



PIONEER
Pioneer Energy Services

MICRORESISTIVITY LOG

Company AMERICAN WARRIOR, INC.
Well SUNRAY #3-12
Field UNNAMED
County GREELEY
State KANSAS

Company AMERICAN WARRIOR, INC.
Well SUNRAY #3-12
Field UNNAMED
County GREELEY
State KANSAS

Location: API #: 15-071-20886-00-00

1323' FNL & 1057' FWL

SEC 12 TWP 16S RGE 42W

Permanent Datum GROUND LEVEL Elevation 3776'
Log Measured From KELLY BUSHING
Drilling Measured From KELLY BUSHING

Other Services
CNL/CDL
DIL
Elevation
K.B. 3787'
D.F. N/A
G.L. 3776'

Date	10/8/2018		
Run Number	TWO		
Depth Driller	5220'		
Depth Logger	5220'		
Bottom Logged Interval	5219'		
Top Log Interval	3800'		
Casing Driller	8.625" @ 437'		
Casing Logger	435'		
Bit Size	7.875"		
Type Fluid in Hole	CHEMICAL		
Salinity, ppm CL	2500		
Density / Viscosity	9.2 56		
pH / Fluid Loss	10.0 8.0		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	0.60 @ 50		
Rmt @ Meas. Temp	0.45 @ 50		
Rmc @ Meas. Temp	0.81 @ 50		
Source of Rmt / Rmc	CHARTS		
Rm @ BHT	0.23 @ 128		
Operating Rig Time	4 HOURS		
Max Rec. Temp. F	128		
Equipment Number	91		
Location	HAYS		
Recorded By	D. SCHMIDT		
Witnessed By	LUKE THOMPSON		

<<< 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.

SHARRON SPRINGS,
SOUTH TO D RD, 9 WEST TO 7 RD, 1 1/2 NORTH,
EAST & NORTH INTO AT TB

Log Measured From: KELLY BUSHING

11 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: LUKE THOMPSON
Secondary Witness:
Secondary Witness:
Secondary Witness:

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
MCAL MI MN	1.00 1.00 1.00		ML-Armadillo (ARM001) Pengo Mandrel & Armadillo ML Electronics (2014)	5.50	3.50	100.00
Dataset: american warrior_sunray 3-12.db: field/well/MEL/pass2 Total length: 5.50 ft Total weight: 100.00 lb O.D.: 3.50 in						

Log Variables

DatabaseC:\ProgramData\Warrior\Data\american warrior_sunray 3-12.db
Dataset field/well/STACK/pass5.1/_vars_

Top - Bottom

M	A	SZCOR	NPORSEL	FLUIDDEN g/cc	MATRXDEN g/cc	SPSHIFT mV	SNDERRM mmho/m
2	1	Off	Limestone	1	2.71	385	0
SNDERR mmho/m 0	SRFTEMP degF 50	CASETHCK in 0	CASEOD in 5.5	PERFS 0	TDEPTH ft 5220	BOTTEMP degF 128	BOREID in 7.875

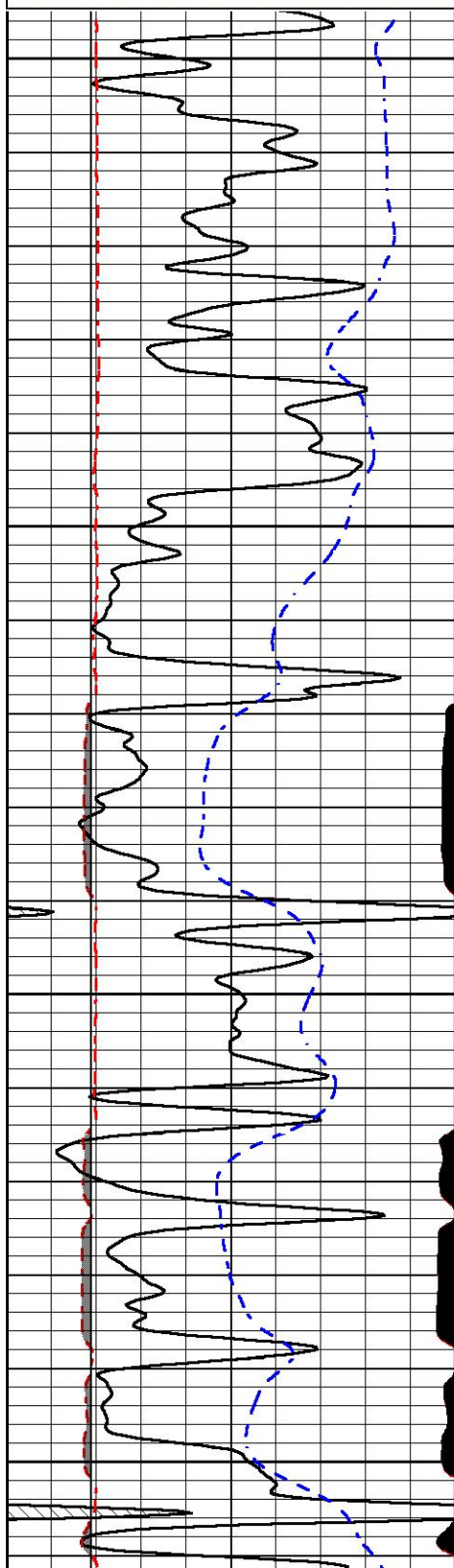


MAIN PASS

Database File american_warrior_sunray_3-12.db
Dataset Pathname STACK/pass5.1
Presentation Format micro
Dataset Creation Mon Oct 08 06:34:19 2018
Charted by Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
6	MCAL (in)	16
2.875	mcals (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

