



**PIONEER**  
Pioneer Energy Services

**DUAL INDUCTION  
LOG**

Company **SCHABEN OIL, LLC**  
Well **KEN & TRAVIS SCHABEN NO. 1-31**  
Field **SCHABEN**  
County **NESS** State **KANSAS**

Company **SCHABEN OIL, LLC**  
Well **KEN & TRAVIS SCHABEN NO. 1-31**  
Field **SCHABEN**  
County **NESS**  
State **KANSAS**

Location: **API #: 15-135-25945-00-00**  
**471' FNL & 426' FWL**  
**SEC 31 TWP 19S RGE 21W**  
Permanent Datum **GROUND LEVEL Elevation 2295'**  
Log Measured From **KELLY BUSHING**  
Drilling Measured From **KELLY BUSHING**  
Other Services **CNL/CDL**  
Elevation **K.B. 2306'**  
**D.F. N/A**  
**G.L. 2295'**

Date	3/14/17
Run Number	ONE
Depth Driller	4530'
Depth Logger	4513'
Bottom Logged Interval	4512'
Top Log Interval	250'
Casing Driller	8.625" @ 267'
Casing Logger	264'
Bit Size	7.875"
Type Fluid in Hole	CHEMICAL
Salinity, ppm CL	3,800
Density / Viscosity	9.3 57
pH / Fluid Loss	8.0 7.2
Source of Sample	FLOWLINE
Rm @ Meas. Temp	.80 @ 52
Rmt @ Meas. Temp	.60 @ 52
Rmc @ Meas. Temp	1.08 @ 52
Source of Rmf / Rmc	CHARTS
Rm @ BHT	.34 @ 121
Operating Rig Time	2 HOURS
Max Rec. Temp. F	121 DEGF
Equipment Number	108
Location	HAYS
Recorded By	J. HENRICKSON
Witnessed By	ANDREW STENZEL

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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.**

**BAZINE KANSAS**  
**WEST EDGE OF TOWN, SOUTH TO 70 RD, 1/8 WEST, SOUTH INTO**  
**NO REPEAT DUE TO HOLE CONDITIONS**

**Log Measured From: KELLY BUSHING 11 Ft. Above Permanent Datum**

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


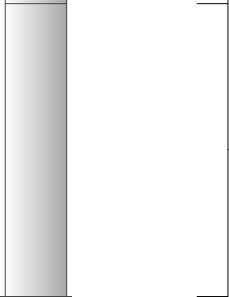
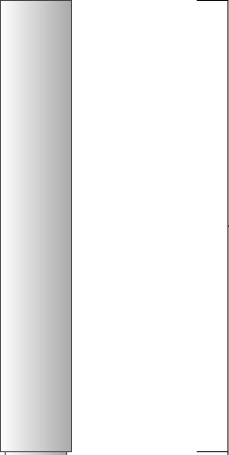

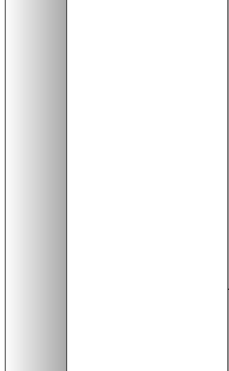
<b>Your Pioneer Energy Services Crew</b>	<b>This Log Record Was Witnessed By</b>
Engineer: <b>J. HENRICKSON</b>	Primary Witness: <b>ANDREW STENZEL</b>
Operator: <b>C. PFEIFER</b>	Secondary Witness:
Operator:	Secondary Witness:
Operator:	Secondary Witness:

# Log Variables

DatabaseC:\ProgramData\Warrior\Data\schaben\_ken\_travis\_schaben\_1\_31.db  
 Dataset field/well/stack/pass3.1/\_vars\_

## Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	121	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	-130	32	Off	4513

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
GR	33.00		GR-M&W (89-M&W)	3.00	3.50	50.00
CNLSC CNSSC	29.90 29.15		CNT-M&W (tk10-MW)	5.50	3.50	100.00
LSD DCAL SSD	20.85 20.83 20.35		CDL-M&W (71-914)	8.50	4.00	250.00
RLL3F RLL3	15.80 15.80					
CILD	8.00		DIL-PSI HIGH TEMP (PSI 216 HT)	18.50	3.50	220.00

CILM 4.70

SP 0.20

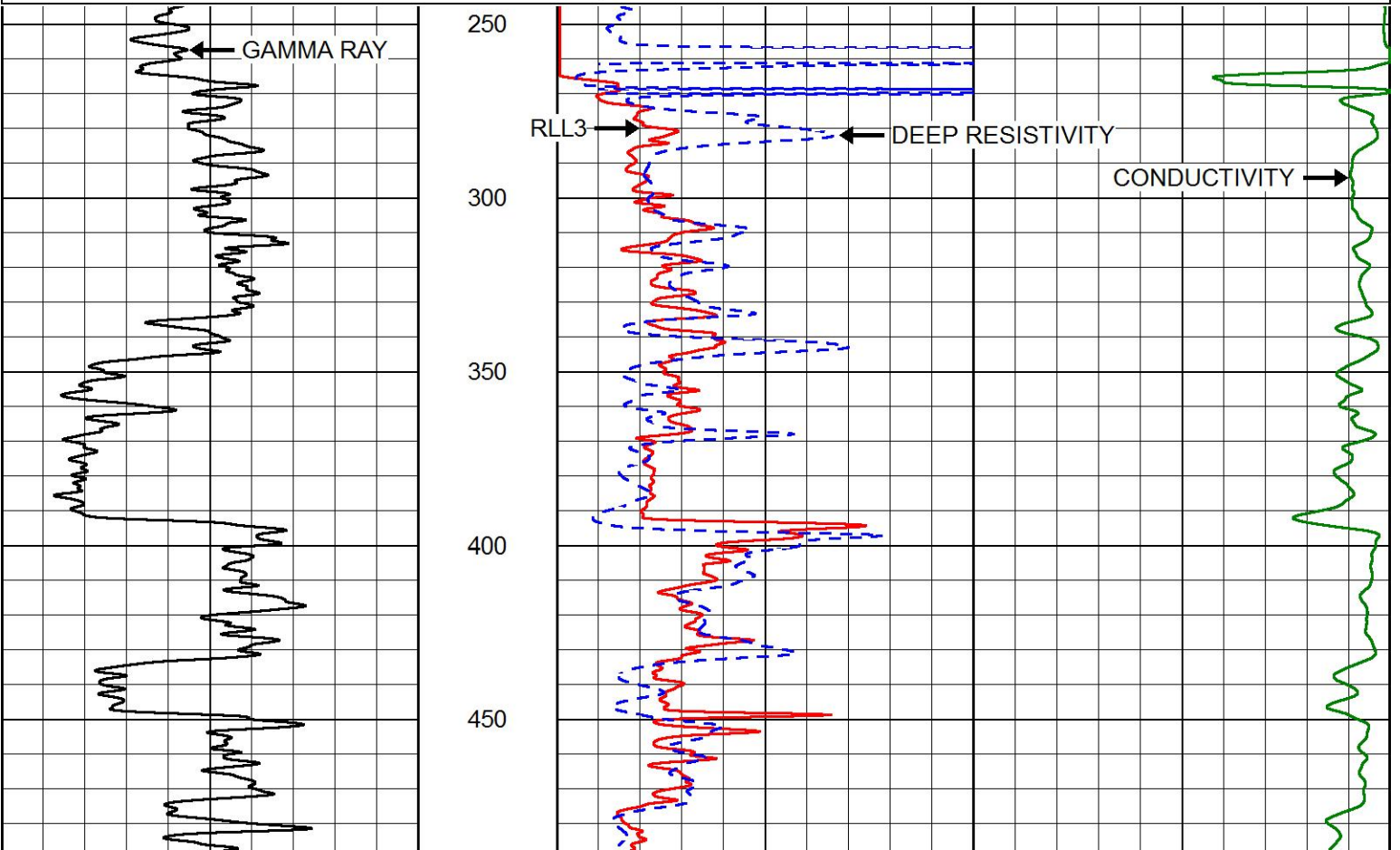
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 Total length: 35.50 ft  
 Total weight: 620.00 lb  
 O.D.: 4.00 in

