



# DUAL INDUCTION

MIDWEST WIRELINE

Company **Cobalt Energy LLC**  
 Well **Sisters Unit #1-2**  
 Field **Brassfield South**  
 County **Graham** State **Kansas**

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Location: API #: 15-065-24274-00-00  
 SE SE NE SW  
 1347 FSL & 2423 FWL  
 SEC 2 TWP 10S RGE 22W  
 Permanent Datum Ground Level Elevation 2340  
 Log Measured From Kelly Bushing  
 Drilling Measured From Kelly Bushing  
 Other Services  
 CNL/CDL  
 MEL  
 Elevation  
 K.B. 2345  
 D.F.  
 G.L. 2340

Date	9/26/2023
Run Number	One
Depth Driller	3860
Depth Logger	3859
Bottom Logged Interval	3858
Top Log Interval	200
Casing Driller	8.625 @ 217
Casing Logger	217
Bit Size	7.875
Type Fluid in Hole	Chemical
Salinity, ppm CL	1900
Density / Viscosity	9.2 53
pH / Fluid Loss	10.0 6.0
Source of Sample	Flowline
Rm @ Meas. Temp	0.75 @ 74
Rmt @ Meas. Temp	0.56 @ 74
Rmc @ Meas. Temp	1.01 @ 74
Source of Rmf / Rmc	Charts
Rm @ BHT	0.48 @ 115
Operating Rig Time	2 Hours
Max Rec. Temp. F	115
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.

Hill City, KS, S to Rd H, 5 E to Rd 310,  
 2 S to Rd F, 1.5 E, N into at cedar line

39.208614974 & -99.745805786

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	40.75		GR-M&W (107)	3.00	3.50	50.00
CNLSC CNSSC	37.65 36.90		CNT-M&W (207)	5.00	3.50	100.00
LCAL	28.21		MWLith-STEP LITHO (704-10) Long Litho Mandrel	8.92	5.00	250.00
LLW8N	28.21		ML-PSIML (401)	7.58	4.00	65.00
LLW7N	28.21					
LLW6N	28.21					
LLW5N	28.21					
LLW4N	28.21					
LLW3N	28.21					
LLW2N	28.21					
LLW1N	28.21					
LSLOCK	27.96		DIL-M&W (507)	18.25	3.50	220.00
LLLOCK	27.96					
PELTMPR	27.96					
LSHVNG	27.96					
LLHVNG	27.96					
LSW8N	27.71					
LSW7N	27.71					
LSW6N	27.71					
LSW5N	27.71					
LSW4N	27.71					
LSW3N	27.71					
LSW2N	27.71					
LSW1N	27.71					
MCAL	19.58					
MI	19.58					
MN	19.58					
RLL3F	15.50					
RLL3	15.50					
CILD	8.33					
CILM	4.50					
SP	0.20					

Dataset: cobalt\_sisters unit #1-2.db: field/well/StkMI/pass3.1  
 Total length: 42.75 ft  
 Total weight: 685.00 lb  
 O.D.: 5.00 in

# Log Variables

DatabaseC:\ProgramData\Warrior\Data\cobalt\_sisters unit #1-2.db  
 Dataset field/well/StkMI/pass3.1/\_vars\_

## Top - Bottom

BOREID in 7.875	BOTTEMP degF 115	CASEOD in 5.5	CASETHCK in 0	FLUIDDEN g/cc 1	MATRXDEN g/cc 2.71	NPORSEL Limestone	PERFS No
SNDERR mmho/m 1	SNDERRM mmho/m -2	SPSHIFT mV 250	SRFTEMP degF 90	SZCOR Off	TDEPTH ft 3859		

## Variable Description

BOREID : Borehole I.D.  
 BOTTEMP : Bottom Hole Temperature  
 CASEOD : Casing O.D.  
 CASETHCK : Casing Thickness  
 FLUIDDEN : Fluid Density  
 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

