



DUAL INDUCTION LOG

PIONEER
Pioneer Energy Services

Company **SHAKESPEARE OIL CO., INC.**

Well **HOVEY #1-24**

Field **WILDCAT**

County **WICHITA**

State **KANSAS**

Location: API #: 15-203-20349-00-00

2120' FSL & 540' FWL

SEC 24 TWP 16S RGE 35W

Permanent Datum GROUND LEVEL Elevation 3177'

Log Measured From KELLY BUSHING

Drilling Measured From KELLY BUSHING

Other Services

CNL/CDL
MEL

Elevation
K.B. 3187'
D.F. N/A
G.L. 3177'

Date 2/24/2019

Run Number ONE

Depth Driller 4915'

Depth Logger 4920'

Bottom Logged Interval 4919'

Top Log Interval 250'

Casing Driller 8.625" @ 265'

Casing Logger 265'

Bit Size 7.875"

Type Fluid in Hole CHEMICAL

Salinity, ppm CL 5500

Density / Viscosity 9.2 67

pH / Fluid Loss 10.5 8.0

Source of Sample FLOWLINE

Rm @ Meas. Temp 0.80 @ 67

Rmt @ Meas. Temp 0.60 @ 67

Rmc @ Meas. Temp 1.08 @ 67

Source of Rmt / Rmc CHARTS

Rm @ BHT 0.43 @ 125

Operating Rig Time 3 HOURS

Max Rec. Temp. F 125

Equipment Number P-24

Location HAYS

Recorded By IAN MABB

Witnessed By TOBY ECK

<<< Fold Here >>>

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.

PENCE, KS.

4 MILES WEST, 1/2 SOUTH, EAST INTO

Log Measured From: KELLY BUSHING

10 Ft. Above Permanent Datum

THANK YOU FOR USING PIONEER ENERGY SERVICES

www.pioneerenergy.com

785-625-3858

Your Pioneer Energy Services Crew

Engineer: IAN MABB

Operator:

Operator:

Operator:

This Log Record Was Witnessed By

Primary Witness: TOBY ECK

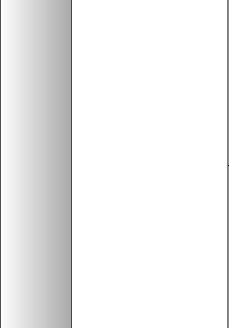
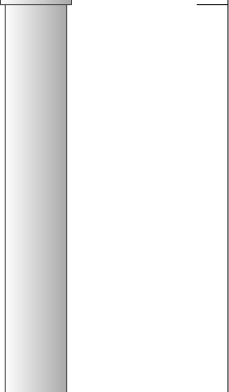
Secondary Witness:

Secondary Witness:

Secondary Witness:

Top - Bottom

M	A	SZCOR	NPORSEL	FLUIDDEN g/cc	MATRXDEN g/cc	SPSHIFT mV	SNDERRM mmho/m
2	1	Off	Limestone	1	2.71	-40	0
SNDERR mmho/m	SRFTEMP degF	CASETHCK in	CASEOD in	PERFS	TDEPTH ft	BOTTEMP degF	BOREID in
3	0	0	5.5	0	4920	125	7.875

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
GR	40.58		GR-M&W (89)	3.00	3.50	50.00
CNLSC CNSSC	37.48 36.73		CNT-M&W (207-MW)	5.50	3.50	100.00
LSD DCAL SSD	28.43 28.42 27.93		CDL-M&W (126-186)	8.50	4.00	250.00
MCAL MI MN	19.83 19.83 19.83		ML-PSIML (PSI-01) GO Micro log tools converted to Simplec electronics	7.58	4.00	65.00
RLL3F RLL3	15.80 15.80					

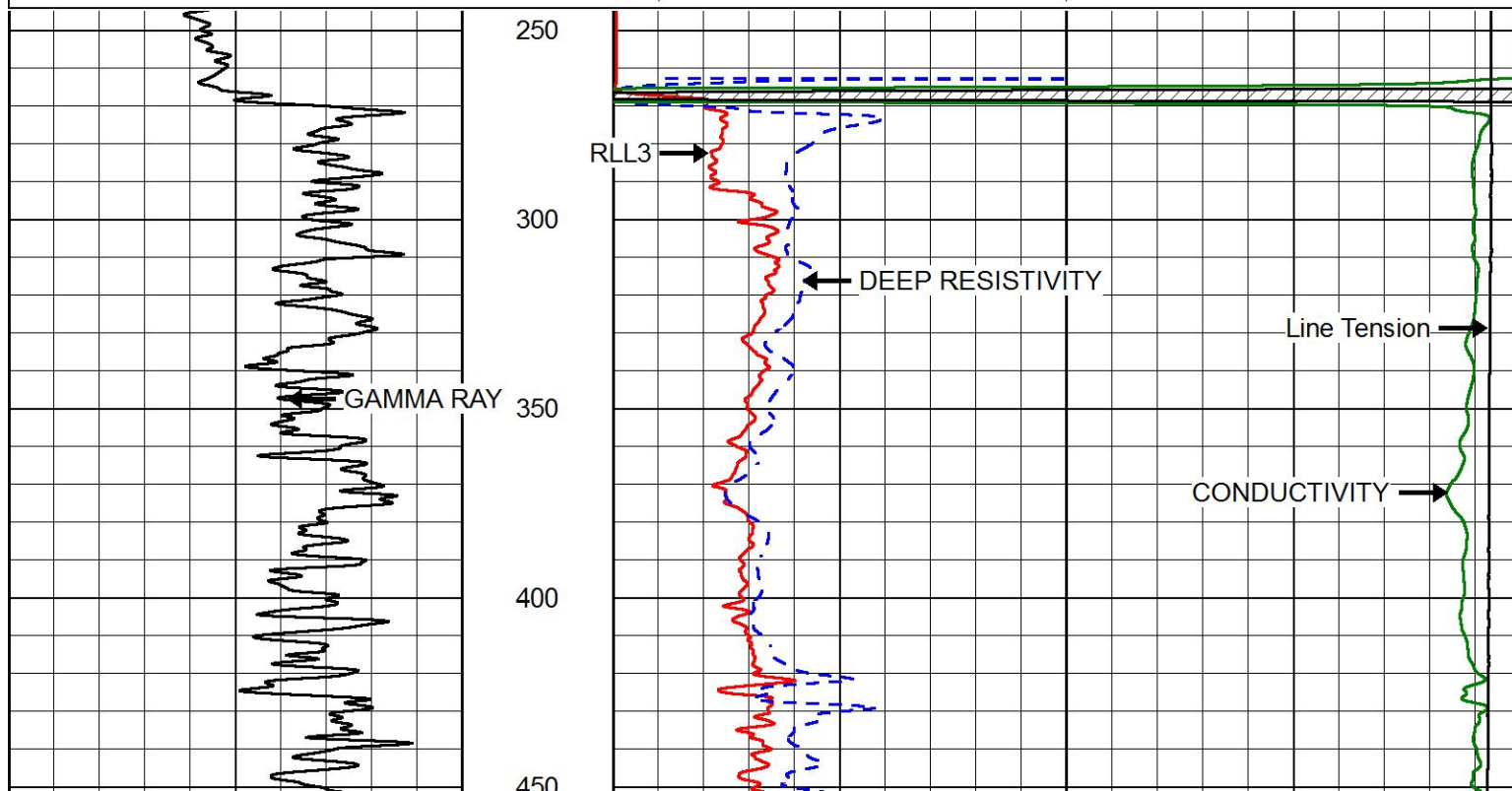
			DIL-PSI HIGH TEMP (967 (HT))	18.50	3.50	220.00
CILD	8.00					
CILM	4.70					
SP	0.20					
Dataset: shakespeare_hovey_1_24.db: field/well/stackmel/pass3.1 Total length: 43.08 ft Total weight: 685.00 lb O.D.: 4.00 in						

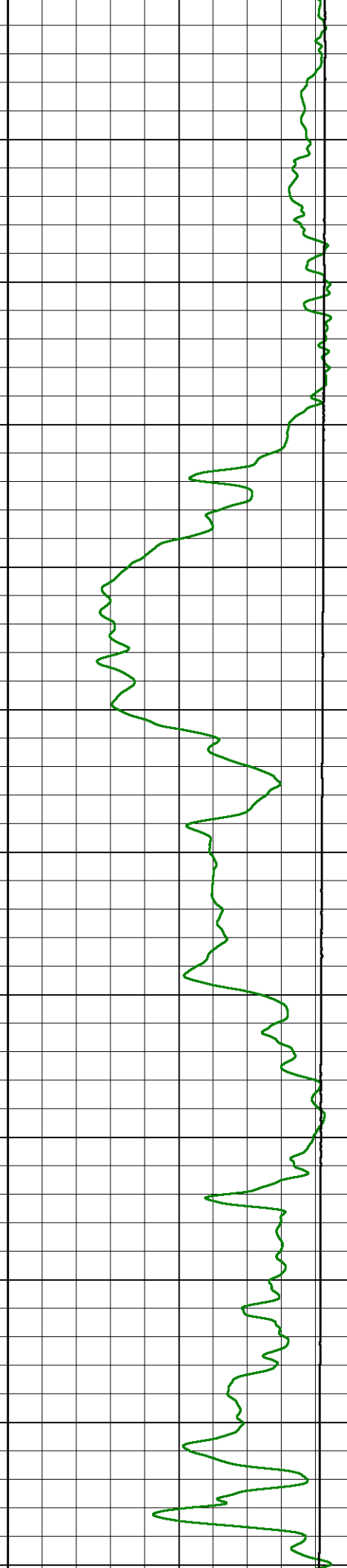
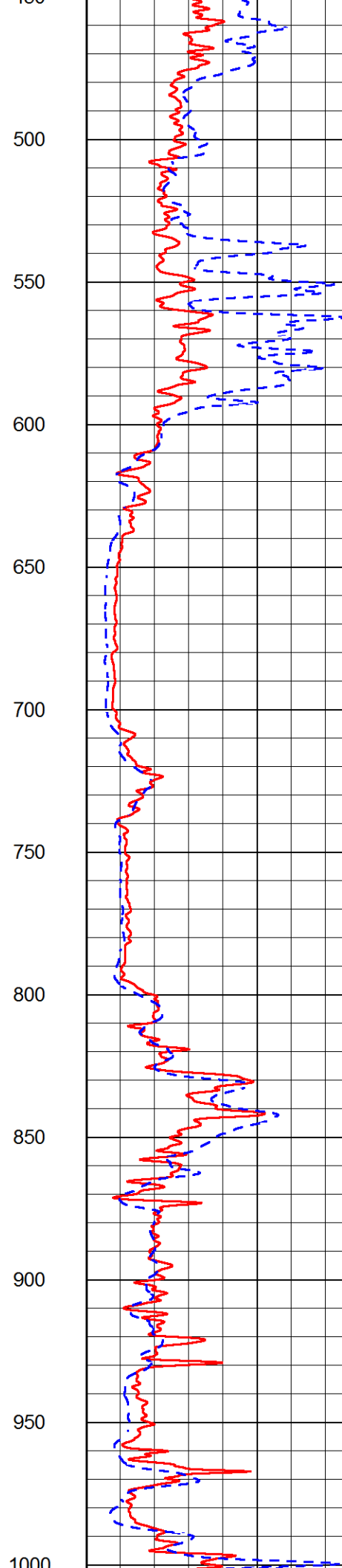
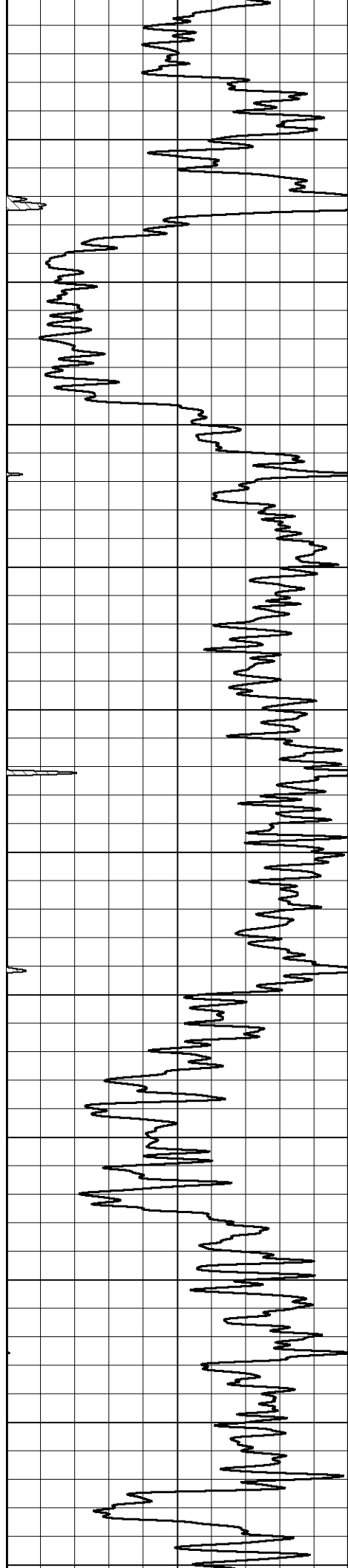


