



PIONEER
Pioneer Energy Services

MICRORESISTIVITY LOG

Company **COBALT ENERGY, LLC**
Well **EVELYN A #1-27**
Field **WILDCAT**
County **DECATUR** State **KANSAS**

Location: API #: 15-039-21239-00-00

Other Services
CNL/CDL
DIL

SEC 27 TWP 3S RGE 26W
1361' FSL & 2154' FWL

Permanent Datum **GROUND LEVEL** Elevation **2549'**
Log Measured From **KELLY BUSHING**
Drilling Measured From **KELLY BUSHING**

Elevation
K.B. 2554'
D.F. N/A
G.L. 2549'

Date **6/20/2017**

Run Number	ONE		
Depth Driller	4010'		
Depth Logger	4012'		
Bottom Logged Interval	4011'		
Top Log Interval	3200'		
Casing Driller	8.625" @ 213'		
Casing Logger	211'		
Bit Size	7.875"		
Type Fluid in Hole	CHEMICAL		
Salinity, ppm CL	2000		
Density / Viscosity	9.3 60		
pH / Fluid Loss	10.5 6.8		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	0.60 @ 80		
Rmt @ Meas. Temp	0.45 @ 80		
Rmc @ Meas. Temp	0.81 @ 80		
Source of Rmt / Rmc	CHARTS		
Rm @ BHT	0.41 @ 116		
Operating Rig Time	3 HOURS		
Max Rec. Temp. F	116		
Equipment Number	91		
Location	HAYS		
Recorded By	D. SCHMIDT		
Witnessed By	LARRY NICHOLSON		

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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.

CLAYTON,
1.7 NORTH, 2 1/2 WEST,
NORTH 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

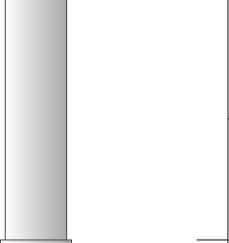
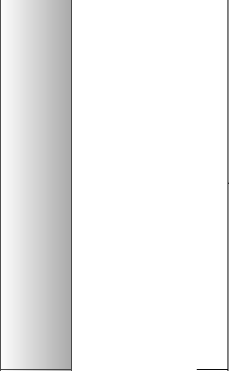
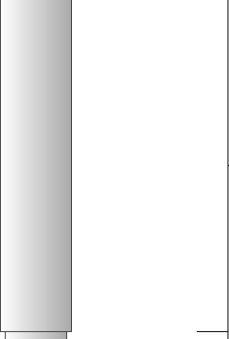
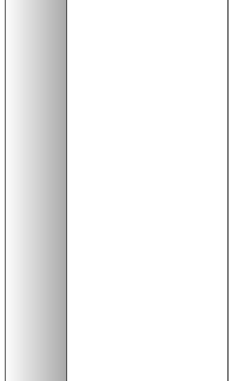
Engineer: **D. SCHMIDT**
Operator:
Operator:
Operator:

This Log Record Was Witnessed By

Primary Witness: **LARRY NICHOLSON**
Secondary Witness:
Secondary Witness:
Secondary Witness:

Top - Bottom

M	A	SZCOR	NPORSEL	FLUIDDEN g/cc	MATRXDEN g/cc	SPSHIFT mV	SNDERRM mmho/m
2	1	Off	Limestone	1	2.71	15	0
SNDERR mmho/m	SRFTEMP degF	CASETHCK in	CASEOD in	PERFS	TDEPTH ft	BOTTEMP degF	BOREID in
0	40	0	5.5	0	4012	116	7.875

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
GR	40.58		GR-M&W (89)	3.00	3.50	50.00
CNLSC CNSSC	37.48 36.73		CNT-M&W (207-MW)	5.50	3.50	100.00
LSD DCAL SSD	28.43 28.42 27.93		CDL-M&W (90-1031)	8.50	4.00	250.00
MCAL MI MN	19.83 19.83 19.83		ML-PSIML (PSI-01) GO Micro log tools converted to Simplec electronics	7.58	4.00	65.00
RLL3F RLL3	15.80 15.80					

