



PIONEER
Pioneer Energy Services

MICRORESISTIVITY LOG

Company COBALT ENERGY, LLC
Well MOLLHAGEN TRUST A #1-6
Field WILDCAT
County GRAHAM
State KANSAS

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Location: API #: 15-065-24170-00-00

2438' FSL & 422' FEL
SEC 6 TWP 8S RGE 25W

Permanent Datum GROUND LEVEL Elevation 2454'
Log Measured From KELLY BUSHING
Drilling Measured From KELLY BUSHING

Elevation
K.B. 2459'
D.F. N/A
G.L. 2454'

Date 8/23/2019

Run Number ONE

Depth Driller 3995'

Depth Logger 3997'

Bottom Logged Interval 3996'

Top Log Interval 3500'

Casing Driller 8.625" @ 218'

Casing Logger 218'

Bit Size 7.875"

Type Fluid in Hole CHEMICAL

Salinity, ppm CL 1100

Density / Viscosity 9.0 48

pH / Fluid Loss 11.0 7.2

Source of Sample FLOWLINE

Rm @ Meas. Temp 0.90 @ 80

Rmf @ Meas. Temp 0.60 @ 80

Rmc @ Meas. Temp 1.08 @ 80

Source of Rmf / Rmc CHARTS

Rm @ BHT 0.41 @ 116

Operating Rig Time 3 HOURS

Max Rec. Temp. F 116

Equipment Number P-24

Location HAYS

Recorded By D. SCHMIDT

Witnessed By COREY 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.

STUDLEY,
1.4 EAST, NORTH INTO ABOUT 1 1/2 MILES

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: D. SCHMIDT
Operator:
Operator:
Operator:

This Log Record Was Witnessed By

Primary Witness: COREY BAKER
Secondary Witness:
Secondary Witness:
Secondary Witness:

Log Variables

DatabaseC:\ProgramData\Warrior\Data\cobalt_mollhagen trust a 1-6.db
Dataset field/well/STKML/pass3.1/_vars_

Top - Bottom

A	BOREID	BOTTEMP	CASEOD	CASETHCK	FLUIDDEN	M	MATRXDEN
1	in	degF	in	in	g/cc	2	g/cc
	7.875	100	5.5	0	1		2.71
NPORSEL	PERFS	SNDERR	SNDERRM	SPSHIFT	SRFTEMP	SZCOR	TDEPTH
Limestone	0	mmho/m	mmho/m	mV	degF	Off	ft
		0	0	225	0		0

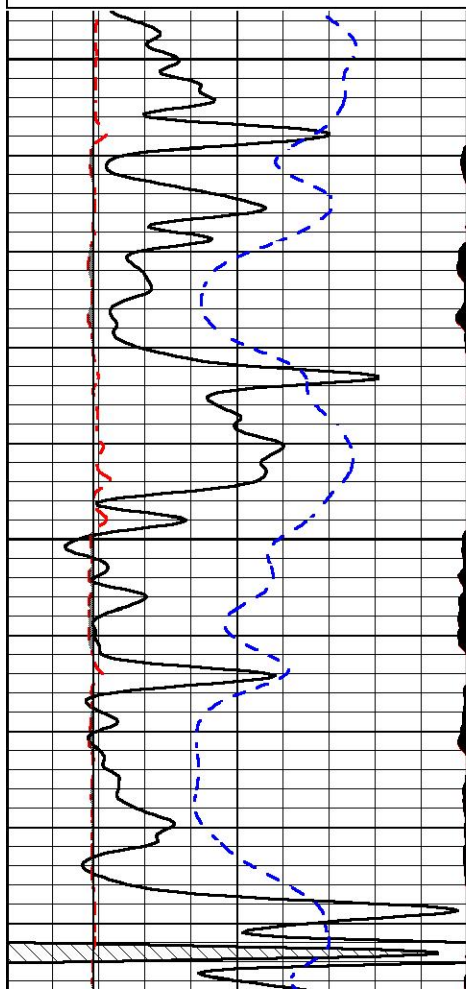


MAIN PASS

Database File cobalt_mollhagen trust a 1-6.db
Dataset Pathname STKML/pass3.1
Presentation Format _micro
Dataset Creation Fri Aug 23 16:44:41 2019
Charted by Depth in Feet scaled 1:240

