



PIONEER
Pioneer Energy Services

MICRORESISTIVITY LOG

Company AMERICAN WARRIOR, INC.
Well CRIST #2-28
Field UNKNOWN
County FINNEY
State KANSAS

Company AMERICAN WARRIOR, INC.
Well CRIST #2-28
Field UNKNOWN
County FINNEY
State KANSAS

Location: API #: 15-055-22485-00-00

1550' FSL & 2150' FWL

SEC 28 TWP 21S RGE 34W

Permanent Datum GROUND LEVEL Elevation 2970'
Log Measured From KELLY BUSHING
Drilling Measured From KELLY BUSHING

Other Services
CNL/CDL
DIL
Elevation
K.B. 2981'
D.F. N/A
G.L. 2970'

Date	4/23/2018		
Run Number	ONE		
Depth Driller	5000'		
Depth Logger	4996'		
Bottom Logged Interval	4995'		
Top Log Interval	3700'		
Casing Driller	8.625" @ 1743'		
Casing Logger	1744'		
Bit Size	7.875"		
Type Fluid in Hole	CHEMICAL		
Salinity, ppm CL	2300		
Density / Viscosity	9.4 51		
pH / Fluid Loss	10.5 7.6		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	0.80 @ 60		
Rmf @ Meas. Temp	0.60 @ 60		
Rmc @ Meas. Temp	1.08 @ 60		
Source of Rmf / Rmc	CHARTS		
Rm @ BHT	0.38 @ 126		
Operating Rig Time	3 HOURS		
Max Rec. Temp. F	126		
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.

GARDEN CITY,
SOUTH TO GANO RD, 10 WEST,
NORTH AND EAST INTO

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

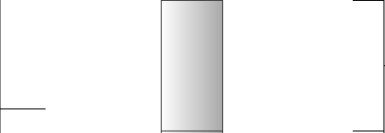
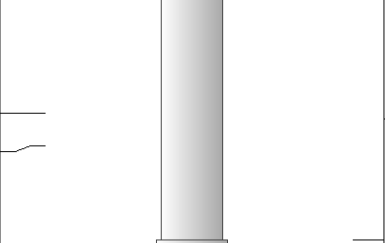
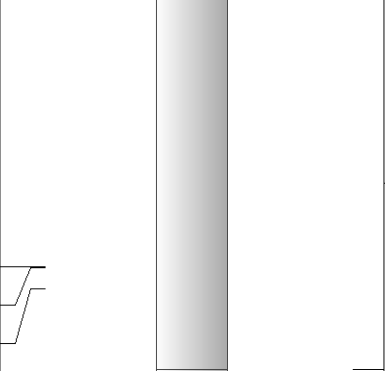
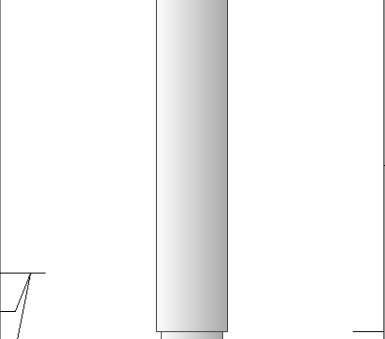
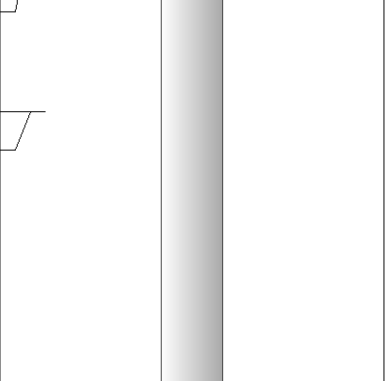
Engineer: D. SCHMIDT
Operator:
Operator:
Operator:

This Log Record Was Witnessed By

Primary Witness: LUKE THOMPSON
Secondary Witness:
Secondary Witness:
Secondary Witness:

Top - Bottom

M	A	SZCOR	NPORSEL	FLUIDDEN g/cc	MATRXDEN g/cc	SPSHIFT mV	SNDERRM mmho/m
2	1	Off	Limestone	1	2.71	-110	0
SNDERR mmho/m	SRFTEMP degF	CASETHCK in	CASEOD in	PERFS	TDEPTH ft	BOTTEMP degF	BOREID in
0	68	0	5.5	0	4996	126	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 (182-152)	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					

