



MICRORESISTIVITY LOG

PIONEER
Pioneer Energy Services

Company **AMERICAN WARRIOR, INC.**
Well **CRIST NO. 1-28**
Field **WILDCAT**
County **FINNEY**
State **KANSAS**

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Field **WILDCAT**
County **FINNEY** State **KANSAS**

Location: API #: 15-055-22483-00-00

Other Services

SEC 28 TWP 21S RGE 34W
2288' FSL & 440' FWL

CNL/CDL
DIL/BHCS

Permanent Datum **GROUND LEVEL** Elevation **2979'**
Log Measured From **KELLY BUSHING**
Drilling Measured From **KELLY BUSHING**

Elevation
K.B. 2990'
D.F. N/A
G.L. 2979'

Date	4/9/2018		
Run Number	ONE		
Depth Driller	5000'		
Depth Logger	4996'		
Bottom Logged Interval	4995'		
Top Log Interval	3700'		
Casing Driller	8.625" @ 1741'		
Casing Logger	1742'		
Bit Size	7.875"		
Type Fluid in Hole	CHEMICAL		
Salinity, ppm CL	2800		
Density / Viscosity	9.4 53		
pH / Fluid Loss	10.0 7.2		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	.75 @ 63		
Rmt @ Meas. Temp	.56 @ 63		
Rmc @ Meas. Temp	1.01 @ 63		
Source of Rmt / Rmc	CHARTS		
Rm @ BHT	.38 @ 126		
Operating Rig Time	4 HOURS		
Max Rec. Temp. F	126 DEGF		
Equipment Number	108		
Location	HAYS		
Recorded By	J. HENRICKSON		
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.

SCOTT CITY KANSAS
SOUTH TO GANO ROAD, 10 WEST, NORTH 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: J. HENRICKSON
Operator:
Operator:
Operator:

This Log Record Was Witnessed By

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

Top - Bottom

A	BOREID	BOTTEMP	CASEOD	CASETHCK	FLUIDDEN	M	MATRXDEN
1	in 7.875	degF 126	in 5.5	in 0	g/cc 1	2	g/cc 2.71
NPORSEL	PERFS	SNDERR	SNDERRM	SPSHIFT	SRFTEMP	SZCOR	TDEPTH
Limestone	0	mmho/m -2	mmho/m 3	mV -230	degF 53	Off	ft 4996

Sensor	Offset (ft)	Schematic		Description	Length (ft)	O.D. (in)	Weight (lb)
GR	40.58			GR-M&W (89-M&W)	3.00	3.50	50.00
CNLSC	37.48			CNT-M&W (tk10-MW)	5.50	3.50	100.00
CNSSC	36.73						
LSD DCAL SSD	28.43 28.42 27.93			CDL-M&W (168-986)	8.50	4.00	250.00
ML-PSI STKBL ML (PSI-02) Stackable Microlog Tools	7.58				7.58	4.00	65.00
MCAL	19.83						
MI	19.83						
MN	19.83						
RLL3	15.80						
RLL3F	15.79						
CILD	8.00			DIL-M&W (PSI 978)	18.50	3.50	220.00

CILM

4.70

SP

0.20

Dataset: american_warrior_crist_1_28.db: field/well/stackml/pass3.1
Total length: 43.08 ft
Total weight: 685.00 lb
O.D.: 4.00 in

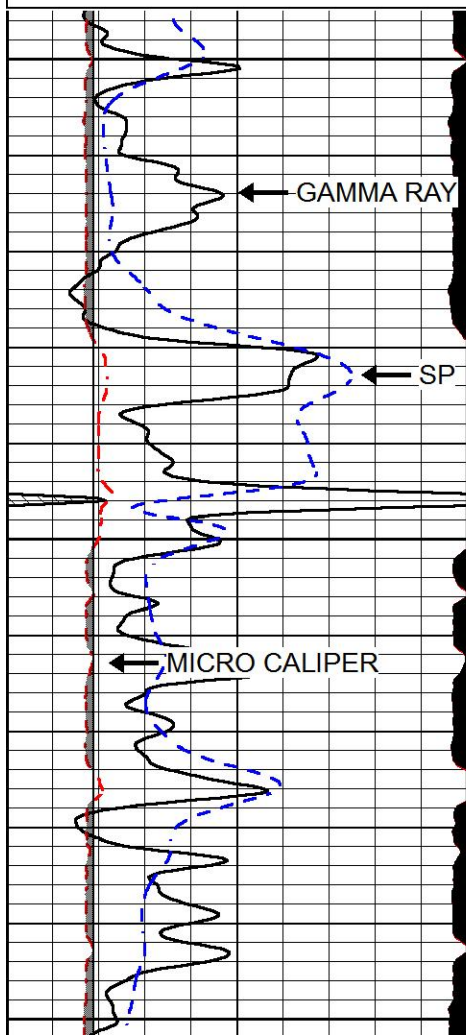


MAIN PASS

Database File american_warrior_crist_1_28.db
Dataset Pathname stackml/pass3.1
Presentation Format micro
Dataset Creation Mon Apr 09 15:21:54 2018
Charted by Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
6	MICRO CALIPER (in)	16
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
15000	LINE TENSION (lb)	0



