



MIDWEST WIRELINE

MICRORESISTIVITY LOG

Company Cobalt Energy LLC
 Well Indiek #1-18
 Field
 County Hodgeman
 State Kansas

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 Well Indiek #1-18
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 State Kansas

Location: API #: 15-083-22000-00-00
 W2 NW NE SE
 2294 FSL & 1180 FEL
 SEC 18 TWP 23S RGE 22W
 Elevation 2271
 Other Services
 CNL/CDL
 DIL
 Elevation
 K.B. 2278
 D.F.
 G.L. 2271

Date	3/2/2022
Run Number	One
Depth Driller	4650
Depth Logger	4652
Bottom Logged Interval	4651
Top Log Interval	3600
Casing Driller	8.625 @ 249
Casing Logger	248
Bit Size	7.875
Type Fluid in Hole	Chemical
Salinity, ppm CL	5600
Density / Viscosity	9.2 49
pH / Fluid Loss	10.0 9.2
Source of Sample	FLOWLINE
Rm @ Meas. Temp	0.8 @ 76
Rmt @ Meas. Temp	0.6 @ 76
Rmc @ Meas. Temp	1.08 @ 76
Source of Rmf / Rmc	CHARTS
Rm @ BHT	0.5 @ 123
Operating Rig Time	2.5 Hours
Max Rec. Temp. F	123
Equipment Number	P-108
Location	HAYS
Recorded By	T. Martin
Witnessed By	Tim Pierce

<<< Fold Here >>>

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.

Hanston, 4 W on 156 to Rd 225,
 3 S, W into

Log Measured From: Kelly Bushing 7 Ft. Above Permanent Datum

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

Your Midwest Wireline Crew

Engineer: T. Martin
 Operator:
 Operator:
 Operator:

This Log Record Was Witnessed By

Primary Witness: Tim Pierce
 Secondary Witness:
 Secondary Witness:
 Secondary Witness:

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
GR	40.33		GR-M&W (103)	3.00	3.50	50.00
CNLSC CNSSC	37.23 36.48		CNT-M&W (210)	5.00	3.50	100.00
LSD DCAL SSD	28.18 28.17 27.68		CDL-M&W (303-03)	8.50	4.00	250.00
MCAL MI MN	19.58 19.58 19.58		ML-PSI STKBL ML (402)	7.58	4.00	65.00
RLL3F RLL3	15.50 15.50					
CILD	8.33		DIL-M&W (504 HT)	18.25	3.50	220.00
CILM	4.50					
SP	0.20					

Dataset: cobalt_indiek #1-18.db: field/well/StkMI/pass4.1
 Total length: 42.33 ft
 Total weight: 685.00 lb
 O.D.: 4.00 in

Log Variables

DatabaseC:\ProgramData\Warrior\Data\cobalt_indiek #1-18.db
 Dataset field/well/StkMI/pass4.1/_vars_

Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	123	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	615	50	Off	4652



