



MIDWEST WIRELINE

MICRORESISTIVITY LOG

Company **Darrah Oil Company, LLC**
 Well **Knop #1-4**
 Field **Chase-Silica**
 County **Rice** State **Kansas**

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 Well **Knop #1-4**
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 County **Rice**
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Location: **1240' FNL & 1315' FWL**
 SEC 4 TWP 20S RGE 10W
 API #: **15-159-22871-00-00**
 Other Services
CNL/CDL DIL

Date	8/25/2020
Run Number	One
Depth Driller	3330'
Depth Logger	3326'
Bottom Logged Interval	3325'
Top Log Interval	2500'
Casing Driller	8.625" @ 296'
Casing Logger	306'
Bit Size	7.875"
Type Fluid in Hole	Chemical
Salinity, ppm CL	N/A
Density / Viscosity	N/A
pH / Fluid Loss	N/A
Source of Sample	FLOWLINE
Rm @ Meas. Temp	0.32 @ 80
Rmt @ Meas. Temp	0.24 @ 80
Rmc @ Meas. Temp	0.43 @ 80
Source of Rmf / Rmc	CHARTS
Rm @ BHT	0.23 @ 109
Operating Rig Time	4 Hours
Max Rec. Temp. F	109
Equipment Number	P-108
Location	HAYS
Recorded By	D. Schmidt
Witnessed By	Samman Sharifaie

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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.

Ellinwood,
 East to 4th Rd, 1/2 South,
 East into

Log Measured From: **Kelly Bushing** 10 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: Samman Sharifaie	Secondary Witness:
Operator:	Operator:	Secondary Witness:	Secondary Witness:
Operator:		Secondary Witness:	

Company	Offset (ft)	Substrate	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	40.58		GR-M&W (233-M&W)	3.00	3.50	50.00
CNLSC CNSSC	37.48 36.73		CNT-M&W (207-MW)	5.50	3.50	100.00
LSD DCAL SSD	28.43 28.42 27.93		CDL-M&W (817-947)	8.50	4.00	250.00
MCAL MI MN	19.83 19.83 19.83		ML-PSIML (PSI-01) GO Micro log tools converted to Simplec electronics	7.58	4.00	65.00
RLL3F RLL3	15.80 15.80					
CILD	8.00		DIL-PSI HIGH TEMP (952-828)	18.50	3.50	220.00
CILM	4.70					
SP	0.20					

Dataset: darrah_knop 1-4.db: field/well/stkml/pass4.1
 Total length: 43.08 ft
 Total weight: 685.00 lb
 O.D.: 4.00 in

Log Variables

DatabaseC:\ProgramData\Warrior\Data\darrah_knop 1-4.db
 Dataset field/well/stkml/pass4.1/_vars_

Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	100	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	476	0	Off	0