3700

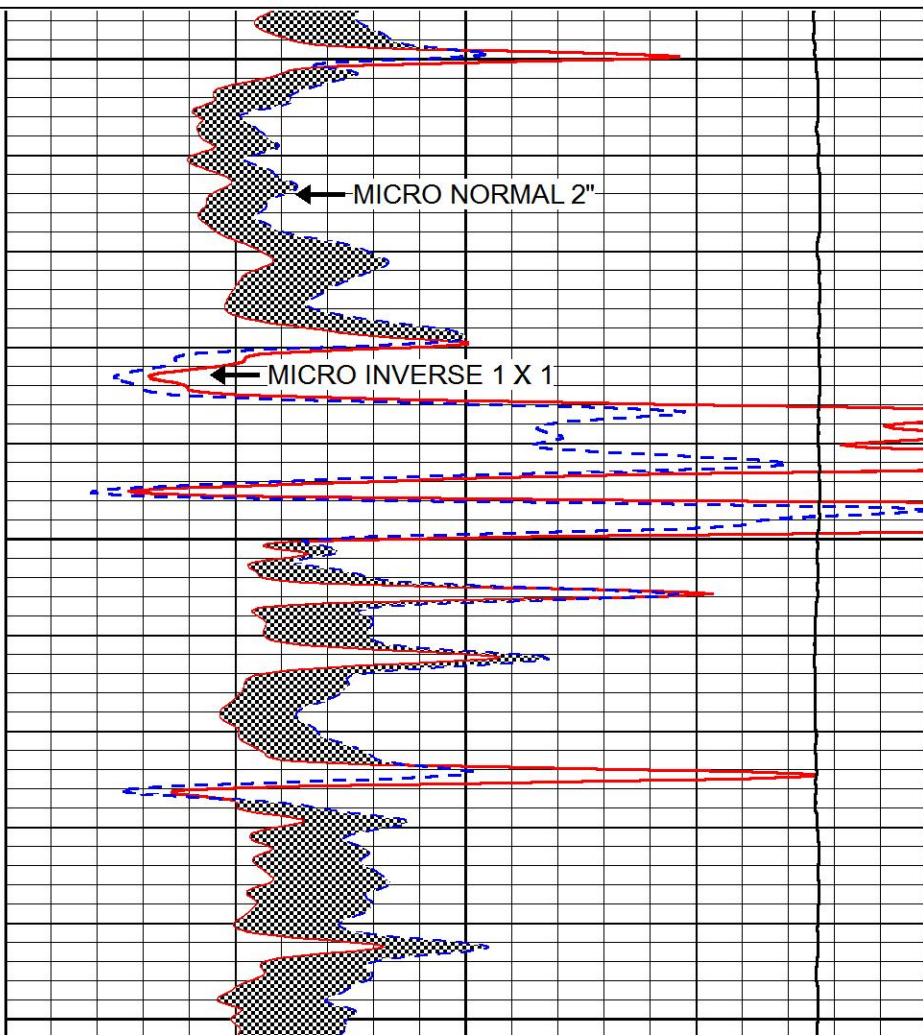
← GAMMA RAY

← SP

← MICRO CALIPER

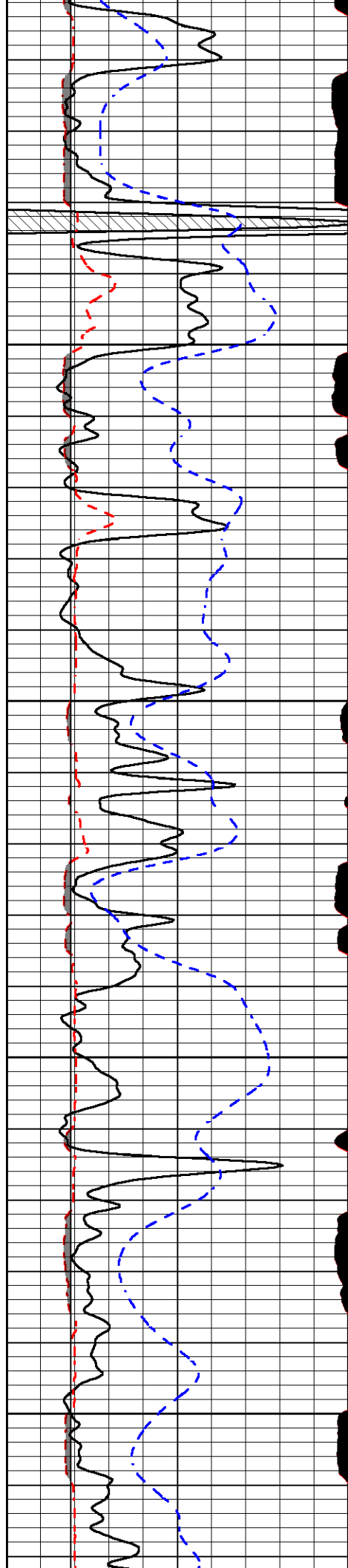
3750

3800



← MICRO NORMAL 2"

