



PIONEER
Pioneer Energy Services

MICRORESISTIVITY LOG

Company CYNOSURE ENERGY, LLC
Well LEIKER NO. 2-25-15-20
Field WILDCAT
County ELLIS State KANSAS

Location: API #: 15-051-26848-00-00

Other Services

SE/4 NE/4 SE/4 SW/4
740' FSL & 2,506' FWL
SEC 25 TWP 15S RGE 20W

CNL/CDL
DIL/BHCS

Permanent Datum GROUND LEVEL Elevation 2123'
Log Measured From KELLY BUSHING
Drilling Measured From KELLY BUSHING

Elevation
K.B. 2131'
D.F. N/A
G.L. 2123'

Date	11/1/2016		
Run Number	TWO		
Depth Driller	3800'		
Depth Logger	3799'		
Bottom Logged Interval	3798'		
Top Log Interval	2900'		
Casing Driller	8.625" @ 1371'		
Casing Logger	1366'		
Bit Size	7.875"		
Type Fluid in Hole	CHEMICAL		
Salinity, ppm CL	6800		
Density / Viscosity	9.0 49		
pH / Fluid Loss	11.0 6.8		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	.51 @ 68		
Rmt @ Meas. Temp	.38 @ 68		
Rmc @ Meas. Temp	.69 @ 68		
Source of Rmt / Rmc	CHARTS		
Rm @ BHT	.30 @ 114		
Operating Rig Time	4 HOURS		
Max Rec. Temp. F	114		
Equipment Number	108		
Location	COLBY		
Recorded By	J. LONG		
Witnessed By	CHARLIE STURDAVANT		

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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.

SCHOENCHEN, 9 1/2 WEST (1/2 WEST OF 160TH AVENUE), 1/8 NORTH, WEST INTO

Log Measured From: KELLY BUSHING 8 Ft. Above Permanent Datum

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

Your Pioneer Energy Services Crew

Engineer: J. LONG
Operator: C. PFEIFER
Operator:
Operator:

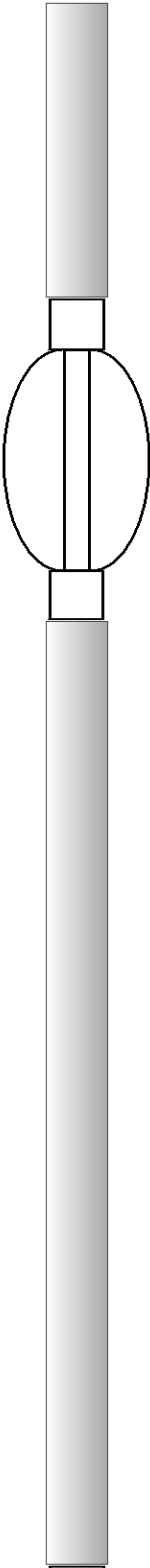
This Log Record Was Witnessed By

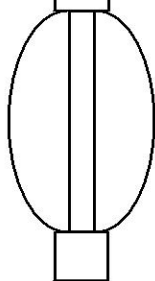
Primary Witness: CHARLIE STURDAVANT
Secondary Witness:
Secondary Witness:
Secondary Witness:

DatabaseC:\ProgramData\Warrior\Data\cynosureenergy_leiker_2-25-15-20.db
Dataset field/well/stack/pass4.1/_vars_

Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	114	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	-160	55	Off	3799

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)	
MCAL MI MN	28.00		ML-Armadillo (Armadillo-1) Pengo micro log tool mandrel with Armadillo Electronics	5.00	3.50	100.00	
	28.00						
	28.00						
			CENT-PENGO	5.50	3.00	70.00	



CENT-PENGO

5.50

3.00

70.00

Dataset: cynosureenergy_leiker_2-25-15-20.db: field/well/sonmel/pass1
Total length: 32.00 ft
Total weight: 540.00 lb
O.D.: 3.50 in

