



MIDWEST WIRELINE

# MICRORESISTIVITY LOG

Company: Murfin Drilling Company, Inc.  
 Well: Keller B #1-36  
 Field: Cheyenne  
 County: Cheyenne  
 State: Kansas

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 Well: Keller B #1-36  
 Field: Cheyenne  
 County: Cheyenne  
 State: Kansas

Location: API #: 15-023-21564-00-00  
 1320 FSL 500 FEL  
 SEC 36 TWP 2S RGE 39W  
 Permanent Datum: Ground Level Elevation 3404  
 Log Measured From: Kelly Bushing  
 Drilling Measured From: Kelly Bushing  
 Other Services: CNL/CDL DIL/BHCS  
 Elevation: K.B. 3409 D.F. G.L. 3404

Date	1/24/2022
Run Number	One
Depth Driller	5200
Depth Logger	5204
Bottom Logged Interval	5203
Top Log Interval	3700
Casing Driller	8.625 @ 322
Casing Logger	322
Bit Size	7.875
Type Fluid in Hole	Chemical
Salinity, ppm CL	900
Density / Viscosity	9.2 56
pH / Fluid Loss	11.0 6.8
Source of Sample	FLOWLINE
Rm @ Meas. Temp	1.10 @ 50
Rmt @ Meas. Temp	0.83 @ 50
Rmc @ Meas. Temp	1.49 @ 50
Source of Rmf / Rmc	CHARTS
Rm @ BHT	0.43 @ 128
Operating Rig Time	6 Hours
Max Rec. Temp. F	128
Equipment Number	P-24
Location	Hays
Recorded By	D. Schmidt
Witnessed By	Wes Hansen

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All interpretations are opinions based on inferences from electrical or other measurements and Midwest Wireline LLC cannot and does not guarantee the accuracy or correctness of any interpretation, and Midwest Wireline 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.

Bird City,  
 5 West to 23 Rd, 5 1/4 North,  
 West into

Log Measured From: Kelly Bushing 5 Ft. Above Permanent Datum

THANK YOU FOR USING MIDWEST WIRELINE LLC  
 785-625-3858

Your Midwest Wireline Crew		This Log Record Was Witnessed By	
Engineer: D. Schmidt	Operator:	Primary Witness: Wes Hansen	Secondary Witness:
Operator:	Operator:	Secondary Witness:	Secondary Witness:
Operator:		Secondary Witness:	

Operator	Offset (ft)	Depth (ft)	Description	Length (ft)	O.D. (in)	Weight (lb)
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Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
GR	40.33		GR-M&W (101)	3.00	3.50	50.00
CNLSC CNSSC	37.23 36.48		CNT-M&W (207-MW)	5.00	3.50	100.00
LSD DCAL SSD	28.18 28.17 27.68		CDL-M&W (305-05)	8.50	4.00	250.00
ML-PSIML (402)			ML-PSIML (402)	7.58	4.00	65.00
MCAL MI MN	19.58 19.58 19.58					
RLL3F RLL3	15.50 15.50					
DIL-M&W (501 HT)			DIL-M&W (501 HT)	18.25	3.50	220.00
CILD	8.33					
CILM	4.50					
SP	0.20					

Dataset: murfin\_keller b 1-36.db: field/well/stkml/pass3.1  
 Total length: 42.33 ft  
 Total weight: 685.00 lb  
 O.D.: 4.00 in

# Log Variables

DatabaseC:\ProgramData\Warrior\Data\murfin\_keller b 1-36.db  
 Dataset field/well/stkml/pass3.1/\_vars\_

## Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	129	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	480	40	Off	5204

## Variable Description

A : Cement Factor (a)  
 BOREID : Borehole I.D.  
 BOTTEMP : Bottom Hole Temperature  
 CASEOD : Casing O.D.  
 CASETHCK : Casing Thickness  
 FLUIDDEN : Fluid Density  
 M : Cement Exp (m)  
 MATRXDEN : Matrix Density

NPORSEL : Neutron Porosity Curve Select  
 PERFS : Perforation Flag  
 SNDERR : Deep Sonde Error Correction  
 SNDERRM : Medium Sonde Error Correction  
 SPSHIFT : S.P. Baseline Offset  
 SRFTEMP : Surface Temperature  
 SZCOR : CN Size Cor. ?  
 TDEPTH : Total Depth



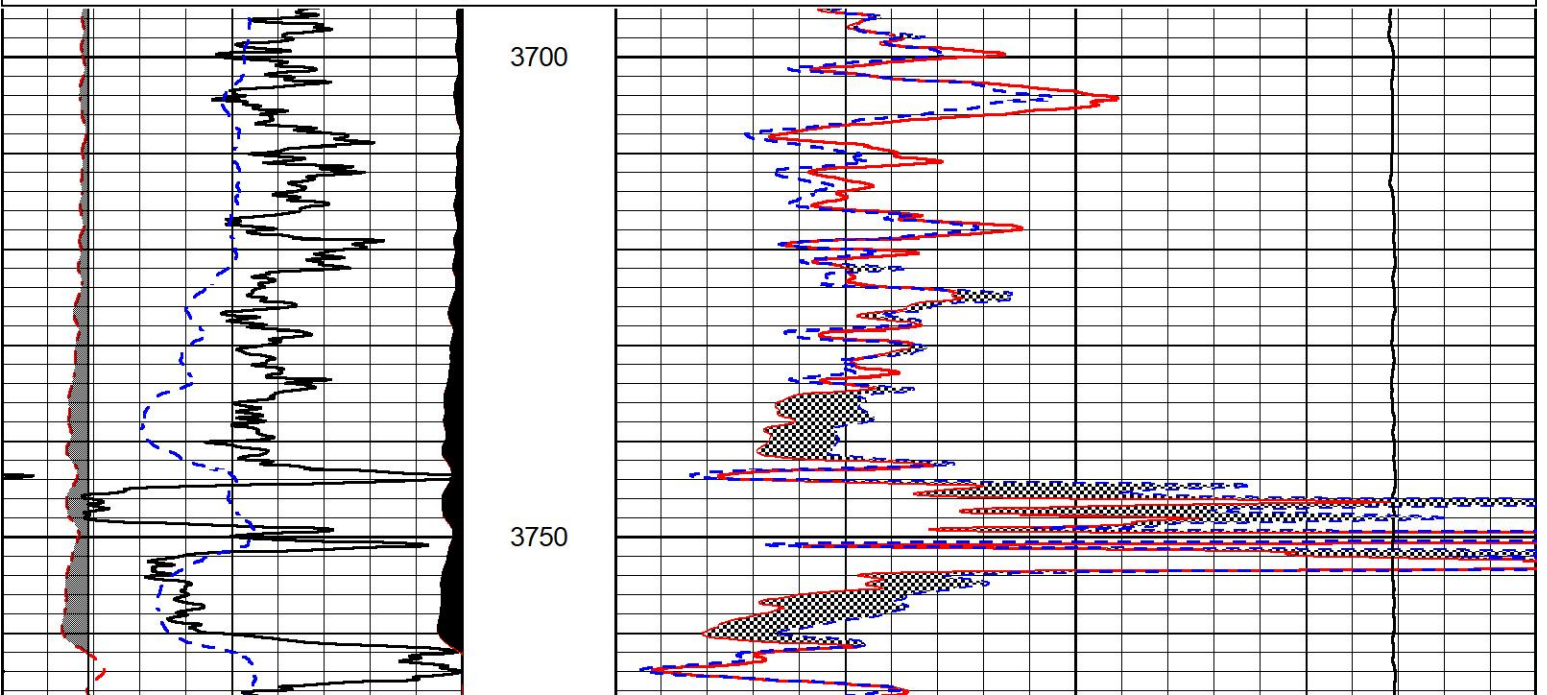
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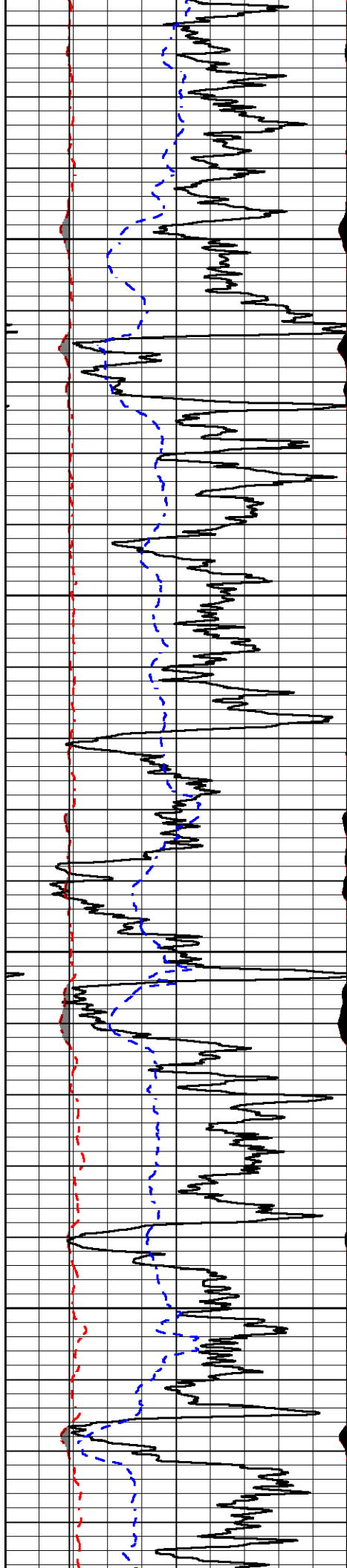
### MAIN PASS

