



MIDWEST WIRELINE

DUAL INDUCTION LOG

Company Cobalt Energy LLC
Well Deer Creek #1-25
Field Little Beaver Creek North
County Cheyenne State Kansas

Company Cobalt Energy LLC
Well Deer Creek #1-25
Field Little Beaver Creek North
County Cheyenne
State Kansas

Location: API #: 15-023-21581-00-00
SE SE NW NW
1206 FNL & 1195 FWL
NAD 39.68113017 & 101.4258333436
SEC 25 TWP 4S RGE 37W
Permanent Datum Ground Level Elevation 3348
Log Measured From Kelly Bushing
Drilling Measured From Kelly Bushing
Other Services
CNL/CDL
MEL
Elevation
K.B. 3353
D.F.
G.L. 3348

Date	11/3/2022		
Run Number	One		
Depth Driller	4980		
Depth Logger	4980		
Bottom Logged Interval	4979		
Top Log Interval	300		
Casing Driller	8.625 @ 301		
Casing Logger	300		
Bit Size	7.875		
Type Fluid in Hole	Chemical		
Salinity, ppm CL	3000		
Density / Viscosity	9.4 63		
pH / Fluid Loss	10.0 8.0		
Source of Sample	Flowline		
Rm @ Meas. Temp	0.85 @ 72		
Rmt @ Meas. Temp	0.64 @ 72		
Rmc @ Meas. Temp	1.15 @ 72		
Source of Rmt / Rmc	Charts		
Rm @ BHT	0.49 @ 126		
Operating Rig Time	2.5 Hours		
Max Rec. Temp. F	126		
Equipment Number	P-24		
Location	Hays		
Recorded By	T. Martin		
Witnessed By	Larry Nicholson		

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All interpretations are opinions based on inferences from electrical or other measurements and Midwest Wireline LLC cannot and does not guarantee the accuracy or correctness of any interpretation, and Midwest Wireline LLC will not 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.

Comments

N/A DENOTES NOT AVAILABLE OR NON-APPLICABLE.

McDonald, KS, 3.75 S on Rd 3 to Rd L,
3 W to Rd 34, 3 S, E & SE into

Log Measured From: Kelly Bushing 5 Ft. Above Permanent Datum

THANK YOU FOR USING MIDWEST WIRELINE LLC
785-625-3858

Your Midwest Wireline Crew

Engineer: T. Martin
Operator:
Operator:
Operator:

This Log Record Was Witnessed By

Primary Witness: Larry Nicholson
Secondary Witness:
Secondary Witness:
Secondary Witness:

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
GR	40.33		GR-M&W (106)	3.00	3.50	50.00
CNLSC CNSSC	37.23 36.48		CNT-M&W (207-MW)	5.00	3.50	100.00
LSD DCAL SSD	28.18 28.17 27.68		CDL-M&W (307-11)	8.50	4.00	250.00
ML-PSIML (401)				7.58	4.00	65.00
MCAL MI MN	19.58 19.58 19.58					
RLL3F RLL3	15.50 15.50					
DIL-M&W (501 HT)				18.25	3.50	220.00
CILD	8.33					
CILM	4.50					
SP	0.20					
Dataset: cobalt_deer creek #1-25.db: field/well/StkMI/pass3.1 Total length: 42.33 ft Total weight: 685.00 lb O.D.: 4.00 in						

Log Variables

DatabaseC:\ProgramData\Warrior\Data\cobalt_deer creek #1-25.db
Dataset field/well/StkMI/pass3.1/_vars_

Top - Bottom

A	BOREID	BOTTEMP	CASEOD	CASETHCK	FLUIDDEN	M	MATRXDEN
1	in	degF	in	in	g/cc	2	g/cc
	7.875	126	5.5	0	1		2.71
NPORSEL	PERFS	SNDERR	SNDERRM	SPSHIFT	SRFTEMP	SZCOR	TDEPTH
Limestone	0	mmho/m	mmho/m	mV	degF	Off	ft
		0	0	320	50		4980

Variable Description

A : Cement Factor (a)
BOREID : Borehole I.D.
BOTTEMP : Bottom Hole Temperature
CASEOD : Casing O.D.
CASETHCK : Casing Thickness
FLUIDDEN : Fluid Density
M : Cement Exp (m)
MATRXDEN : Matrix Density

NPORSEL : Neutron Porosity Curve Select
PERFS : Perforation Flag
SNDERR : Deep Sonde Error Correction
SNDERRM : Medium Sonde Error Correction
SPSHIFT : S.P. Baseline Offset
SRFTEMP : Surface Temperature
SZCOR : CN Size Cor. ?
TDEPTH : Total Depth

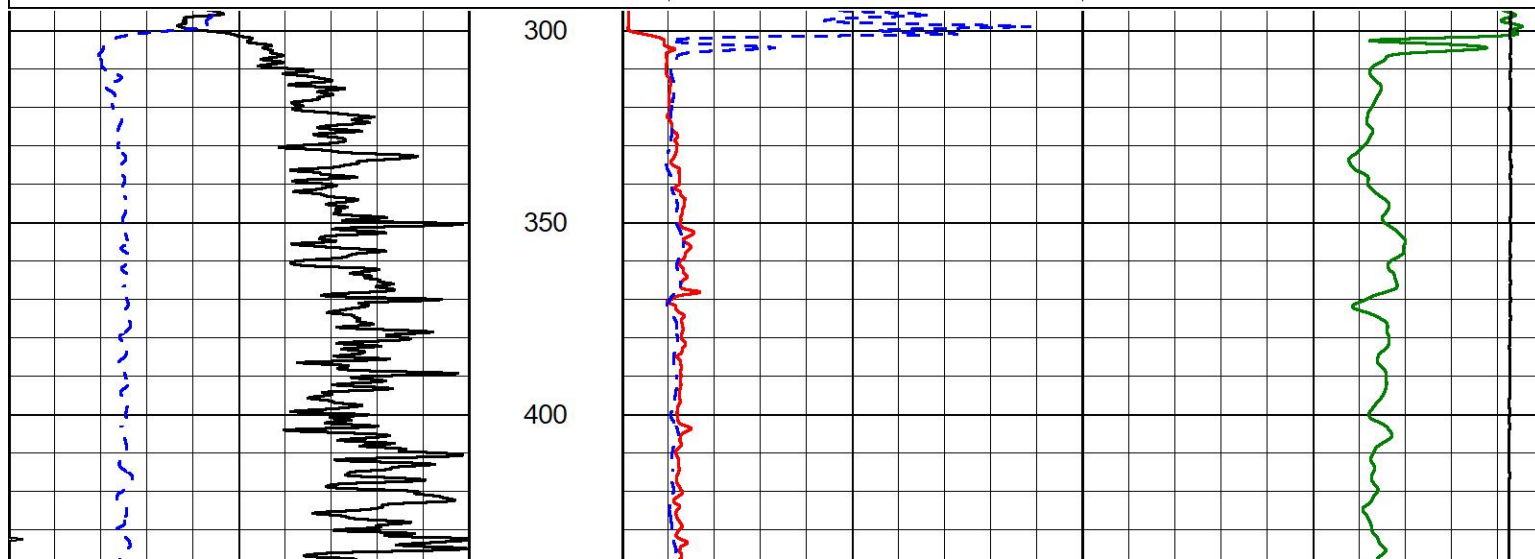


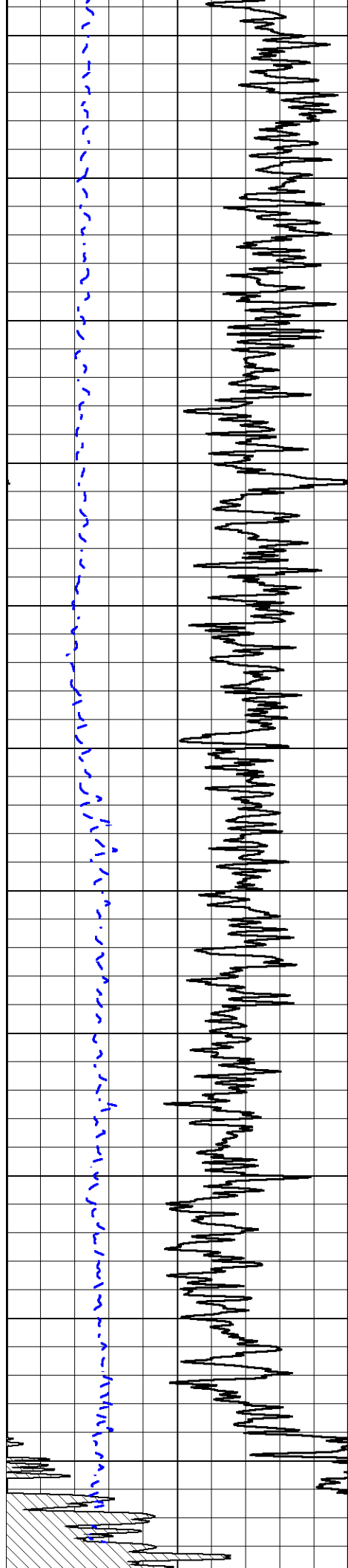
2" SCALE RESISTIVITY

MAIN PASS

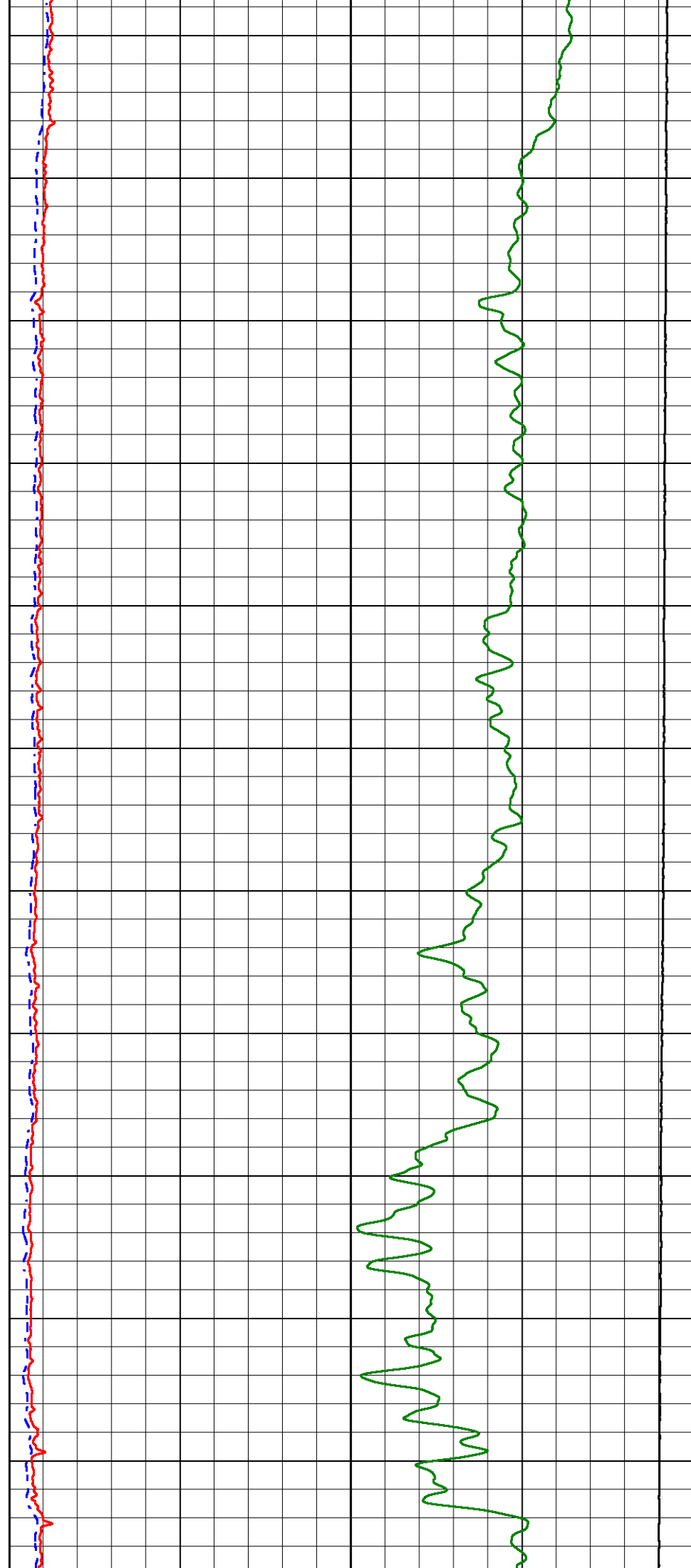
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Presentation Format _dil2in
Dataset Creation Thu Nov 03 19:15:55 2022
Charted by Depth in Feet scaled 1:600

