



MICRORESISTIVITY LOG

Company ELK ENERGY HOLDINGS, LLC
 Well LIPPELMANN NO 1-14
 Field WILDCAT
 County THOMAS
 State KANSAS

Company ELK ENERGY HOLDINGS, LLC
 Well LIPPELMANN NO 1-14
 Field WILDCAT
 County THOMAS State KANSAS

Location: API #: 15-193-20998-00-00
 2305' FNL & 2110' FWL
 SEC 14 TWP 10S RGE 33W
 Permanent Datum GROUND LEVEL Elevation 3139'
 Log Measured From KELLY BUSHING
 Drilling Measured From KELLY BUSHING
 Other Services CNL/CDL DIL
 Elevation K.B. 3144'
 D.F. N/A
 G.L. 3139'

Date	9/7/2017
Run Number	ONE
Depth Driller	4720'
Depth Logger	4718'
Bottom Logged Interval	4717'
Top Log Interval	3800'
Casing Driller	8.625" @ 347'
Casing Logger	344'
Bit Size	7.875"
Type Fluid in Hole	CHEMICAL
Salinity, ppm CL	3,500
Density / Viscosity	9.4 58
pH / Fluid Loss	9.0 9.6
Source of Sample	FLOWLINE
Rm @ Meas. Temp	.80 @ 65
Rmt @ Meas. Temp	.60 @ 65
Rmc @ Meas. Temp	1.08 @ 65
Source of Rmf / Rmc	CHARTS
Rm @ BHT	.42 @ 123
Operating Rig Time	3 HOURS
Max Rec. Temp. F	123 DEGF
Equipment Number	108
Location	HAYS
Recorded By	J. HENRICKSON
Witnessed By	SEAN DEENIHAN

<<< 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.
 OAKLEY WEST EXIT
 1 NORTH TO F RD, 6 WEST TO RD 23, 3/4 SOUTH, 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 Engineer: J. HENRICKSON Operator: Operator: Operator:	This Log Record Was Witnessed By Primary Witness: SEAN DEENIHAN Secondary Witness: Secondary Witness: Secondary Witness:
---	--

Log Variables

DatabaseC:\ProgramData\Warrior\Data\elk_energy_lippelmann_1_14.db
 Dataset field/well/stackml/pass3.1/_vars_

Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	125	5.5	0	1	2	2.71
NPORSEL	PERFS	SNDERR mmho/m	SNDERRM mmho/m	SPSHIFT mV	SRFTEMP degF	SZCOR	TDEPTH ft
Limestone	0	0	0	-260	76	Off	4718

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
GR	40.58		GR-M&W (89-M&W)	3.00	3.50	50.00
CNLSC CNSSC	37.48 36.73		CNT-M&W (tk10-MW)	5.50	3.50	100.00
LSD DCAL SSD	28.43 28.42 27.93		CDL-M&W (168-986)	8.50	4.00	250.00
MCAL MI MN	19.83 19.83 19.83		ML-PSI STKBL ML (PSI-02) Stackable Microlog Tools	7.58	4.00	65.00
RLL3 RLL3F	15.80 15.79					
CILD	8.00		DIL-M&W (1987)	18.50	3.50	220.00

CILM 4.70

SP 0.20

Dataset: elk_energy_lippelmann_1_14.db: field/well/stackml/pass3.1
 Total length: 43.08 ft
 Total weight: 685.00 lb
 O.D.: 4.00 in