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

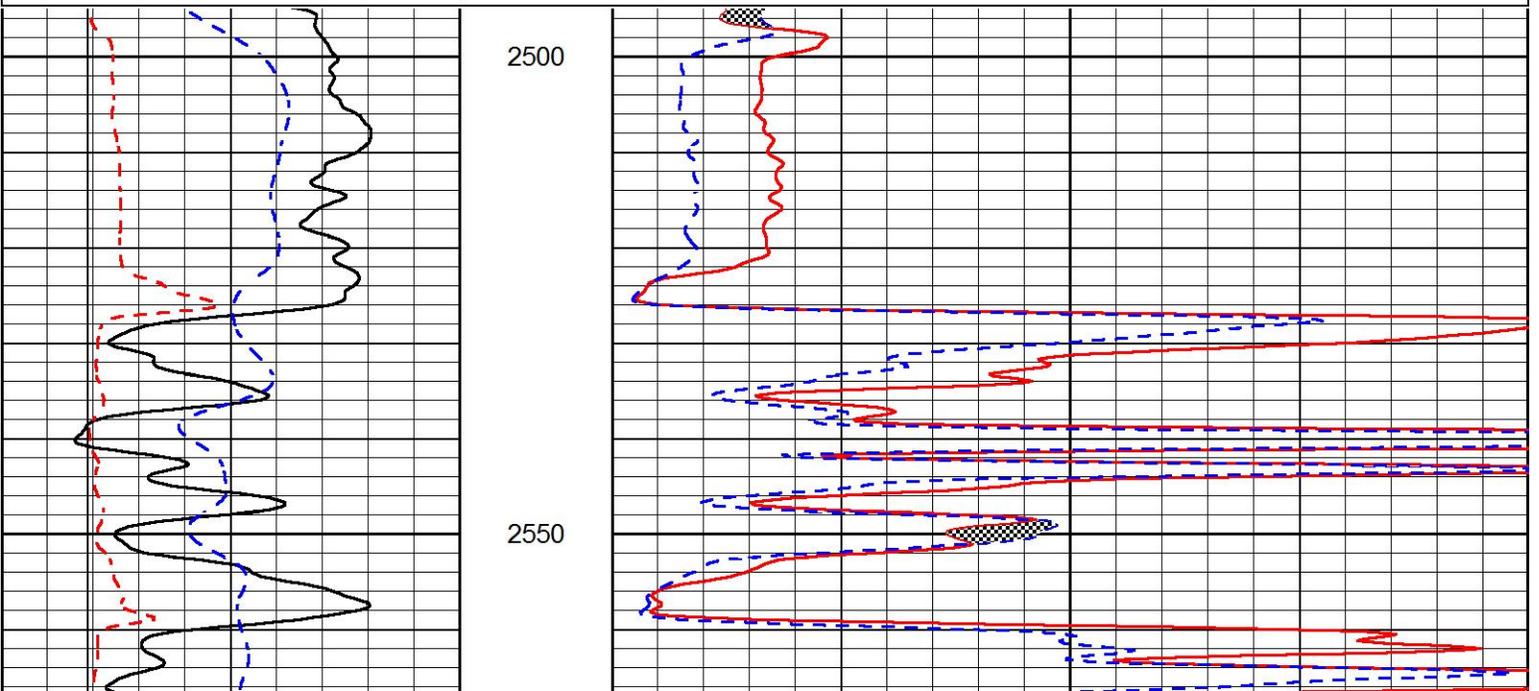


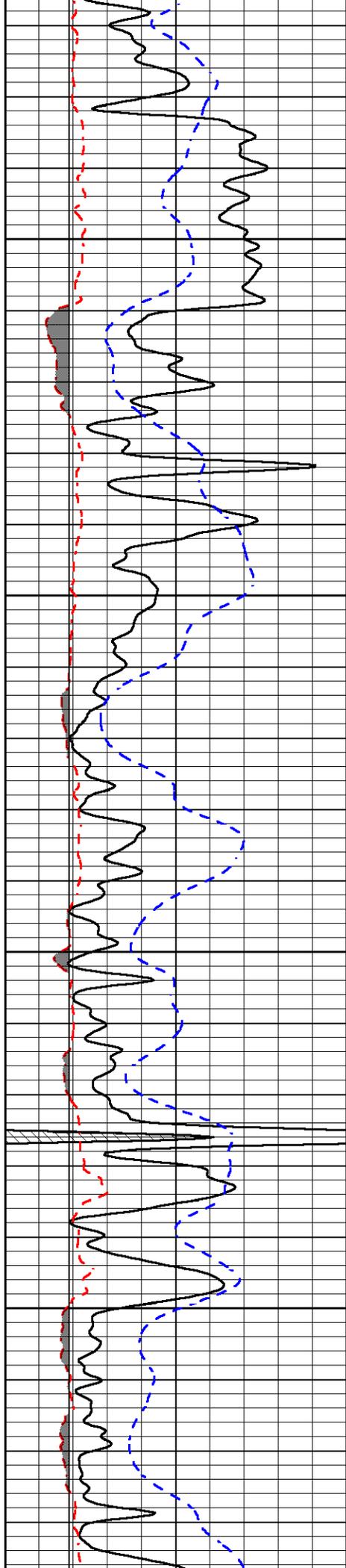
MAIN PASS

Database File darrah_knop 1-4.db
 Dataset Pathname stkml/pass4.1
 Presentation Format _micro
 Dataset Creation Tue Aug 25 12:10:26 2020
 Charted by Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
6	MCAL (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



