



MIDWEST WIRELINE

MICRORESISTIVITY LOG

Company **EPOC, LLC**
 Well **Eck 'A' #2**
 Field **Hazlett**
 County **Butler** State **Kansas**

Location: API #: 15-015-24166-00-00
 E/2 E/2 NW/NW
 660 FNL & 1235 FWL
 SEC 32 TWP 23S RGE 5E
 Permanent Datum Ground Level Elevation 1480
 Log Measured From Kelly Bushing
 Drilling Measured From Kelly Bushing
 Other Services
 CNL/CDL
 DIL
 Elevation
 K.B. 1486
 D.F.
 G.L. 1480

Date	9/11/2022
Run Number	One
Depth Driller	2552
Depth Logger	2552
Bottom Logged Interval	2551
Top Log Interval	1500
Casing Driller	8.625 @ 212
Casing Logger	214
Bit Size	7.875
Type Fluid in Hole	Chemical
Salinity, ppm CL	
Density / Viscosity	
pH / Fluid Loss	
Source of Sample	Flowline
Rm @ Meas. Temp	1.10 @ 72
Rmt @ Meas. Temp	0.83 @ 72
Rmc @ Meas. Temp	1.49 @ 72
Source of Rmf / Rmc	Charts
Rm @ BHT	0.78 @ 102
Operating Rig Time	2 Hours
Max Rec. Temp. F	102
Equipment Number	P-24
Location	Hays
Recorded By	D. Schmidt
Witnessed By	Ray Gilbert

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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.

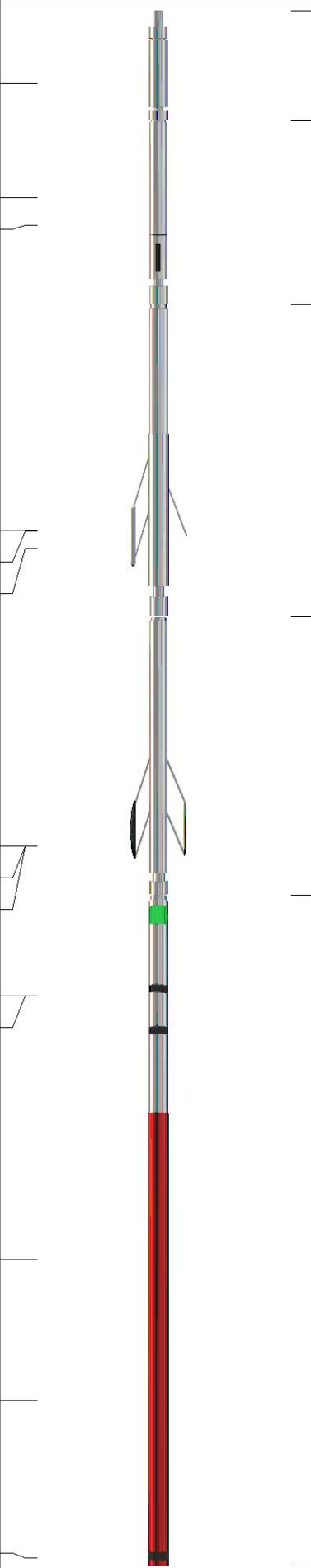
Newton,
 East on 1st St to Purity Springs Rd, South to 130, 1/4 East,
 South into

Log Measured From: Kelly Bushing 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: Ray Gilbert	Secondary Witness:
Operator:	Operator:	Secondary Witness:	Secondary Witness:
Operator:		Secondary Witness:	

Operator	Offset (ft)	Depth (ft)	Description	Length (ft)	C.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 (106)	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 (307-11)	8.50	4.00	250.00
MCAL MI MN	19.58 19.58 19.58		ML-PSIML (402)	7.58	4.00	65.00
RLL3F RLL3	15.50 15.50					
CILD	8.33		DIL-M&W (501 HT)	18.25	3.50	220.00
CILM	4.50					
SP	0.20					

Dataset: epoc_eck a 2.db: field/well/stkml/pass3.10
 Total length: 42.33 ft
 Total weight: 685.00 lb
 O.D.: 4.00 in

Log Variables

DatabaseC:\ProgramData\Warrior\Data\epoc_eck a 2.db
 Dataset field/well/stkml/pass3.10/_vars_

Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	102	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	-38	70	Off	2552

