



**SUPERIOR**  
WELL SERVICES  
Black Lick, Pa.  
Mercer, Pa.  
Wooster, Oh.  
Cleveland, Ok.  
Trinidad, Co.

# COMPENSATED DENSITY NEUTRON LOG

Company XTO Energy Inc.  
Well Apache Canyon 05-13  
Field Purgatoire River  
County Las Animas State Colorado

Location: API #: 05 071 09131 00

1143' FSL & 407' FWL

SEC 5 TWP 34S RGE 67W

Permanent Datum Ground Level Elevation 7994'  
Log Measured From Ground Level  
Drilling Measured From Ground Level

Other Services  
DIL  
Elevation  
K.B. -----  
D.F. -----  
G.L. 7994'

Date 2-21-08

Run Number One

Depth Driller 2580'

Depth Logger 2575'

Bottom Logged Interval 2553'

Top Log Interval Surface Casing

Casing Driller 8 5/8" @ 451'

Casing Logger 451'

Bit Size 7 7/8"

Type Fluid in Hole Water

Density / Viscosity ///

pH / Fluid Loss ///

Source of Sample ///

Rm @ Meas. Temp ///

Rmf @ Meas. Temp ///

Rmc @ Meas. Temp ///

Source of Rmf / Rmc ///

Rm @ BHT ///

Time Circulation Stopped 11:00 A.M.

Time Logger on Bottom 2:45 P.M.

Maximum Recorded Temperature 117 DEG F

Equipment Number T697

Location Trinidad

Recorded By J. Cappellucci

Witnessed By Mr. Don Johnson

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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

Neutron Density Porosity Presented On Sandstone Matrix.  
ABHV Calculated For 5 1/2" Casing.

### Well Directions:

1st Bosque Entrance to Cherry Canyon, Stay on main road,  
all the way to top, at 4 way take left, through wooden fences,  
go through 4 drive through locations and its your next drive through  
location.

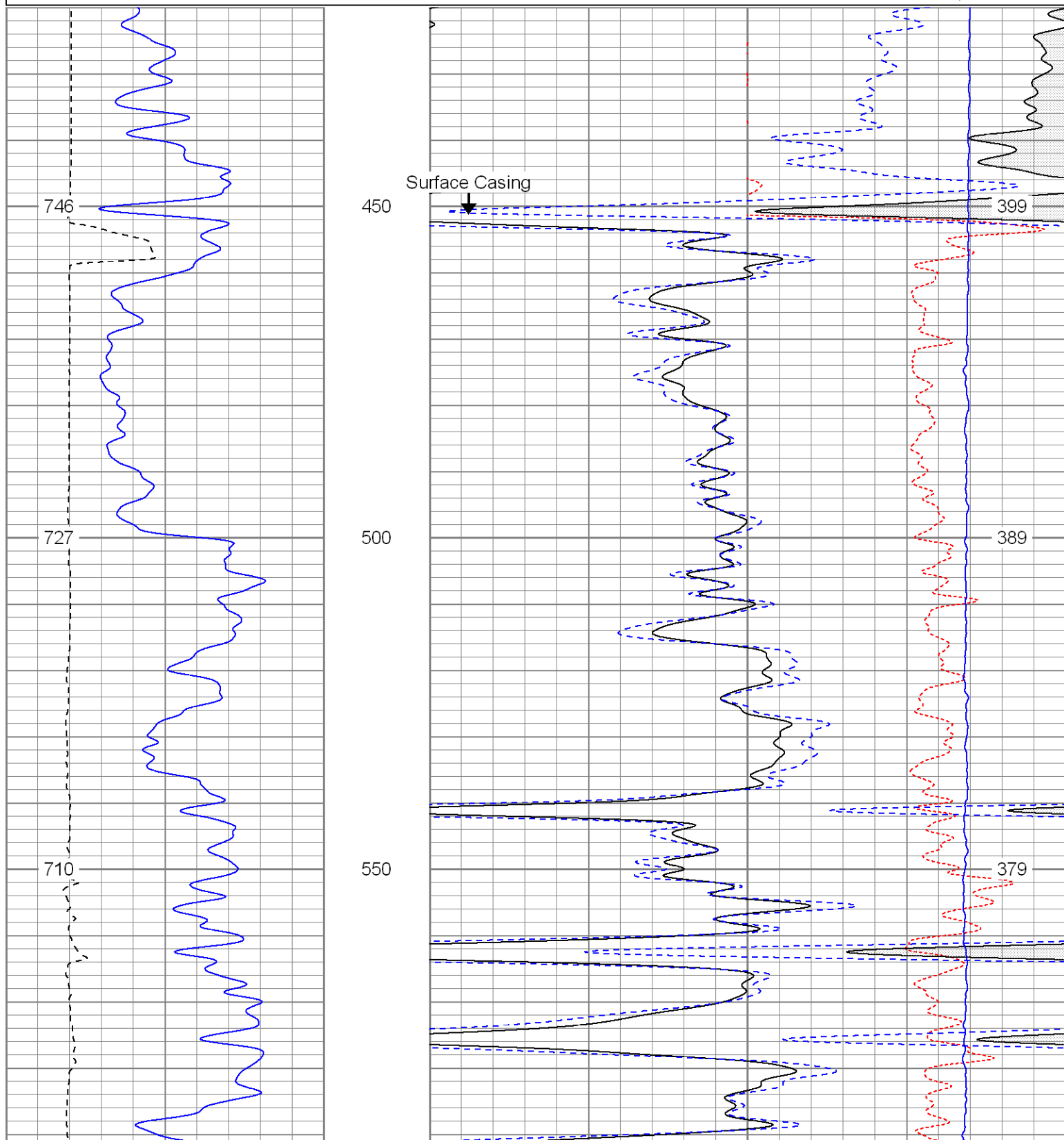


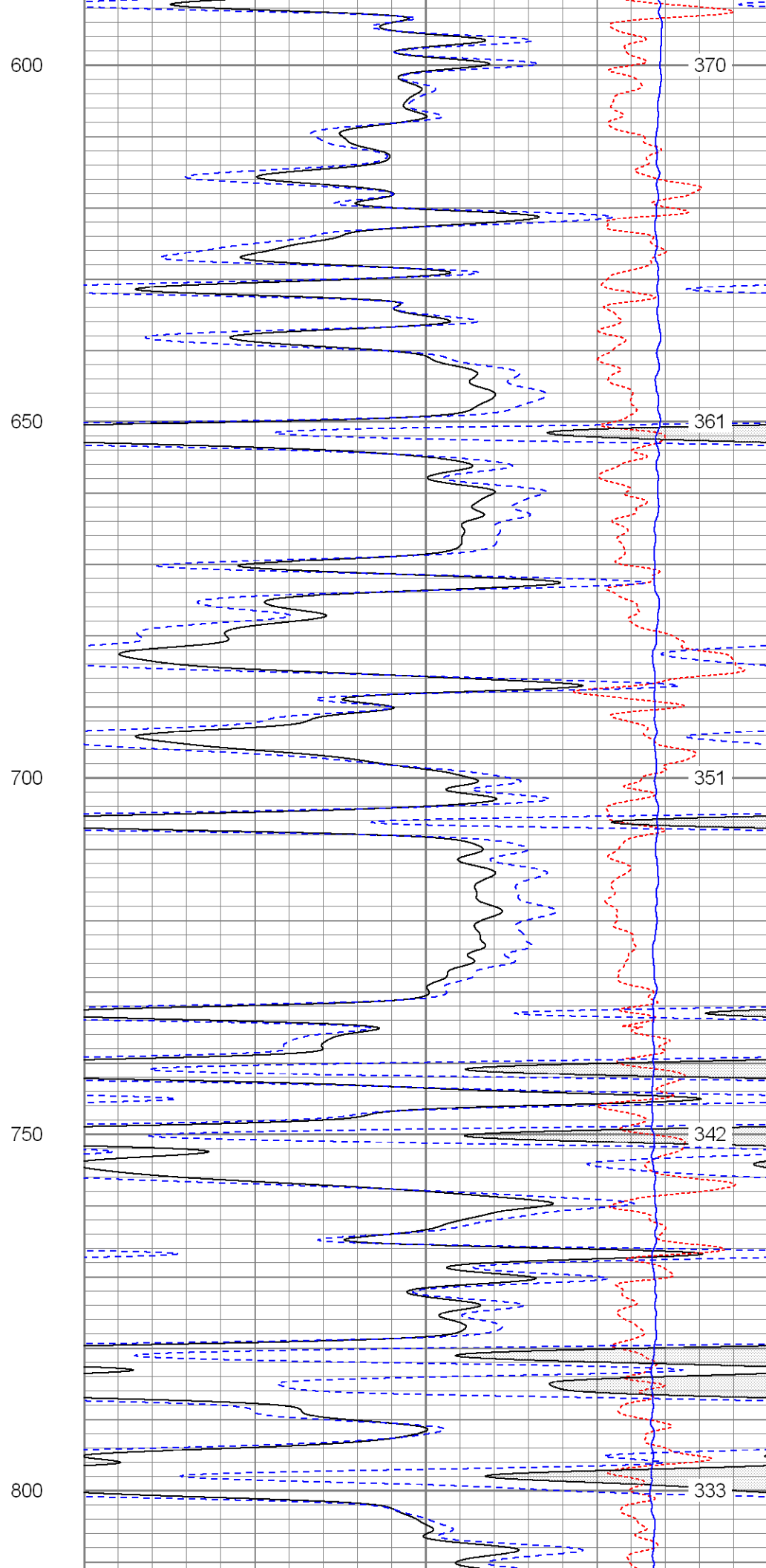
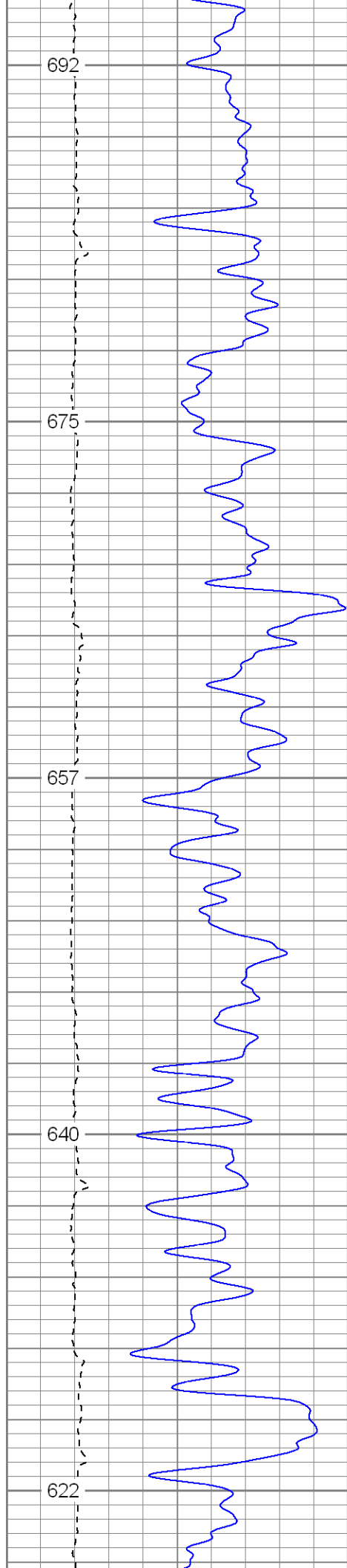
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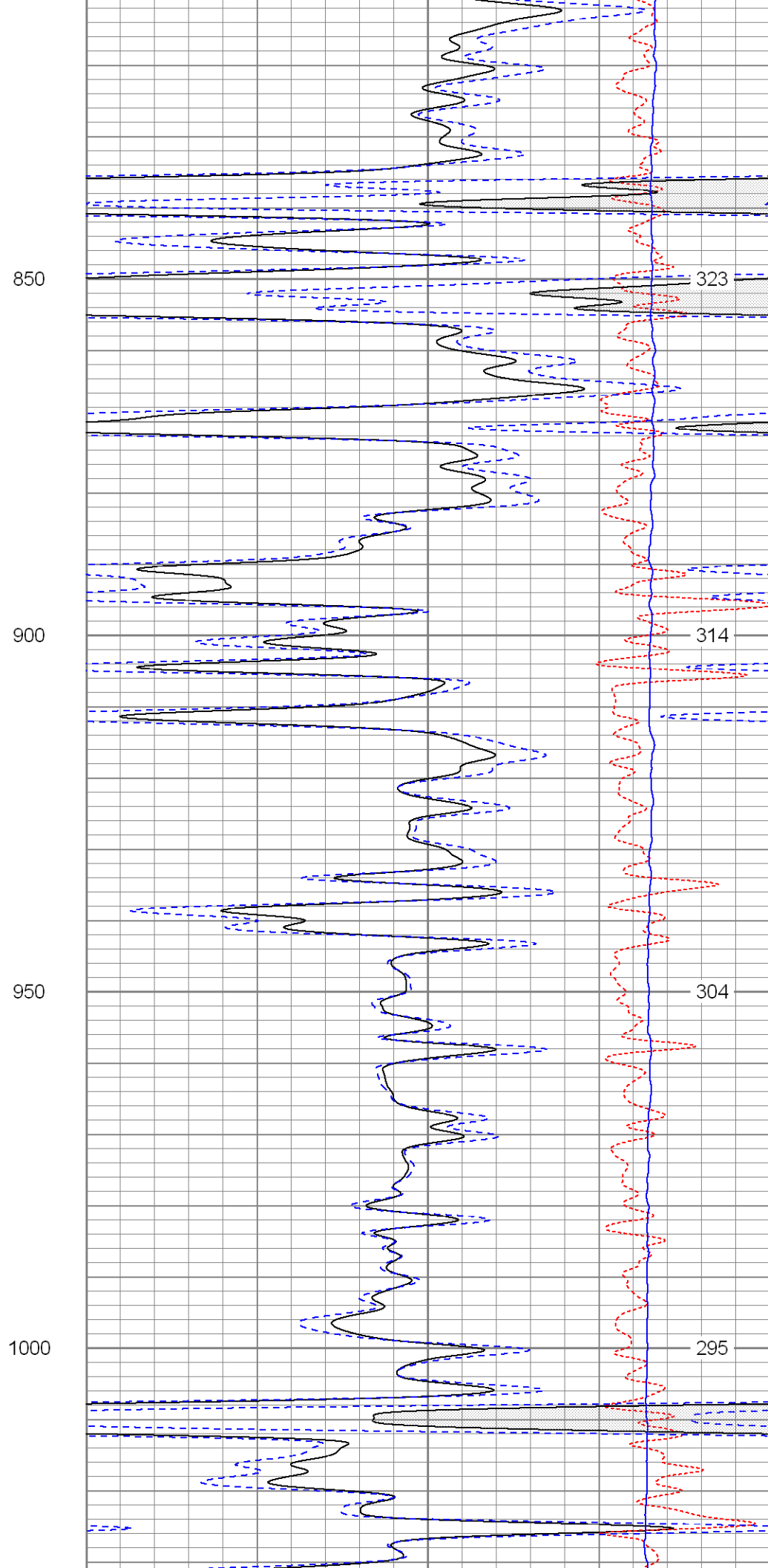
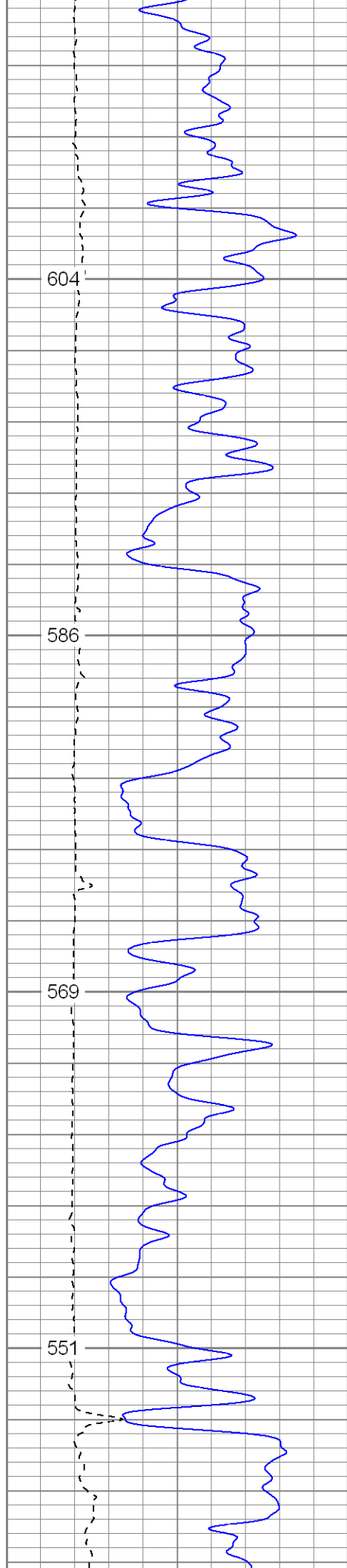
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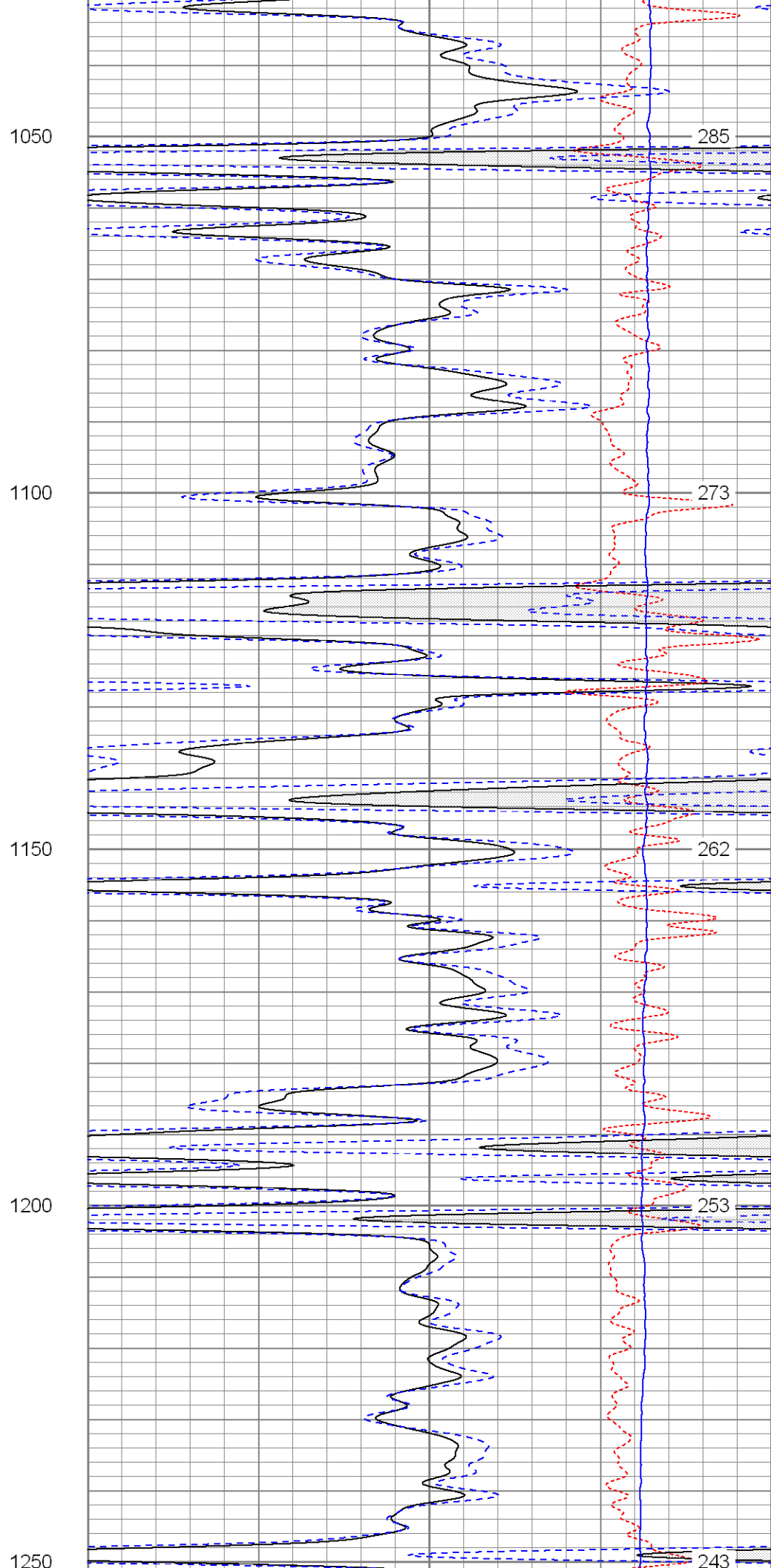
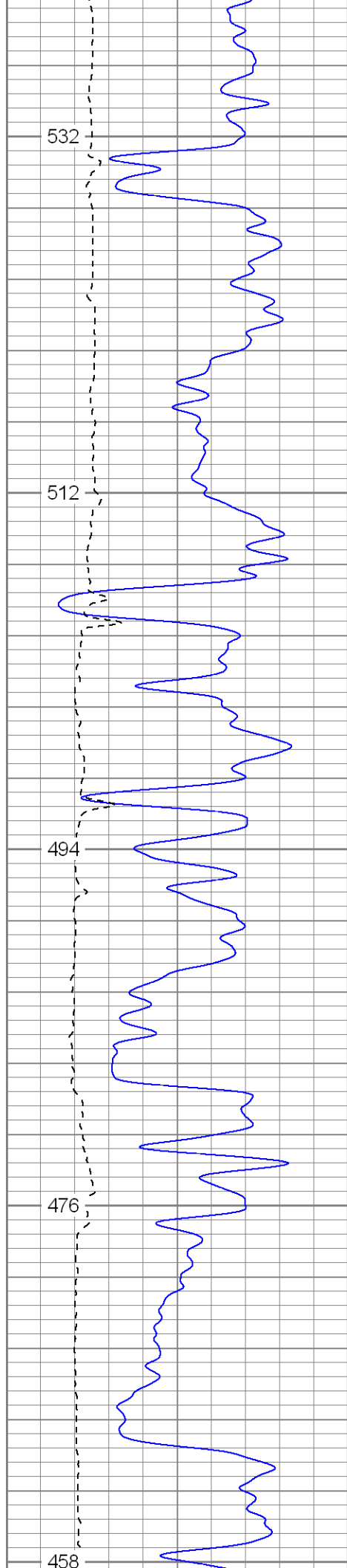
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Charted by: Depth in Feet scaled 1:240

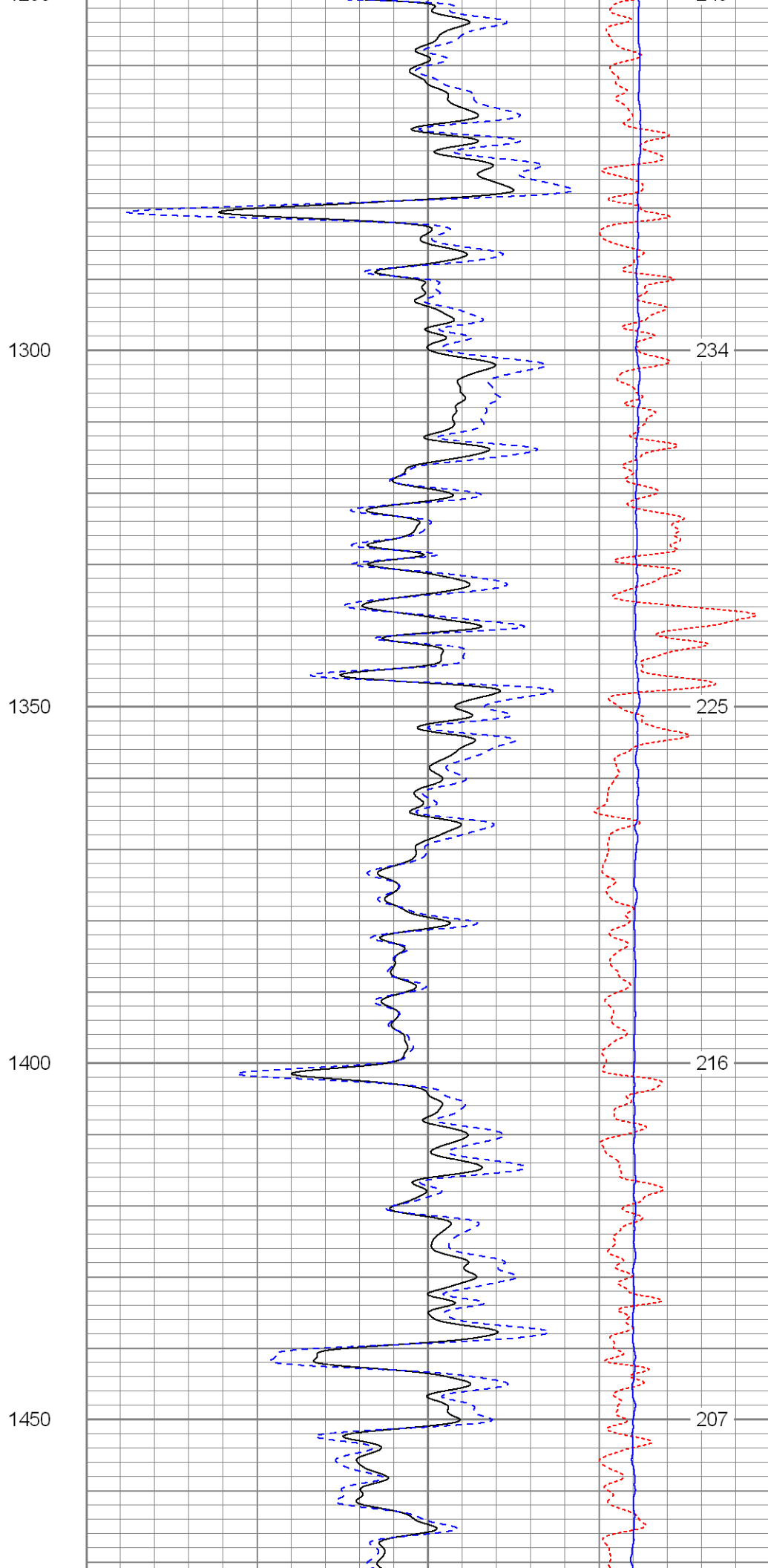
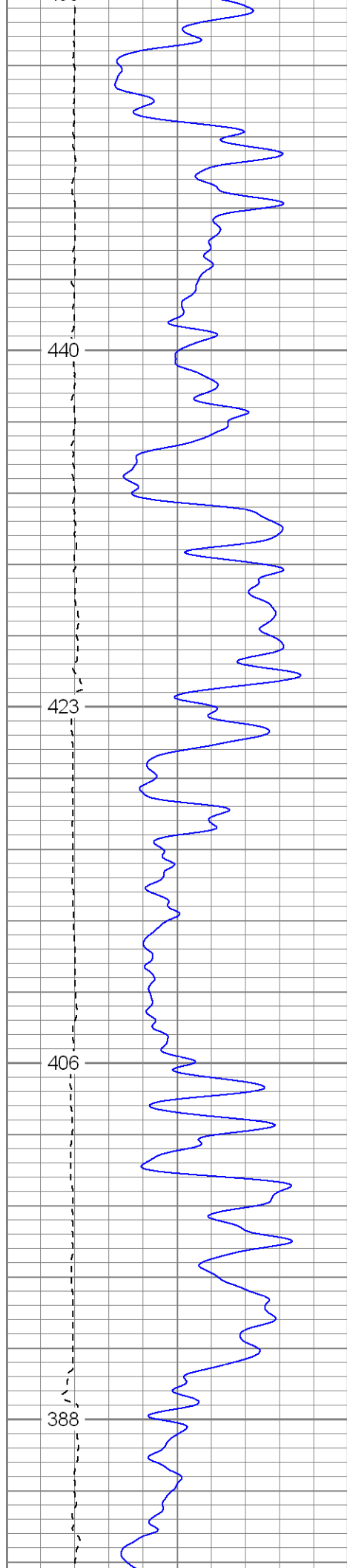
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6	DCAL (in)	16	1	RHOB (g/cc)	2
TBHV (ft3)			30	DPOR (pu)	-10
			-0.5 RHOC (g/cc) 0.5		
			4000 LTEN (lb) 0		
			ABHV (ft3)		

