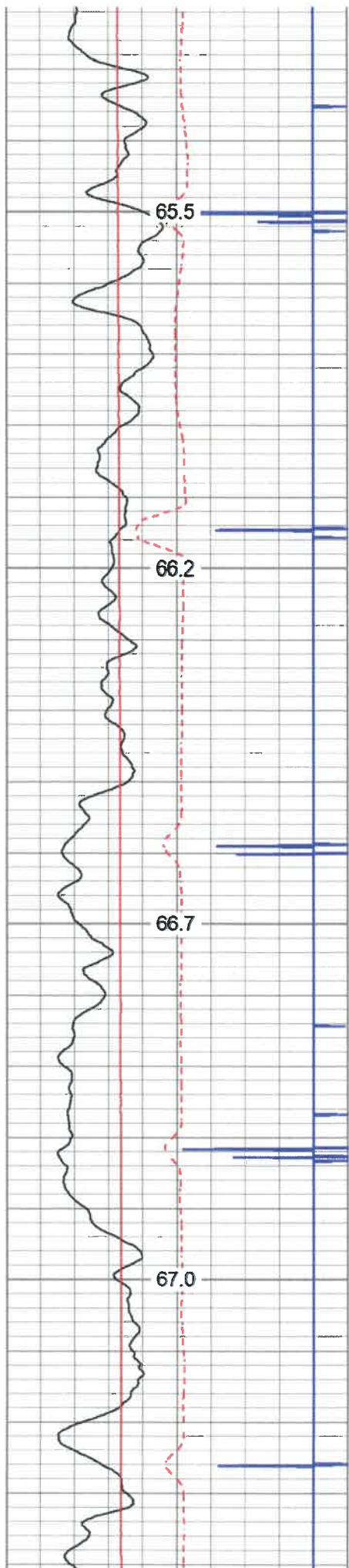
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1600

1650

1700



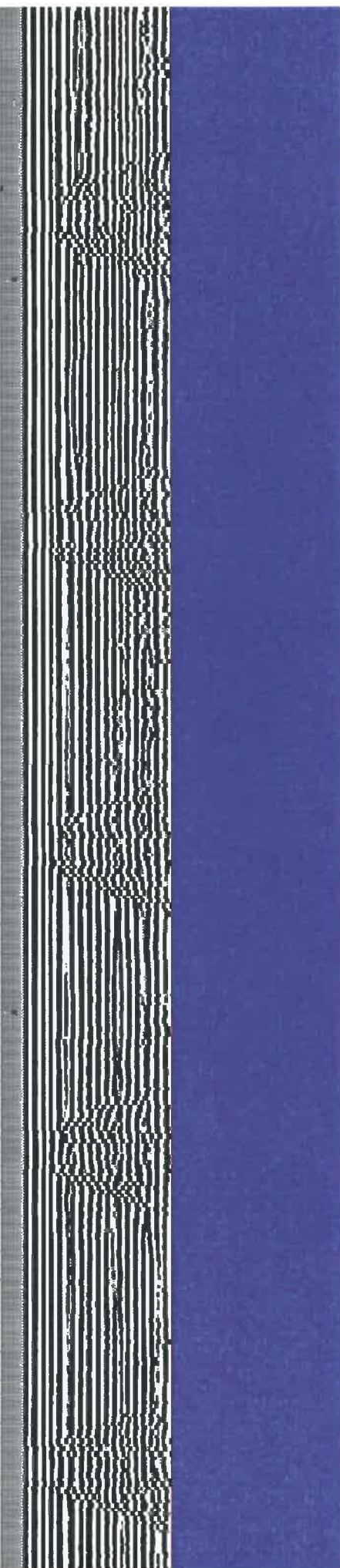
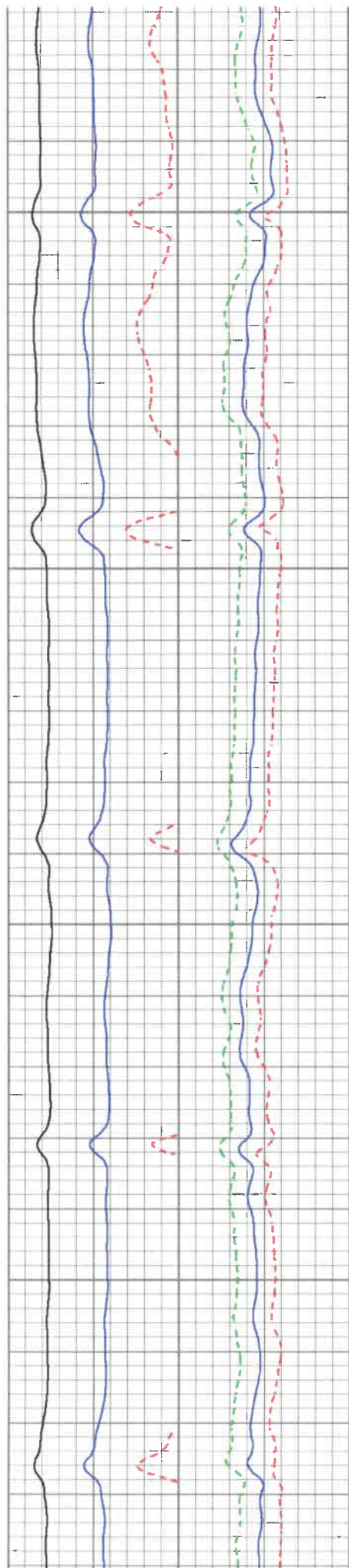


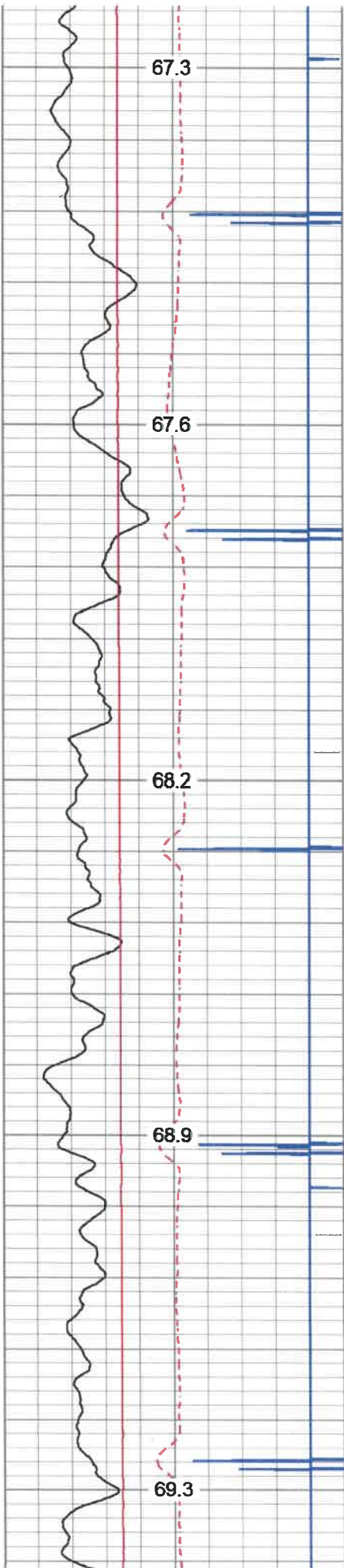
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1850

1900





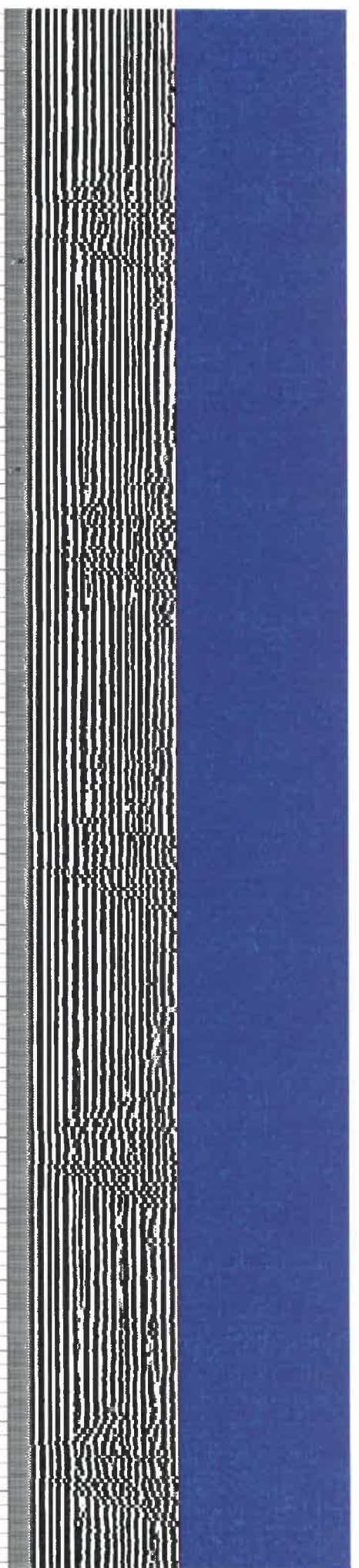
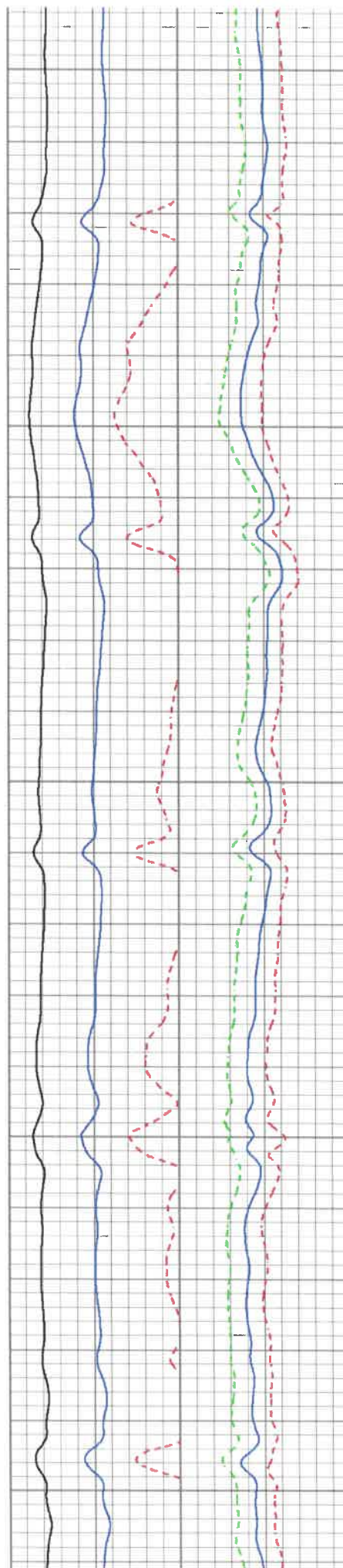
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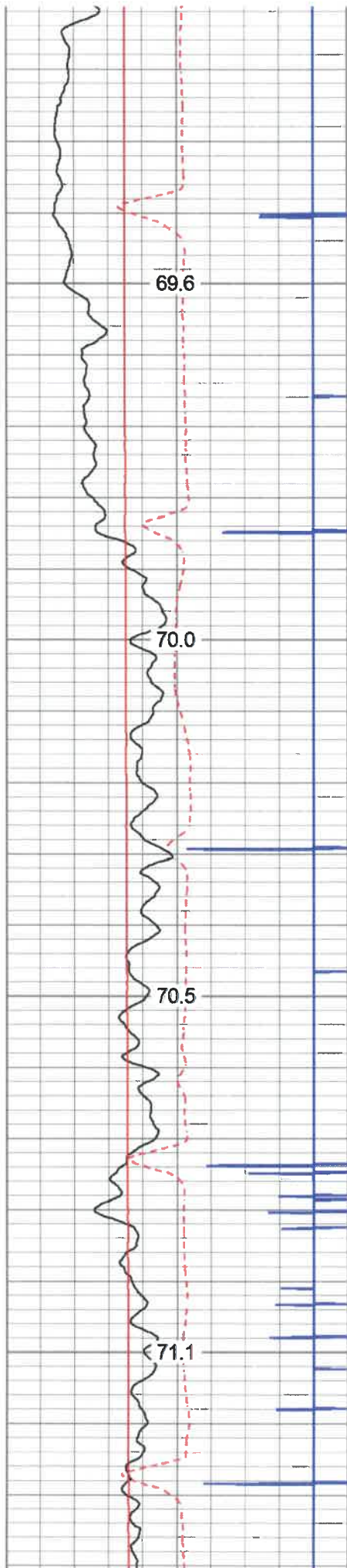
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2050

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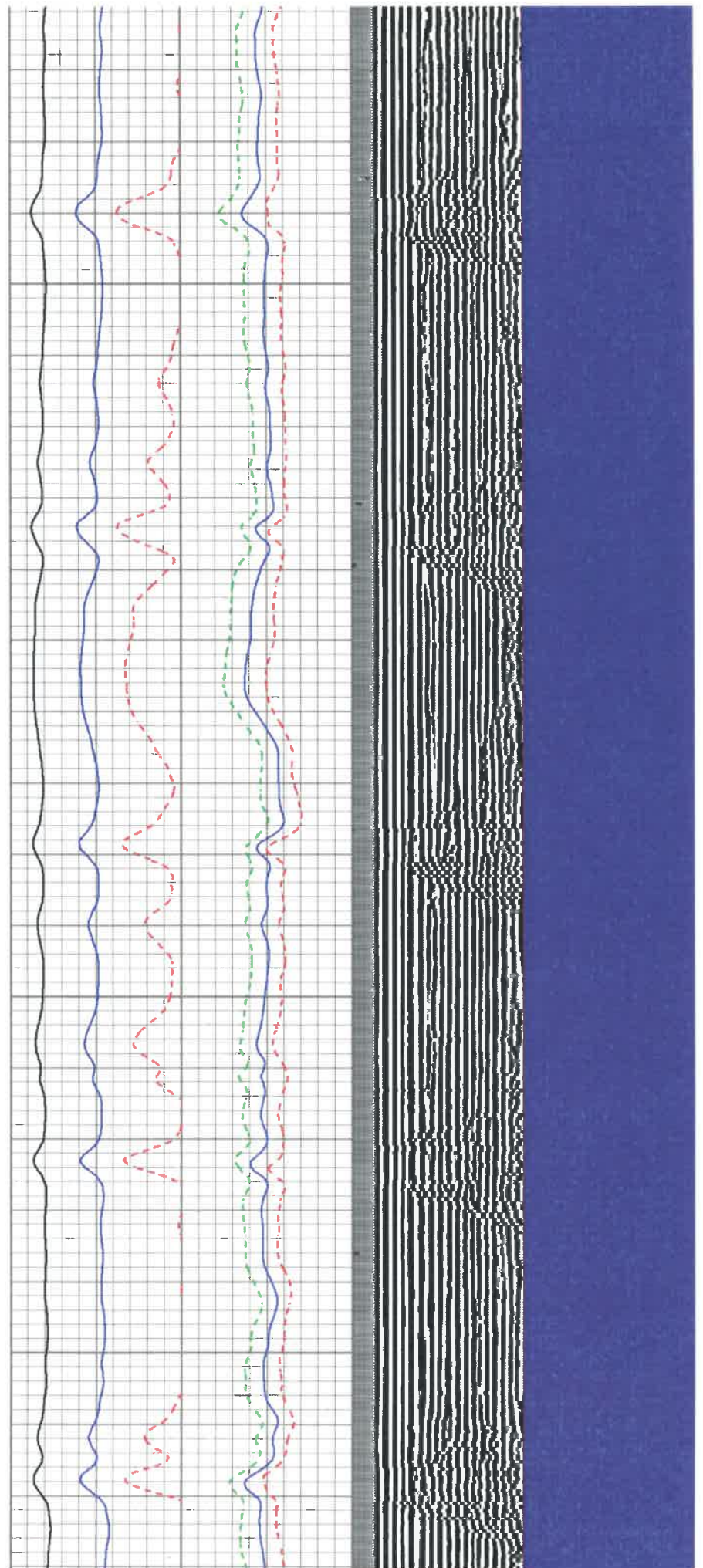


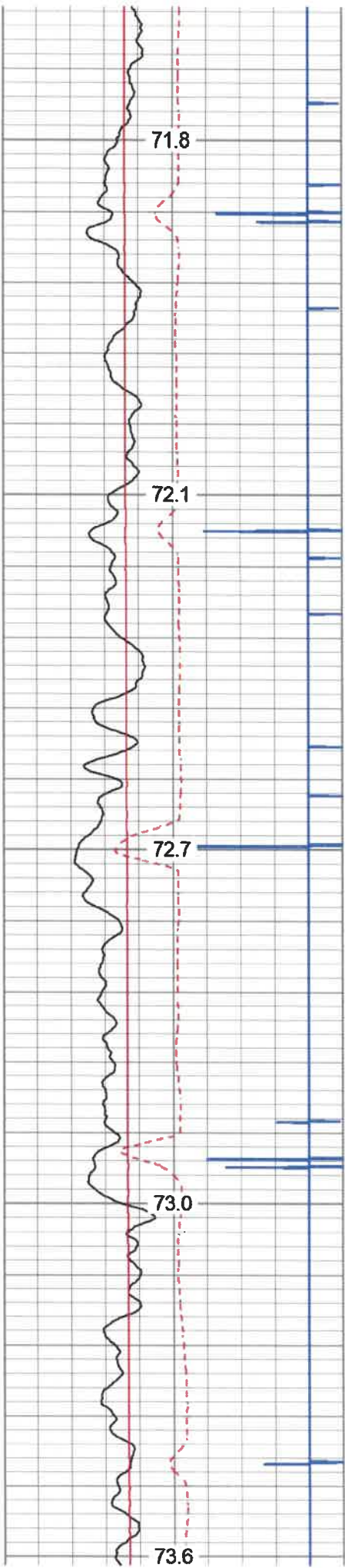
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2300

