



HIGH RESOLUTION INDUCTION COMPENSATED DENISITY COMPENSATED NEUTRON

Pioneer Energy Services

Company Bonanza Creek Energy Oper. Co. LLC
Well Pronghorn K-O-12HNC
Field Wattenberg
County Colorado State USA

Location: API #: 05123394620000

200' FNL & 2674' FEL NWNE

SEC 12 TWP 5N RGE 61W

Permanent Datum GL Elevation 4641
Log Measured From KB
Drilling Measured From KB

Other Services
None

Elevation
K.B. 4658
D.F. 4657
G.L. 4641

Date June 26, 2014

Run Number 1

Depth Driller 5547'

Depth Logger 4353'

Bottom Logged Interval 4353

Top Log Interval Casing

Casing Driller 469'

Casing Logger 470'

Bit Size 8-3/4"

Type Fluid in Hole Chem Gel

Density / Viscosity 9.3 / 35

pH / Fluid Loss 9.5 / 8.0

Source of Sample Mudpit

Rm @ Meas. Temp 2.84 @ 70 F

Rmf @ Meas. Temp 2.27 @ 70 F

Rmc @ Meas. Temp 3.55 @ 70 F

Source of Rmf / Rmc Measure / Calc

Rm @ BHT 1.14 @ 174 F

Time Circulation Stopped 2100 7/25

Time Logger on Bottom 0145

Maximum Recorded Temperature 174 F

Equipment Number 48

Location Ft. Morgan

Recorded By Matt Gill

Witnessed By Michael Perez

<<< 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.

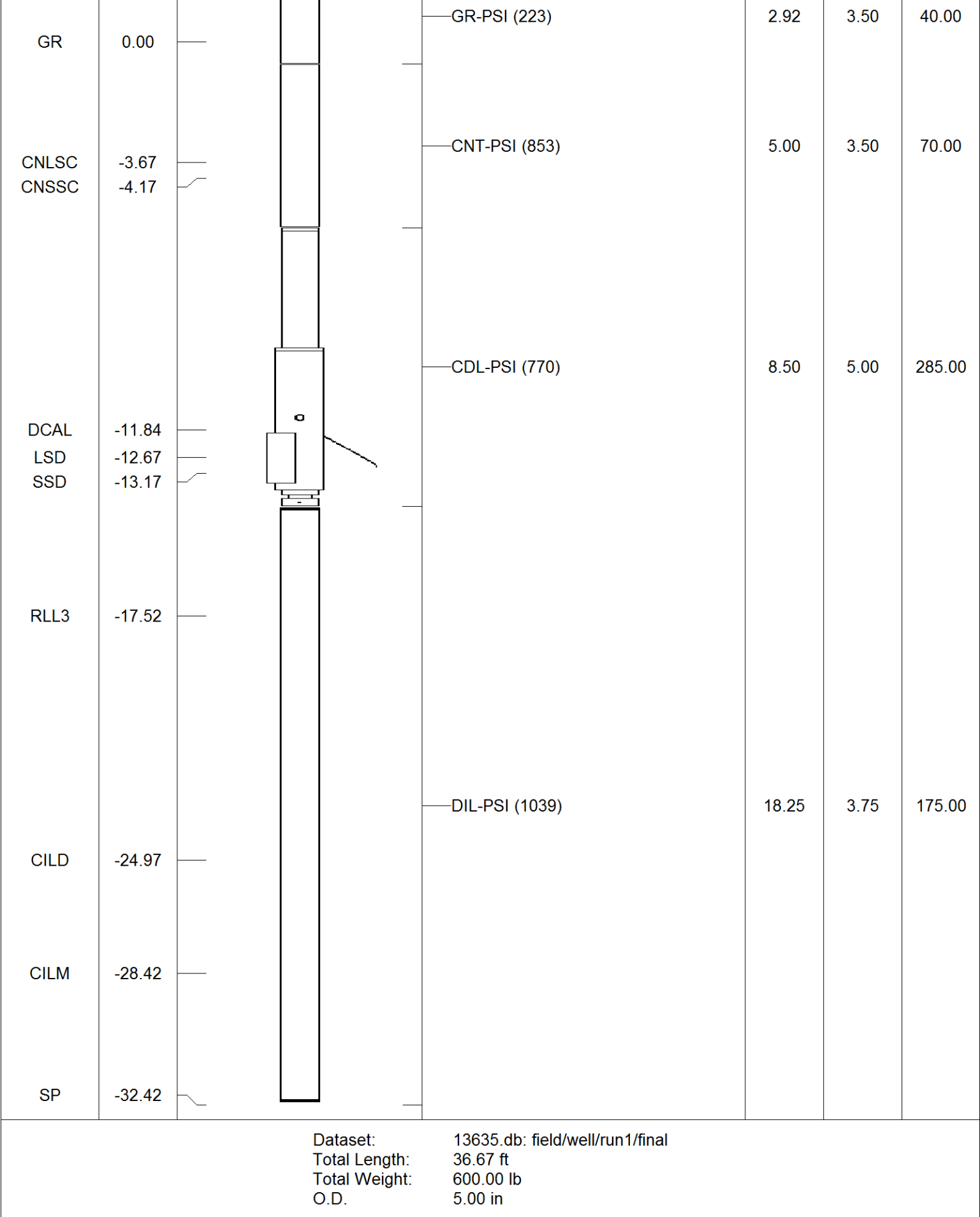
Comments

Annular Volumes for 7" casing

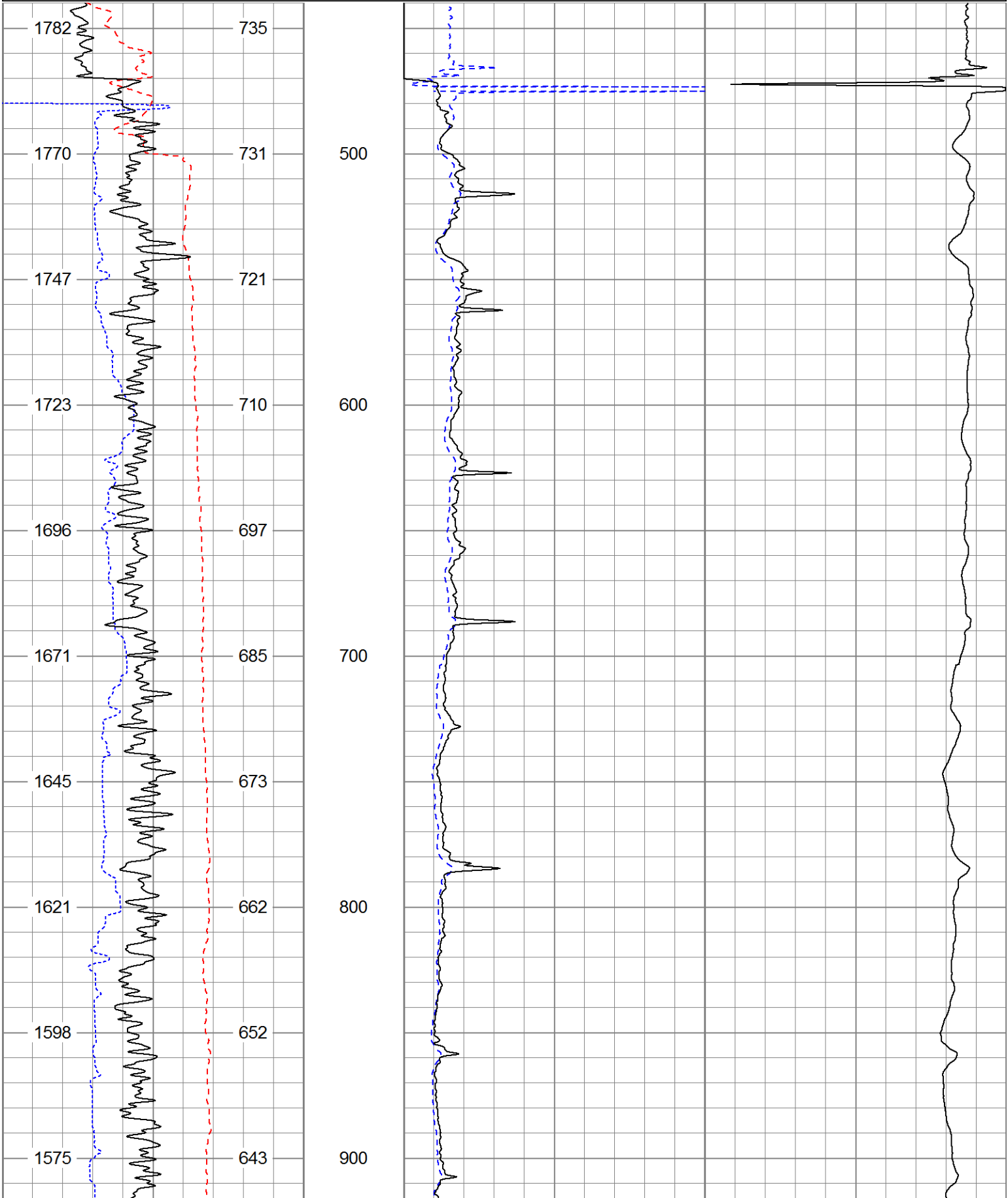
Cade Drilling Rig 21

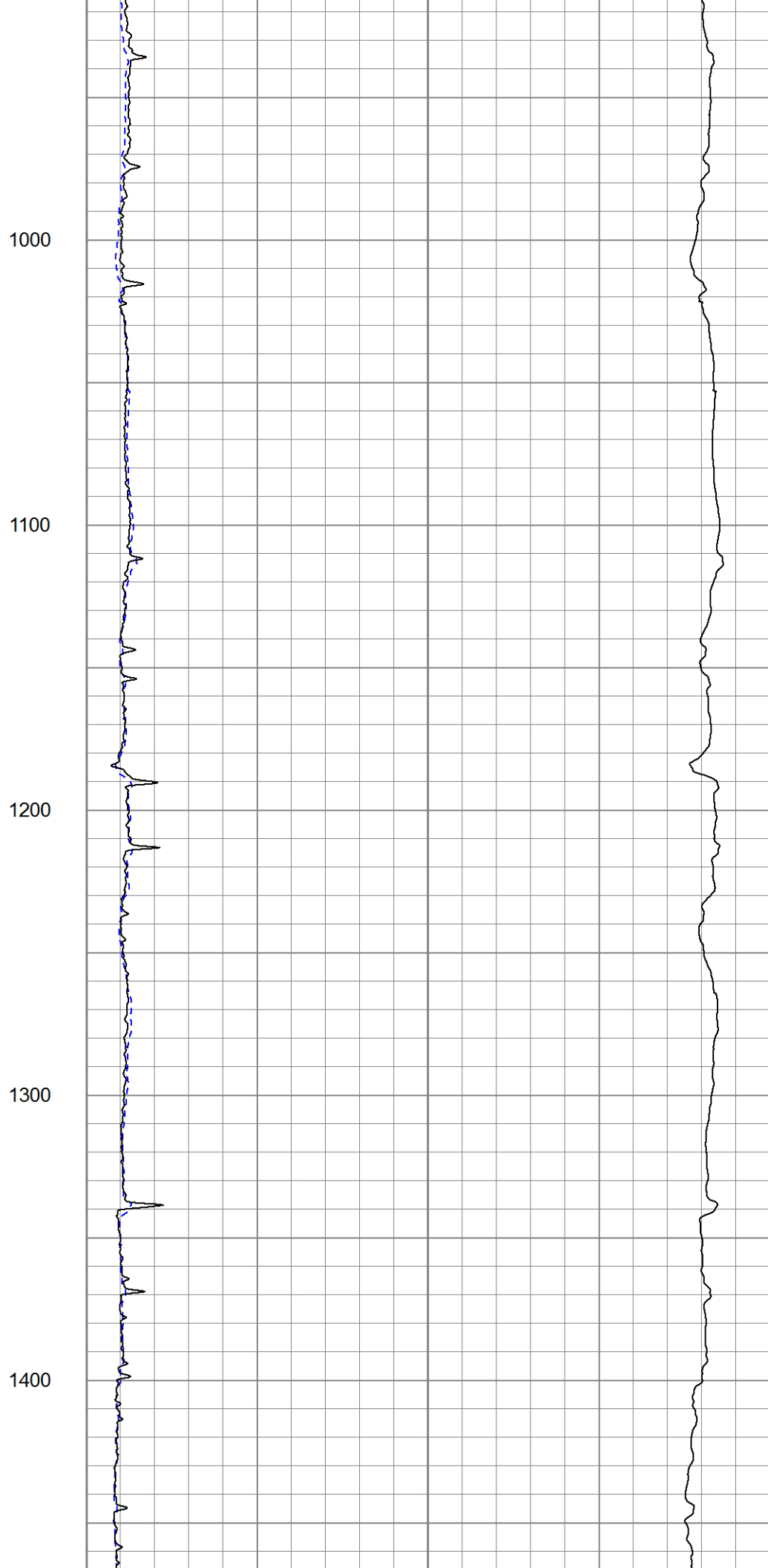
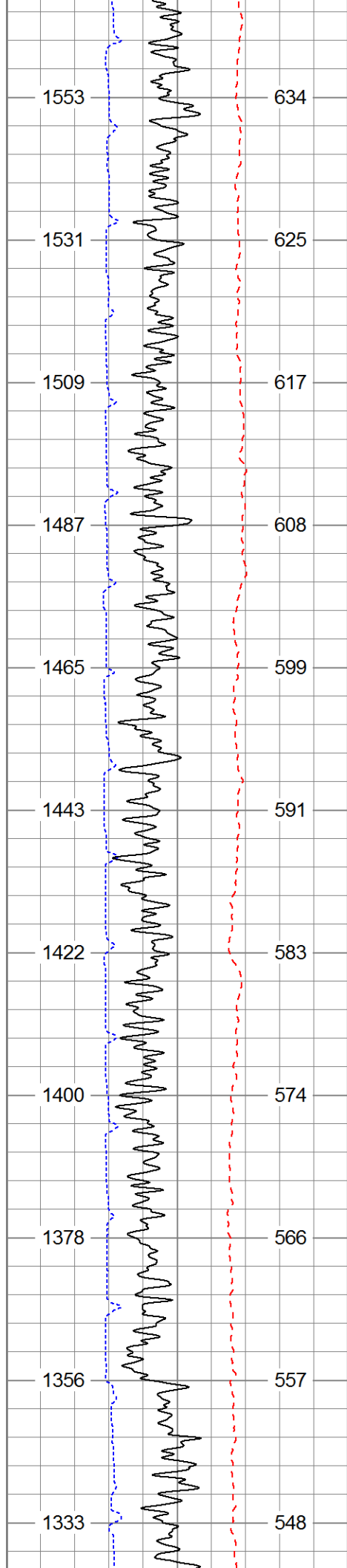
Thank You for using Pioneer Energy Services!

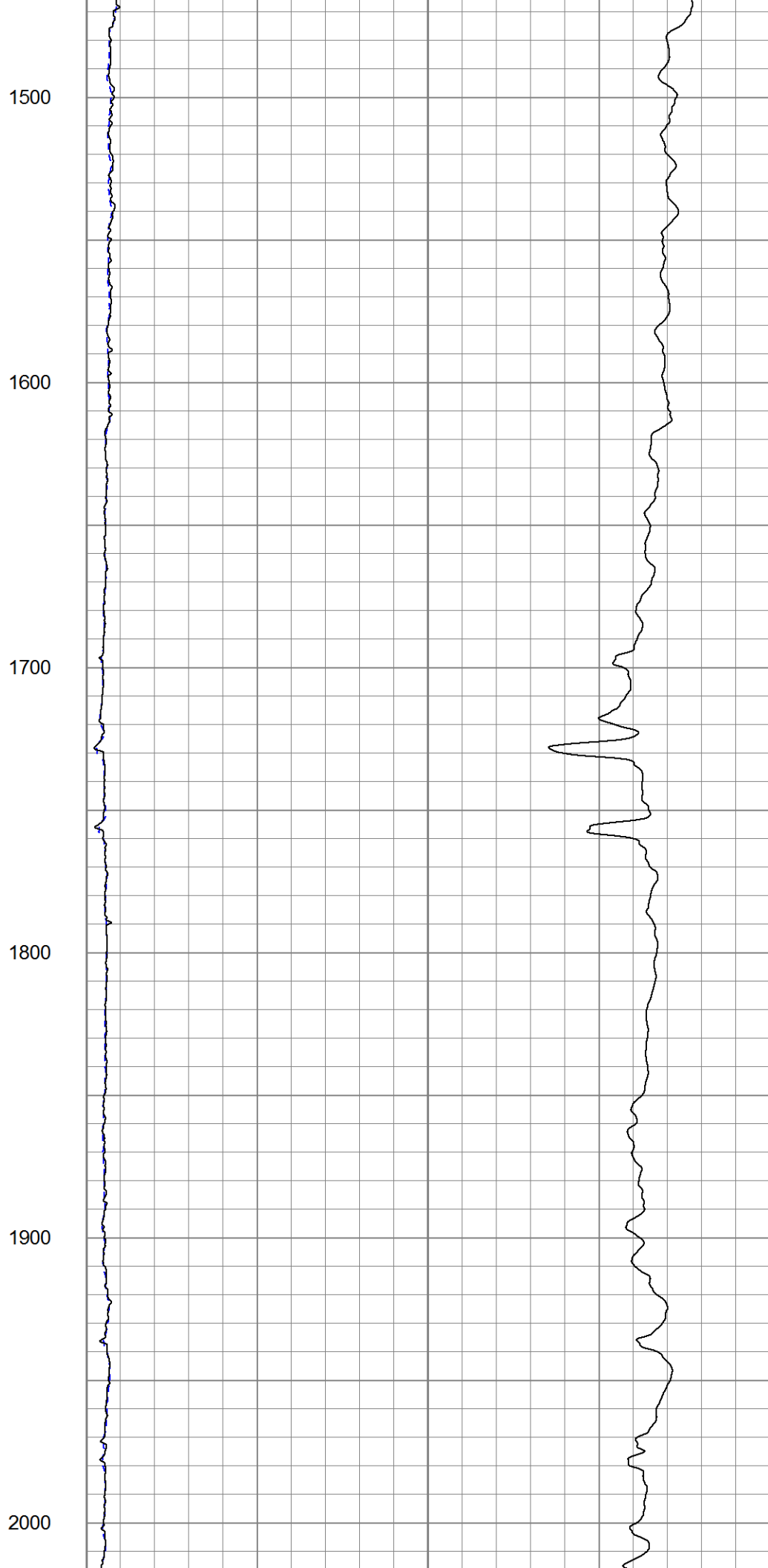
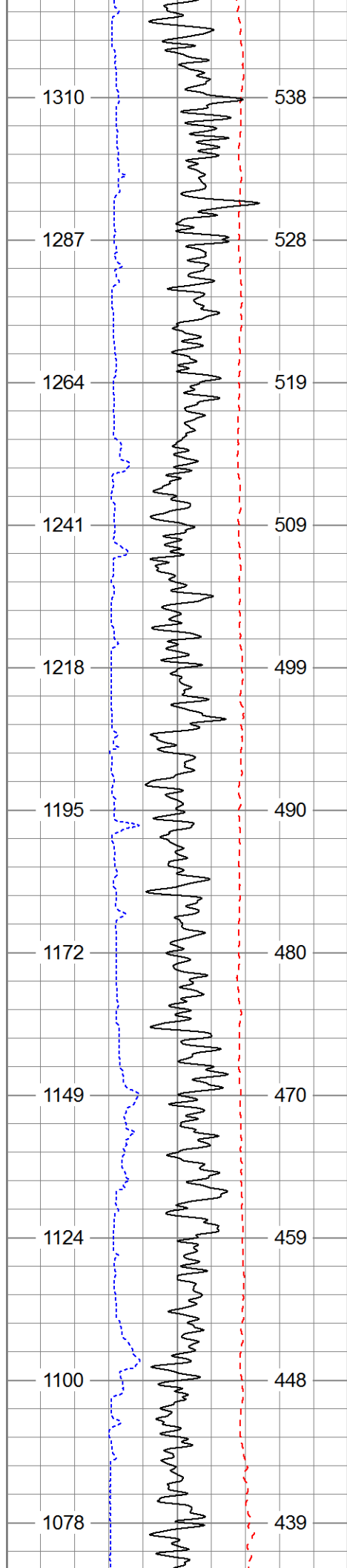
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			CHD (~0)	2.00	3.50	30.00

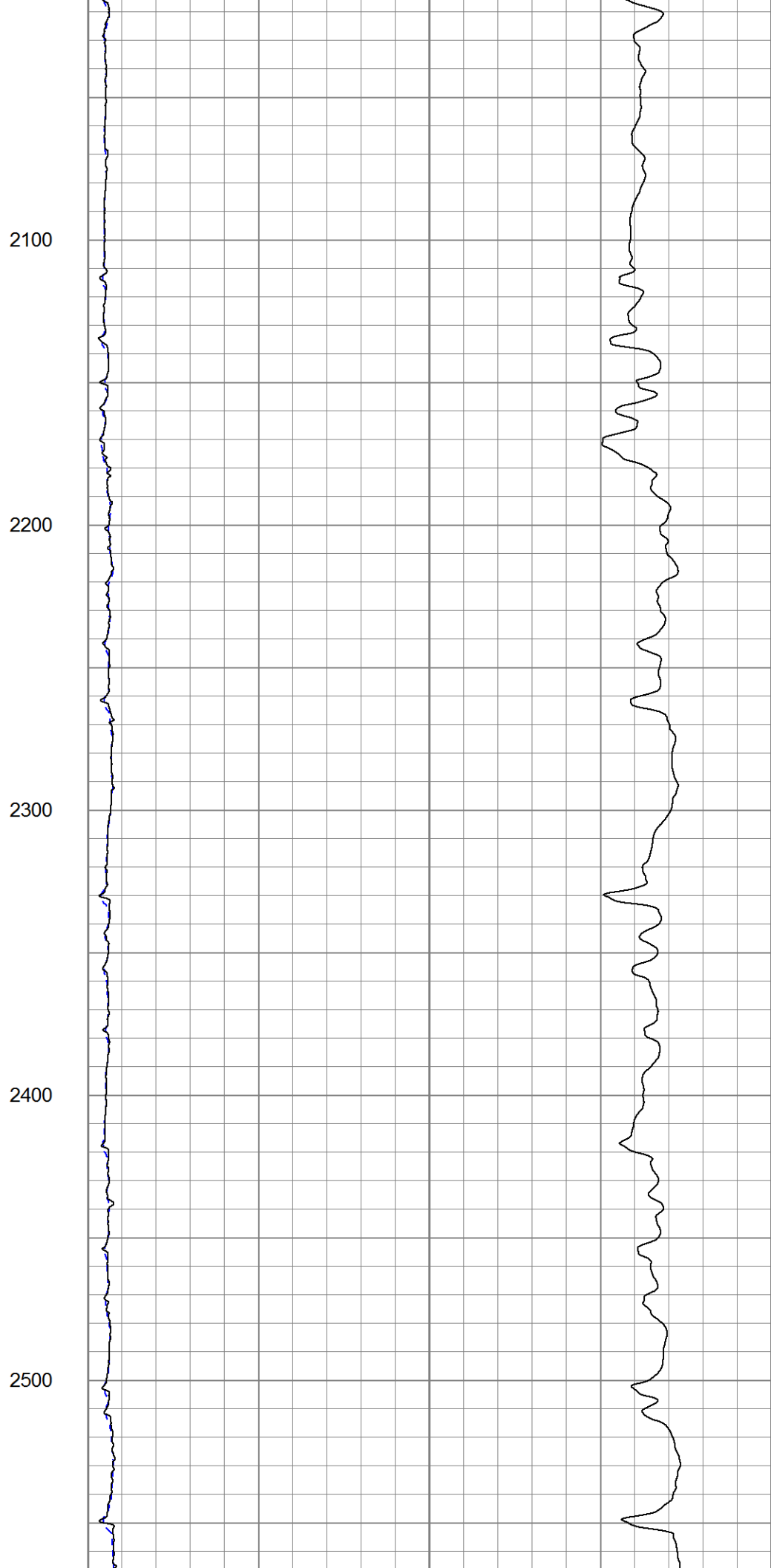
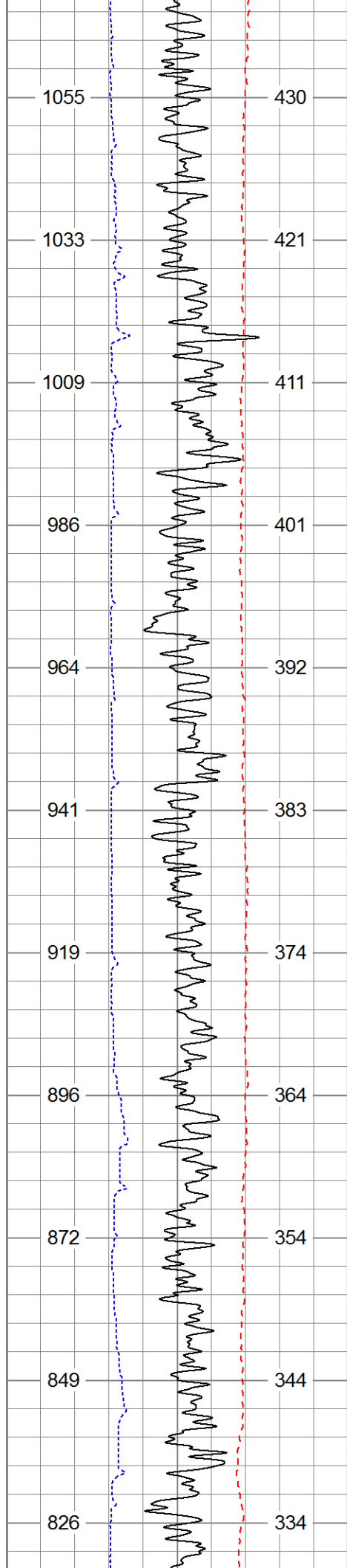


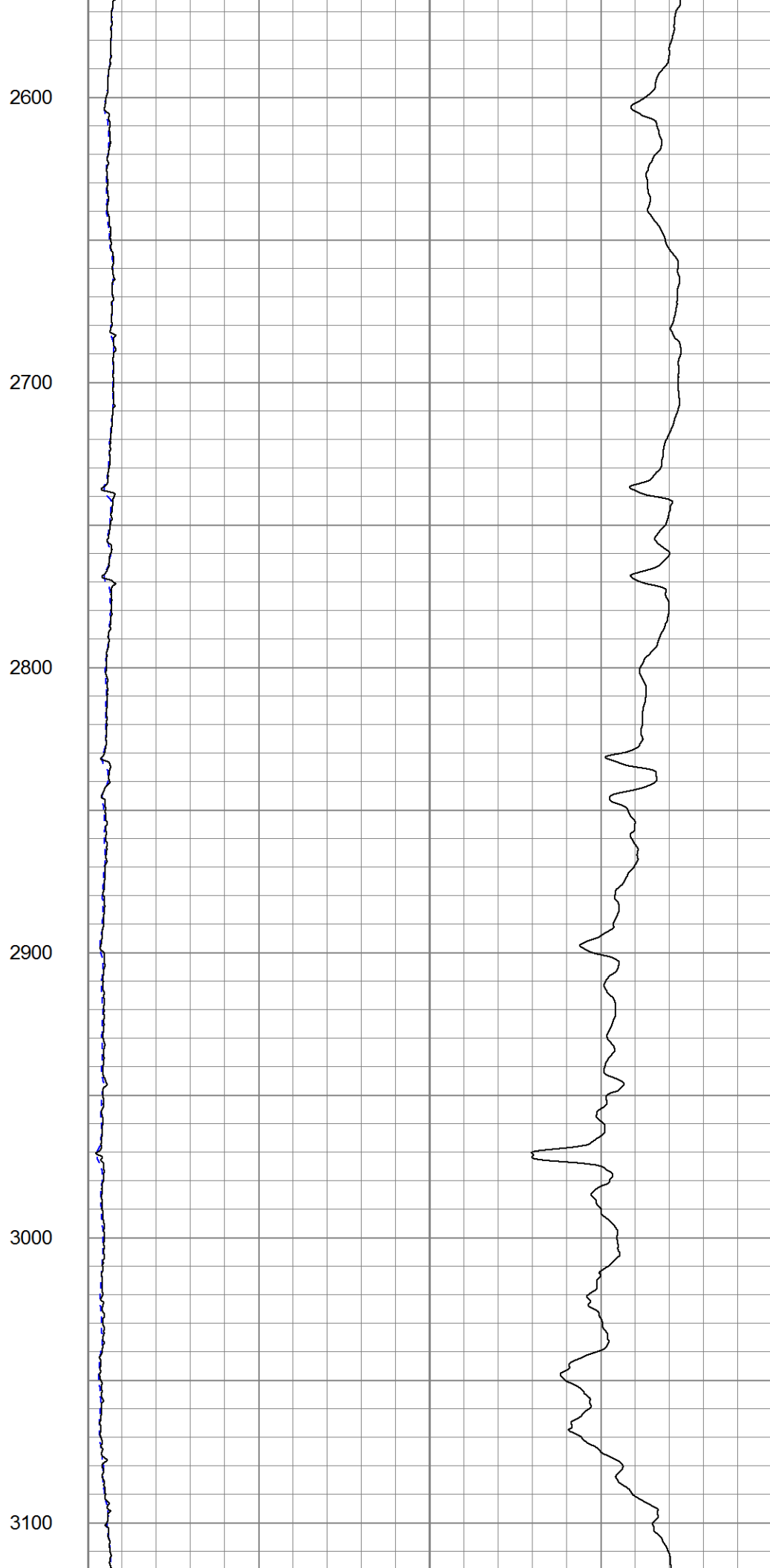
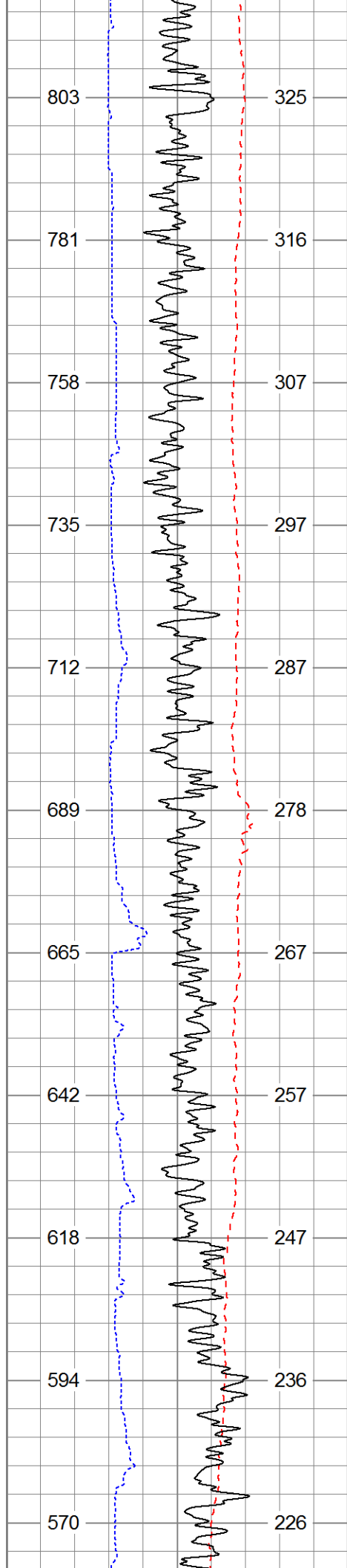
Charted by:			Depth in Feet scaled 1.000					
0	SP (mV)	200	0	Deep Resistivity (Ohm-m)	50	1000	CILD (mmho/m)	0
6	Caliper (in)	16	0	Shallow Resistivity (Ohm-m)	50			
0	Gamma Ray (GAPI)	200	50	RILD (Ohm-m)	500			
TBHV (ft3)		ABHV (ft3)	50	RLL3 (Ohm-m)	500			