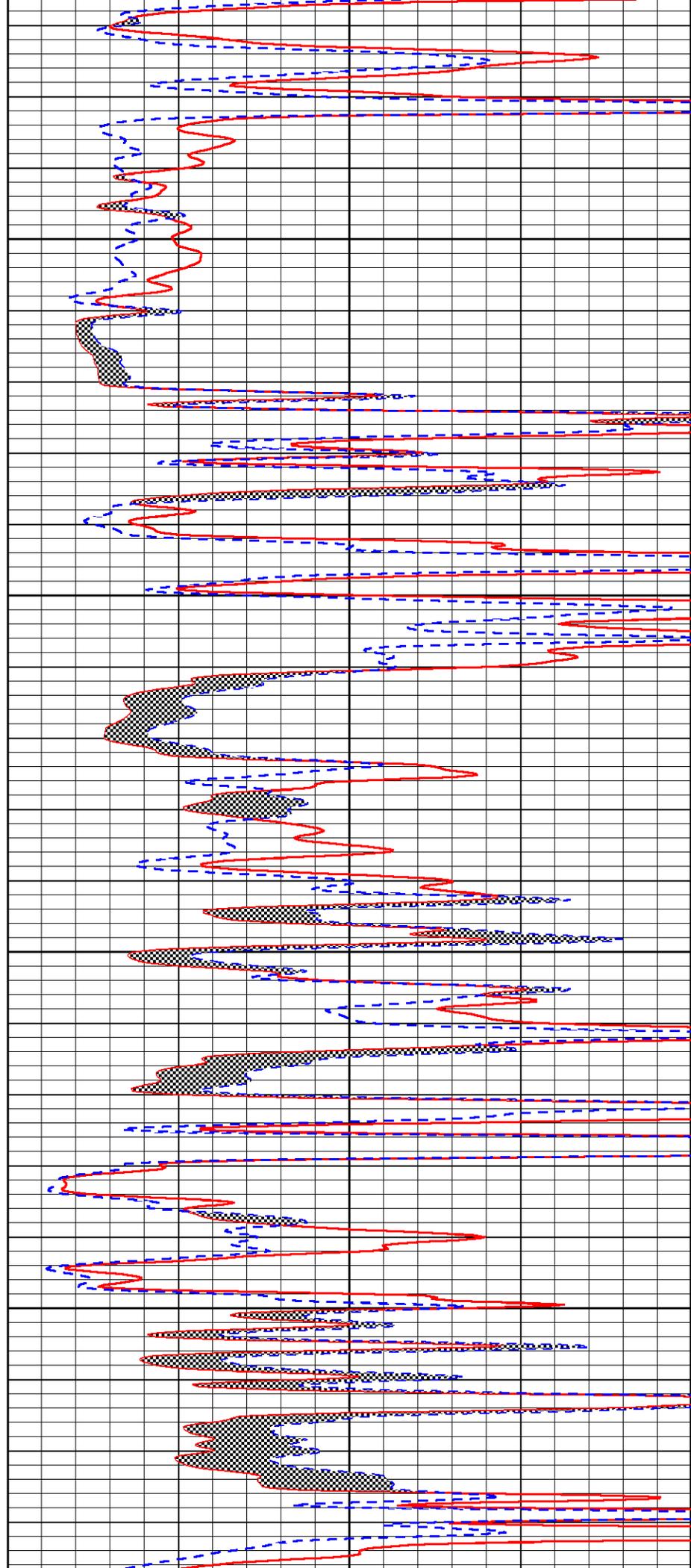


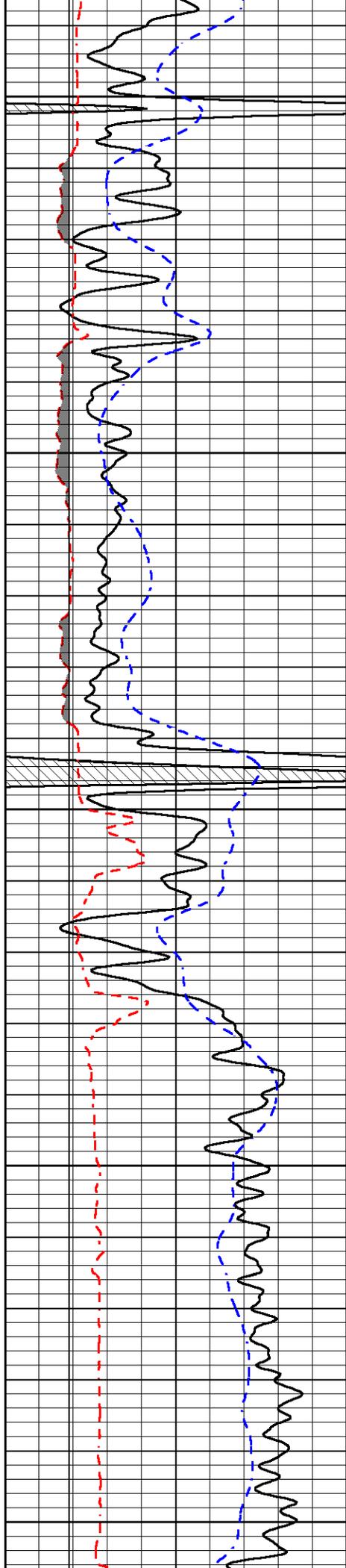
2600

2650

2700

2750





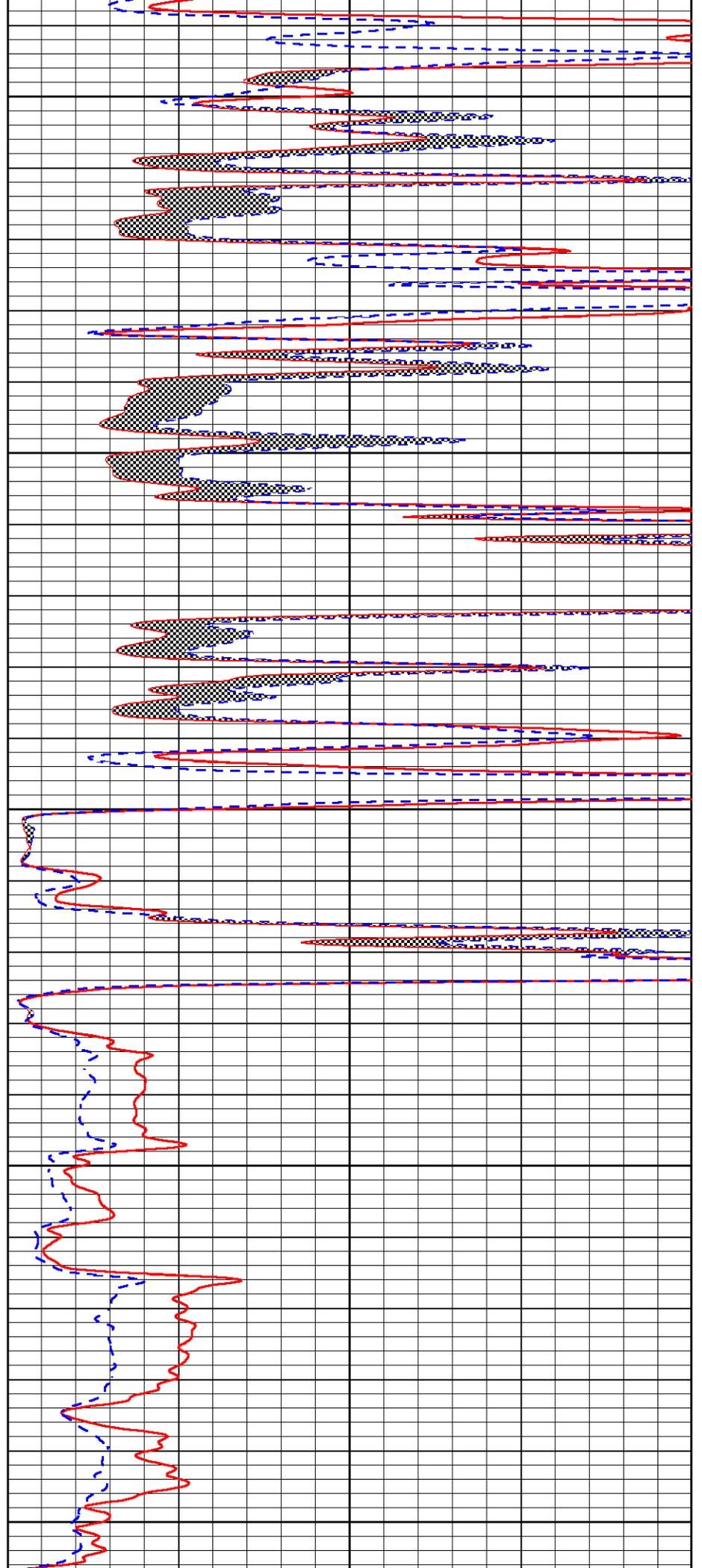