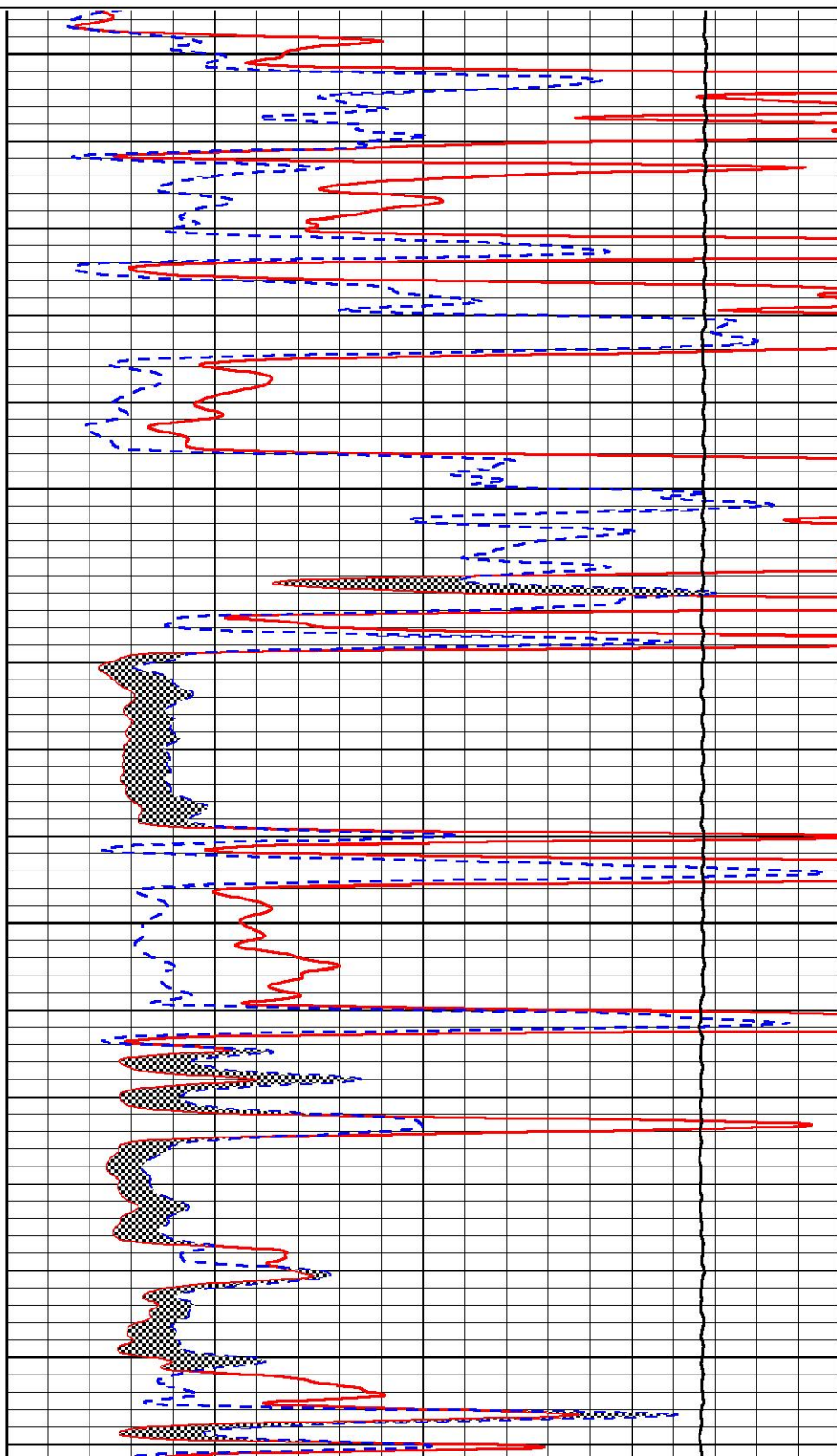


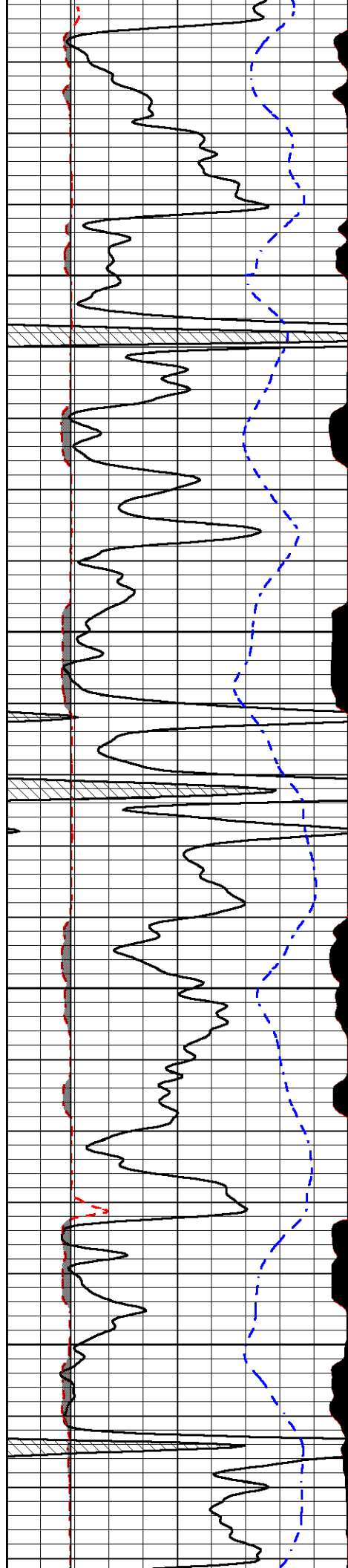
3800

3850

3900

3950



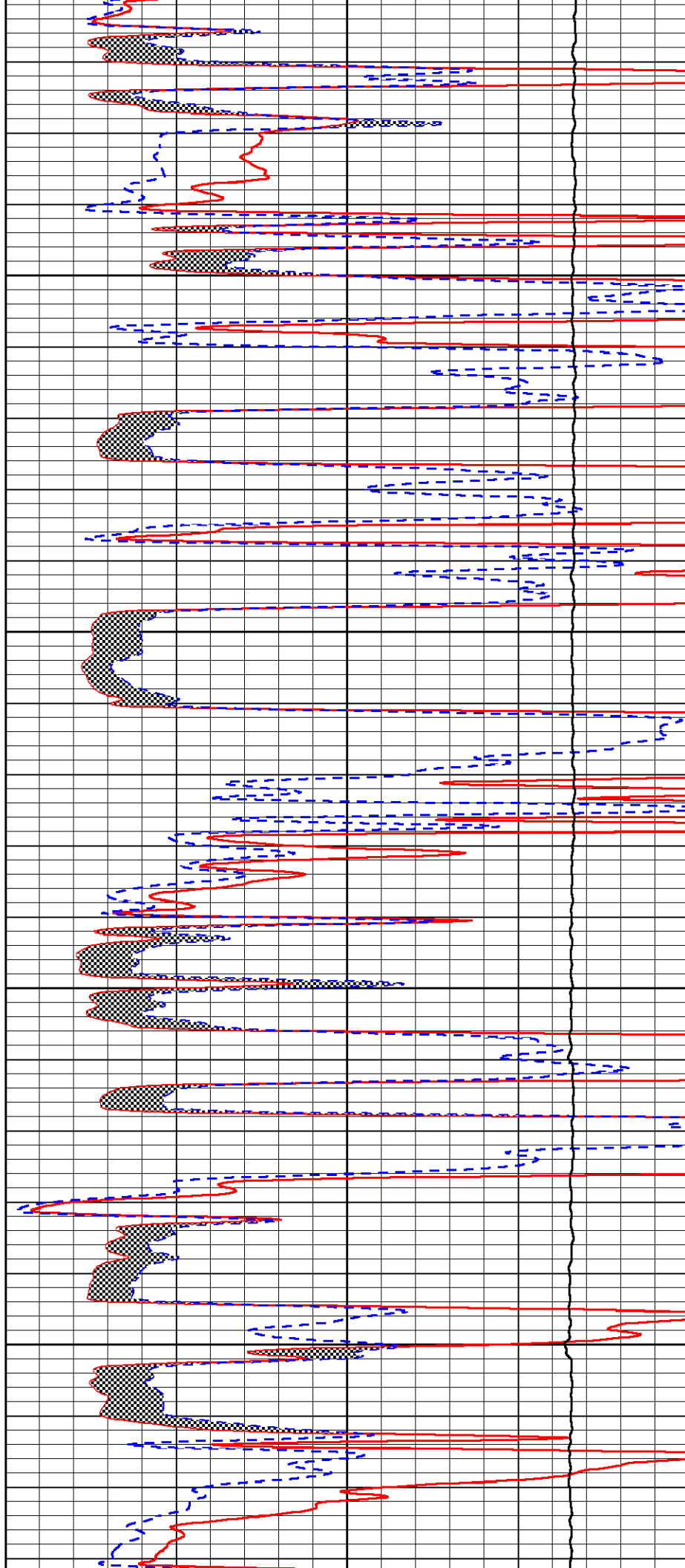


