



PIONEER
Pioneer Energy Services

MICRORESISTIVITY LOG

Company BRUCE OIL COMPANY, LLC		Company BRUCE OIL COMPANY, LLC	
Well THIBAUT #3		Well THIBAUT #3	
Field KILL CREEK		Field KILL CREEK	
County OSBORNE		County OSBORNE	
State KANSAS		State KANSAS	
Location: API #: 15-141-20477-00-00		Other Services	
SEC 22 TWP 8S RGE 14W		CNL/CDL DIL	
Permanent Datum GROUND LEVEL Elevation 1870'		Elevation	
Log Measured From KELLY BUSHING		K.B. 1876'	
Drilling Measured From KELLY BUSHING		D.F. N/A	
		G.L. 1870'	
Date	5/26/2018		
Run Number	ONE		
Depth Driller	2900'		
Depth Logger	2901'		
Bottom Logged Interval	2900'		
Top Log Interval	1700'		
Casing Driller	8.625" @ 805'		
Casing Logger	804'		
Bit Size	7.875"		
Type Fluid in Hole	CHEMICAL		
Salinity, ppm CL	2800		
Density / Viscosity	9.1 57		
pH / Fluid Loss	11.0 6.0		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	0.80 @ 88		
Rmf @ Meas. Temp	0.60 @ 88		
Rmc @ Meas. Temp	1.08 @ 88		
Source of Rmf / Rmc	CHARTS		
Rm @ BHT	0.67 @ 105		
Operating Rig Time	3 HOURS		
Max Rec. Temp. F	105		
Equipment Number	91		
Location	HAYS		
Recorded By	D. SCHMIDT		
Witnessed By	LONNY BRUCE	BOB PETERSEN	

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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.

NATOMA,
1/2 EAST TO 657 RD, 11 NORTH TO CURVE,
1 EAST, 1 NORTH, 1 EAST TO CURVE, CONTINUE 5 EAST TO NEXT CURVE,
1 NORTH, 1 EAST, 2 SOUTH,
SOUTH INTO AT TB

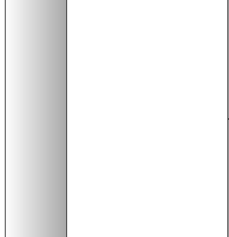
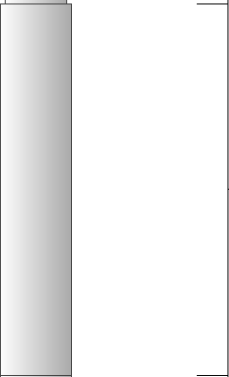
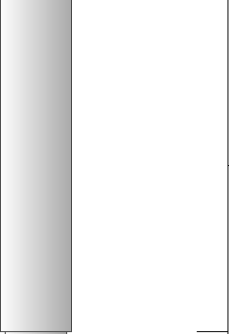
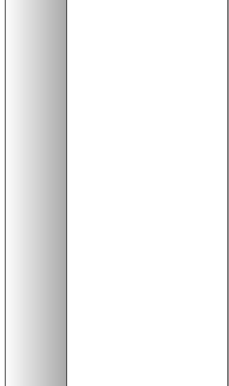
Log Measured From: KELLY BUSHING 6 Ft. Above Permanent Datum

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

Your Pioneer Energy Services Crew		This Log Record Was Witnessed By	
Engineer: D. SCHMIDT		Primary Witness: LONNY BRUCE	
Operator:		Secondary Witness: BOB PETERSEN	
Operator:		Secondary Witness:	
Operator:		Secondary Witness:	

