



MIDWEST WIRELINE

DUAL INDUCTION LOG

CompanyCobalt Energy LLC		Company Cobalt Energy LLC	
Well Mac Family #1-34		Well Mac Family #1-34	
Field		Field	
County Logan	State Kansas	County Logan	State Kansas
Location: API #: 15-109-21632-00-00		Other Services	
Permanent Datum NW SE NW NE		C/NL/CDL	
Log Measured From 850 FNL & 1868 FEL		MEL	
Drilling Measured From SEC 34 TWP 15S RGE 34W		Elevation	
		K.B. 2986	
		D.F. 2975	
		G.L. 2975	
Date 6/29/2022	Run Number One		
Depth Driller 4704			
Depth Logger 4703			
Bottom Logged Interval 4702			
Top Log Interval 350			
Casing Driller 8.625 @ 396			
Casing Logger 396			
Bit Size 7.875			
Type Fluid in Hole Chemical			
Salinity ,ppm CL 5400			
Density / Viscosity 9.2 63			
pH / Fluid Loss 10.5 8.8			
Source of Sample FLOWLINE			
Rm @ Meas. Temp 0.75 @ 76			
Rmt @ Meas. Temp 0.56 @ 76			
Rmc @ Meas. Temp 1.01 @ 76			
Source of Rmt/ Rmc CHARTS			
Rm @ BHT 0.46 @ 123			
Operating Rig Time 3 Hours			
Max Rec. Temp. F 123			
Equipment Number P-108			
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.

Oakley, KS, S to Gold Rd, W to 390, S to Elk Rd,
W to 340, S to Dakota, W to 320, 2 S, W into

Log Measured From: Kelly Bushing 11 Ft. Above Permanent Datum

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

Your Midwest Wireline Crew	This Log Record Was Witnessed By
Engineer: T. Martin	Primary Witness: Larry Nicholson
Operator:	Secondary Witness:
Operator:	Secondary Witness:
Operator:	Secondary Witness:

Core	Offset (ft)	Depth	Description	Length (ft)	O.D. (in)	Weight (lb)
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Log Variables

DatabaseC:\ProgramData\Warrior\Data\cobalt_mac family #1-34.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	123	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	855	90		4703

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

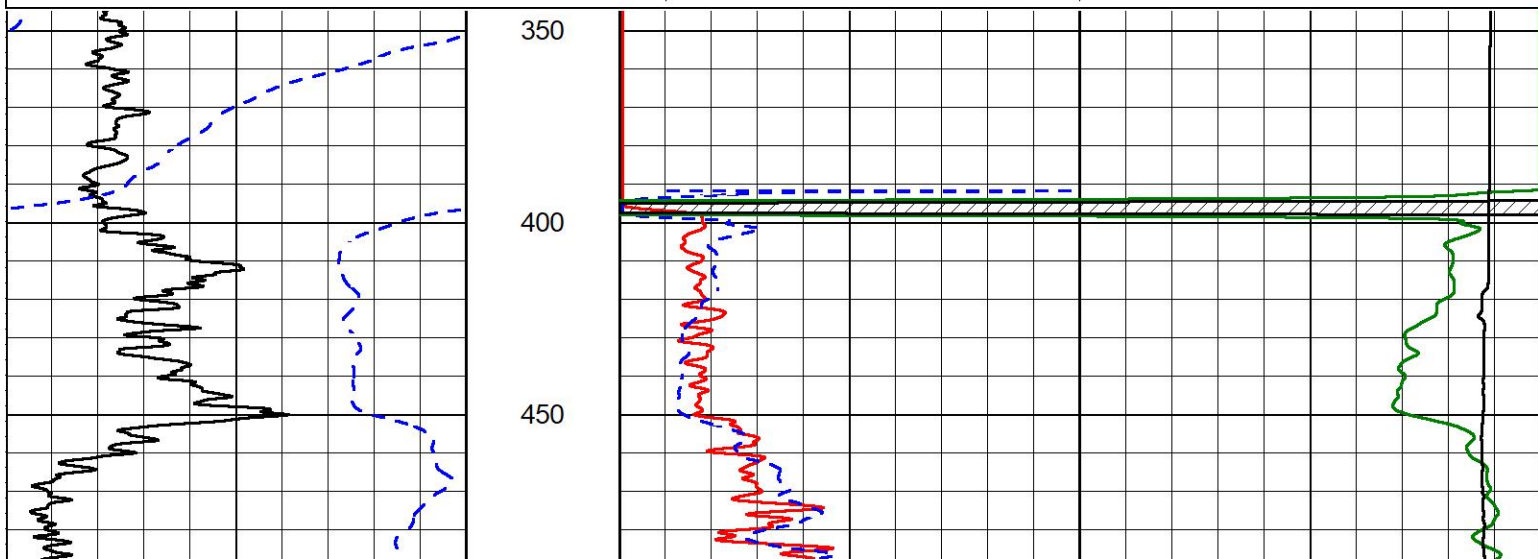


2" SCALE RESISTIVITY

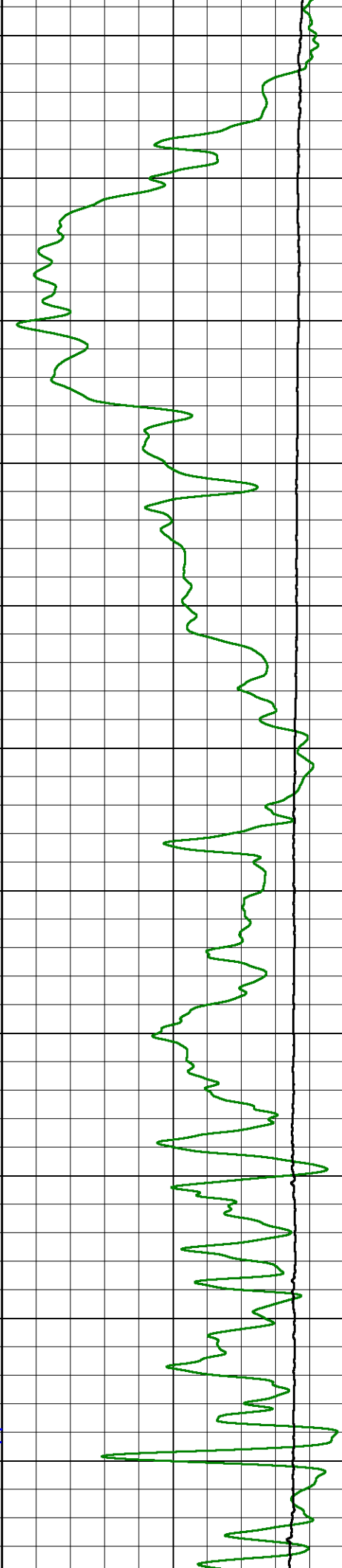
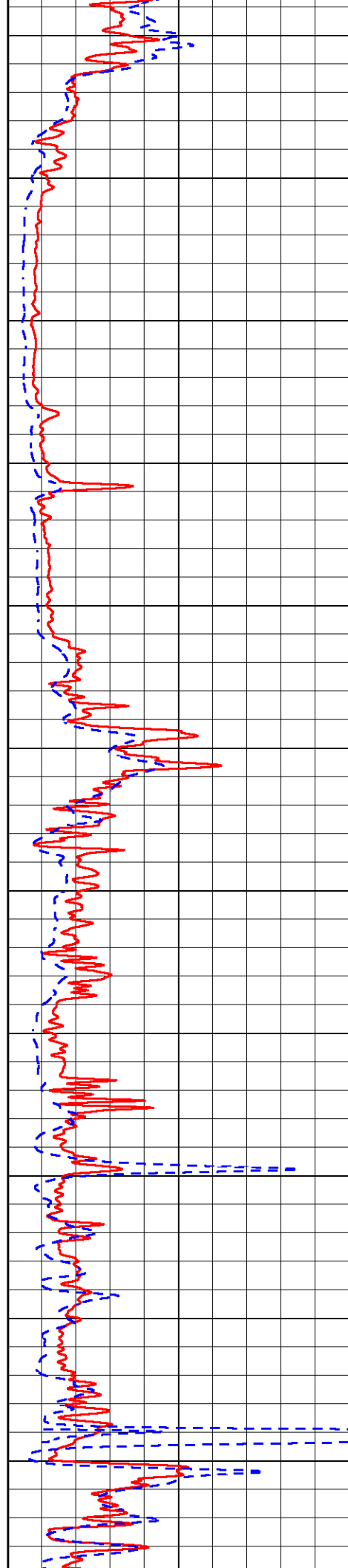
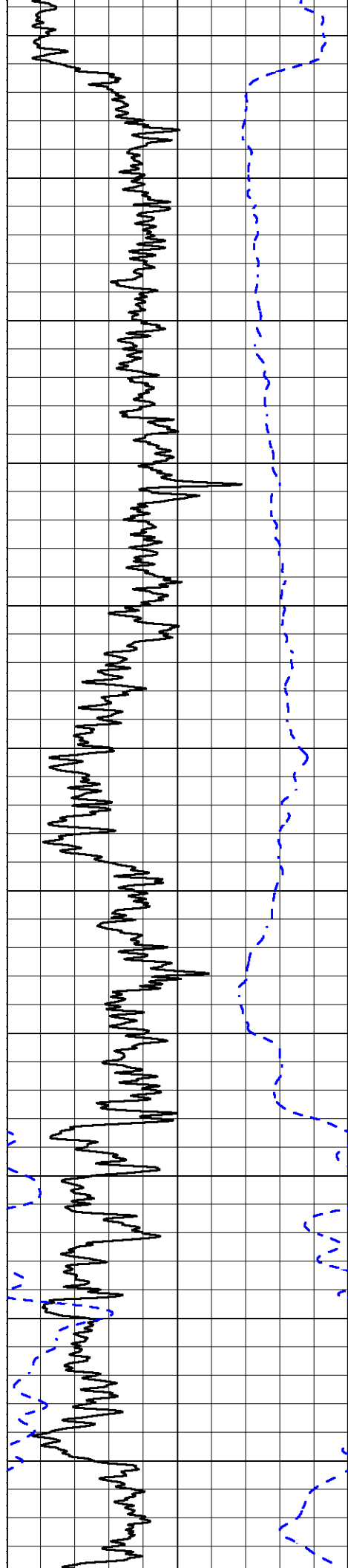
MAIN PASS

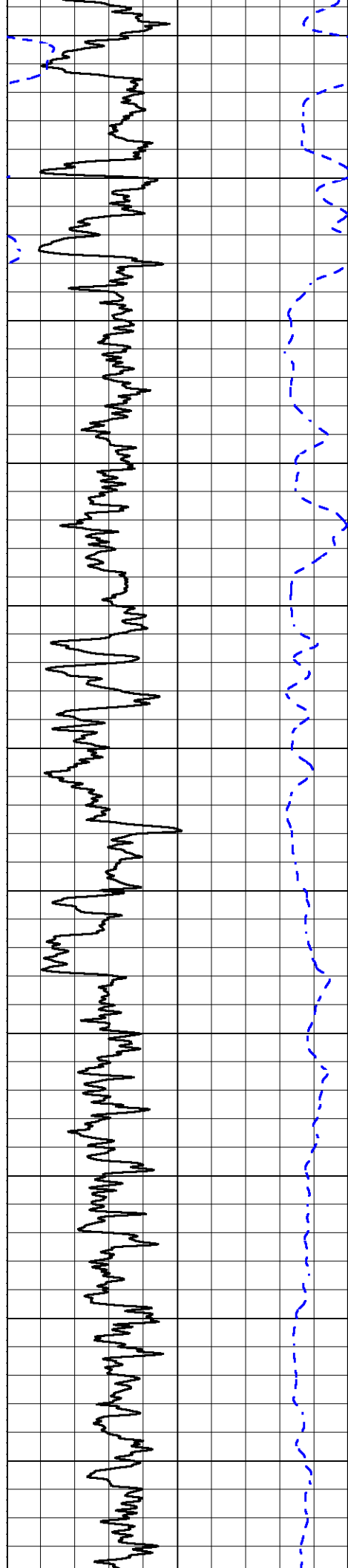
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Dataset Pathname StkMI/pass3.2
Presentation Format _dil2in
Dataset Creation Wed Jun 29 12:08:16 2022
Charted by Depth in Feet scaled 1:600

