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MICRORESISTIVITY LOG

Company AMERICAN WARRIOR, INC.
Well RUFF UNIT #1-11
Field LIPPOLDT NORTHWEST
County HODGEMAN State KANSAS

Location: API #: 15-083-21959-00-00
259' FNL & 121' FWL
SEC 11 TWP 23S RGE 23W

Other Services
CNL/CDL
DIL/BHCS

Permanent Datum GROUND LEVEL Elevation 2279'
Log Measured From KELLY BUSHING
Drilling Measured From KELLY BUSHING

Elevation
K.B. 2290'
D.F. N/A
G.L. 2279'

Date	9/1/2018		
Run Number	TWO		
Depth Driller	5300'		
Depth Logger	5296'		
Bottom Logged Interval	5295'		
Top Log Interval	3750'		
Casing Driller	8.625" @ 270'		
Casing Logger	265'		
Bit Size	7.875"		
Type Fluid in Hole	CHEMICAL		
Salinity,ppm CL	6100		
Density / Viscosity	9.7 / 54		
pH / Fluid Loss	10.5 / 10.4		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	0.40 @ 80		
Rmf @ Meas. Temp	0.30 @ 80		
Rmc @ Meas. Temp	0.54 @ 80		
Source of Rmf / Rmc	CHARTS		
Rm @ BHT	0.25 @ 129		
Operating Rig Time	5 HOURS		
Max Rec. Temp. F	129		
Equipment Number	108		
Location	HAYS		
Recorded By	D. SCHMIDT		
Witnessed By	LUKE THOMPSON		

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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.

JETMORE,
1 EAST TO 219, SOUTH TO K RD, 3 EAST,
NORTH INTO

Log Measured From: KELLY BUSHING 11 Ft. Above Permanent Datum

THANK YOU FOR USING PIONEER ENERGY SERVICES
www.pioneeres.com 785-625-3858

Your Pioneer Energy Services Crew	This Log Record Was Witnessed By
Engineer: D. SCHMIDT	Primary Witness: LUKE THOMPSON
Operator:	Secondary Witness:
Operator:	Secondary Witness:
Operator:	Secondary Witness:

Log Variables

DatabaseC:\ProgramData\Warrior\Data\american warrior_ruff unit 1-11.db
Dataset field/well/SONMEL/pass6.10/_vars_

Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	COMPACT	FLUIDDEN g/cc	M
1	7.875	129	5.5	0	1	1	2

MATRXDEN g/cc	NPORSEL	PERFS	SNDERR mmho/m	SNDERRM mmho/m	SPSHIFT mV	SRFTEMP degF	SVFLUID usec/ft
2.71	Limestone	0	0	0	-110	80	189

SVMATRIX usec/ft	SZCOR	TDEPTH ft
47.6	Off	5296

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb
			ML-Armadillo (Armadillo-1) Pengo micro log tool mandrel with Armadillo Electronics	5.00	3.50	100.00
MCAL	1.00					
MI	1.00					
MN	1.00					

Dataset: american warrior_ruff unit 1-11.db: field/well/SONMEL/pass6.10
Total length: 5.00 ft
Total weight: 100.00 lb
O.D.: 3.50 in