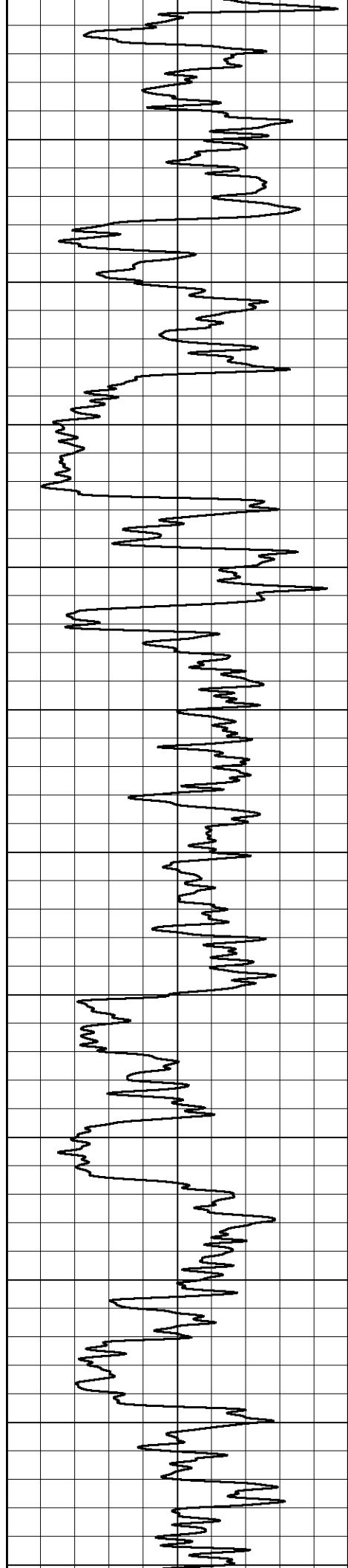
MAIN PASS

Database File	shakespeare_hovey_1_24.db
Dataset Pathname	stackmel/pass3.1
Presentation Format	dil2in
Dataset Creation	Sun Feb 24 11:09:12 2019
Charted by	Depth in Feet scaled 1:600

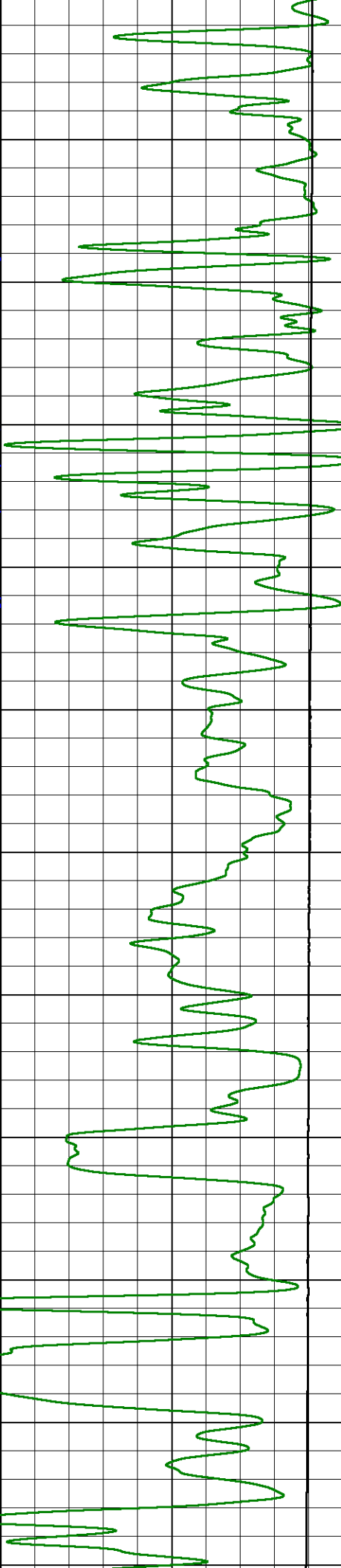
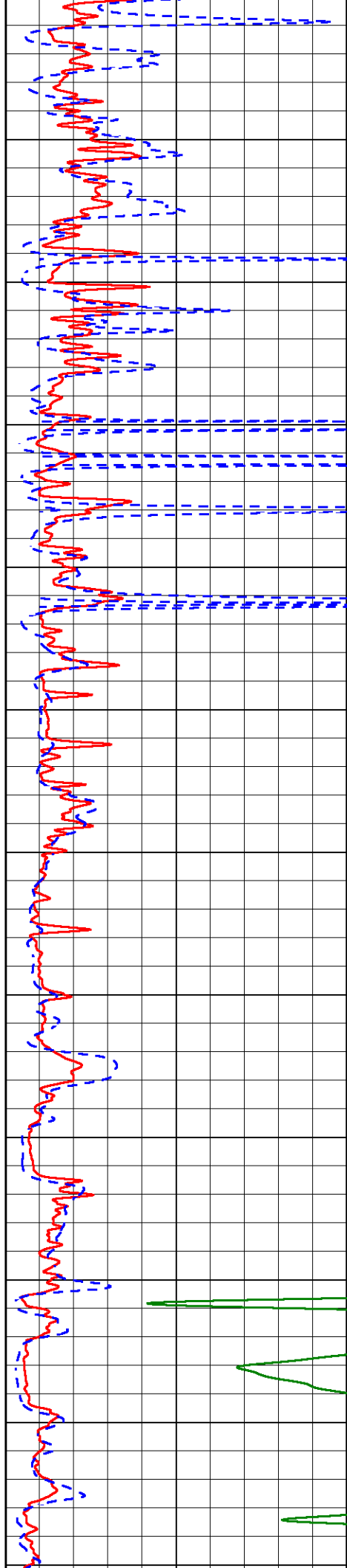
GAMMA RAY 0 (GAPI) 150	1000	CONDUCTIVITY (mmho/m)	0
	15000	Line Tension (lb)	0
	0	RLL3 (Ohm-m)	50
	0	DEEP RESISTIVITY (Ohm-m)	50
	50	RLL3 (Ohm-m)	500
	50	Deep Resistivity (Ohm-m)	500

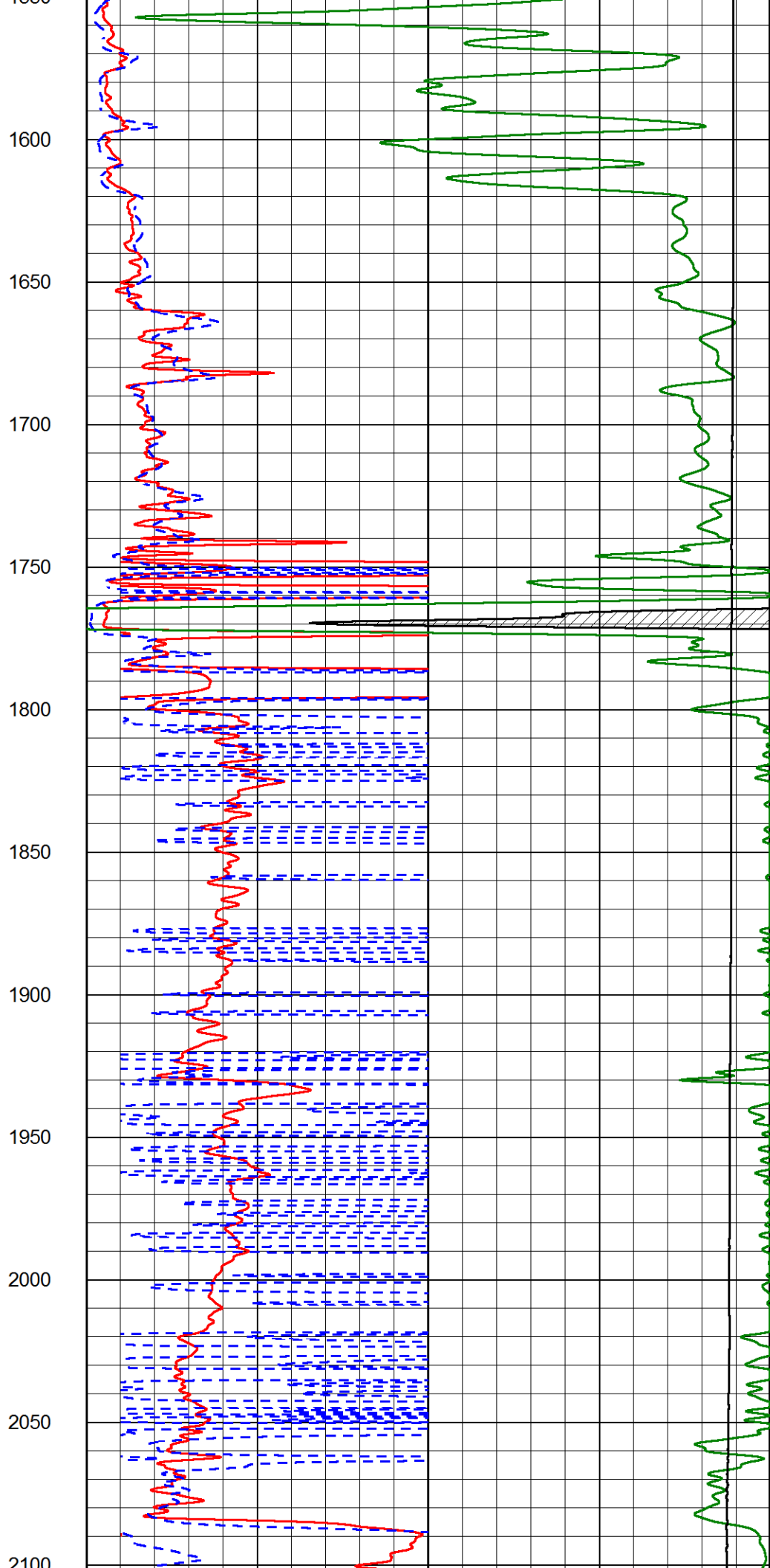
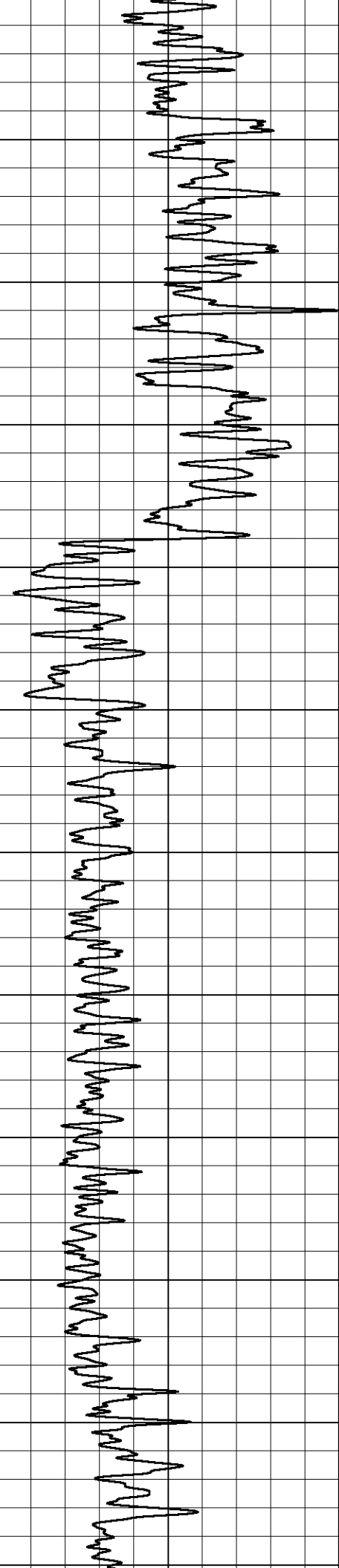