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



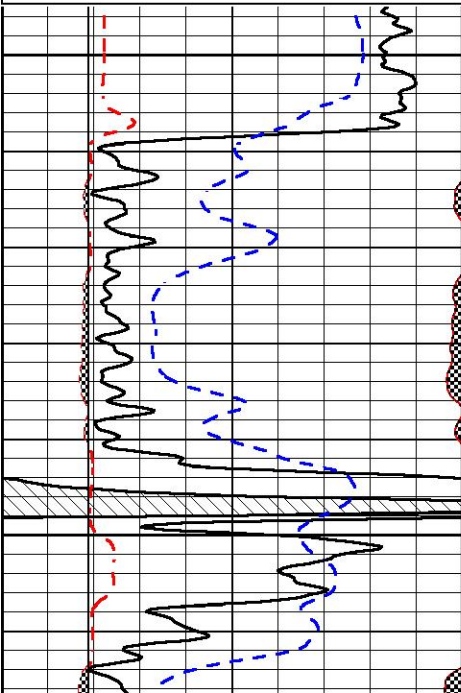
DETAIL SECTION

MAIN PASS

Database File epoc_eck a 2.db
 Dataset Pathname stkml/pass3.1
 Presentation Format _micro
 Dataset Creation Sun Sep 11 12:22:30 2022
 Charted by Depth in Feet scaled 1:240

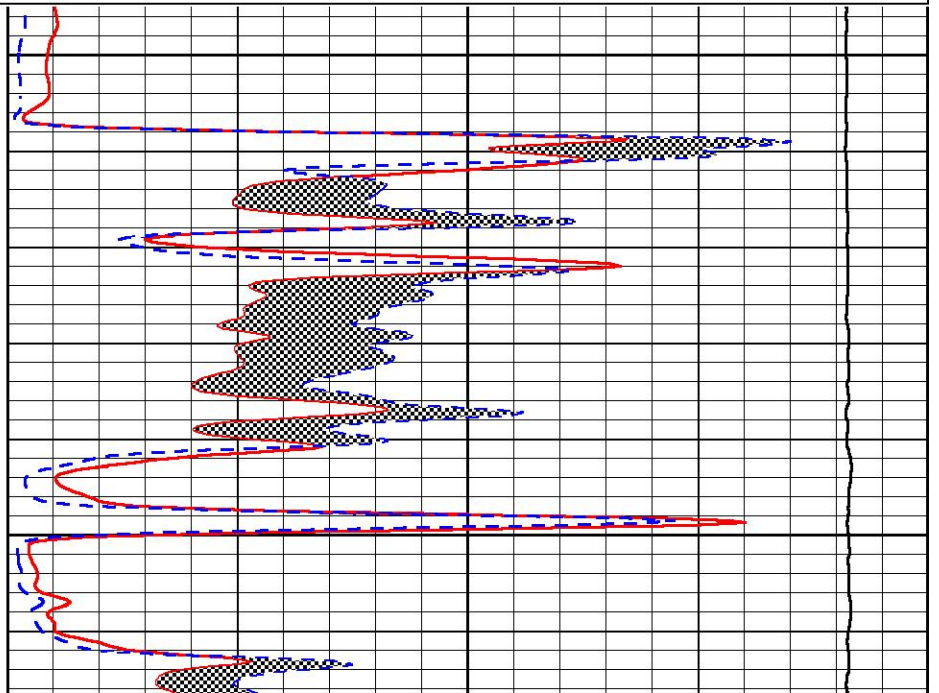
0	Gamma Ray (GAPI)	150
6	Caliper (in)	16
2.875	mcal (in)	7.875
-200	sp (mV)	0

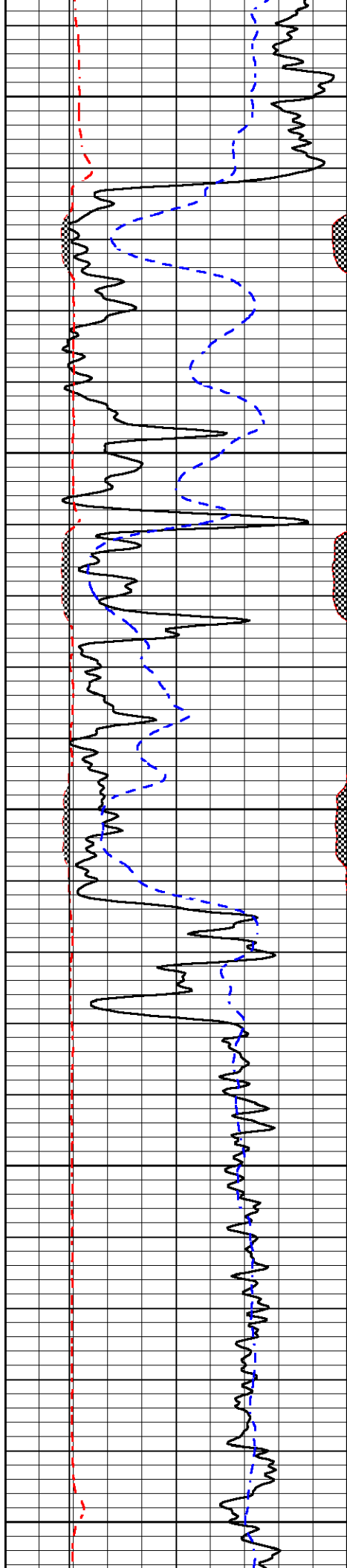
0	Micro Inverse 1 X 1 (Ohm-m)	40
0	Micro Normal 2" (Ohm-m)	40
10000	Line Weight (lb)	0