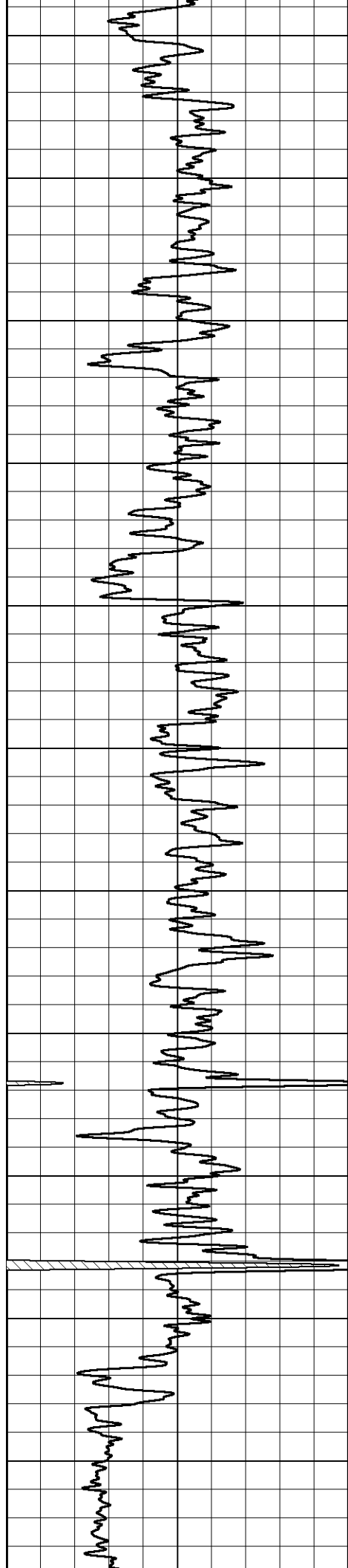


# MAIN PASS

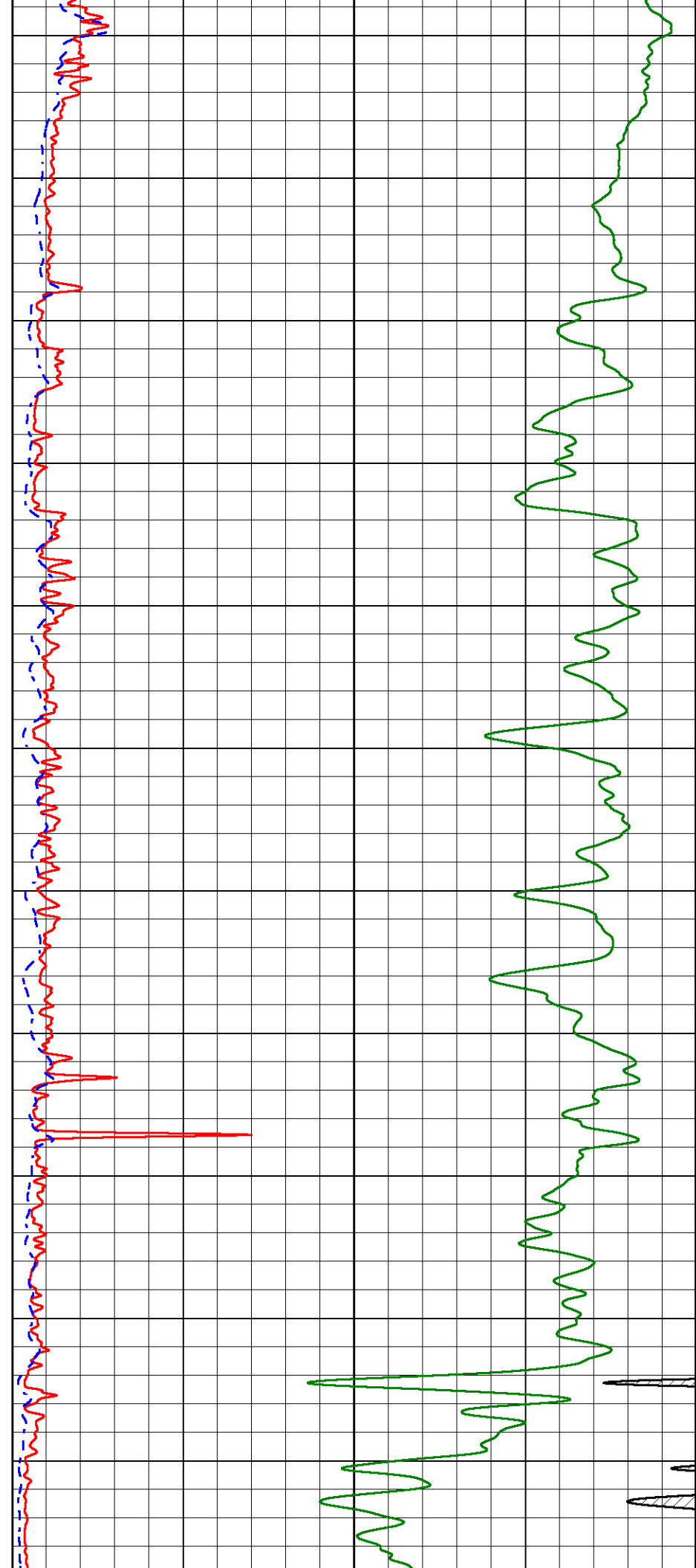
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 Dataset Creation Tue Mar 14 10:56:34 2017  
 Charted by Depth in Feet scaled 1:600

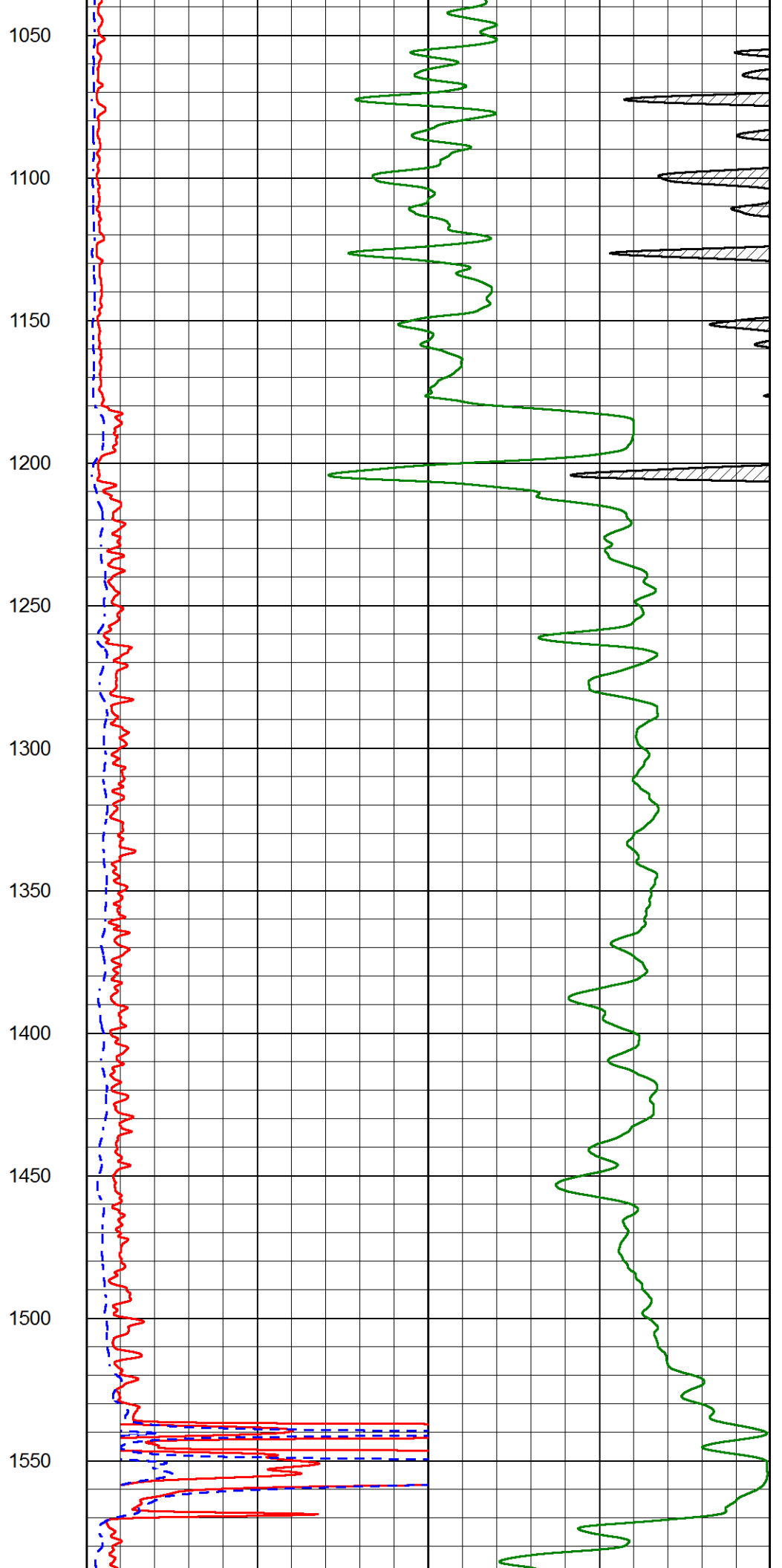
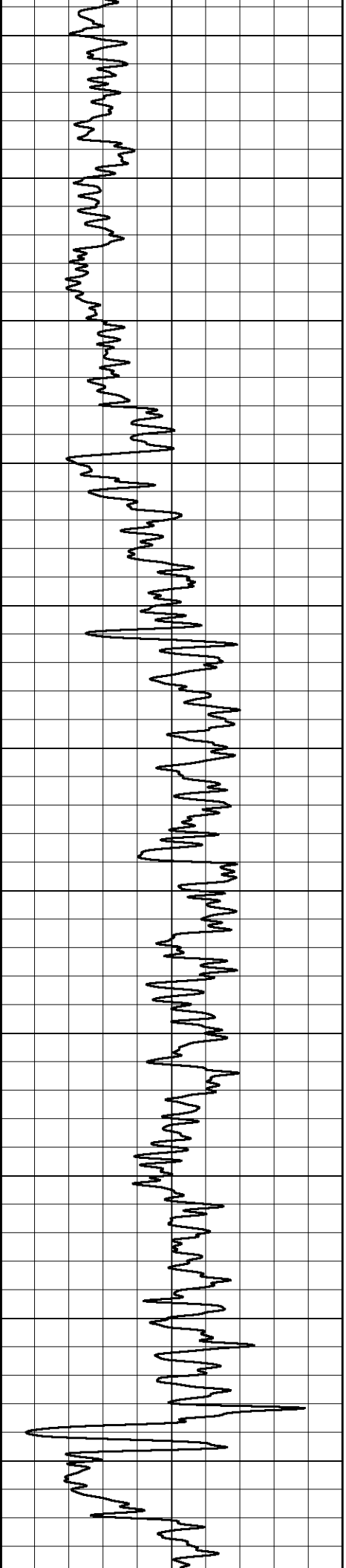
0	GAMMA RAY (GAPI)	150	2000	CONDUCTIVITY (mmho/m)	0
			0	RLL3 (Ohm-m)	50
			0	DEEP RESISTIVITY (Ohm-m)	50
			50	RLL3 (Ohm-m)	500
				DEEP RESISTIVITY	
			50	(Ohm-m)	500

