



**PIONEER**  
Pioneer Energy Services

**DUAL INDUCTION  
LOG**

Company **MURFIN DRILLING COMPANY, INC.**  
Well **ANTHOLZ A #1-2**  
Field **WILDCAT**  
County **CHEYENNE** State **KANSAS**

Company **MURFIN DRILLING COMPANY, INC.**  
Well **ANTHOLZ A #1-2**  
Field **WILDCAT**  
County **CHEYENNE**  
State **KANSAS**

Location: **API #: 15-023-21475-00-00**  
**SE SE SE**  
**330' FEL & 330' FSL**  
**SEC 2 TWP 2S RGE 37W**

Other Services  
**CNL/CDL**  
**MEL/BHCS**

Date	2/4/2018
Run Number	ONE
Depth Driller	4950'
Depth Logger	4951'
Bottom Logged Interval	4950'
Top Log Interval	00'
Casing Driller	8.625" @ 345'
Casing Logger	343'
Bit Size	7.875"
Type Fluid in Hole	CHEMICAL
Salinity, ppm CL	900
Density / Viscosity	9.4 56
pH / Fluid Loss	10.5 7.8
Source of Sample	FLOWLINE
Rm @ Meas. Temp	1.2 @ 62
Rmt @ Meas. Temp	0.9 @ 62
Rmc @ Meas. Temp	1.62 @ 62
Source of Rmf / Rmc	CHARTS
Rm @ BHT	0.59 @ 126
Operating Rig Time	4 HOURS
Max Rec. Temp. F	126 DEG F
Equipment Number	108
Location	HAYS
Recorded By	T. MARTIN
Witnessed By	SAMAN SHARIFAIE

<<< 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.**

**MCDONALD, 7 N ON RD 3 TO RD W, 3 W TO RD 34, 1 N, 0.1 W, N INTO**

Log Measured From: **KELLY BUSHING**      5 Ft. Above Permanent Datum

**THANK YOU FOR USING PIONEER ENERGY SERVICES**  
[www.pioneerenergy.com](http://www.pioneerenergy.com)      785-625-3858

<b>Your Pioneer Energy Services Crew</b>	<b>This Log Record Was Witnessed By</b>
Engineer: <b>T. MARTIN</b>	Primary Witness: <b>SAMAN SHARIFAIE</b>
Operator:	Secondary Witness:
Operator:	Secondary Witness:
Operator:	Secondary Witness:

Company	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
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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 29.15		CNT-M&W (tk10-MW)	5.50	3.50	100.00
LSD DCAL SSD	20.85 20.83 20.35		CDL-M&W (168-986)	8.50	4.00	250.00
RLL3 RLL3F	15.80 15.79		DIL-M&W (PSI 978)	18.50	3.50	220.00
CILD	8.00					
CILM	4.70					
SP	0.20					

Dataset: murfin\_antholz a\_#1-2.db: field/well/stack/pass3.1  
 Total length: 35.50 ft  
 Total weight: 620.00 lb  
 O.D.: 4.00 in

# Log Variables

Database: C:\ProgramData\Warrior\Data\murfin\_antholz\_a\_#1-2.db  
 Dataset: field/well/stack/pass3.1/\_vars\_

## Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	126	5.5	0	1	2	2.71
NPORSEL	PERFS	SNDERR mmho/m	SNDERRM mmho/m	SPSHIFT mV	SRFTEMP degF	SZCOR	TDEPTH ft
Limestone	0	0	0	-160	10	Off	4951

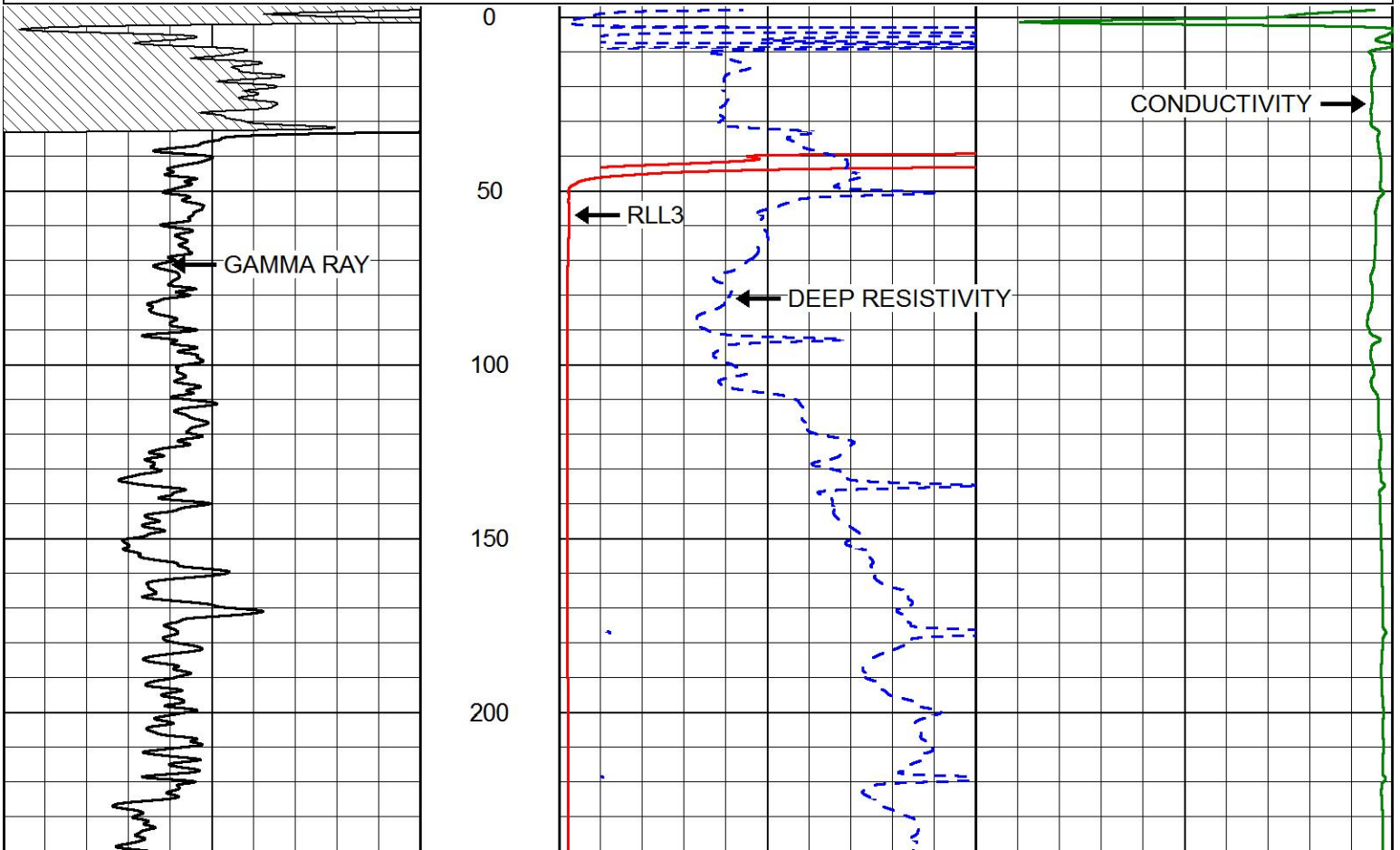


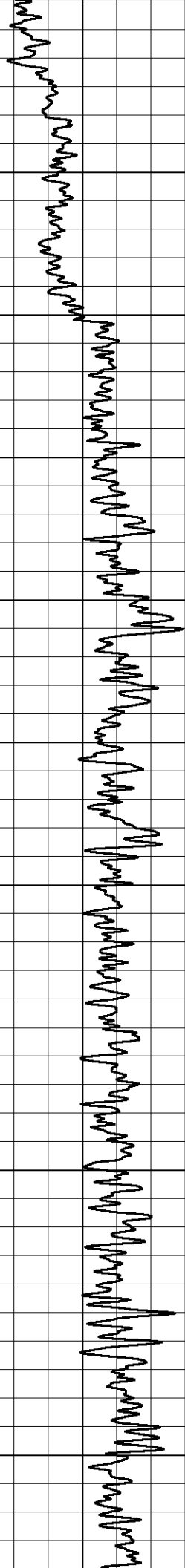
## 2" SCALE RESISTIVITY

### MAIN PASS

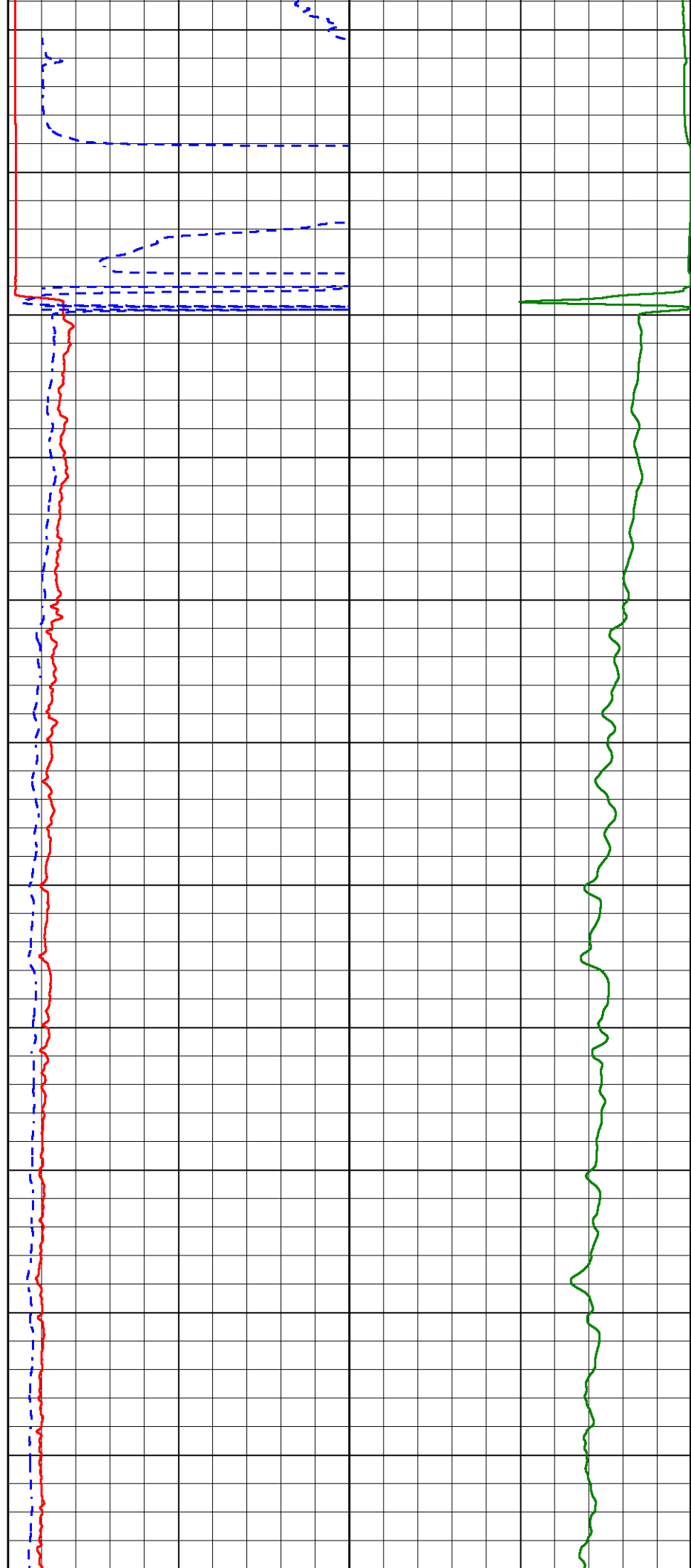
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 Presentation Format: dil2in  
 Dataset Creation: Sun Feb 04 12:53:40 2018  
 Charted by: Depth in Feet scaled 1:600

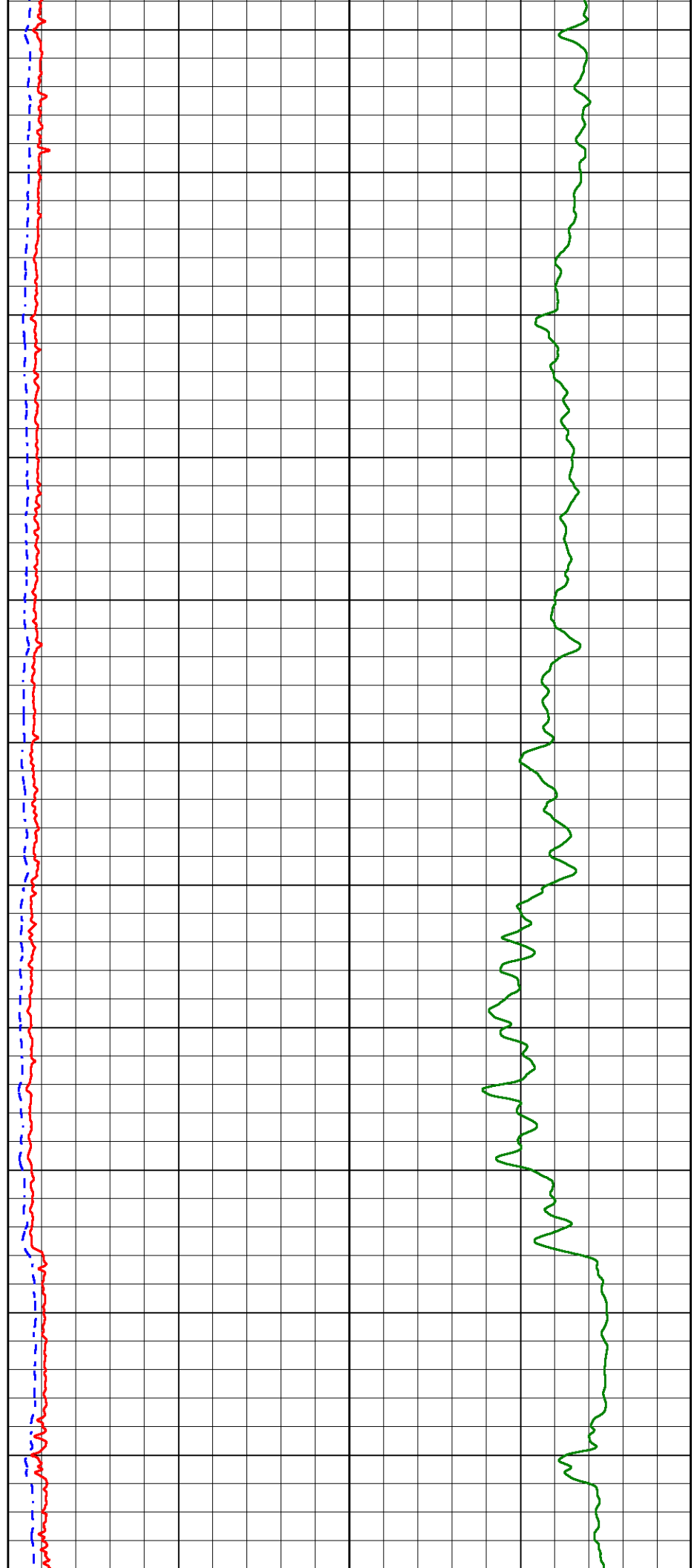
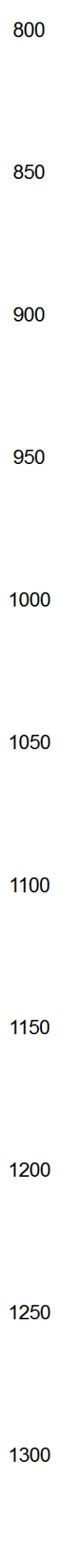
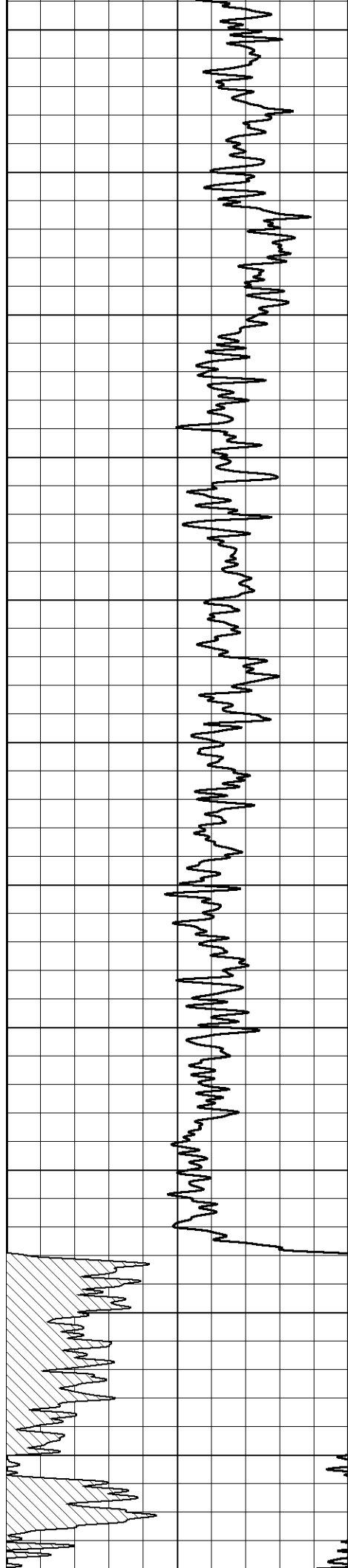
0	GAMMA RAY (GAPI)	150	2000	CONDUCTIVITY (mmho/m)	0
0	RLL3 (Ohm-m)	50			
0	DEEP RESISTIVITY (Ohm-m)	50			
50	RLL3 (Ohm-m)	500			
	DEEP RESISTIVITY				
50	(Ohm-m)	500			

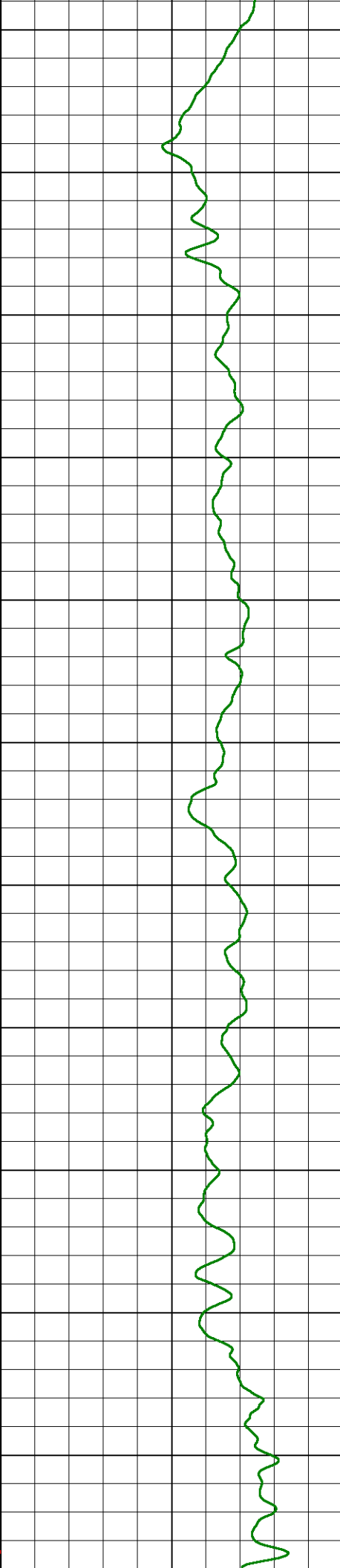
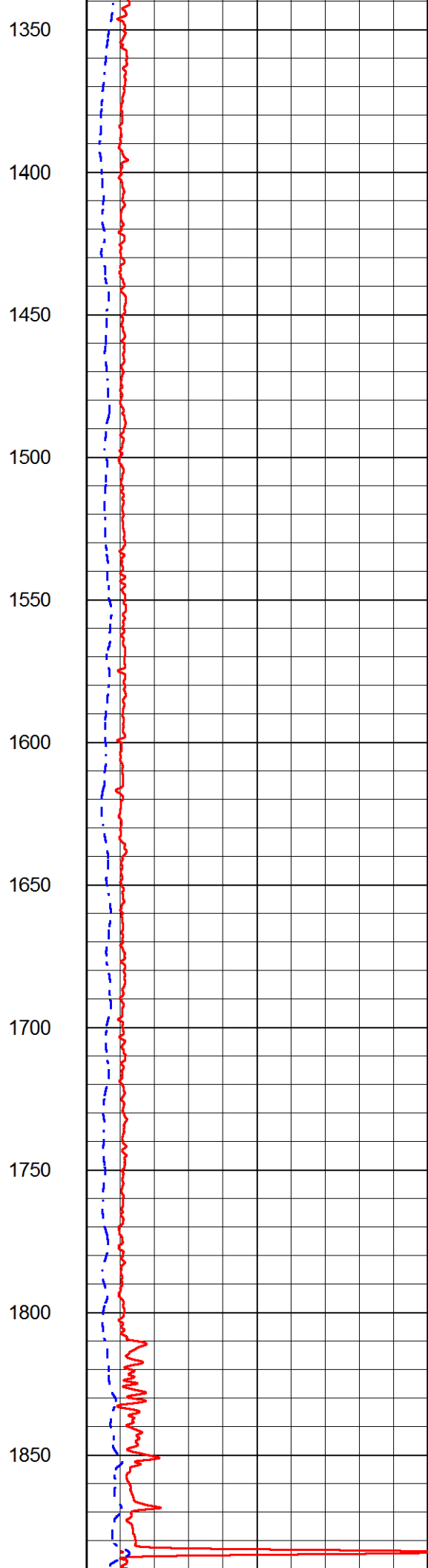
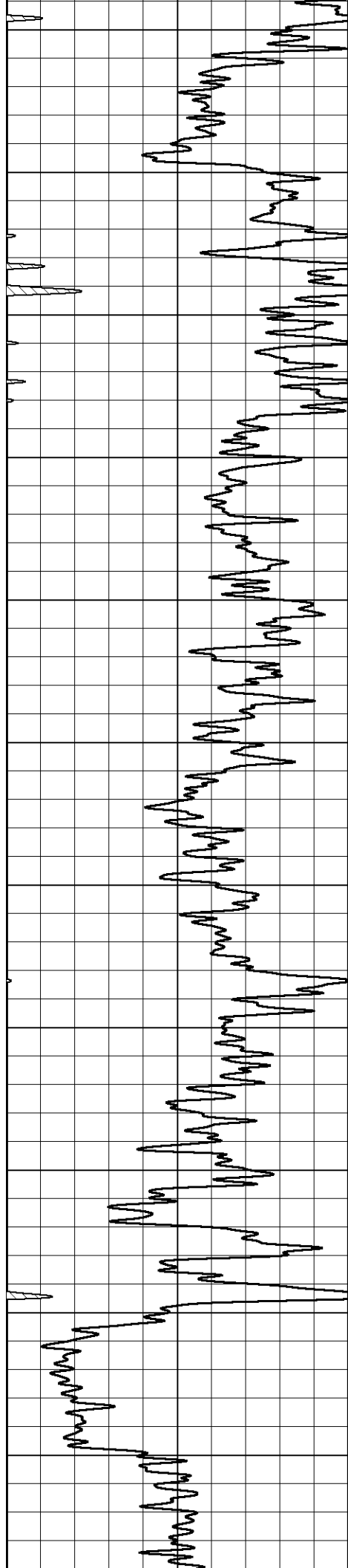