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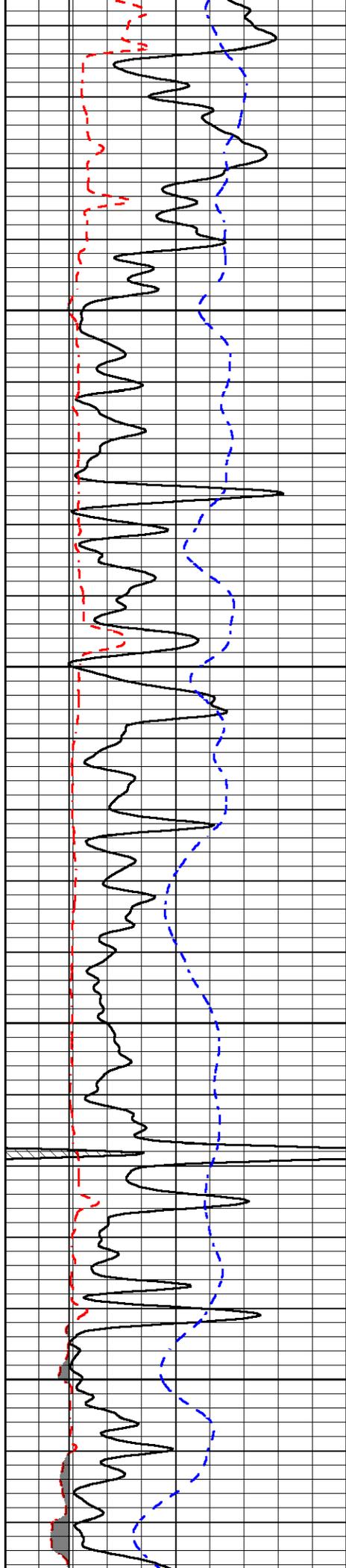
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2900

