



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

Company		Antero Resources Corporation		Country US	
Well		Genny Unit 2H		Well	
Field		Marcellus		Field	
County		Ritchie		County	
State		WV		State	
Location:		AP1 #: 47085103830000		Country US	
SEC		TWP		RGE	
Permanent Datum		Ground Level		Elevation	
Log Measured From		R.K.B. 25'		K.B.	
Drilling Measured From		R.K.B.		D.F.	
				G.L.	
Date		16-NOV-2019		Other Services	
Run Number		ONE			
Depth Driller		21495			
Depth Logger		6770'			
Bottom Logged Interval		6770'			
Top Log Interval		Surface			
Open Hole Size		8.25"			
Type Fluid		FW			
Density / Viscosity		8.6			
Max. Recorded Temp.		138 degF			
Estimated Cement Top		2450'			
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
ONE	24"	Surface	80'		
TWO	17.5"	80'	577'		
THREE	12.25"	577'	2644'		
FOUR	8.25"	2644'	21495'		
Casing Record	Size	Wgt/Ft	Top	Bottom	
Surface String	13.375"	54.5	Surface	577'	
Prot. String	9.625"	40	Surface	2644'	
Production String	5.5"	20	Surface	21495'	
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 6083' - 6093'
Log TD 6770'
Cement Top @ 2450'
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_2h.db
 Dataset Pathname pass2.3
 Presentation Format antero
 Dataset Creation Sat Nov 16 18:10:14 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

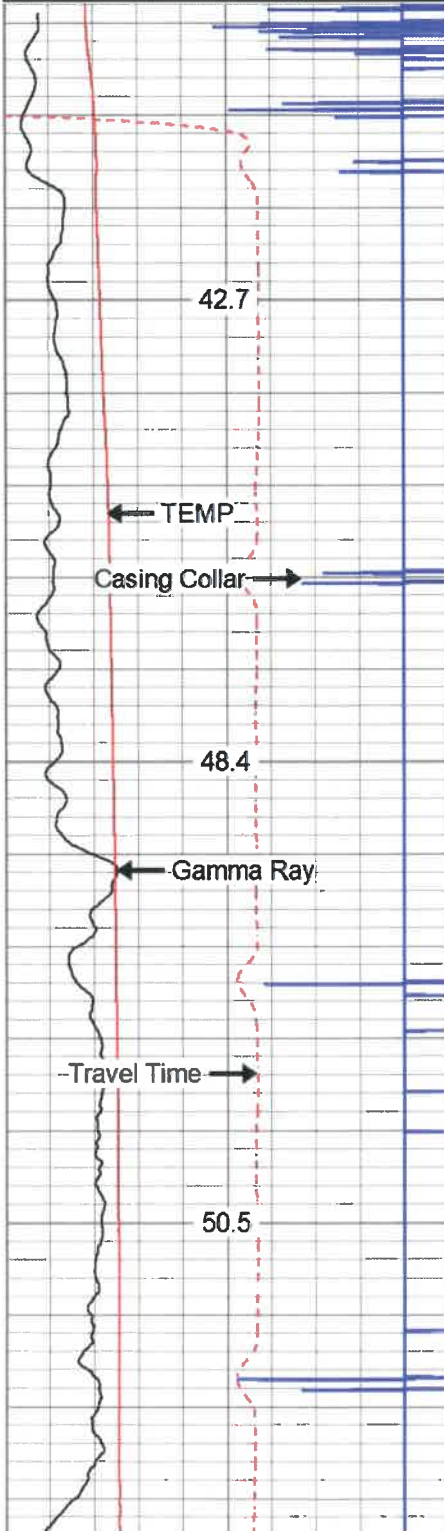
TEMP
(degF)

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

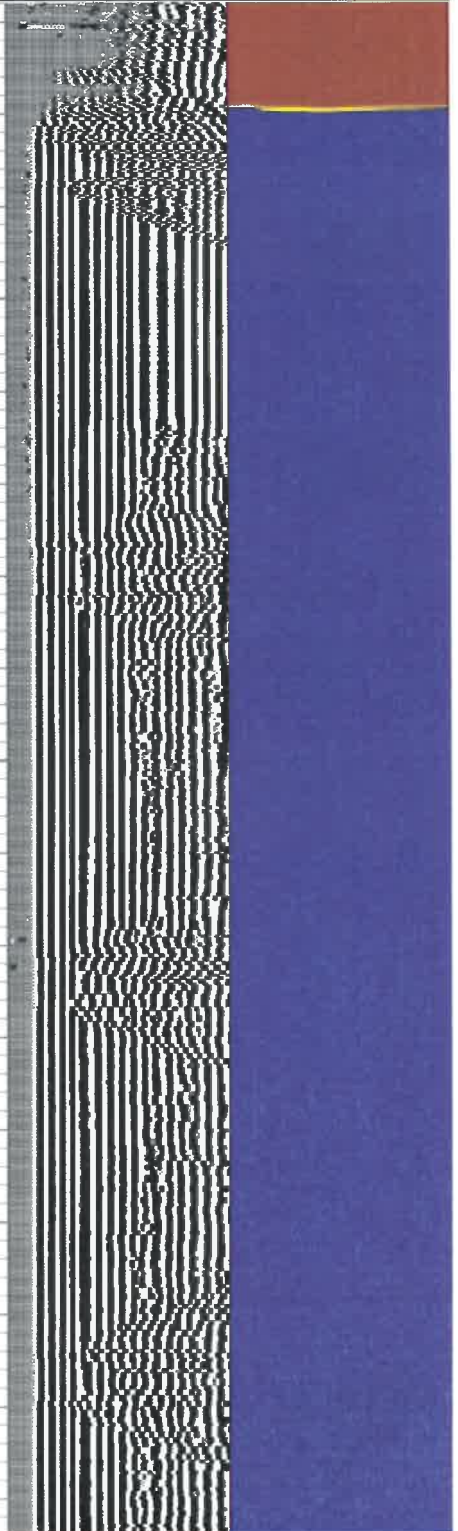
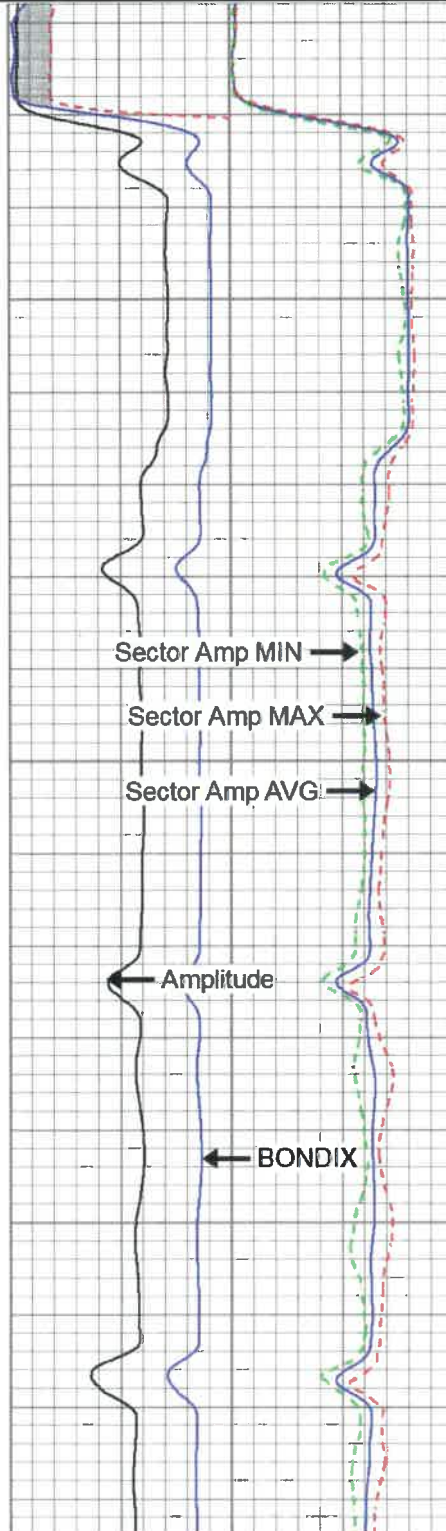
Sector Amp AVG
Sector Amp MAX
Sector Amp MIN

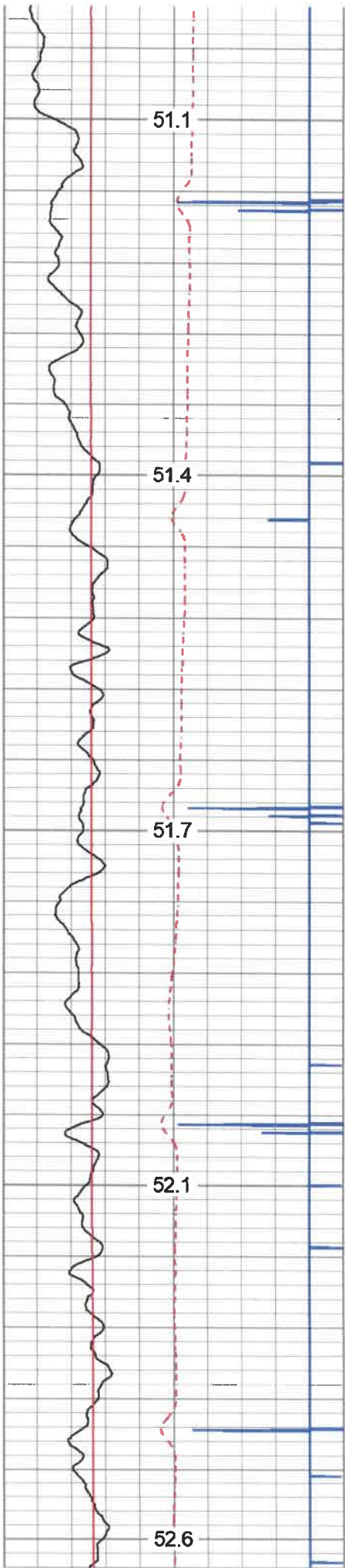
VDL
200 (usec) 1200

1 Sector Map 12

50
100
150





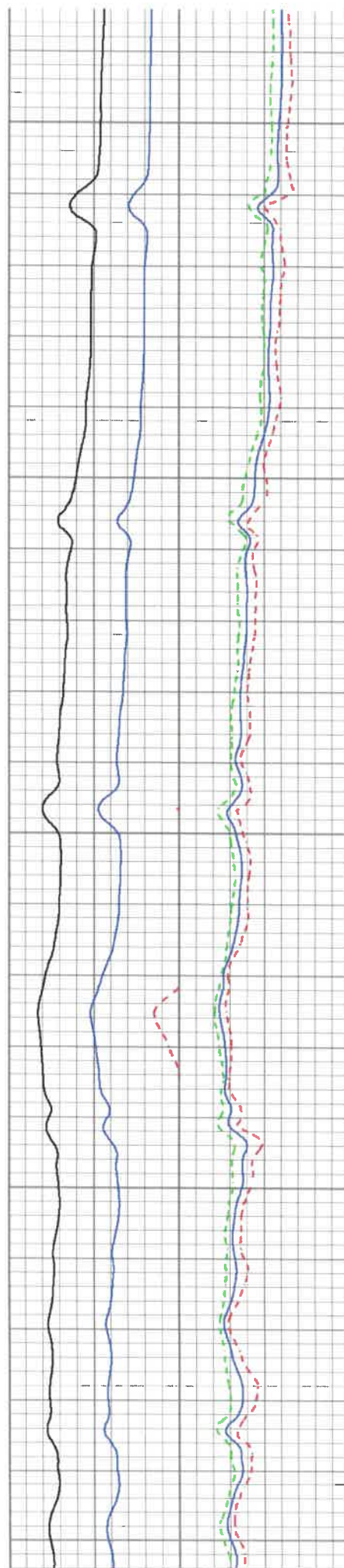
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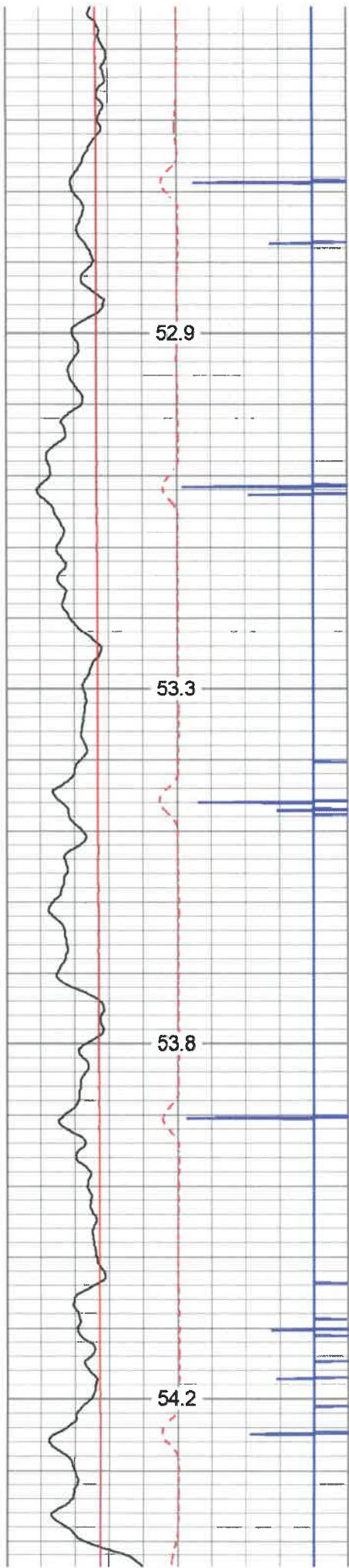
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300

350

400



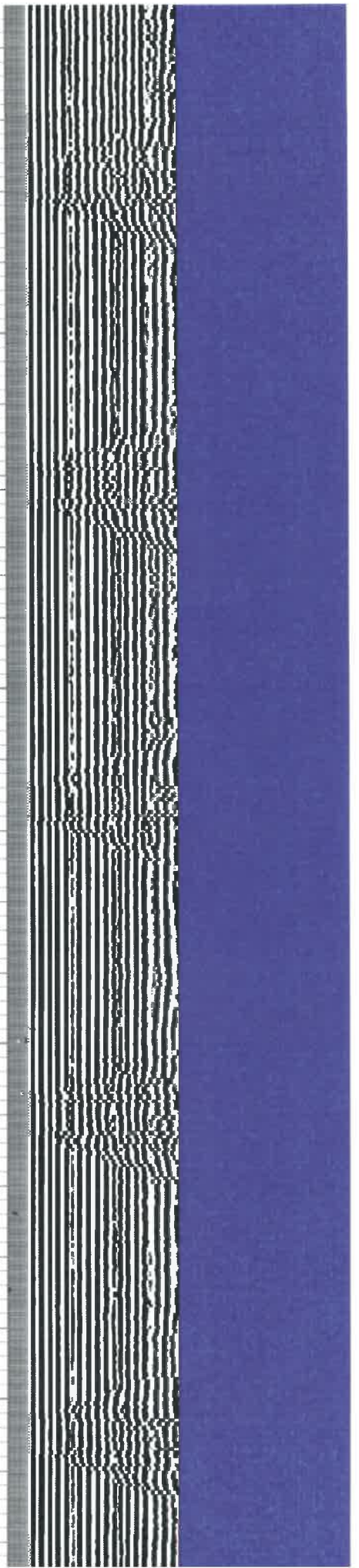
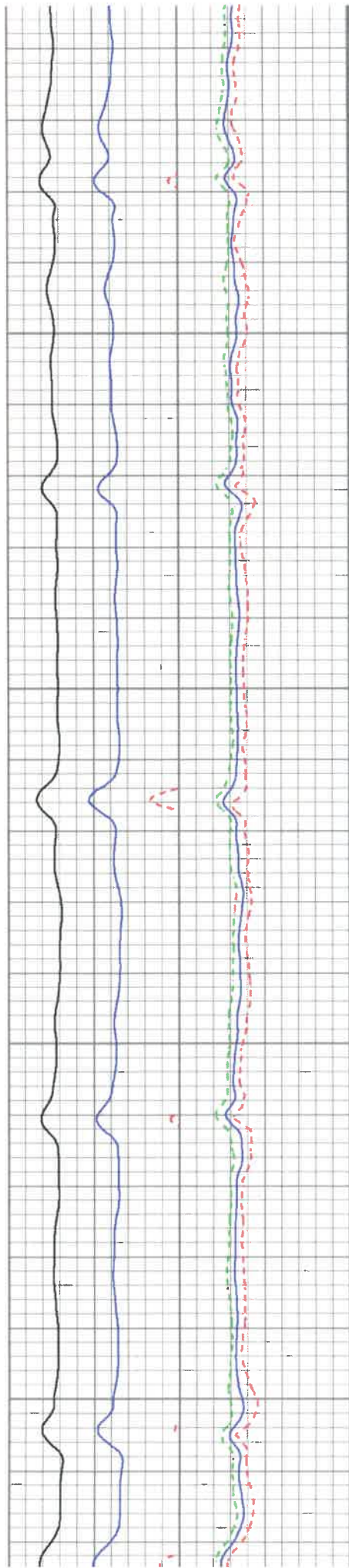


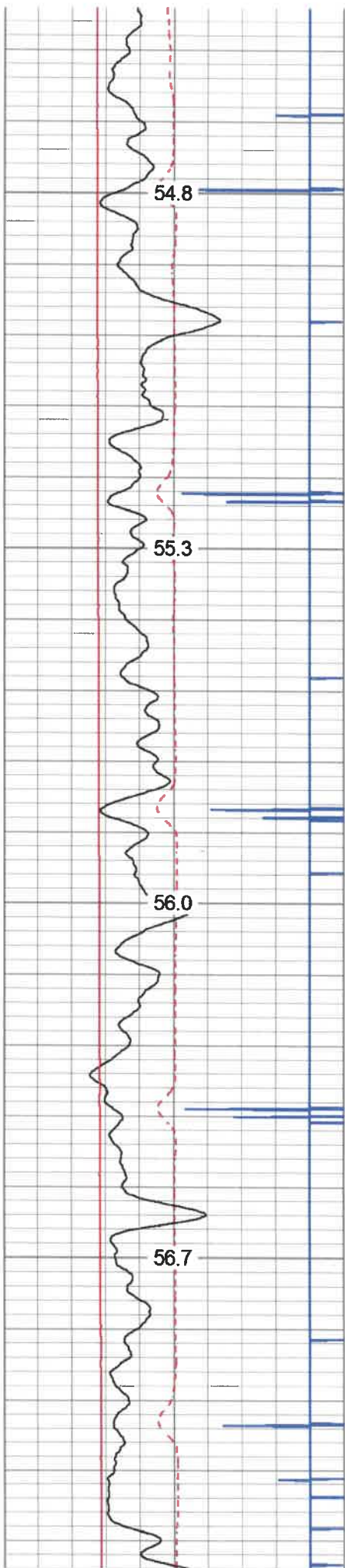
450

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550

600



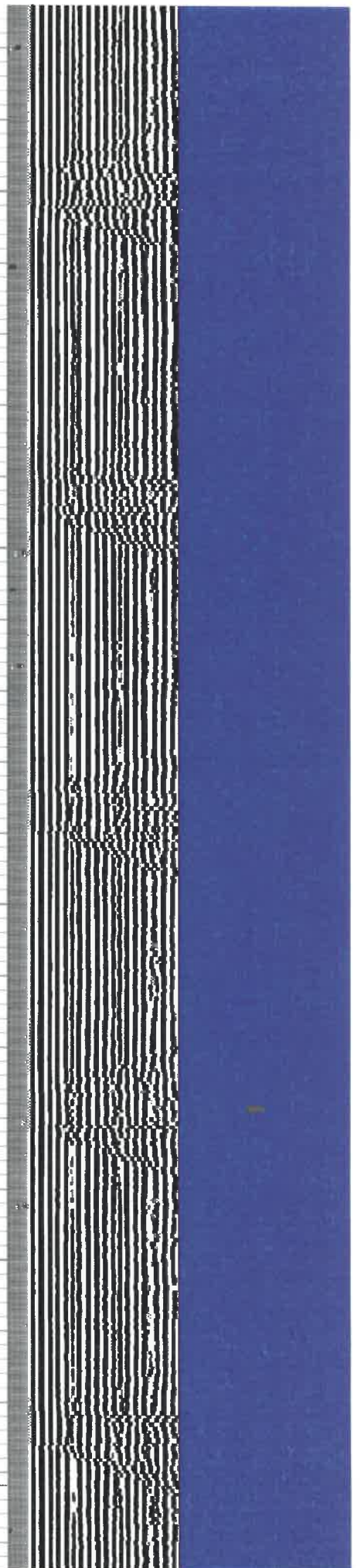
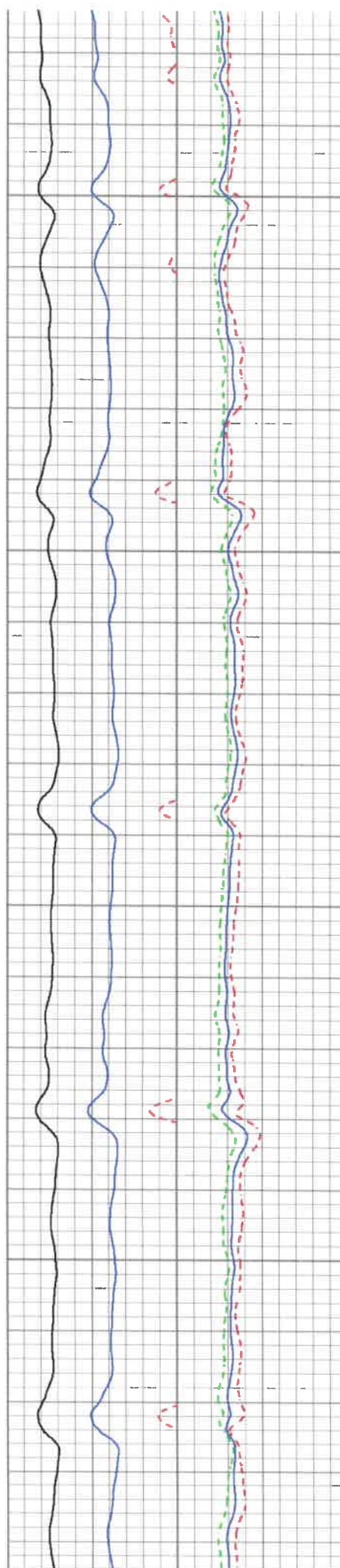