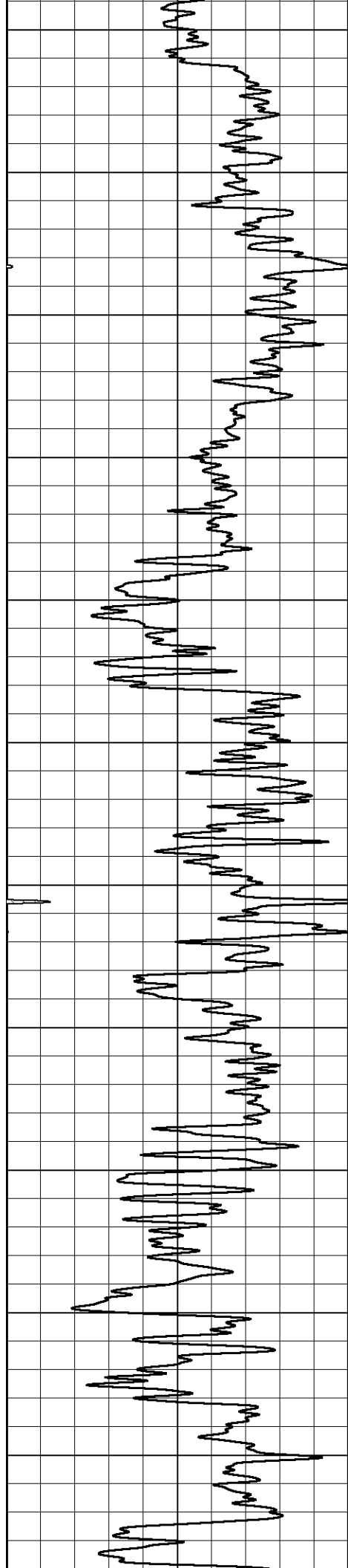


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300  
350  
400  
450  
500  
550  
600  
650  
700  
750

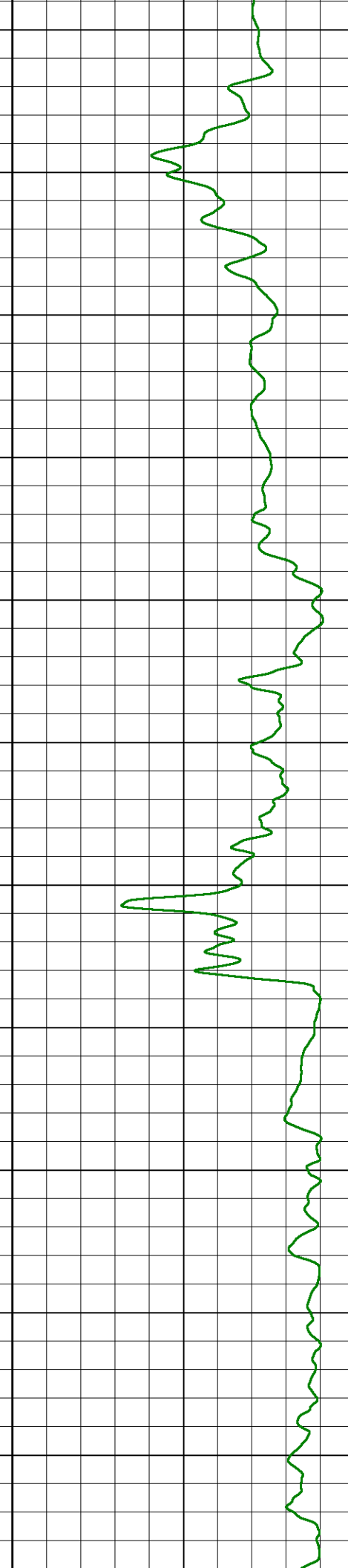
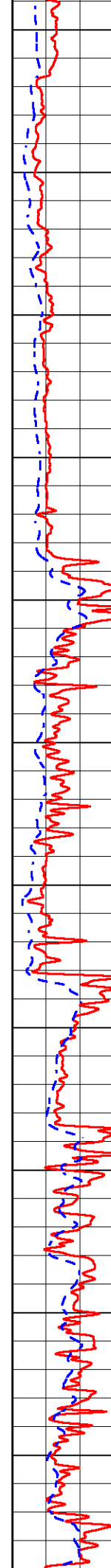


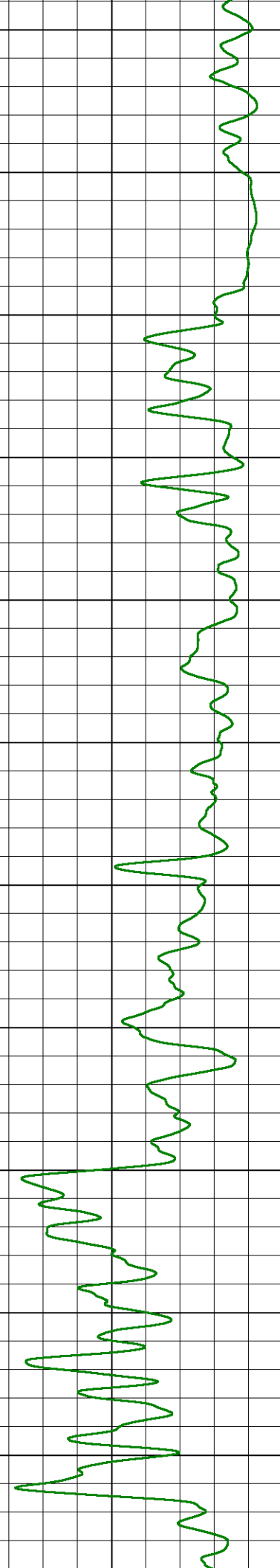
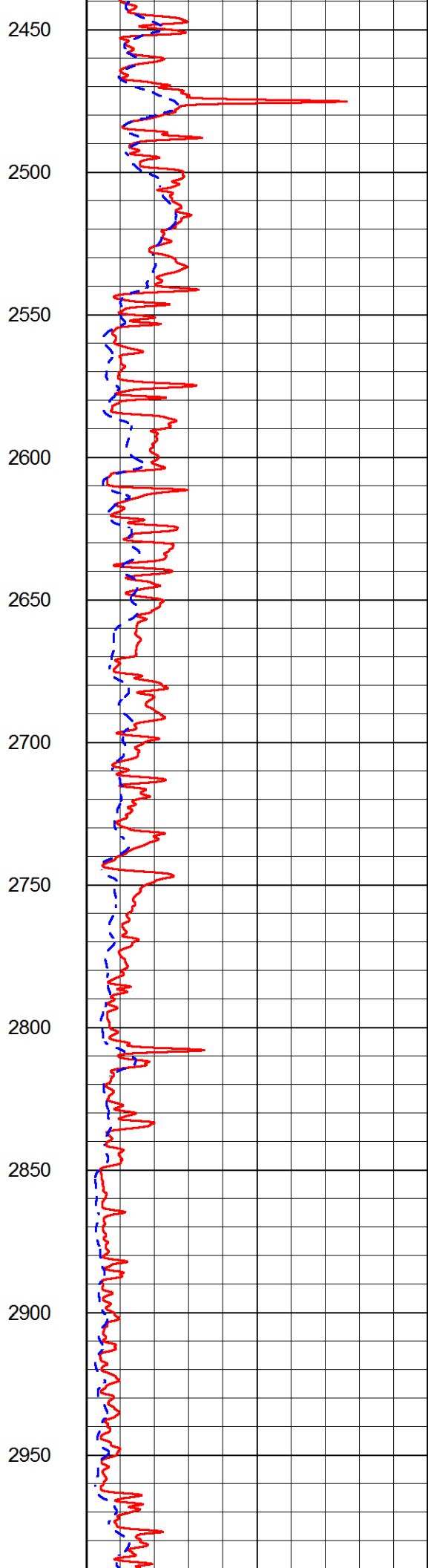
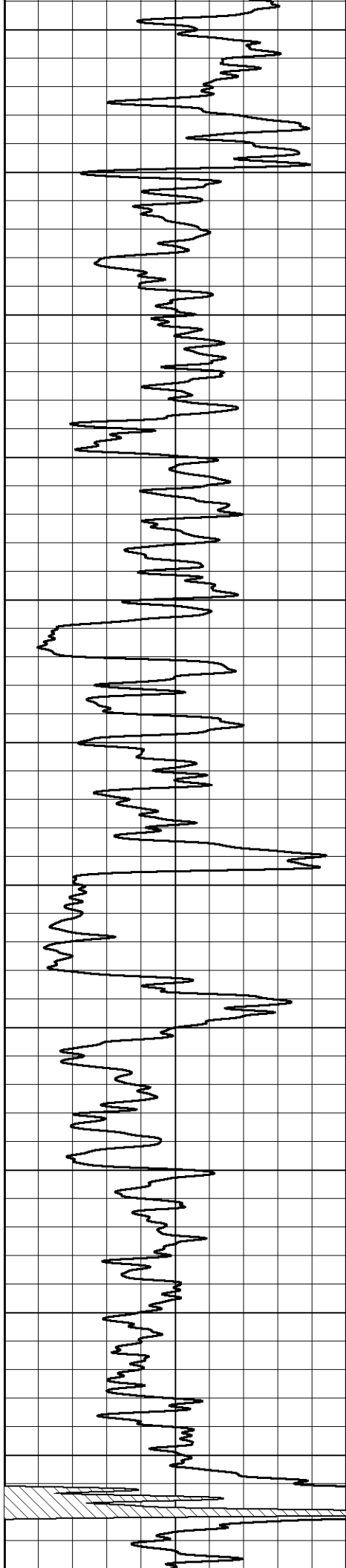


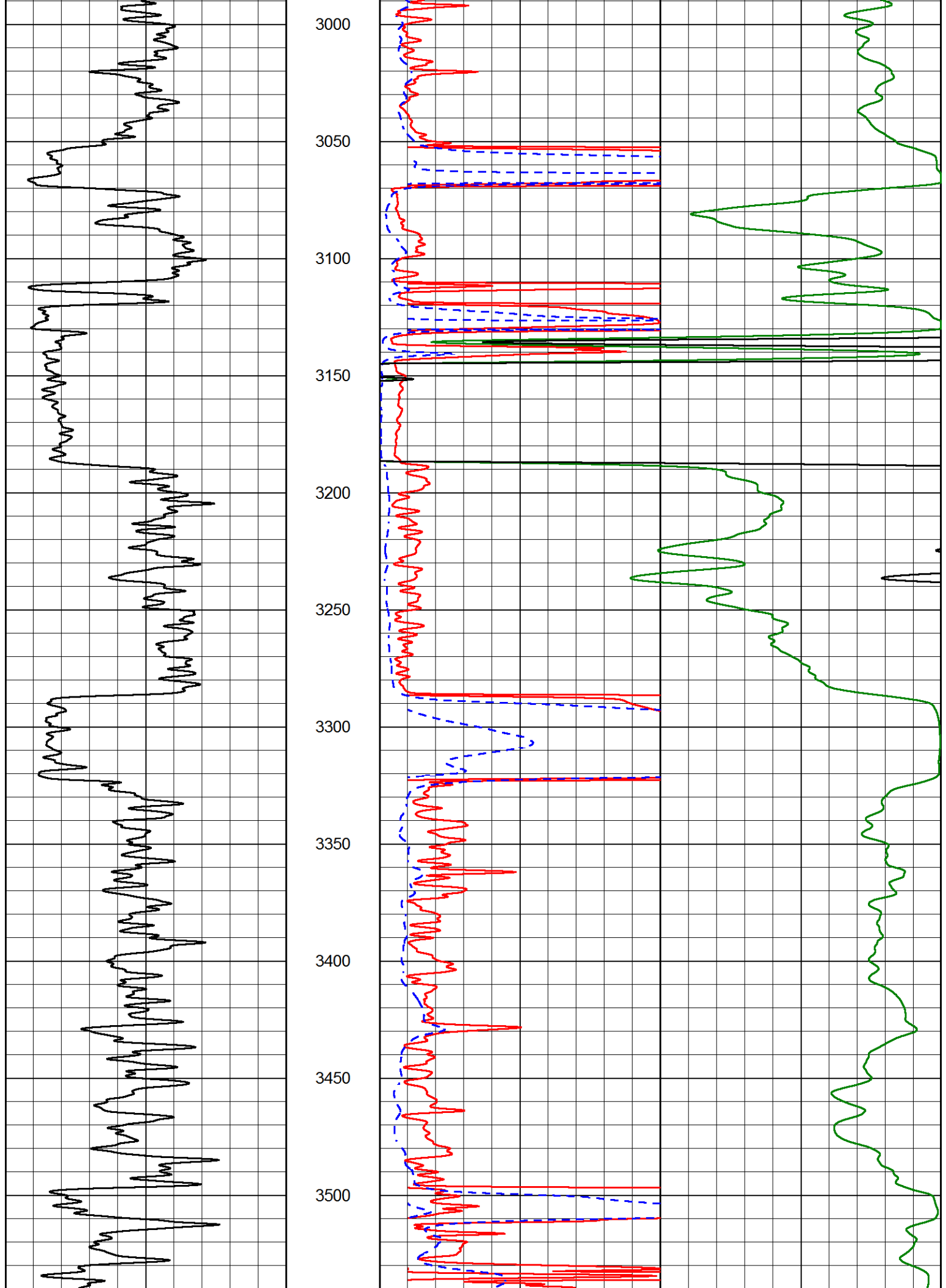


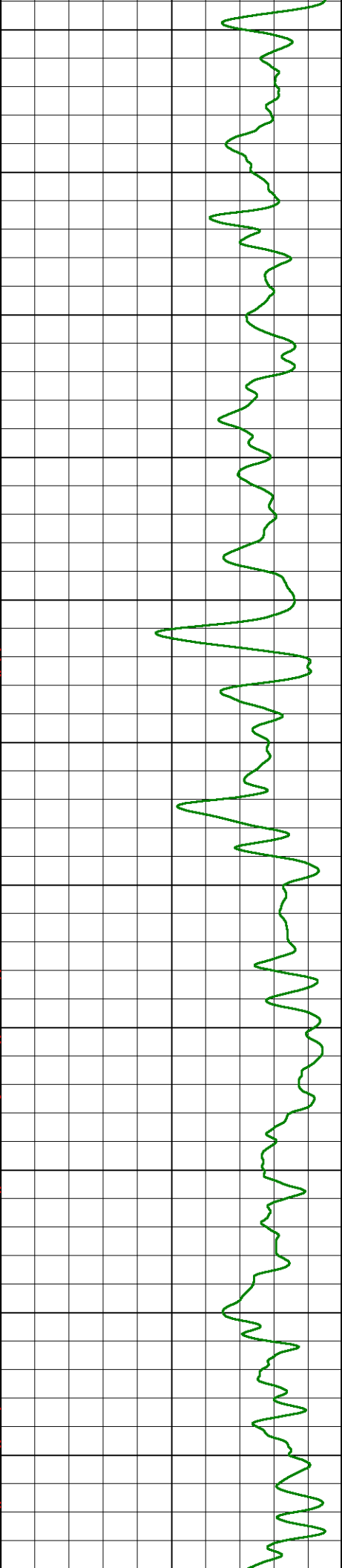
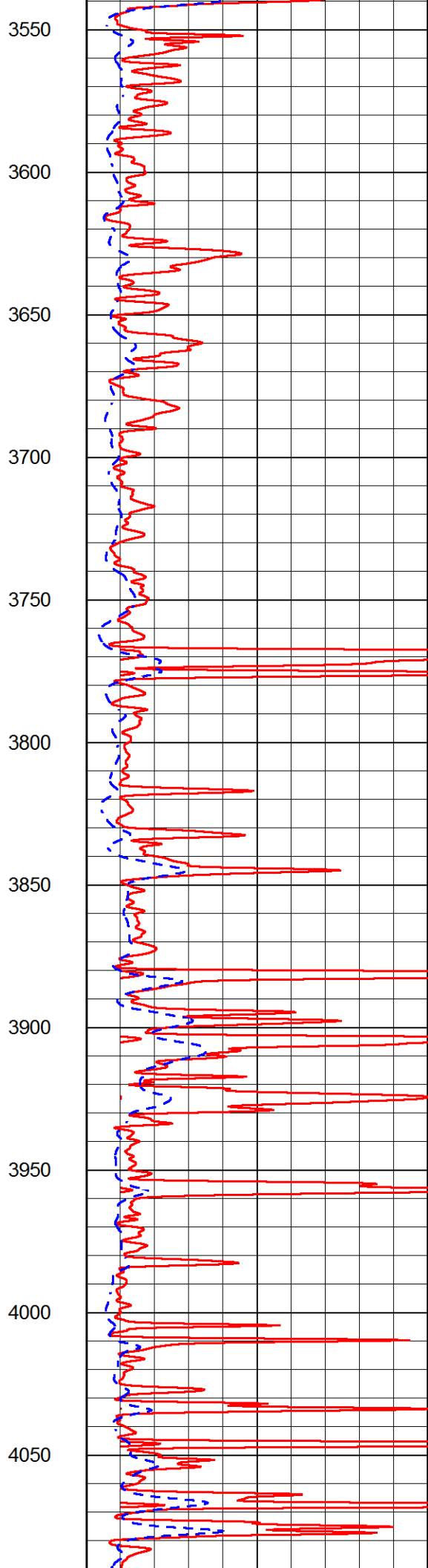
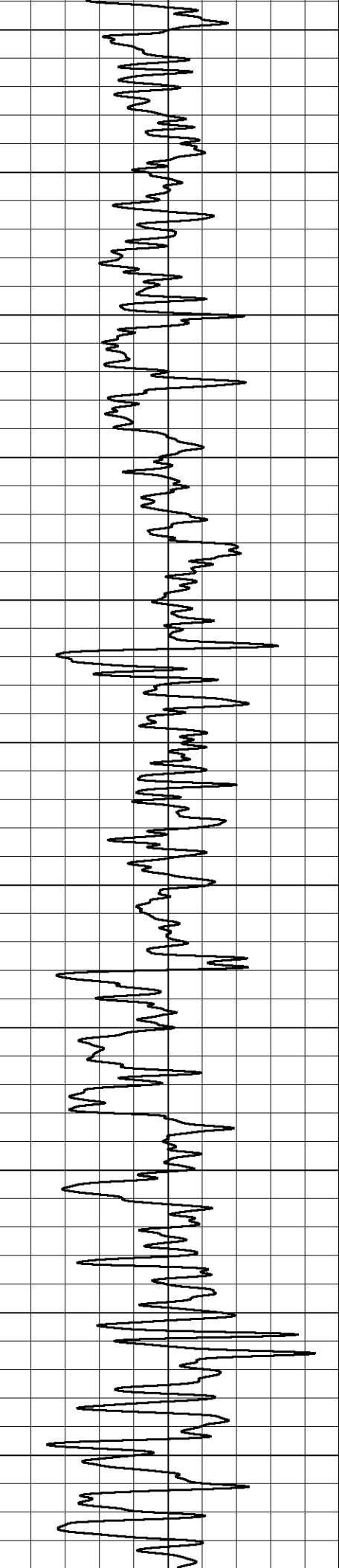


