



PIONEER
Pioneer Energy Services

MICRORESISTIVITY LOG

Company **AMERICAN WARRIOR, INC.**
Well **GANO #10-17**
Field **LAKIN NORTHWEST**
County **KEARNY**
State **KANSAS**

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County **KEARNY** State **KANSAS**

Location: API #: 15-093-21966-00-00

Other Services

SEC 17 TWP 25S RGE 36W
2505' FSL & 335' FWL

Permanent Datum **GROUND LEVEL** Elevation **3027'**
Log Measured From **KELLY BUSHING**
Drilling Measured From **KELLY BUSHING**

Elevation
K.B. 3038'
D.F. N/A
G.L. 3027'

Date	03/26/2018
Run Number	ONE
Depth Driller	5050'
Depth Logger	5048'
Bottom Logged Interval	5047'
Top Log Interval	3400'
Casing Driller	8.625" @ 1788'
Casing Logger	1789'
Bit Size	7.875"
Type Fluid in Hole	CHEMICAL
Salinity, ppm CL	2200
Density / Viscosity	9.35 53
pH / Fluid Loss	10.5 8.0
Source of Sample	FLOWLINE
Rm @ Meas. Temp	0.60 @ 43
Rmf @ Meas. Temp	0.45 @ 43
Rmc @ Meas. Temp	0.81 @ 43
Source of Rmf / Rmc	CHARTS
Rm @ BHT	0.21 @ 122
Operating Rig Time	3 HOURS
Max Rec. Temp. F	122
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 TO 120 ROAD, 1 WEST,
1 SOUTH, 1 1/2 WEST
SOUTH 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

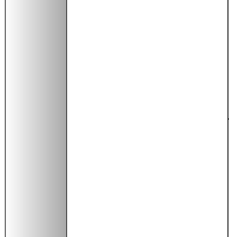
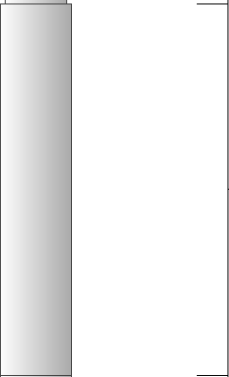
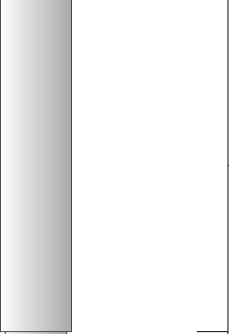
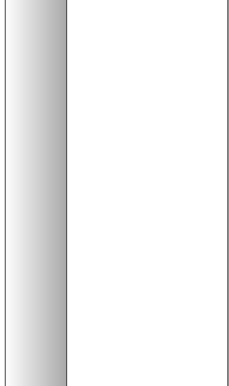
This Log Record Was Witnessed By

Engineer: D. SCHMIDT
Operator:
Operator:
Operator:

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

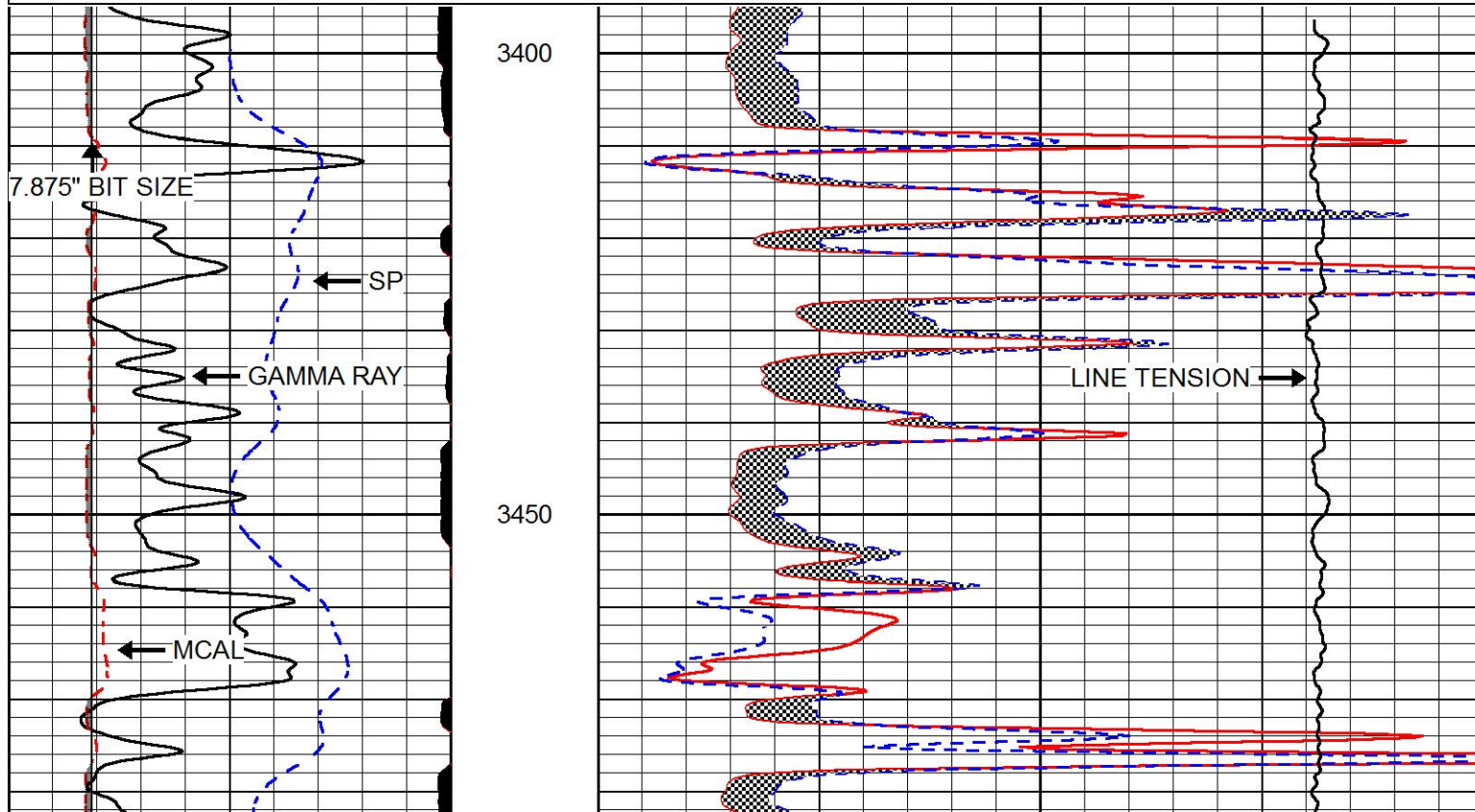
Top - Bottom

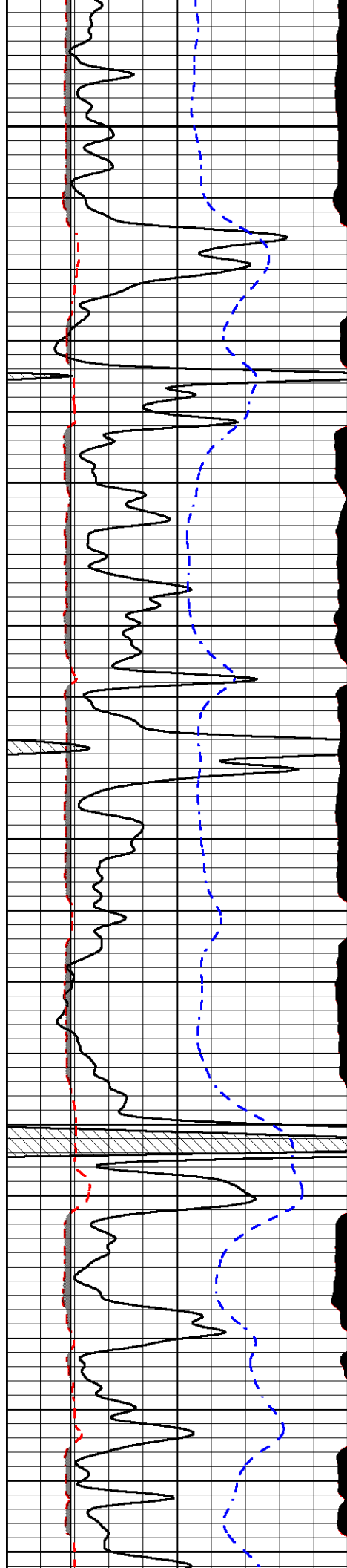
M	A	SZCOR	NPORSEL	FLUIDDEN g/cc	MATRXDEN g/cc	SPSHIFT mV	SNDERRM mmho/m
2	1	Off	Limestone	1	2.71	-123	0
SNDERR mmho/m	SRFTEMP degF	CASETHCK in	CASEOD in	PERFS	TDEPTH ft	BOTTEMP degF	BOREID in
0	0	0	5.5	0	5048	122	7.875

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 (227-771)	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 (933 (HT))	18.50	3.50	220.00
CILD	8.00						
CILM	4.70						
SP	0.20						
Dataset: americanwarrior_gano#10-17.db: field/well/STKML/pass4.1 Total length: 43.08 ft Total weight: 685.00 lb O.D.: 4.00 in							

		MAIN PASS	
Database File	americanwarrior_gano#10-17.db		
Dataset Pathname	STKML/pass4.1		
Presentation Format	micro		
Dataset Creation	Mon Mar 26 13:43:25 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	





MICRO INVERSE →

← MICRO NORMAL

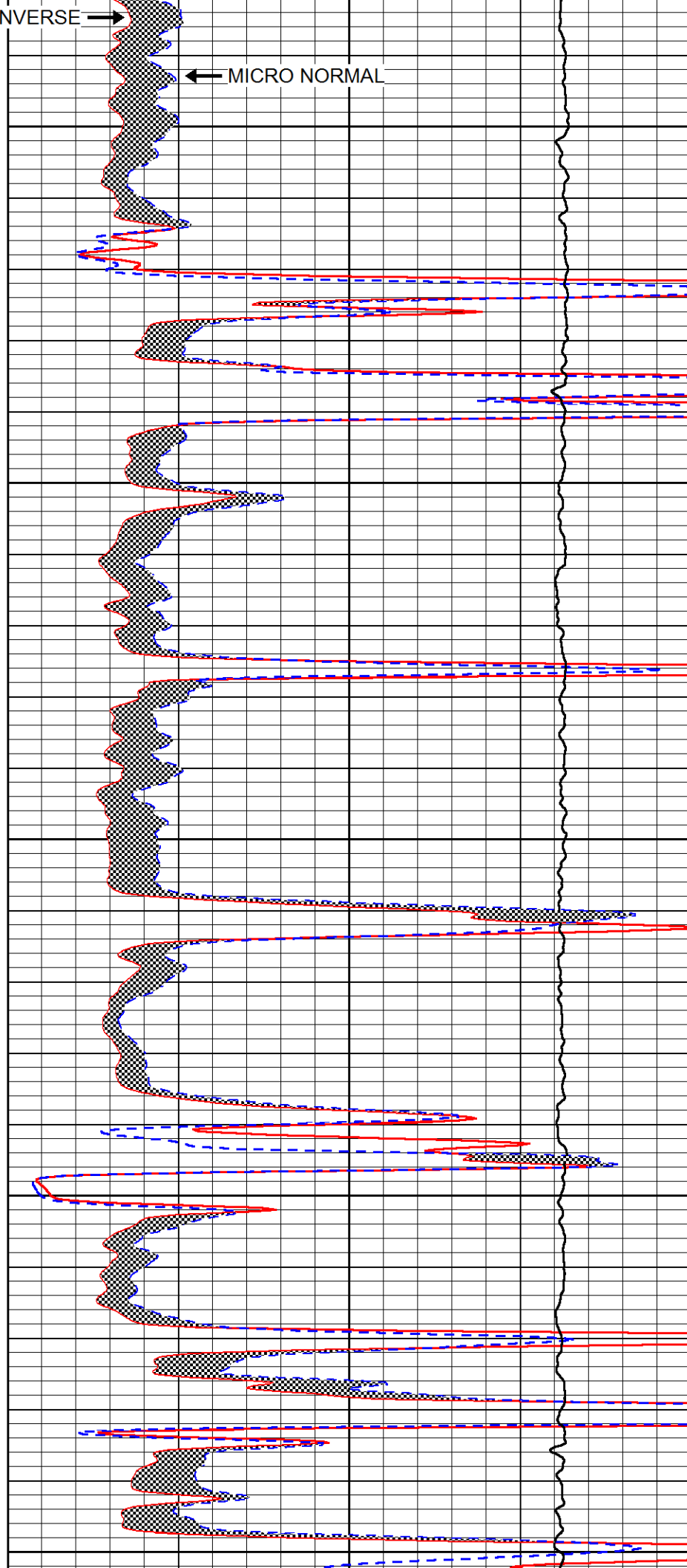
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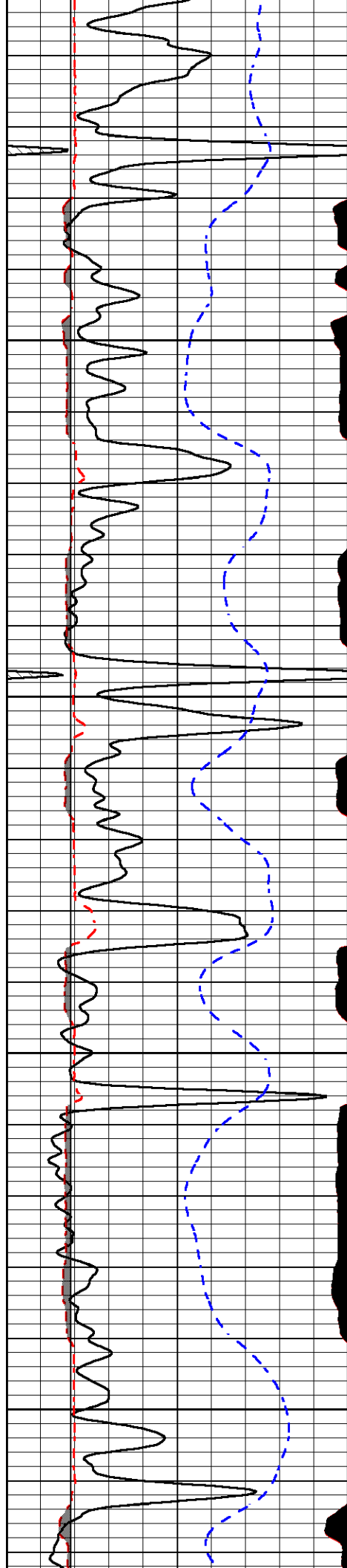
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3600

