



PIONEER
Pioneer Energy Services

MICRORESISTIVITY LOG

Company AMERICAN WARRIOR, INC.
Well HICKS "A" NO. 1-24
Field WILDCAT
County FINNEY
State KANSAS

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Location: API #: 15-055-22447-00-00

2,469' FNL & 335' FWL

SEC 24 TWP 25S RGE 32W

Permanent Datum GROUND LEVEL Elevation 2880'
Log Measured From KELLY BUSHING
Drilling Measured From KELLY BUSHING

Other Services
CNL/CDL
DIL/BHCS
Elevation
K.B. 2892'
D.F. N/A
G.L. 2880'

Date 1/8/2017

Run Number TWO

Depth Driller 5000'

Depth Logger 5000'

Bottom Logged Interval 4999'

Top Log Interval 1600'

Casing Driller 8,625" @ 1660'

Casing Logger 1614'

Bit Size 7.875"

Type Fluid in Hole CHEMICAL

Salinity, ppm CL 1450

Density / Viscosity 9.55 59

pH / Fluid Loss 10.5 7.6

Source of Sample FLOWLINE

Rm @ Meas. Temp .90 @ 64

Rmt @ Meas. Temp .68 @ 64

Rmc @ Meas. Temp 1.22 @ 64

Source of Rmt / Rmc CHARTS

Rm @ BHT .46 @ 126

Operating Rig Time 4 1/2 HOURS

Max Rec. Temp. F 126 DEG F.

Equipment Number 108

Location COLBY

Recorded By J. LONG

Witnessed By KEVIN TIMSON

<<< Fold Here >>>

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.

GARDEN CITY, SOUTH TO ANNIE SCHEER ROAD, 4 1/4 EAST, NORTH INTO

Log Measured From: KELLY BUSHING

12 Ft. Above Permanent Datum

THANK YOU FOR USING PIONEER ENERGY SERVICES

www.pioneerenergy.com

785-625-3858

Your Pioneer Energy Services Crew

Engineer: J. LONG
Operator: C. PFEIFER
Operator: J. RUIZ
Operator:

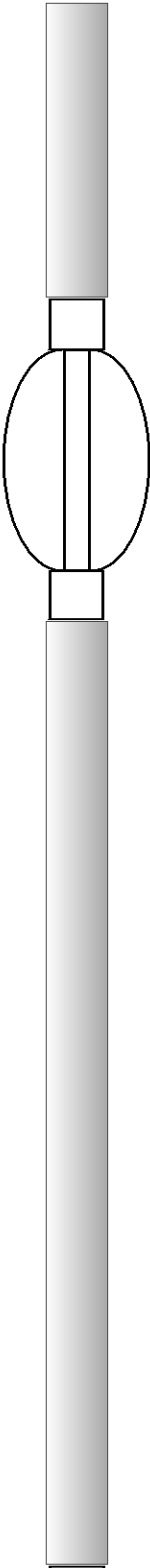
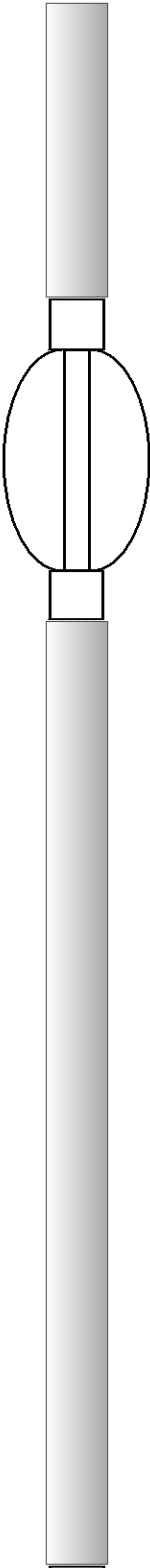
This Log Record Was Witnessed By

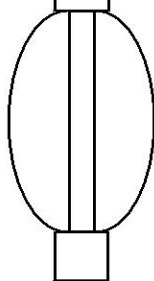
Primary Witness: KEVIN TIMSON
Secondary Witness:
Secondary Witness:
Secondary Witness:

DatabaseC:\ProgramData\Warrior\Data\amwarrior_hicks_a_1-24.db
Dataset field/well/stack/pass3.1/_vars_

Top - Bottom

A	BOREID	BOTTEMP	CASEOD	CASETHCK	FLUIDDEN	M	MATRXDEN
1	in 7.875	degF 126	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 0	mmho/m 0	mV -320	degF 12	Off	ft 5000

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)	
MCAL MI MN	28.00		ML-Armadillo (Armadillo-1) Pengo micro log tool mandrel with Armadillo Electronics	5.00	3.50	100.00	
	28.00						
	28.00						
WVF4 WVF1 WVF3 WVF2	13.50		SLT-PENGO (0001)	16.00	3.50	300.00	
	13.50						
	11.50						
	11.50						



CENT-PENGO

5.50

3.00

70.00

Dataset: amwarrior_hicks_a_1-24.db: field/well/sonmel/pass1
Total length: 32.00 ft
Total weight: 540.00 lb
O.D.: 3.50 in



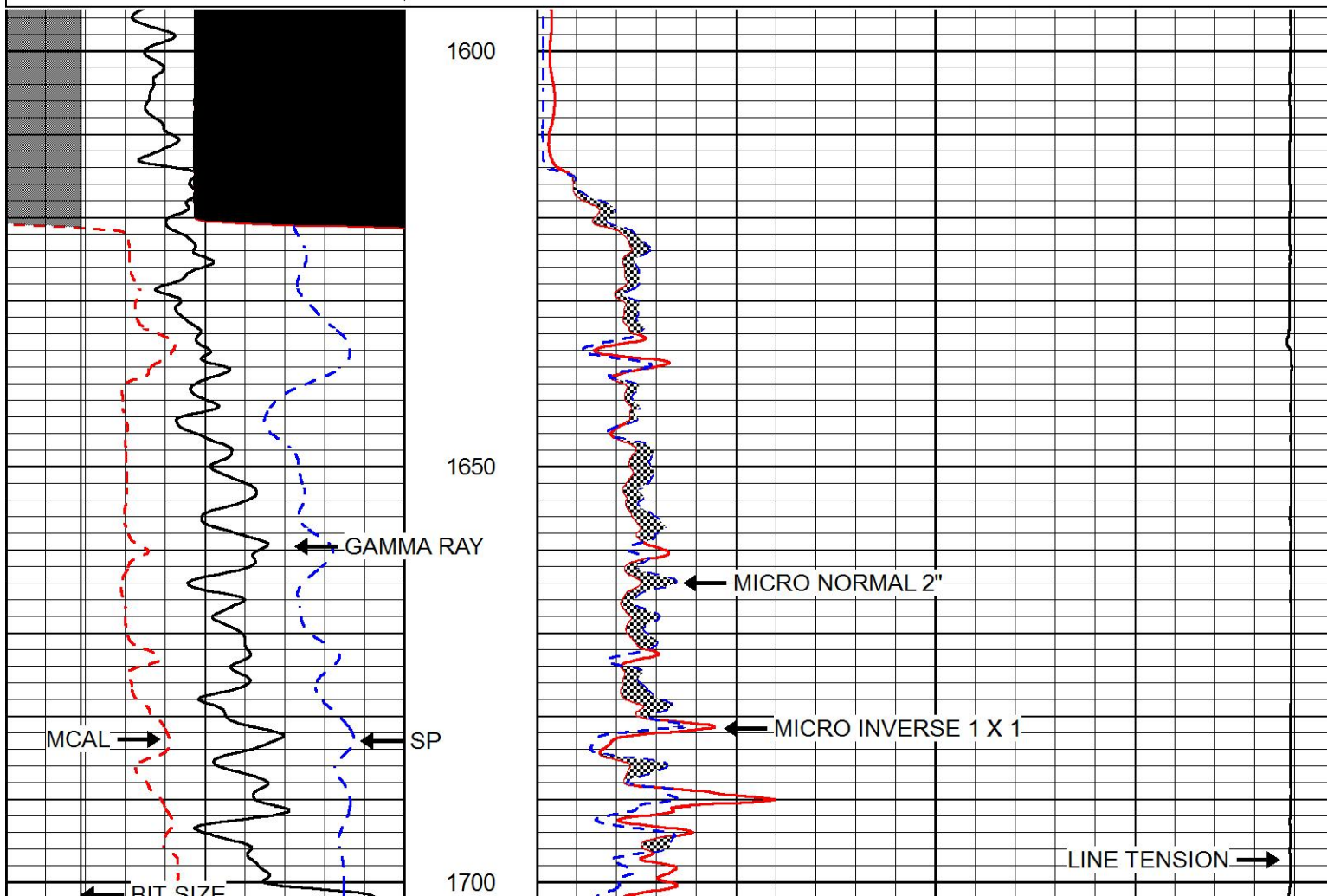
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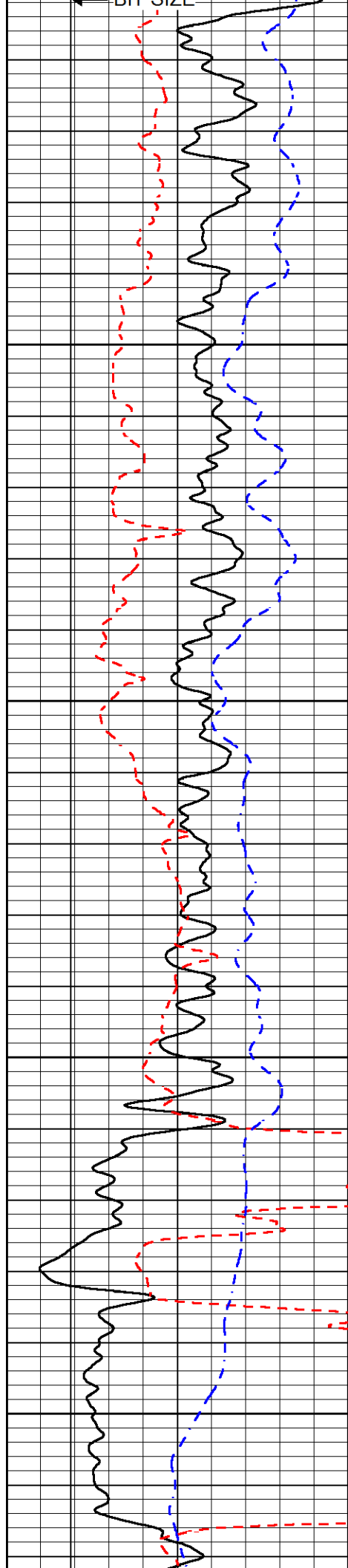
MAIN PASS

Database File amwarrior_hicks_a_1-24.db
Dataset Pathname stack/pass3.1
Presentation Format micro
Dataset Creation Sun Jan 08 02:50:28 2017
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



