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Pioneer Energy Services

MICRORESISTIVITY LOG

Company LARSON ENGINEERING, INC.
Well VOSHELL NO. 3
Field PARIS
County LANE
State KANSAS

Location: API #: 15-101-22590-00-00
NW SW NE SW
1813' FSL & 1646' FWL
SEC 13 TWP 19S RGE 29W

Other Services
CNL/CDL
DIL

Permanent Datum GROUND LEVEL Elevation 2812'
Log Measured From KELLY BUSHING
Drilling Measured From KELLY BUSHING

Elevation
K.B. 2822'
D.F. N/A
G.L. 2812'

Date	3/31/17		
Run Number	TWO		
Depth Driller	4660'		
Depth Logger	4661'		
Bottom Logged Interval	4660'		
Top Log Interval	3600'		
Casing Driller	8.625" @ 261'		
Casing Logger	260'		
Bit Size	7.875"		
Type Fluid in Hole	CHEMICAL		
Salinity,ppm CL	4,000		
Density / Viscosity	9.4 57		
pH / Fluid Loss	9.5 7.2		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	.60 @ 53		
Rmf @ Meas. Temp	.45 @ 53		
Rmc @ Meas. Temp	.81 @ 53		
Source of Rmf / Rmc	CHARTS		
Rm @ BHT	.26 @ 123		
Operating Rig Time	3 1/2 HOURS		
Max Rec. Temp. F	123 DEG/F		
Equipment Number	108		
Location	HAYS		
Recorded By	J. HENRICKSON		
Witnessed By	VERN SCHRAG	TOM LARSON	

<<< Fold Here >>>

Comments

N/A DENOTES NOT AVAILABLE OR NON-APPLICABLE.

DIGHTON KANSAS
6 SOUTH, 1 WEST, 1/3 NORTH, EAST INTO

Log Measured From: KELLY BUSHING 10 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: J. HENRICKSON	Primary Witness: VERN SCHRAG
Operator: C. PFEIFER	Secondary Witness: TOM LARSON
Operator:	Secondary Witness:
Operator:	Secondary Witness:

Log Variables

DatabaseC:\ProgramData\Warrior\Data\larson_voshell_3.db
Dataset field/well/stack/pass3.1/_vars_

Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	123	4.5	0	1	2	2.71

NPORSEL	PERFS	SNDERR mmho/m	SNDERRM mmho/m	SPSHIFT mV	SRFTEMP degF	SZCOR	TDEPTH ft
Limestone	0	0	0	-460	52	Off	4661

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: larson_voshell_3.db: field/well/MEL/pass2
Total length: 5.00 ft
Total weight: 100.00 lb
O.D.: 3.50 in