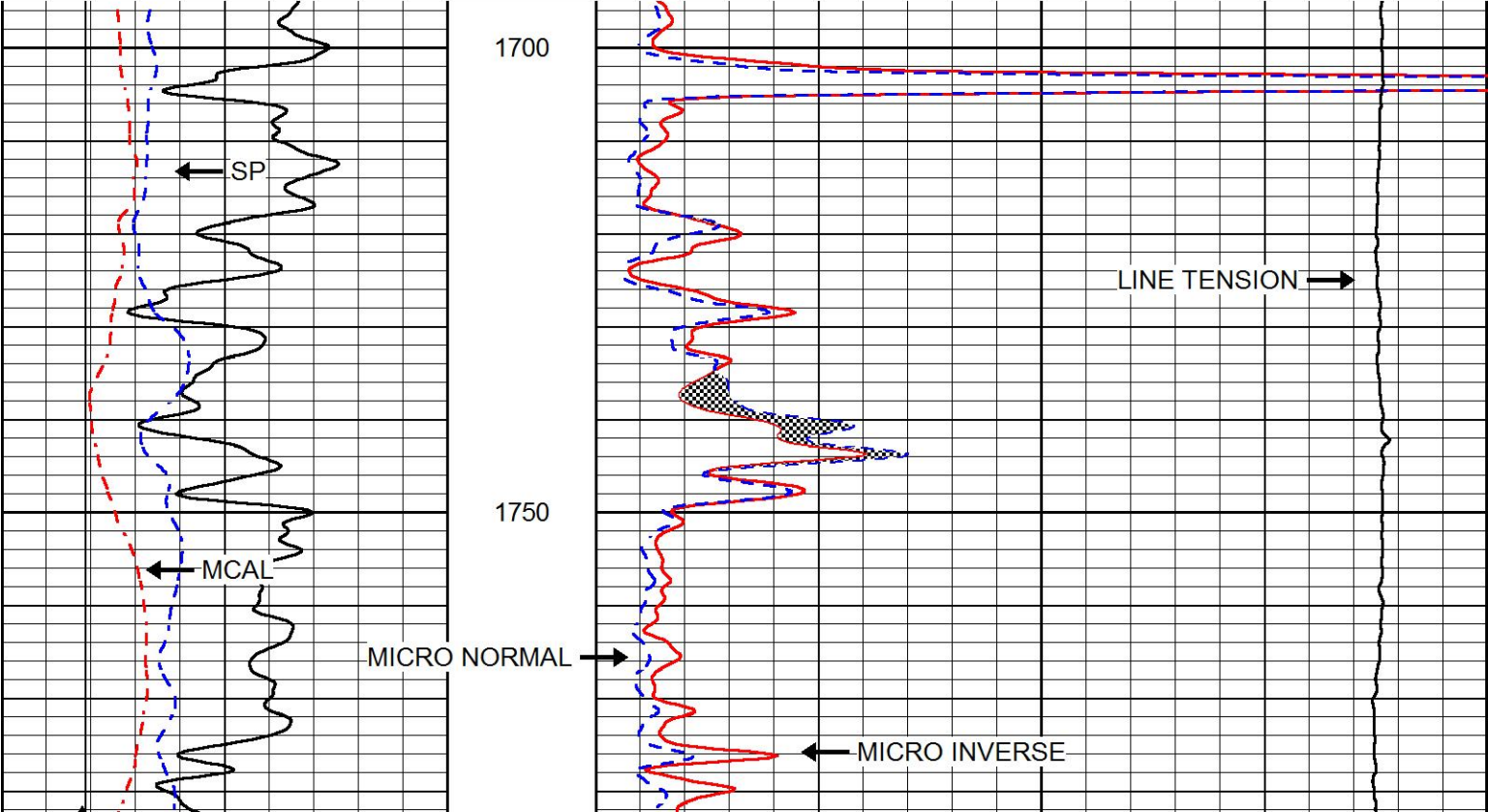
Top - Bottom

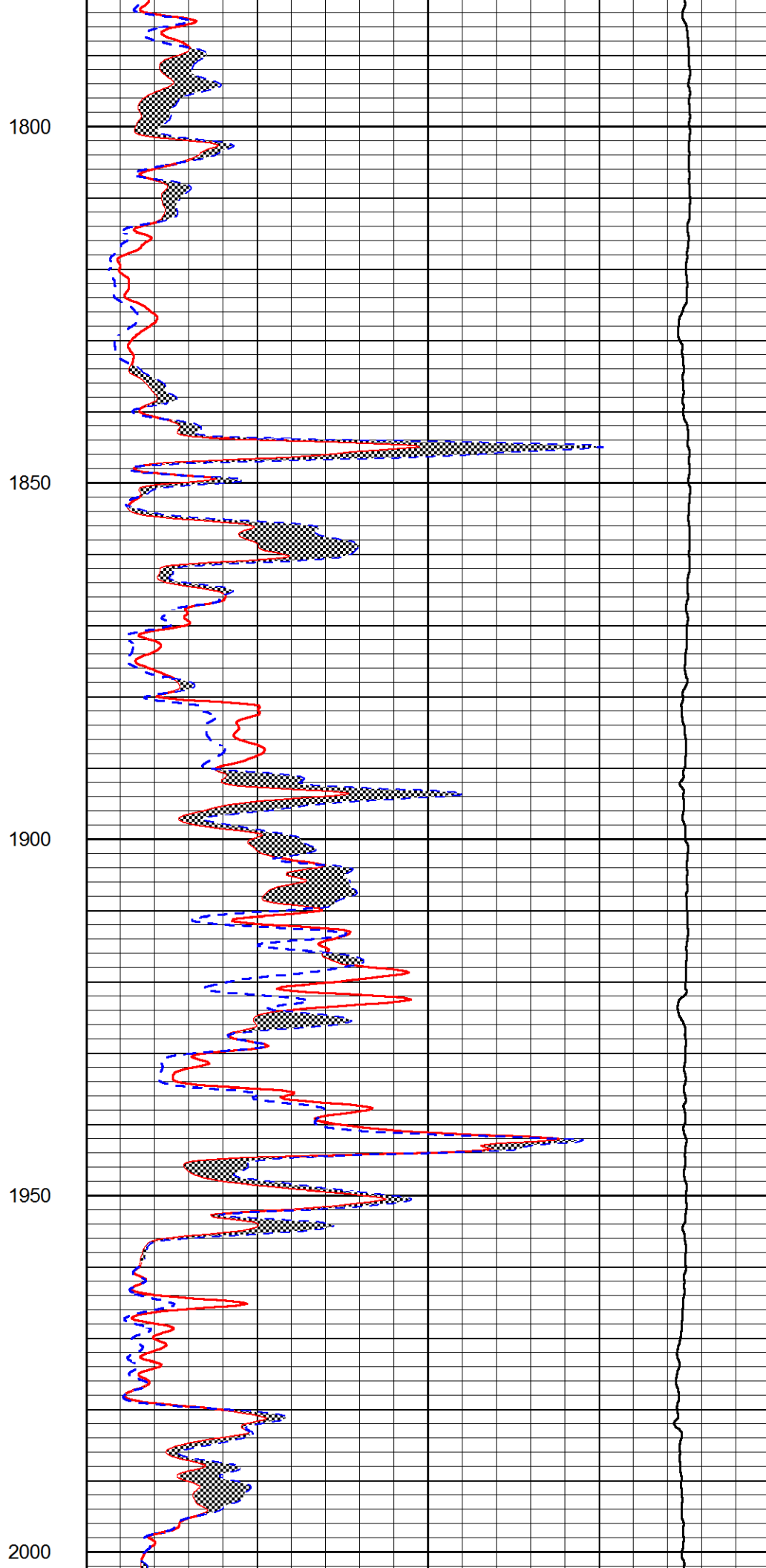
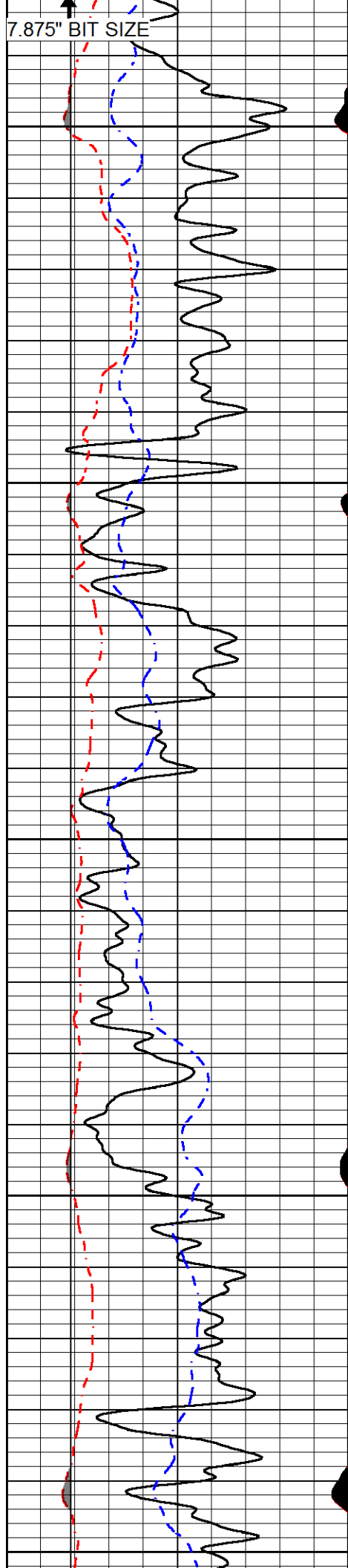
M	A	SZCOR	NPORSEL	FLUIDDEN g/cc	MATRXDEN g/cc	SPSHIFT mV	SNDERRM mmho/m
2	1	Off	Limestone	1	2.71	40	0
SNDERR mmho/m	SRFTEMP degF	CASETHCK in	CASEOD in	PERFS	TDEPTH ft	BOTTEMP degF	BOREID in
0	90	0	5.5	0	2901	105	7.875