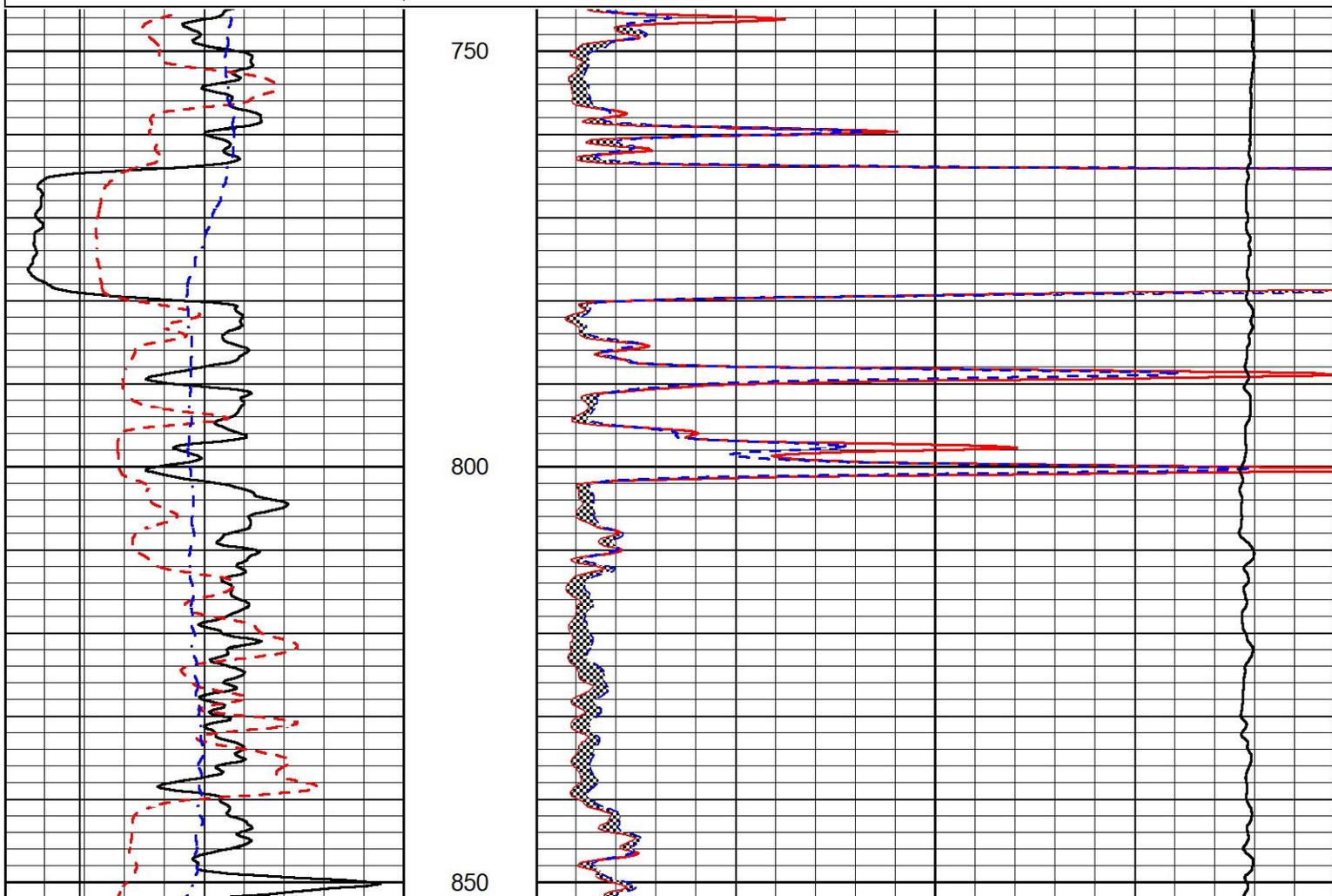
MIDWEST WIRELINE

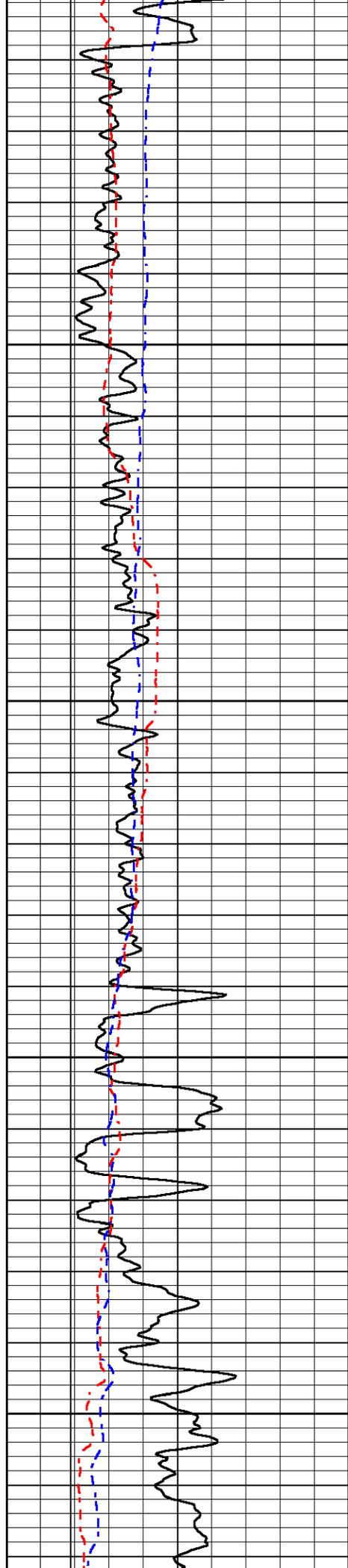
DETAIL SECTION

MAIN PASS

Database File cobalt_indiek #1-18.db
 Dataset Pathname StkMI/pass4.16
 Presentation Format _micro
 Dataset Creation Wed Mar 02 15:19:22 2022
 Charted by Depth in Feet scaled 1:240

0	Gamma Ray (GAPI)	150	0	Micro Inverse 1 X 1 (Ohm-m)	40
6	Caliper (in)	16	0	Micro Normal 2" (Ohm-m)	40
2.875	mccl (in)	7.875	10000	Line Weight (lb)	0
-200	SP (mV)	0			



