



PIONEER
Pioneer Energy Services

**DUAL INDUCTION
LOG**

Company SAPPHIRE RESOURCE, LLC
Well TRACY NO.1 OWWO DEEPENING
Field GROENDYCKE SOUTH
County BARBER
State KANSAS

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Field GROENDYCKE SOUTH
County BARBER State KANSAS

Location: API #: 15-007-22153-00-01
4950' FSL & 1650' FEL
SEC 11 TWP 34S RGE 12W
Permanent Datum GROUND LEVEL Elevation 1502'
Log Measured From KELLY BUSHING
Drilling Measured From KELLY BUSHING
Other Services
CNL/CDL
MEL/BHCS
Elevation
K.B. 1515'
D.F. N/A
G.L. 1502'

Date	2/03/2020
Run Number	ONE
Depth Driller	5386'
Depth Logger	5390'
Bottom Logged Interval	5389'
Top Log Interval	300'
Casing Driller	8.625" @ 303'
Casing Logger	308'
Bit Size	7.875"
Type Fluid in Hole	CHEMICAL
Salinity :ppm CL	4000
Density / Viscosity	9.2 46
pH / Fluid Loss	11.0 8.8
Source of Sample	FLOWLINE
Rm @ Meas. Temp	.80 @ 56
Rmt @ Meas. Temp	.60 @ 56
Rmc @ Meas. Temp	1.08 @ 56
Source of Rmf / Rmc	CHARTS
Rm @ BHT	.34 @ 130
Operating Rig Time	5 HOUR
Max Rec. Temp. F	130 DEG. F.
Equipment Number	P-108
Location	HAYS
Recorded By	M. HISS
Witnessed By	RICK D. BRISCOE
	J. HENRICKSON

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All interpretations are opinions based on inferences from electrical or other measurements and Pioneer Wireline Services, LLC cannot and does not guarantee the accuracy or correctness of any interpretation, and Pioneer Wireline Services, 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.
MEDICINE LODGE
SOUTH TO SCOTT CANYON RD, 1 WEST, 1 NORTH,
1/2 WEST, SOUTH INTO.

Log Measured From: KELLY BUSHING 13 Ft. Above Permanent Datum

THANK YOU FOR USING PIONEER ENERGY SERVICES
www.pioneerenergy.com 785-625-3858

Your Pioneer Energy Services Crew	This Log Record Was Witnessed By
Engineer: M. HISS	Primary Witness: RICK D. BRISCOE
Operator:	Secondary Witness:
Operator:	Secondary Witness:
Operator:	Secondary Witness:

Log Variables

DatabaseC:\ProgramData\Warrior\Data\sapphire_tracy_#1_owwo.db
 Dataset field/well/STACKML/pass3.1/_vars_

Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	130	5.5	0	1	2	2.71
NPORSEL	PERFS	SNDERR mmho/m	SNDERRM mmho/m	SPSHIFT mV	SRFTEMP degF	SZCOR	TDEPTH ft
Limestone	0	0	0	240	50	Off	5390

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)	
GR	44.50		GR-M&W (89-M&W)	3.00	3.50	50.00	
CNLSC CNSSC	41.40 40.65		CNT-M&W (tk10-MW)	5.50	3.50	100.00	
LSD DCAL SSD	32.35 32.33 31.85		CDL-M&W (934-229)	8.50	4.00	250.00	
ML-PSI UDM ML (UDM-01) Stackable Microlog Tools			11.50	4.00	215.00		
MCAL MI MN	20.87 20.87 20.87						
RLL3 RLL3F	15.80 15.79						
CILD	8.00			DIL-M&W (55-222)	18.50	3.50	220.00

CILM 4.70

SP 0.20

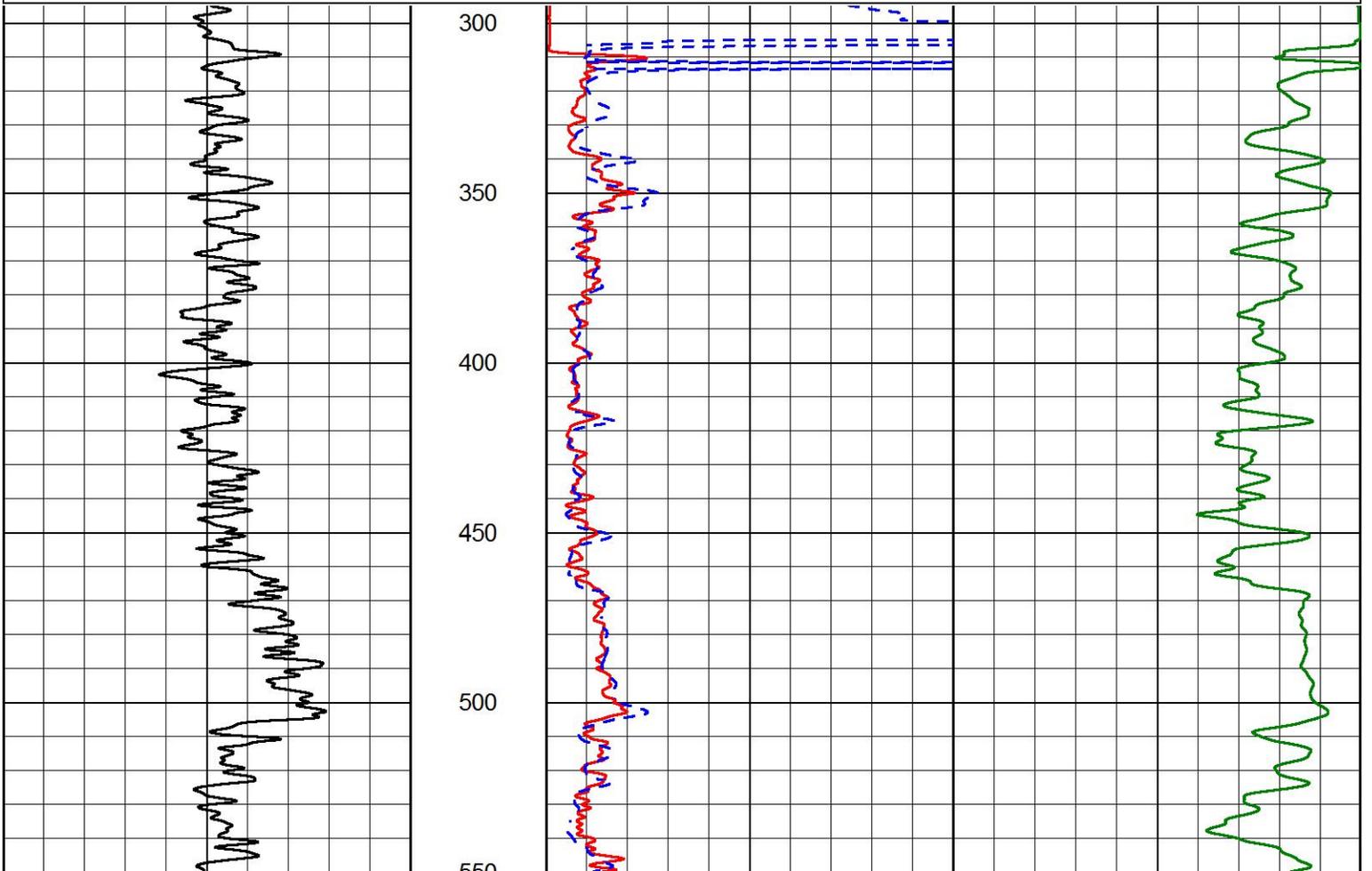
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 Total weight: 835.00 lb
 O.D.: 4.00 in

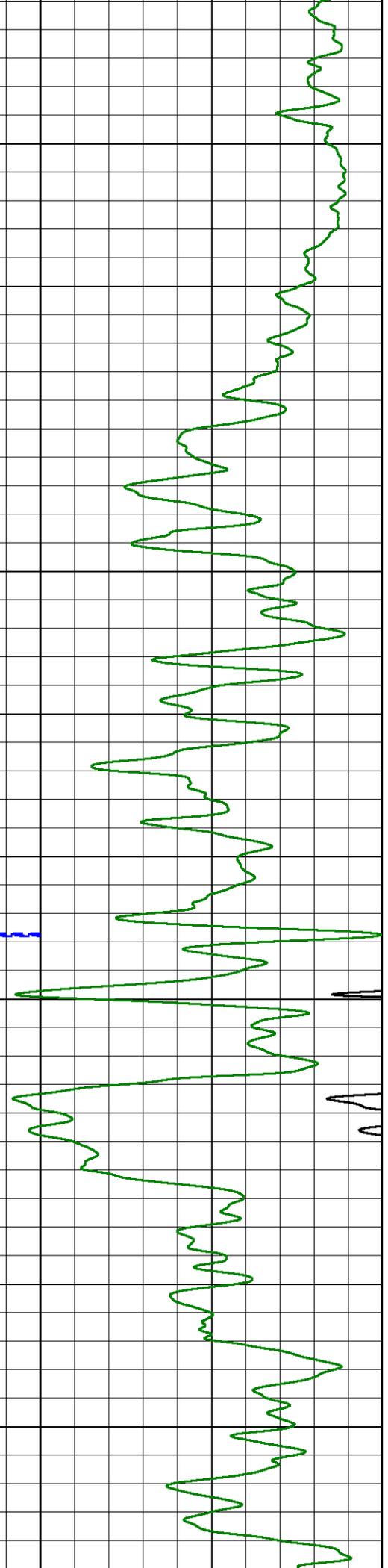
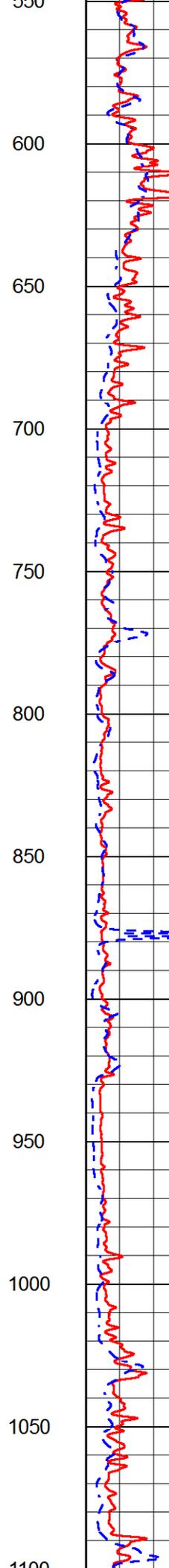
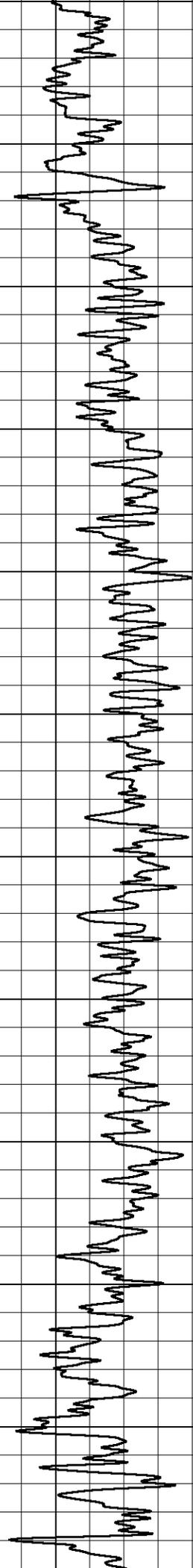


