



PIONEER

Pioneer Energy Services

MICRORESISTIVITY LOG

Company MURFIN DRILLING COMPANY, INC.

Well KEN NO. 3-17
Field WILDCAT
County RAWLINS
State KANSAS

Company MURFIN DRILLING COMPANY, INC.
Well KEN NO. 3-17
Field WILDCAT
County RAWLINS State KANSAS

Location: API #: 15-153-21193-00-00

1270' FNL & 2060' FWL

SEC 17 TWP 1S RGE 35W

Permanent Datum GROUND LEVEL Elevation 3176'
Log Measured From KELLY BUSHING
Drilling Measured From KELLY BUSHING

Other Services
CNL/CDL
DIL/BHCS
Elevation
K.B. 3181'
D.F. N/A
G.L. 3176'

Date 7/14/2017

Run Number TWO

Depth Driller 4470'

Depth Logger 4470'

Bottom Logged Interval 4469'

Top Log Interval 250'

Casing Driller 8.625" @ 261'

Casing Logger 260'

Bit Size 7.875"

Type Fluid in Hole CHEMICAL

Salinity, ppm CL 600

Density / Viscosity 9.0 62

pH / Fluid Loss 10.5 5.6

Source of Sample FLOWLINE

Rm @ Meas. Temp 1.10 @ 76

Rmt @ Meas. Temp .83 @ 76

Rmc @ Meas. Temp 1.49 @ 76

Source of Rmt / Rmc CHARTS

Rm @ BHT .69 @ 121

Operating Rig Time 4 HOURS

Max Rec. Temp. F 121 DEGF

Equipment Number 108

Location HAYS

Recorded By J. HENRICKSON

Witnessed By CLAYTON ERICKSON

<<< Fold Here >>>

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 5 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:

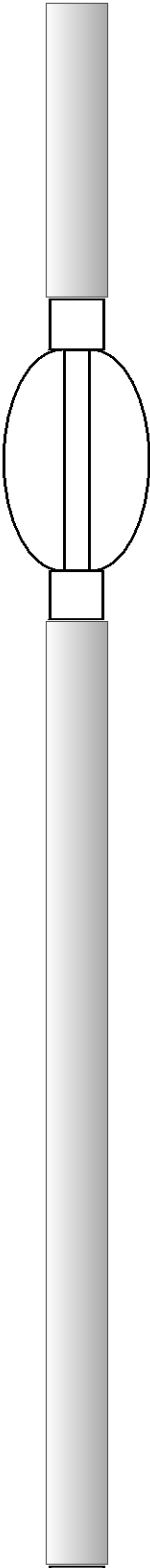
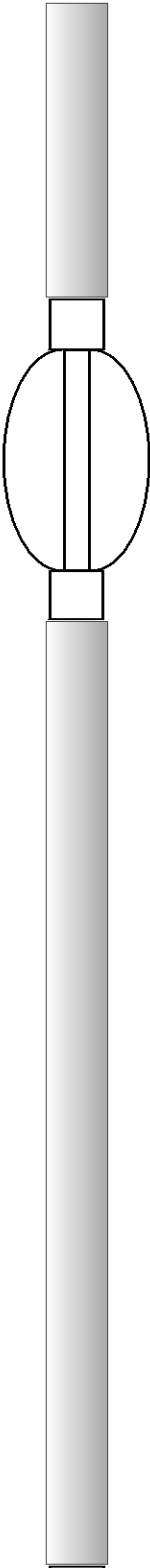
This Log Record Was Witnessed By

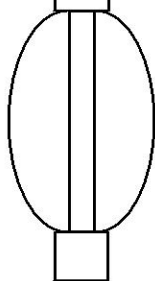
Primary Witness: CLAYTON ERICKSON
Secondary Witness:
Secondary Witness:
Secondary Witness:

DatabaseC:\ProgramData\Warrior\Data\murfin_ken_3_17.db
Dataset field/well/stack/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	-470	84	Off	4470

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)	
MCAL MI MN	28.00		ML-Armadillo (Armadillo-4) Pengo micro log tool mandrel with Armadillo Electronics	5.00	3.50	100.00	
	28.00						
	28.00						
			CENT-PENGO	5.50	3.00	70.00	
WVF4 WVF1	13.50 13.50		SLT-PENGO (0001)	16.00	3.50	300.00	
WVF3 WVF2	11.50 11.50						



CENT-PENGO

5.50

3.00

70.00

Dataset: murfin_ken_3_17.db: field/well/SONMEL/pass3
Total length: 32.00 ft
Total weight: 540.00 lb
O.D.: 3.50 in