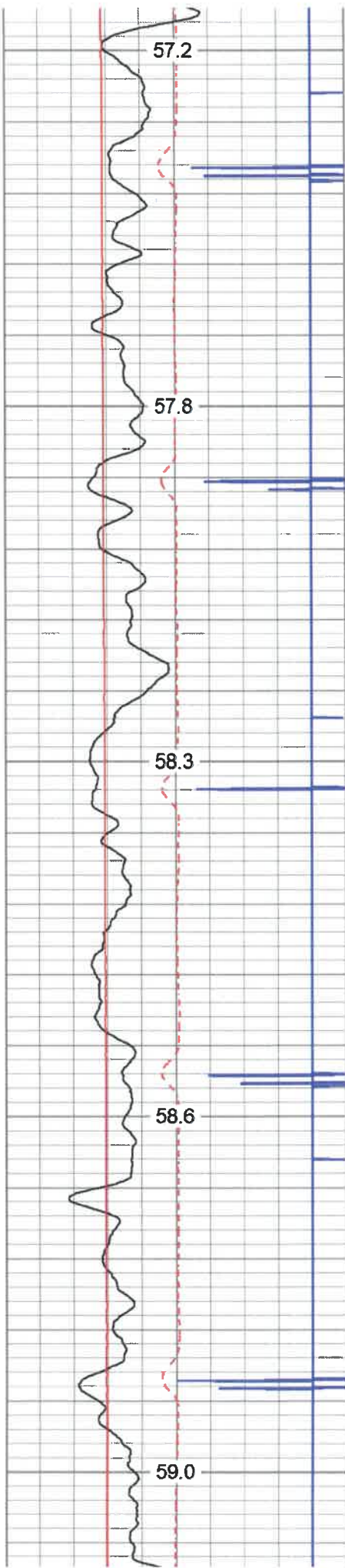
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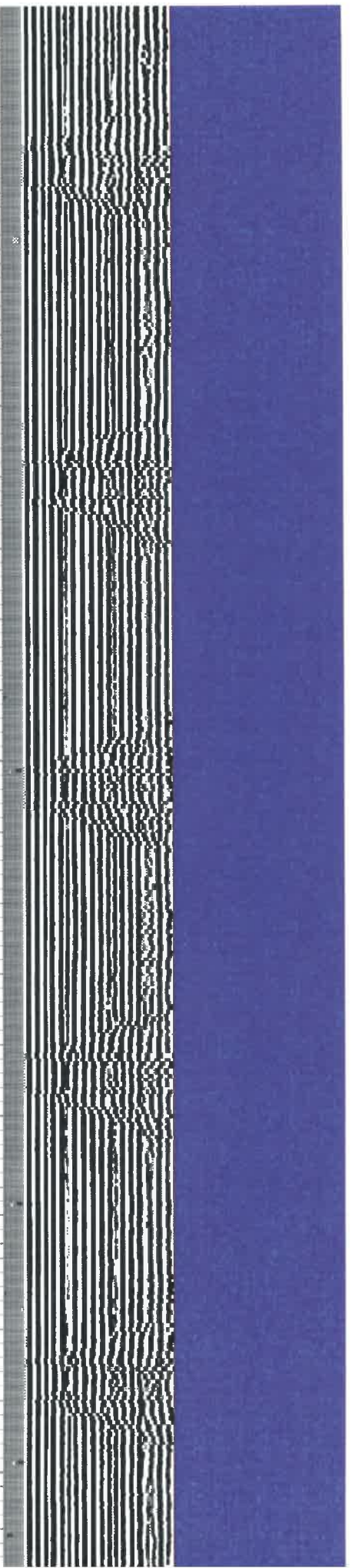
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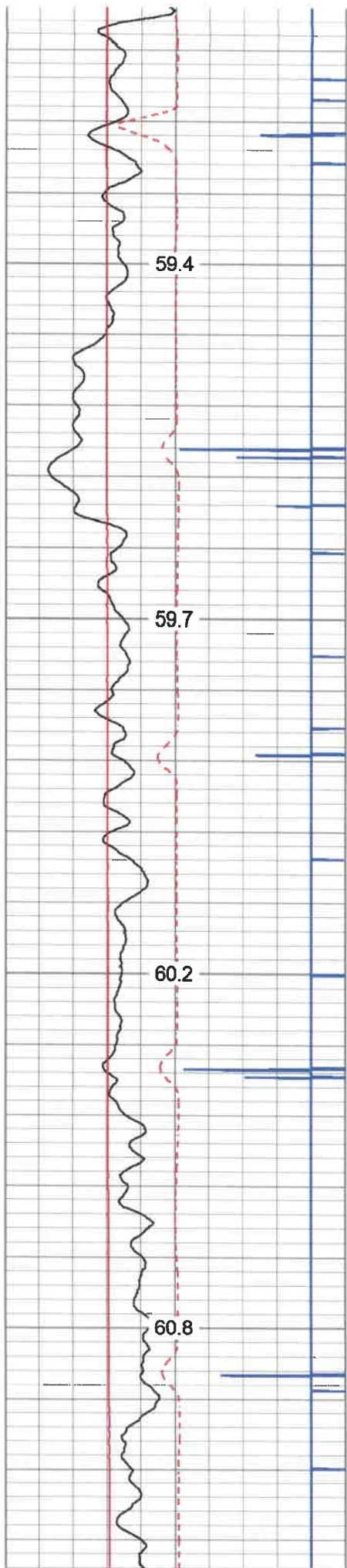
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850
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950
1000
1050



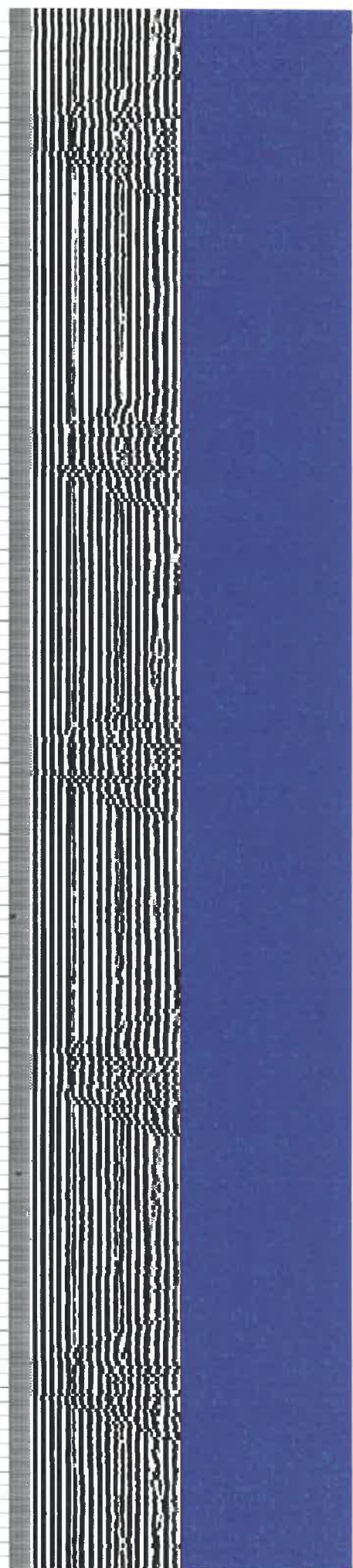
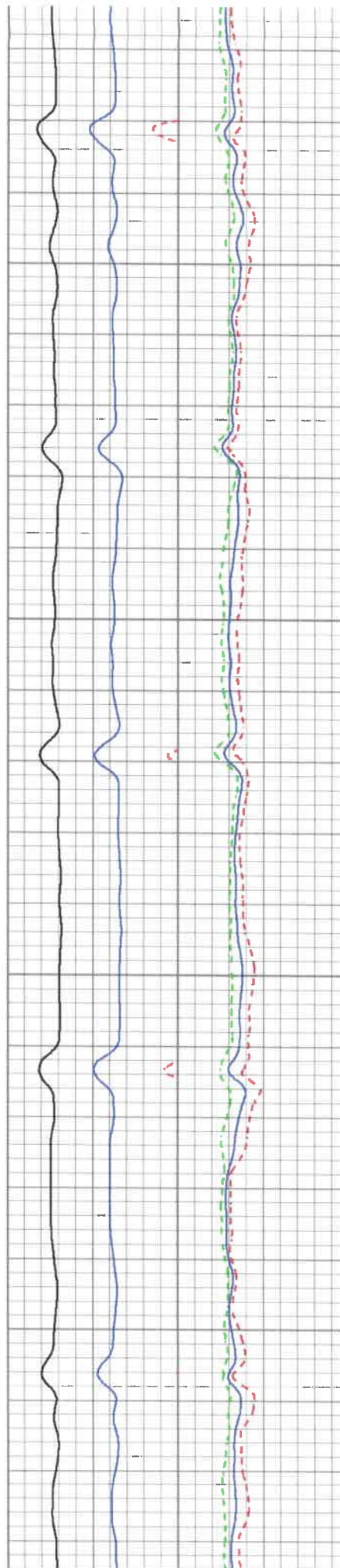


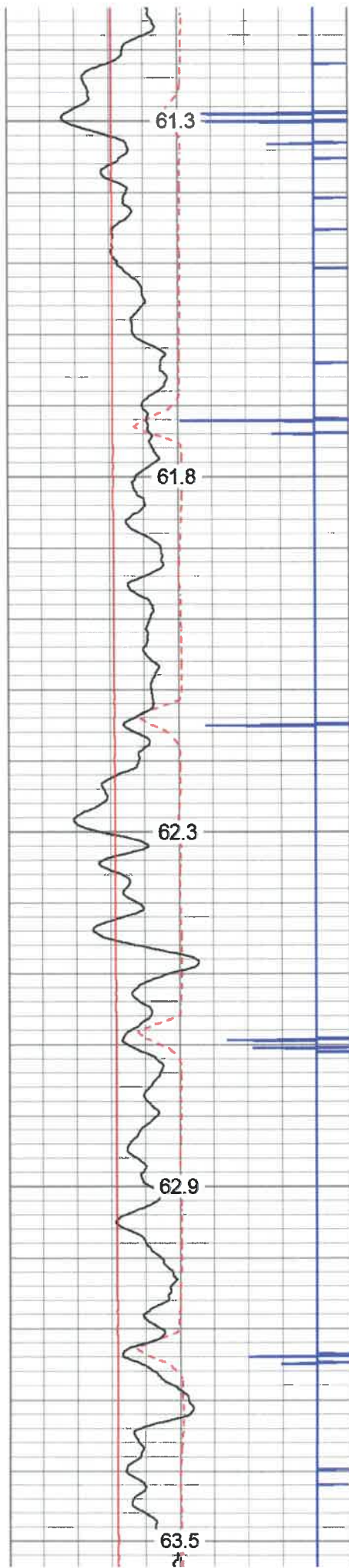
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1200

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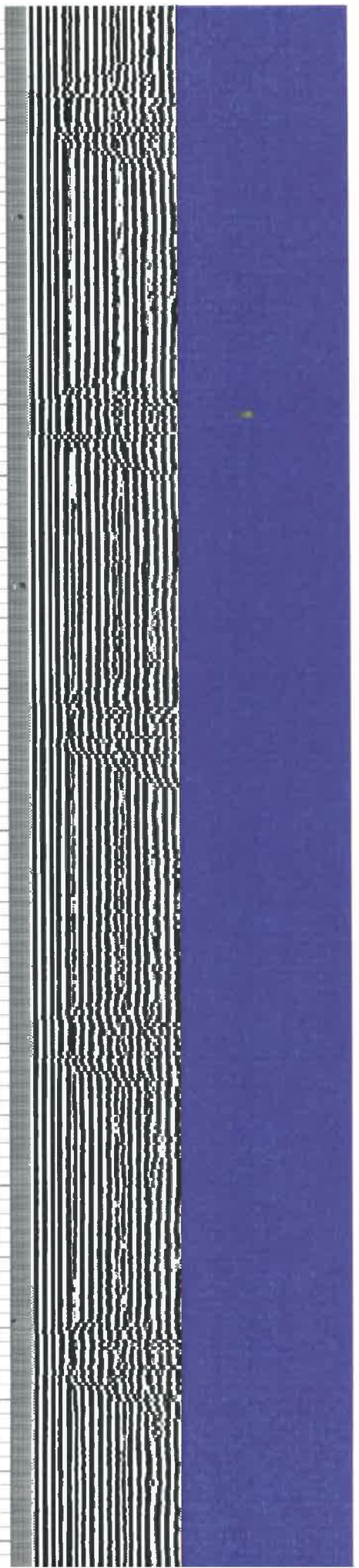
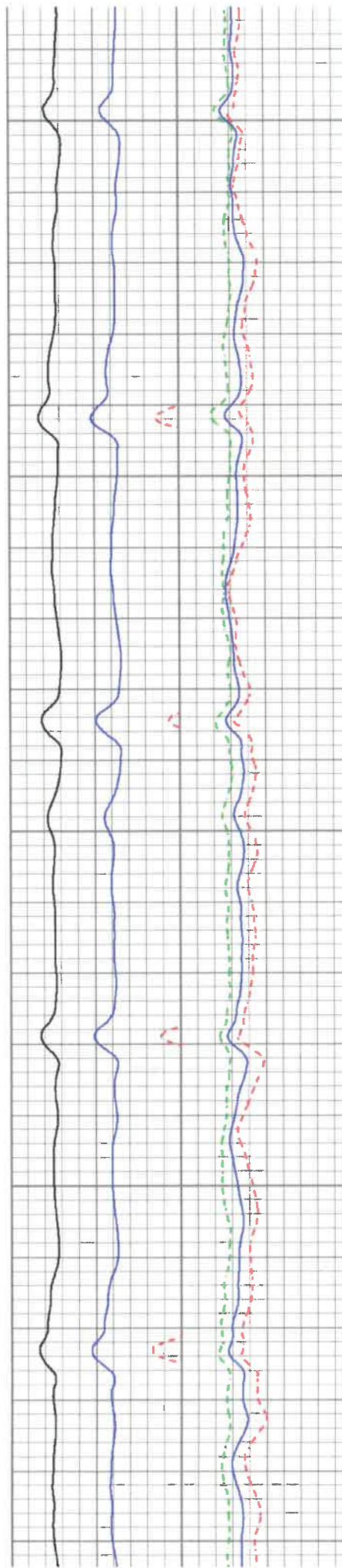
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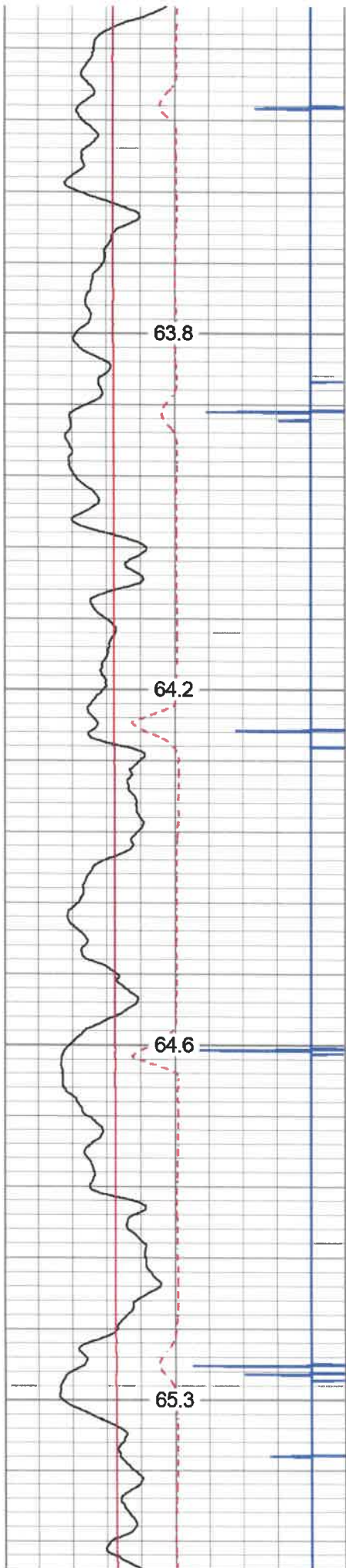
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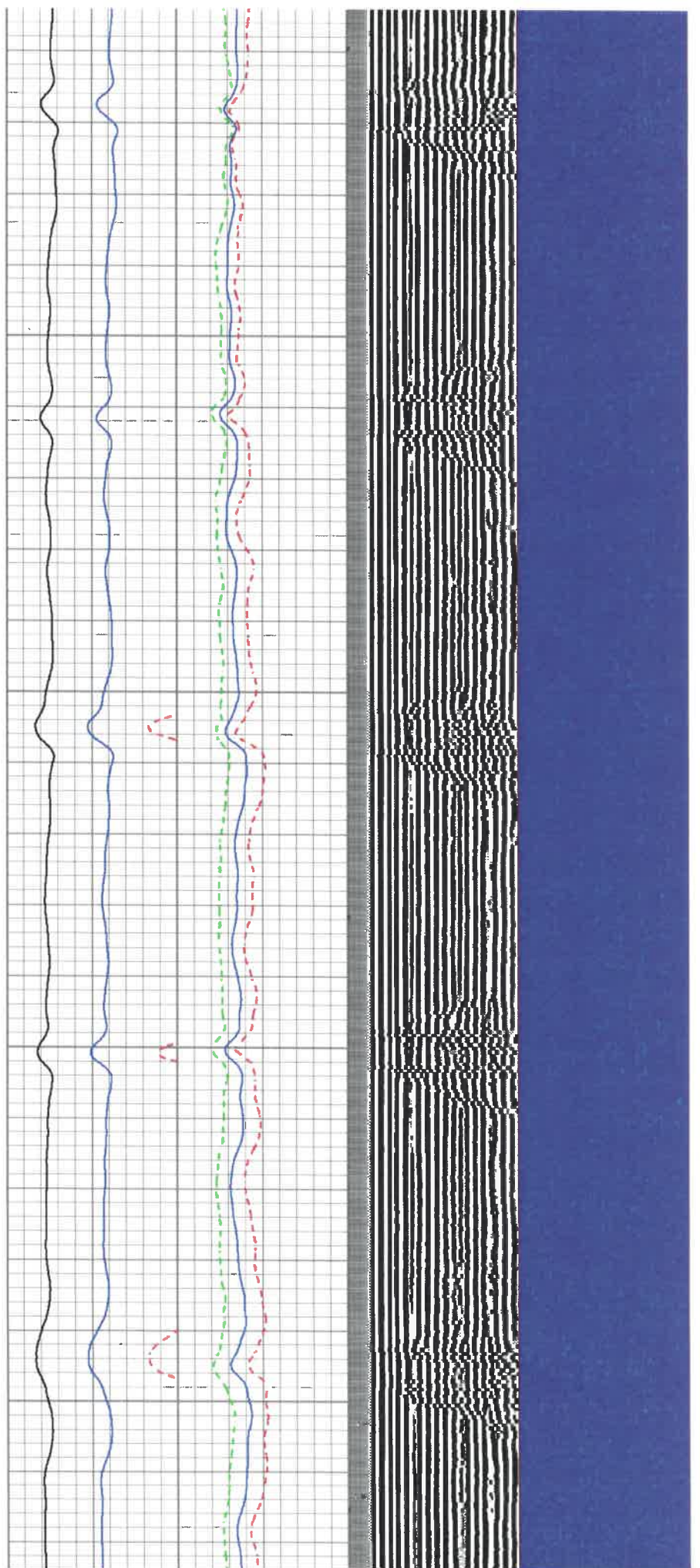


