



PIONEER

Pioneer Energy Services

DUAL INDUCTION LOG

Company MURFIN DRILLING COMPANY, INC.

Well KEN NO. 3-17
Field WILDCAT
County RAWLINS
State KANSAS

Company MURFIN DRILLING COMPANY, INC.
Well KEN NO. 3-17
Field WILDCAT
County RAWLINS State KANSAS

Location: API #: 15-153-21193-00-00

SEC 17 TWP 1S RGE 35W

Permanent Datum GROUND LEVEL Elevation 3176'

Log Measured From KELLY BUSHING

Drilling Measured From KELLY BUSHING

Other Services

CNL/CDL
MEL/BHCS

Elevation
K.B. 3181'
D.F. N/A
G.L. 3176'

Date 7/14/2017

Run Number ONE

Depth Driller 4470'

Depth Logger 4470'

Bottom Logged Interval 4469'

Top Log Interval 00

Casing Driller 8.625" @ 261'

Casing Logger 260'

Bit Size 7.875"

Type Fluid in Hole CHEMICAL

Salinity, ppm CL 600

Density / Viscosity 9.0 62

pH / Fluid Loss 10.5 5.6

Source of Sample FLOWLINE

Rm @ Meas. Temp 1.10 @ 76

Rmt @ Meas. Temp .83 @ 76

Rmc @ Meas. Temp 1.49 @ 76

Source of Rmt / Rmc CHARTS

Rm @ BHT .69 @ 121

Operating Rig Time 4 HOURS

Max Rec. Temp. F 121 DEGF

Equipment Number 108

Location HAYS

Recorded By J. HENRICKSON

Witnessed By CLAYTON ERICKSON

<<< 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.

BEARDSLEY KANSAS
NORTH TO AA ROAD, WEST TO 7 ROAD, NORTH TO CC ROAD,
3/4 EAST, SOUTH 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: CLAYTON ERICKSON
Secondary Witness:
Secondary Witness:
Secondary Witness:

Top - Bottom

A	BOREID	BOTTEMP	CASEOD	CASETHCK	FLUIDDEN	M	MATRXDEN
1	in 7.875	degF 121	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 -470	degF 84	Off	ft 4470

Sensor	Offset (ft)	Schematic		Description	Length (ft)	O.D. (in)	Weight (lb)
GR	33.00			GR-M&W (89-M&W)	3.00	3.50	50.00
CNLSC CNSSC	29.90			CNT-M&W (tk10-MW)	5.50	3.50	100.00
	29.15						
LSD DCAL SSD	20.85			CDL-M&W (168-986)	8.50	4.00	250.00
	20.83						
	20.35						
RLL3 RLL3F	15.80						
	15.79						
CILD	8.00			DIL-M&W (1987)	18.50	3.50	220.00

CILM 4.70

SP 0.20

Dataset: murfin_ken_3_17.db: field/well/stack/pass3.1
Total length: 35.50 ft
Total weight: 620.00 lb
O.D.: 4.00 in



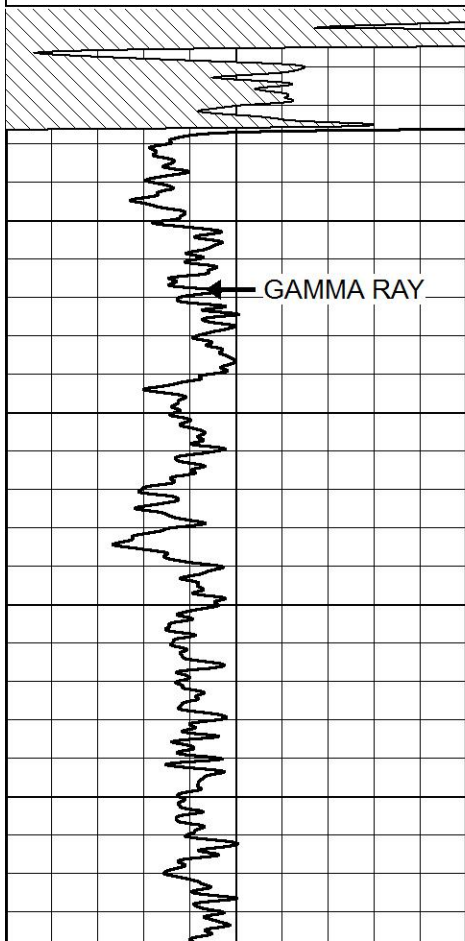
MAIN PASS

Database File murfin_ken_3_17.db
Dataset Pathname stack/pass3.1
Presentation Format dil2in
Dataset Creation Fri Jul 14 15:35:11 2017
Charted by Depth in Feet scaled 1:600

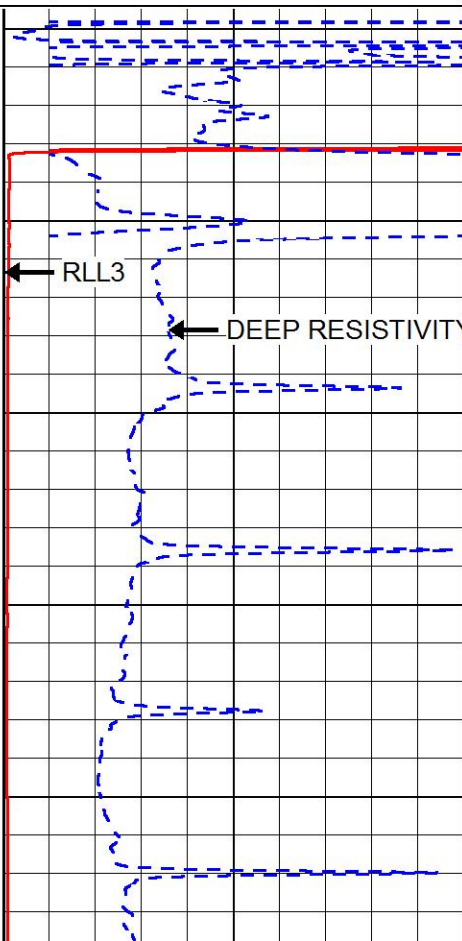
0 GAMMA RAY (GAPI) 150

2000 CONDUCTIVITY (mmho/m) 0

0 RLL3 (Ohm-m) 50
0 DEEP RESISTIVITY (Ohm-m) 50
50 RLL3 (Ohm-m) 500
DEEP RESISTIVITY
50 (Ohm-m) 500



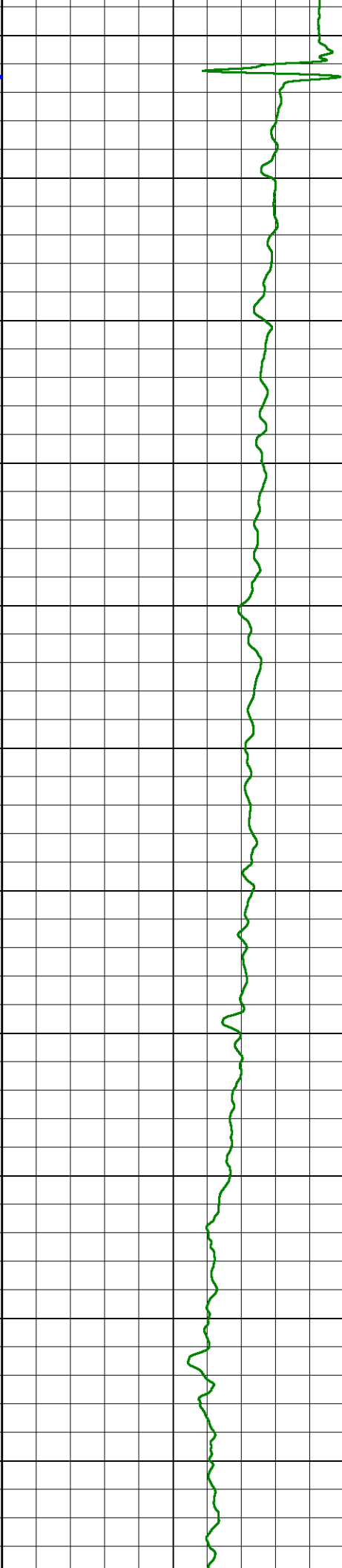
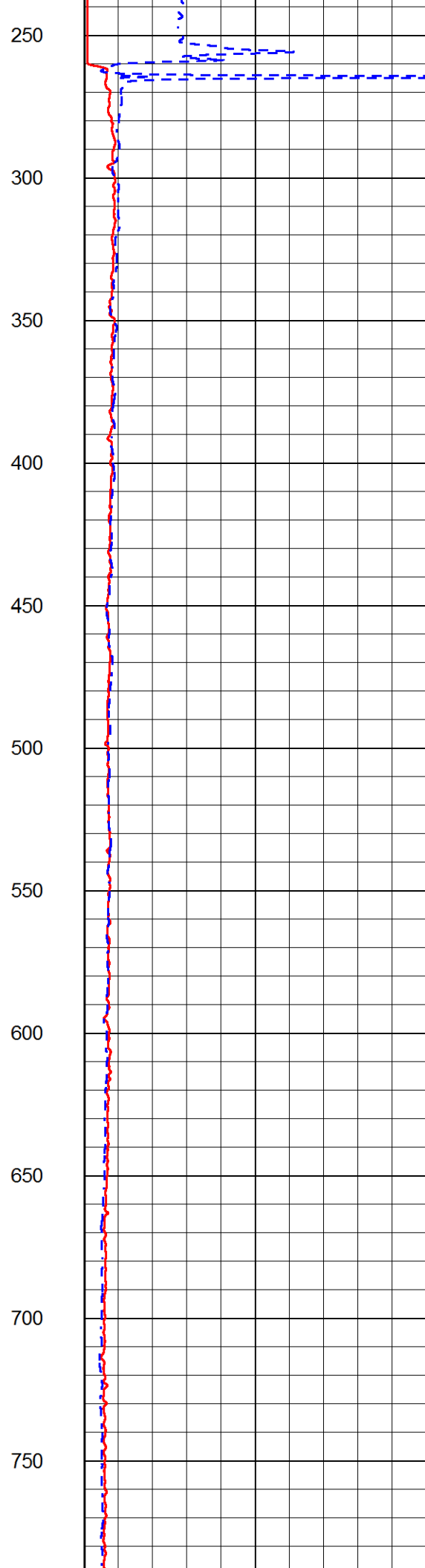
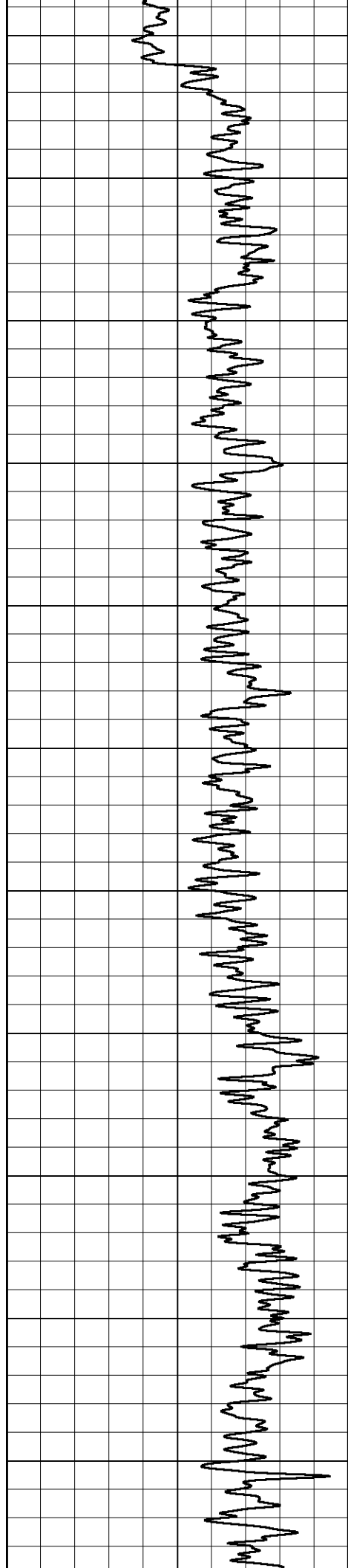
0
50
100
150
200

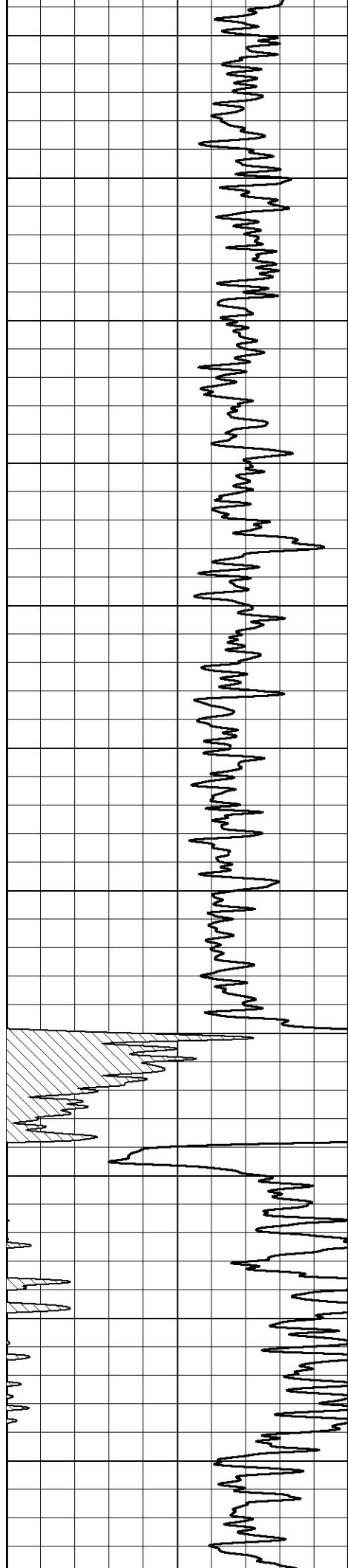


RLL3

DEEP RESISTIVITY

CONDUCTIVITY





800

850

900

950

1000

1050

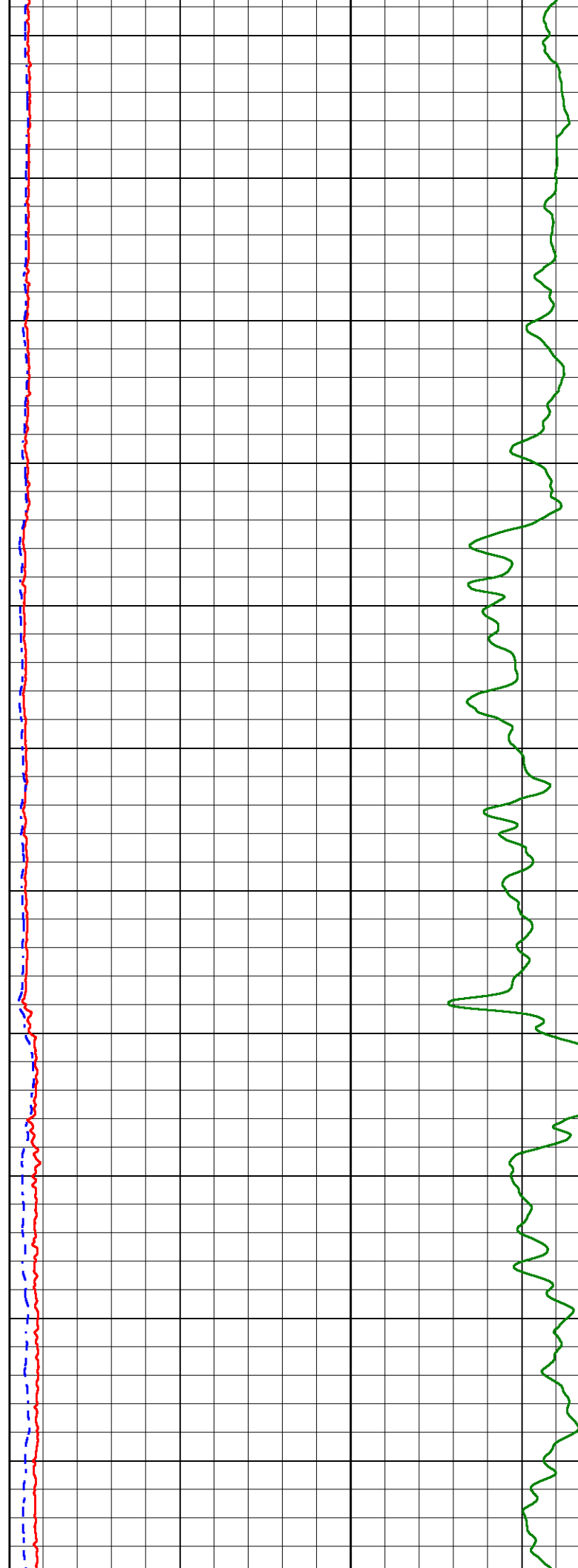
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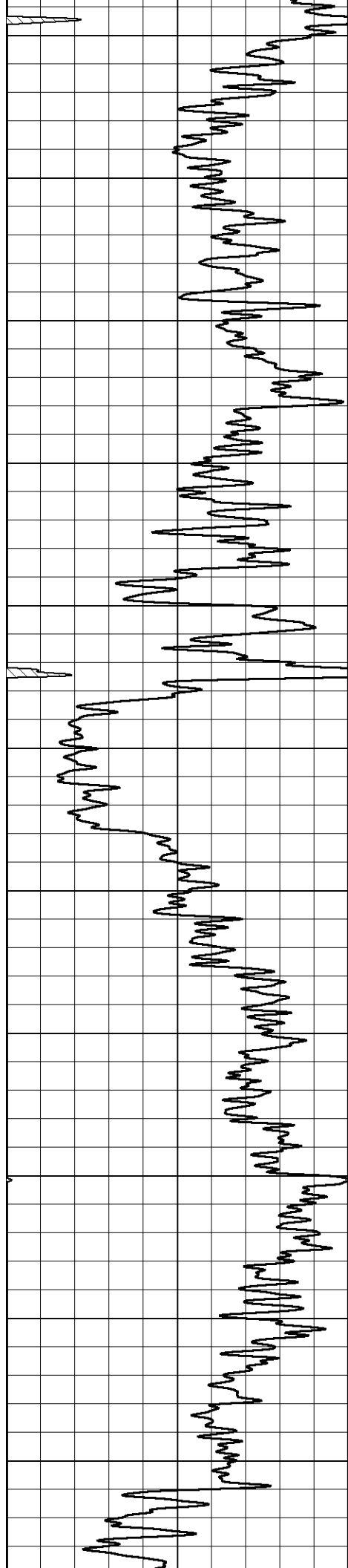
1150