0	Gamma Ray (GAPI)	300	1000	Conductivity (mmho/m)	0
-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

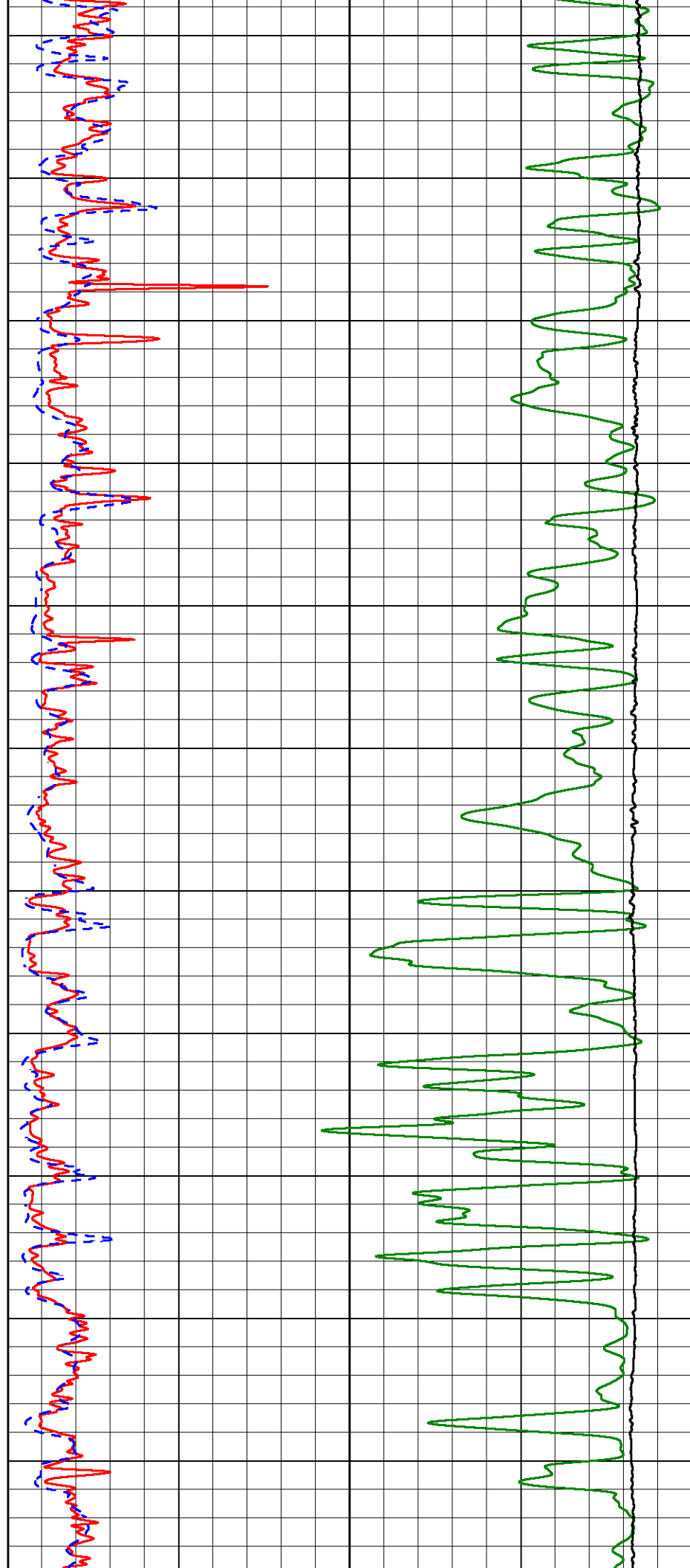


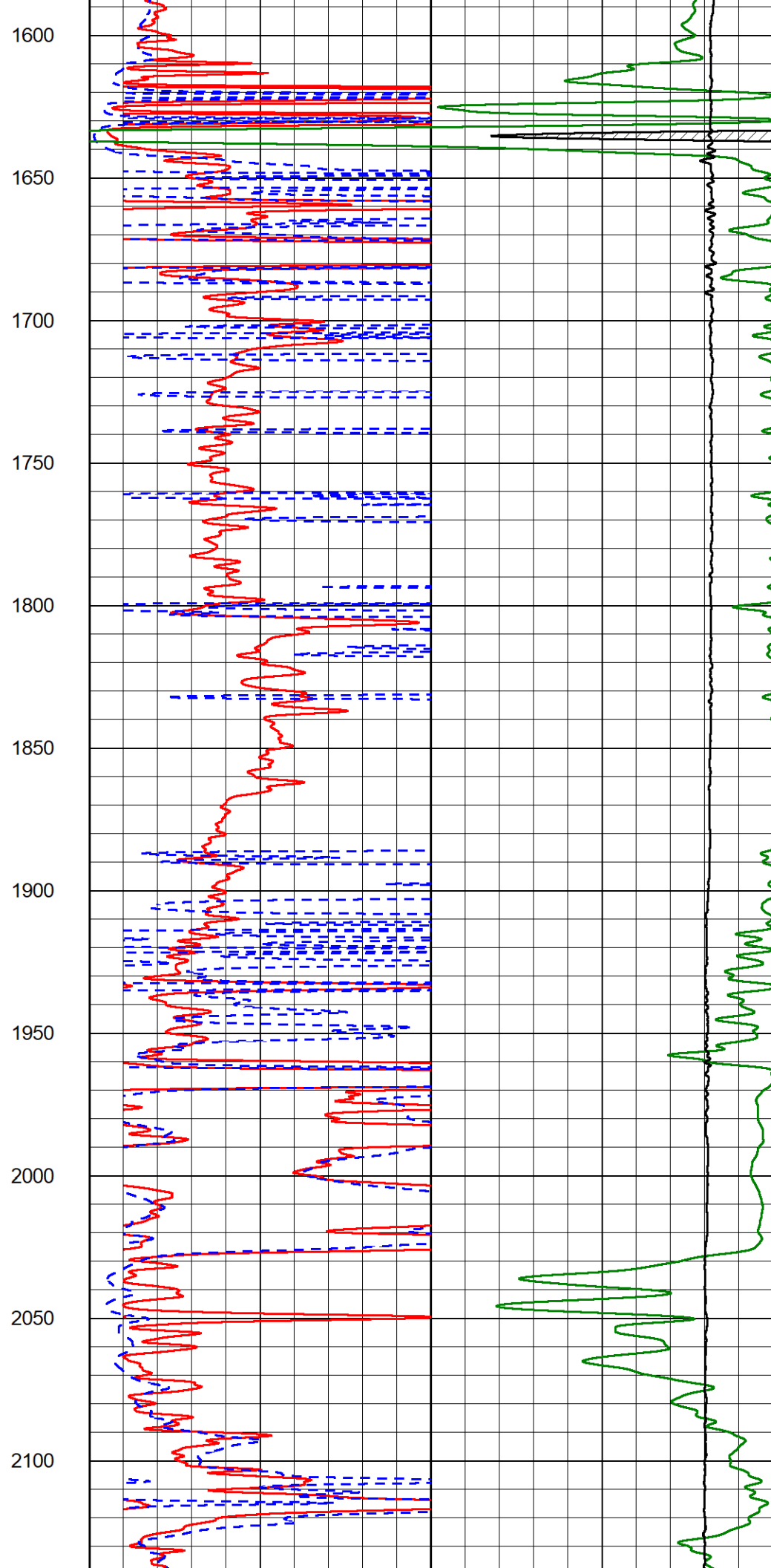
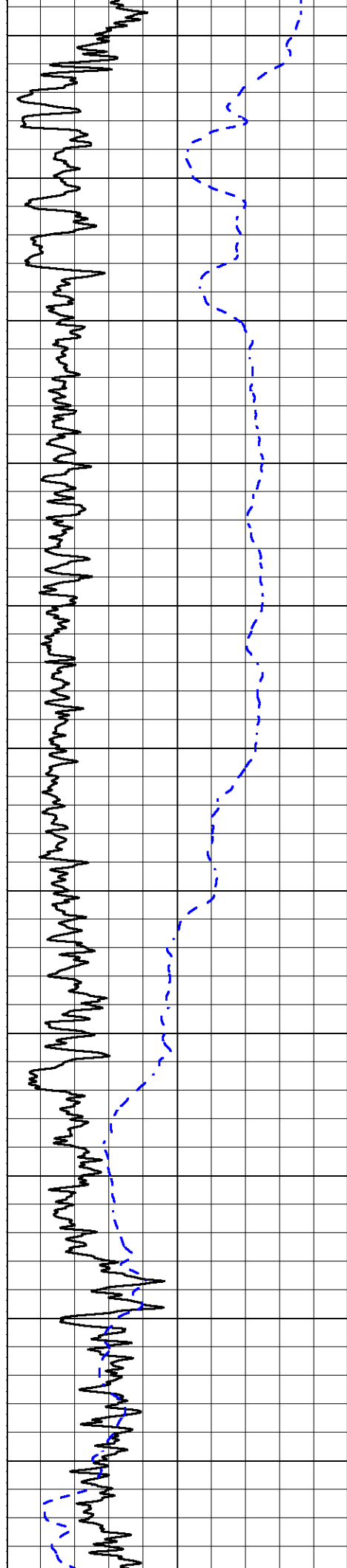
500
550
600
650
700
750
800
850
900
950
1000

