



MIDWEST WIRELINE

# DUAL INDUCTION LOG

Company **Ritchie Exploration, Inc.**  
 Well **Tubbs Unit #1**  
 Field **Wildcat**  
 County **Logan** State **Kansas**

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Location: **API #: 15-109-21615-00-00**  
**218' FNL & 159' FEL**  
 SEC 19 TWP 11S RGE 35W  
 Permanent Datum **Ground Level** Elevation **3273'**  
 Log Measured From **Kelly Bushing**  
 Drilling Measured From **Kelly Bushing**  
 Other Services **CNL/CDL MEL/BHCS**

Date	4/30/2021
Run Number	One
Depth Driller	4950'
Depth Logger	4950'
Bottom Logged Interval	4949'
Top Log Interval	200'
Casing Driller	8.625" @ 208'
Casing Logger	214'
Bit Size	7.875"
Type Fluid in Hole	Chemical
Salinity, ppm CL	5000
Density / Viscosity	9.4 58
pH / Fluid Loss	10.0 8.8
Source of Sample	FLOWLINE
Rm @ Meas. Temp	.60 @ 71
Rmt @ Meas. Temp	.45 @ 71
Rmc @ Meas. Temp	.81 @ 71
Source of Rmf / Rmc	CHARTS
Rm @ BHT	.34 @ 126
Operating Rig Time	4 Hours
Max Rec. Temp. F	126 Deg/F
Equipment Number	P-24
Location	HAYS
Recorded By	J. Henrickson
Witnessed By	Max Lovely

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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.

Winona Kansas  
 2 North, West Into

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

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

<b>Your Midwest Wireline Crew</b>	<b>This Log Record Was Witnessed By</b>
Engineer: <b>J. Henrickson</b>	Primary Witness: <b>Max Lovely</b>
Operator: <b>M. Hiss</b>	Secondary Witness:
Operator:	Secondary Witness:
Operator:	Secondary Witness:

# Log Variables

DatabaseC:\ProgramData\Warrior\Data\ritchie\_tubbs\_unit\_1.db  
Dataset field/well/stackml/pass4.1/\_vars\_

## Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	126	5.5	0	1	2	2.71
NPORSEL	PERFS	SNDERR mmho/m	SNDERRM mmho/m	SPSHIFT mV	SRFTEMP degF	SZCOR	TDEPTH ft
Limestone	No	0	0	285	61	Off	4950

## 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

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)	
GR	44.50		GR-M&W (233-M&W)	3.00	3.50	50.00	
CNLSC	41.40		CNT-M&W (207-MW)	5.50	3.50	100.00	
CNSSC	40.65						
				CDL-M&W (817-947)	8.50	4.00	250.00
LSD	32.35						
DCAL	32.33						
SSD	31.85						
				ML-PSI UDM ML (UDM-01) Stackable Microlog Tools	11.50	4.00	215.00
MCAL	20.87						
MI	20.87						
MN	20.87						
RLL3F	15.80						

RLL3	15.80				
CILD	8.00		DIL-PSI HIGH TEMP (952-828)	18.50	3.50
CILM	4.70				220.00
SP	0.20				

Dataset: ritchie\_tubbs\_unit\_1.db: field/well/stackml/pass4.1  
 Total length: 47.00 ft  
 Total weight: 835.00 lb  
 O.D.: 4.00 in

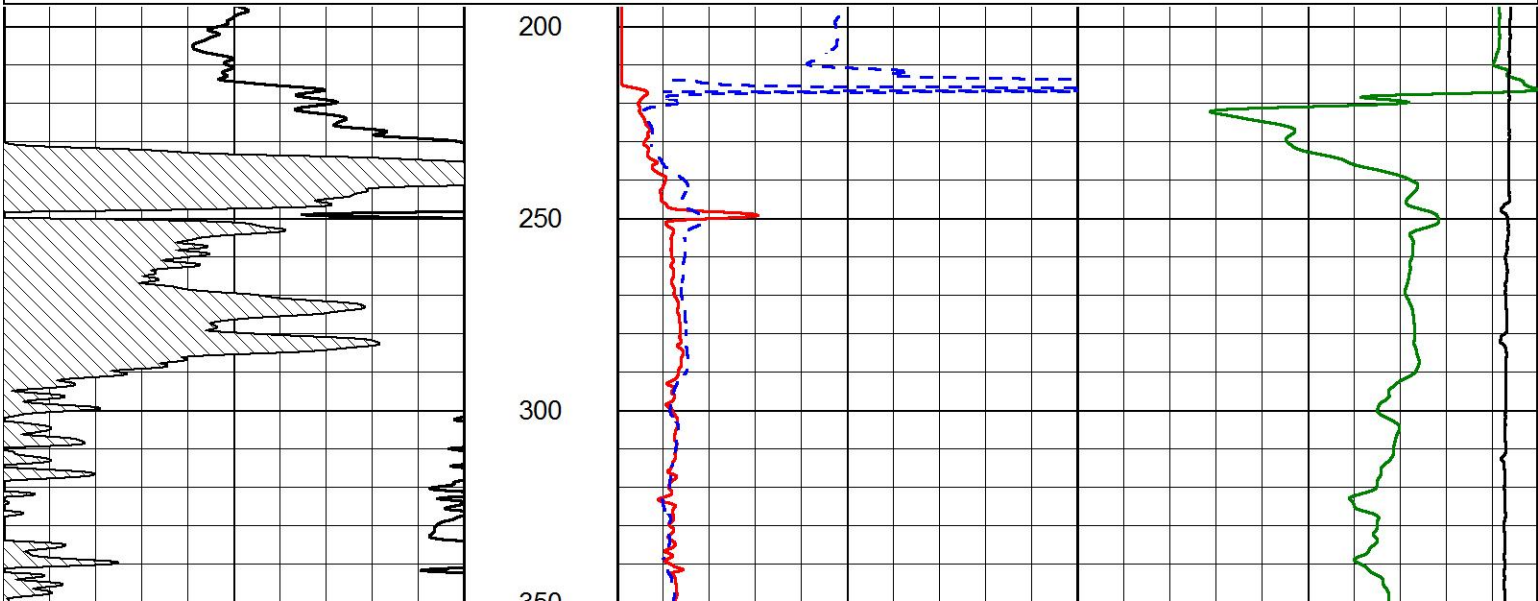


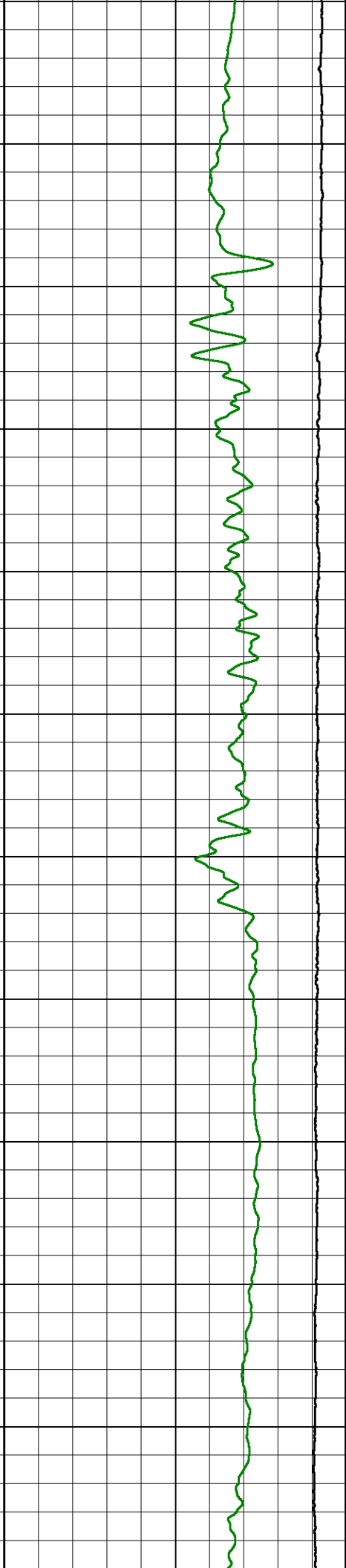
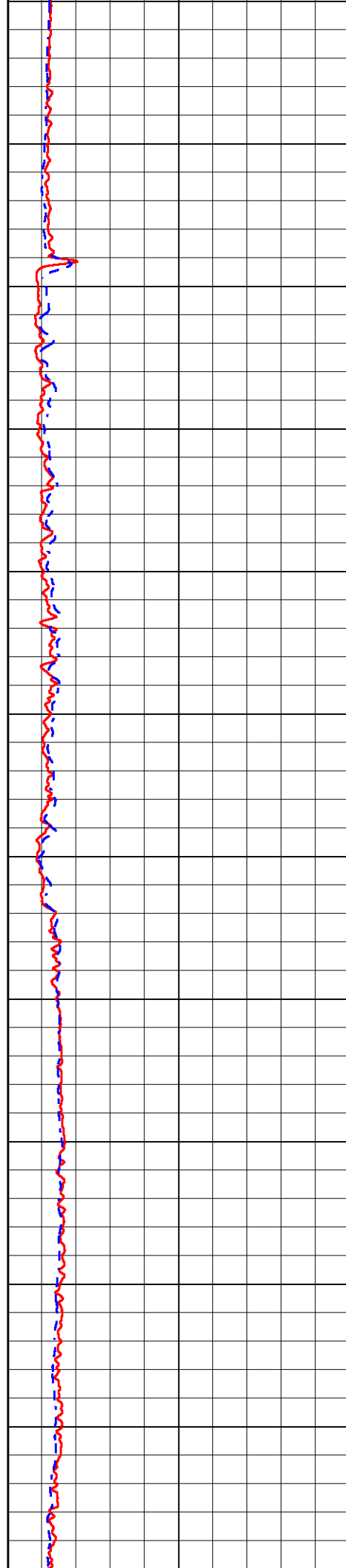
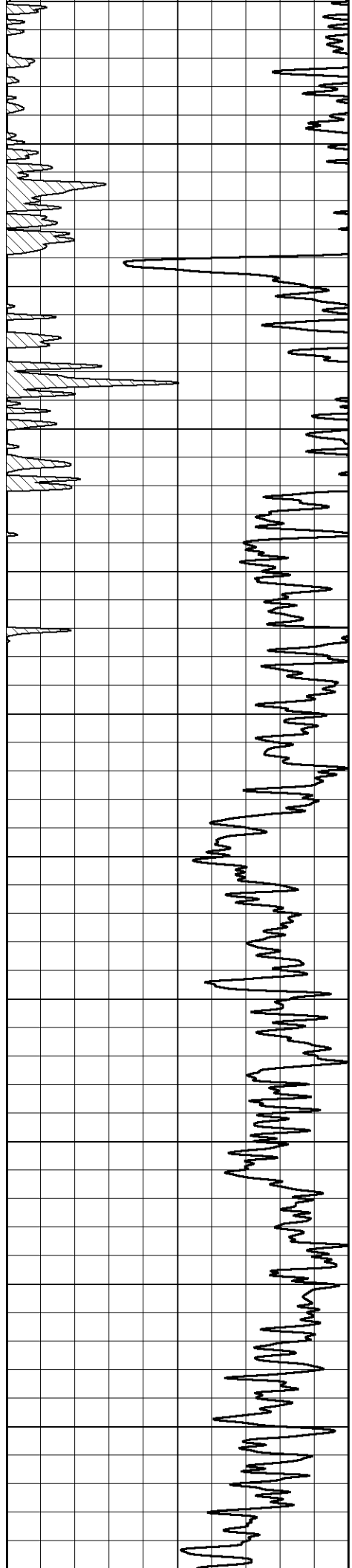
## 2" SCALE RESISTIVITY

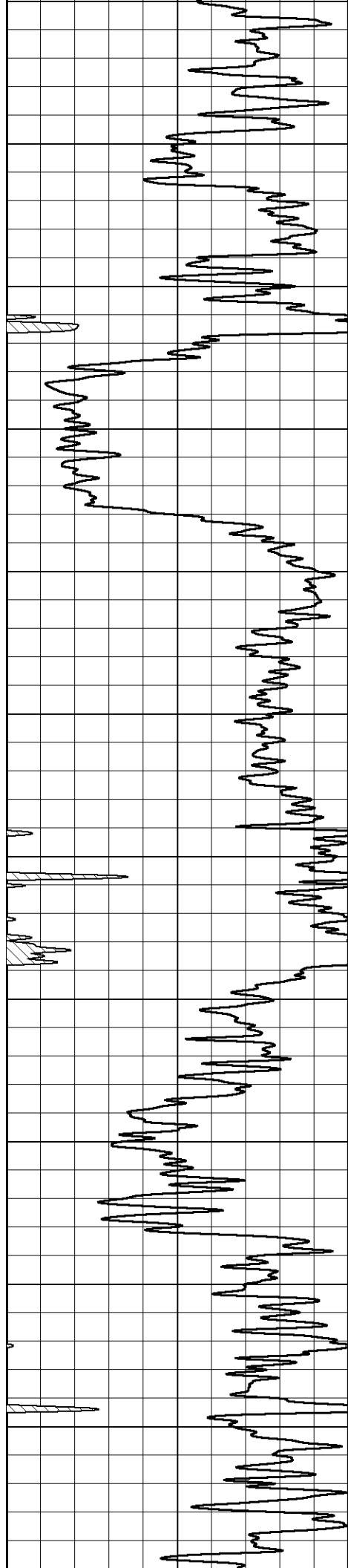
### MAIN PASS

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 Presentation Format \_dil2in  
 Dataset Creation Sat May 01 01:27:32 2021  
 Charted by Depth in Feet scaled 1:600

