



PIONEER

Pioneer Energy Services

MICRORESISTIVITY LOG

Company MURFIN DRILLING COMPANY, INC.

Well ARGABRIGHT #1-24

Field WILDCAT

County RAWLINS

State KANSAS

Company MURFIN DRILLING COMPANY, INC.

Well ARGABRIGHT #1-24

Field WILDCAT

County RAWLINS State KANSAS

Location: API #: 15-153-21202-00-00

1980' FSL & 330' FWL

SEC 24 TWP 3S RGE 34W

Permanent Datum GROUND LEVEL Elevation 2892'
Log Measured From KELLY BUSHING
Drilling Measured From KELLY BUSHING

Other Services
CNL/CDL
DIL/BHCS
Elevation
K.B. 2897'
D.F. N/A
G.L. 2892'

Date 11/1/2017

Run Number ONE

Depth Driller 4520'

Depth Logger 4520'

Bottom Logged Interval 4519'

Top Log Interval 3450'

Casing Driller 7.875" @ 218'

Casing Logger 219'

Bit Size 7.875"

Type Fluid in Hole CHEMICAL

Salinity, ppm CL 4000

Density / Viscosity 9.1 68

pH / Fluid Loss 11.0 6.4

Source of Sample FLOWLINE

Rm @ Meas. Temp 0.60 @ 55

Rmt @ Meas. Temp 0.45 @ 55

Rmc @ Meas. Temp 0.81 @ 55

Source of Rmt / Rmc CHARTS

Rm @ BHT 0.27 @ 121

Operating Rig Time 5 HOURS

Max Rec. Temp. F 121

Equipment Number 91

Location HAYS

Recorded By D. SCHMIDT

Witnessed By JEFF CHRISTIAN

<<< 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.

ATWOOD,
23 NORTH TO L RD, 1/2 WEST, 3 1/2 NORTH, 1/2 WEST,
NORTH 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: D. SCHMIDT

Operator:

Operator:

Operator:

This Log Record Was Witnessed By

Primary Witness: JEFF CHRISTIAN

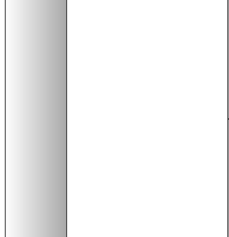
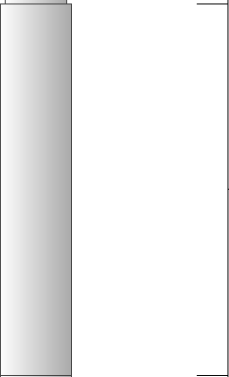
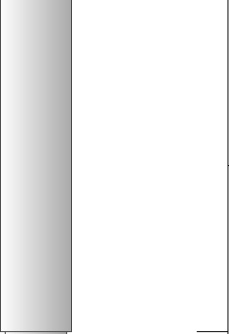
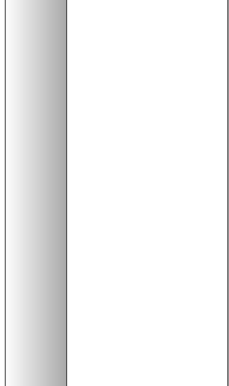
Secondary Witness:

Secondary Witness:

Secondary Witness:

Top - Bottom

M	A	SZCOR	NPORSEL	FLUIDDEN g/cc	MATRXDEN g/cc	SPSHIFT mV	SNDERRM mmho/m
2	1	Off	Limestone	1	2.71	421	0
SNDERR mmho/m	SRFTEMP degF	CASETHCK in	CASEOD in	PERFS	TDEPTH ft	BOTTEMP degF	BOREID in
0	55	0	5.5	0	4520	121	7.875

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
GR	40.58		GR-M&W (89)	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 (90-1031)	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					