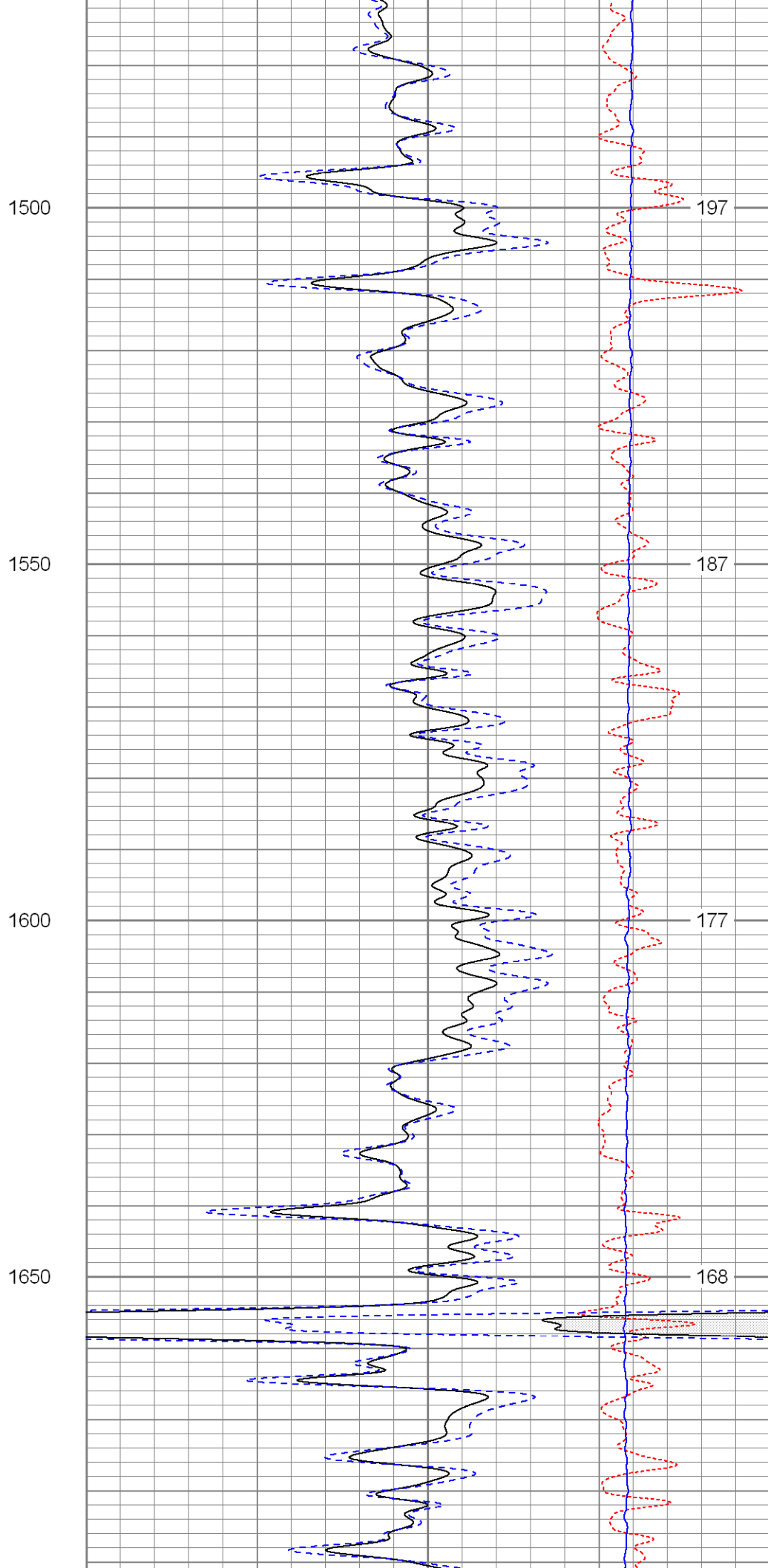
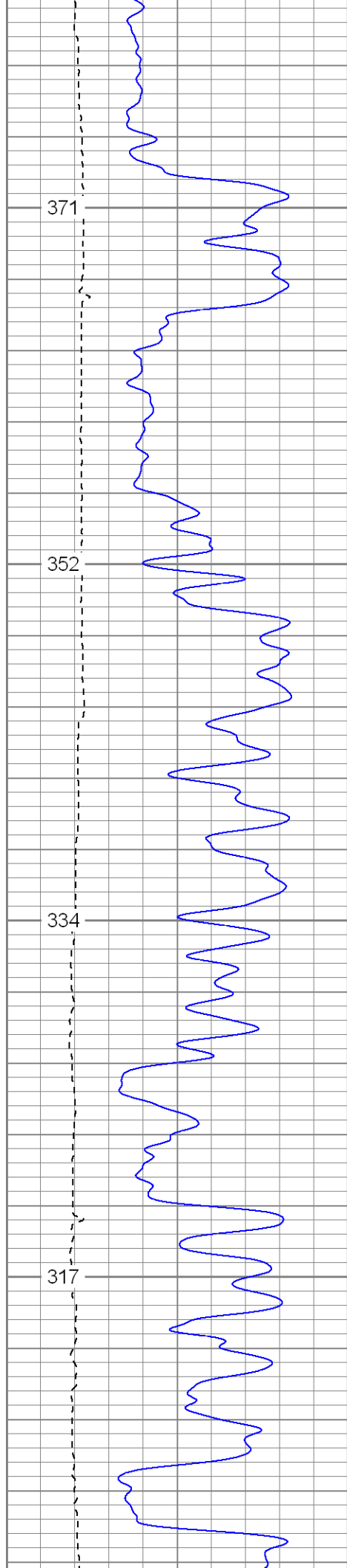


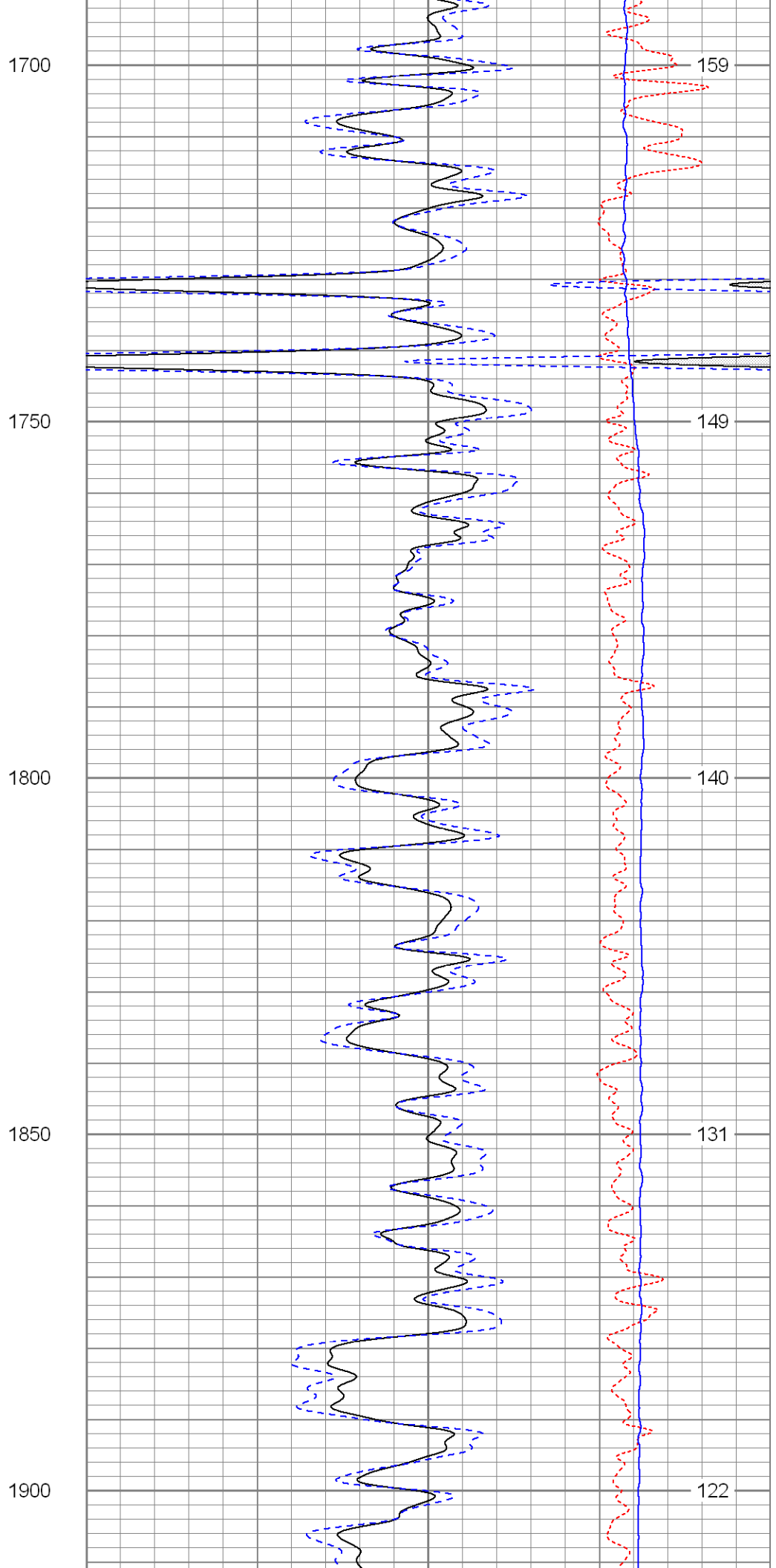
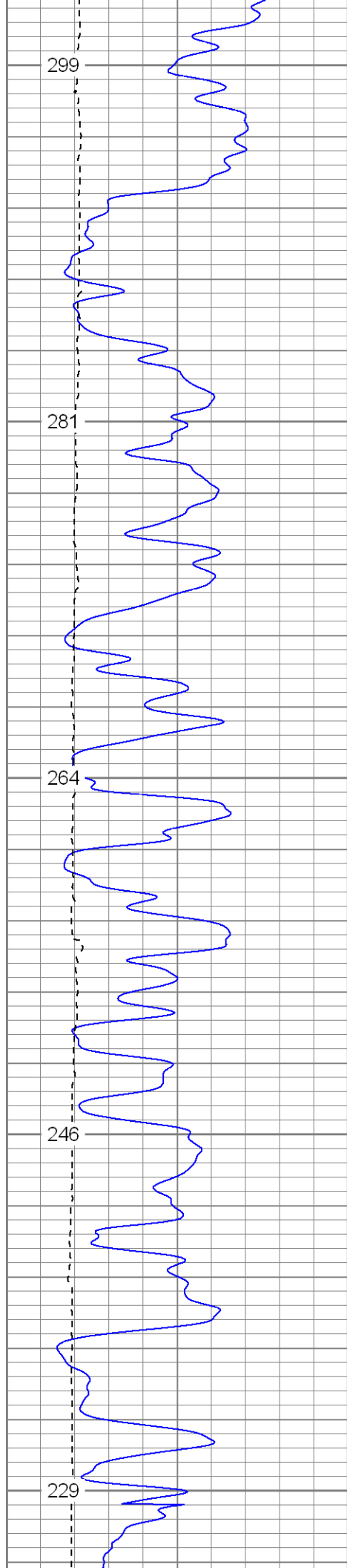




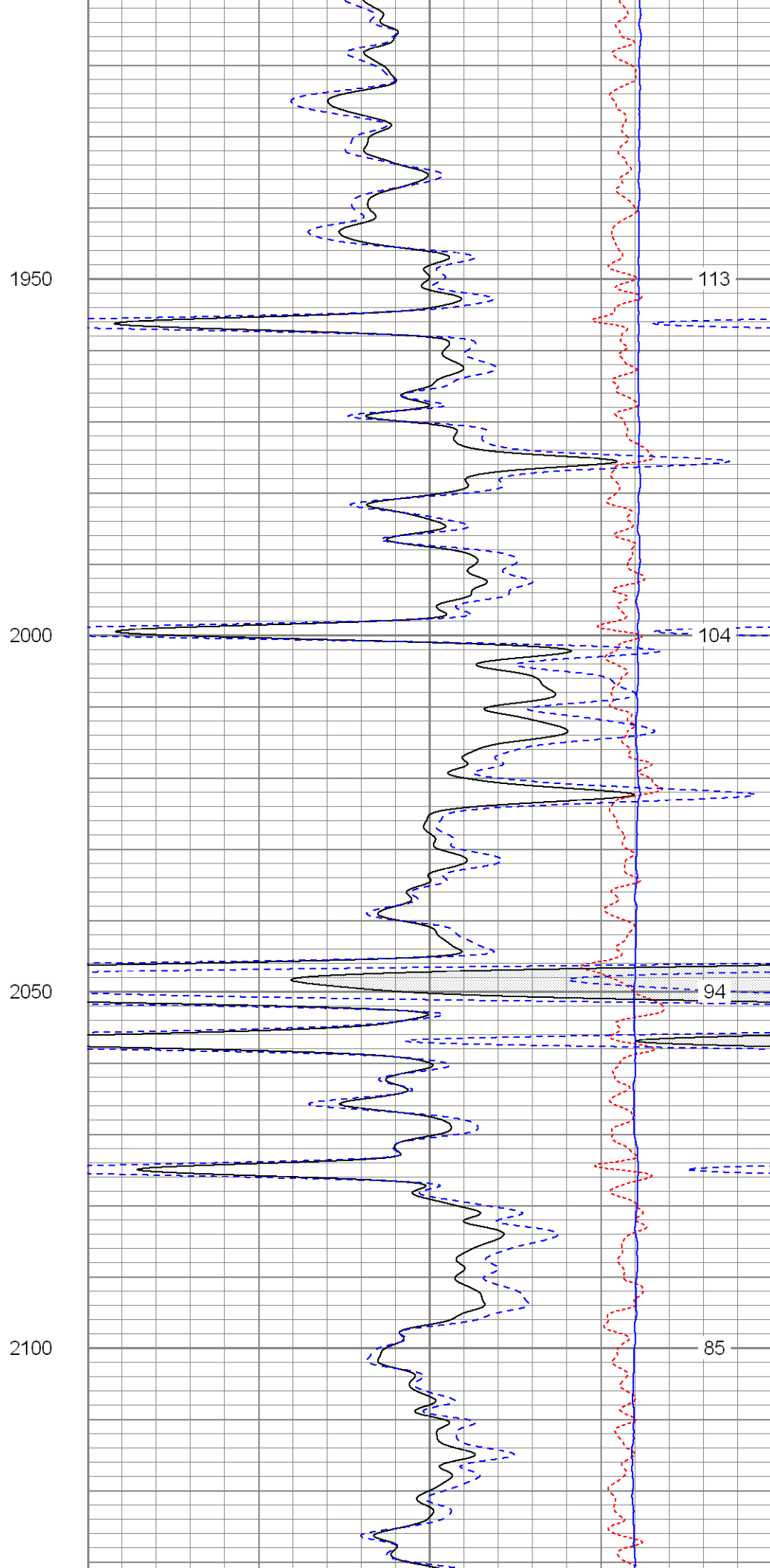
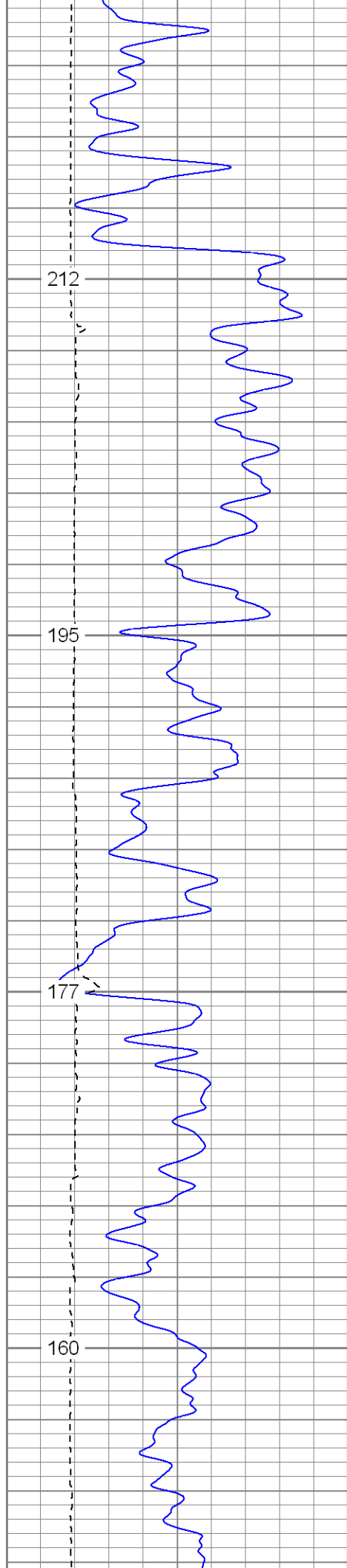


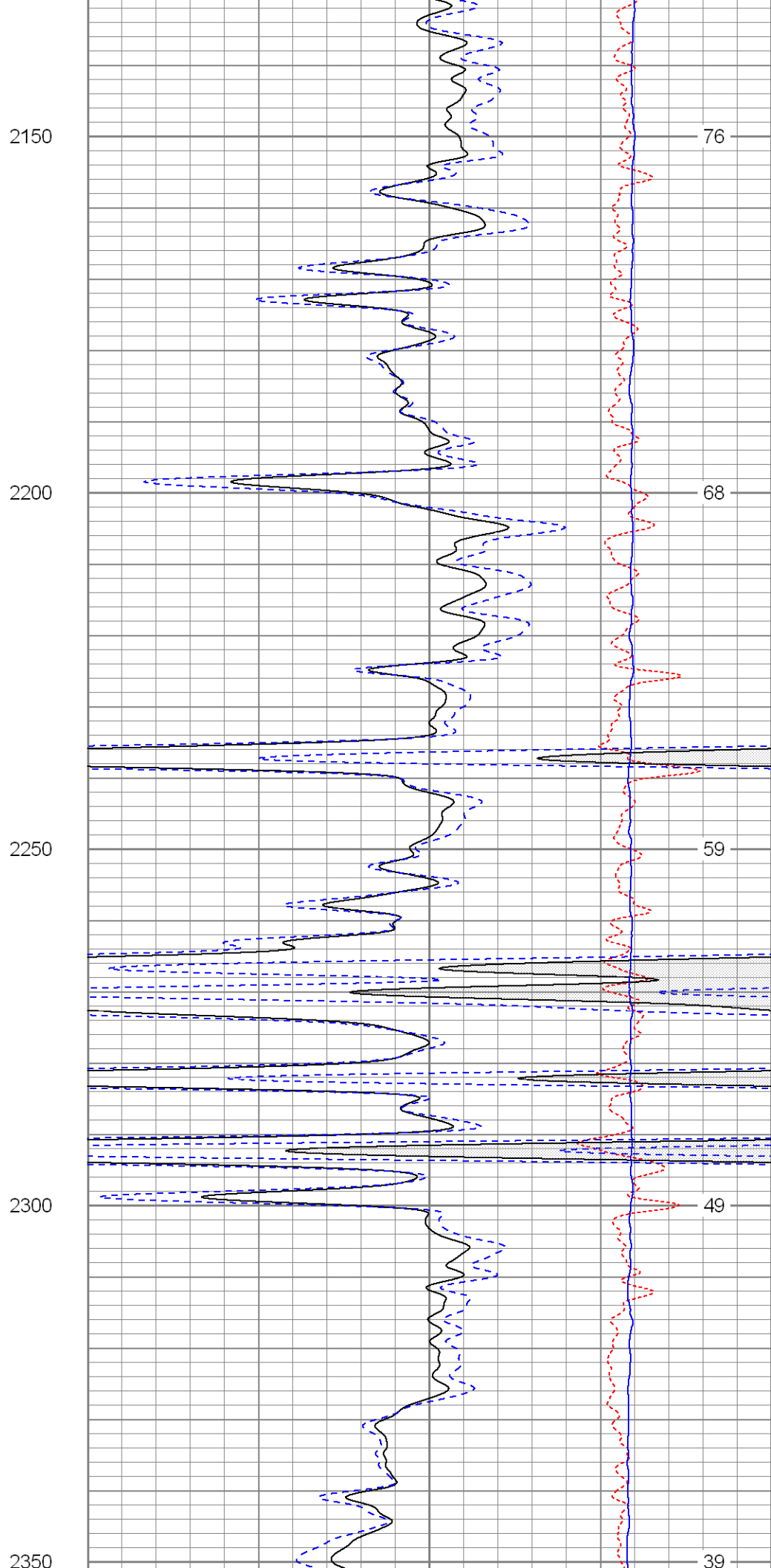
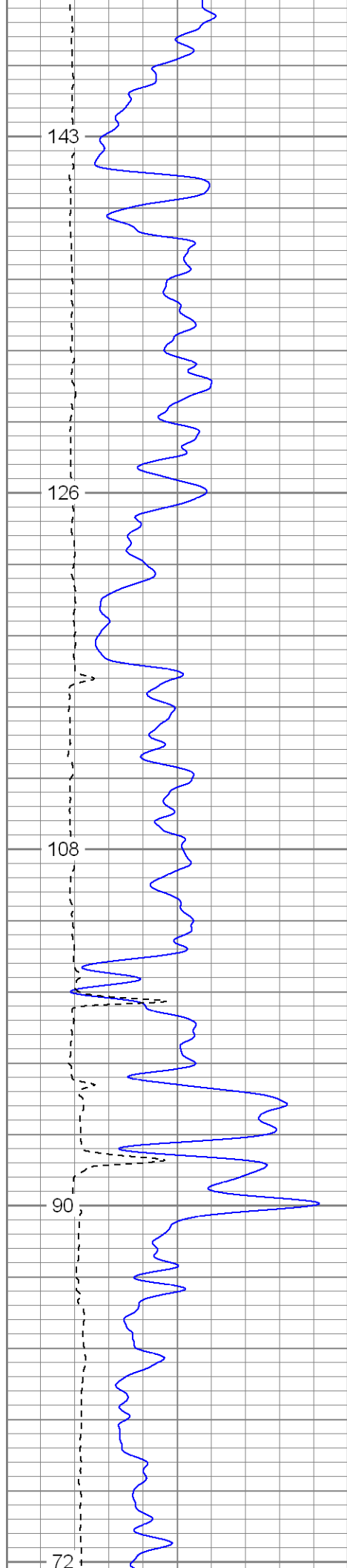


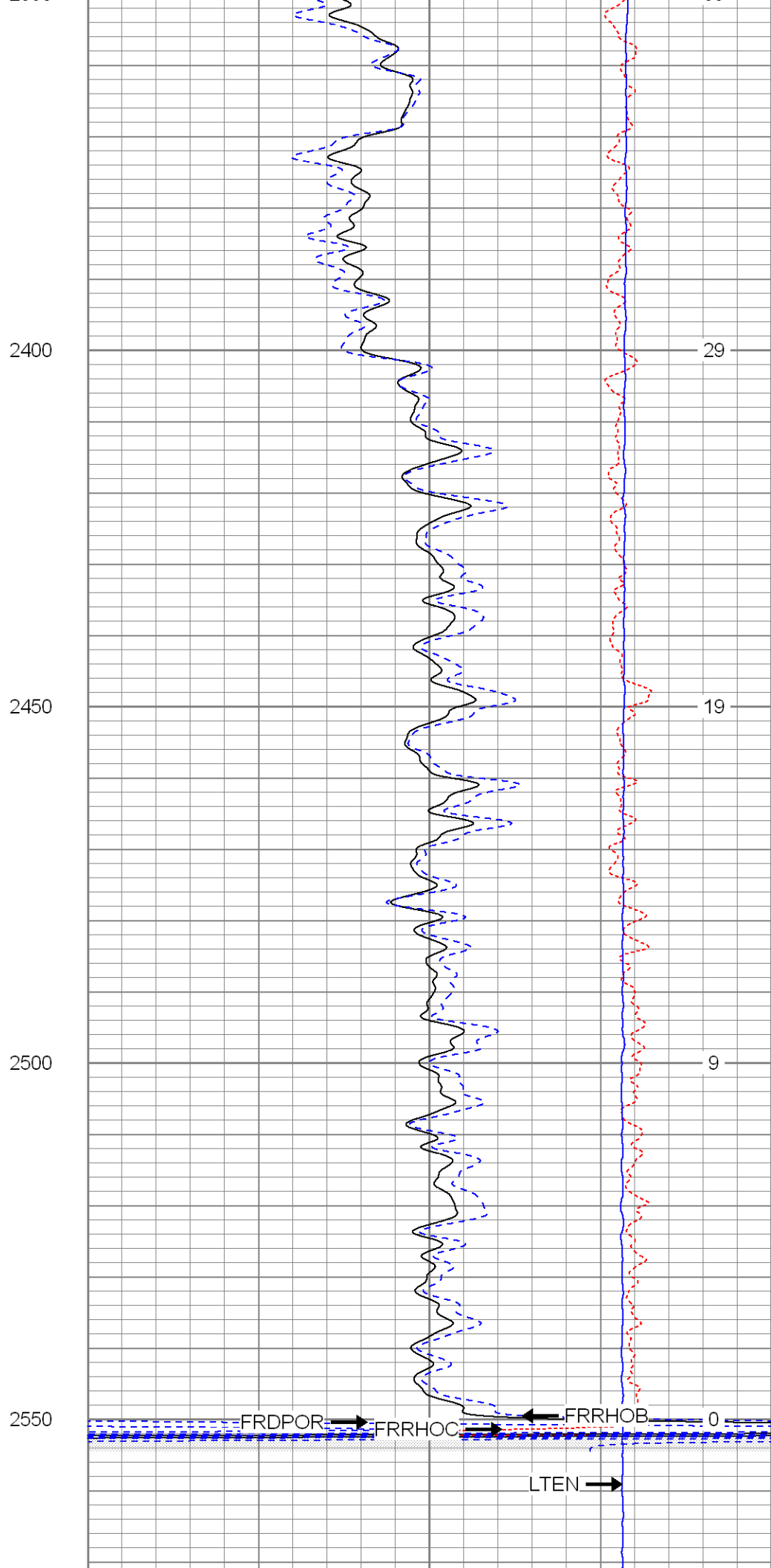
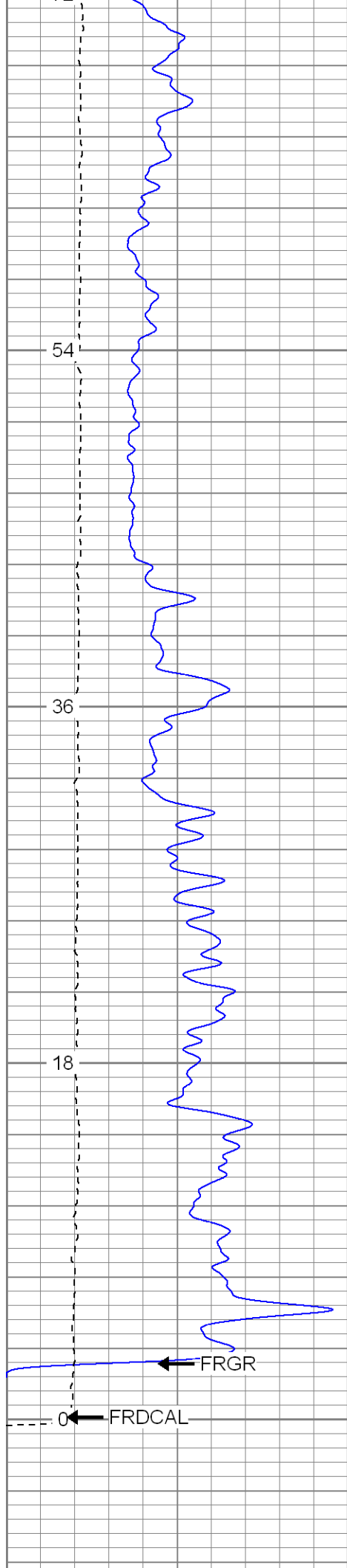