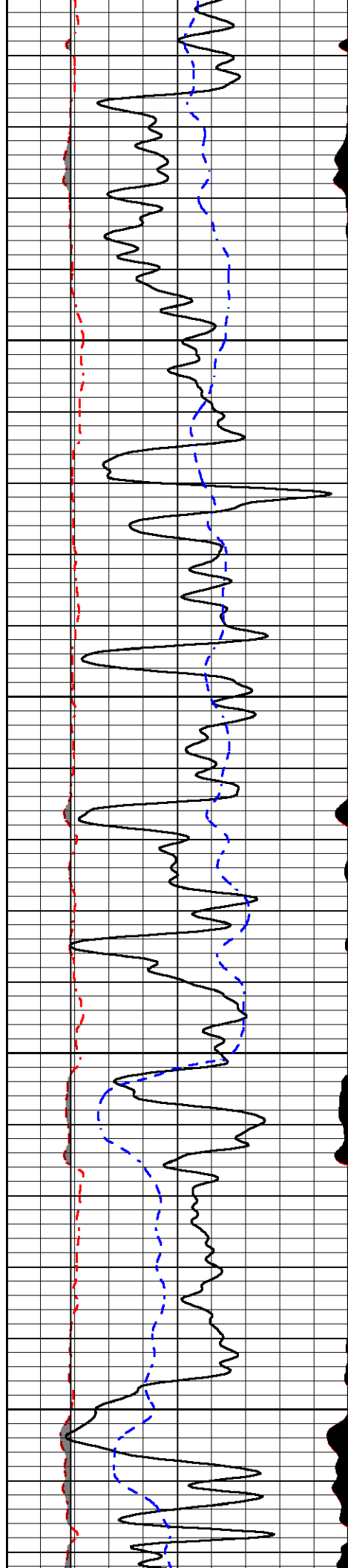
Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
GR	40.58		GR-M&W (89)	3.00	3.50	50.00
CNLSC CNSSC	37.48 36.73		CNT-M&W (207-MW)	5.50	3.50	100.00
LSD DCAL SSD	28.43 28.42 27.93		CDL-M&W (817-947)	8.50	4.00	250.00
MCAL MI MN	19.83 19.83 19.83		ML-PSIML (PSI-01) GO Micro log tools 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: bruce_thibault 3.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	bruce_thibault 3.db		Dataset Pathname	STKML/pass3.1	
Presentation Format	micro		Dataset Creation	Sat May 26 18:50:00 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			





