



MICRORESISTIVITY LOG

Pioneer Energy Services

PIONEER

Company RICHLAND OIL INVESTMENTS, LLC
Well MICHAELIS #25-1
Field WILDCAT
County LOGAN
State KANSAS

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Well MICHAELIS #25-1
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County LOGAN
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Location: API #: 15-109-21541-00-00

653' FSL & 1913' FWL

SEC 25 TWP 11S RGE 33W

Permanent Datum GROUND LEVEL Elevation 3077'
Log Measured From KELLY BUSHING
Drilling Measured From KELLY BUSHING

Other Services
CNL/CDL
DIL
Elevation
K.B. 3087'
D.F. N/A
G.L. 3077'

Date	4/19/2018		
Run Number	ONE		
Depth Driller	4730'		
Depth Logger	4729'		
Bottom Logged Interval	4728'		
Top Log Interval	3700'		
Casing Driller	8.625" @ 226'		
Casing Logger	224'		
Bit Size	7.875"		
Type Fluid in Hole	CHEMICAL		
Salinity, ppm CL	4000		
Density / Viscosity	9.3 64		
pH / Fluid Loss	10.0 8.0		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	0.60 @ 50		
Rmt @ Meas. Temp	0.45 @ 50		
Rmc @ Meas. Temp	0.81 @ 50		
Source of Rmt / Rmc	CHARTS		
Rm @ BHT	0.24 @ 123		
Operating Rig Time	3 HOURS		
Max Rec. Temp. F	123		
Equipment Number	91		
Location	HAYS		
Recorded By	D. SCHMIDT		
Witnessed By	STEVE MURPHY		

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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.

OAKLEY (HWY 40 & 83),
4 WEST TO 400 RD, 4 SOUTH,
WEST INTO

Log Measured From: KELLY BUSHING

10 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: STEVE MURPHY

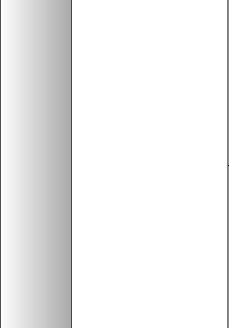
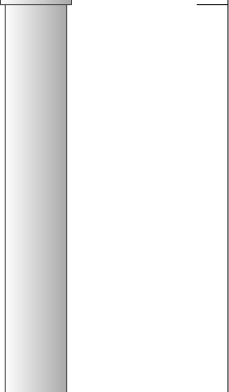
Secondary Witness:

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	-94	0
SNDERR mmho/m	SRFTEMP degF	CASETHCK in	CASEOD in	PERFS	TDEPTH ft	BOTTEMP degF	BOREID in
0	50	0	5.5	0	4729	123	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 (182-152)	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					

				DIL-PSI HIGH TEMP (933 (HT))	18.50	3.50	220.00
CILD	8.00						
CILM	4.70						
SP	0.20						
Dataset: richland_michaelis 25-1.db: field/well/STKML/pass3.1 Total length: 43.08 ft Total weight: 685.00 lb O.D.: 4.00 in							