0	GR (GAPI)	200	2	RHOB (g/cc)	3
6	DCAL (in)	16	1	RHOB (g/cc)	2
TBHV (ft3)			30	DPOR (pu)	-10
				-0.5	RHOC (g/cc) 0.5
				4000	LTEN (lb) 0
					ABHV (ft3)



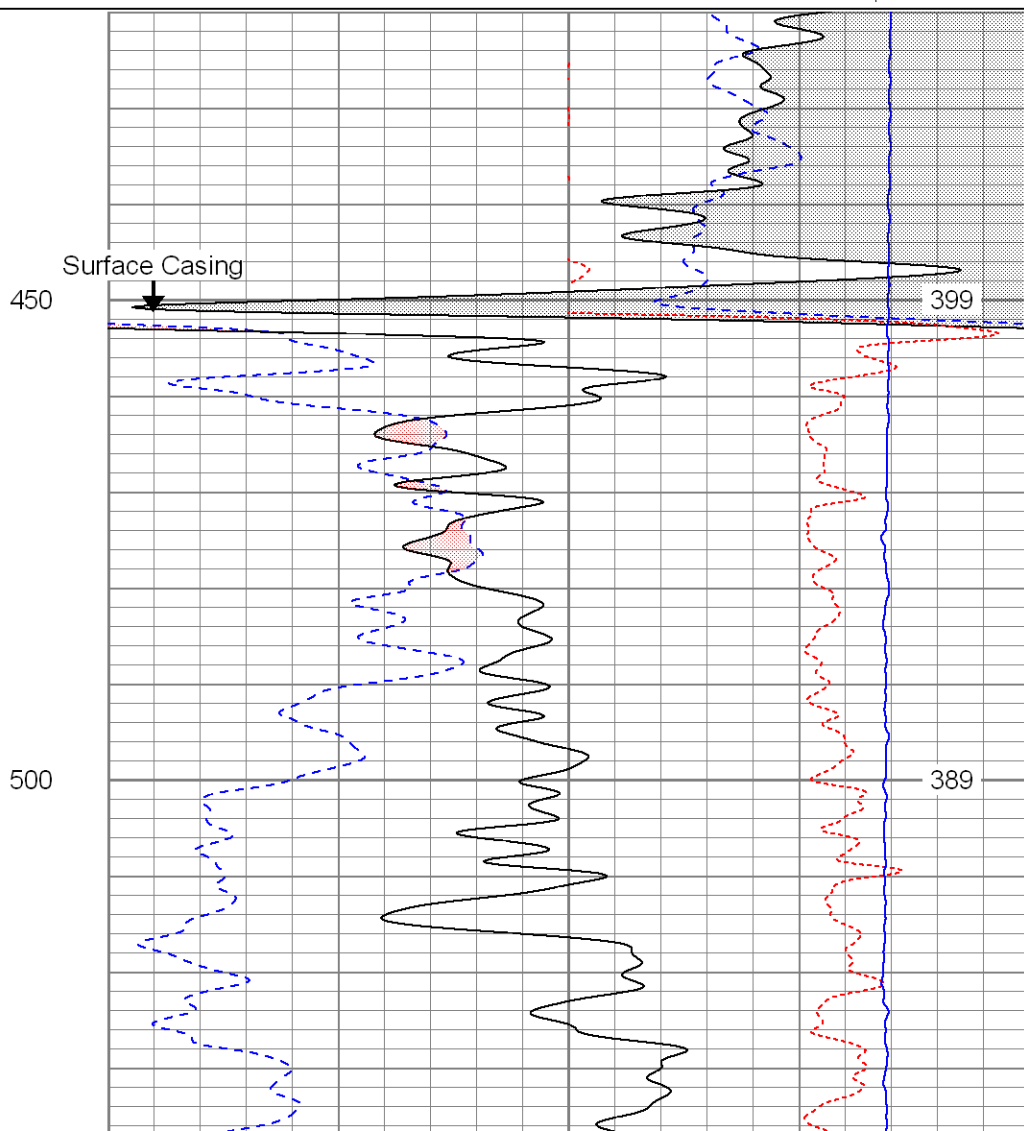
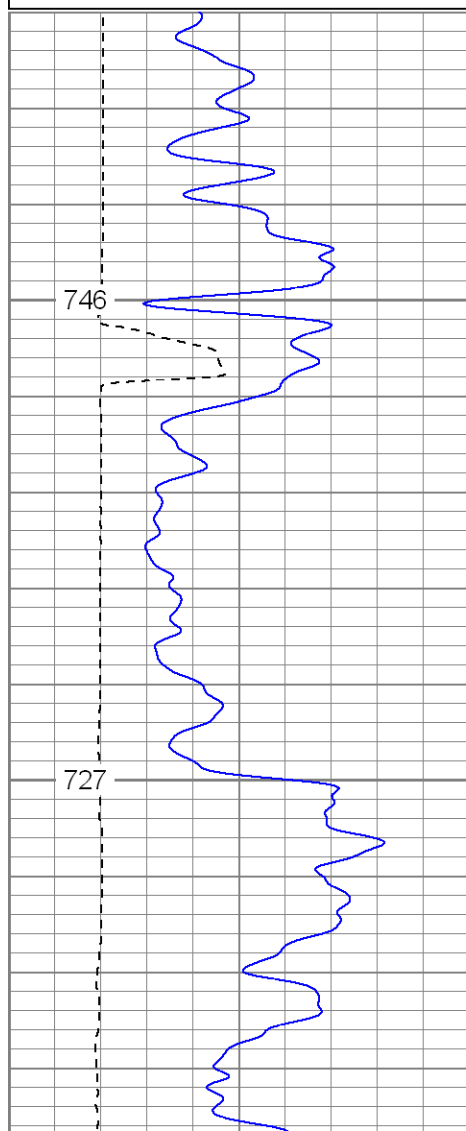
**SUPERIOR**

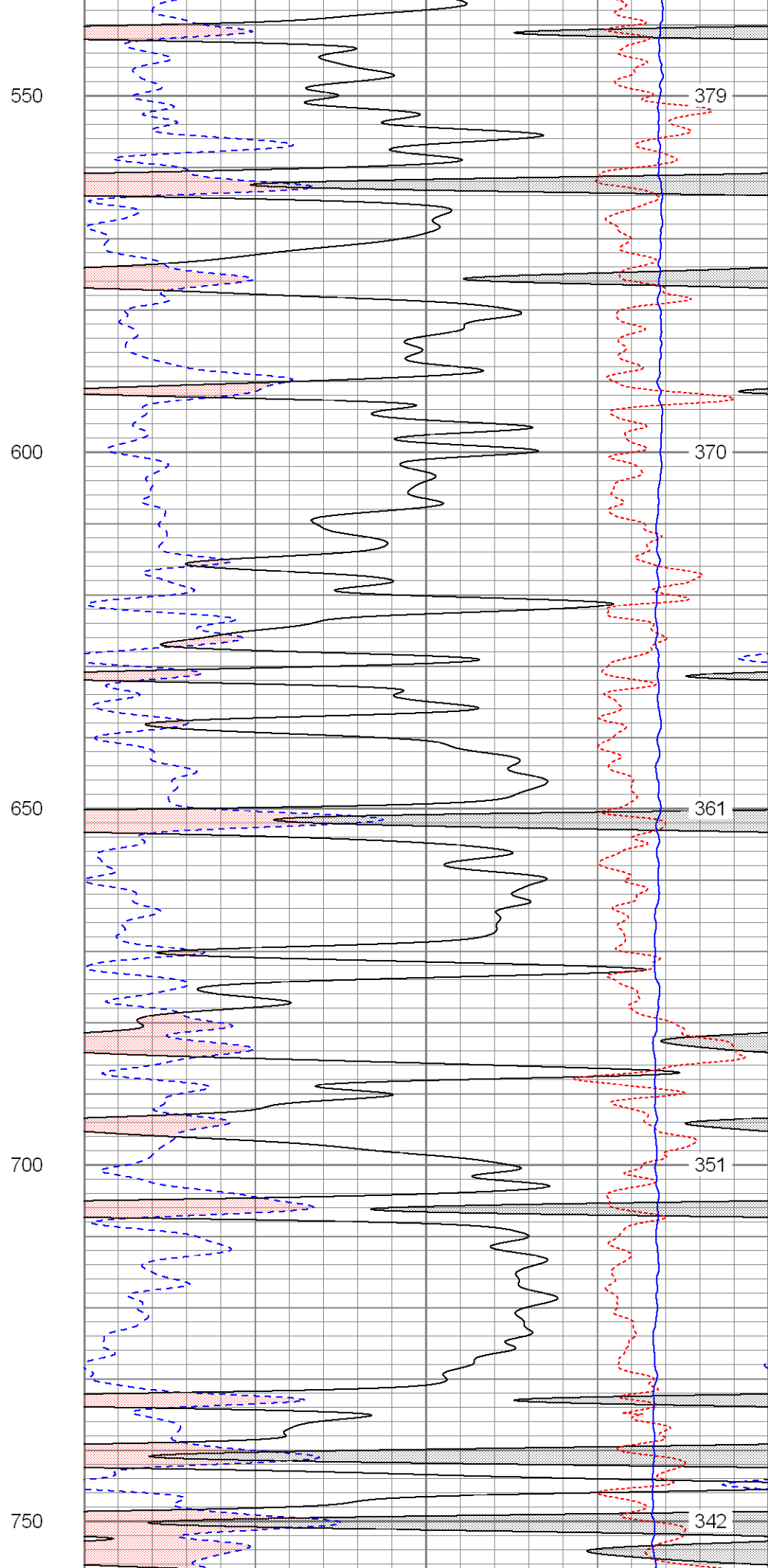
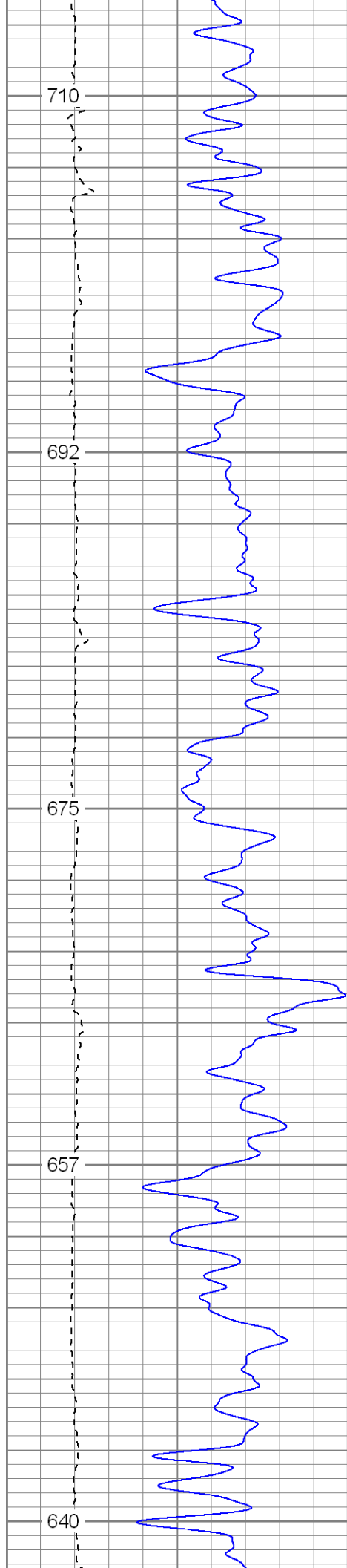
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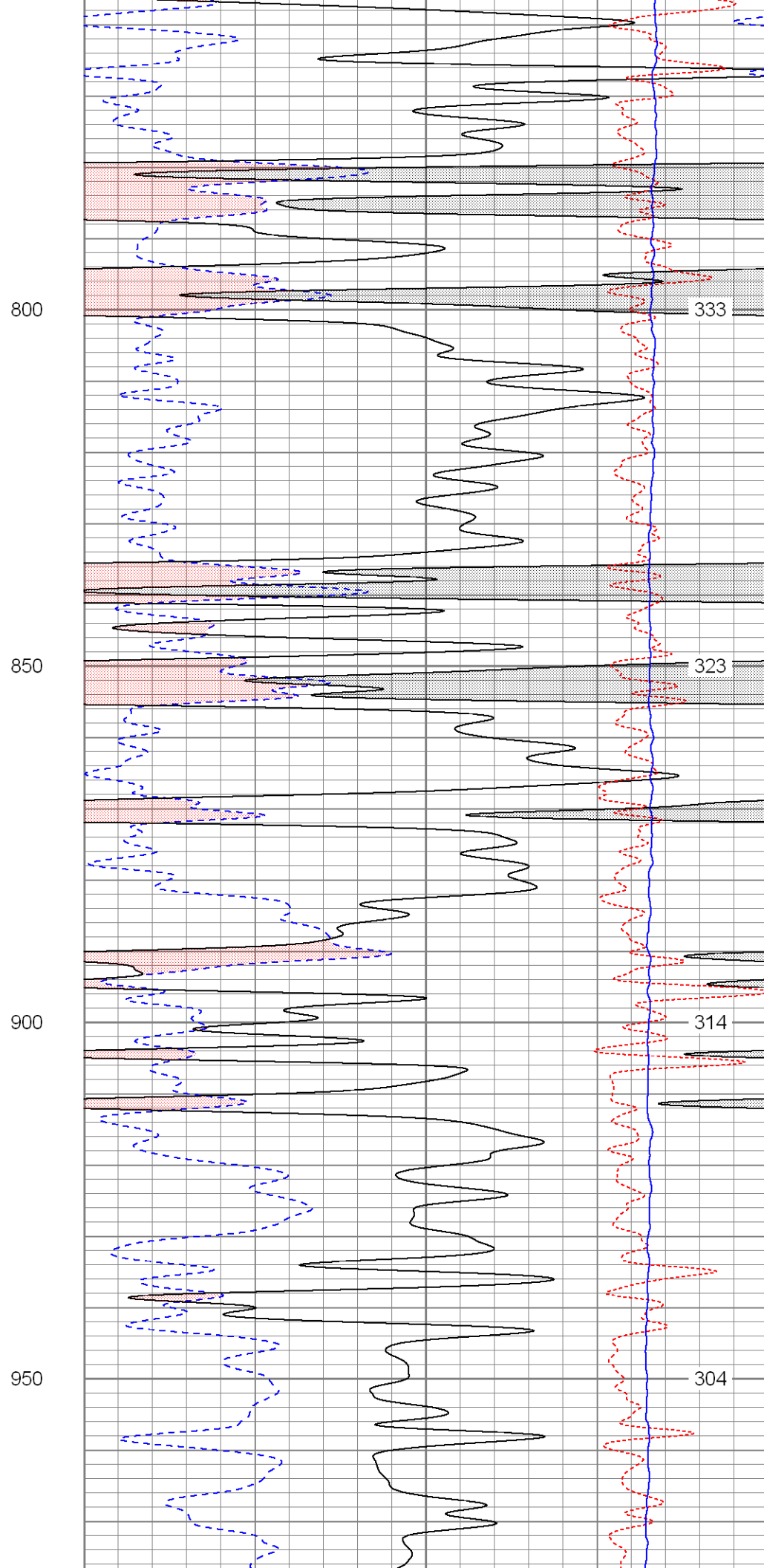
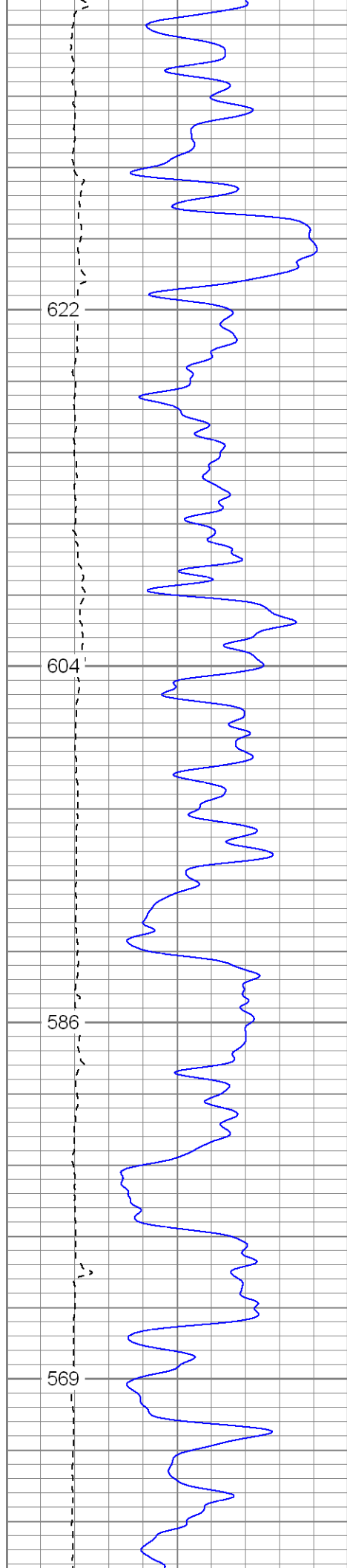
# Main Pass

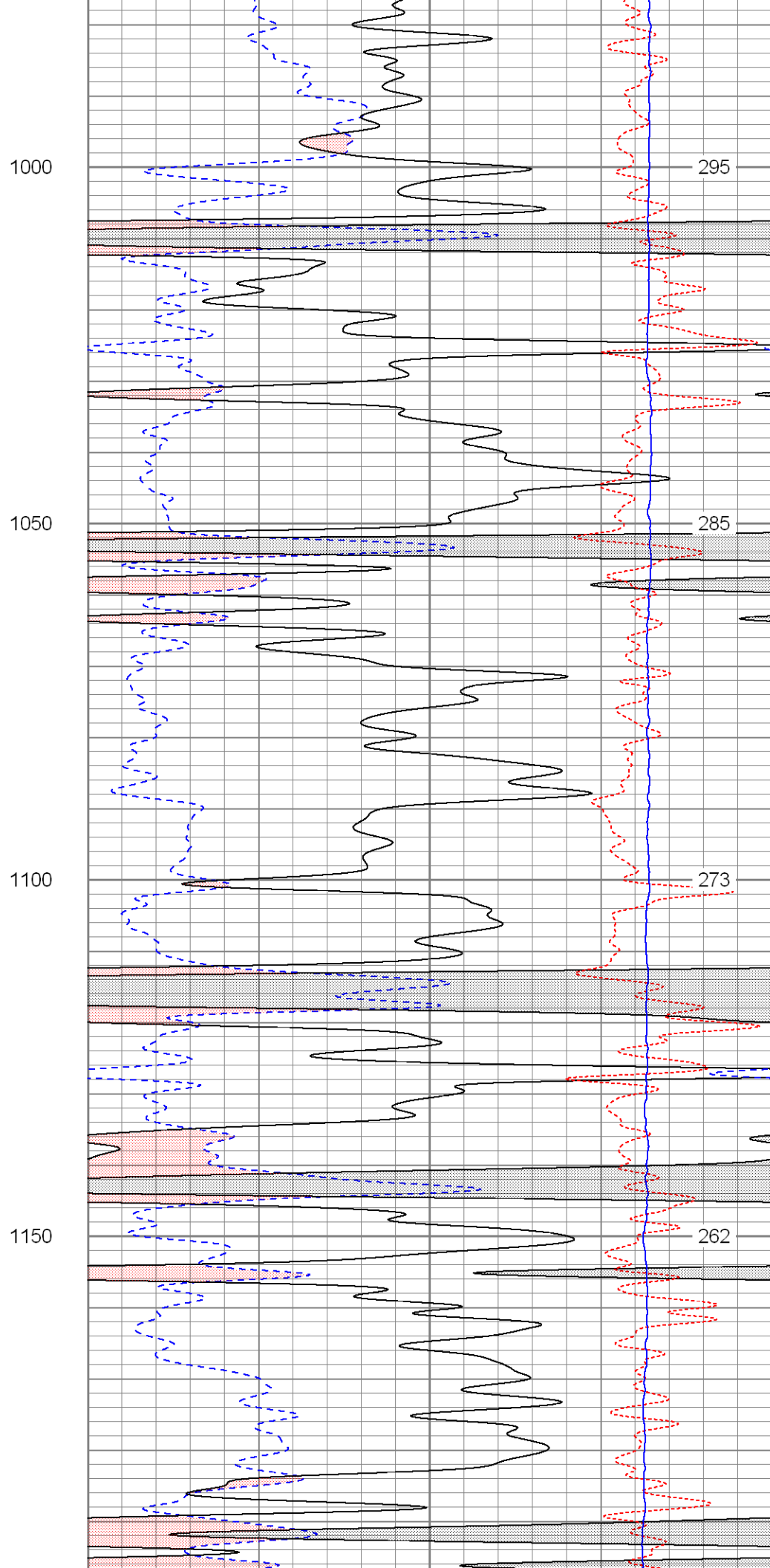
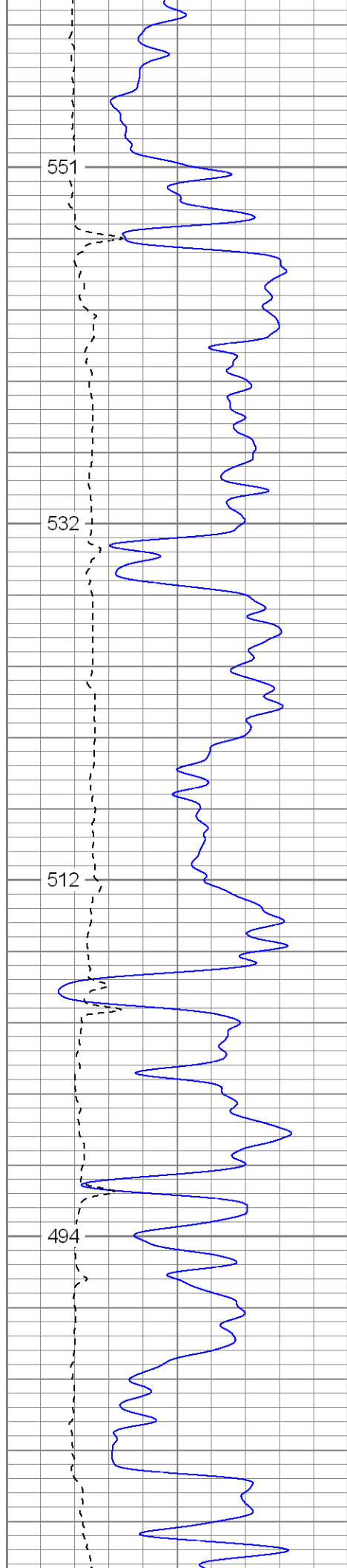
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Dataset Creation: Thu Feb 21 16:36:55 2008 by Calc Open-Cased 070814  
Charted by: Depth in Feet scaled 1:240

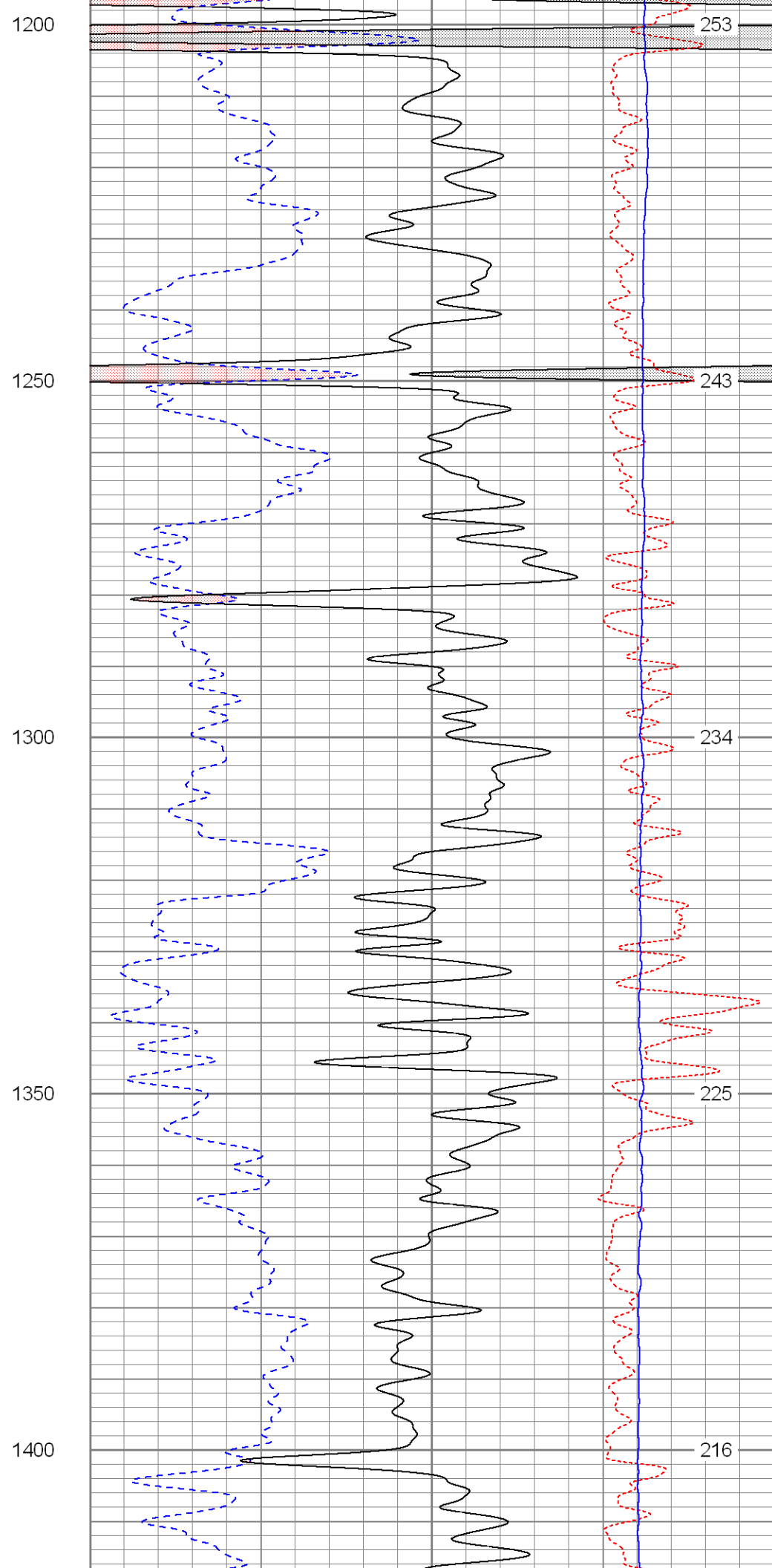
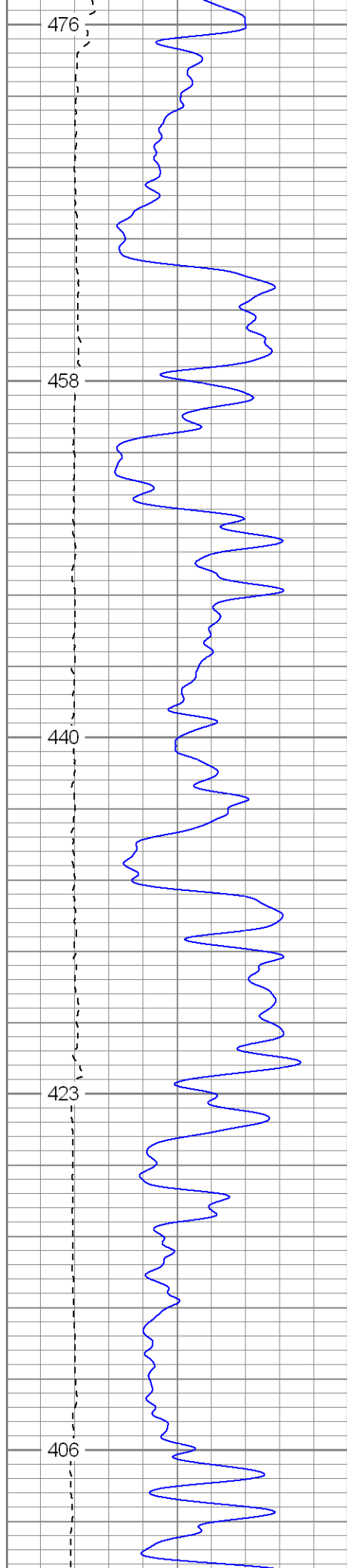
0	GR (GAPI)	200	30	NPOR (pu)	-10
6	DCAL (in)	16	30	DPOR (pu)	-10
TBHV (ft3)				-0.5	RHOC (g/cc) 0.5
				4000	LTEN (lb) 0
					ABHV (ft3)