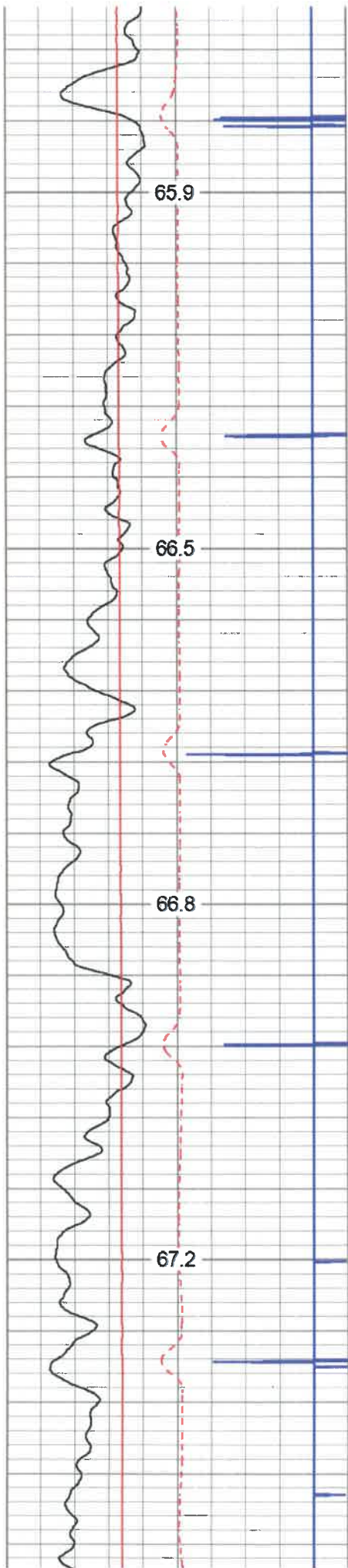
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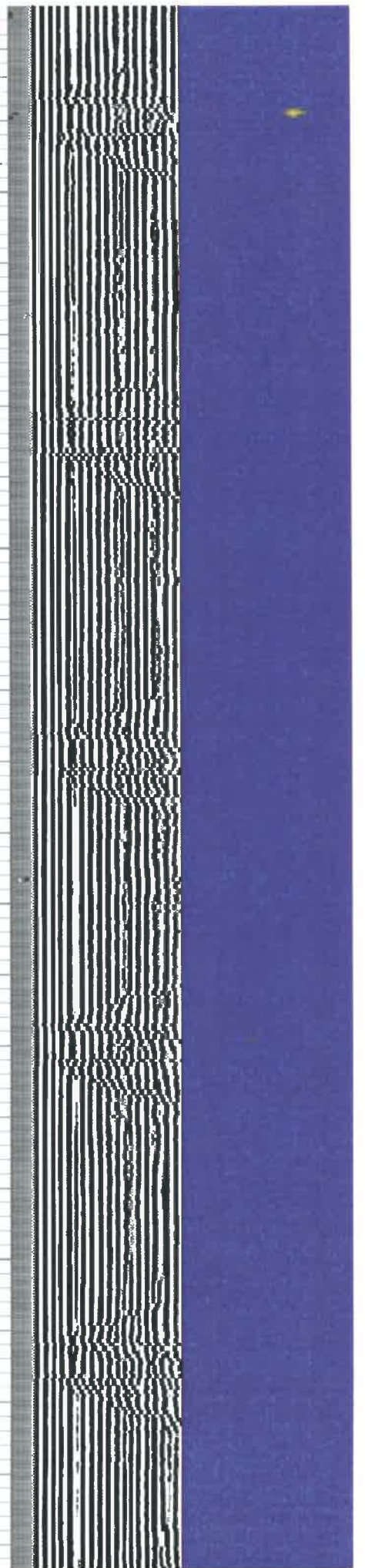
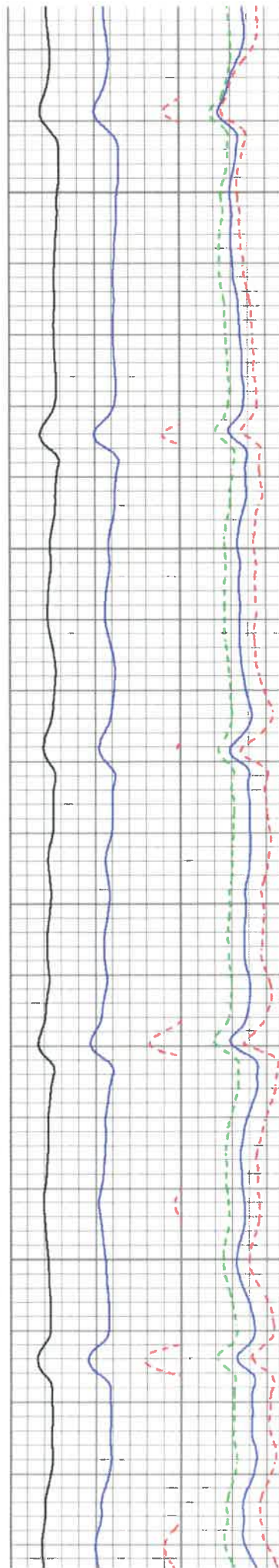


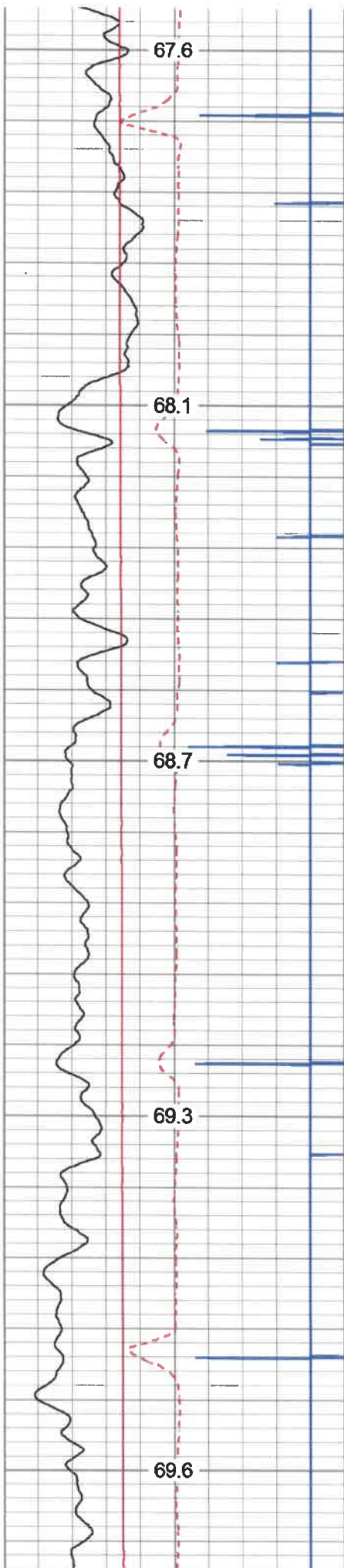
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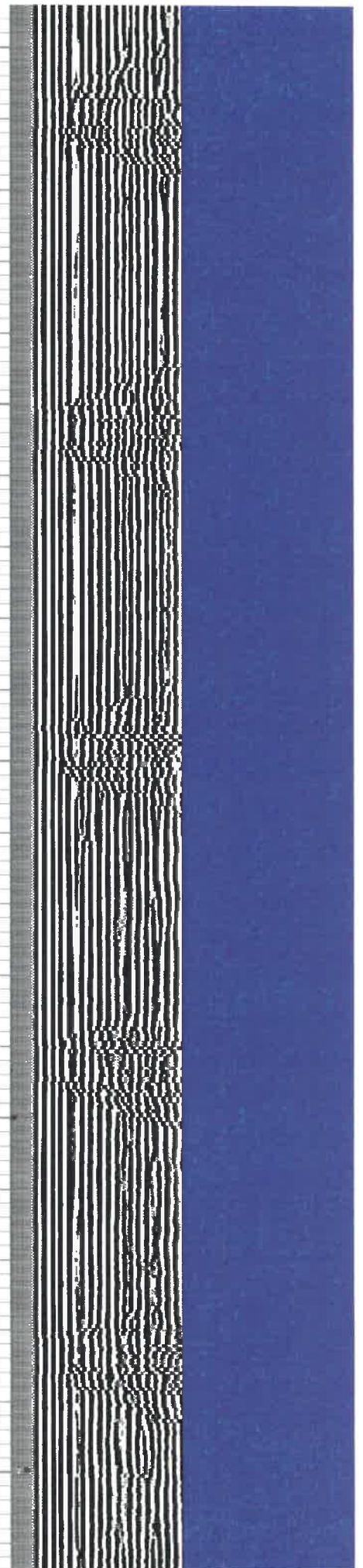
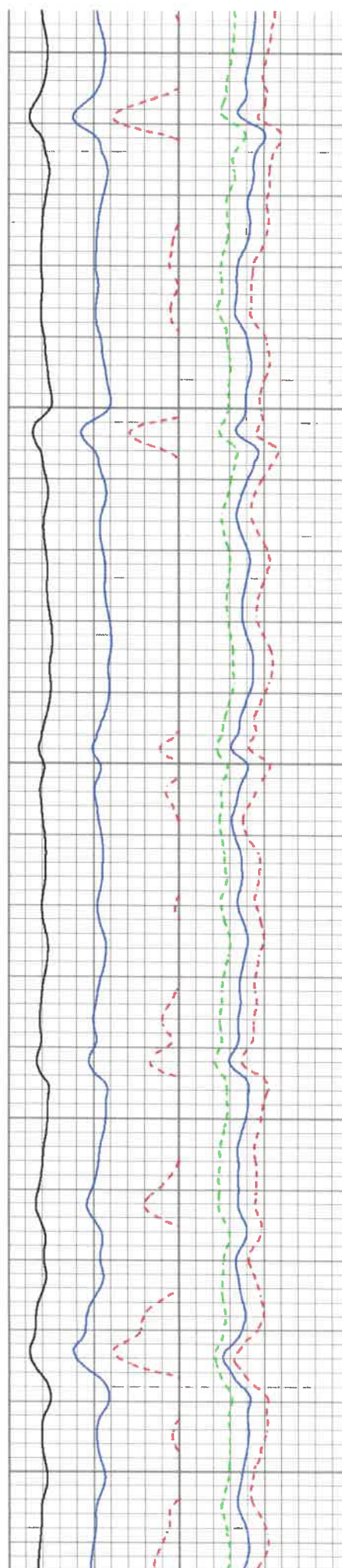
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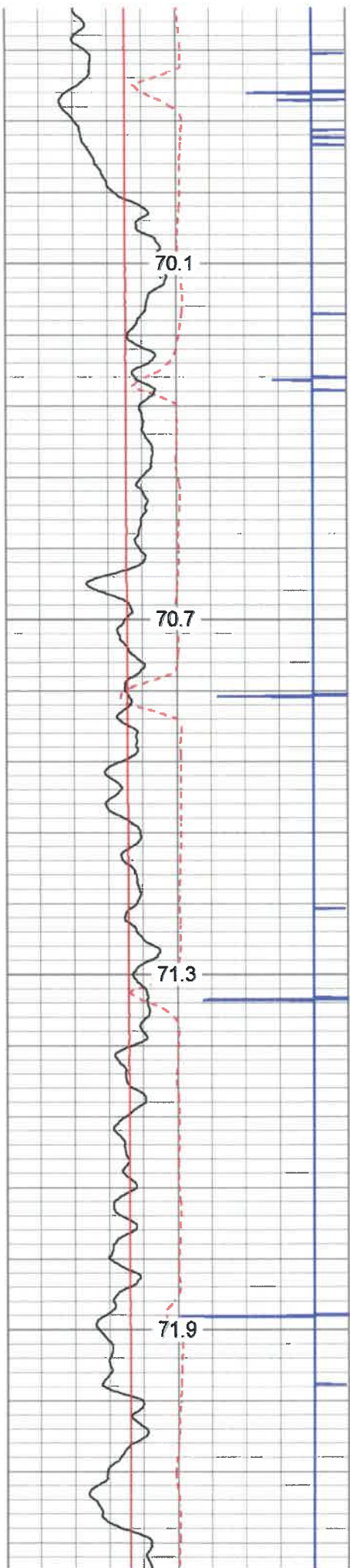
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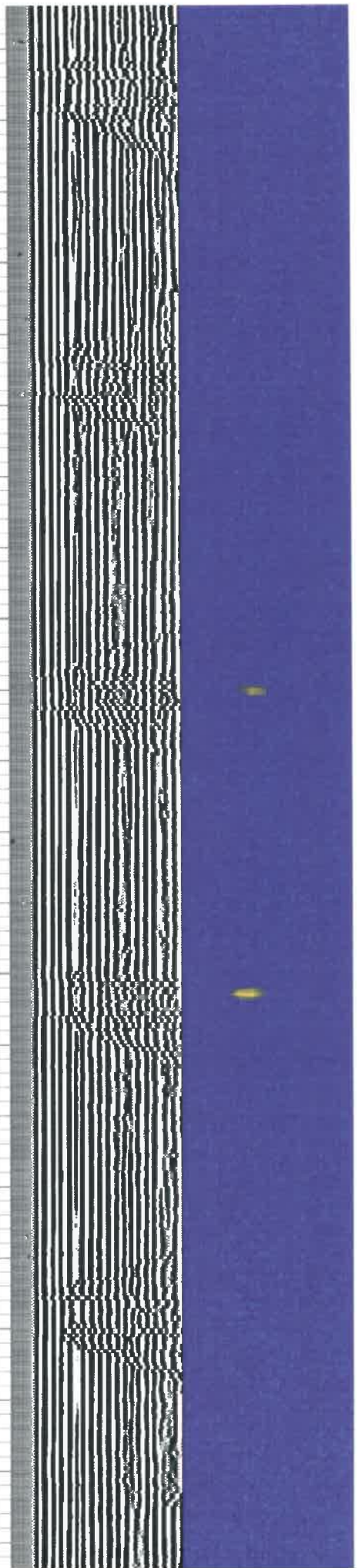
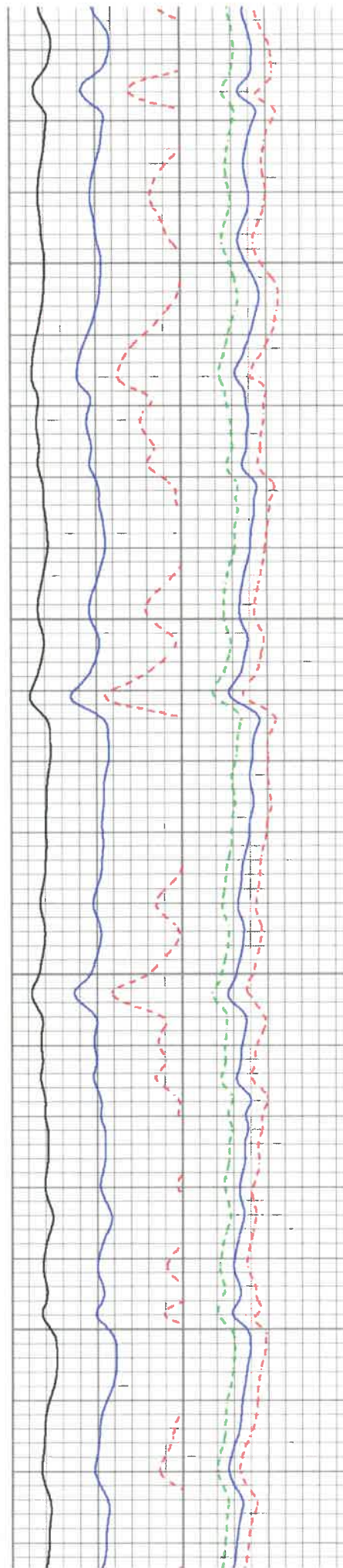


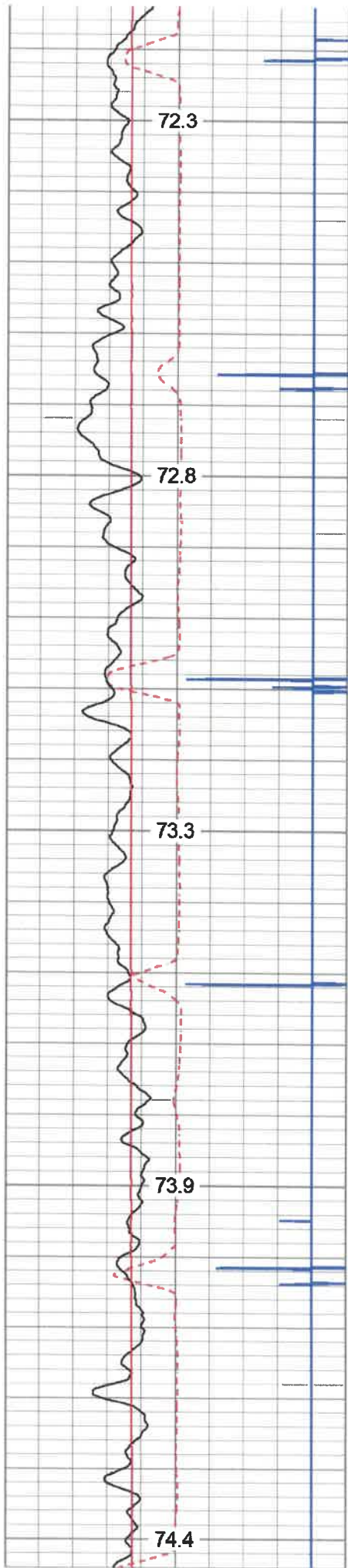
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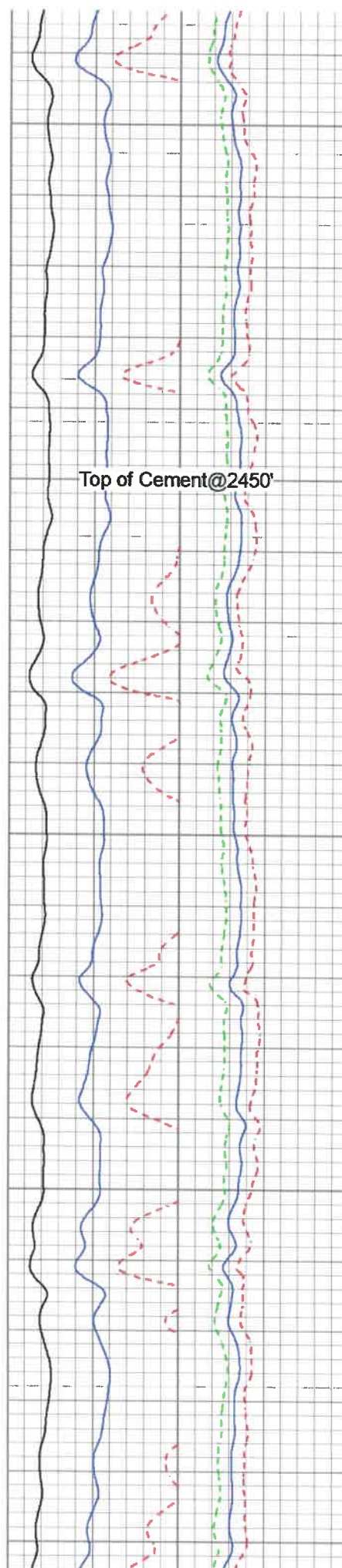
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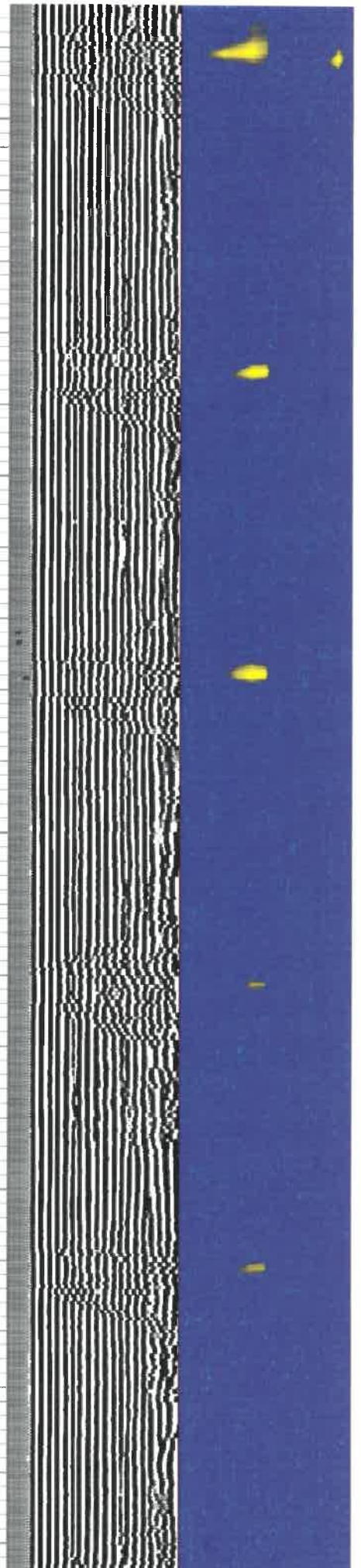
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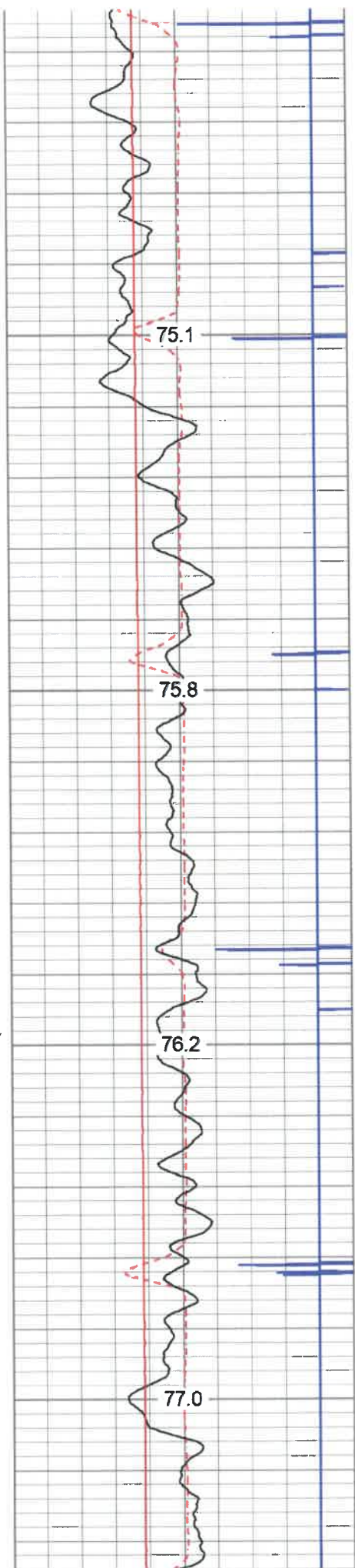
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2600



Top of Cement@2450'



