



PIONEER
Pioneer Energy Services

MICRORESISTIVITY LOG

Company **DARRAH OIL**
Well **BRONLEEWE NO. 2-22**
Field **RICKARD**
County **RICE** State **KANSAS**

Location: API #: 15-159-22860-00-00

981' FNL & 581' FEL

SEC 22 TWP 18S RGE 9W

Permanent Datum **GROUND LEVEL** Elevation **1727'**
Log Measured From **KELLY BUSHING**
Drilling Measured From **KELLY BUSHING**

Other Services
CNL/CDL
DIL/BHCS
Elevation
K.B. 1732'
D.F. N/A
G.L. 1727'

Date	11/6/2018
Run Number	TWO
Depth Driller	3330'
Depth Logger	3330'
Bottom Logged Interval	3329'
Top Log Interval	1900'
Casing Driller	8.625" @ 293'
Casing Logger	299'
Bit Size	7.875"
Type Fluid in Hole	CHEMICAL
Salinity, ppm CL	N/A
Density / Viscosity	9.0 54
pH / Fluid Loss	N/A N/A
Source of Sample	FLOWLINE
Rm @ Meas. Temp	.65 @ 67
Rmt @ Meas. Temp	.49 @ 67
Rmc @ Meas. Temp	.88 @ 67
Source of Rmt / Rmc	CHARTS
Rm @ BHT	.40 @ 109
Operating Rig Time	4 HOURS
Max Rec. Temp. F	109 DEGF
Equipment Number	108
Location	HAYS
Recorded By	J. HENRICKSON
Witnessed By	SETH EVENSON

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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.

HWY 4 & CHASE BLACKTOP
SOUTH TO AVE D, 3 EAST, 1/8 SOUTH, WEST 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: J. HENRICKSON
Operator:
Operator:
Operator:

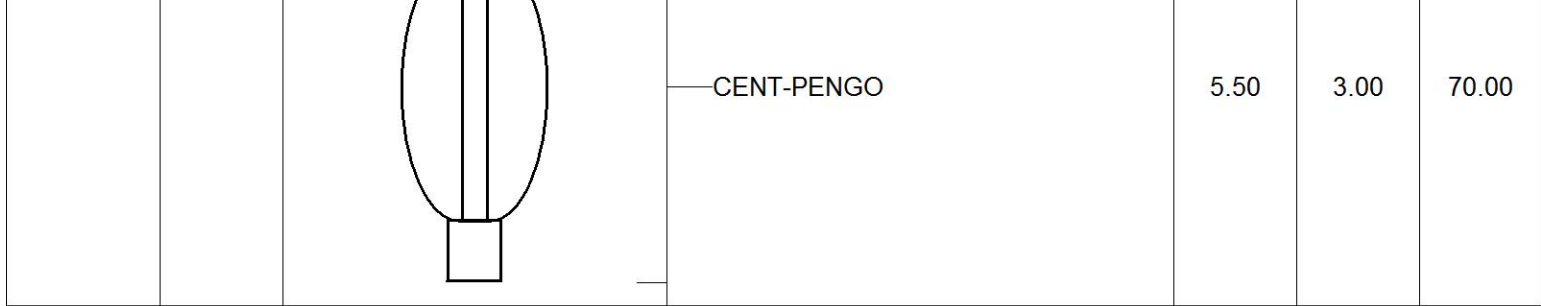
This Log Record Was Witnessed By

Primary Witness: SETH EVENSON
Secondary Witness:
Secondary Witness:
Secondary Witness:

Top - Bottom

A	BOREID	BOTTEMP	CASEOD	CASETHCK	FLUIDDEN	M	MATRXDEN
1	in 7.875	degF 109	in 5.5	in 0	g/cc 1	2	g/cc 2.71
NPORSEL	PERFS	SNDERR	SNDERRM	SPSHIFT	SRFTEMP	SZCOR	TDEPTH
Limestone	0	mmho/m 12	mmho/m 0	mV 270	degF 47	Off	ft 3330

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
MCAL MI MN	22.50		ML-Armadillo (Armadillo-1) Pengo micro log tool mandrel with Armadillo Electronics	5.00	3.50	100.00
	22.50					
	22.50					
WVF4 WVF1	13.50 13.50		SLT-PENGO (0001)	16.00	3.50	300.00
WVF3 WVF2	11.50 11.50					



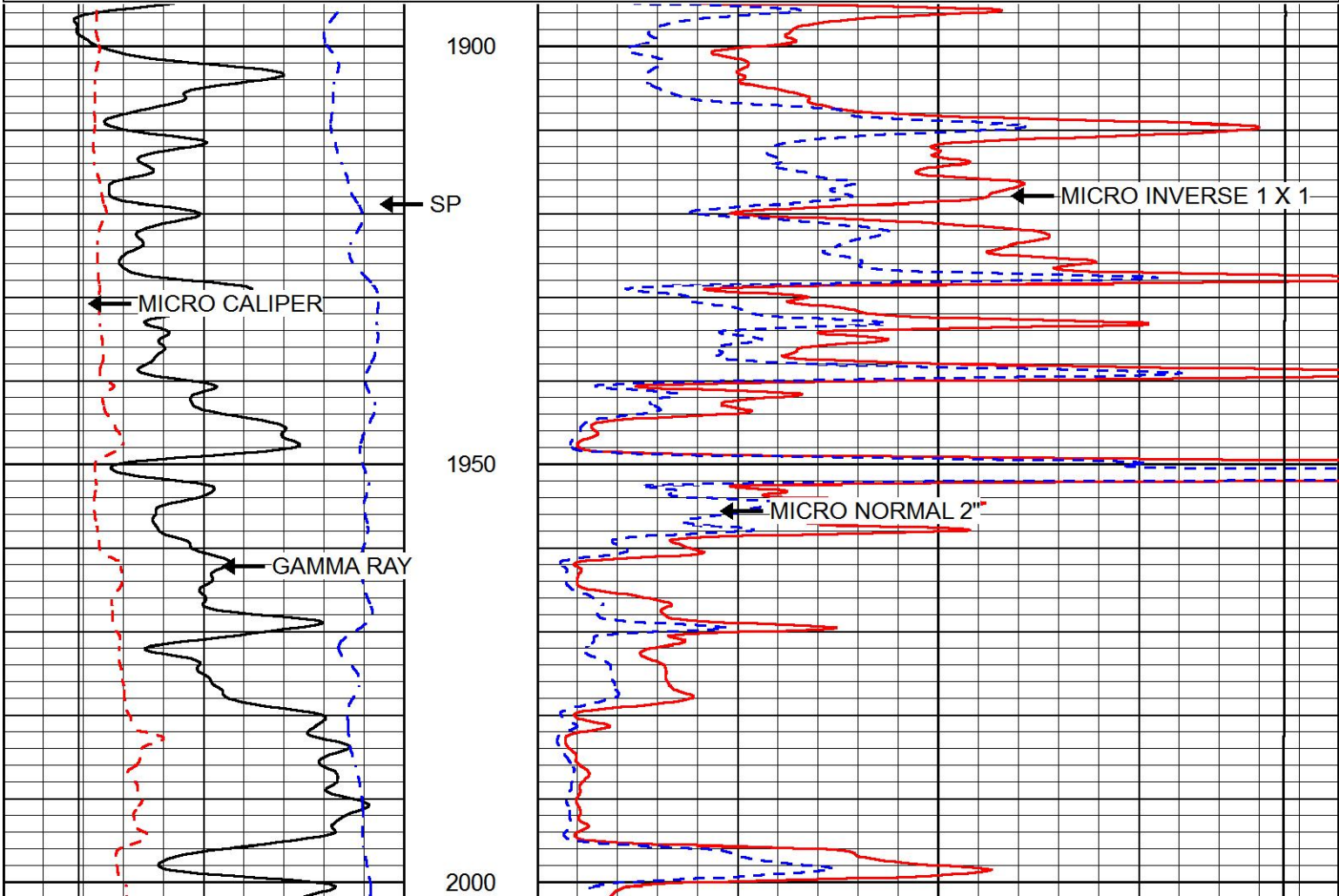
Dataset: darrah_bronleewe_2_22.db: field/well/SONMEL/pass2
Total length: 26.50 ft
Total weight: 470.00 lb
O.D.: 3.50 in