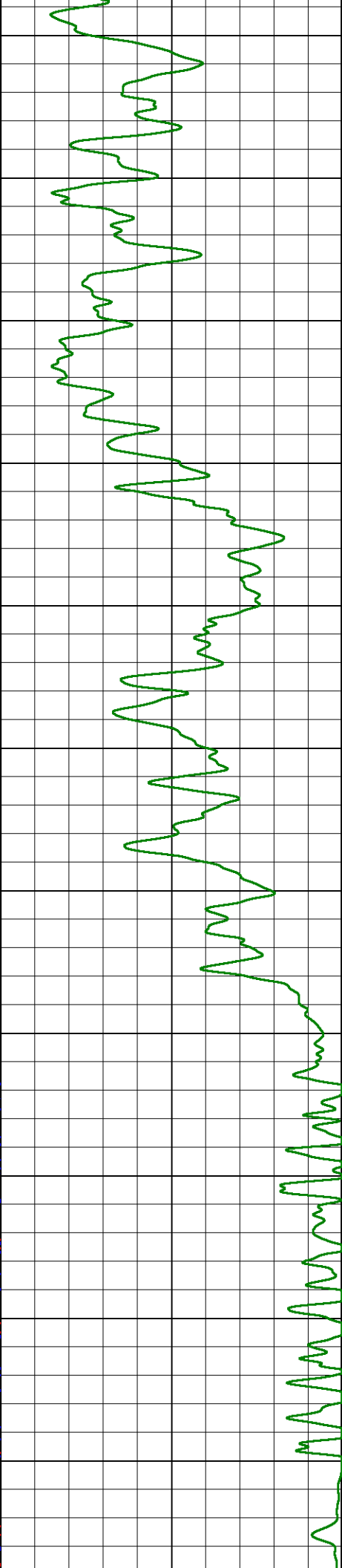
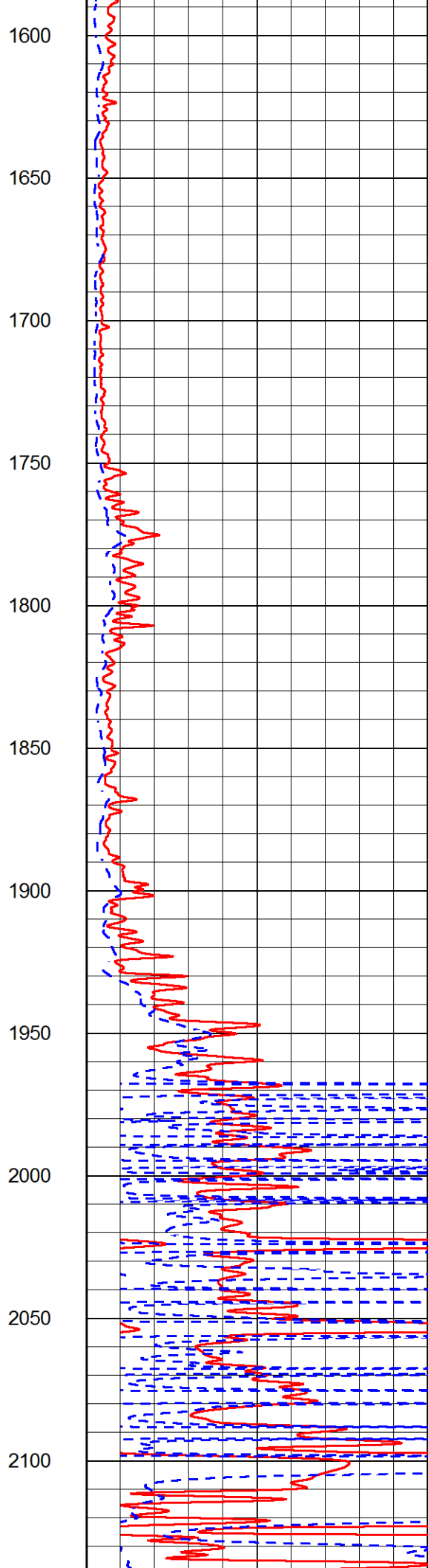
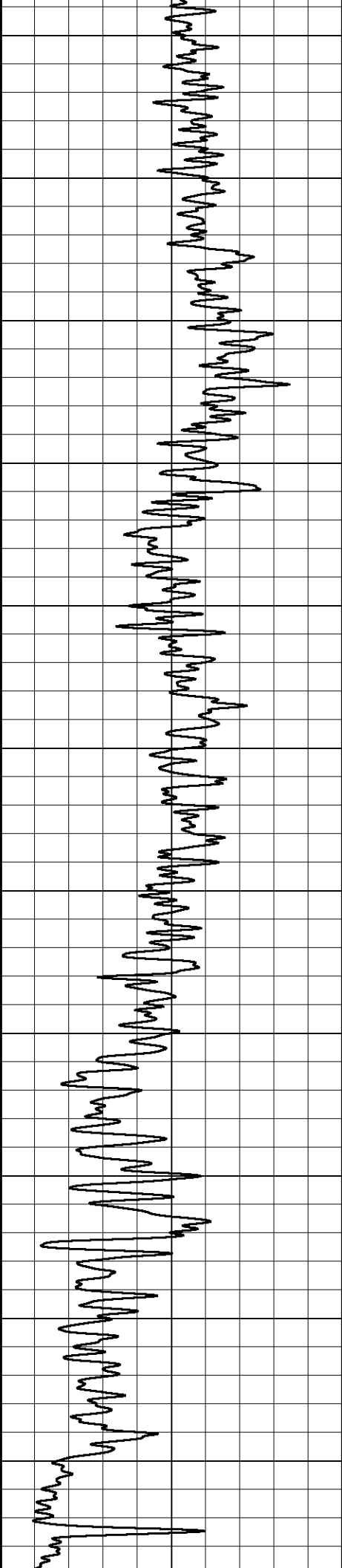