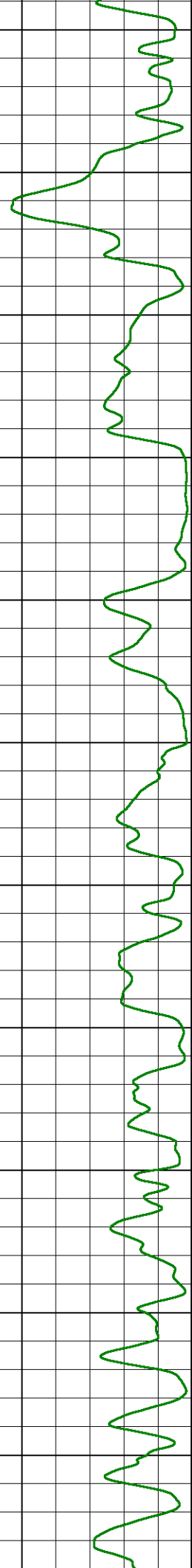
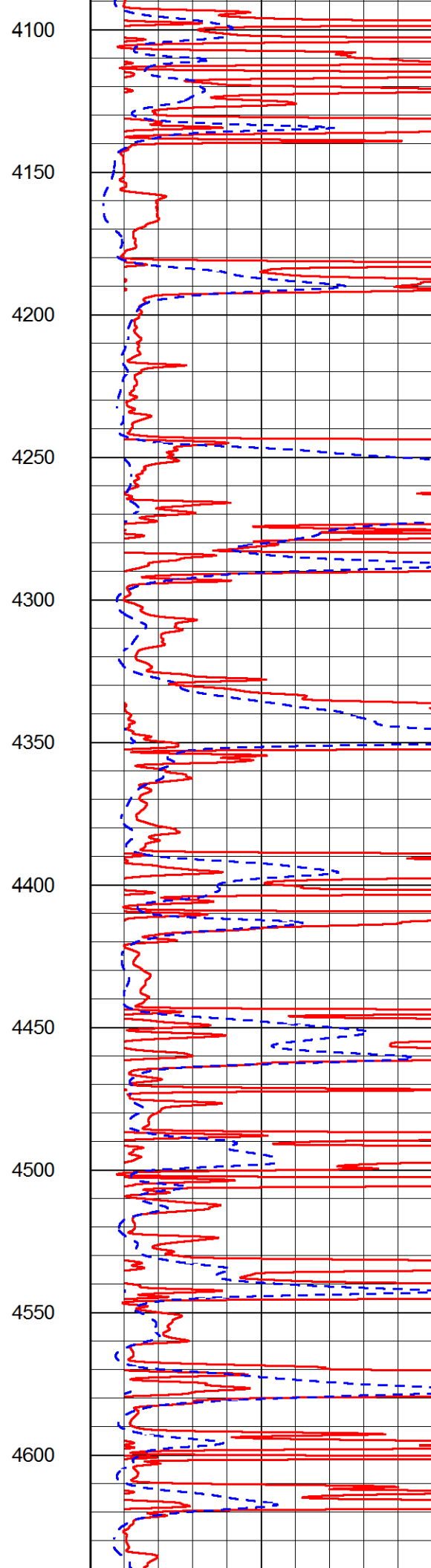
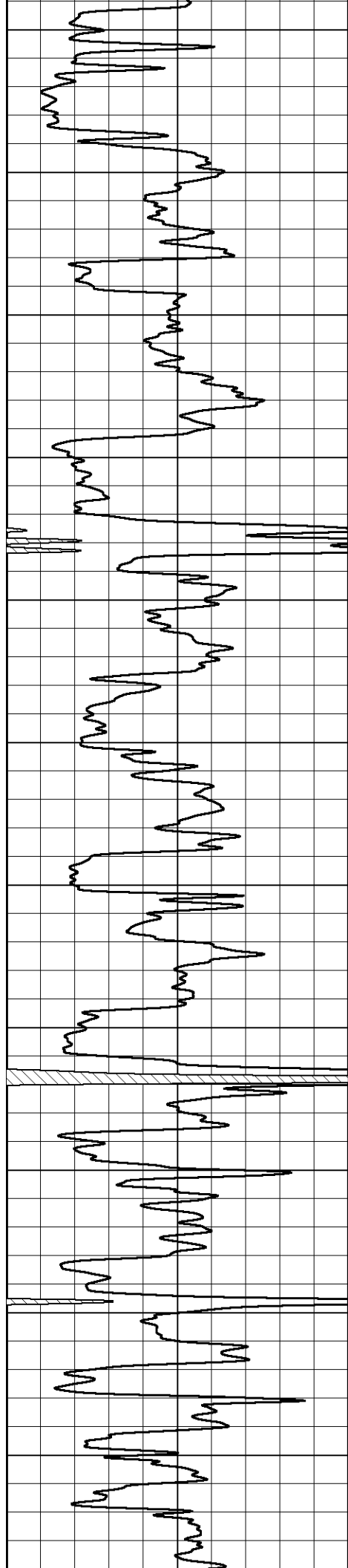
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2300  
2350  
2400

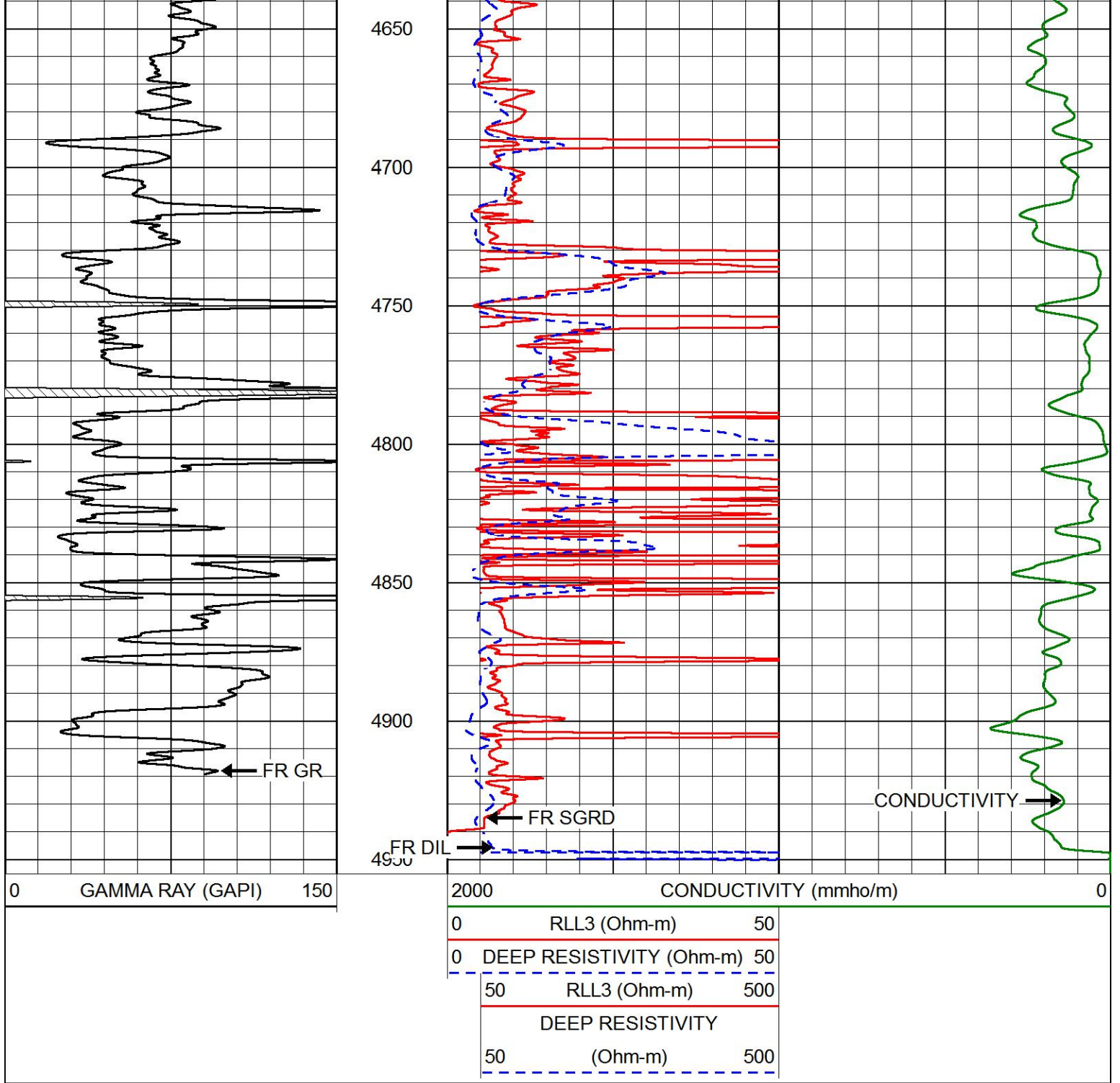








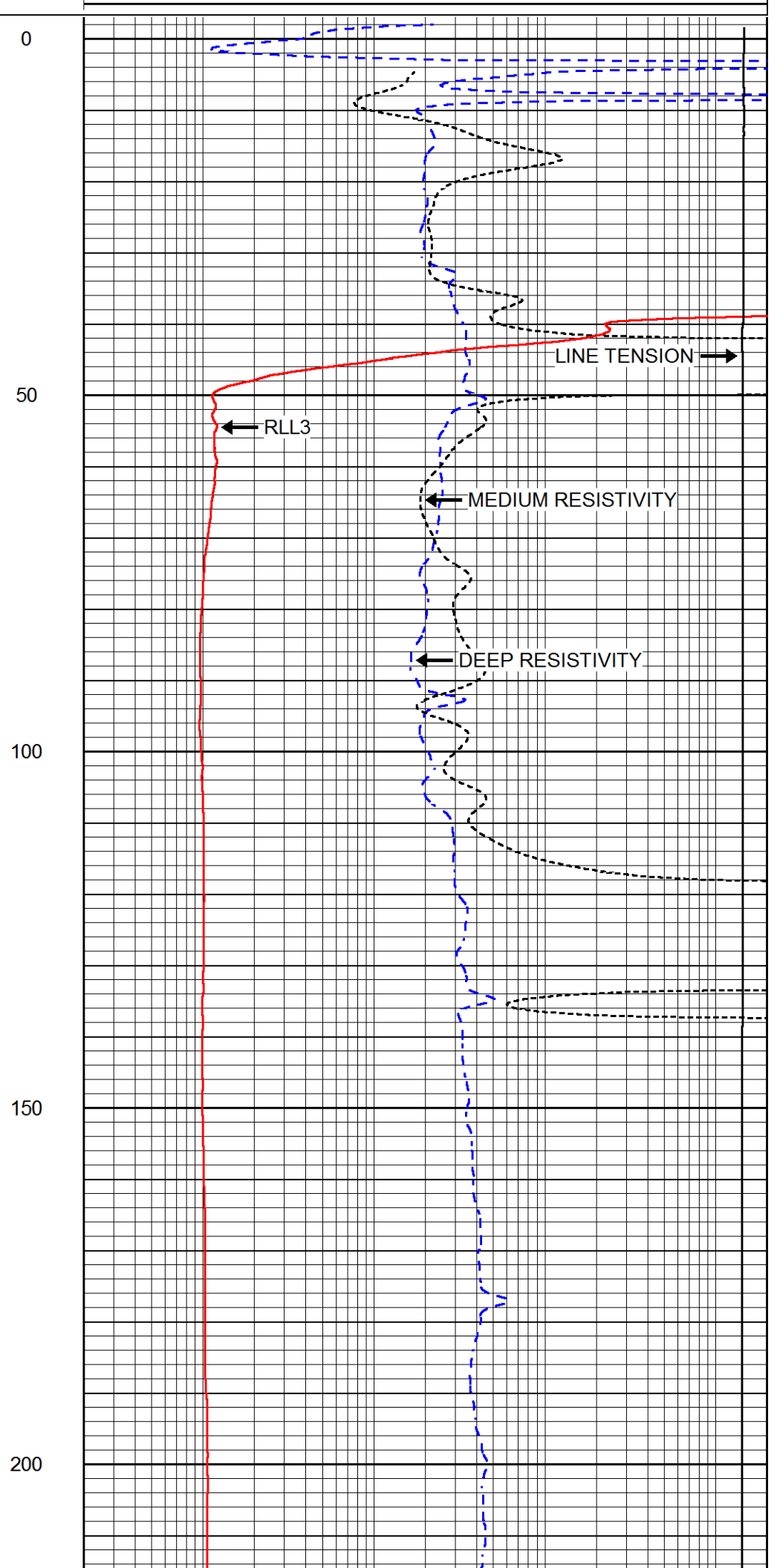
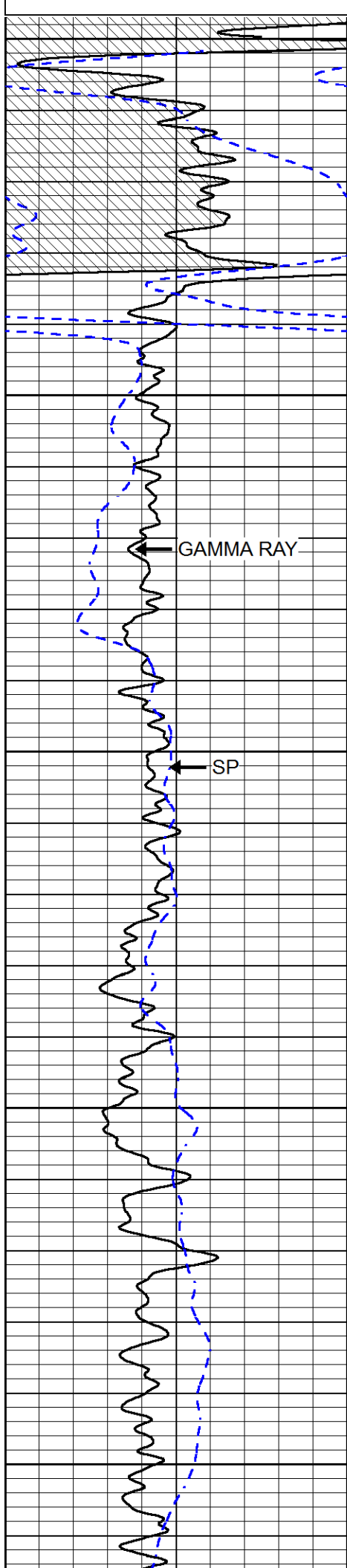


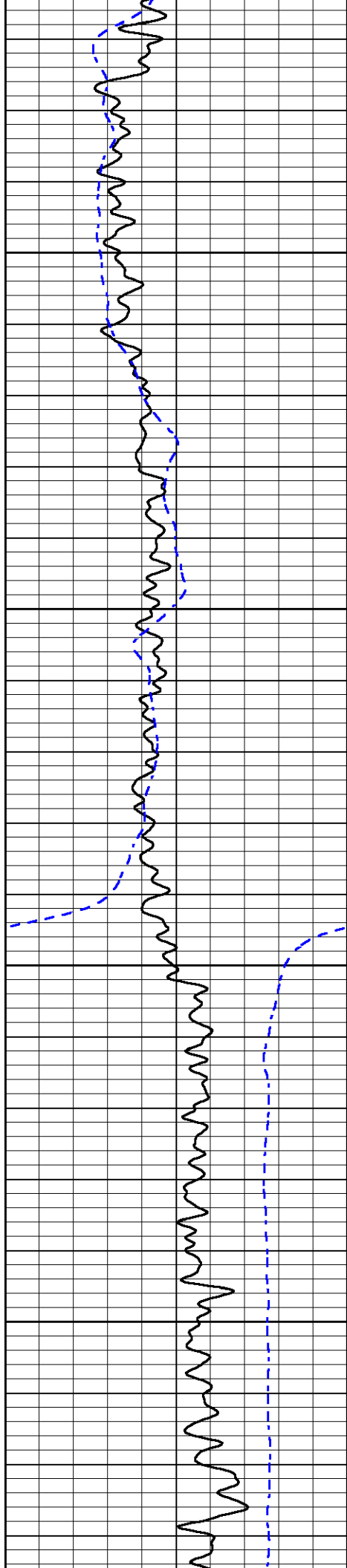



# MAIN PASS

Database File      murfin\_antholz a\_#1-2.db  
 Dataset Pathname    stack/pass3.1  
 Presentation Format    dil  
 Dataset Creation      Sun Feb 04 12:53:28 2018  
 Charted by            Depth in Feet scaled 1:240

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



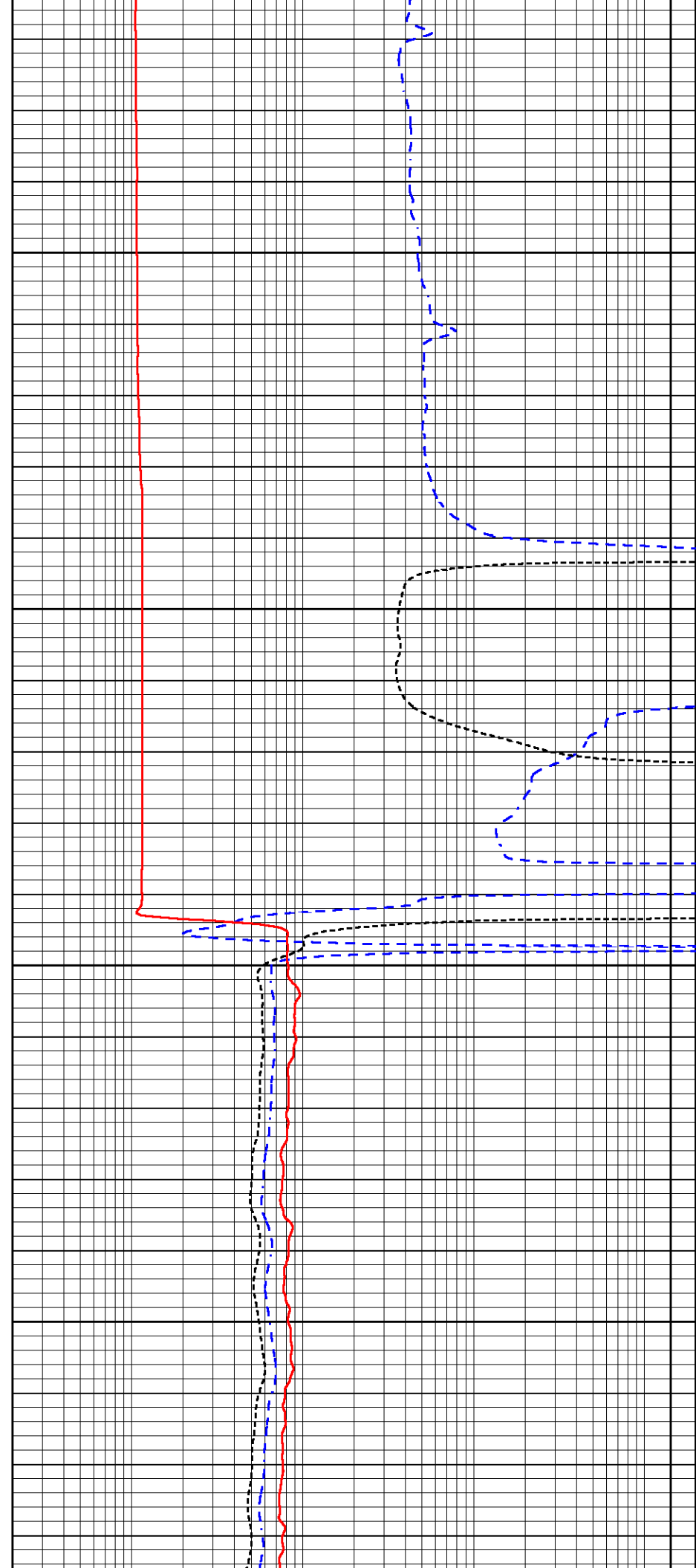


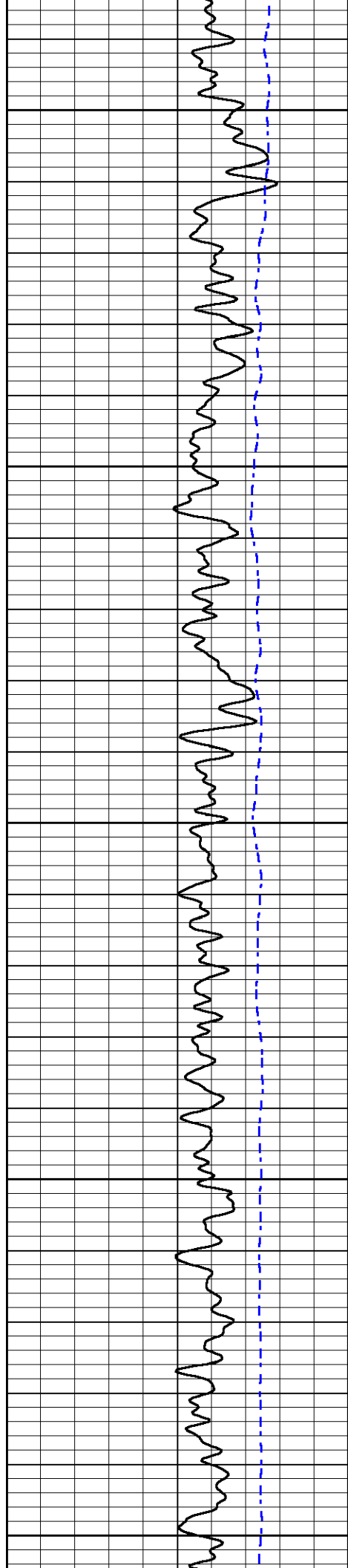
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300