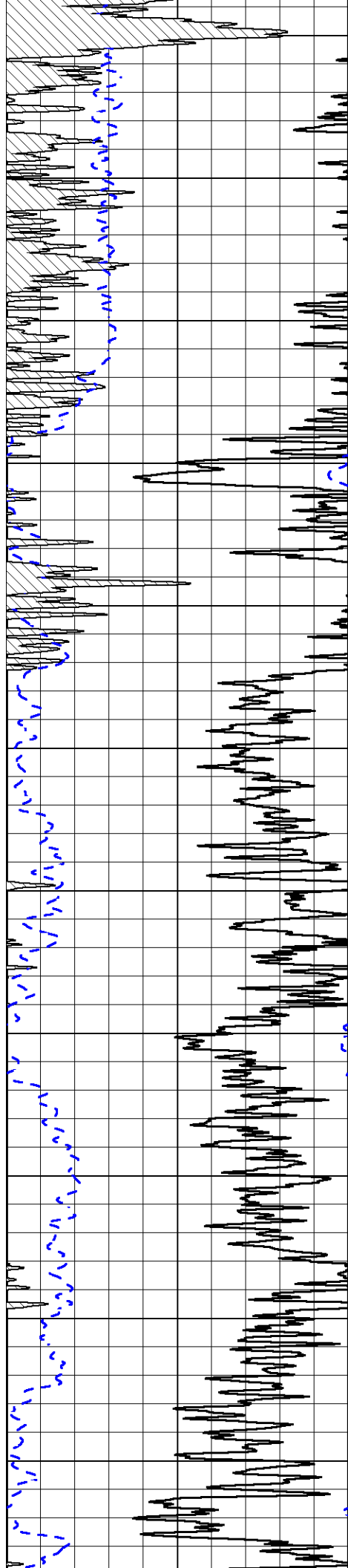
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-200	SP (mV)	0	15000	Line Tension (lb)	0
			0	Shallow Resistivity (Ohm-m)	50
			0	Deep Resistivity (Ohm-m)	50
			Shallow Resistivity		
			50	(Ohm-m)	200
			50	Deep Resistivity (Ohm-m)	200





450
500
550
600
650
700
750
800
850
900
950





1000

1050

1100

1150

1200

1250

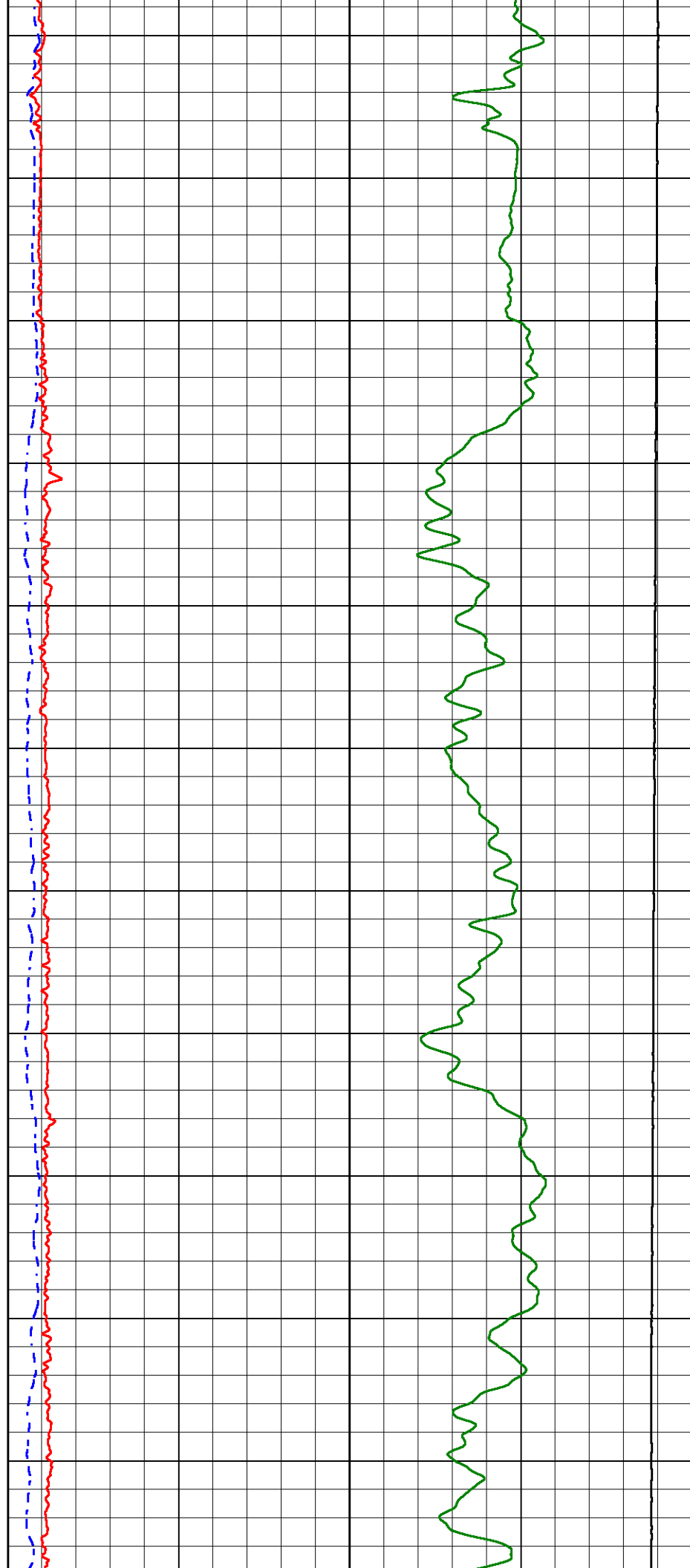
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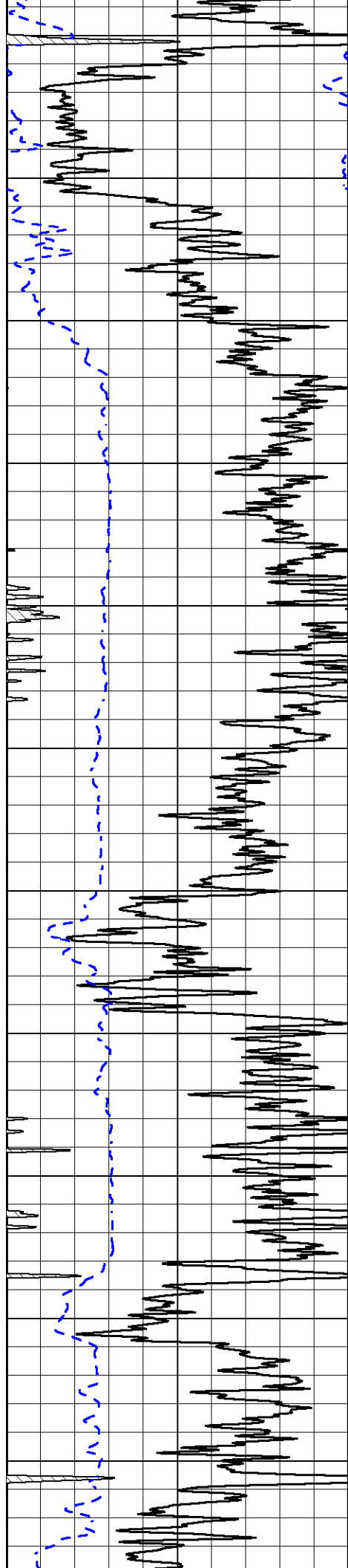
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1400

1450

1500





1550

1600

1650

1700

1750

1800

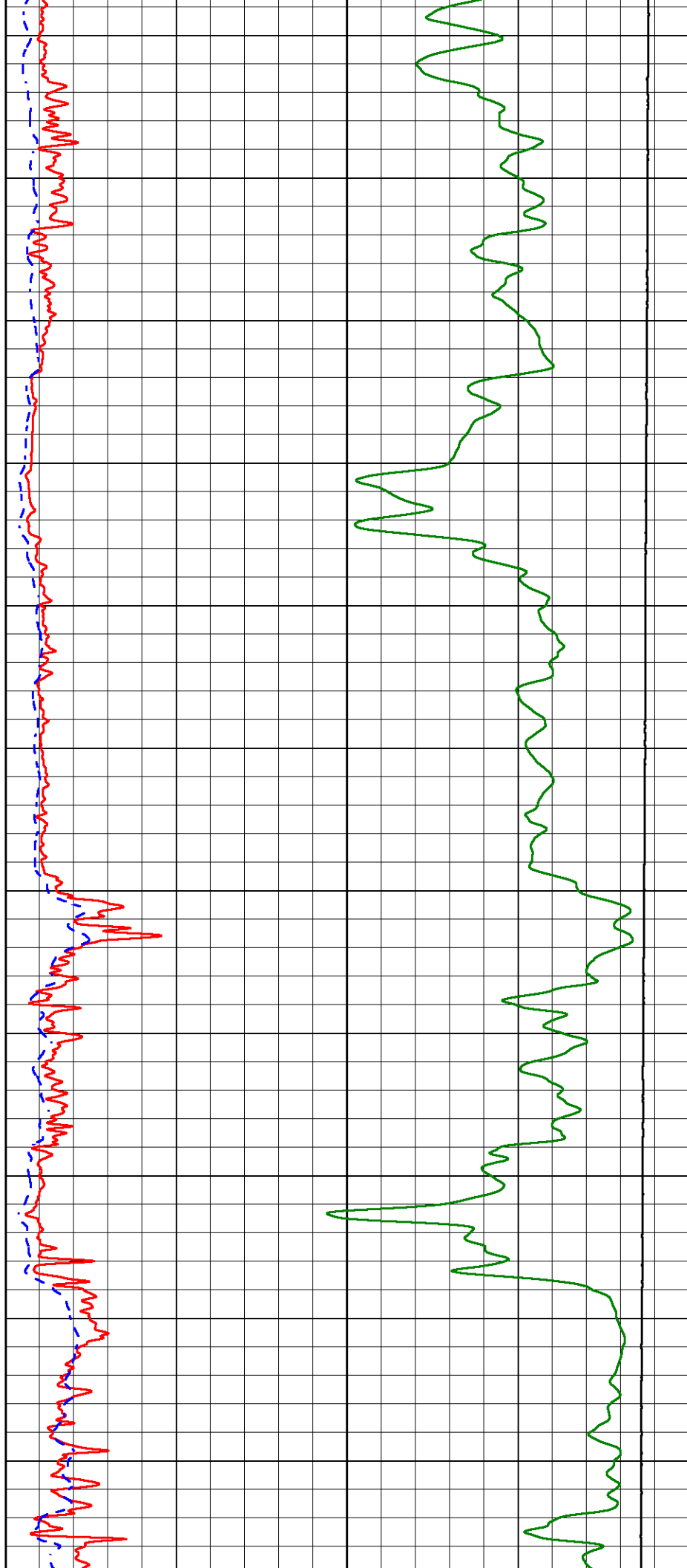
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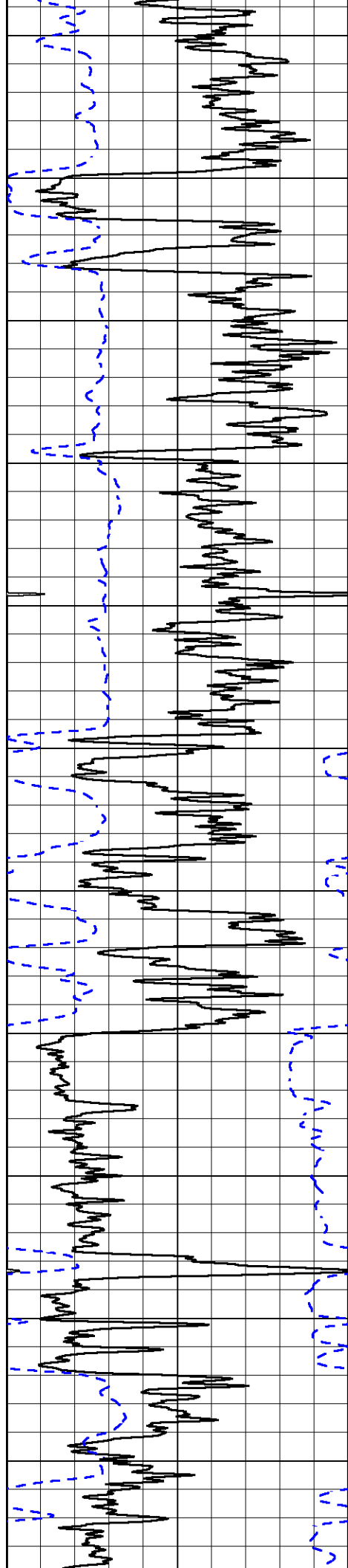
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1950