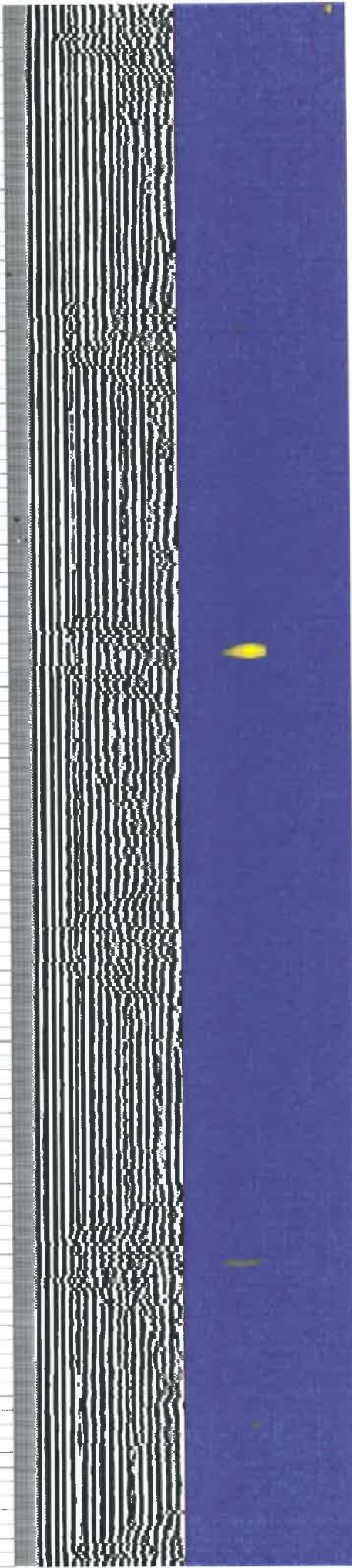
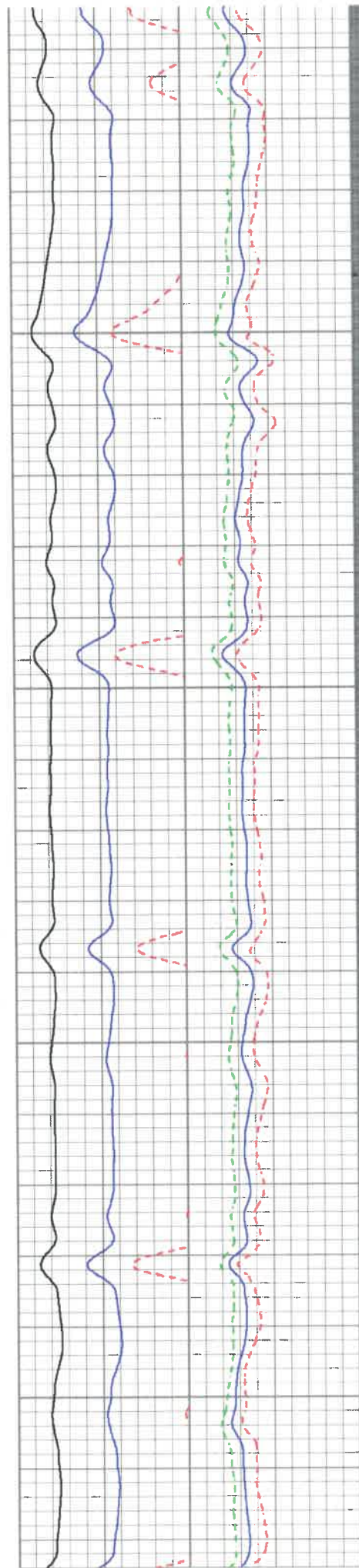


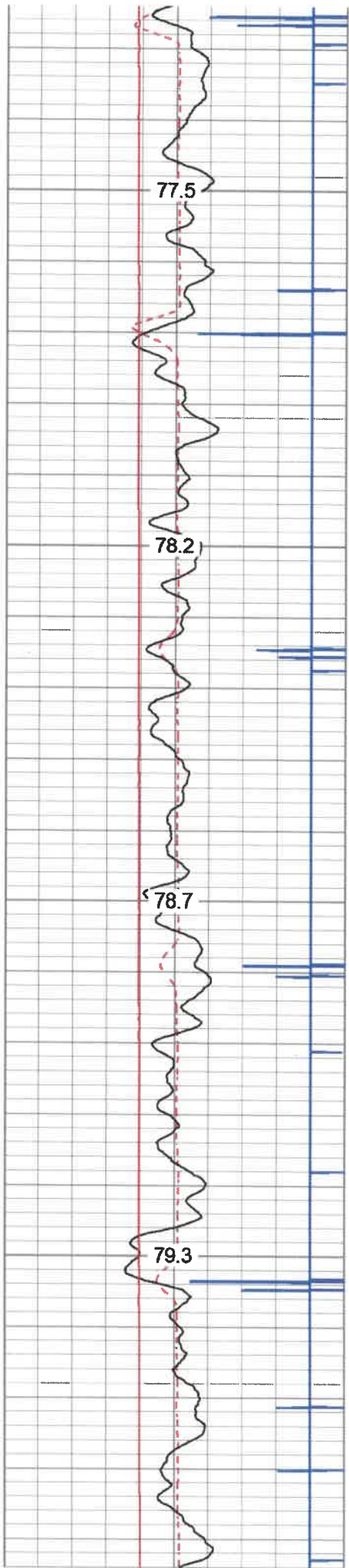
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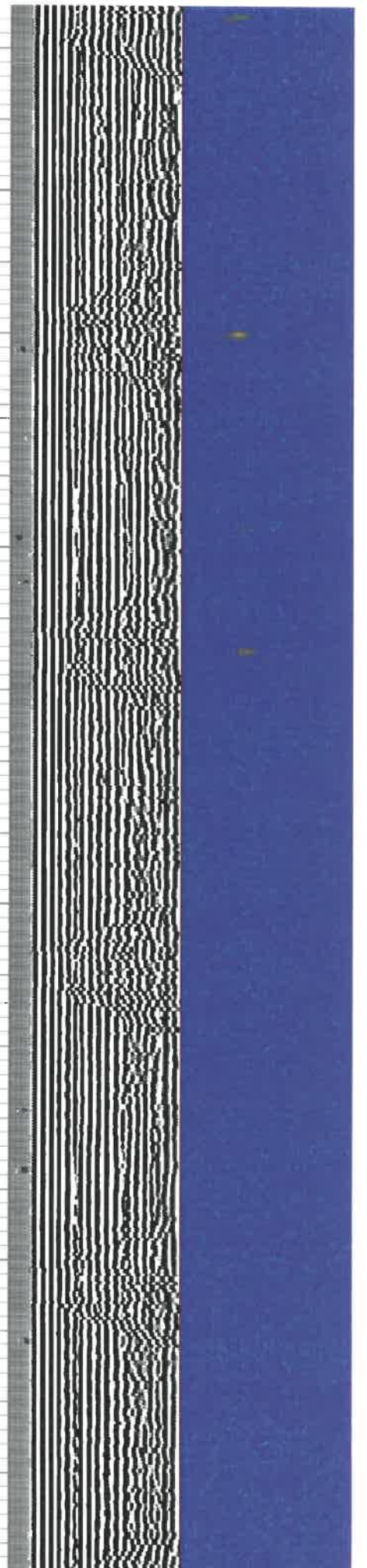
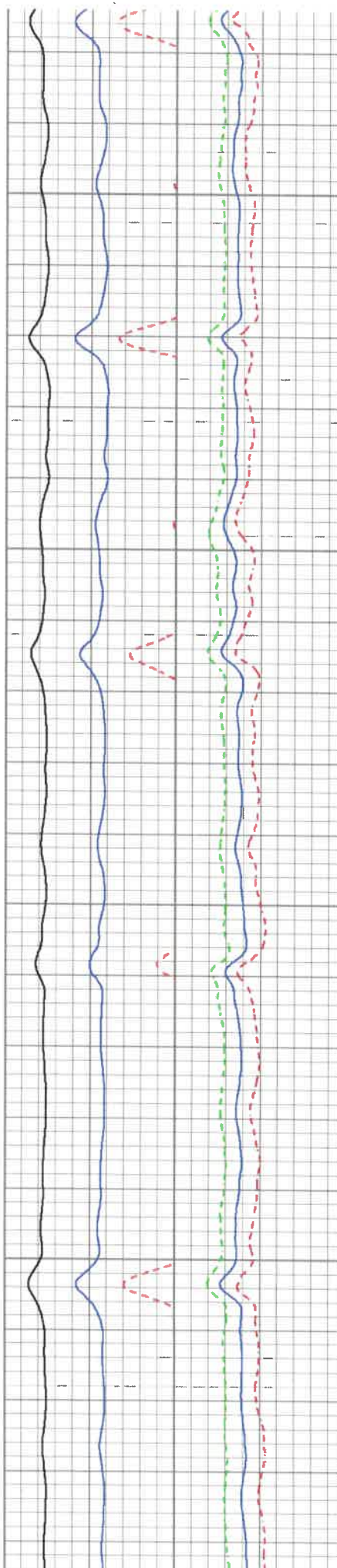


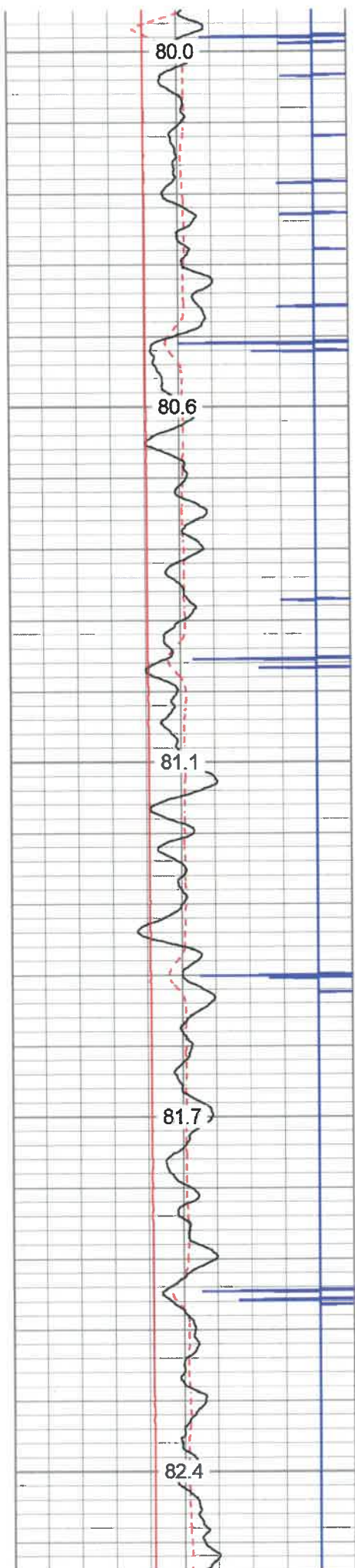
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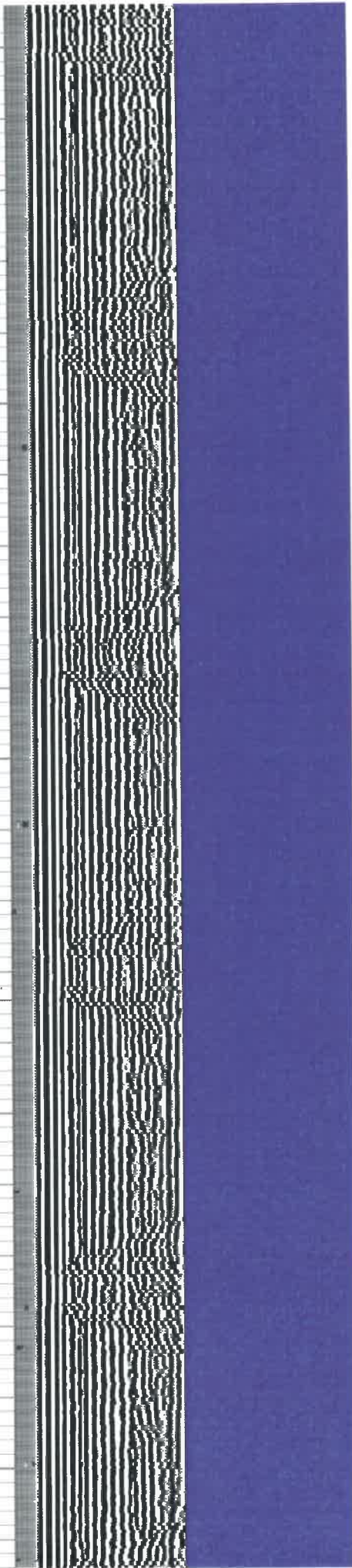
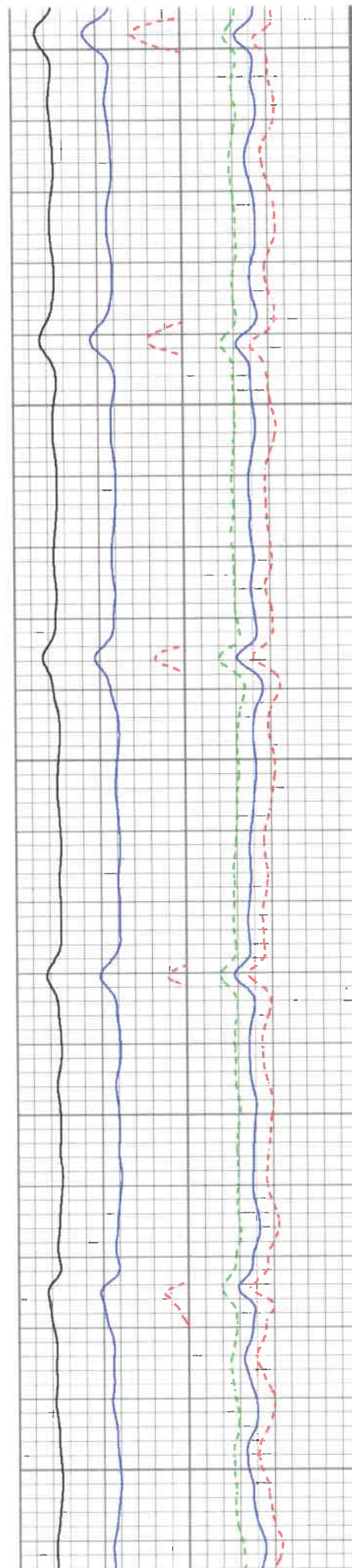
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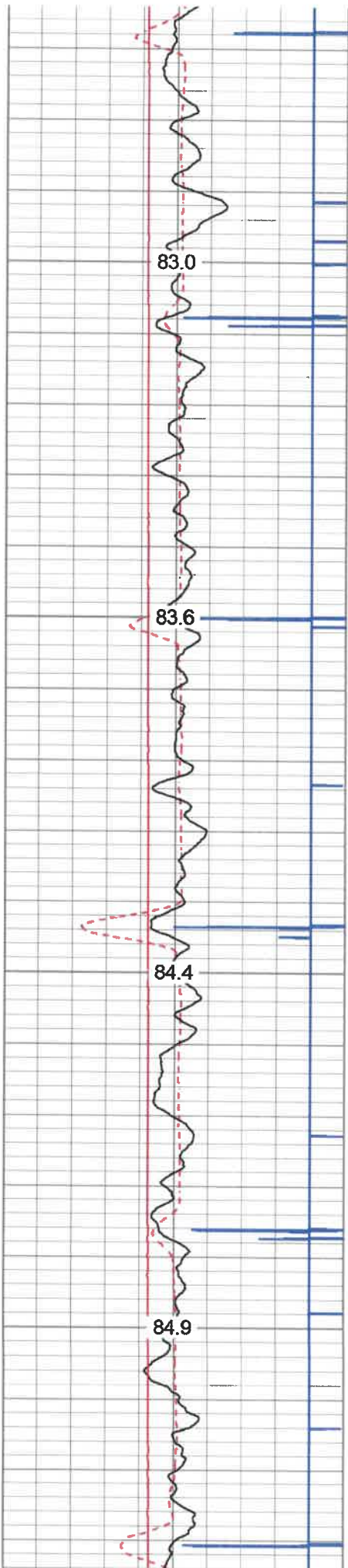
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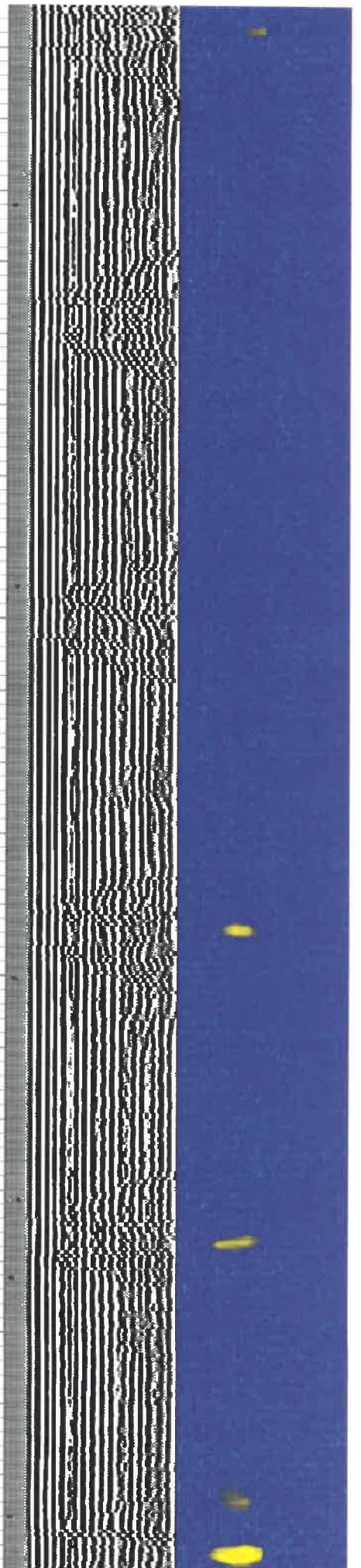
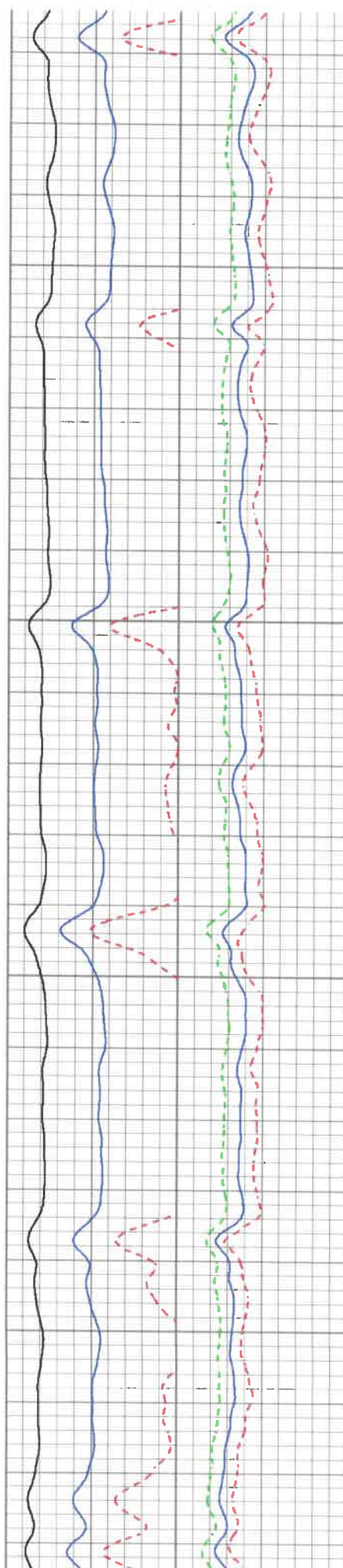


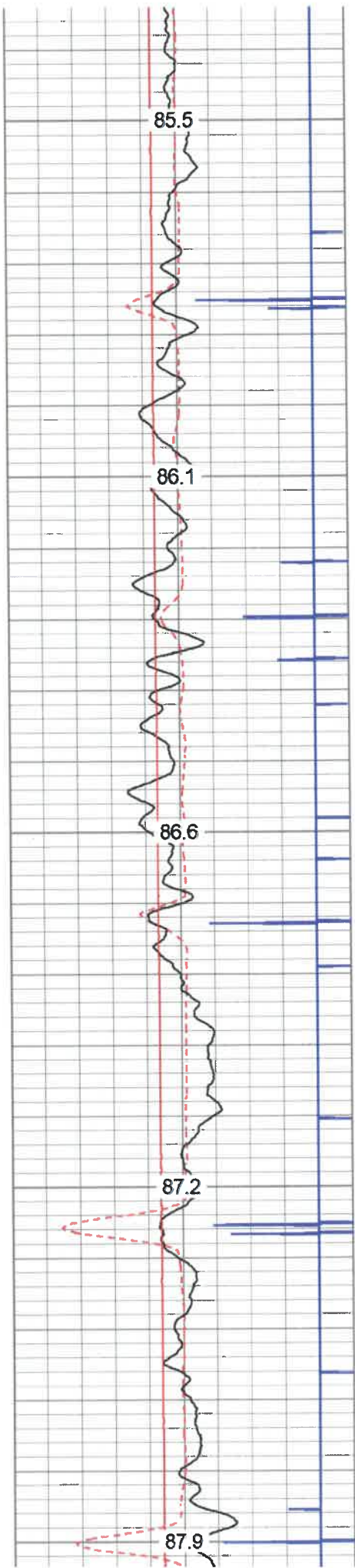
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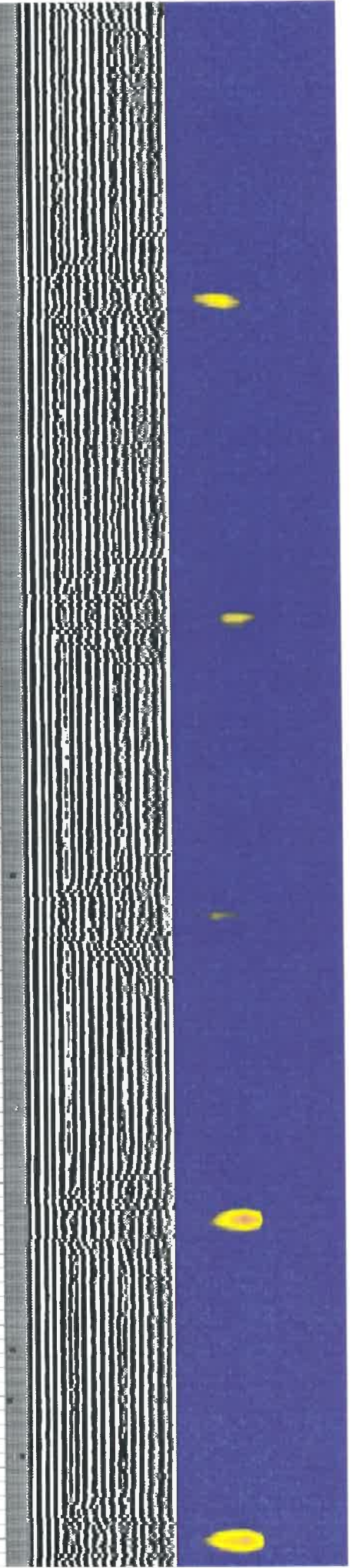
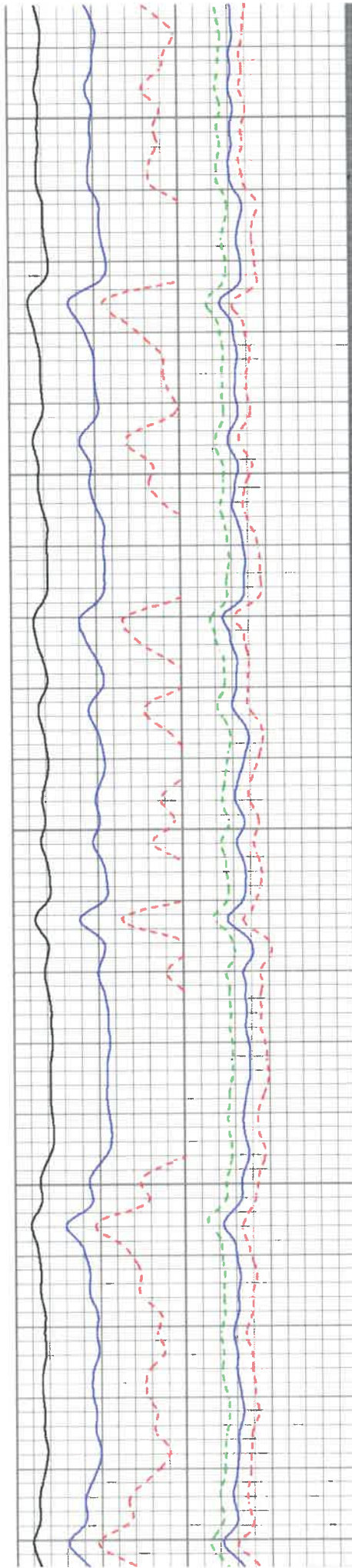
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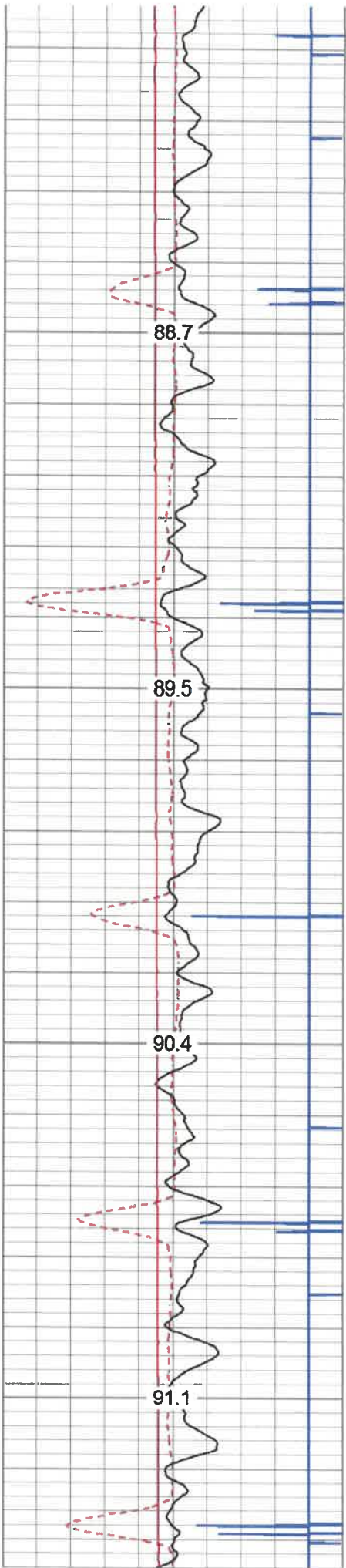
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3500
3550
3600
3650
3700