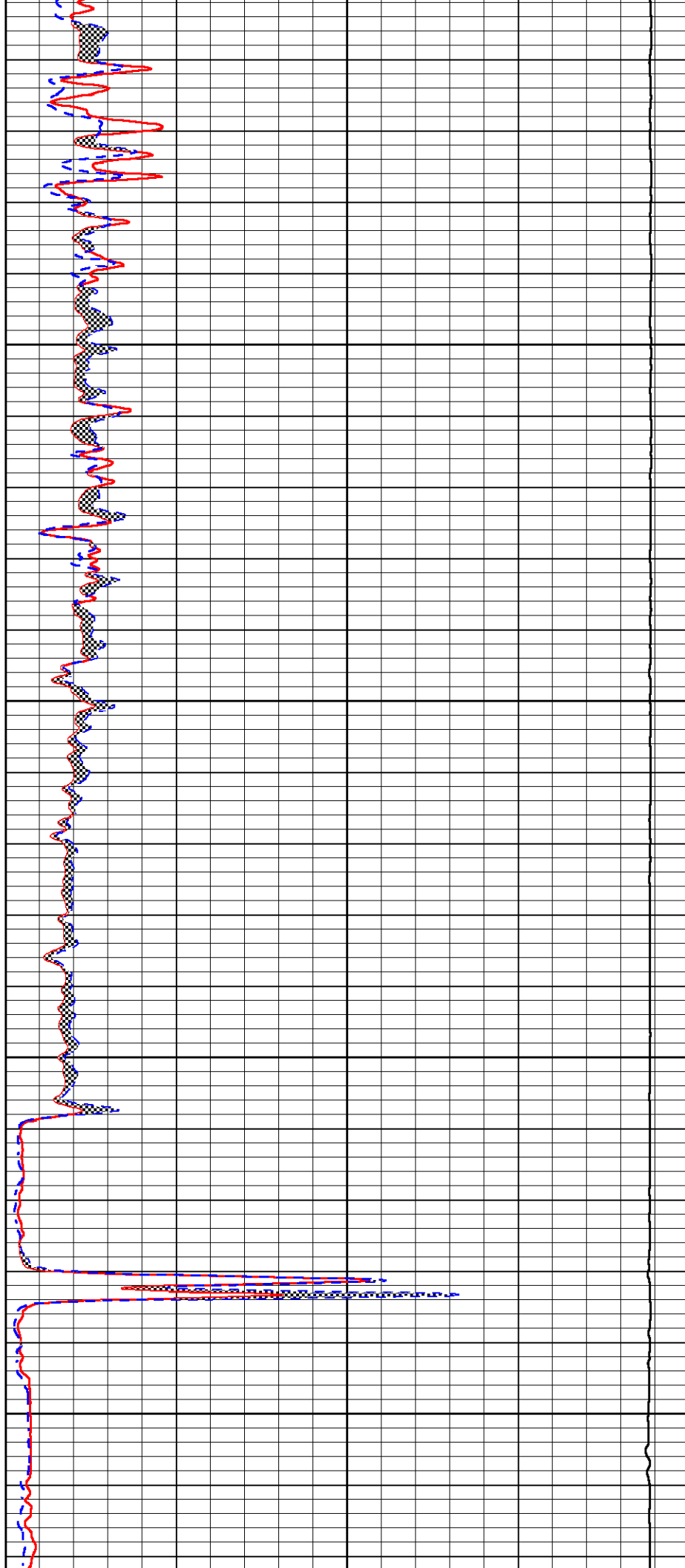


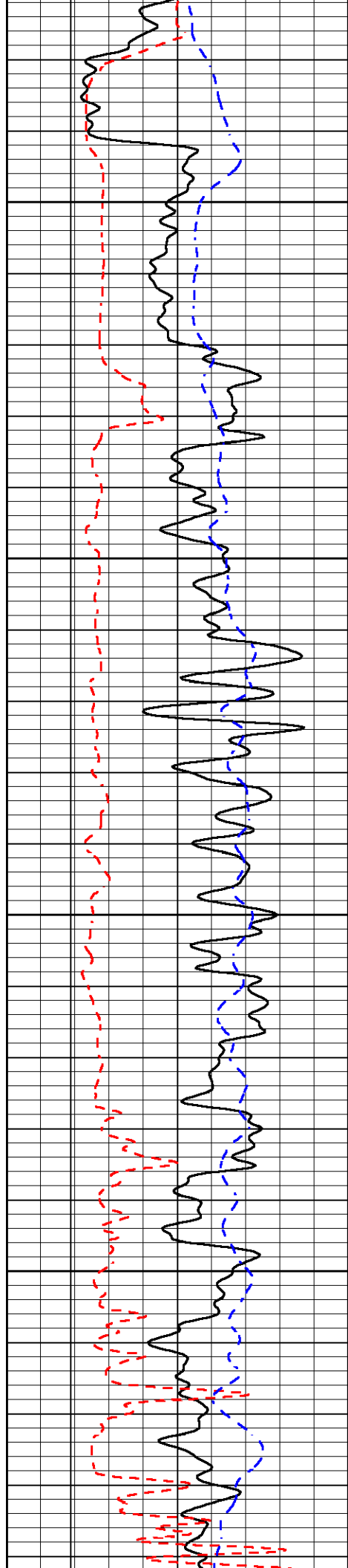
1750

1800

1850

1900



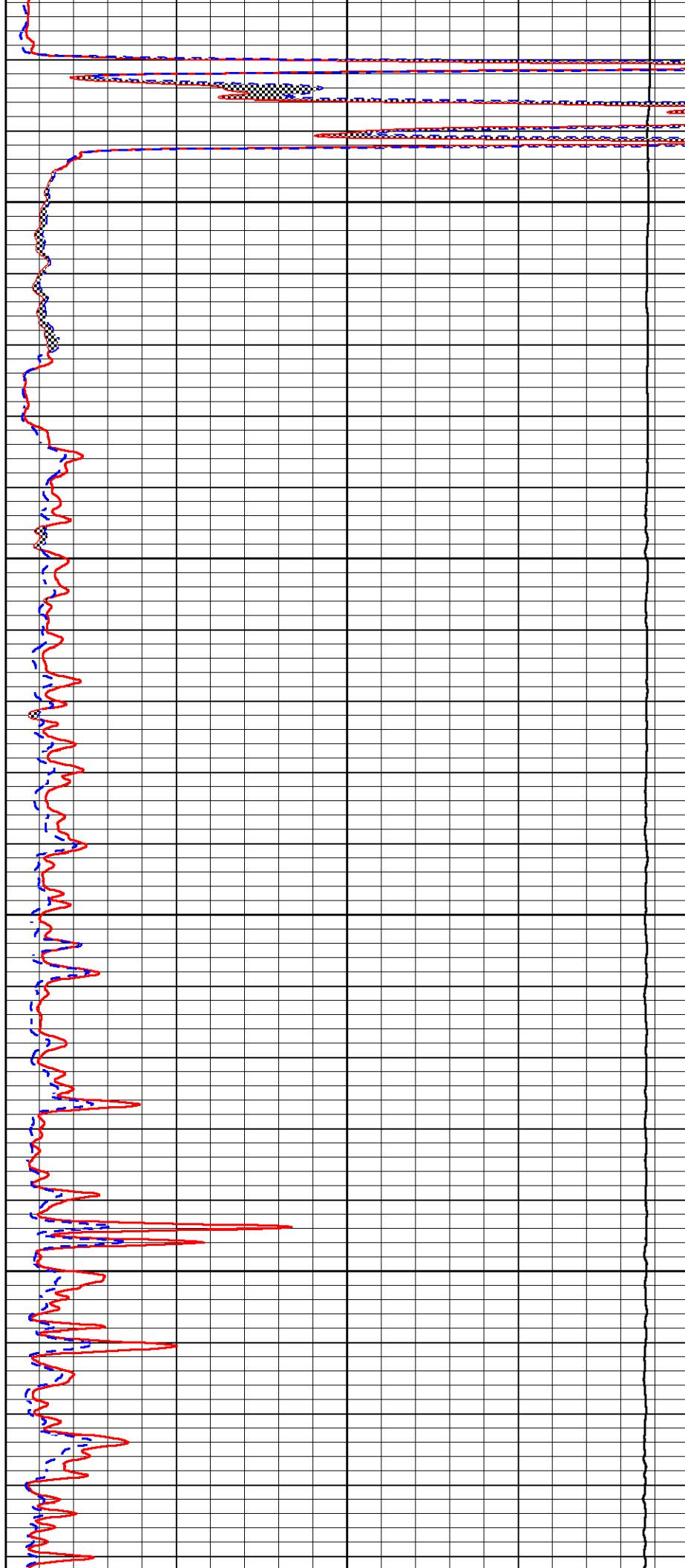


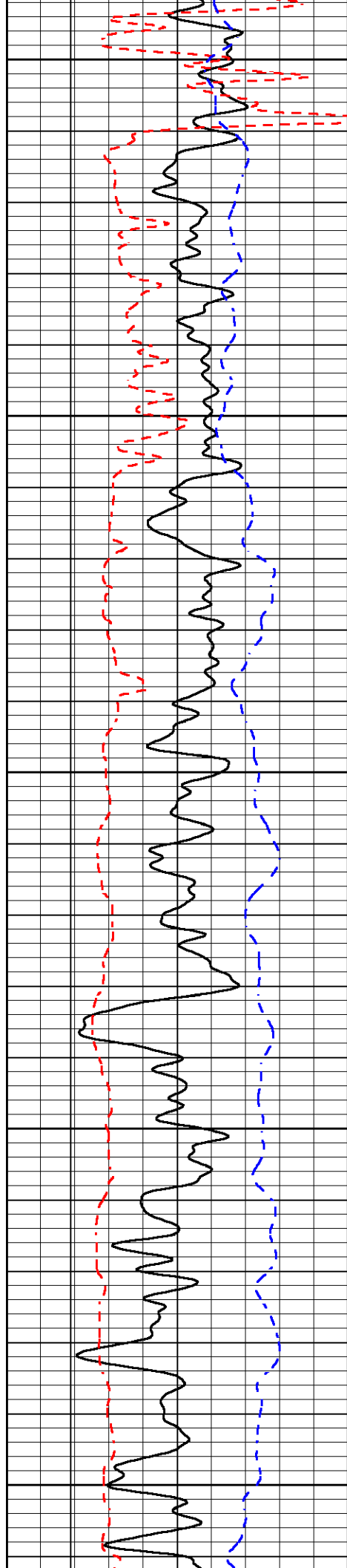
1950

2000

2050

2100





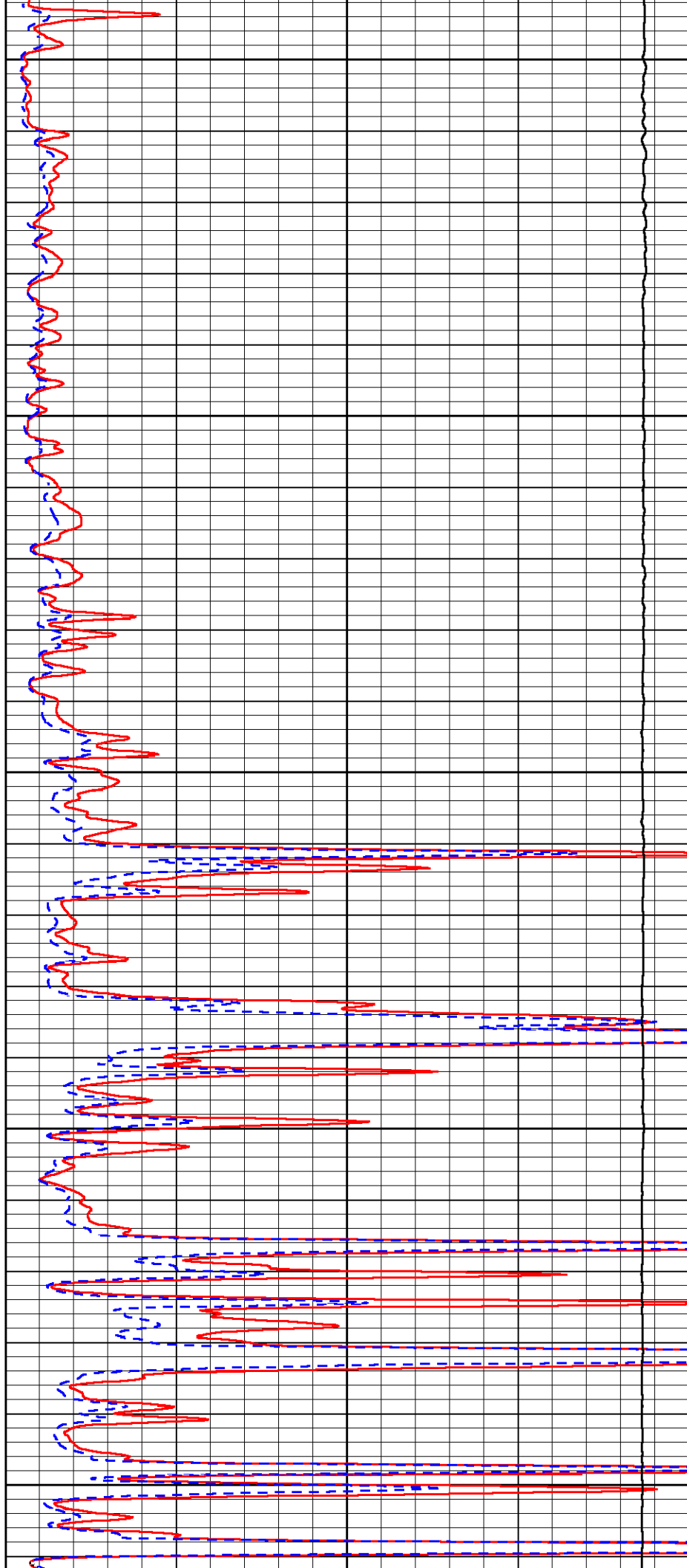
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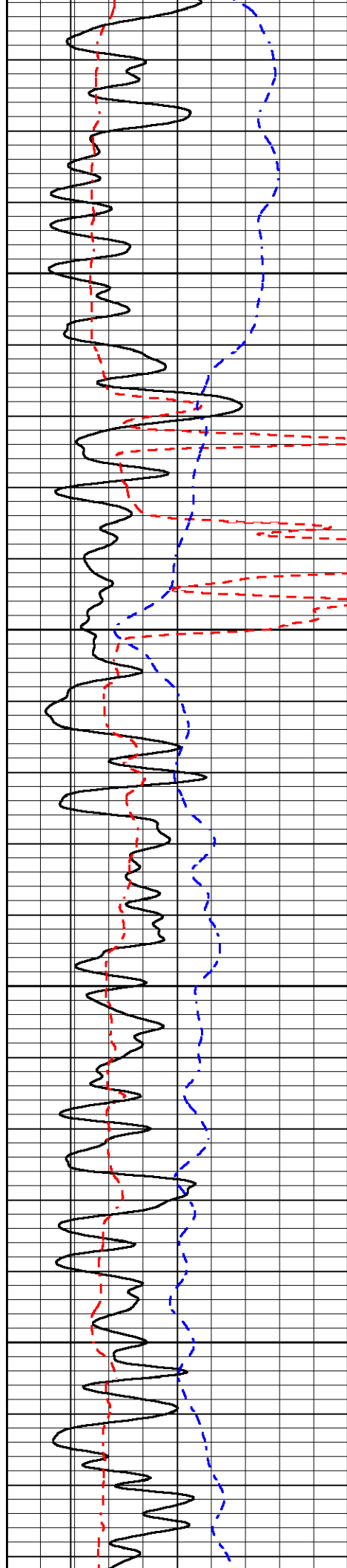
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2250