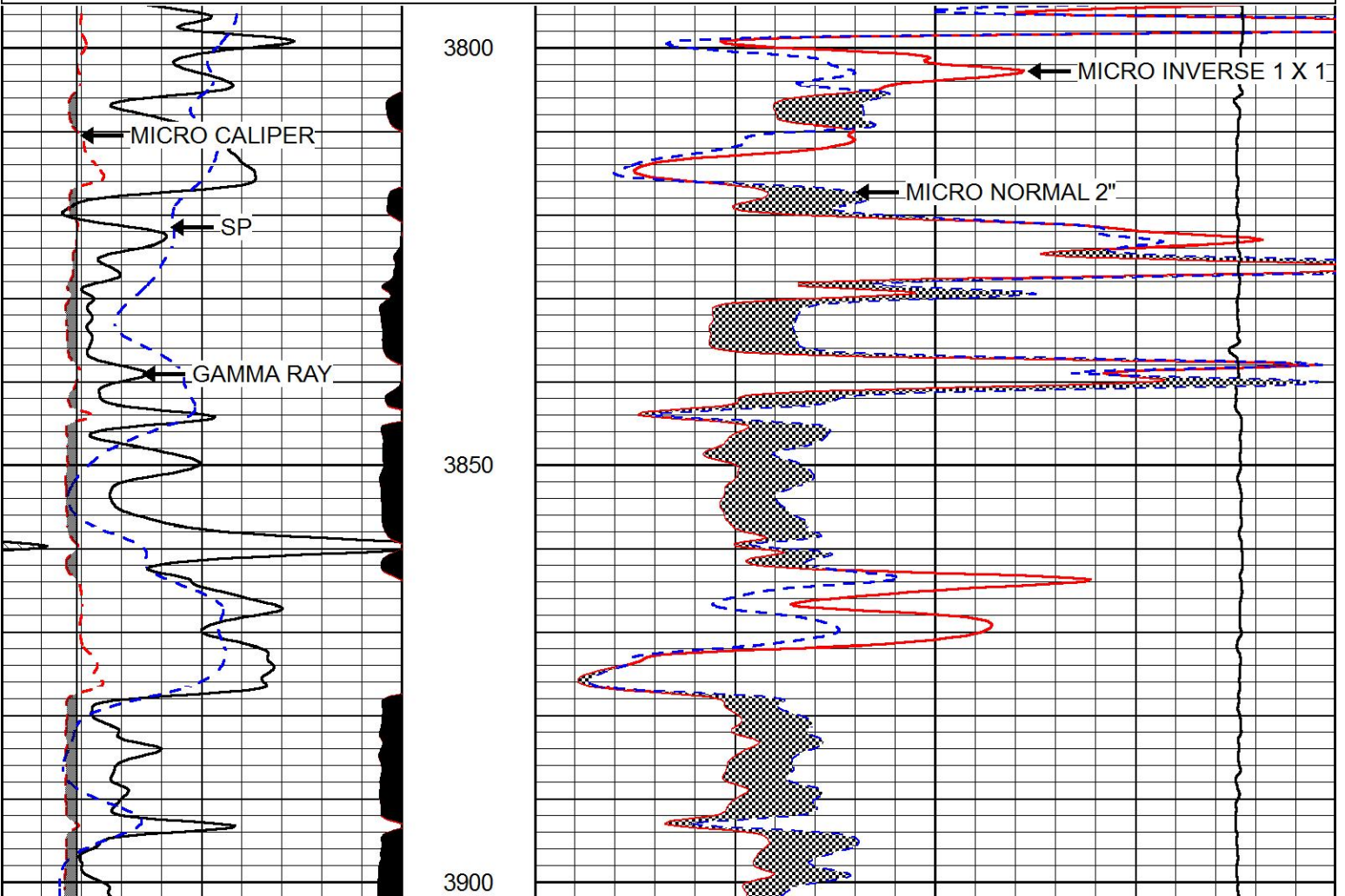


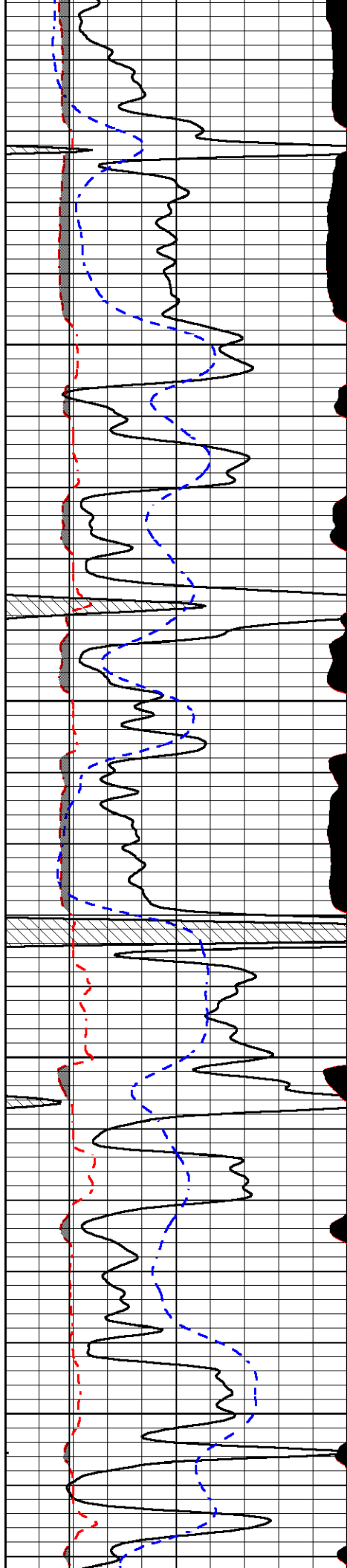
MAIN PASS

Database File elk_energy_lippelmann_1_14.db
 Dataset Pathname stackml/pass3.1
 Presentation Format micro
 Dataset Creation Thu Sep 07 14:06:47 2017
 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