2000

2050





2100

2150

2200

2250

2300

2350

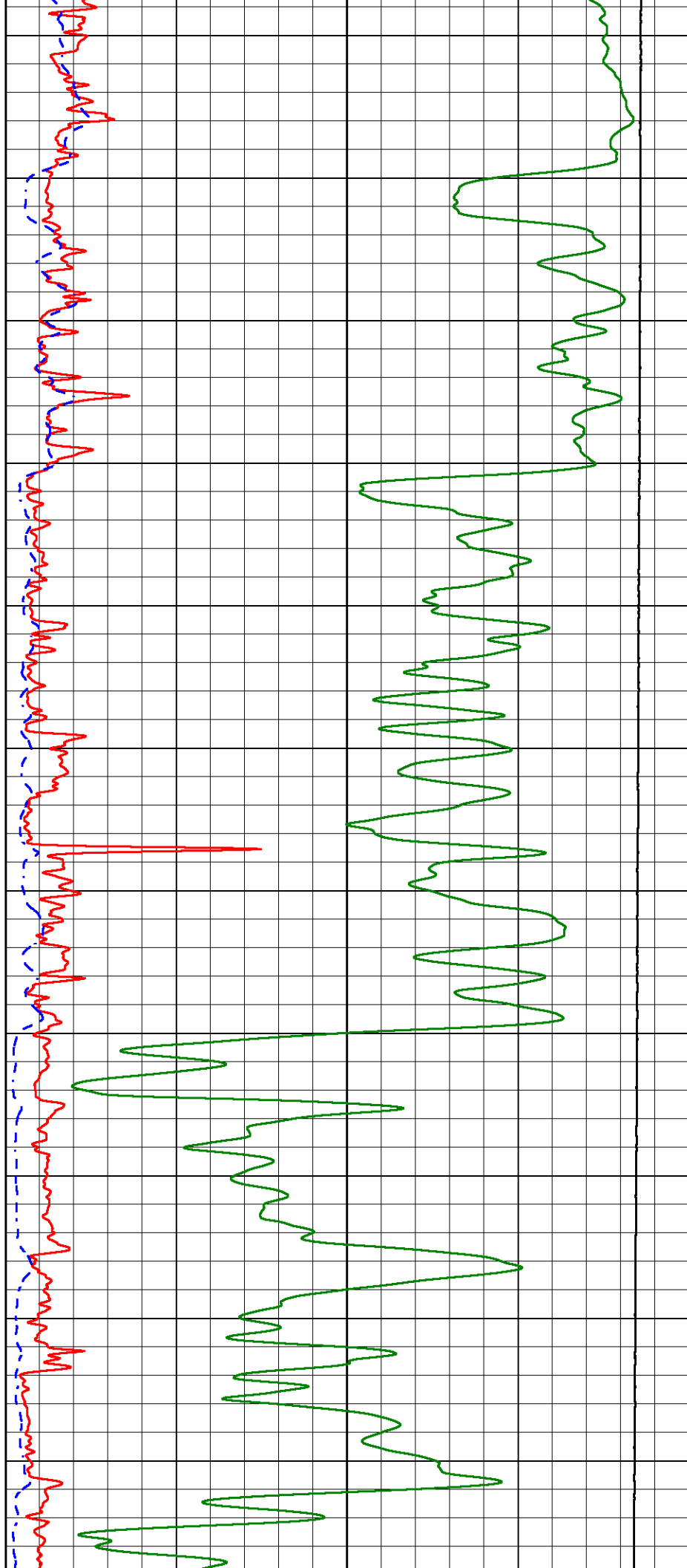
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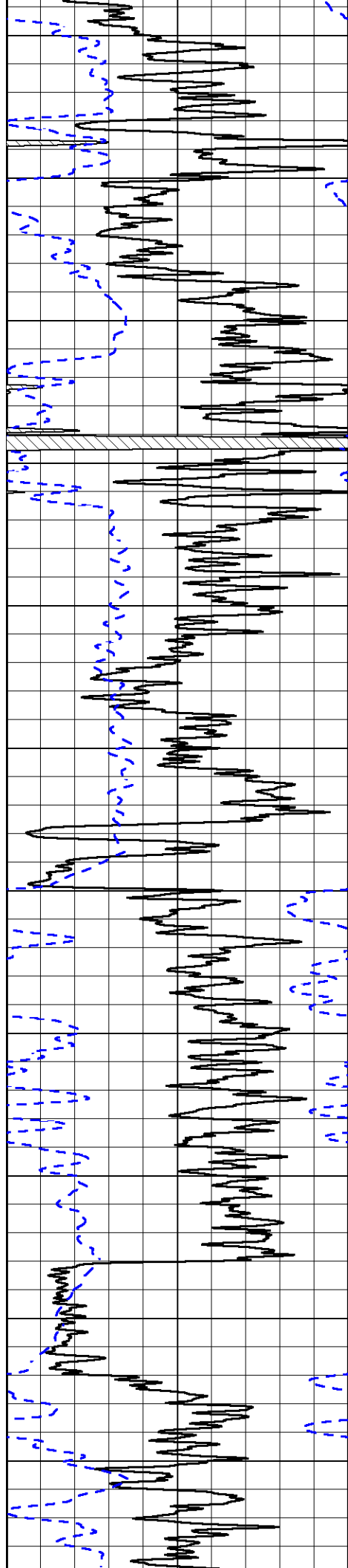
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2500

2550

2600





2650

2700

2750

2800

2850

2900

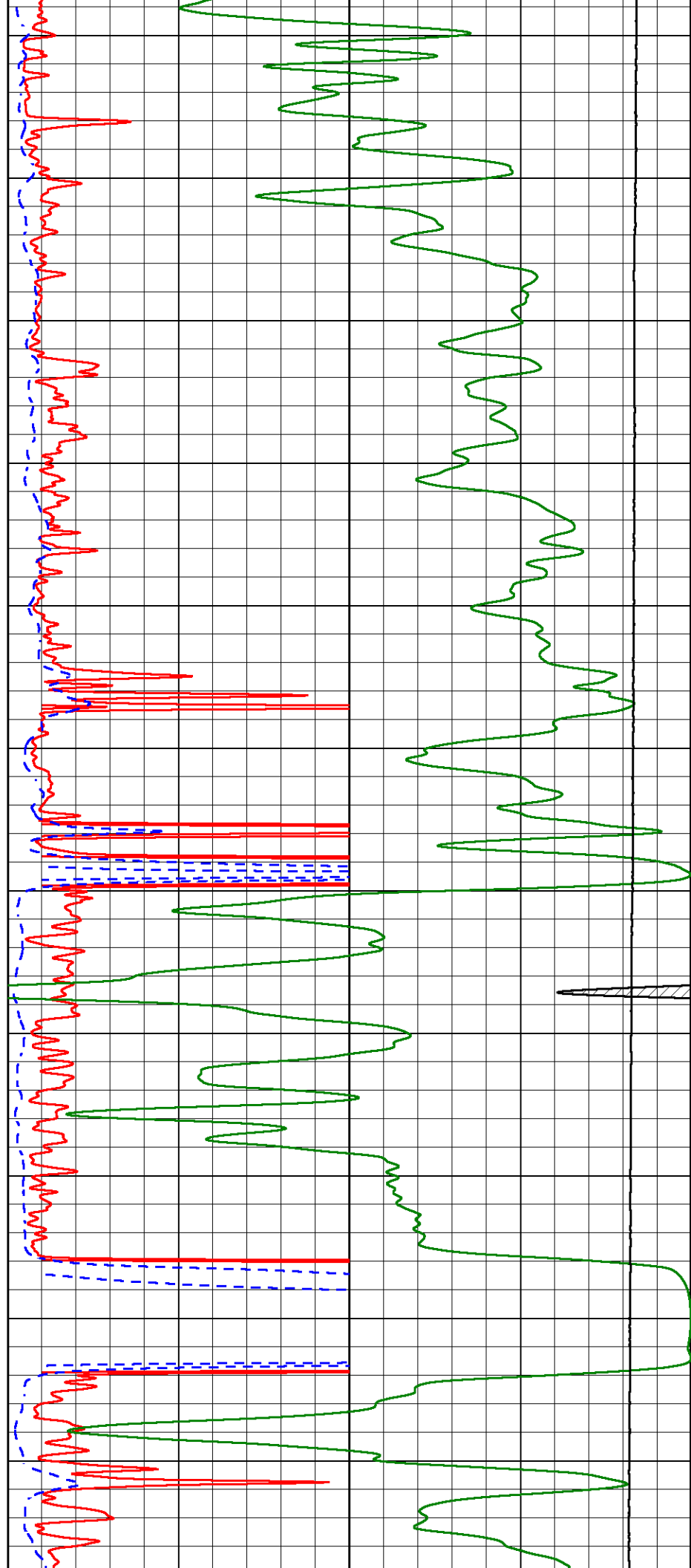
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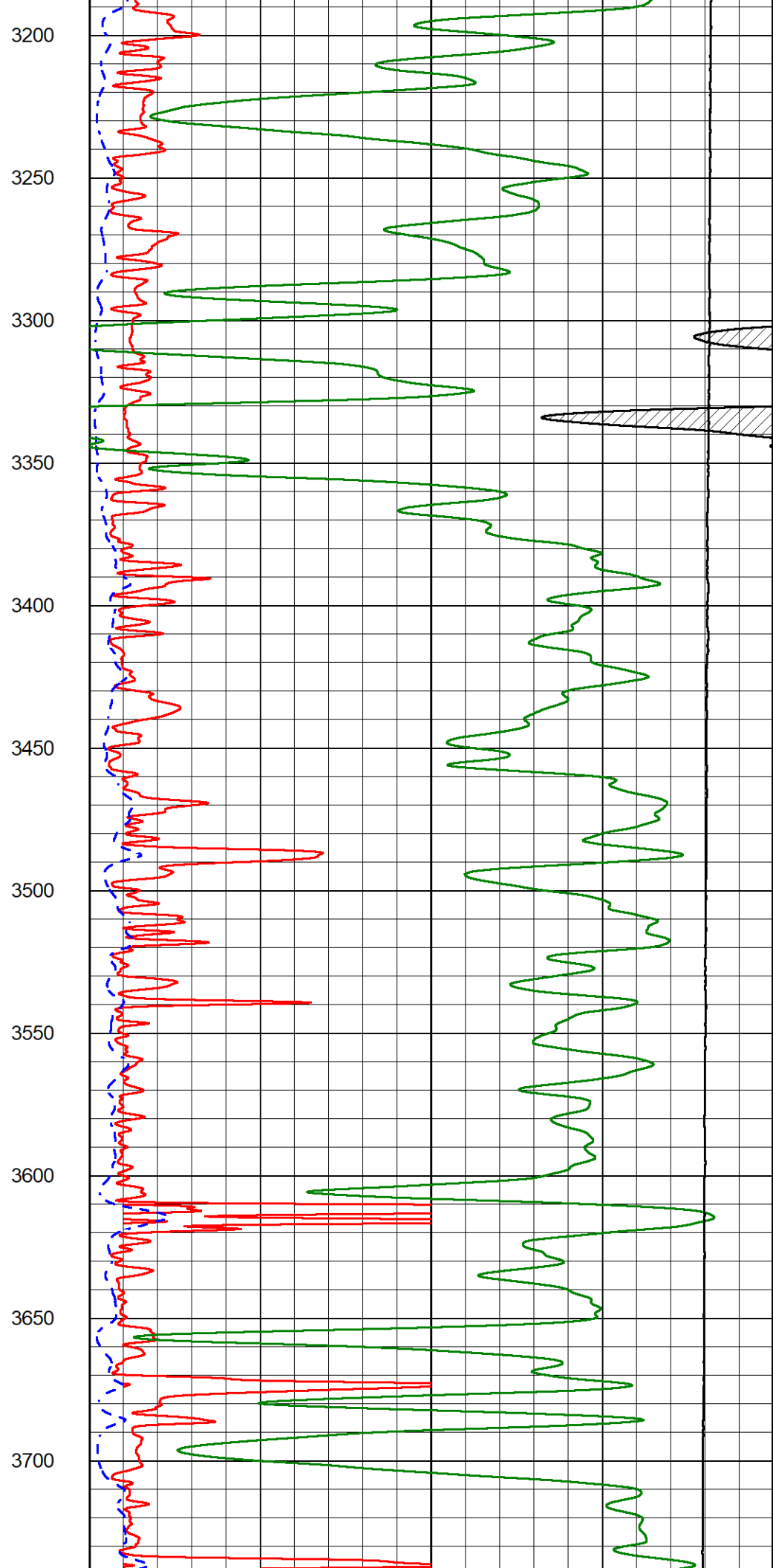
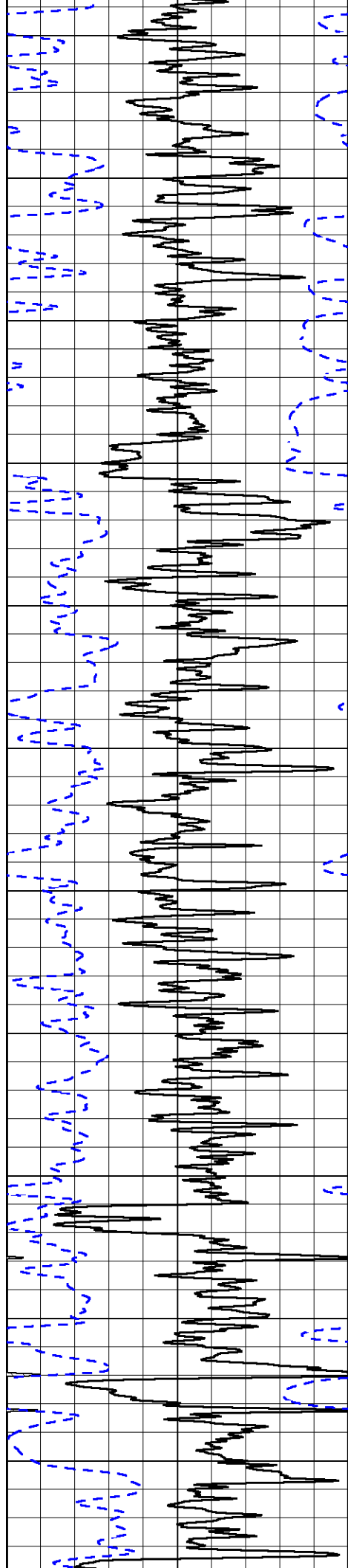
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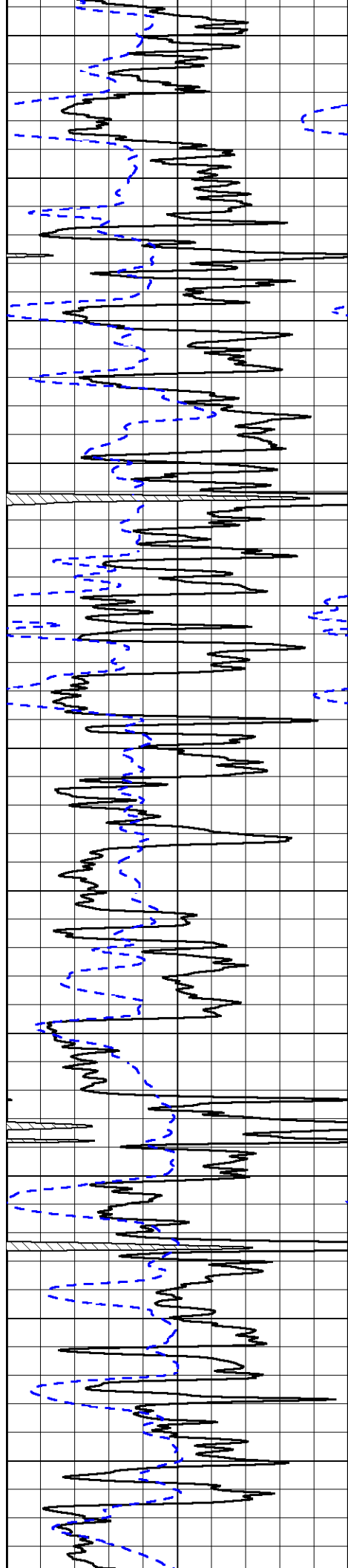
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3100

