



MICRORESISTIVITY LOG

Company COBALT ENERGY LLC
 Well ELIZABETH A # 1-36
 Field WILDCAT
 County GRAHAM
 State KANSAS

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 Well ELIZABETH A # 1-36
 Field WILDCAT
 County GRAHAM State KANSAS

Location: API #: 15-065-24148-00-00
 590' FSL & 440' FEL
 NW - SE - SE - SE
 SEC 36 TWP 8S RGE 22W
 Permanent Datum GROUND LEVEL Elevation 2180'
 Log Measured From KELLY BUSHING
 Drilling Measured From KELLY BUSHING
 Other Services
 CNL/CDL
 DIL/BHCS
 Elevation
 K.B. 2185'
 D.F. N/A
 G.L. 2180'

Date	7/17/2018
Run Number	ONE
Depth Driller	3825'
Depth Logger	3823'
Bottom Logged Interval	3822'
Top Log Interval	3100'
Casing Driller	8.625" @ 217'
Casing Logger	216'
Bit Size	7.875"
Type Fluid in Hole	CHEMICAL
Salinity, ppm CL	3500
Density / Viscosity	9.0 60
pH / Fluid Loss	10.5 6.4
Source of Sample	FLOWLINE
Rm @ Meas. Temp	0.75 @ 85
Rmt @ Meas. Temp	0.56 @ 85
Rmc @ Meas. Temp	1.01 @ 85
Source of Rmf / Rmc	CHARTS
Rm @ BHT	0.56 @ 114
Operating Rig Time	4 HOURS
Max Rec. Temp. F	114
Equipment Number	91
Location	HAYS
Recorded By	IAN MABB
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.
 BOGUE, KS.
 2 MILE SOUTH & WEST FOLLOWING THE CURVE, ONE MILE SOUTH ON 350TH AVE TO N RD. WEST 1 MILES SOUTH TO M RD, WEST 1/4 NORTH INTO