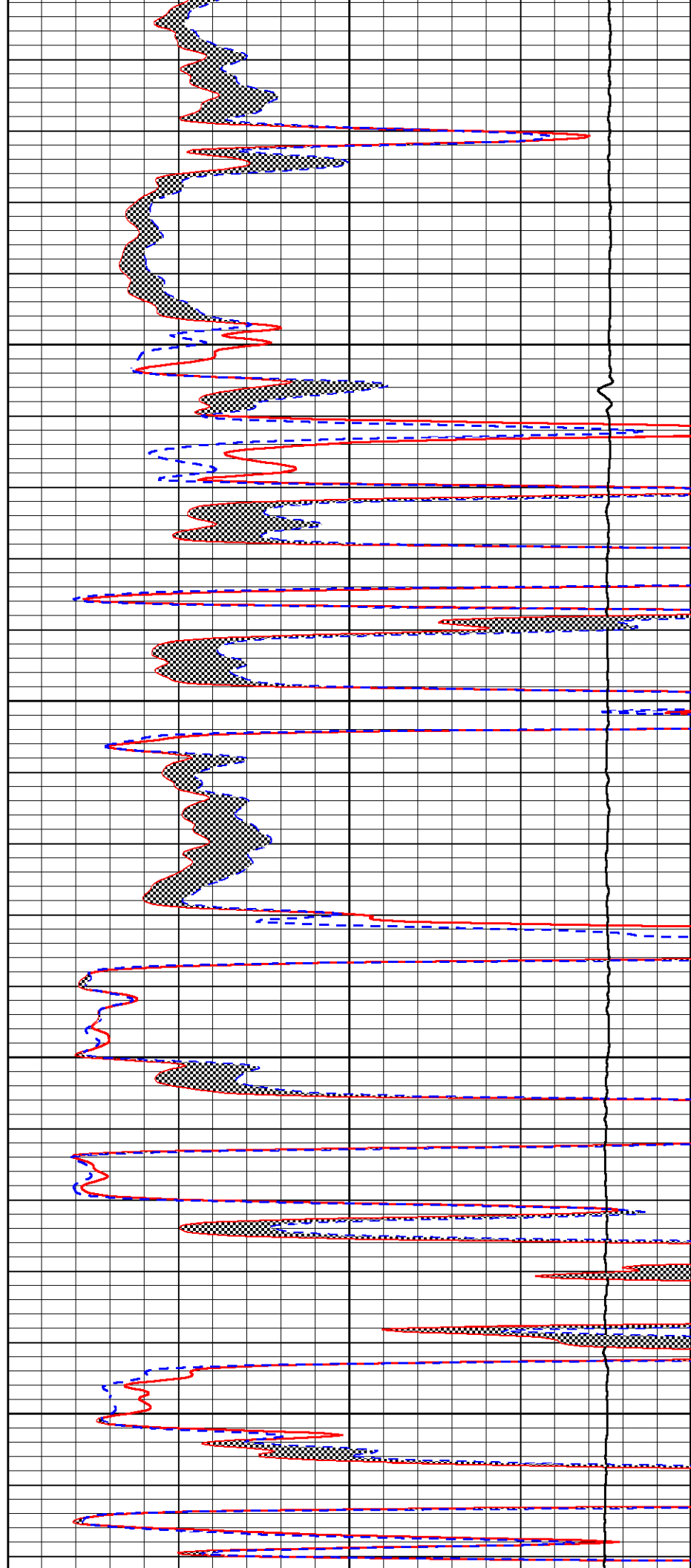


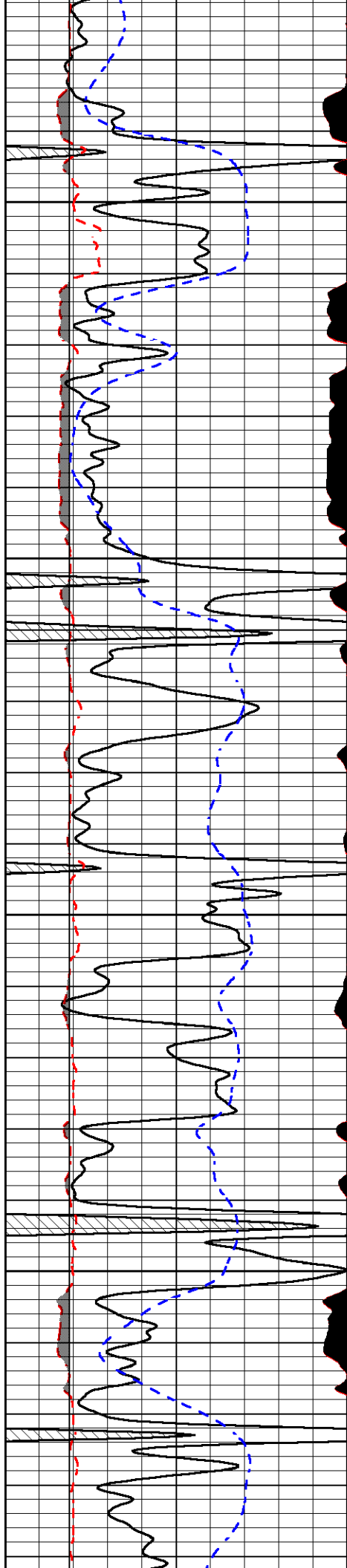
3950

4000

4050

4100