350

400





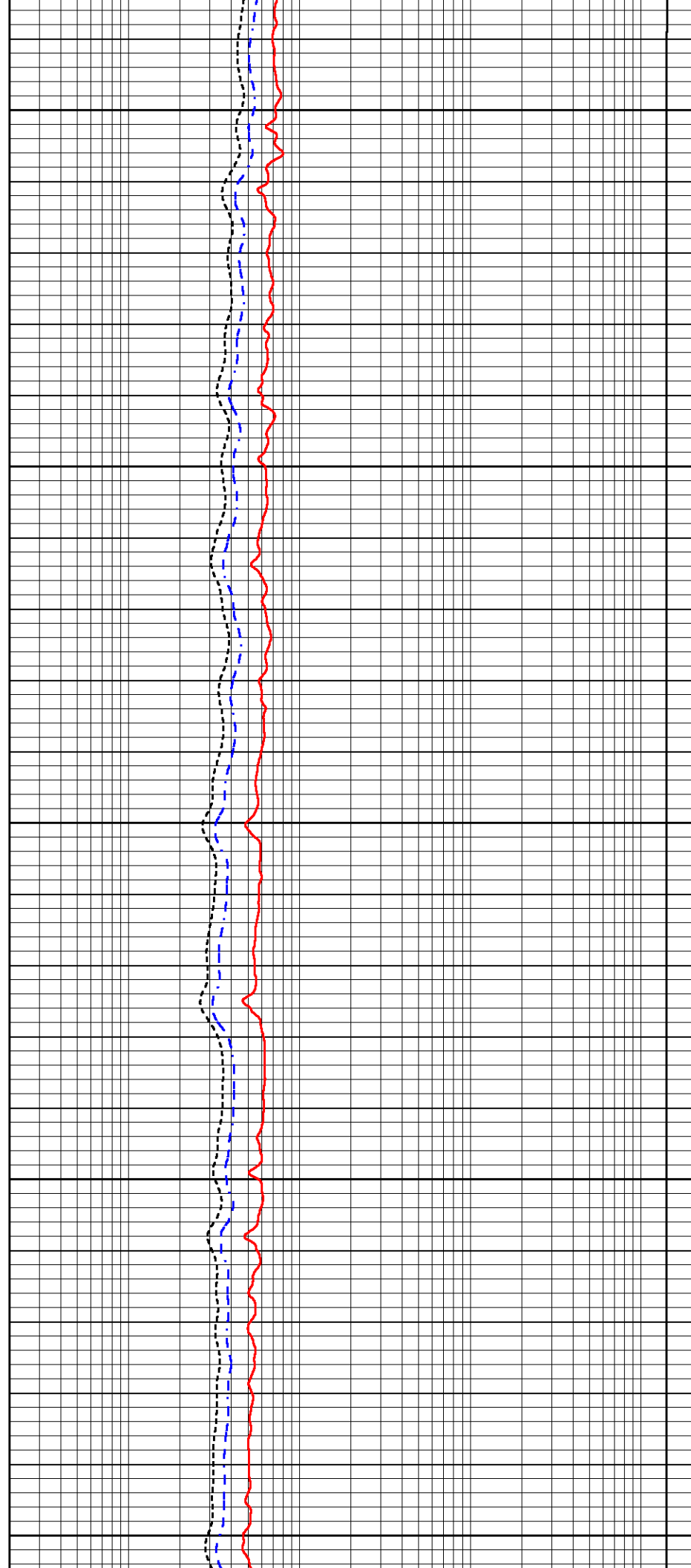
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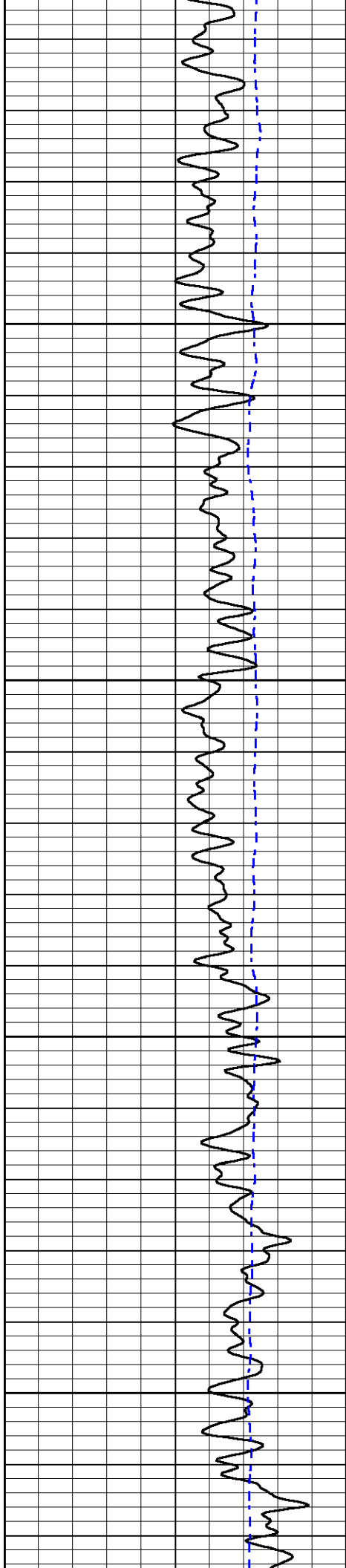
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550

600

650



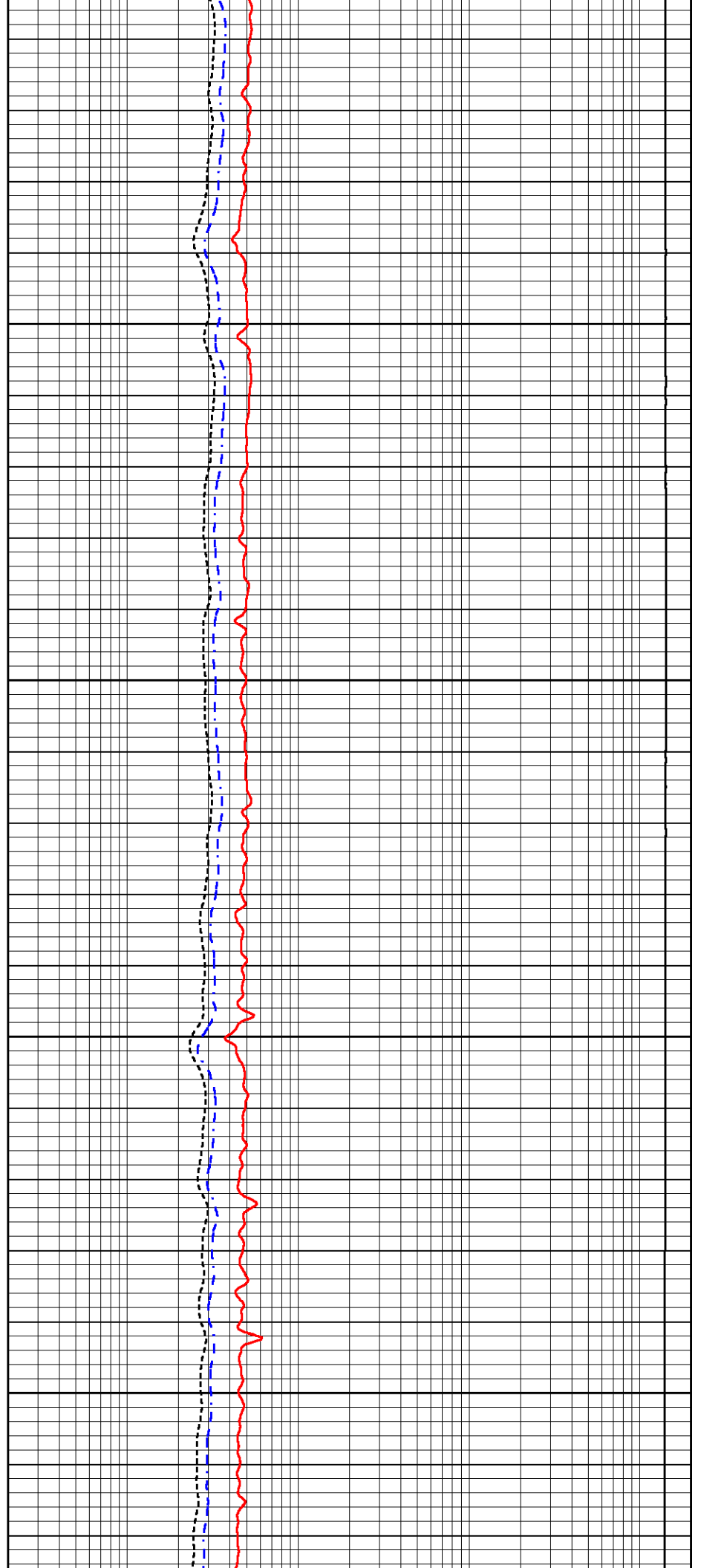


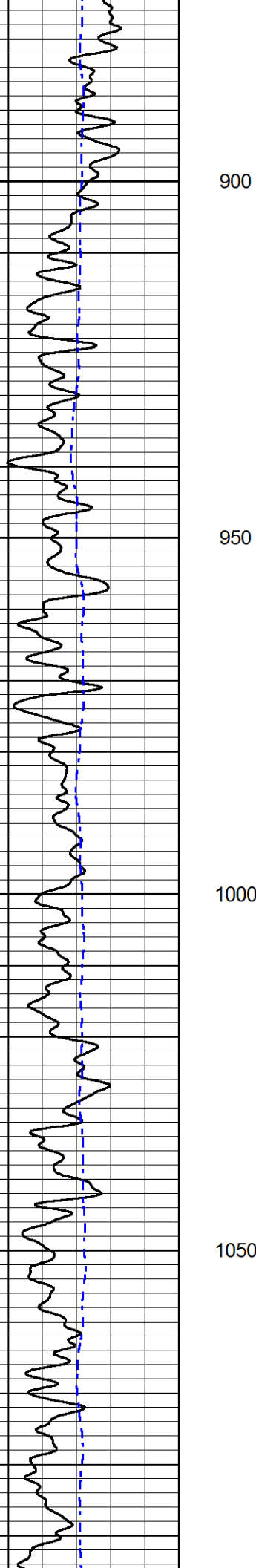
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750

800

850



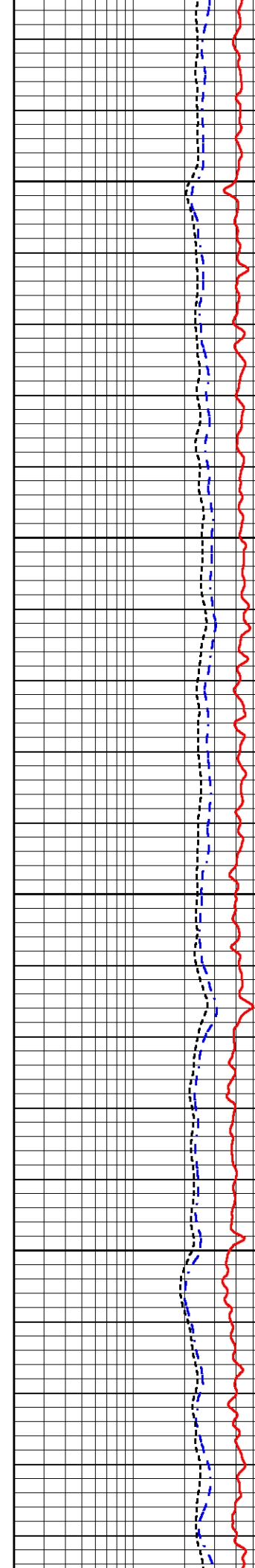


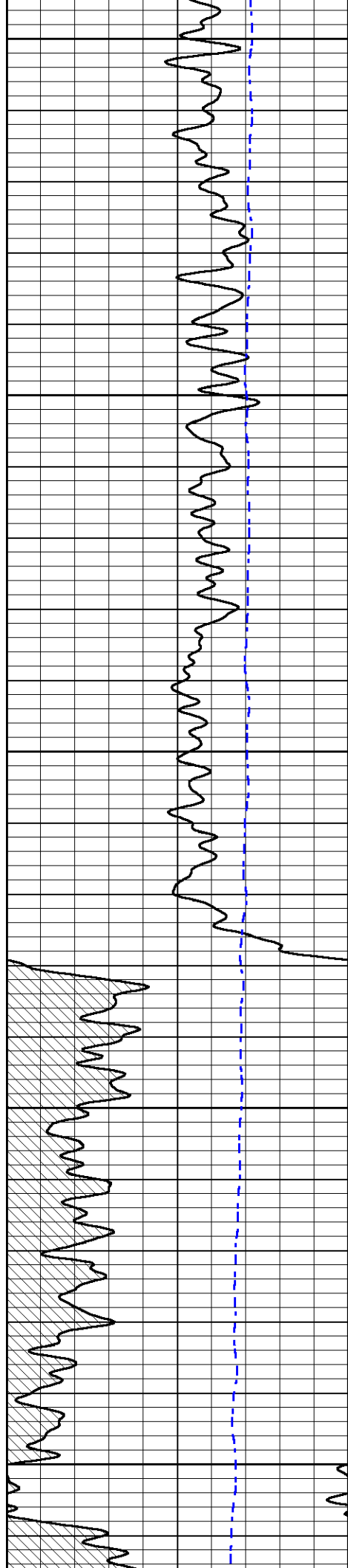
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950

1000

1050





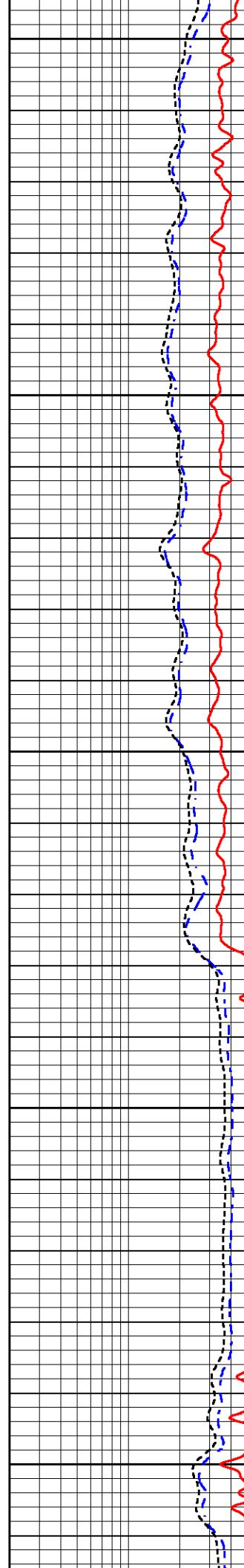
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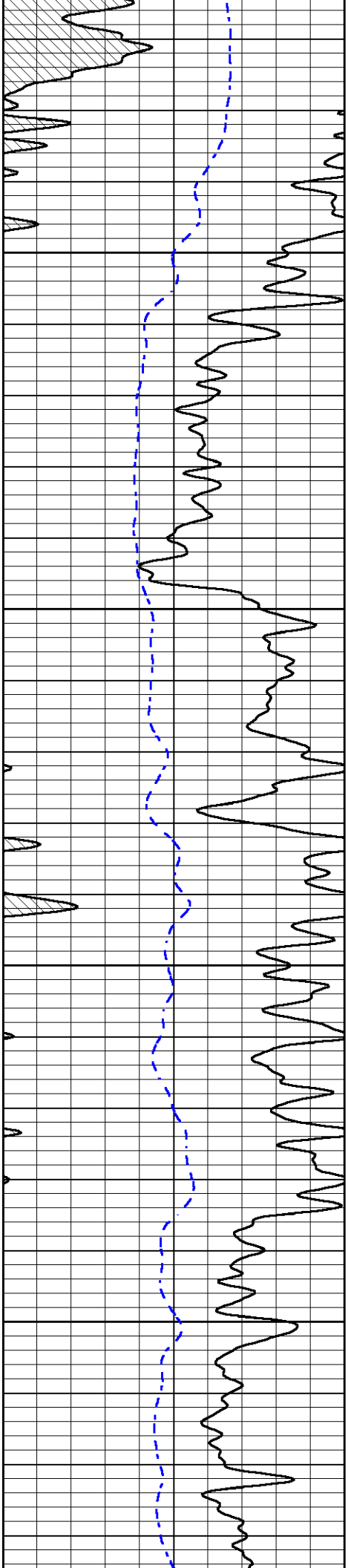
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1200

1250

1300



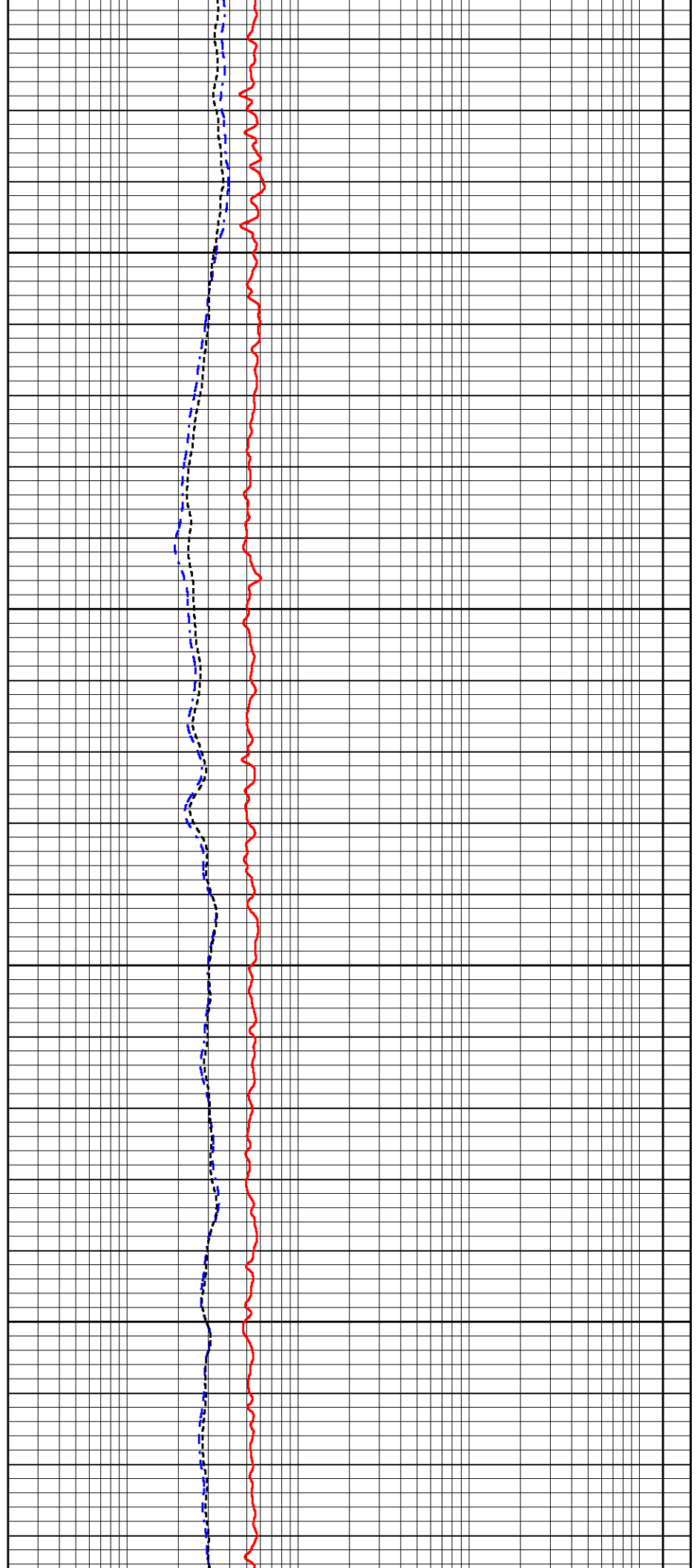


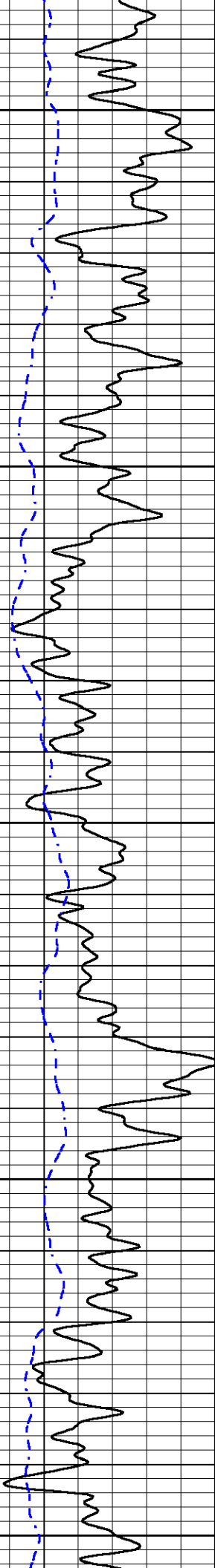
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1400