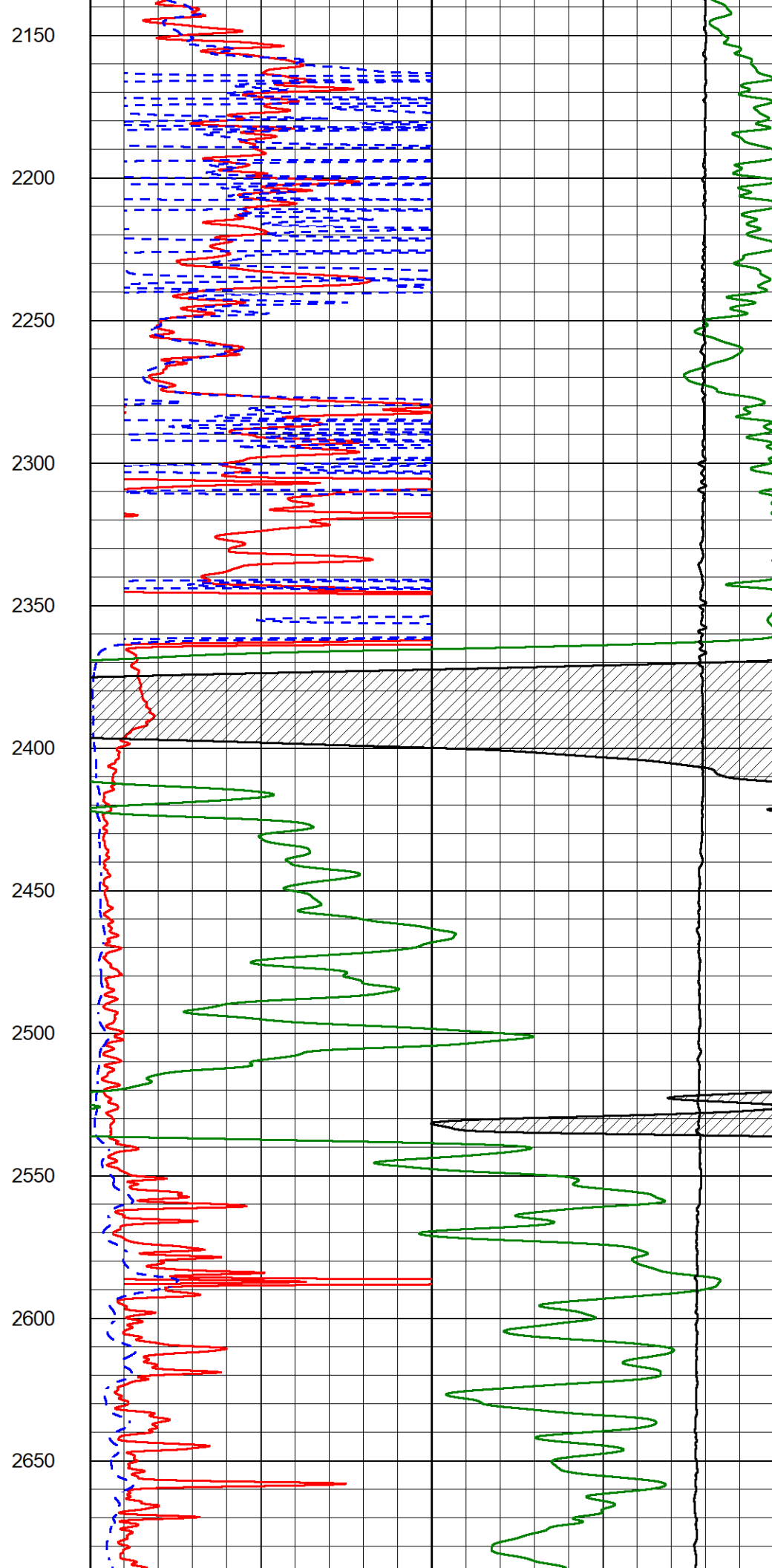
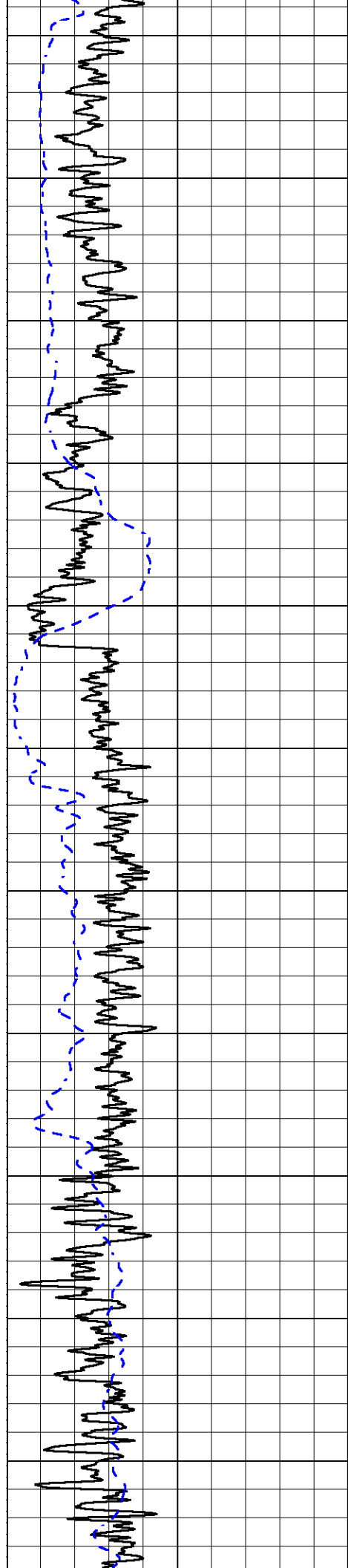


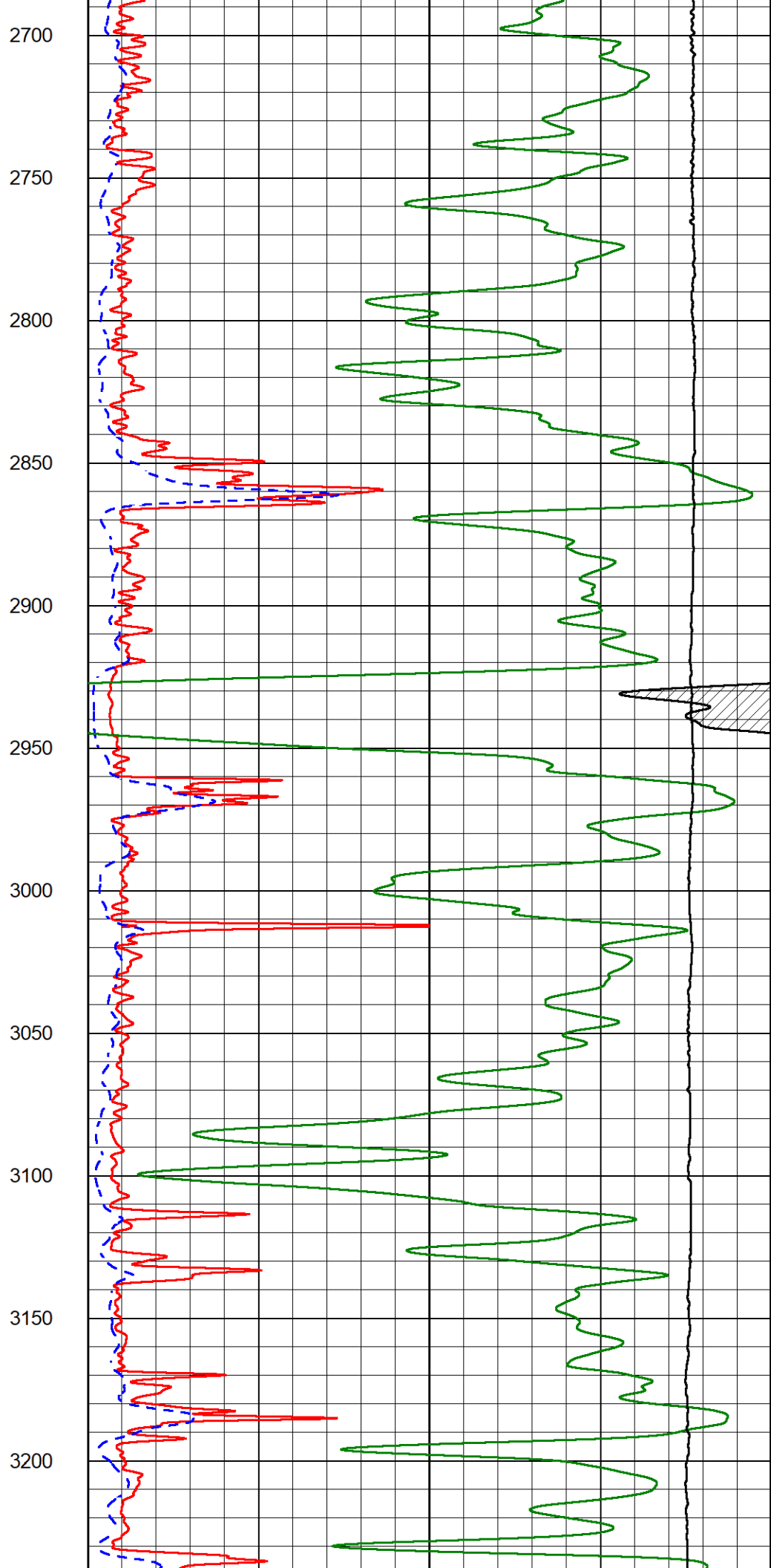
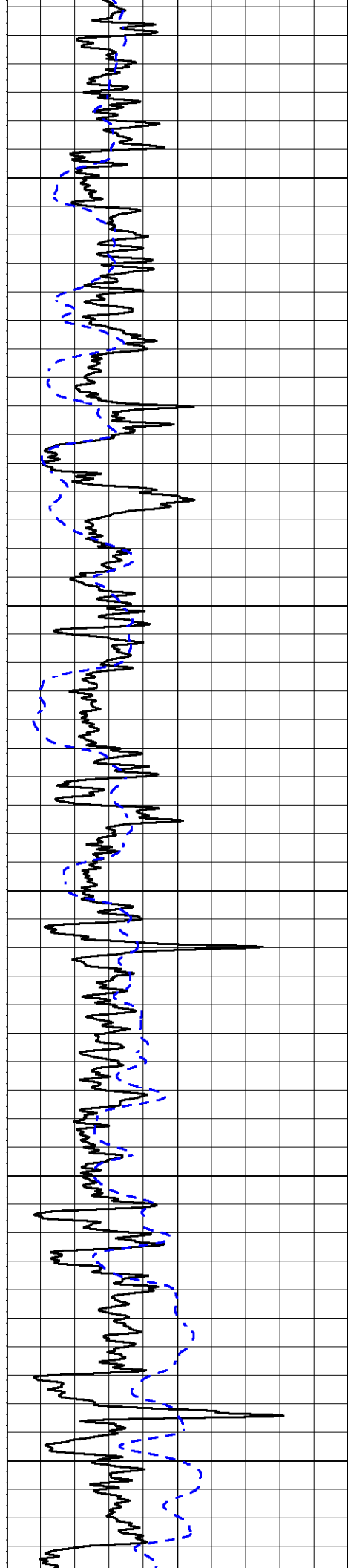


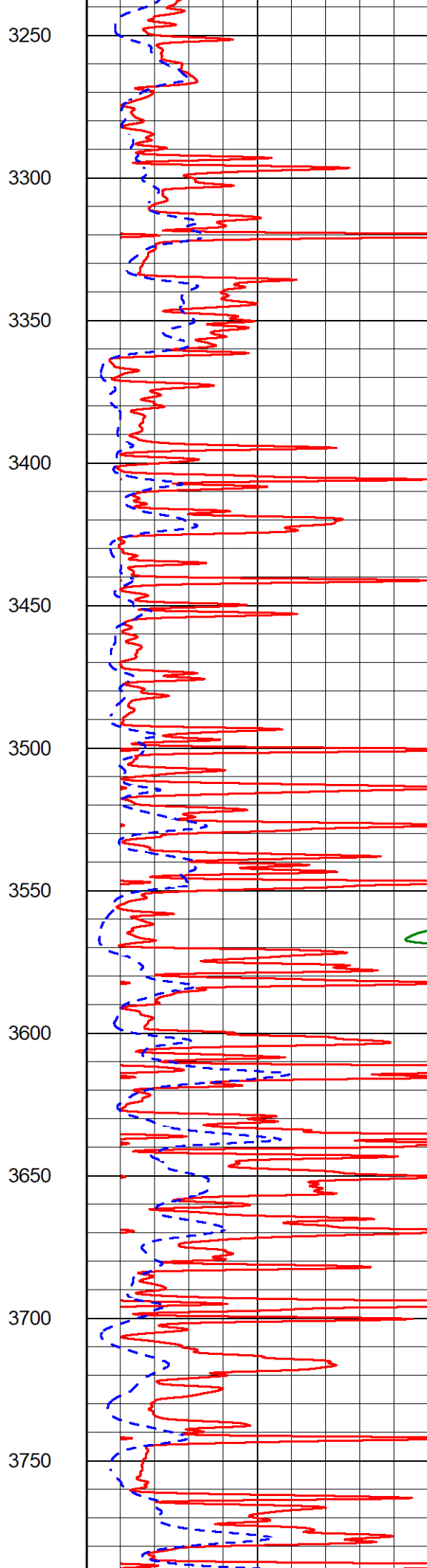
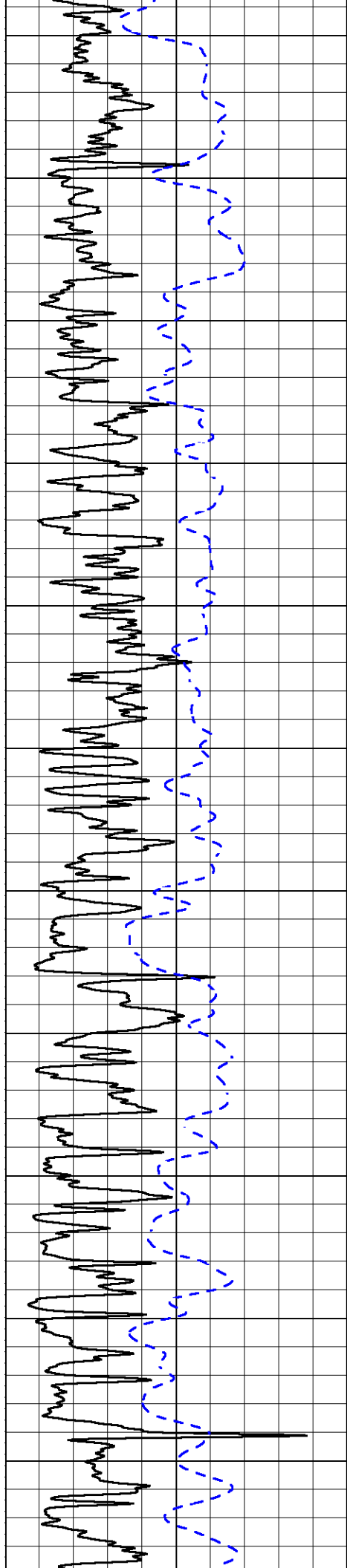
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1100
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1200
1250
1300
1350
1400
1450
1500
1550

