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Pioneer Energy Services

MICRORESISTIVITY LOG

Company MURFIN DRILLING COMPANY, INC.
Well KEN NO. 4-17
Field WILDCAT
County RAWLINS State KANSAS

Location: API # : 15-153-21207-00-00
330' FNL & 1970' FWL
SEC 17 TWP 1S RGE 35W

Other Services
CNL/CDL
DIL/BHCS

Elevation
K.B. 3189'
D.F. N/A
G.L. 3184'

Permanent Datum GROUND LEVEL Elevation 3184'
Log Measured From KELLY BUSHING
Drilling Measured From KELLY BUSHING

Date	5/9/2018			
Run Number	TWO			
Depth Driller	4500'			
Depth Logger	4494'			
Bottom Logged Interval	4493'			
Top Log Interval	3500'			
Casing Driller	8.625" @ 302'			
Casing Logger	302'			
Bit Size	7.875"			
Type Fluid in Hole	CHEMICAL			
Salinity,ppm CL	1000			
Density / Viscosity	9.2	56		
pH / Fluid Loss	11.0	6.0		
Source of Sample	FLOWLINE			
Rm @ Meas. Temp	1.1 @ 54			
Rmf @ Meas. Temp	.83 @ 54			
Rmc @ Meas. Temp	1.49 @ 54			
Source of Rmf / Rmc	CHARTS			
Rm @ BHT	.49 @ 121			
Operating Rig Time	4 HOURS			
Max Rec. Temp. F	121 DEG/F			
Equipment Number	108			
Location	HAYS			
Recorded By	J. HENRICKSON			
Witnessed By	CLAYTON ERICKSON			

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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.

BEARDSLEY KANSAS
NORTH TO AA ROAD, WEST TO 7 ROAD, NORTH TO CC ROAD
3/4 EAST, SOUTH INTO

Log Measured From: KELLY BUSHING Ft. Above Permanent Datum

THANK YOU FOR USING PIONEER ENERGY SERVICES
www.pioneeres.com 785-625-3858

Your Pioneer Energy Services Crew	This Log Record Was Witnessed By
Engineer: J. HENRICKSON	Primary Witness: CLAYTON ERICKSON
Operator:	Secondary Witness:
Operator:	Secondary Witness:
Operator:	Secondary Witness:

Log Variables

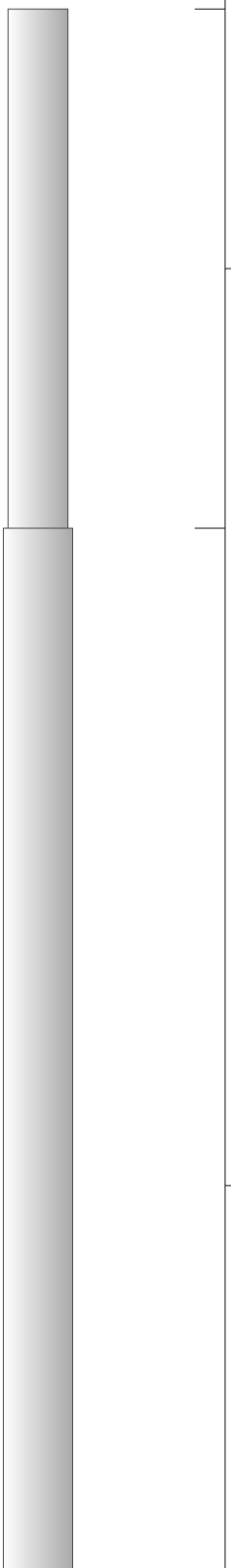
DatabaseC:\ProgramData\Warrior\Data\murfin_ken_4_17.db
Dataset field/well/stackml/pass3.1/_vars_

Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	121	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	-20	56	Off	0

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb
			GR-M&W (89-M&W)	3.00	3.50	50.00
GR	8.08					
			ML-PSI STKBL ML (PSI-02) Stackable Microlog Tools	7.58	4.00	65.00



MCAL	1.33	
MI	1.33	
MN	1.33	

Dataset:	murfin_ken_4_17.db: field/well/MICRO/pass2
Total length:	10.58 ft
Total weight:	115.00 lb
O.D.:	4.00 in