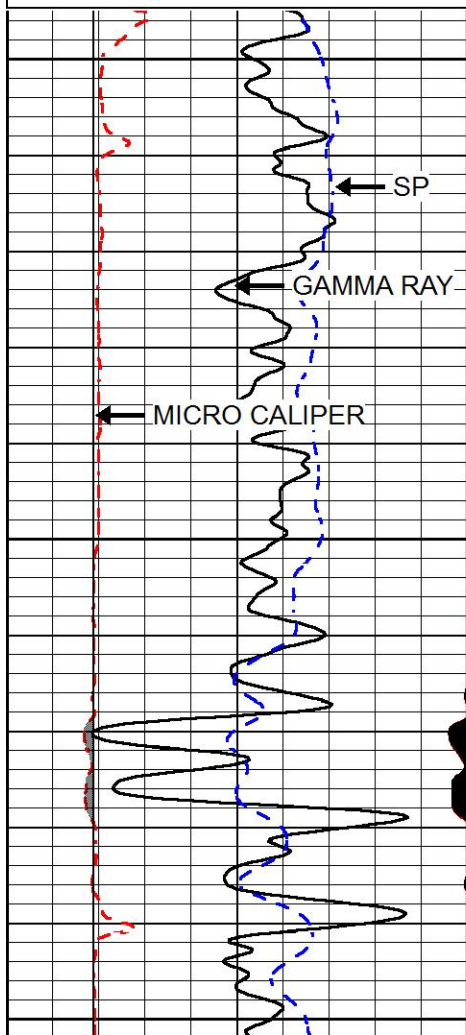


MAIN PASS

Database File murfin_ken_3_17.db
Dataset Pathname stack/pass3.1
Presentation Format micro
Dataset Creation Fri Jul 14 15:35:11 2017
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



