



**PIONEER**  
Pioneer Energy Services

**DUAL IND / DUAL COMP  
POROSITY LOG**

Company **EXTRACTION OIL AND GAS, LLC**  
Well **VT-LDS #C2-16-18**  
Field **WATTENBERG**  
County **WELD**  
State **COLORADO**

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Well **VT-LDS #C2-16-18**  
Field **WATTENBERG**  
County **WELD** State **COLORADO**

Location: API #: 05-123-44422-00  
SEC 15 TWP 5N RGE 65W  
Permanent Datum **GROUND LEVEL Elevation 4647'**  
Log Measured From **KELLY BUSHING**  
Drilling Measured From **KELLY BUSHING**  
Other Services  
**NONE**  
Elevation  
K.B. 4675'  
D.F. N/A  
G.L. 4647'

Date	6/23/2018		
Run Number	ONE		
Depth Driller	N/A		
Depth Logger	N/A		
Bottom Logged Interval	4746'		
Top Log Interval	0'		
Casing Driller	9.625" @ 1557'		
Casing Logger	1557'		
Bit Size	8.75"		
Type Fluid in Hole	OIL BASED MUD		
Salinity, ppm CL	N/A		
Density / Viscosity	9.3 N/A		
pH / Fluid Loss	N/A N/A		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	N/A @ N/A		
Rmf @ Meas. Temp	N/A @ N/A		
Rmc @ Meas. Temp	N/A @ N/A		
Source of Rmf / Rmc	CHARTS		
Rm @ BHT	N/A @ N/A		
Operating Rig Time	3 HOURS		
Max Rec. Temp. F	N/A		
Equipment Number	108		
Location	HAYS		
Recorded By	D. SCHMIDT		
Witnessed By	JOSE TORRES		

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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.**

**SO# 1-OFC1**

**NO FOCUS TOOL DUE TO OIL BASED MUD**

**NO REPEAT DUE TO HOLE CONDITIONS**

**Log Measured From: KELLY BUSHING**

**28 Ft. Above Permanent Datum**

**THANK YOU FOR USING PIONEER ENERGY SERVICES**

**www.pioneerenergy.com**

**785-625-3858**

**Your Pioneer Energy Services Crew**

**Engineer: D. SCHMIDT**

**Operator:**

**Operator:**

**Operator:**

**This Log Record Was Witnessed By**

**Primary Witness: JOSE TORRES**











**Secondary Witness:**

**Secondary Witness:**

**Secondary Witness:**

Top - Bottom

A	BOREID	BOTTEMP	CASEOD	CASETHCK	FLUIDDEN	M	MATRXDEN
1	in 8.75	degF 100	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 0	degF 50	Off	ft 0

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 20.83 20.35			CDL-M&W (979-229)	8.50	4.00	250.00
RLL3 RLL3F	15.80 15.79						
CILD	8.00			DIL-M&W (1987)	18.50	3.50	220.00

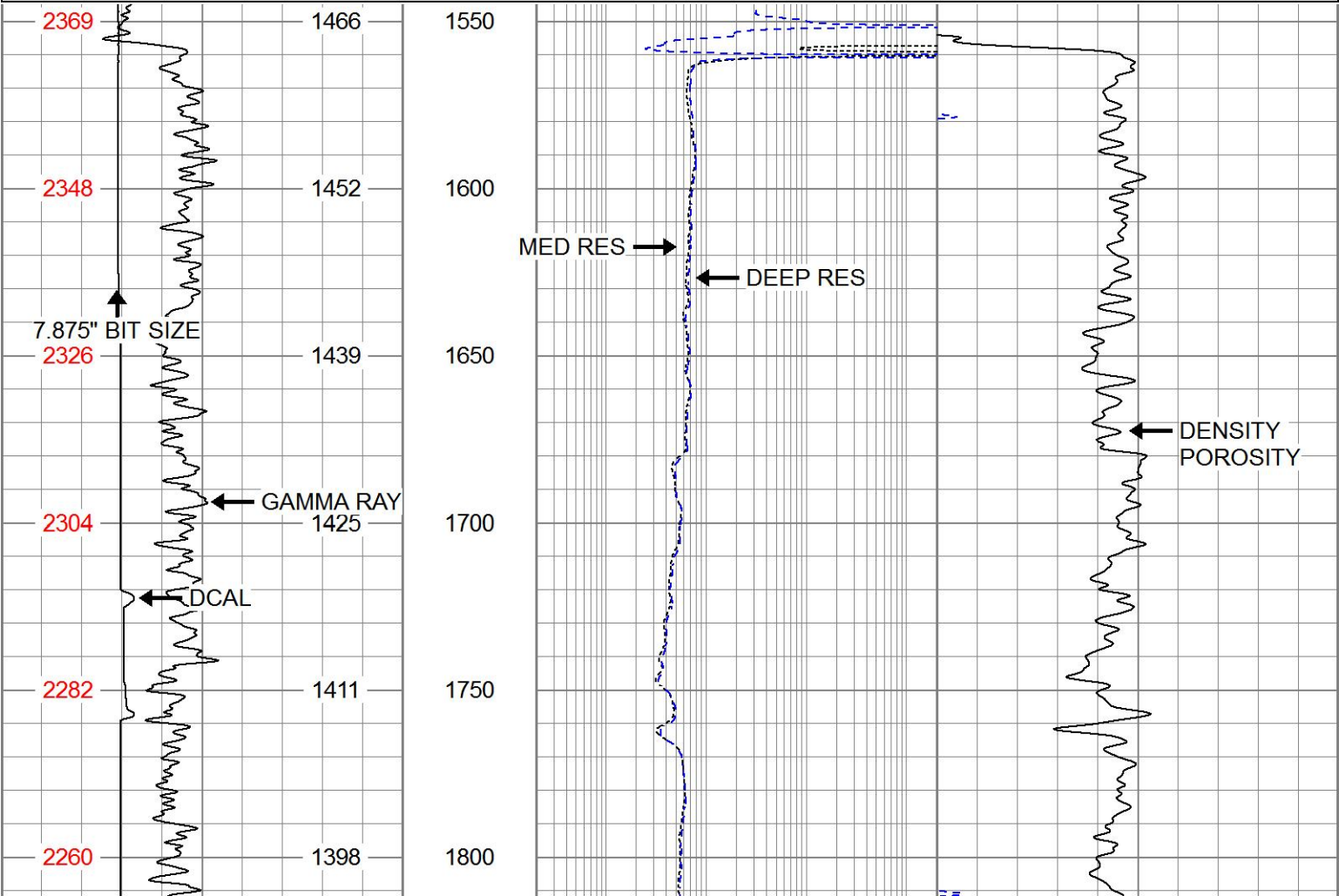
CILM	4.70								
SP	0.20								
Dataset: extraction_vt-lds c2 16 18.db: field/well/STACK/pass3.1									
Total length: 35.50 ft									
Total weight: 620.00 lb									
O.D.: 4.00 in									

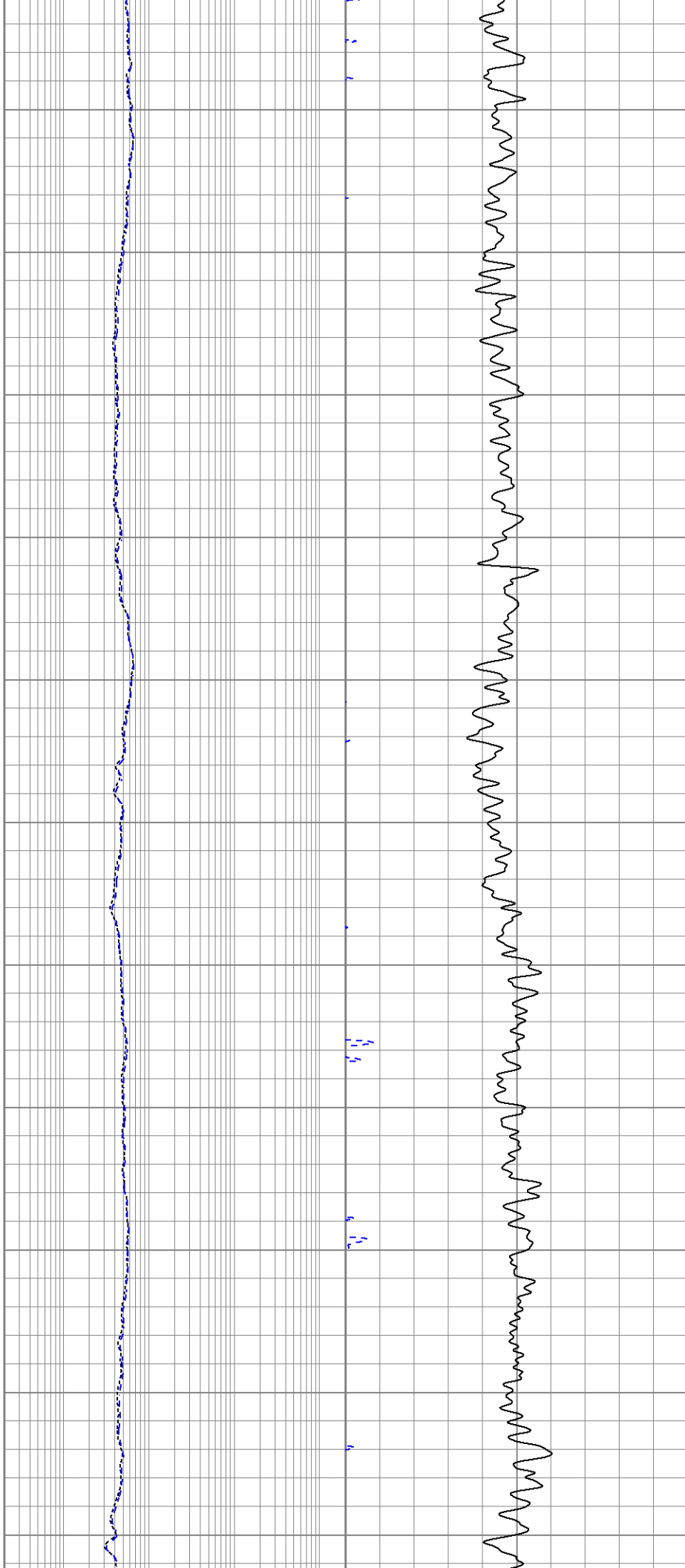
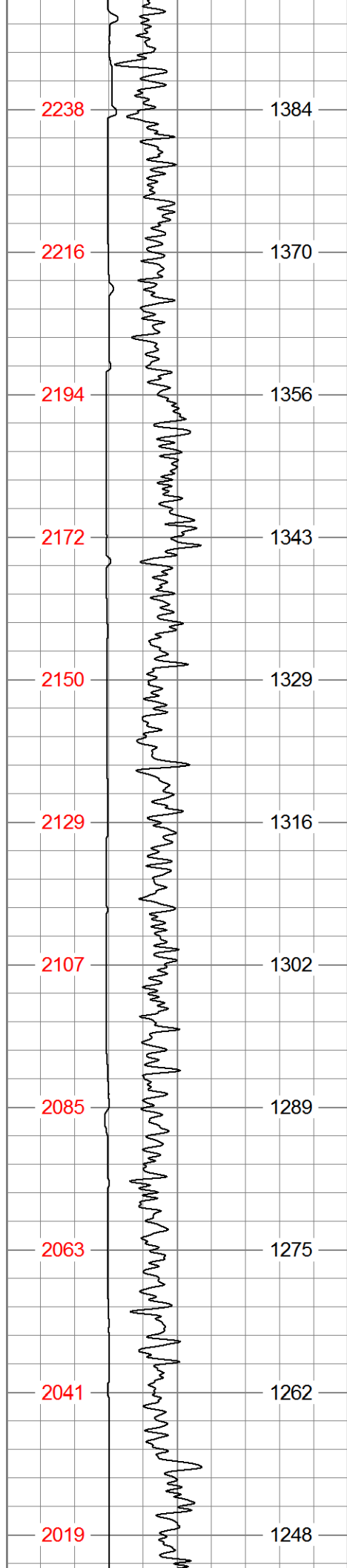