1450

1500





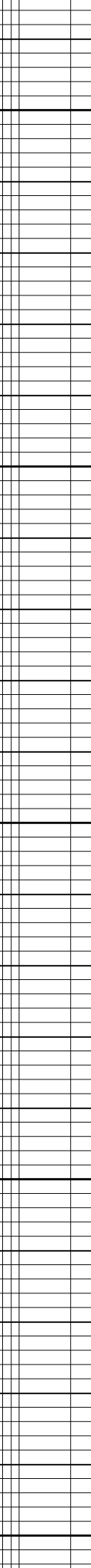
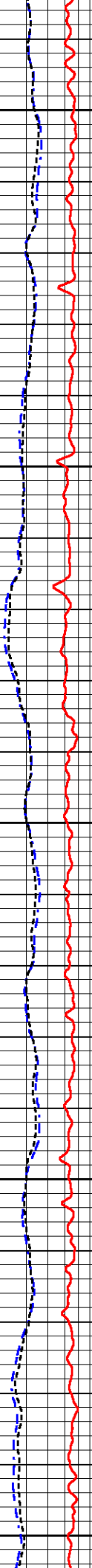
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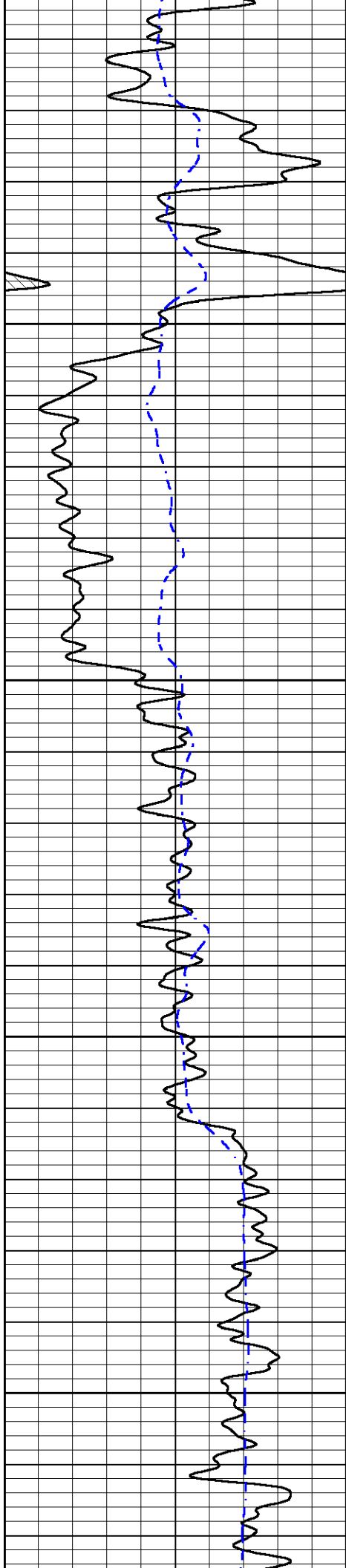
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1650

1700

1750



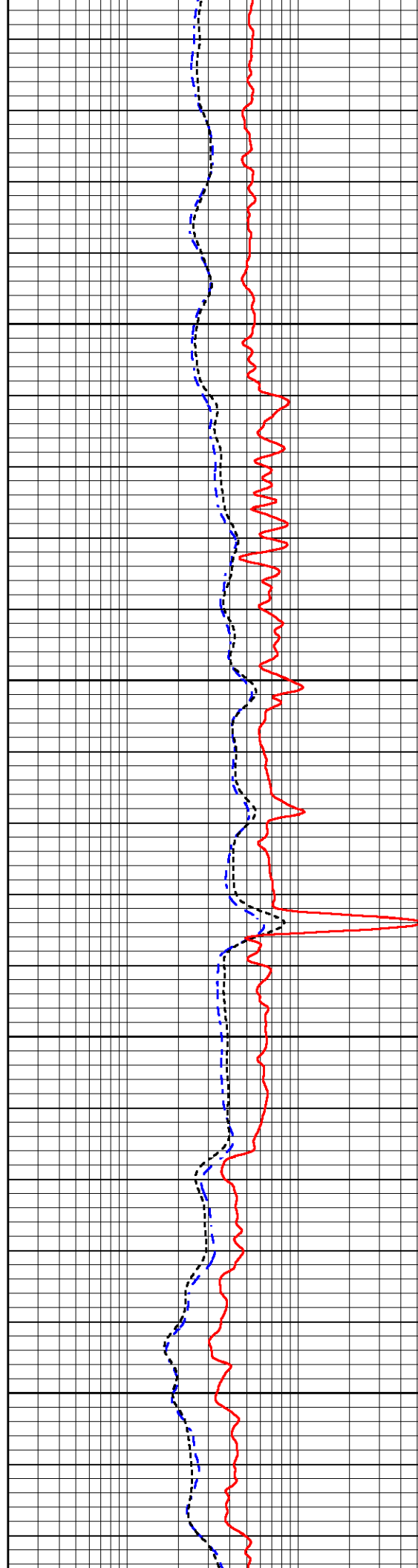


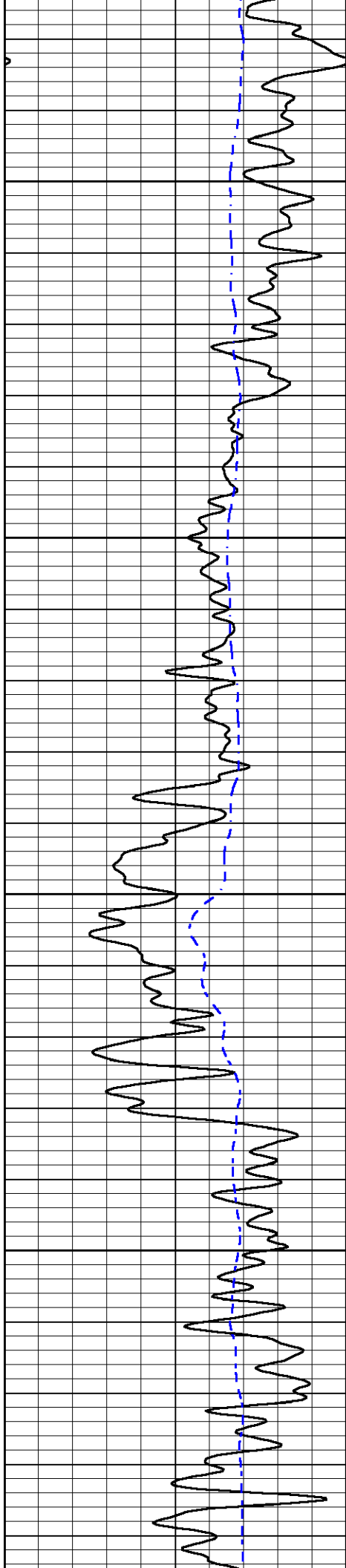
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1850

1900

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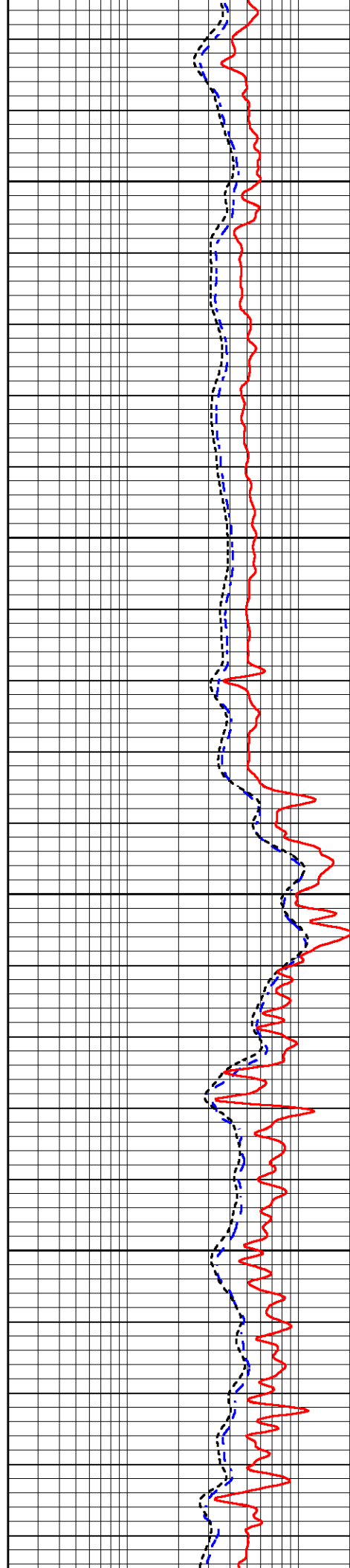


2000

2050

2100

2150

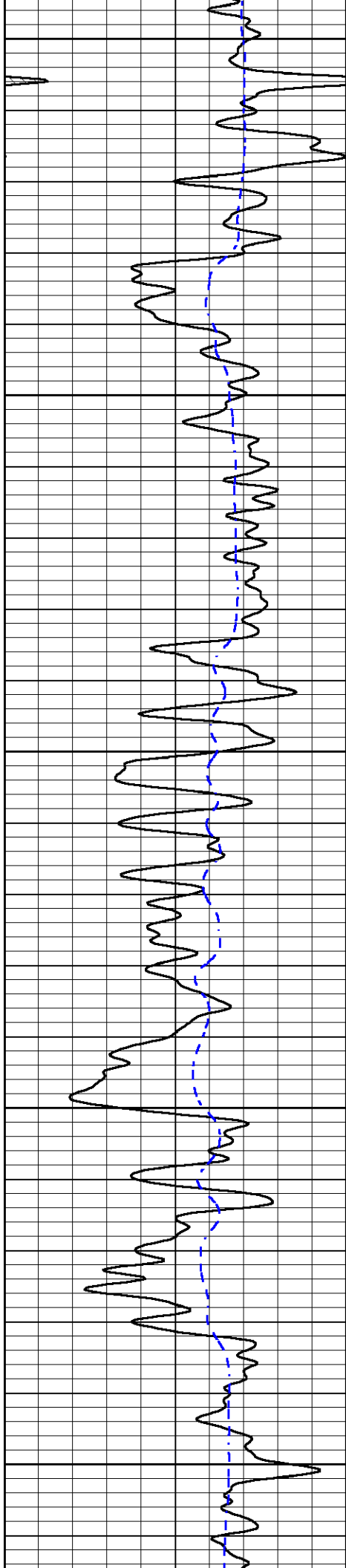


2000

2050

2100

2150



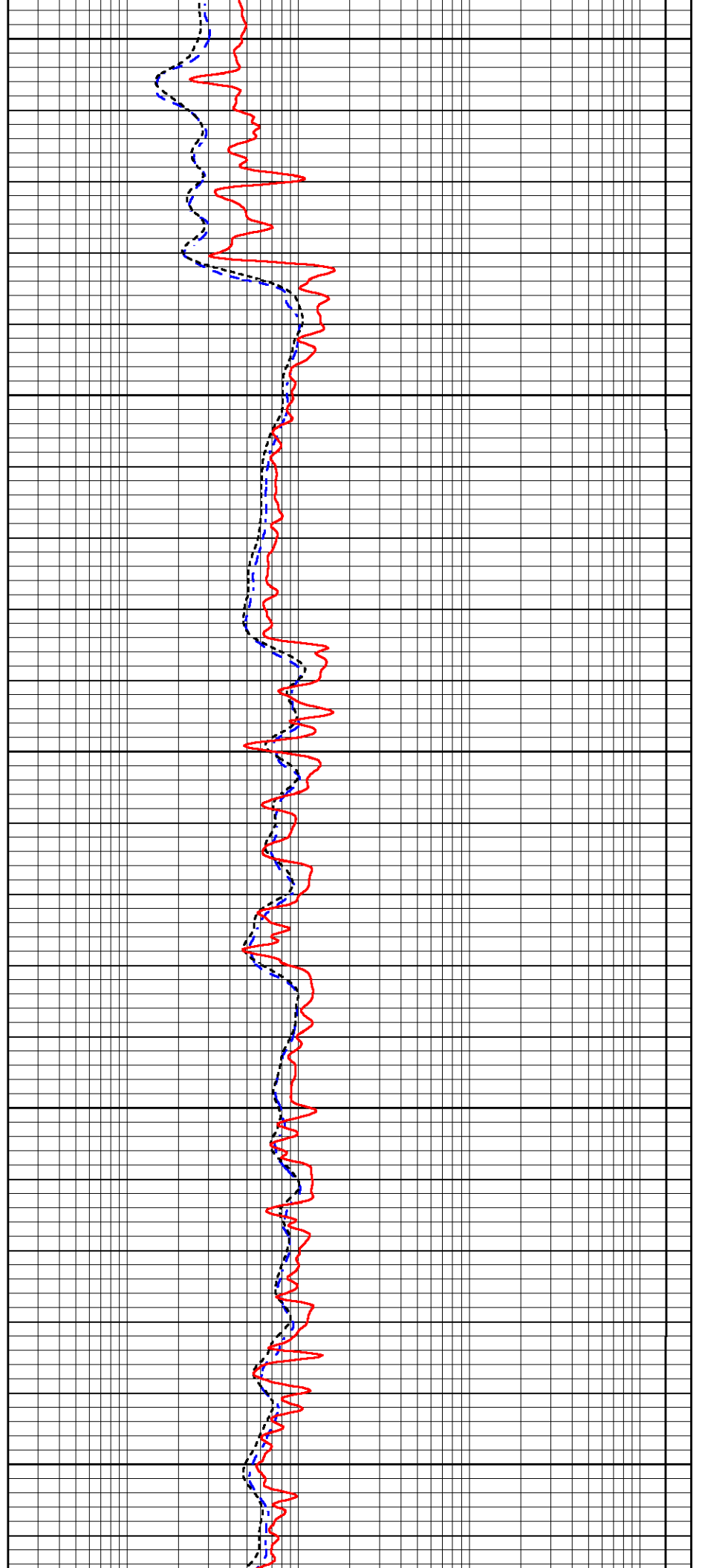
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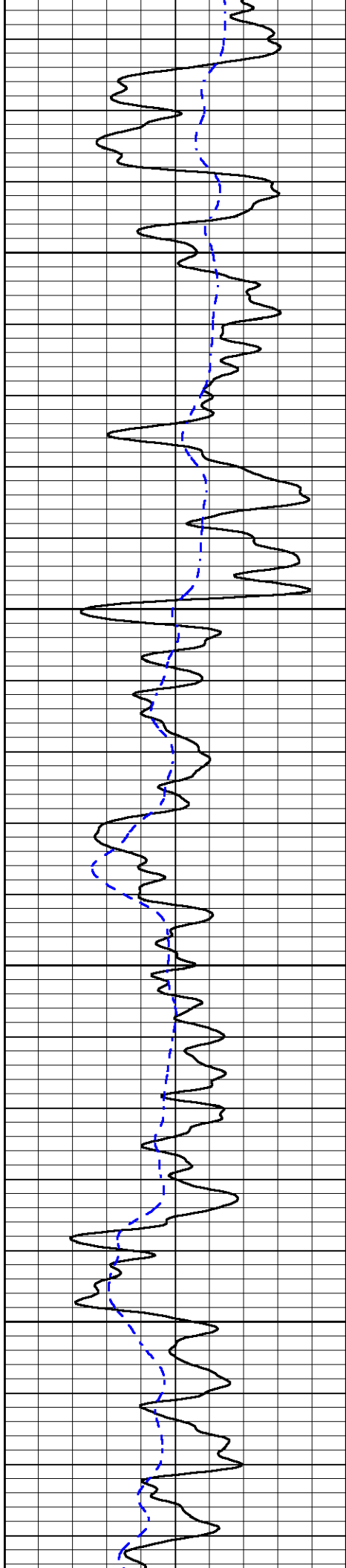
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2300

2350

2400



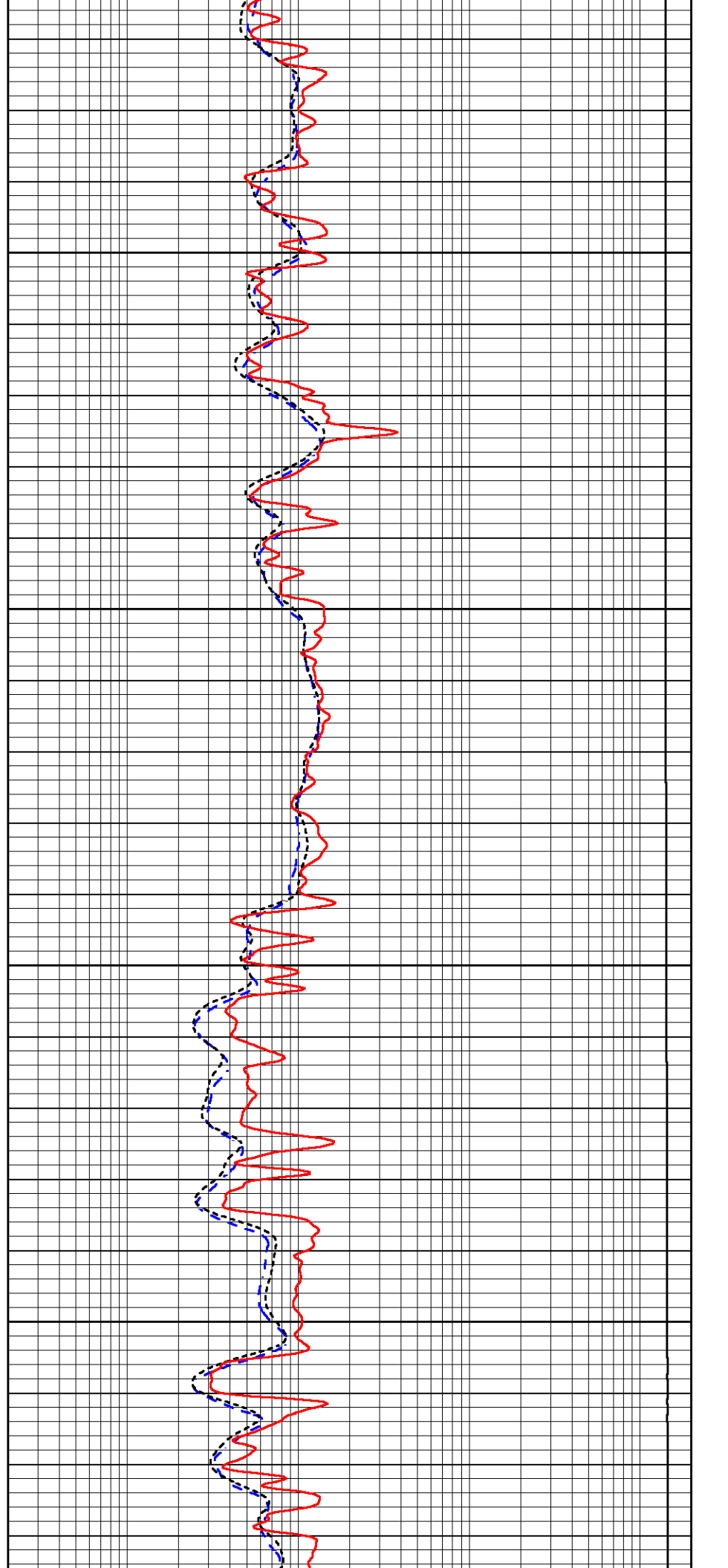


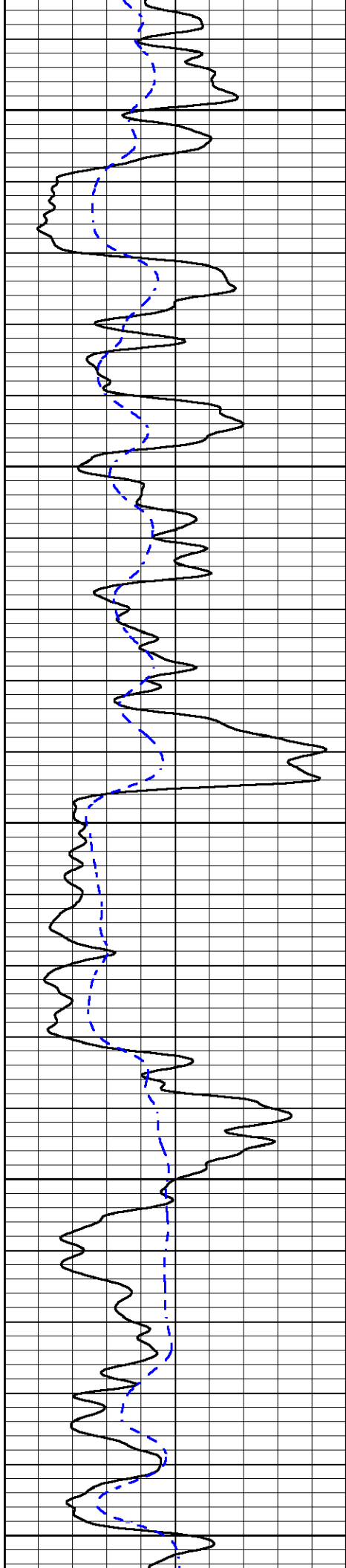
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2550