2350





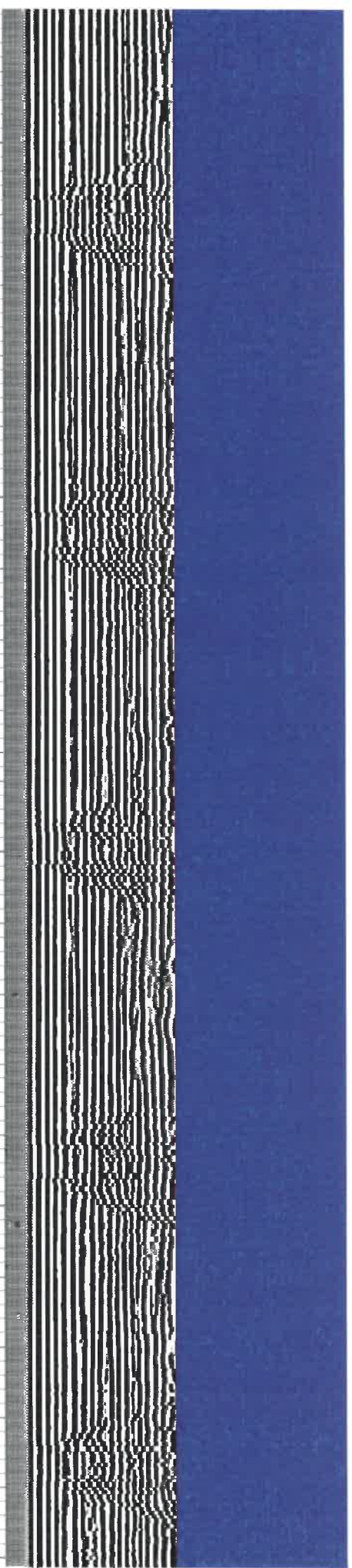
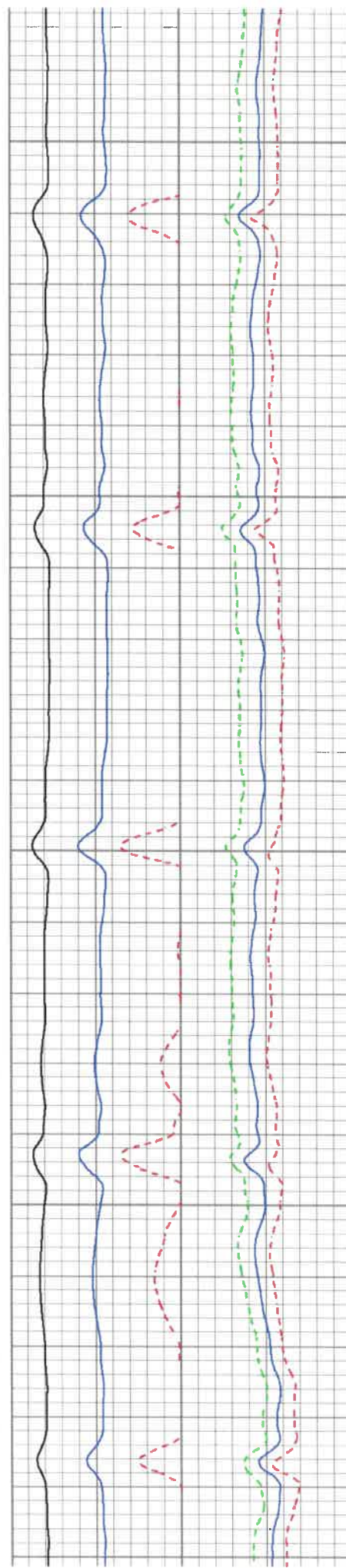
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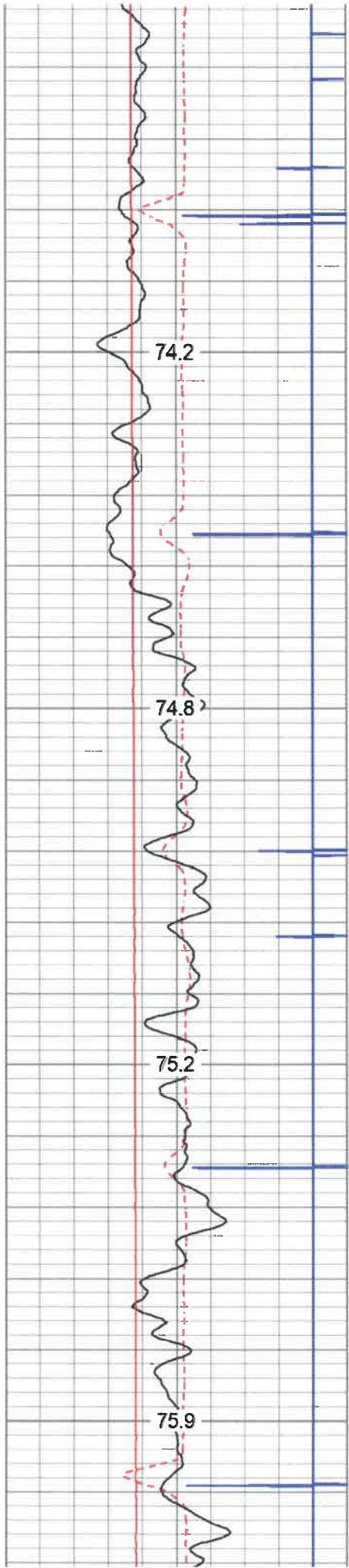
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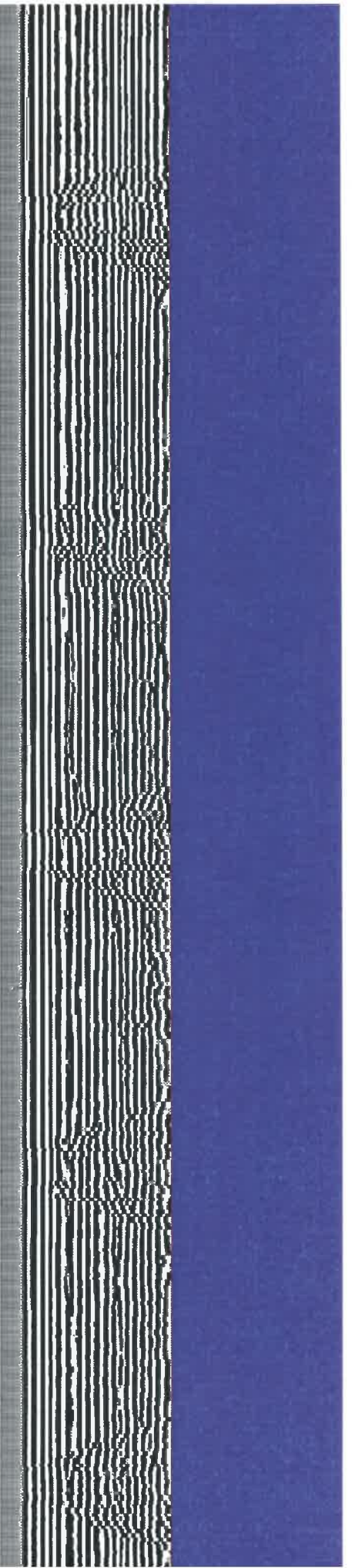
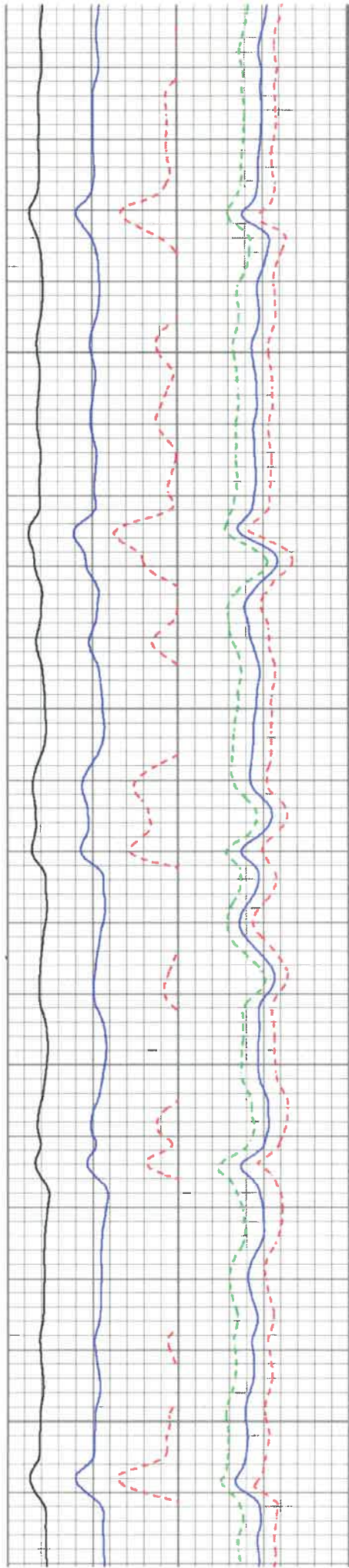


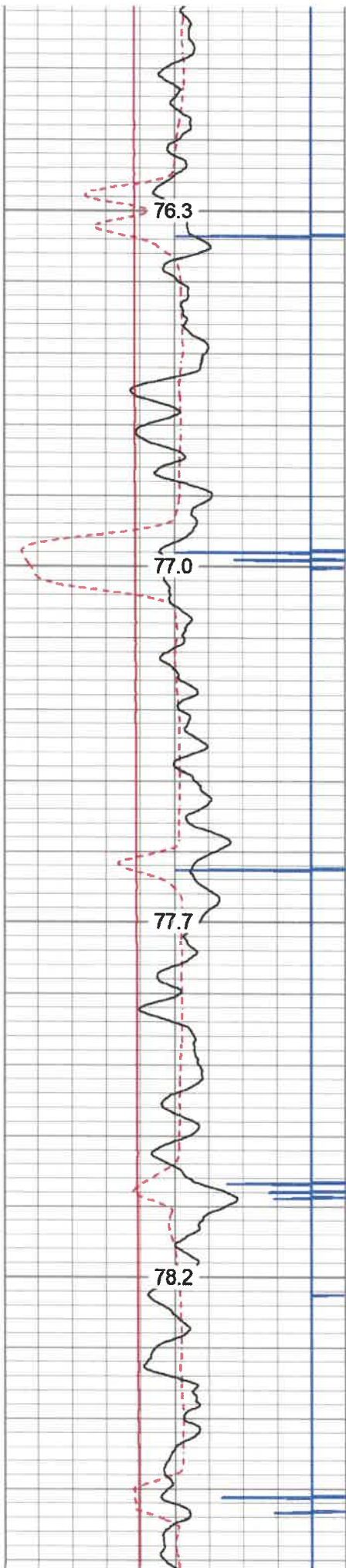
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2750

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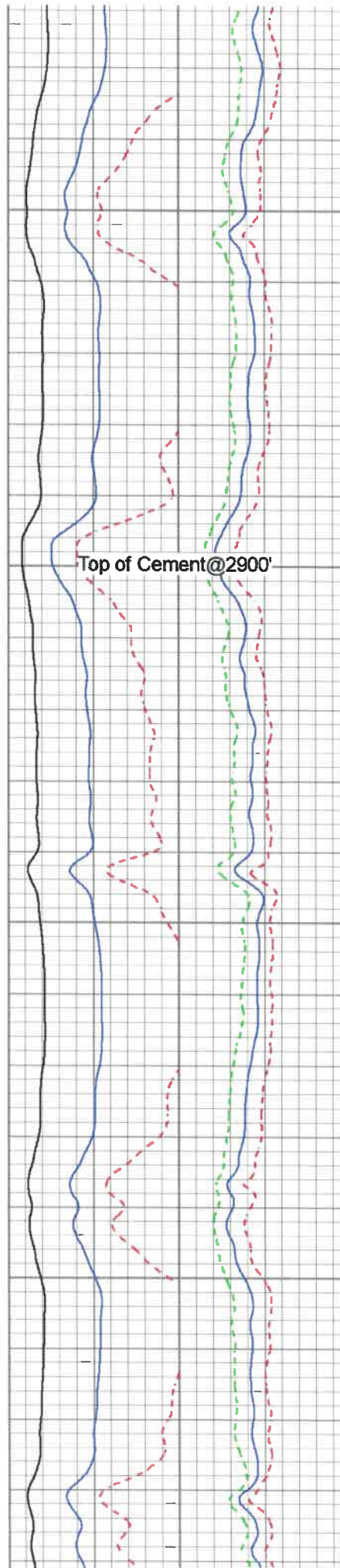


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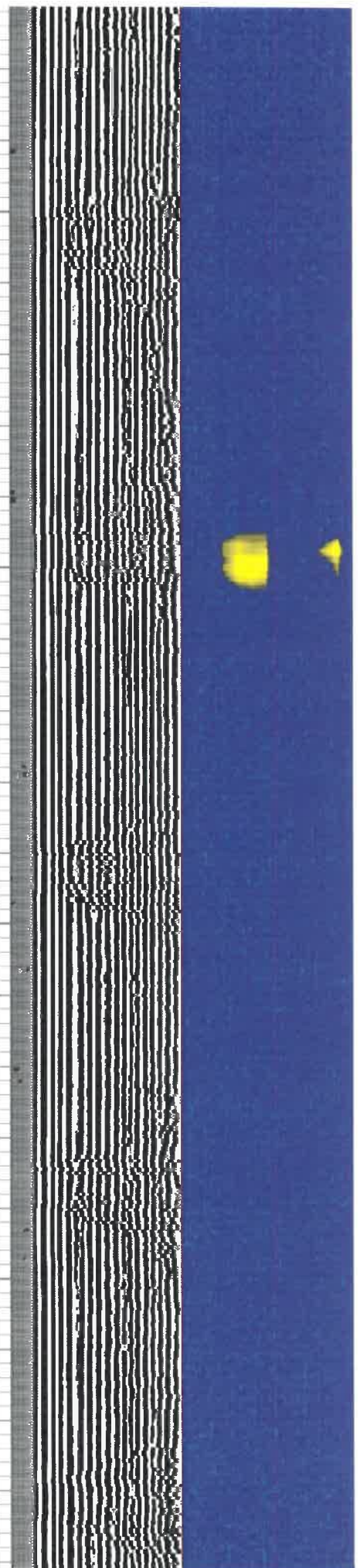
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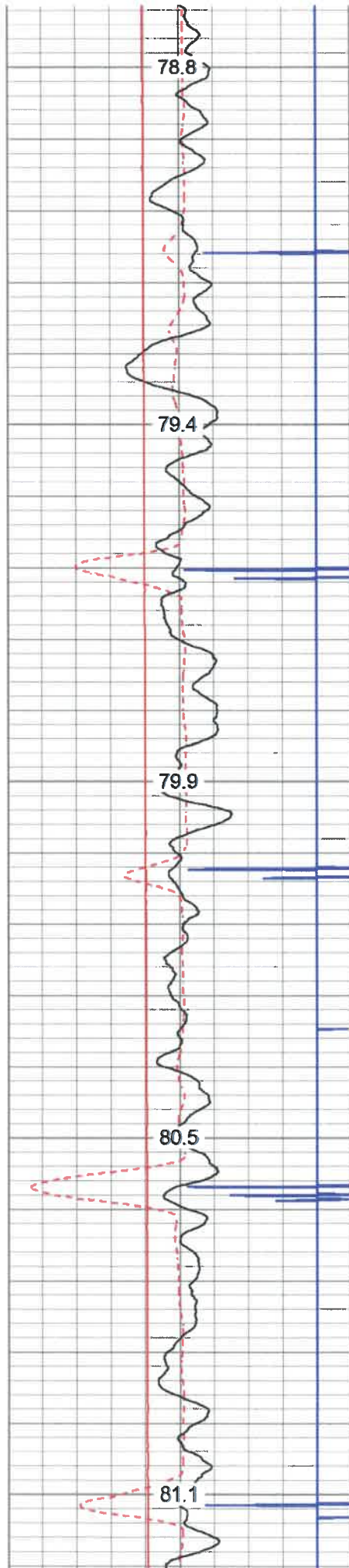
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3000



Top of Cement@2900'