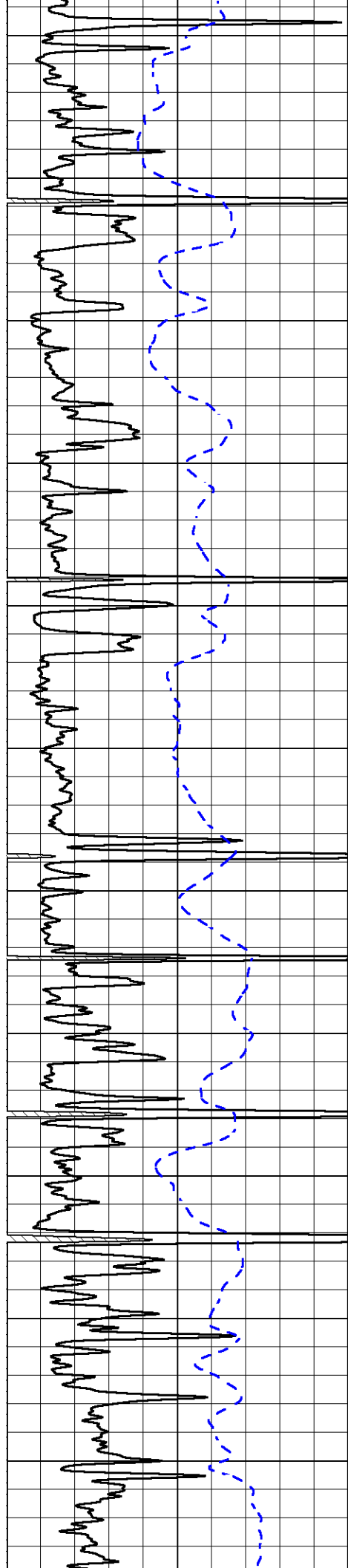












3800

3850

3900

3950

4000

4050

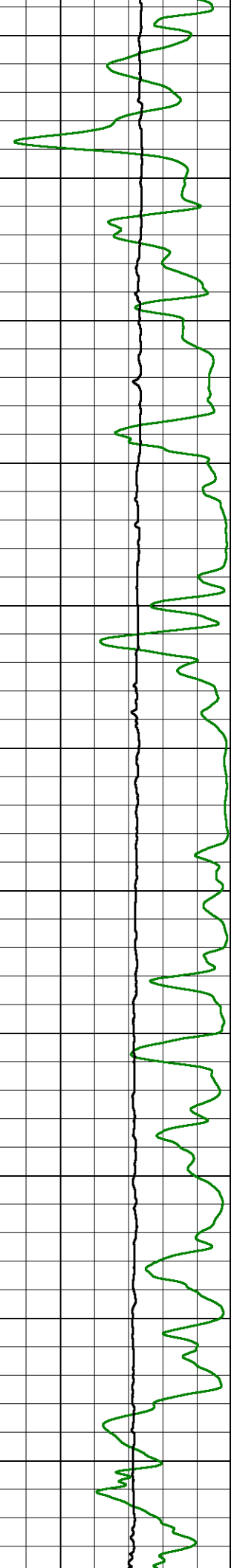
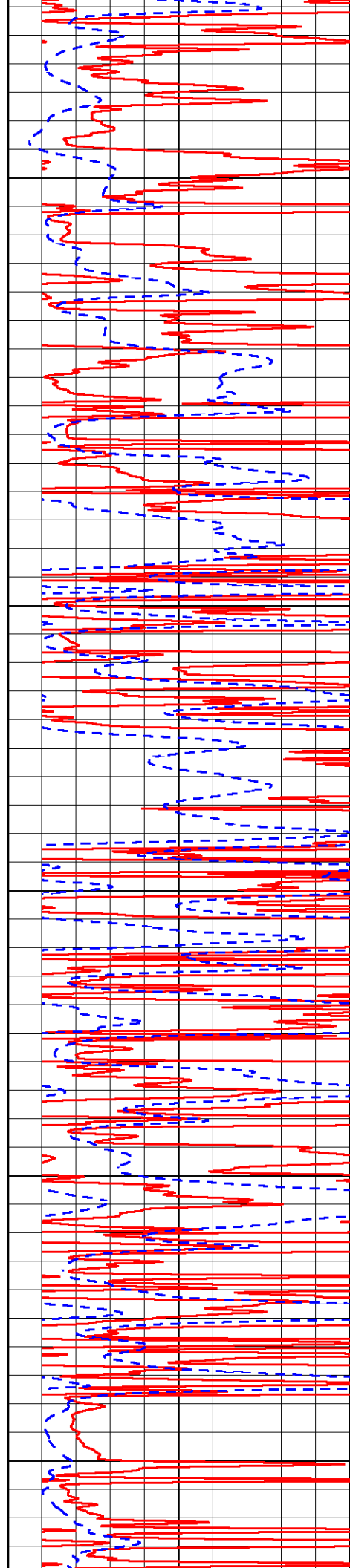
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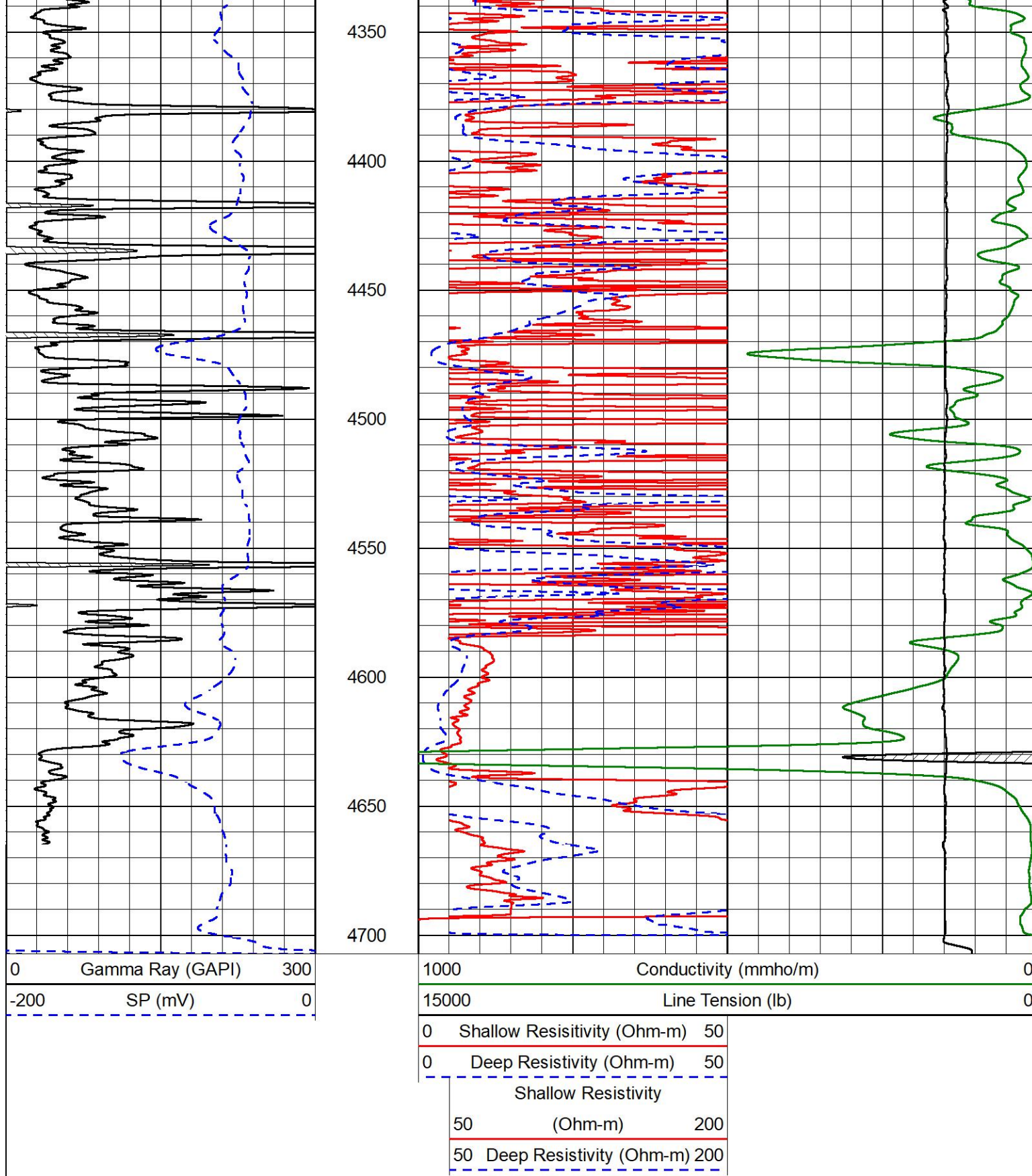
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4200