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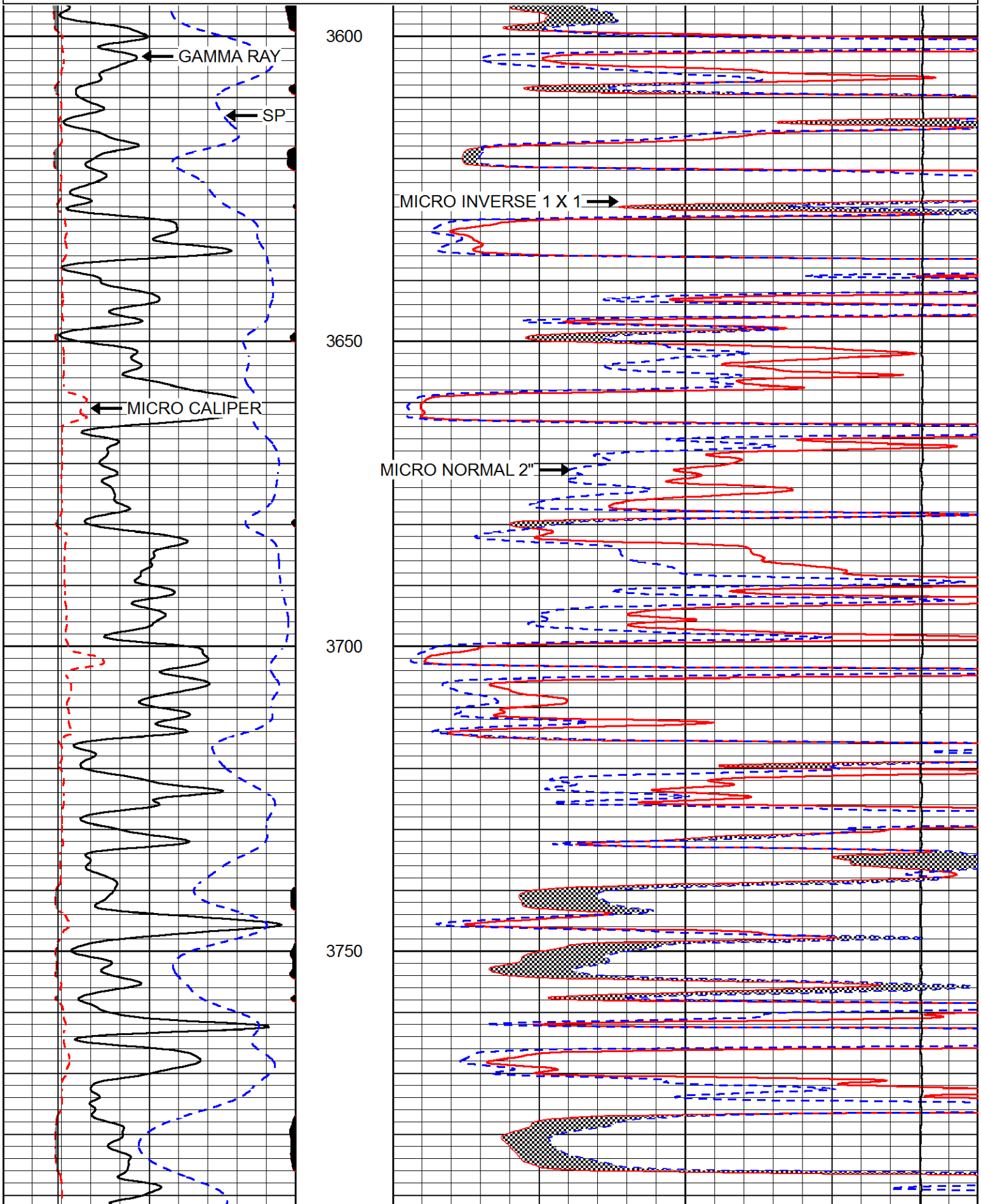
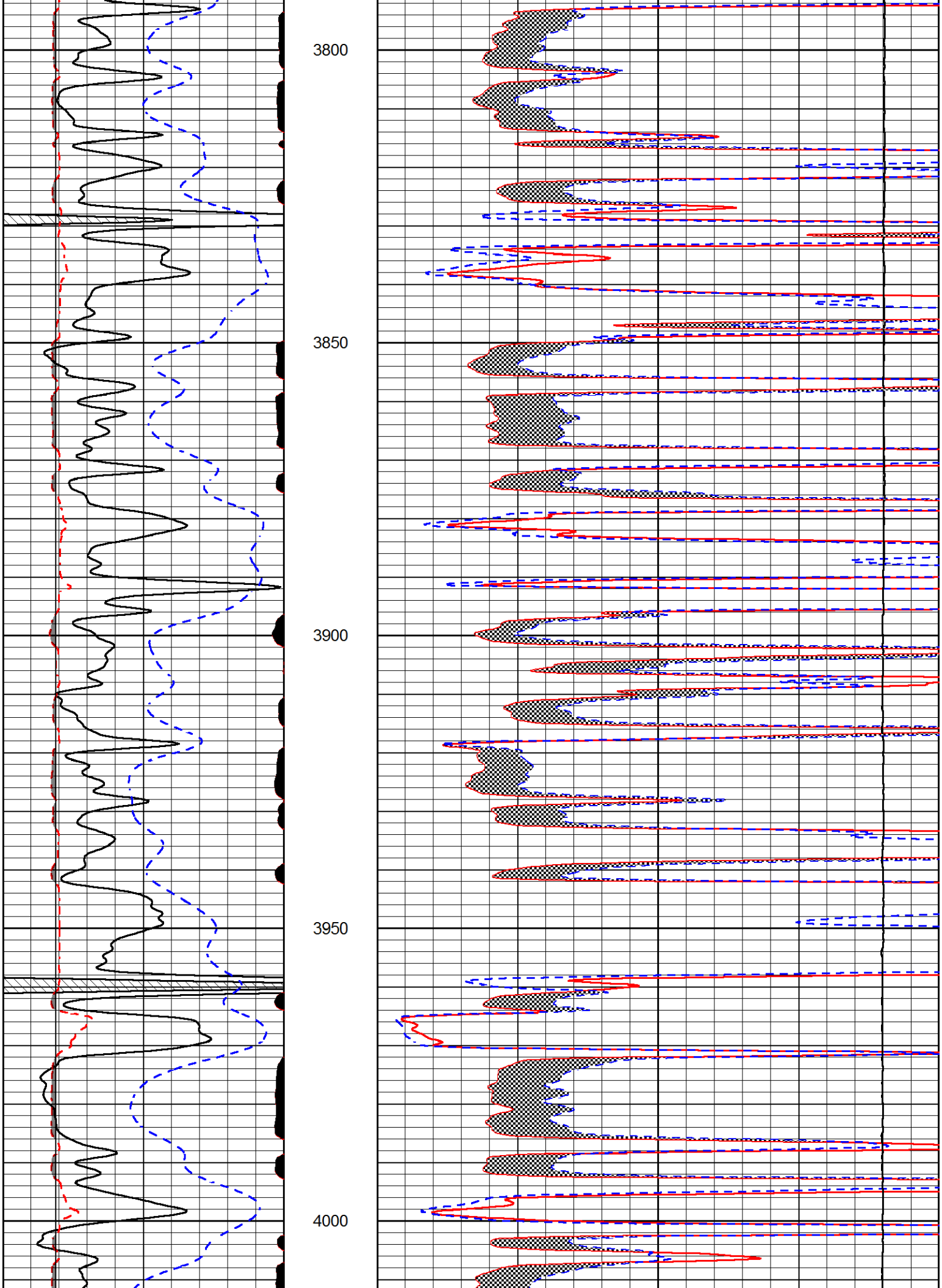
MAIN PASS

