



PIONEER
Pioneer Energy Services

MICRORESISTIVITY LOG

Company HERTEL OIL COMPANY LLC
Well REICHERT #1
Field REICHERT
County ELLIS
State KANSAS

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Well REICHERT #1
Field REICHERT
County ELLIS State KANSAS

Location: API #: 15-051-26912-00-00

Other Services

1700' FNL & 450' FEL
SEC 9 TWP 15S RGE 19W

Permanent Datum GROUND LEVEL Elevation 2038'
Log Measured From KELLY BUSHING
Drilling Measured From KELLY BUSHING

Elevation
K.B. 2046'
D.F. N/A
G.L. 2038'

Date 05/22/2018

Run Number ONE

Depth Driller 3717'

Depth Logger 3720'

Bottom Logged Interval 3719'

Top Log Interval 2900'

Casing Driller 8.625" @ 220'

Casing Logger 219'

Bit Size 7.875"

Type Fluid in Hole CHEMICAL

Salinity, ppm CL 5000

Density / Viscosity 9.4 60

pH / Fluid Loss 10.5 6.4

Source of Sample FLOWLINE

Rm @ Meas. Temp 0.30 @ 71

Rmf @ Meas. Temp 0.23 @ 71

Rmc @ Meas. Temp 0.41 @ 71

Source of Rmf / Rmc CHARTS

Rm @ BHT 0.19 @ 113

Operating Rig Time 3 HOURS

Max Rec. Temp. F 113

Equipment Number 91

Location HAYS

Recorded By C. PFEIFER

Witnessed By HERB DEINES

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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.

HAYS, KANSAS
240TH AVE. SOUTH TO ANTONINO ROAD,
WEST TO YOCEMENTO ROAD, 1 1/2 SOUTH,
WEST INTO

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

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

Your Pioneer Energy Services Crew

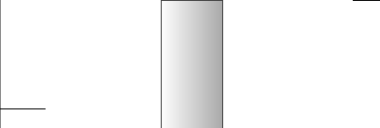
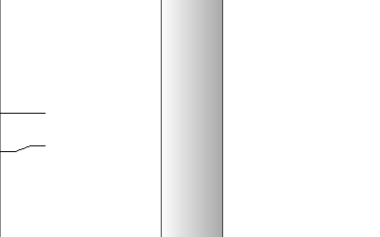
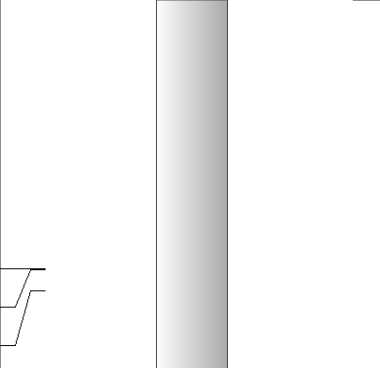
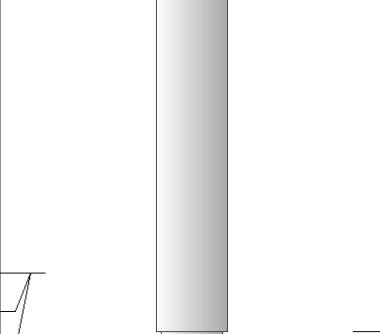
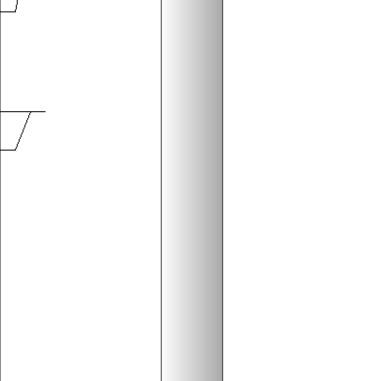
Engineer: C. PFEIFER
Operator:
Operator:
Operator:

This Log Record Was Witnessed By

Primary Witness: HERB DEINES
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	-28	0
SNDERR mmho/m	SRFTEMP degF	CASETHCK in	CASEOD in	PERFS	TDEPTH ft	BOTTEMP degF	BOREID in
0	88	0	5.5	0	3720	113	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 (817-947)	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					