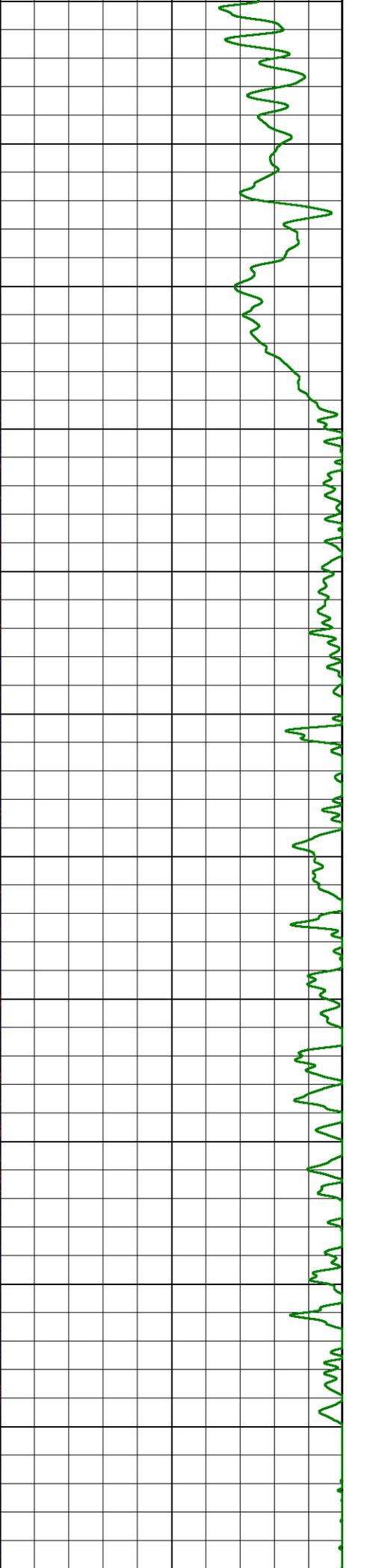
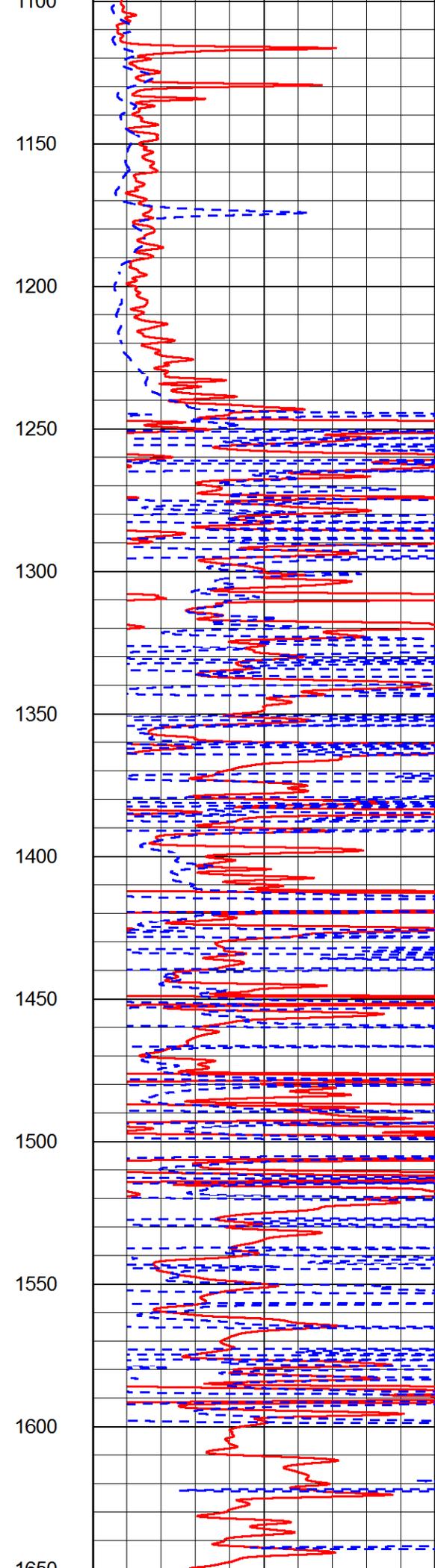
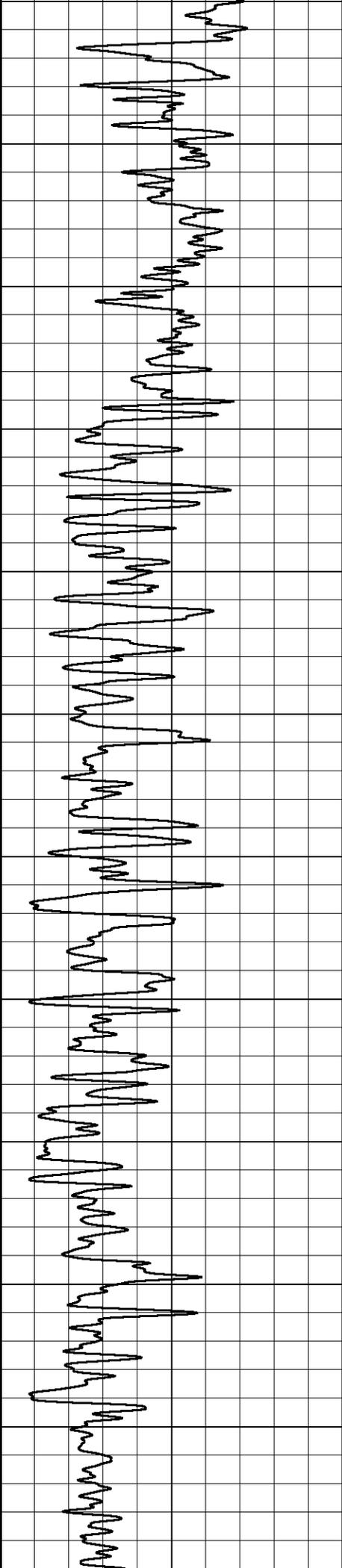
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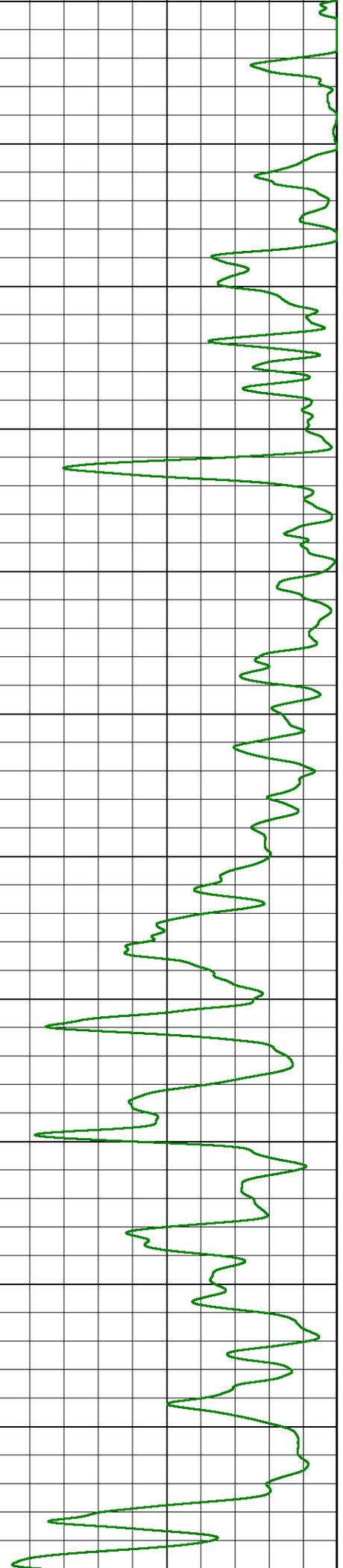
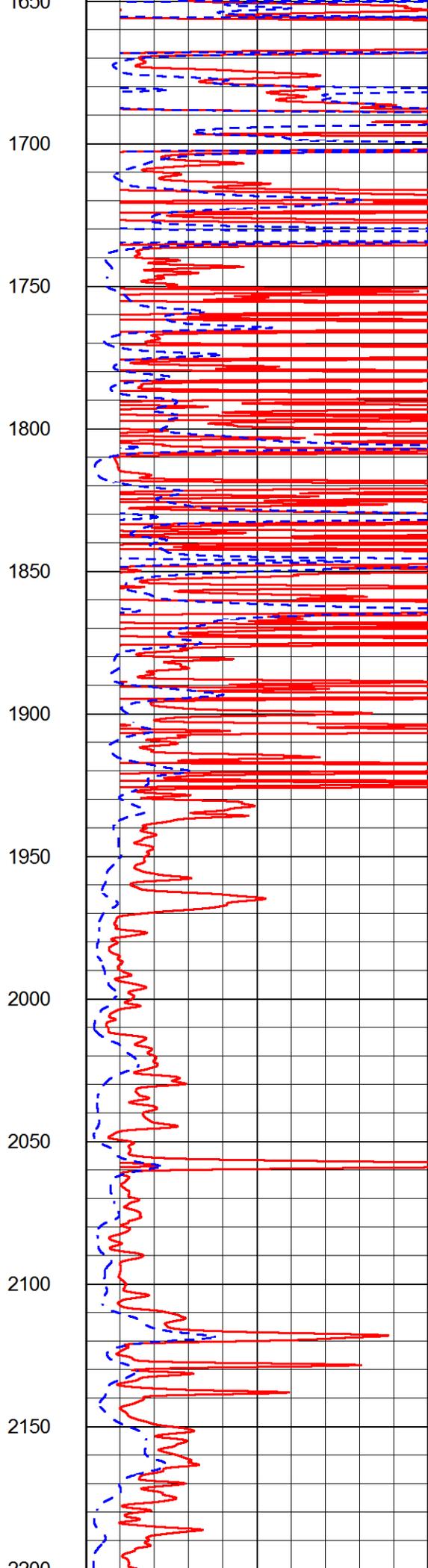
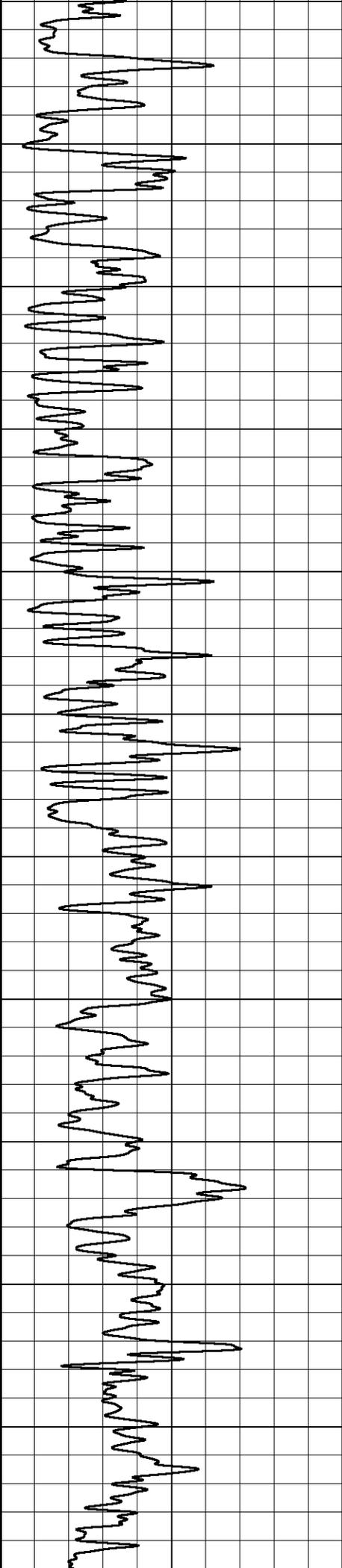
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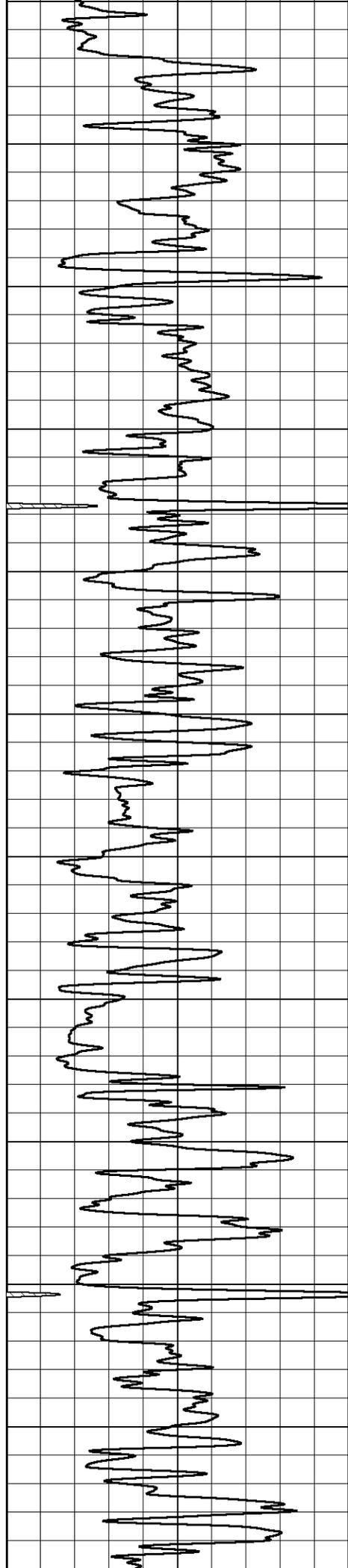
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			0	RLL3 (Ohm-m)	50
			0	DEEP RESISTIVITY (Ohm-m)	50
			50	RLL3 (Ohm-m)	200
			50	RILD (Ohm-m)	200