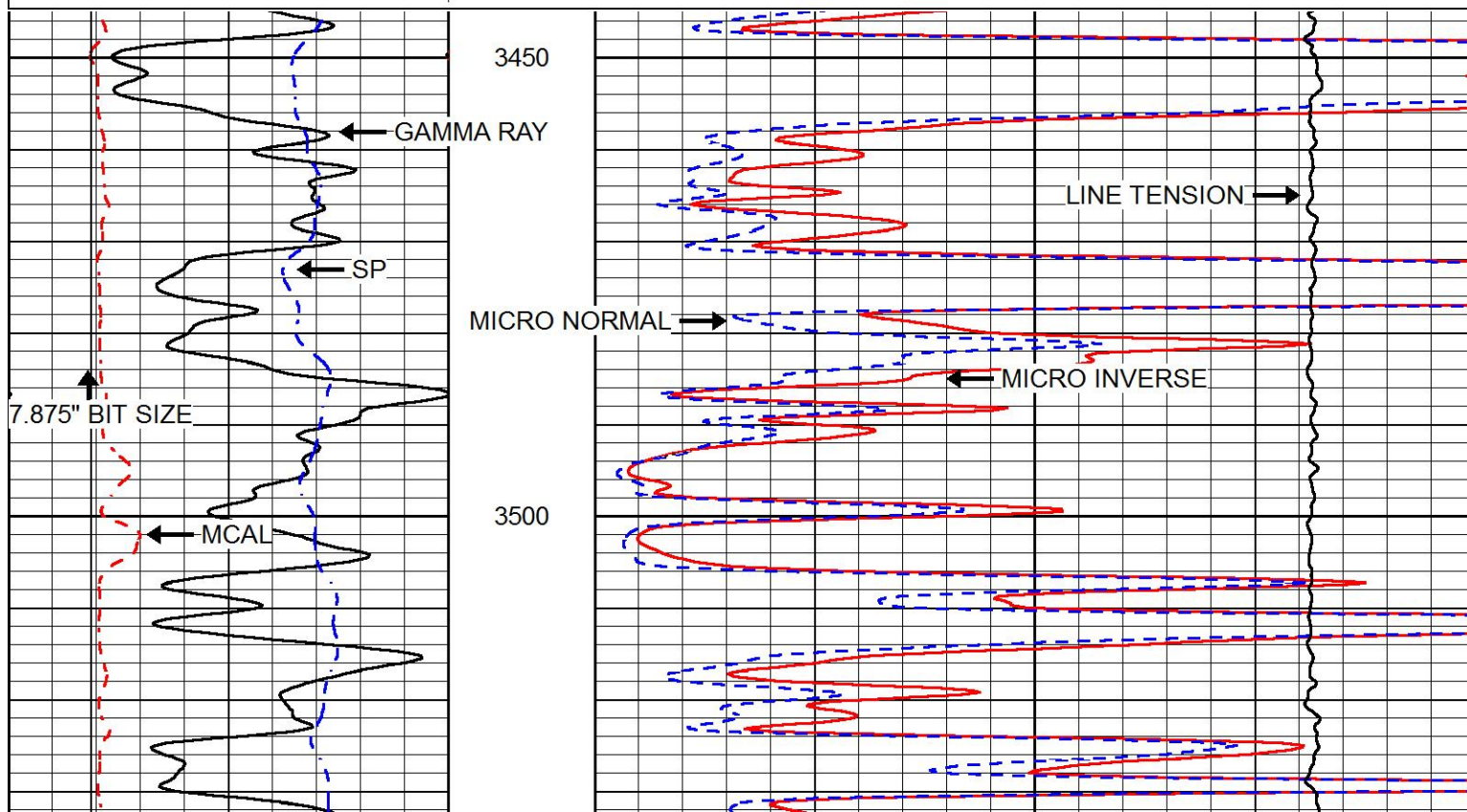
				DIL-M&W (PSI 91)	18.50	3.50	220.00
CILD	8.00						
CILM	4.70						
SP	0.20						
Dataset: murfin_argabright_1-24.db: field/well/STKML/pass3.3 Total length: 43.08 ft Total weight: 685.00 lb O.D.: 4.00 in							

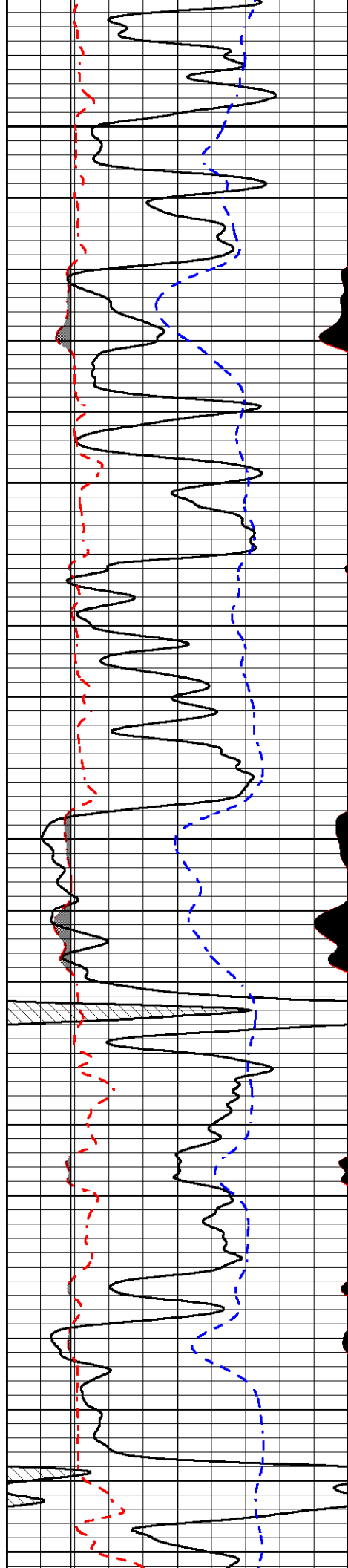


MAIN PASS

Database File	murfin_argabright_1-24.db
Dataset Pathname	STKML/pass3.1
Presentation Format	micro
Dataset Creation	Wed Nov 01 10:11:13 2017
Charted by	Depth in Feet scaled 1:240

0	Gamma Ray (GAPI)	150	0	Micro Inverse 1 X 1 (Ohm-m)	40
6	MCAL (in)	16	0	Micro Normal 2" (Ohm-m)	40
2.875	mcals (in)	7.875	10000	Line Weight (lb)	0
6	Bit Size (in)	16			
-200	SP (mV)	0			