4250

4300





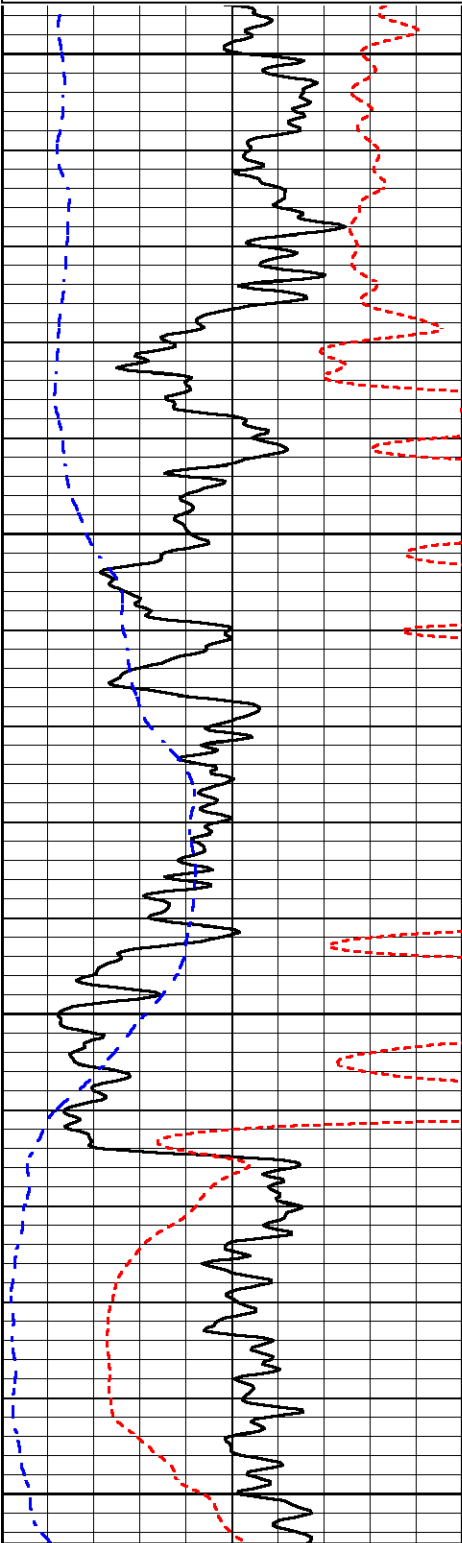
MIDWEST WIRELINE

ANHYDRITE SECTION

MAIN PASS

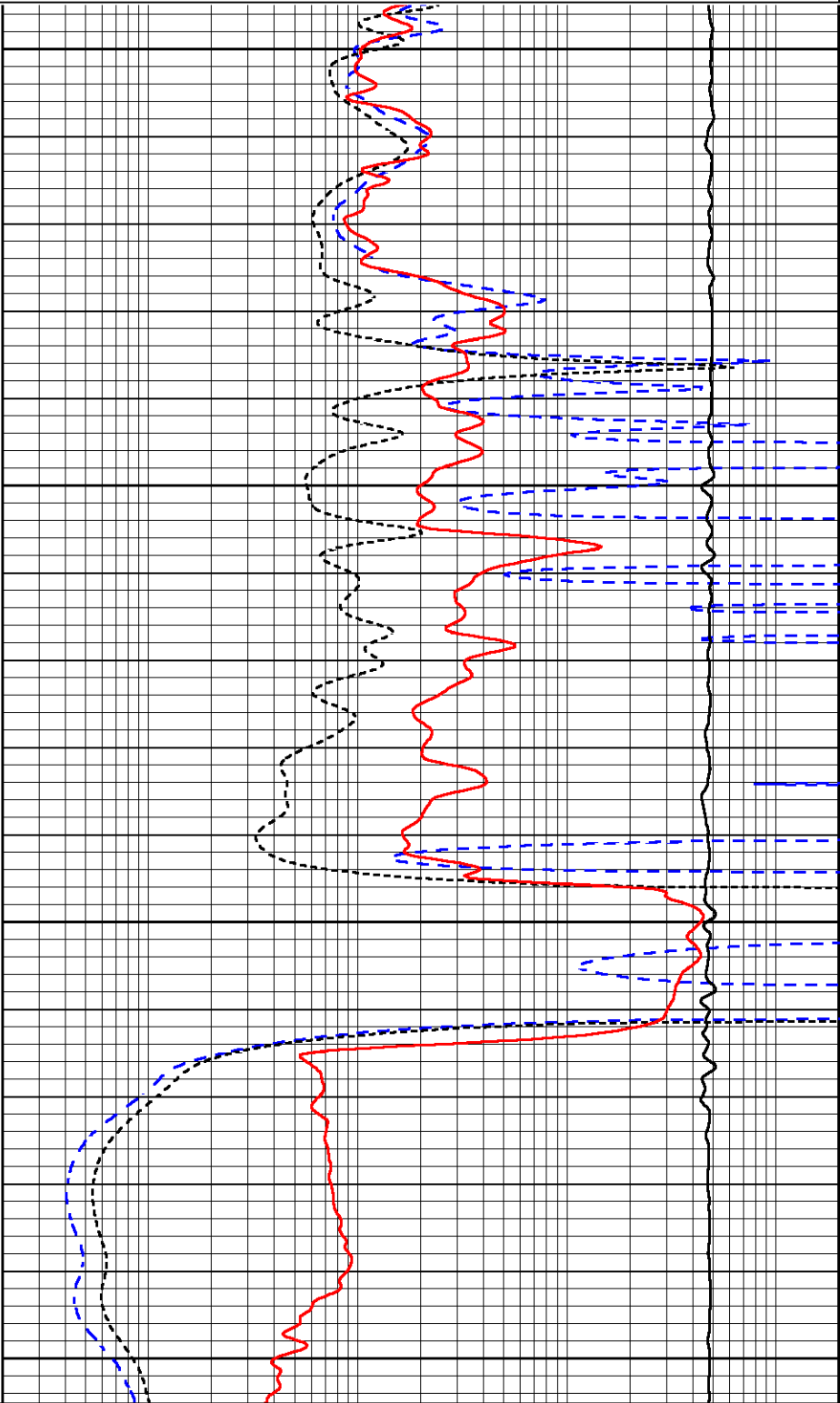
Database File cobalt_mac family #1-34.db
Dataset Pathname StkMI/pass3.4
Presentation Format _dil

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



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



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

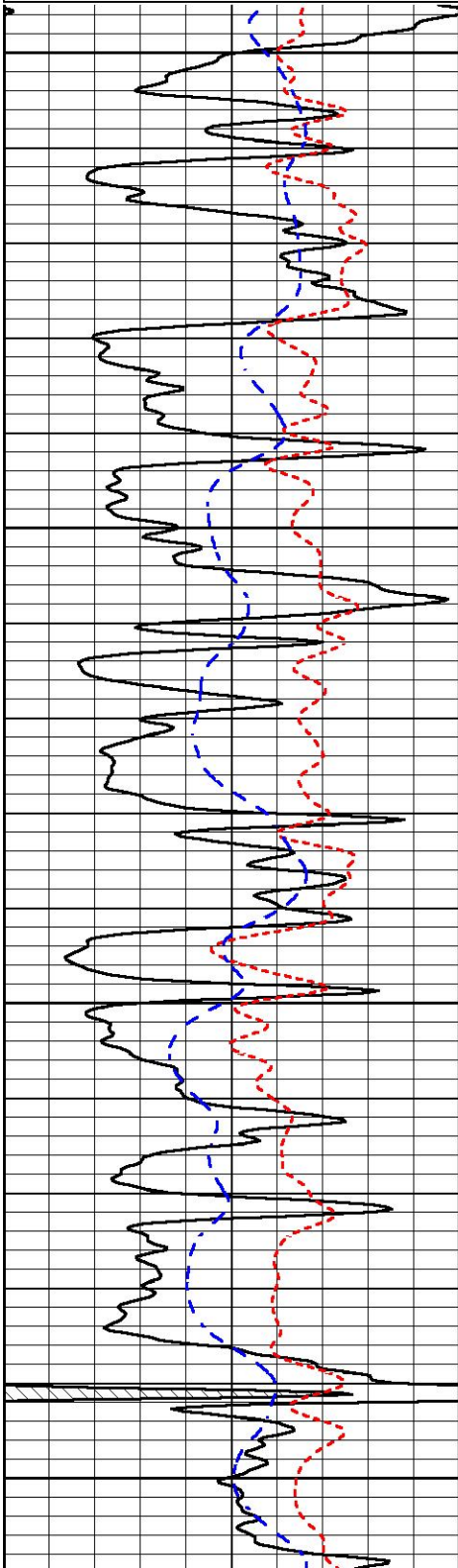
DETAIL SECTION

MAIN PASS

Database File cobalt_mac family #1-34.db
Dataset Pathname StkMI/pass3.1
Presentation Format _dil
Dataset Creation Wed Jun 29 12:13:07 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

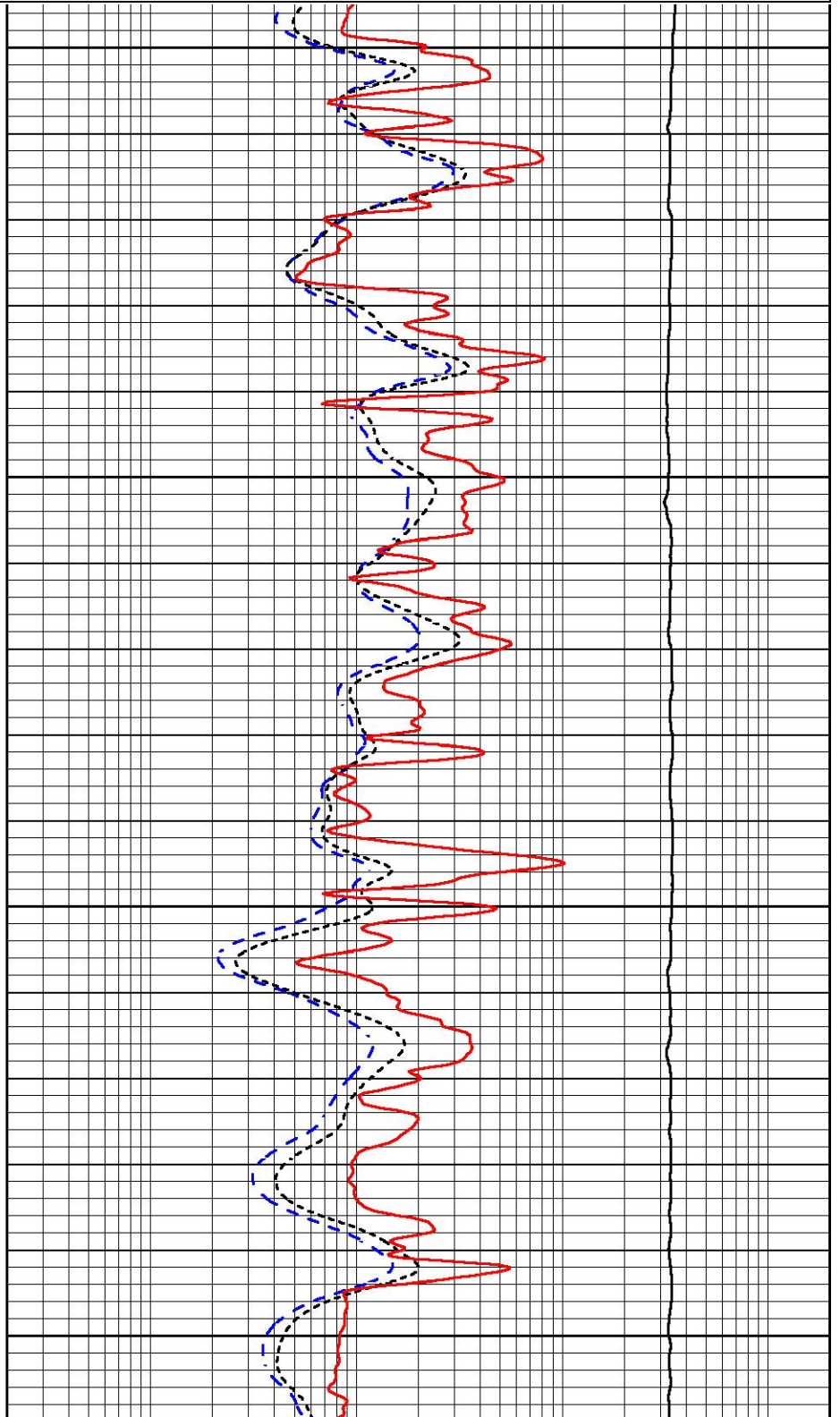


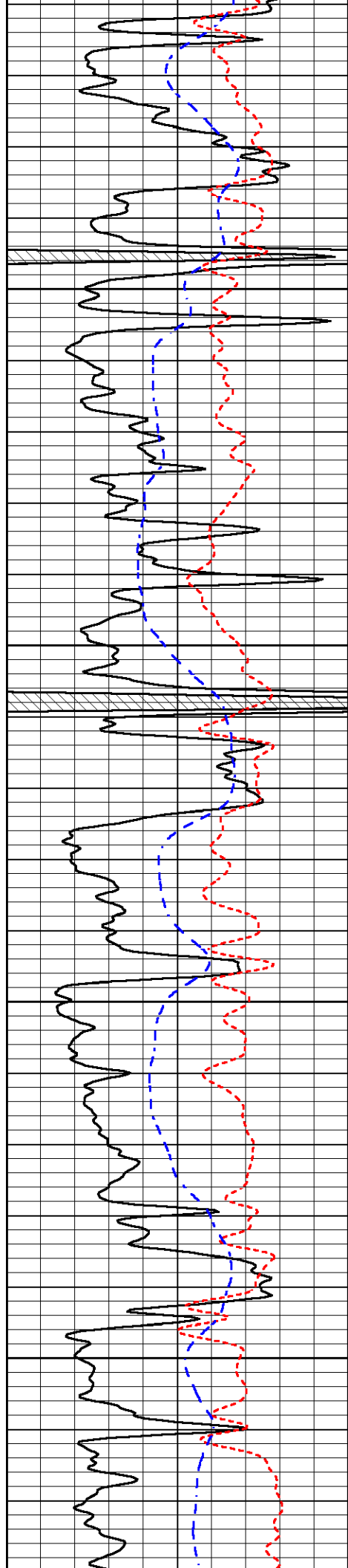
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3650