1500

1550





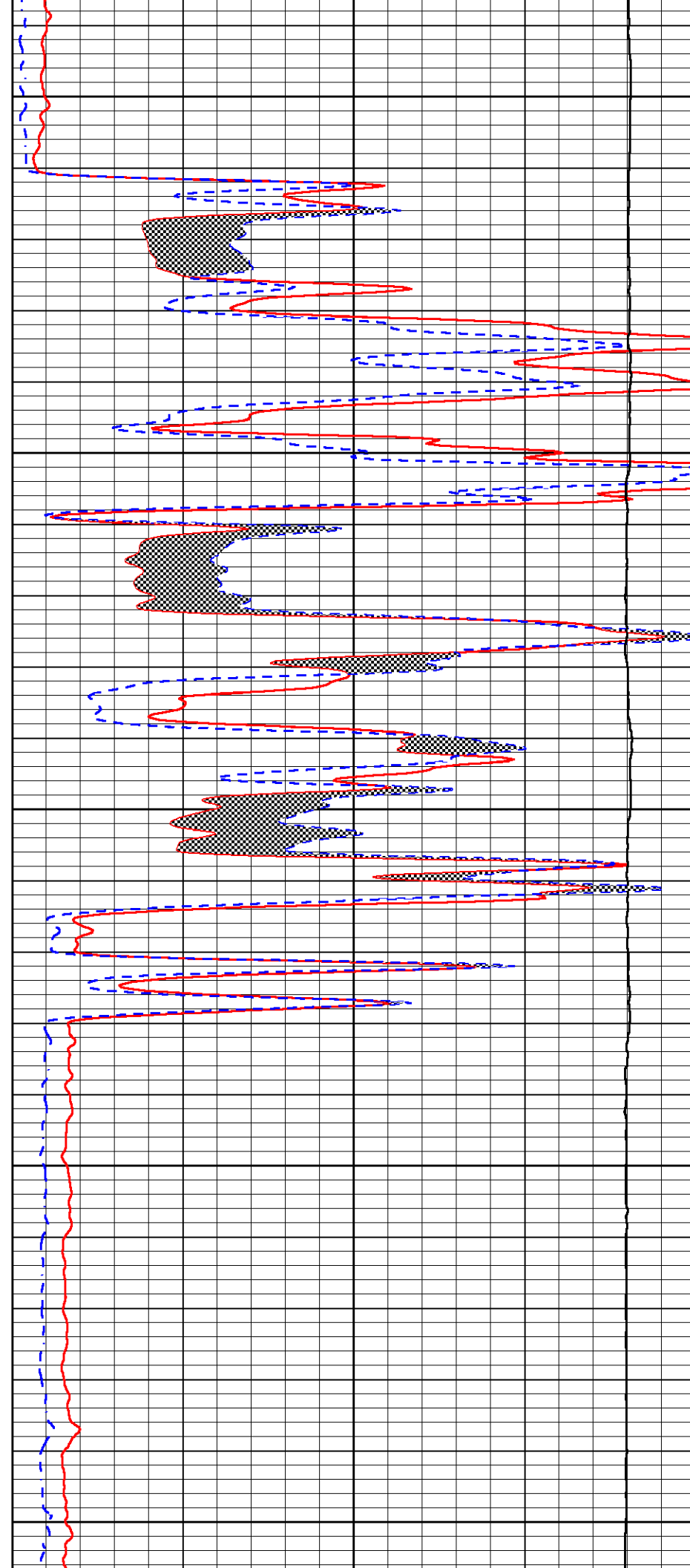
1800

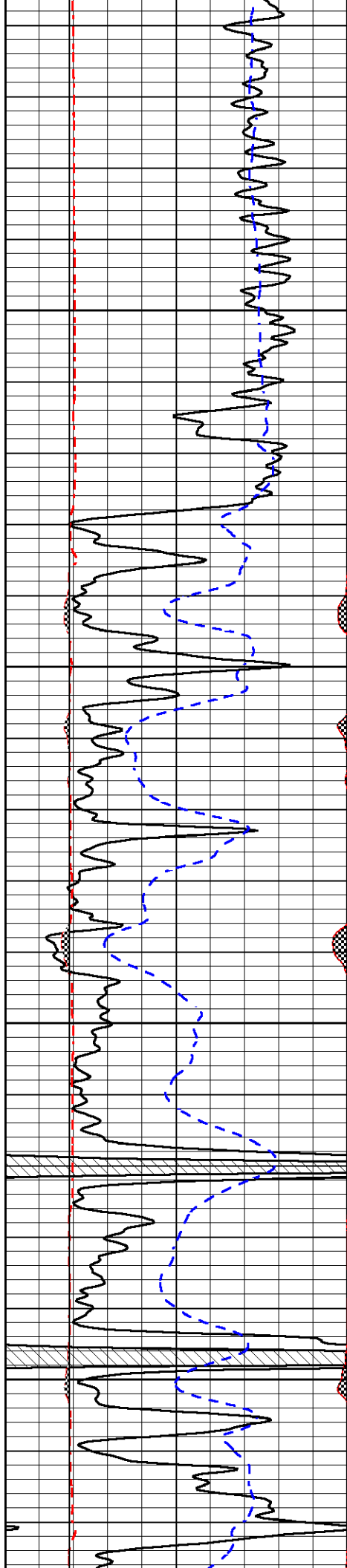
1850

1900

1950

2000



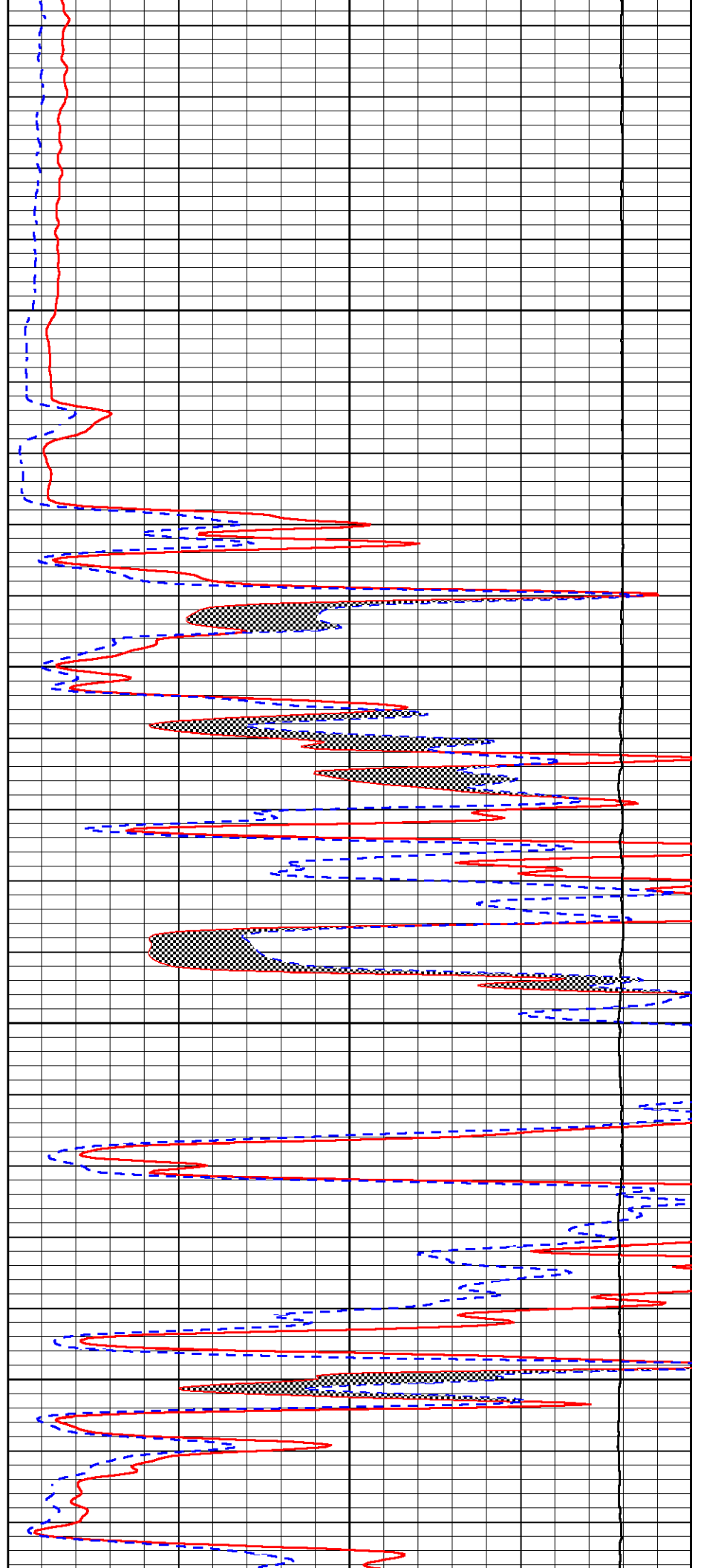


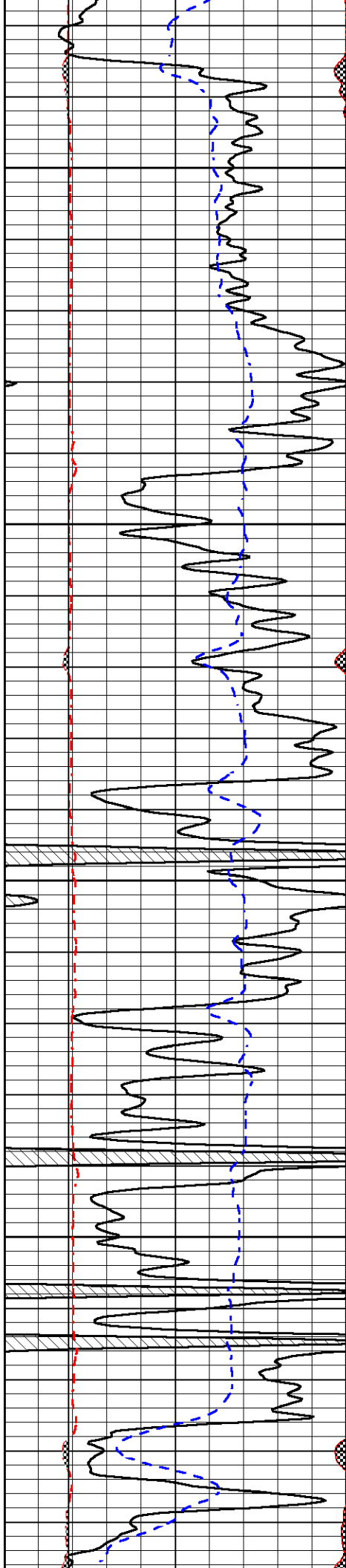