← MICRO INVERSE 1 X 1

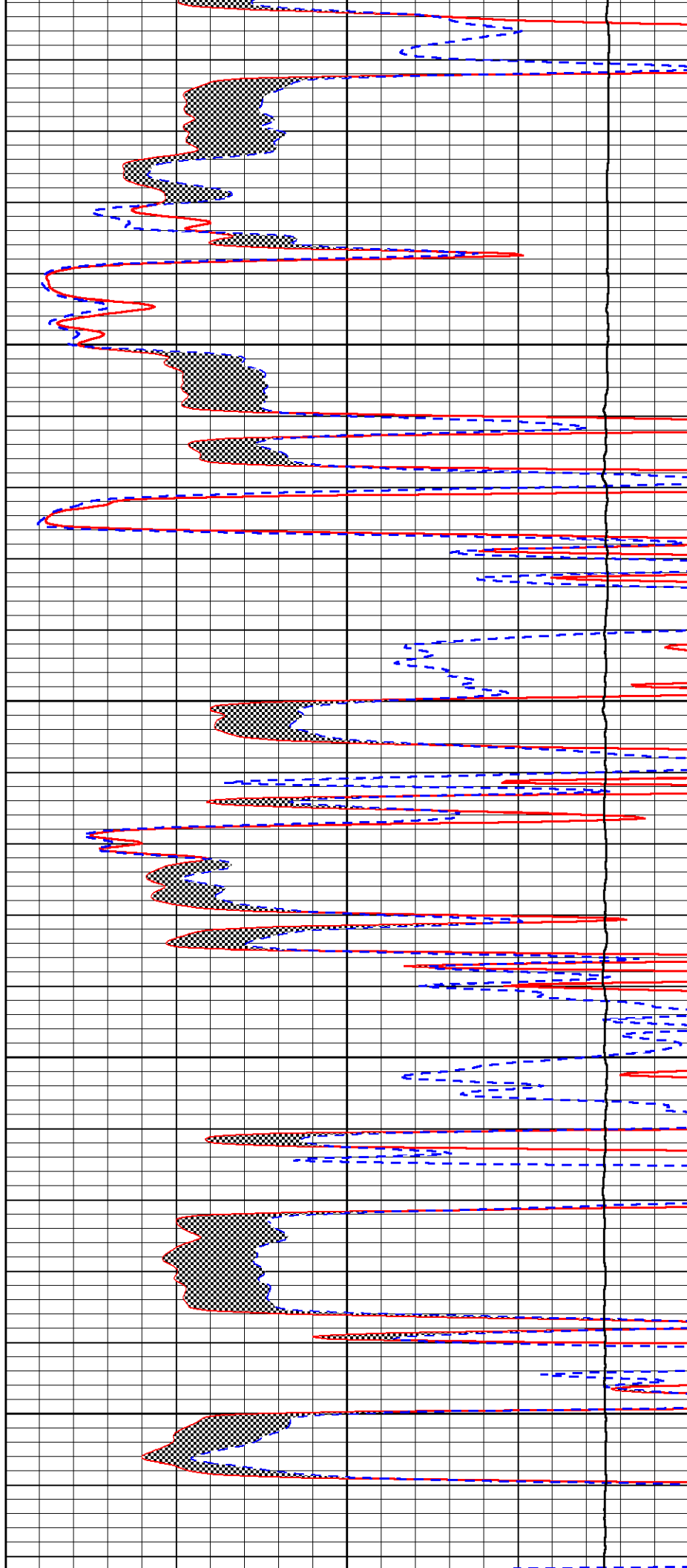


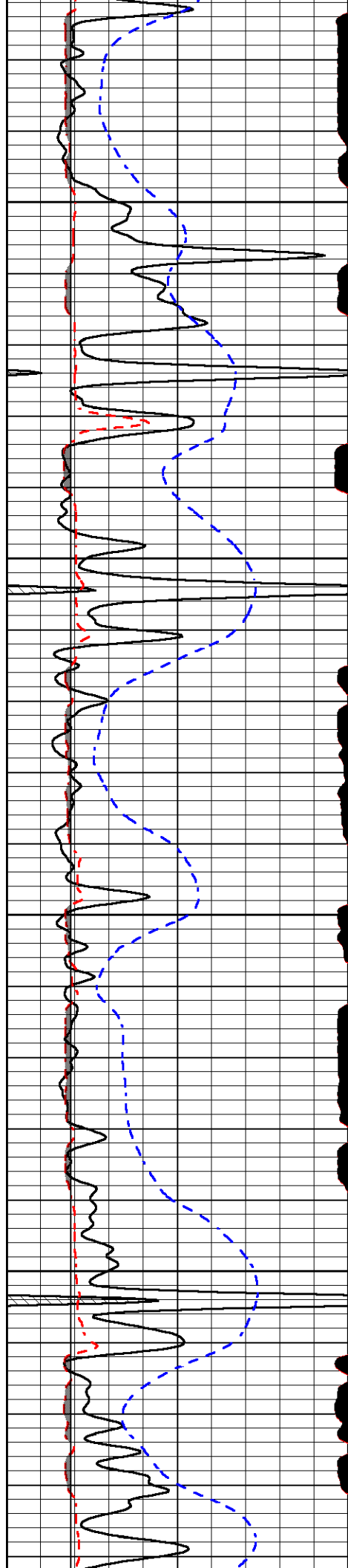
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3900

