



PIONEER

Pioneer Energy Services

MICRORESISTIVITY LOG

Company **MURFIN DRILLING COMPANY, INC**
 Well **CWA 'E' #1-17**
 Field **WILDCAT**
 County **RAWLINS** State **KANSAS**

Location: **API #: 15-153-21200-00-00**
1100' FNL & 330' FWL
SEC 17 TWP 3S RGE 35W
 Permanent Datum **GROUND LEVEL Elevation 3253'**
 Log Measured From **KELLY BUSHING**
 Drilling Measured From **KELLY BUSHING**
 Other Services **CNL/CDL DIL/BHCS**
 Elevation **K.B. 3258' D.F. N/A G.L. 3253'**

Date	9/20/2017
Run Number	ONE
Depth Driller	4900'
Depth Logger	4902'
Bottom Logged Interval	4901'
Top Log Interval	3850'
Casing Driller	8.625" @ 345'
Casing Logger	343'
Bit Size	7.875"
Type Fluid in Hole	CHEMICAL
Salinity, ppm CL	3400
Density / Viscosity	9.2 64
pH / Fluid Loss	11.0 6.0
Source of Sample	FLOWLINE
Rm @ Meas. Temp	0.50 @ 80
Rmt @ Meas. Temp	0.38 @ 80
Rmc @ Meas. Temp	0.68 @ 80
Source of Rmf / Rmc	CHARTS
Rm @ BHT	0.32 @ 125
Operating Rig Time	5 HOURS
Max Rec. Temp. F	125
Equipment Number	91
Location	HAYS
Recorded By	D. SCHMIDT
Witnessed By	PAUL GUNZELMAN

<<< 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,
WEST TO 8 RD, 3/4 NORTH,
EAST 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	This Log Record Was Witnessed By
Engineer: D. SCHMIDT	Primary Witness: PAUL GUNZELMAN
Operator:	Secondary Witness:
Operator:	Secondary Witness:
Operator:	Secondary Witness:

Top - Bottom

M	A	SPSHIFT mV	SNDERRM mmho/m	SNDERR mmho/m	SZCOR	NPORSEL	FLUIDDEN g/cc
2	1	140	0	0	Off	Limestone	1
MATRXDEN g/cc	SRFTEMP degF	CASETHCK in	CASEOD in	PERFS	TDEPTH ft	BOTTEMP degF	BOREID in
2.71	80	0	5.5	0	4902	125	7.875

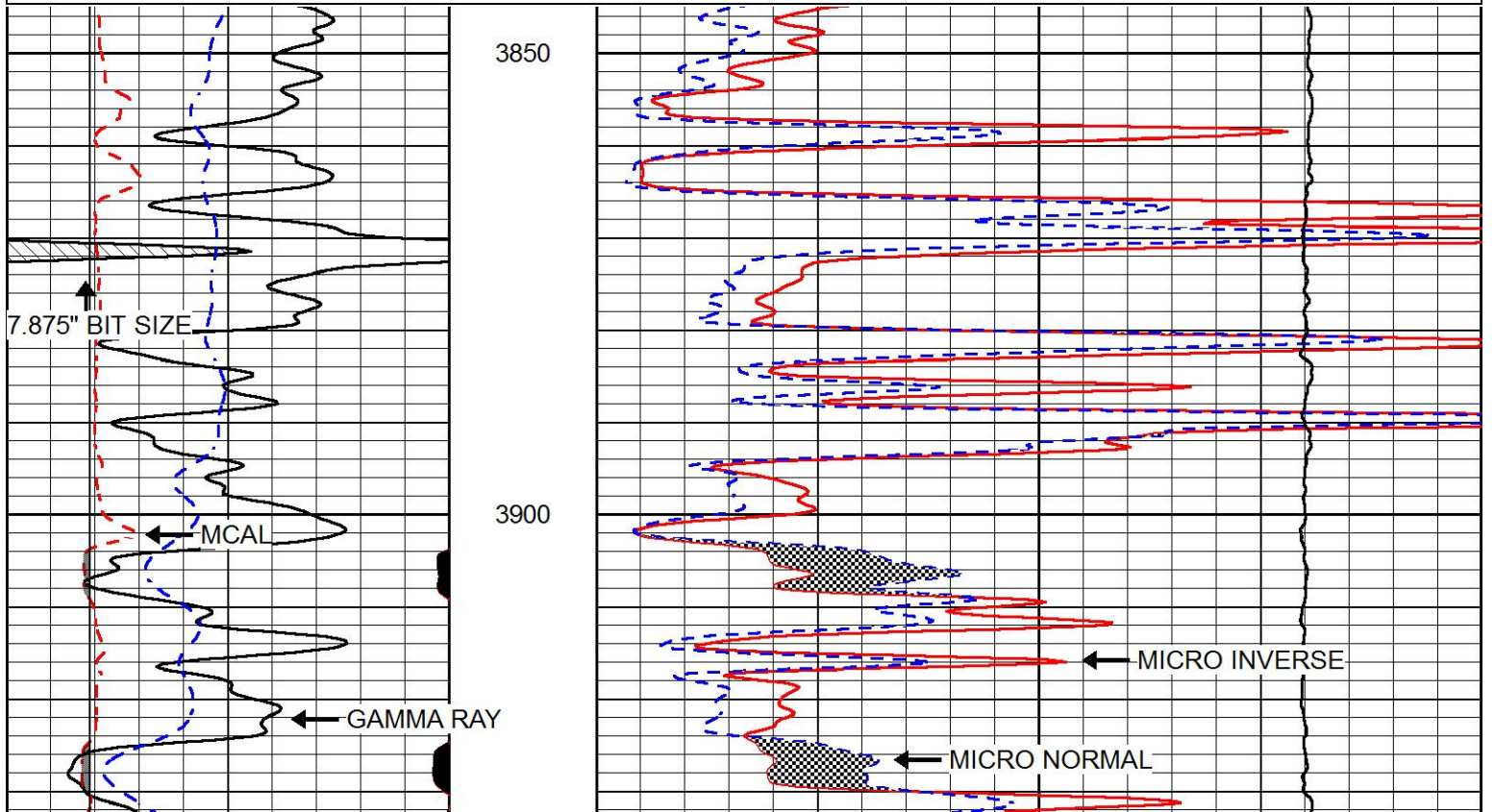
Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
GR	40.58		GR-M&W (89)	3.00	3.50	50.00
CNLSC CNSSC	37.48 36.73		CNT-M&W (207-MW)	5.50	3.50	100.00
LSD DCAL SSD	28.43 28.42 27.93		CDL-M&W (90-1031)	8.50	4.00	250.00
MCAL MI MN	19.83 19.83 19.83		ML-PSIML (PSI-01) GO Micro log tools converted to Simplec electronics	7.58	4.00	65.00
RLL3F RLL3	15.80 15.80					