PIONEER

Pioneer Energy Services

MAIN PASS

Database File

richland_michaelis 25-1.db

Dataset Pathname

STKML/pass3.1

Presentation Format

micro

Dataset Creation

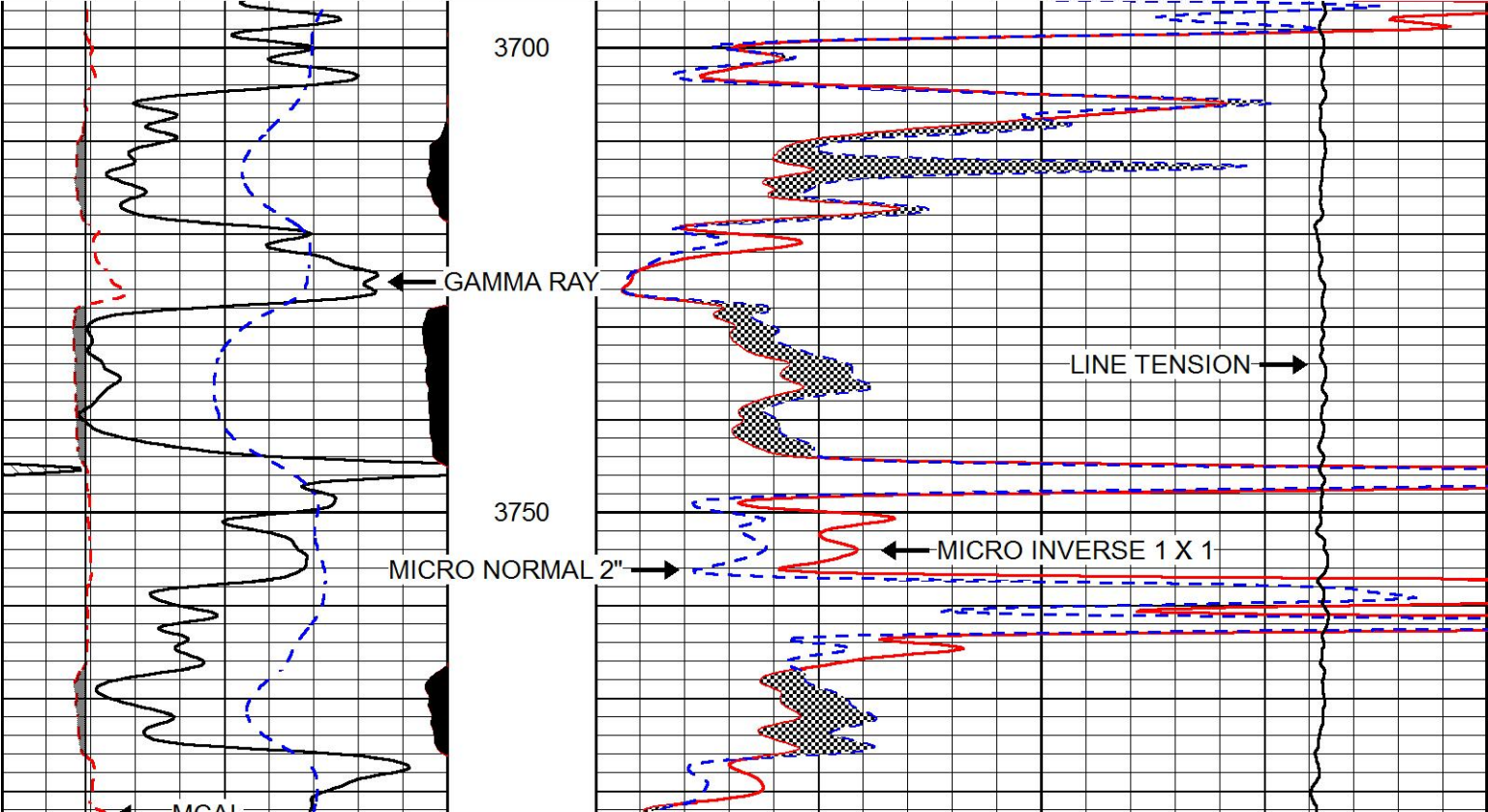
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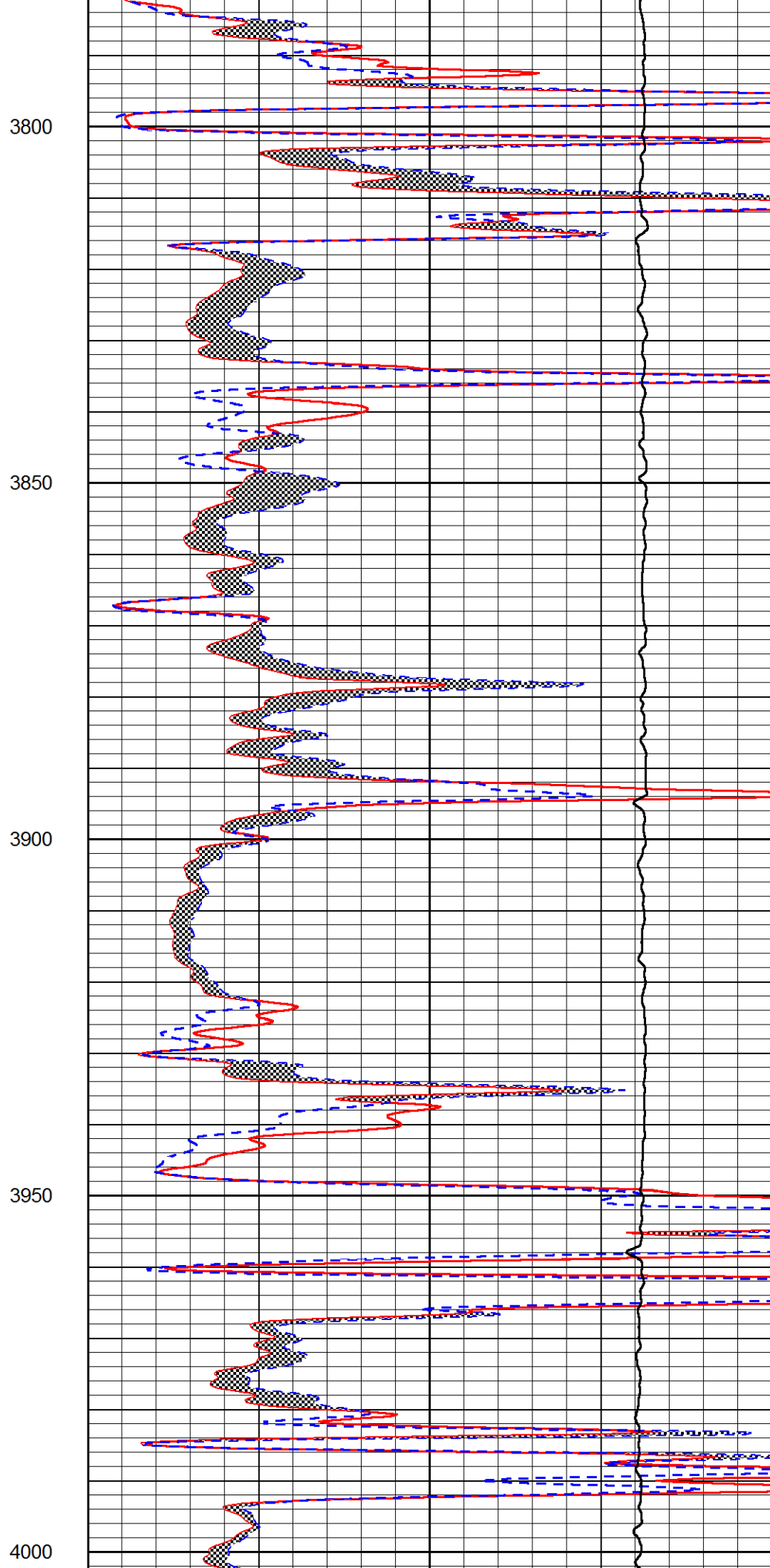
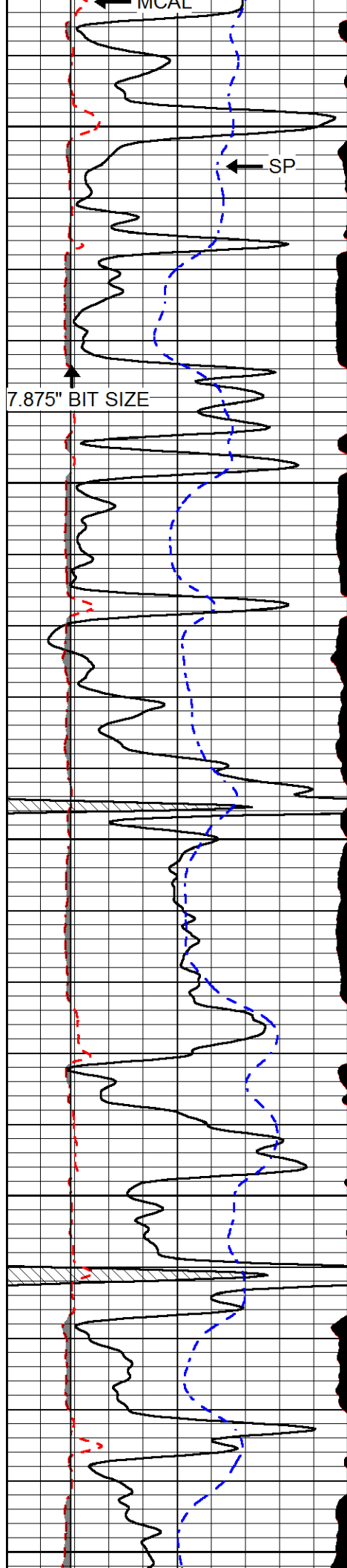
Charted by