Database File murfin\_keller b 1-36.db  
 Dataset Pathname stkml/pass3.1  
 Presentation Format \_micro  
 Dataset Creation Mon Jan 24 22:15:54 2022  
 Charted by Depth in Feet scaled 1:240

0	Gamma Ray (GAPI)	150
6	Caliper (in)	16
-2.875	mcal (in)	7.875
-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



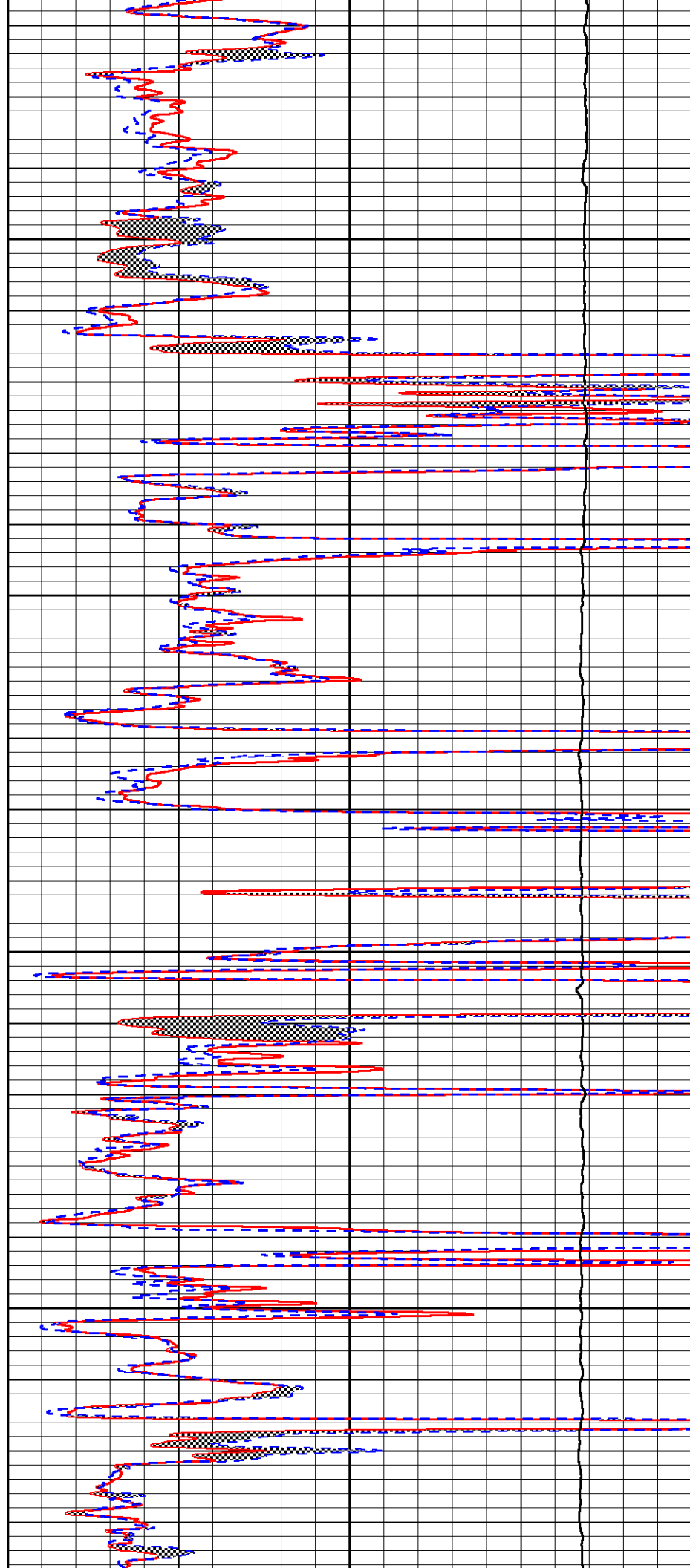


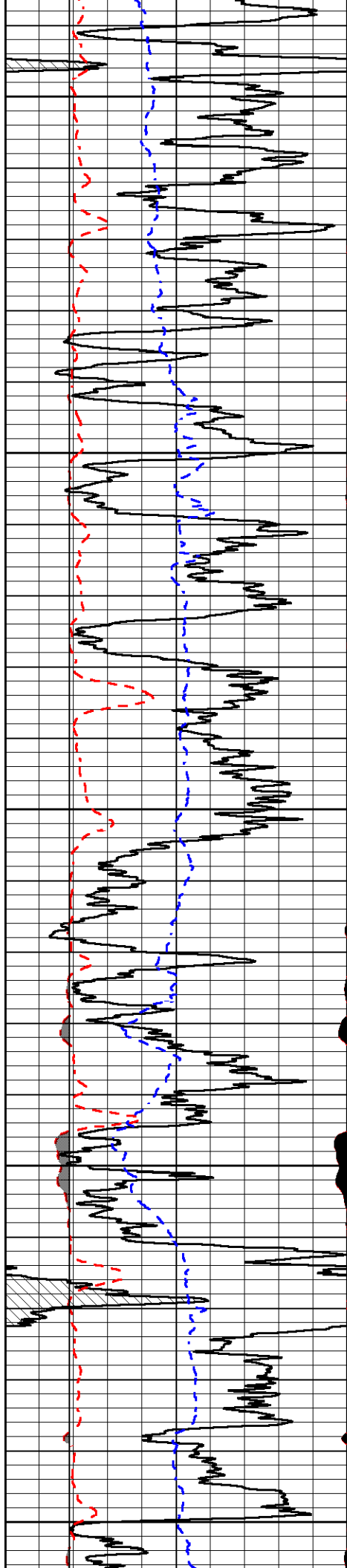
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3850