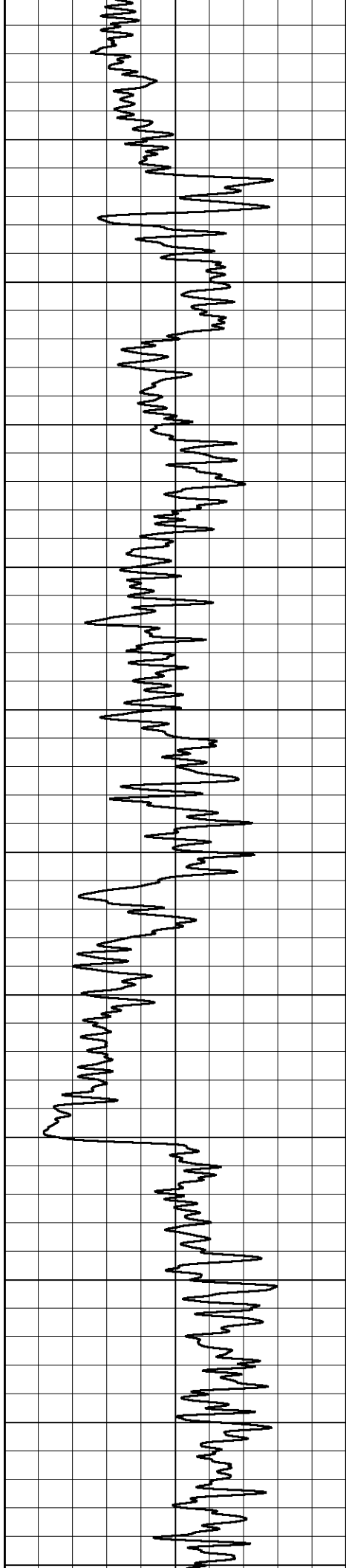




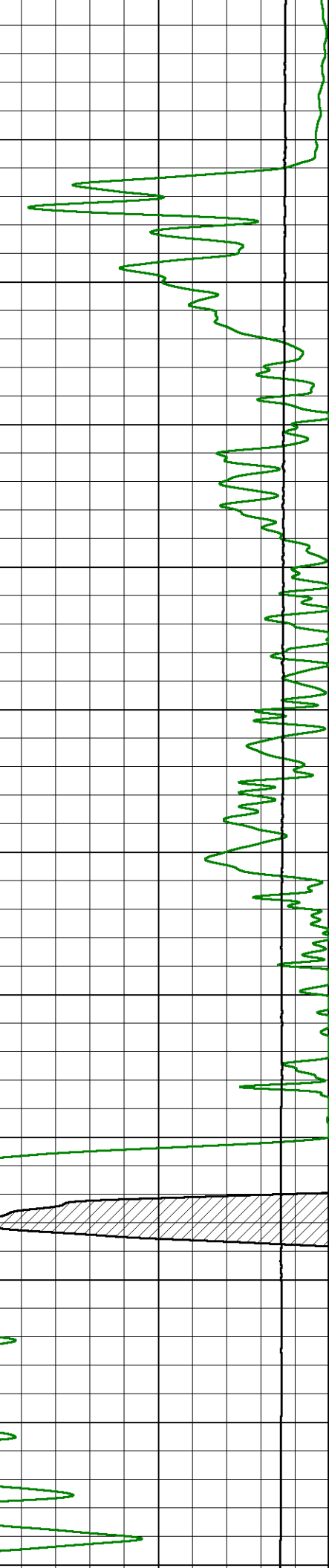
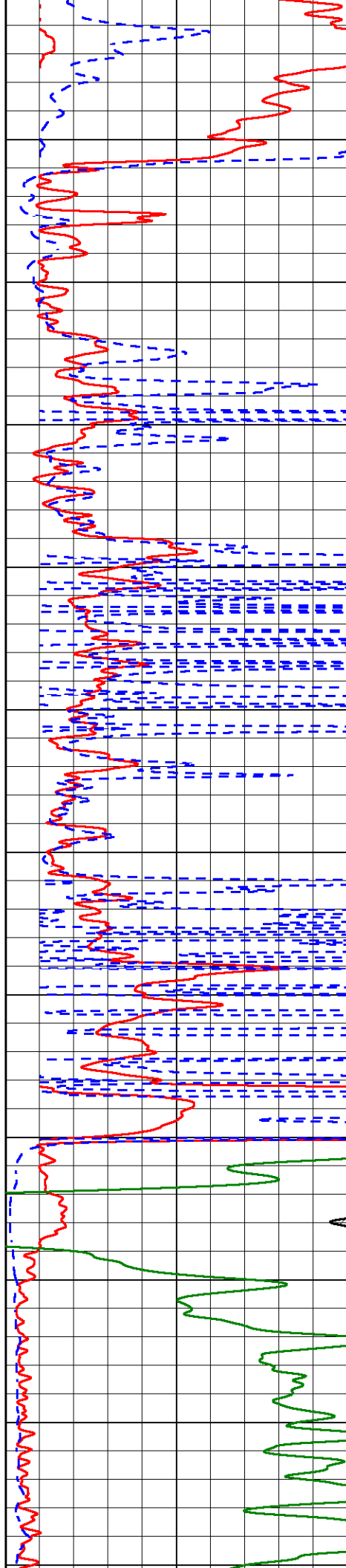
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1100
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1400
1450
1500
1550

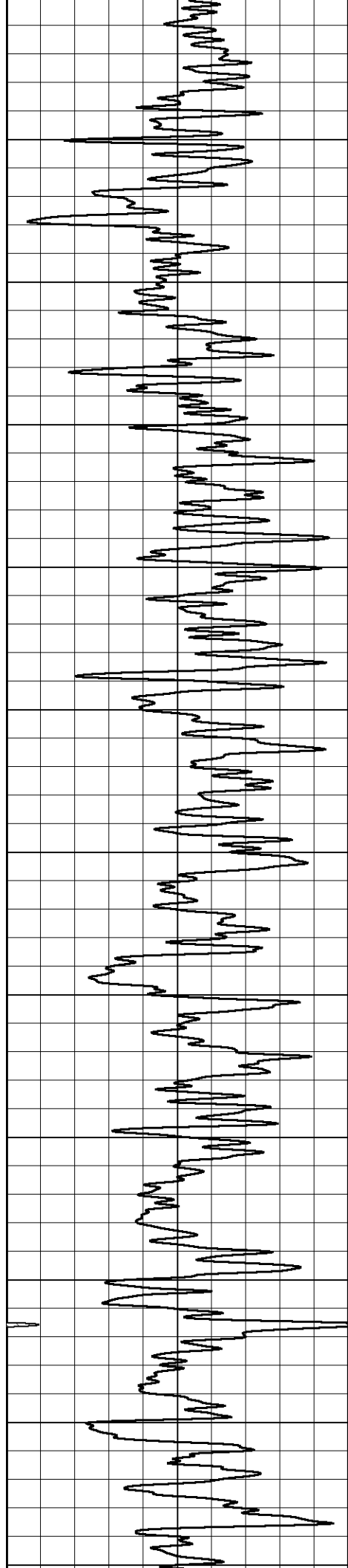




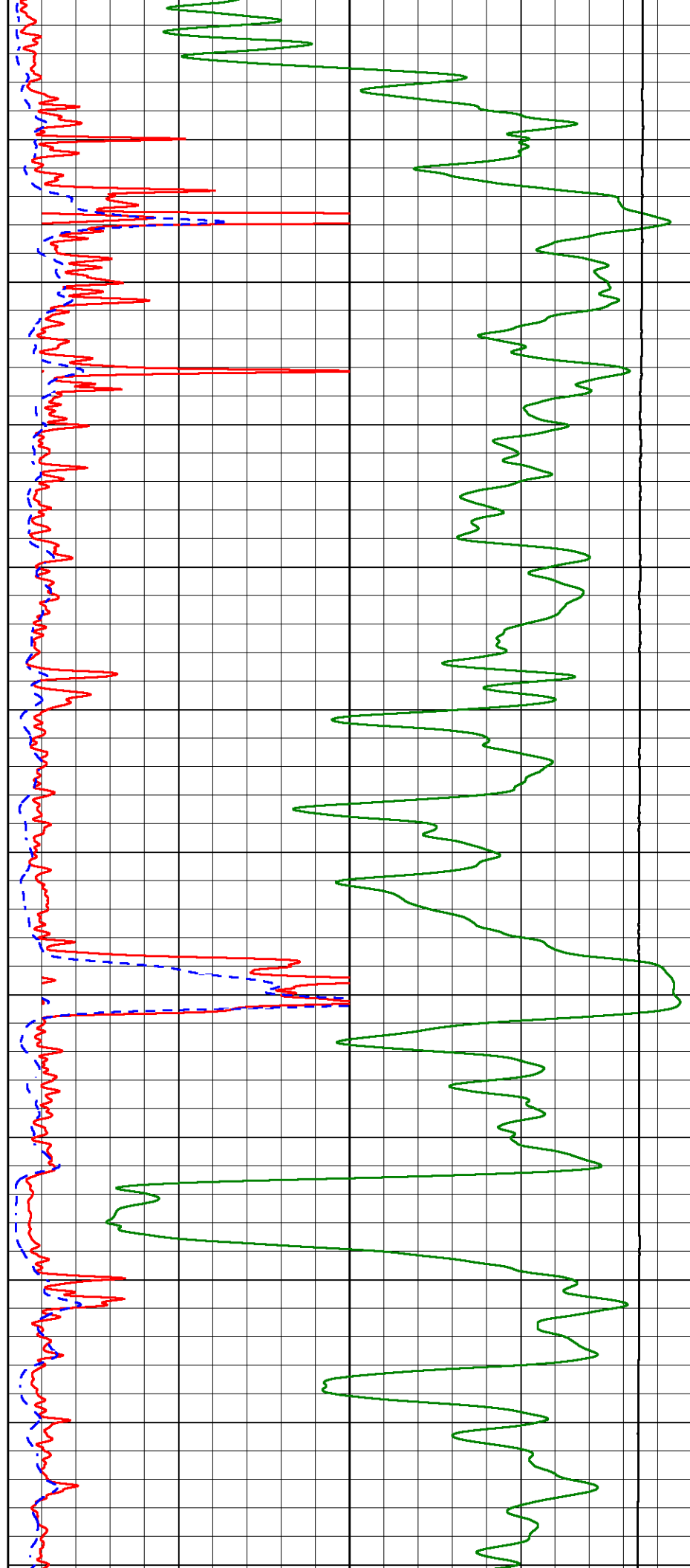


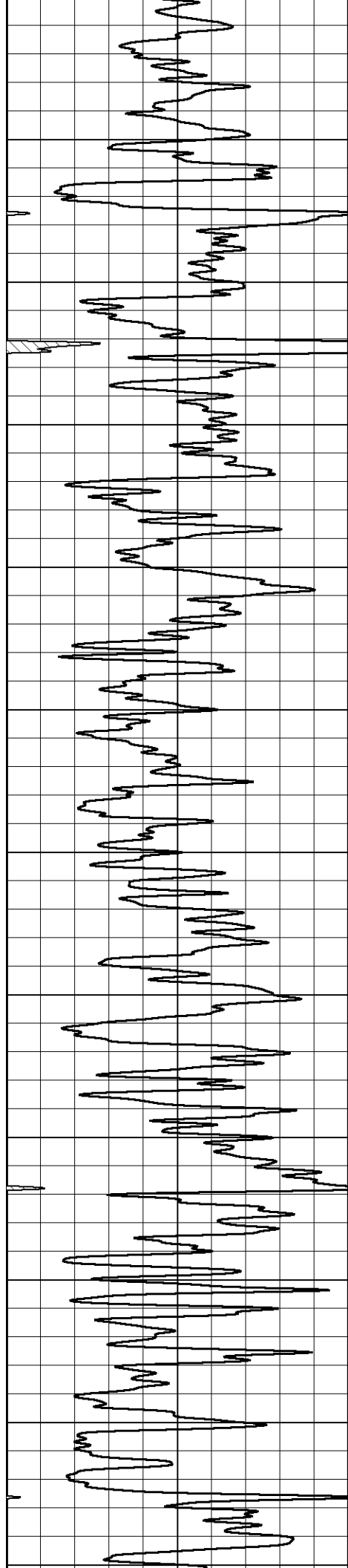
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2250
2300
2350
2400
2450
2500
2550
2600
2650