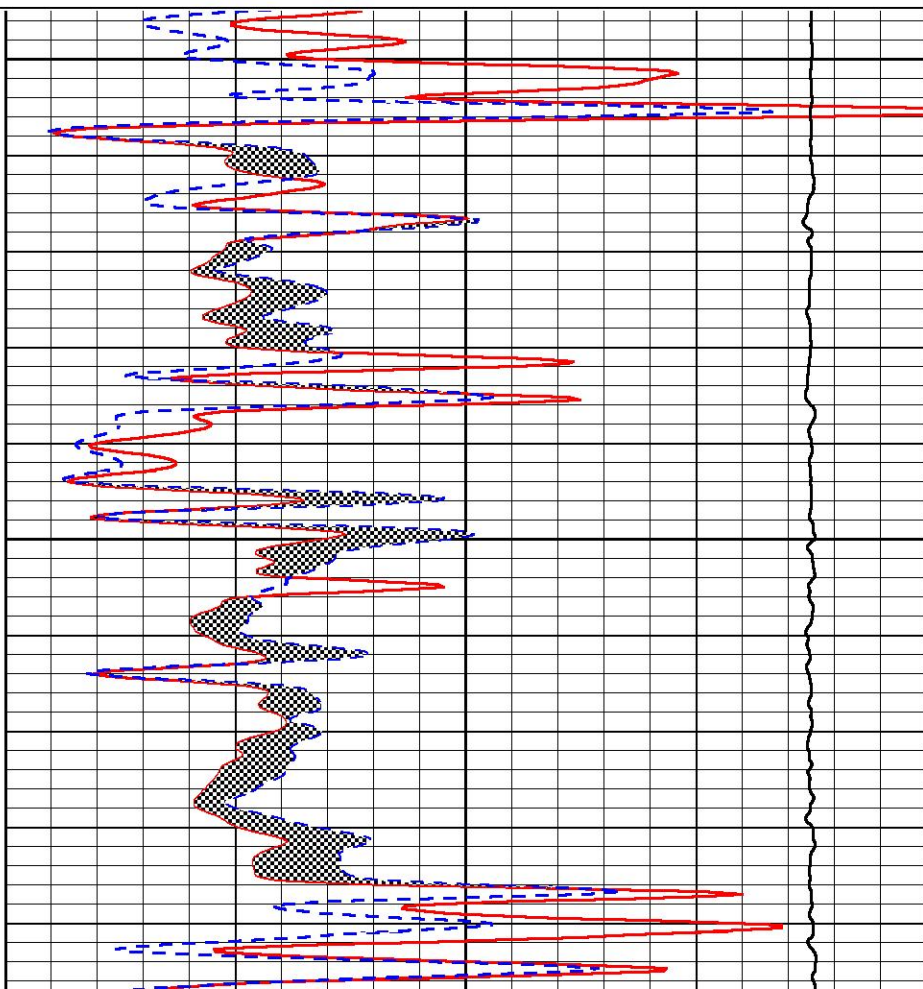
0	GAMMA RAY (GAPI)	150
6	MCAL (in)	16
2.875	mcals (in)	7.875
6	Bit Size (in)	16
-200	SP (mV)	0