3900

3950





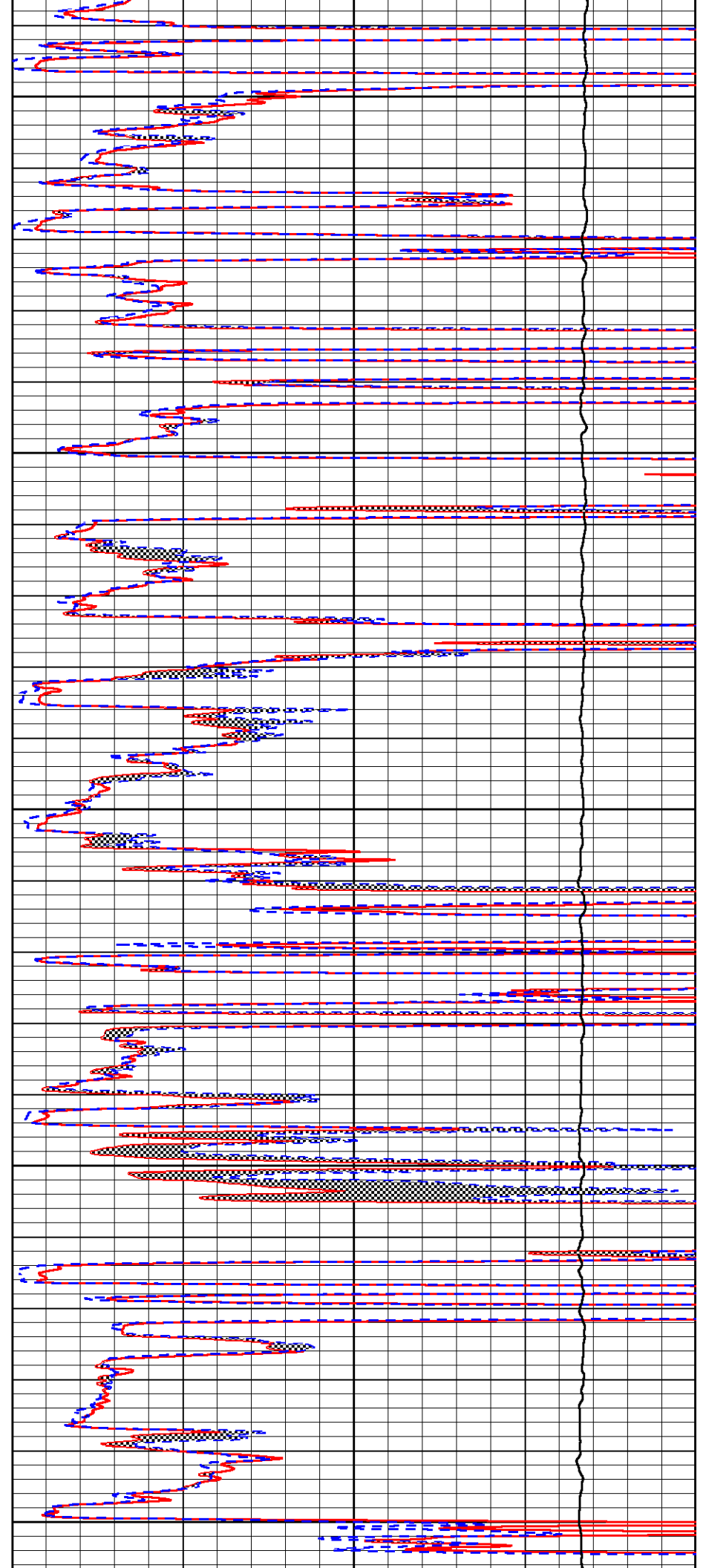
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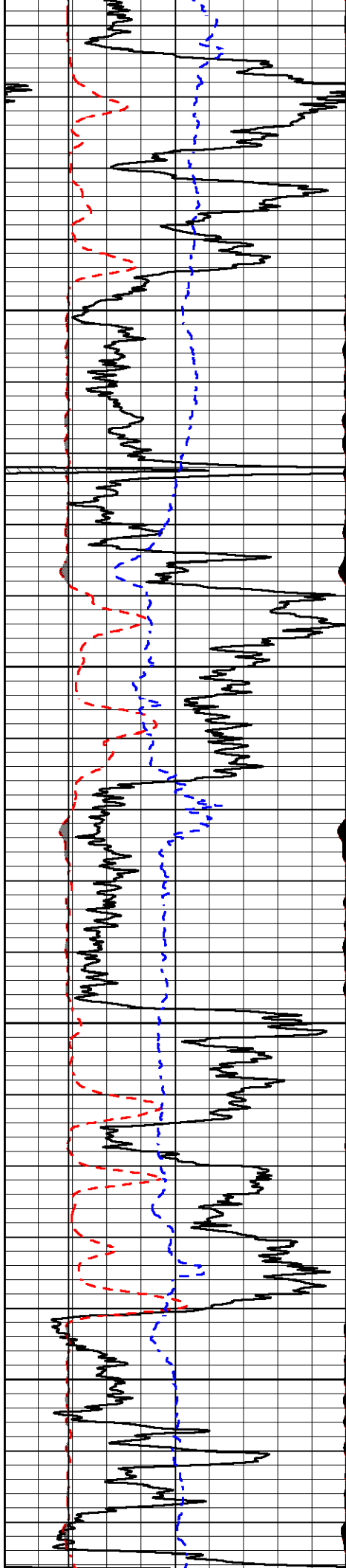
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4100