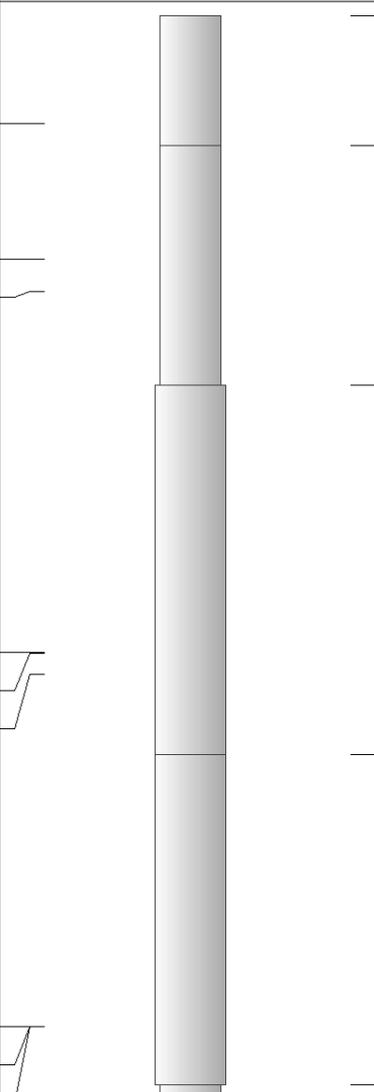
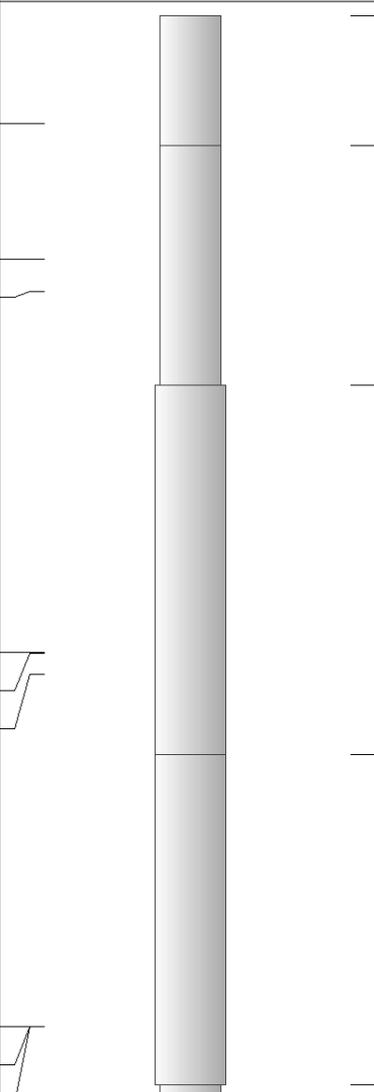
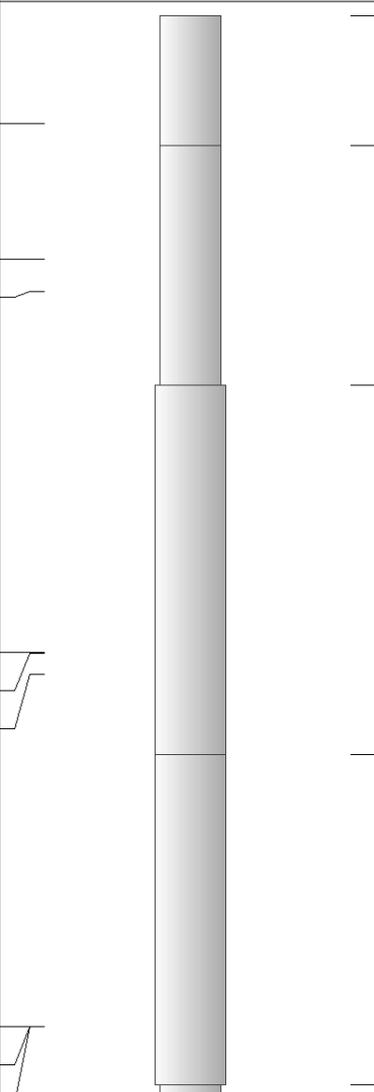
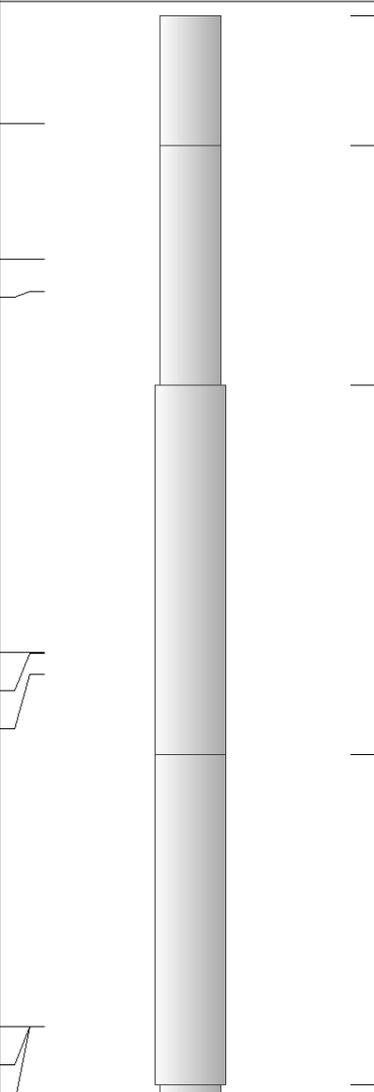
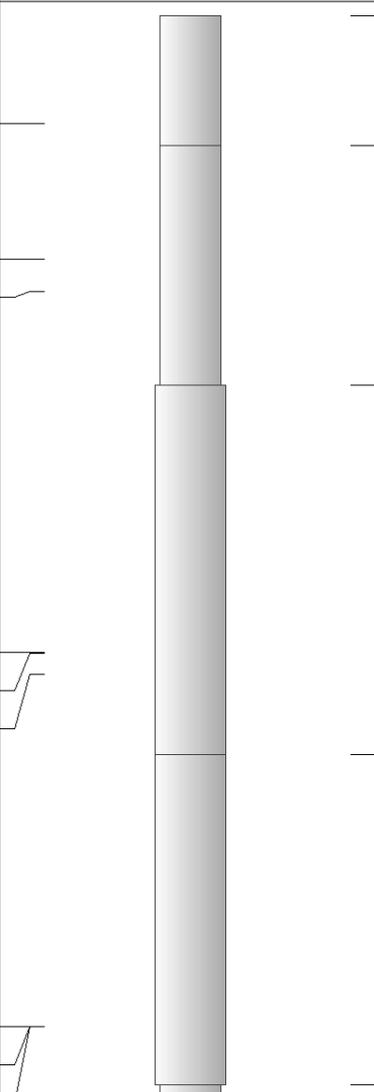
Log Measured From: KELLY BUSHING 5 Ft. Above Permanent Datum

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

Your Pioneer Energy Services Crew Engineer: IAN MABB Operator: Operator: Operator:	This Log Record Was Witnessed By Primary Witness: LARRY NICHOLSON Secondary Witness: Secondary Witness: Secondary Witness:
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Top - Bottom

M	A	SZCOR	NPORSEL	FLUIDDEN g/cc	MATRXDEN g/cc	SPSHIFT mV	SNDERRM mmho/m
2	1	Off	Limestone	1	2.71	-45	2
SNDERR mmho/m	SRFTEMP degF	CASETHCK in	CASEOD in	PERFS	TDEPTH ft	BOTTEMP degF	BOREID in
0	85	0	5.5	0	3823	114	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 (797-152)	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					

CILD 8.00

CILM 4.70

SP 0.20

DIL-PSI HIGH TEMP (933 (HT))

18.50

3.50

220.00

Dataset: cobalt_energy_a_1_36.db: field/well/stackmel/pass3.1
 Total length: 43.08 ft
 Total weight: 685.00 lb
 O.D.: 4.00 in