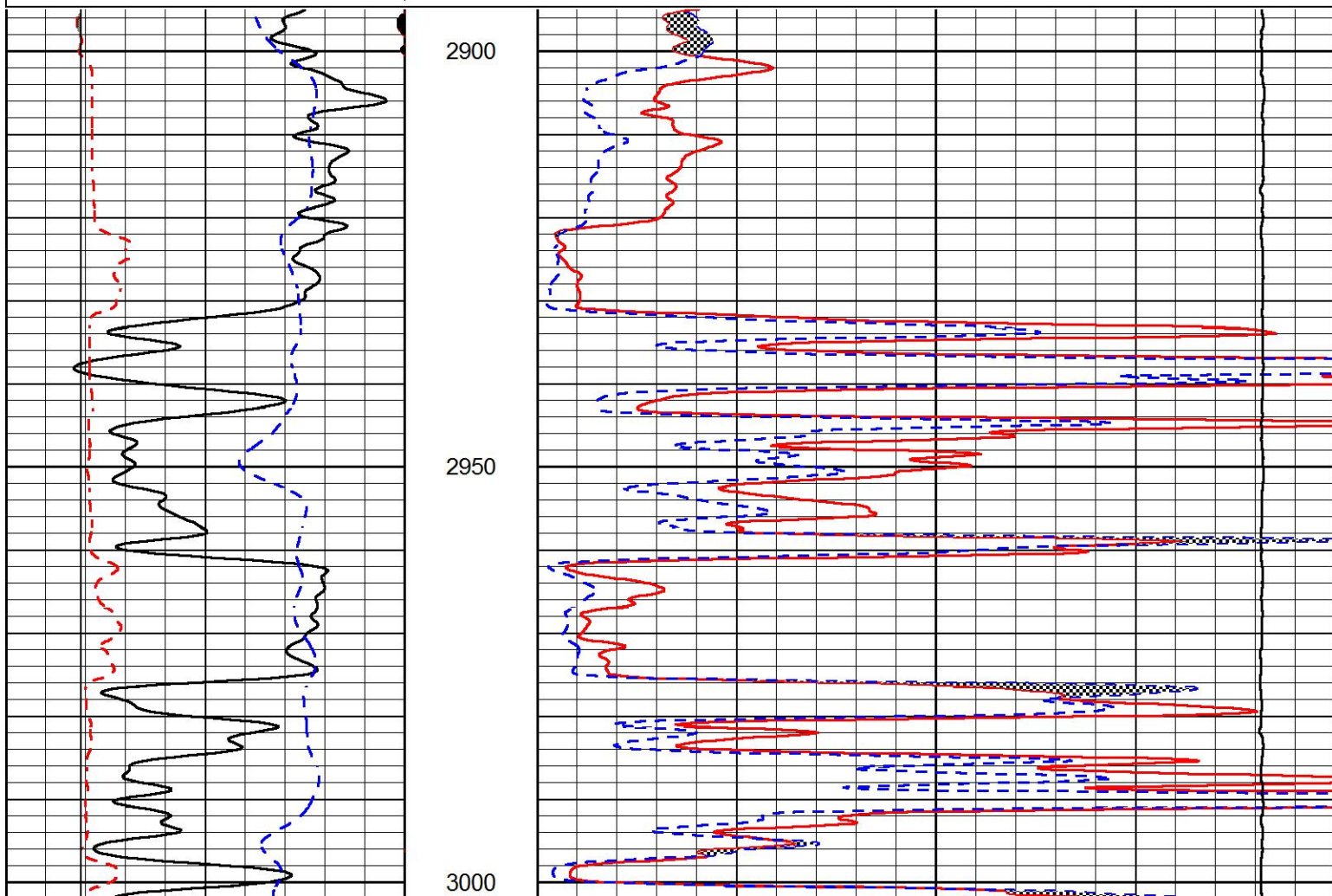


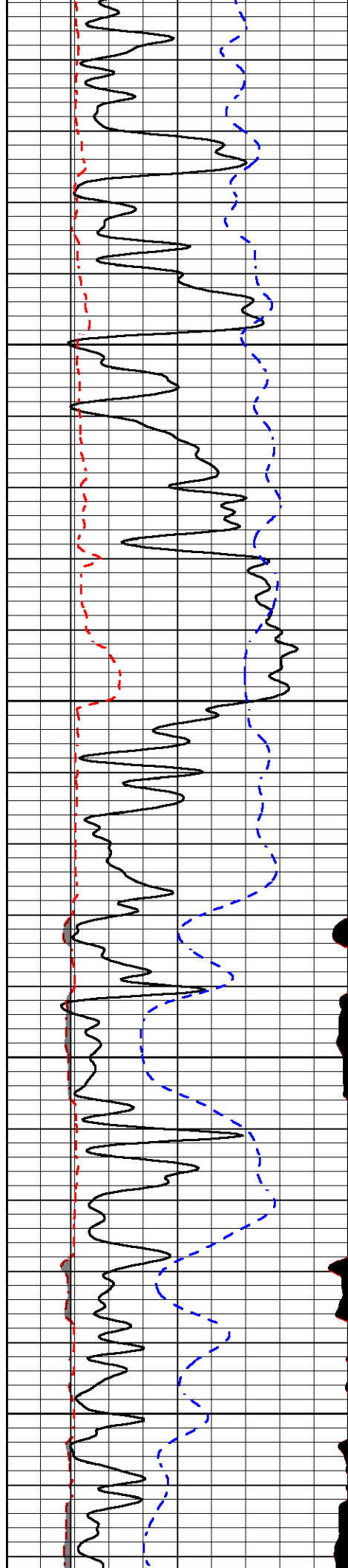
MAIN PASS

Database File cynosureenergy_leiker_2-25-15-20.db
Dataset Pathname stack/pass4.1
Presentation Format micro
Dataset Creation Wed Nov 02 01:08:16 2016
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