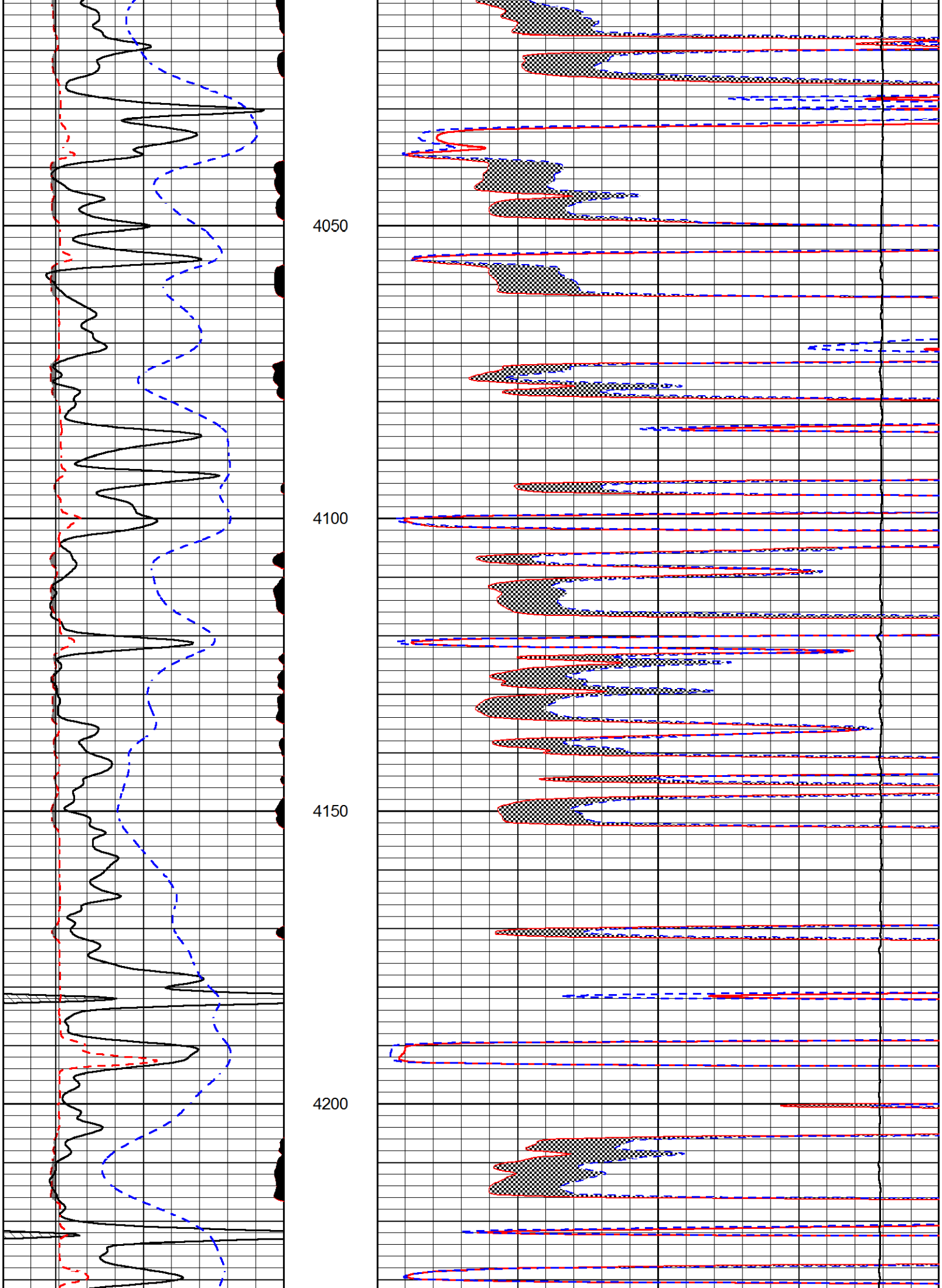
Database File	larson_voshell_3.db
Dataset Pathname	stack/pass3.1
Presentation Format	micro
Dataset Creation	Fri Mar 31 16:28:26 2017
Charted by	Depth in Feet scaled 1:240