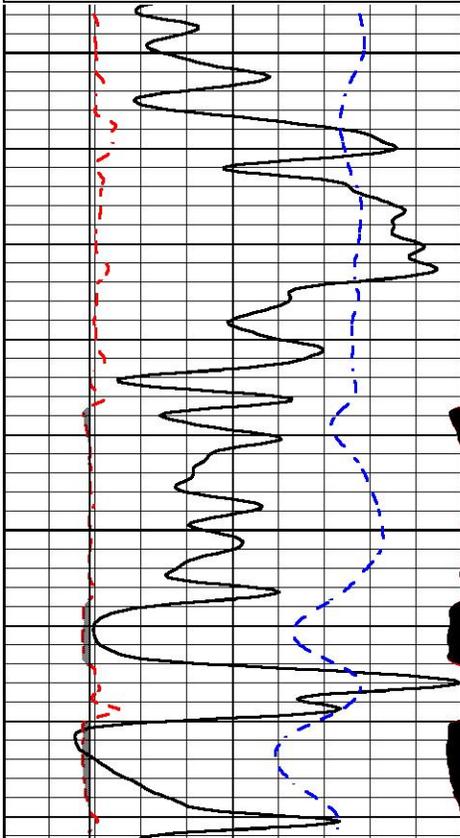


MAIN PASS

Database File cobalt_energy_a_1_36.db
 Dataset Pathname stackmel/pass3.1
 Presentation Format micro
 Dataset Creation Tue Jul 17 19:03:31 2018
 Charted by Depth in Feet scaled 1:240

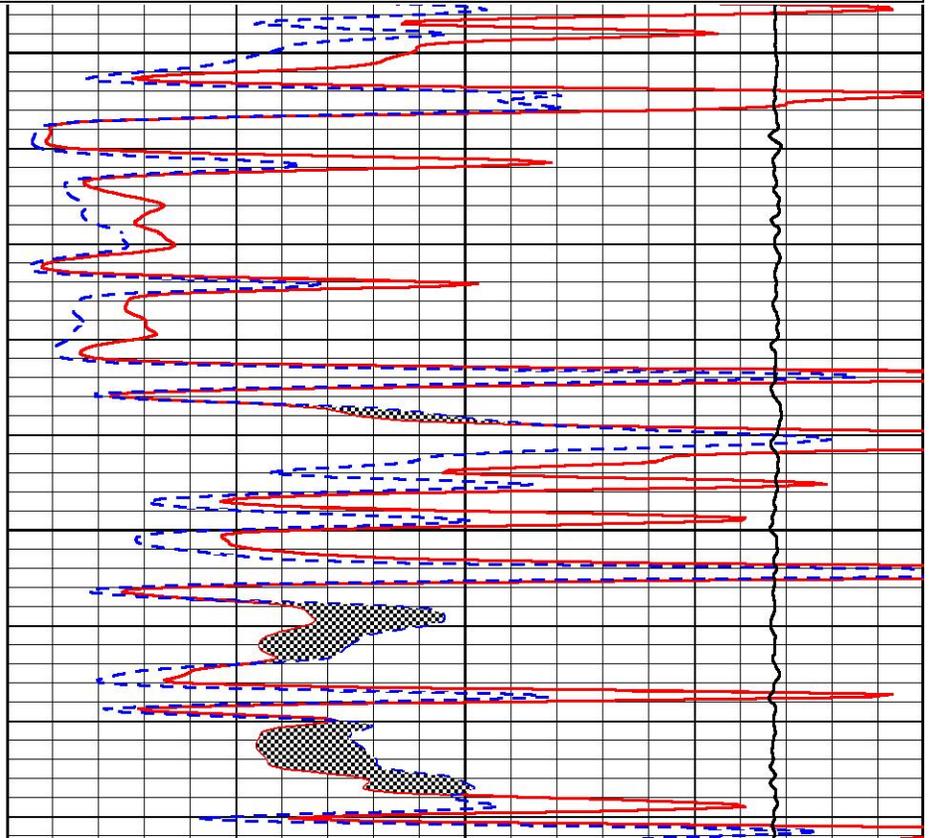
0	GAMMA RAY (GAPI)	150
6	MCAL (in)	16
2.875	mcals (in)	7.875
6	Bit Size (in)	16
-200	SP (mV)	0

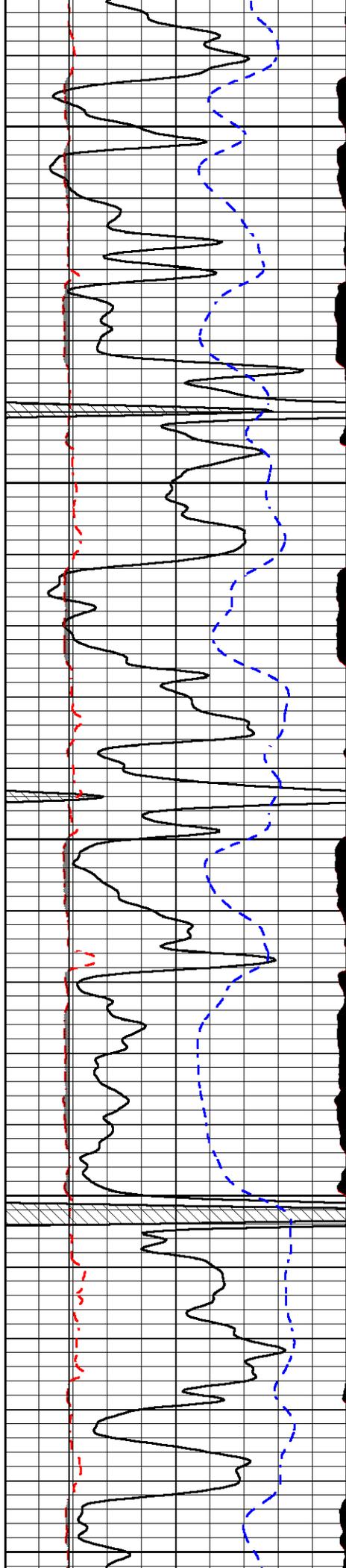
0	MICRO INVERSE 1 X 1 (Ohm-m)	40
0	MICRO NORMAL 2" (Ohm-m)	40
10000	Line Weight (lb)	0



