



Pioneer Energy Services

## Dual Induction Log

API No.

15-109-21,886-00-00

Company **Murfin Drilling Company, Inc.**

Well **WWWMM 2 - 4**

Field

County **Logan**

State

**Kansas**

Location

**N2 S2 NE SE  
1735' FSL & 660' FEL**

Other Services  
CNL/CDL  
MEL/BHCS

Sec: 4

Twp: 13 S

Rge: 32 W

Elevation

K.B. 3051  
D.F. 3040  
G.L. 3040

Permanent Datum

Ground Level  
Kelly Bushing

Elevation 3040

11 Ft. Above Perm. Datum

Log Measured From

Kelly Bushing

Drilling Measured From

Kelly Bushing

Date

4/14/2013

Run Number

One

Depth Driller

4780

Depth Logger

4783

Bottom Logged Interval

4782

Top Log Interval

00

Casing Driller

8.625 @ 226

Casing Logger

220

Bit Size

7.875

Type Fluid in Hole

Chemical

Salinity, ppm CL

2000

Density / Viscosity

9.5 53

pH / Fluid Loss

10.0 8.6

Source of Sample

Flowline

Rm @ Meas. Temp

.50 @ 60

Rmf @ Meas. Temp

.38 @ 60

Rmc @ Meas. Temp

.68 @ 60

Source of Rmf / Rmc

Charts

Rm @ BHT

.24 @ 124

Operating Rig Time

5 1/2 Hours

Max Rec. Temp. F

124

Equipment Number

17

Location

Hays

Recorded By

D. Martin

Witnessed By

Steve Miller

<<< Fold Here >>>

All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, 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. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

### Comments

Thank you for using Log-Tech, Inc.  
(785) 625-3858

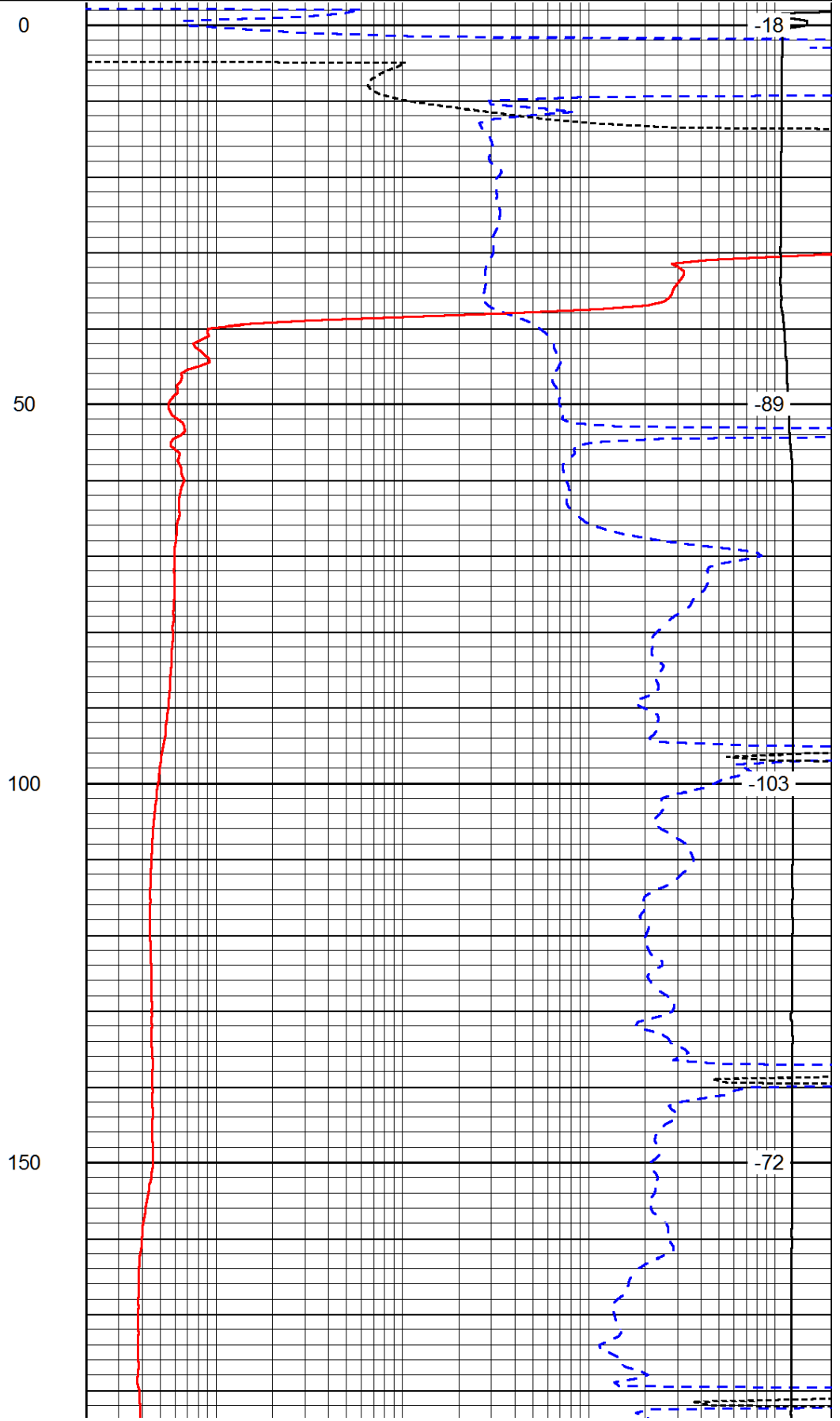
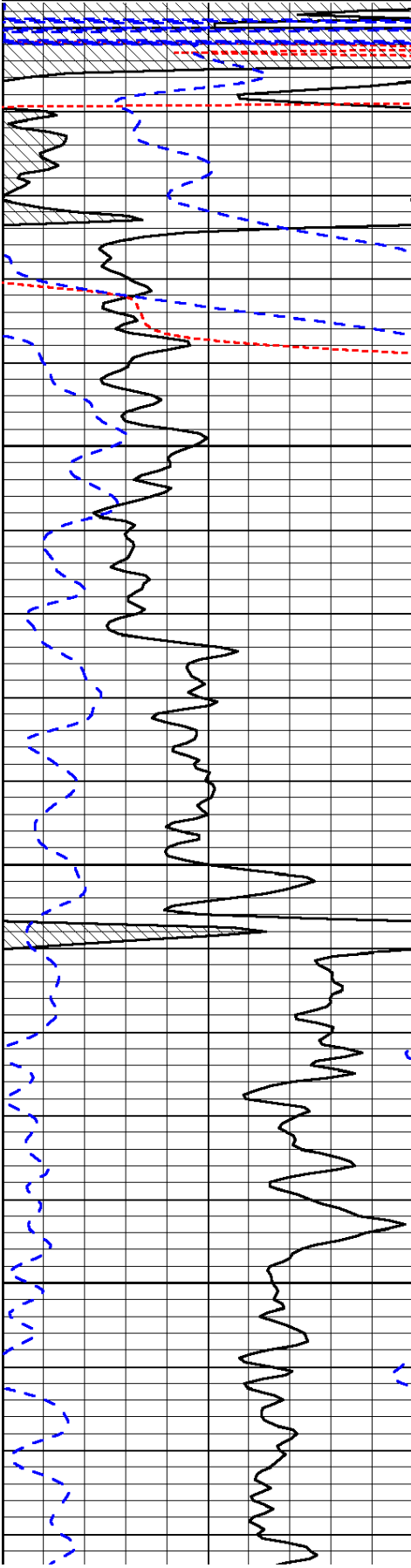
Oakley, KS  
11 S to Seneca Rd.(Gove Rd.),  
1 W, 3/4 S, W Into

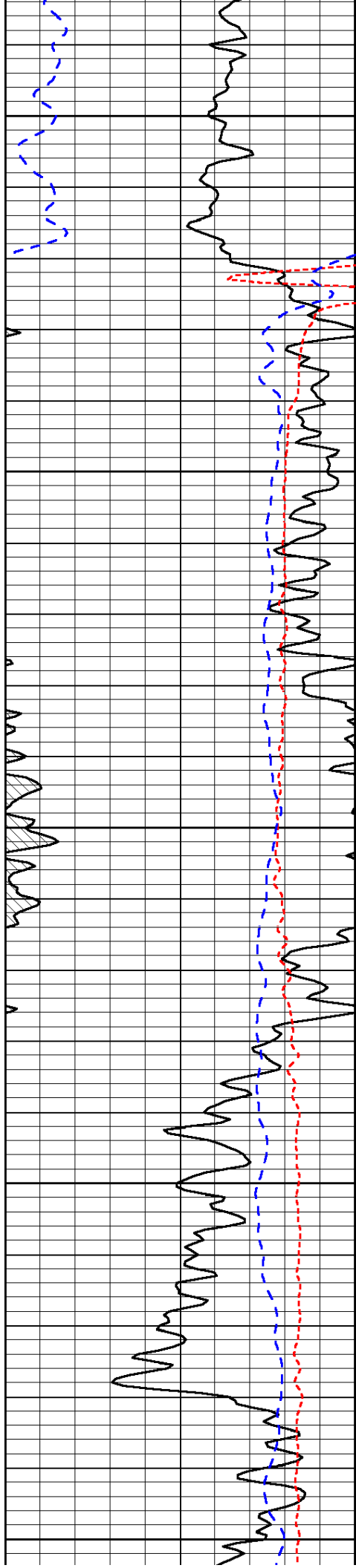
Database File: murfin\_wwwm\_2-4hd.db  
Dataset Pathname: DIL/murfstk  
Presentation Format: dil  
Dataset Creation: Sun Apr 14 23:07:31 2013  
Charted by: Depth in Feet scaled 1:240

0	Gamma Ray (GAPI)	150
-160	RXO/RT	40
-200	SP (mV)	0

0.2	Deep Resistivity (Ohm-m)	2000
0.2	Medium Resistivity (Ohm-m)	2000
0.2	Shallow Resistivity (Ohm-m)	2000
10000	Line Tension (lb)	0

LSPD  
(ft/min)





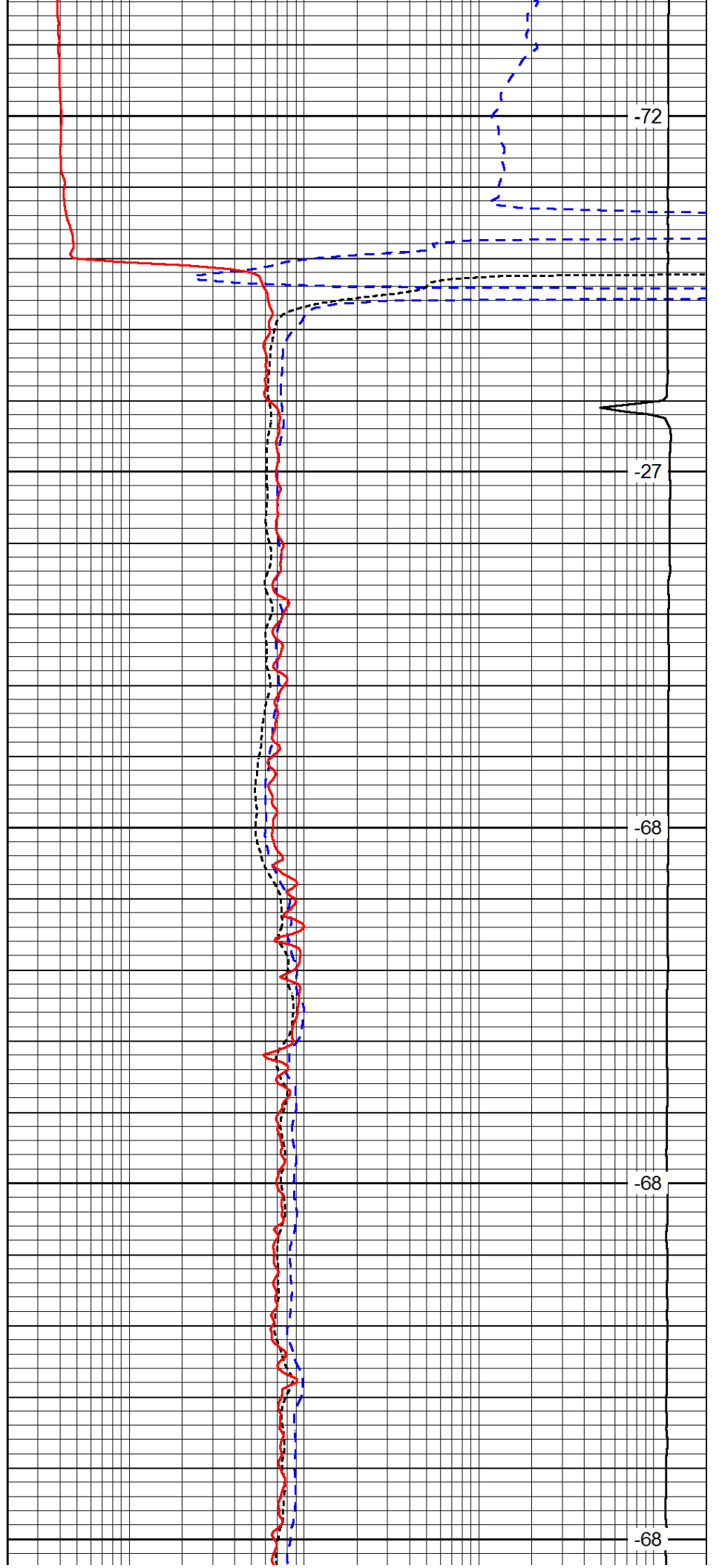
200

250

300

350

400



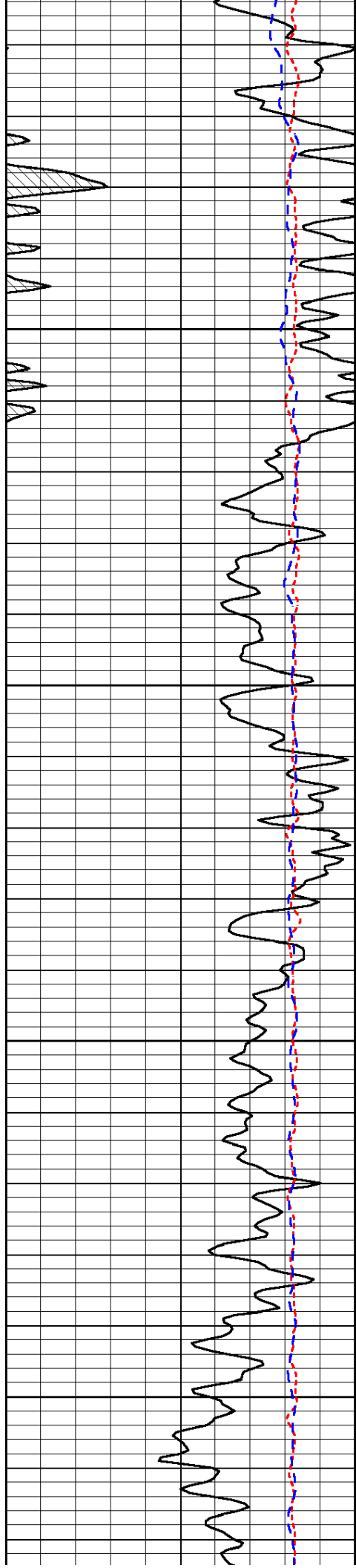
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-27

