



PIONEER
Pioneer Energy Services

MICRORESISTIVITY LOG

Company **COBALT ENERGY LLC**
Well **BINNS A #1-32**
Field **WILDCAT**
County **LOGAN** State **KANSAS**

Location: API #: 15-109-21454-00-00

Other Services

SEC 32 TWP 15S RGE 33W
1067' FSL & 1032' FWL

CNL/CDL
DIL/BHCS

Permanent Datum GROUND LEVEL Elevation 3040'
Log Measured From KELLY BUSHING
Drilling Measured From KELLY BUSHING

Elevation
K.B. 3051'
D.F. N/A
G.L. 3040'

Date 8/27/2016

Run Number	TWO	
Depth Driller	4799'	
Depth Logger	4794'	
Bottom Logged Interval	4793'	
Top Log Interval	3800'	
Casing Driller	8.625" @ 221'	
Casing Logger	223'	
Bit Size	7.875"	
Type Fluid in Hole	CHEMICAL	
Salinity, ppm CL	5000	
Density / Viscosity	9.3 57	
pH / Fluid Loss	10.5 8.8	
Source of Sample	FLOWLINE	
Rm @ Meas. Temp	0.73 @ 82	
Rmt @ Meas. Temp	0.55 @ 82	
Rmc @ Meas. Temp	0.99 @ 82	
Source of Rmt / Rmc	CHARTS	
Rm @ BHT	0.48 @ 124	
Operating Rig Time	4 HOURS	
Max Rec. Temp. F	124	
Equipment Number	108	
Location	COLBY	
Recorded By	T. MARTIN	
Witnessed By	COREY N. BAKER	

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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.

SCOTT LAKE, HWY 95 AND 270 RD, 5 W TO GRANT RD,
3 N, W INTO AT SHED, THRU GATE

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

This Log Record Was Witnessed By

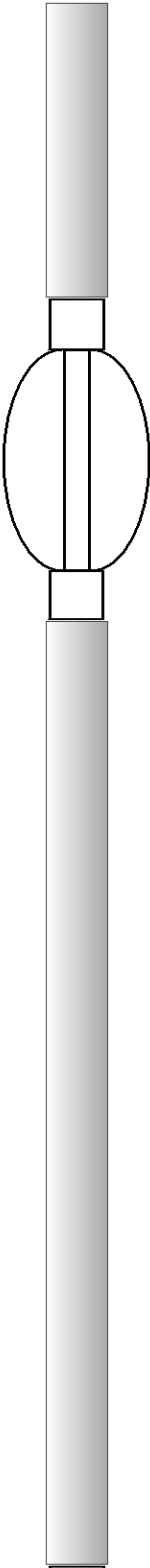
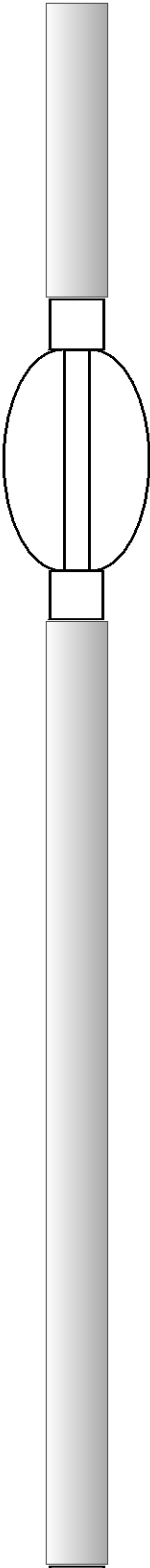
Engineer: T. MARTIN
Operator:
Operator:
Operator:

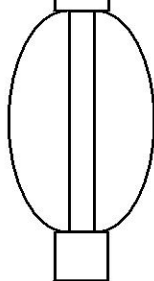
Primary Witness: COREY N. BAKER
Secondary Witness:
Secondary Witness:
Secondary Witness:

DatabaseC:\ProgramData\Warrior\Data\cobalt_binns a_#1-32.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	124	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	-460	82	Off	4794

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)	
MCAL MI MN	28.00		ML-Armadillo (Armadillo-4) 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	
WVF4	13.50		SLT-PENGO (0001)	16.00	3.50	300.00	
WVF1	13.50						
WVF3	11.50						
WVF2	11.50						



CENT-PENGO

5.50

3.00

70.00

Dataset: cobalt_binns a_#1-32.db: field/well/sonmel/pass3
Total length: 32.00 ft
Total weight: 540.00 lb
O.D.: 3.50 in