4150

4200



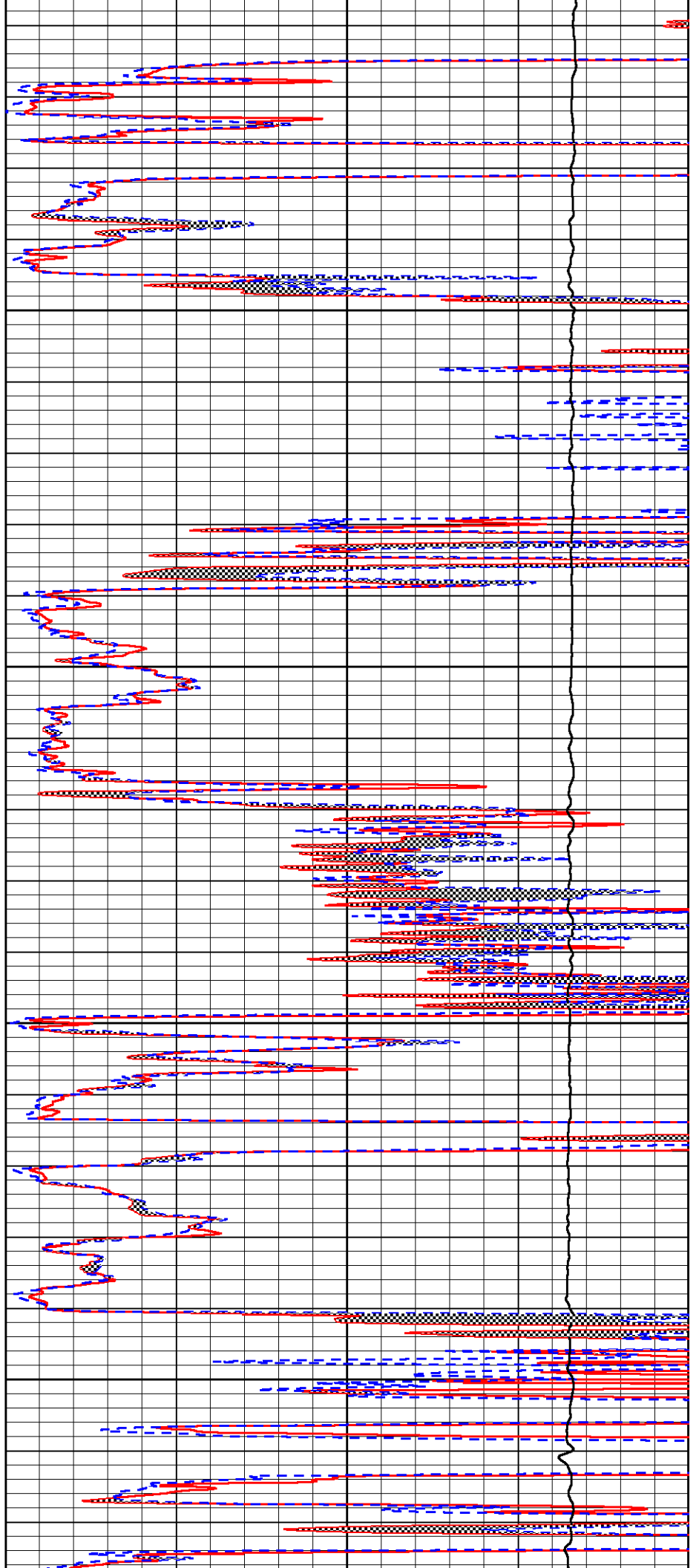


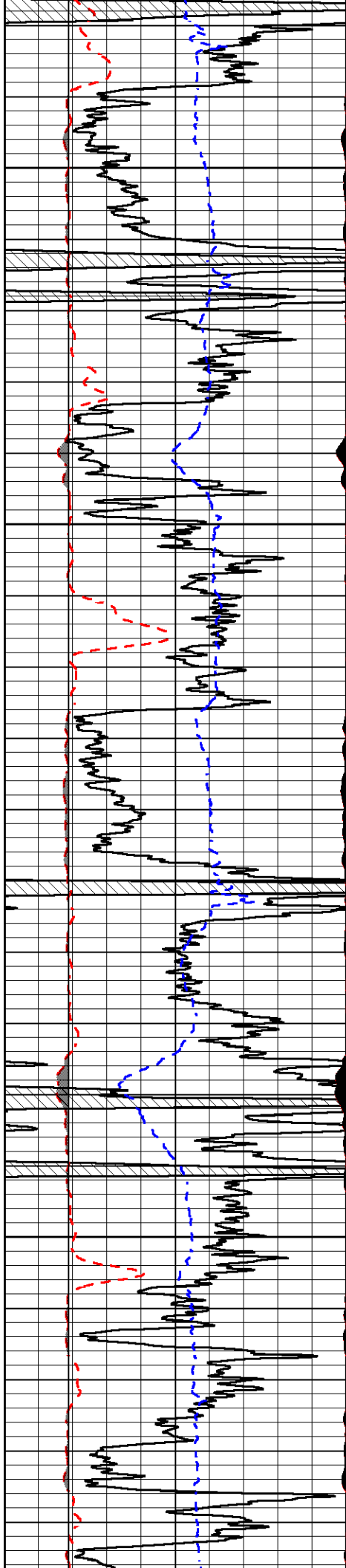
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4300