2950

3000



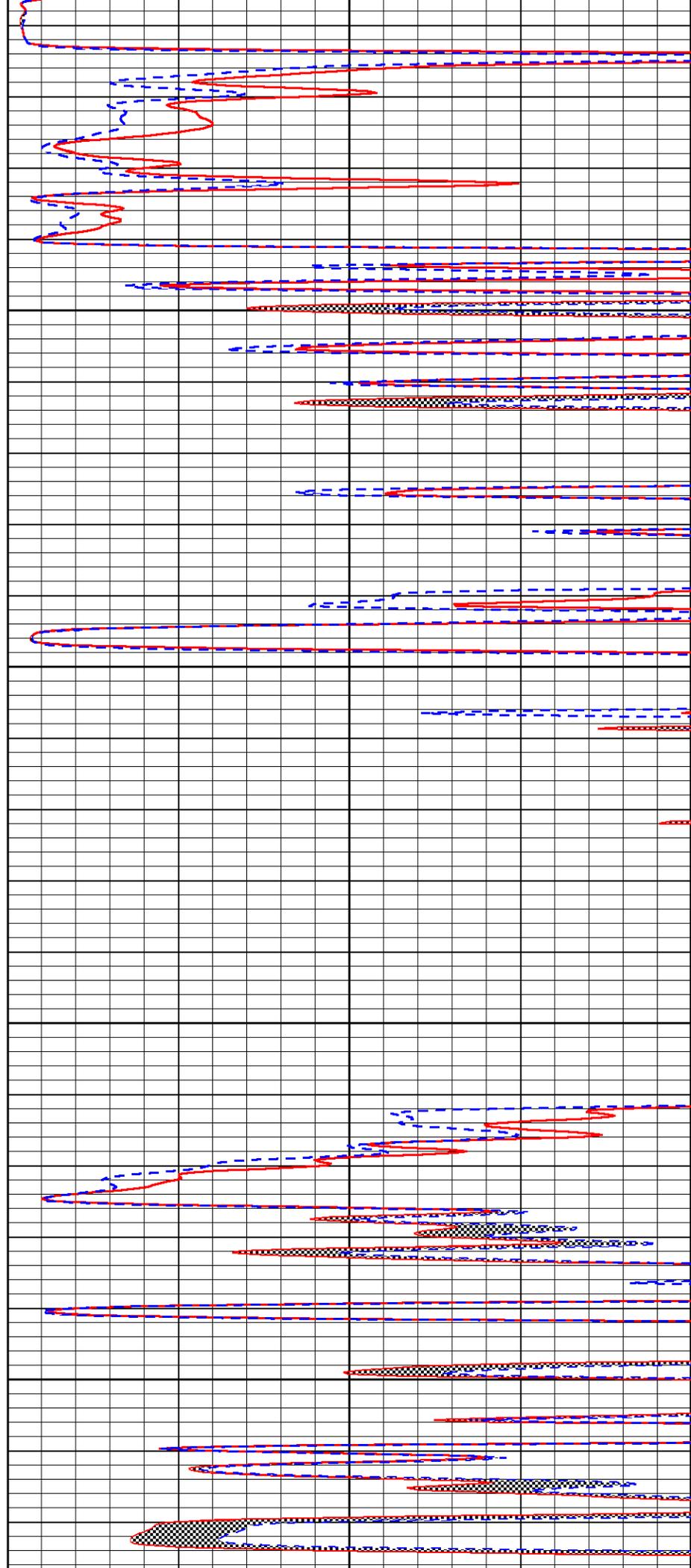


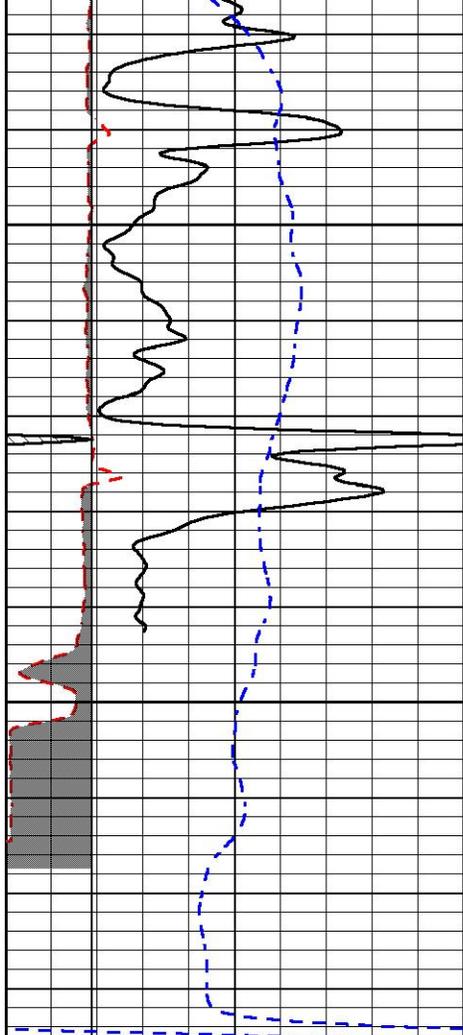
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3100