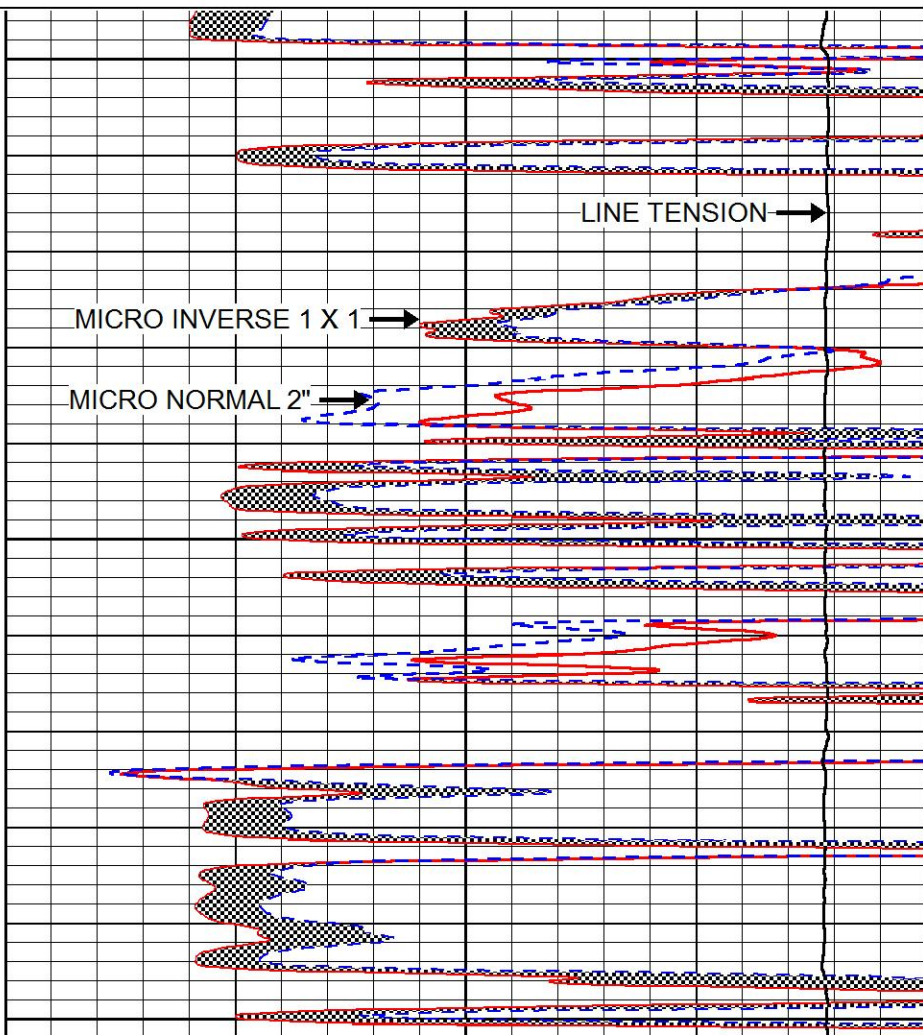
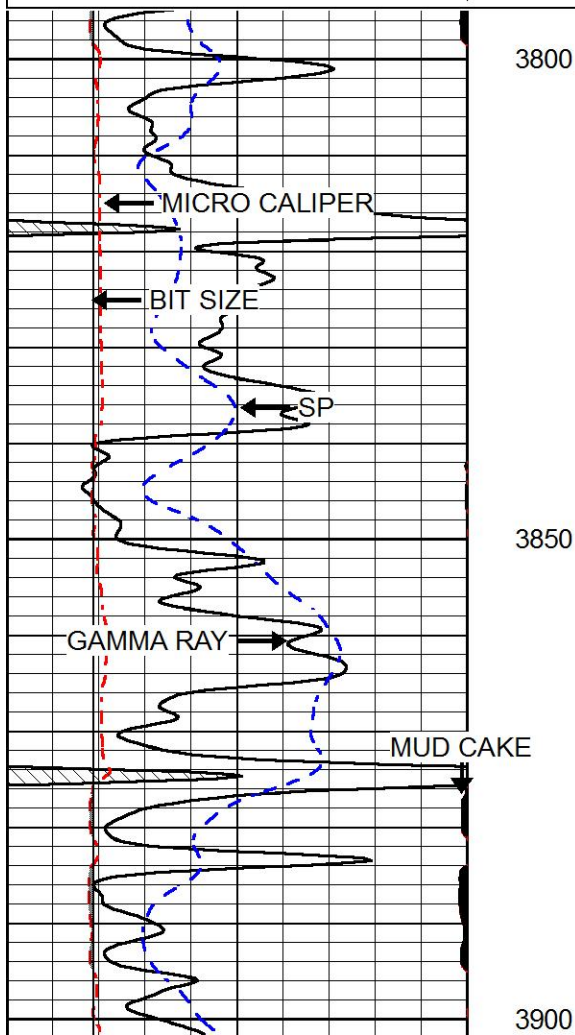


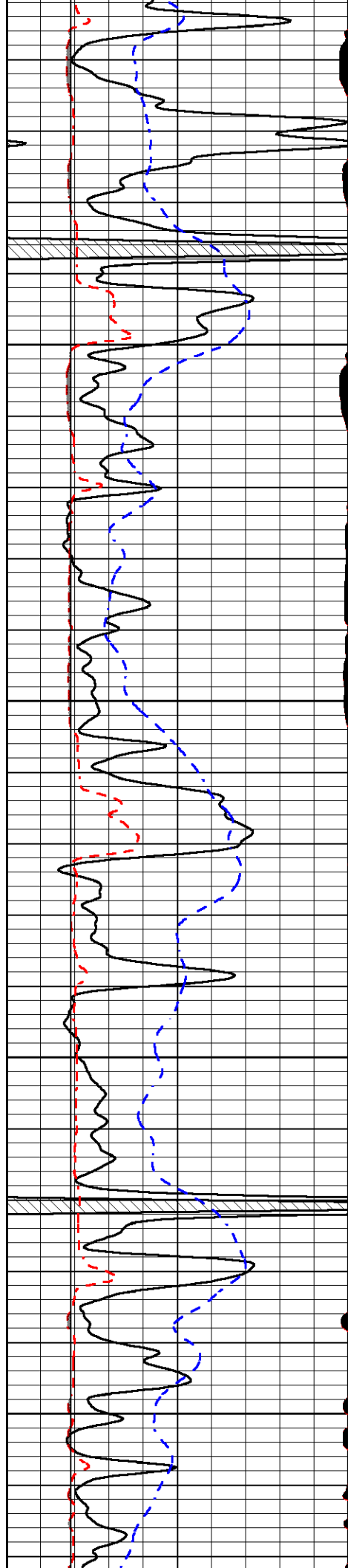
MAIN PASS

Database File cobalt_binns a_#1-32.db
Dataset Pathname stack/pass3.1
Presentation Format micro
Dataset Creation Sat Aug 27 20:08:49 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