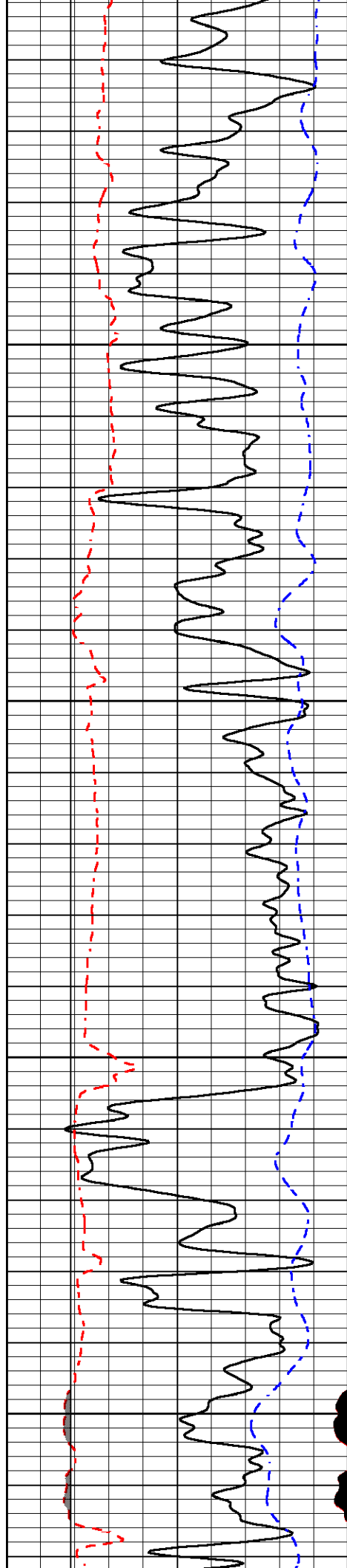


MAIN PASS

Database File	darrah_bronleewe_2_22.db
Dataset Pathname	stack/pass5.1
Presentation Format	micro
Dataset Creation	Tue Nov 06 13:03:25 2018
Charted by	Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150	0	MICRO INVERSE 1 X 1 (Ohm-m)	40
6	MICRO CALIPER (in)	16	0	MICRO NORMAL 2" (Ohm-m)	40
6	BIT SIZE (in)	16	15000	LINE TENSION (lb)	0
-200	SP (mV)	0			