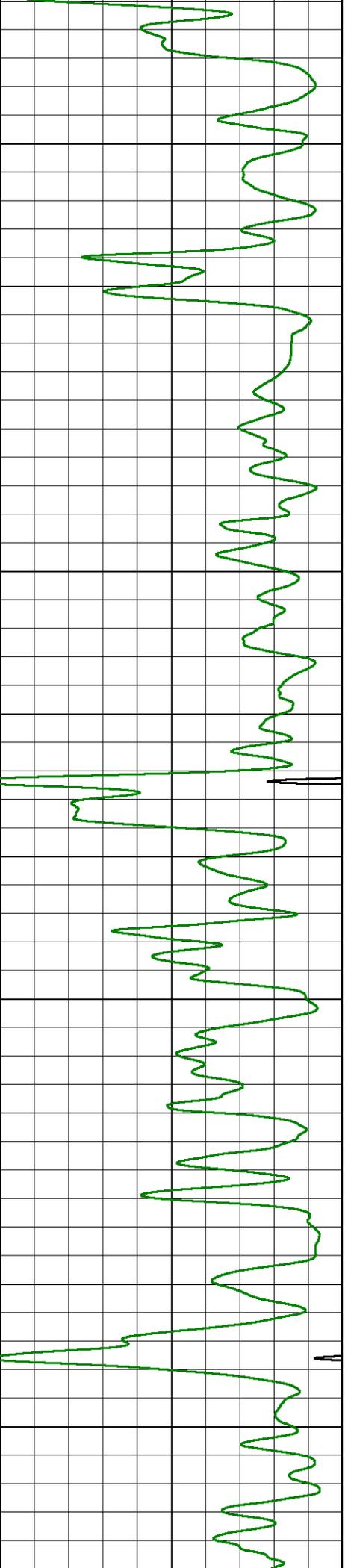
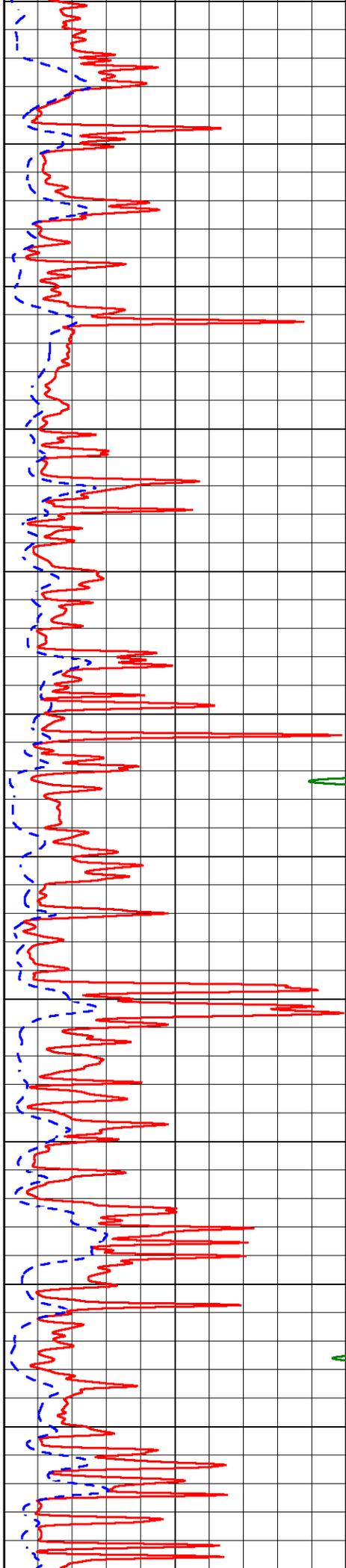


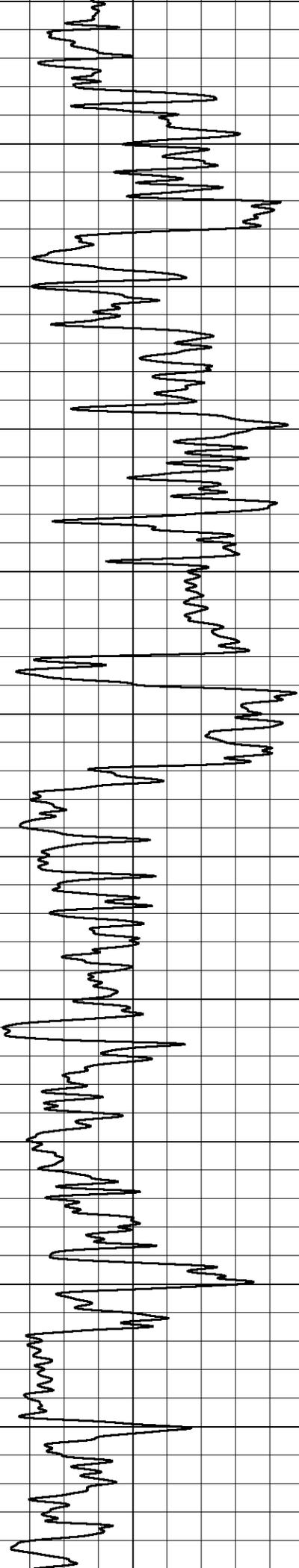




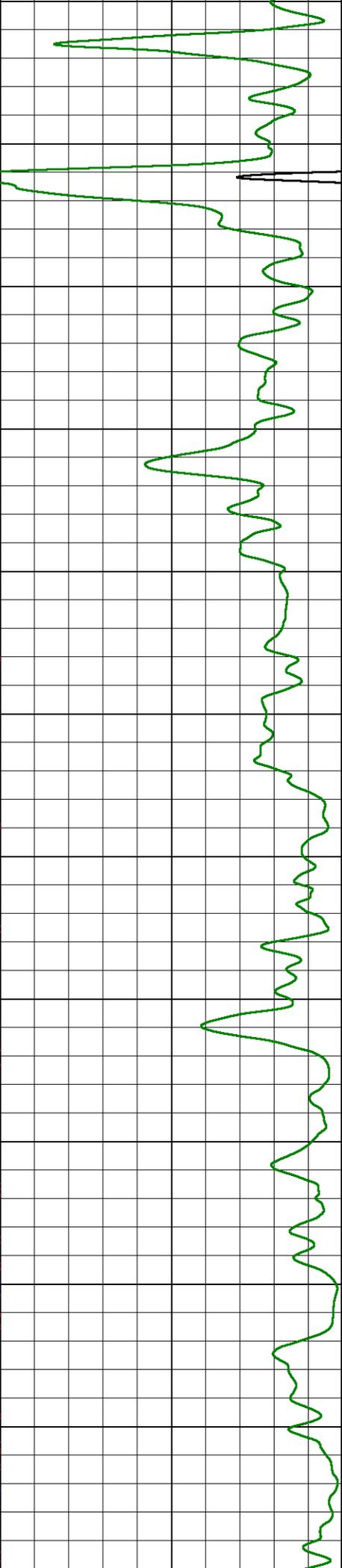
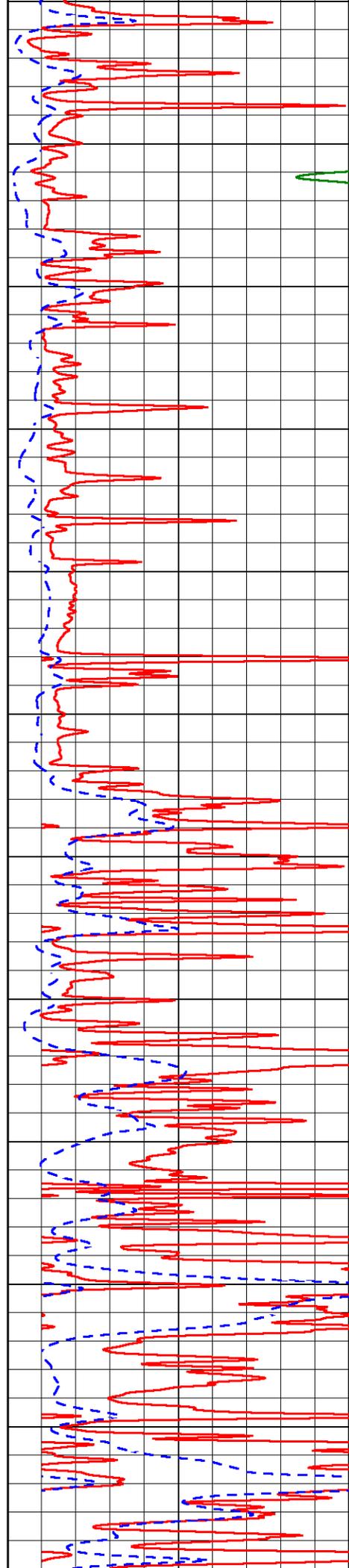