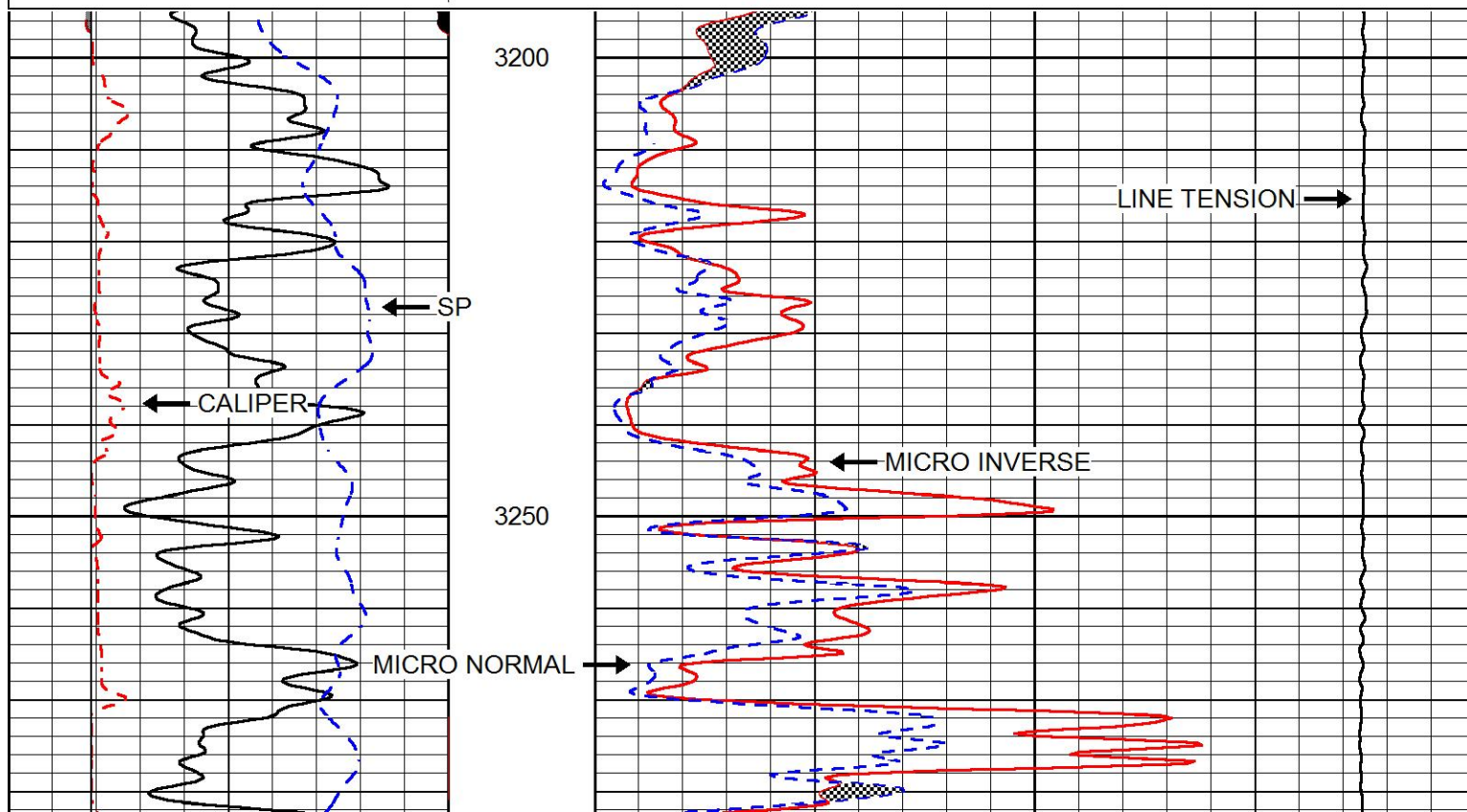
				DIL-M&W (PSI 91)	18.50	3.50	220.00
CILD	8.00						
CILM	4.70						
SP	0.20						
Dataset: cobalt_evelyn a_1-27.db: field/well/STKML/pass3.5 Total length: 43.08 ft Total weight: 685.00 lb O.D.: 4.00 in							

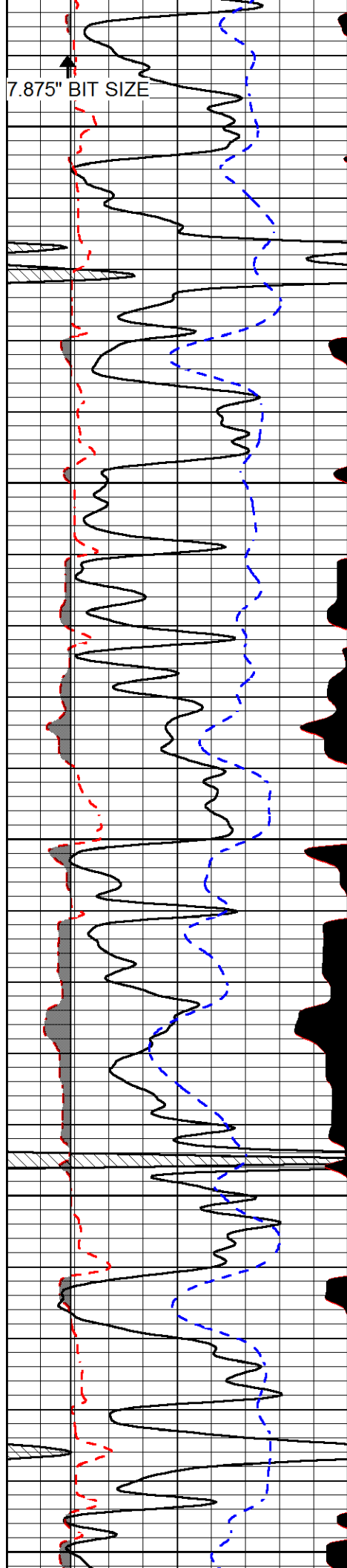


MAIN PASS

Database File	cobalt_evelyn a_1-27.db
Dataset Pathname	STKML/pass3.5
Presentation Format	micro
Dataset Creation	Tue Jun 20 21:22:46 2017
Charted by	Depth in Feet scaled 1:240