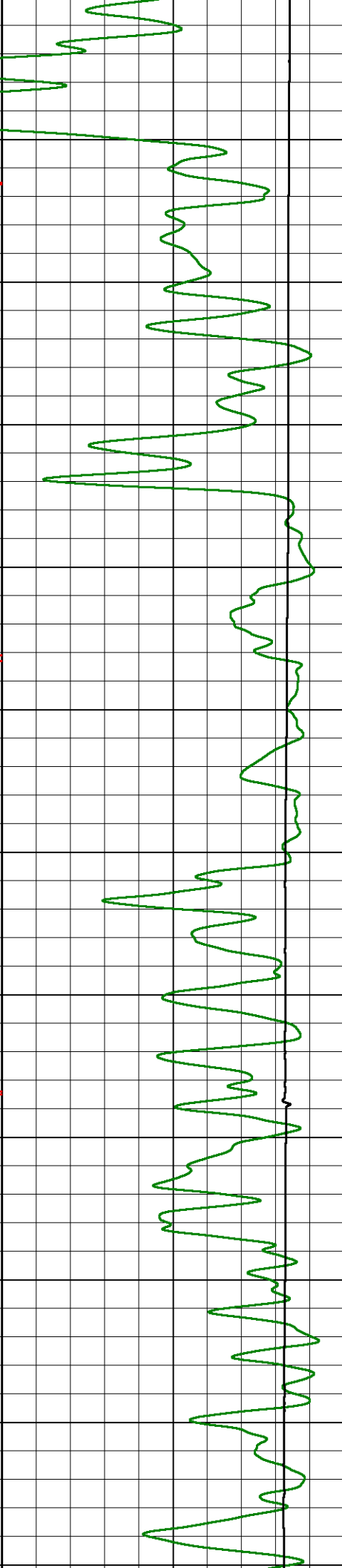
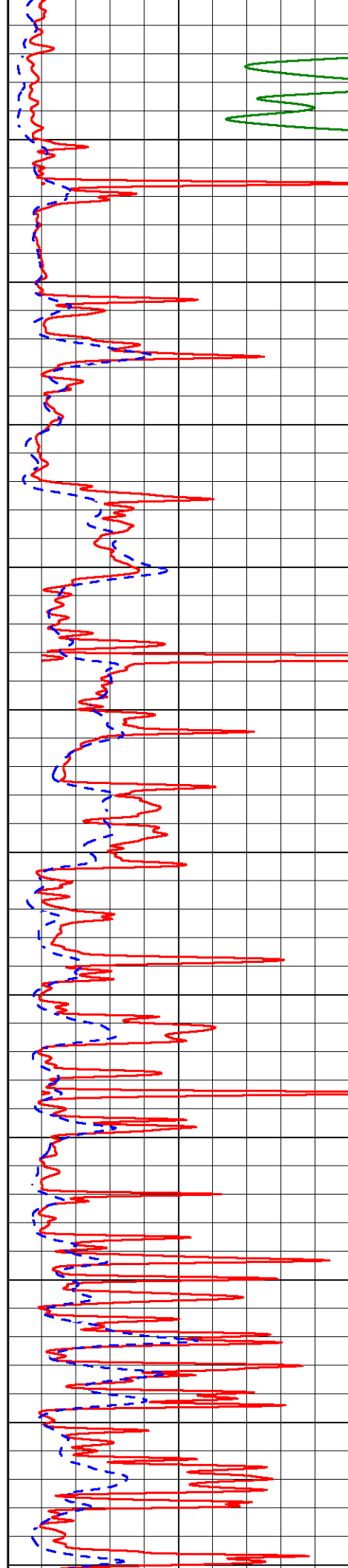


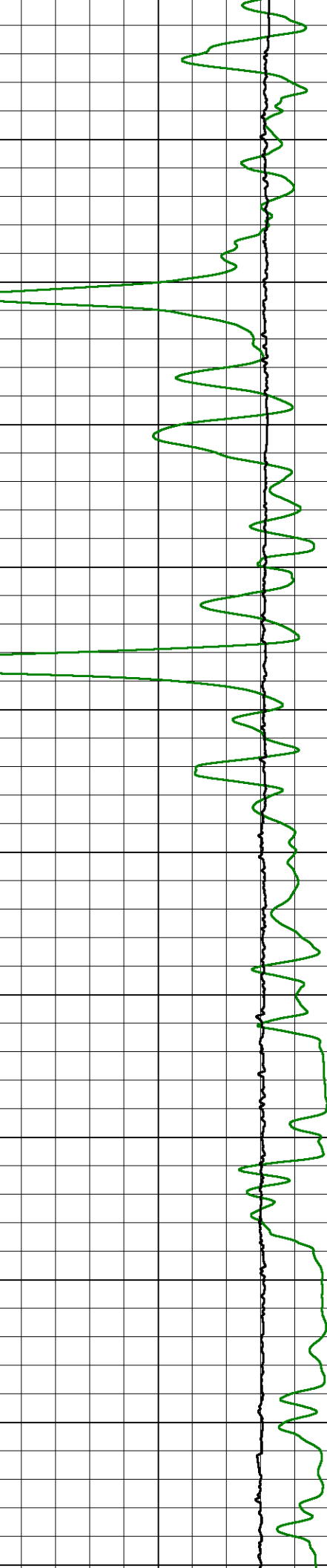
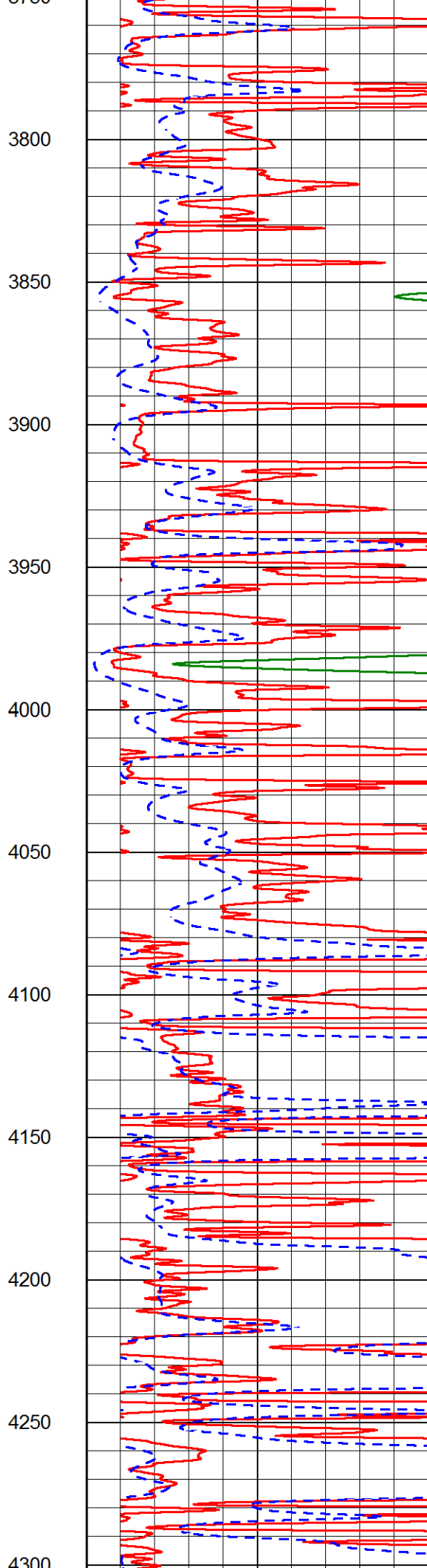
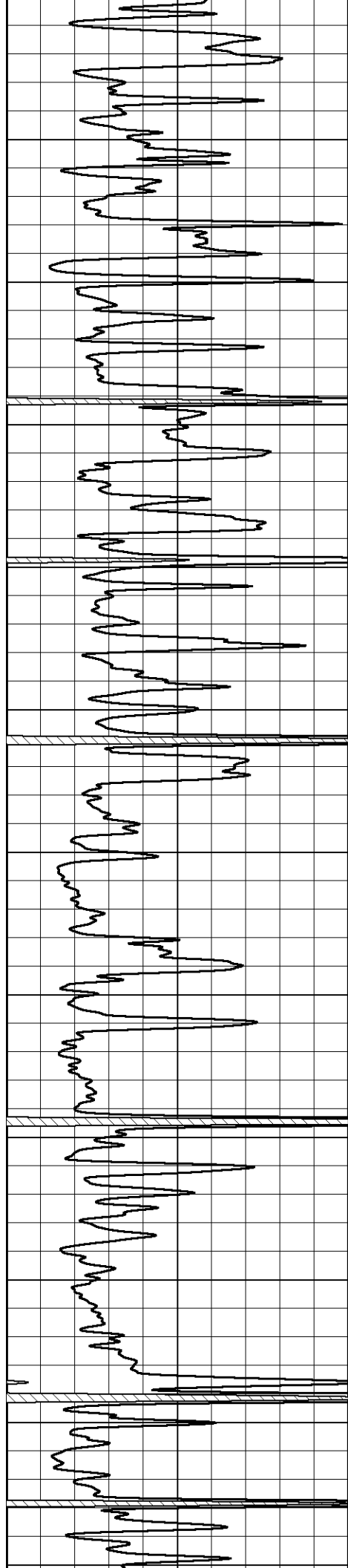
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2950
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3050
3100
3150
3200

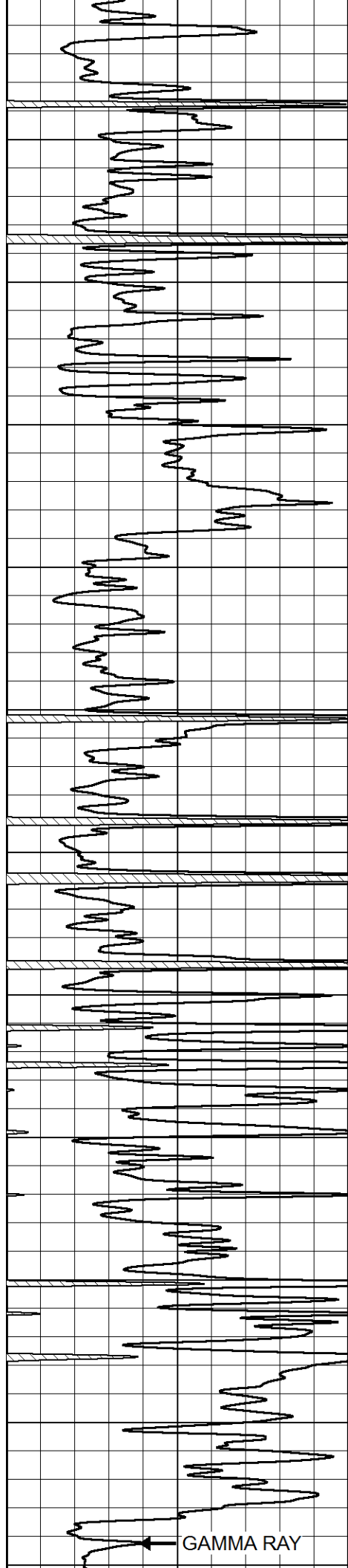




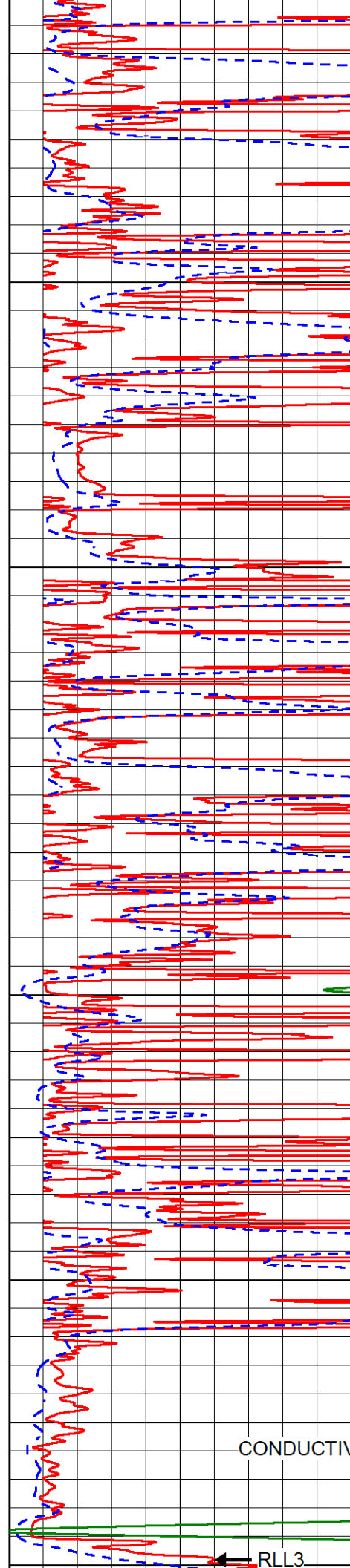
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3750