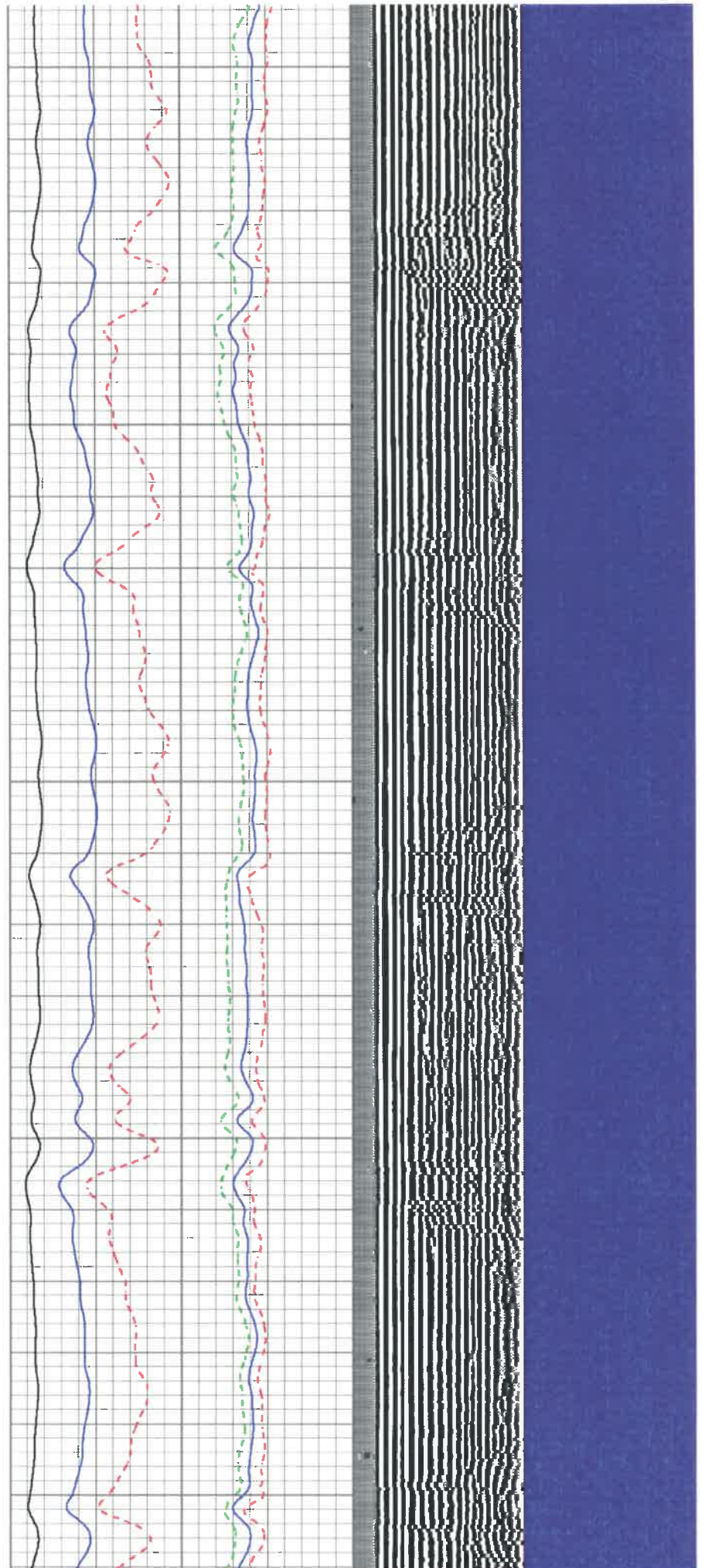
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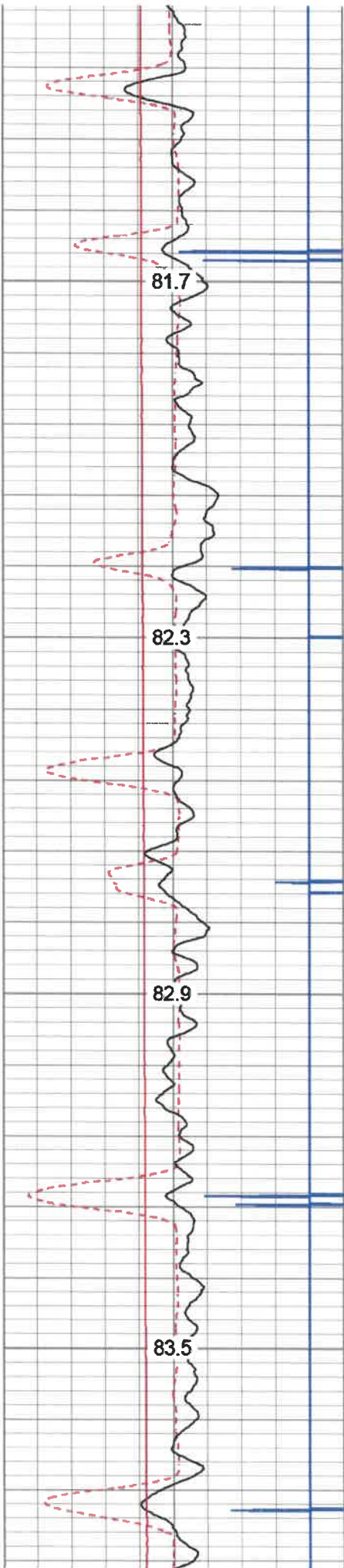
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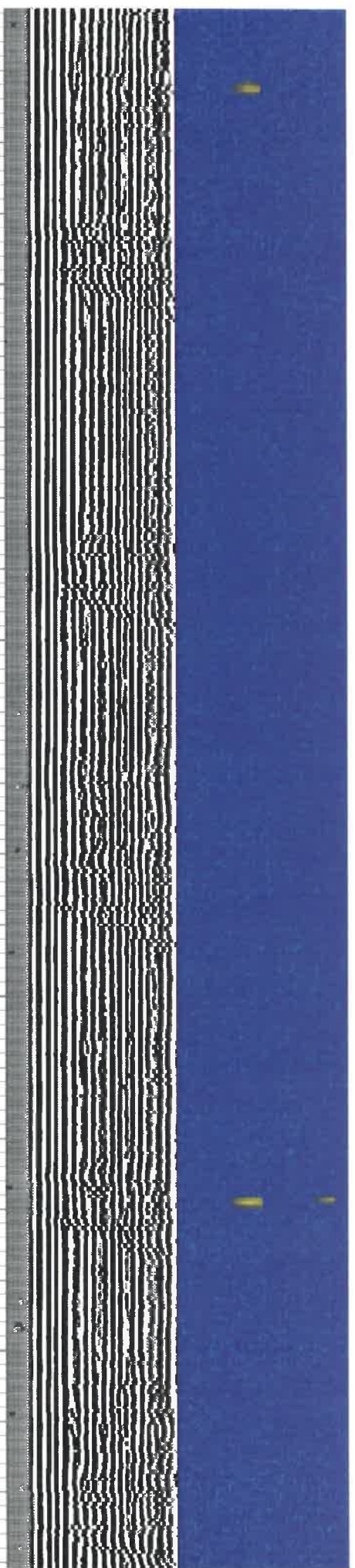
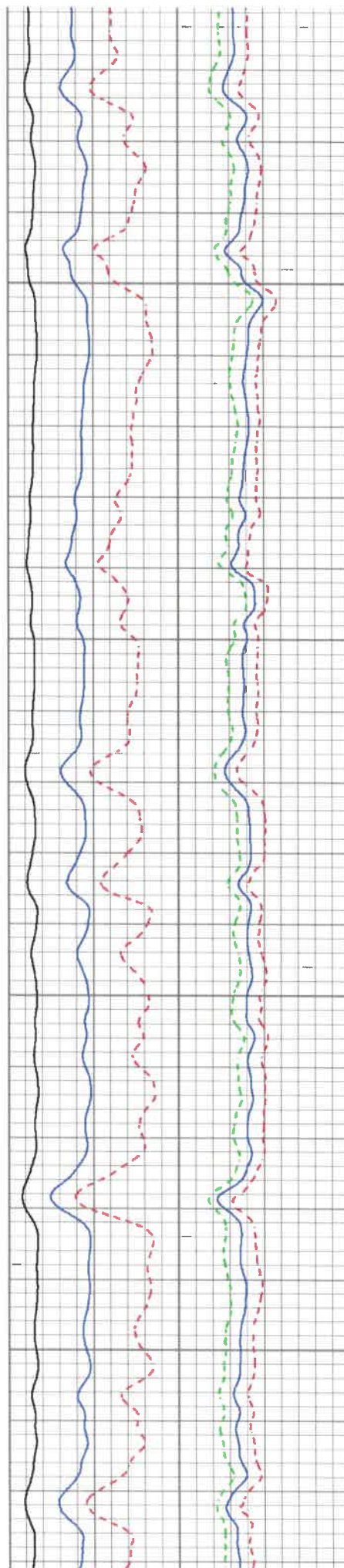


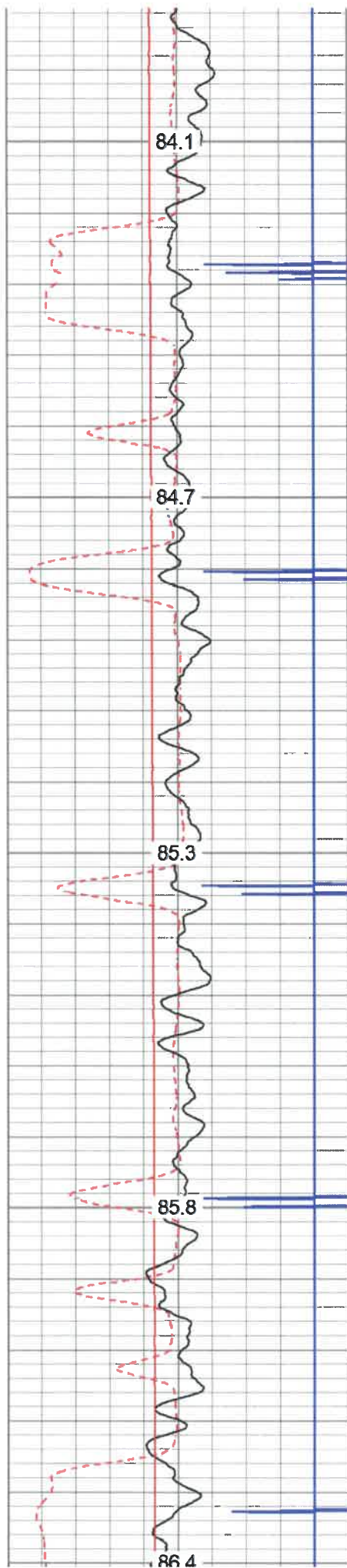
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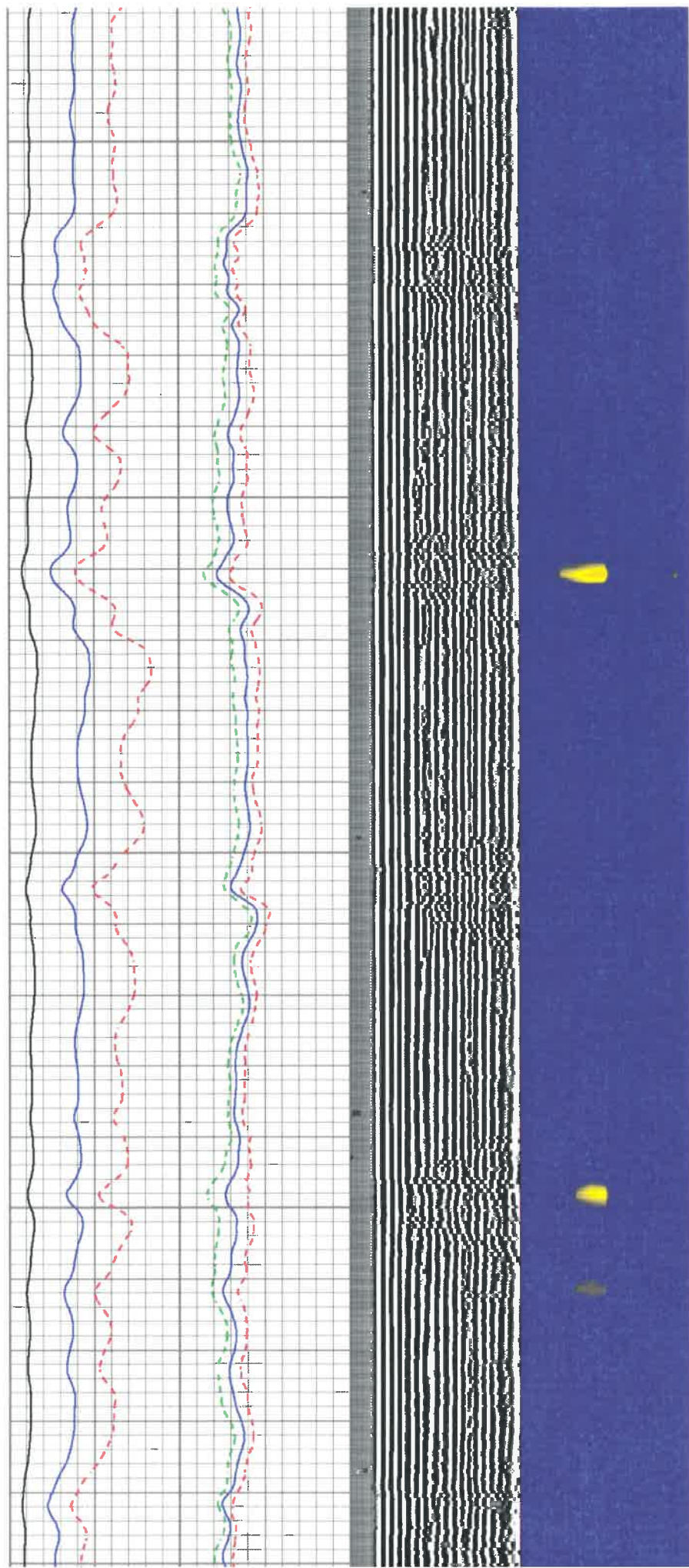
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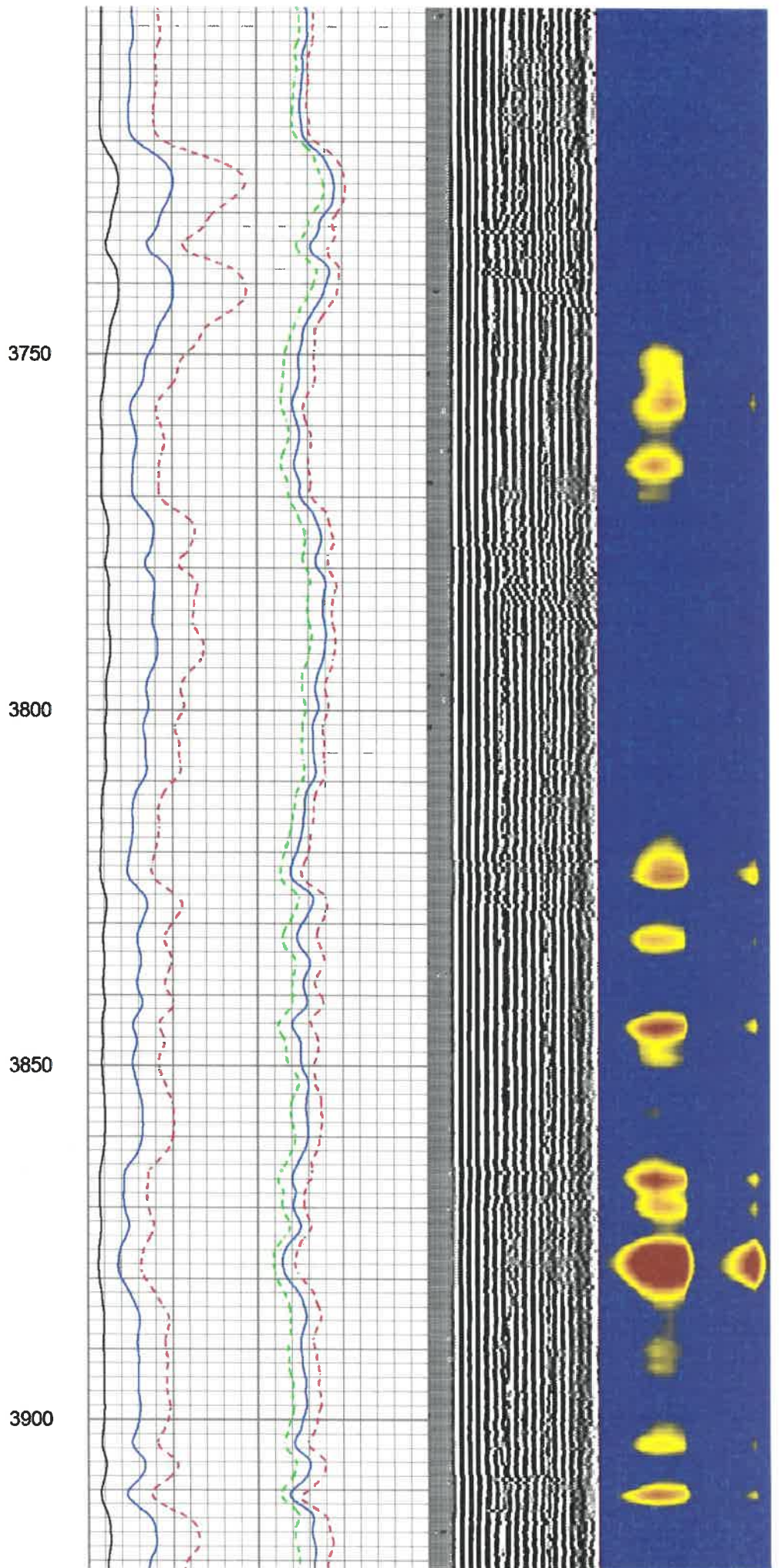
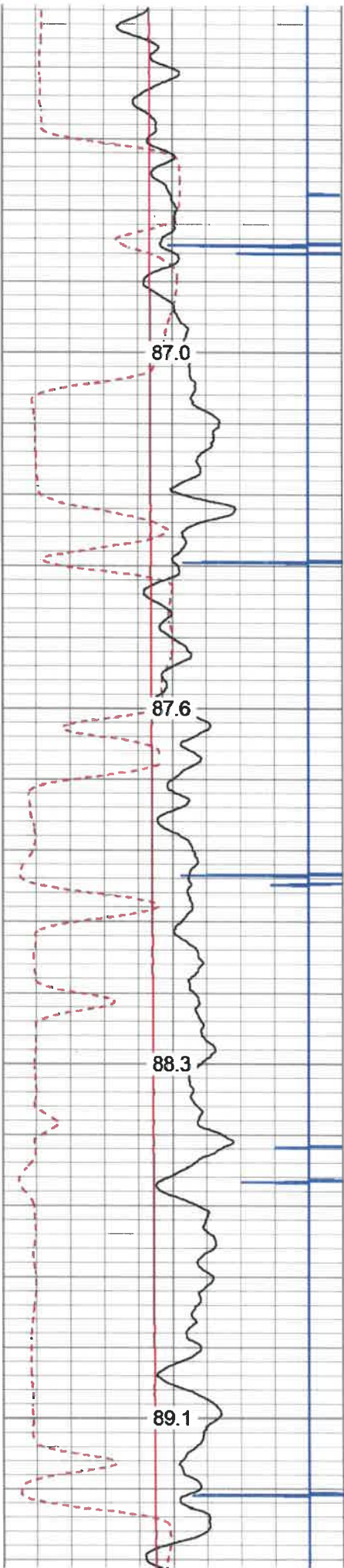
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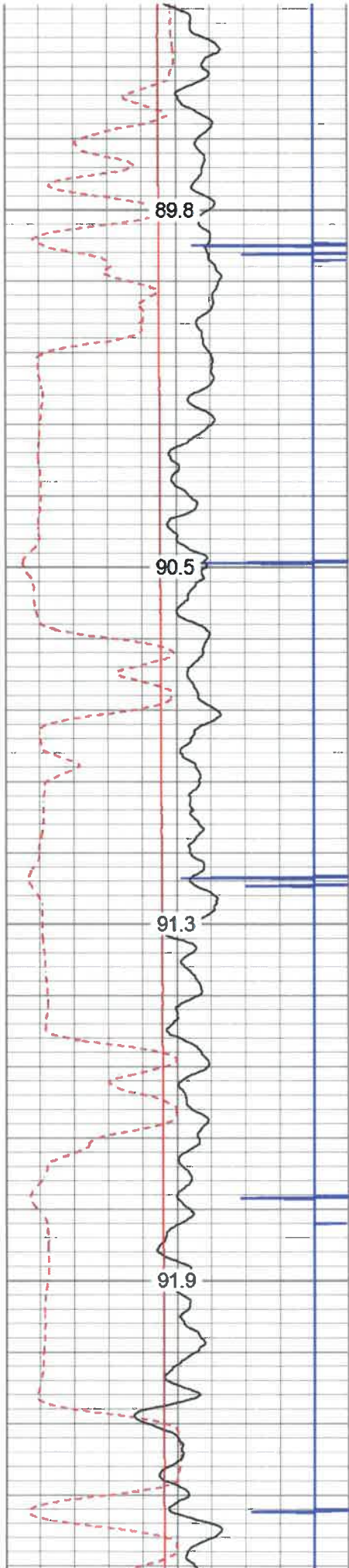
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3700