2300

2350



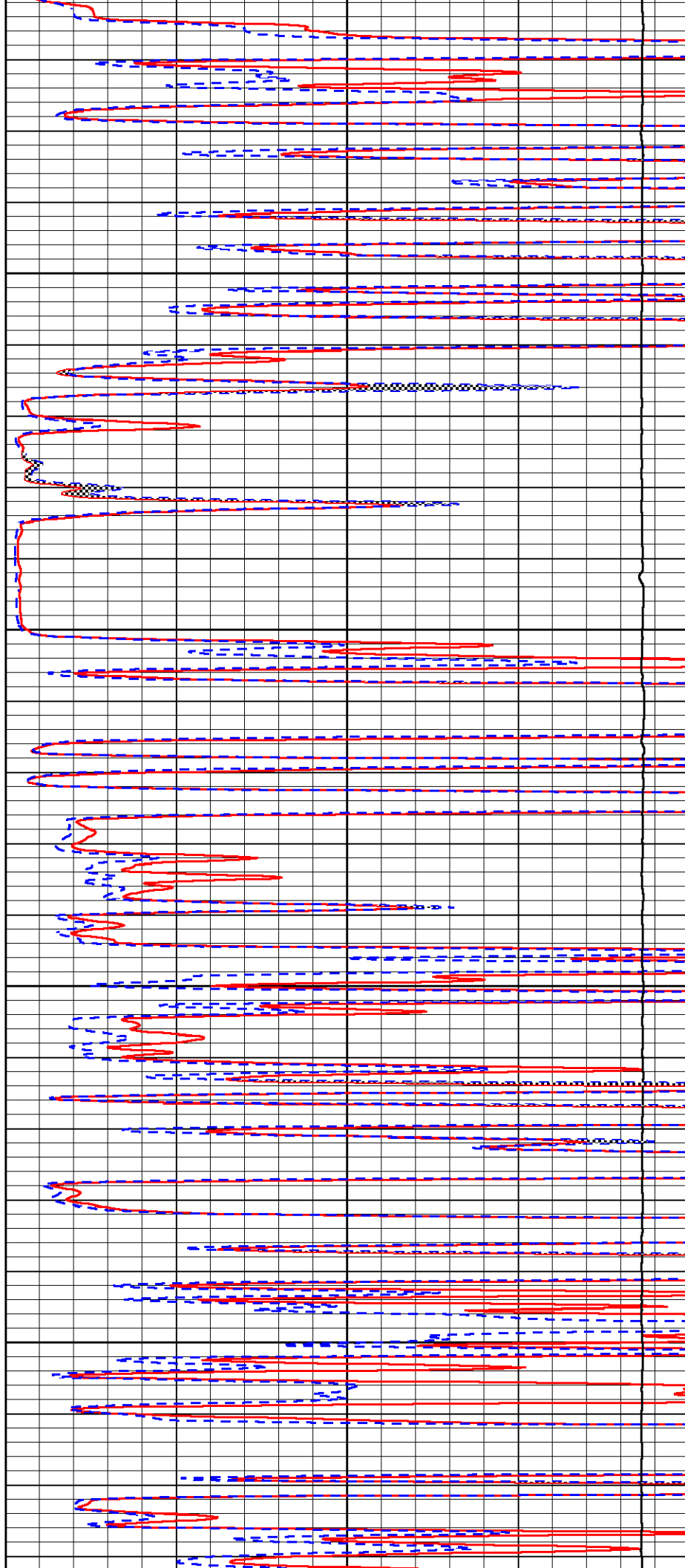


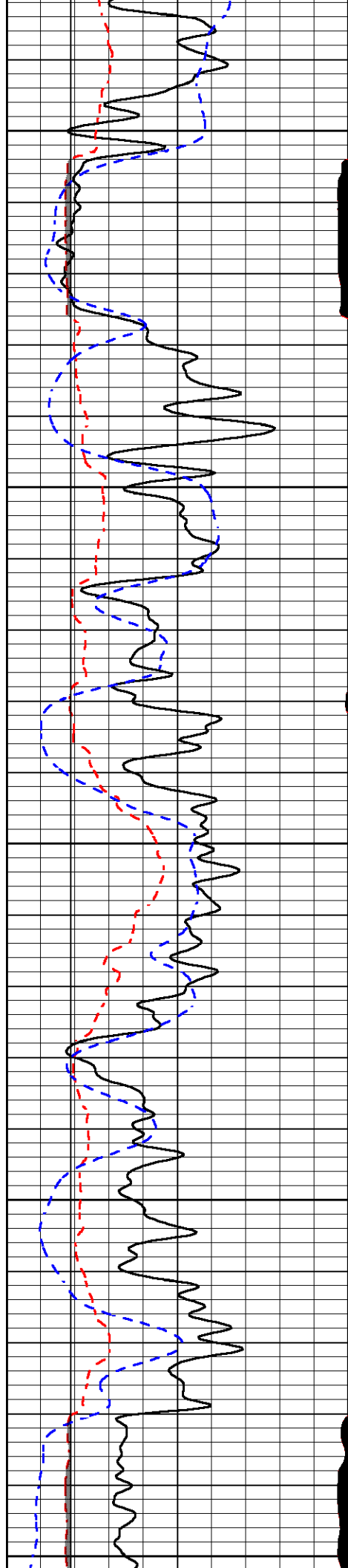
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2450

2500

2550





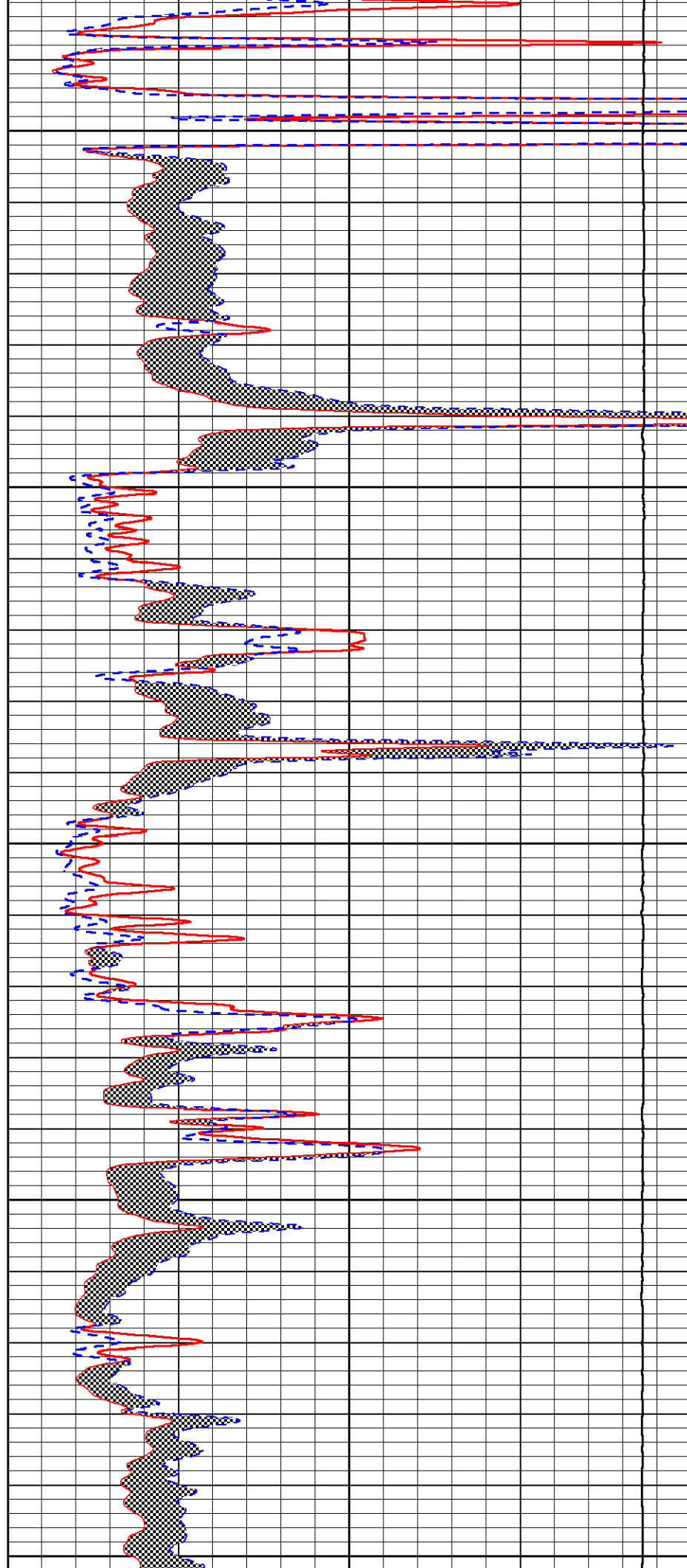
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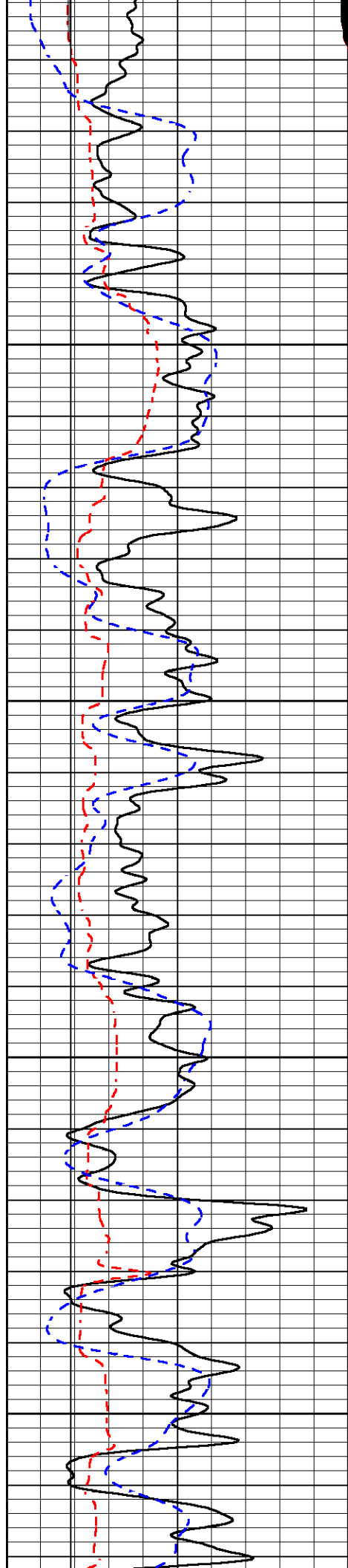
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2700