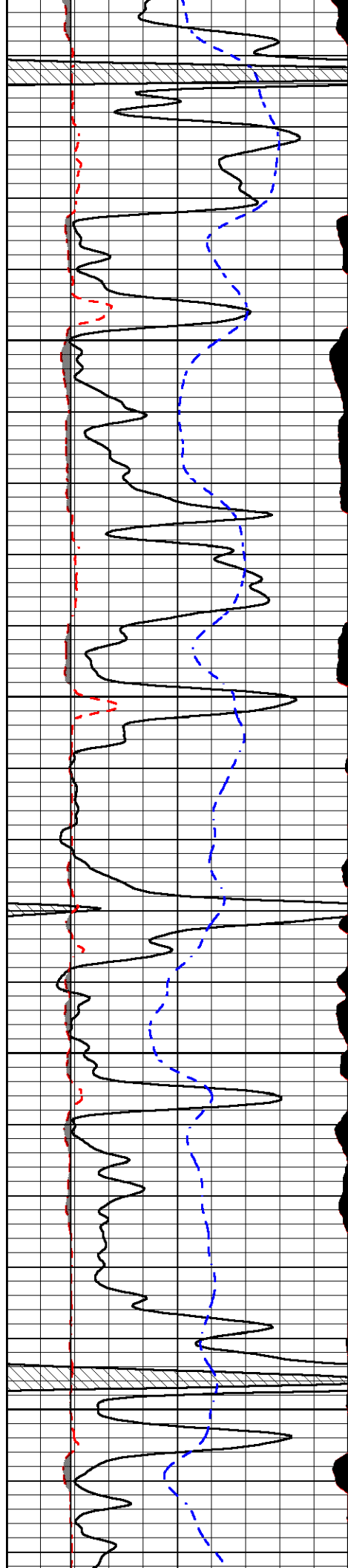
Depth in Feet scaled 1:240

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





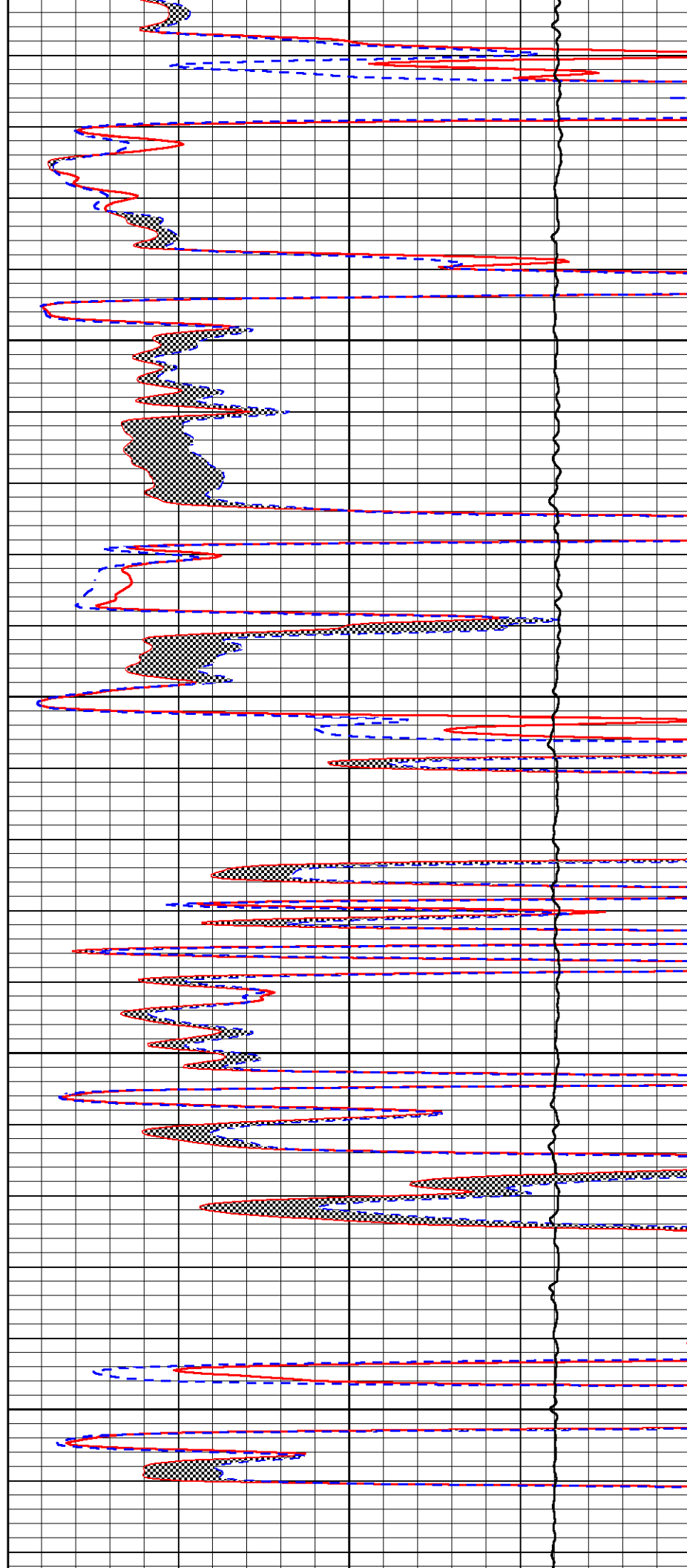


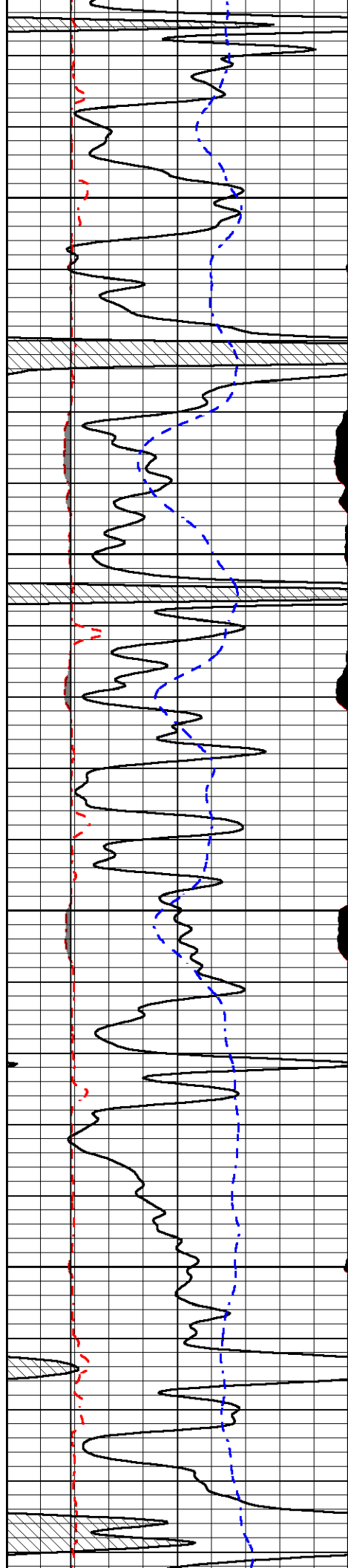
4050

4100

4150

4200