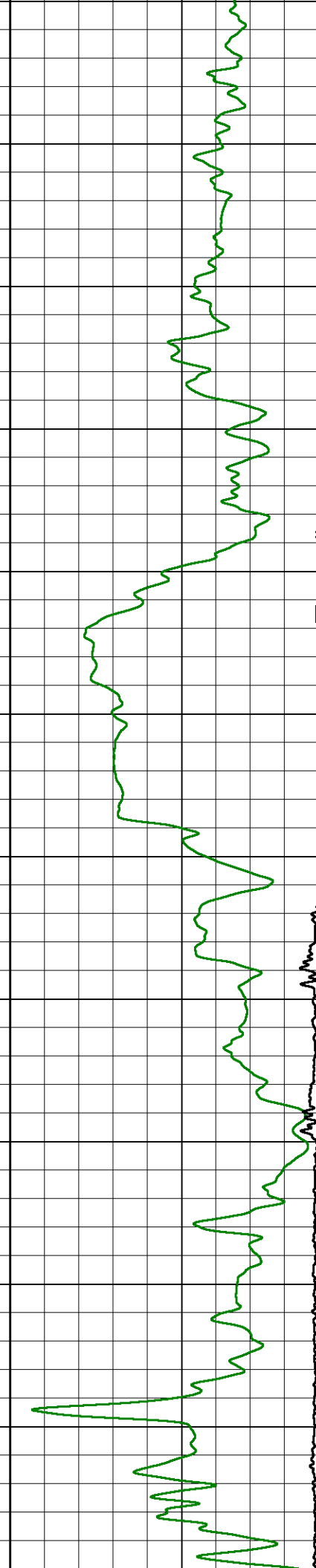
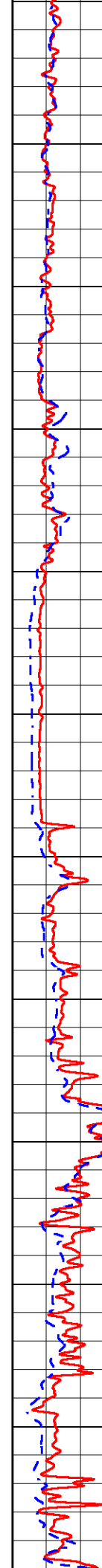
GAMMA RAY  0 (GAPI) 150	1000	CONDUCTIVITY (mmho/m)	0
	15000	Line Tension (lb)	0
	0	RLL3 (Ohm-m)	50
	0	RILD (Ohm-m)	50
	50	RLL3 (Ohm-m)	200
	50	Deep Resistivity (Ohm-m)	200

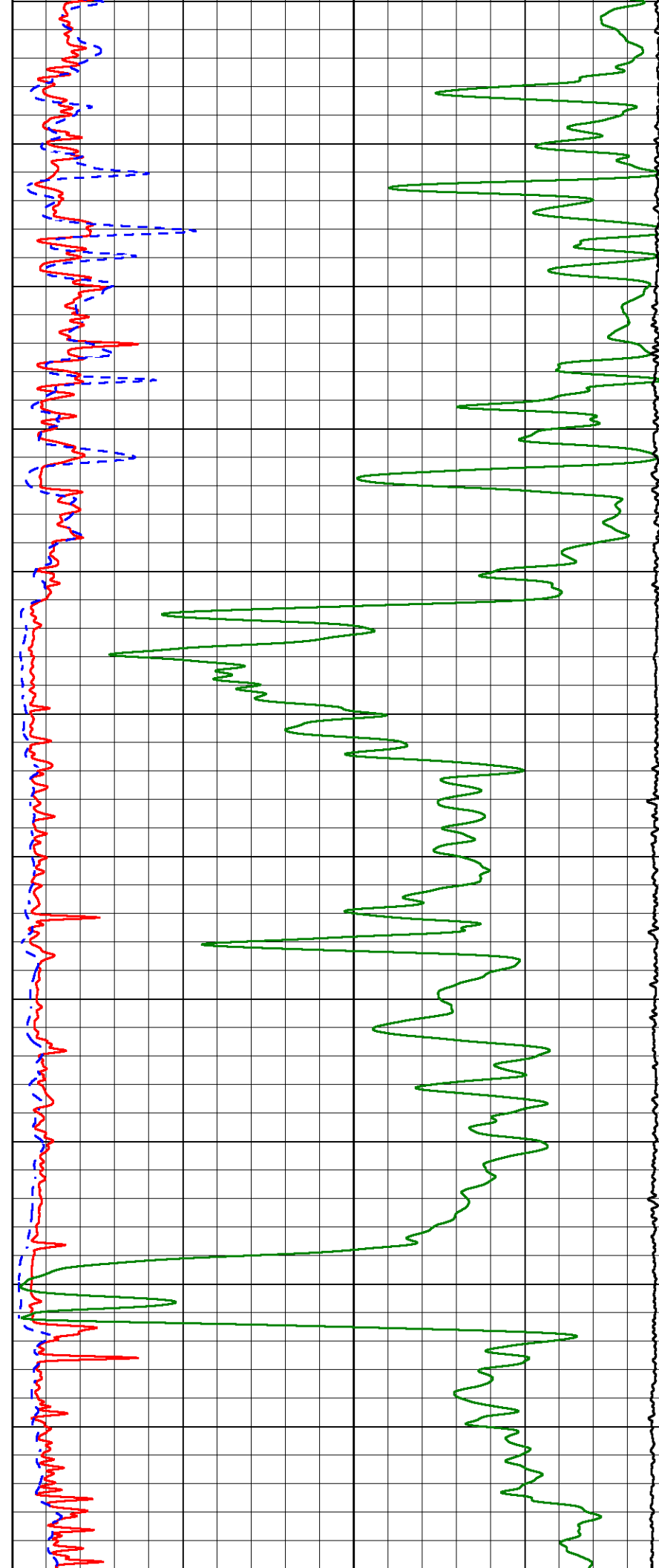
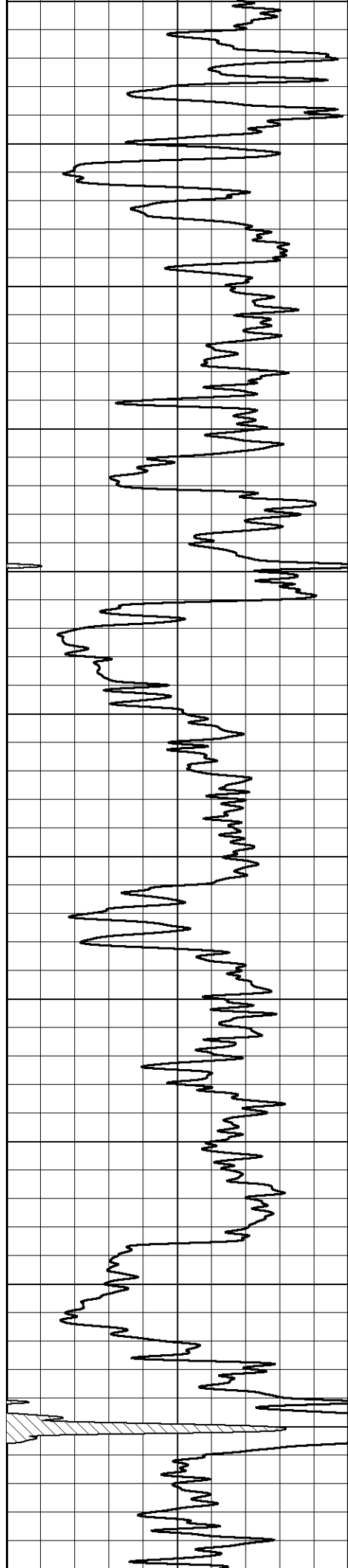


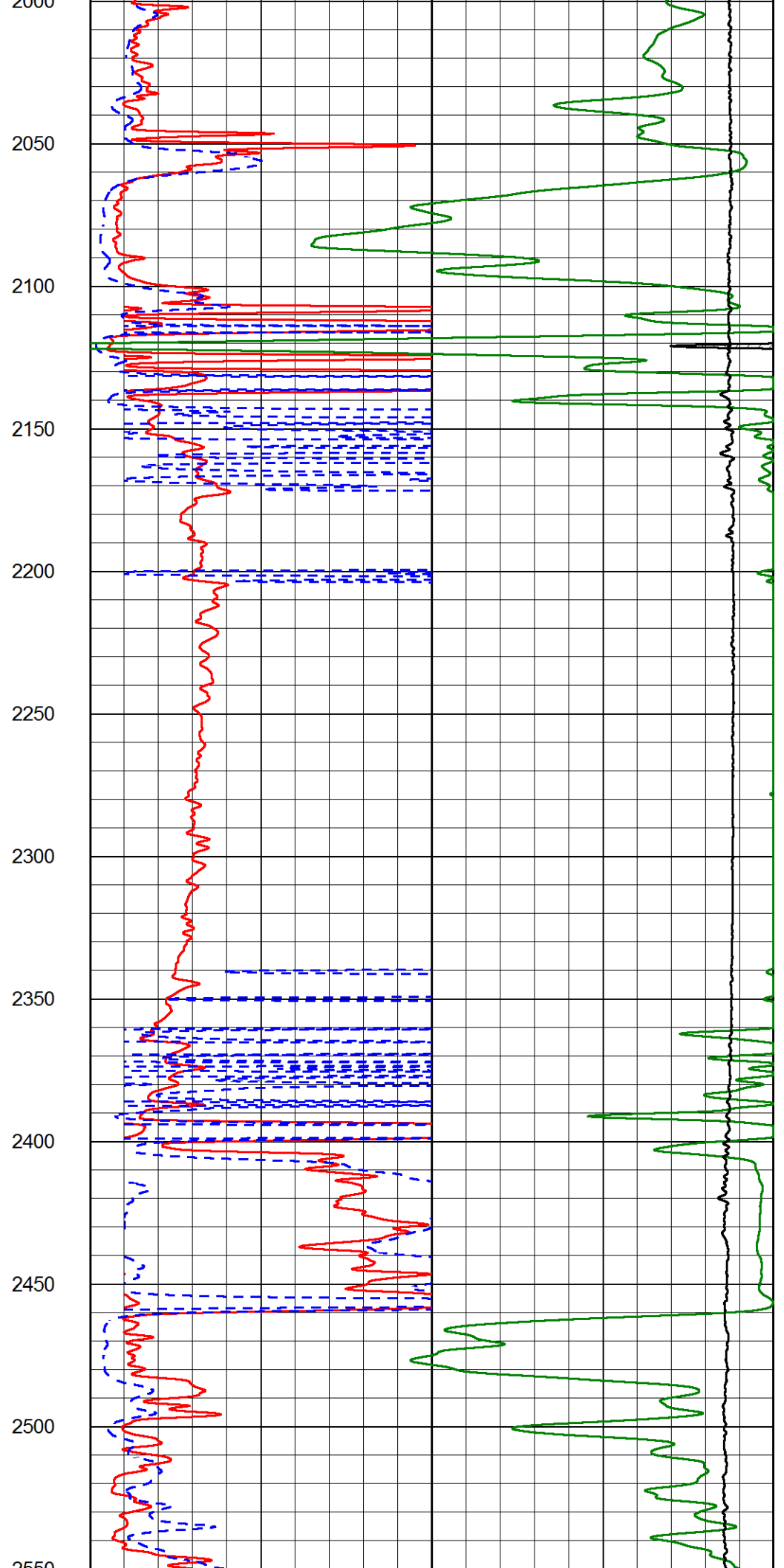
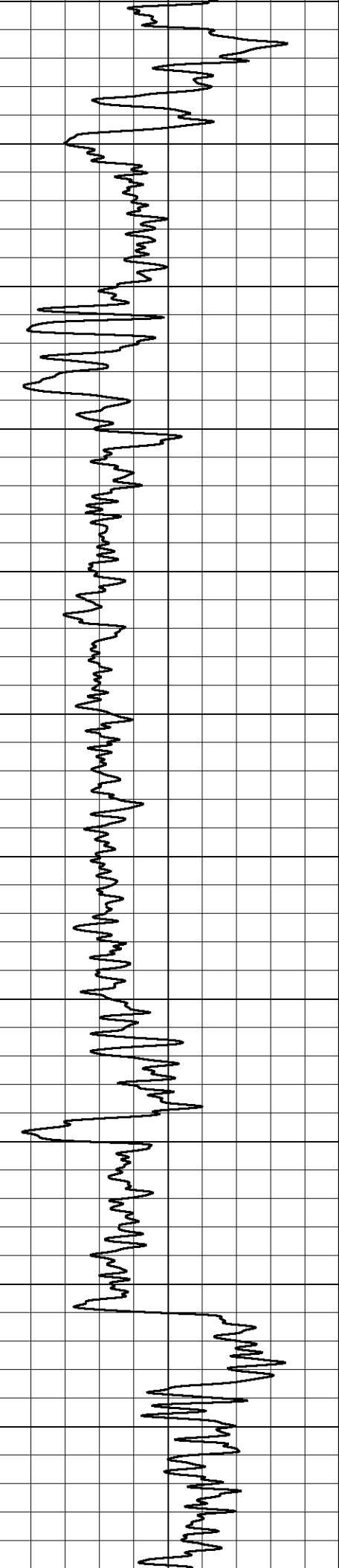