3500

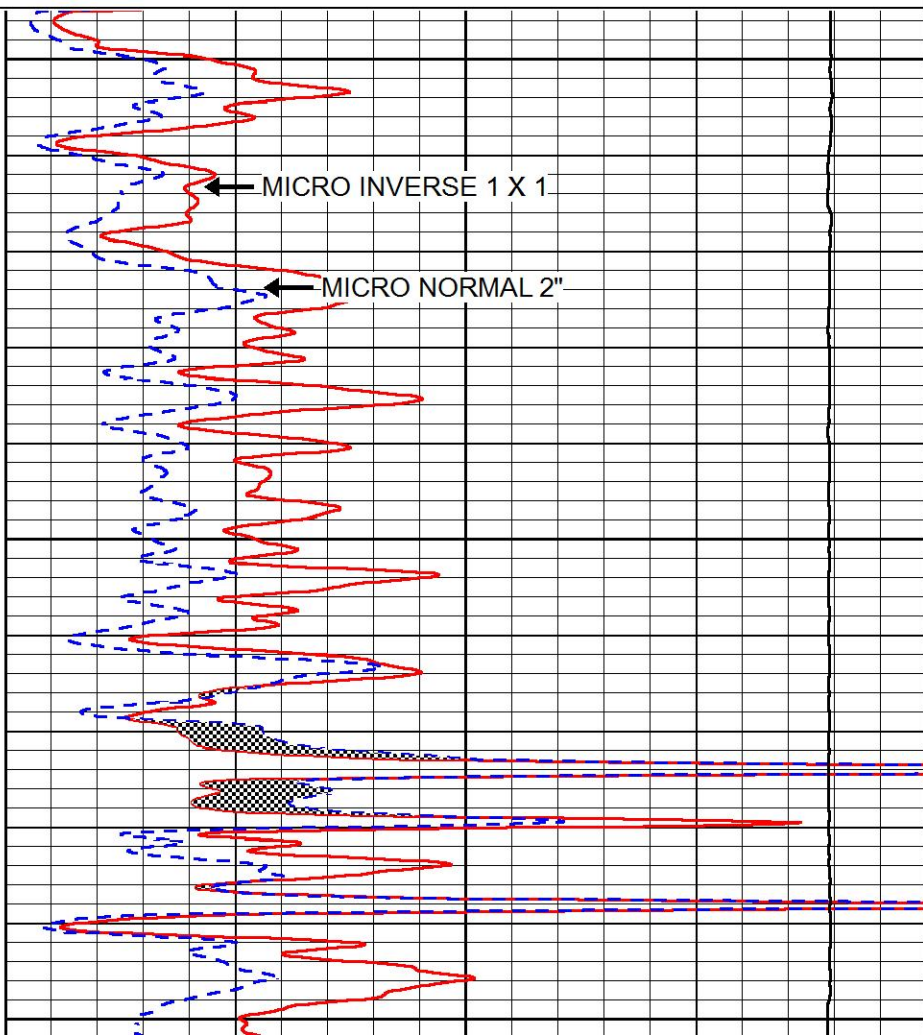
SP

GAMMA RAY

MICRO CALIPER

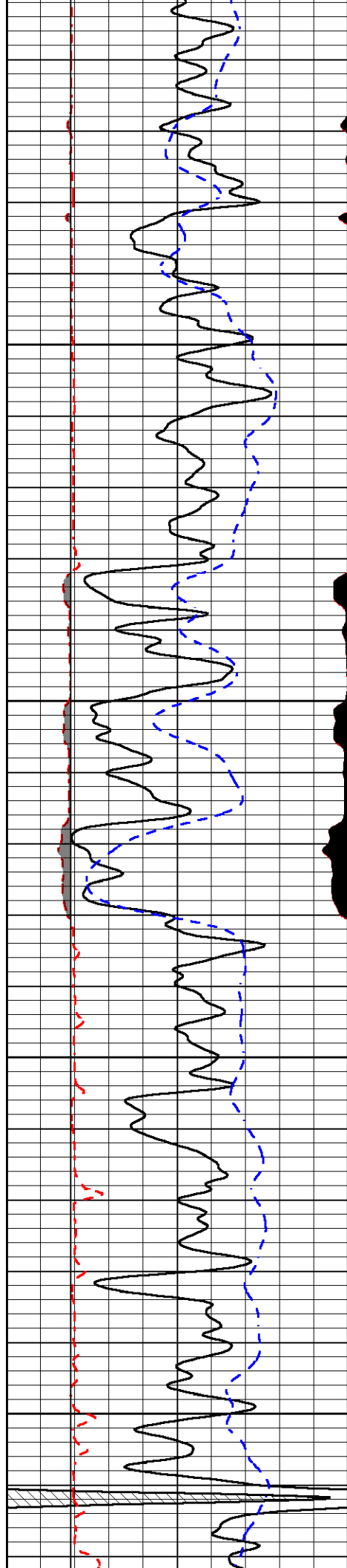
3550

3600



MICRO INVERSE 1 X 1

MICRO NORMAL 2"