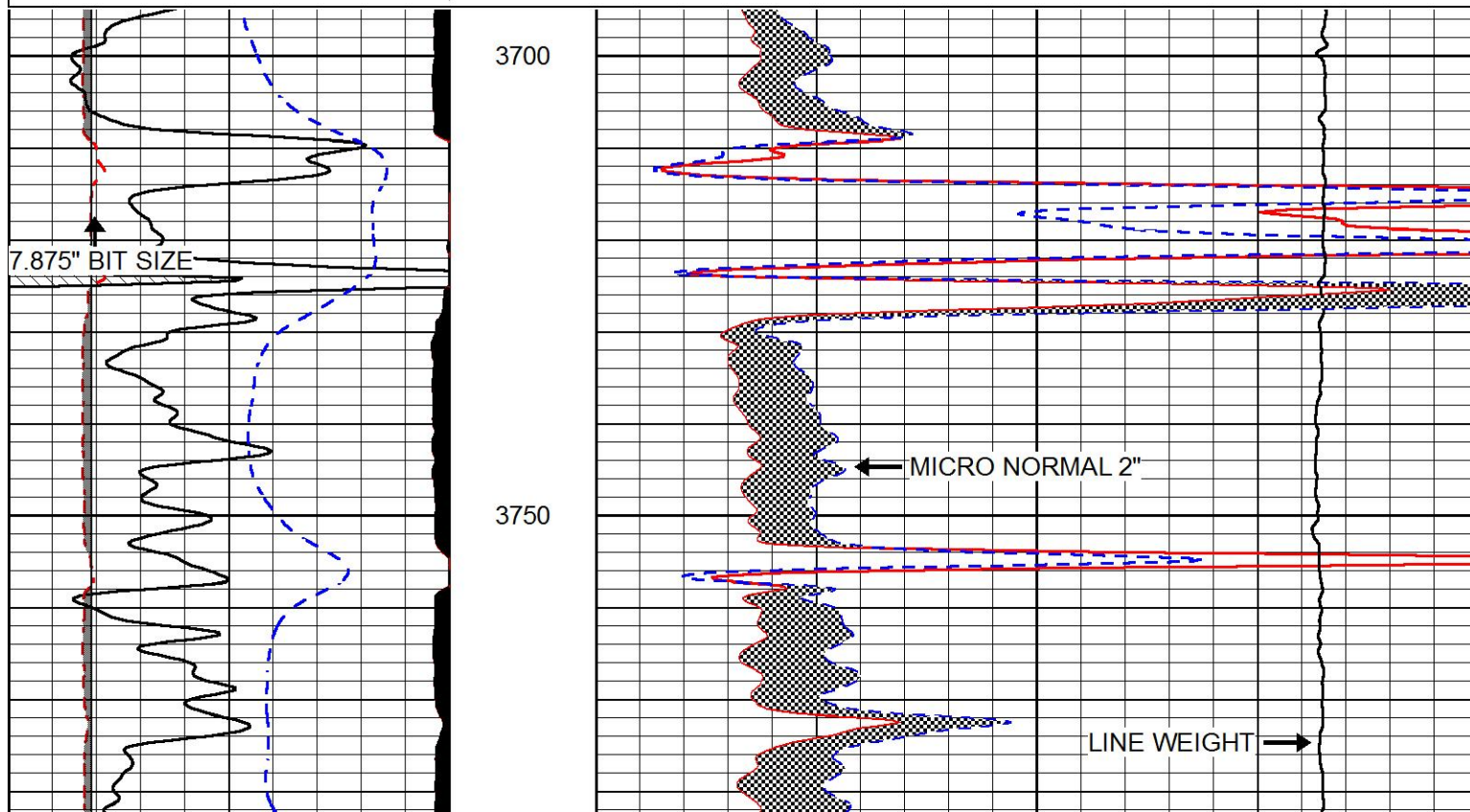
				DIL-PSI HIGH TEMP (933 (HT))	18.50	3.50	220.00
CILD	8.00						
CILM	4.70						
SP	0.20						
Dataset: american warrior_crist 2-28.db: field/well/STKML/pass3.1 Total length: 43.08 ft Total weight: 685.00 lb O.D.: 4.00 in							

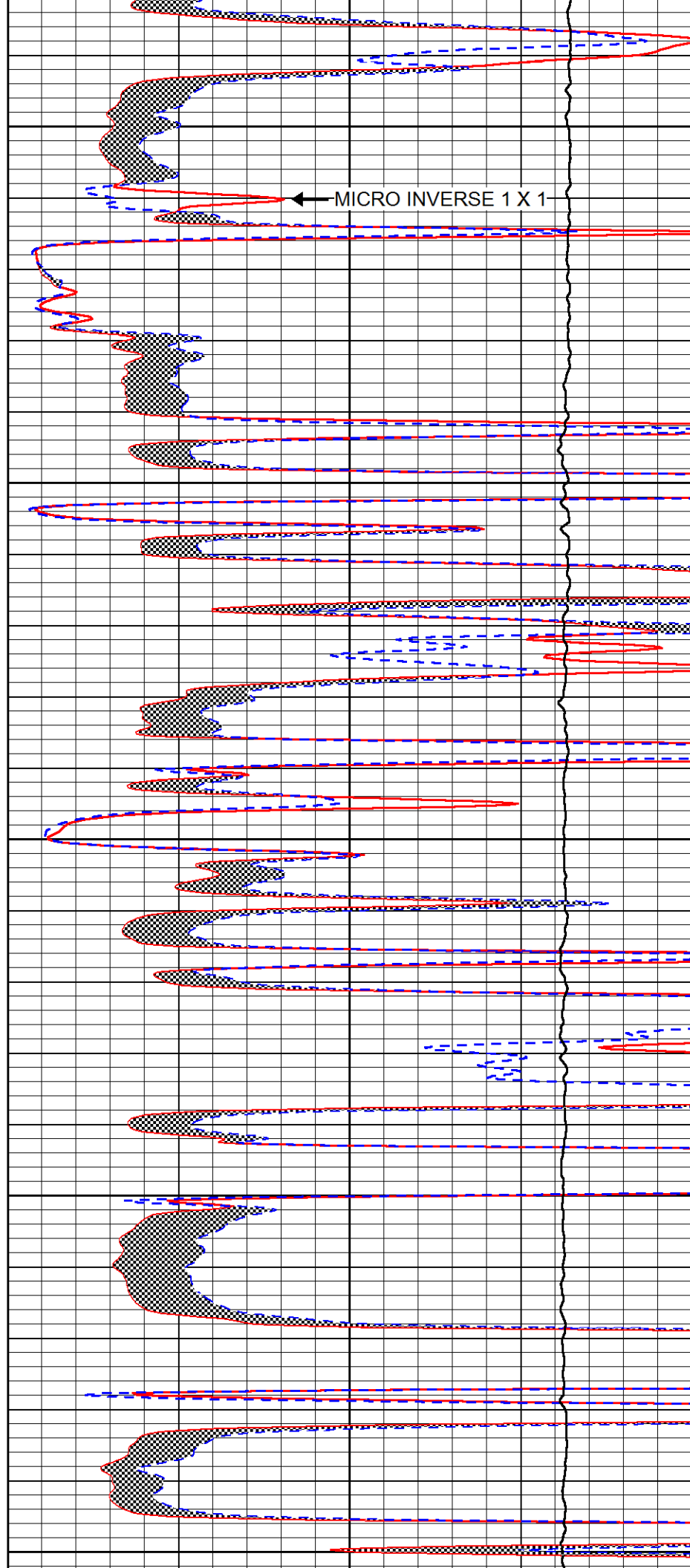
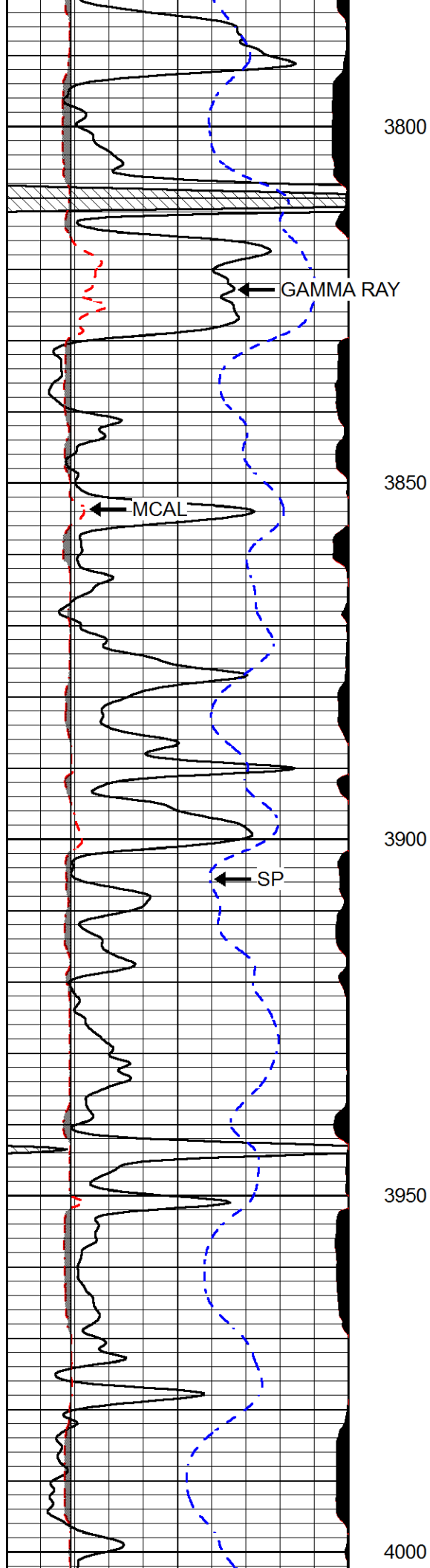


