



PIONEER
Pioneer Energy Services

MICRORESISTIVITY LOG

Company **AMERICAN WARRIOR, INC.**
Well **GANO #8-17**
Field **LAKIN NORTHWEST**
County **KEARNY**
State **KANSAS**

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Location: API #: 15-093-21964-00-00

755' FSL & 2347' FEL

SEC 17 TWP 25S RGE 36W

Permanent Datum **GROUND LEVEL** Elevation **3023'**
Log Measured From **KELLY BUSHING**
Drilling Measured From **KELLY BUSHING**

Elevation
K.B. **3034'**
D.F. **N/A**
G.L. **3023'**

Date **01/07/2018**

Run Number **ONE**

Depth Driller **5050'**

Depth Logger **5050'**

Bottom Logged Interval **5049'**

Top Log Interval **3400'**

Casing Driller **8.625" @ 1785'**

Casing Logger **1785'**

Bit Size **7.875"**

Type Fluid in Hole **CHEMICAL**

Salinity, ppm CL **2750**

Density / Viscosity **9.4 56**

pH / Fluid Loss **9.5 9.2**

Source of Sample **FLOWLINE**

Rm @ Meas. Temp **0.70 @ 50**

Rmf @ Meas. Temp **0.53 @ 50**

Rmc @ Meas. Temp **0.95 @ 50**

Source of Rmf / Rmc **CHARTS**

Rm @ BHT **0.28 @ 127**

Operating Rig Time **3 HOURS**

Max Rec. Temp. F **127**

Equipment Number **91**

Location **HAYS**

Recorded By **D. SCHMIDT**

Witnessed By **LUKE THOMPSON**

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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.

**LAKIN,
3 SOUTH ON HWY. 25 TO RD. 130,
1 WEST TO S ROAD, 2 SOUTH TO THE CURVE,
1 WEST, 3/4 SOUTH,
WEST INTO**

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

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

Your Pioneer Energy Services Crew

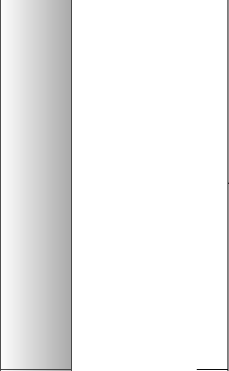
Engineer: **D. SCHMIDT**
Operator:
Operator:
Operator:

This Log Record Was Witnessed By

Primary Witness: **LUKE THOMPSON**
Secondary Witness:
Secondary Witness:
Secondary Witness:

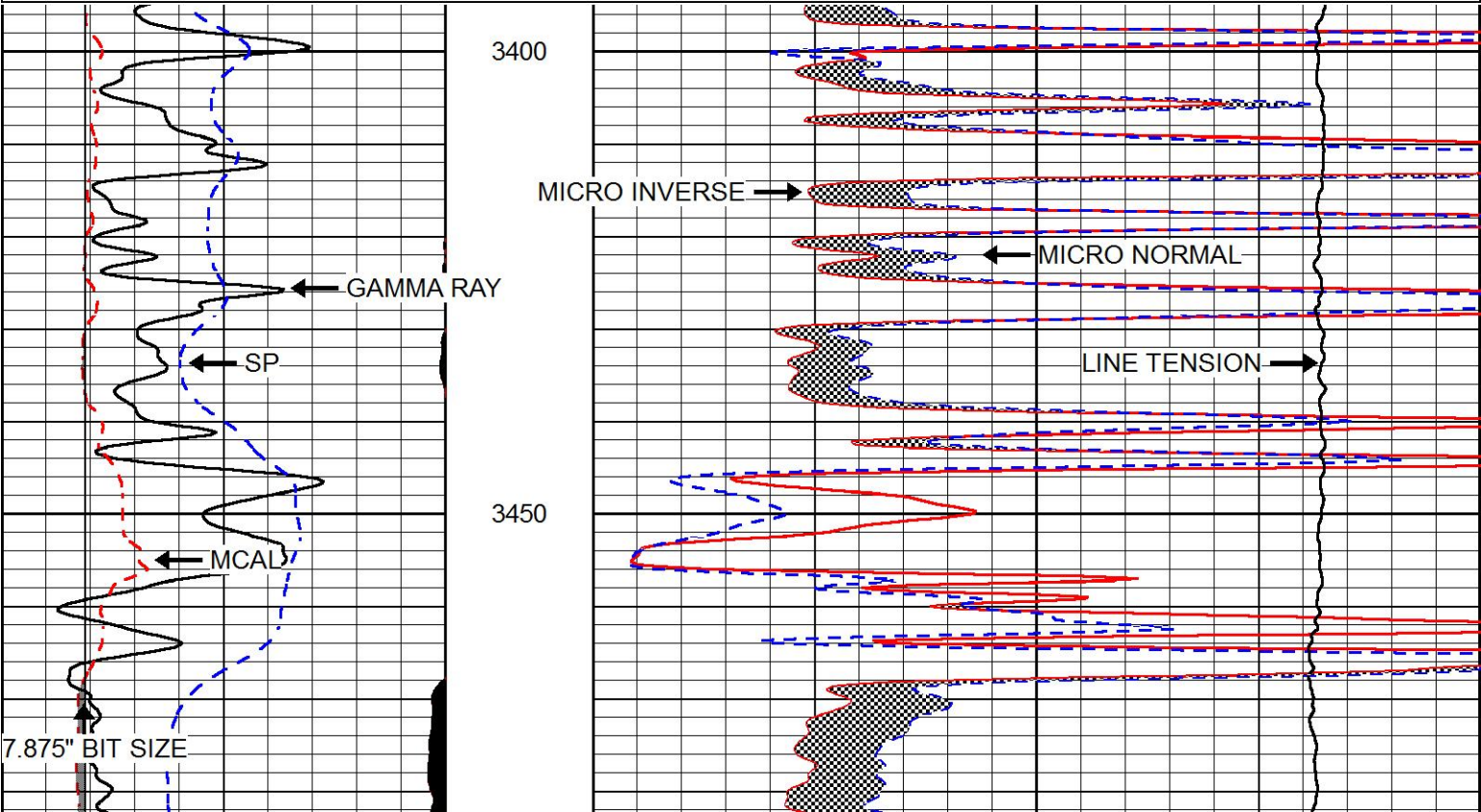
Top - Bottom

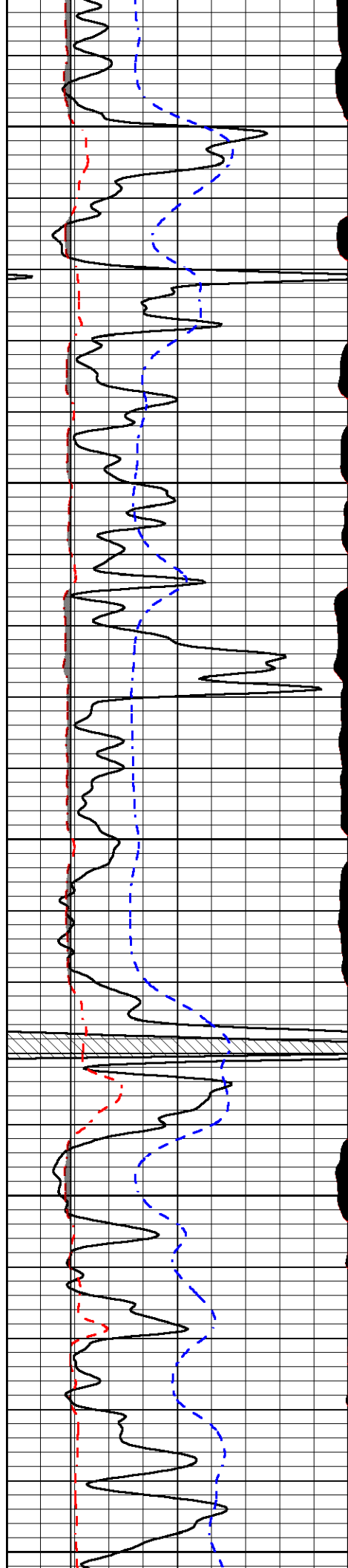
M	A	SZCOR	NPORSEL	FLUIDDEN g/cc	MATRXDEN g/cc	SPSHIFT mV	SNDERRM mmho/m
2	1	Off	Limestone	1	2.71	290	0
SNDERR mmho/m	SRFTEMP degF	CASETHCK in	CASEOD in	PERFS	TDEPTH ft	BOTTEMP degF	BOREID in
0	50	0	5.5	0	5050	127	7.875

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 (90-1031)	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-M&W (PSI 91)	18.50	3.50	220.00
CILD	8.00						
CILM	4.70						
SP	0.20						
Dataset: americanwarrior_gano8-17.db: field/well/STKML/pass3.4 Total length: 43.08 ft Total weight: 685.00 lb O.D.: 4.00 in							

