



PIONEER
Pioneer Energy Services

MICRORESISTIVITY LOG

Company **RICHLAN DRILLING**
Well **KUHLMAN FARMS INC. A NO.1**
Field **ELAINE WEST**
County **LOGAN**
State **KANSAS**

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Location: API #: 15-109-21514-00-00

1180' FSL & 1770' FEL

SEC 4 TWP 12S RGE 34W

Permanent Datum **GROUND LEVEL** Elevation **3221'**
Log Measured From **KELLY BUSHING**
Drilling Measured From **KELLY BUSHING**

Elevation
K.B. 3226'
D.F. N/A
G.L. 3221'

Date **8/7/2017**

Run Number **ONE**

Depth Driller **4860'**

Depth Logger **4858'**

Bottom Logged Interval **4857'**

Top Log Interval **3600'**

Casing Driller **8.625" @ 348'**

Casing Logger **347'**

Bit Size **7.875"**

Type Fluid in Hole **CHEMICAL**

Salinity, ppm CL **7,000**

Density / Viscosity **9.3 47**

pH / Fluid Loss **11.3 12.2**

Source of Sample **FLOWLINE**

Rm @ Meas. Temp **.55 @ 62**

Rmt @ Meas. Temp **.41 @ 62**

Rmc @ Meas. Temp **.74 @ 62**

Source of Rmt / Rmc **CHARTS**

Rm @ BHT **.27 @ 125**

Operating Rig Time **2 HOURS**

Max Rec. Temp. F **125 DEGF**

Equipment Number **108**

Location **HAYS**

Recorded By **J. HENRICKSON**

Witnessed By **WYATT URBAN**

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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.

MONUMENT KANSAS

4 SOUTH TO ZEST, WEST TO 310, 1 SOUTH, 1/2 WEST, NORTH INTO

Log Measured From: **KELLY BUSHING** 5 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: **WYATT URBAN**
Secondary Witness:
Secondary Witness:
Secondary Witness:

Top - Bottom

A	BOREID	BOTTEMP	CASEOD	CASETHCK	FLUIDDEN	M	MATRXDEN
1	in 7.875	degF 125	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 0	mmho/m 0	mV -270	degF 68	Off	ft 4858

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 (1987)	18.50	3.50	220.00

CILM

4.70

SP

0.20

Dataset: richlan_kuhlman_farms_a_1.db: field/well/stackml/pass3.1
 Total length: 43.08 ft
 Total weight: 685.00 lb
 O.D.: 4.00 in

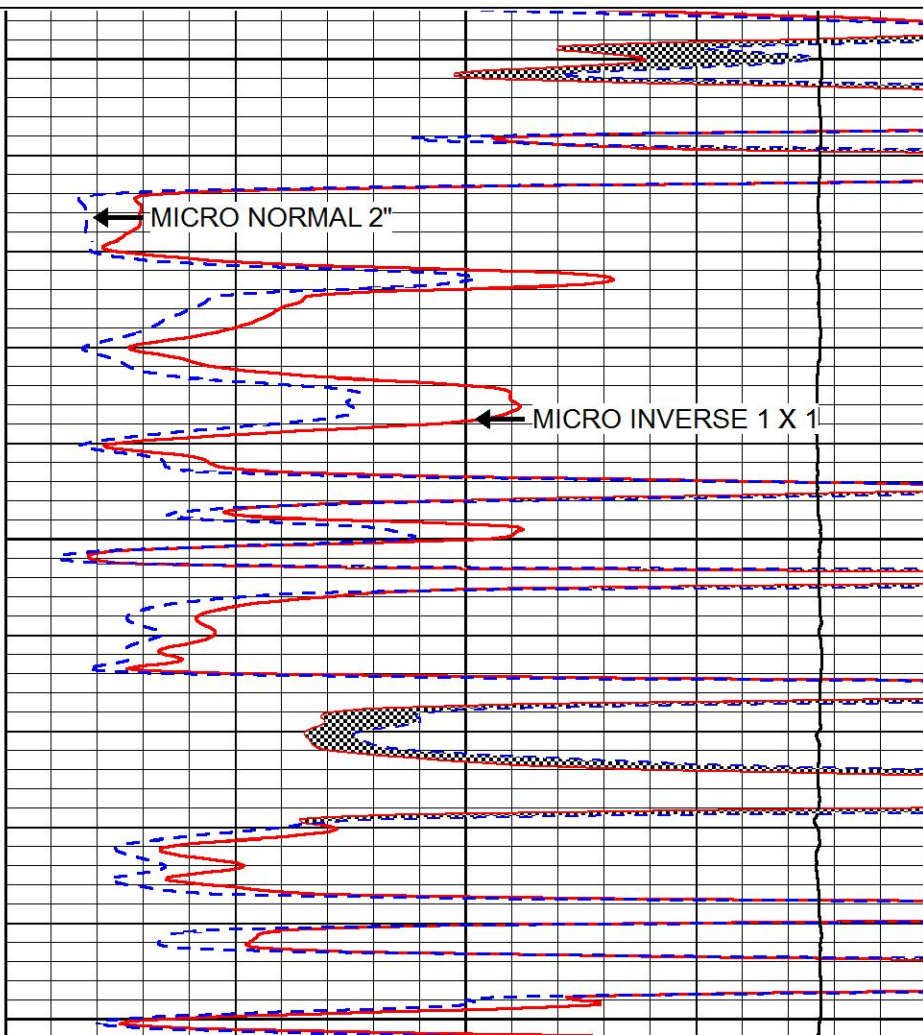
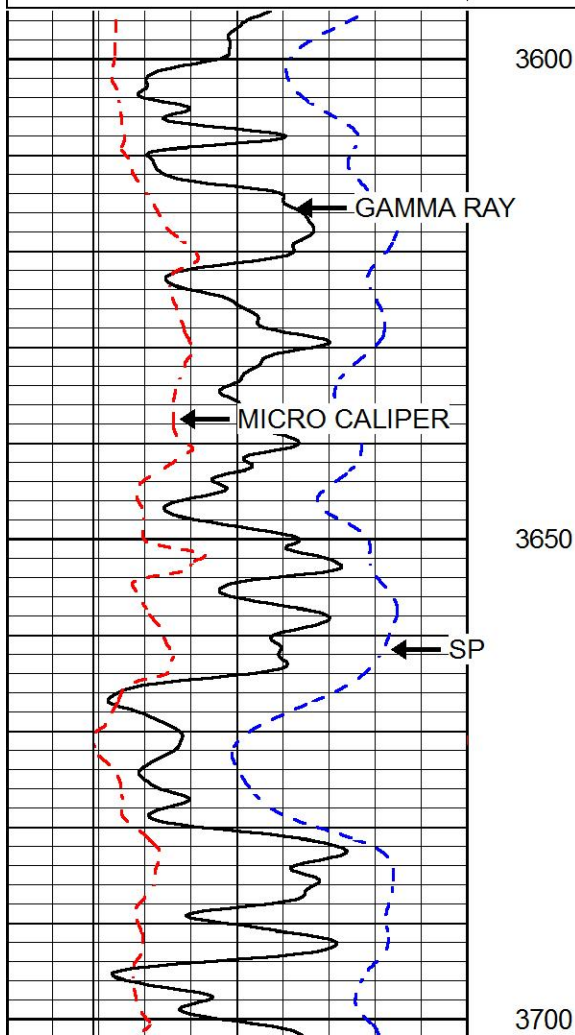