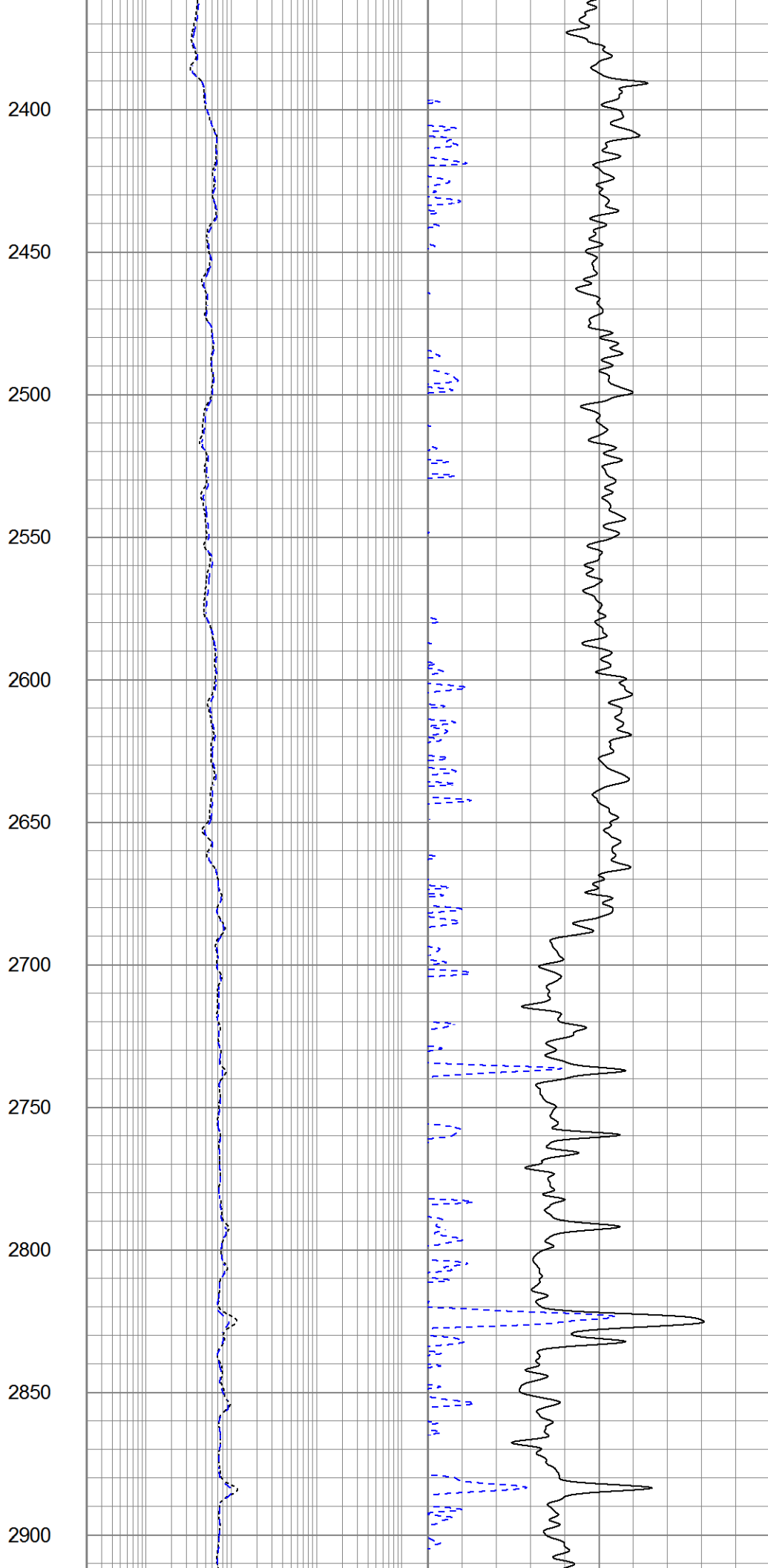
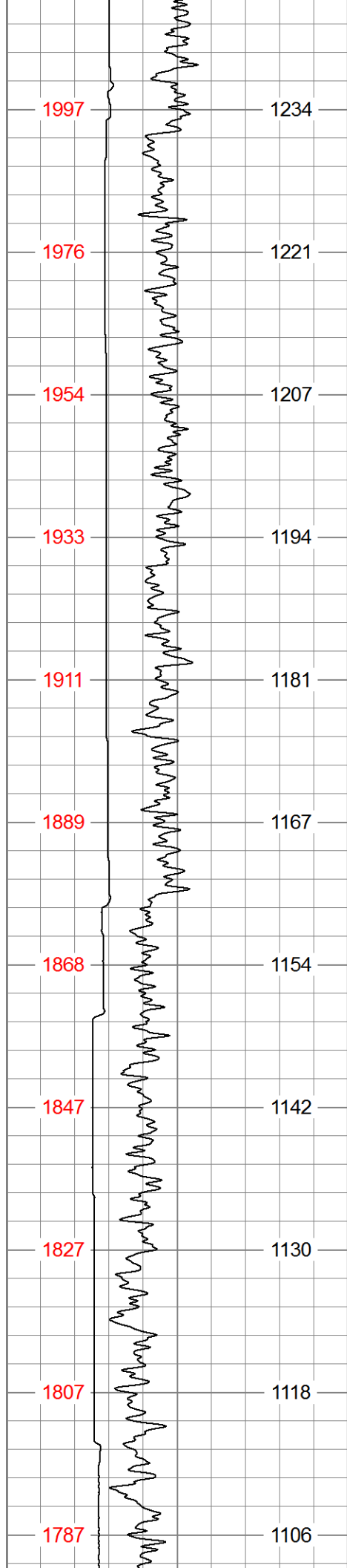
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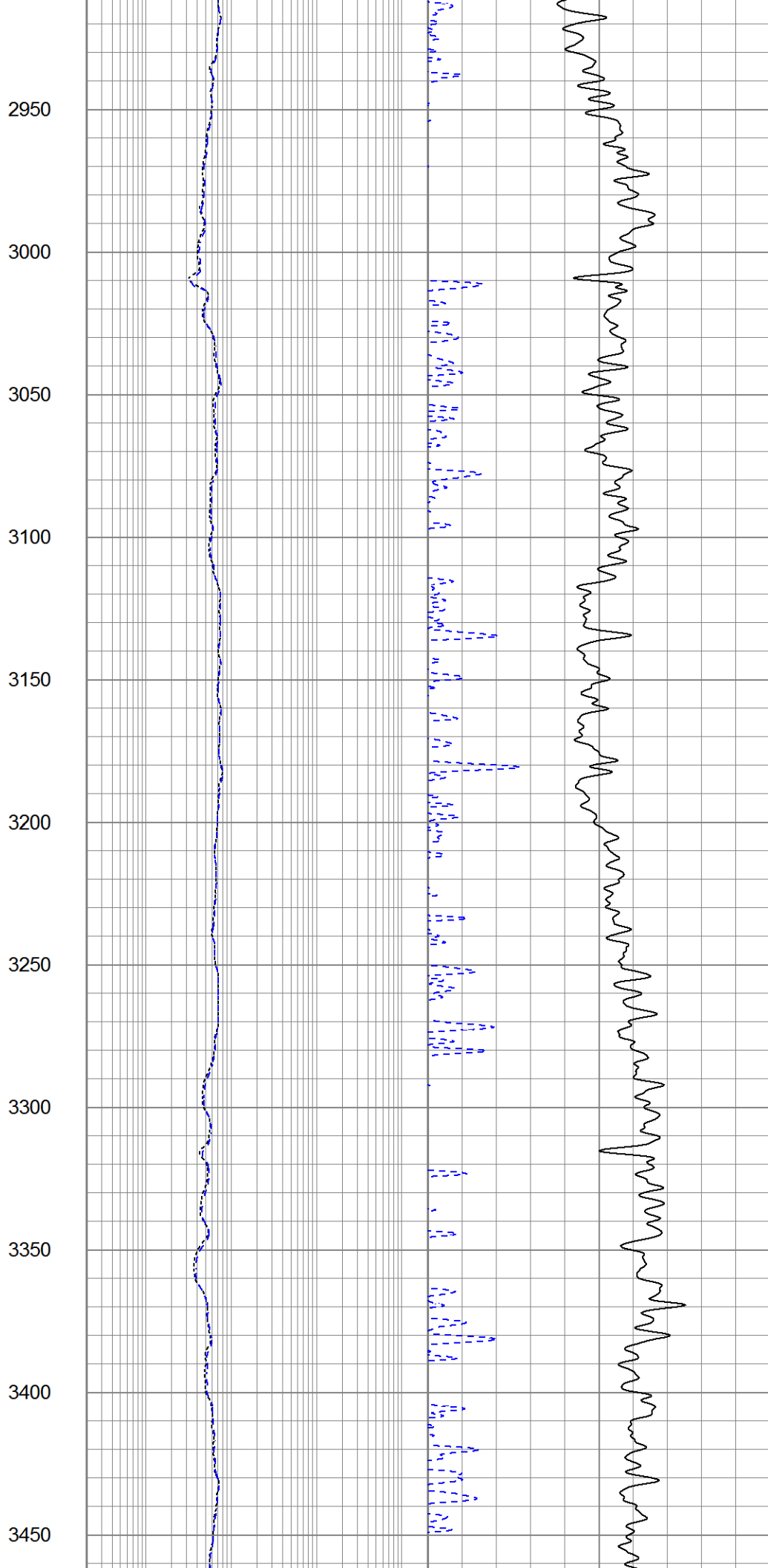
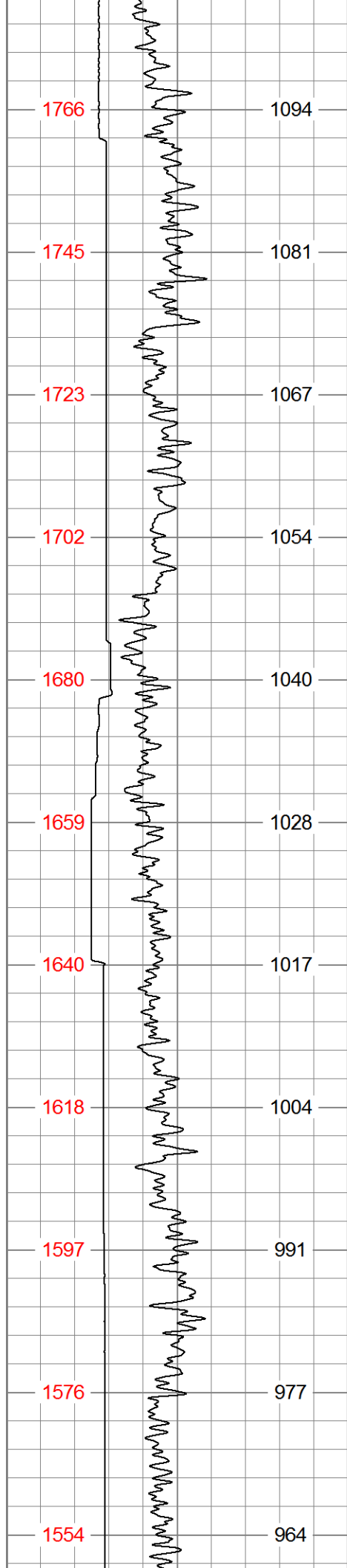
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Dataset Pathname	STACK/pass3.1
Presentation Format	split
Dataset Creation	Sat Jun 23 17:12:36 2018
Charted by	Depth in Feet scaled 1:600