-68

-68

-68

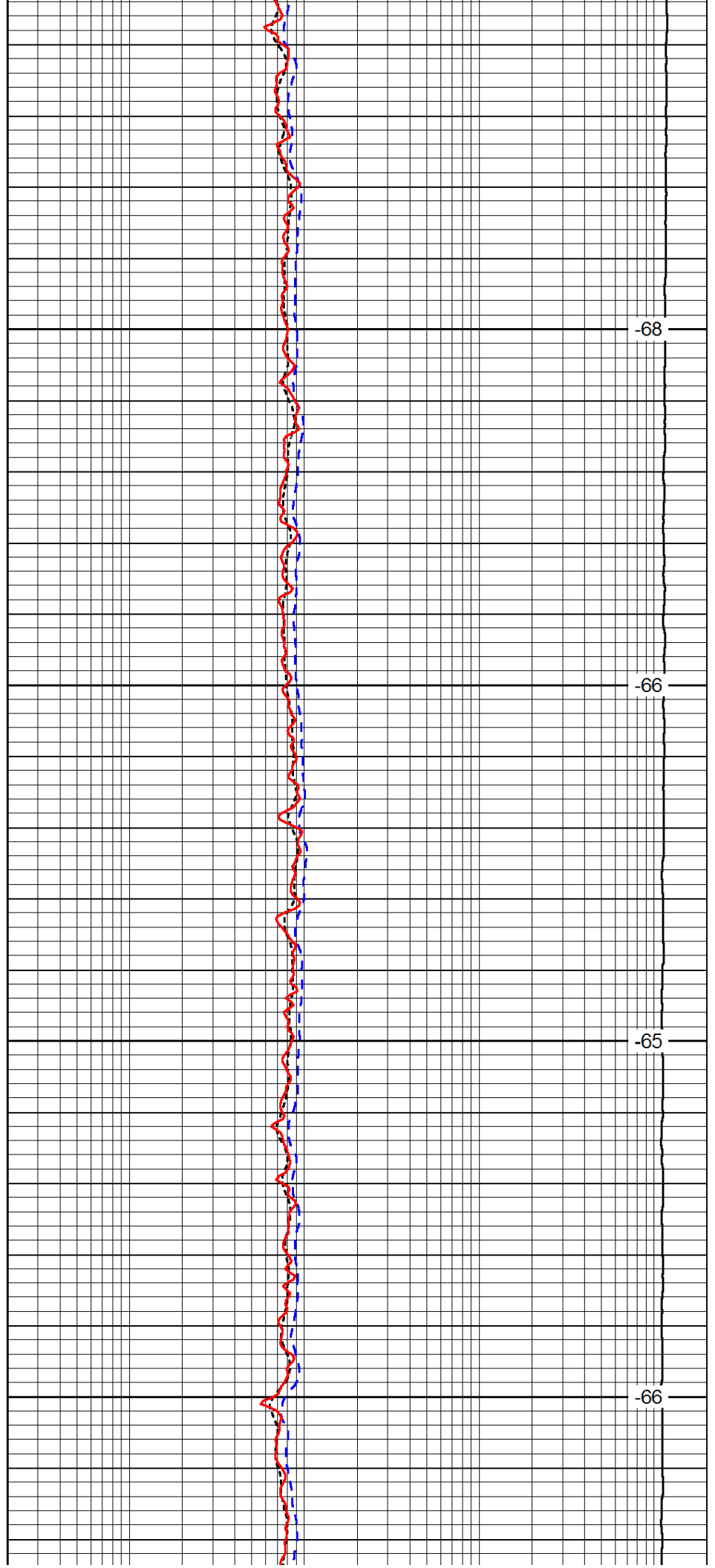


450

500

550

600

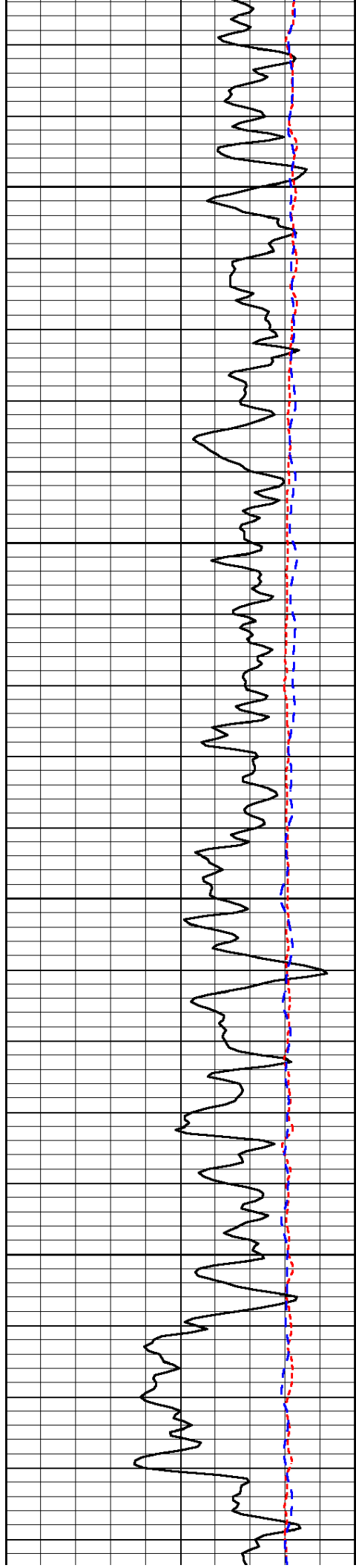


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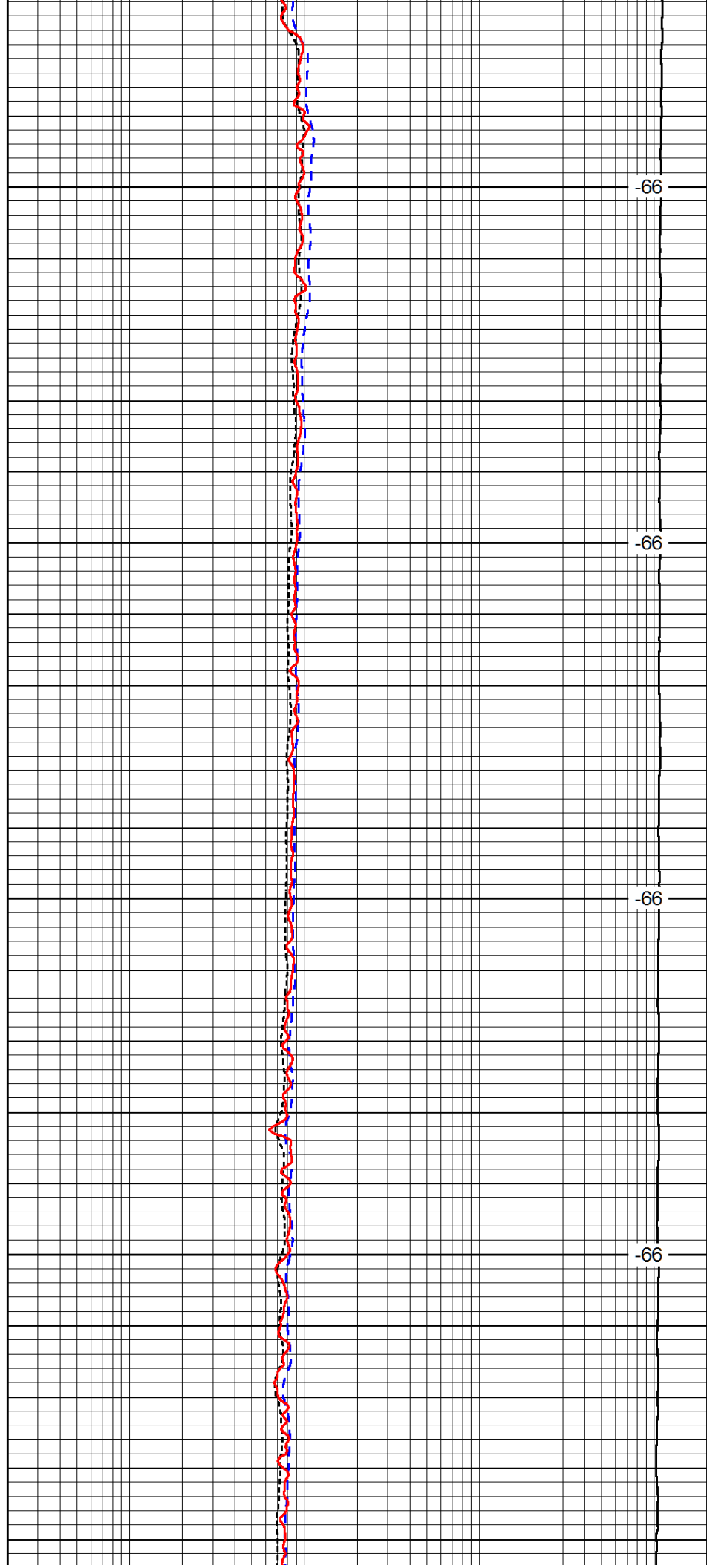


650

700

750

800

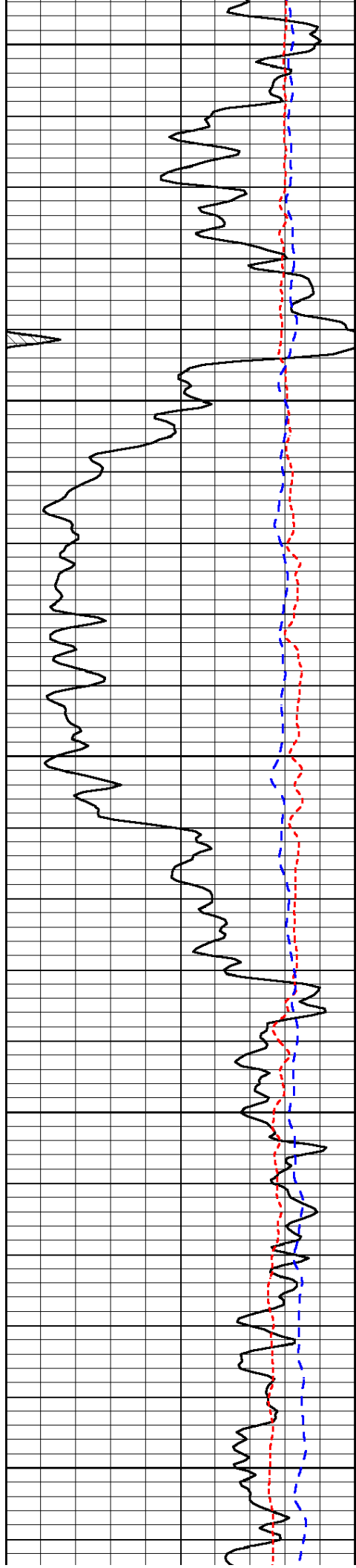


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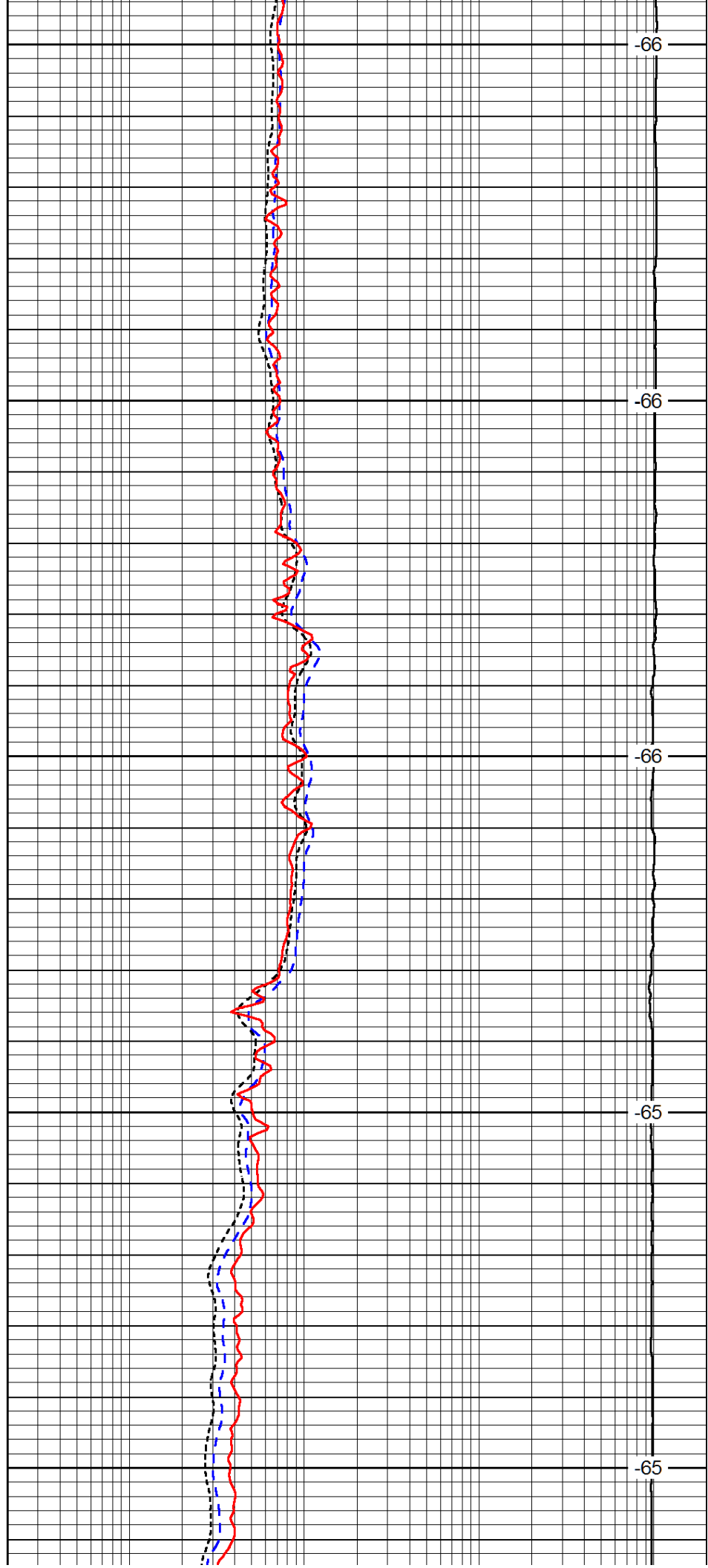
850