		MAIN PASS	
Database File	americanwarrior_gano8-17.db		
Dataset Pathname	STKML/pass3.1		
Presentation Format	micro		
Dataset Creation	Sun Jan 07 13:05:11 2018		
Charted by	Depth in Feet scaled 1:240		
0	Gamma Ray (GAPI)	150	
6	MCAL (in)	16	
2.875	mcals (in)	7.875	
6	Bit Size (in)	16	
-200	SP (mV)	0	
0	Micro Inverse 1 X 1 (Ohm-m)	40	
0	Micro Normal 2" (Ohm-m)	40	
10000	Line Weight (lb)	0	





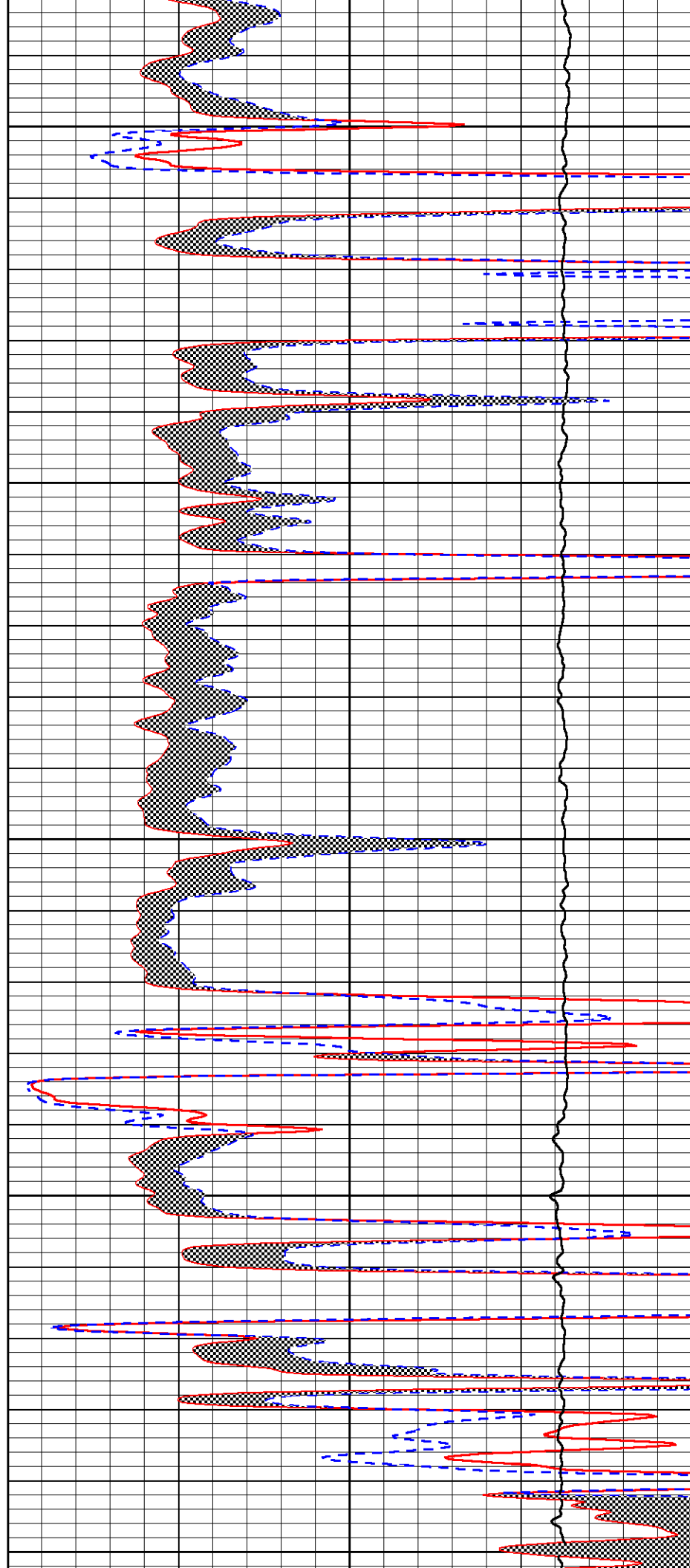
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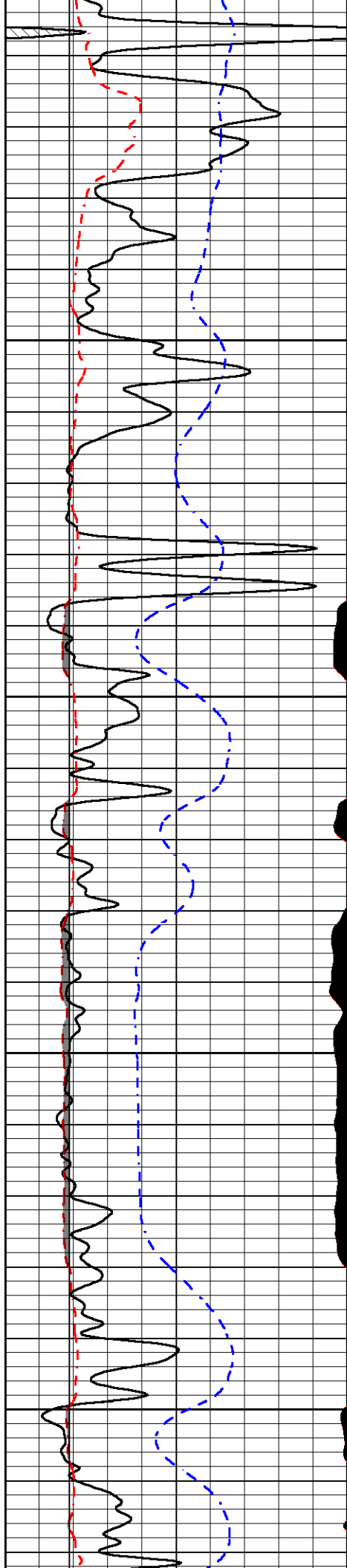
3550