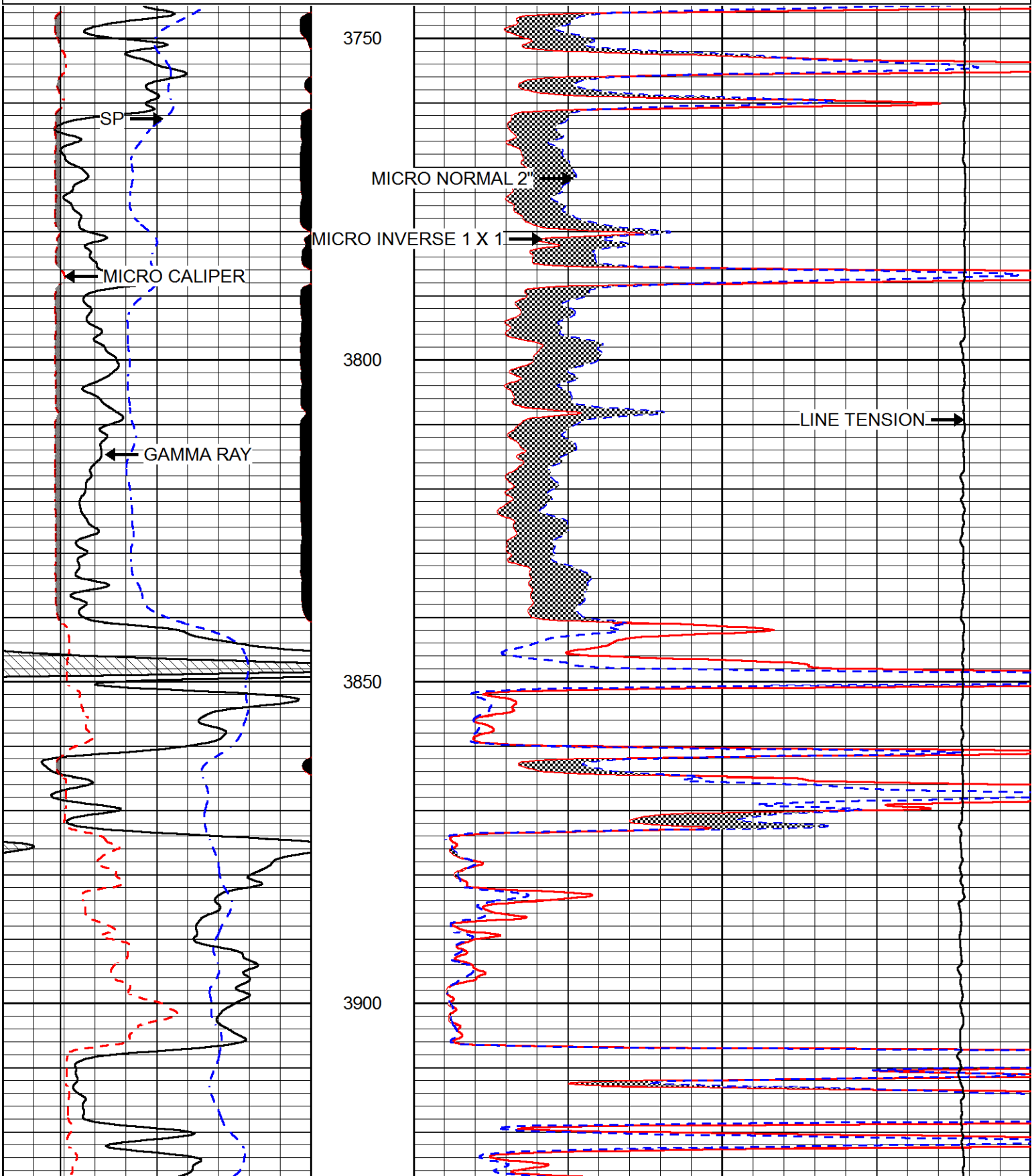
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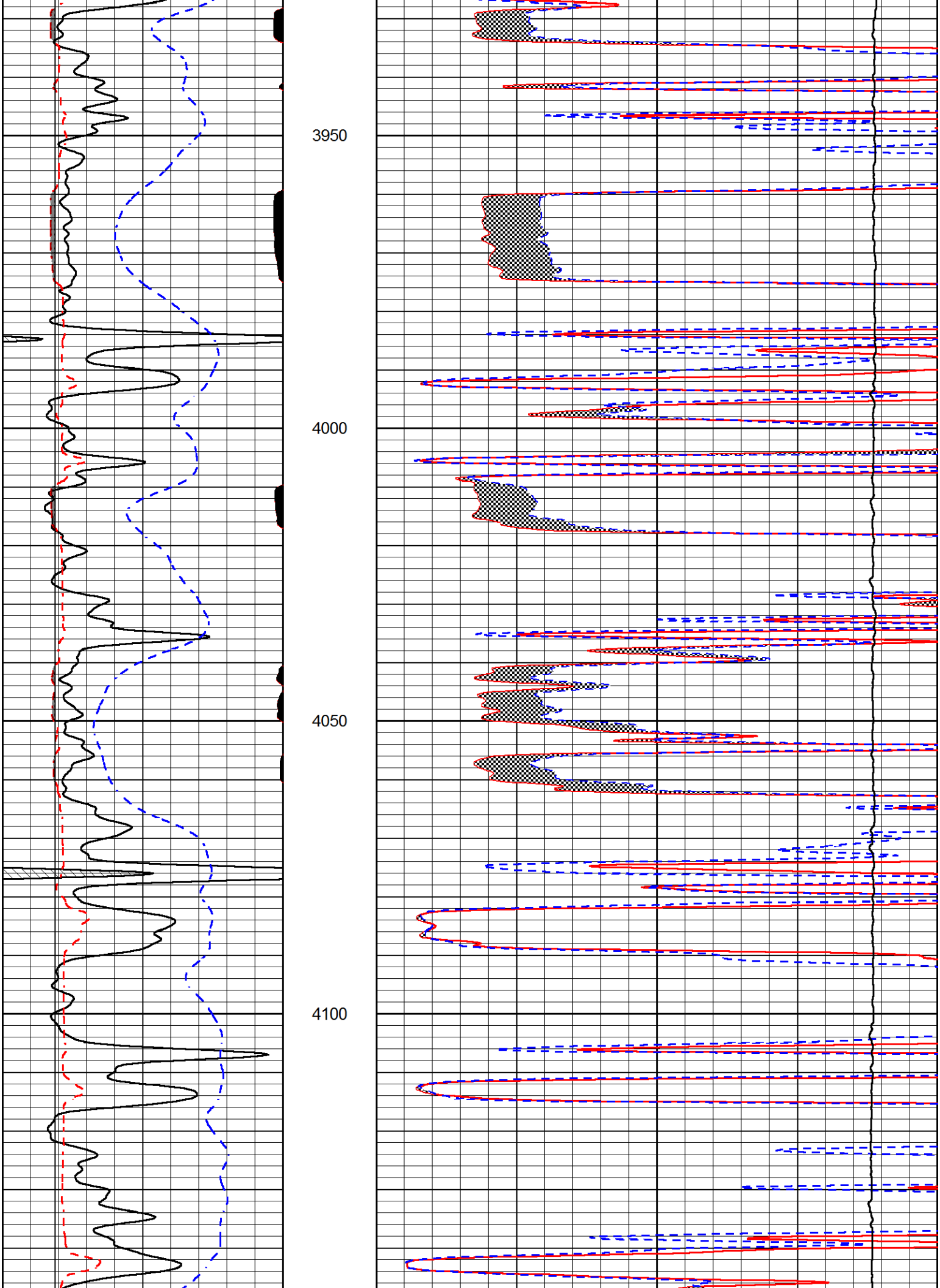
MAIN PASS