0	Gamma Ray (GAPI)	150	0	Micro Inverse 1 X 1 (Ohm-m)	40
6	MCAL (in)	16	0	Micro Normal 2" (Ohm-m)	40
2.875	mcals (in)	7.875	10000	Line Weight (lb)	0
6	Bit Size (in)	16			
-200	SP (mV)	0			





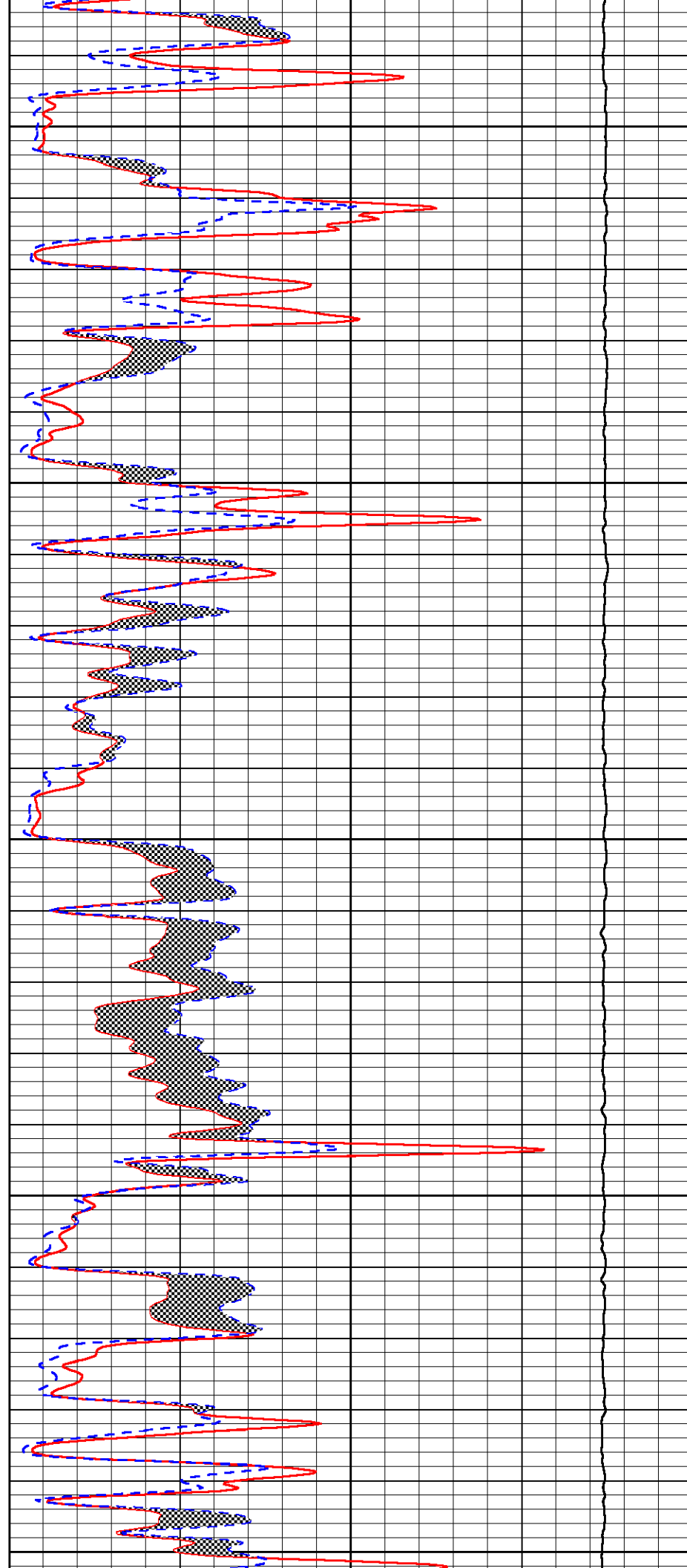
3300

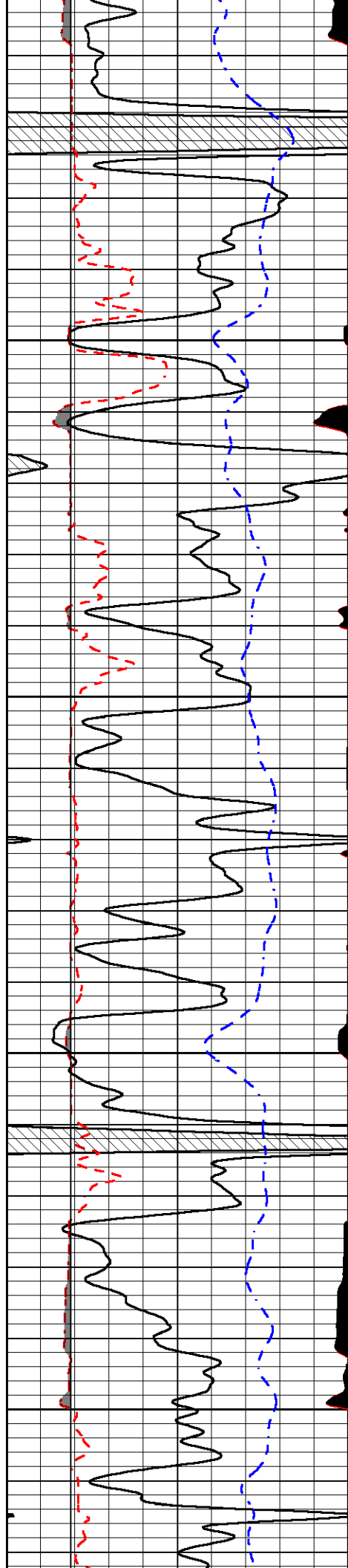
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3400