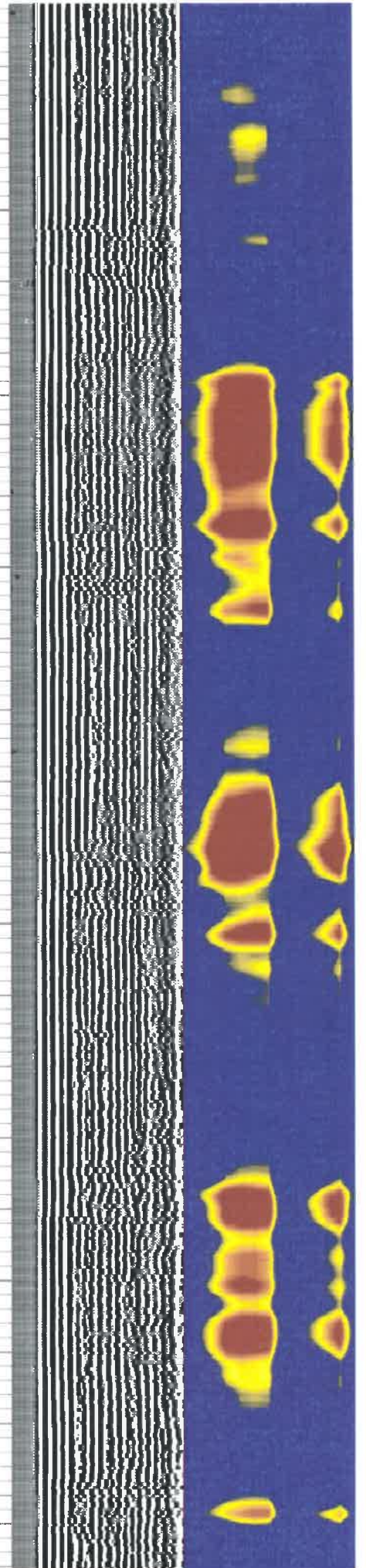
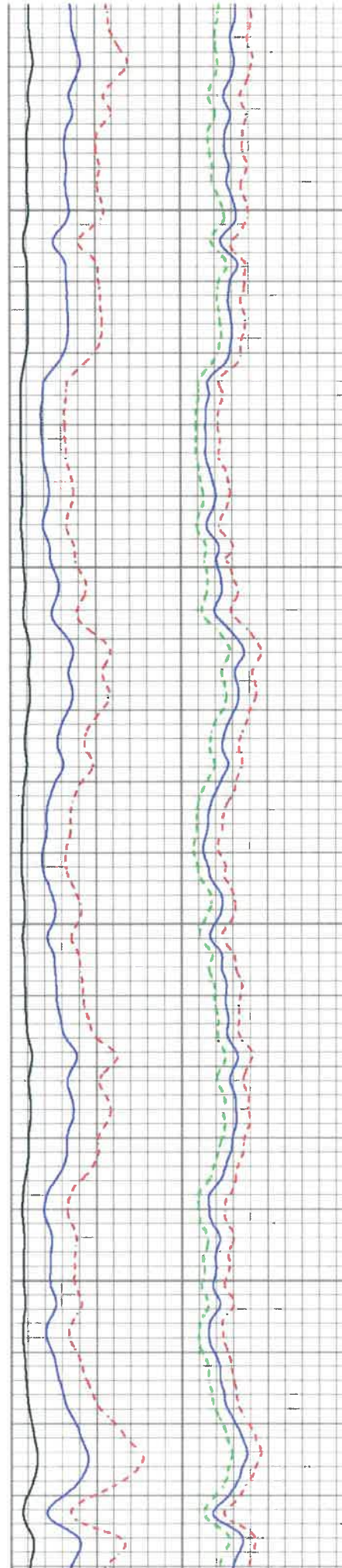


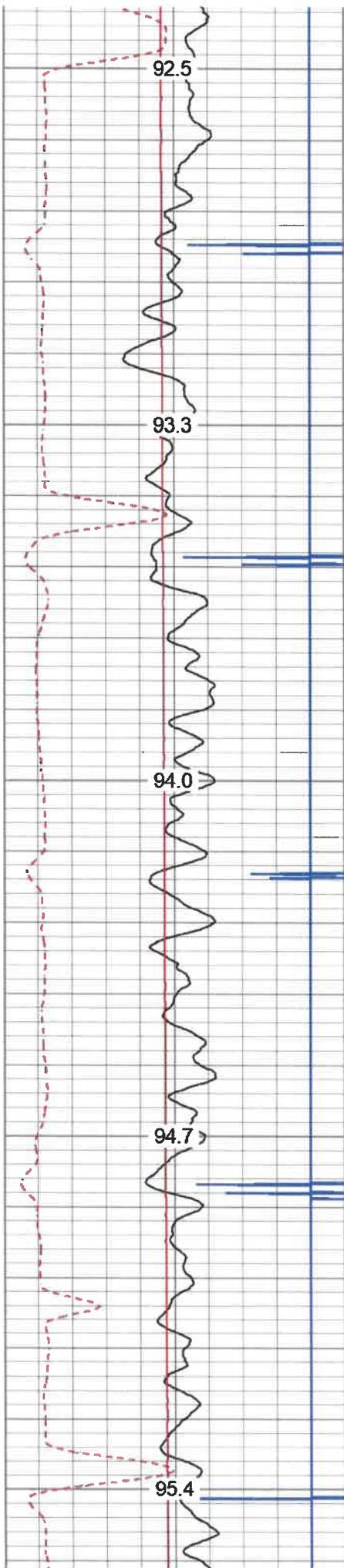
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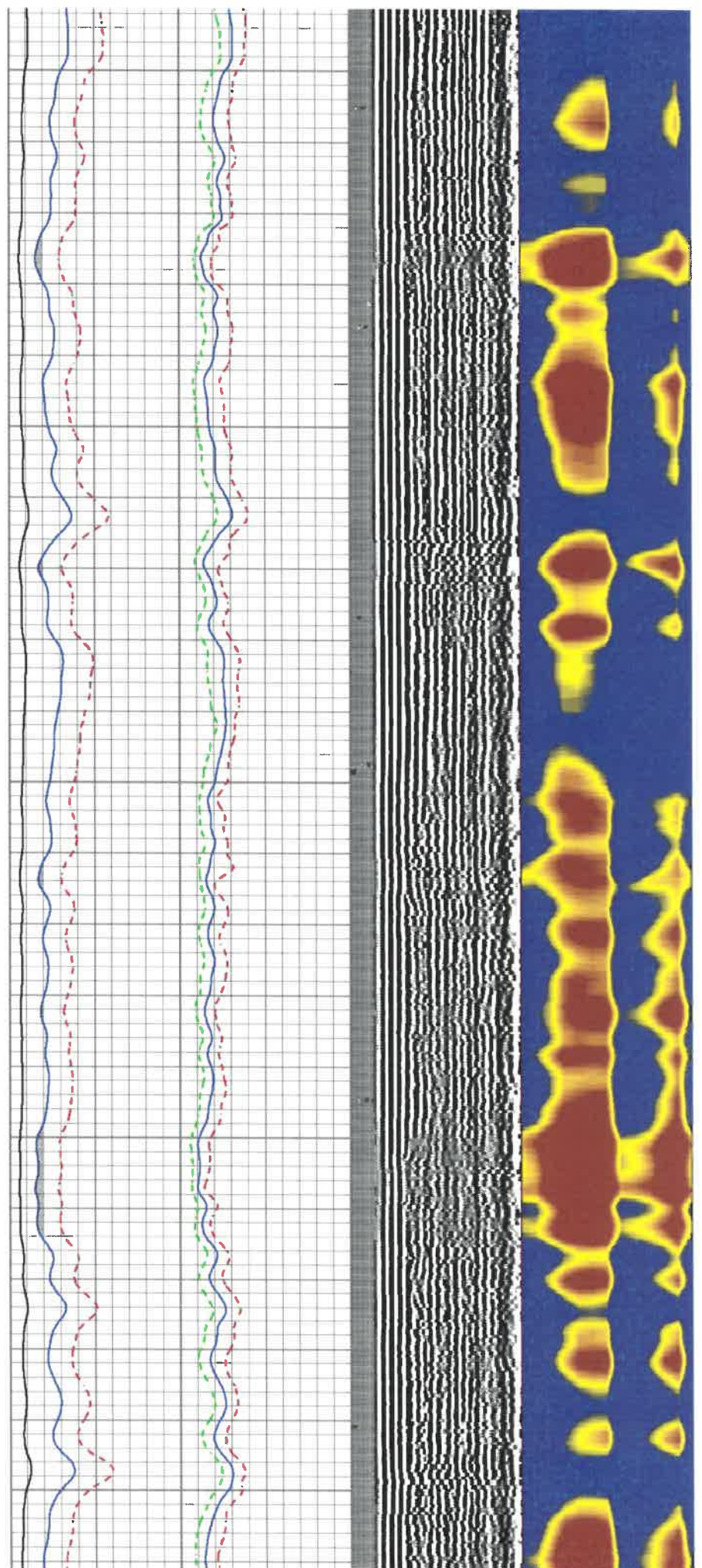
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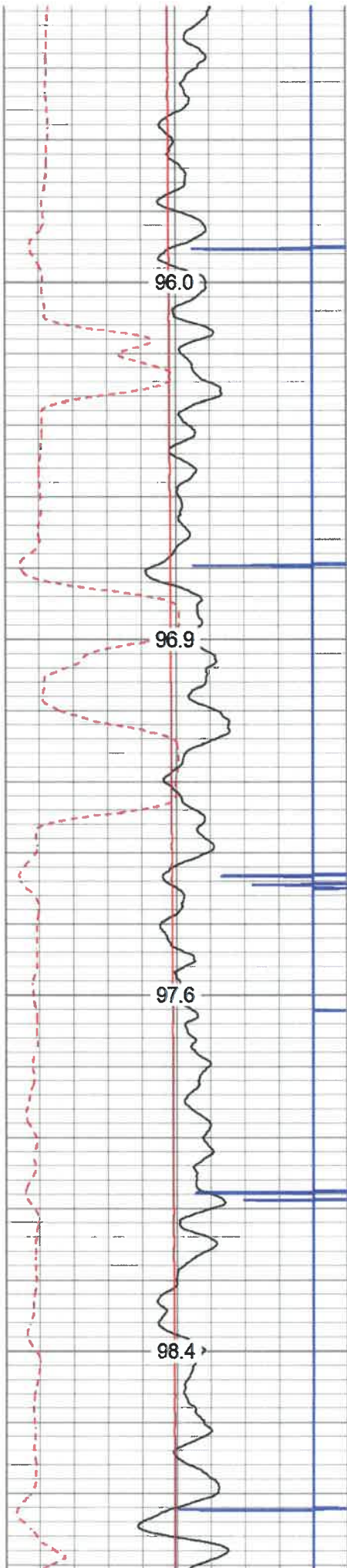
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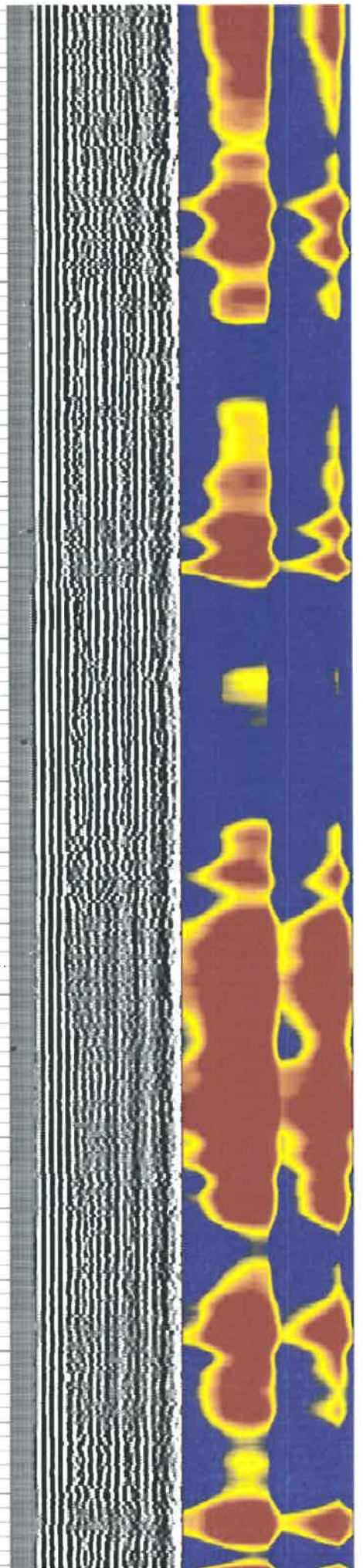
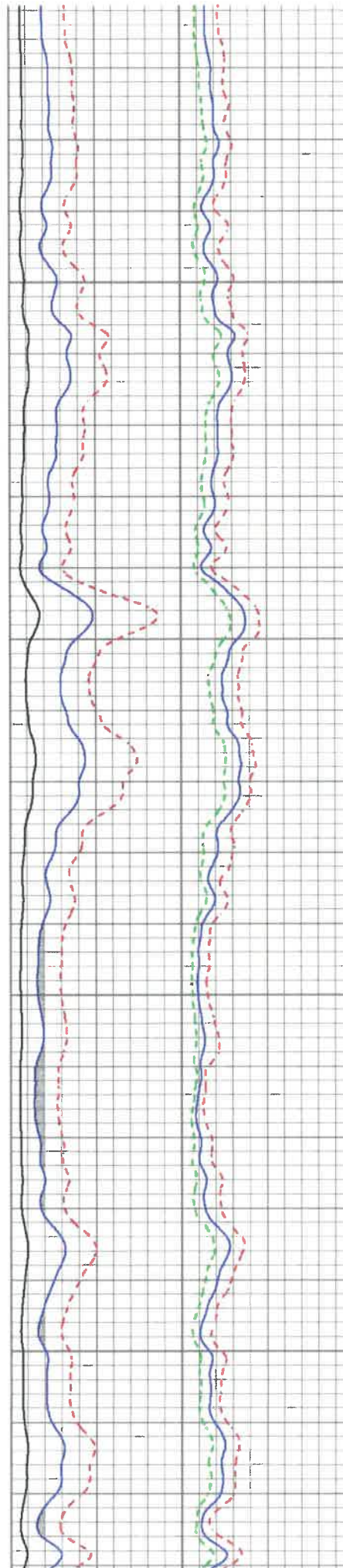