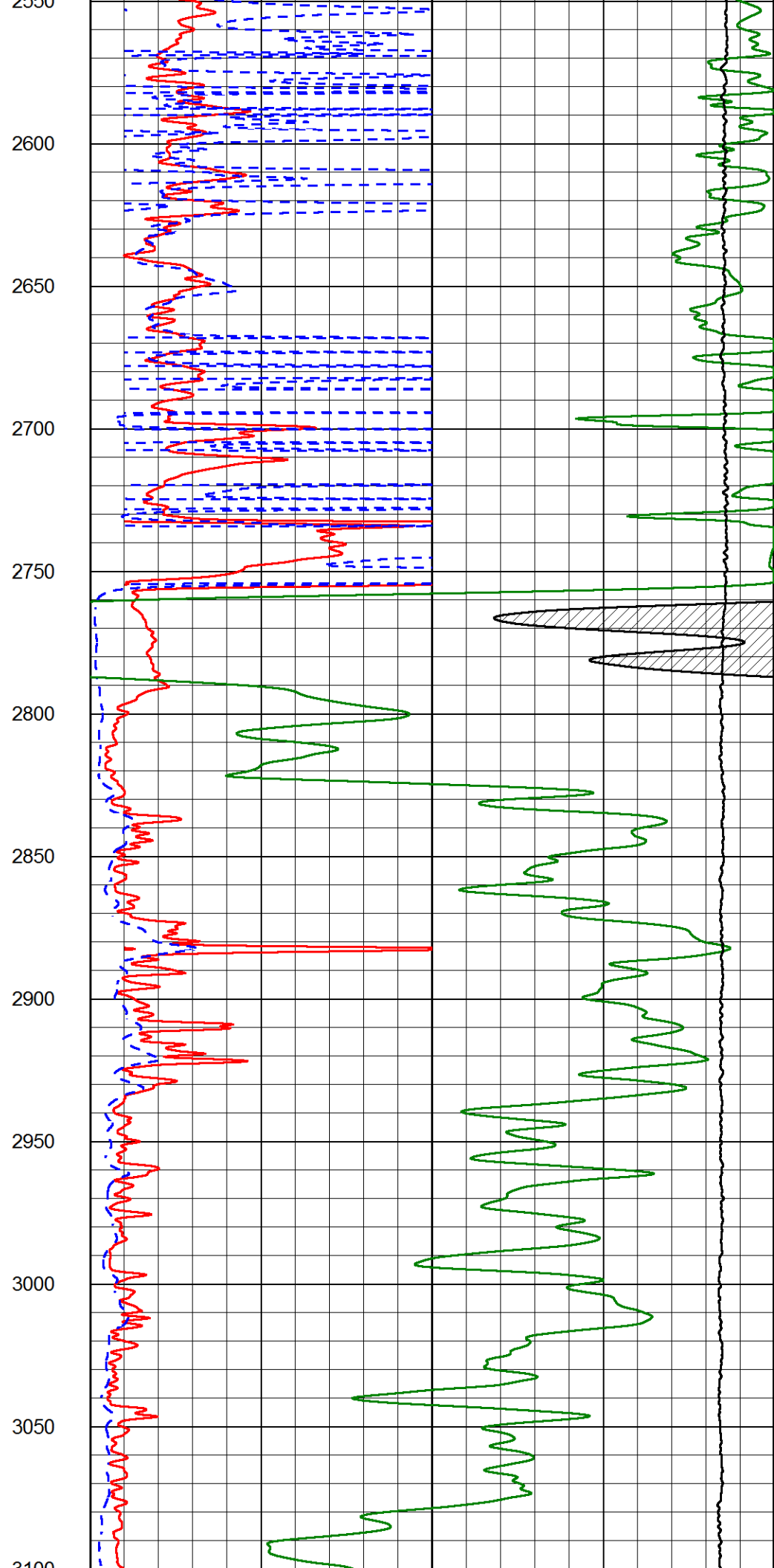
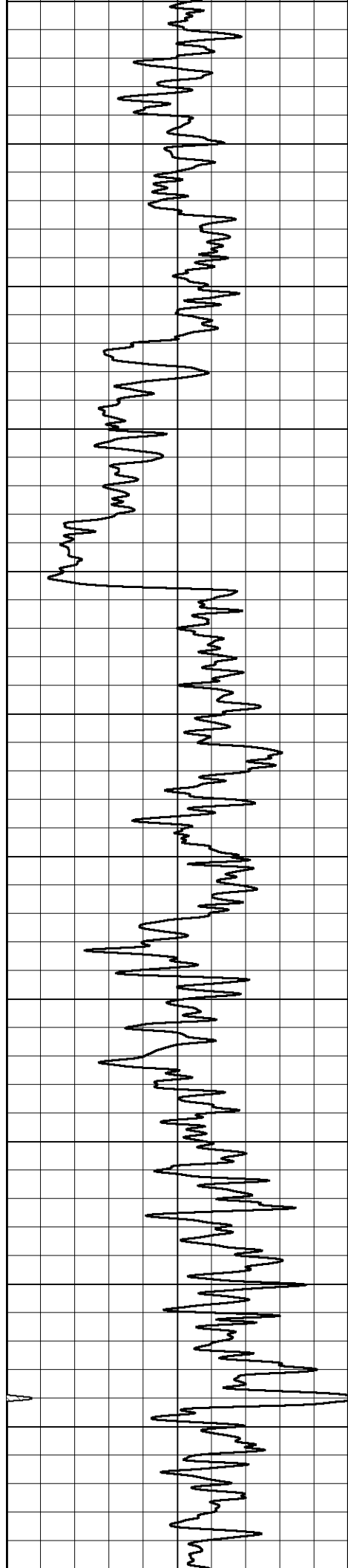


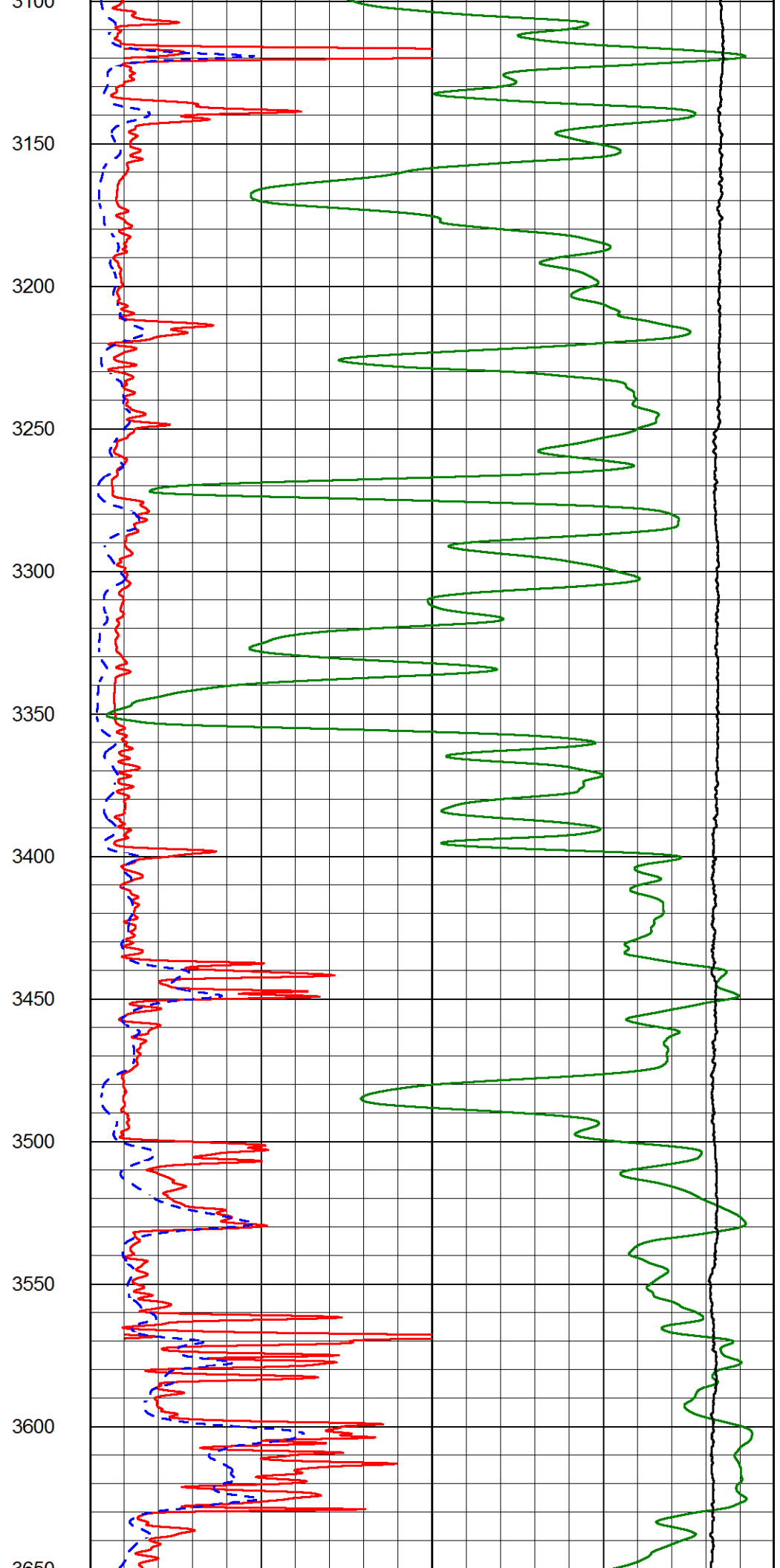
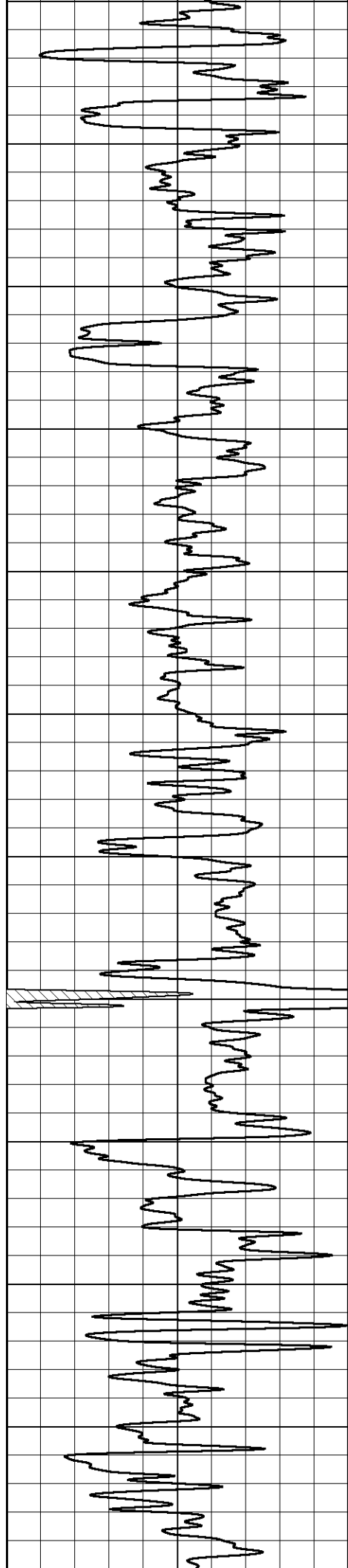
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950  
1000  
1050  
1100  
1150  
1200  
1250  
1300  
1350  
1400  
1450