900

950

1000

1050



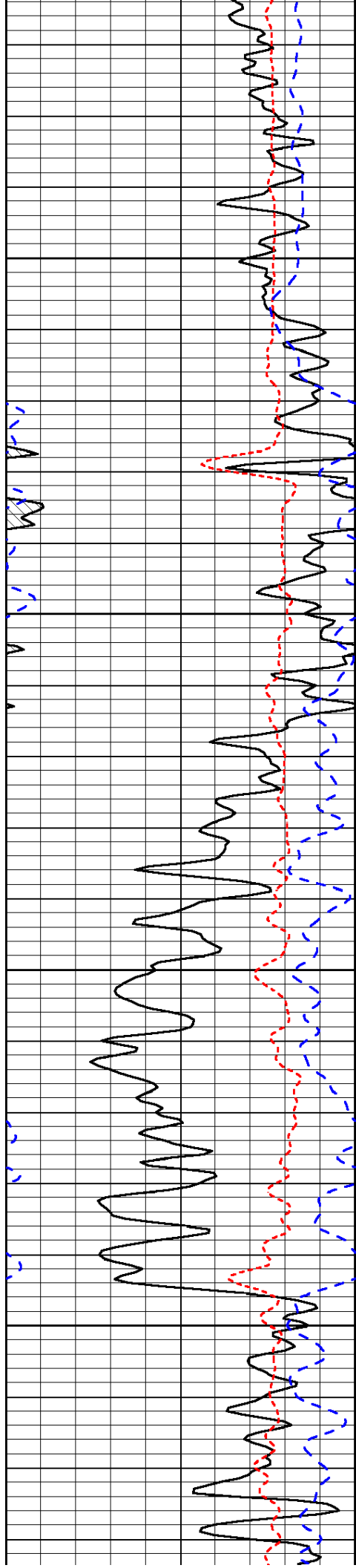
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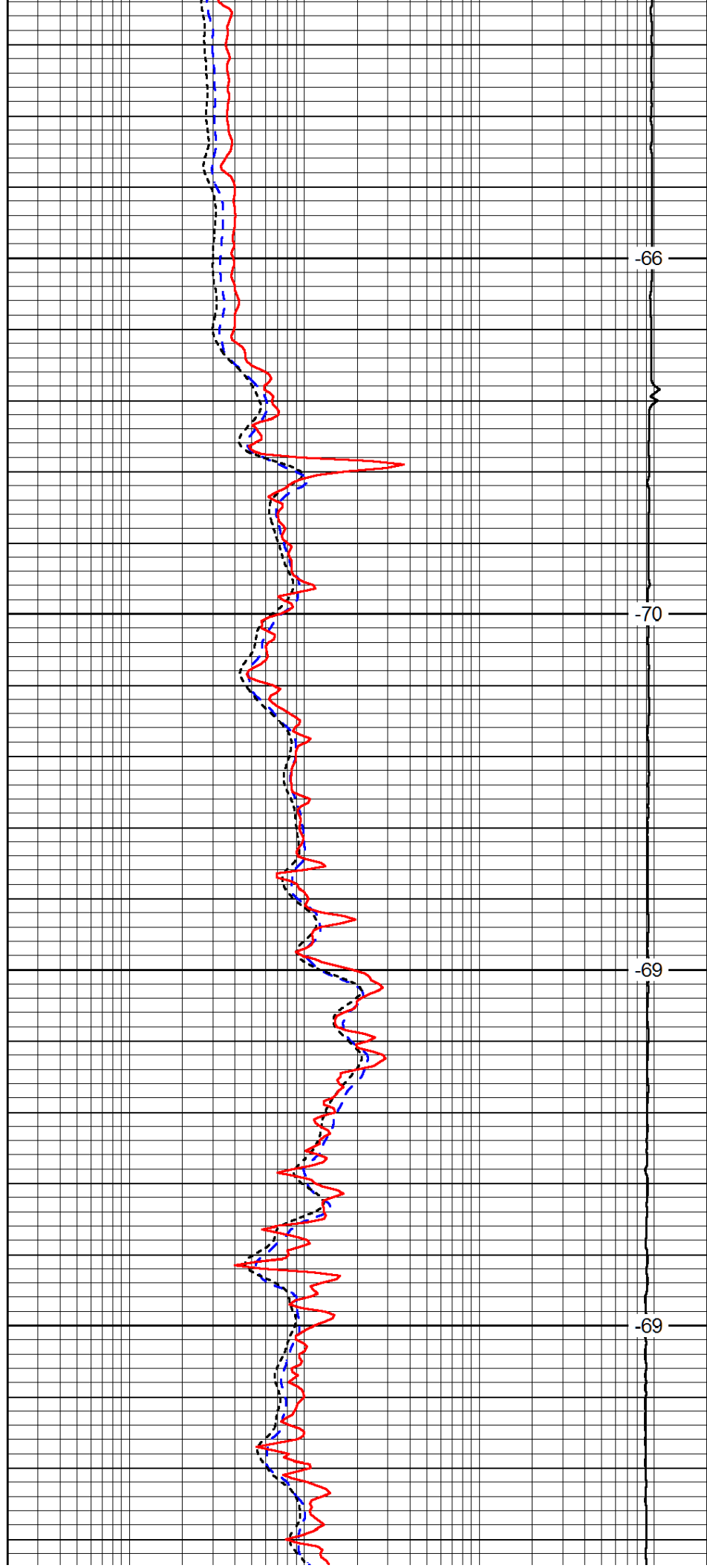


1100

1150

1200

1250

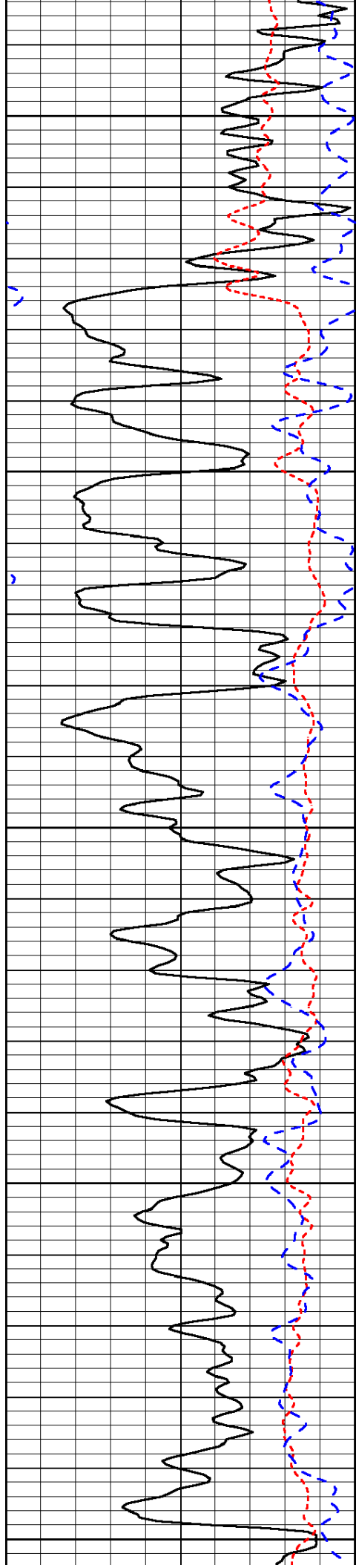


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-70

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-69



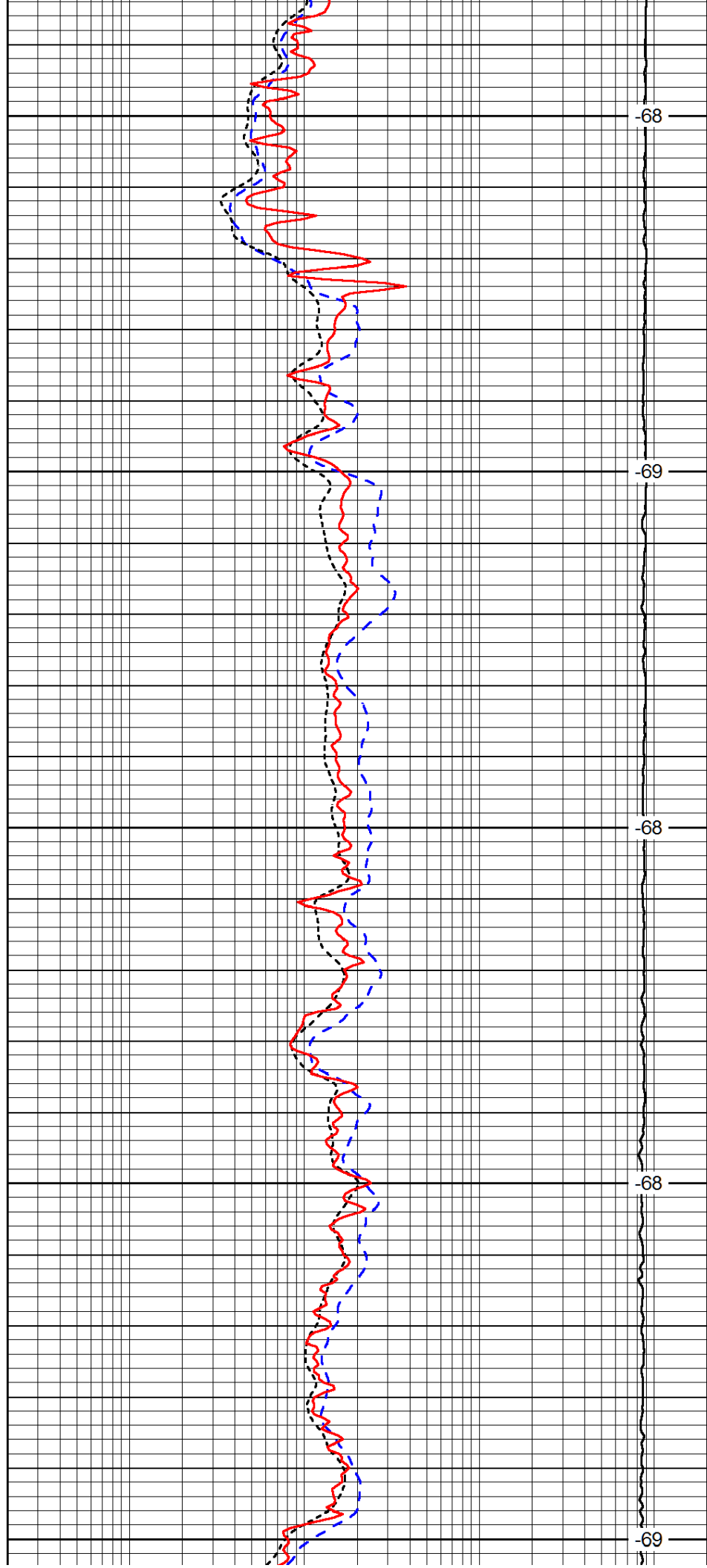
1300

1350

1400

1450

1500



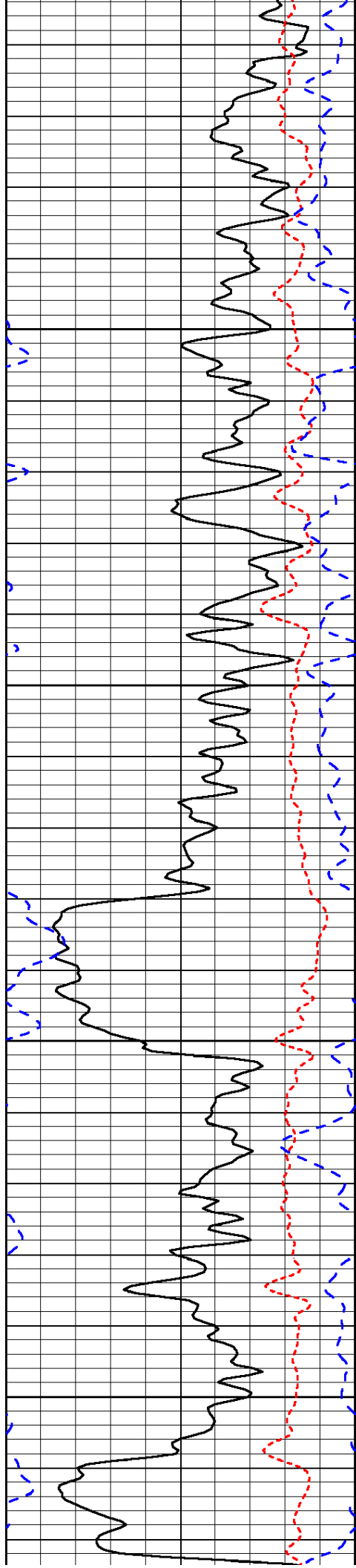
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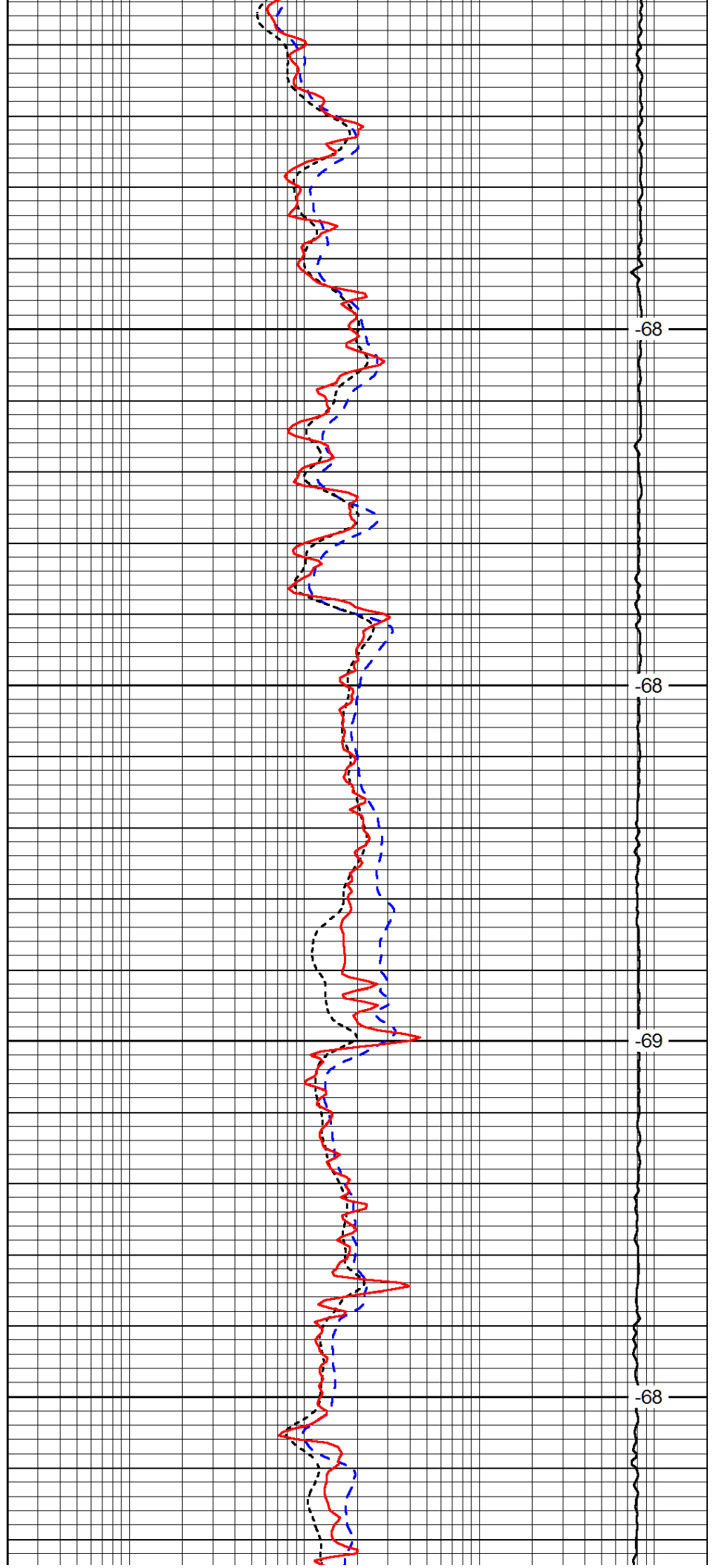