3450

3500



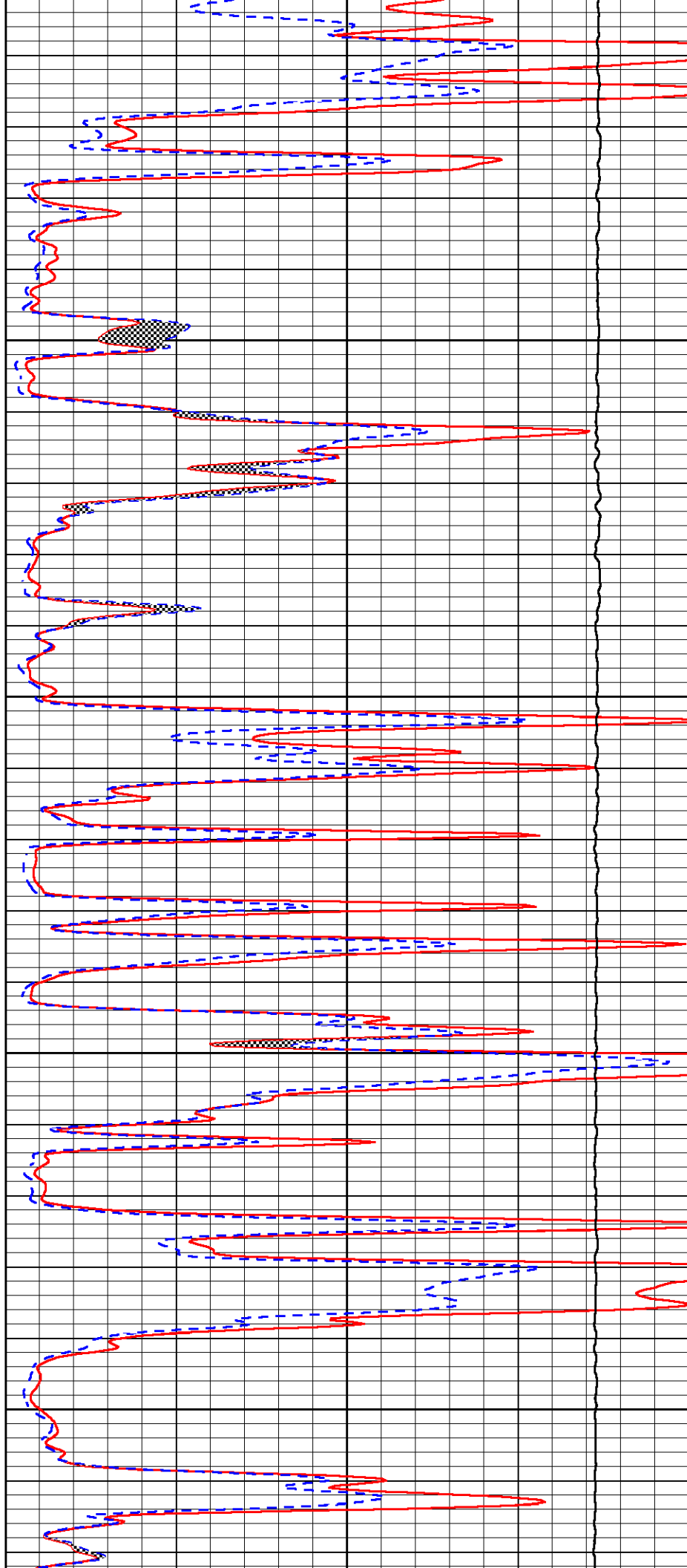


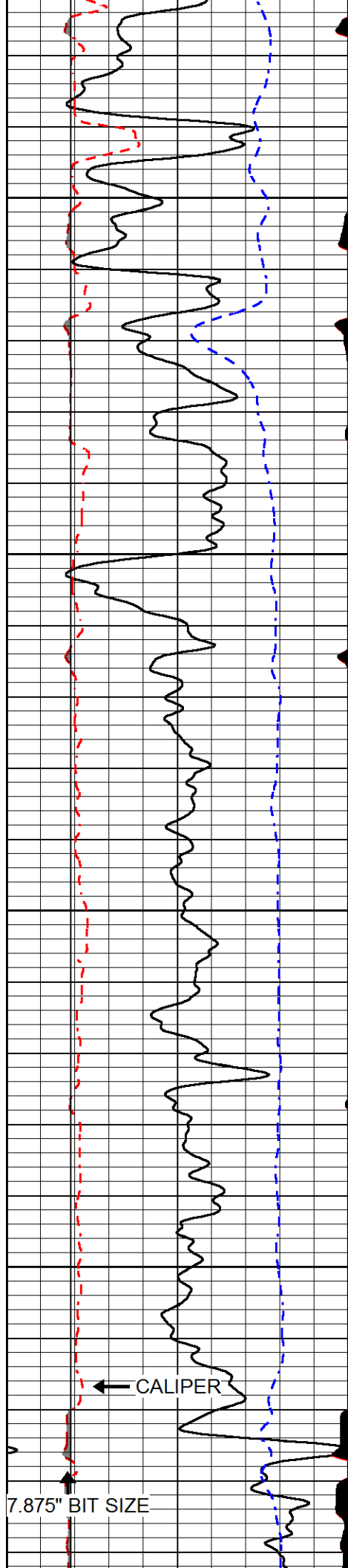
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3600