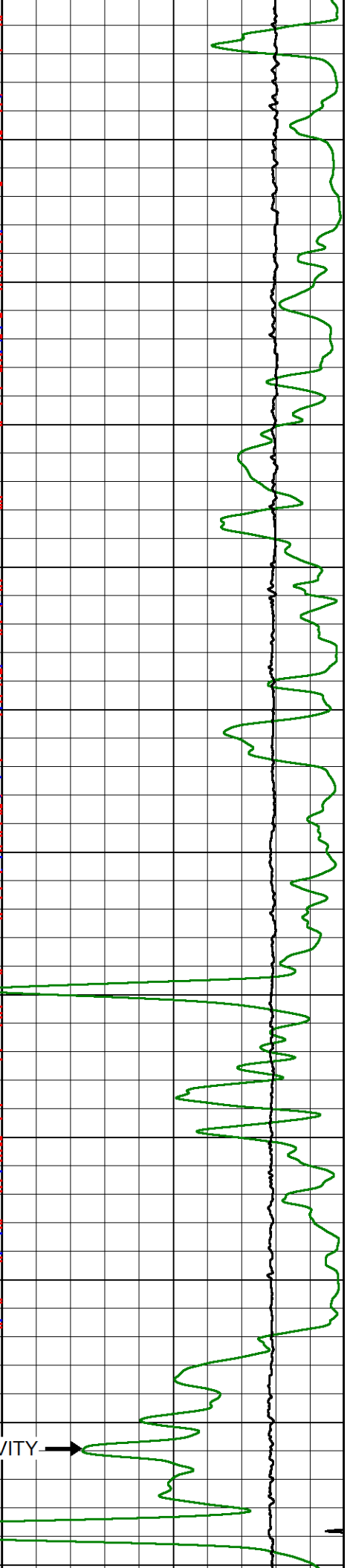


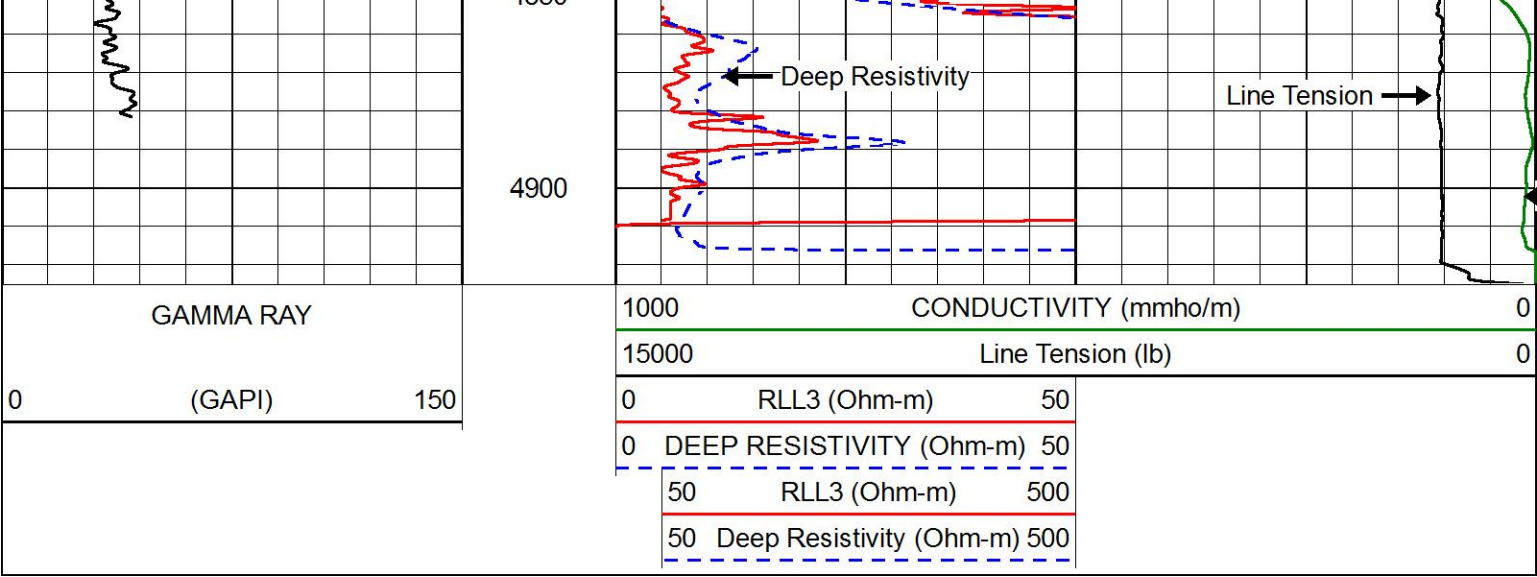
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4800
4850



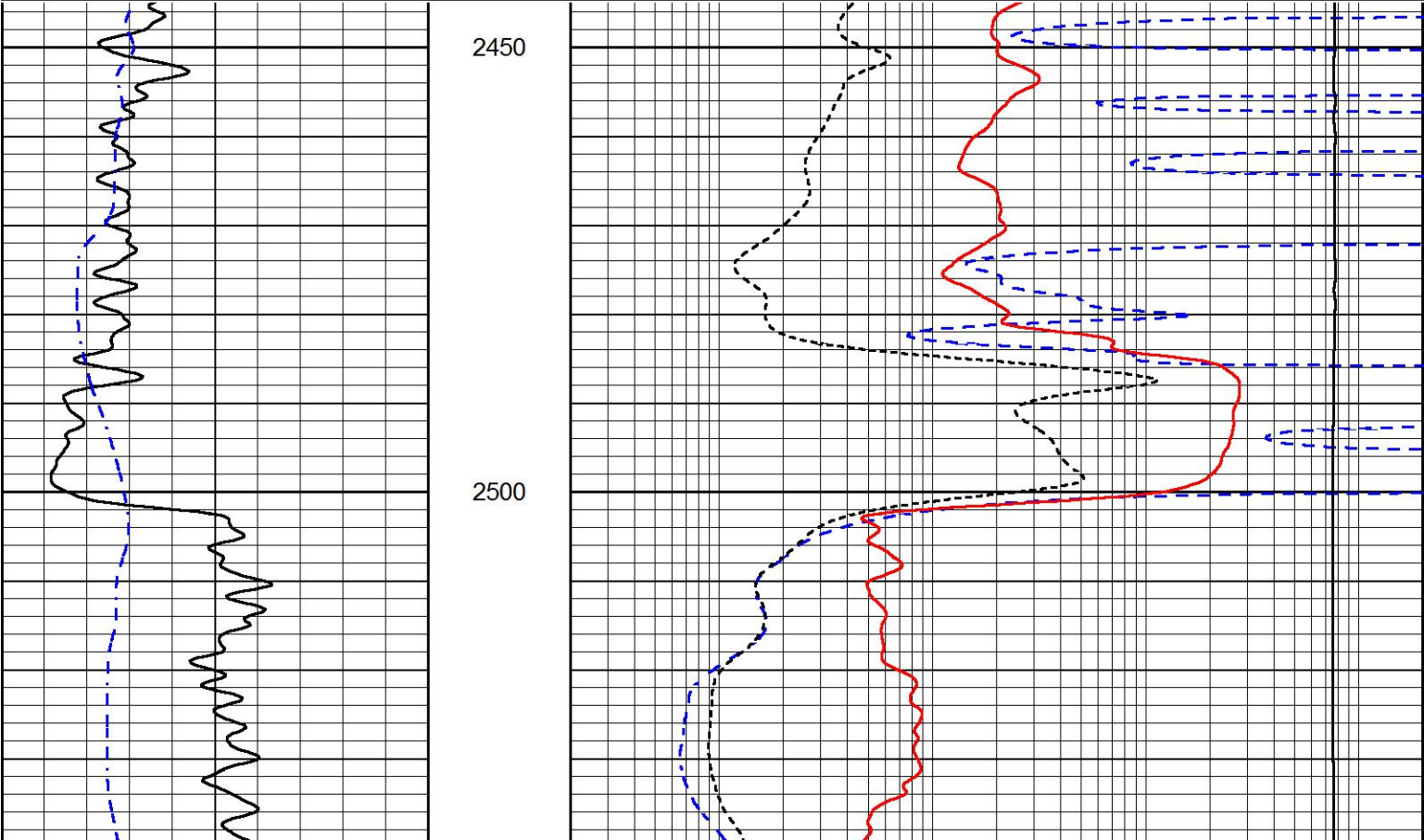
CONDUCTIVITY

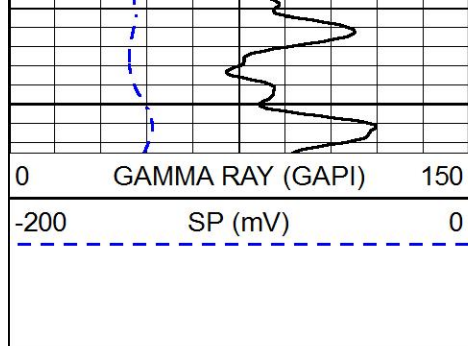
RLL3



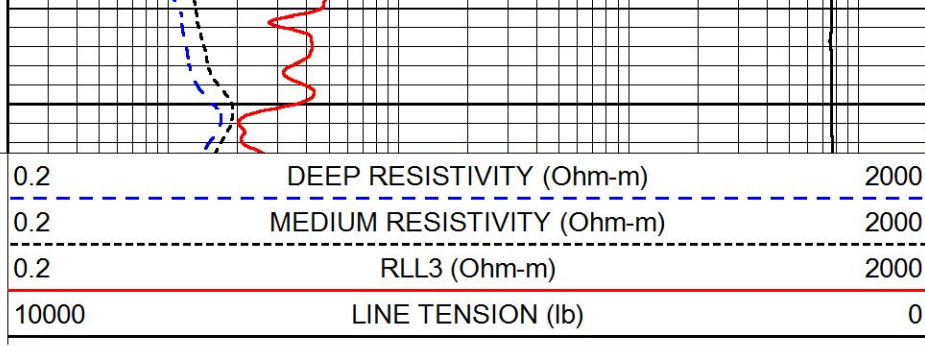


			
Database File		shakespeare_hovey_1_24.db	
Dataset Pathname		stackmel/pass3.1	
Presentation Format		dil	
Dataset Creation		Sun Feb 24 11:09:12 2019	
Charted by		Depth in Feet scaled 1:240	
0	GAMMA RAY (GAPI)	150	0.2 DEEP RESISTIVITY (Ohm-m) 2000
-200	SP (mV)	0	0.2 MEDIUM RESISTIVITY (Ohm-m) 2000
			0.2 RLL3 (Ohm-m) 2000
			10000 LINE TENSION (lb) 0





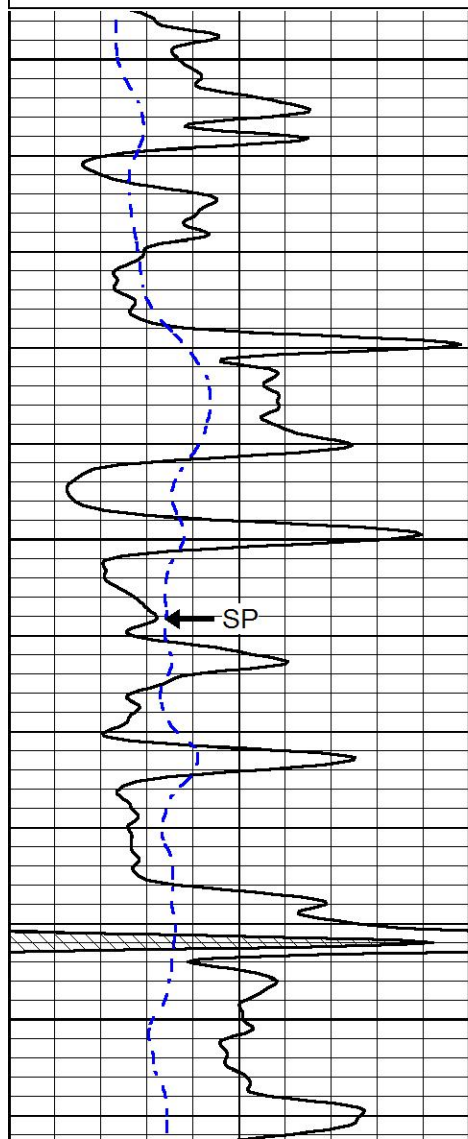
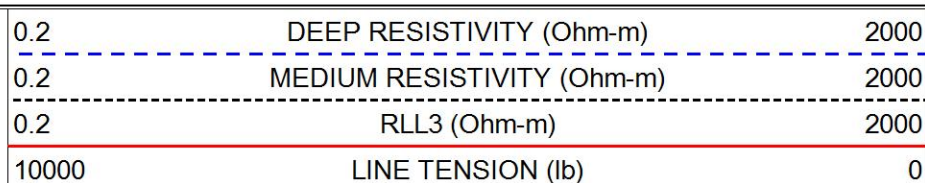
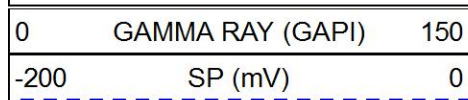
2550



