



**RADIAL CEMENT BOND LOG
GAMMA RAY / CCL / VDL
TEMP / CEMENT MAP**

Company ANTERO RESOURCES CORPORATION
Well KERNS UNIT 2H
Field MARCELLUS
County TYLER
State WV Country US

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Location: API #: 47095026890000
AFE #
SEC TWP RGE
Permanent Datum GL
Log Measured From KB 25.5 FT
Drilling Measured From KB 25.5 FT
Elevation N/A
Other Services
Elevation
KB, D.F., G.L.

Date	24 AUG 2020	
Run Number	1	
Depth Driller	23,298	
Depth Logger	7283	
Bottom Logged Interval	7279	
Top Log Interval	SURFACE	
Open Hole Size	N/A	
Type Fluid	WATER	
Density / Viscosity	N/A	
Max. Recorded Temp.	133	
Estimated Cement Top	4250	
Time Well Ready	ON ARRIVAL	
Time Logger on Bottom	17:39	
Equipment Number	214182	
Location	BRIDGEPORT	
Recorded By	K.LINGER	
Witnessed By	JIMMY DARQUENNE	
Borehole Record		
Run Number	Bit	From To
Tubing Record		
Run Number	Size	Weight From To
Casing Record		
Surface String	Size	Weight Top Bottom
Prot. String	13.375	N/A SURFACE 533
Production String	9.625	N/A SURFACE 2798
Liner	5.5	23 SURFACE 23,319

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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

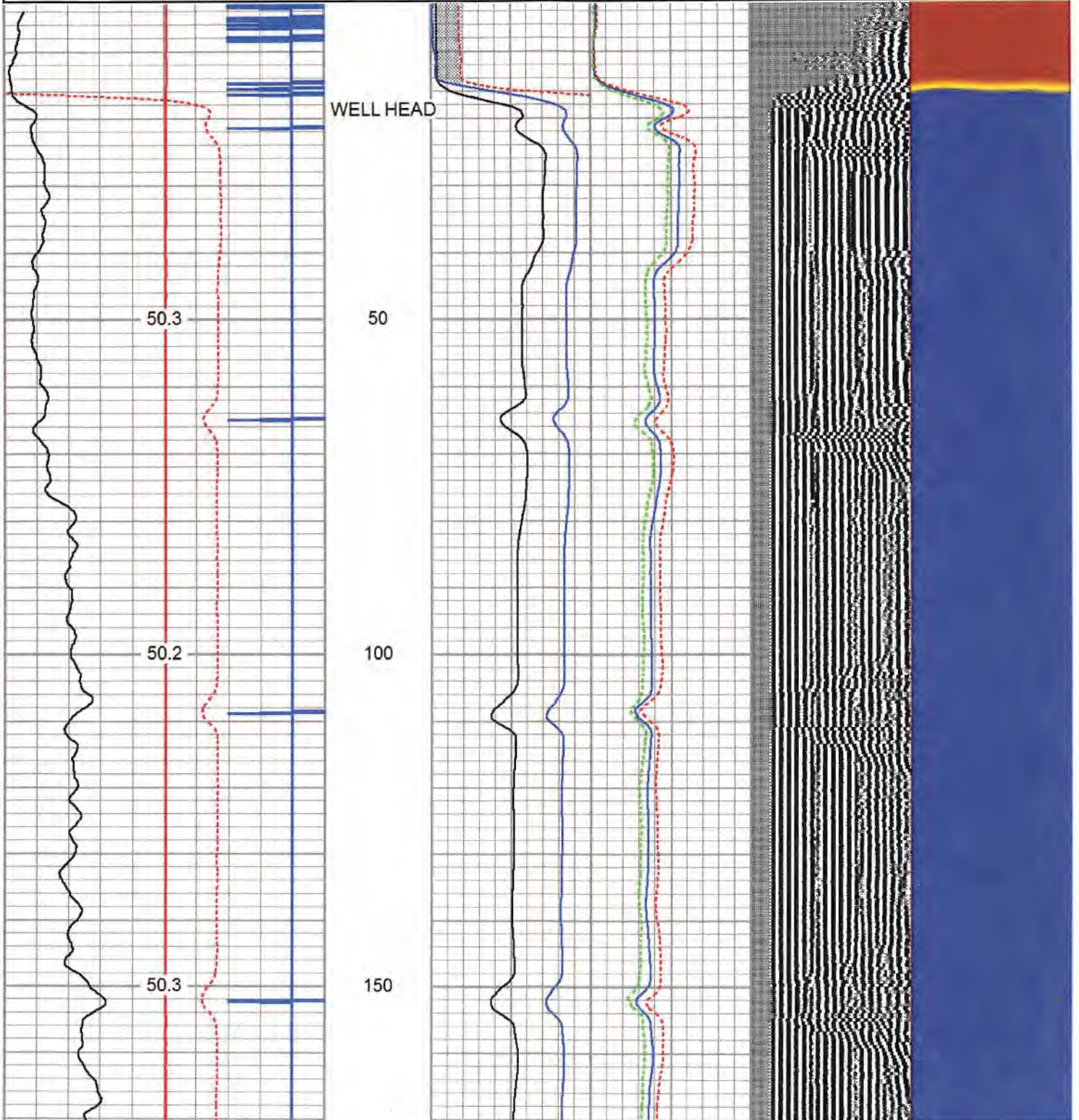
CORRELATED TO PIPE TALLY
SHIFTED UP HOLE 4 FT TO MATCH
LOG RAN UNDER 1500 PSI
MARKER JOINT @ 6240 - 6249
ESTIMATED TOP OF CEMENT 4250

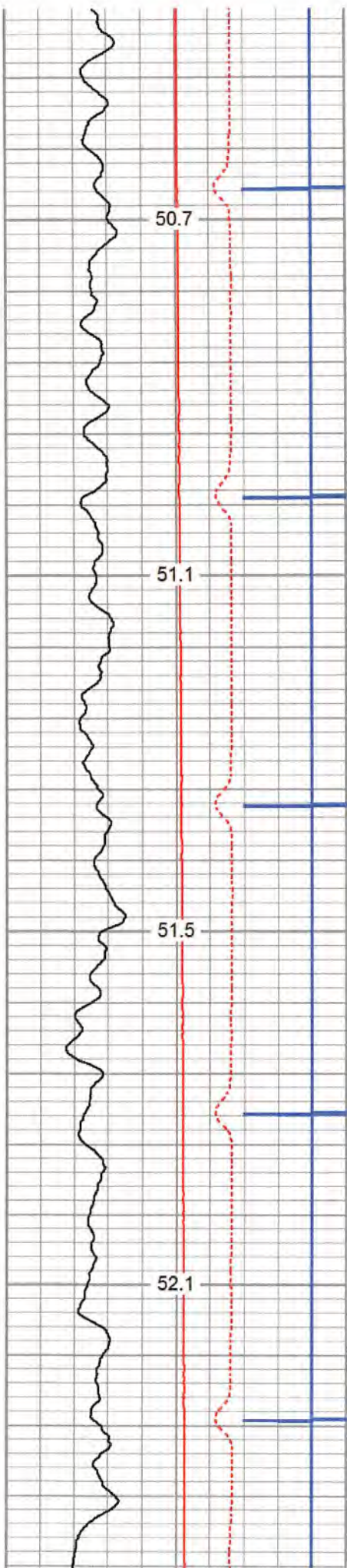


MAIN PASS 1500 PSI

Database File e:\antero 2020\8_24_20_antero_kerns2h.db
 Dataset Pathname pass3.1
 Presentation Format antero
 Dataset Creation Mon Aug 24 19:41:05 2020
 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	180	Amp X5	Sector Amp MIN				
0	TEMP (degF)	100	0 (mV) 20					
180	GR	360	1 BONDIX 0					
	TEMP (degF)							



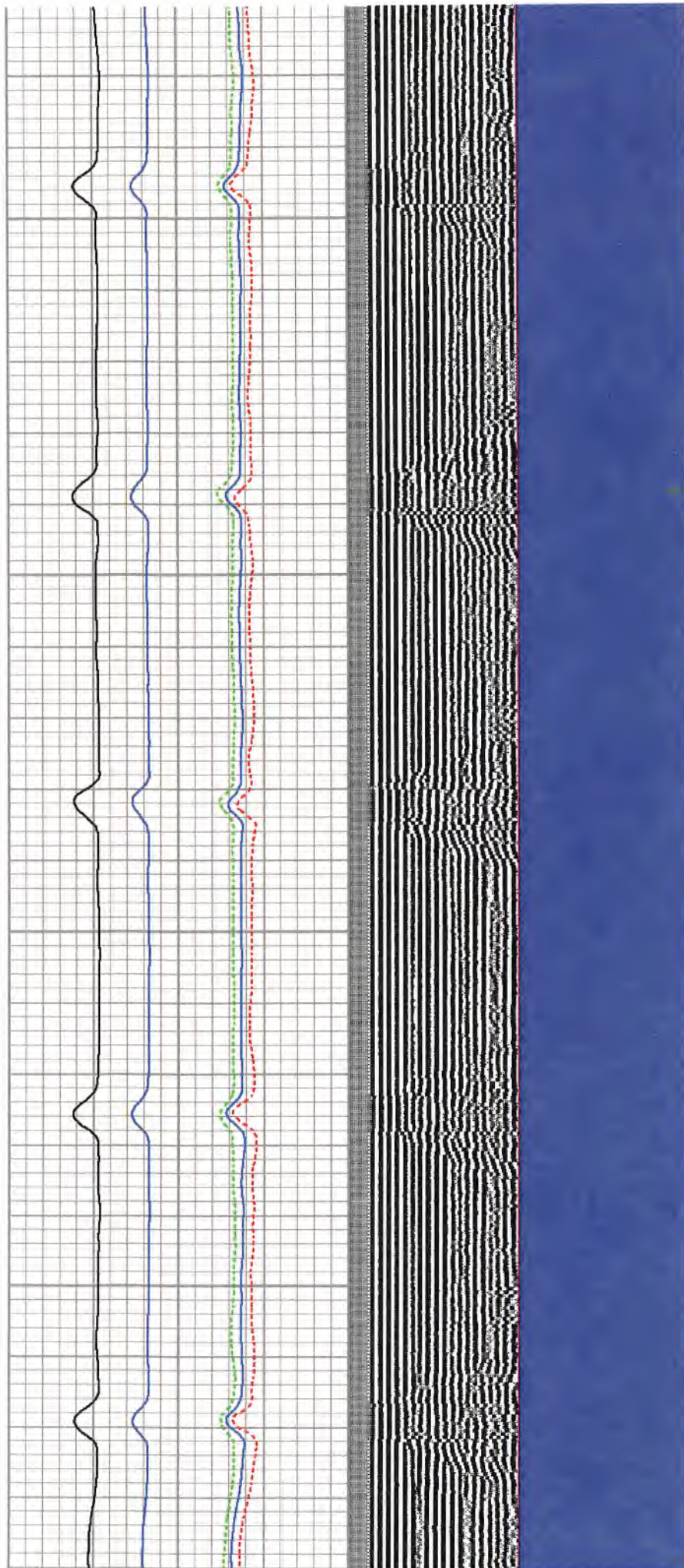


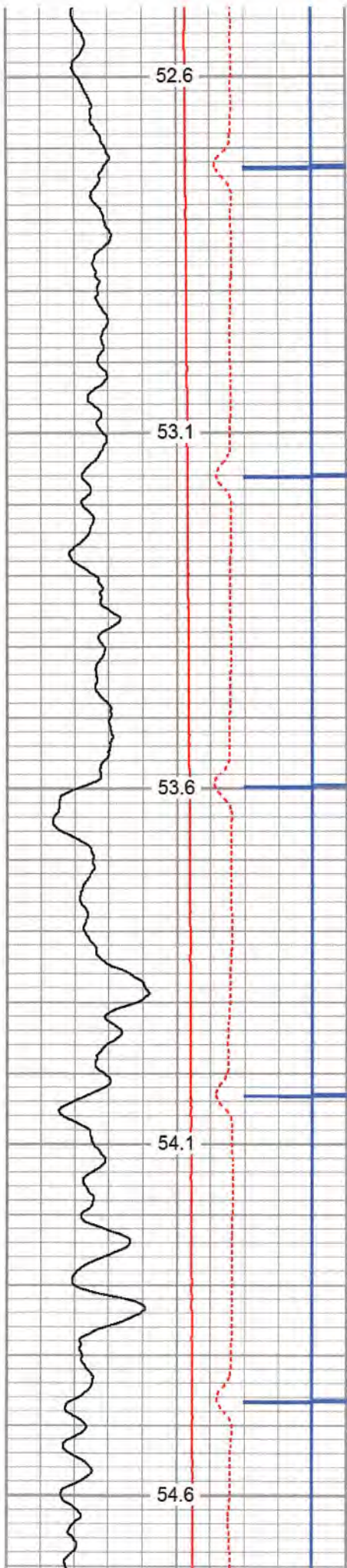
200

250

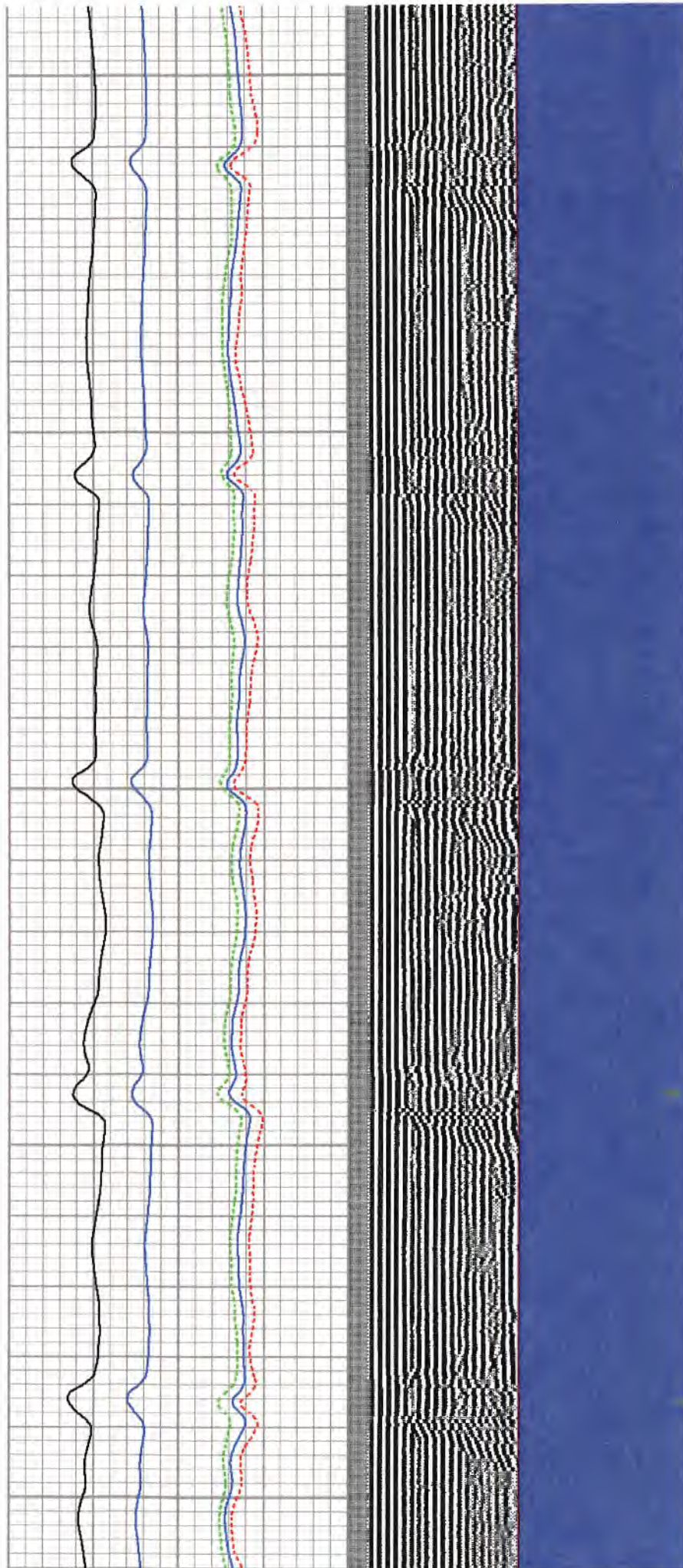
300

350





400
450
500
550
600



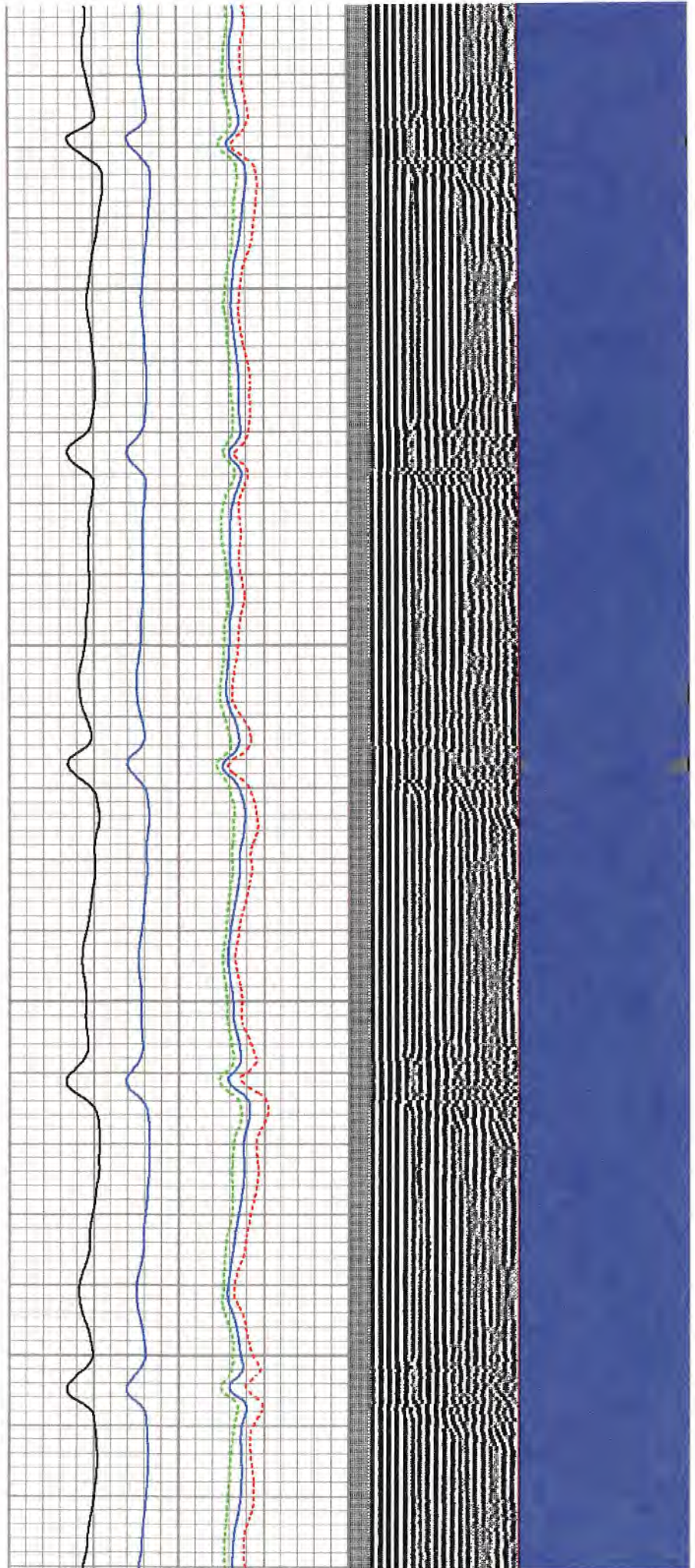


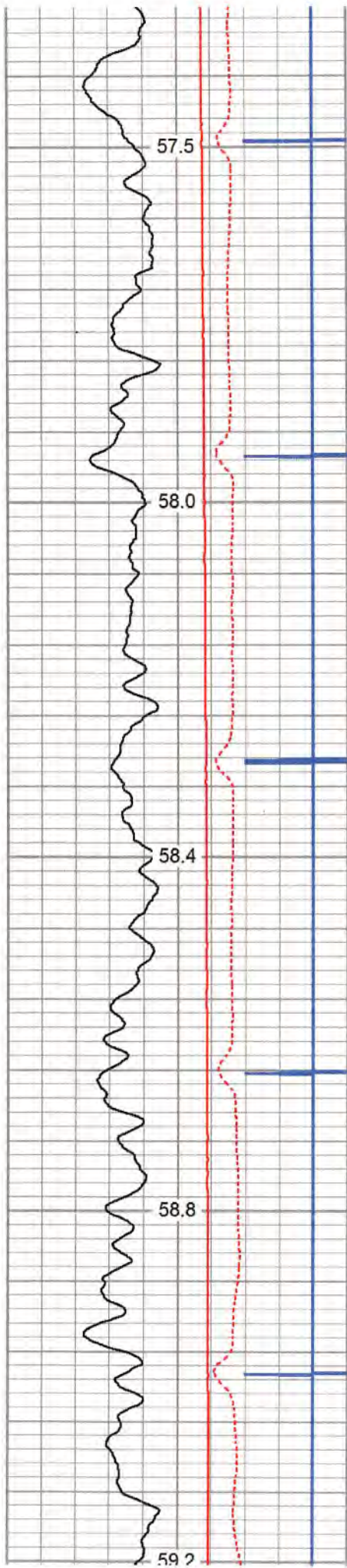
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700