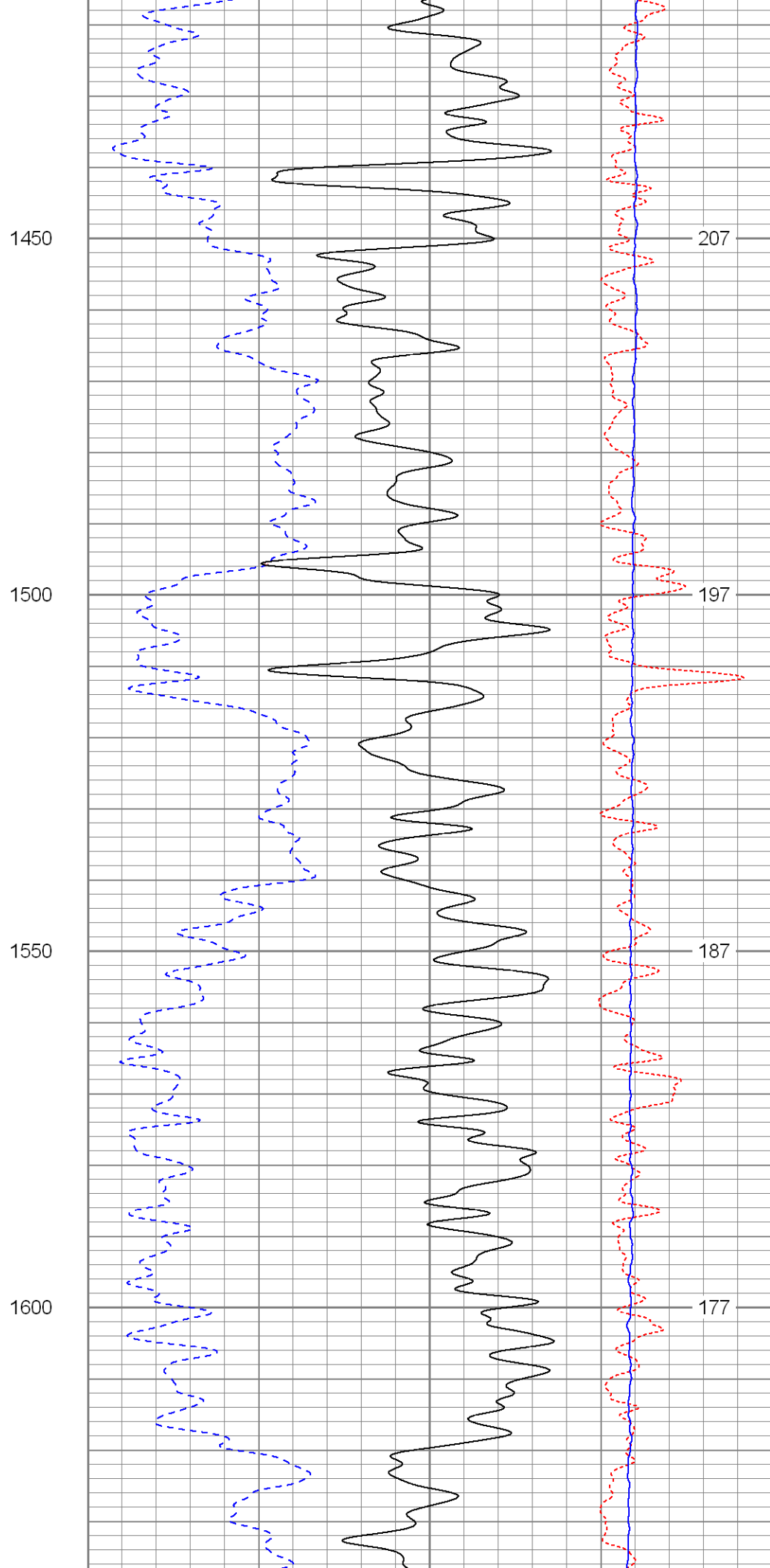
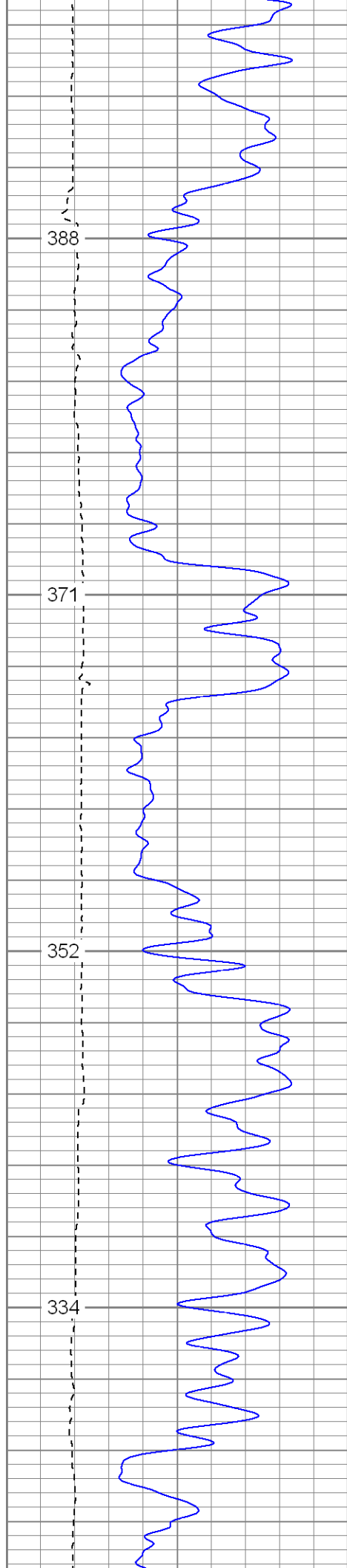


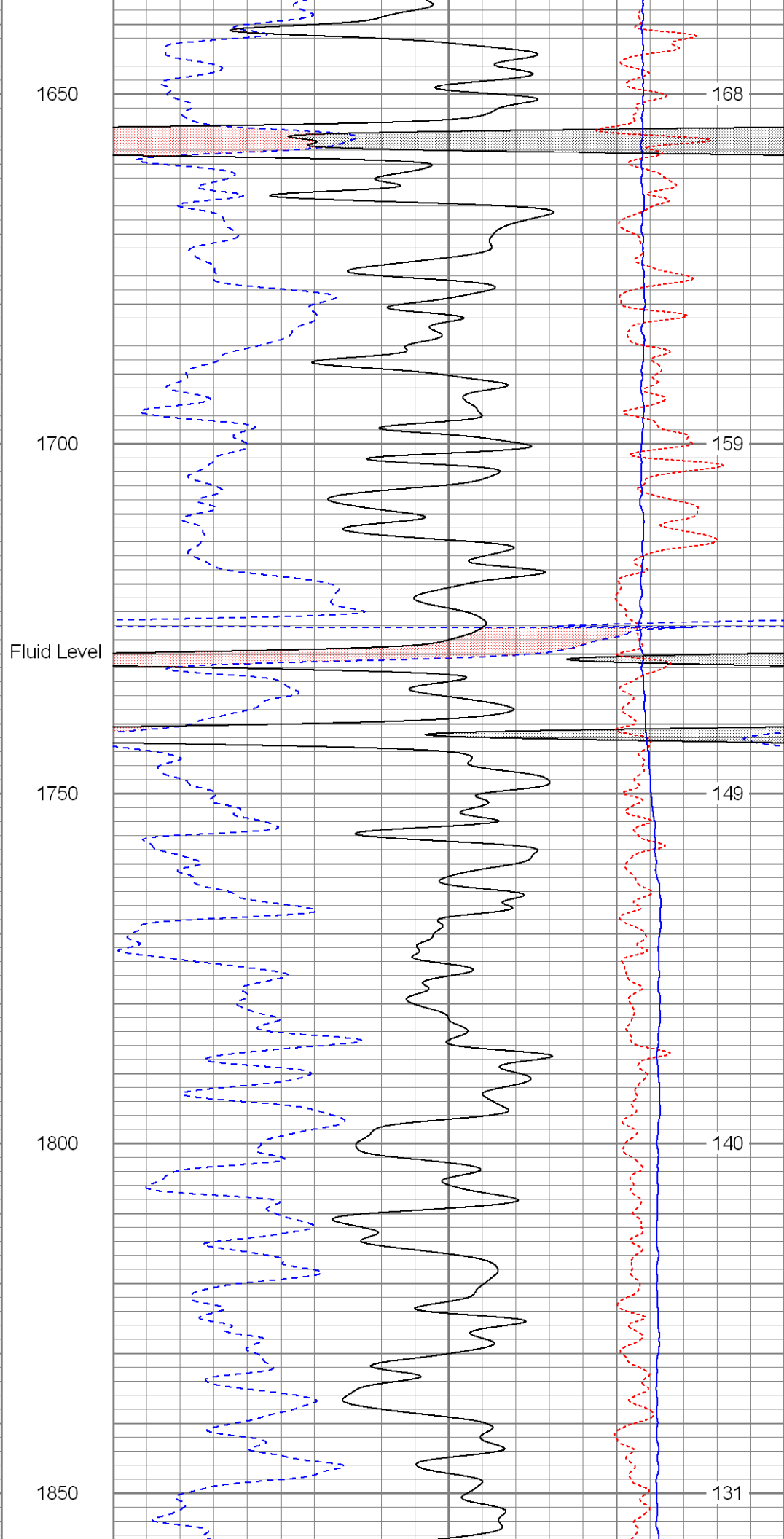
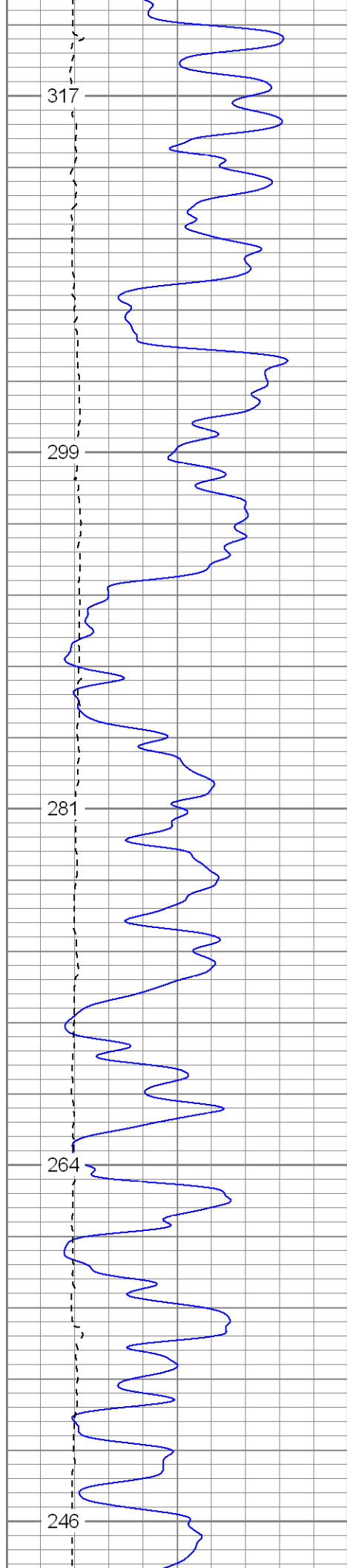


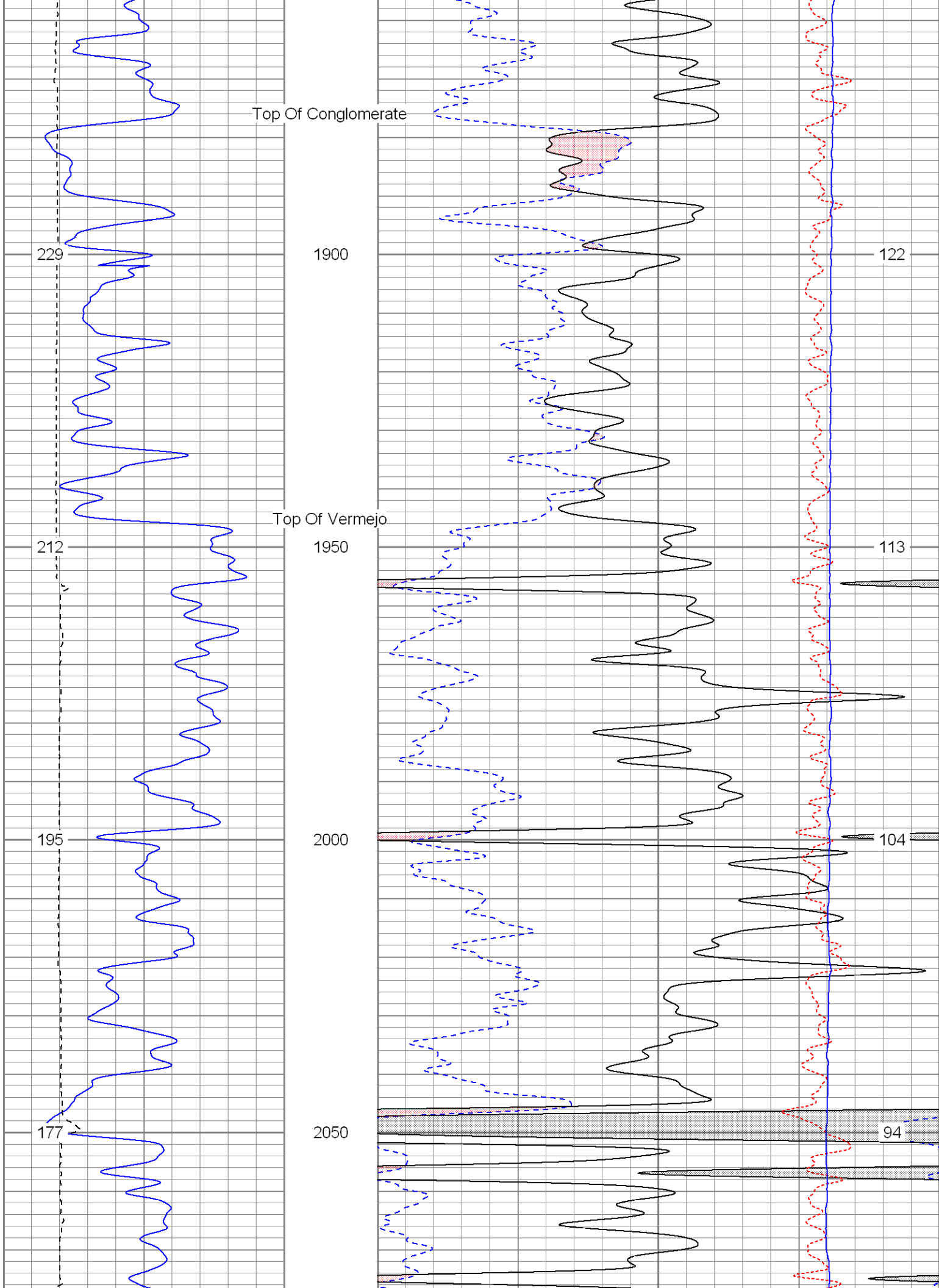


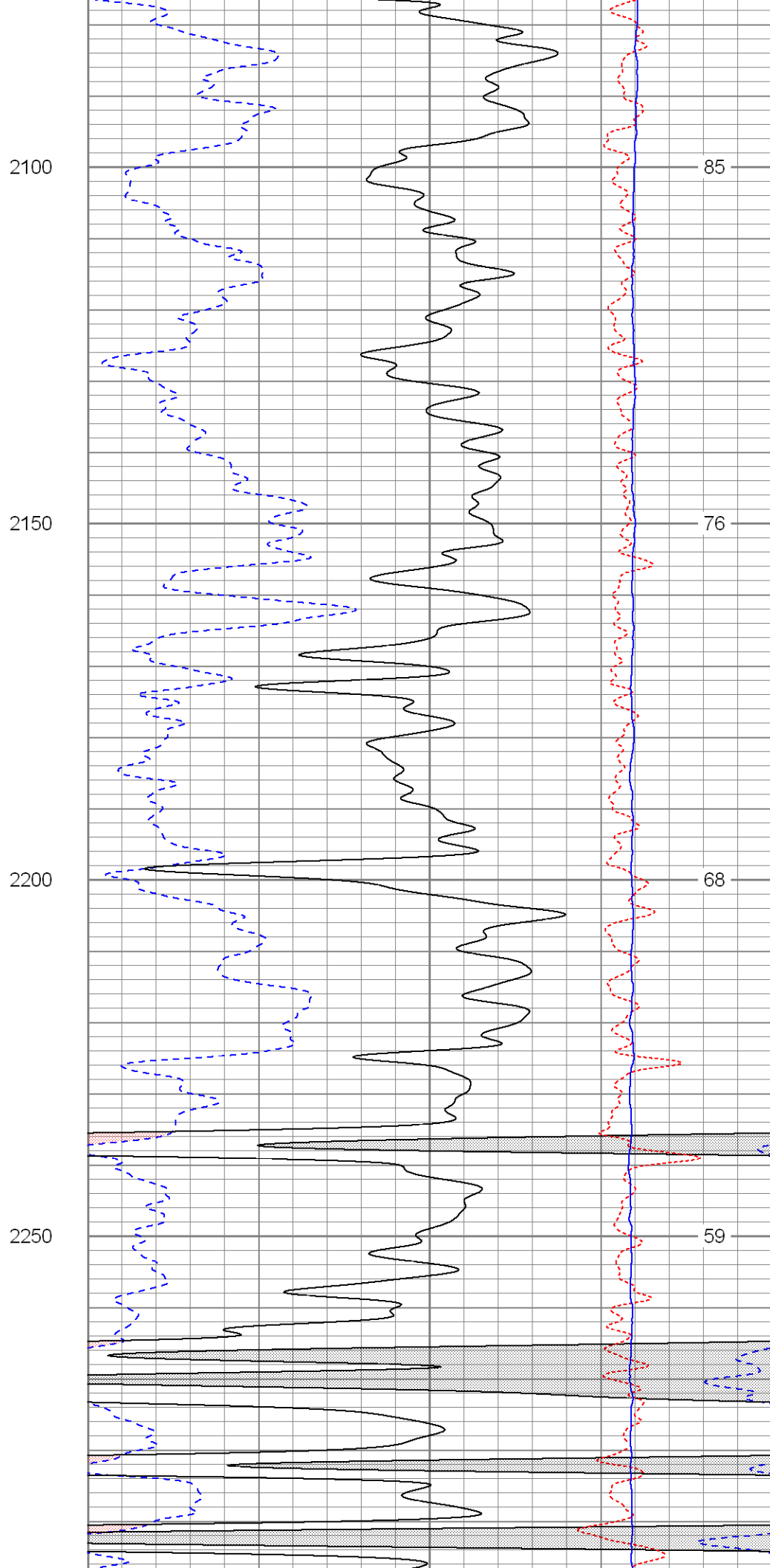
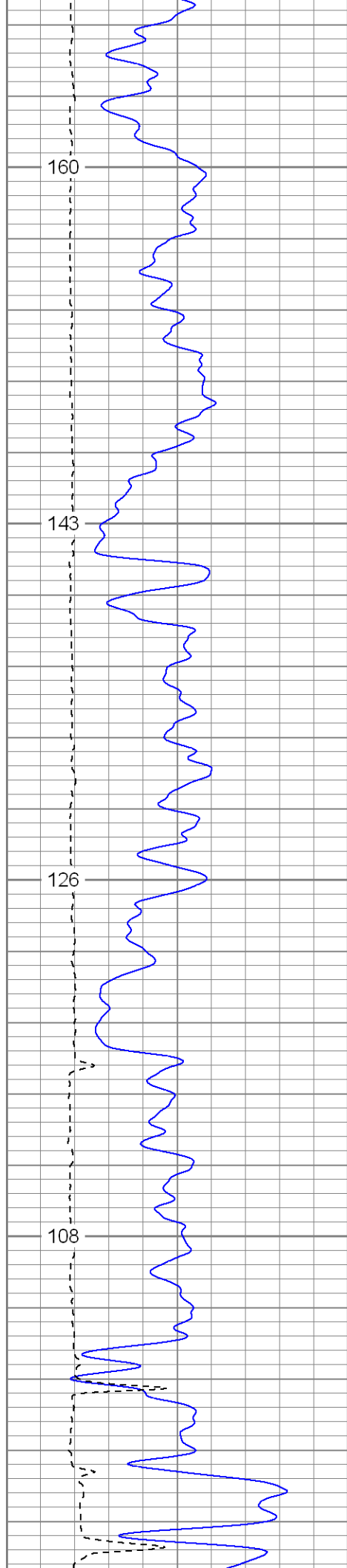


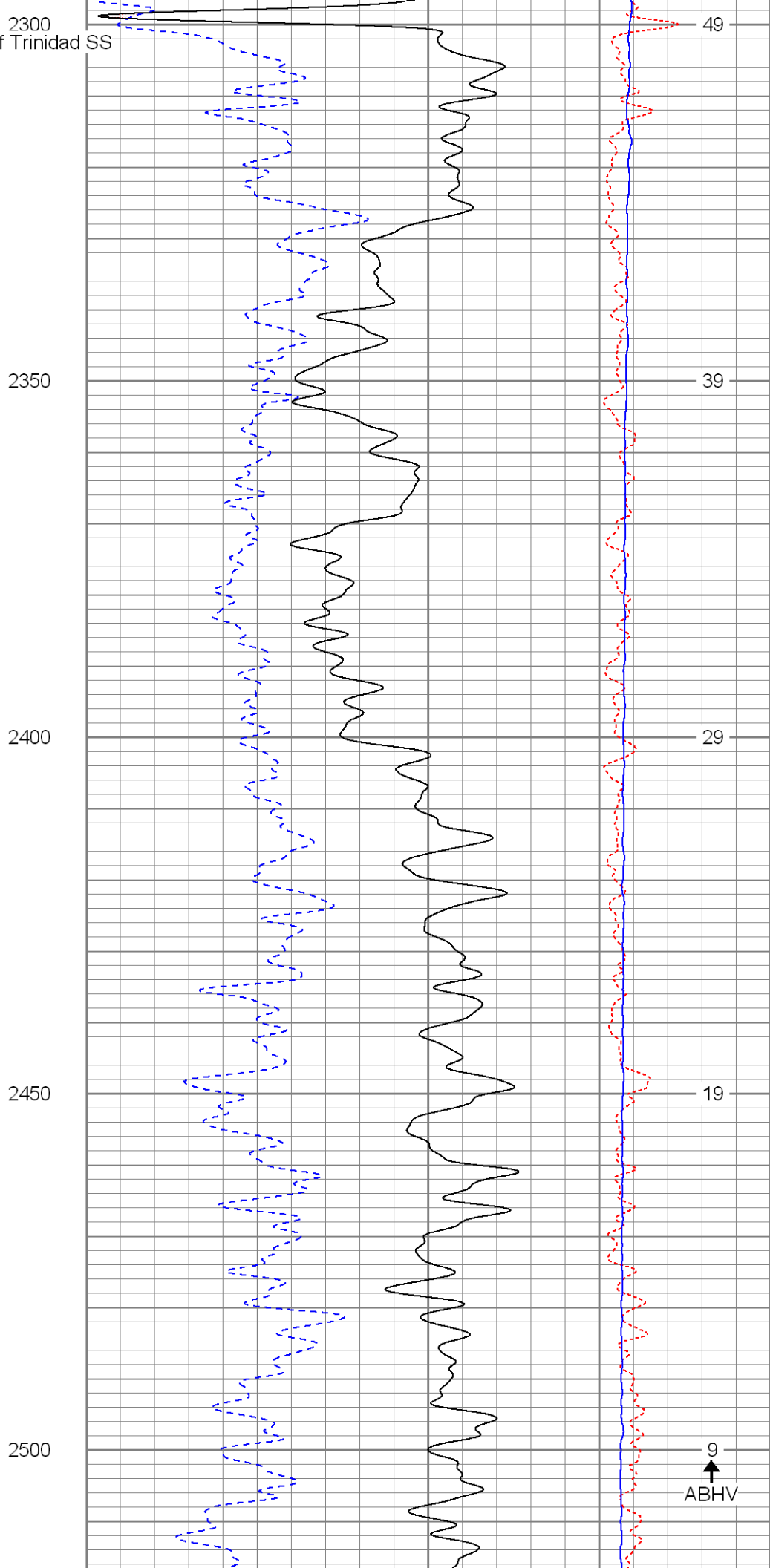
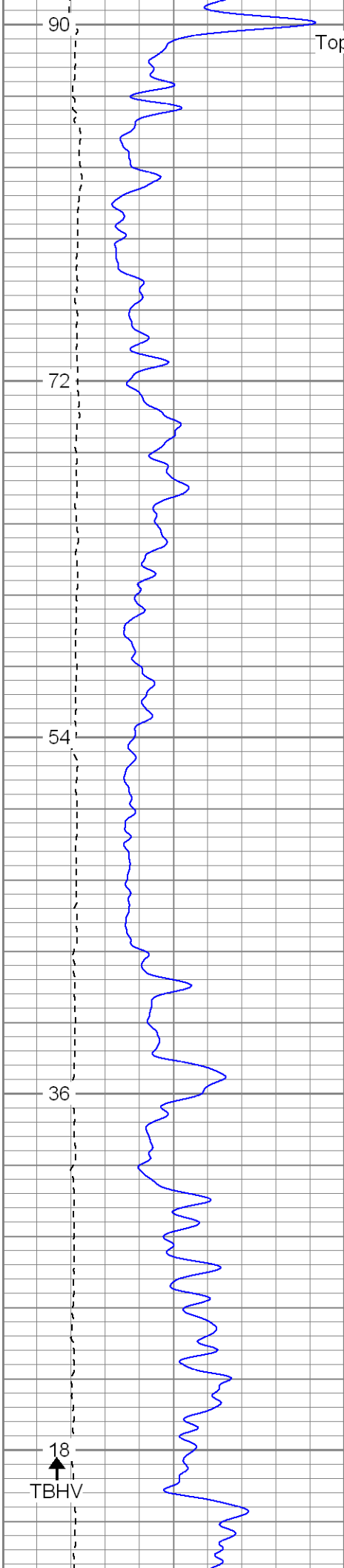