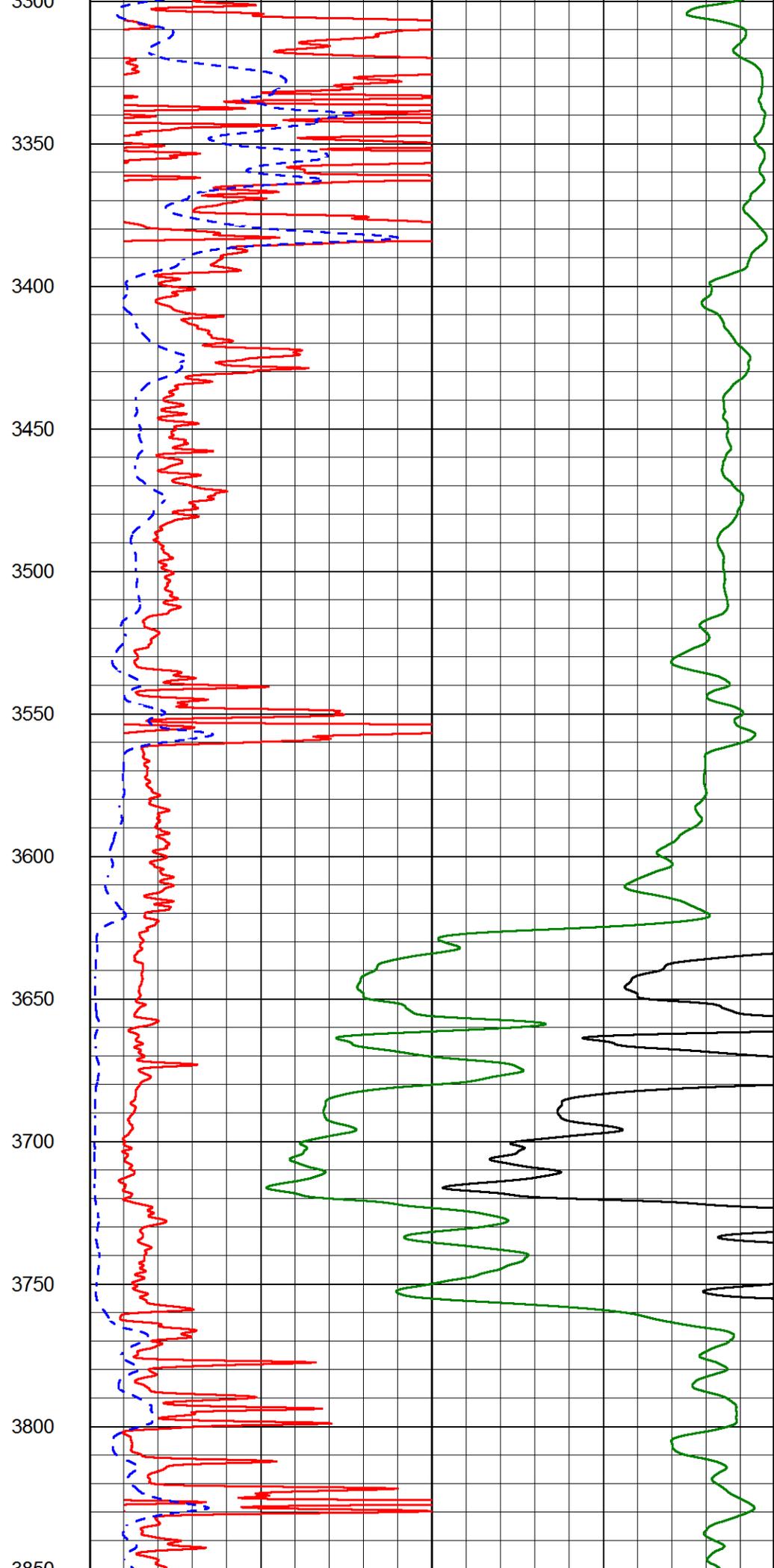
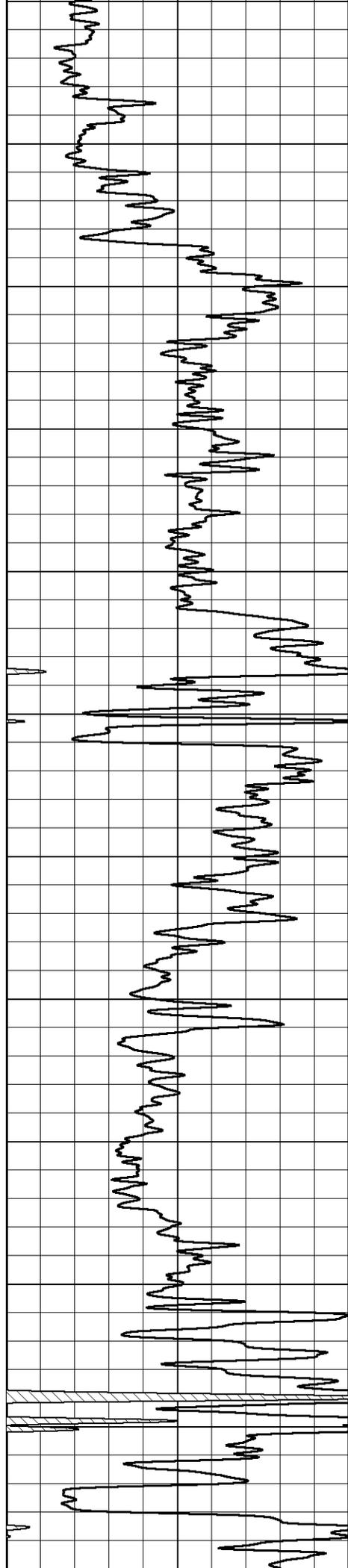
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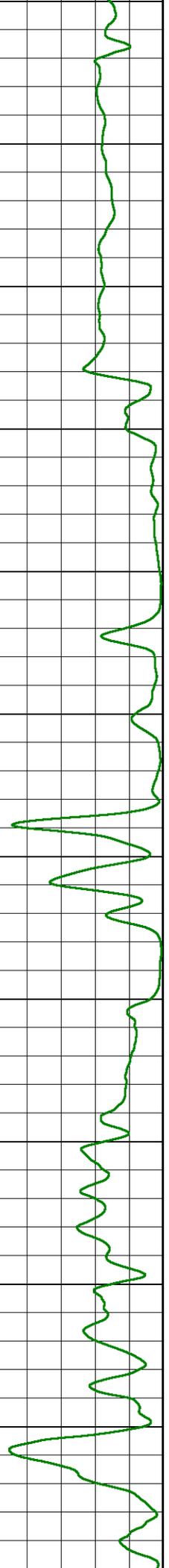
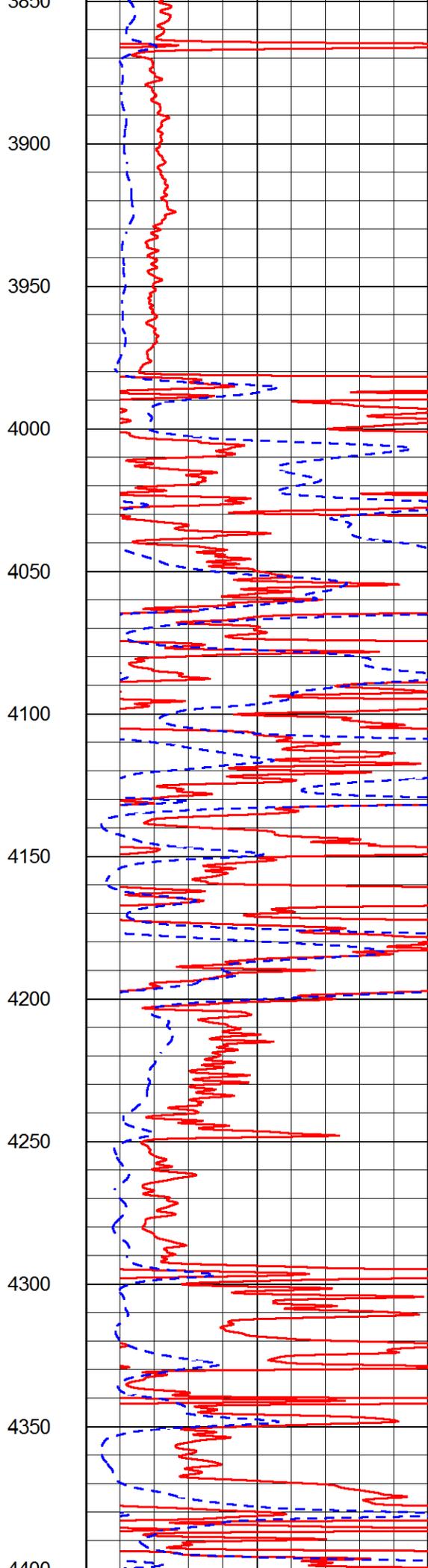
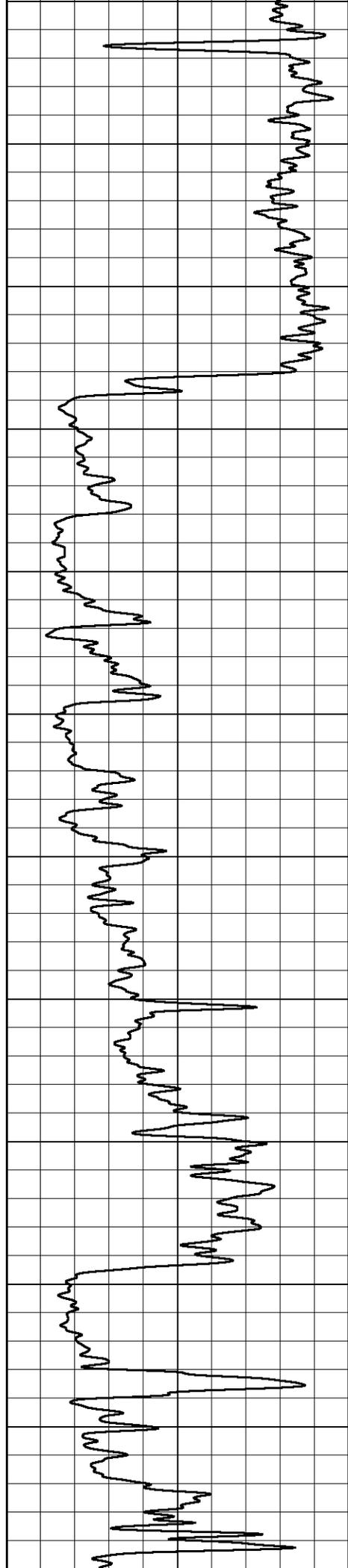


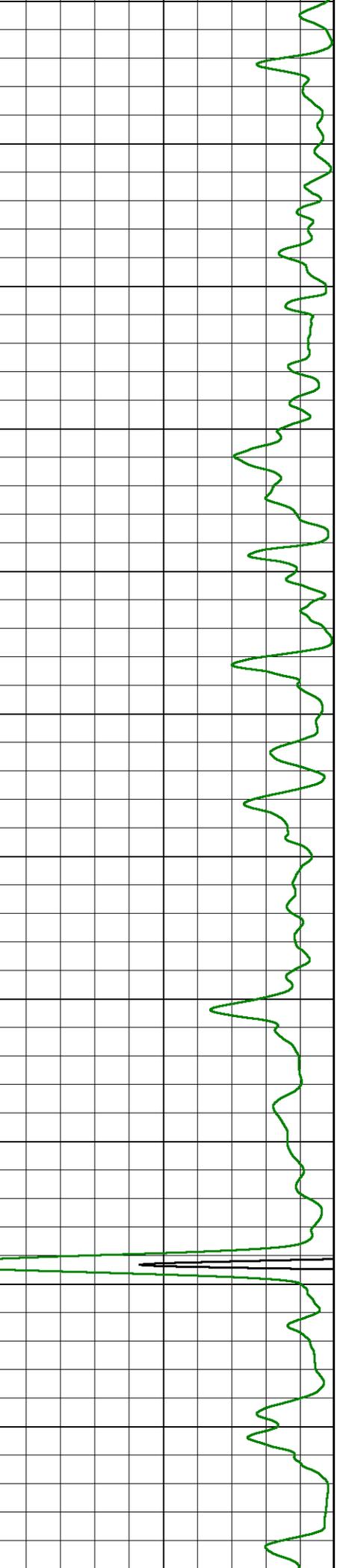
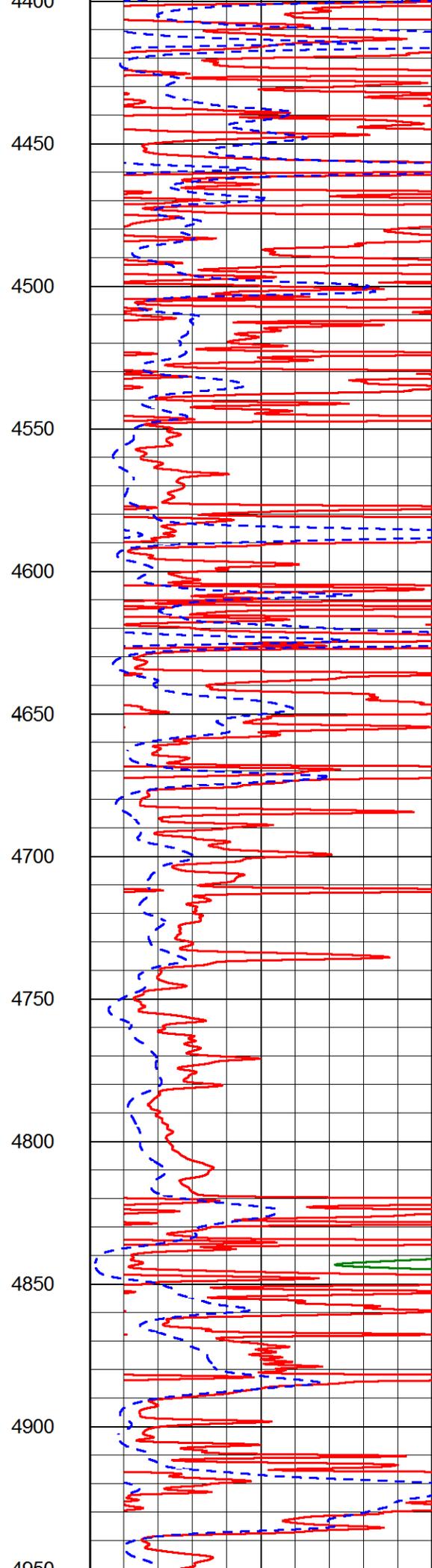
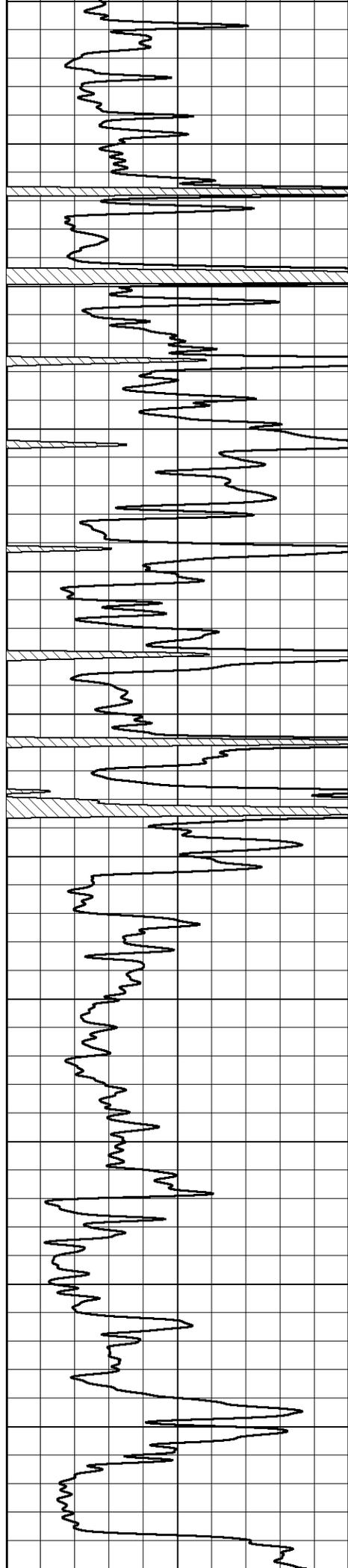