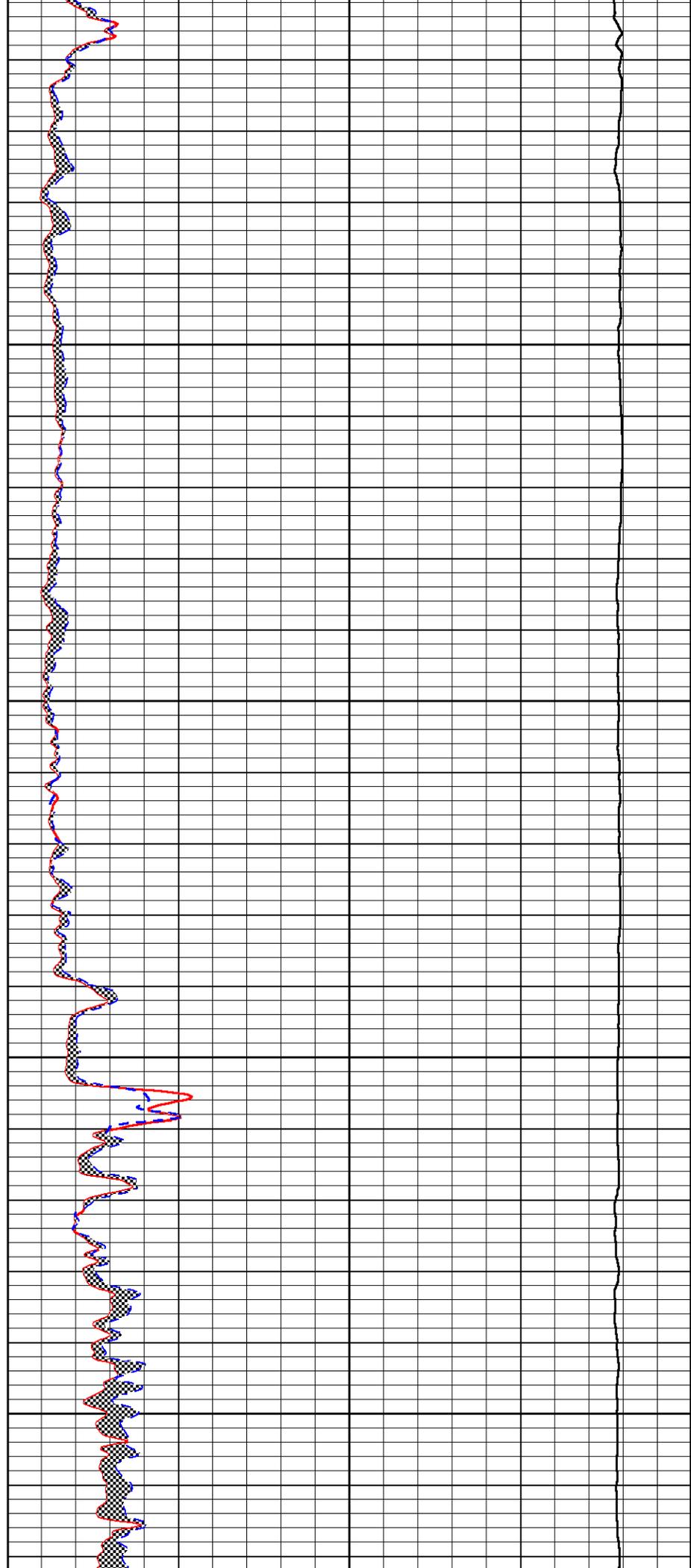


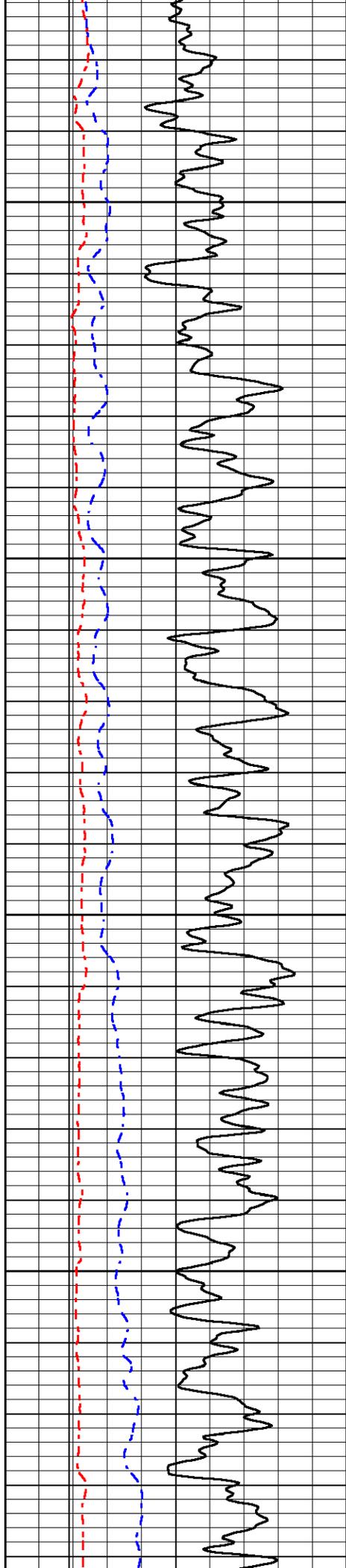
900

950

1000

1050



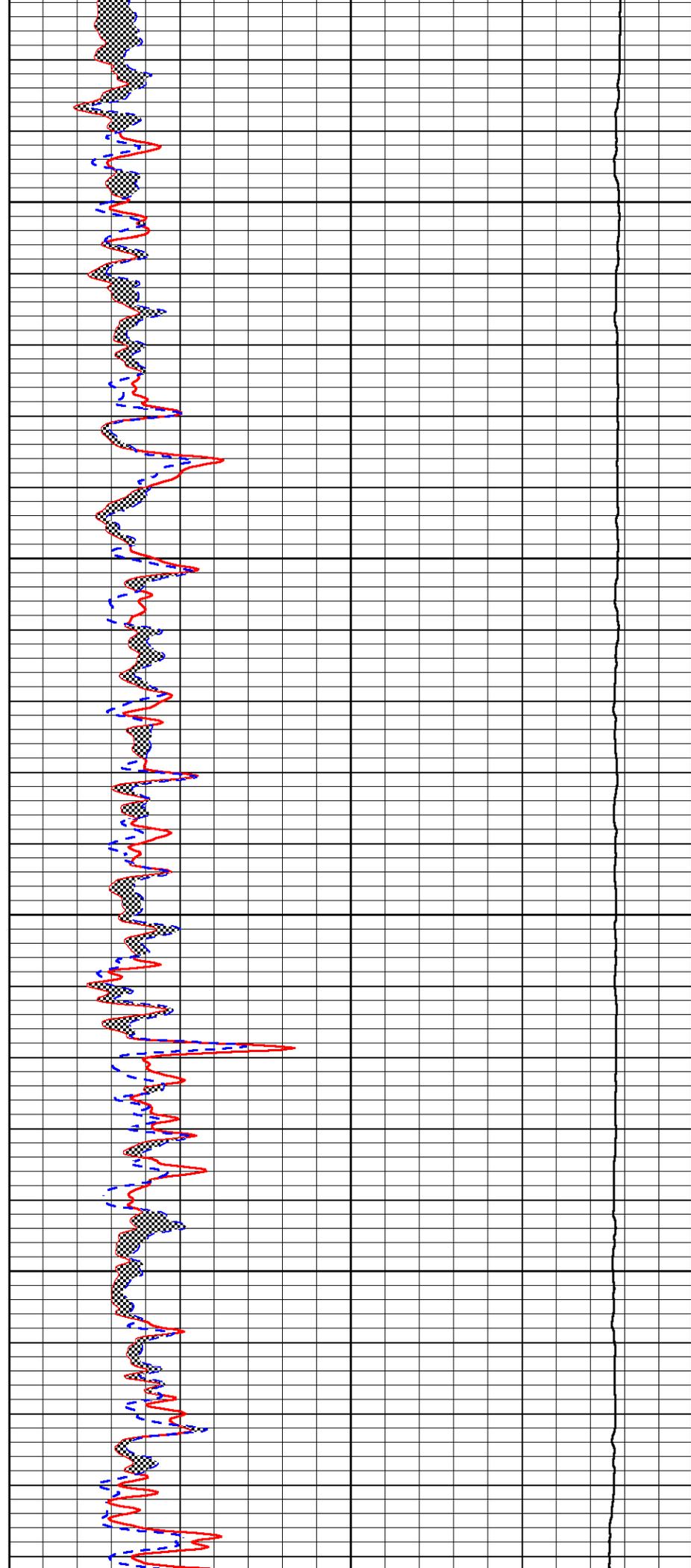


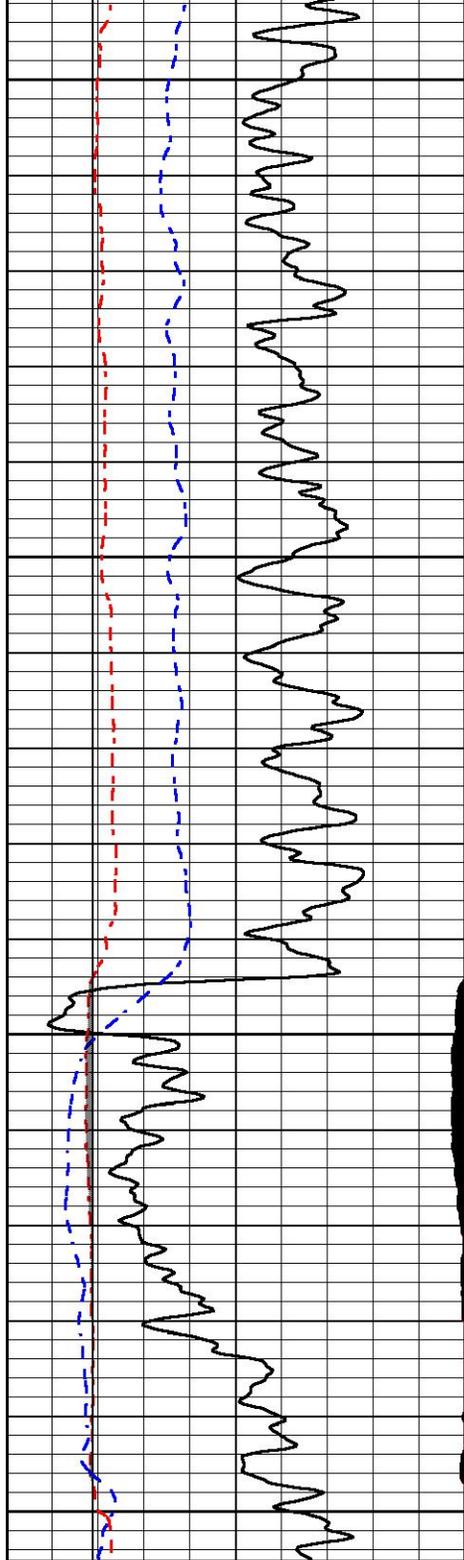
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1150