1200

1250

1300





1350

1400

1450

1500

1550

1600

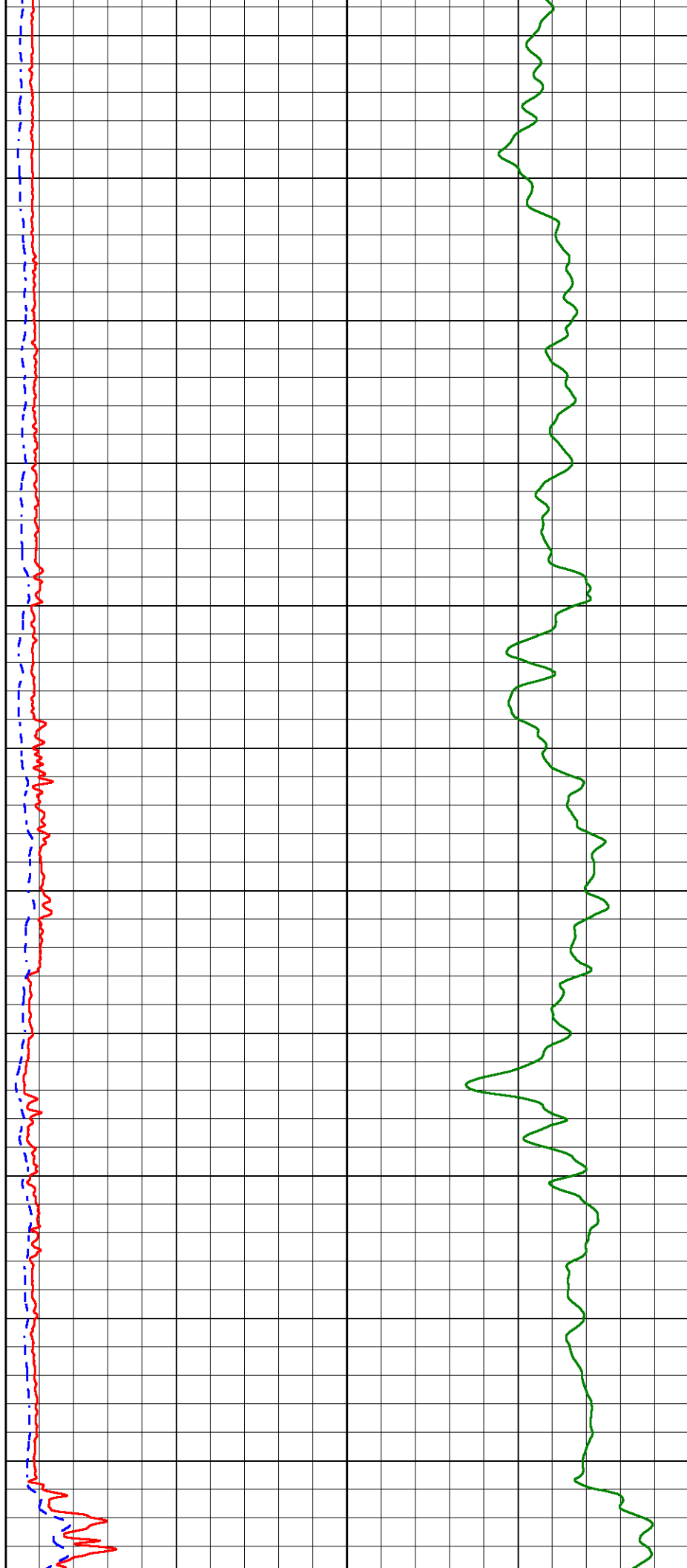
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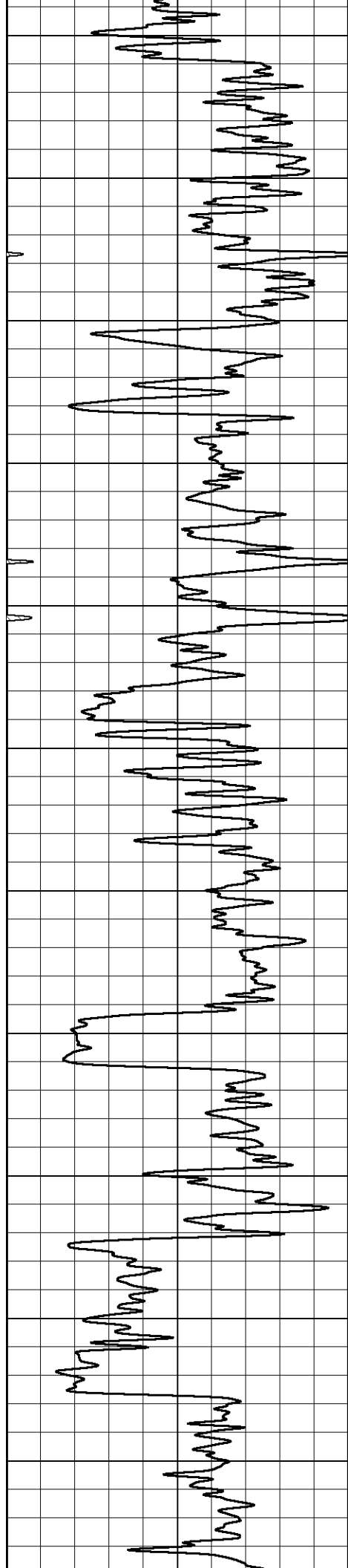
1700

1750

1800

1850





1900

1950

2000

2050

2100

2150

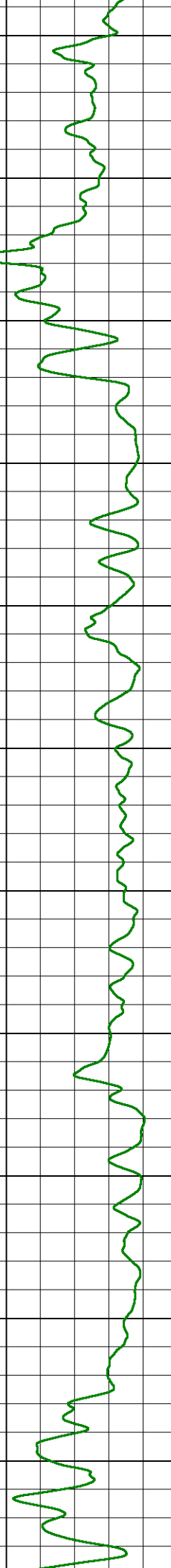
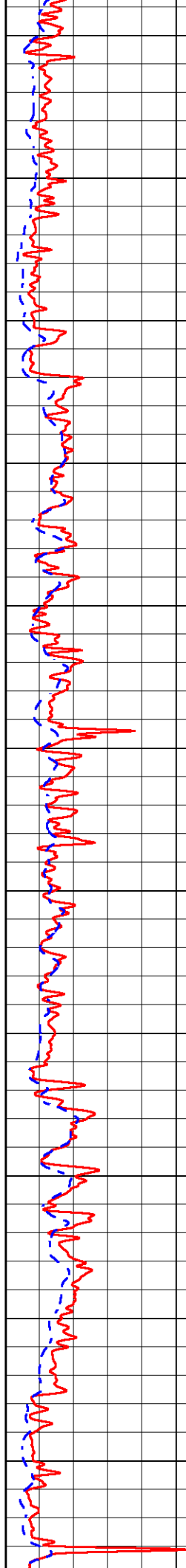
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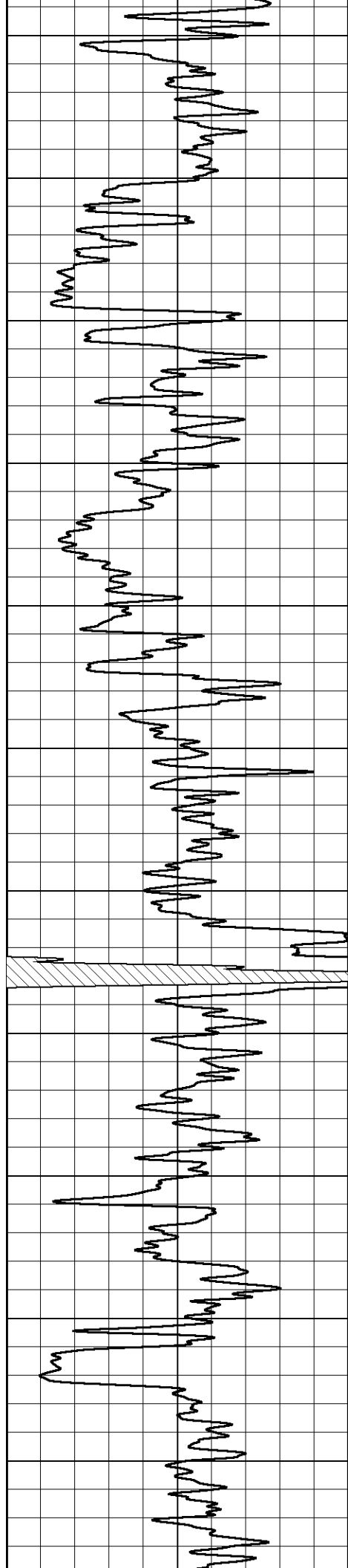
2250

2300

2350

2400





2450

2500

2550

2600

2650

2700

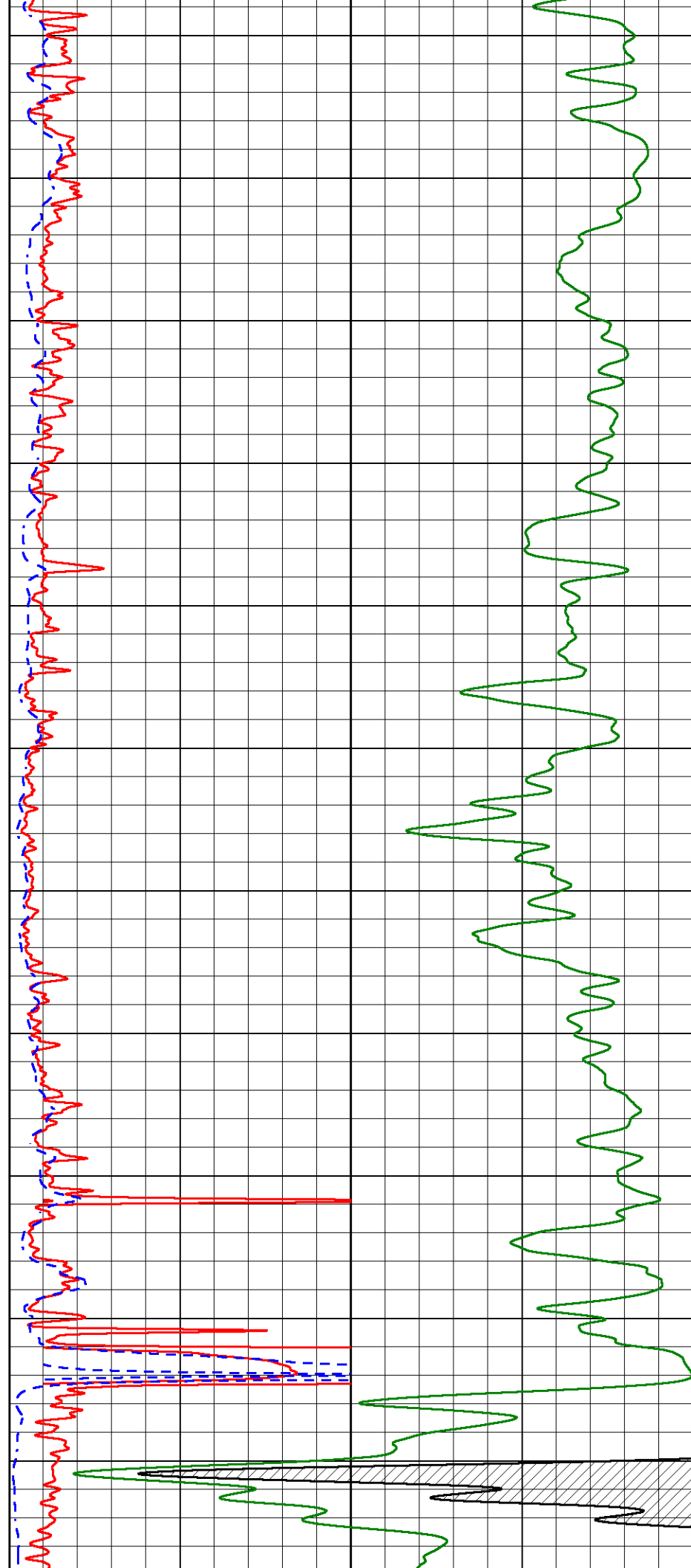
2750

2800

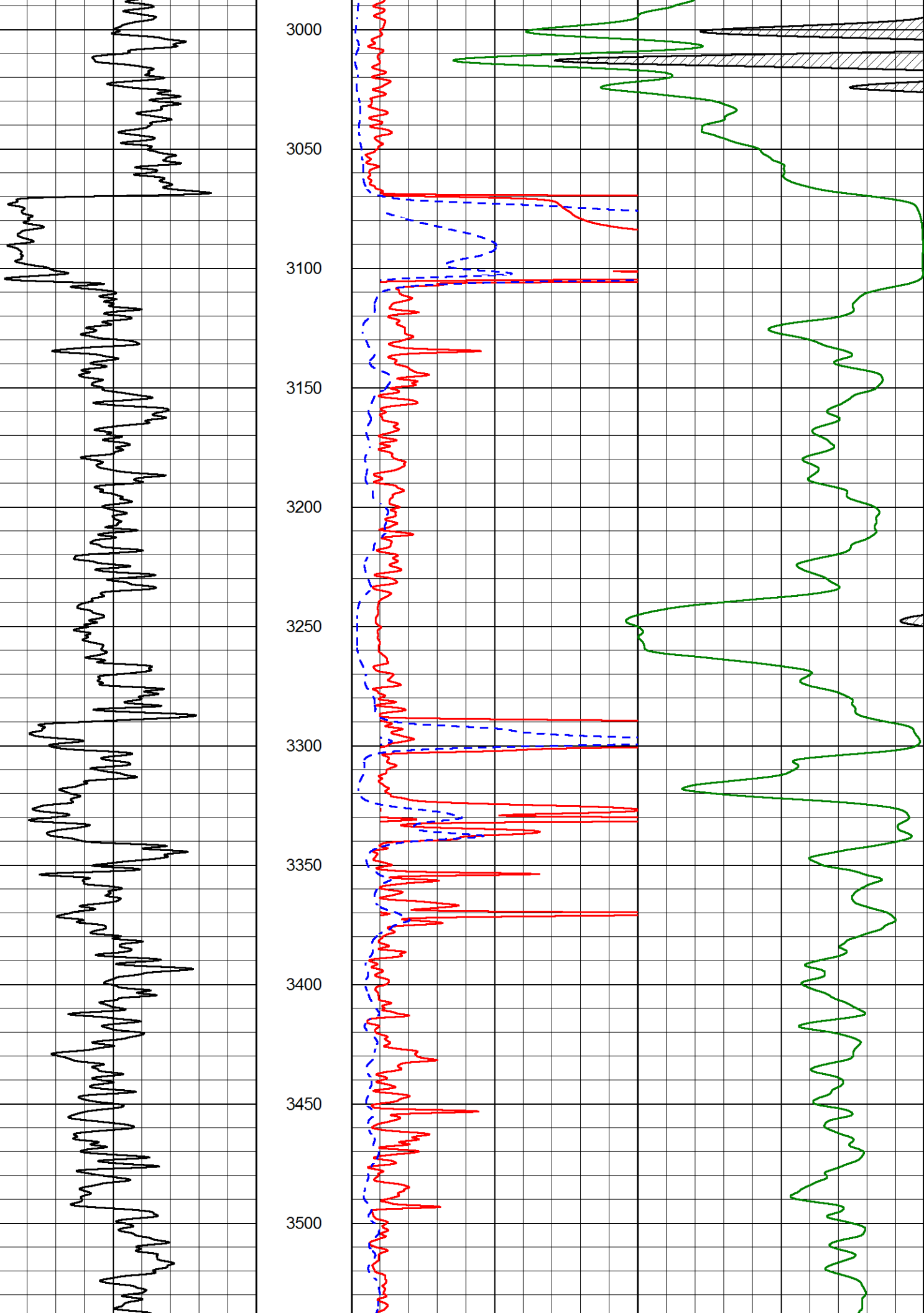
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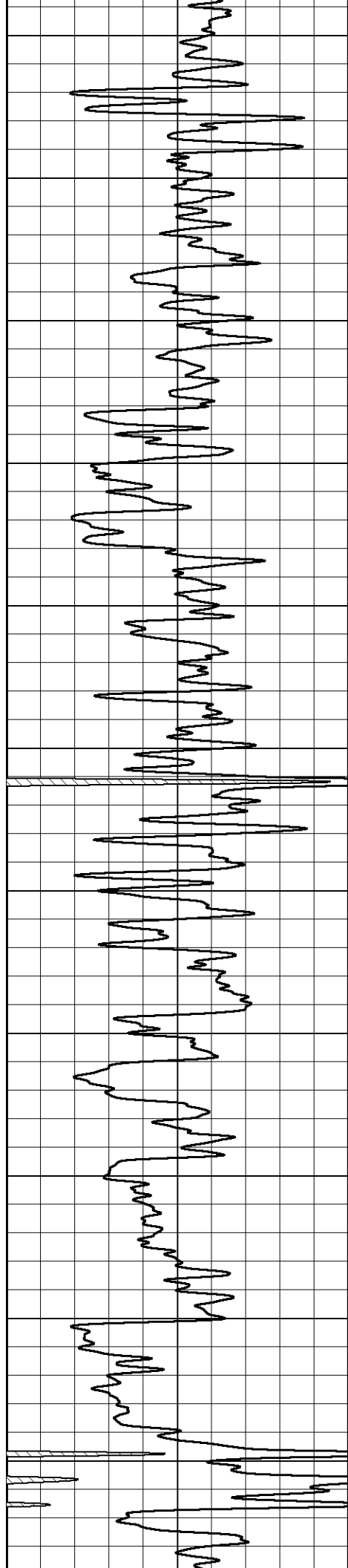
2900

2950



3000
3050
3100
3150
3200
3250
3300
3350
3400
3450
3500





3550

3600

3650

3700

3750

3800

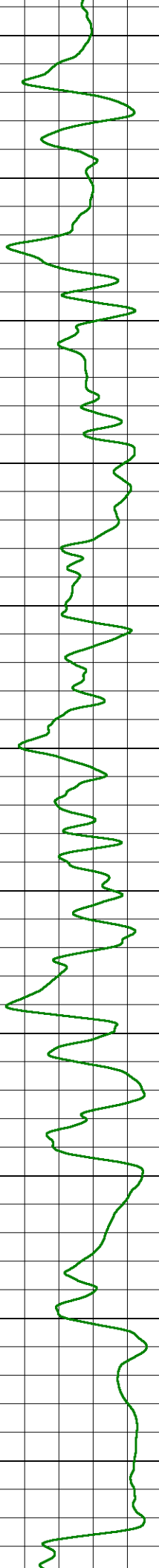
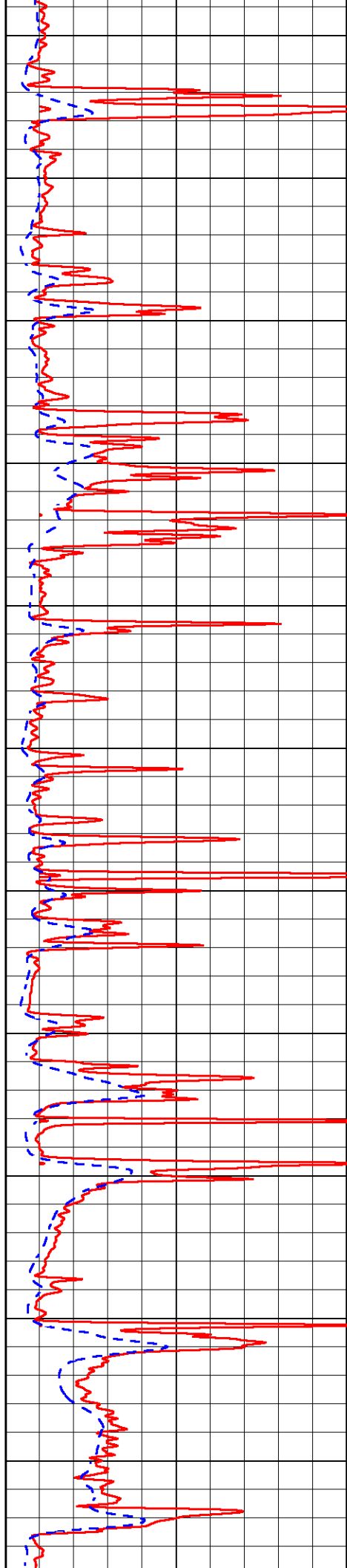
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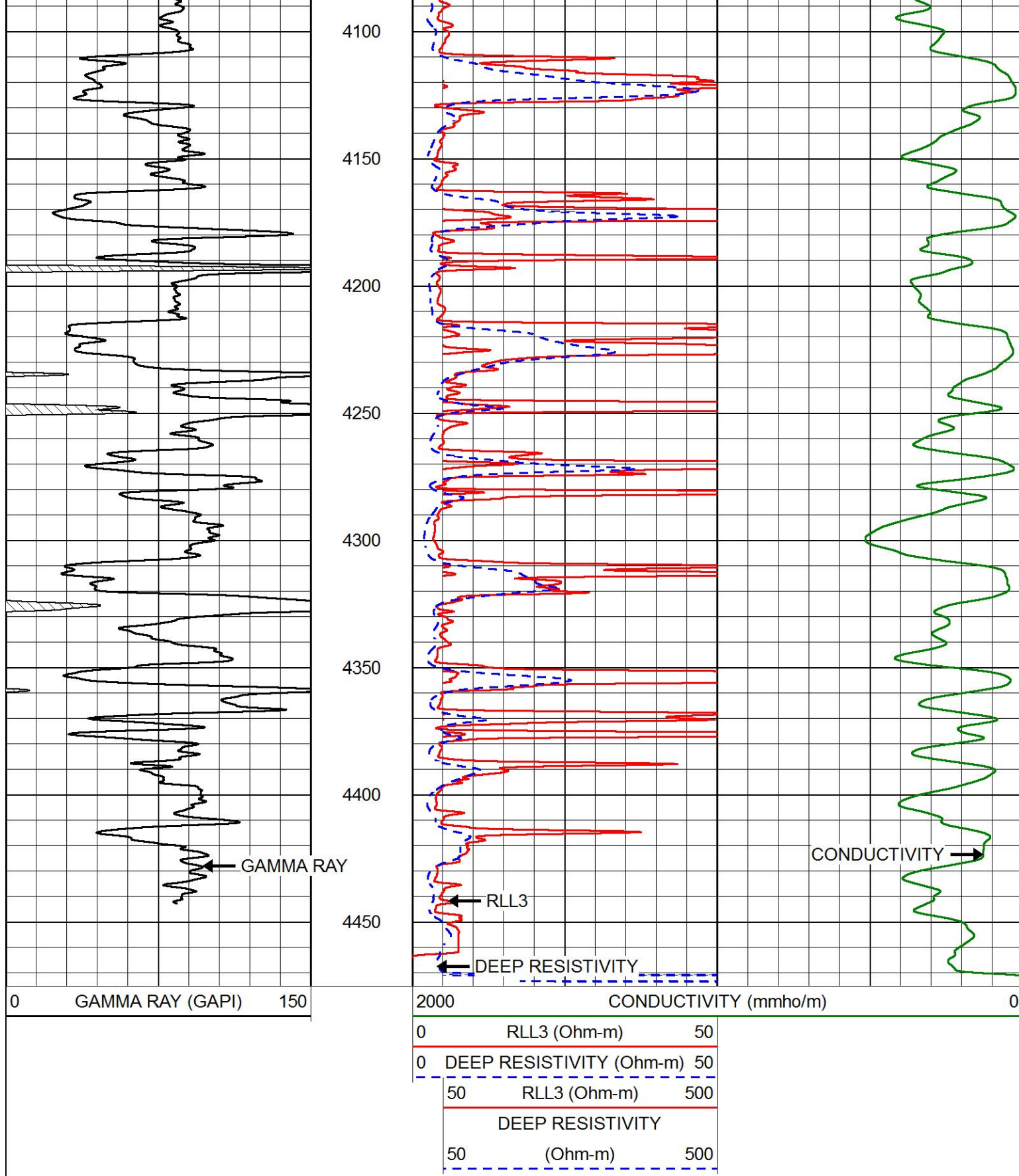
3900