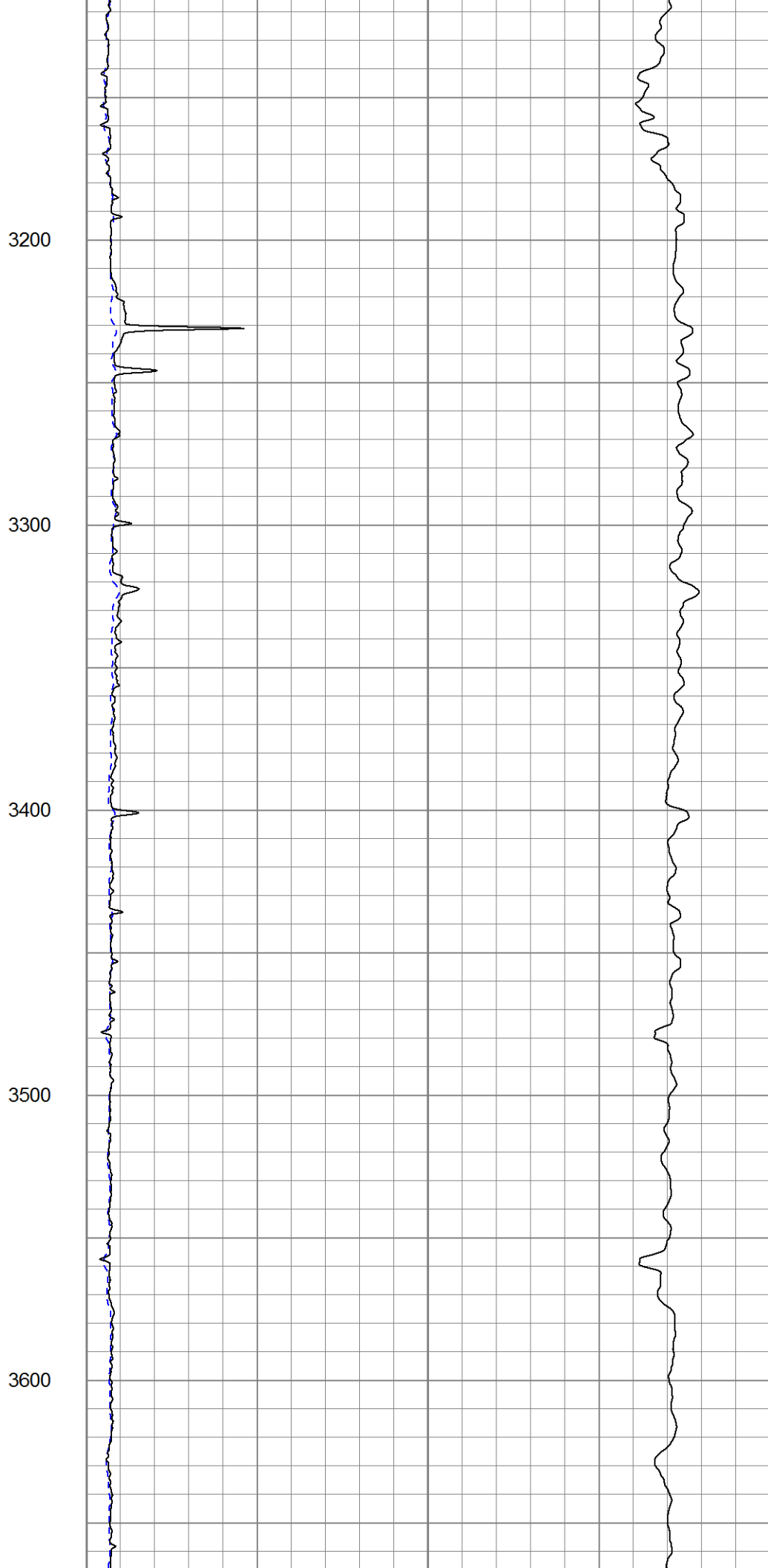
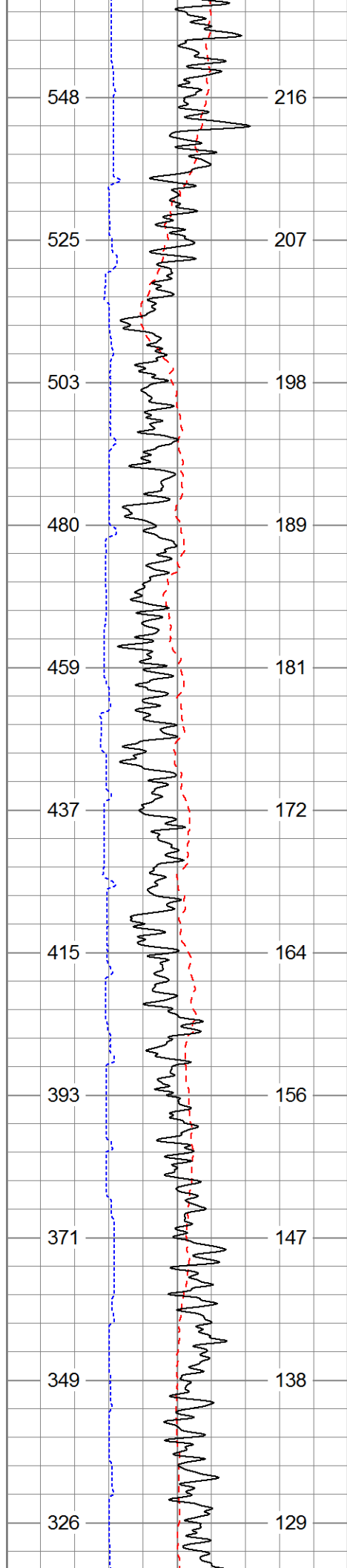


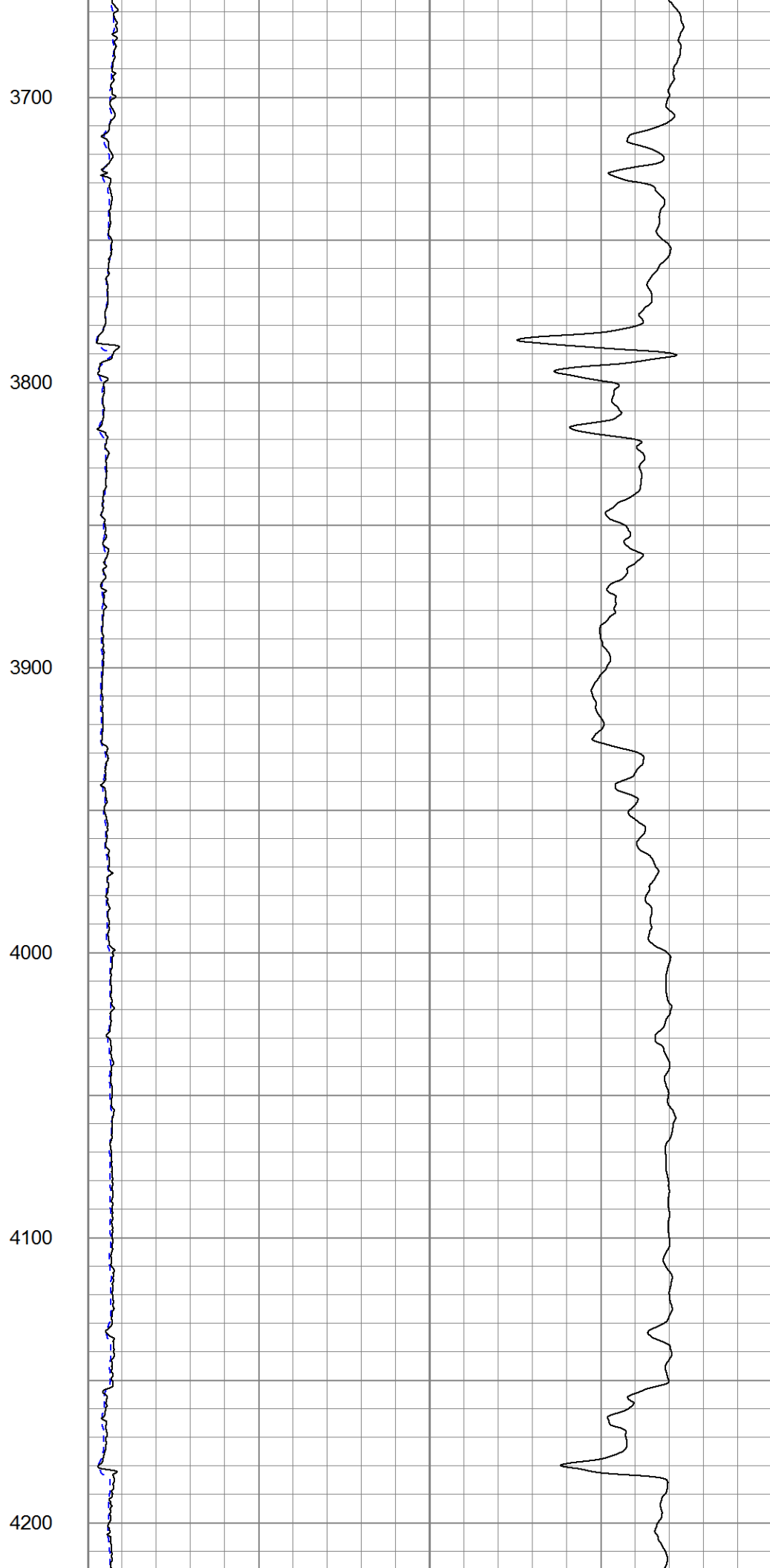
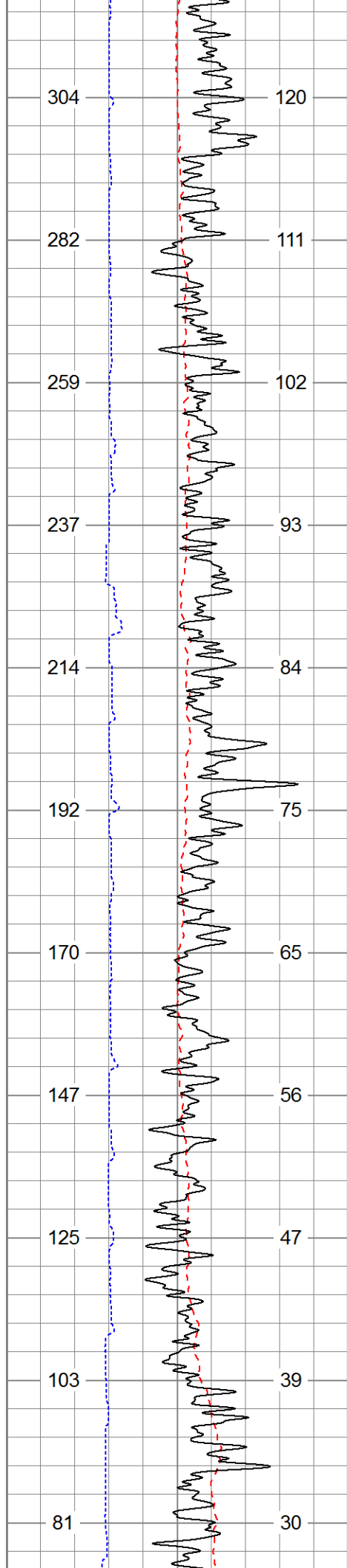


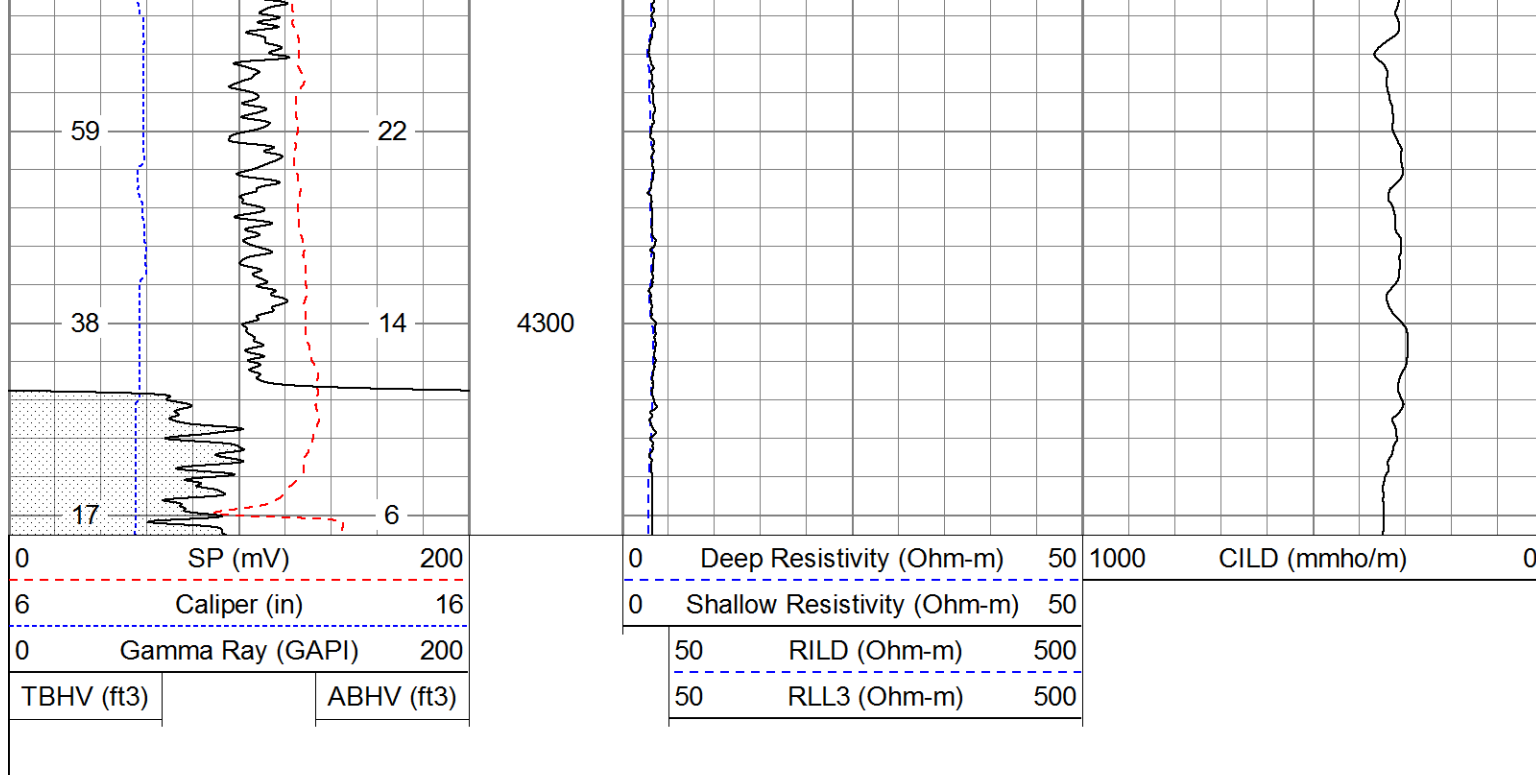






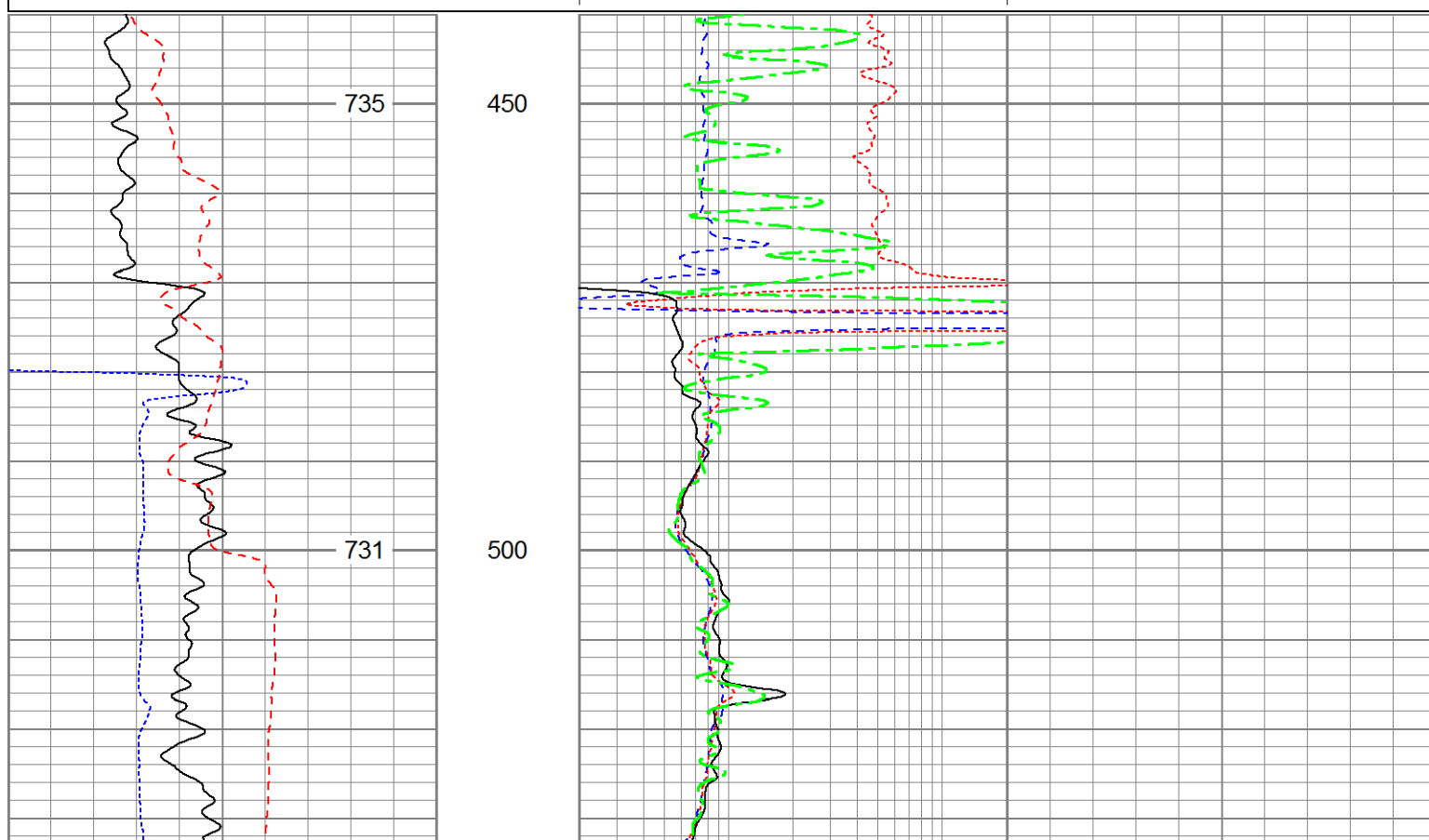


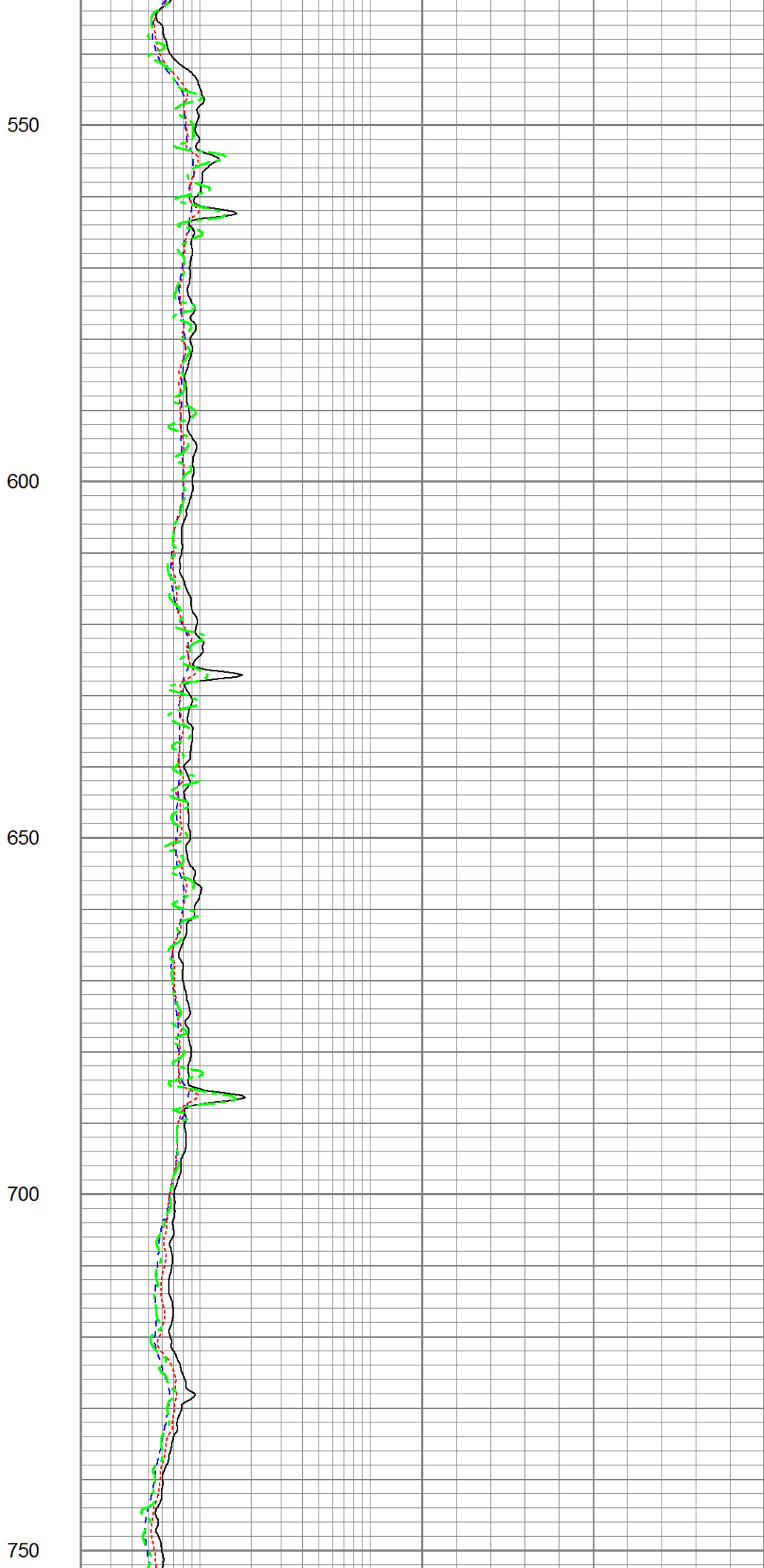
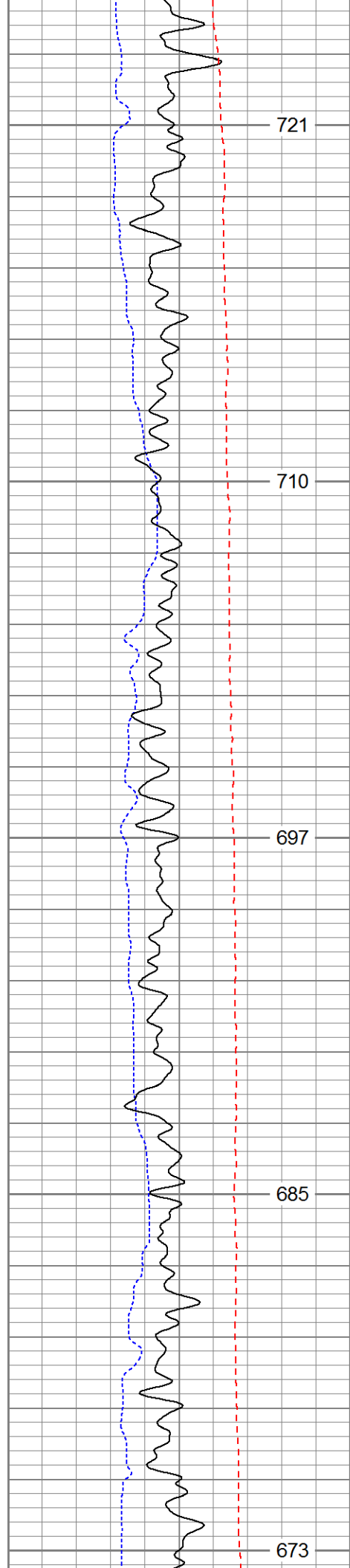


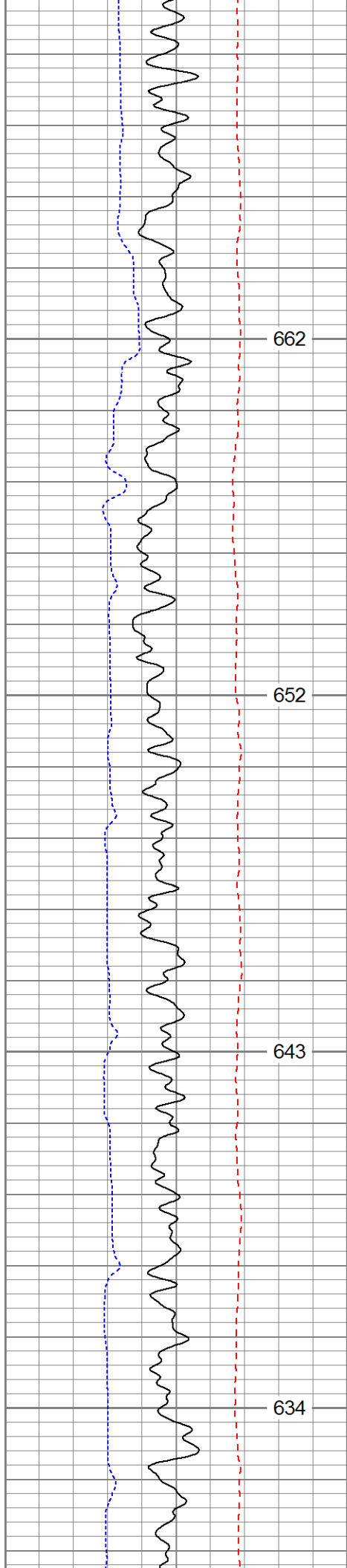


Database File: 13635.db
Dataset Pathname: final
Presentation Format: pdc
Dataset Creation: Sat Jul 26 06:43:50 2014
Charted by: Depth in Feet scaled 1:240

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0	Gamma Ray (GAPI)	200	2	Medium Resistivity (Ohm-m)	200	20	Neutron Porosity (pu)	0
0	SP (mV)	200	2	Shallow Resistivity (Ohm-m)	200			
			2	Rt (Ohm-m)	200			