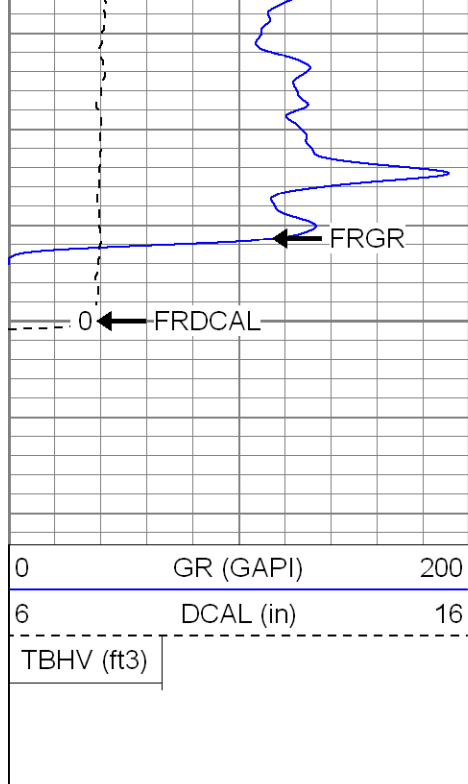




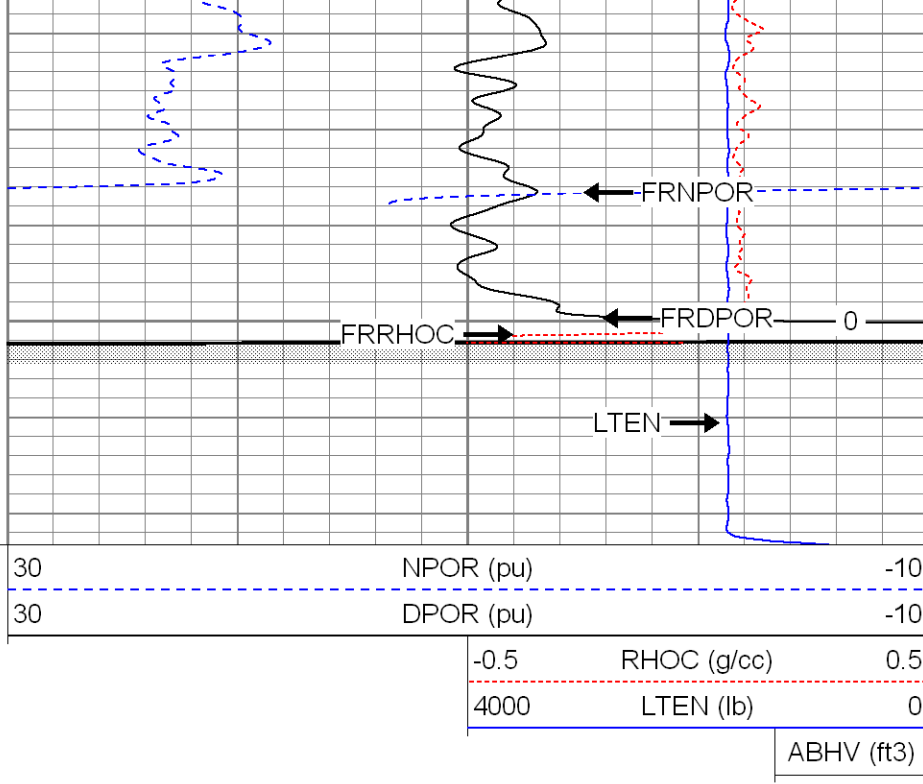








2550

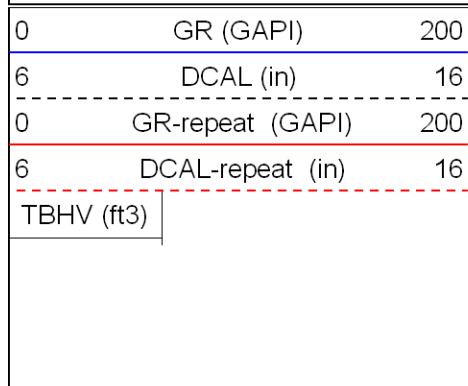


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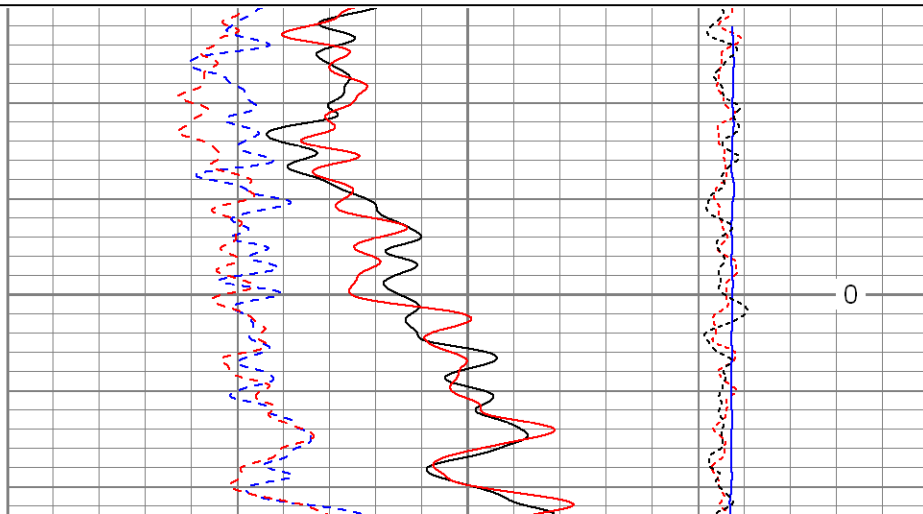
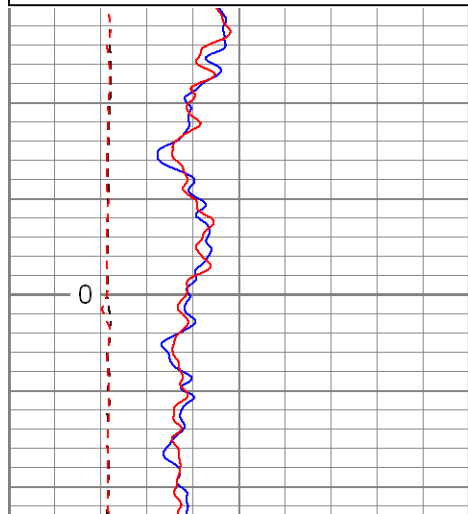
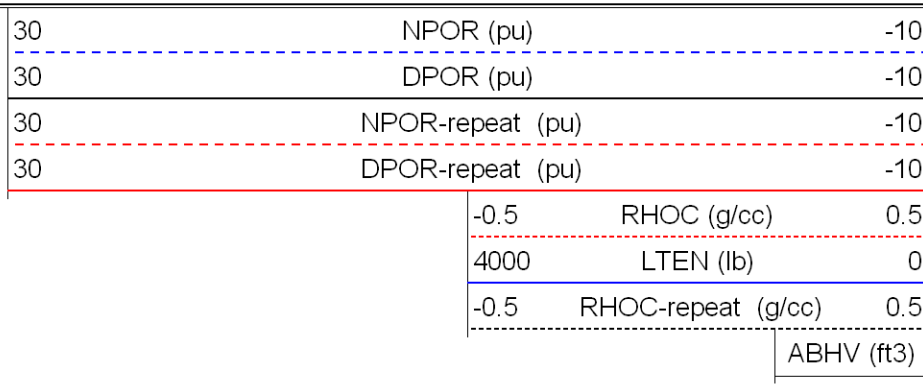
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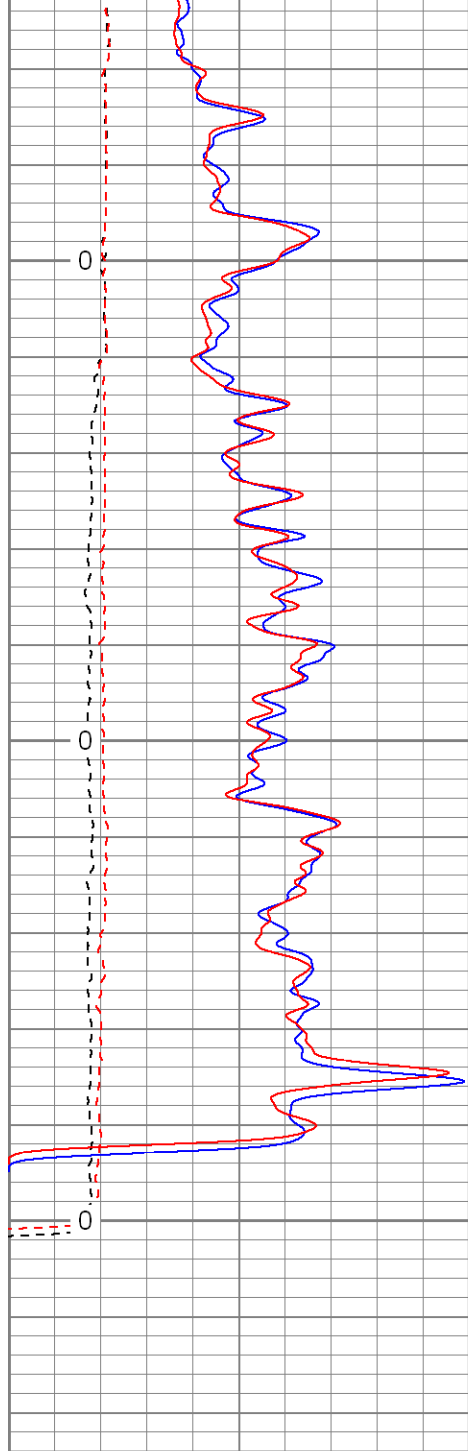
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Presentation Format: cdnl  
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Charted by: Depth in Feet scaled 1:240

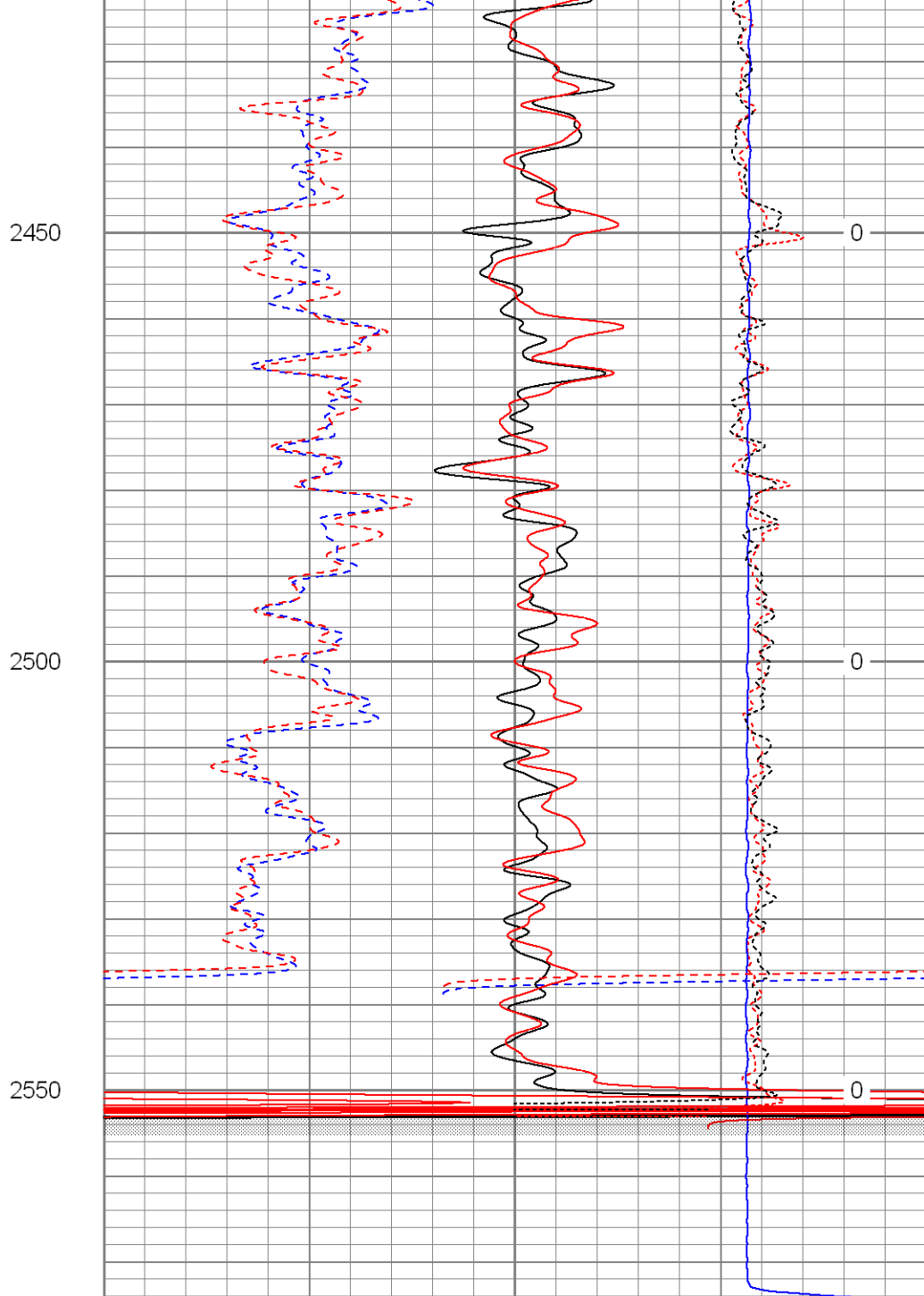


2400





0	GR (GAPI)	200
6	DCAL (in)	16
0	GR-repeat (GAPI)	200
6	DCAL-repeat (in)	16
TBHV (ft3)		



30	NPOR (pu)	-10
30	DPOR (pu)	-10
30	NPOR-repeat (pu)	-10
30	DPOR-repeat (pu)	-10

-0.5	RHOC (g/cc)	0.5
4000	LTEN (lb)	0
-0.5	RHOC-repeat (g/cc)	0.5
ABHV (ft3)		



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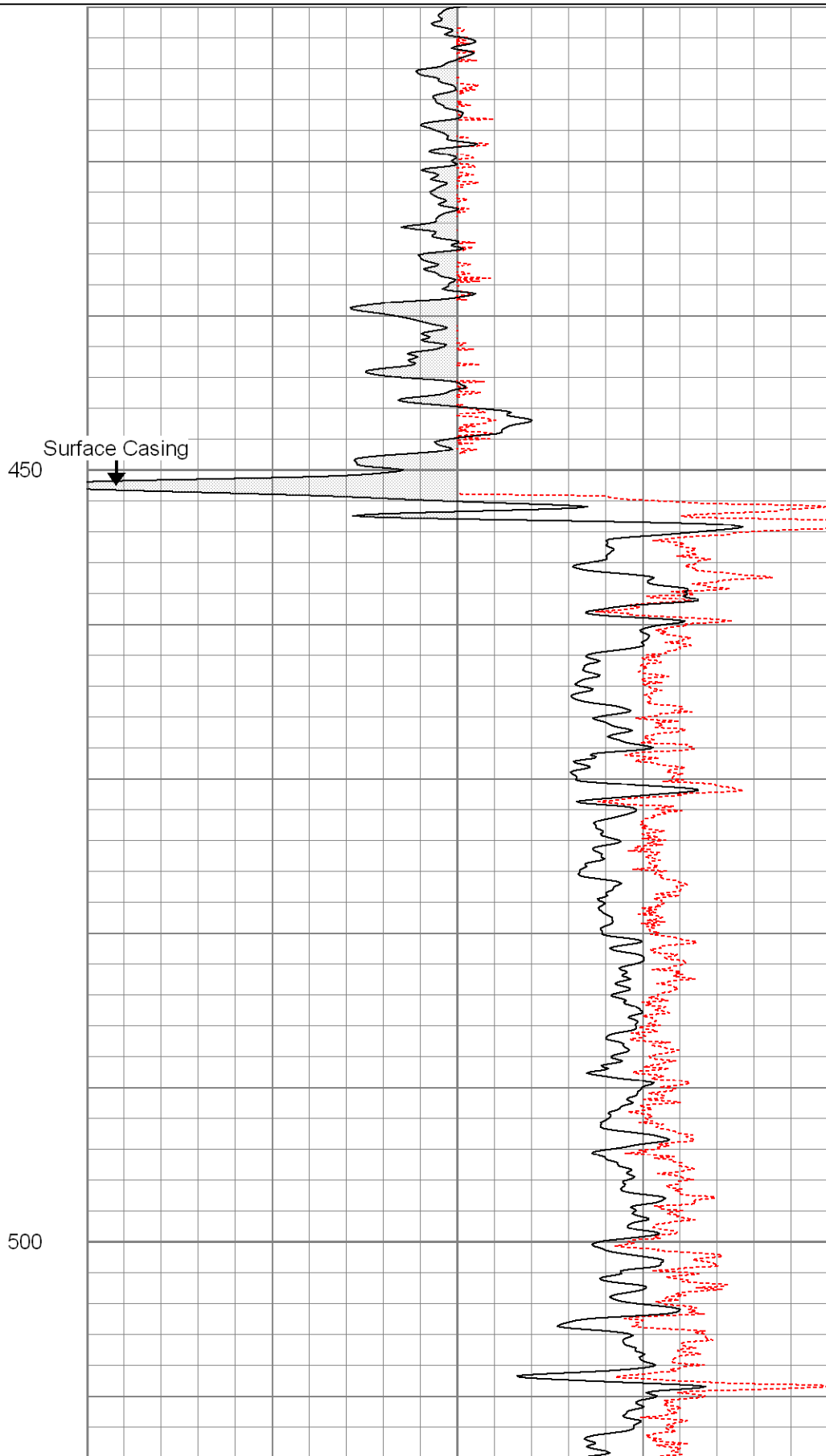
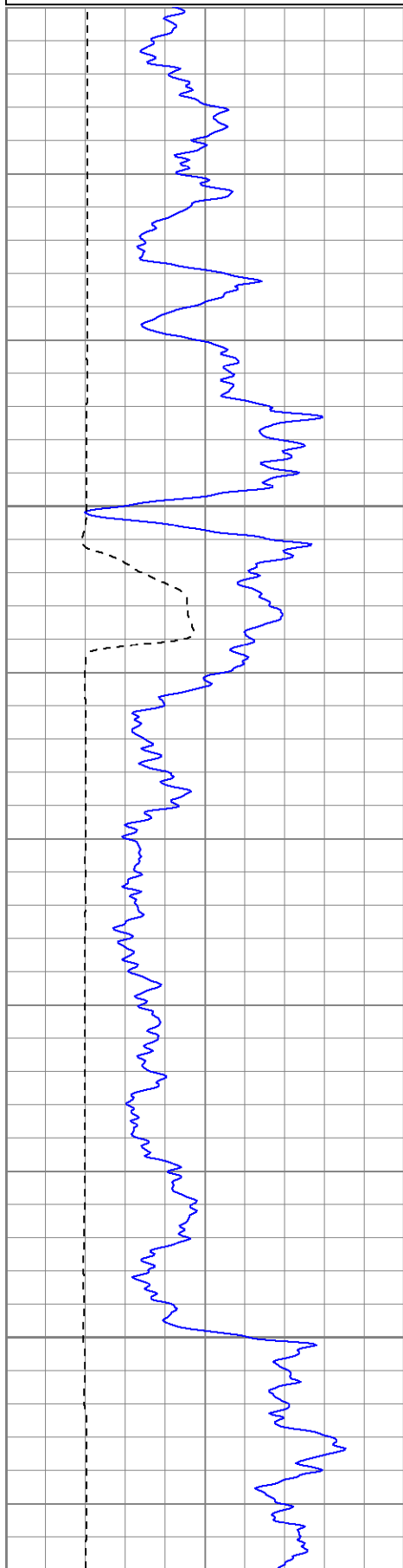
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# High Resolution Pass

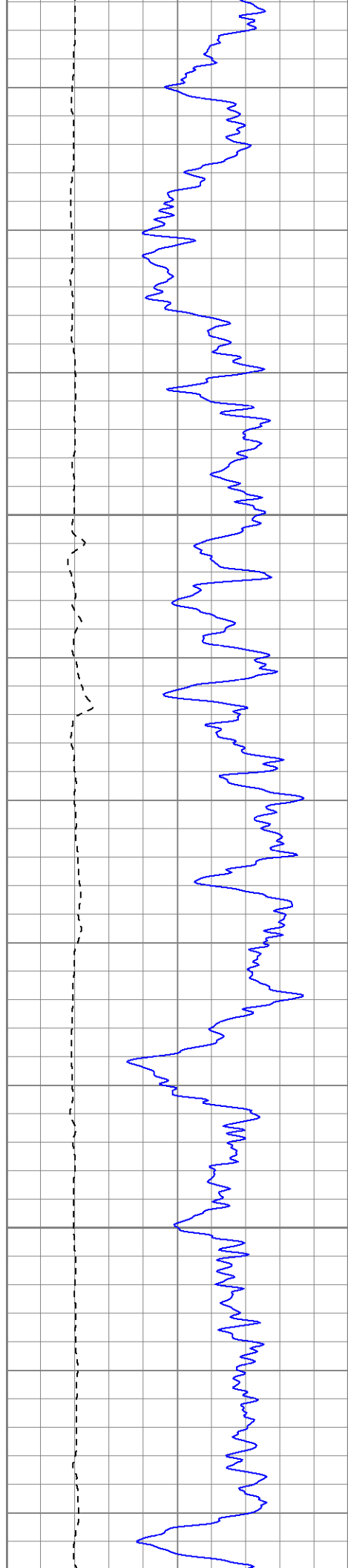
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Dataset Pathname: pass4.2  
Presentation Format: cdlhr  
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Charted by: Depth in Feet scaled 1:120

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6	DCAL (in)	16

1	RHOB (g/cc)	3
-0.5	RHOC (g/cc)	0.5

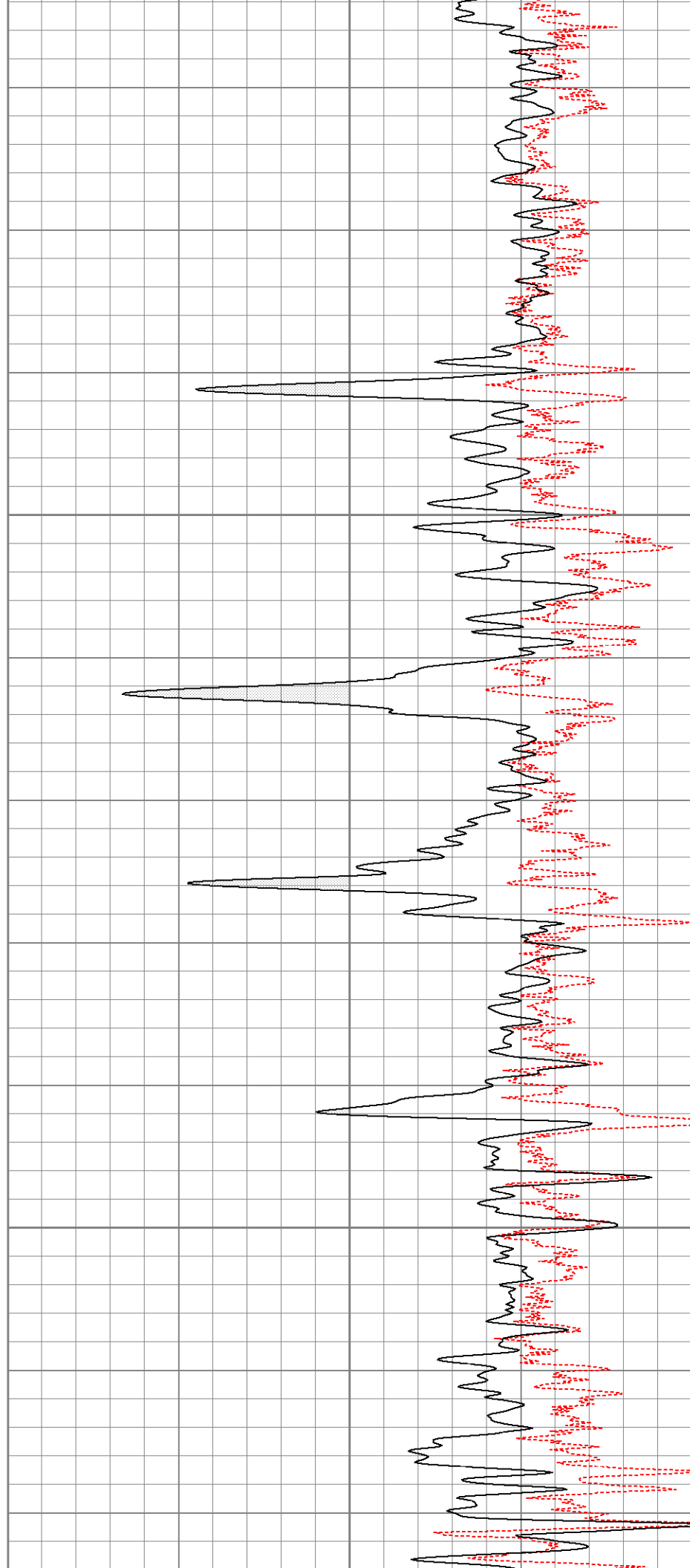


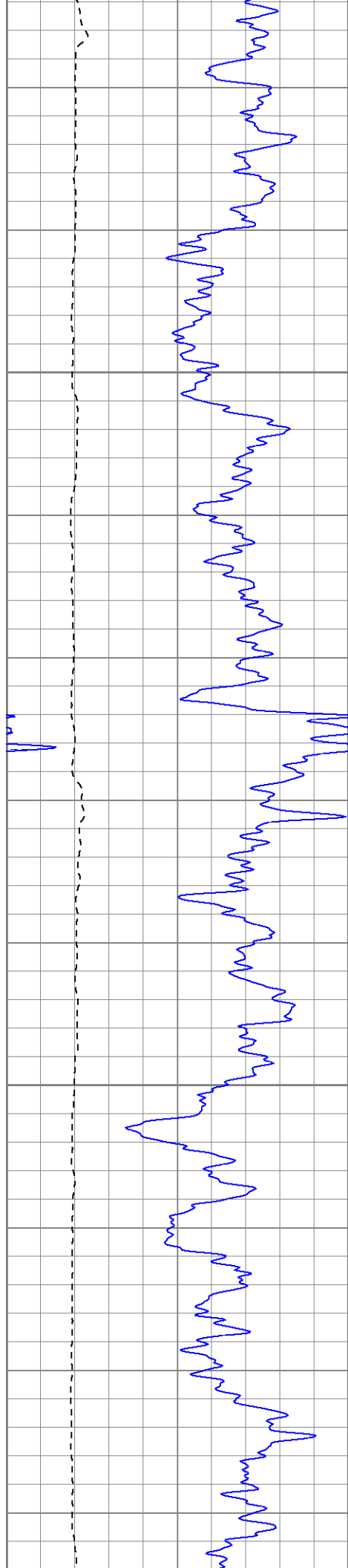




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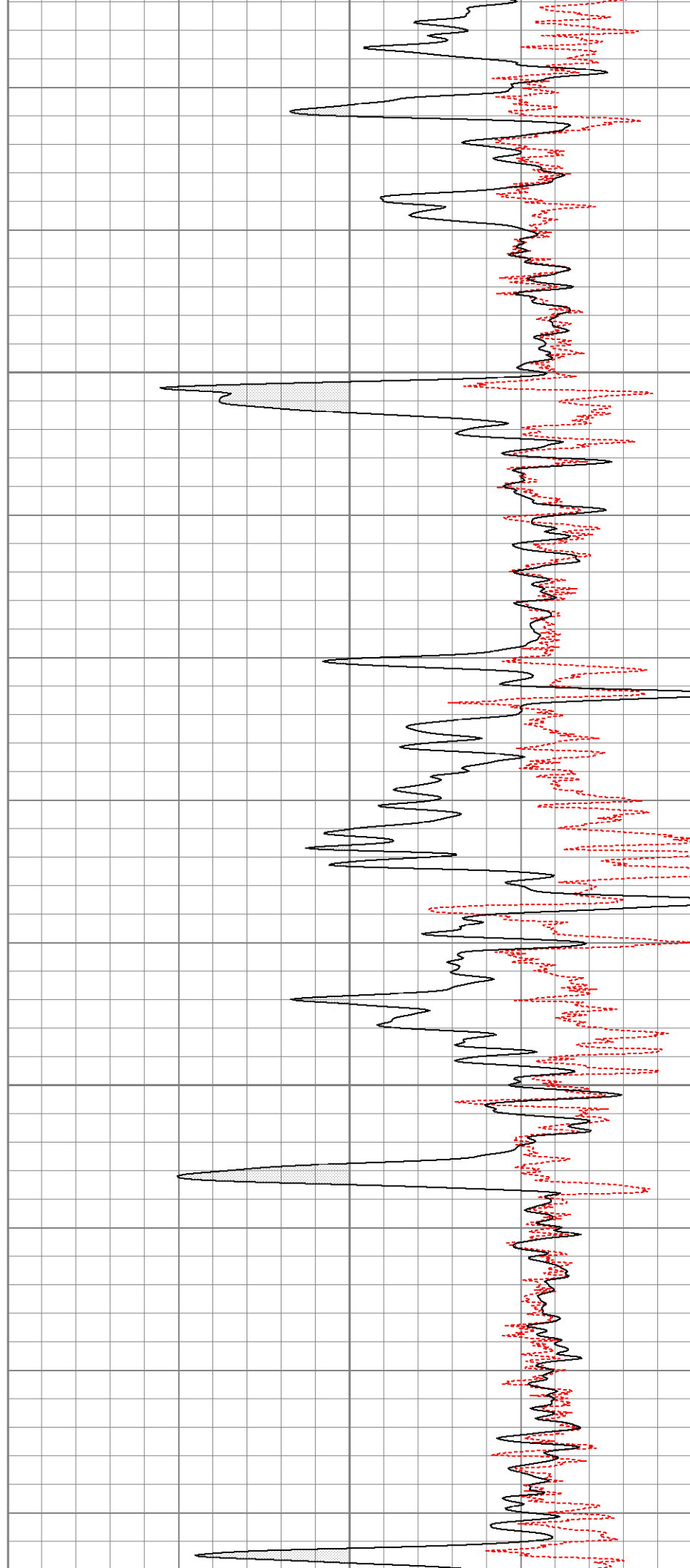
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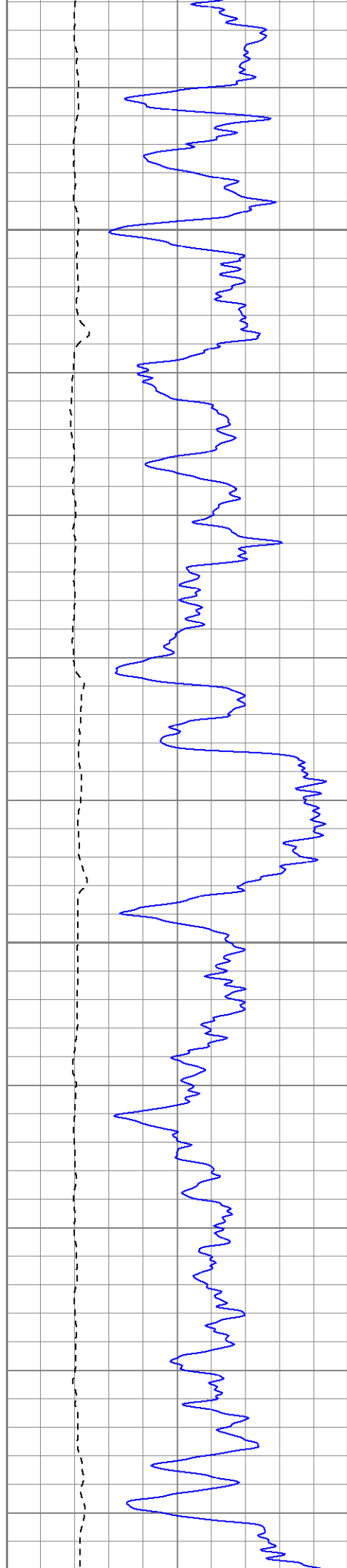