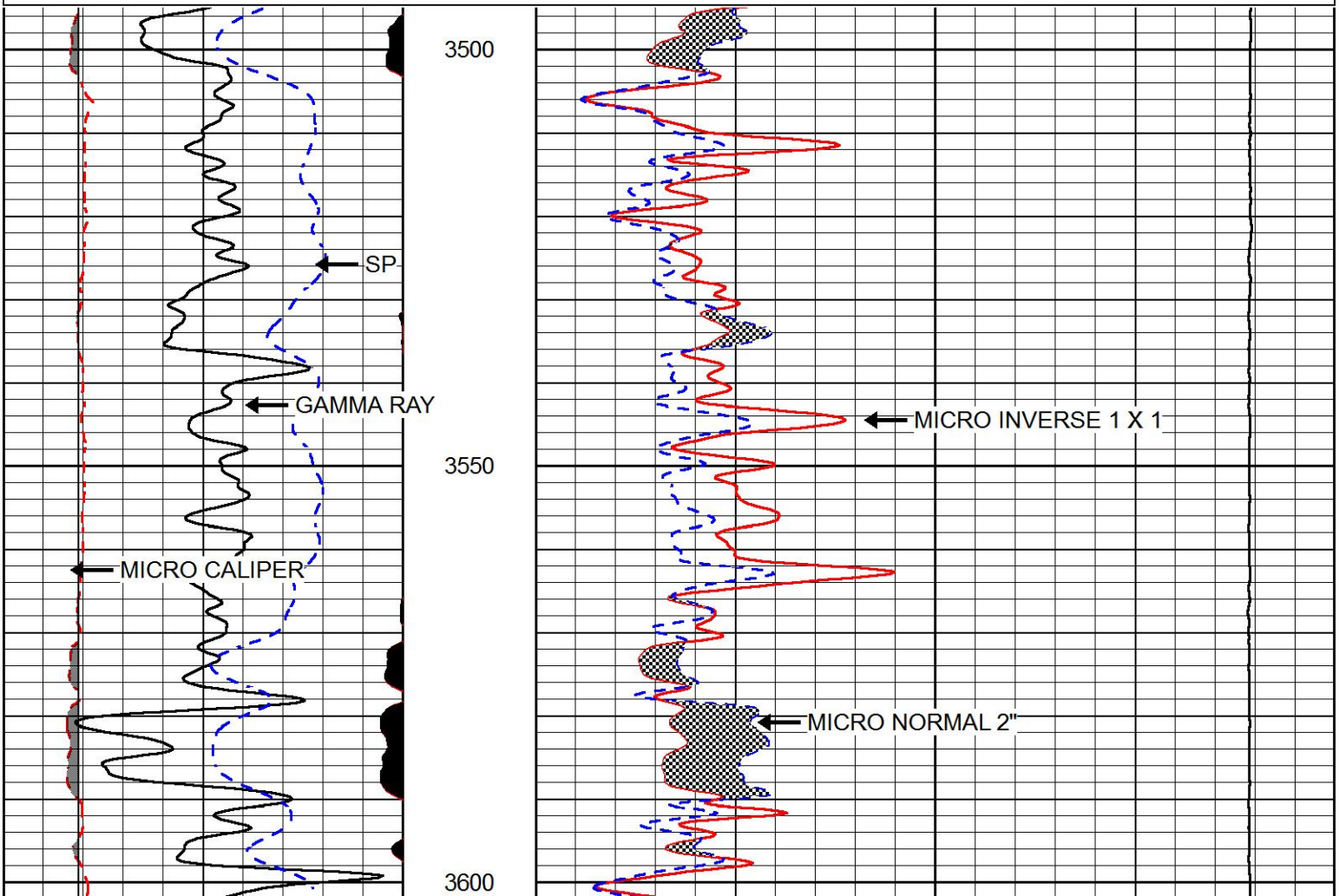
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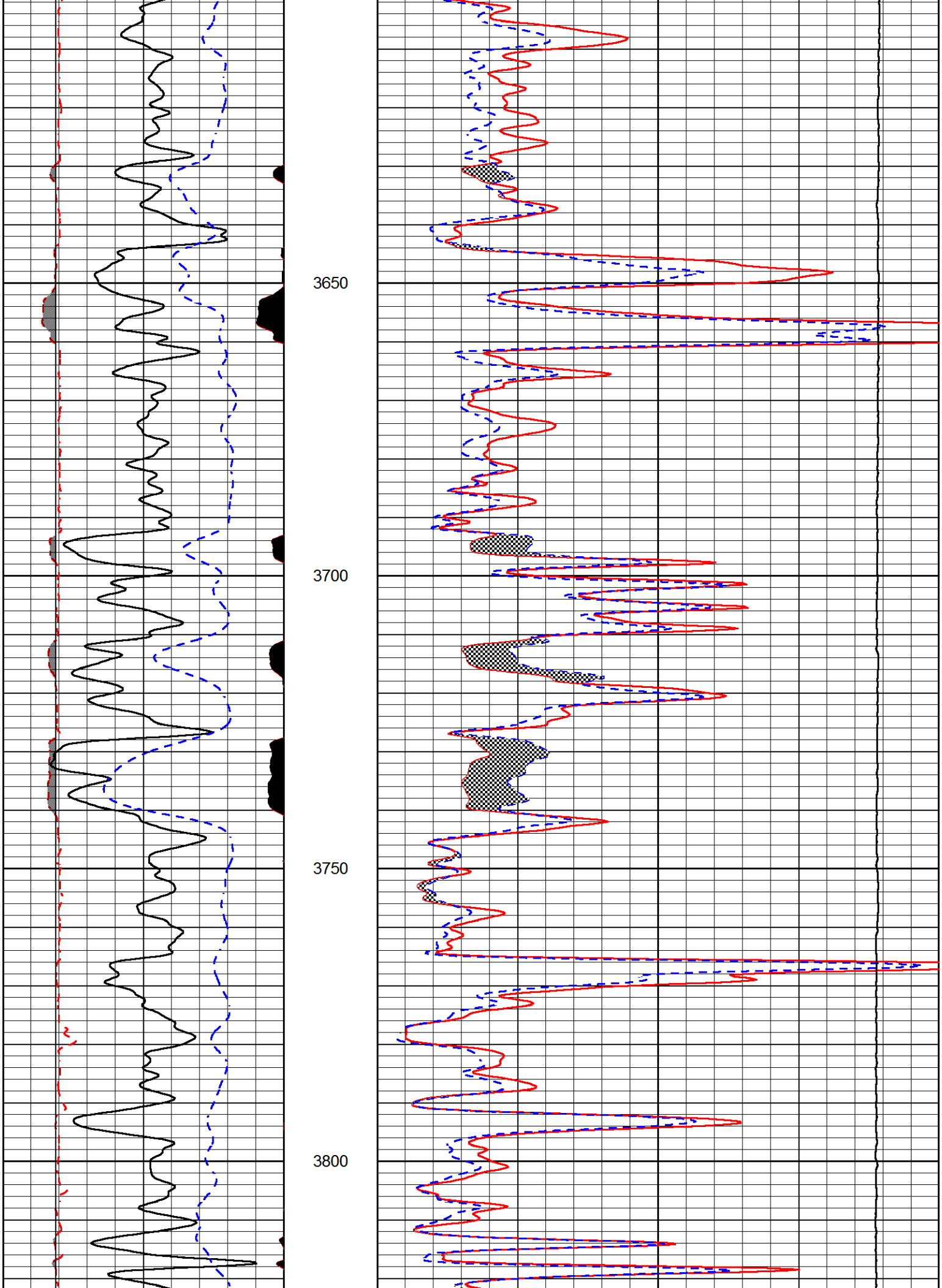
MAIN PASS