1550

1600

1650

1700

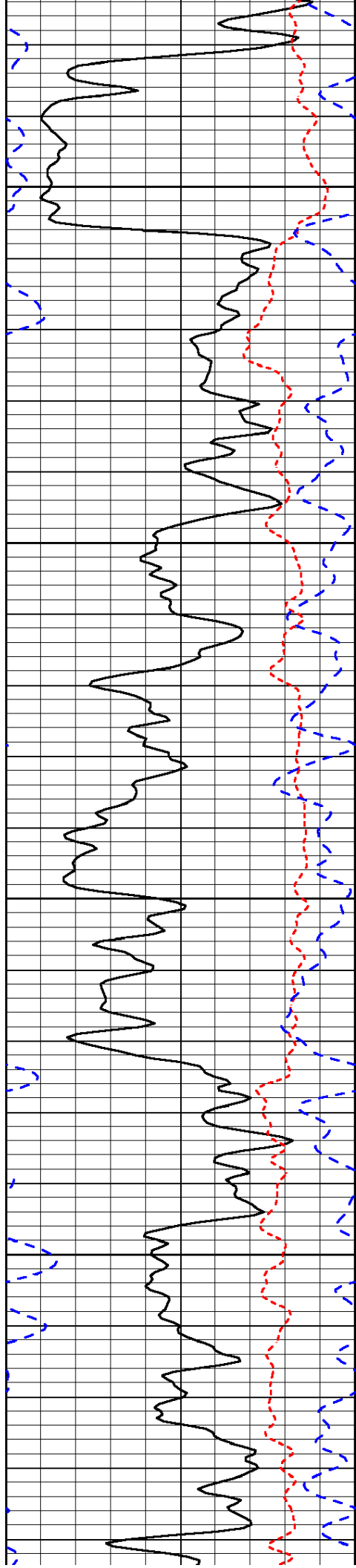


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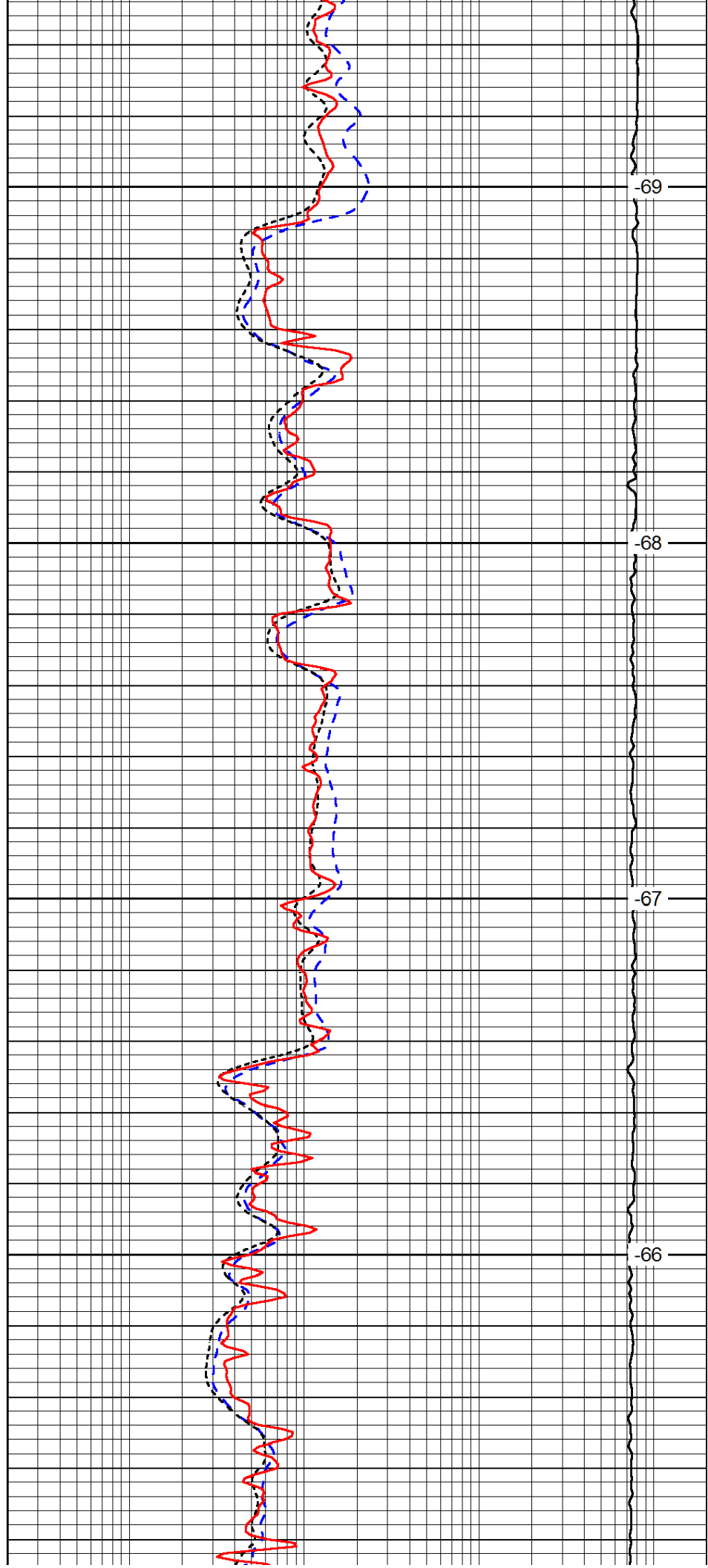


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1800

1850

1900

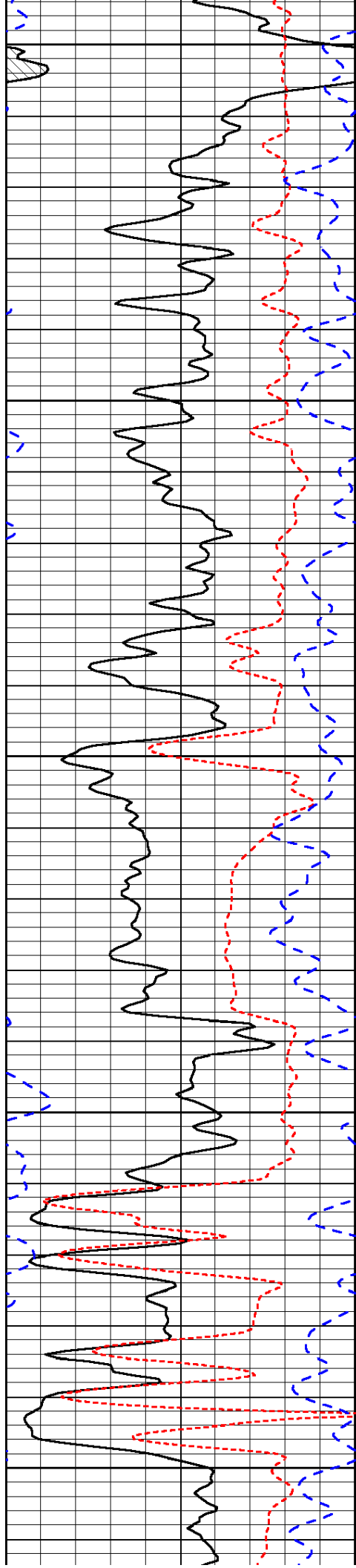


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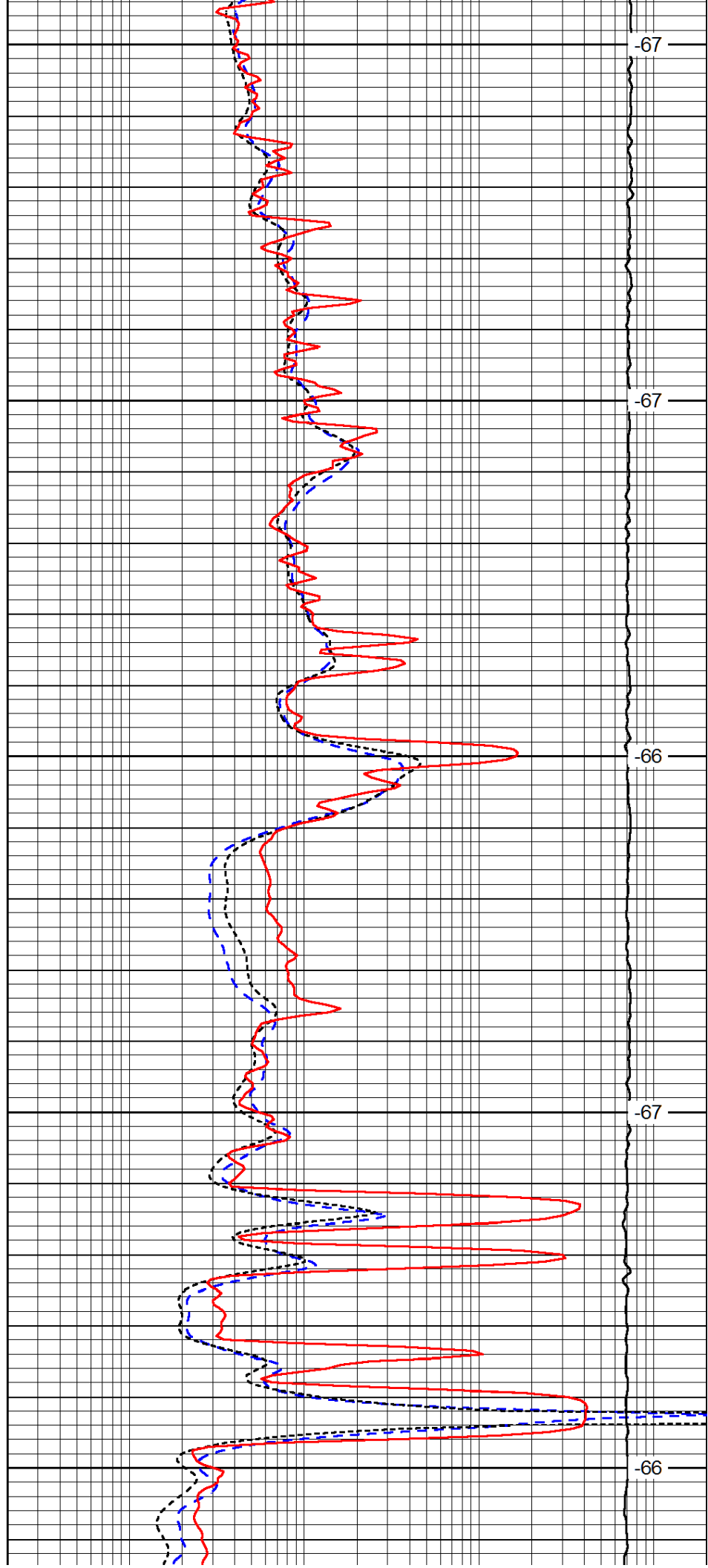
1950

2000

2050

2100

2150



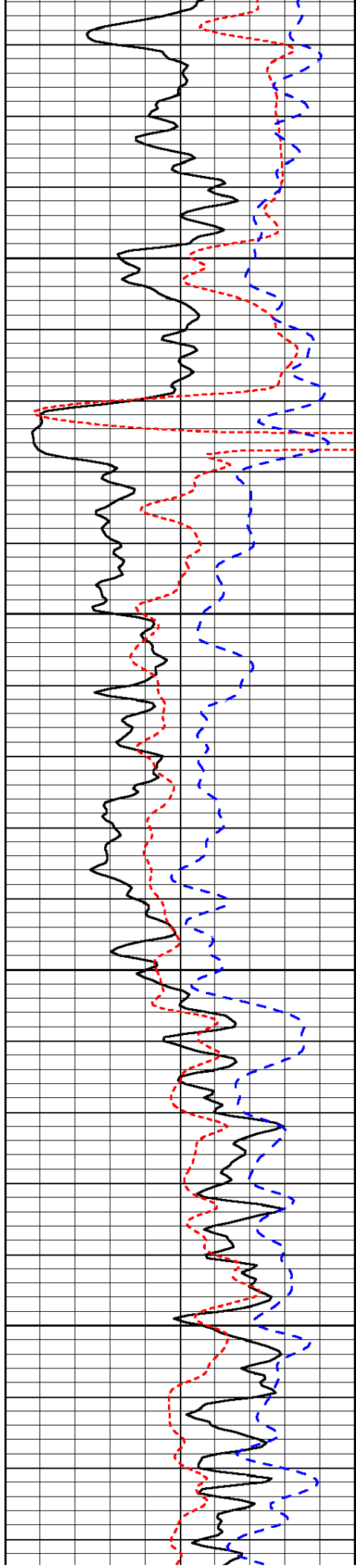
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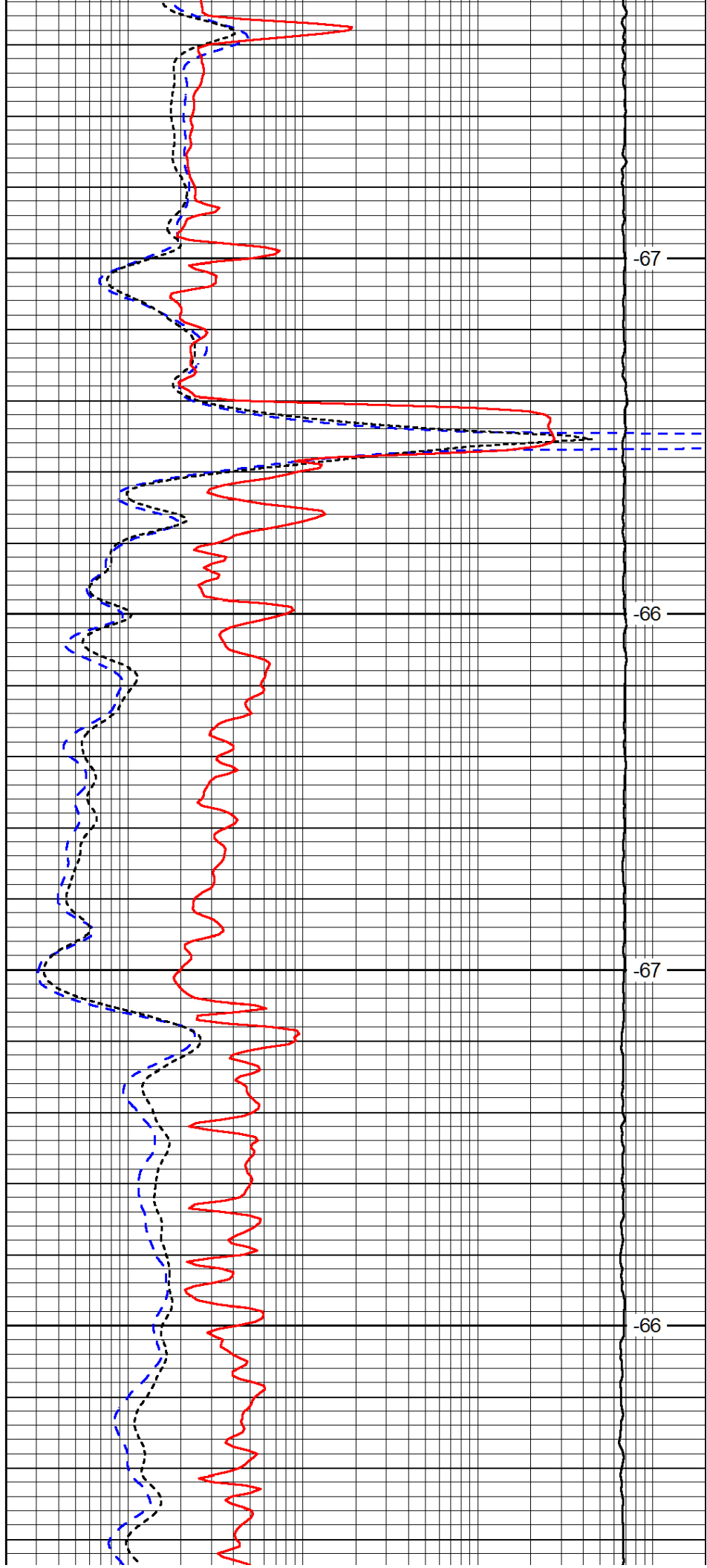