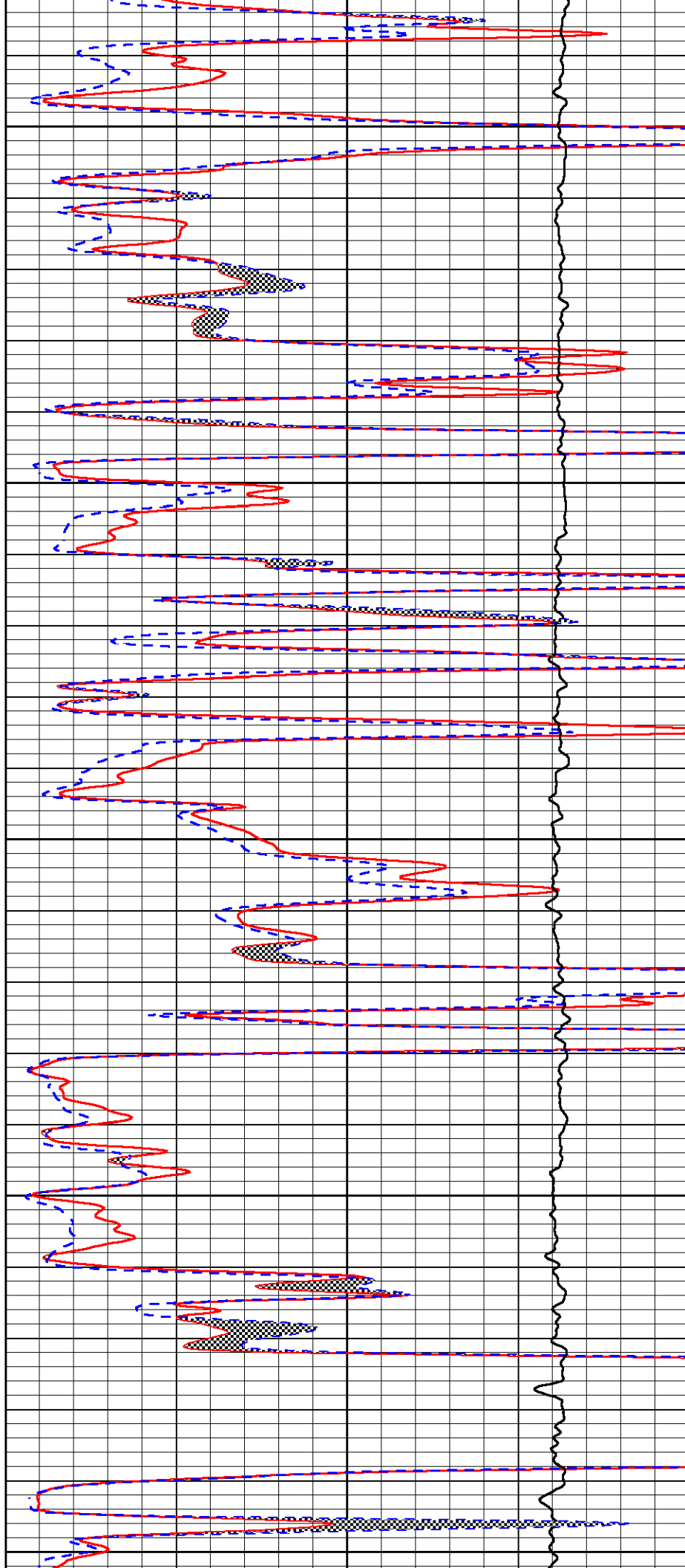
3550

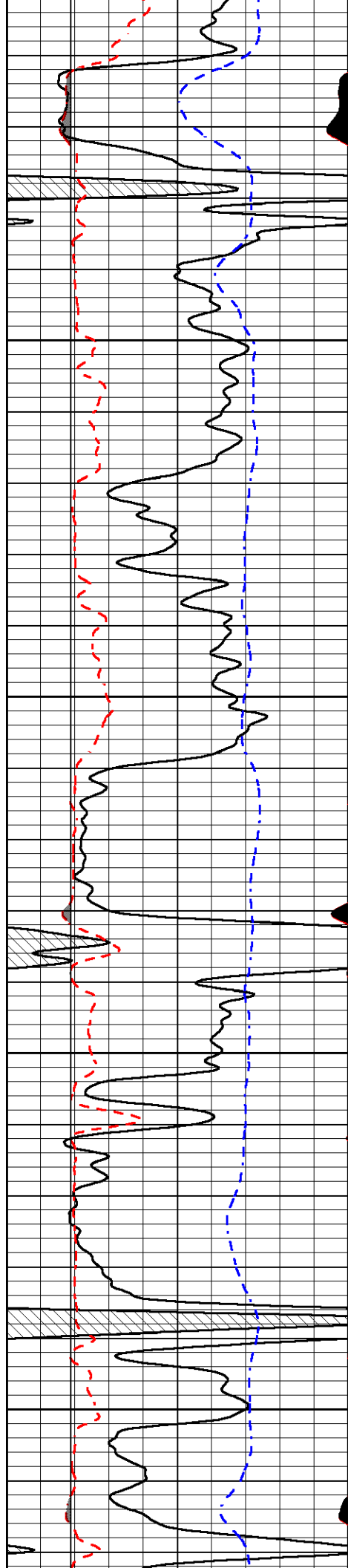
3600

3650

3700

3750



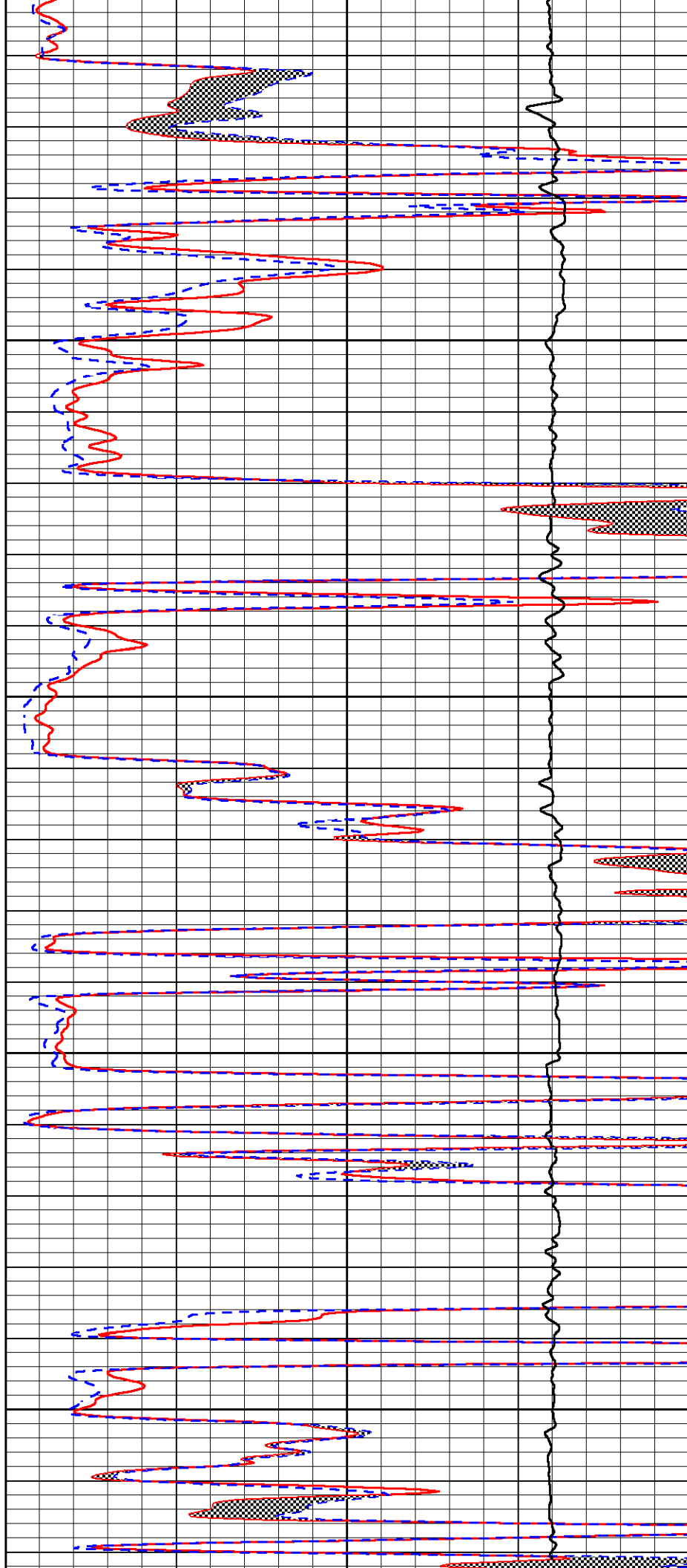


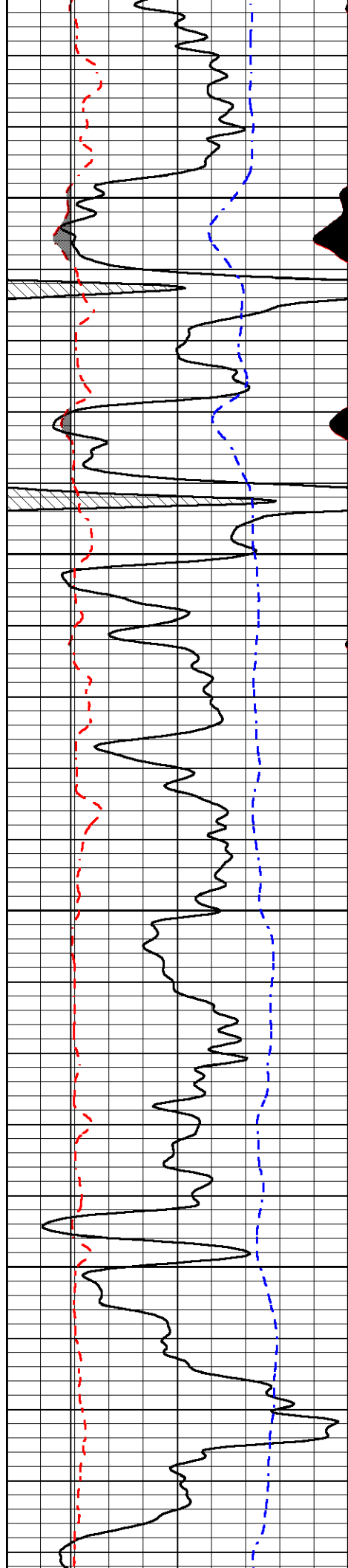
3800

3850

3900

3950