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MAIN PASS

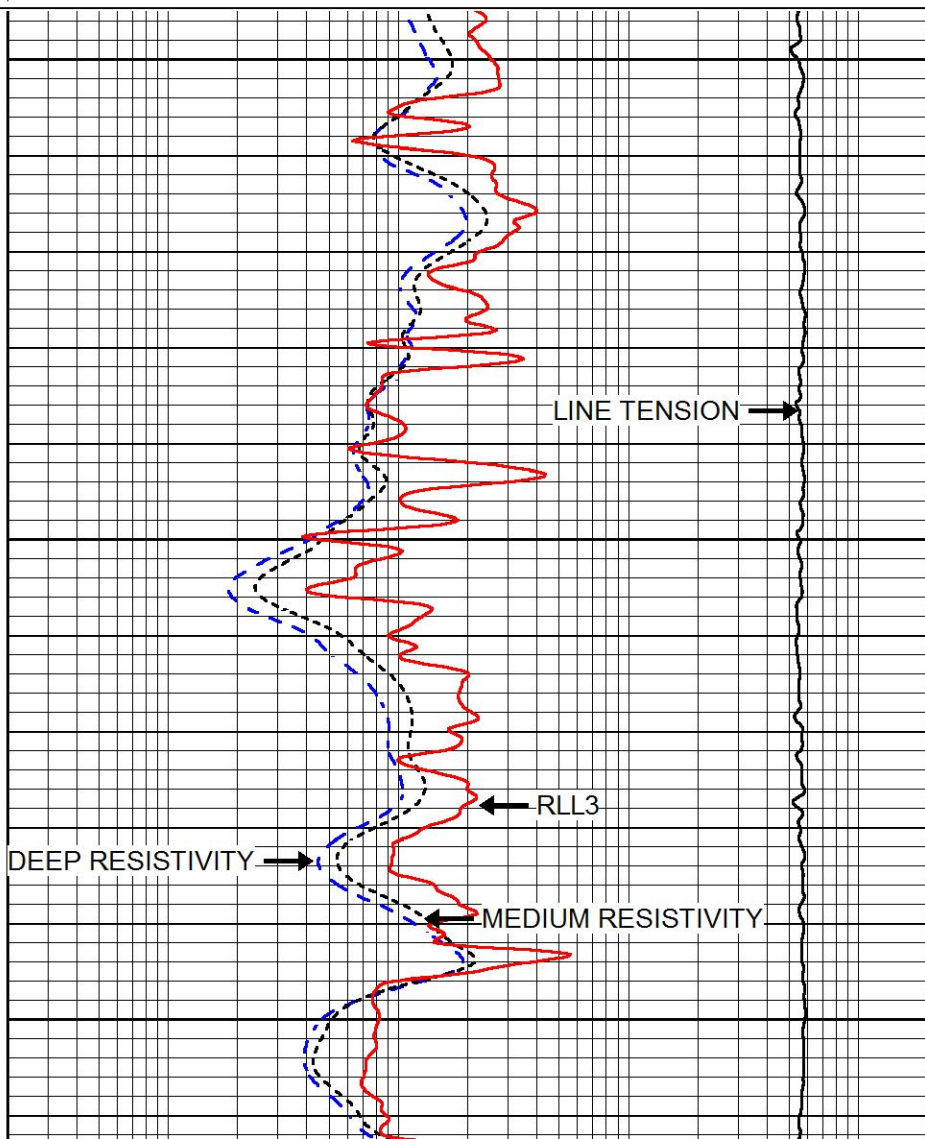
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Dataset Pathname stackmel/pass3.1
Presentation Format dil
Dataset Creation Sun Feb 24 11:09:12 2019
Charted by Depth in Feet scaled 1:240

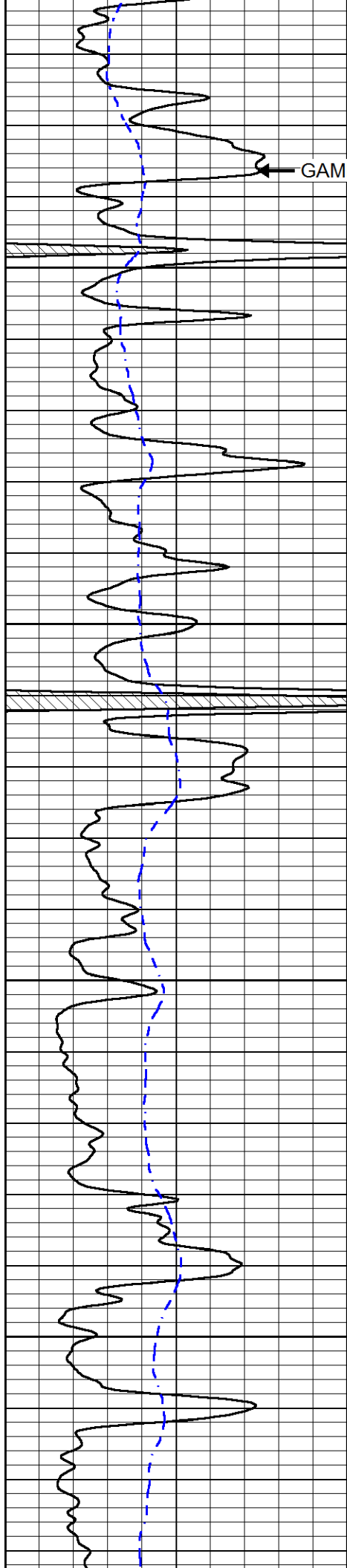


3800

3850

3900





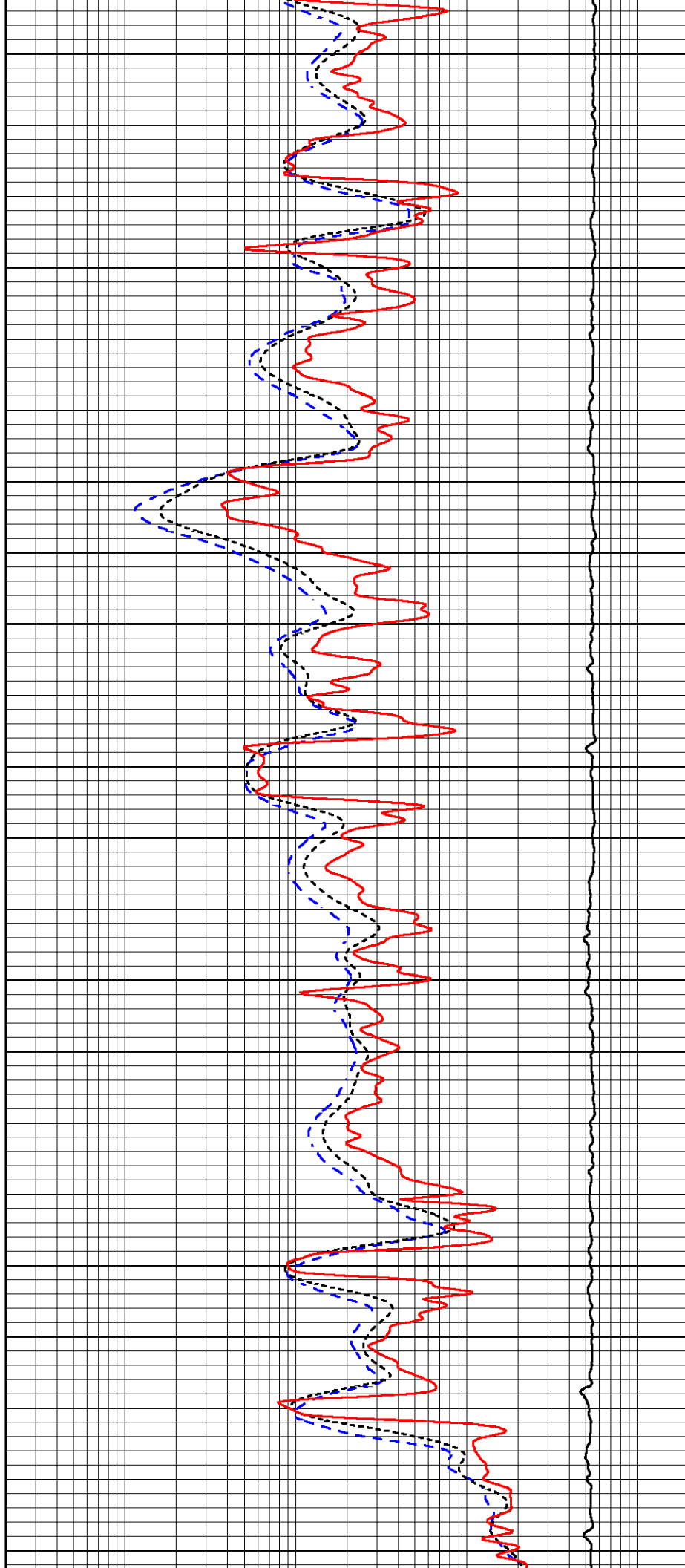
GAMMA RAY

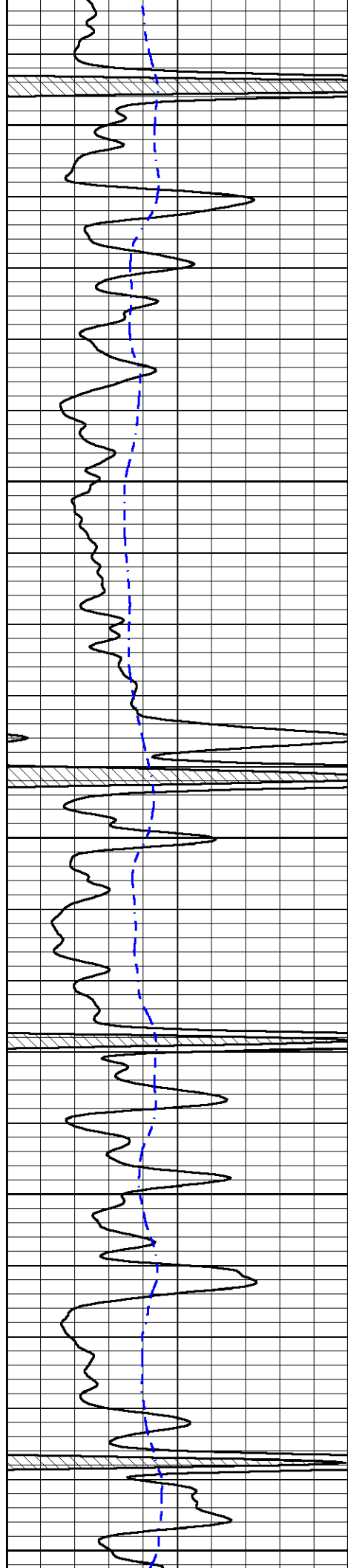
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4000

