



PIONEER
Pioneer Energy Services

MICRORESISTIVITY LOG

Company PICKRELL DRILLING COMPANY, INC.
Well STARRETT B #5
Field START
County NESS
State KANSAS

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Location: API #: 15-135-26044-00-00

Other Services

1760' FNL & 2310' FEL
SEC 12 TWP 17S RGE 21W

CNL/CDL
DIL

Permanent Datum GROUND LEVEL Elevation 2168'
Log Measured From KELLY BUSHING
Drilling Measured From KELLY BUSHING

Elevation
K.B. 2175'
D.F. N/A
G.L. 2168'

Date	1/26/2019		
Run Number	ONE		
Depth Driller	4150'		
Depth Logger	4120'		
Bottom Logged Interval	4119'		
Top Log Interval	3200'		
Casing Driller	8.625" @ 430'		
Casing Logger	429'		
Bit Size	7.875"		
Type Fluid in Hole	CHEMICAL		
Salinity, ppm CL	7000		
Density / Viscosity	8.6 54		
pH / Fluid Loss	10.0 12.4		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	.58 @ 71		
Rmt @ Meas. Temp	.44 @ 71		
Rmc @ Meas. Temp	.78 @ 71		
Source of Rmt / Rmc	CHARTS		
Rm @ BHT	.35 @ 118		
Operating Rig Time	2 HOURS		
Max Rec. Temp. F	118 DEGF		
Equipment Number	108		
Location	HAYS		
Recorded By	J. HENRICKSON		
Witnessed By	AARON YOUNG		

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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.

MCCRACKEN KANSAS
1 WEST ON ASH, 1/4 NORTH, 1/2 WEST, NORTH INTO

Log Measured From: KELLY BUSHING 7 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: AARON YOUNG
Secondary Witness:
Secondary Witness:
Secondary Witness:

Top - Bottom

A	BOREID	BOTTEMP	CASEOD	CASETHCK	FLUIDDEN	M	MATRXDEN
1	in 7.875	degF 118	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 110	degF 43	Off	ft 4120

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	28.43			CDL-M&W (144-84)	8.50	4.00	250.00
DCAL	28.42			ML-PSI STKBL ML (PSI-01) Stackable Microlog Tools	7.58	4.00	65.00
SSD	27.93						
MCAL	19.83						
MI	19.83						
MN	19.83						
RLL3	15.80						
RLL3F	15.79						
CILD	8.00			DIL-M&W (PSI 988)	18.50	3.50	220.00

CILM

4.70

SP

0.20

Dataset: pickrell_starrett_b_5.db: field/well/stackml/pass2.1
Total length: 43.08 ft
Total weight: 685.00 lb
O.D.: 4.00 in