3100

3150





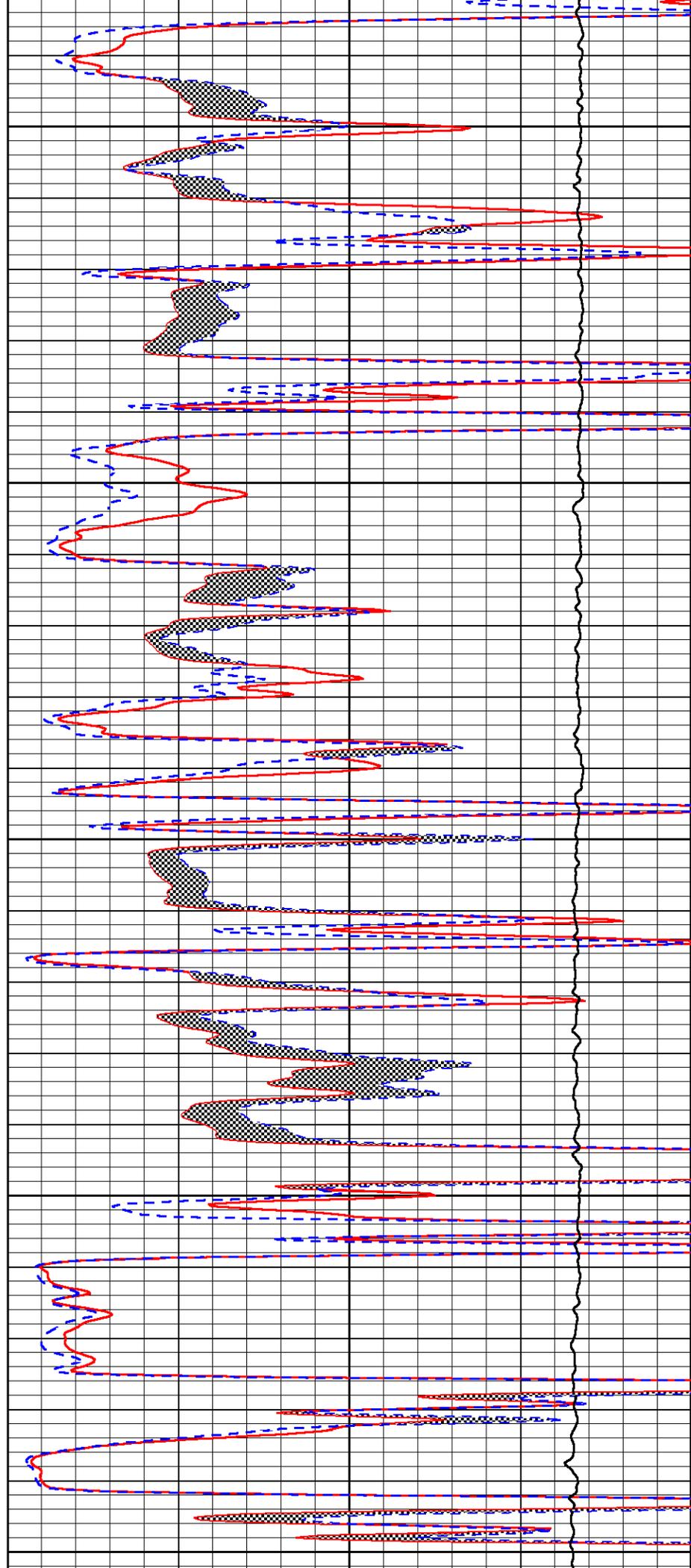
3200

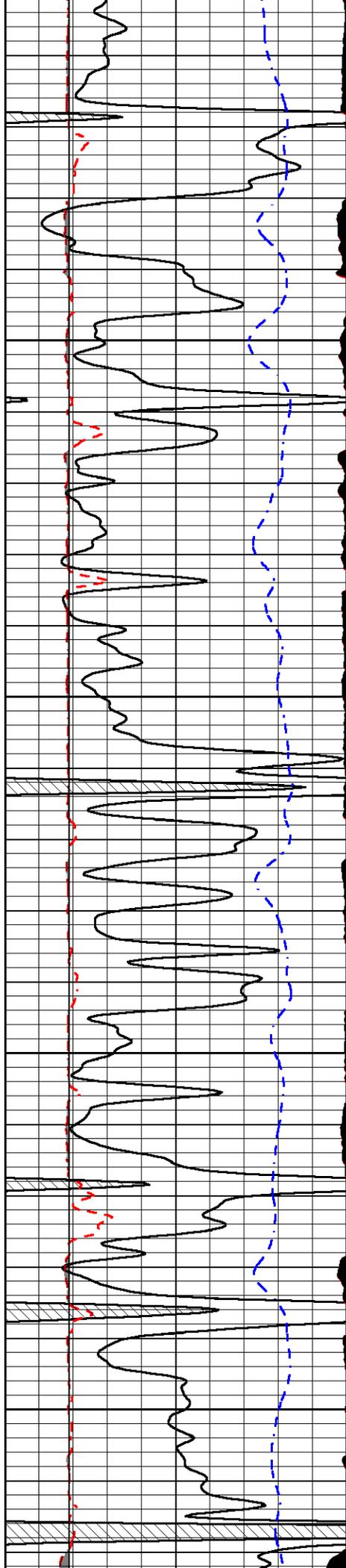
3250

3300

3350

3400



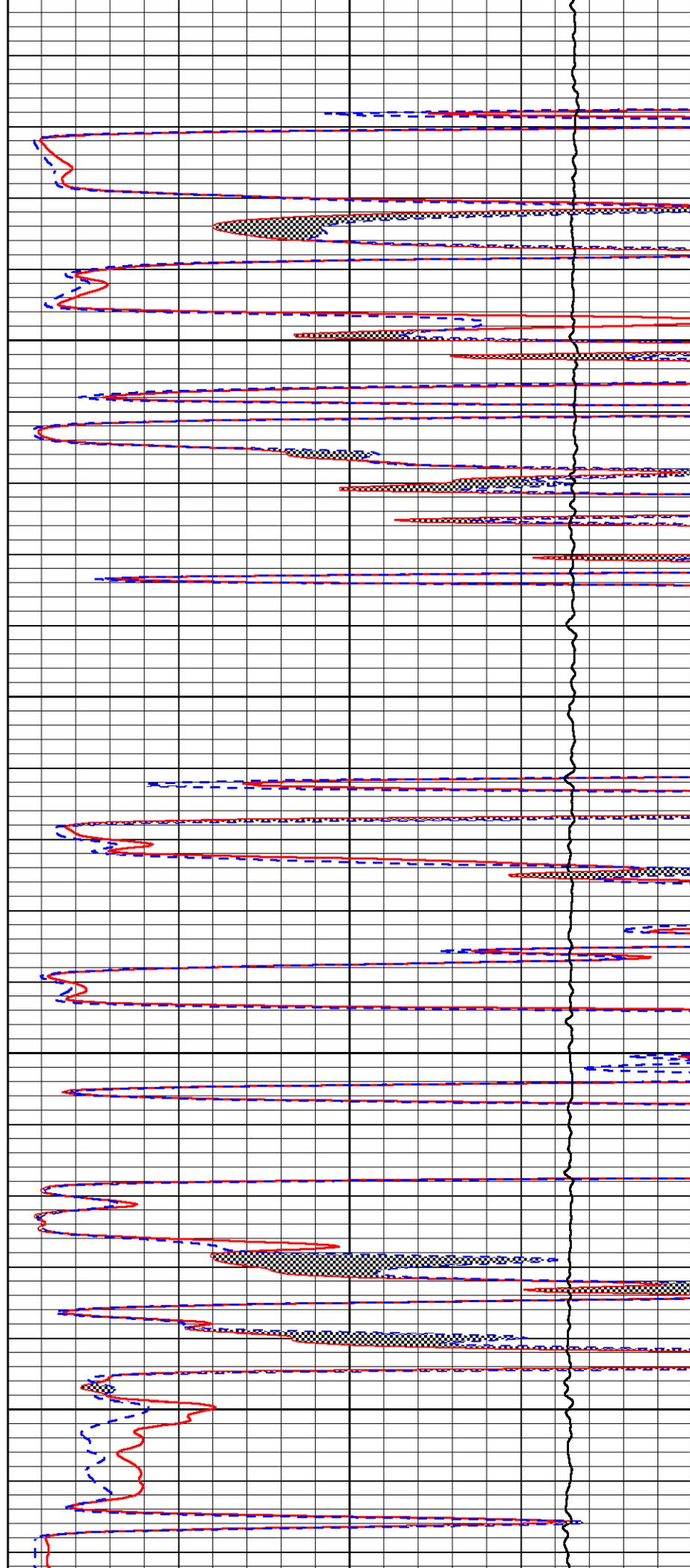


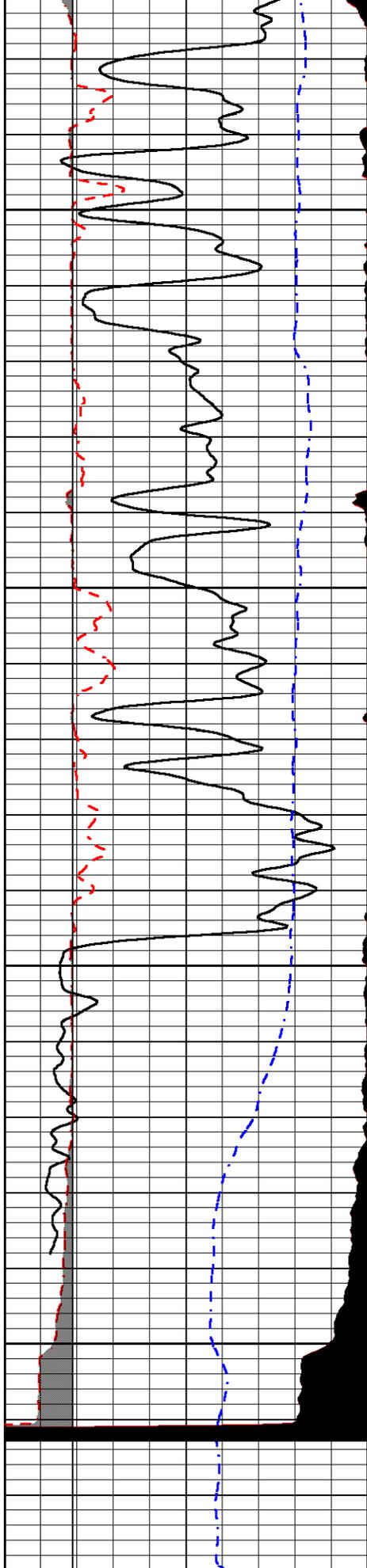
3450

3500

3550

3600





3650

3700

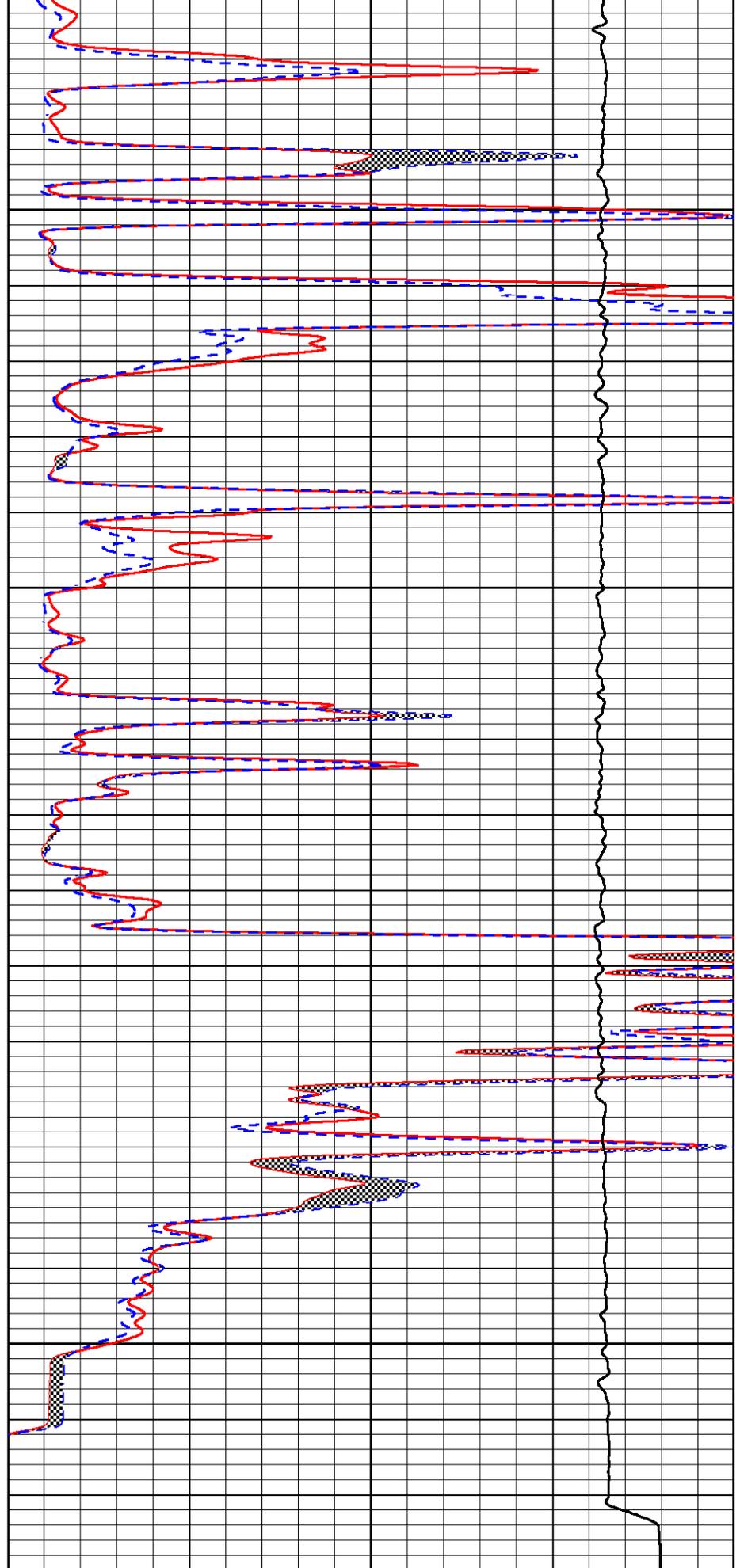
3750

3800

0 GAMMA RAY (GAPI) 150

6 MCAL (in) 16

2.875 mcal (in) 7.875



0 MICRO INVERSE 1 X 1 (Ohm-m) 40

0 MICRO NORMAL 2" (Ohm-m) 40

10000 Line Weight (lb) 0

2.875	mcAl (in)	7.875