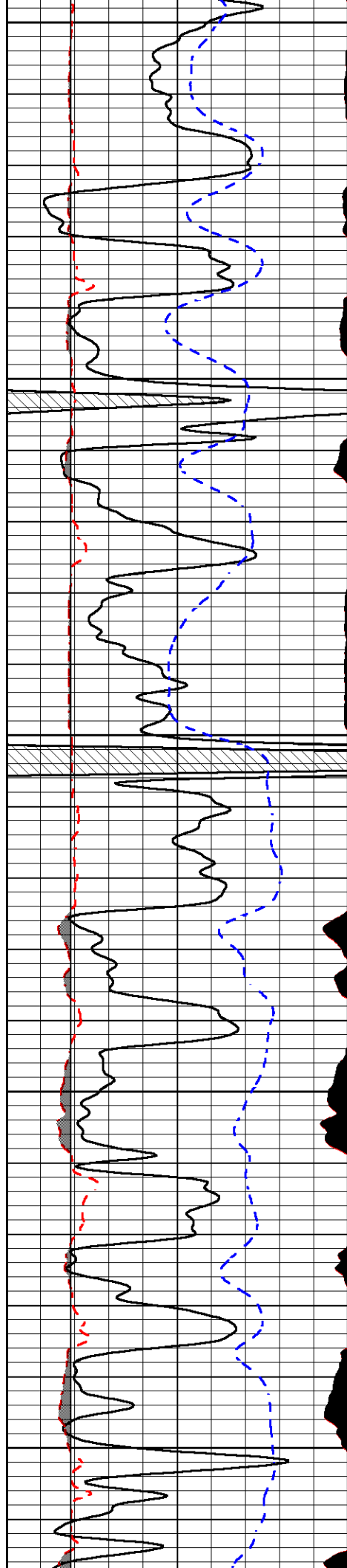
0	MICRO INVERSE 1 X 1 (Ohm-m)	40
0	MICRO NORMAL 2" (Ohm-m)	40
10000	Line Weight (lb)	0