3150

3200

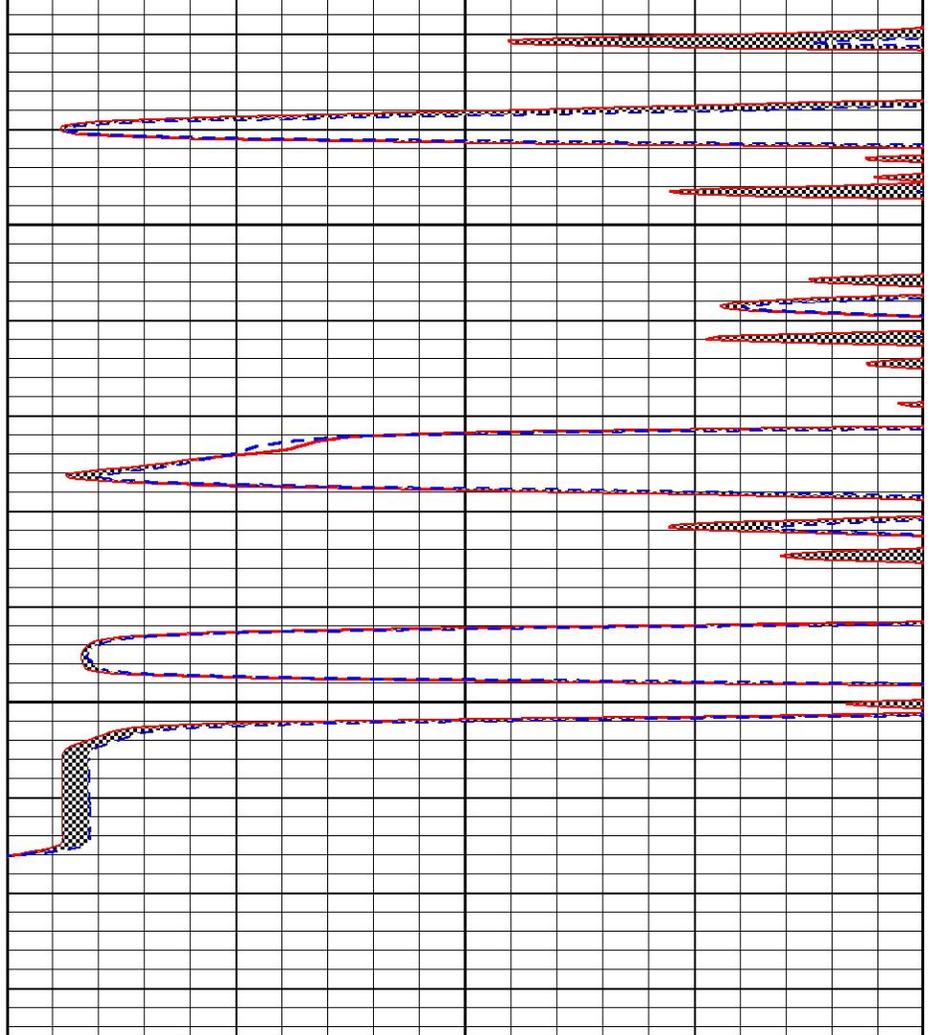




3250

3300

0	GAMMA RAY (GAPI)	150
6	MCAL (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



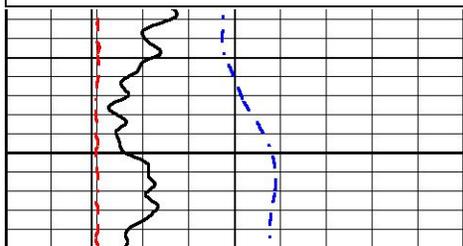
MIDWEST WIRELINE

REPEAT SECTION

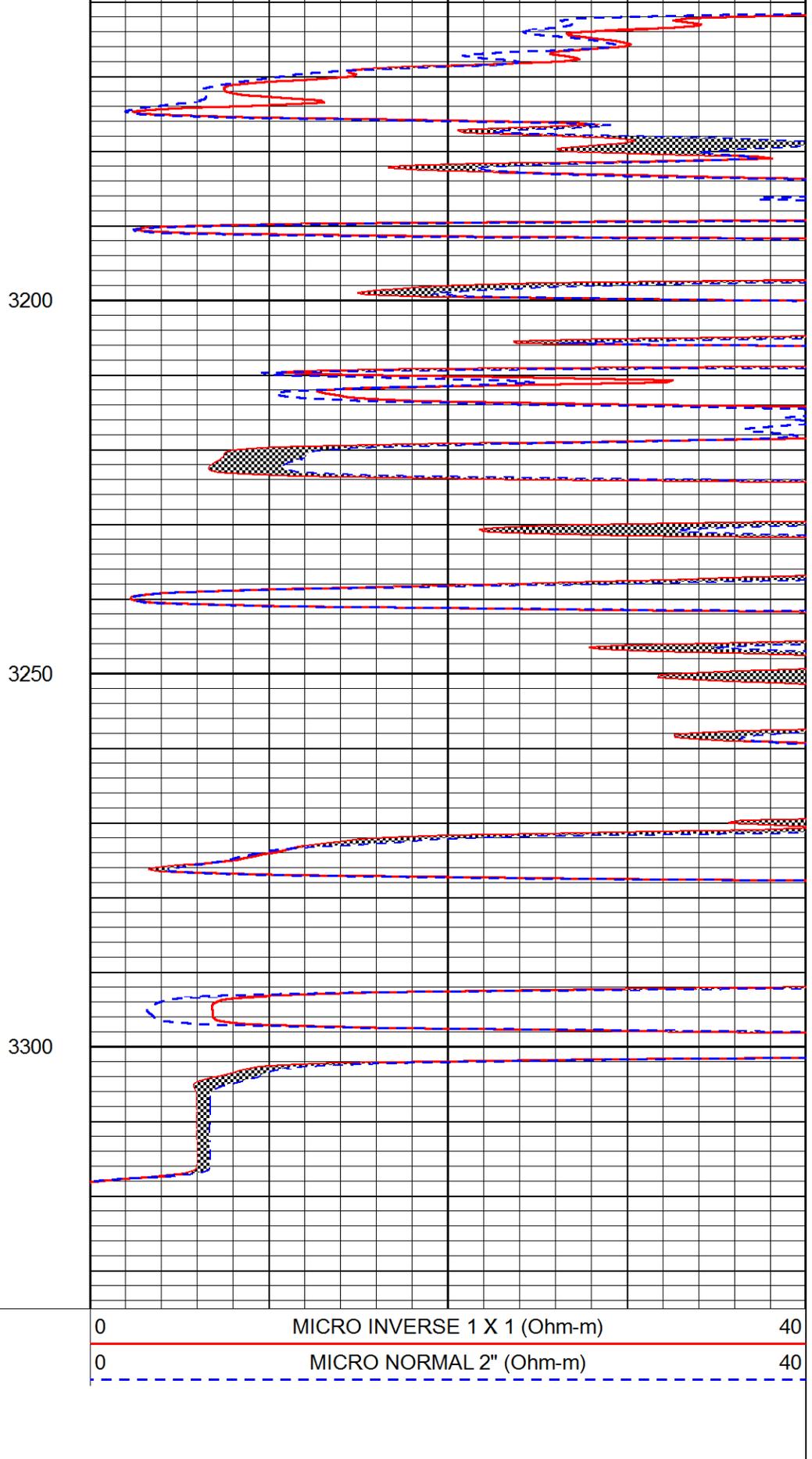