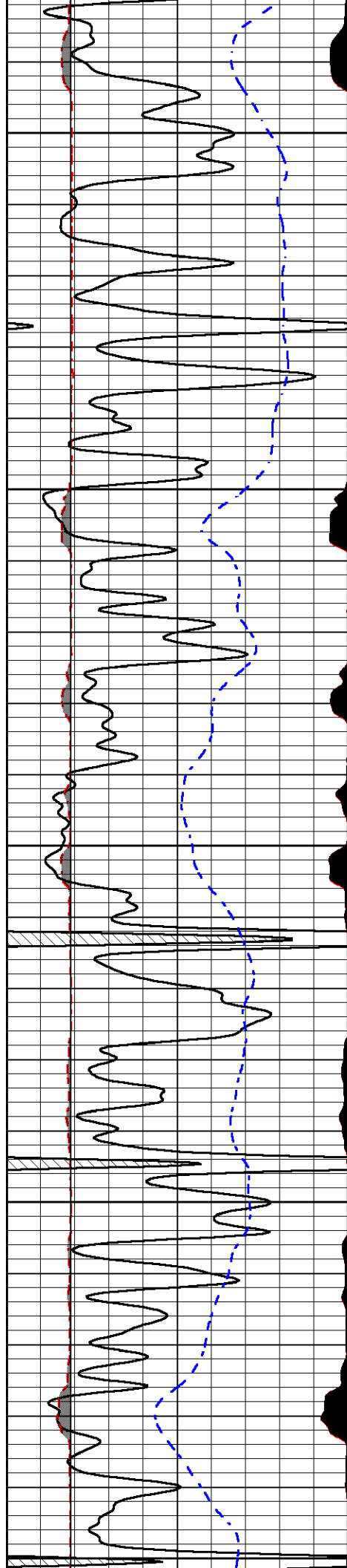
4000

4050

4100

4150





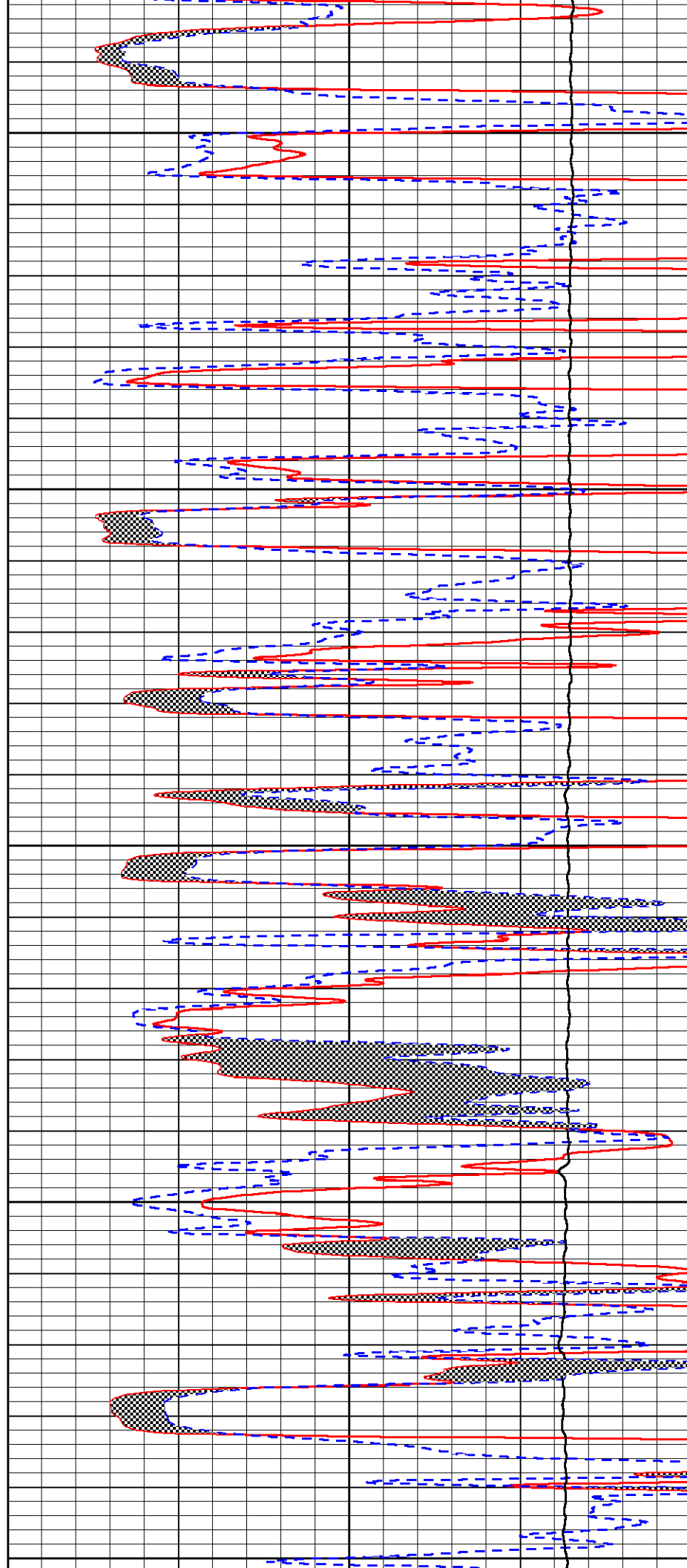
4200

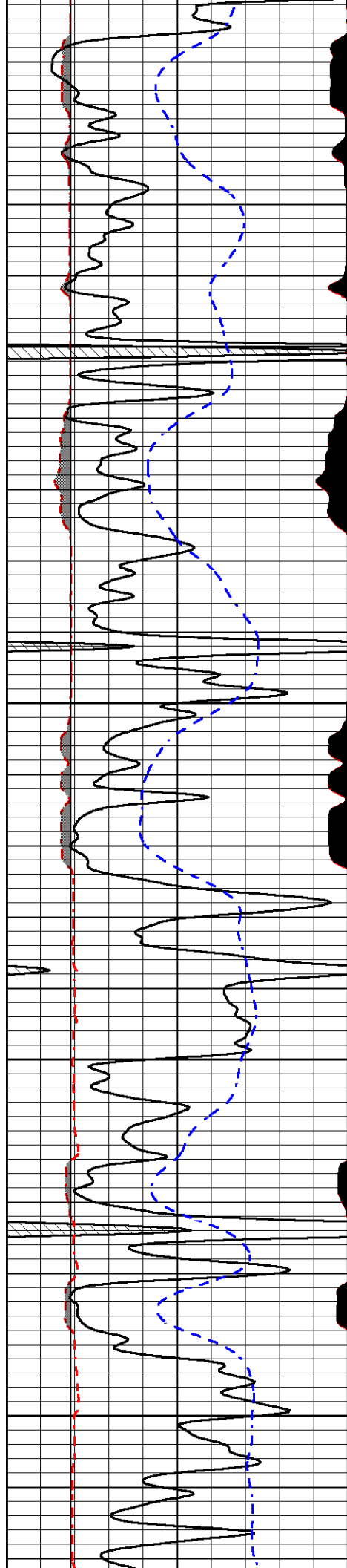