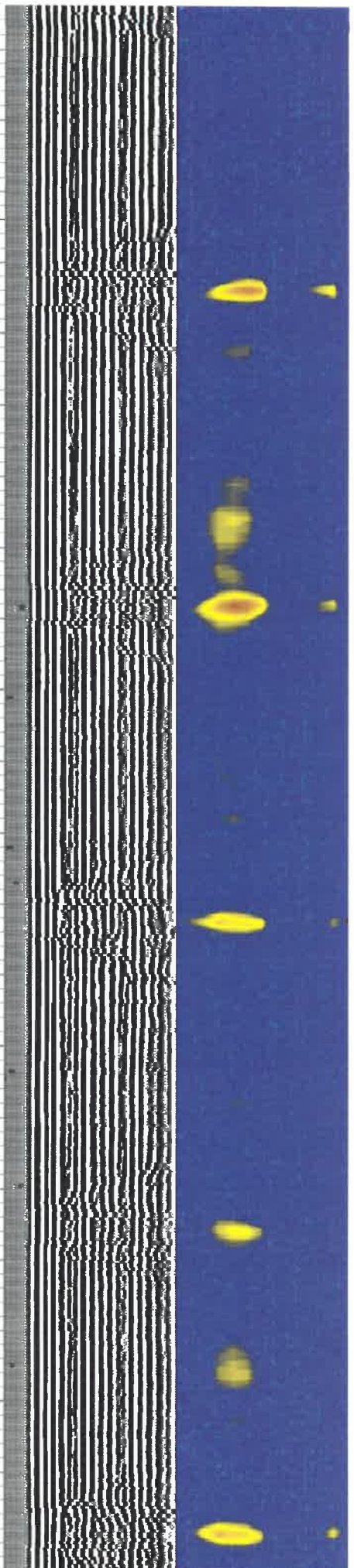
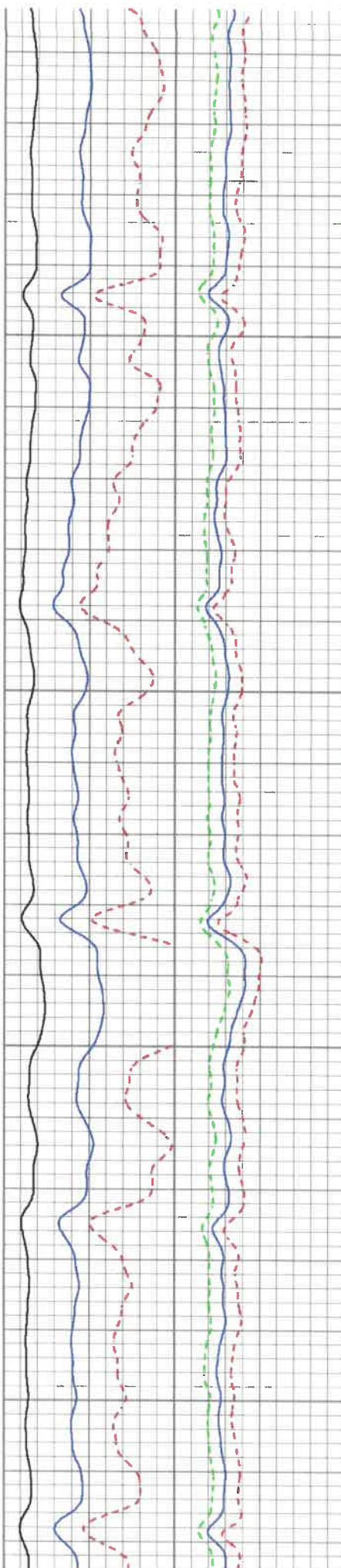


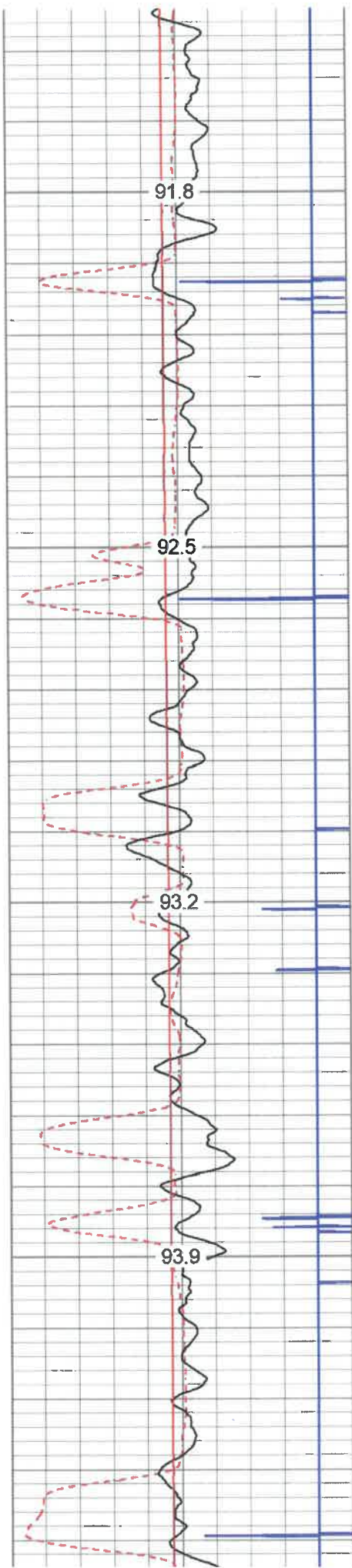
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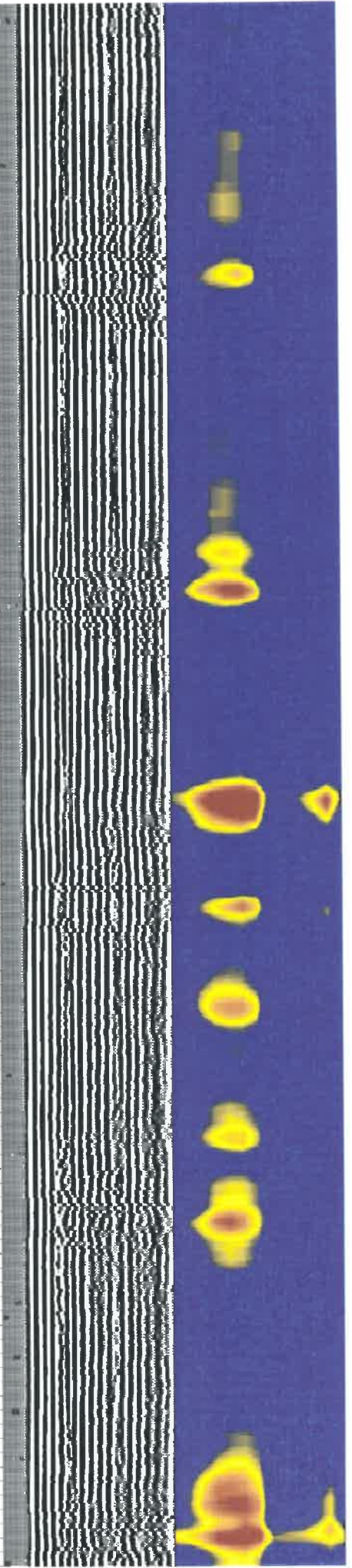
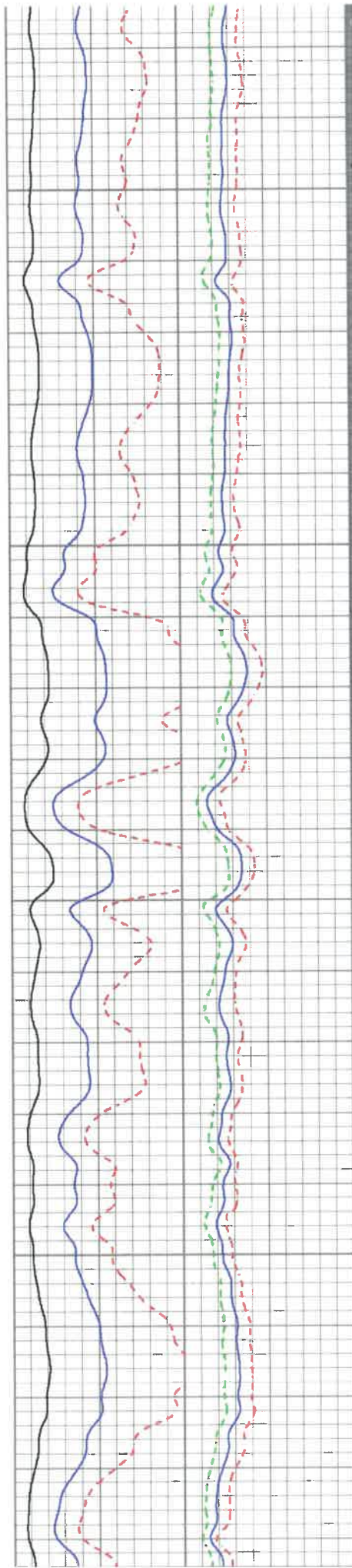
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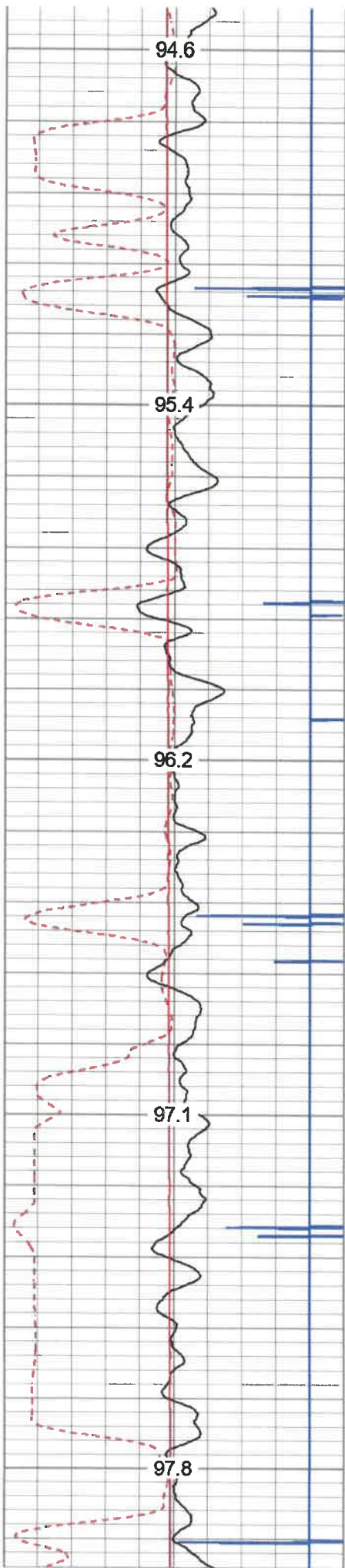
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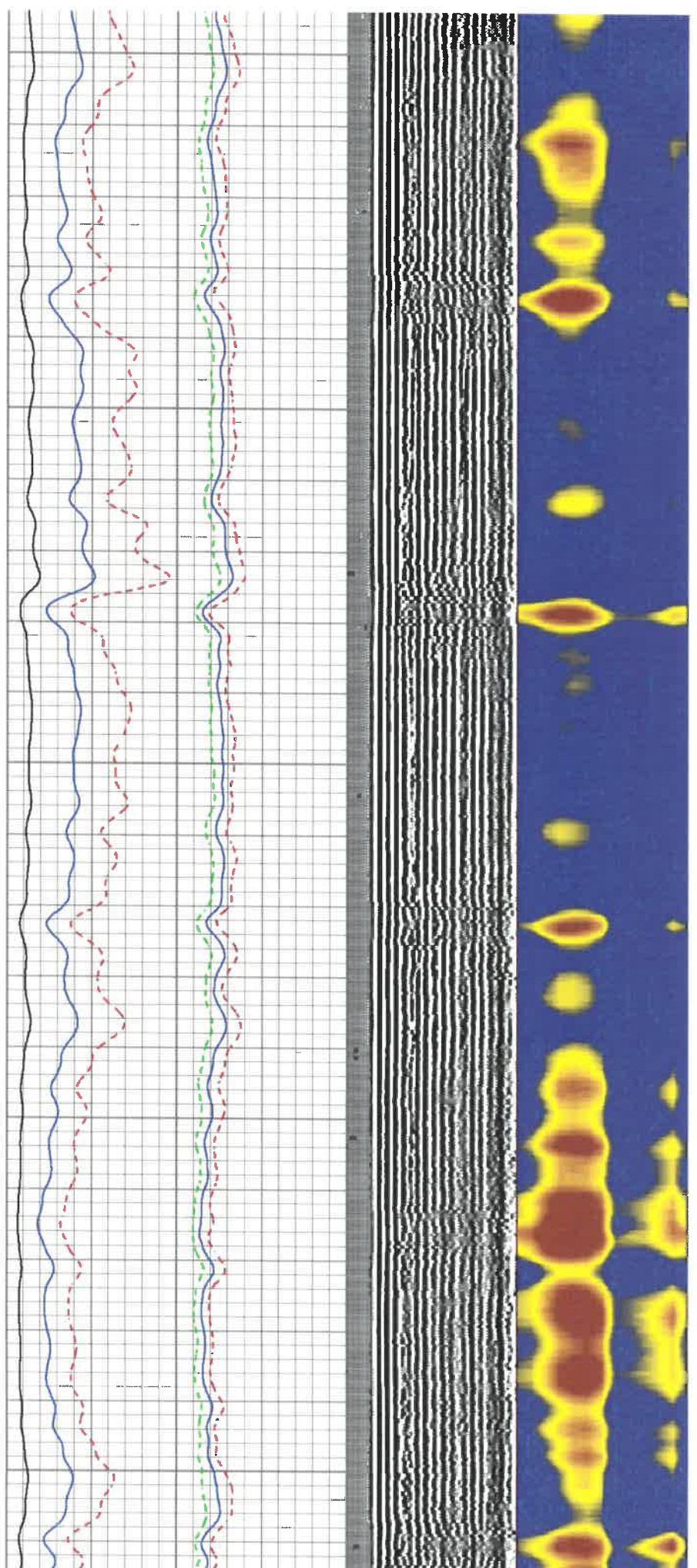


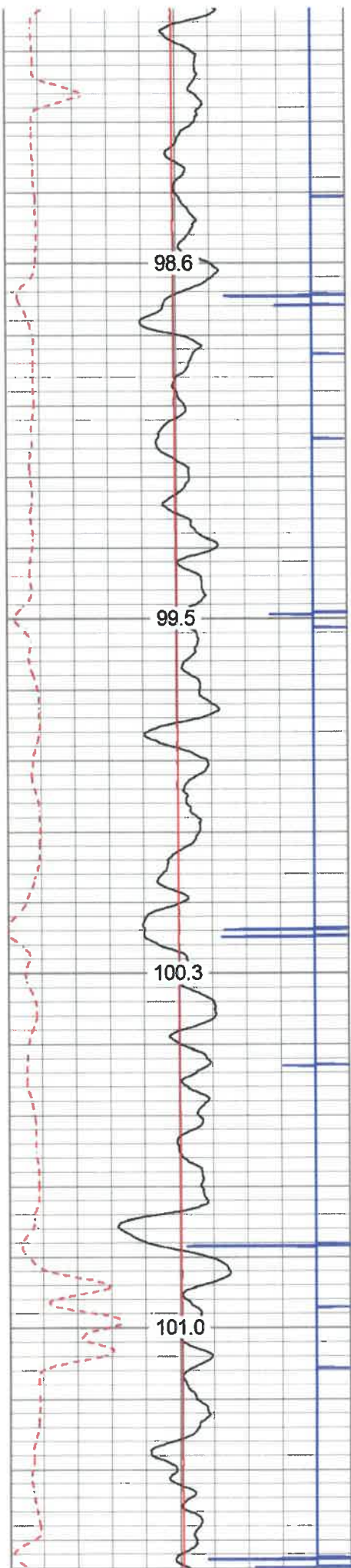
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4150
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4300
4350