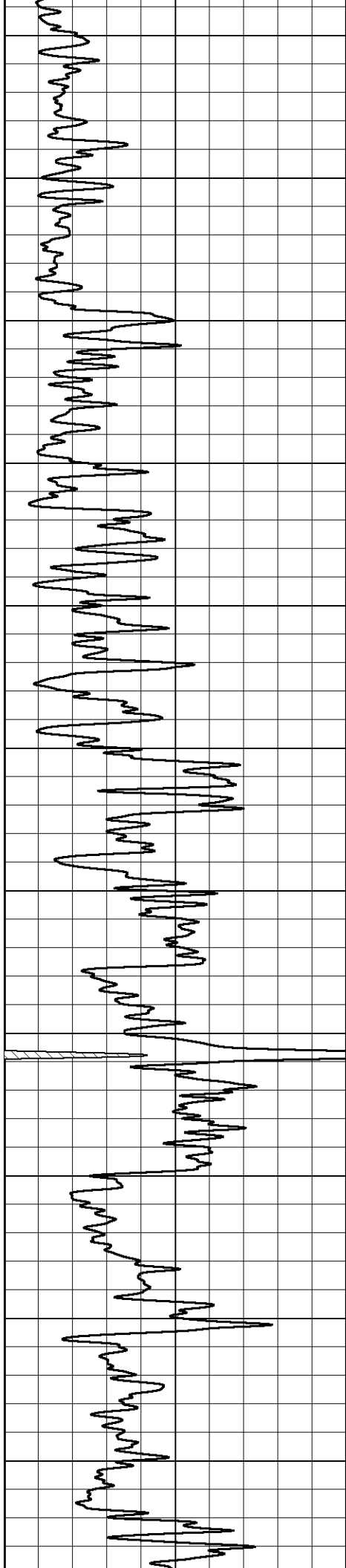


500  
550  
600  
650  
700  
750  
800  
850  
900  
950  
1000









2150

2200

2250

2300

2350

2400

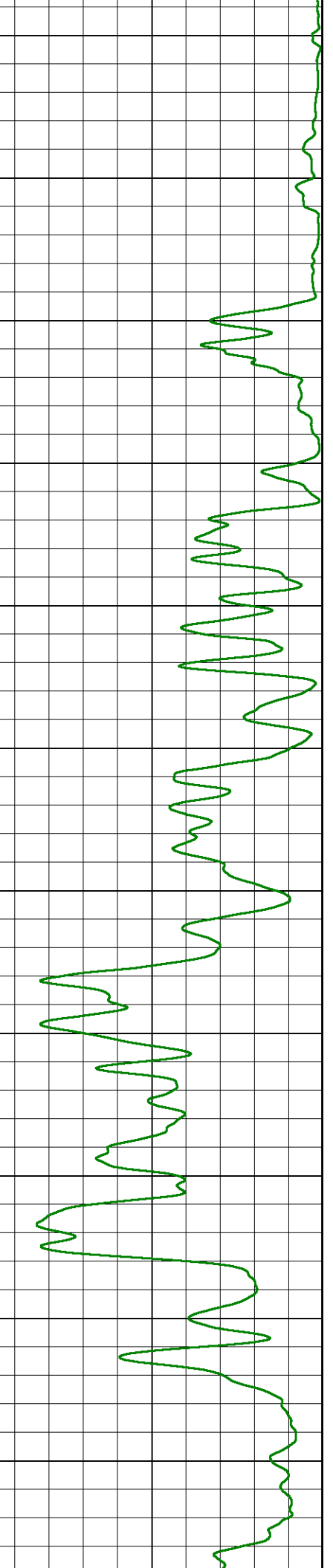
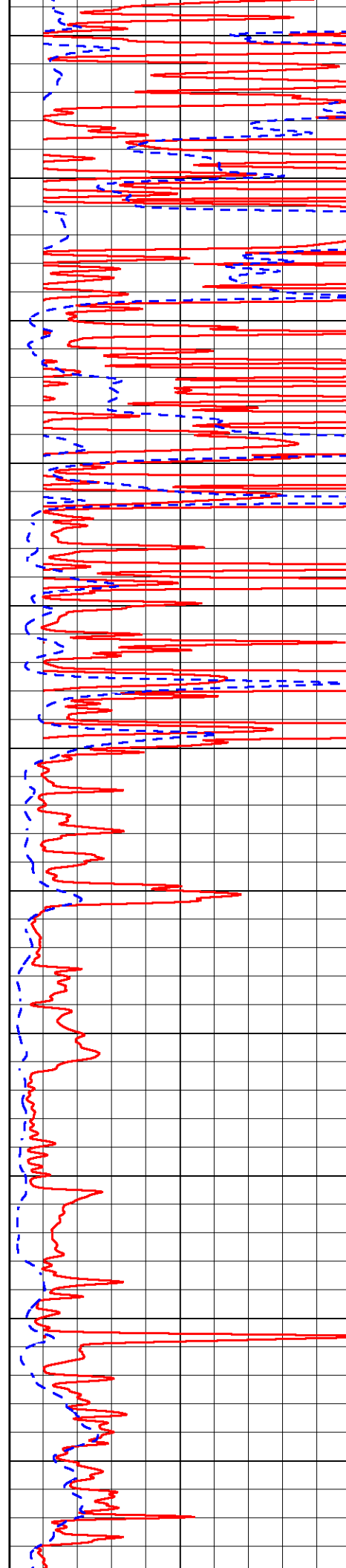
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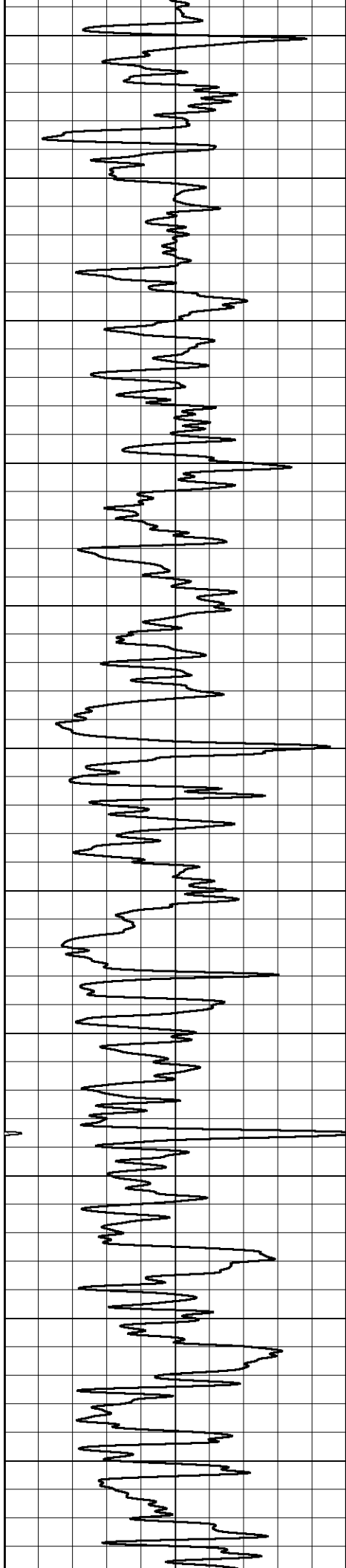