2200

2250

2300

2350

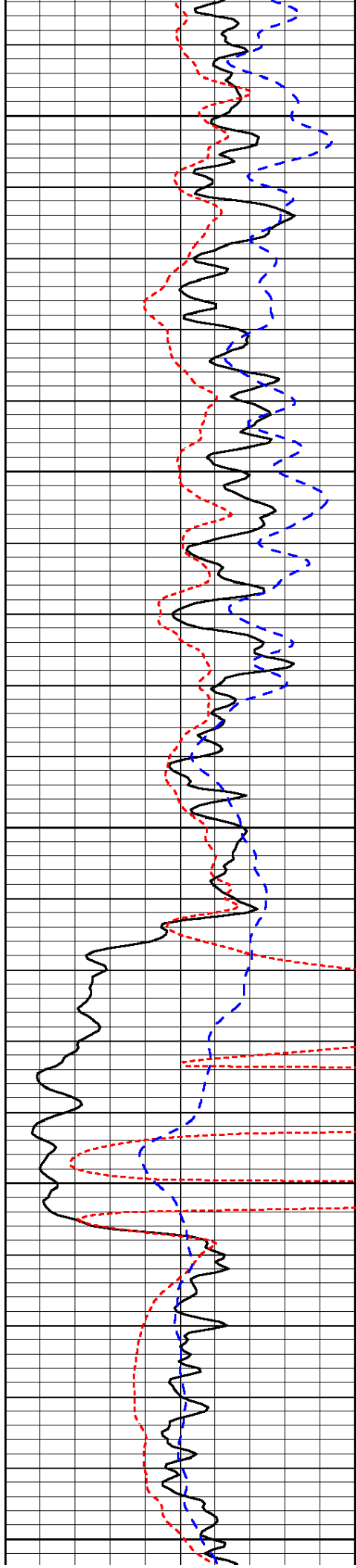


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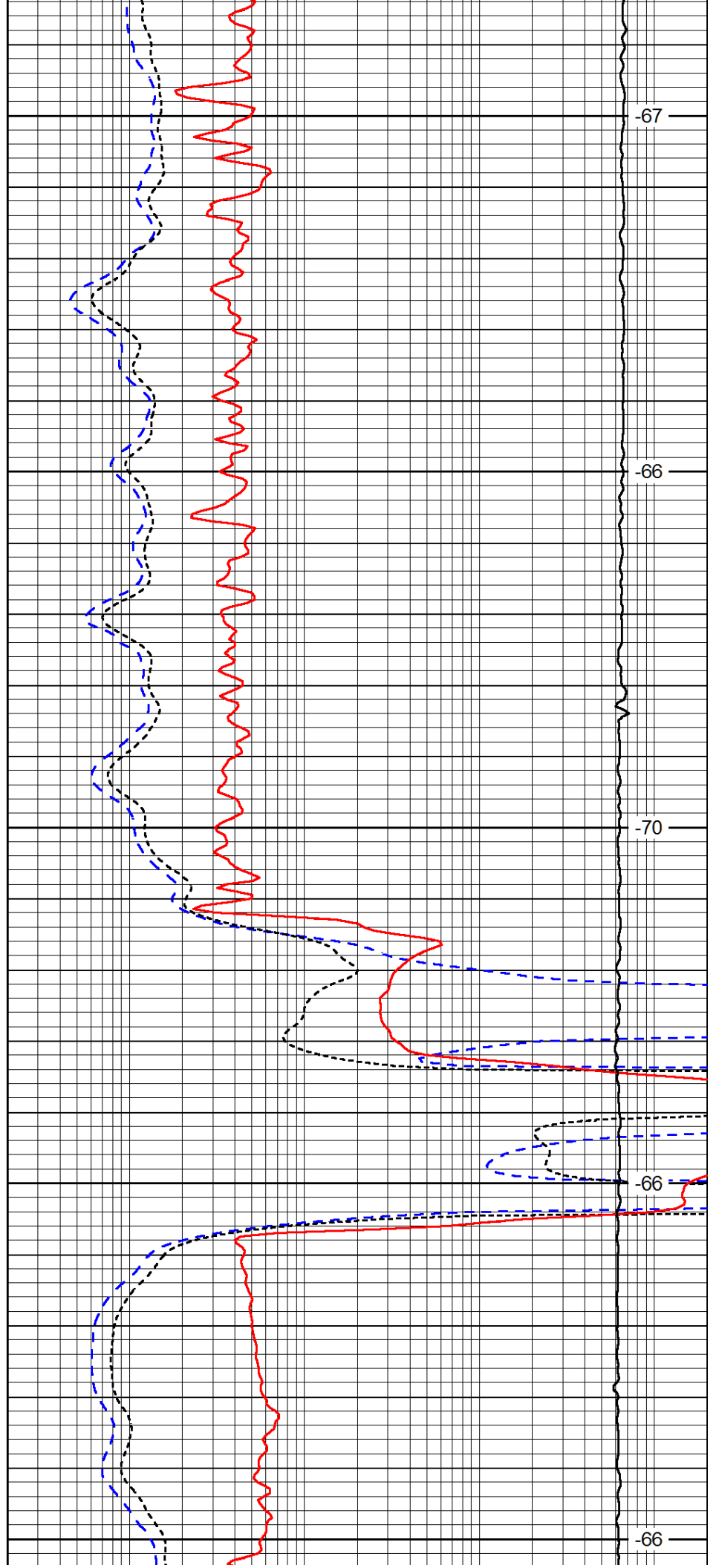
2400

2450

2500

2550

2600



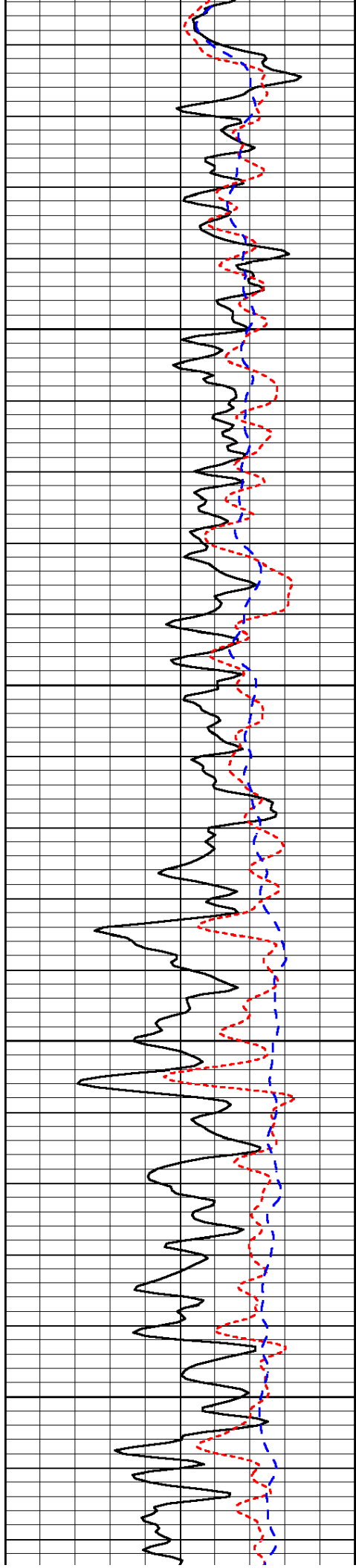
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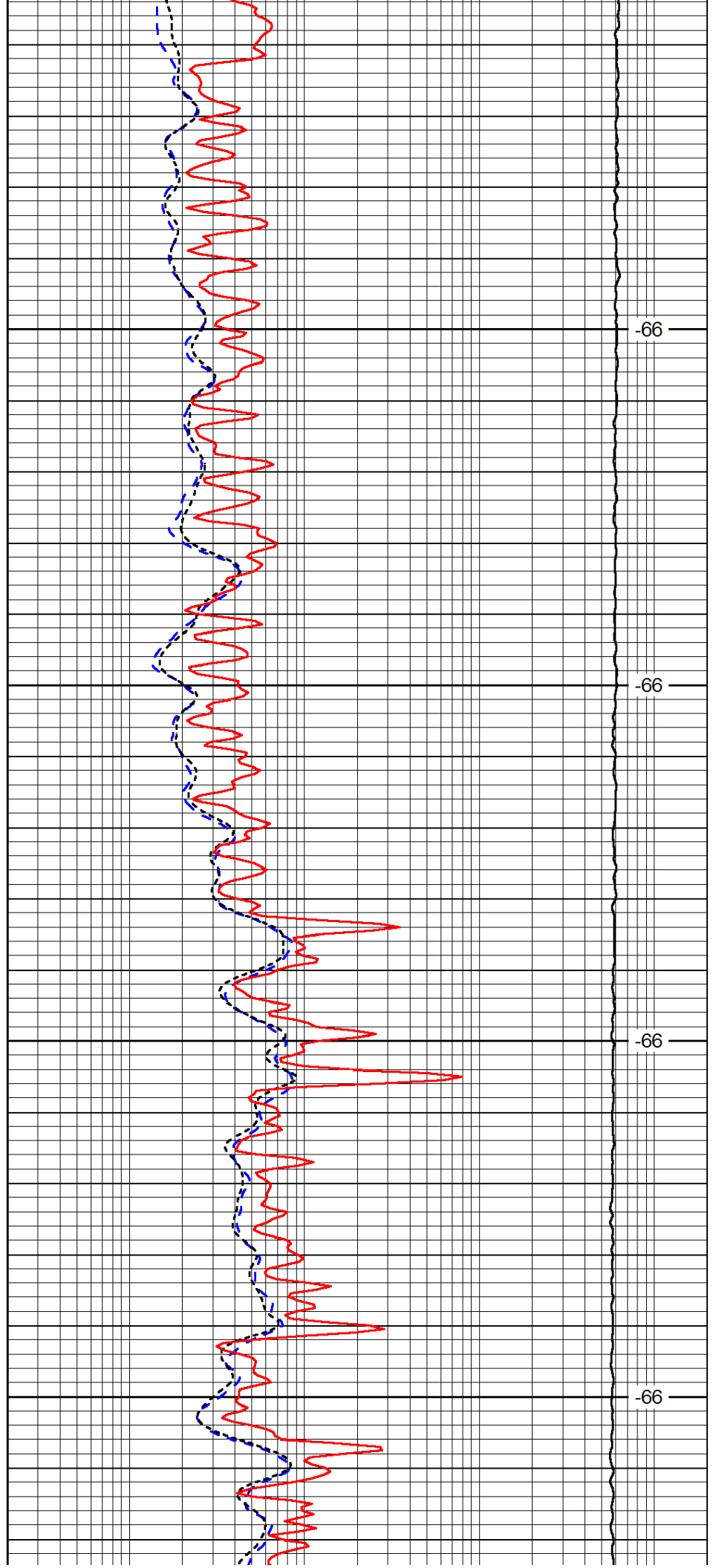


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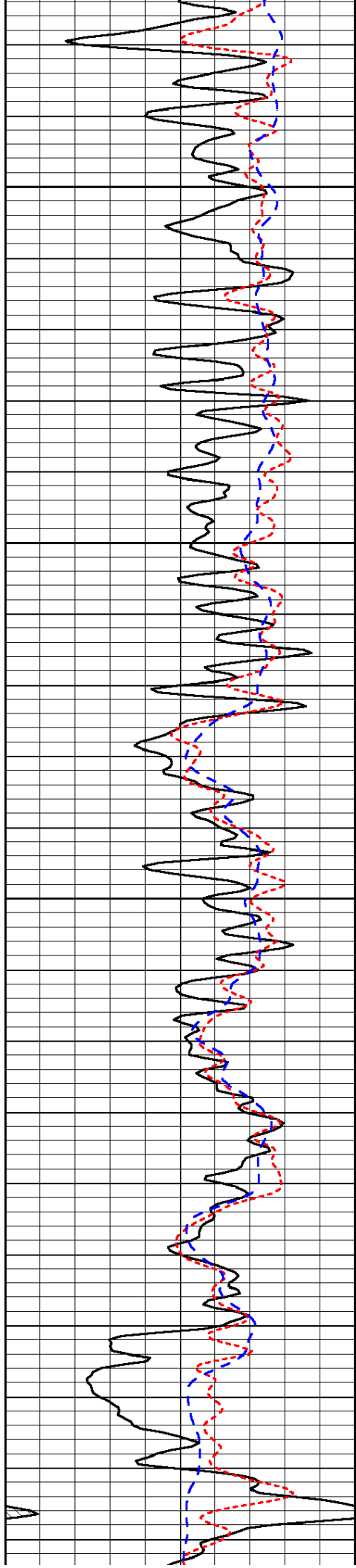