0	GAMMA RAY (GAPI)	200		MEDIUM INDUCTION	30	DENSITY POROSITY (pu)	0
6	DCAL (in)	16		0.2 (Ohm-m) 2000	30	CNLS (pu)	0
6	DCAL (in)	16		DEEP INDUCTION			
				0.2 (Ohm-m) 2000			

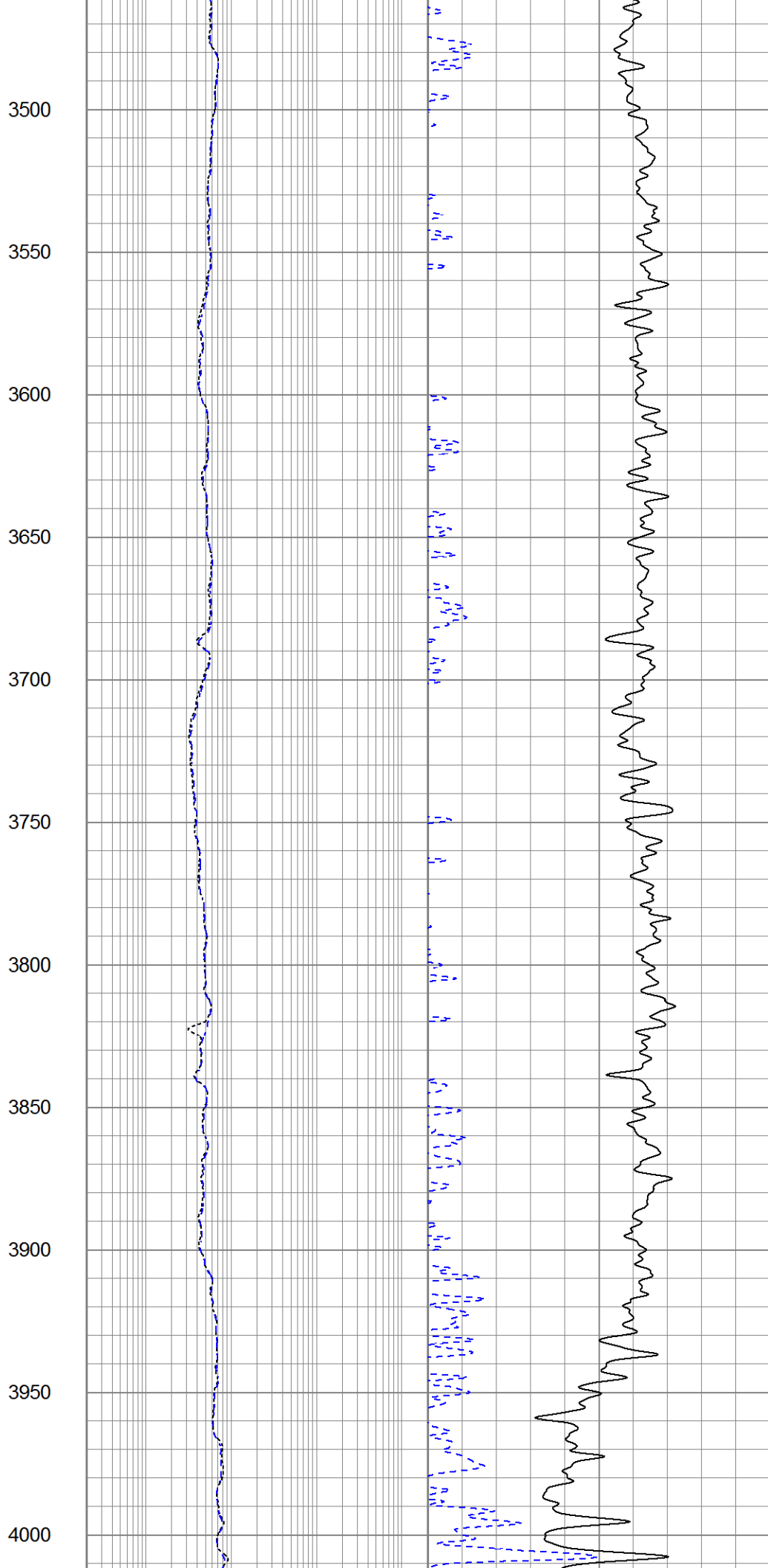
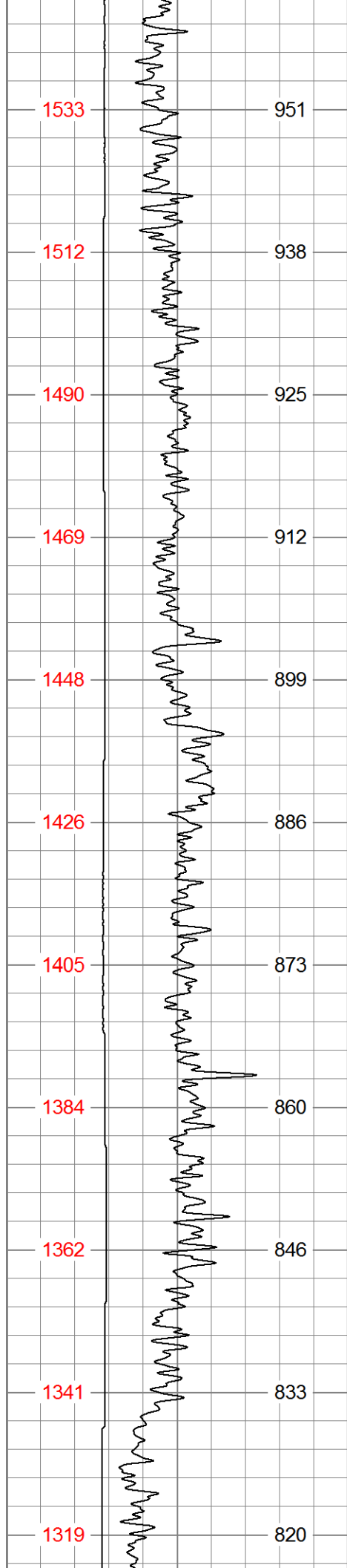