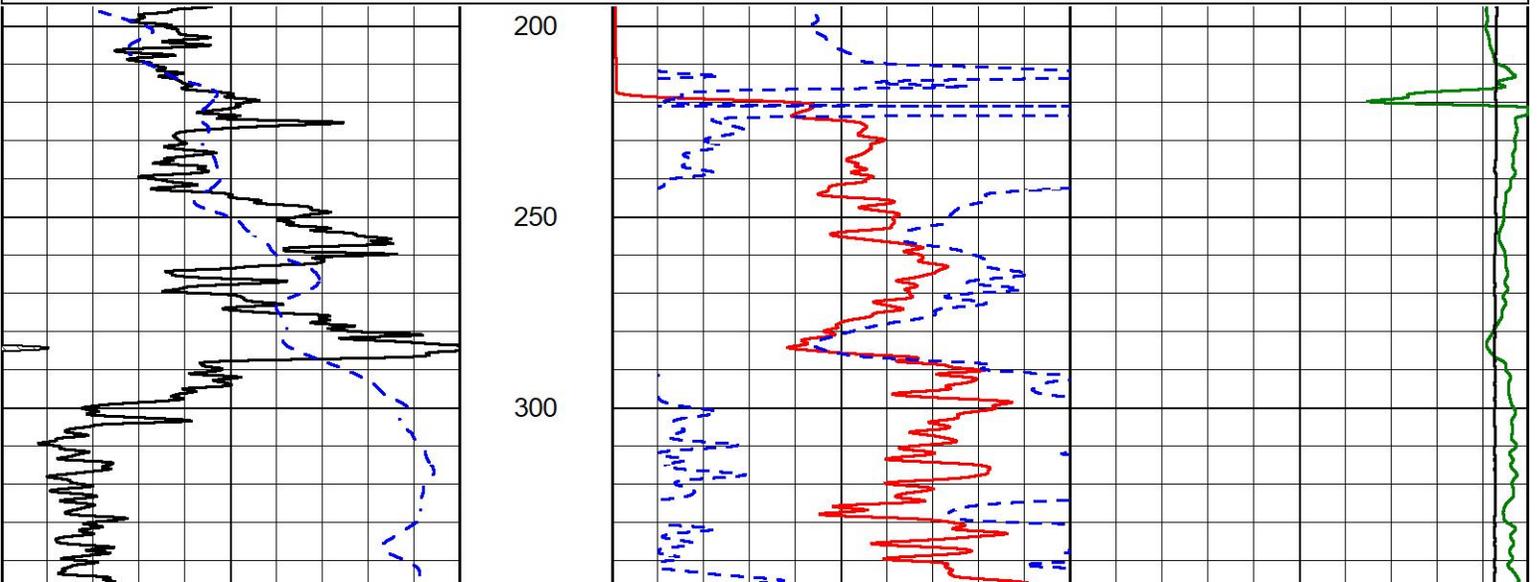


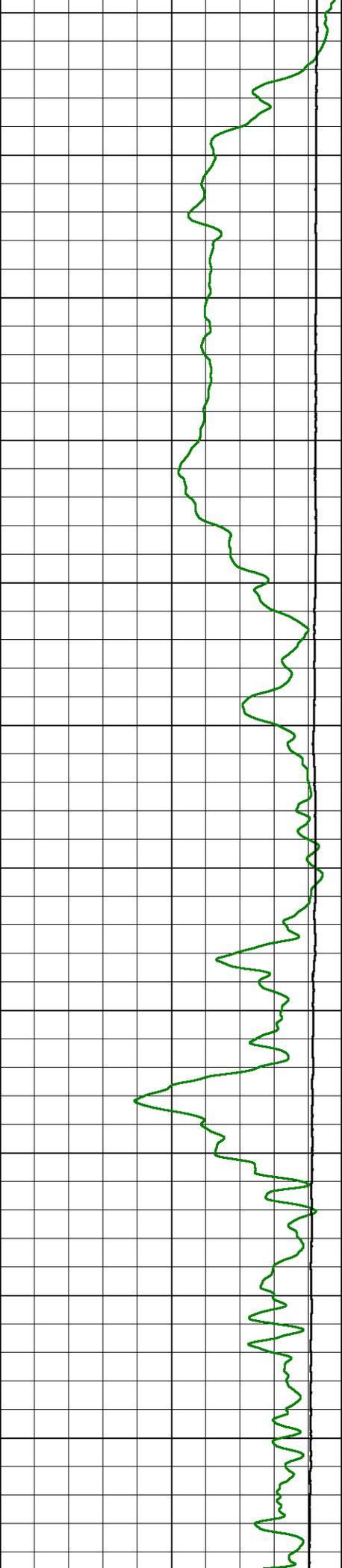
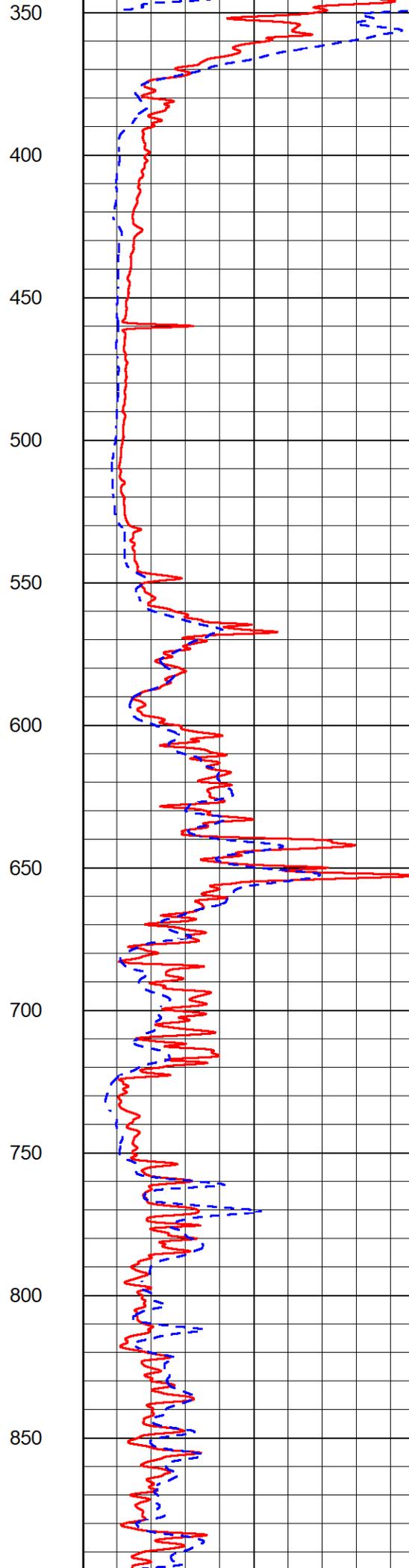
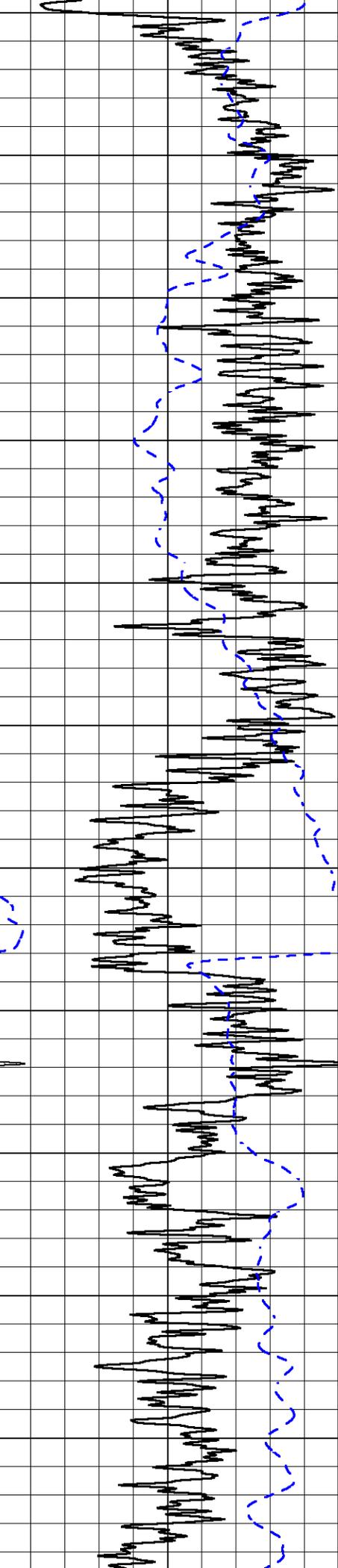
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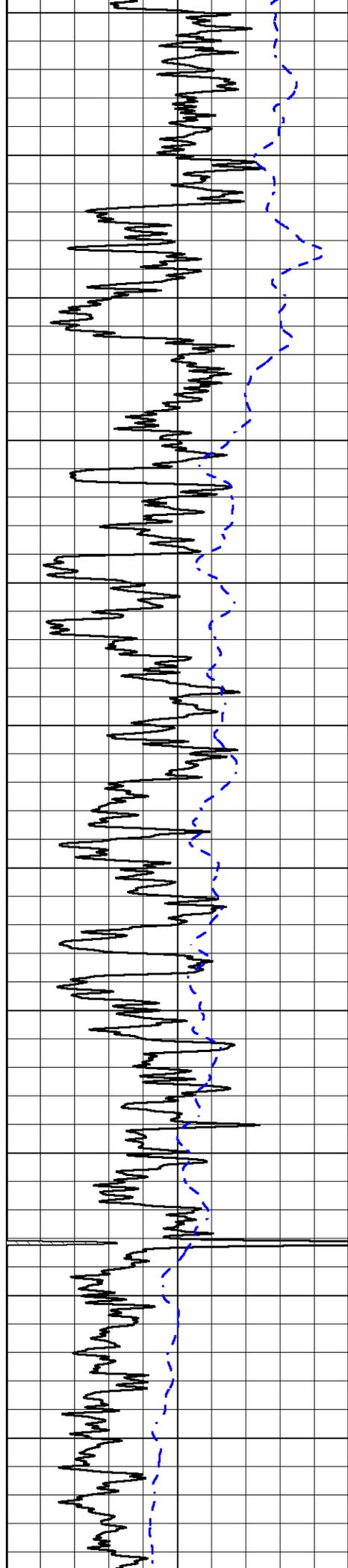
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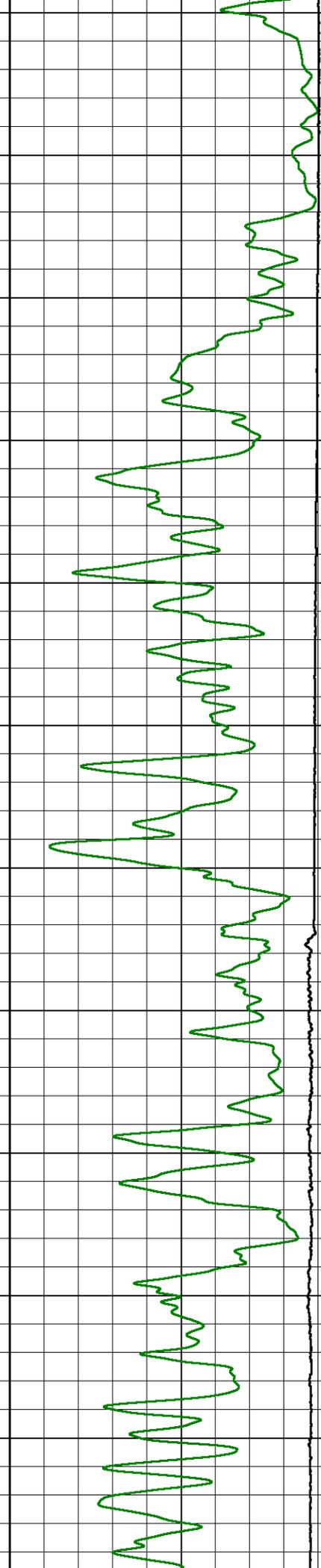
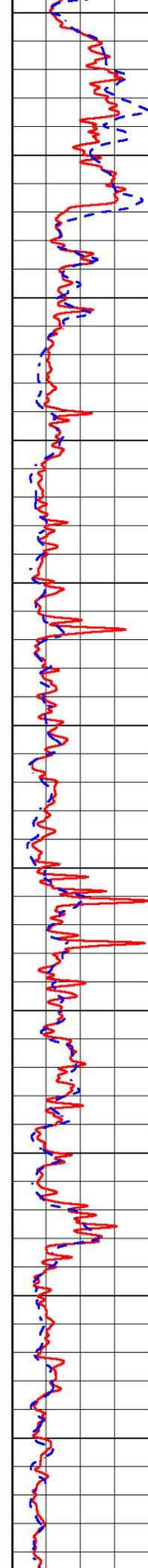
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-200	SP (mV)	0	15000	Line Tension (lb)	0
			0	Shallow Resistivity (Ohm-m)	50
			0	Deep Resistivity (Ohm-m)	50
			50	Shallow Resistivity (Ohm-m)	200
			50	Deep Resistivity (Ohm-m)	200