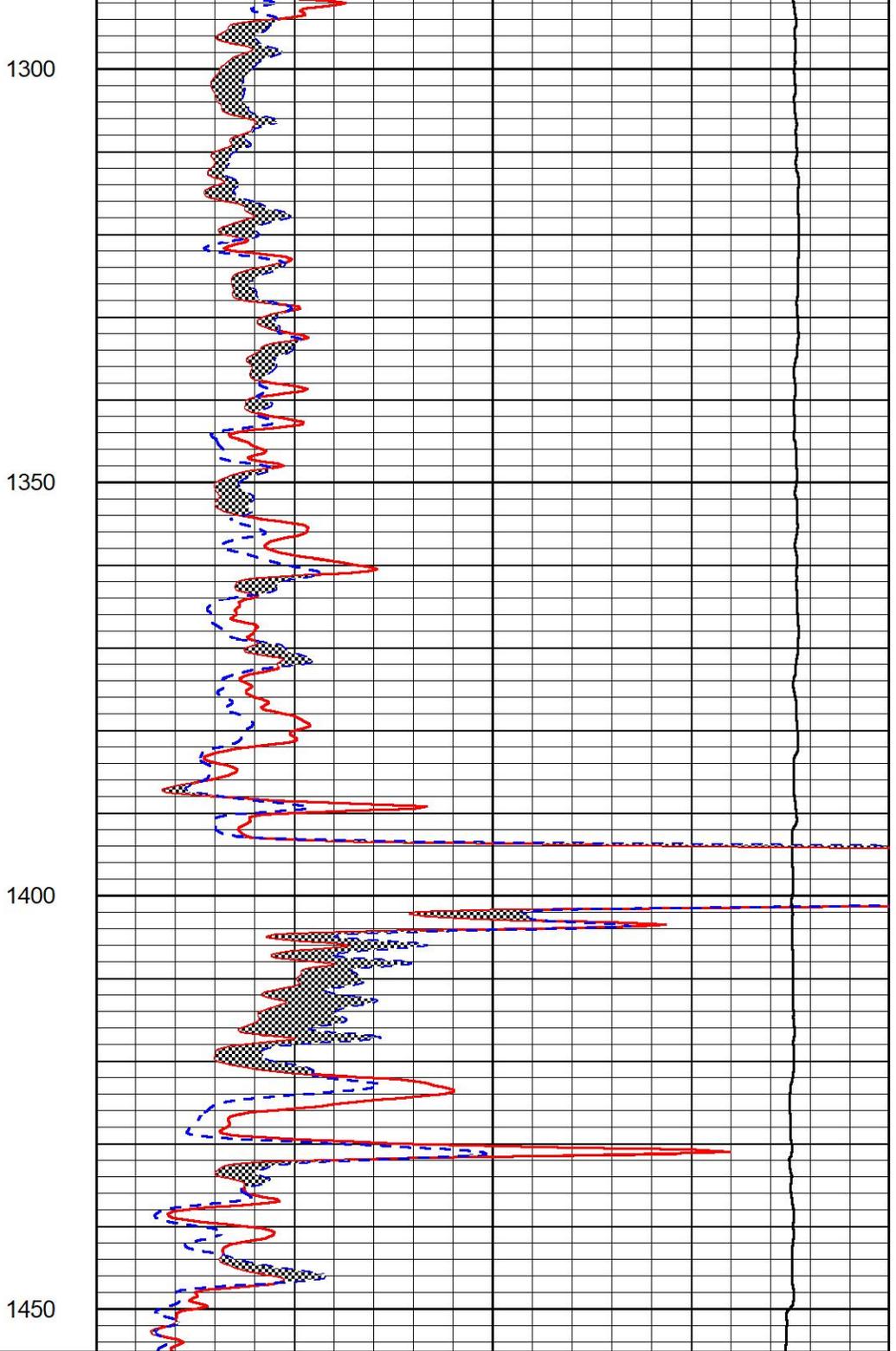
1200

1250





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



MIDWEST WIRELINE

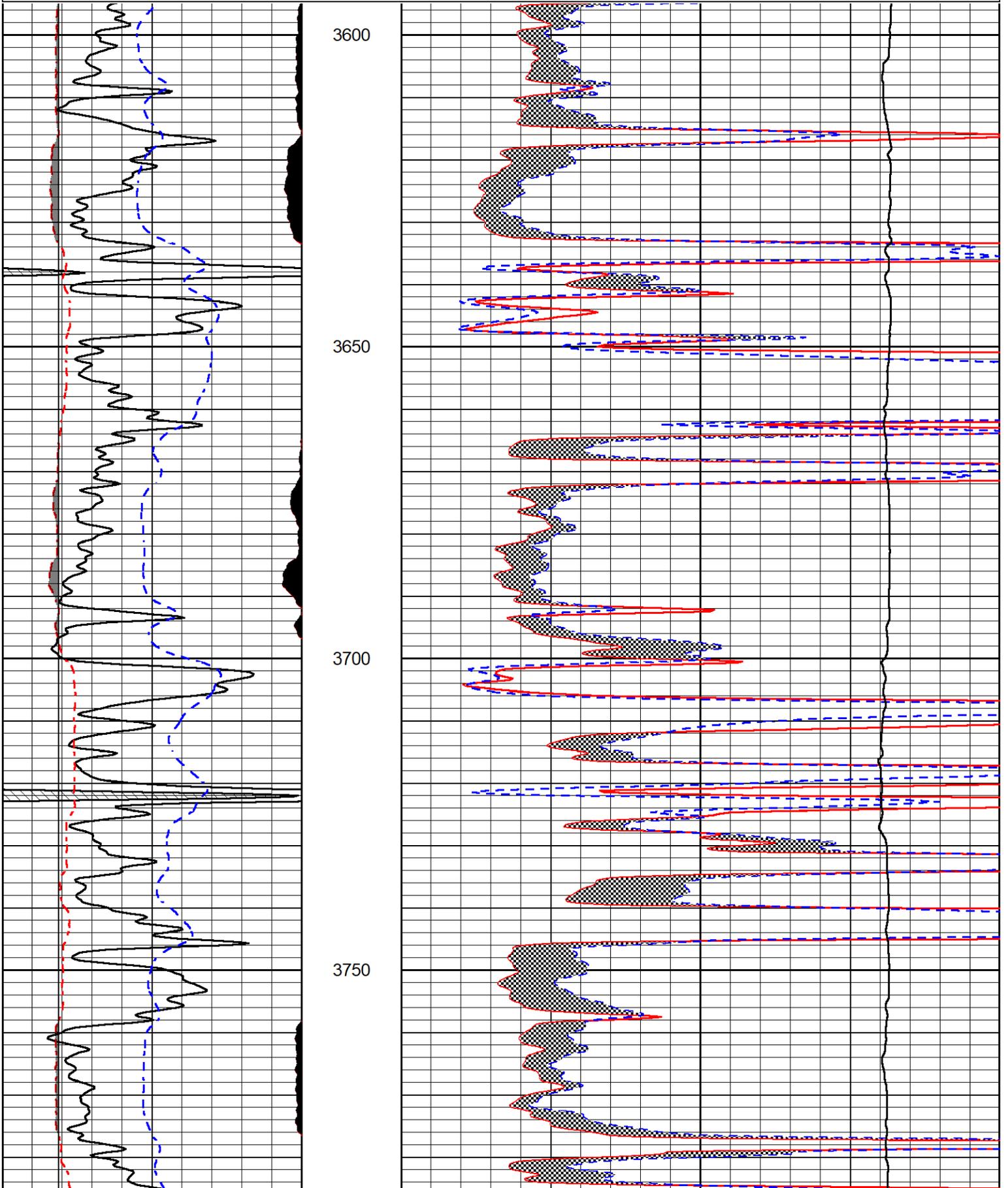
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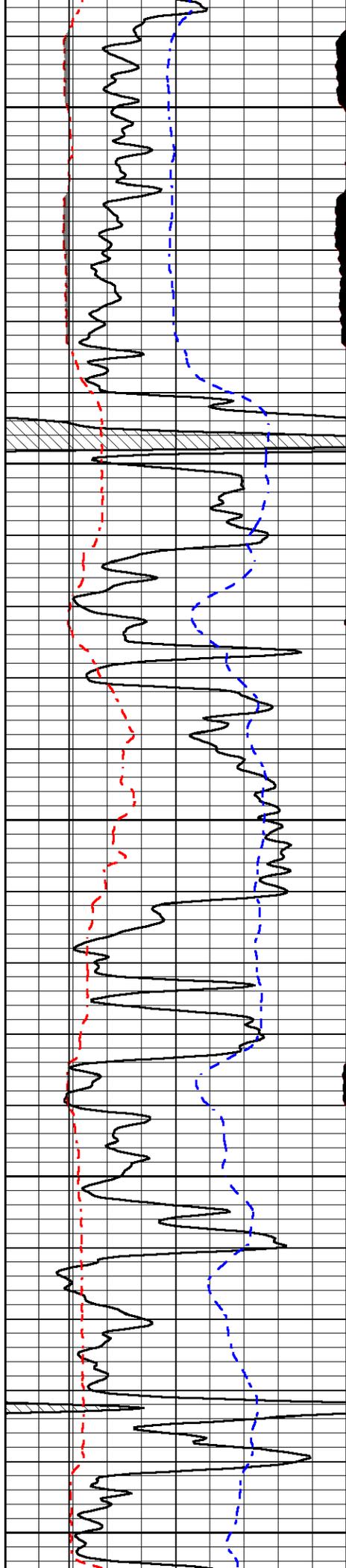
MAIN PASS

Database File cobalt_indiek #1-18.db
 Dataset Pathname StkMI/pass4.1
 Presentation Format micro