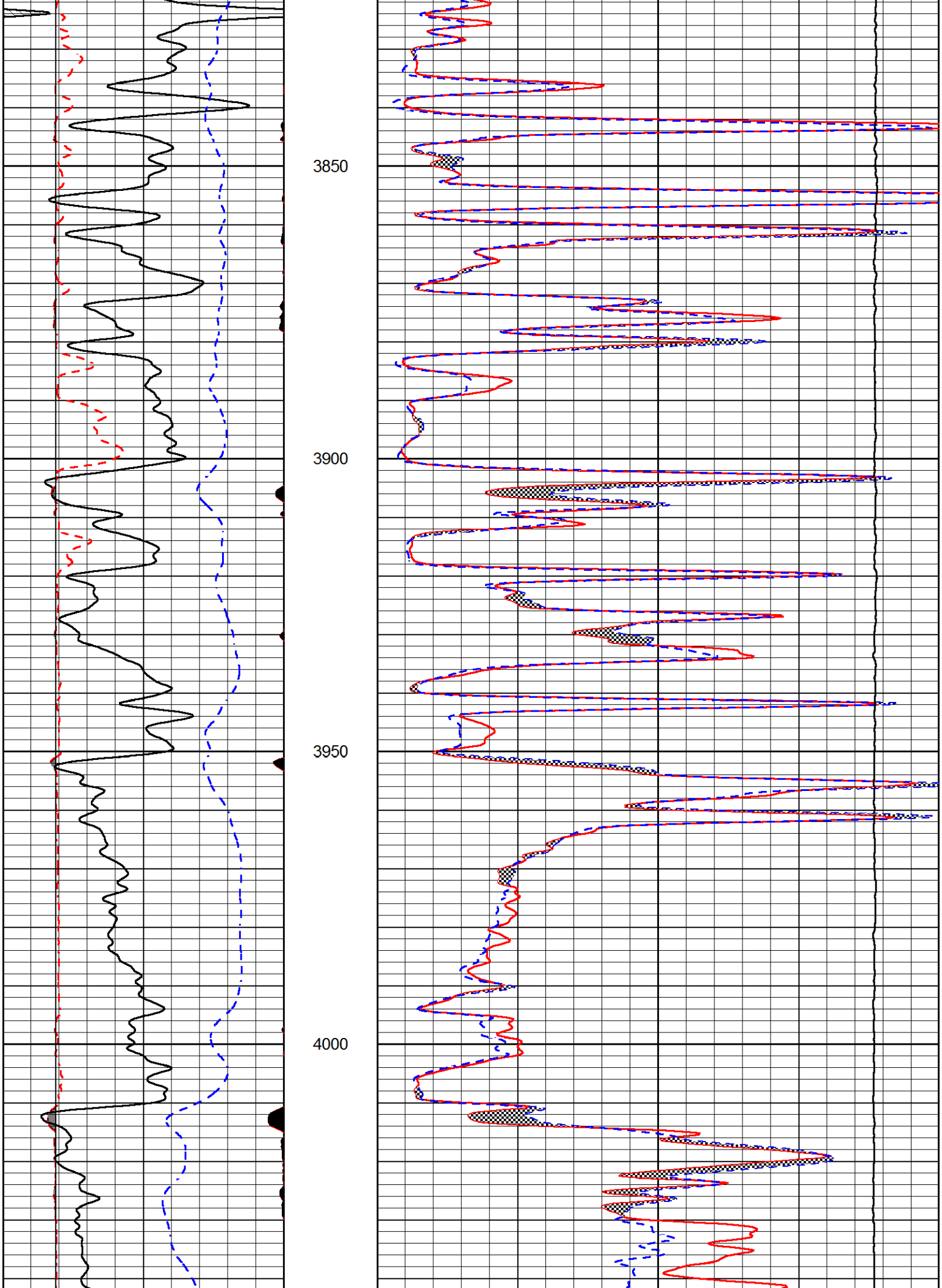
Database File	murfin_ken_4_17.db
Dataset Pathname	stackml/pass3.1
Presentation Format	micro
Dataset Creation	Wed May 09 08:11:28 2018
Charted by	Depth in Feet scaled 1:240