2750

2800



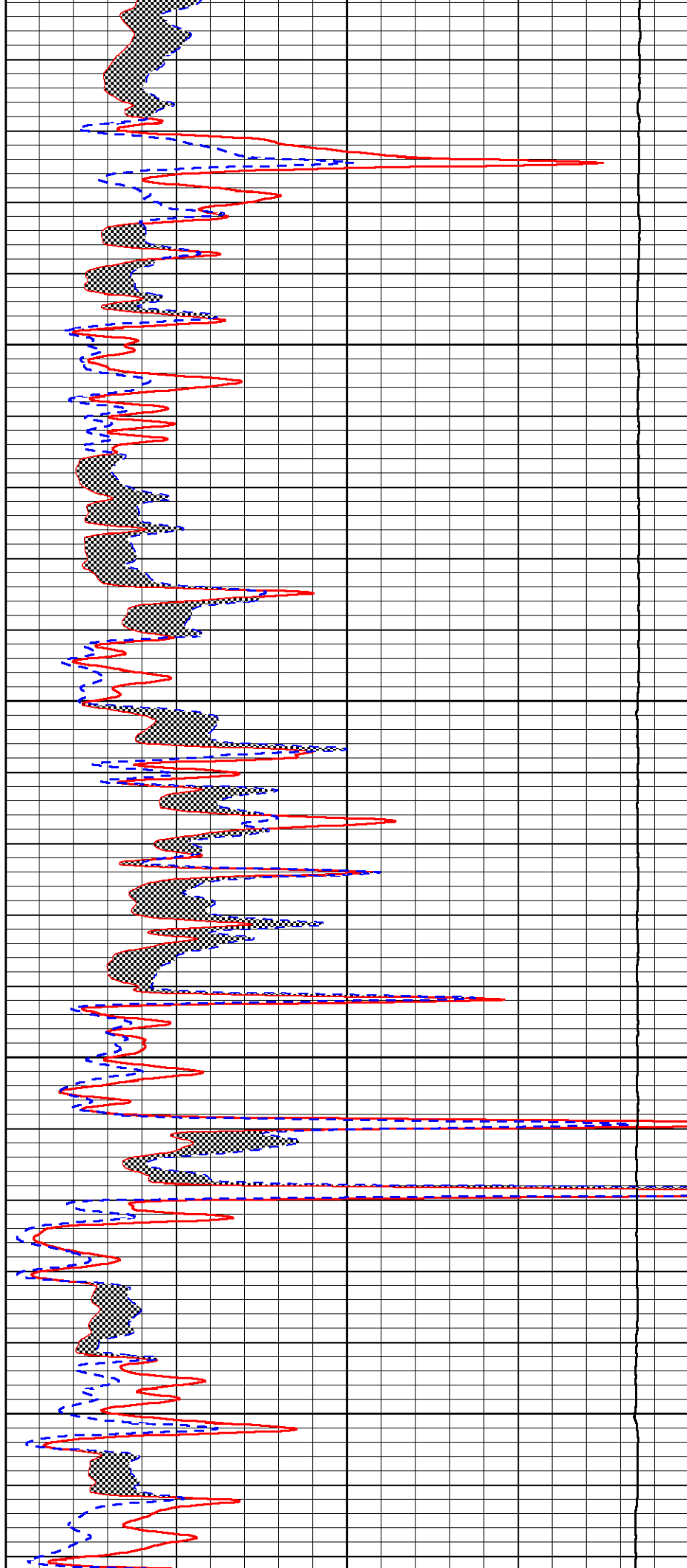


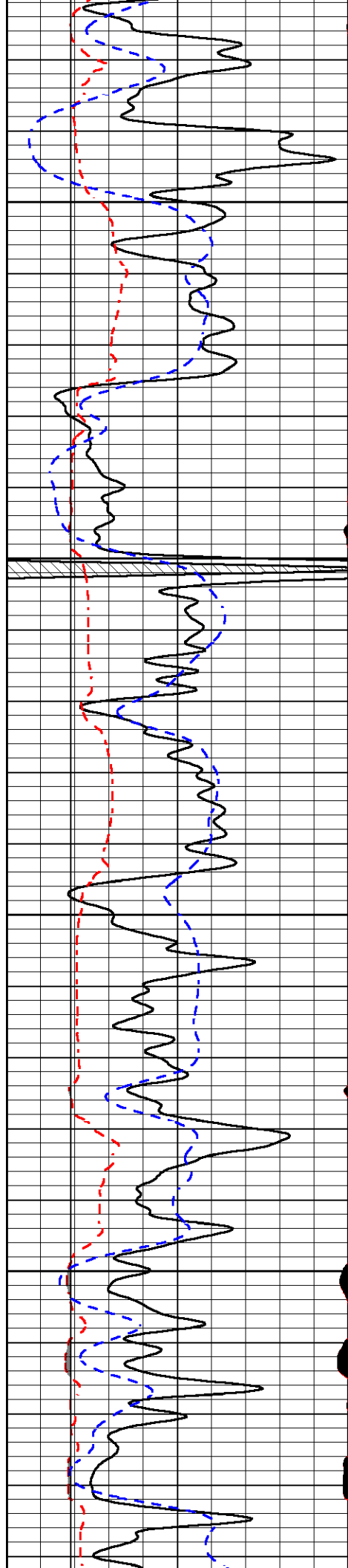
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2900

2950

3000



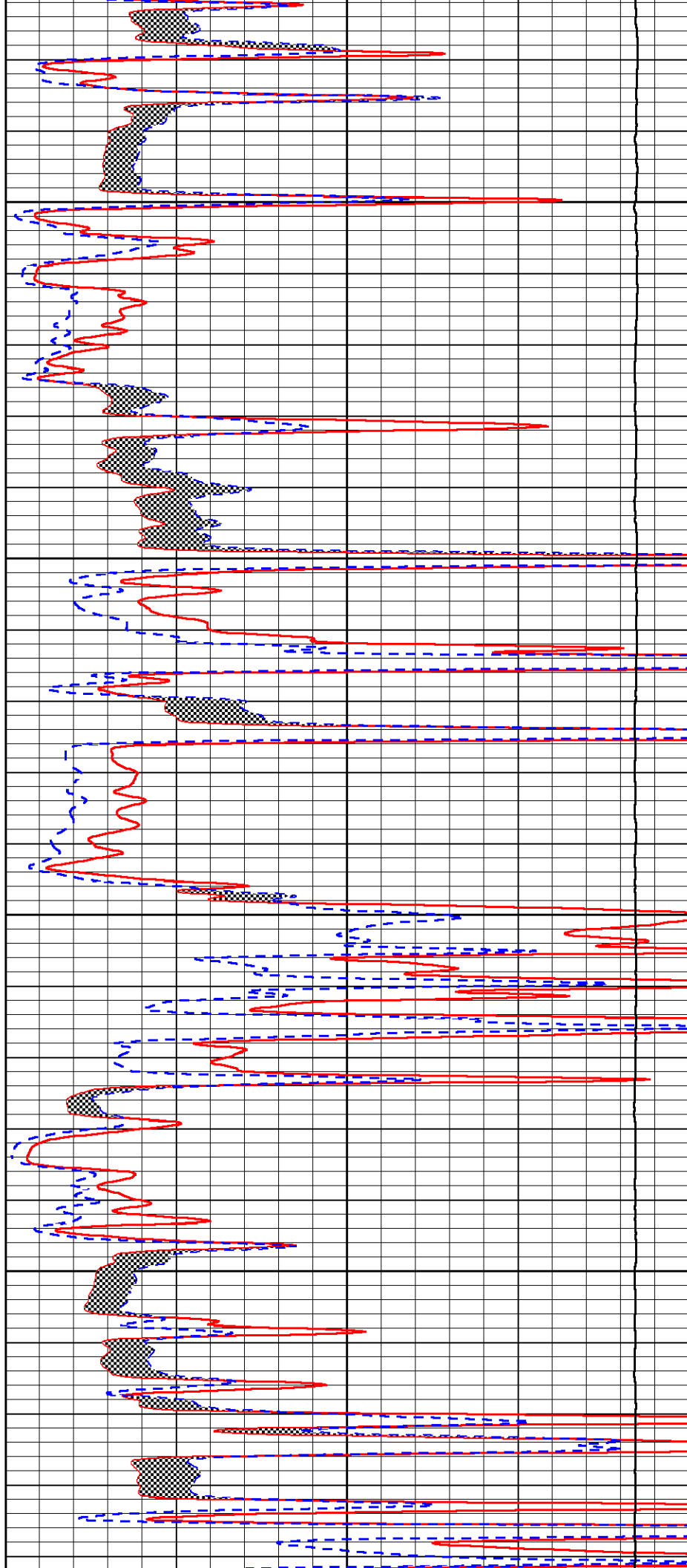


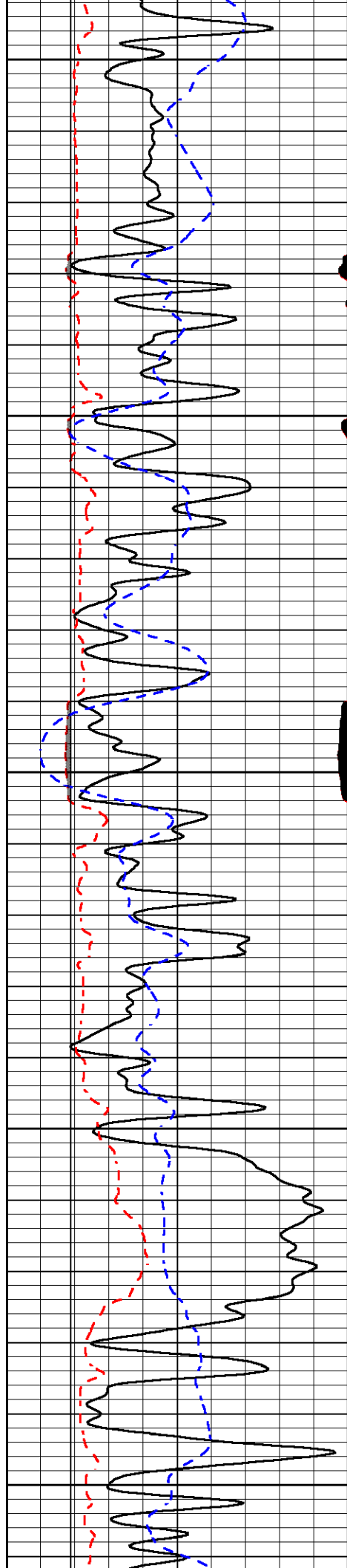
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3100