3600

3650

3700



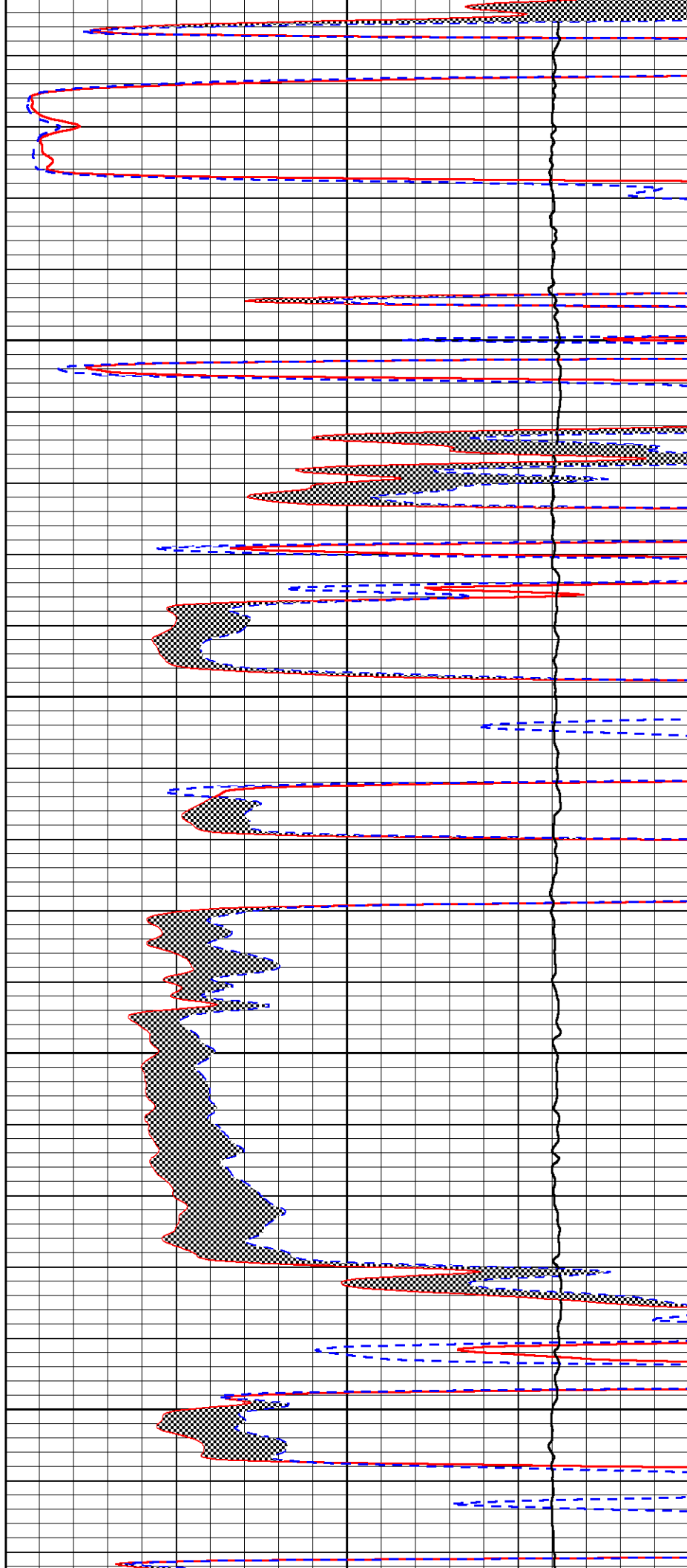


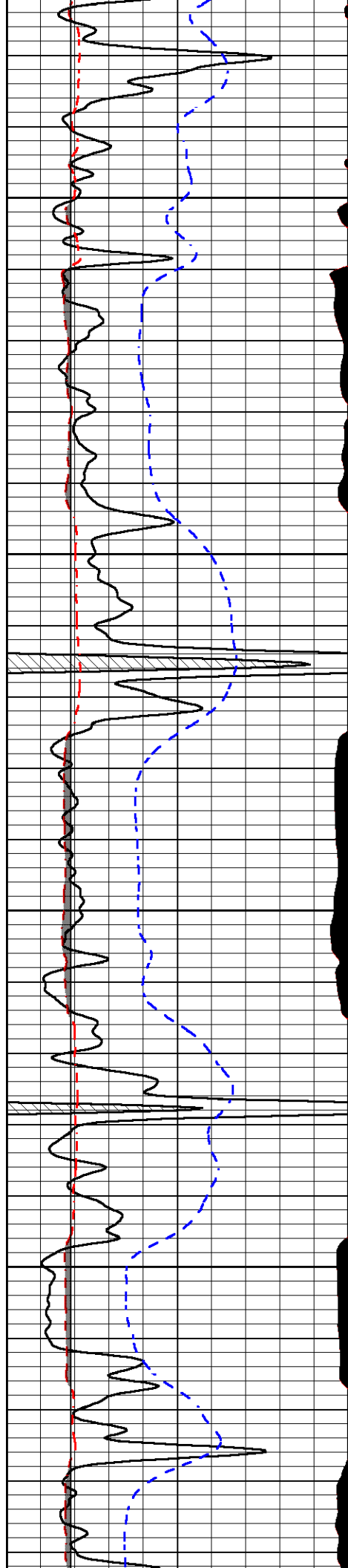
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3800