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





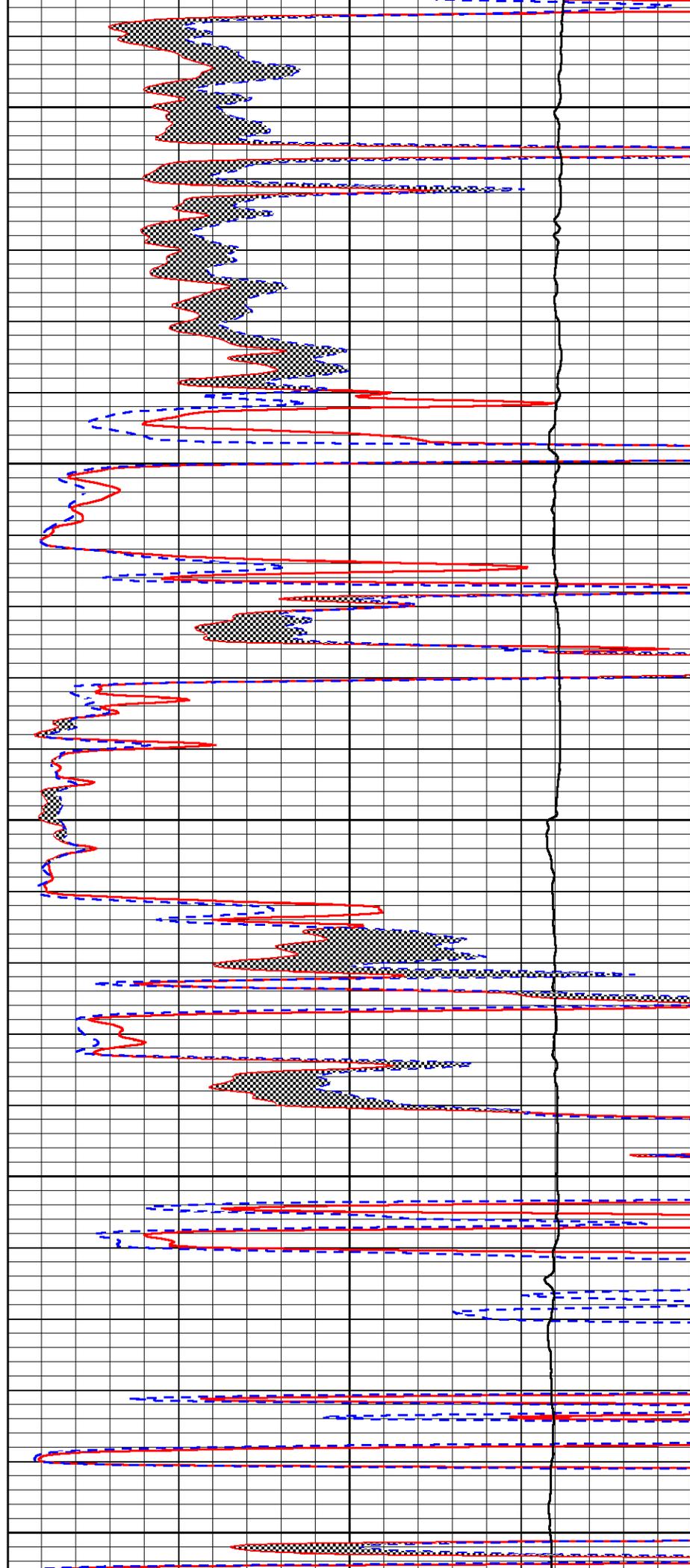
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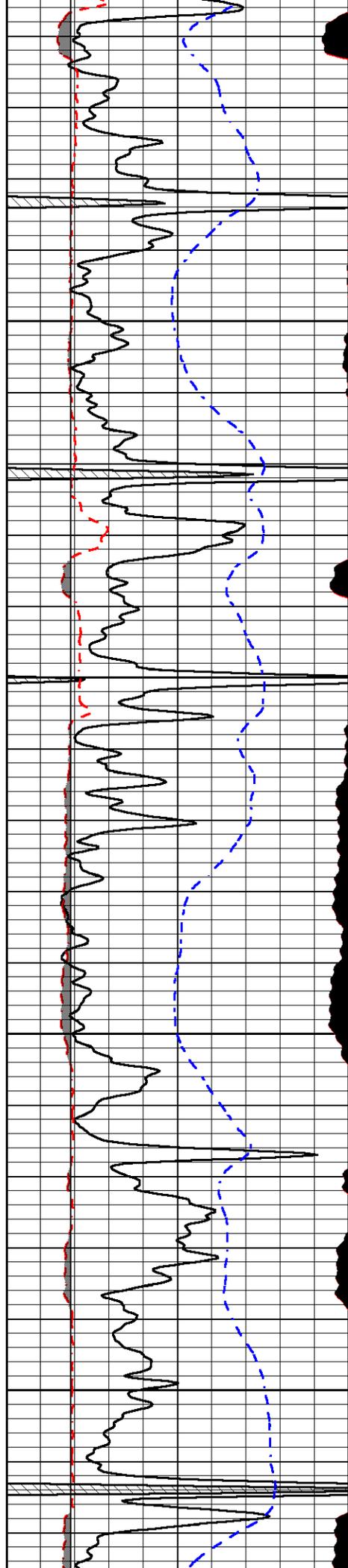
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3900