4250

4300

4350

4400



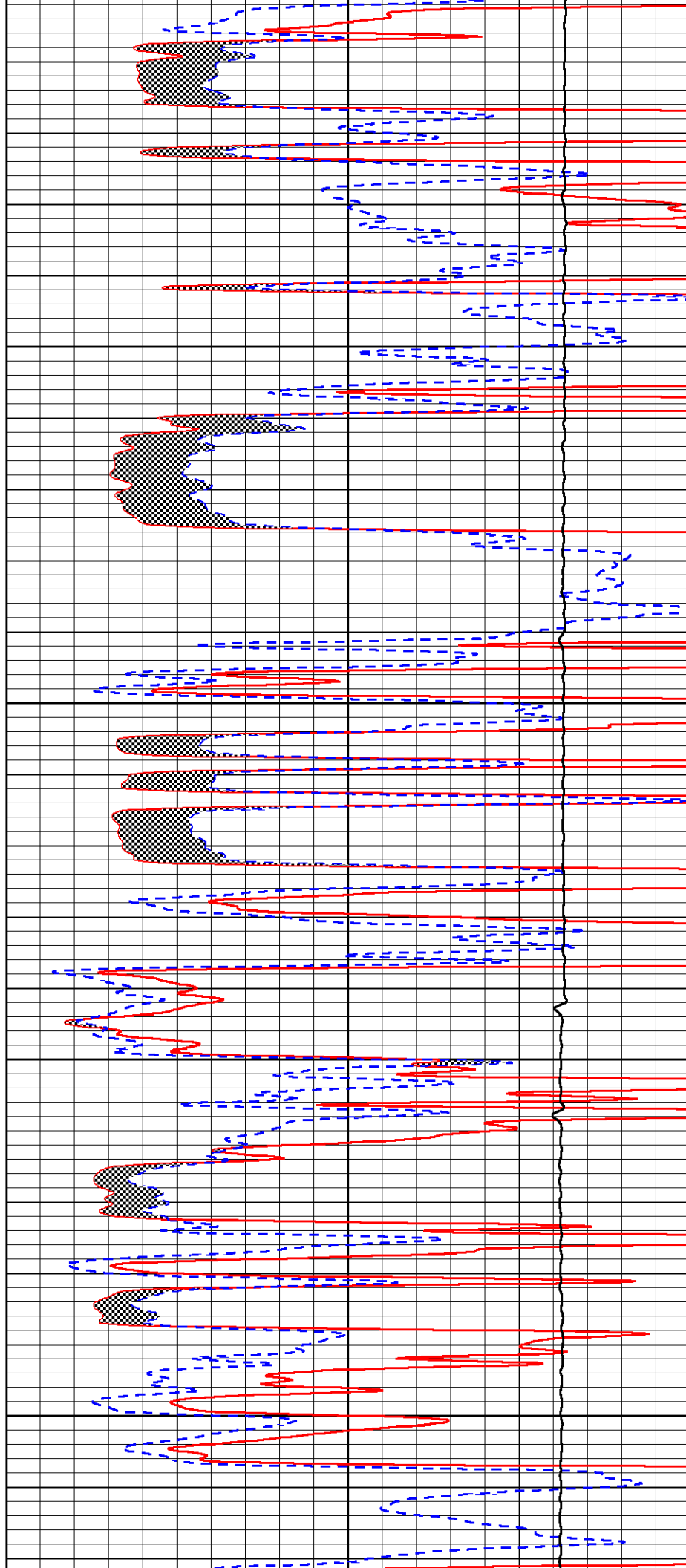


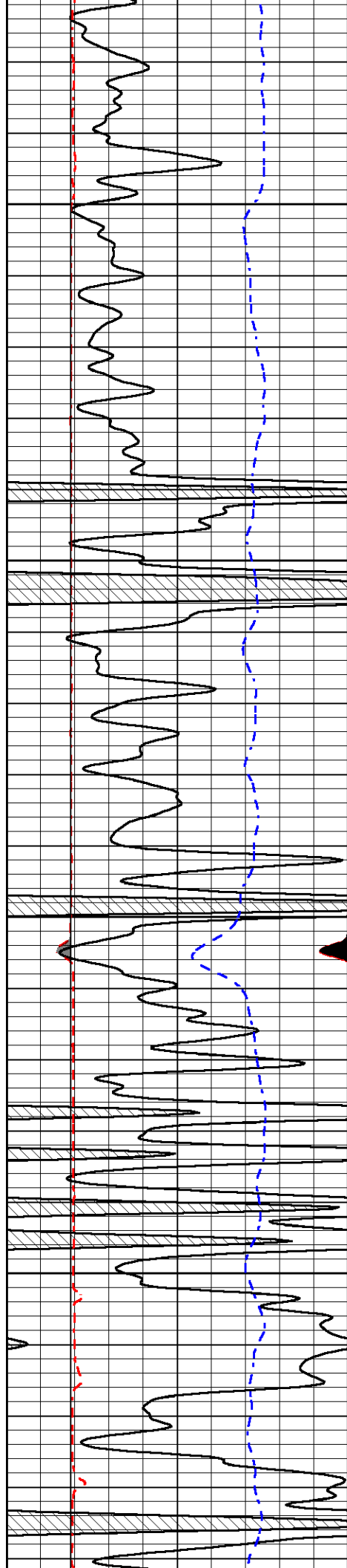
4450

4500

4550

4600