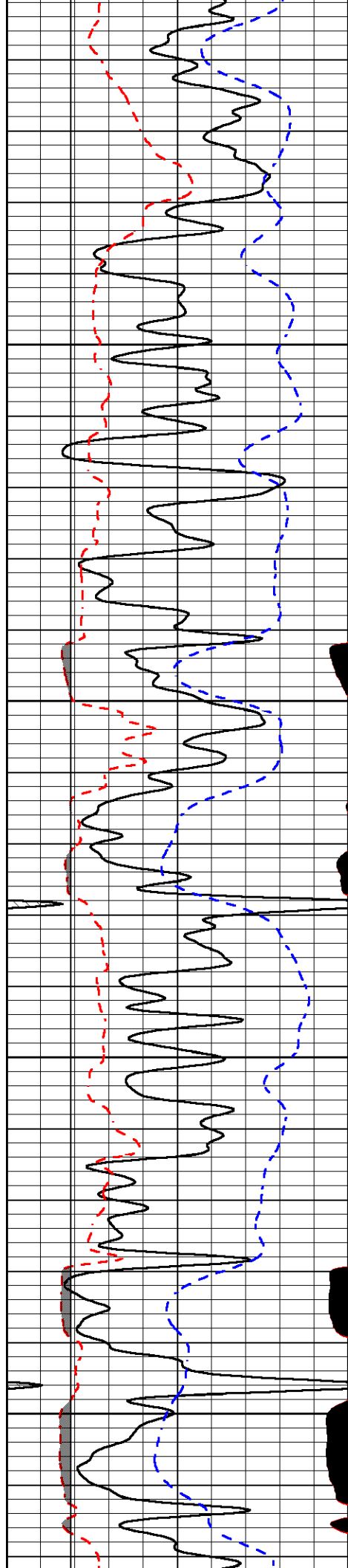
MAIN PASS

Database File richlan_kuhlman_farms_a_1.db
 Dataset Pathname stackml/pass3.1
 Presentation Format micro
 Dataset Creation Mon Aug 07 02:56:15 2017
 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