3150







3750

3800

3850

3900

3950

4000

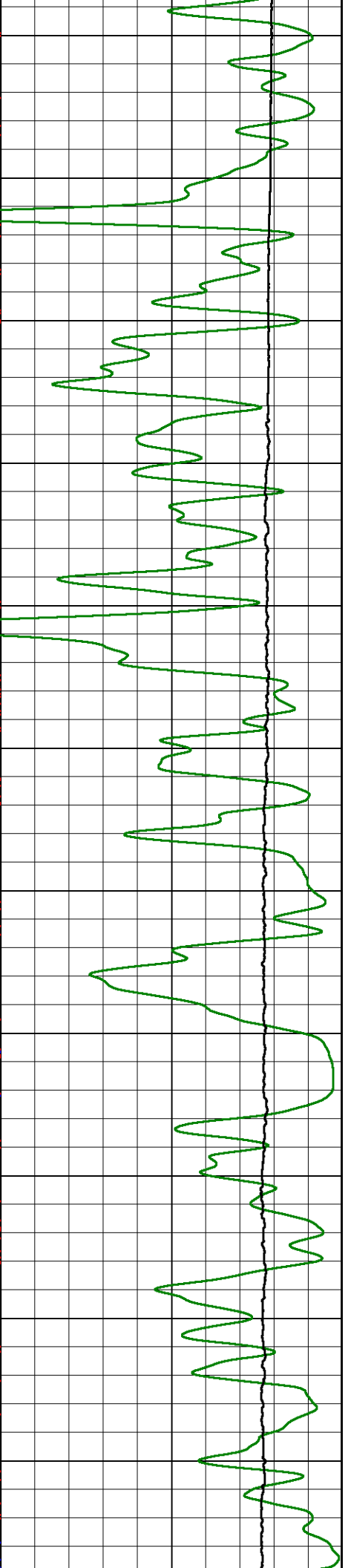
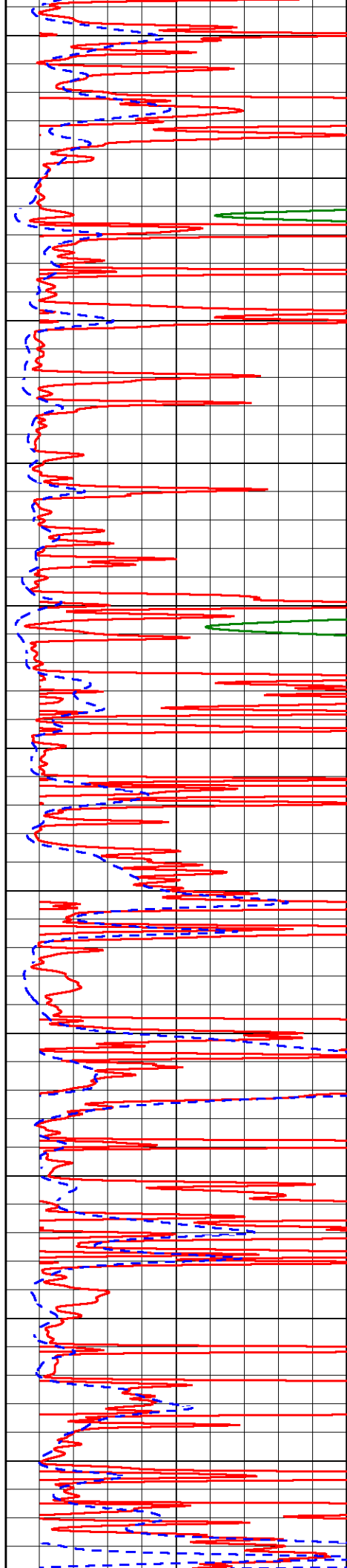
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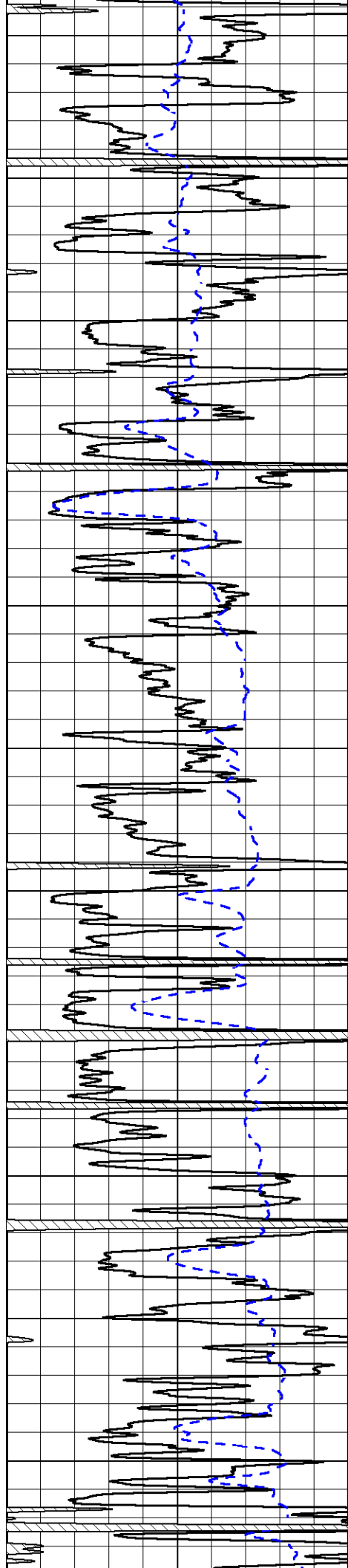
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4150

4200

4250





4300

4350

4400

4450

4500

4550

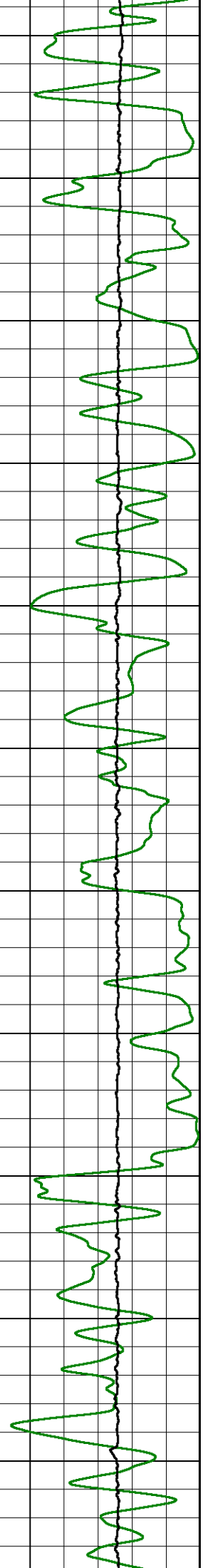
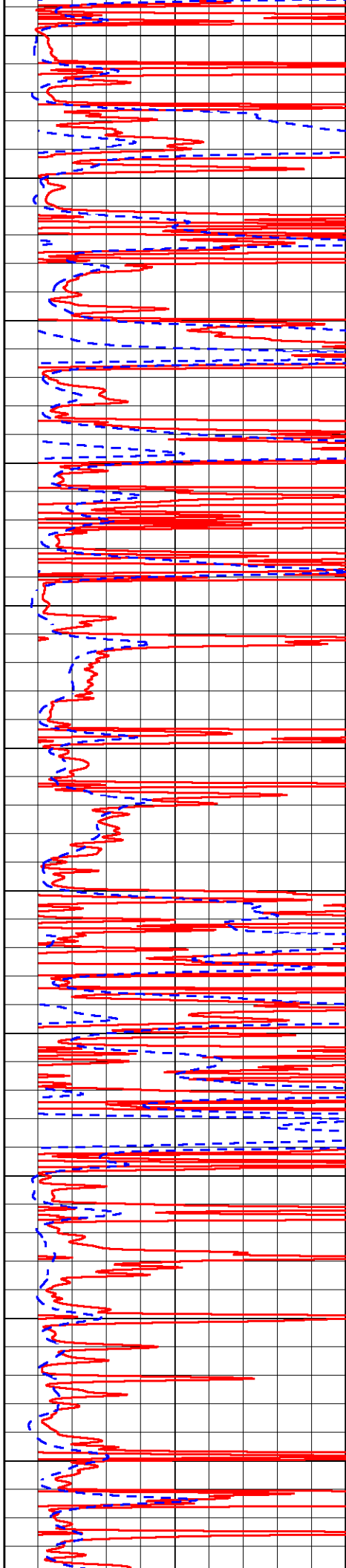
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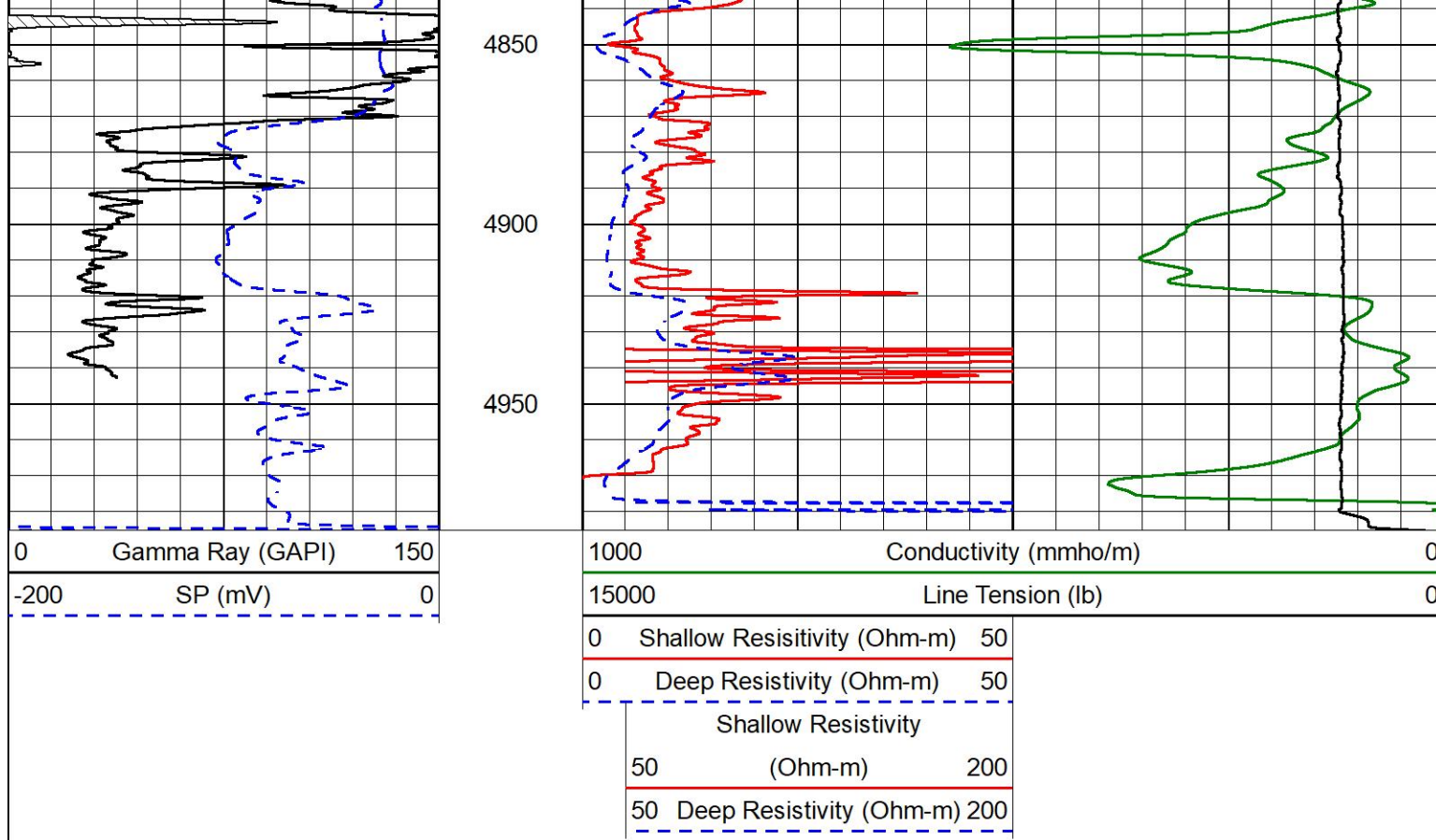
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4700