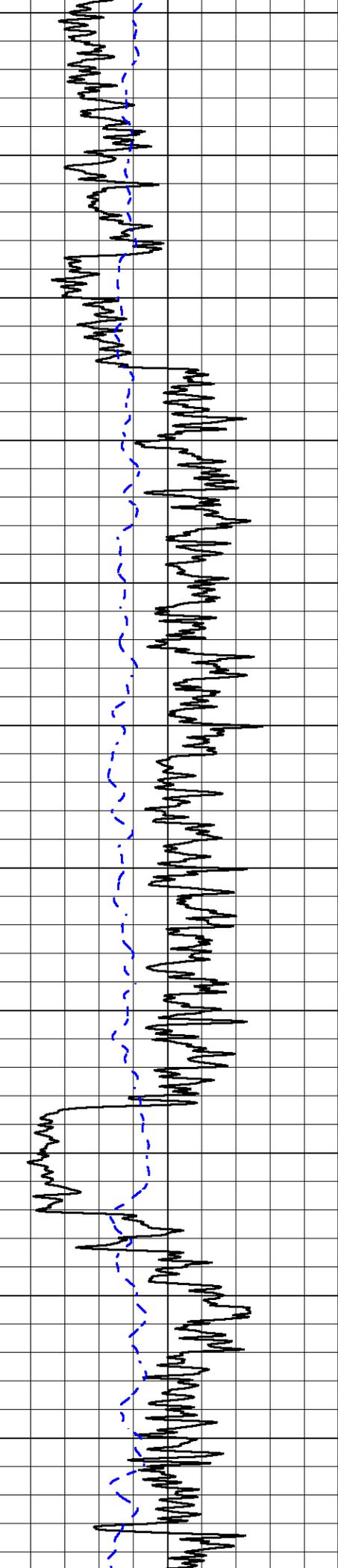




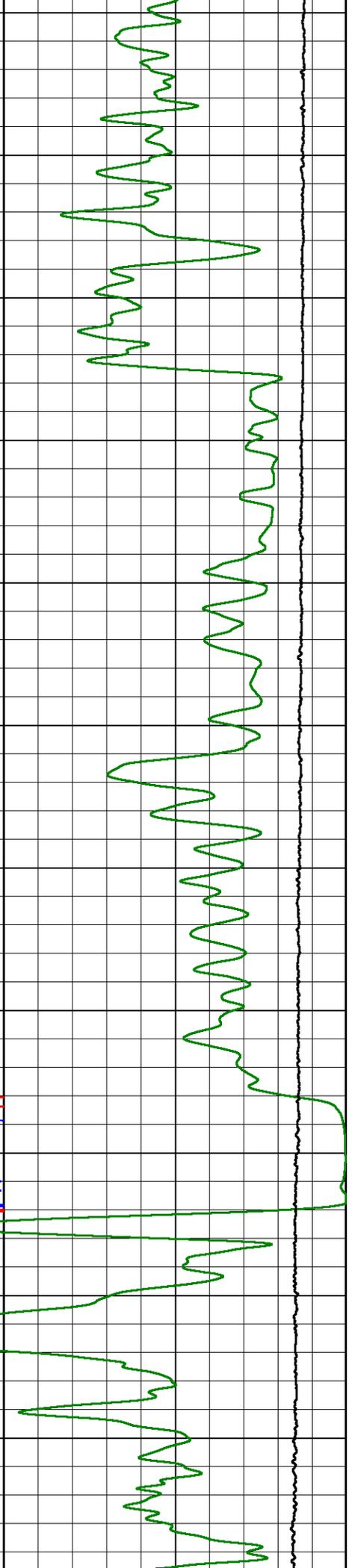
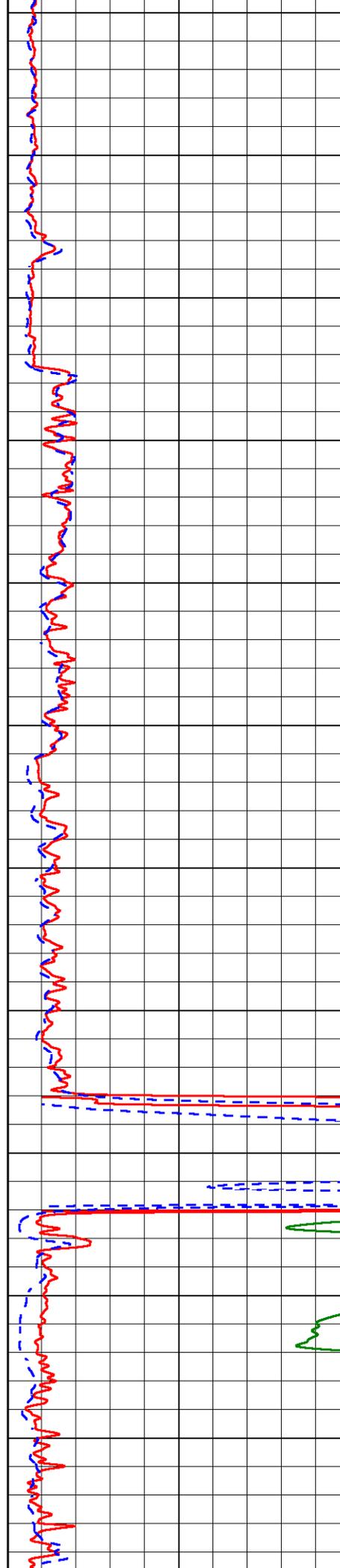


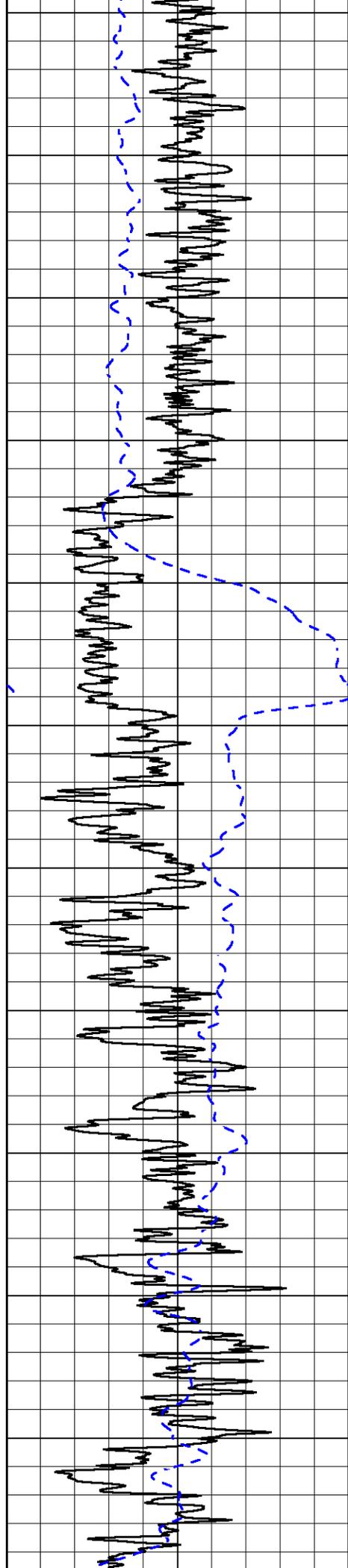
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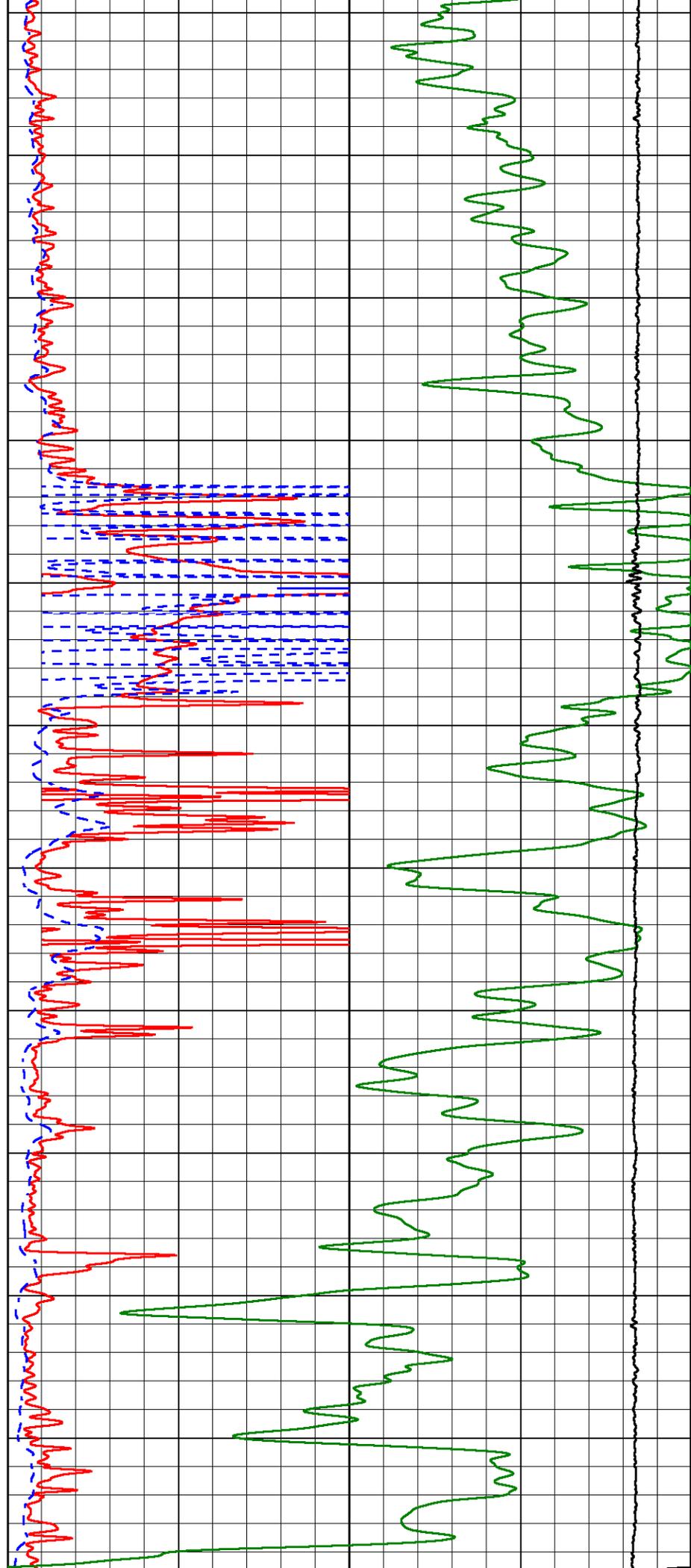