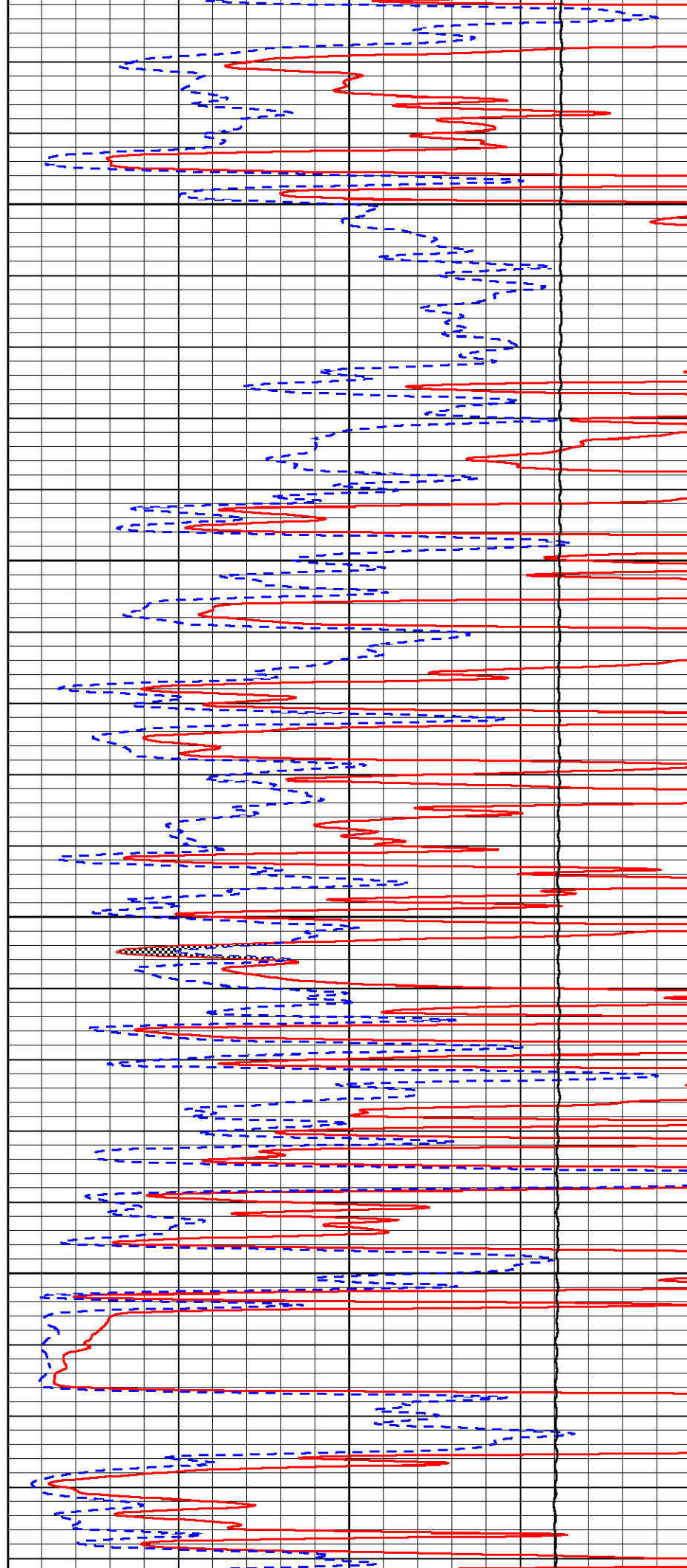


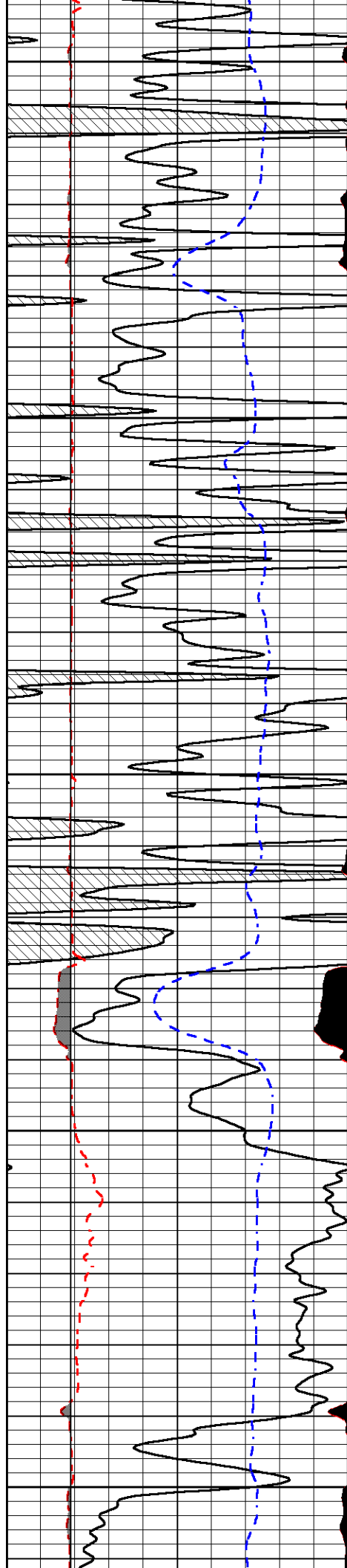
4650

4700

4750

4800





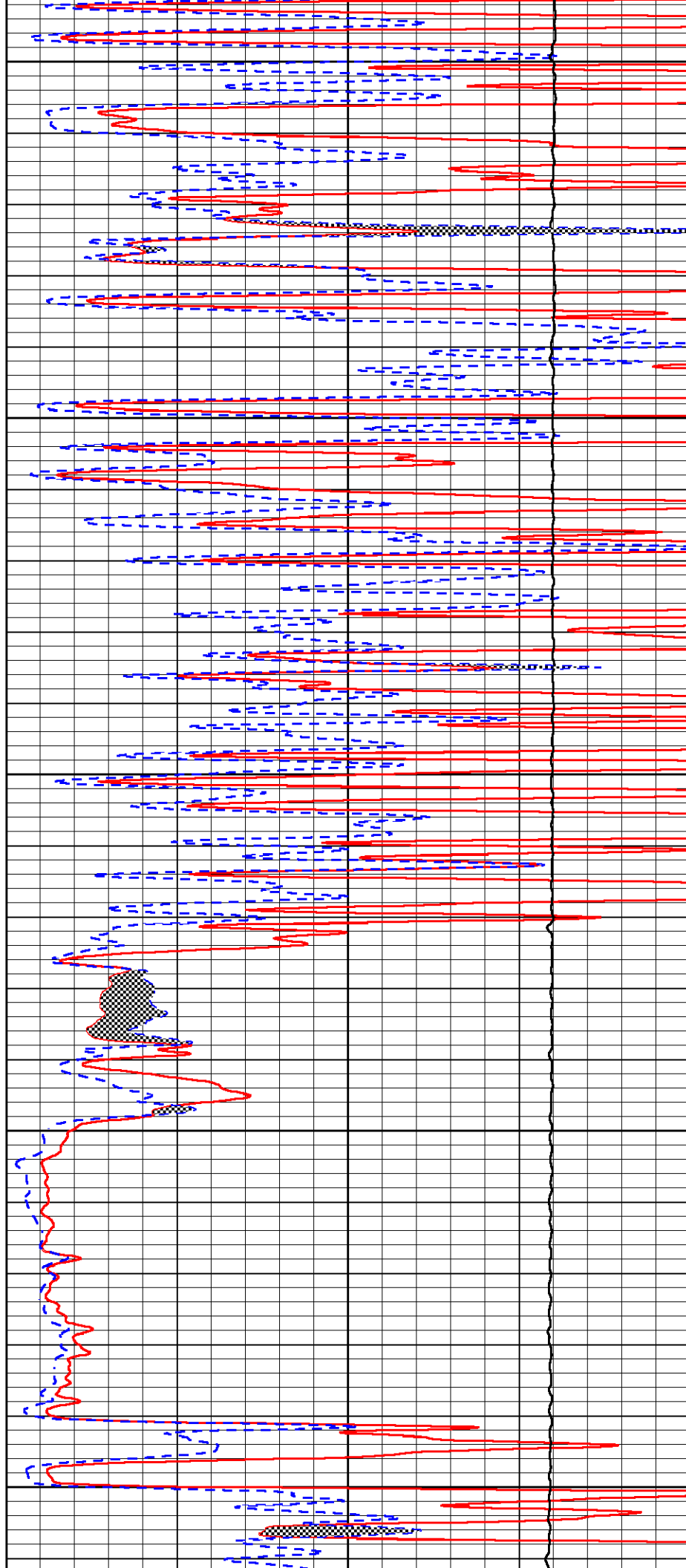
4850