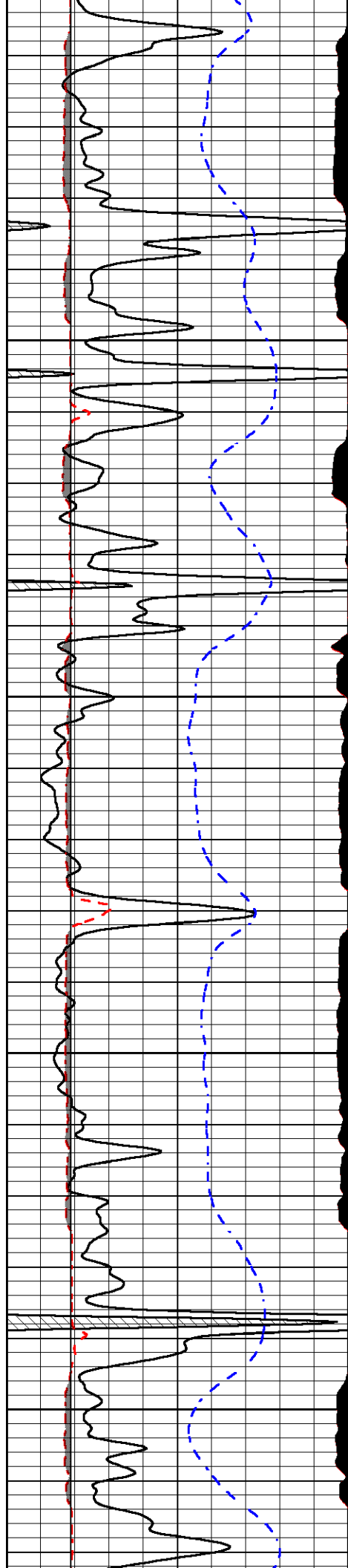
MAIN PASS

Database File	american warrior_crist 2-28.db
Dataset Pathname	STKML/pass3.1
Presentation Format	micro
Dataset Creation	Mon Apr 23 15:23:02 2018
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			