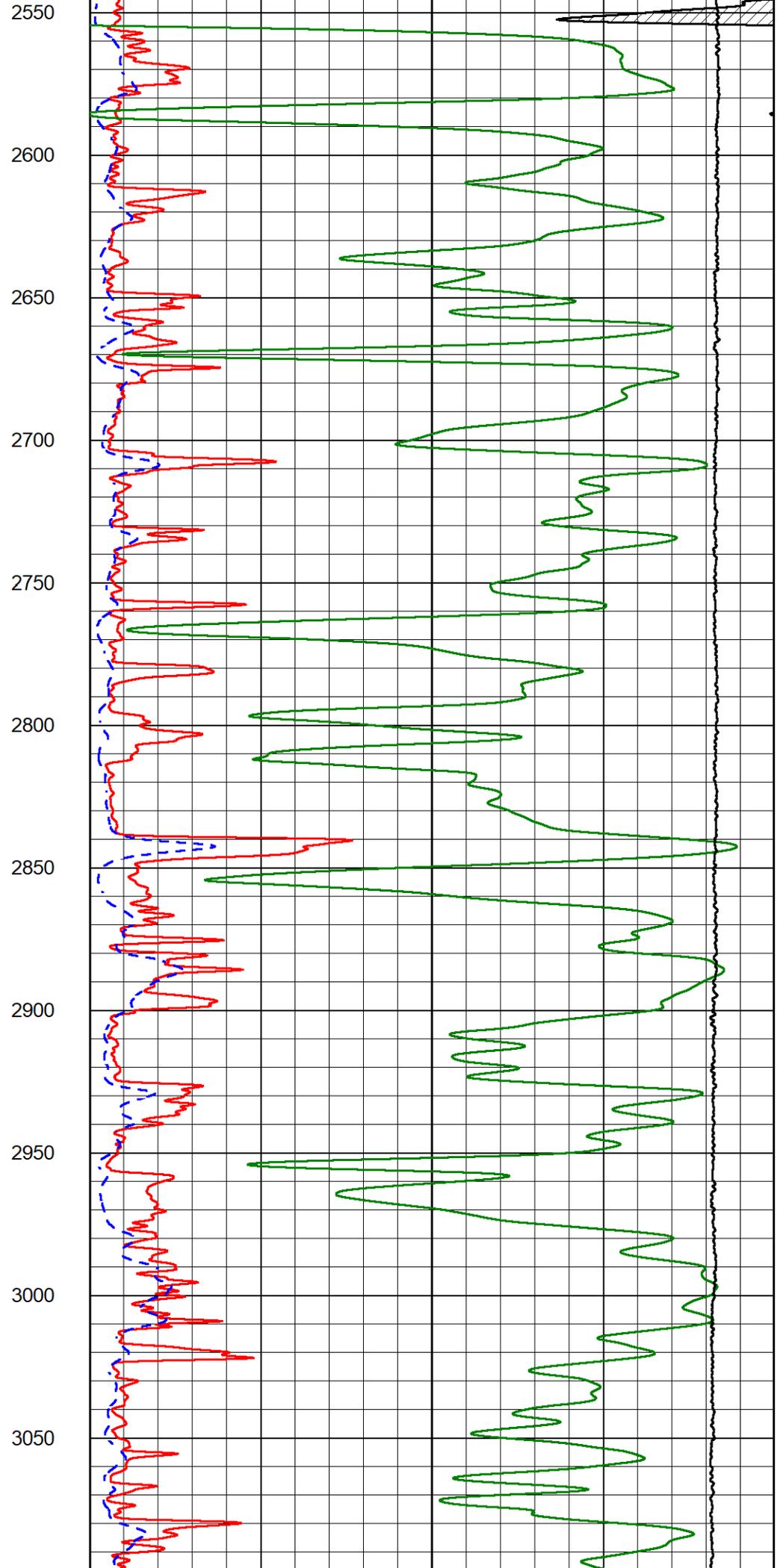
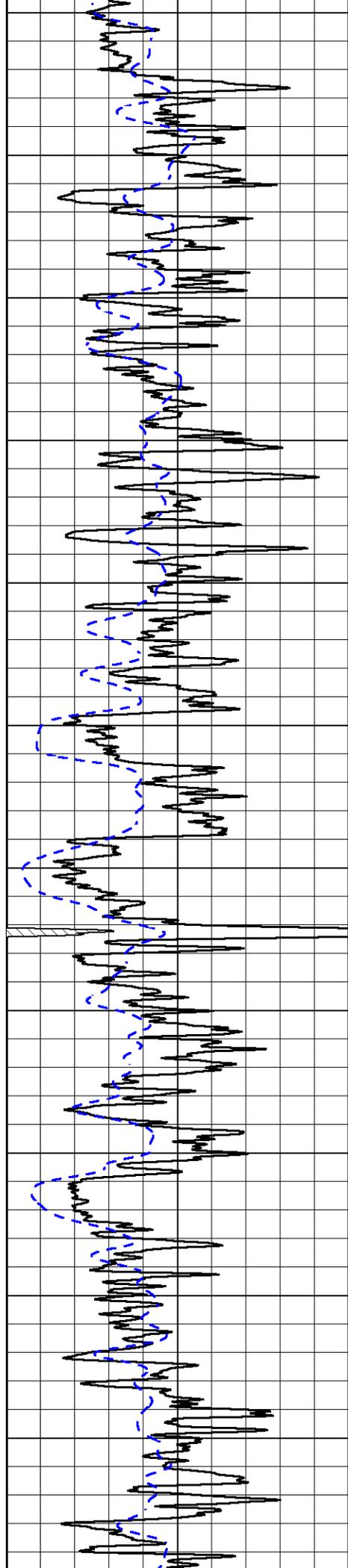
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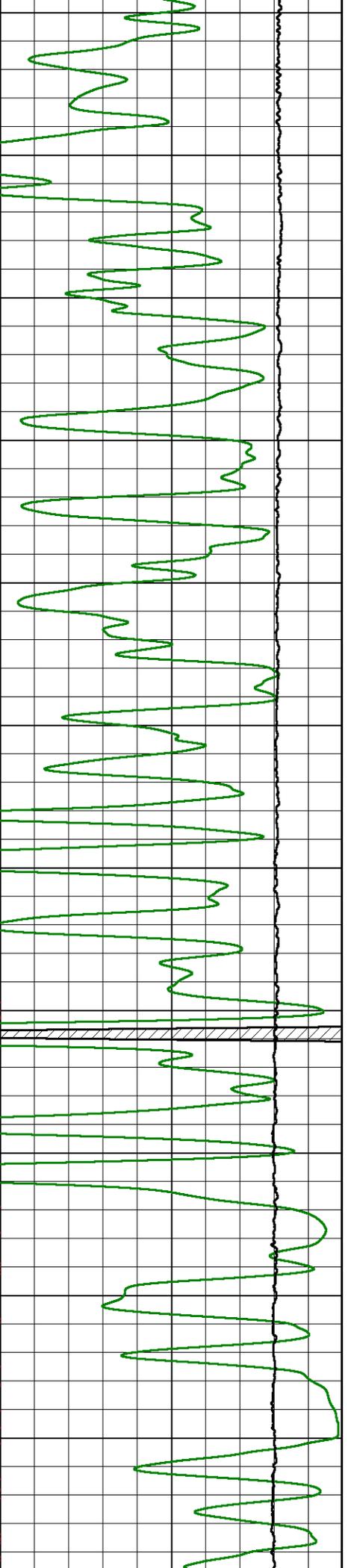
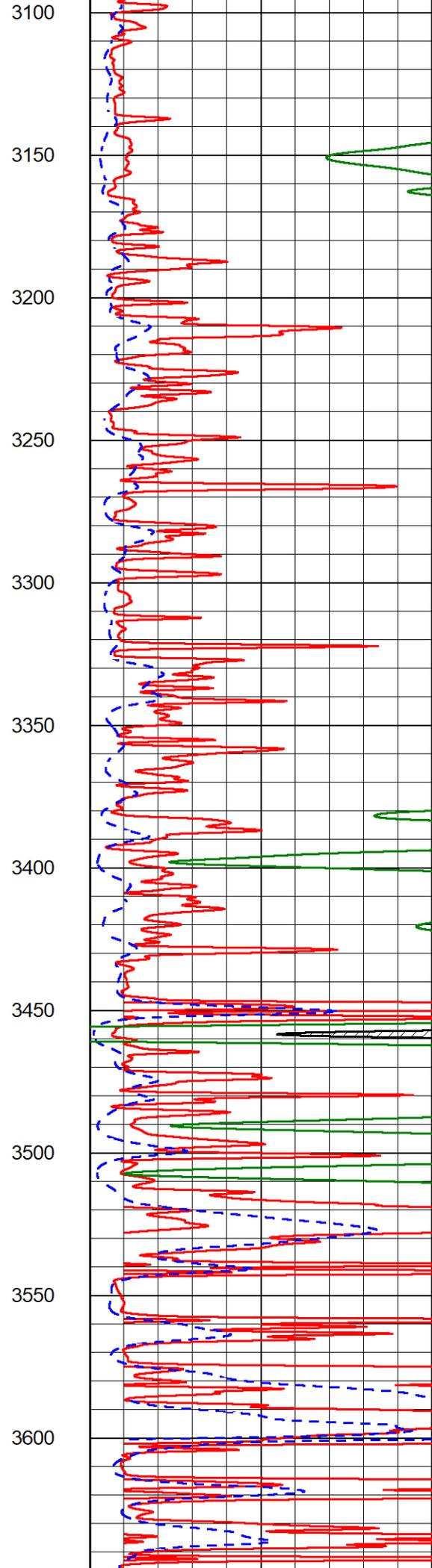
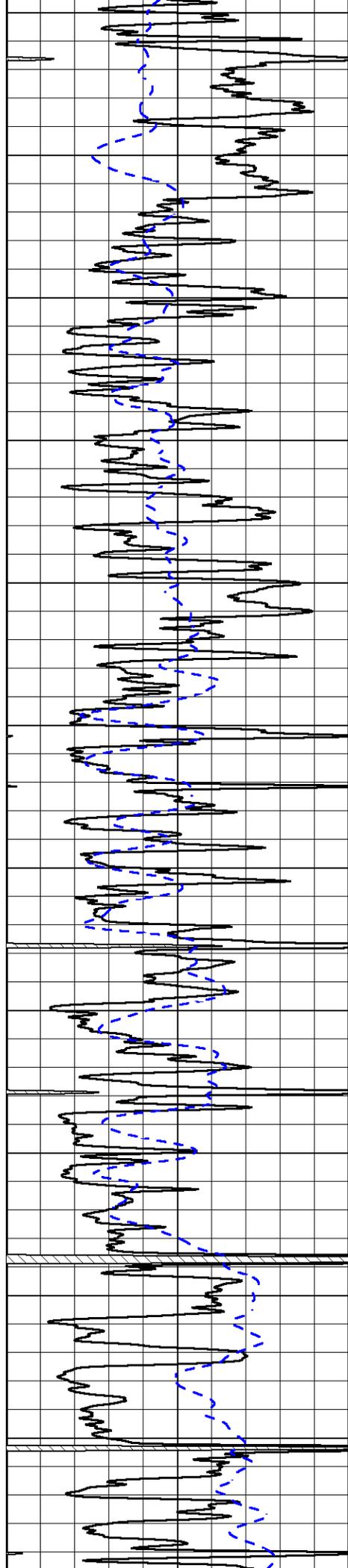