3950

4000



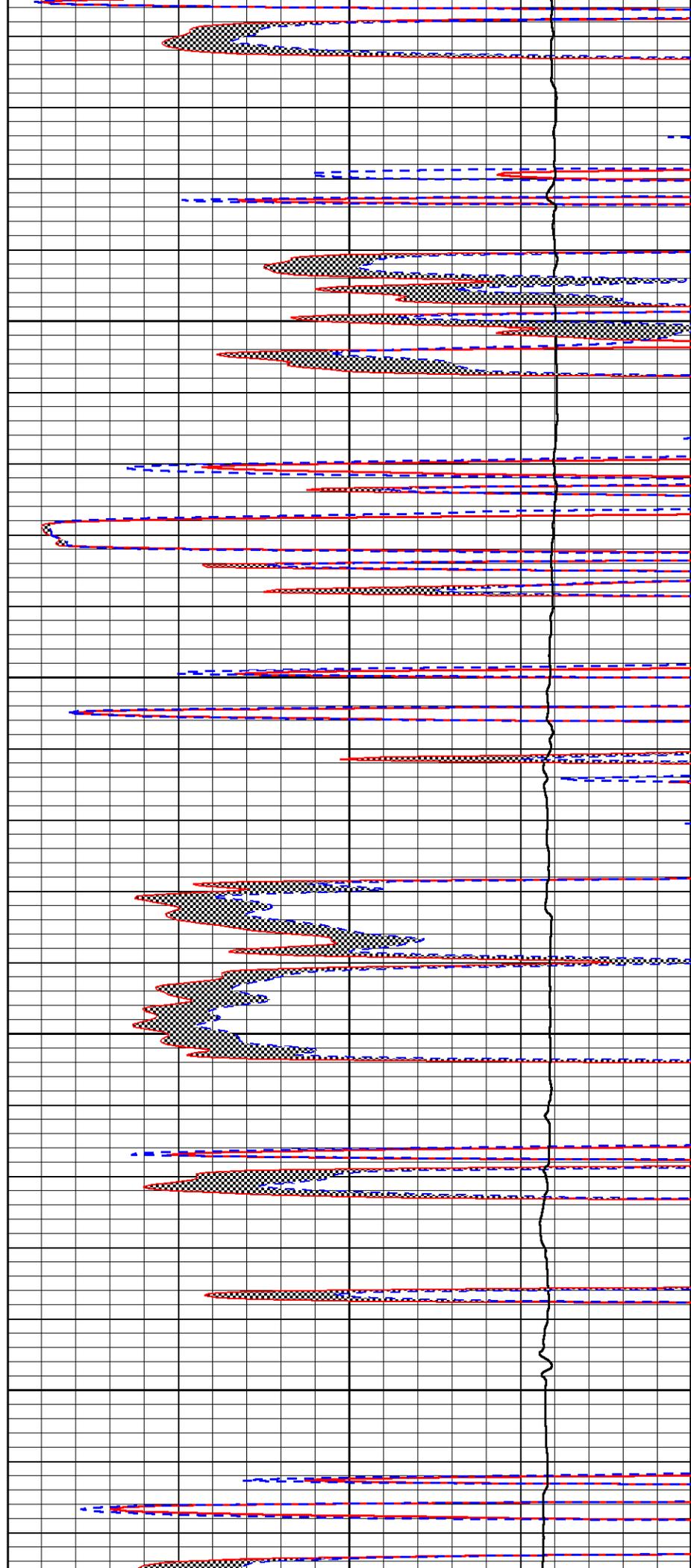


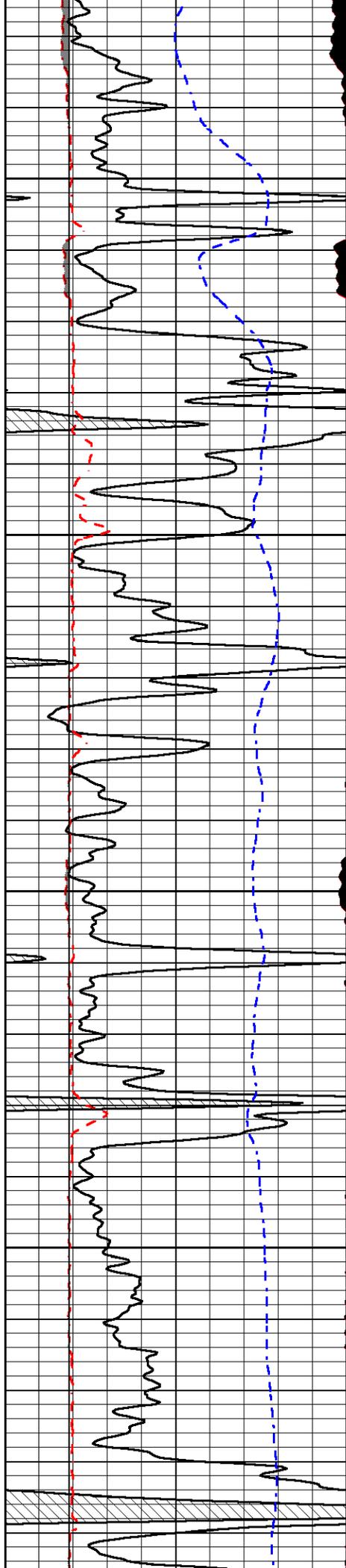
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4100

4150

4200



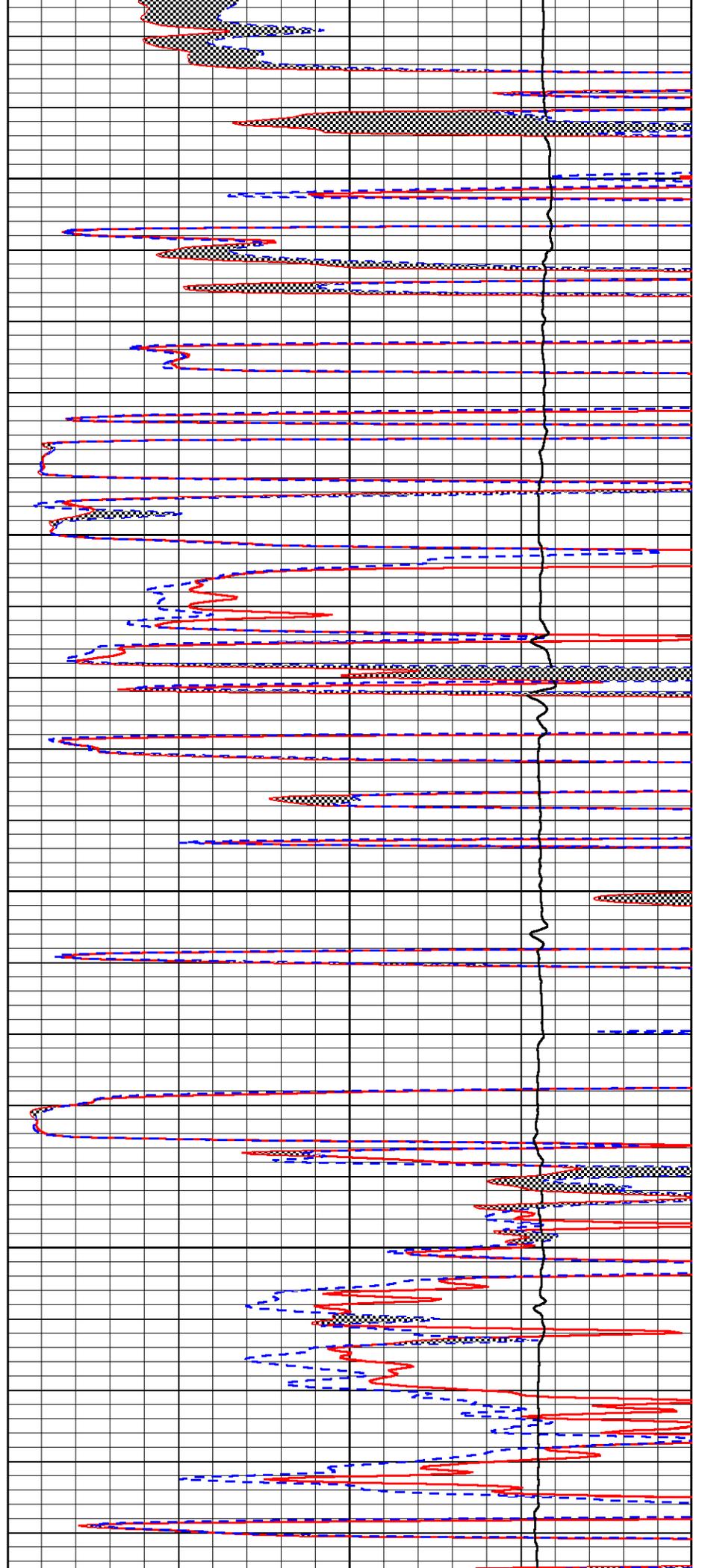


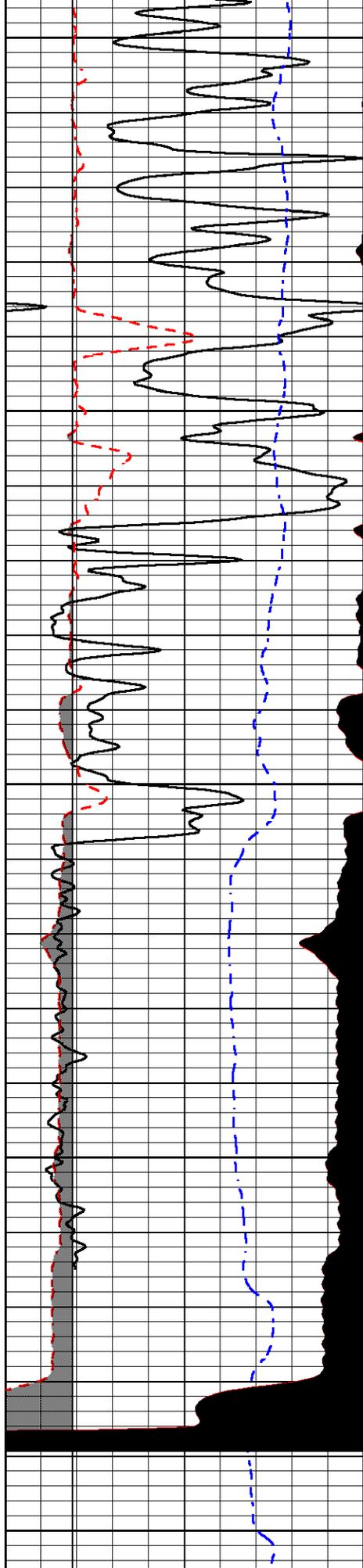
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4300