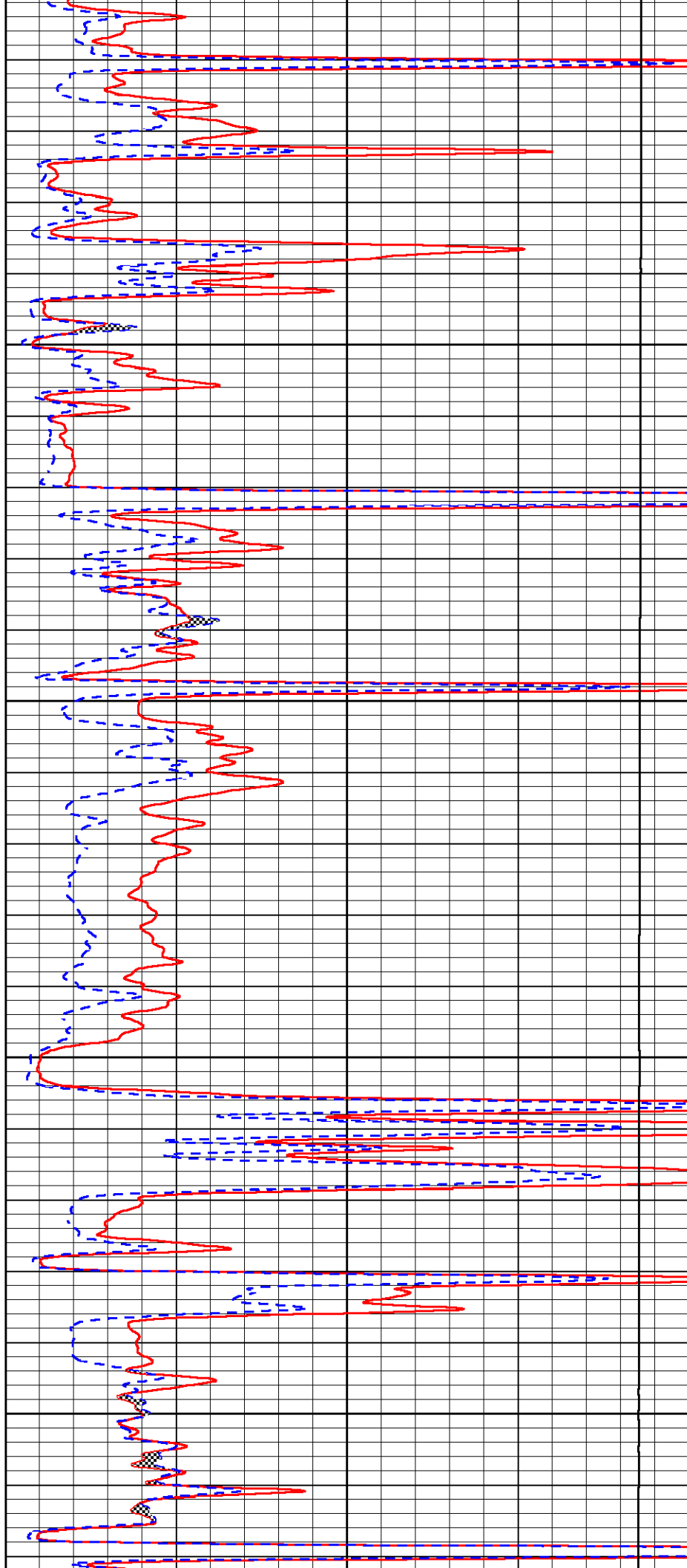


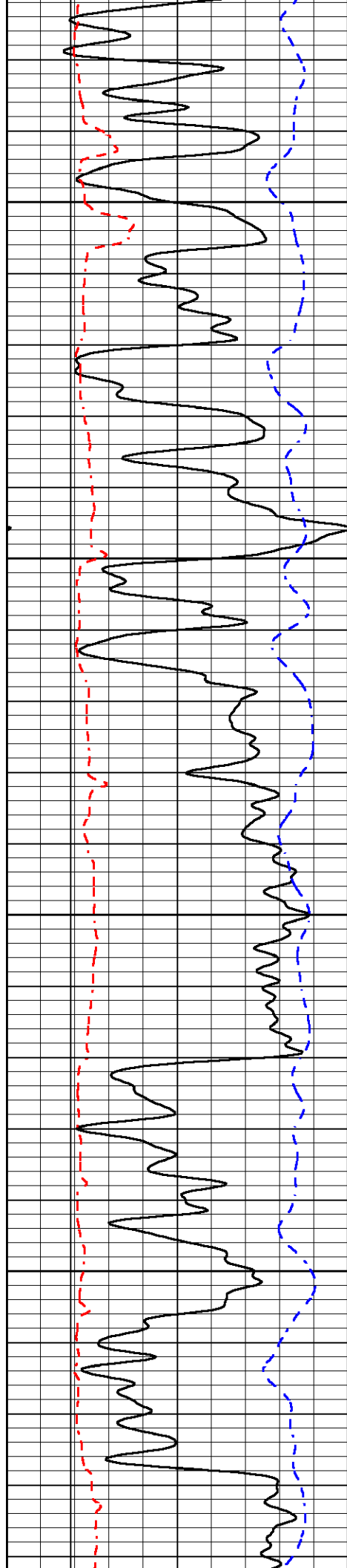
2050

2100

2150

2200



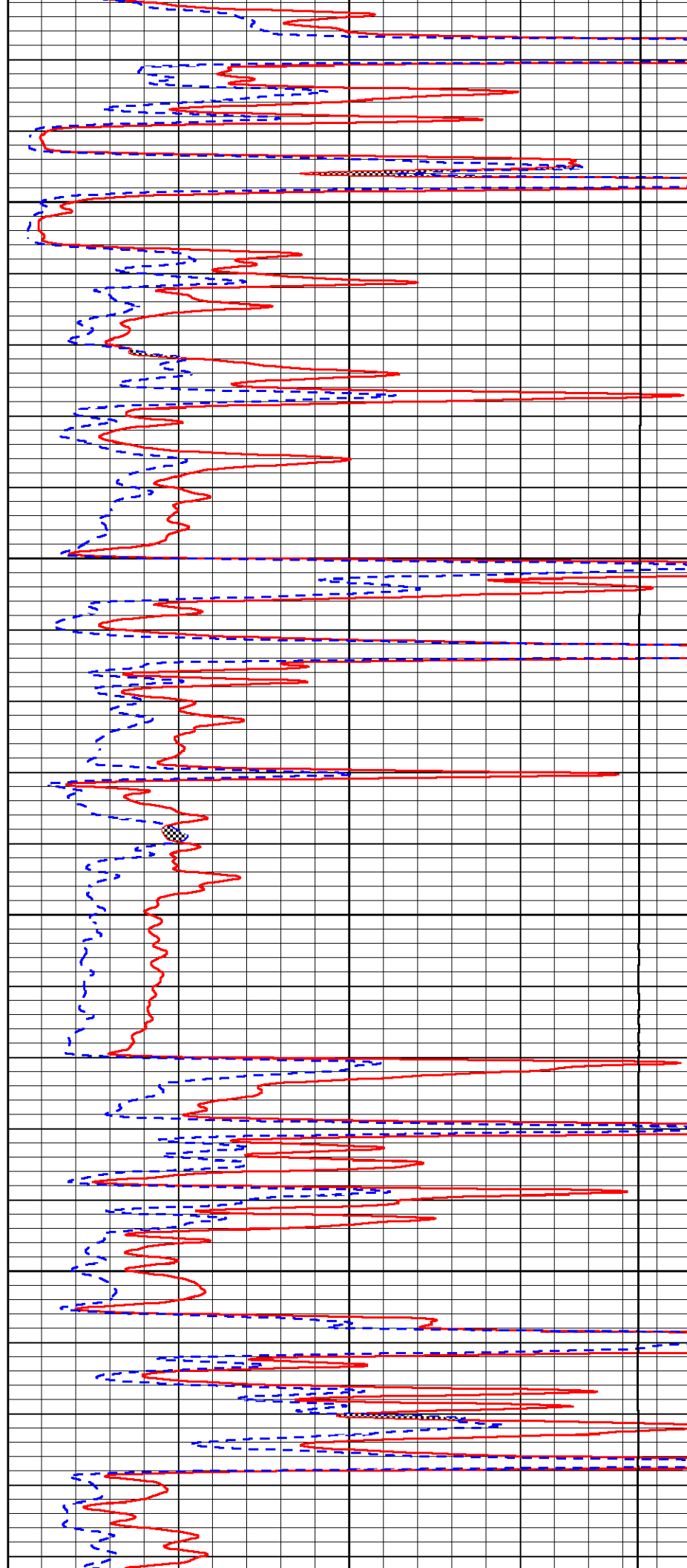


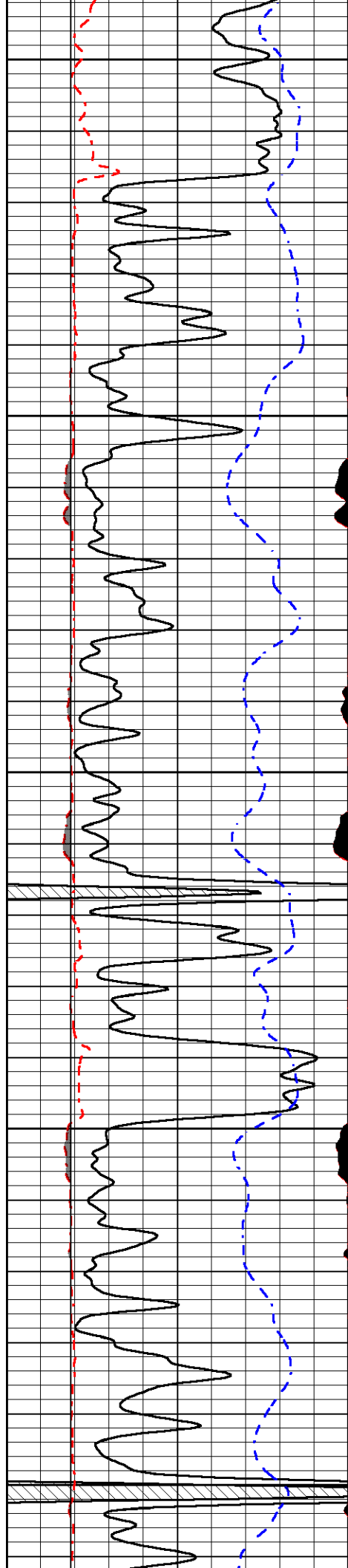
2250

2300

2350

2400





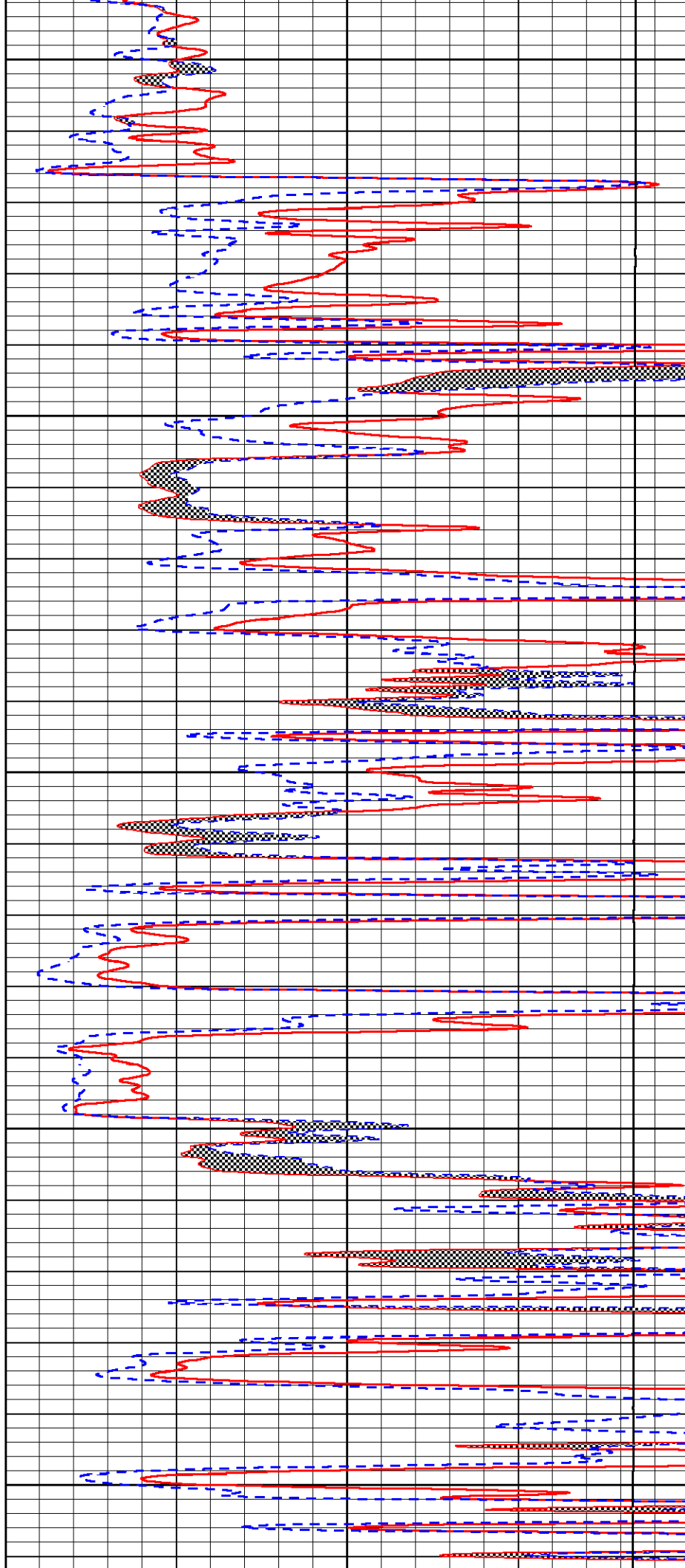