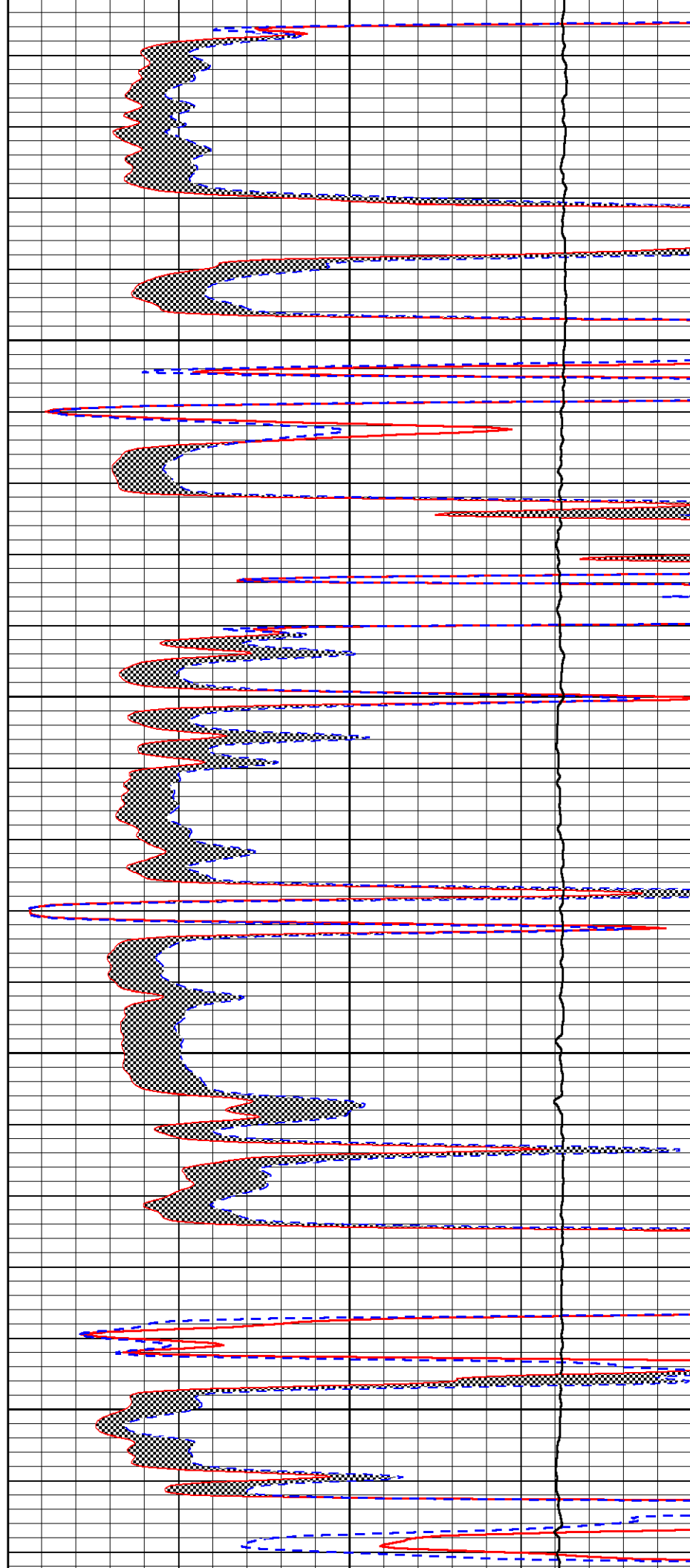


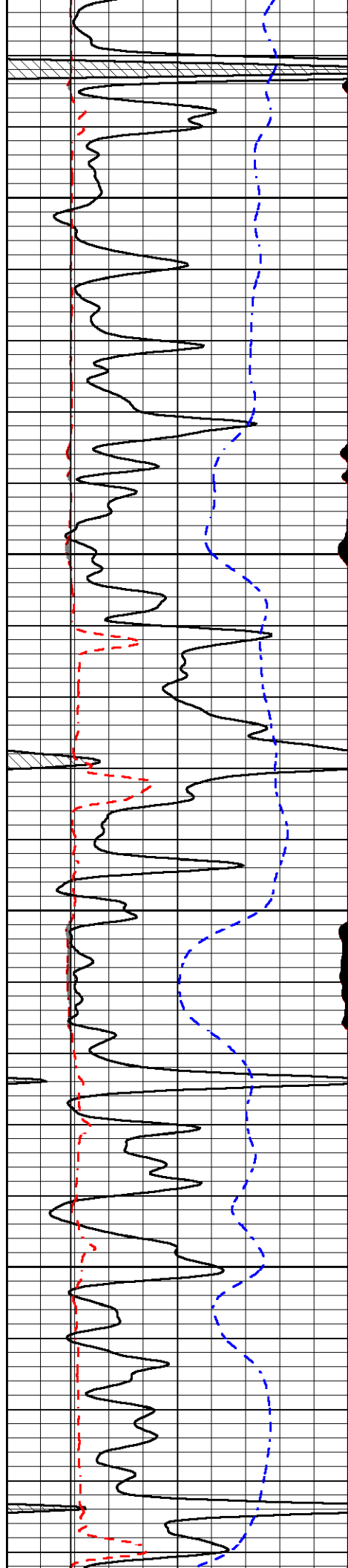
4050

4100

4150

4200



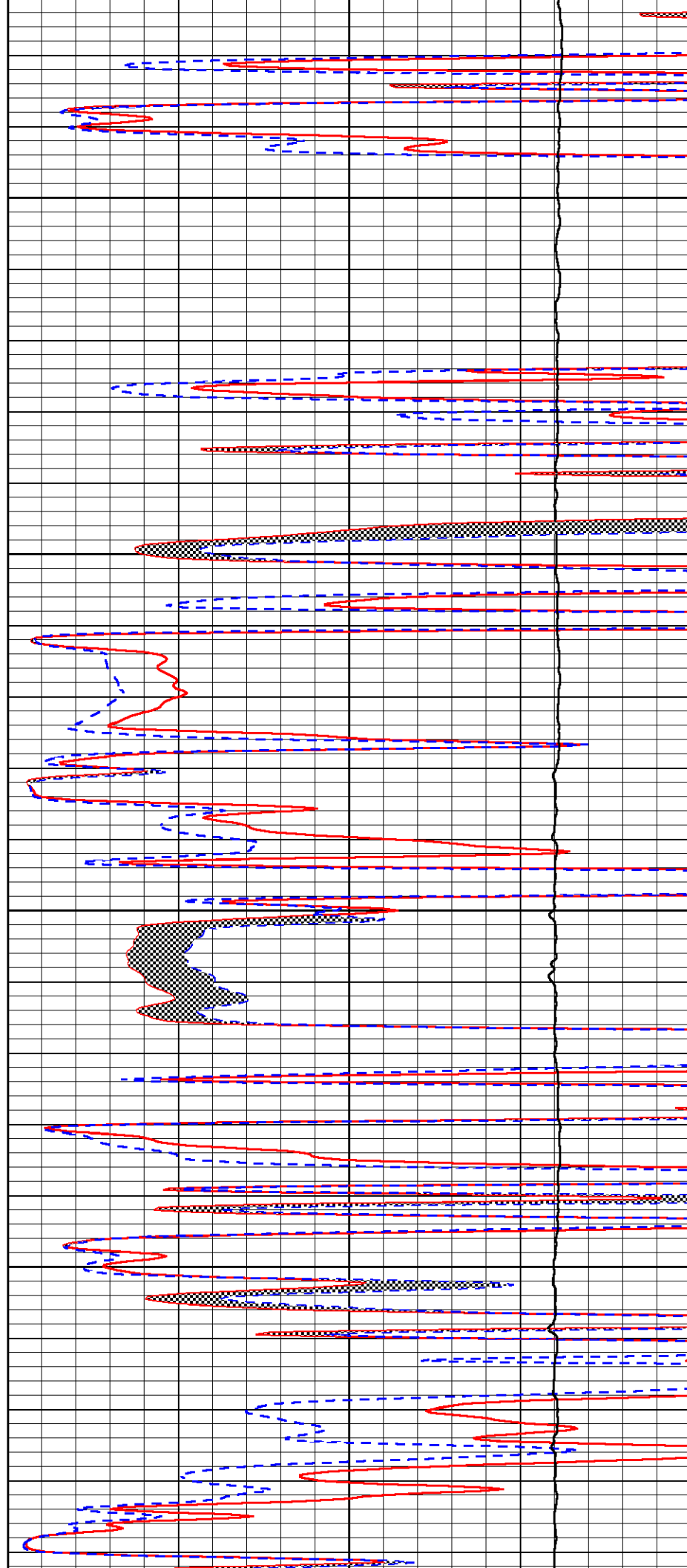


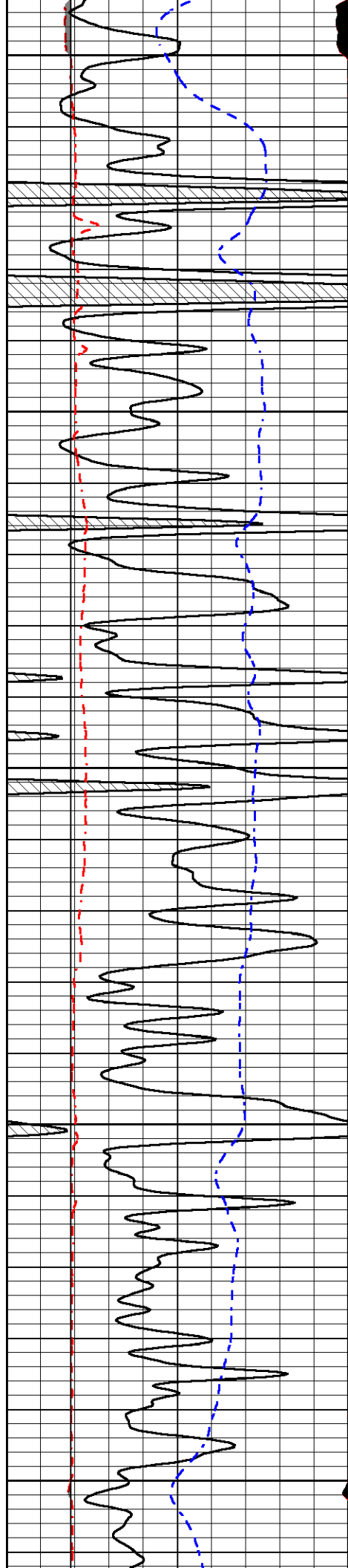
4250

4300