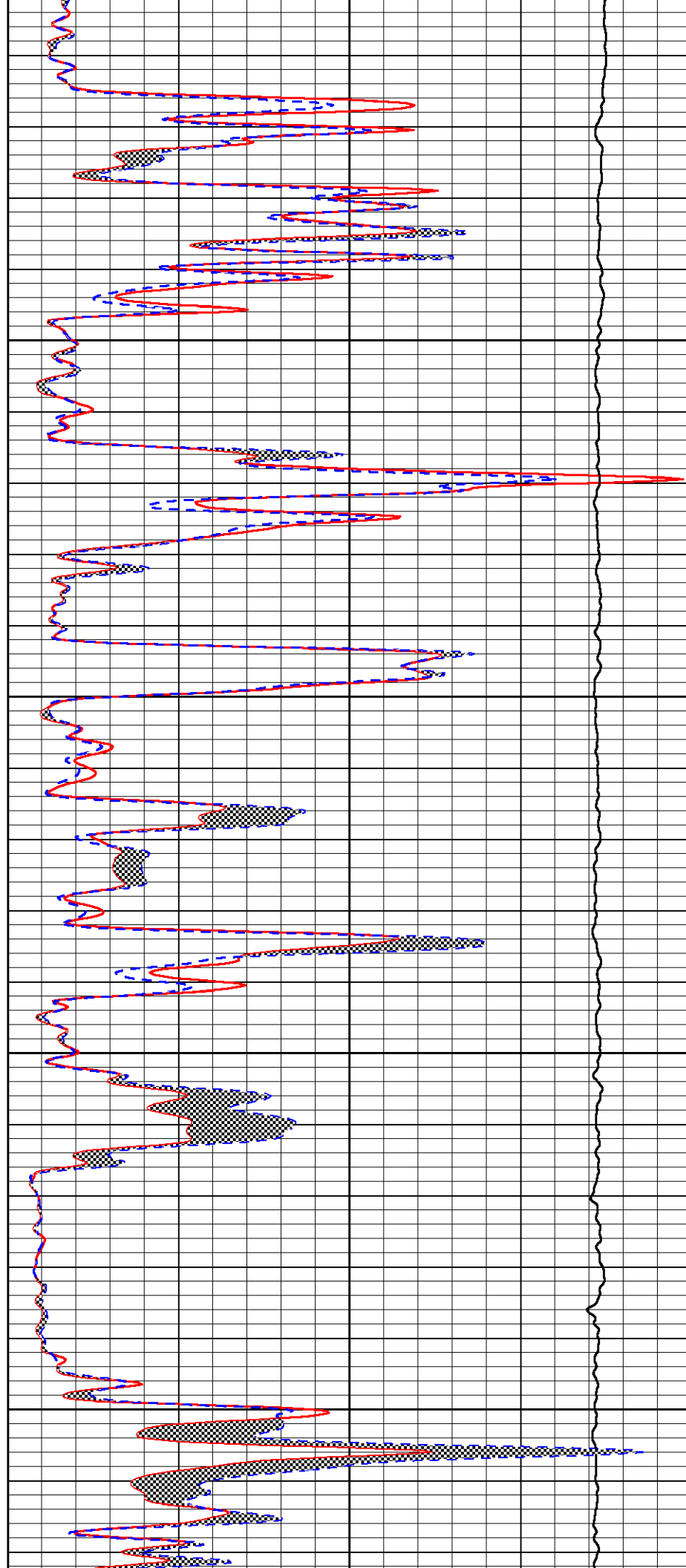


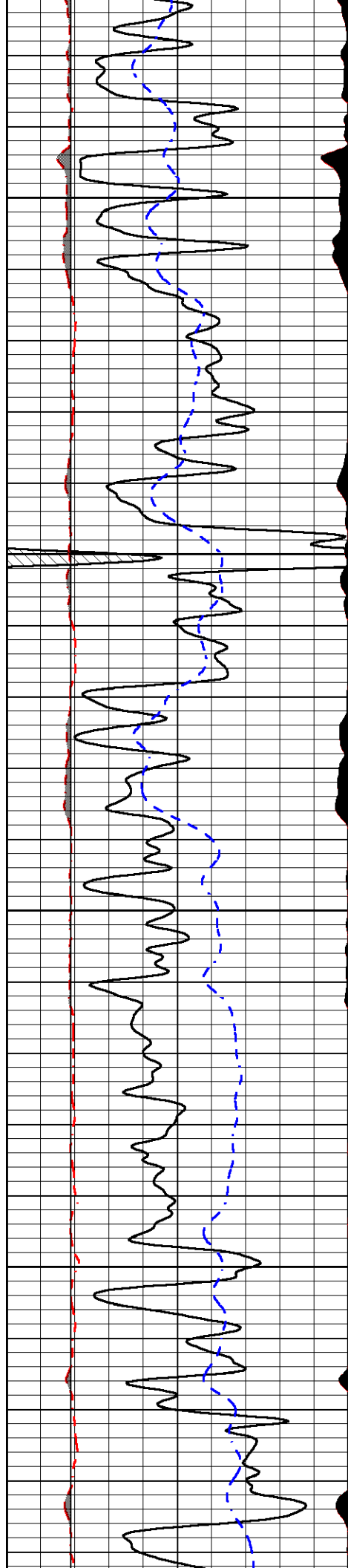
2050

2100

2150

2200



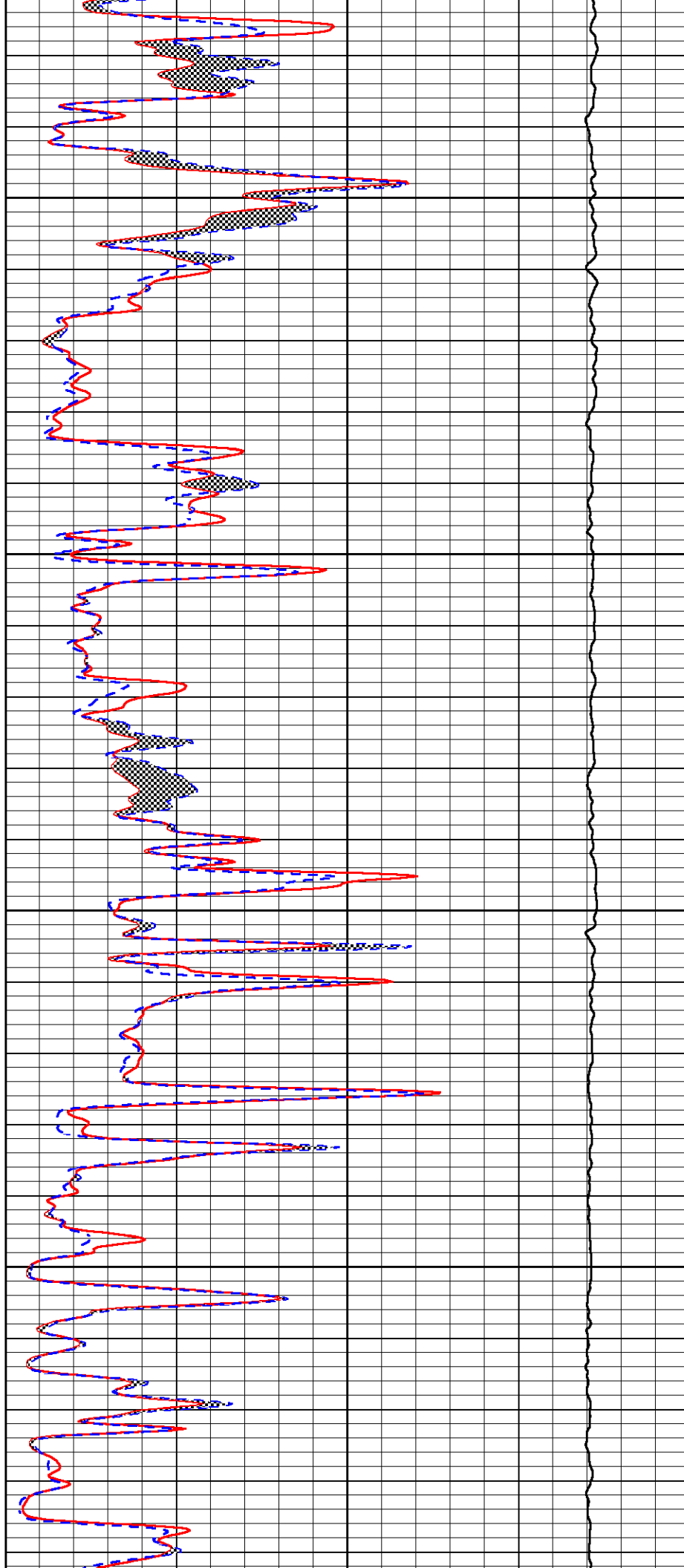


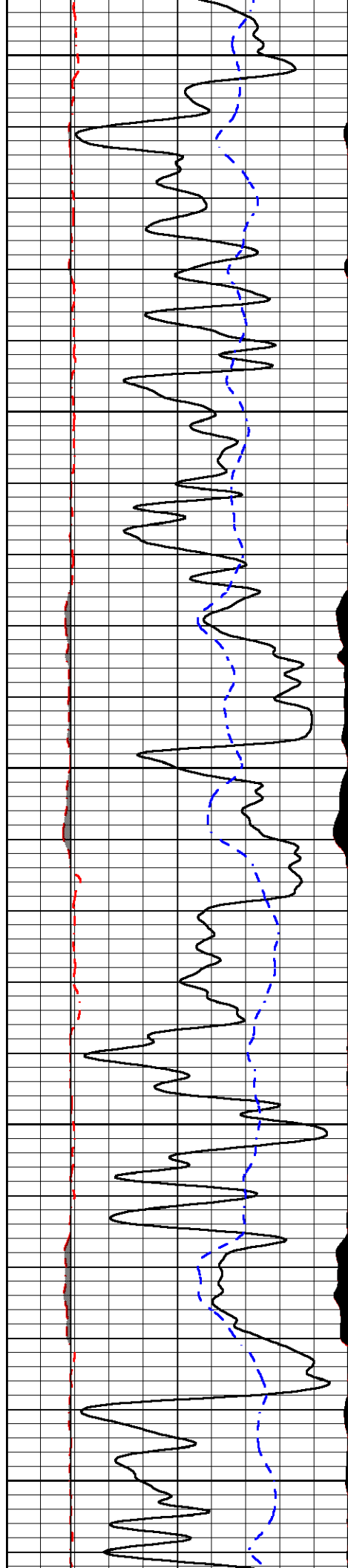
2250

2300

2350

