



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

Company ANTERO RESOURCES CORPORATION  
Well HENNESSY UNIT 1H  
Field MARCELLUS  
County TYLER  
State WV Country US

Company ANTERO RESOURCES CORPORATION  
Well HENNESSY UNIT 1H  
Field MARCELLUS  
County TYLER  
State WV Country US

Location: API #: 47095025770000

Other Services  
NONE

SEC N/A TWP N/A RGE N/A

Elevation

Permanent Datum GROUND LEVEL Elevation

Log Measured From R.K.B. 25'

Drilling Measured From R.K.B.

K.B.  
D.F.  
G.L.

Date 27-OCT-2019

Run Number ONE

Depth Driller 15549'

Depth Logger 6230'

Bottom Logged Interval 6230'

Top Log Interval SURFACE

Open Hole Size 8.25"

Type Fluid F/W

Density / Viscosity 8.6

Max. Recorded Temp. 136 degF

Estimated Cement Top 2470'

Time Well Ready 12.30

Time Logger on Bottom 13.00

Equipment Number 214181

Location BRIDGEPORT, WV

Recorded By S.BUTLER

Witnessed By JAYSON LUKES

Run Number

ONE

TWO

THREE

FOUR

Casing Record

Surface String

Prot. String

Production String

Liner

Bit

24"

17.5"

12.25"

8.25"

13.375"

9.625"

5.5

From

SURFACE

110'

398'

2596'

15549'

54.5

40

20

To

110'

398'

2596'

15549'

54.5

40

20

Size

SURFACE

110'

398'

2596'

15549'

54.5

40

20

Weight

SURFACE

SURFACE

SURFACE

SURFACE

SURFACE

SURFACE

SURFACE

From

SURFACE

SURFACE

SURFACE

SURFACE

SURFACE

SURFACE

SURFACE

To

SURFACE

SURFACE

SURFACE

SURFACE

SURFACE

SURFACE

SURFACE

Bottom

398'

2596'

15549'

15549'

15549'

15549'

15549'

<<< Fold Here >>>

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: 5133' - 5143'  
LOG TD:6230'  
LOG RAN UNDER 1500 PSI

RECEIVED  
Office of Oil and Gas  
SEP 24 2020  
WV Department of  
Environmental Protection



Main Pass

Database File antero\_hennessy\_unit\_1h.db  
 Dataset Pathname pass3.1  
 Presentation Format antero1  
 Dataset Creation Tue Oct 29 15:05:29 2019  
 Charted by Depth in Feet scaled 1:240

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

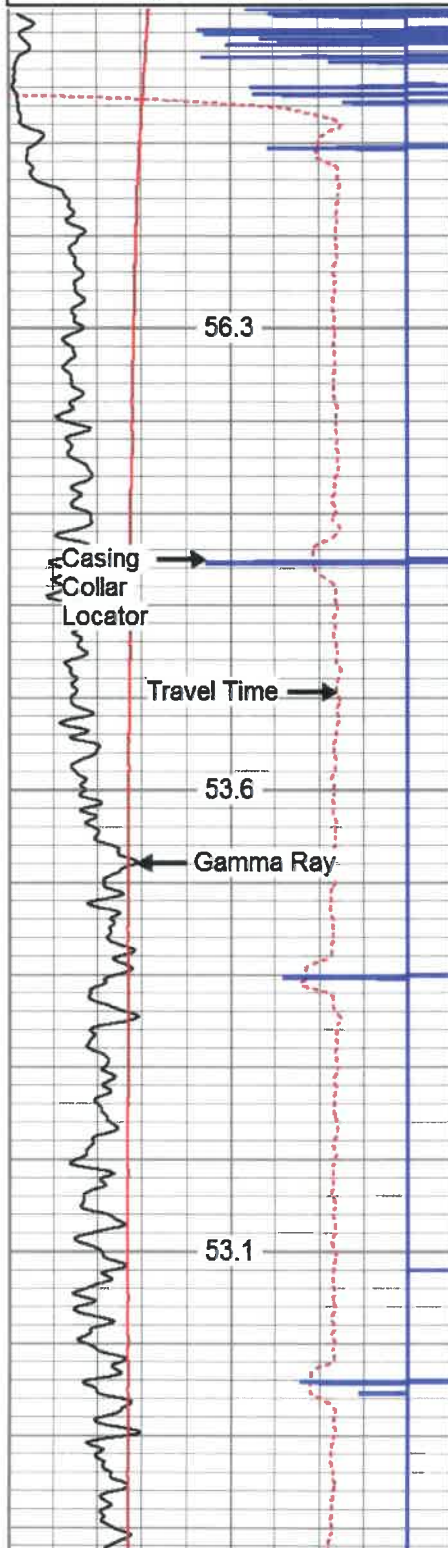
0	Amplitude (mV)	100
0	Amp X5 (mV)	20
1	BONDIX	0

Sector Amp AVG
Sector Amp MAX
Sector Amp MIN

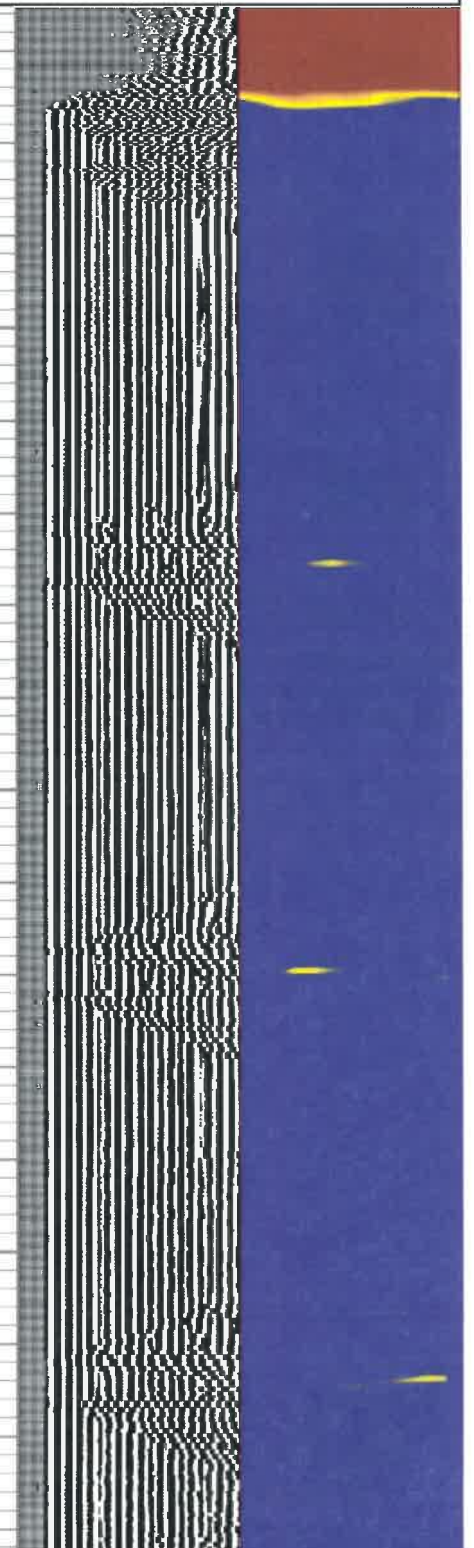
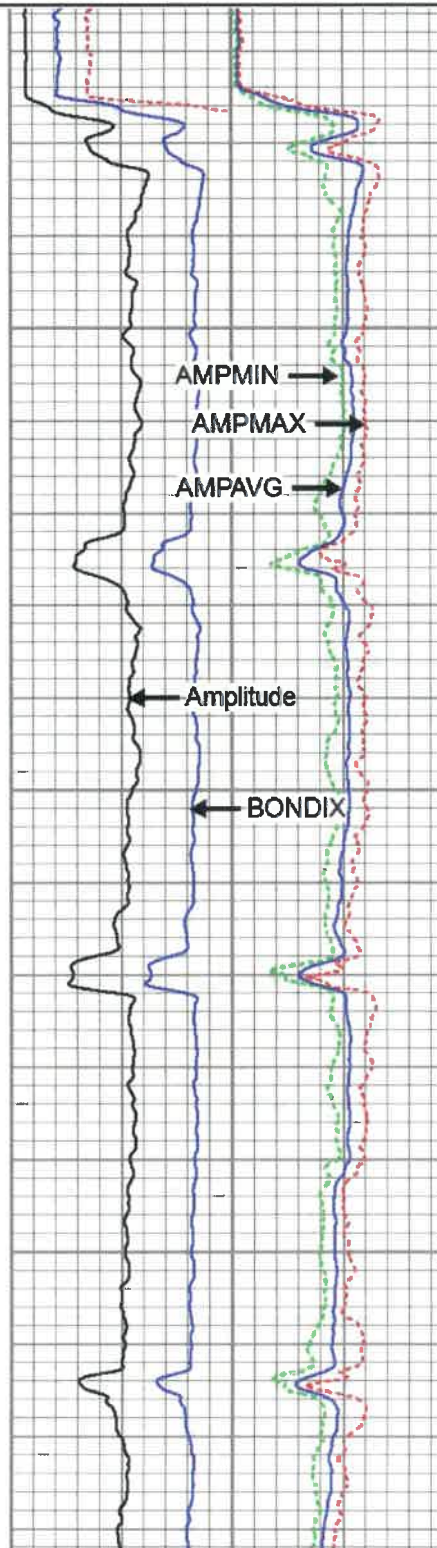
VDL (usec) 200 1200



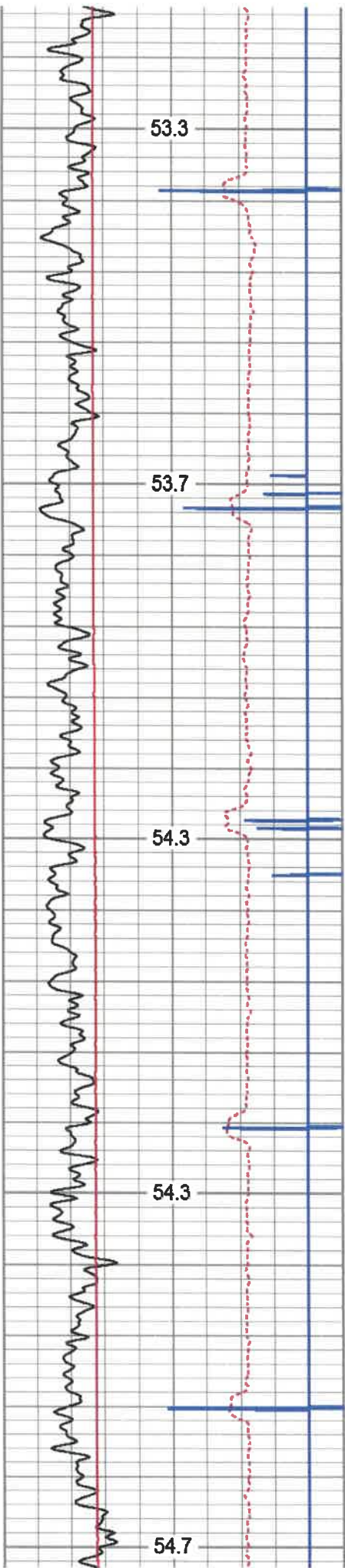
TEMP (degF)