750

800





850

900

950

1000

1050

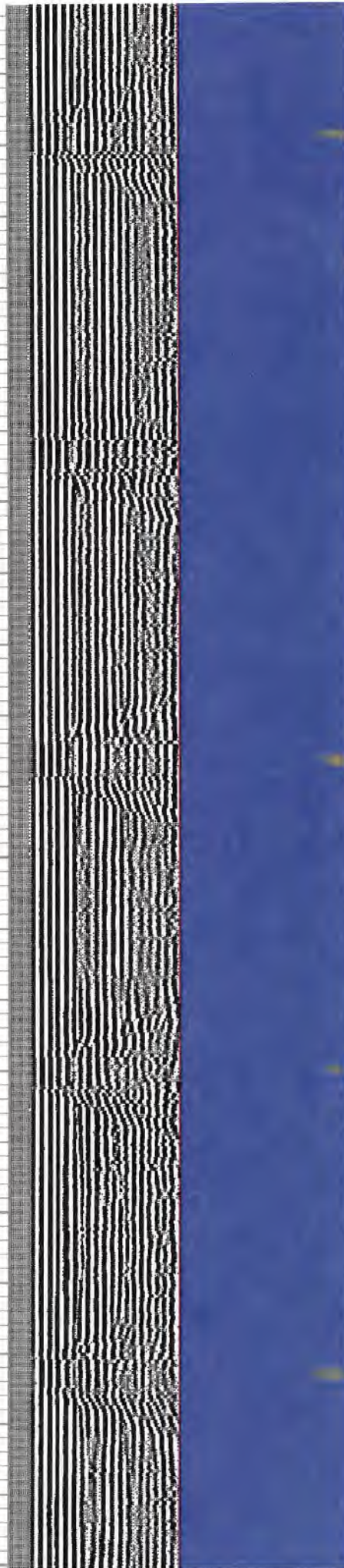
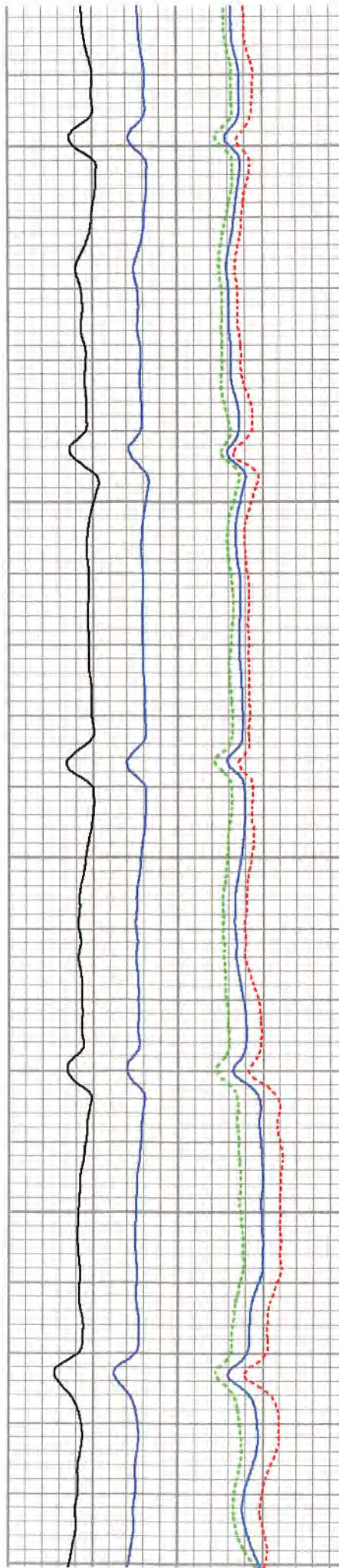
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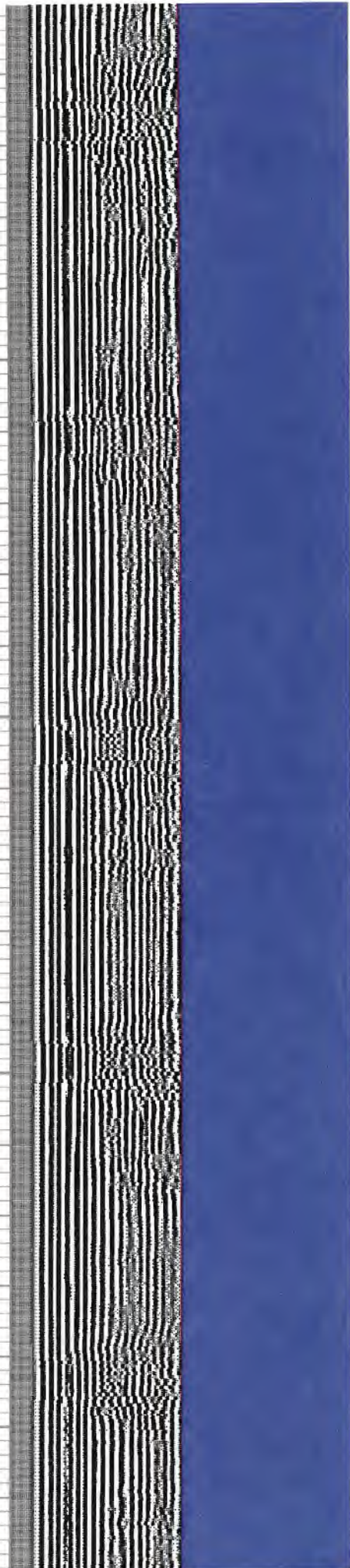
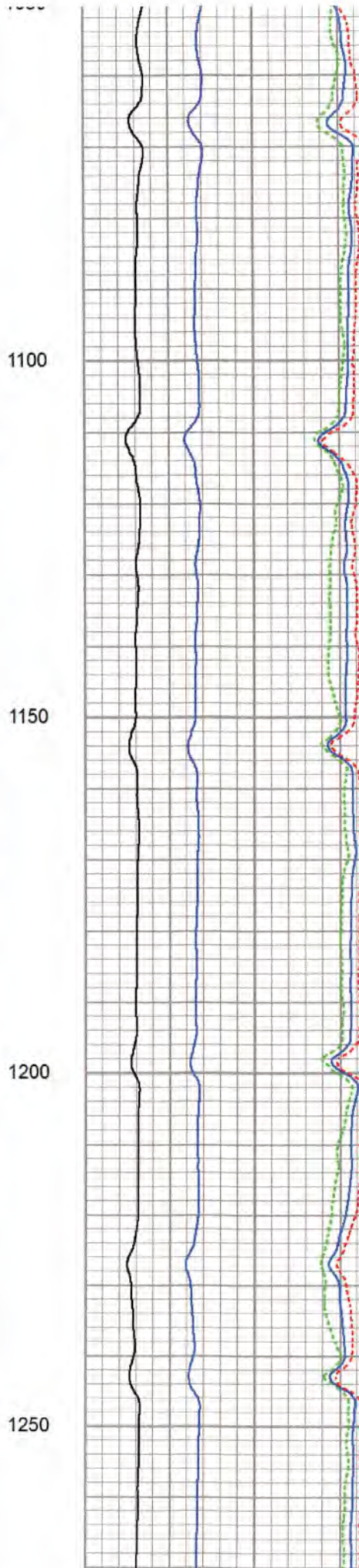
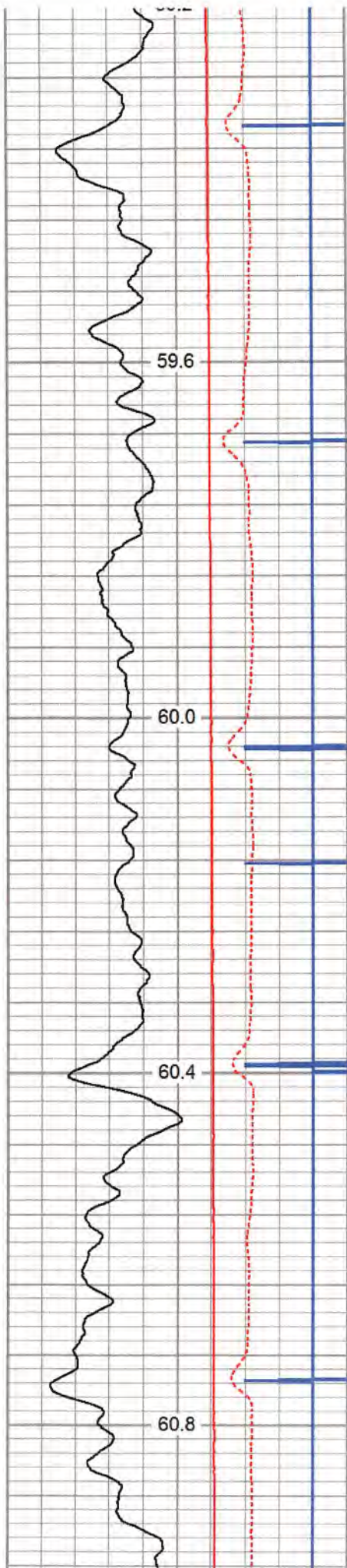
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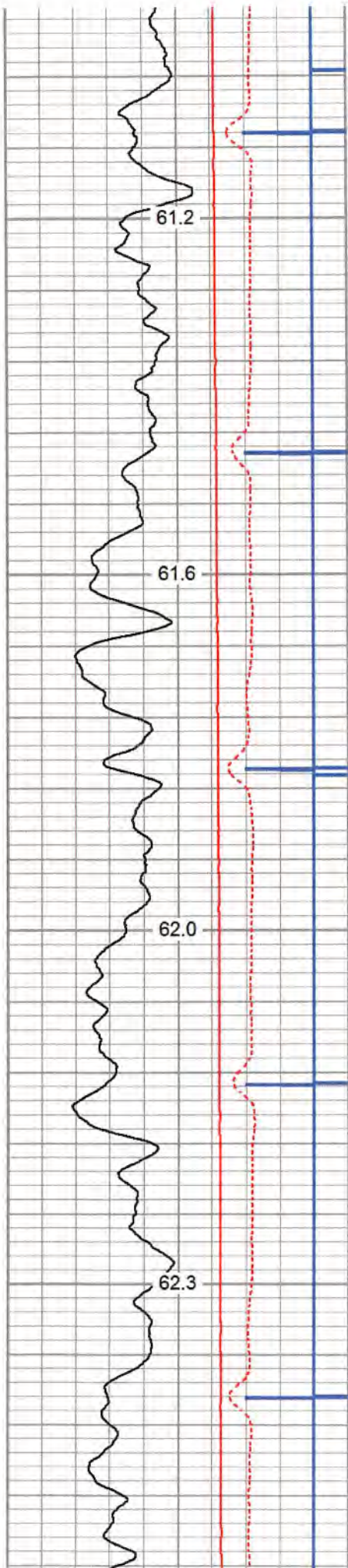
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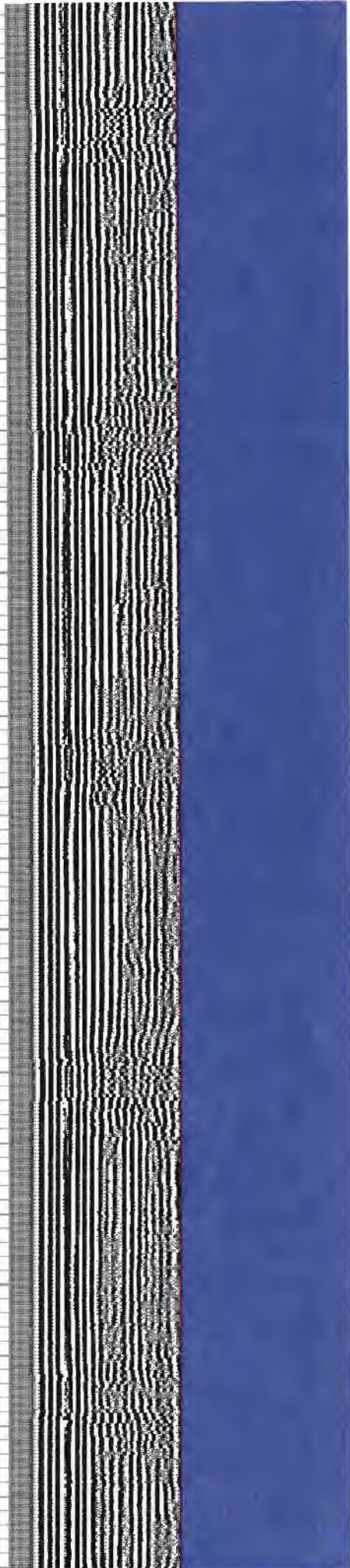
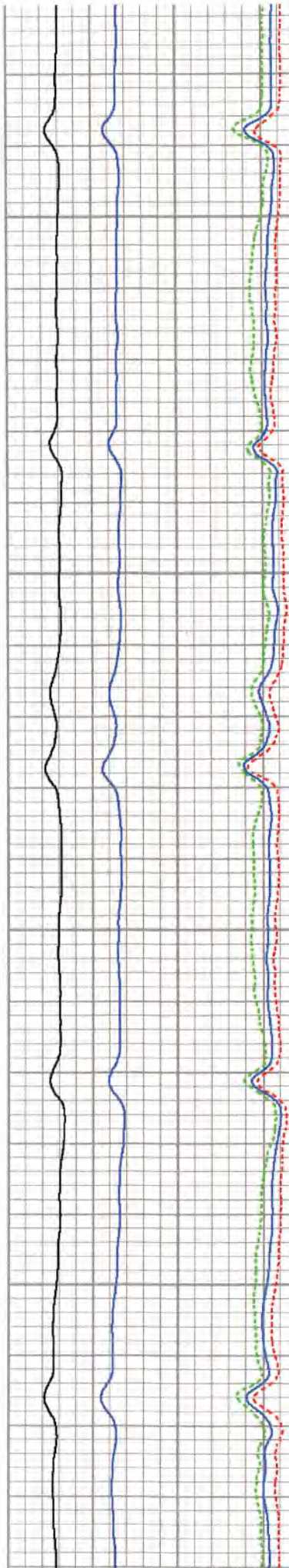
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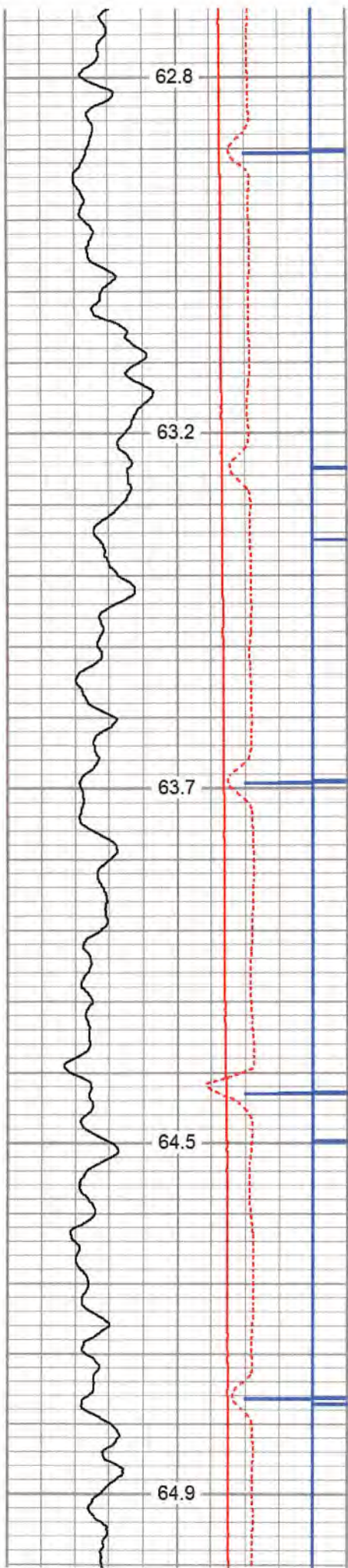




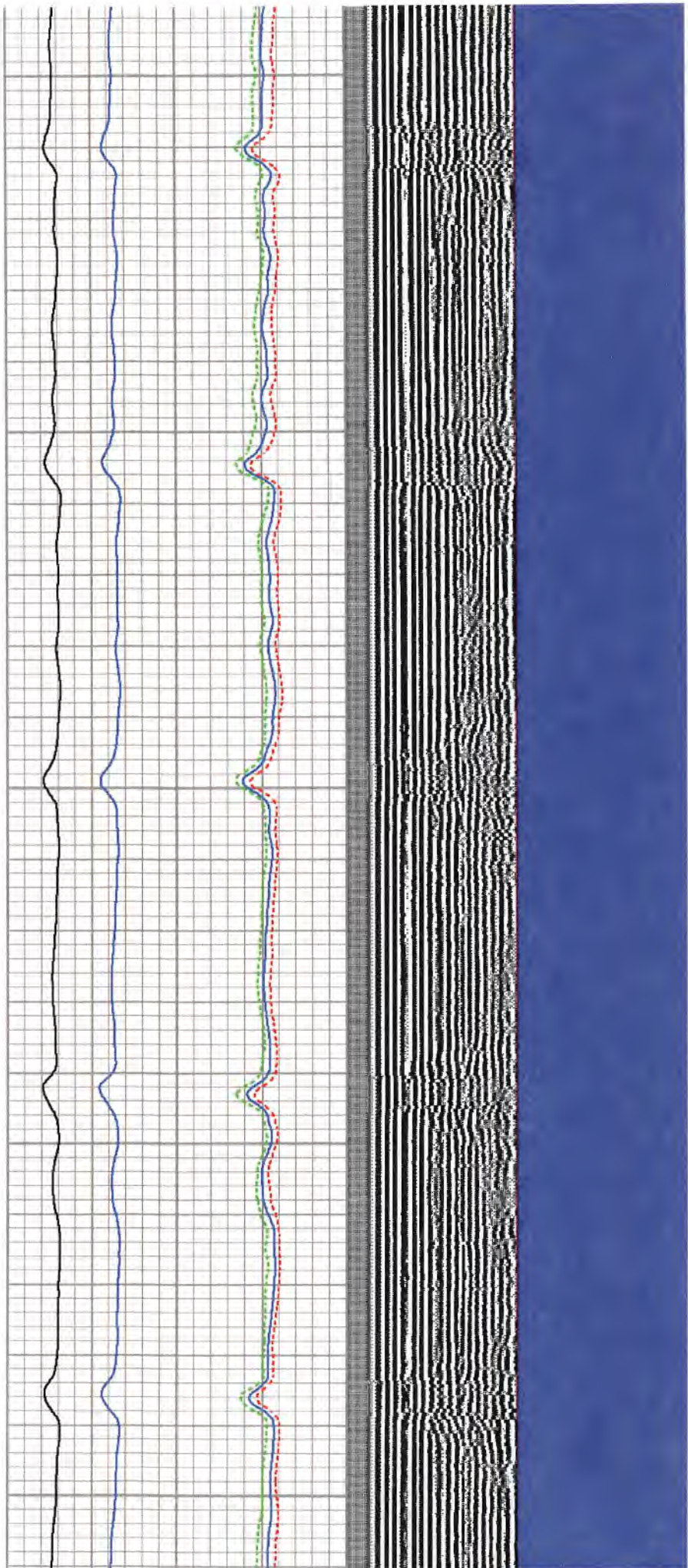


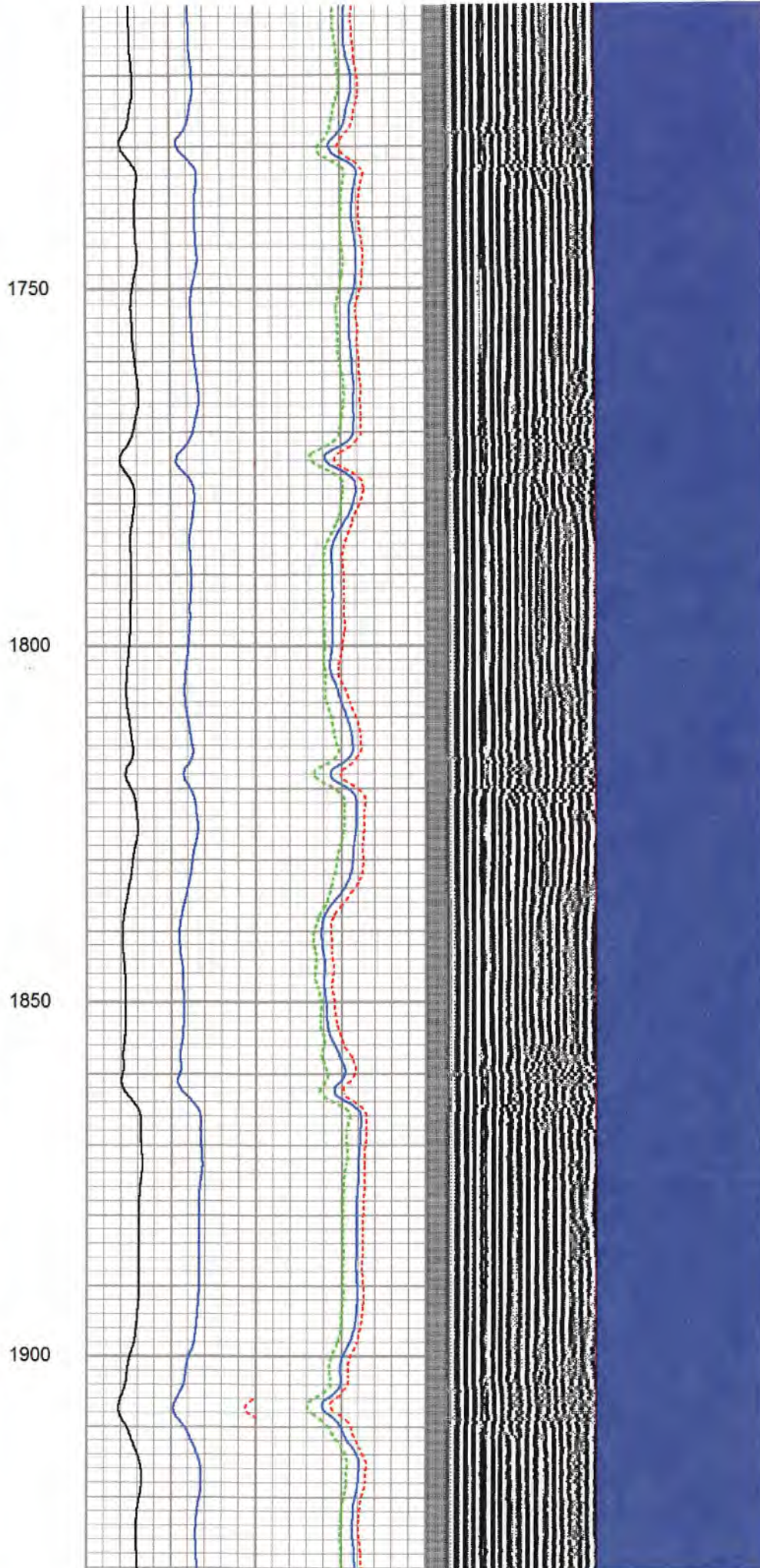
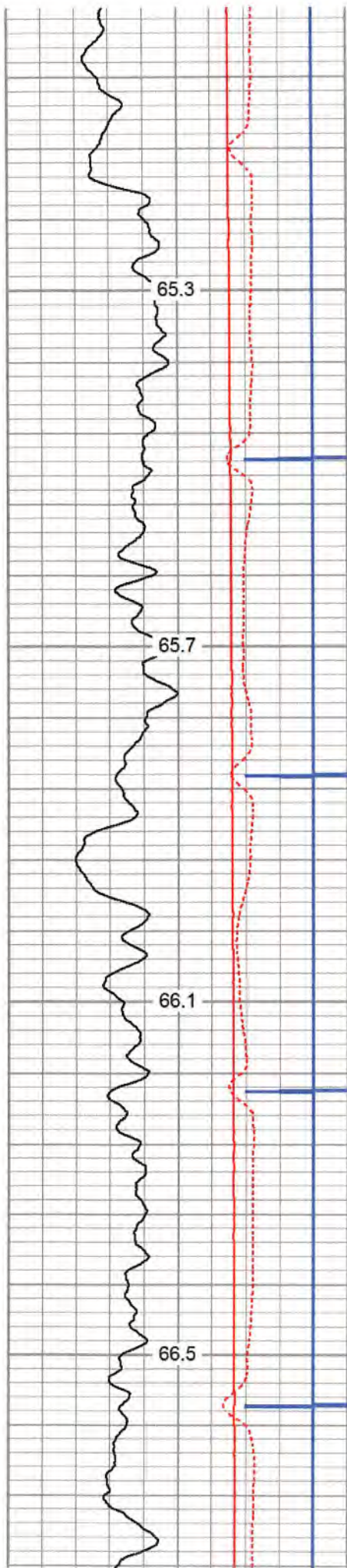
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1350
1400
1450