4350

4400



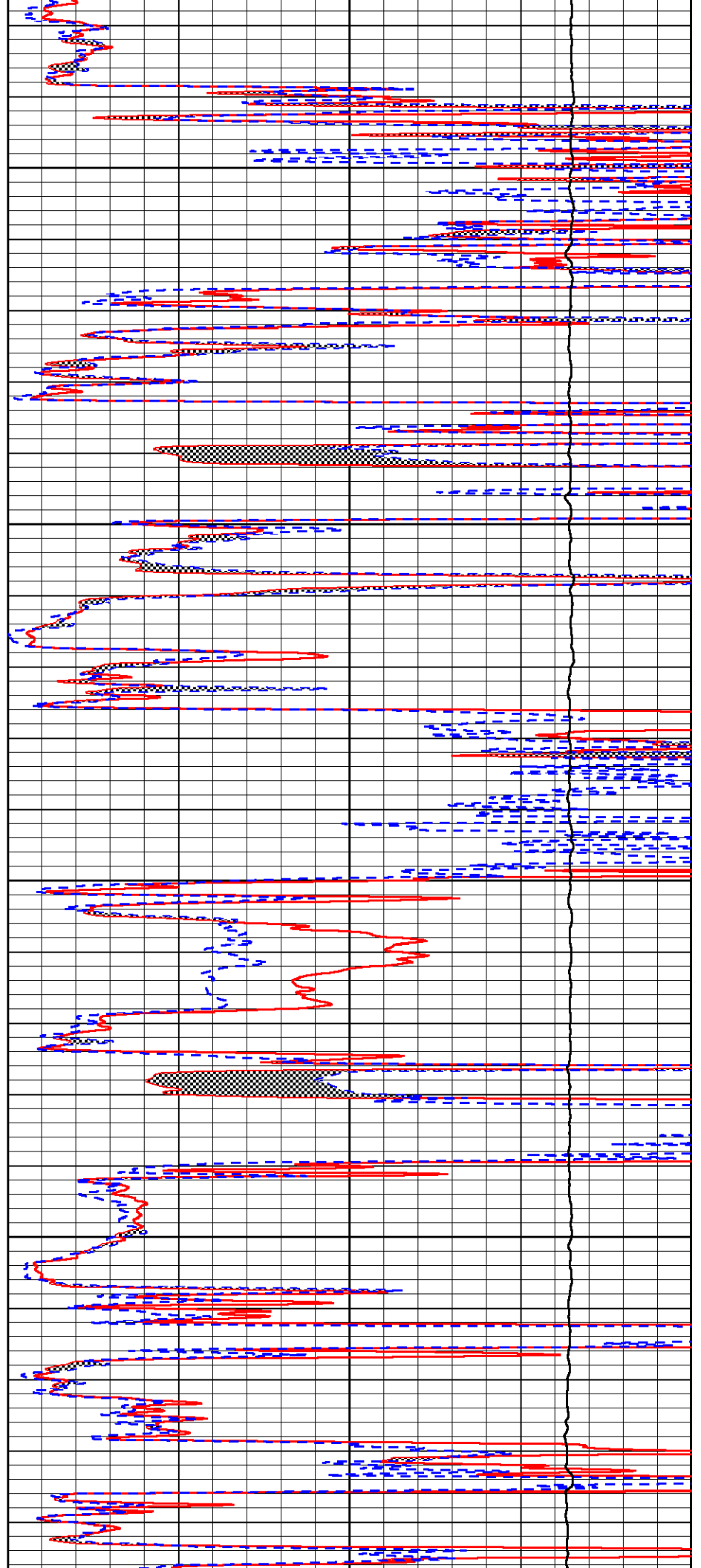


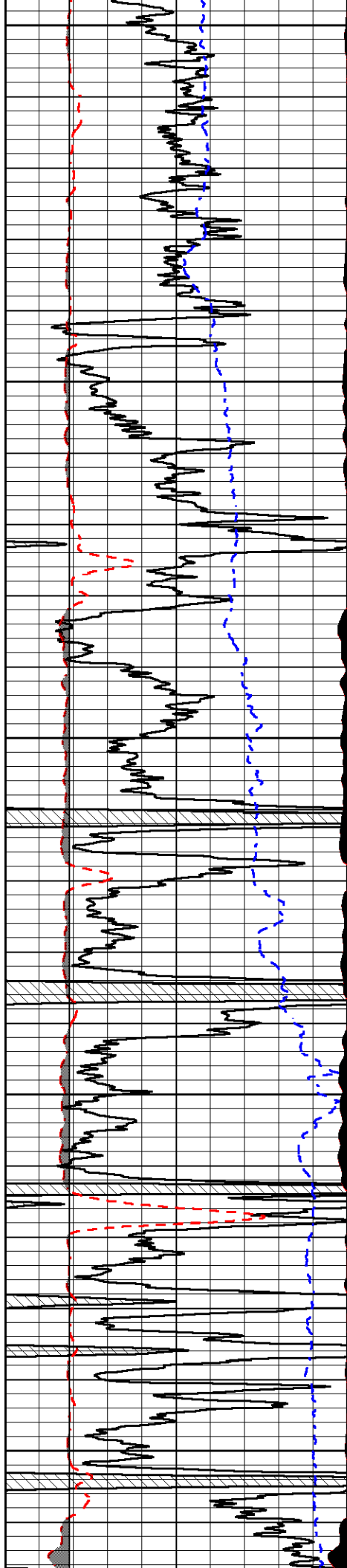
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4500

4550

4600





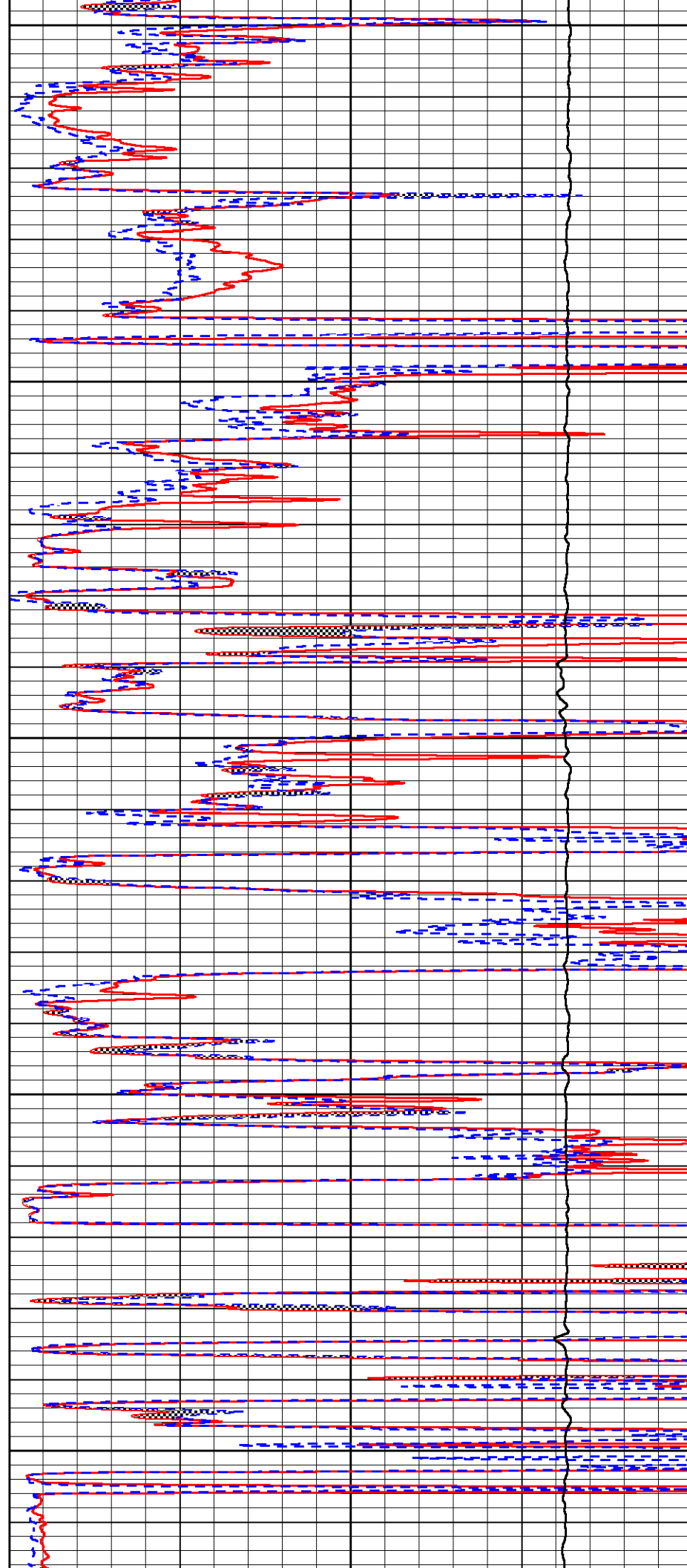
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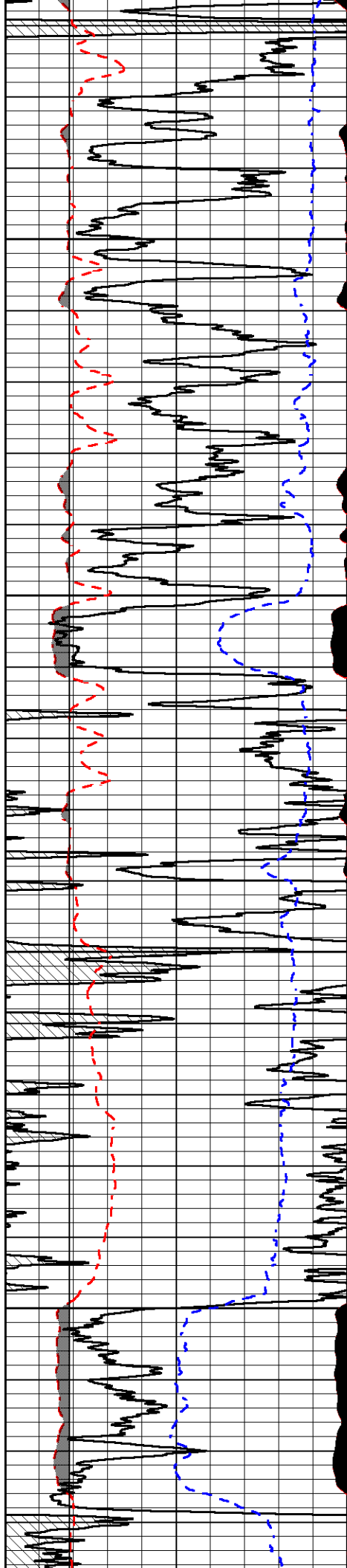
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4750