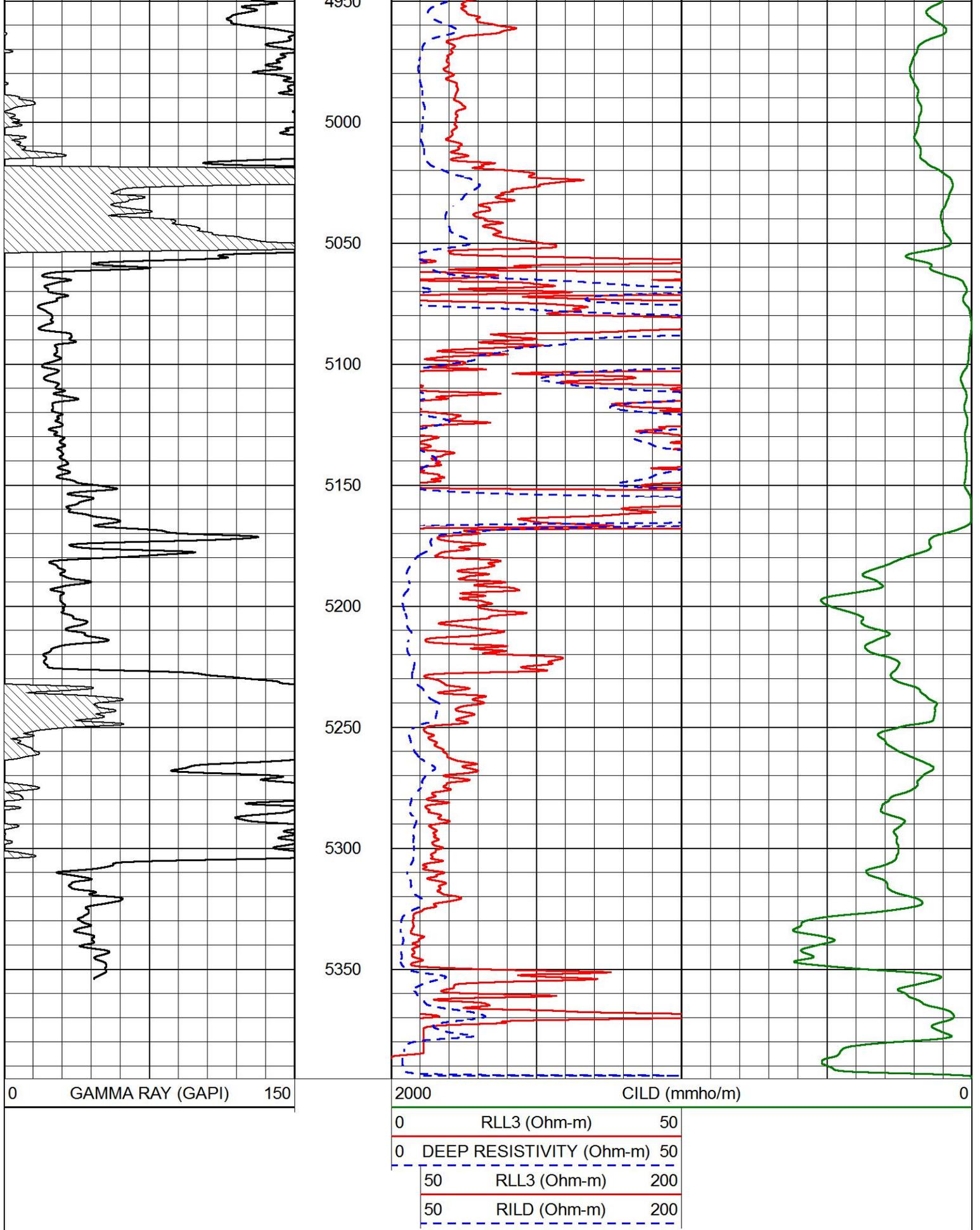
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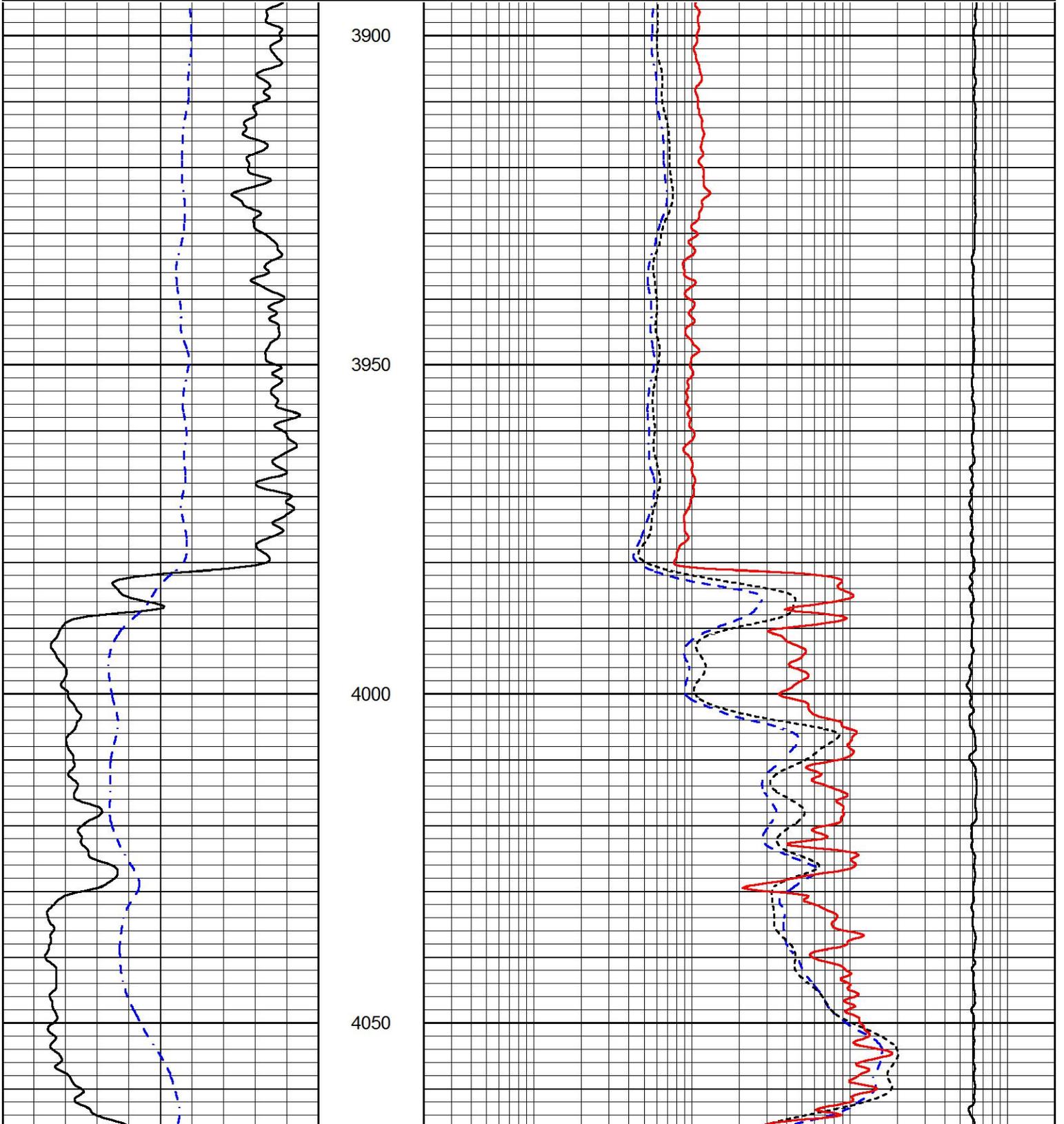


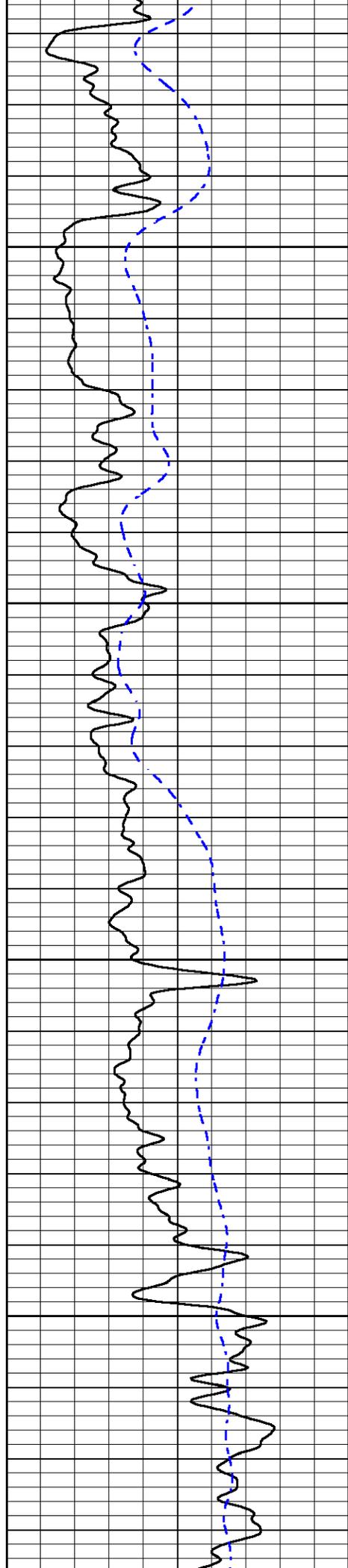
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Presentation Format dil
Dataset Creation Tue Feb 04 01:13:56 2020
Charted by Depth in Feet scaled 1:240