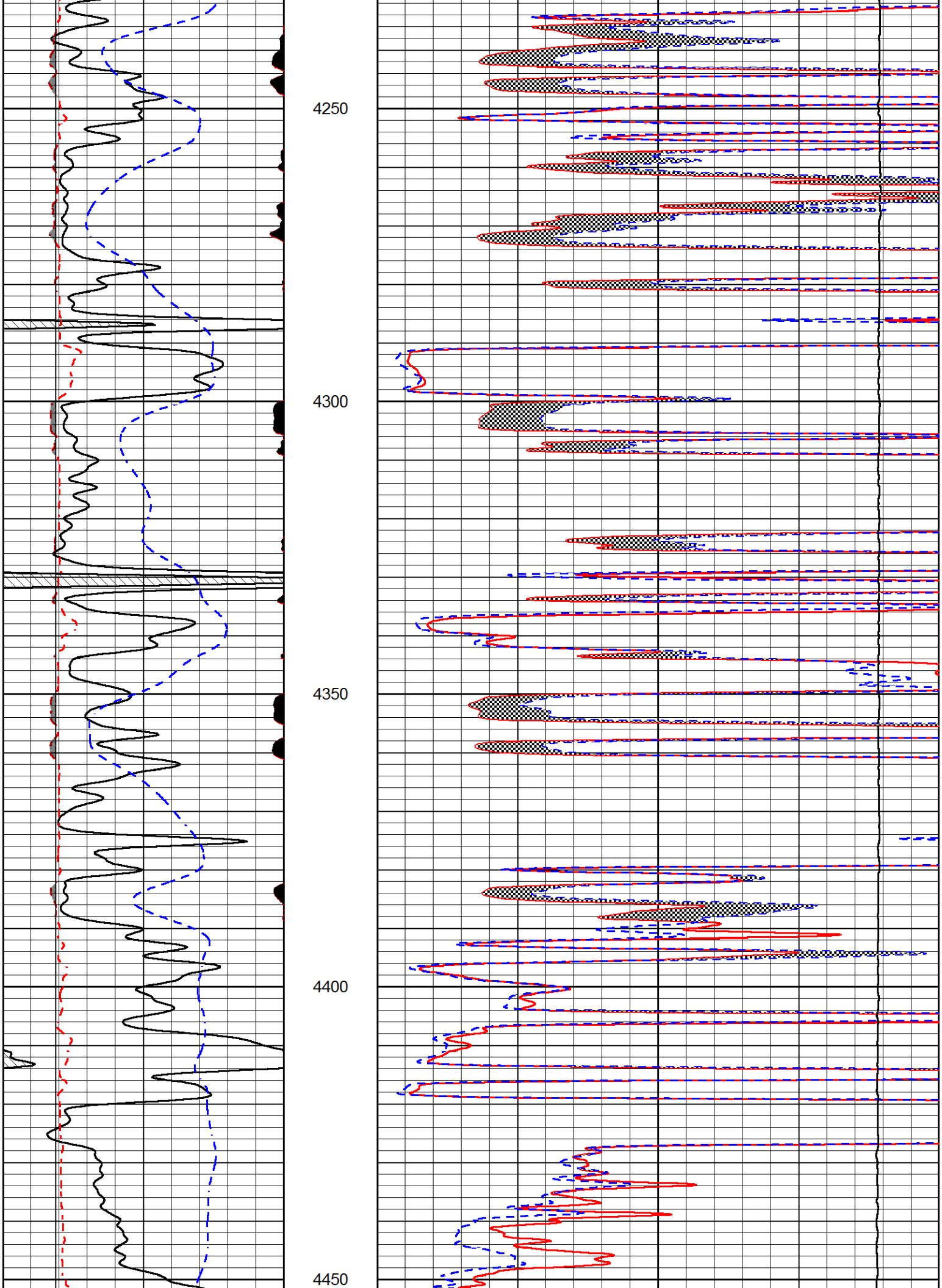
0	GAMMA RAY (GAPI)	150
6	MICRO CALIPER (in)	16
6	BIT SIZE (in)	16
-200	SP (mV)	0