3950

4000

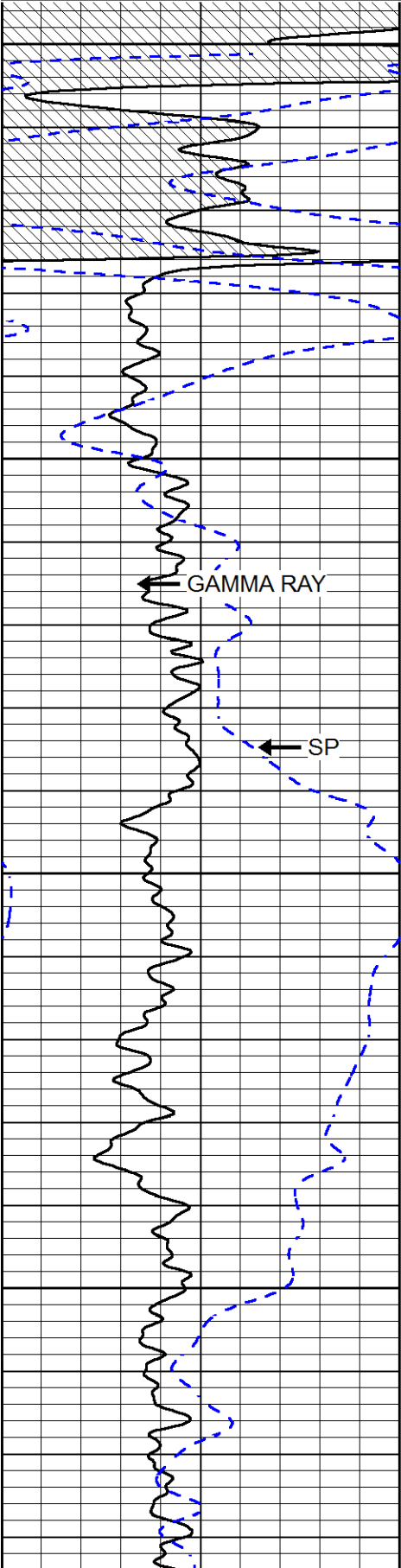
4050



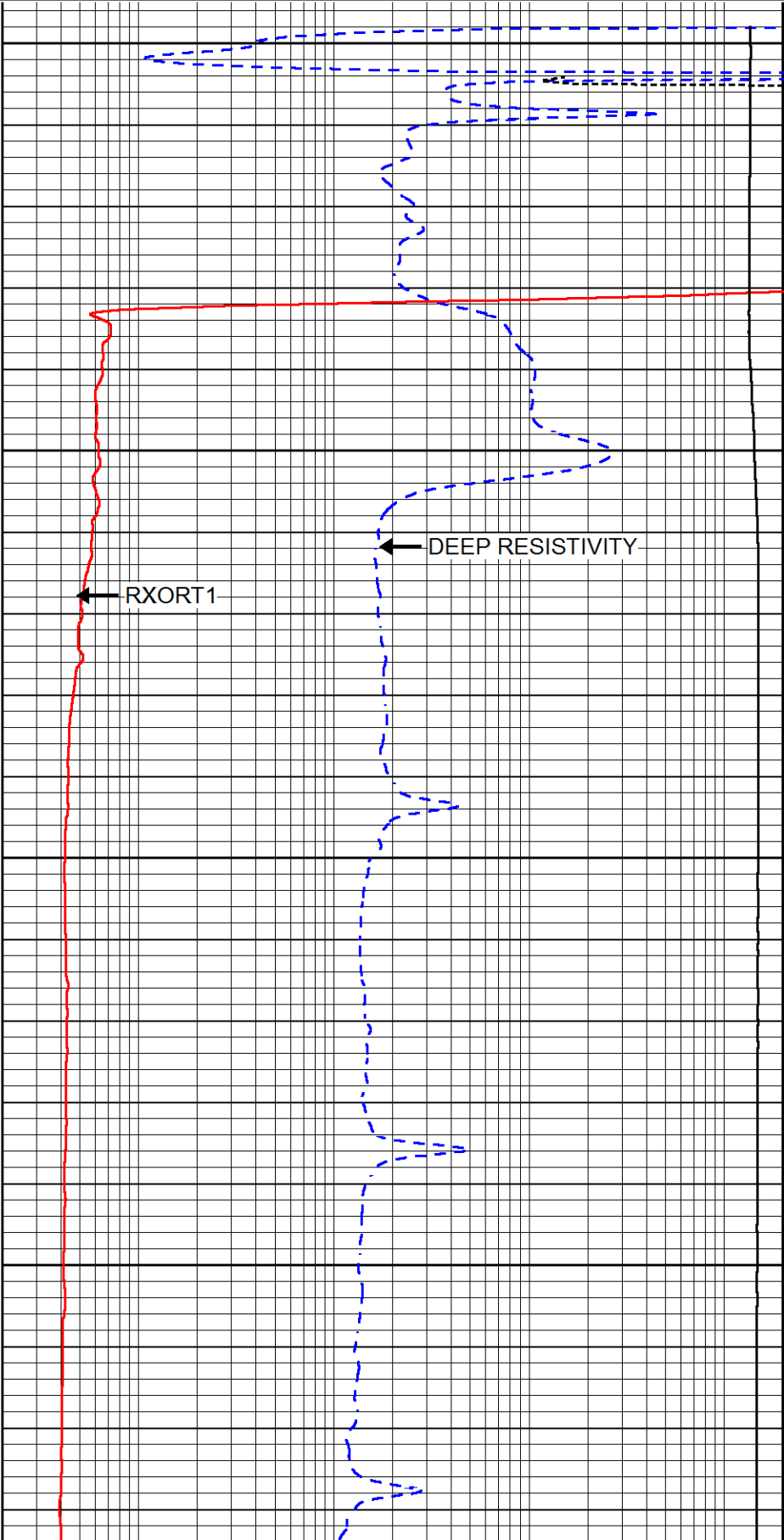


MAIN PASS

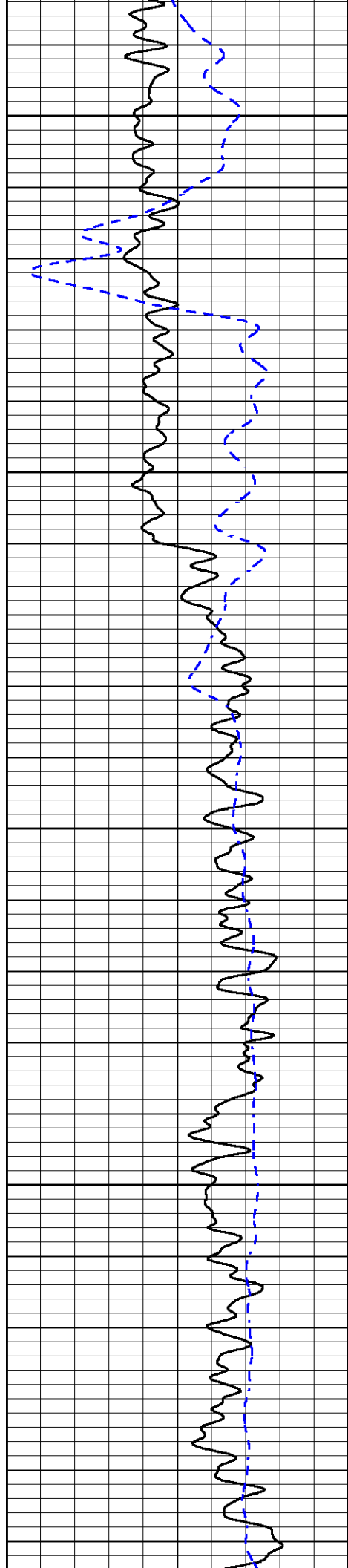
0	GAMMA RAY (GAPI)	150	0.2	DEEP RESISTIVITY (Ohm-m)	2000
-200	SP (mV)	0	0.2	MEDIUM RESISTIVITY (Ohm-m)	2000
			0.2	RLL3 (Ohm-m)	2000
			15000	LINE TENSION (lb)	0