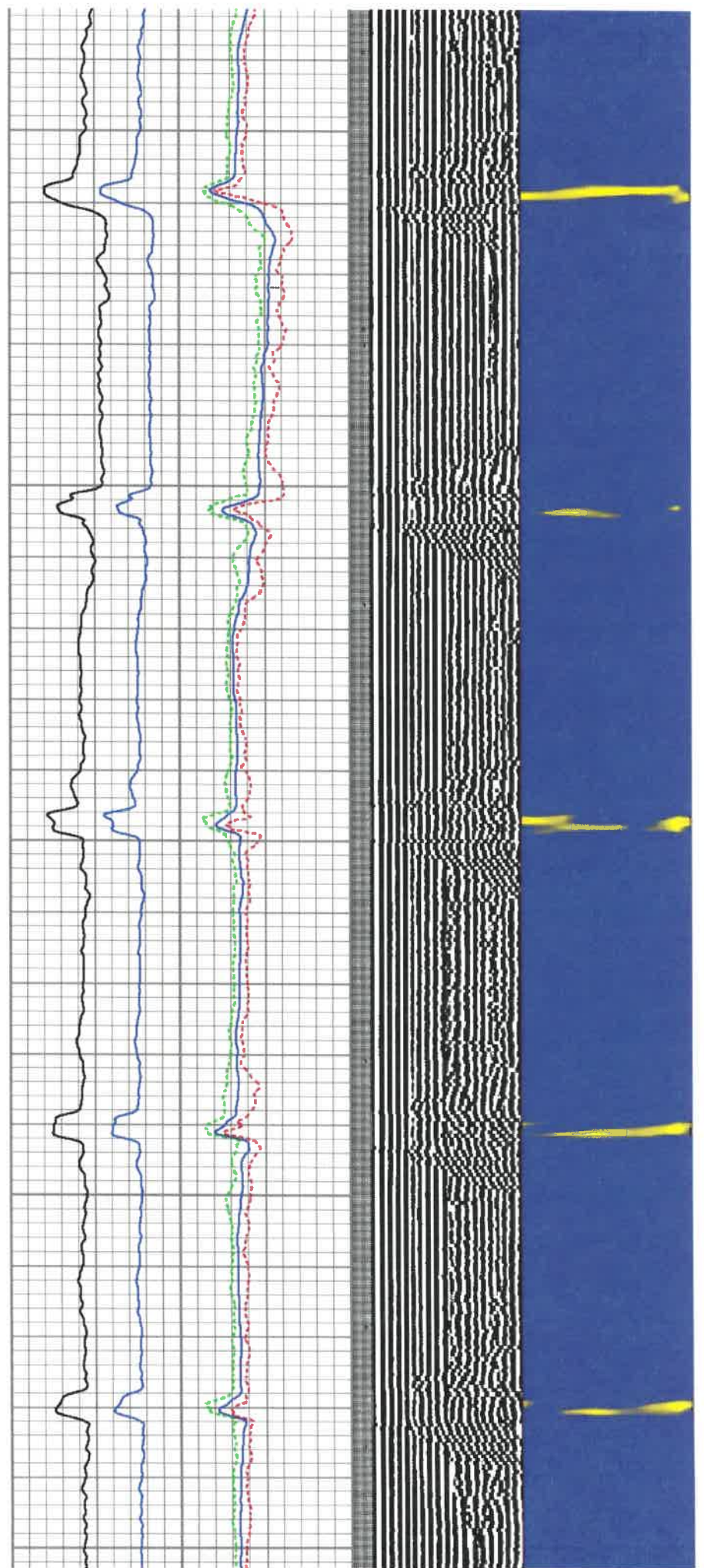
50  
 100  
 150



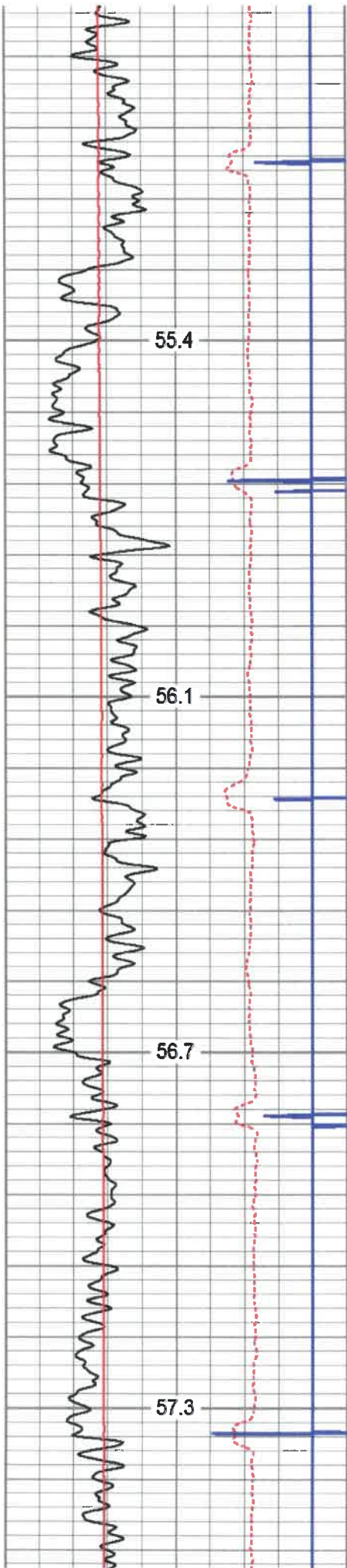




200  
250  
300  
350  
400





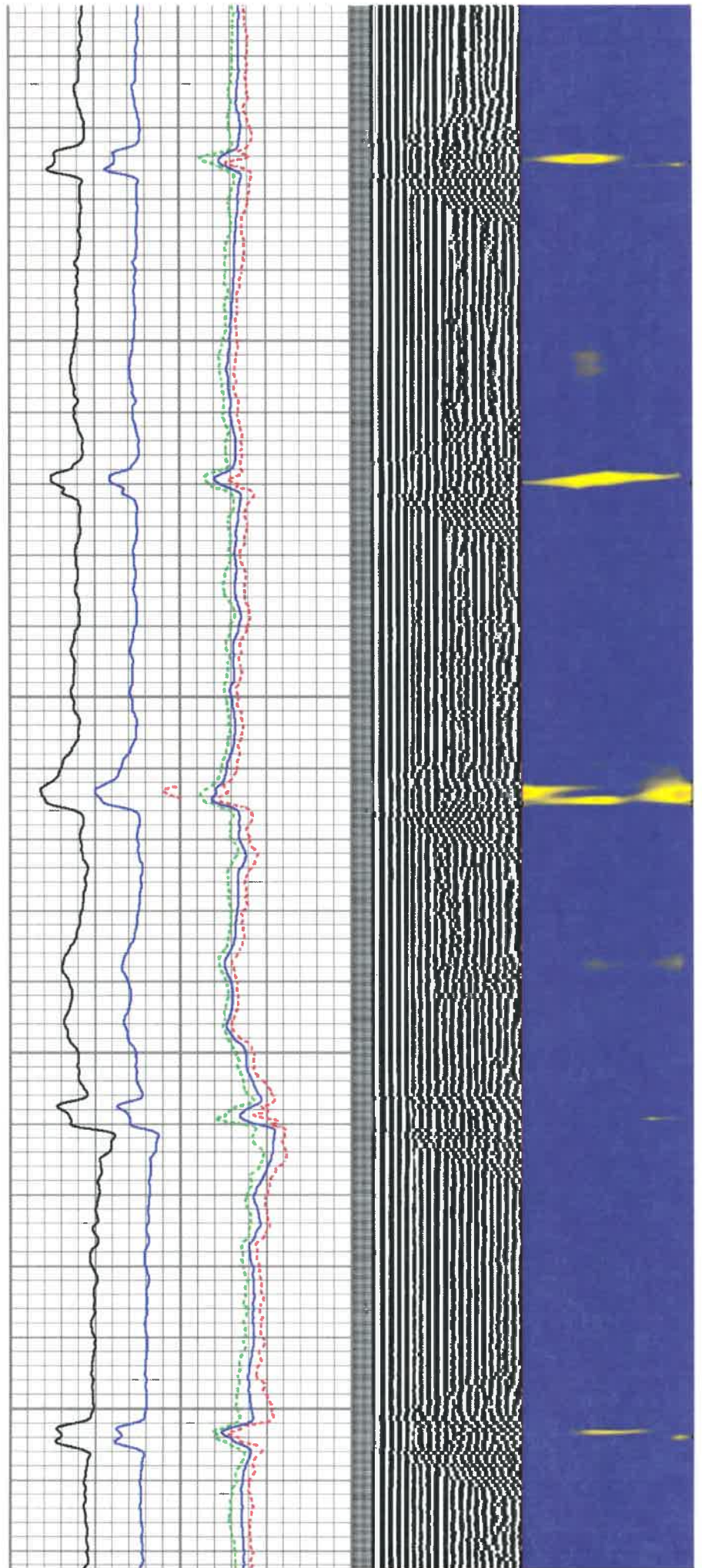


450

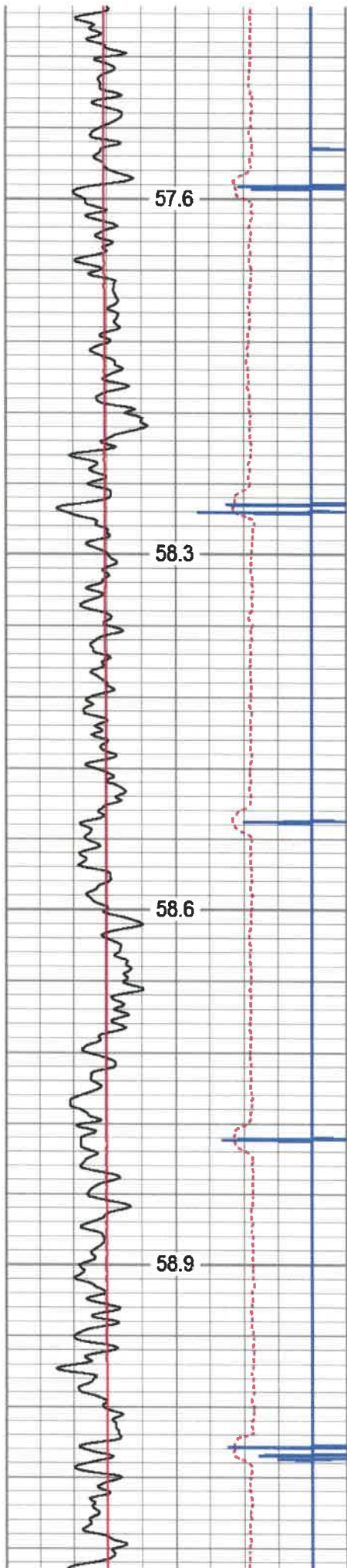
500

550

600





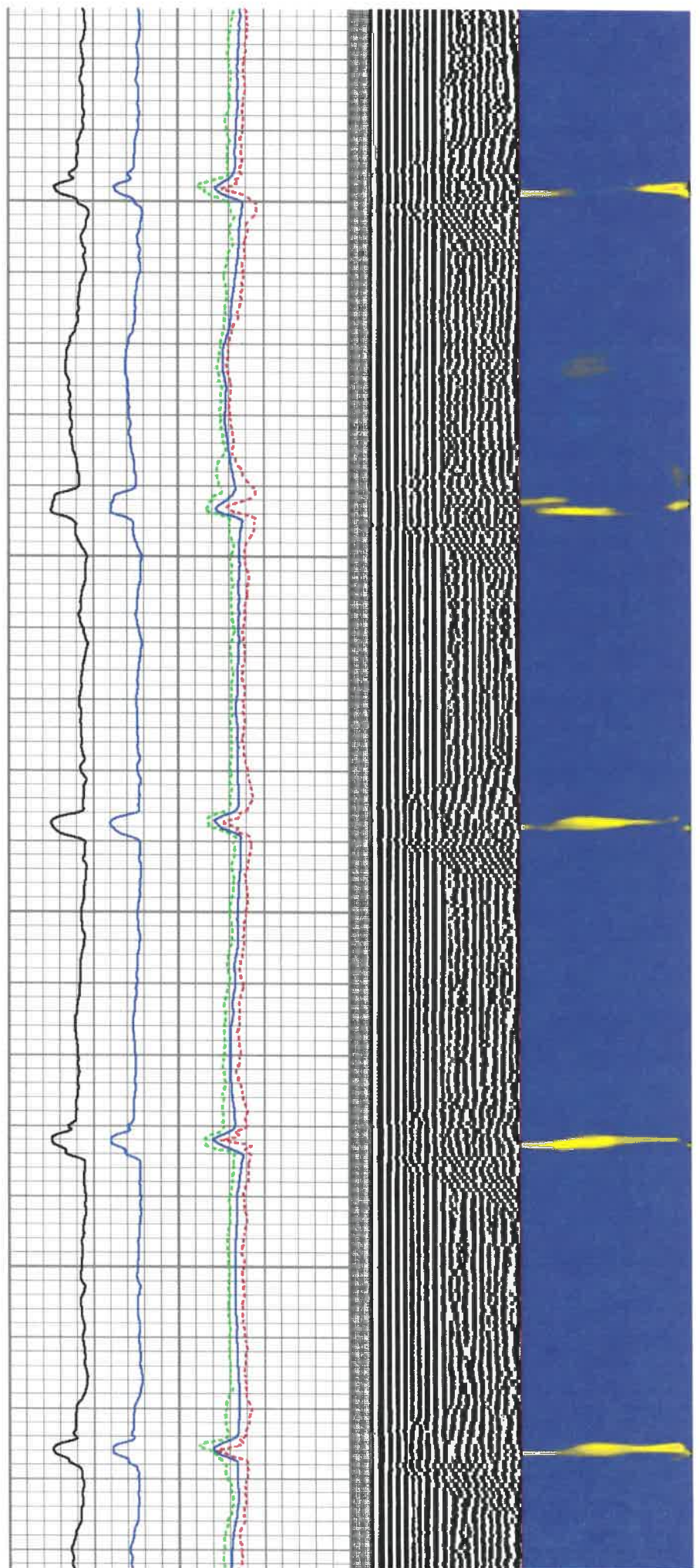


650

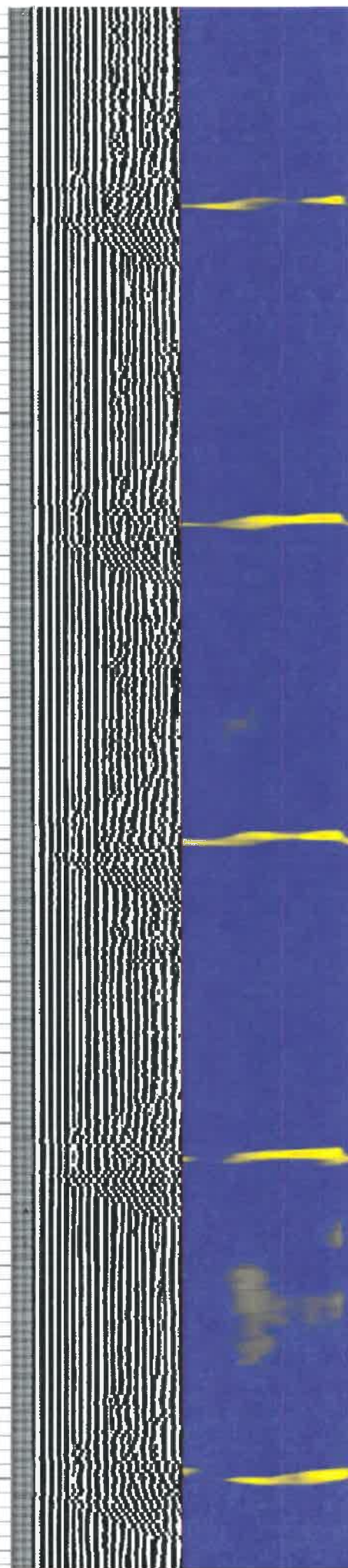
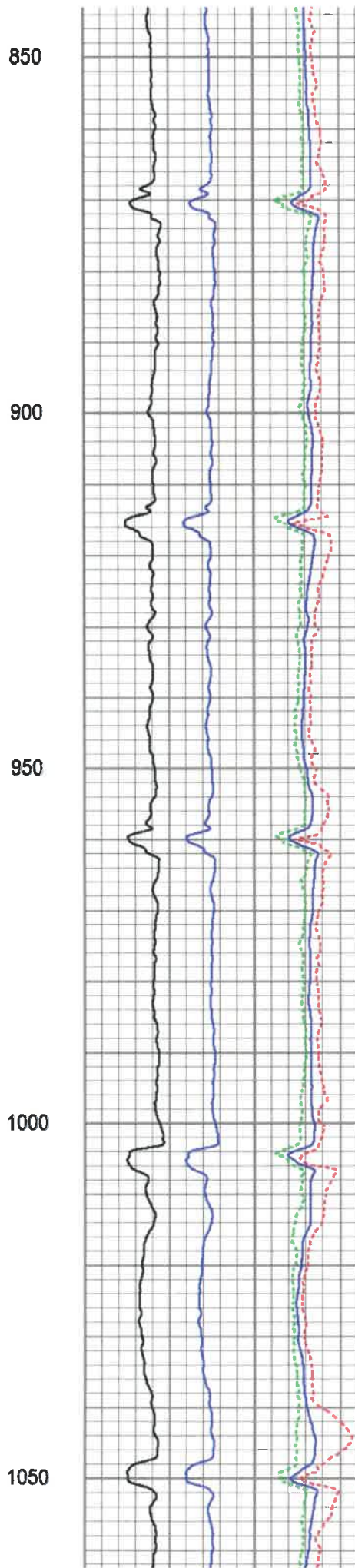
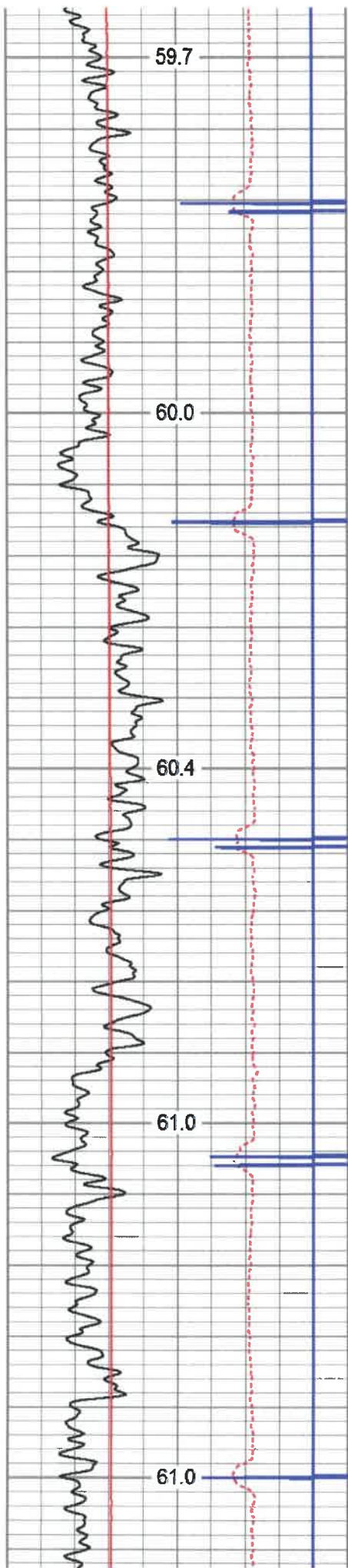
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750

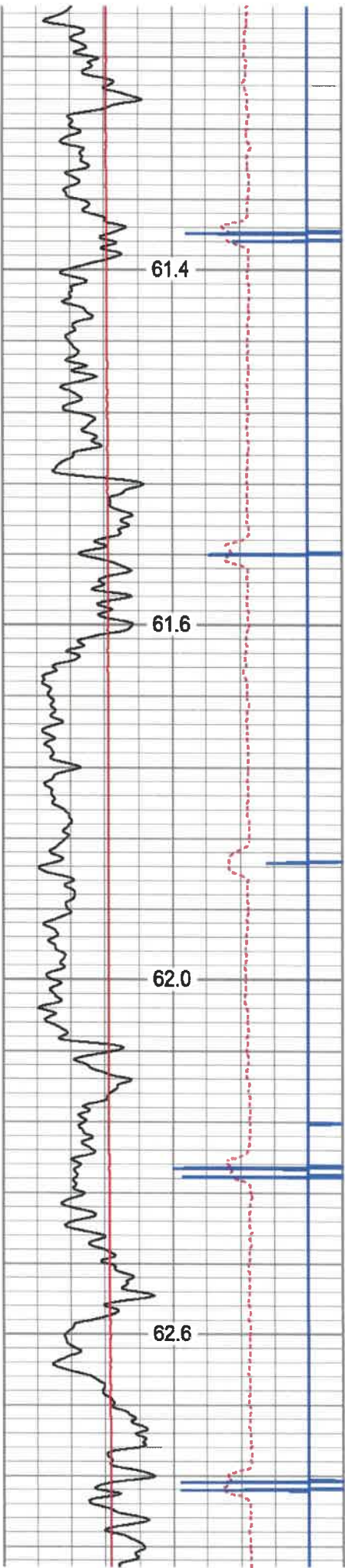
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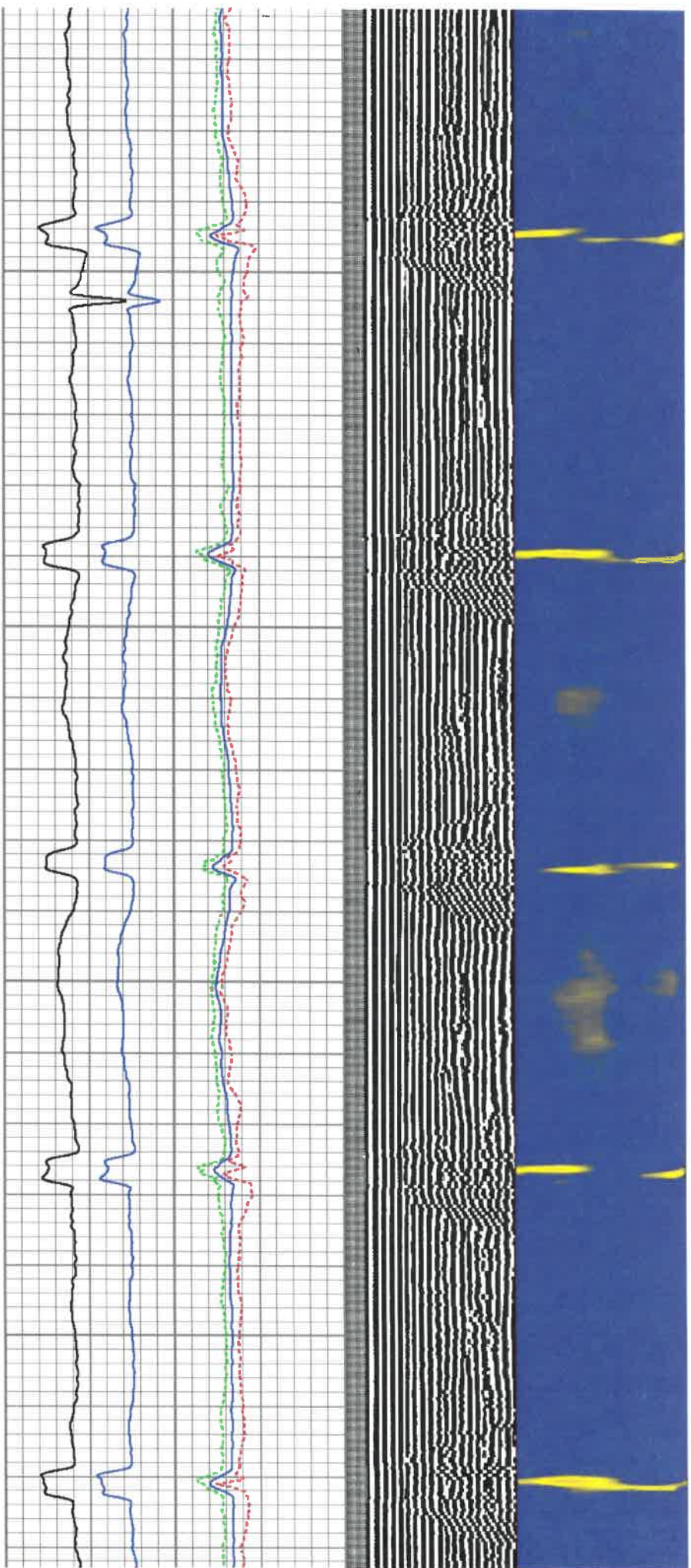




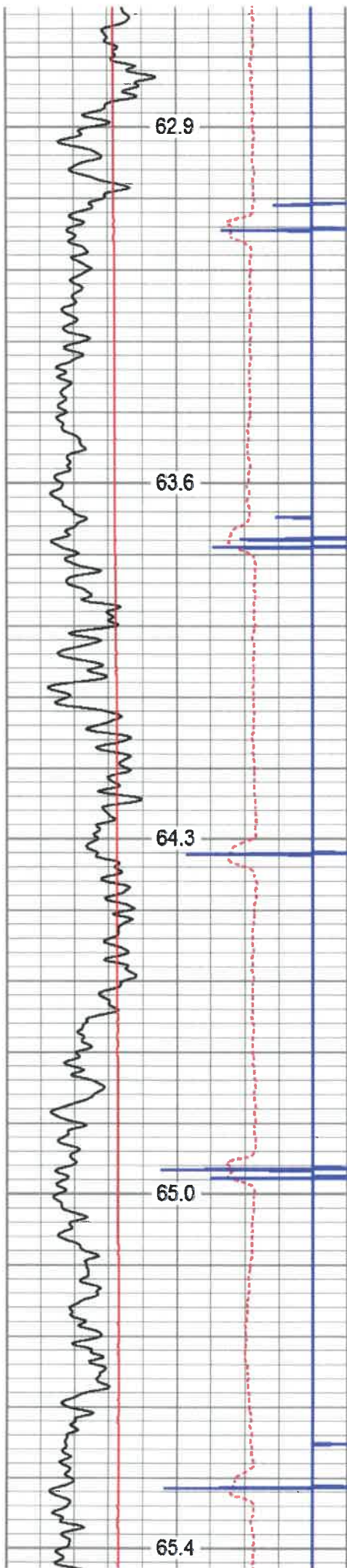




1100  
1150  
1200  
1250







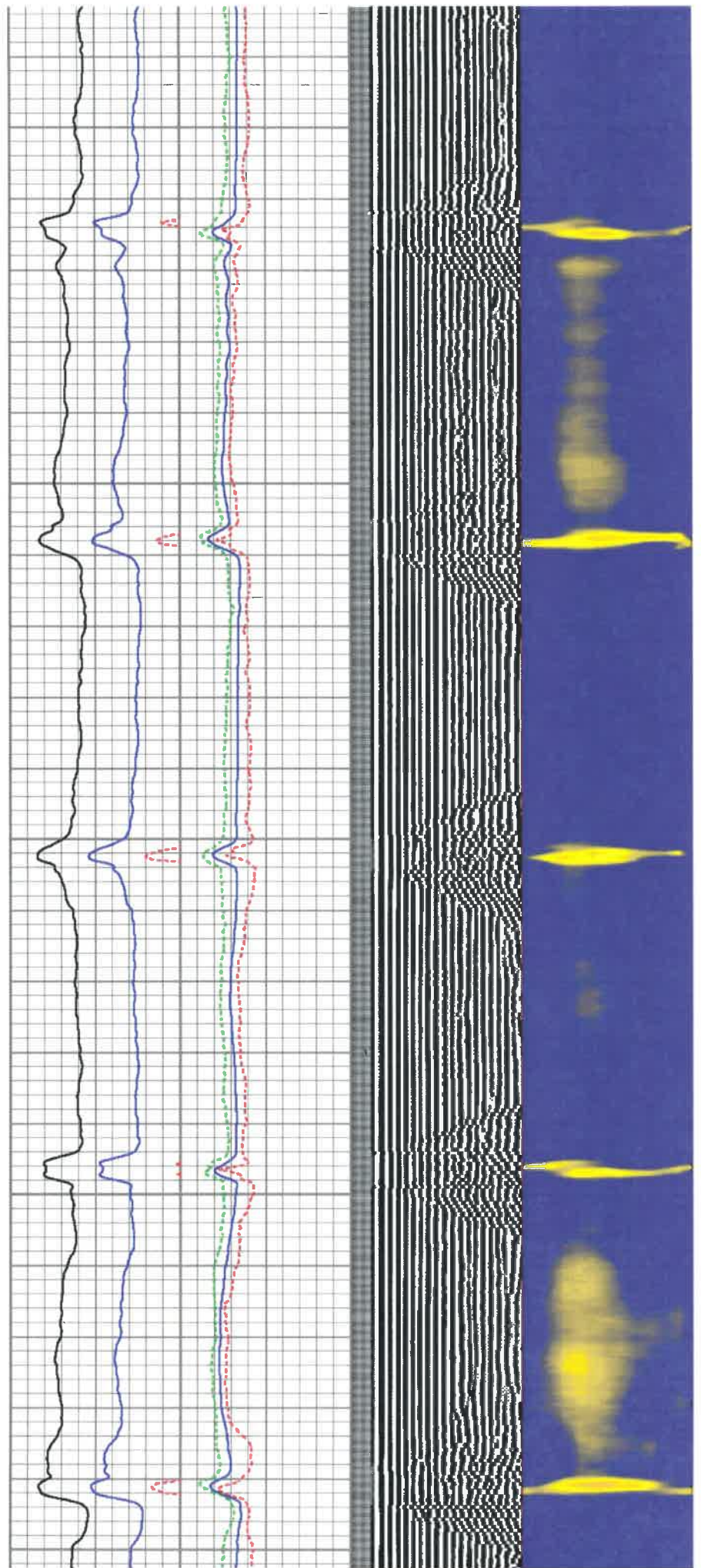
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1350

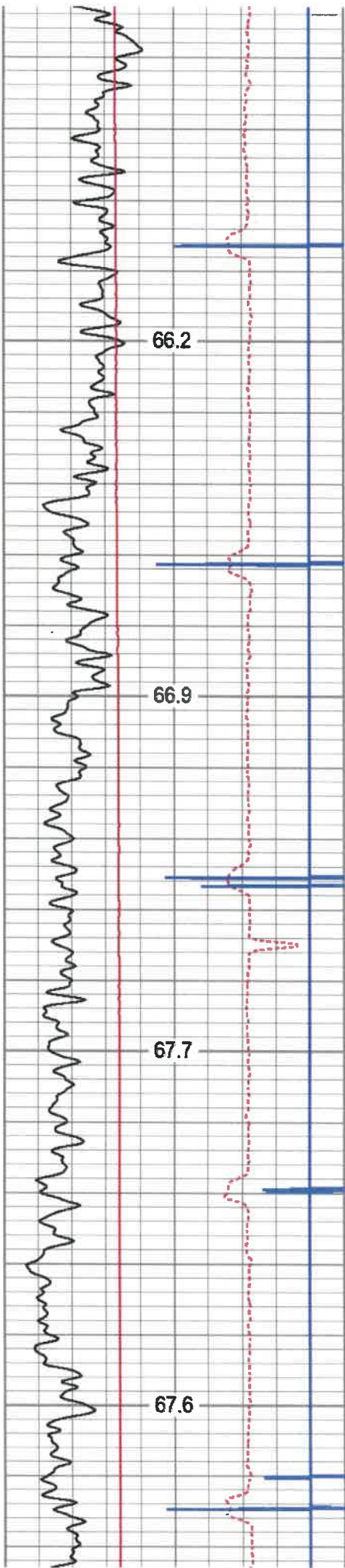
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1450