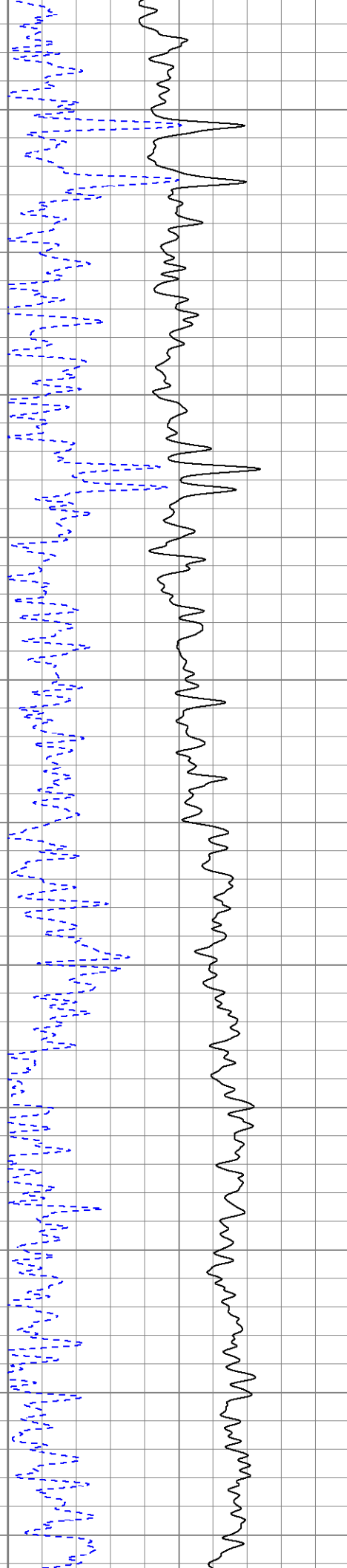
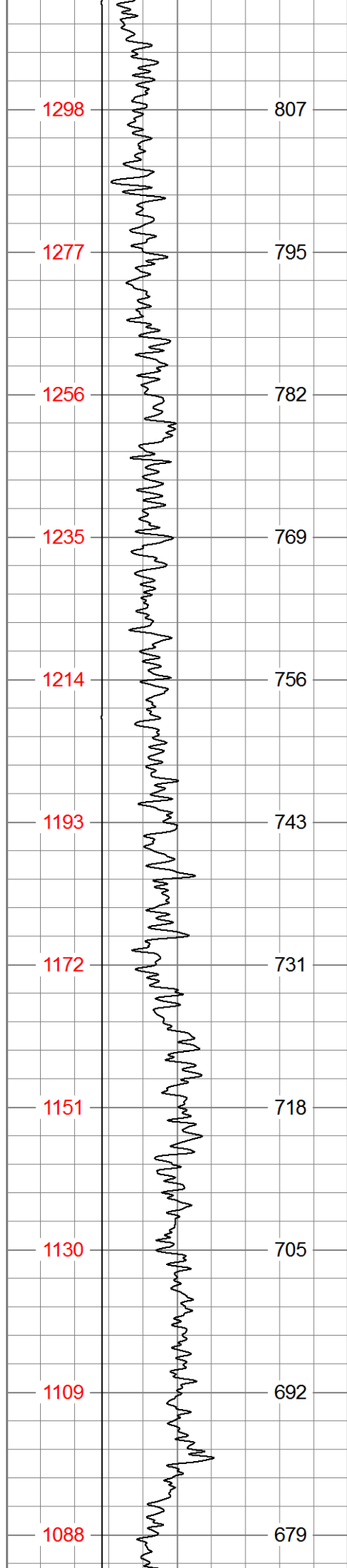




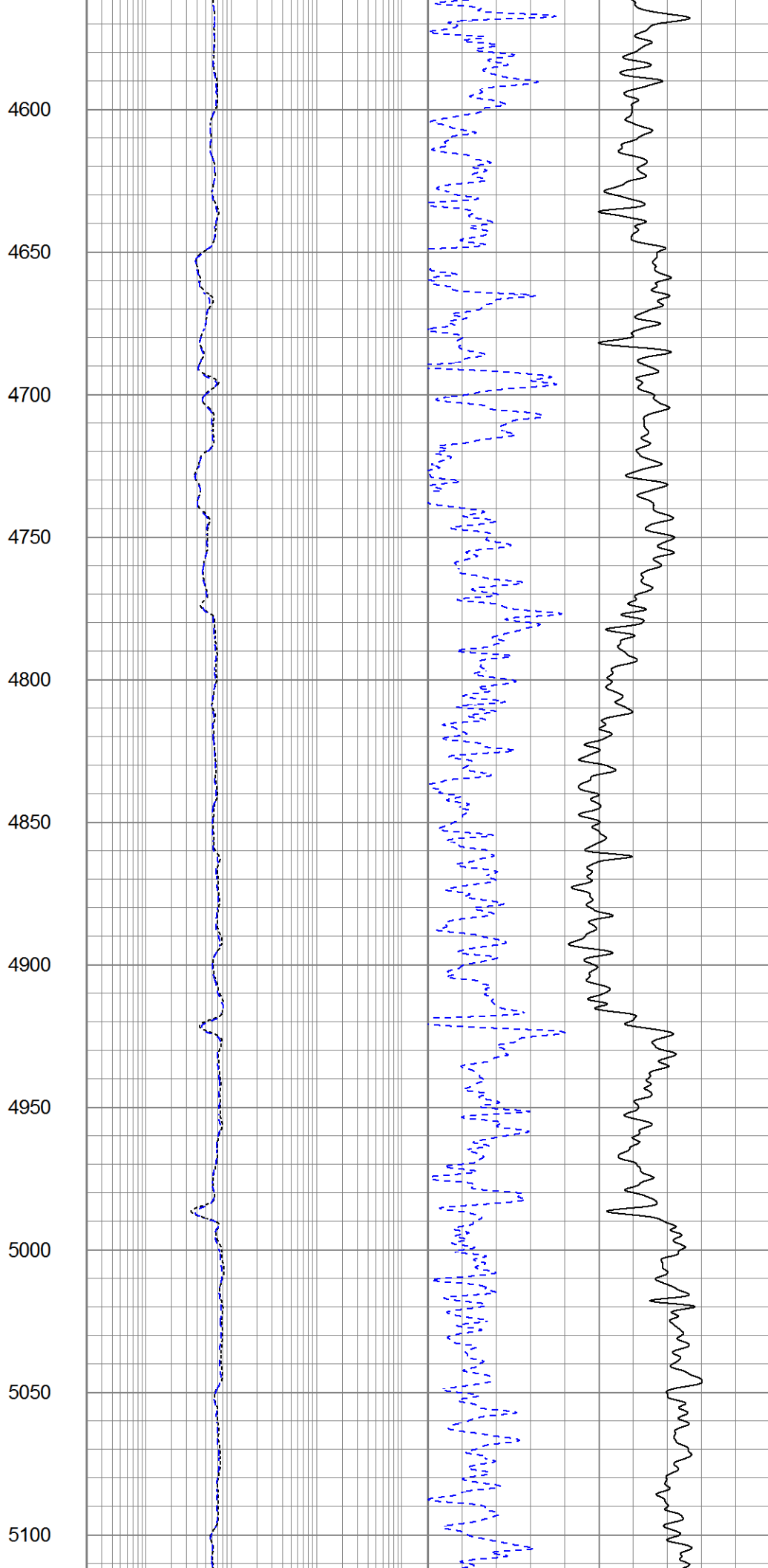
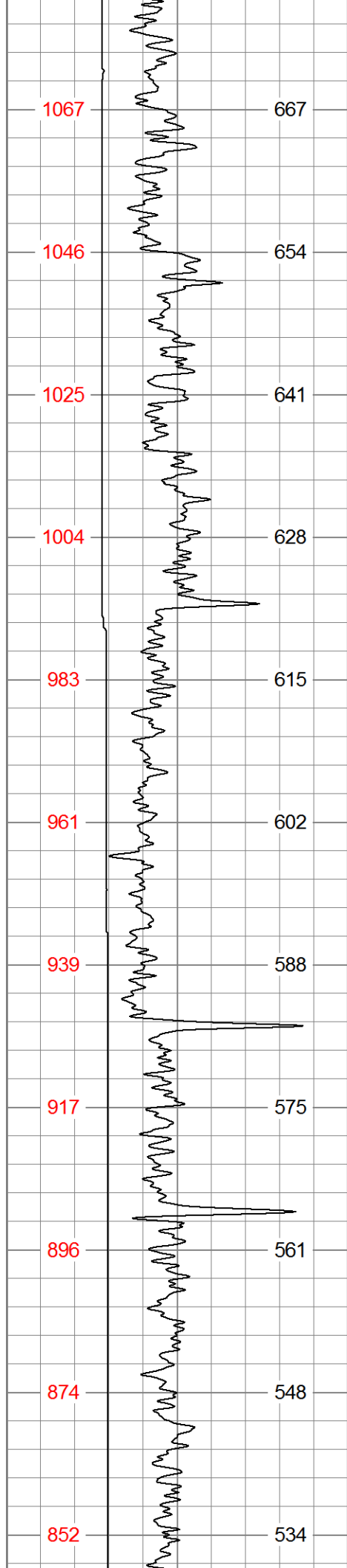