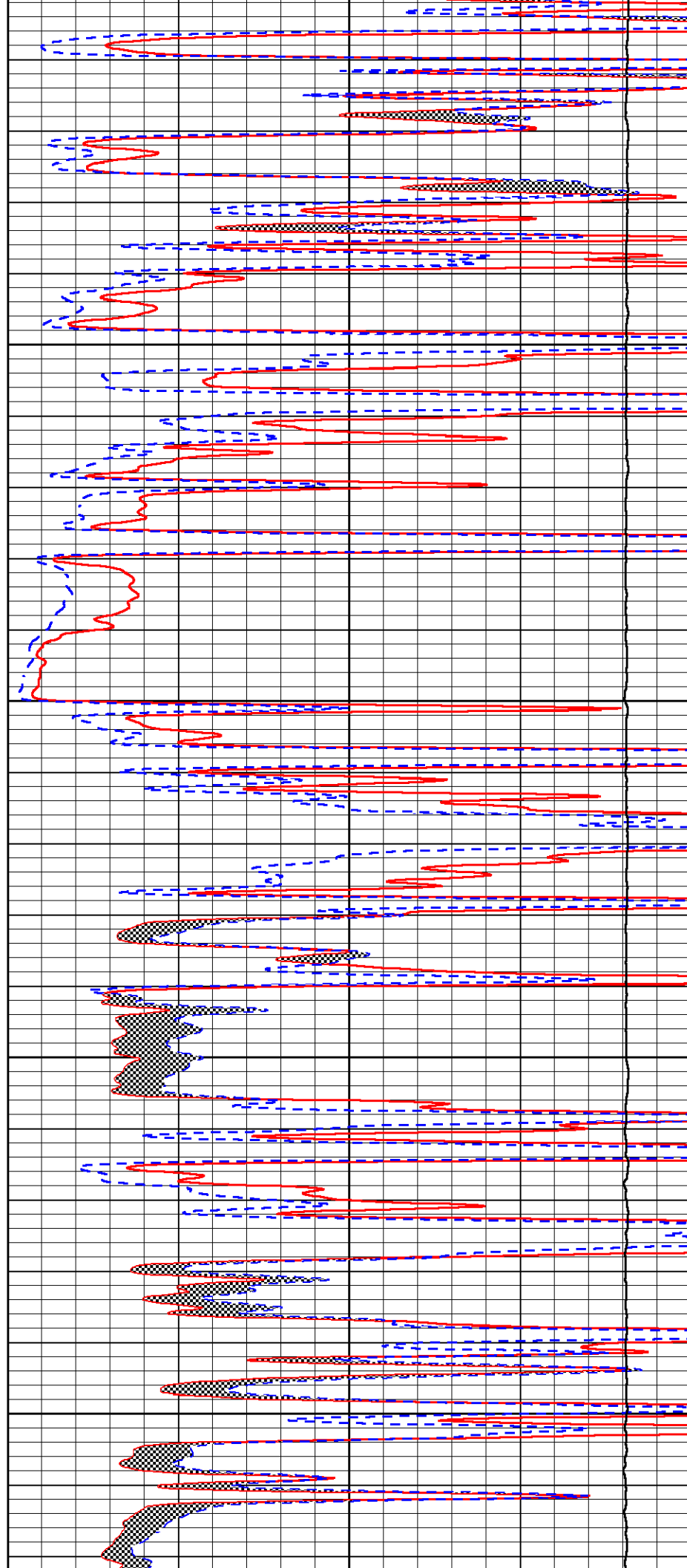


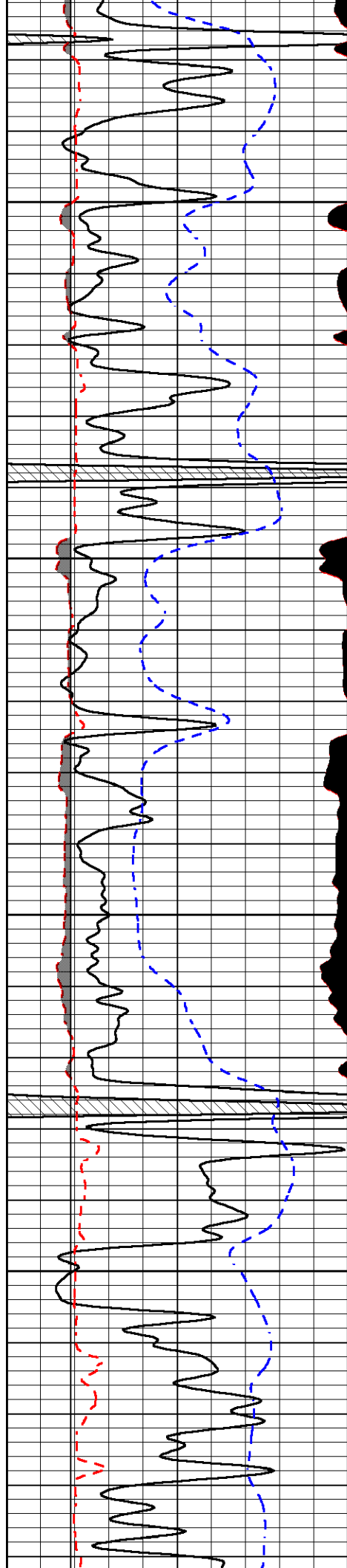
3050

3100

3150

3200