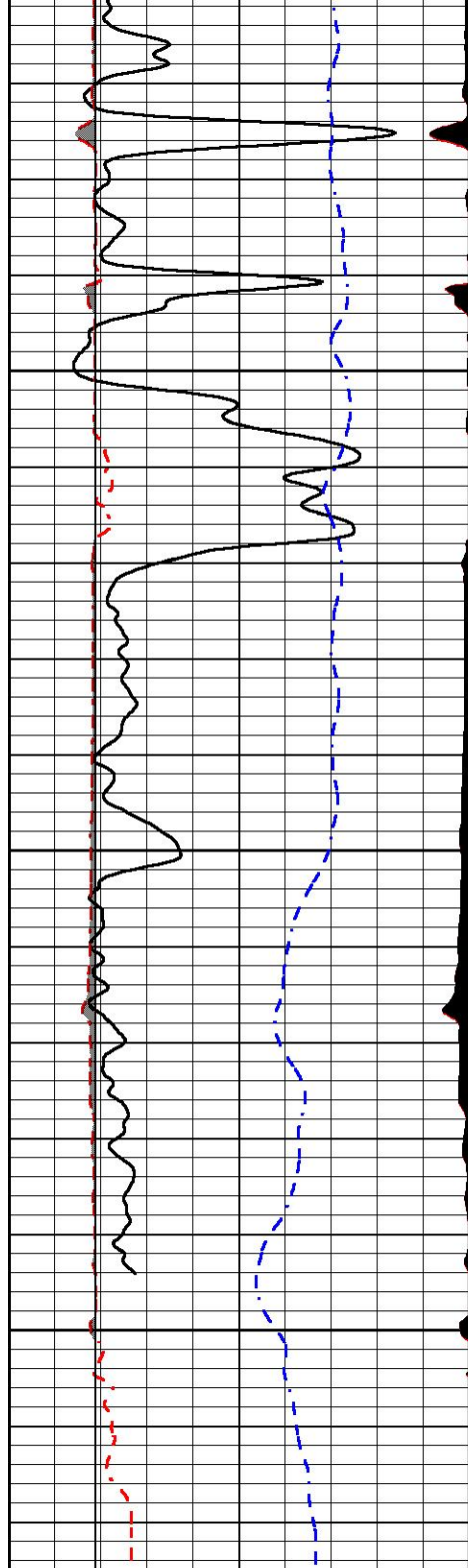
4900

4950

5000

5050



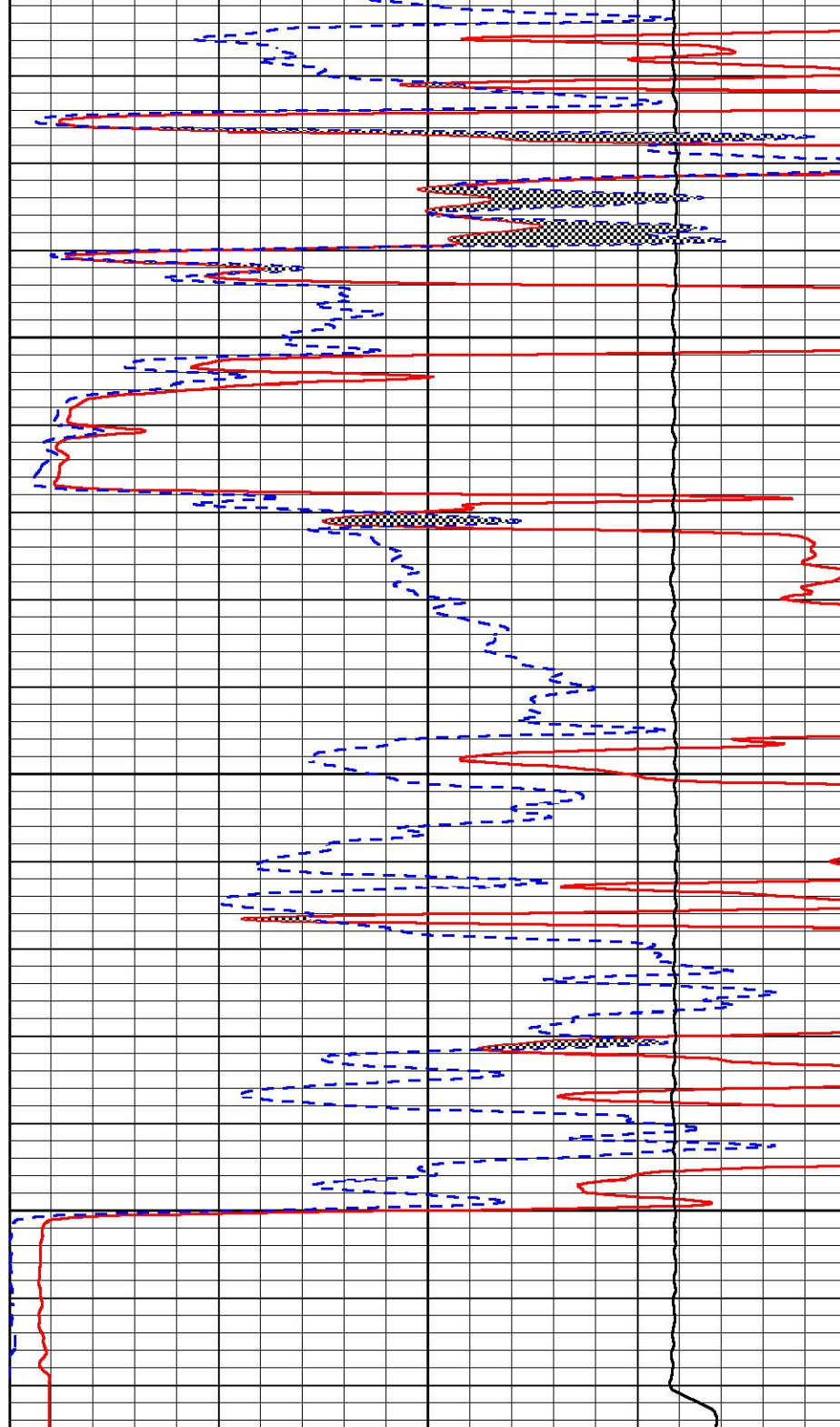


5100

5150

5200

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