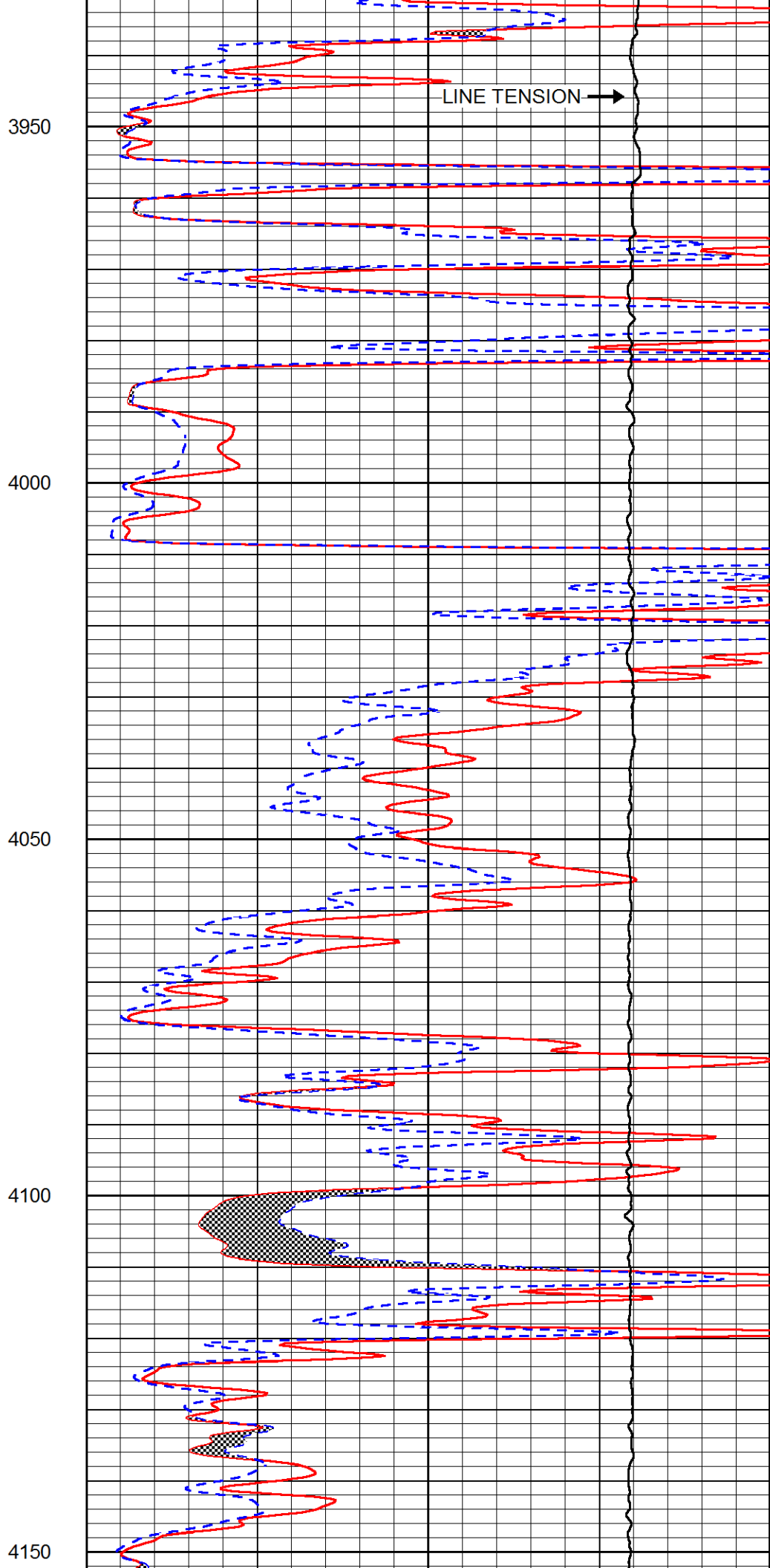
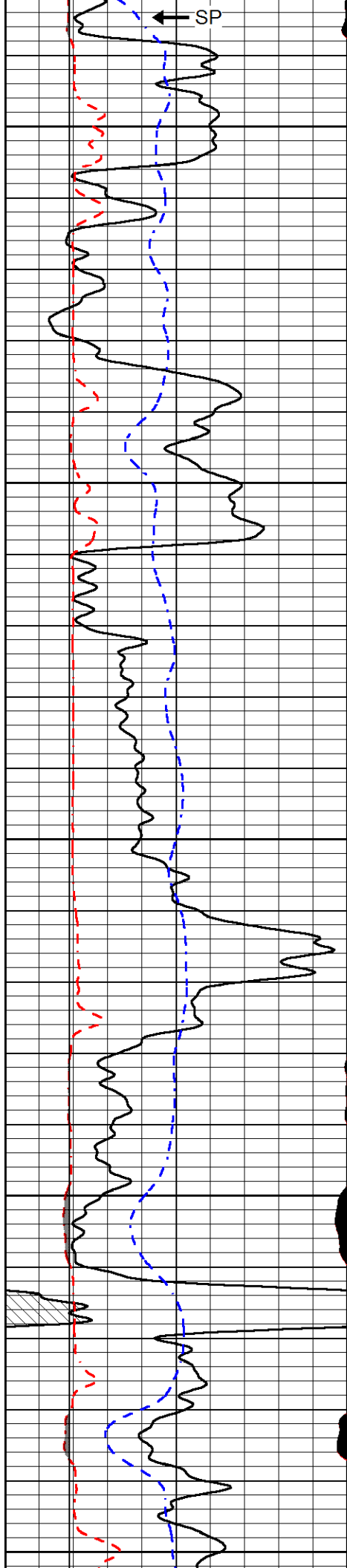
CILD	8.00		DIL-M&W (PSI 91)	18.50	3.50	220.00
CILM	4.70					
SP	0.20					
Dataset: murfin_cwa_e 1-17.db: field/well/stkml/pass3.1 Total length: 43.08 ft Total weight: 685.00 lb O.D.: 4.00 in						