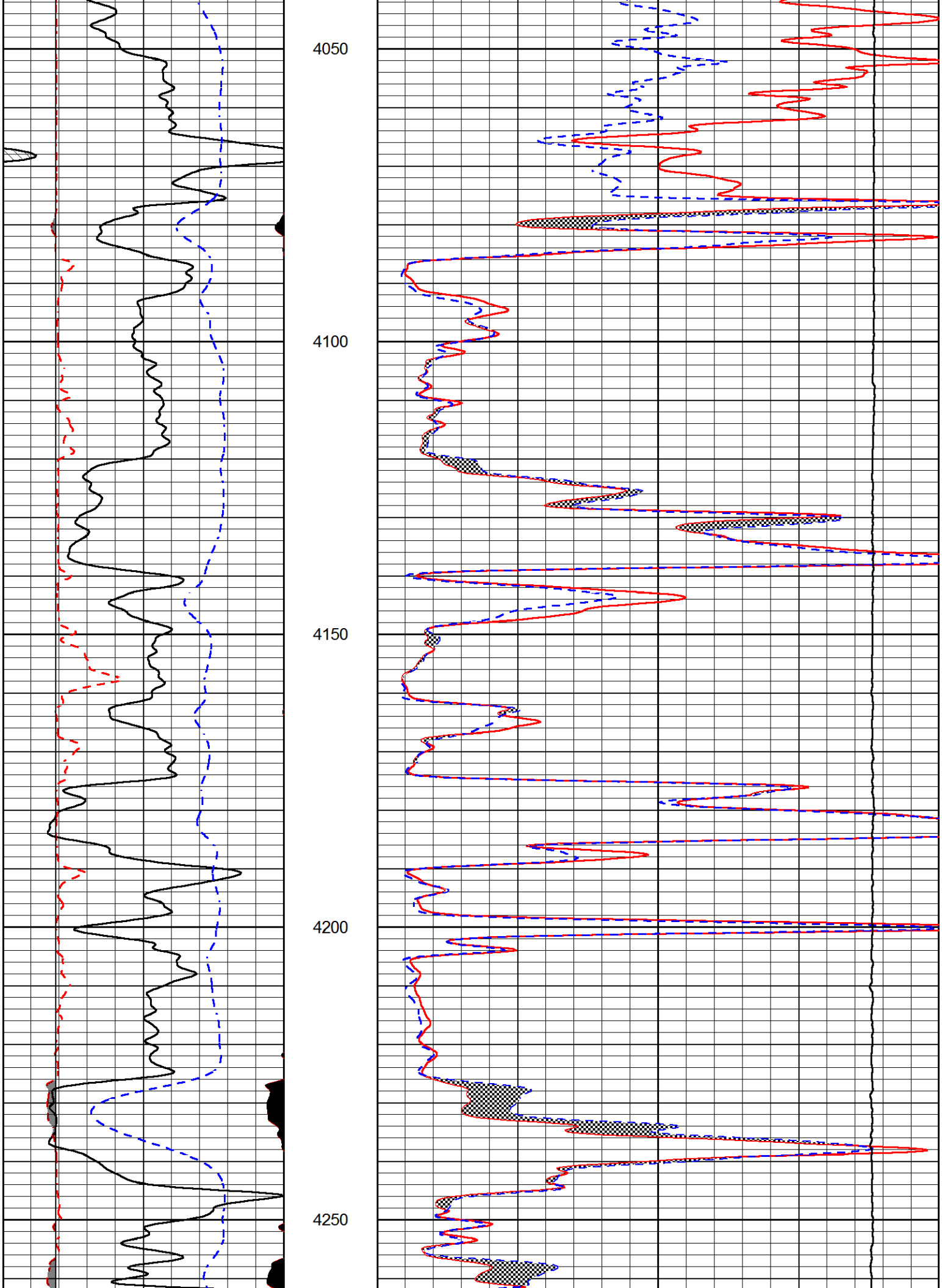
0	GAMMA RAY (GAPI)	150
6	MICRO CALIPER (in)	16
6	BIT SIZE (in)	16
-200	SP (mV)	0