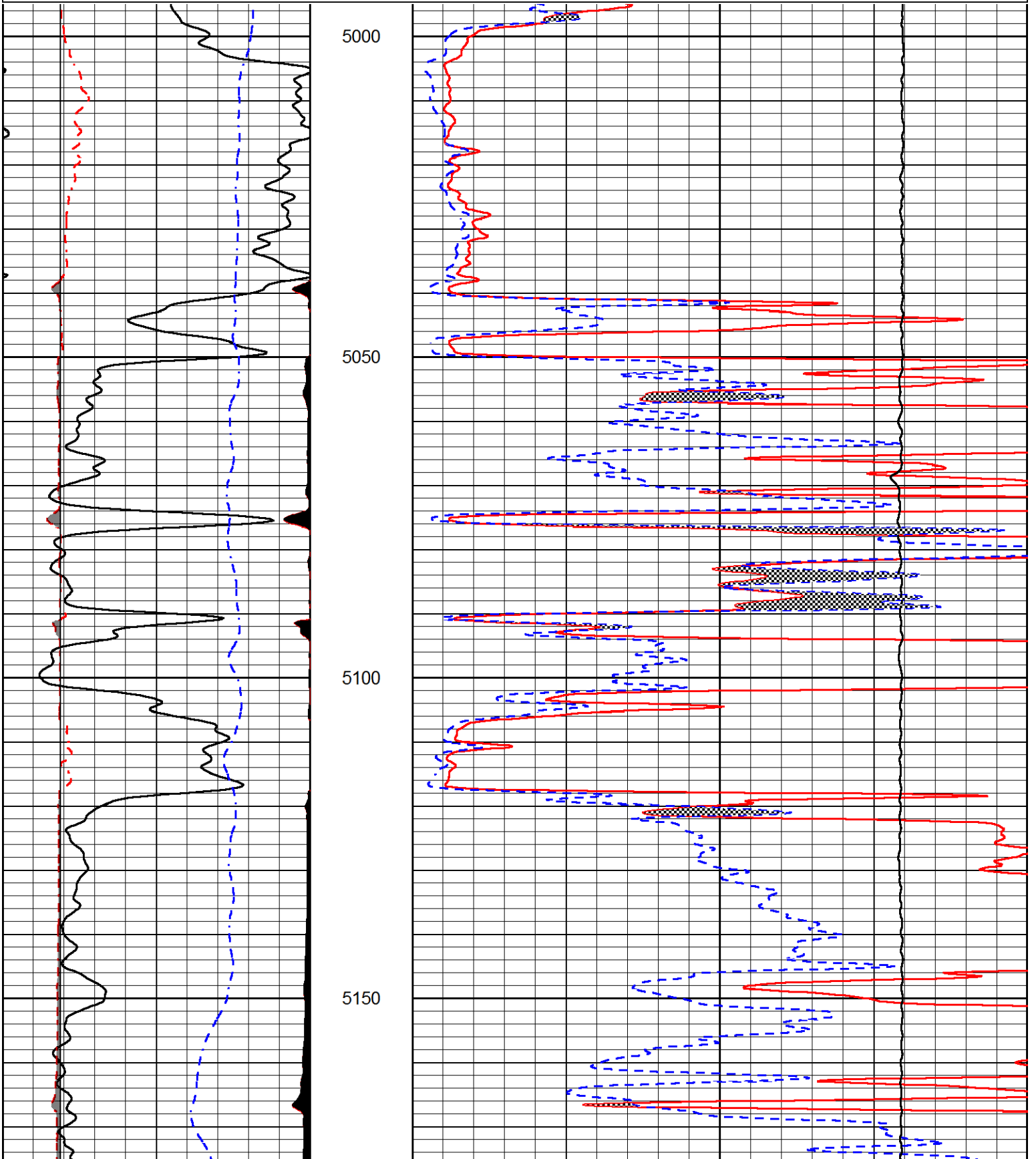
0	MICRO INVERSE 1 X 1 (Ohm-m)	40
0	MICRO NORMAL 2" (Ohm-m)	40
10000	Line Weight (lb)	0