3650

3700





3750

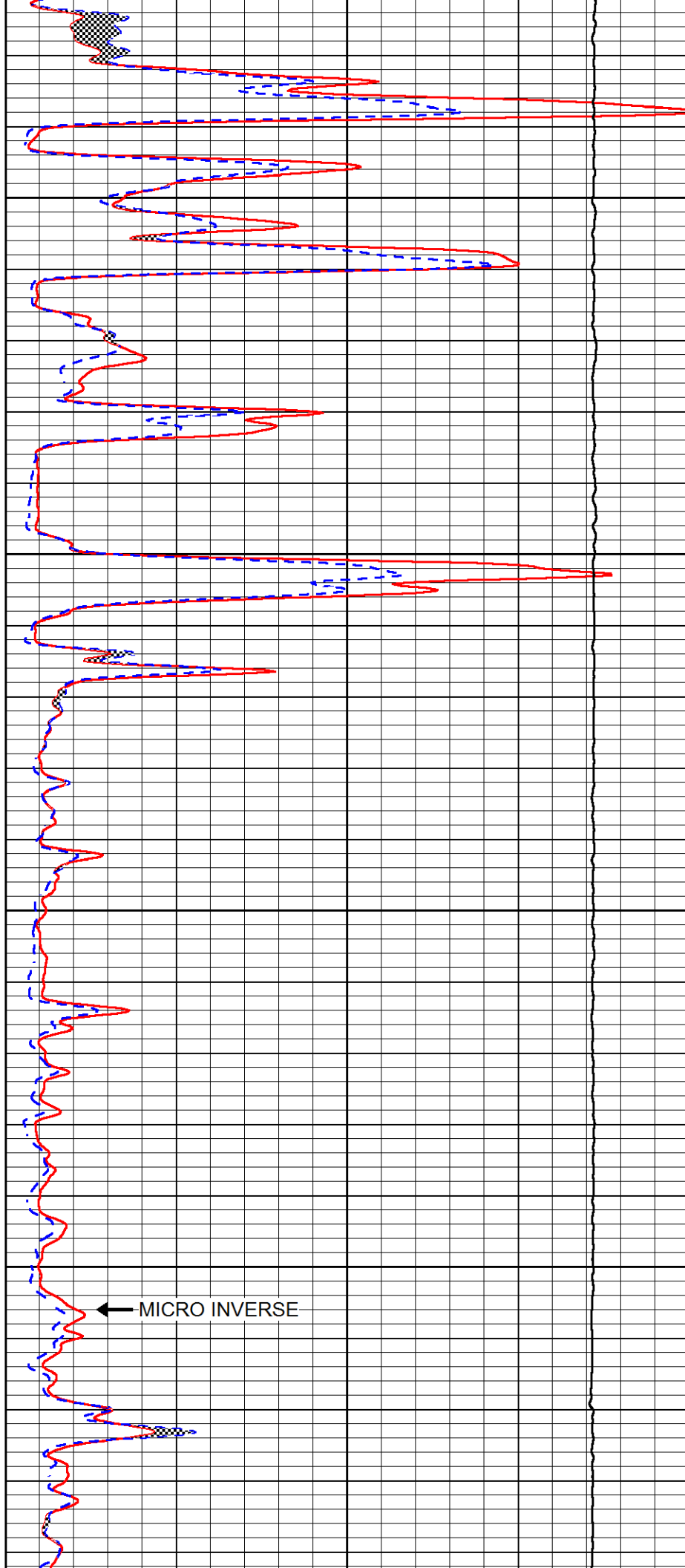
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3850