1500





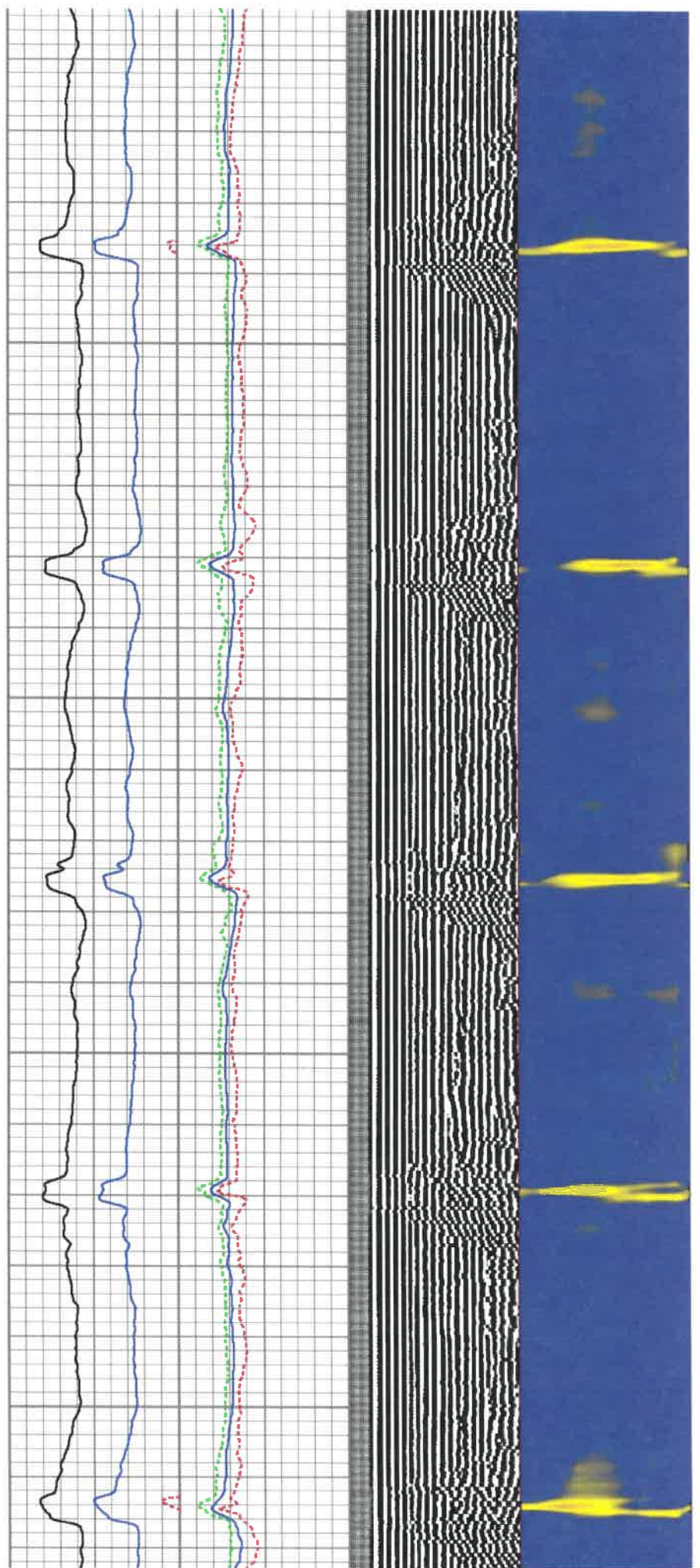


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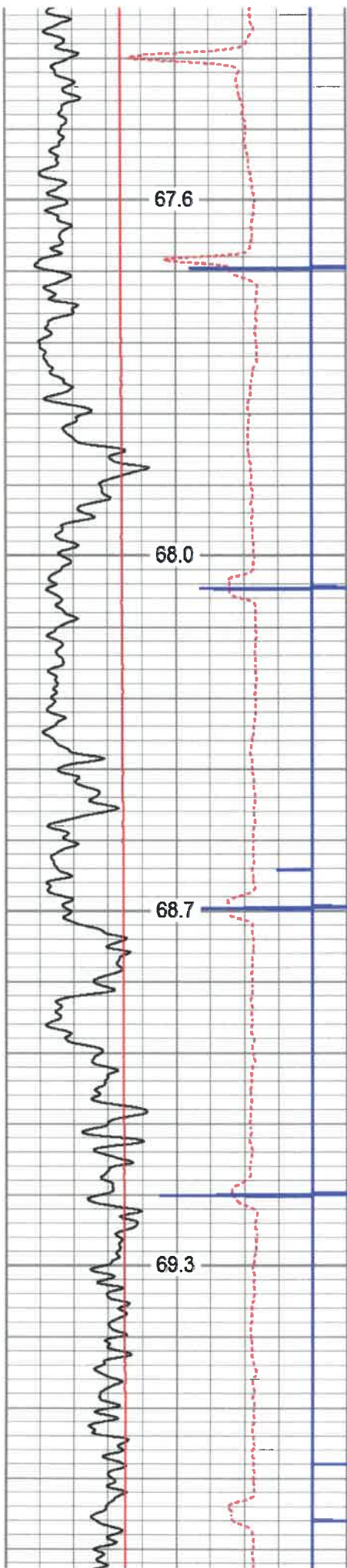
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1650

1700





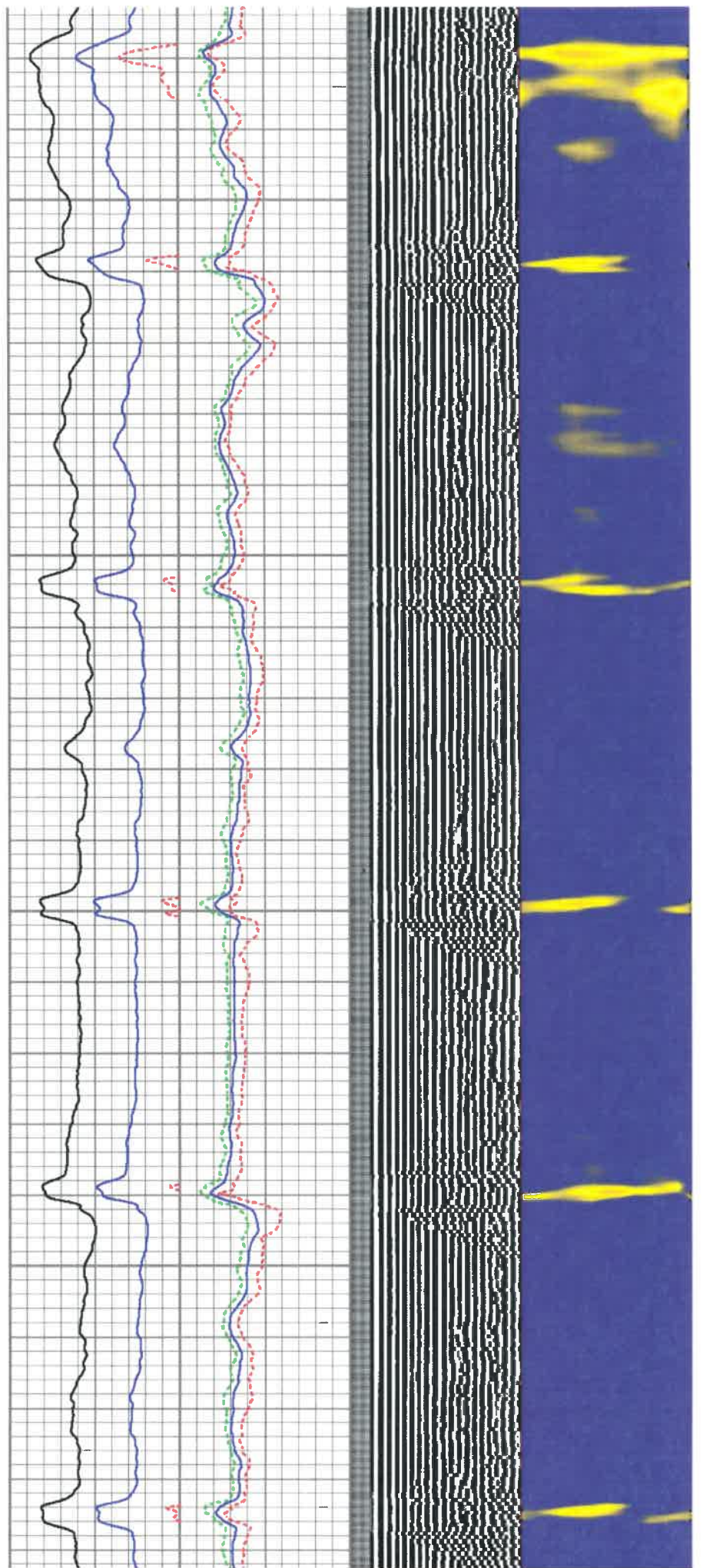


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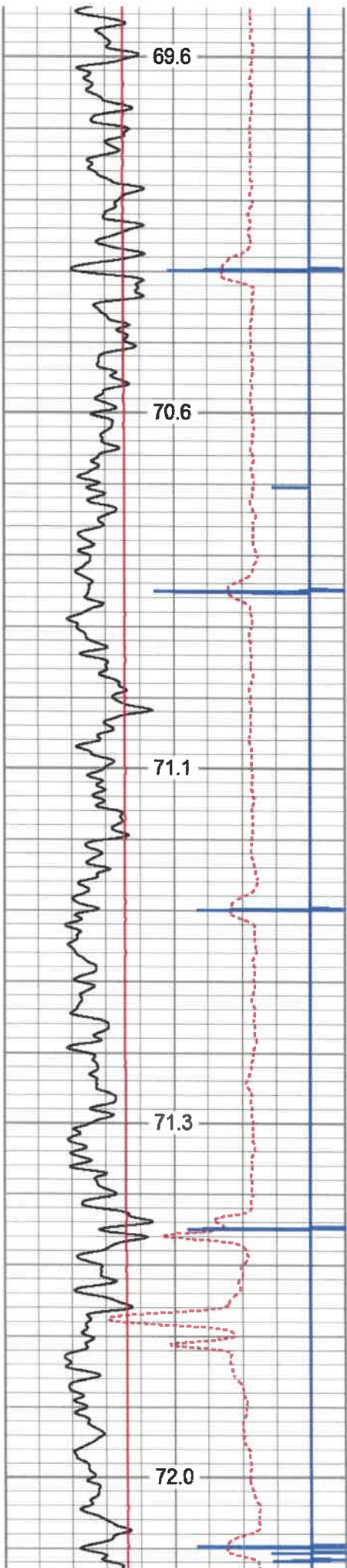
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1850

1900







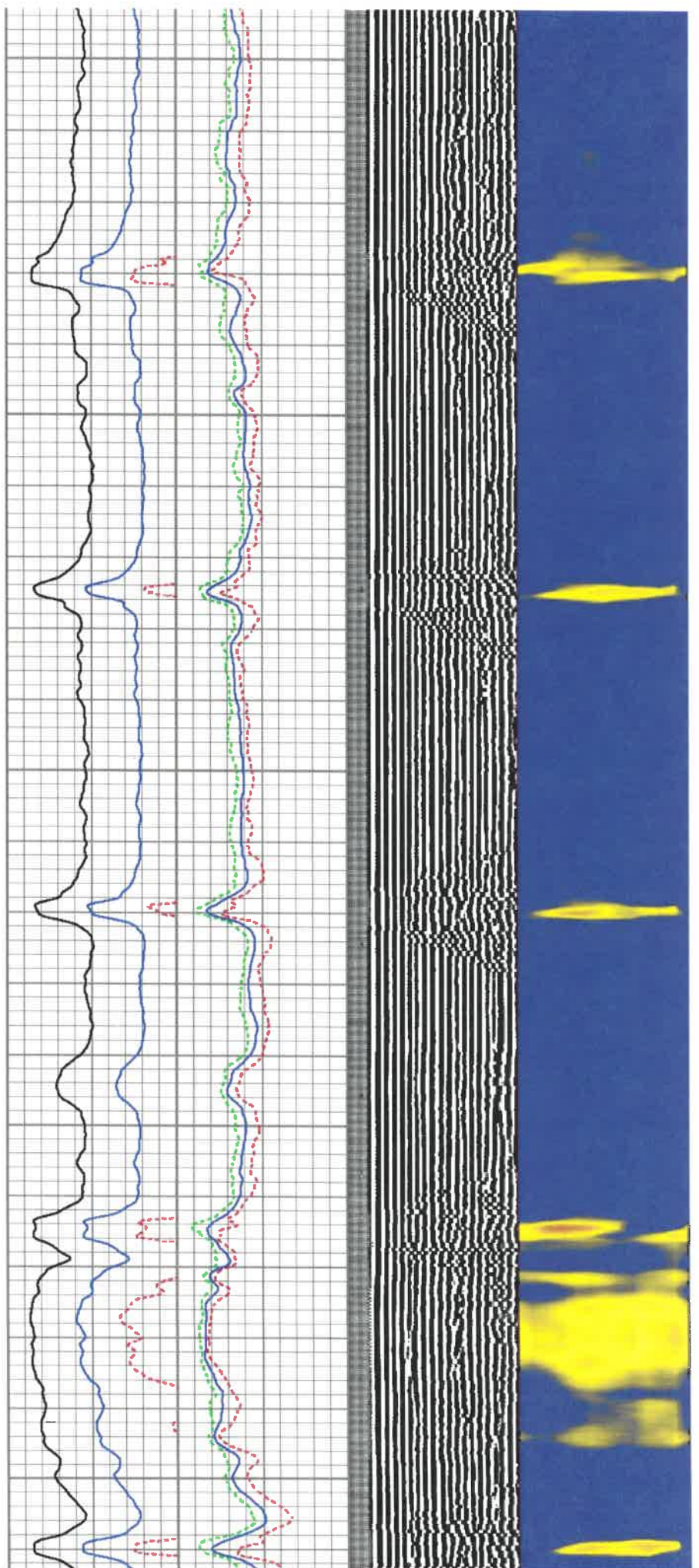
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2000

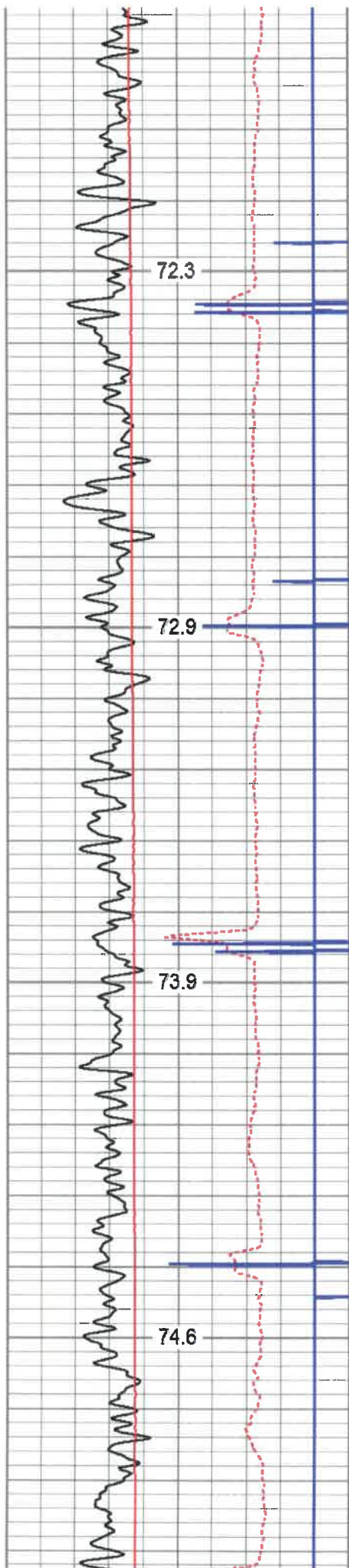
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2100

2150





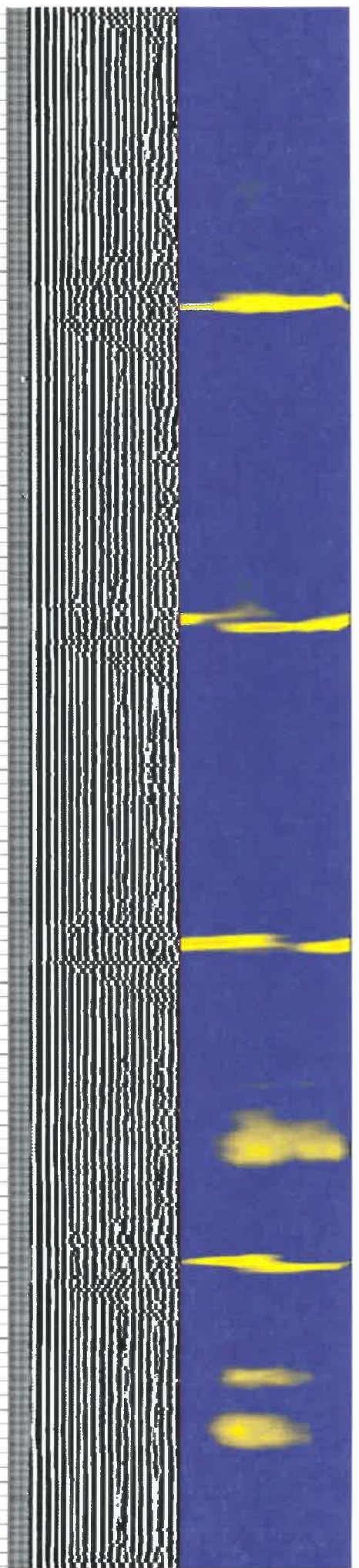
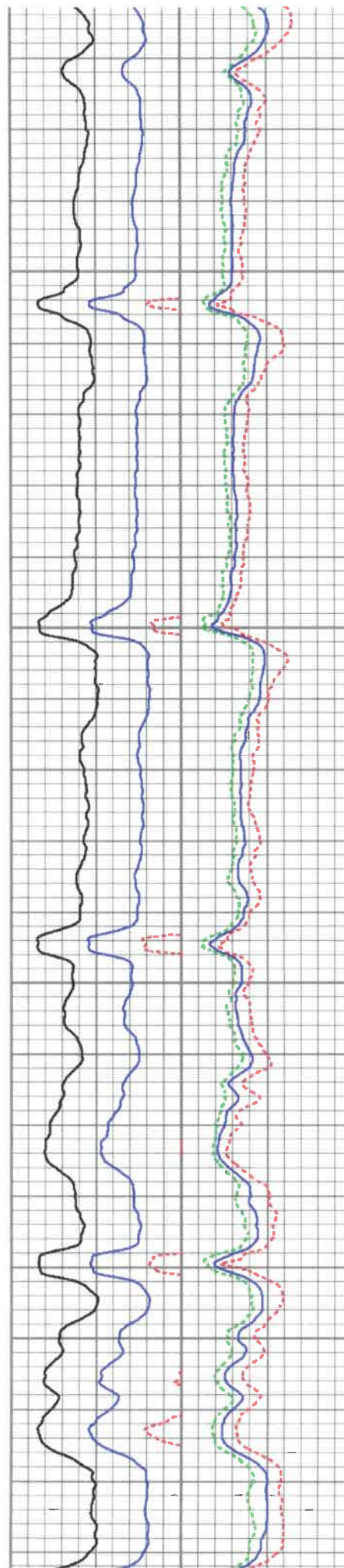