3150

3200





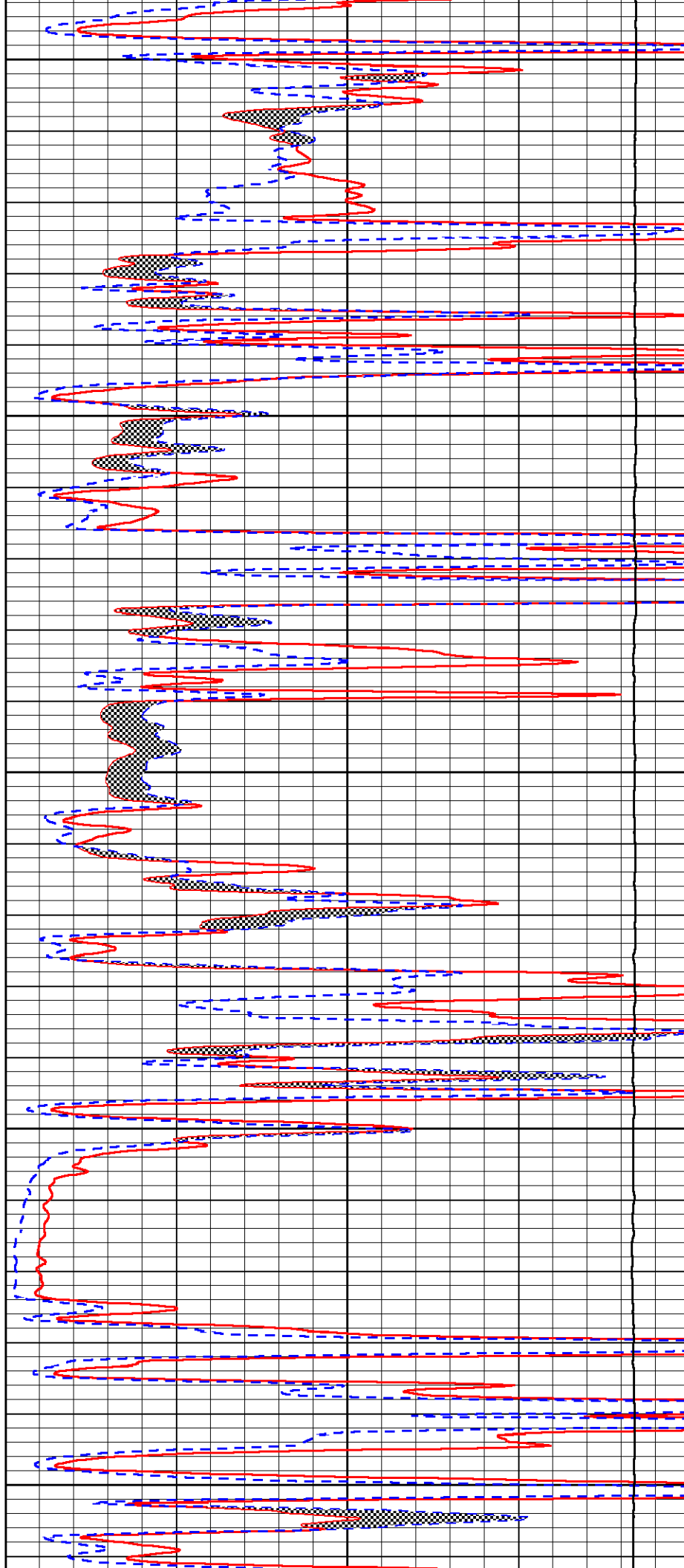
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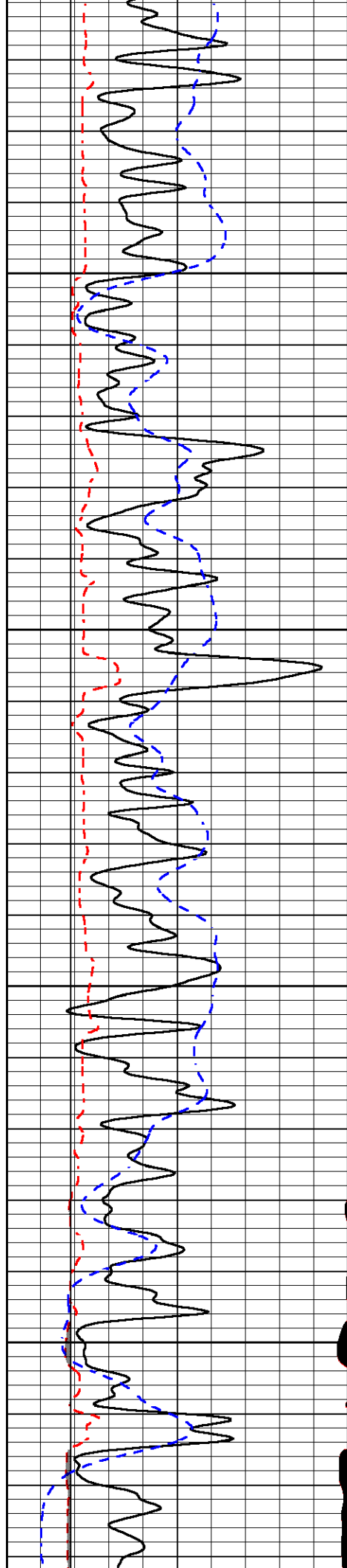
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3350

3400

3450



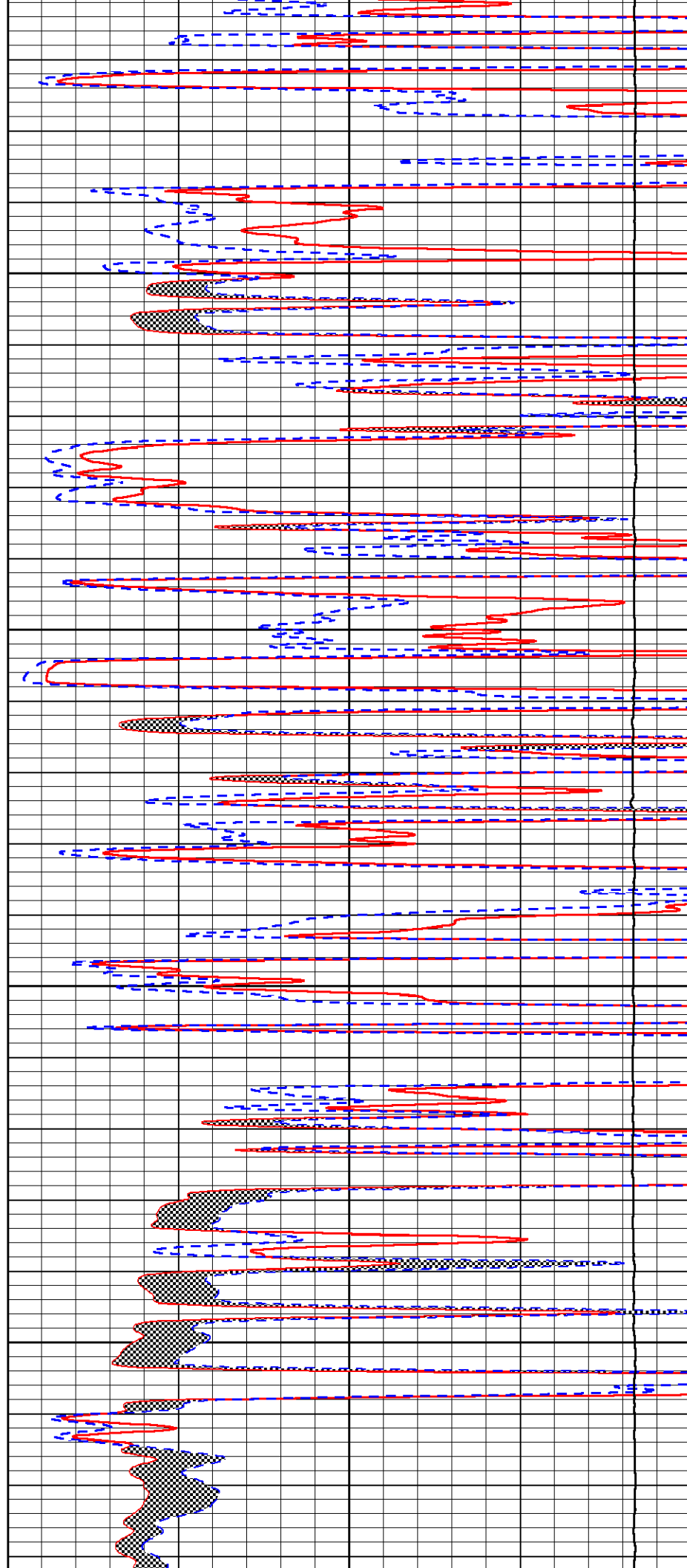


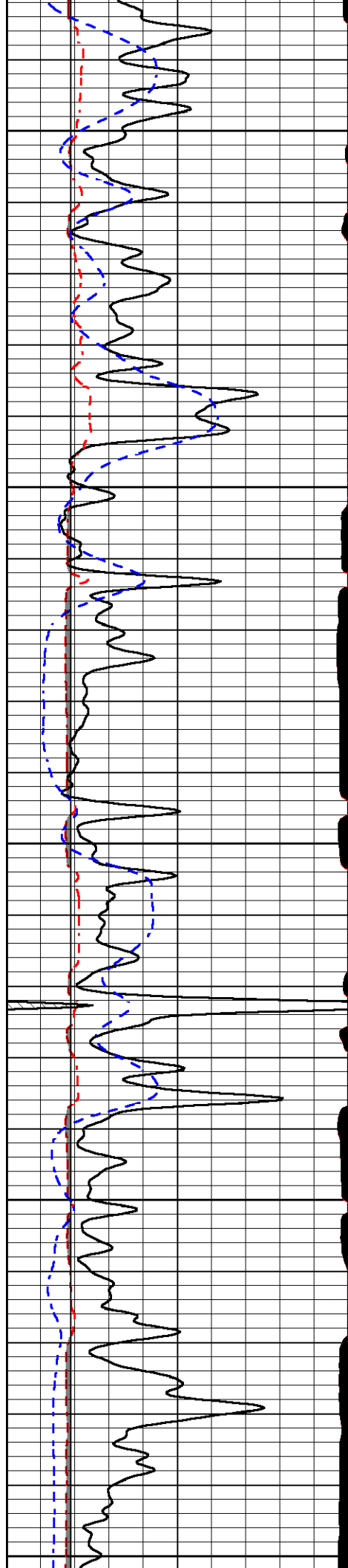
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3550

3600

3650





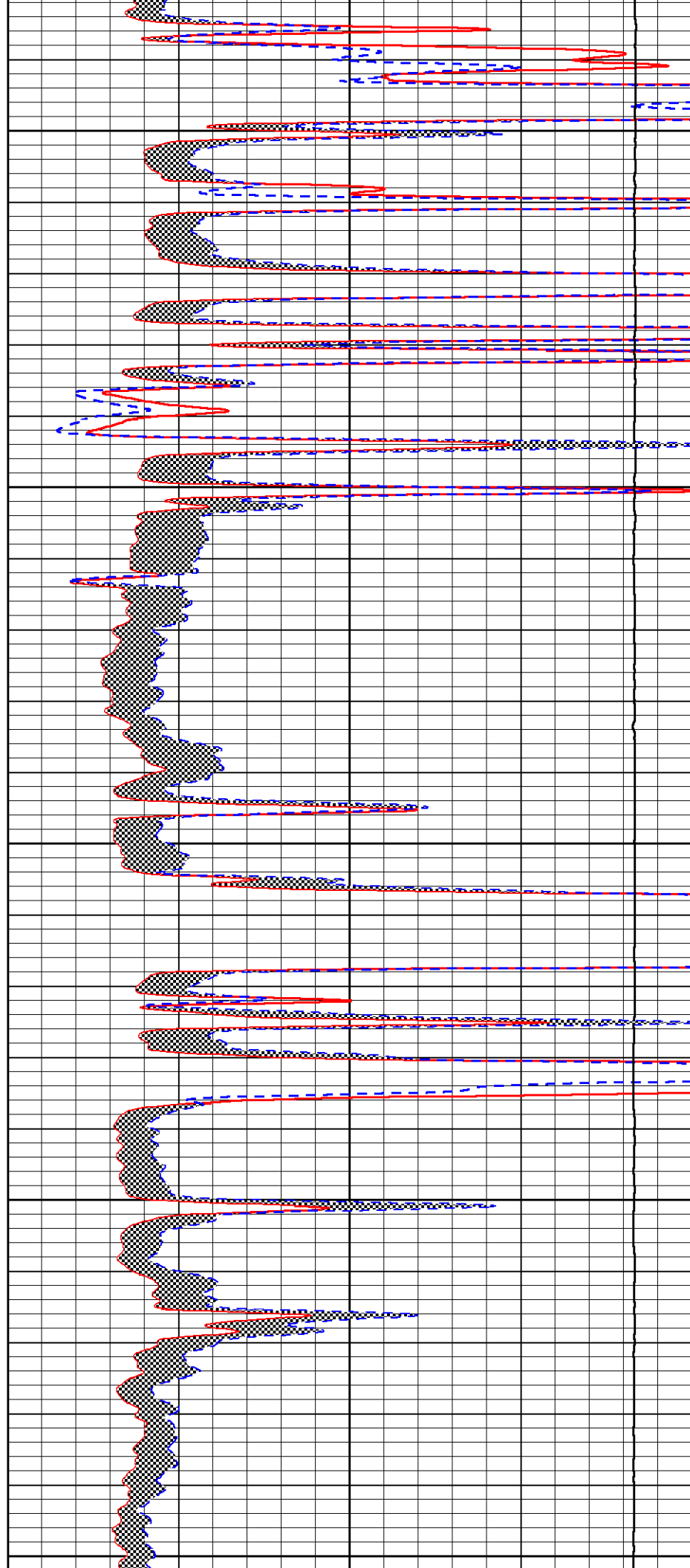
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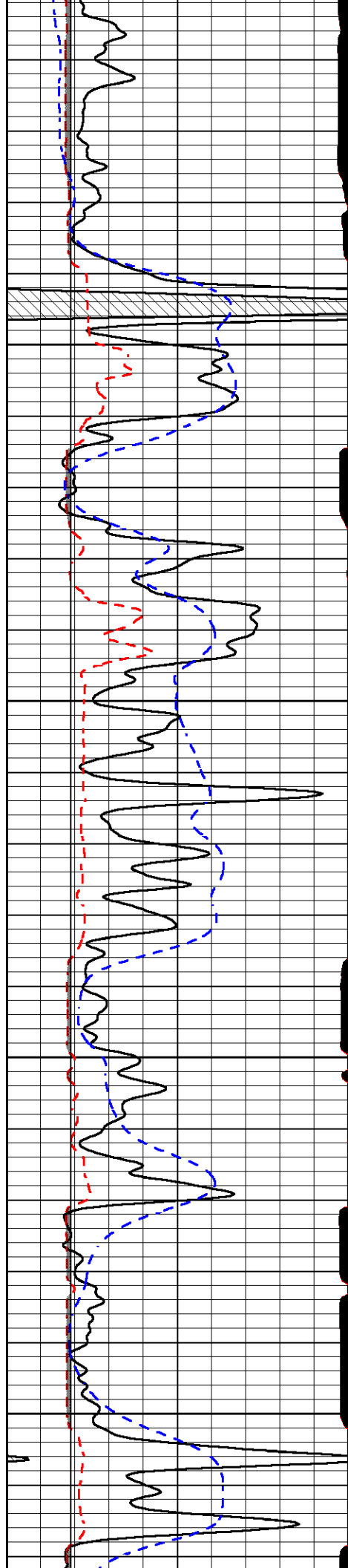
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3800