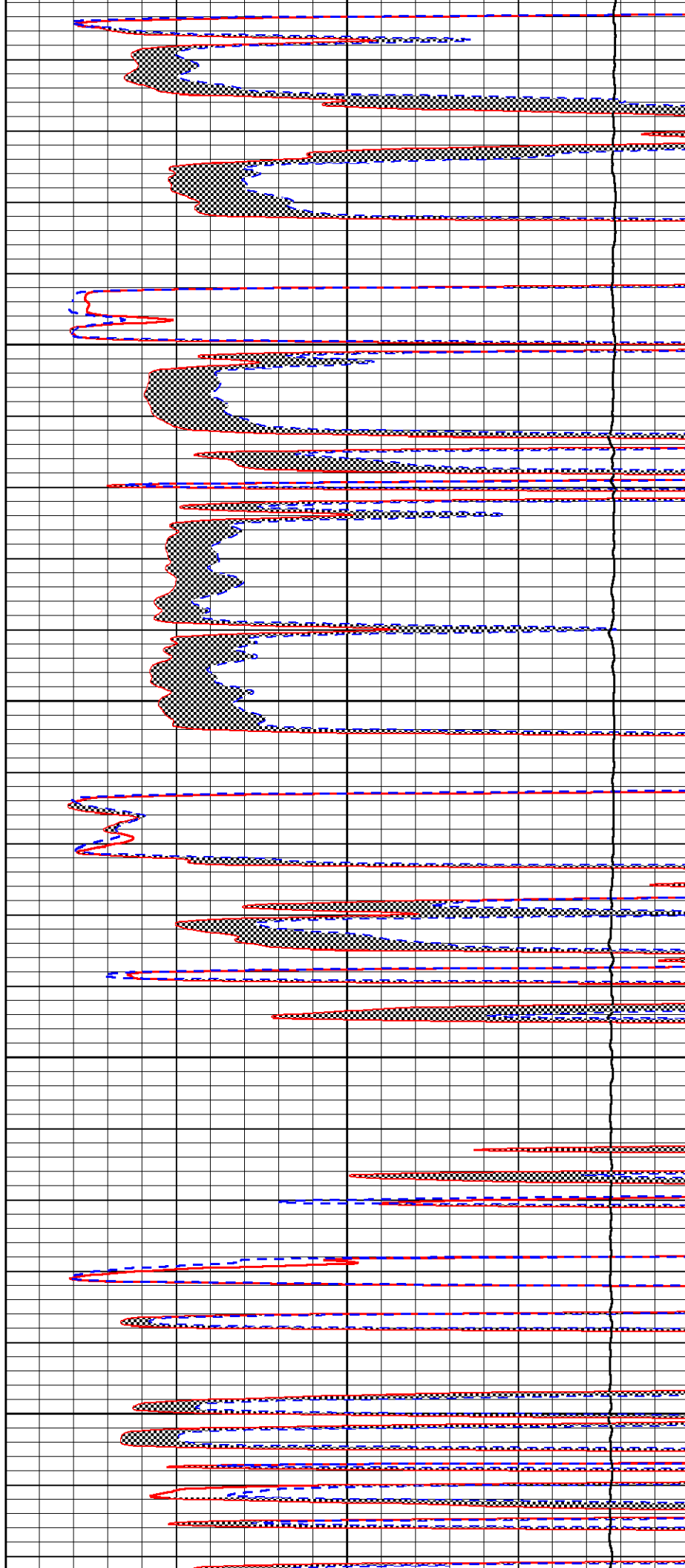


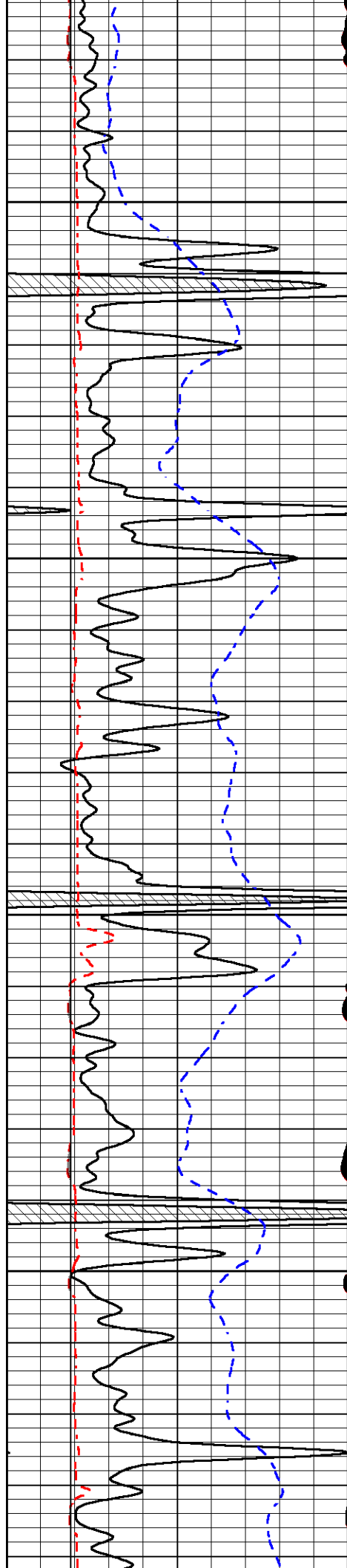
3950

4000

4050

4100



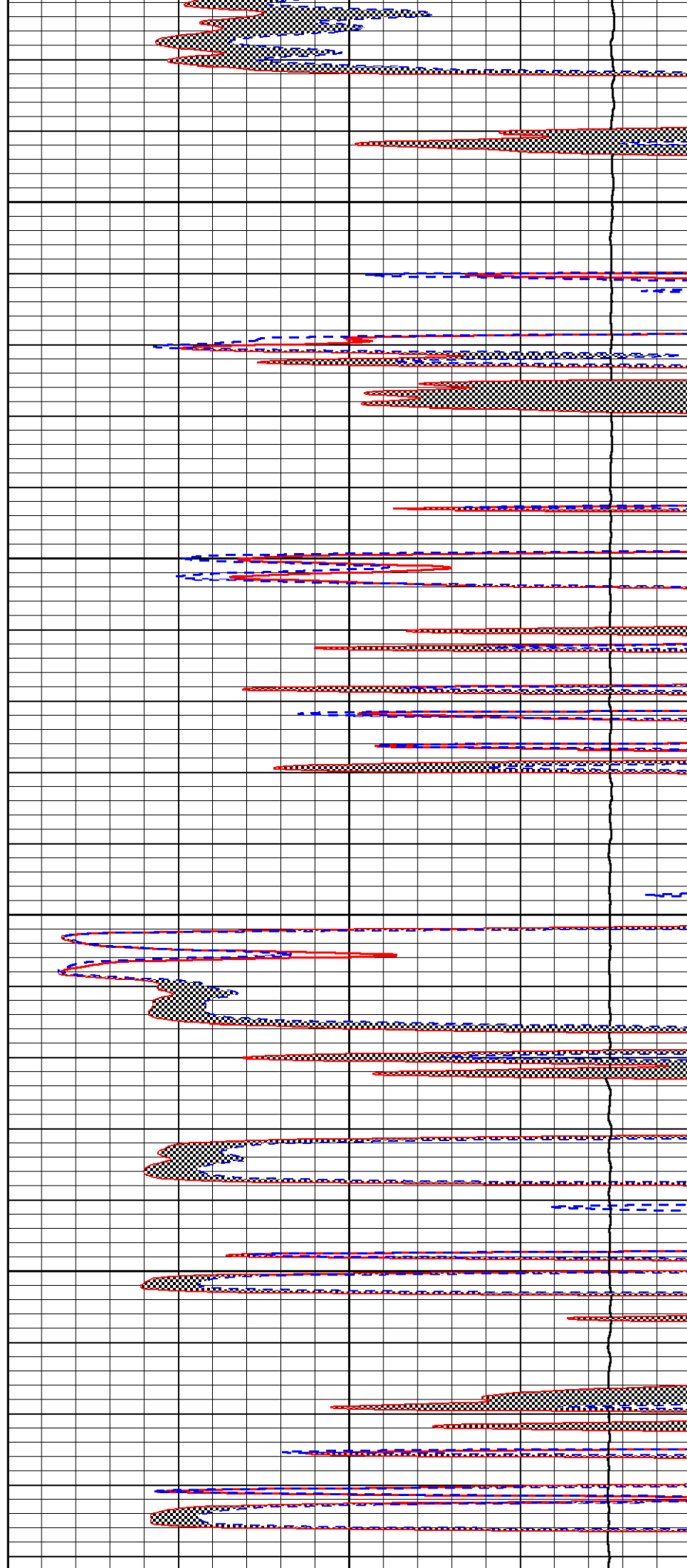