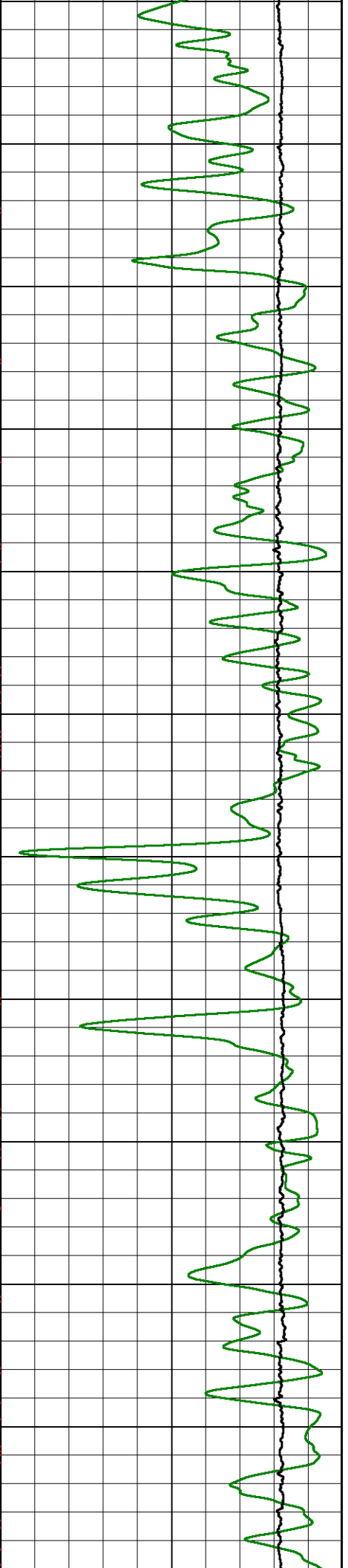
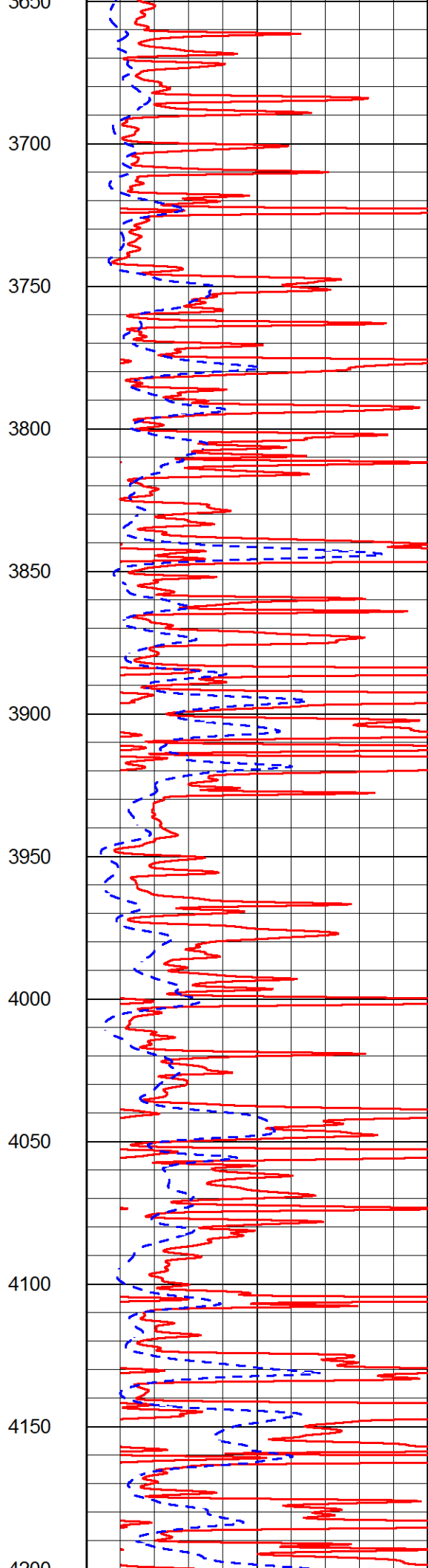
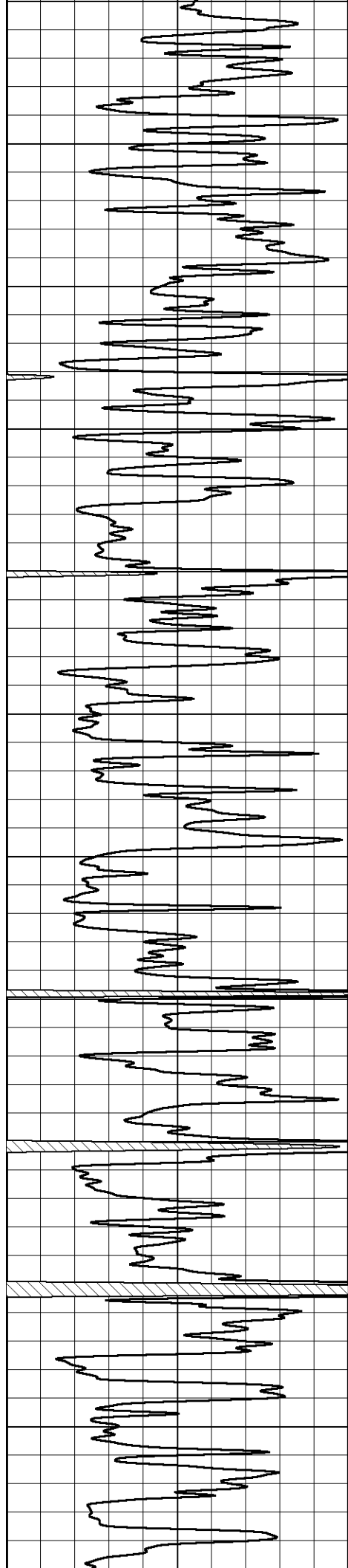


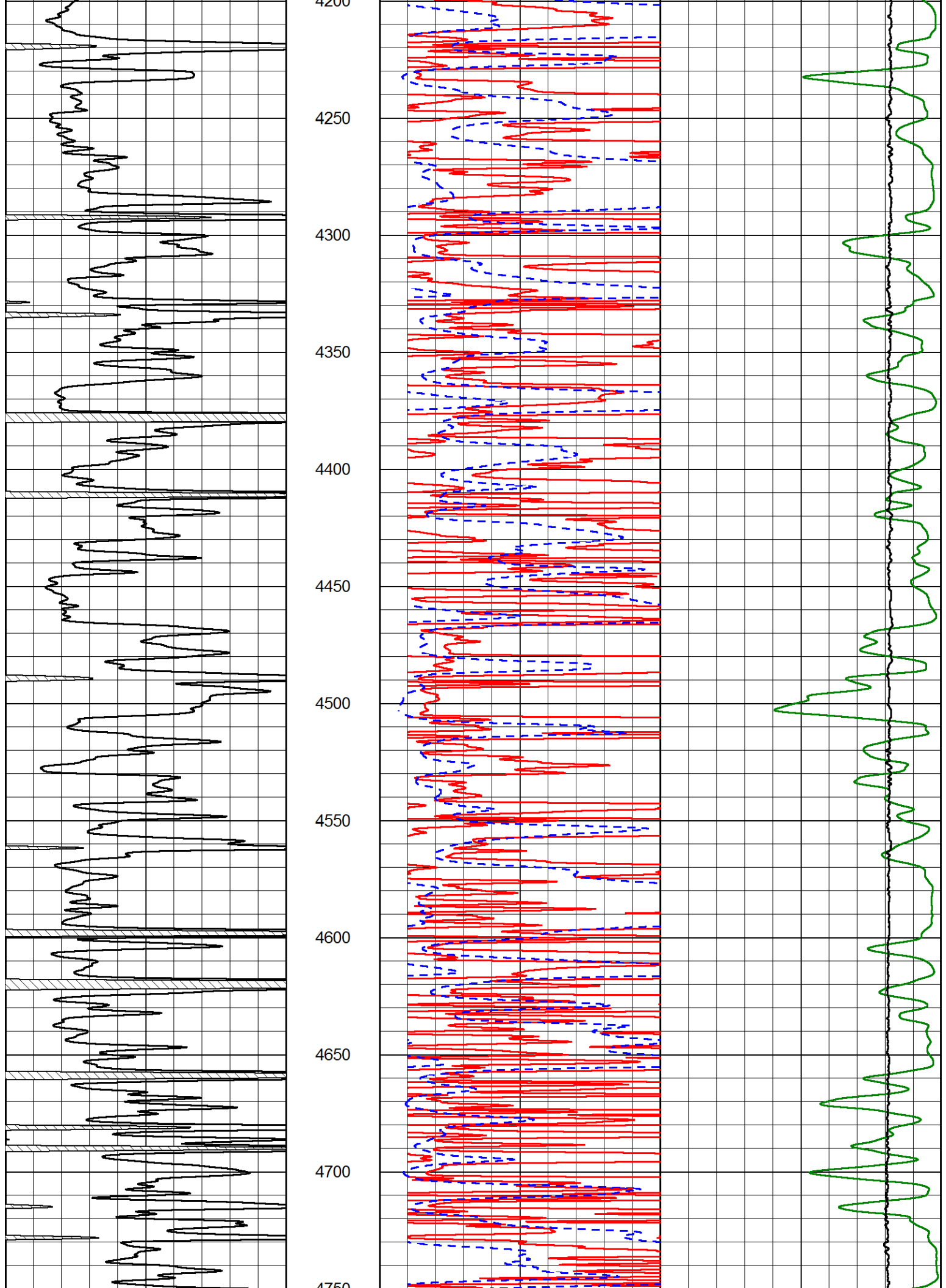


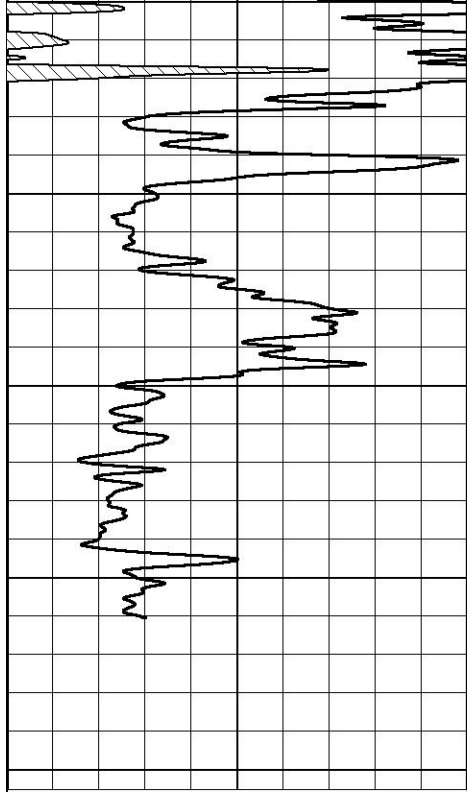






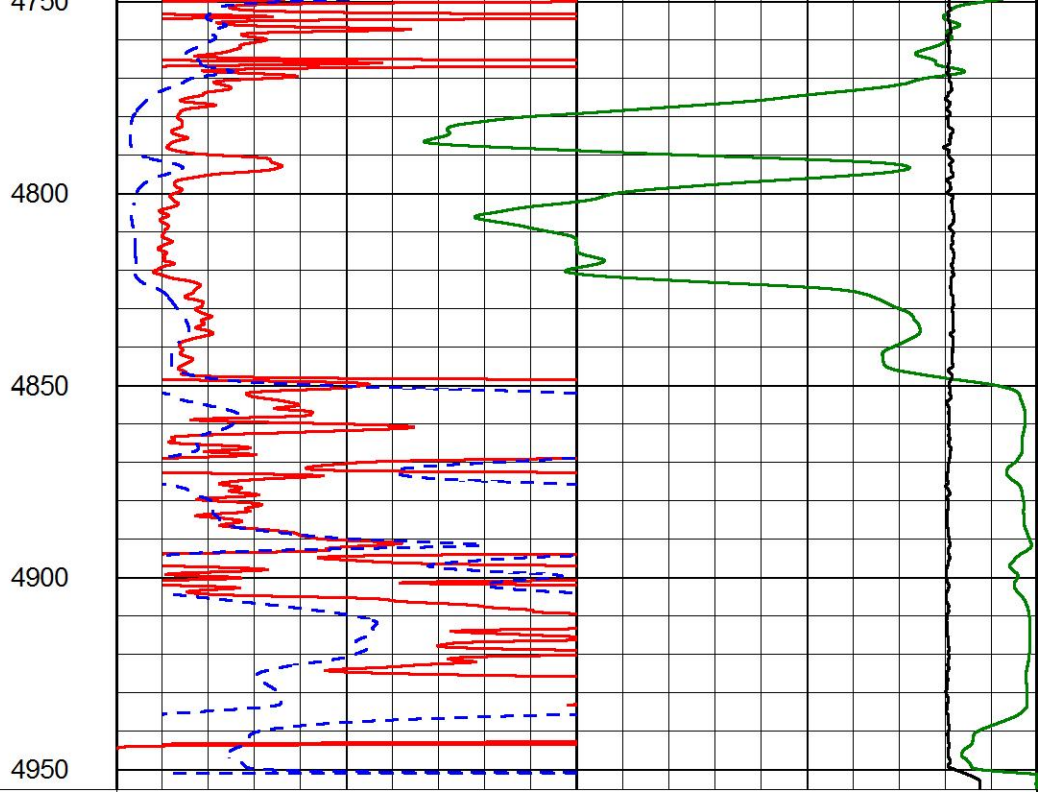






GAMMA RAY

(GAPI)