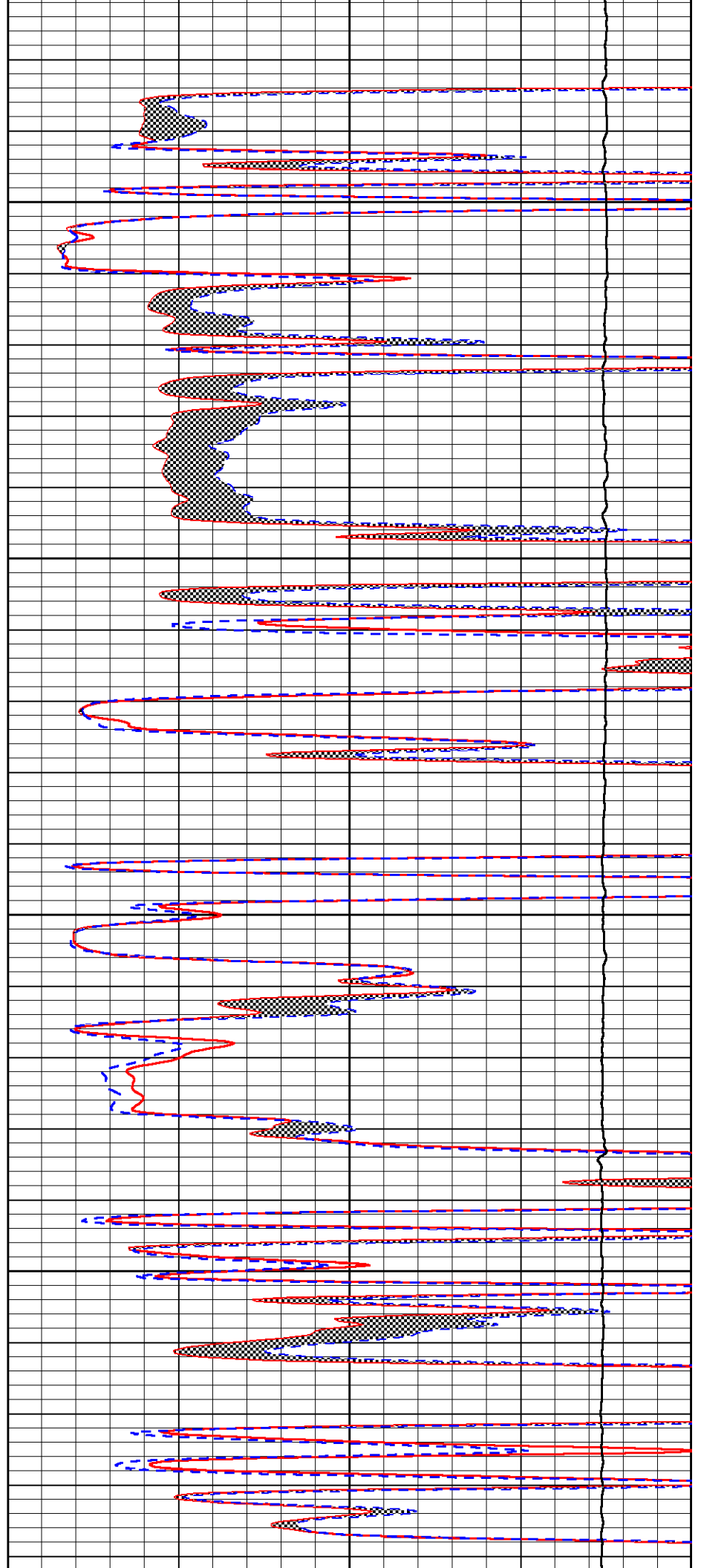


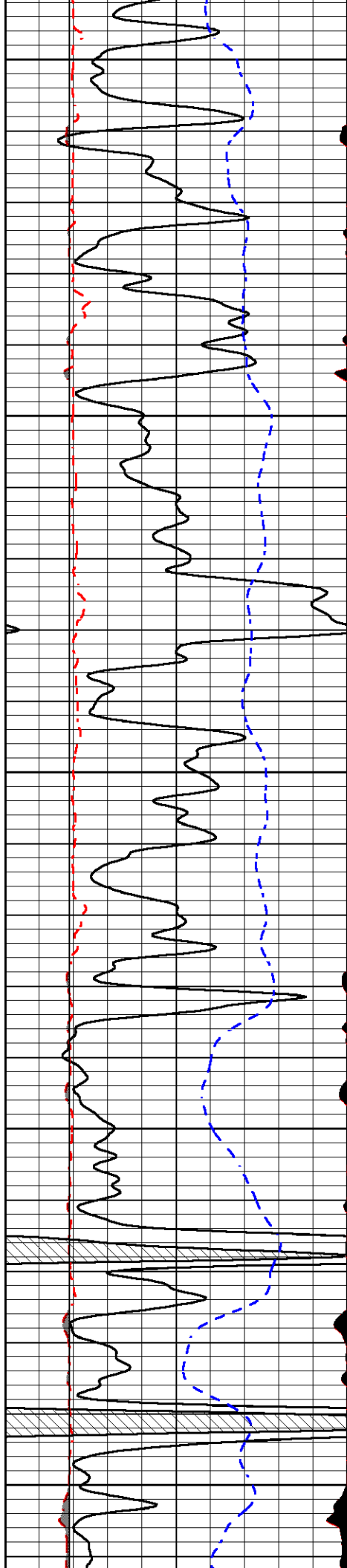
4150

4200

4250

4300





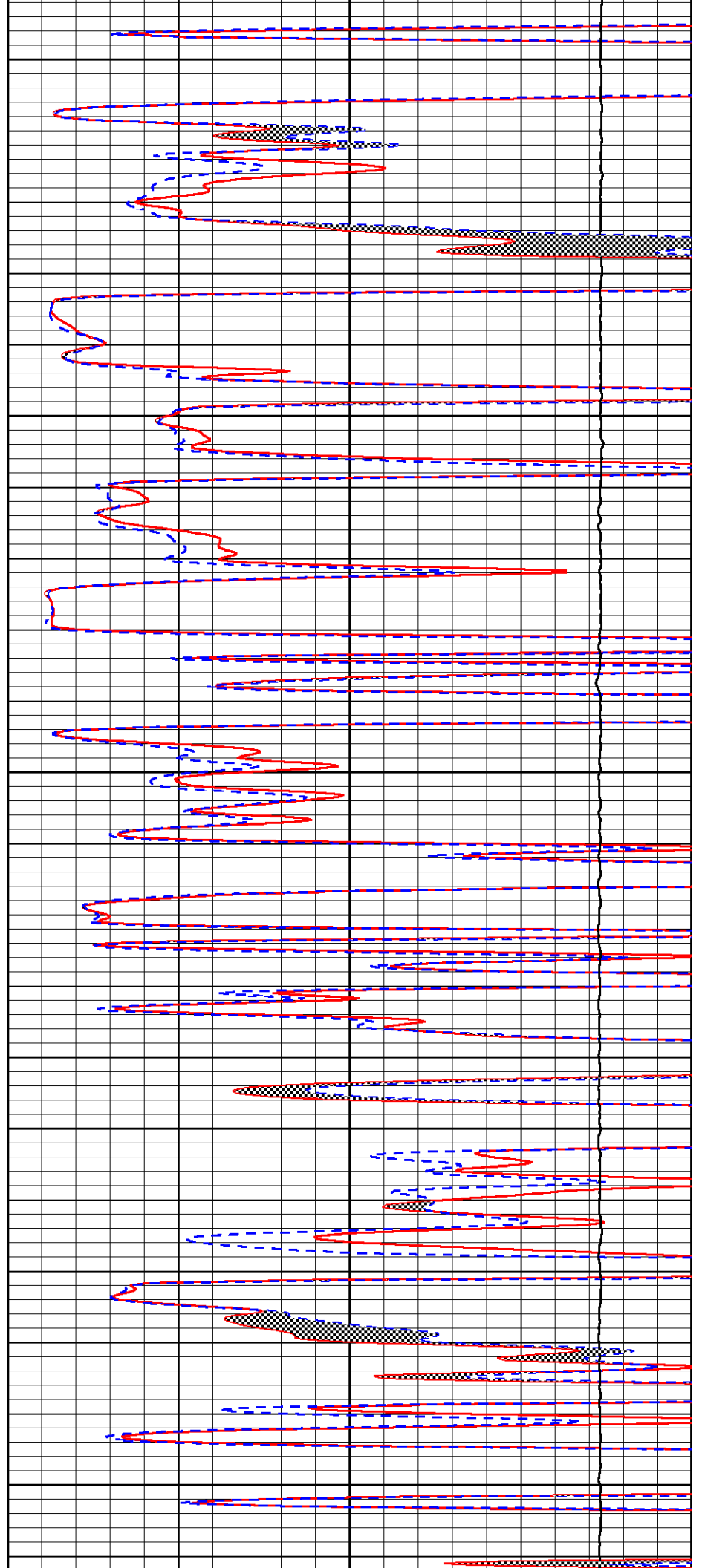