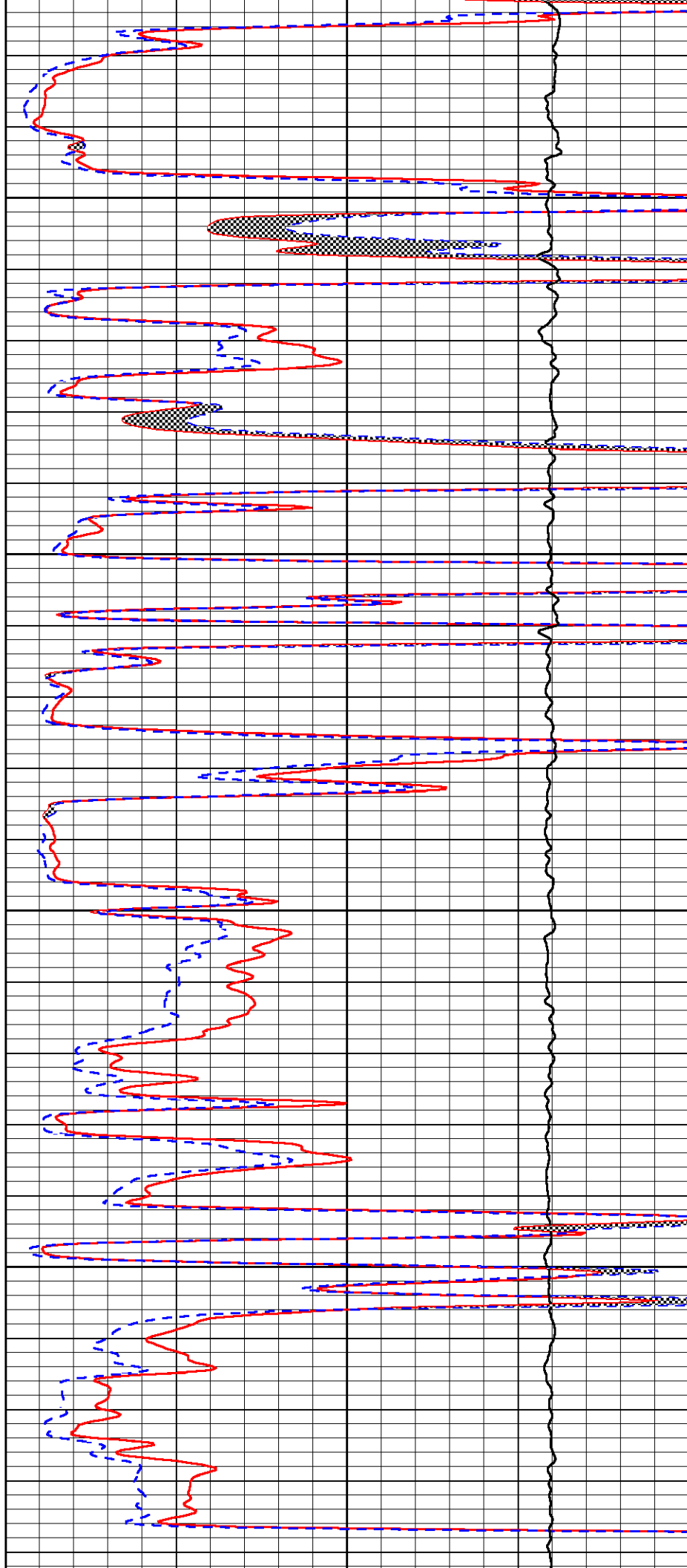


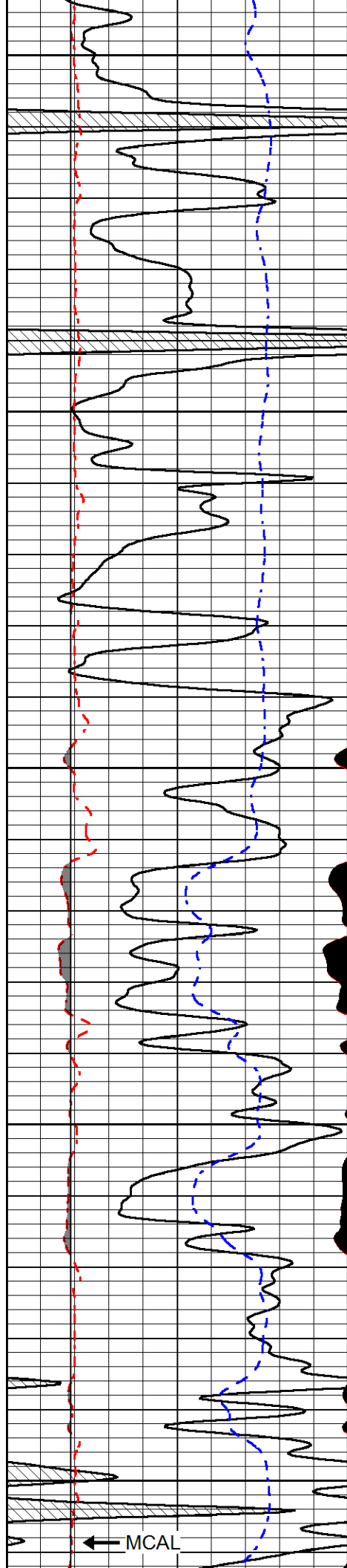
4000

4050

4100

4150





4200

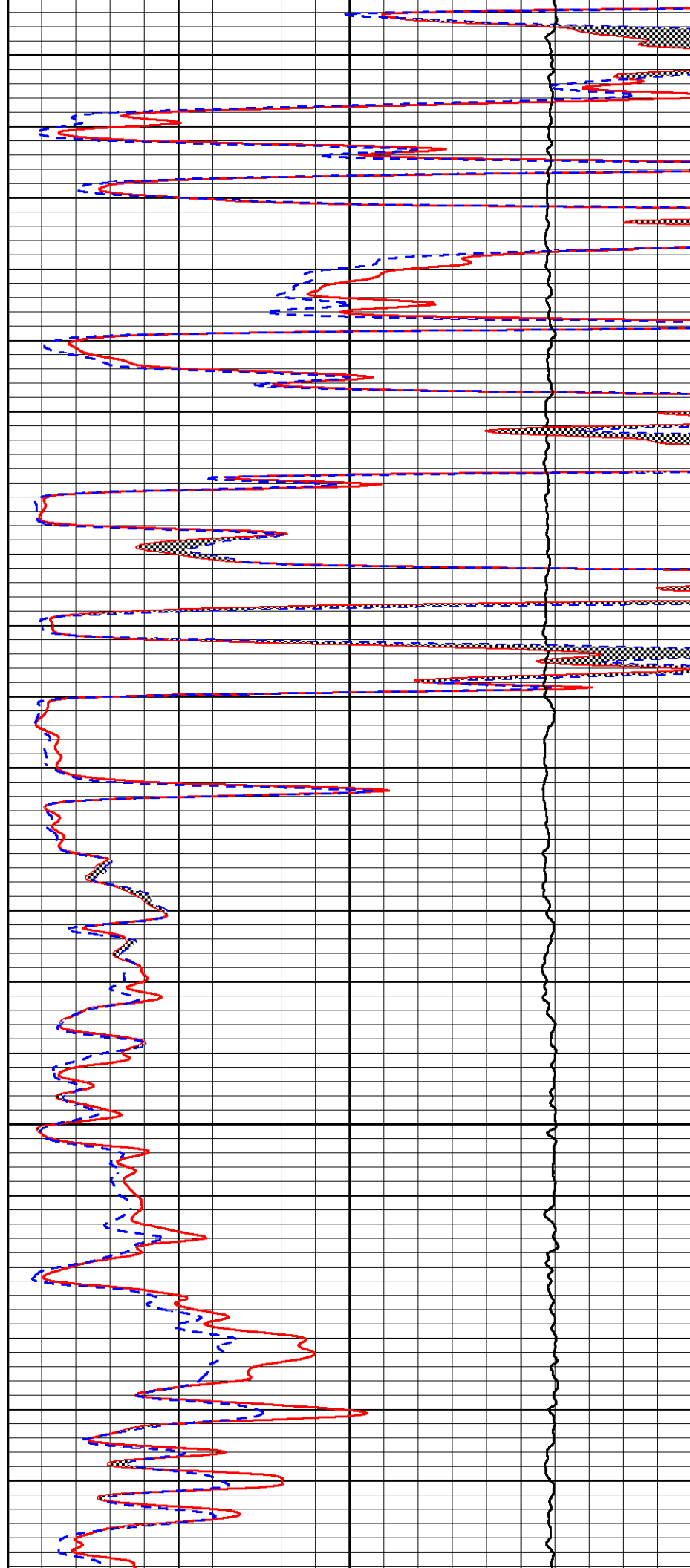
4250

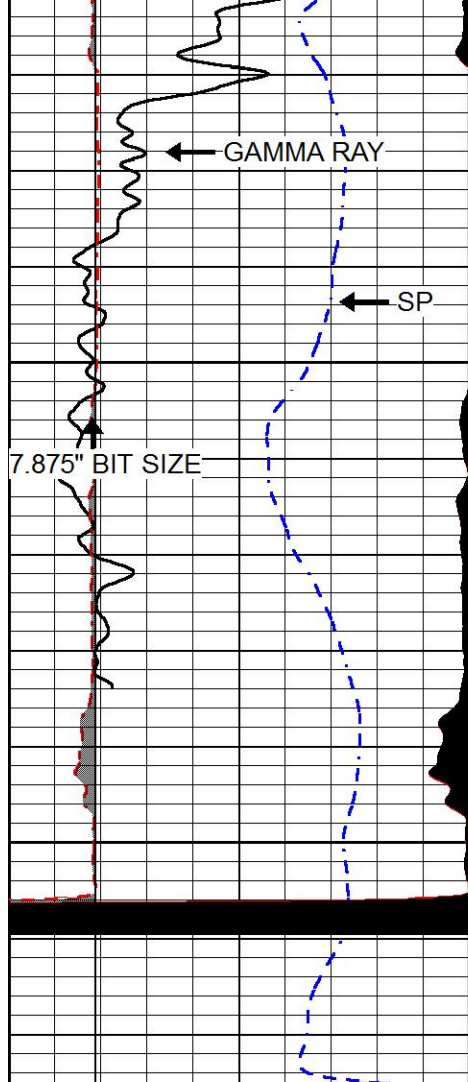
4300

4350

4400