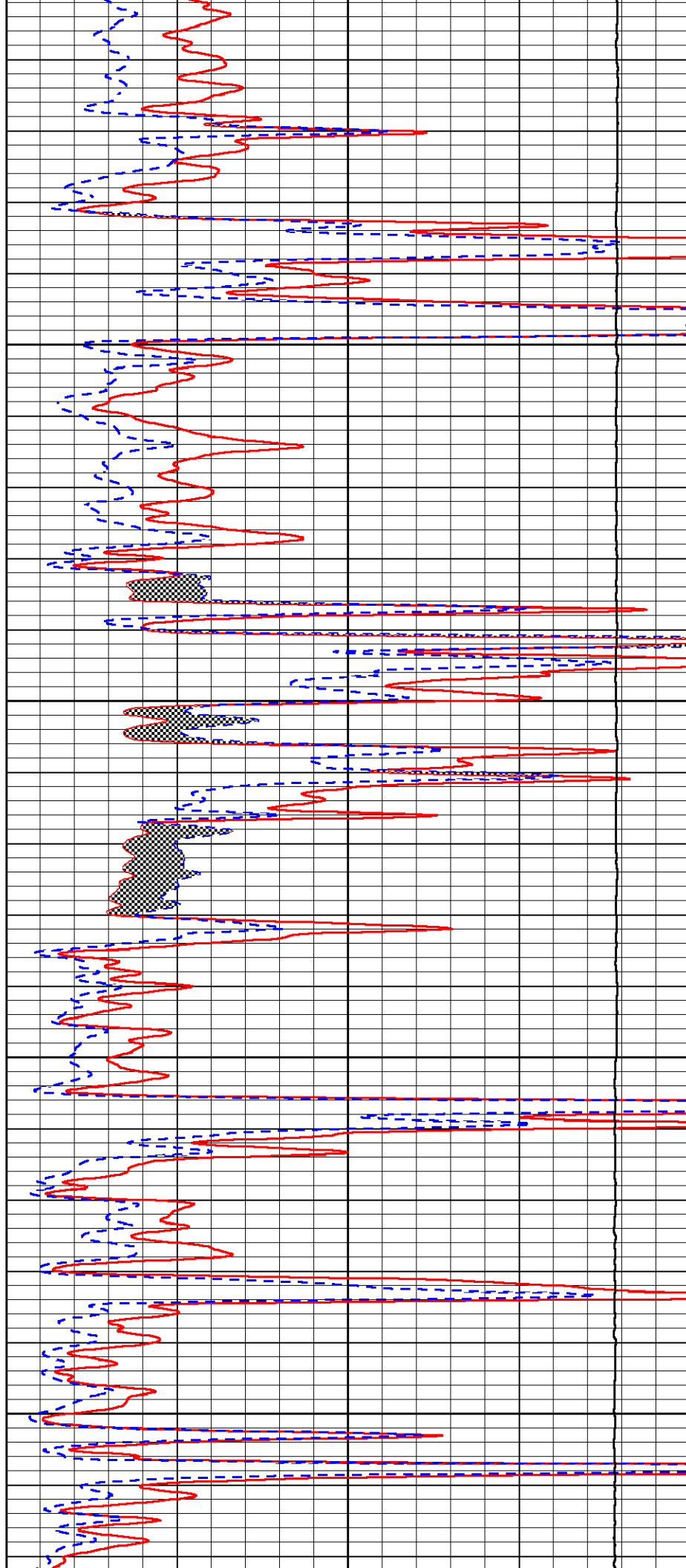


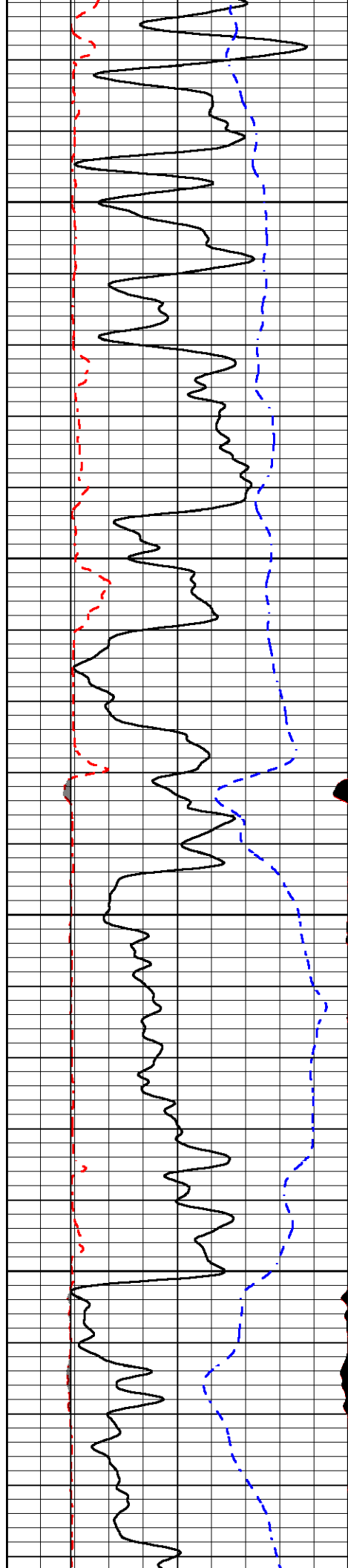
3650

3700

3750

3800