4350

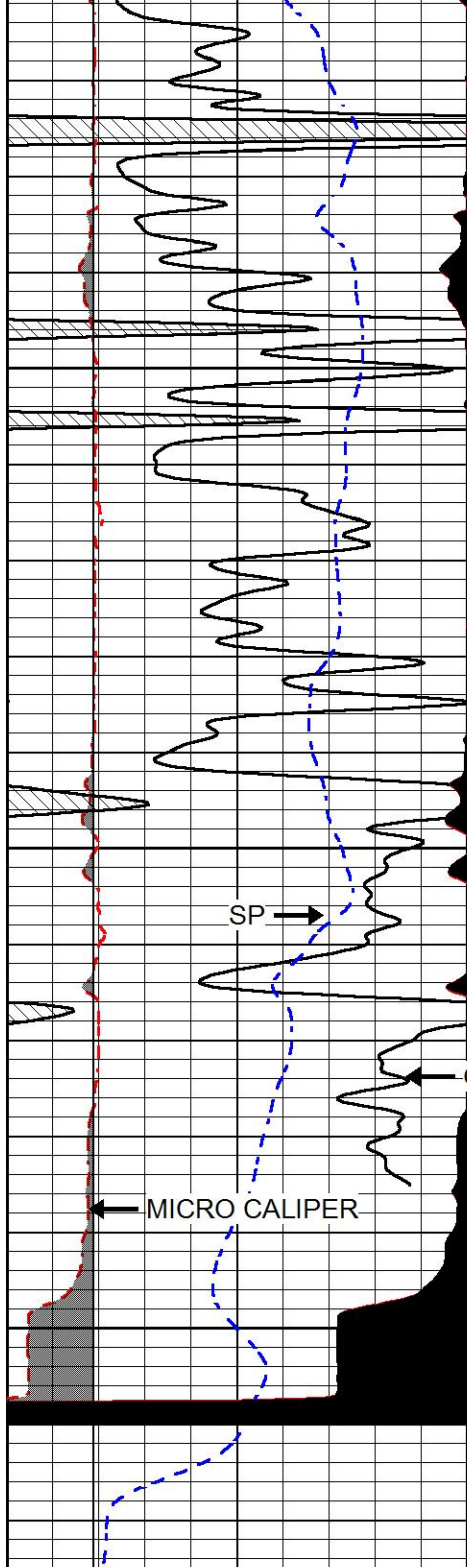
4400

4450

4500

4550





4600

4650

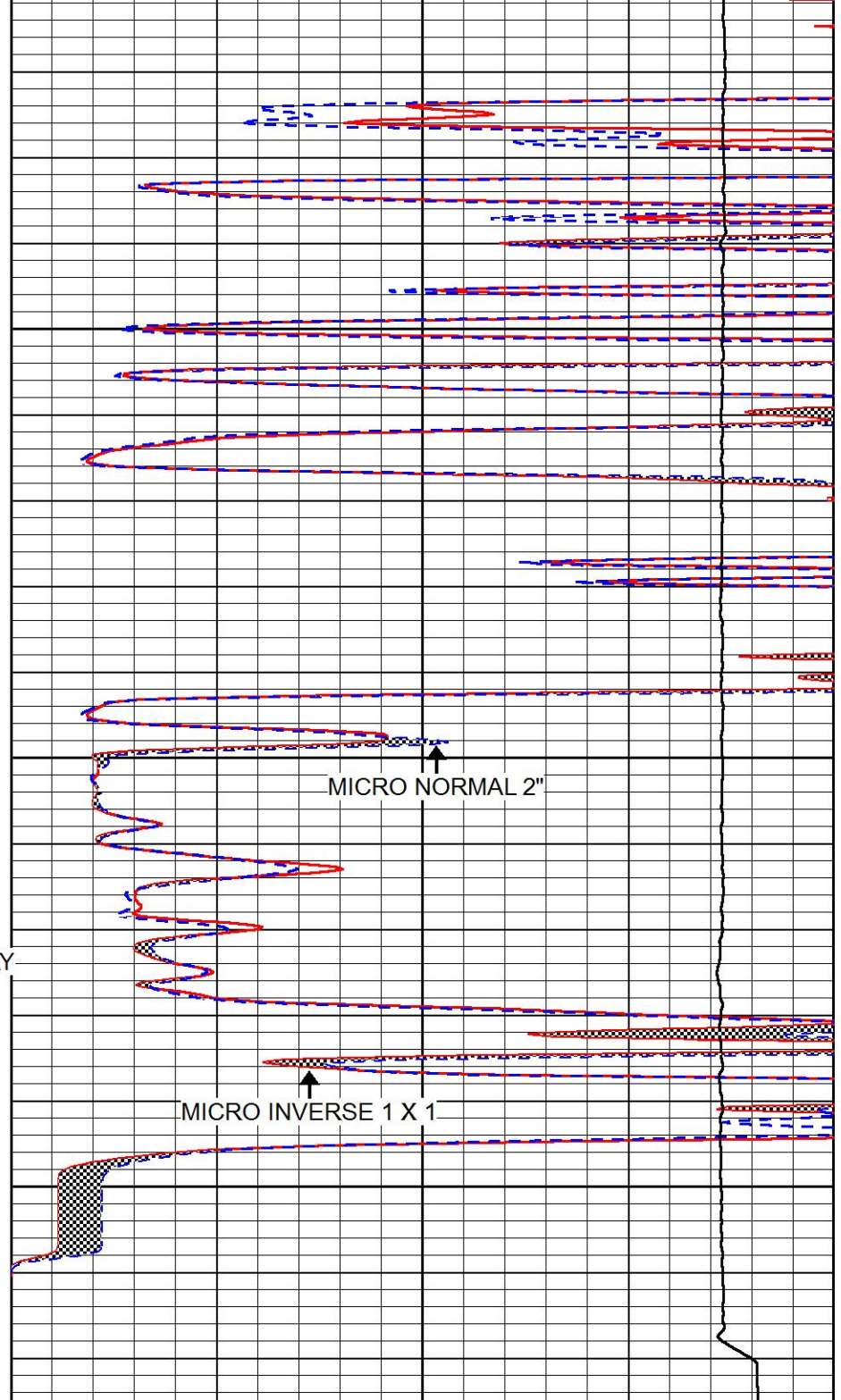
4700

SP →

GAMMA RAY

← MICRO CALIPER

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



↑ MICRO NORMAL 2"