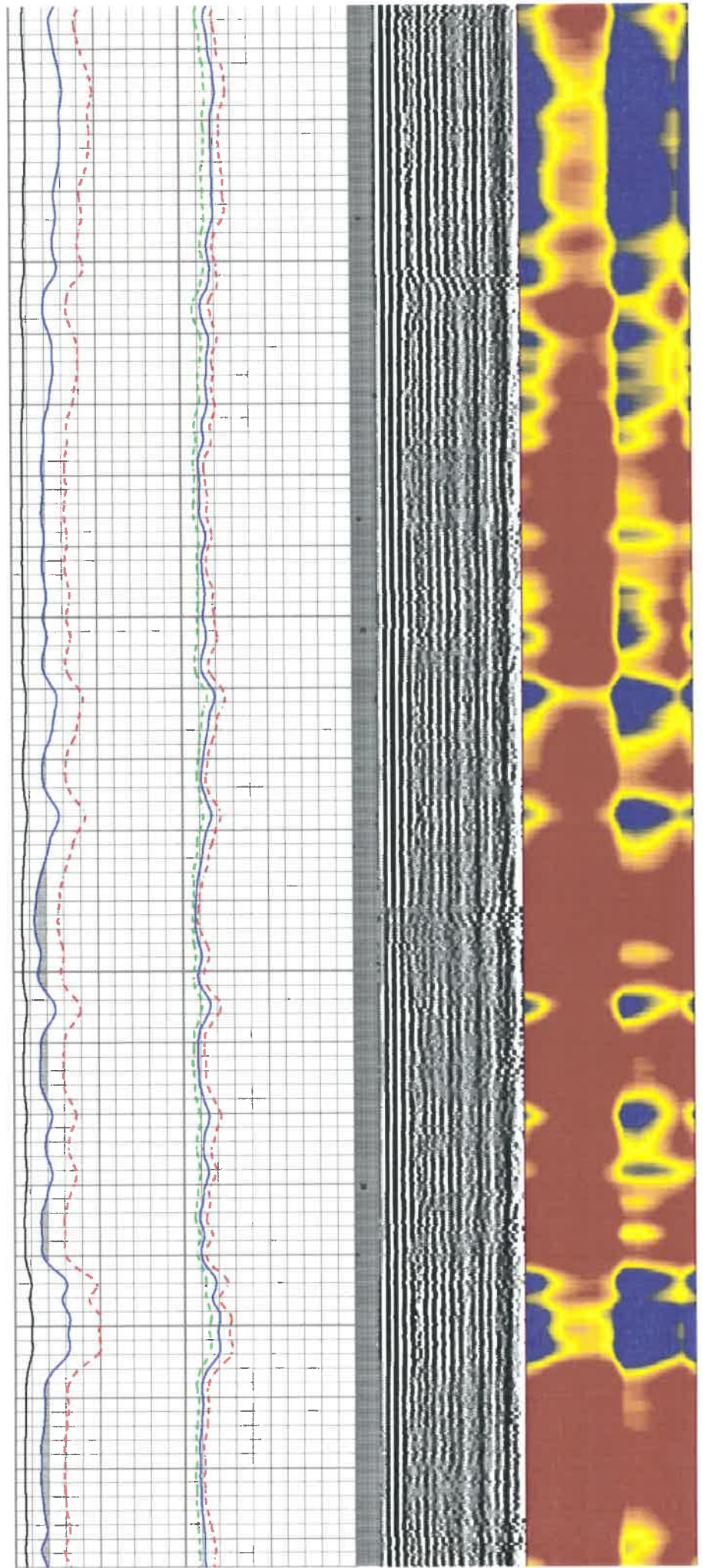


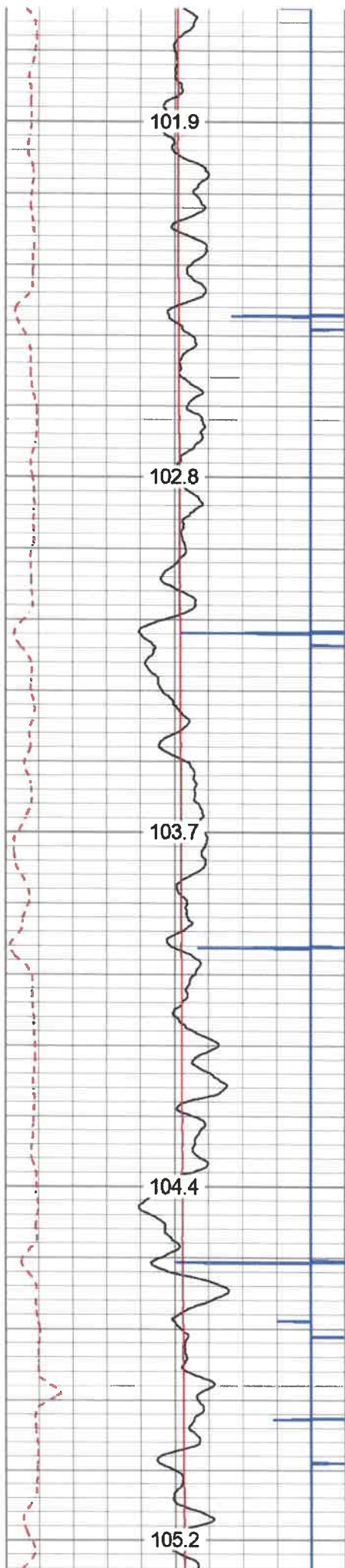
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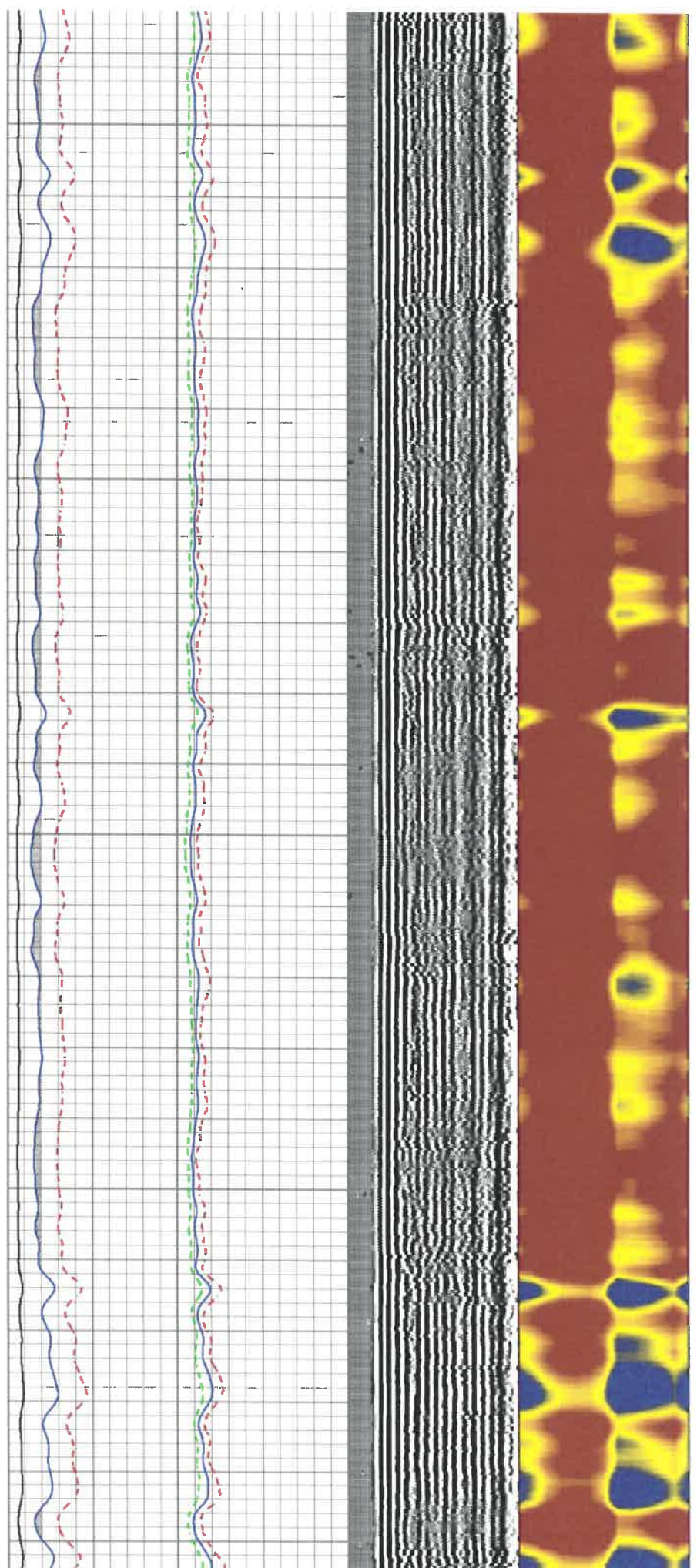
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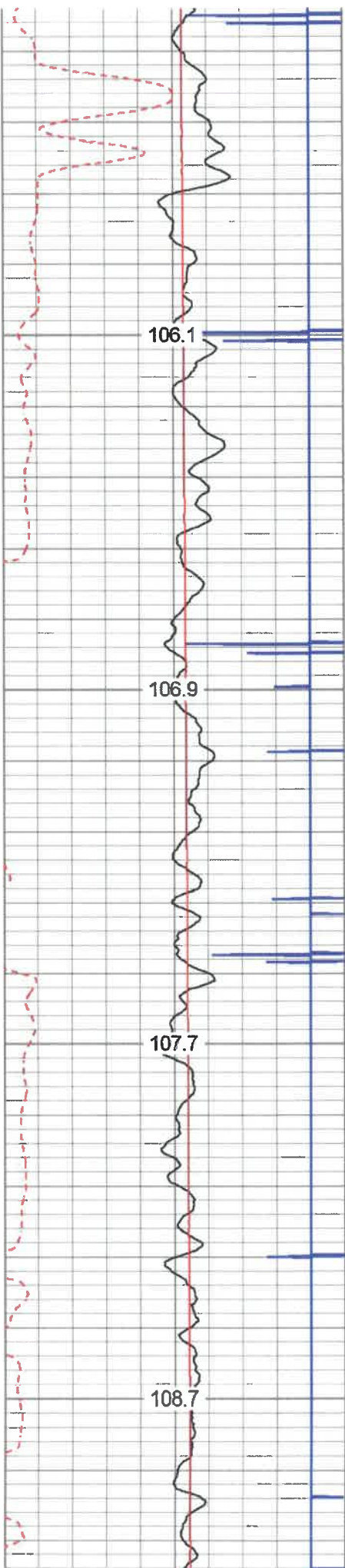
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4700
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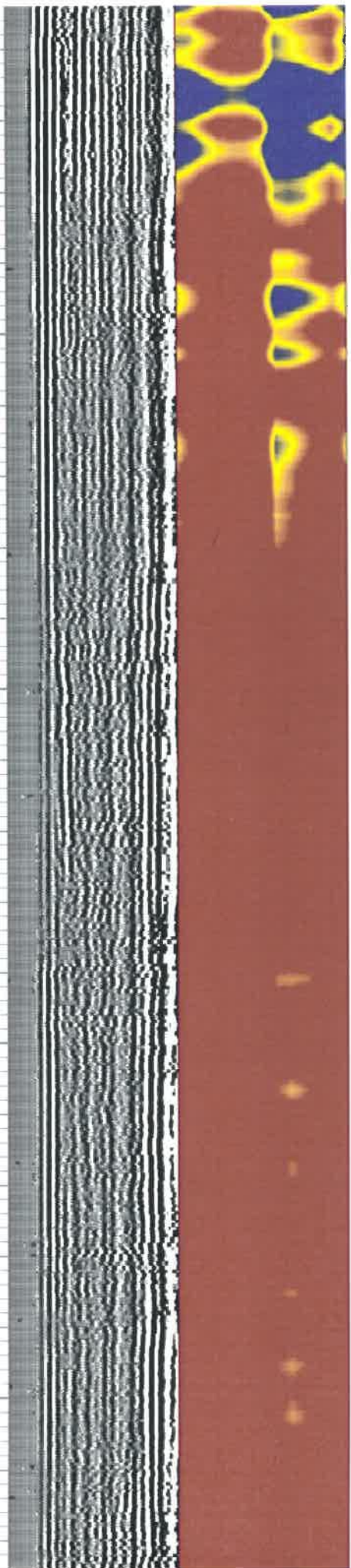
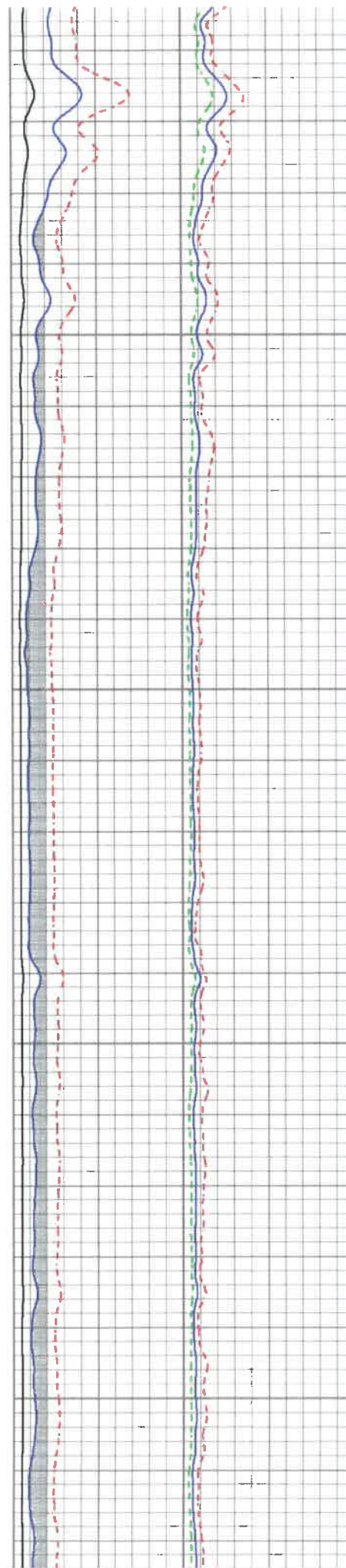


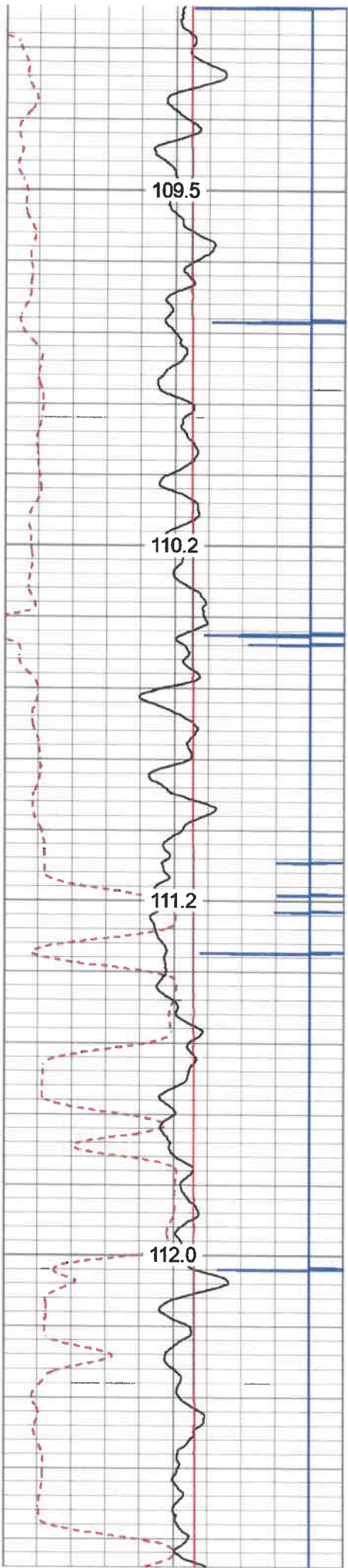
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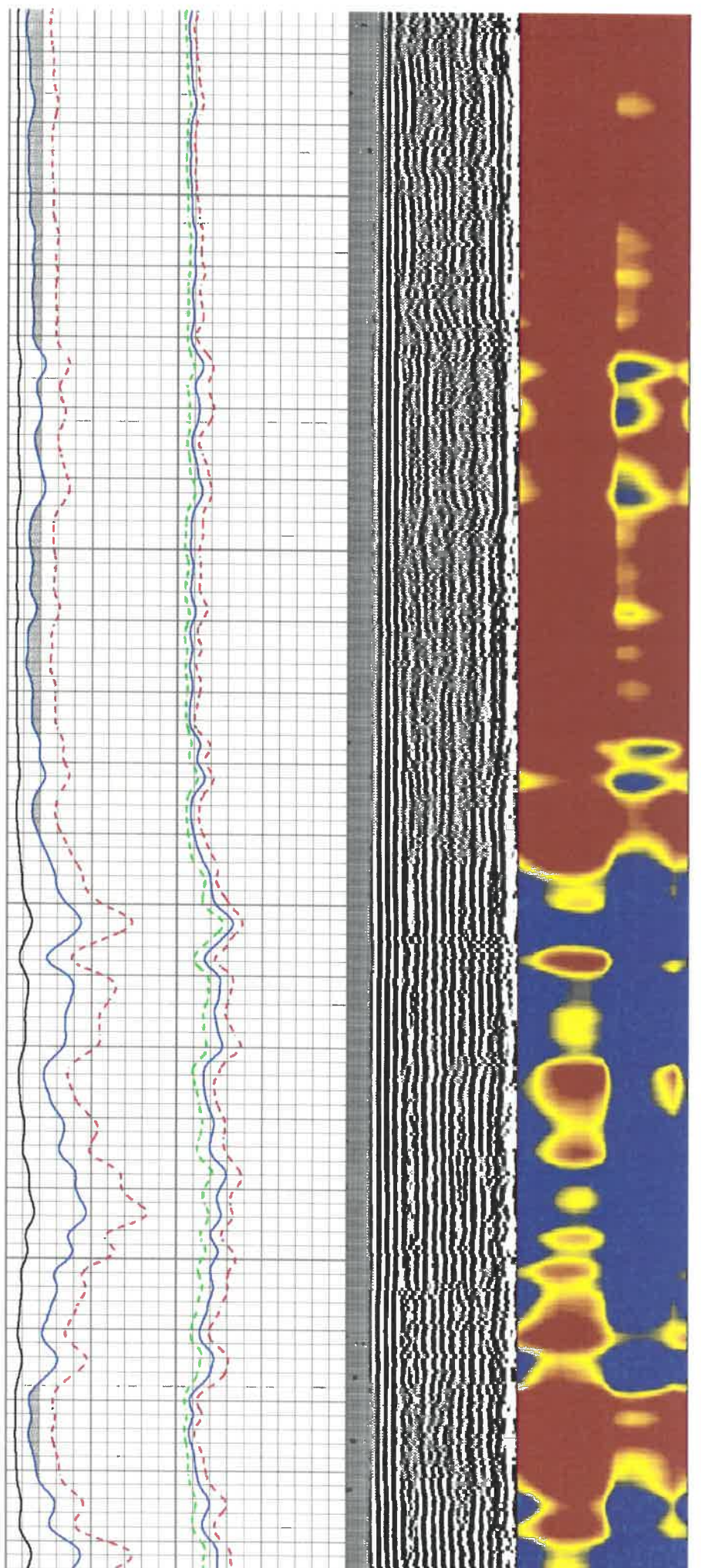


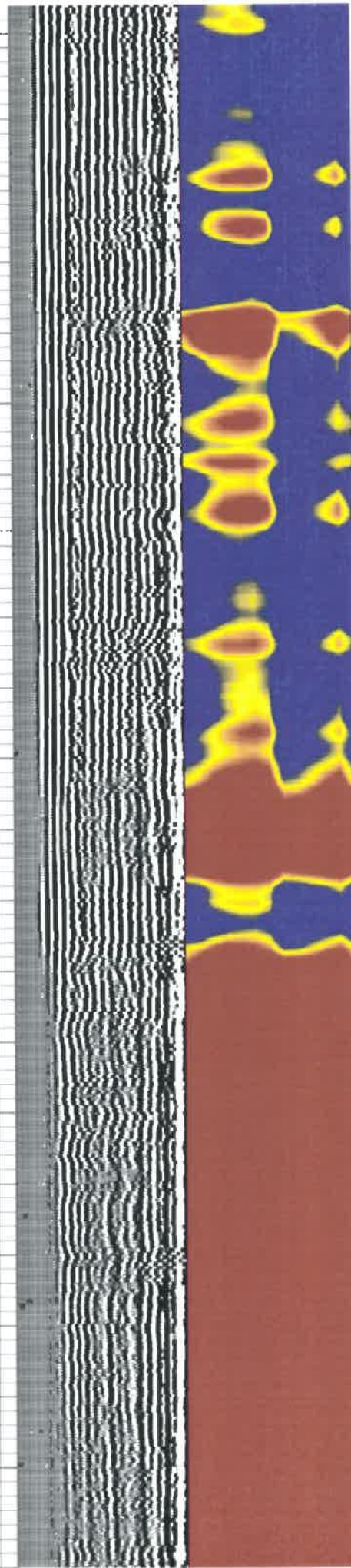
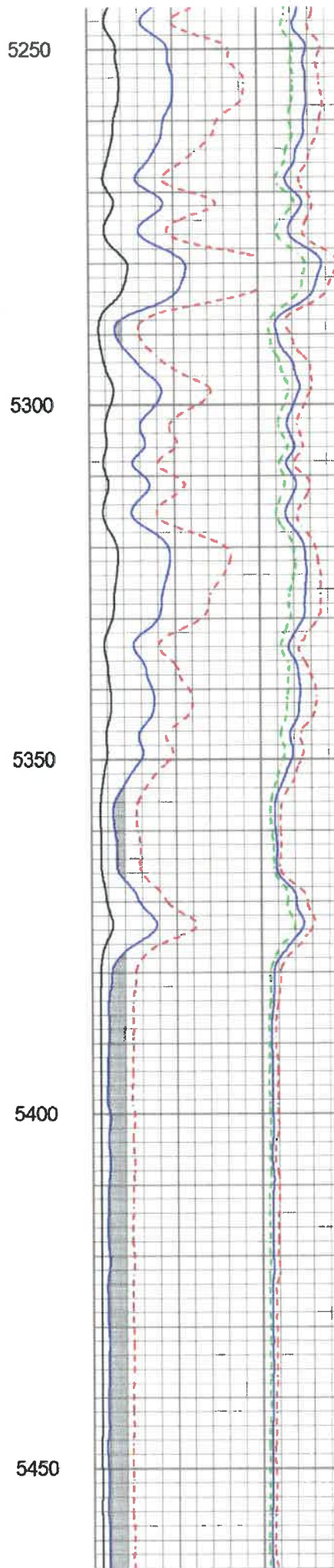
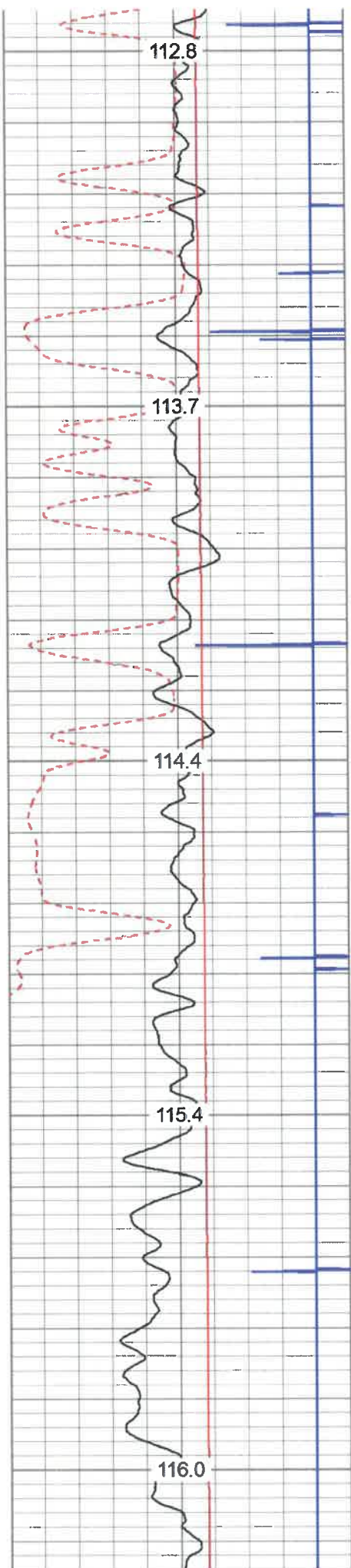
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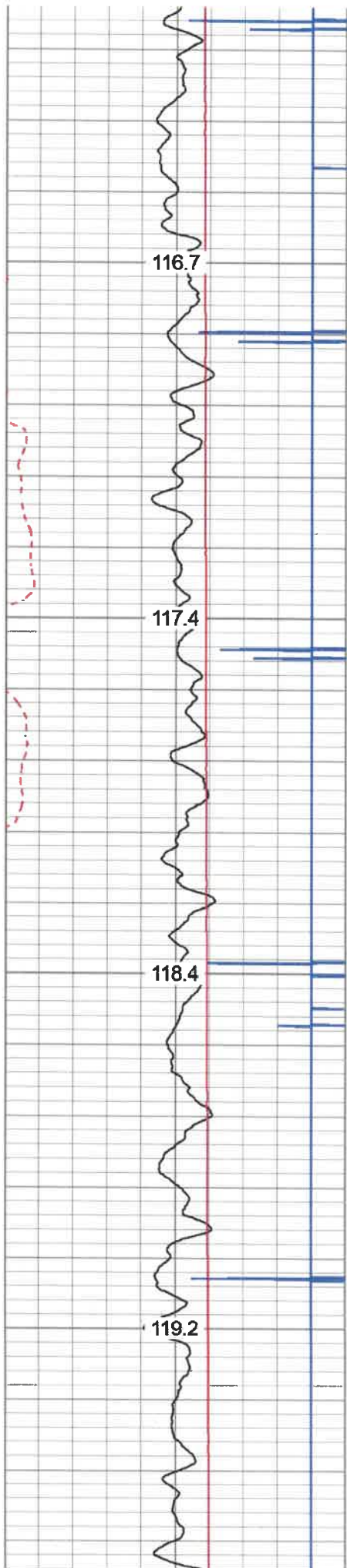
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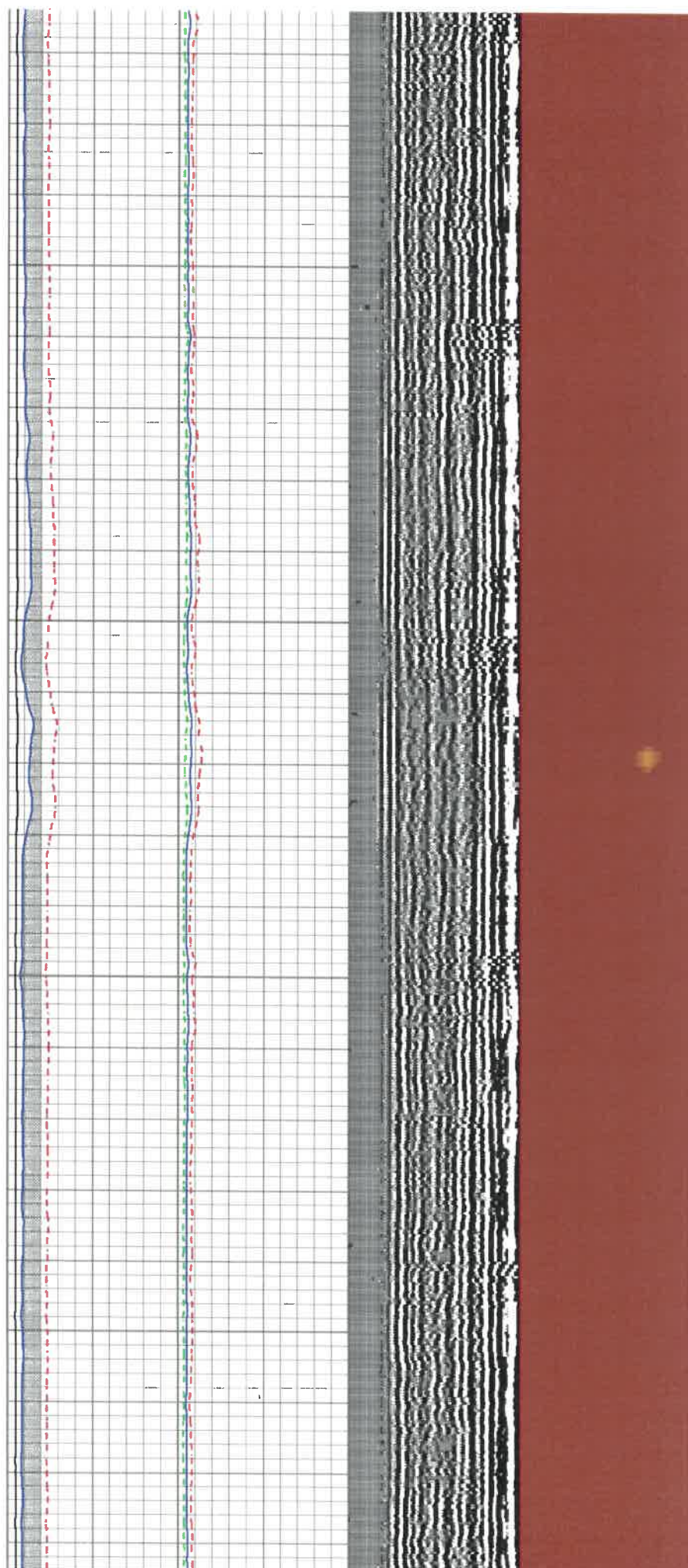