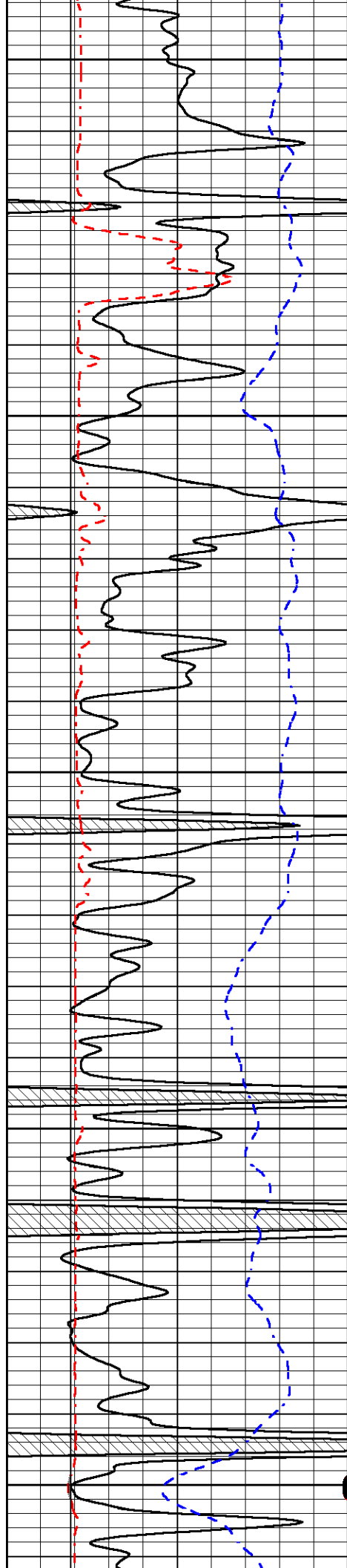
4150

4200

4250

4300





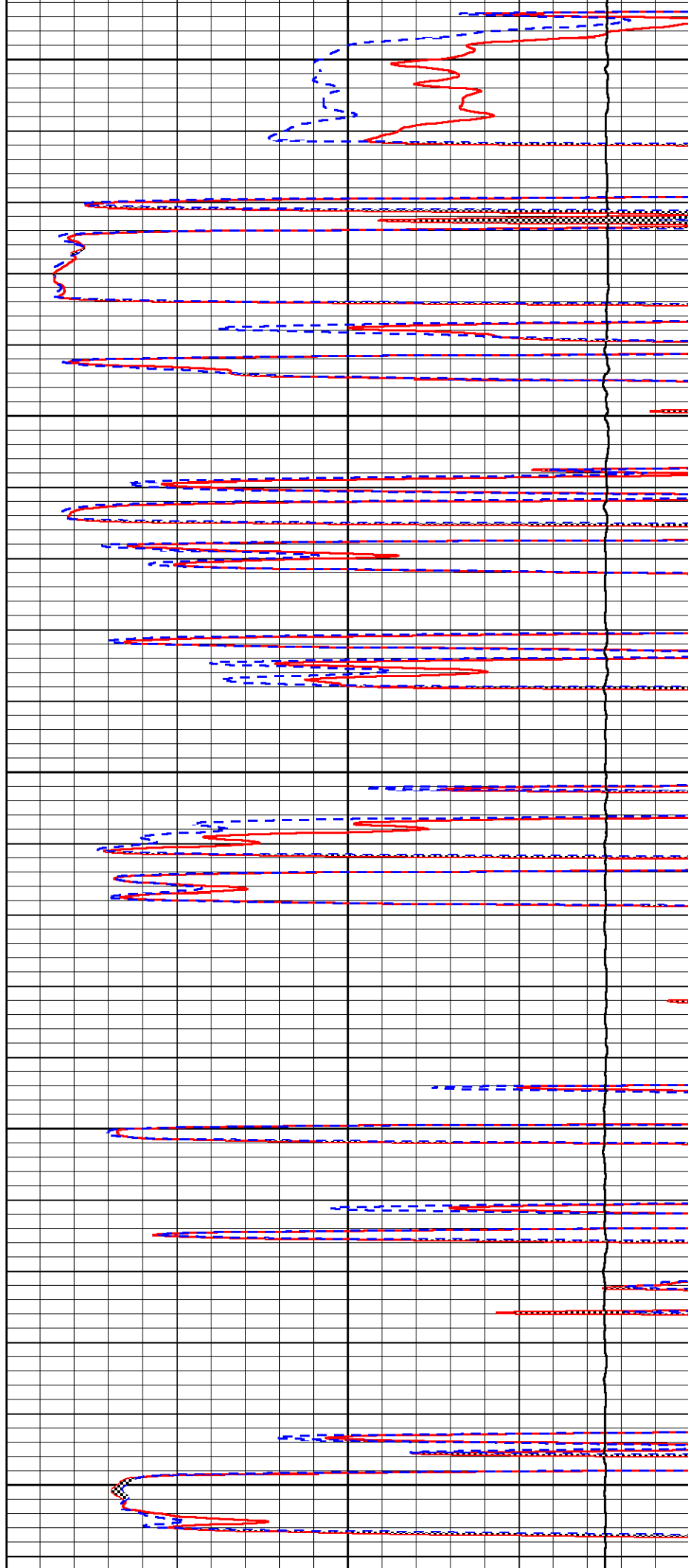
4350