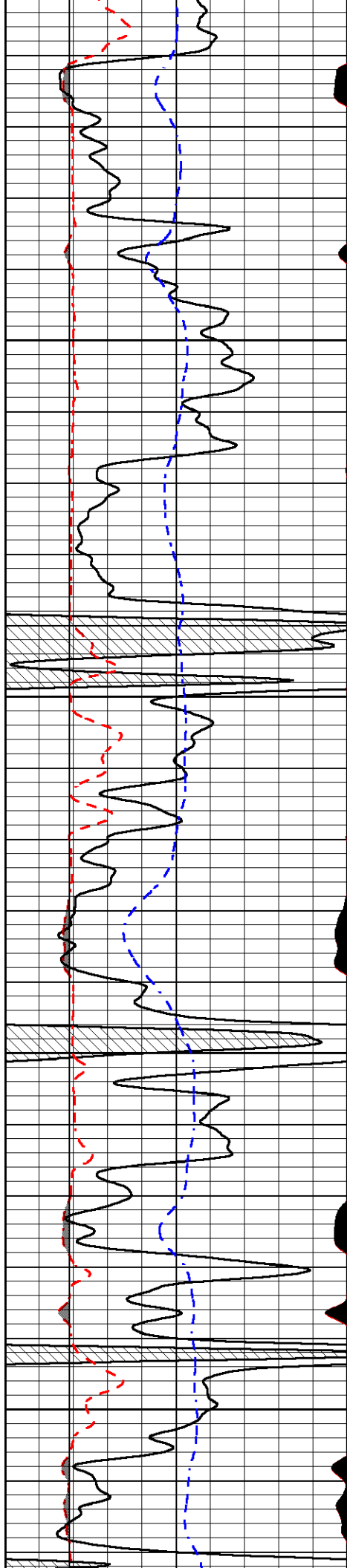
MAIN PASS

Database File	murfin_cwa_e 1-17.db		
Dataset Pathname	stkml/pass3.1		
Presentation Format	micro		
Dataset Creation	Wed Sep 20 17:59:02 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	mc (in)	7.875	10000	Line Weight (lb)	0
6	Bit Size (in)	16			
-200	SP (mV)	0			