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2550

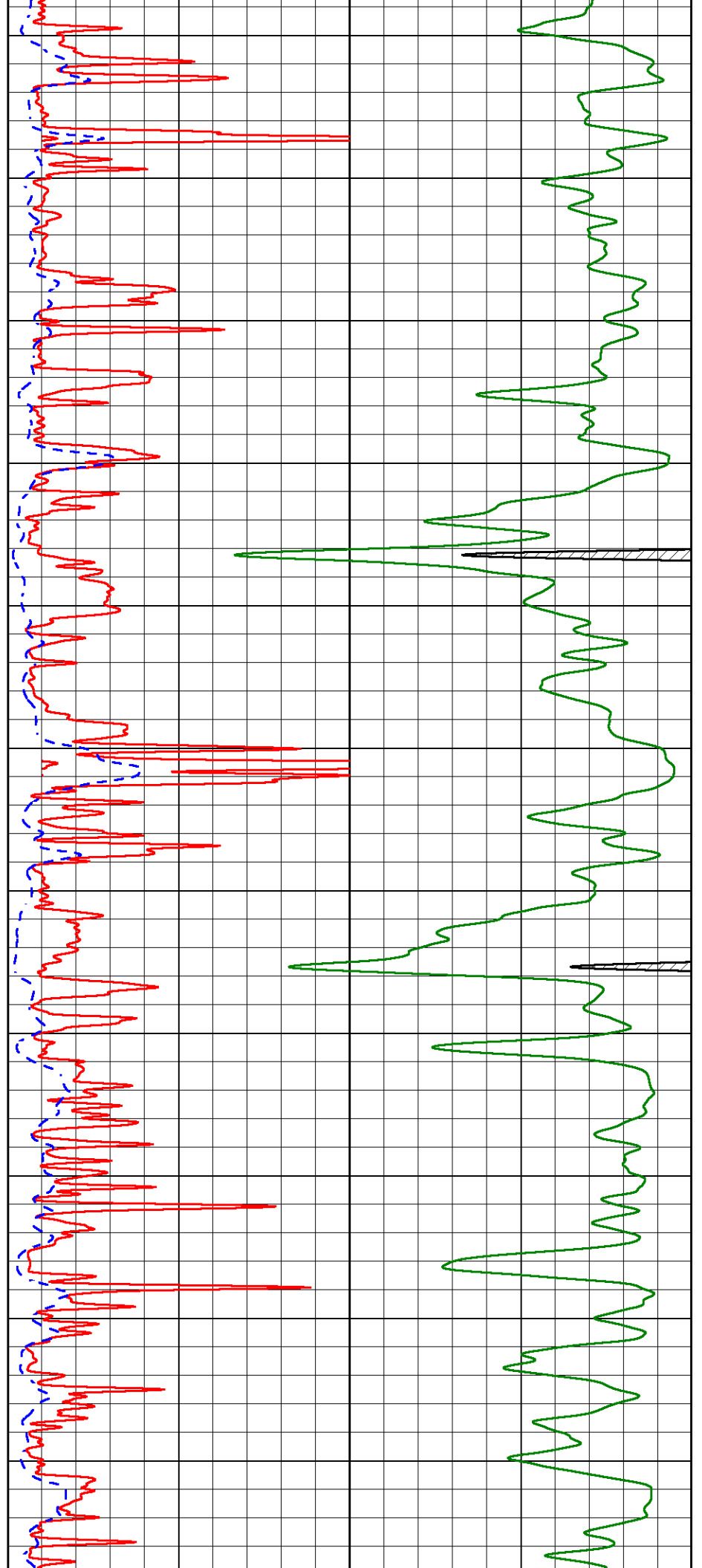
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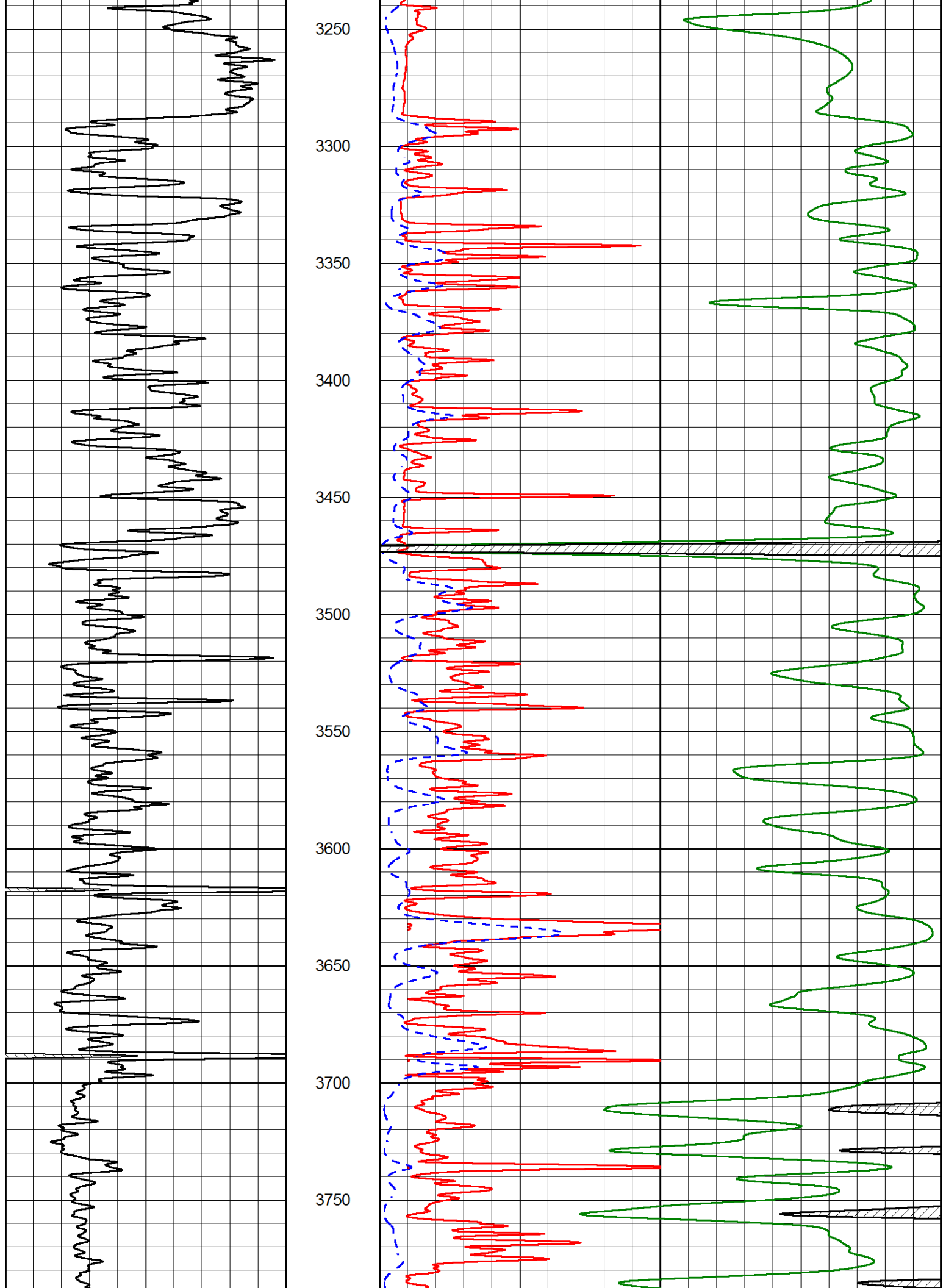
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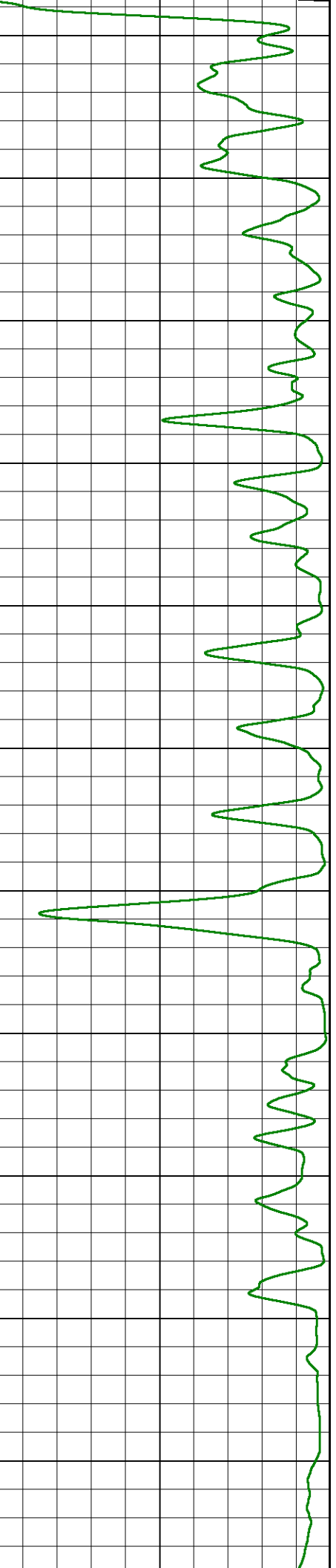
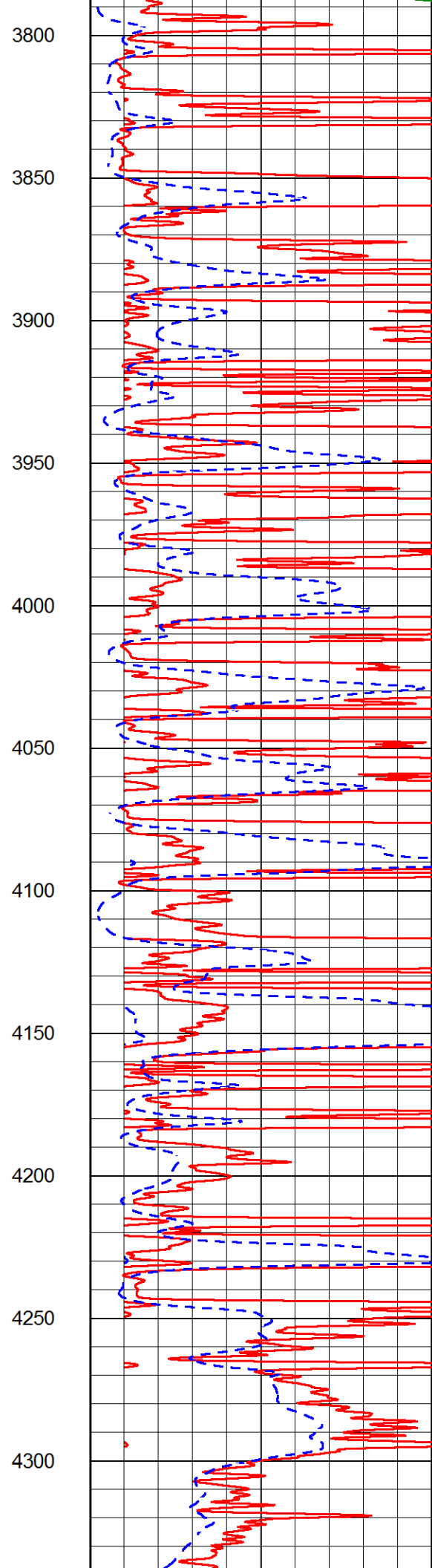
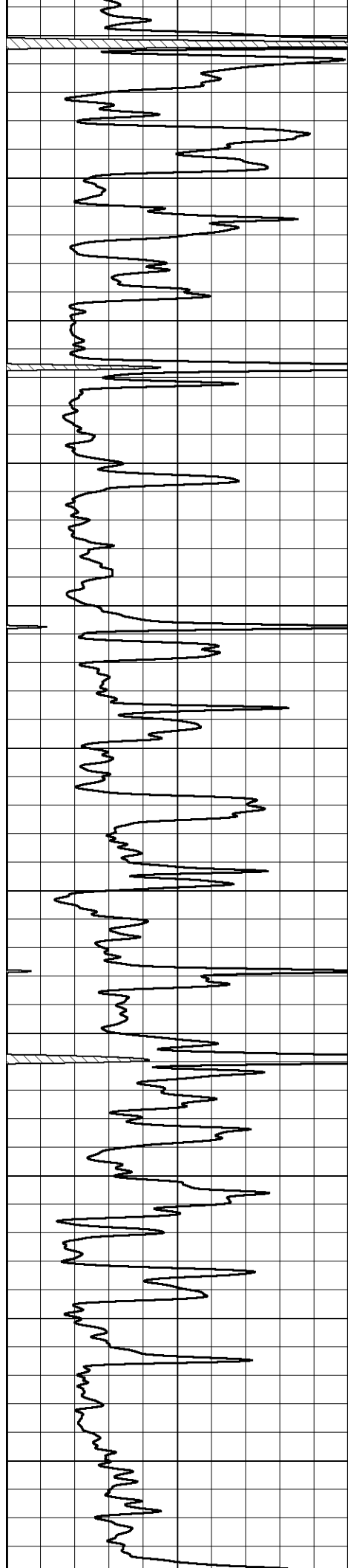