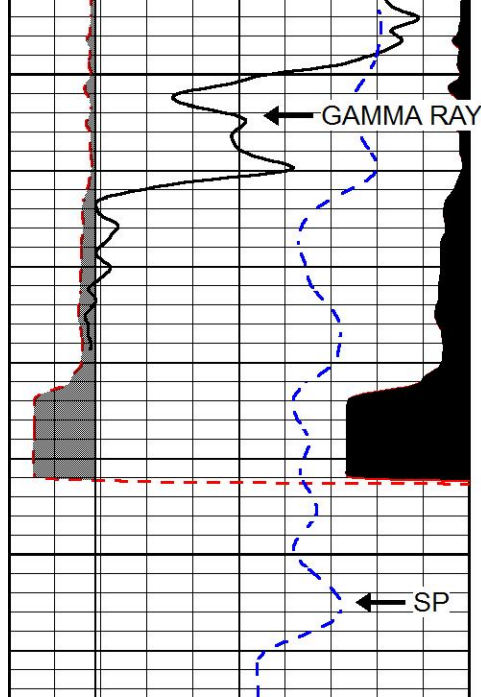
3900

← CALIPER

7.875" BIT SIZE



← MICRO INVERSE



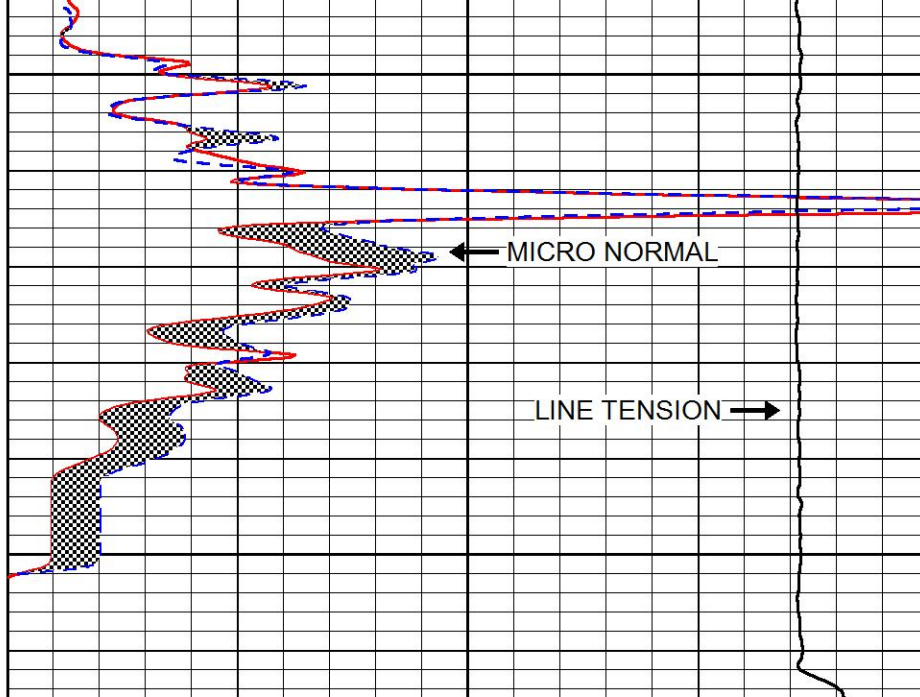
3950

← GAMMA RAY

4000

← SP

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



← MICRO NORMAL

LINE TENSION →

0	Micro Inverse 1 X 1 (Ohm-m)	40
0	Micro Normal 2" (Ohm-m)	40
10000	Line Weight (lb)	0

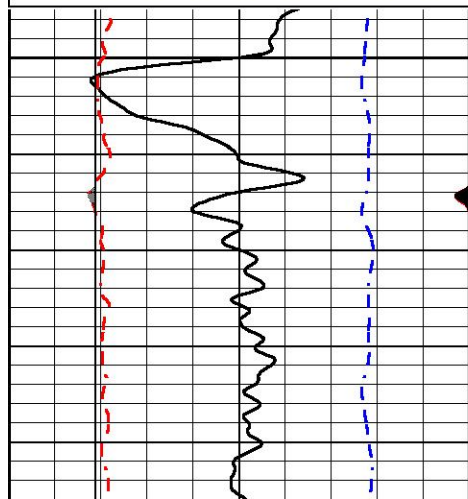