2600





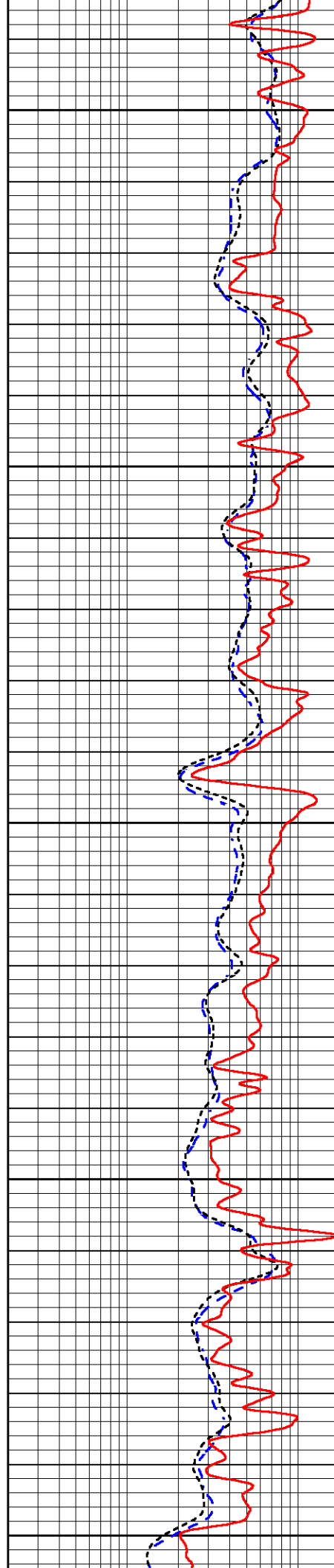
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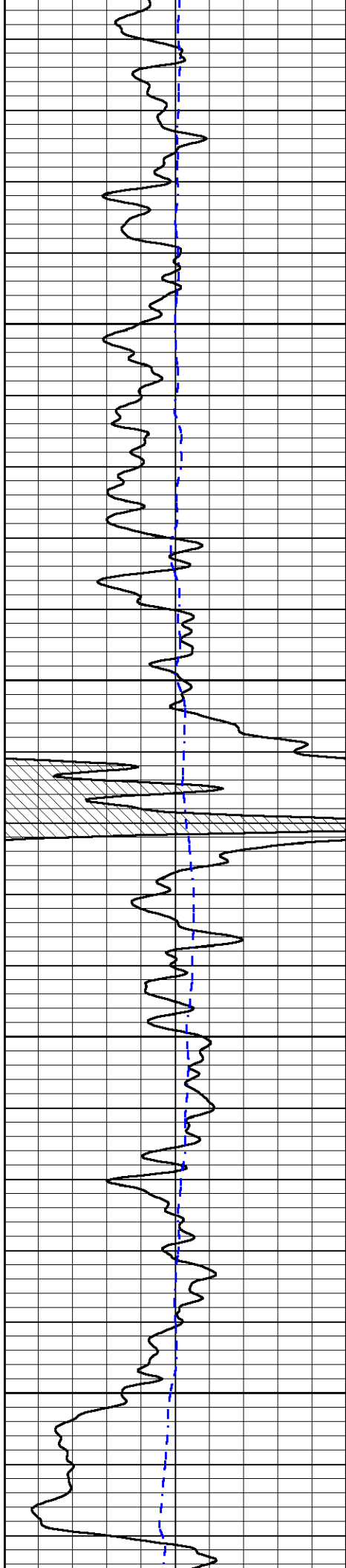
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2750

2800

2850



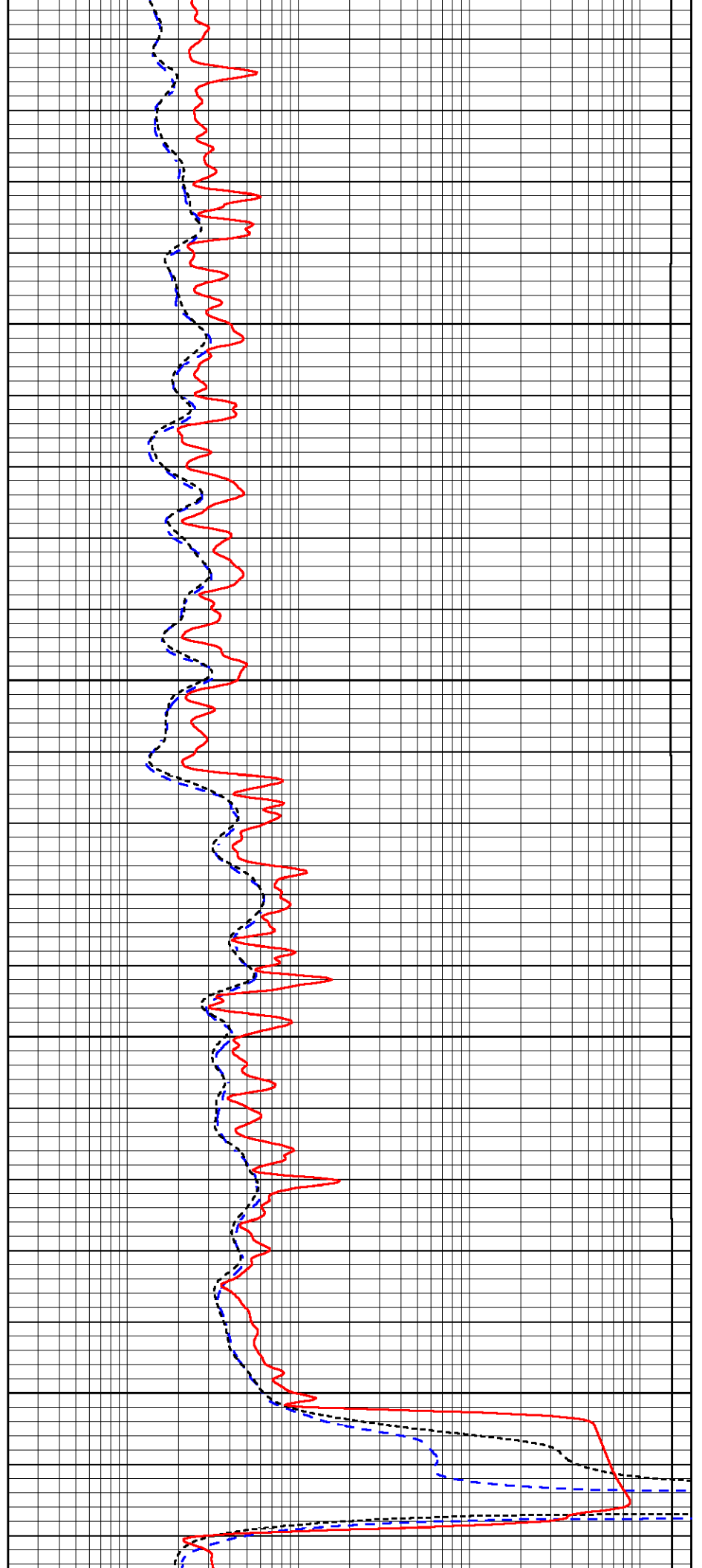


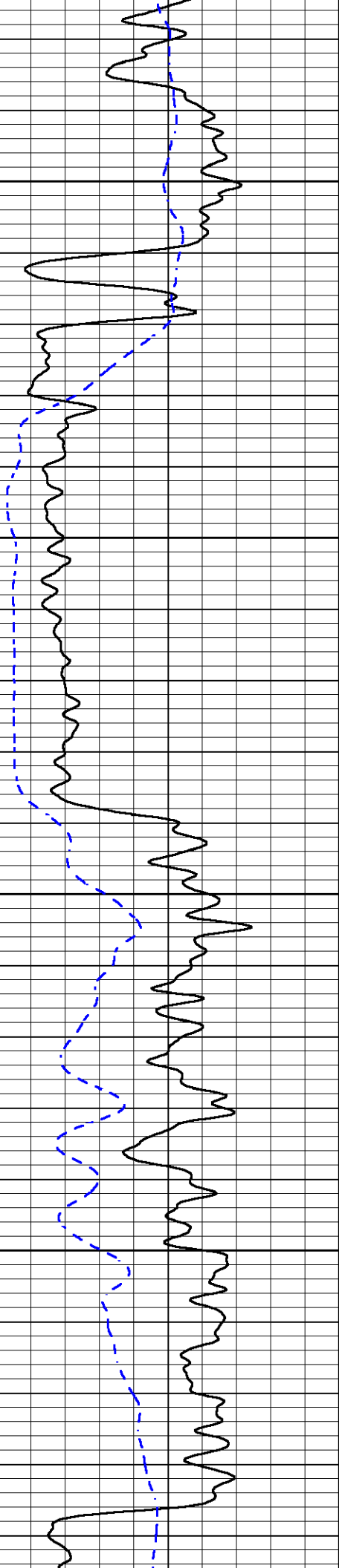
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2950

3000

3050



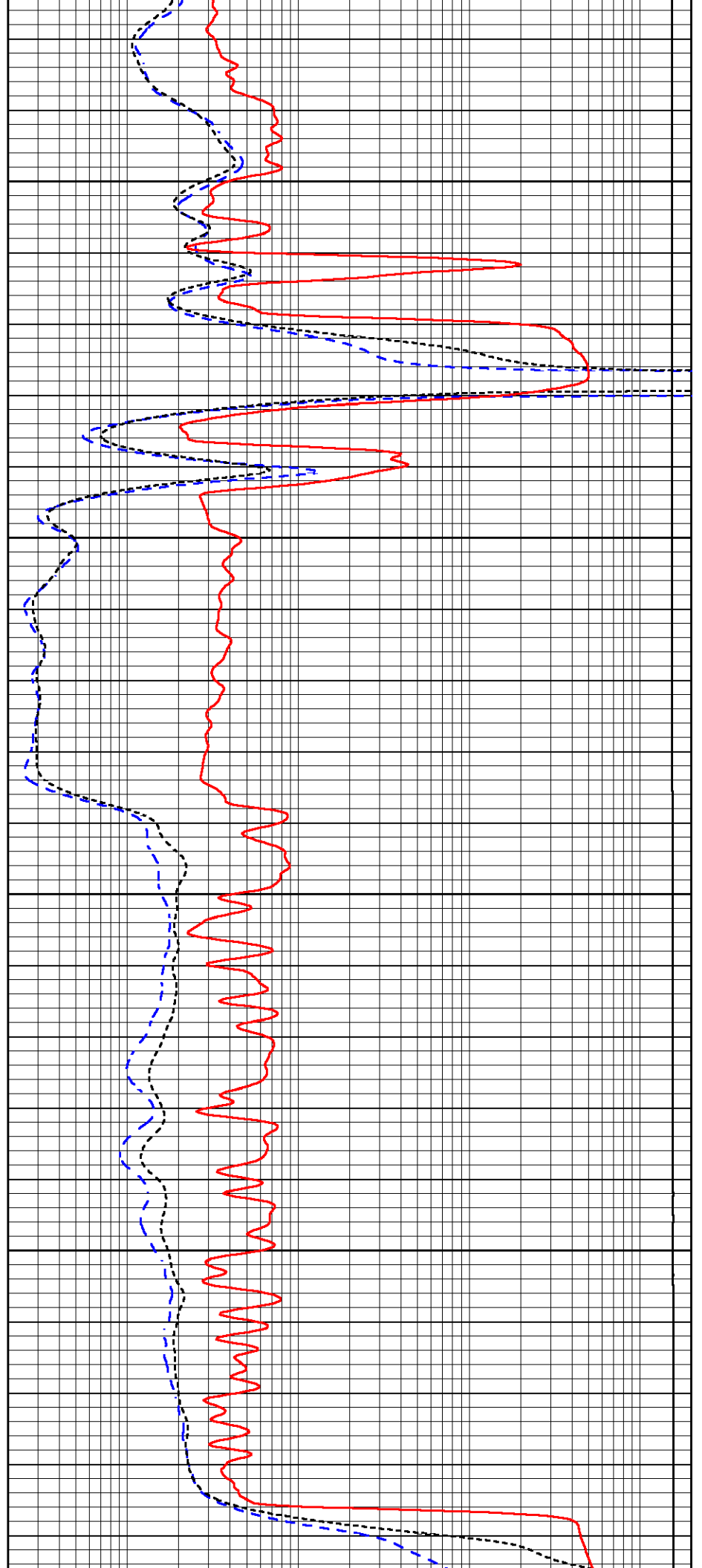


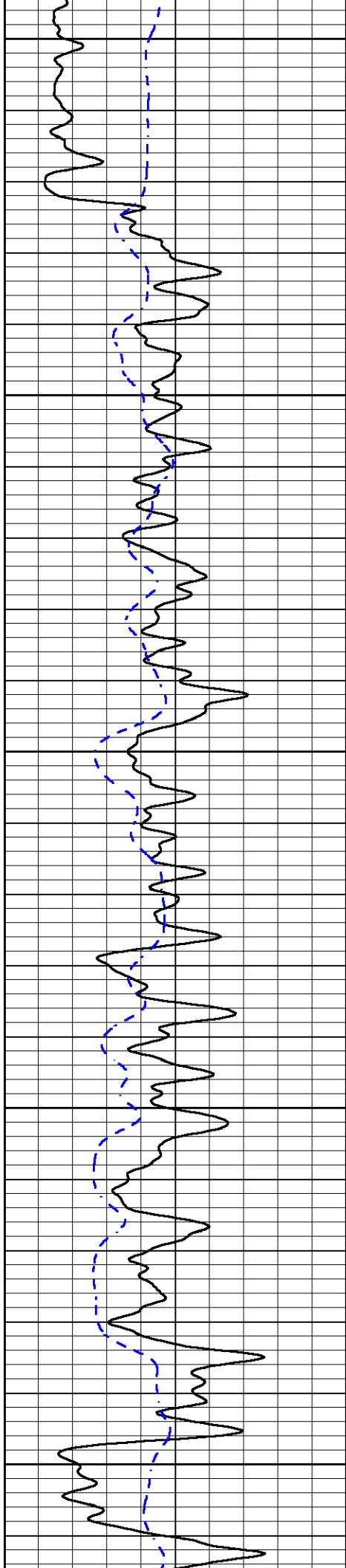
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3150

3200

3250





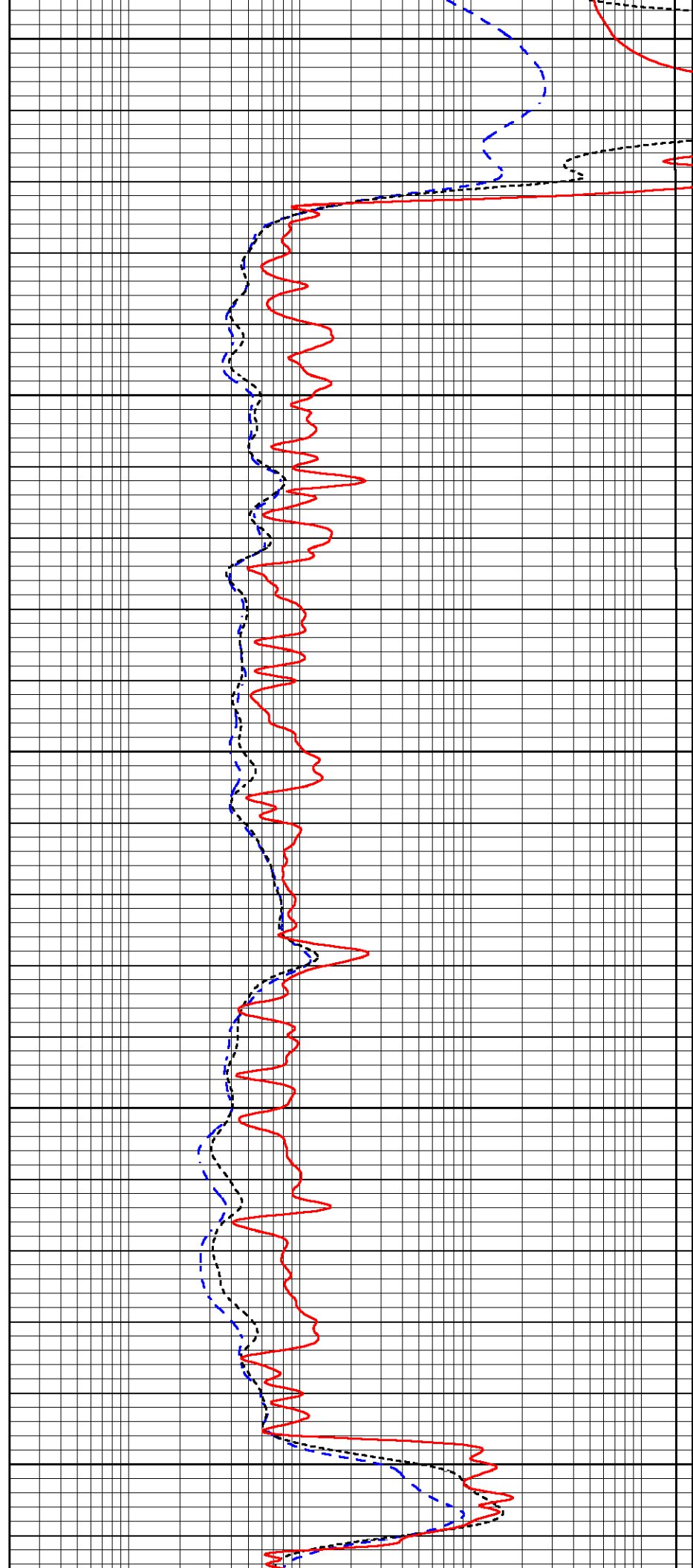
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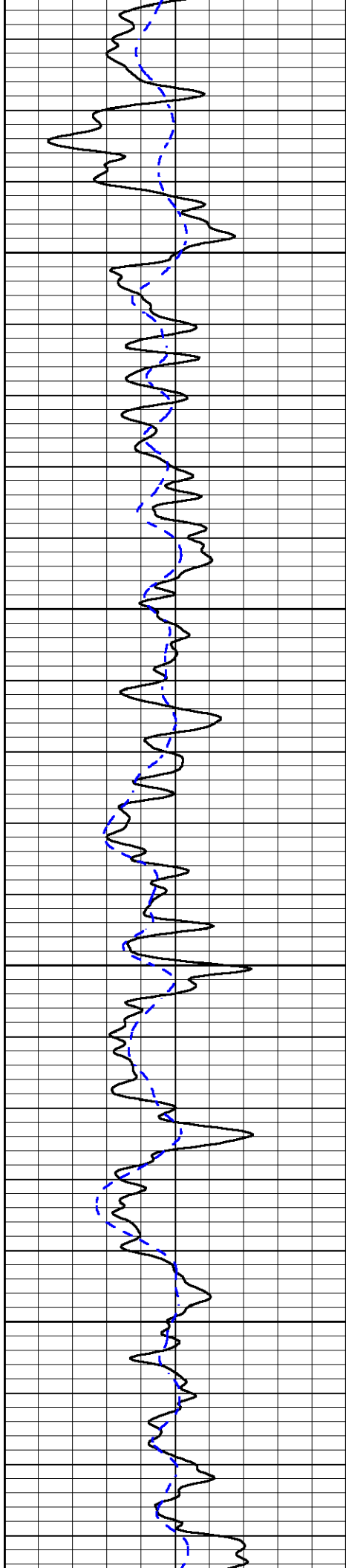
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3400