MCAL

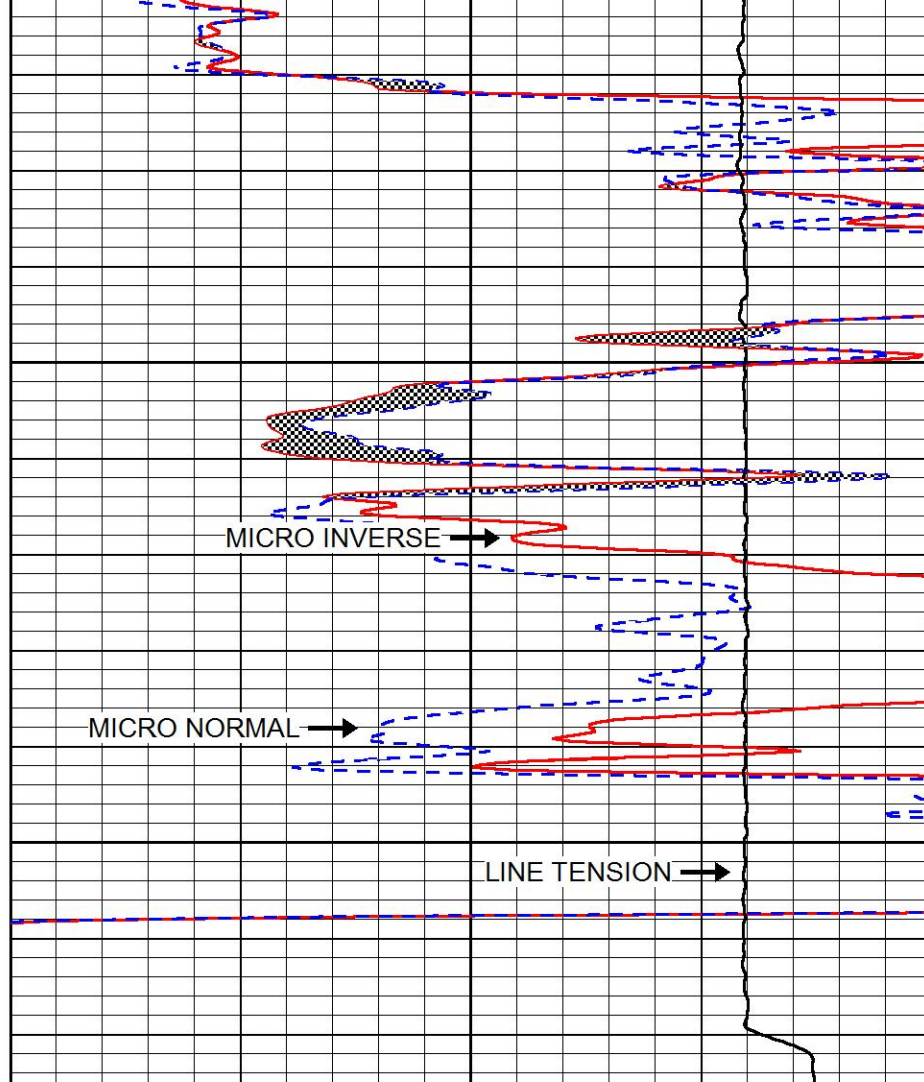




0	Gamma Ray (GAPI)	150
6	MCAL (in)	16
2.875	mcal (in)	7.875
6	Bit Size (in)	16
-200	SP (mV)	0

4450

4500



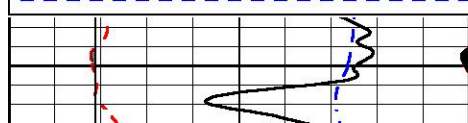
0	Micro Inverse 1 X 1 (Ohm-m)	40