3950

4000



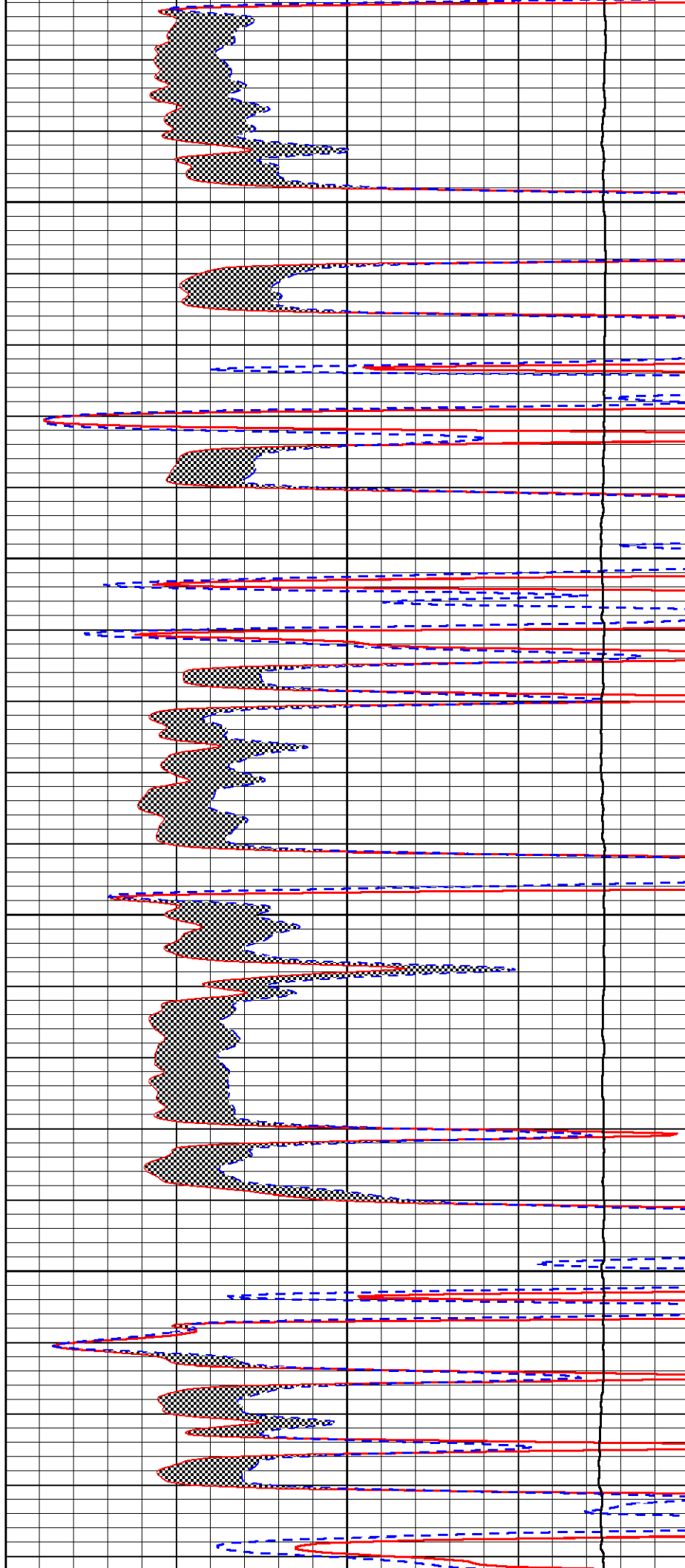


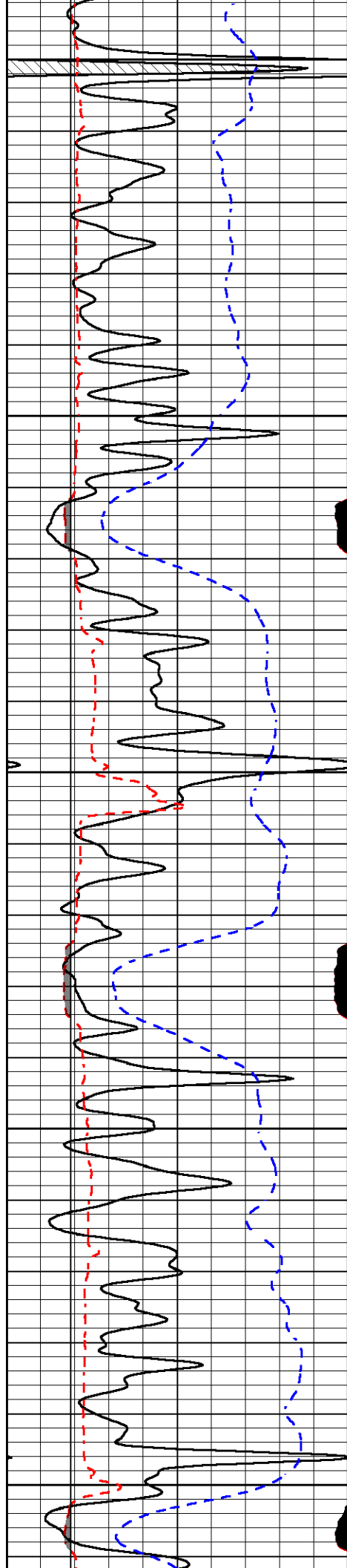
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4100

4150

4200





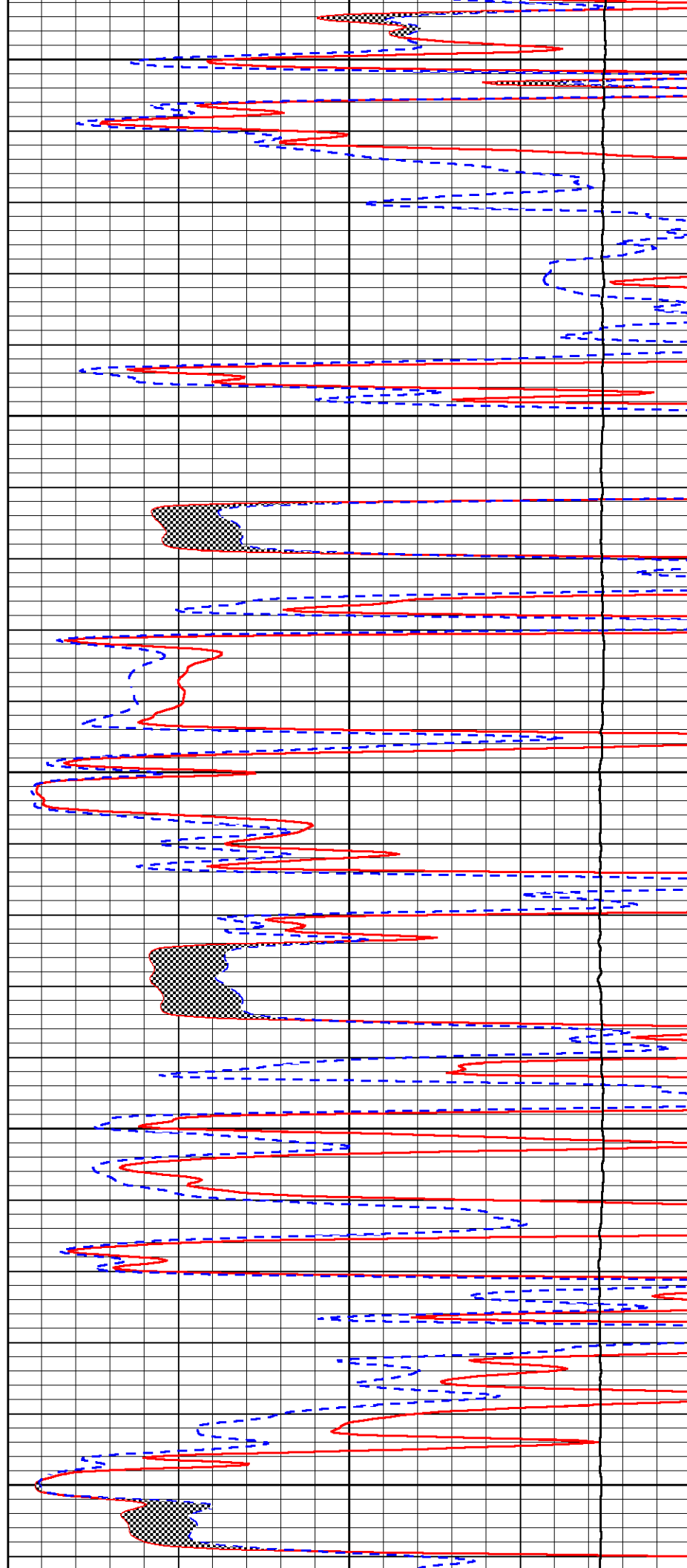
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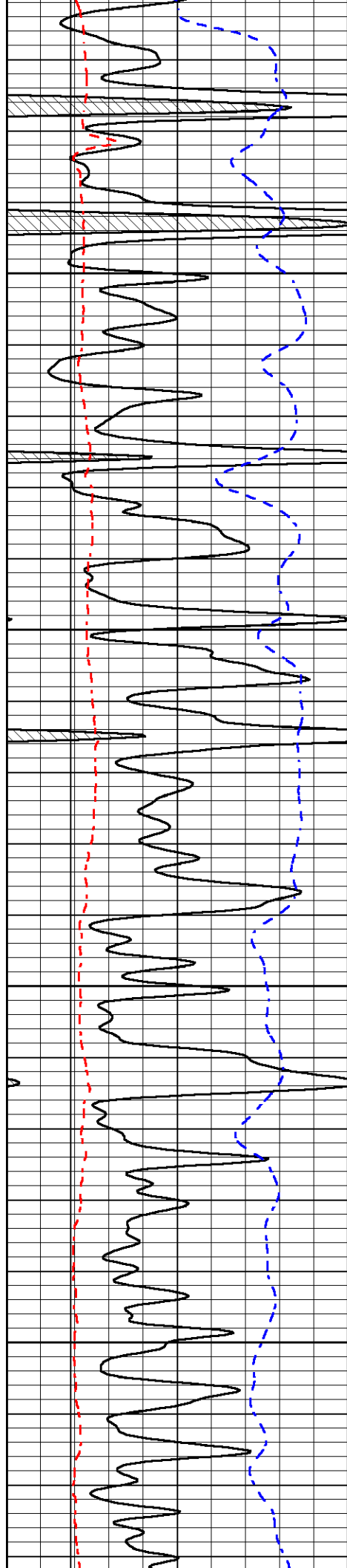
4300