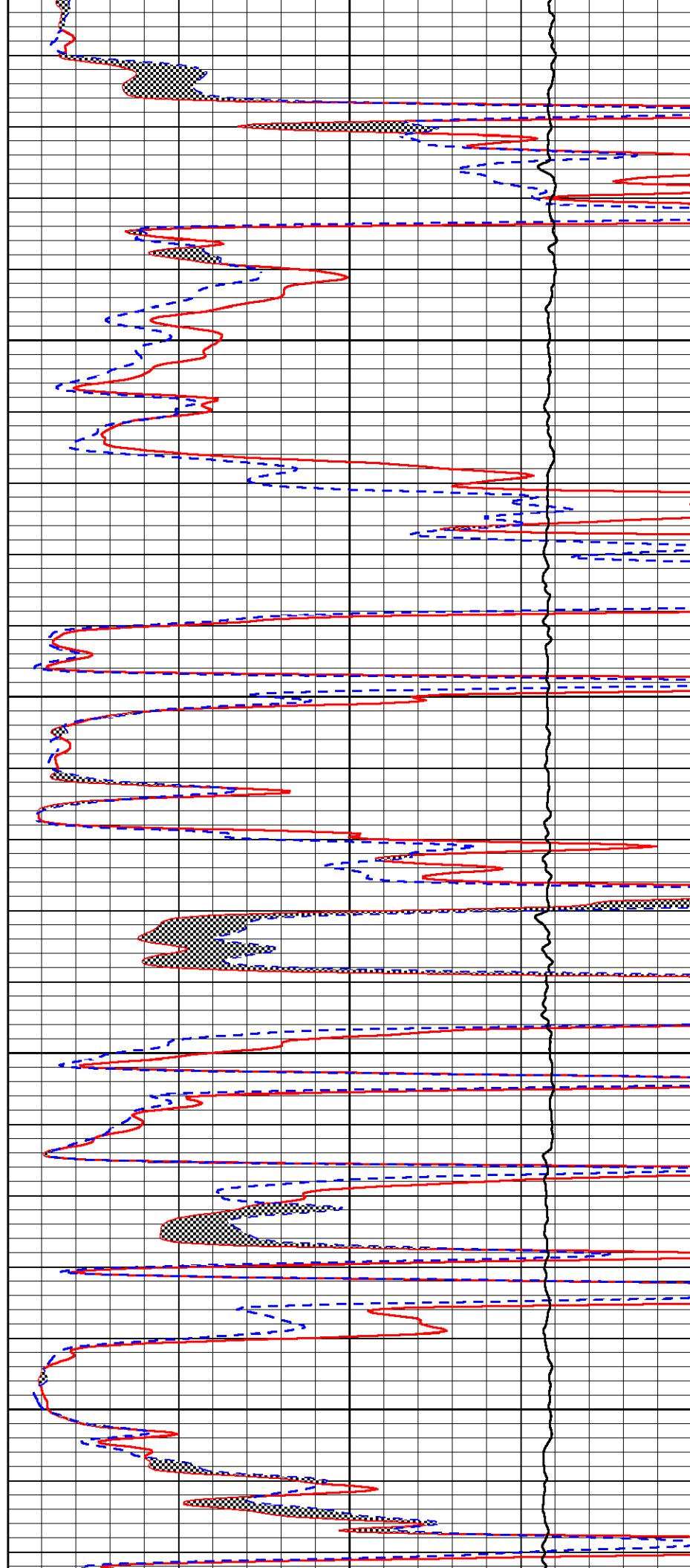


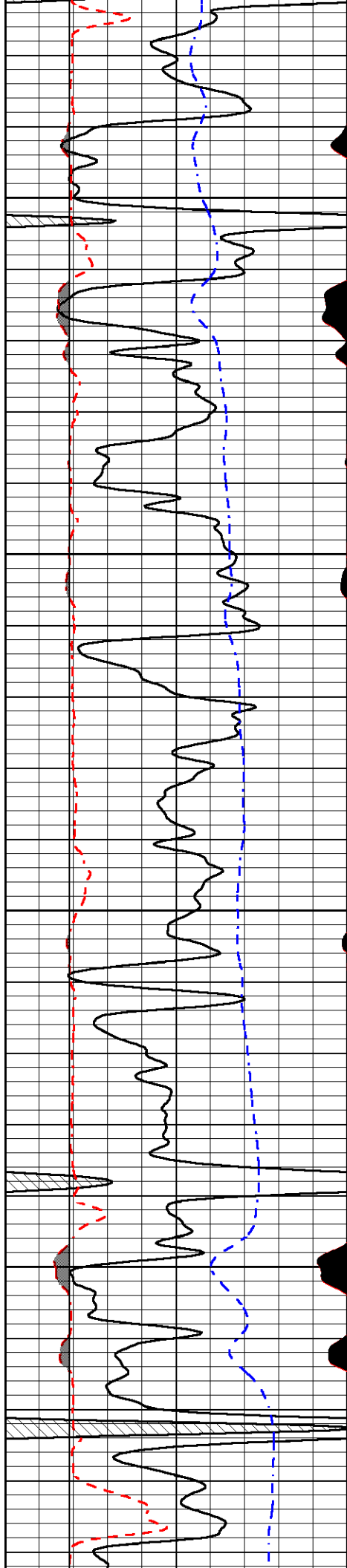
4200

4250

4300

4350



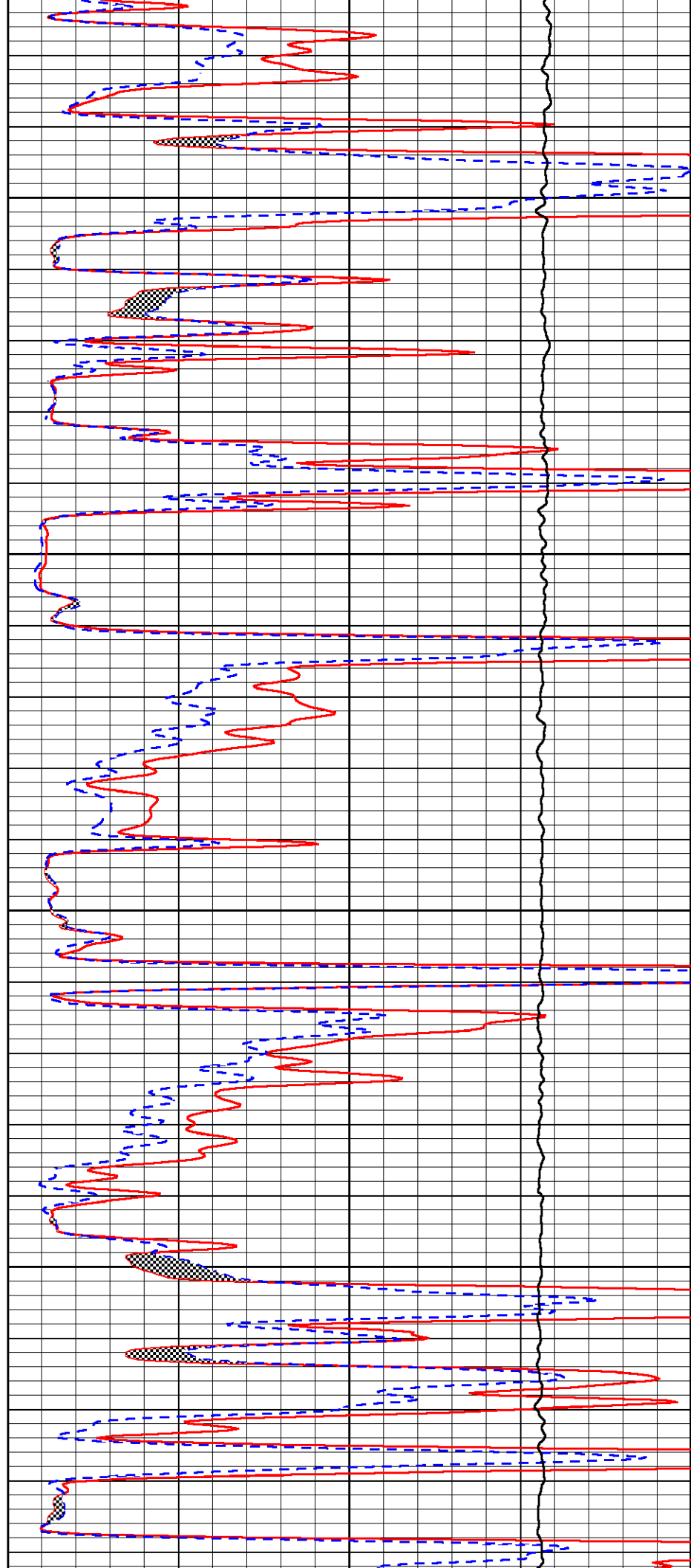


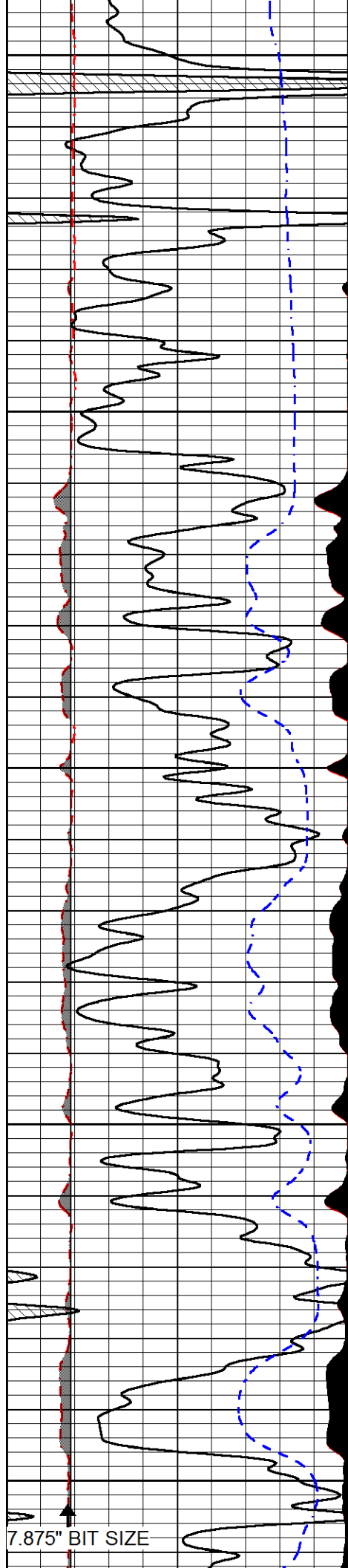
4400

4450

4500