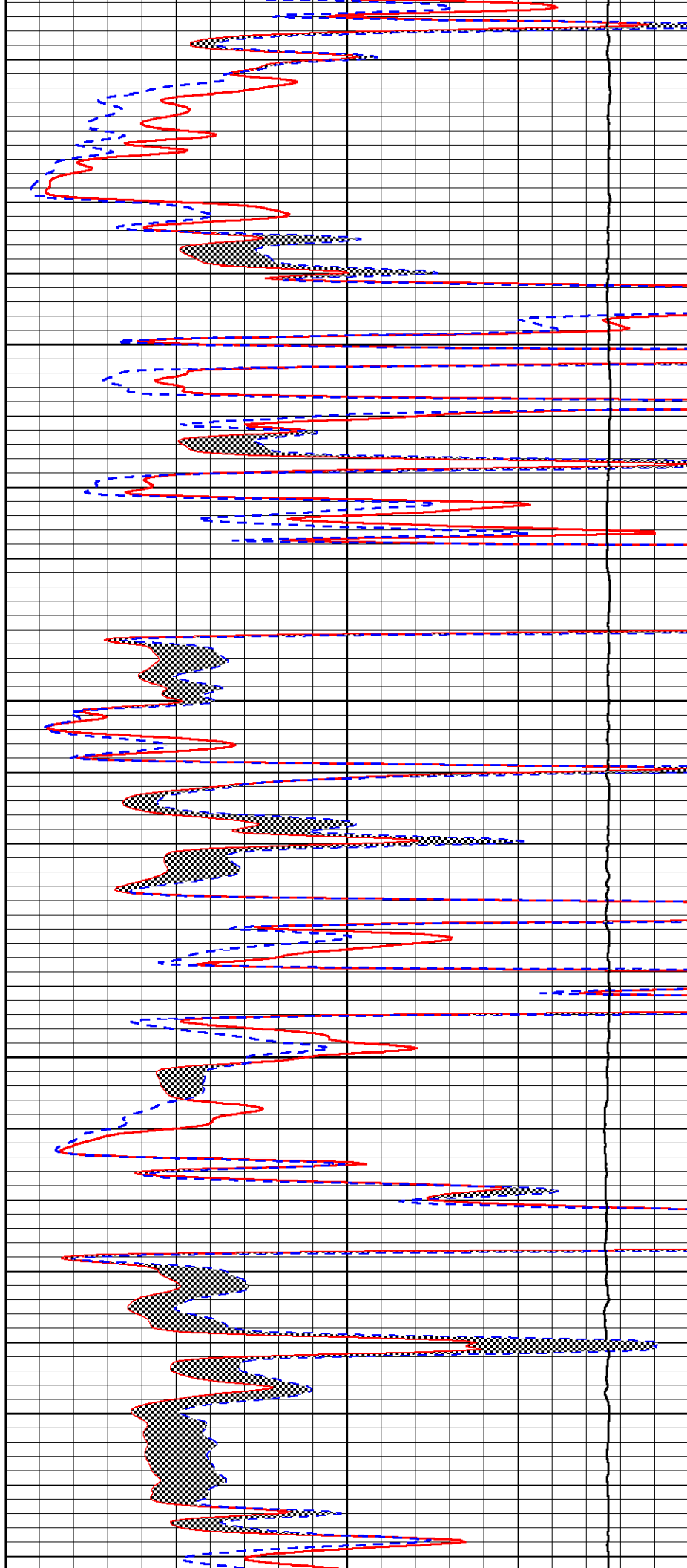


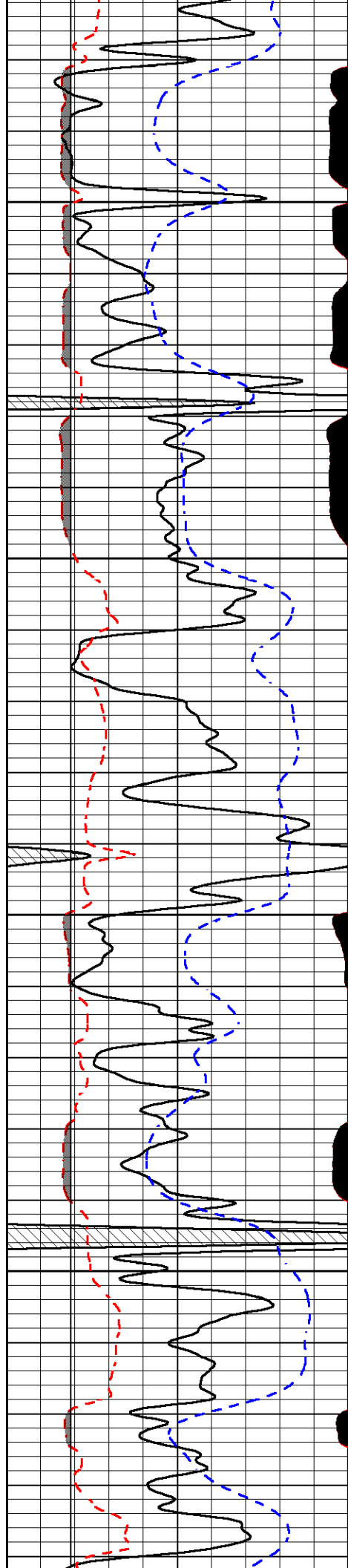
3750

3800

3850

3900



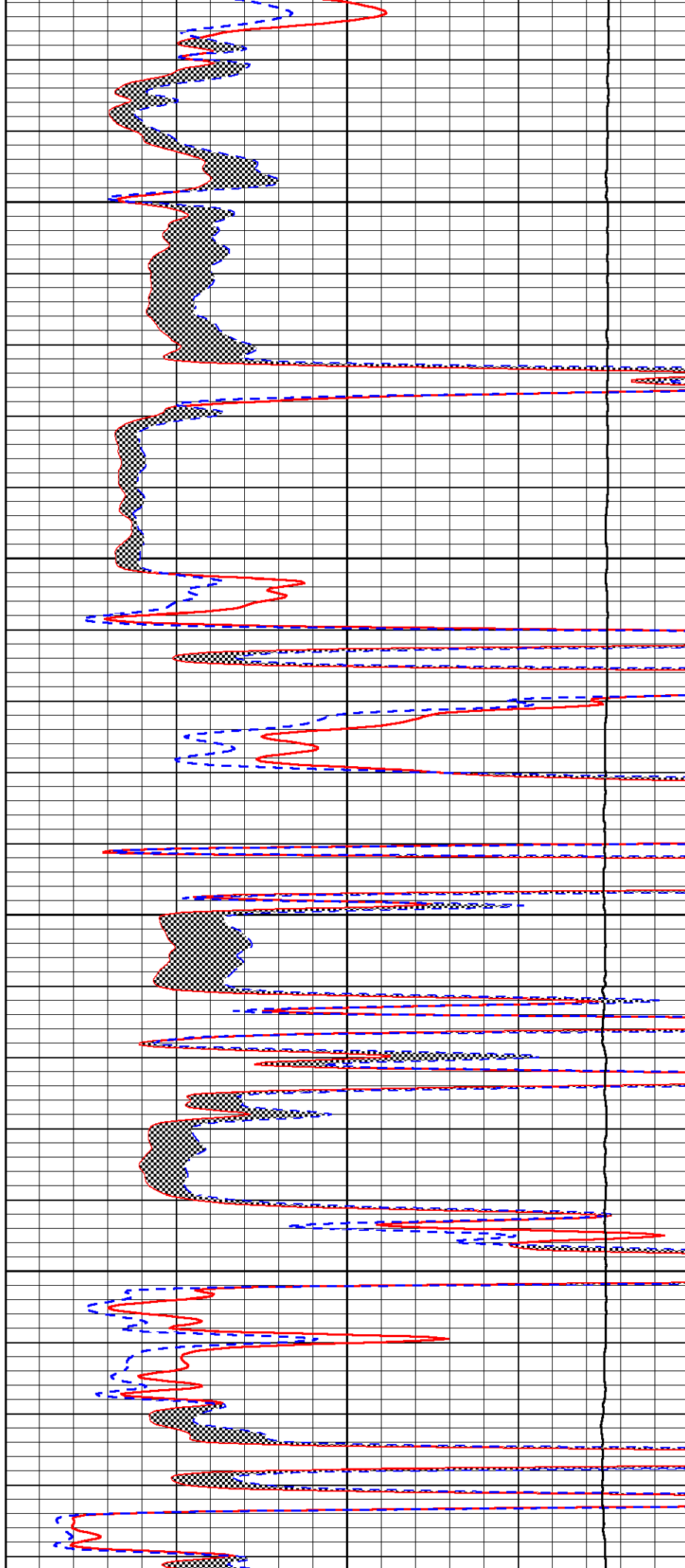


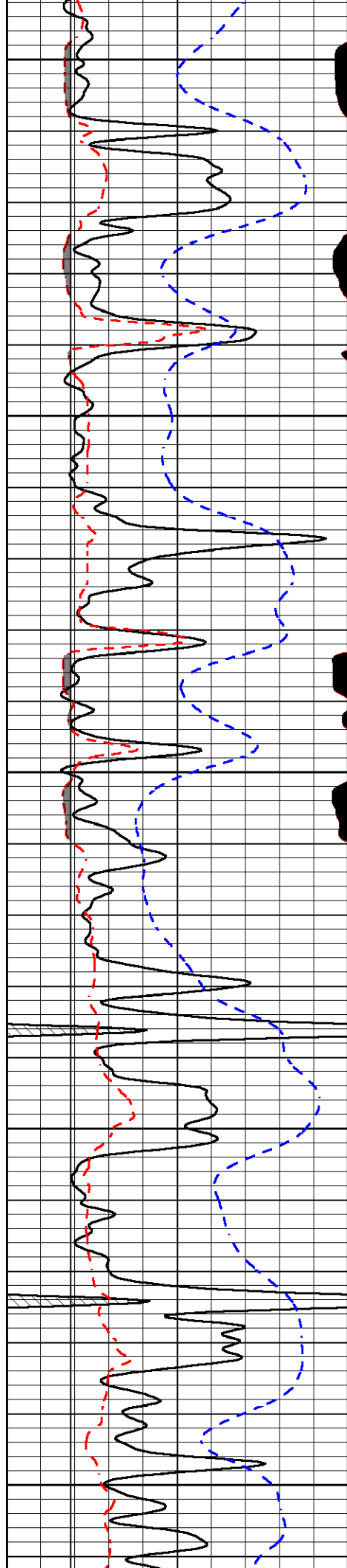
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4000