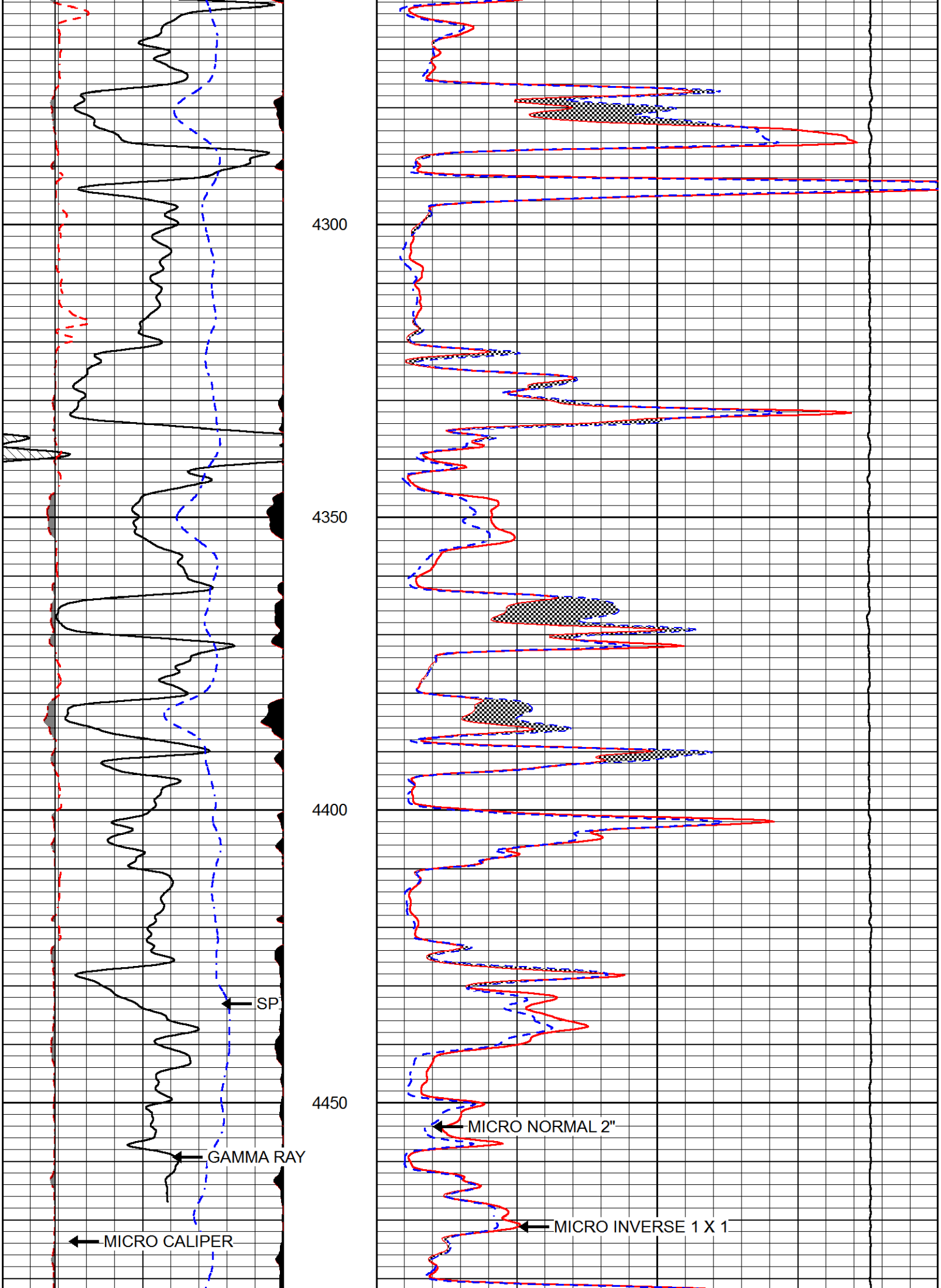
0	MICRO INVERSE 1 X 1 (Ohm-m)	40
0	MICRO NORMAL 2" (Ohm-m)	40
15000	LINE TENSION (lb)	0