4350

4400





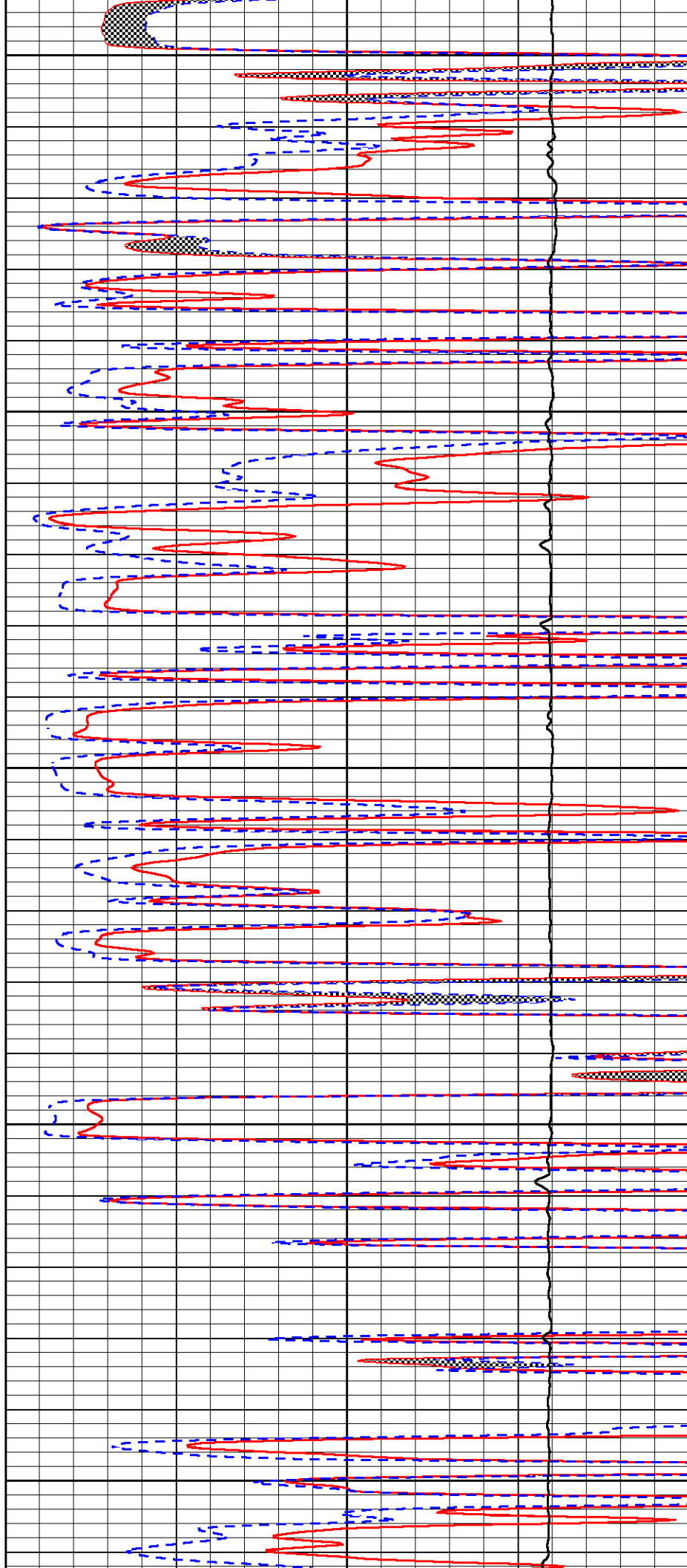
4450

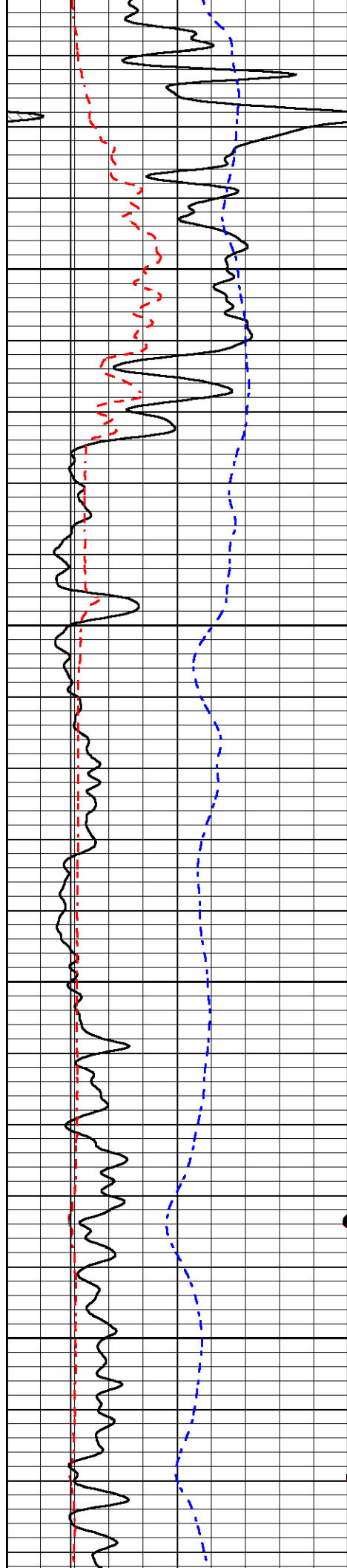
4500

4550

4600

4650





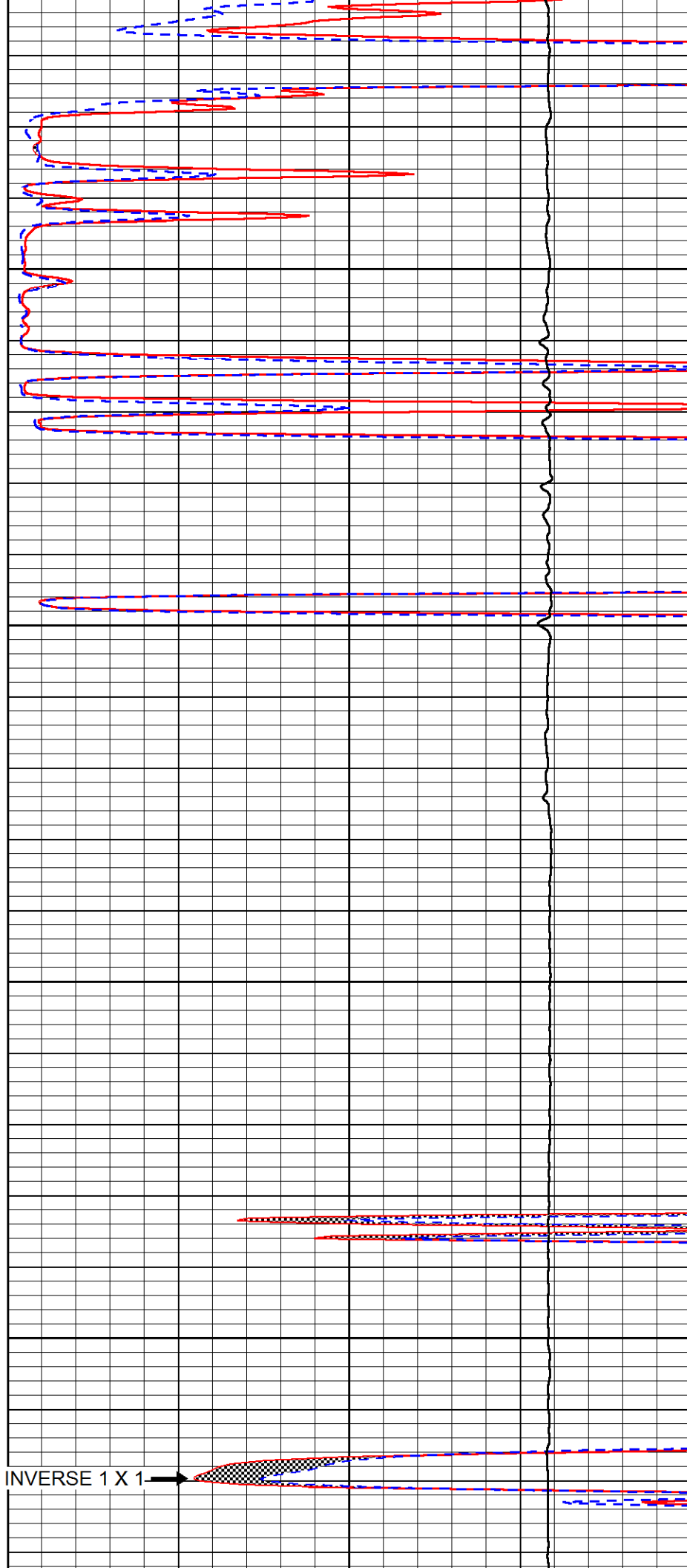
4700

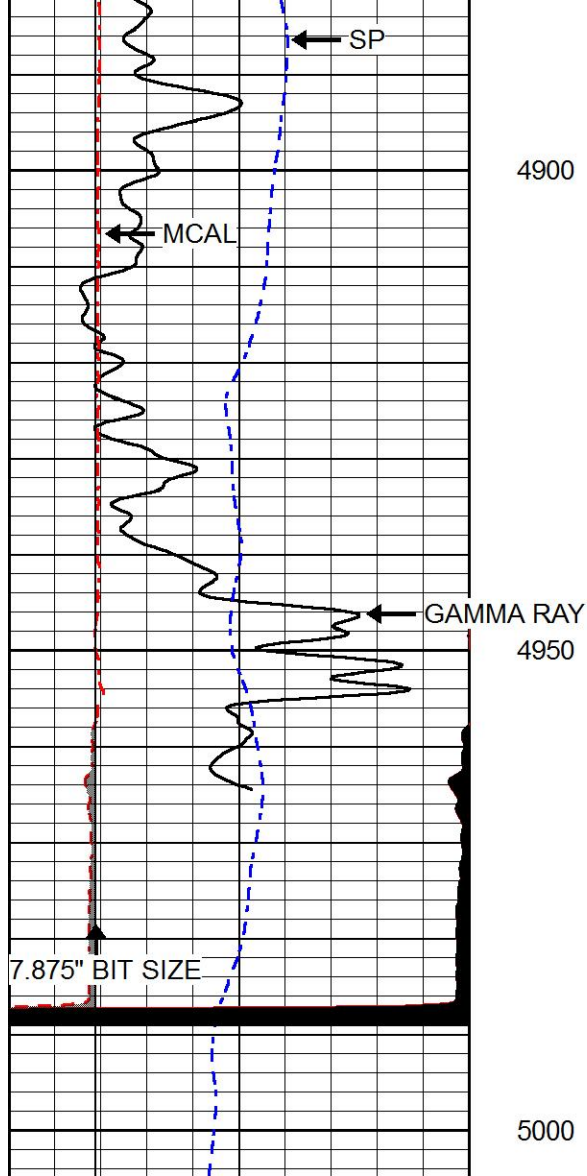