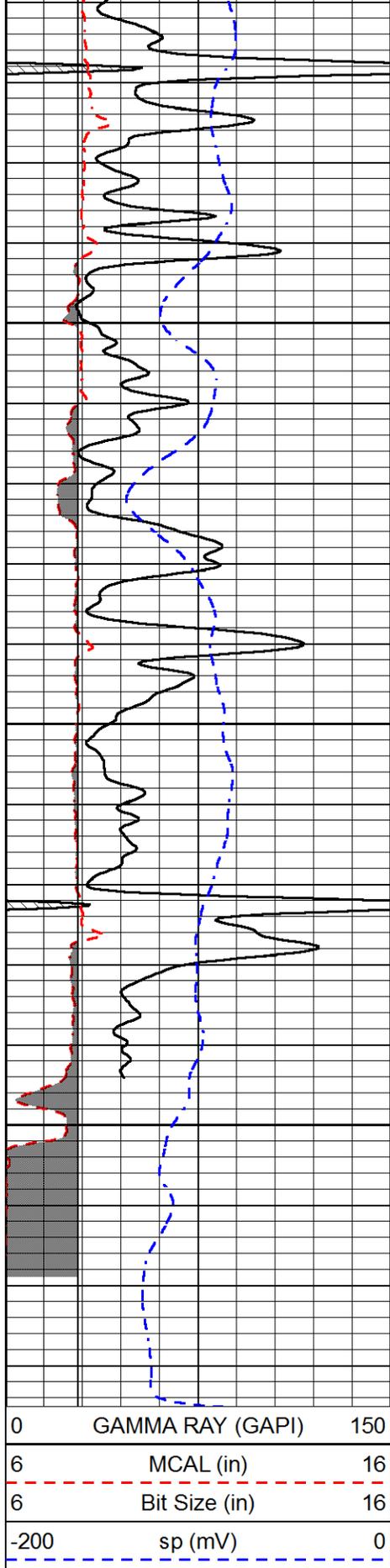
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 Presentation Format _micro
 Dataset Creation Tue Aug 25 12:10:51 2020
 Charted by Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
6	MCAL (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