4750

4800

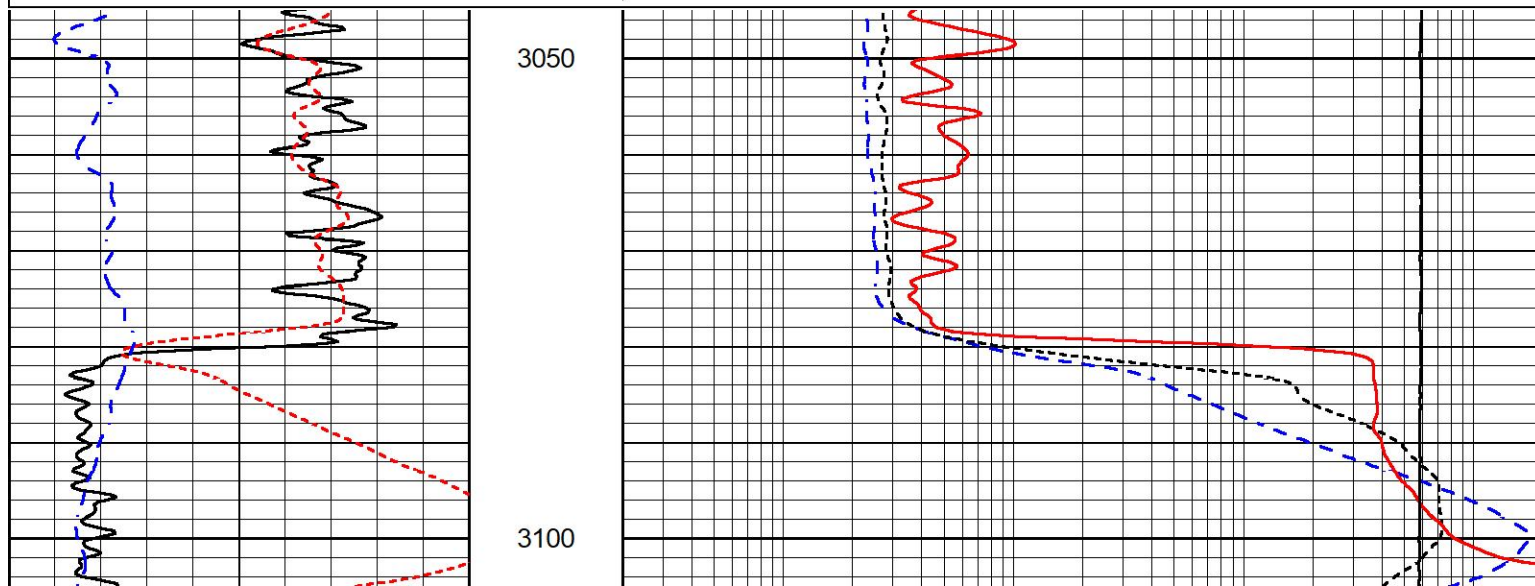
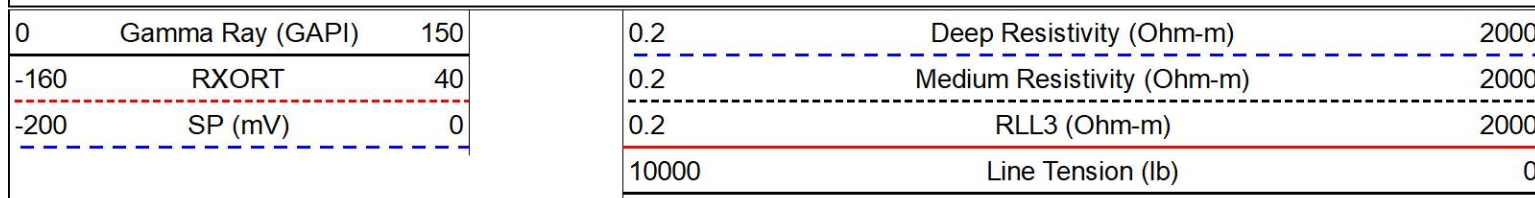


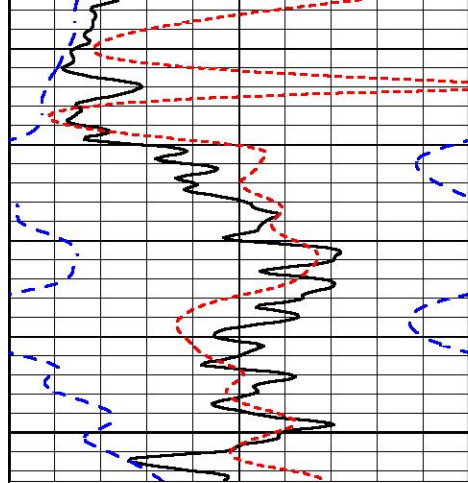


ANHYDRITE SECTION

MAIN PASS

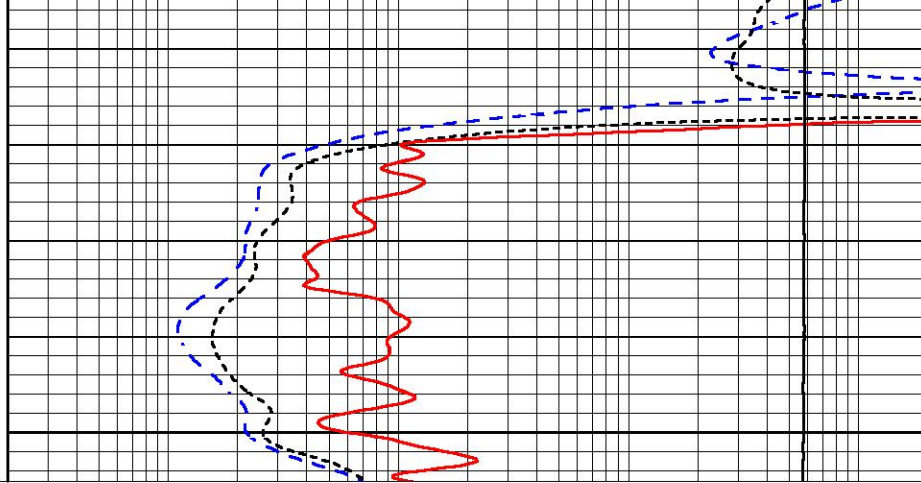
Database File cobalt_deer creek #1-25.db
 Dataset Pathname StkMI/pass3.4
 Presentation Format _dil
 Dataset Creation Thu Nov 03 18:44:09 2022
 Charted by Depth in Feet scaled 1:240





0	Gamma Ray (GAPI)	150
-160	RXORT	40
-200	SP (mV)	0

3150



0.2	Deep Resistivity (Ohm-m)	2000
0.2	Medium Resistivity (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000
10000	Line Tension (lb)	0



MIDWEST WIRELINE

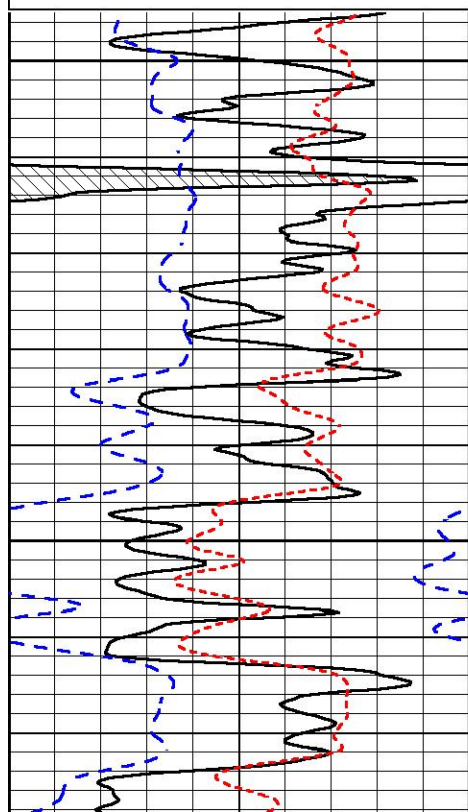
DETAIL SECTION

MAIN PASS

Database File cobalt_deer creek #1-25.db
 Dataset Pathname StkMI/pass3.1
 Presentation Format _dil
 Dataset Creation Thu Nov 03 19:16:25 2022
 Charted by Depth in Feet scaled 1:240

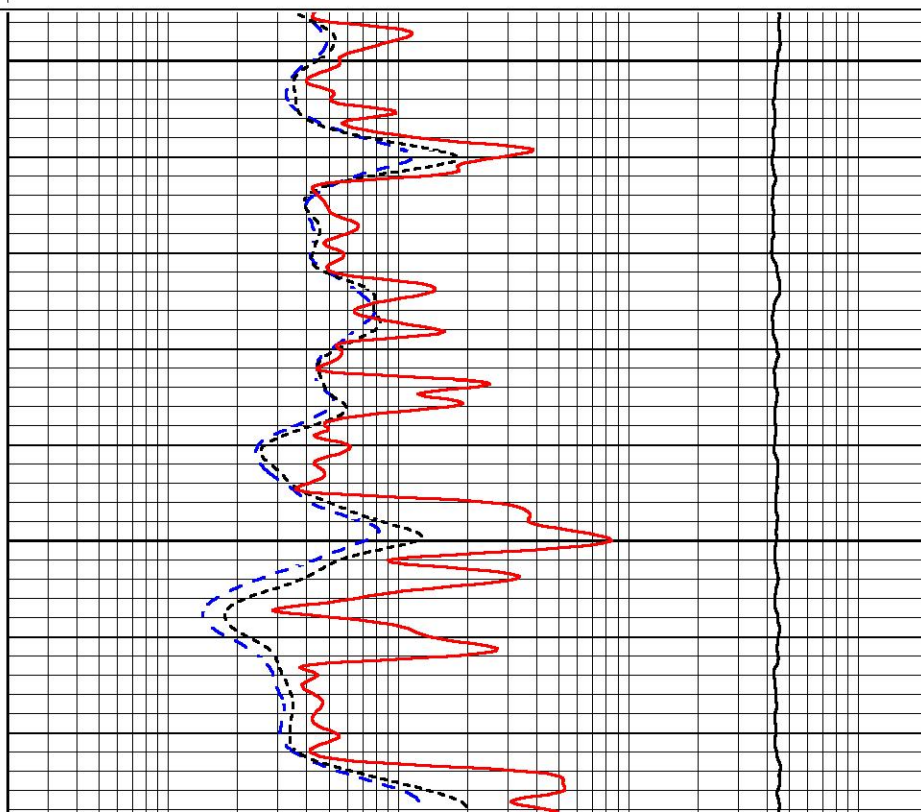
0	Gamma Ray (GAPI)	150
-160	RXORT	40
-200	SP (mV)	0