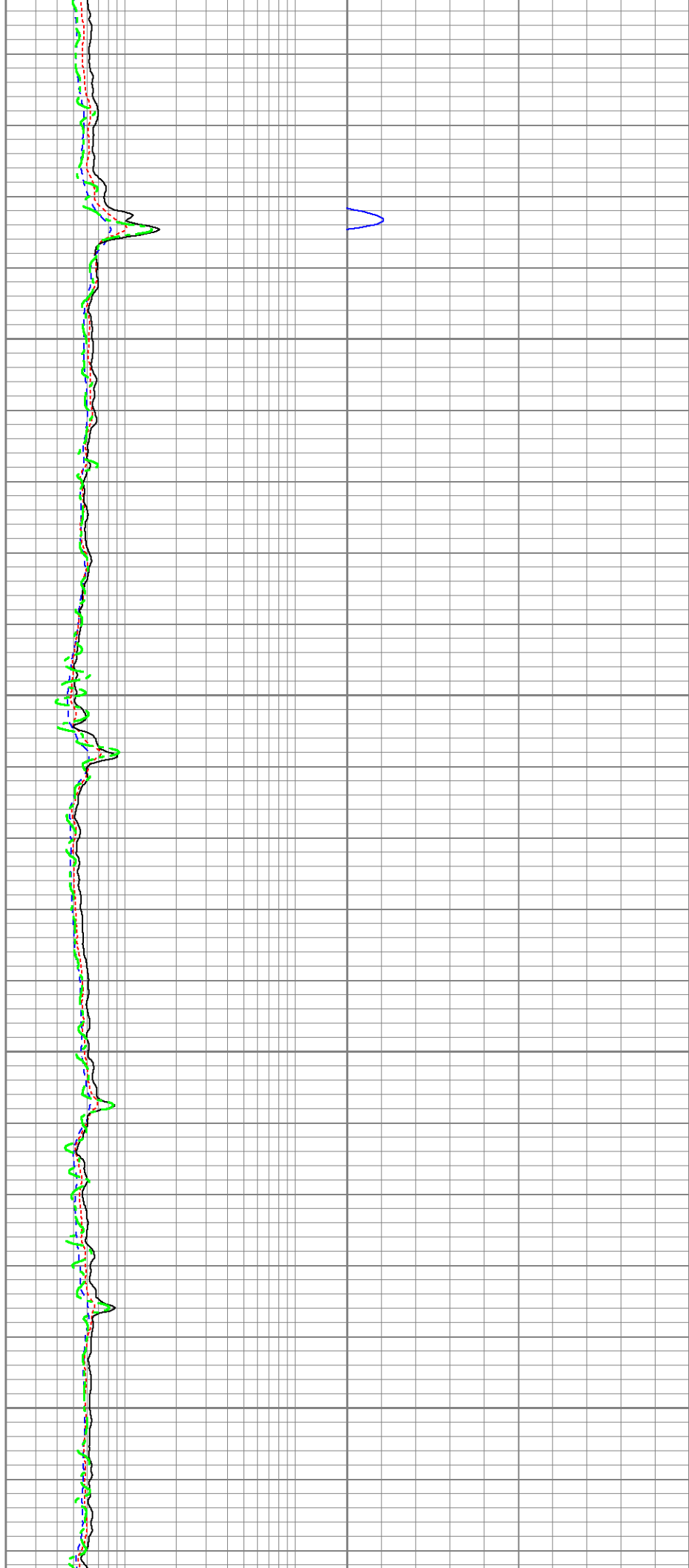


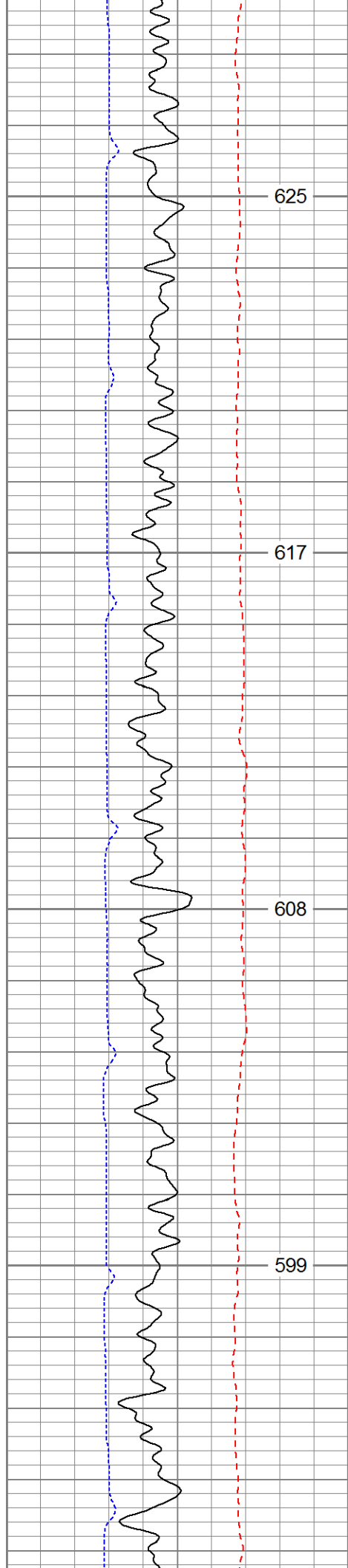
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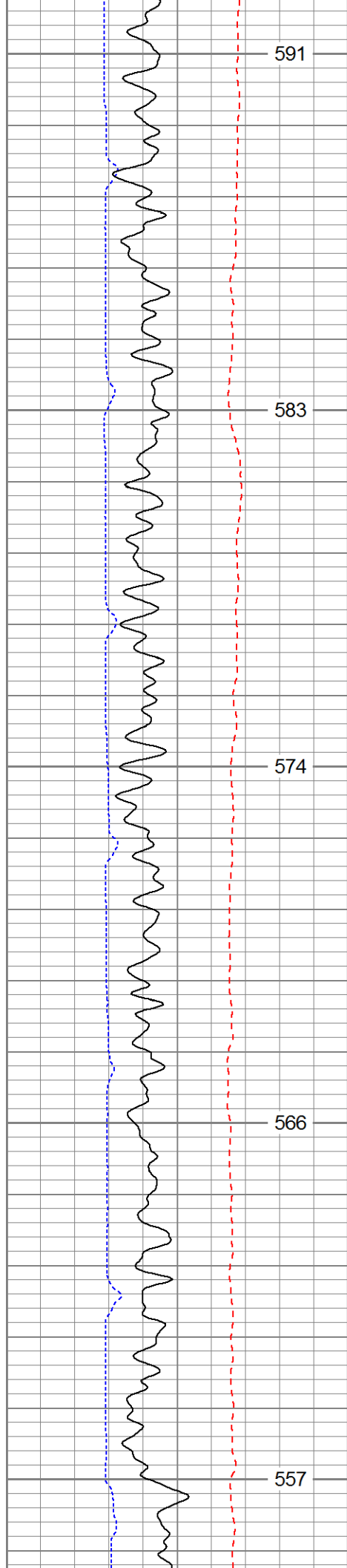
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900

950







1200

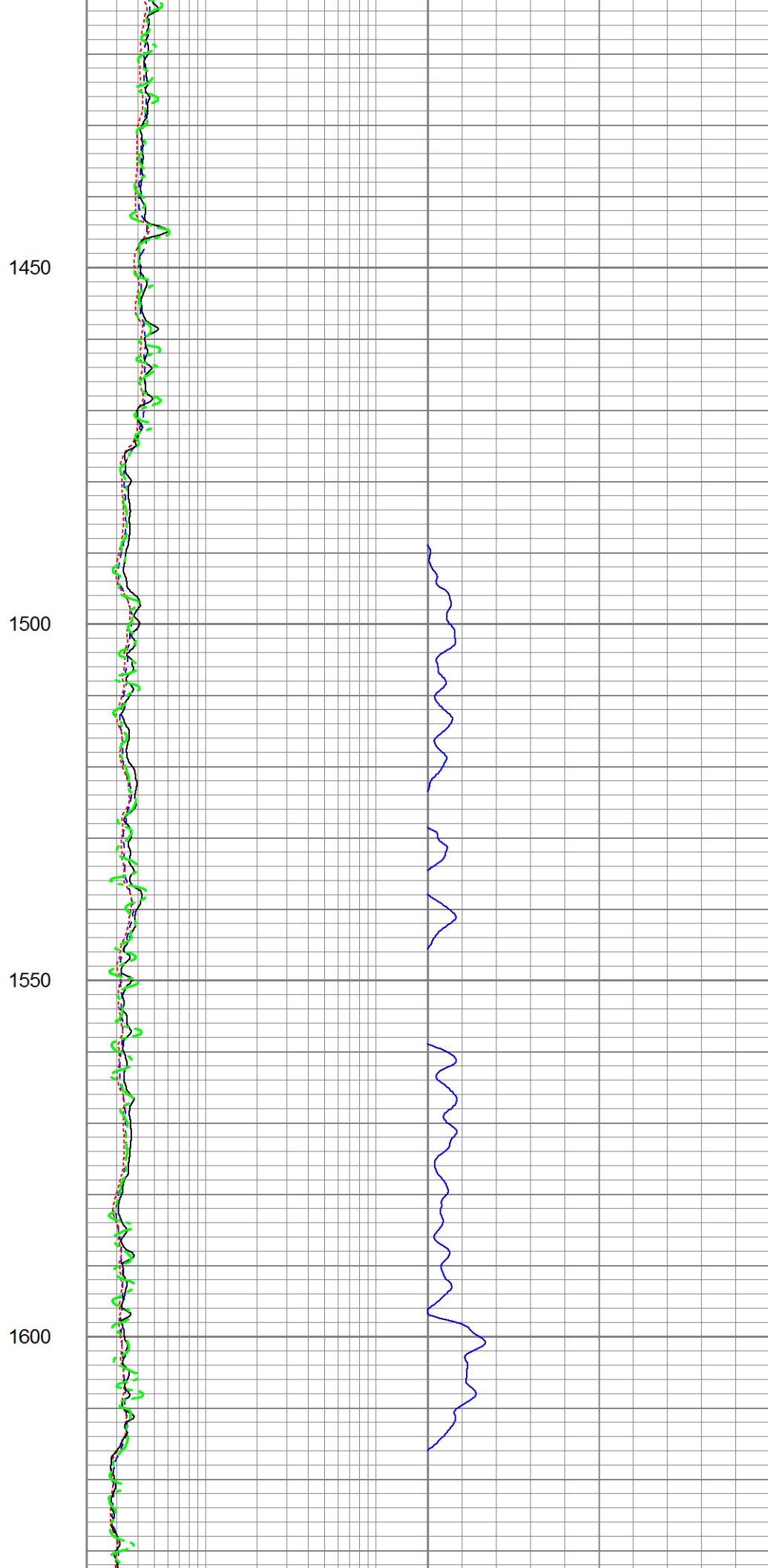
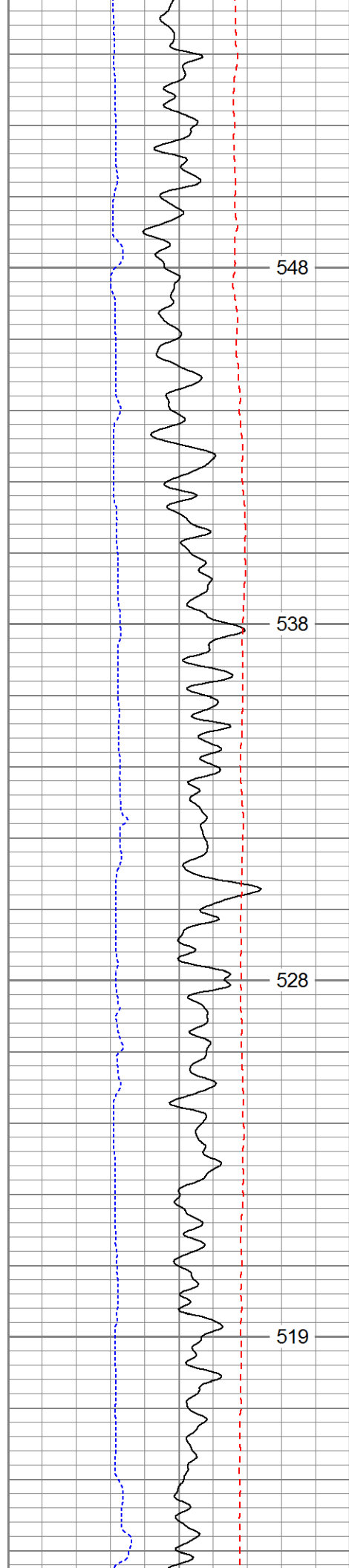
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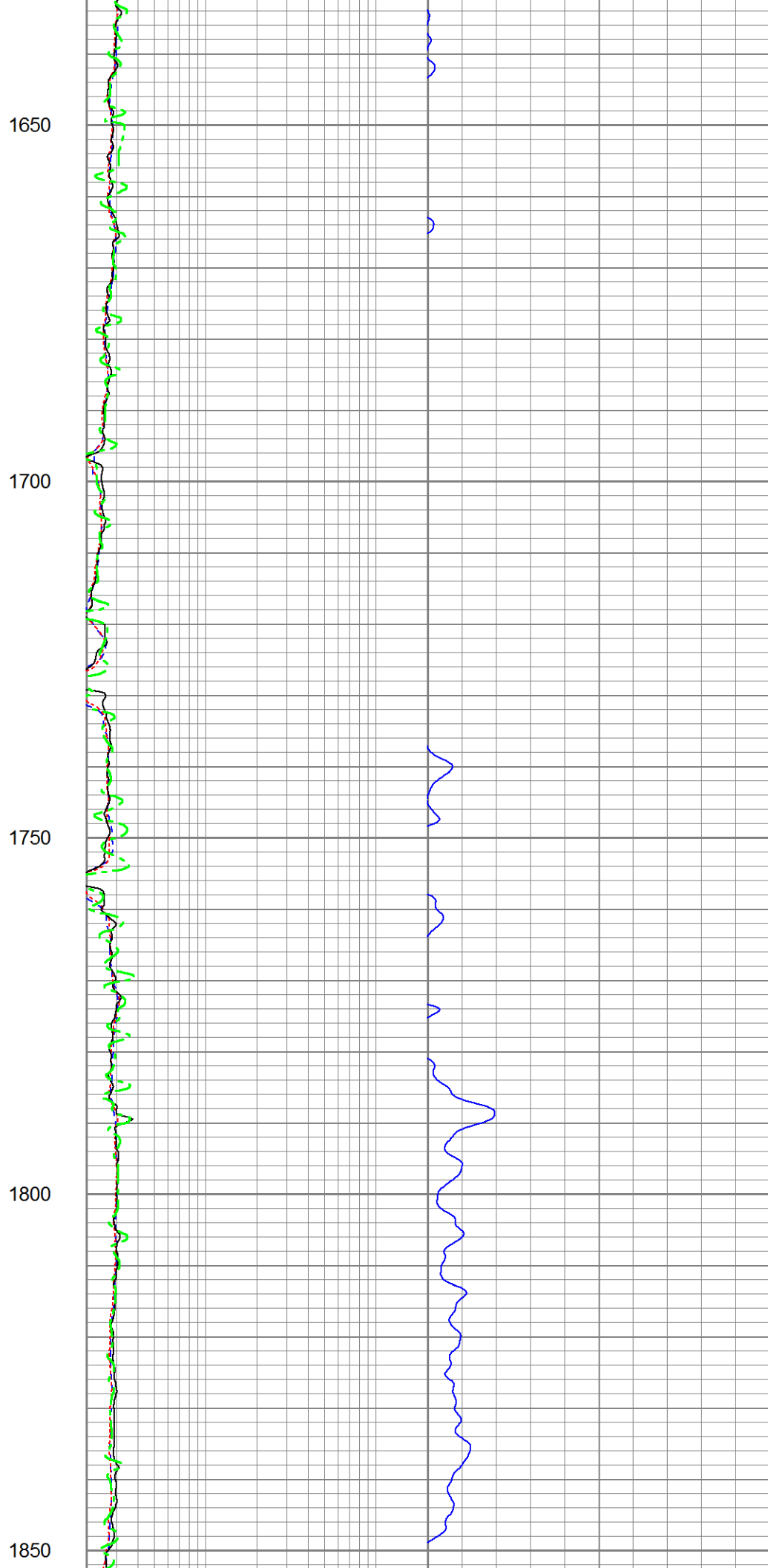
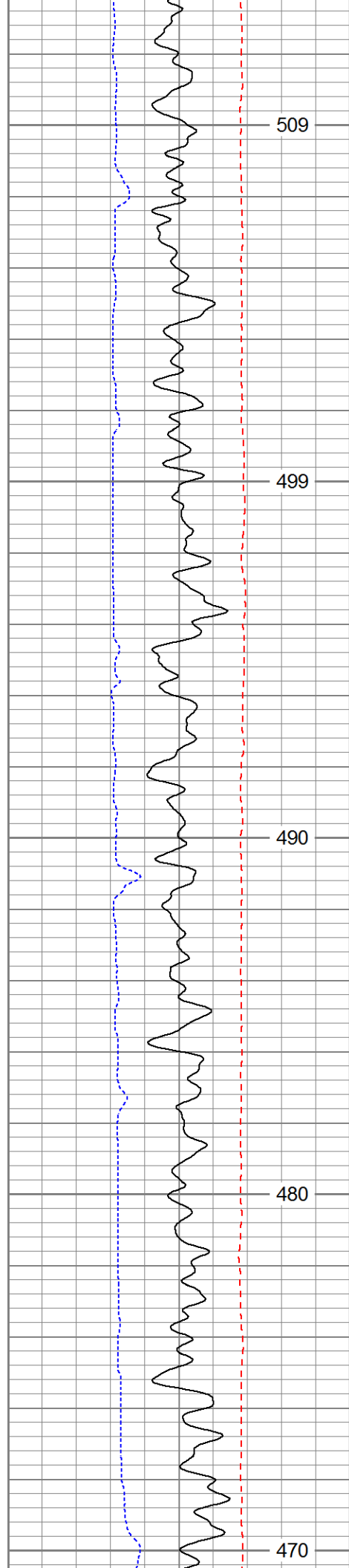
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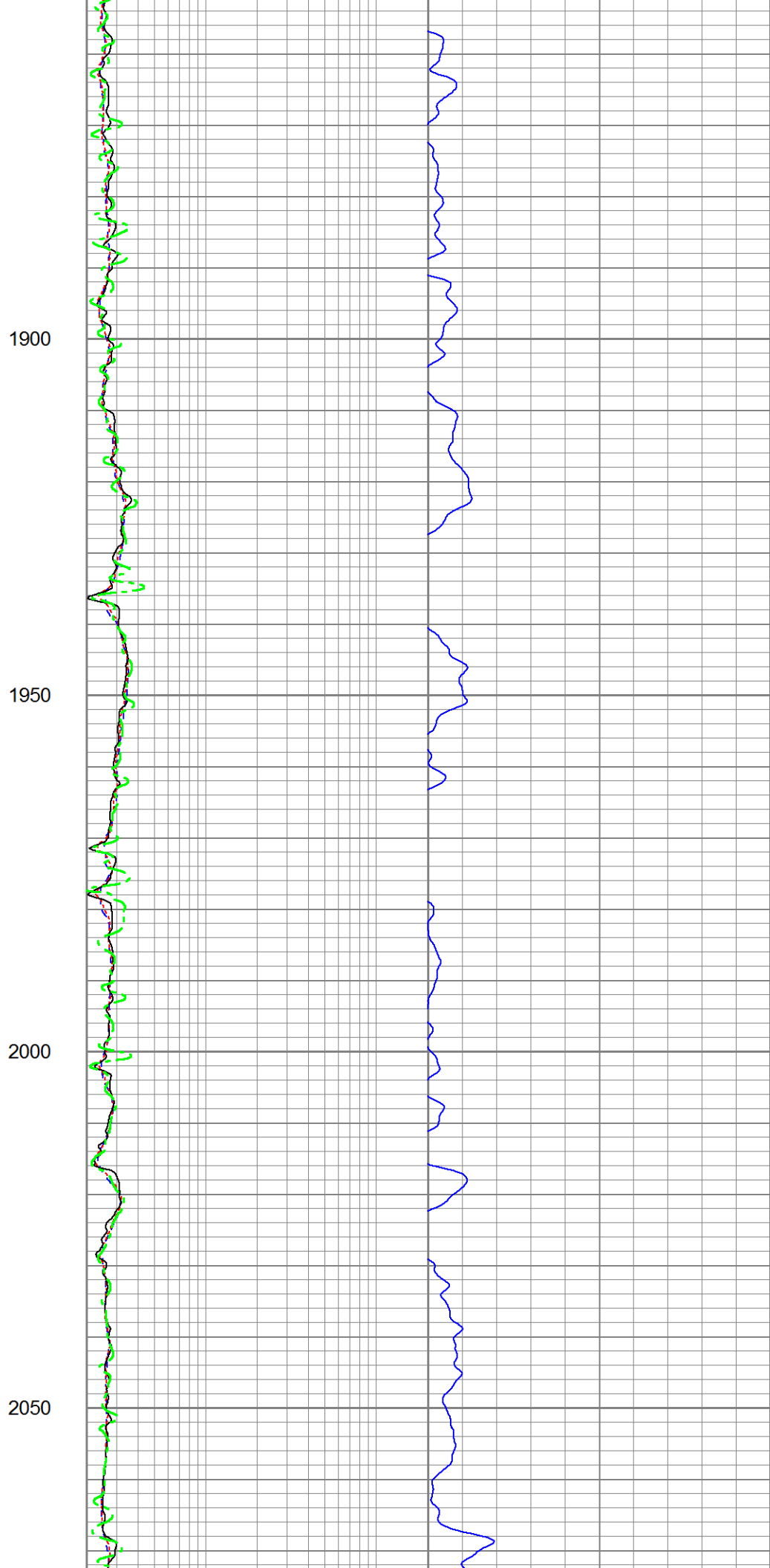
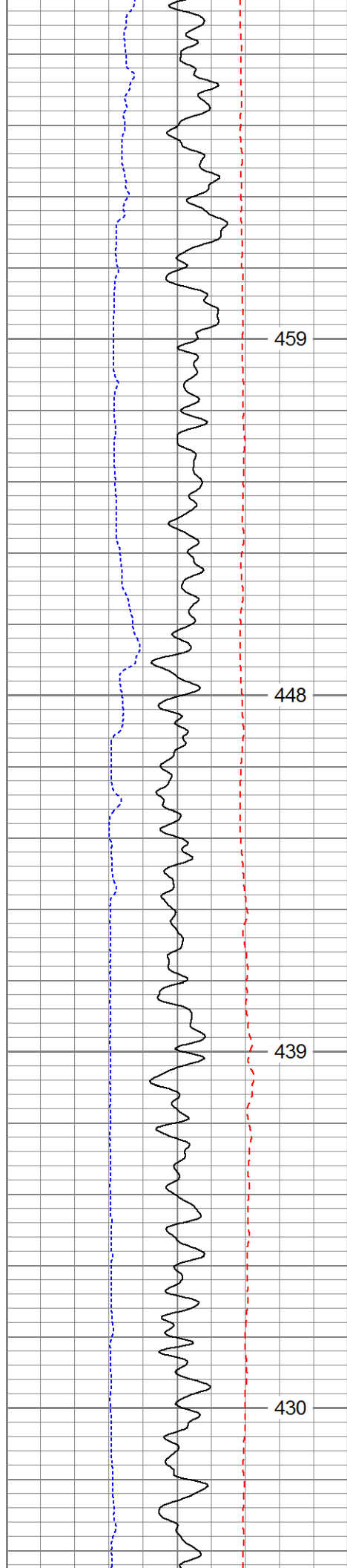
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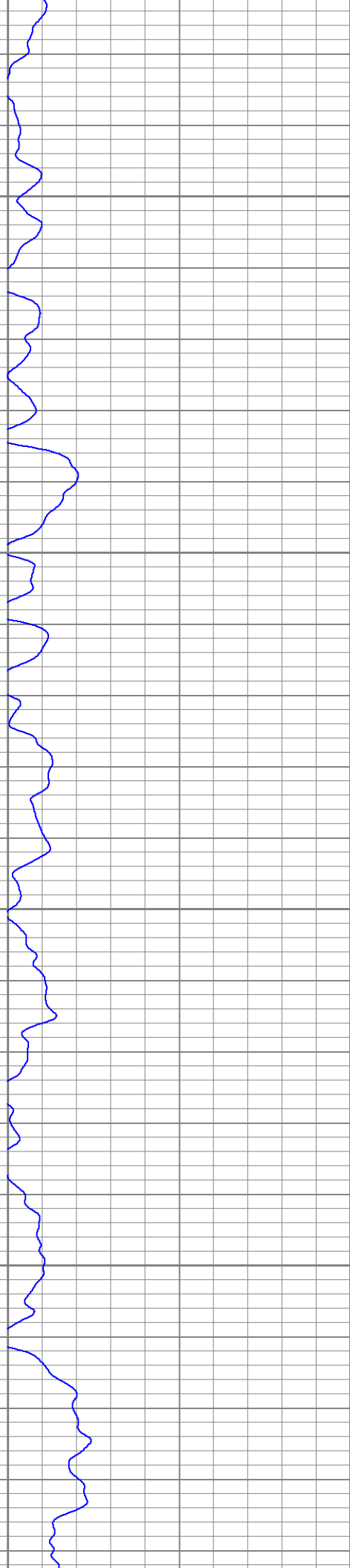
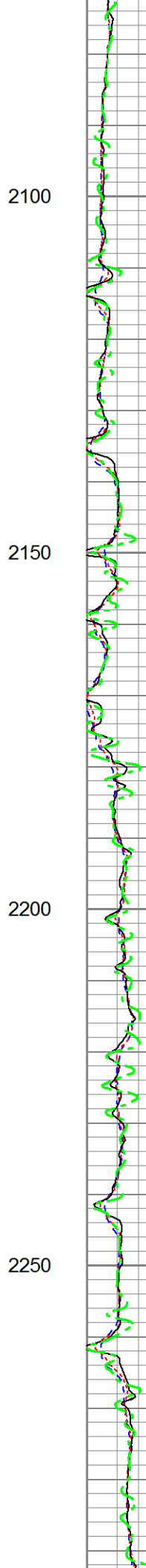
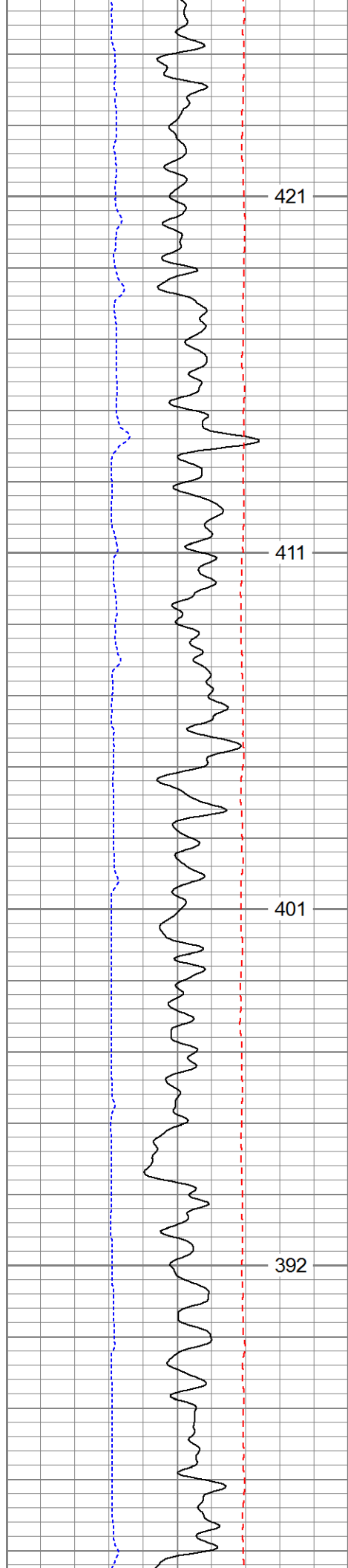
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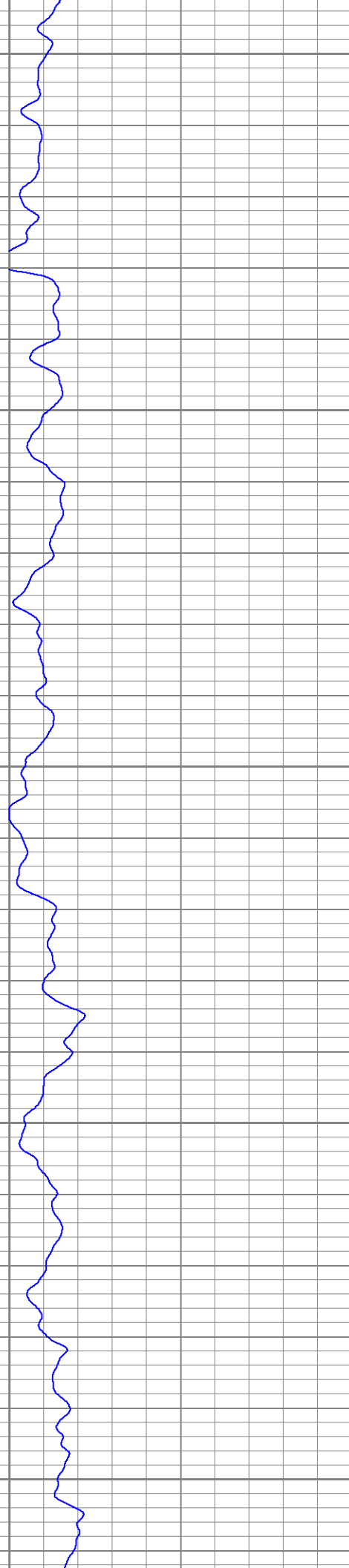
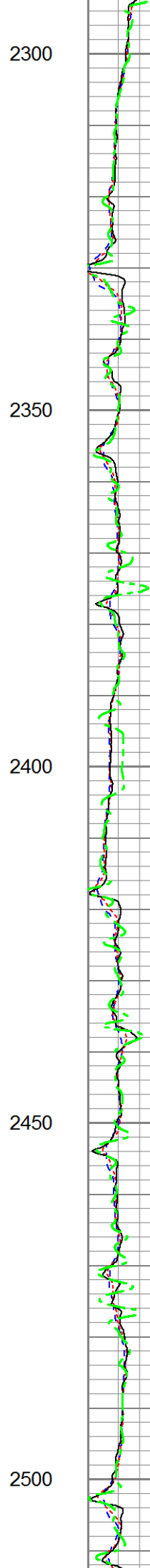
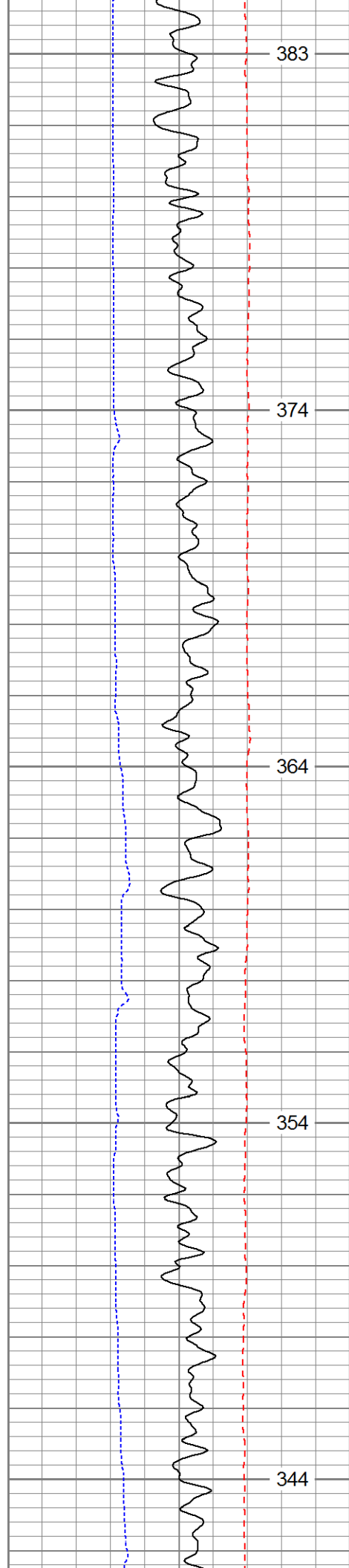