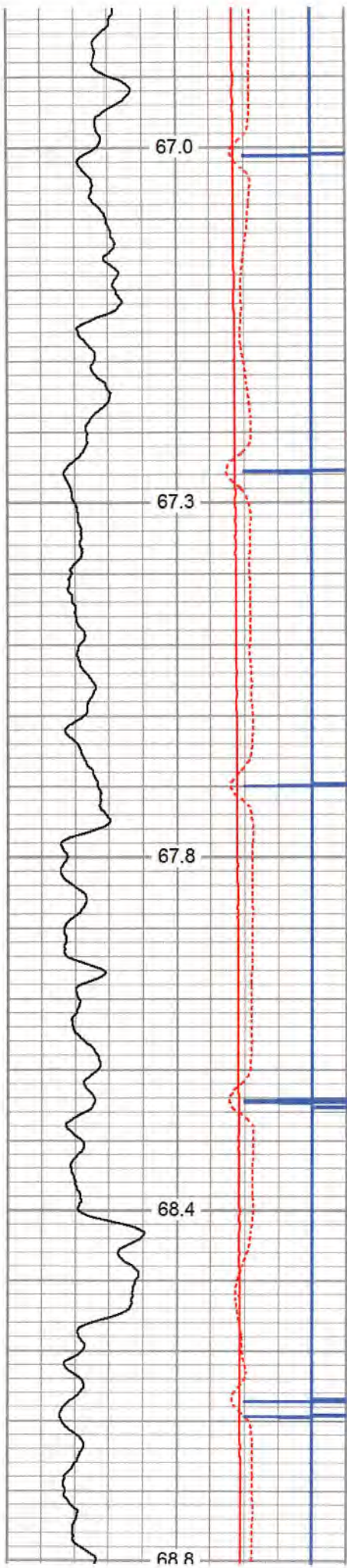




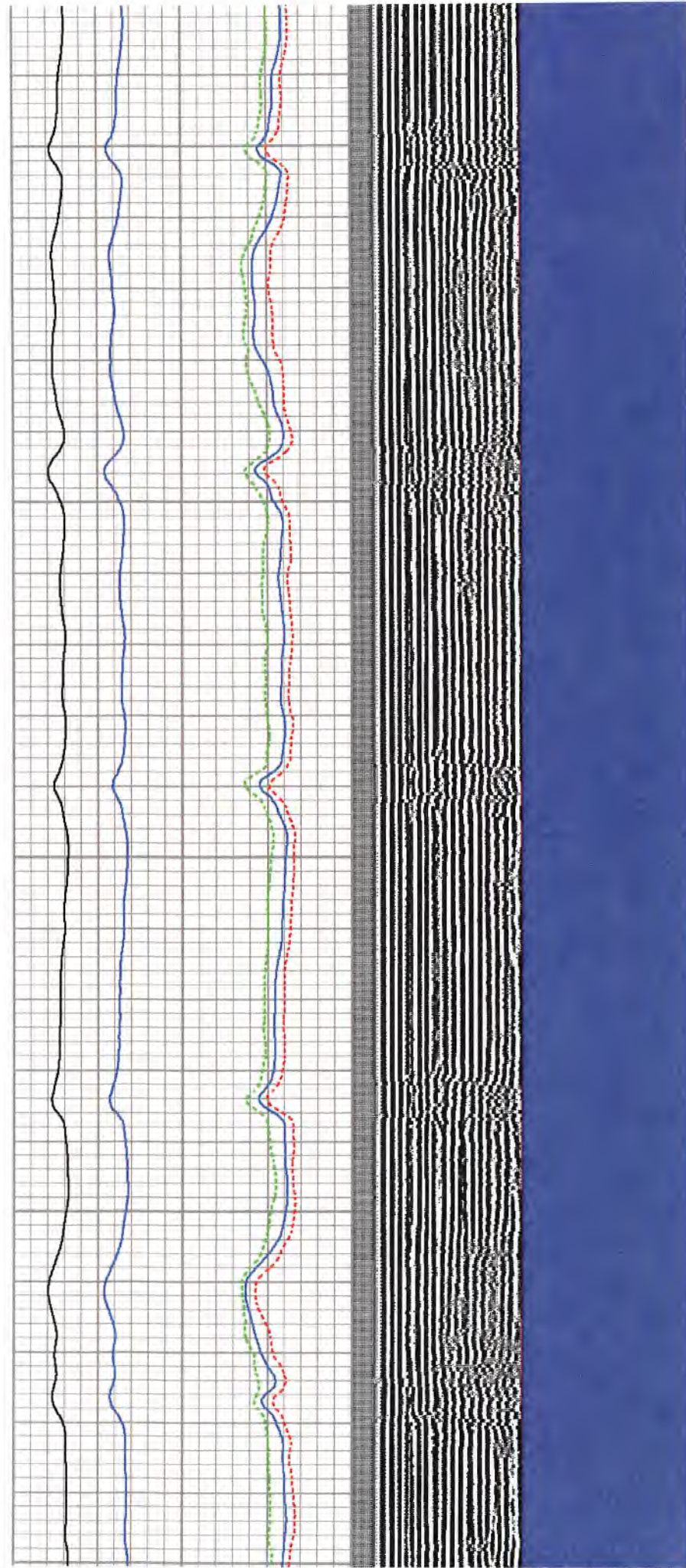
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1550
1600
1650
1700

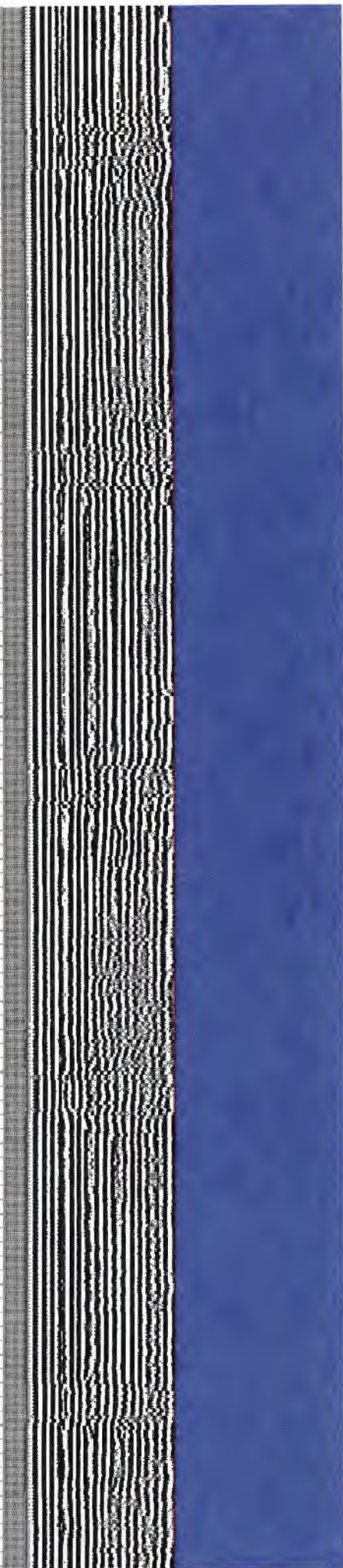
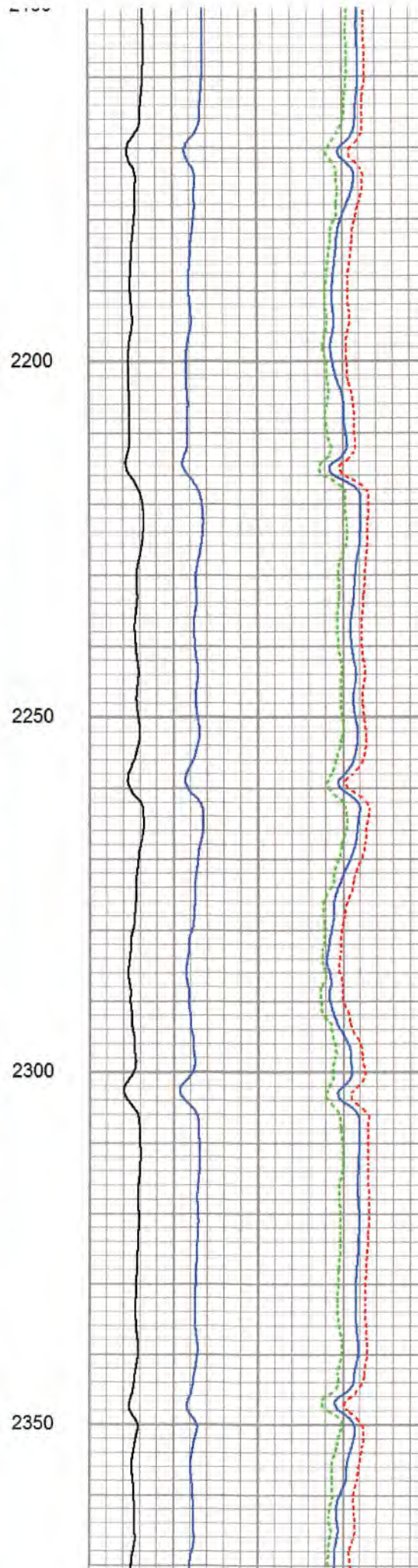
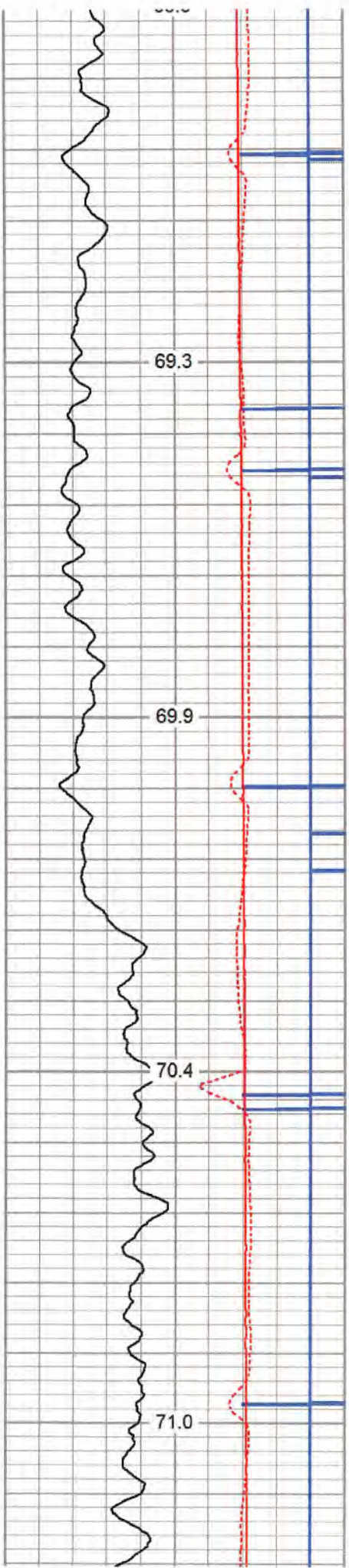


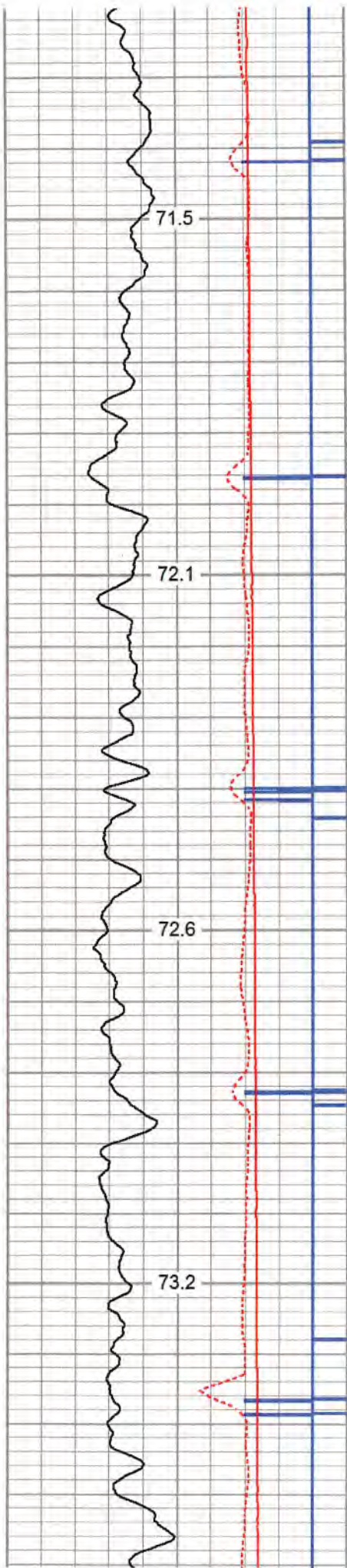




1950
2000
2050
2100
2150





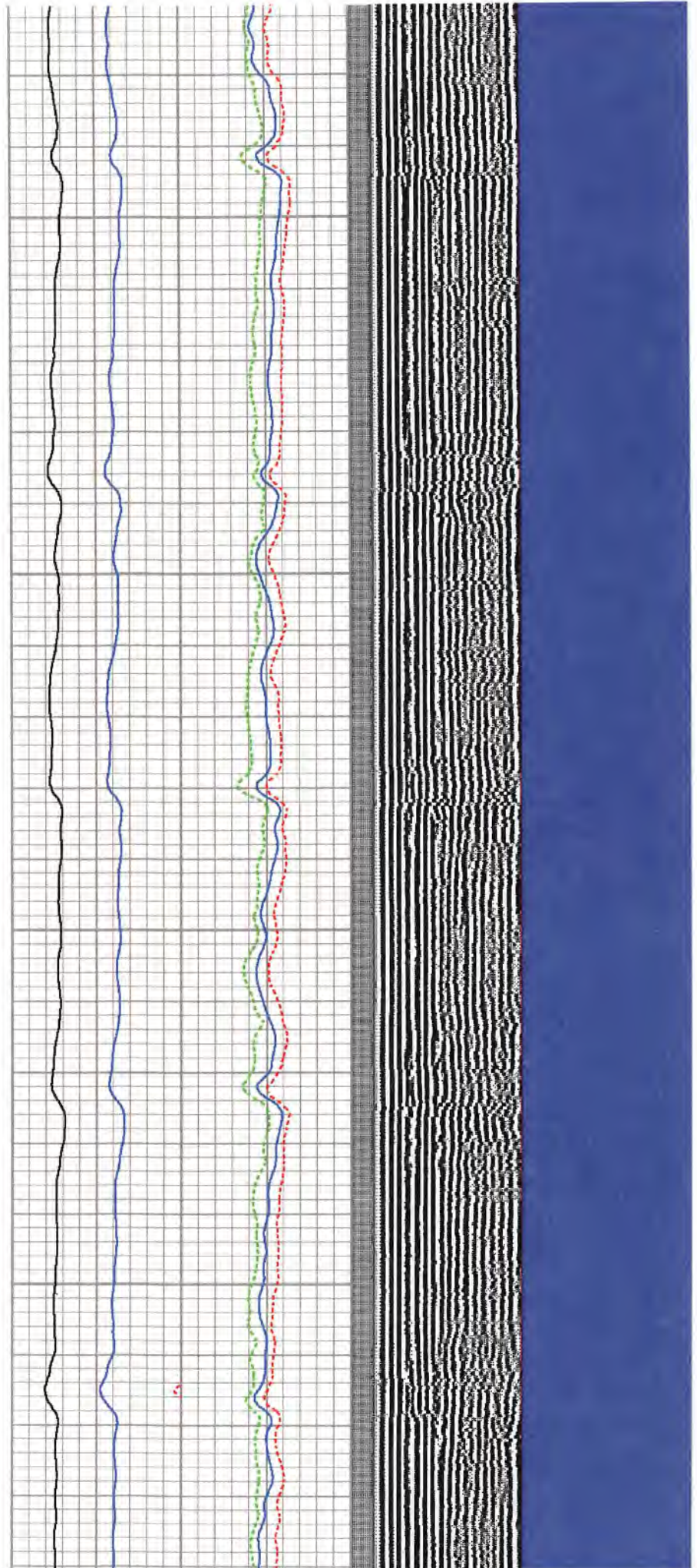


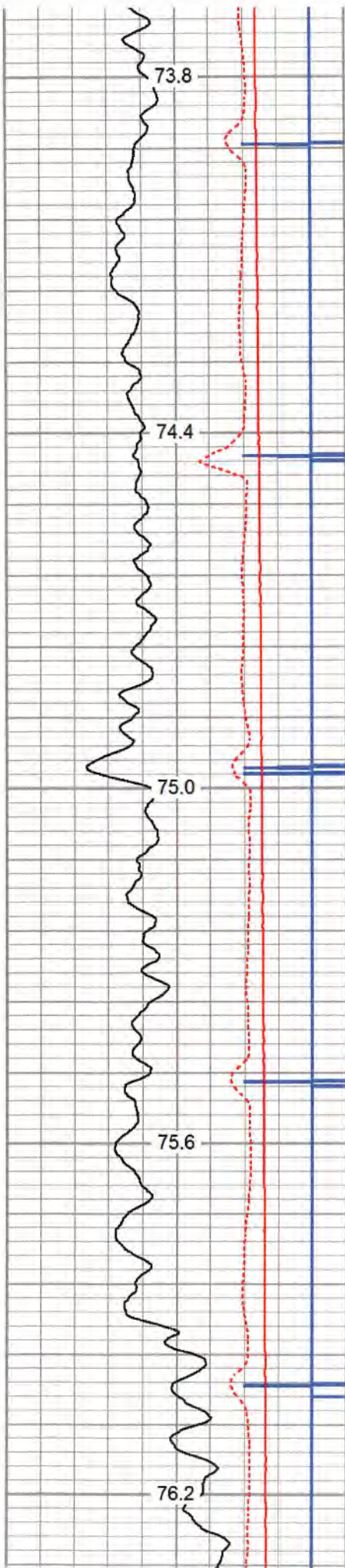
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2450