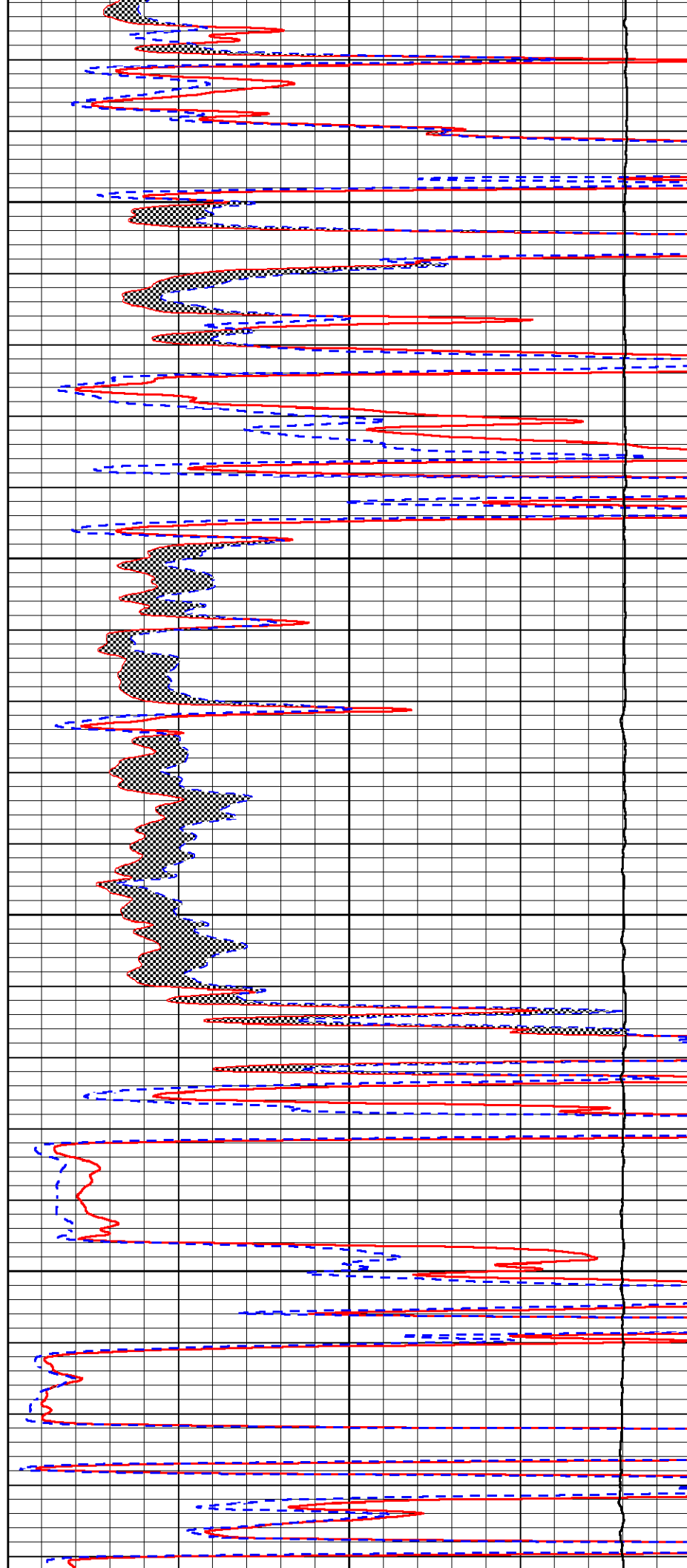


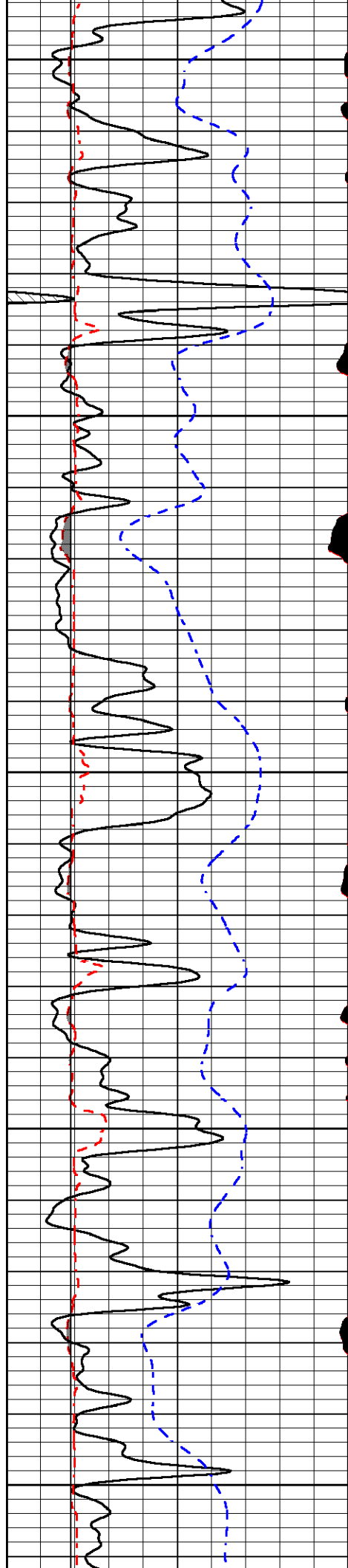
3250

3300

3350

3400