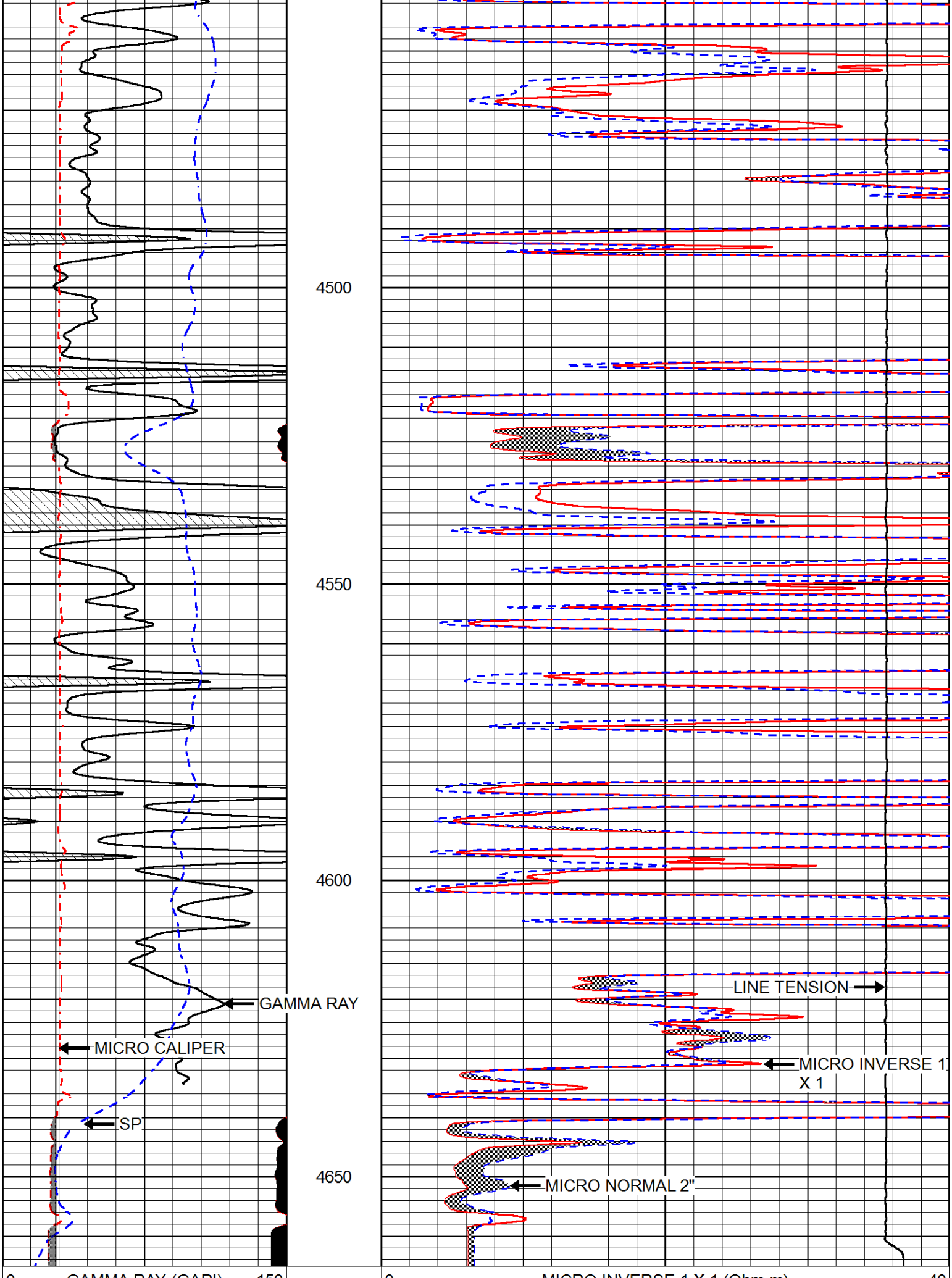
0	MICRO INVERSE 1 X 1 (Ohm-m)	40
0	MICRO NORMAL 2" (Ohm-m)	40
15000	LINE TENSION (lb)	0