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
15000	LINE TENSION (lb)	0



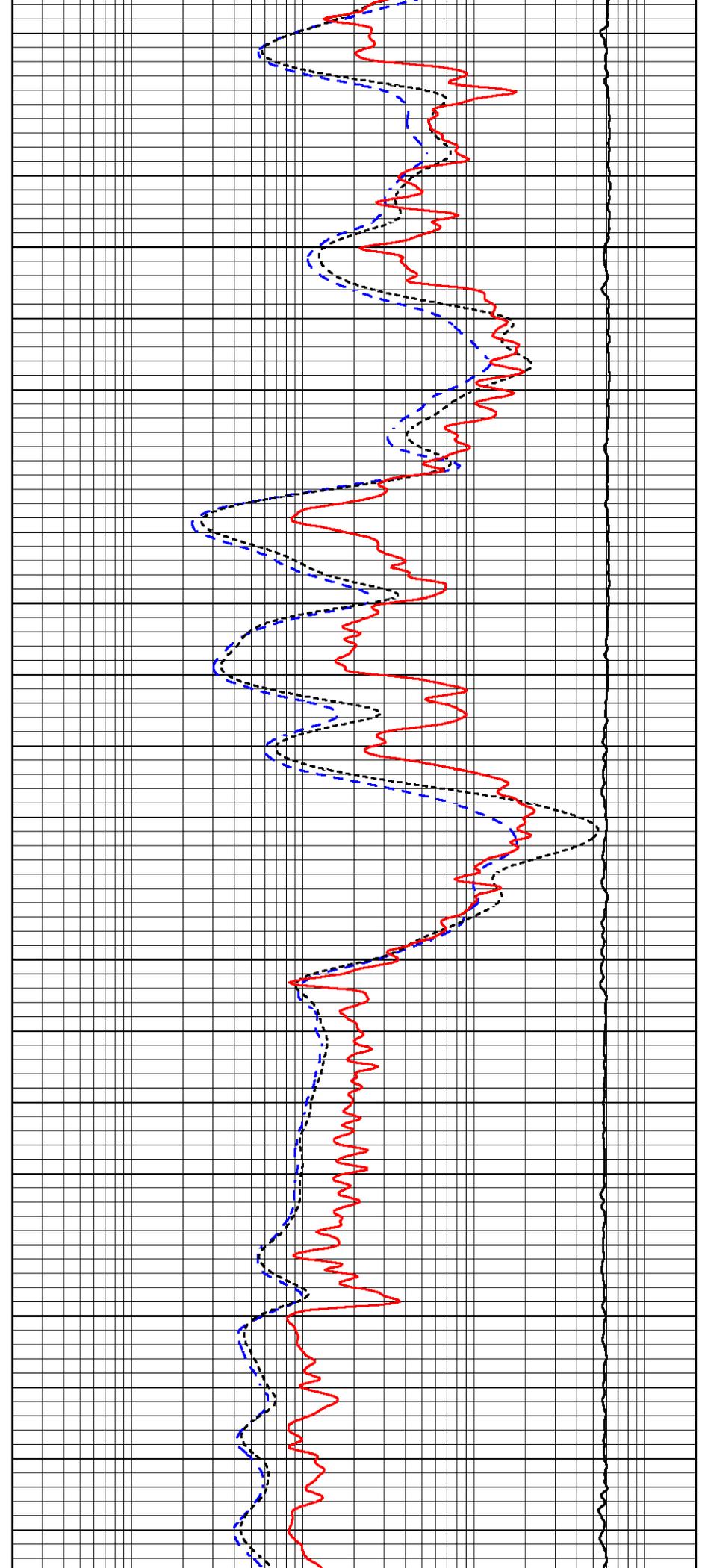


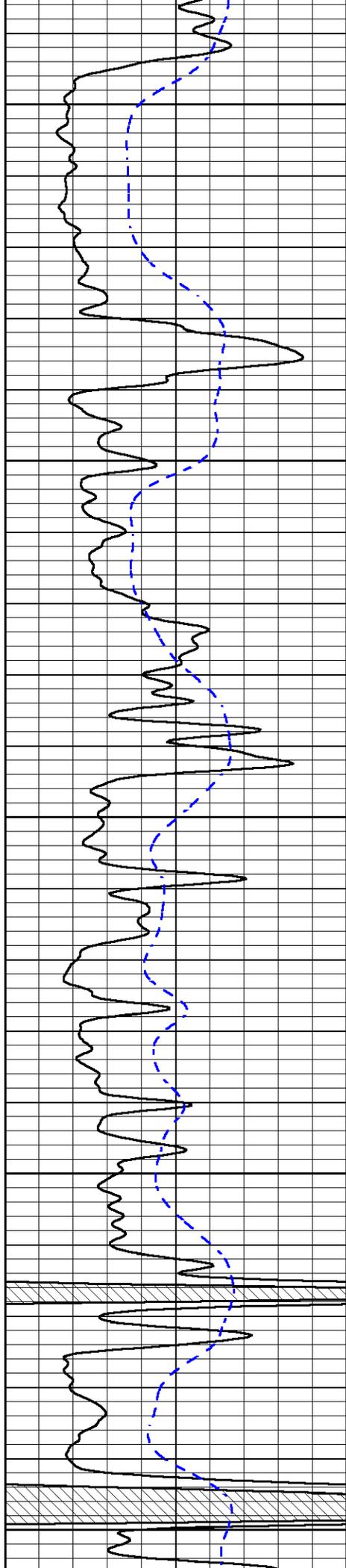
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4200

4250





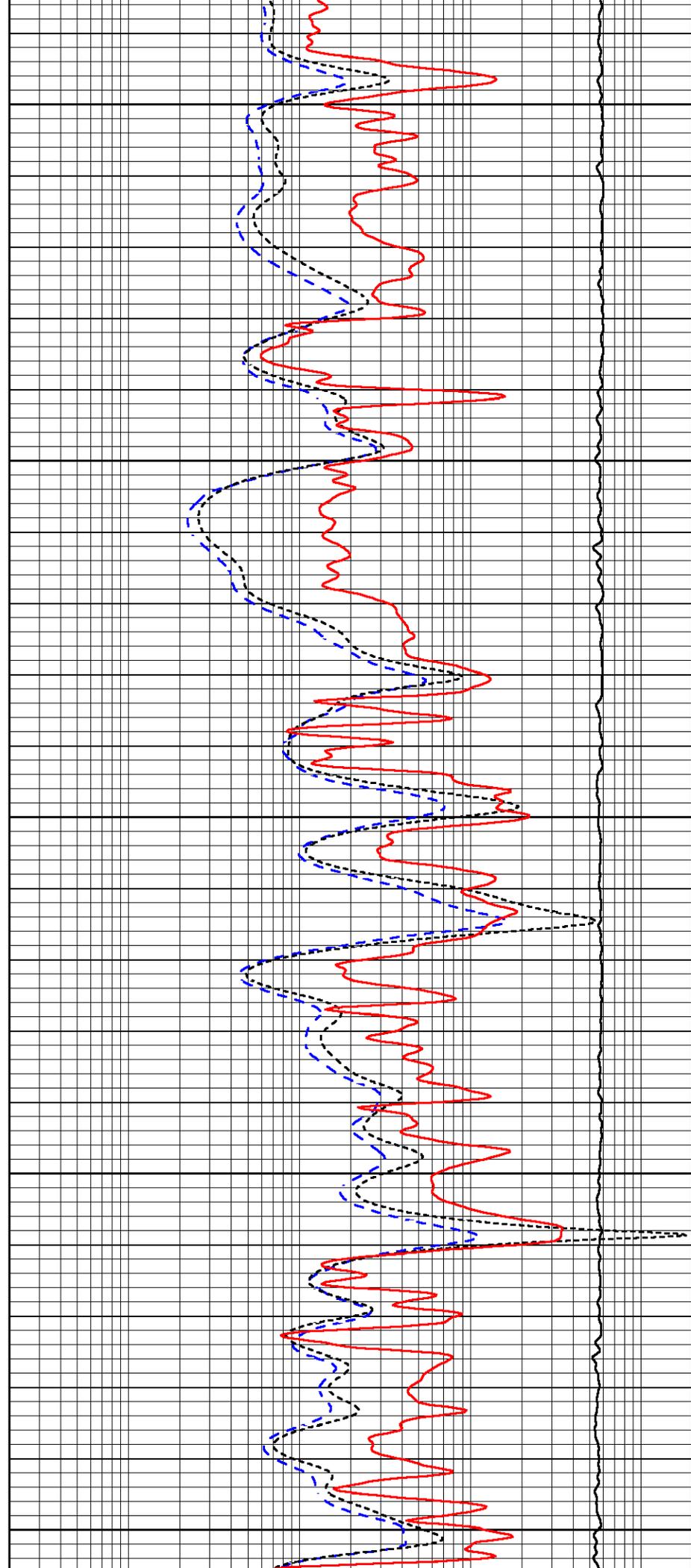
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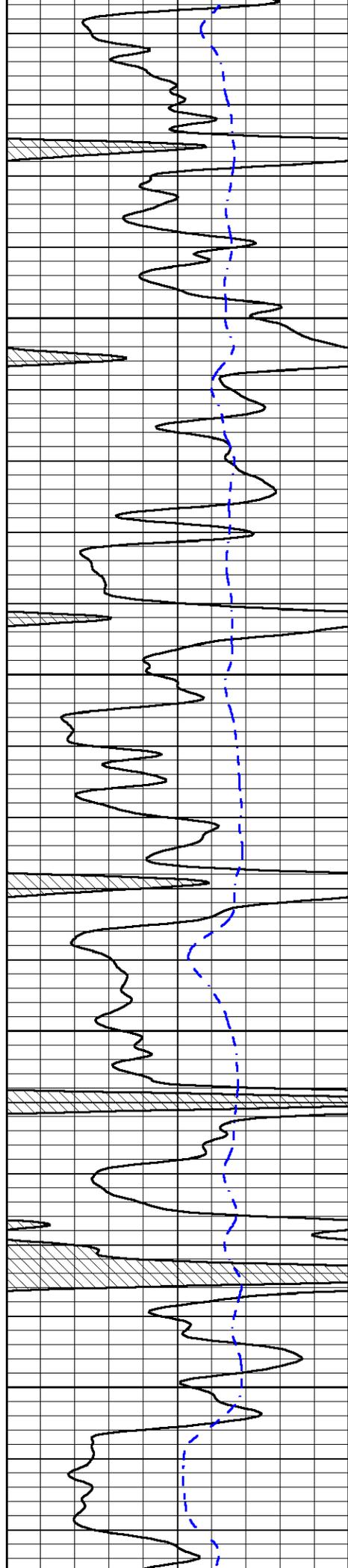
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4450

4500



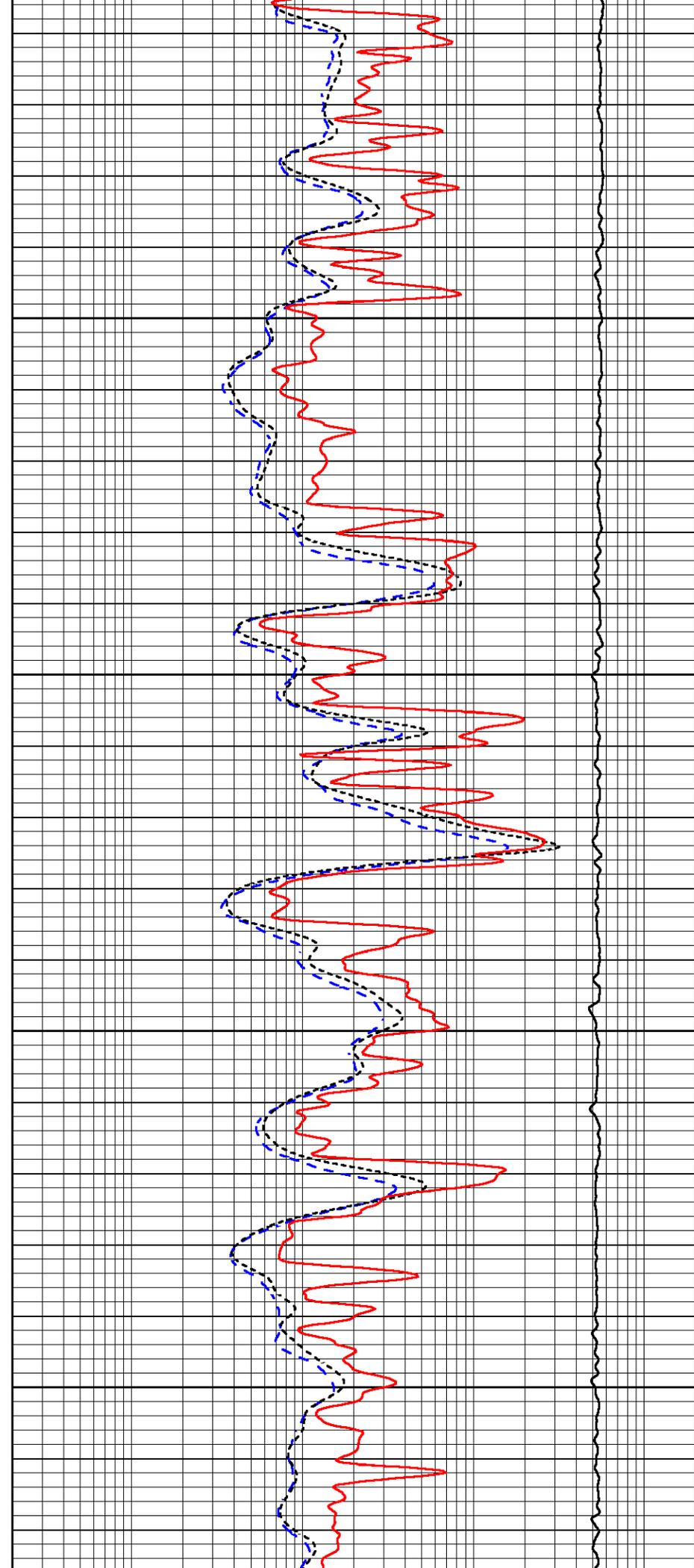


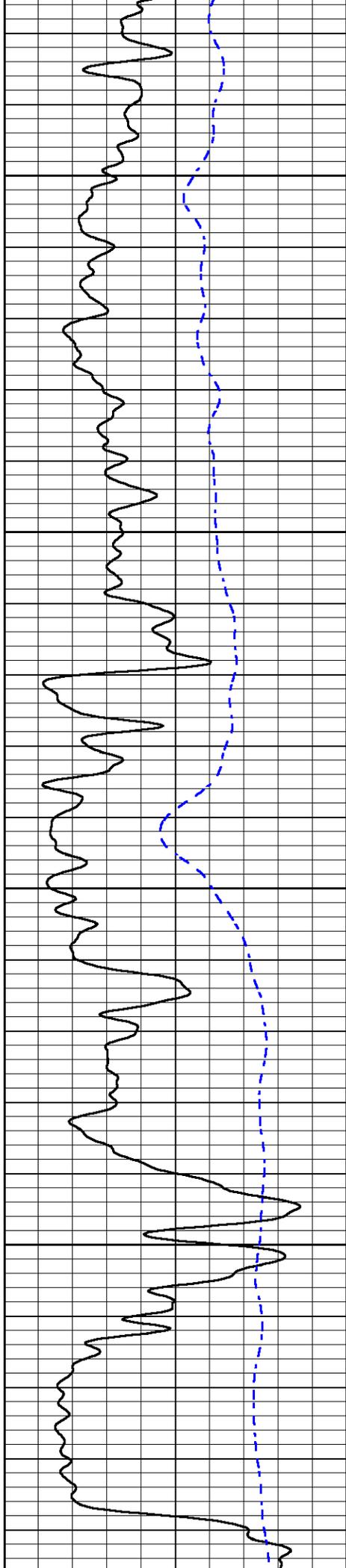
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4700