1000 CONDUCTIVITY (mmho/m) 0

15000 Line Tension (lb) 0

0 RLL3 (Ohm-m) 50

0 RILD (Ohm-m) 50

50 RLL3 (Ohm-m) 200

50 Deep Resistivity (Ohm-m) 200



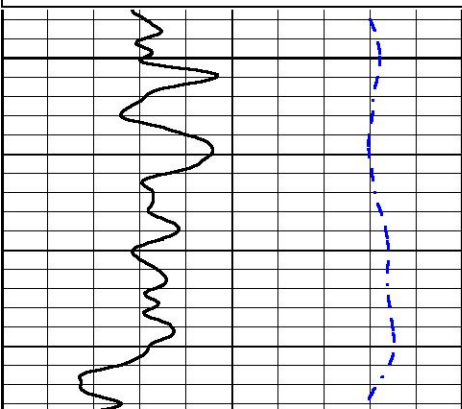
# ANHYDRITE SECTION

## MAIN PASS

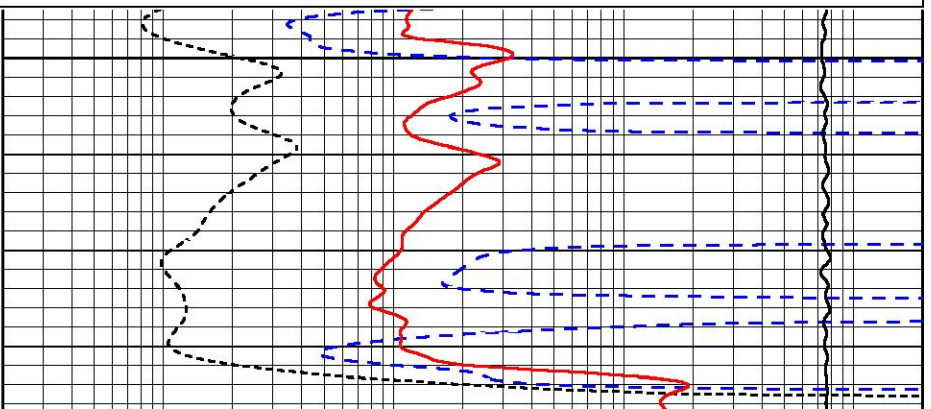
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 Presentation Format    \_dil  
 Dataset Creation      Sat May 01 00:55:58 2021  
 Charted by            Depth in Feet scaled 1:240

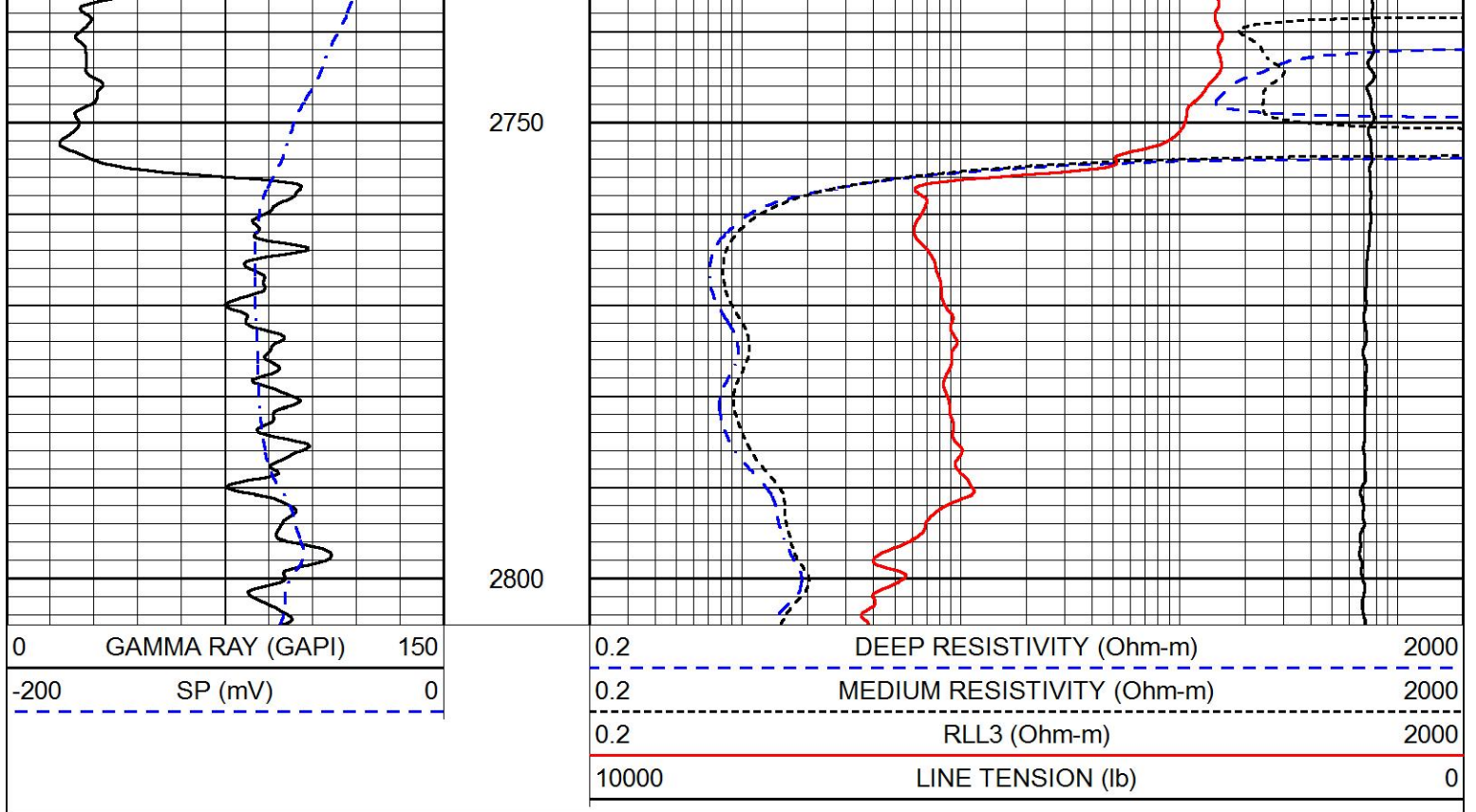
0      GAMMA RAY (GAPI)      150  
 -200      SP (mV)      0

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



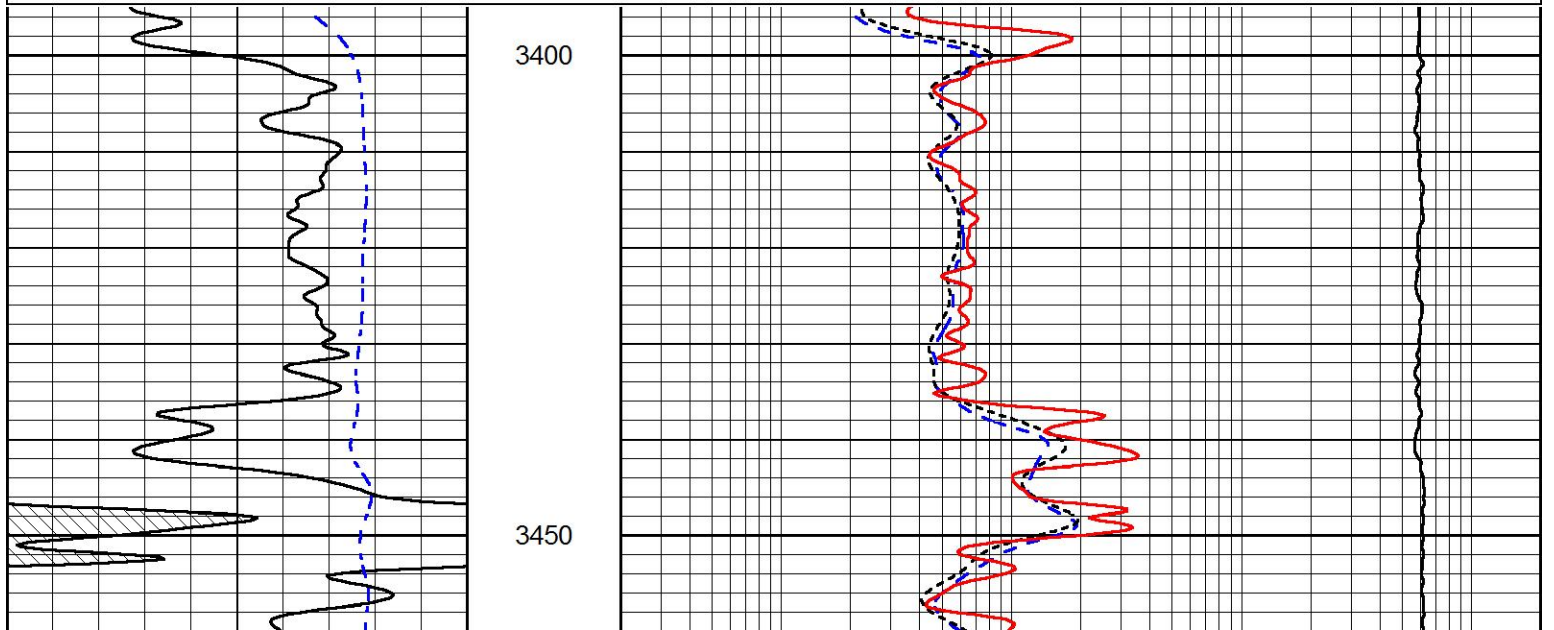
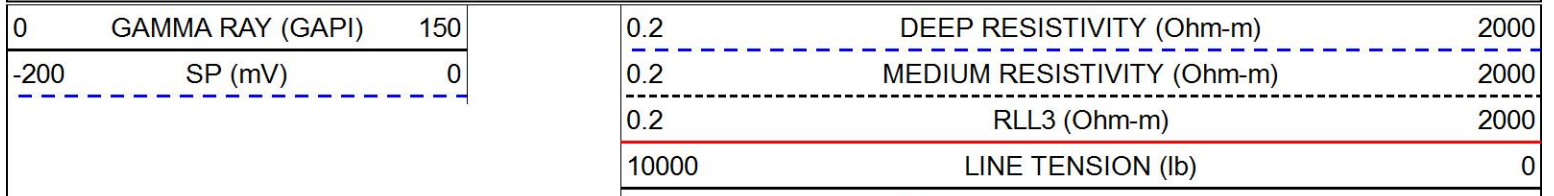
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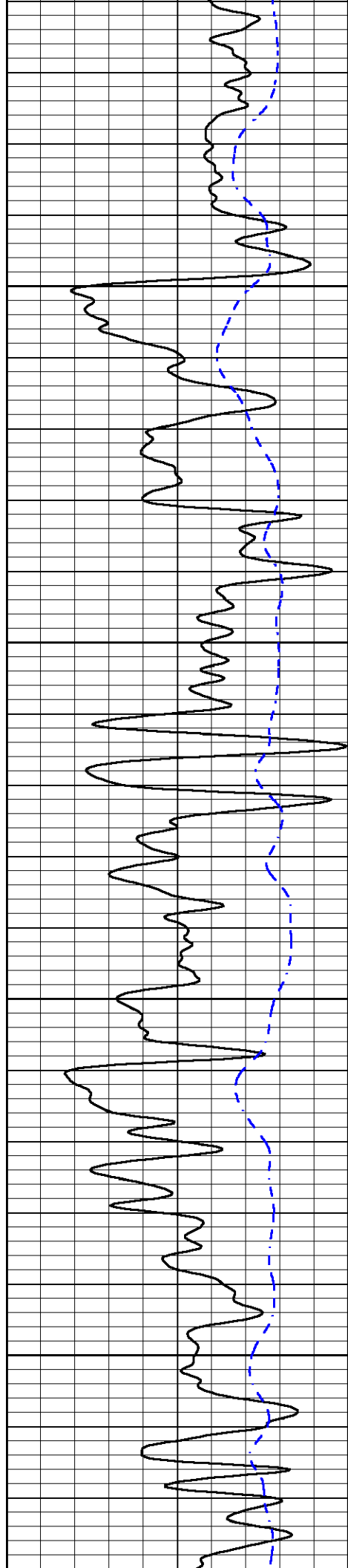