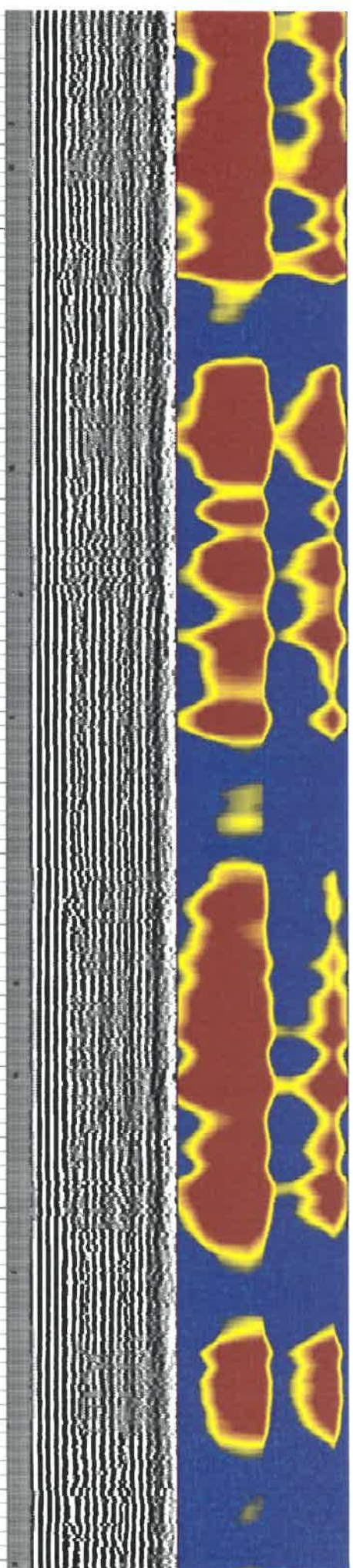
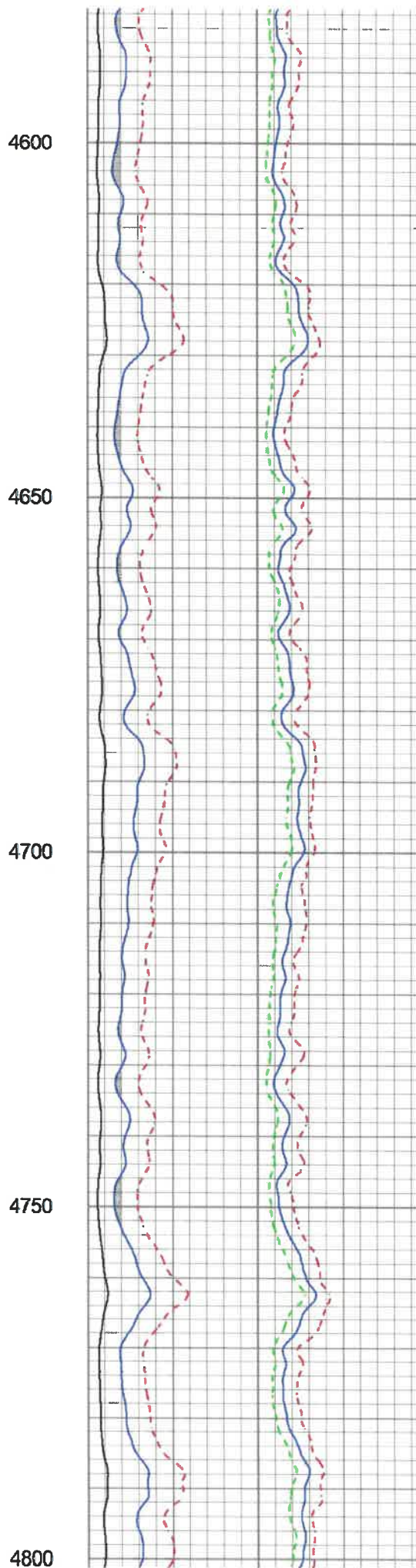
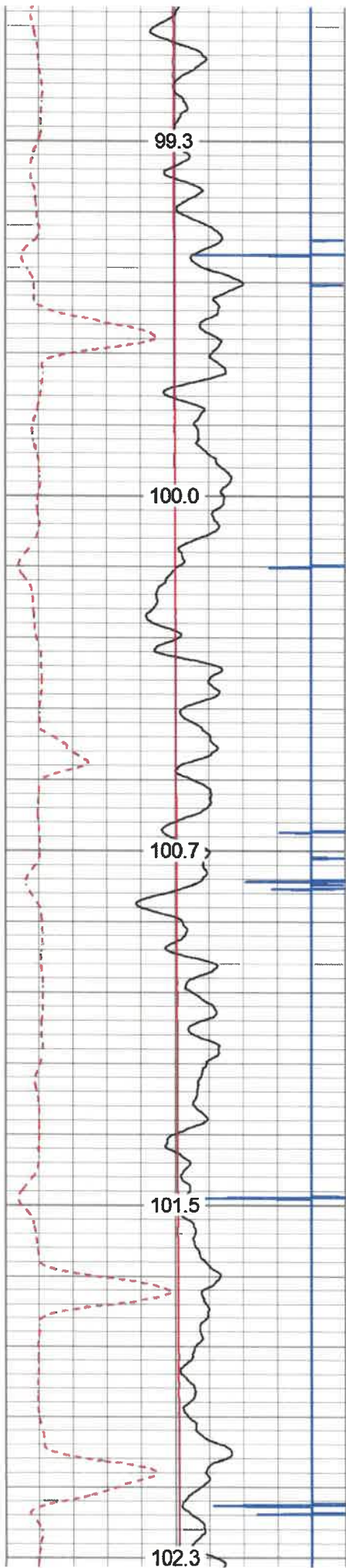
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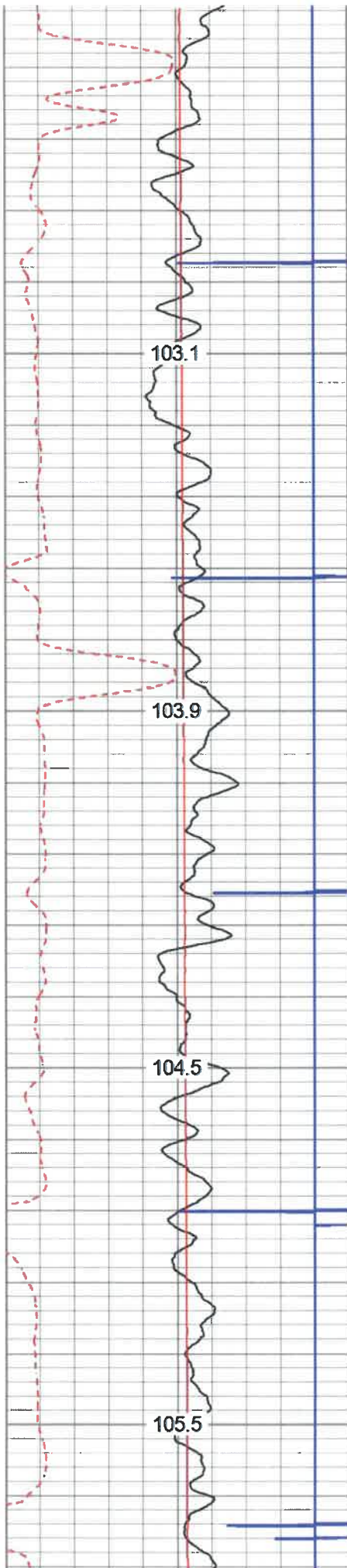
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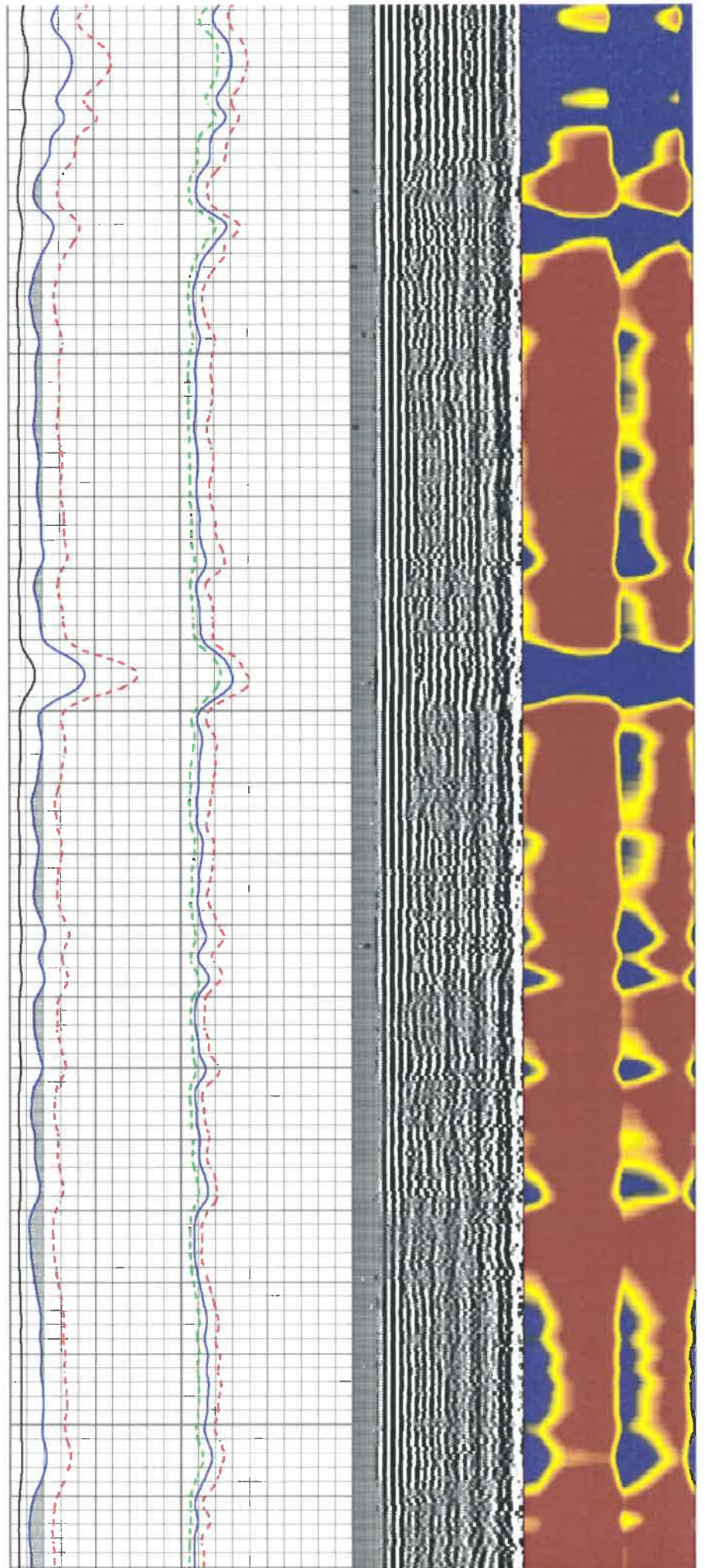


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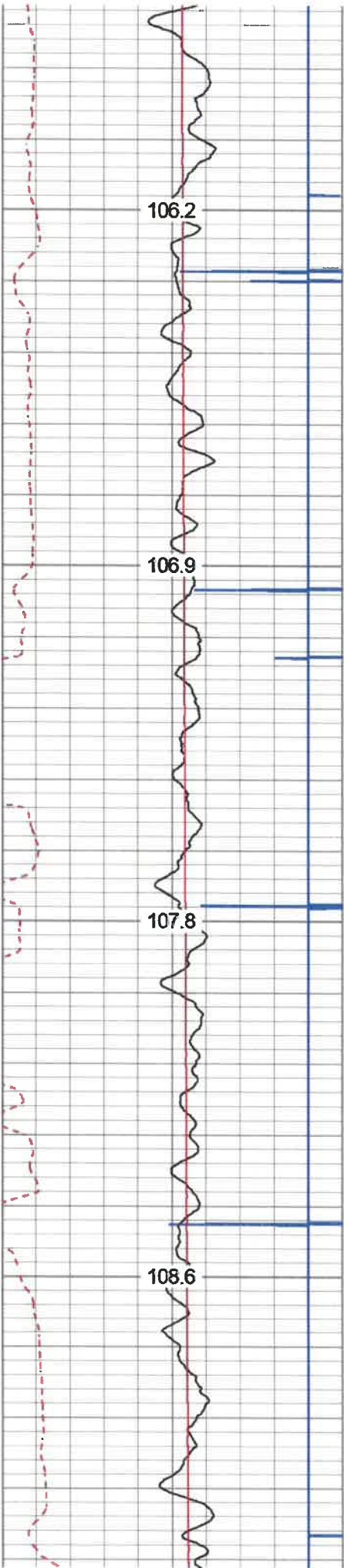
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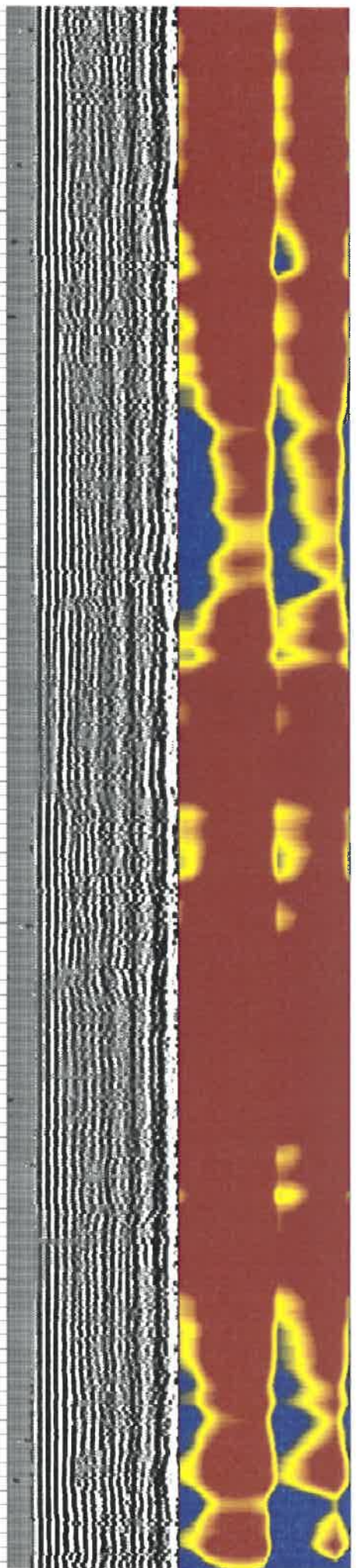
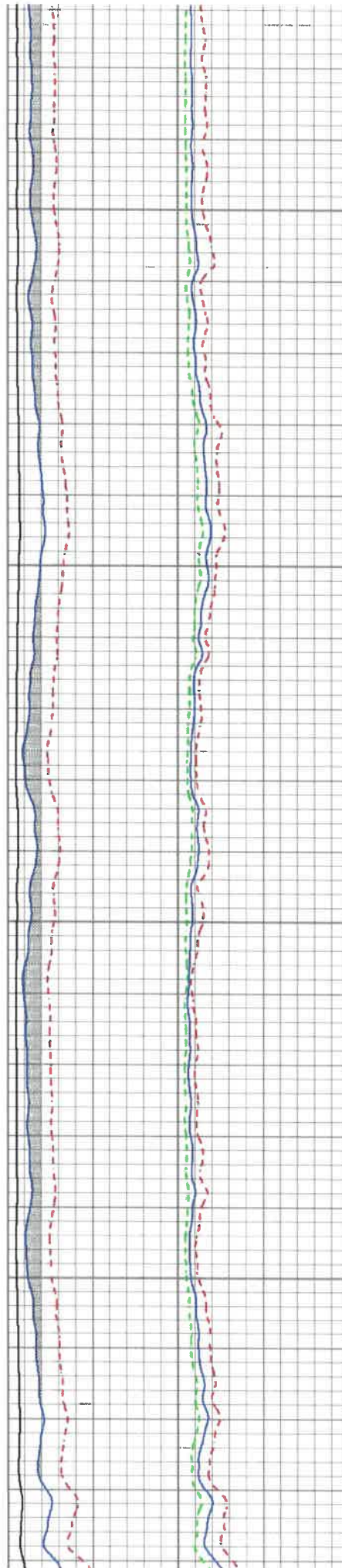