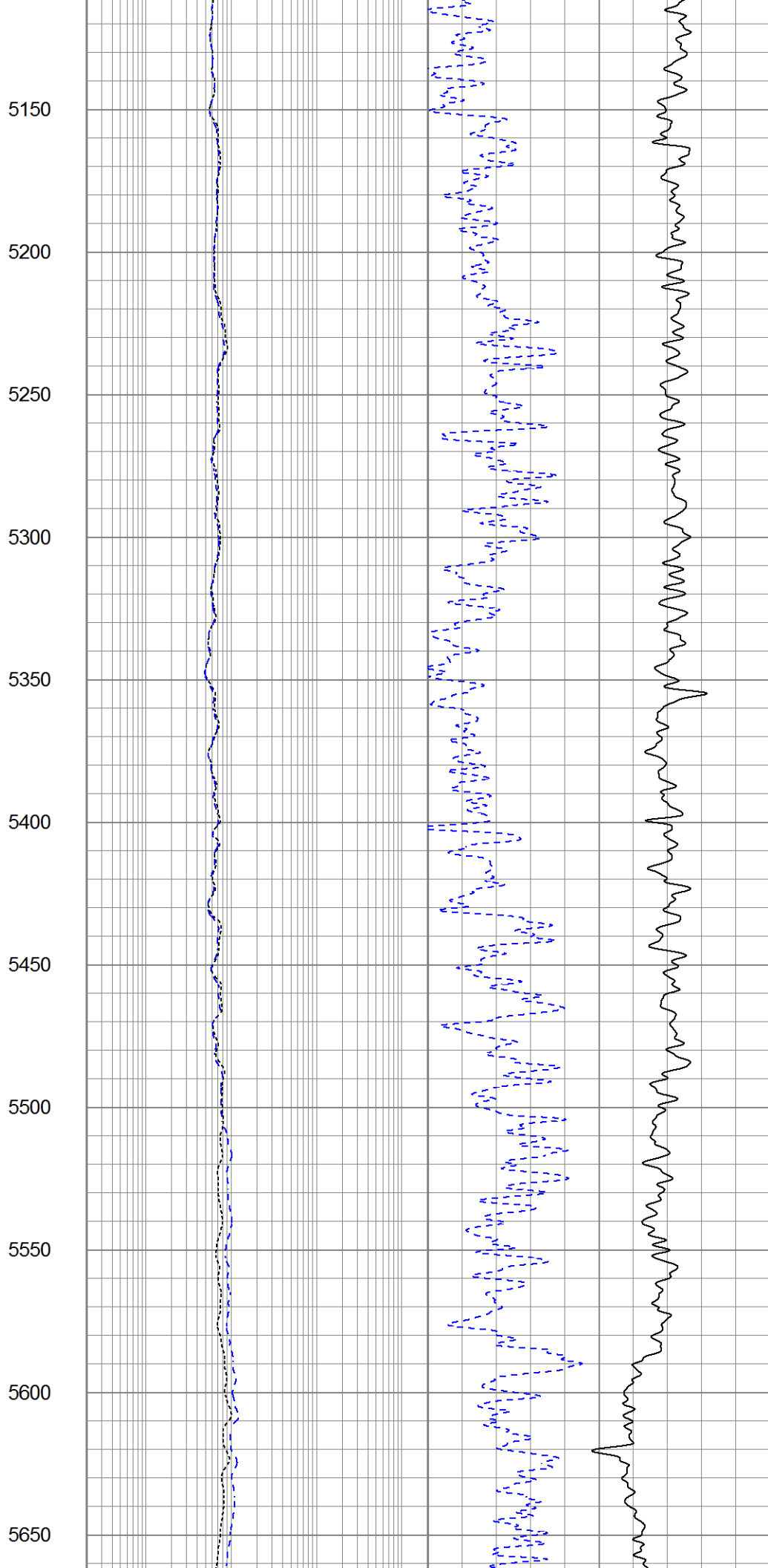
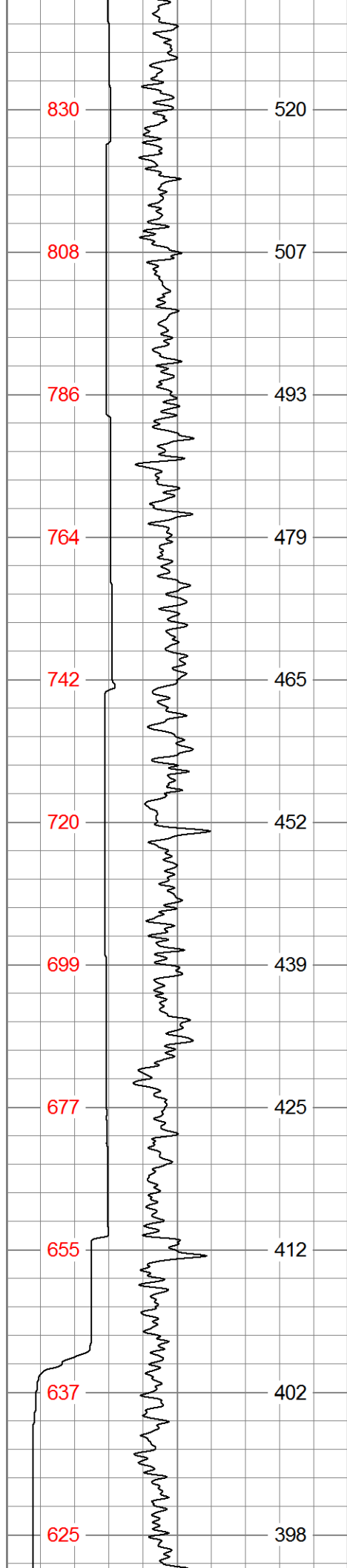


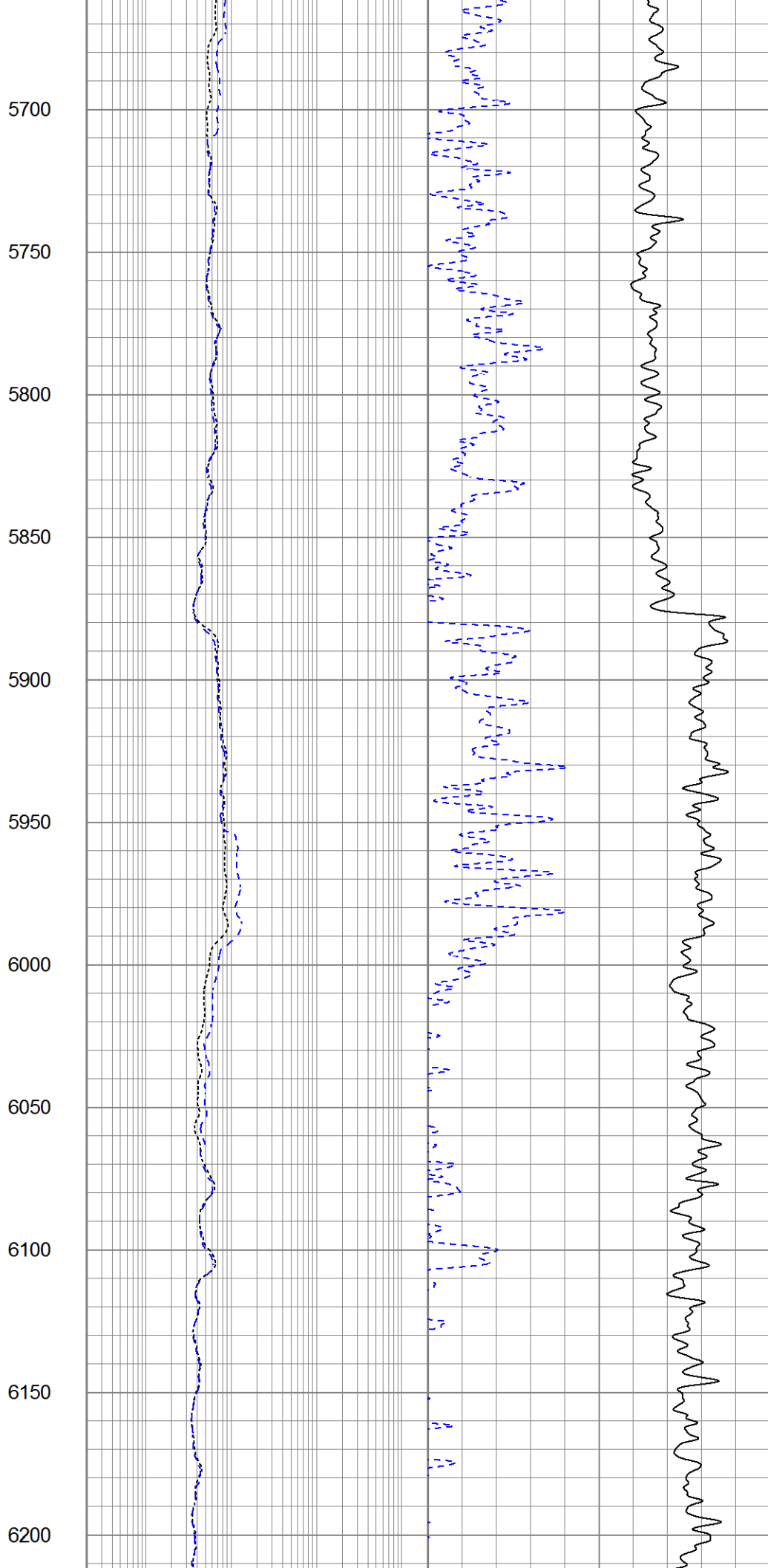
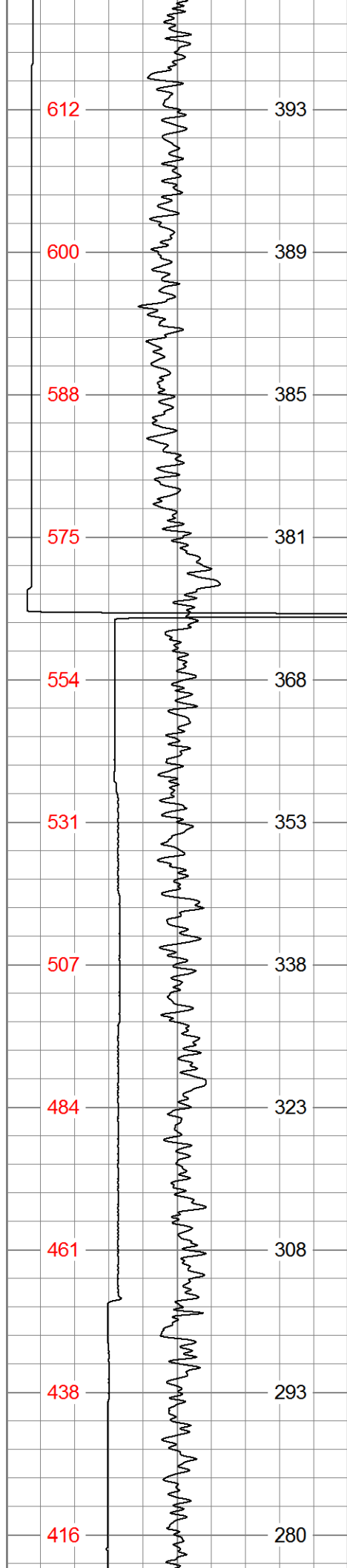