2050

2100

2150

2200



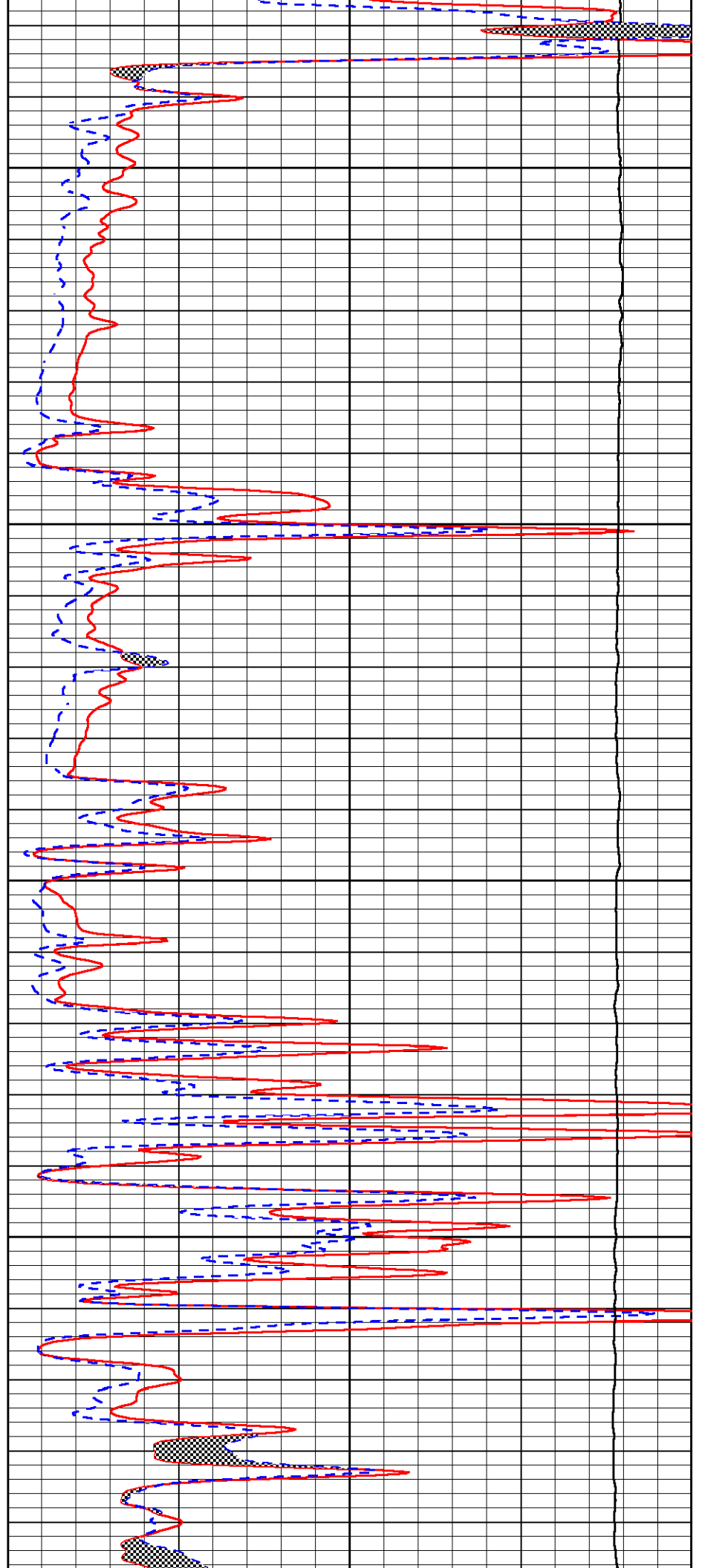


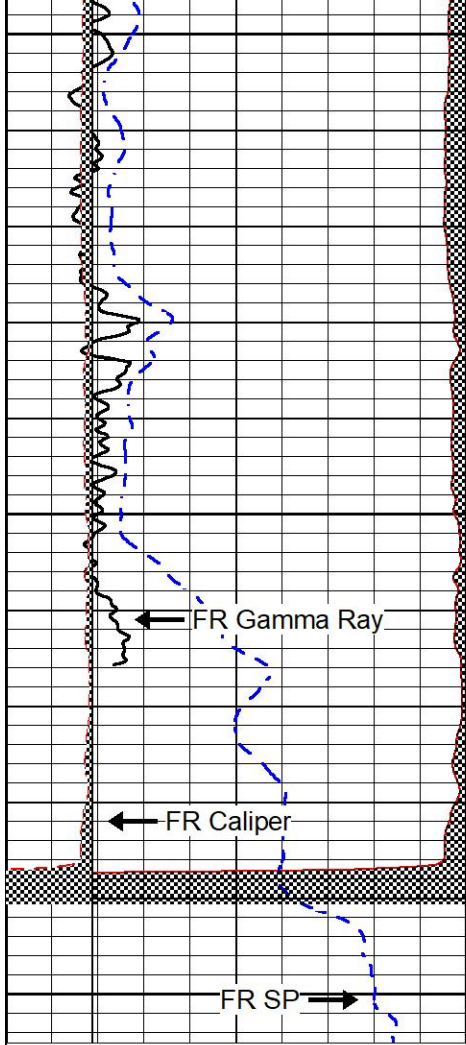
2250

2300

2350

2400





2450

2500

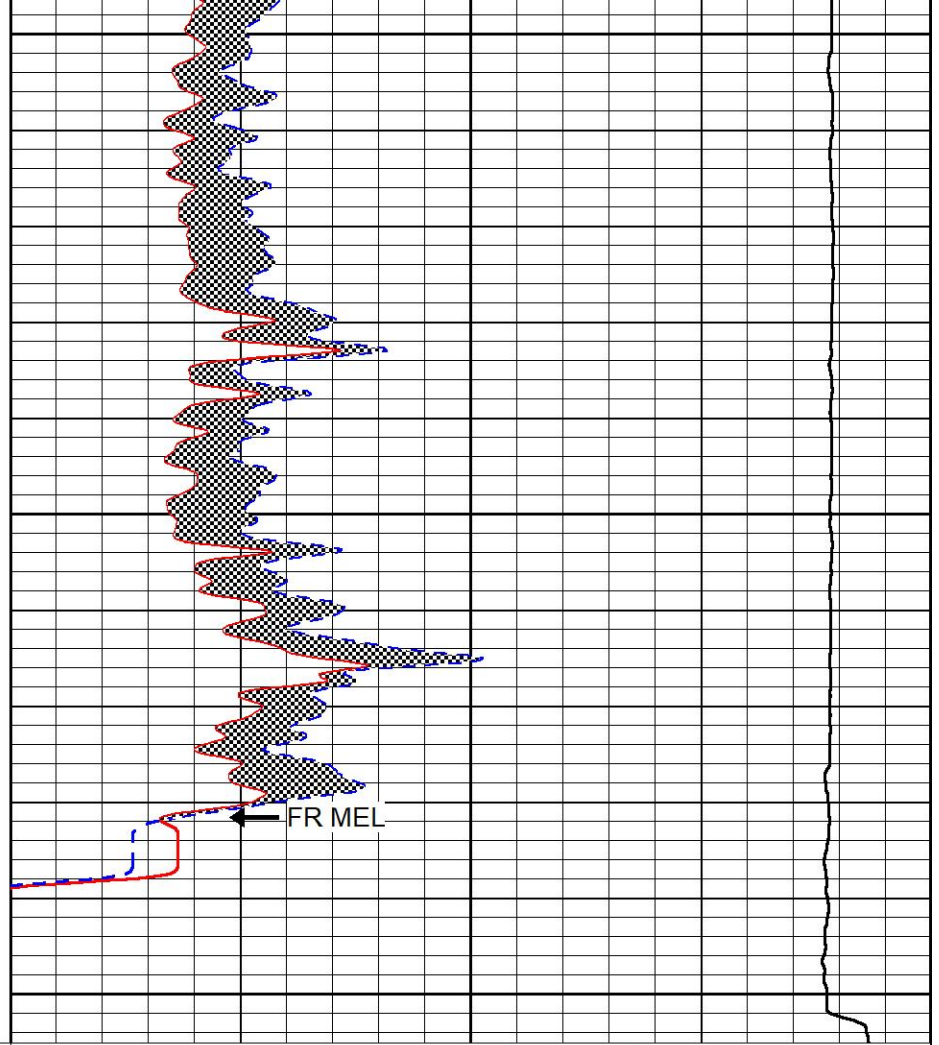