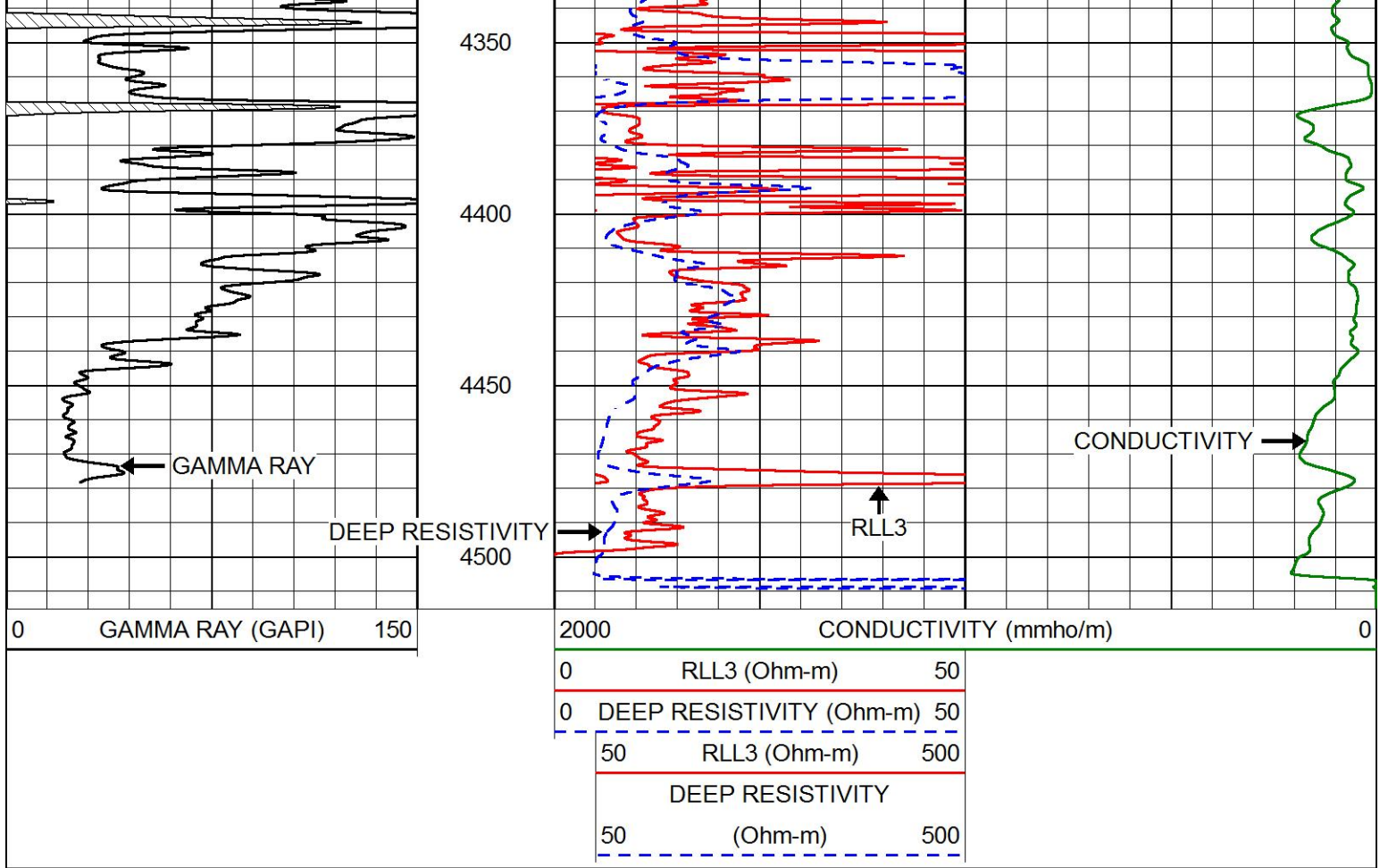


2700  
2750  
2800  
2850  
2900  
2950  
3000  
3050  
3100  
3150  
3200







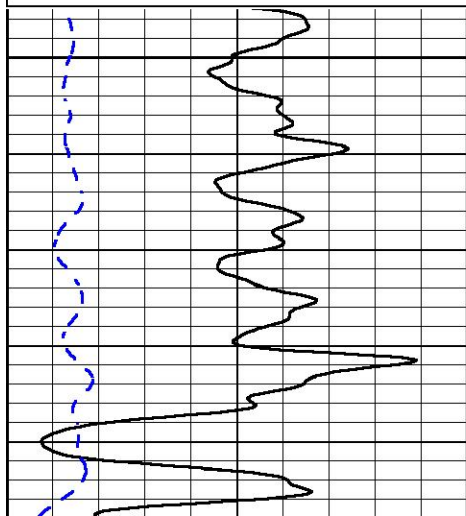


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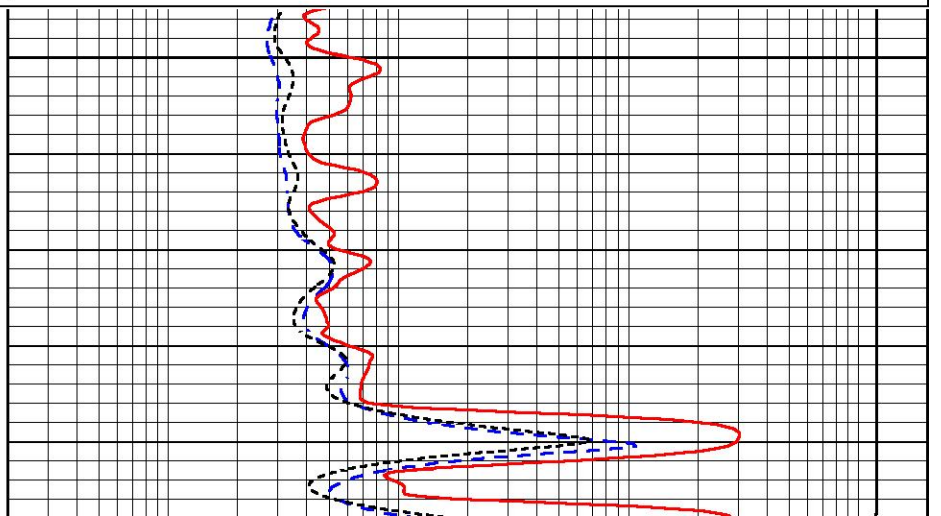
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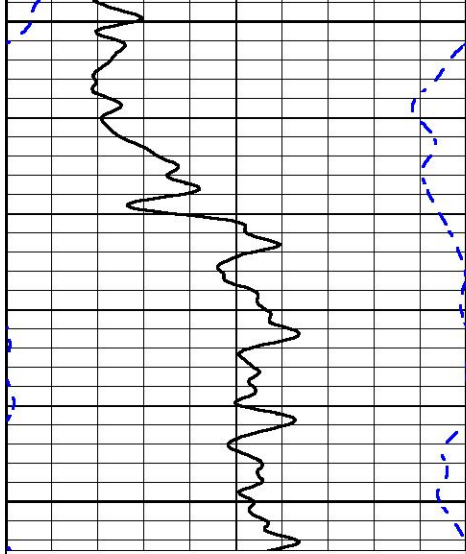
0	GAMMA RAY (GAPI)	150
-200	SP (mV)	0

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



1500

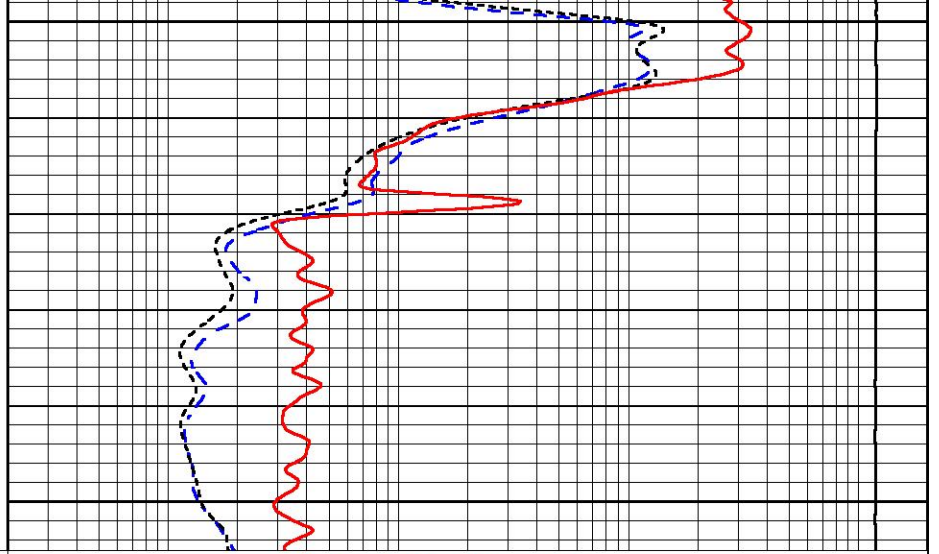




1550

1600

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

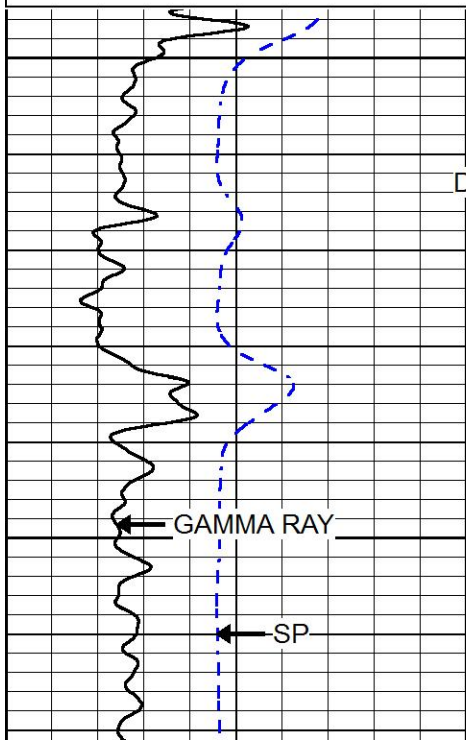


# MAIN PASS

Database File schaben\_ken\_travis\_schaben\_1\_31.db  
 Dataset Pathname stack/pass3.1  
 Presentation Format dil  
 Dataset Creation Tue Mar 14 10:56:34 2017  
 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