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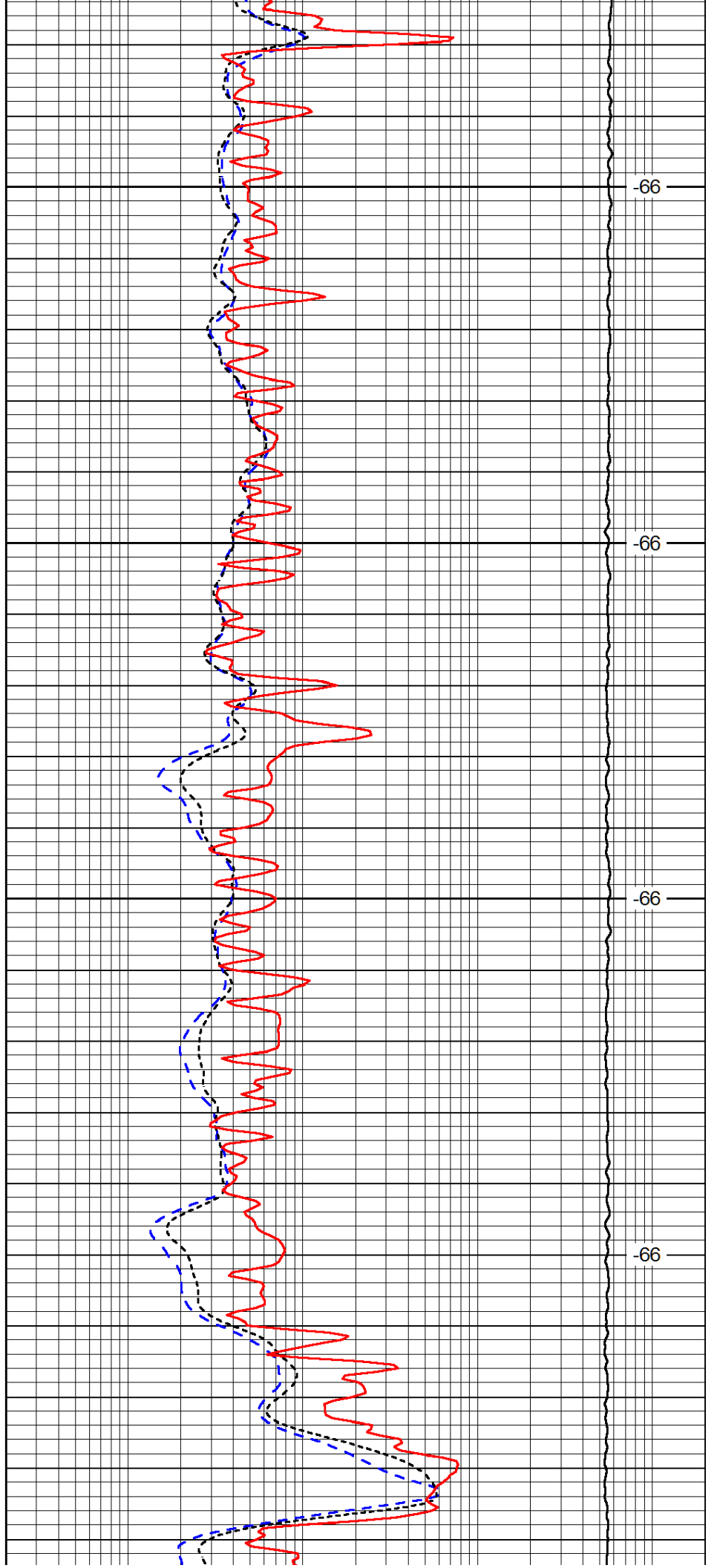


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2900

2950

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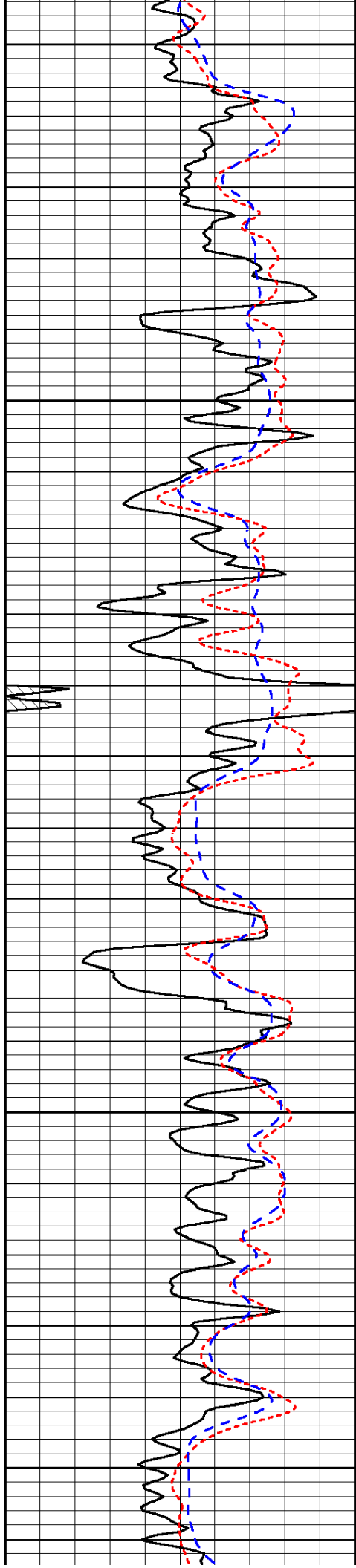


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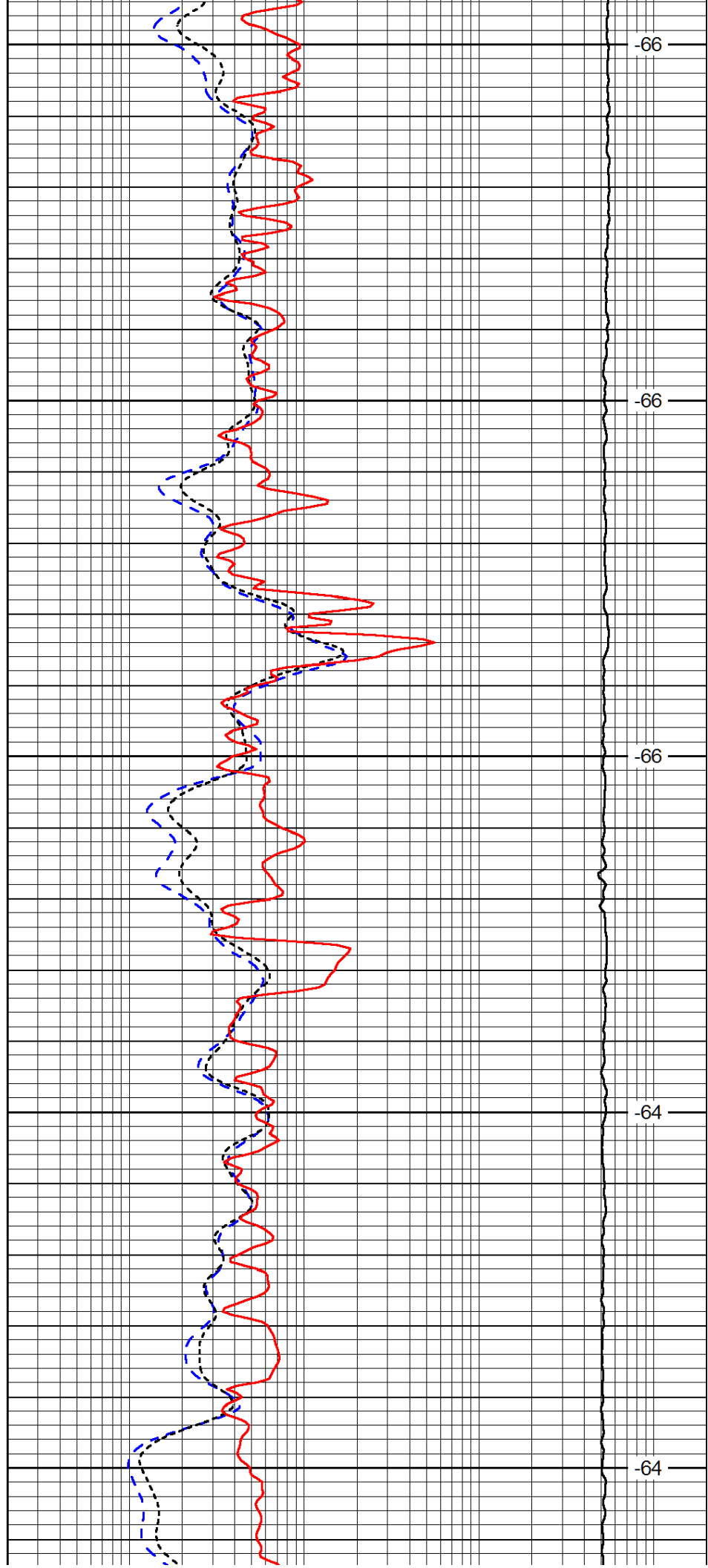
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3100

3150

3200

3250



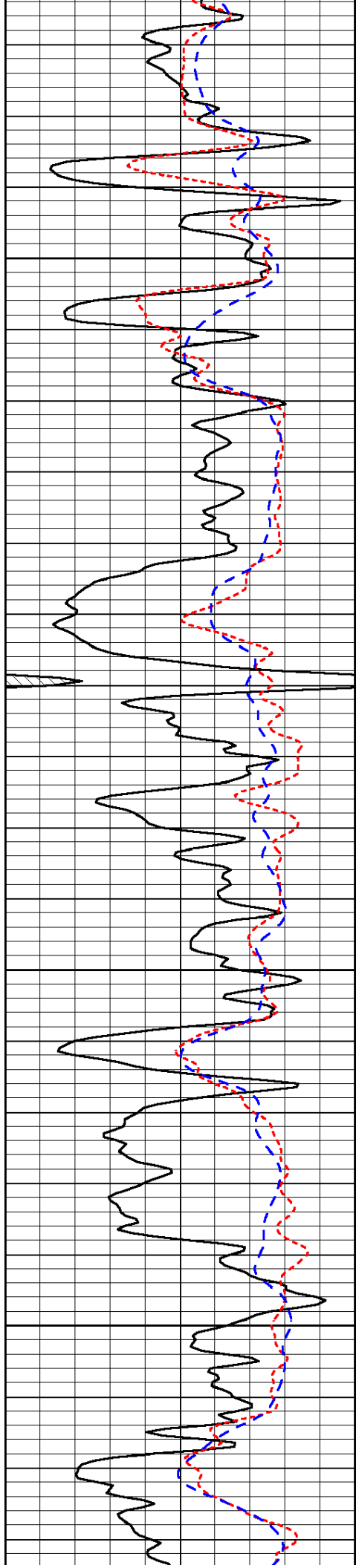
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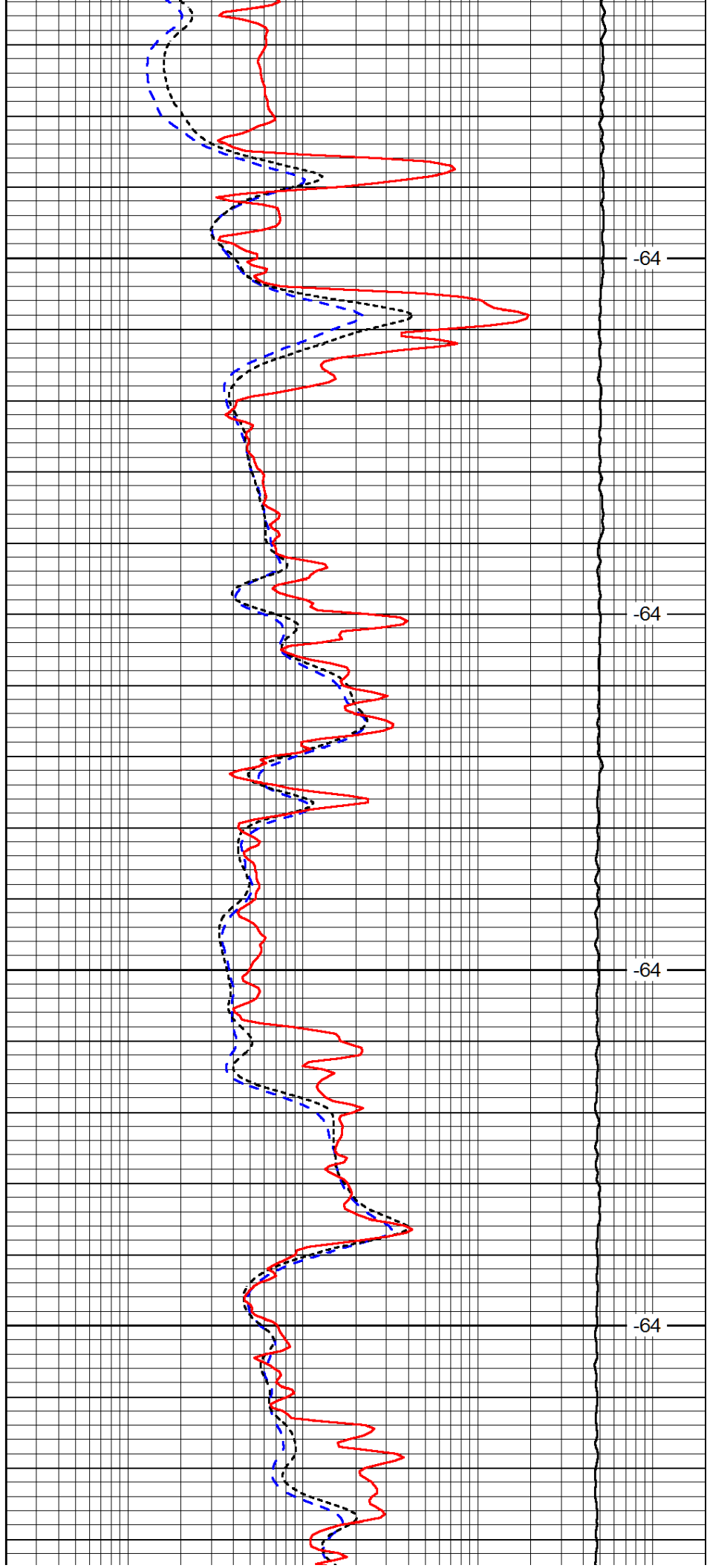