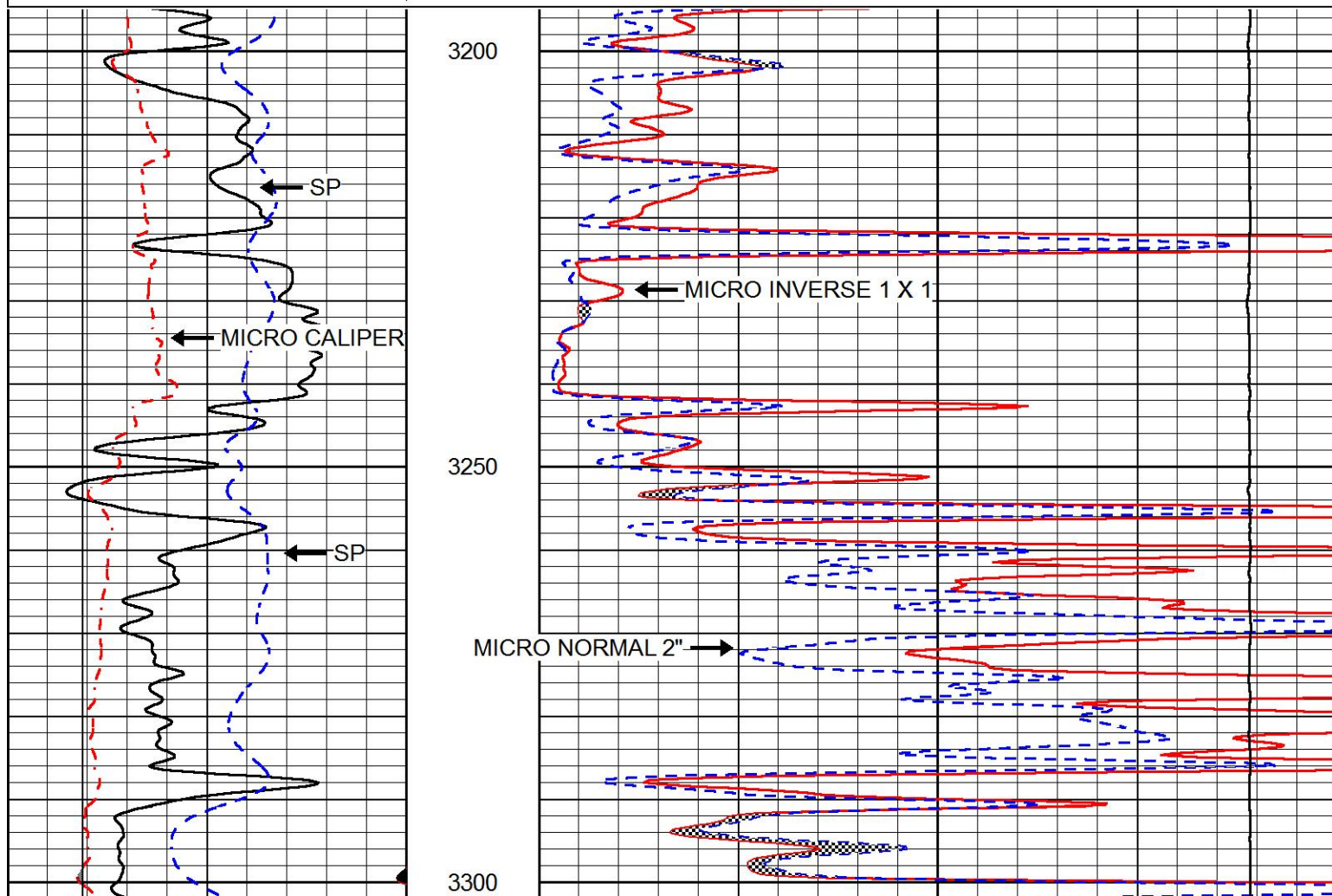


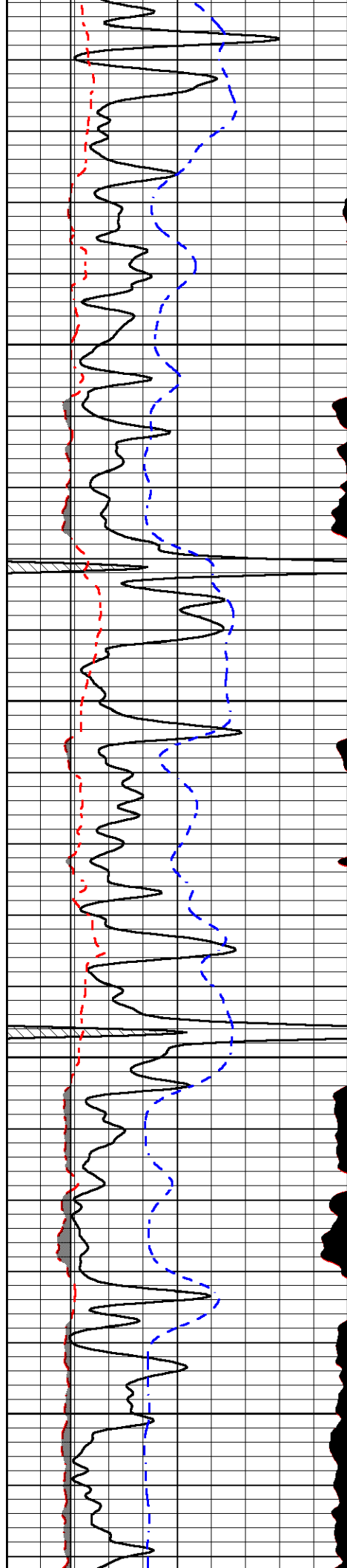
MAIN PASS

Database File pickrell_starrett_b_5.db
Dataset Pathname stackml/pass2.1
Presentation Format micro
Dataset Creation Sat Jan 26 12:53:03 2019
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