4550





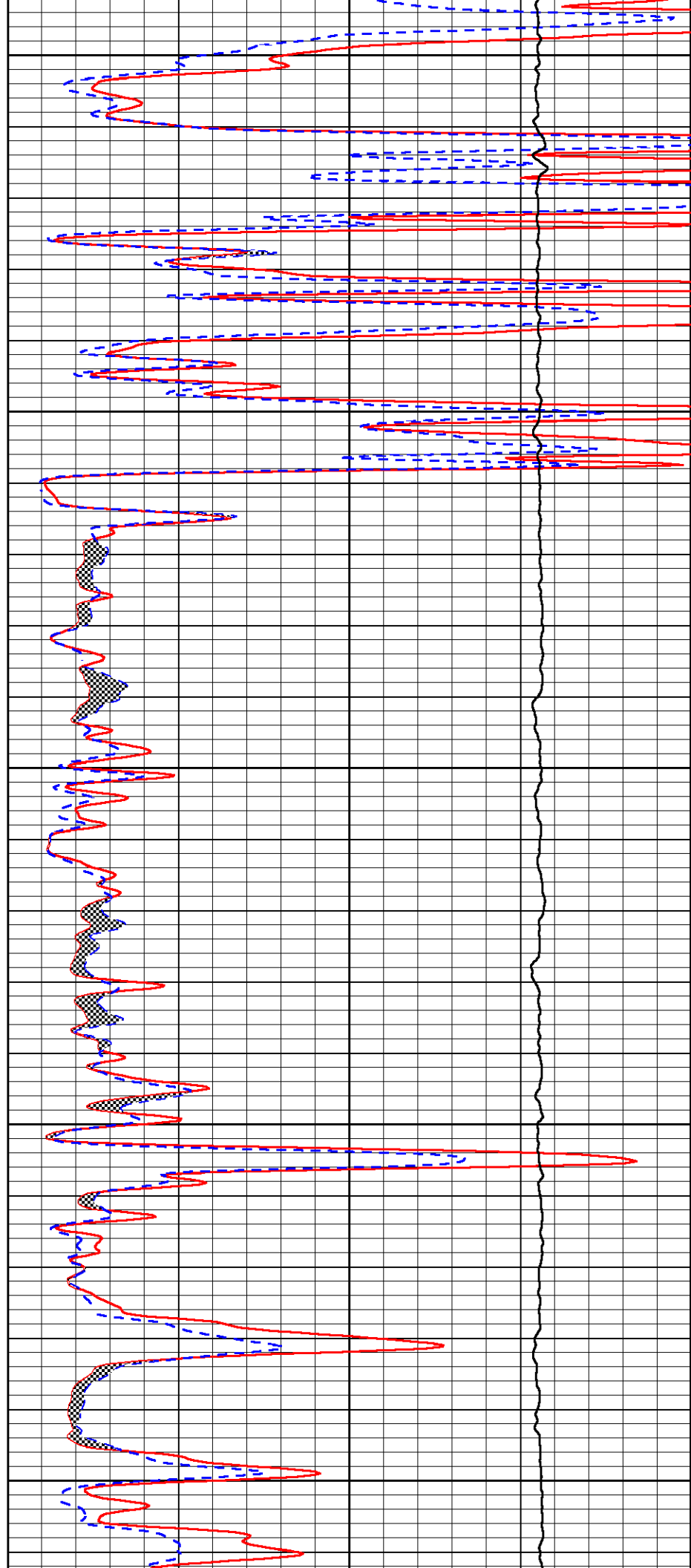
4600

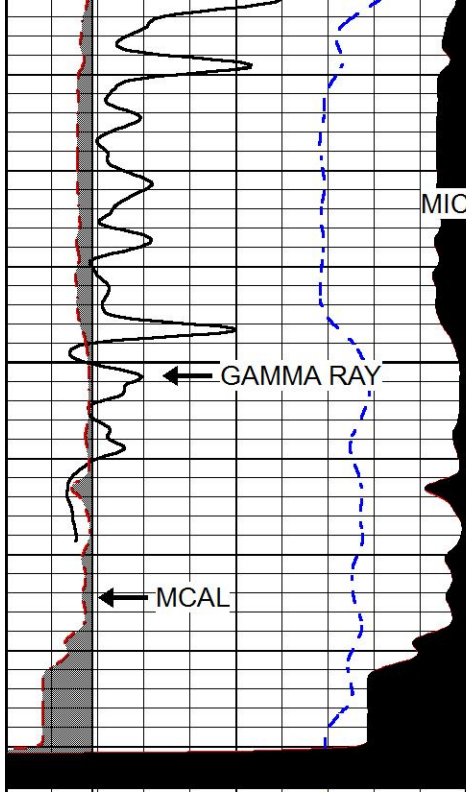
4650

4700

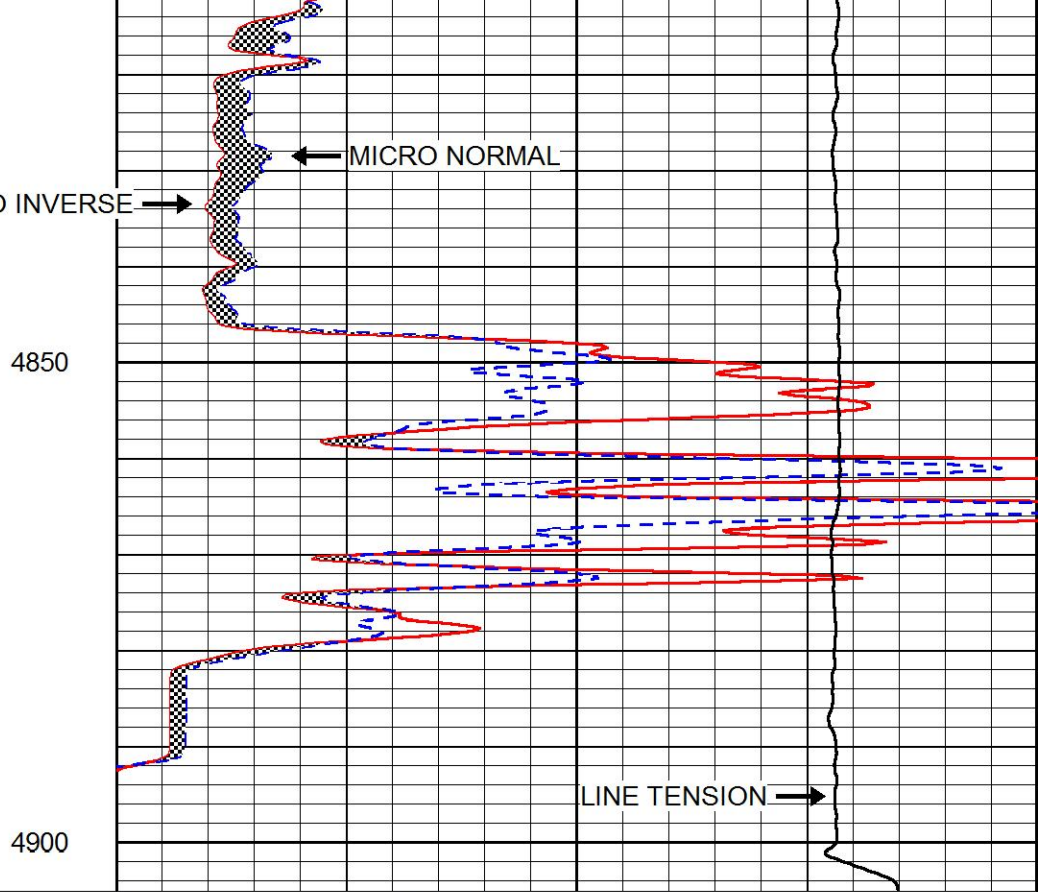
4750

4800





0	Gamma Ray (GAPI)	150
6	MCAL (in)	16