4750

4800

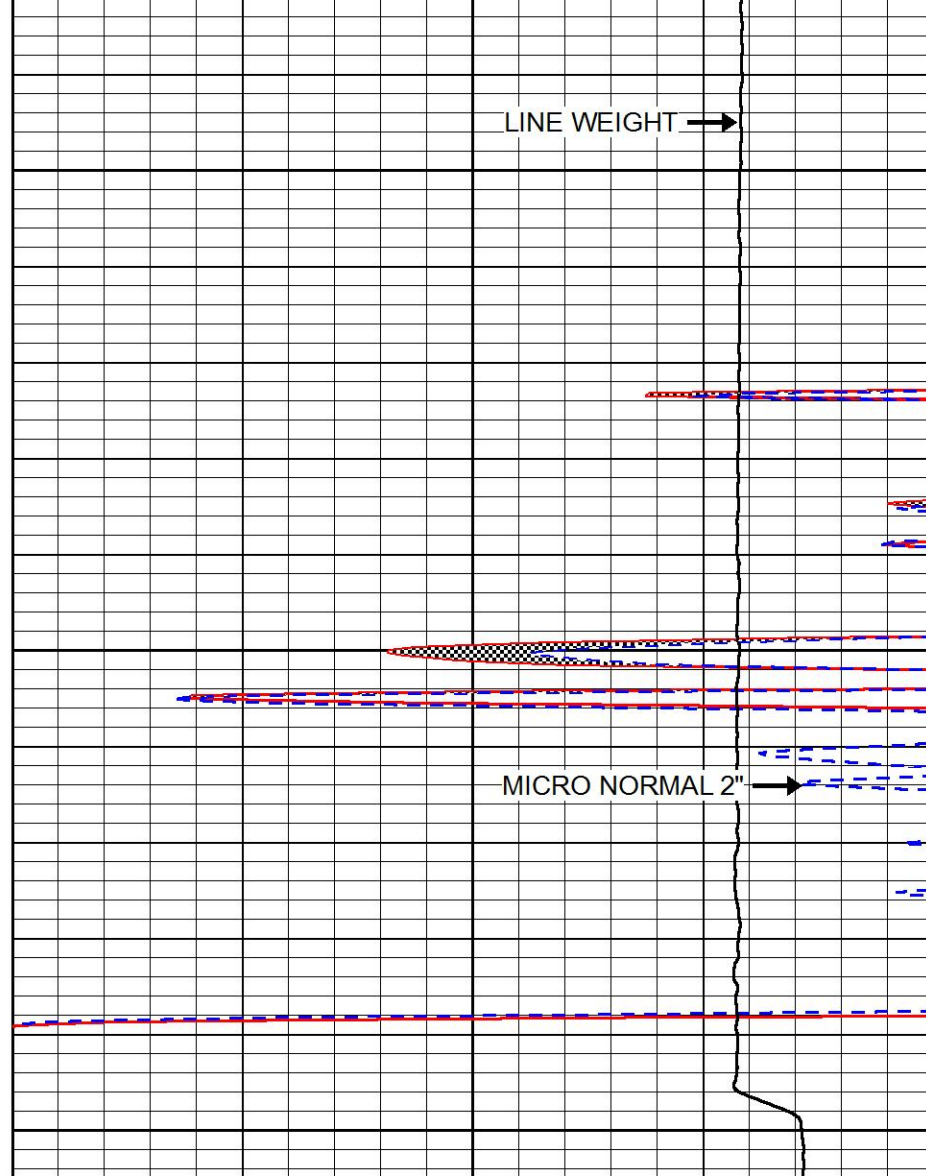
4850

MICRO INVERSE 1 X 1 →





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

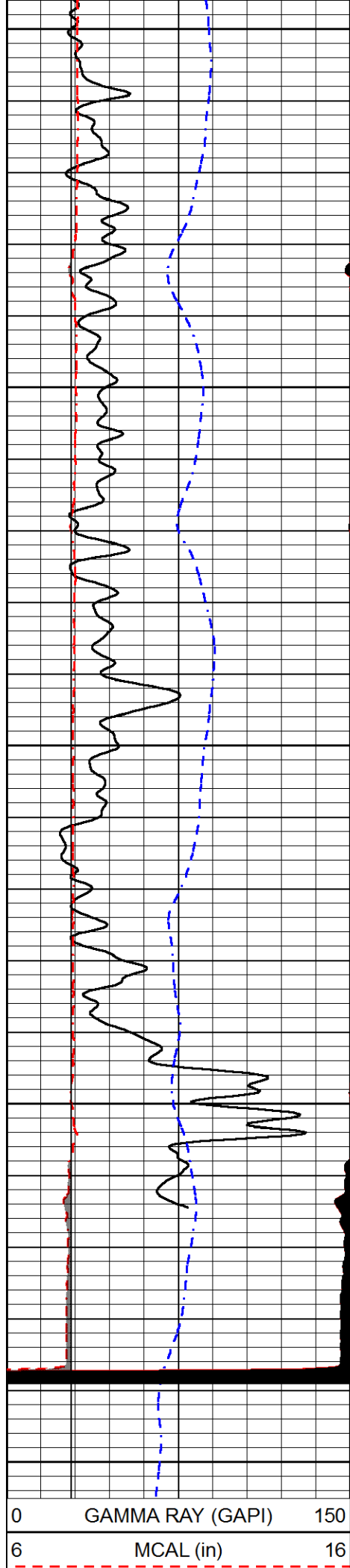


REPEAT SECTION

Database File american_warrior_crist 2-28.db
Dataset Pathname STKML/pass2.1
Presentation Format micro
Dataset Creation Mon Apr 23 15:21:59 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