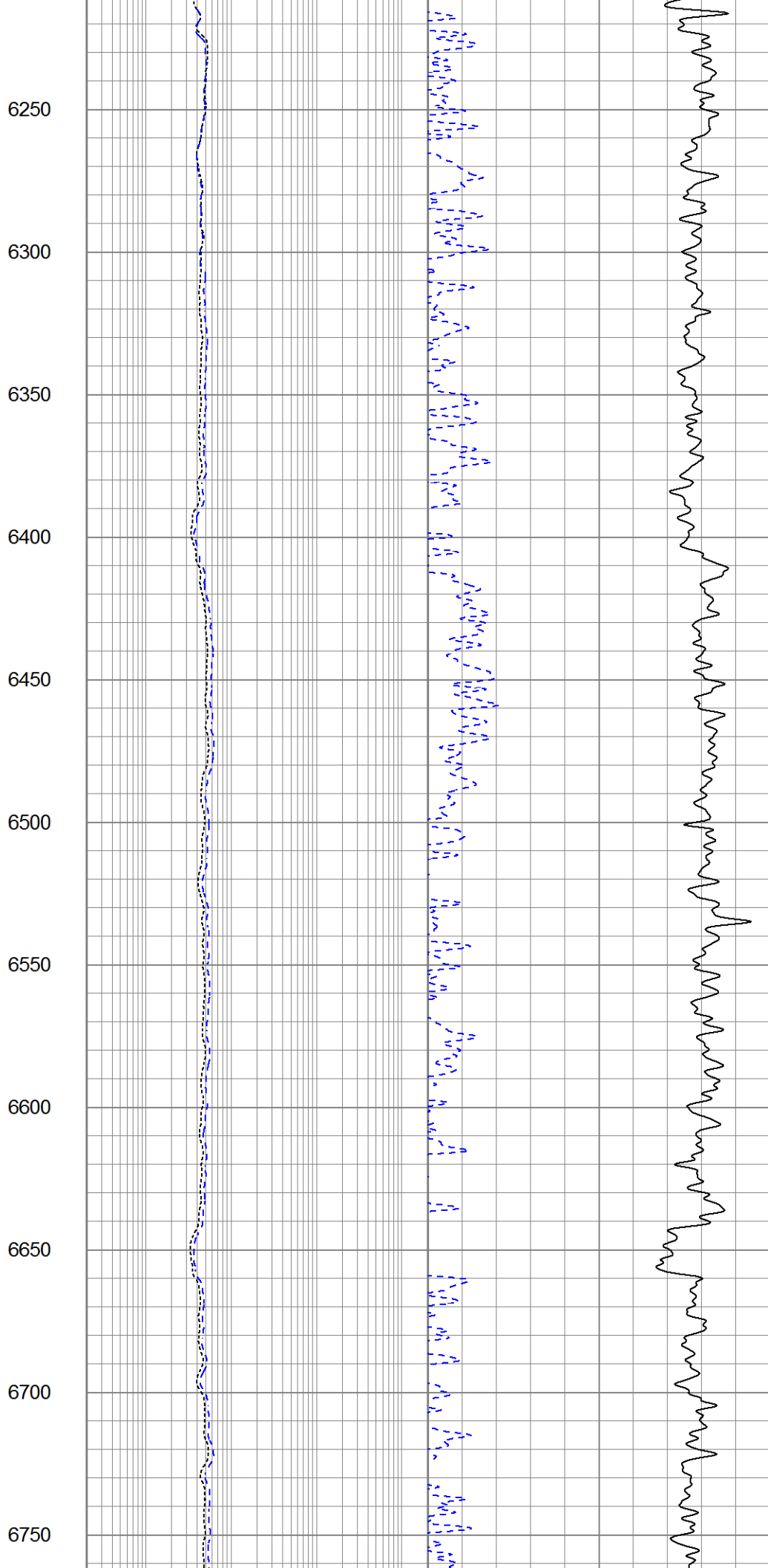
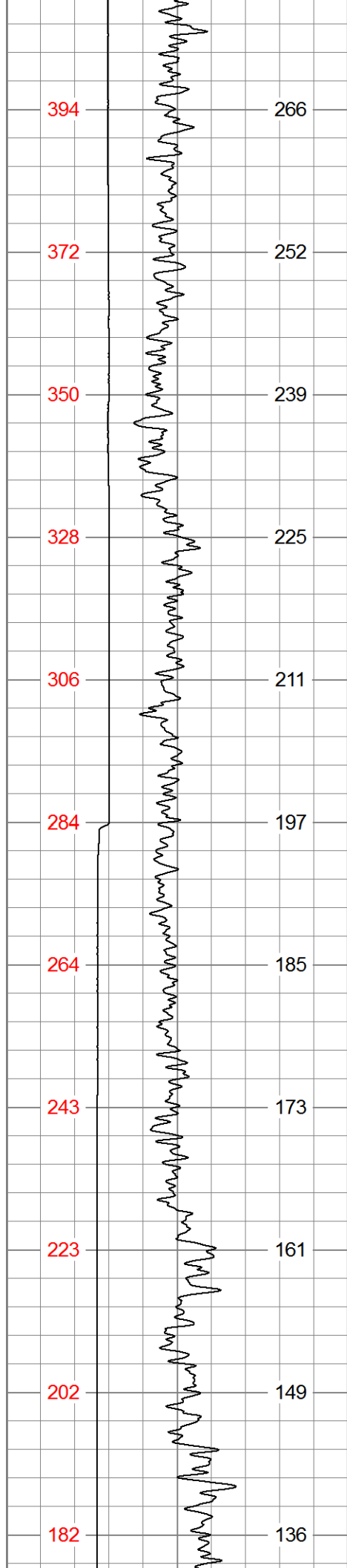