2.875	mcal (in)	7.875
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
10000	Line Weight (lb)	0

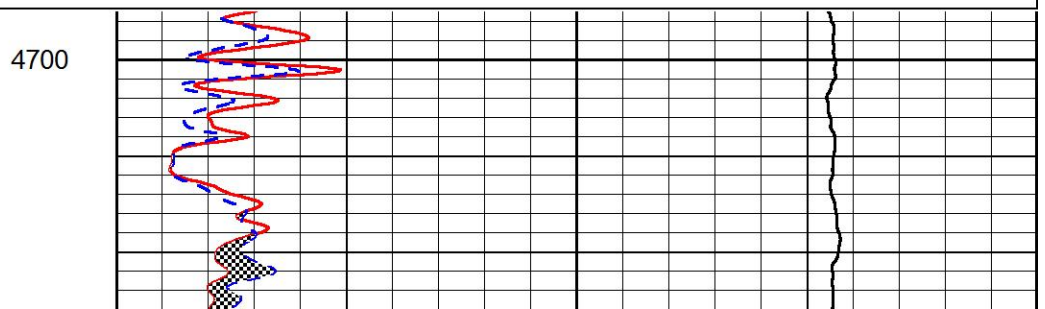
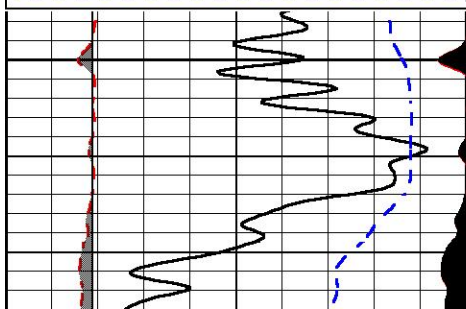


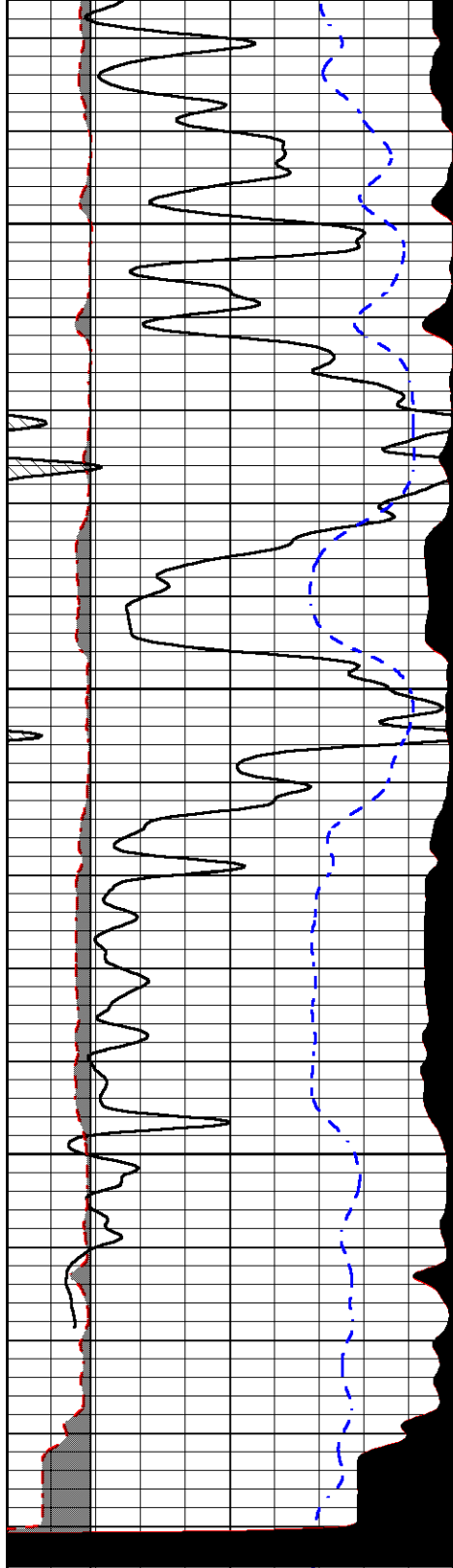
REPEAT SECTION

Database File: murfin_cwa_e 1-17.db
 Dataset Pathname: stkml/pass2.1
 Presentation Format: micro
 Dataset Creation: Wed Sep 20 18:14:44 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