0
50
100
150



← GAMMA RAY
← SP
← RXORT1
← DEEP RESISTIVITY



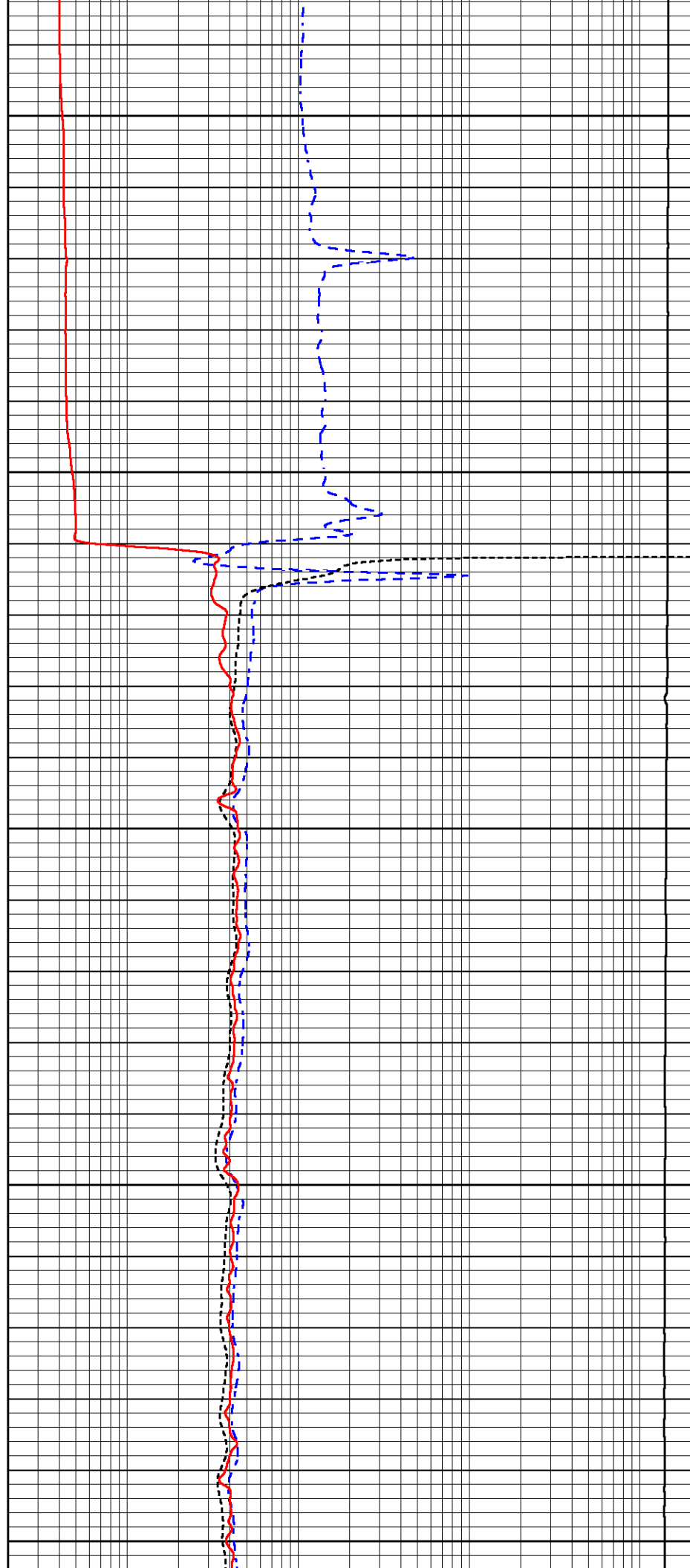
200

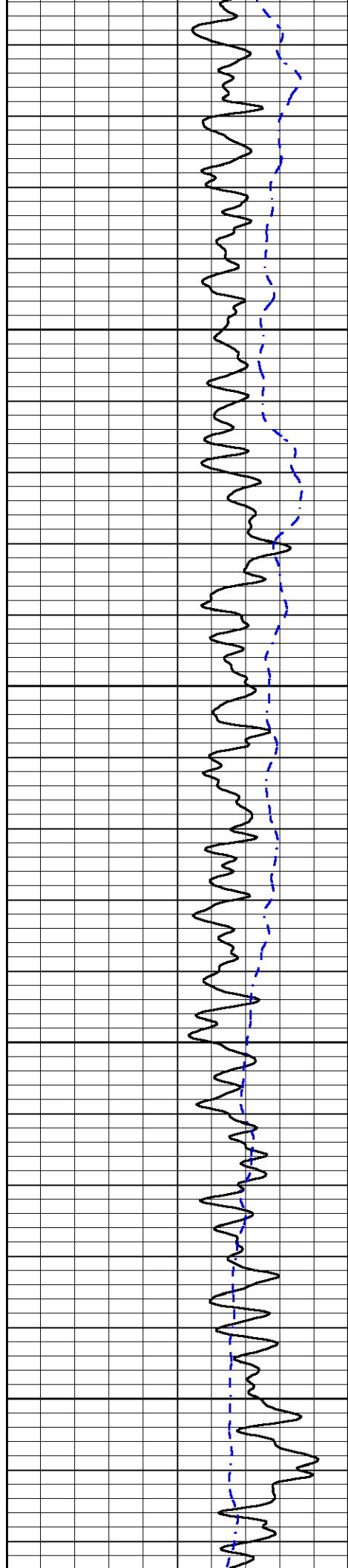
250

300

350

400



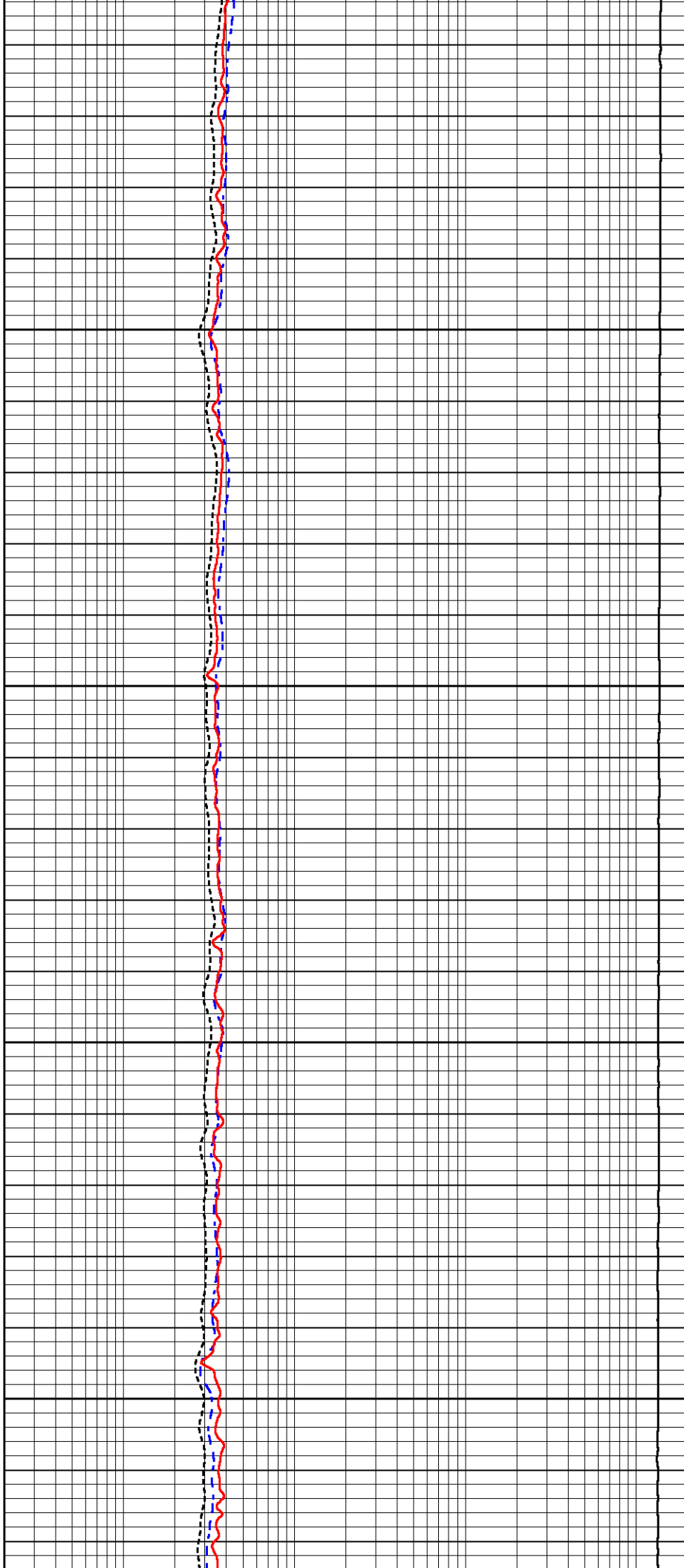


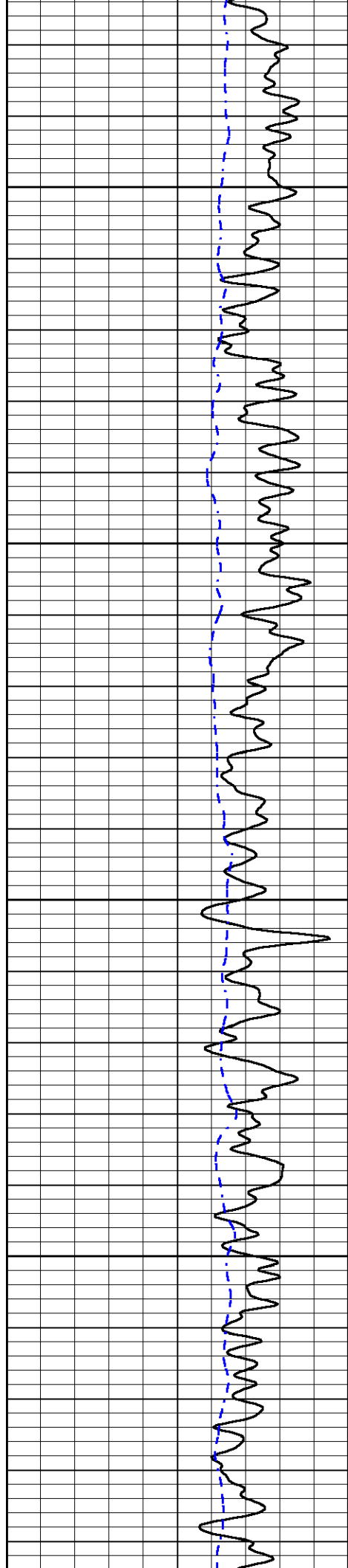
450

500

550

600



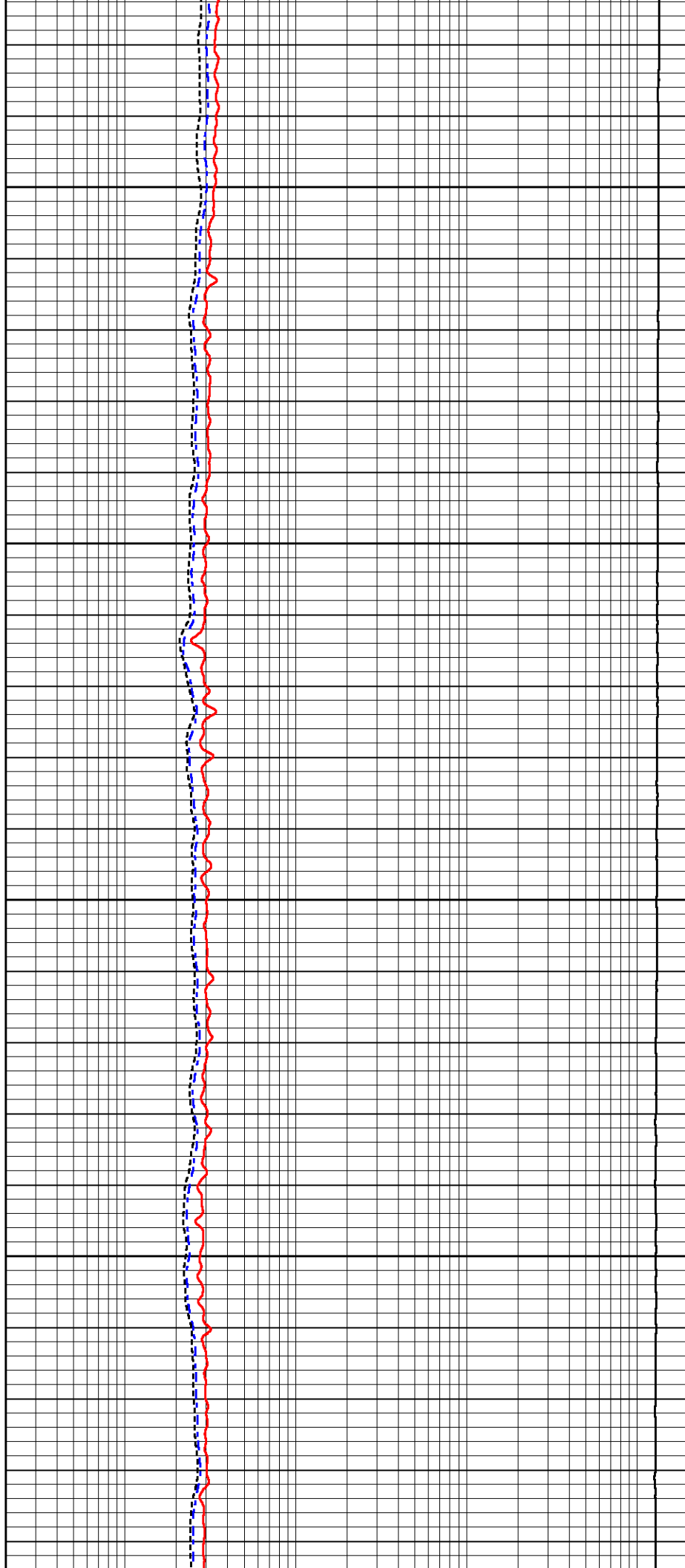


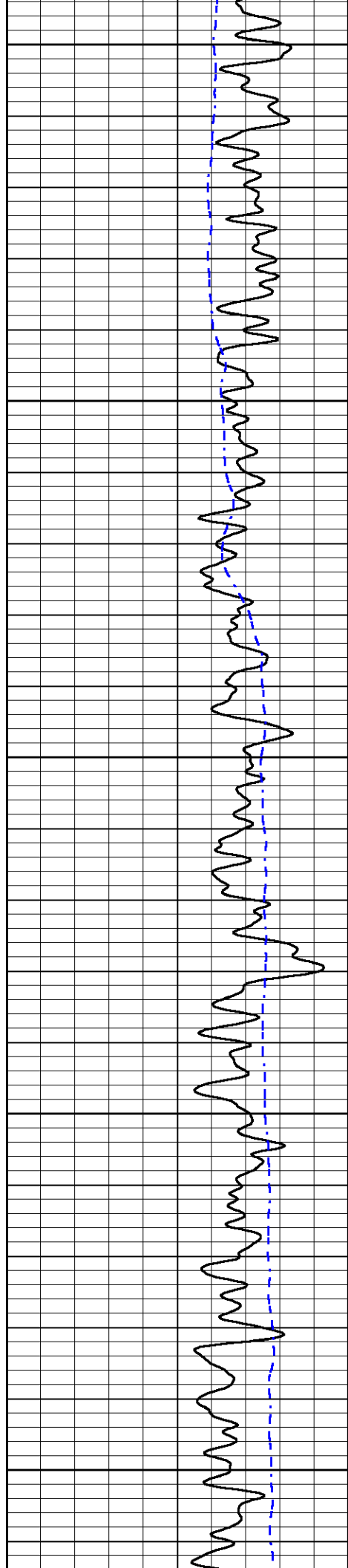
650

700

750

800





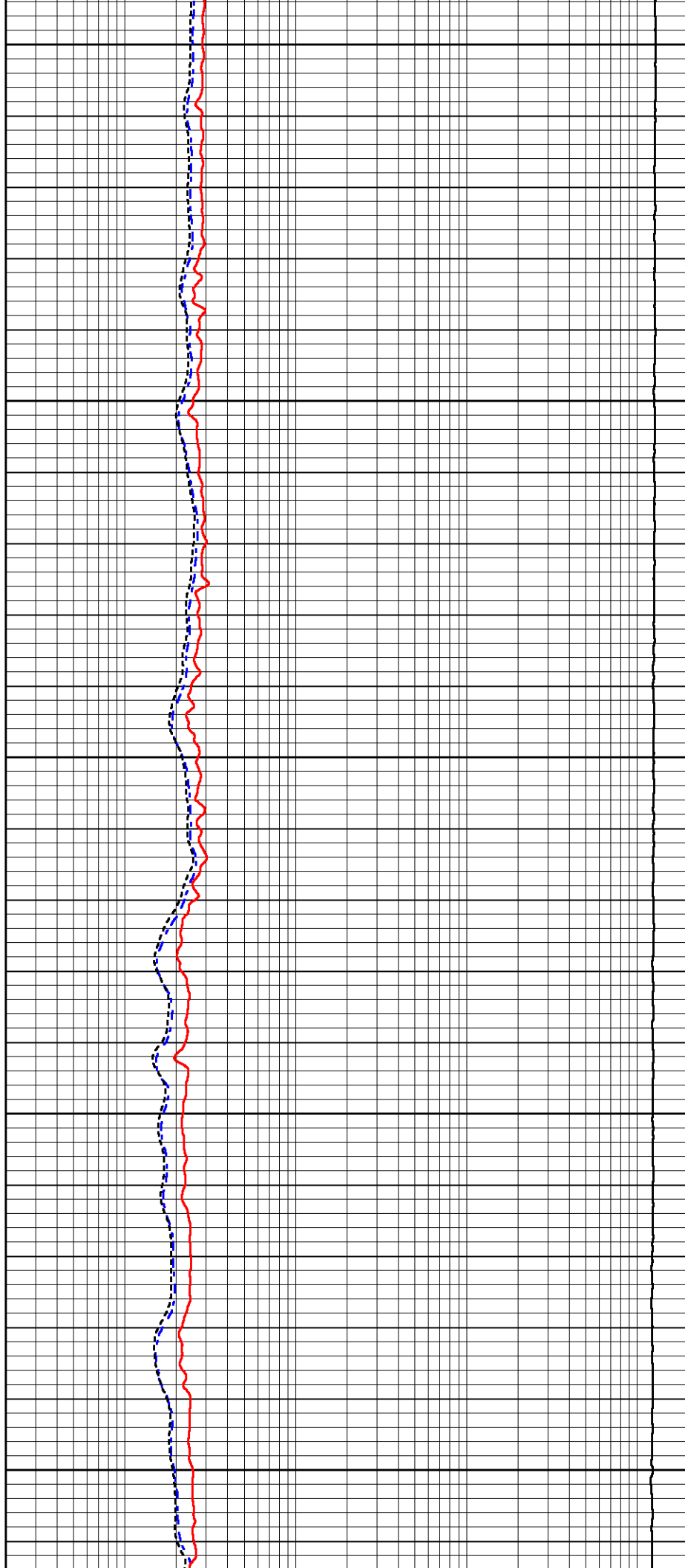
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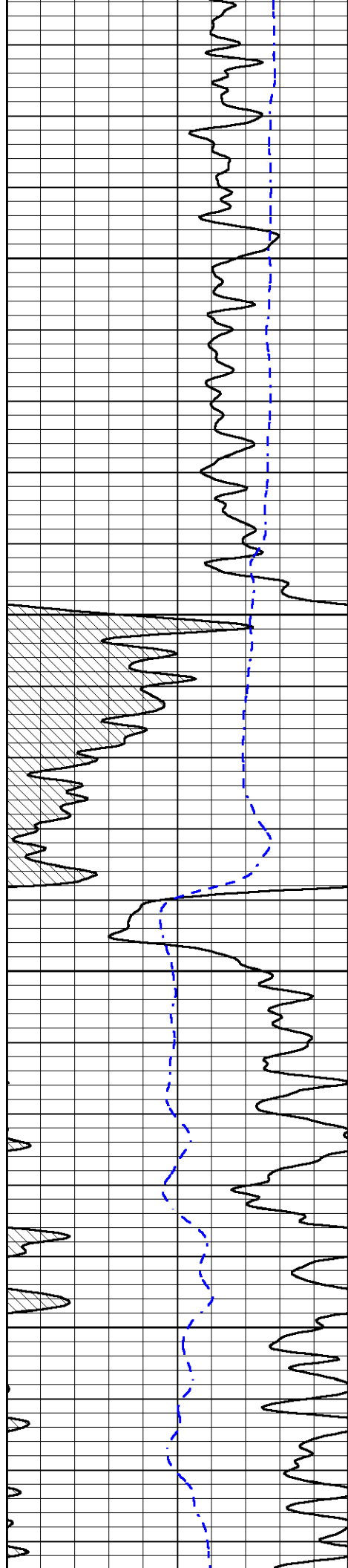
900

950

1000

1050



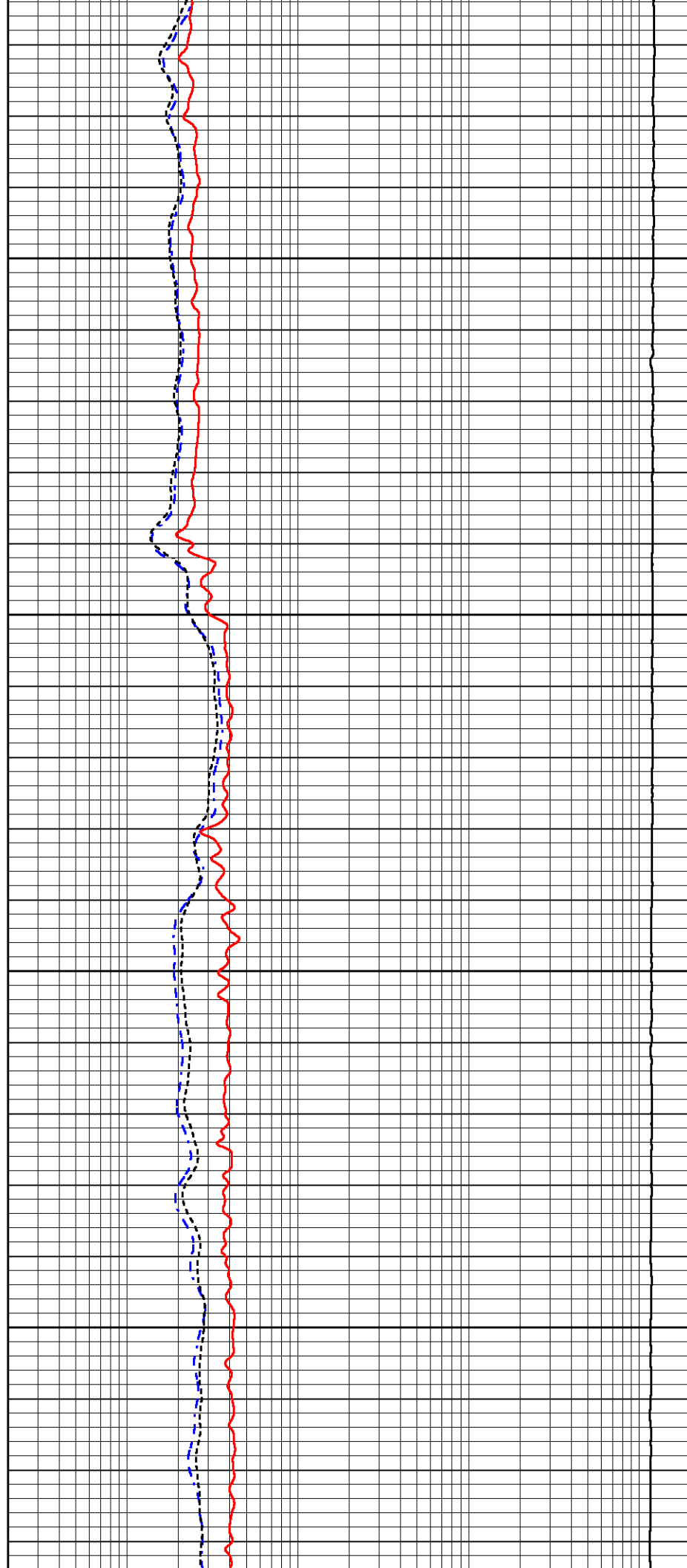


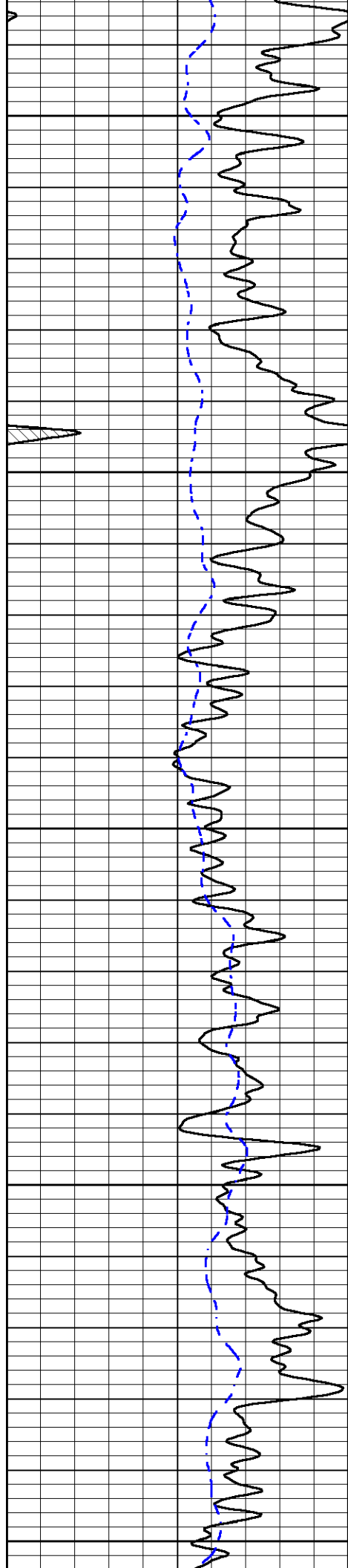
1100

1150

1200

1250





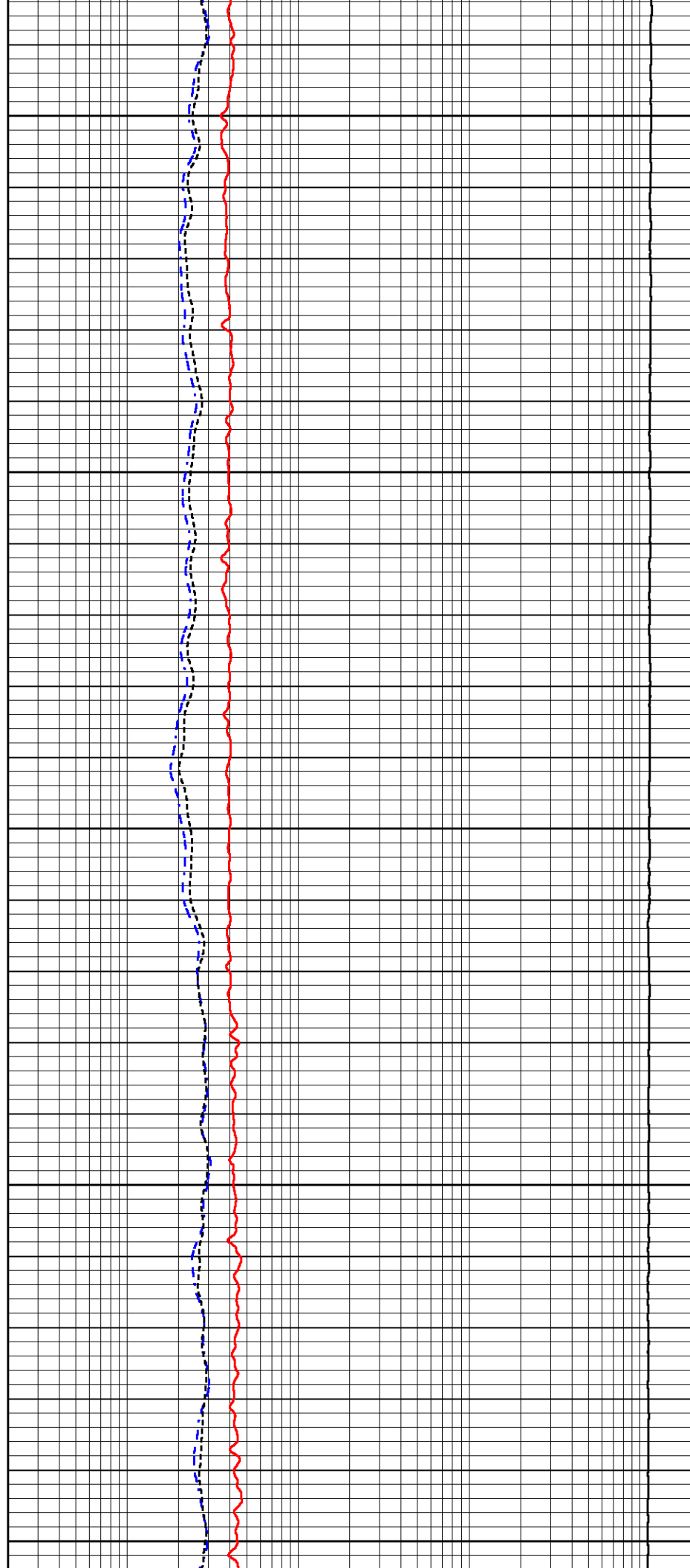
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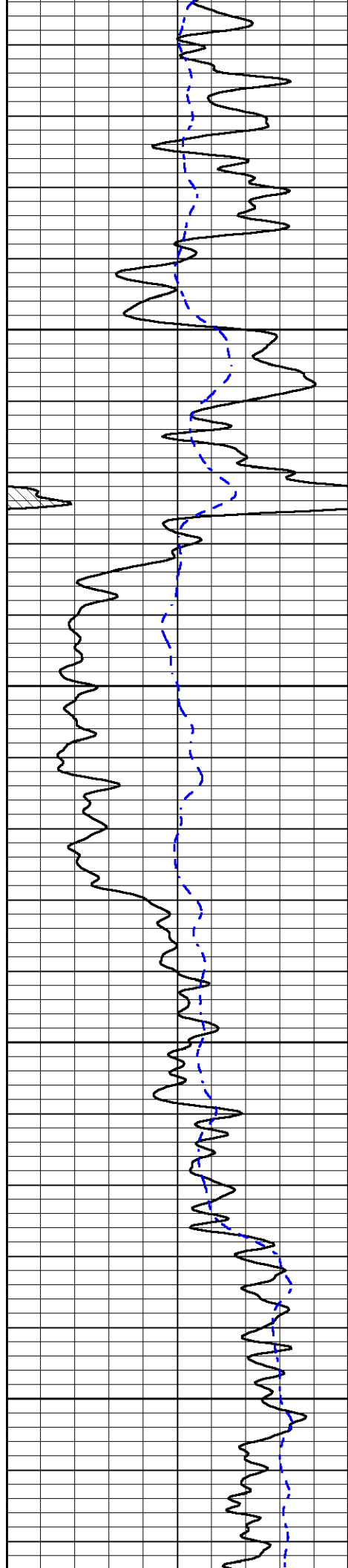
1350