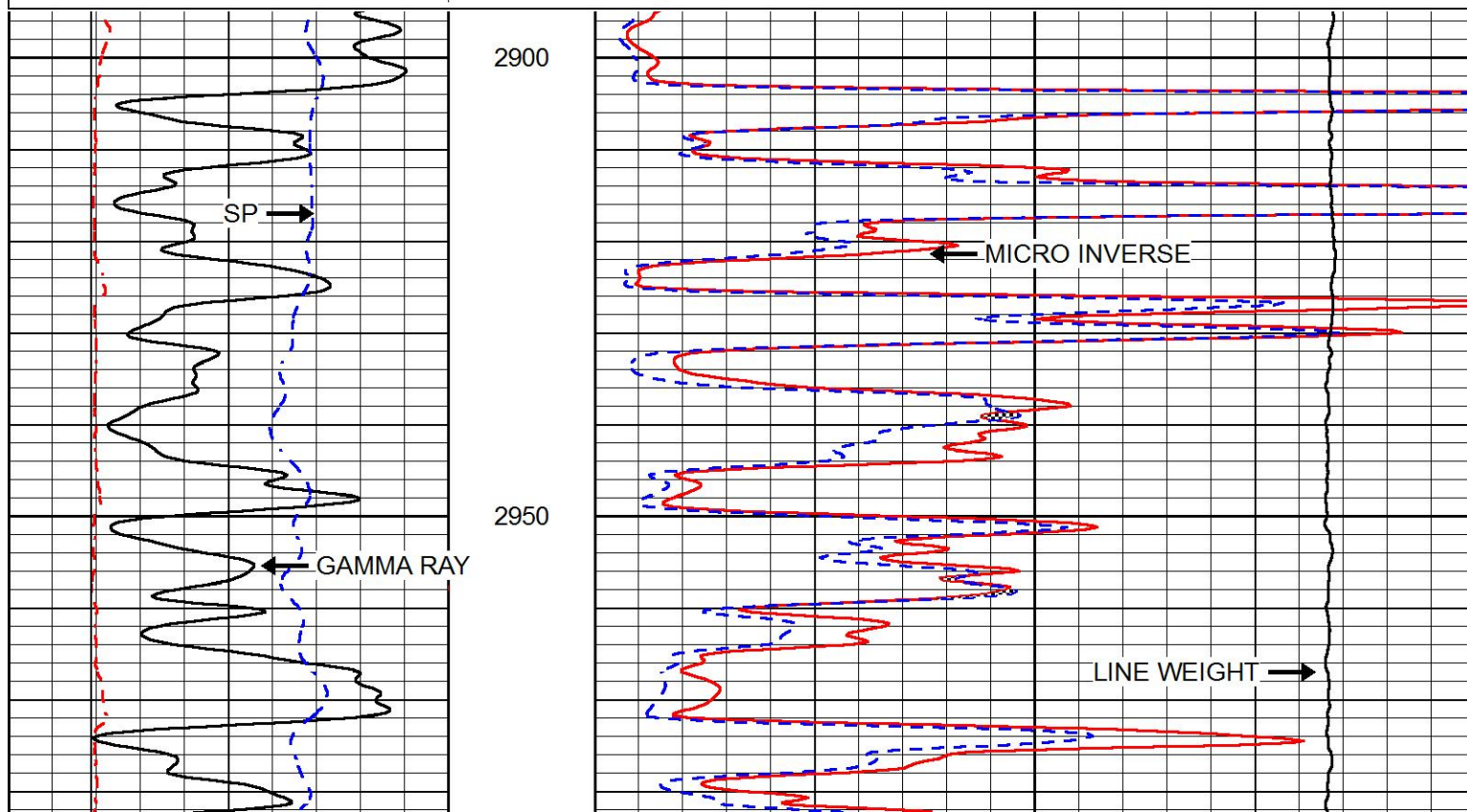
		DIL-PSI HIGH TEMP (PSI 971 HT)		18.50	3.50	220.00
CILD	8.00					
CILM	4.70					
SP	0.20					
Dataset: herteloilco_reichert_1.db: field/well/STKML/pass3.1 Total length: 43.08 ft Total weight: 685.00 lb O.D.: 4.00 in						