4050

4100





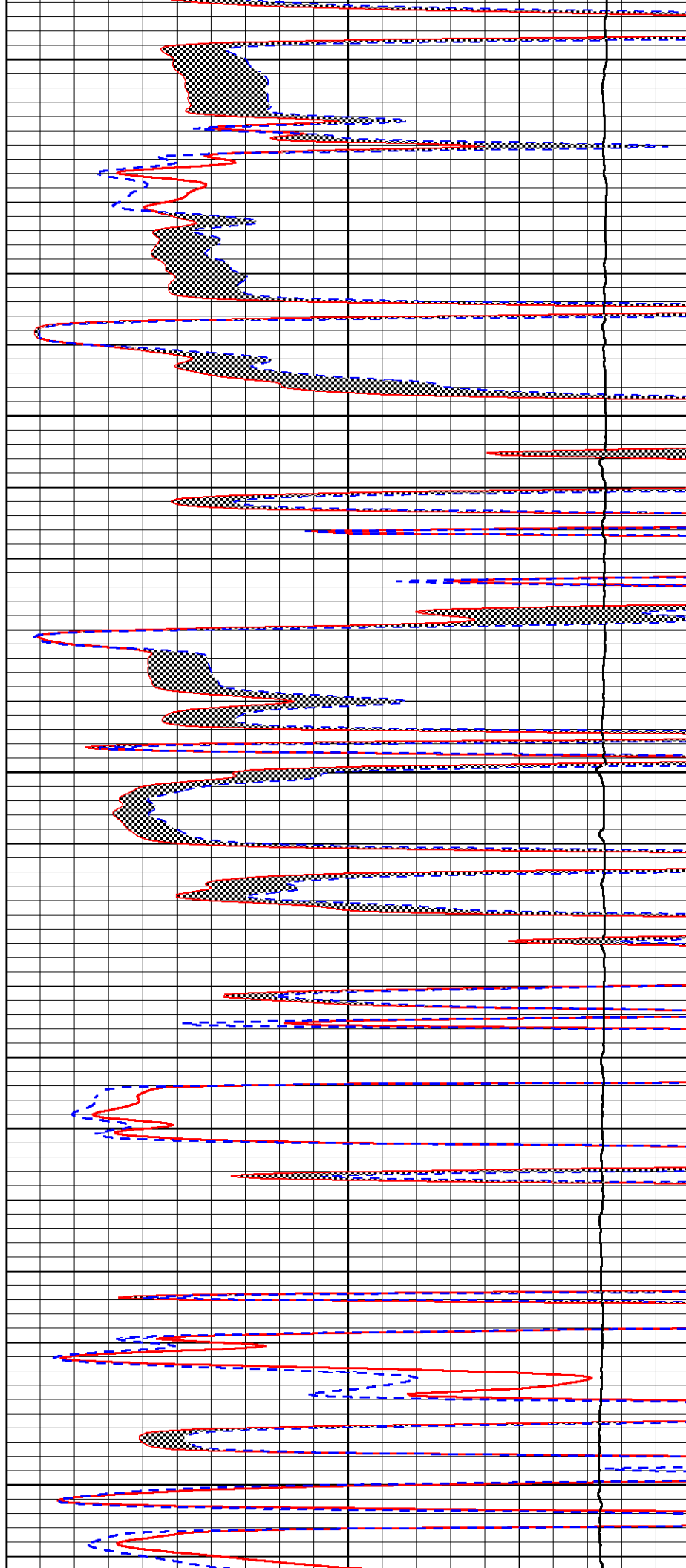
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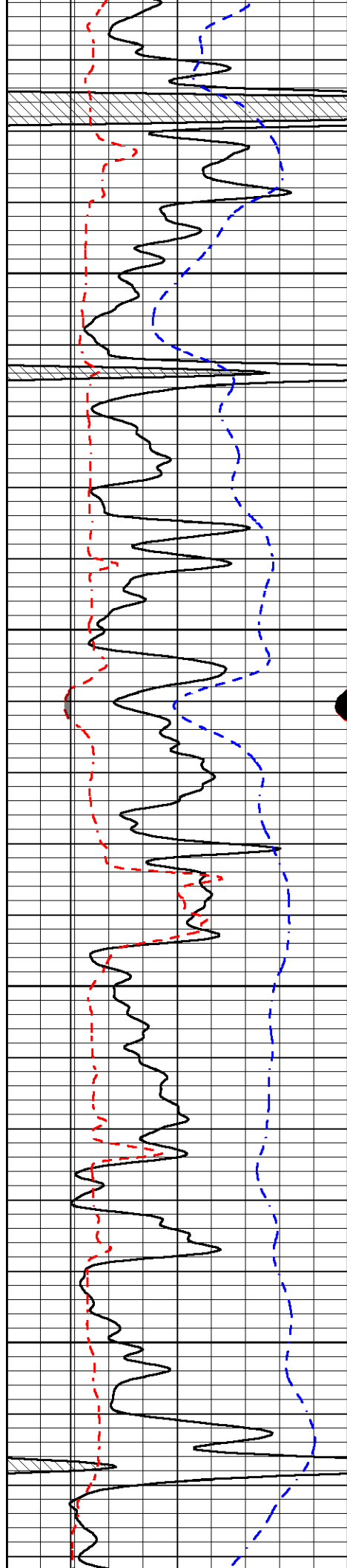
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4250