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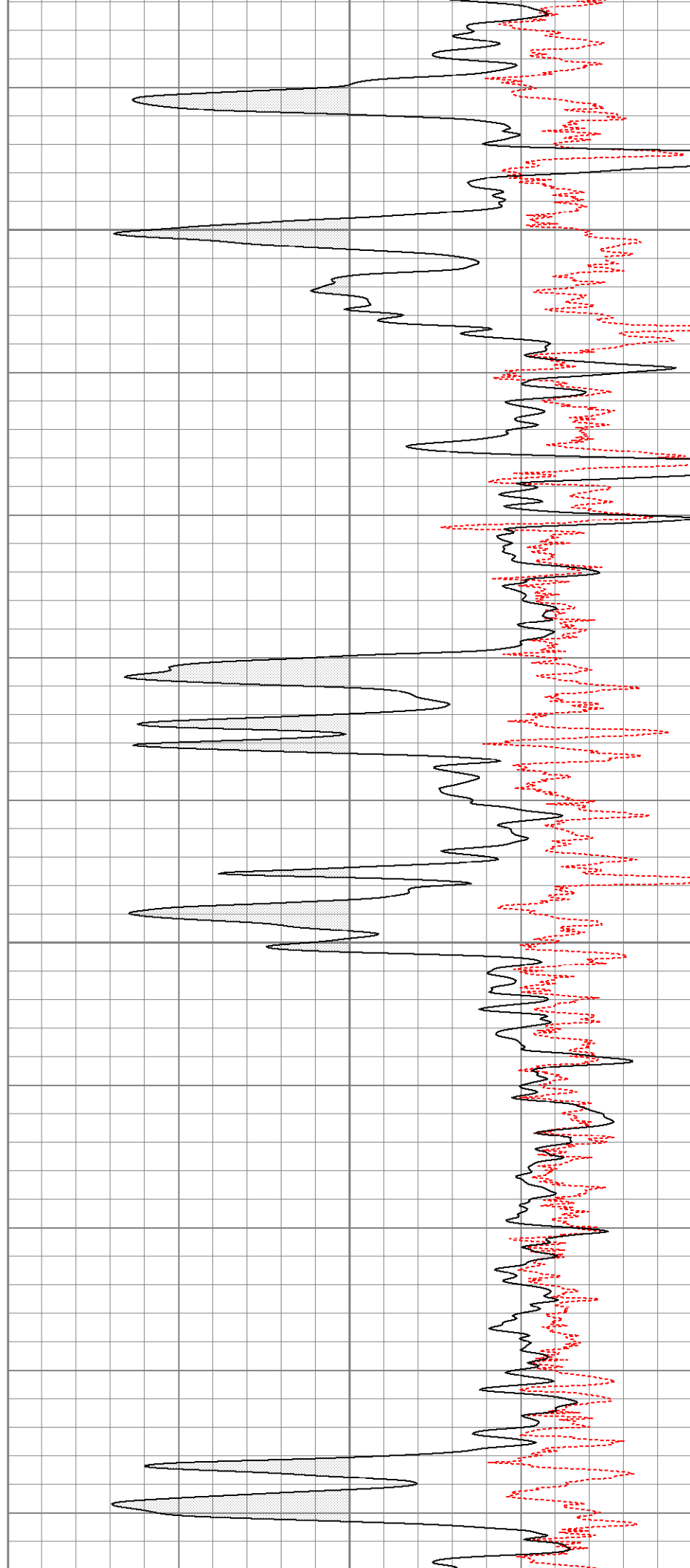
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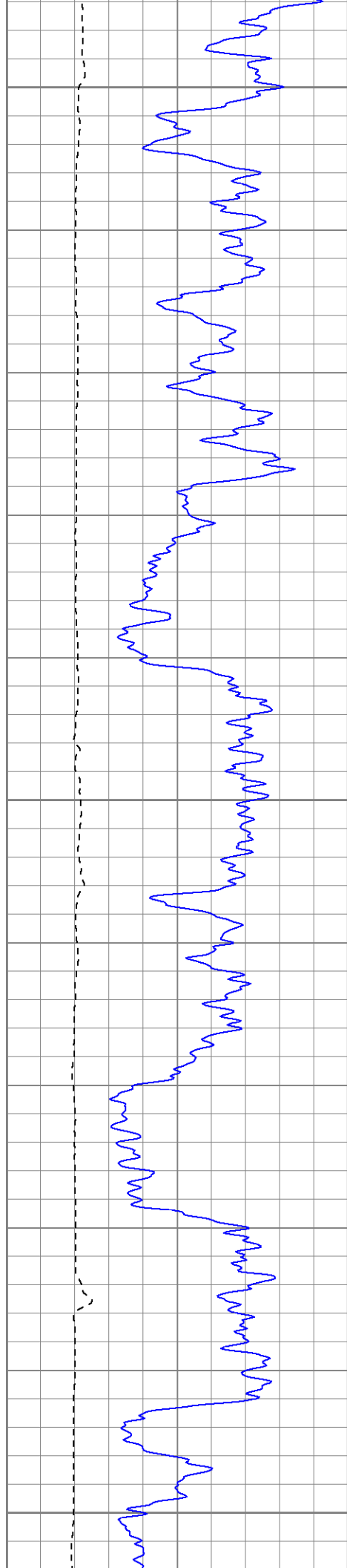




750

800

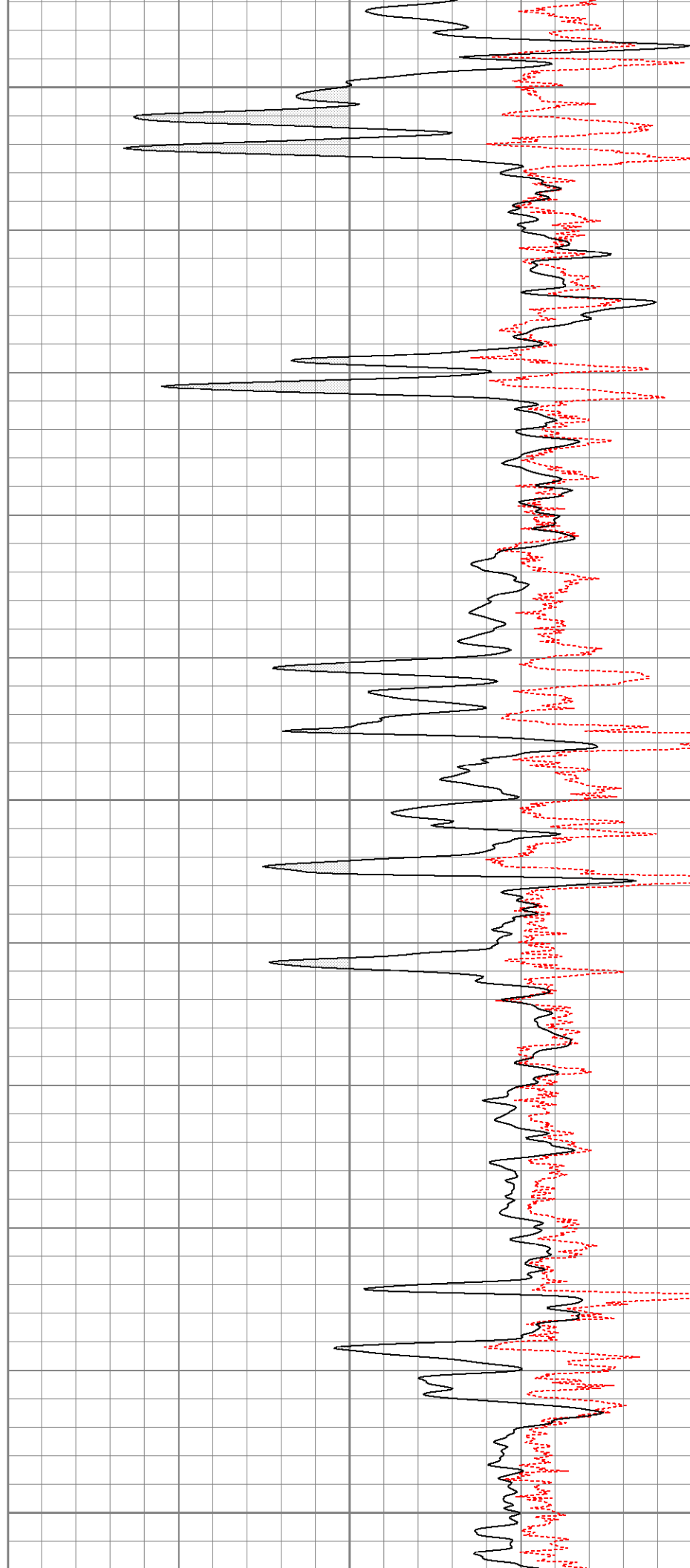


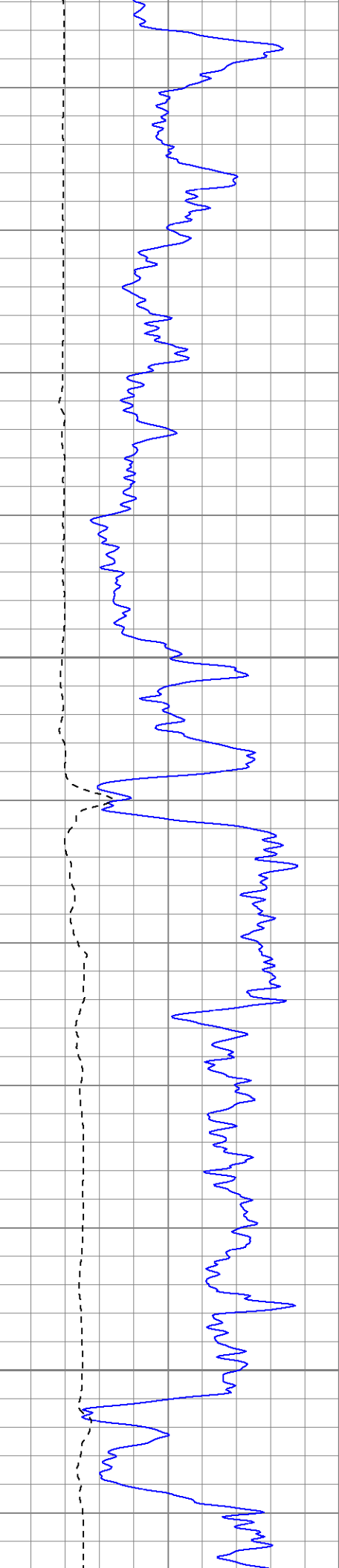


850

900

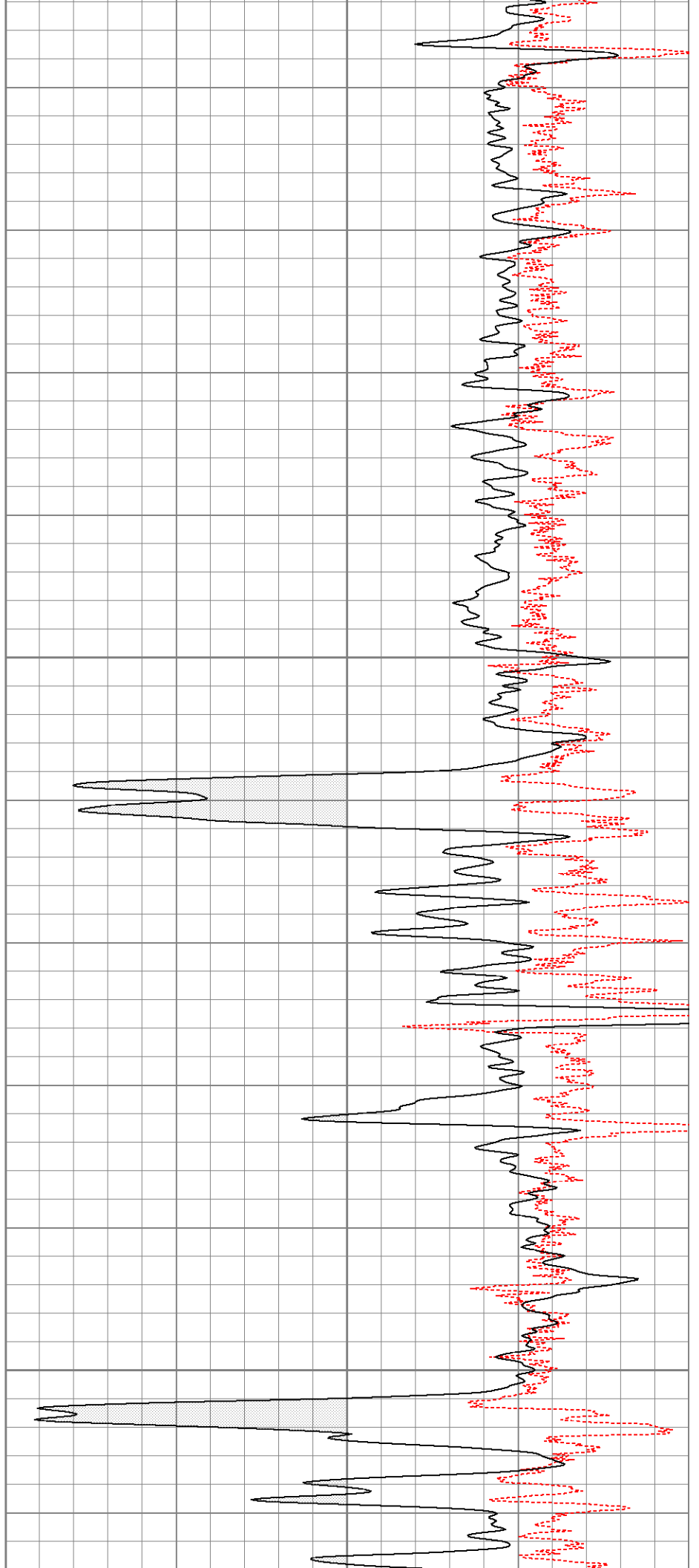
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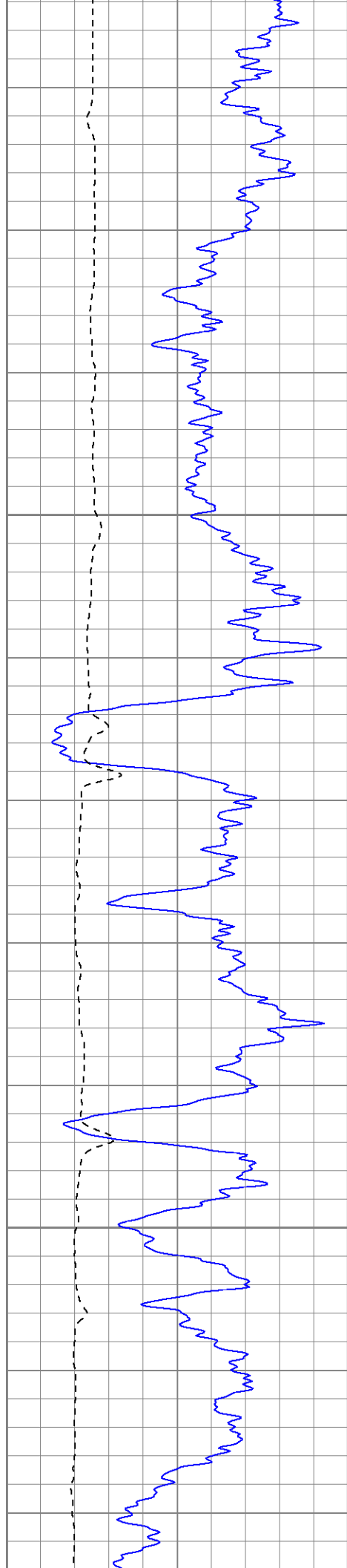




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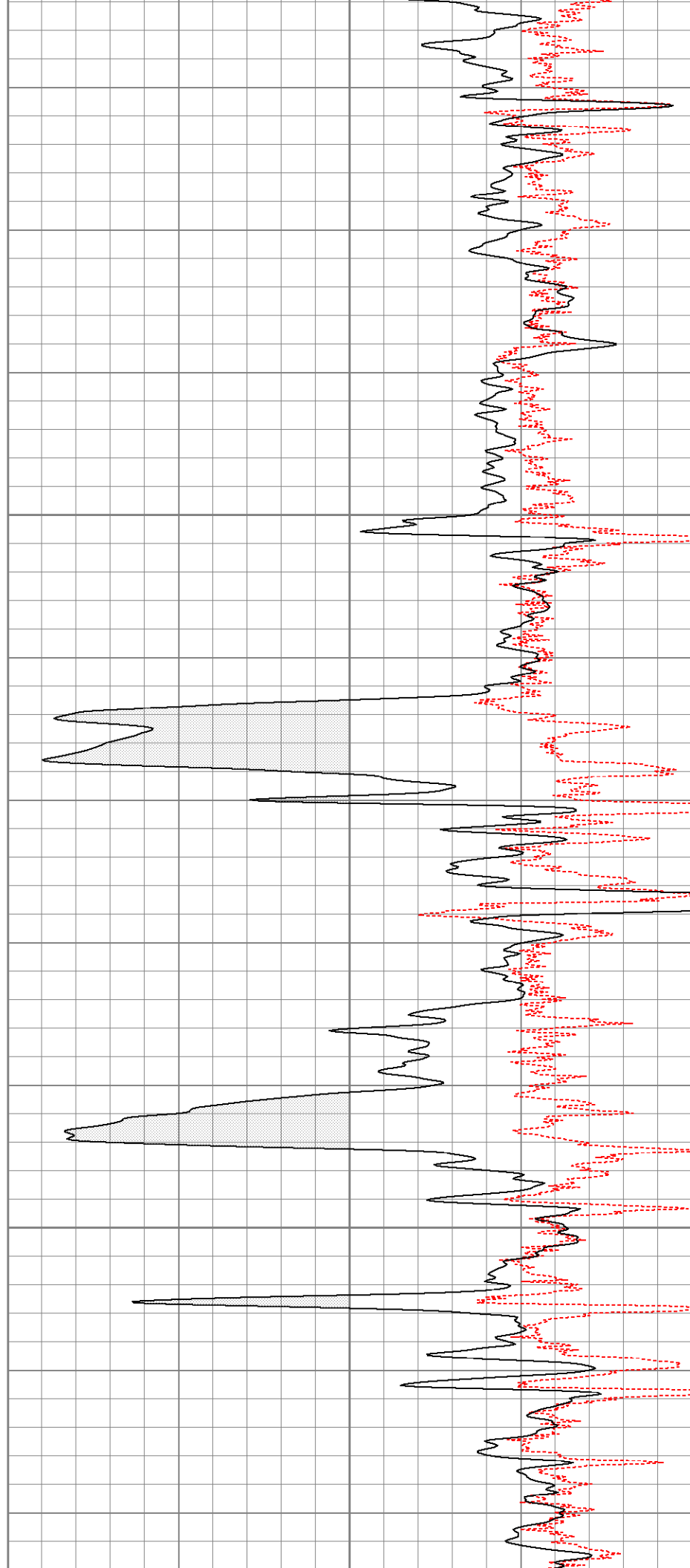
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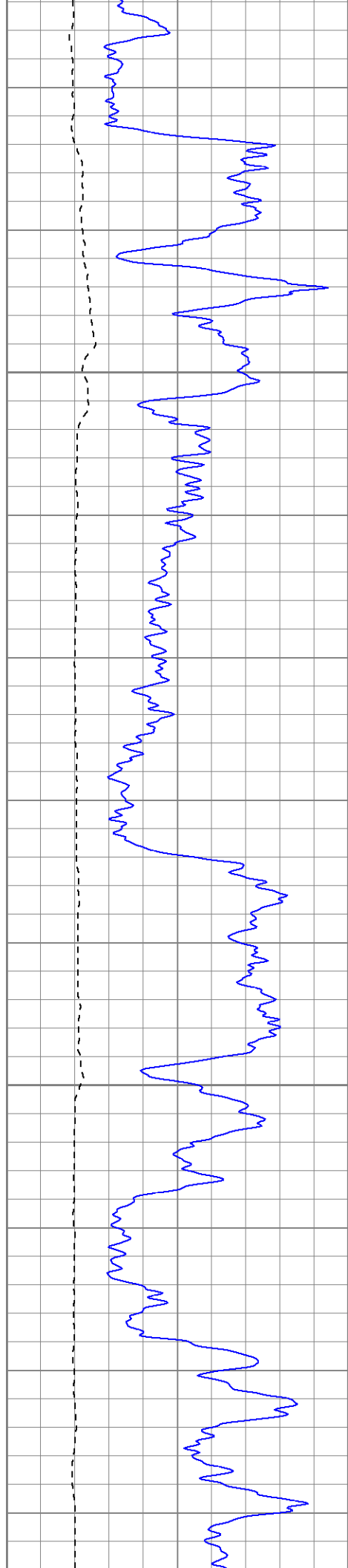




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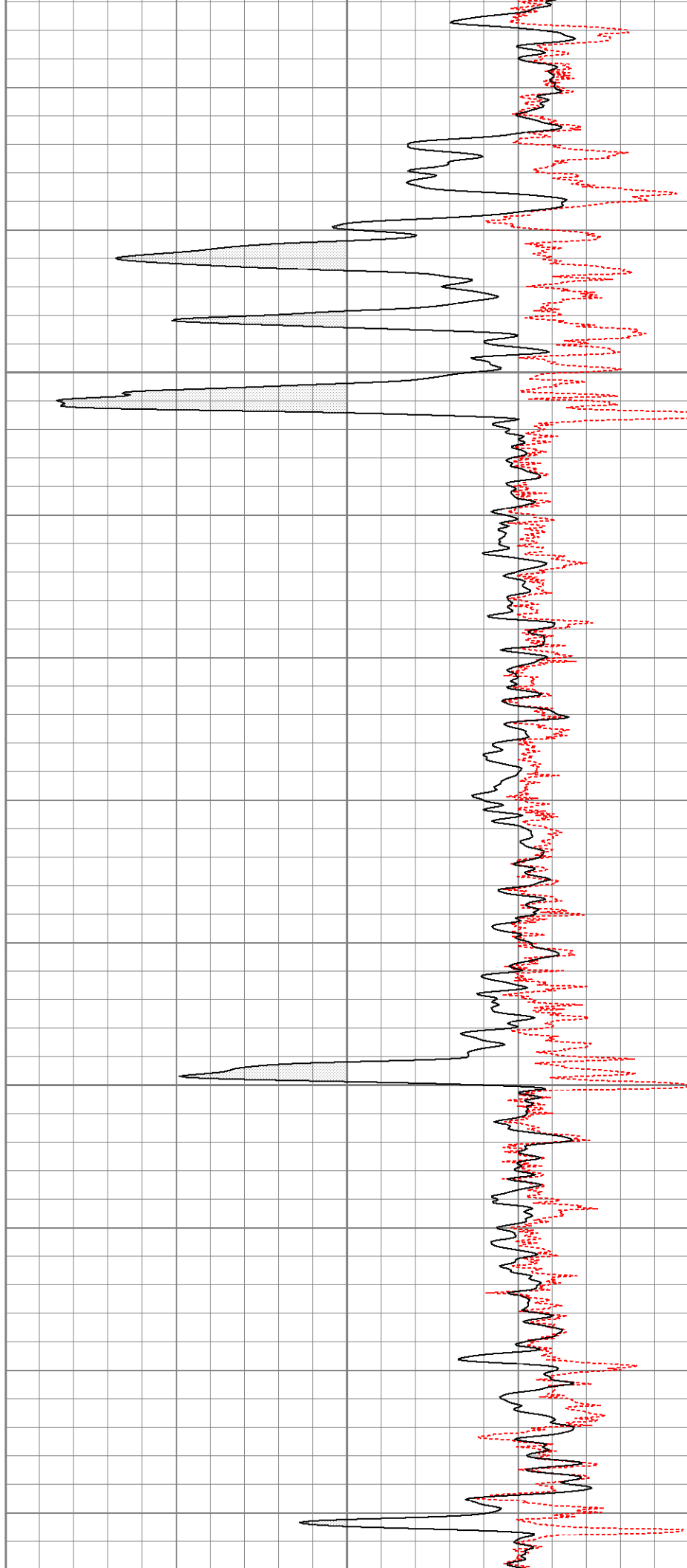
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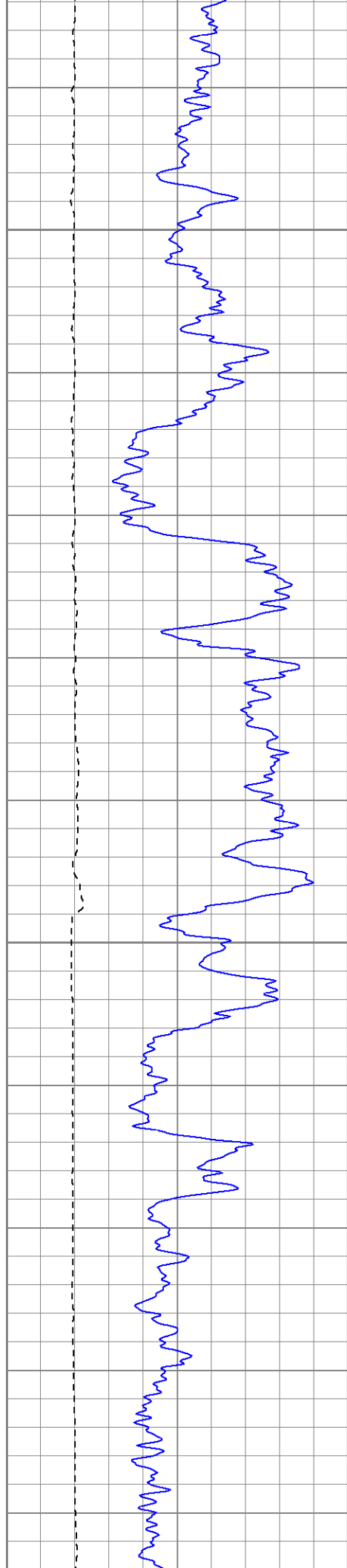