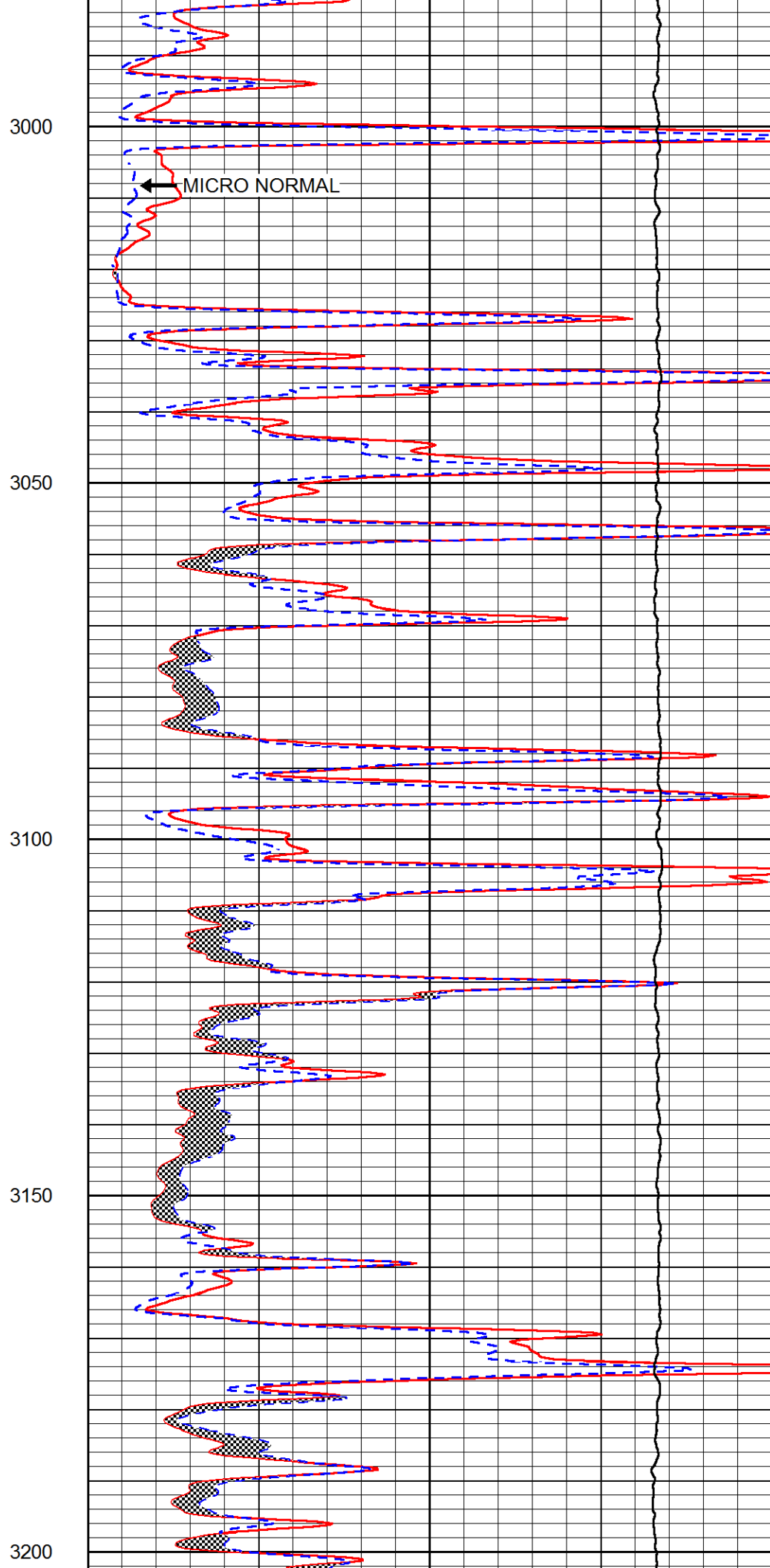
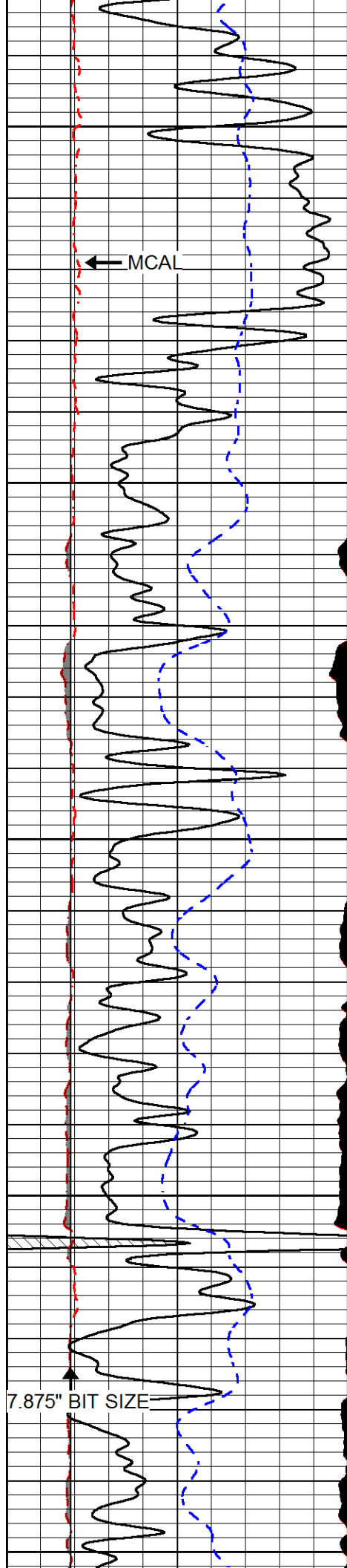