2200

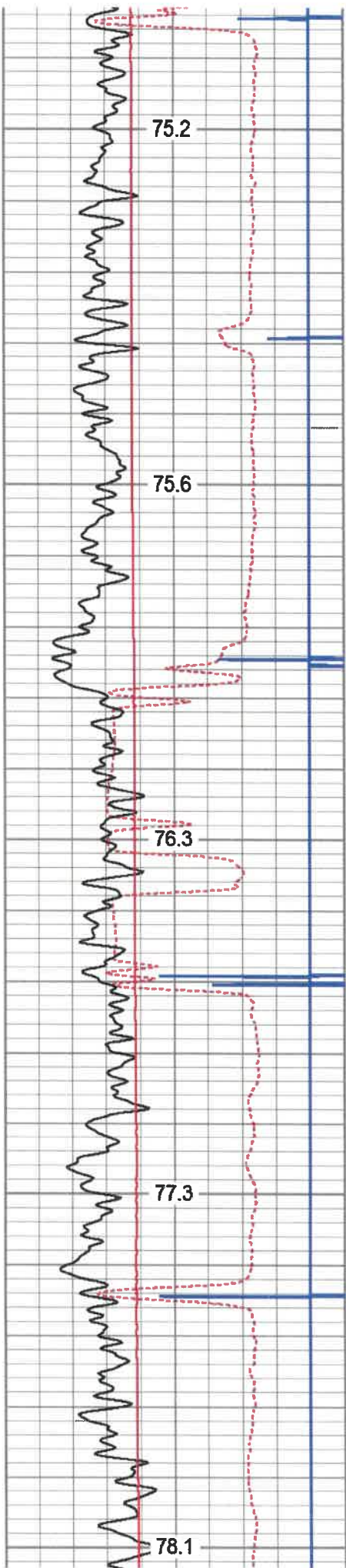
2250

2300

2350







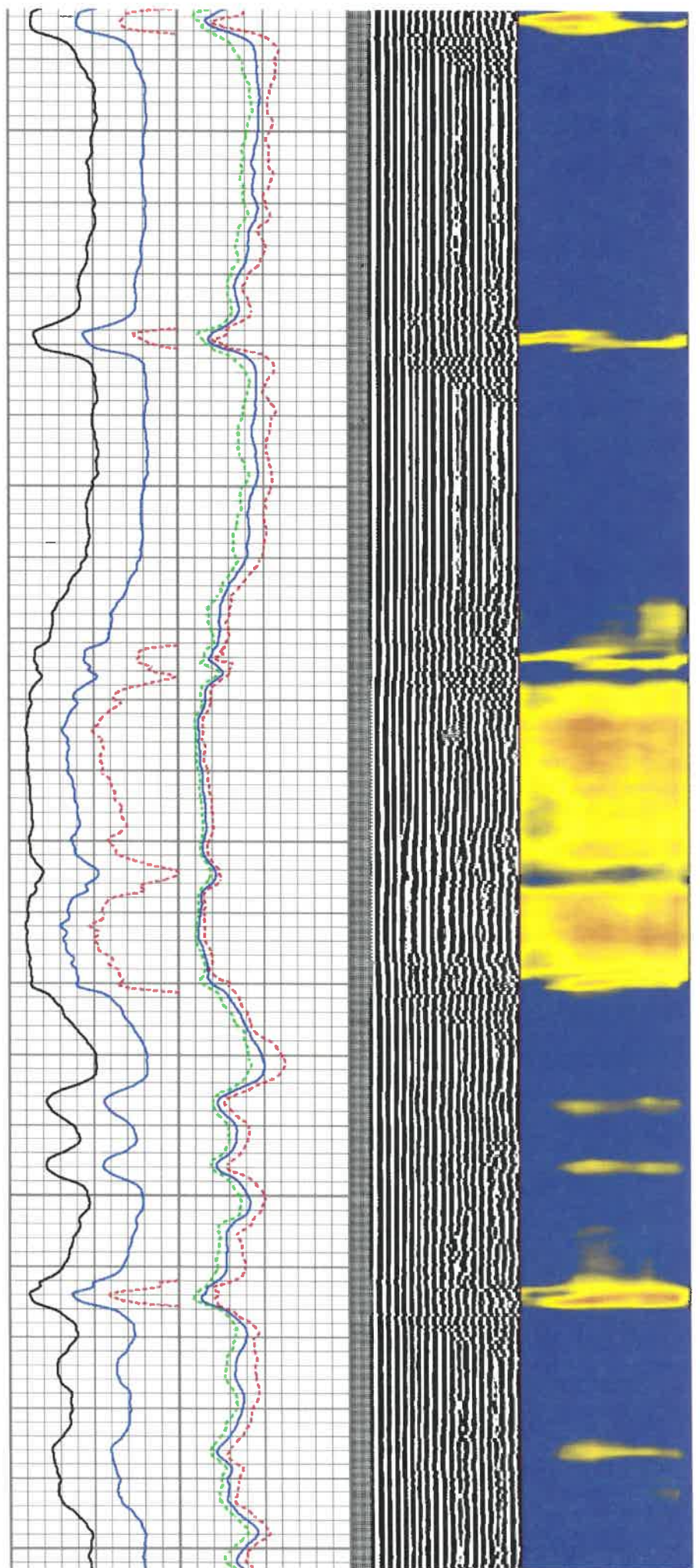
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2450

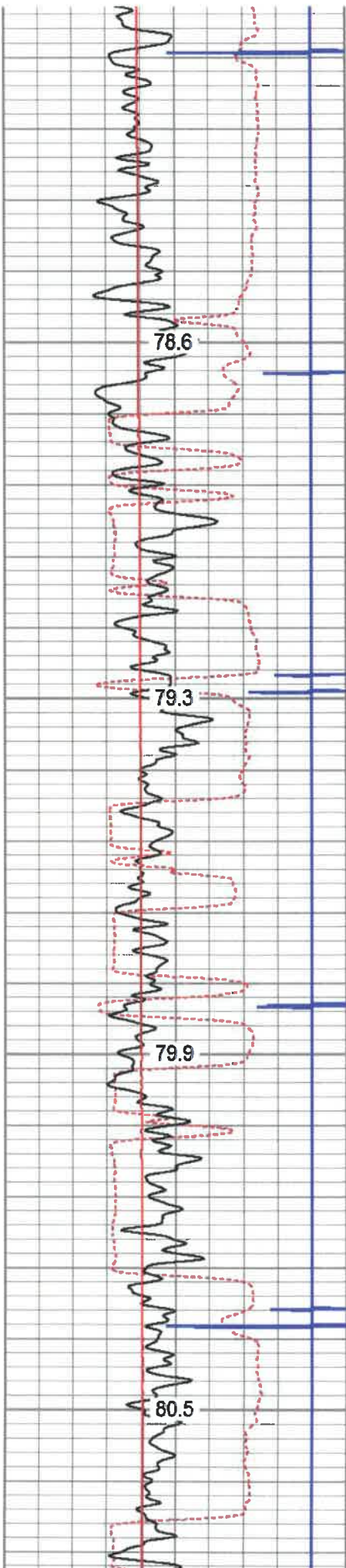
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2550

2600





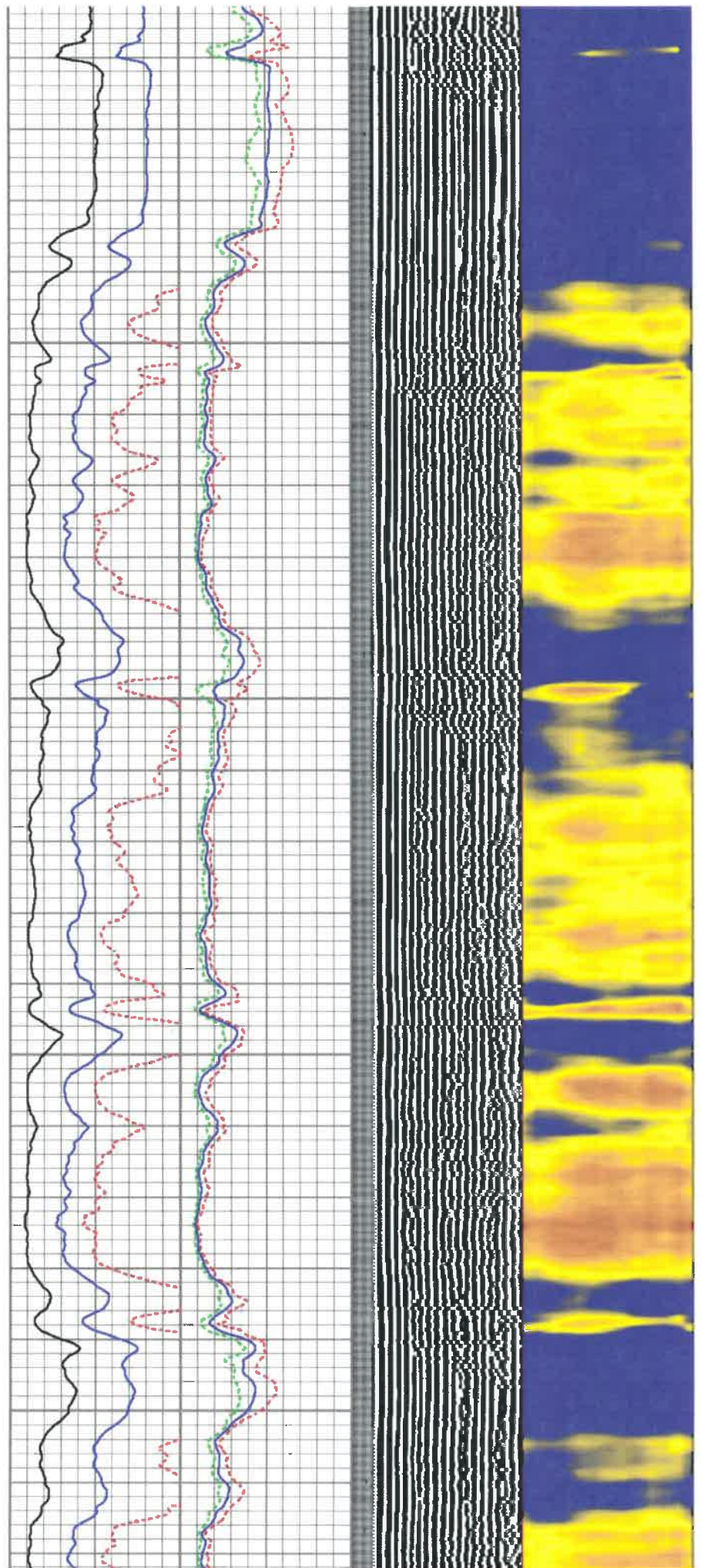


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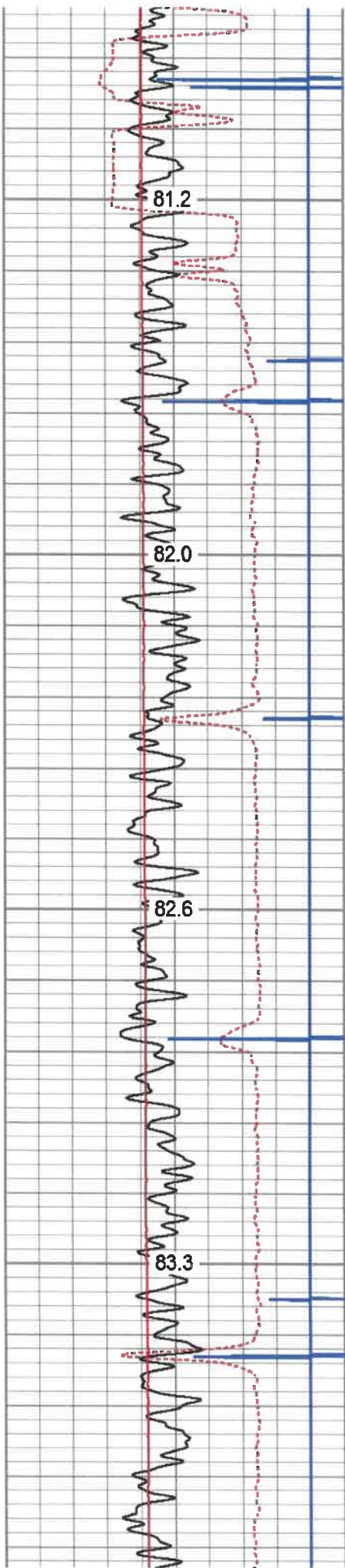
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2750

2800





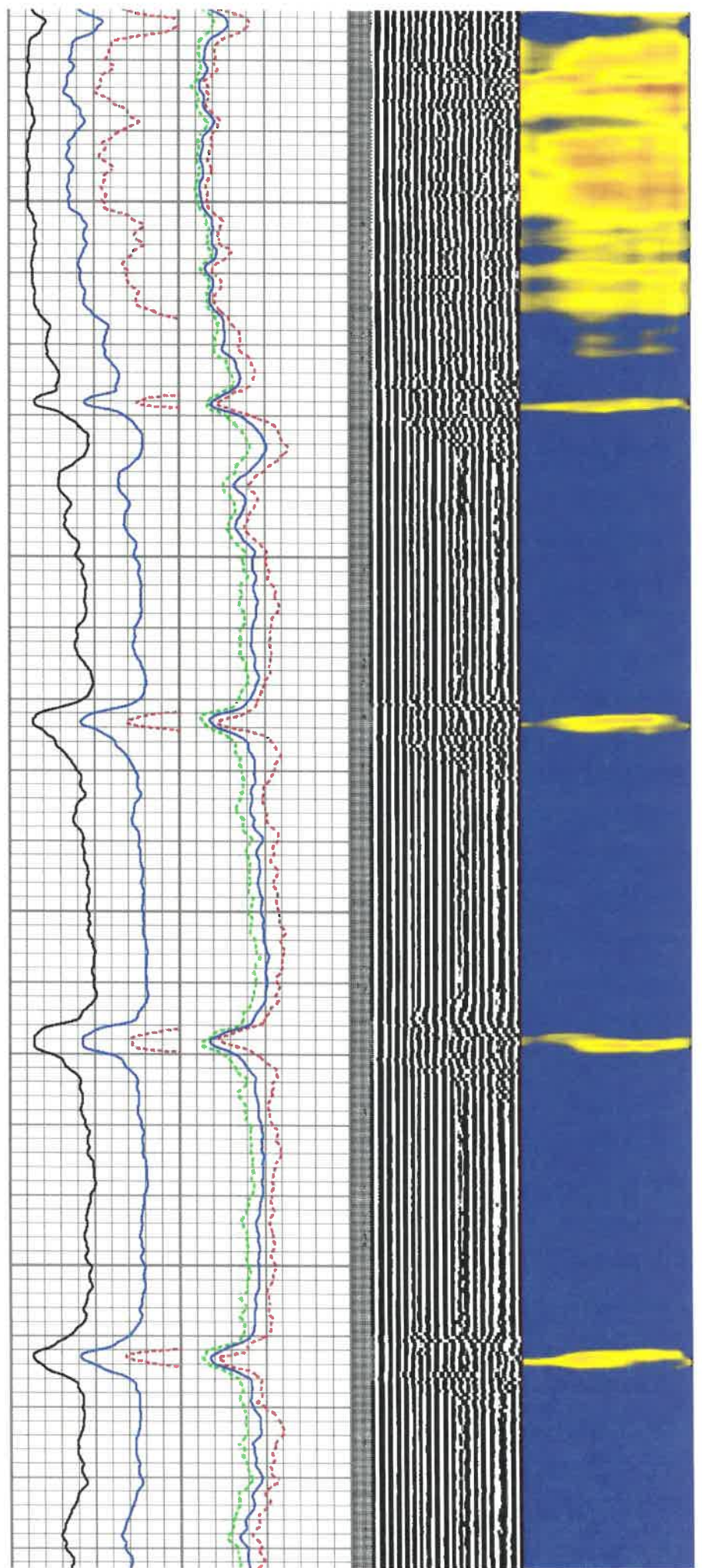


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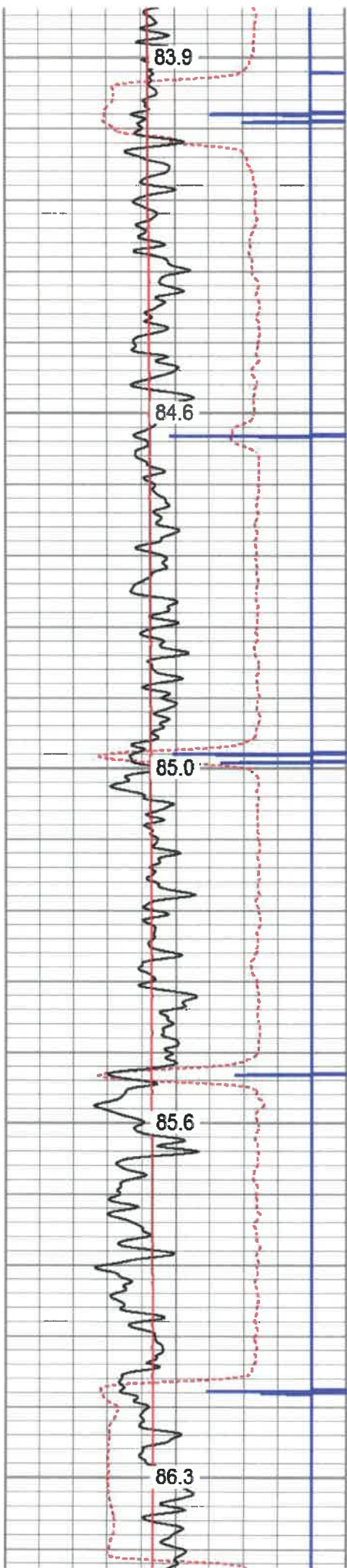
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2950

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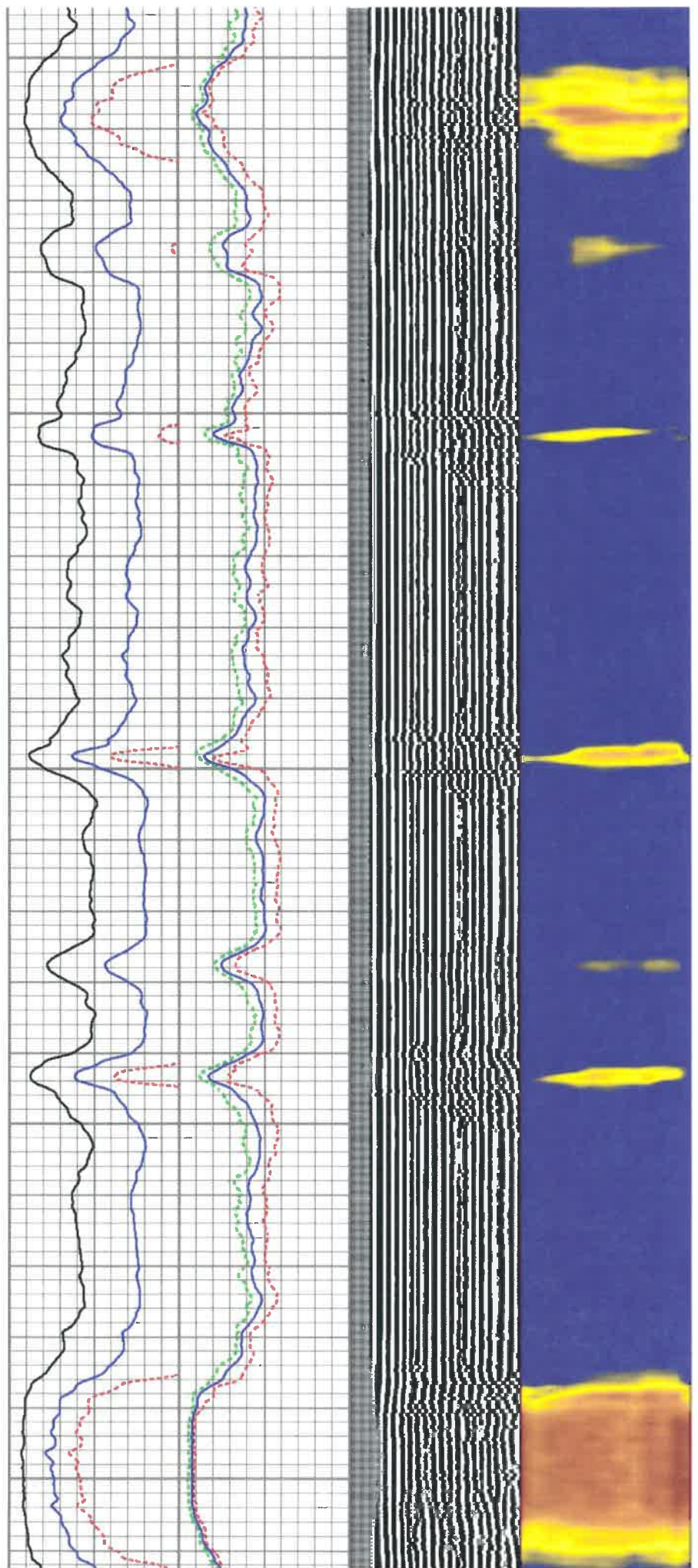
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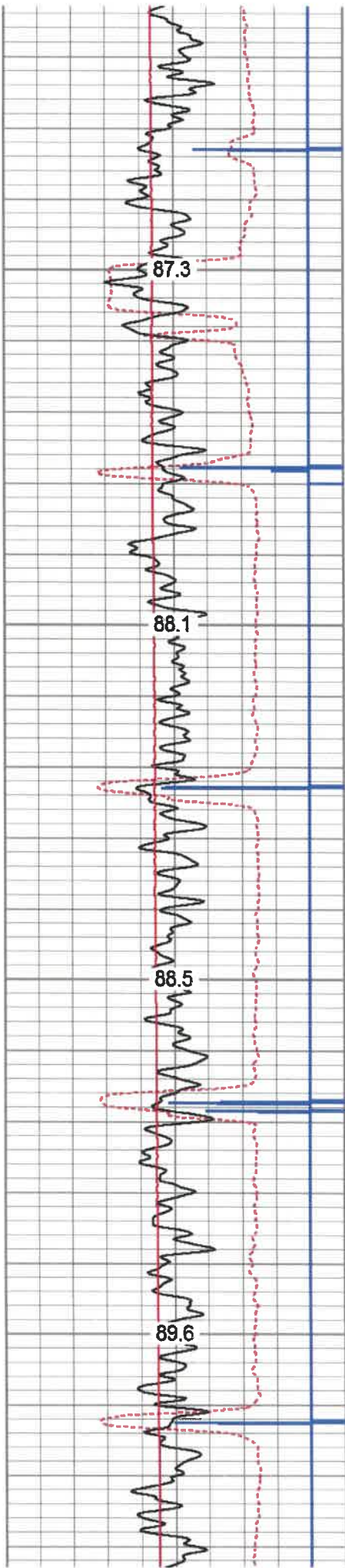
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3200