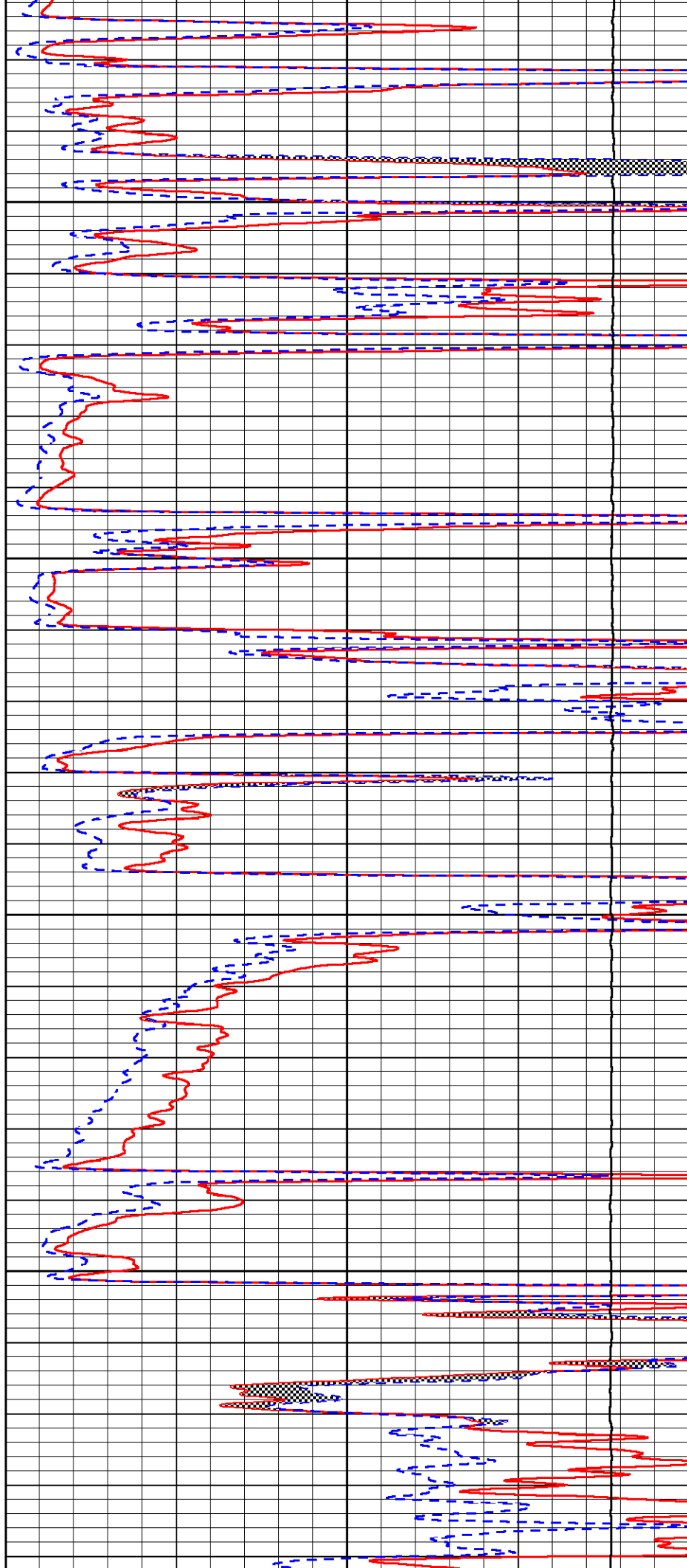


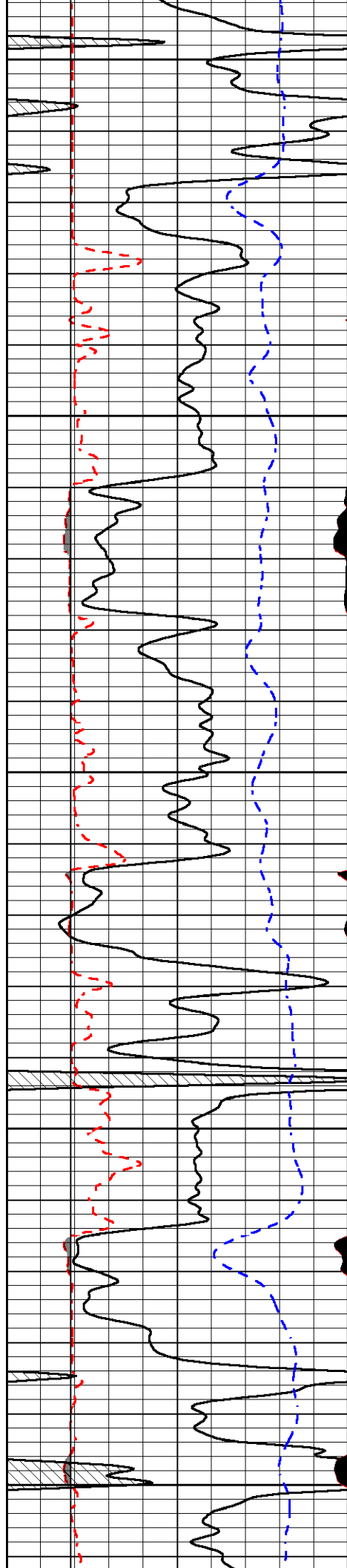
3850

3900

3950

4000