3300

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3400

3450

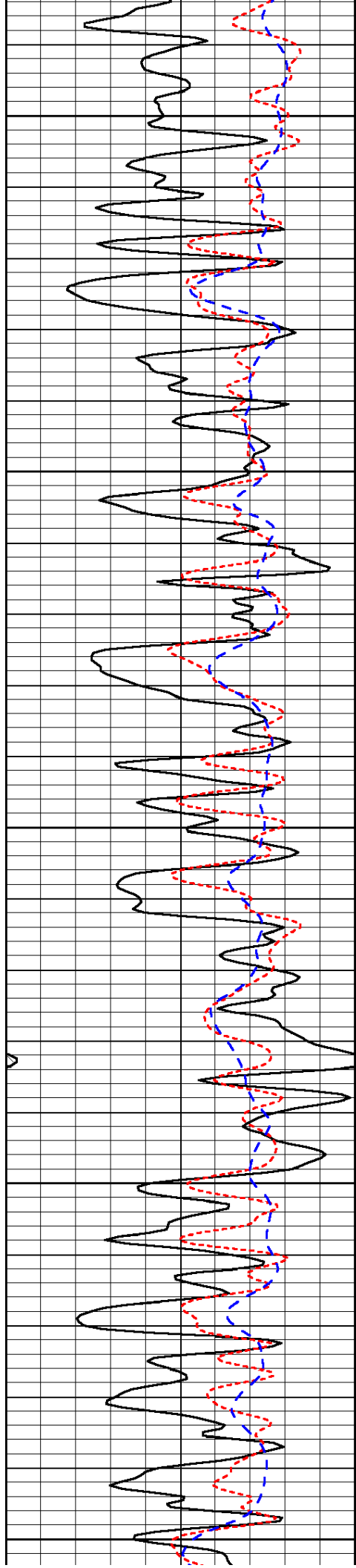


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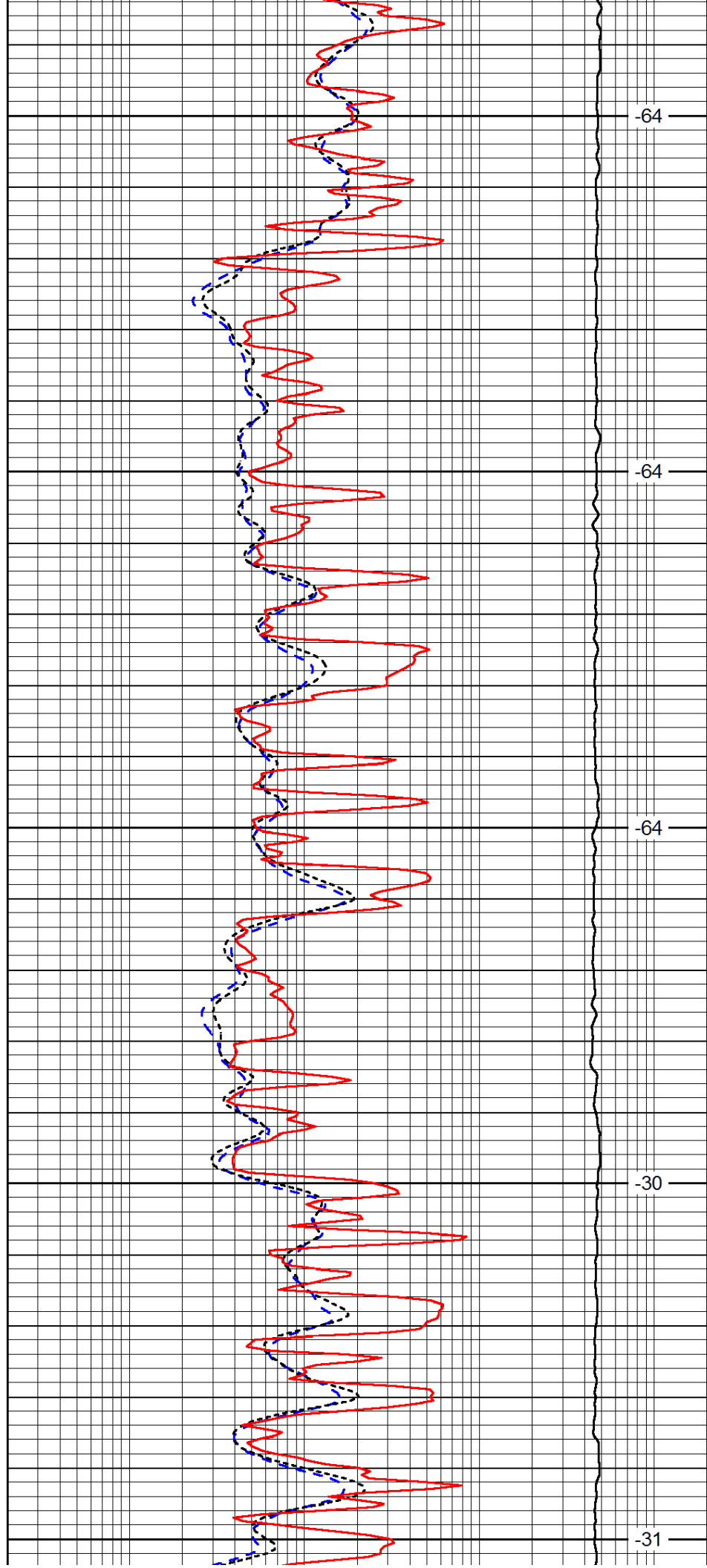
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3600

3650

3700



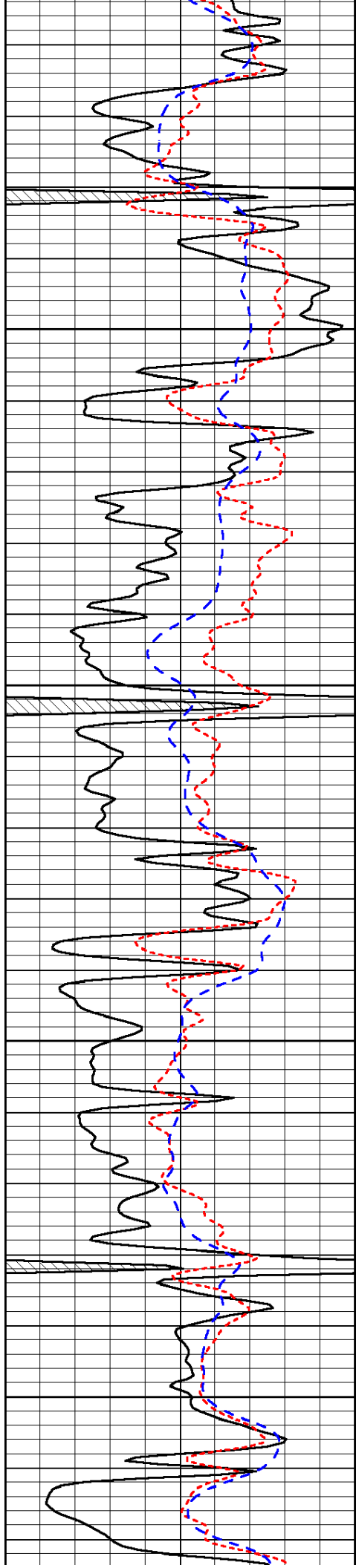
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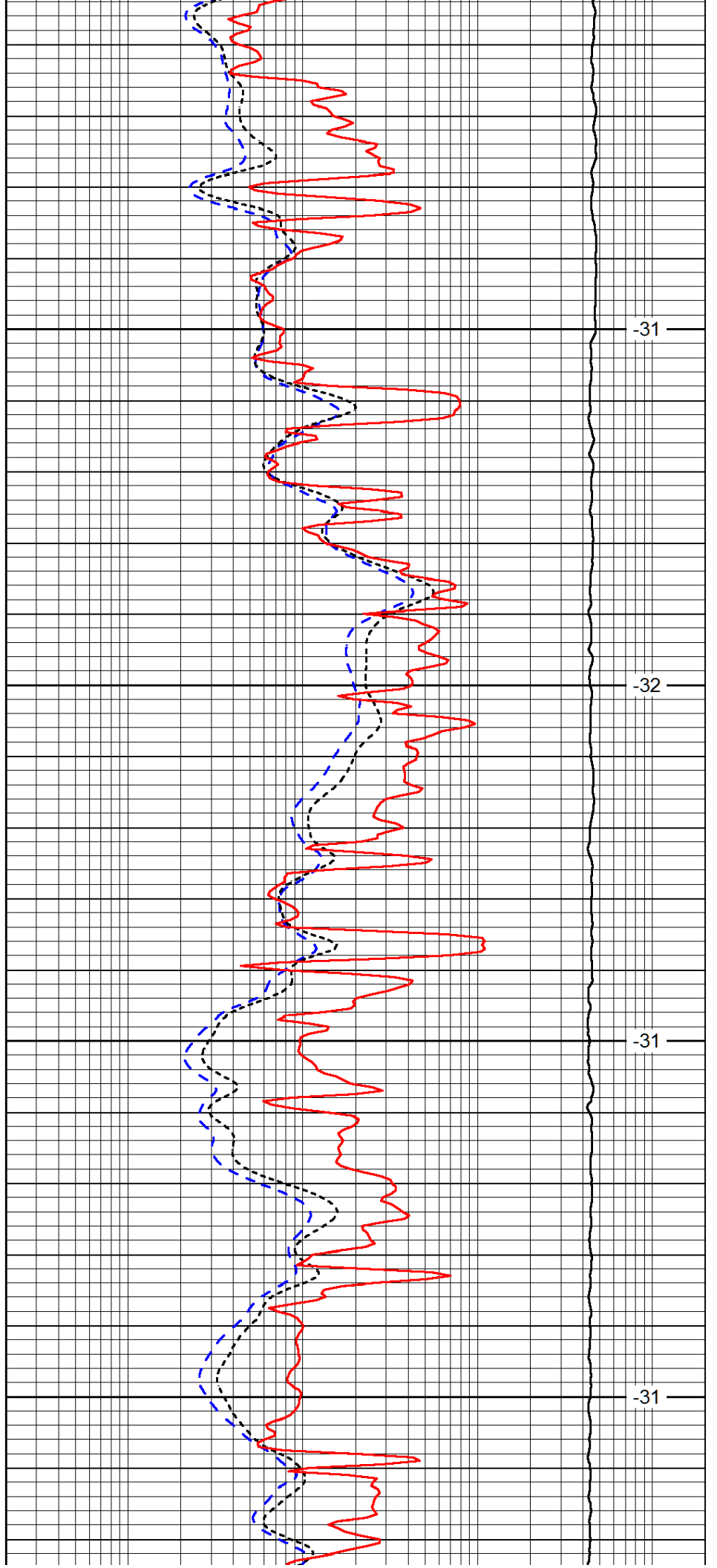