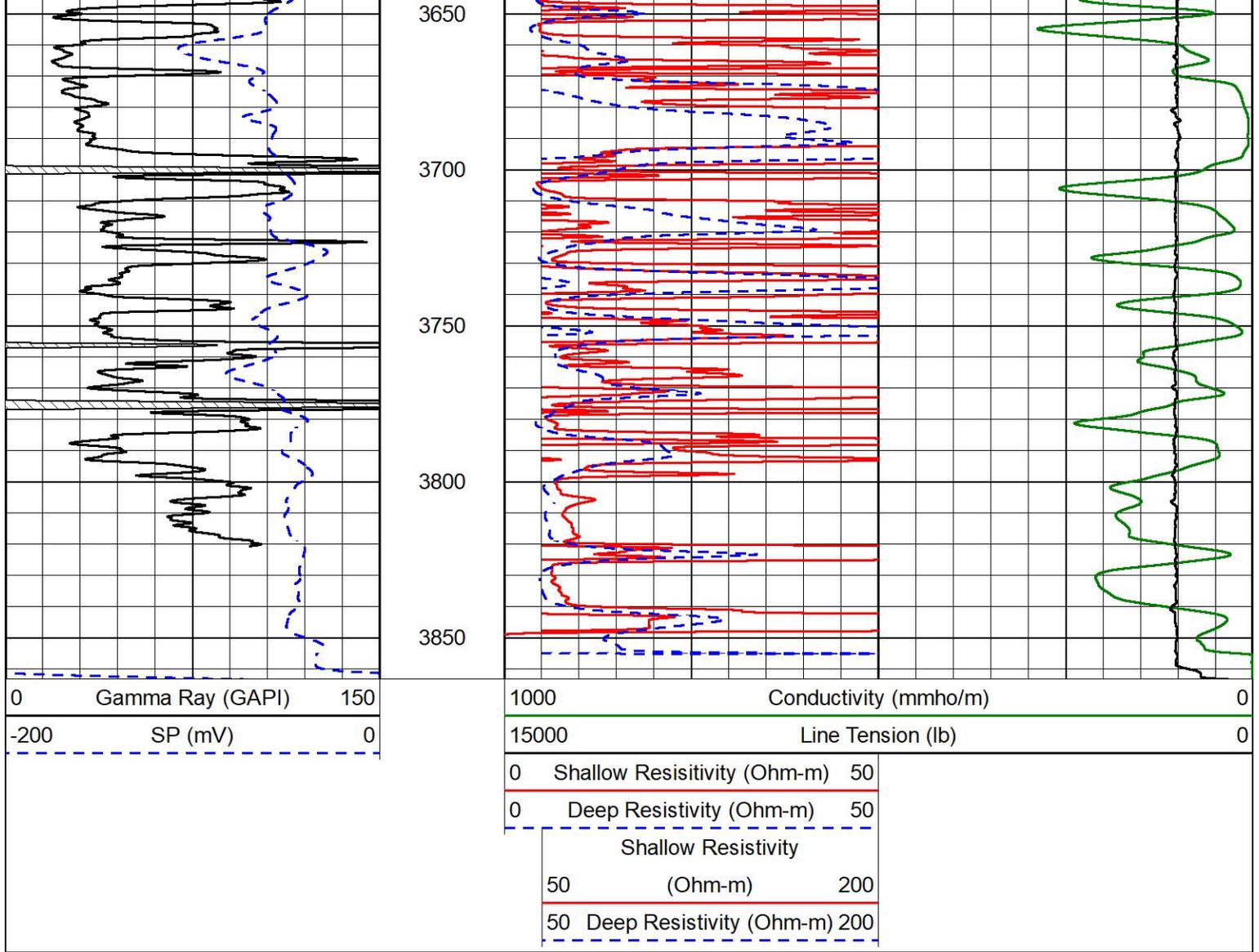


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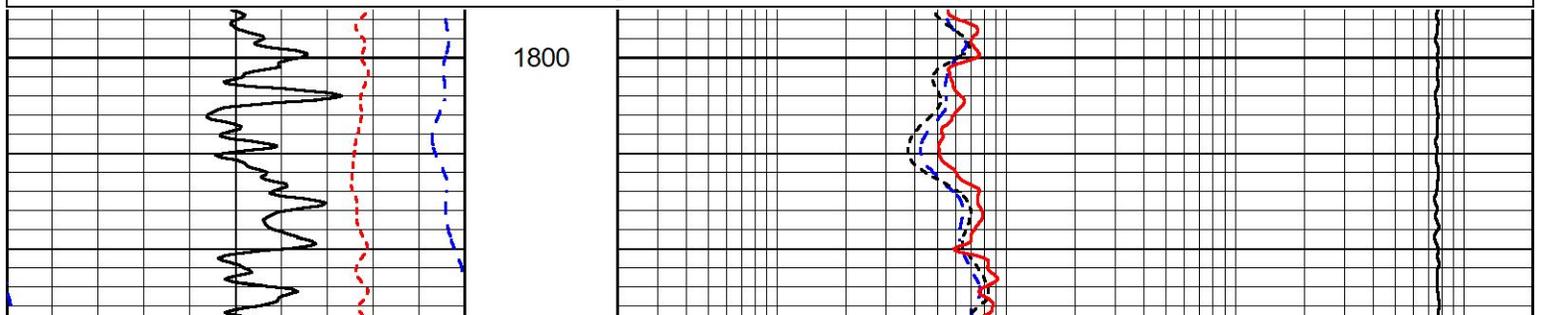
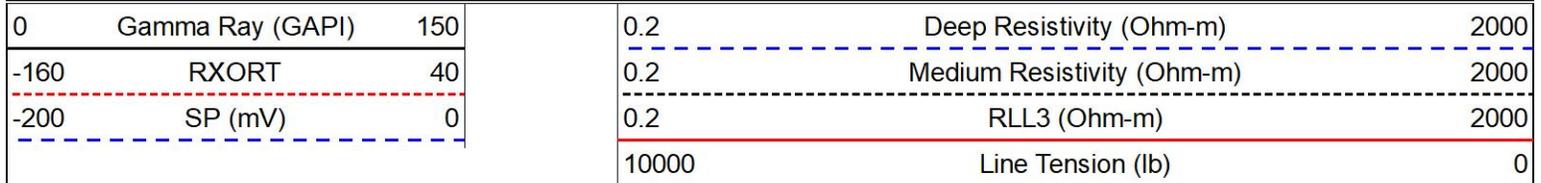