2450

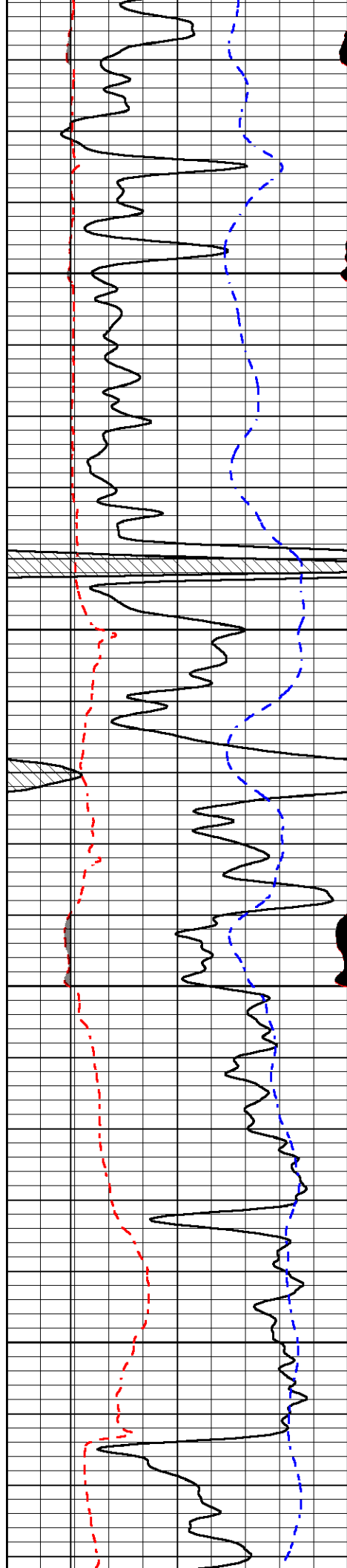
2500

2550

2600

2650



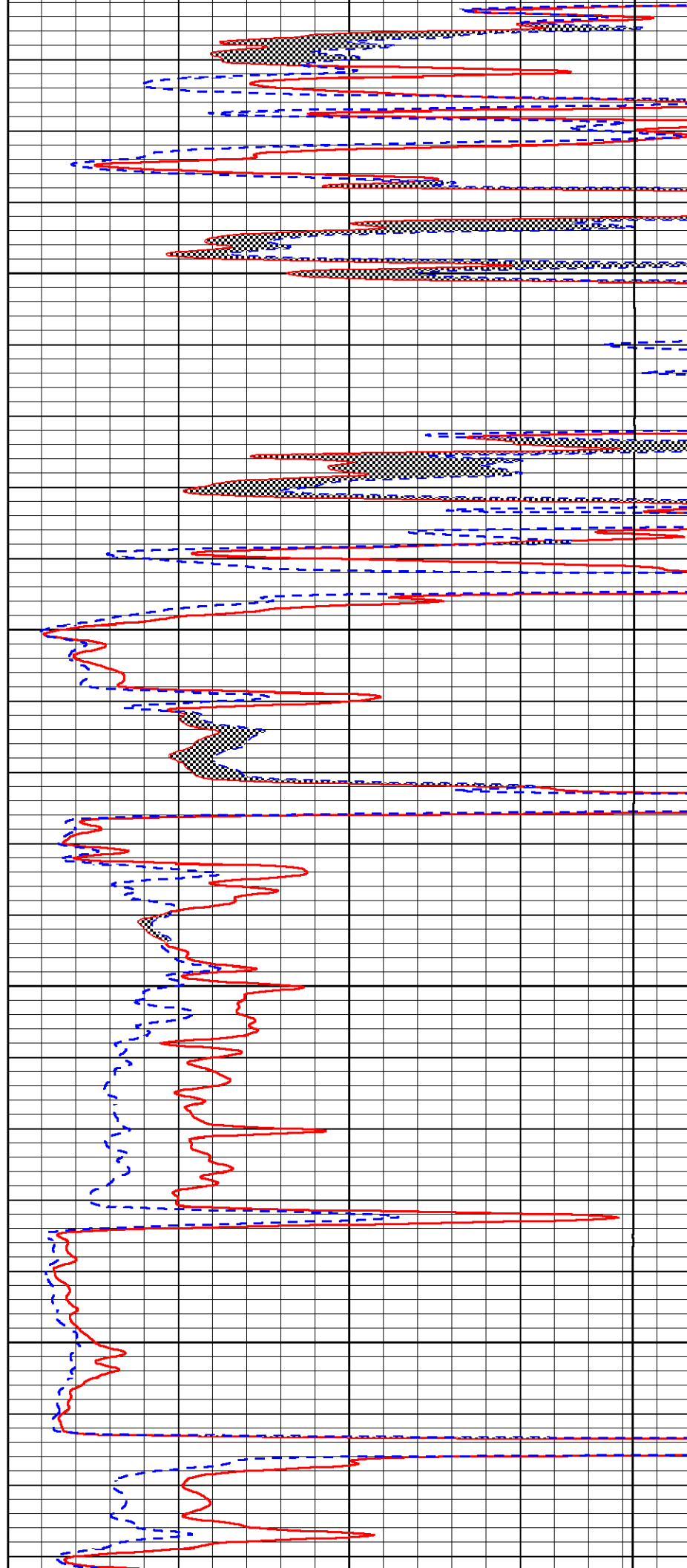


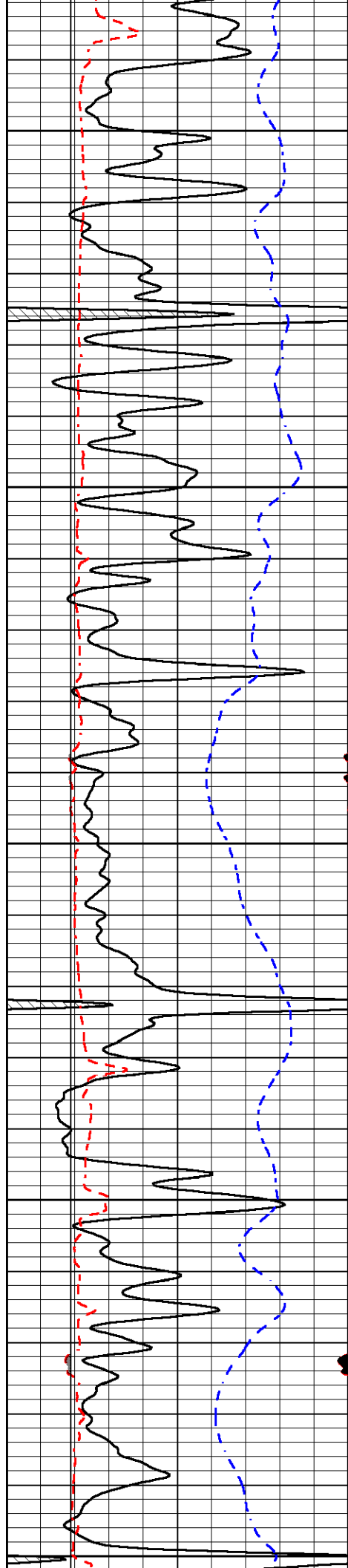
2700

2750

2800

2850





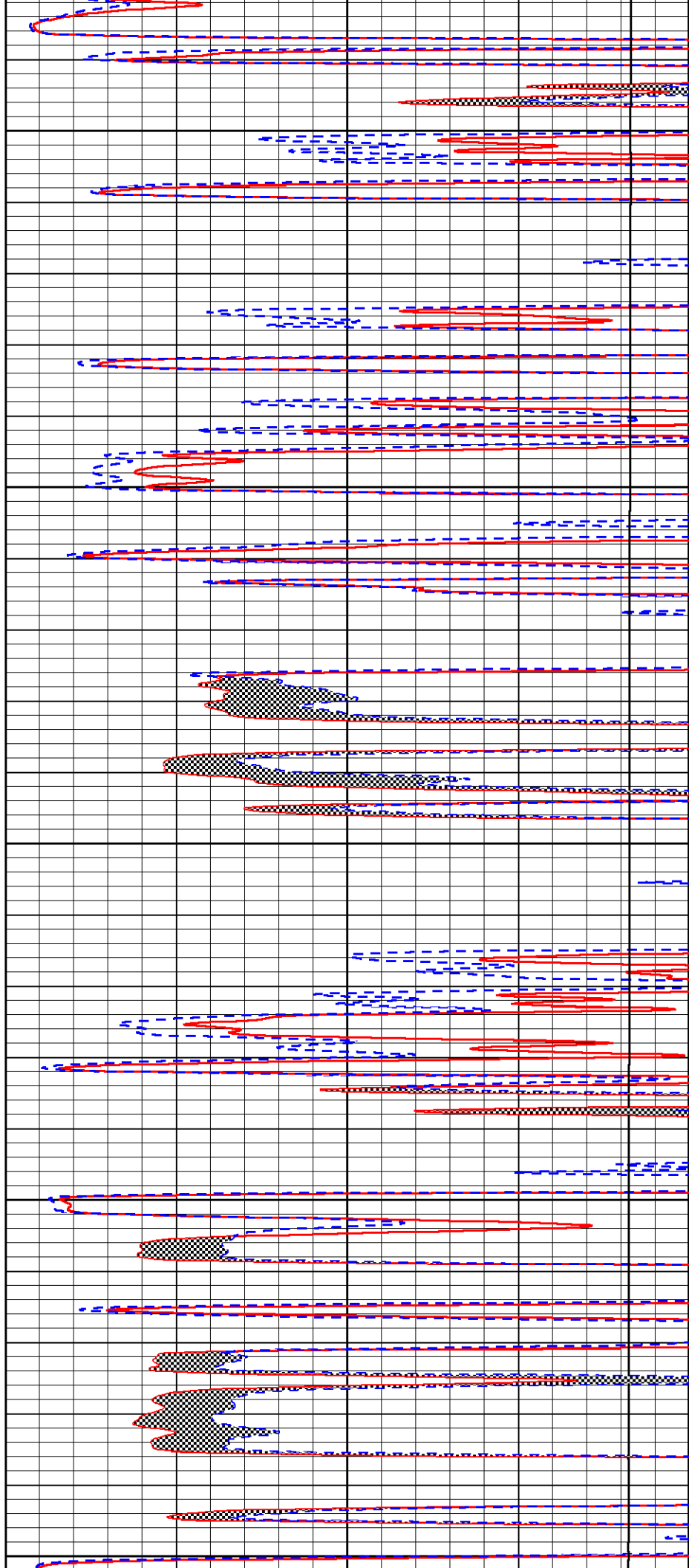
2900