6	Bit Size (in)	16
-200	SP (mV)	0

10000	Line Weight (lb)	0
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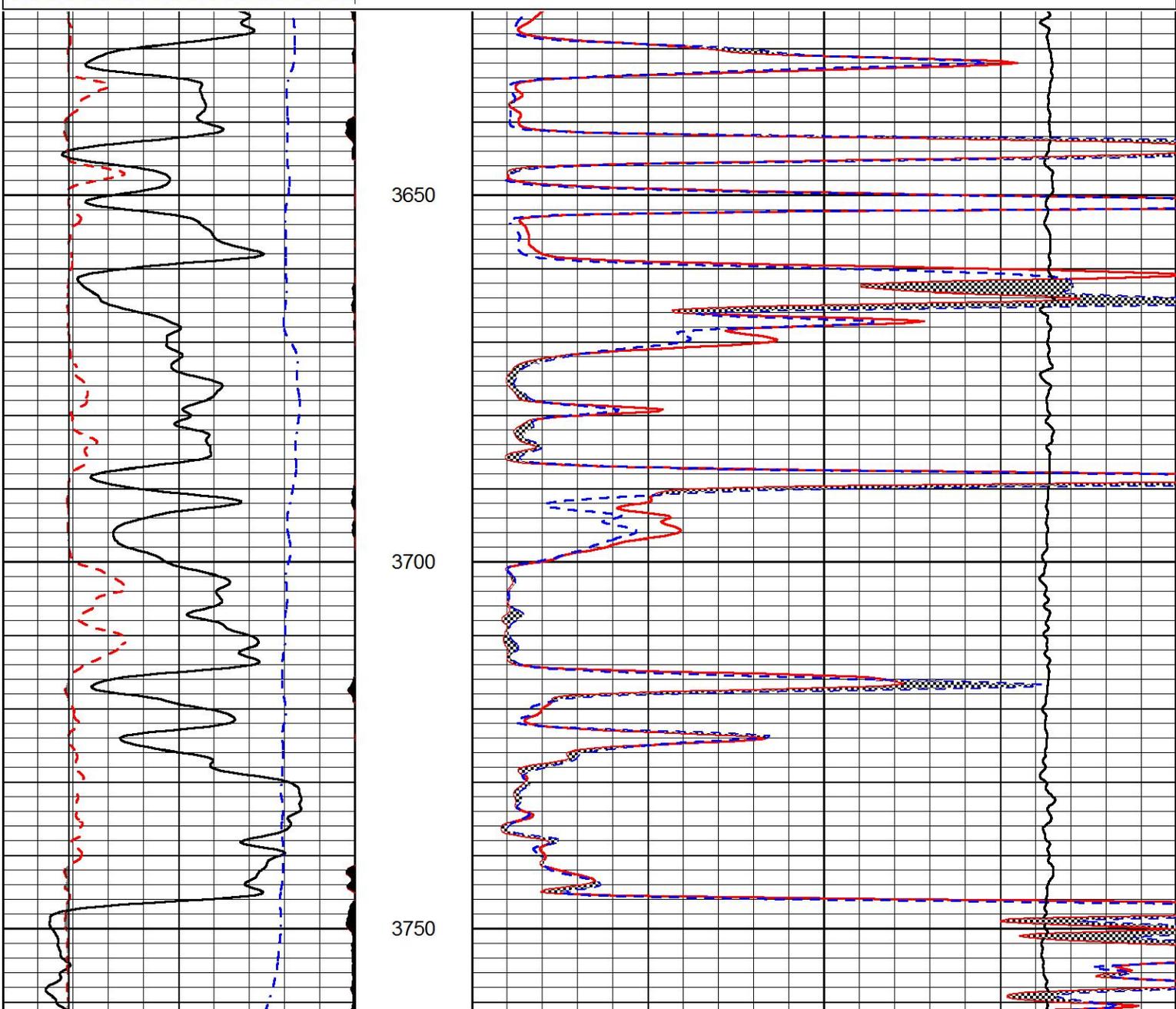


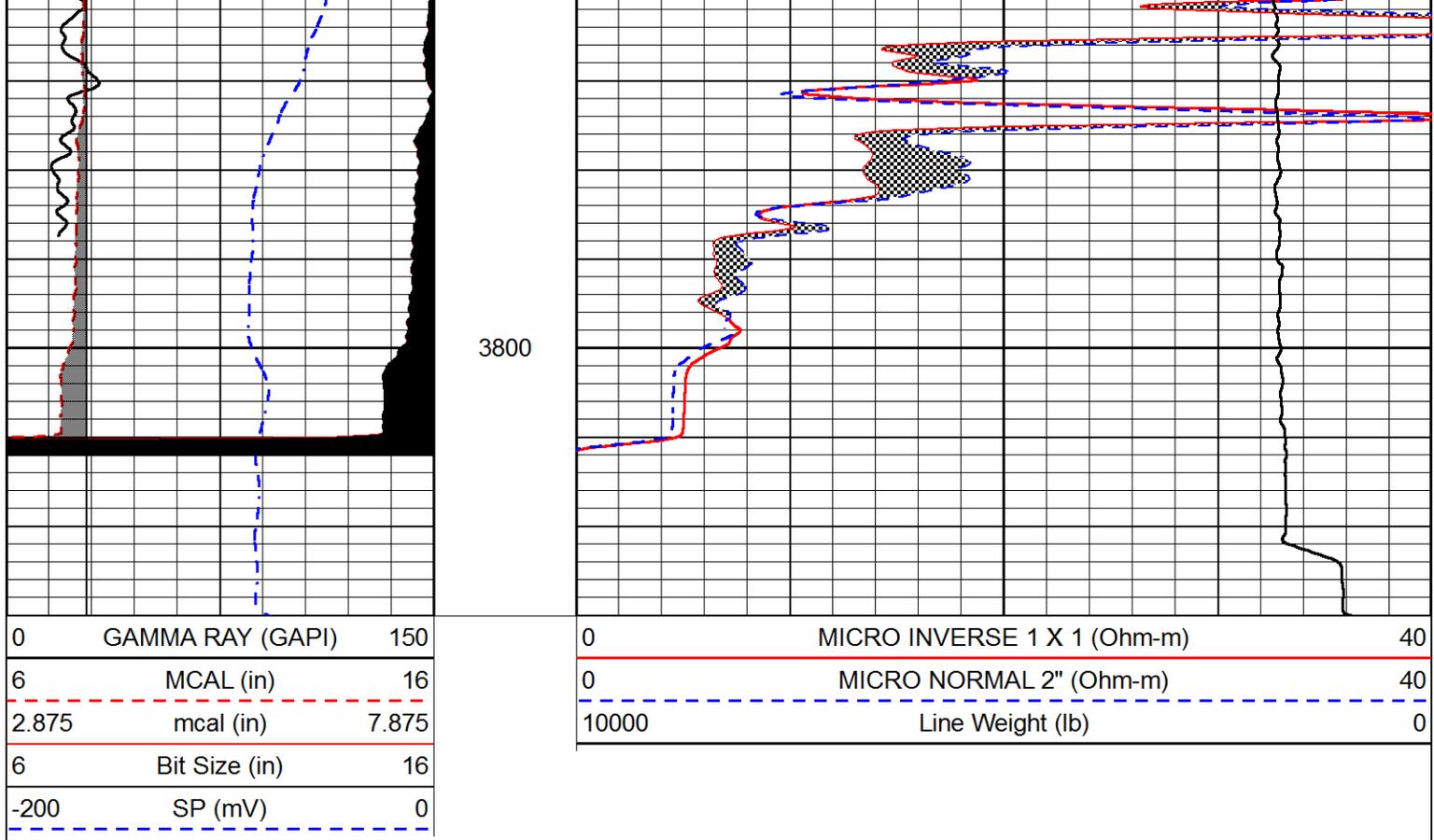
REPEAT SECTION

Database File	cobalt_energy_a_1_36.db
Dataset Pathname	stackmel/pass2.1
Presentation Format	micro
Dataset Creation	Tue Jul 17 18:14:49 2018
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





Calibration Report

Database File cobalt_energy_a_1_36.db