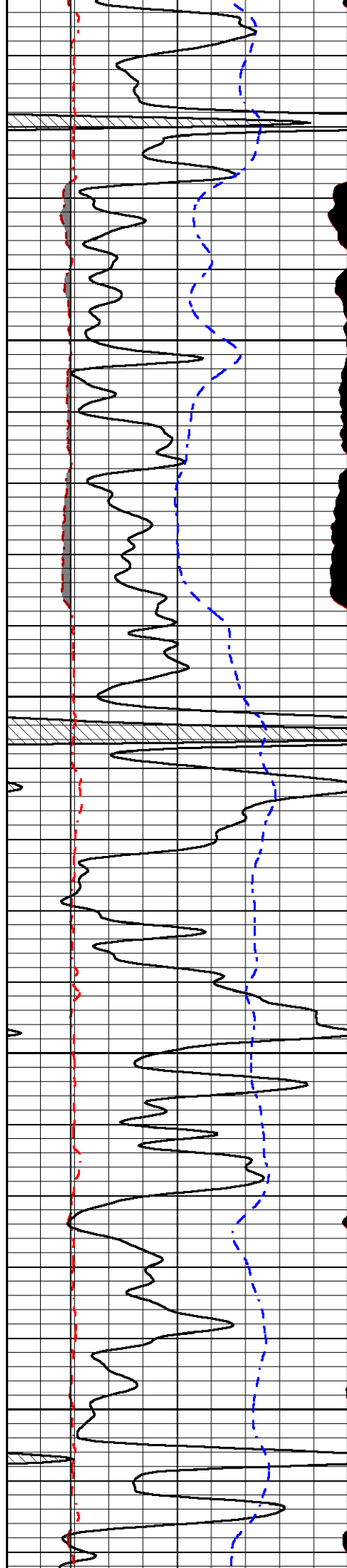
MAIN PASS

Database File	herteloilco_reichert_1.db
Dataset Pathname	STKML/pass3.1
Presentation Format	micro
Dataset Creation	Tue May 22 17:22:30 2018
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			