2500

2550





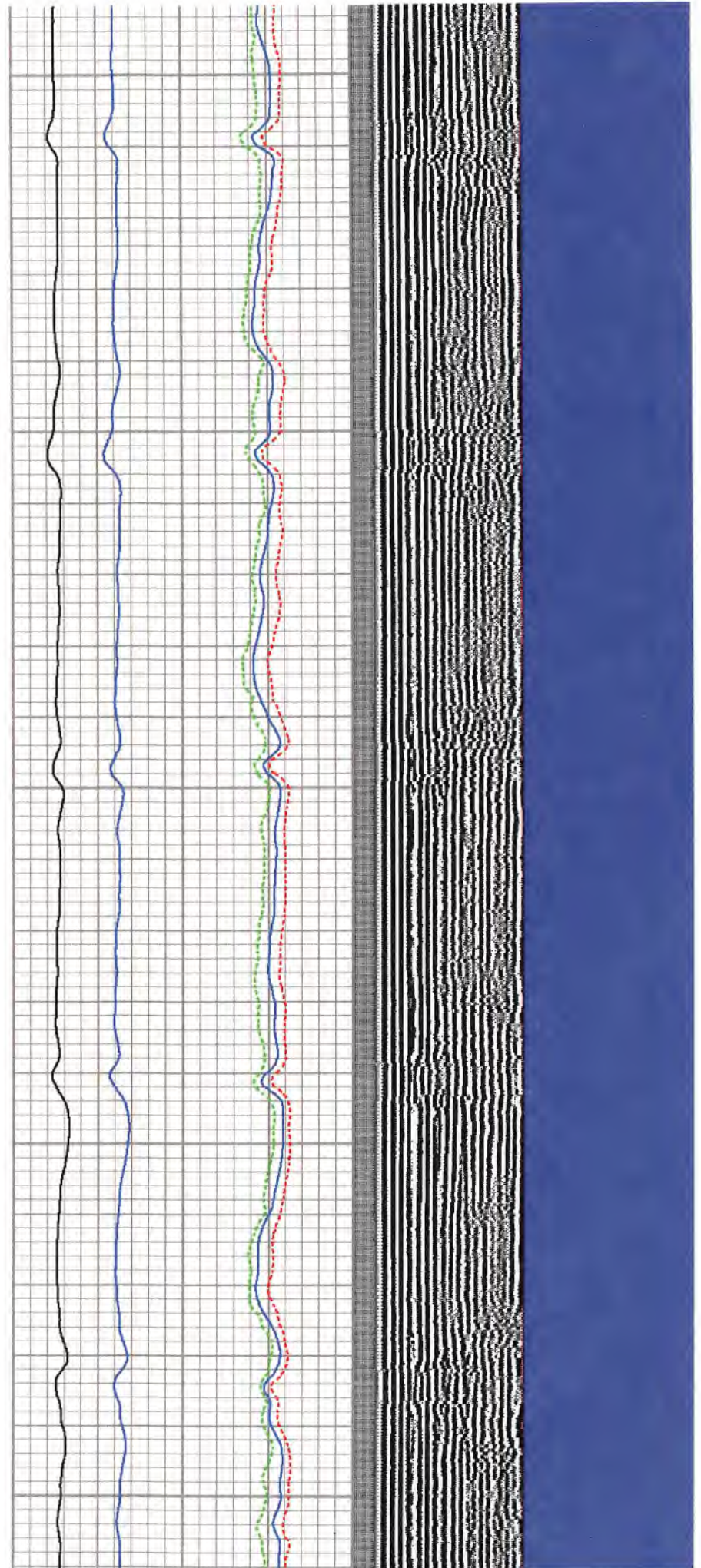
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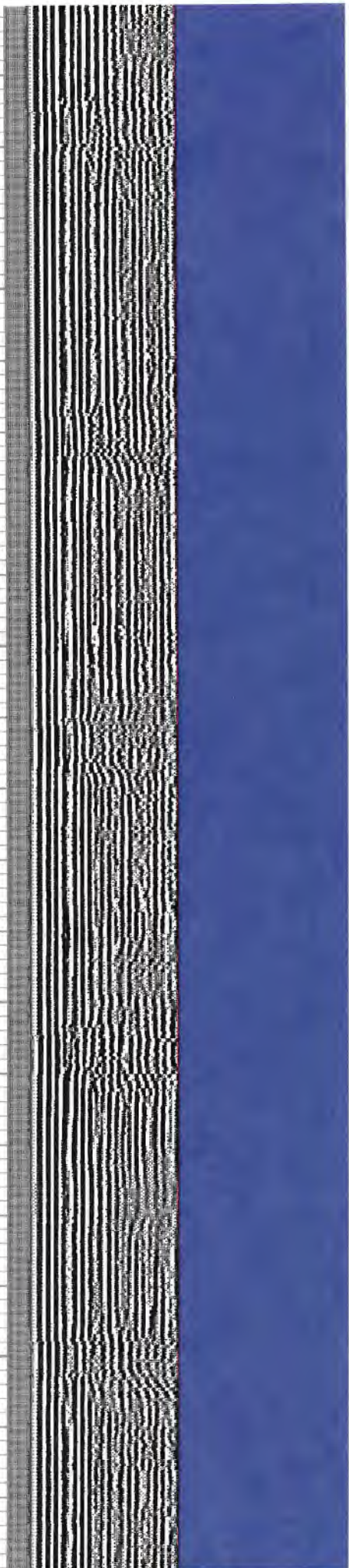
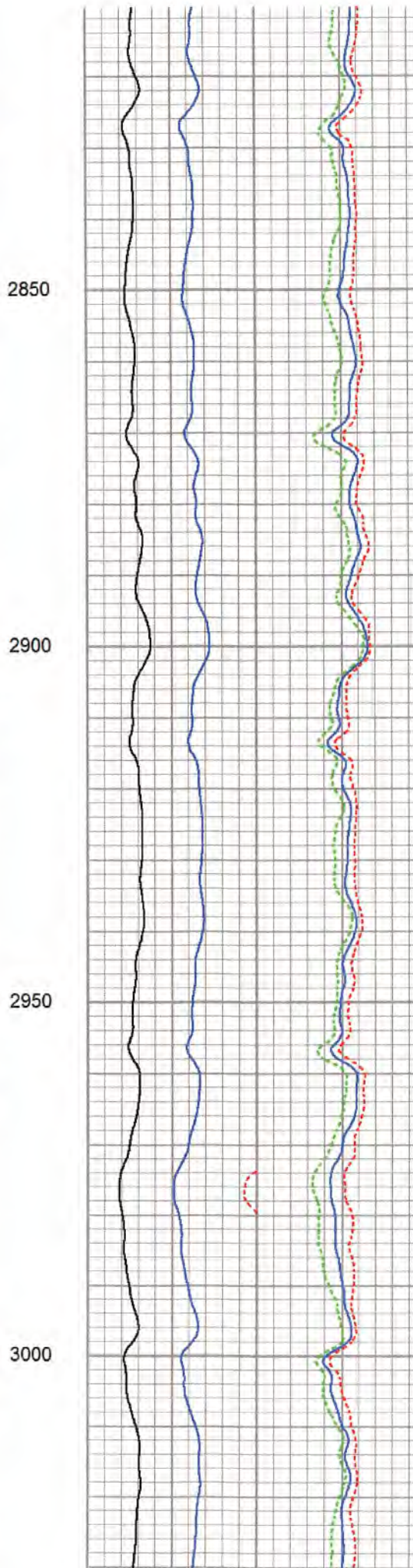
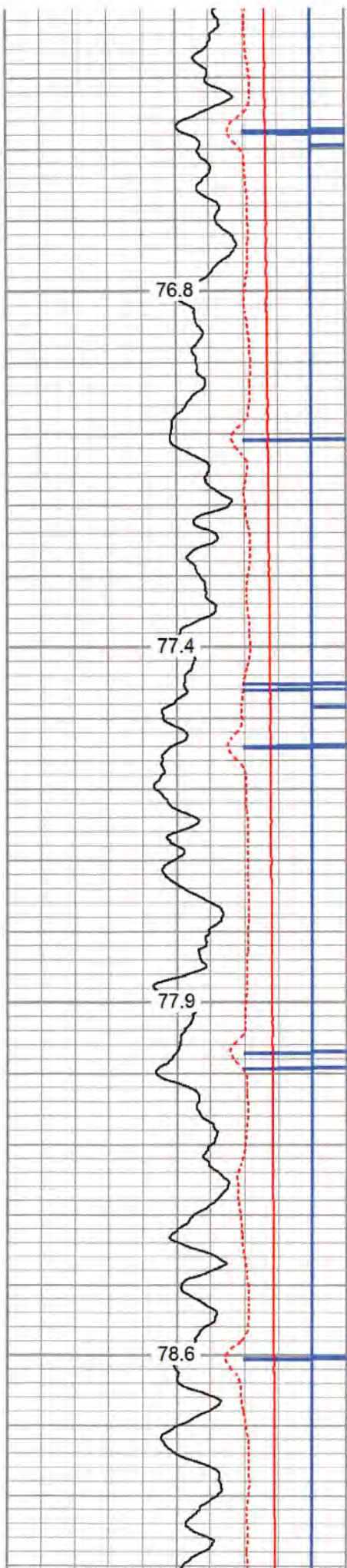
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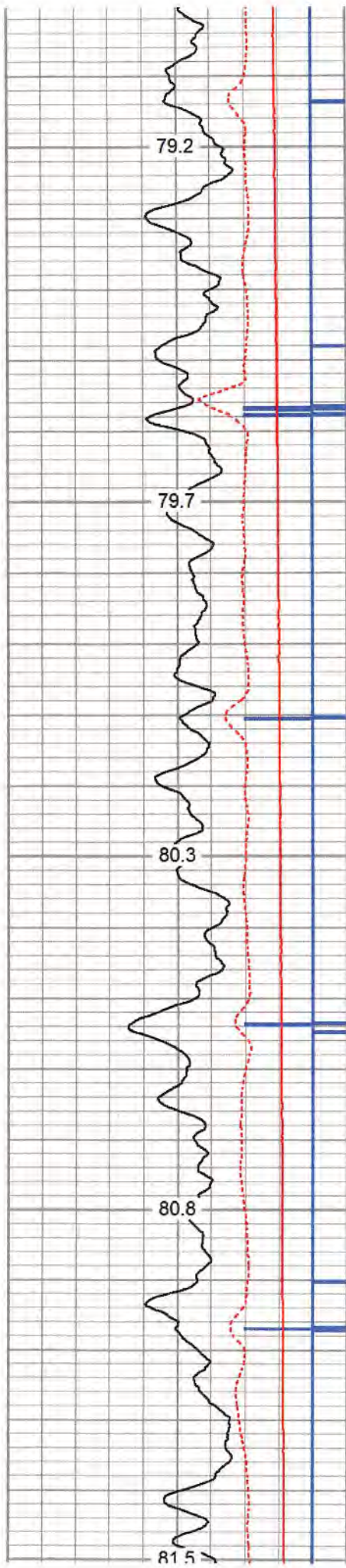
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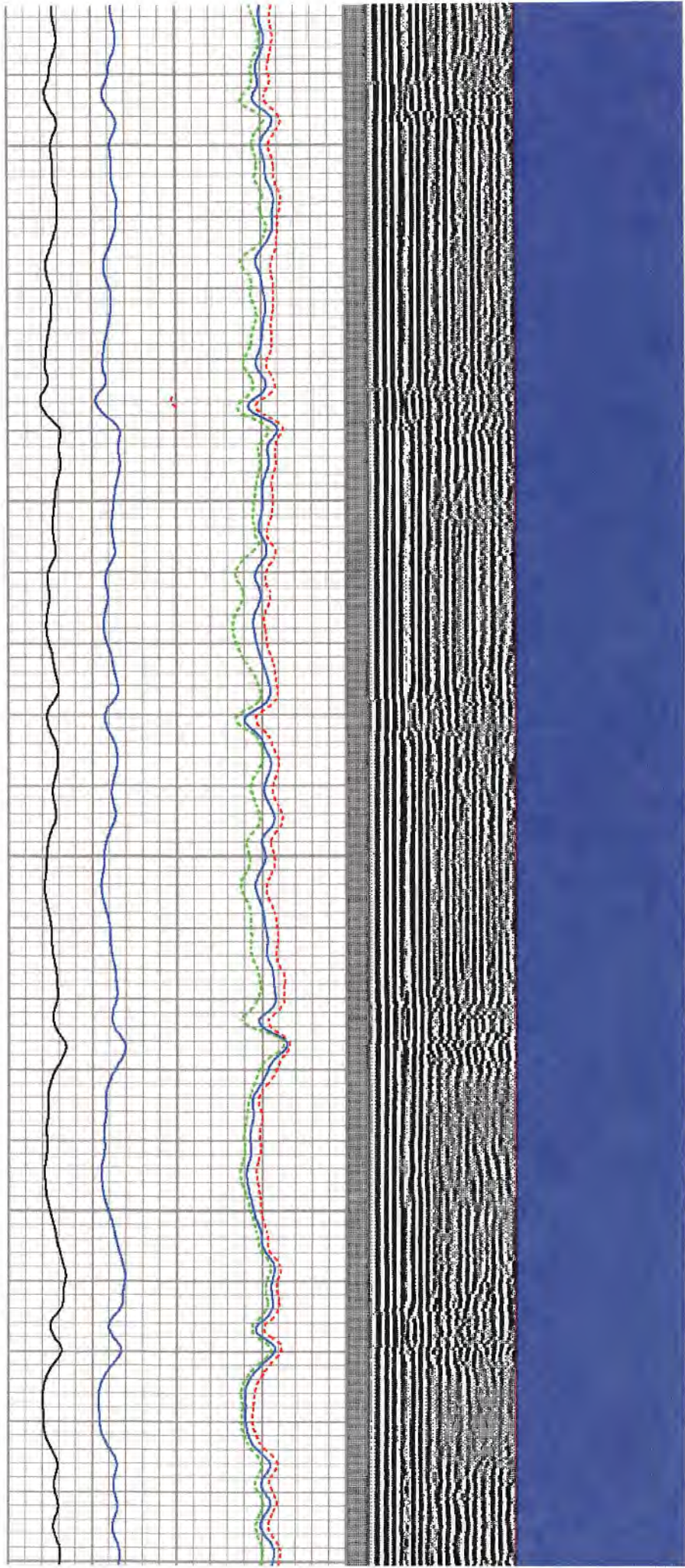
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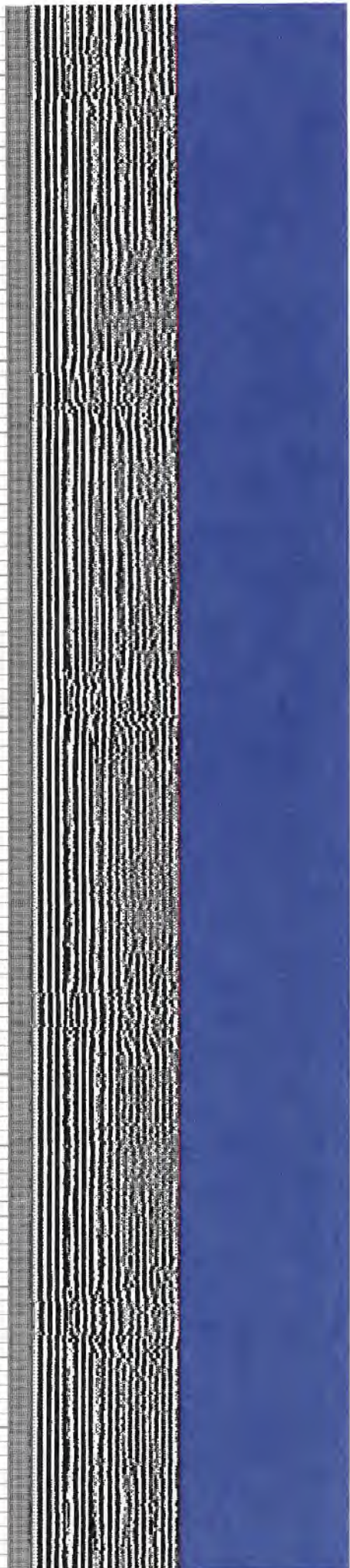
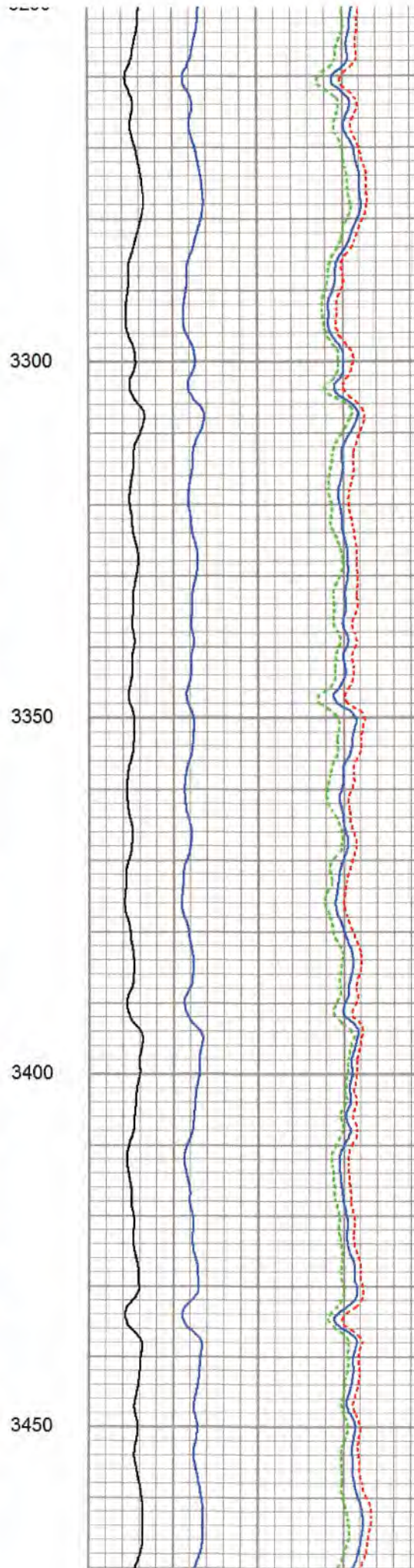
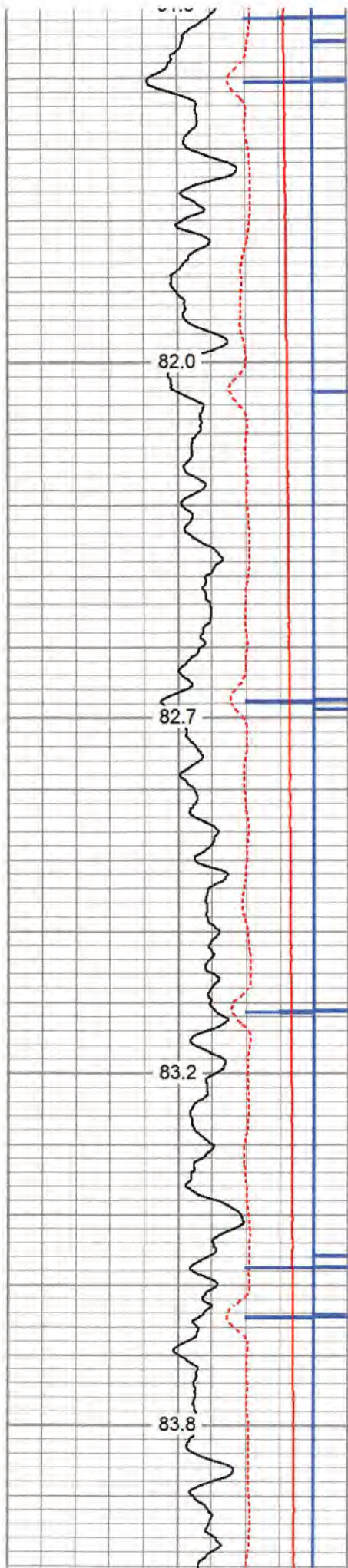


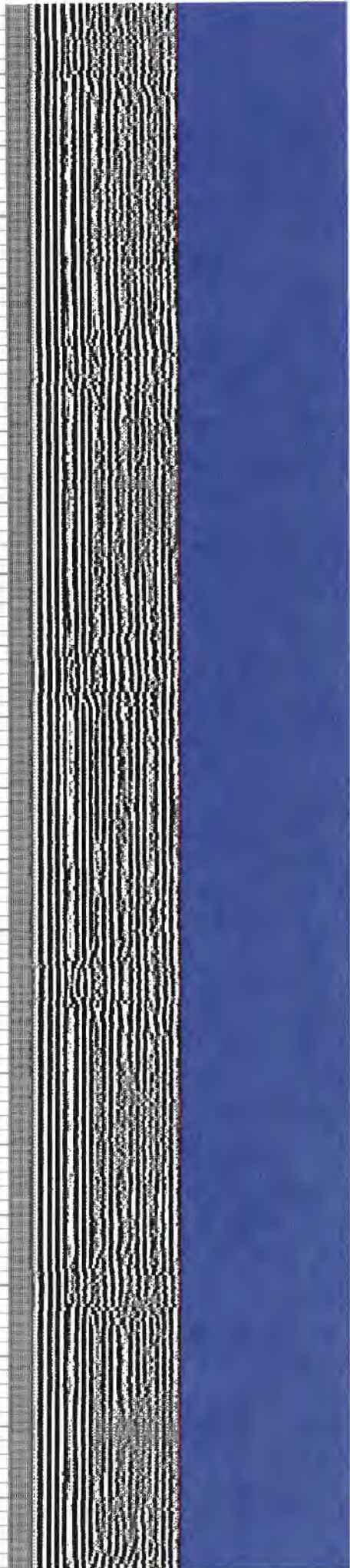
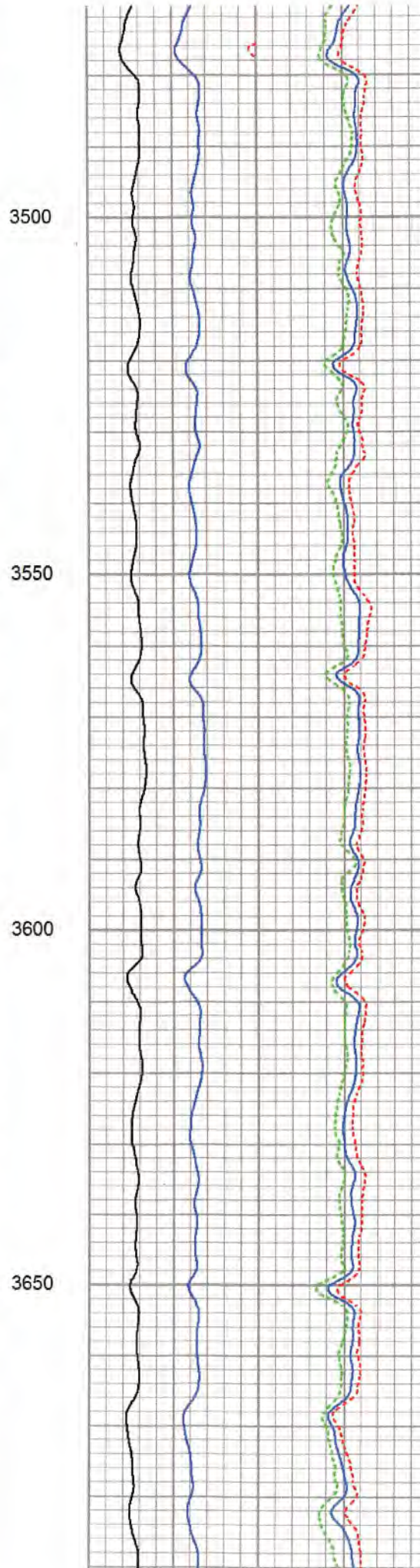
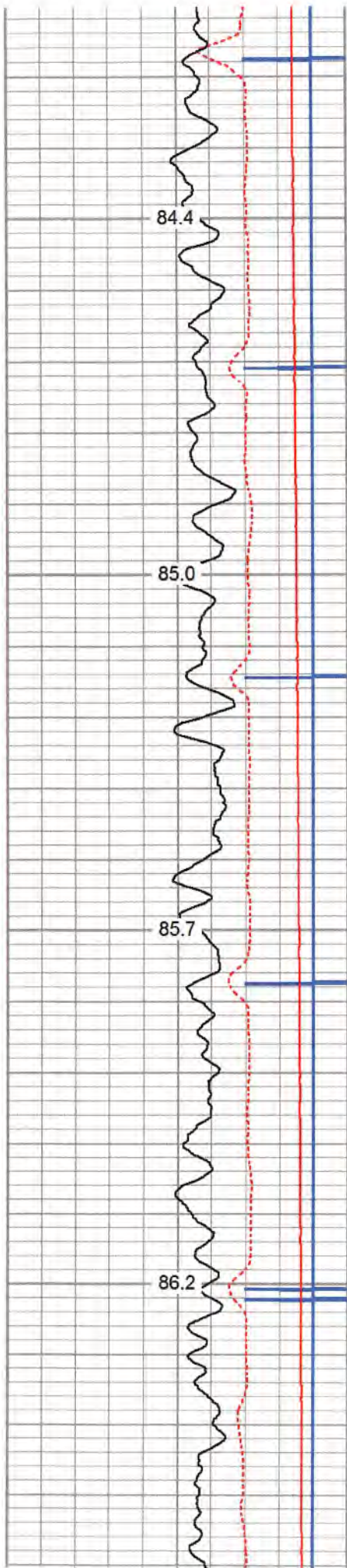


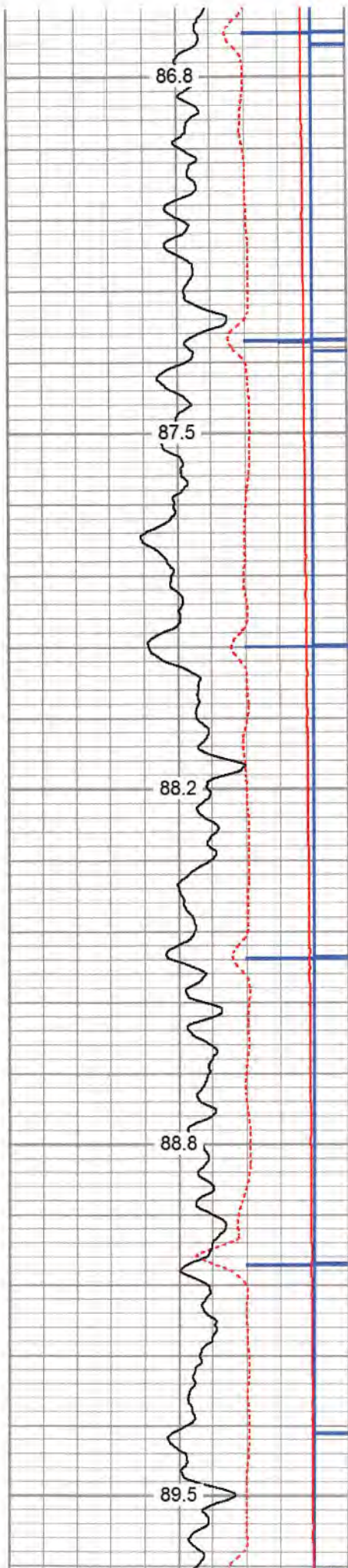


3050
3100
3150
3200
3250









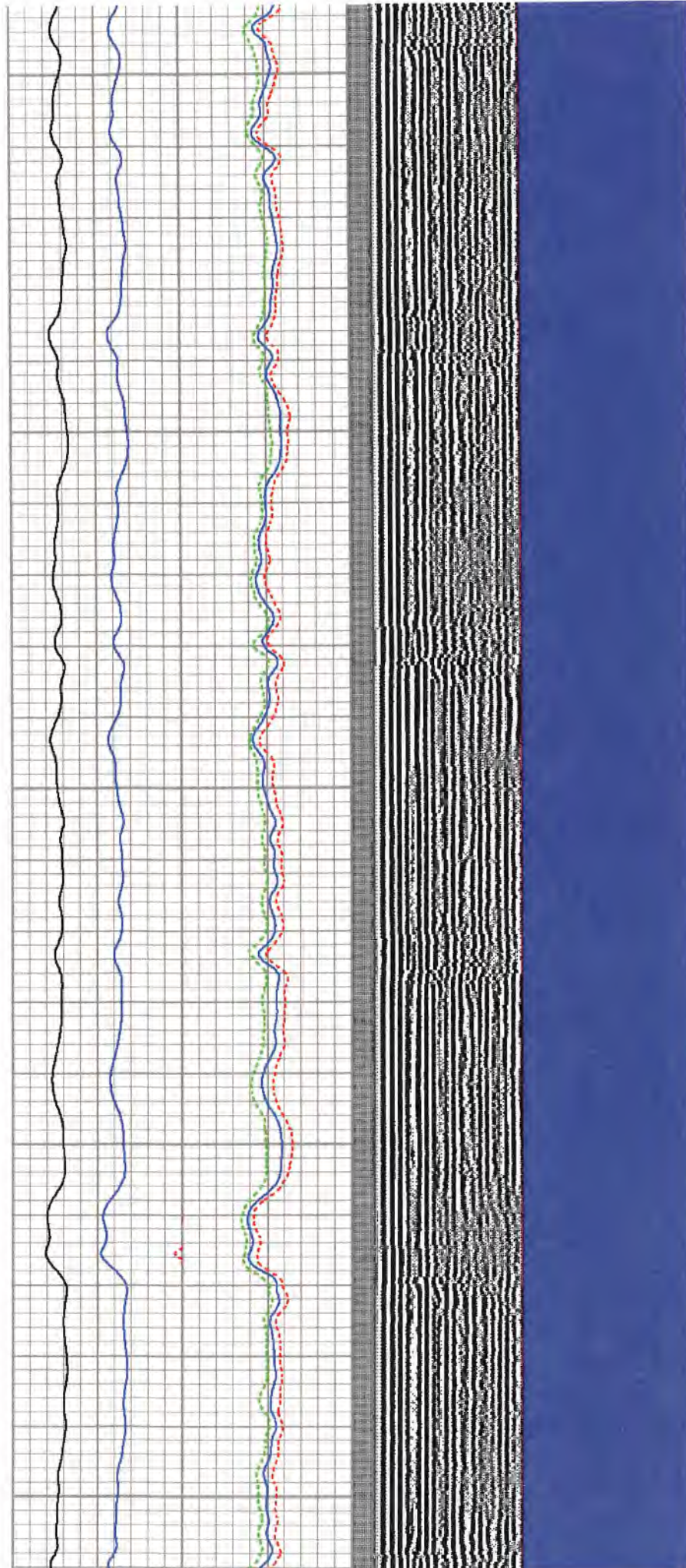
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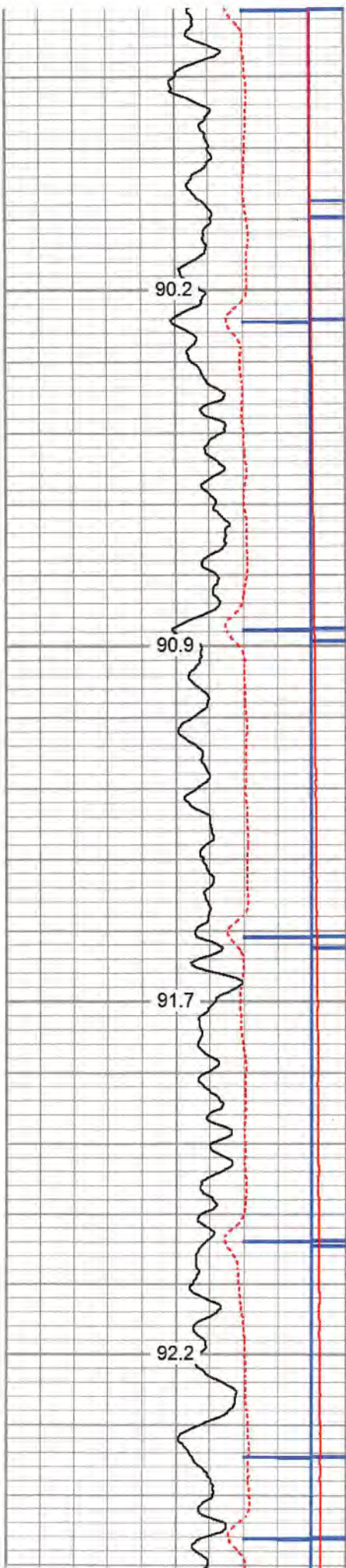
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3800