4300

4350



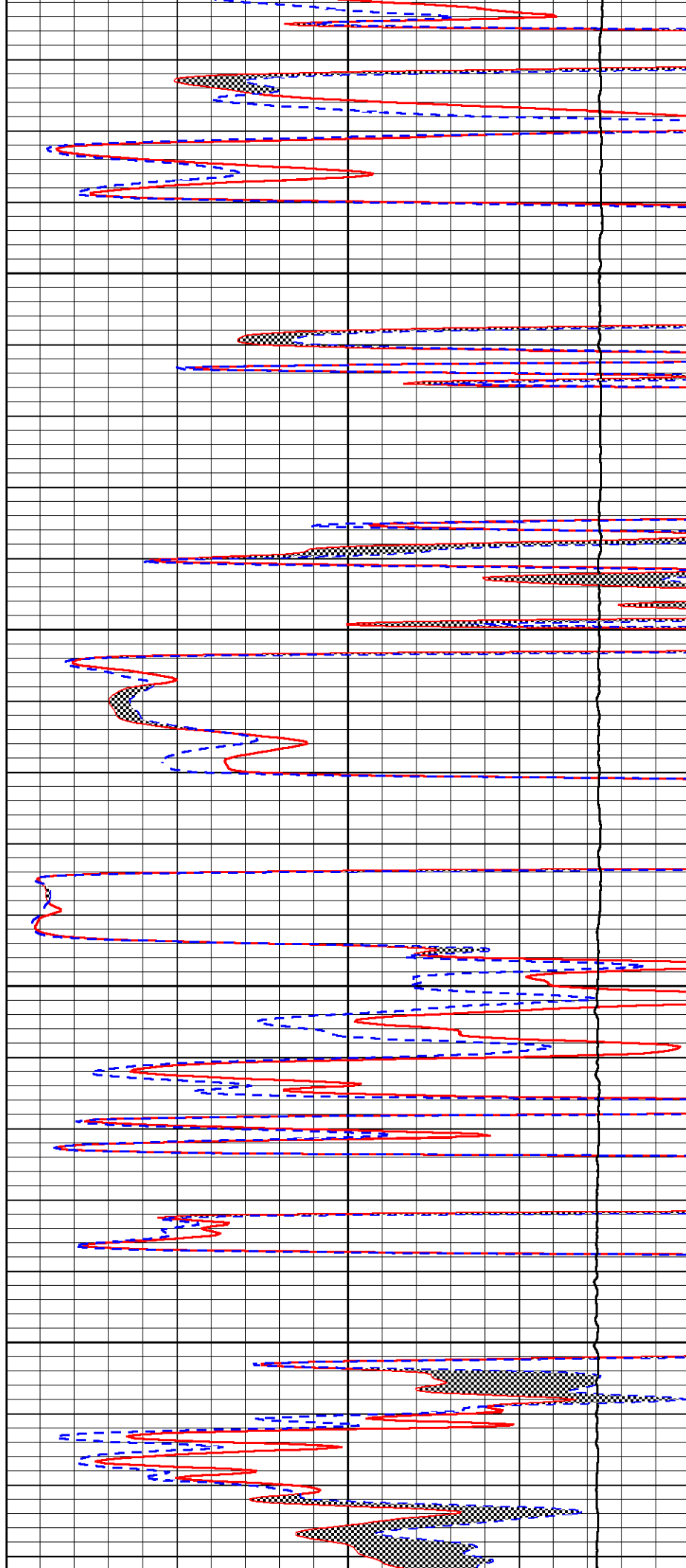


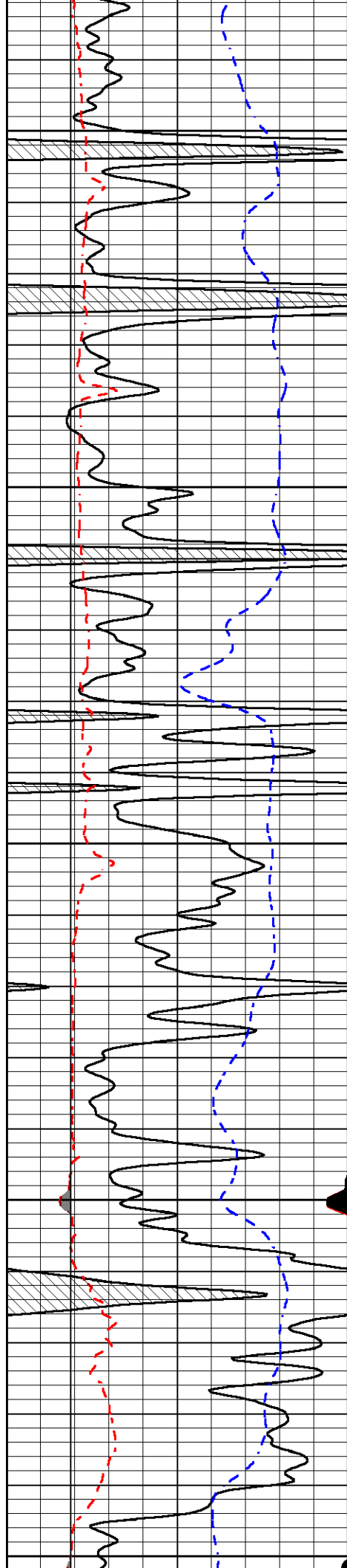
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4450