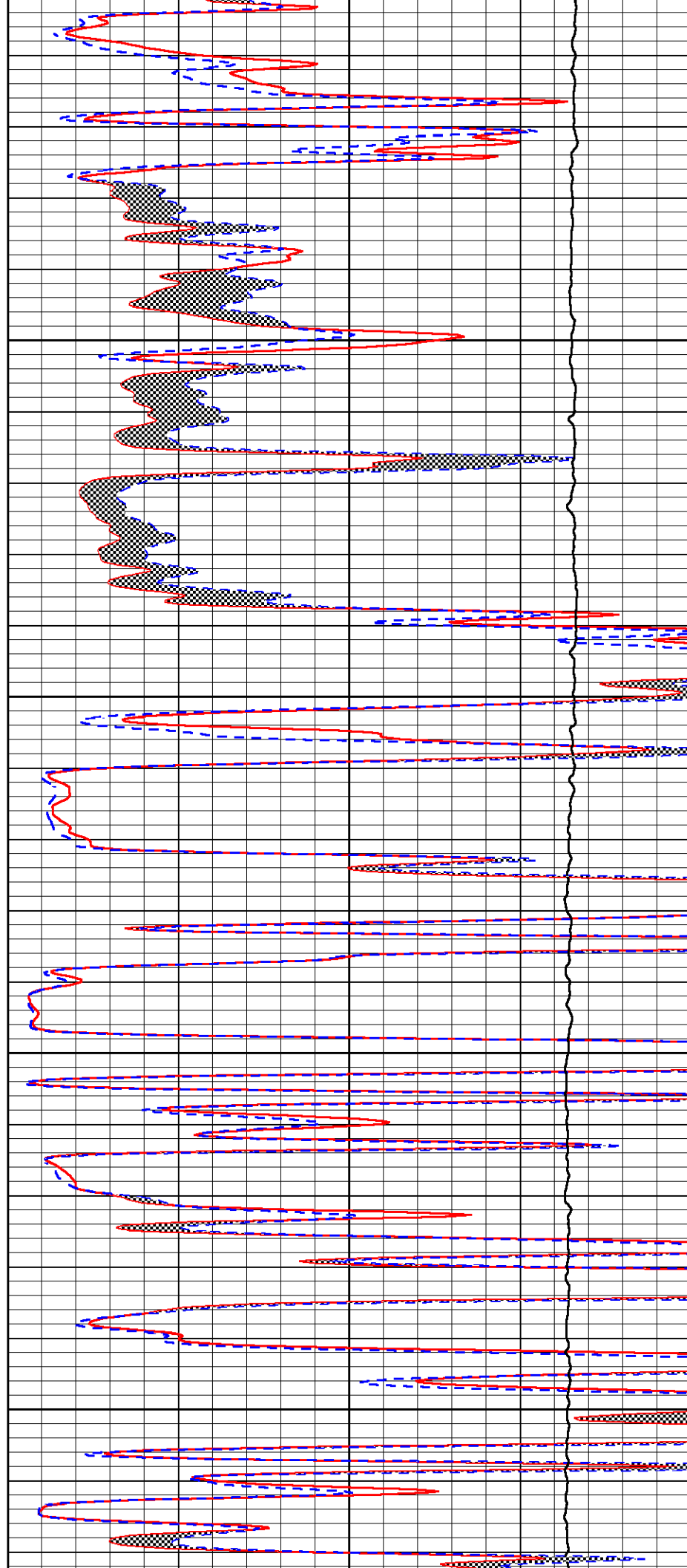


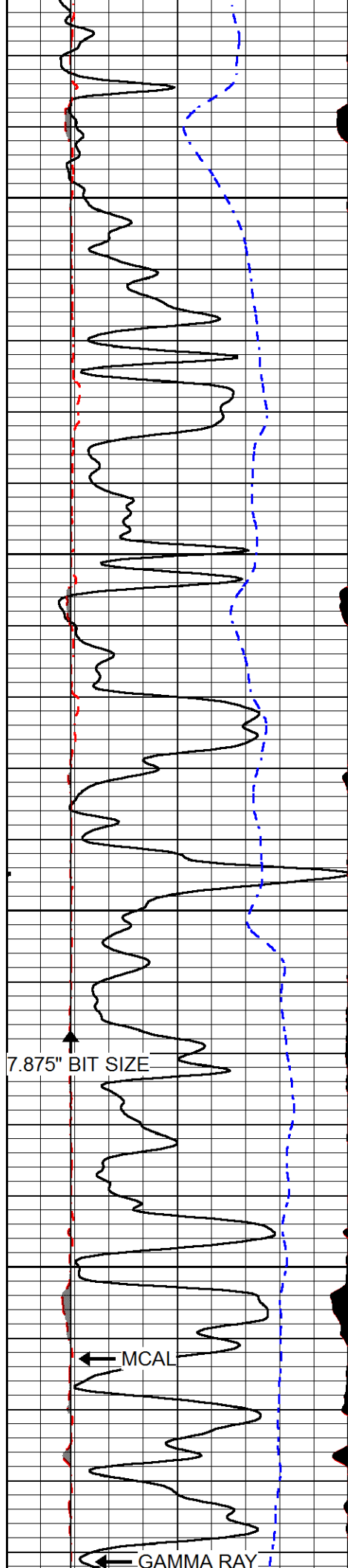
3250

3300

3350

3400



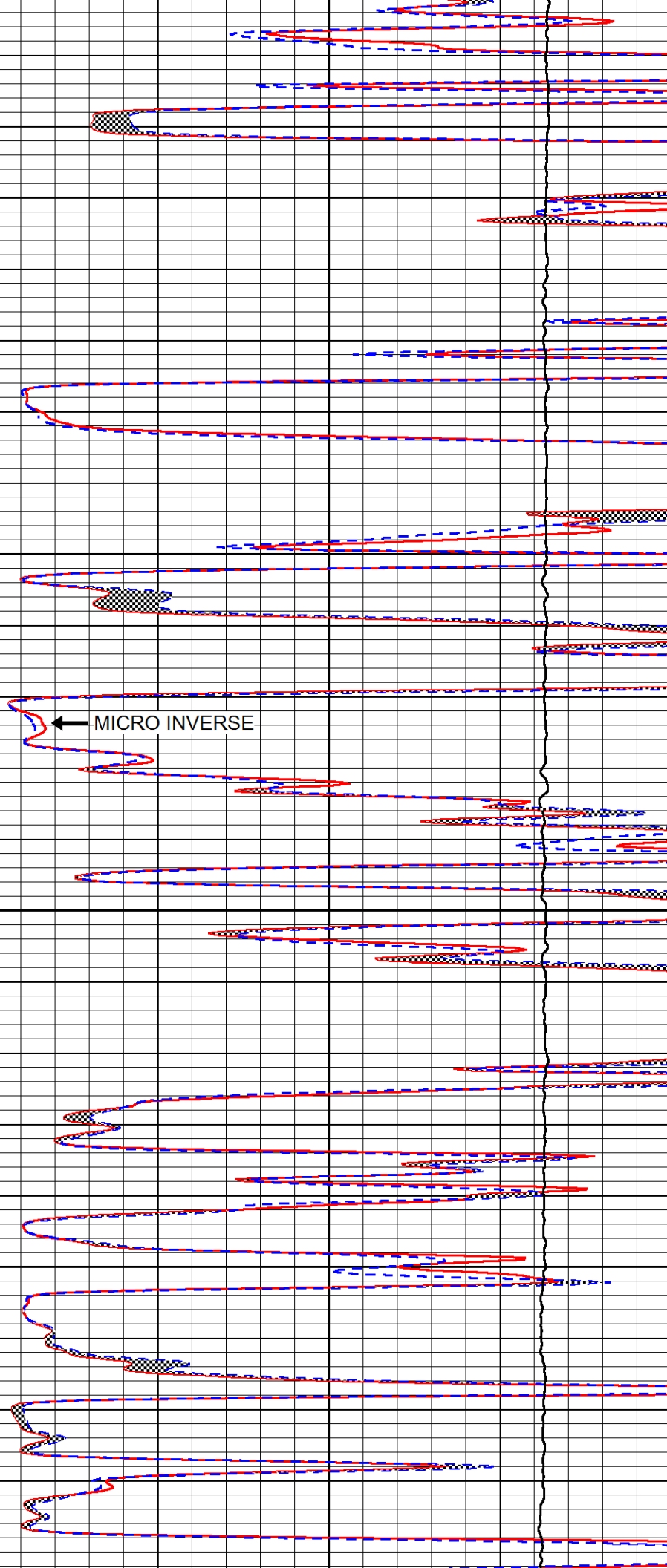


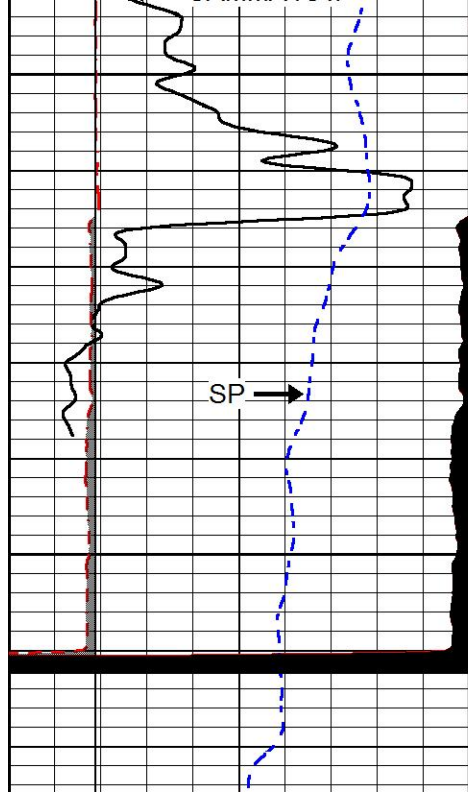
3450

3500

3550

3600

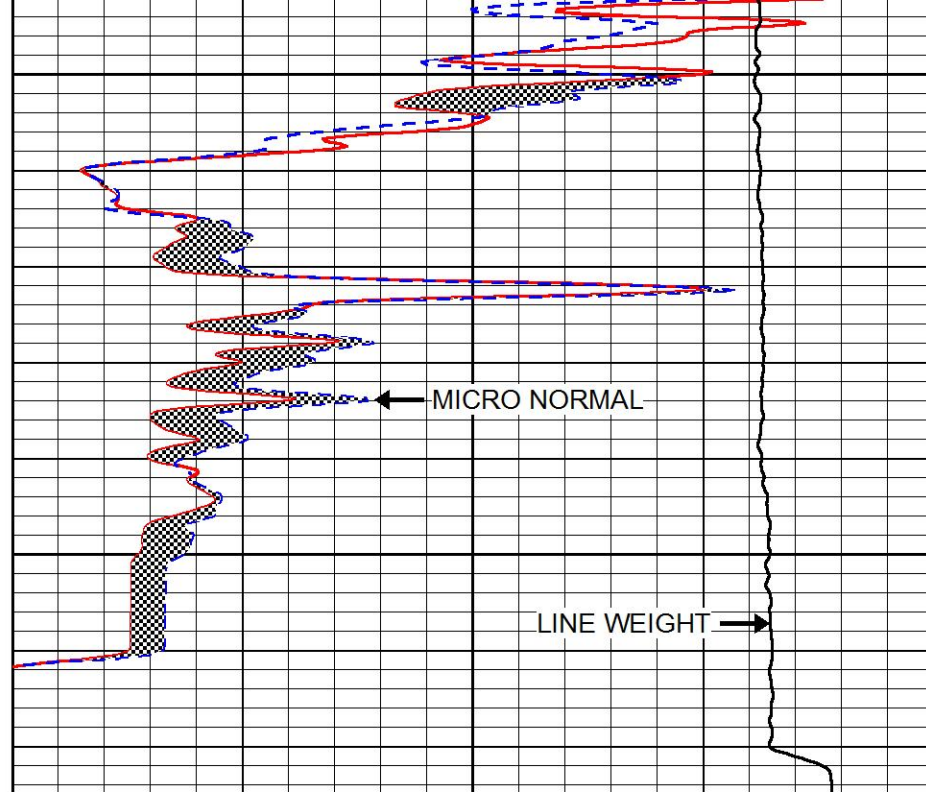




0	GAMMA RAY (GAPI)	150