3850

3900



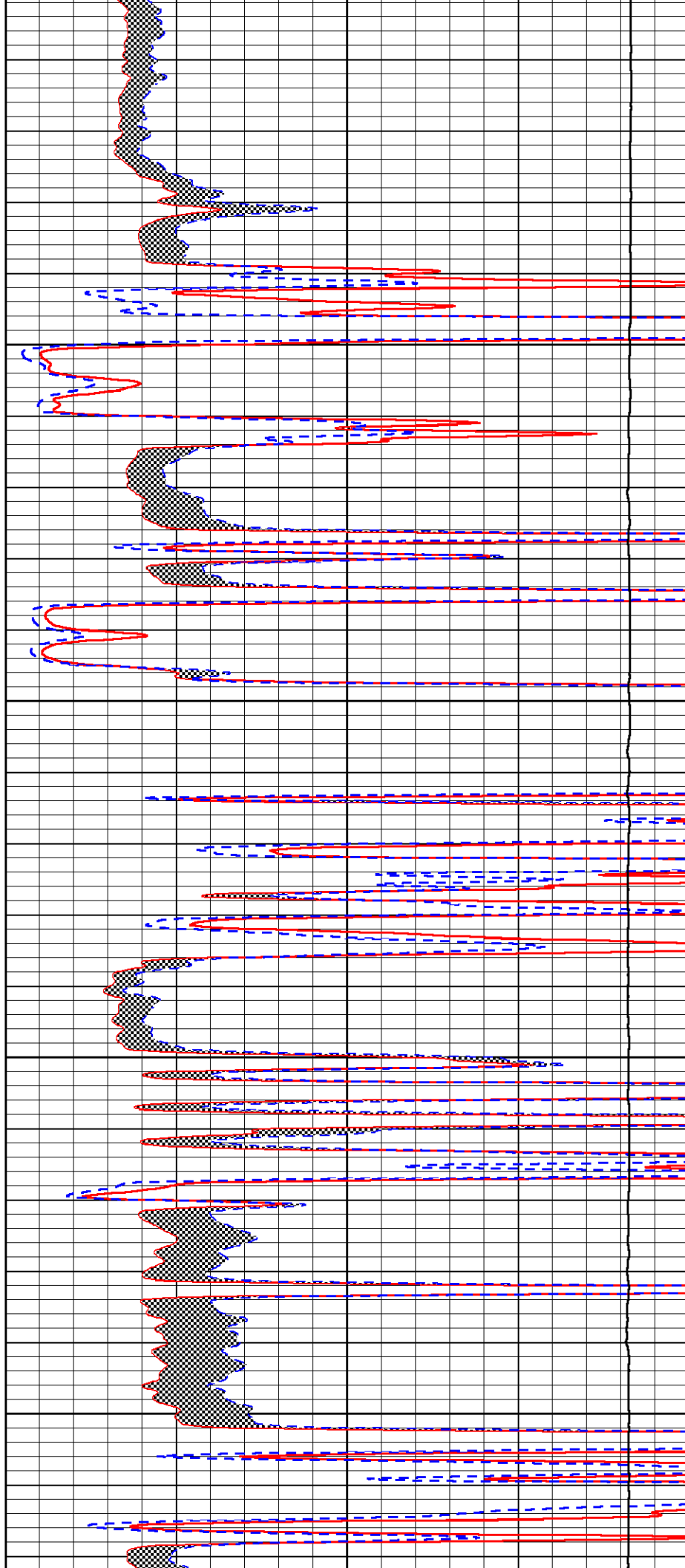


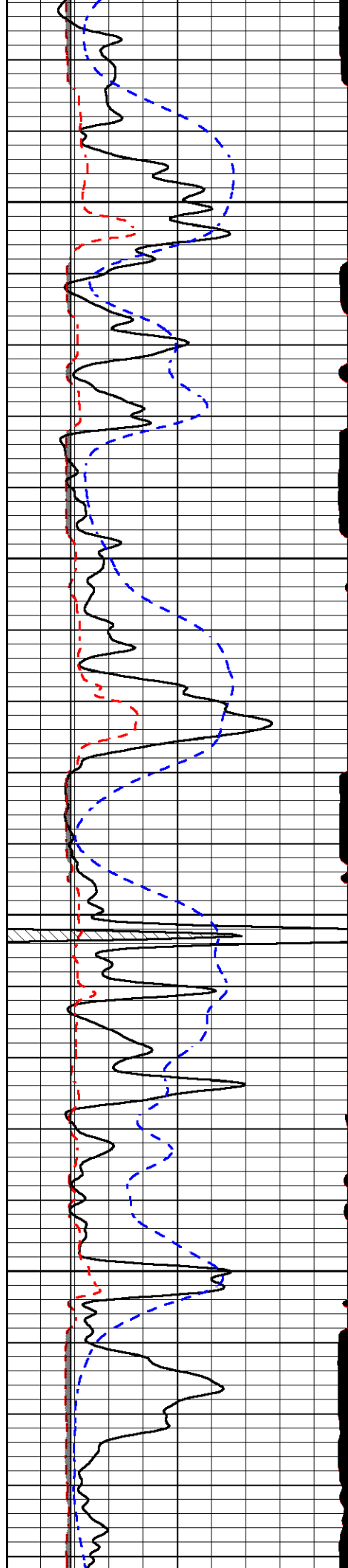
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4000