3850

3900



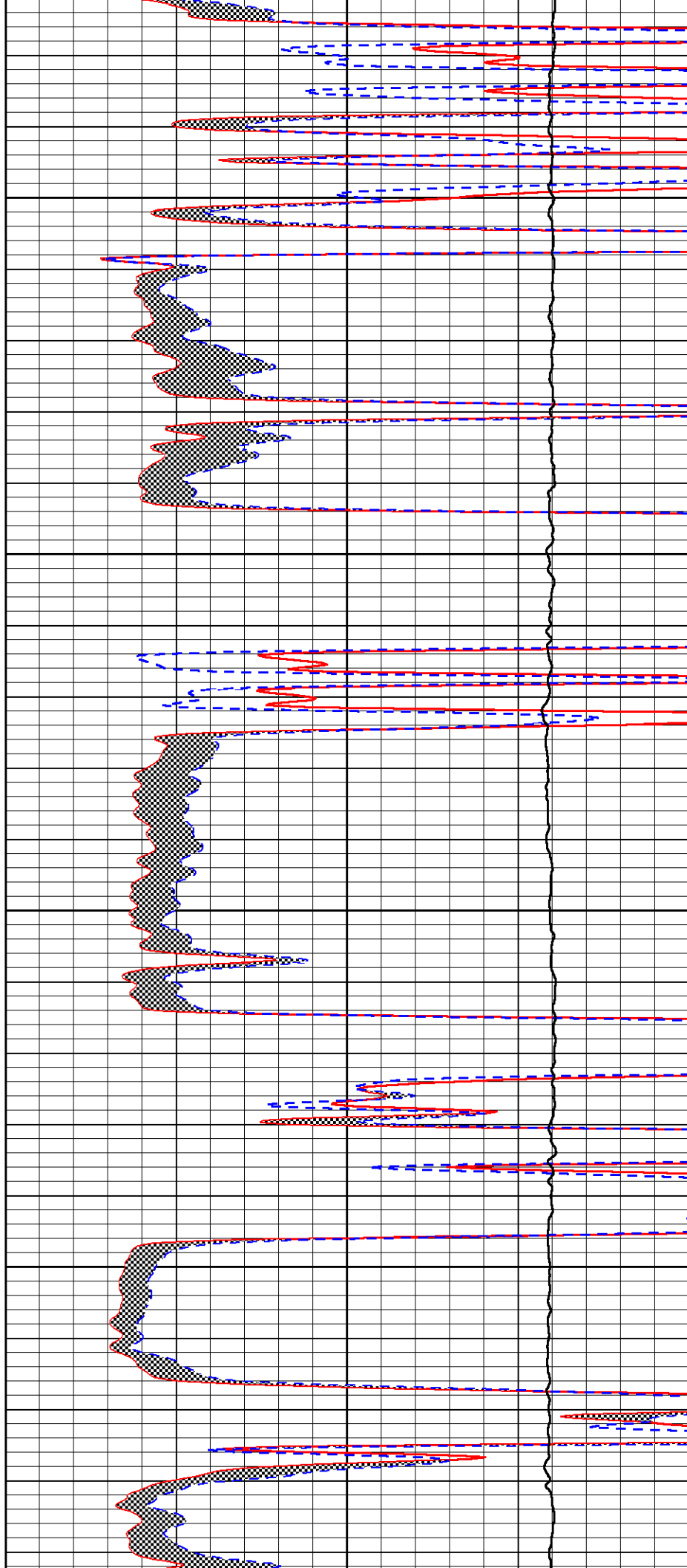


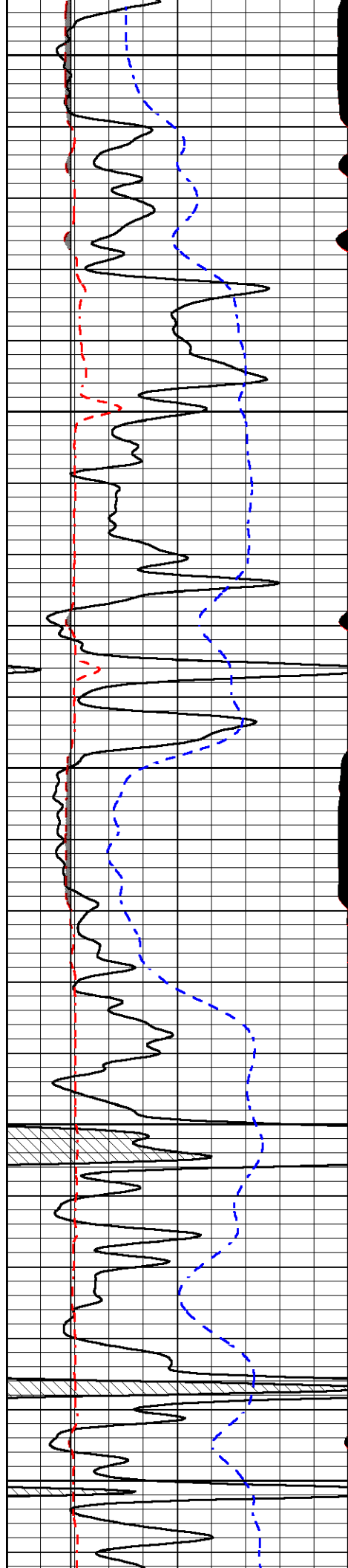
3950

4000

4050

4100





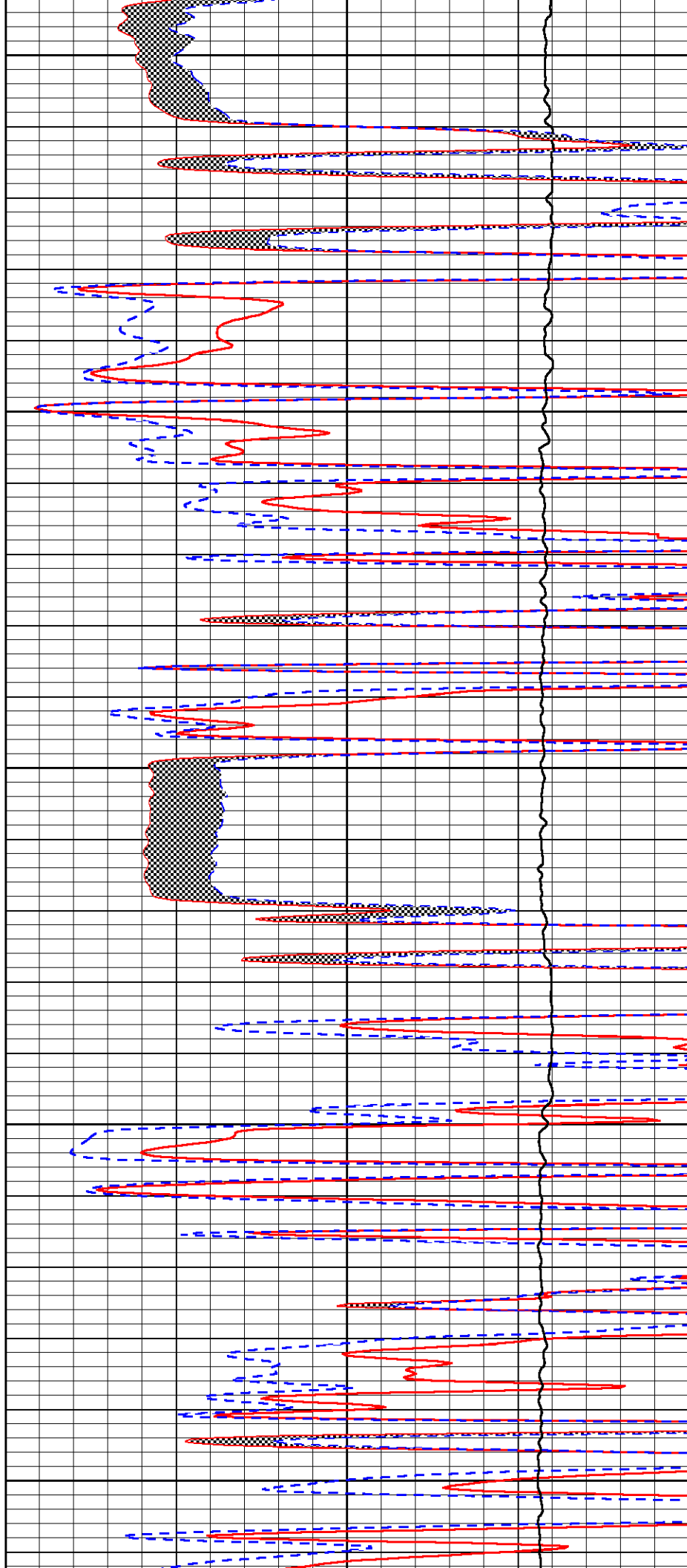
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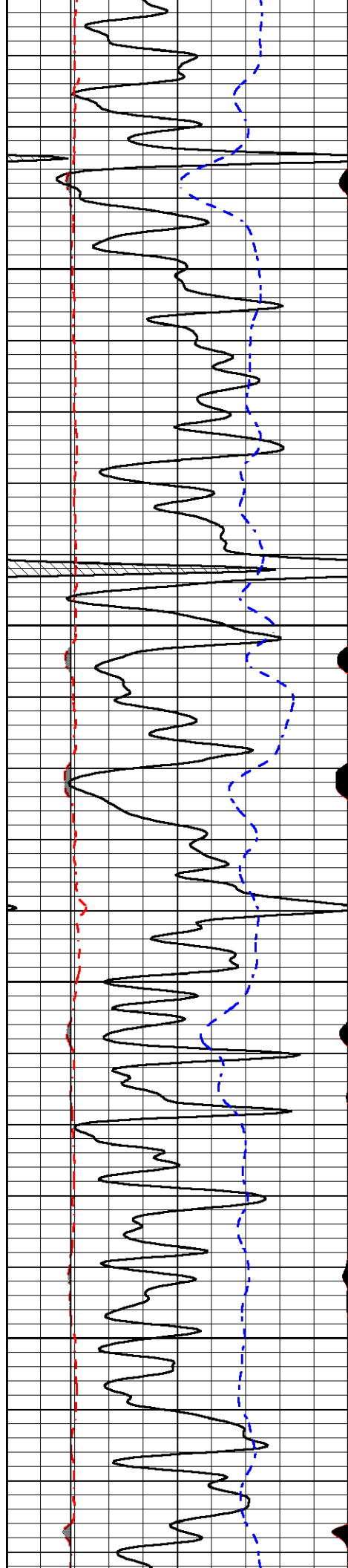
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4250