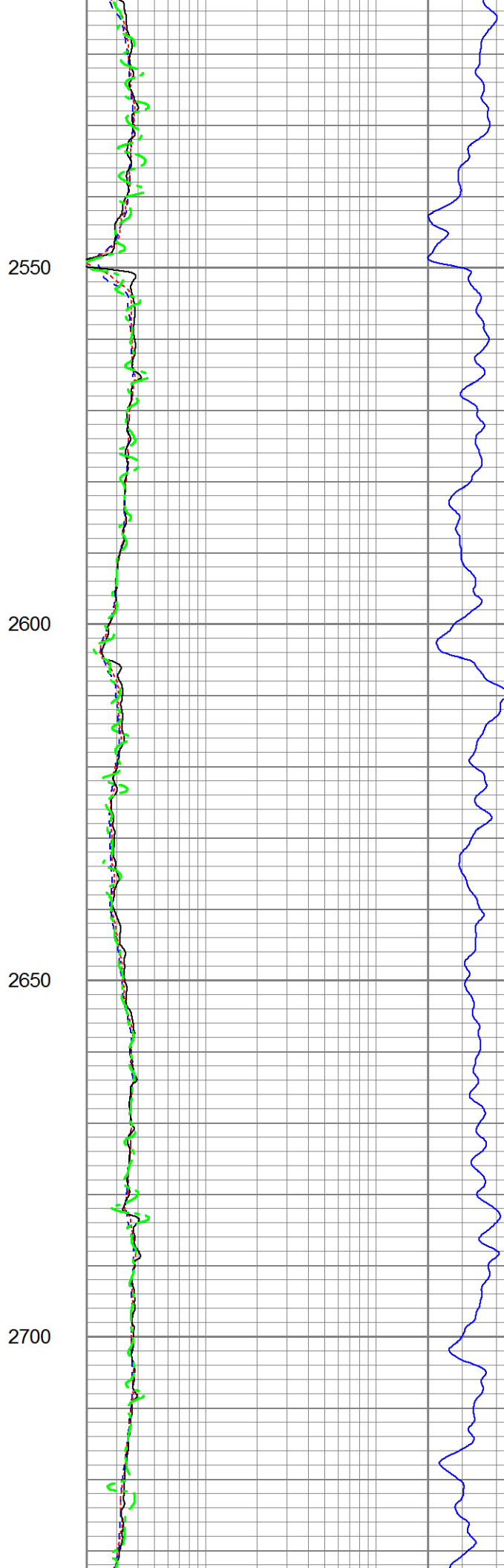
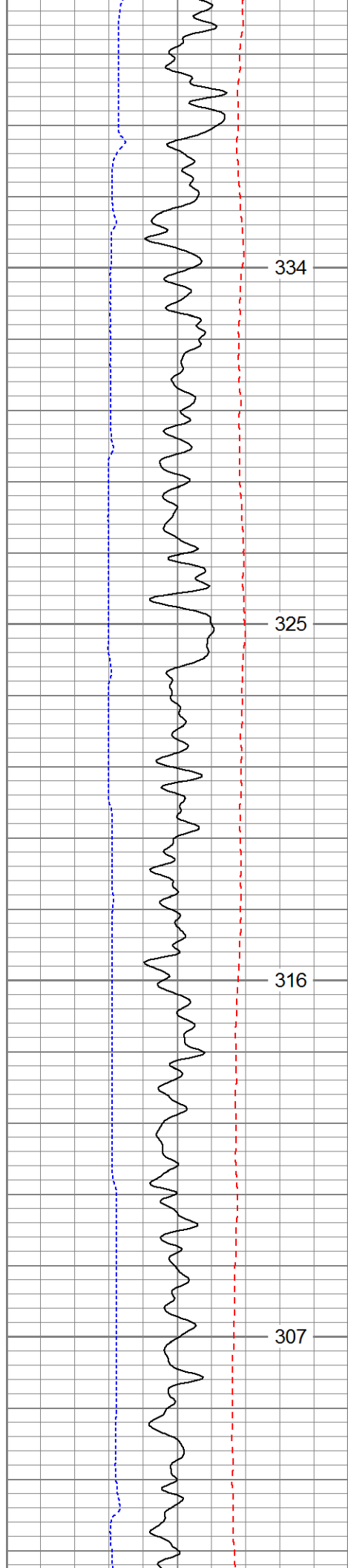


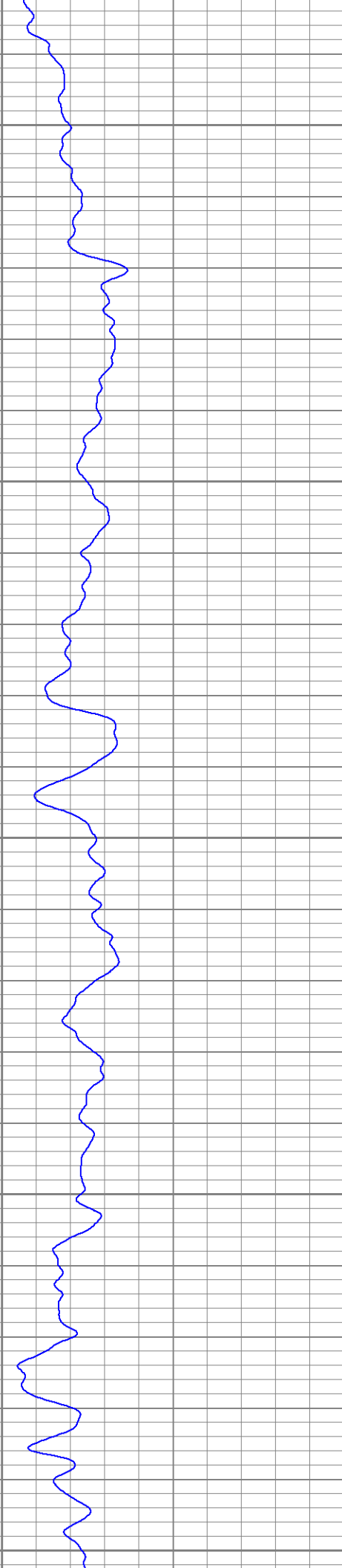
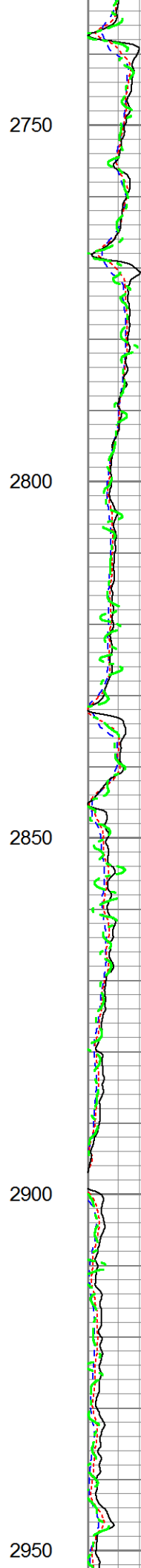
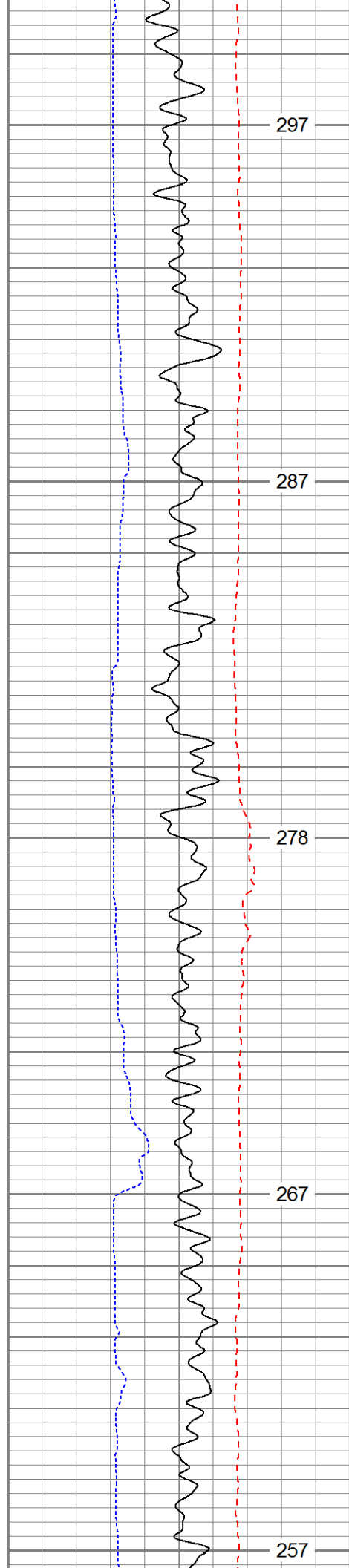


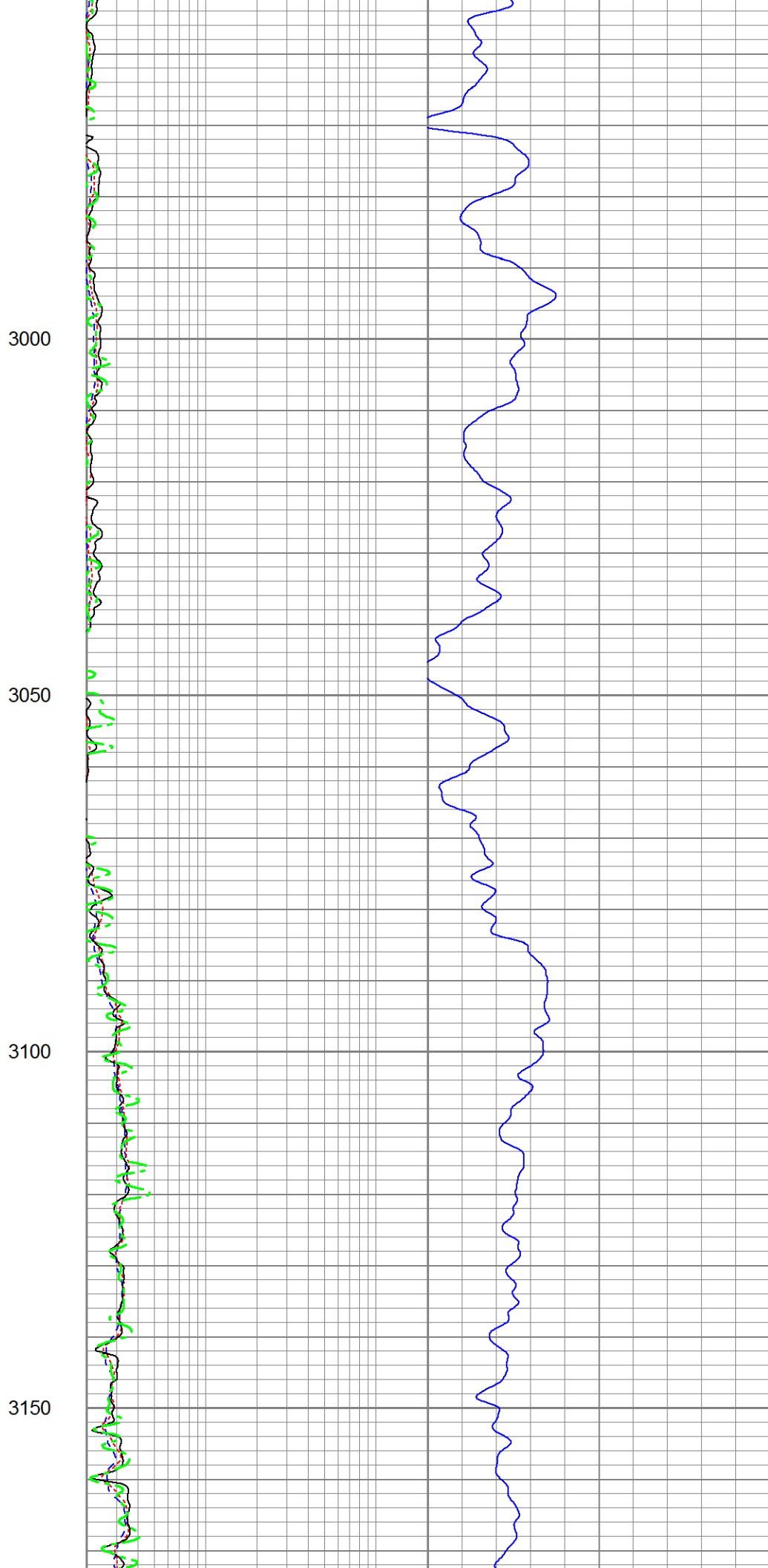
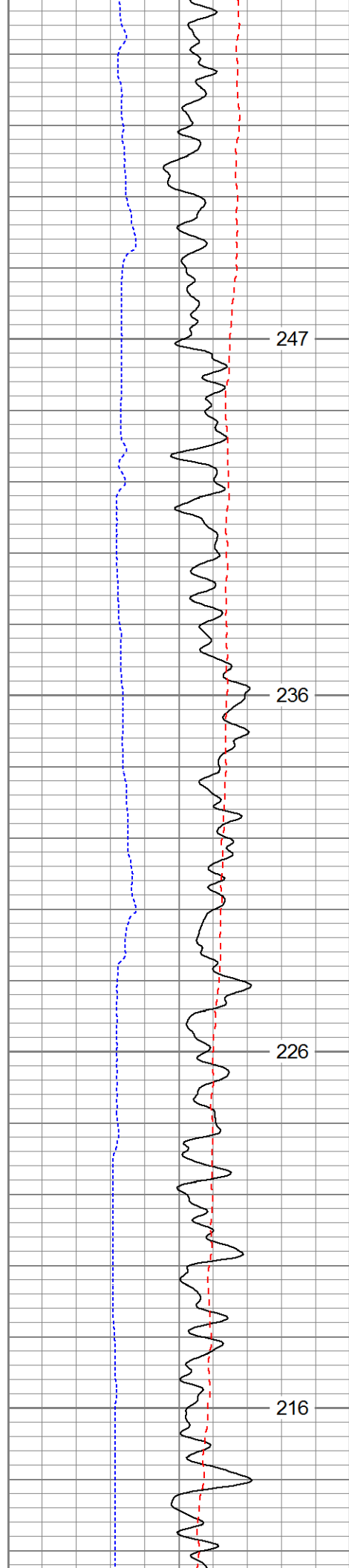


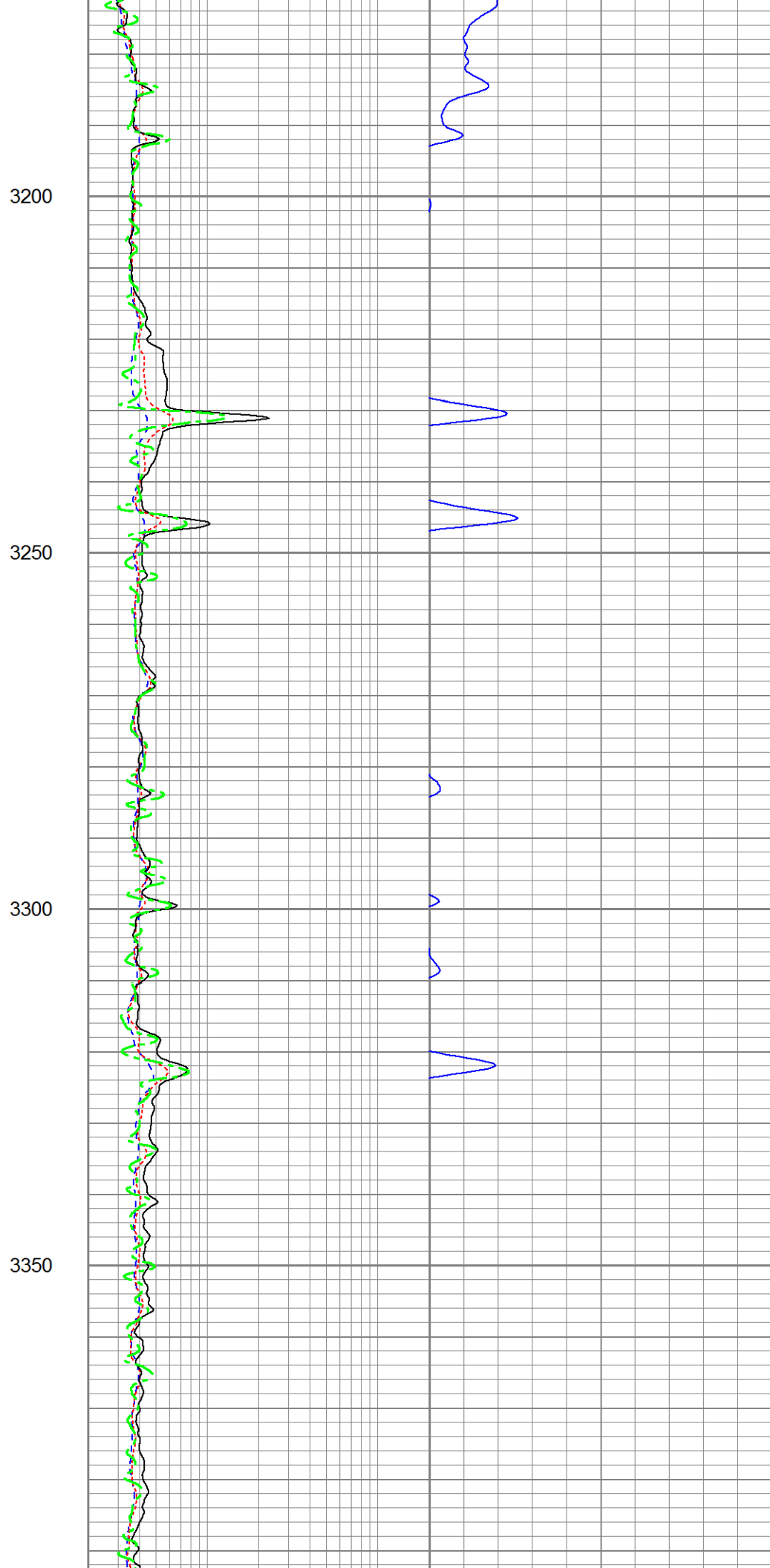
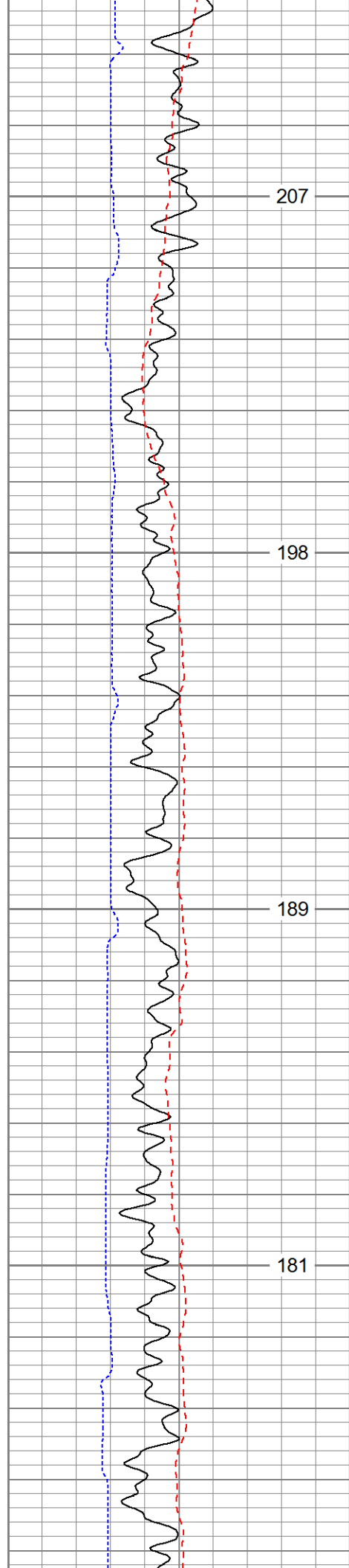


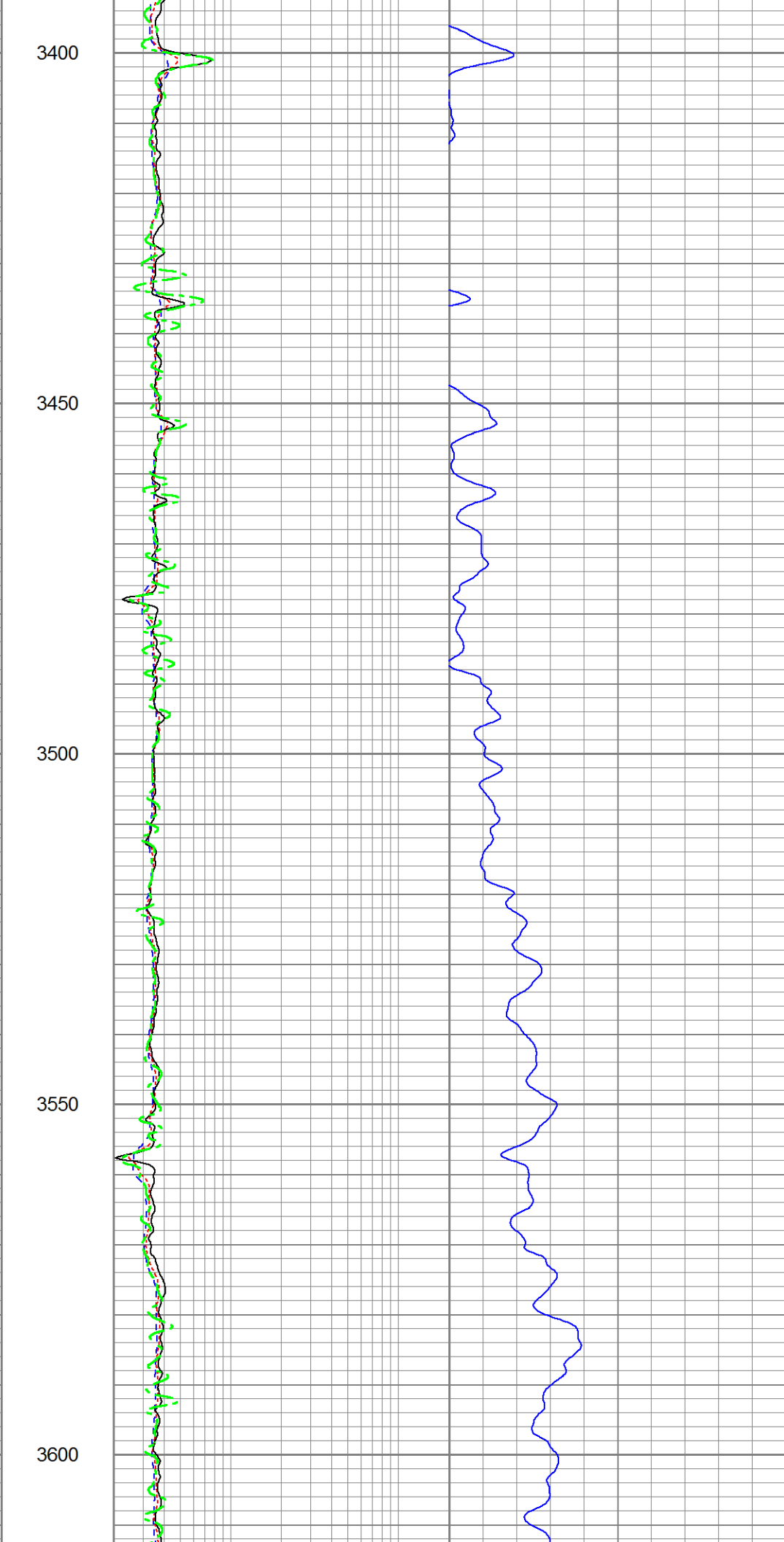
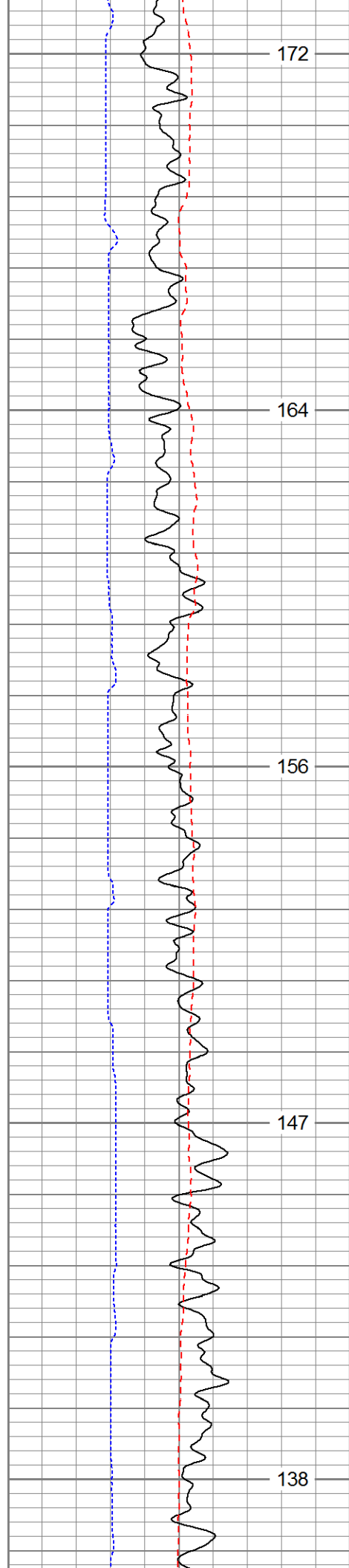