2550

FR Gamma Ray

FR Caliper

FR SP

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



FR MEL

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



MIDWEST WIRELINE

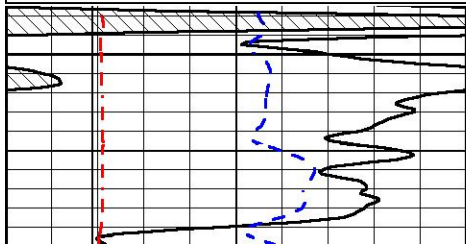
REPEAT SECTION

REPEAT PASS

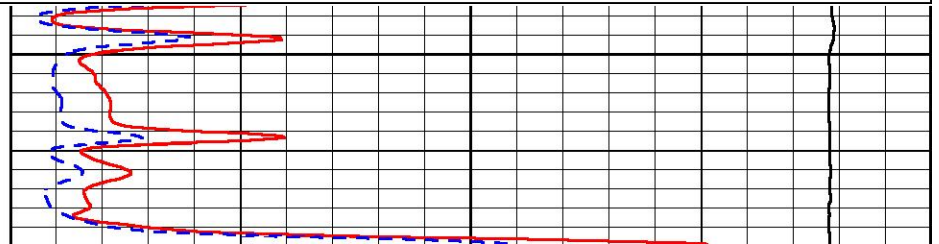
Database File epoc_eck a 2.db
 Dataset Pathname stkml/pass2.10
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 