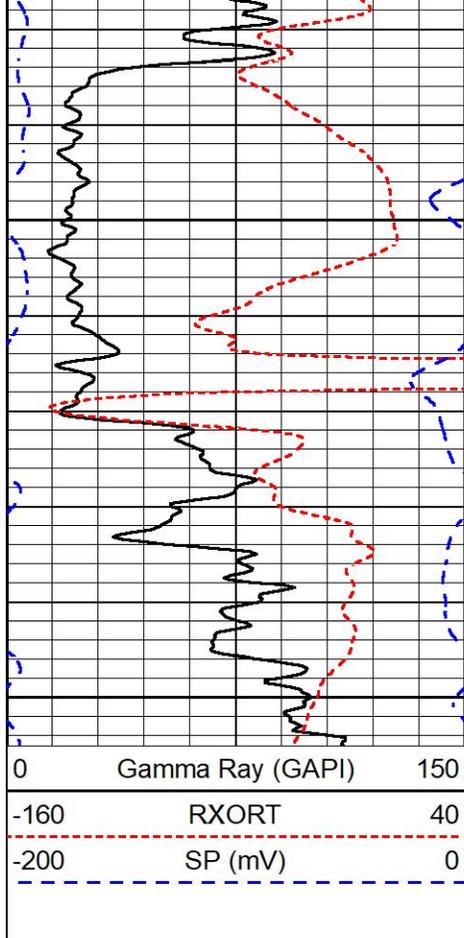


# ANHYDRITE SECTION

## MAIN PASS

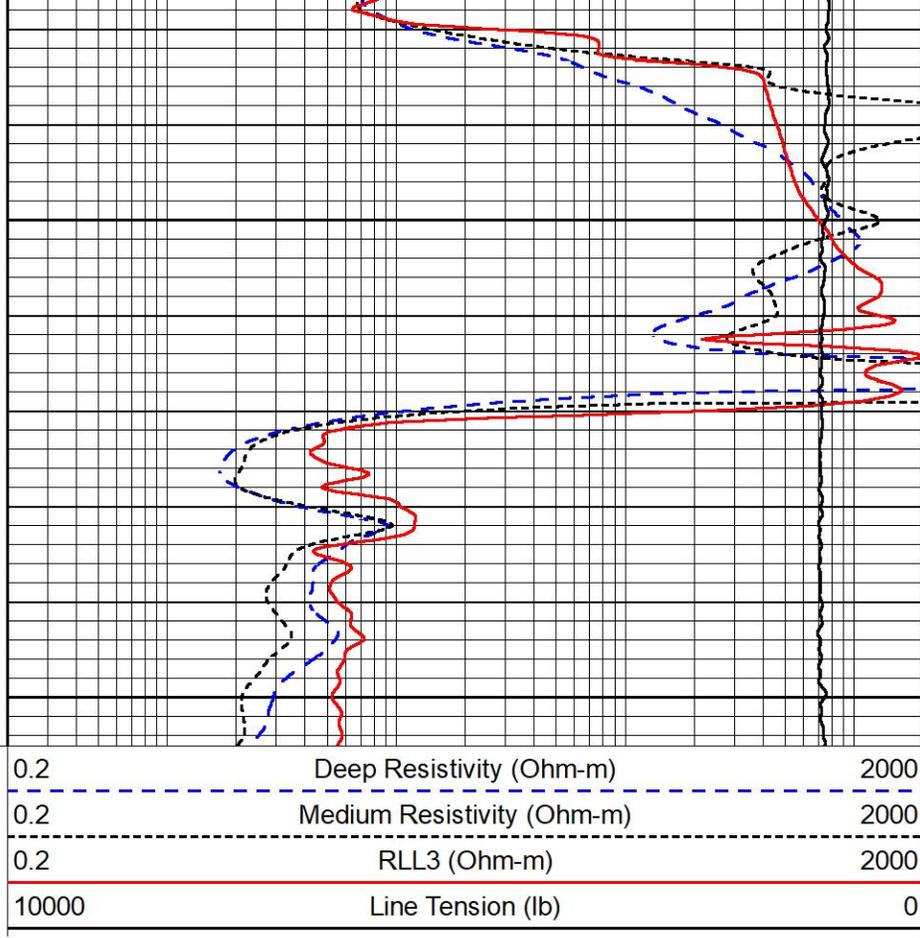
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1850

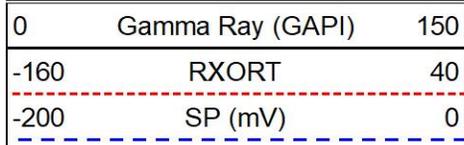
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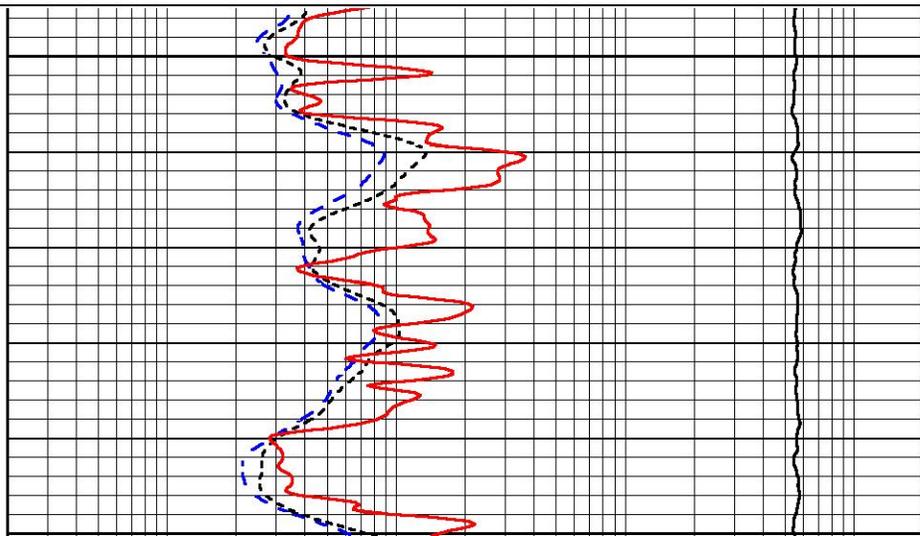
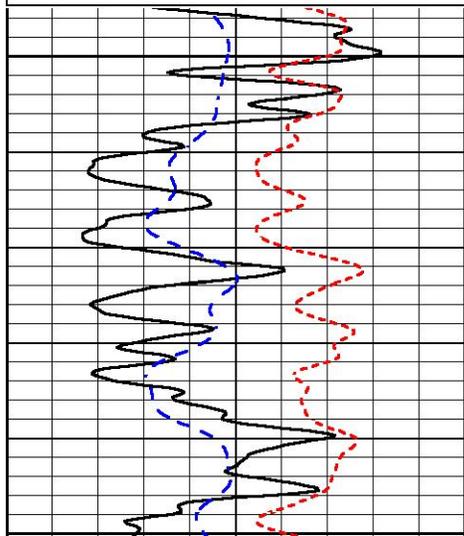
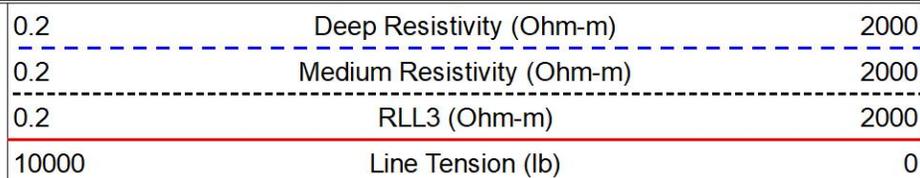
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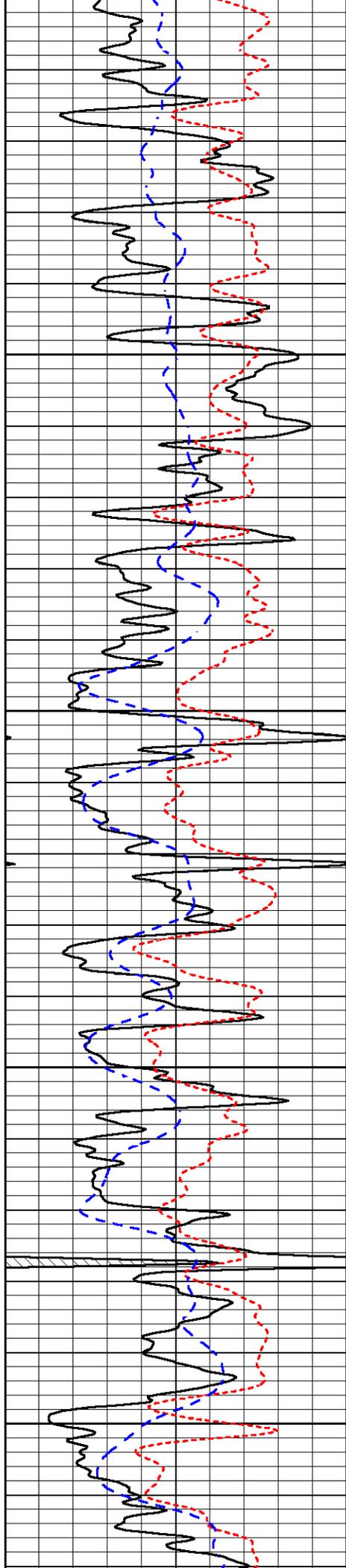
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3200