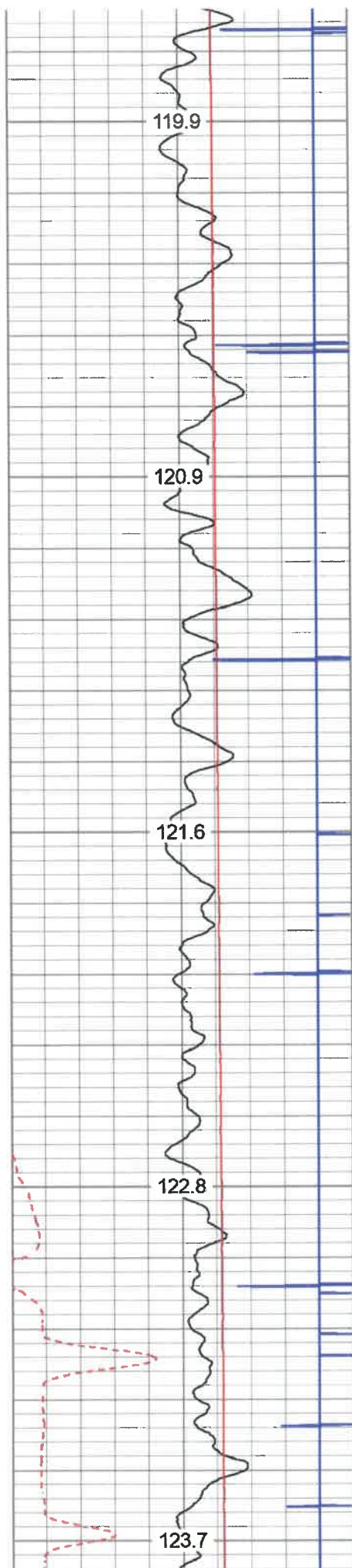
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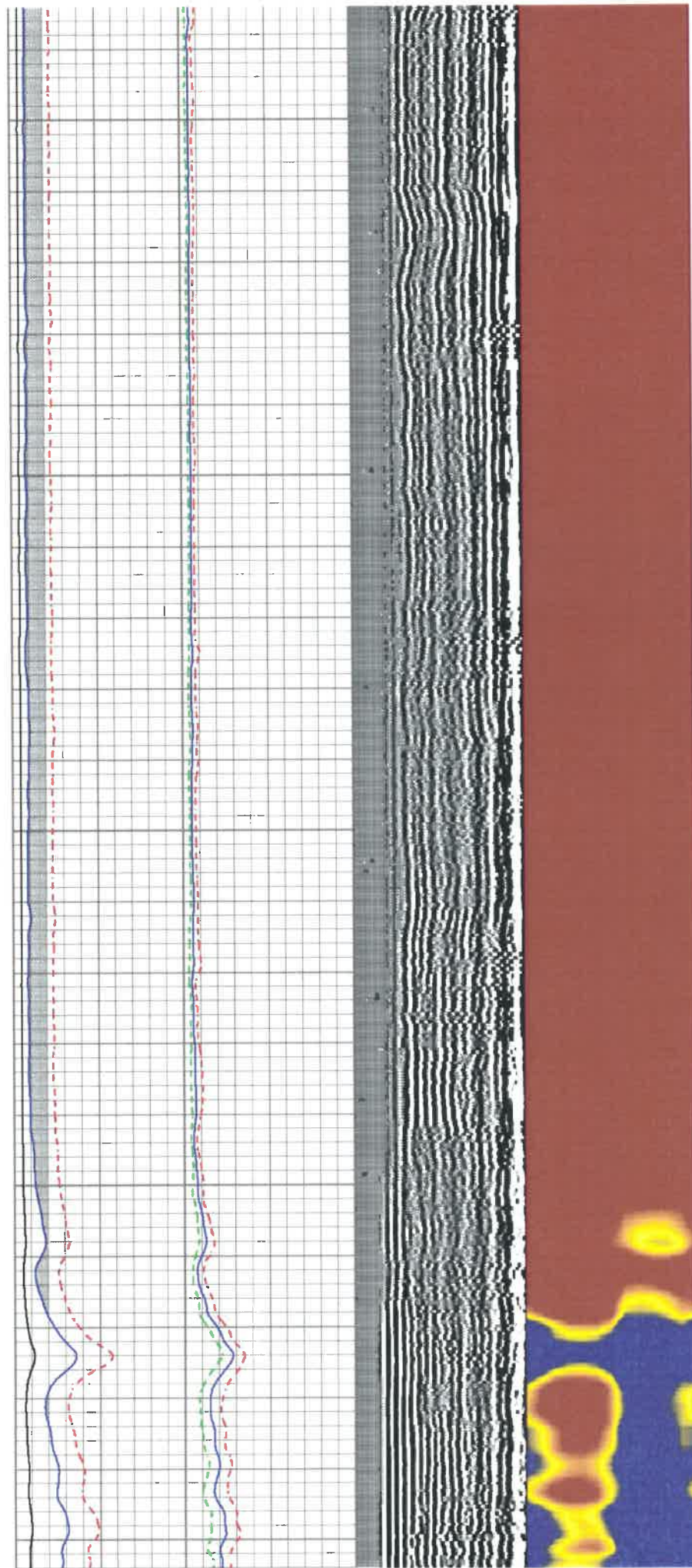
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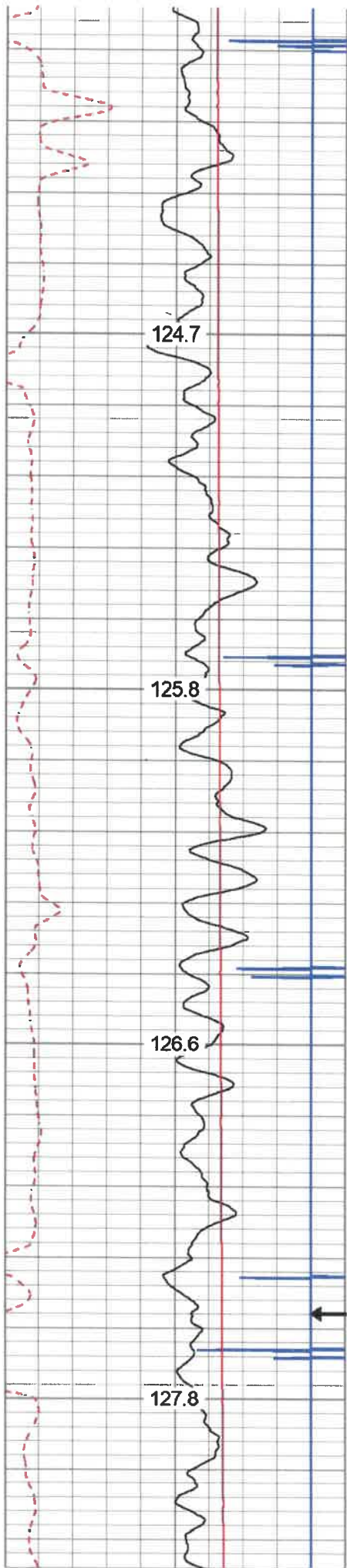
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5900





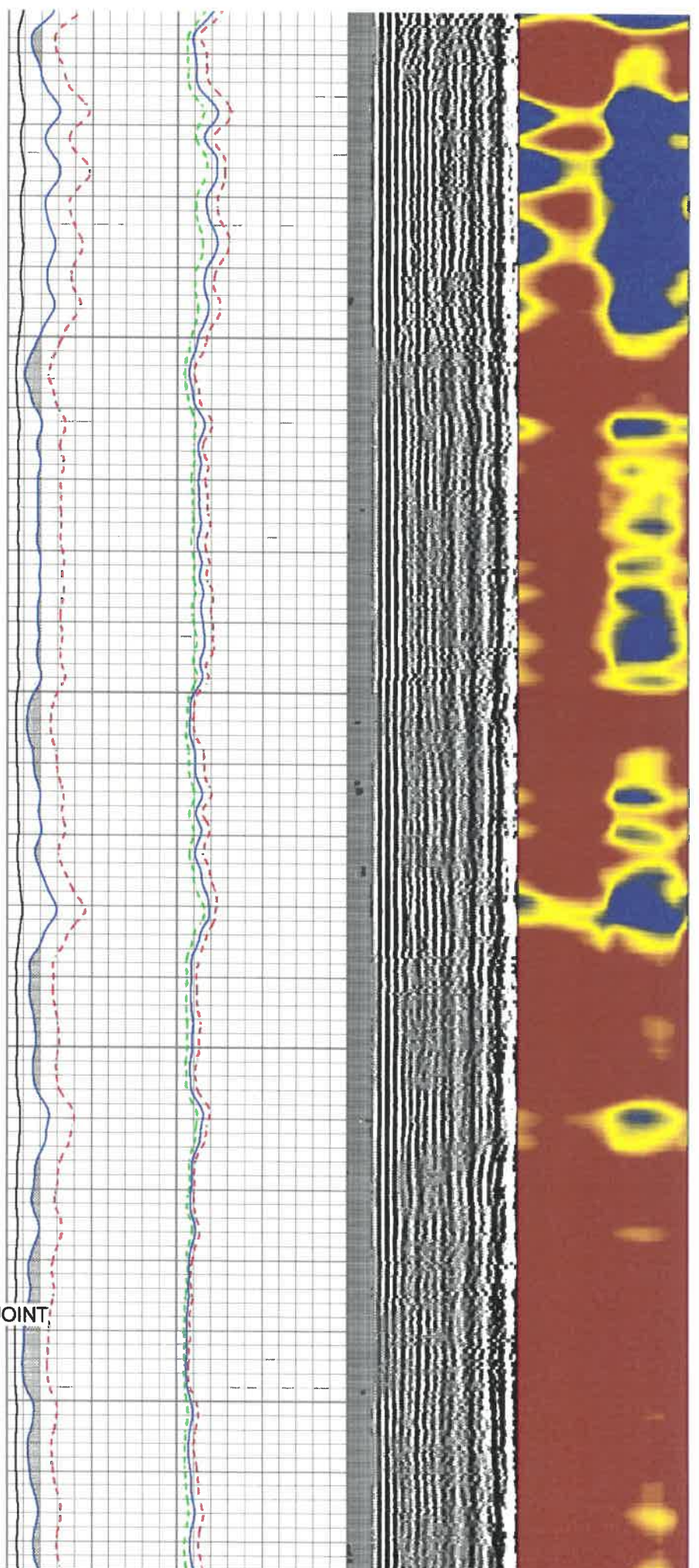
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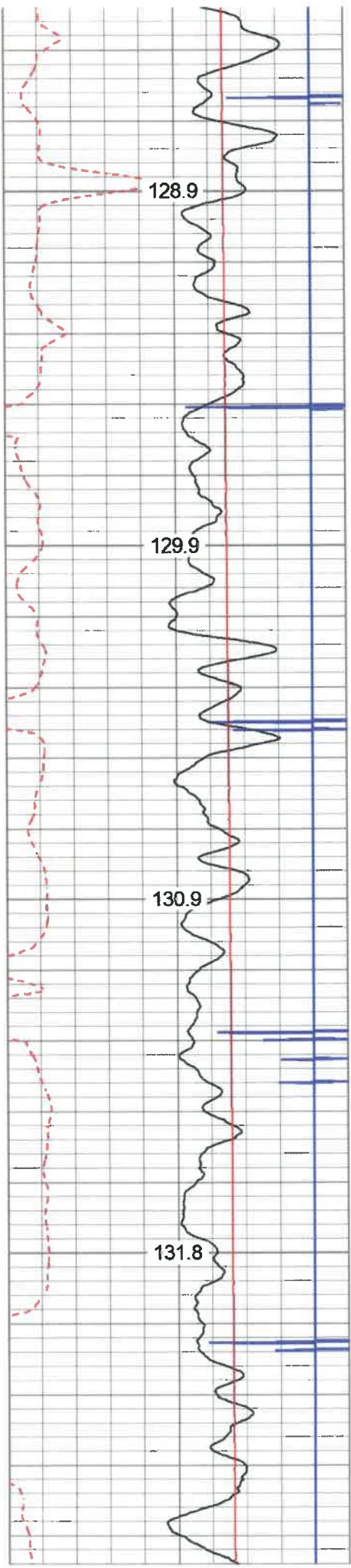
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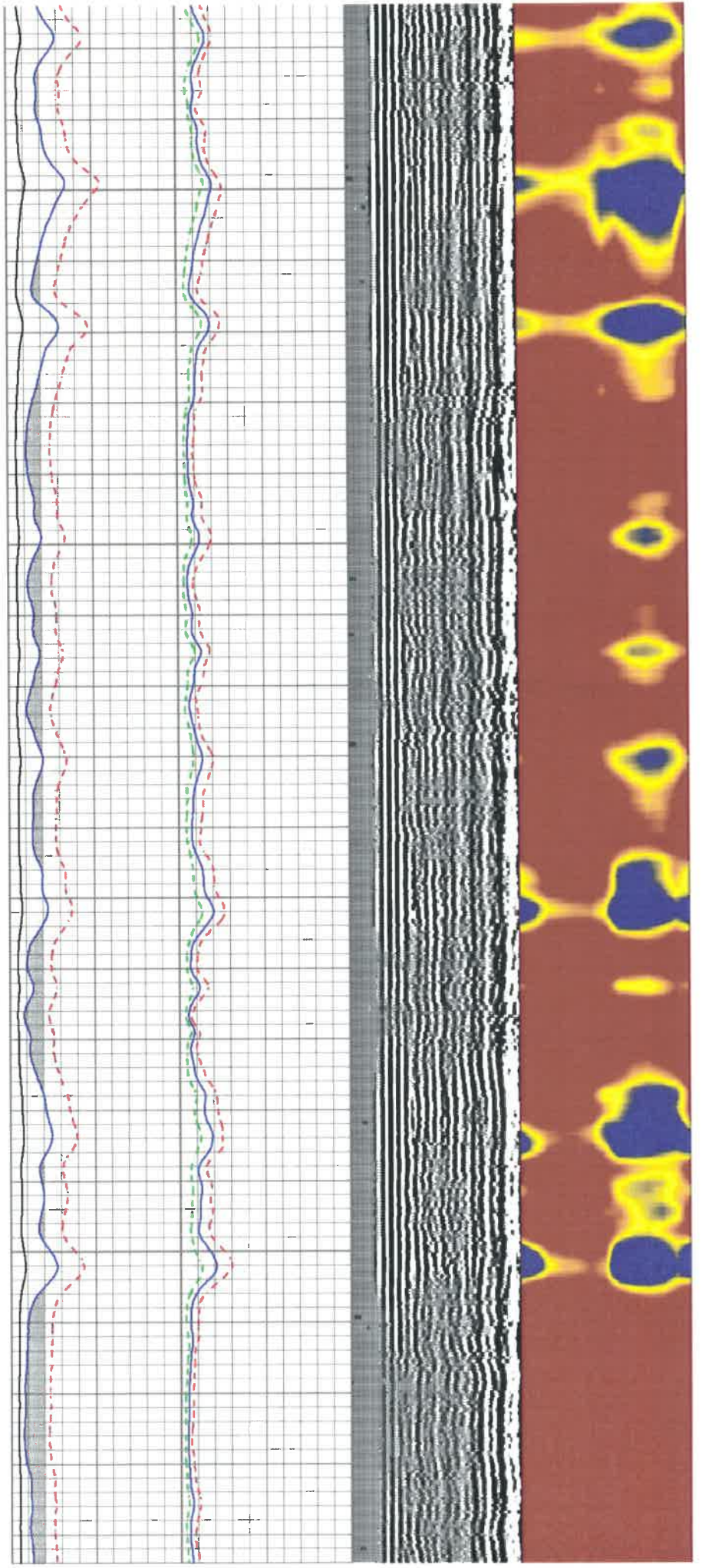
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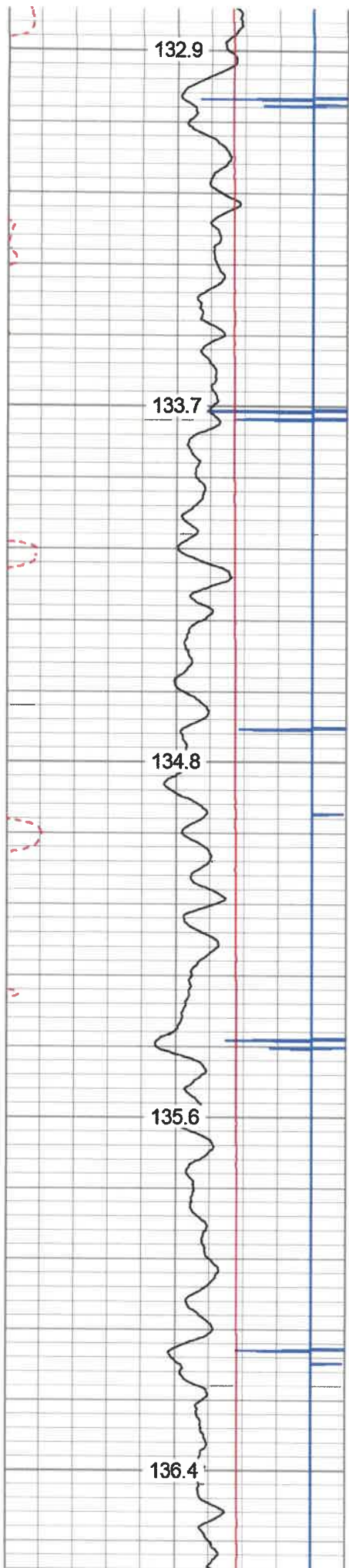
← MARKER JOINT