REPEAT SECTION

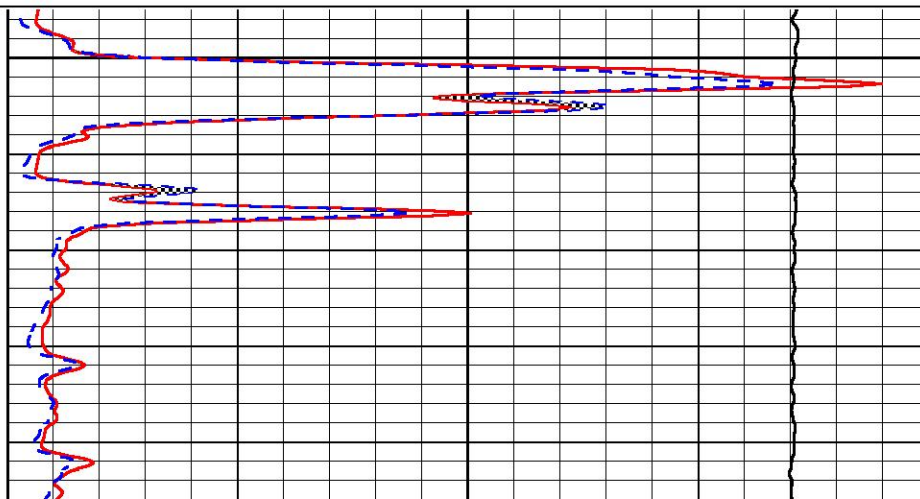
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 Dataset Pathname STKML/pass2.2
 Presentation Format micro
 Dataset Creation Tue Jun 20 21:31:28 2017
 Charted by Depth in Feet scaled 1:240

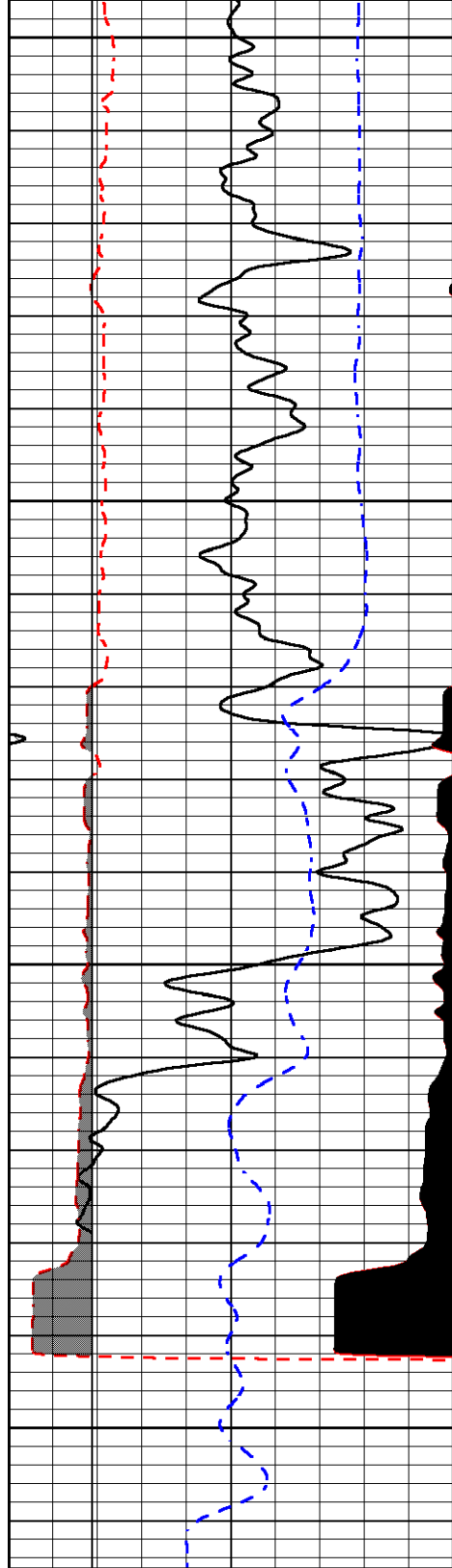
0	Gamma Ray (GAPI)	150
6	MCAL (in)	16
2.875	mcal (in)	7.875
6	Bit Size (in)	16
-200	SP (mV)	0