3450

3500



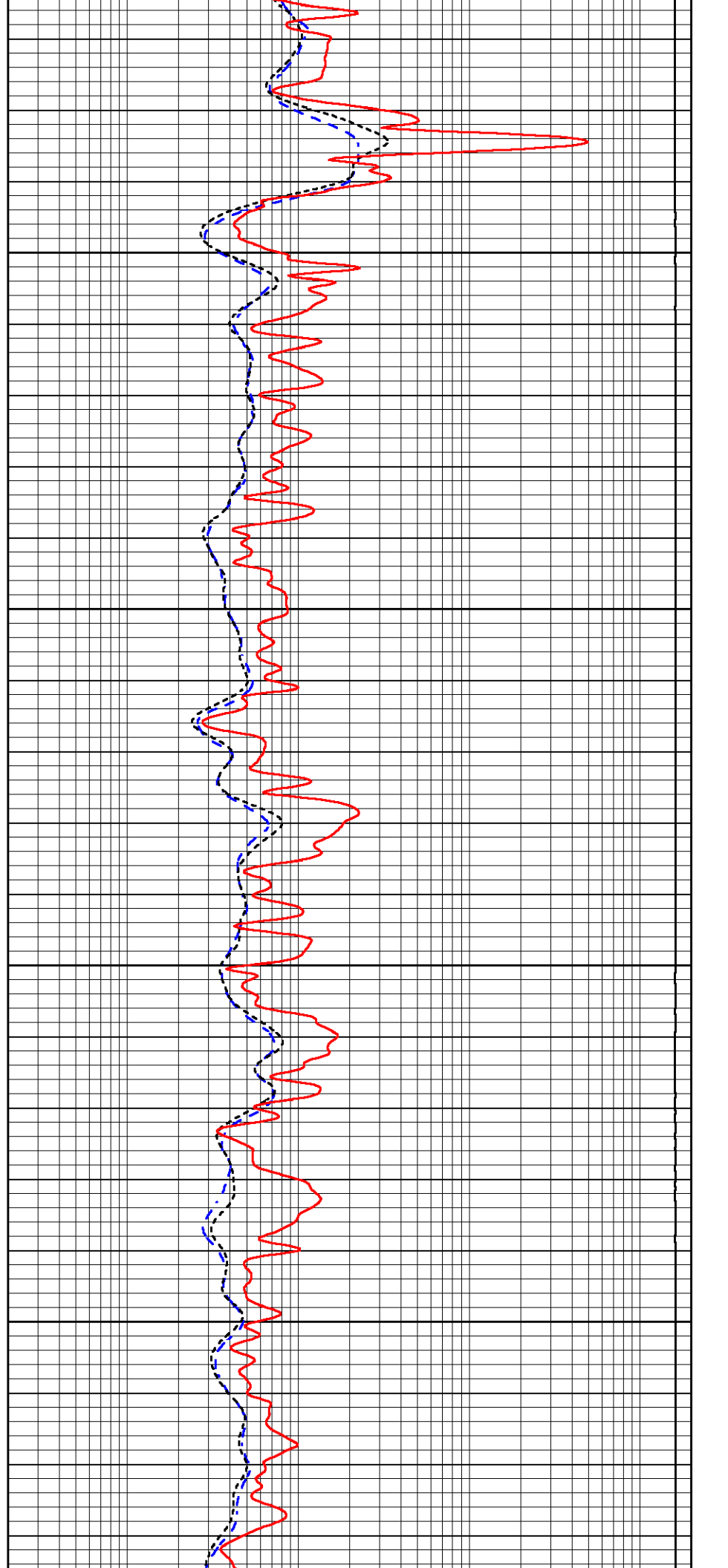


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3650

3700



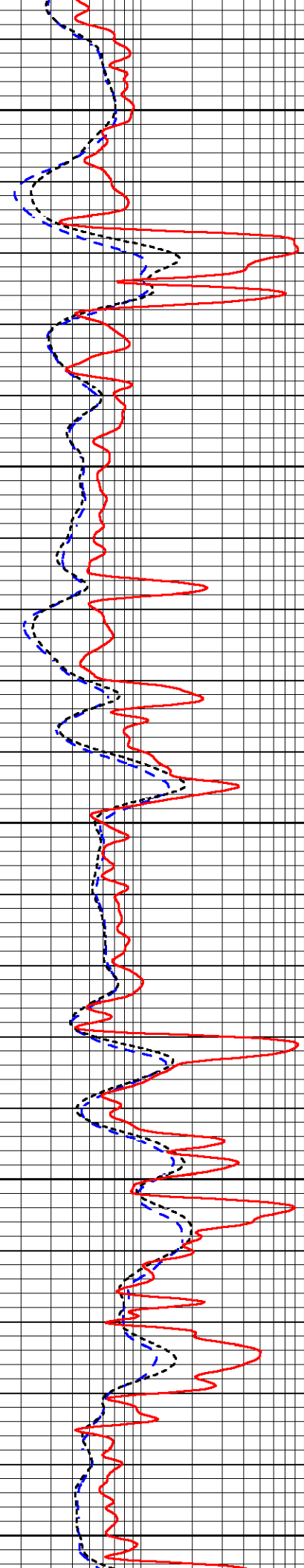
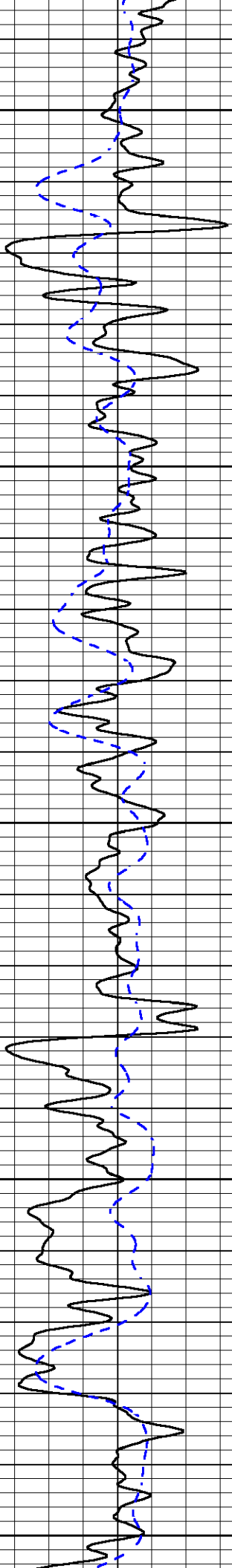
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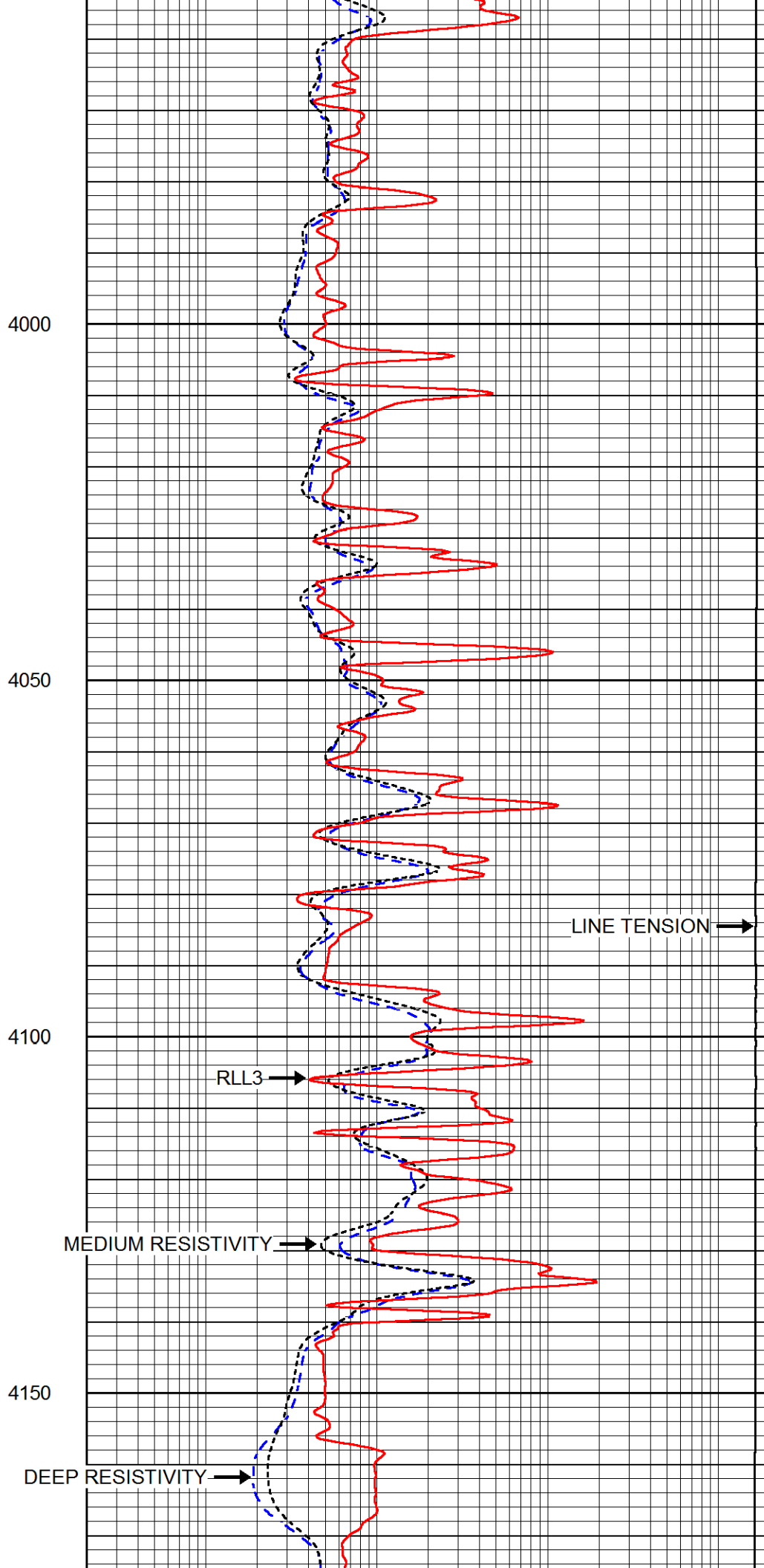
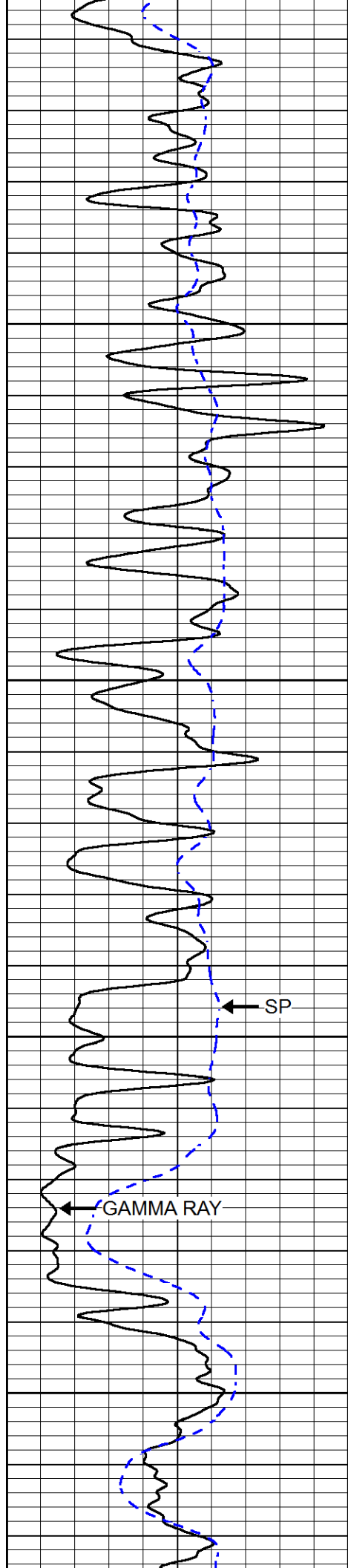
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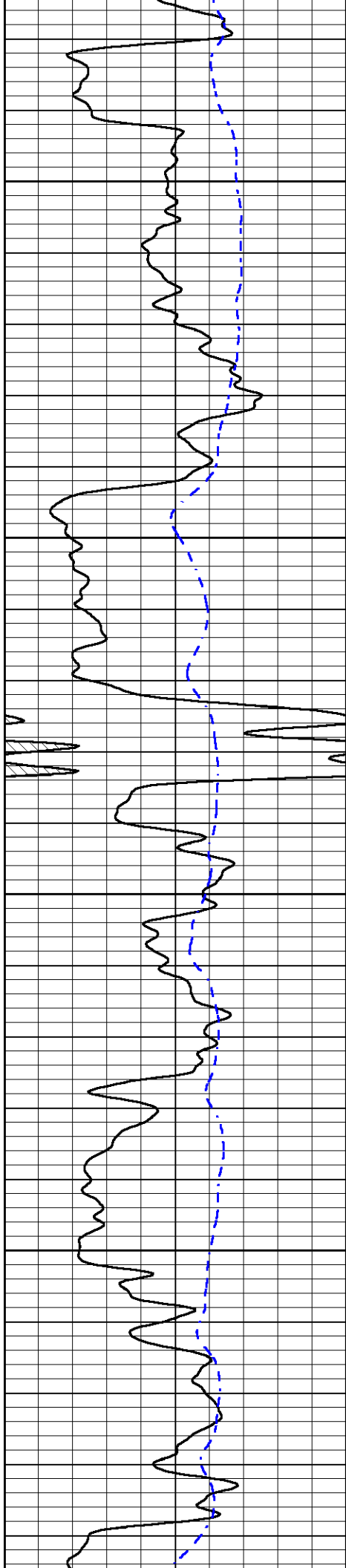
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3900

3950





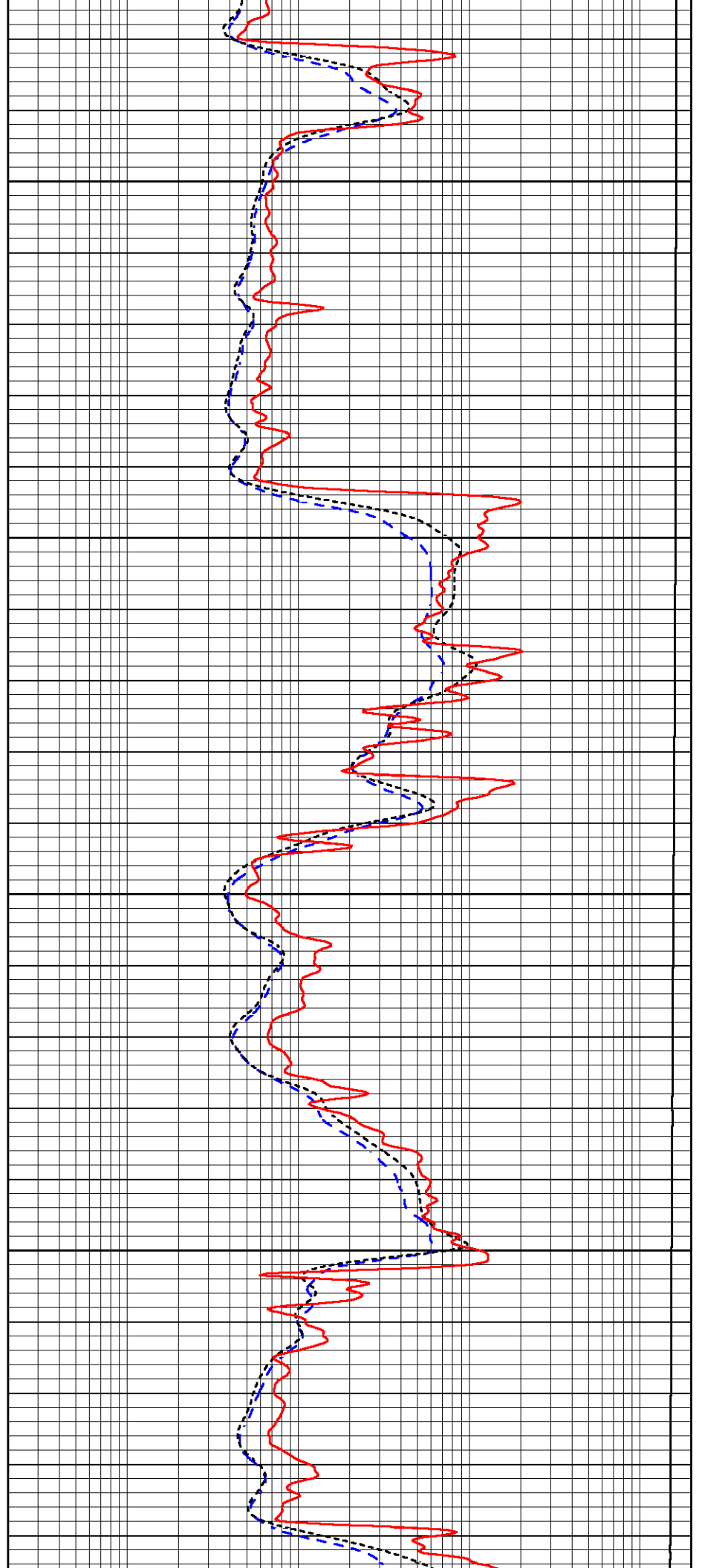


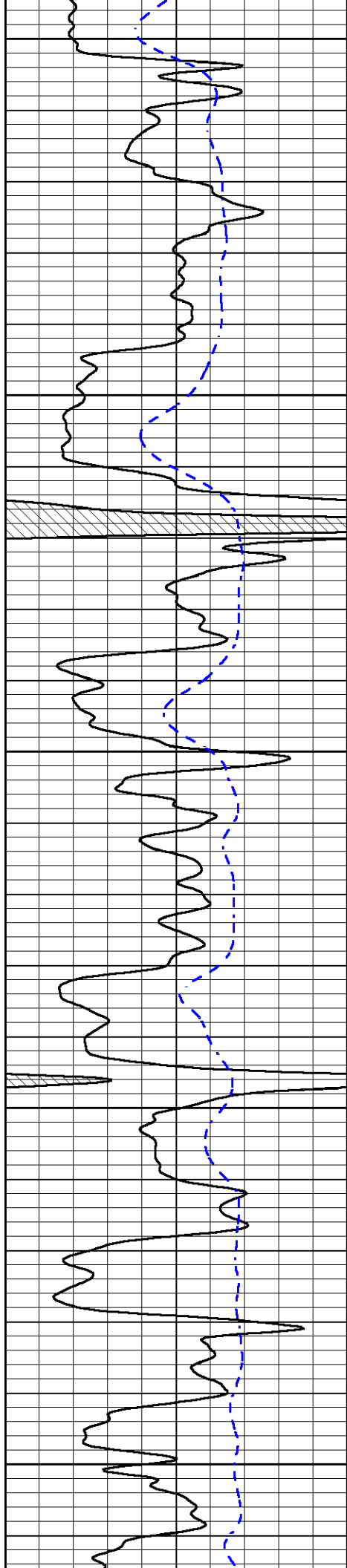
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4250