6	MCAL (in)	16
2.875	mcal (in)	7.875
6	Bit Size (in)	16
-200	SP (mV)	0

3650

3700



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

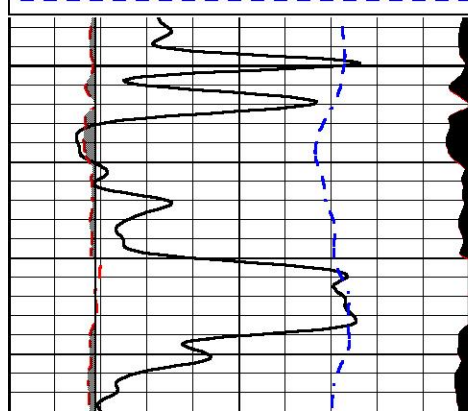


REPEAT SECTION

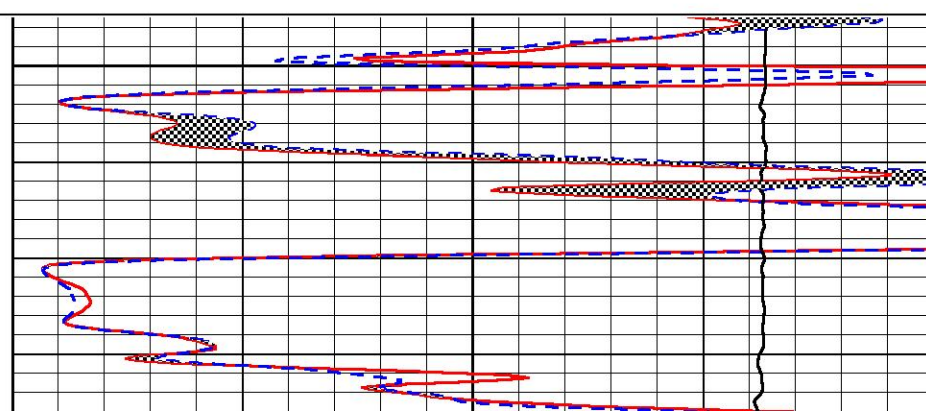
Database File herteloilco_reichert_1.db