3500

3550





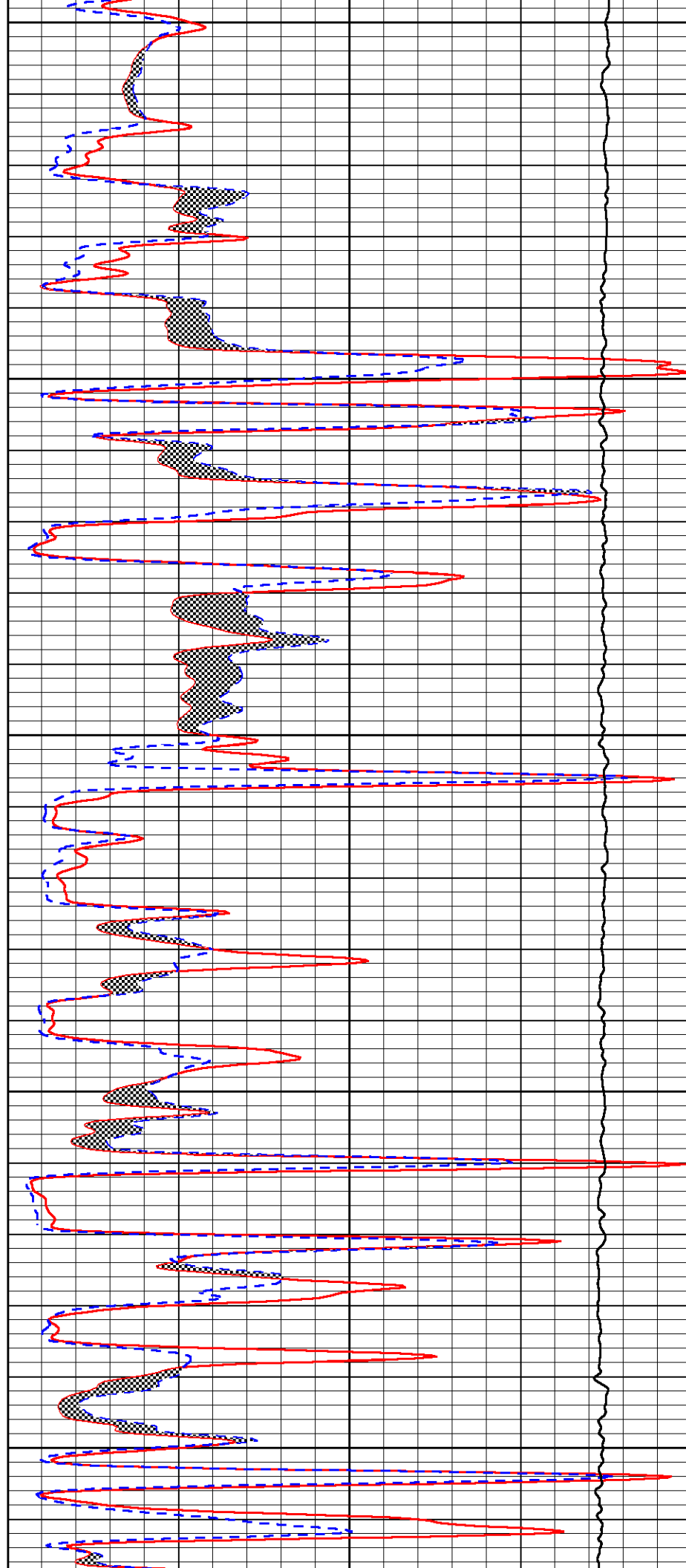
3600

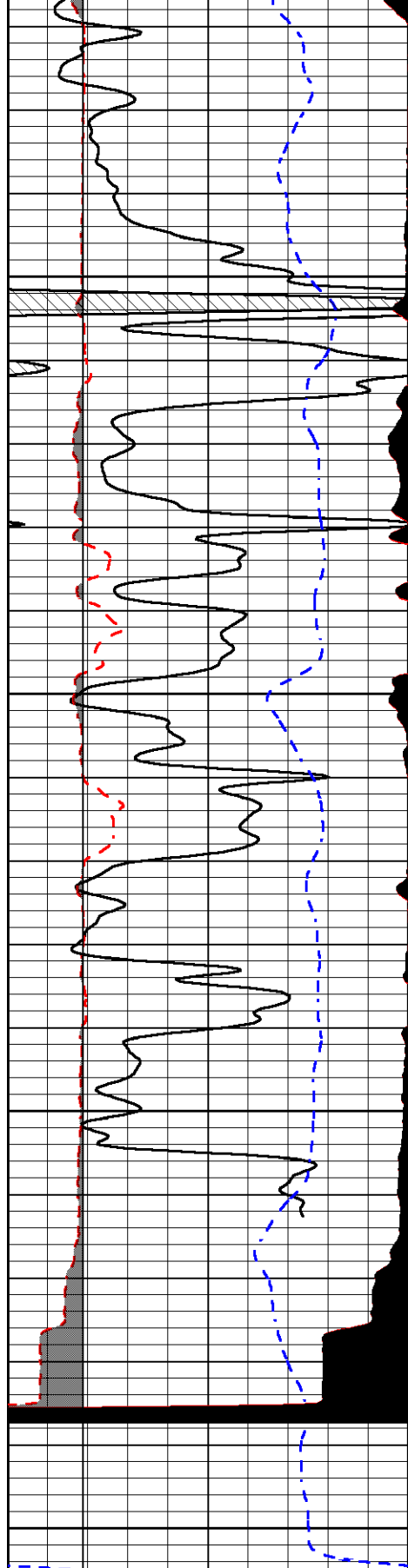
3650

3700

3750

3800