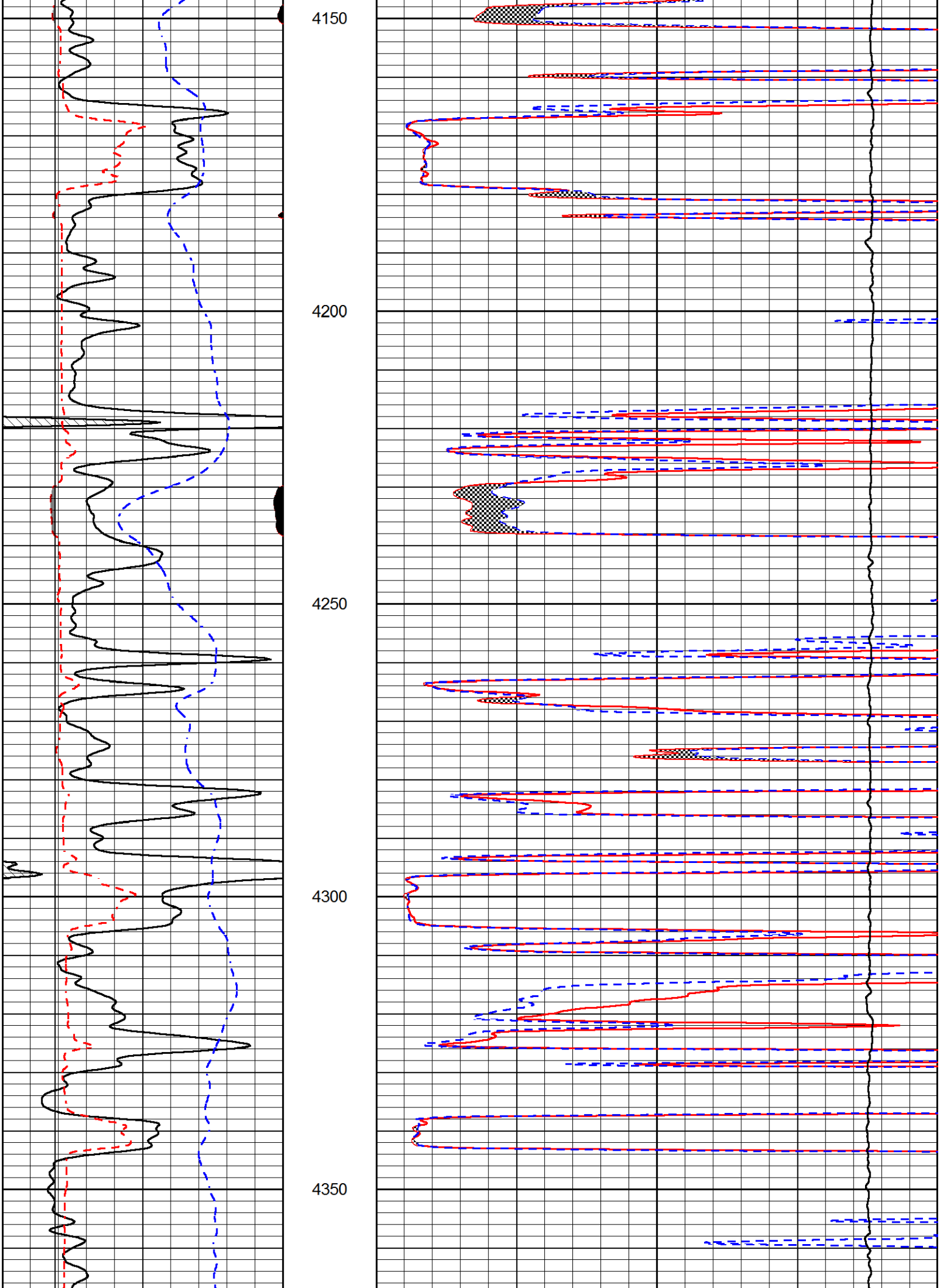
Database File	american warrior_ruff unit 1-11.db
Dataset Pathname	STACK/pass4.1
Presentation Format	micro
Dataset Creation	Sat Sep 01 03:17:45 2018
Charted by	Depth in Feet scaled 1:240