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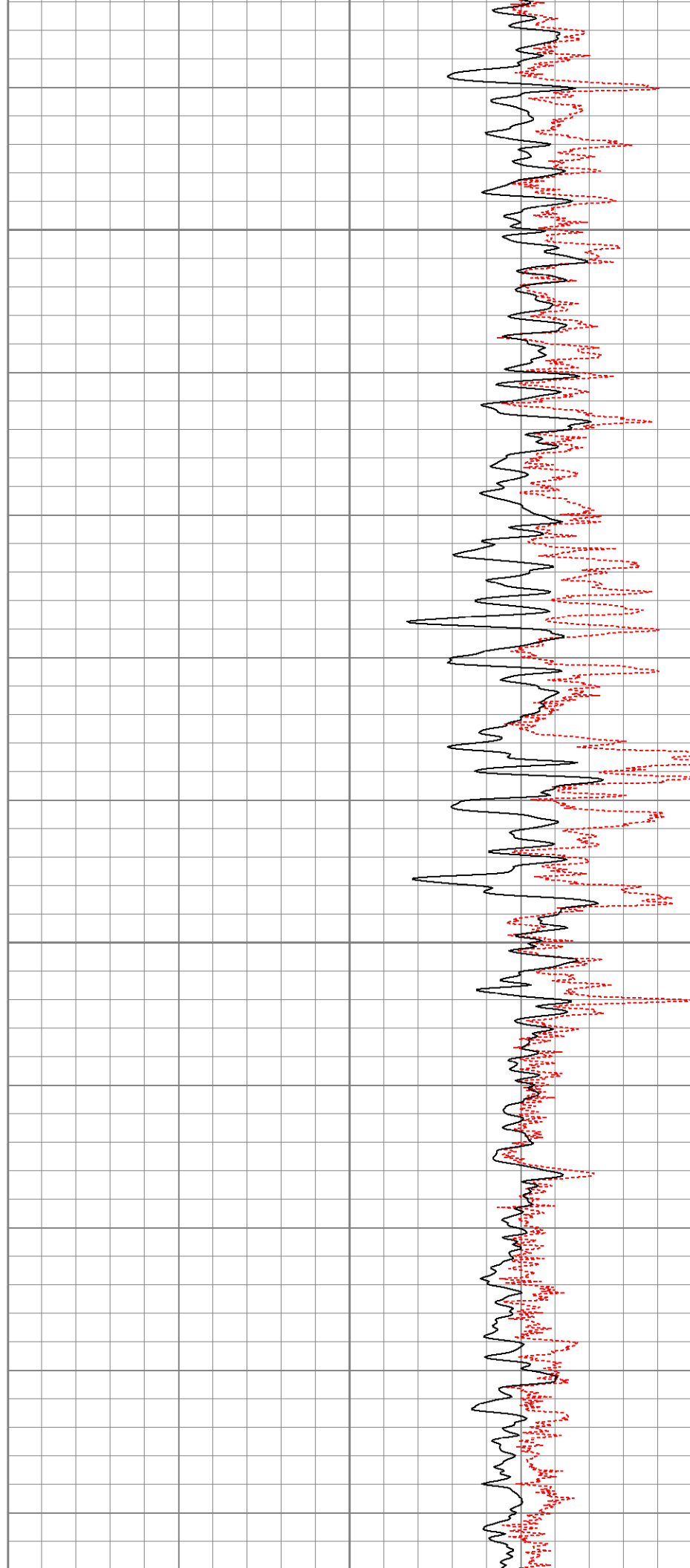
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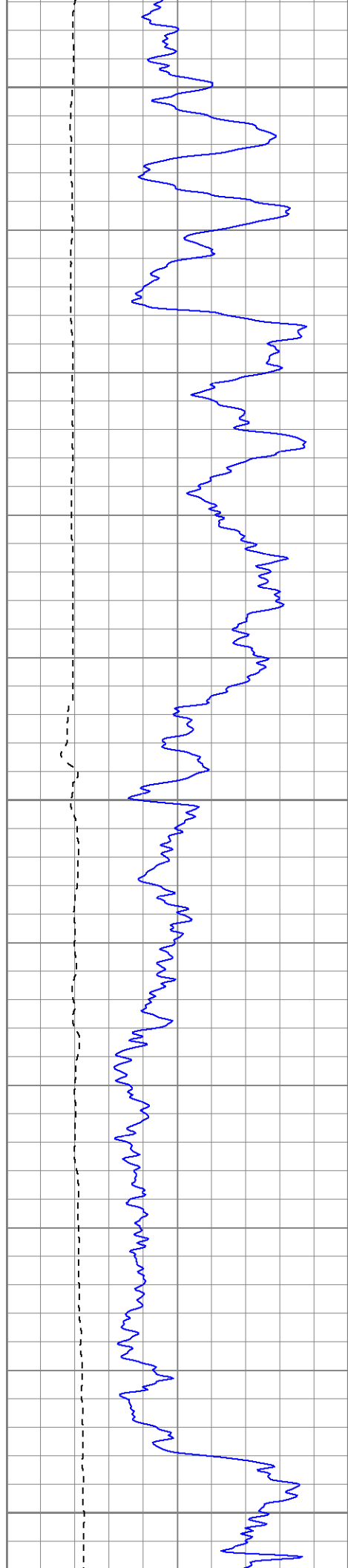


1300

1350



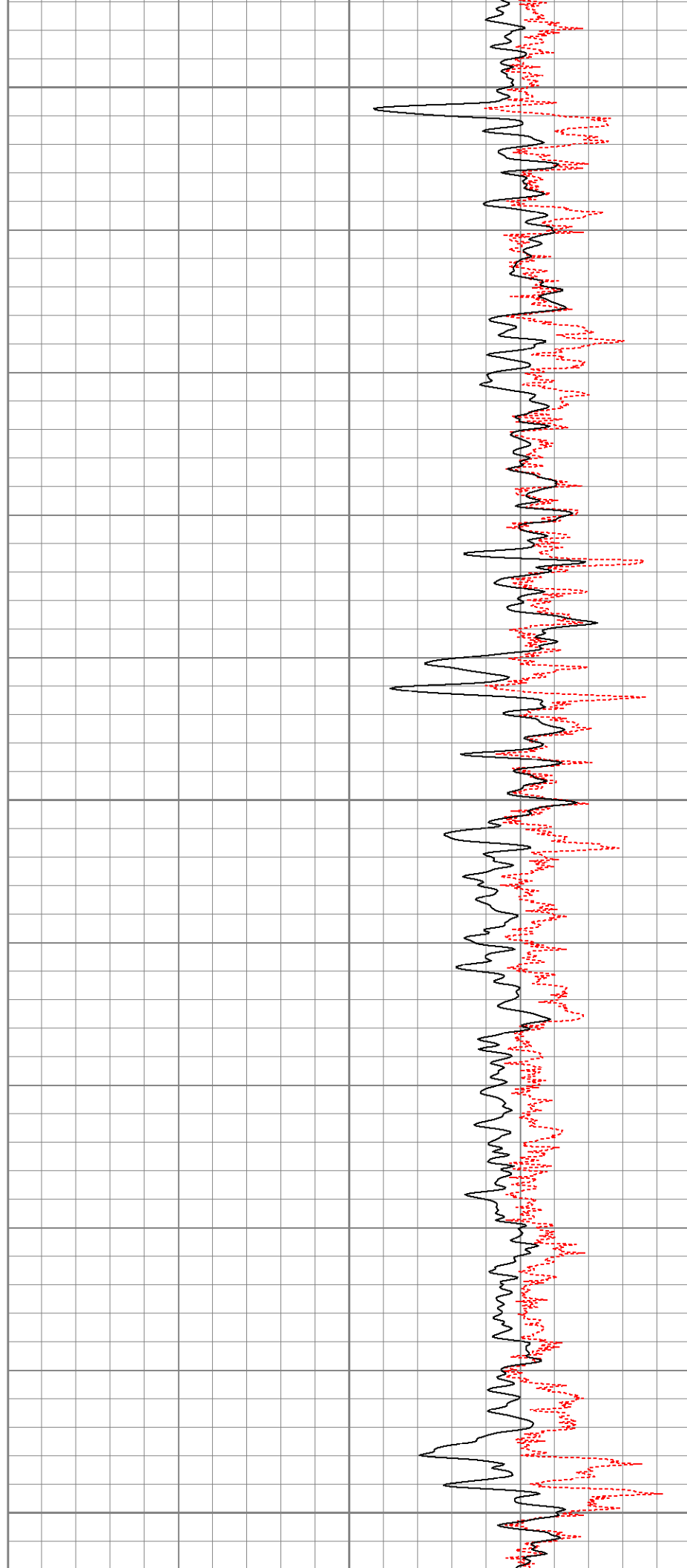


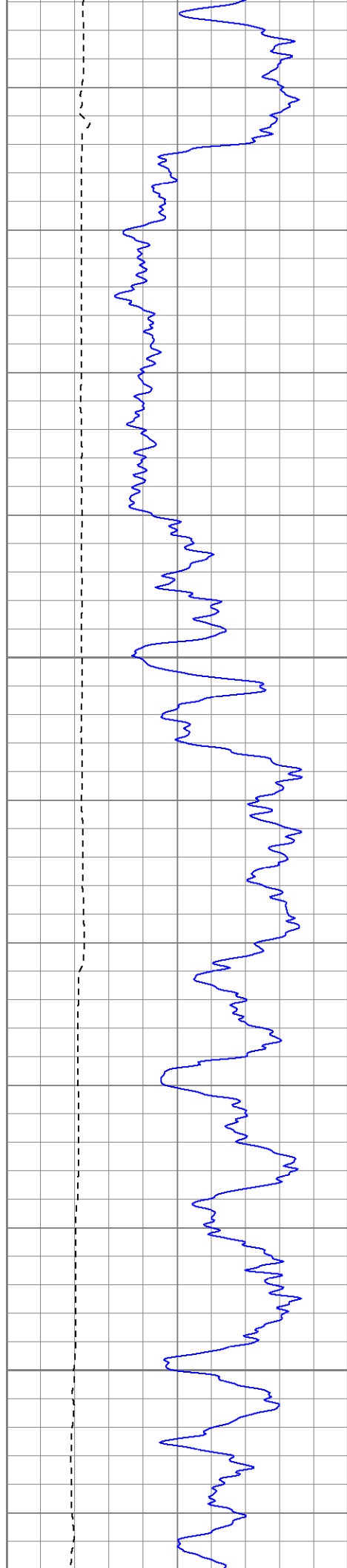


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1450

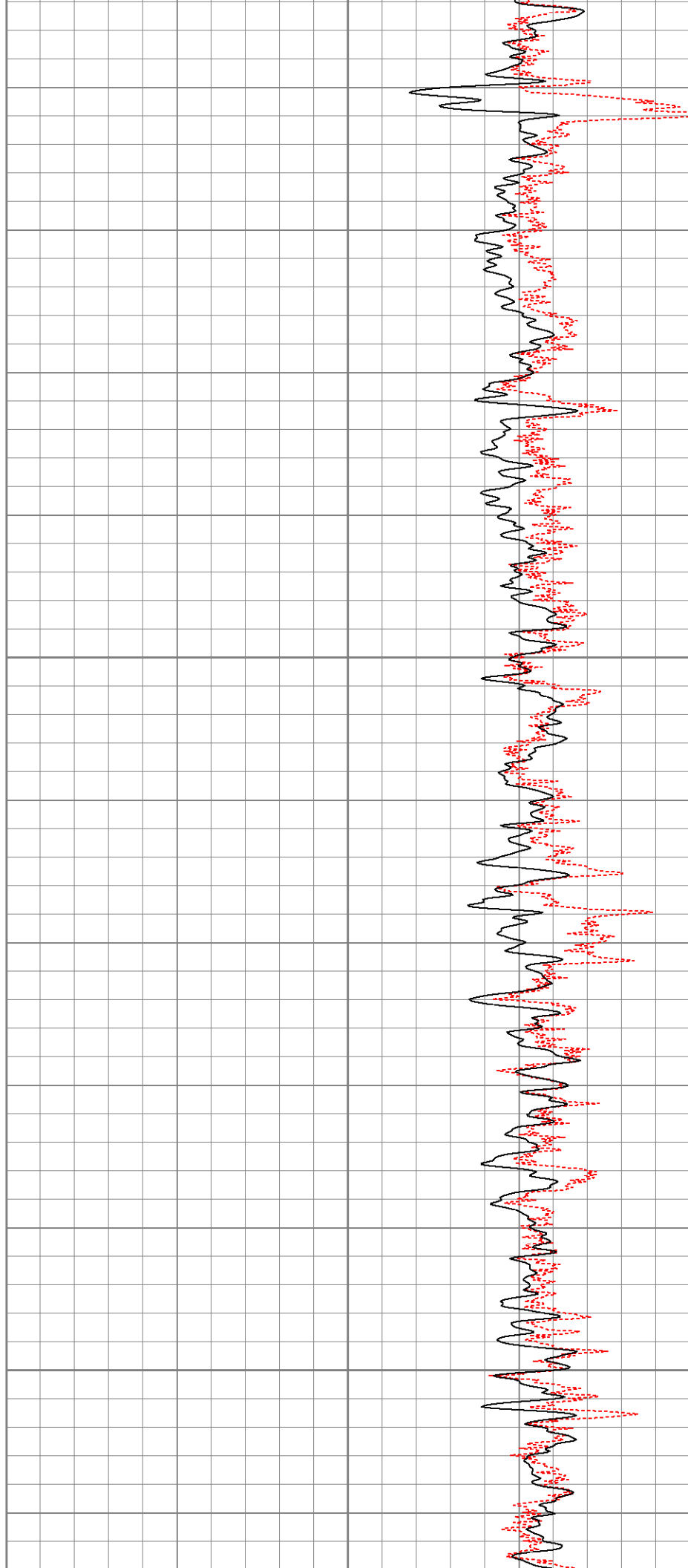
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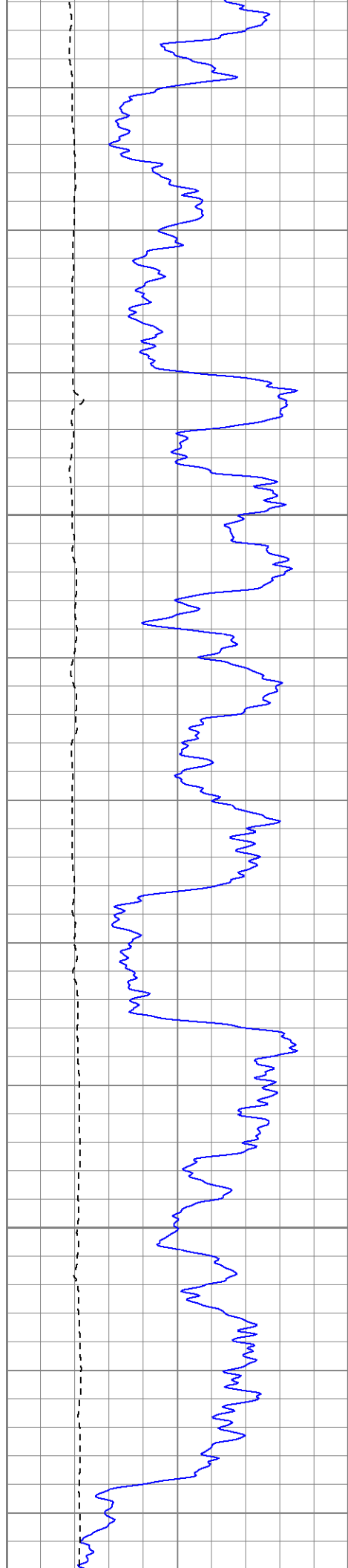




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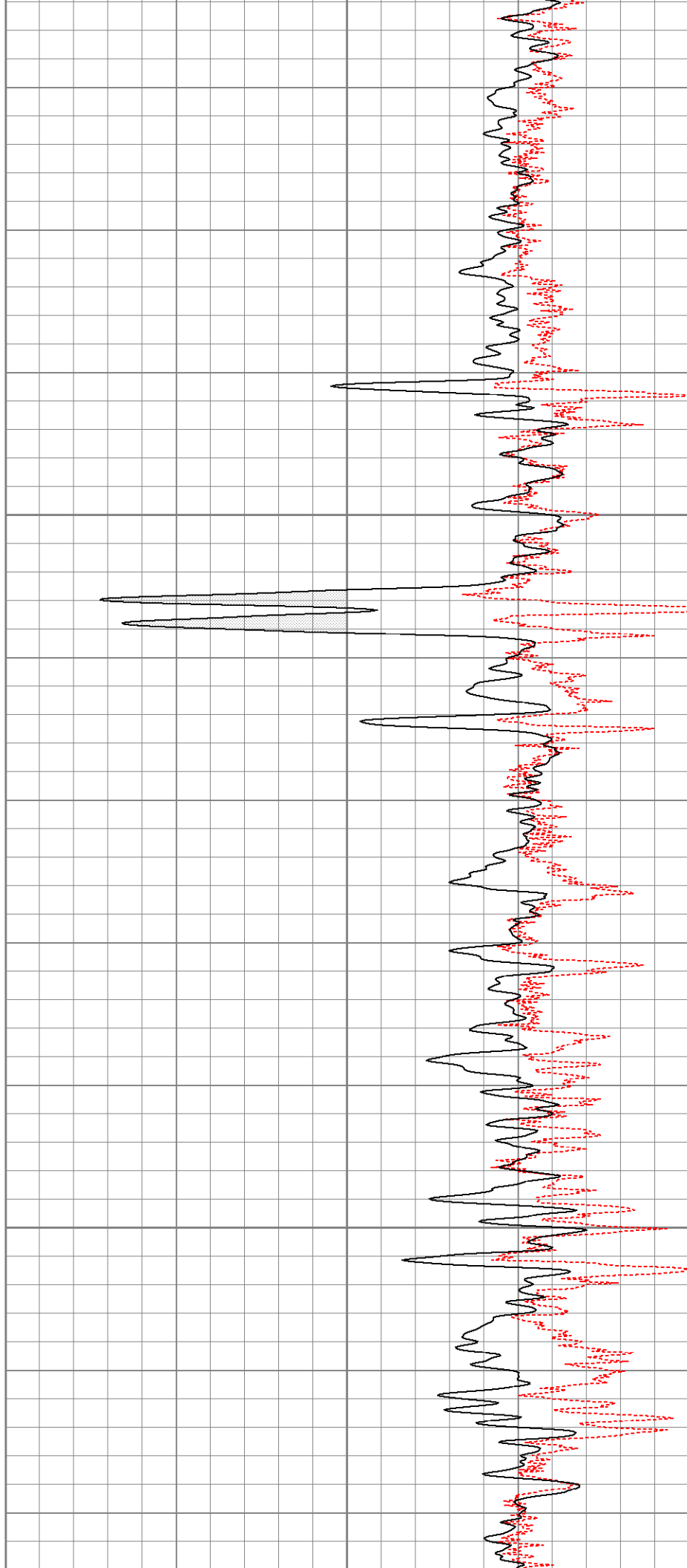
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1650

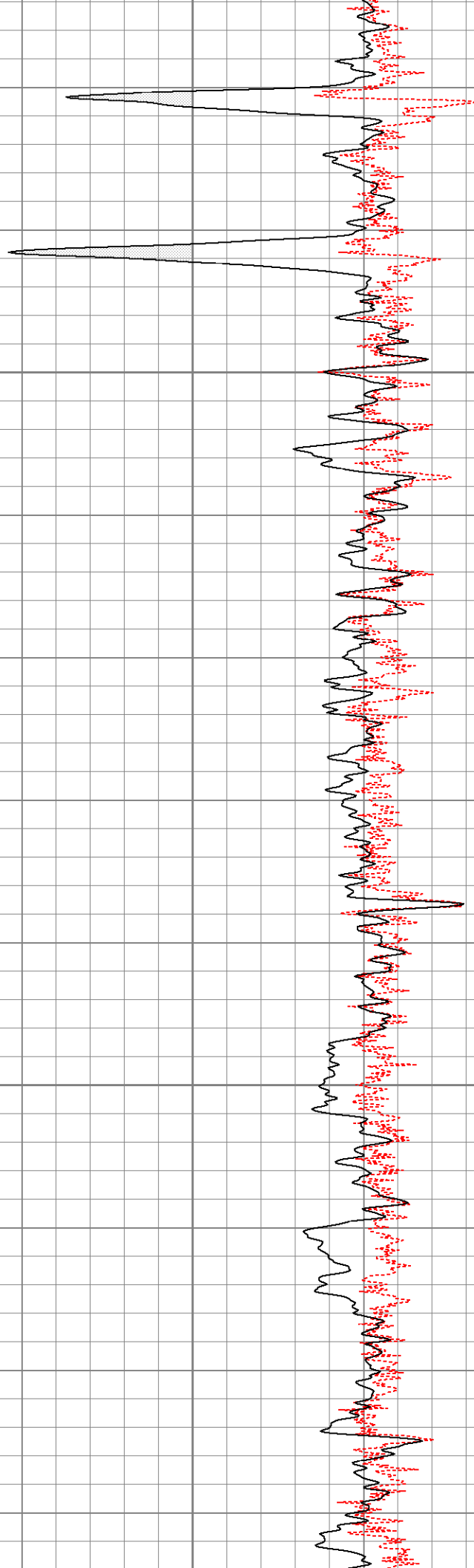
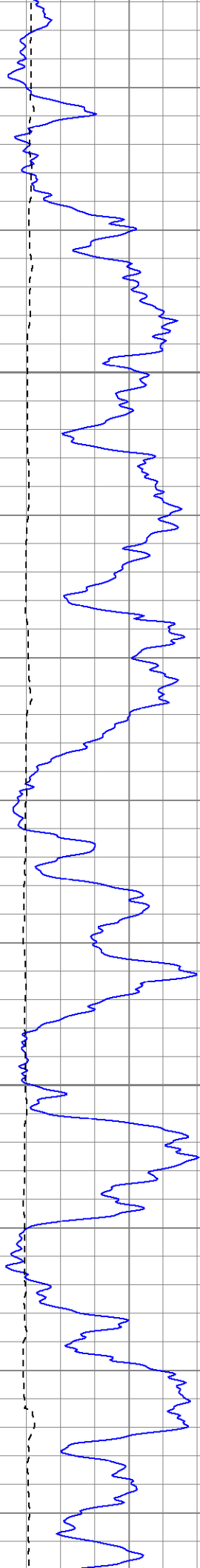
1700