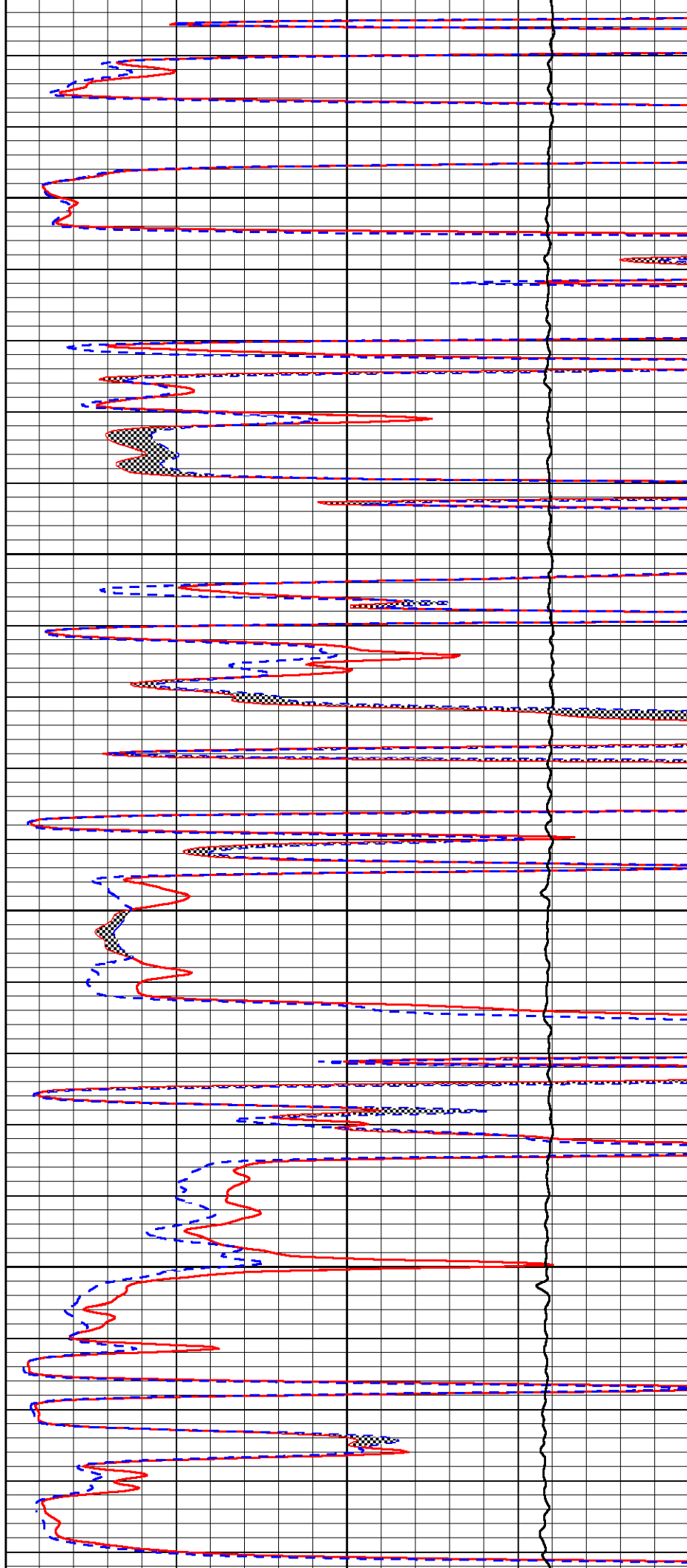


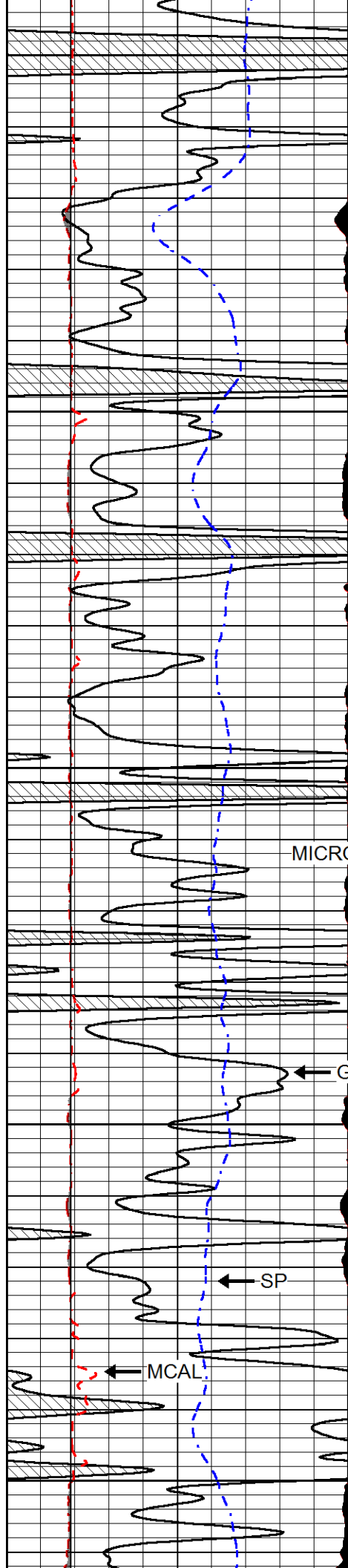
4250

4300

4350

4400





4450

4500

4550

MICRO NORMAL 2" →

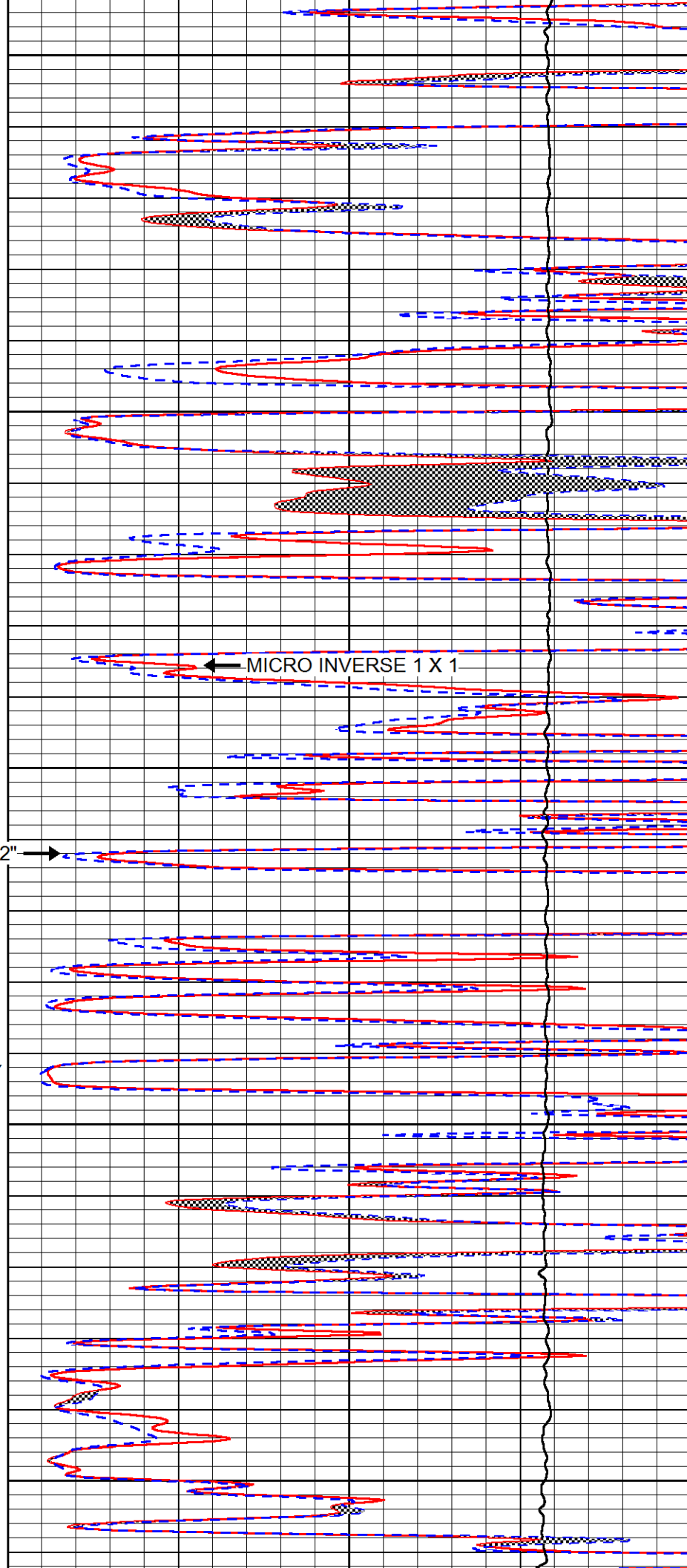
← GAMMA RAY

4600

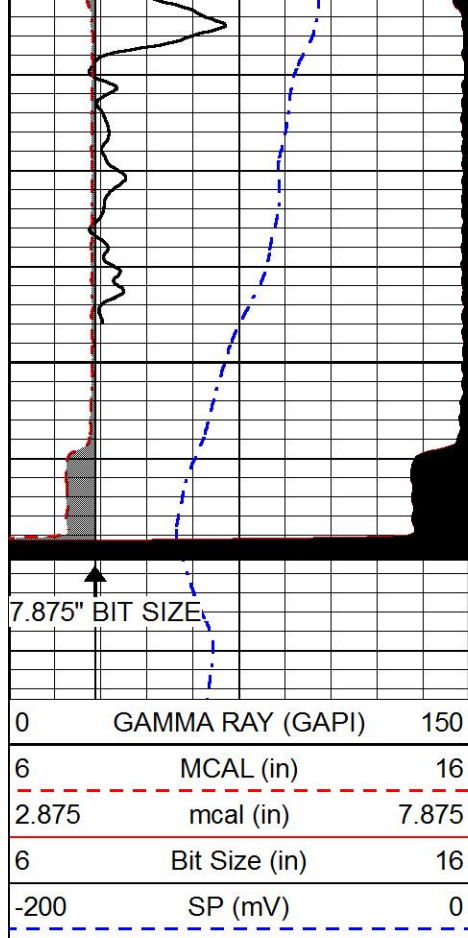
← SP

← MCAL