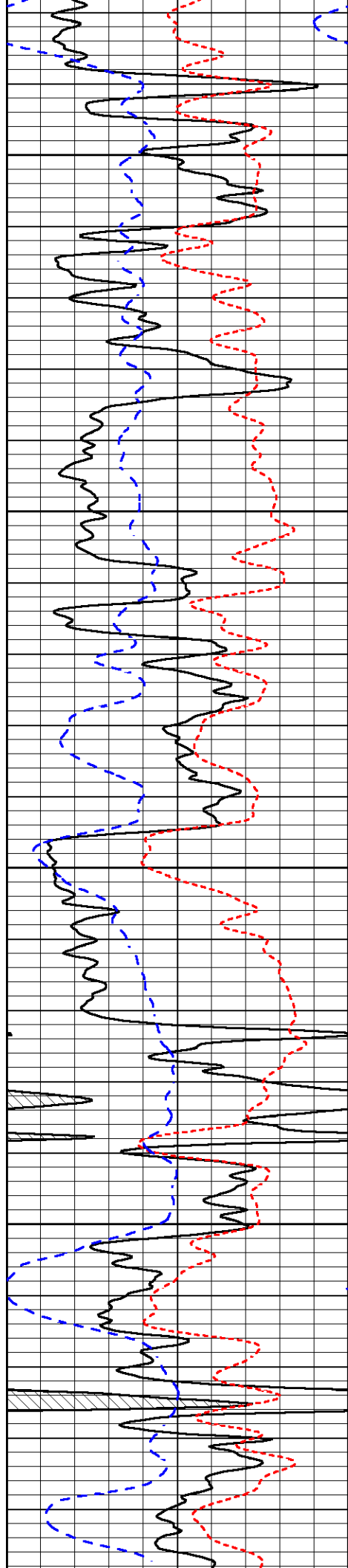
0.2	Deep Resistivity (Ohm-m)	2000
0.2	Medium Resistivity (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000
10000	Line Tension (lb)	0



3900

3950



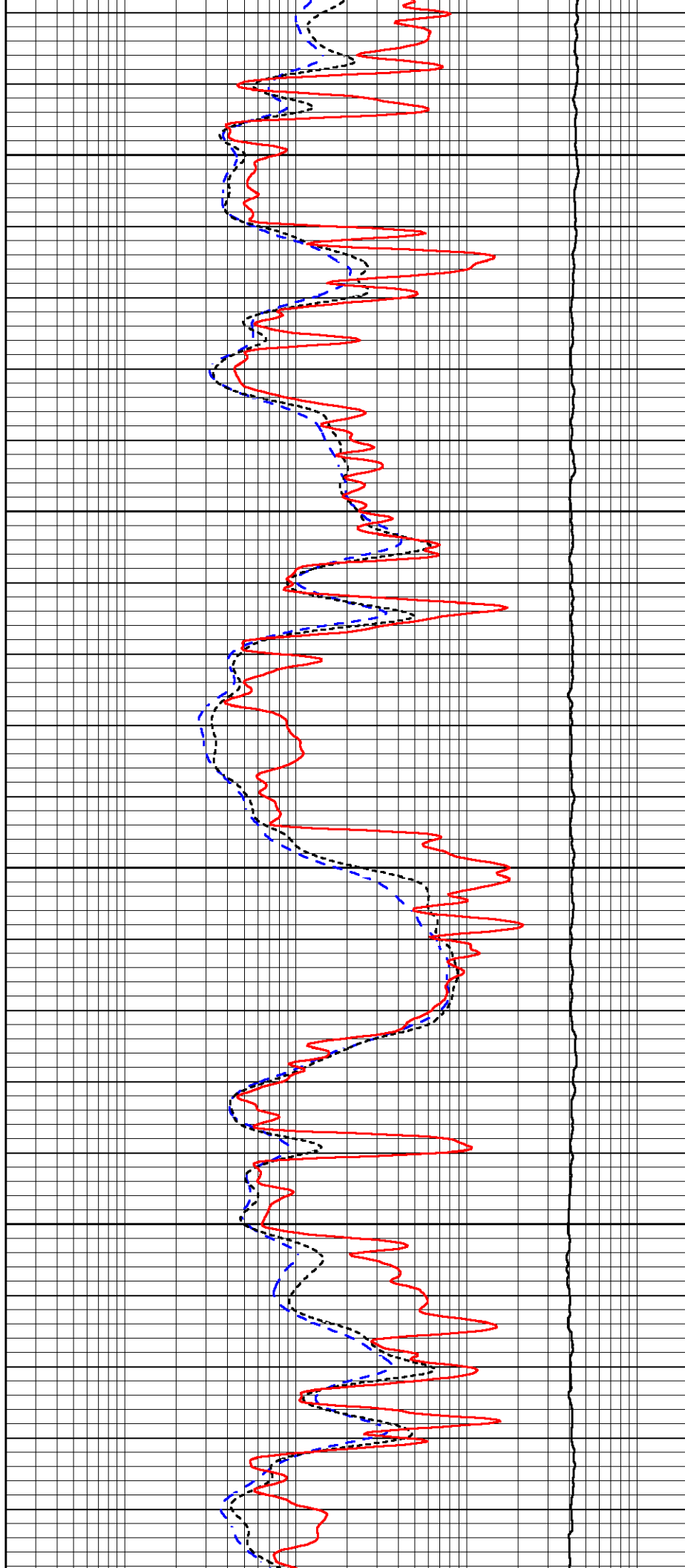


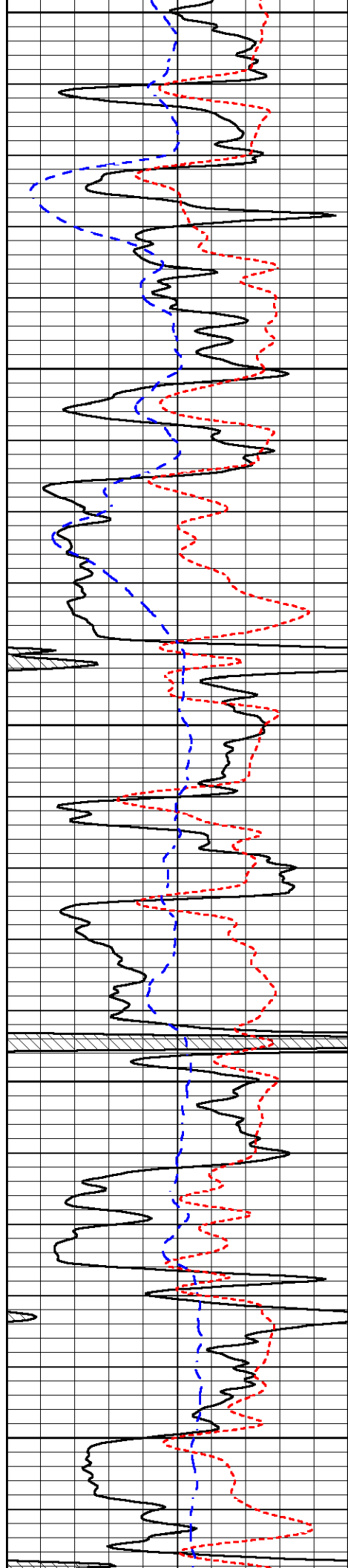
4000

4050

4100

4150





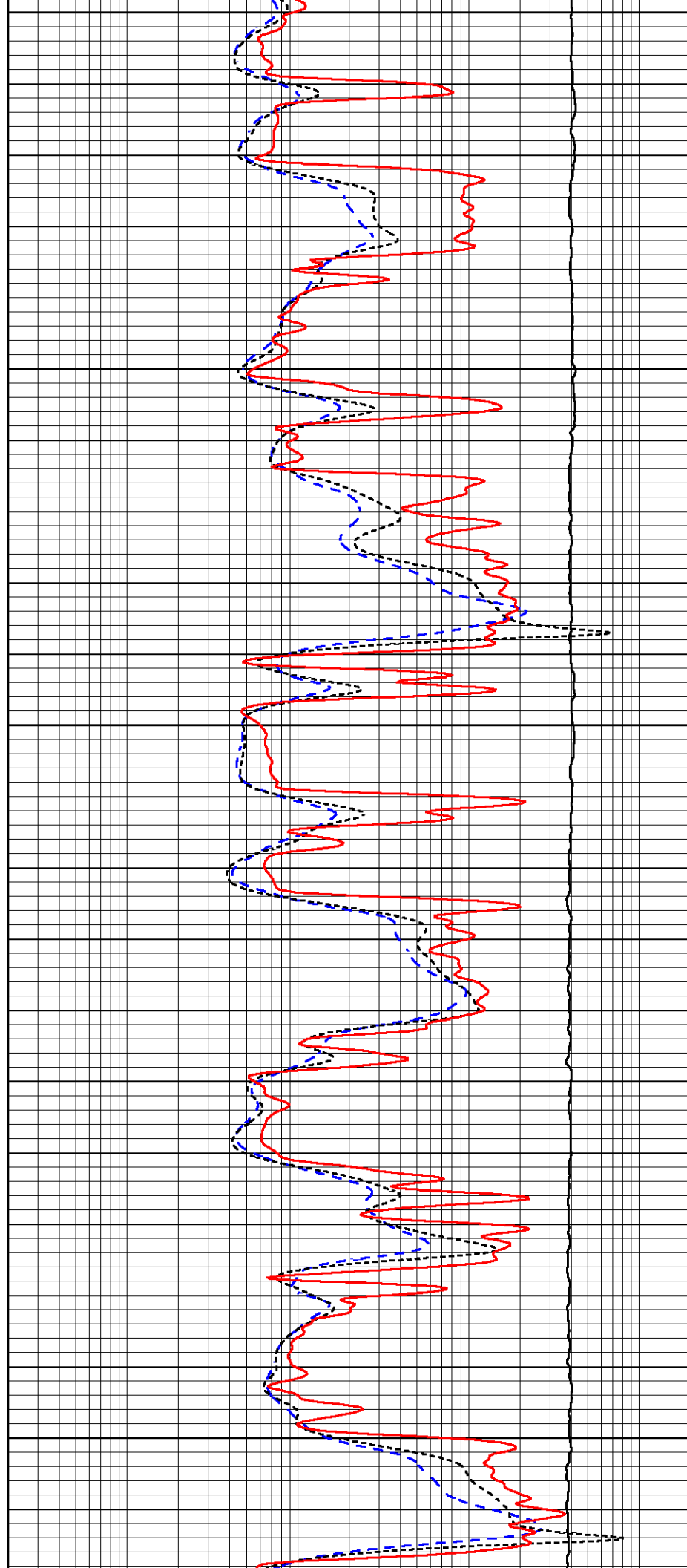
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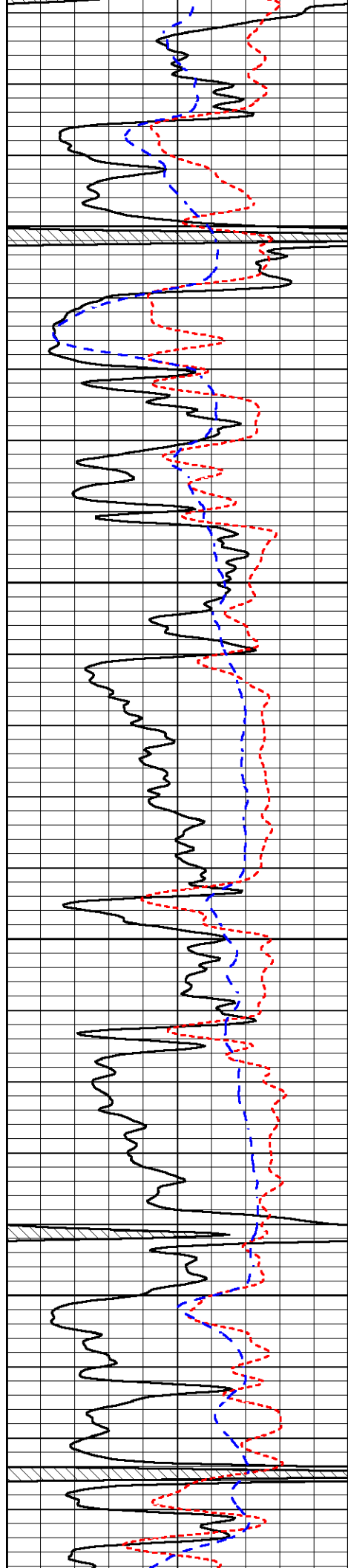
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4300