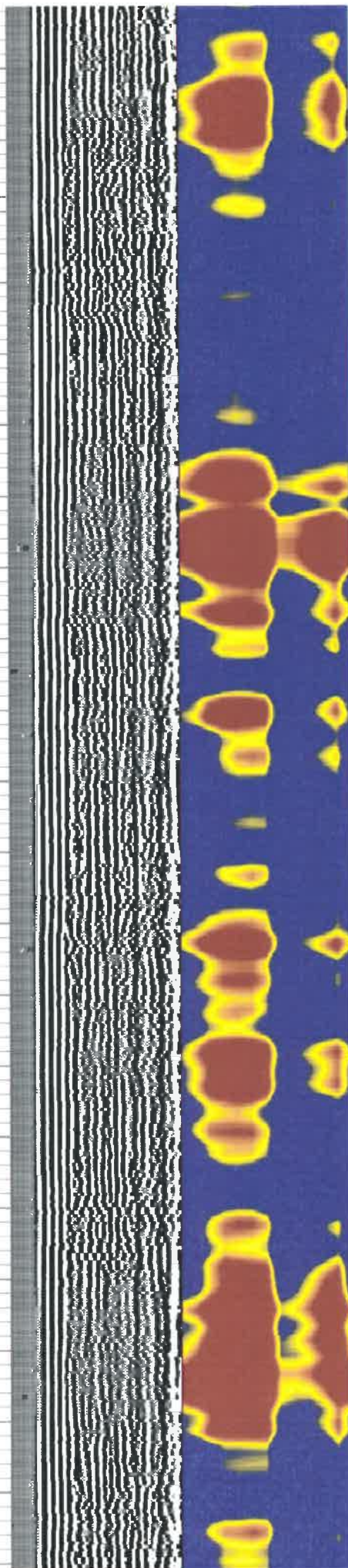
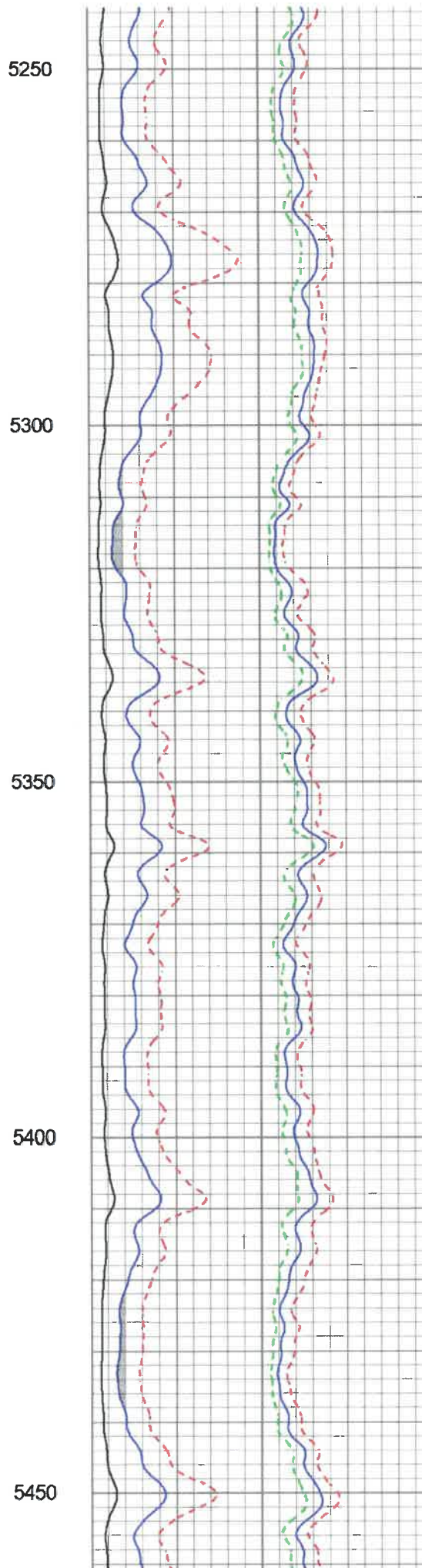
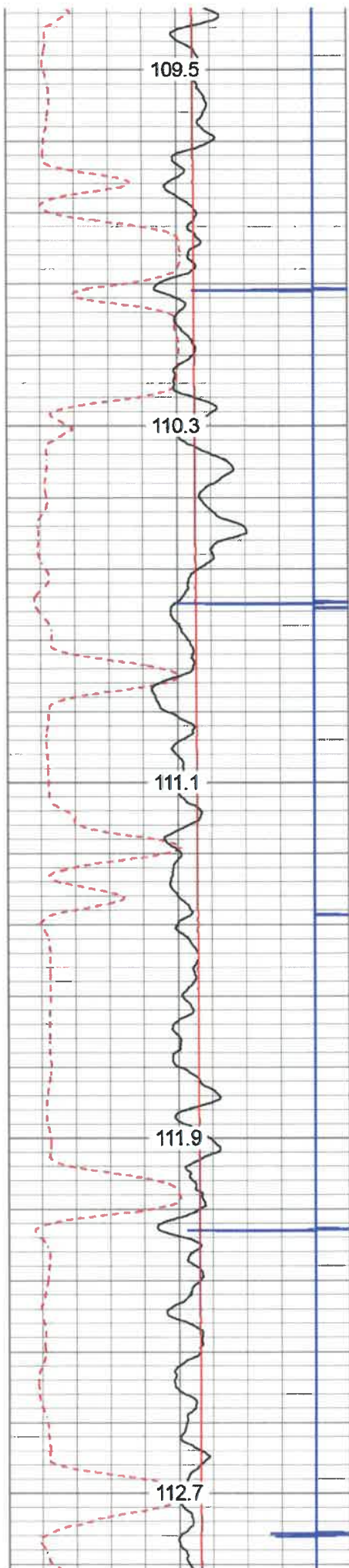
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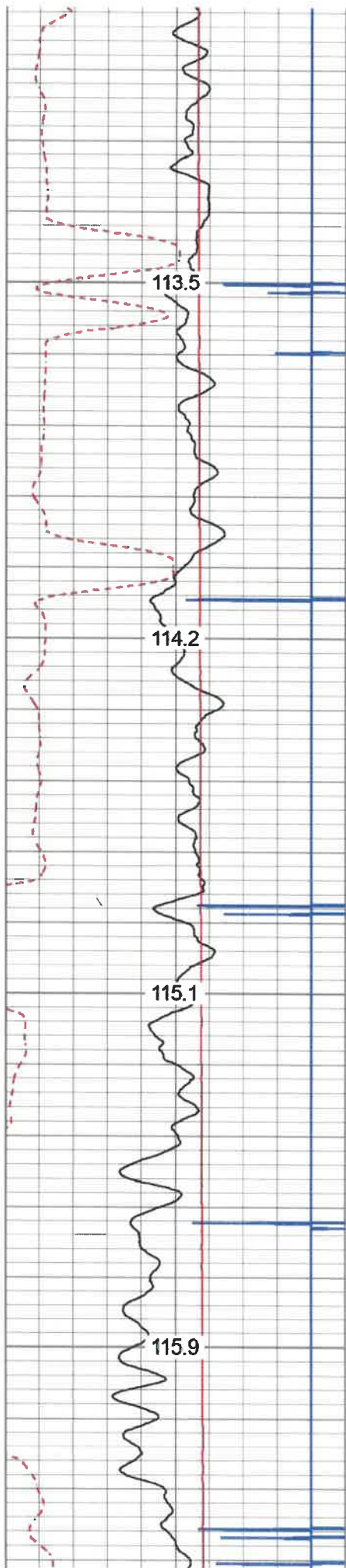
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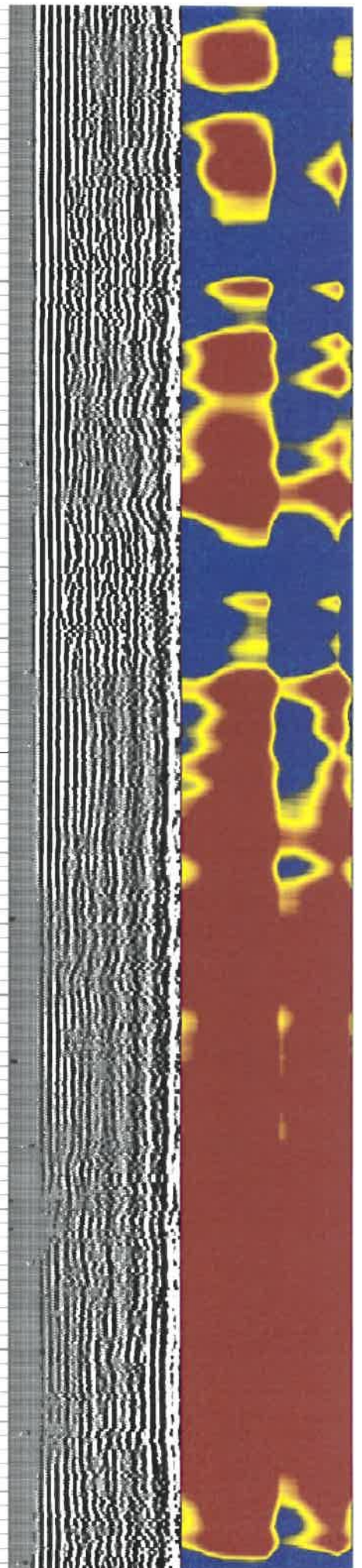
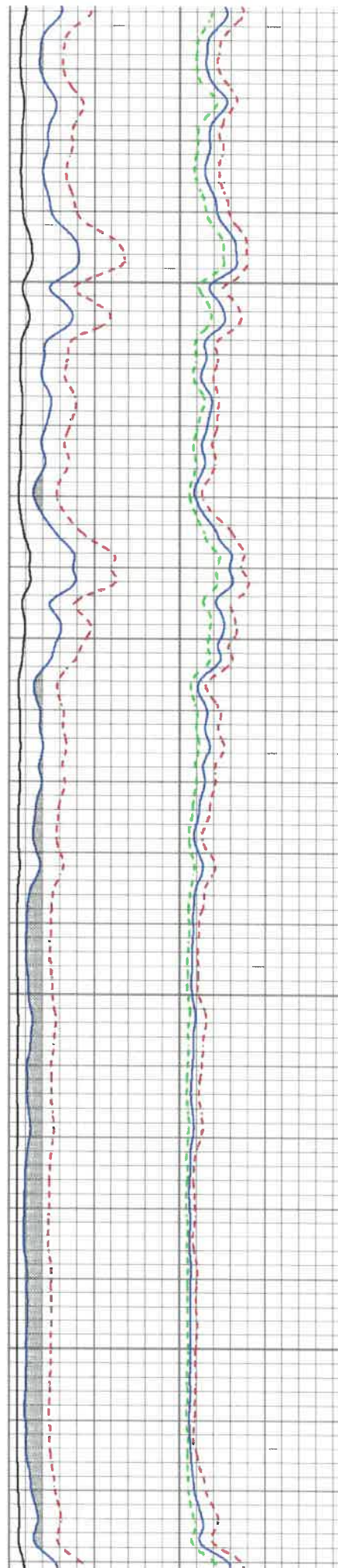


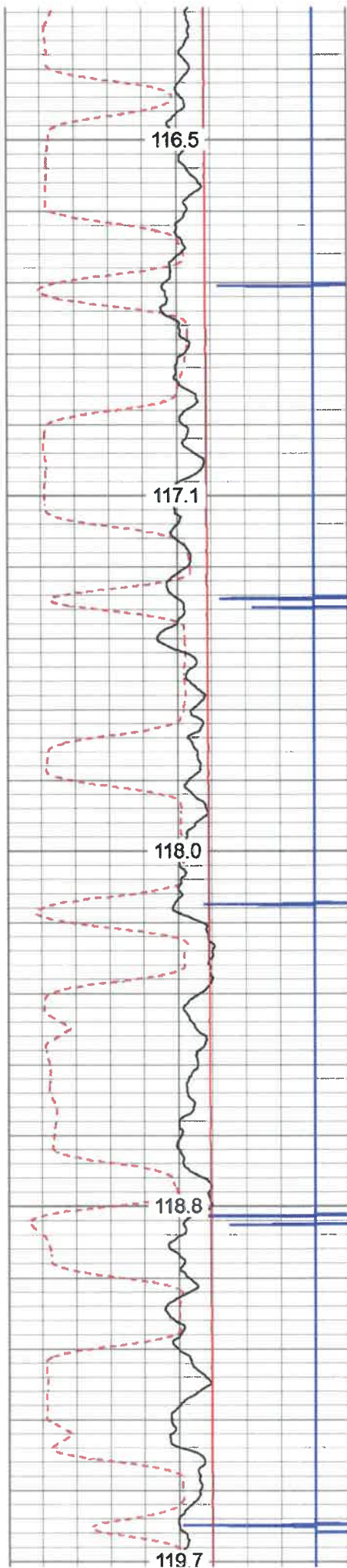
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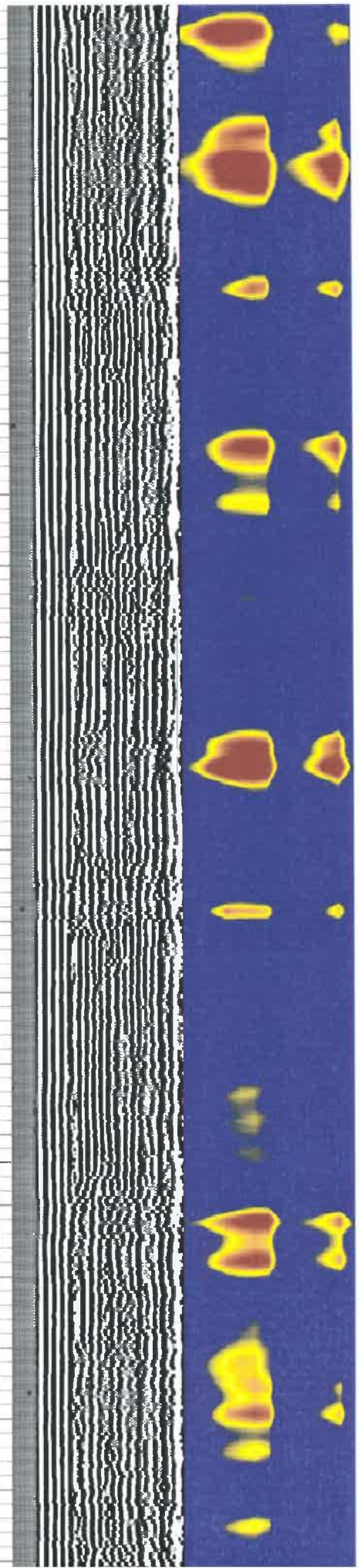
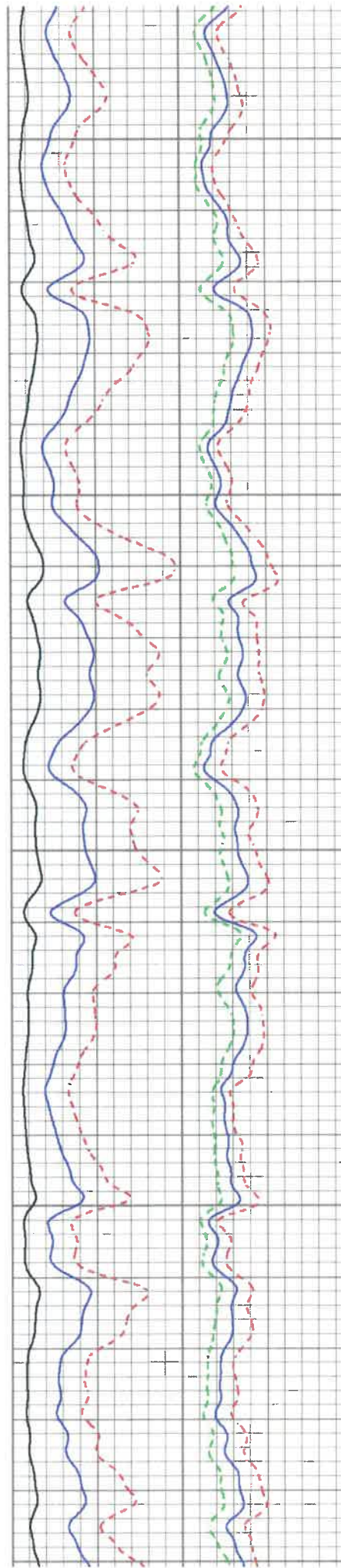
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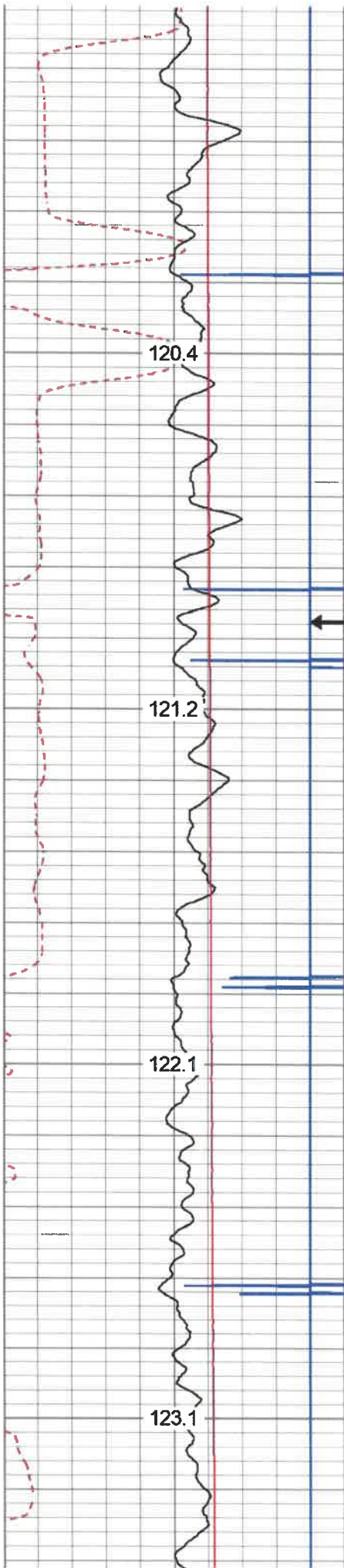
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5900