4350

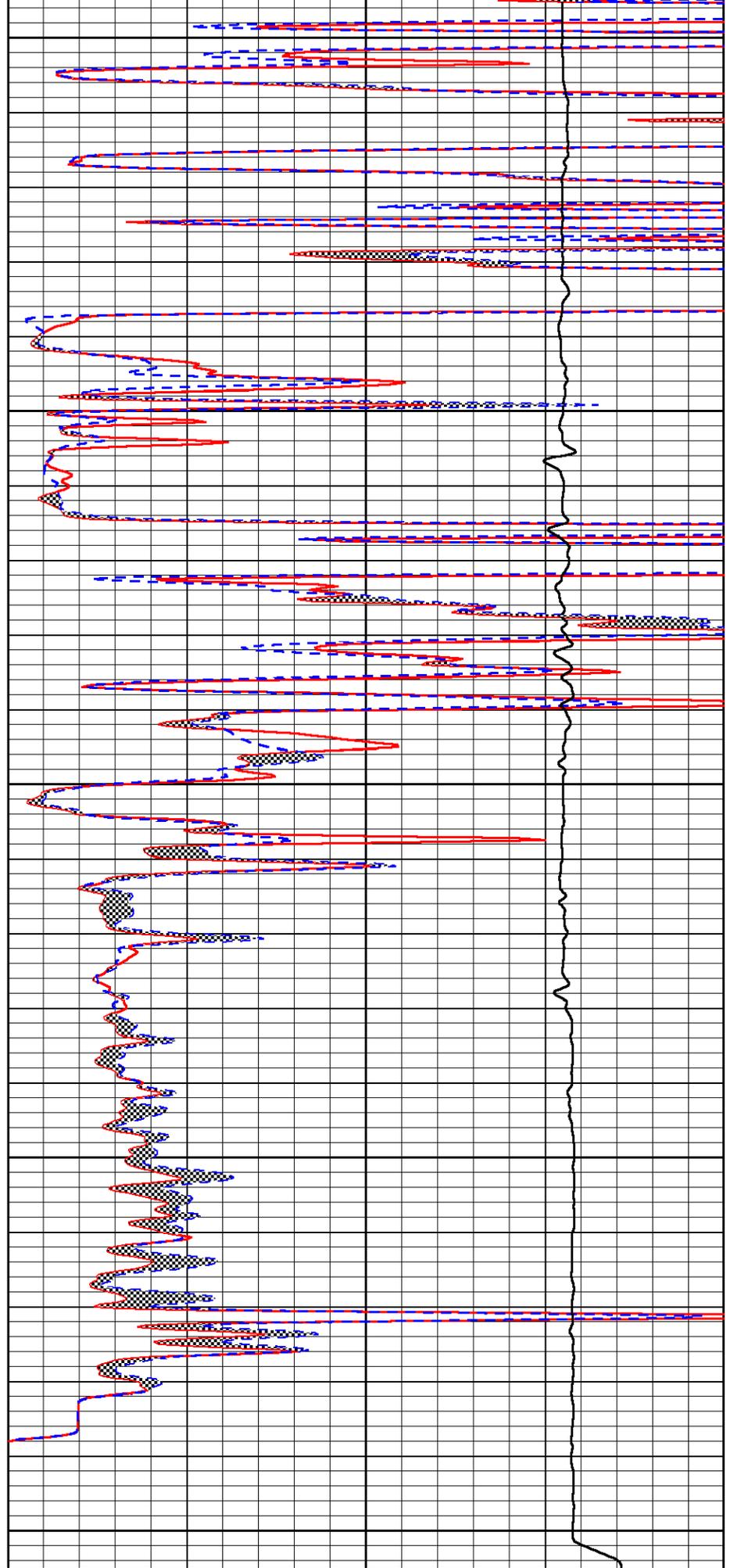
4400





0 Gamma Ray (GAPI) 150
 6 Caliper (in) 16

4450
 4500
 4550
 4600
 4650



0 Micro Inverse 1 X 1 (Ohm-m) 40
 0 Micro Normal 2" (Ohm-m) 40

2.875	mcAl (in)	7.875
-200	SP (mV)	0

10000	Line Weight (lb)	0
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MIDWEST WIRELINE

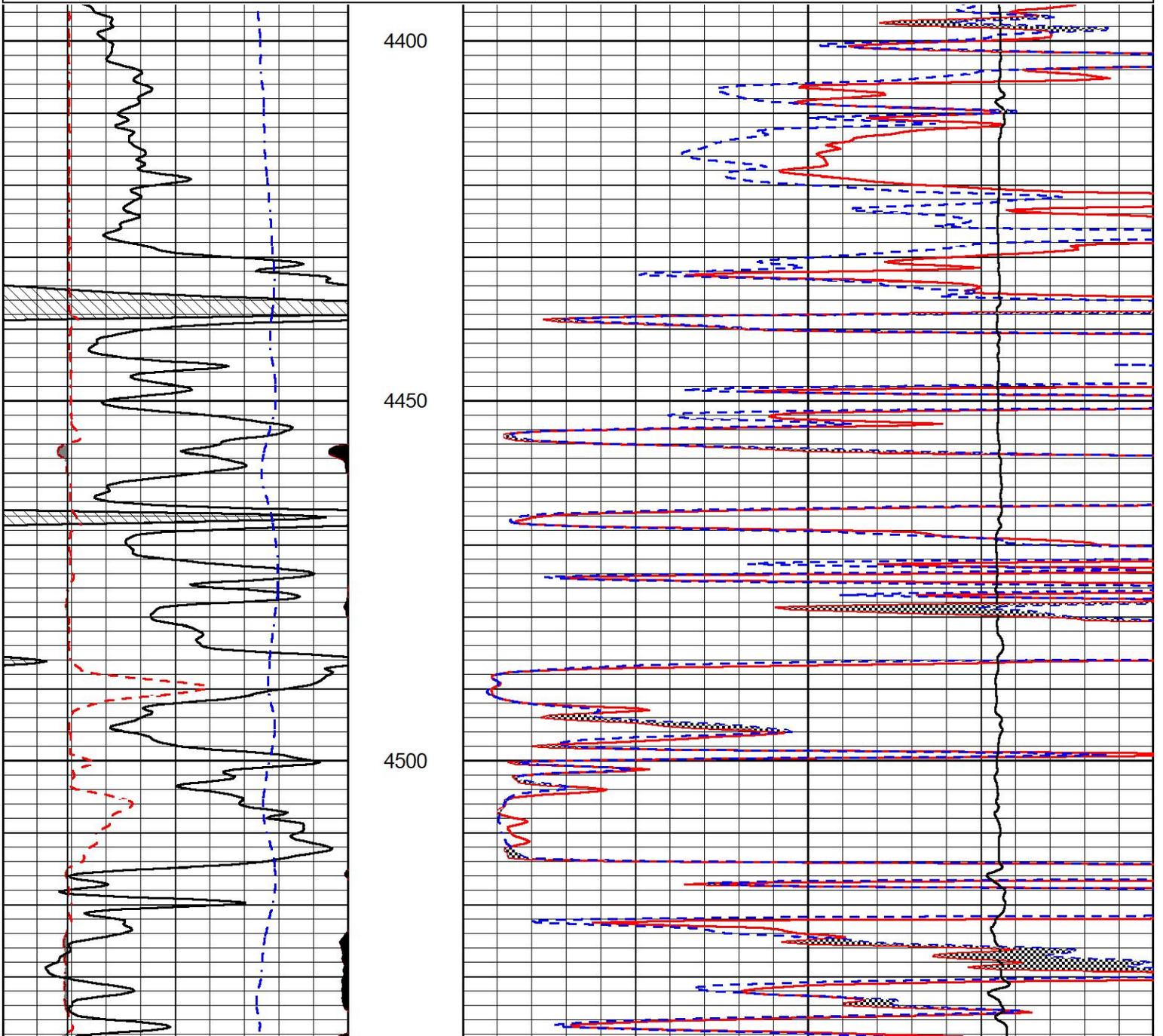
REPEAT SECTION

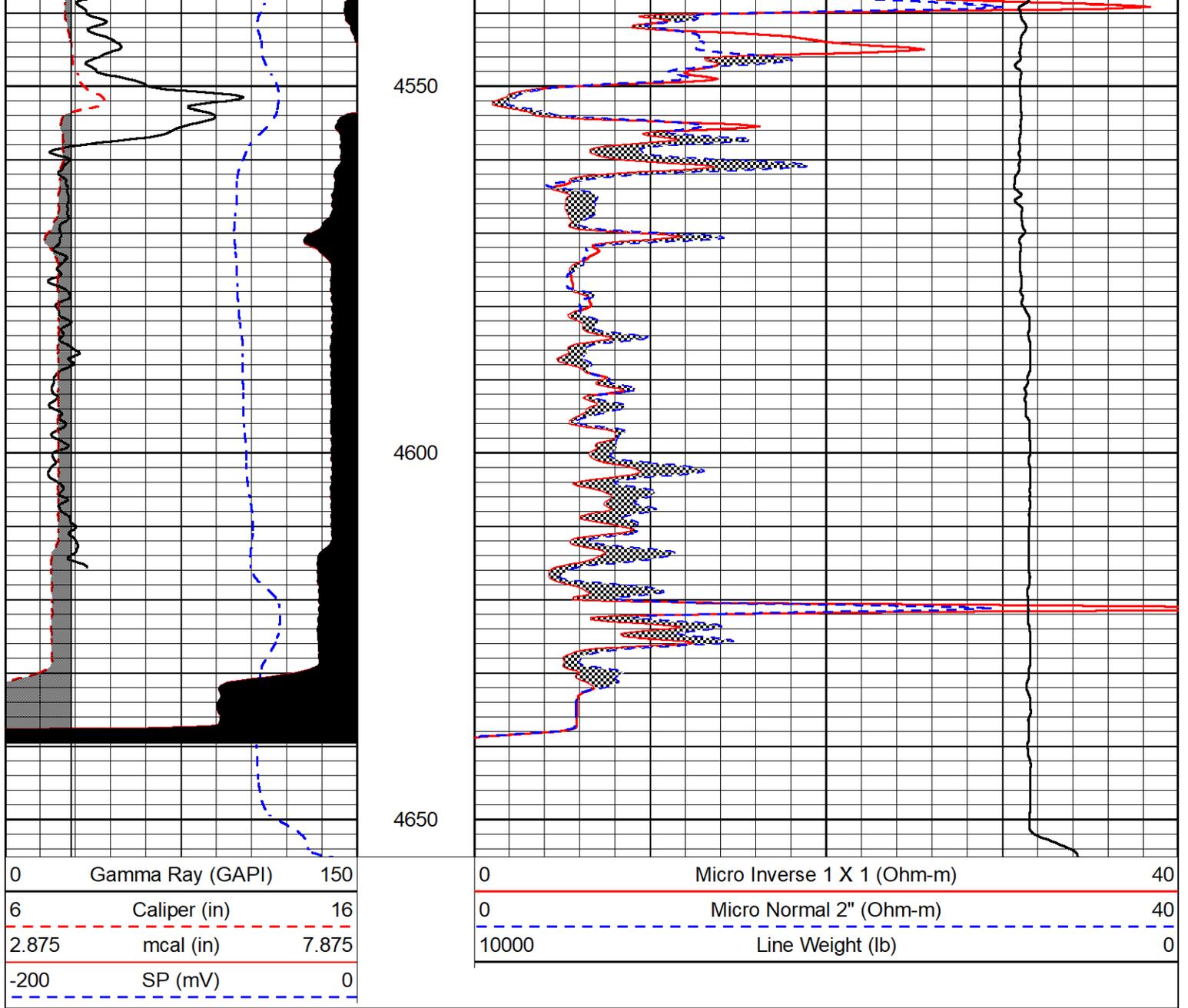
REPEAT PASS

Database File cobalt_indiek #1-18.db
 Dataset Pathname StkMI/pass3.1
 Presentation Format _micro
 Dataset Creation Wed Mar 02 14:22:27 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





Calibration Report

Database File cobalt_indiek #1-18.db
 Dataset Pathname StkMI/pass4.3
 Dataset Creation Wed Mar 02 14:28:44 2022

Dual Induction Calibration Report

Serial-Model: 504 HT-M&W
 Surface Cal Performed: Thu Dec 16 22:32:49 2021

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		m	b
Deep	178.615	710.235	0.000	255.800	mmho/m	0.650	-17.000
Medium	161.982	1441.110	0.000	255.800	mmho/m	0.450	-51.000

Microlog Calibration Report