0	Micro Inverse 1 X 1 (Ohm-m)	40
0	Micro Normal 2" (Ohm-m)	40
10000	Line Weight (lb)	0

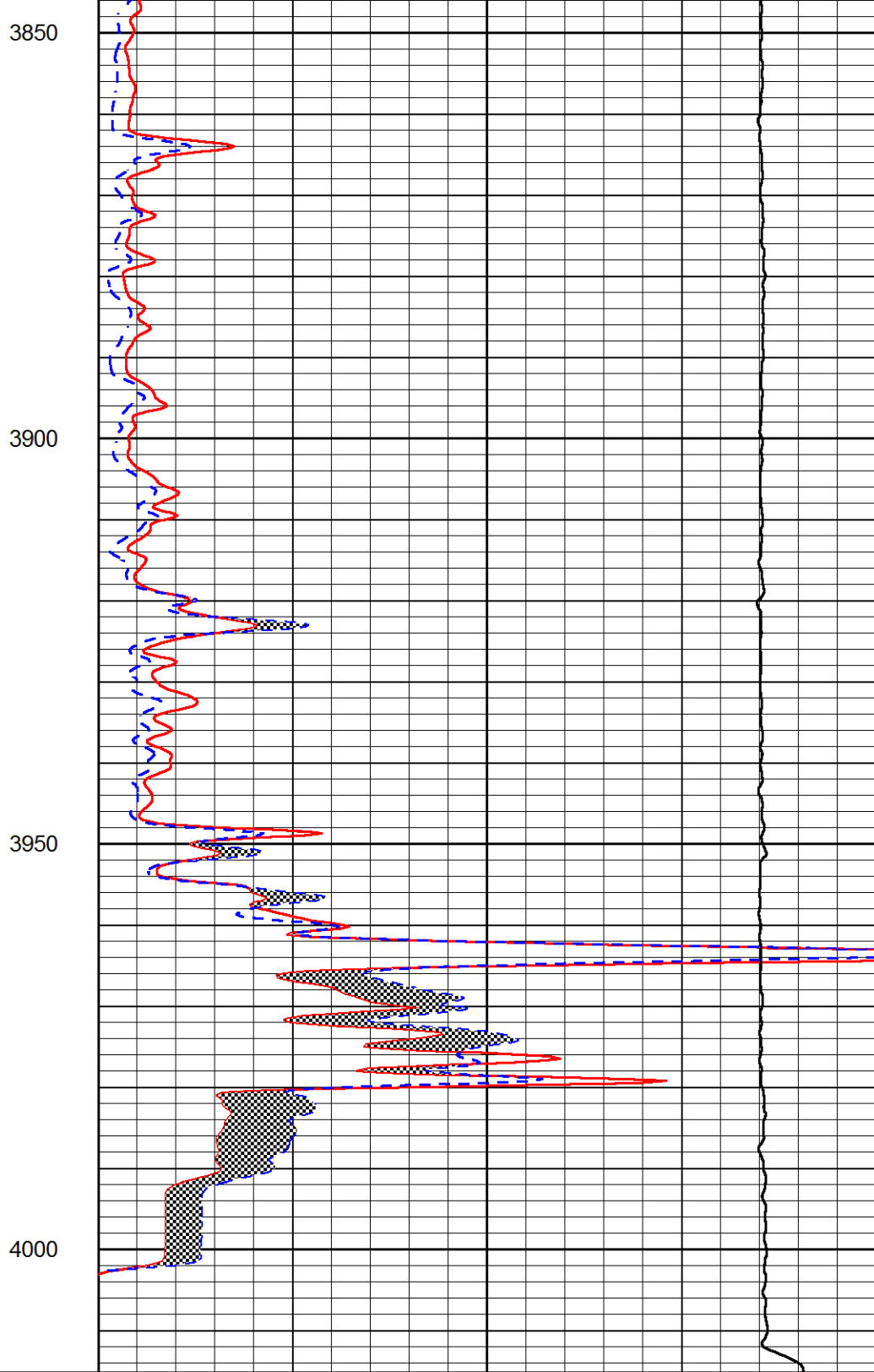


3800





0	Gamma Ray (GAPI)	150
6	MCAL (in)	16
2.875	mcal (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

Calibration Report

Database File cobalt_evelyn a_1-27.db
 Dataset Pathname STKML/pass3.5
 Dataset Creation Tue Jun 20 21:22:46 2017

Dual Induction Calibration Report

Serial-Model:
Calibration Performed:

PSI 91-M&W
Sat Jun 17 12:42:37 2017

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	166.796	835.089	0.000	255.800	mmho/m	0.420	-31.500
Medium	142.009	1348.560	0.000	255.800	mmho/m	0.360	-31.000

Microlog Calibration Report

Serial-Model:
Performed:

PSI-01-PSIML
Sat Jun 17 12:42:28 2017

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	32500.0000	-1.5000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	27000.0000	-0.3000
Caliper	1.0001	1.1397	6.5000	18.5000	in	100.0000	-97.1500

Compensated Density Calibration Report

Serial-Model:
Source / Verifier:
Master Calibration Performed:

90-1031-M&W
16955B / 2ci
Sat Jun 17 12:42:56 2017

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	5174.18	6425.27	cps
Aluminum	2.665	g/cc	963.17	4037.42	cps
Spine Angle = 74.55			Density/Spine Ratio = 0.522		
	Size		Reading		
Small Ring	8.00	in	1.84		
Large Ring	22.00	in	1.46		

Compensated Neutron Calibration Report

Serial Number: 207-MW
Tool Model: M&W
Calibration Performed: Sat Jun 17 10:30:30 2017

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
Tool Model: M&W
Calibration Performed: Sat Jun 17 12:44:49 2017

Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.6000	GAPI/cps



Company	COBALT ENERGY, LLC
Well	EVELYN A #1-27
Field	WILDCAT
County	DECATUR
State	KANSAS