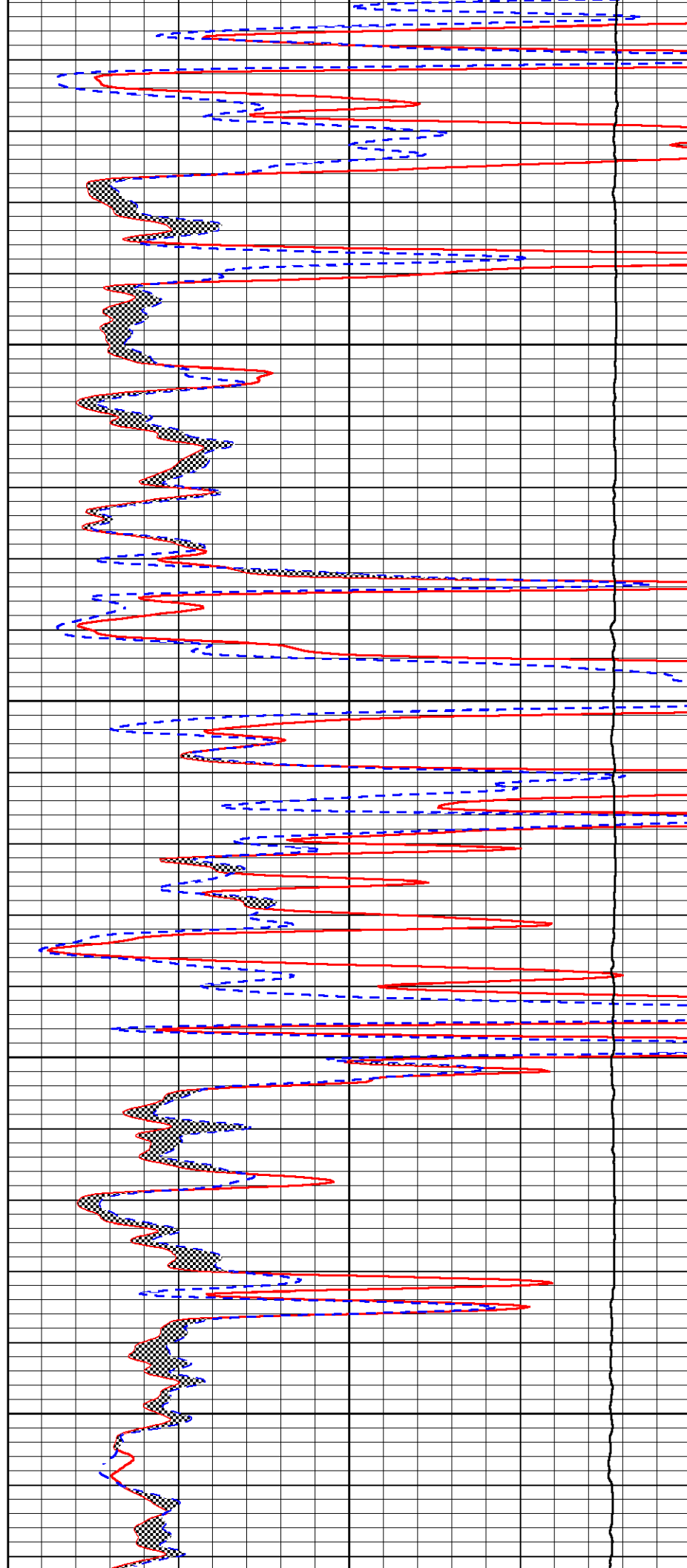


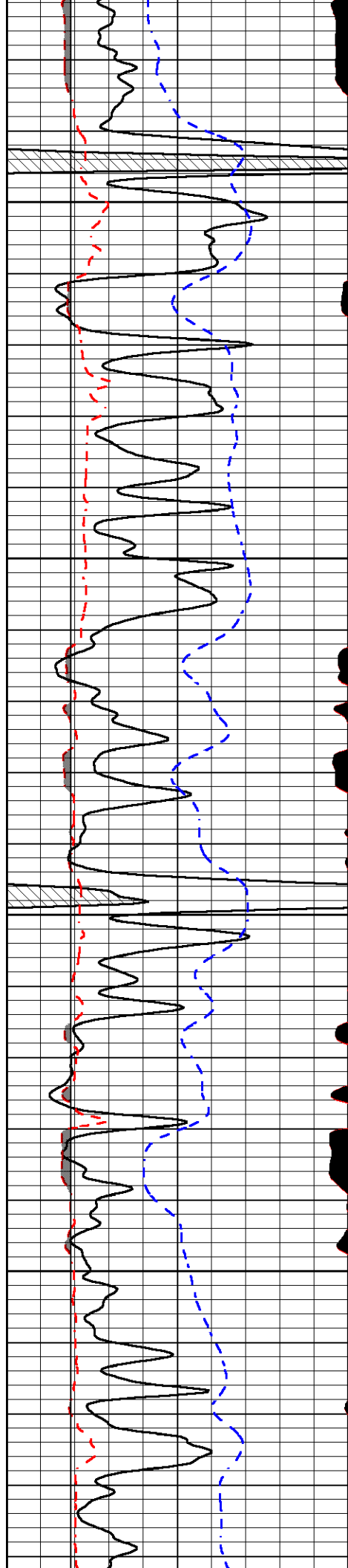
3350

3400

3450

3500