3250





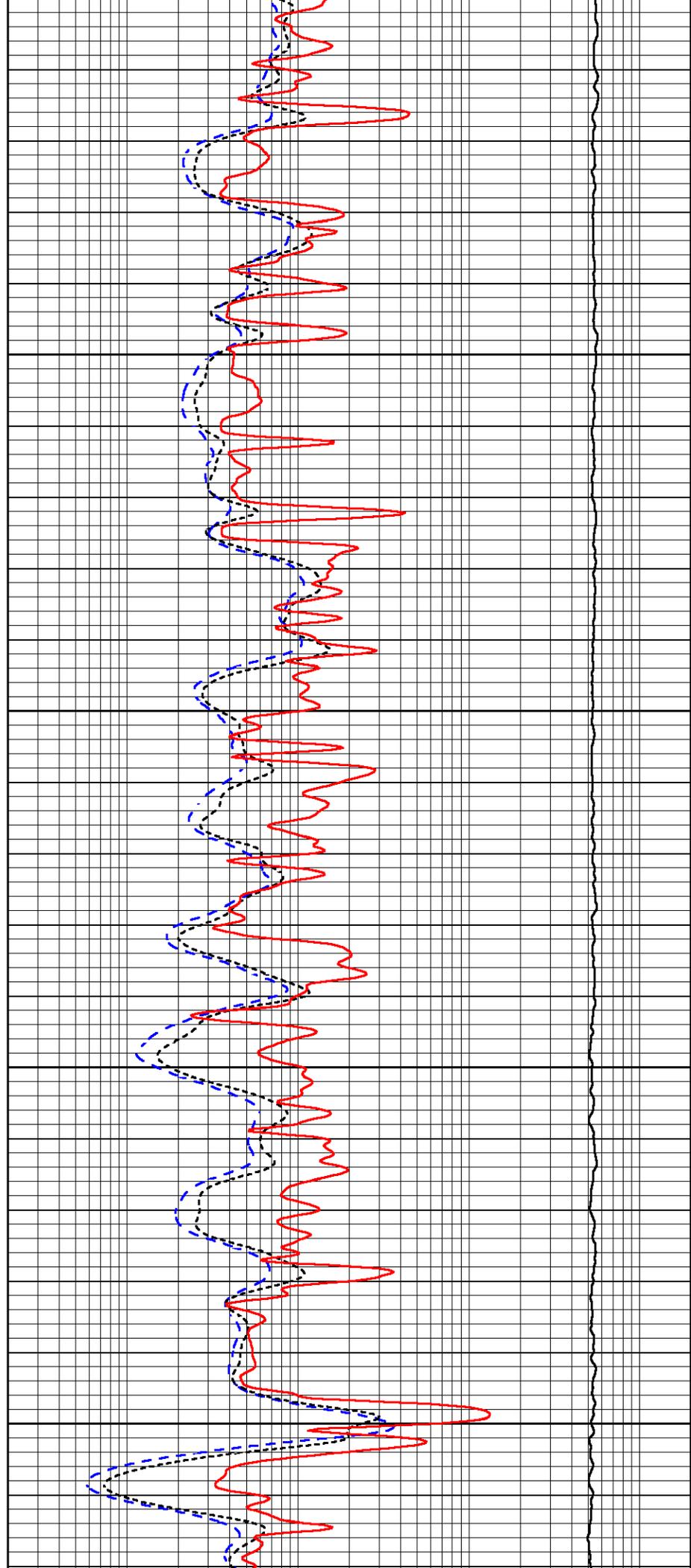
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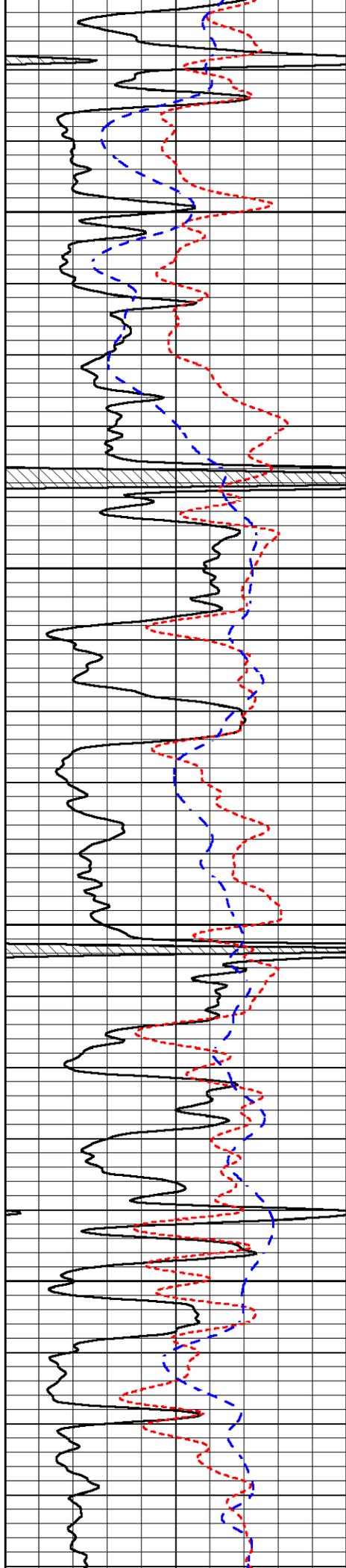
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3350