3700

3750



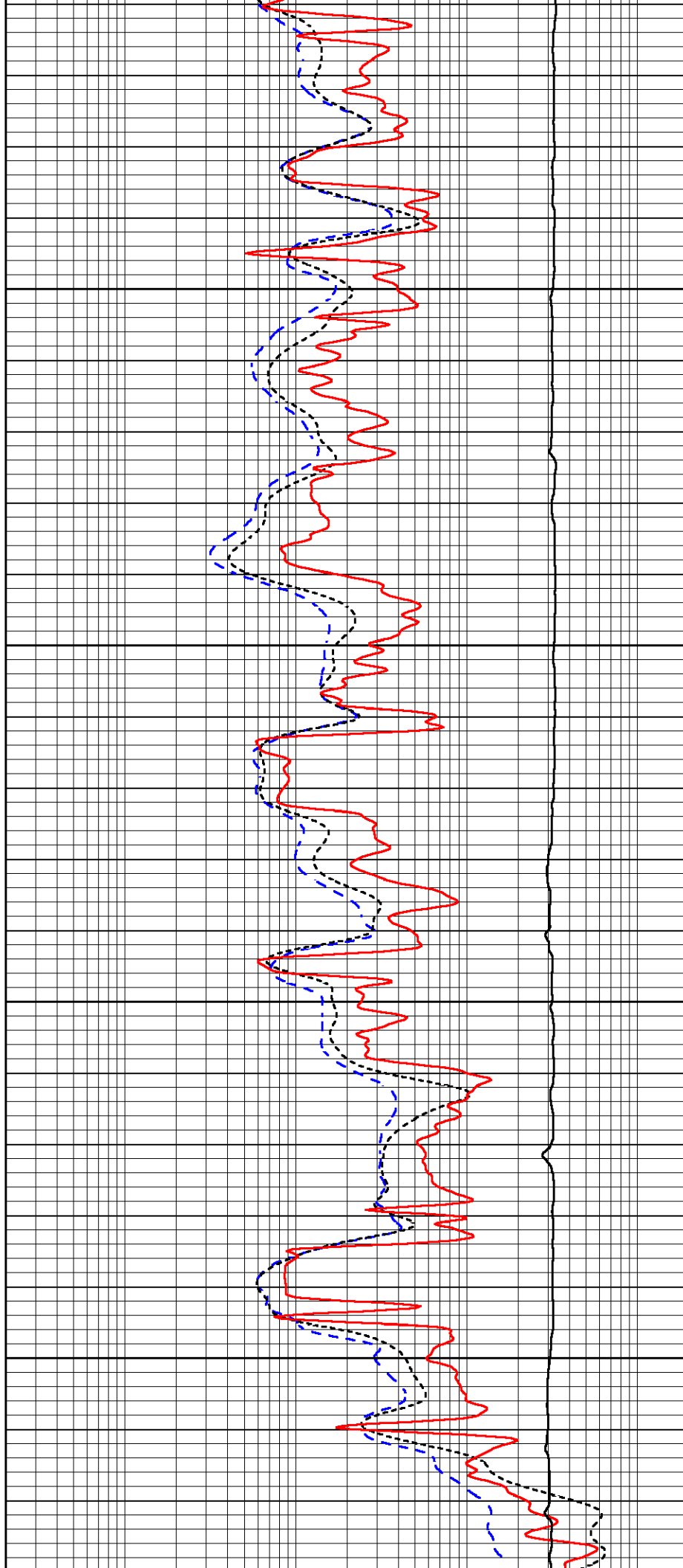


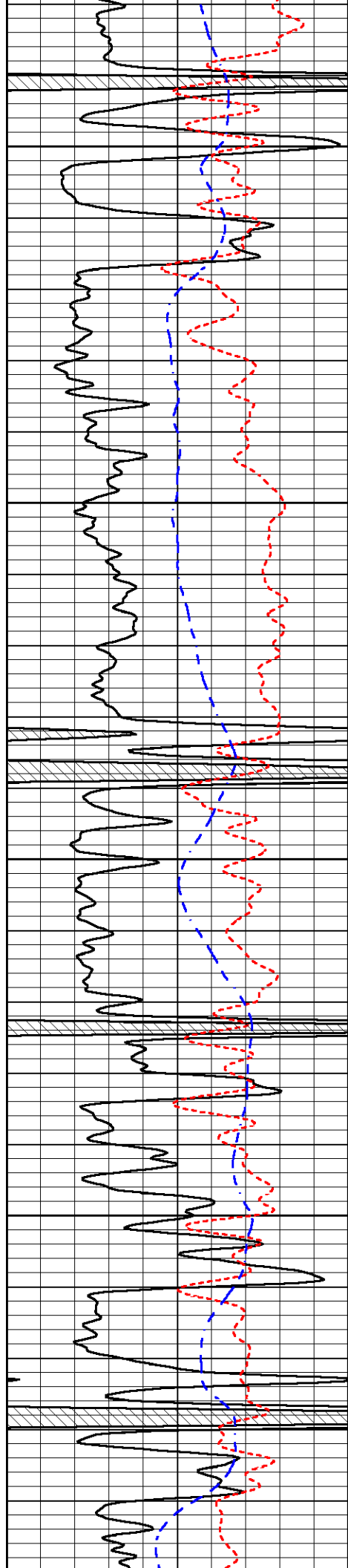
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3850

3900

3950





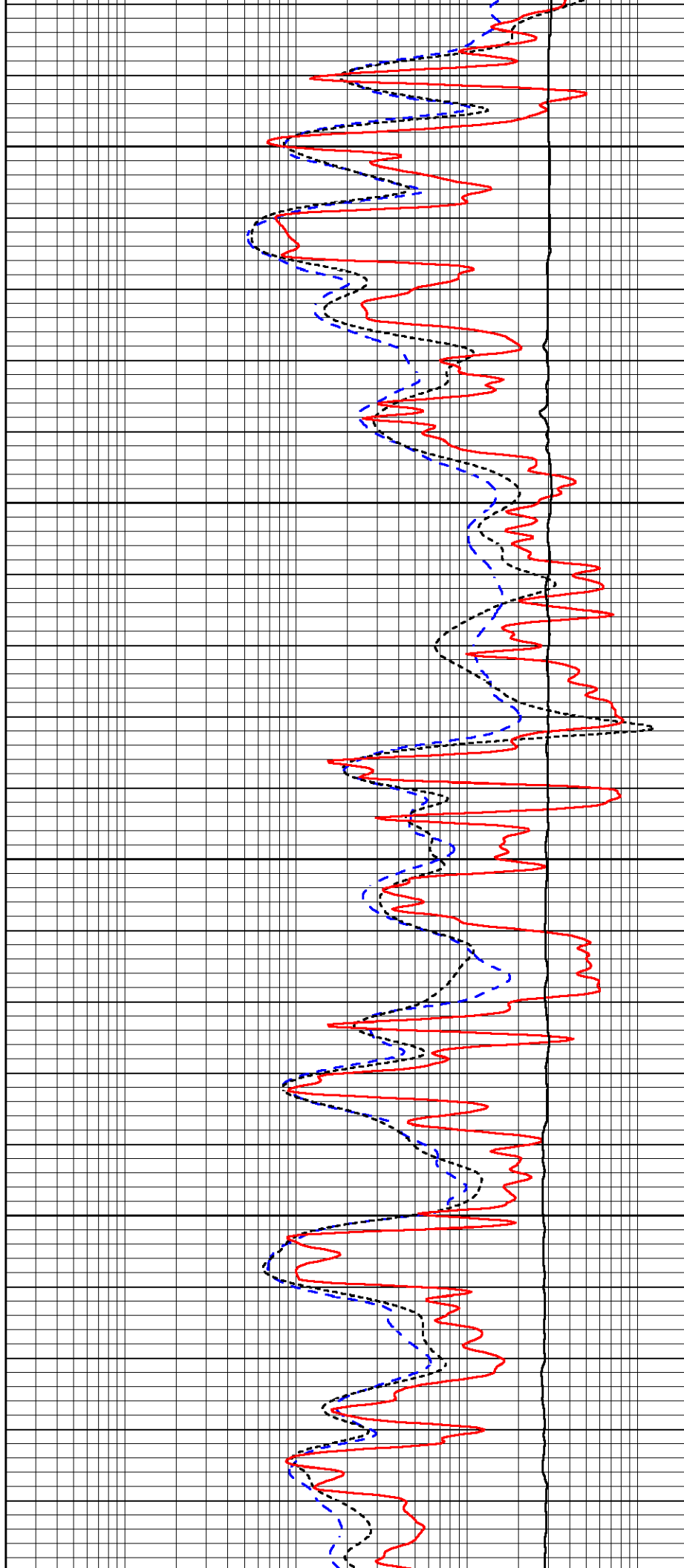
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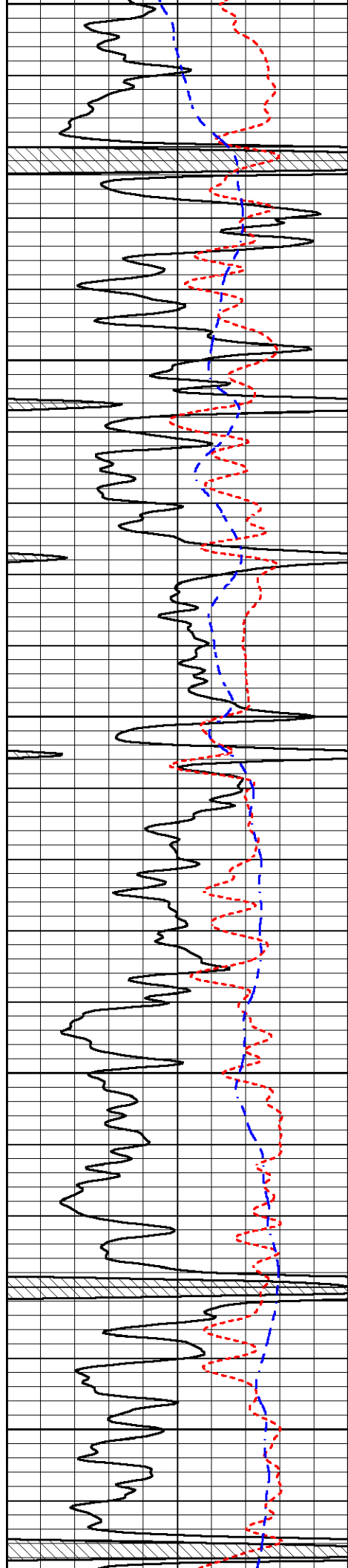
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4100