4350

4400



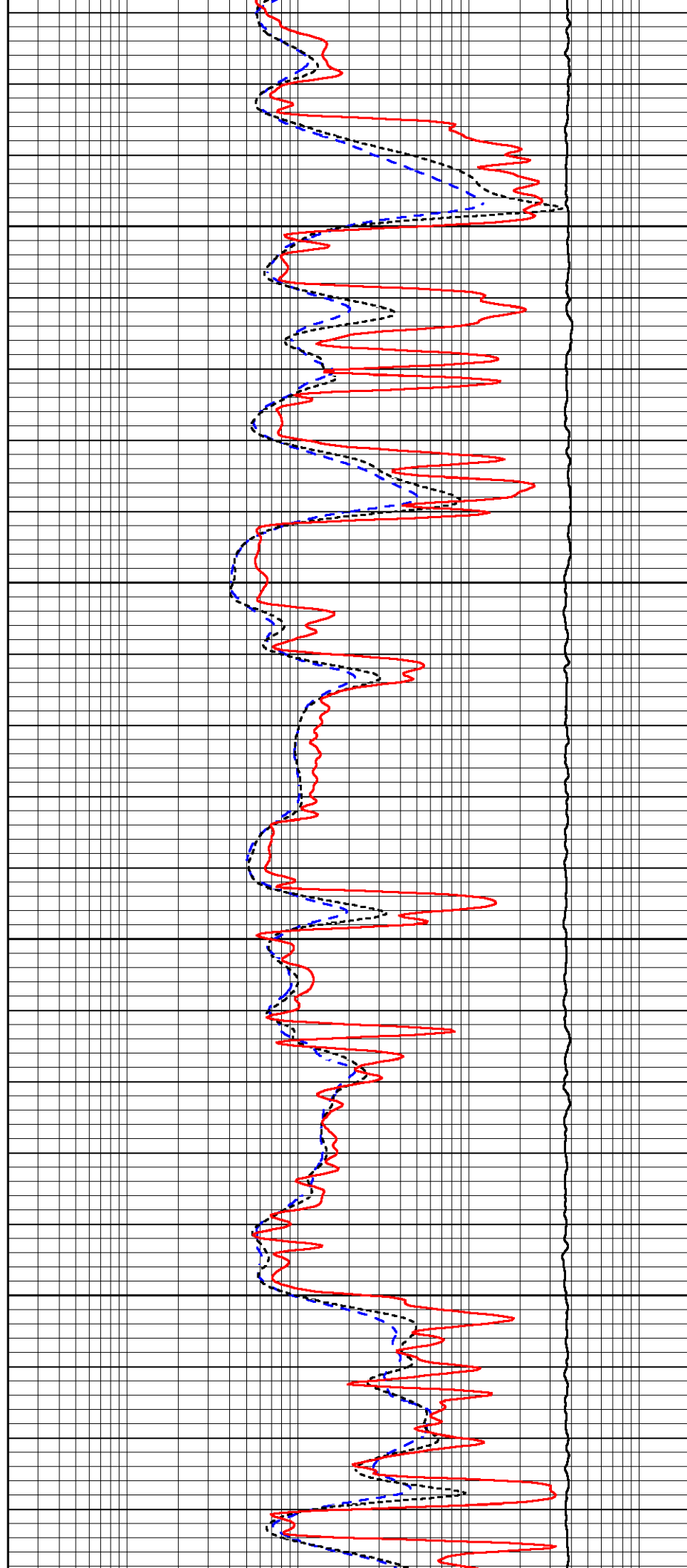


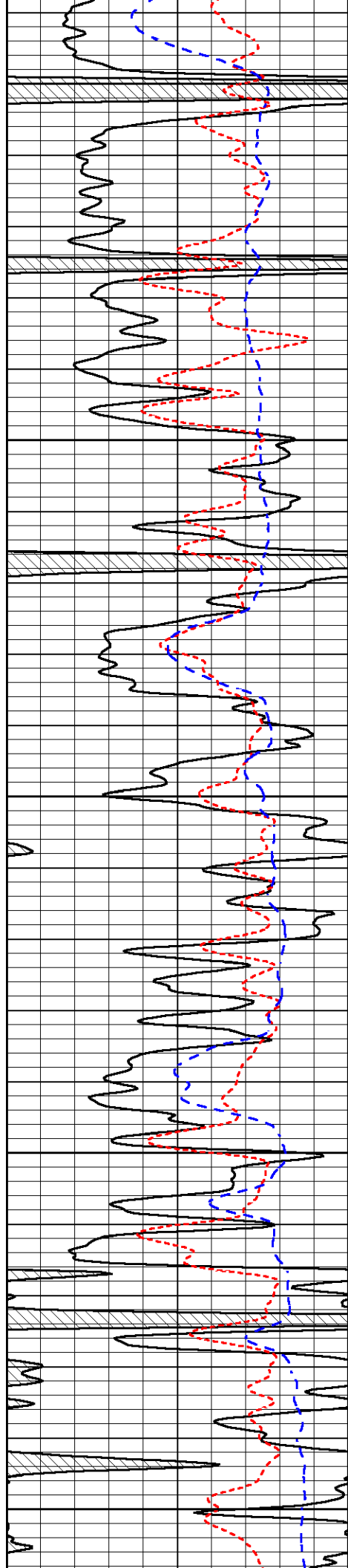
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4500

4550

4600





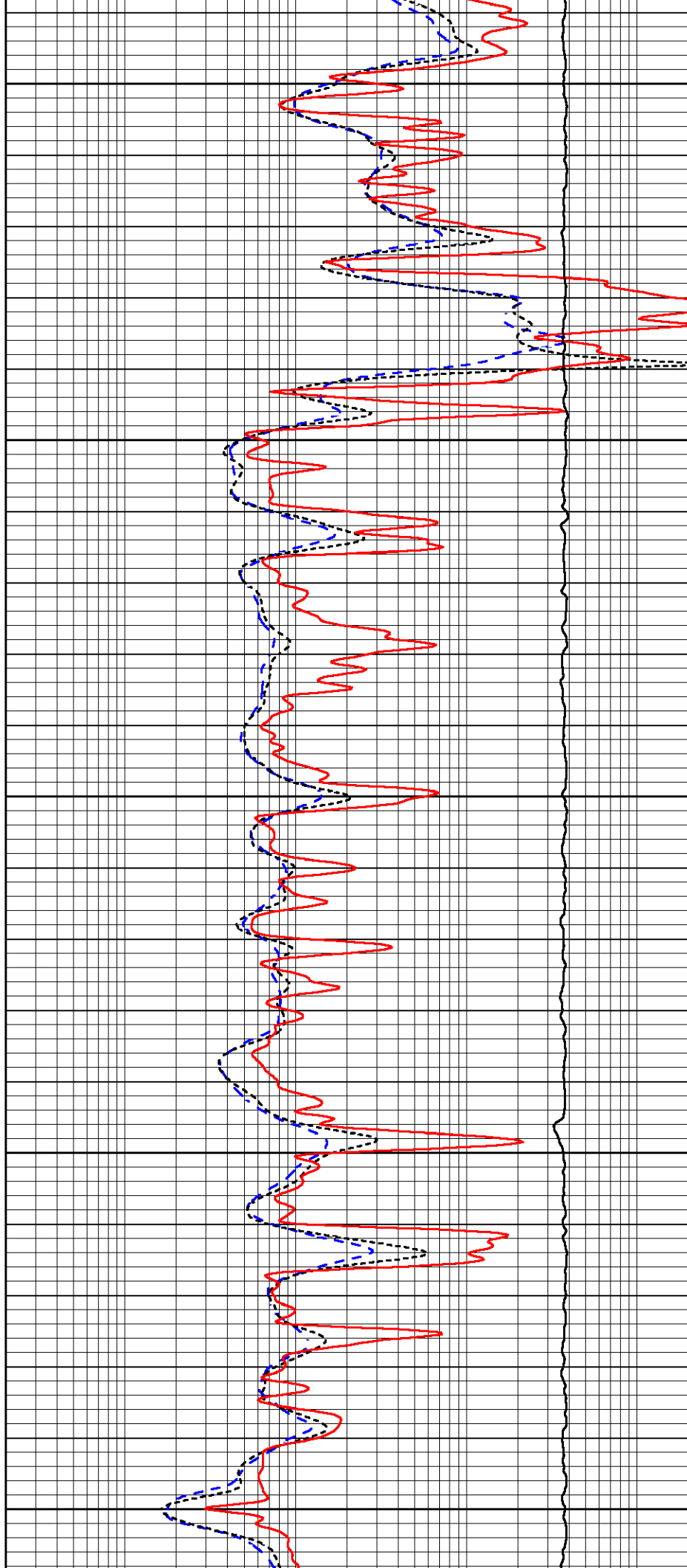
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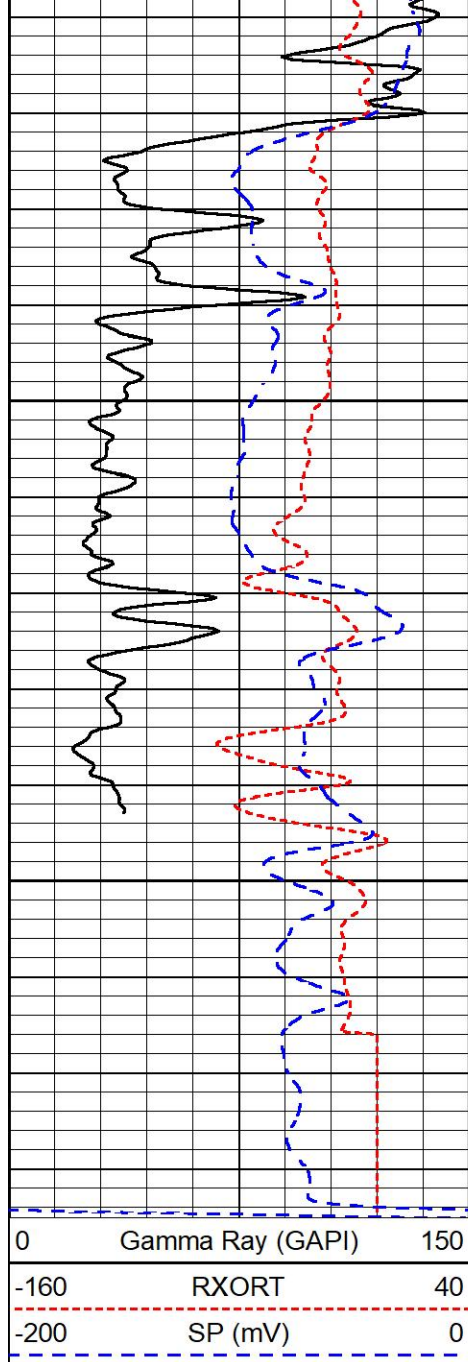
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4800