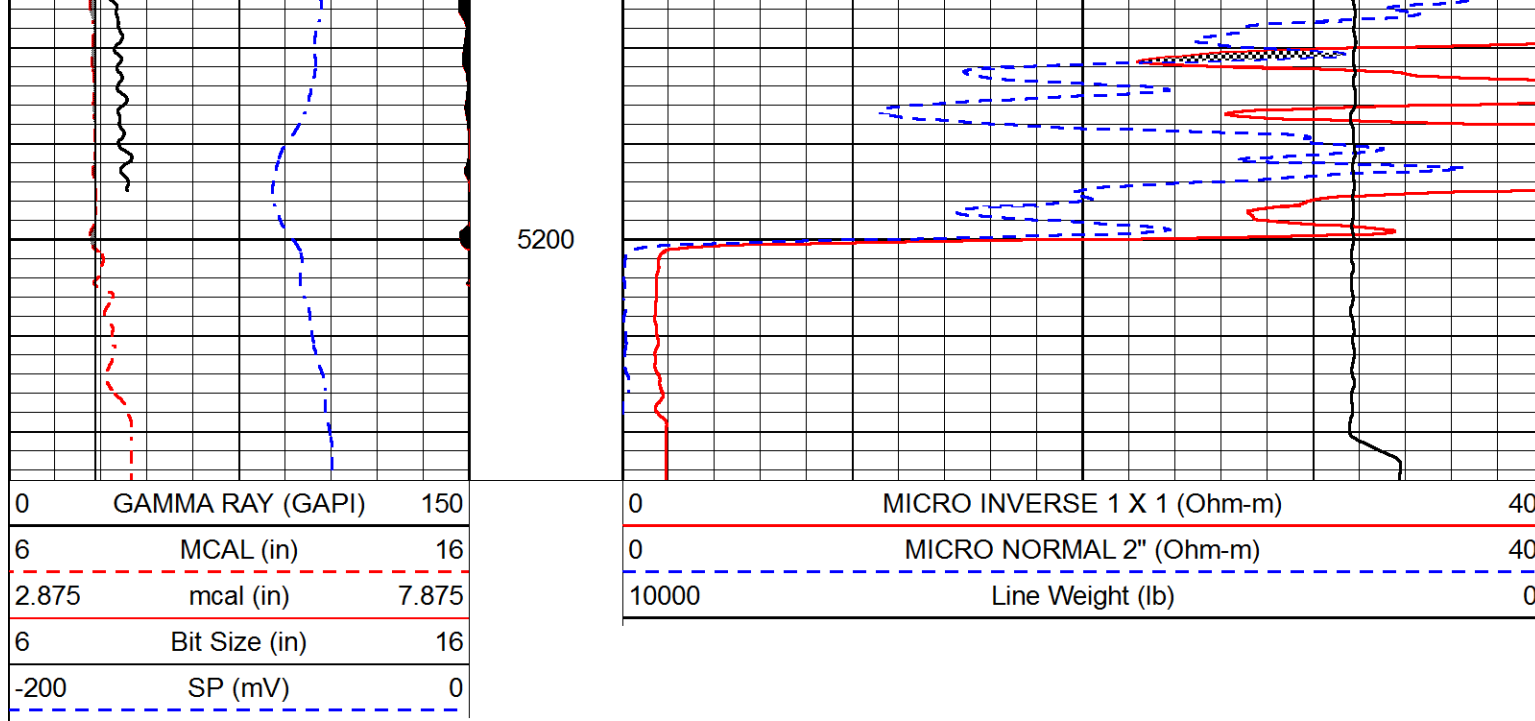


REPEAT SECTION

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





Calibration Report	
Database File	american warrior_sunray 3-12.db
Dataset Pathname	STACK/pass5.1
Dataset Creation	Mon Oct 08 06:34:19 2018

Dual Induction Calibration Report

Serial-Model:	967 (HT)-PSI HIGH TEMP
Calibration Performed:	Sun Oct 07 19:24:22 2018

Readings			References			Results	
Loop:	Air	Loop	Air	Loop		Gain	Offset
Deep	167.000	835.000	0.000	255.800	mmho/m	0.565	-20.500
Medium	0.000	1348.000	142.000	255.800	mmho/m	0.390	-38.000

Compensated Density Calibration Report
--

Serial-Model:	144-84-M&W
Source / Verifier:	16955B / 2ci
Master Calibration Performed:	Thu Aug 30 10:10:19 2018

Master Calibration					
Density			Far Detector	Near Detector	
Magnesium	1.755	g/cc	4867.47	6031.92	cps
Aluminum	2.670	g/cc	906.23	3806.99	cps
Spine Angle = 74.69			Density/Spine Ratio = 0.525		
Size			Reading		
Small Ring	5.00	in	0.70		
Large Ring	15.00	in	0.04		

Compensated Neutron Calibration Report
--

Compendium Neutron Calibration Report

Serial Number: 207-MW
Tool Model: M&W
Calibration Performed: FRI AUG 24 10:30:30 2018

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: Fri Aug 24 11:16:10 2018

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps
Calibrator Reading: 1.0 cps

Sensitivity: 0.6000 GAPI/cps

Calibration Report

Database File american_warrior_sunray 3-12.db
Dataset Pathname MEL/pass2
Dataset Creation Mon Oct 08 07:28:27 2018

Microlog Calibration Report

Serial-Model: ARM001-Armadillo
Performed: Fri Jul 14 14:07:44 2017

	Readings			References			Results	
	Zero	Cal		Zero	Cal		m	b
Normal	0.0127	0.6730	V	0.0000	10.0000	Ohm-m	25.5000	-2.4000
Inverse	0.0029	0.8729	V	0.0000	10.0000	Ohm-m	22.0000	-1.5000
Caliper	1.1319	8.2966	V	6.0000	19.0000	in	3.0000	1.3500



Company AMERICAN WARRIOR, INC.
Well SUNRAY #3-12
Field UNNAMED
County GREELEY
State KANSAS