4350

4400

4450



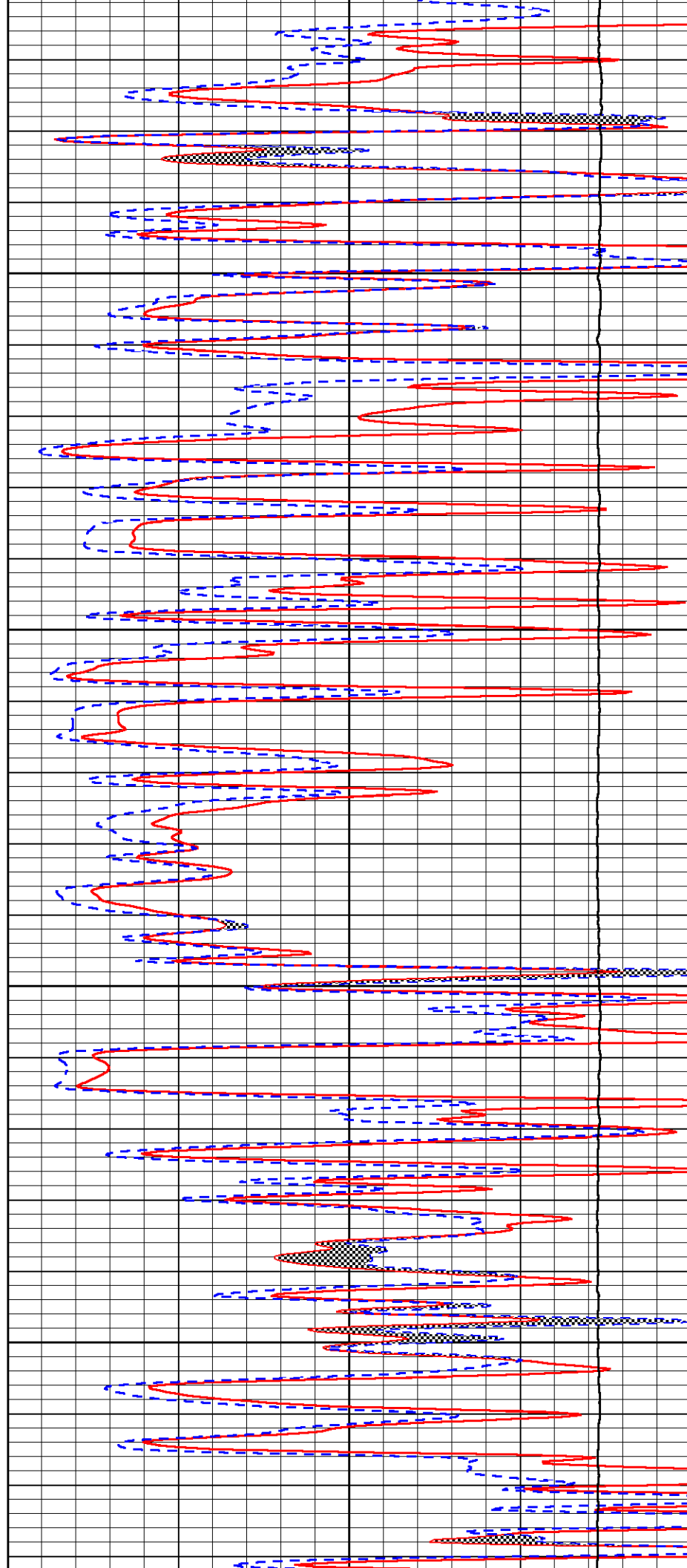


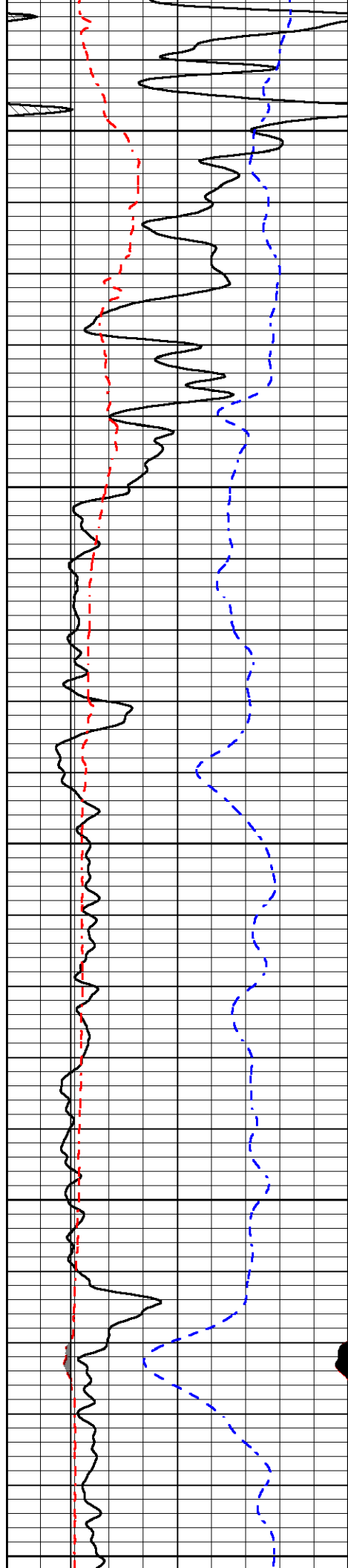
4500

4550

4600

4650





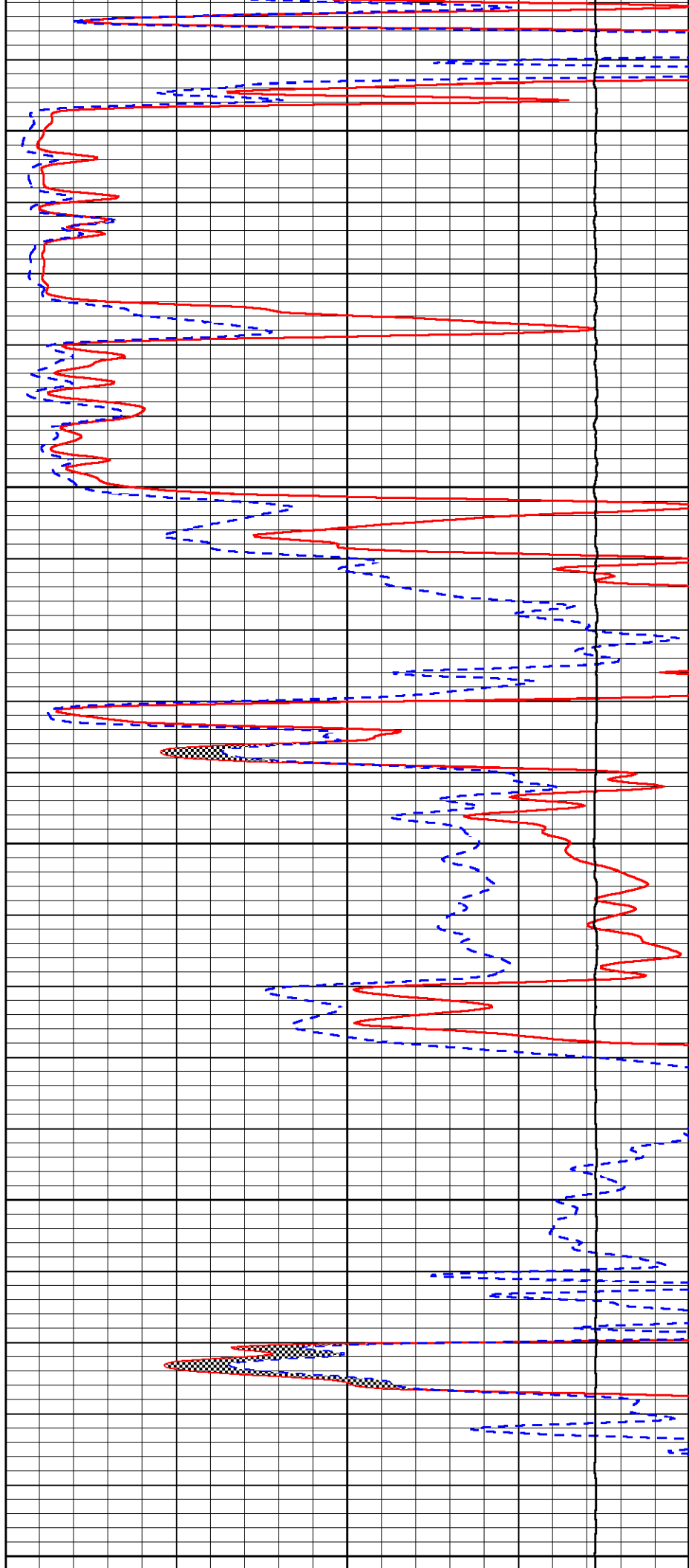