4050

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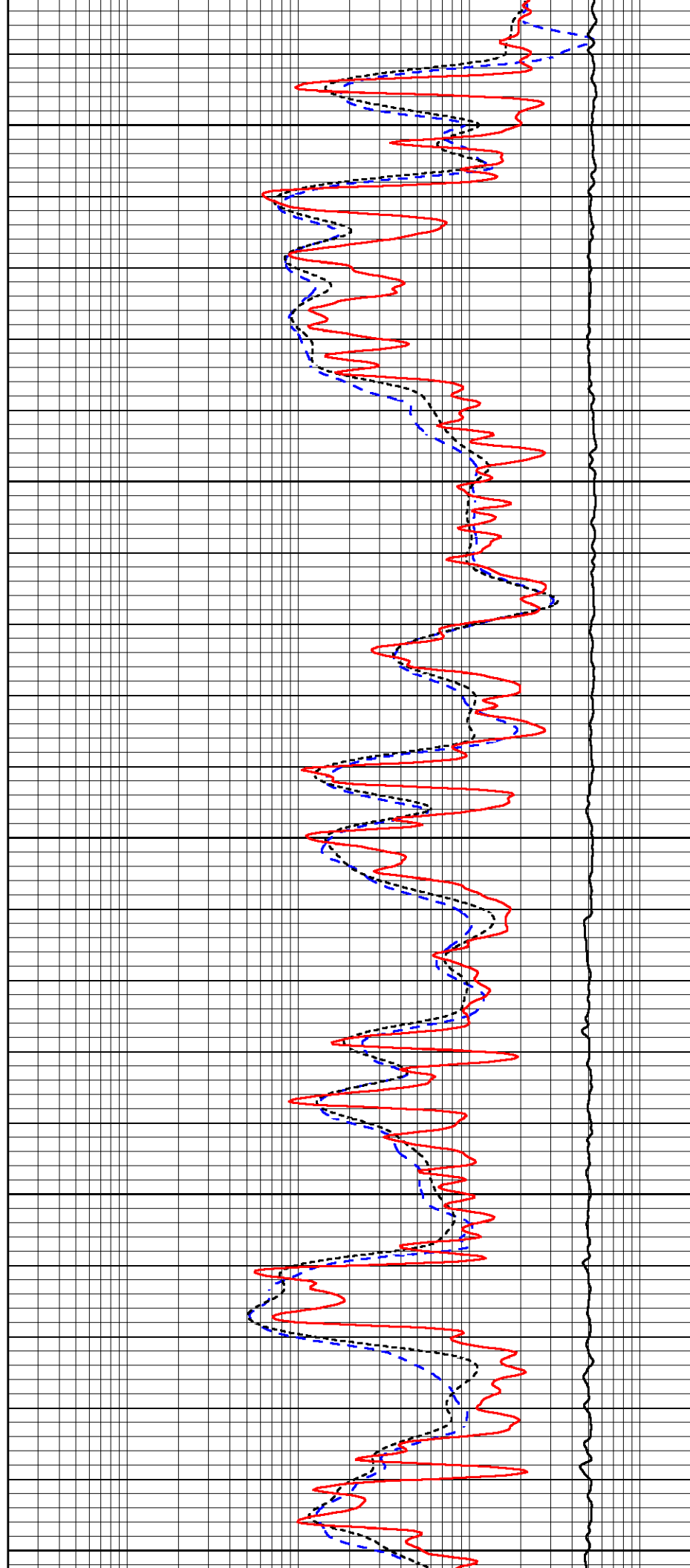
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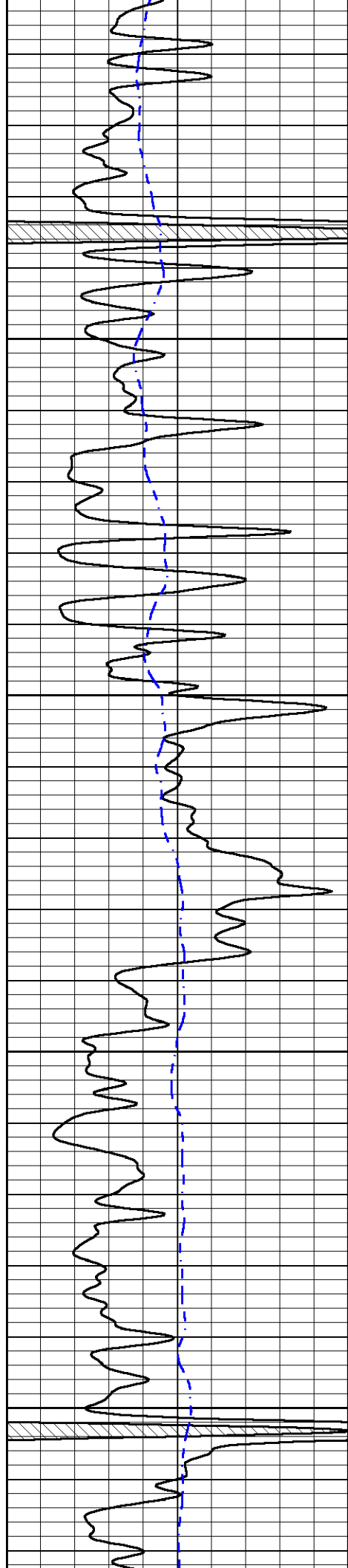
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4350



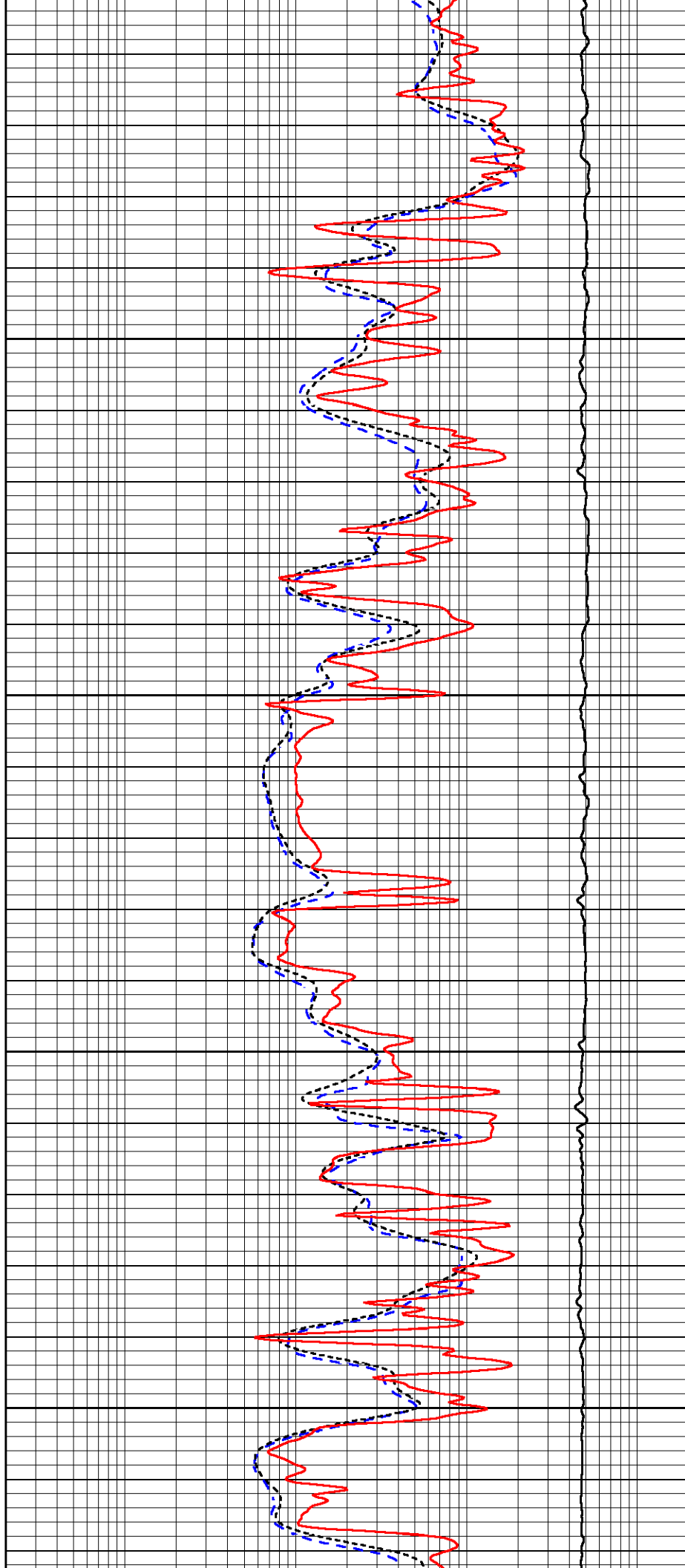


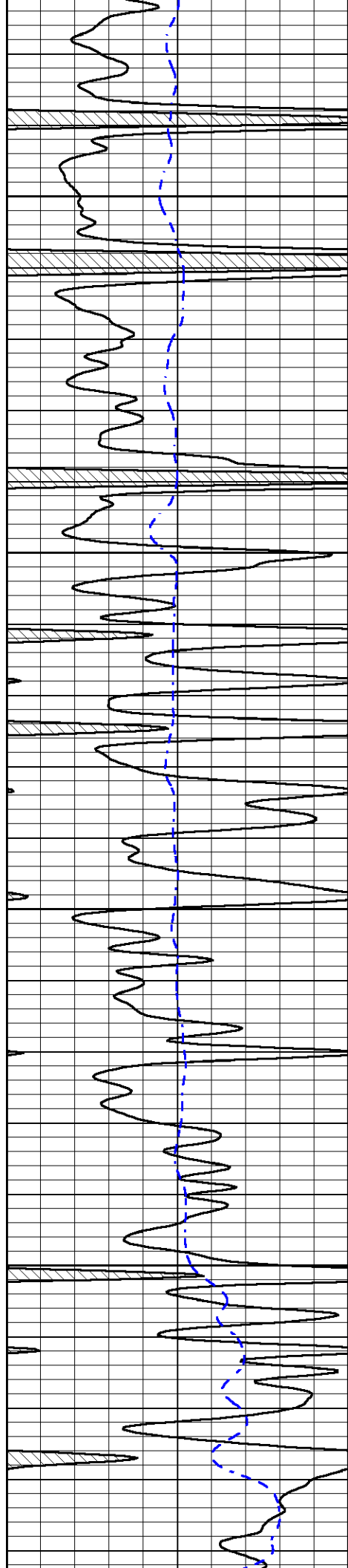
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4500

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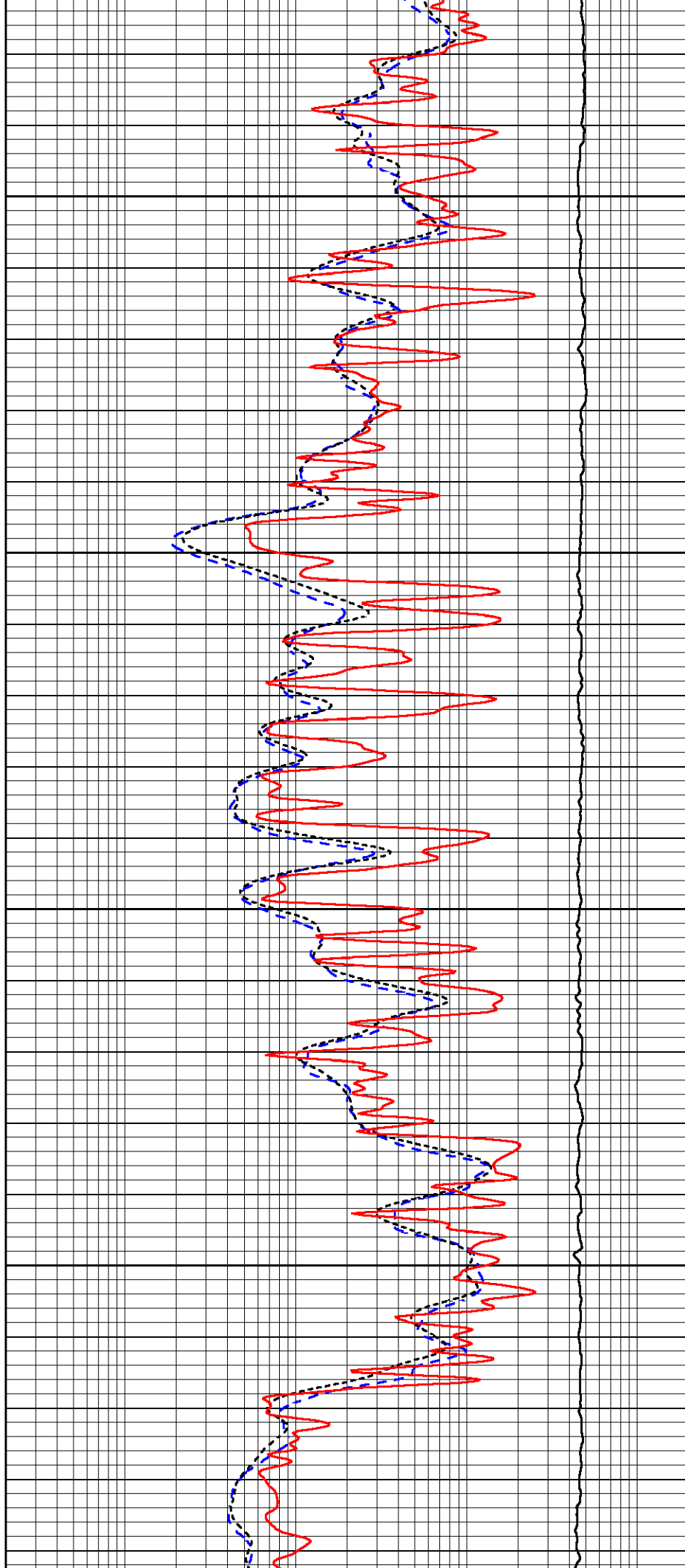