1400

1450

1500



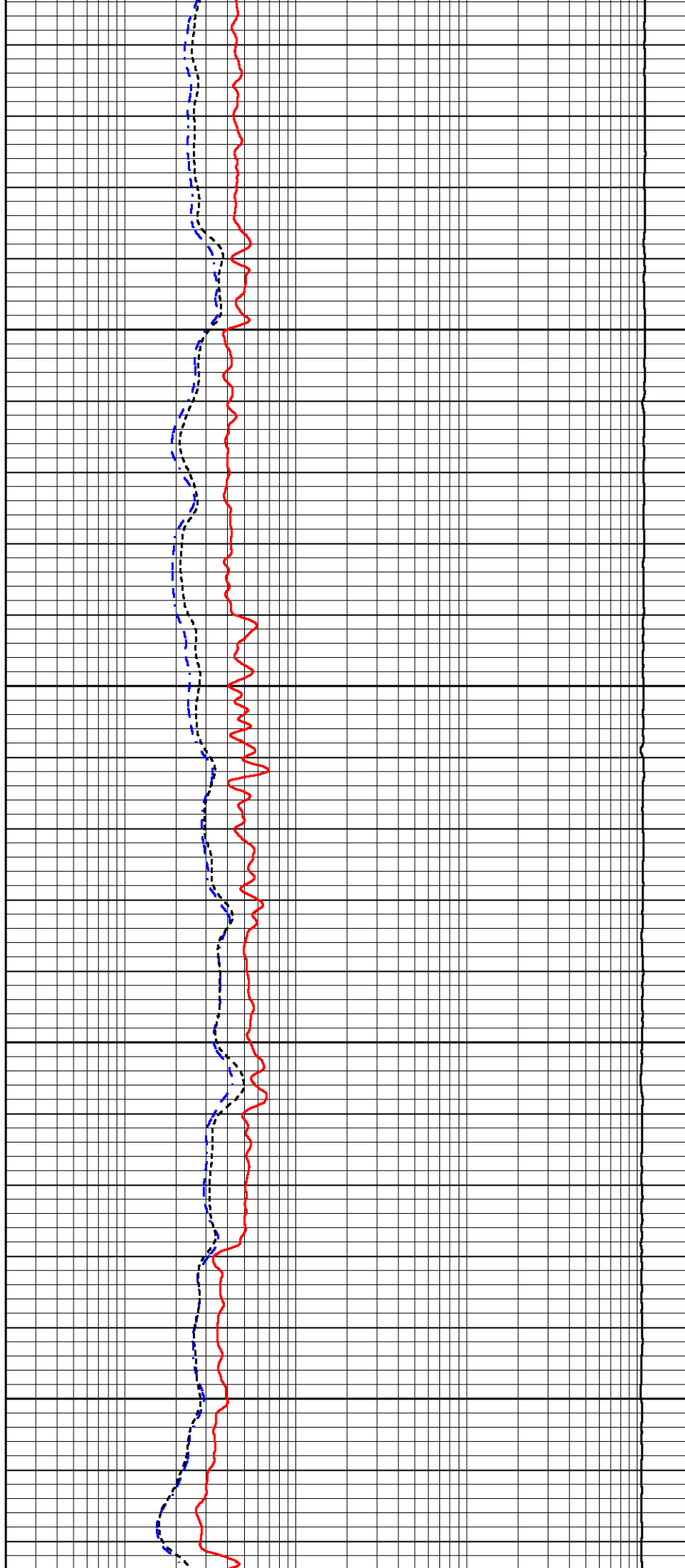


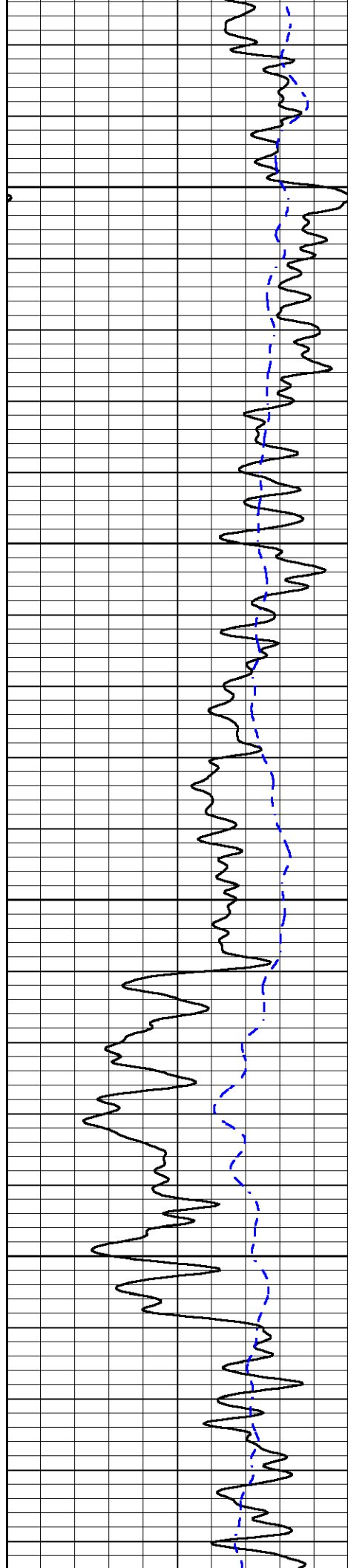
1550

1600

1650

1700



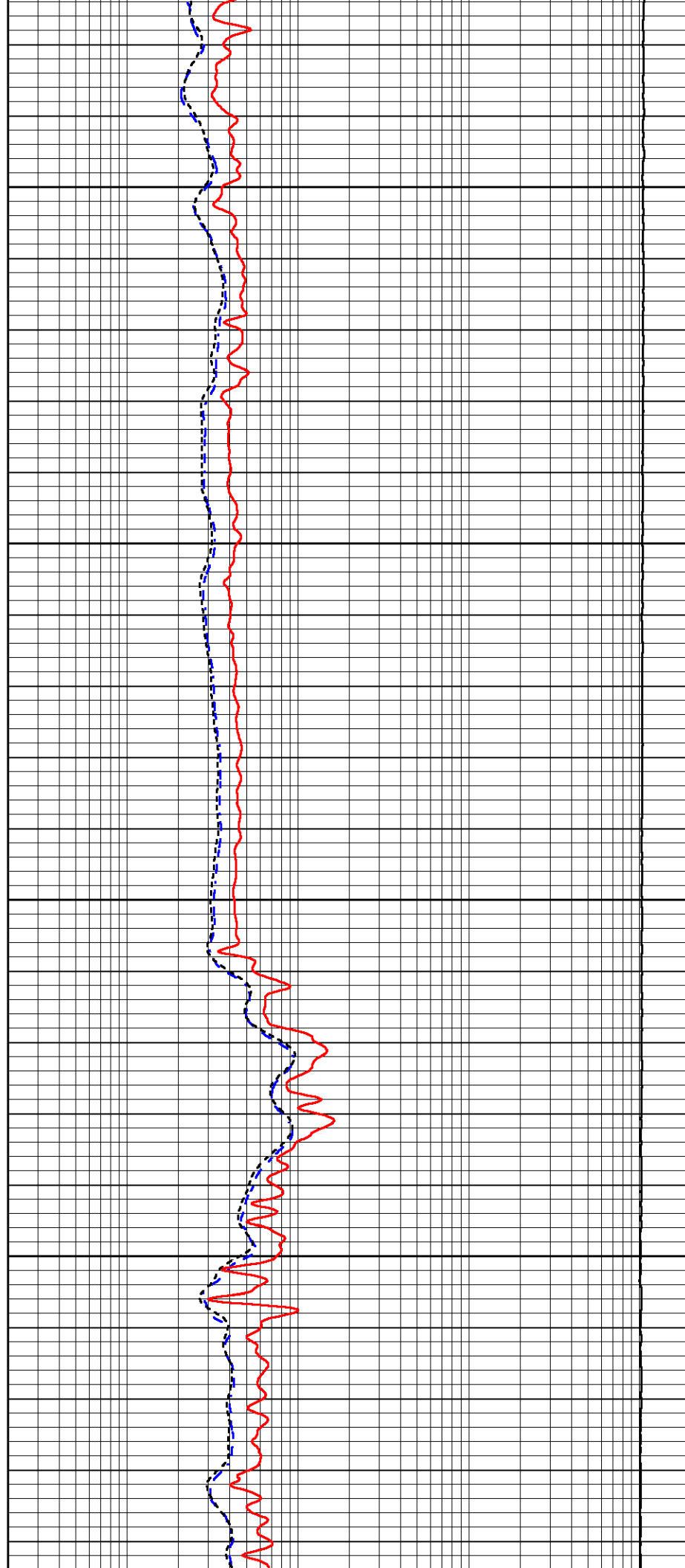


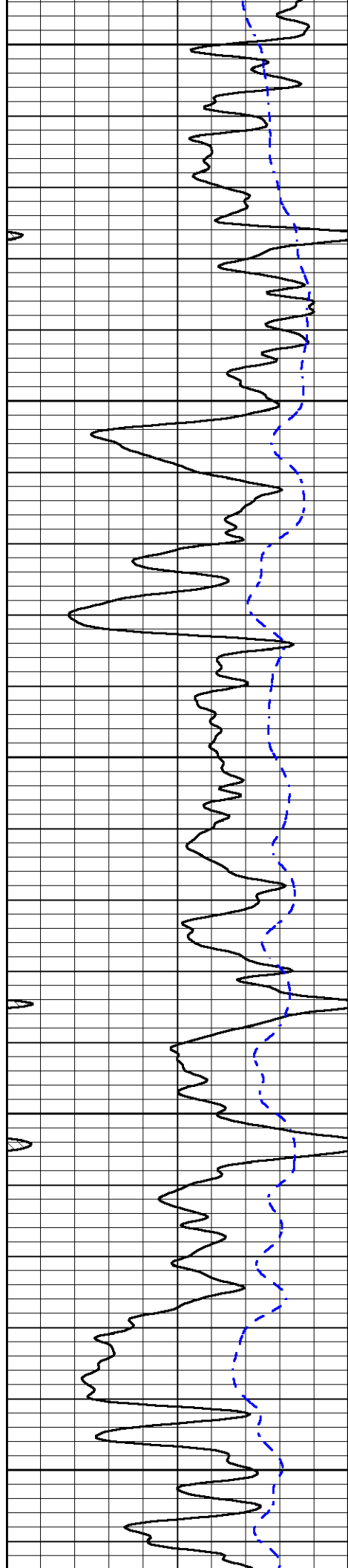
1750

1800

1850

1900





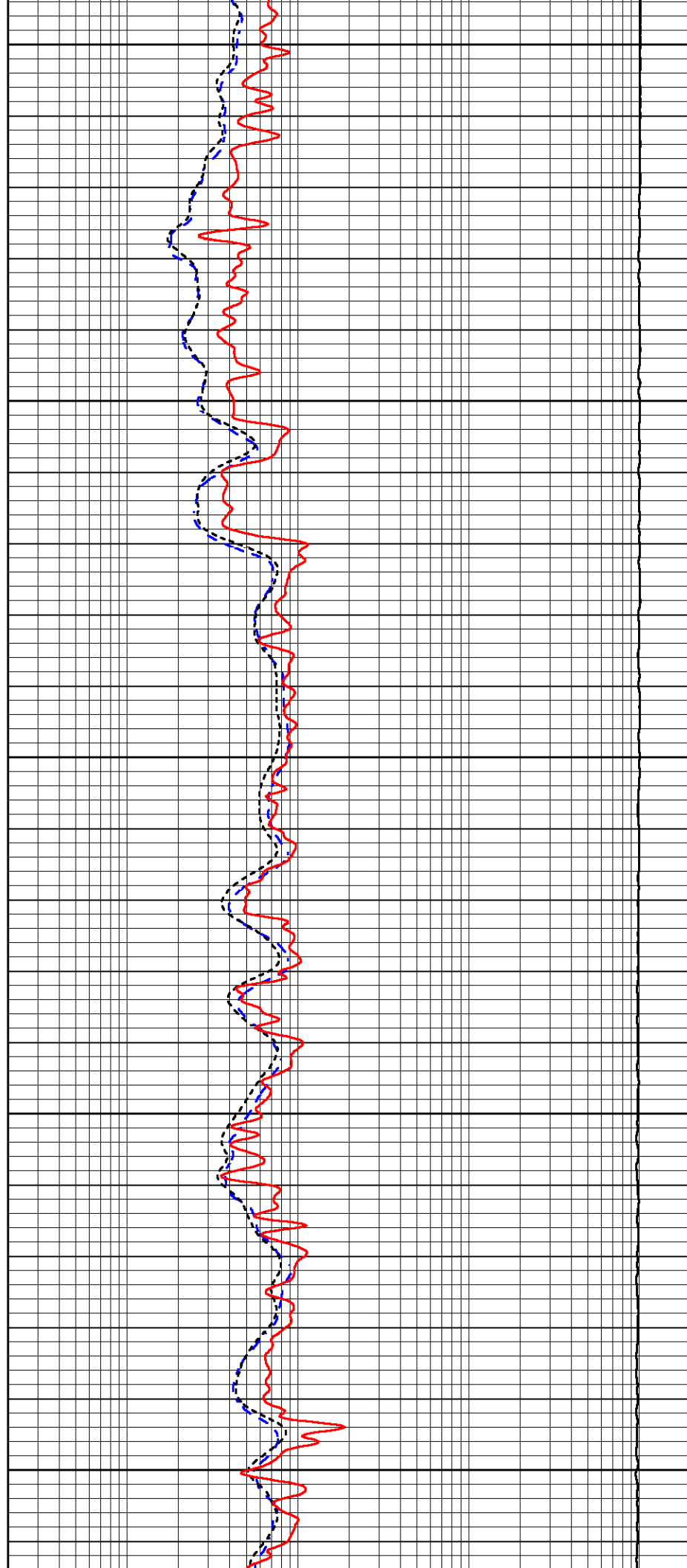
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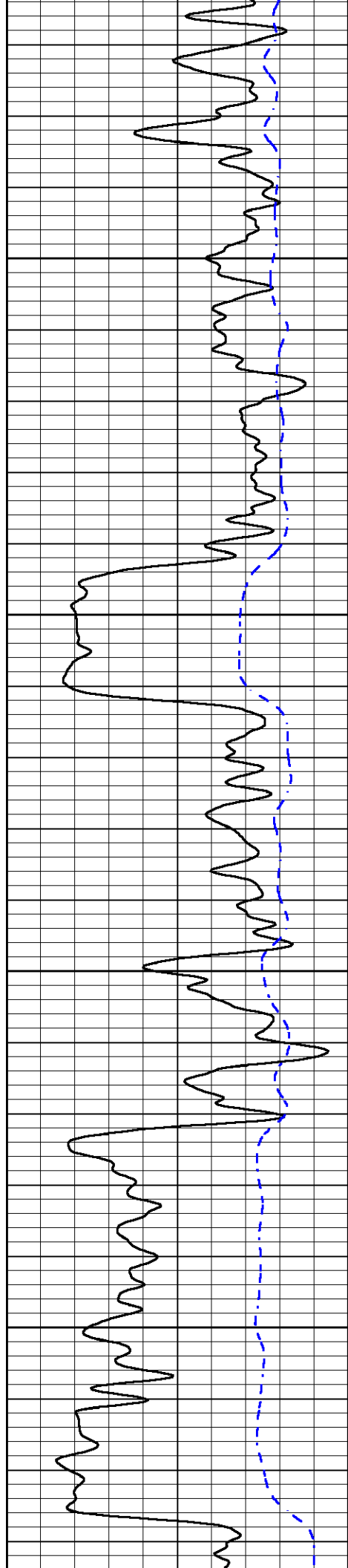
2000