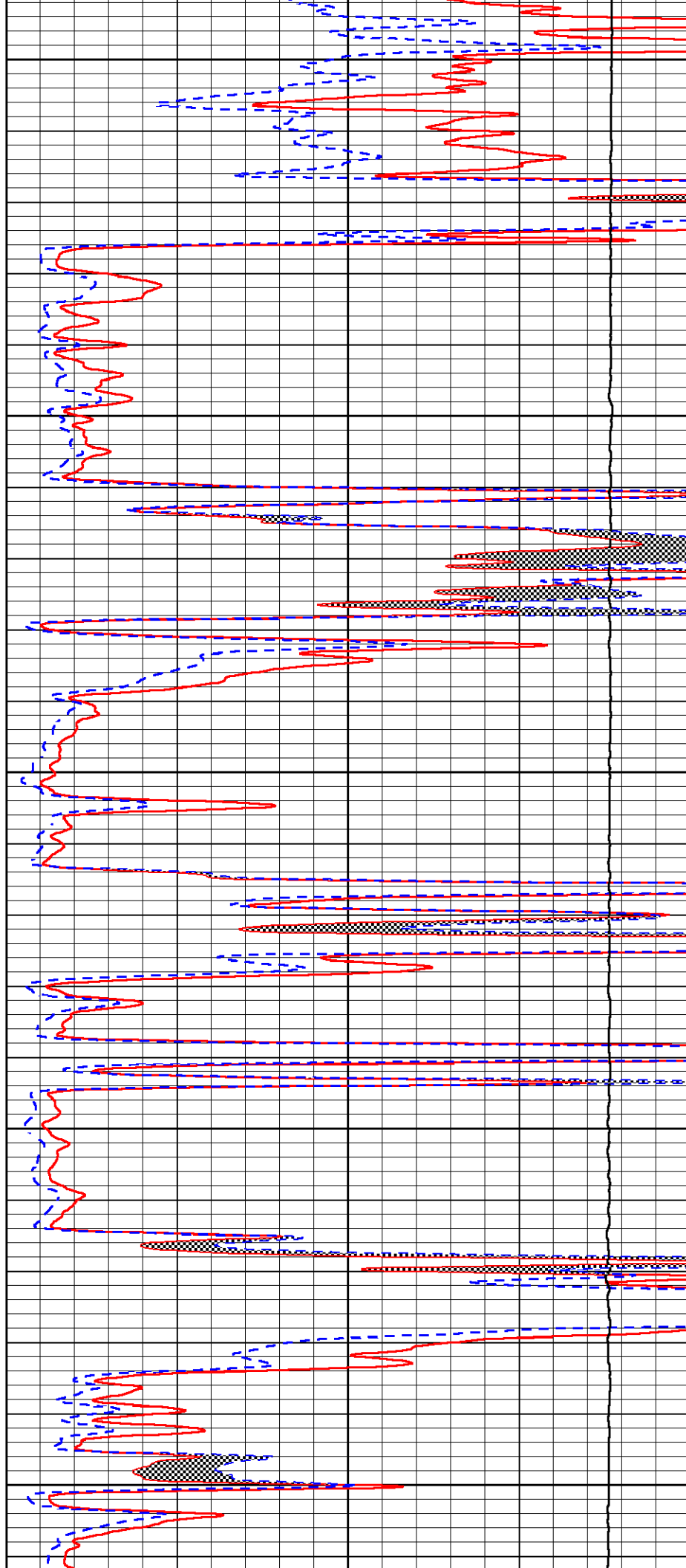
4050

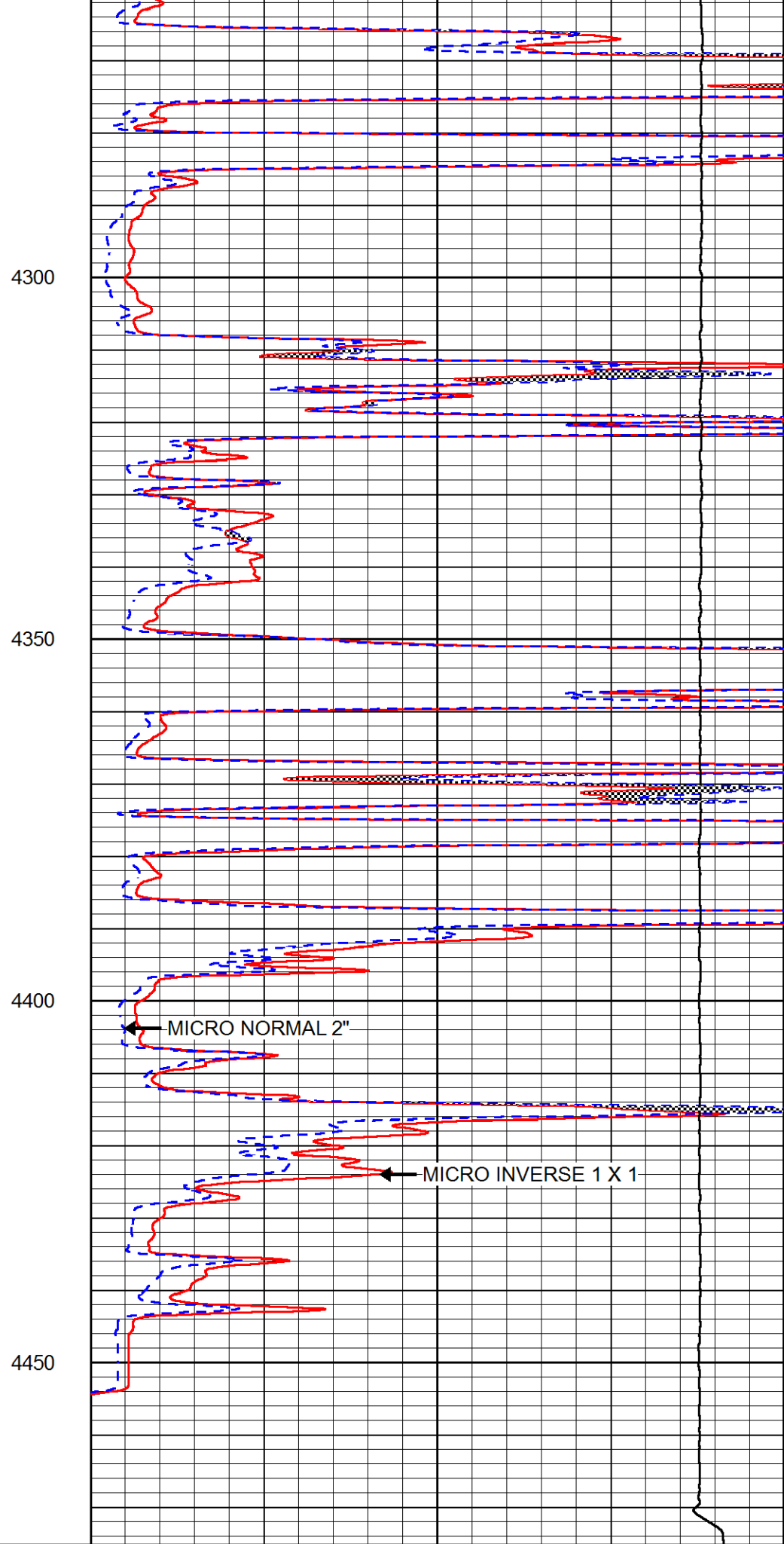
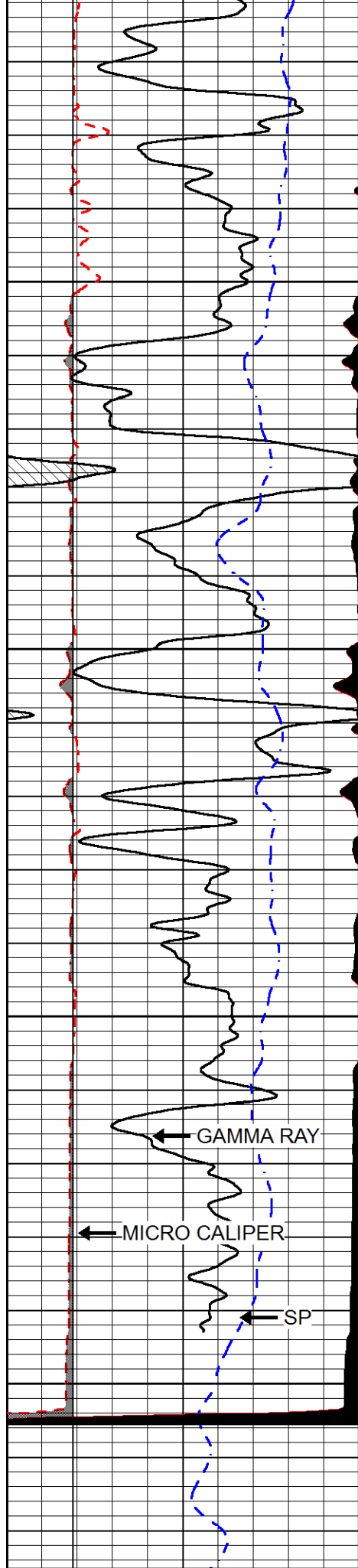
4100