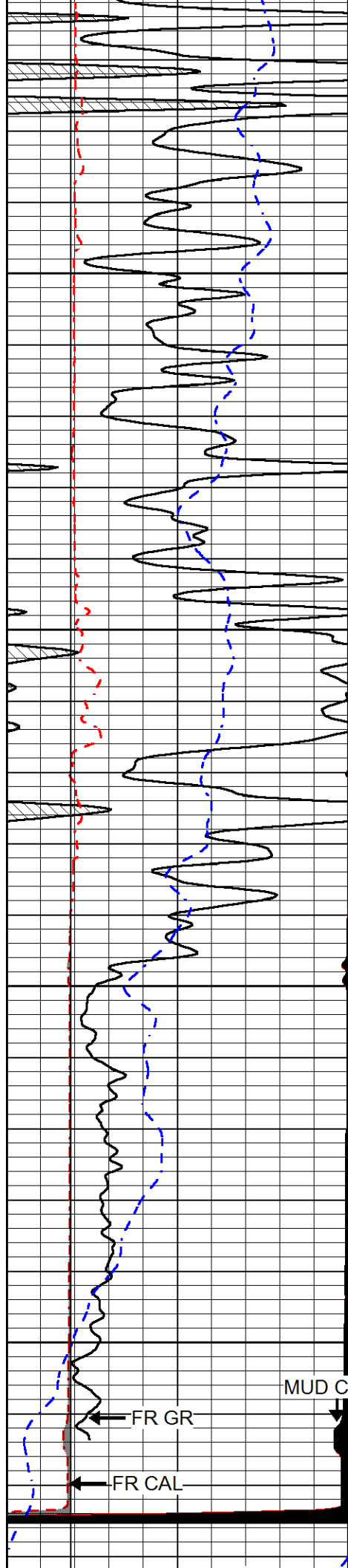
4400

4450

4500

4550





4600

4650

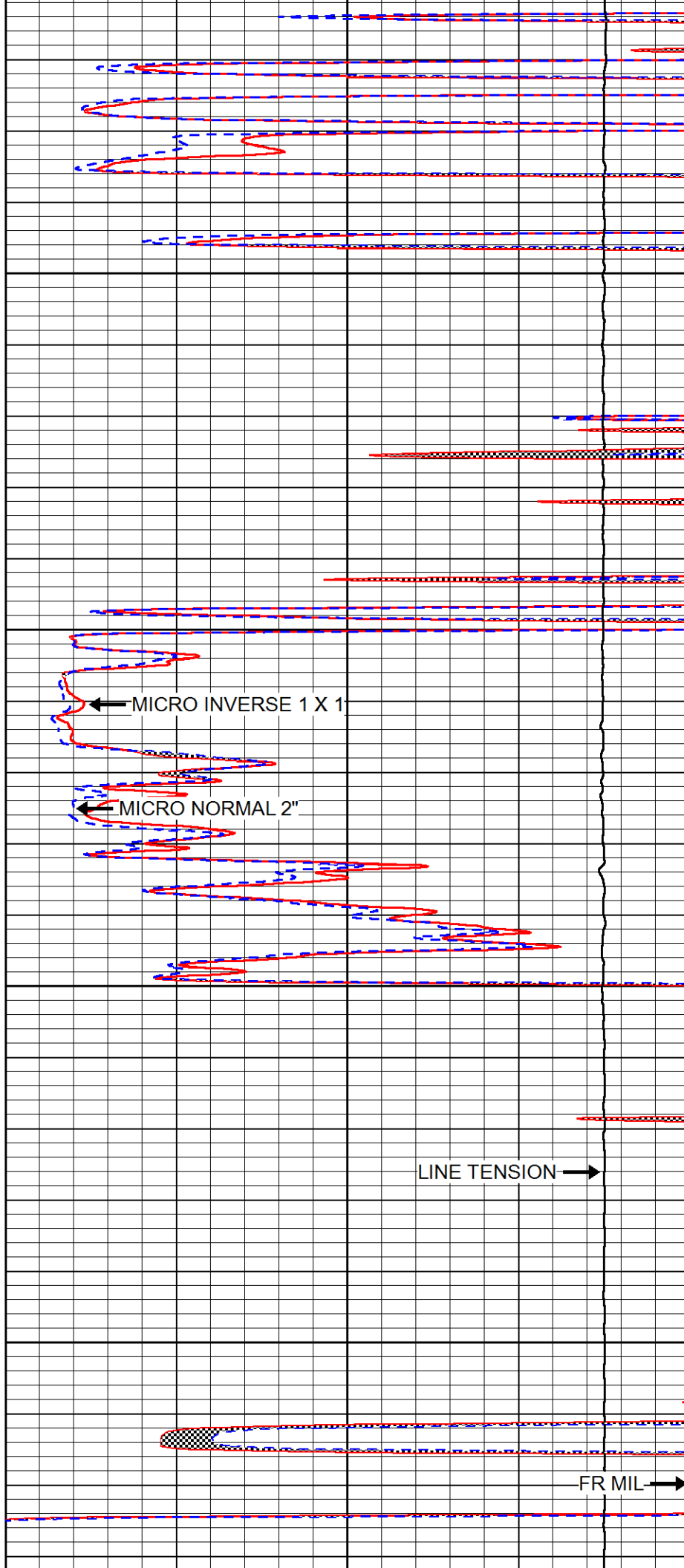
4700

4750

MUD CAKE