2400





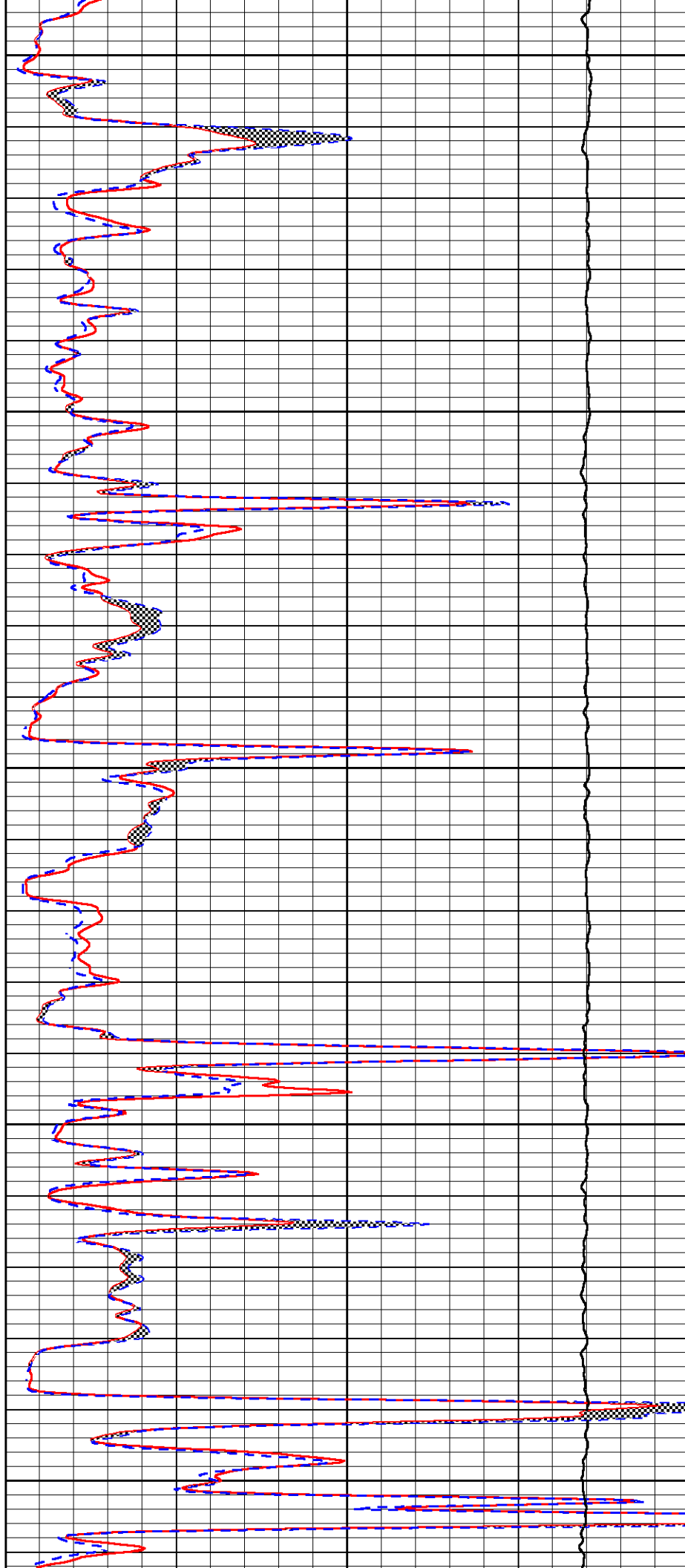
2450

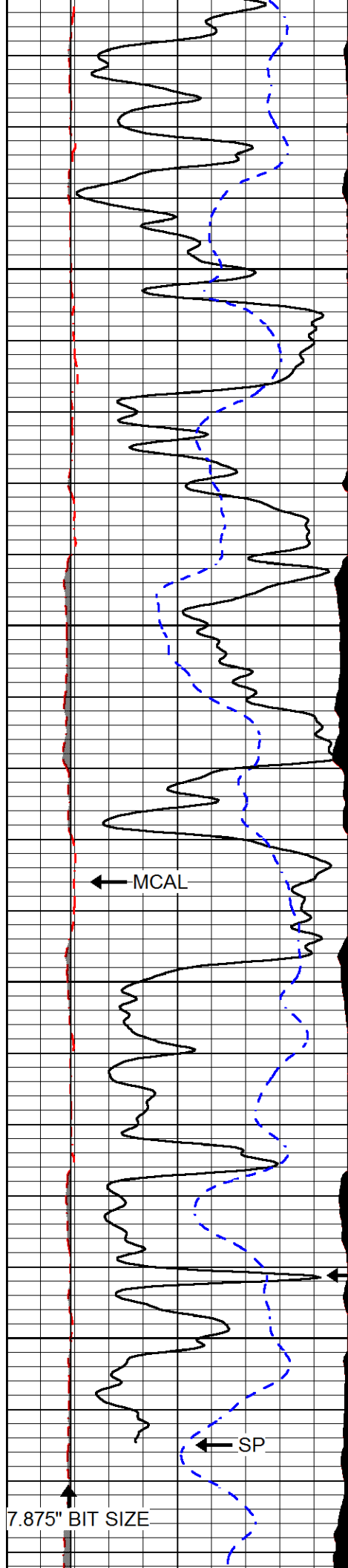
2500

2550

2600

2650





2700

2750

2800

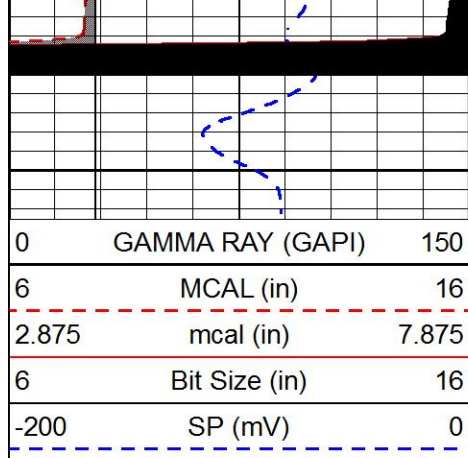
2850

MICRO NORMAL →