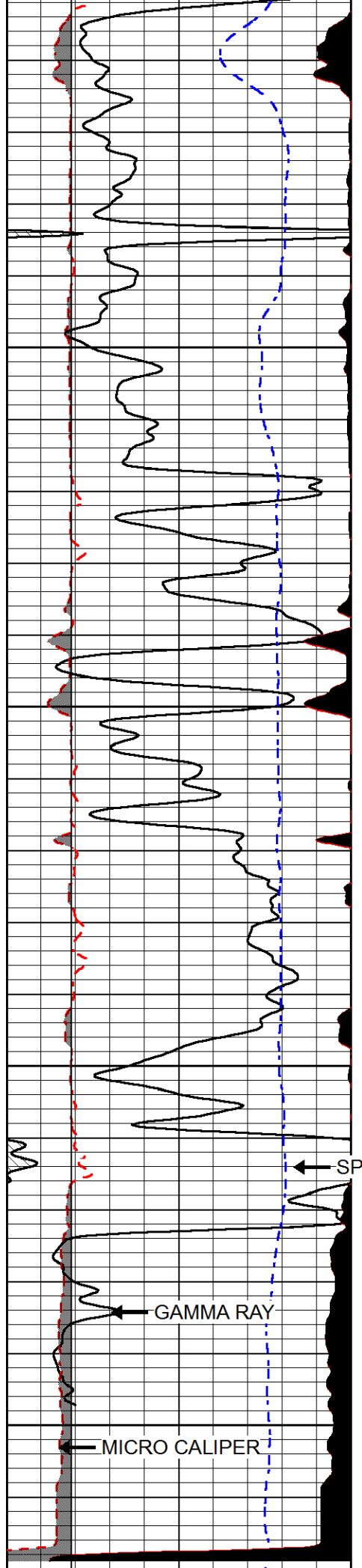
2950

3000

3050

3100



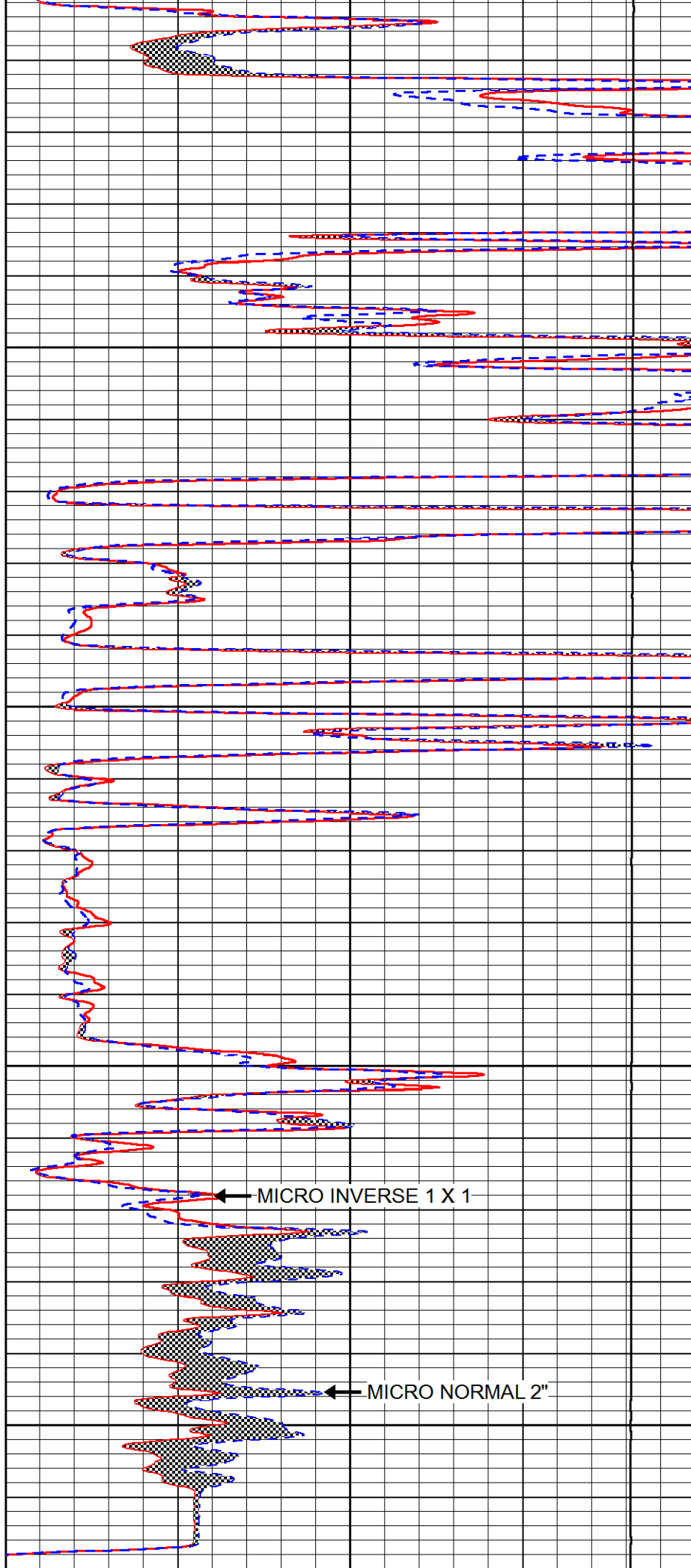


3150

3200

3250

3300



MICRO INVERSE 1 X 1

MICRO NORMAL 2"

0	GAMMA RAY (GAPI)	150
6	MICRO CALIPER (in)	16
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