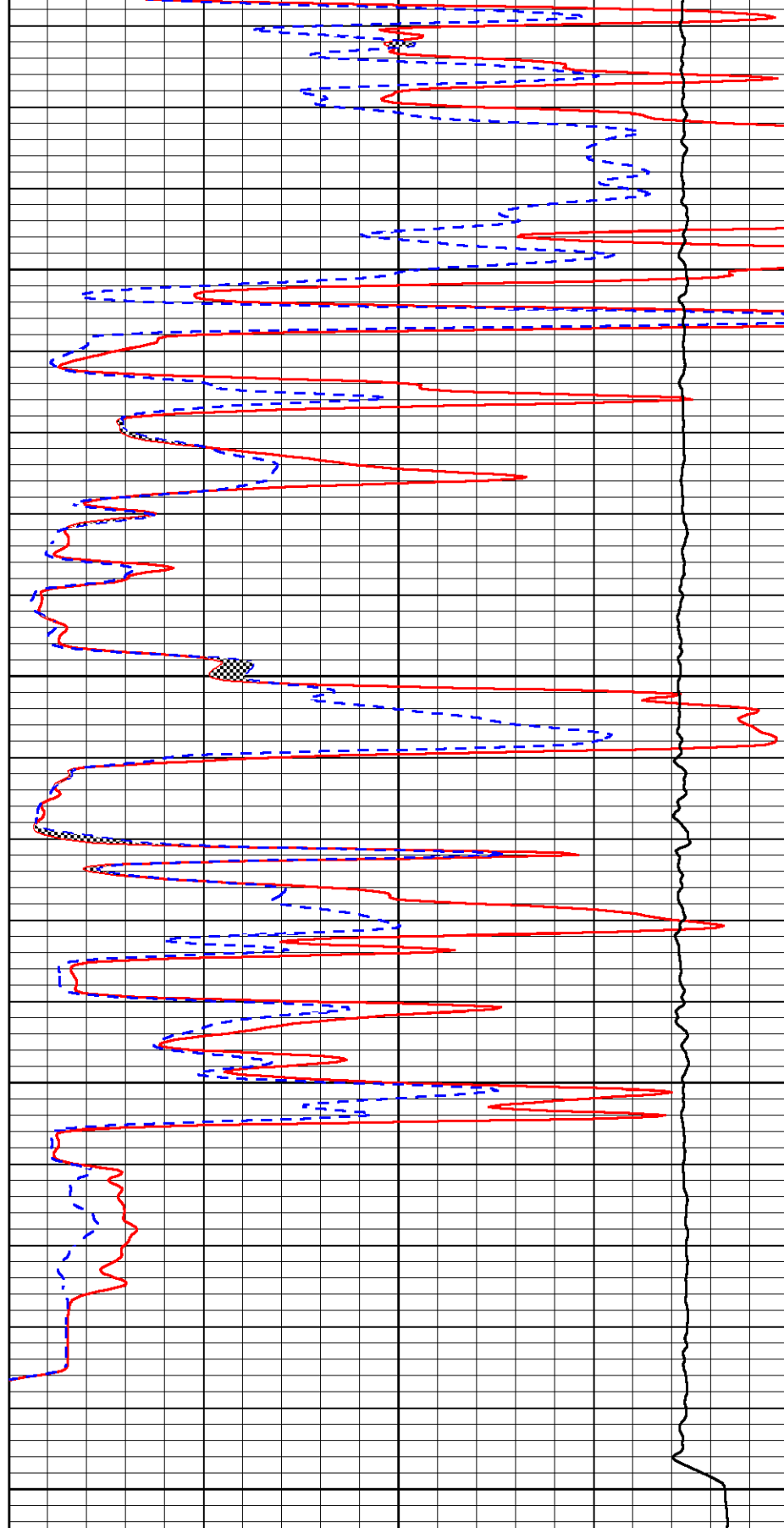
0	GAMMA RAY (GAPI)	150
6	MCAL (in)	16
2.875	mcal (in)	7.875
6	Bit Size (in)	16
-200	SP (mV)	0