3850

3900



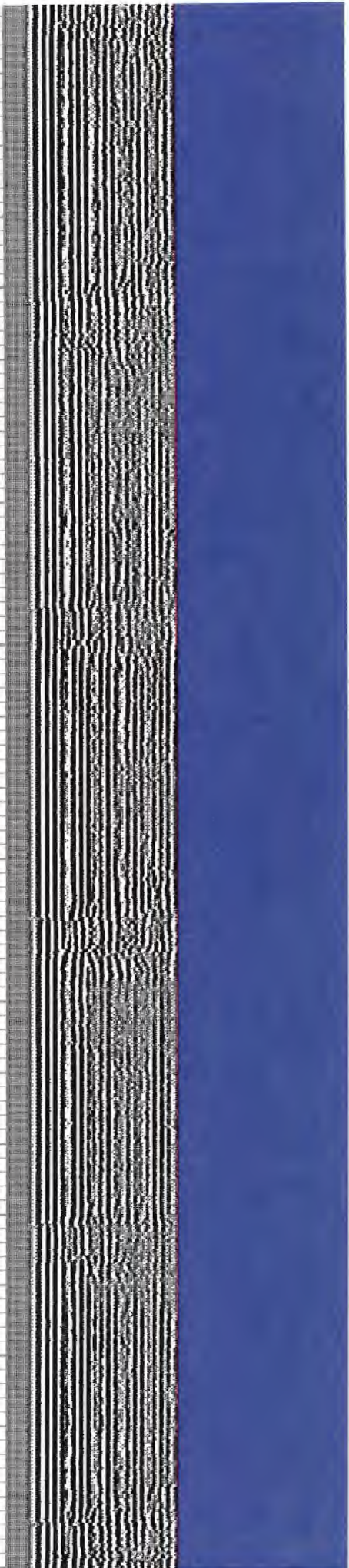
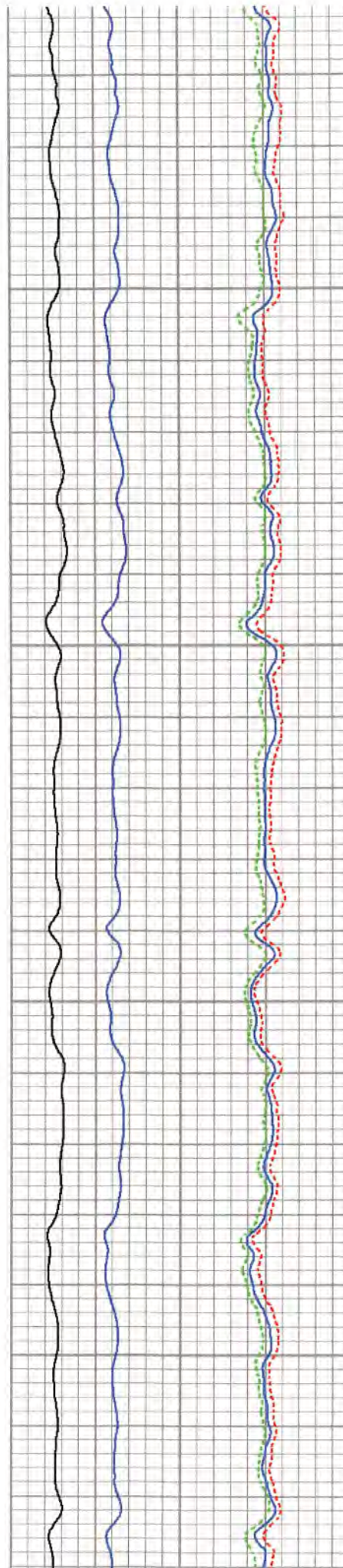


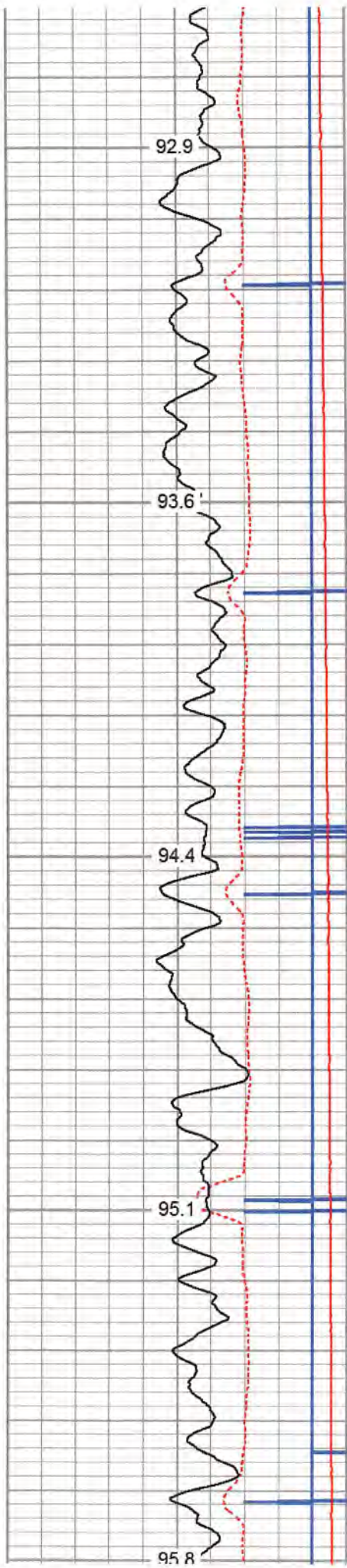
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4000

4050

4100





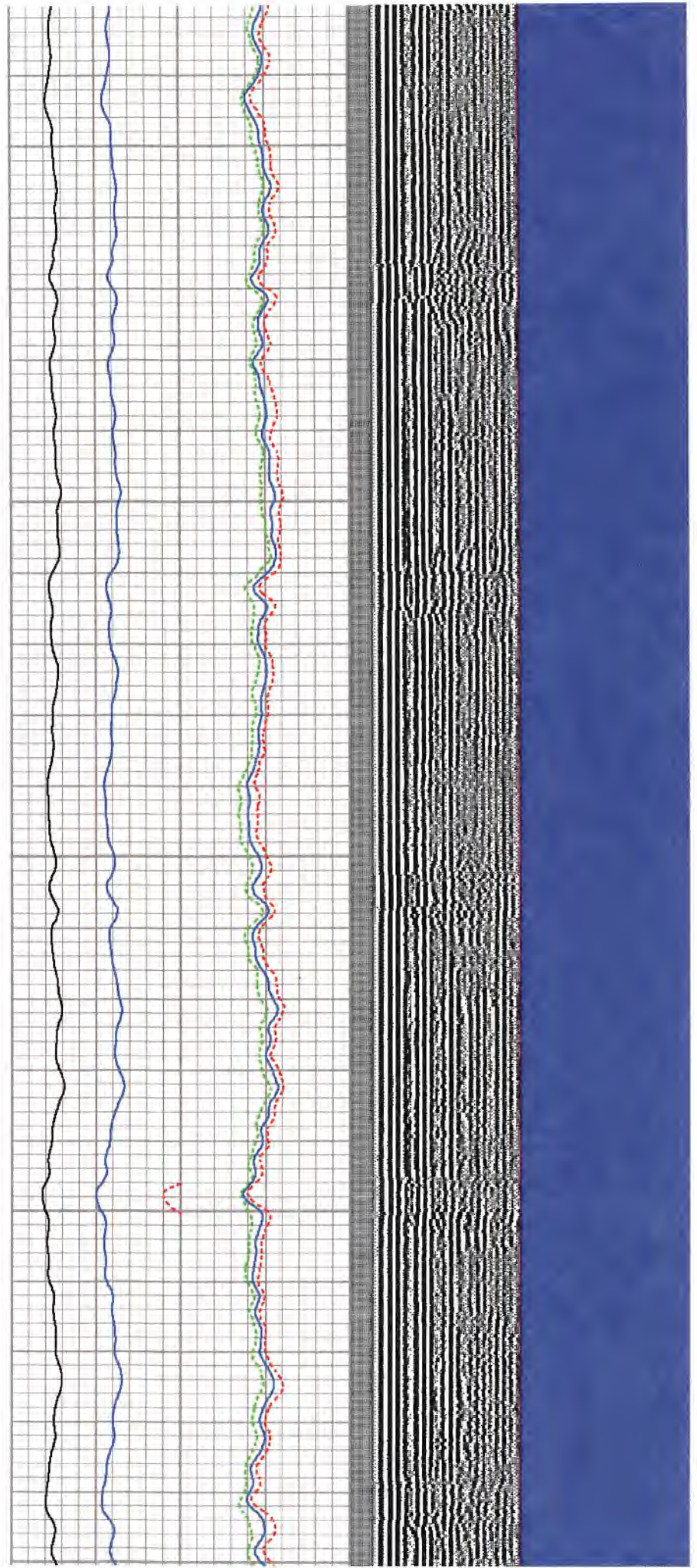
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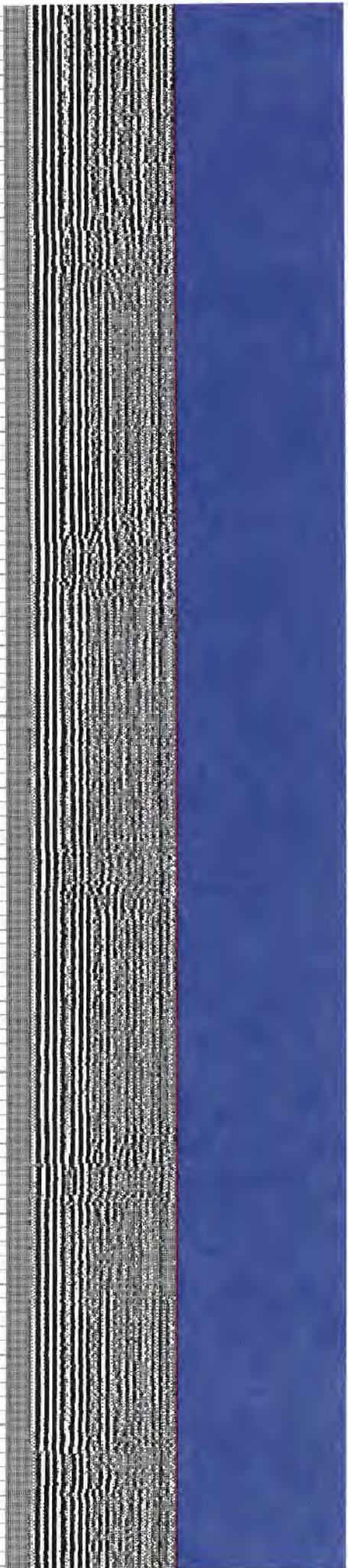
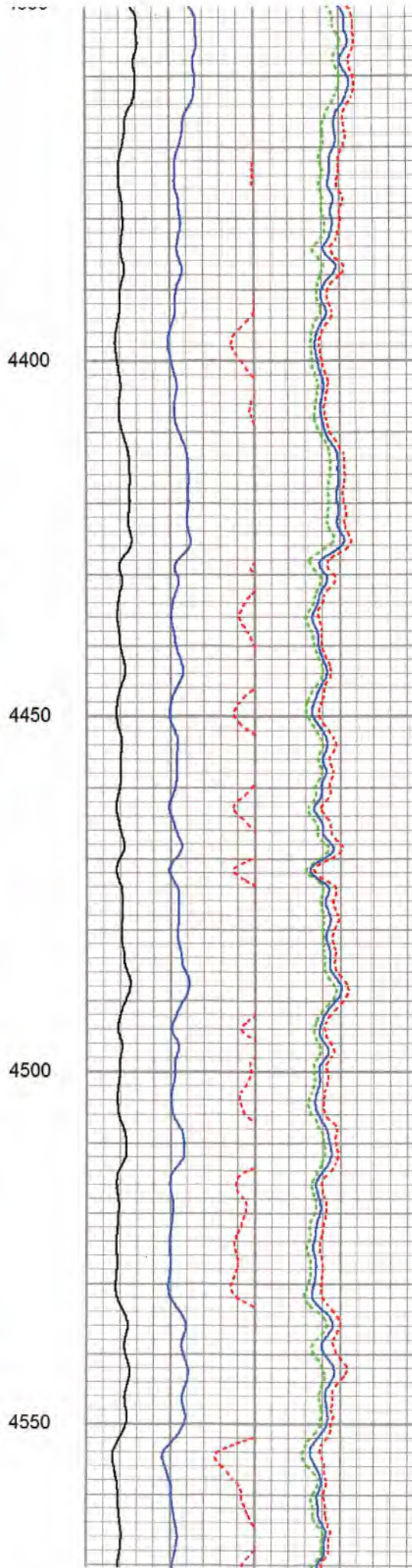
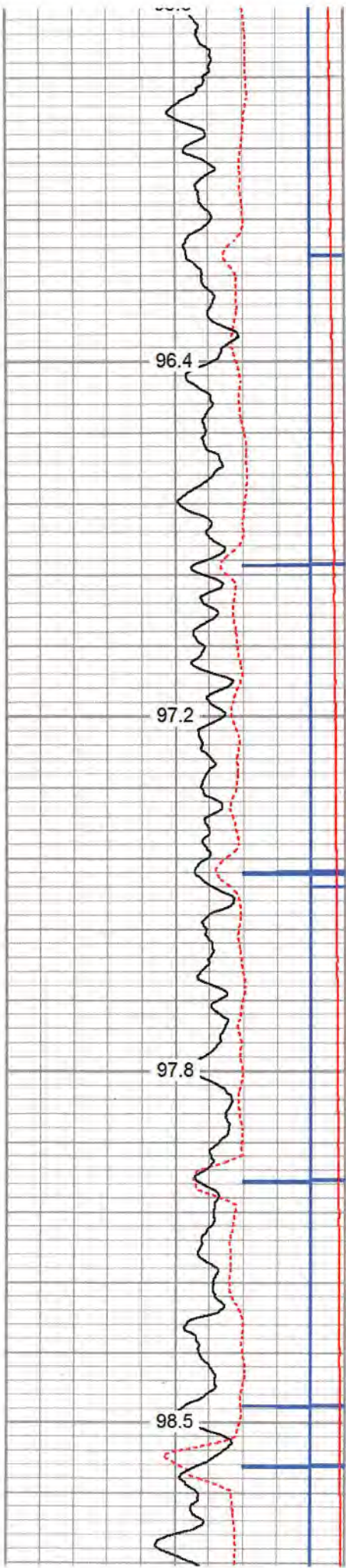
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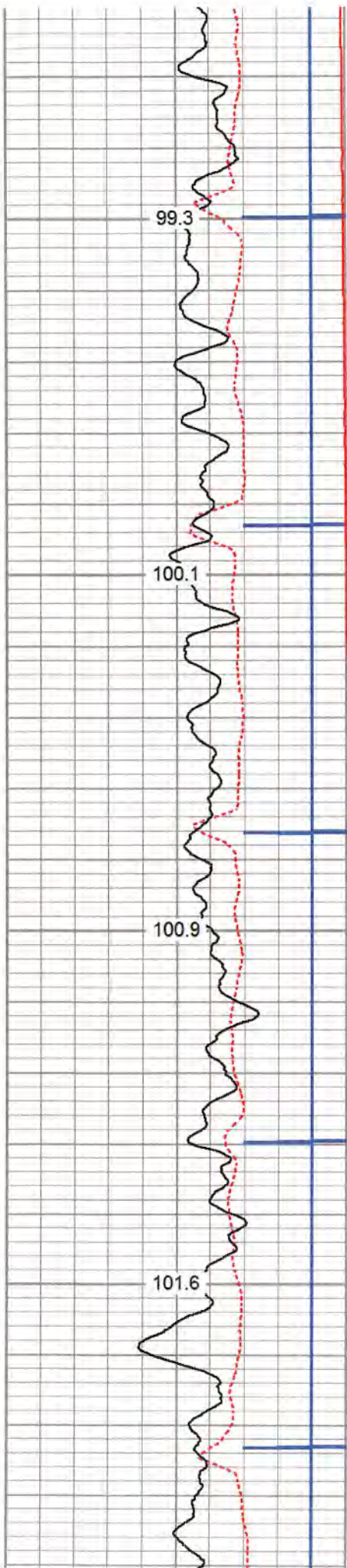
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4300

4350





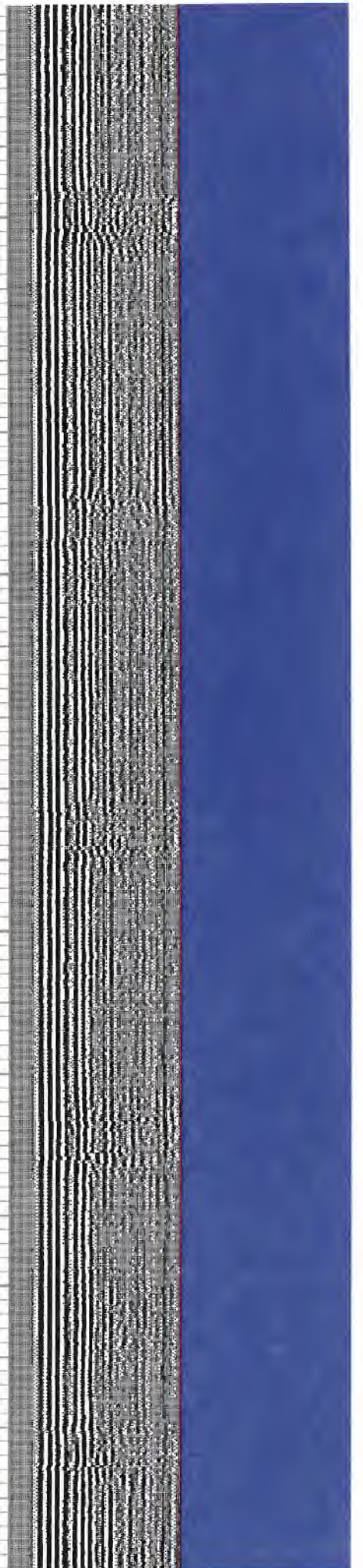
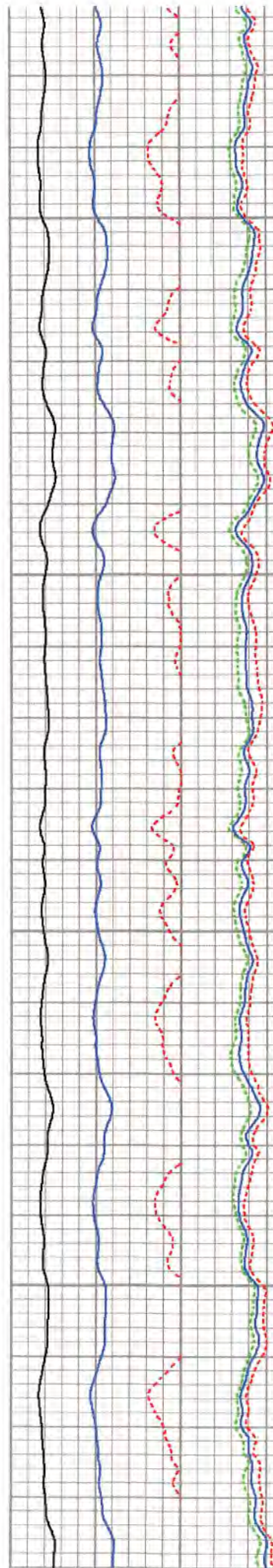