FR GR

FR CAL

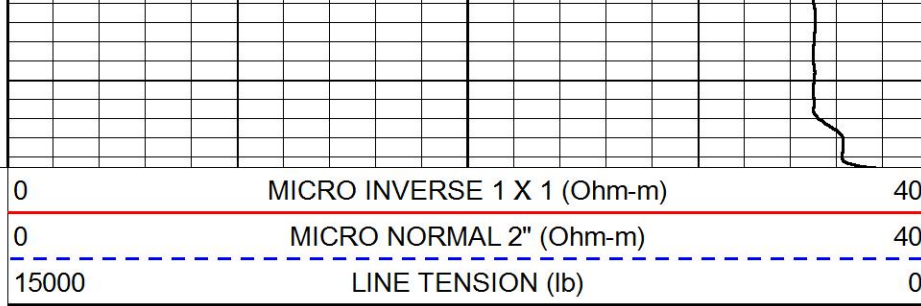
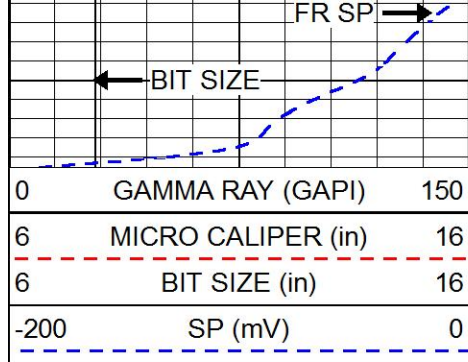


MICRO INVERSE 1 X 1

MICRO NORMAL 2"