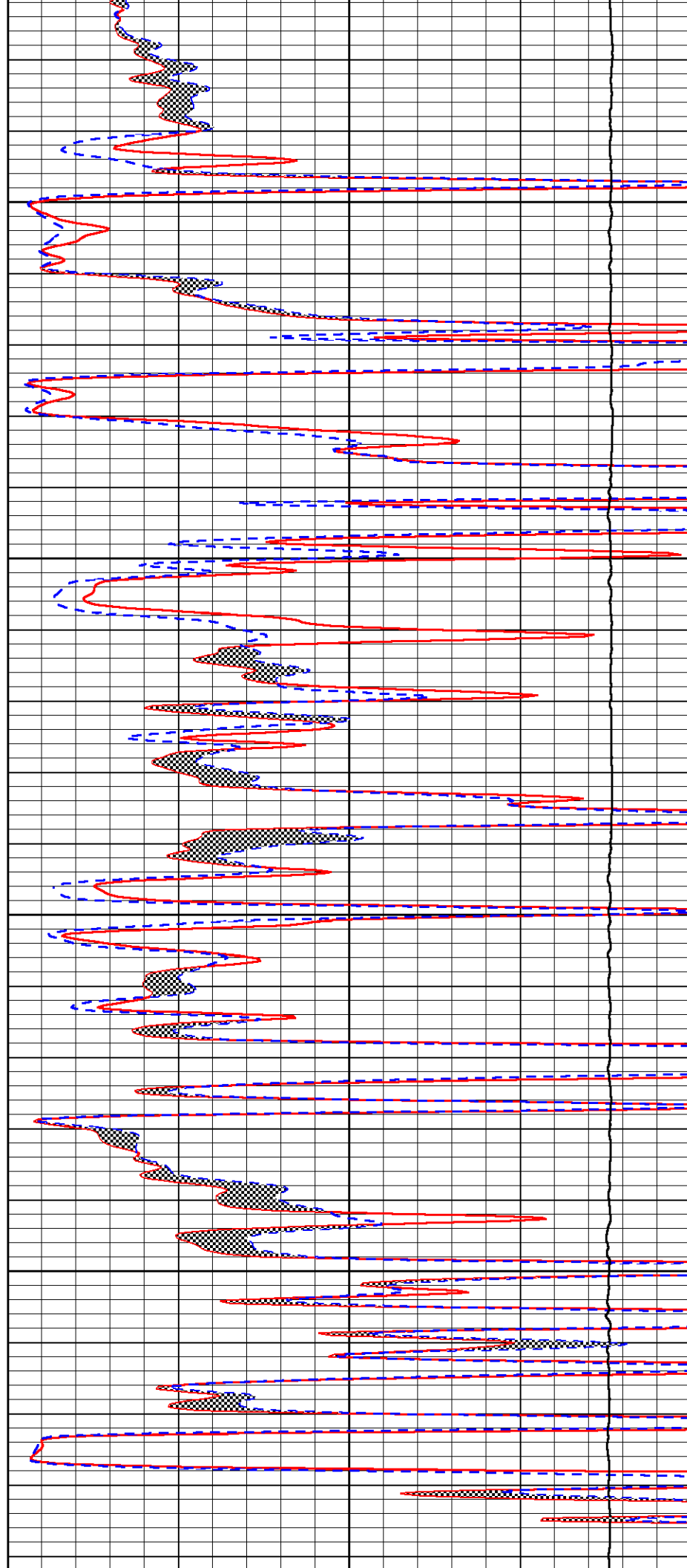


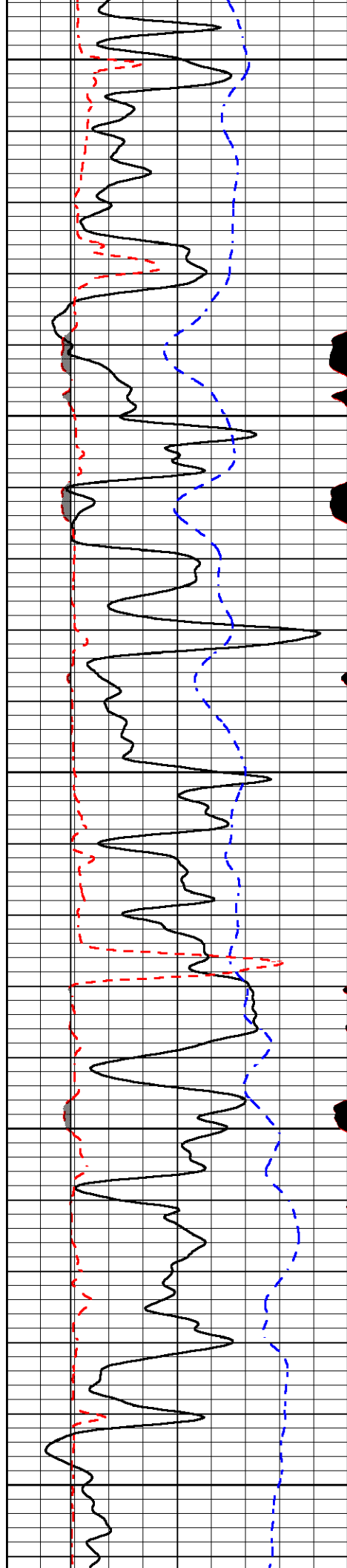
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3600