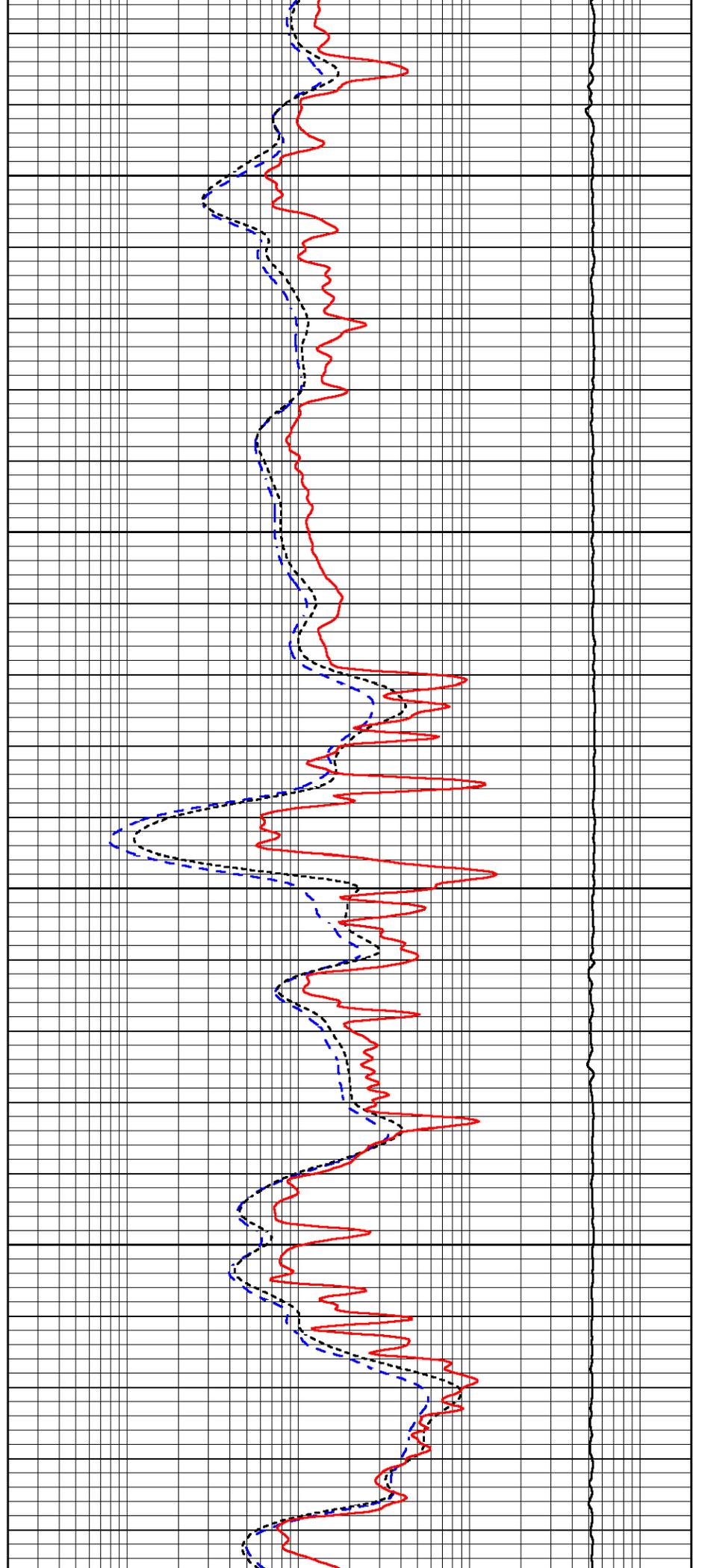


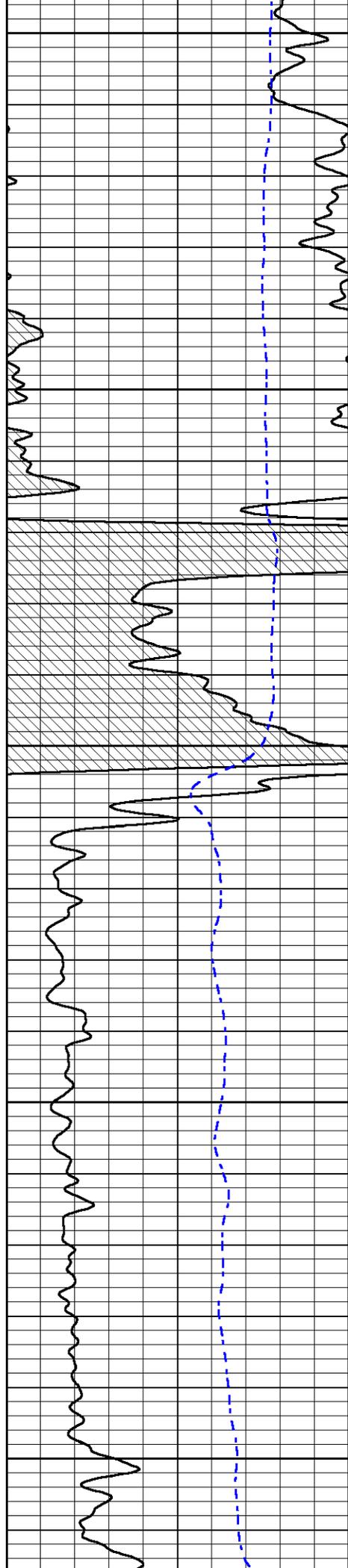
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4900





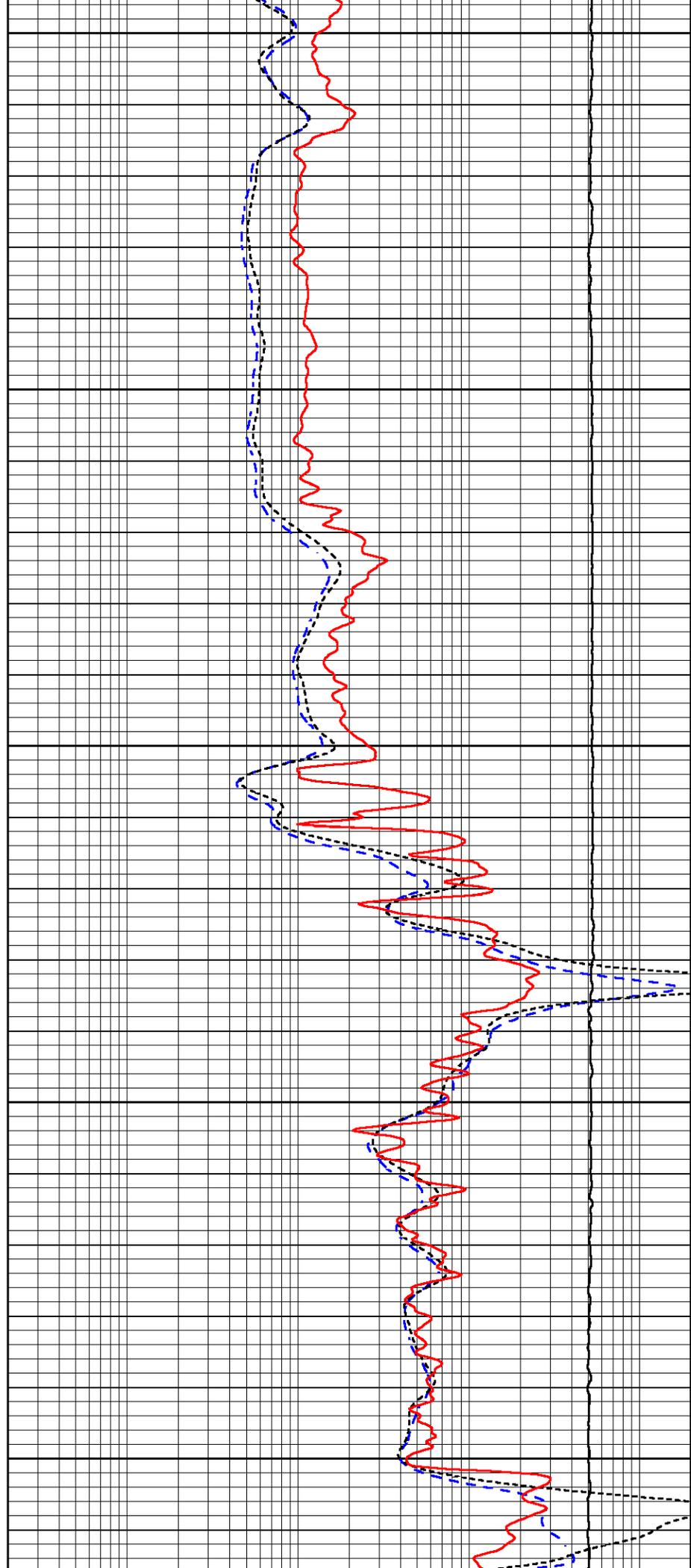
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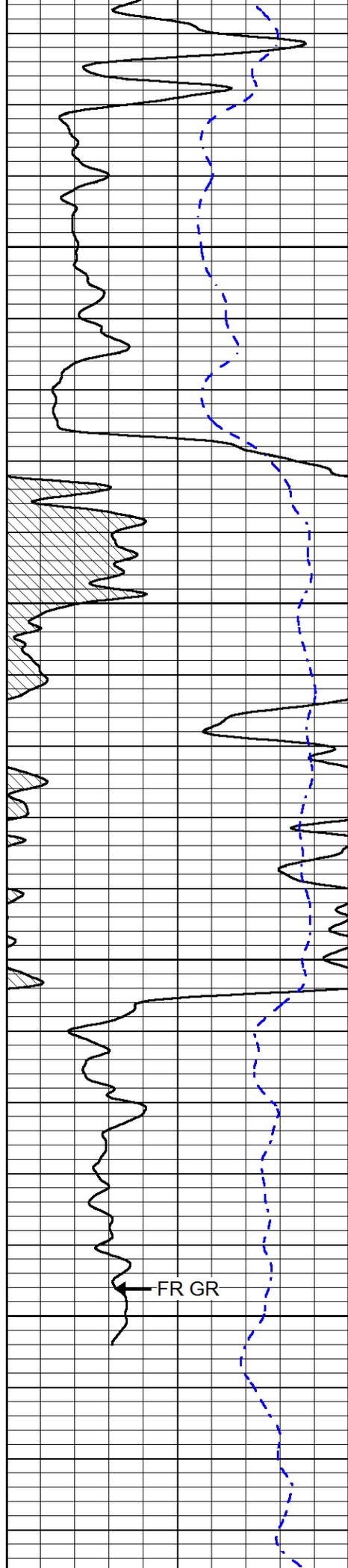
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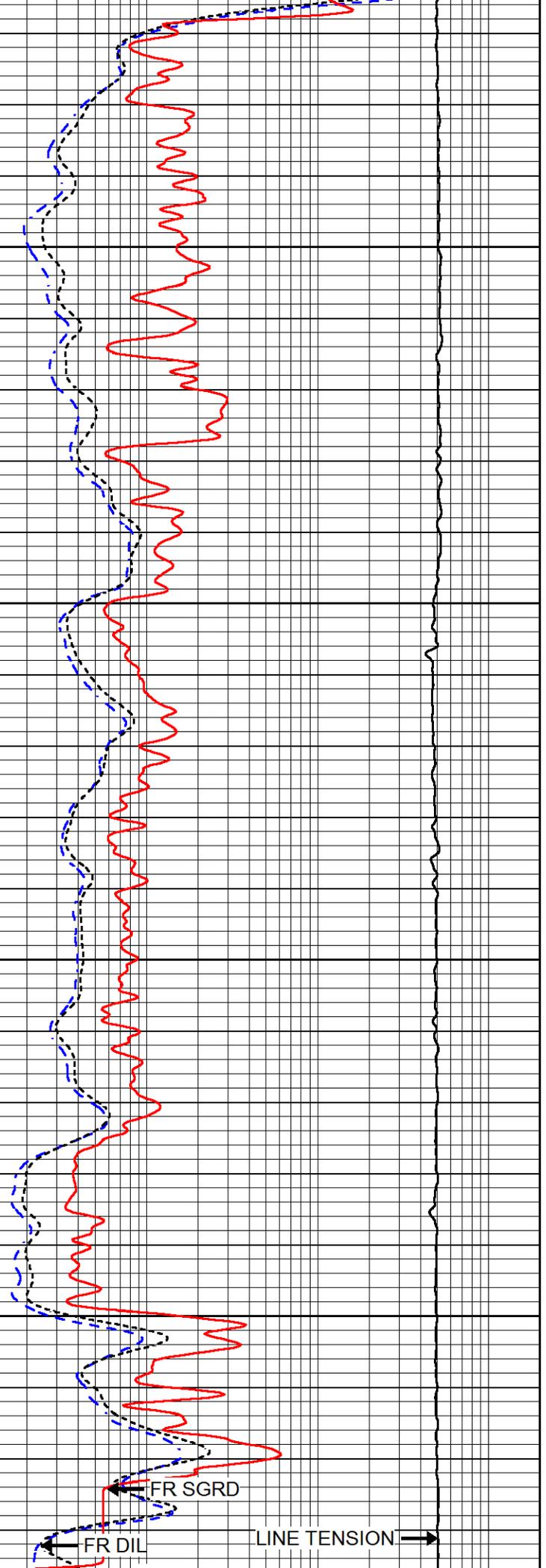
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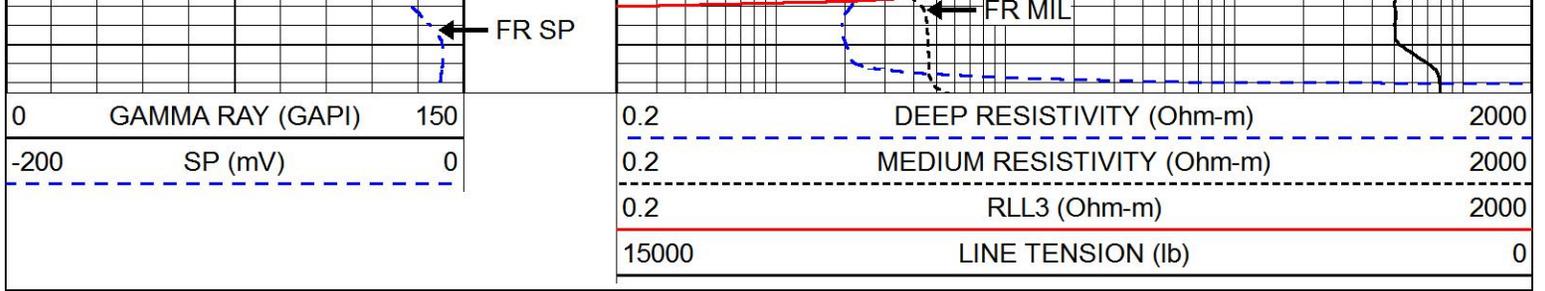
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FR SGRD