4050

4100



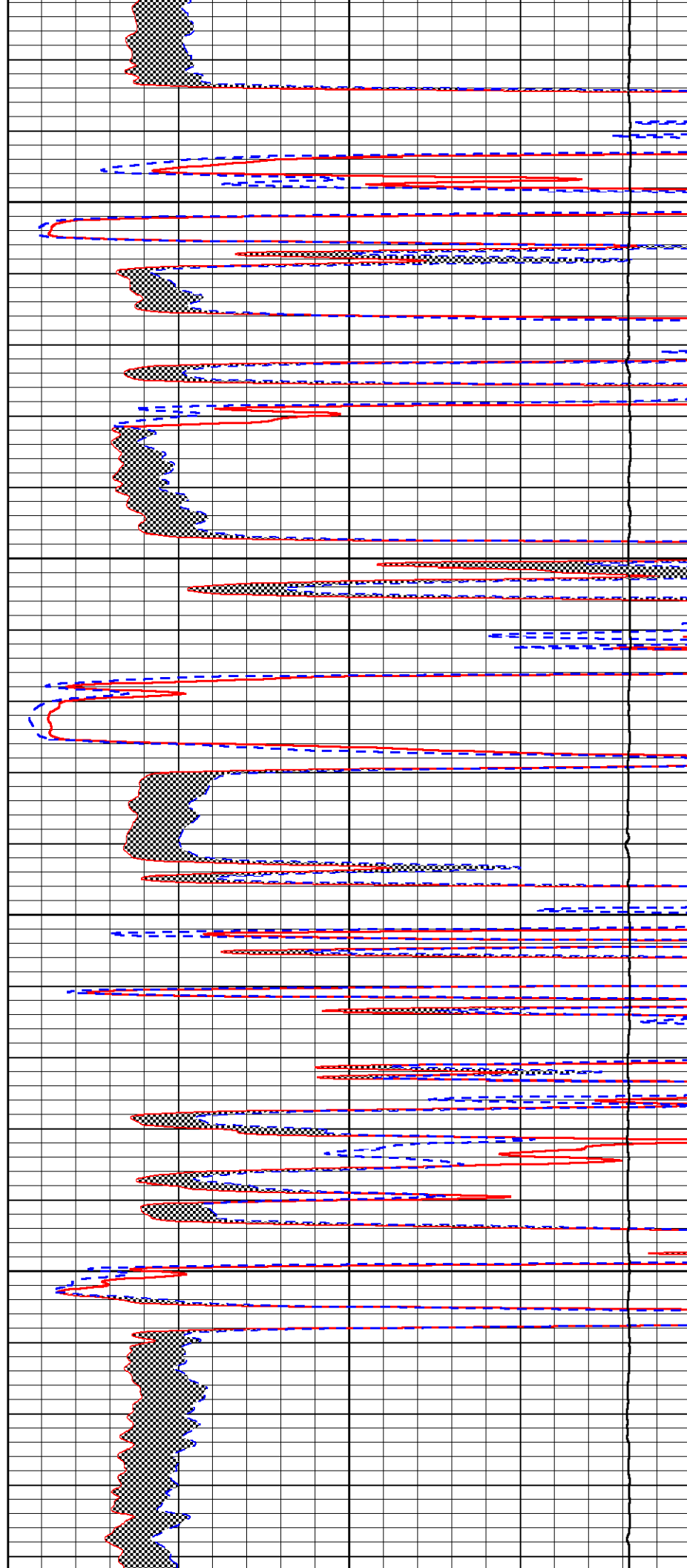


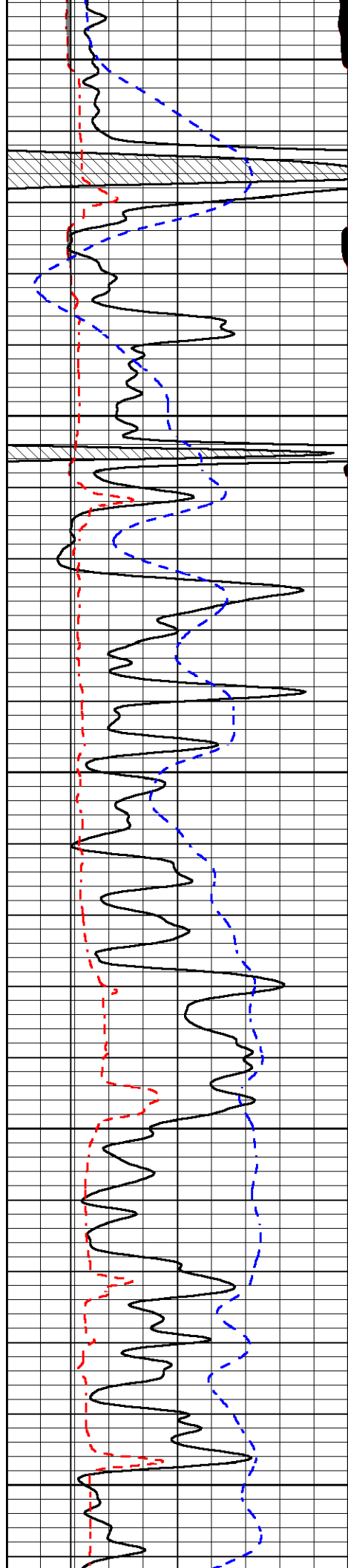
4150

4200

4250

4300





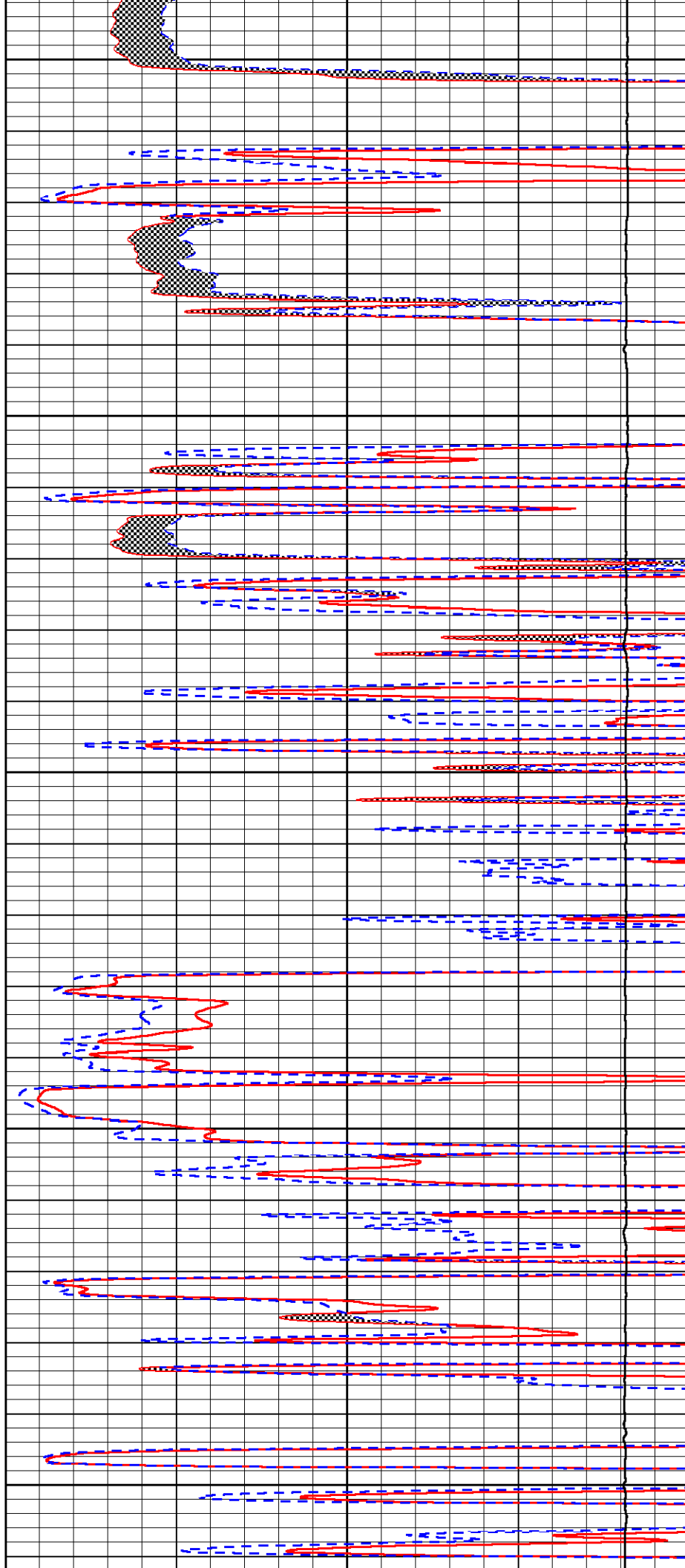
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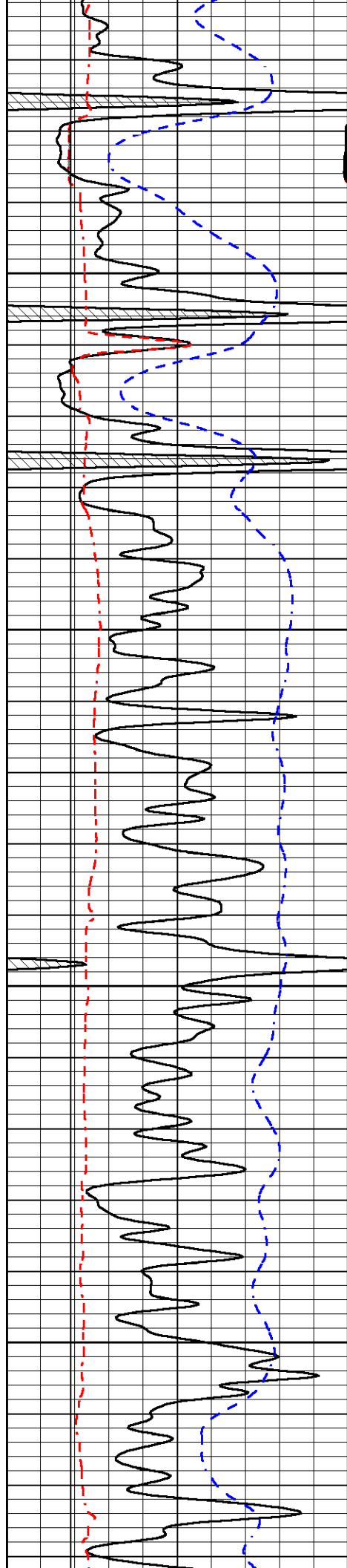
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4450