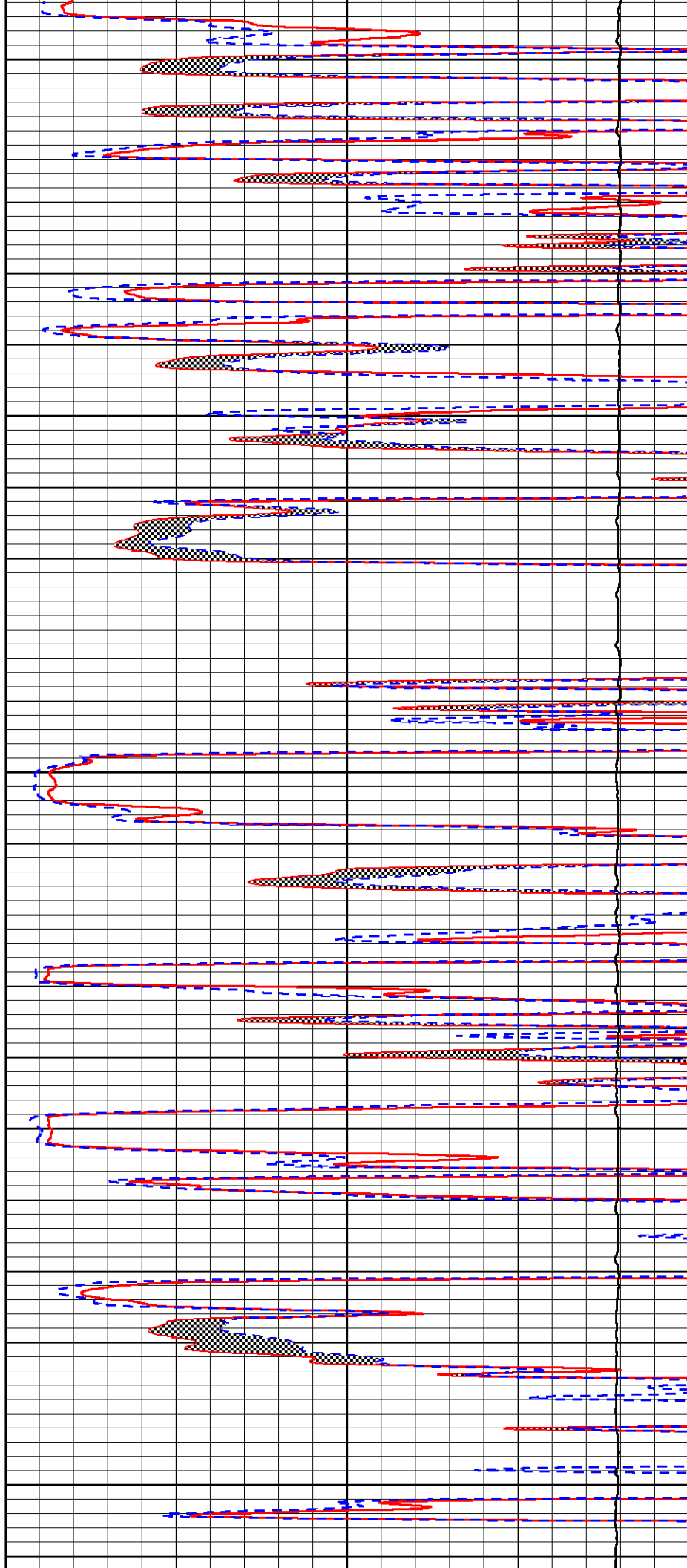
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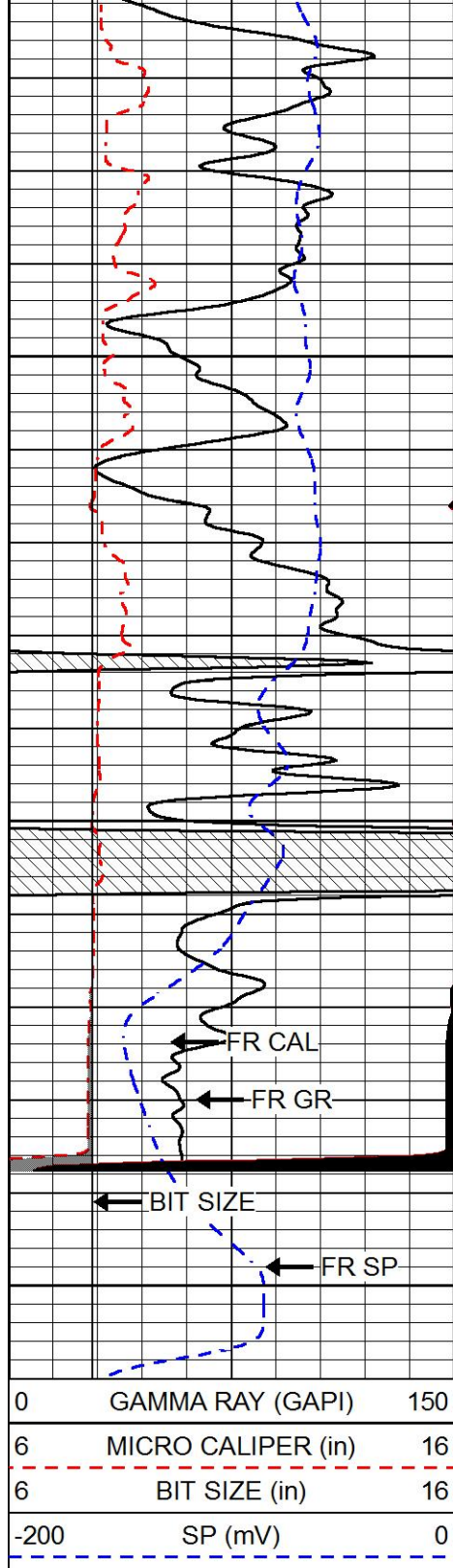
3500