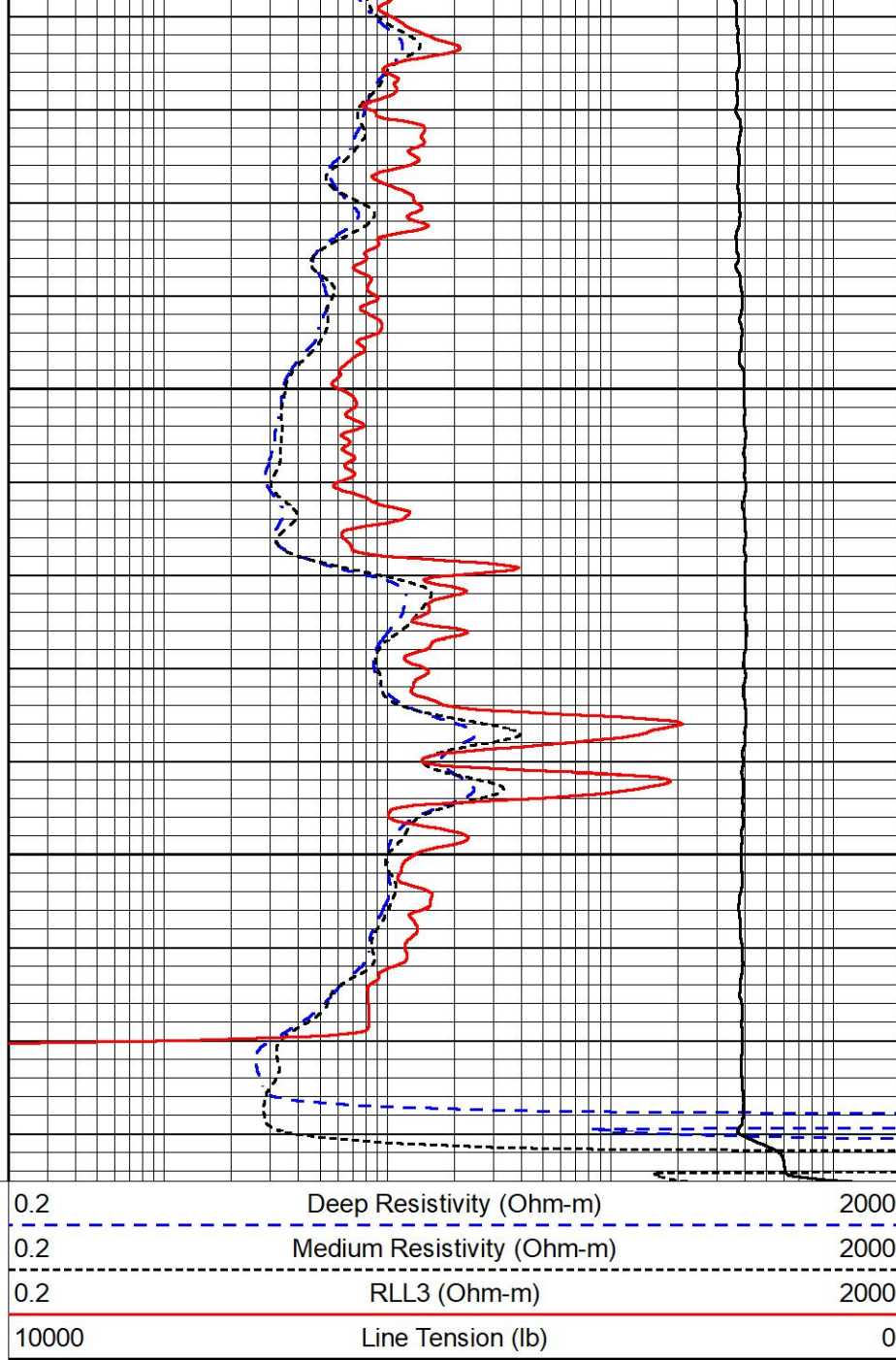
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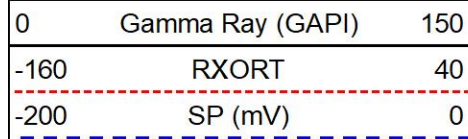
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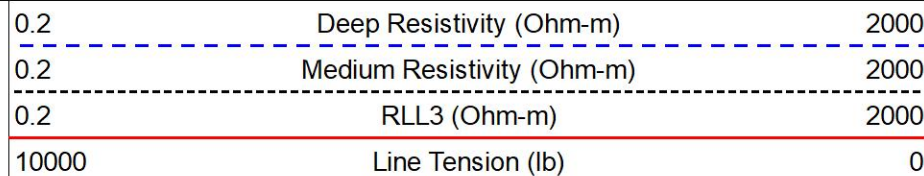
REPEAT SECTION

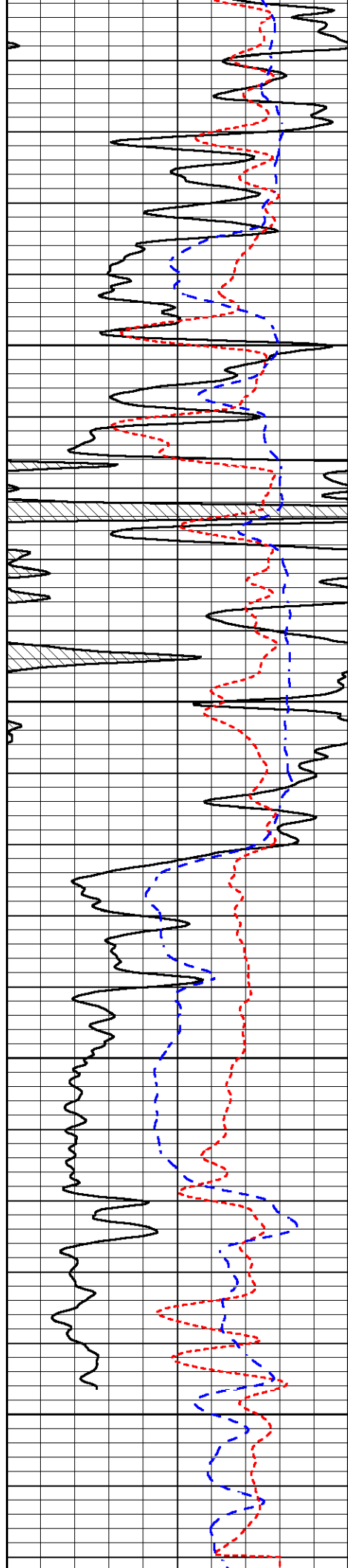
REPEAT PASS

Database File cobalt_deer creek #1-25.db
 Dataset Pathname StkMI/pass2.1
 Presentation Format _dil
 Dataset Creation Thu Nov 03 18:30:52 2022
 Charted by Depth in Feet scaled 1:240



4750



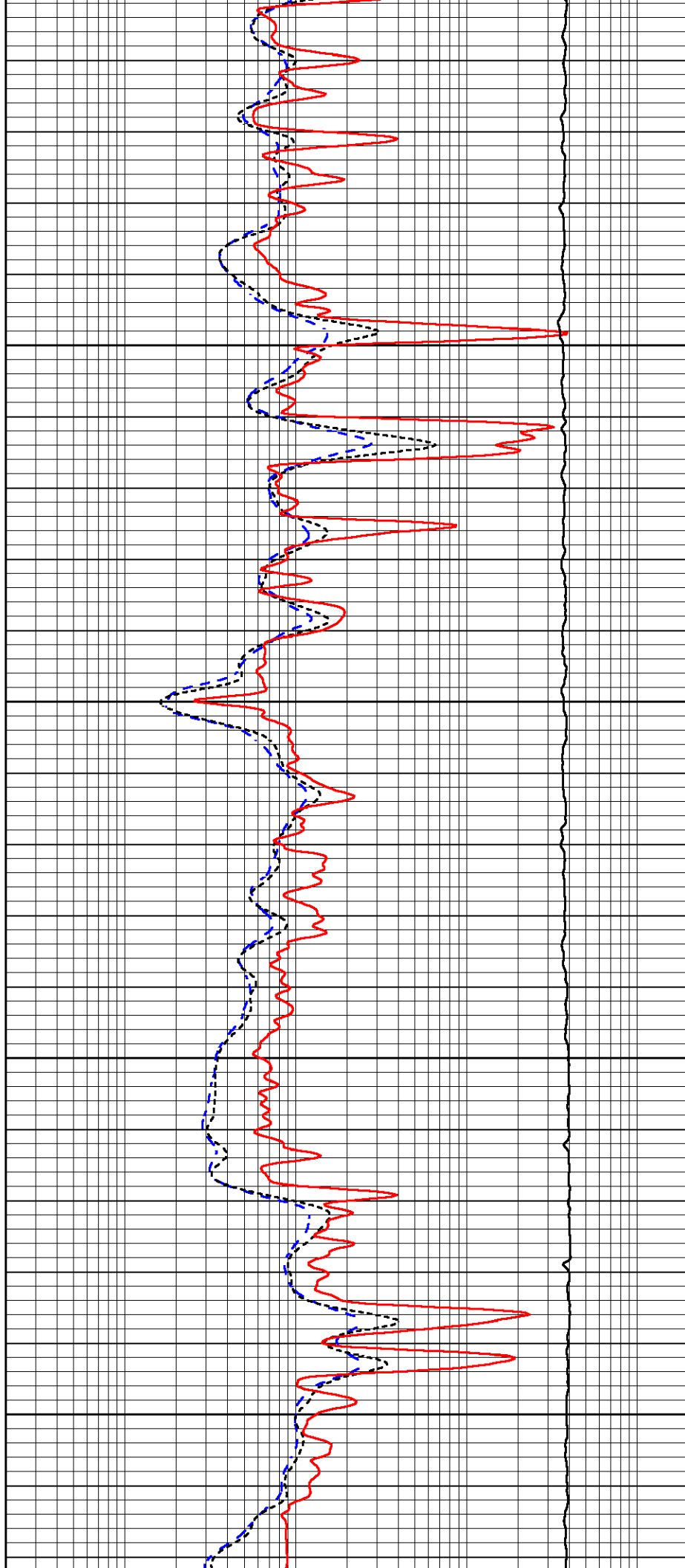


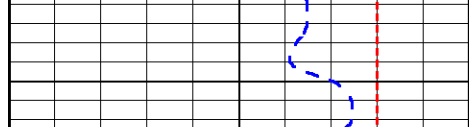
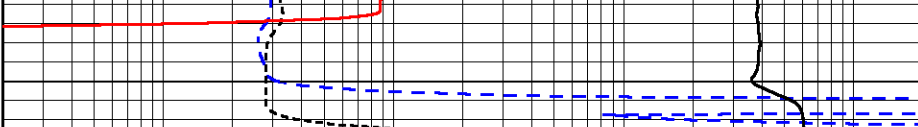
4800

4850

4900

4950



	
0 Gamma Ray (GAPI) 150	0.2 Deep Resistivity (Ohm-m) 2000
-160 RXORT 40	0.2 Medium Resistivity (Ohm-m) 2000
-200 SP (mV) 0	0.2 RLL3 (Ohm-m) 2000
	10000 Line Tension (lb) 0

Calibration Report	
Database File	cobalt_deer creek #1-25.db
Dataset Pathname	StkMI/pass3.1
Dataset Creation	Thu Nov 03 19:16:25 2022

Dual Induction Calibration Report

Serial-Model:	501 HT-M&W
Surface Cal Performed:	Tue Oct 11 22:01:45 2022

Readings		References		Results	
Loop:	Air	Loop	Air	Loop	m b
Deep	83.639	487.104	0.000	183.000 mmho/m	0.455 -36.500
Medium	113.335	1585.690	0.000	442.000 mmho/m	0.305 -34.500

Microlog Calibration Report

Serial-Model:	401-PSIML
Performed:	Wed Oct 19 20:26:45 2022

Readings		References		Results	
	Zero	Cal	Zero	Cal	m b
Normal	0.0000	1.0000	0.0000	1.0000 Ohm-m	12000.0000 0.6000
Inverse	0.0000	1.0000	0.0000	1.0000 Ohm-m	14500.0000 0.0000
Caliper	1.0052	1.0858	5.0000	16.5000 in	98.0000 -93.1500

Compensated Density Calibration Report
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Serial-Model:	307-11-M&W
Source #:	20762B
Master Calibration Performed:	Sat Aug 27 10:20:16 2022

Master Calibration					
Density			Far Detector	Near Detector	
Magnesium	1.755	g/cc	3600.52	4768.22	cps
Aluminum	2.670	g/cc	693.98	3106.20	cps
Spine Angle = 75.41			Density/Spine Ratio = 0.538		
Size			Reading		
Small Ring	6.00	in	1.16		
Large Ring	18.00	in	1.01		

Compensated Neutron Calibration Report
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Compensated Neutron Calibration Report

		Serial Number: Tool Model:		207-MW M&W		
CALIBRATION						
Detector		Readings		Target		Normalization
Short Space		6240.00	cps	1000.00	cps	1.6025
Long Space		460.00	cps	1000.00	cps	1.9500
PRE-SURVEY VERIFICATION						
Detector		Readings		Measured		Target
1)	Short Space		cps			
	Long Space		cps	pu		pu
2)	Short Space		cps			
	Long Space		cps	pu		
3)	Short Space		cps			
	Long Space		cps	pu		
POST-SURVEY VERIFICATION						
Detector		Readings		Measured		Target
1)	Short Space		cps			
	Long Space		cps	pu		pu
2)	Short Space		cps			
	Long Space		cps	pu		pu
3)	Short Space		cps			
	Long Space		cps	pu		pu
Gamma Ray Calibration Report						
Serial Number:		106				
Tool Model:		M&W				
Performed:		Fri Dec 3 15:10:46 2021				
Calibrator Value:		500.0		GAPI		
Background Reading:		24.0		cps		
Calibrator Reading:		637.0		cps		
Sensitivity:		0.5500		GAPI/cps		



MIDWEST WIRELINE

Company	Cobalt Energy LLC
Well	Deer Creek #1-25
Field	Little Beaver Creek North
County	Cheyenne
State	Kansas