3250





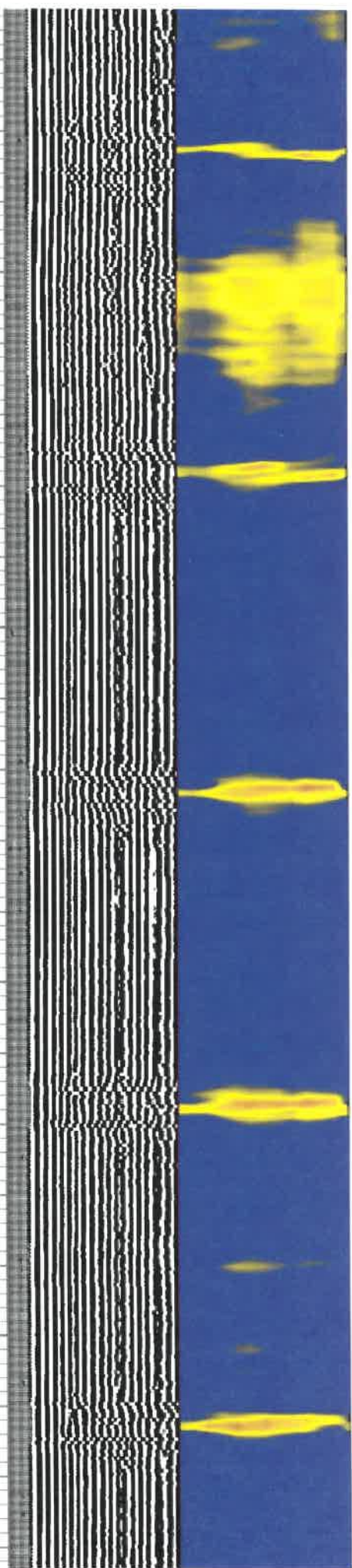
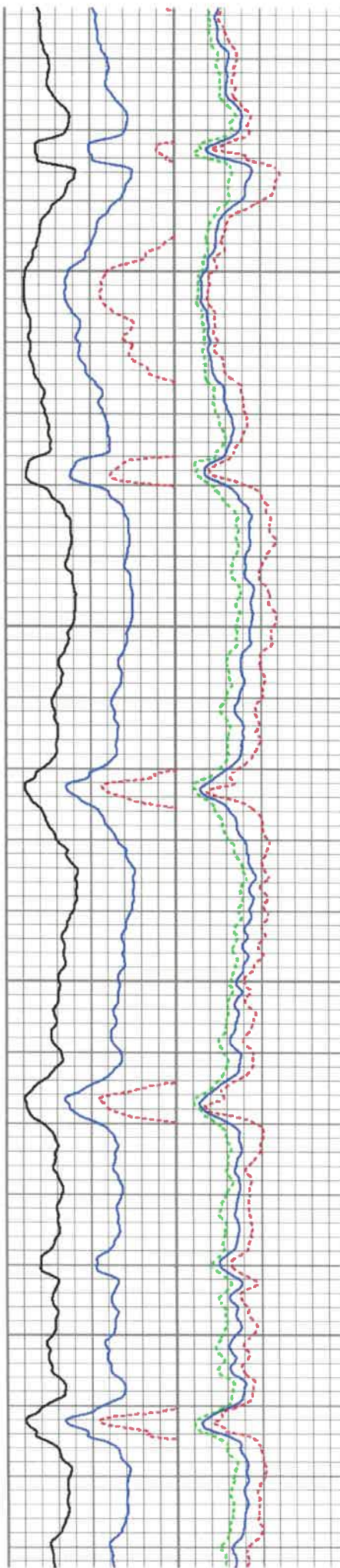


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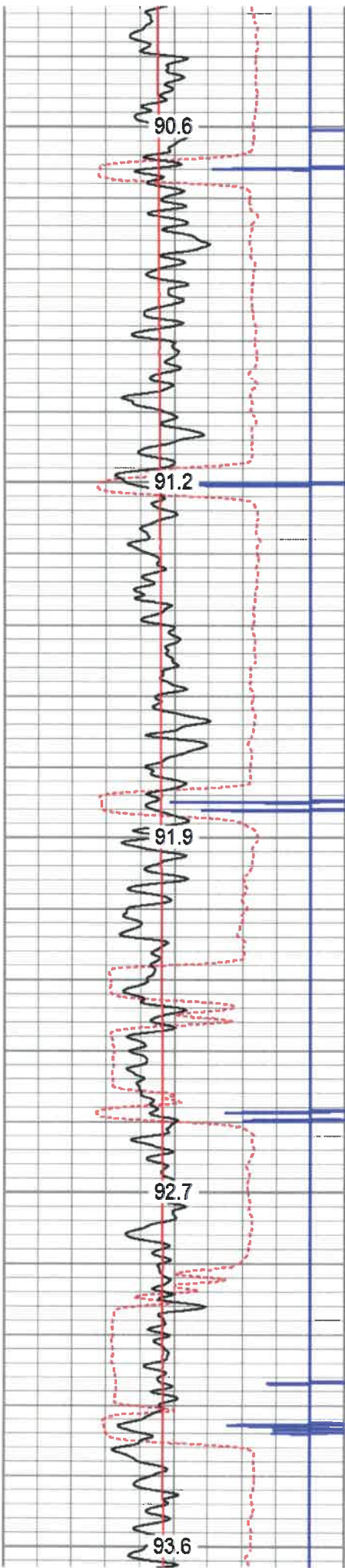
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3400

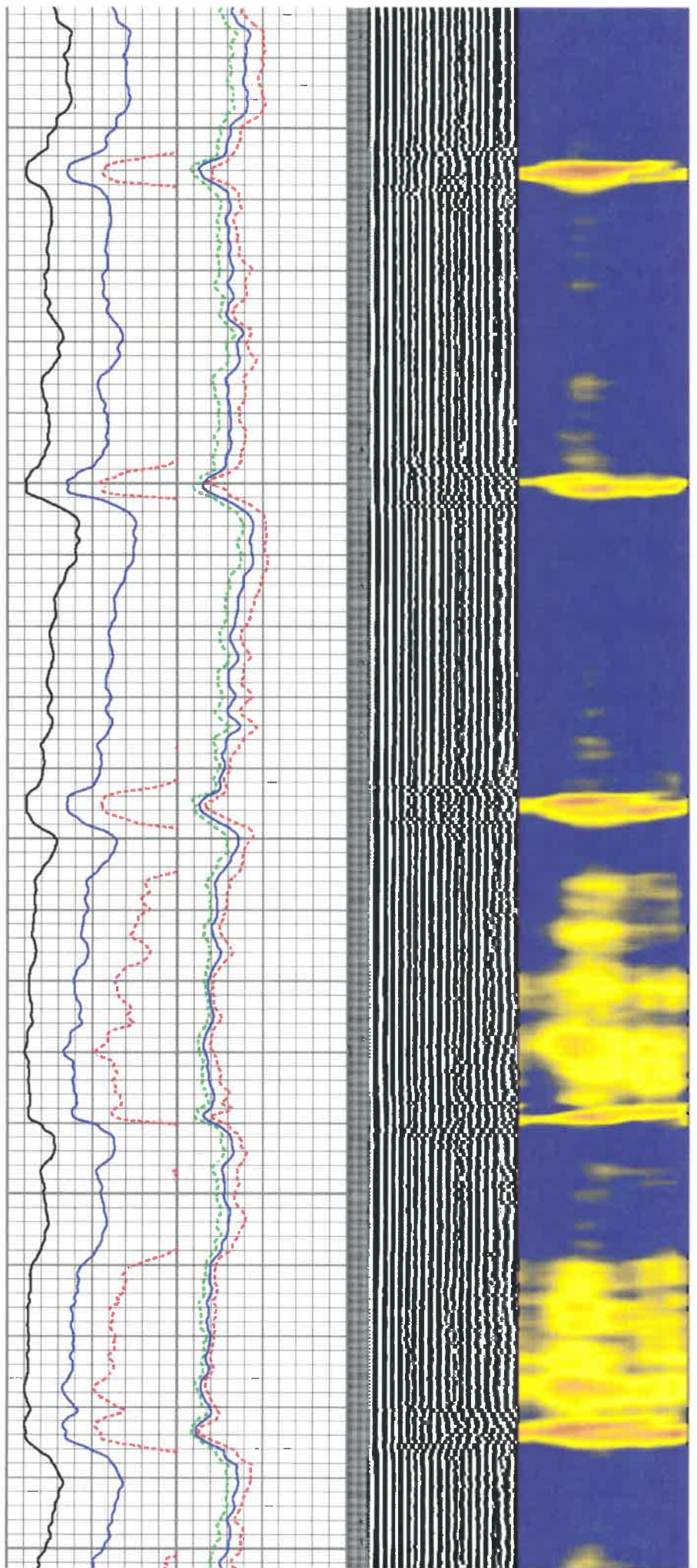
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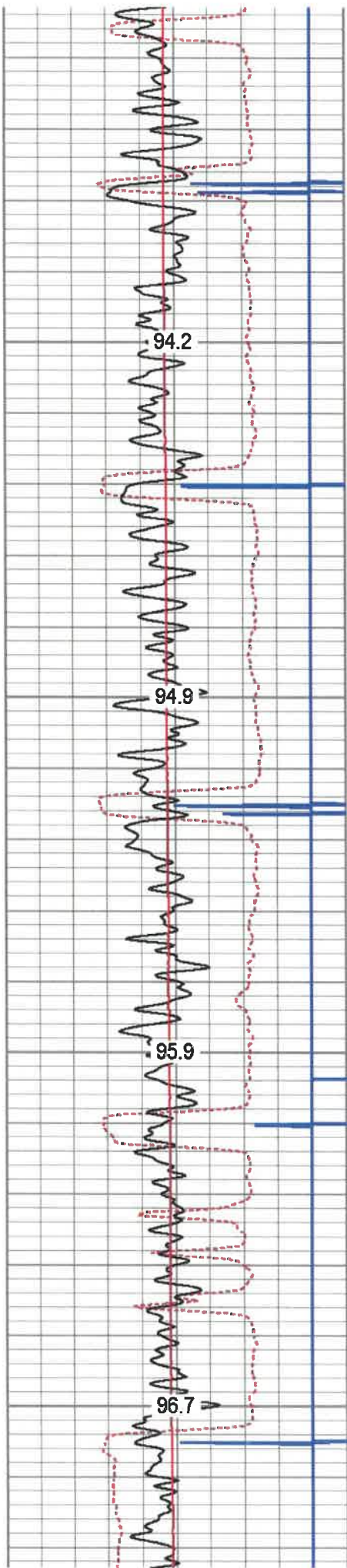




3500  
3550  
3600  
3650  
3700





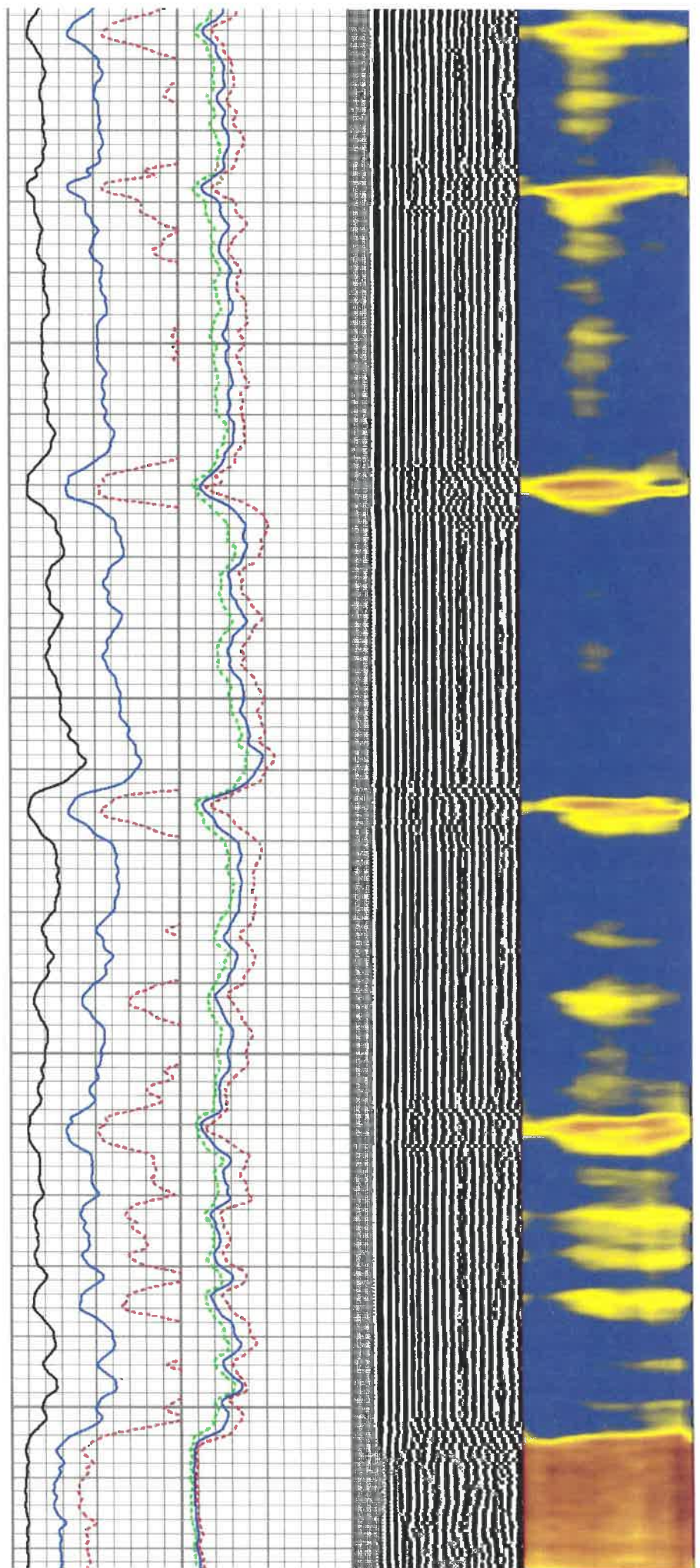


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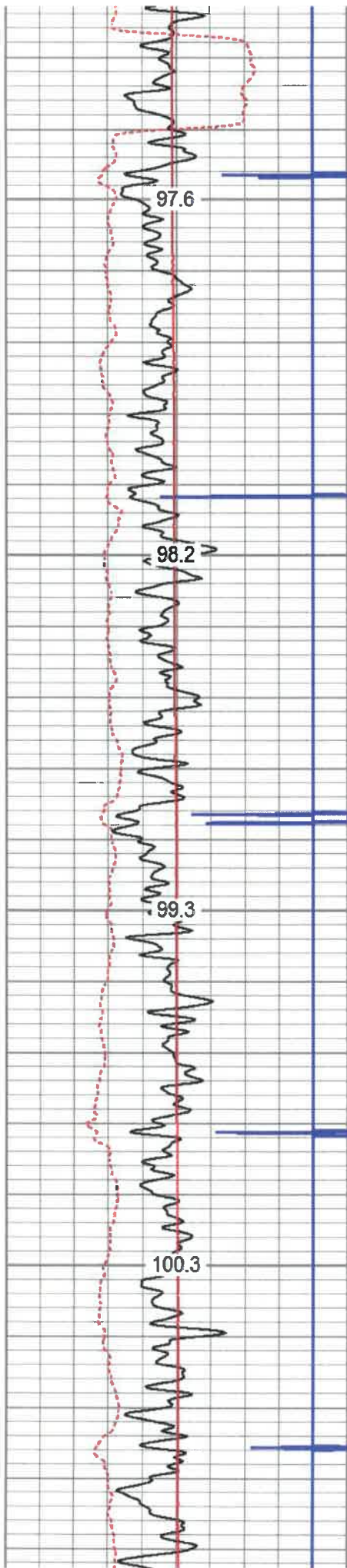
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3850

3900





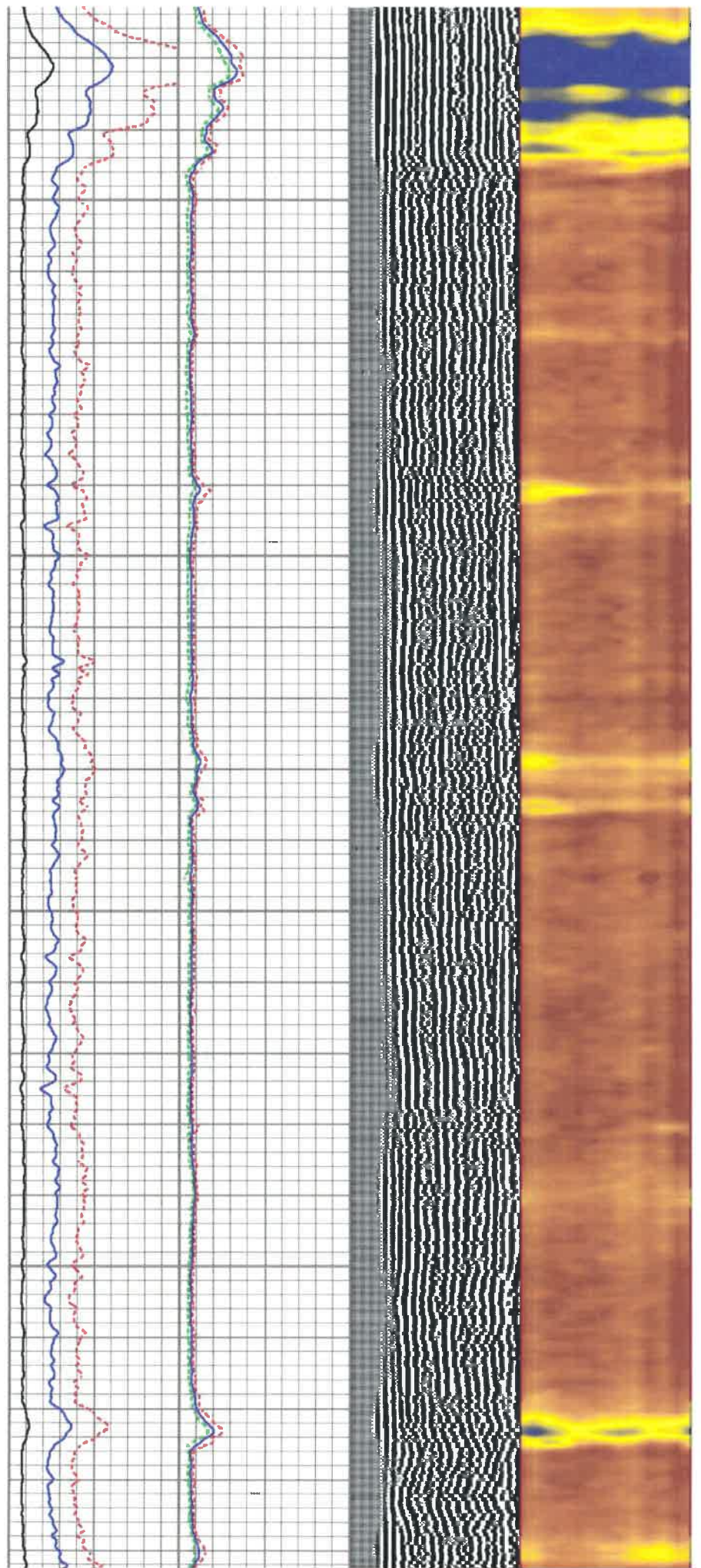


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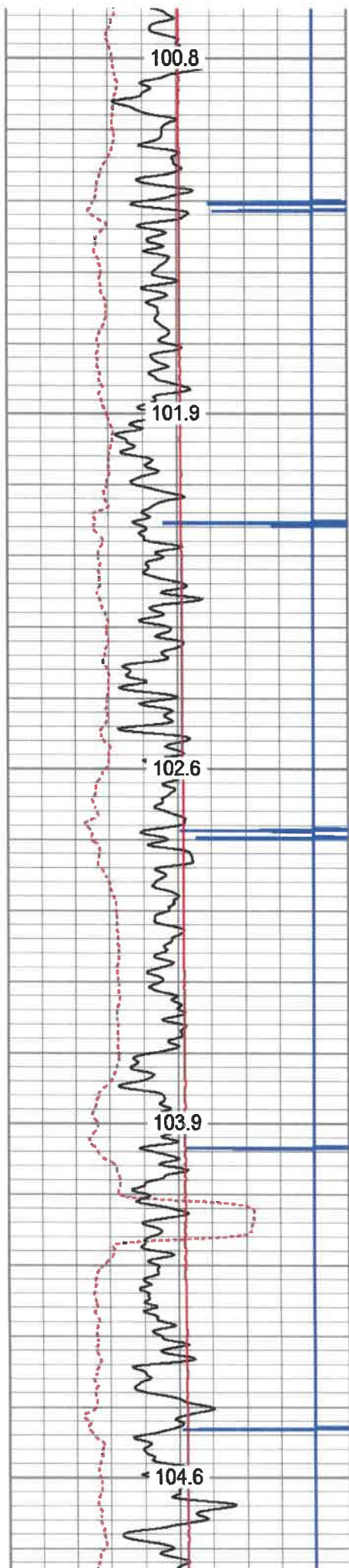
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4050