 Dataset Pathname STKML/pass2.1
 Presentation Format micro
 Dataset Creation Tue May 22 17:28:28 2018
 Charted by Depth in Feet scaled 1:240

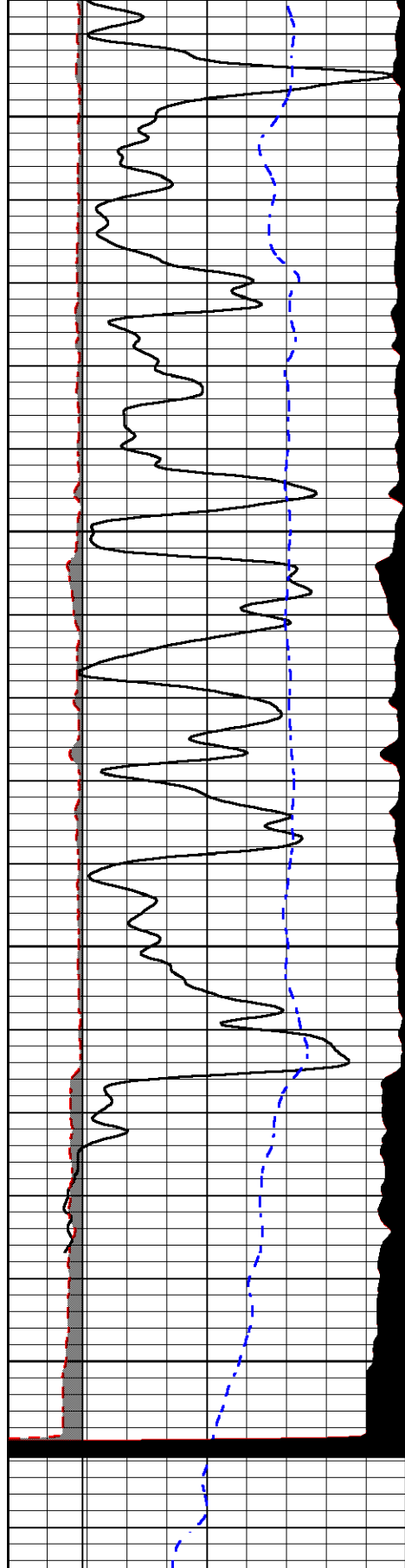
0	GAMMA RAY (GAPI)	150
6	MCAL (in)	16
2.875	mcal (in)	7.875
6	Bit Size (in)	16
-200	SP (mV)	0