3700

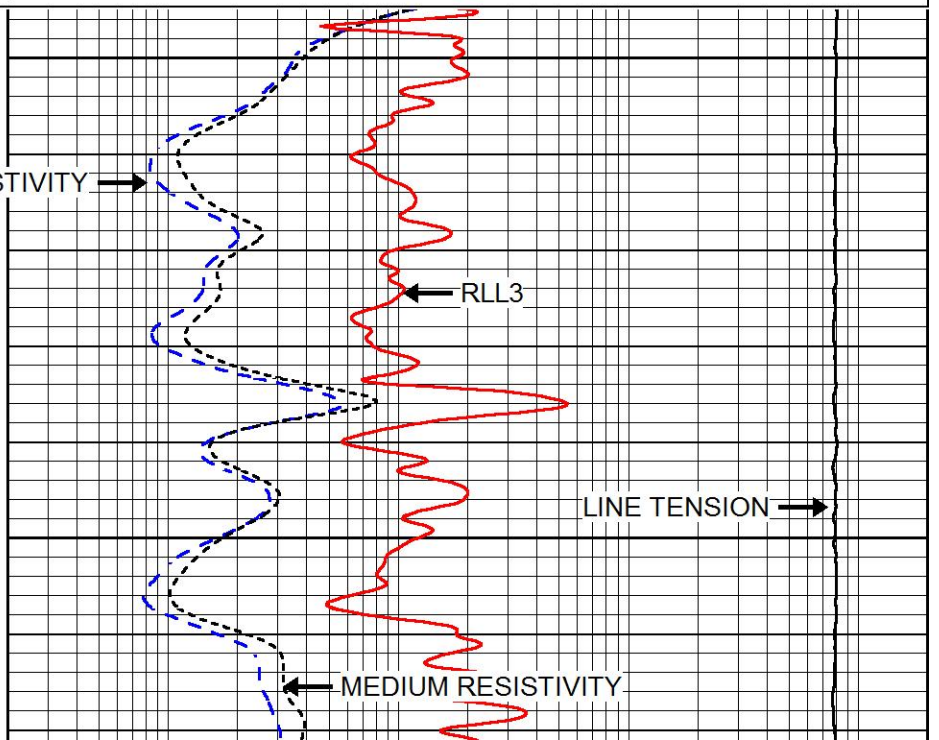
3750

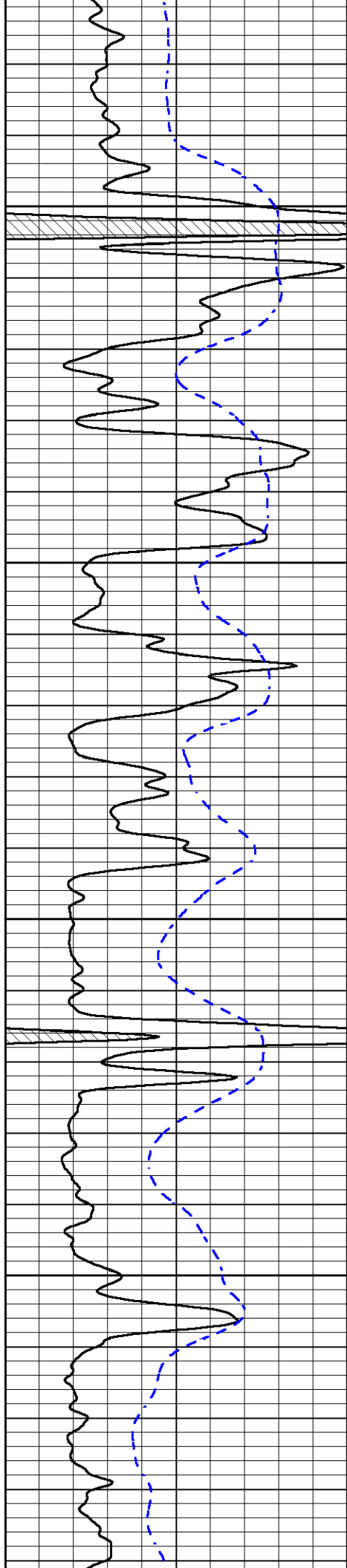
DEEP RESISTIVITY →

← RLL3

LINE TENSION →

← MEDIUM RESISTIVITY



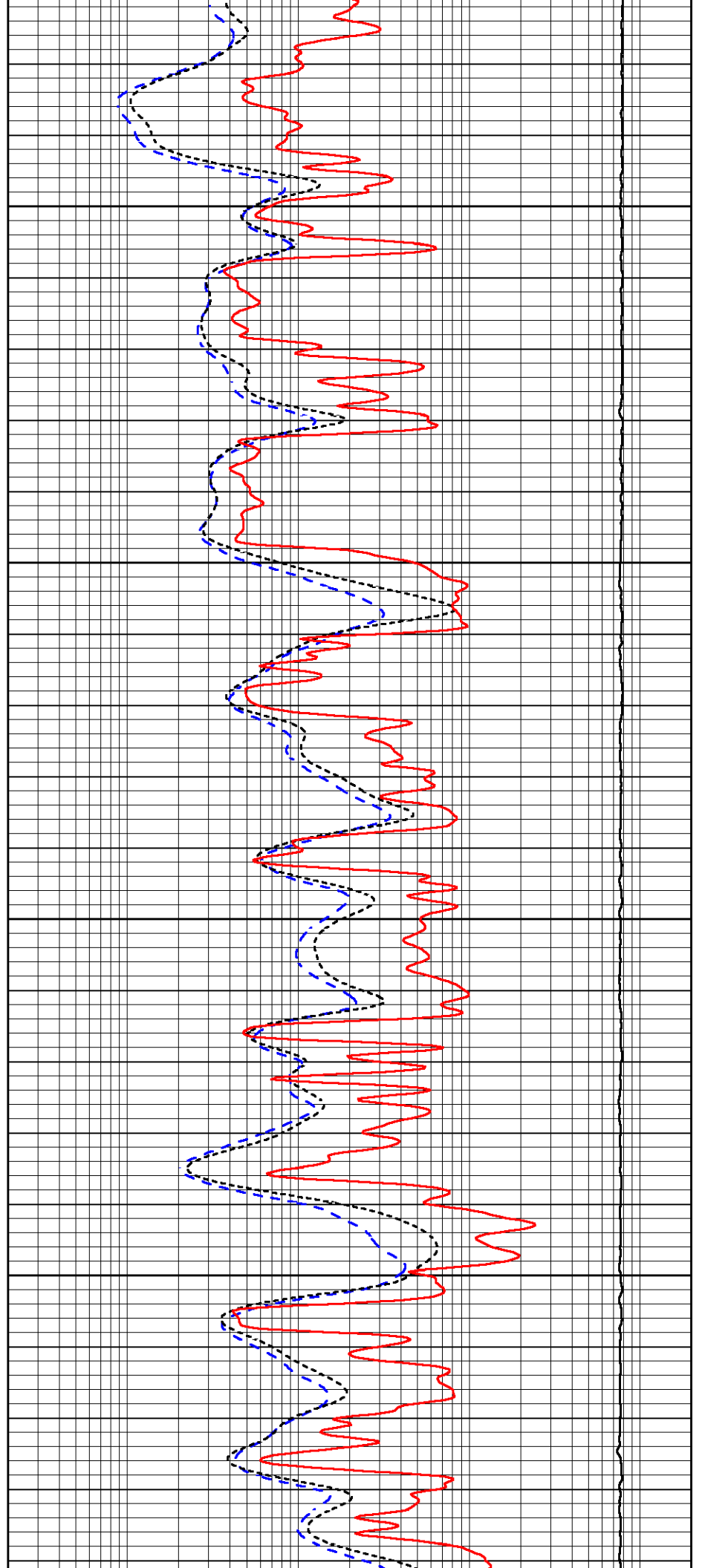


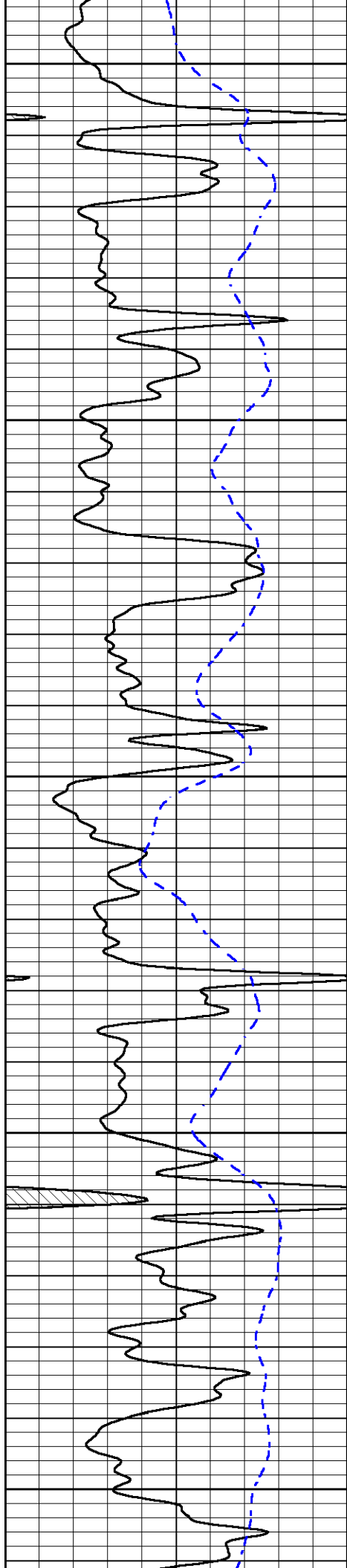
3800

3850

3900

3950





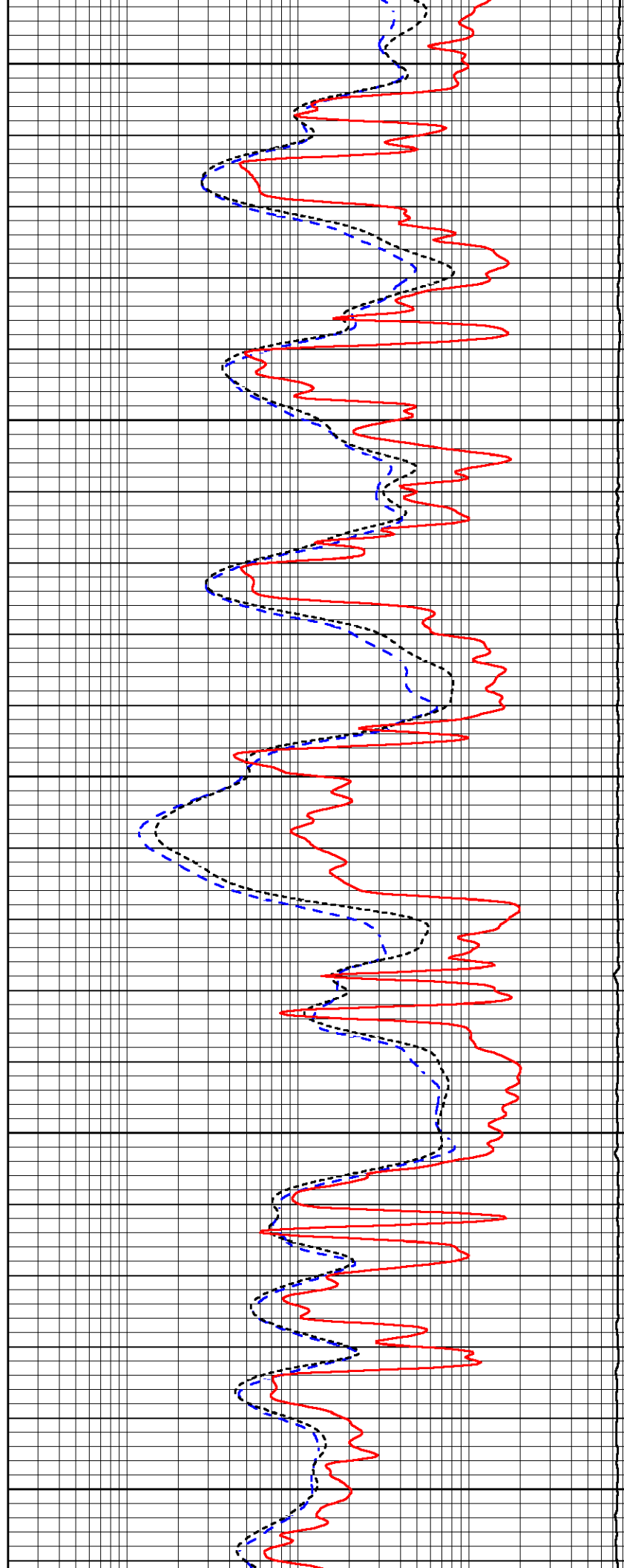
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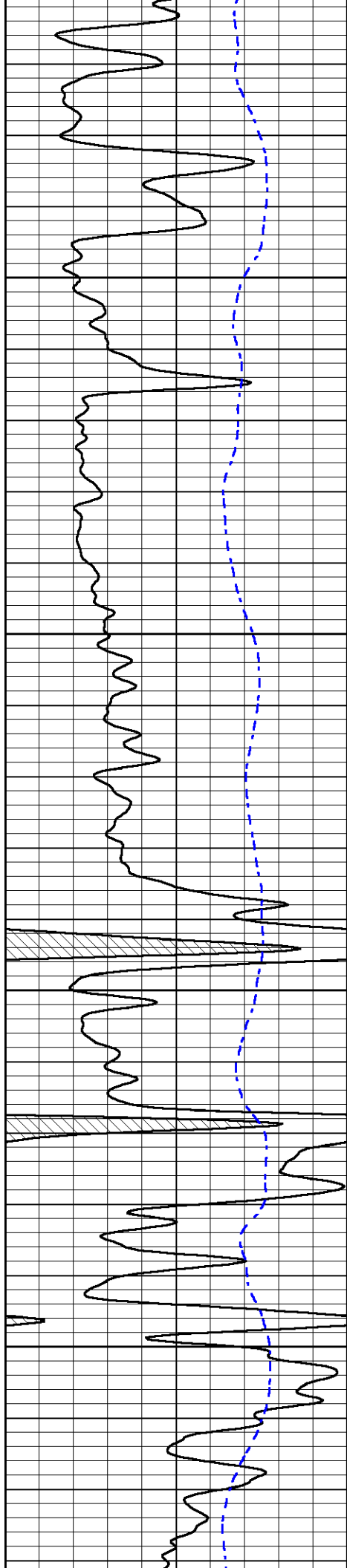
4050