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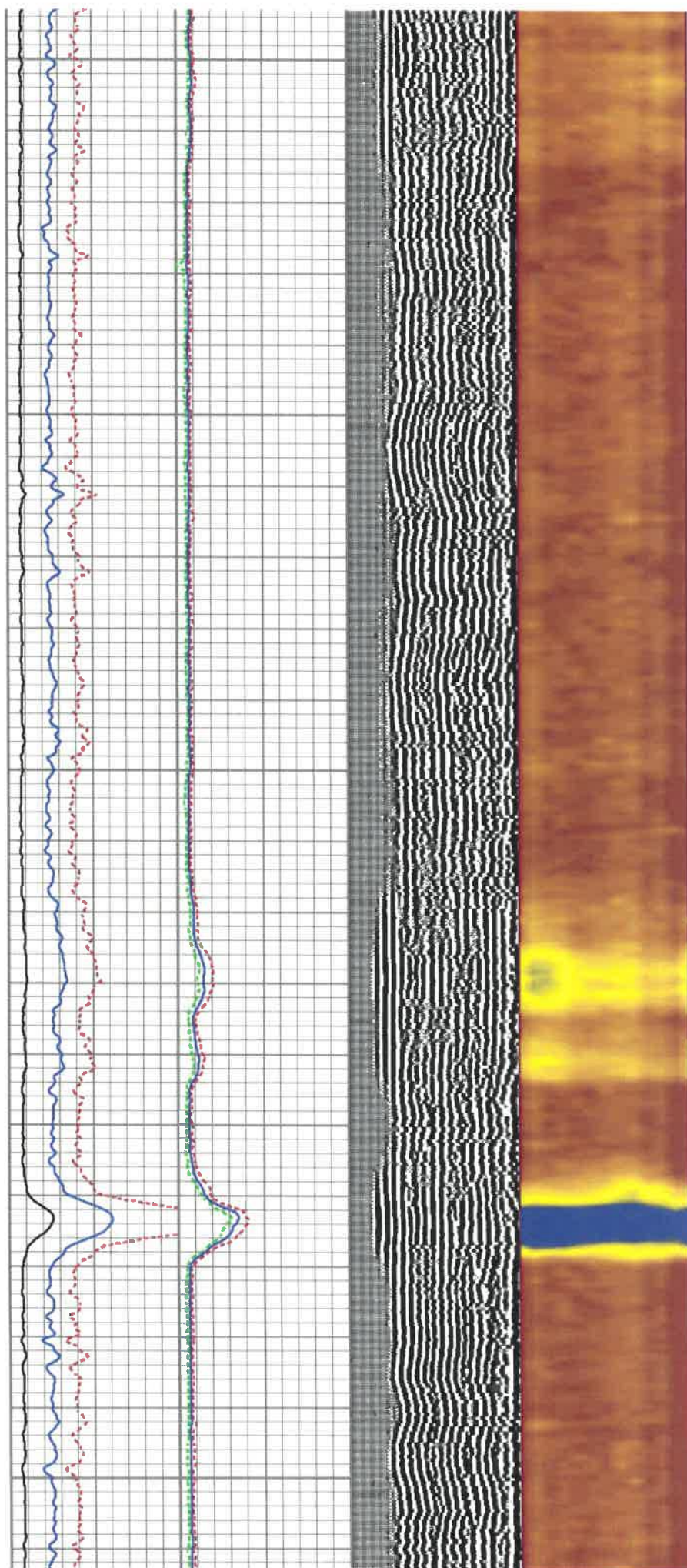
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4200

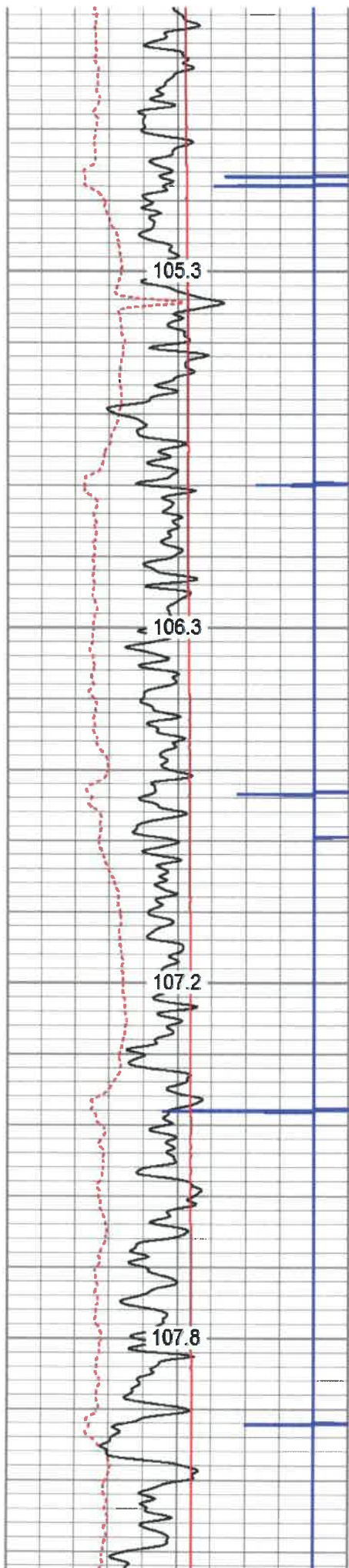
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4300

4350





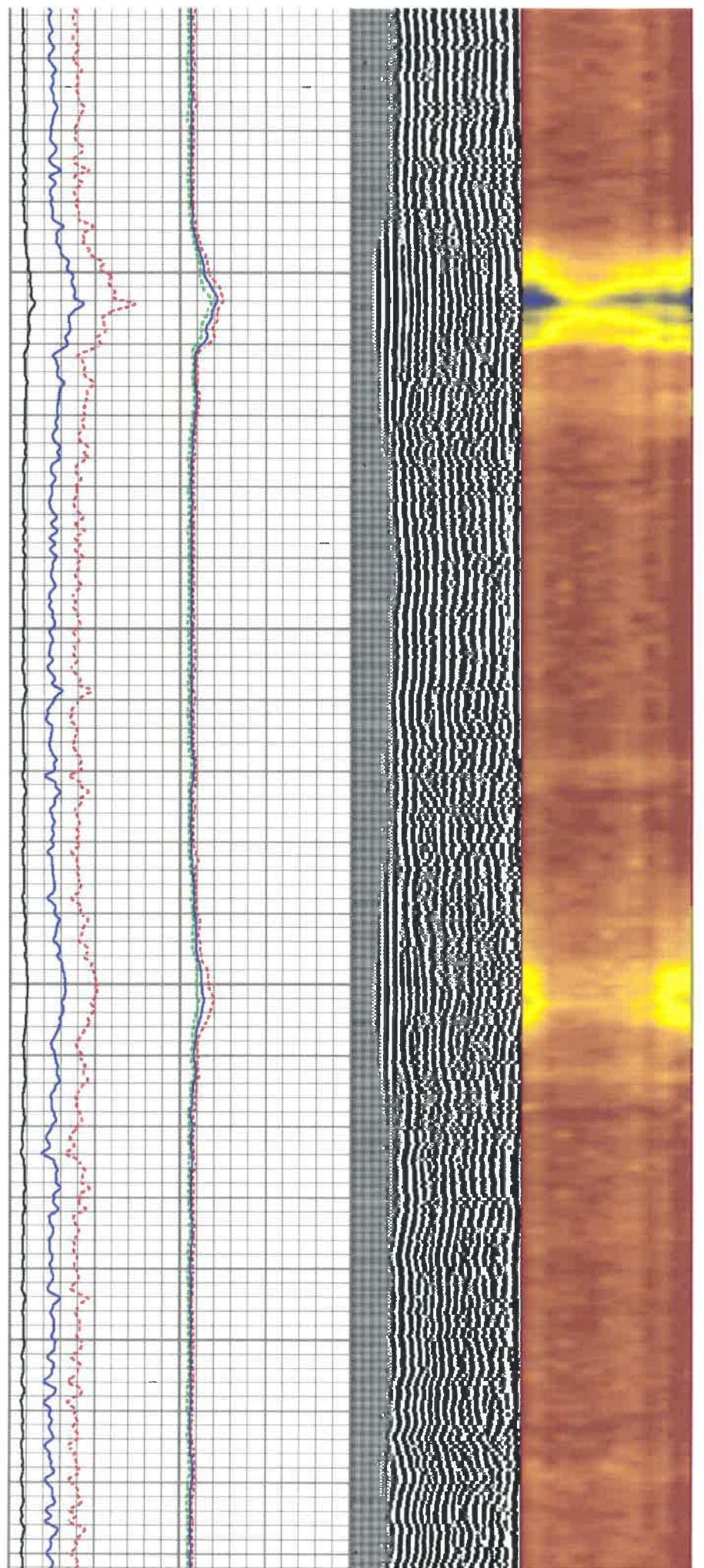


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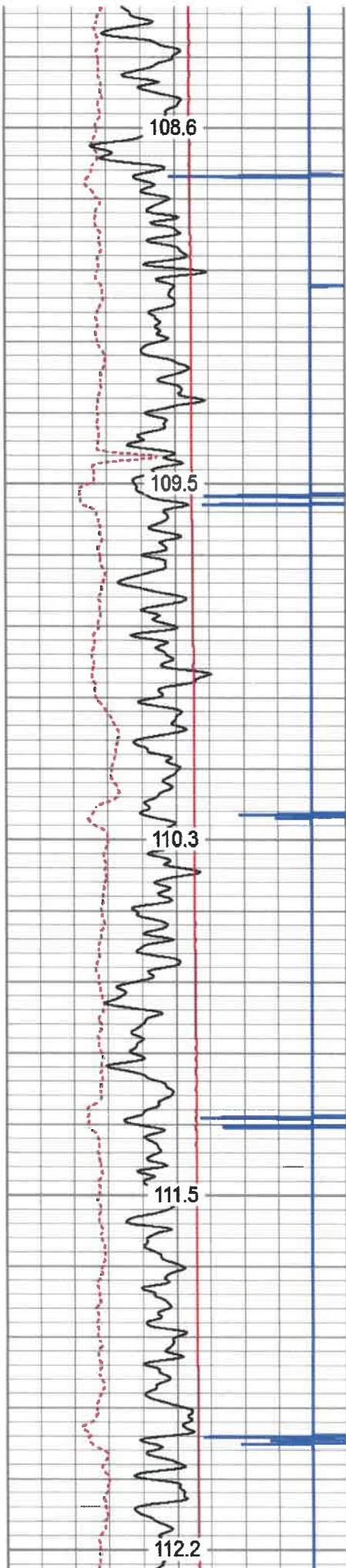
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4500

4550







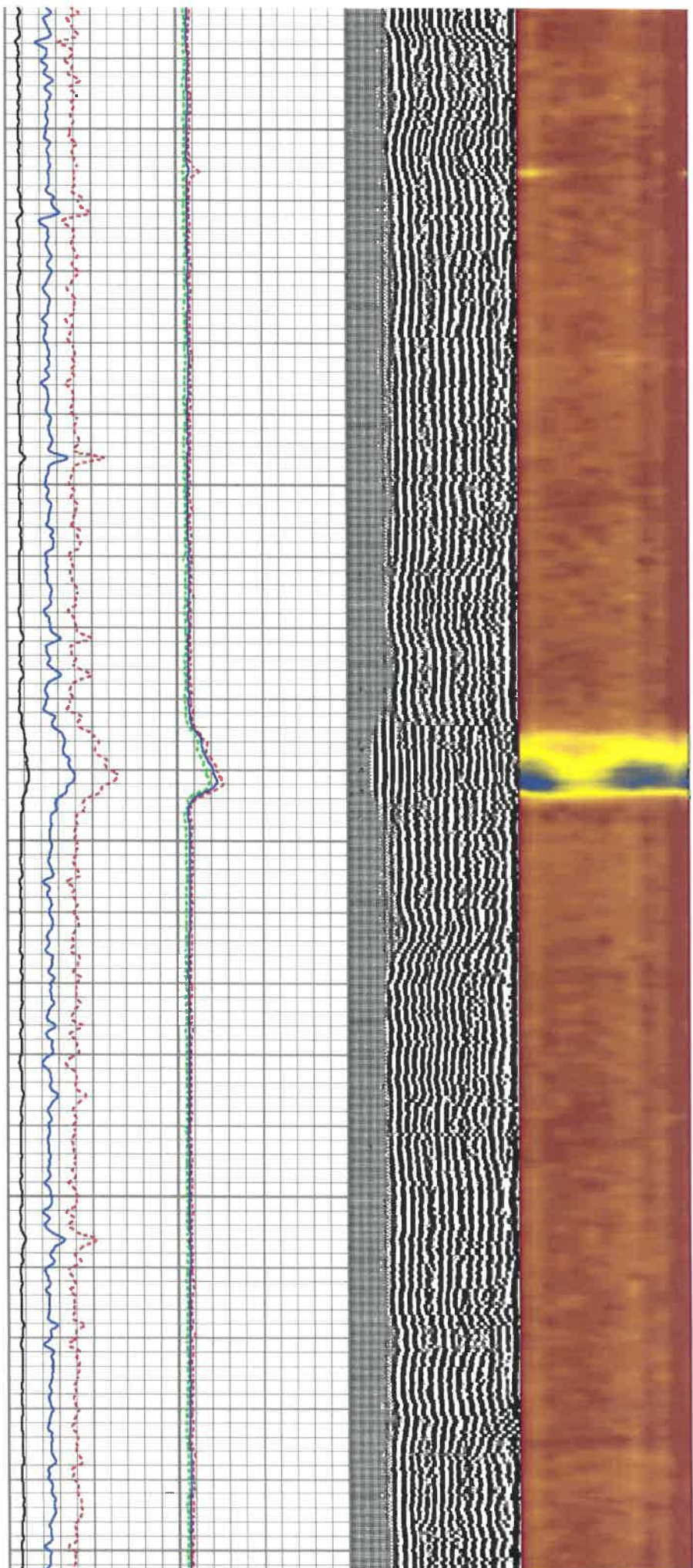
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4650

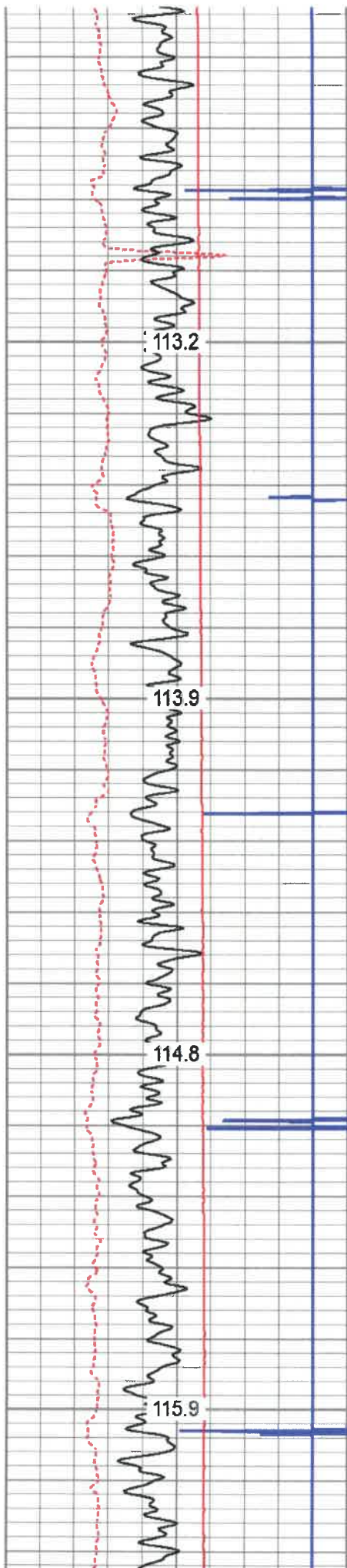
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4750

4800





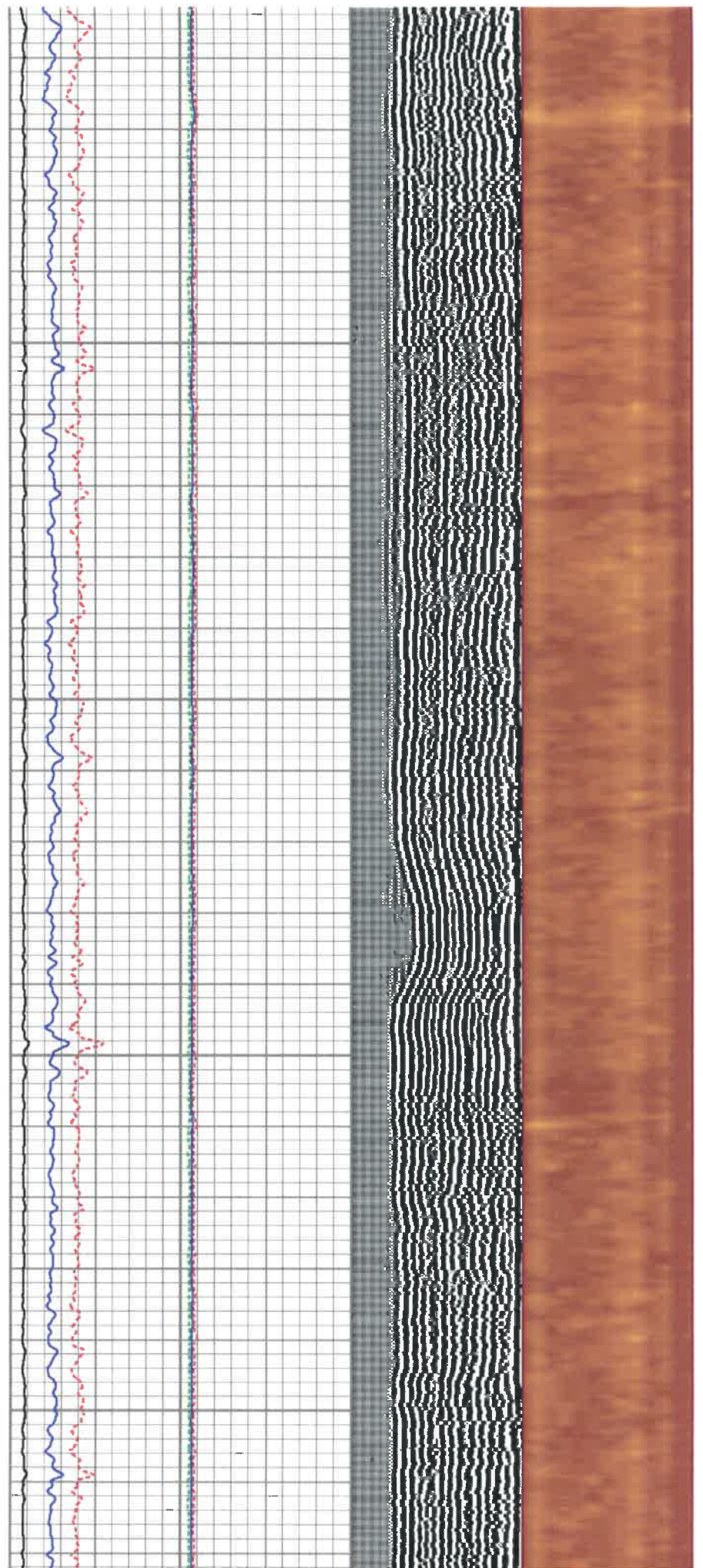


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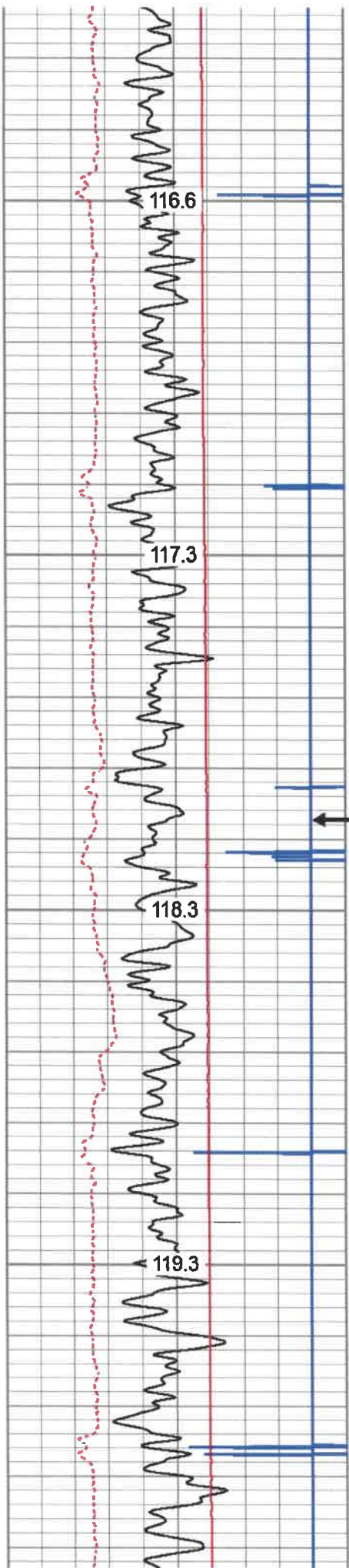
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4950