15000	LINE TENSION (lb)	0

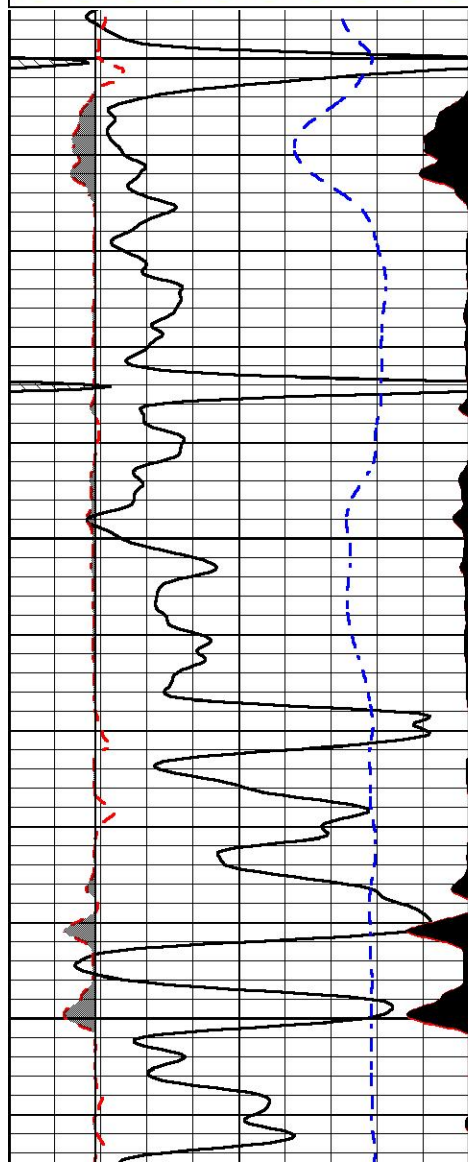


REPEAT SECTION

Database File darrah_bronleewe_2_22.db
Dataset Pathname stack/pass2.1
Presentation Format micro
Dataset Creation Tue Nov 06 13:30:30 2018