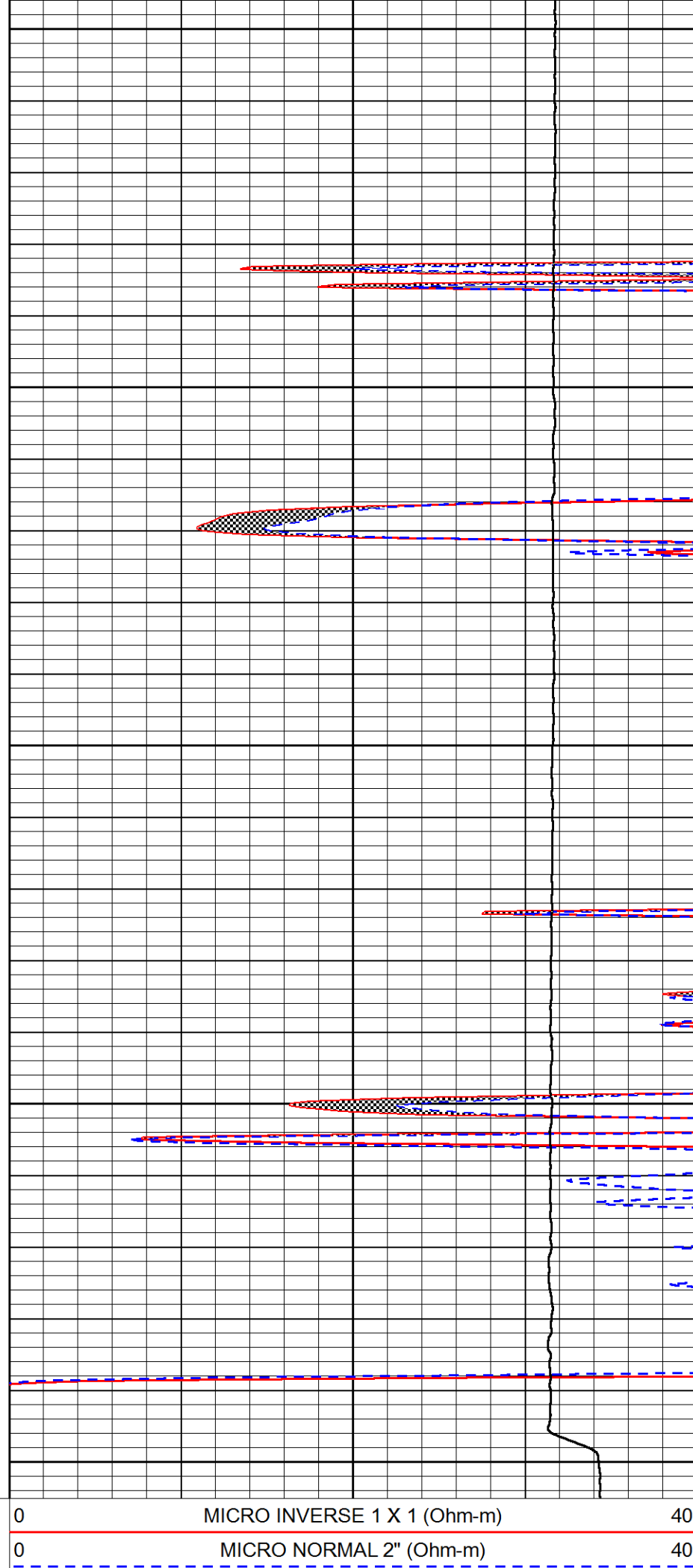
4800

4850

4900

4950

5000



2.875	mcAl (in)	7.875	10000	Line Weight (lb)	0
6	Bit Size (in)	16			
-200	SP (mV)	0			

Calibration Report					
Database File	american warrior_crist 2-28.db				
Dataset Pathname	STKML/pass3.1				
Dataset Creation	Mon Apr 23 15:23:02 2018				

Dual Induction Calibration Report					
-----------------------------------	--	--	--	--	--

Serial-Model:	933 (HT)-PSI HIGH TEMP				
Calibration Performed:	Mon Apr 23 14:01:41 2018				

		Readings		References			Results	
Loop:		Air	Loop	Air	Loop		Gain	Offset
Deep		167.000	835.000	0.000	255.000	mmho/m	0.700	-16.500
Medium		142.000	1349.000	0.000	255.000	mmho/m	0.565	-63.000

Microlog Calibration Report					
-----------------------------	--	--	--	--	--

Serial-Model:	PSI-01-PSIML				
Performed:	Mon Apr 16 11:11:21 2018				

		Readings		References			Results	
		Zero	Cal	Zero	Cal		m	b
Normal		0.0000	1.0000	0.0000	1.0000	Ohm-m	19000.0000	-0.7000
Inverse		0.0000	1.0000	0.0000	1.0000	Ohm-m	24000.0000	-0.6000
Caliper		1.0001	1.1397	6.5000	18.5000	in	70.0000	-65.9250

Compensated Density Calibration Report					
--	--	--	--	--	--

Serial-Model:	182-152-M&W				
Source / Verifier:	16955B / 2ci				
Master Calibration Performed:	Mon Apr 23 14:01:33 2018				

Master Calibration					
		Density		Far Detector	Near Detector
Magnesium		1.755	g/cc	4992.81	6098.44 cps
Aluminum		2.650	g/cc	945.67	3945.60 cps
Spine Angle = 75.33			Density/Spine Ratio = 0.520		
		Size		Reading	
Small Ring		4.50	in	1.09	
Large Ring		15.00	in	1.03	

Compensated Neutron Calibration Report					
--	--	--	--	--	--

Serial Number:	207-MW				
Tool Model:	M&W				
Calibration Performed:	MON APR 16 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:	Mon Jan 15 11:20:44 2018	
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	AMERICAN WARRIOR, INC.
	Well	CRIST #2-28
	Field	UNKNOWN
	County	FINNEY
	State	KANSAS