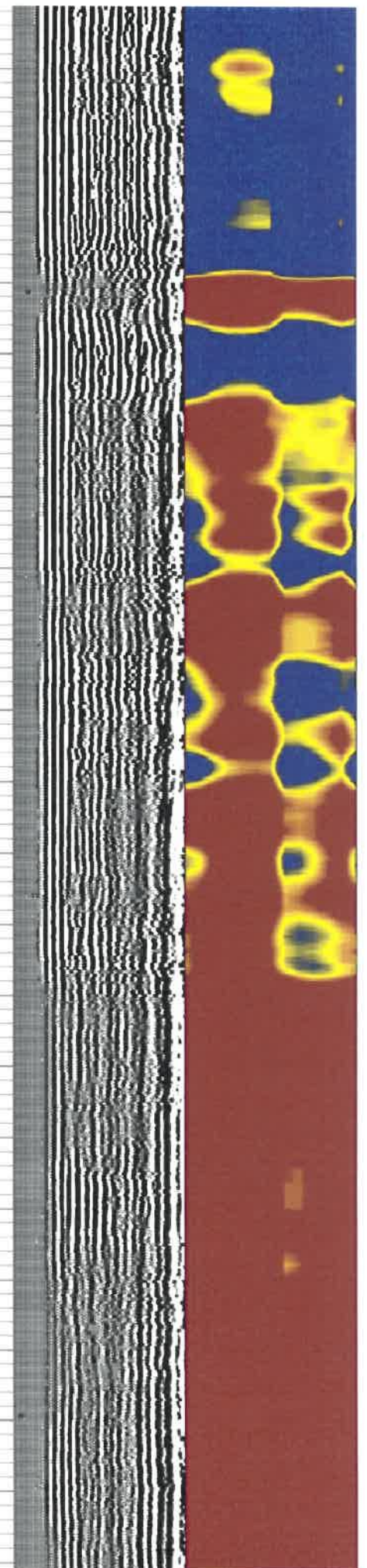
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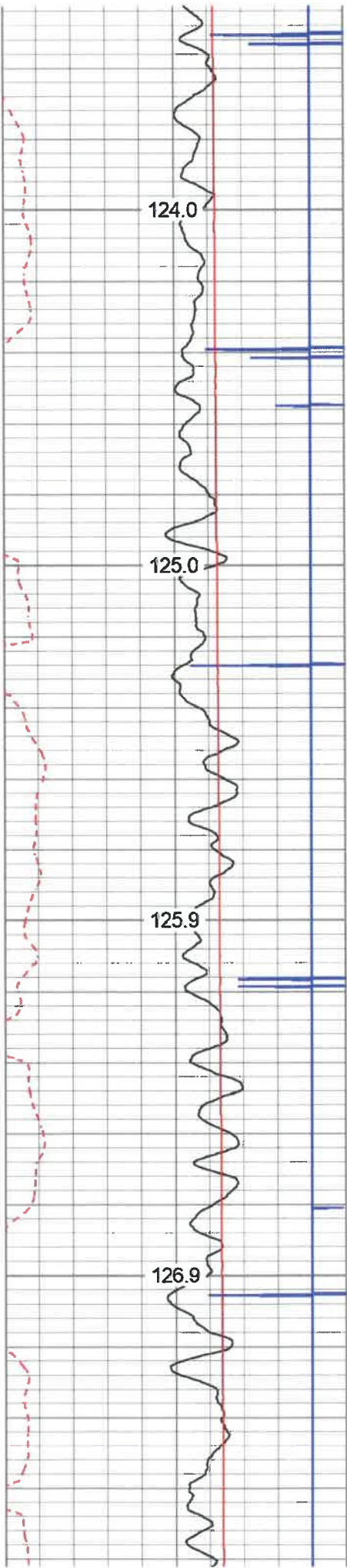
← MARKER JOINT

6000

6050

6100



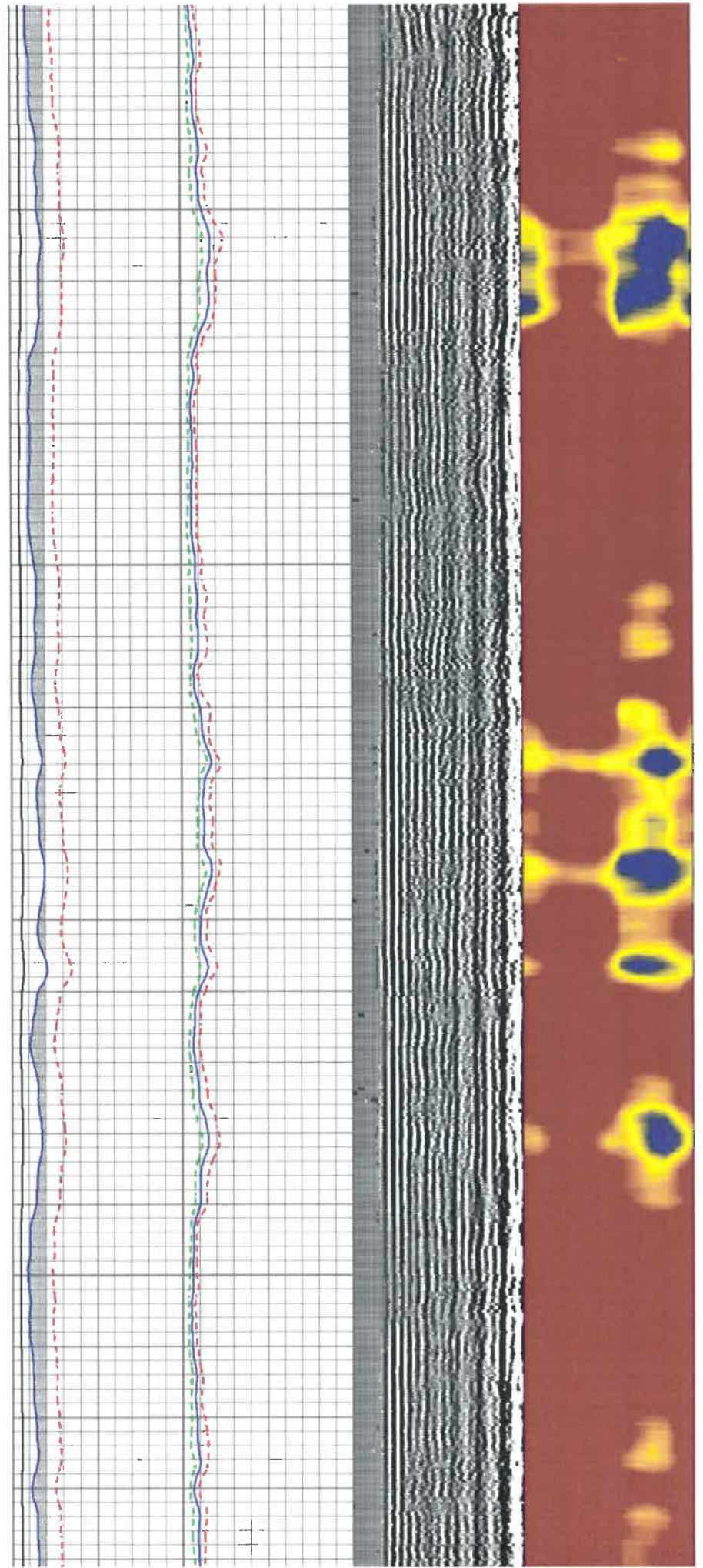


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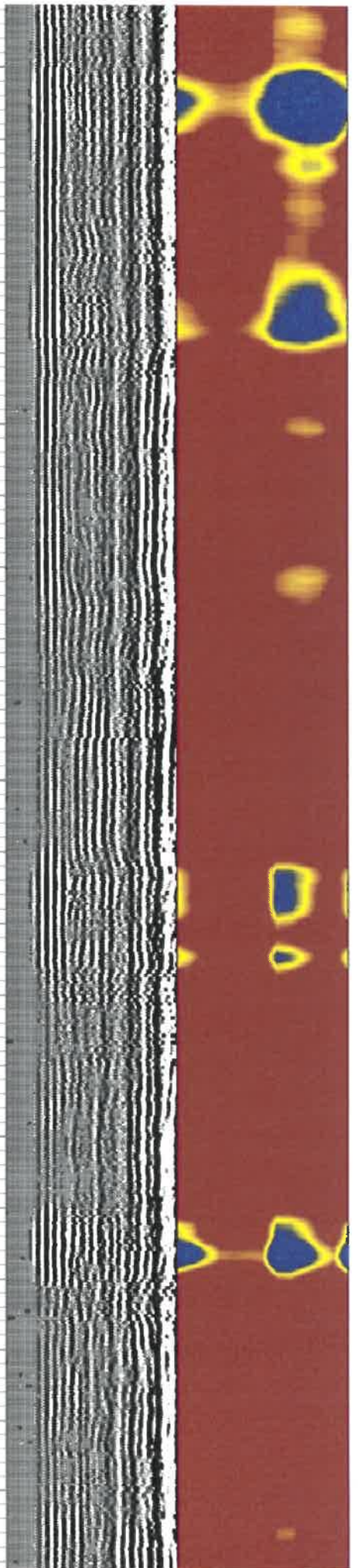
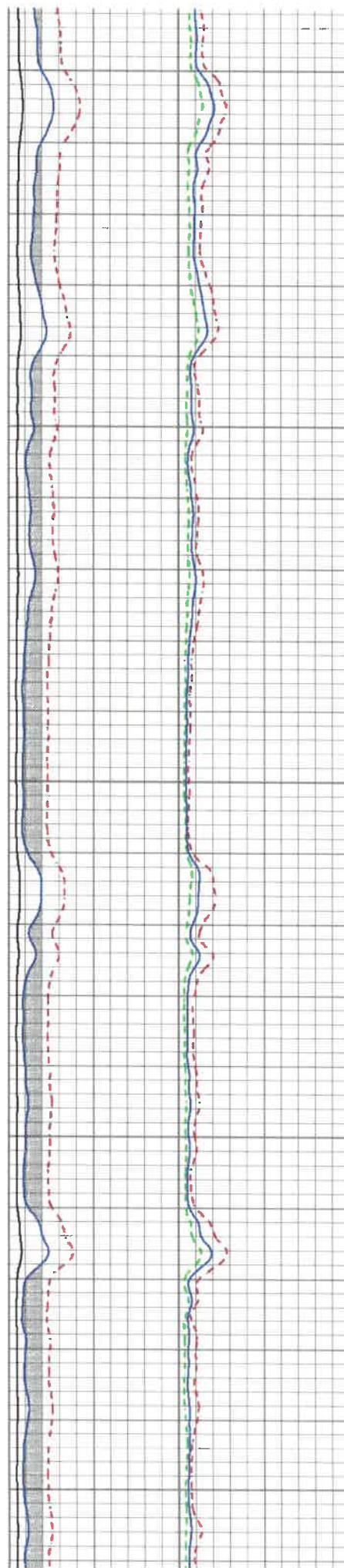
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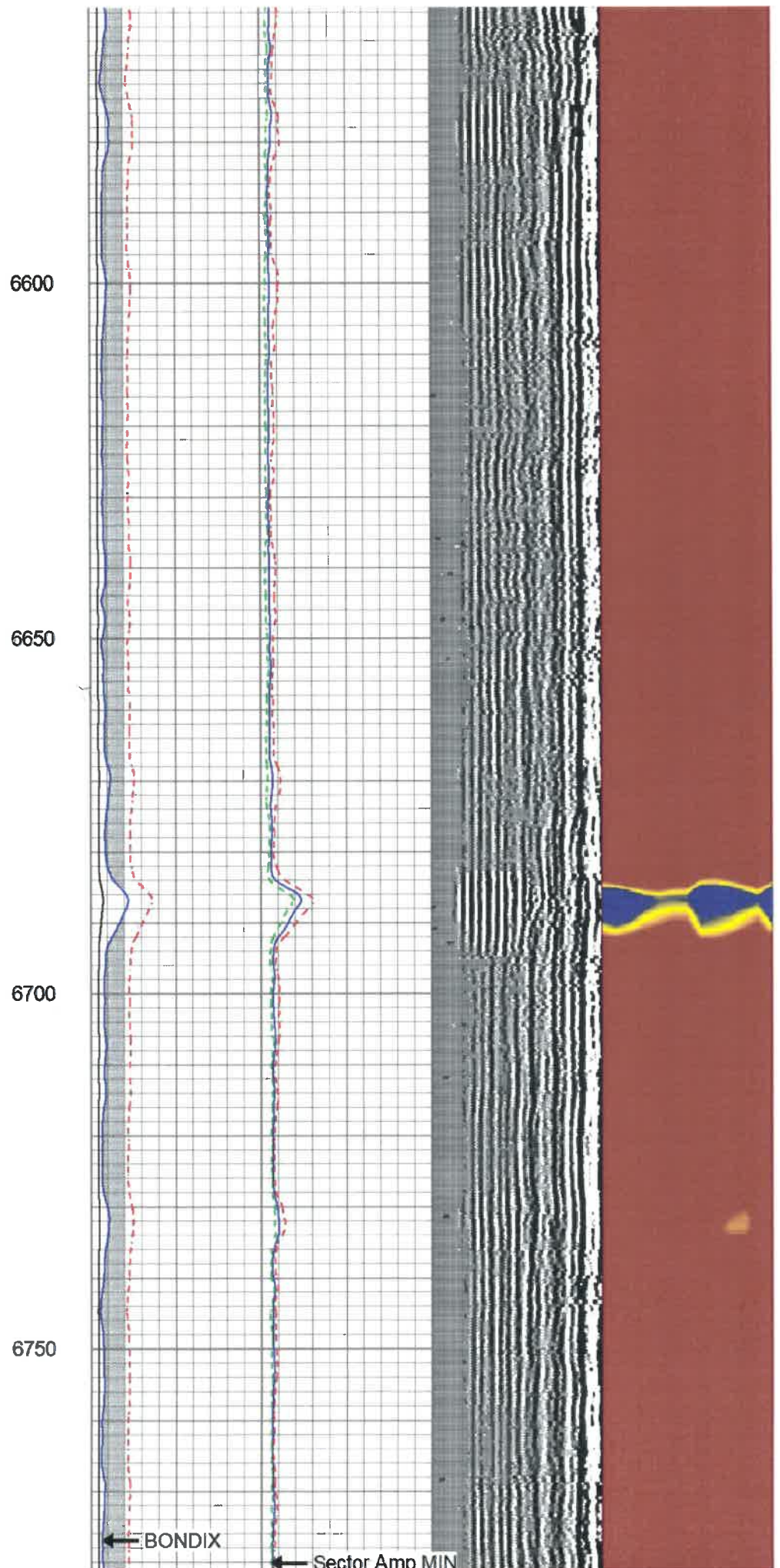
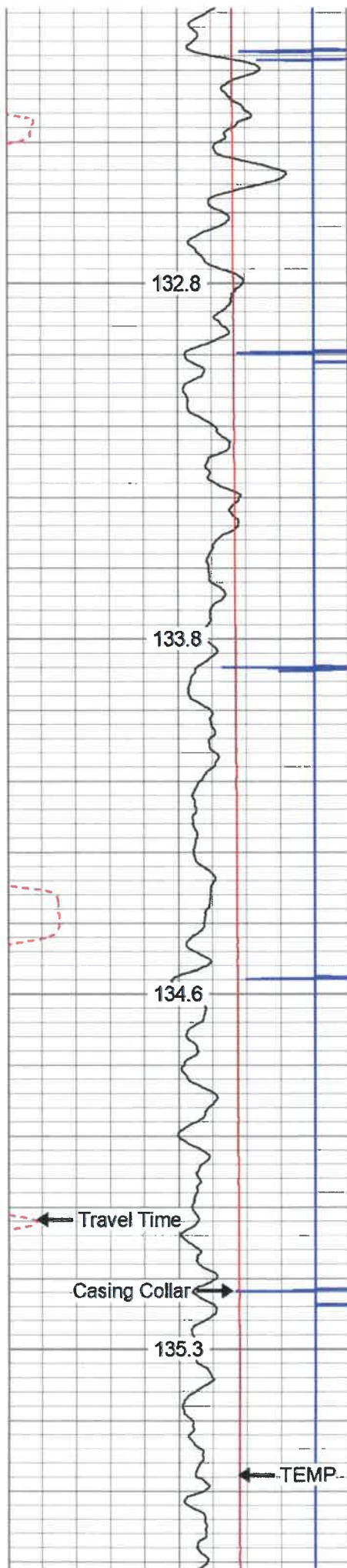
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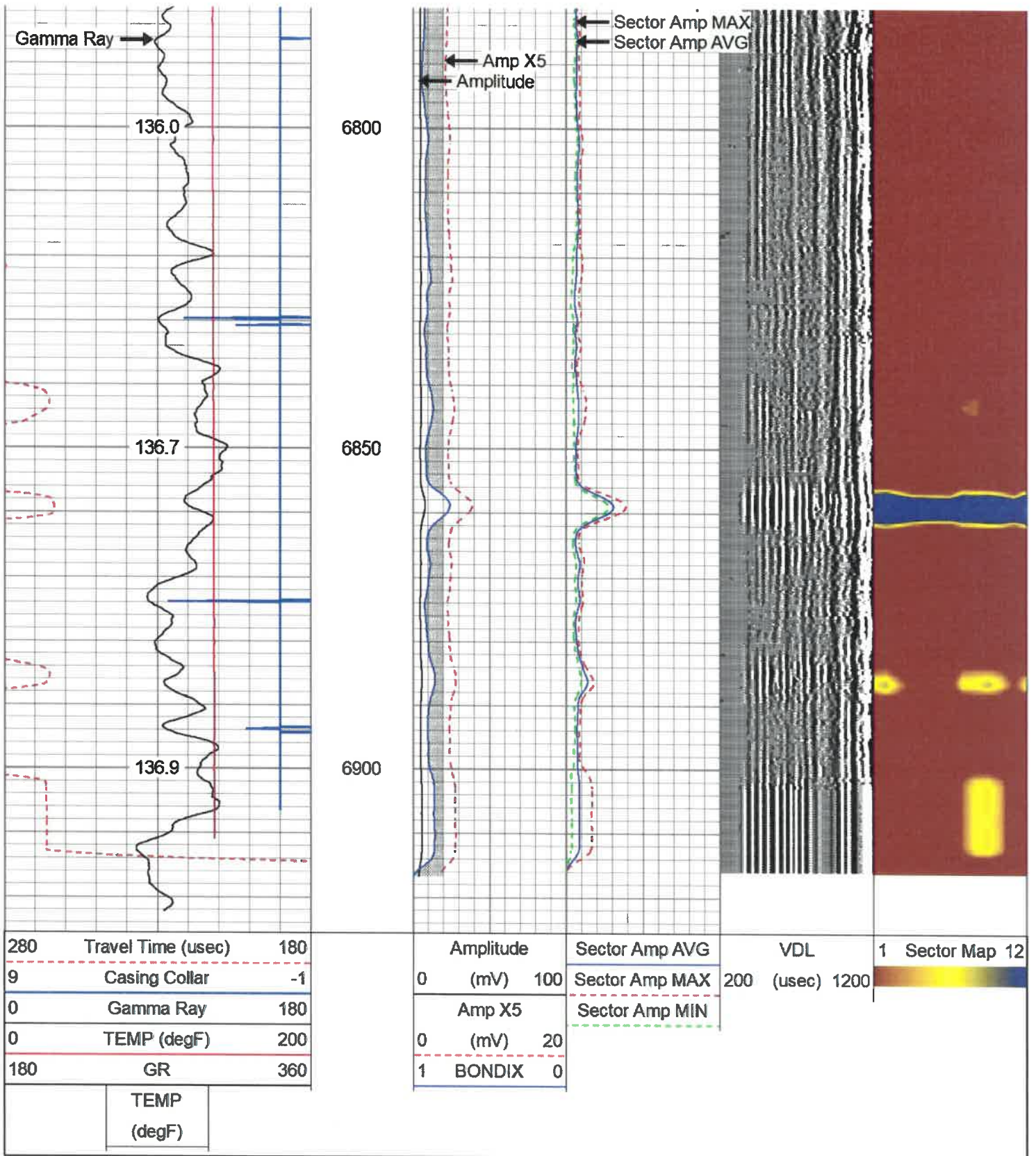