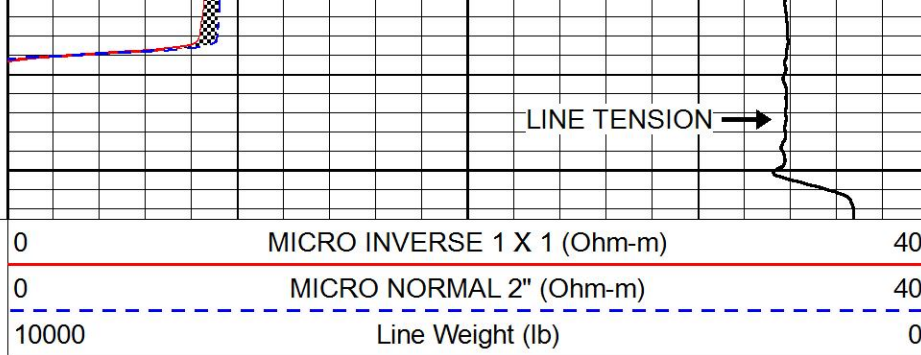
← MICRO INVERSE

GAMMA RAY

7.875" BIT SIZE

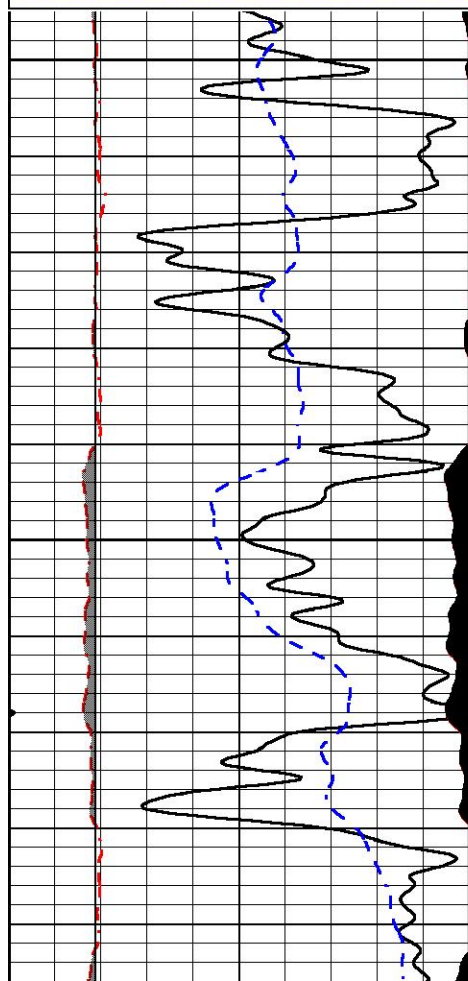
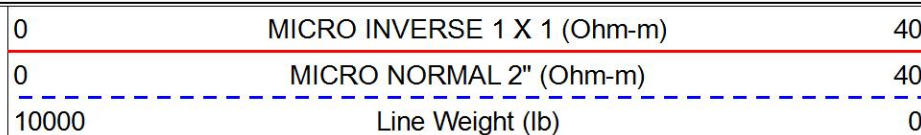
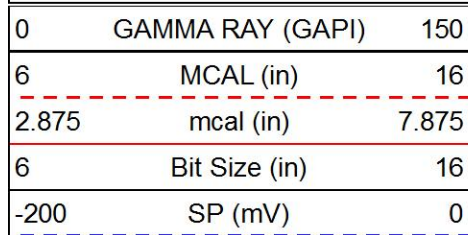