4500

4550





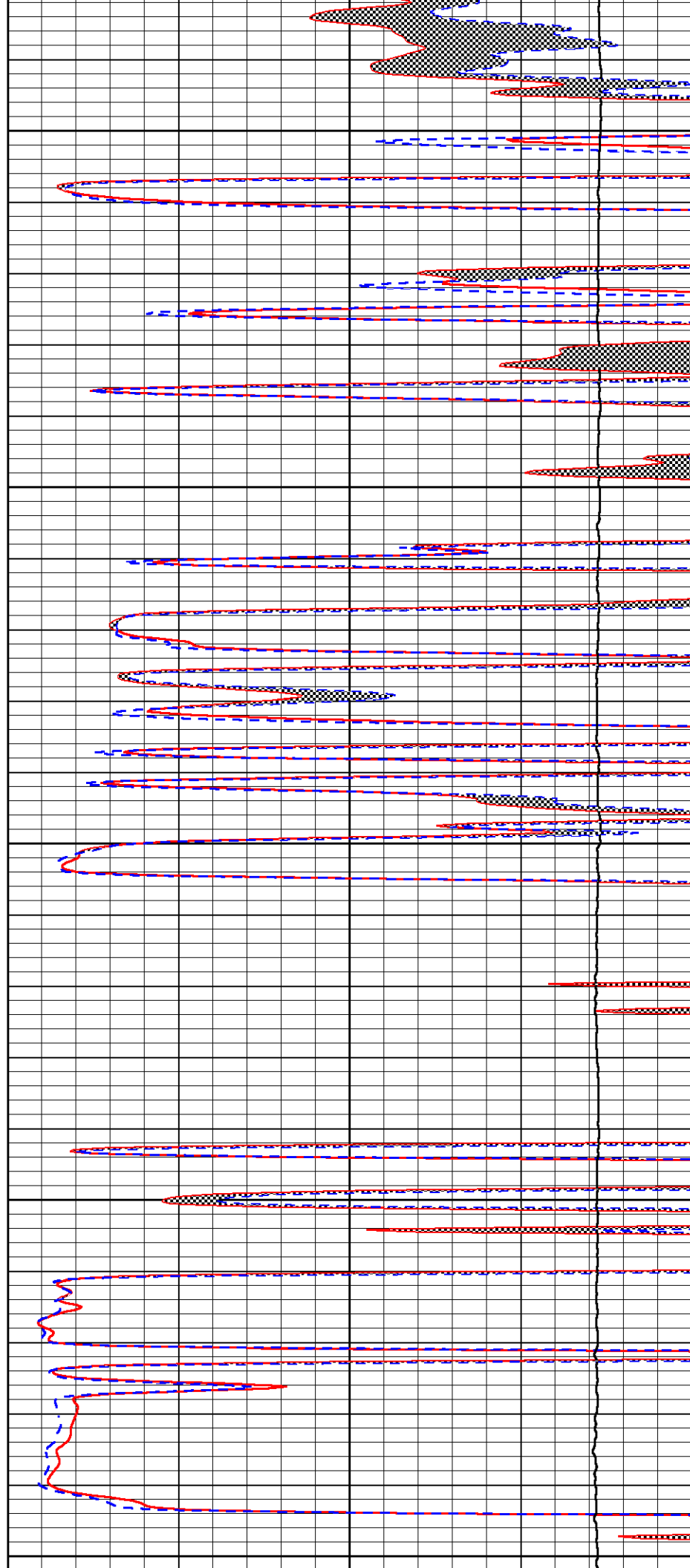
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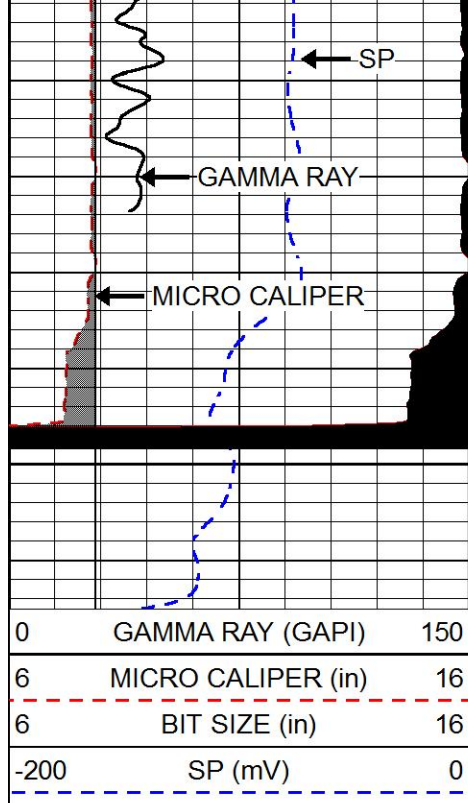
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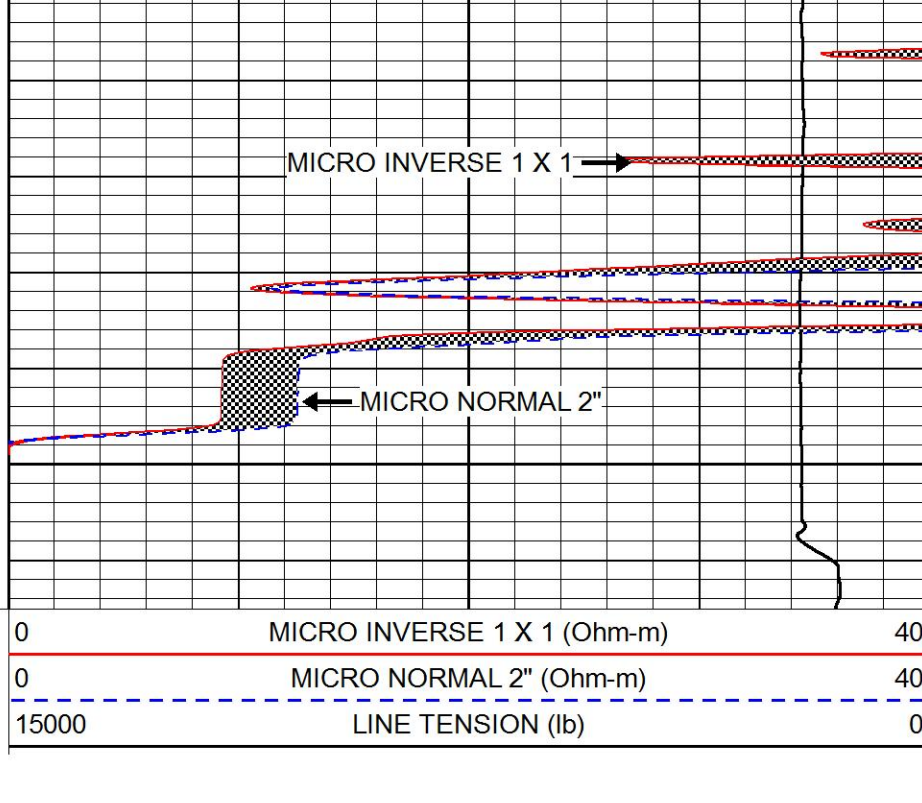
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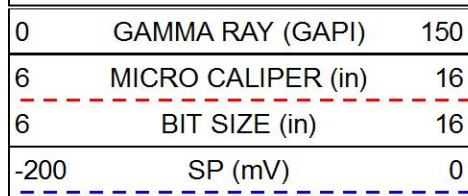