6350  
6400  
6450  
6500  
6550









Repeat Pass

Database File antero\_genny\_1h.db  
 Dataset Pathname pass4.2  
 Presentation Format antero  
 Dataset Creation Sat Nov 16 12:43:01 2019

Charted by

Depth in Feet scaled 1:240

280	Travel Time (usec)	180
9	Casing Collar	-1
0	Gamma Ray	180
0	TEMP (degF)	200
180	GR	360

0	Amplitude (mV)	100
0	Amp X5 (mV)	20
1	BONDIX	0

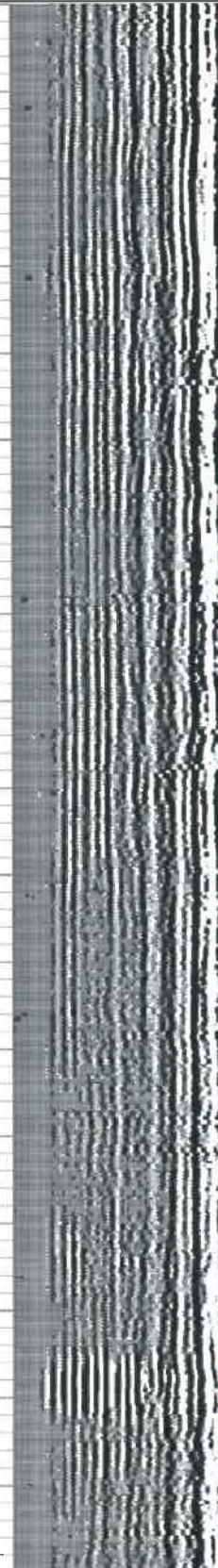
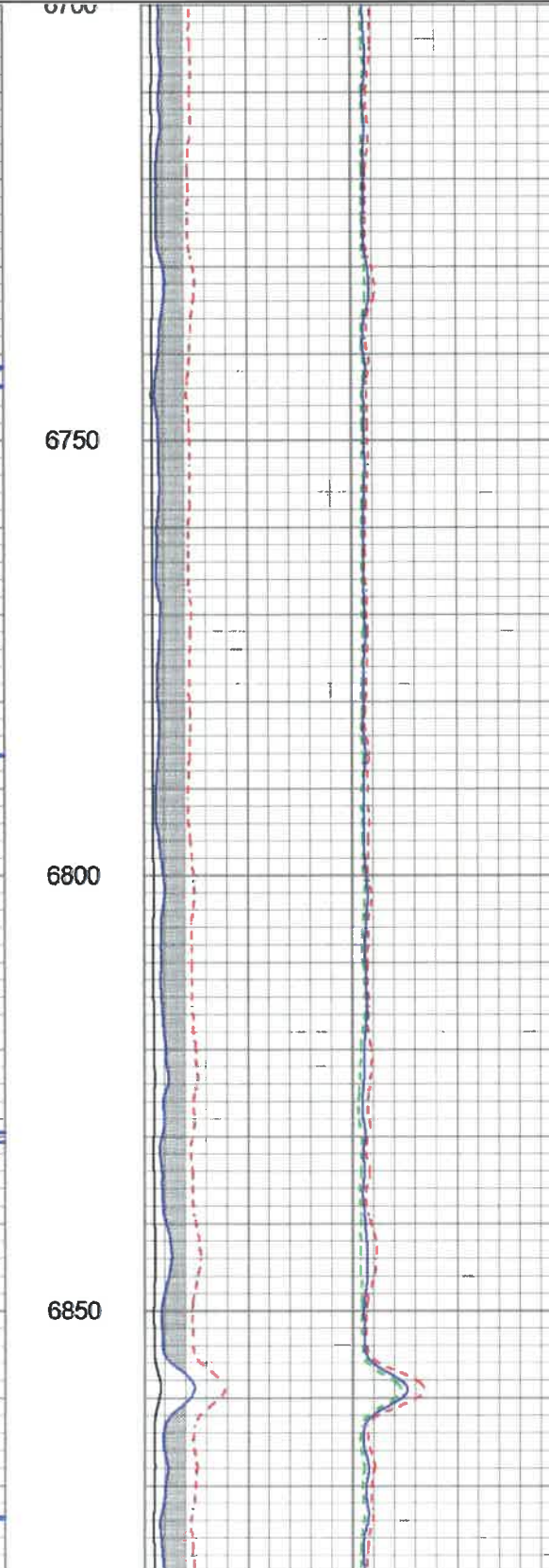
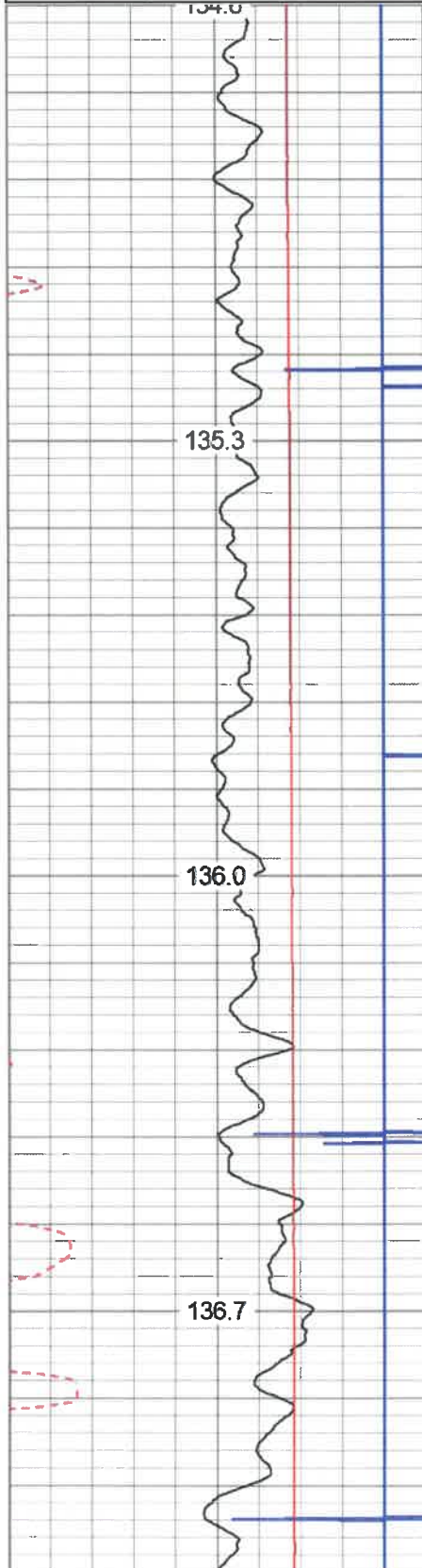
Sector Amp AVG
Sector Amp MAX
Sector Amp MIN

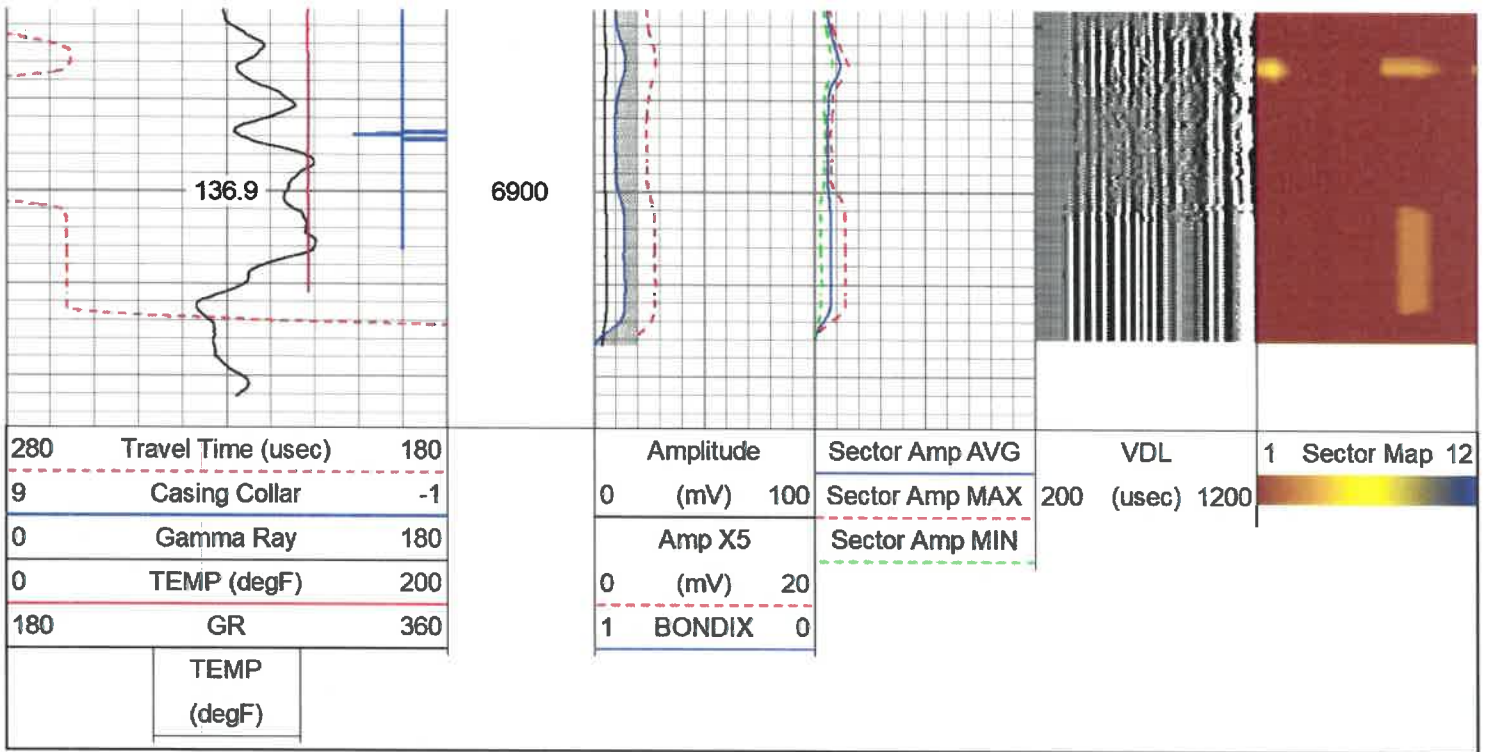
VDL (usec) 200 1200

1 Sector Map 12



TEMP (degF)
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## Log Variables

Database: C:\ProgramData\Warrior\Data\antero\_genny\_1h.db  
 Dataset: field/well/run1/pass4/\_vars\_

### Top - Bottom

BHTEMP_Src	BOREID	BOTTEMP	CASEOD	CASETHCK	CASEWGHT	MAXAMPL	MINAMPL
TEMP	in 8.25	degF 100	in 5.5	in 0	lb/ft 23	mV 71.9	mV 3.5
MINATTN	PERFS	PPT	SRFTEMP	TDEPTH			
db/ft 0.8	No	usec 219	degF 0	ft 0			

### Variable Description

BHTEMP\_Src : BHTEMP Input Source Selector  
 BOREID : Borehole I.D.  
 BOTTEMP : Bottom Hole Temperature  
 CASEOD : Casing O.D.  
 CASETHCK : Casing Thickness  
 CASEWGHT : Casing Weight  
 MAXAMPL : Maximum Amplitude

MINAMPL : Minimum Amplitude  
 MINATTN : Minimum Attenuation  
 PERFS : Perforation Flag  
 PPT : Predicted Pipe Time  
 SRFTEMP : Surface Temperature  
 TDEPTH : Total Depth

### Calibration Report

Database File antero\_genny\_1h.db  
 Dataset Pathname pass4  
 Dataset Creation Sat Nov 16 11:08:31 2019

### Gamma Ray Calibration Report

Serial Number: IPSNO-03  
 Tool Model: Tek-Co 2 3/4  
 Performed: Tue Nov 12 16:11:18 2019

Calibrator Value: 1.0

Background Reading: 0.0 cps  
 Calibrator Reading: 1.0 cps

Sensitivity: 0.5000 /cps

Segmented Cement Bond Log Calibration Report

Serial Number: IOL40-05  
 Tool Model: Tek12  
 Calibration Casing Diameter: 5.500 in  
 Calibration Depth: 125.333 ft


Master Calibration, performed Sat Nov 16 10:32:42 2019:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.004	1.107	3.500	71.921	50.356	3.243
CAL	0.012	0.537				
5'	0.000	1.188	3.500	71.921	57.613	3.499
SUM						
S1	0.020	1.414	0.000	100.000	77.770	-1.447
S2	0.018	1.502	0.000	100.000	67.404	-1.226
S3	0.017	1.417	0.000	100.000	74.418	-1.185
S4	0.016	1.288	0.000	100.000	65.656	-1.287
S5	0.018	1.187	0.000	100.000	66.508	-1.499
S6	0.019	1.155	0.000	100.000	68.038	-1.645
S7	0.020	1.238	0.000	100.000	72.085	-1.629
S8	0.023	1.437	0.000	100.000	70.710	-1.619
S9	0.020	1.308	0.000	100.000	77.633	-1.543
S10	0.015	1.227	0.000	100.000	62.472	-1.233
S11	0.014	1.190	0.000	100.000	65.016	-1.188
S12	0.016	1.186	0.000	100.000	75.507	-1.370

Temperature Calibration Report

Serial Number: IOL40-05  
 Tool Model: Tek12  
 Performed: Wed Jul 31 10:53:14 2013

	Reference	Reading
Low Reference:	0.00 degF	0.00 usec
High Reference:	1.00 degF	1.00 usec
Gain:	0.33	
Offset:	0.00	
Delta Spacing:	2	

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
CCL	18.93		CCL-312tekco (IO8X3-01) Tekco 3 1/8" 450 Deg. "F" SmCo Logging CCL	1.82	3.12	25.00
			Tek-2.75 2 3/4" Tekco Adjustable Centralizer	2.73	2.75	25.00