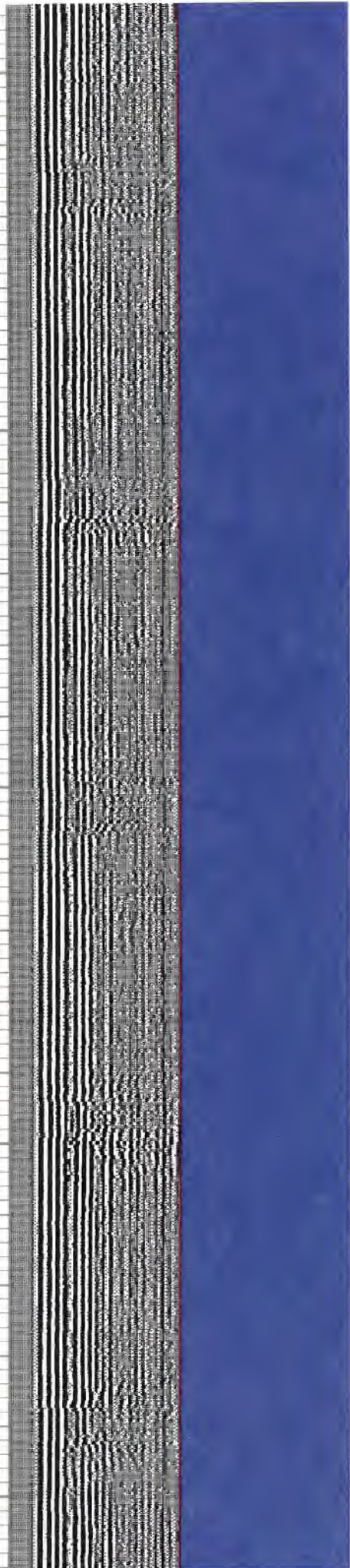
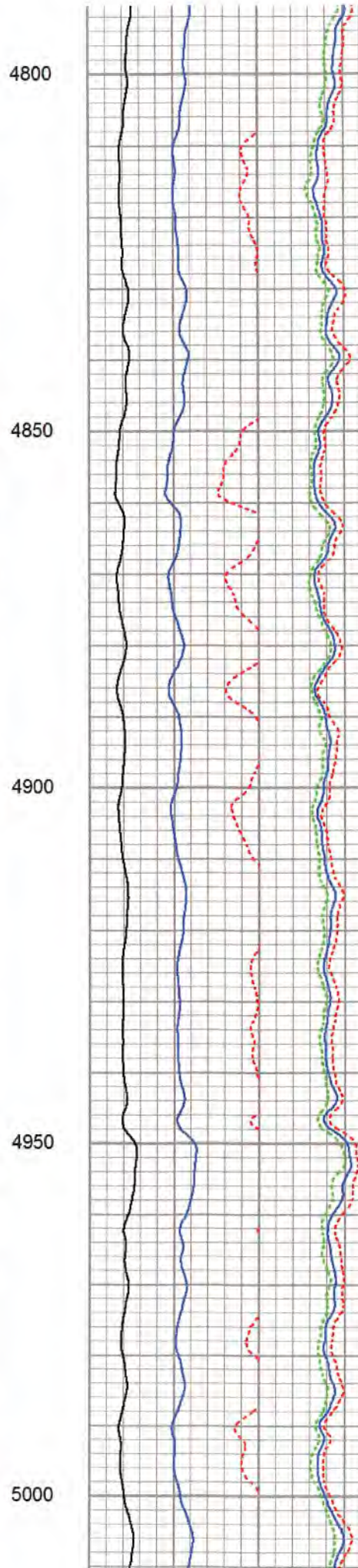
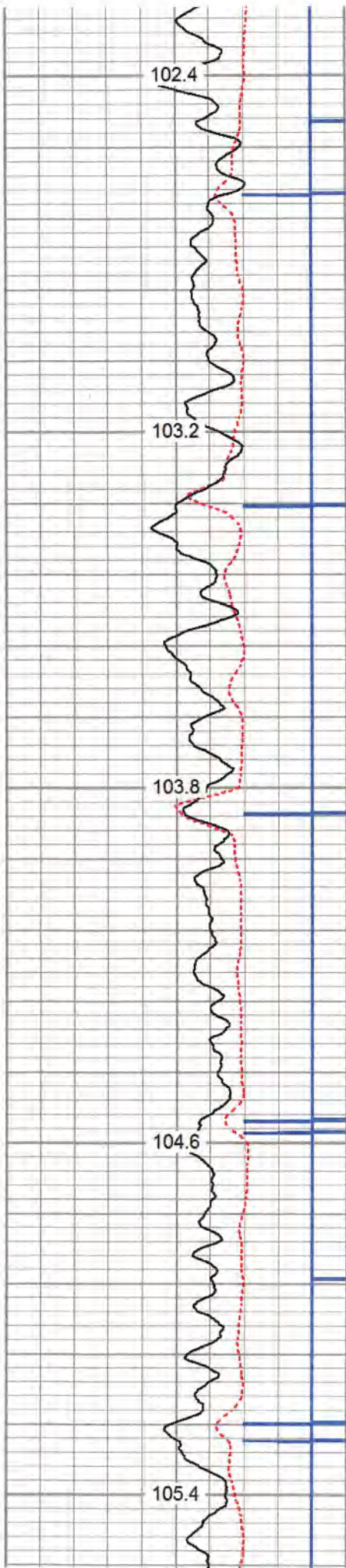
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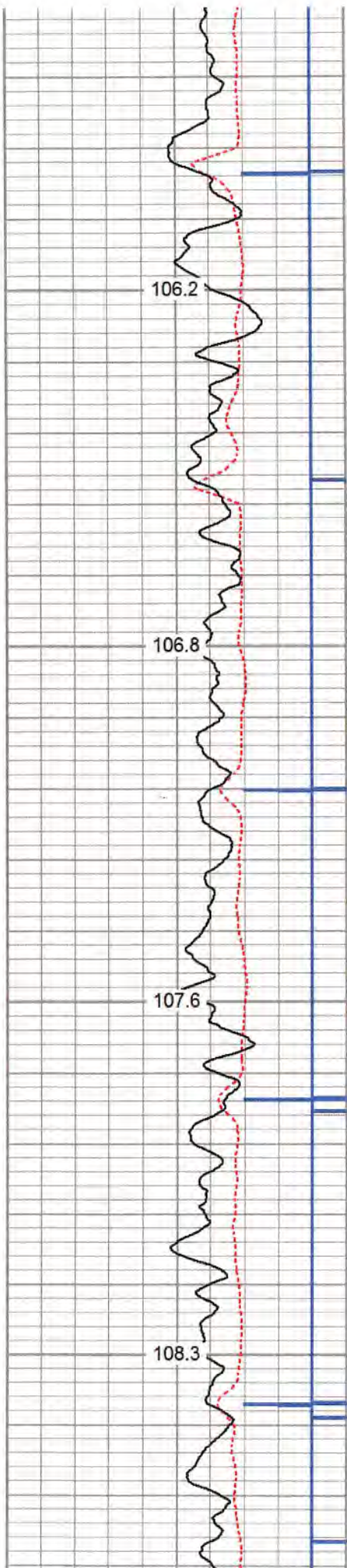
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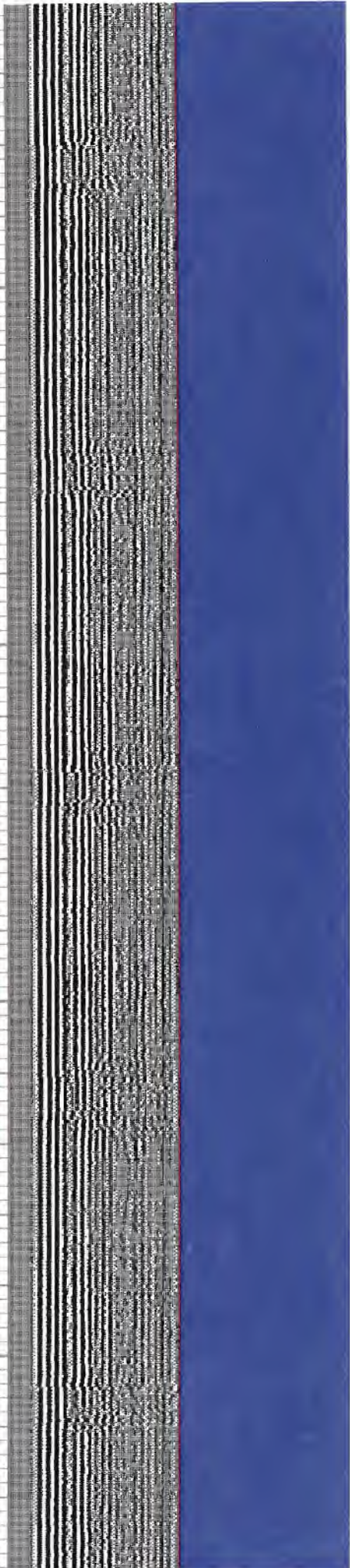
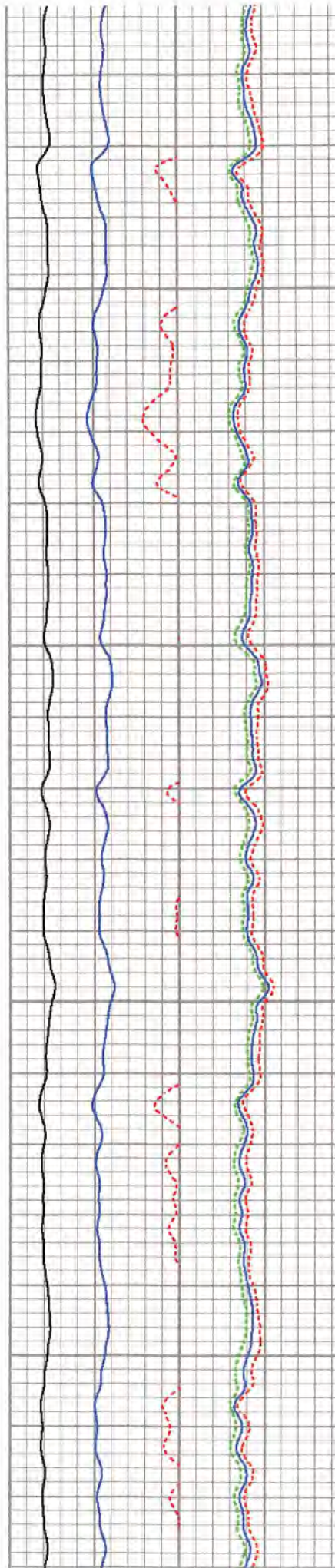
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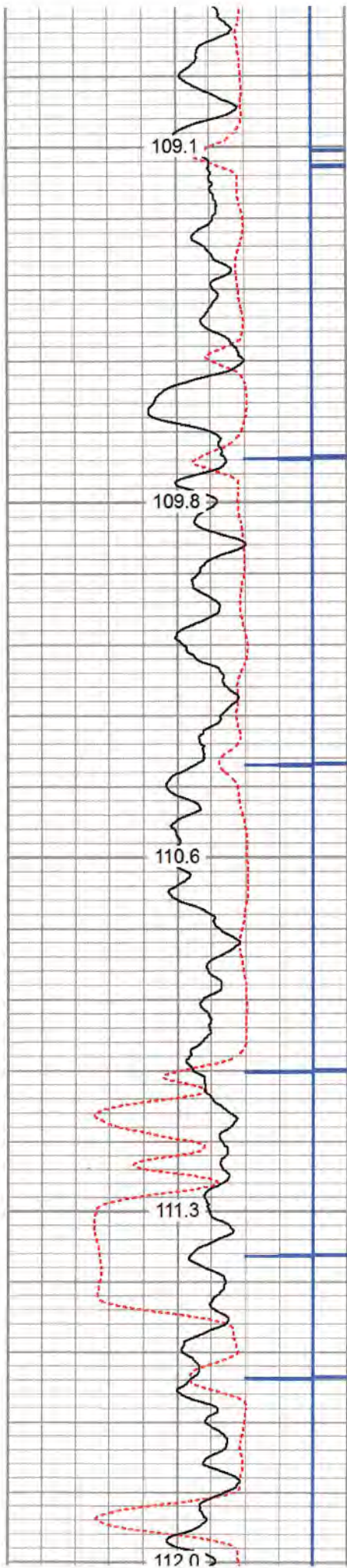






5050
5100
5150
5200





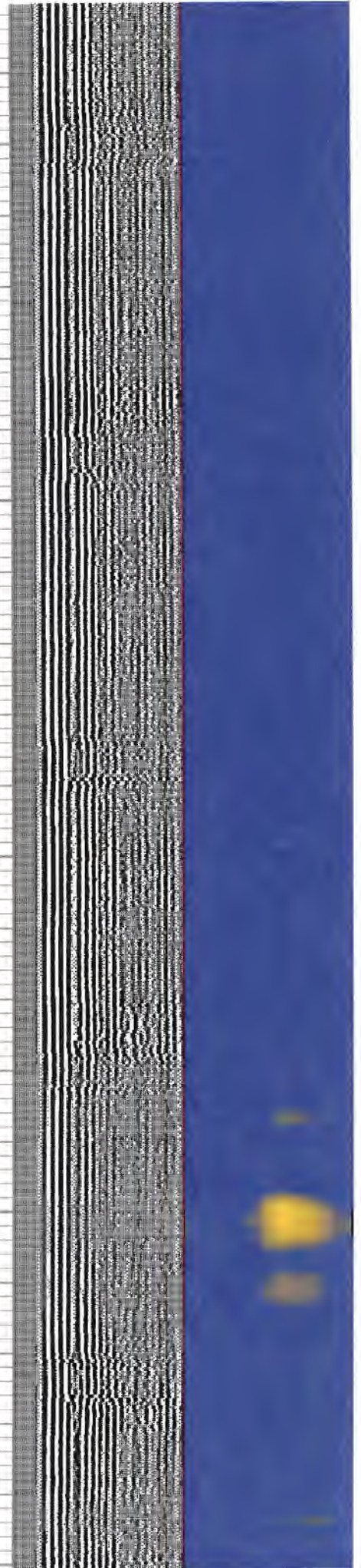
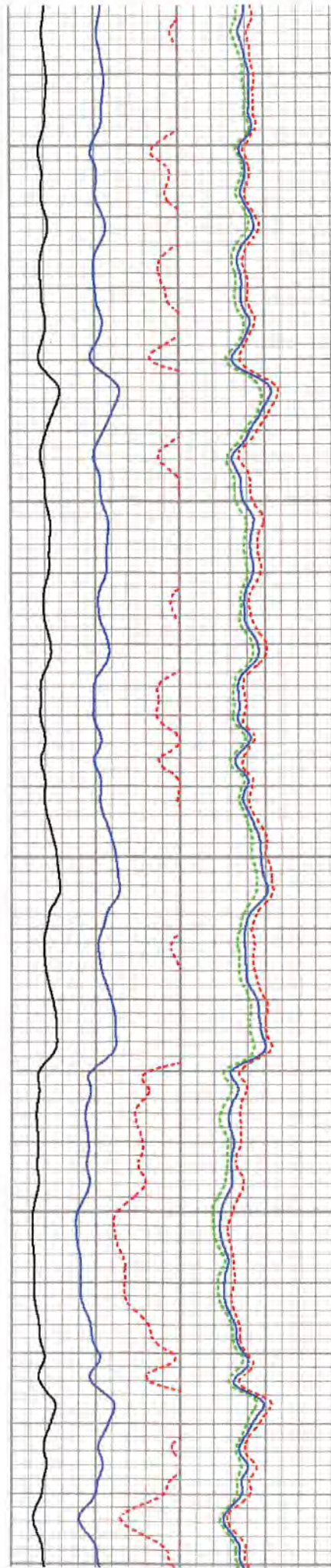
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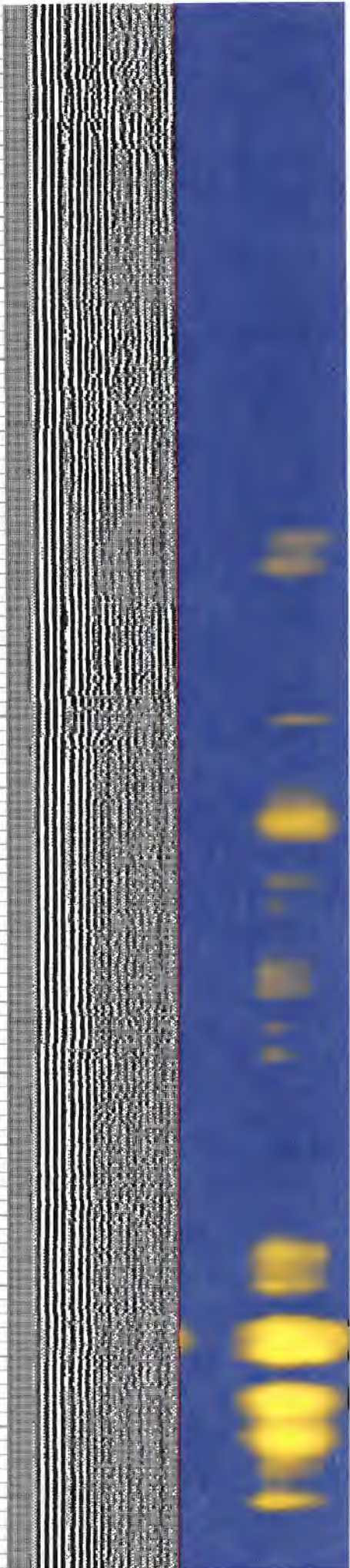
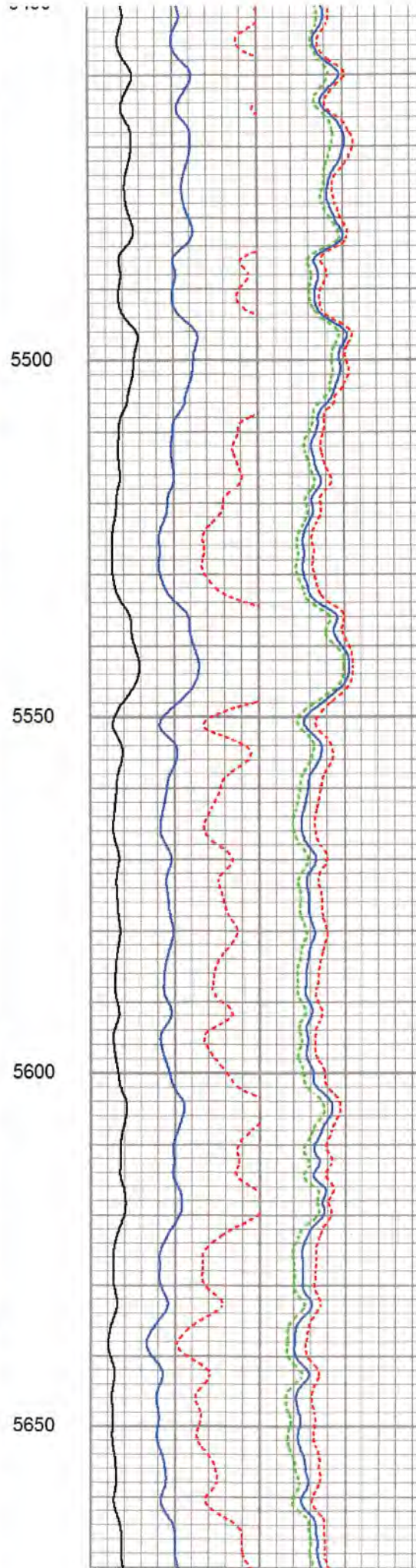
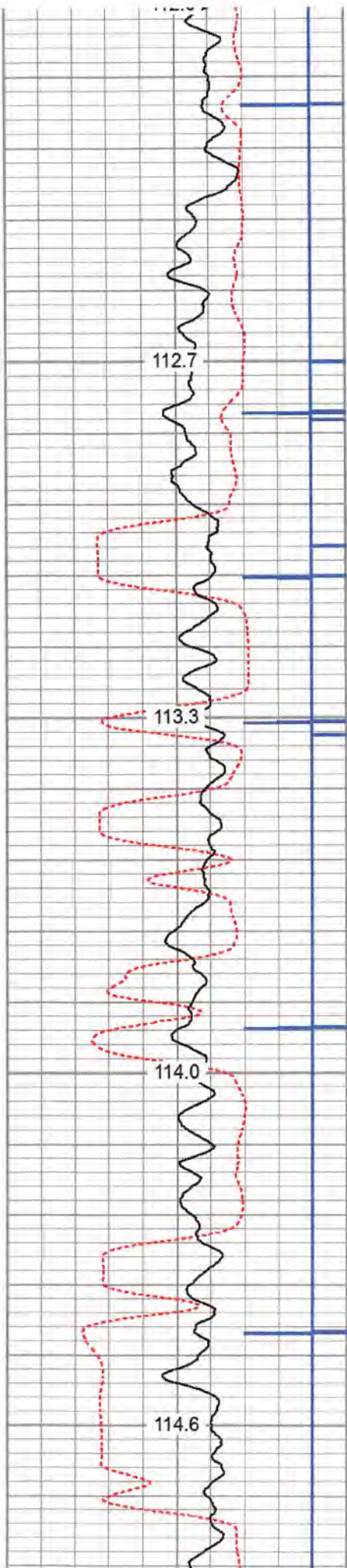
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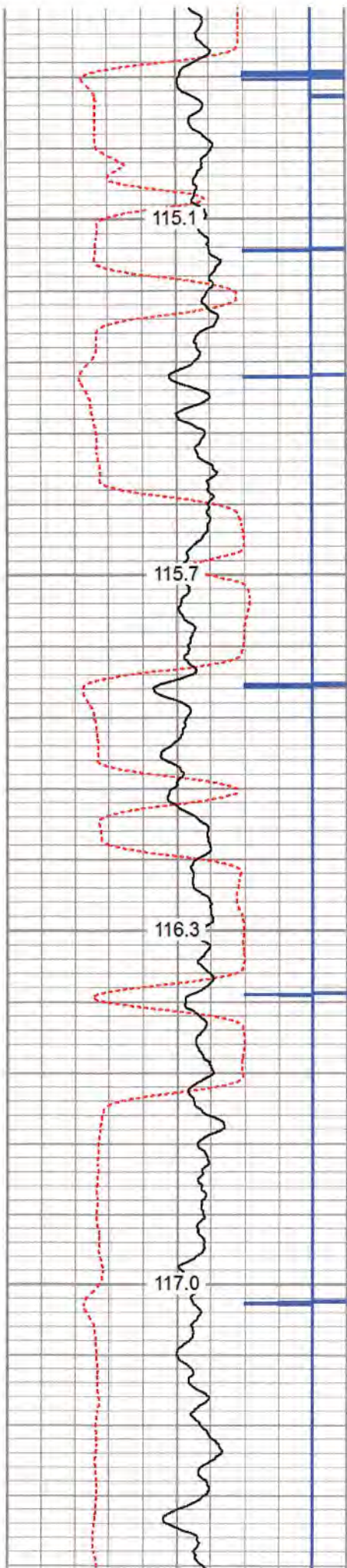
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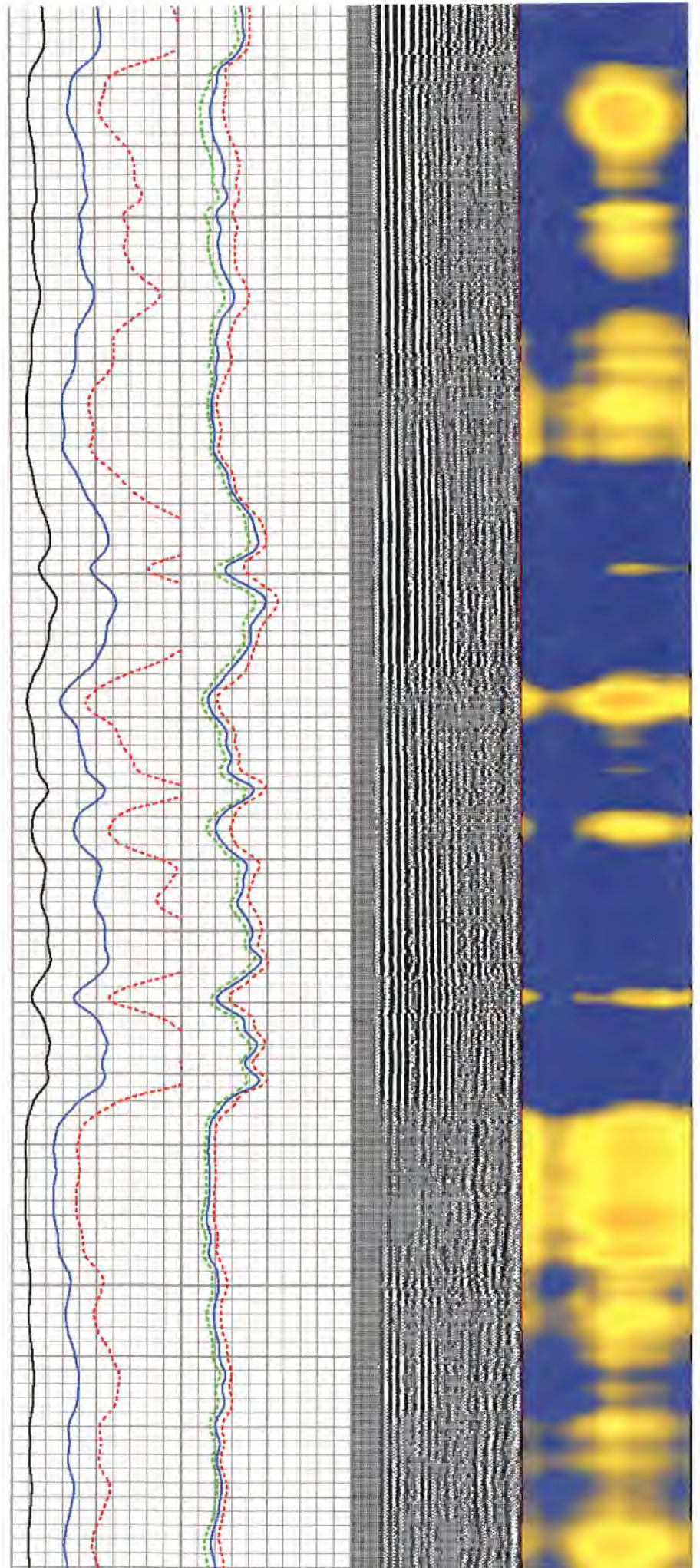