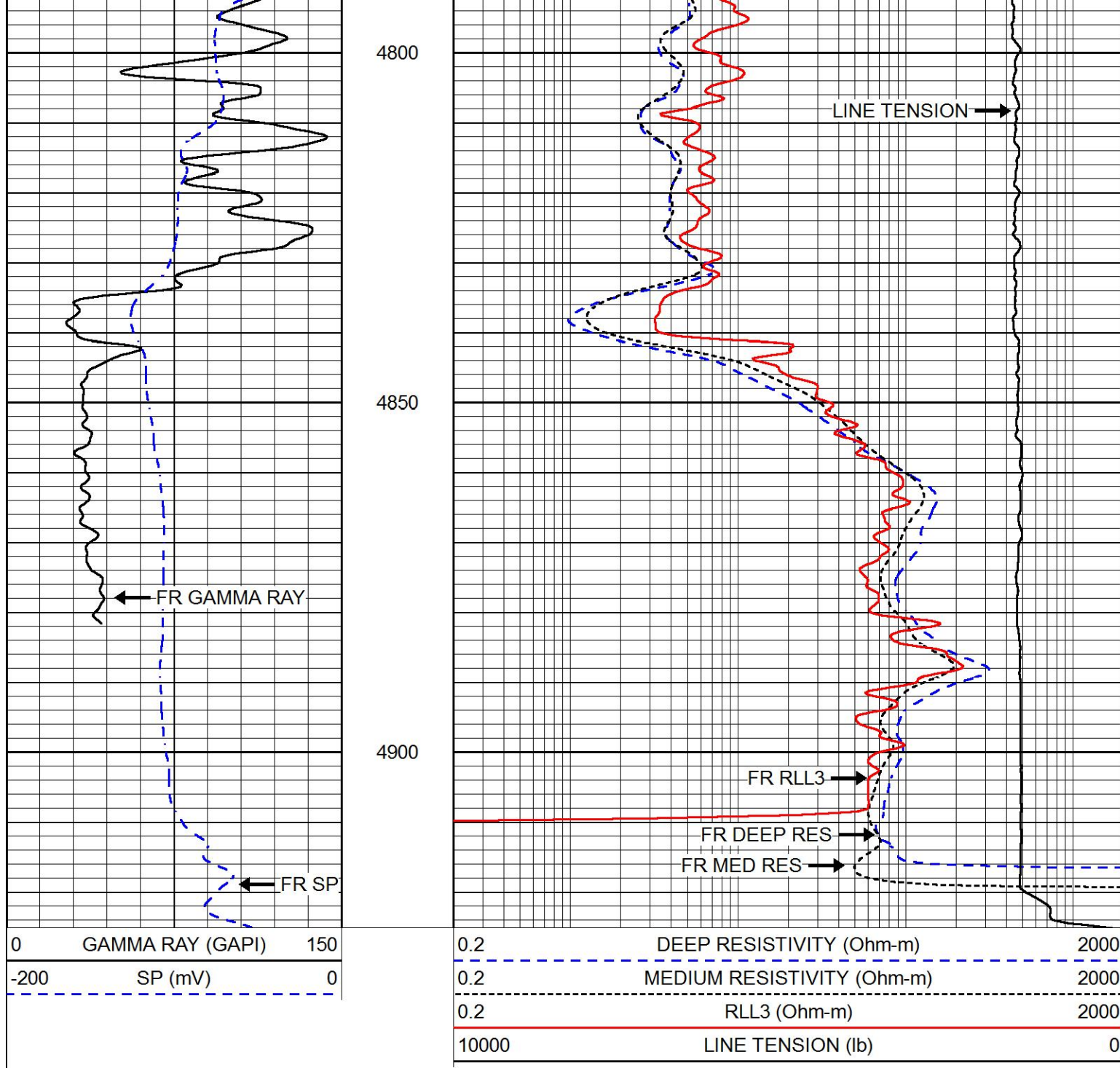
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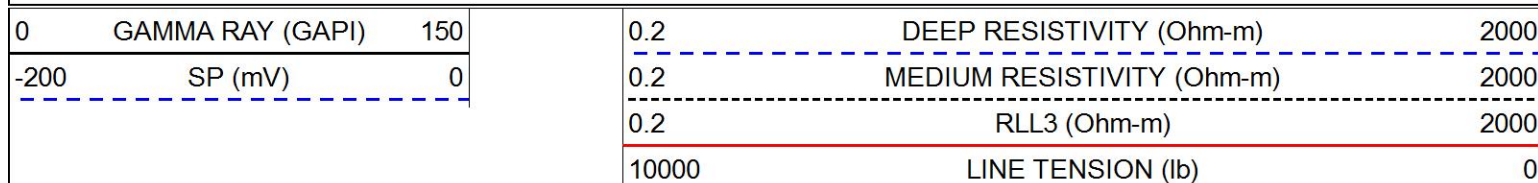
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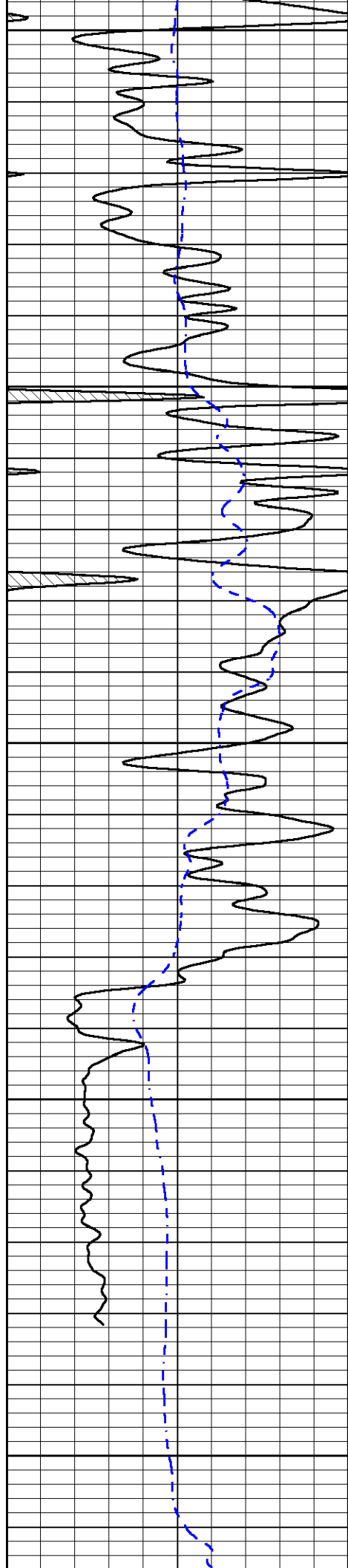




REPEAT SECTION

Database File: shakespear_hovey_1_24.db
 Dataset Pathname: stackmel/pass2.1
 Presentation Format: dil
 Dataset Creation: Sun Feb 24 11:12:20 2019
 Charted by: Depth in Feet scaled 1:240





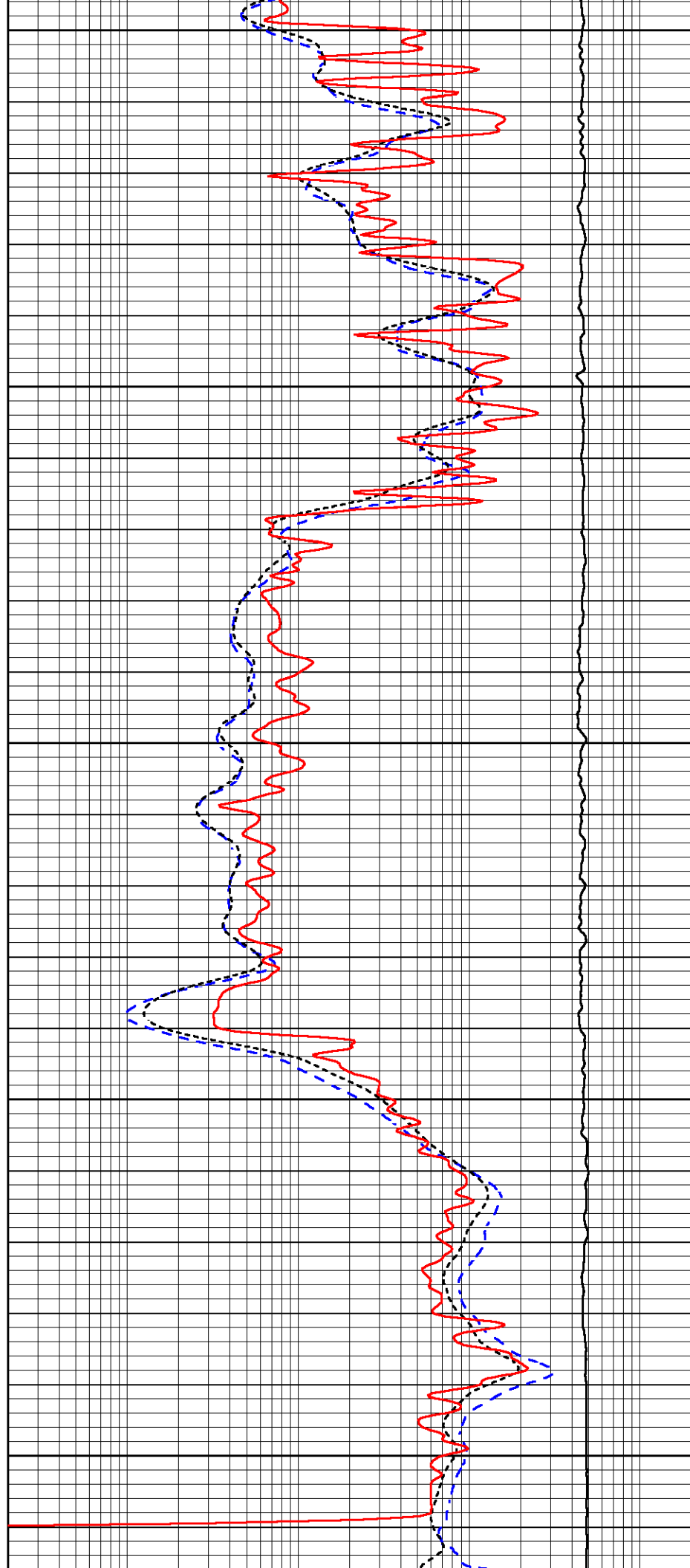
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4750

4800

4850

4900



0	GAMMA RAY (GAPI)	150	0.2	DEEP RESISTIVITY (Ohm-m)	2000
-200	SP (mV)	0	0.2	MEDIUM RESISTIVITY (Ohm-m)	2000
			0.2	RLL3 (Ohm-m)	2000
			10000	LINE TENSION (lb)	0

Calibration Report	
Database File	shakespeare_hovey_1_24.db
Dataset Pathname	stackmel/pass3.1
Dataset Creation	Sun Feb 24 11:09:12 2019

Dual Induction Calibration Report							
Serial-Model:				967 (HT)-PSI HIGH TEMP			
Calibration Performed:				Sun Oct 07 19:24:22 2018			
Readings			References			Results	
Loop:	Air	Loop	Air	Loop		Gain	Offset
Deep	167.000	835.000	0.000	255.800	mmho/m	0.565	-17.500
Medium	0.000	1348.000	142.000	255.800	mmho/m	0.390	-40.000

Microlog Calibration Report							
Serial-Model: Performed:				PSI-01-PSIML Sat Sep 08 05:17:35 2018			
Readings			References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	26000.0000	-0.7000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	30000.0000	-0.6000
Caliper	1.0001	1.1397	6.5000	18.5000	in	70.0000	-65.6000

Compensated Density Calibration Report	
Serial-Model:	126-186-M&W
Source / Verifier:	16955B / 2ci
Master Calibration Performed:	Tue Feb 12 14:50:39 2019

Master Calibration					
Density			Far Detector	Near Detector	
Magnesium	1.755	g/cc	4753.97	6898.87	cps
Aluminum	2.668	g/cc	896.28	4374.48	cps
Spine Angle = 74.73			Density/Spine Ratio = 0.528		
Size			Reading		
Small Ring	4.00	in	2.58		
Large Ring	14.00	in	1.66		

Compensated Neutron Calibration Report
--

Serial Number:	207-MW
Tool Model:	M&W
Calibration Performed:	WED FEB 13 10:30:30 2019

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	
Tool Model:	M&W	
Calibration Performed:	Fri Aug 24 11:16:10 2018	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.6000	GAPI/cps



Company	SHAKESPEARE OIL CO., INC.
Well	HOVEY #1-24
Field	WILDCAT
County	WICHITA
State	KANSAS