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 Presentation Format    \_dil  
 Dataset Creation     Sat May 01 00:48:56 2021  
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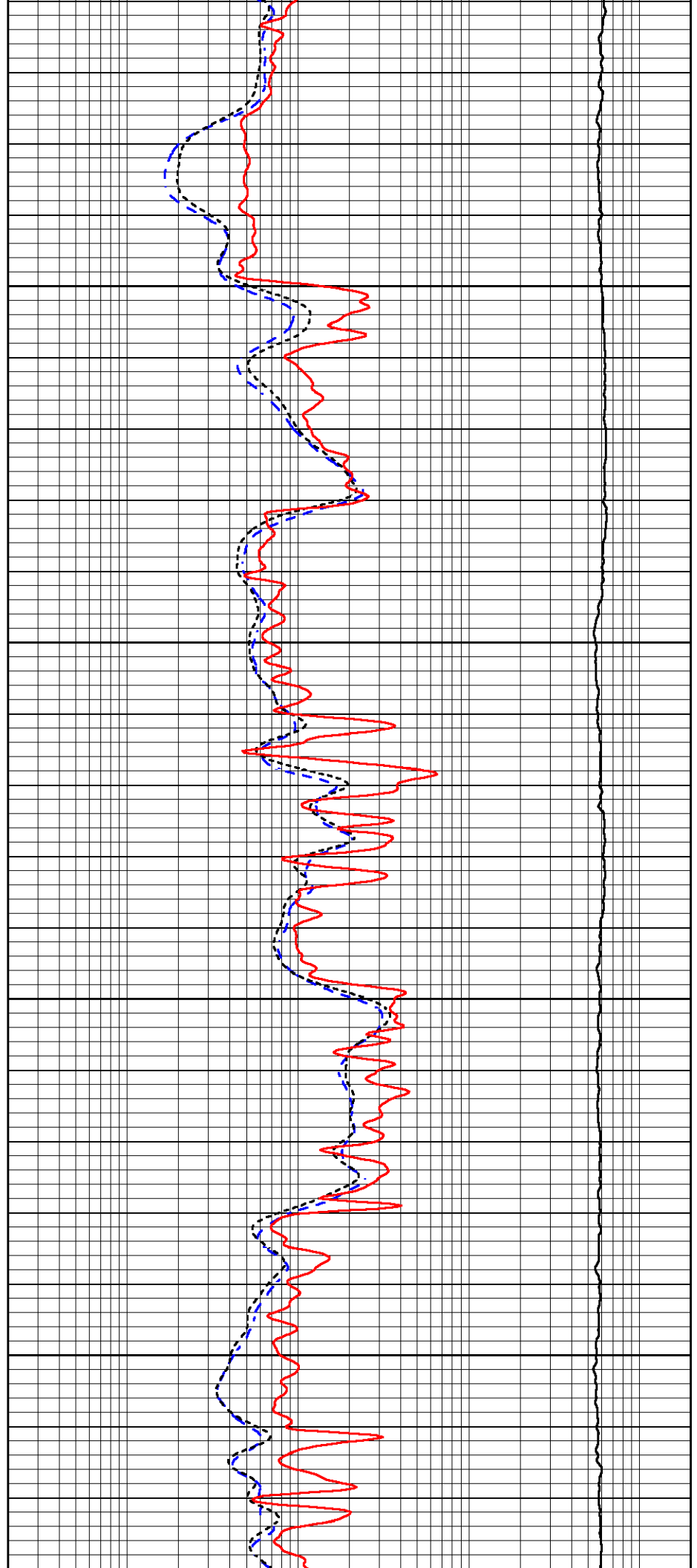


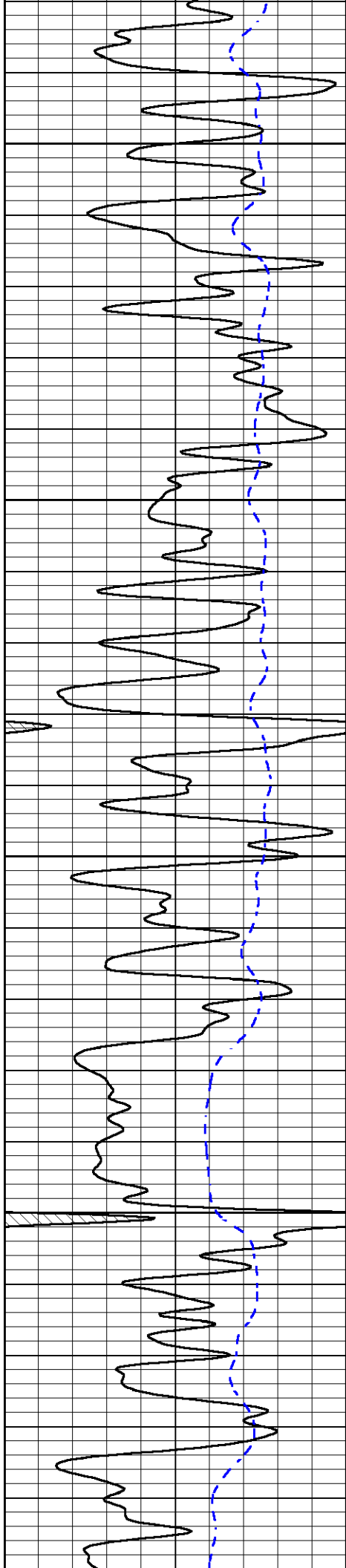
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3550

3600

3650





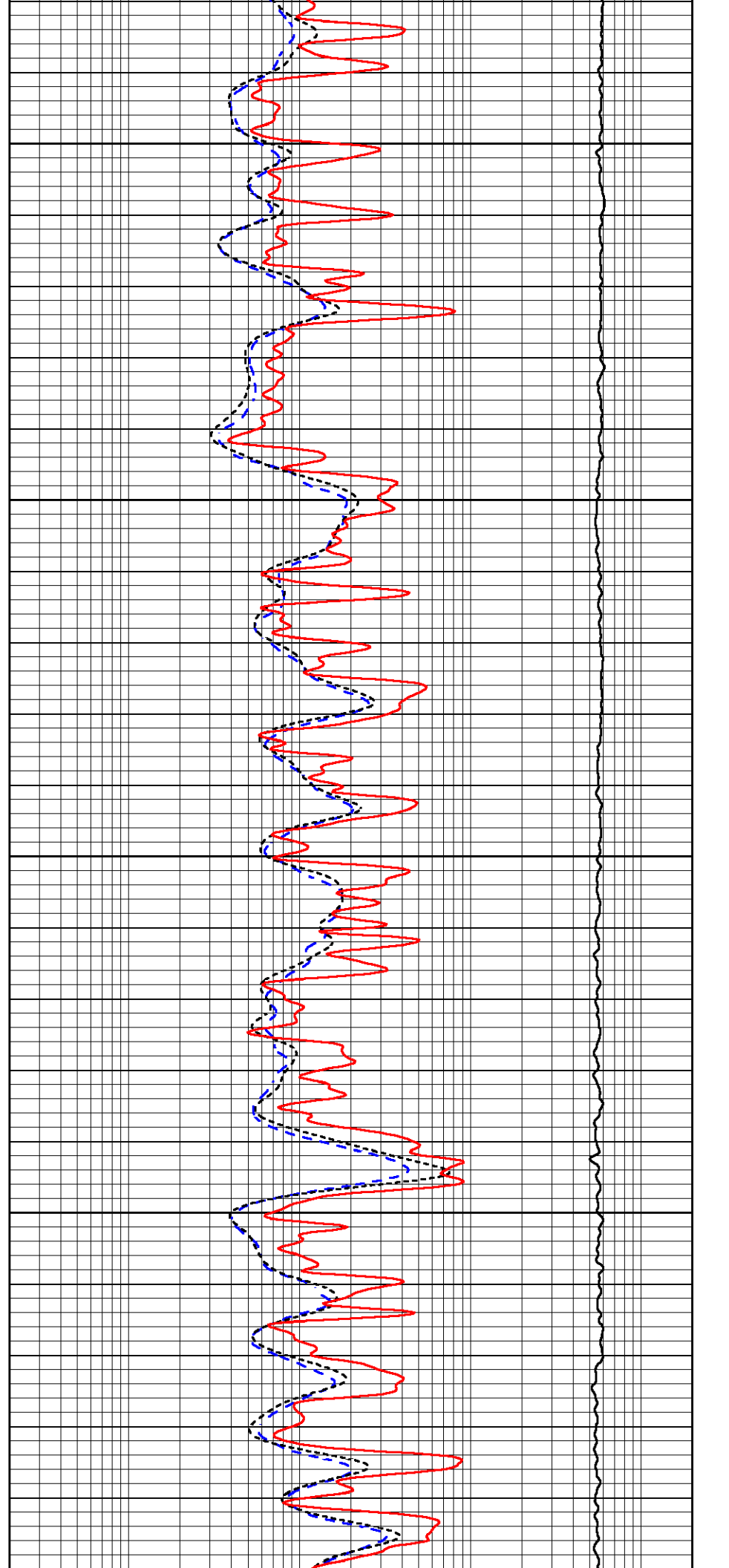
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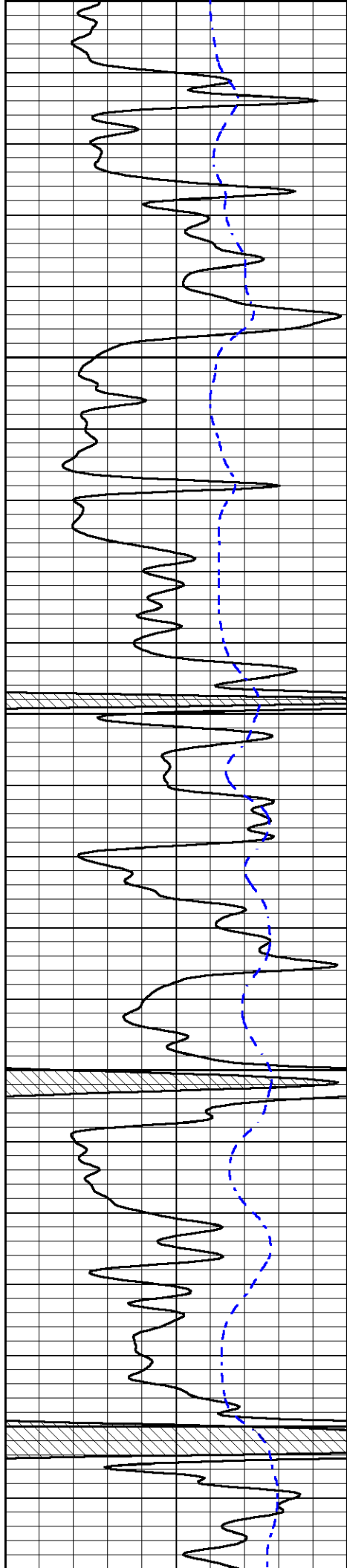
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3800

3850

3900





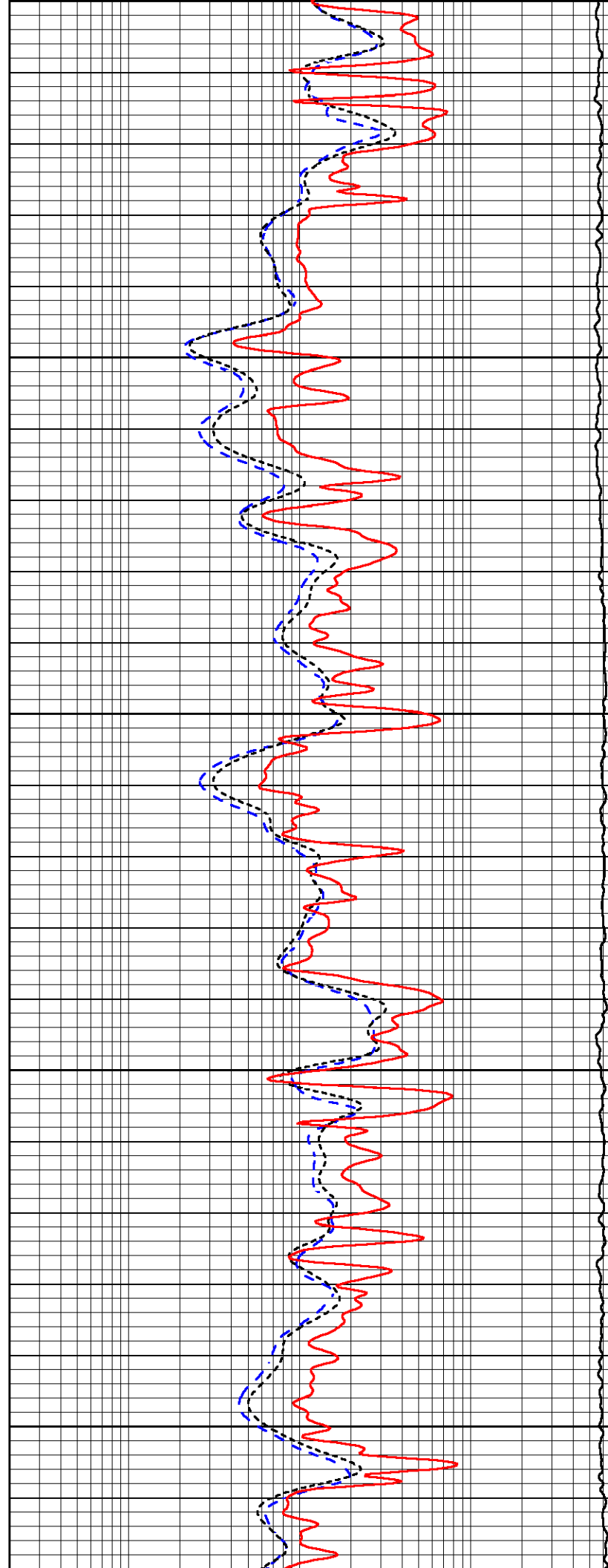
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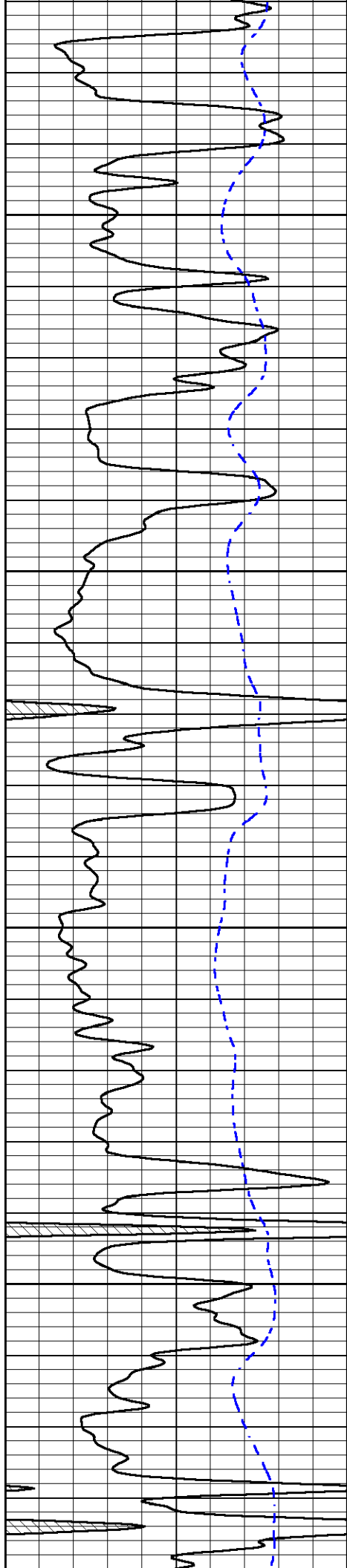
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4000