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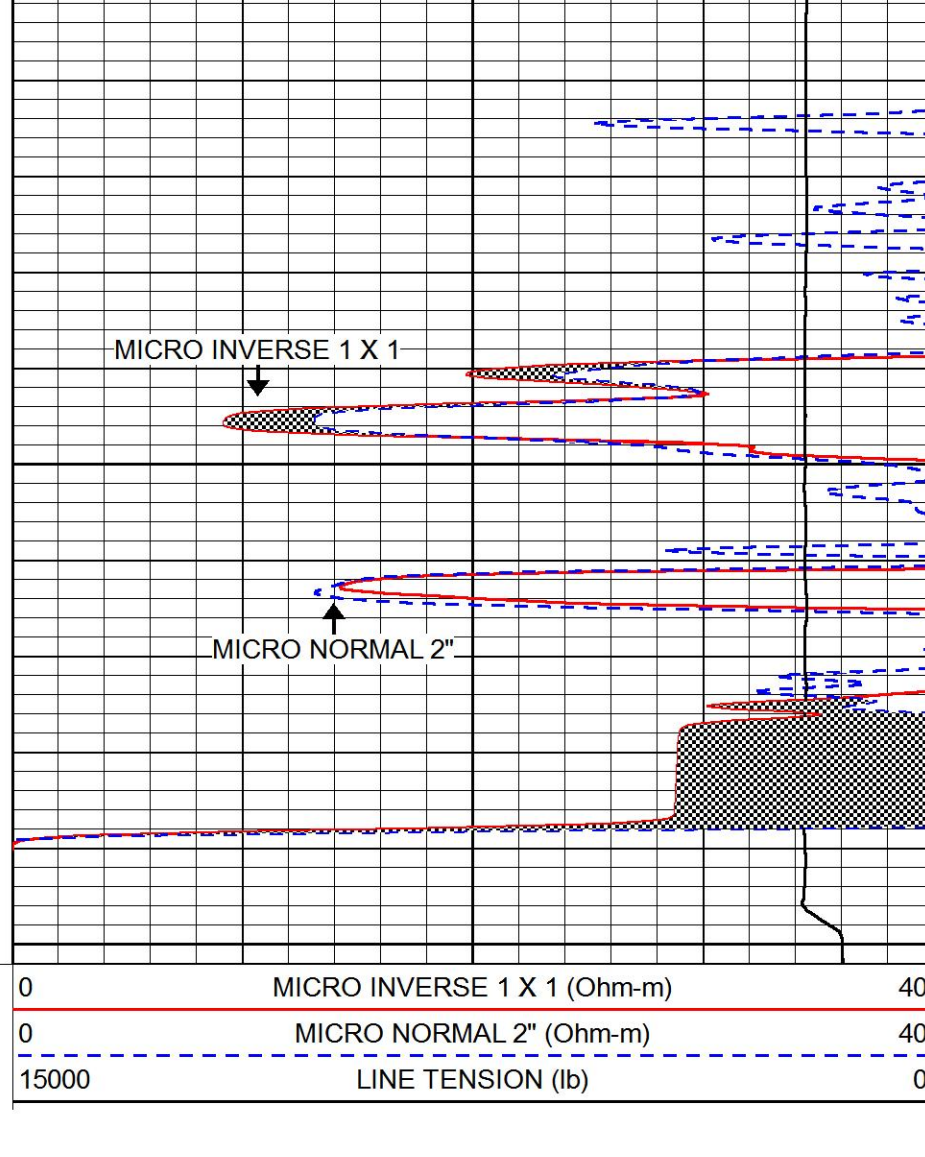
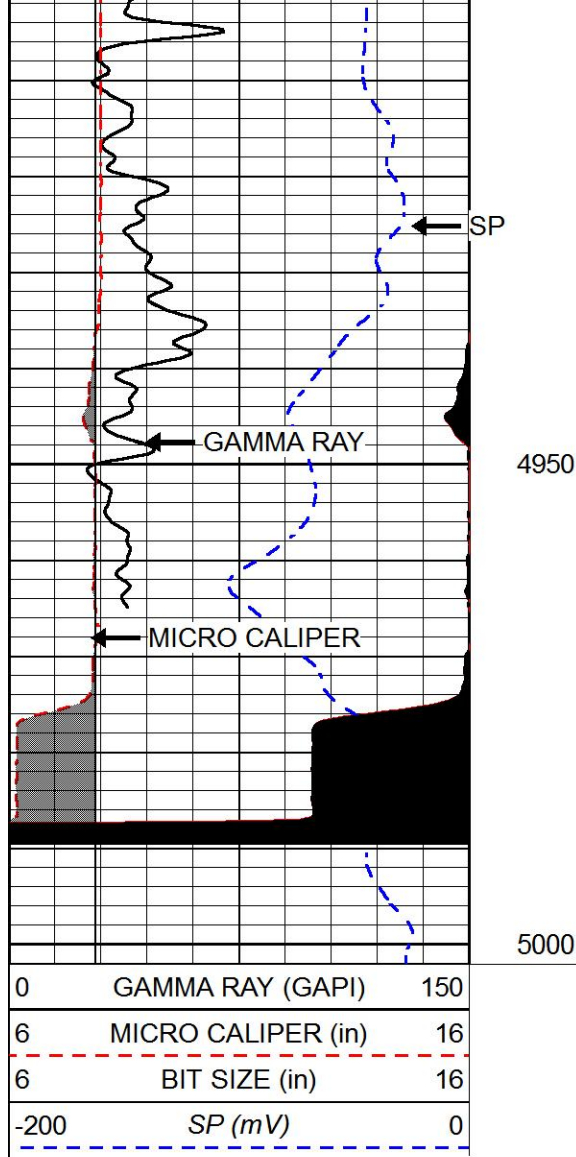
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4800