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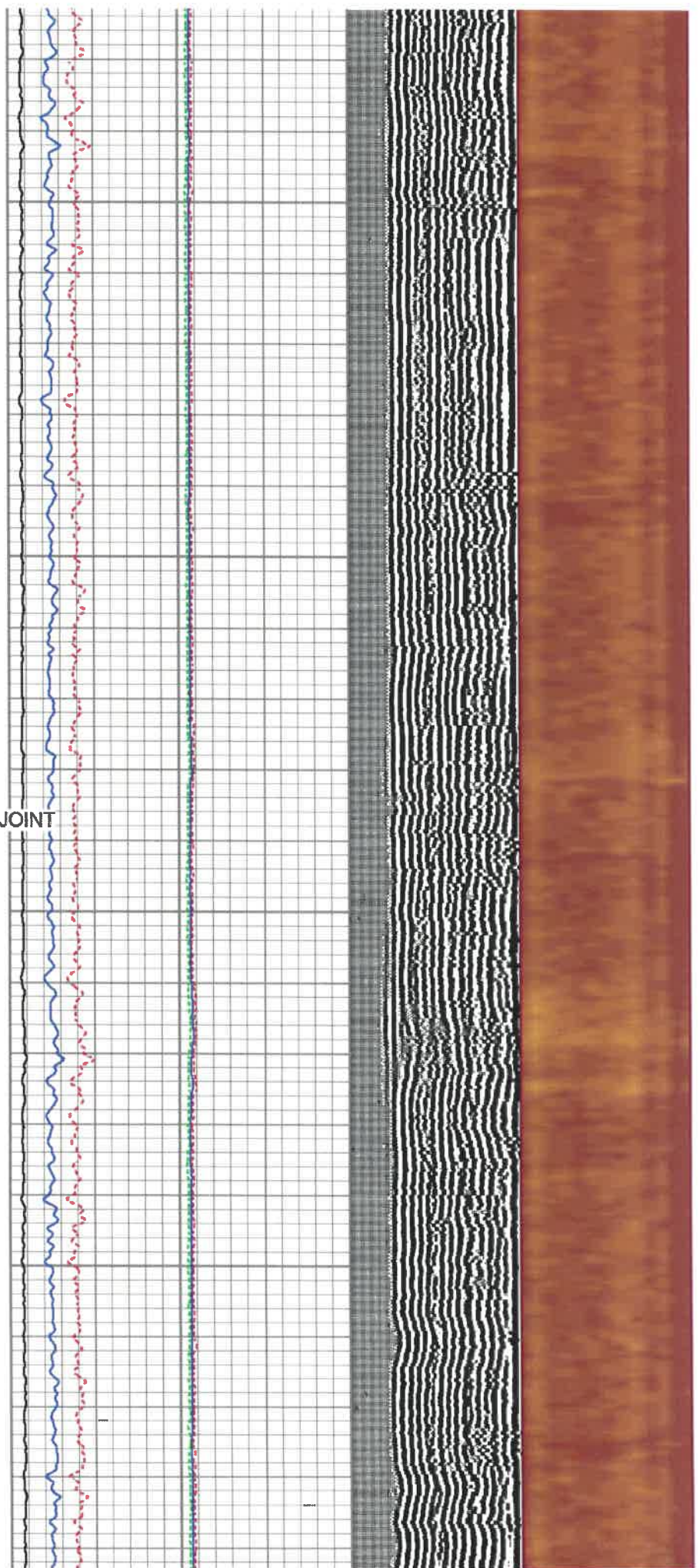
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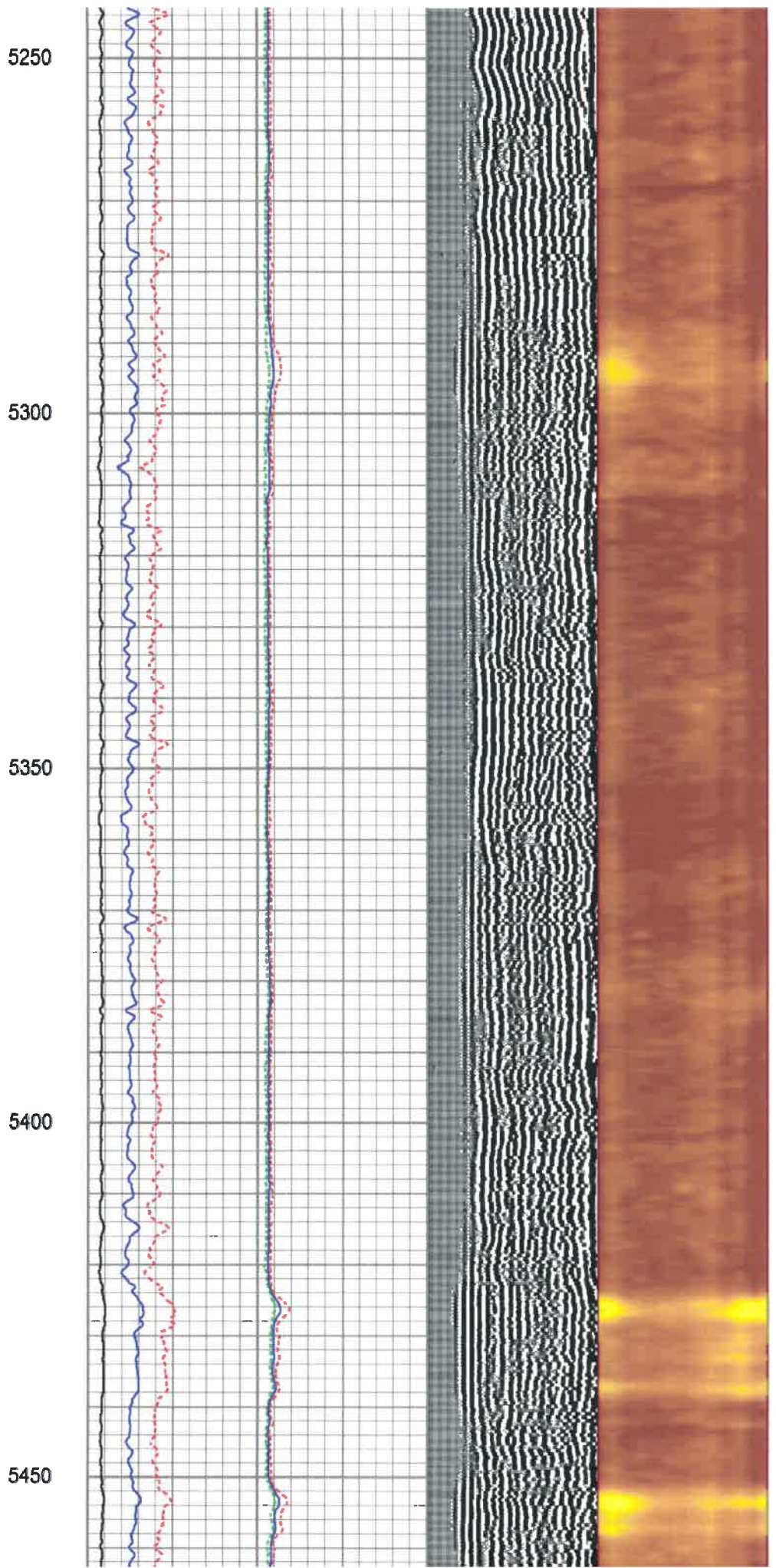
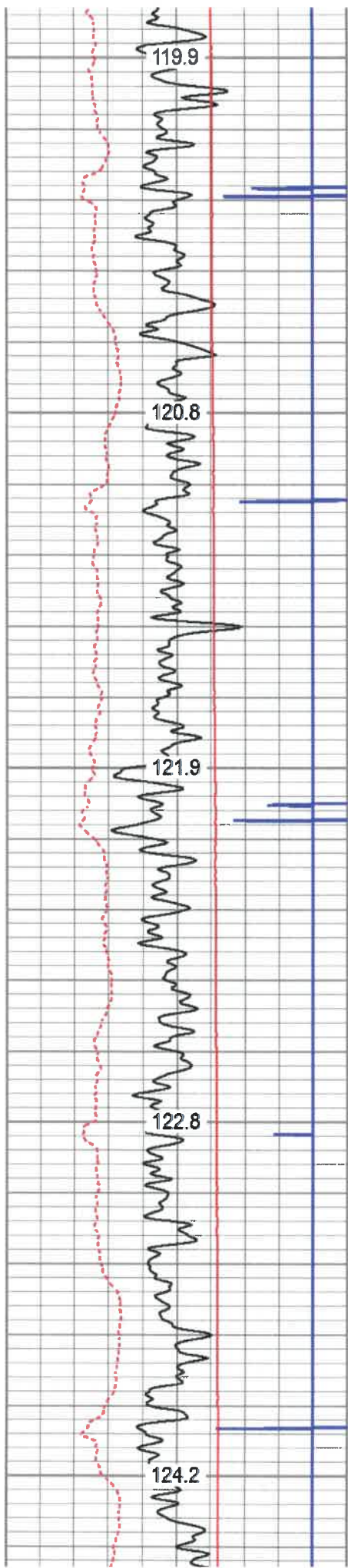
← MARKER JOINT

5150

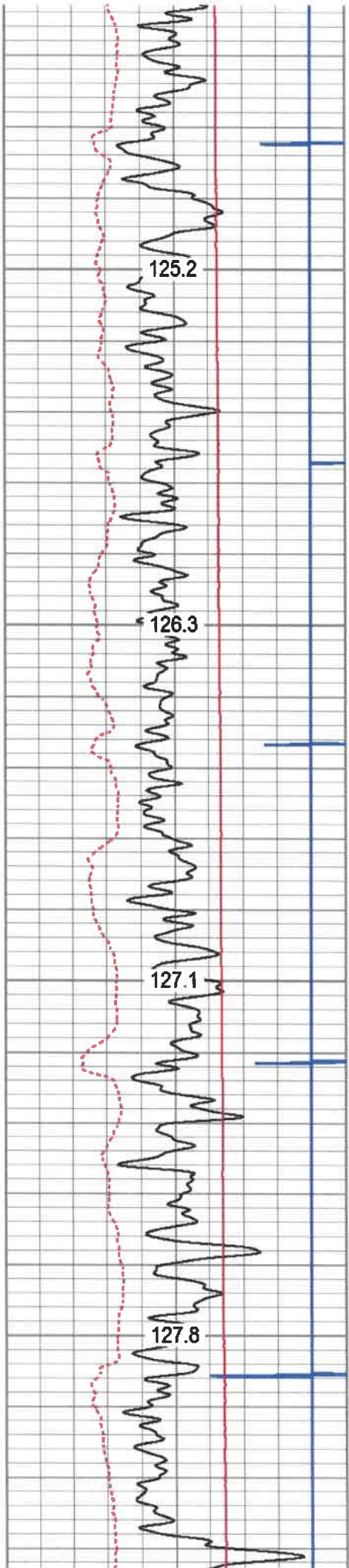
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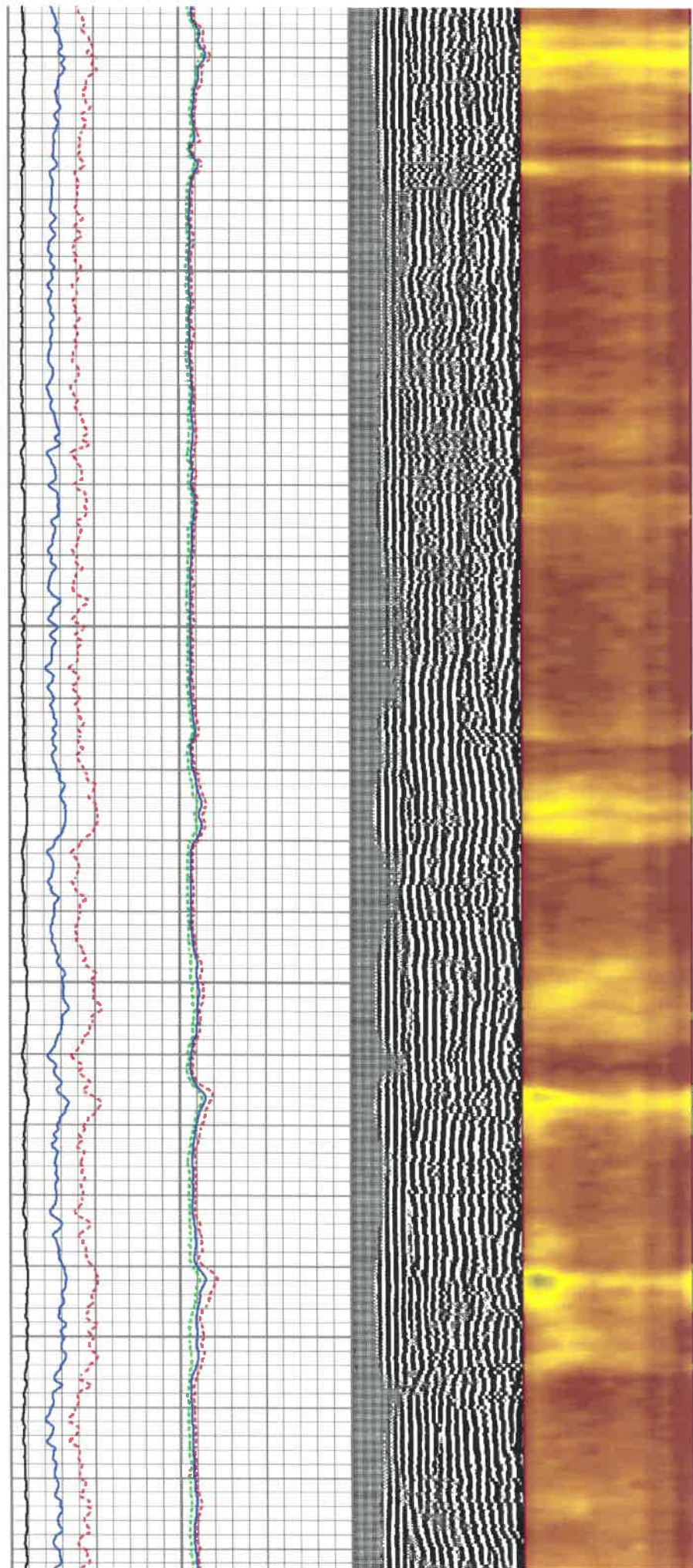


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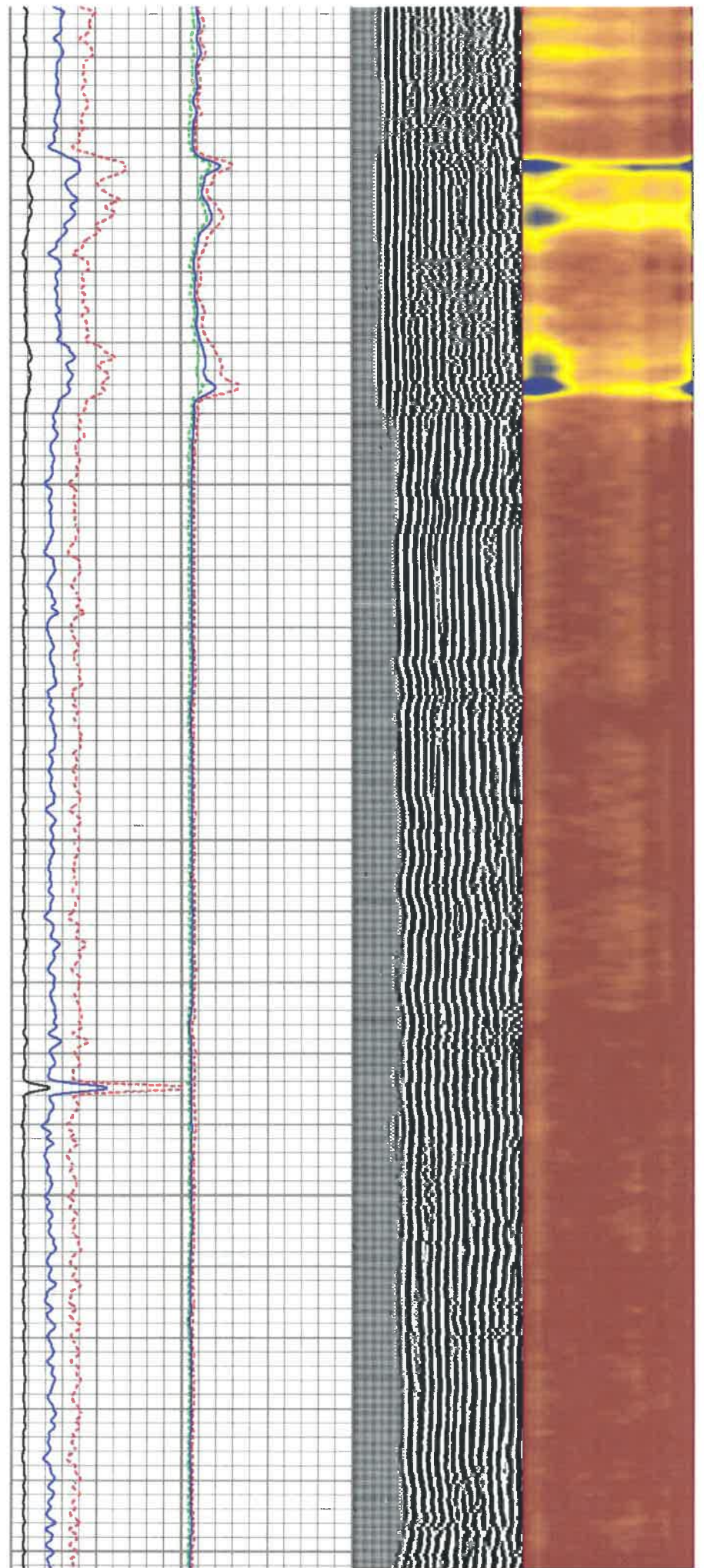
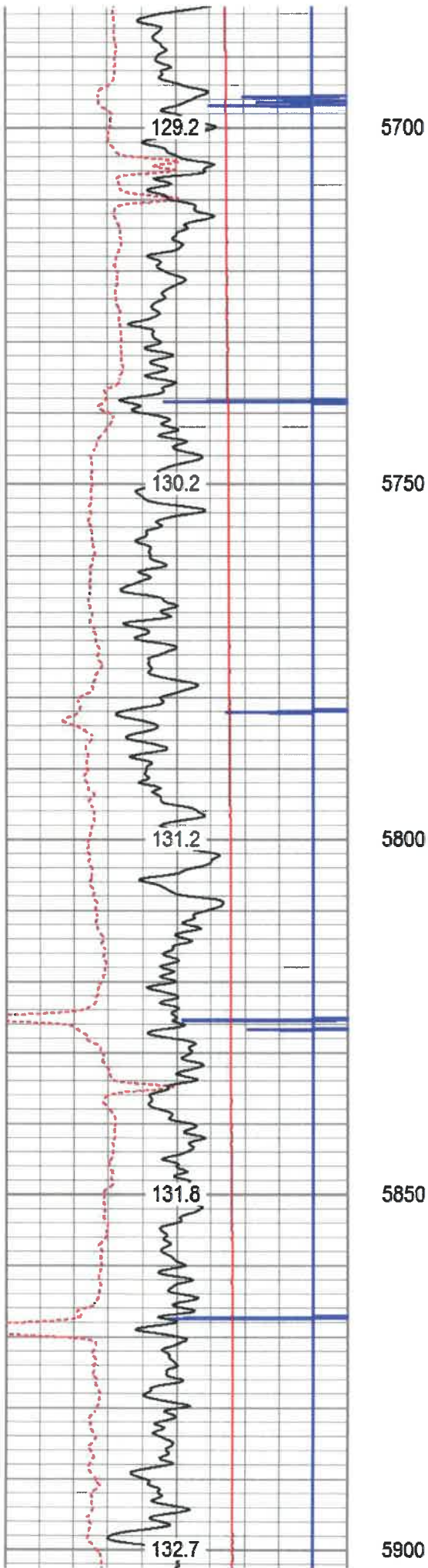
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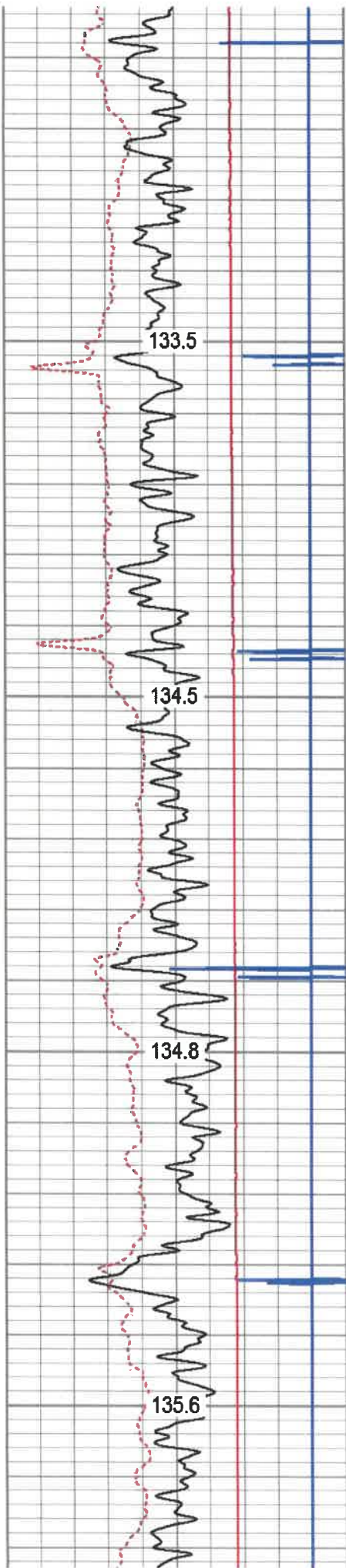
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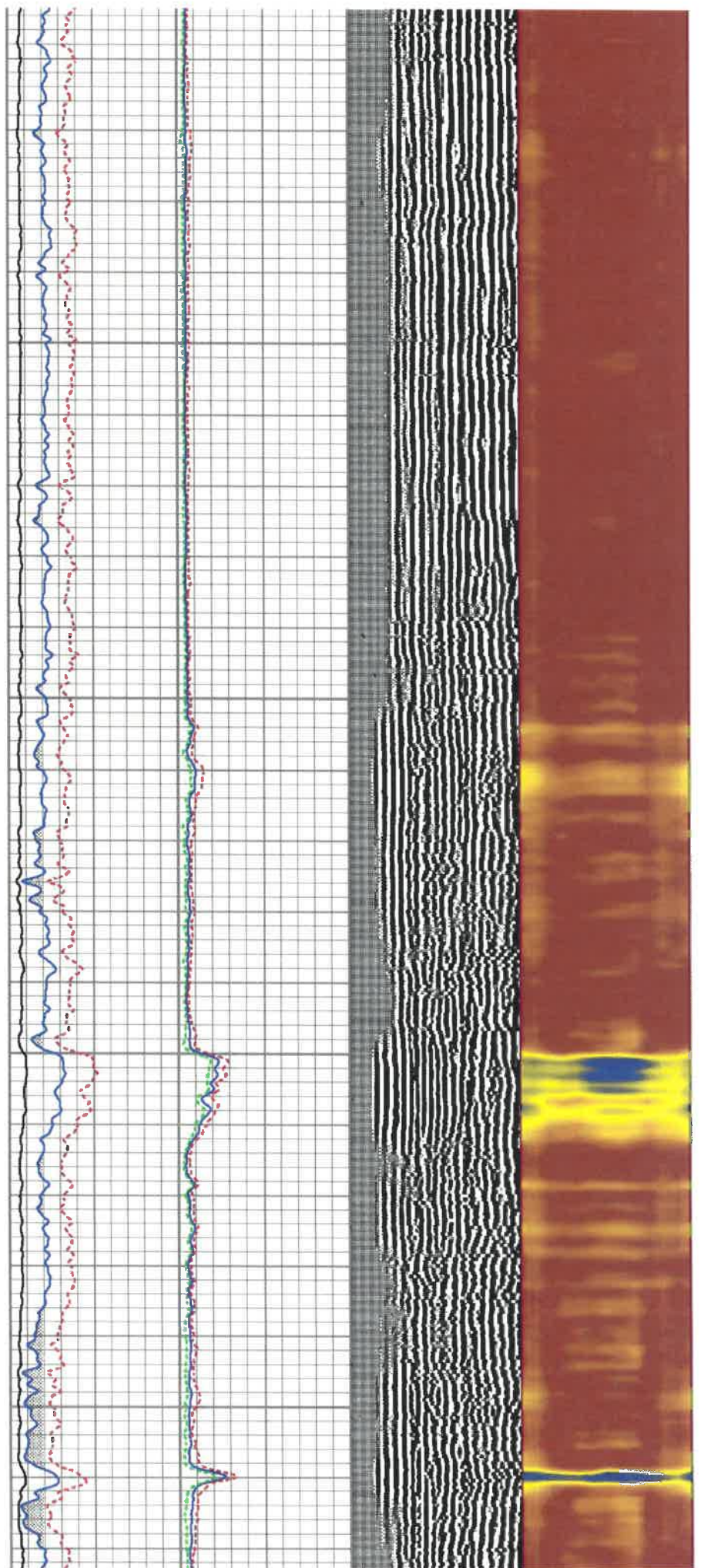