4050

4100



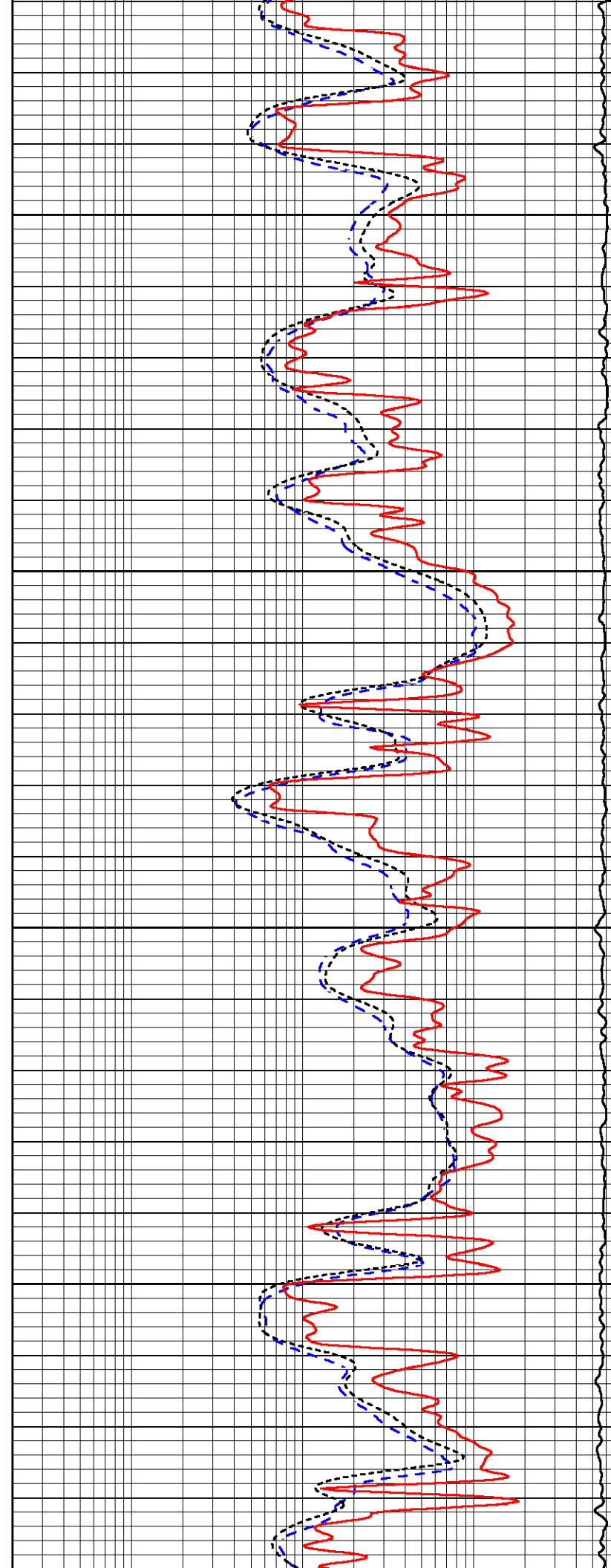


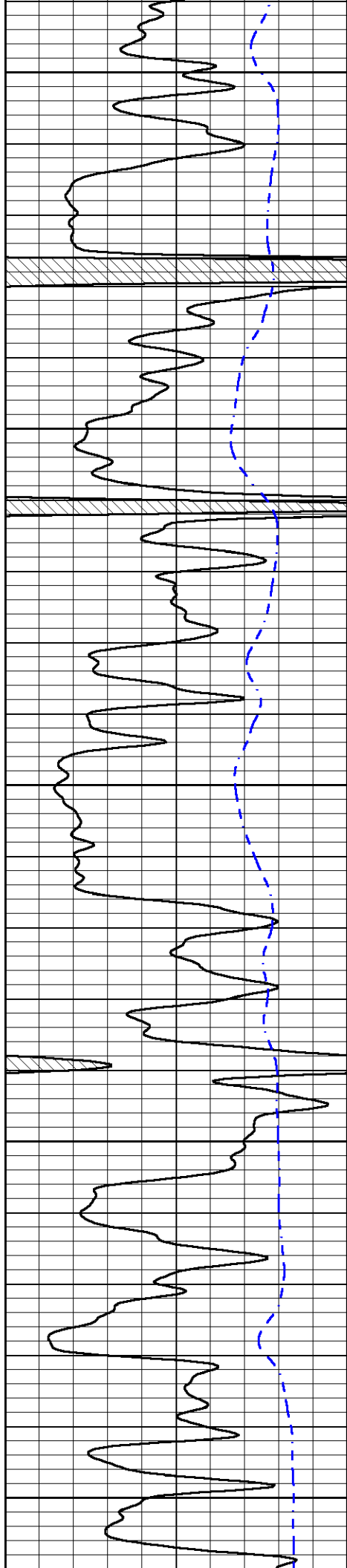
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4200

4250

4300





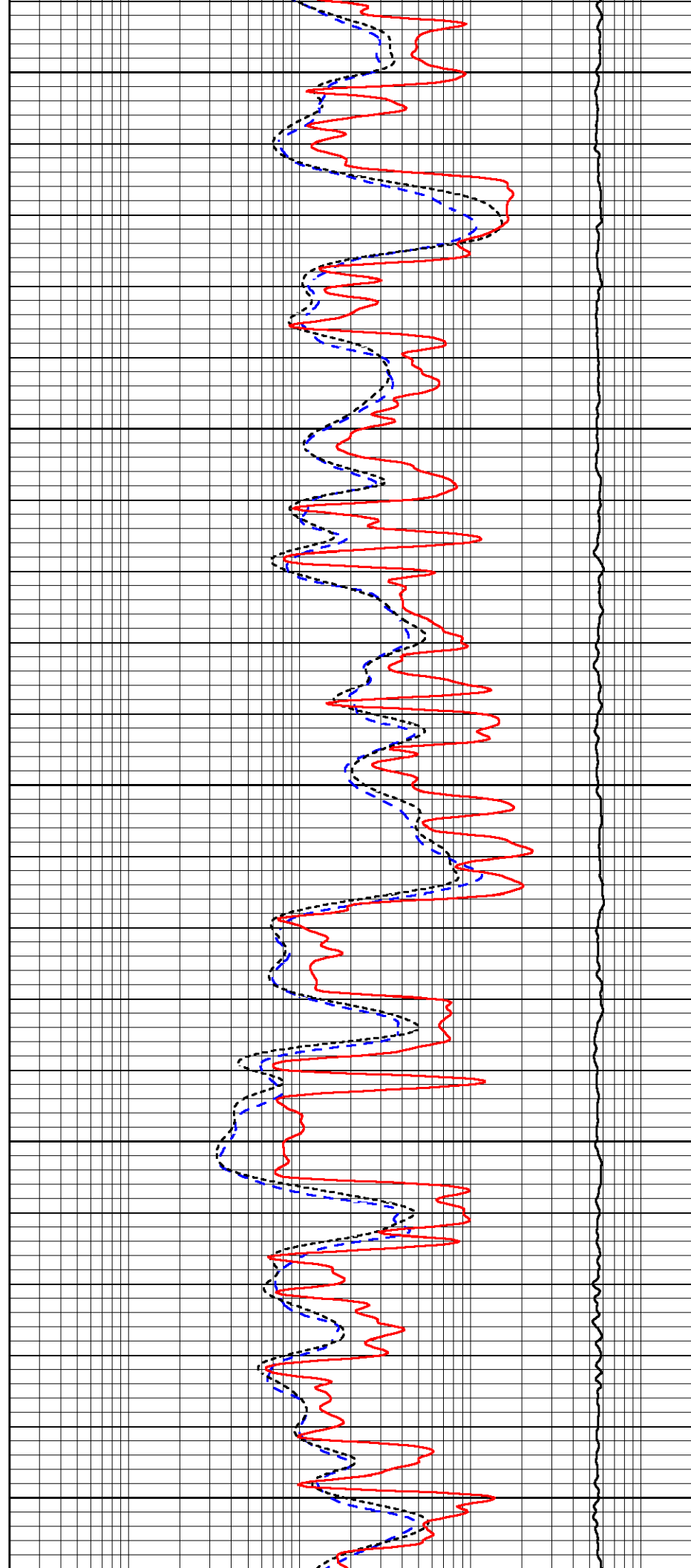
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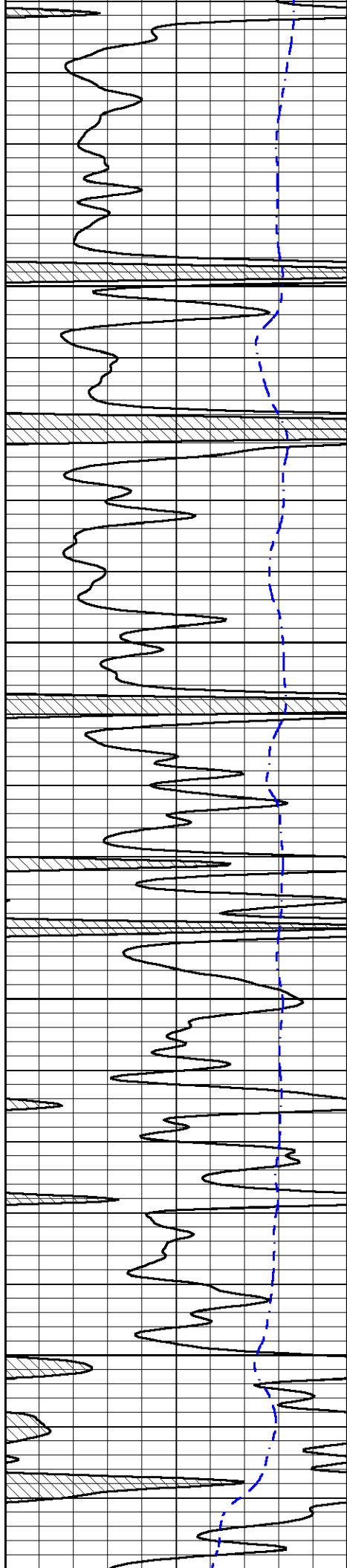
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4450