4150

4200

4250





6	MICRO CALIPER (in)	16
6	BIT SIZE (in)	16
-200	SP (mV)	0

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

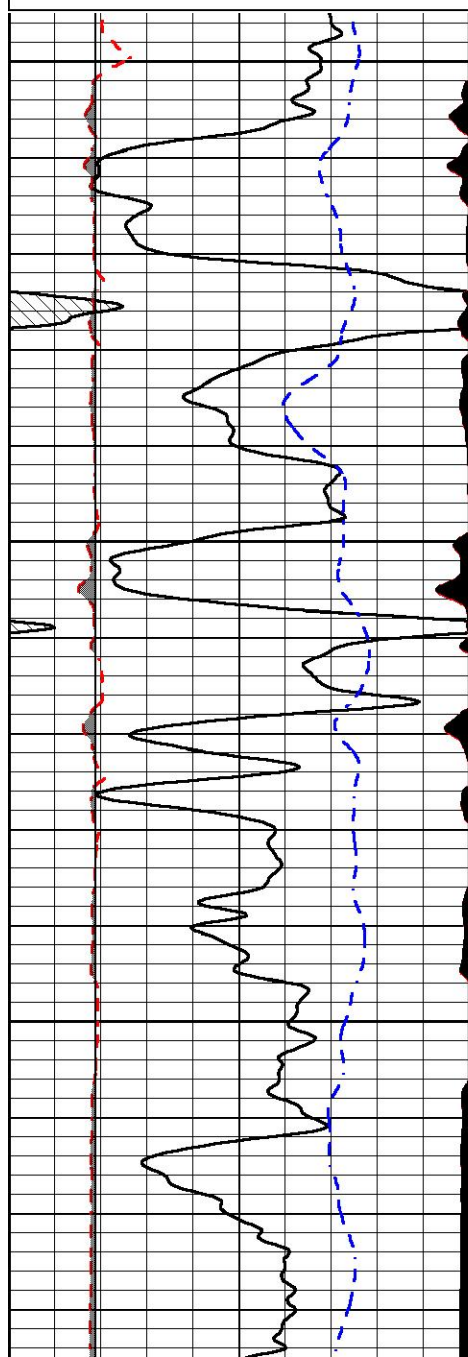


REPEAT SECTION

Database File murfin_ken_3_17.db
Dataset Pathname stack/pass2.1
Presentation Format micro
Dataset Creation Fri Jul 14 14:32:37 2017
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

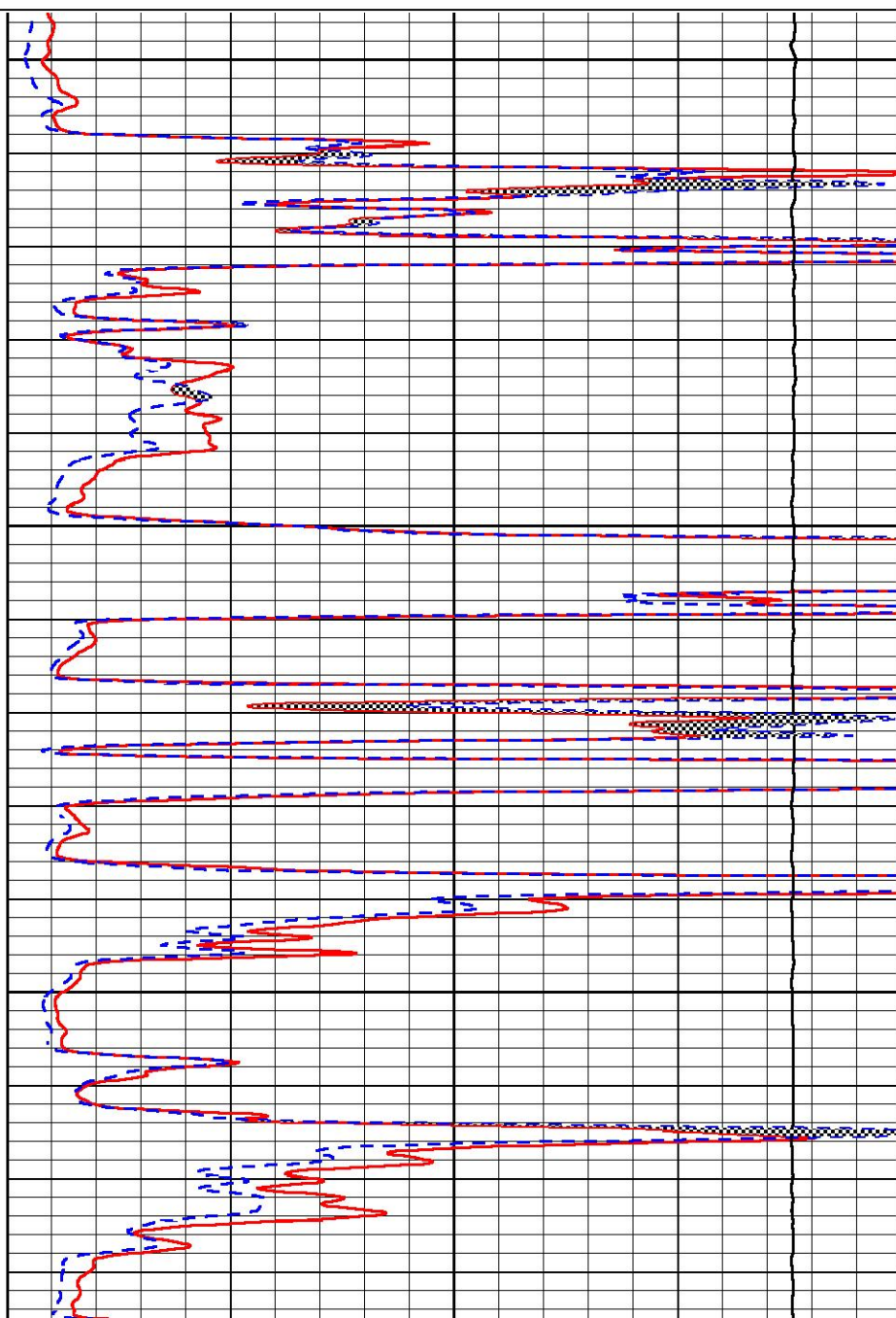
0	MICRO INVERSE 1 X 1 (Ohm-m)	40
0	MICRO NORMAL 2" (Ohm-m)	40
15000	LINE TENSION (lb)	0