3550

3600

3650

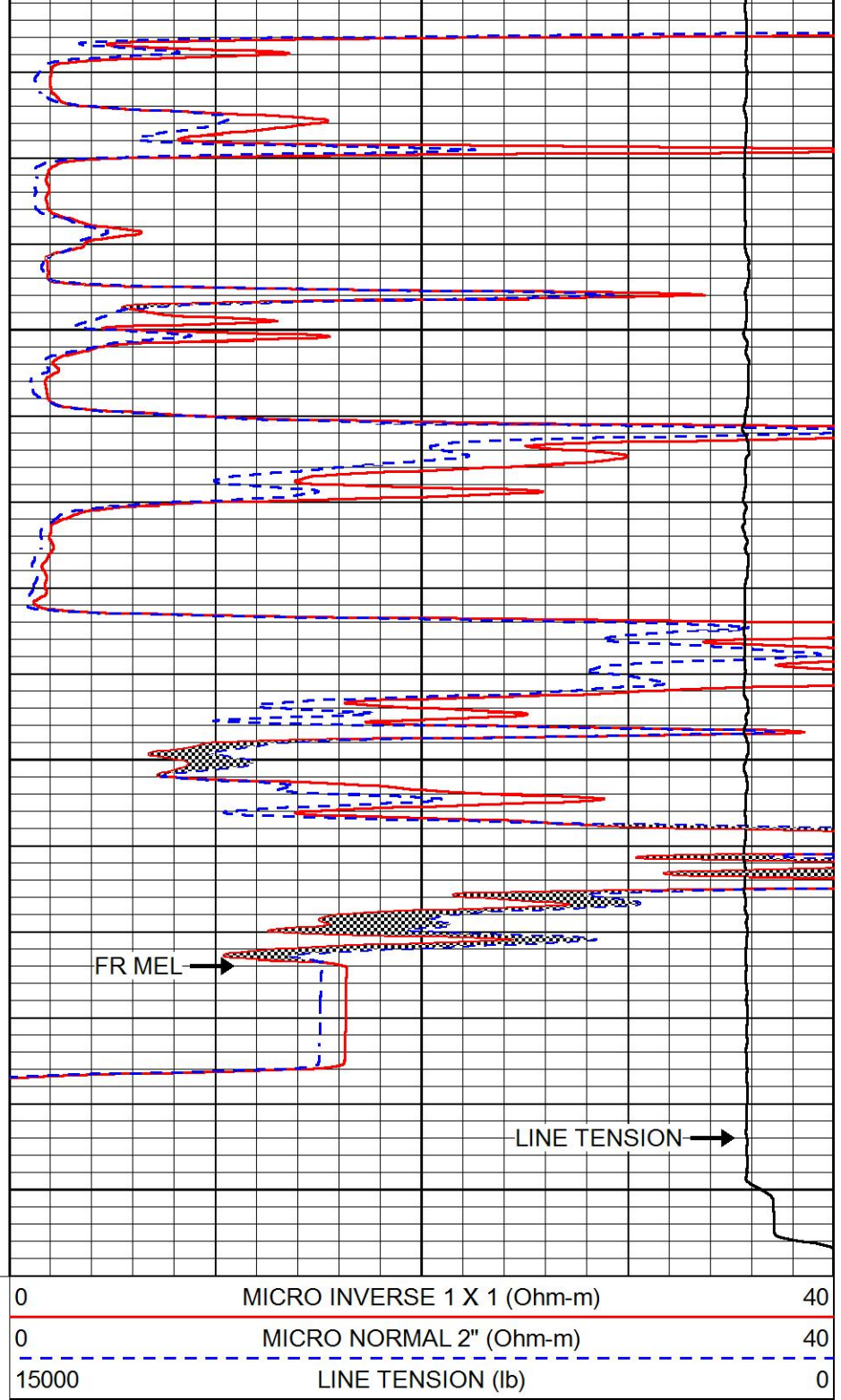




3700

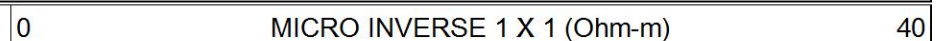
3750

3800

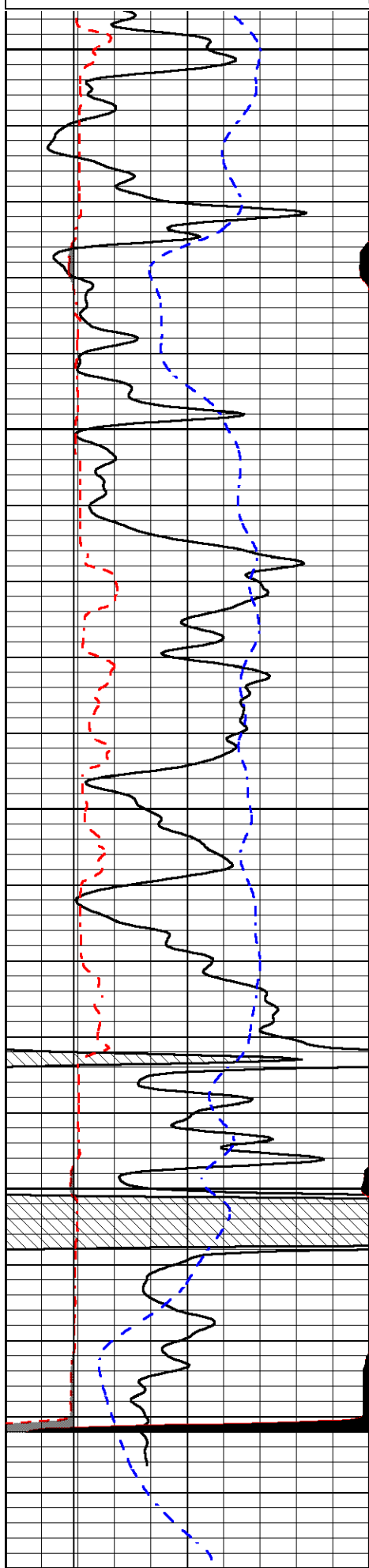


REPEAT SECTION

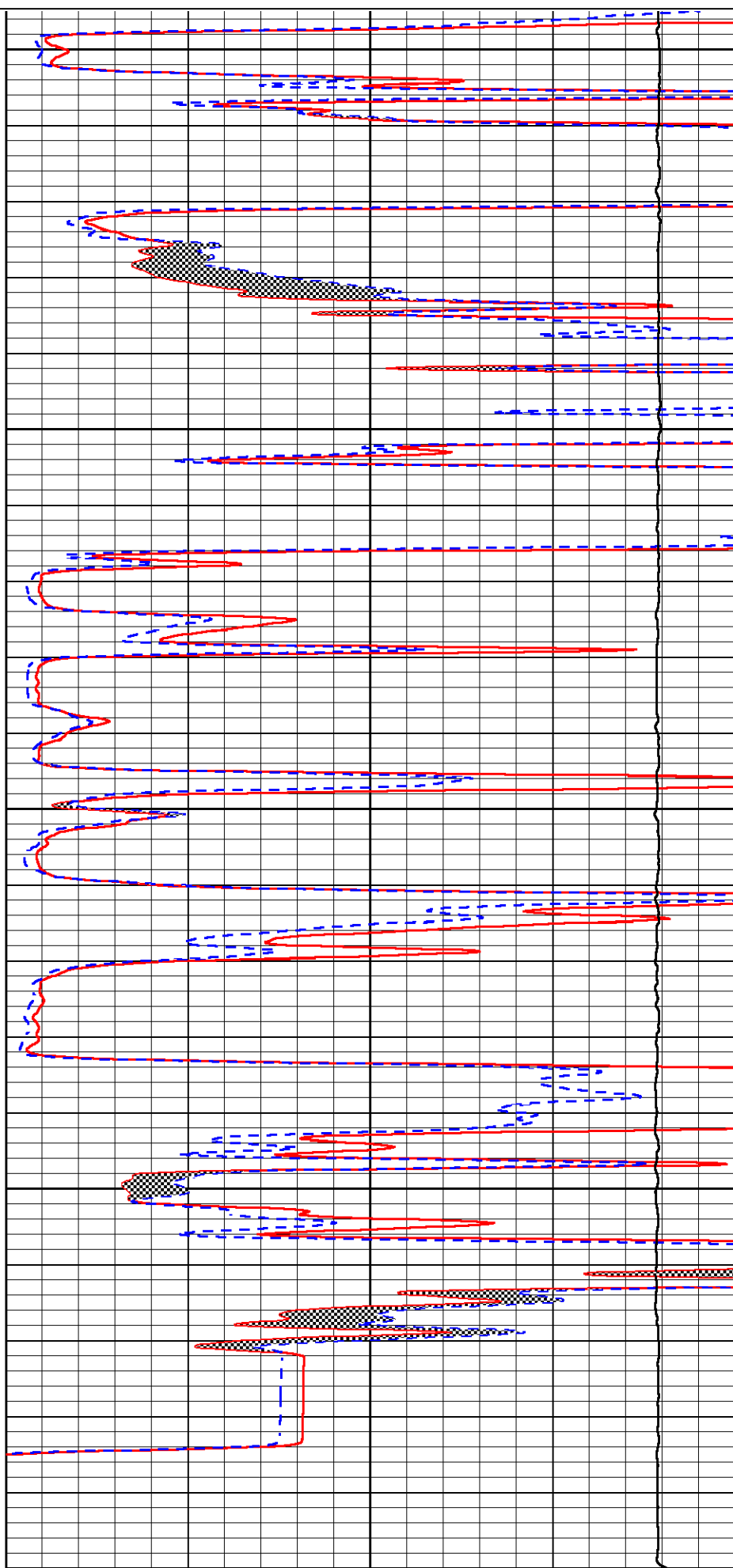
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 Dataset Pathname: stack/pass3.1
 Presentation Format: micro
 Dataset Creation: Wed Nov 02 02:22:47 2016
 Charted by: Depth in Feet scaled 1:240