3650

3700



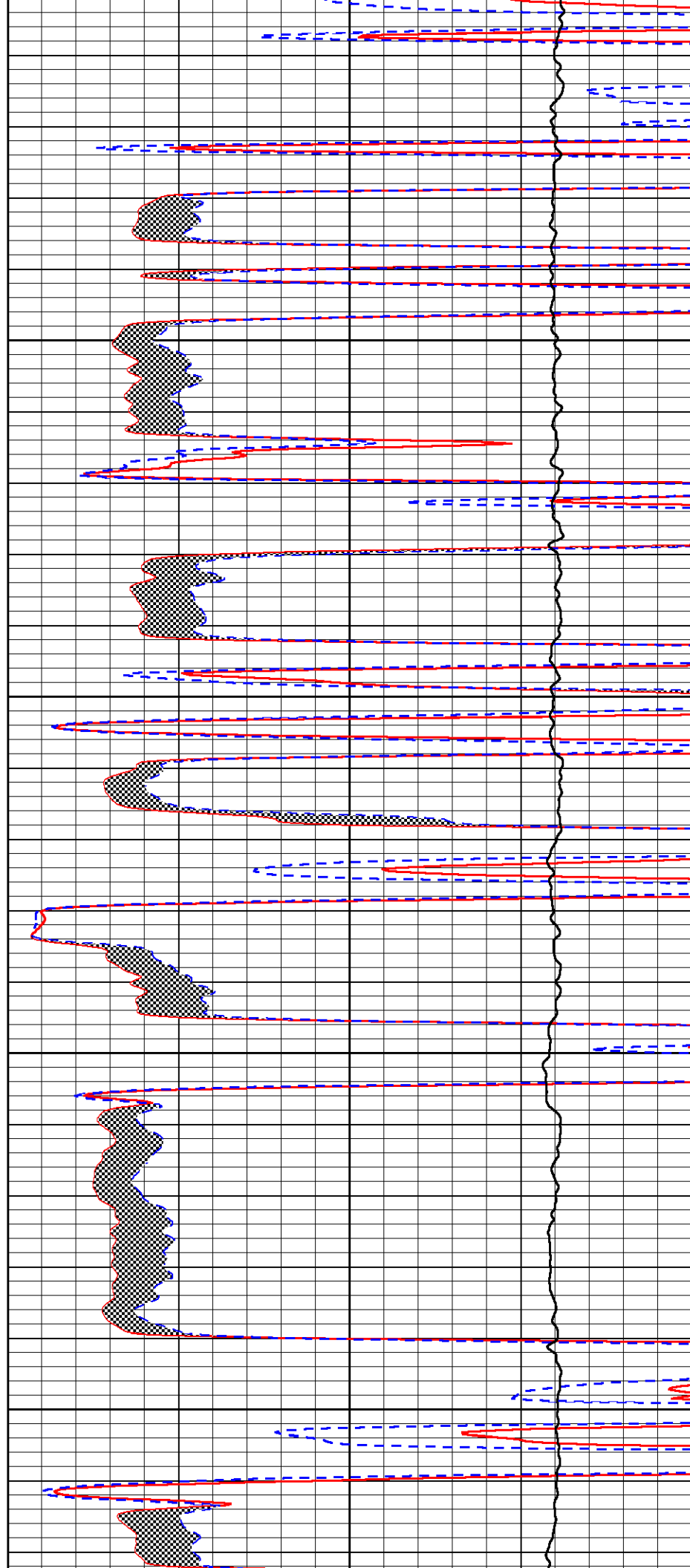


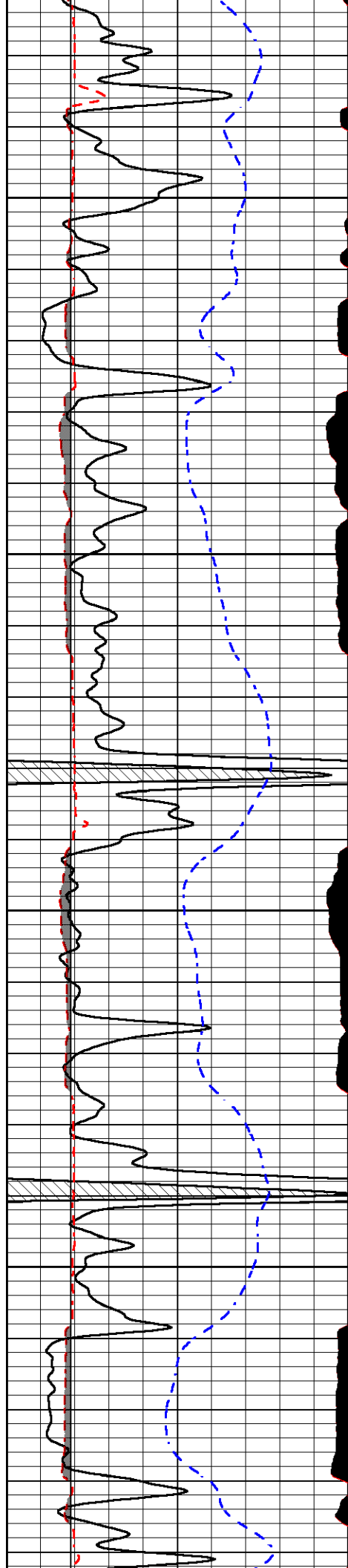
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3800