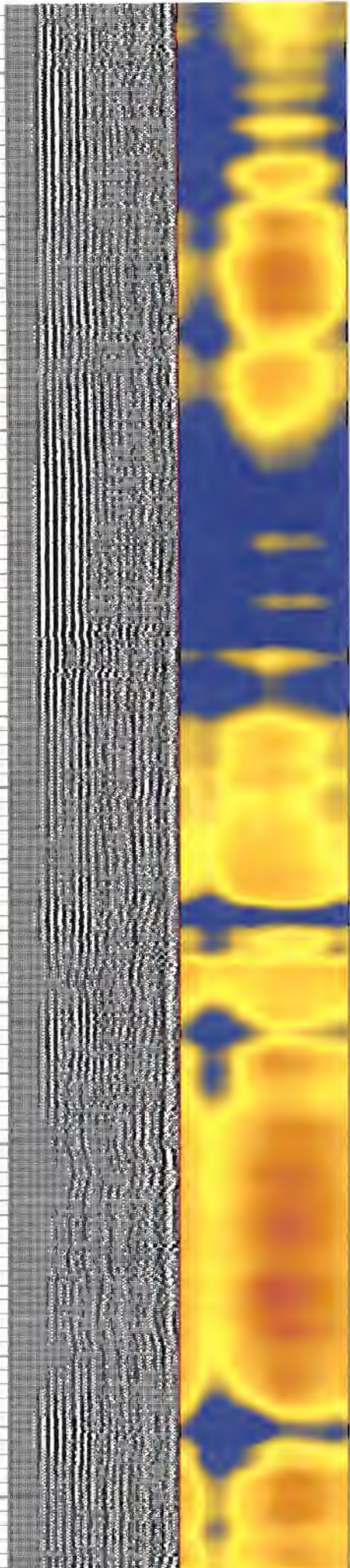
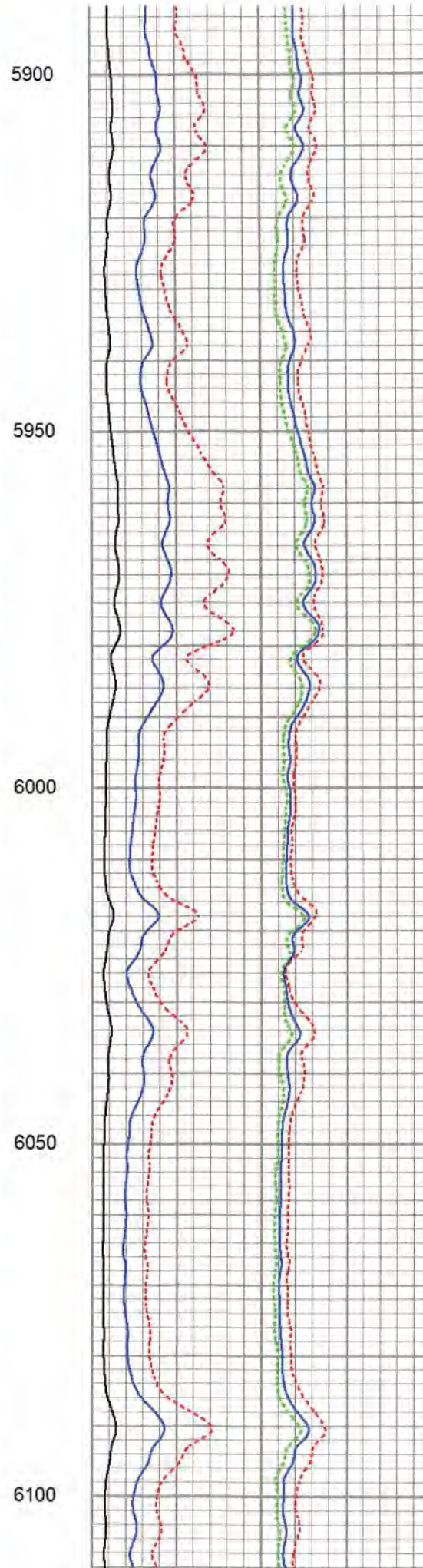
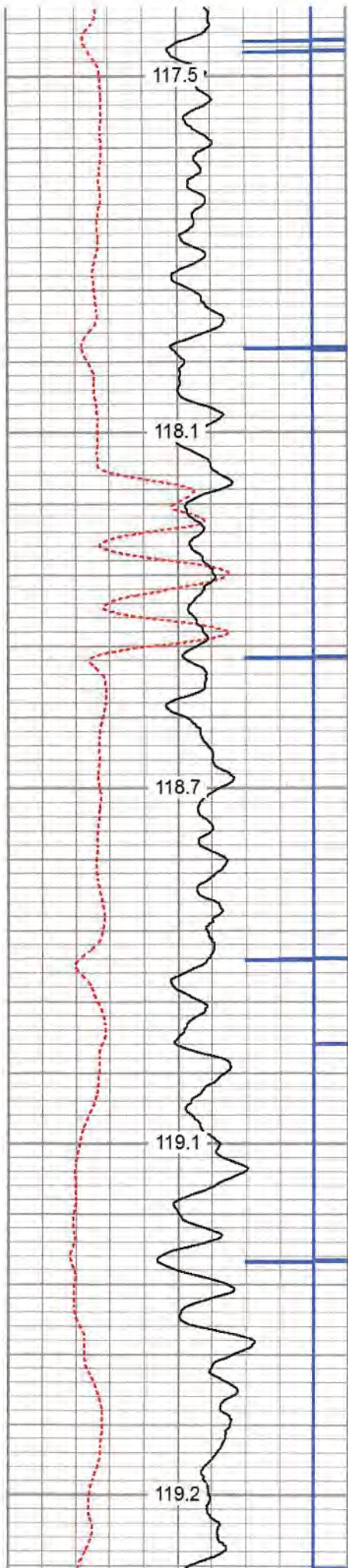
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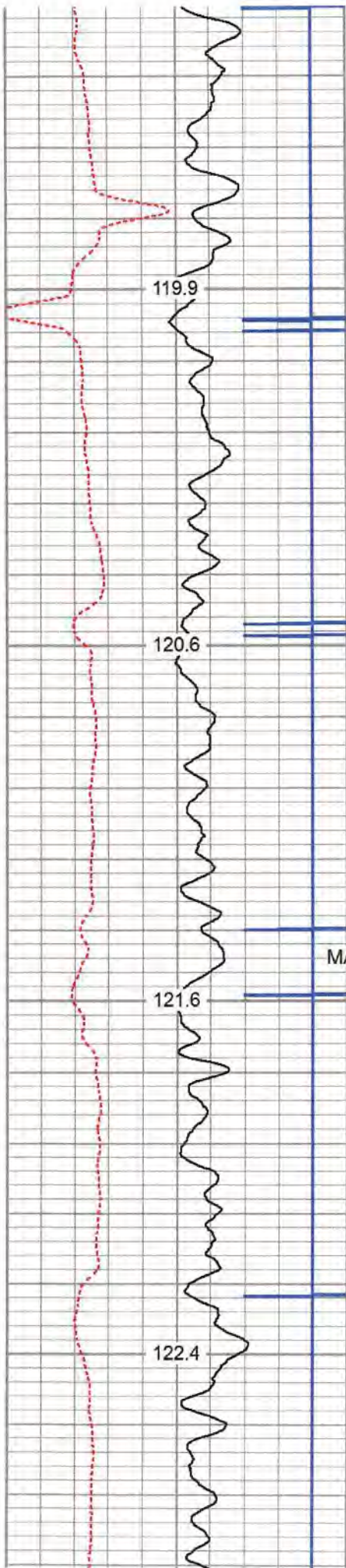
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5800

5850







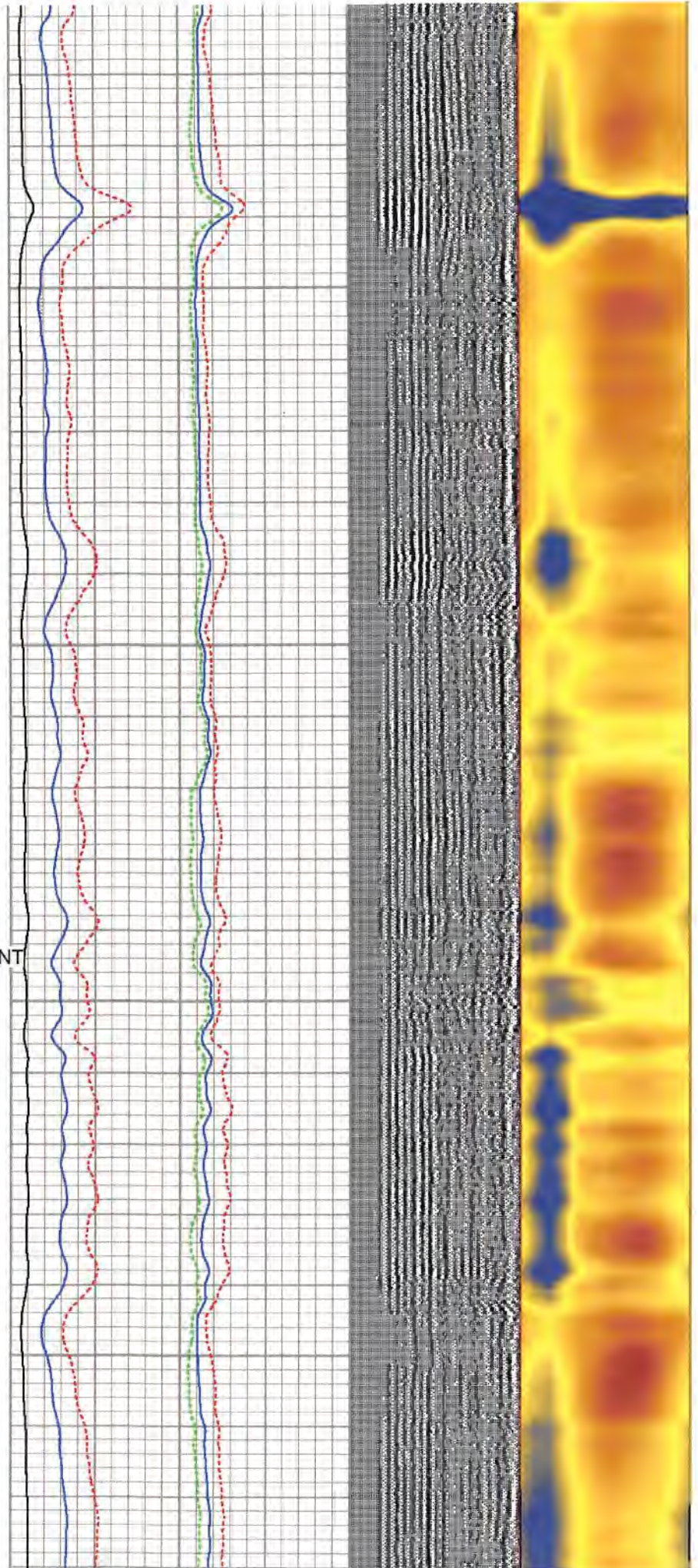
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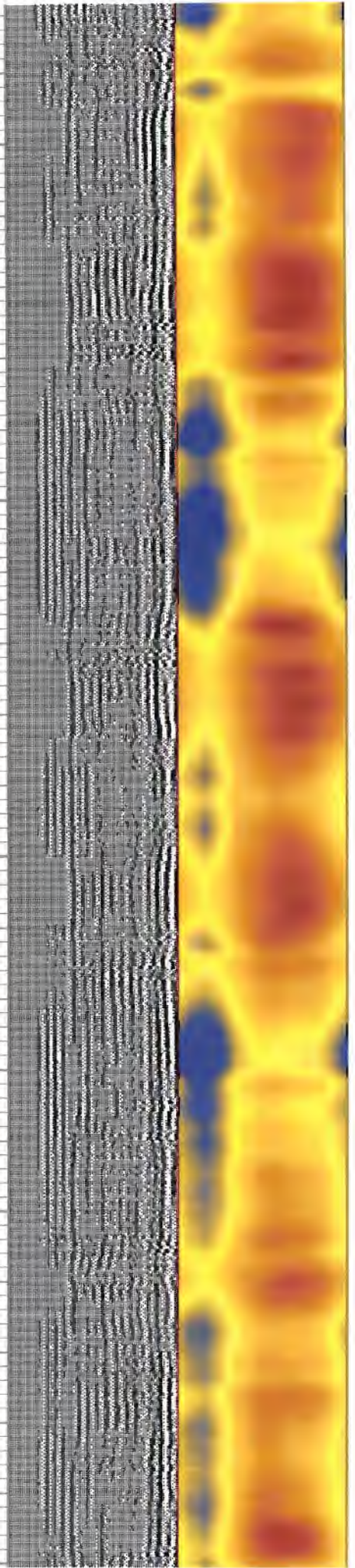
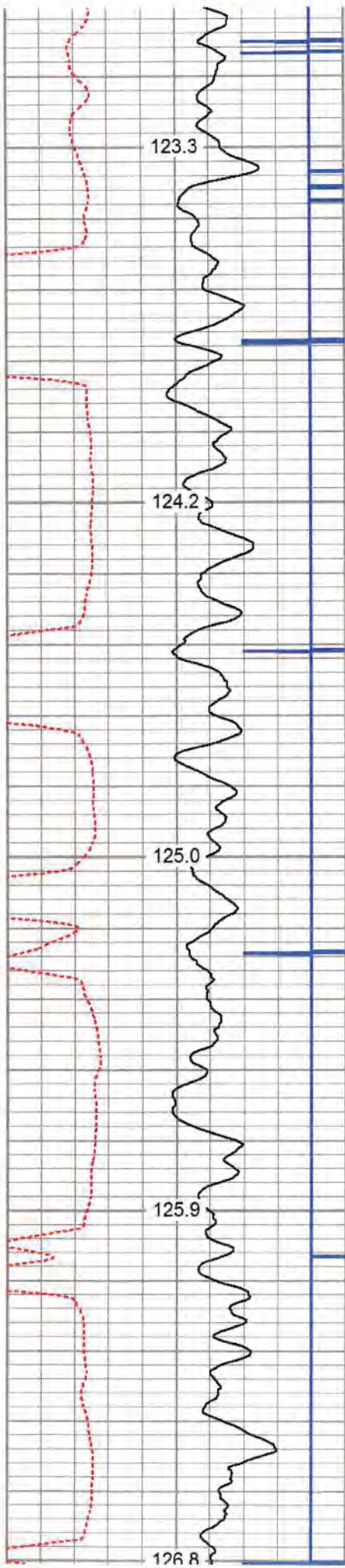
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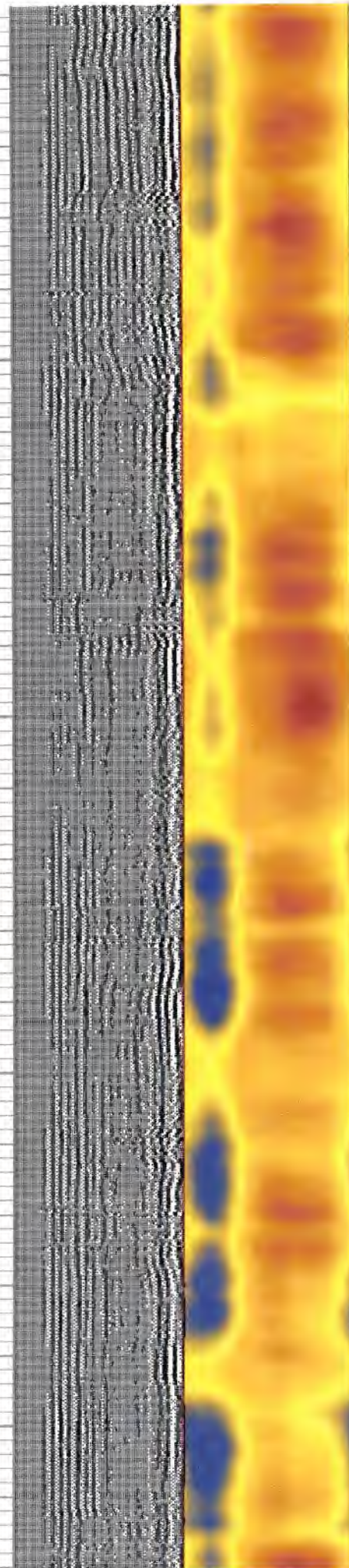
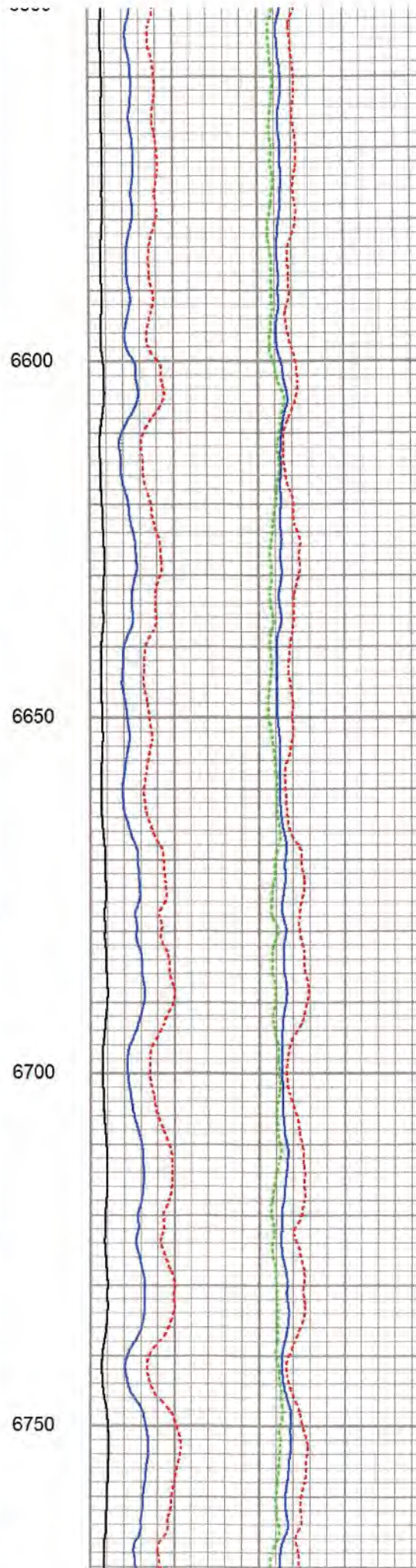
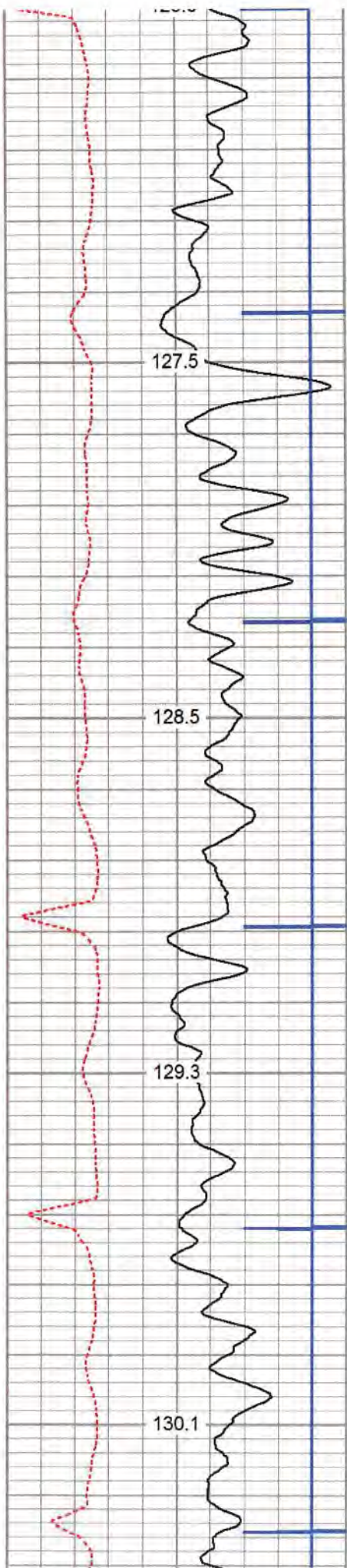
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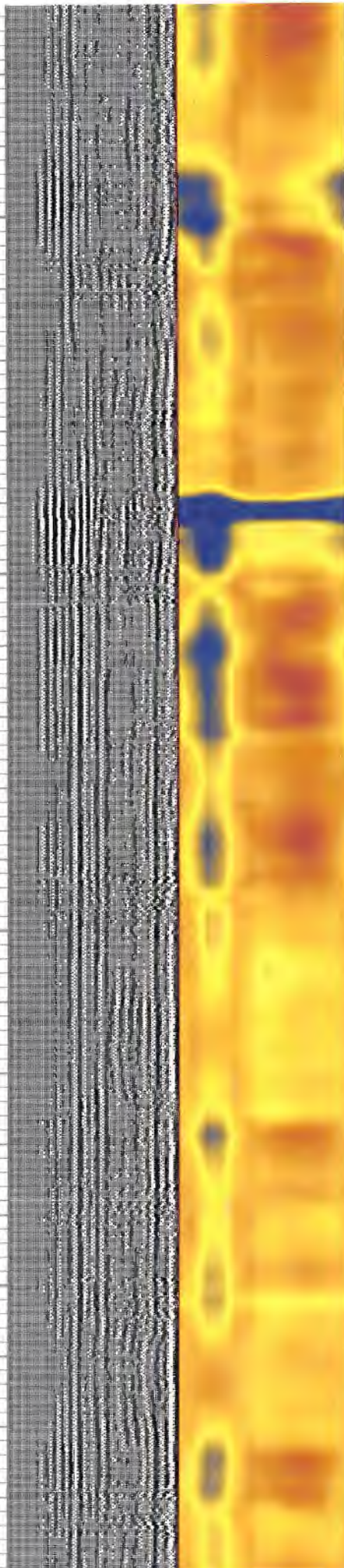
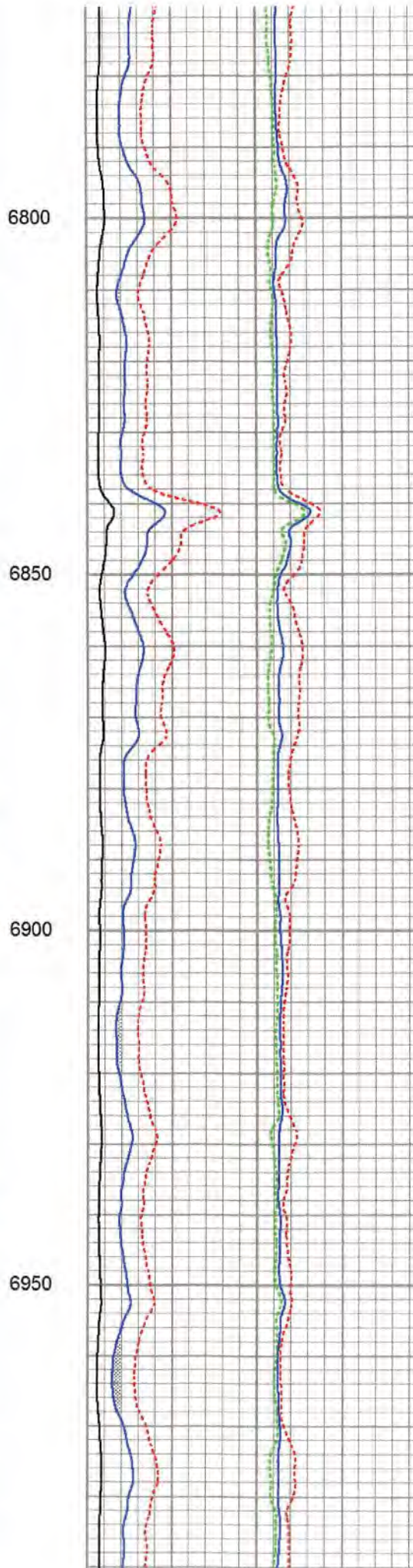
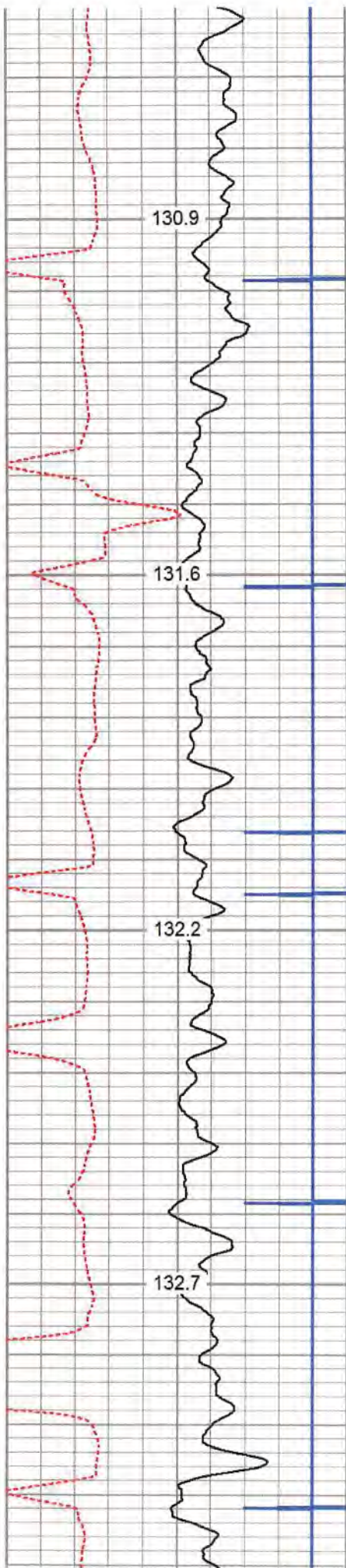
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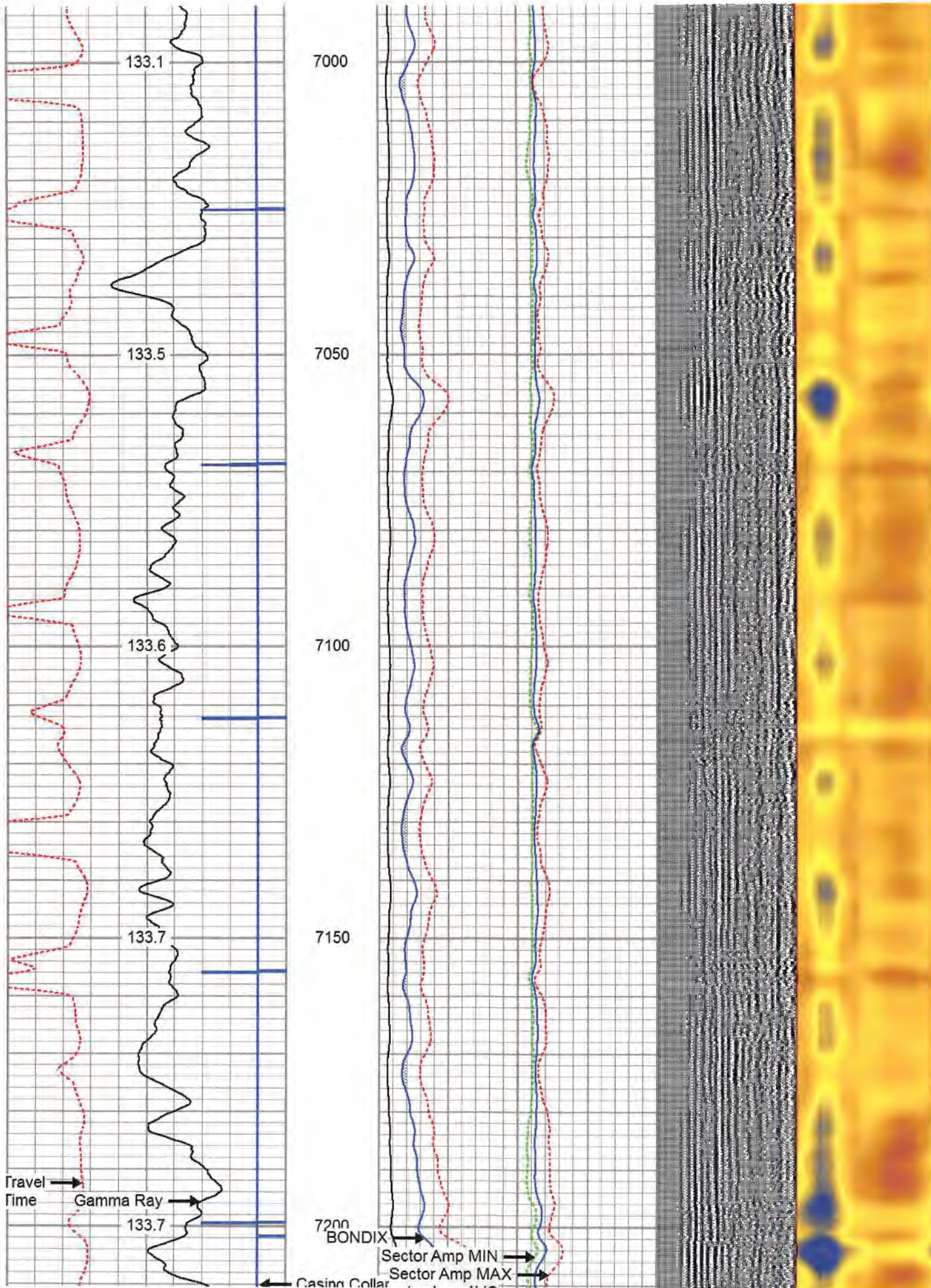
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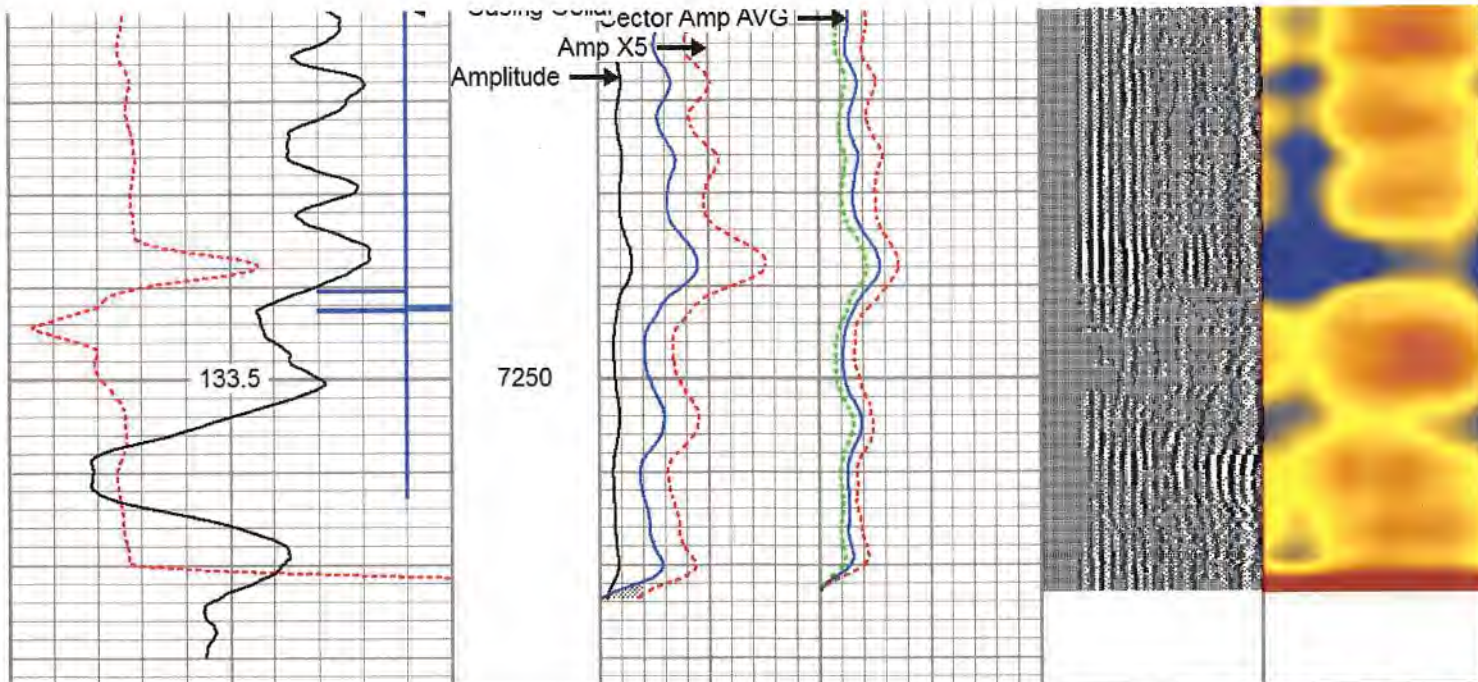