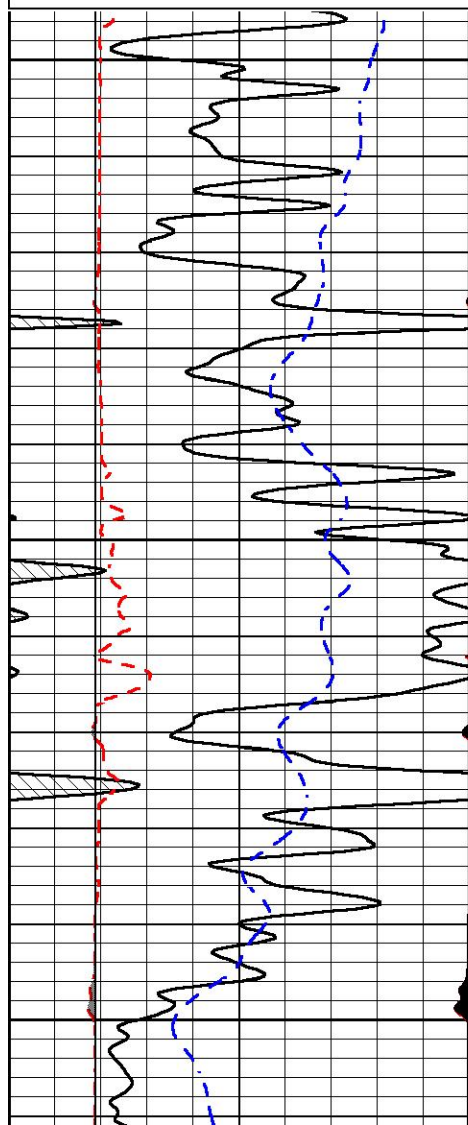
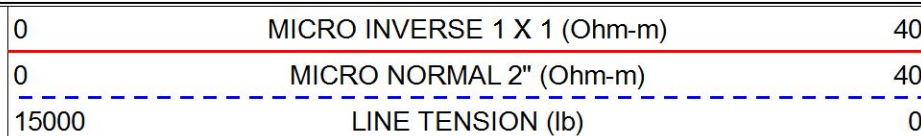
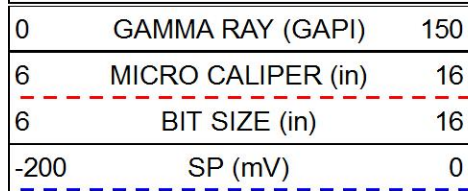
LINE TENSION

FR MIL



REPEAT SECTION

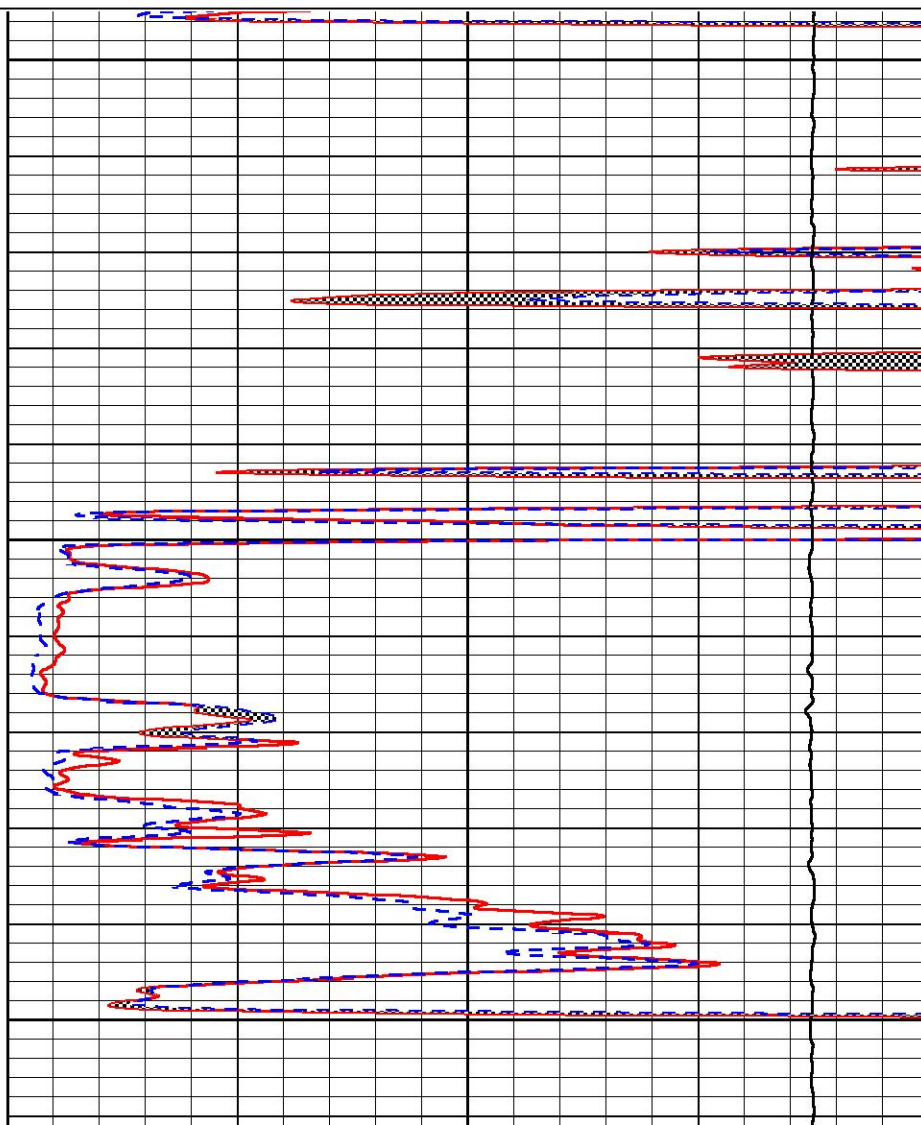
Database File cobalt_binns a_#1-32.db
 Dataset Pathname stack/pass2.1
 Presentation Format micro
 Dataset Creation Sat Aug 27 19:13:15 2016
 Charted by Depth in Feet scaled 1:240