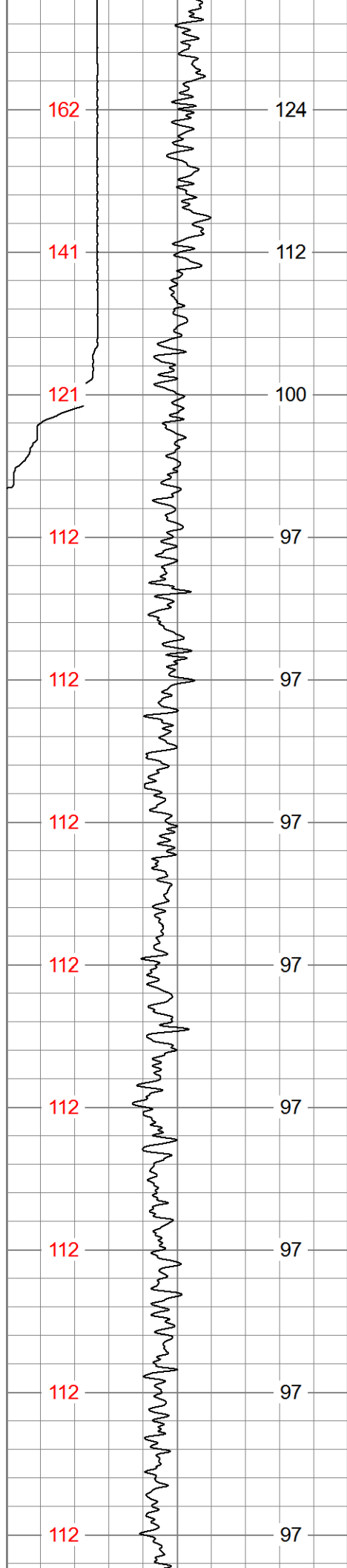




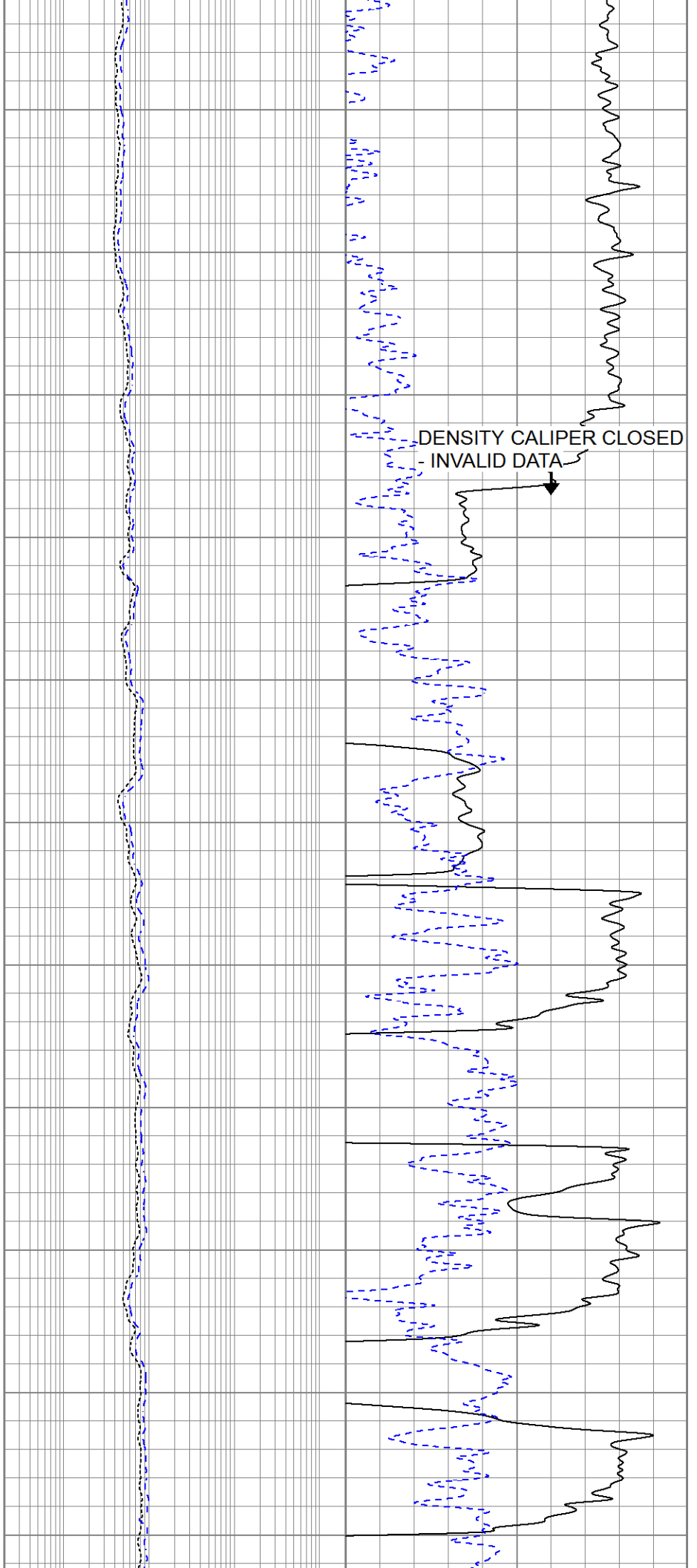








6800  
6850  
6900  
6950  
7000  
7050  
7100  
7150  
7200  
7250  
7300





Database File

extraction\_vt-lds c2 16 18.db

Dataset Pathname

STACK/pass3.1

Presentation Format

split

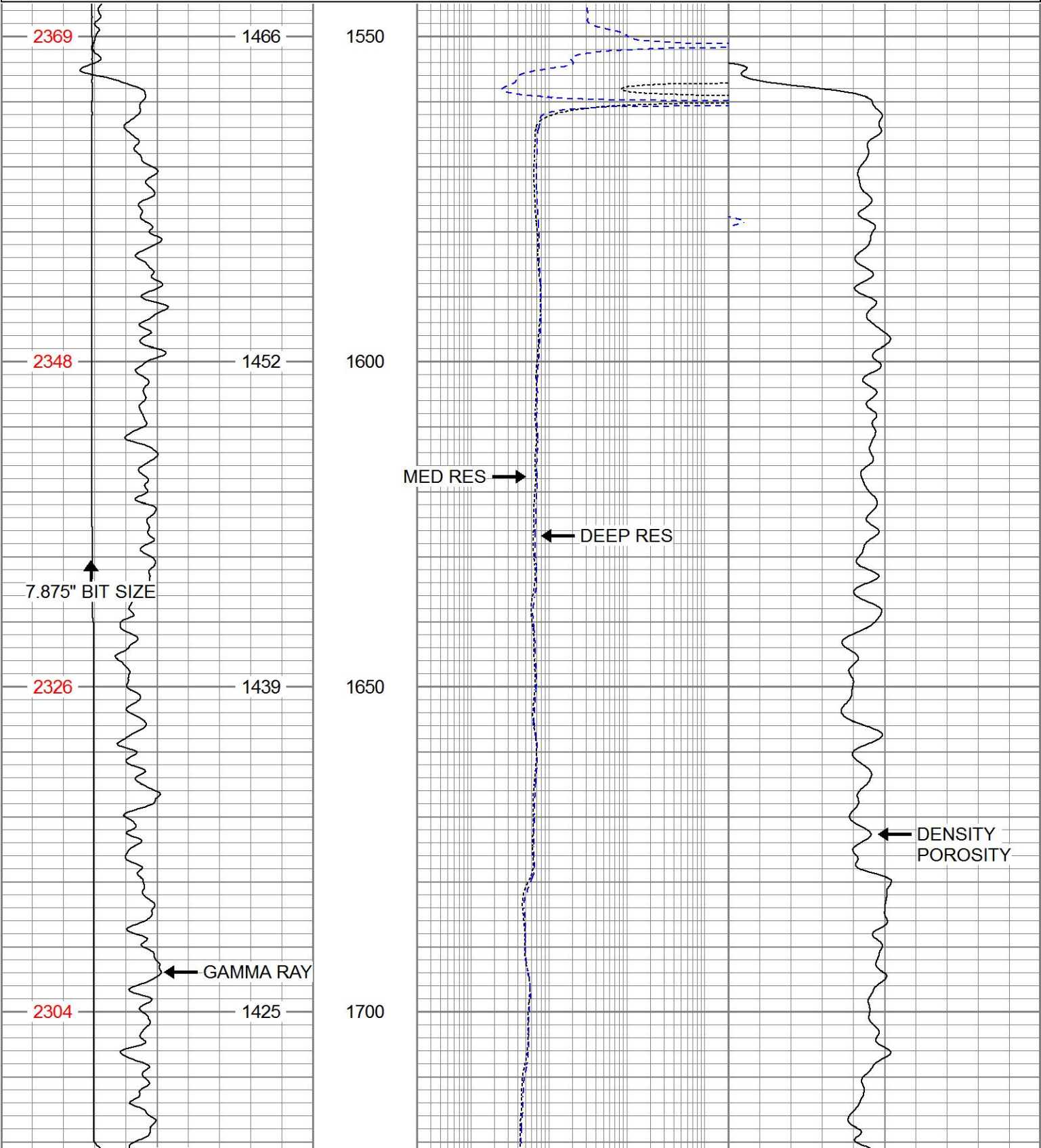
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Sat Jun 23 17:12:36 2018

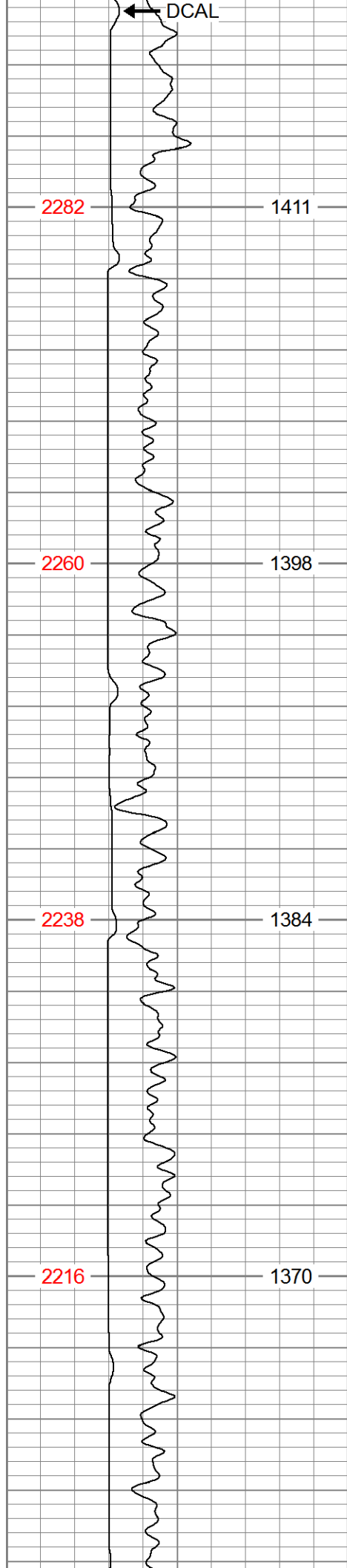
Charted by

Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	200			MEDIUM INDUCTION	30	DENSITY POROSITY (pu)	0
6	DCAL (in)	16	0.2	(Ohm-m)	2000	30	CNLS (pu)	0
6	DCAL (in)	16						
			DEEP INDUCTION					
			0.2	(Ohm-m)	2000			