Charted by Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
6	MICRO CALIPER (in)	16
6	BIT SIZE (in)	16
-200	SP (mV)	0

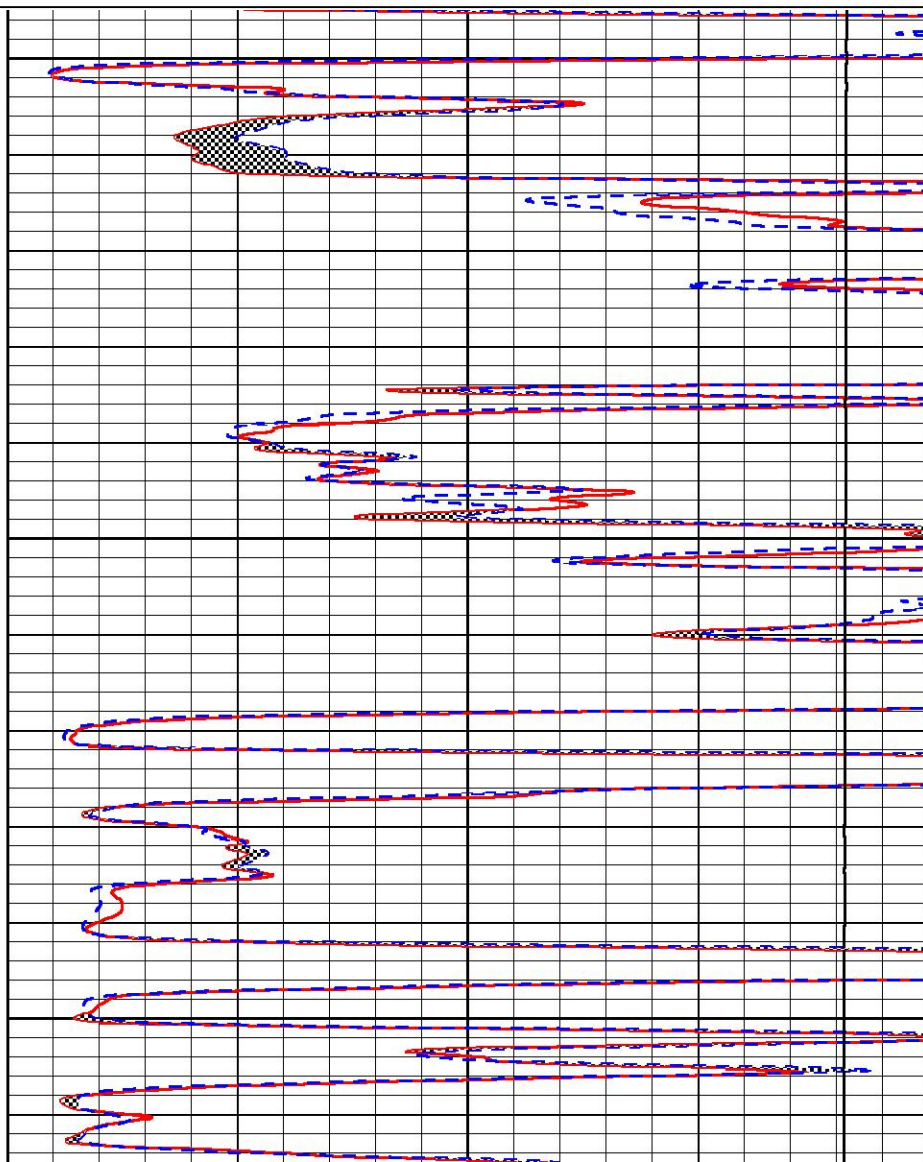
0	MICRO INVERSE 1 X 1 (Ohm-m)	40
0	MICRO NORMAL 2" (Ohm-m)	40
15000	LINE TENSION (lb)	0