3750

3800

3850

3900

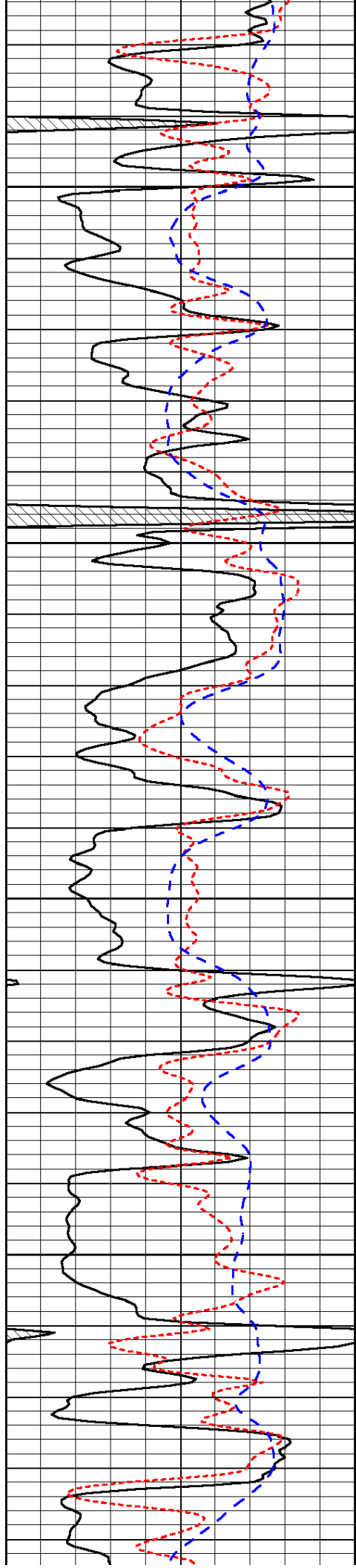


-31

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-31

-31

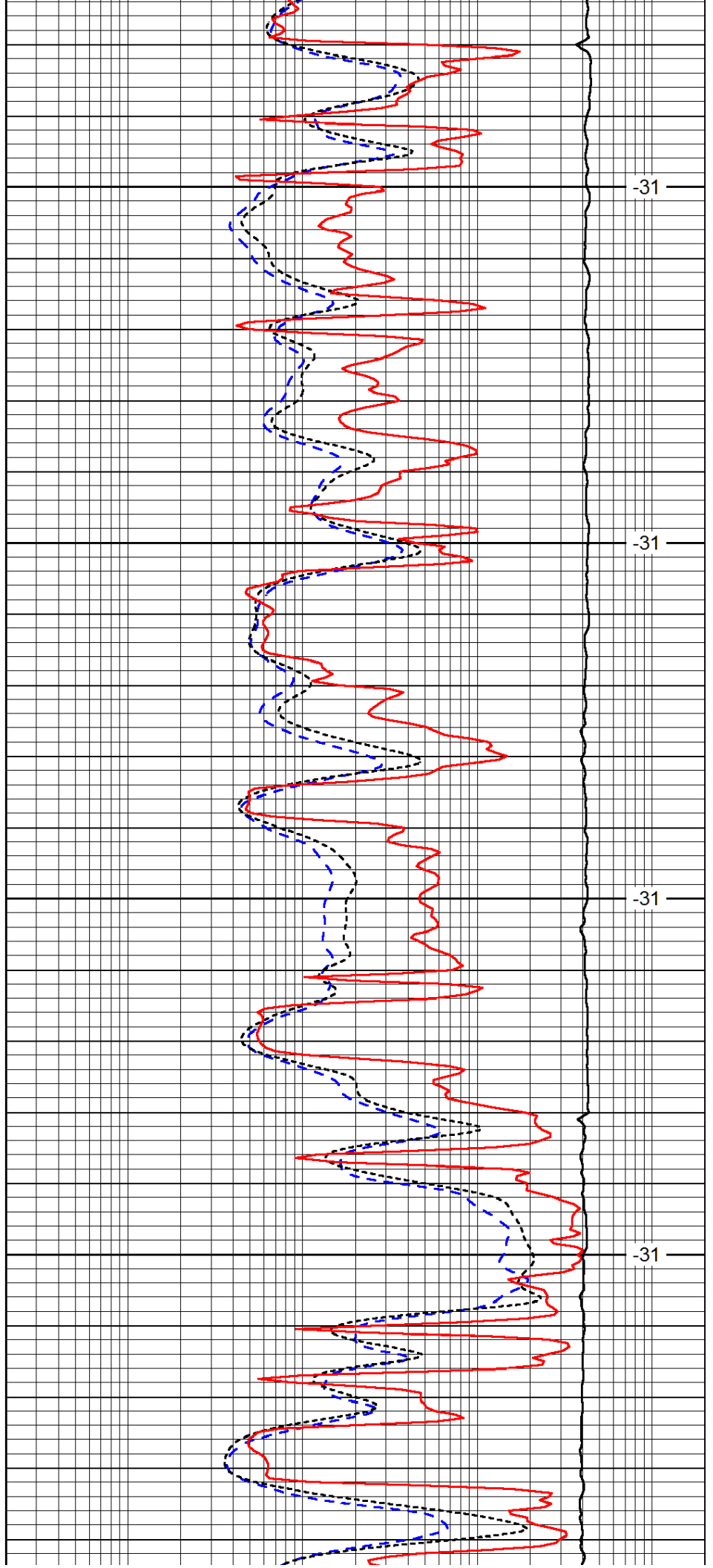


3950

4000

4050

4100

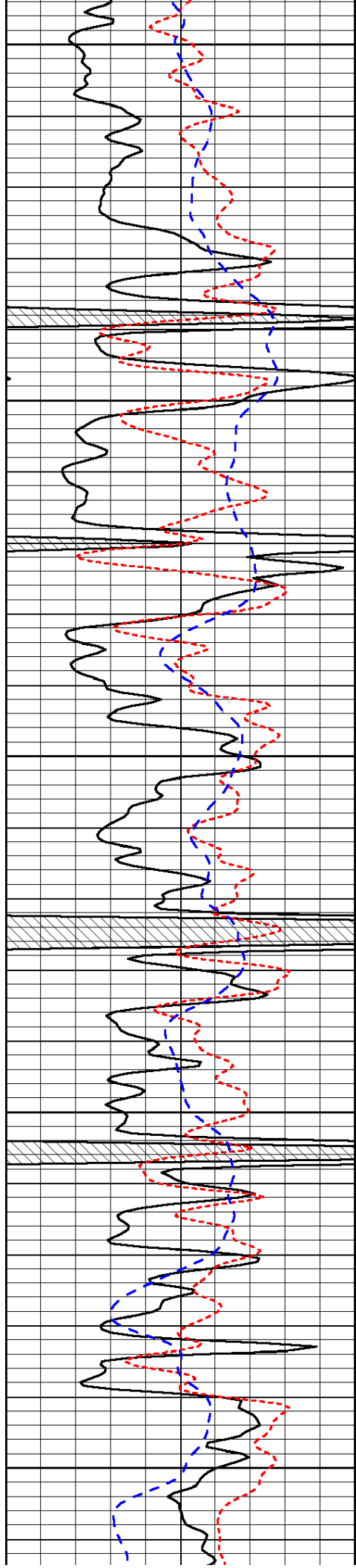


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-31

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-31



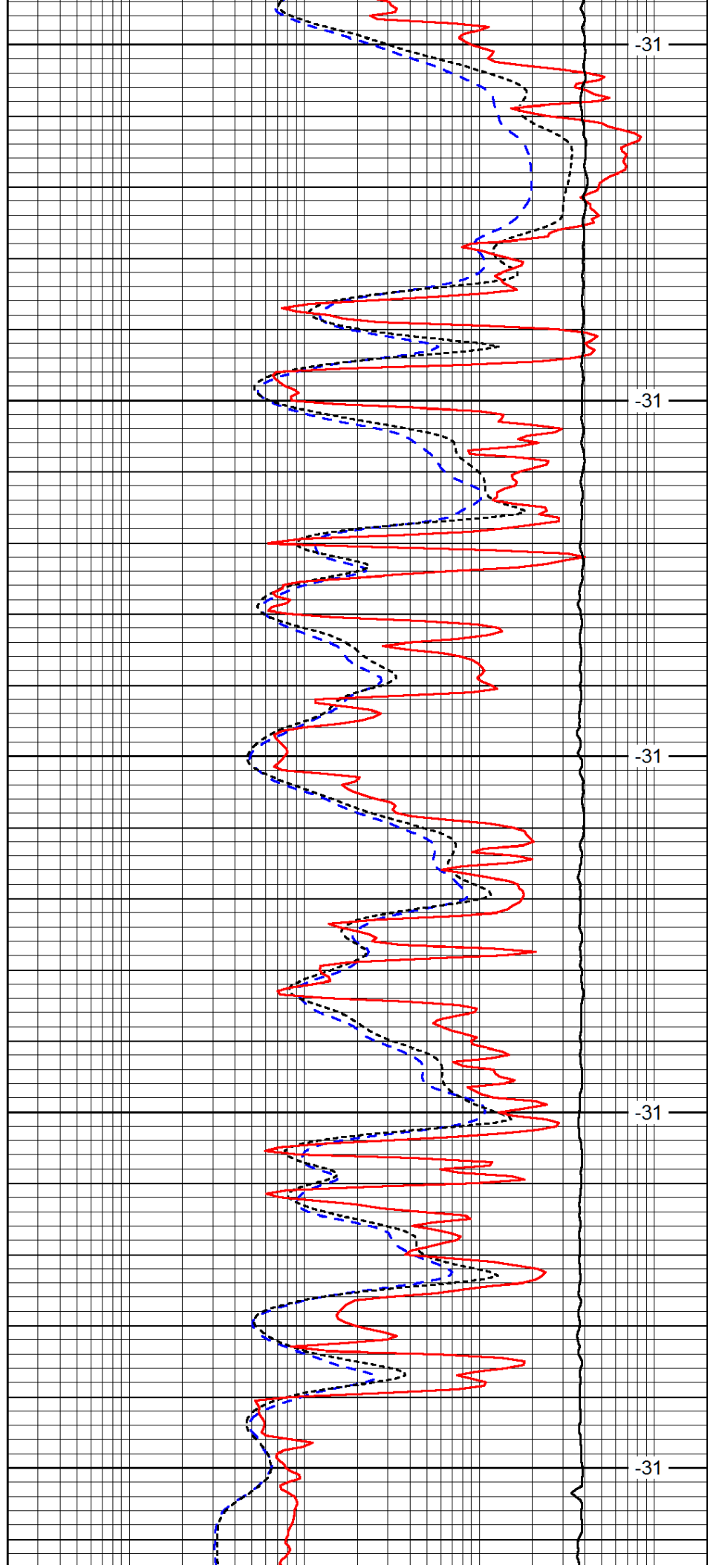
4150

4200

4250

4300

4350



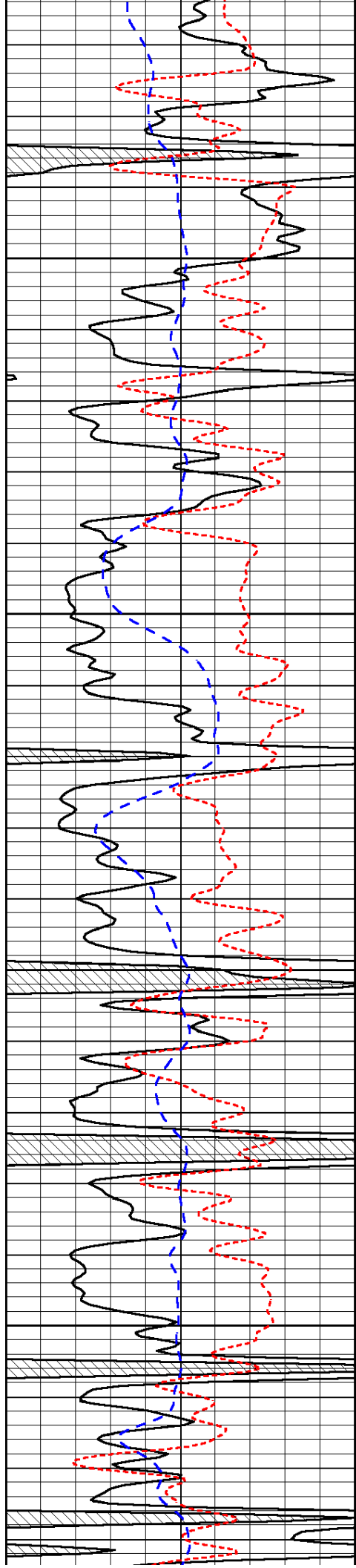
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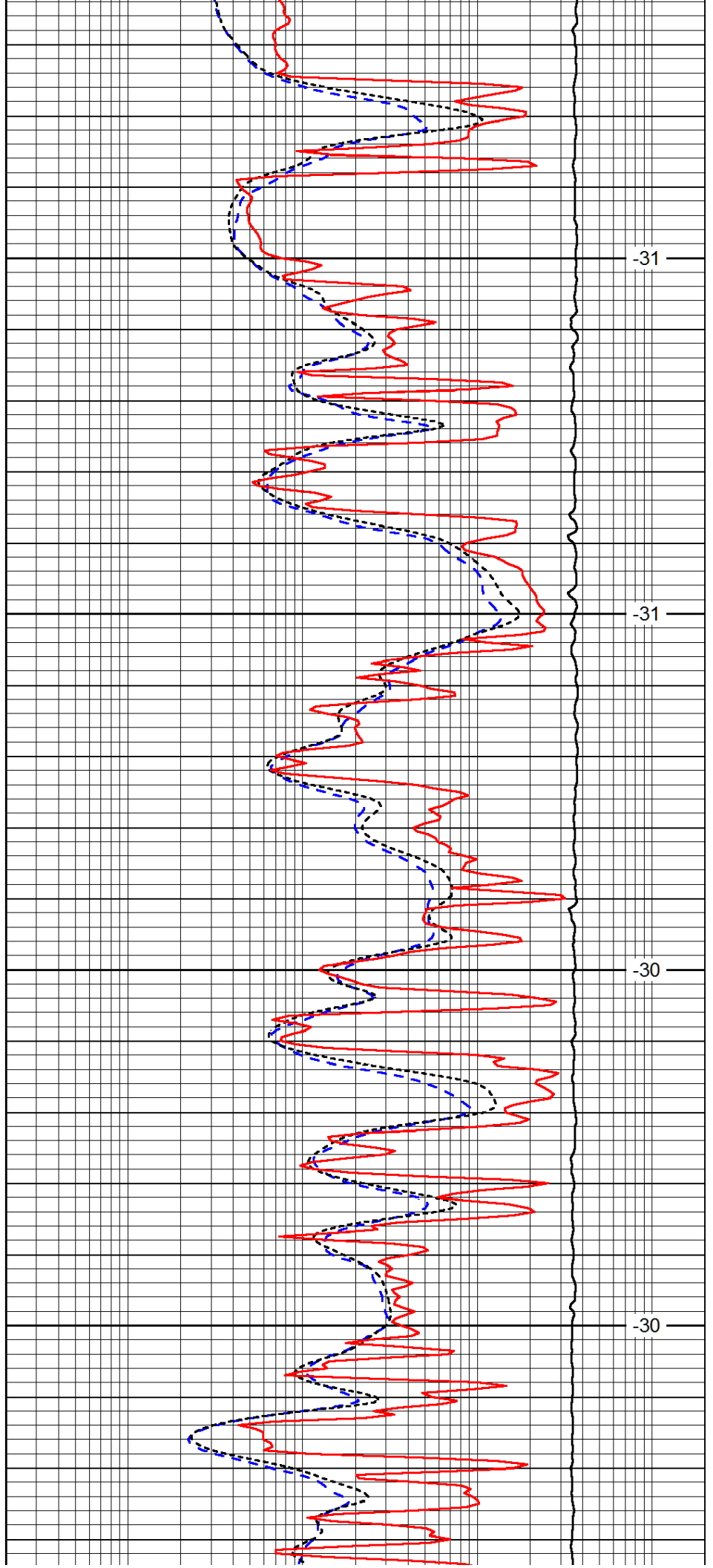


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4450

4500

4550

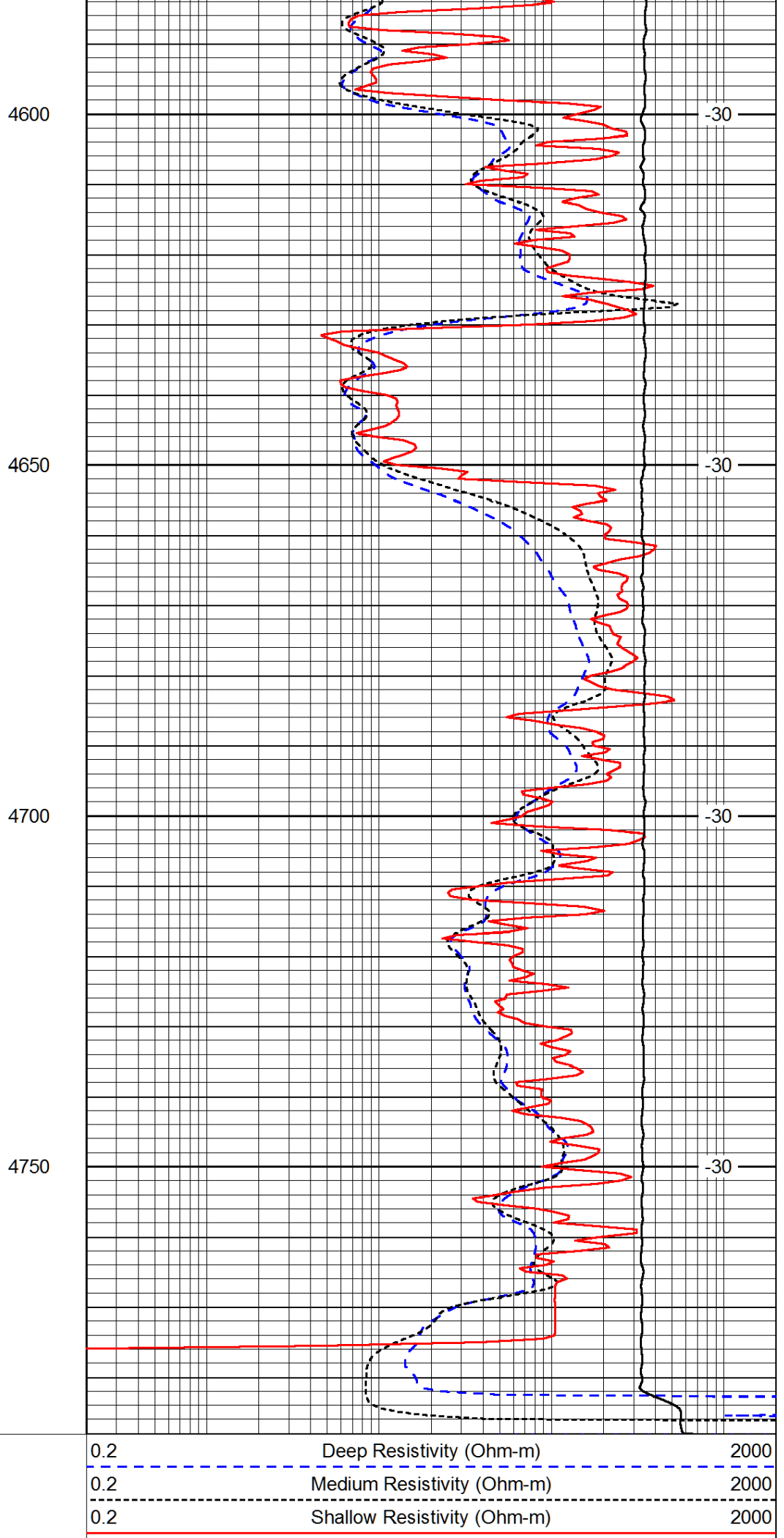
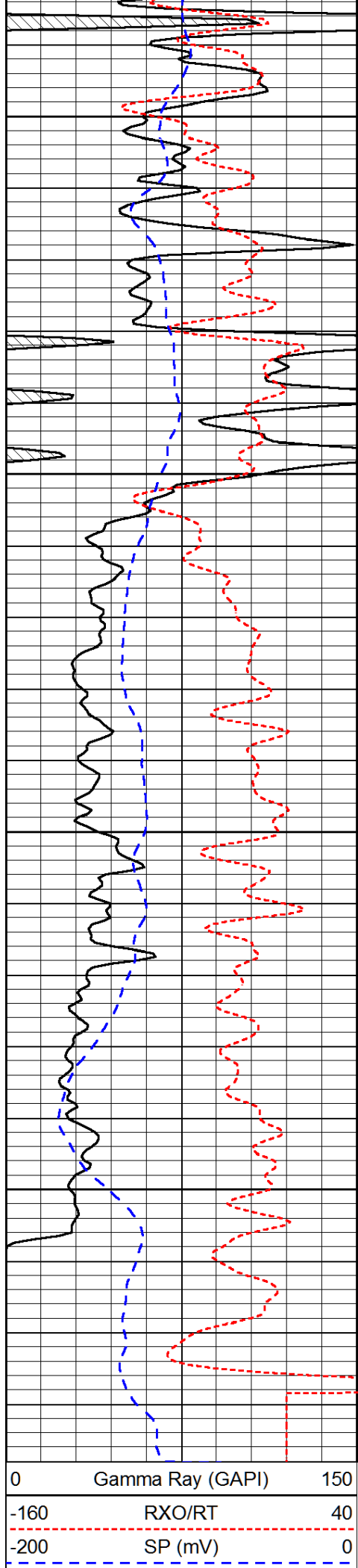


-31

-31

-30

-30



0	Gamma Ray (GAPI)	150
-160	RXO/RT	40
-200	SP (mV)	0

0.2	Deep Resistivity (Ohm-m)	2000
0.2	Medium Resistivity (Ohm-m)	2000
0.2	Shallow Resistivity (Ohm-m)	2000

10000

Line Tension (lb)

0

LSPD  
(ft/min)