 Dataset Pathname stackmel/pass3.1
 Dataset Creation Tue Jul 17 19:03:31 2018

Dual Induction Calibration Report

Serial-Model: 933 (HT)-PSI HIGH TEMP
 Calibration Performed: Sun Jul 15 05:36:29 2018

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	167.000	835.000	0.000	255.000	mmho/m	0.700	-17.000
Medium	142.000	1349.000	0.000	255.000	mmho/m	0.565	-60.500

Microlog Calibration Report

Serial-Model: PSI-01-PSIML
 Performed: Sun Jul 15 07:40:28 2018

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	24000.0000	-0.8000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	30000.0000	-0.6000
Caliper	1.0001	1.1397	6.5000	18.5000	in	70.0000	-65.8500

Compensated Density Calibration Report

Serial-Model: 797-152-M&W
 Source / Verifier: 16955B / 2cj

Master Calibration

	<u>Density</u>		<u>Far Detector</u>	<u>Near Detector</u>	
Magnesium	1.755	g/cc	4933.40	5500.86	cps
Aluminum	2.650	g/cc	928.80	3521.29	cps
Spine Angle = 75.04			Density/Spine Ratio = 0.518		
	<u>Size</u>		<u>Reading</u>		
Small Ring	4.50	in	1.09		
Large Ring	15.00	in	1.03		

Compensated Neutron Calibration Report

Serial Number: 207-MW
 Tool Model: M&W
 Calibration Performed: SUN JUL 15 10:30:30 2018

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: Sun Jul 15 05:37:08 2018

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps
 Calibrator Reading: 1.0 cps

Sensitivity: 0.6000 GAPI/cps



PIONEER
 Pioneer Energy Services

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