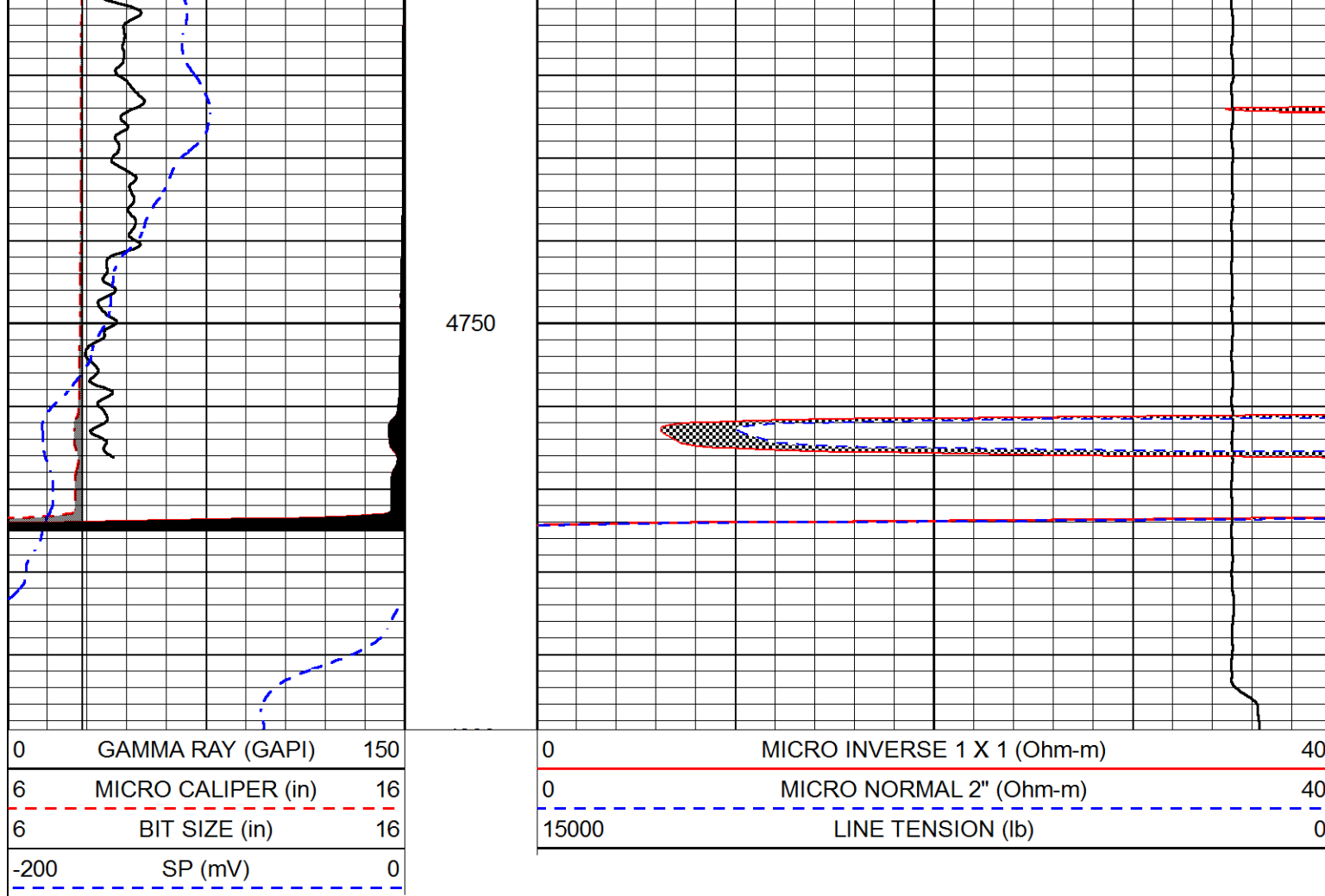


4600

4650

4700





Calibration Report

Database File cobalt_binns a_#1-32.db
 Dataset Pathname stack/pass3.1
 Dataset Creation Sat Aug 27 20:08:49 2016

Dual Induction Calibration Report

Serial-Model: 1987-M&W
 Calibration Performed: Fri Jul 22 02:17:58 2016

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	178.615	710.235	0.000	255.800	mmho/m	0.530	-38.000
Medium	161.982	1441.110	0.000	255.800	mmho/m	0.440	-113.000

Compensated Density Calibration Report

Serial-Model: 71-914-M&W
 Source / Verifier: /
 Master Calibration Performed: Thu Jul 28 15:08:02 2016

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	4314.49	5307.52	cps
Aluminum	2.670	g/cc	222.10	2450.26	cps

Aluminum

2.670 g/cc

822.19

3456.36 cps

Spine Angle = 75.49

Density/Spine Ratio = 0.534

	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: Wed July 20 08:04:05 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: Sun Jul 17 19:05:06 2016

Calibrator Value: 1000.0 GAPI

Background Reading: 0.0 cps
Calibrator Reading: 6.2 cps

Sensitivity: 0.5200 GAPI/cps



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