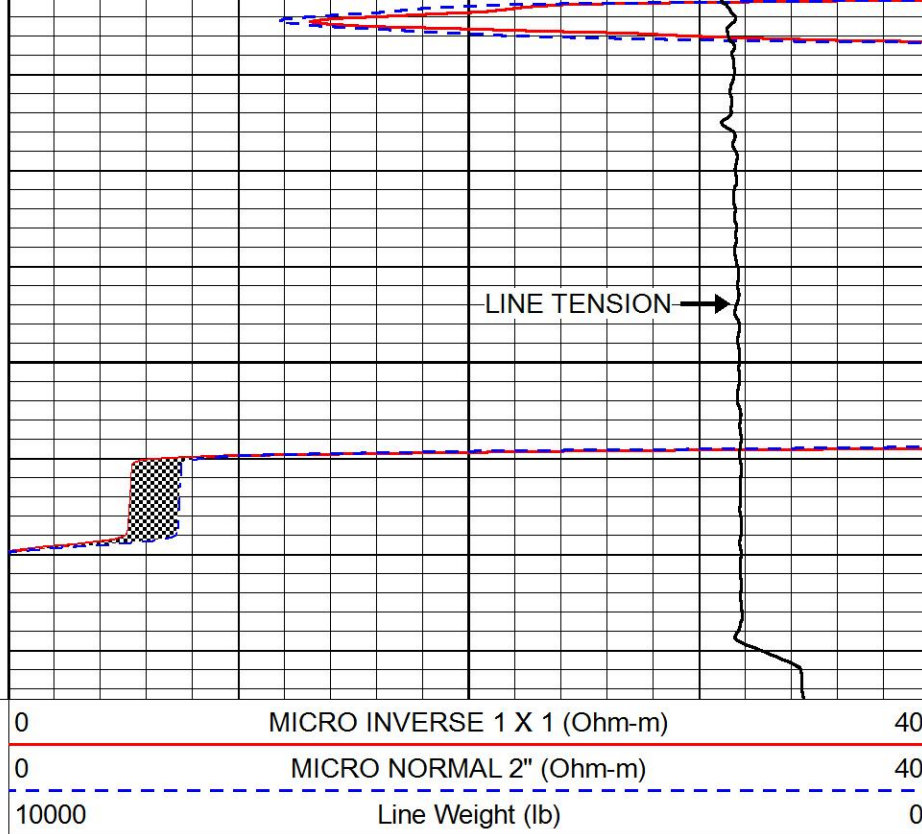
4650



← MICRO INVERSE 1 X 1

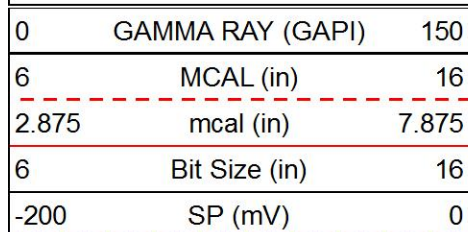


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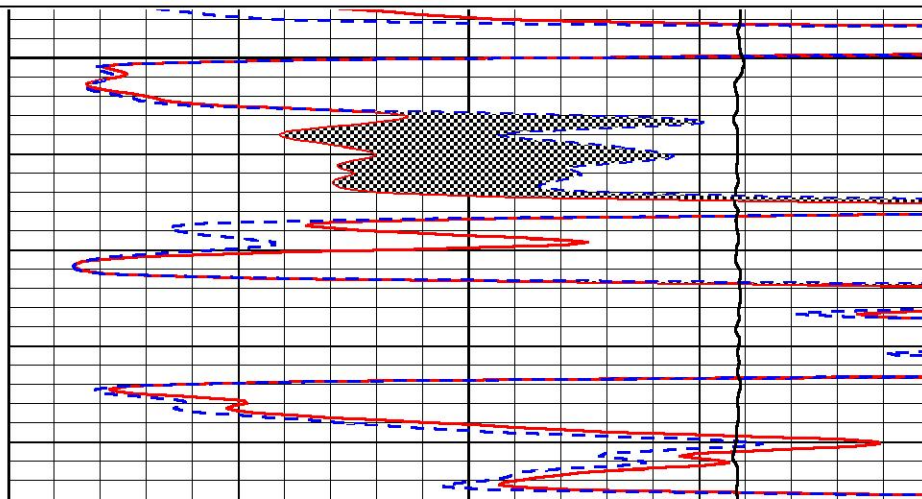
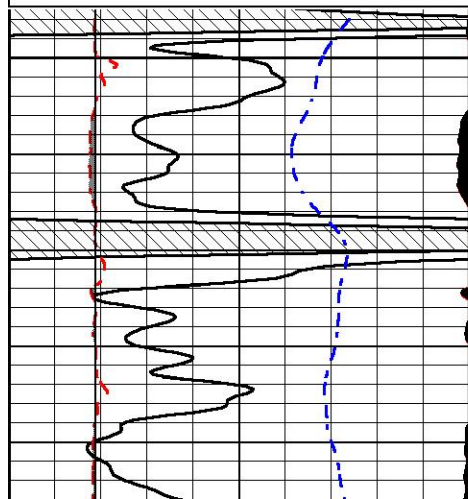
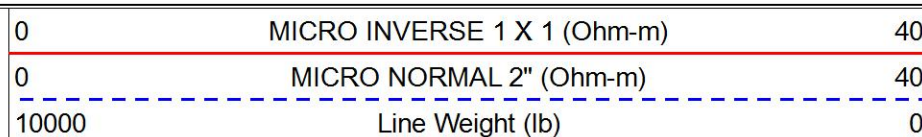