3850

3900



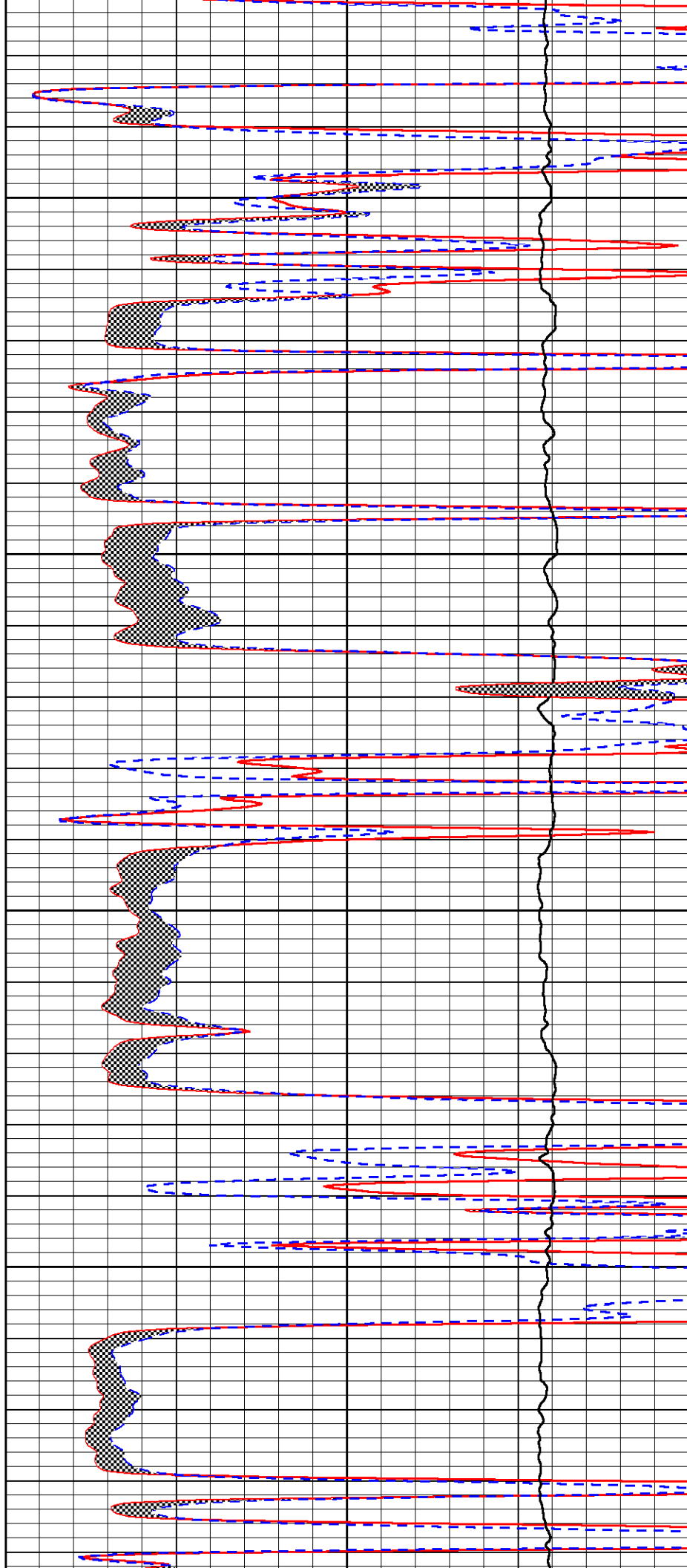


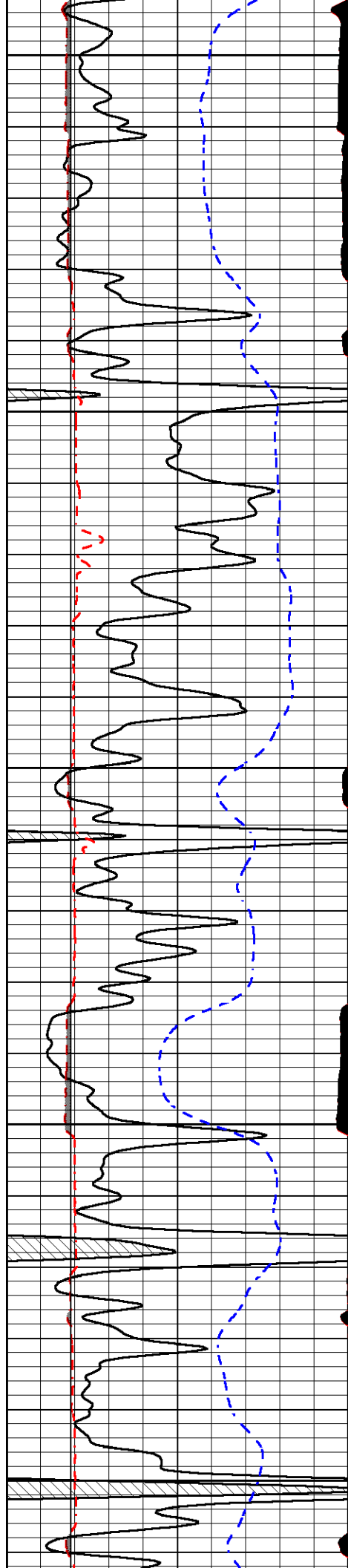
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4000

4050

4100





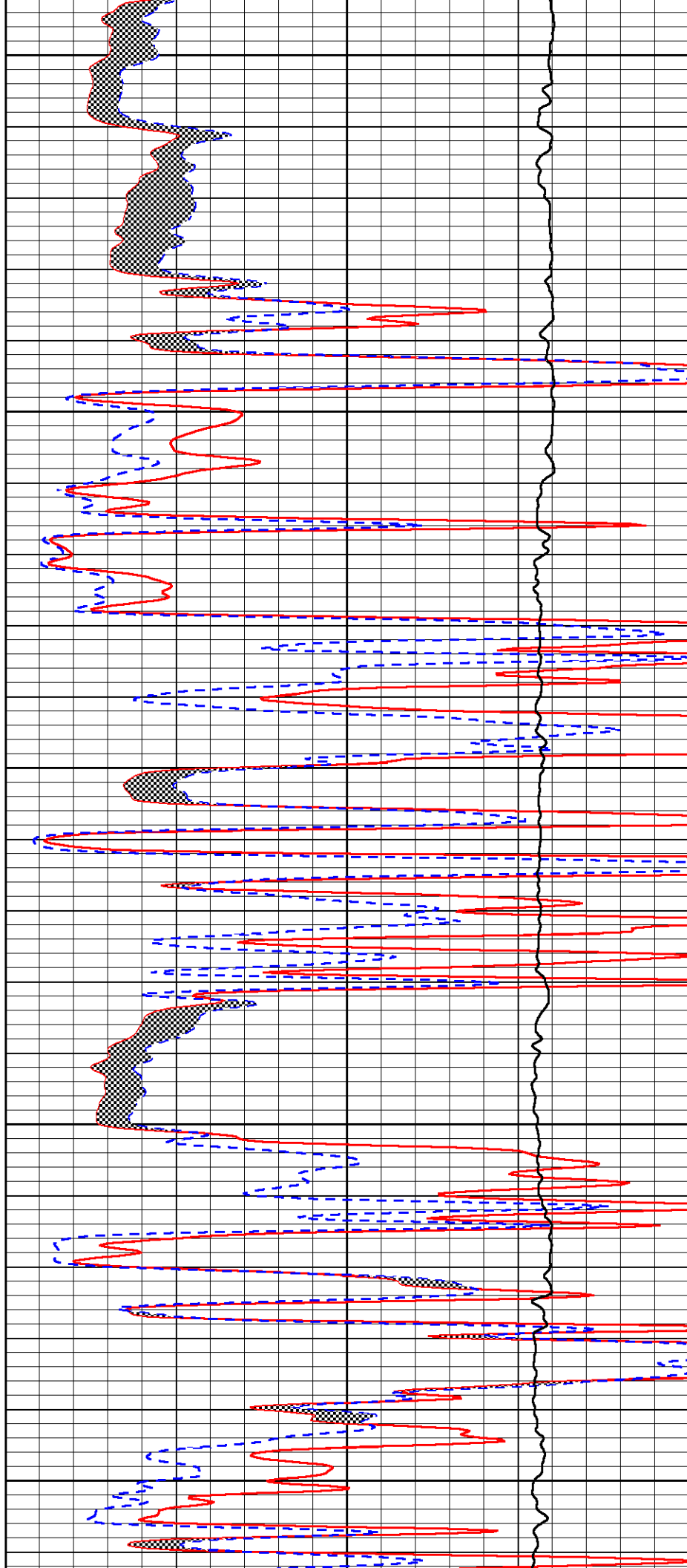
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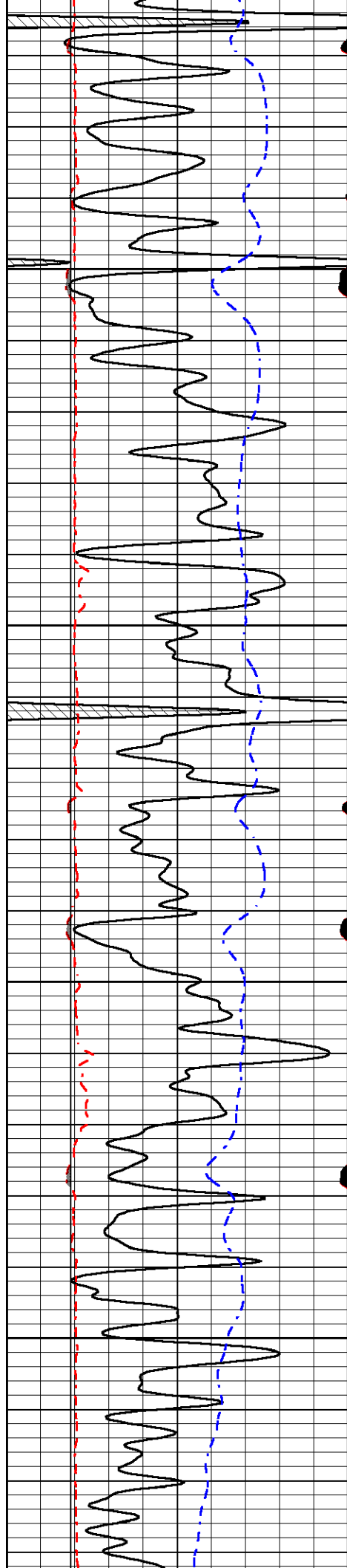
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4250