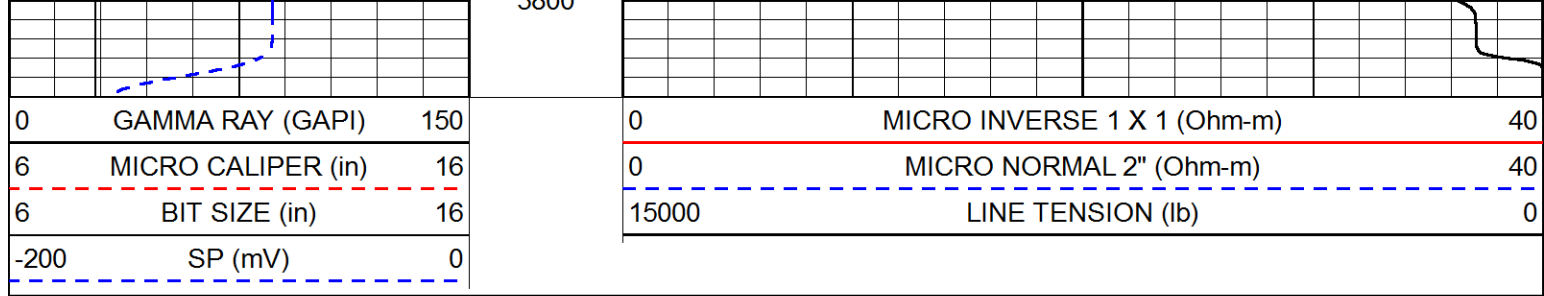


6 MICRO CALIPER (in) 16
6 BIT SIZE (in) 16
-200 SP (mV) 0



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





Calibration Report	
Database File	cynosureenergy_leiker_2-25-15-20.db
Dataset Pathname	stack/pass1
Dataset Creation	Tue Nov 01 23:00:35 2016

Dual Induction Calibration Report

Serial-Model:	1987-M&W
Calibration Performed:	Tue Aug 30 16:23:58 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	0.440	-110.500

Compensated Density Calibration Report

Serial-Model:	71-914-M&W
Source / Verifier:	/
Master Calibration Performed:	Fri Oct 07 08:39:26 2016

Master Calibration					
	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	4314.49	5307.52	cps
Aluminum	2.675	g/cc	822.19	3456.36	cps
Spine Angle = 75.49			Density/Spine Ratio = 0.537		
	Size		Reading		
Small Ring	4.00	in	1.16		
Large Ring	14.00	in	1.57		

Compensated Neutron Calibration Report

Serial Number:	tk10-MW
Tool Model:	M&W
Calibration Performed:	Sat Oct 1 10:01:53 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
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Serial Number: 09-M&W
Tool Model: M&W
Calibration Performed: Fri Sep 30 22:06:47 2016

Calibrator Value: 1000.0 GAPI
Background Reading: 0.0 cps
Calibrator Reading: 6.2 cps
Sensitivity: 0.5200 GAPI/cps

Calibration Report

Database File cynosureenergy_leiker_2-25-15-20.db
Dataset Pathname sonmel/pass1
Dataset Creation Wed Nov 02 02:19:45 2016

Microlog Calibration Report

Serial-Model: Armadillo-1-Armadillo
Performed: Sat Sep 03 03:39:06 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	3.0493



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