4300

4350



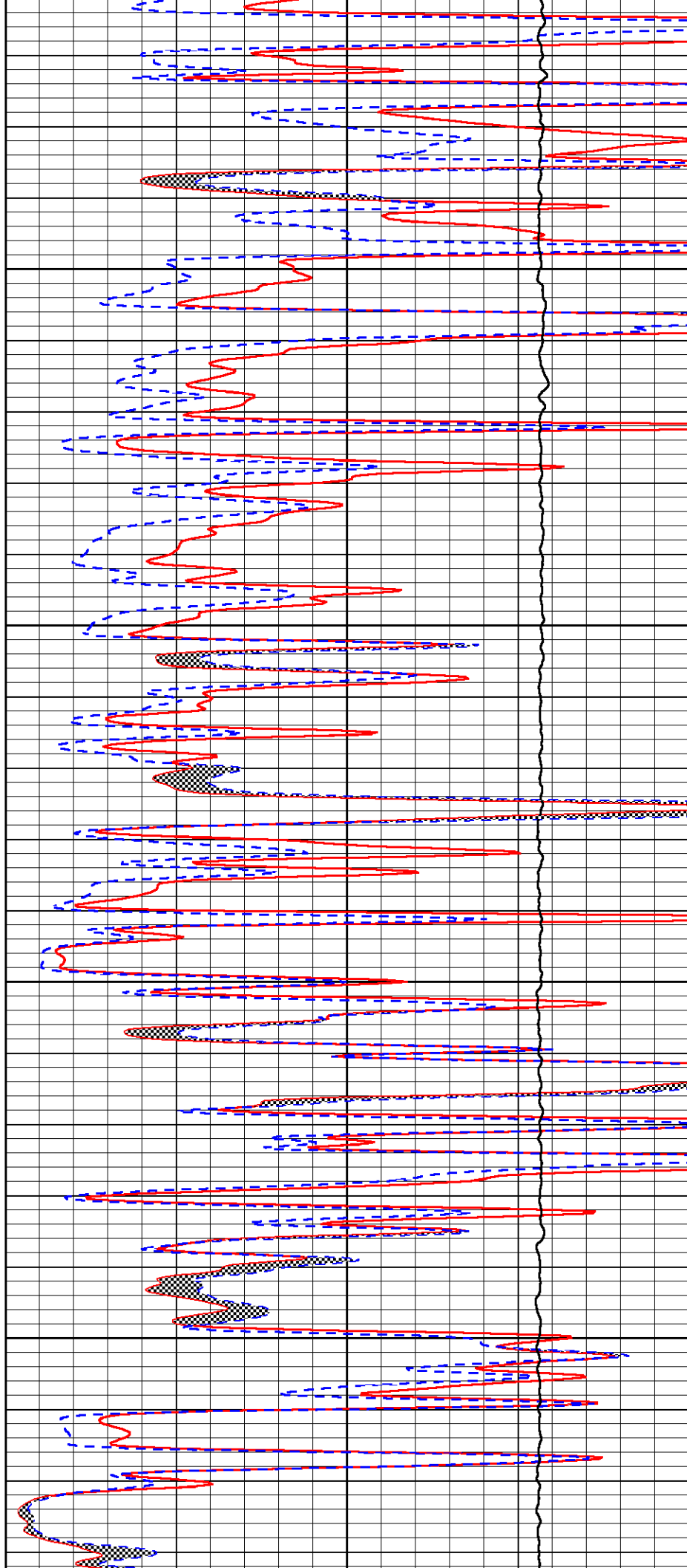


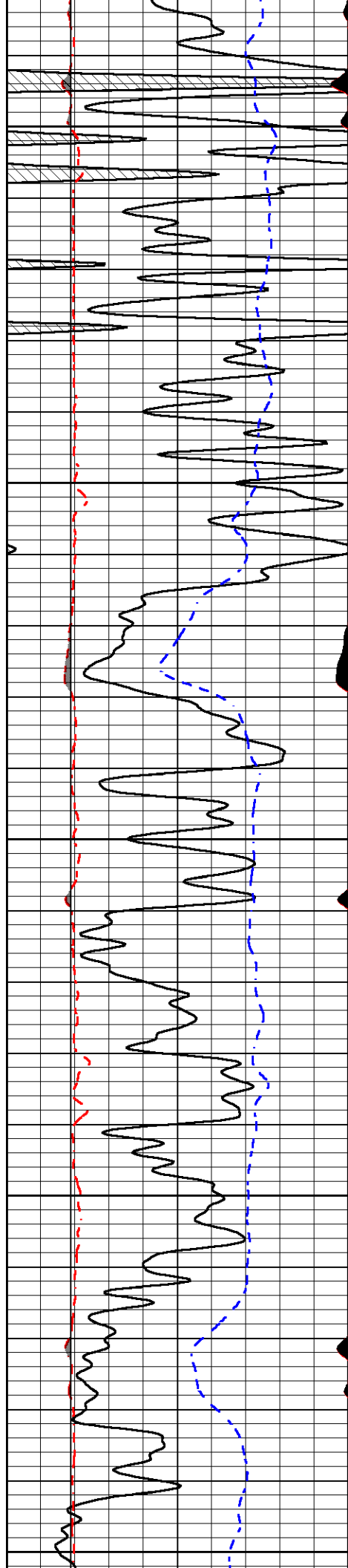
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4450

4500

4550





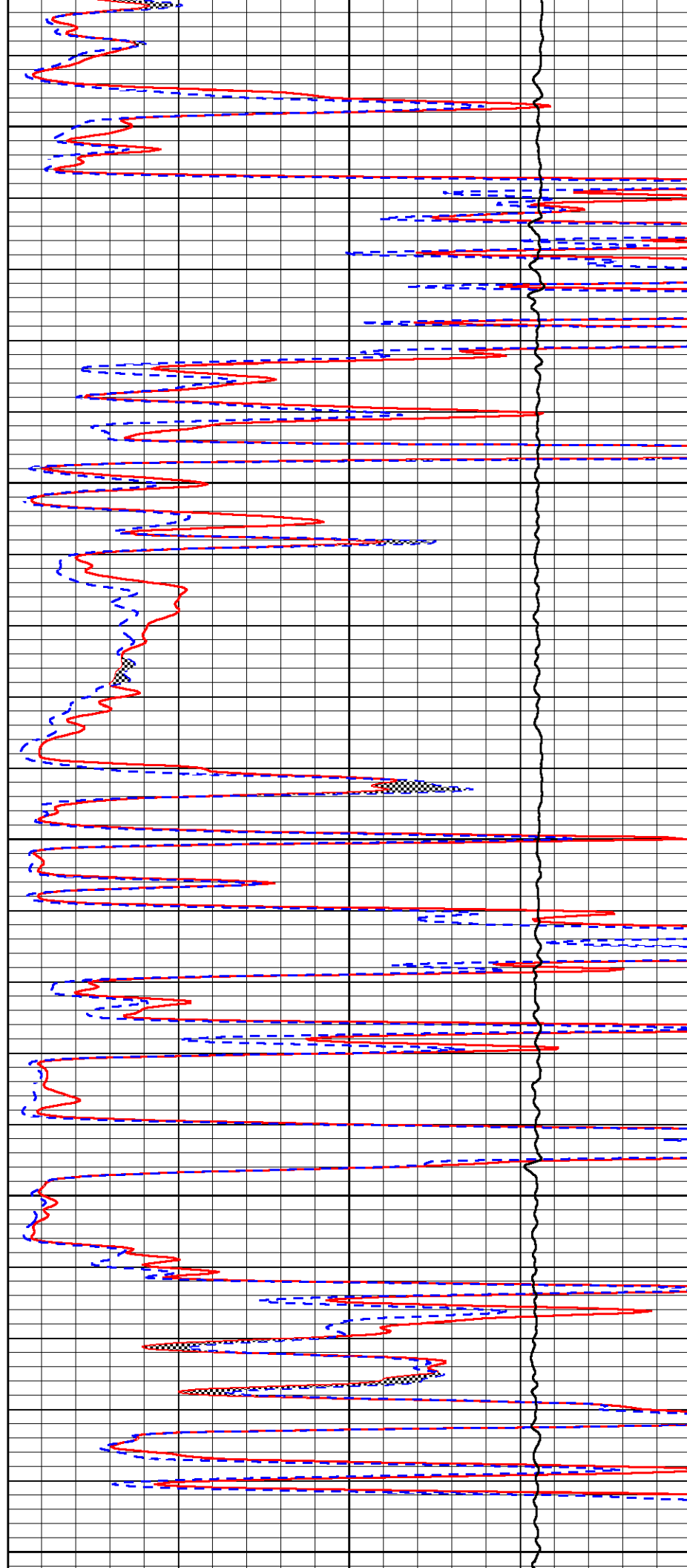
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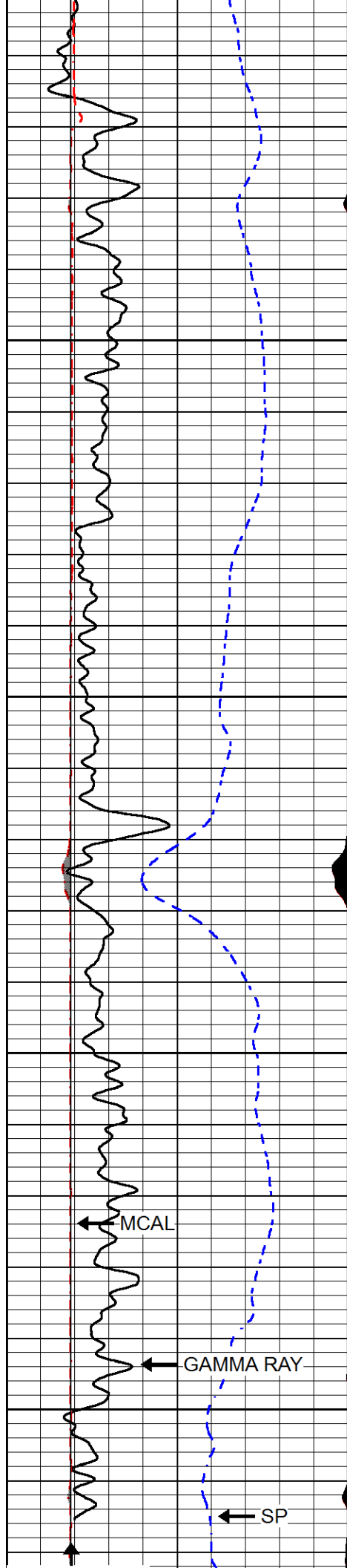
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4700