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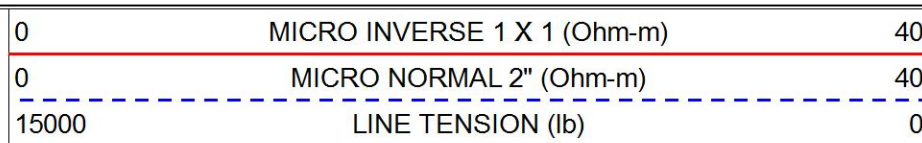


REPEAT SECTION

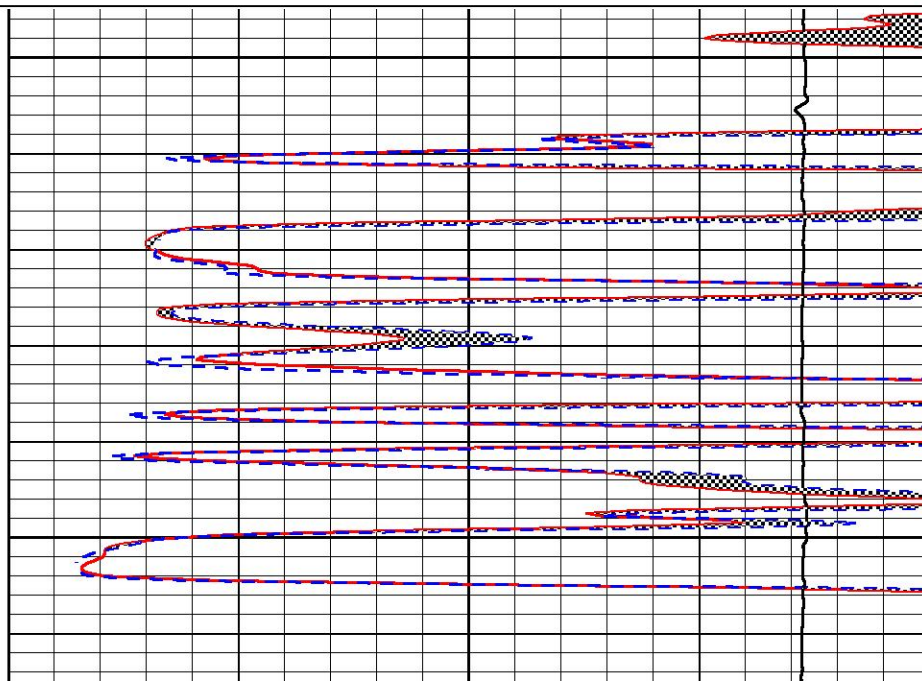
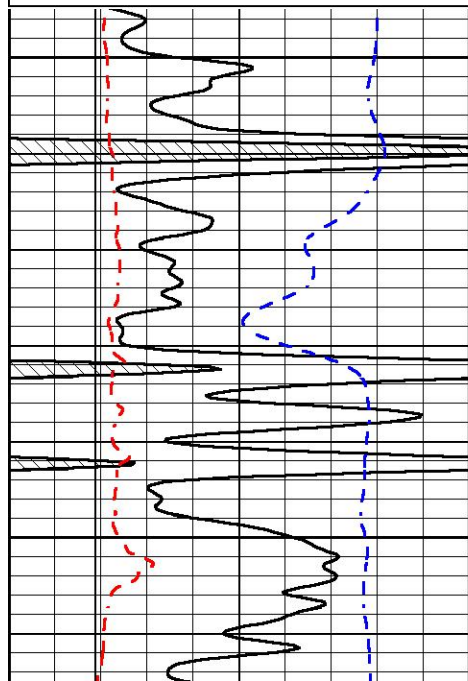
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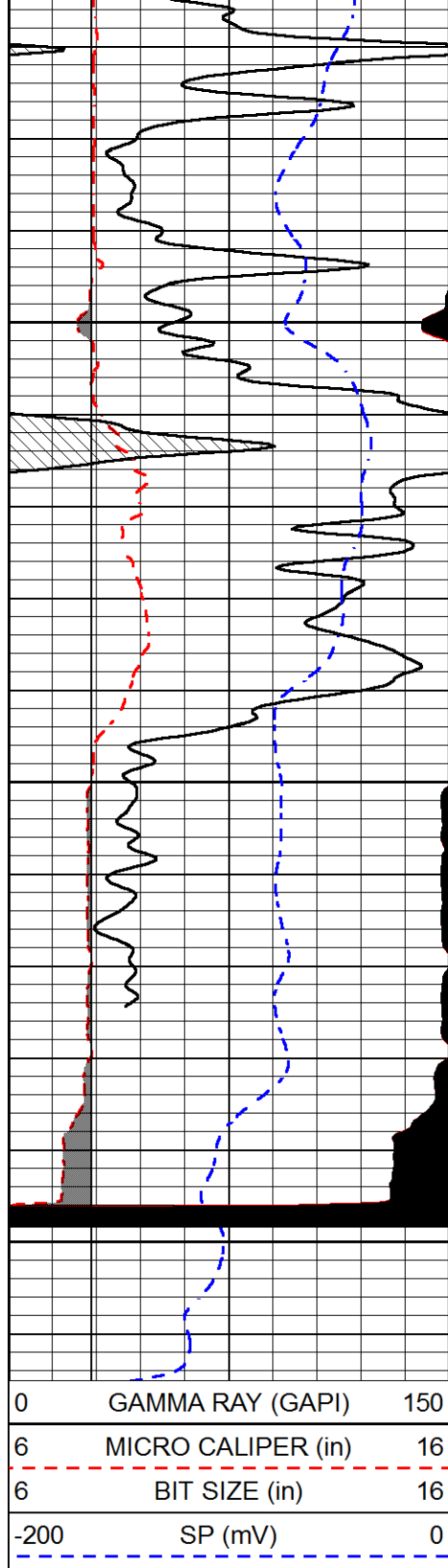