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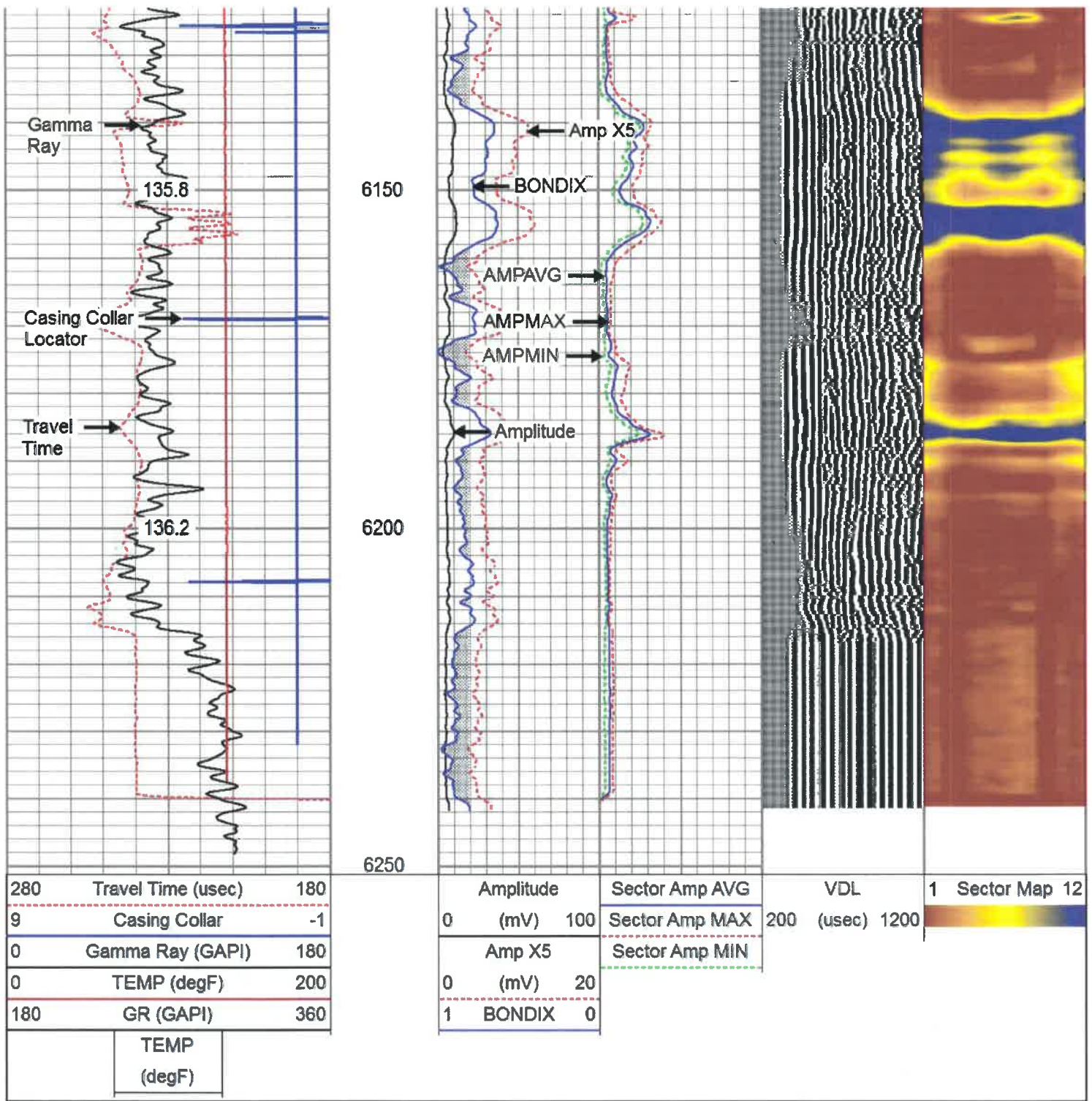
6000

6050

6100







Database File antero\_hennessy\_unit\_1h.db  
 Dataset Pathname pass2  
 Presentation Format antero1  
 Dataset Creation Sun Oct 27 13:23:52 2019  
 Charted by Depth in Feet scaled 1:240

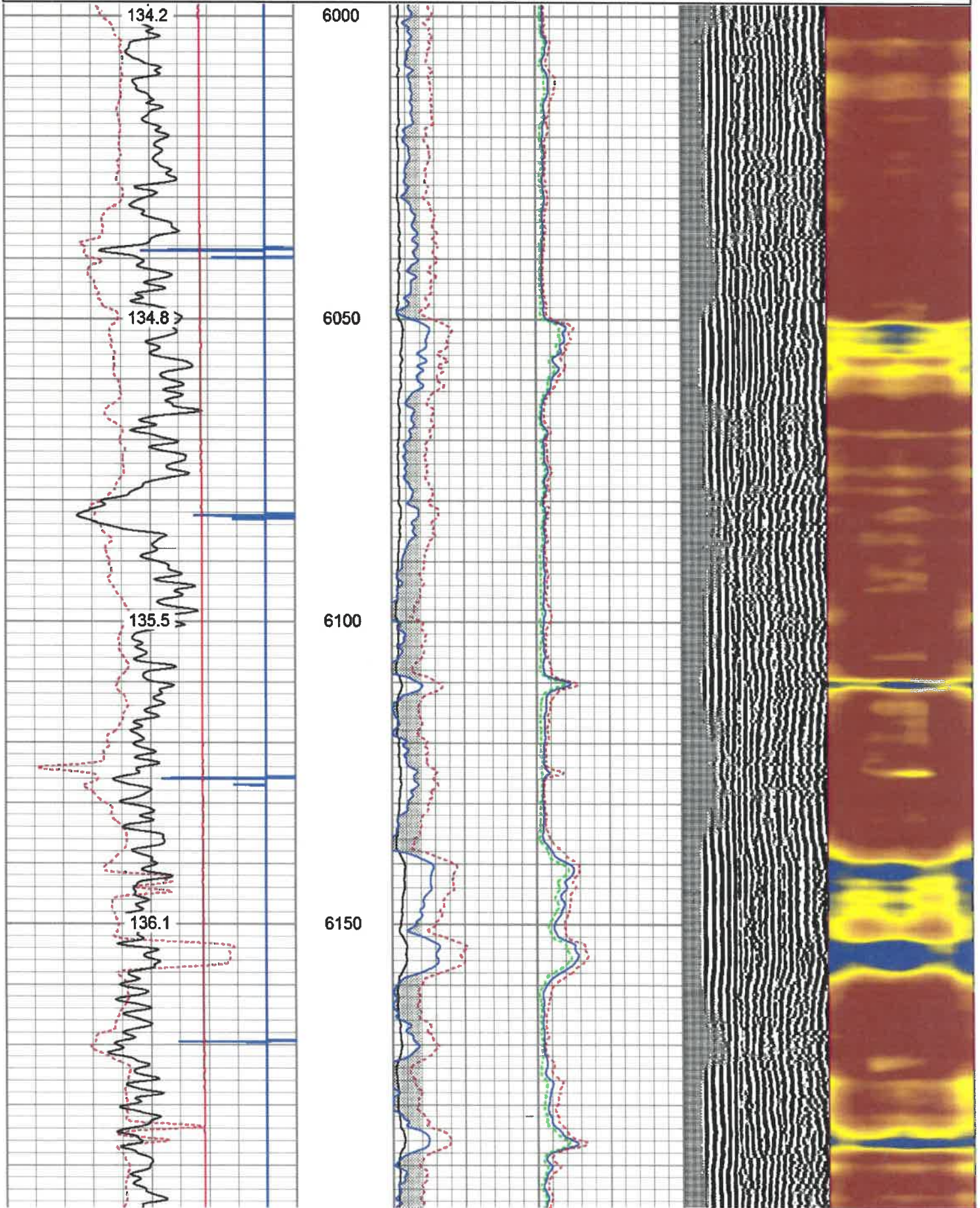
280	Travel Time (usec)	180	Amplitude	Sector Amp AVG	VDL	1	Sector Map 12
9	Casing Collar	-1	0 (mV) 100	Sector Amp MAX	200 (usec) 1200		
0	Gamma Ray (GAPI)	180	Amp X5	Sector Amp MIN			



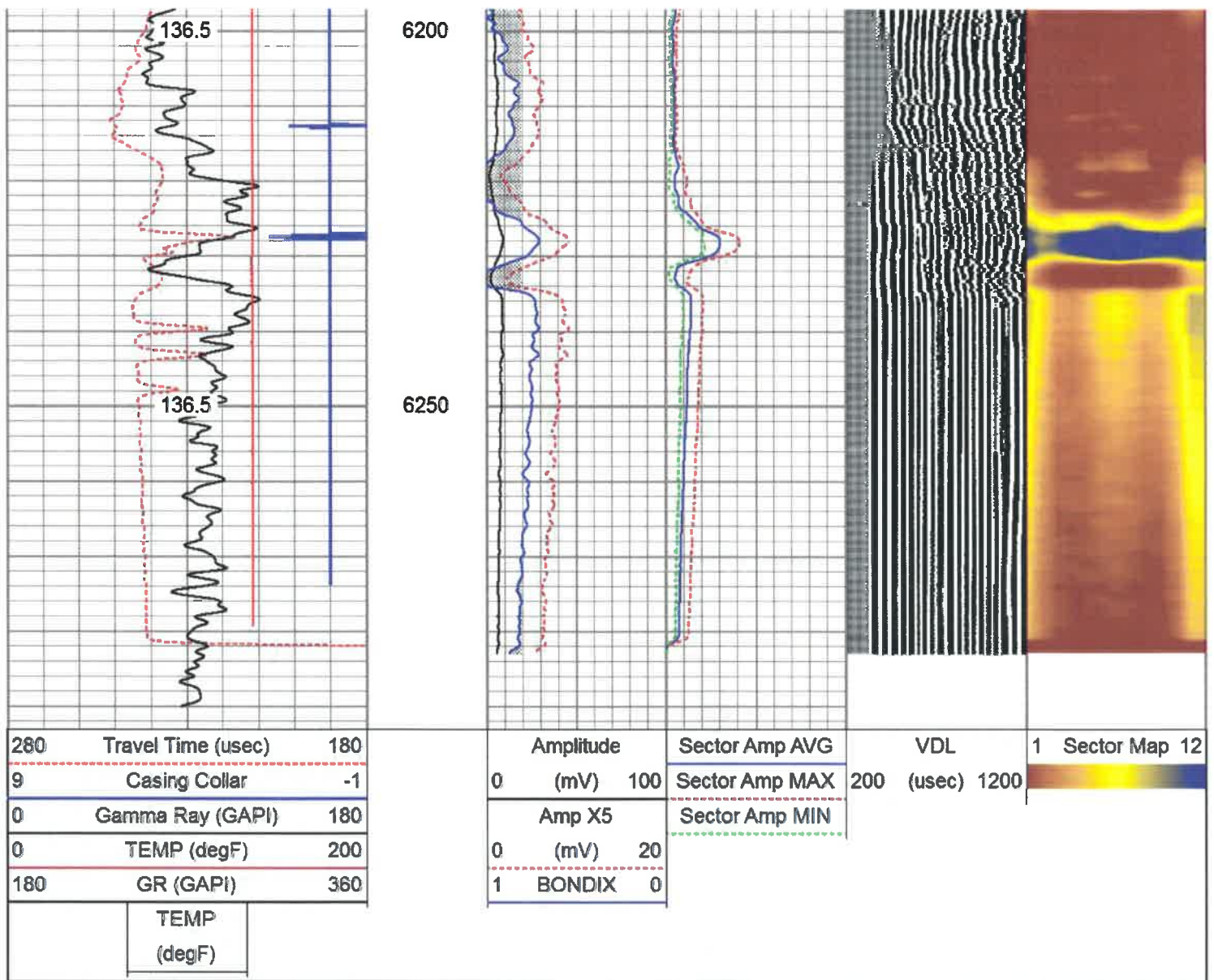
0	TEMP (degF)	200
180	GR (GAPI)	360

0	(mV)	20
1	BONDIX	0

TEMP
(degF)







## Log Variables

DatabaseC:\ProgramData\Warrior\Data\antero\_hennessy\_unit\_1h.db  
 Dataset field/well/run1/pass3/\_vars\_

### Top - Bottom

BHTEMP_Src	BOREID	BOTTEMP	CASEOD	CASETHCK	CASEWGHT	MAXAMPL
TEMP	in 8.25	degF 100	in 5.5	in 0	lb/ft 20	mV 71.9
MINAMPL	MINATTN	PERFS	PPT	SRFTEMP	TDEPTH	
mV 3.5	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



Database File antero\_hennessy\_unit\_1h.db  
 Dataset Pathname pass3  
 Dataset Creation Sun Oct 27 13:52:50 2019

**Gamma Ray Calibration Report**

Serial Number: 0111  
 Tool Model: Tek-Co 2 3/4  
 Performed: Thu Oct 24 08:41:06 2019

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps  
 Calibrator Reading: 1.0 cps

Sensitivity: 0.5000 GAPI/cps

**Segmented Cement Bond Log Calibration Report**

Serial Number: T12\_01  
 Tool Model: Tek12

Calibration Casing Diameter: 5.500 in  
 Calibration Depth: 57.275 ft

Master Calibration, performed Thu Oct 24 13:31:44 2019:


	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	-0.006	0.919	3.500	71.921	50.880	5.245
CAL	0.630	0.627				
5'	-0.001	1.035	3.500	71.921	40.761	4.381
SUM						
S1	0.000	1.103	0.000	100.000	56.543	-0.001
S2	0.000	1.088	0.000	100.000	61.007	-0.001
S3	0.000	1.122	0.000	100.000	64.737	-0.001
S4	0.000	1.089	0.000	100.000	72.448	-0.001
S5	0.000	1.045	0.000	100.000	71.838	-0.001
S6	0.000	0.965	0.000	100.000	74.574	-0.001
S7	0.000	0.897	0.000	100.000	76.604	-0.001
S8	0.000	0.821	0.000	100.000	77.230	-0.001
S9	0.000	0.802	0.000	100.000	76.037	-0.001
S10	0.000	0.932	0.000	100.000	63.640	-0.001
S11	0.000	1.003	0.000	100.000	56.910	-0.001
S12	0.000	1.091	0.000	100.000	55.333	-0.001

**Temperature Calibration Report**

Serial Number: T12\_01  
 Tool Model: Tek12  
 Performed: Fri Oct 22 17:21:06 2010

	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			

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Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
			Titan-1.4375 1 7/16 Titan Type II Cable Head	1.03	1.44	5.00



CCL	19.20		CCL-312tekco (3.12TEKCO) 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	13.04					
WVFSYNC	13.04					
WVFCAL	13.04					
WVFS12	11.75					
WVFS11	11.75		SCBL-Tek12 (T12_01) Tekco 400 Deg F 12 Sector RIB with Temp	9.13	3.25	135.00
WVFS10	11.75					
WVFS9	11.75					
WVFS8	11.75					
WVFS7	11.75					
WVFS6	11.75					
WVFS5	11.75					
WVFS4	11.75					
WVFS3	11.75					
WVFS2	11.75					
WVFS1	11.75					
WVF3FT	11.00					
WVF5FT	10.00					
WVFTEMP	6.67					
			Tek-2.75 2 3/4" Tekco Adjustable Centralizer	2.73	2.75	25.00
			GR-Tek-Co 2 3/4 (0111) Tekco 2 3/4" 400 Deg. F Logging Gamma Ray	3.67	2.75	40.00
GR	1.31		Titan-1.4375_Cap Titan 1 7/16" Cap	0.27	1.44	1.00

Dataset: antero\_hennessy\_unit\_1h.db: field/well/run1/pass3  
 Total length: 21.37 ft  
 Total weight: 256.00 lb  
 O.D.: 3.25 in



Company ANTERO RESOURCES  
 Well HENNESSY UNIT 1H





Field

RABBIT EARS

County

TYLER

State

WV

Country US

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