4300

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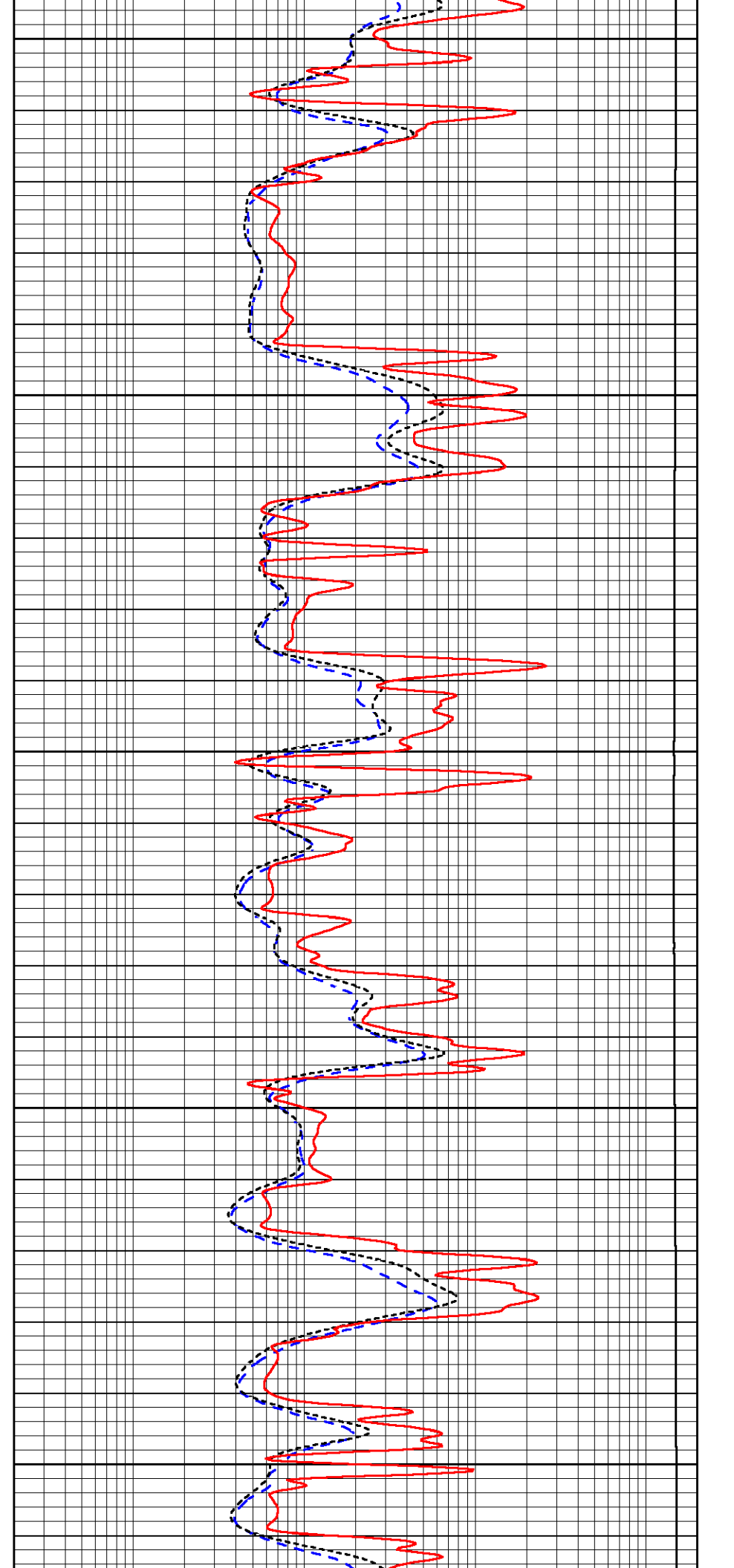
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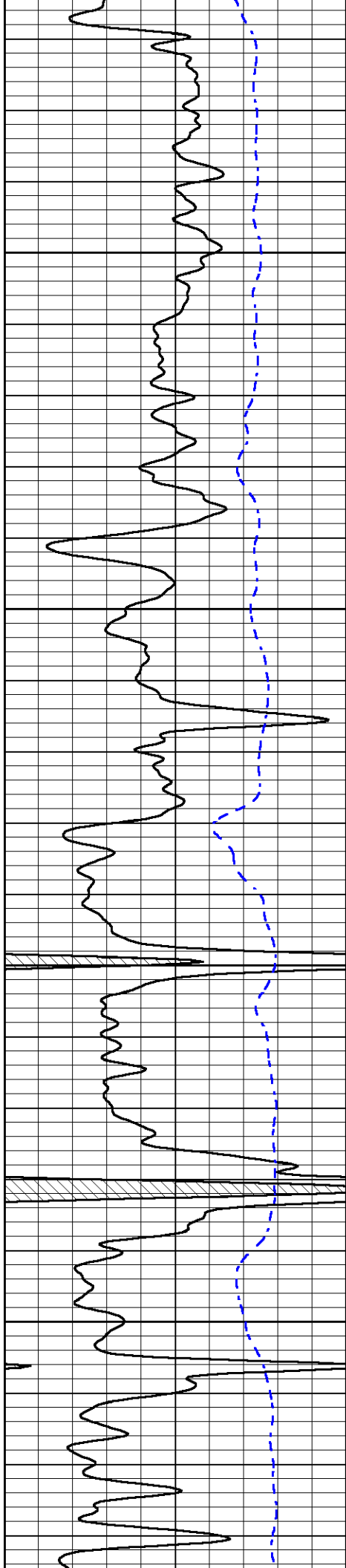
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4500

4550

4600



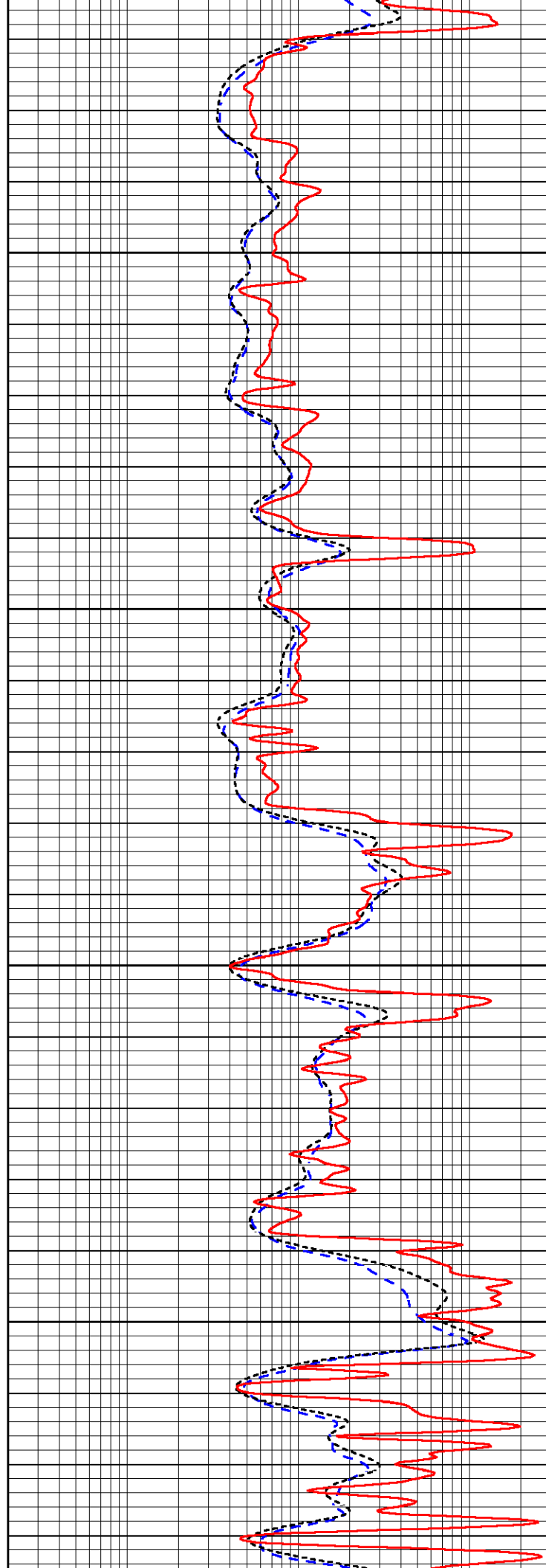


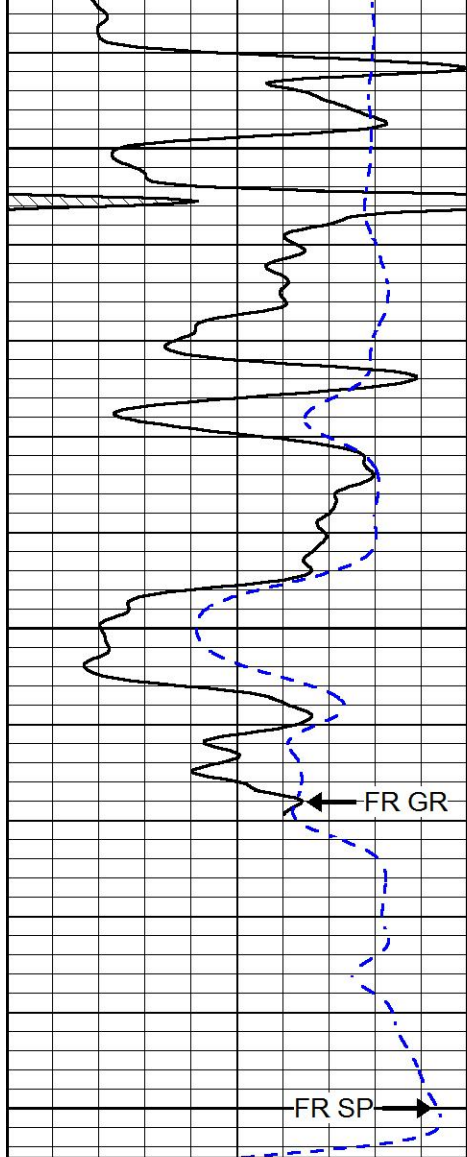
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4700

4750

4800



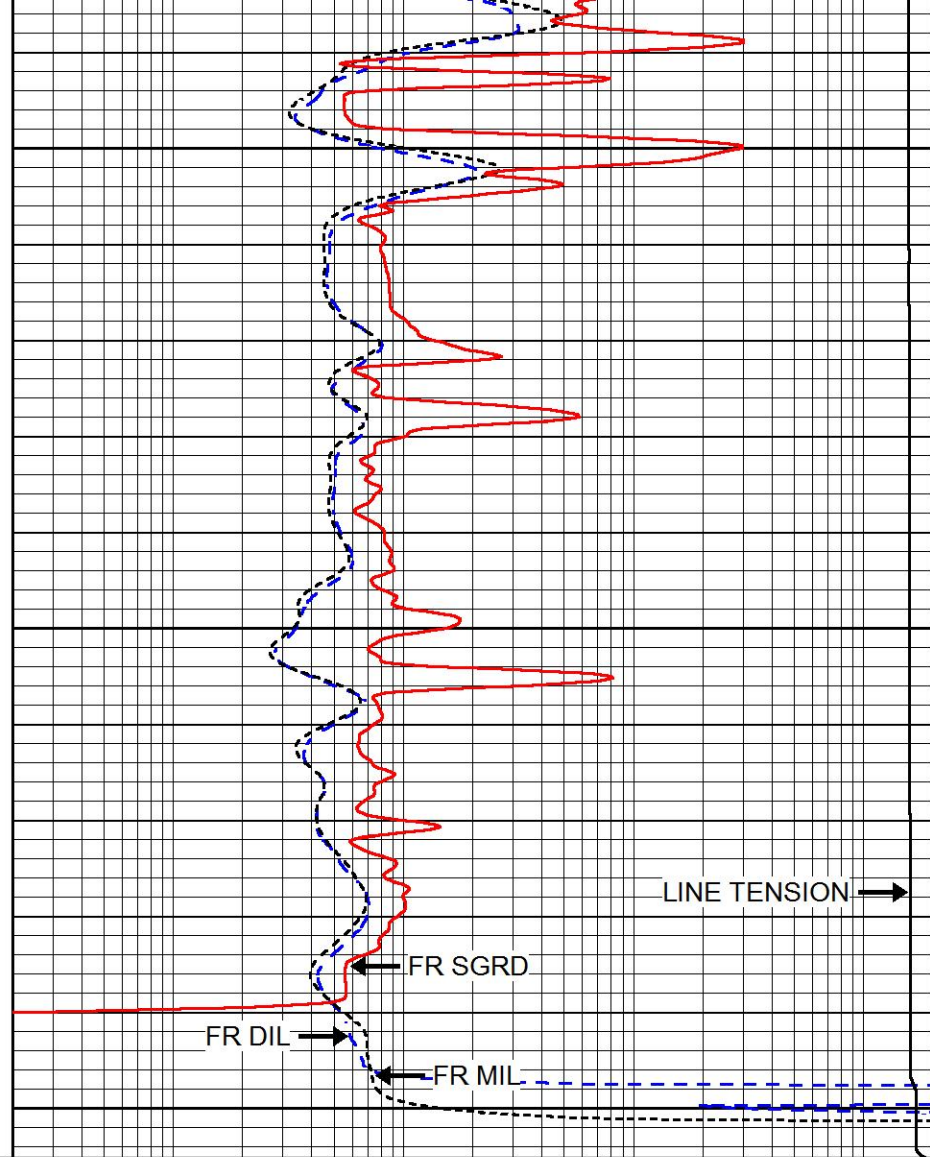


4850

4900

4950

0 GAMMA RAY (GAPI) 150  
 -200 SP (mV) 0



LINE TENSION →

FR SGRD

FR DIL

FR MIL

0.2 DEEP RESISTIVITY (Ohm-m) 2000  
 0.2 MEDIUM RESISTIVITY (Ohm-m) 2000  
 0.2 RLL3 (Ohm-m) 2000  
 15000 LINE TENSION (lb) 0

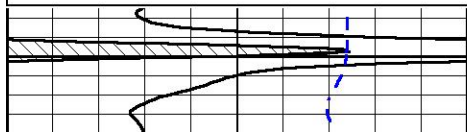


# REPEAT SECTION

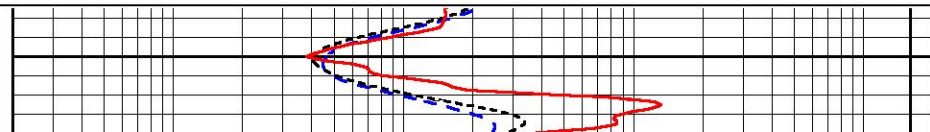
Database File murfin\_antholz a\_#1-2.db  
 Dataset Pathname stack/pass2.1  
 Presentation Format dil  
 Dataset Creation Sun Feb 04 11:51:51 2018  
 Charted by Depth in Feet scaled 1:240

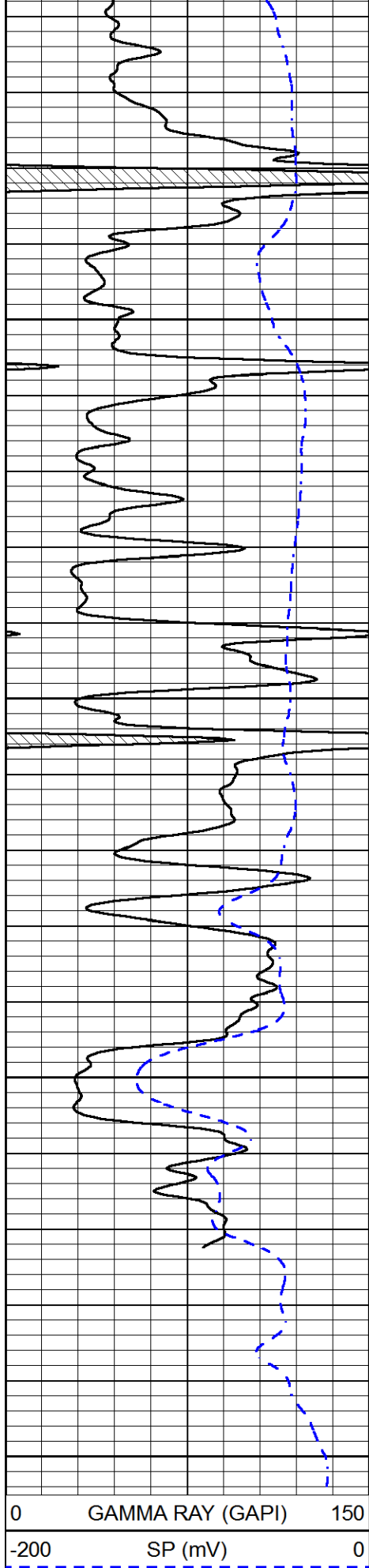
0 GAMMA RAY (GAPI) 150  
 -200 SP (mV) 0

0.2 DEEP RESISTIVITY (Ohm-m) 2000  
 0.2 MEDIUM RESISTIVITY (Ohm-m) 2000  
 0.2 RLL3 (Ohm-m) 2000  
 15000 LINE TENSION (lb) 0



4750





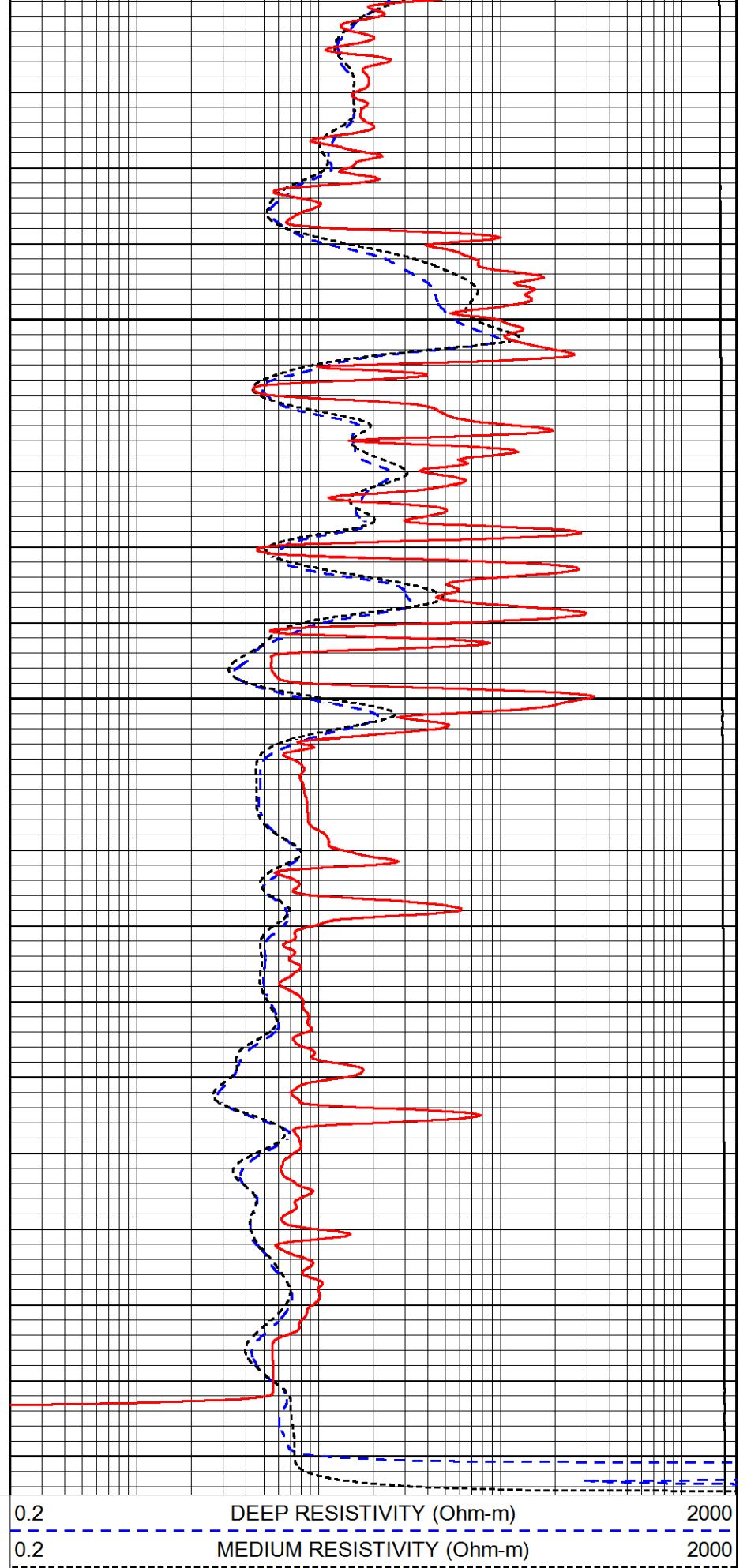
4800

4850

4900

4950

0 GAMMA RAY (GAPI) 150  
 -200 SP (mV) 0



0.2 DEEP RESISTIVITY (Ohm-m) 2000  
 0.2 MEDIUM RESISTIVITY (Ohm-m) 2000  
 0.2 RLL3 (Ohm-m) 2000  
 15000 LINE TENSION (lb) 0





**PIONEER**

Pioneer Energy Services

Company	MURFIN DRILLING COMPANY, INC.
Well	ANTHOLZ A #1-2
Field	WILDCAT
County	CHEYENNE
State	KANSAS