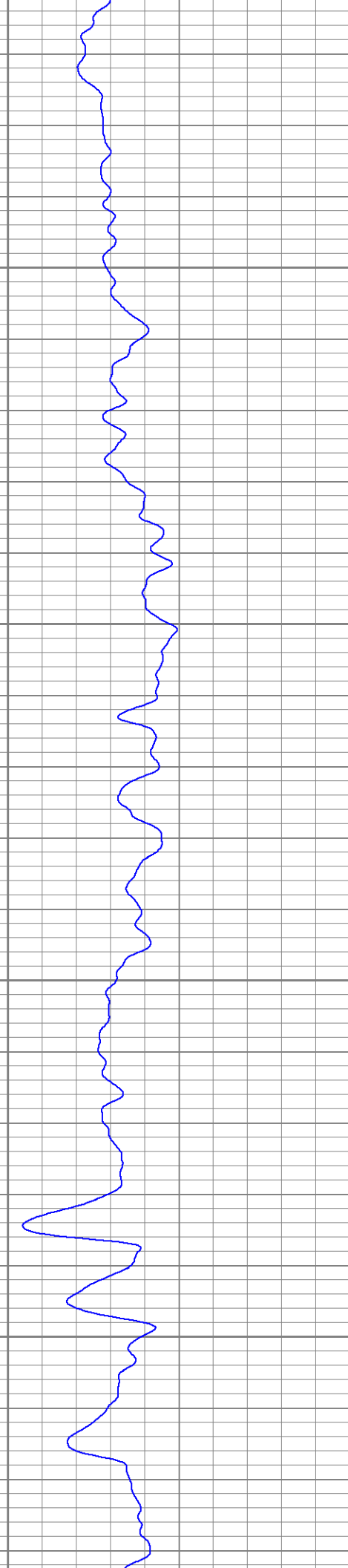
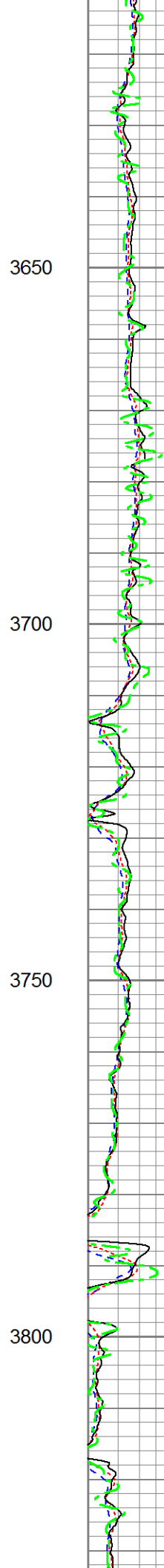
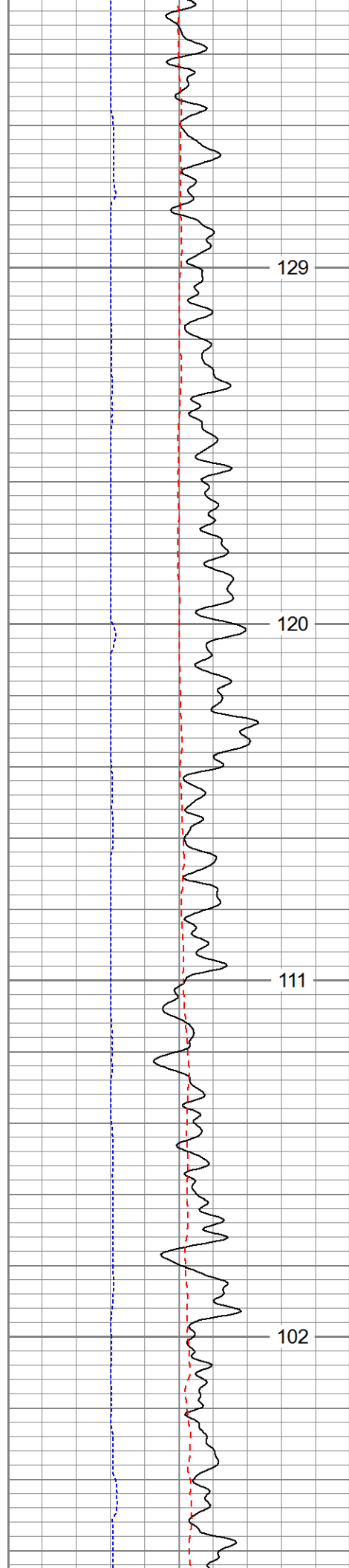


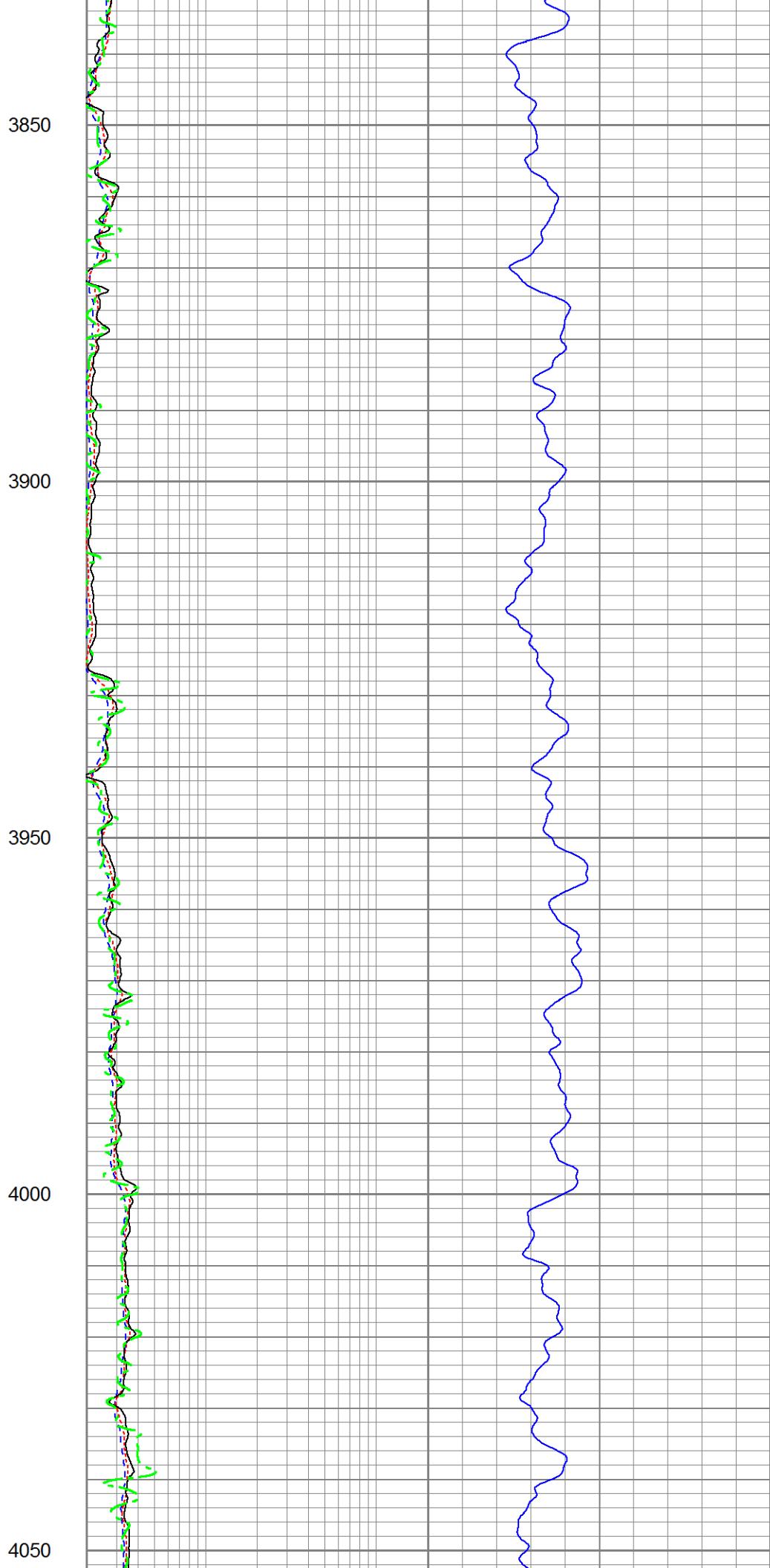
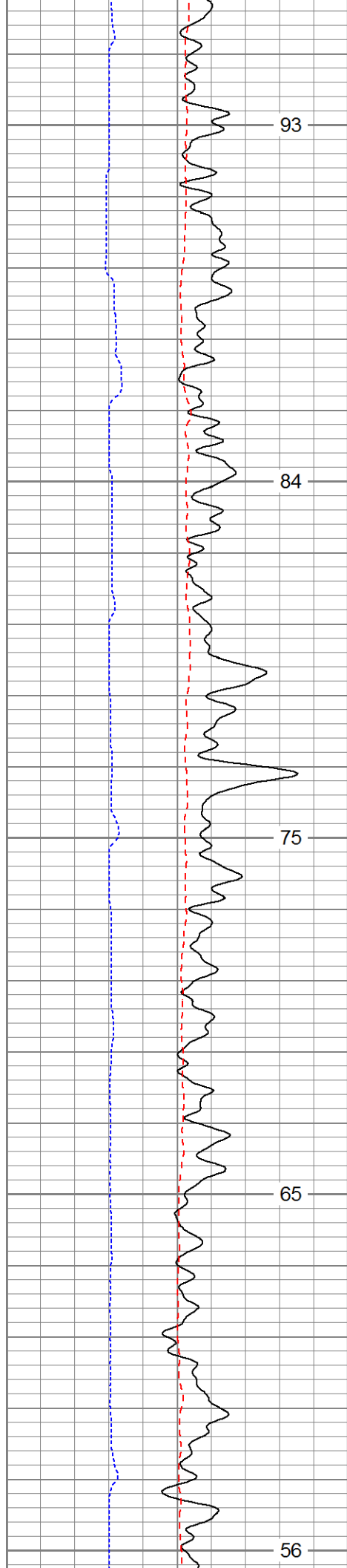


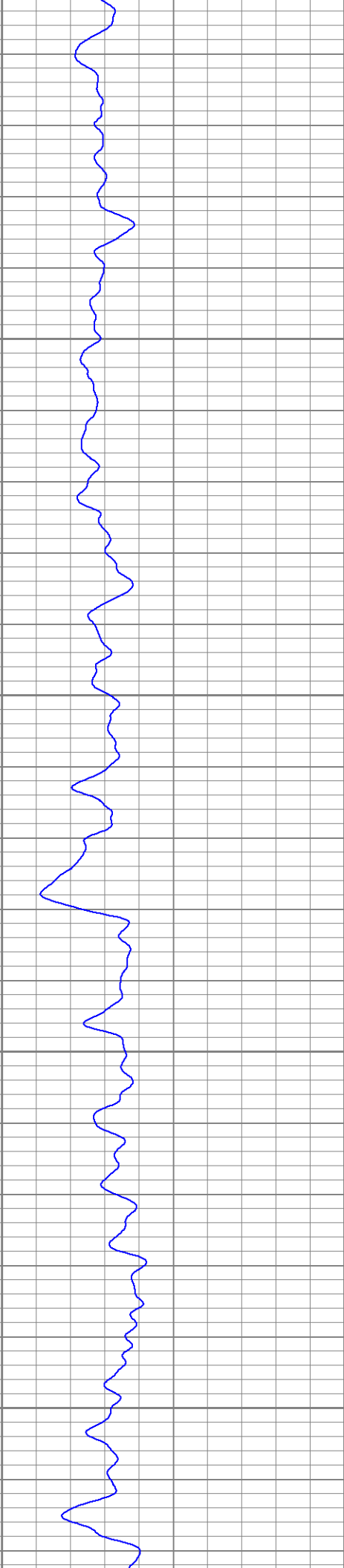
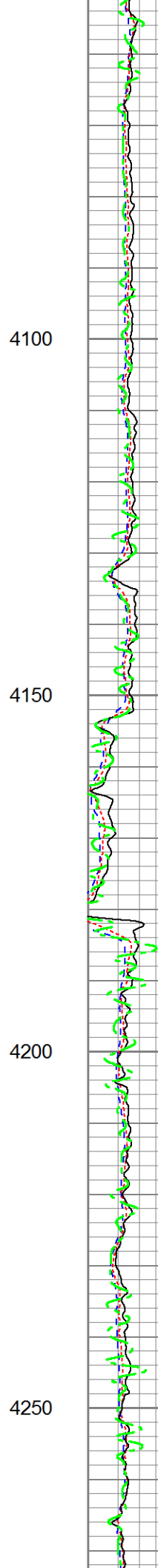
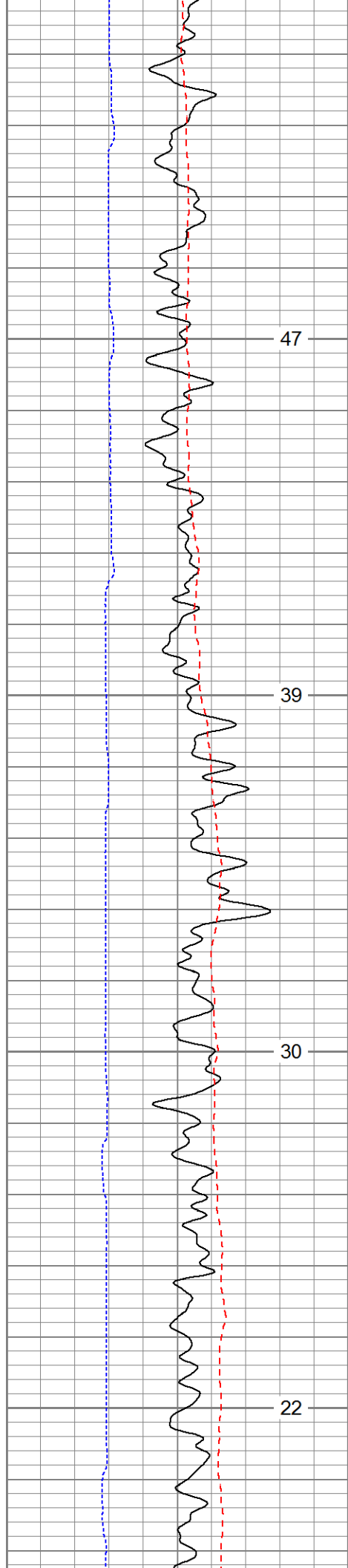


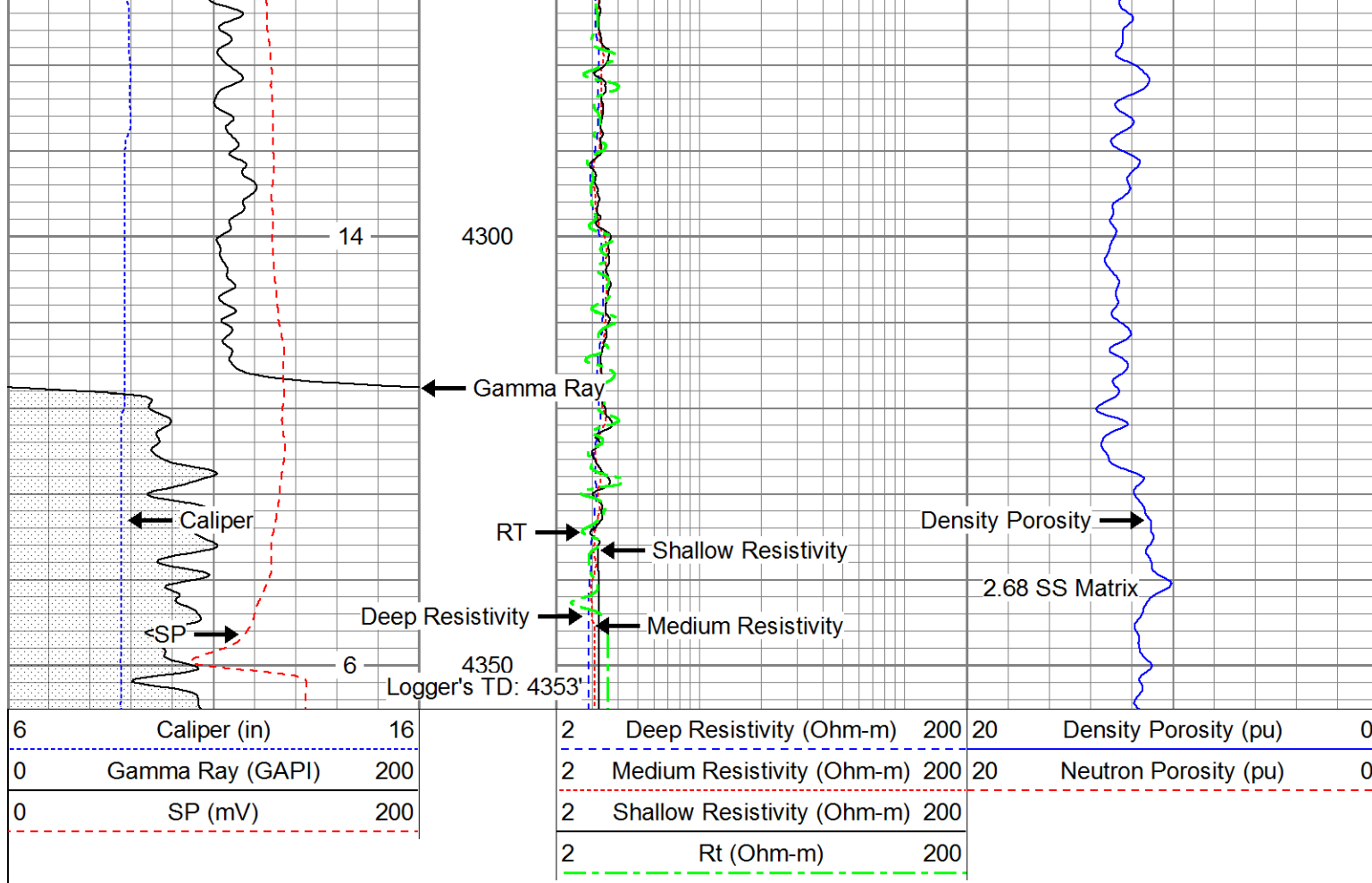






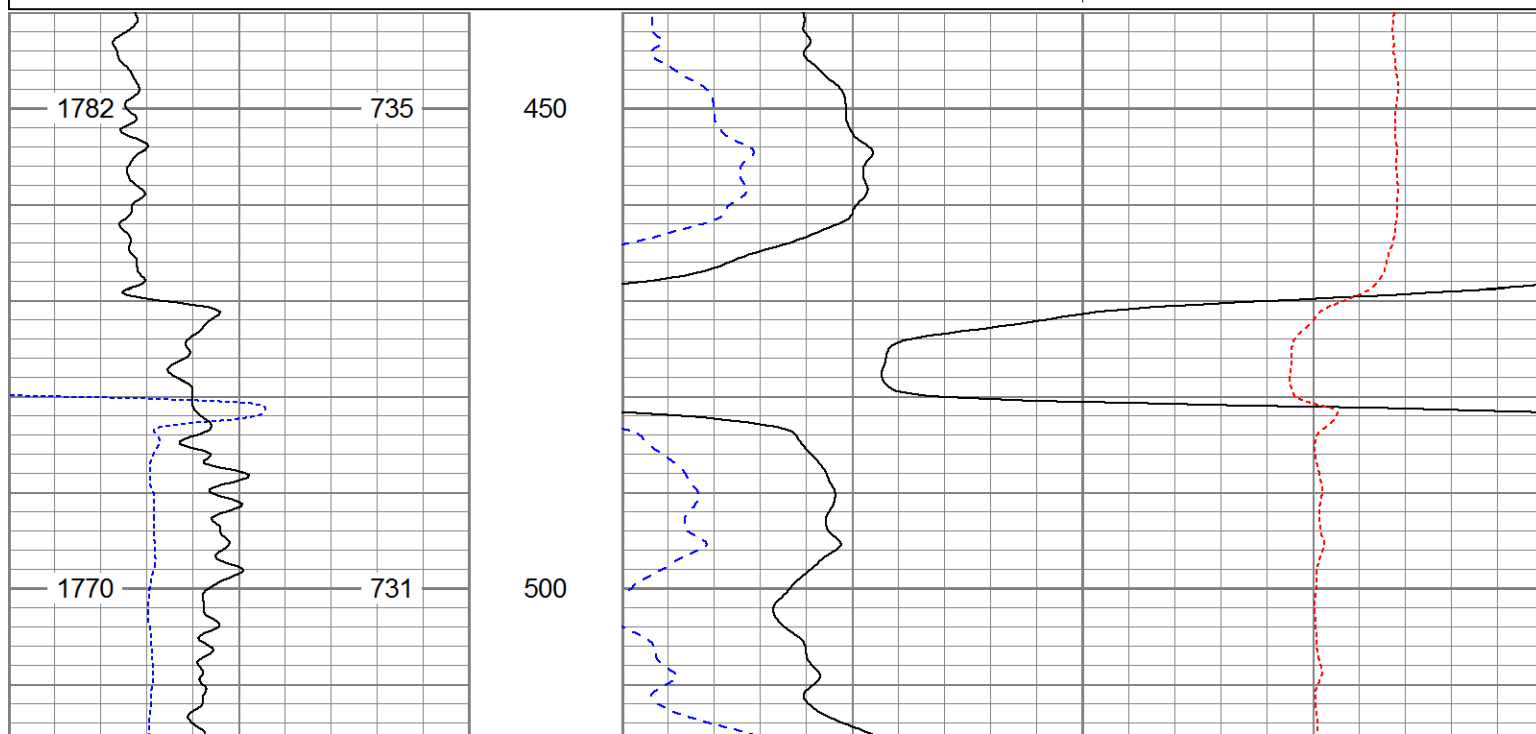


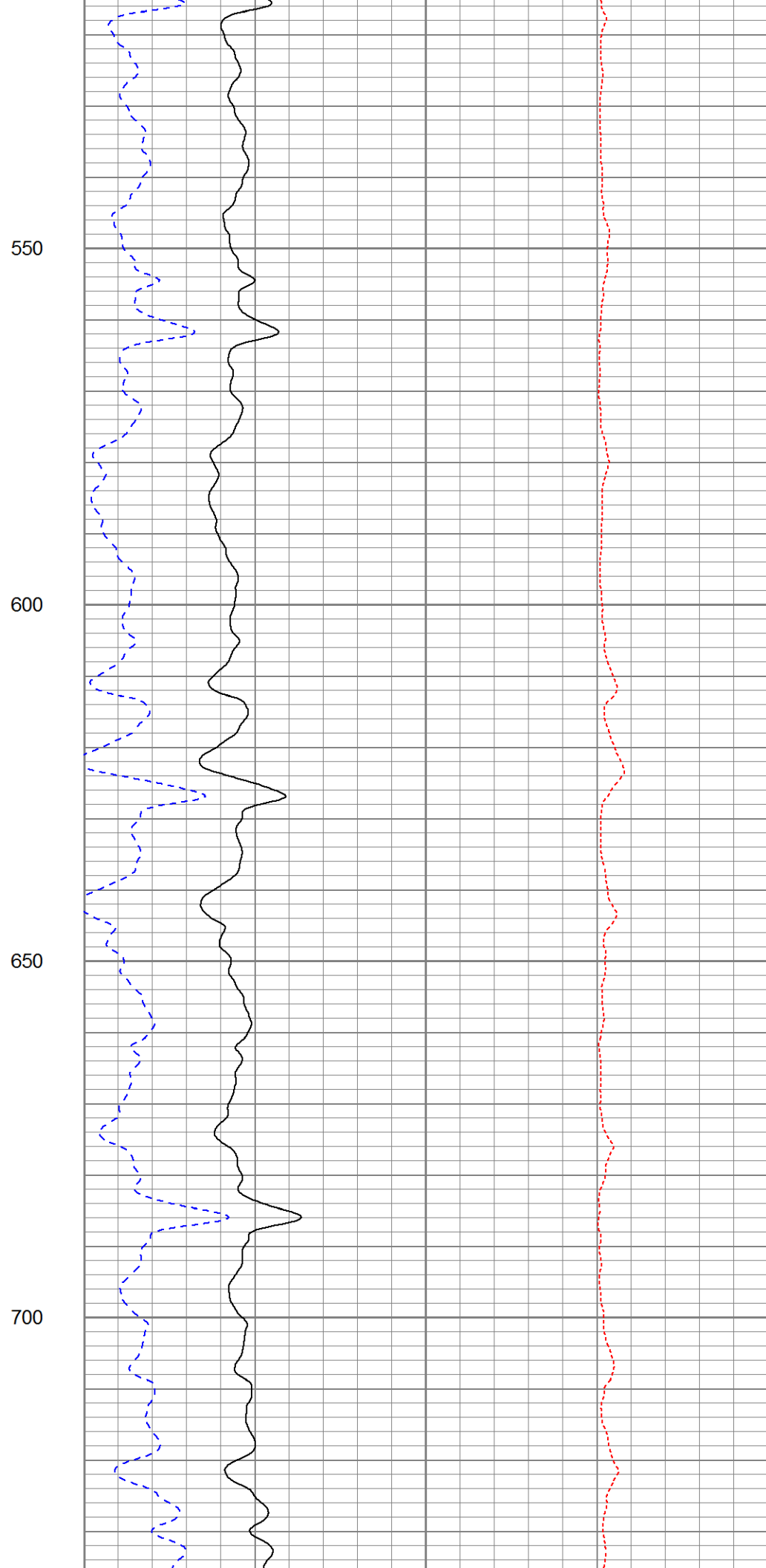
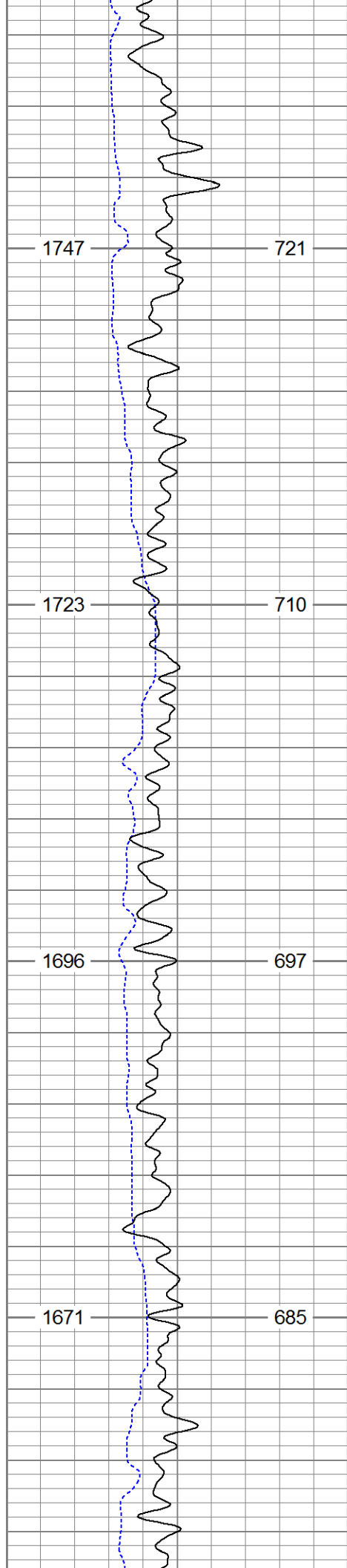


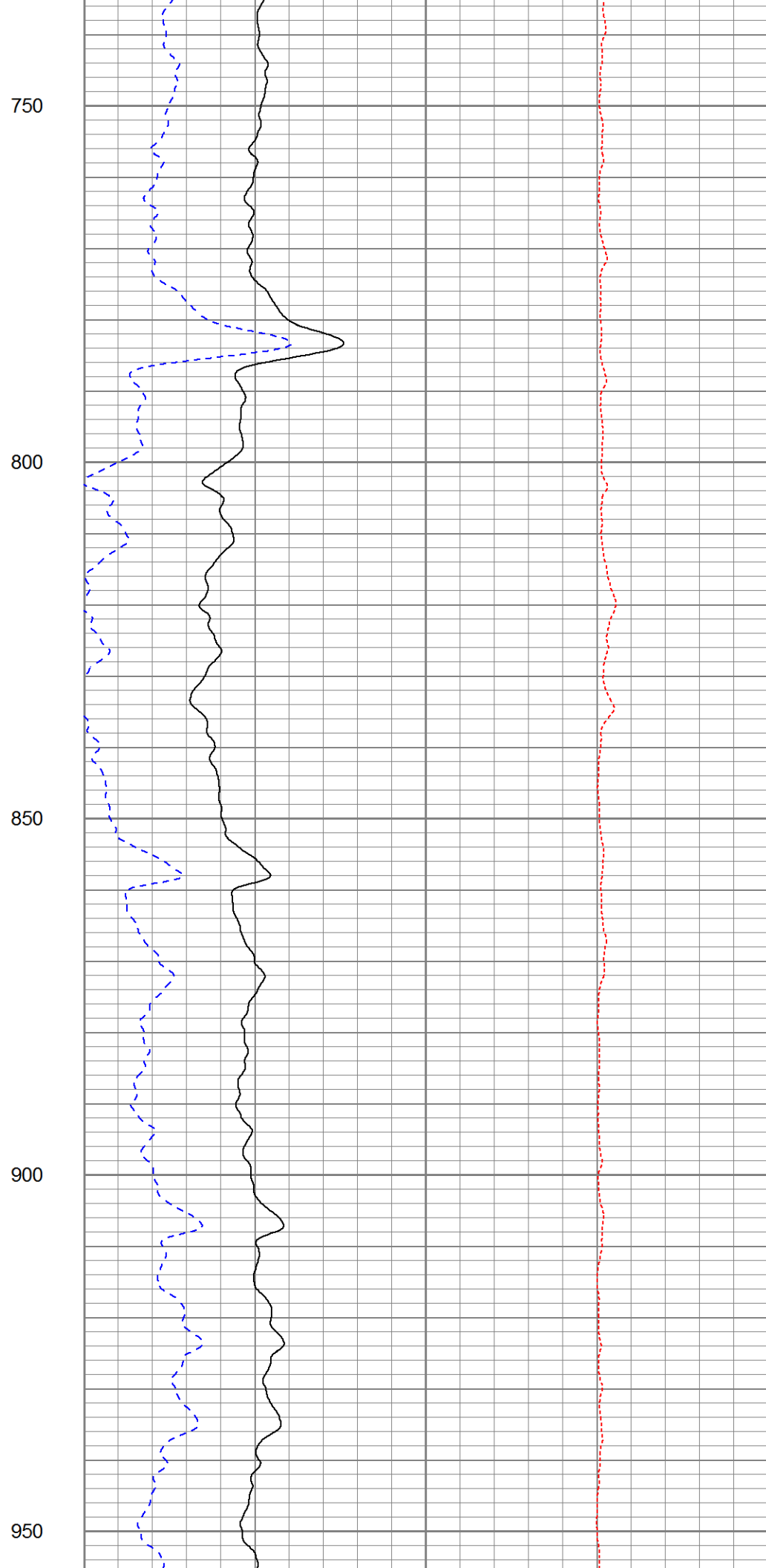
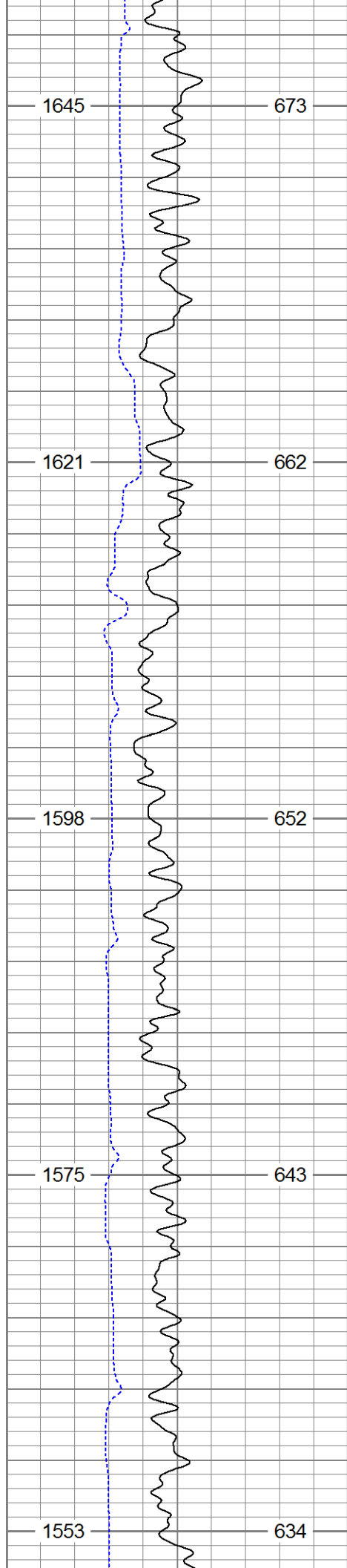