4500

4550



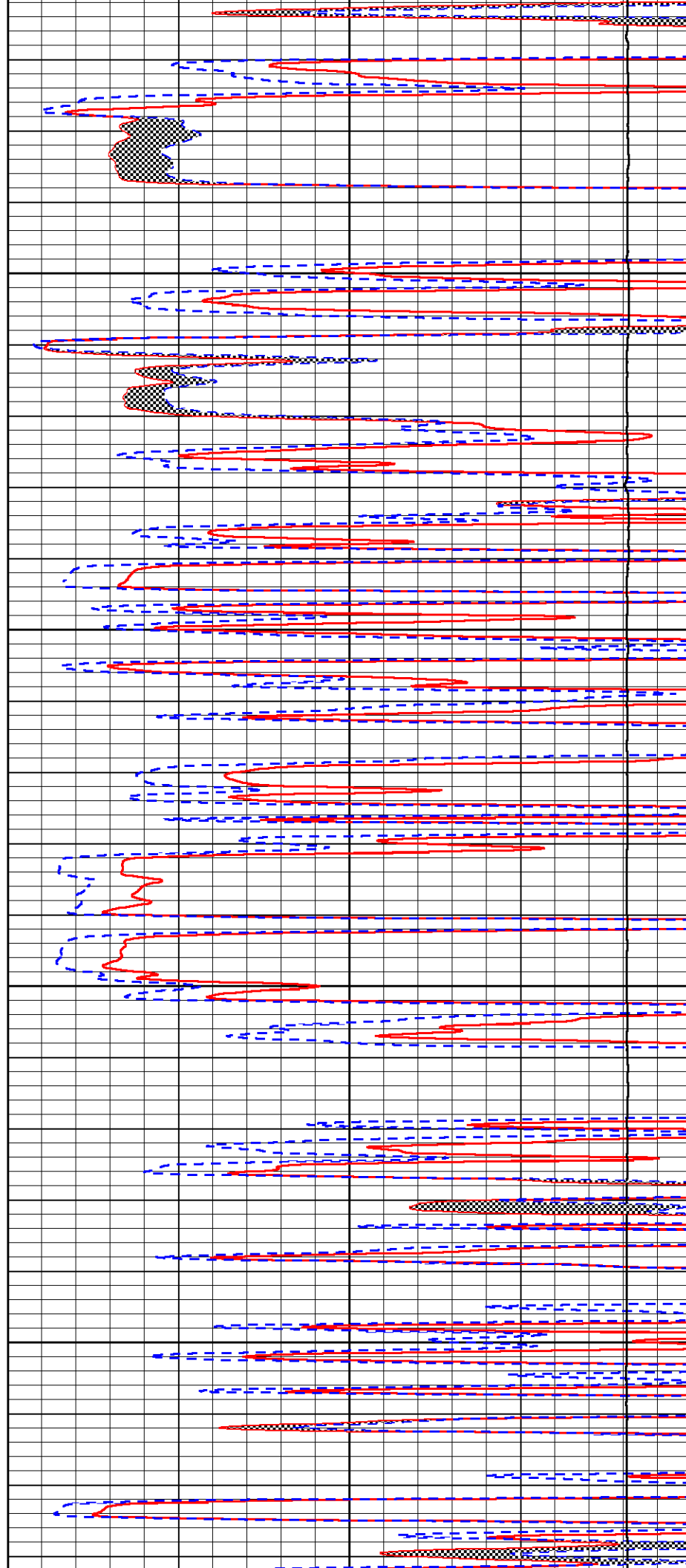


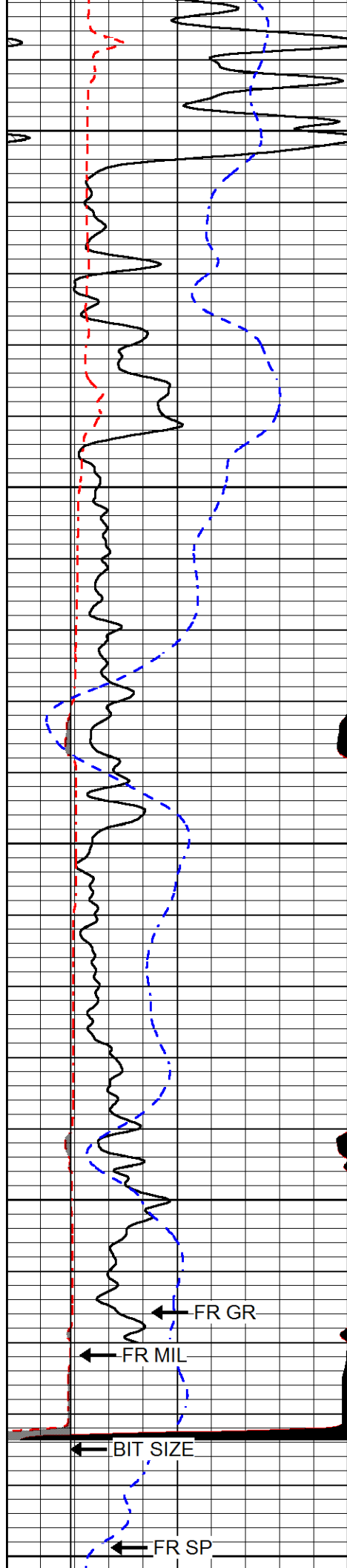
4600

4650

4700

4750





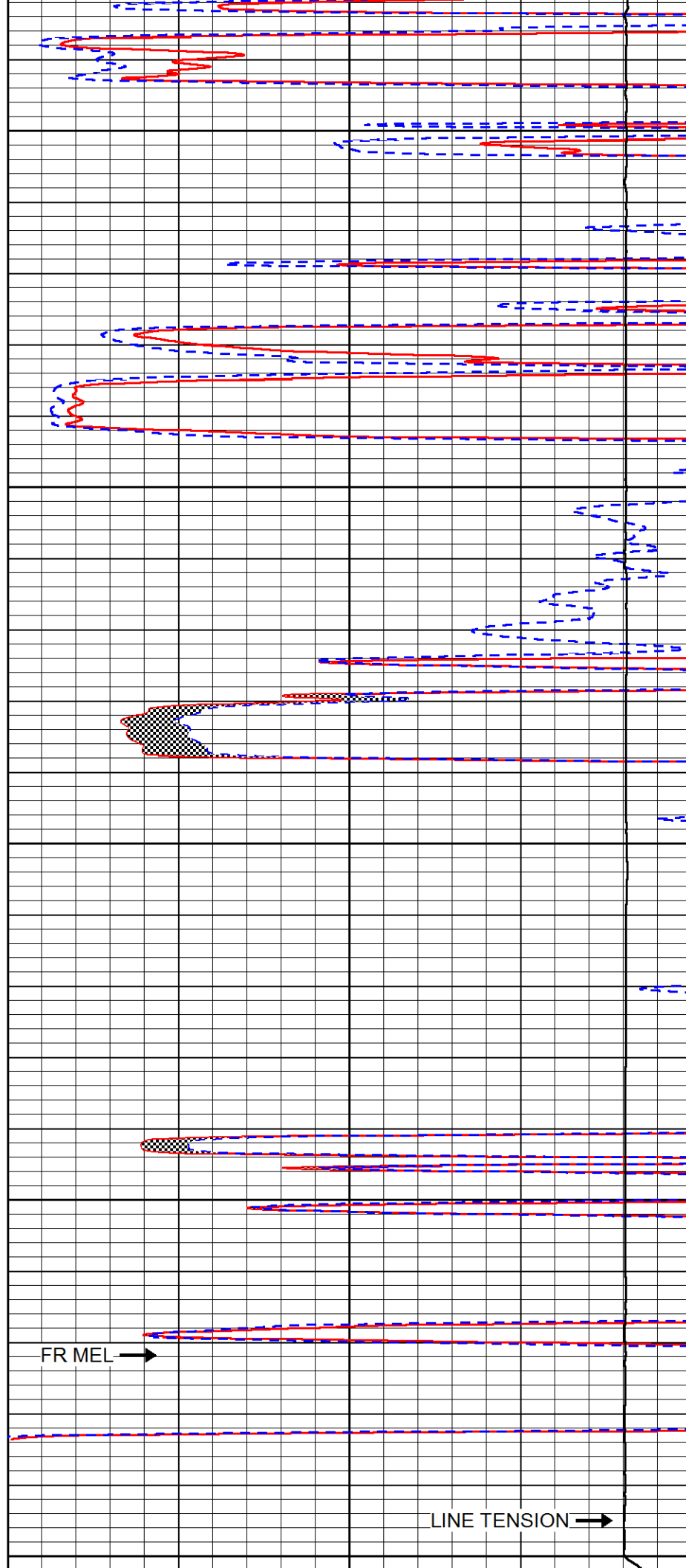
4800

4850

4900

4950

5000



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

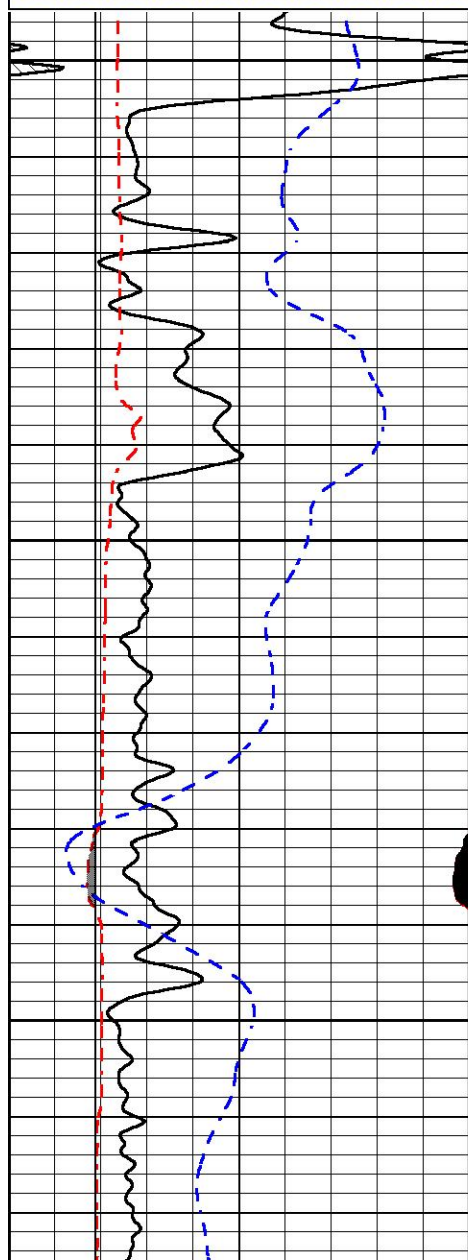


REPEAT SECTION

Database File amwarrior_hicks_a_1-24.db
Dataset Pathname stack/pass2.1
Presentation Format micro
Dataset Creation Sun Jan 08 01:56:56 2017
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

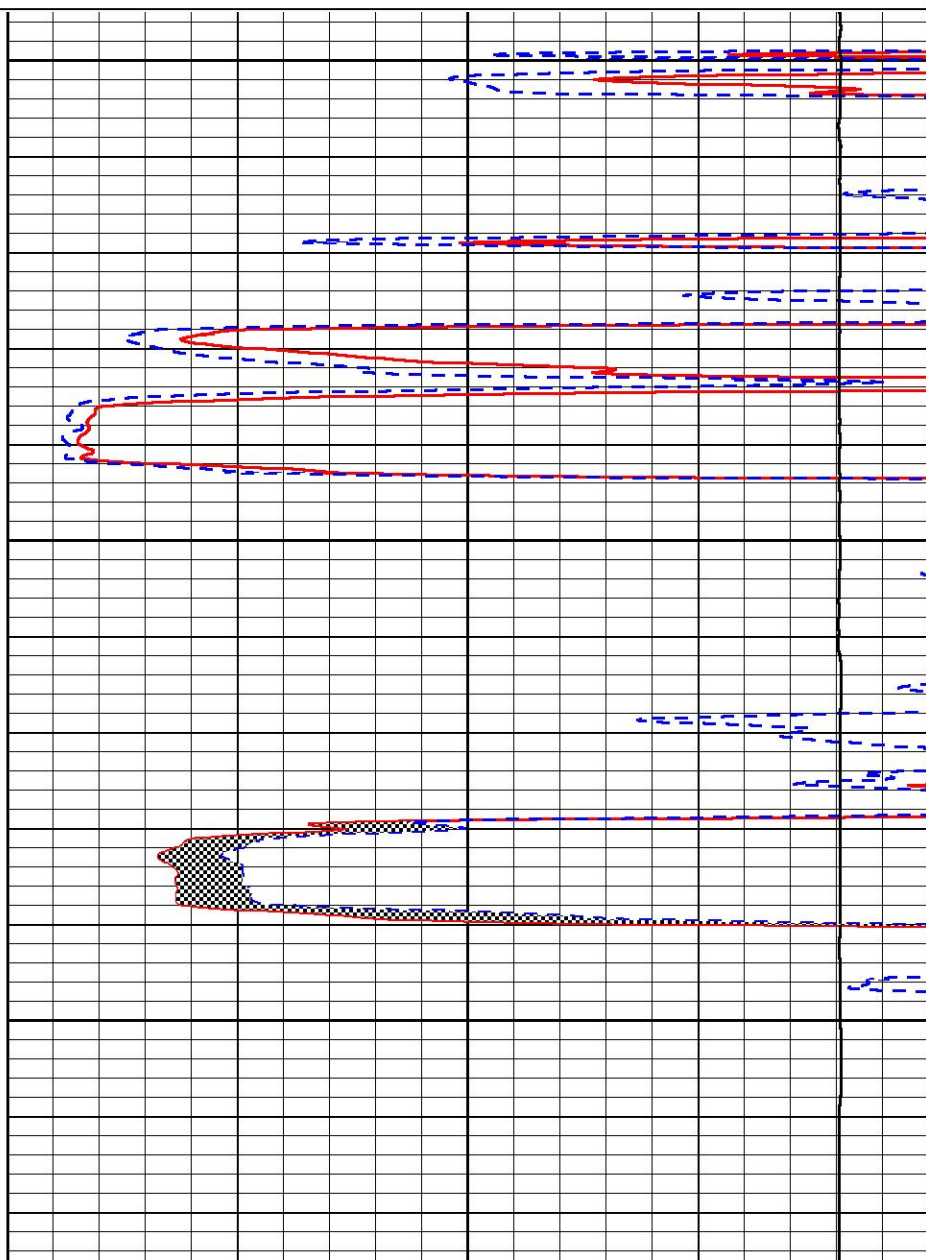
0	MICRO INVERSE 1 X 1 (Ohm-m)	40
0	MICRO NORMAL 2" (Ohm-m)	40
15000	LINE TENSION (lb)	0

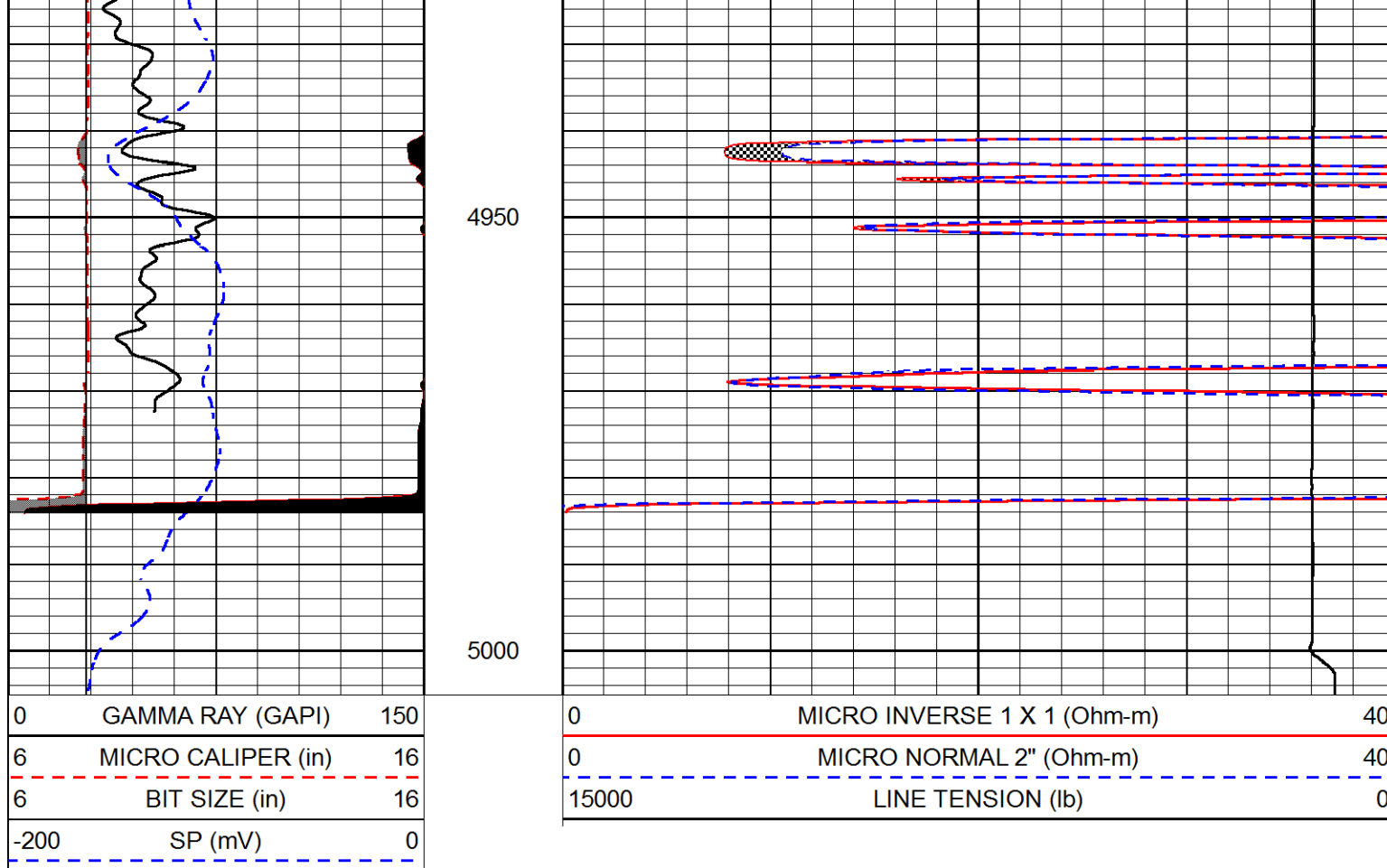


4800

4850

4900





Calibration Report		
Database File	amwarrior_hicks_a_1-24.db	
Dataset Pathname	stack/pass3.17	
Dataset Creation	Sun Jan 08 01:43:56 2017	

Dual Induction Calibration Report

Serial-Model:	1987-M&W
Calibration Performed:	Fri Dec 23 14:41:51 2016

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	178.615	710.235	0.000	255.800	mmho/m	0.490	-32.000
Medium	161.982	1441.110	0.000	255.800	mmho/m	0.400	-101.000

Compensated Density Calibration Report

Serial-Model:	71-914-M&W
Source / Verifier:	/
Master Calibration Performed:	Fri Dec 23 14:42:24 2016

Master Calibration						
	Density			Far Detector	Near Detector	
Magnesium	1.755	g/cc		4314.49	5307.52	cps
Aluminum	2.680	g/cc		822.19	3456.36	cps
Spine Angle = 75.49			Density/Spine Ratio = 0.540			

	Size		Reading
Small Ring	4.00	in	1.16
Large Ring	14.00	in	1.57

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:	Fri Dec 23 14:43:38 2016	
Calibrator Value:	1000.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	6.2	cps
Sensitivity:	0.5600	GAPI/cps

Calibration Report	
Database File	amwarrior_hicks_a_1-24.db
Dataset Pathname	sonmel/pass1
Dataset Creation	Sun Jan 08 04:05:28 2017

Microlog Calibration Report

Serial-Model:	Armadillo-1-Armadillo
Performed:	Fri Nov 18 10:19:49 2016

	Readings			References			Results	
	Zero	Cal		Zero	Cal		m	b
Normal	0.0122	1.0361	V	0.0000	10.0000	Ohm-m	35.0000	-2.0000
Inverse	-0.0037	0.9549	V	0.0000	10.0000	Ohm-m	25.0000	-0.6000
Caliper	1.1139	8.3644	V	5.0000	19.0000	in	1.9309	3.0493

	Company	AMERICAN WARRIOR, INC.
	Well	HICKS "A" NO. 1-24
	Field	WILDCAT
	County	FINNEY
	State	KANSAS