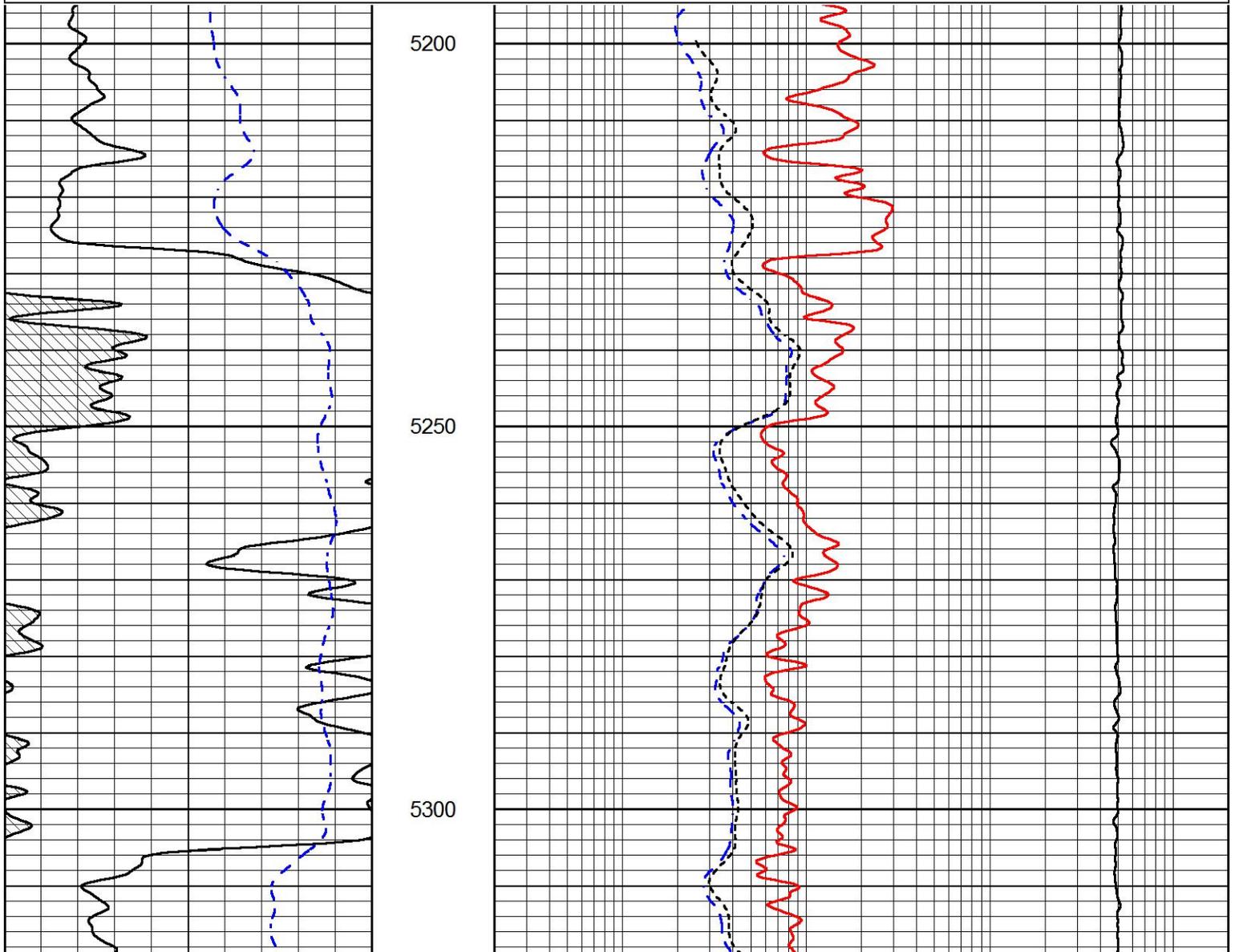
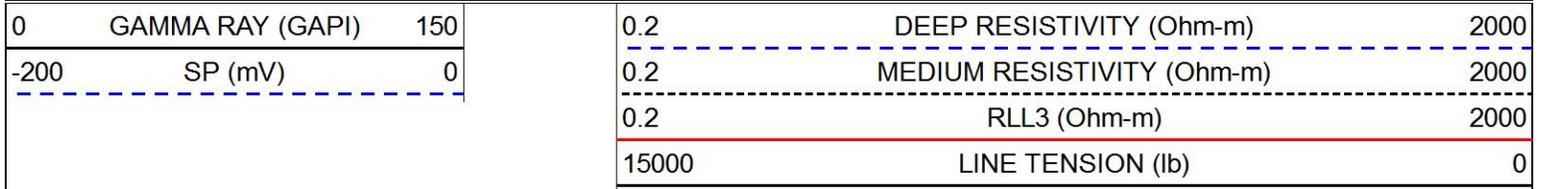
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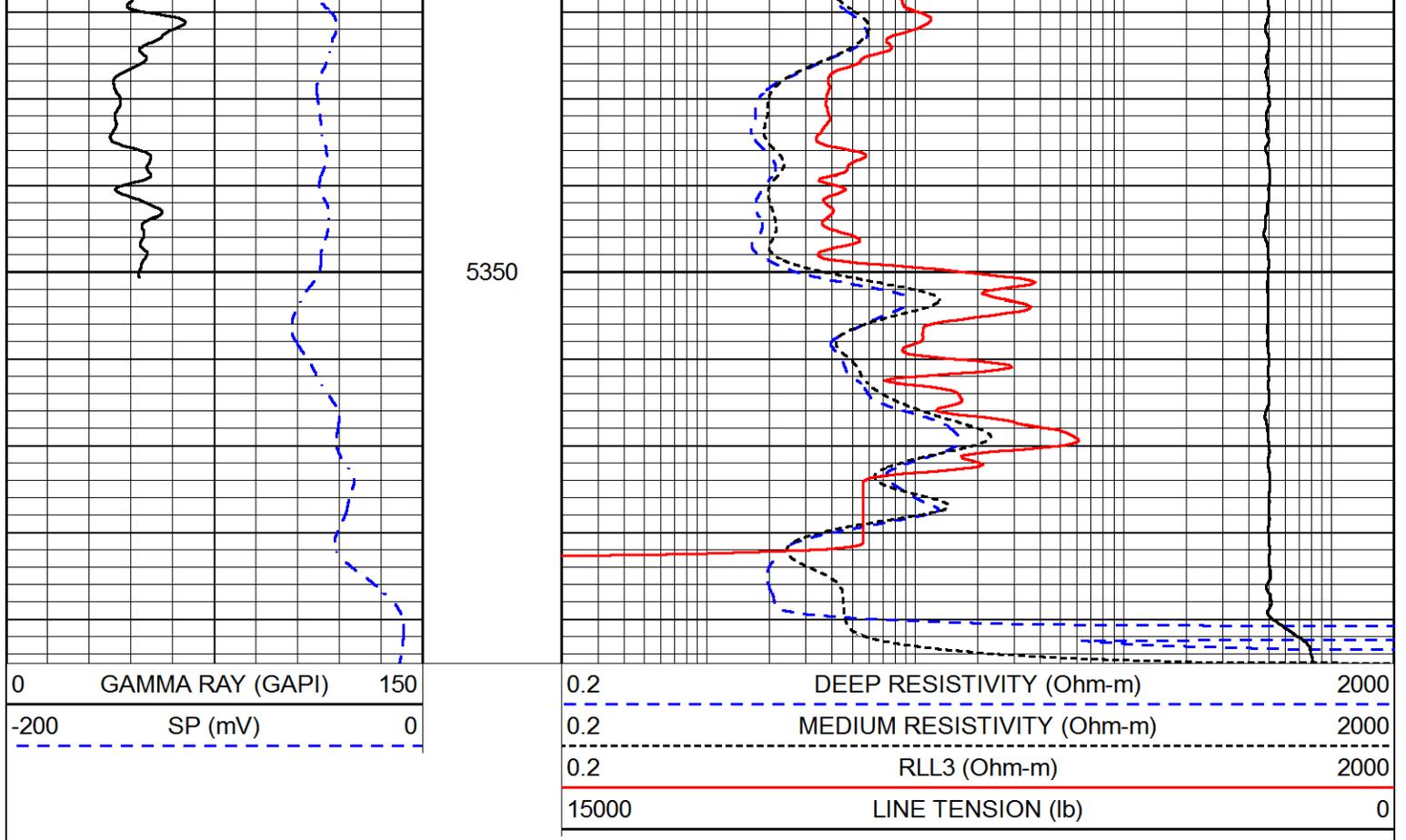
LINE TENSION



REPEAT SECTION

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 Presentation Format dil
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 Charted by Depth in Feet scaled 1:240





Calibration Report

Database File sapphire_tracy_#1_owwo.db
 Dataset Pathname STACKML/pass3.1
 Dataset Creation Tue Feb 04 01:13:56 2020

Dual Induction Calibration Report

Serial-Model: 55-222-M&W
 Calibration Performed: Tue Dec 10 05:11:10 2019

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	167.000	835.000	0.000	255.800	mmho/m	0.500	-41.000
Medium	0.000	1348.000	142.000	255.800	mmho/m	0.370	-15.000

Microlog Calibration Report

Serial-Model: UDM-01-PSI UDM ML
 Performed: Fri May 31 06:10:42 2019

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	19000.0000	-1.0000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	23000.0000	-1.0000
Caliper	1.0019	1.2642	8.0000	22.0000	in	53.3774	-47.6000

Compensated Density Calibration Report

Serial-Model: 934-229-M&W

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	3391.68	2392.26	cps
Aluminum	2.670	g/cc	645.86	1568.99	cps
Spine Angle = 75.73			Density/Spine Ratio = 0.535		
	Size		Reading		
Small Ring	4.00	in	1.39		
Large Ring	14.00	in	1.04		

Compensated Neutron Calibration Report

Serial Number: tk10-MW
Tool Model: M&W
Calibration Performed: Wed Nov 16 11:21:36 2016

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: 89-M&W
Tool Model: M&W
Calibration Performed: Tue Dec 10 05:11:34 2019

Calibrator Value: 1000.0 GAPI

Background Reading: 0.0 cps
Calibrator Reading: 6.2 cps

Sensitivity: 0.5200 GAPI/cps



PIONEER

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Company SAPHIRE RESOURCE, LLC
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Field GROENDYCKE SOUTH
County BARBER
State KANSAS