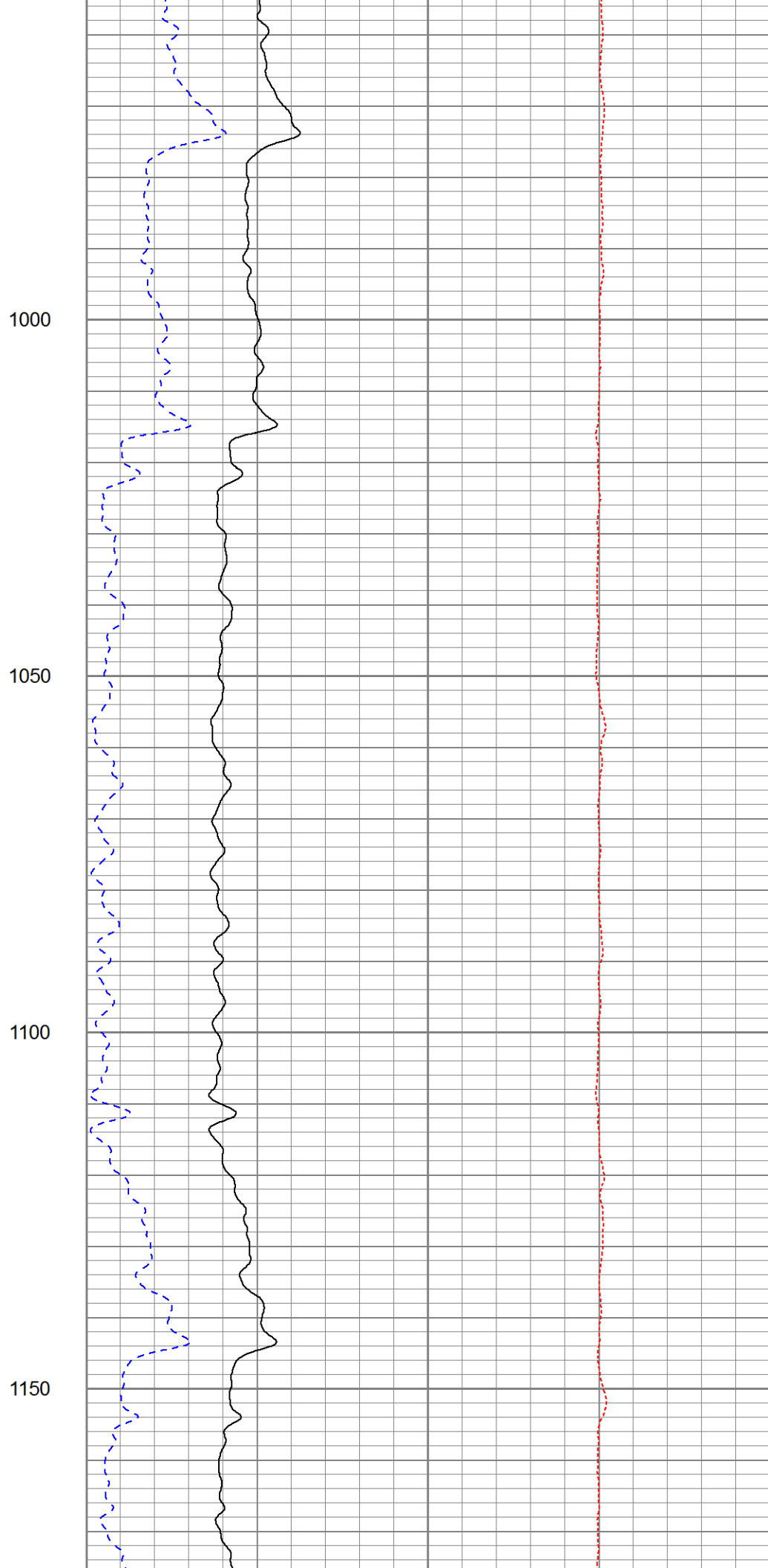
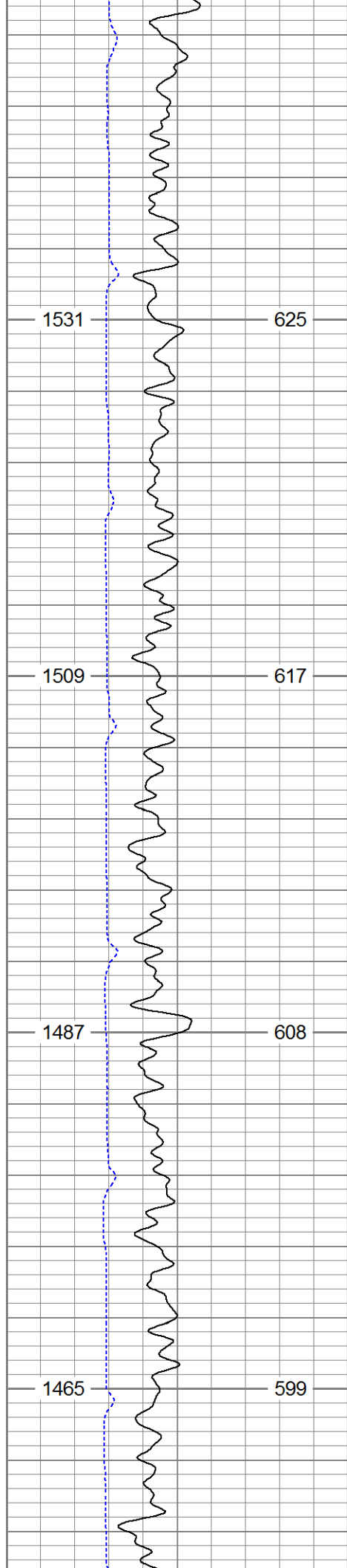
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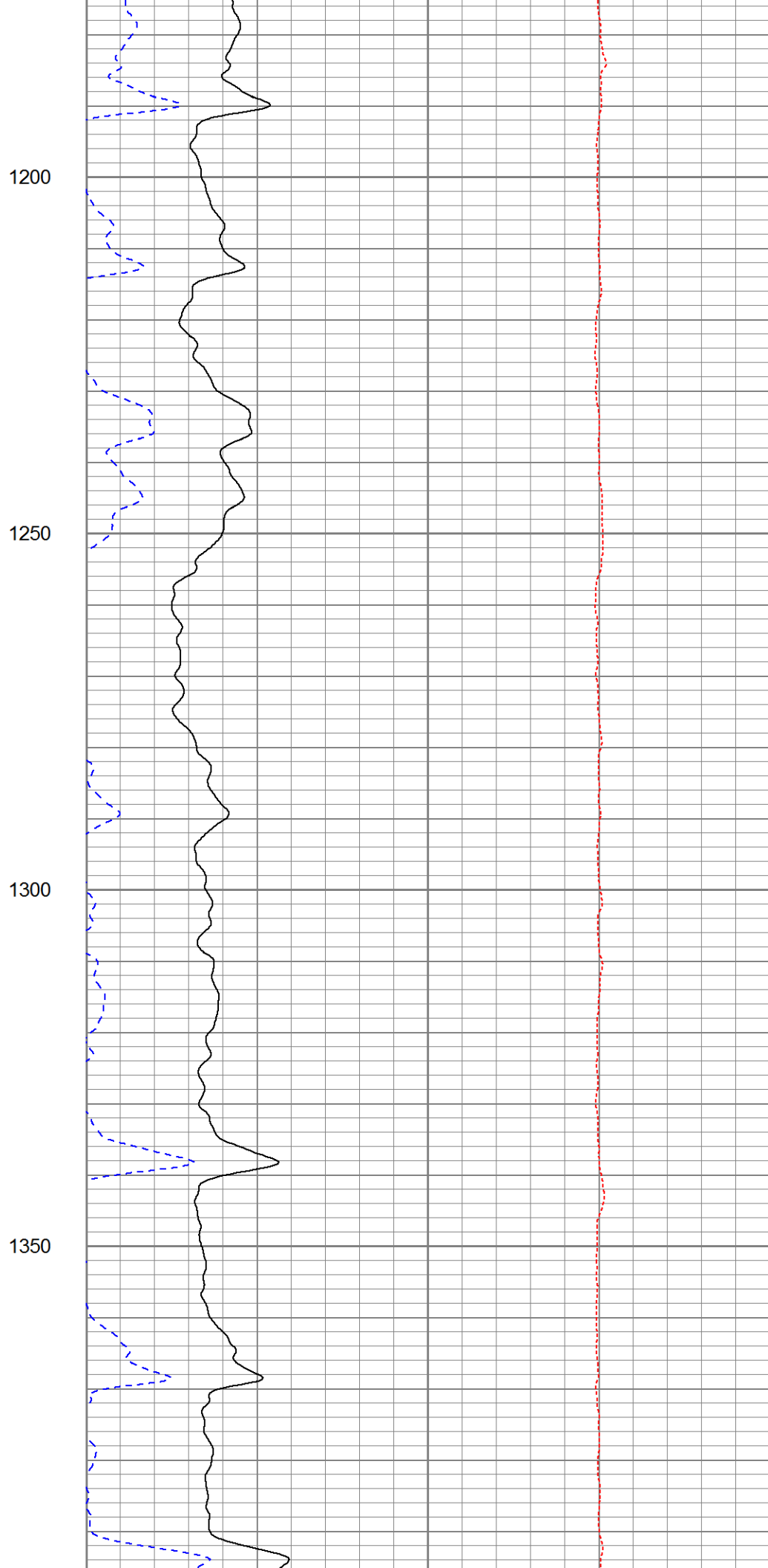
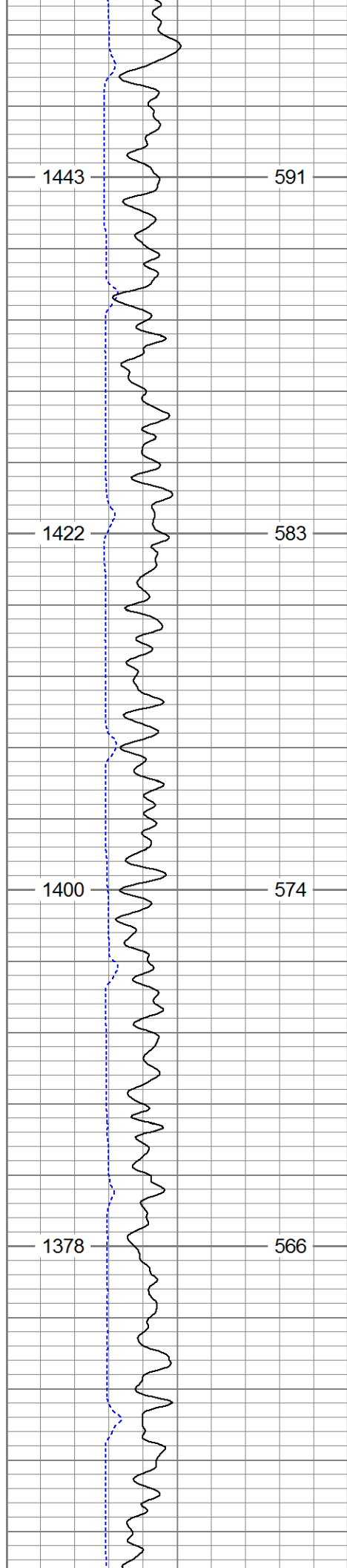
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0	Gamma Ray (GAPI)	200	30	Density Porosity (pu)	-10	
				-0.5	Correction (g/cc)	0.5

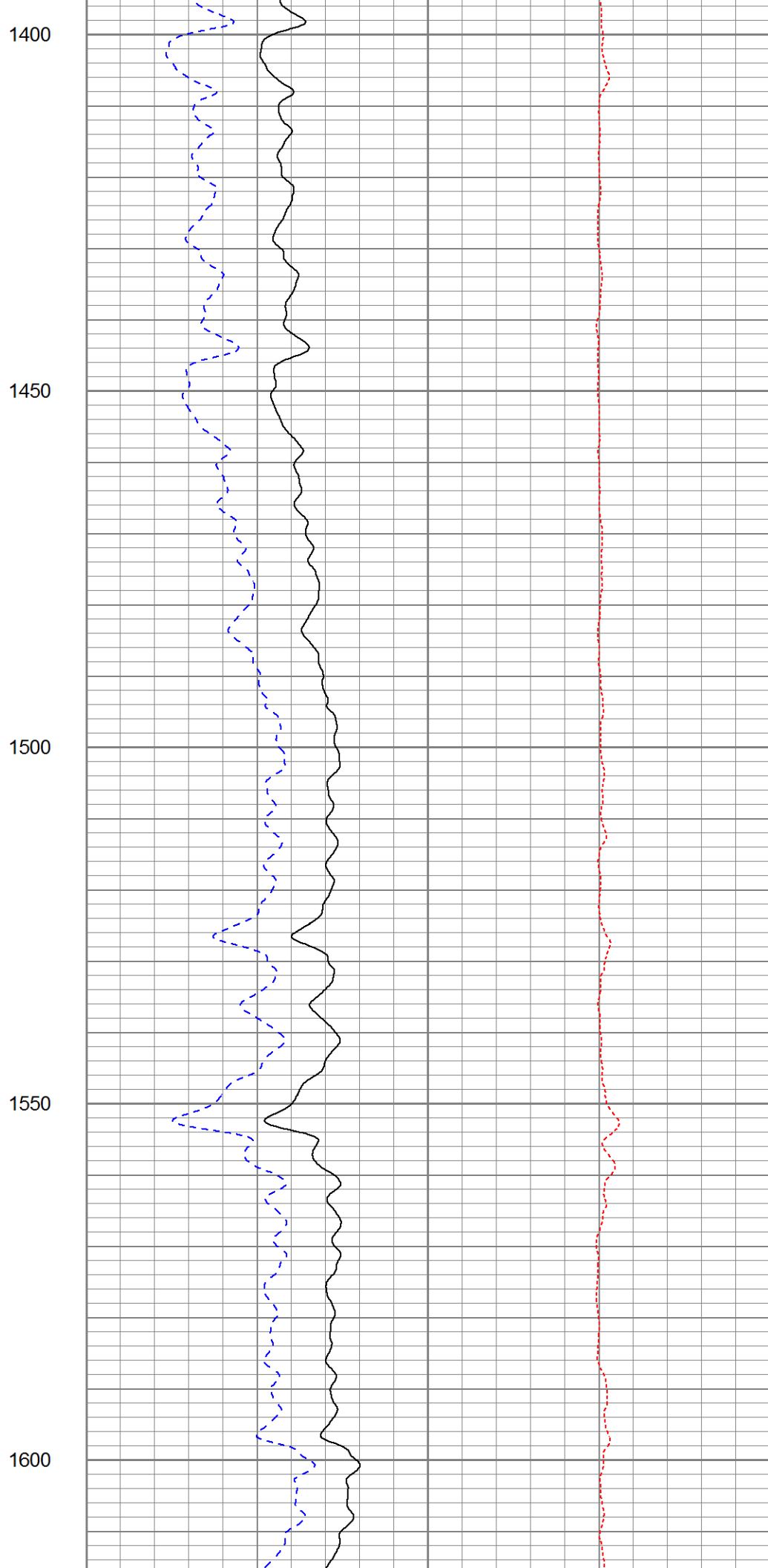
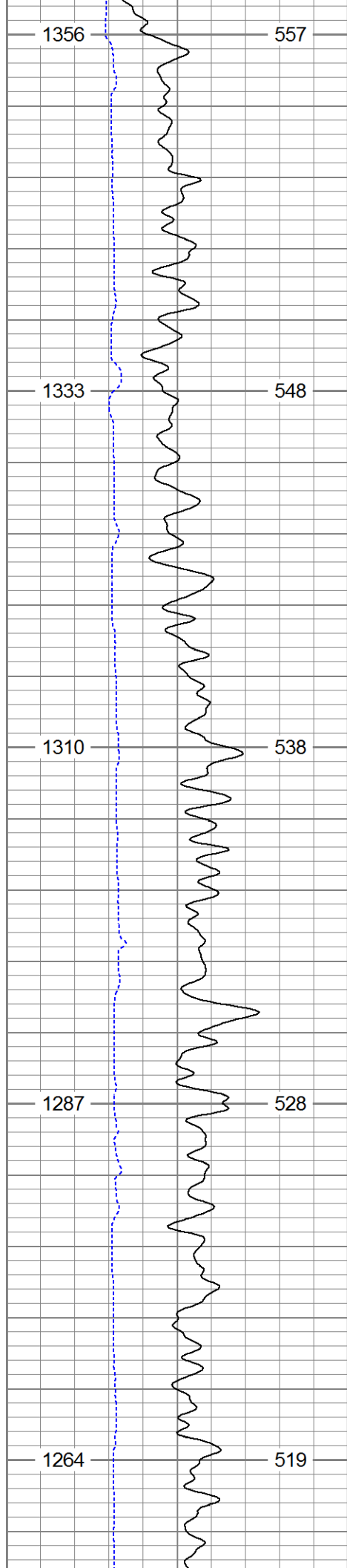


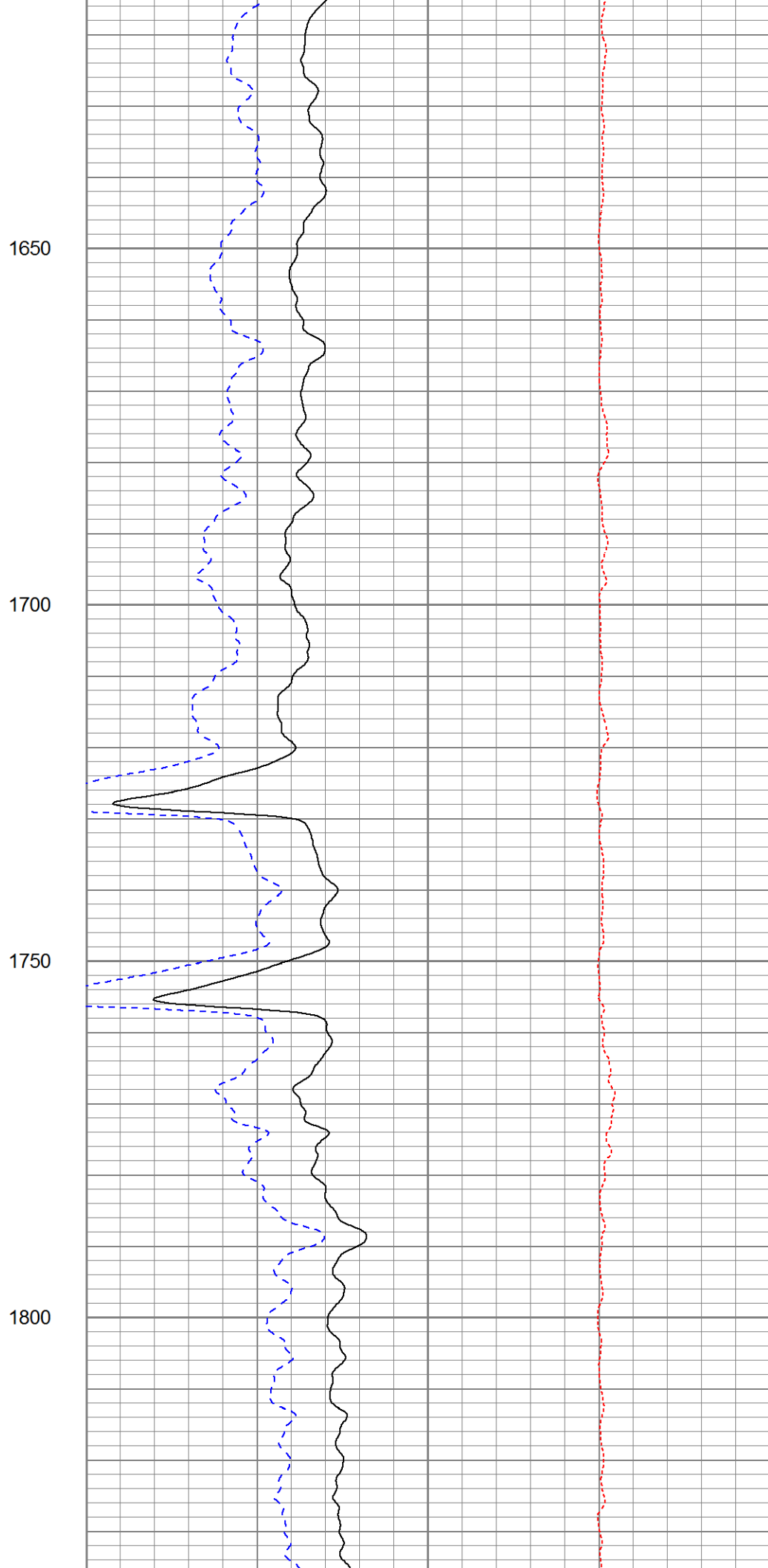
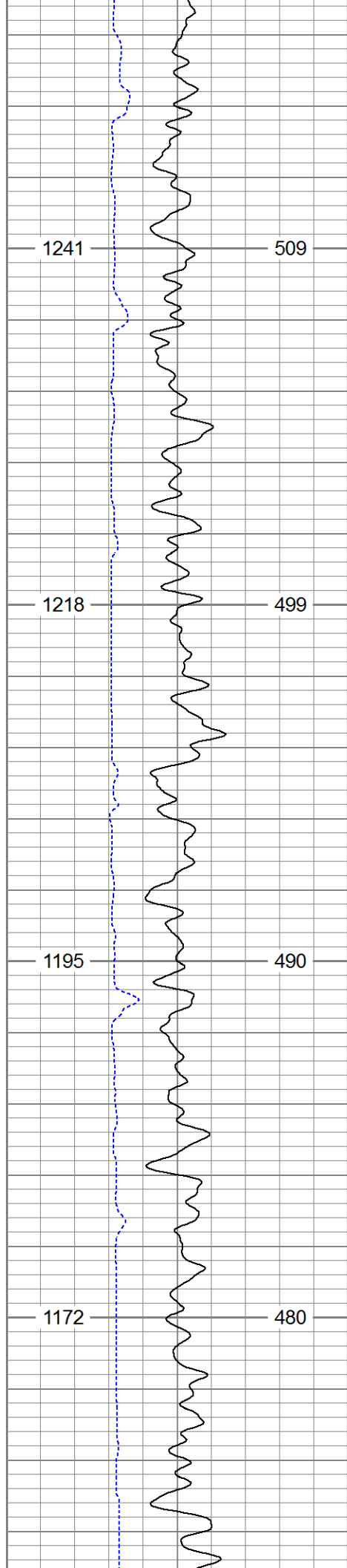


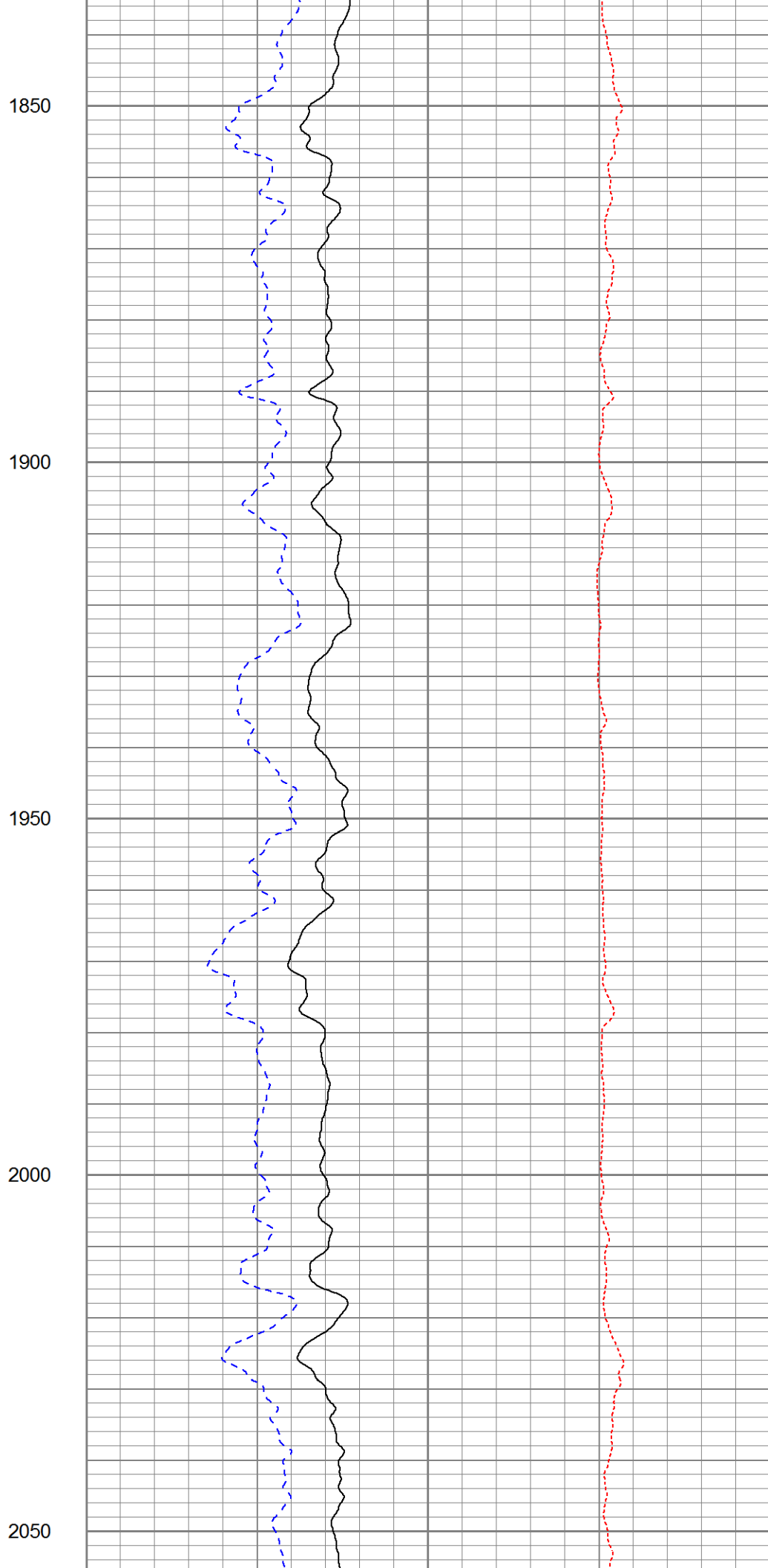
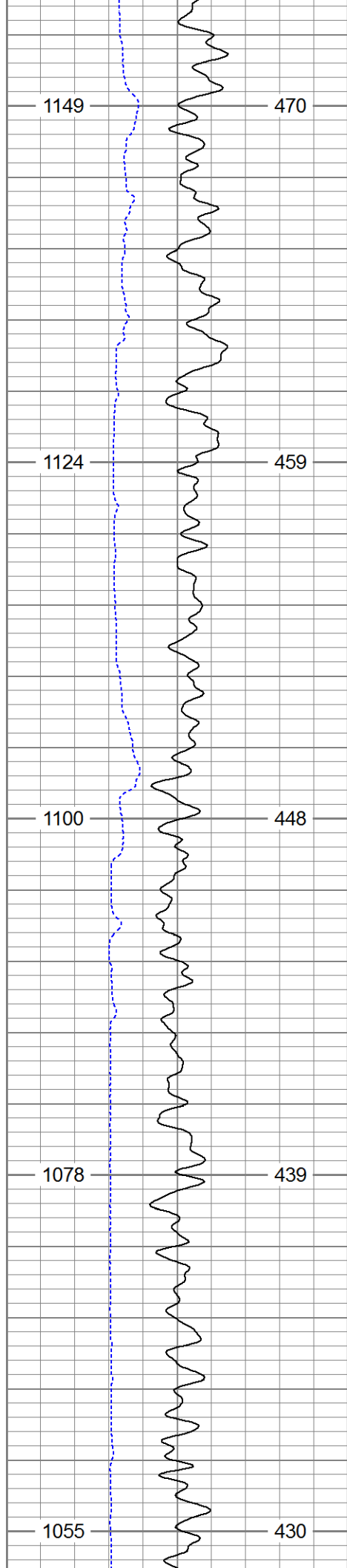