4850

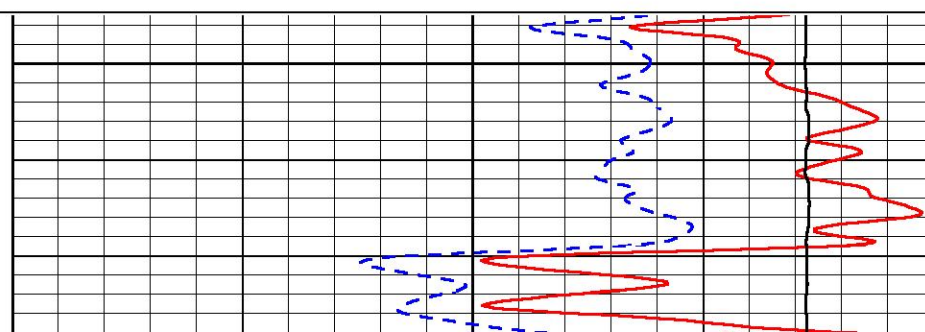
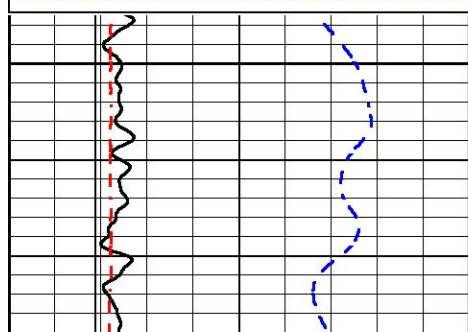
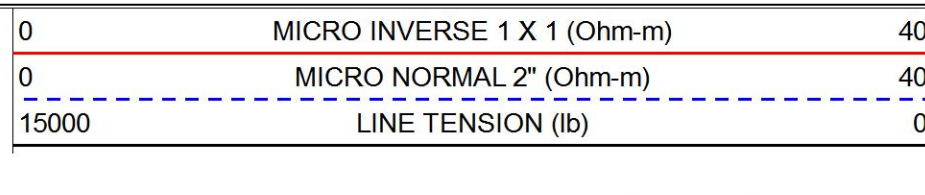
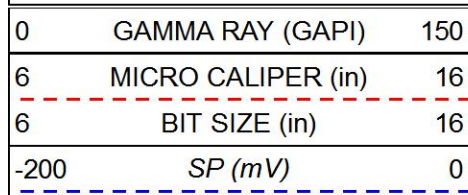
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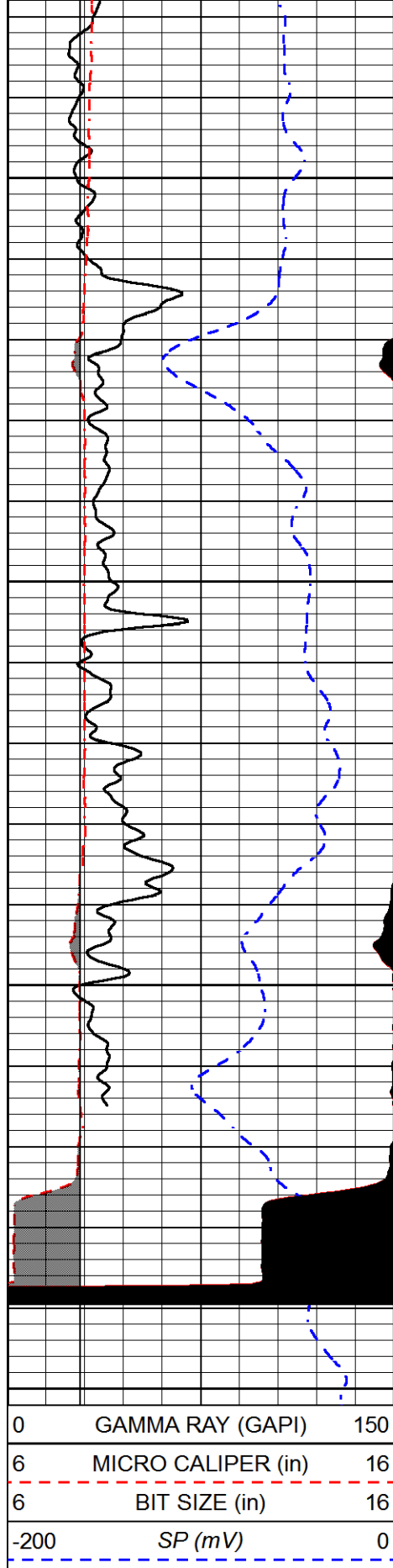