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



3500





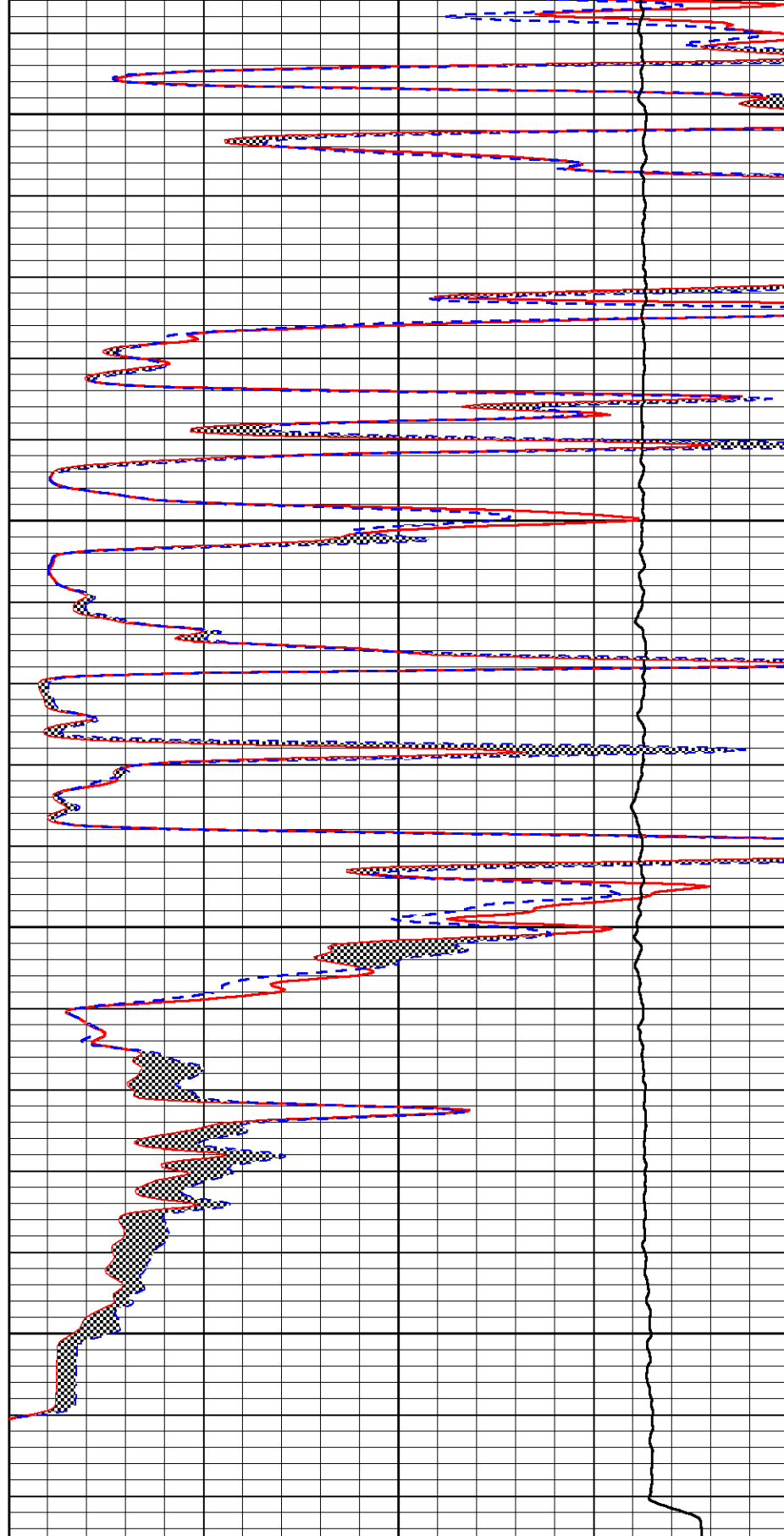
0	GAMMA RAY (GAPI)	150
6	MCAL (in)	16
2.875	mcal (in)	7.875
6	Bit Size (in)	16
-200	SP (mV)	0

3550

3600

3650

3700



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 herteloilco_reichert_1.db
 Dataset Pathname STKML/pass3.1
 Dataset Creation Tue May 22 17:22:30 2018

Dual Induction Calibration Report

Serial-Model: PSI 971 HT-PSI HIGH TEMP
 Calibration Performed: Tue May 22 14:26:24 2018

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	167.000	835.000	0.000	255.800	mmho/m	0.435	-30.000
Medium	0.000	1348.000	142.000	255.800	mmho/m	0.390	-32.000

Microlog Calibration Report

Serial-Model: PSI-01-PSIML
 Performed: Mon Apr 16 11:11:21 2018

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	29000.0000	-1.0000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	34000.0000	-0.6000
Caliper	1.0001	1.1397	6.5000	18.5000	in	70.0000	-65.9500

Compensated Density Calibration Report

Serial-Model: 817-947-M&W
 Source / Verifier: 16955B / 2ci
 Master Calibration Performed: Tue May 01 14:00:17 2018

Master Calibration

	Density			Far Detector	Near Detector
Magnesium	1.755	g/cc		6127.15	5922.31 cps
Aluminum	2.660	g/cc		1141.85	3762.09 cps
Spine Angle = 74.89			Density/Spine Ratio = 0.520		
	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: MON APR 16 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:	Mon Jan 15 11:20:44 2018	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.6000	GAPI/cps



Company	HERTEL OIL COMPANY LLC
Well	REICHERT #1
Field	REICHERT
County	ELLIS
State	KANSAS