↑ MICRO INVERSE 1 X 1

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

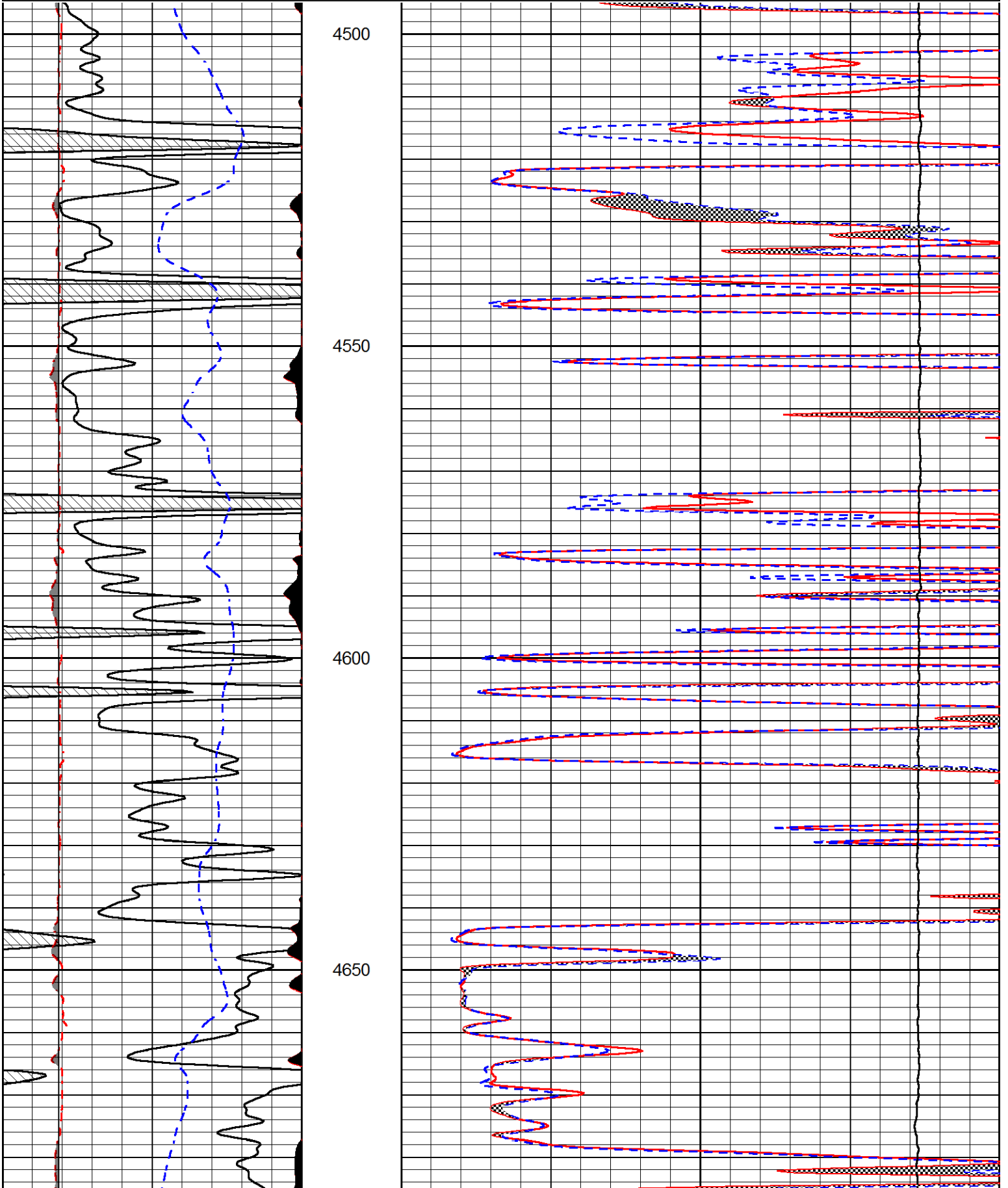


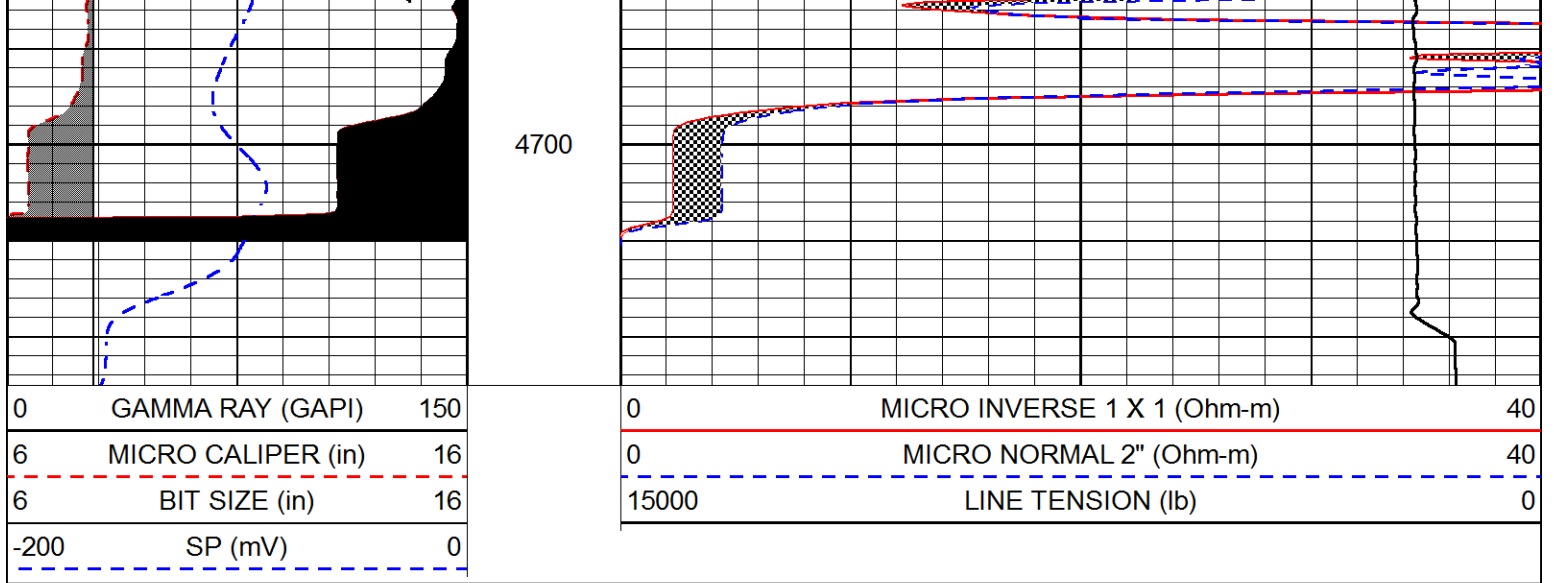
REPEAT SECTION

Database File elk_energy_lippelmann_1_14.db
 Dataset Pathname stackml/pass2.1
 Presentation Format micro

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 elk_energy_lippelmann_1_14.db
 Dataset Pathname stackml/pass3.1
 Dataset Creation Thu Sep 07 14:06:47 2017

Dual Induction Calibration Report

Serial-Model: 1987-M&W
 Calibration Performed: Tue Apr 11 16:07:38 2017

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	178.615	710.235	0.000	255.800	mmho/m	0.530	-36.500
Medium	161.982	1441.110	0.000	255.800	mmho/m	0.440	-110.500

Microlog Calibration Report

Serial-Model: PSI-02-PSI STKBL ML
 Performed: Fri Jun 23 00:25:19 2017

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0031	0.0043	0.0000	10.0000	Ohm-m	16000.0000	0.0000
Inverse	0.0000	0.0013	0.0000	10.0000	Ohm-m	18000.0000	0.0000
Caliper	1.0020	1.0834	5.5000	16.5000	in	135.1560	-131.4000

Compensated Density Calibration Report

Serial-Model: 168-986-M&W
 Source / Verifier: /
 Master Calibration Performed: Tue Apr 11 16:07:47 2017

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	4691.86	4818.19	cps
Aluminum	2.675	g/cc	859.57	3020.22	cps

Spine Angle = 74.61

Density/Spine Ratio = 0.523

	Size		Reading
Small Ring	4.00	in	1.03
Large Ring	14.00	in	1.23

Compensated Neutron Calibration Report

Serial Number: tk10-MW
 Tool Model: M&W
 Calibration Performed: Wed Nov 16 11:21:36 2016

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-M&W
 Tool Model: M&W
 Calibration Performed: Tue Apr 11 16:08:01 2017

Calibrator Value: 1000.0 GAPI

Background Reading: 0.0 cps
 Calibrator Reading: 6.2 cps

Sensitivity: 0.5200 GAPI/cps



PIONEER
 Pioneer Energy Services

Company ELK ENERGY HOLDINGS, LLC
 Well LIPPELMANN NO 1-14
 Field WILDCAT
 County THOMAS
 State KANSAS