3800
3850
3900
3950
4000


4050
4100
4150
4200


4250
4300
4350
4400
4450


4500
4550
4600
4650
GAMMA RAY
MICRO CALIPER
SP
LINE TENSION
MICRO INVERSE 1
X 1
MICRO NORMAL 2"
0
GAMMA RAY (GAPI)
150
0
MICRO INVERSE 1 X 1 (Ohm-m)
40

6	MICRO CALIPER (in)	16
6	BIT SIZE (in)	16
-200	SP (mV)	0

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

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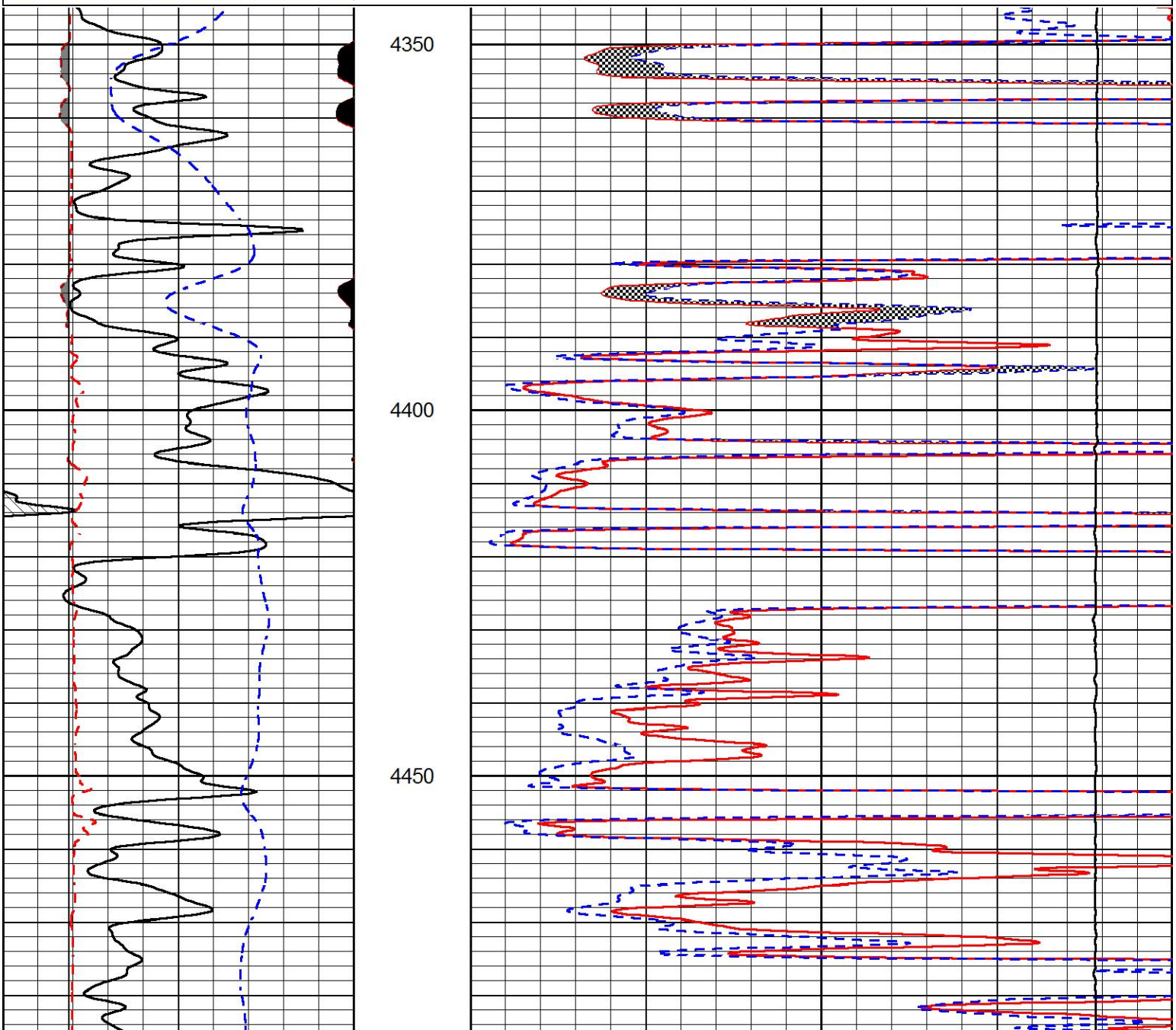
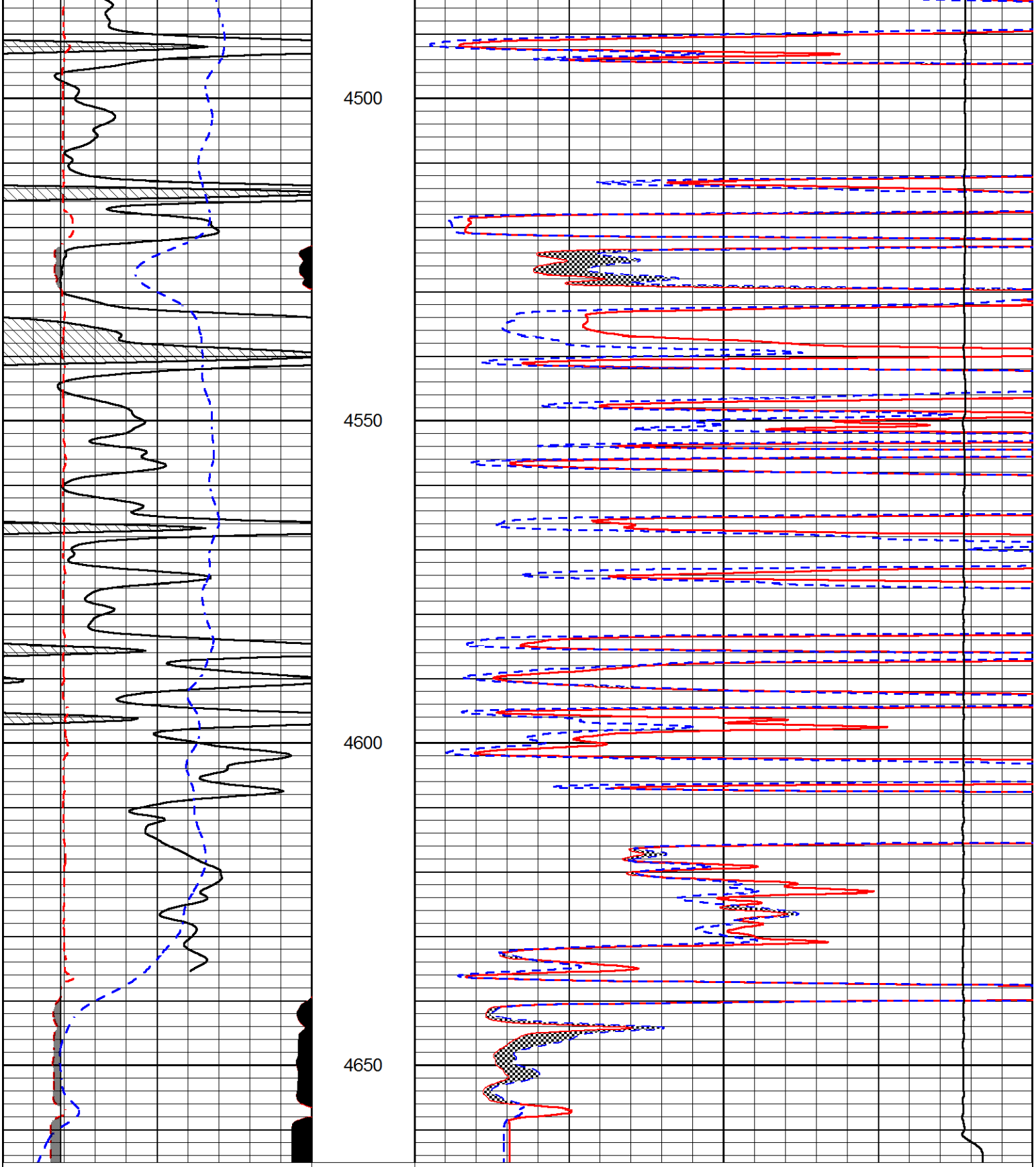
REPEAT SECTION

Database File	larson_voshell_3.db
Dataset Pathname	stack/pass2.1
Presentation Format	micro
Dataset Creation	Fri Mar 31 15:58:28 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





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	larson_voshell_3.db
Dataset Pathname	stack/pass3.1
Dataset Creation	Fri Mar 31 16:28:26 2017

Dataset Creation: Fri Mar 31 15:25:25 2017

Dual Induction Calibration Report

Serial-Model:	1987-M&W
Calibration Performed:	Fri Dec 23 14:41:51 2016

	Readings		References			Results	
Loop:	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	0.460	-110.500

Compensated Density Calibration Report

Serial-Model:	168-986-M&W
Source / Verifier:	/
Master Calibration Performed:	Fri Nov 18 10:05:18 2016

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:	Fri Dec 23 14:43:38 2016	
Calibrator Value:	1000.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	6.2	cps
Sensitivity:	0.5200	GAPI/cps

Company	LARSON ENGINEERING, INC.
Well	VOSHELL NO. 3

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Field	PARIS
County	LANE
State	KANSAS