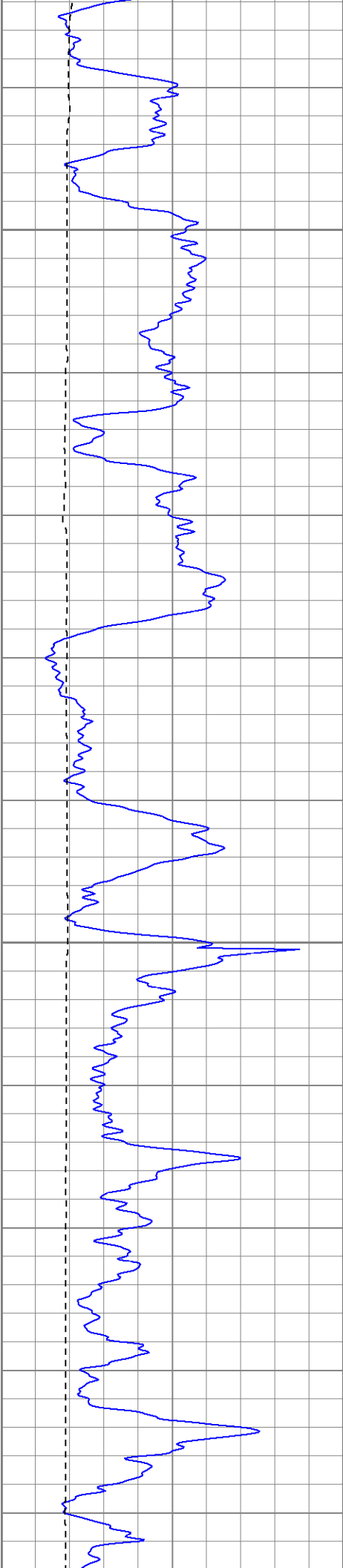


Fluid Level

1750

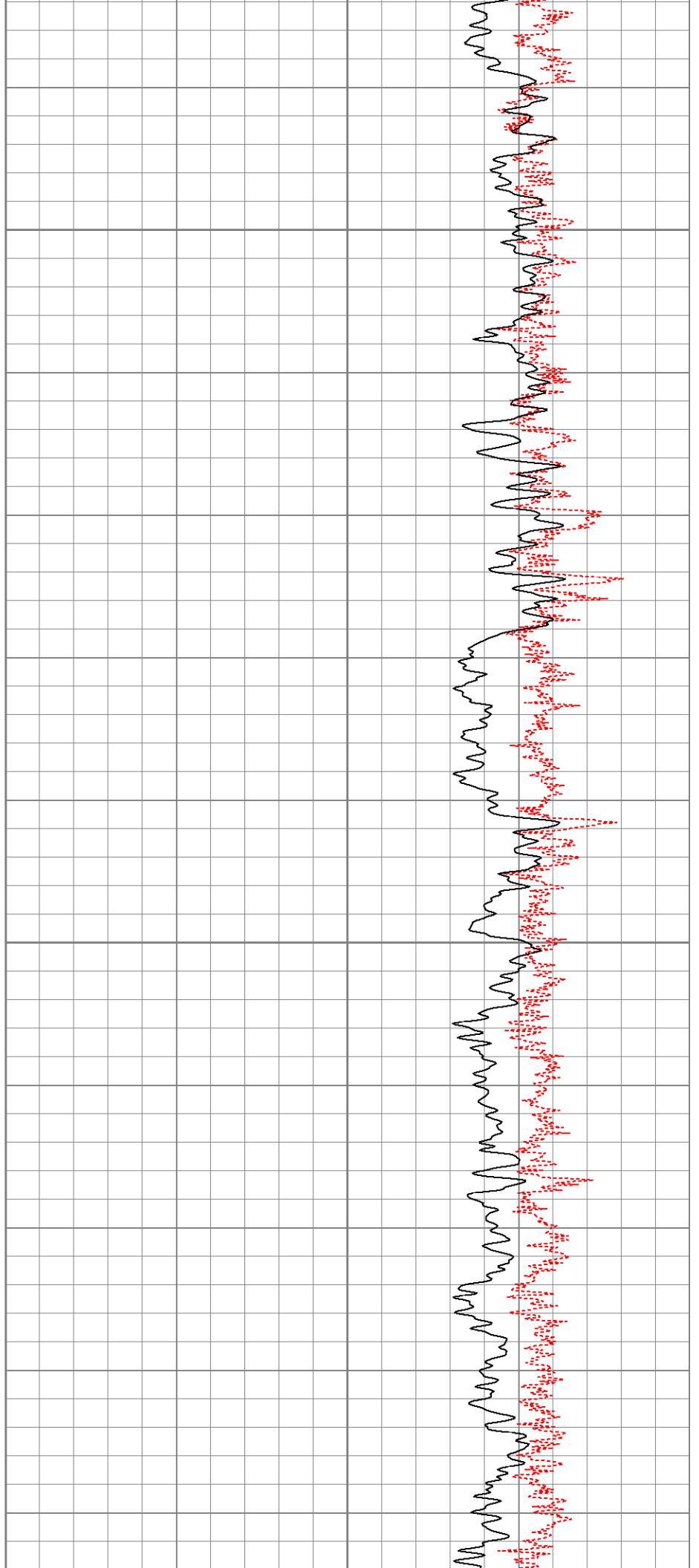
1800

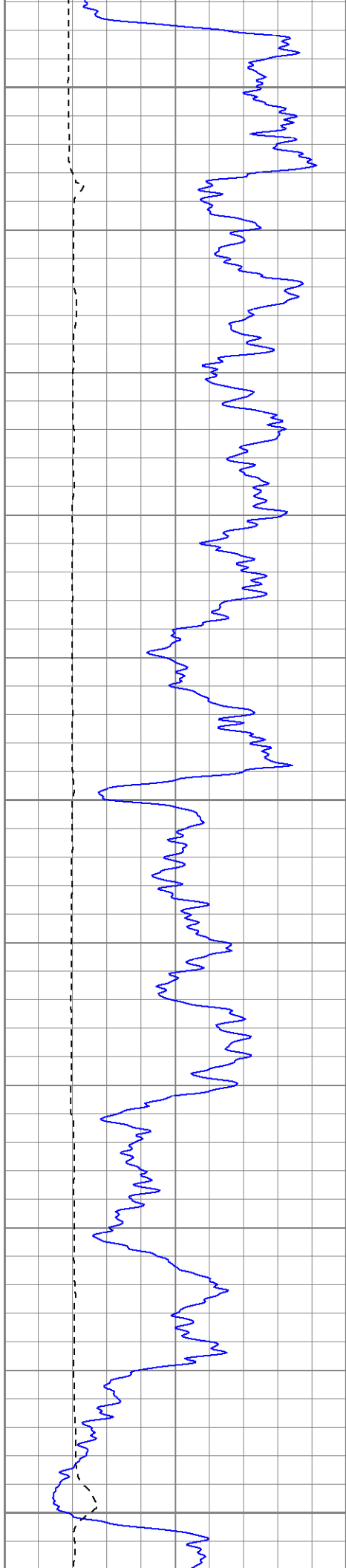




1850

1900

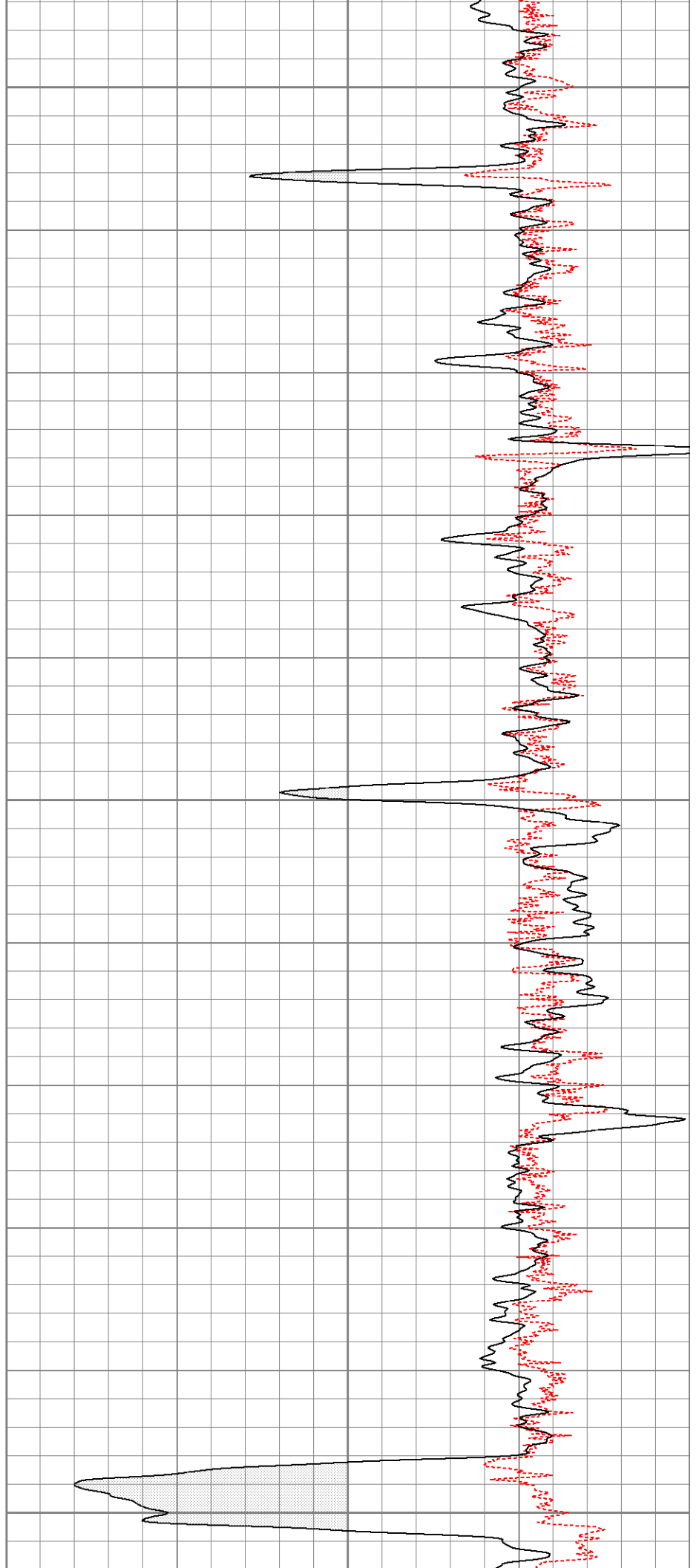


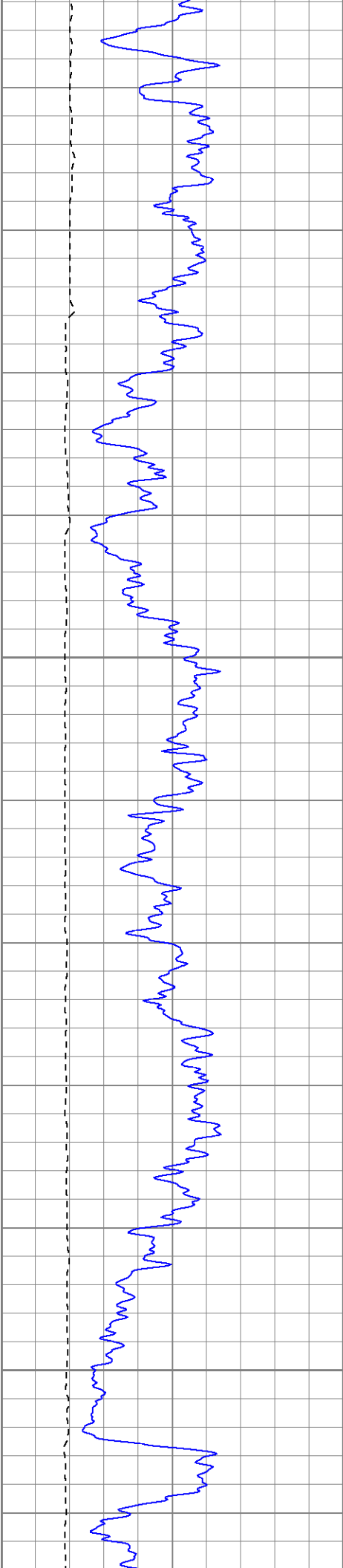


1950

2000

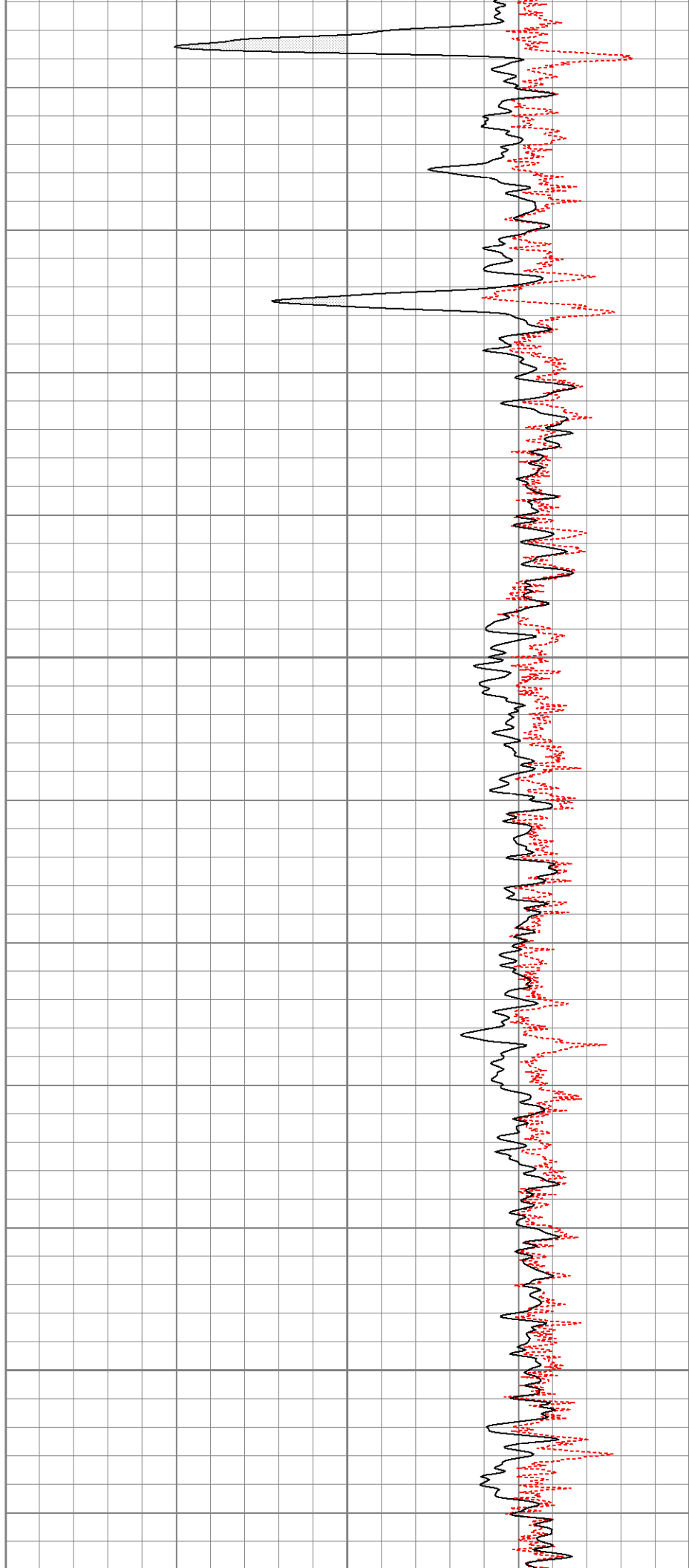
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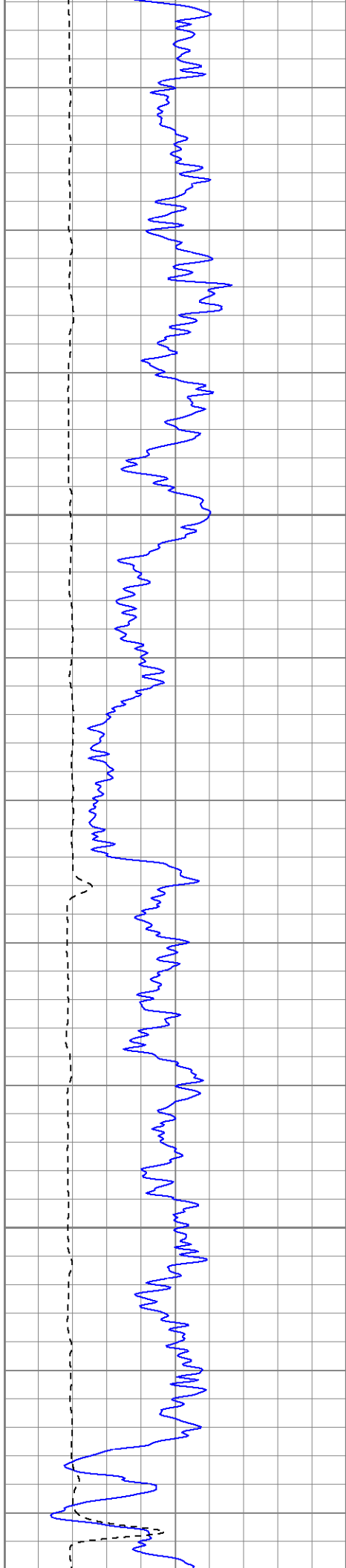




2100

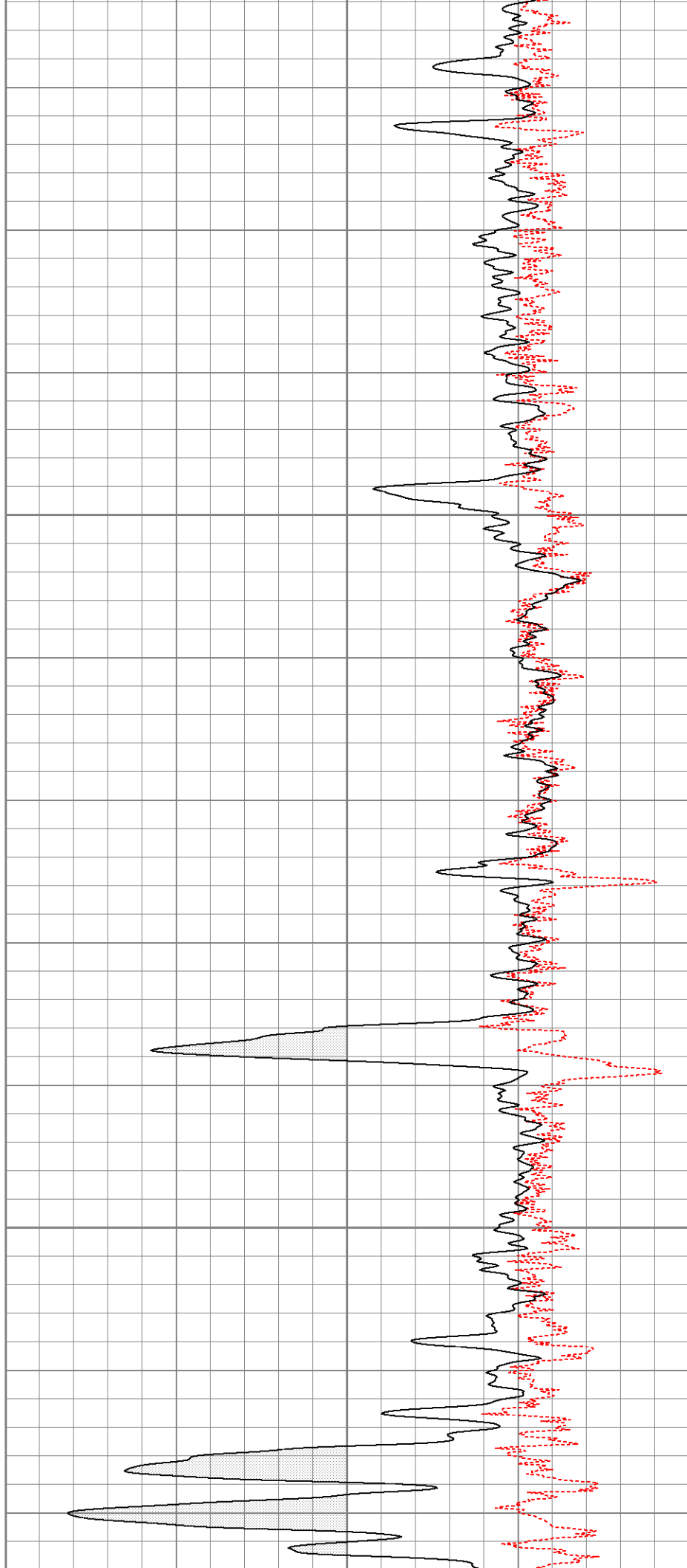
2150



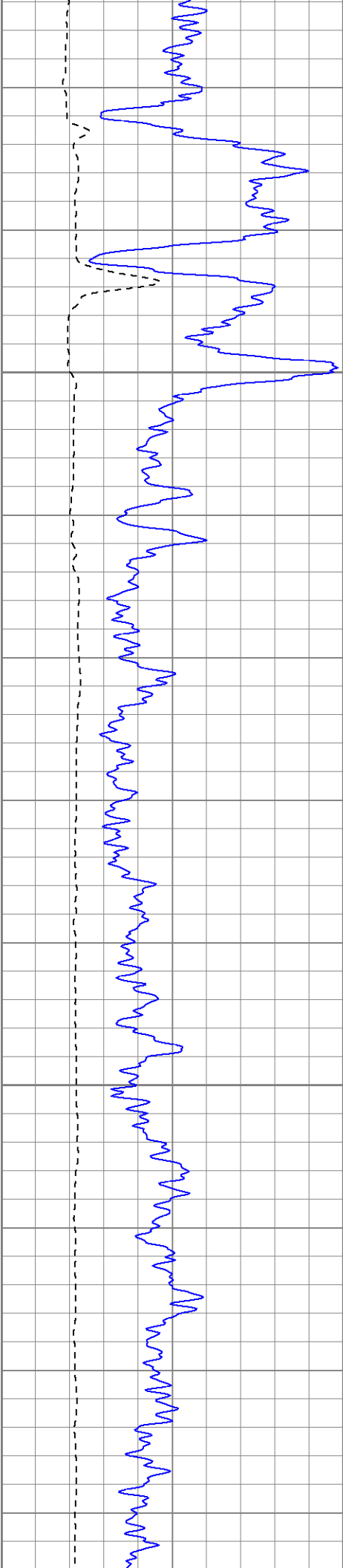


2200

2250

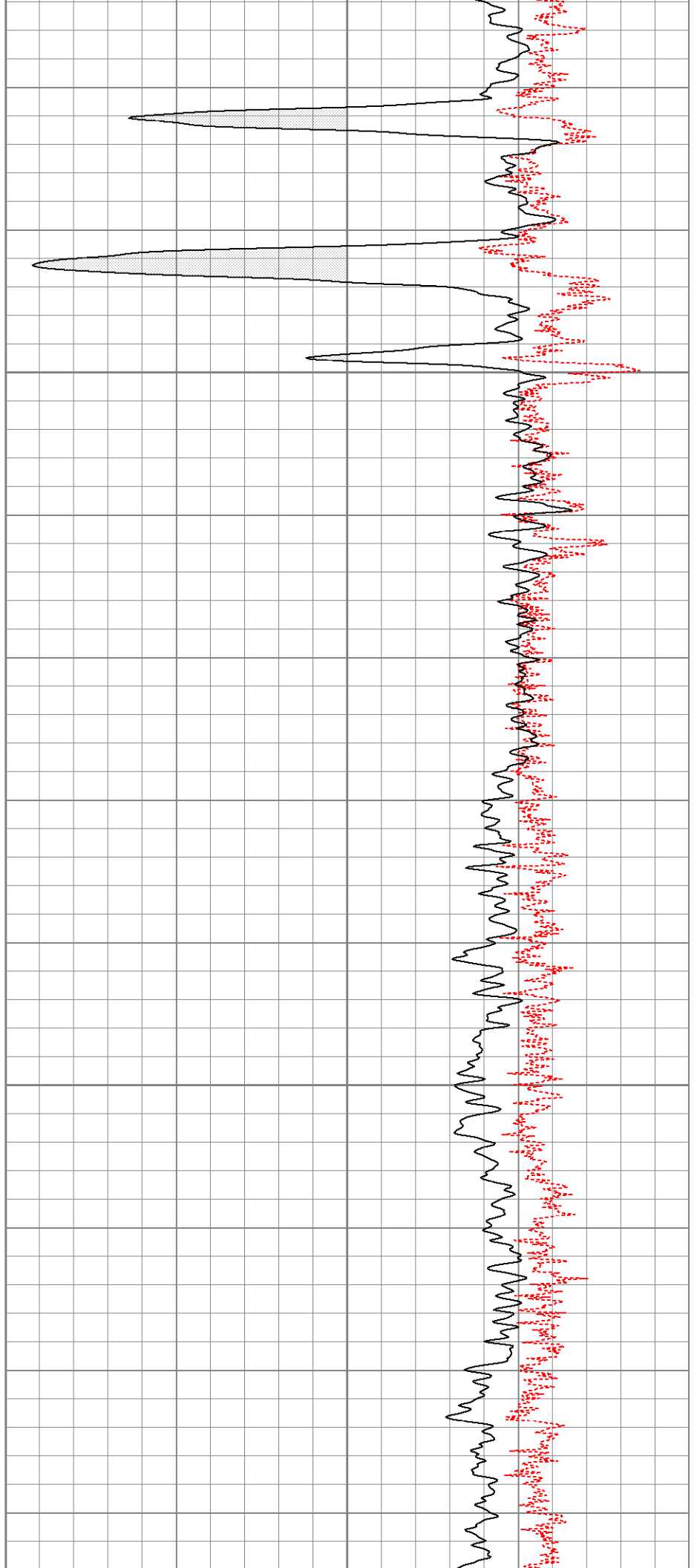




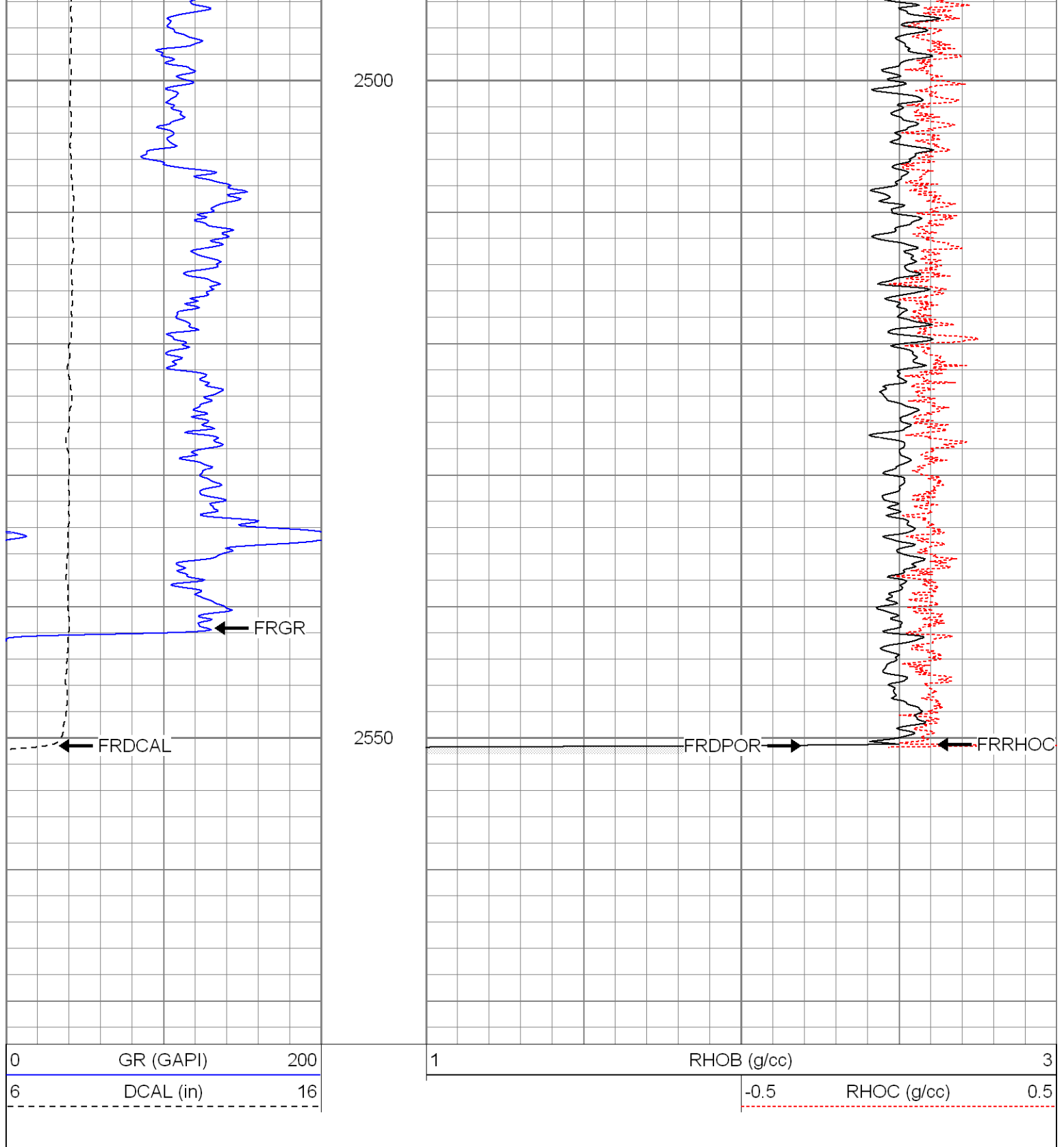


2300

2350







### Calibration Report

Database File: xtoac0513.db  
Dataset Pathname: pass3  
Dataset Creation: Thu Feb 21 14:46:02 2008 by Log Open-Cased 070814

### Dual Induction Calibration Report

Serial-Model: 5375-G  
Surface Cal Performed: Wed Feb 06 09:29:54 2008  
Downhole Cal Performed: Wed Feb 06 09:31:14 2008

Surface Calibration

Readings				References			Results	
Loop:	Air	Loop		Air	Loop		m	b
Deep	0.002	0.622	V	0.000	500.000	mmho-m	806.307	-1.737
Medium	0.005	0.745	V	0.000	550.000	mmho-m	742.812	-3.450
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	0.003	0.622	V	0.000	500.000	mmho-m	806.784	-2.176
Medium	0.005	0.745	V	0.000	550.000	mmho-m	743.382	-3.766

#### Downhole Calibration

Readings				References			Results	
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	0.241	500.512	mmho-m	0.438	500.143	mmho-m	0.999	0.197
Medium	0.213	550.041	mmho-m	0.313	549.891	mmho-m	1.000	0.100
Shallow	2.508	0.009	V	500.000	2.000	Ohm-m	125.000	-3.000

#### Compensated Density Calibration Report

Serial-Model: 2118-poilex  
 Source / Verifier: /  
 Master Calibration Performed: Tue Feb 19 13:14:22 2008

#### Master Calibration

	Density			Far Detector	Near Detector	
Magnesium	1.710	g/cc		689.13	662.28	cps
Aluminum	2.590	g/cc		156.84	466.09	cps
Spine Angle = 76.65				Density/Spine Ratio = 0.578		
	Size			Reading		
Small Ring	8.50	in		4.33	V	
Large Ring	14.00	in		8.24	V	

#### Gamma Ray Calibration Report

Serial Number: 2000  
 Tool Model: P2000  
 Performed: Mon Feb 18 07:40:11 2008  
 Calibrator Value: 1.0 GAPI  
 Background Reading: 0.0 cps  
 Calibrator Reading: 1.0 cps  
 Sensitivity: 0.2700 GAPI/cps

#### Neutron Calibration Report

Serial Number: 5145  
 Tool Model: G  
 Performed: Wed Feb 06 10:21:29 2008

Calibrator Value: 1200 NAPI

Calibrator Reading: 1700 cps

Sensitivity: 1 NAPI/cps