2050

2100

2150



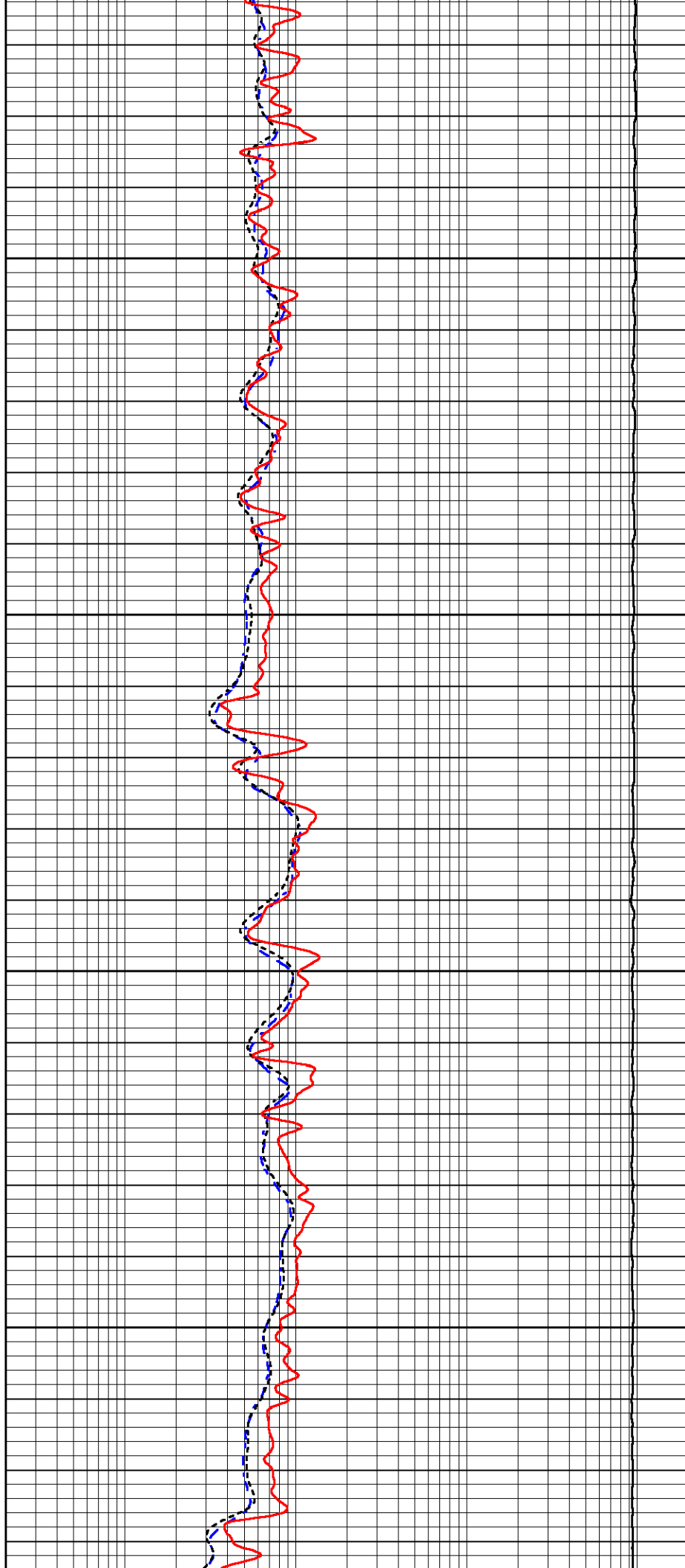


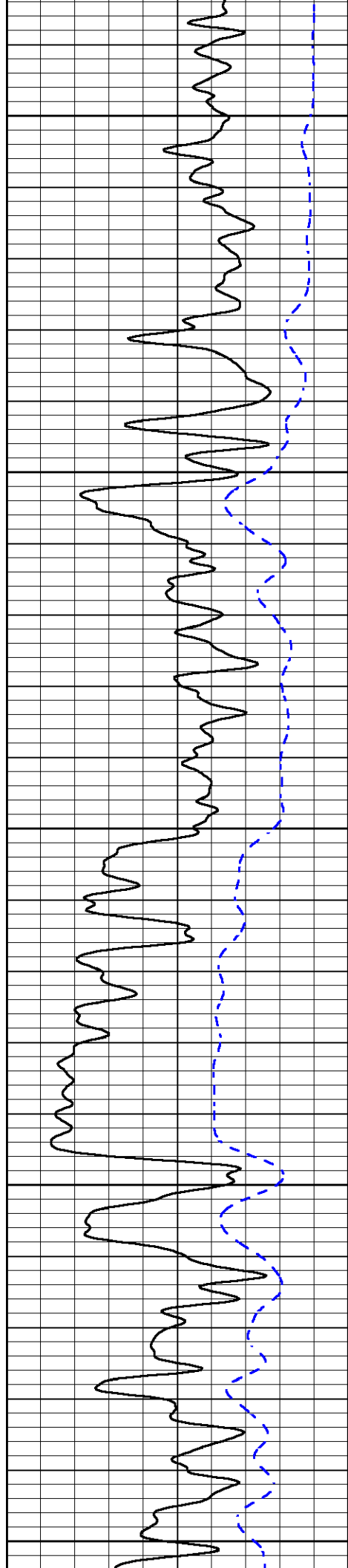
2200

2250

2300

2350





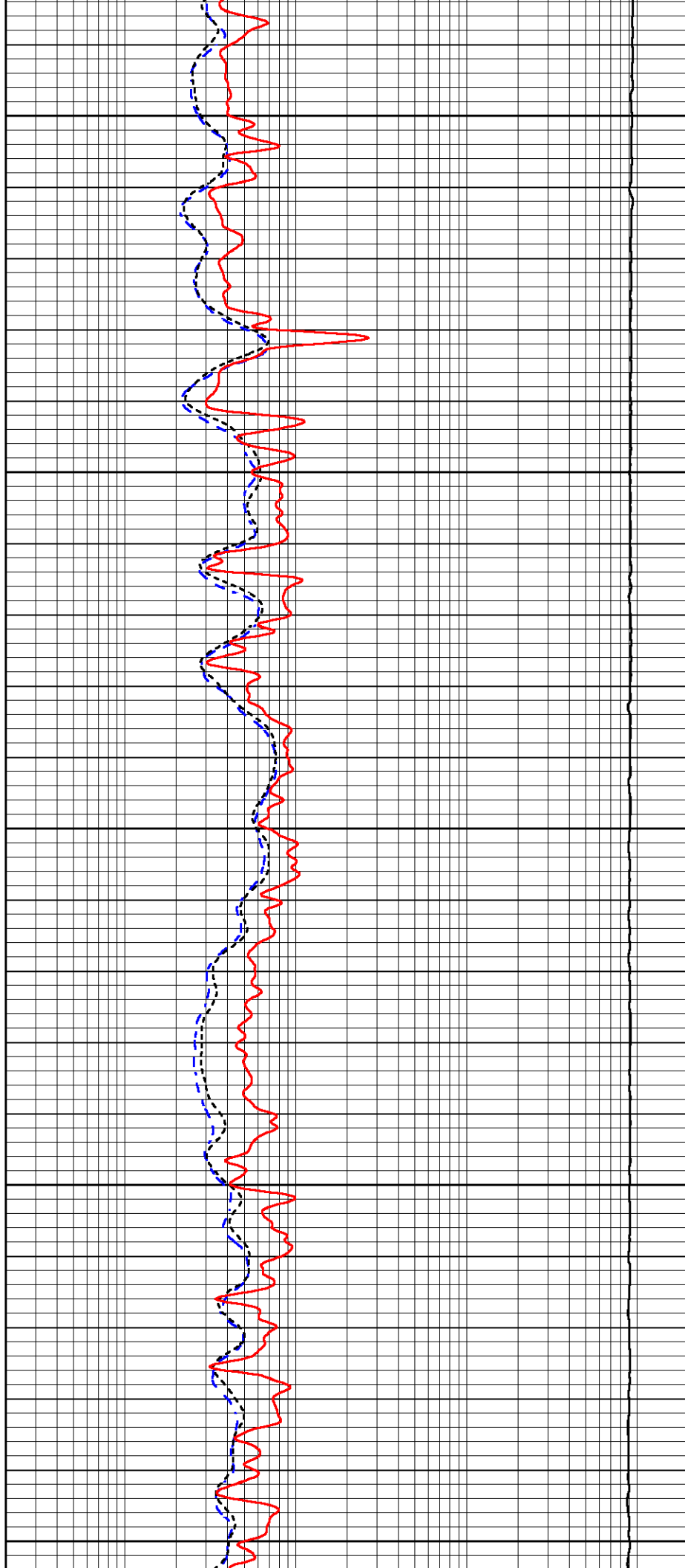
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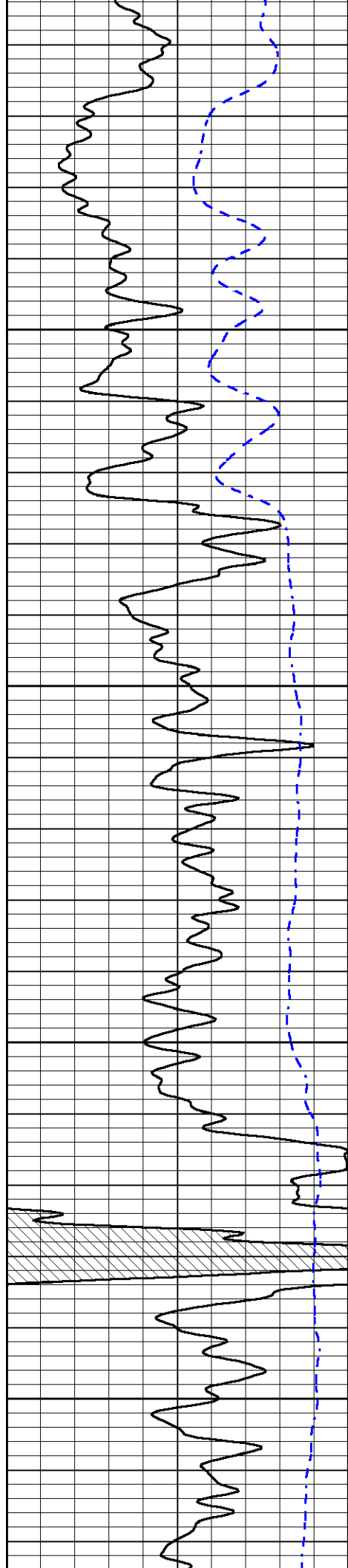
2450

2500

2550

2600



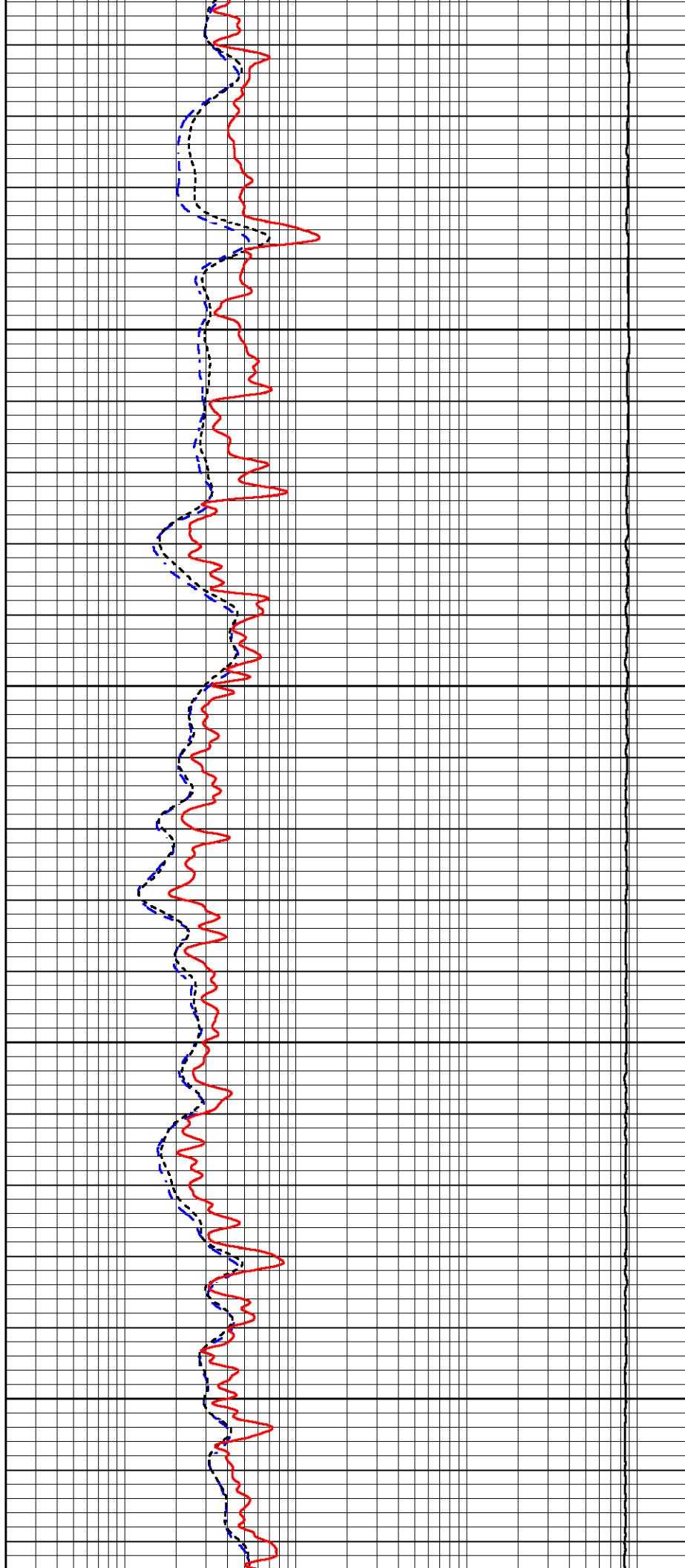


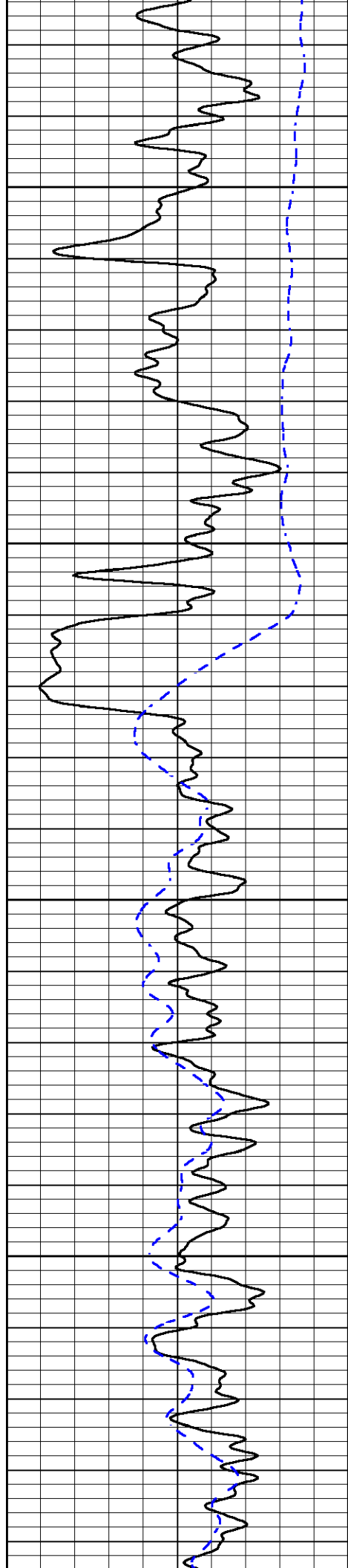
2650

2700

2750

2800



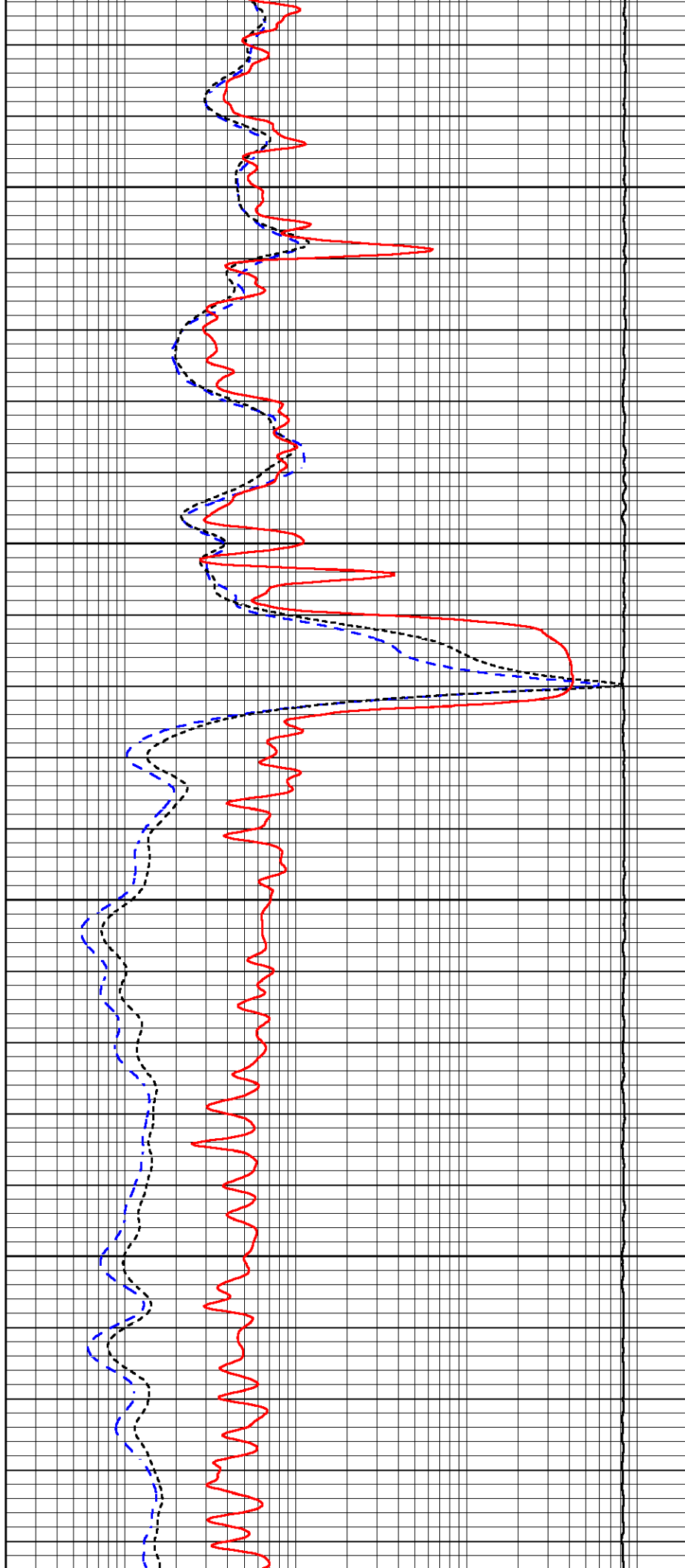


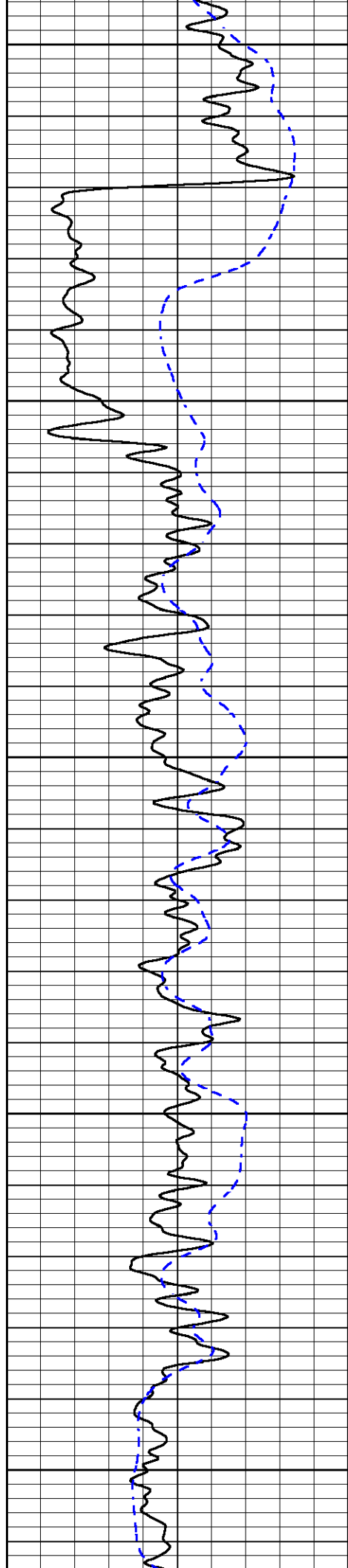
2850

2900

2950

3000





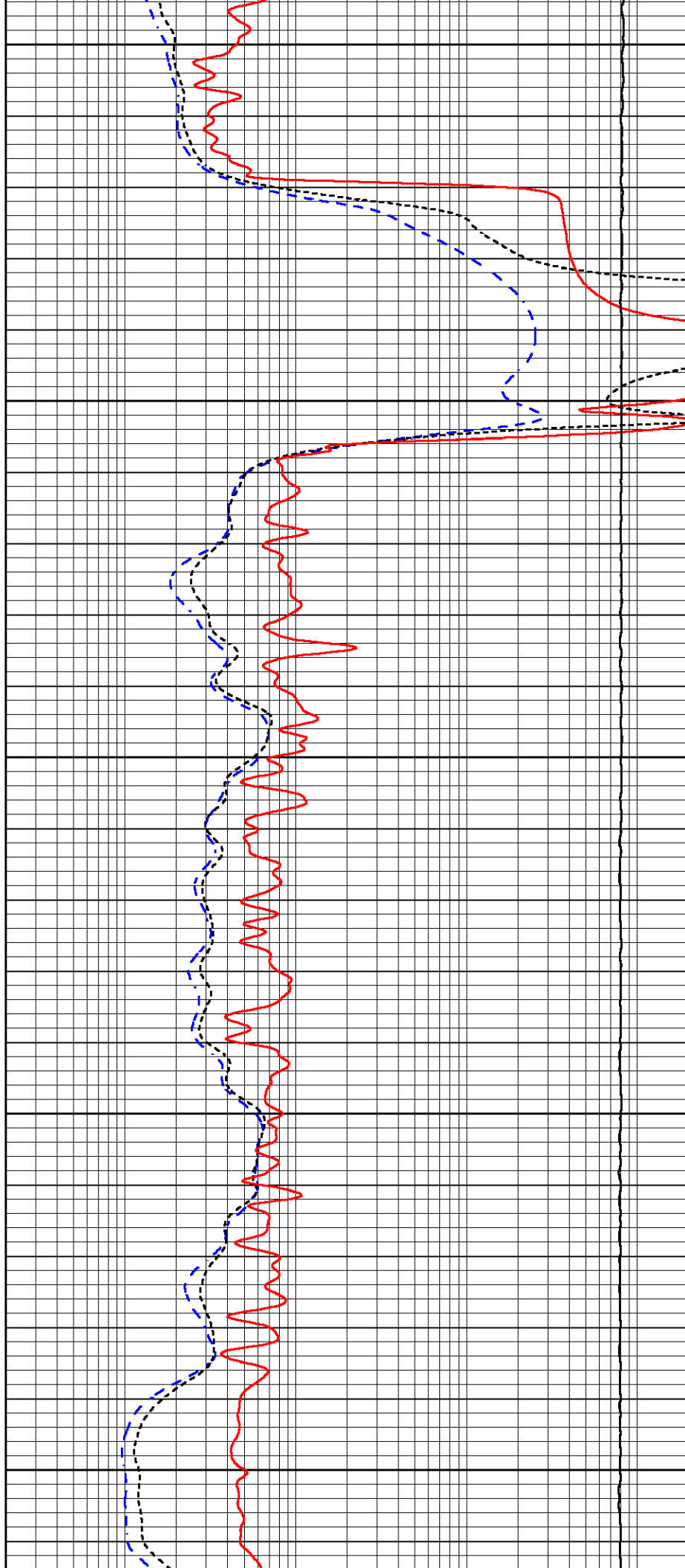
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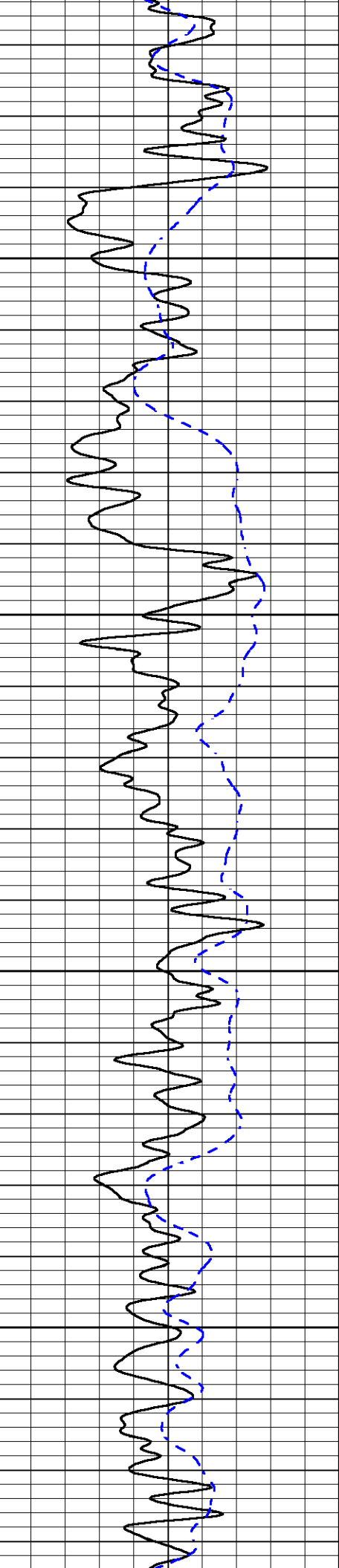
3100