0	Micro Normal 2" (Ohm-m)	40
10000	Line Weight (lb)	0



REPEAT SECTION

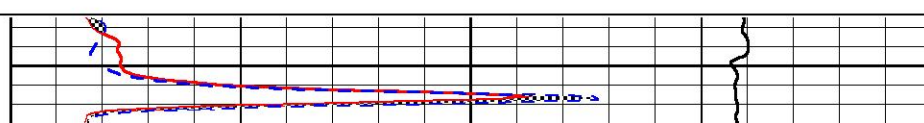
Database File: murfin_argabright_1-24.db
 Dataset Pathname: STKML/pass2.2
 Presentation Format: micro
 Dataset Creation: Wed Nov 01 09:34:25 2017
 Charted by: Depth in Feet scaled 1:240

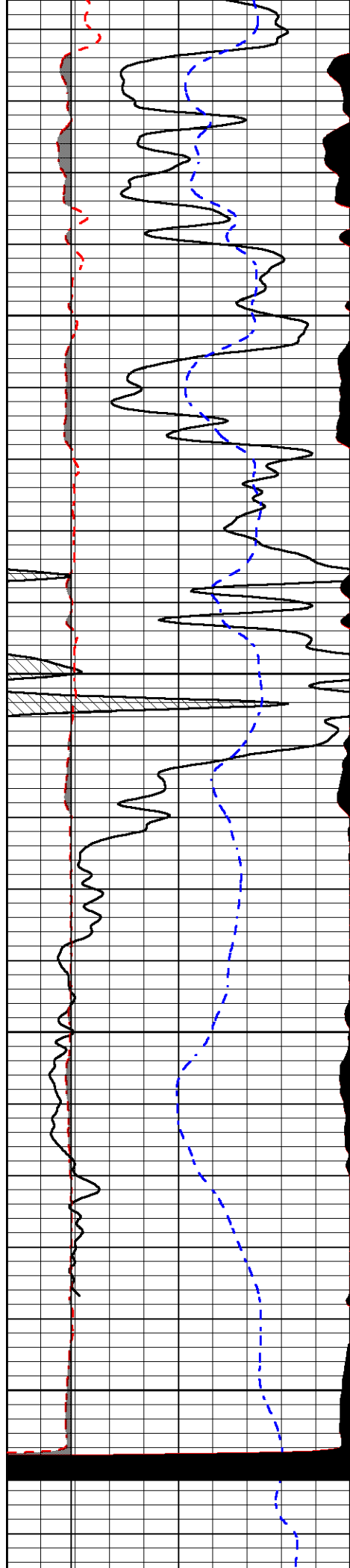
0	Gamma Ray (GAPI)	150
6	MCAL (in)	16
2.875	mcal (in)	7.875
6	Bit Size (in)	16
-200	SP (mV)	0