280	Travel Time (usec)	180	Amplitude	Sector Amp AVG	VDL	1	Sector Map	12
9	Casing Collar	-1	0 (mV) 100	Sector Amp MAX	200 (usec) 1200			
0	Gamma Ray	180	Amp X5	Sector Amp MIN				
0	TEMP (degF)	100	0 (mV) 20					
180	GR	360	1 BONDIX 0					

TEMP
(degF)

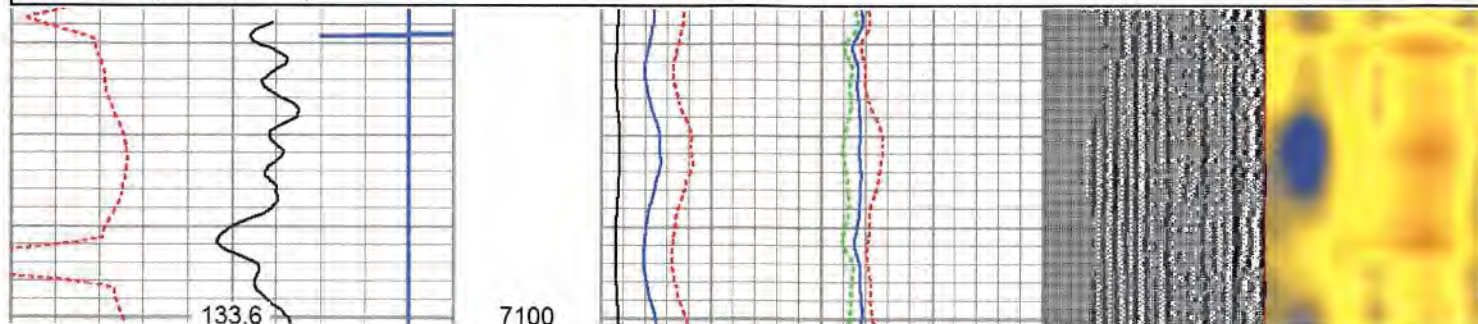


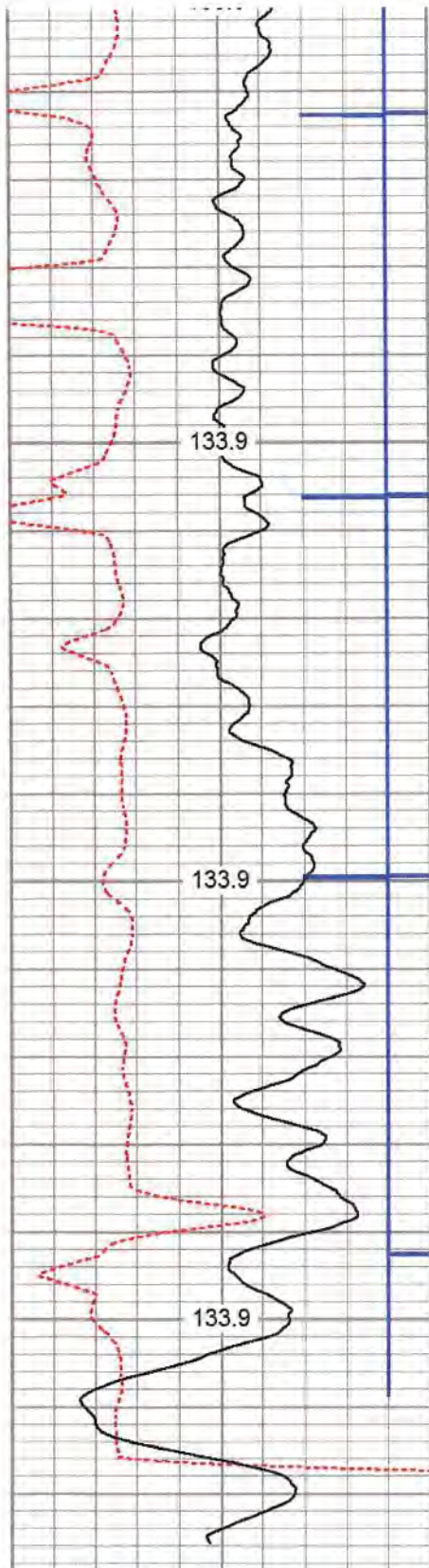
REPEAT PASS 1500 PSI

Database File e:\antero 2020\8_24_20_antero_kerns2h.db
 Dataset Pathname pass2
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 Dataset Creation Mon Aug 24 17:42:38 2020
 Charted by Depth in Feet scaled 1:240

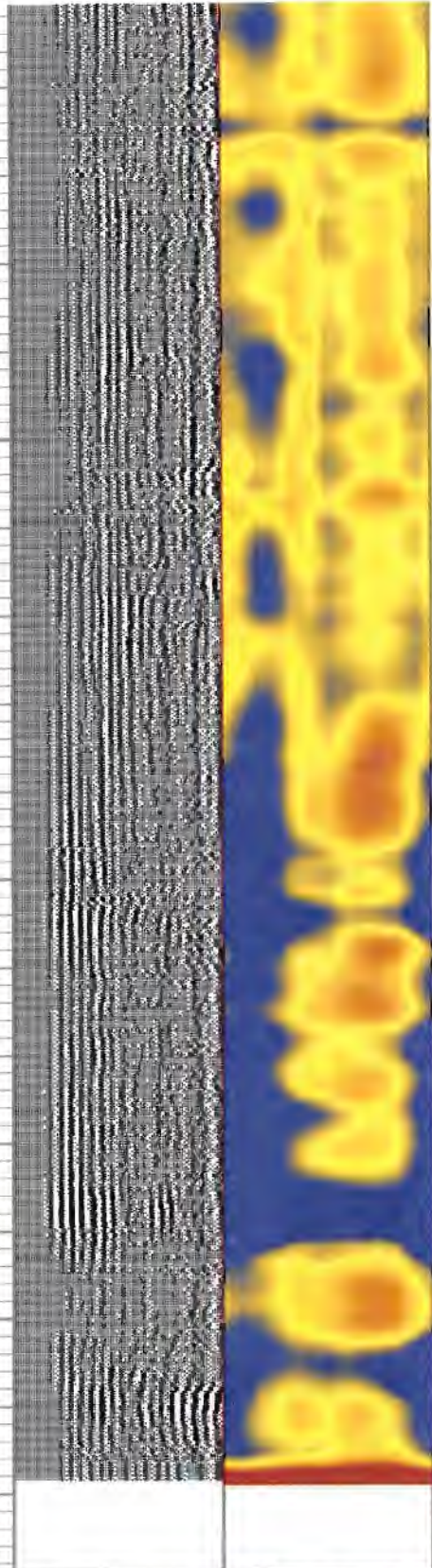
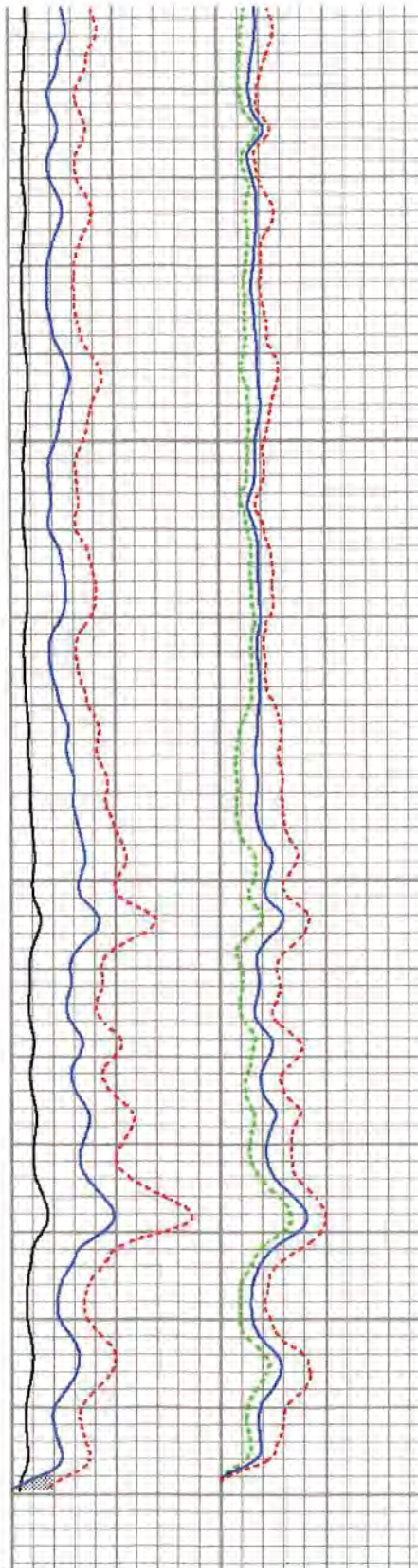
280	Travel Time (usec)	180	Amplitude	Sector Amp AVG	VDL	1	Sector Map	12
9	Casing Collar	-1	0 (mV) 100	Sector Amp MAX	200 (usec) 1200			
0	Gamma Ray	180	Amp X5	Sector Amp MIN				
0	TEMP (degF)	100	0 (mV) 20					
180	GR	360	1 BONDIX 0					

TEMP
(degF)





7150
7200
7250



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

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

200	VDL (usec)	1200
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1 Sector Map 12

TEMP (degF)

Sensor	Offset (ft)	Diagram	Description	Length (ft)	O.D. (in)	Weight (lb)	
CCL	20.30		CCL-312tekco (108X3-01) Tekco 3 1/8" 450 Deg. "F" SmCo Logging CCL	1.82	3.12	25.00	
			Tek-3.125 3 1/8" Titan Adjustable Centralizer	3.42	3.13	50.00	
TEMP	13.46						
WVFS12	12.17						
WVFS11	12.17						
WVFS10	12.17			SCBL-Tek12 (10L40-03_5_5) Tekco 400 Deg F 12 Sector RIB with Temp	9.13	3.25	135.00
WVFS9	12.17						
WVFS8	12.17						
WVFS7	12.17						
WVFS6	12.17						
WVFS5	12.17						
WVFS4	12.17						
WVFS3	12.17						
WVFS2	12.17						
WVFS1	12.17						
WVFCAL	11.42						
WVF3FT	11.42						
WV5FT	10.42						
WVFSYNC	7.08						
WVFTEMP	7.08		Tek-3.125 3 1/8" Titan Adjustable Centralizer	3.42	3.13	50.00	
			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: 8_24_20_antero_kerns2h.db: field/well/run1/pass3.1
 Total length: 21.44 ft
 Total weight: 300.00 lb
 O.D.: 3.25 in

Calibration Report

Database File e:\antero 2020\8_24_20_antero_kerns2h.db
 Dataset Pathname pass3.1
 Dataset Creation Mon Aug 24 19:41:05 2020

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: IOL40-03_5_5
 Tool Model: Tek12

Calibration Casing Diameter: 5.500 in
 Calibration Depth: 388.083 ft

Master Calibration, performed (Derived):

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.001	0.701	3.400	71.921	97.878	3.338
CAL	0.865	0.408				
5'	-0.002	0.748	1.000	71.921	94.617	1.169
SUM						
S1	0.006	1.637	0.000	100.000	61.287	-0.344
S2	0.006	1.500	0.000	100.000	66.925	-0.407
S3	0.006	1.414	0.000	100.000	71.015	-0.416
S4	0.005	1.460	0.000	100.000	68.730	-0.356
S5	0.004	1.595	0.000	100.000	62.854	-0.274
S6	0.004	1.757	0.000	100.000	57.065	-0.244
S7	0.004	1.715	0.000	100.000	58.440	-0.227
S8	0.004	1.625	0.000	100.000	61.675	-0.217
S9	0.004	1.572	0.000	100.000	63.755	-0.232
S10	0.004	1.549	0.000	100.000	64.697	-0.244
S11	0.004	1.554	0.000	100.000	64.514	-0.246
S12	0.005	1.648	0.000	100.000	60.865	-0.276

Temperature Calibration Report

Serial Number: IOL40-03_5_5
 Tool Model: Tek12
 Performed: Fri Oct 20 09:51:21 2017

	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	





Well KERNS UNIT 2H
Field MARCELLUS
County TYLER
State WV

Country US