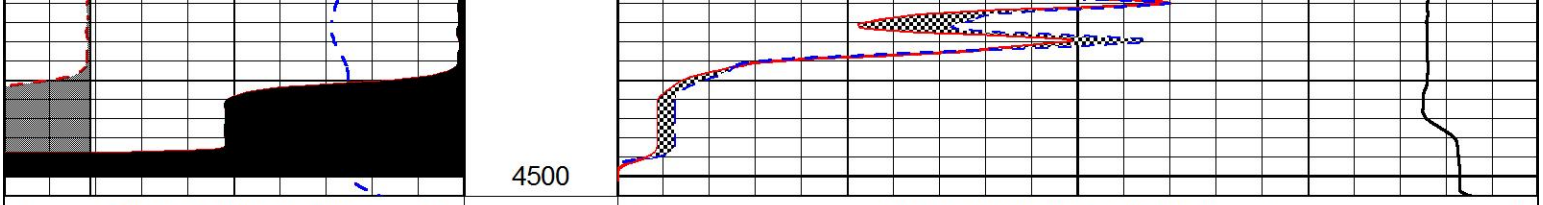



3650
3700
3750
3800


3850
3900
3950
4000


4050
4100
4150
4200
4250


4300
4350
4400
4450
SP
GAMMA RAY
MICRO CALIPER
MICRO NORMAL 2"
MICRO INVERSE 1 X 1