4300

4350



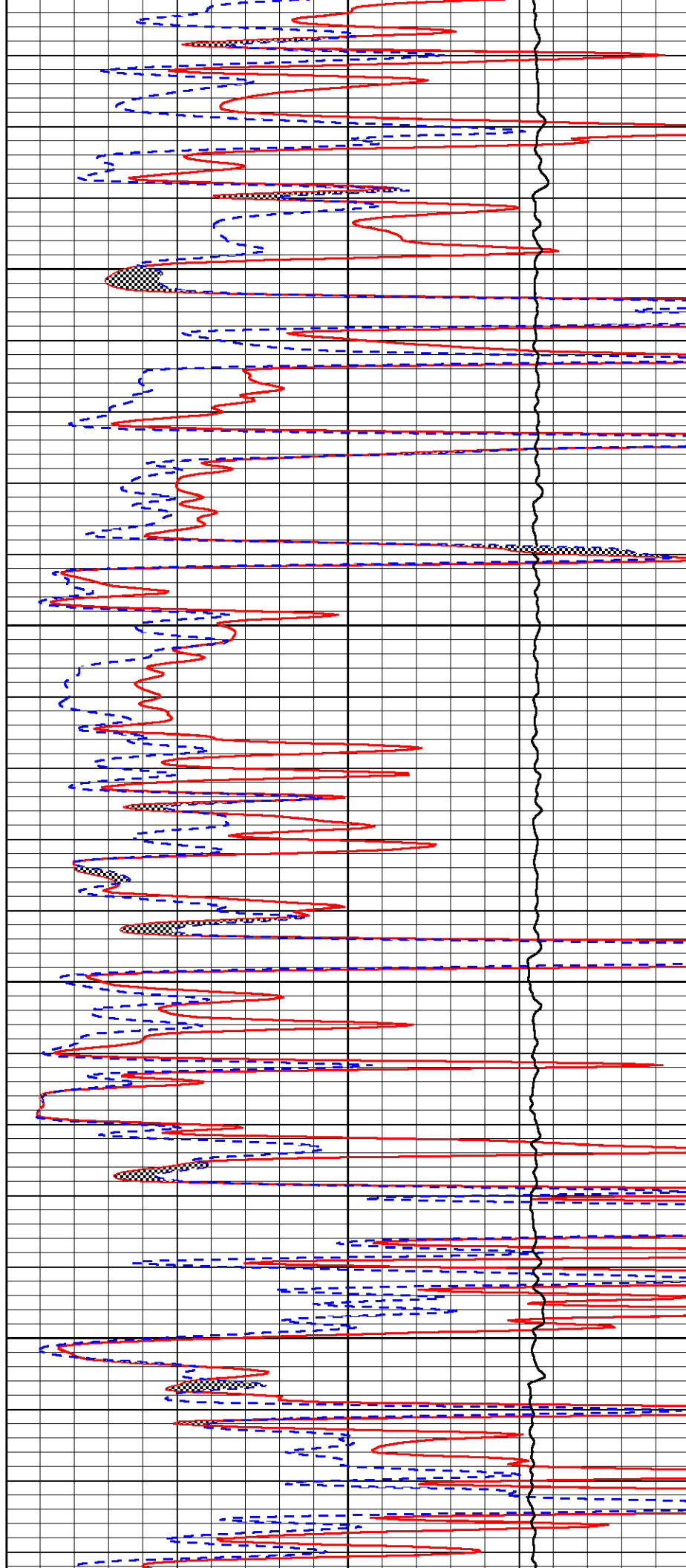


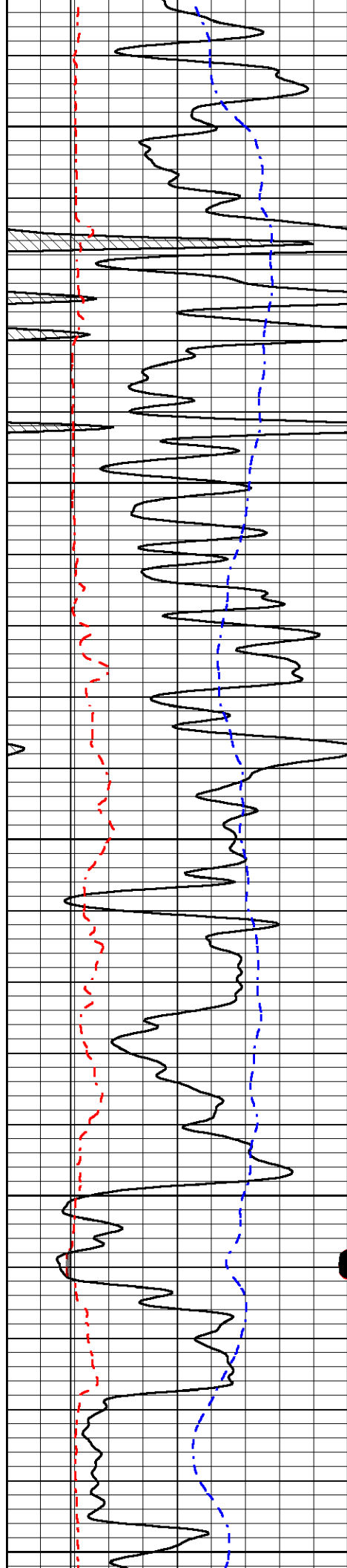
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4500