REPEAT SECTION

Database File american_warrior_crist_1_28.db
 Dataset Pathname stackml/pass2.1
 Presentation Format micro
 Dataset Creation Mon Apr 09 15:24:20 2018
 Charted by Depth in Feet scaled 1:240



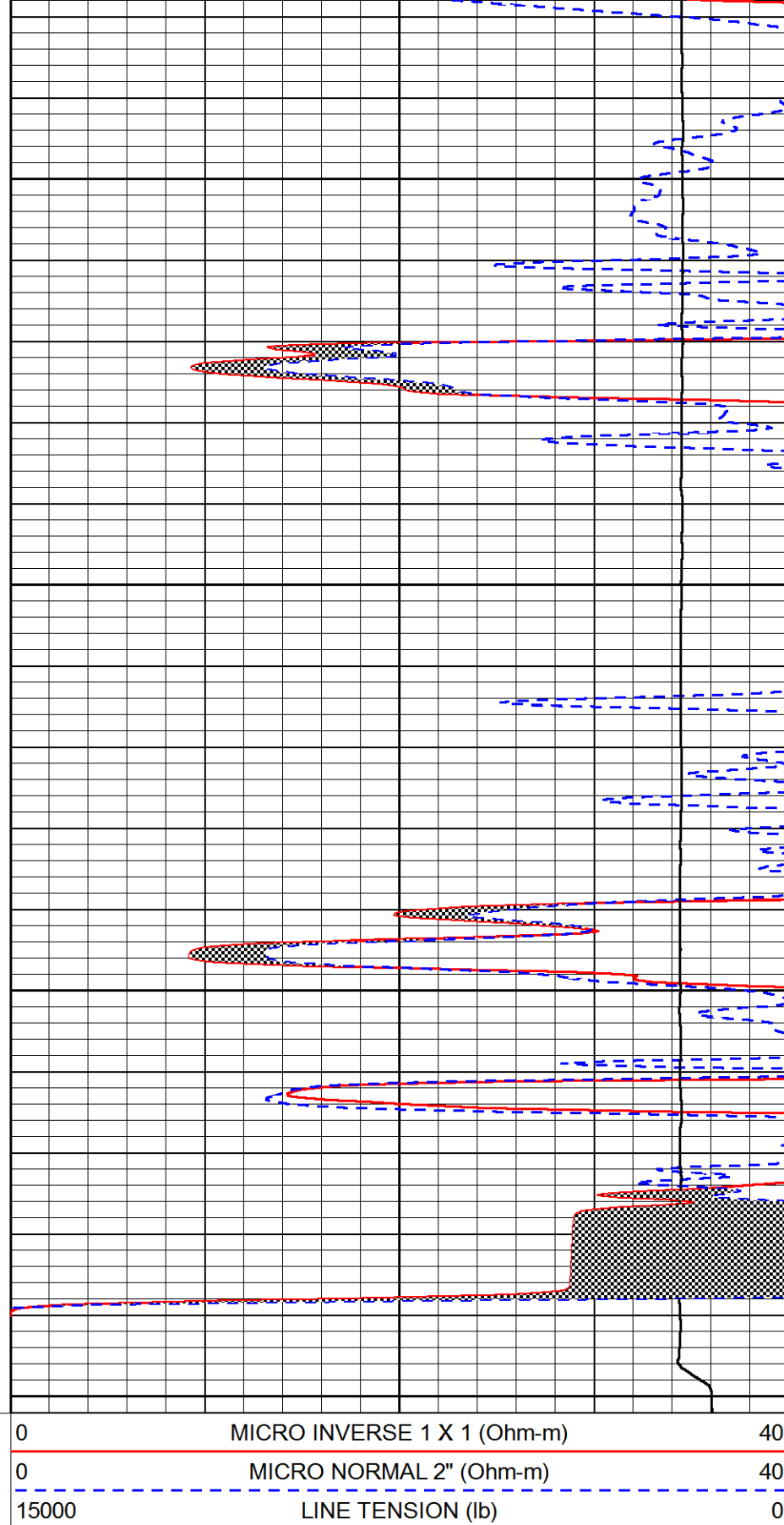


4850

4900

4950

5000



Calibration Report

Database File american_warrior_crist_1_28.db
 Dataset Pathname stackml/pass3.1
 Dataset Creation Mon Apr 09 15:21:54 2018

Dual Induction Calibration Report

Serial-Model:
Calibration Performed:

PSI 978-M&W
Sun Feb 04 11:50:02 2018

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	178.615	710.235	0.000	255.800	mmho/m	0.570	-40.500
Medium	161.982	1441.110	0.000	255.800	mmho/m	0.400	-37.000

Microlog Calibration Report

Serial-Model:
Performed:

PSI-02-PSI STKBL ML
Sat Apr 07 12:01:20 2018

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0031	0.0043	0.0000	10.0000	Ohm-m	14000.0000	-1.0000
Inverse	0.0000	0.0013	0.0000	10.0000	Ohm-m	12000.0000	0.0000
Caliper	1.0020	1.0834	5.5000	16.5000	in	135.1560	-131.8000

Compensated Density Calibration Report

Serial-Model:
Source / Verifier:
Master Calibration Performed:

168-986-M&W
/
Tue Apr 11 17:07:47 2017

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	4691.86	4818.19	cps
Aluminum	2.695	g/cc	859.57	3020.22	cps
Spine Angle = 74.61			Density/Spine Ratio = 0.534		
	Size		Reading		
Small Ring	4.00	in	1.00		
Large Ring	14.00	in	1.20		

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 Apr 11 17:08:01 2017

Calibrator Value:	1000.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	6.2	cps
Sensitivity:	0.5200	GAPI/cps



Company	AMERICAN WARRIOR, INC.
Well	CRIST NO. 1-28
Field	WILDCAT
County	FINNEY
State	KANSAS