4800

4850



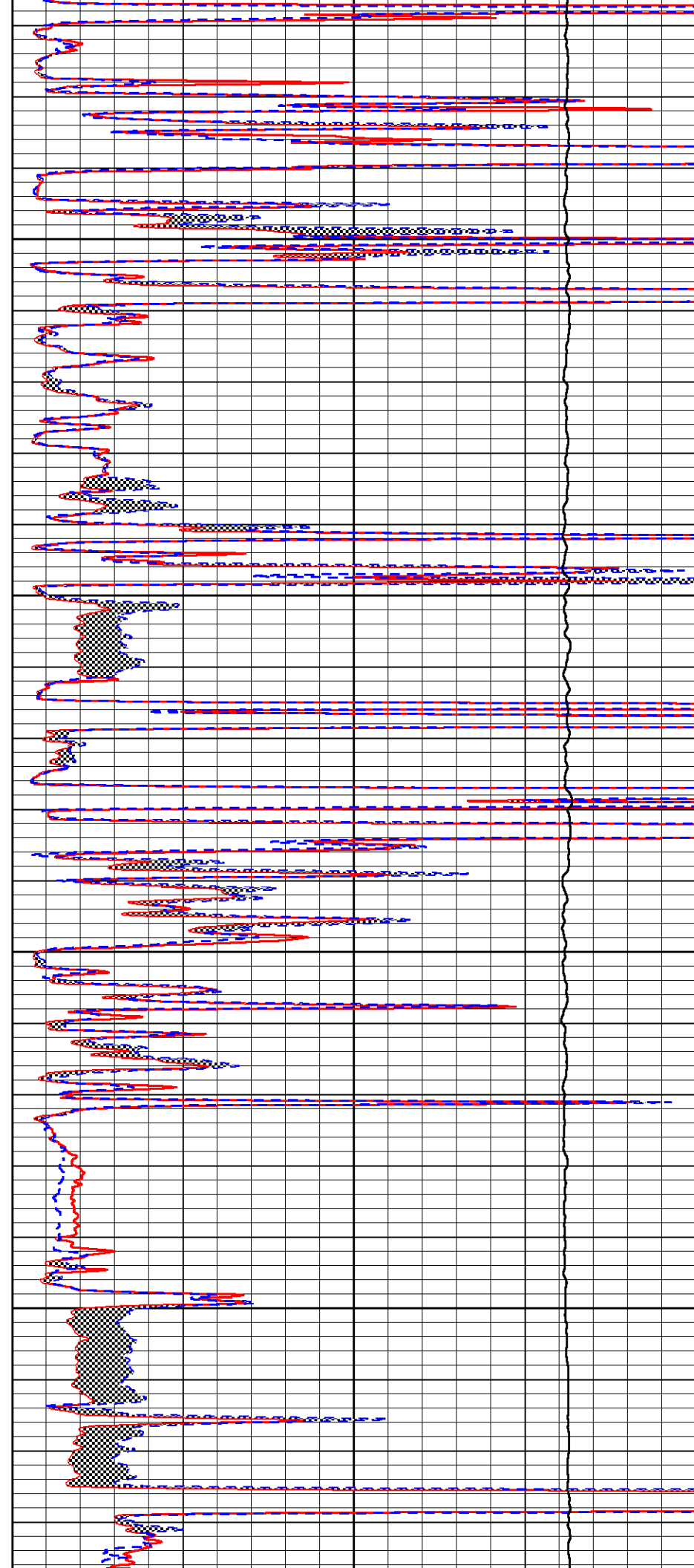


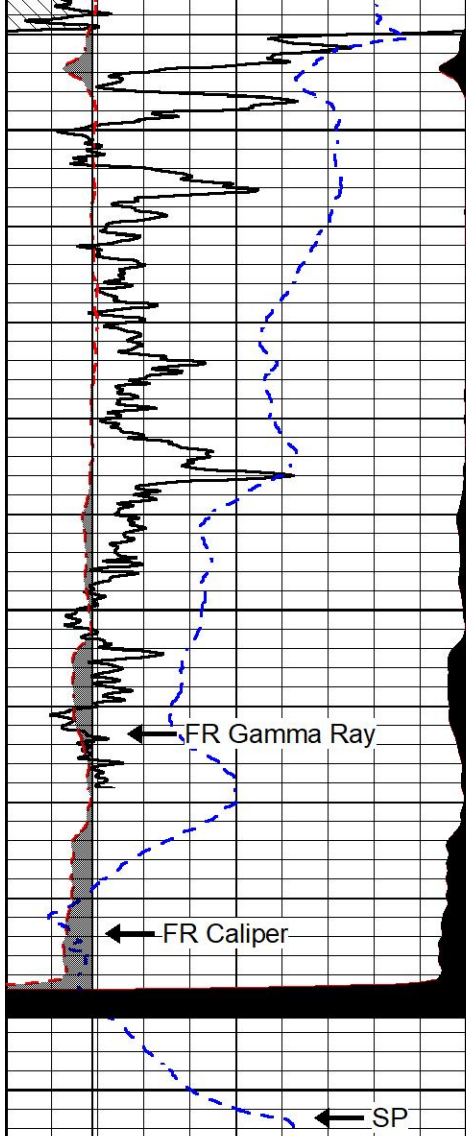
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4950

5000

5050





5100

5150

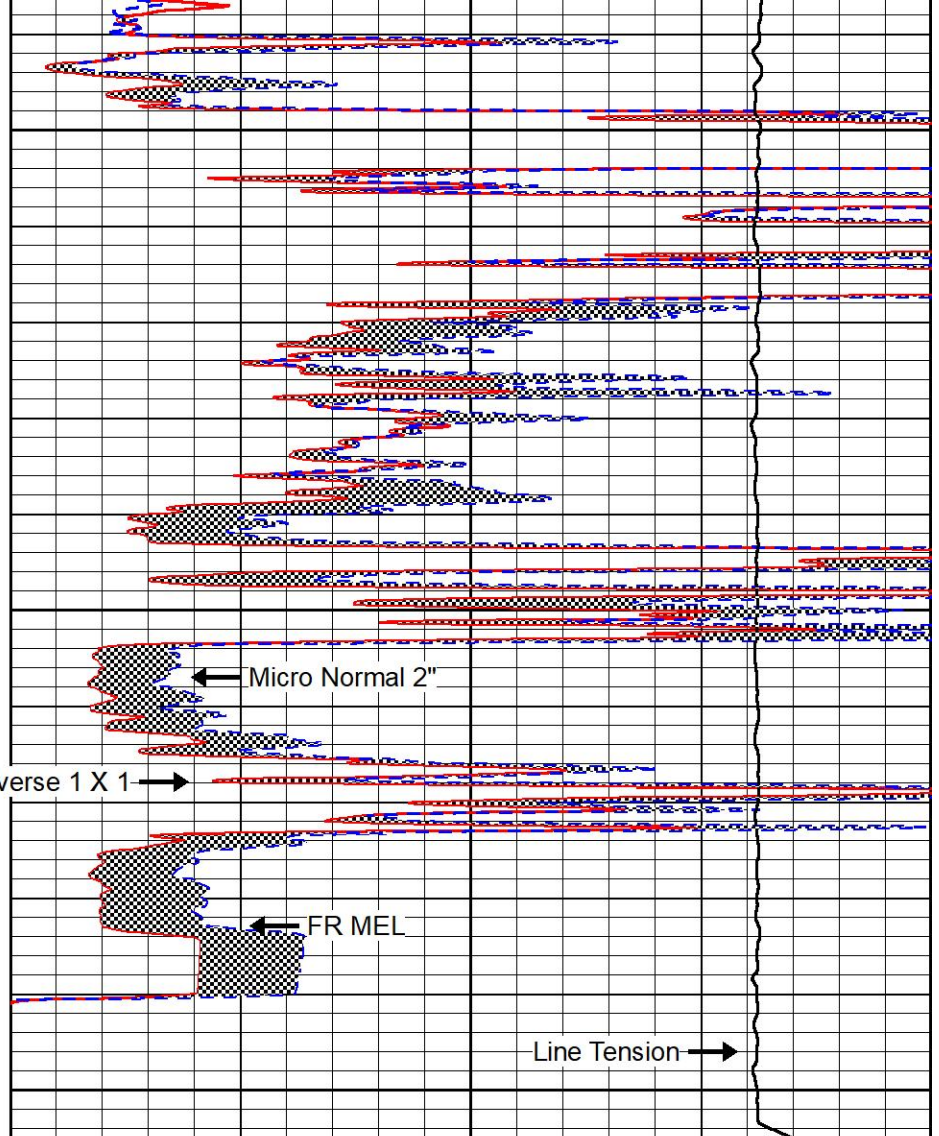
5200

FR Gamma Ray

FR Caliper

SP

0	Gamma Ray (GAPI)	150
6	Caliper (in)	16
-2.875	mcal (in)	7.875
-200	SP (mV)	0



Micro Normal 2"