4300

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



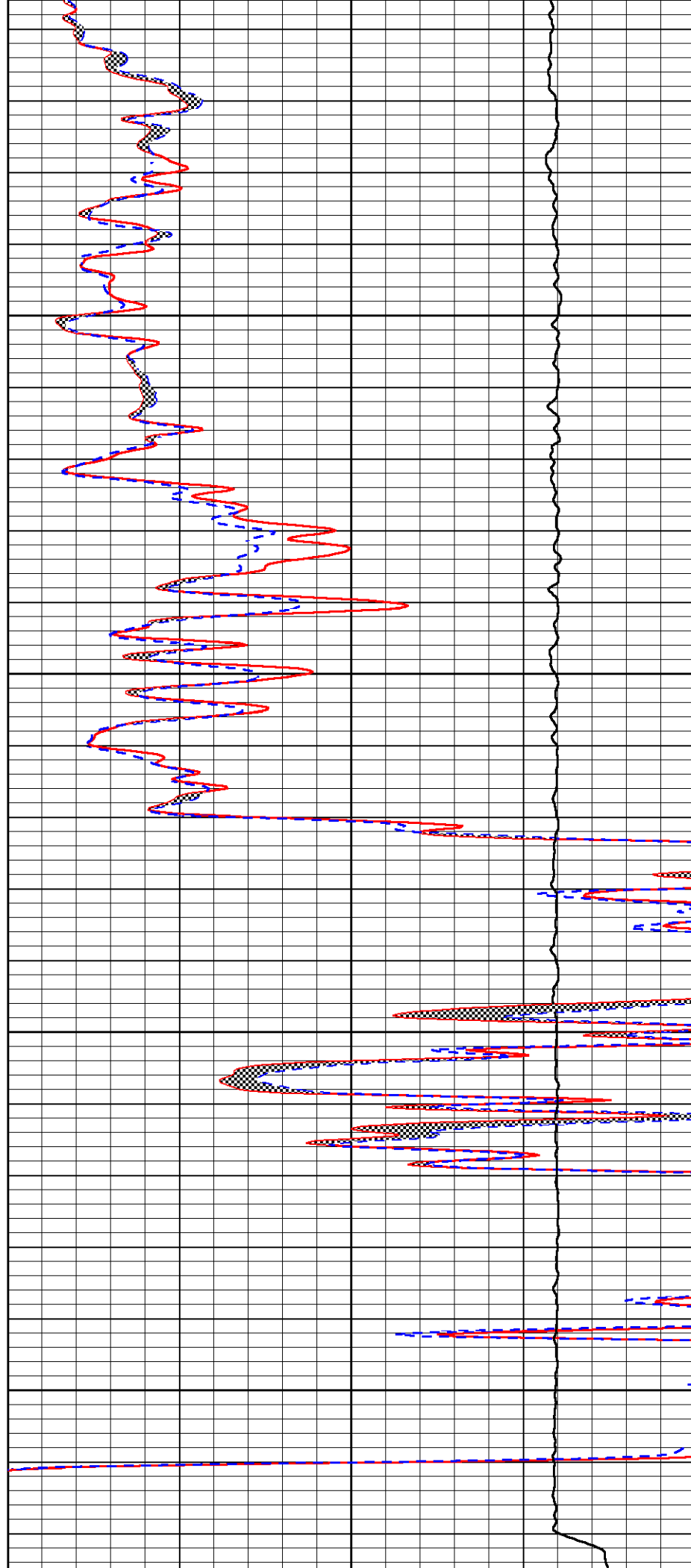


4350

4400

4450

4500



0	Gamma Ray (GAPI)	150	0	Micro Inverse 1 X 1 (Ohm-m)	40
6	MCAL (in)	16	0	Micro Normal 2" (Ohm-m)	40
2.875	mcAl (in)	7.875	10000	Line Weight (lb)	0
6	Bit Size (in)	16			
-200	SP (mV)	0			

Calibration Report									
Database File		murfin_argabright_1-24.db							
Dataset Pathname		STKML/pass3.3							
Dataset Creation		Wed Nov 01 10:04:03 2017							
Dual Induction Calibration Report									
Serial-Model:					PSI 91-M&W				
Calibration Performed:					Wed Sep 13 22:23:16 2017				
		Readings		References			Results		
Loop:	Air	Loop		Air	Loop		Gain	Offset	
Deep	166.796	835.089		0.000	255.800	mmho/m	0.430	-34.000	
Medium	142.009	1348.560		0.000	255.800	mmho/m	0.360	-31.000	
Microlog Calibration Report									
Serial-Model:					PSI-01-PSIML				
Performed:					Wed Nov 01 08:41:04 2017				
		Readings		References			Results		
	Zero	Cal		Zero	Cal		m	b	
Normal	0.0000	1.0000		0.0000	1.0000	Ohm-m	47000.0000	-2.2000	
Inverse	0.0000	1.0000		0.0000	1.0000	Ohm-m	60000.0000	-1.5000	
Caliper	1.0001	1.1397		6.5000	18.5000	in	100.0000	-97.2250	
Compensated Density Calibration Report									
Serial-Model:					90-1031-M&W				
Source / Verifier:					16955B / 2ci				
Master Calibration Performed:					Wed Sep 06 19:51:03 2017				
Master Calibration									
		Density		Far Detector		Near Detector			
Magnesium		1.755	g/cc	4903.44		6153.79	cps		
Aluminum		2.640	g/cc	934.50		4021.31	cps		
Spine Angle = 75.61				Density/Spine Ratio = 0.517					
		Size		Reading					
Small Ring		8.00	in	1.84					
Large Ring		22.00	in	1.46					
Compensated Neutron Calibration Report									
Serial Number:					207 MW				

Serial Number: 207-MWV
Tool Model: M&W
Calibration Performed: WED SEP 6 10:30:30 2017

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	
Tool Model:	M&W	
Calibration Performed:	Wed Sep 06 19:51:14 2017	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.6000	GAPI/cps



Company	MURFIN DRILLING COMPANY, INC.
Well	ARGABRIGHT #1-24
Field	WILDCAT
County	RAWLINS
State	KANSAS