2900



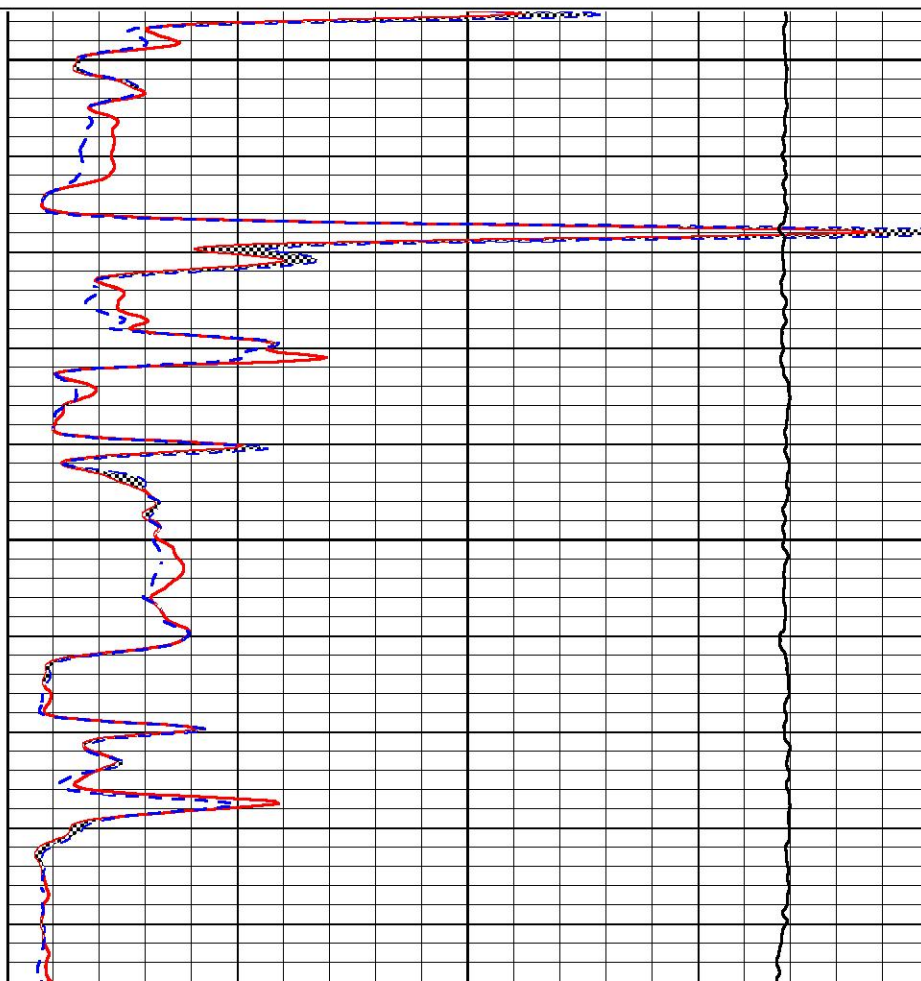
REPEAT SECTION

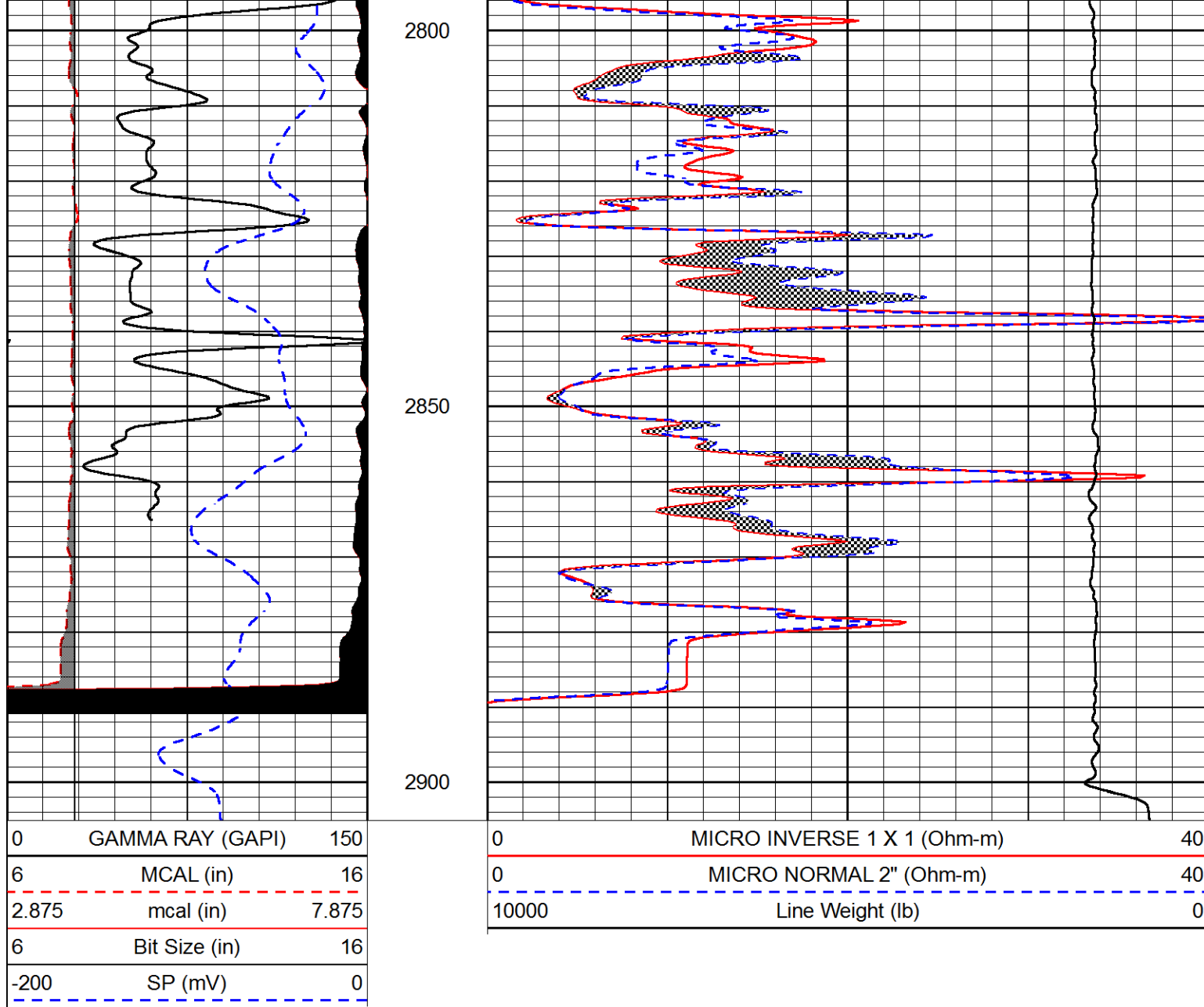
Database File bruce_thibault 3.db
 Dataset Pathname STKML/pass2.1
 Presentation Format micro
 Dataset Creation Sat May 26 18:31:52 2018
 Charted by Depth in Feet scaled 1:240



2700

2750





Calibration Report							
Database File	bruce_thibault 3.db						
Dataset Pathname	STKML/pass3.5						
Dataset Creation	Sat May 26 18:26:36 2018						
Dual Induction Calibration Report							
Serial-Model:				PSI 971 HT-PSI HIGH TEMP			
Calibration Performed:				Tue May 22 18:36:42 2018			
		Readings		References		Results	
Loop:	Air	Loop		Air	Loop	Gain	Offset
Deep	167.000	835.000		0.000	255.800	mmho/m	0.425
Medium	0.000	1348.000		142.000	255.800	mmho/m	0.370
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	45000.0000	-1.3000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	40000.0000	-0.6000
Caliper	1.0001	1.1397	6.5000	18.5000	in	70.0000	-65.8500

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	2.650	g/cc		1141.85	3762.09	cps
Spine Angle = 74.89			Density/Spine Ratio = 0.514			
	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



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Company BRUCE OIL COMPANY, LLC
 Well THIBAUT #3
 Field KILL CREEK
 County OSBORNE
 State KANSAS