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

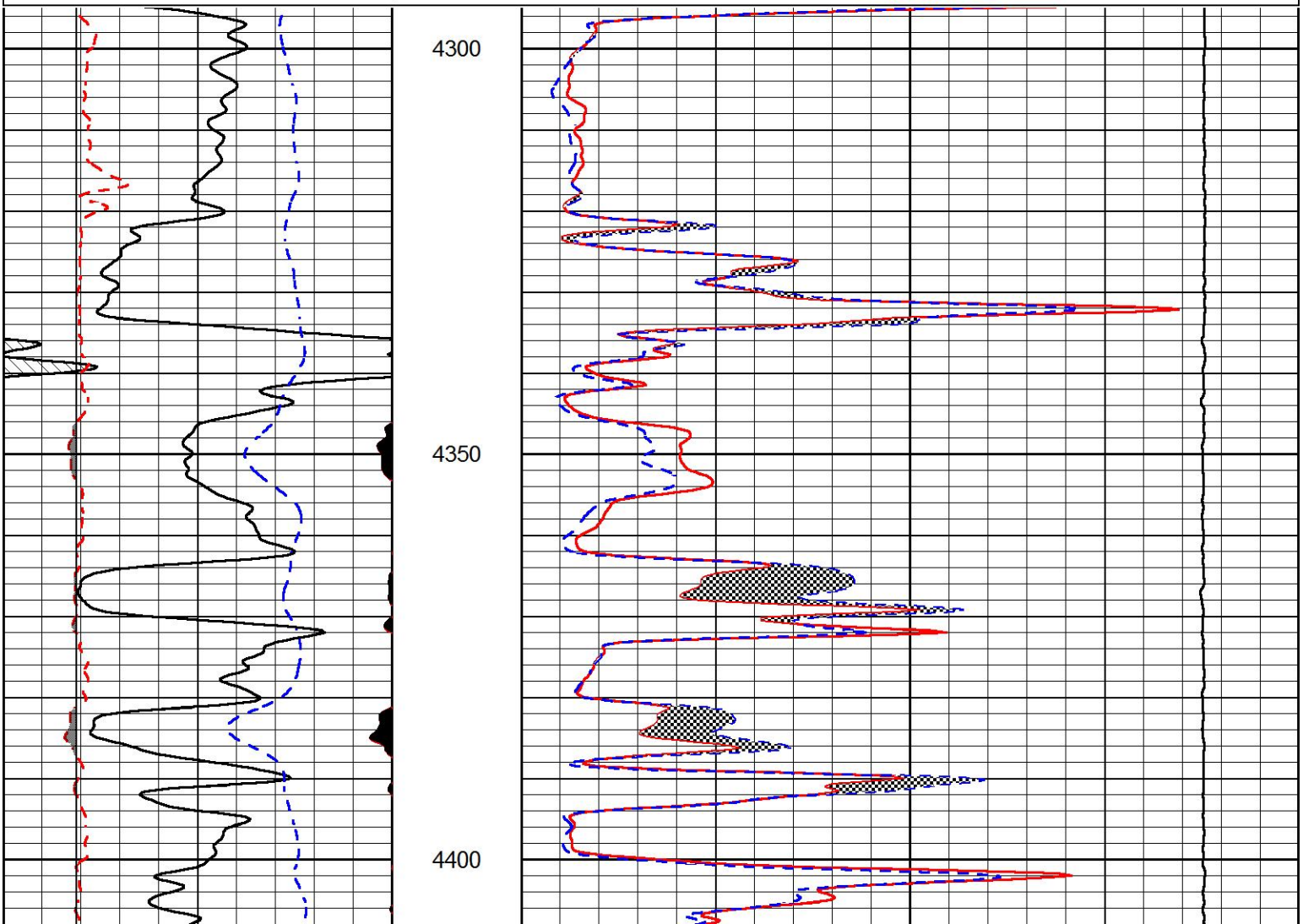
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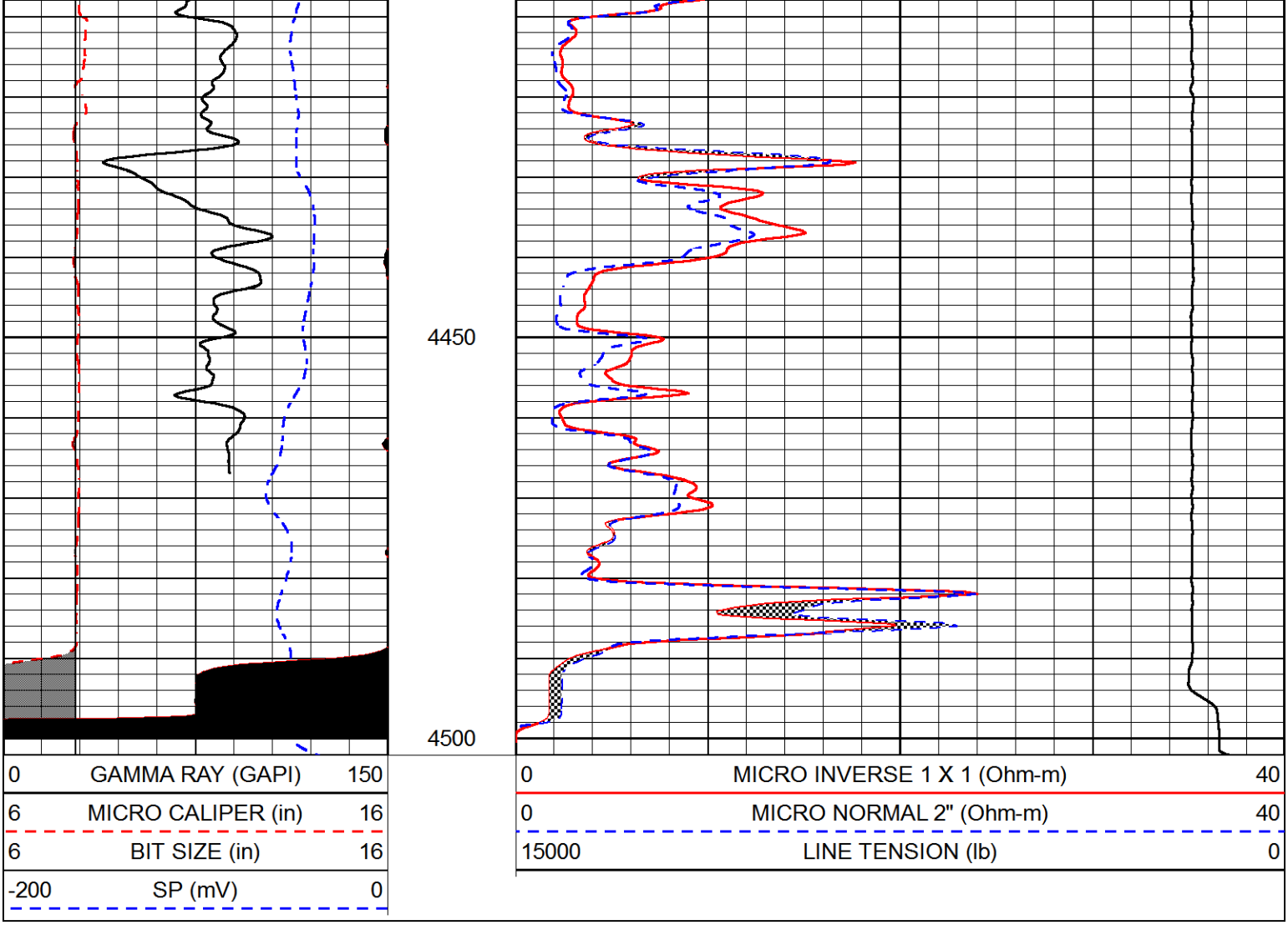
REPEAT SECTION