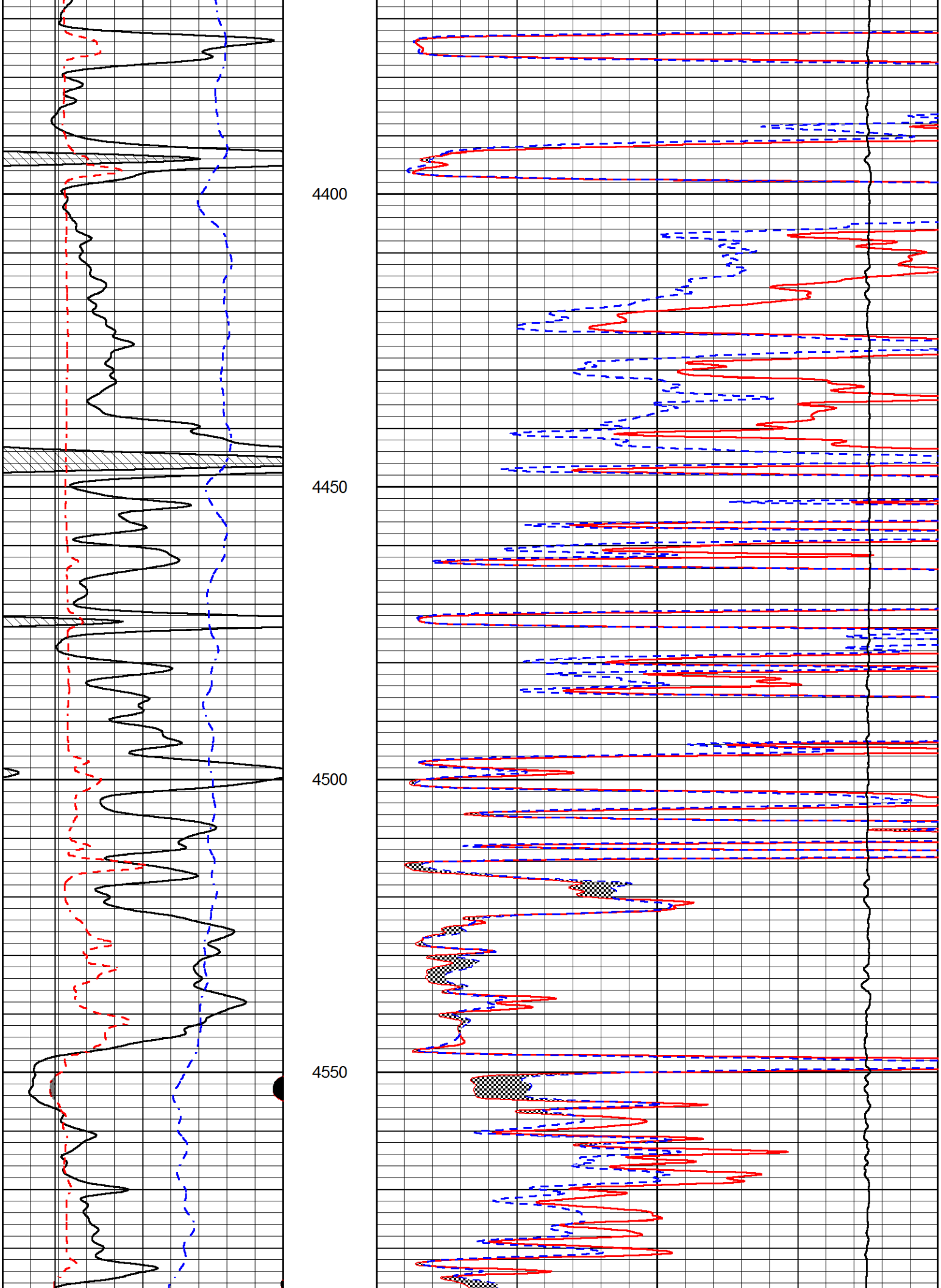
0	GAMMA RAY (GAPI)	150
6	MICRO CALIPER (in)	16
6	BIT SIZE (in)	16
-200	SP (mV)	0

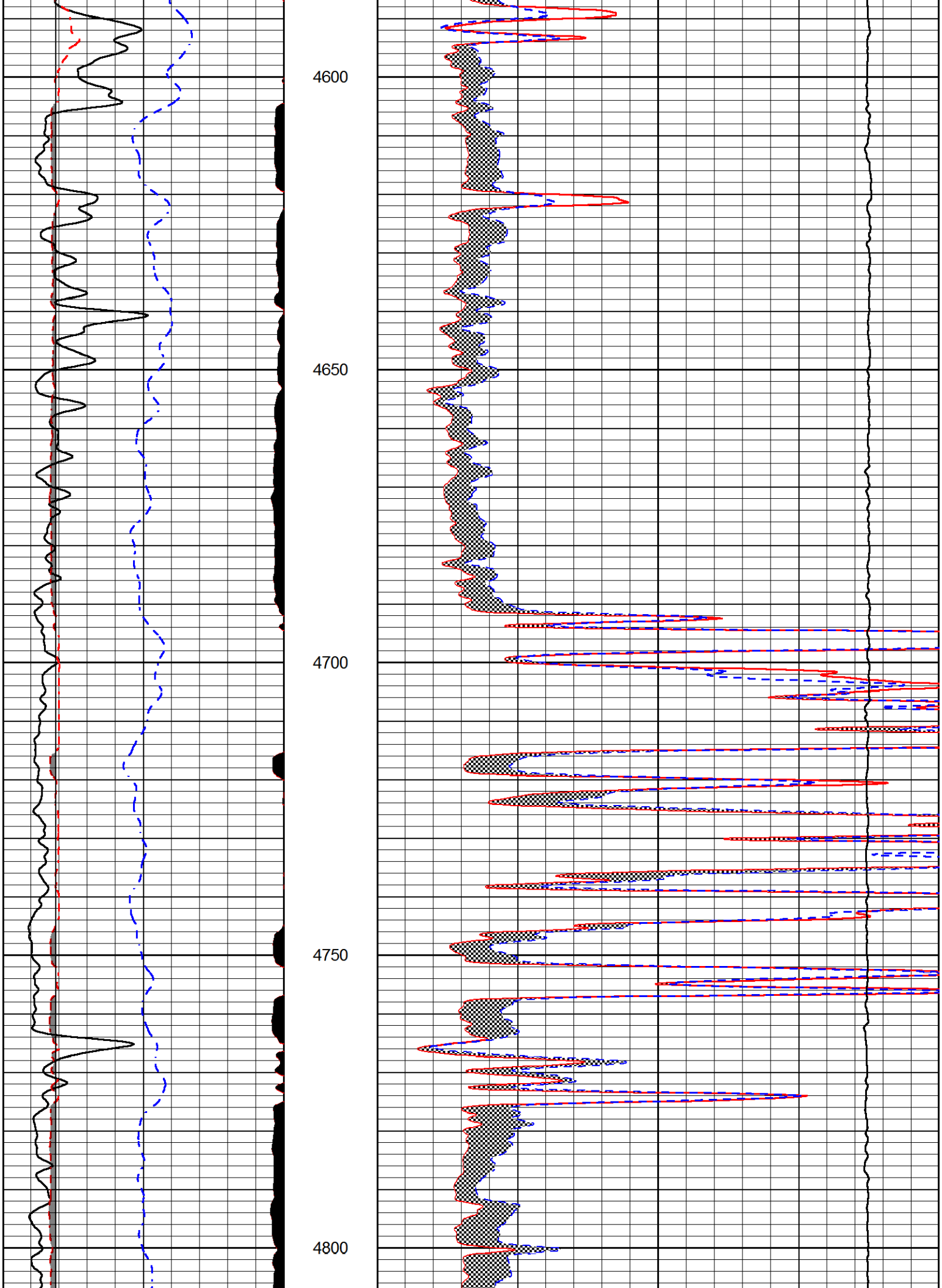
0	MICRO INVERSE 1 X 1 (Ohm-m)	40
0	MICRO NORMAL 2" (Ohm-m)	40
15000	LINE TENSION (lb)	0