6150
6200
6250
6300





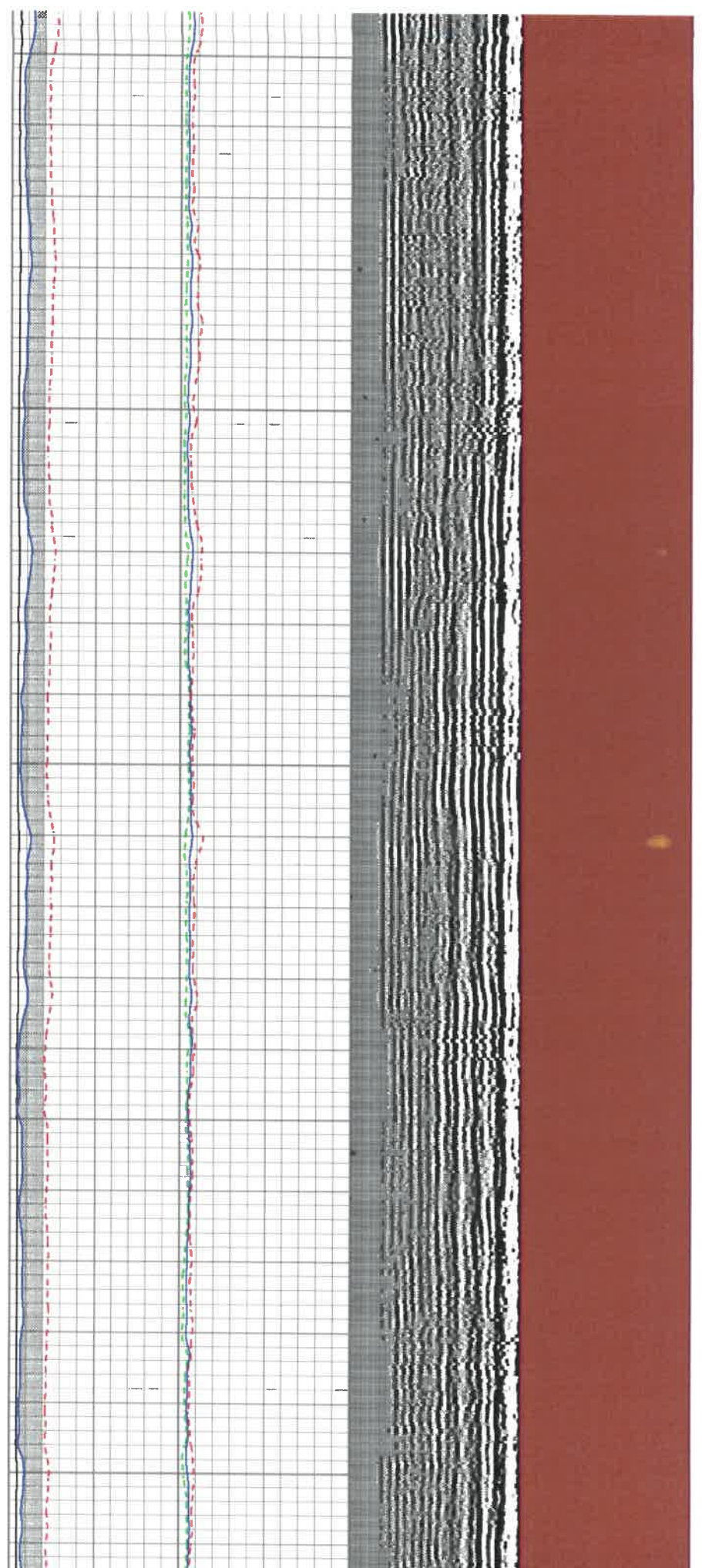
6350

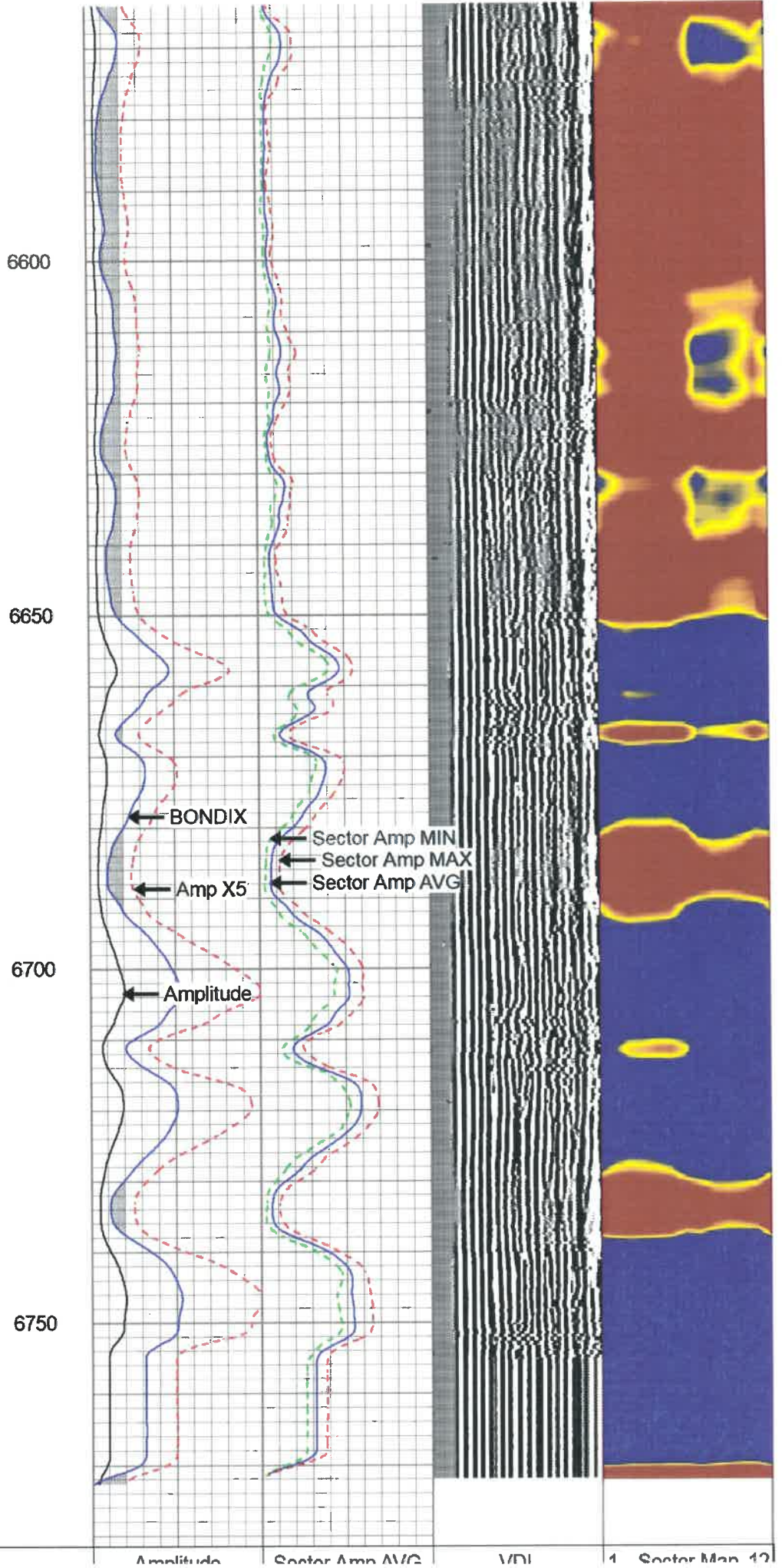
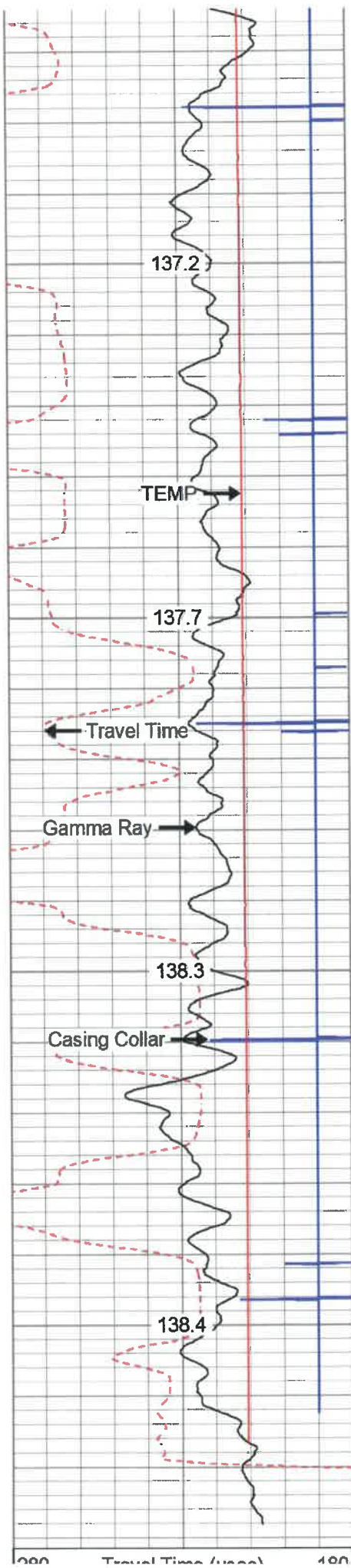
6400

6450

6500

6550





200	Travel Time (usec)	100
9	Casing Collar	-1
0	Gamma Ray	180
0	TEMP (degF)	200
180	GR	360
TEMP (degF)		

Amplitude	Sector Amp AVG	VDL	Sector Map 12
0 (mV) 100	Sector Amp MAX	200 (usec) 1200	
Amp X5	Sector Amp MIN		
0 (mV) 20			
1 BONDIX 0			

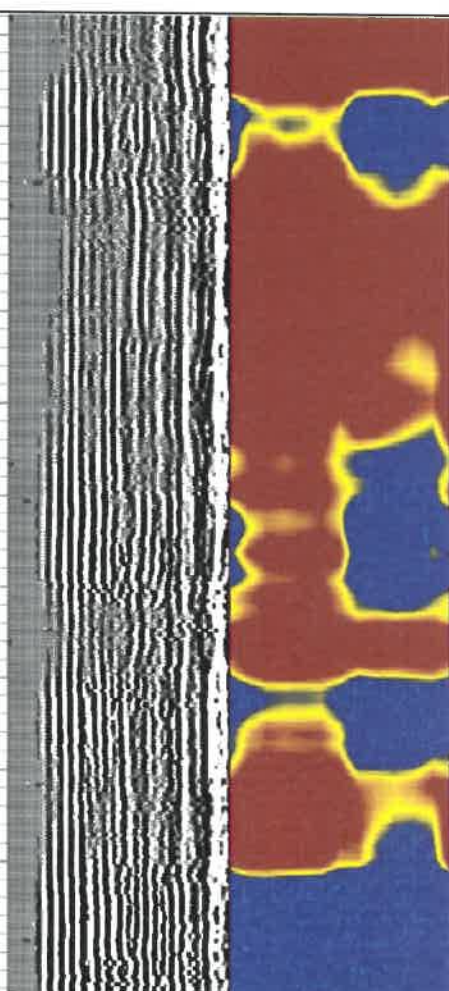
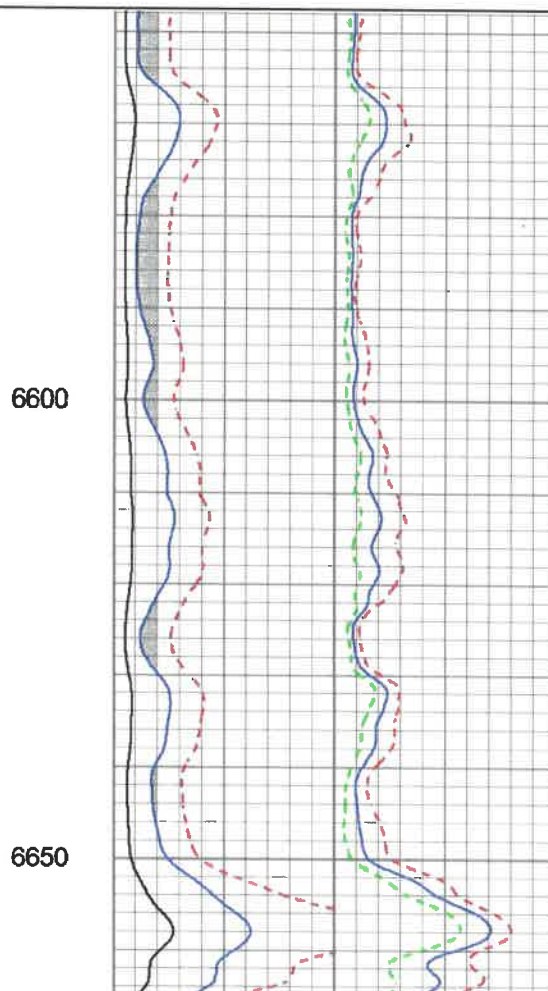
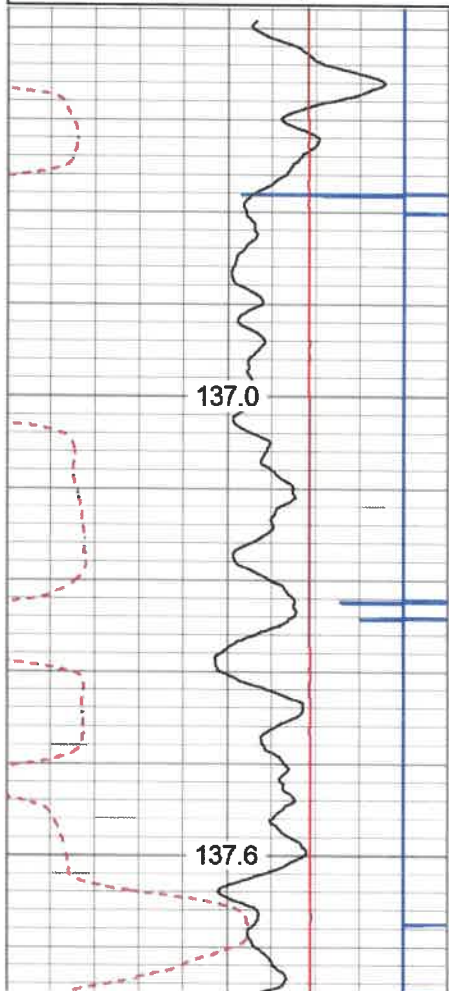


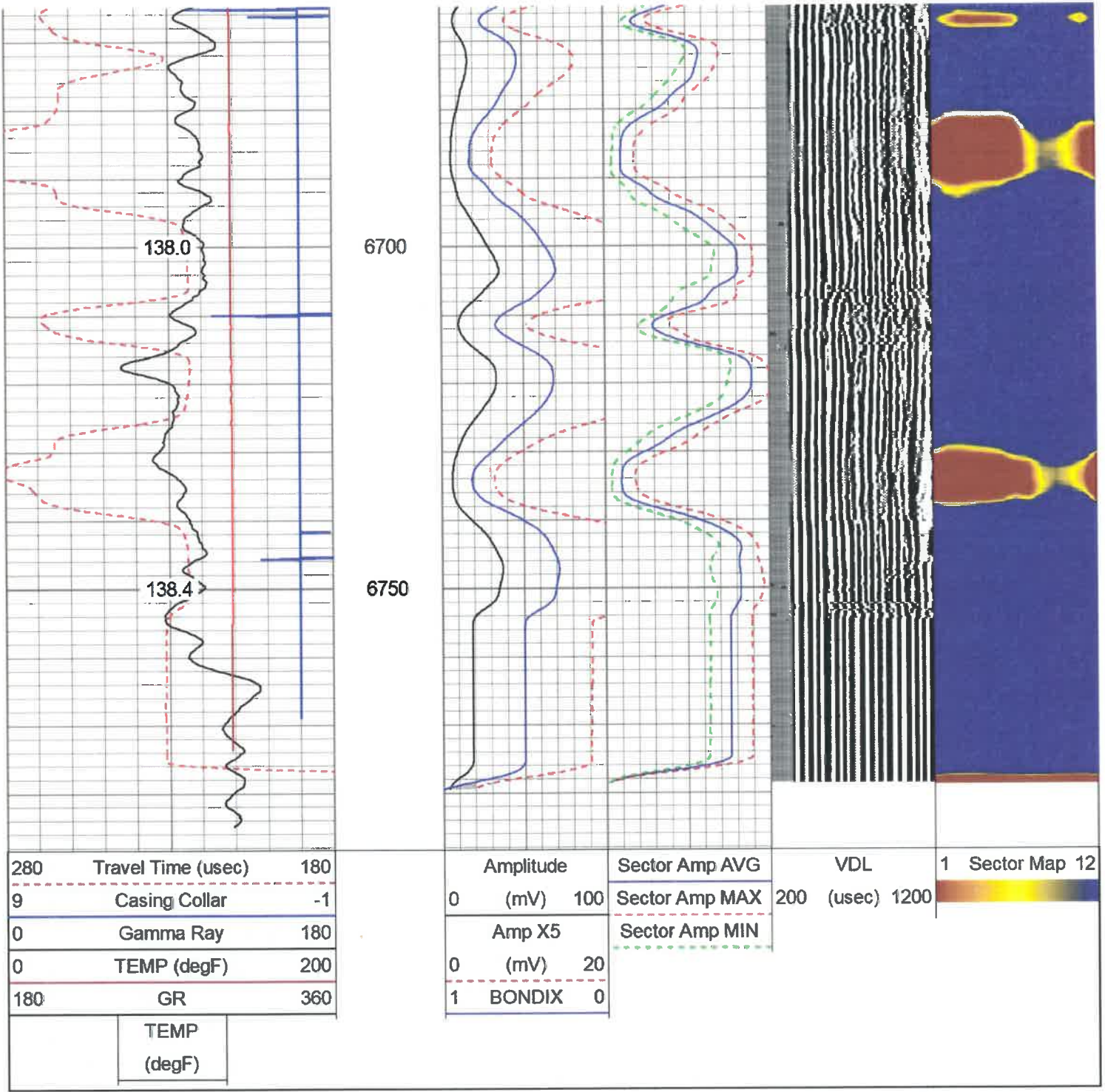
Repeat Pass

Database File antero_genny_2h.db
 Dataset Pathname pass1
 Presentation Format antero
 Dataset Creation Sat Nov 16 08:13:35 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
TEMP (degF)		

Amplitude	Sector Amp AVG	VDL	1 Sector Map 12
0 (mV) 100	Sector Amp MAX	200 (usec) 1200	
Amp X5	Sector Amp MIN		
0 (mV) 20			
1 BONDIX 0			





Log Variables

Database: C:\ProgramData\Warrior\Data\antero_genny_2h.db
 Dataset: field/well/run1/pass2/_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

MINAMPL : Minimum Amplitude

BOREID : Borehole I.D.
 BOTTEMP : Bottom Hole Temperature
 CASEOD : Casing O.D.
 CASETHCK : Casing Thickness
 CASEWGHT : Casing Weight
 MAXAMPL : Maximum Amplitude

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

Calibration Report

Database File antero_genny_2h.db
 Dataset Pathname pass2
 Dataset Creation Sat Nov 16 08:28:37 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 07:30:38 2019:

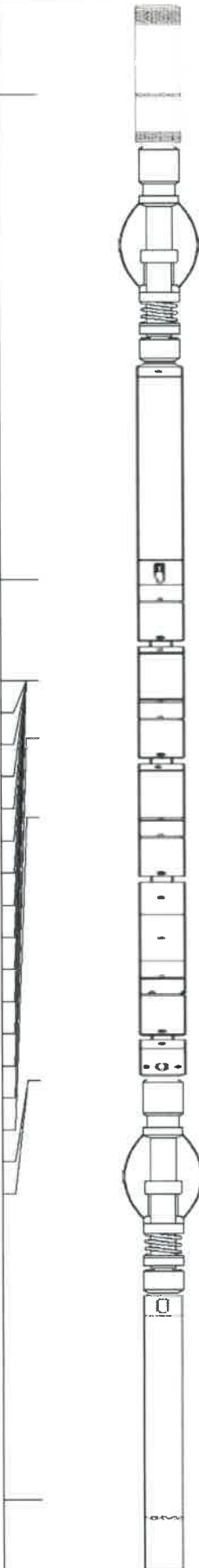
	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.004	1.107	3.500	71.921	62.060	3.243
CAL	0.012	0.537				
5'	0.000	1.188	3.500	71.921	57.613	3.499
SUM						
S1	0.020	1.414	0.000	100.000	71.770	-1.447
S2	0.018	1.502	0.000	100.000	67.405	-1.226
S3	0.017	1.417	0.000	100.000	71.418	-1.185
S4	0.016	1.288	0.000	100.000	78.656	-1.287
S5	0.018	1.187	0.000	100.000	85.508	-1.499
S6	0.019	1.155	0.000	100.000	88.038	-1.645
S7	0.020	1.238	0.000	100.000	82.085	-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	82.472	-1.233
S11	0.014	1.190	0.000	100.000	85.016	-1.188
S12	0.016	1.186	0.000	100.000	85.507	-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	
TEMP	12.77						
WVFS12	11.48			SCBL-Tek12 (IOL40-05) Tekco 400 Deg F 12 Sector RIB with Temp	9.13	3.25	135.00
WVFS11	11.48						
WVFS10	11.48						
WVFS9	11.48						
WVFS8	11.48						
WVFS7	11.48						
WVFS6	11.48						
WVFS5	11.48						
WVFS4	11.48						
WVFS3	11.48						
WVFS2	11.48						
WVFS1	11.48						
WVFCAL	10.73						
WVF3FT	10.73						
WVF5FT	9.73						
WVFSYNC	6.40			Tek-2.75 2 3/4" Tekco Adjustable Centralizer	2.73	2.75	25.00
WVFTEMP	6.40						
			GR-Tek-Co 2 3/4 (IPSNO-03) Tekco 2 3/4" 400 Deg. F Logging Gamma Ray	3.67	2.75	40.00	
GR	1.04						

Dataset:	antero_genny_2h.db: field/well/run1/pass2
Total length:	20.07 ft
Total weight:	250.00 lb
O.D.:	3.25 in



Company	Antero Resources Corporation		
Well	Genny Unit 2H		
Field	Marcellus		
County	Ritchie		
State	WV	Country	US

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