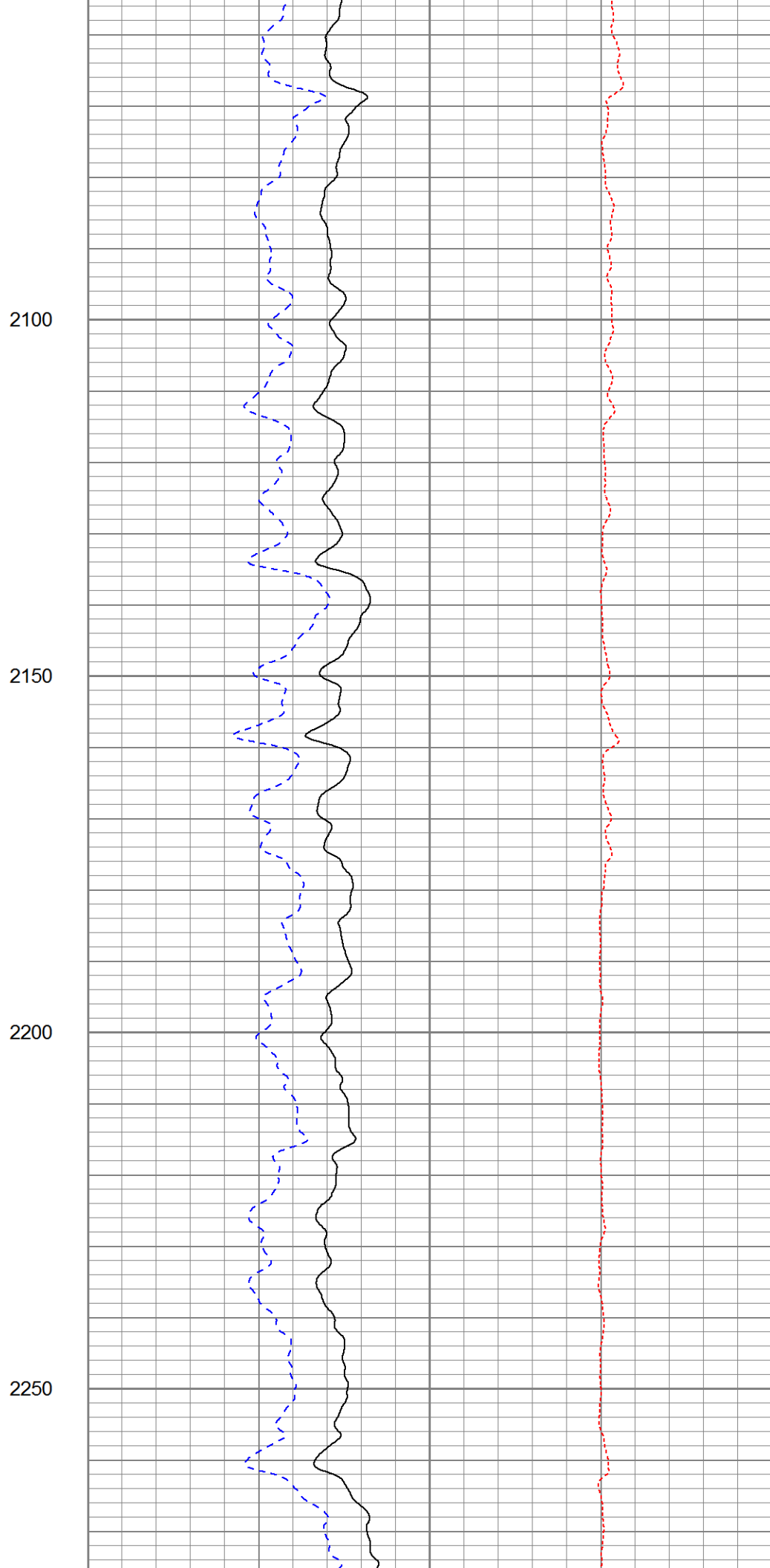
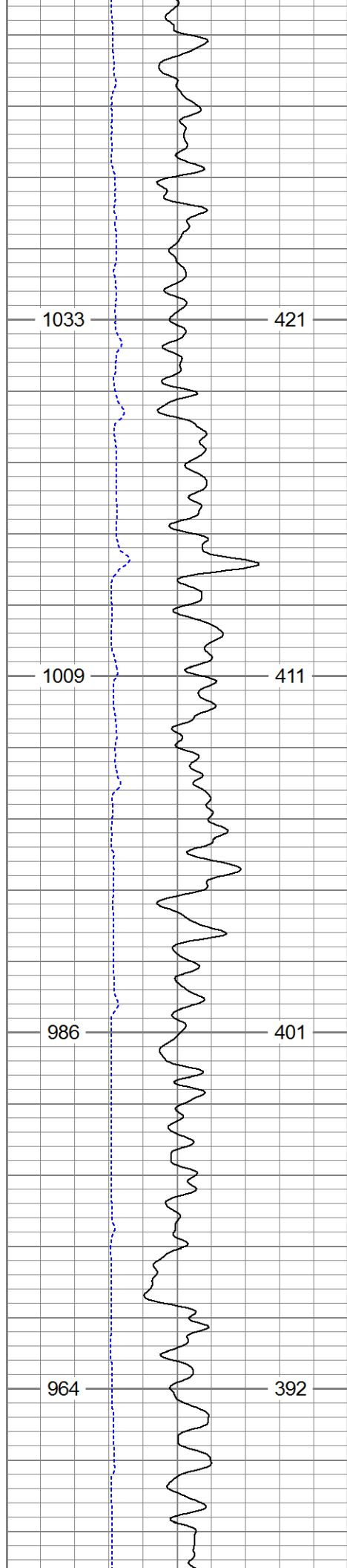


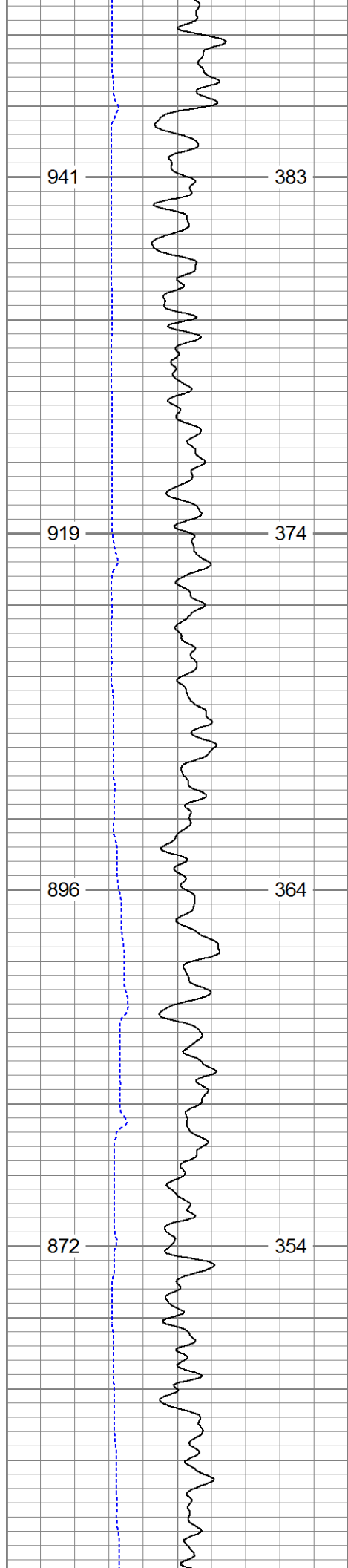










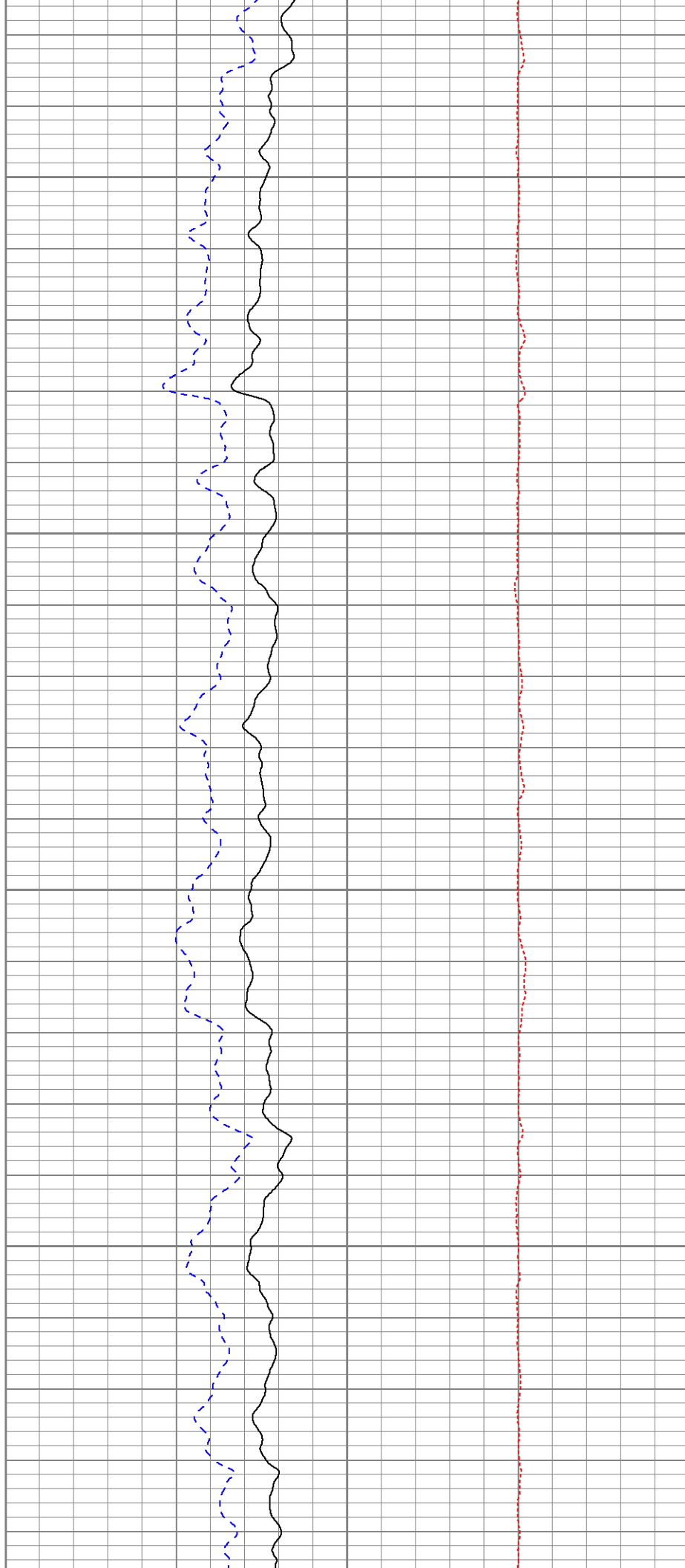


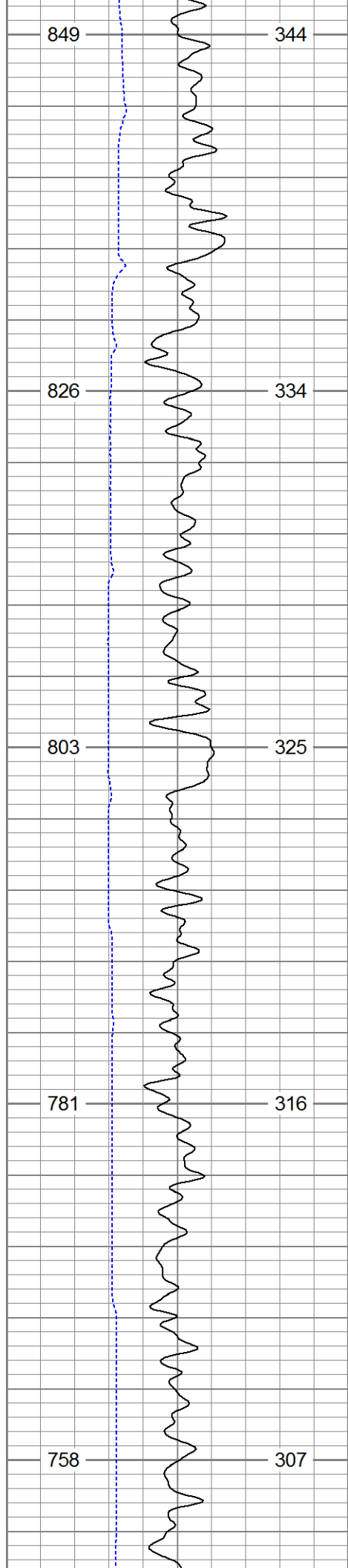
2300

2350

2400

2450





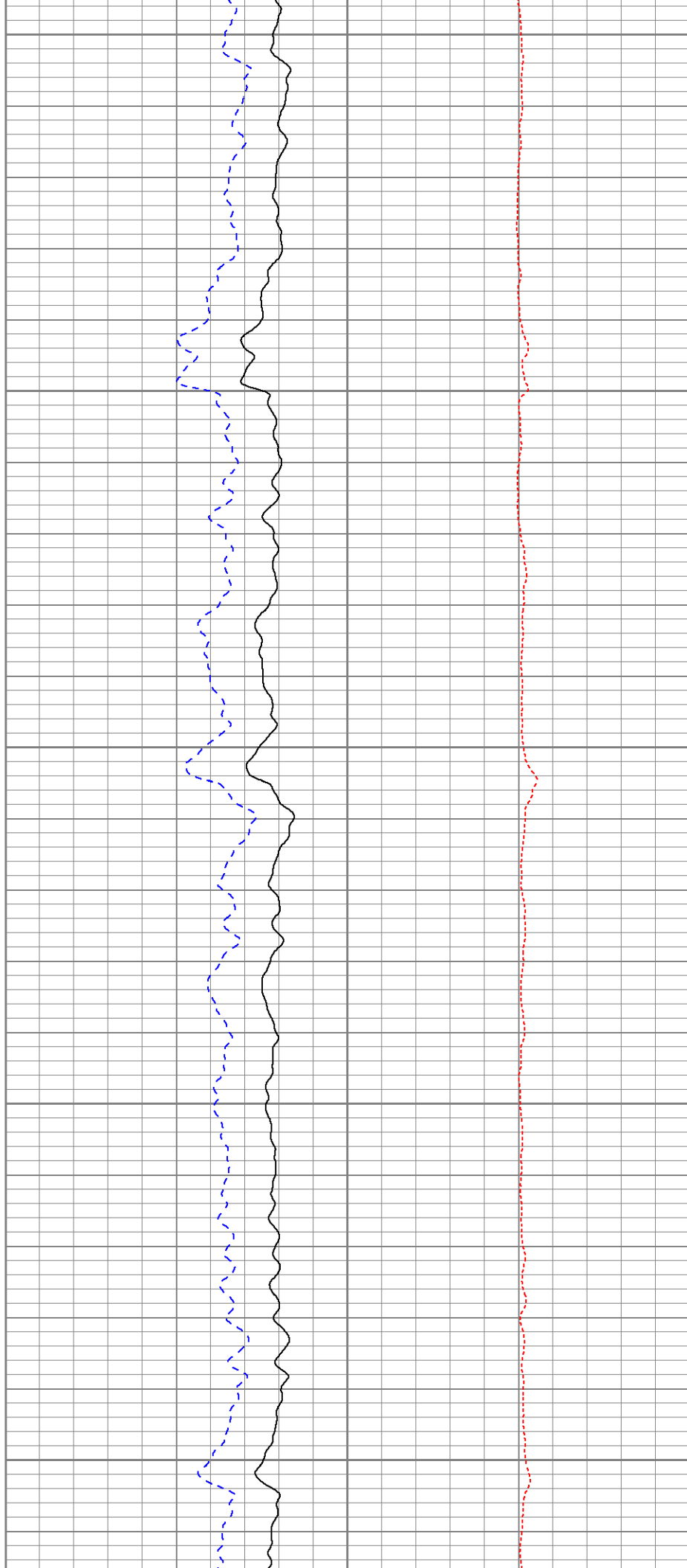
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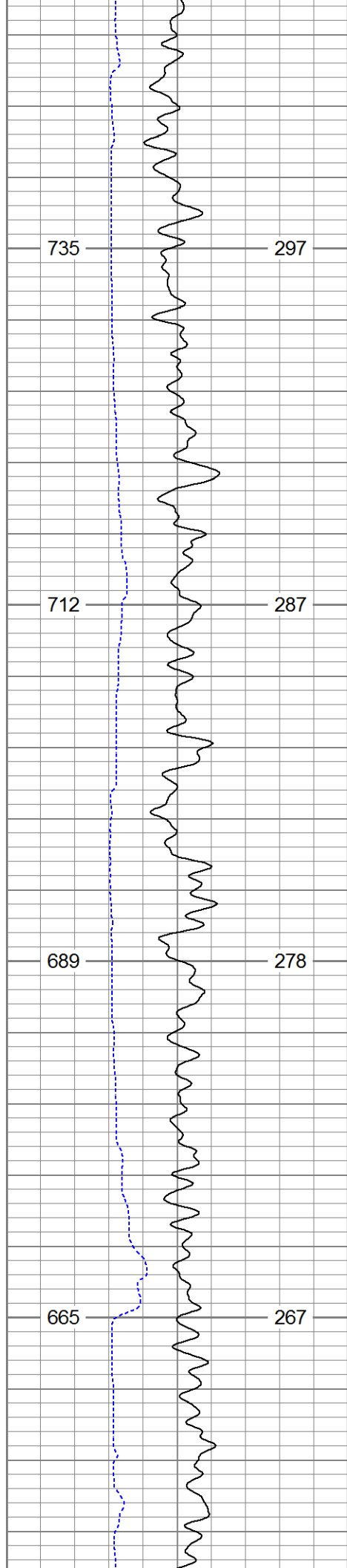
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2600

2650

2700



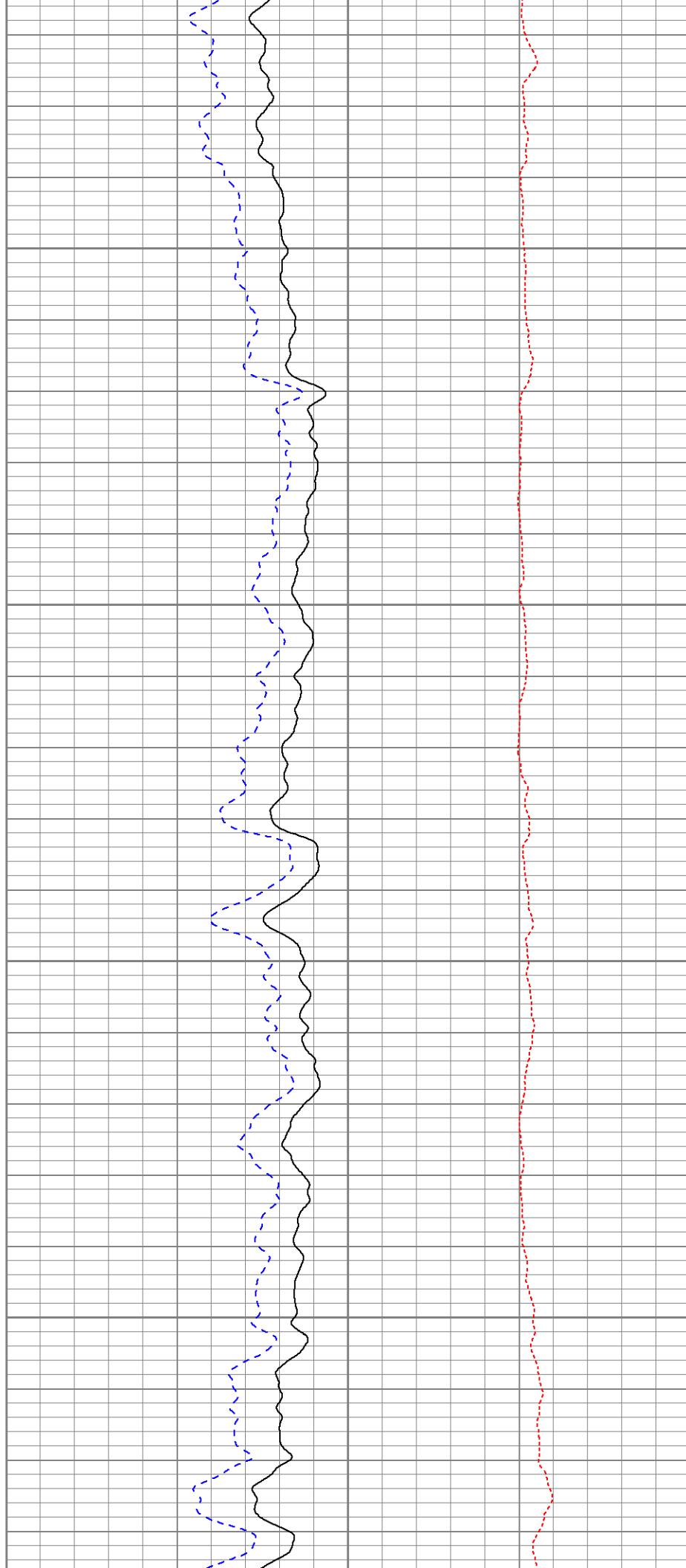


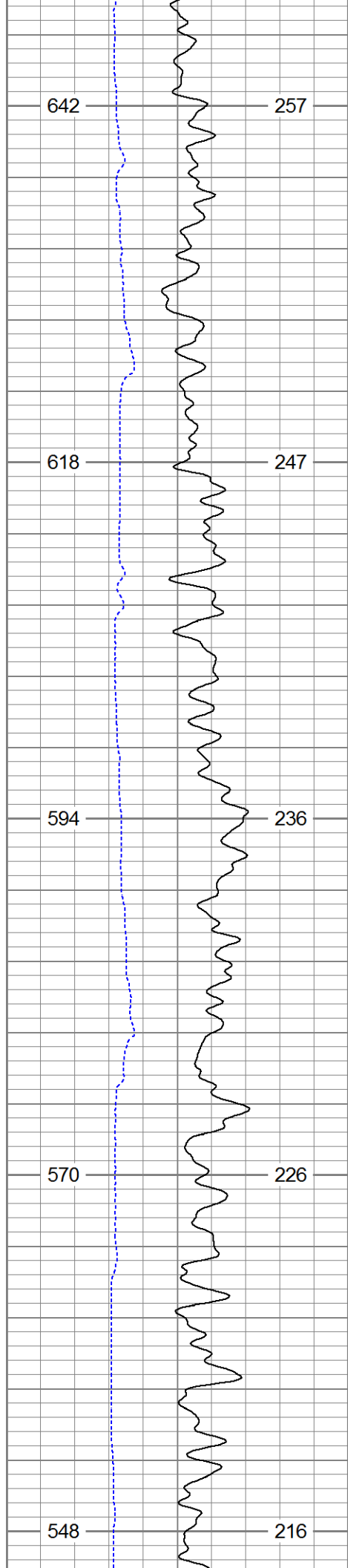
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2900





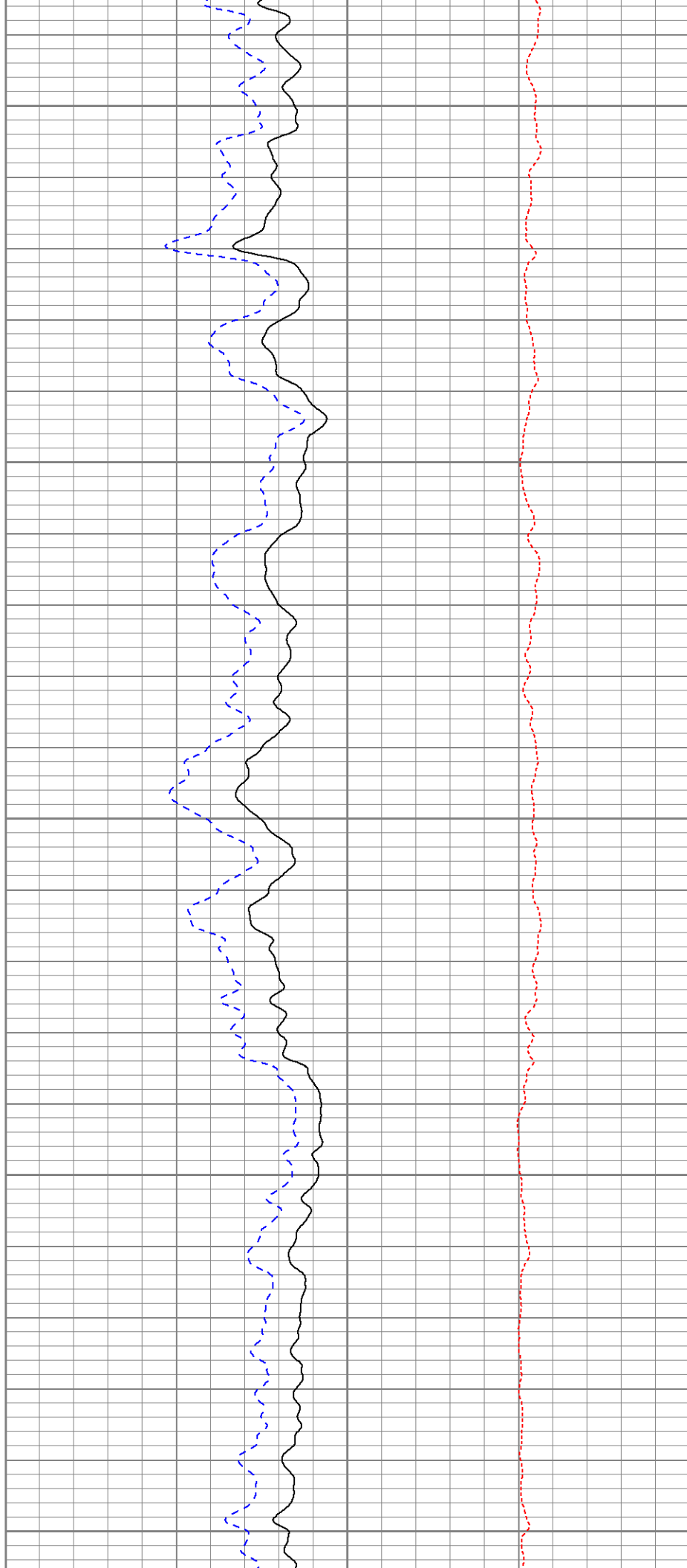
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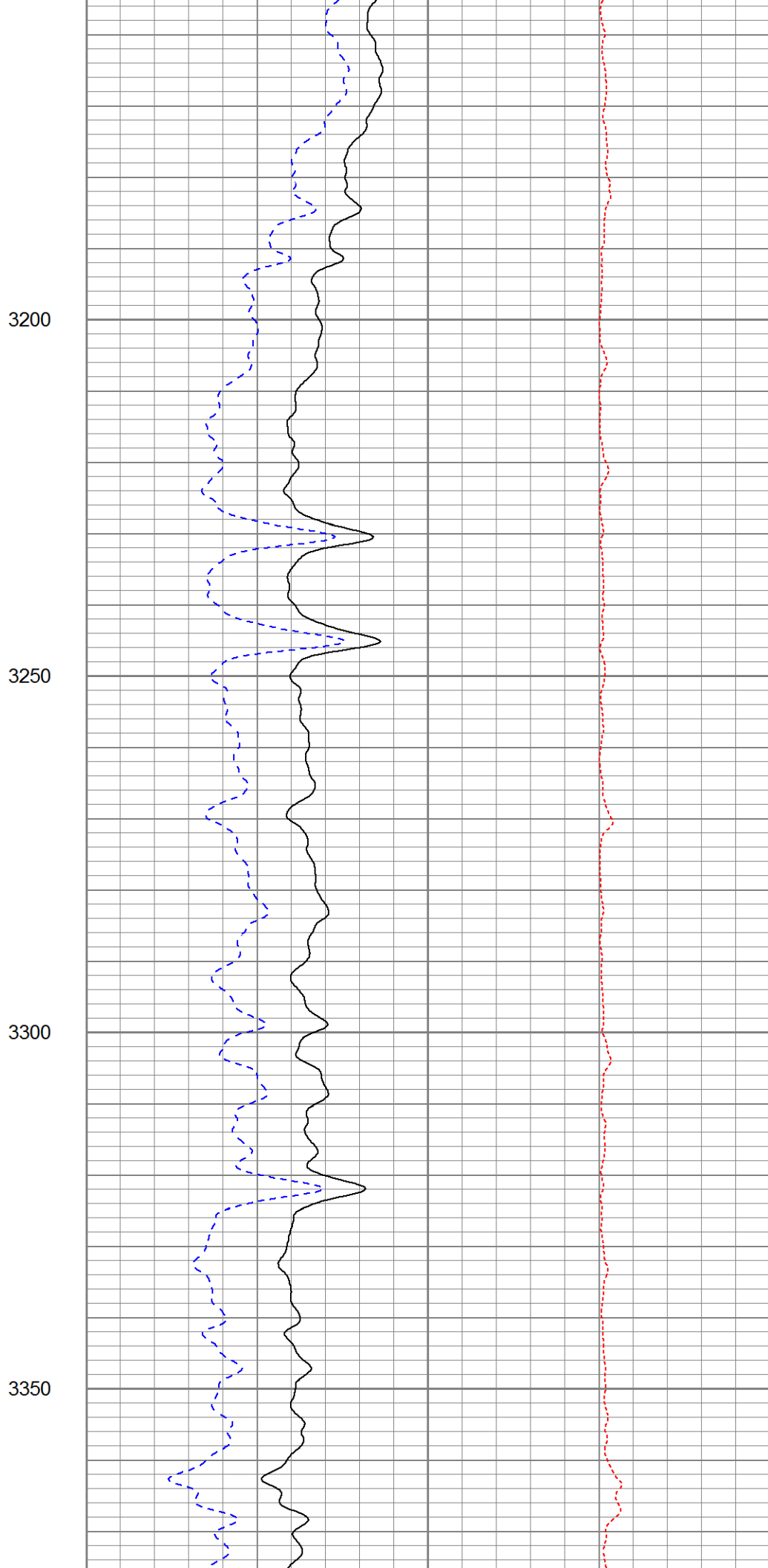
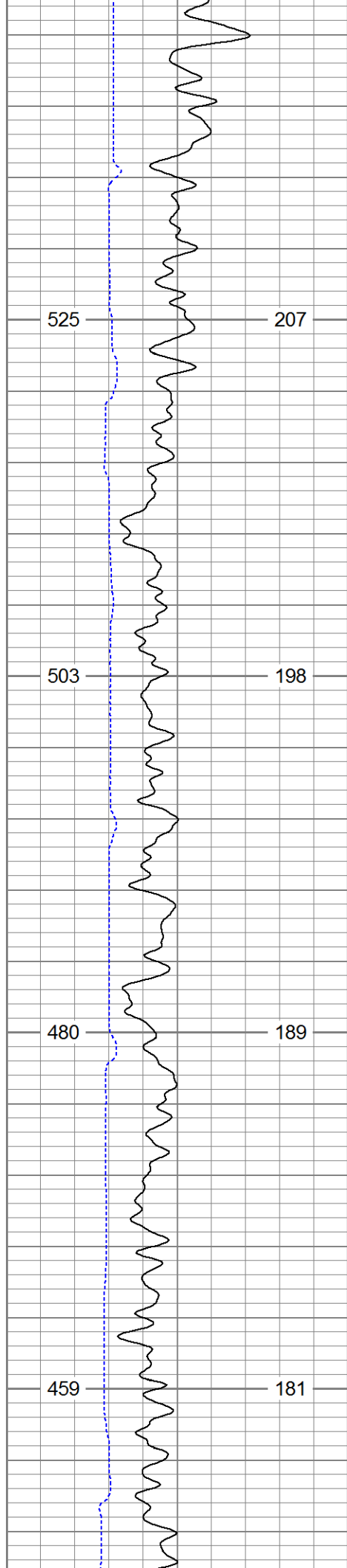
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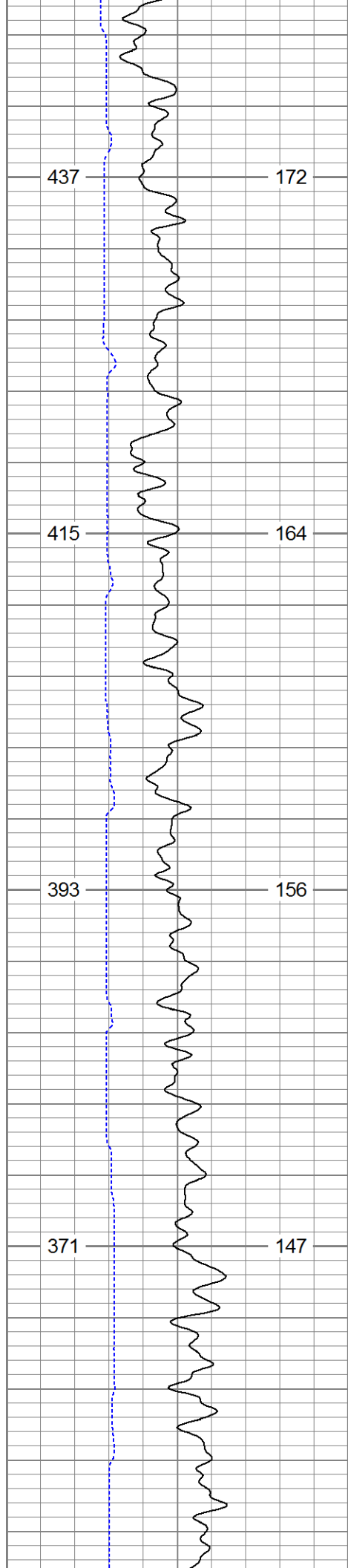
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3100