Micro Inverse 1 X 1

FR MEL

Line Tension

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



MIDWEST WIRELINE

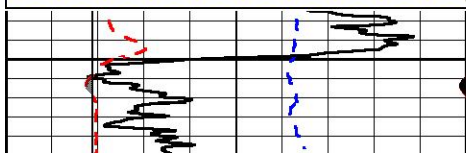
## REPEAT SECTION

### REPEAT PASS

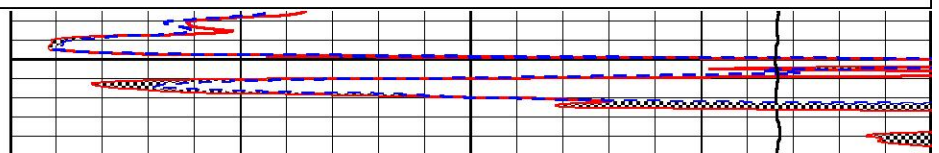
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 Presentation Format \_micro  
 Dataset Creation Mon Jan 24 22:14:24 2022  
 Charted by Depth in Feet scaled 1:240

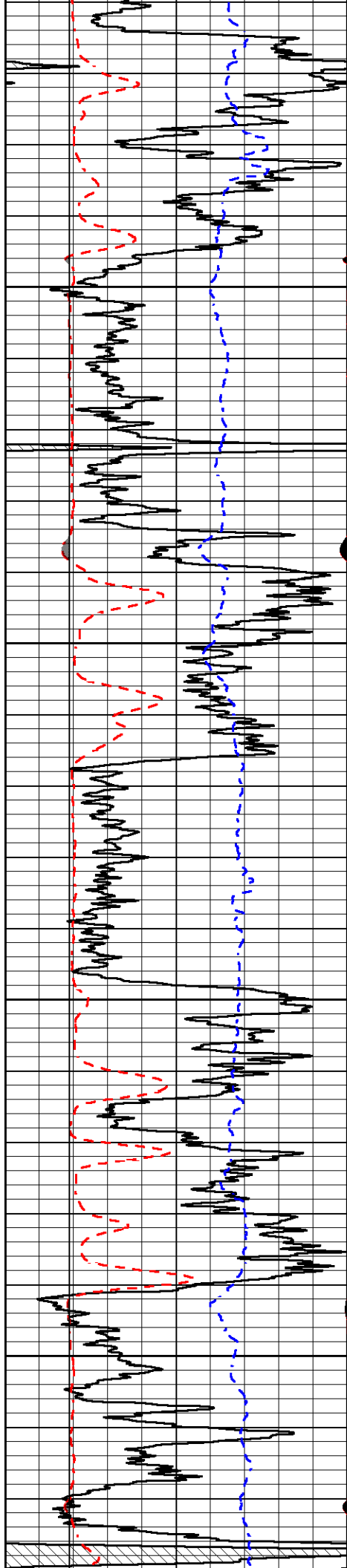
0	Gamma Ray (GAPI)	150
6	Caliper (in)	16
-2.875	mcal (in)	7.875
-200	SP (mV)	0