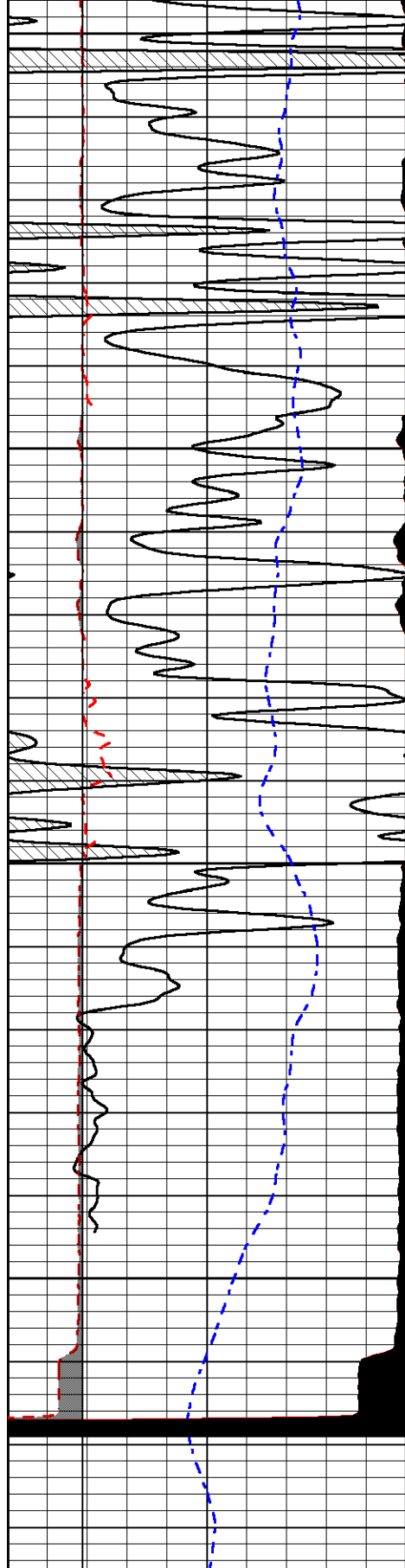
REPEAT SECTION

Database File richland_michaelis 25-1.db
 Dataset Pathname STKML/pass2.1
 Presentation Format micro
 Dataset Creation Thu Apr 19 04:42:57 2018
 Charted by Depth in Feet scaled 1:240