3150

3200

3250



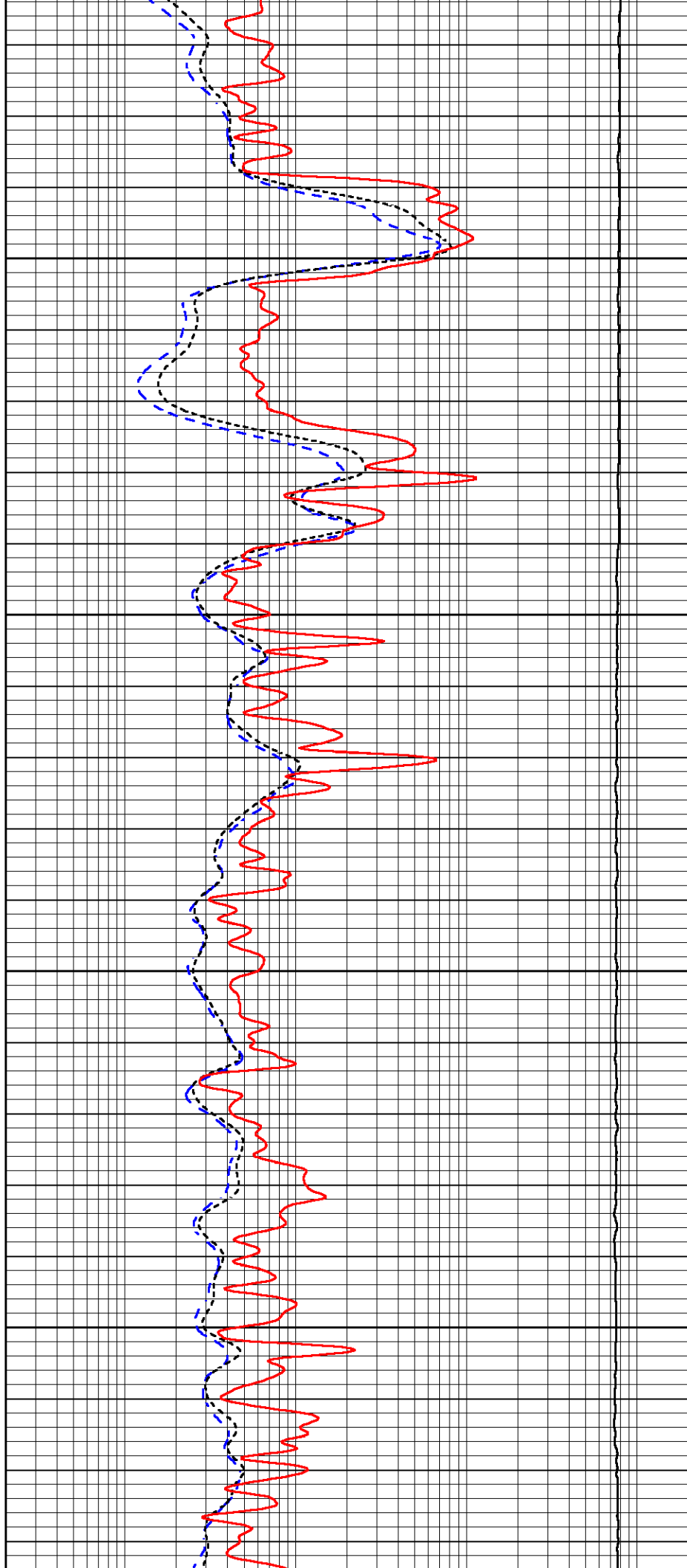


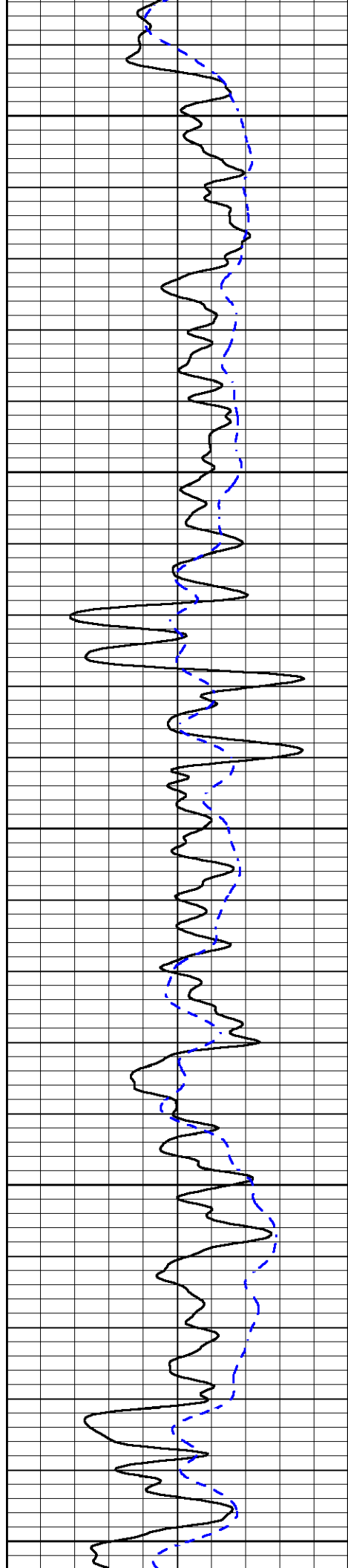
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3350

3400

3450





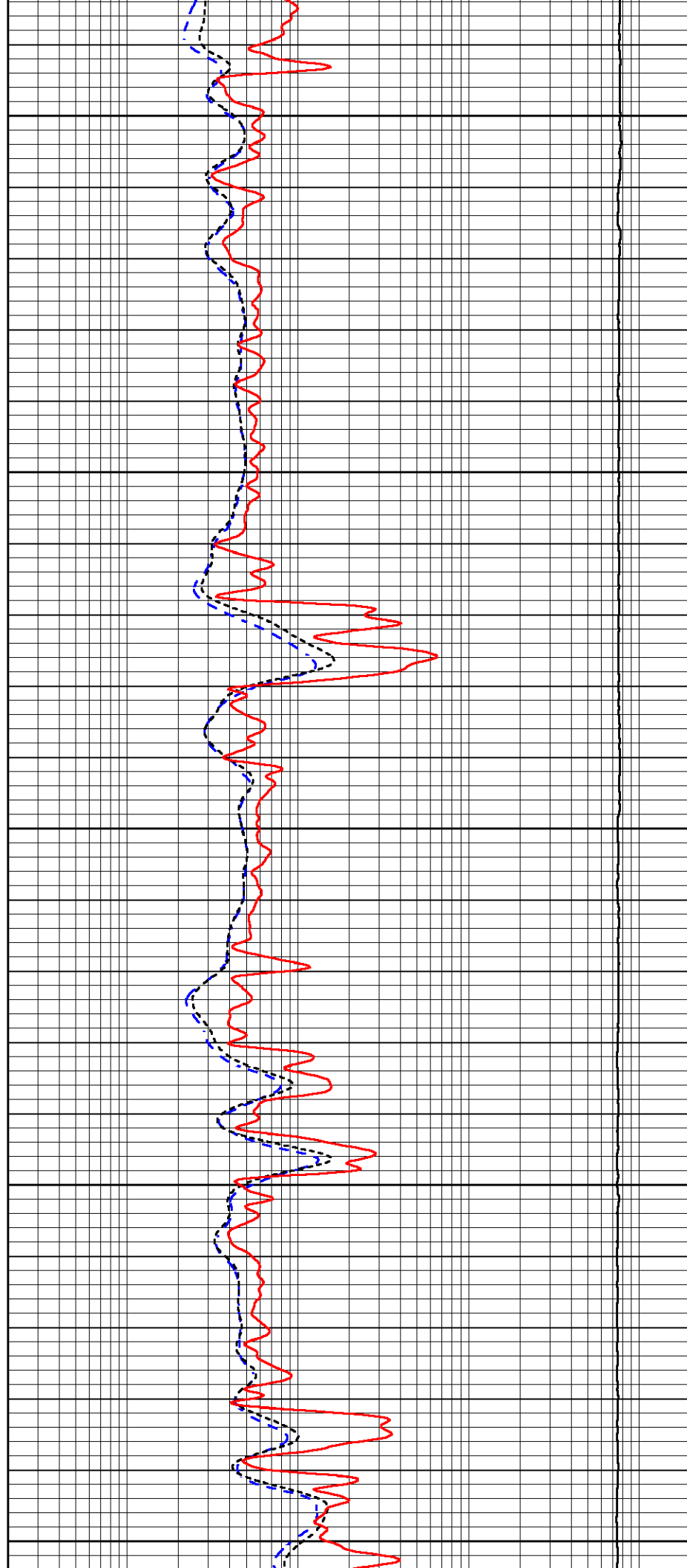
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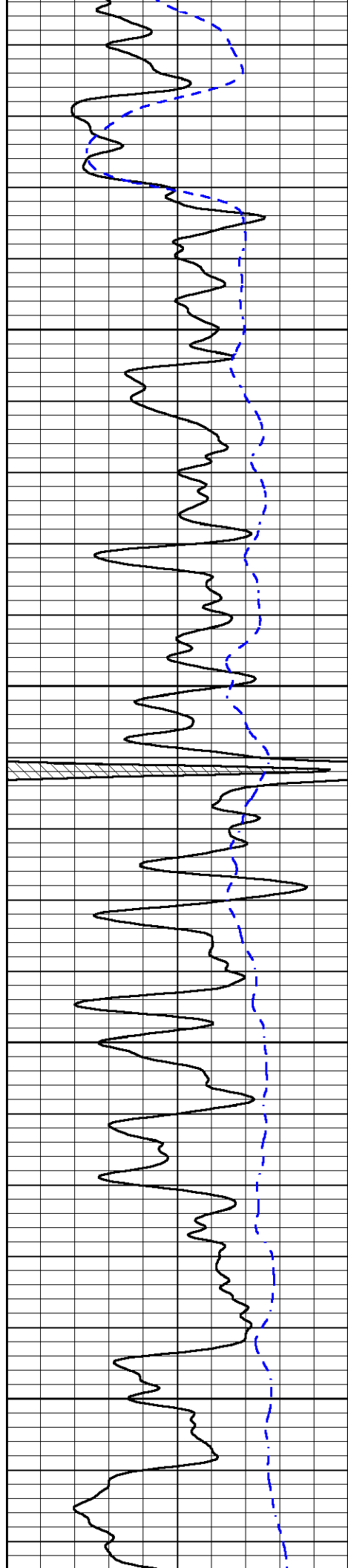
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3600

3650

3700



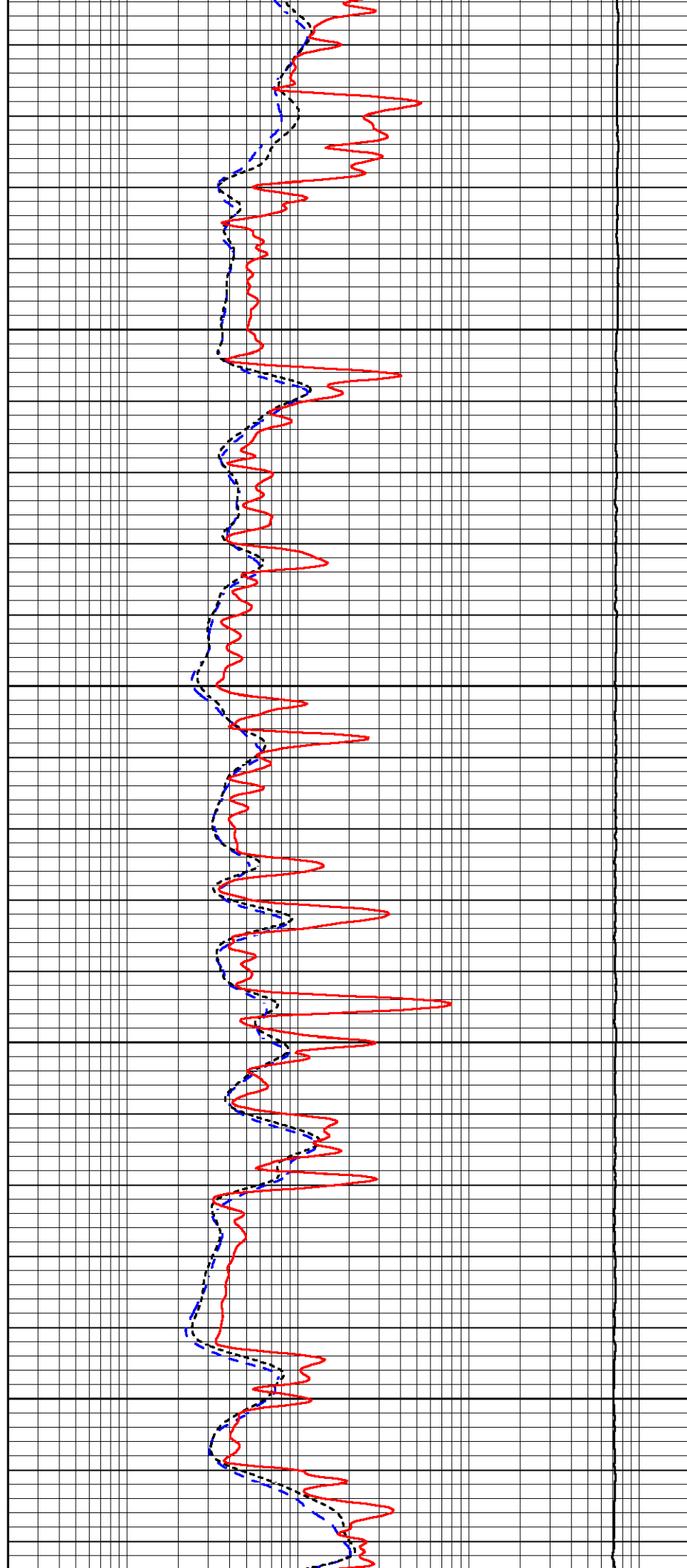


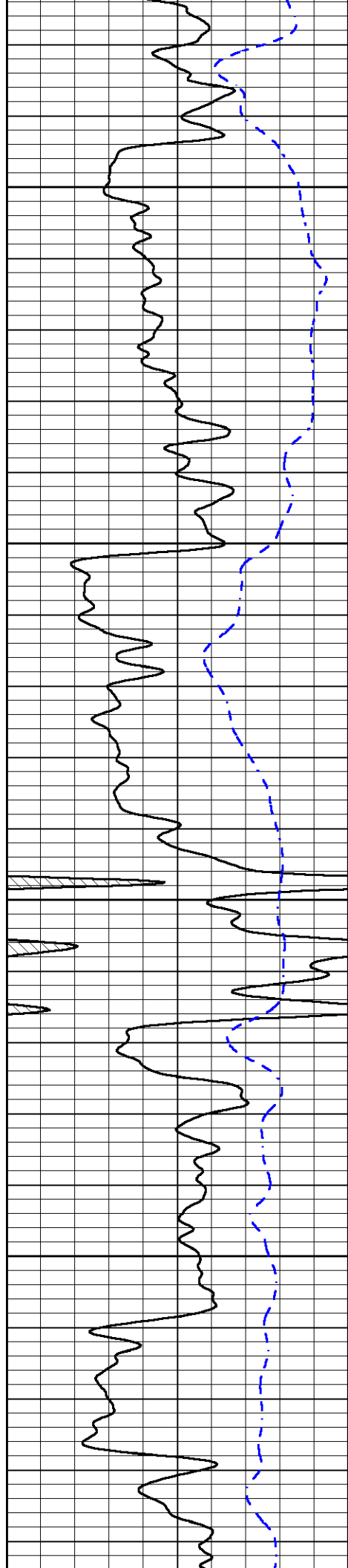
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3800