3650

3700





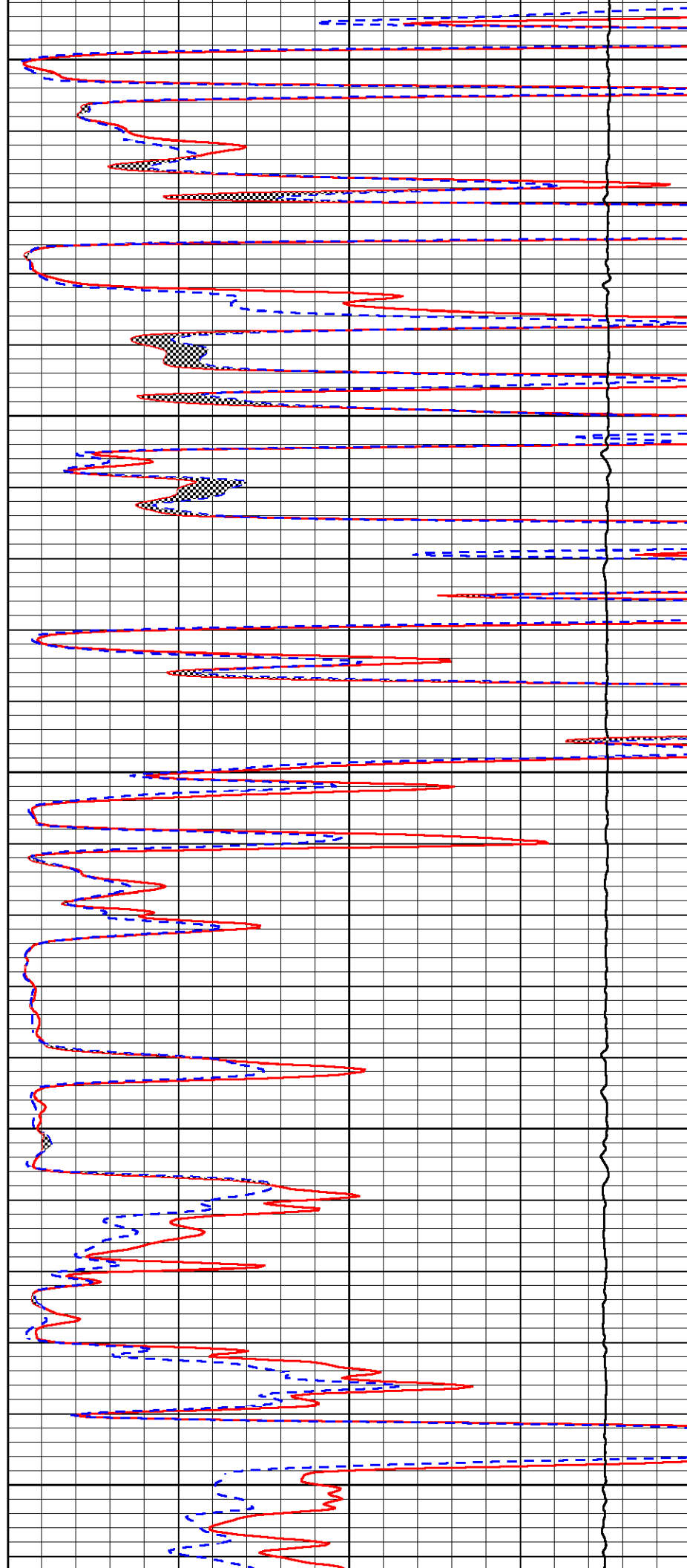
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