4100

4150

4200



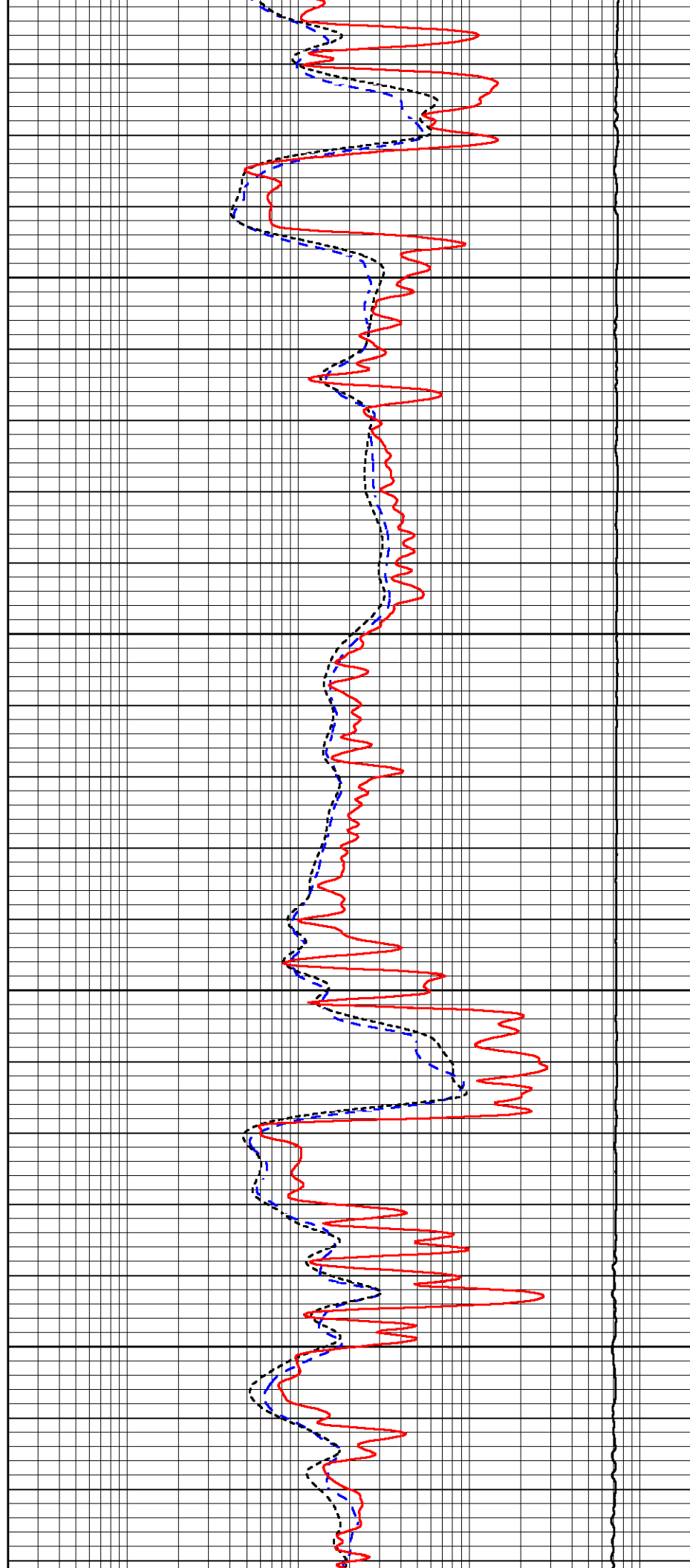


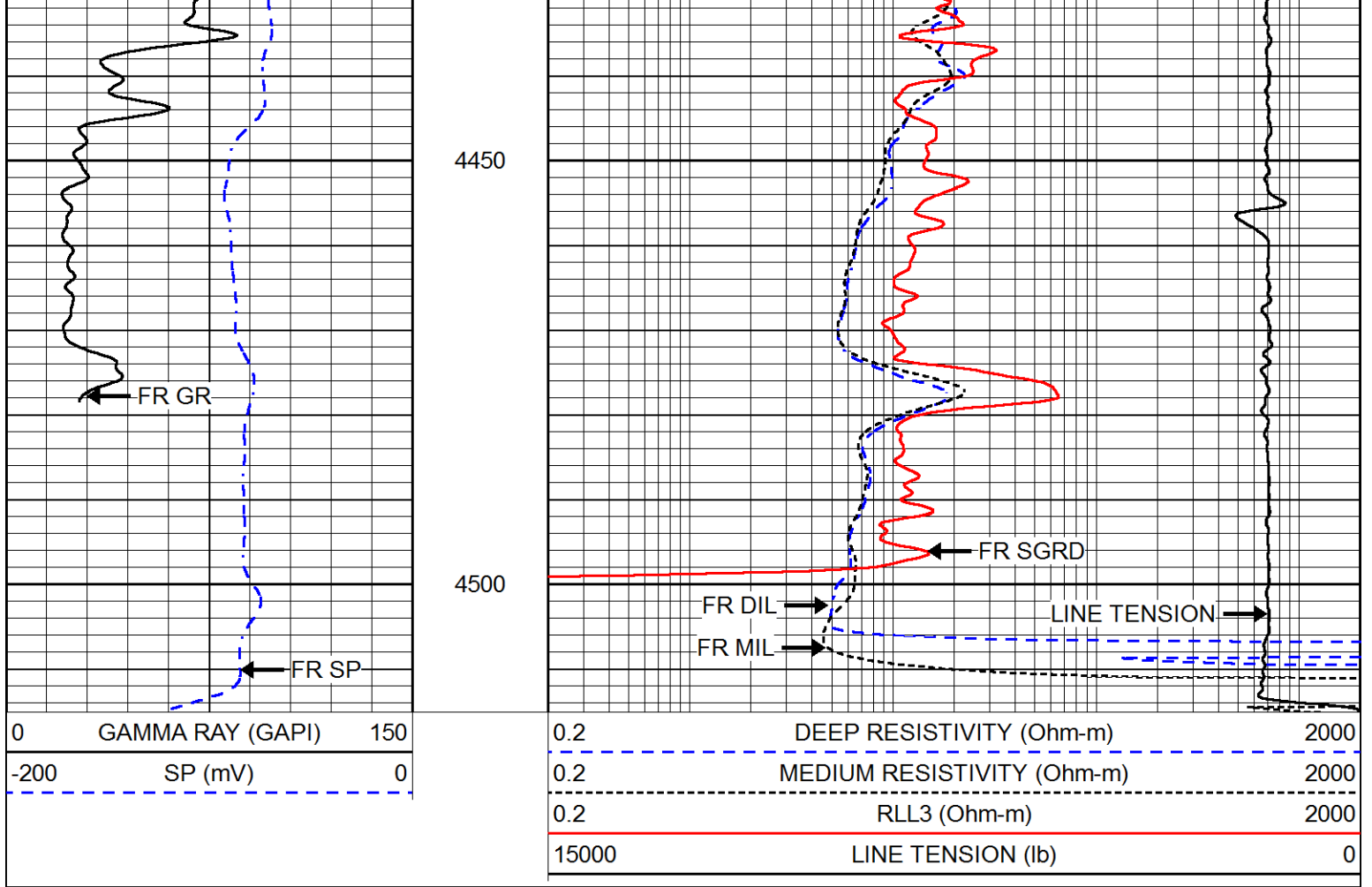
4250

4300

4350

4400





Calibration Report

Database File schaben\_ken\_travis\_schaben\_1\_31.db  
 Dataset Pathname stack/pass3.11  
 Dataset Creation Tue Mar 14 09:57:24 2017

Dual Induction Calibration Report

Serial-Model: PSI 216 HT-PSI HIGH TEMP  
 Calibration Performed: Thu Mar 31 15:54:48 2016

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	75.411	495.929	4.000	250.000	mmho/m	0.620	-40.115
Medium	75.269	470.661	10.000	100.000	mmho/m	0.628	-22.133

Compensated Density Calibration Report

Serial-Model: 71-914-M&W  
 Source / Verifier: /  
 Master Calibration Performed: Fri Dec 23 14:42:24 2016

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	4314.49	5307.52	cps
Aluminum	2.675	g/cc	822.19	3456.36	cps

Spine Angle = 75.49

Density/Spine Ratio = 0.537

	Size		Reading
Small Ring	4.00	in	1.16
Large Ring	14.00	in	1.57

## 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: Fri Dec 23 14:43:38 2016

Calibrator Value: 1000.0 GAPI

Background Reading: 0.0 cps  
 Calibrator Reading: 6.2 cps

Sensitivity: 0.5200 GAPI/cps



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