4550





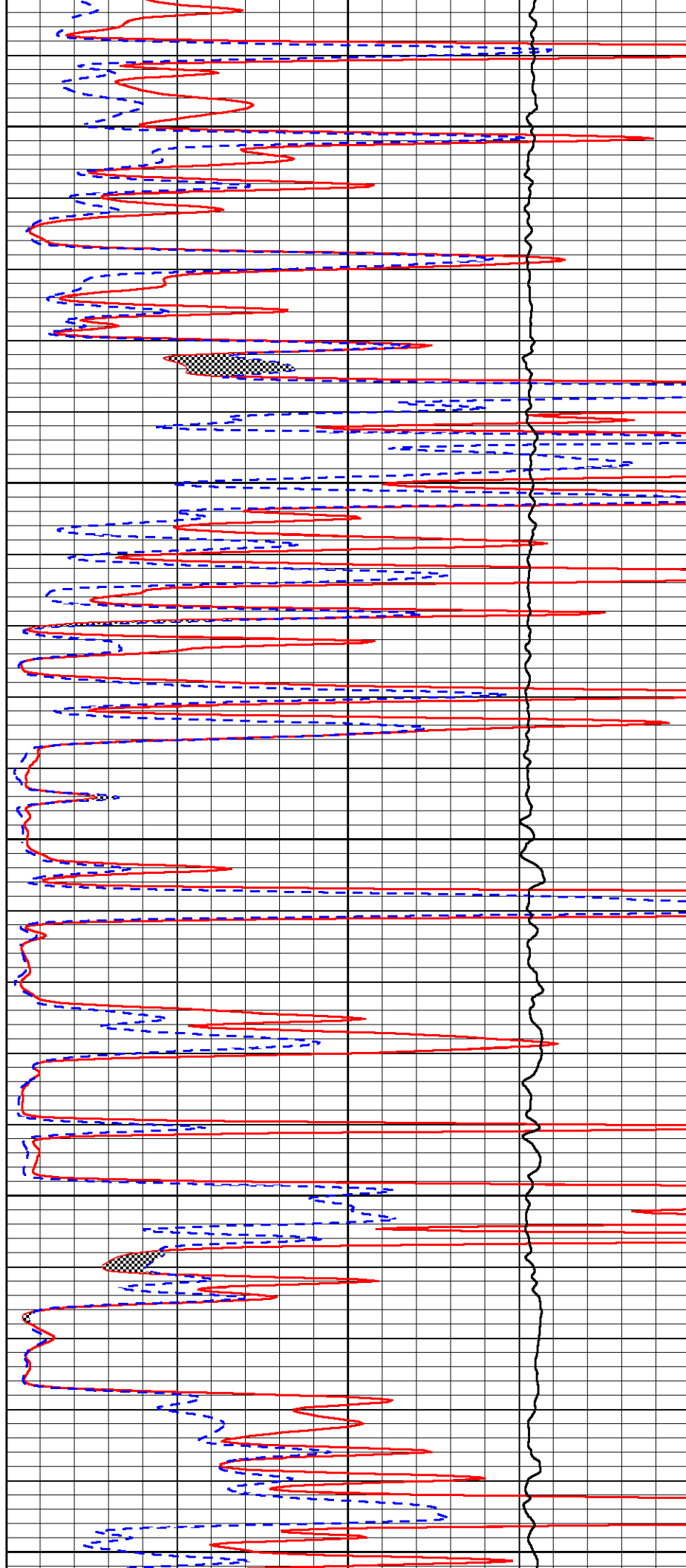
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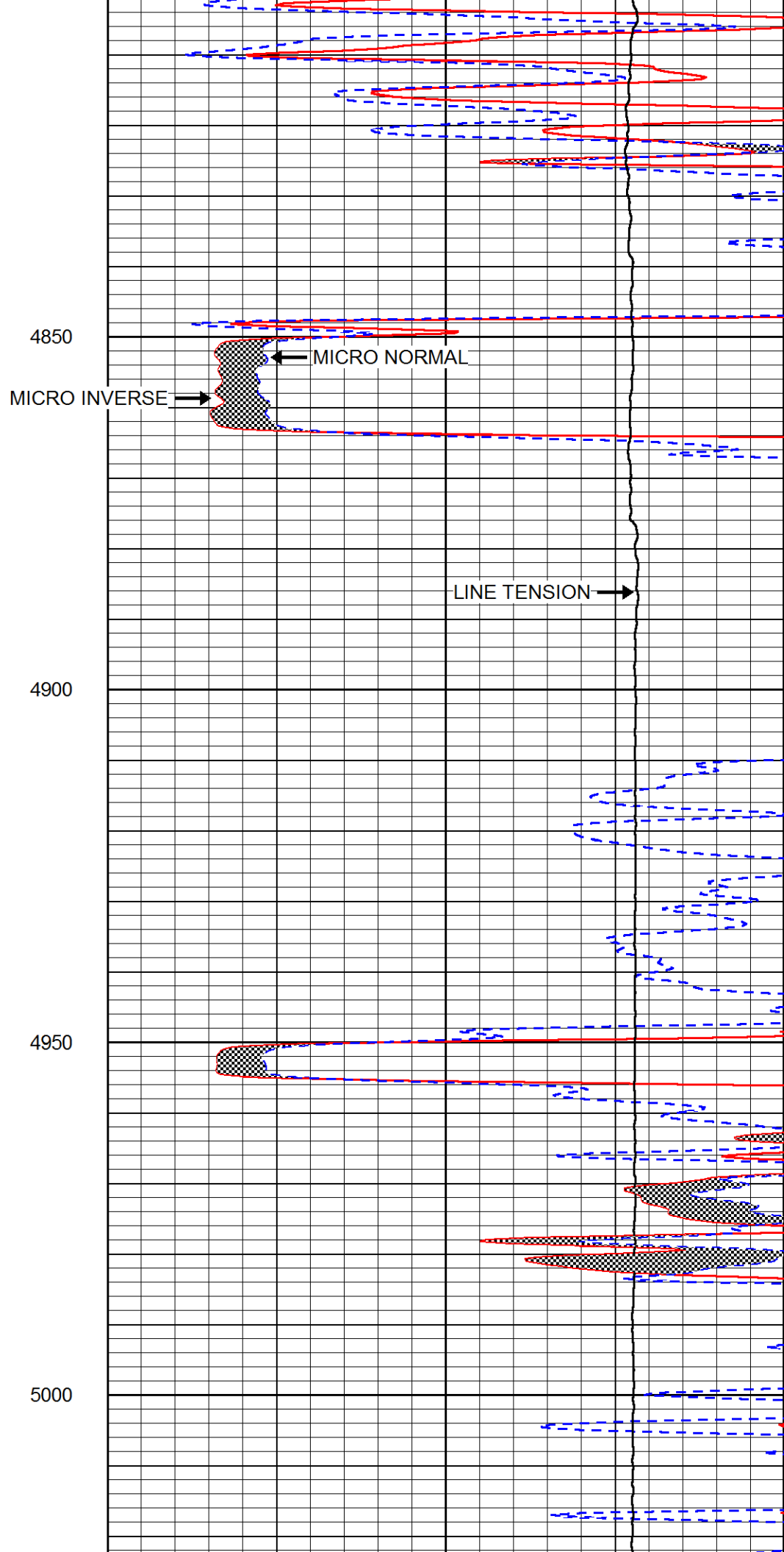
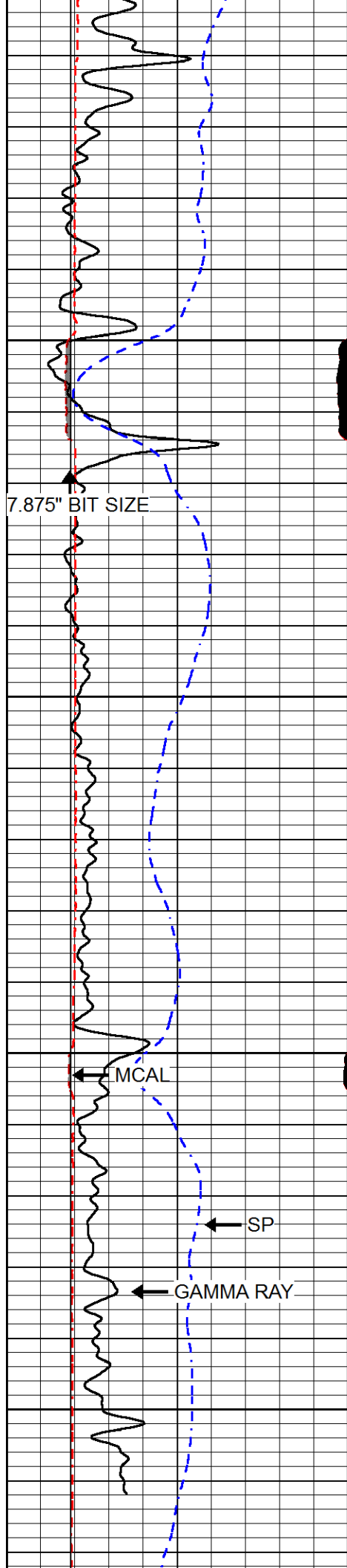
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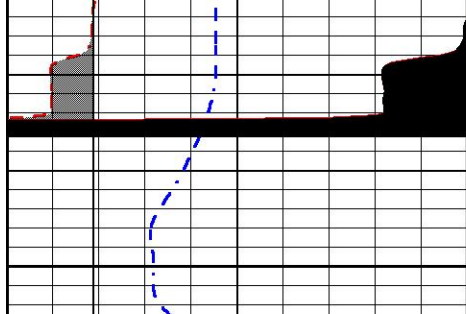
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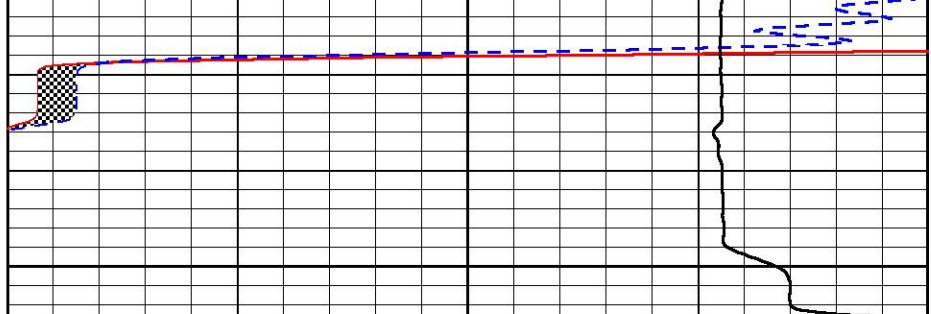