4150

4200





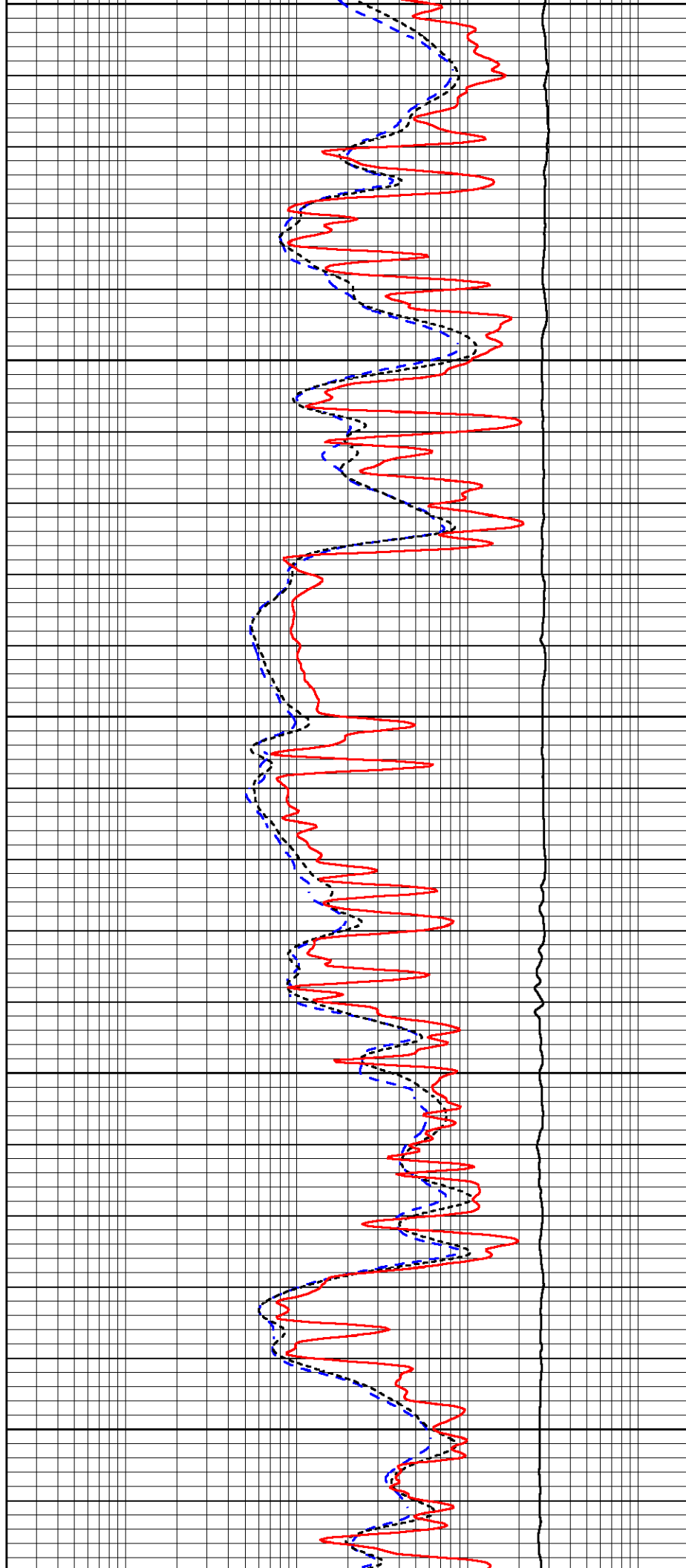
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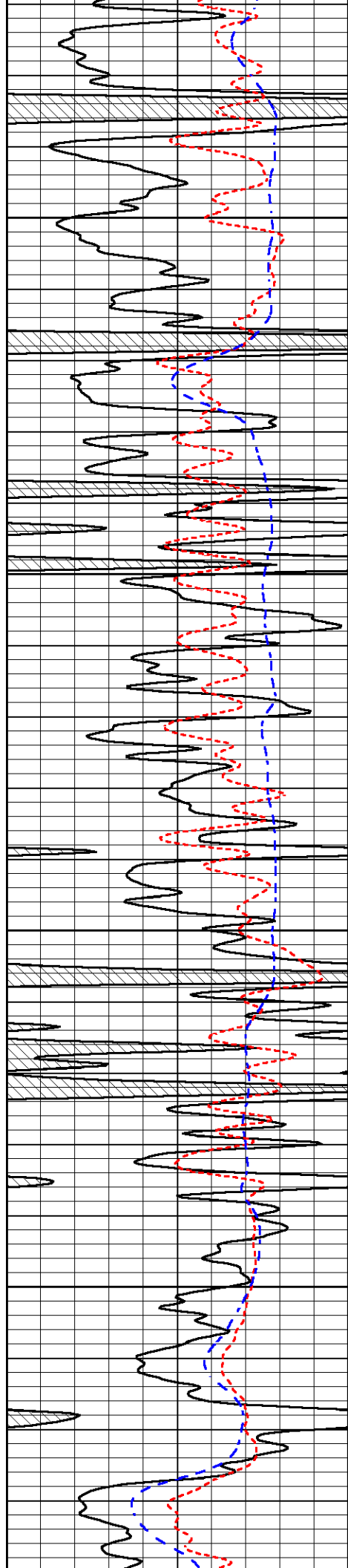
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4300

4350

4400



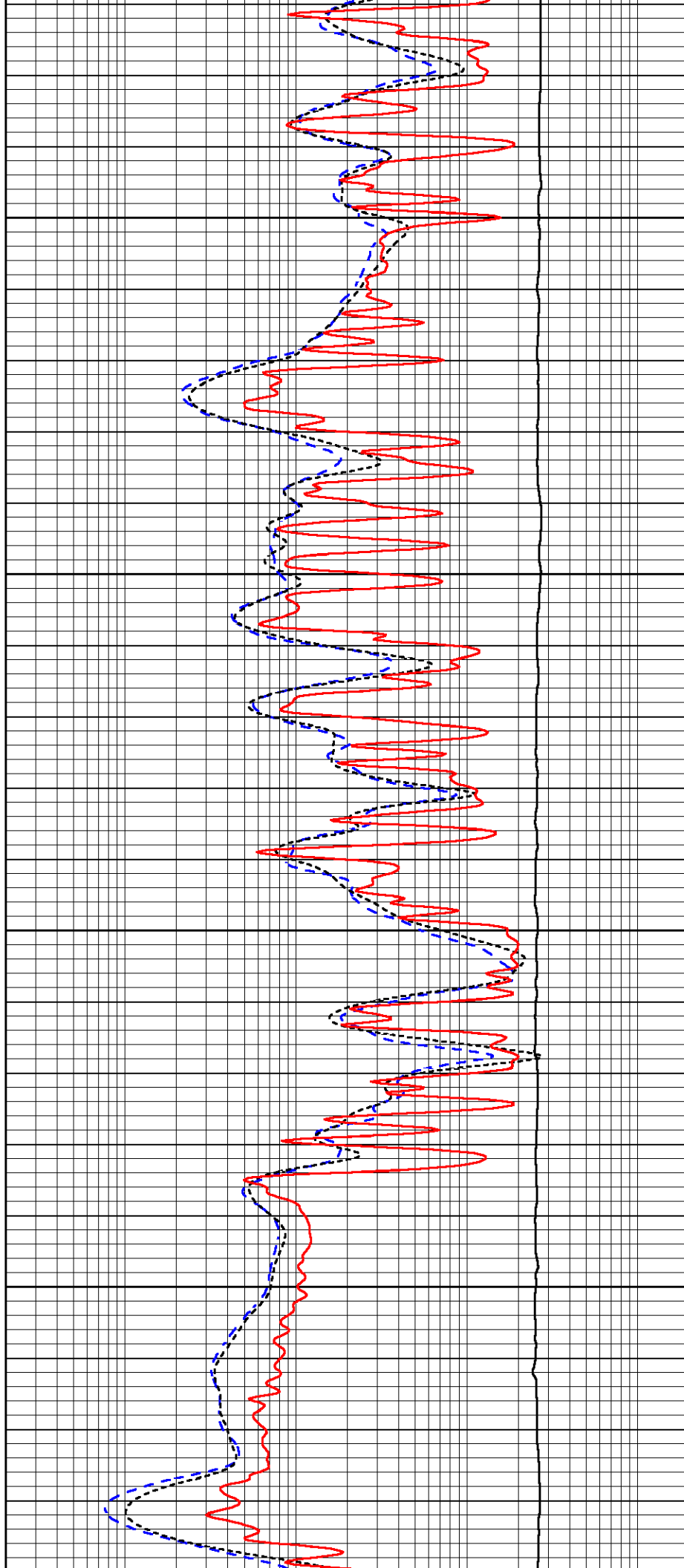


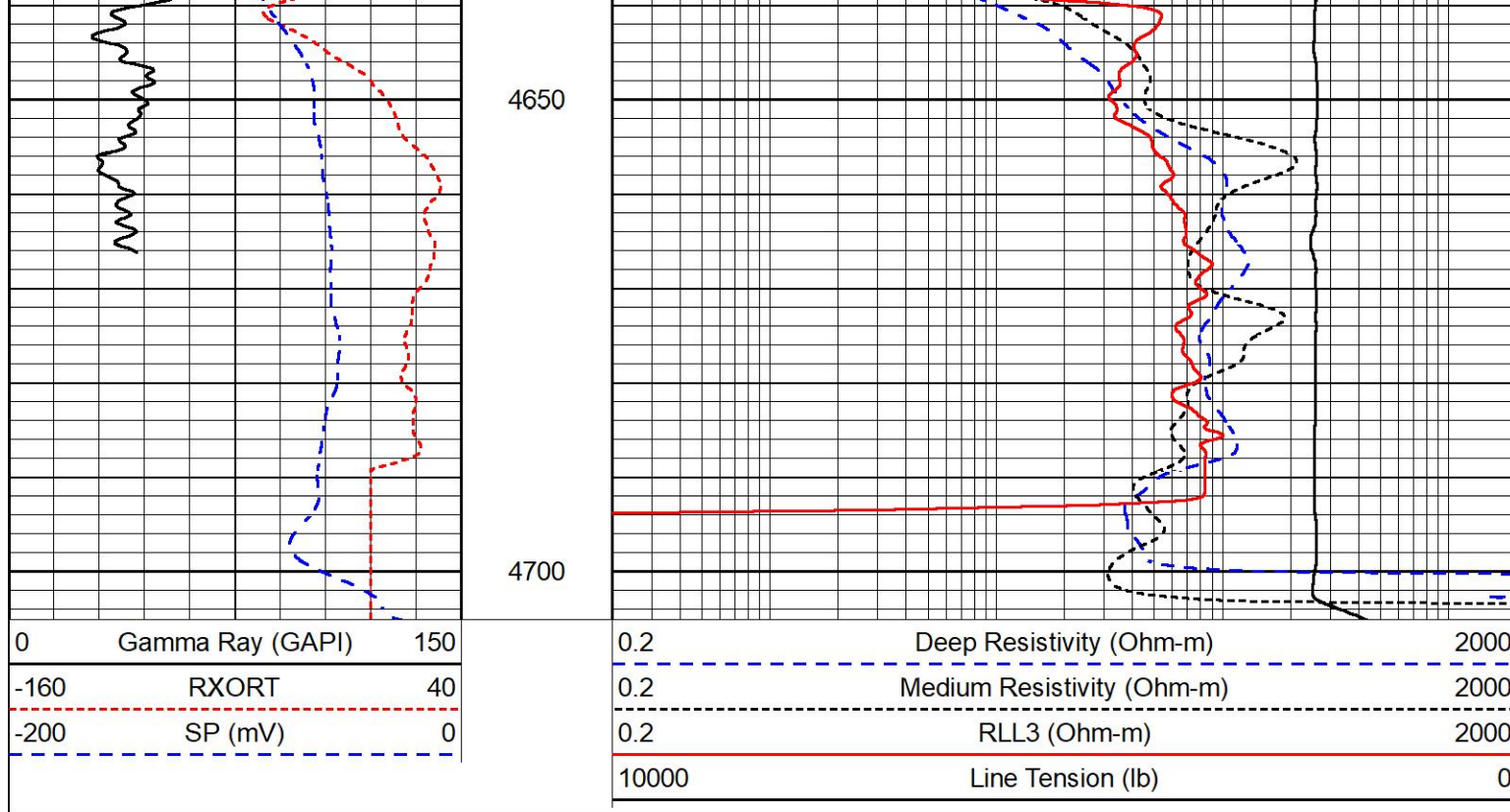
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4500