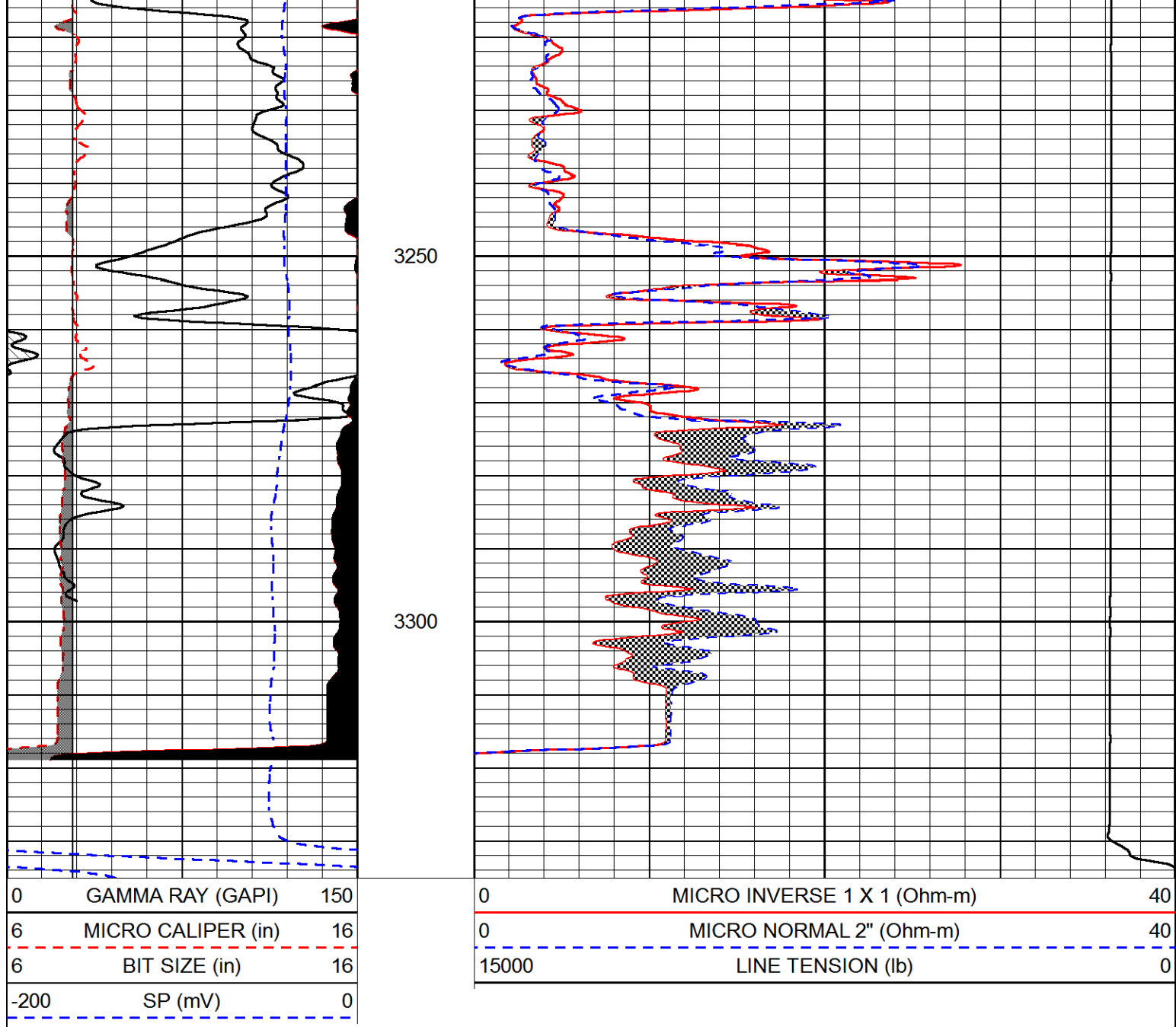


3100

3150

3200





Calibration Report

Database File darrah_bronleewe_2_22.db
 Dataset Pathname stack/pass5.1
 Dataset Creation Tue Nov 06 13:03:25 2018

Dual Induction Calibration Report

Serial-Model: 1987-M&W
 Calibration Performed: Thu Aug 09 22:42:18 2018

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	178.615	710.235	0.000	255.800	mmho/m	0.550	-36.500
Medium	161.982	1441.110	0.000	255.800	mmho/m	0.400	-110.500

Compensated Density Calibration Report

Serial-Model: 168-130-M&W
 Source / Verification

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	4659.47	5064.14	cps
Aluminum	2.680	g/cc	853.93	3180.74	cps
Spine Angle = 74.67			Density/Spine Ratio = 0.526		
	Size		Reading		
Small Ring	4.00	in	0.90		
Large Ring	14.00	in	0.21		

Compensated Neutron Calibration Report

Serial Number: tk10-MW
 Tool Model: M&W
 Calibration Performed: Wed Nov 16 11:21:36 2016

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-M&W
 Tool Model: M&W
 Calibration Performed: Tue Apr 11 17:08:01 2017

Calibrator Value: 1000.0 GAPI

Background Reading: 0.0 cps
 Calibrator Reading: 6.2 cps

Sensitivity: 0.5200 GAPI/cps



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