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



4200



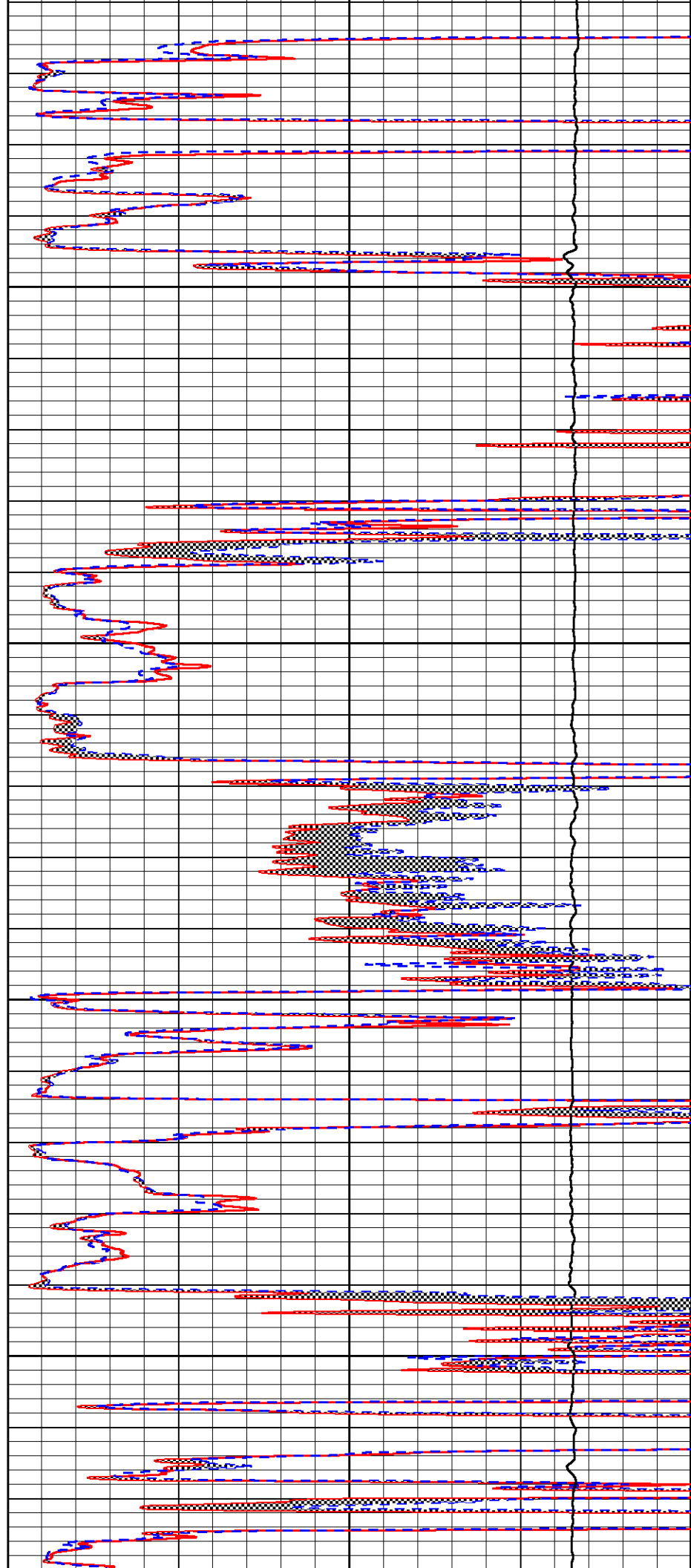


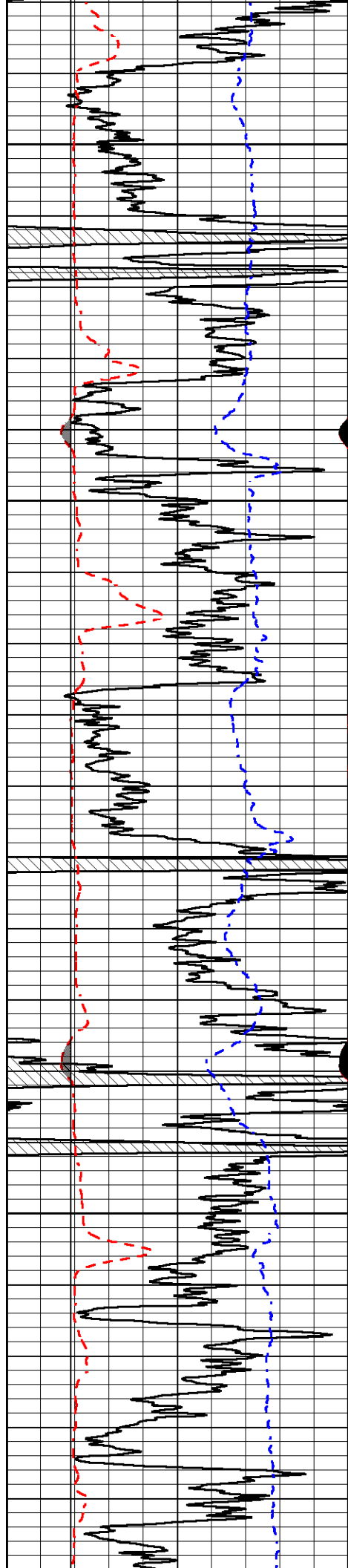
4250

4300

4350

4400





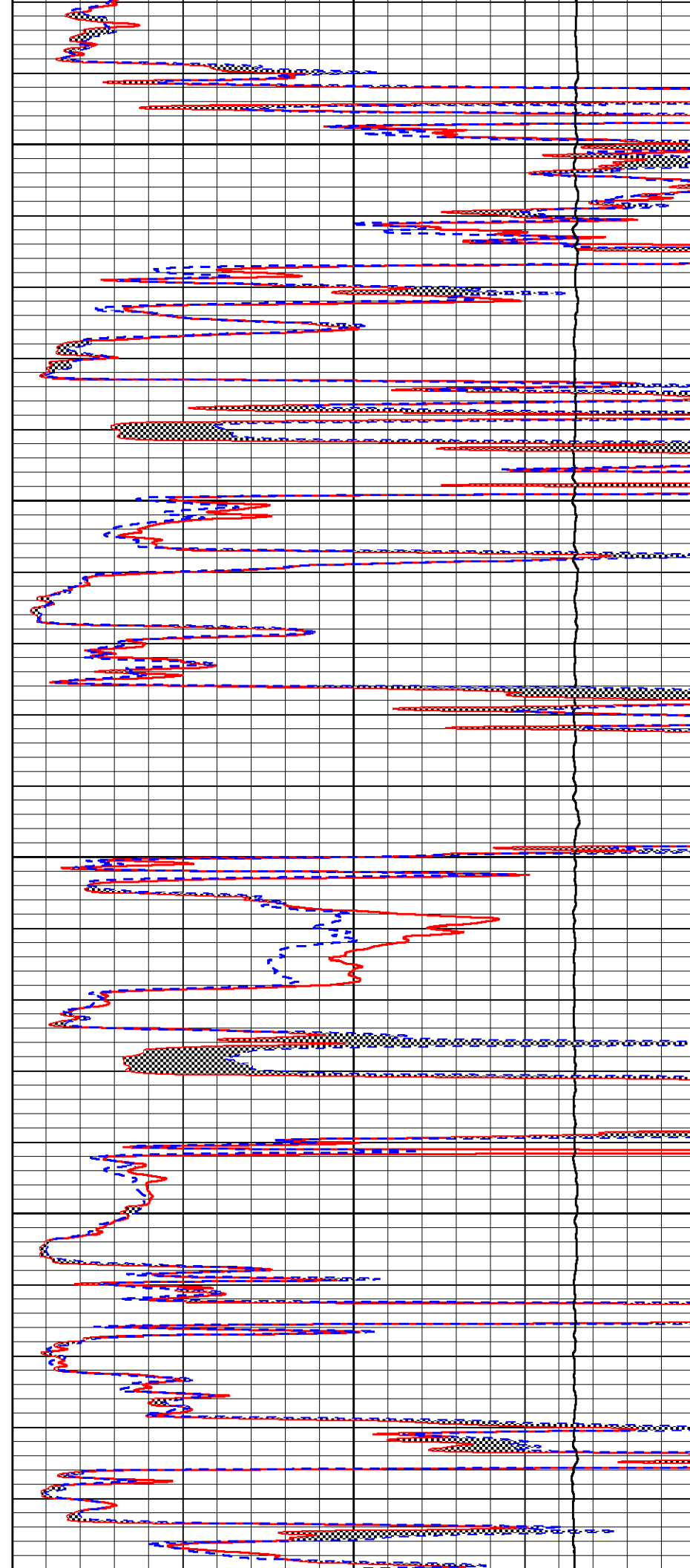
4450

4500

4550

4600

4650



0	Gamma Ray (GAPI)	150
6	Caliper (in)	16
-2.875	mcal (in)	7.875
-200	SP (mV)	0

4630

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

## Calibration Report

Database File murfin\_keller b 1-36.db  
 Dataset Pathname stkml/pass3.1  
 Dataset Creation Mon Jan 24 22:15:54 2022

## Dual Induction Calibration Report

Serial-Model: 501 HT-M&W  
 Surface Cal Performed: Mon Jan 24 19:13:55 2022

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		m	b
Deep	83.639	487.104	0.000	183.000	mmho/m	0.420	-33.500
Medium	113.335	1585.690	0.000	442.000	mmho/m	0.300	-32.000

## Microlog Calibration Report

Serial-Model: 402-PSIML  
 Performed: Mon Jan 24 20:31:16 2022

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	34000.0000	-2.5000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	20000.0000	0.0000
Caliper	1.0052	1.0858	5.0000	16.5000	in	125.0000	-124.0000

## Compensated Density Calibration Report

Serial-Model: 305-05-M&W  
 Source #: 20762B  
 Master Calibration Performed: Mon Jan 24 19:14:33 2022

## Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	8758.11	9709.36	cps
Aluminum	2.630	g/cc	1513.14	5652.54	cps
Spine Angle = 72.88			Density/Spine Ratio = 0.476		
	Size		Reading		
Small Ring	4.00	in	1.75		
Large Ring	14.00	in	1.38		

## Compensated Neutron Calibration Report

Serial-Model: 207-MW-M&W

Source #: 100046B  
Master Calibration Performed:

Mon Nov 29 15:06:24 2021

Master Calibration

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: 101  
Tool Model: M&W  
Performed: Mon Jan 24 19:14:46 2022

Calibrator Value: 500.0 GAPI

Background Reading: 24.0 cps  
Calibrator Reading: 637.0 cps

Sensitivity: 0.5500 GAPI/cps



Company Murfin Drilling Company, Inc.  
Well Keller B #1-36  
Field  
County Cheyenne  
State Kansas