4750

4800



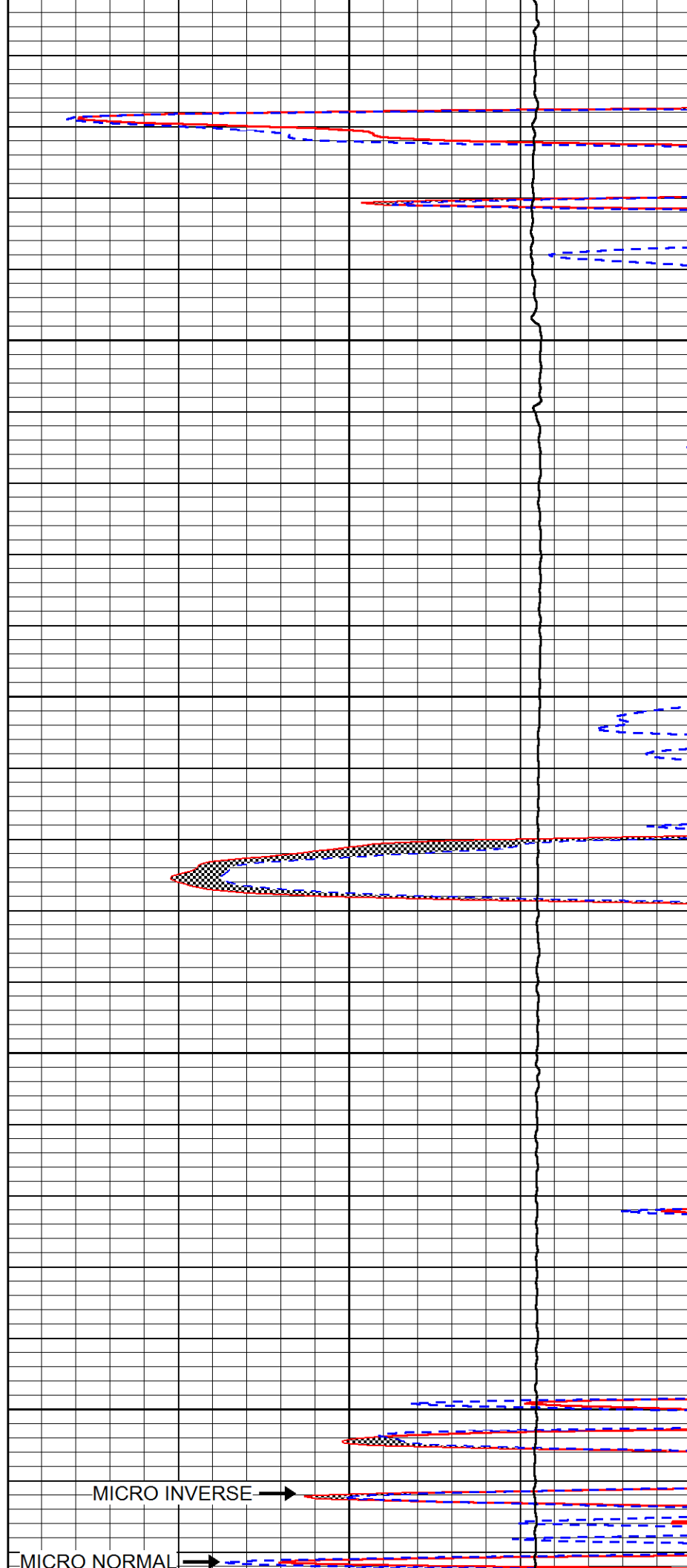


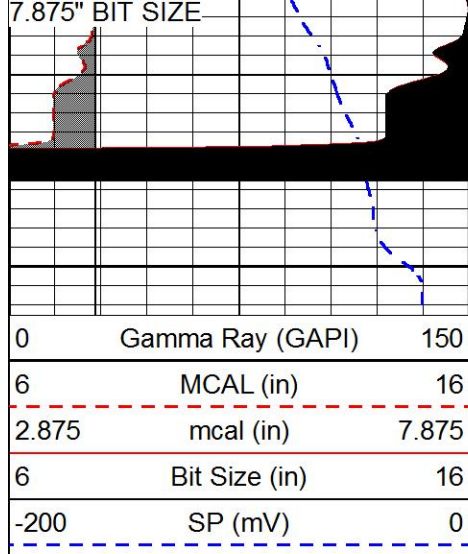
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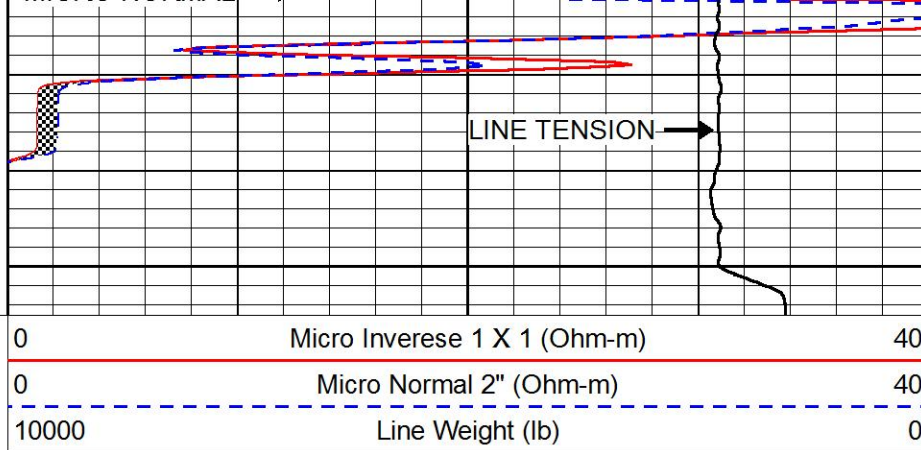
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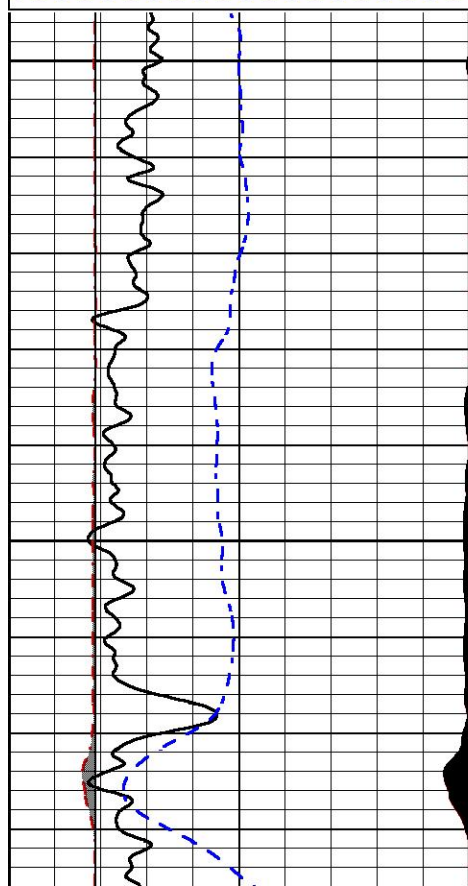
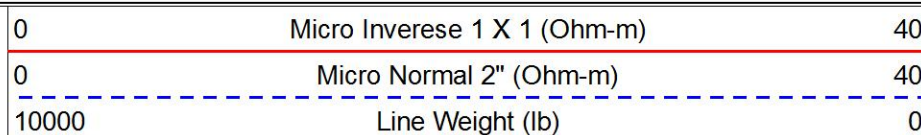
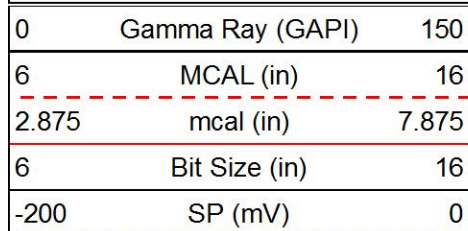


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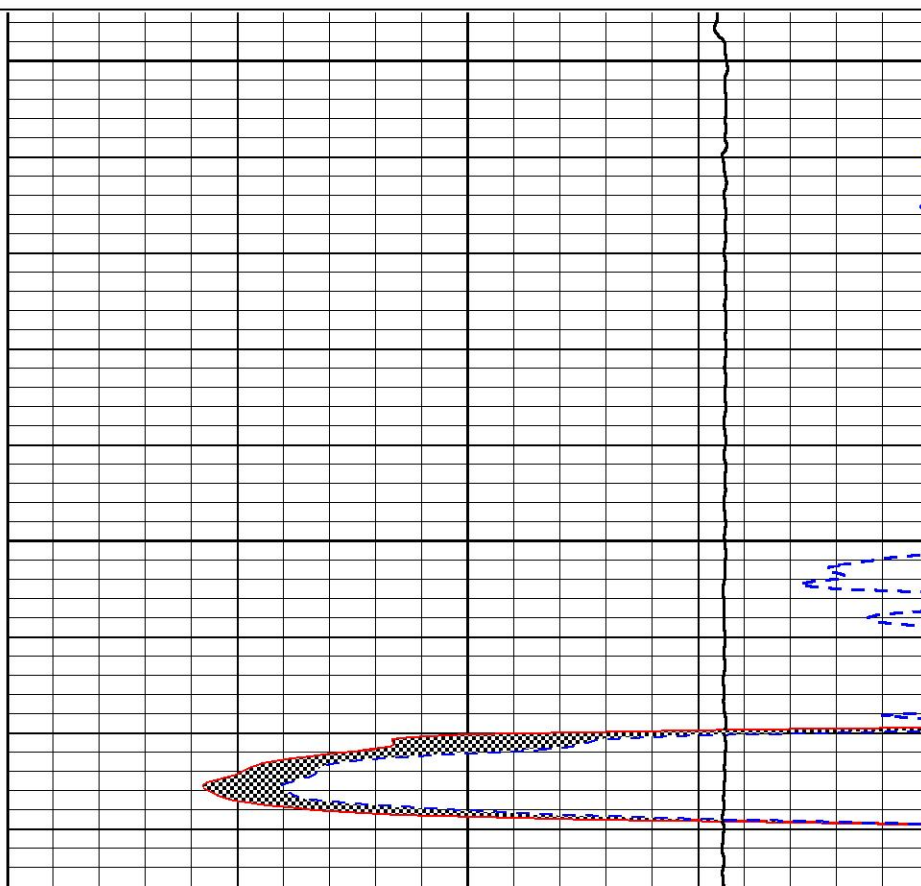
REPEAT SECTION

Database File americanwarrior_gano8-17.db
 Dataset Pathname STKML/pass2.1
 Presentation Format micro
 Dataset Creation Sun Jan 07 12:50:36 2018
 Charted by Depth in Feet scaled 1:240



4850

4900



Serial-Model:
Performed:

PSI-01-PSIML
Thu Dec 14 04:11:04 2017

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	21000.0000	-1.0000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	27000.0000	-0.6000
Caliper	1.0001	1.1397	6.5000	18.5000	in	100.0000	-97.3500

Compensated Density Calibration Report

Serial-Model: 90-1031-M&W
Source / Verifier: 16955B / 2ci
Master Calibration Performed: Sat Dec 02 18:42:45 2017

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	4903.44	6153.79	cps
Aluminum	2.640	g/cc	934.50	4021.31	cps
Spine Angle = 75.61			Density/Spine Ratio = 0.517		
	Size		Reading		
Small Ring	8.00	in	1.84		
Large Ring	22.00	in	1.46		

Compensated Neutron Calibration Report

Serial Number: 207-MW
Tool Model: M&W
Calibration Performed: WED DEC 13 10:30:30 2017

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: Wed Sep 06 19:51:14 2017

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps
Calibrator Reading: 1.0 cps

Sensitivity: 0.6000 GAPI/cps



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