3150





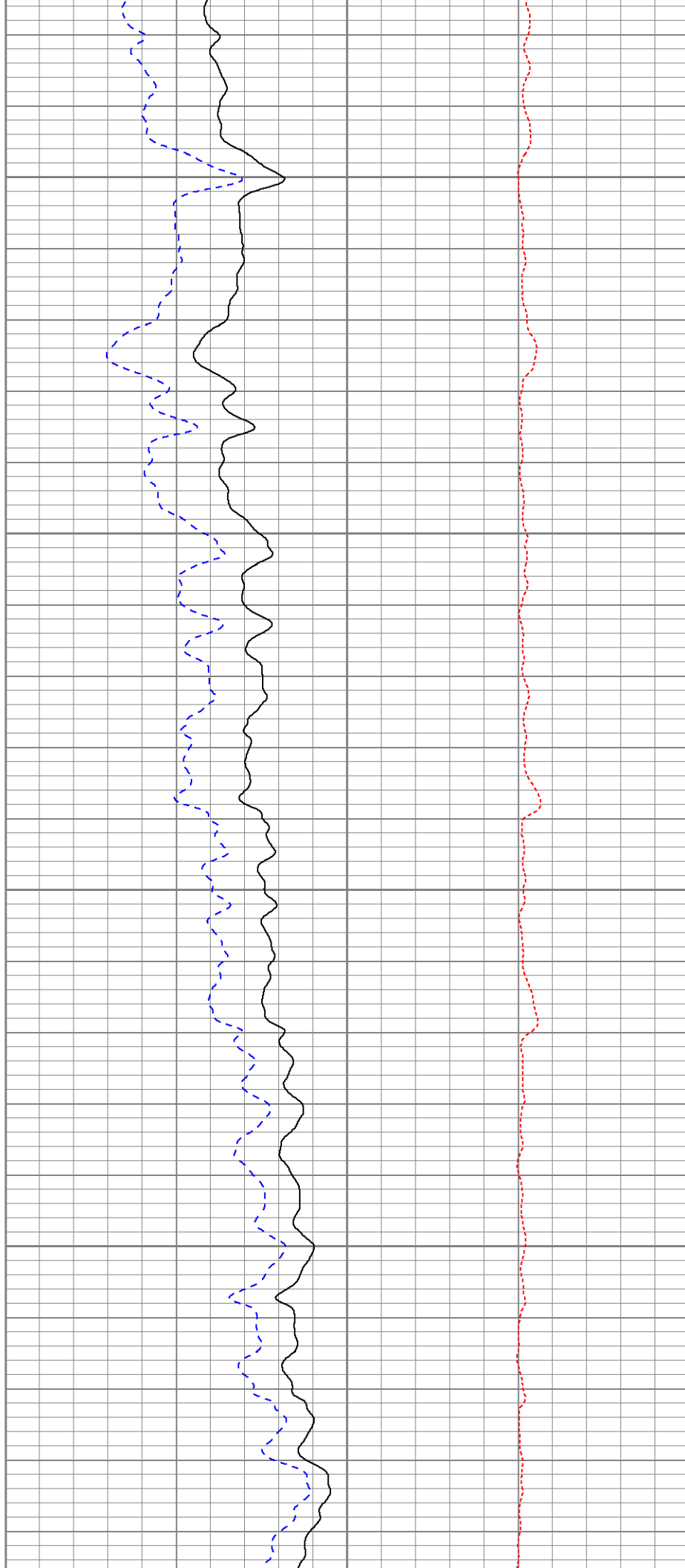


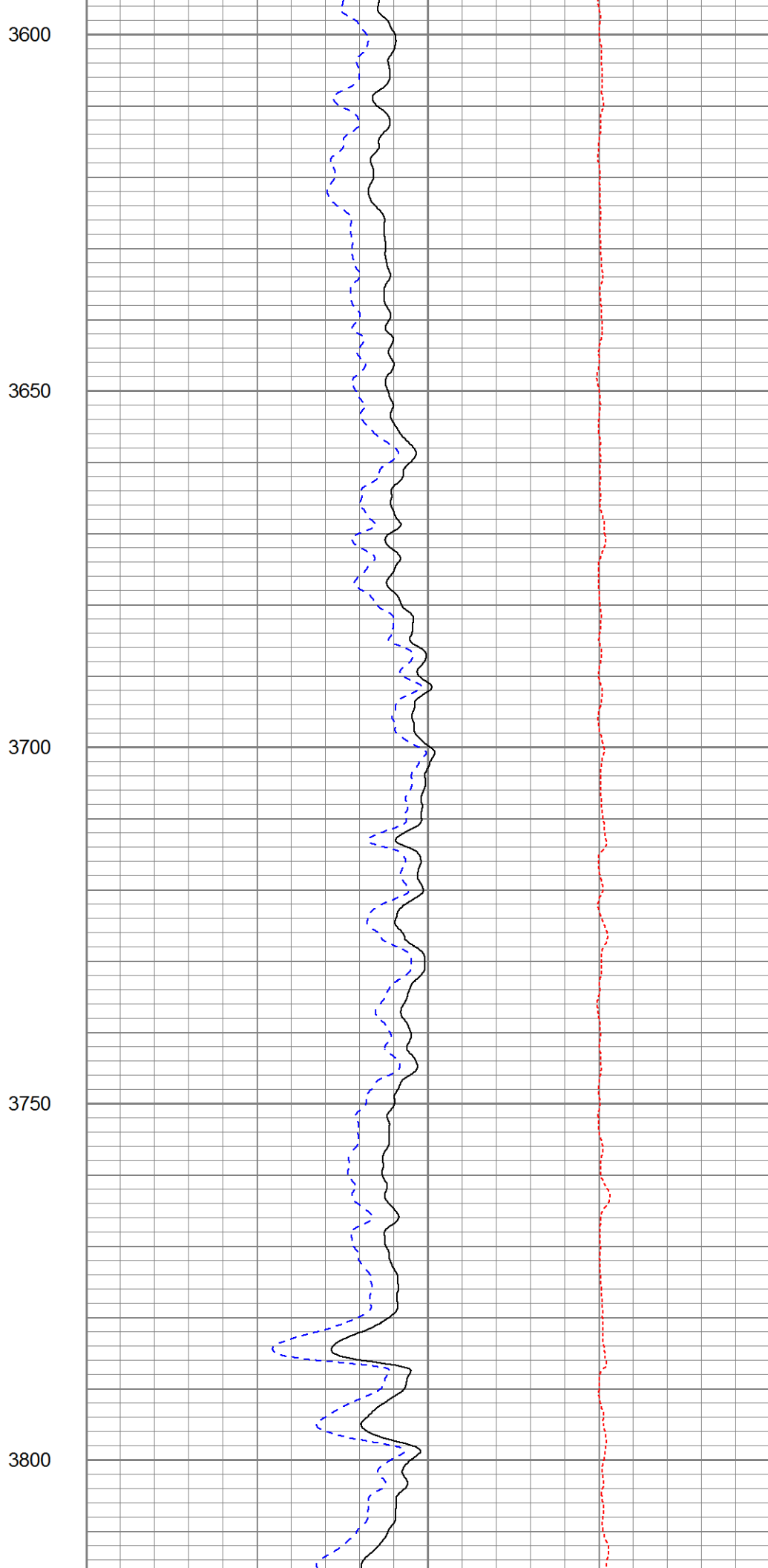
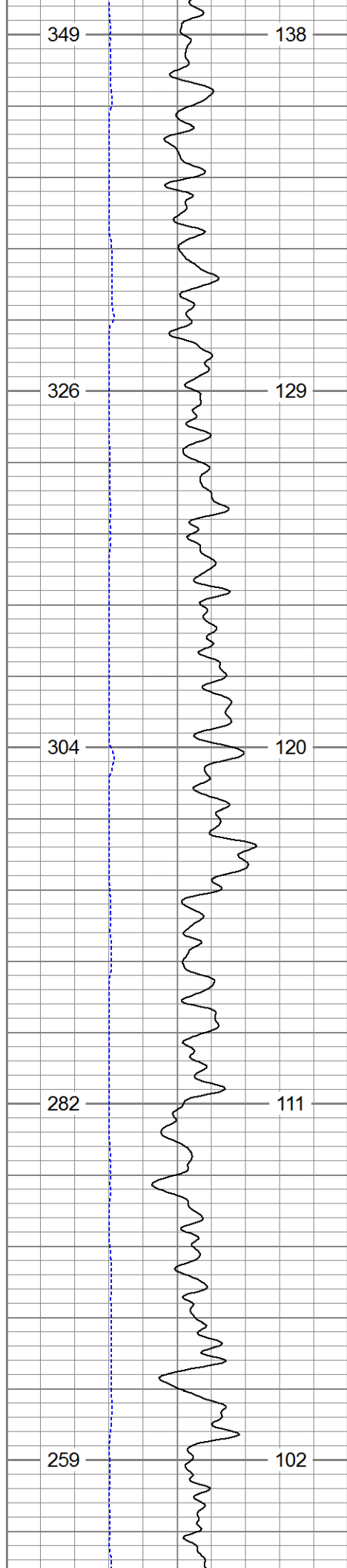
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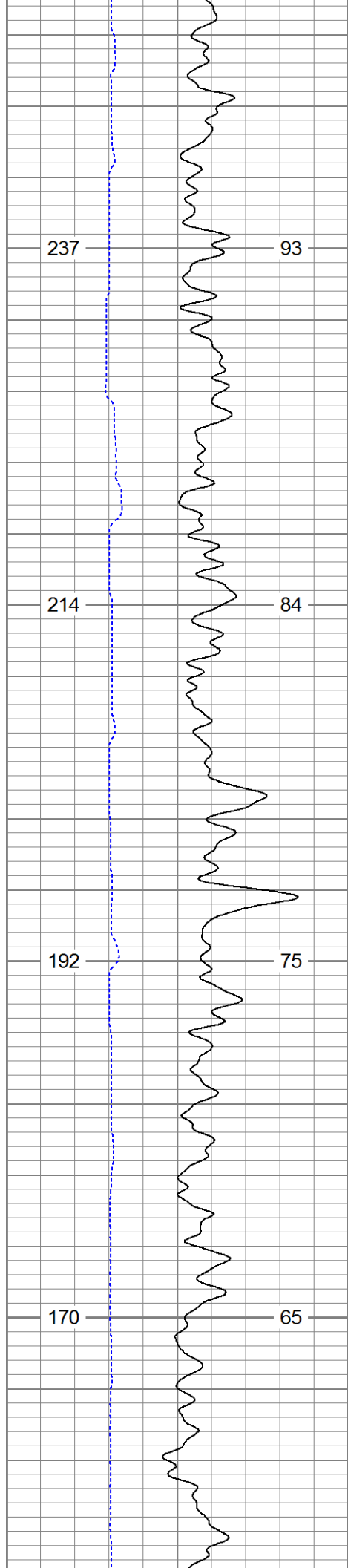
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3550





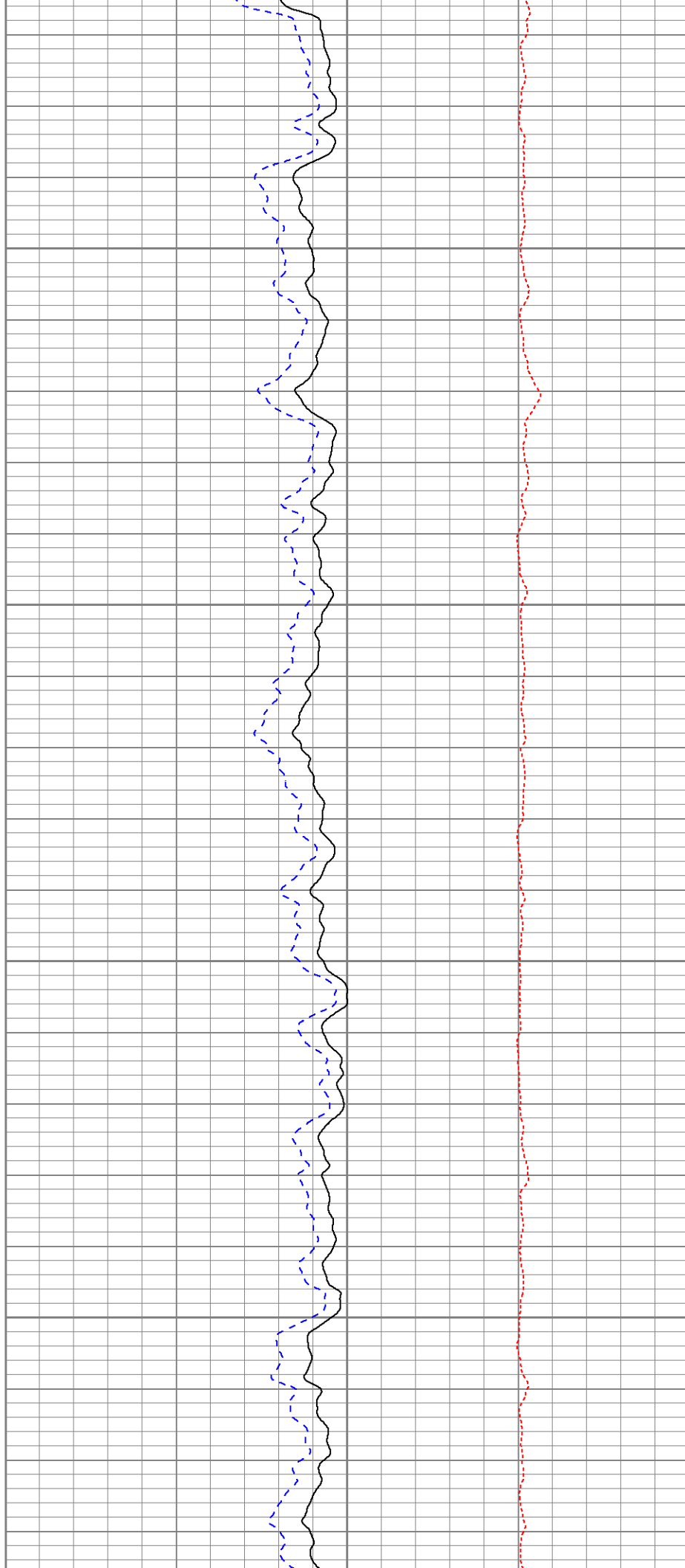


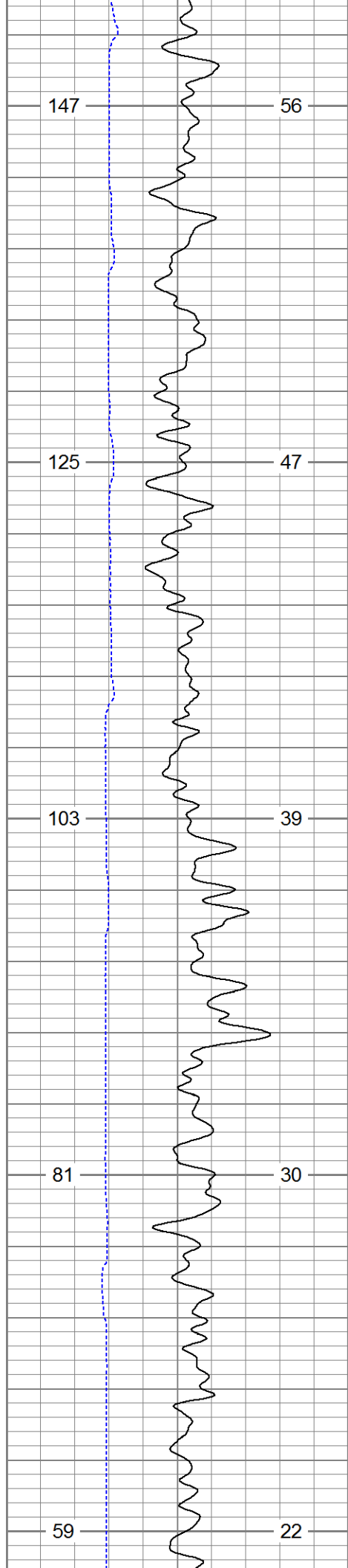
3850

3900

3950

4000





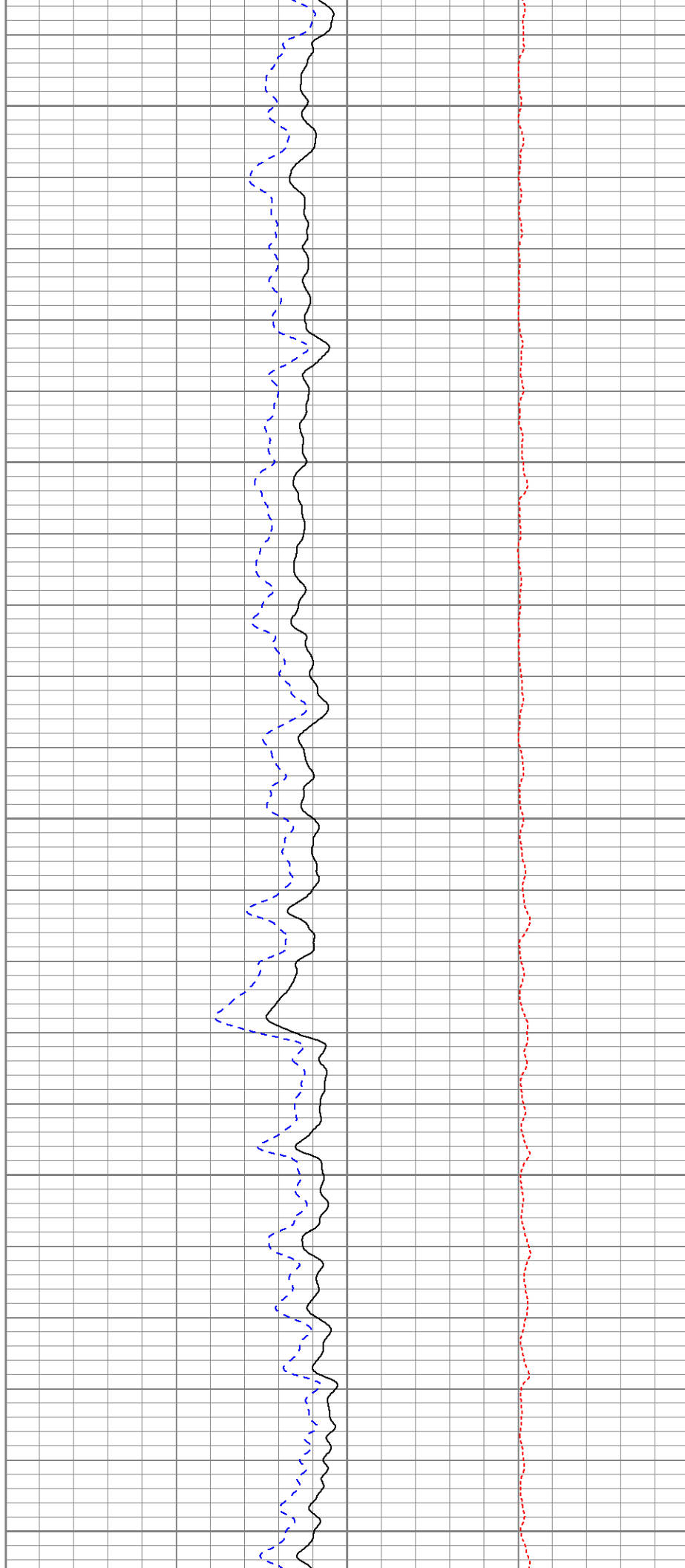
4050

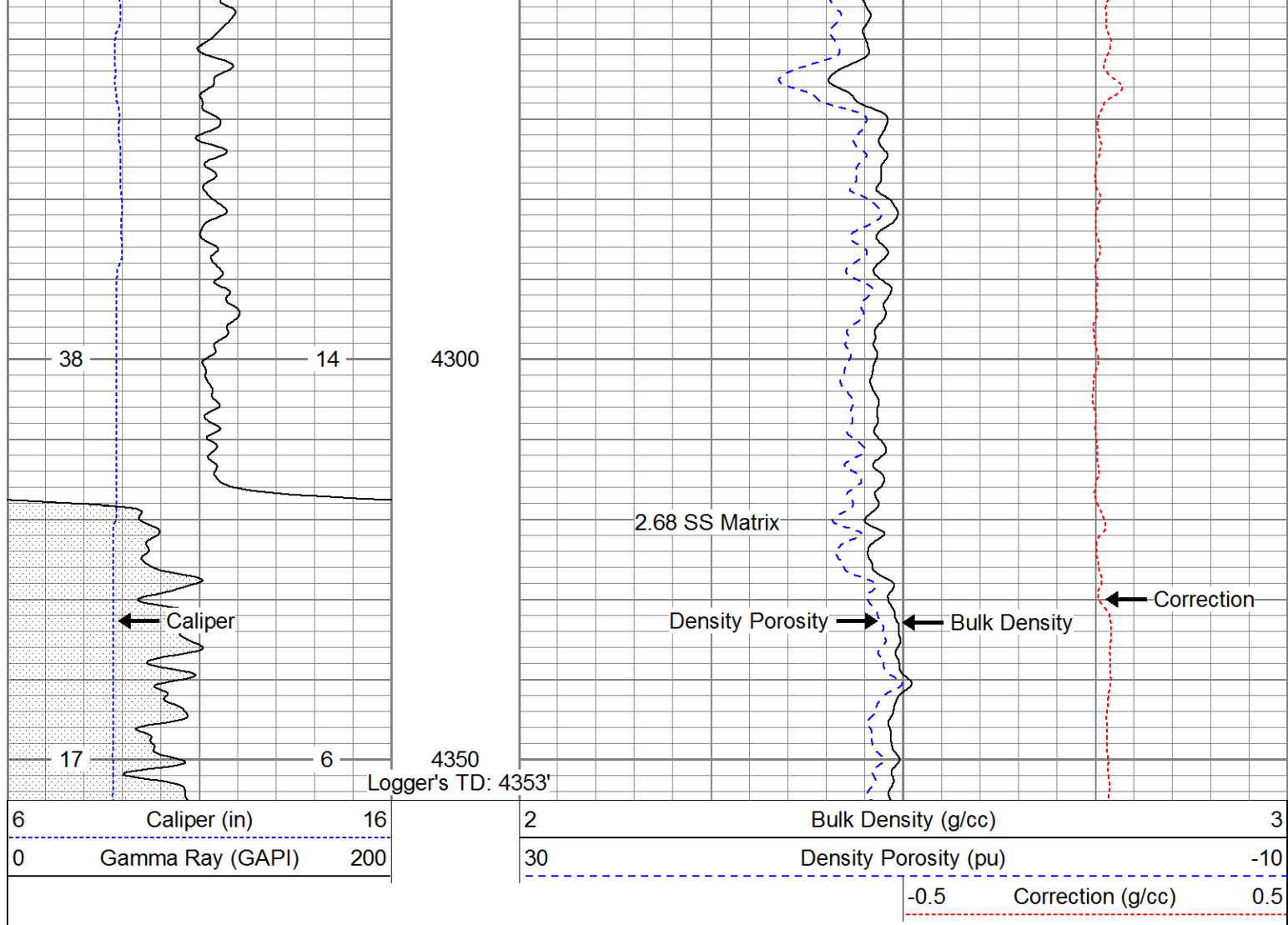
4100

4150

4200

4250





Calibration Report

Database File: 13635.db
 Dataset Pathname: pass4.1
 Dataset Creation: Sat Jul 26 06:42:39 2014 by Calc 0

Dual Induction Calibration Report

Serial-Model: 1039-PSI
 Surface Cal Performed:

Loop:	Readings		References		Results	
	Air	Loop	Air	Loop	m	b
Deep	0.000	1.000	0.000	1.000	mmho/m	0.595 -45.000
Medium	0.000	1.000	0.000	1.000	mmho/m	0.475 -40.000

Compensated Density Calibration Report

Serial-Model: 770-PSI
 Source / Verifier: 4400 / PSI
 Master Calibration Performed: Mon Jul 21 02:13:30 2014
 Before Survey Verification Performed:
 After Survey Verification Performed:

Master Calibration

Density Far Detector Near Detector

Magnesium	1.750	g/cc	6052.27	9575.17	cps
Aluminum	2.690	g/cc	1090.90	5872.16	cps
Spine Angle = 74.07			Density/Spine Ratio = 0.528		
	Size		Reading		
Small Ring	4.50	in	1.80		
Large Ring	13.00	in	1.46		

Compensated Neutron Calibration Report						
Serial Number:			853			
Tool Model:			PSI			
CALIBRATION						
Detector		Readings		Target		Normalization
Short Space		1.00	cps	1.00	cps	1.9000
Long Space		1.00	cps	1.00	cps	2.0600
Gamma Ray Calibration Report						
Serial Number:		223				
Tool Model:		PSI				
Performed:		Mon Jul 21 02:13:45 2014				
Calibrator Value:		253.0		GAPI		
Background Reading:		30.0		cps		
Calibrator Reading:		380.0		cps		
Sensitivity:		0.6300		GAPI/cps		