4550

4600



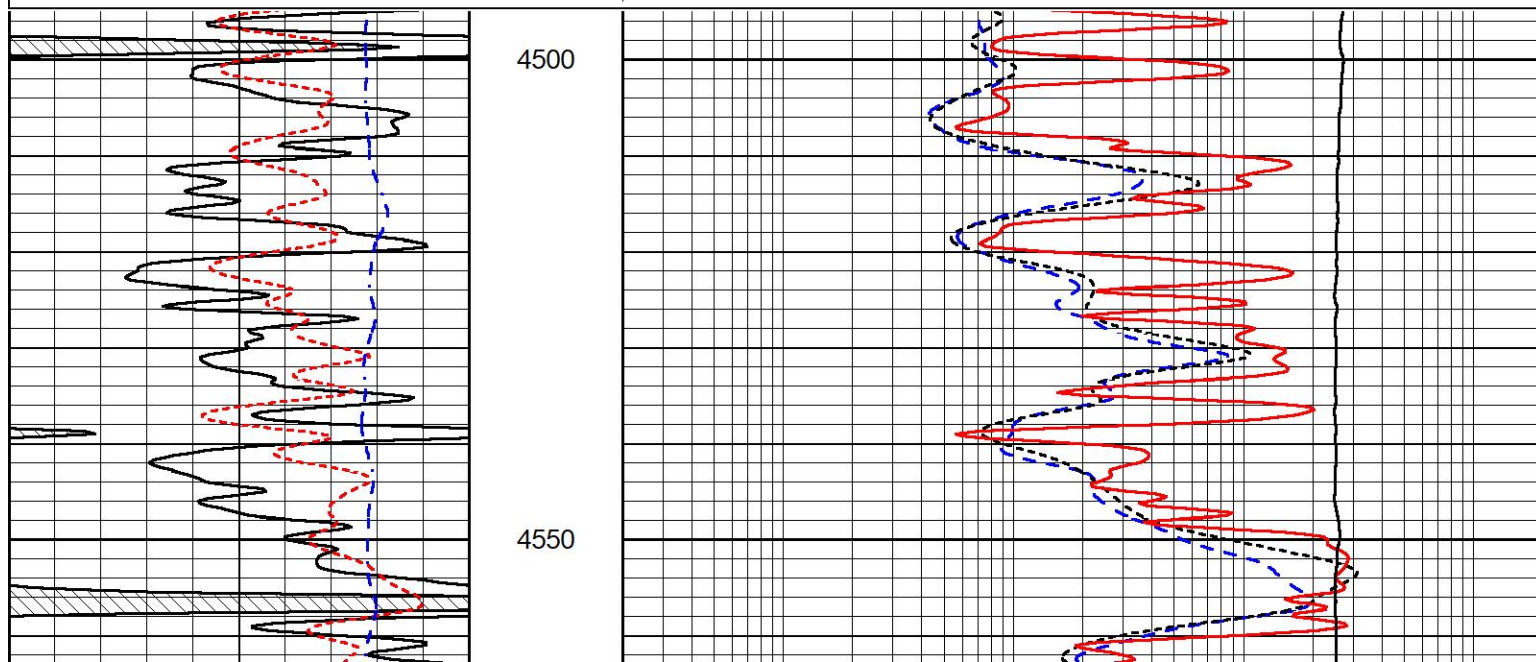
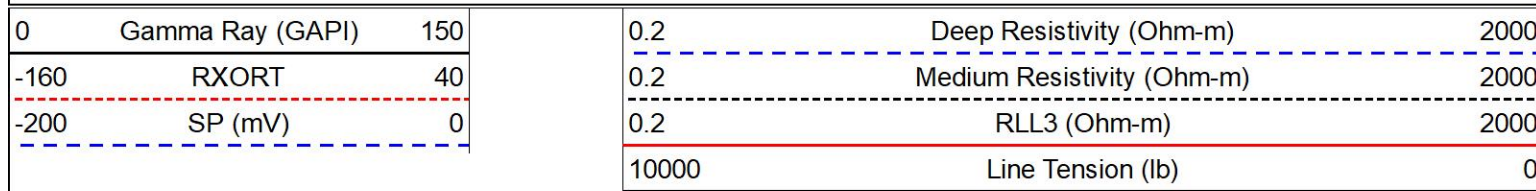


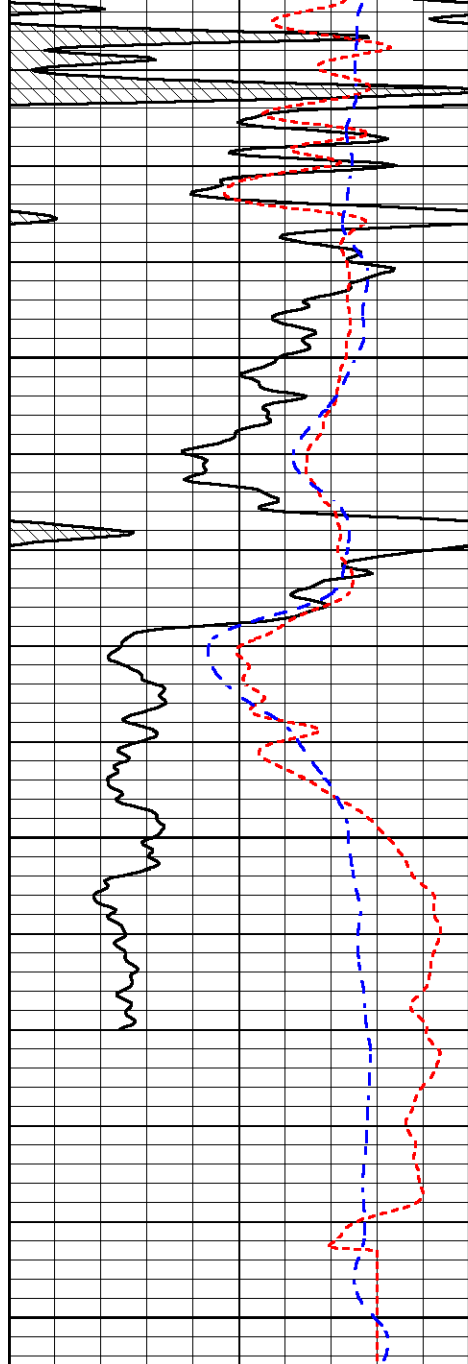
MIDWEST WIRELINE

REPEAT SECTION

REPEAT PASS

Database File cobalt_mac family #1-34.db
 Dataset Pathname StkMI/pass2.1
 Presentation Format _dil
 Dataset Creation Wed Jun 29 11:33:48 2022
 Charted by Depth in Feet scaled 1:240



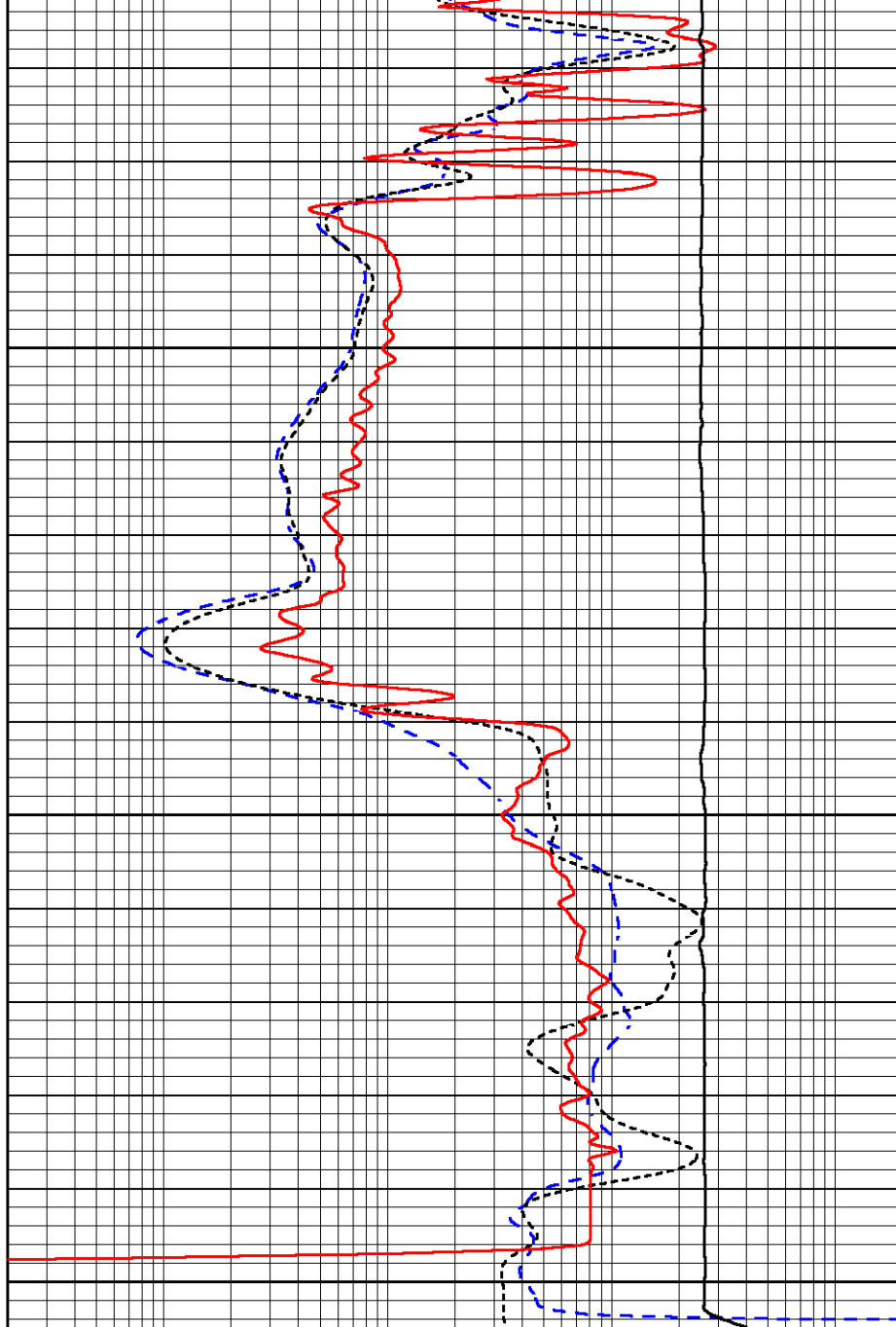


4600

4650

4700

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

Calibration Report

Database File cobalt_mac family #1-34.db
 Dataset Pathname StkMI/pass3.1
 Dataset Creation Wed Jun 29 12:13:07 2022

Dual Induction Calibration Report

Serial-Model: 504 HT-M&W
 Surface Cal Performed: Thu Dec 16 22:32:49 2021

Readings			References		Results	
Loop:	Air	Loop	Air	Loop	m	b
Deep	178.615	710.235	0.000	255.800	0.650	15.000

Deep	178.015	710.255	0.000	255.800	mmho/m	0.650	-15.000
Medium	161.982	1441.110	0.000	255.800	mmho/m	0.450	-52.500
Microlog Calibration Report							
Serial-Model: Performed:			401-PSI STKBL ML Fri Jun 3 18:46:15 2022				
	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0037	0.0043	0.0000	10.0000	Ohm-m	24000.0000	-0.8000
Inverse	0.1208	0.0013	0.0000	10.0000	Ohm-m	18750.0000	0.0000
Caliper	1.0049	1.0846	5.5000	20.0000	in	165.0000	-162.0000
Compensated Density Calibration Report							
Serial-Model: Source #: Master Calibration Performed:			303-03-M&W 21170B Thu Dec 16 23:28:34 2021				
Master Calibration							
	Density		Far Detector		Near Detector		
Magnesium	1.755	g/cc	3841.78		5151.73	cps	
Aluminum	2.670	g/cc	700.98		3068.49	cps	
Spine Angle = 73.06			Density/Spine Ratio = 0.515				
	Size		Reading				
Small Ring	4.00	in	1.17				
Large Ring	14.00	in	1.03				
Compensated Neutron Calibration Report							
Serial-Model: Source #: Master Calibration Performed:			210-M&W N-1238 Fri Dec 3 09:16:24 2021				
Master 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	
Gamma Ray Calibration Report							
Serial Number:		103					
Tool Model:		M&W					
Performed:		Fri Dec 3 12:13:24 2021					
Calibrator Value:		500.0		GAPI			
Background Reading:		28.0		cps			
Calibrator Reading:		986.0		cps			
Sensitivity:		0.5700		GAPI/cps			



Company	Cobalt Energy LLC
Well	Mac Family #1-34
Field	
County	Logan
State	Kansas