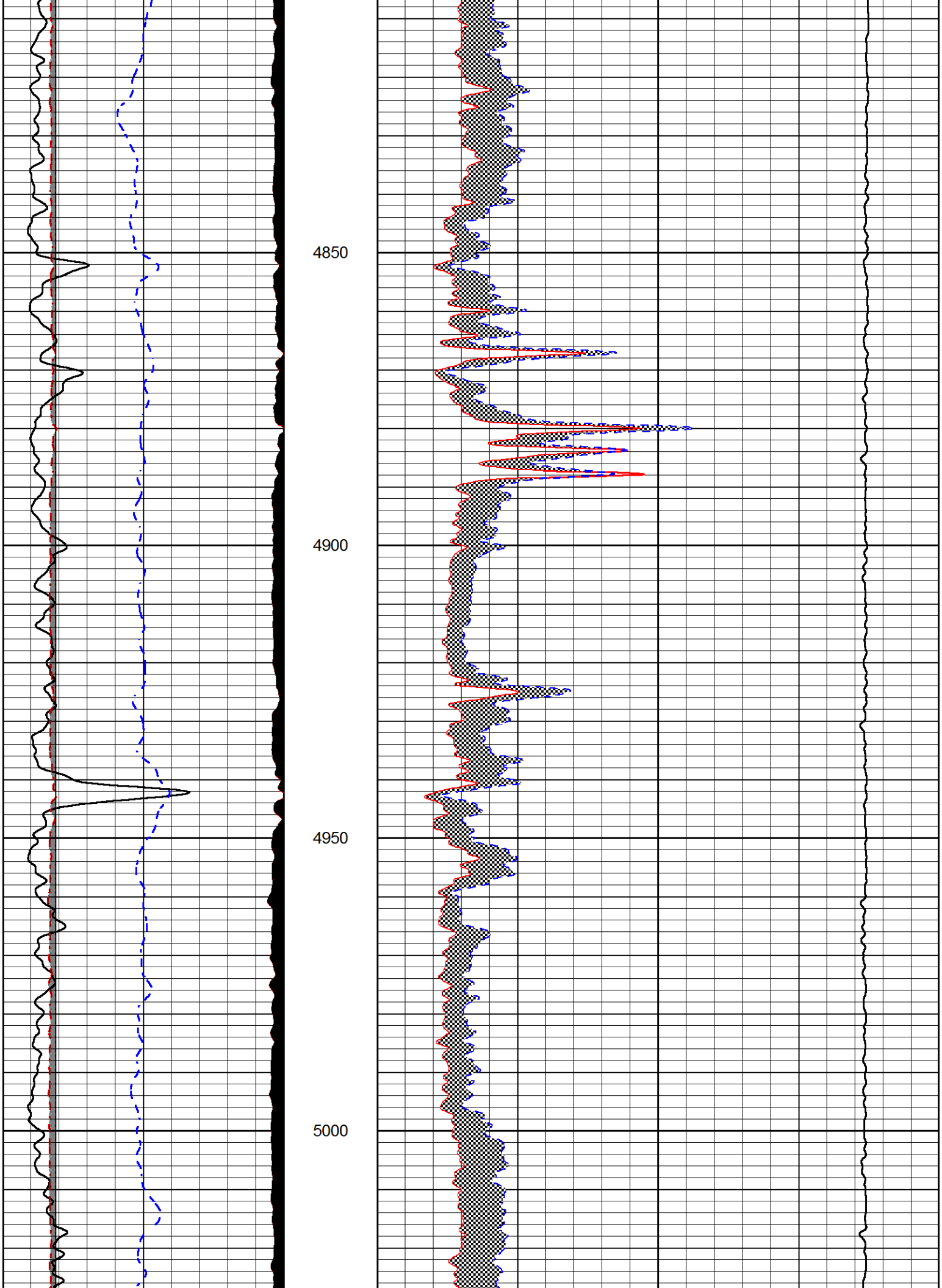


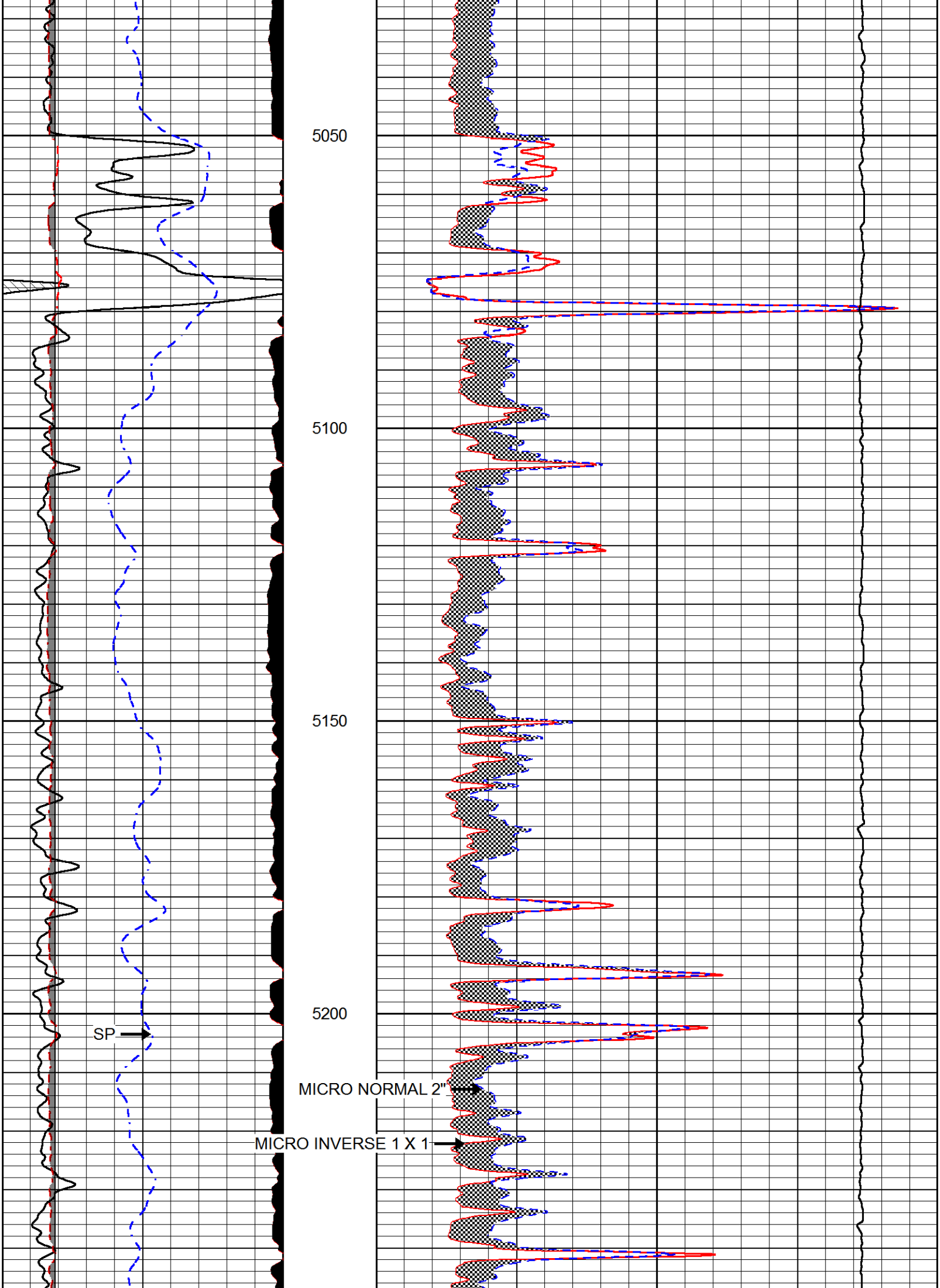

3950
4000
4050
4100

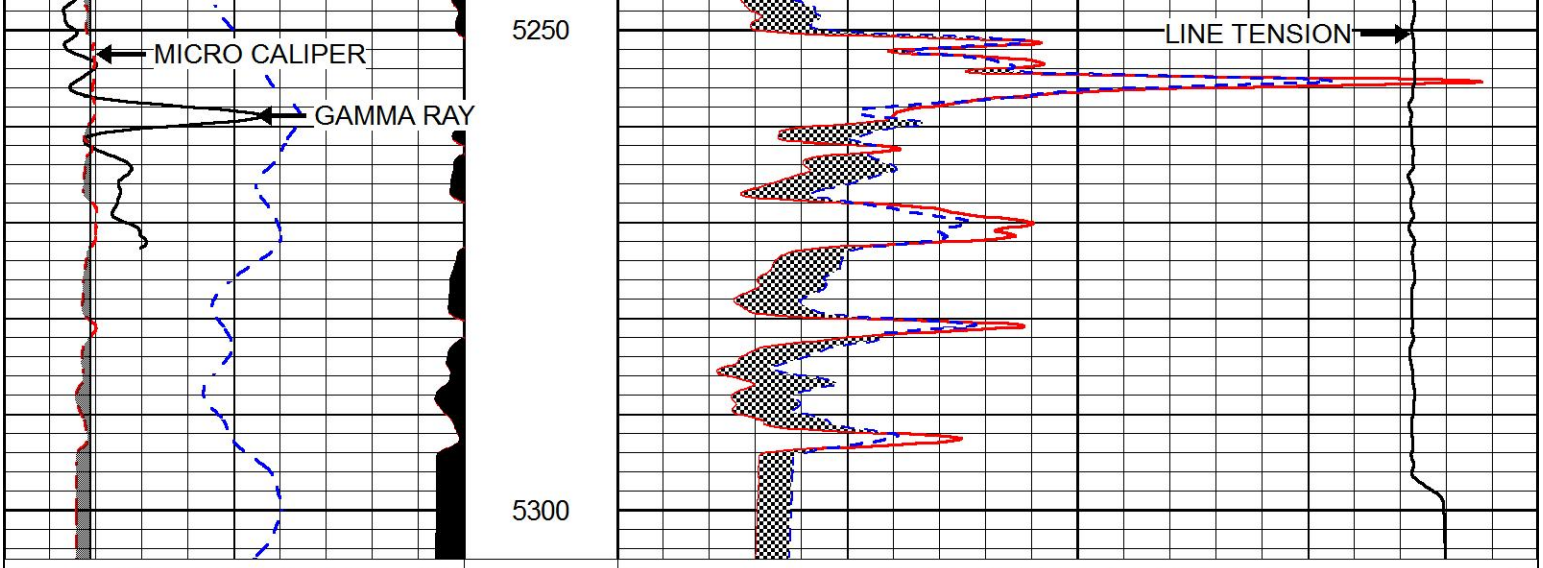

4150
4200
4250
4300
4350


4400
4450
4500
4550


4600
4650
4700
4750
4800


4850
4900
4950
5000


5050
5100
5150
5200
SP
MICRO NORMAL 2"
MICRO INVERSE 1 X 1