4500





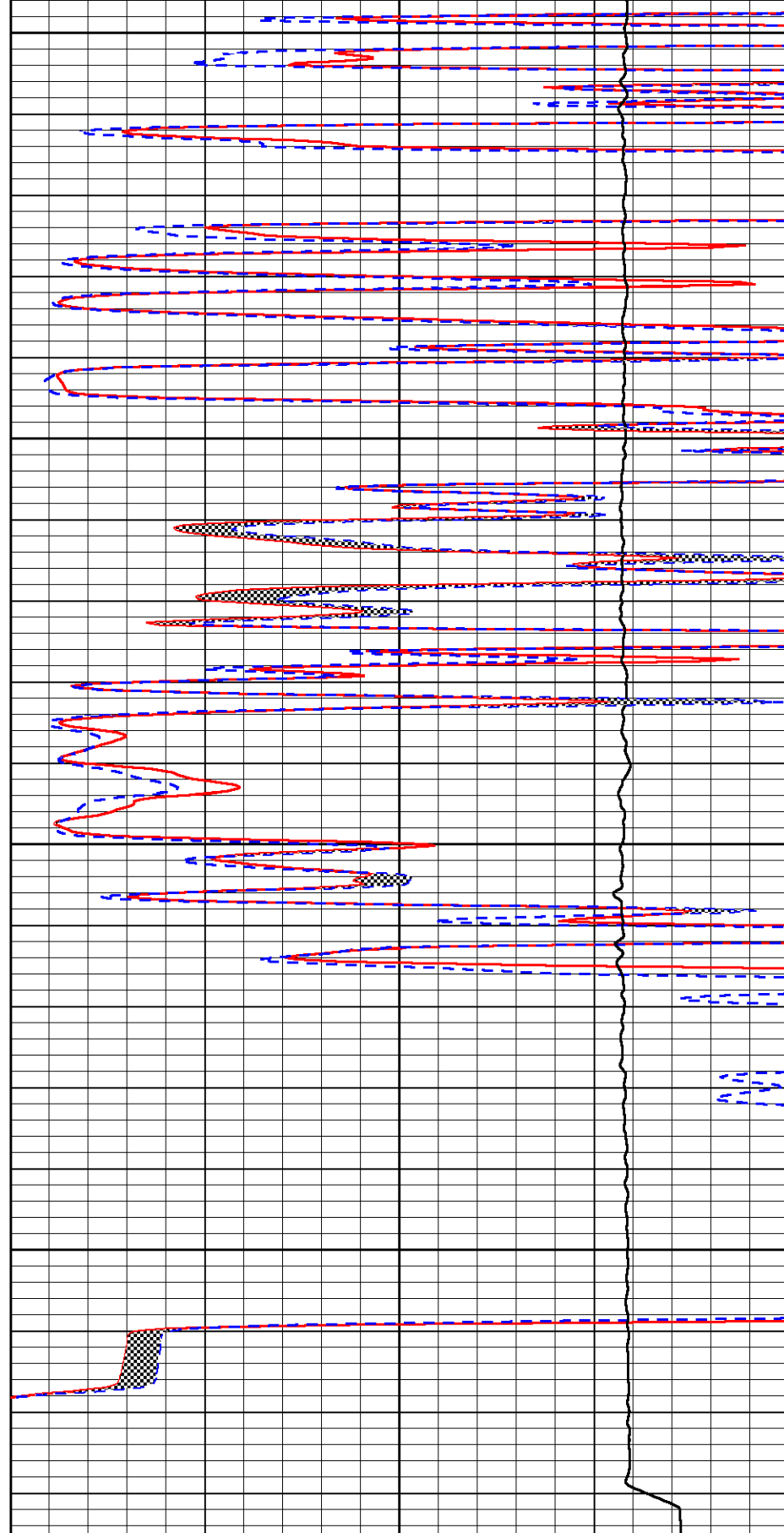
4550

4600

4650

4700

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 richland_michaelis 25-1.db
Dataset Pathname STKML/pass3.1
Dataset Creation Thu Apr 19 04:47:31 2018

Dual Induction Calibration Report

Serial-Model: 933 (HT)-PSI HIGH TEMP
Calibration Performed: Mon Apr 16 20:15:16 2018

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	167.000	835.000	0.000	255.000	mmho/m	0.700	-18.200
Medium	142.000	1349.000	0.000	255.000	mmho/m	0.565	-60.500

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	25000.0000	-0.7000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	32000.0000	-0.6000
Caliper	1.0001	1.1397	6.5000	18.5000	in	70.0000	-65.8750

Compensated Density Calibration Report

Serial-Model: 182-152-M&W
Source / Verifier: 16955B / 2ci
Master Calibration Performed: Thu Apr 19 03:28:52 2018

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	4992.81	6098.44	cps
Aluminum	2.660	g/cc	945.67	3945.60	cps
Spine Angle = 75.33			Density/Spine Ratio = 0.526		
	Size		Reading		
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: 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	RICHLAND OIL INVESTMENTS, LLC
Well	MICHAELIS #25-1
Field	WILDCAT
County	LOGAN
State	KANSAS