Serial-Model: 402-PSI STKBL ML
 Performed: Thu Dec 16 22:29:48 2021

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0037	0.0043	0.0000	10.0000	Ohm-m	18000.0000	-1.0000
Inverse	0.1208	0.0013	0.0000	10.0000	Ohm-m	16500.0000	-0.6000
Caliper	1.0020	1.0834	5.5000	16.5000	in	135.1520	-131.2300

Compensated Density Calibration Report

Serial-Model: 303-03-M&W
Source #: 21170B
Master Calibration Performed: Thu Dec 16 23:28:34 2021

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	3841.78	5151.73	cps
Aluminum	2.670	g/cc	700.98	3068.49	cps
Spine Angle = 73.06			Density/Spine Ratio = 0.515		
	Size		Reading		
Small Ring	4.00	in	1.17		
Large Ring	14.00	in	1.05		

Compensated Neutron Calibration Report

Serial-Model: 210-M&W
Source #: N-1238
Master Calibration Performed: Fri Dec 3 09:16:24 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: 103
Tool Model: M&W
Performed: Fri Dec 3 12:13:24 2021

Calibrator Value: 500.0 GAPI

Background Reading: 28.0 cps
Calibrator Reading: 986.0 cps

Sensitivity: 0.5700 GAPI/cps



Company Cobalt Energy LLC
Well Indiek #1-18
Field
County Hodgeman
State Kansas