3400

3450



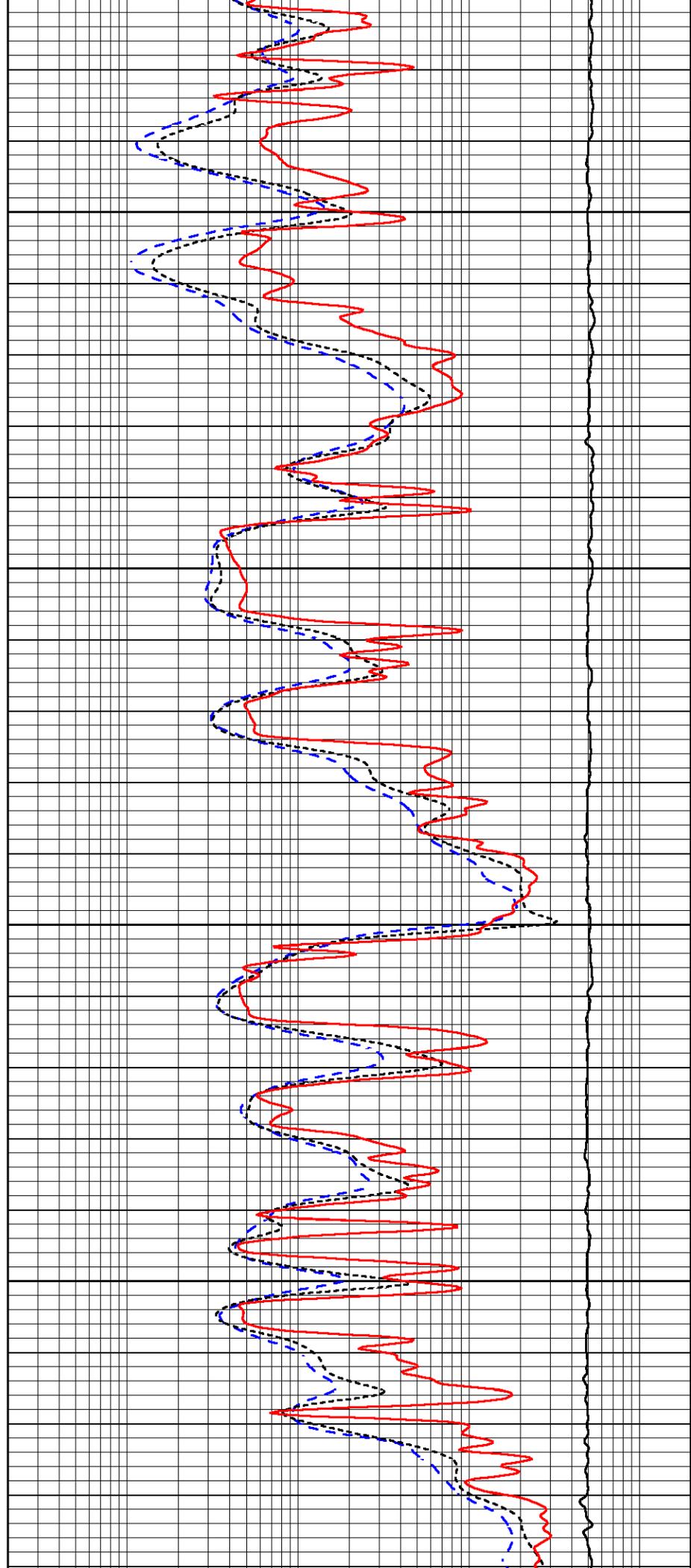


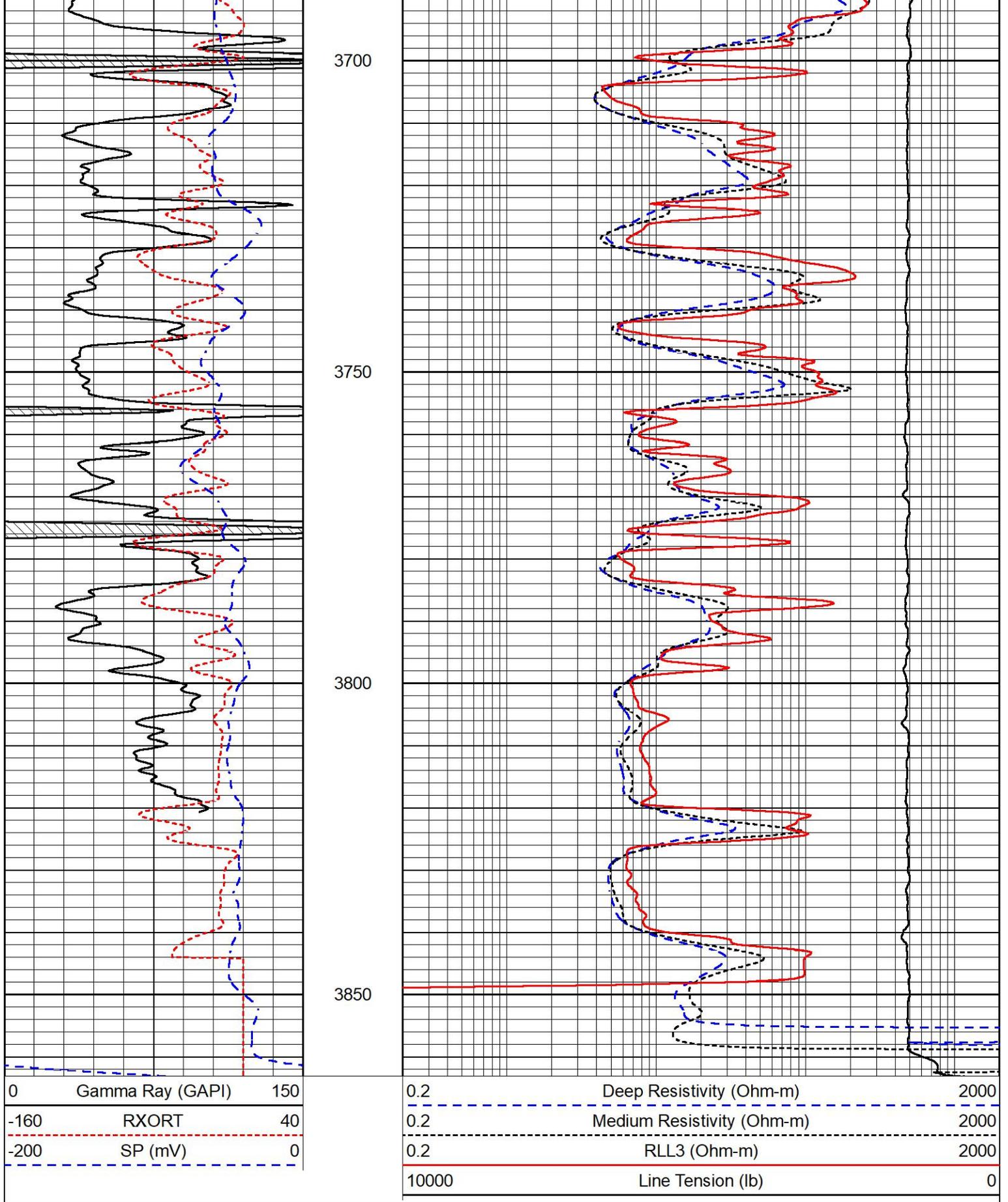
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3550

3600

3650





MIDWEST WIRELINE

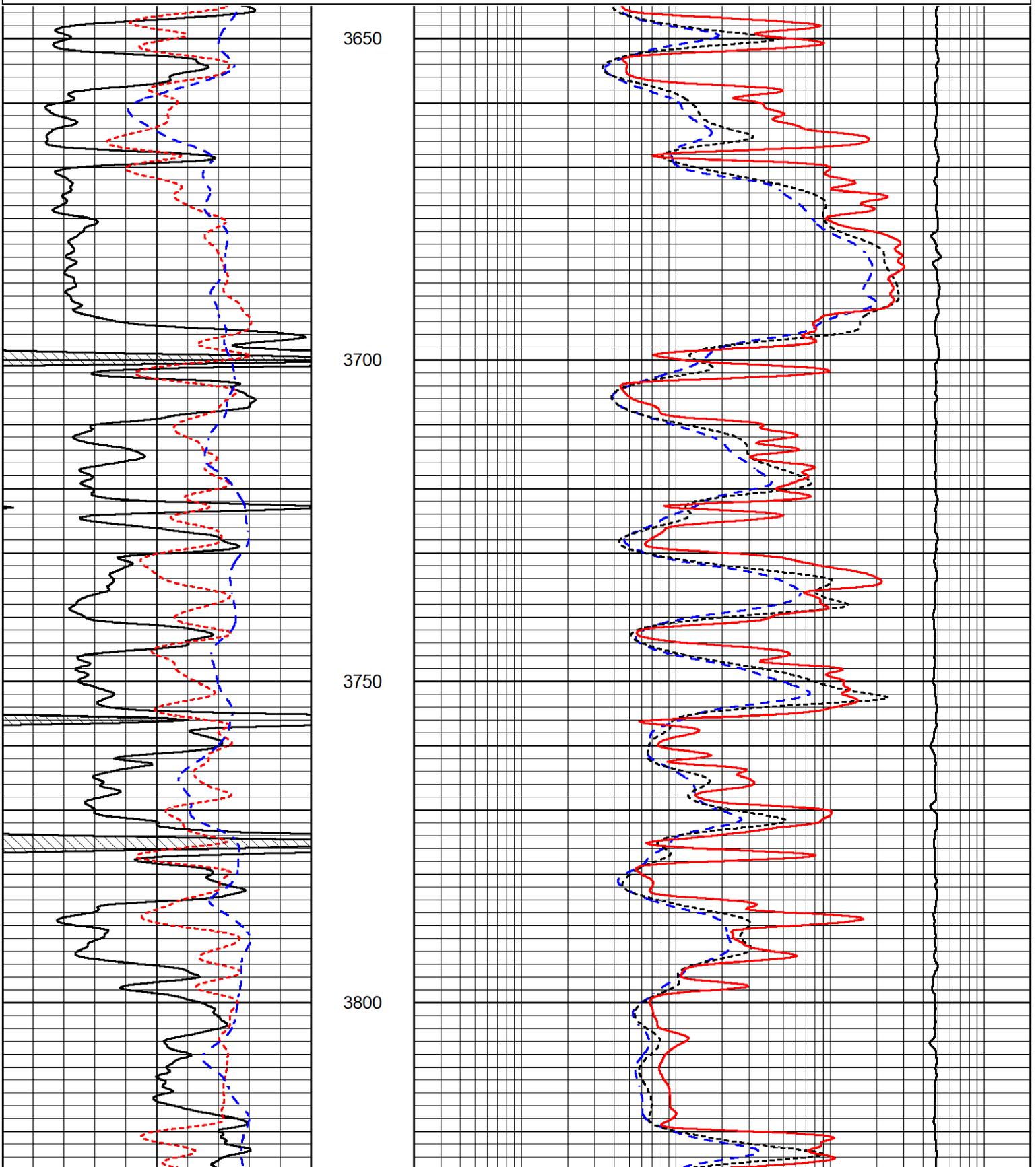
REPEAT SECTION

REPEAT PASS

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 Presentation Format \_dil  
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 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





Magnesium:  
 SS: 1459 1669 3829 2914 42 70 46 3 cps  
 LS: 4526 7550 13047 4982 98 135 93 13 cps

Aluminum+Iron:  
 SS: 553 719 1939 1750 37 72 45 2 cps  
 LS: 613 1297 2812 1404 60 146 96 4 cps

	Density			PE					
	Actual	Calibrated		Actual	Calibrated	Quality			
Background:									
SS:						0.245			
LS:						0.205			
Aluminum:									
SS:	2.6000	2.6000	g/cc			0.240			
LS:	2.6000	2.6000	g/cc			0.236			
Magnesium:									
SS:	1.6800	1.6800	g/cc	2.5700	2.5700	0.210			
LS:	1.6800	1.6800	g/cc	2.5700	2.5700	0.184			
Aluminum+Iron:									
SS:						6.1800	0.228		
LS:						6.1800	0.206		

Before Survey  
 Performed: Wed Feb 9 13:15:42 2022  
 SS: 0 0 0 0 0 0 0 0 cps  
 LS: 1370 1580 3705 3037 48 80 50 4 cps

After Survey  
 Performed: Wed Feb 9 13:16:02 2022  
 SS: 0 0 0 0 0 0 0 0 cps  
 LS: 1400 1600 3800 3100 60 100 70 6 cps

Caliper:	Reference:	Reading:
Small Ring:	6.0 in	0.2
Large Ring:	15.0 in	0.8
Gain:	16.161	
Offset:	1.080	

Compensated Neutron Calibration Report

Serial Number: 207  
 Tool Model: 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
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Detector:	Readings	Measured	Target
1) Short Space Long Space	cps cps	pu	pu
2) Short Space Long Space	cps cps	pu	pu
3) Short Space Long Space	cps cps	pu	pu

Gamma Ray Calibration Report

Serial Number:	107	
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



Company	Cobalt Energy LLC
Well	Sisters Unit #1-2
Field	Brassfield South
County	Graham
State	Kansas