Dataset Creation Sun Sep 11 12:04:14 2022
 Charted by Depth in Feet scaled 1:240

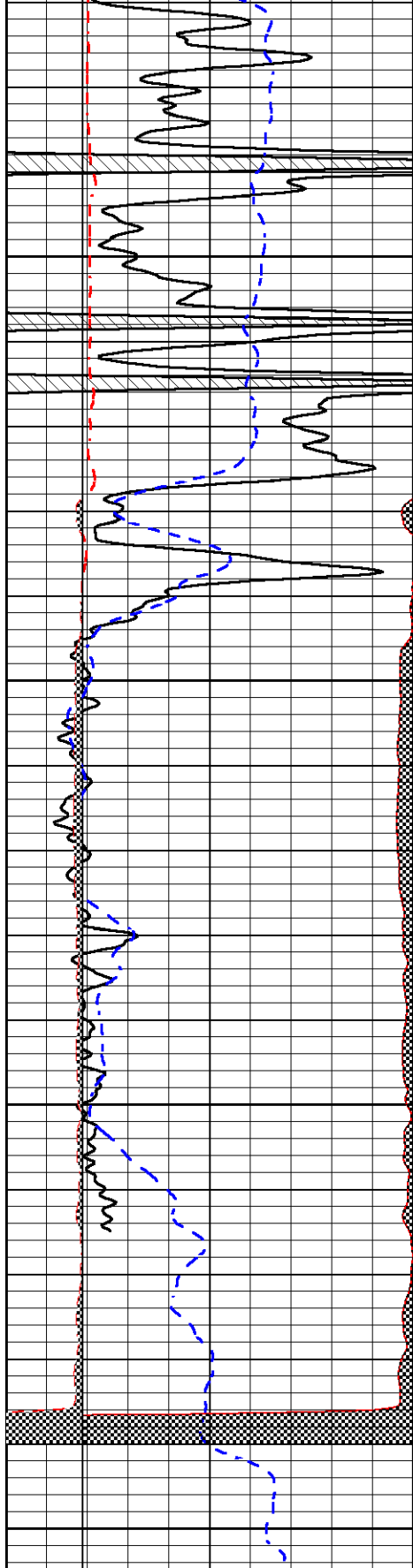
0	Gamma Ray (GAPI)	150
6	Caliper (in)	16
2.875	mcal (in)	7.875
-200	sp (mV)	0