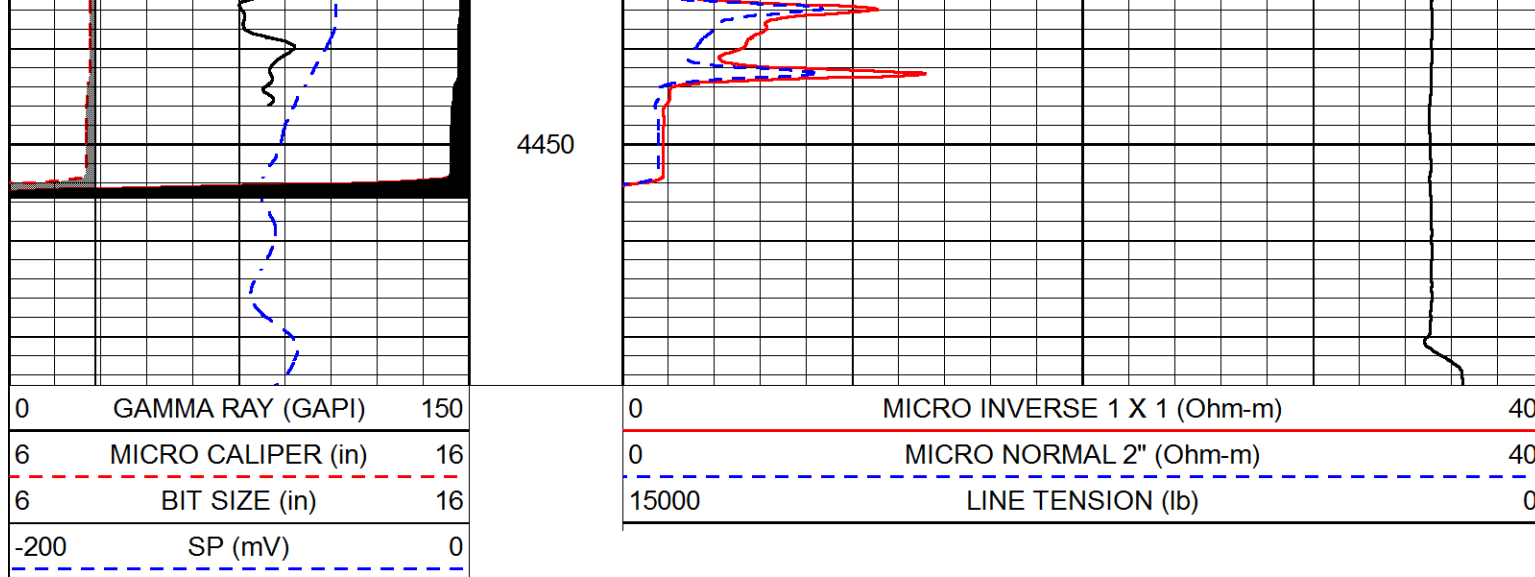


4300

4350

4400





Calibration Report

Database File murfin_ken_3_17.db
Dataset Pathname stack/pass3.1
Dataset Creation Fri Jul 14 15:35:11 2017

Dual Induction Calibration Report

Serial-Model: 1987-M&W
Calibration Performed: Tue Apr 11 16:07:38 2017

Loop:	Readings		References			Results	
	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 16:07:47 2017

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	4691.86	4818.19	cps
Aluminum	2.675	g/cc	859.57	3020.22	cps
Spine Angle = 74.61			Density/Spine Ratio = 0.523		
	Size		Reading		
Small Ring	4.00	in	1.03		
Large Ring	14.00	in	1.23		

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 16:08:01 2017		
Calibrator Value:	1000.0	GAPI	
Background Reading:	0.0	cps	
Calibrator Reading:	6.2	cps	
Sensitivity:	0.5200	GAPI/cps	

 PIONEER Pioneer Energy Services	Company	MURFIN DRILLING COMPANY, INC.
	Well	KEN NO. 3-17
	Field	WILDCAT
	County	RAWLINS
	State	KANSAS