4500

4550



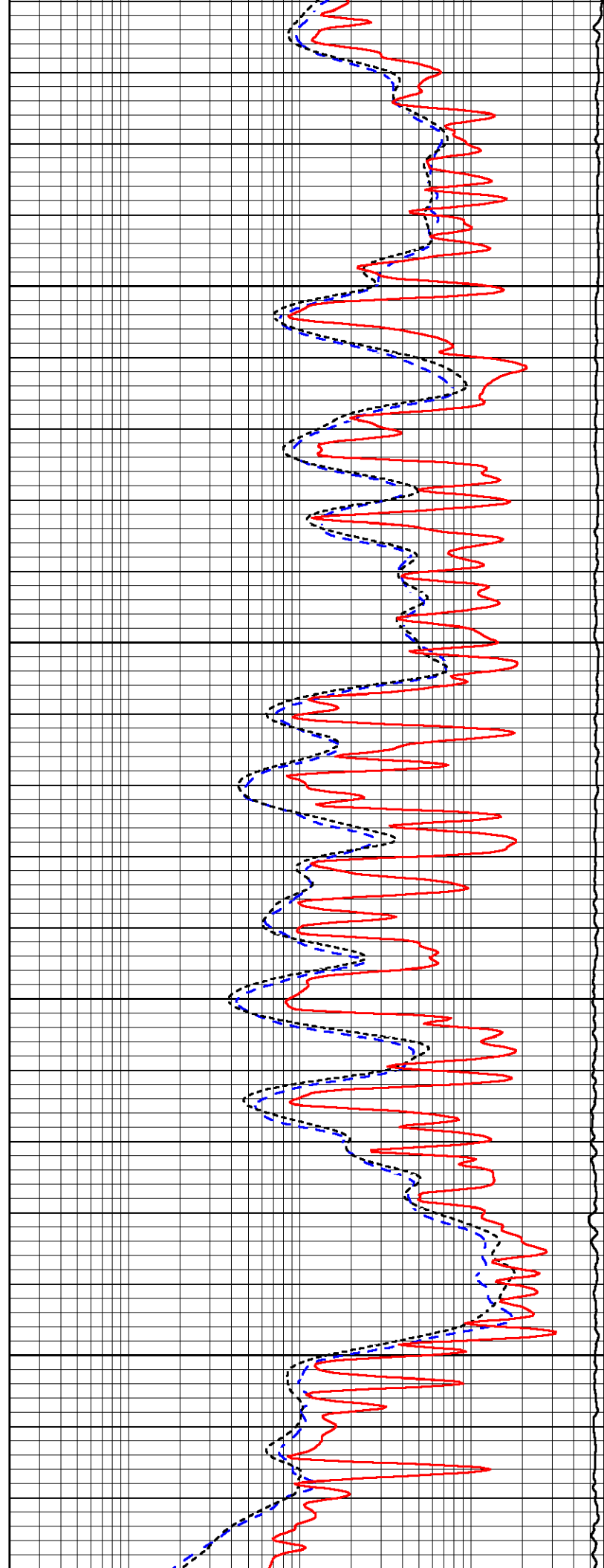


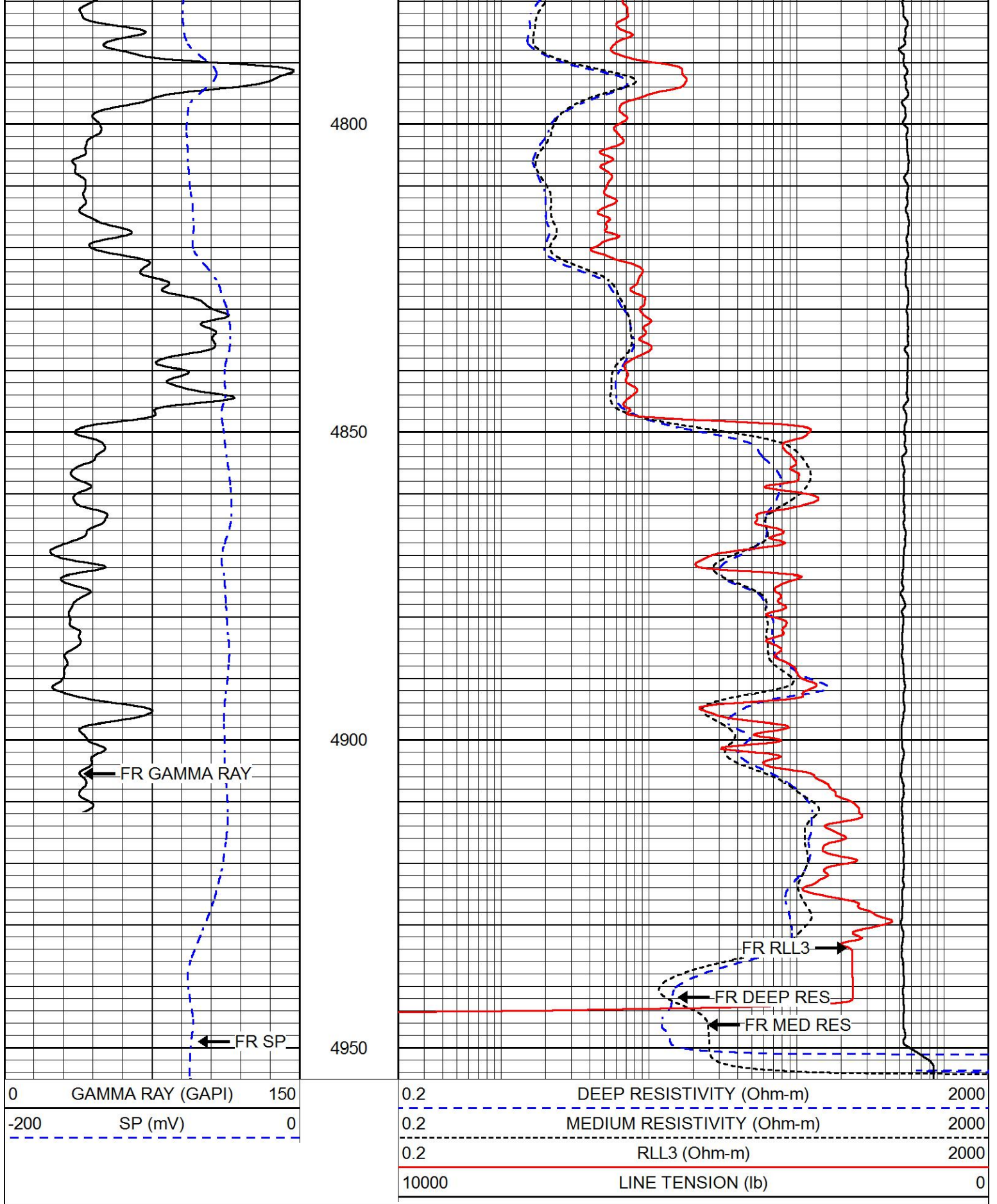
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4650

4700

4750





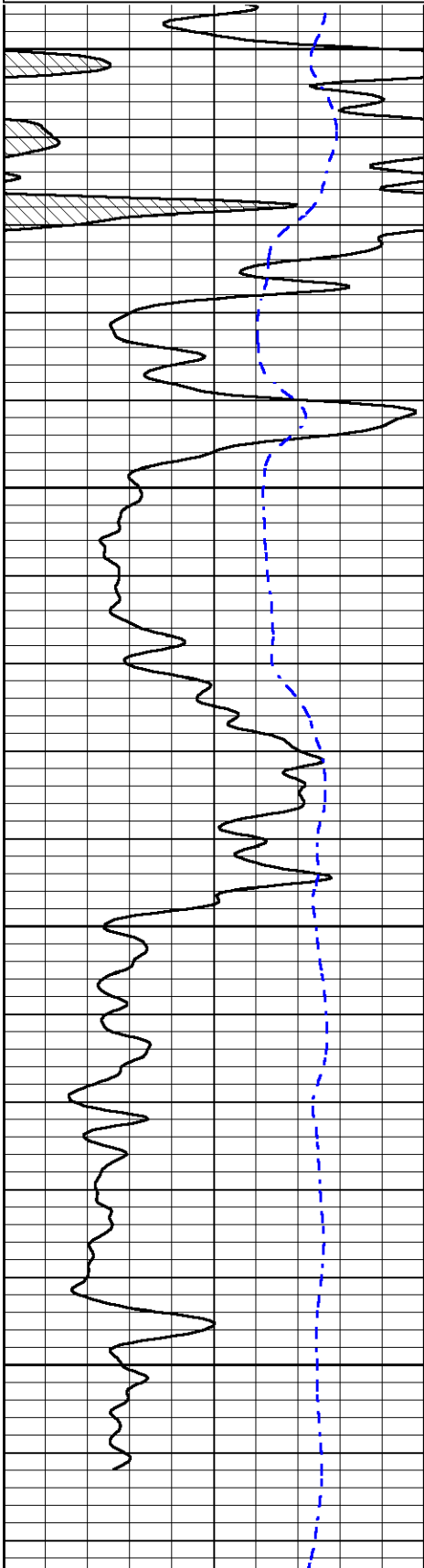
MIDWEST WIRELINE

# REPEAT SECTION

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 Dataset Pathname   stackml/pass2.1  
 Presentation Format  \_dil  
 Dataset Creation    Sat May 01 00:14:25 2021  
 Charted by          Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
-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

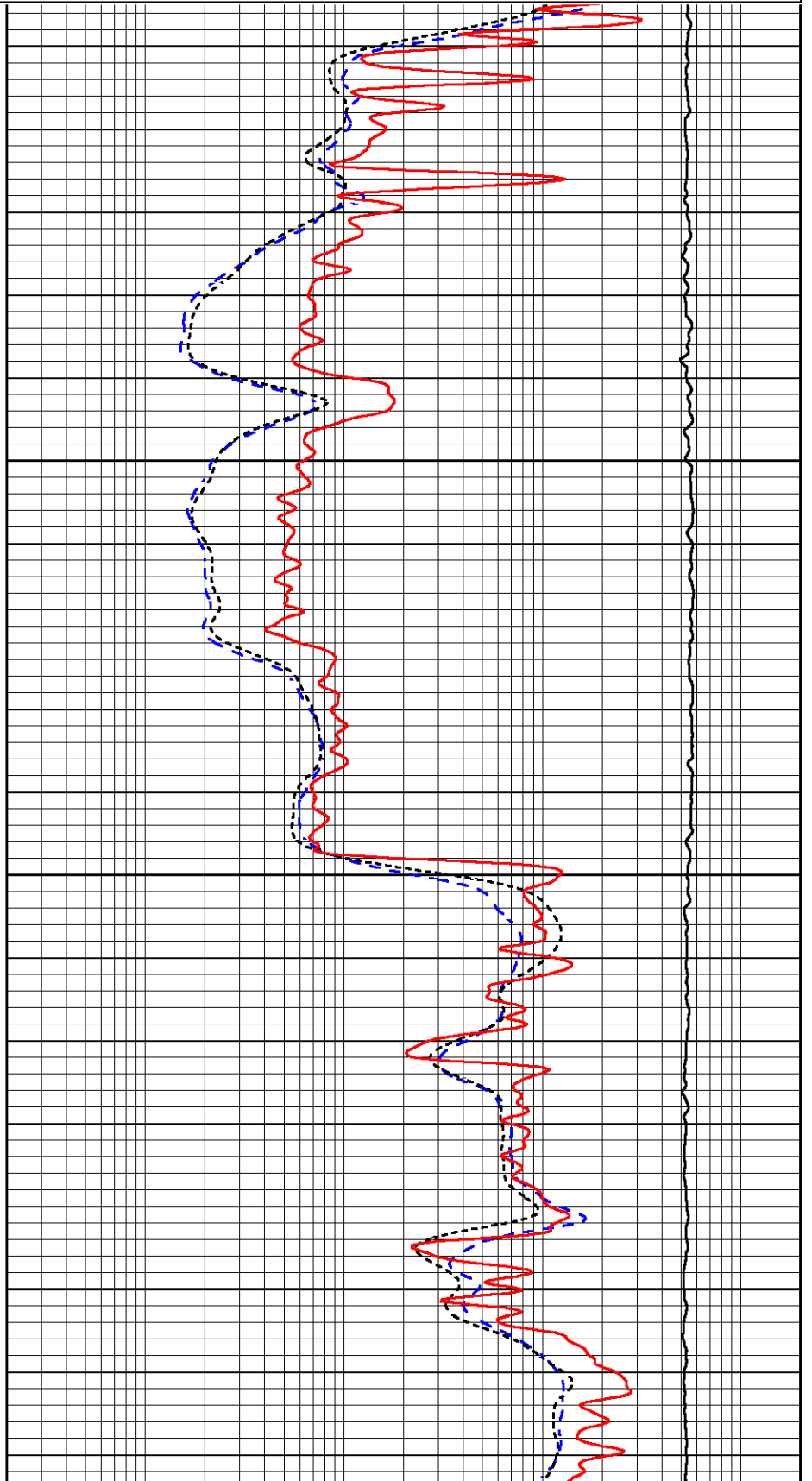


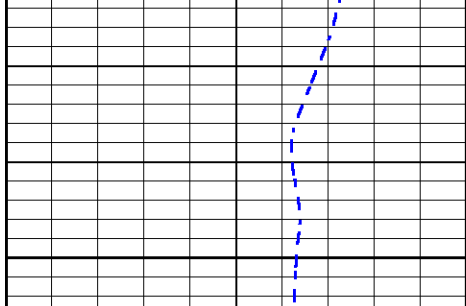
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4850

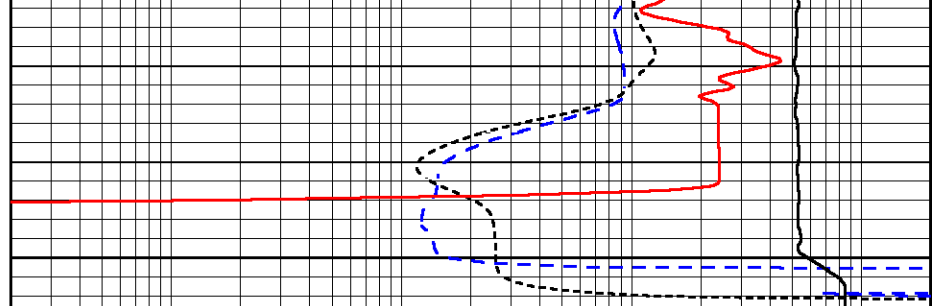
4900





0	GAMMA RAY (GAPI)	150
-200	SP (mV)	0

4950



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