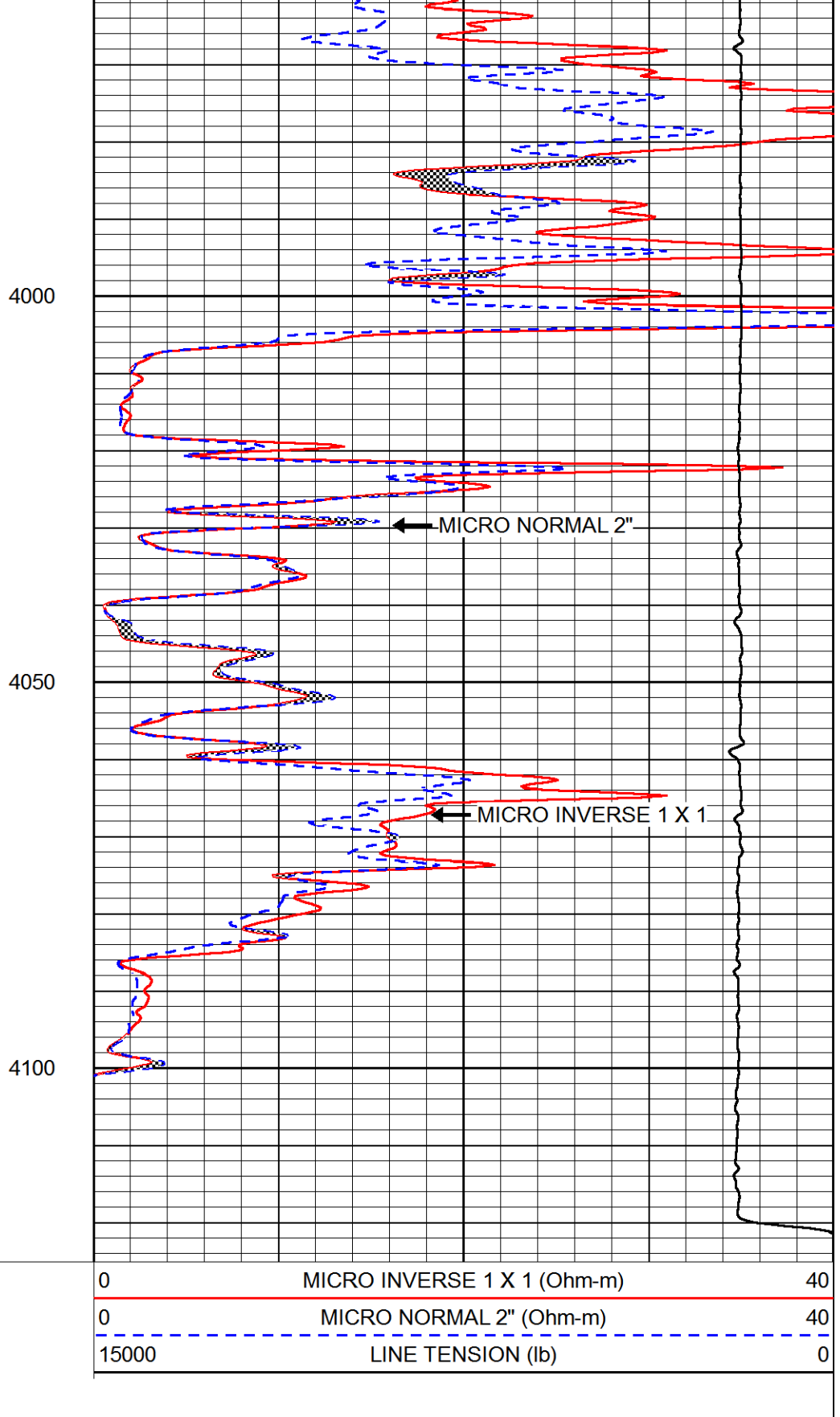
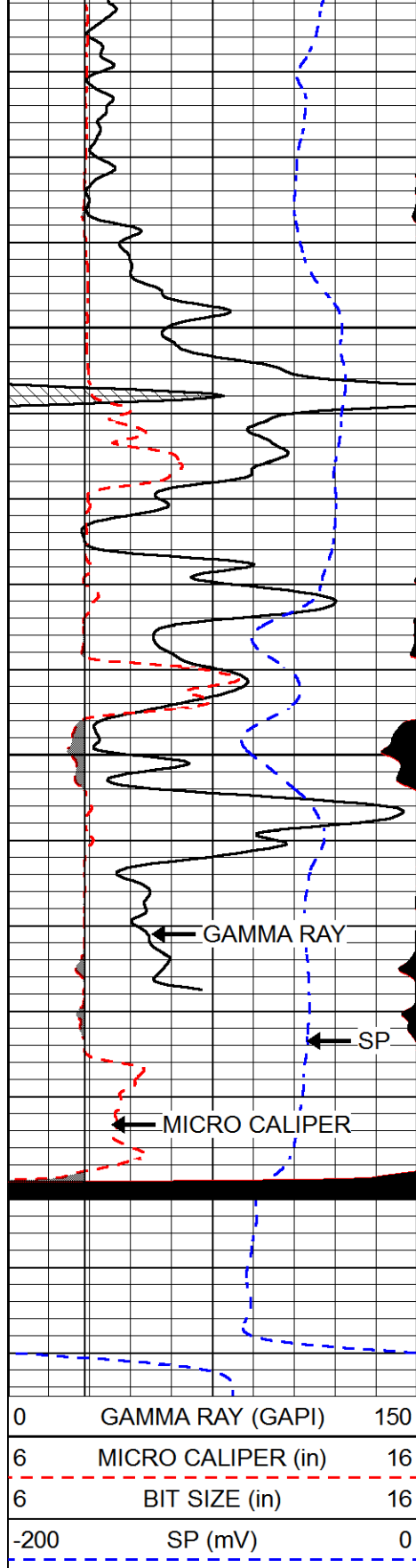
3800