5050

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

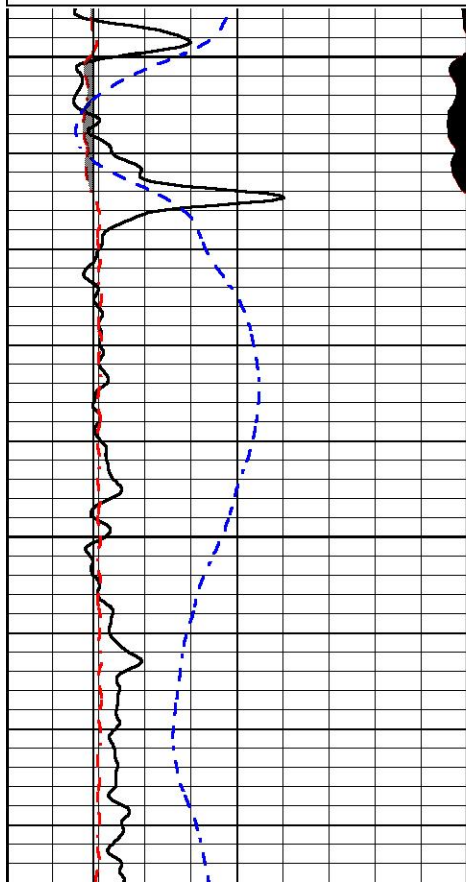


REPEAT SECTION

Database File americanwarrior_gano#10-17.db
 Dataset Pathname STKML/pass2.1
 Presentation Format micro
 Dataset Creation Mon Mar 26 13:50:37 2018
 Charted by Depth in Feet scaled 1:240