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

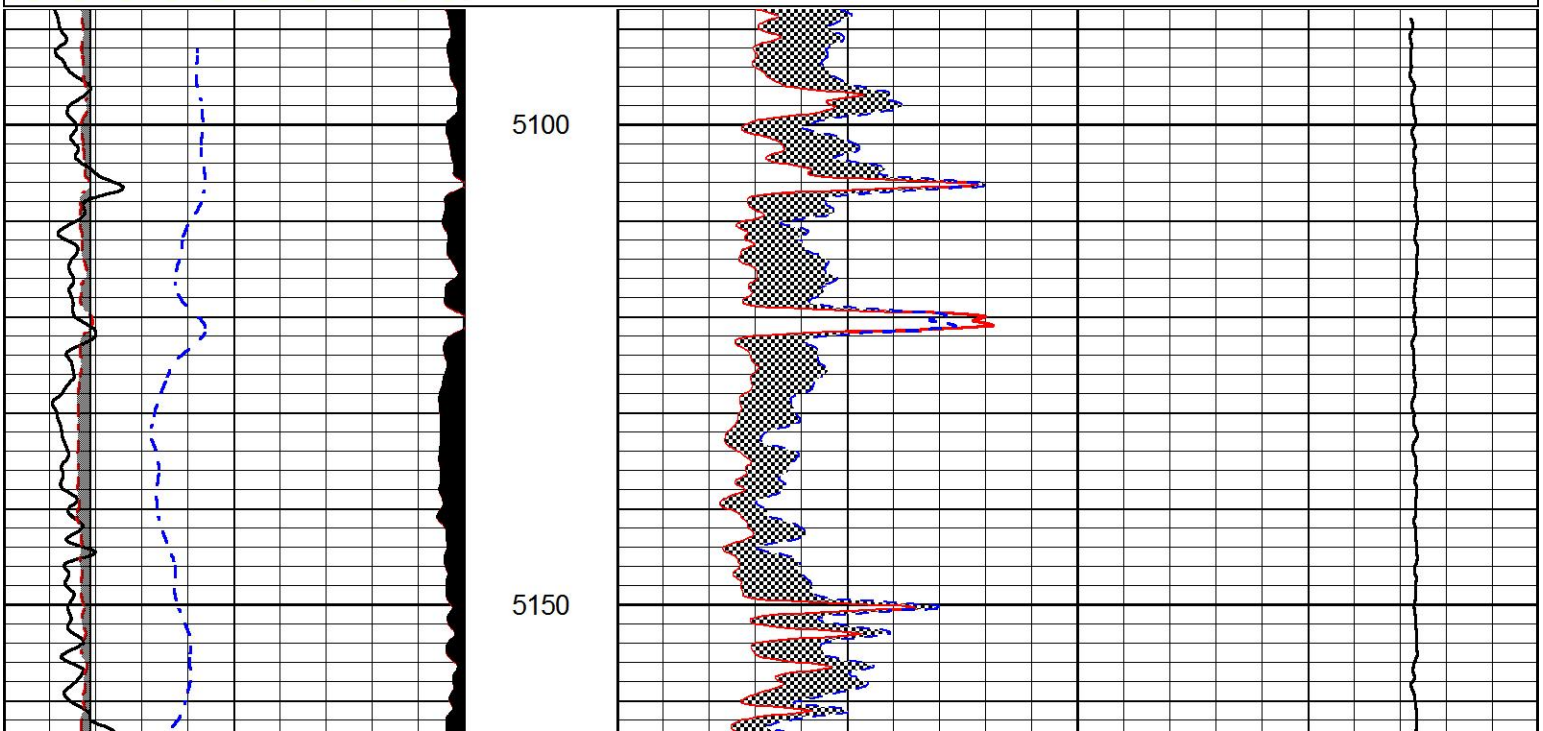
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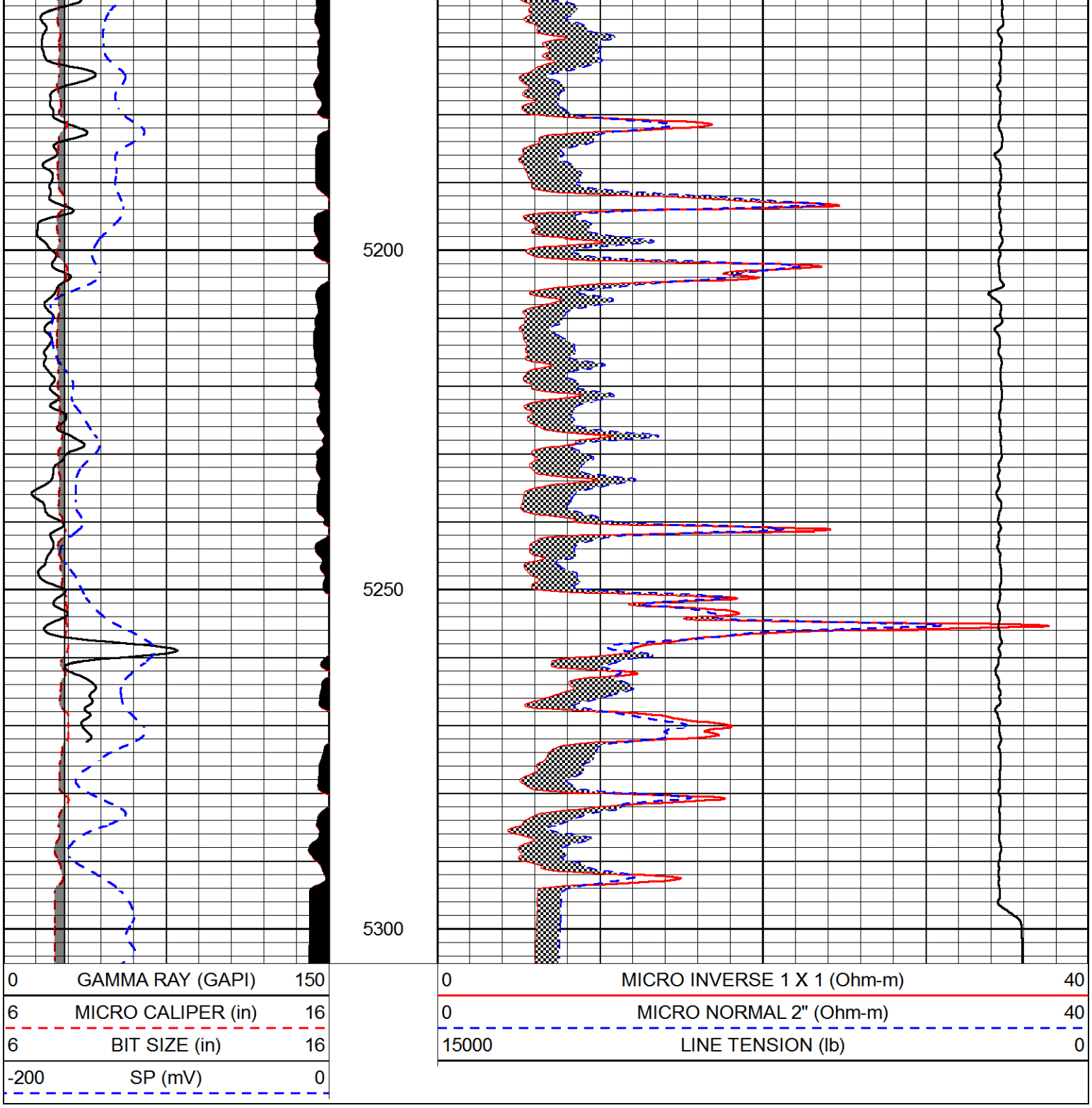
REPEAT SECTION

Database File	american warrior_ruff unit 1-11.db
Dataset Pathname	STACK/pass2.1
Presentation Format	micro
Dataset Creation	Sat Sep 01 02:48:31 2018
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





Calibration Report

Database File	american warrior_ruff unit 1-11.db
Dataset Pathname	SONMEL/pass6.10
Dataset Creation	Sat Sep 01 11:55:18 2018

Microlog Calibration Report

Serial-Model:	Armadillo-1-Armadillo
Performed:	Fri Nov 18 11:19:49 2016

	Readings			References			Results	
	Zero	Cal		Zero	Cal		m	b
Normal	0.0122	1.0361	V	0.0000	10.0000	Ohm-m	35.0000	-2.0000
Inverse	-0.0037	0.9549	V	0.0000	10.0000	Ohm-m	25.0000	-0.6000

Caliper	1.1139	8.3644	V	5.0000	19.0000	in	1.9309	3.7493

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State	KANSAS