3850

3900



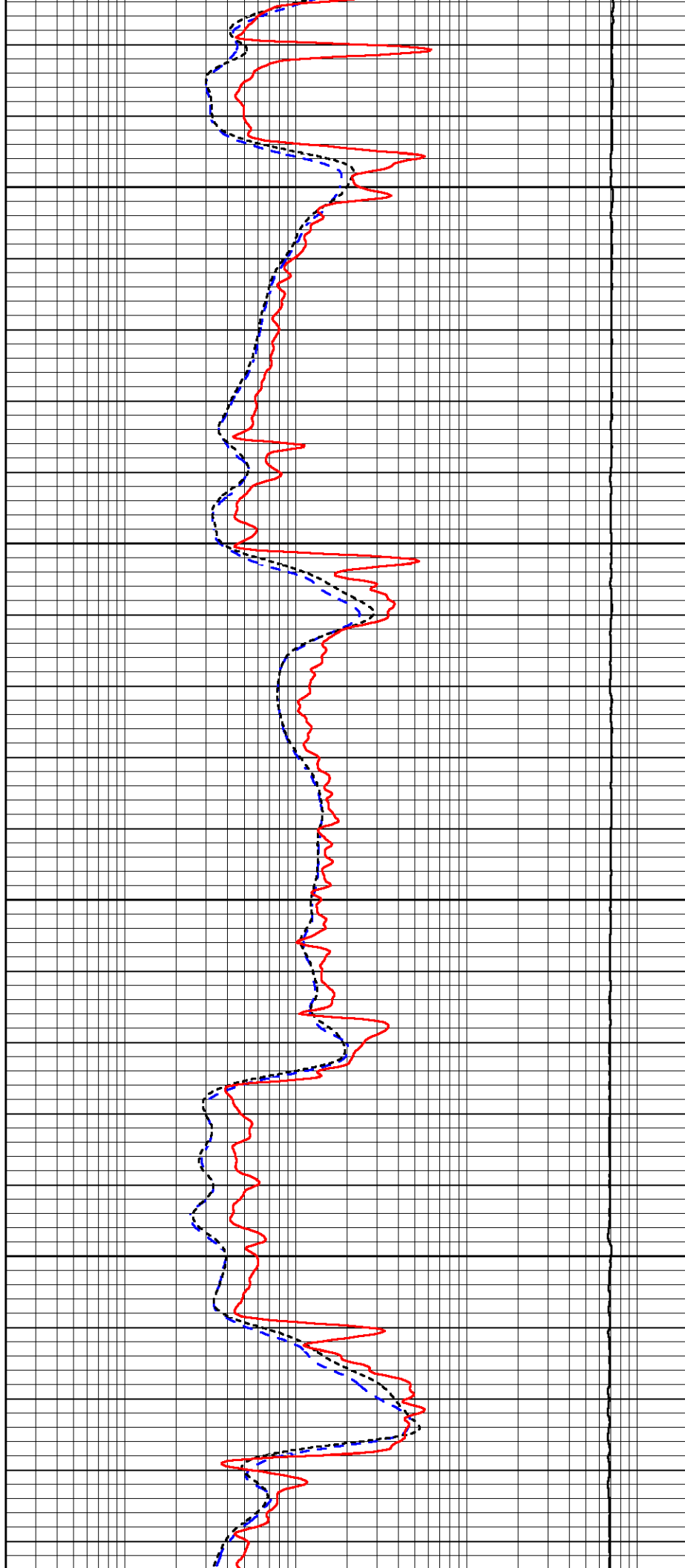


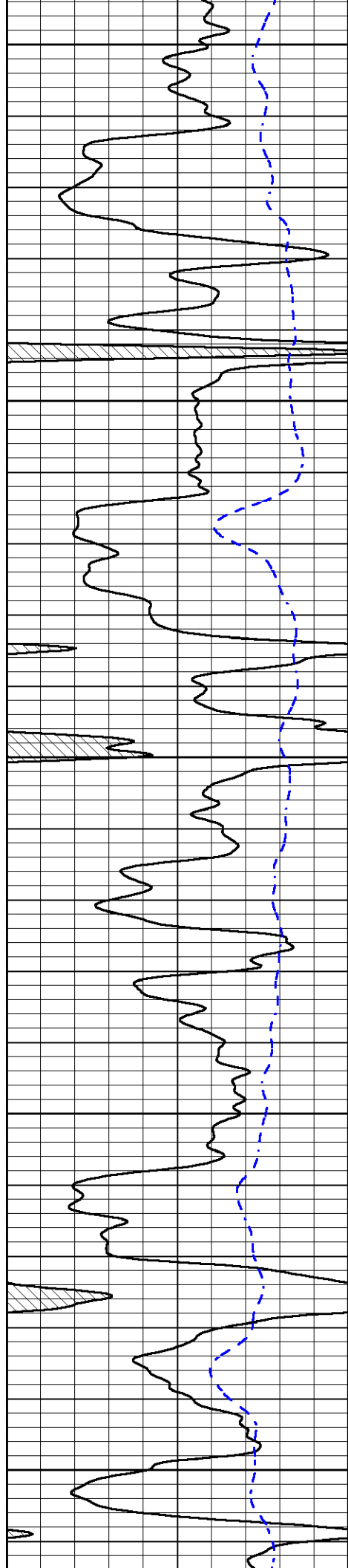
3950

4000

4050

4100





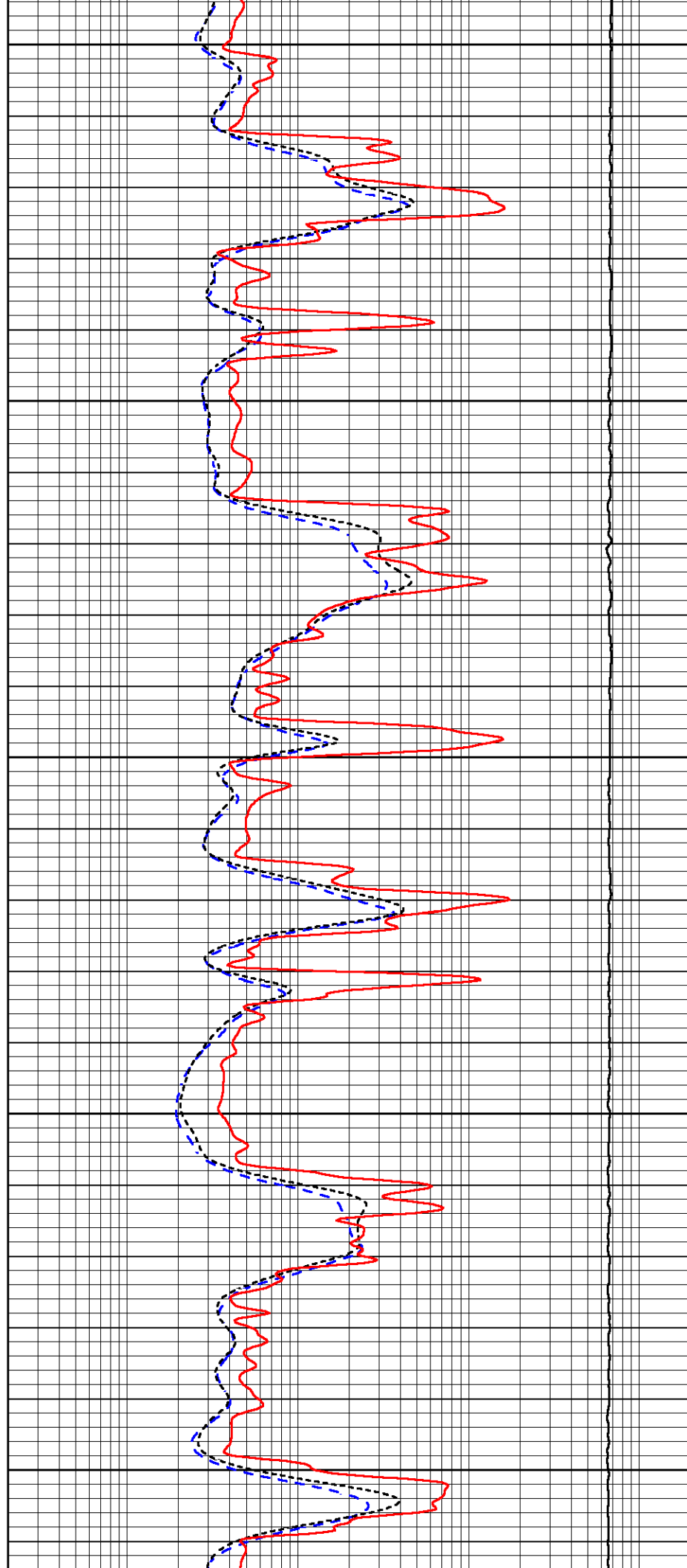
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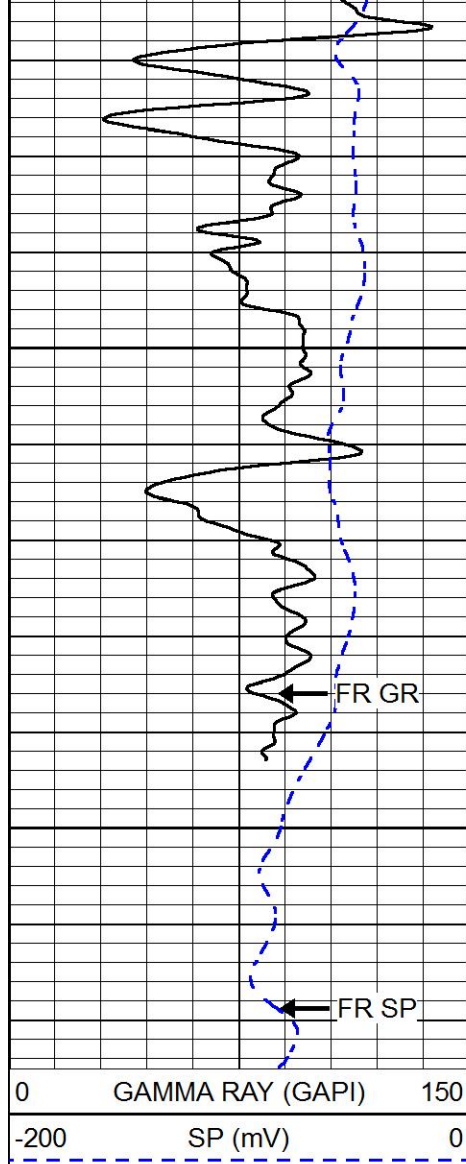
4200

4250

4300

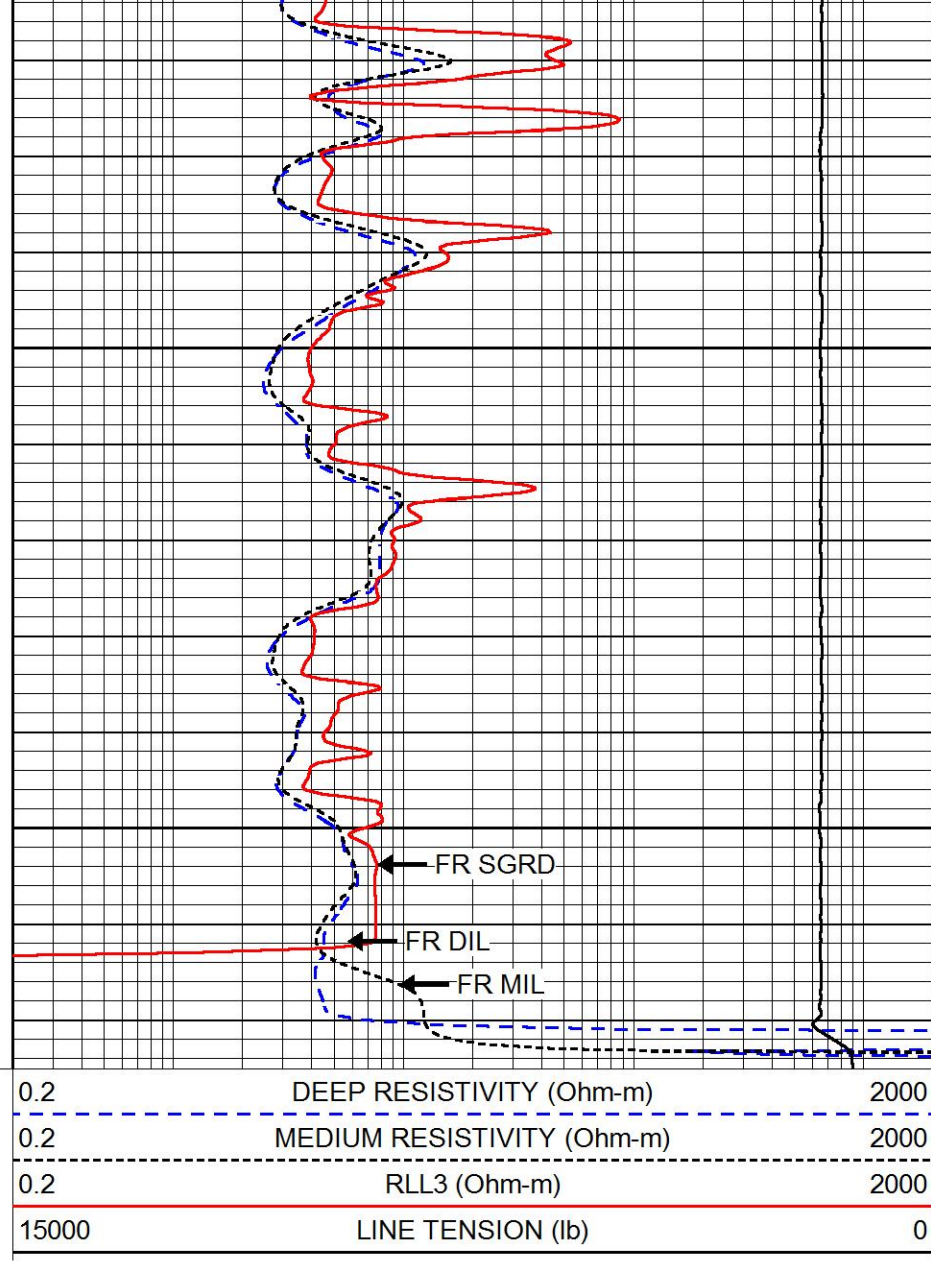
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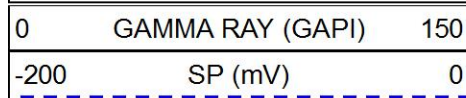
4400

4450

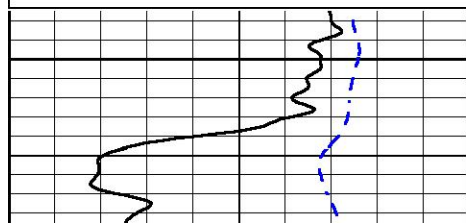
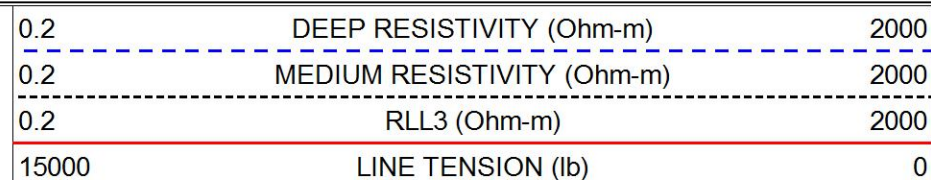


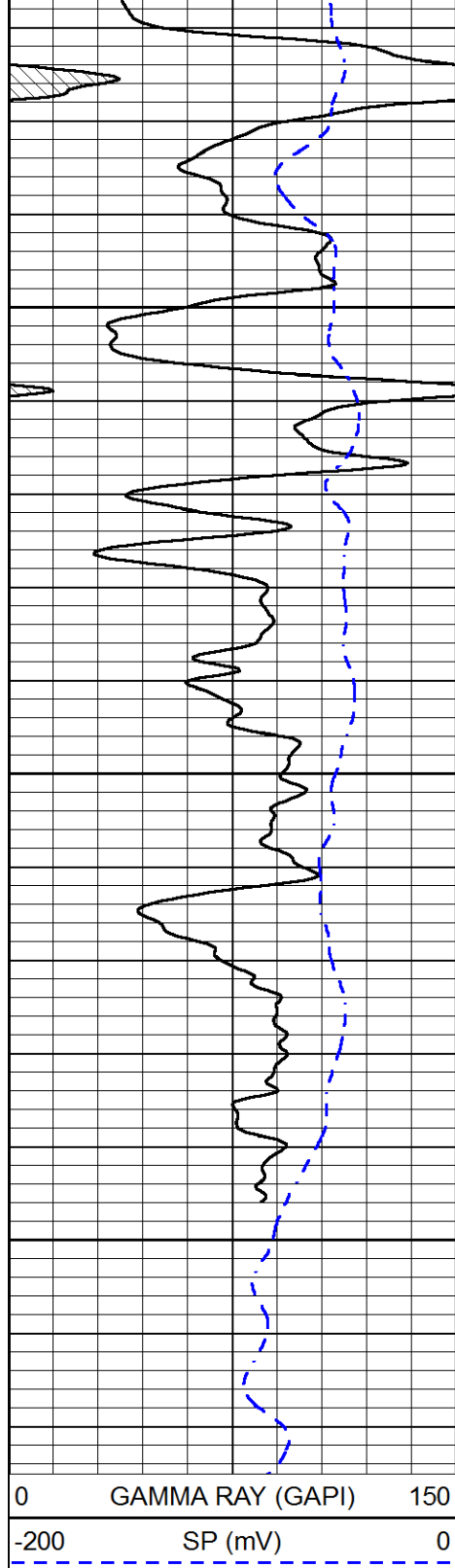
REPEAT SECTION

Database File murfin_ken_3_17.db
Dataset Pathname stack/pass2.1
Presentation Format dil
Dataset Creation Fri Jul 14 14:32:37 2017
Charted by Depth in Feet scaled 1:240



4300

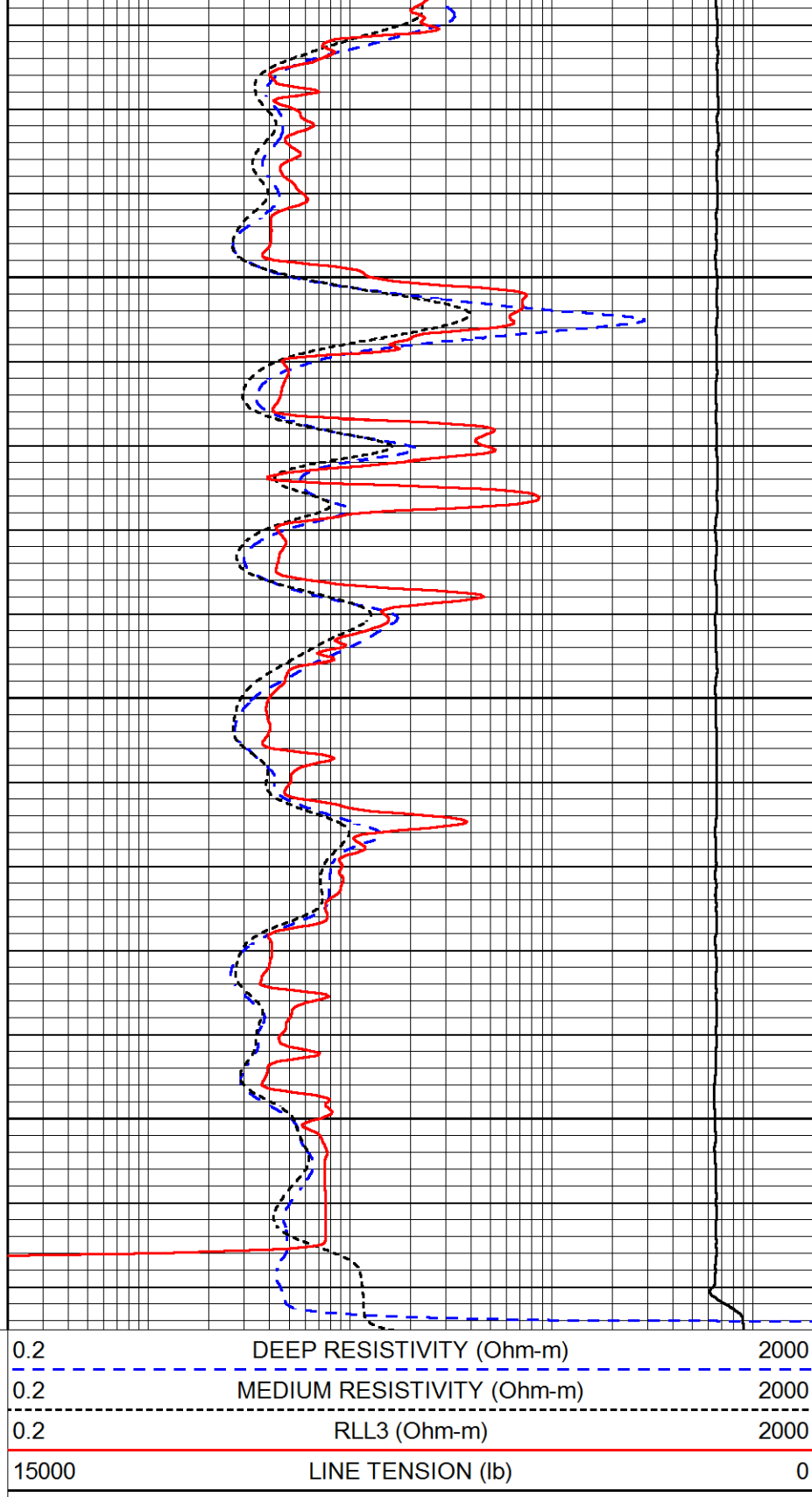




4350

4400

4450



Calibration Report

Database File murfin_ken_3_17.db
 Dataset Pathname stack/pass3.1
 Dataset Creation Fri Jul 14 15:35:11 2017

Dual Induction Calibration Report

Serial-Model: 1987-M&W
 Calibration Performed: Tue Apr 11 16:07:38 2017

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	178.615	710.235	0.000	255.800	mmho/m	0.530	-36.500
Medium	161.982	1441.110	0.000	255.800	mmho/m	0.440	-110.500

Compensated Density Calibration Report

Serial-Model: 168-986-M&W
 Source / Verifier: /
 Master Calibration Performed: Tue Apr 11 16:07:47 2017

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	4691.86	4818.19	cps
Aluminum	2.675	g/cc	859.57	3020.22	cps
Spine Angle = 74.61			Density/Spine Ratio = 0.523		
	Size		Reading		
Small Ring	4.00	in	1.03		
Large Ring	14.00	in	1.23		

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 16:08:01 2017

 Calibrator Value: 1000.0 GAPI

 Background Reading: 0.0 cps
 Calibrator Reading: 6.2 cps

 Sensitivity: 0.5200 GAPI/cps



PIONEER

Pioneer Energy Services

Company MURFIN DRILLING COMPANY, INC.
 Well KEN NO. 3-17
 Field WILDCAT
 County RAWLINS
 State KANSAS