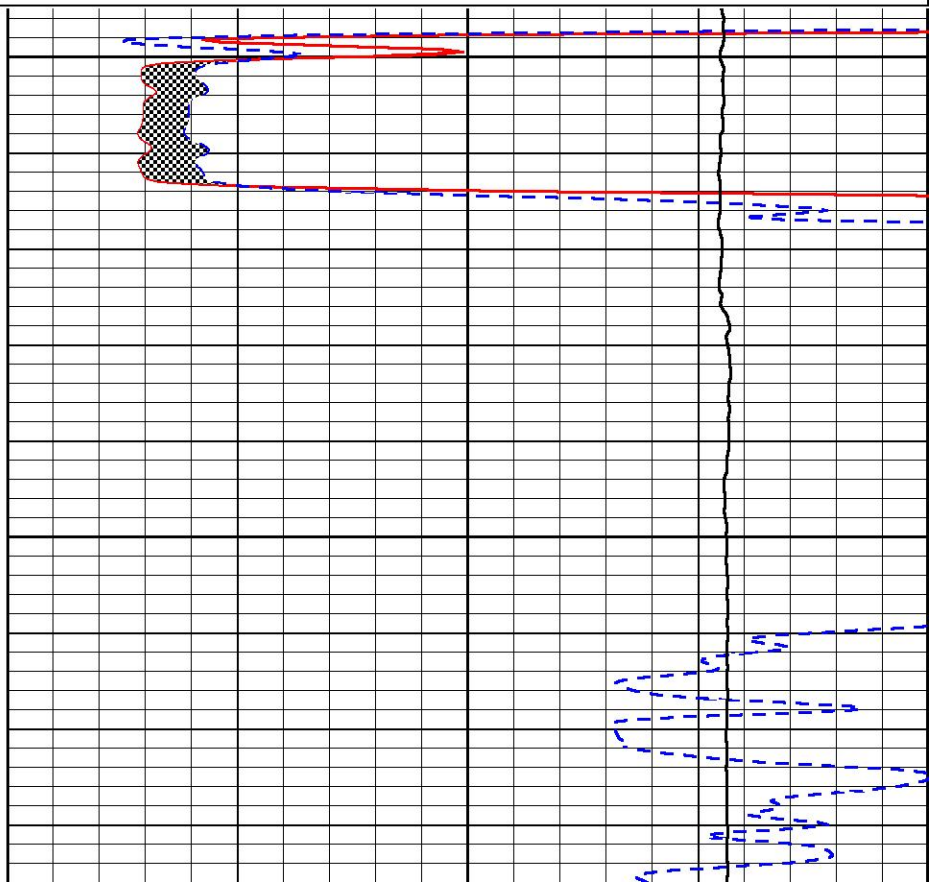
0	Gamma Ray (GAPI)	150
6	MCAL (in)	16
2.875	mcals (in)	7.875
6	Bit Size (in)	16
-200	SP (mV)	0

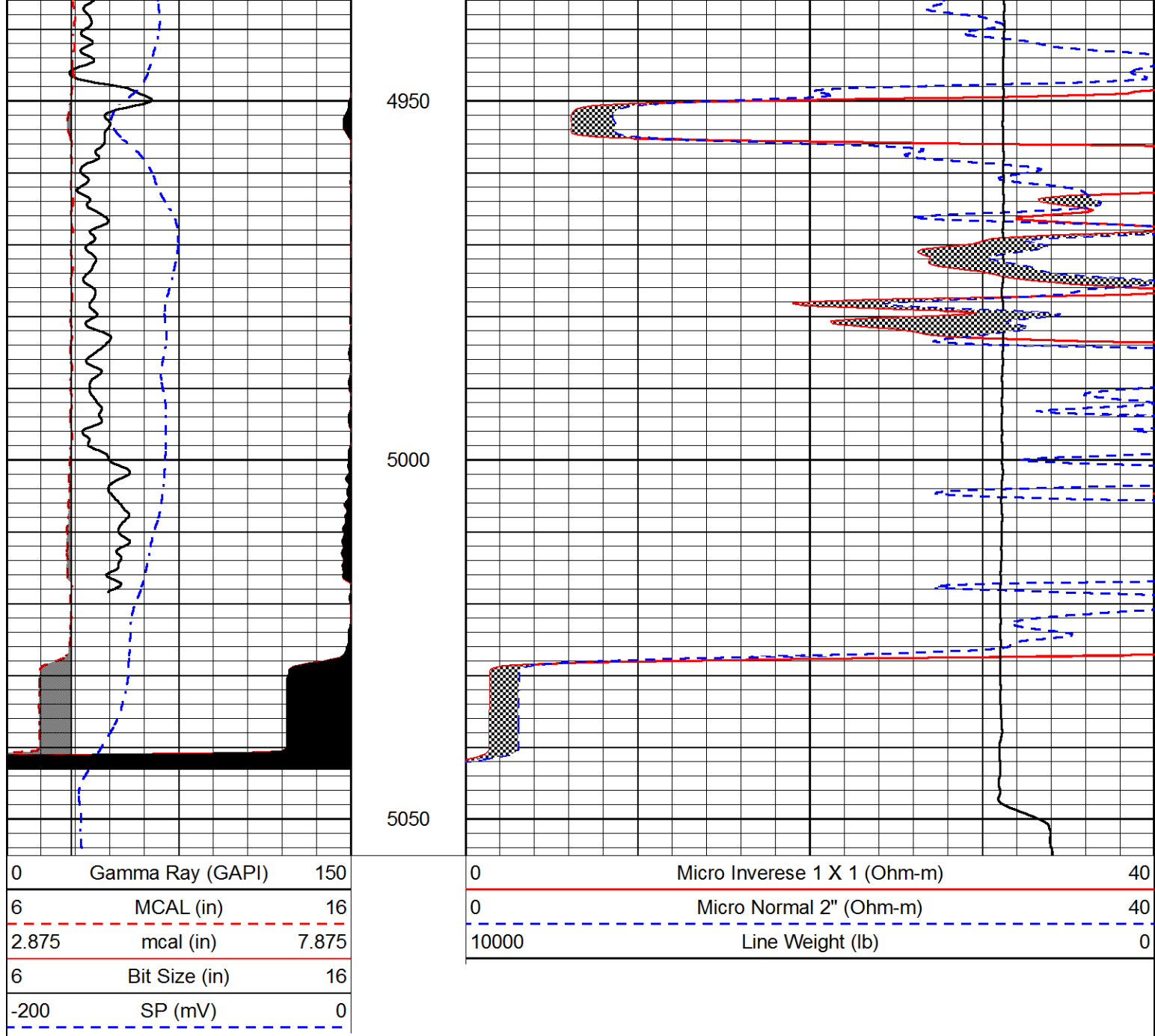
0	Micro Inverse 1 X 1 (Ohm-m)	40
0	Micro Normal 2" (Ohm-m)	40
10000	Line Weight (lb)	0



4850

4900





Calibration Report

Database File americanwarrior_gano#10-17.db
 Dataset Pathname STKML/pass4.1
 Dataset Creation Mon Mar 26 13:43:25 2018

Dual Induction Calibration Report

Serial-Model: 933 (HT)-PSI HIGH TEMP
 Calibration Performed: Sun Feb 18 17:32:17 2018

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	167.000	835.000	0.000	255.000	mmho/m	0.700	-18.350
Medium	142.000	1349.000	0.000	255.000	mmho/m	0.565	-61.000

Microlog Calibration Report

Serial-Model:
Performed:

PSI-01-PSIML
Sun Mar 18 23:48:42 2018

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	19000.0000	-0.7000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	24000.0000	-0.6000
Caliper	1.0001	1.1397	6.5000	18.5000	in	70.0000	-65.8500

Compensated Density Calibration Report

Serial-Model: 227-771-M&W
Source / Verifier: 16955B / 2ci
Master Calibration Performed: Fri Mar 09 21:14:39 2018

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	4919.18	6345.34	cps
Aluminum	2.665	g/cc	911.94	4081.94	cps
Spine Angle = 75.33			Density/Spine Ratio = 0.522		
	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: FRI MAR 9 10:30:30 2018

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: Mon Jan 15 11:20:44 2018

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps
Calibrator Reading: 1.0 cps

Sensitivity: 0.6000 GAPI/cps



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