3150



Calibration Report

Database File darrah_knop 1-4.db
 Dataset Pathname stkml/pass4.1
 Dataset Creation Tue Aug 25 12:10:26 2020

Dual Induction Calibration Report

Serial-Model: 952-828-PSI HIGH TEMP
 Calibration Performed: Sun Jun 28 08:39:24 2020

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	167.000	835.000	0.000	255.000	mmho/m	0.455	-26.000
Medium	0.000	1348.000	142.000	255.000	mmho/m	0.325	-25.000

Microlog Calibration Report

Serial-Model: PSI-01-PSIML
 Performed: Tue Jun 16 01:32:04 2020

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	21000.0000	-1.5000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	21000.0000	-0.9000
Caliper	1.0033	1.0841	5.0000	16.5000	in	142.3500	-138.6500

Compensated Density Calibration Report

Serial-Model: 817-947-M&W
 Source / Verifier: 16955B / 2ci
 Master Calibration Performed: Tue Sep 24 21:18:50 2019

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	6127.15	5922.31	cps
Aluminum	2.675	g/cc	1141.85	3762.09	cps
Spine Angle = 74.89			Density/Spine Ratio = 0.529		
	Size		Reading		
Small Ring	4.50	in	1.02		
Large Ring	14.50	in	1.23		

Compensated Neutron Calibration Report

Serial Number: 207-MW
 Tool Model: M&W
 Calibration Performed: WED FEB 13 10:30:30 2019

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: 233-M&W
 Tool Model: M&W
 Calibration Performed: Fri Feb 07 01:42:40 2014

Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.5500	GAPI/cps