3850

3900

3950

4000



0	MICRO INVERSE 1 X 1 (Ohm-m)	40
0	MICRO NORMAL 2" (Ohm-m)	40
10000	Line Weight (lb)	0

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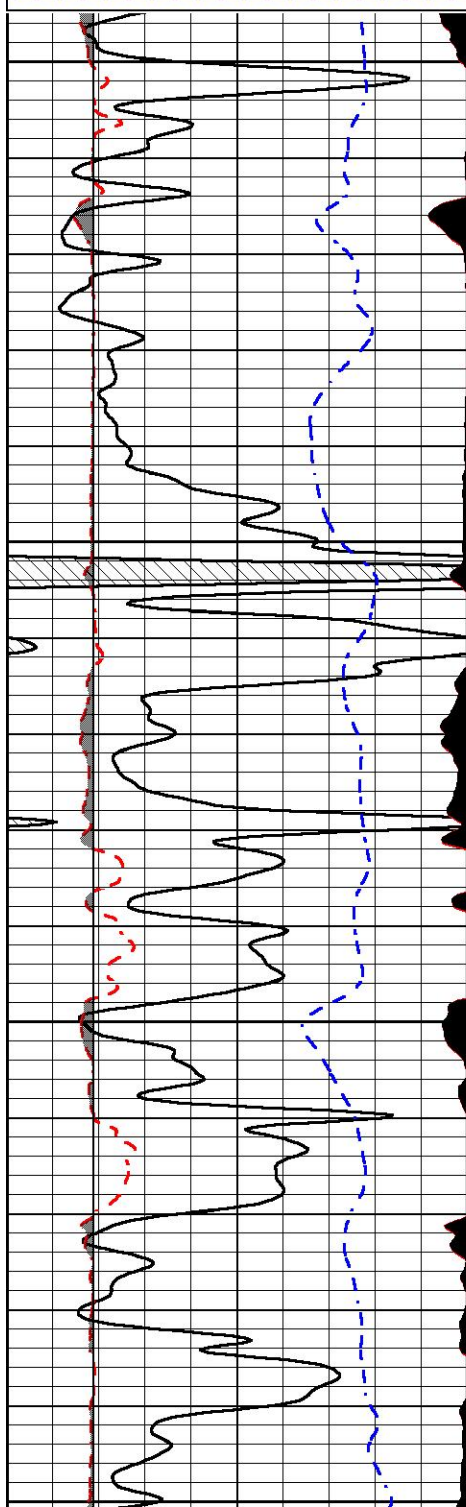
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REPEAT SECTION

Database File cobalt_mollhagen trust a 1-6.db
Dataset Pathname STKML/pass2.4
Presentation Format _micro
Dataset Creation Fri Aug 23 16:49:51 2019
Charted by Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
6	MCAL (in)	16
2.875	mcals (in)	7.875
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
10000	Line Weight (lb)	0