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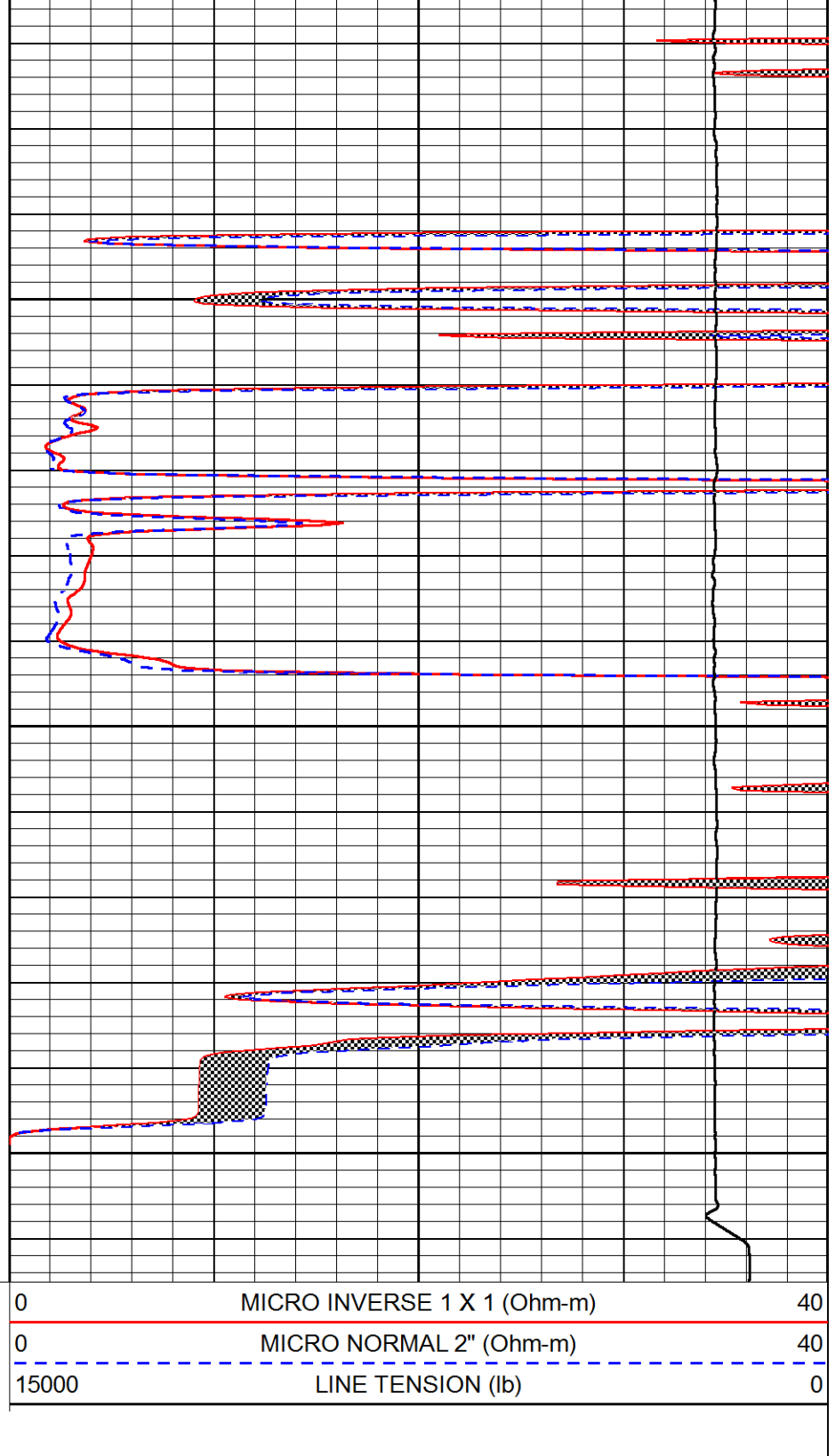




4750

4800

4850



Calibration Report

Database File richlan_kuhlman_farms_a_1.db
 Dataset Pathname stackml/pass3.1
 Dataset Creation Mon Aug 07 02:56:15 2017

Dual Induction Calibration Report

Serial-Model: 1987-M&W
 Calibration Performed: Tue Apr 11 16:07:38 2017

Readings

References

Results

Loop:	Air	Loop	Air	Loop		Gain	Offset
Deep	178.615	710.235	0.000	255.800	mmho/m	0.530	-36.500
Medium	161.982	1441.110	0.000	255.800	mmho/m	0.440	-110.500
Microlog Calibration Report							
Serial-Model: Performed:			PSI-02-PSI STKBL ML Fri Jun 23 00:25:19 2017				
Readings		References			Results		
	Zero	Cal	Zero	Cal		m	b
Normal	0.0031	0.0043	0.0000	10.0000	Ohm-m	16000.0000	-0.5000
Inverse	0.0000	0.0013	0.0000	10.0000	Ohm-m	17000.0000	0.0000
Caliper	1.0020	1.0834	5.5000	16.5000	in	135.1560	-131.6000
Compensated Density Calibration Report							
Serial-Model: Source / Verifier: Master Calibration Performed:			168-986-M&W / Tue Apr 11 16:07:47 2017				
Master Calibration							
	Density		Far Detector		Near Detector		
Magnesium	1.755	g/cc	4691.86		4818.19	cps	
Aluminum	2.675	g/cc	859.57		3020.22	cps	
Spine Angle = 74.61			Density/Spine Ratio = 0.523				
	Size		Reading				
Small Ring	4.00	in	1.03				
Large Ring	14.00	in	1.23				
Compensated Neutron Calibration Report							
Serial Number: Tool Model: Calibration Performed:			tk10-MW M&W 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: Tool Model: Calibration Performed:		89-M&W M&W Tue Apr 11 16:08:01 2017					
Calibrator Value:		1000.0	GAPI				
Background Reading:		0.0	cps				
Calibrator Reading:		6.2	cps				
Sensitivity:		0.5200	GAPI/cps				



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