Database File	murfin_ken_4_17.db
Dataset Pathname	stackml/pass2.1
Presentation Format	micro
Dataset Creation	Wed May 09 08:11:43 2018
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





Calibration Report

Database File	murfin_ken_4_17.db
Dataset Pathname	stackml/pass3.1
Dataset Creation	Wed May 09 08:11:28 2018

Dual Induction Calibration Report

Serial-Model:	1987-M&W
Calibration Performed:	Tue Apr 11 17:07:38 2017

	Readings		References			Results	
Loop:	Air	Loop	Air	Loop		Gain	Offset
Deep	178.615	710.235	0.000	255.800	mmho/m	0.530	-36.500
Medium	161.982	1441.110	0.000	255.800	mmho/m	0.440	-110.500

Compensated Density Calibration Report

Serial-Model:	168-986-M&W
Source / Verifier:	/
Master Calibration Performed:	Tue Apr 11 17:07:47 2017

Master Calibration

	Density	Far Detector	Near Detector

Magnesium	1.755	g/cc	4691.86	4818.19	cps
Aluminum	2.695	g/cc	859.57	3020.22	cps

Spine Angle = 74.61 Density/Spine Ratio = 0.534

	Size		Reading
Small Ring	4.00	in	1.00
Large Ring	16.00	in	1.22

Compensated Neutron Calibration Report

Serial Number:	tk10-MW
Tool Model:	M&W
Calibration Performed:	Wed Nov 16 11:21:36 2016

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:	6.2	cps
Sensitivity:	0.5200	GAPI/cps

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Company	MURFIN DRILLING COMPANY, INC.
Well	KEN NO. 4-17
Field	WILDCAT
County	RAWLINS
State	KANSAS