3850

3900

3950





Calibration Report

Database File pickrell_starrett_b_5.db
 Dataset Pathname stackml/pass2.1
 Dataset Creation Sat Jan 26 12:53:03 2019

Dual Induction Calibration Report

Serial-Model:
 Calibration Performed:

PSI 988-M&W
 Tue Nov 20 10:50:19 2018

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	178.615	710.235	0.000	255.800	mmho/m	0.525	-44.000
Medium	161.982	1441.110	0.000	255.800	mmho/m	0.380	-17.000

Microlog Calibration Report

Serial-Model: Performed:	PSI-01-PSI STKBL ML Thu Mar 31 18:14:32 2016
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	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	20500.0000	-1.0000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	23500.0000	-0.7000
Caliper	1.0001	1.1397	6.5000	18.5000	in	86.0000	-82.6000

Compensated Density Calibration Report

Serial-Model: Source / Verifier: Master Calibration Performed:	144-84-M&W / Mon Jan 07 15:00:31 2019
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Master Calibration							
	Density			Far Detector		Near Detector	
Magnesium	1.755	g/cc		4315.49		5309.89	cps
Aluminum	2.675	g/cc		825.26		3443.46	cps
Spine Angle = 75.33				Density/Spine Ratio = 0.538			
	Size			Reading			
Small Ring	4.00	in		0.69			
Large Ring	14.00	in		0.04			

Compensated Neutron Calibration Report

Serial Number: Tool Model: Calibration Performed:	tk10-MW M&W Wed Nov 16 11:21:36 2016
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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:	89-M&W	
Tool Model:	M&W	
Calibration Performed:	Tue Apr 11 17:08:01 2017	
Calibrator Value:	1000.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	2.2	

Calibrator Reading:	6.2	cps
Sensitivity:	0.5200	GAPI/cps



Company	PICKRELL DRILLING COMPANY, INC.
Well	STARRETT B #5
Field	START
County	NESS
State	KANSAS