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



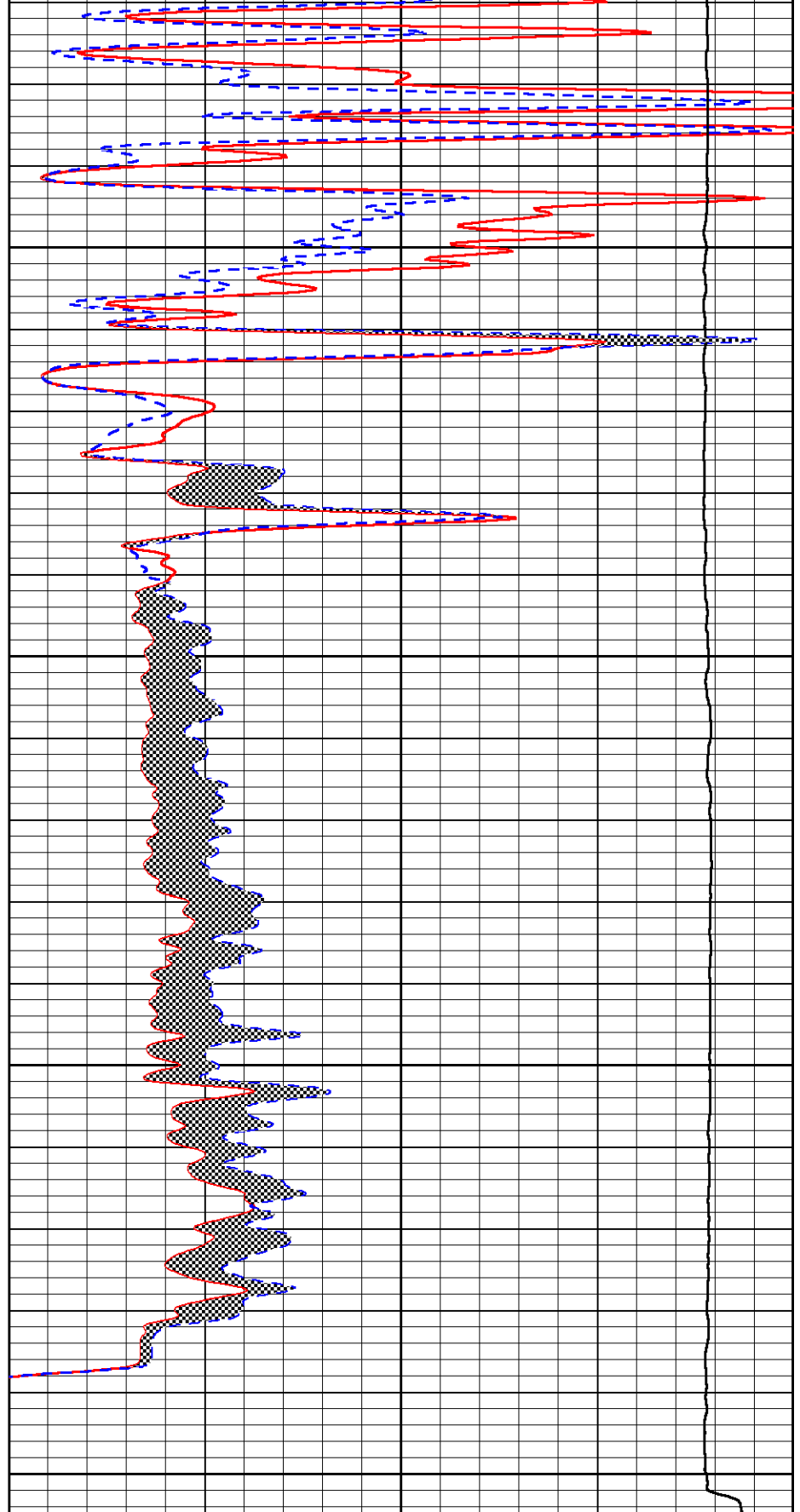
2350





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

2400
2450
2500
2550



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

Calibration Report

Dual Induction Calibration Report

Serial-Model: 501 HT-M&W
 Surface Cal Performed: Sun Sep 11 11:20:04 2022

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		m	b
Deep	83.639	487.104	0.000	183.000	mmho/m	0.455	-39.000
Medium	113.335	1585.690	0.000	442.000	mmho/m	0.305	-35.000

Microlog Calibration Report

Serial-Model: 402-PSIML
 Performed: Fri Sep 9 11:18:26 2022

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	9000.0000	-1.5000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	9000.0000	-1.0000
Caliper	1.0052	1.0858	5.0000	16.5000	in	80.0000	-74.6800

Compensated Density Calibration Report

Serial-Model: 307-11-M&W
 Source #: 20762B
 Master Calibration Performed: Sat Aug 27 10:20:16 2022

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	3600.52	4768.22	cps
Aluminum	2.670	g/cc	693.98	3106.20	cps
Spine Angle = 75.41			Density/Spine Ratio = 0.538		
	Size		Reading		
Small Ring	6.00	in	1.16		
Large Ring	18.00	in	1.01		

Compensated Neutron Calibration Report

Serial Number: 207-MW
 Tool Model: M&W

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

PRE-SURVEY VERIFICATION

Detector	Readings	Measured	Target
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1)	Short Space Long Space	cps cps	pu	pu
2)	Short Space Long Space	cps cps	pu	
3)	Short Space Long Space	cps cps	pu	

POST-SURVEY VERIFICATION

	Detector	Readings	Measured	Target
1)	Short Space Long Space	cps cps	pu	pu
2)	Short Space Long Space	cps cps	pu	pu
3)	Short Space Long Space	cps cps	pu	pu

Gamma Ray Calibration Report

Serial Number:	106	
Tool Model:	M&W	
Performed:	Fri Dec 3 15:10:46 2021	
Calibrator Value:	500.0	GAPI
Background Reading:	24.0	cps
Calibrator Reading:	637.0	cps
Sensitivity:	0.5500	GAPI/cps



Company EPOC, LLC
 Well Eck 'A' #2
 Field Hazlett
 County Butler
 State Kansas