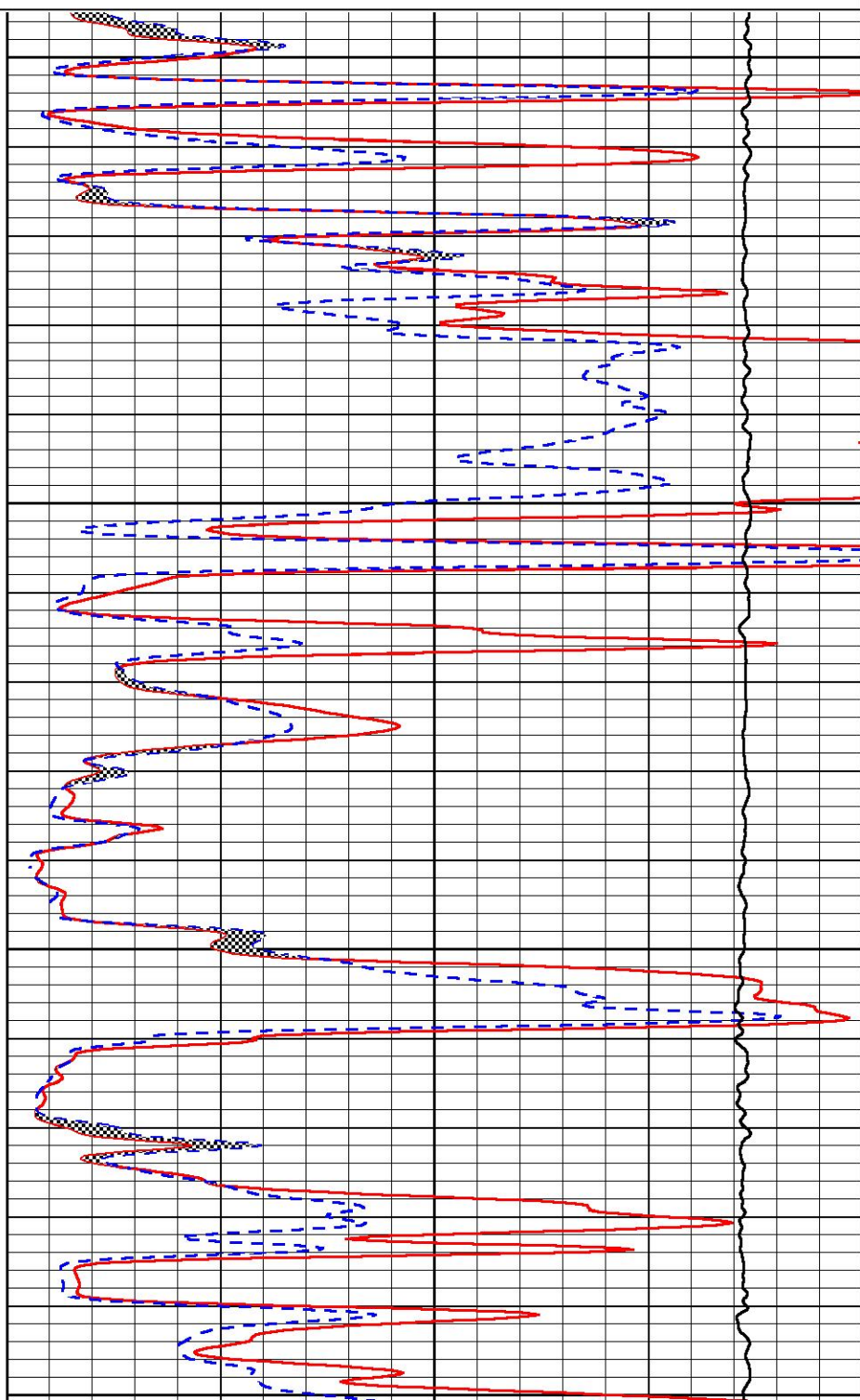


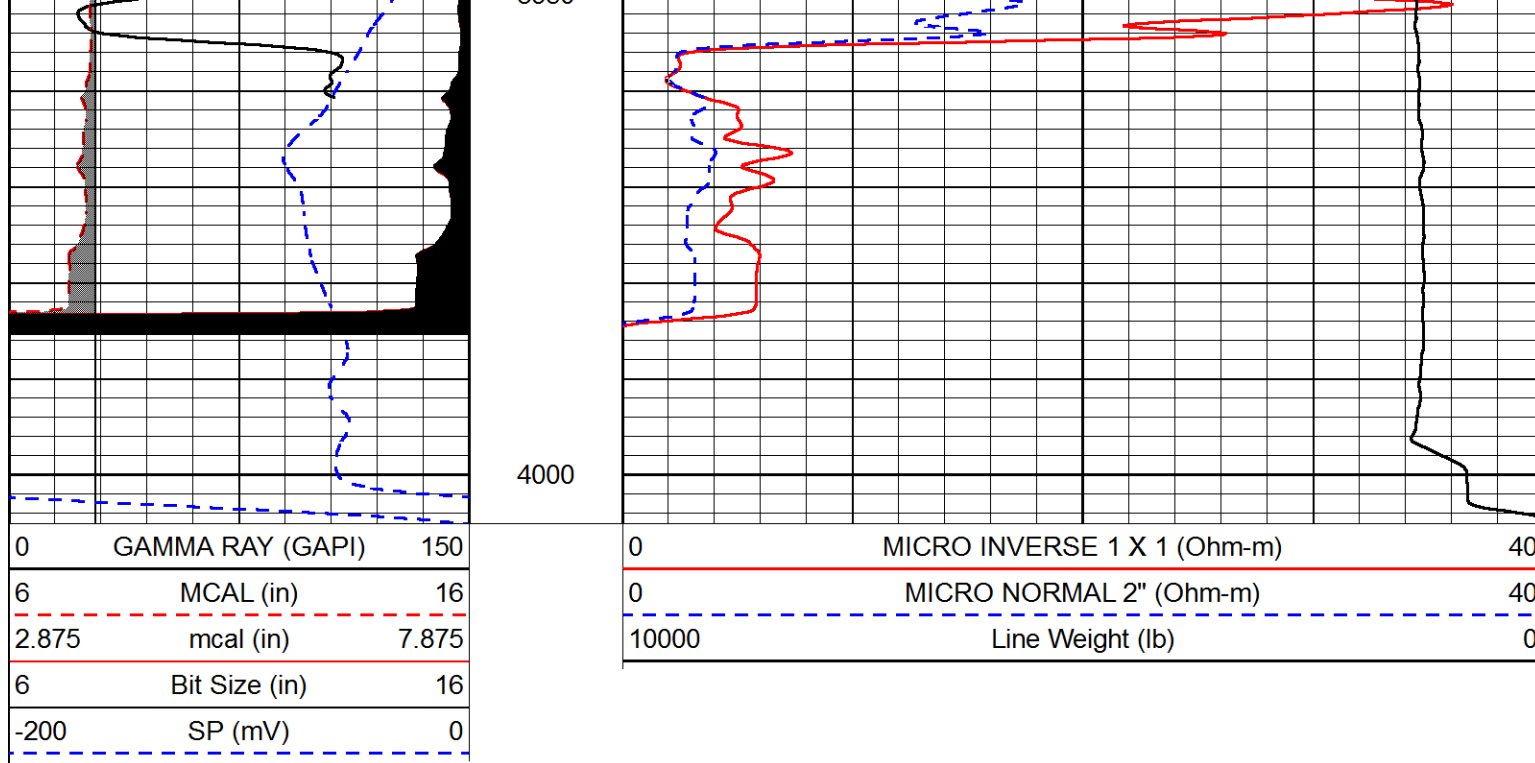
3800

3850

3900

3950





Calibration Report

Database File: cobalt_mollhagen trust a 1-6.db
 Dataset Pathname: STKML/pass3.1
 Dataset Creation: Fri Aug 23 16:44:41 2019

Dual Induction Calibration Report

Serial-Model: 1039-PSI HIGH TEMP
 Calibration Performed: Tue Jul 09 07:46:05 2019

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	167.000	835.000	0.000	255.800	mmho/m	0.445	-51.000
Medium	0.000	1348.000	142.000	255.800	mmho/m	0.380	-58.000

Microlog Calibration Report

Serial-Model: PSI-01-PSIML
 Performed: Thu Aug 01 07:57:13 2019

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	13000.0000	-0.7000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	14000.0000	-0.6000
Caliper	1.0001	1.1397	6.5000	18.5000	in	70.0000	-64.1000

Compensated Density Calibration Report

Serial-Model: 817-947-M&W
 Source / Verifier: 16955B / 2ci
 Master Calibration Performed: Fri Aug 24 11:16:00 2018

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	6127.15	5922.31	cps
Aluminum	2.670	g/cc	1141.85	3762.09	cps
Spine Angle = 74.89			Density/Spine Ratio = 0.526		
	Size		Reading		
Small Ring	4.50	in	1.02		
Large Ring	15.00	in	1.15		

Compensated Neutron Calibration Report

Serial Number: 207-MW
 Tool Model: M&W
 Calibration Performed: WED FEB 13 10:30:30 2019

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: 233-M&W
 Tool Model: M&W
 Calibration Performed: Fri Feb 07 01:42:40 2014

 Calibrator Value: 1.0 GAPI

 Background Reading: 0.0 cps
 Calibrator Reading: 1.0 cps

 Sensitivity: 0.5500 GAPI/cps



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