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





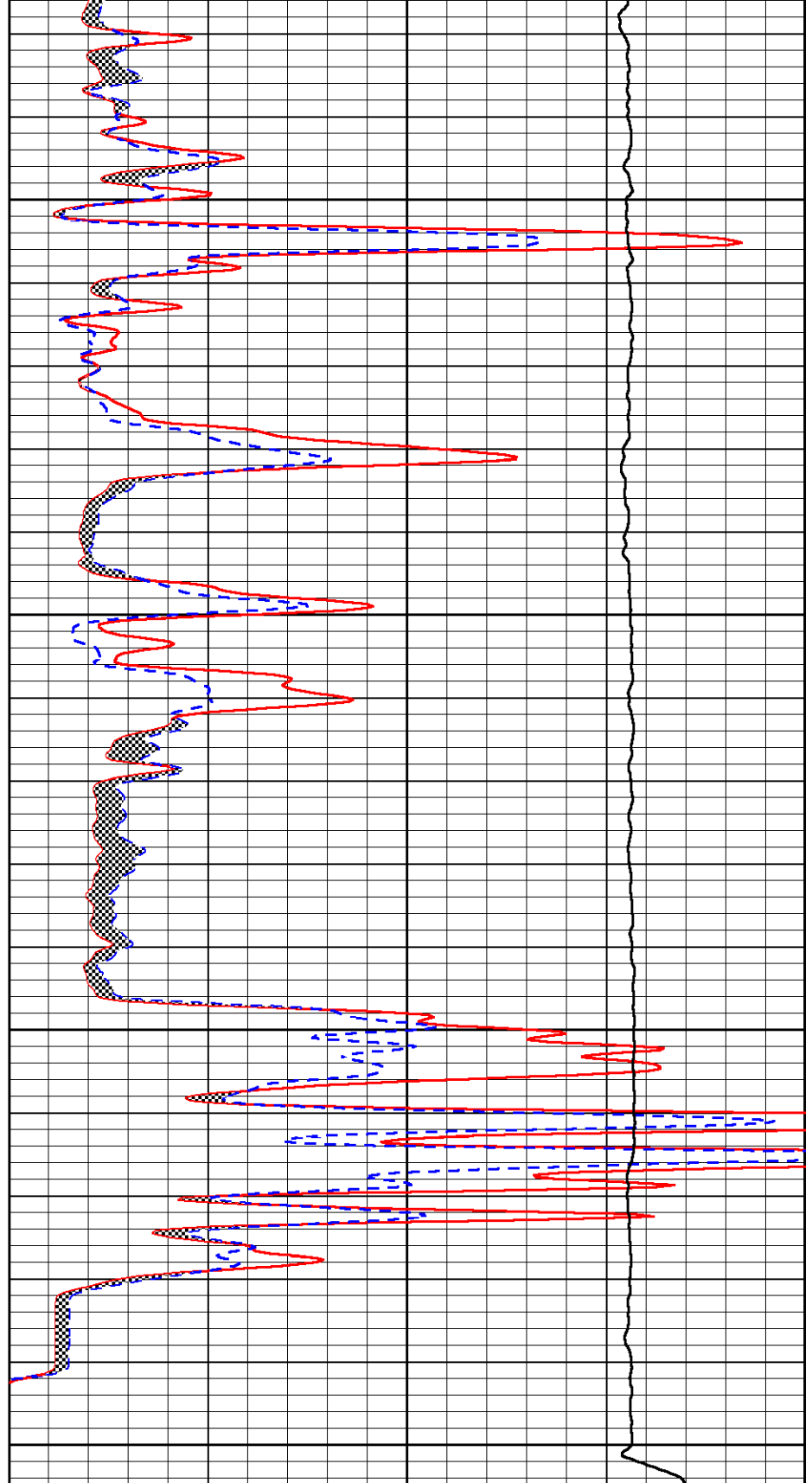
0	Gamma Ray (GAPI)	150
6	MCAL (in)	16
2.875	mcal (in)	7.875
6	Bit Size (in)	16
-200	SP (mV)	0

4750

4800

4850

4900



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

Calibration Report

Database File murfin_cwa_e 1-17.db
 Dataset Pathname stkl/pass 3 1

Dual Induction Calibration Report

Serial-Model: PSI 91-M&W
 Calibration Performed: Wed Sep 13 22:23:16 2017

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	166.796	835.089	0.000	255.800	mmho/m	0.430	-33.000
Medium	142.009	1348.560	0.000	255.800	mmho/m	0.360	-29.500

Microlog Calibration Report

Serial-Model: PSI-01-PSIML
 Performed: Wed Sep 06 19:50:56 2017

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	38000.0000	-1.2000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	41000.0000	-0.3000
Caliper	1.0001	1.1397	6.5000	18.5000	in	100.0000	-97.1750

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
 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



PIONEER
Pioneer Energy Services

Company	MURFIN DRILLING COMPANY, INC
Well	CWA 'E' #1-17
Field	WILDCAT
County	RAWLINS
State	KANSAS