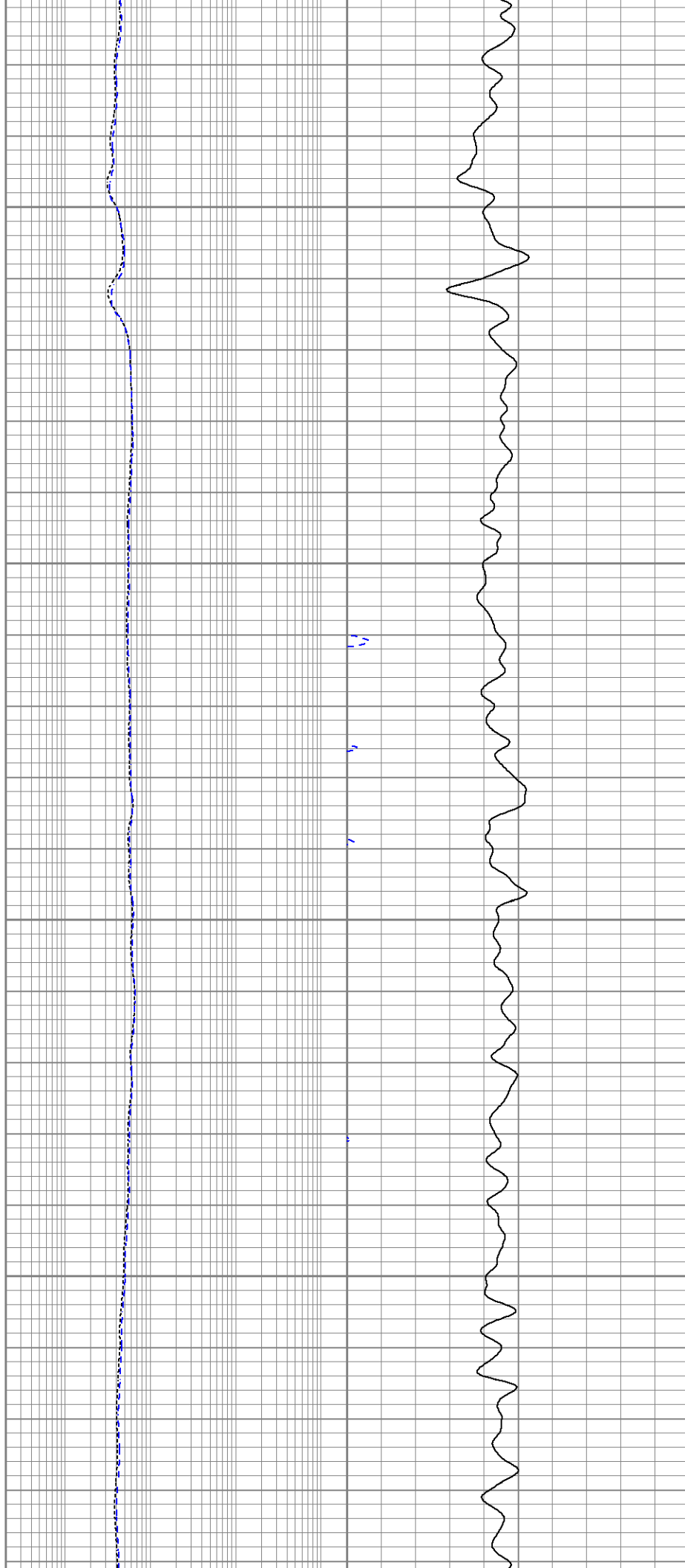


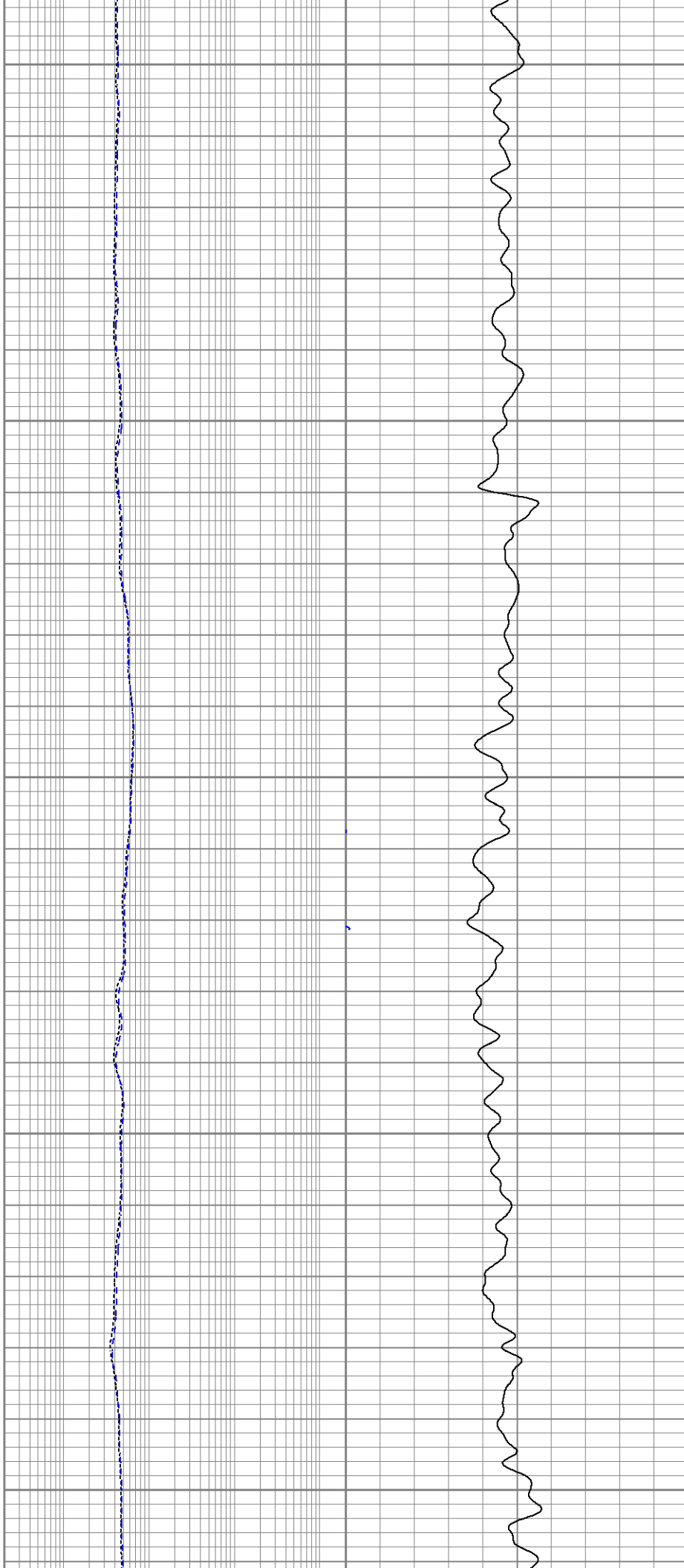
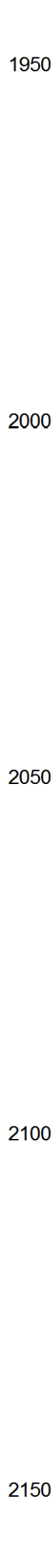
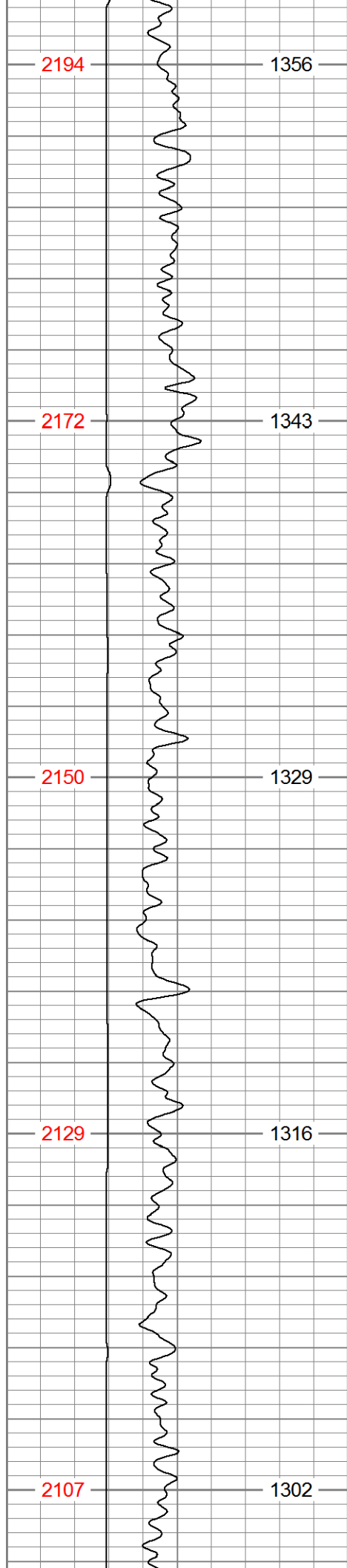
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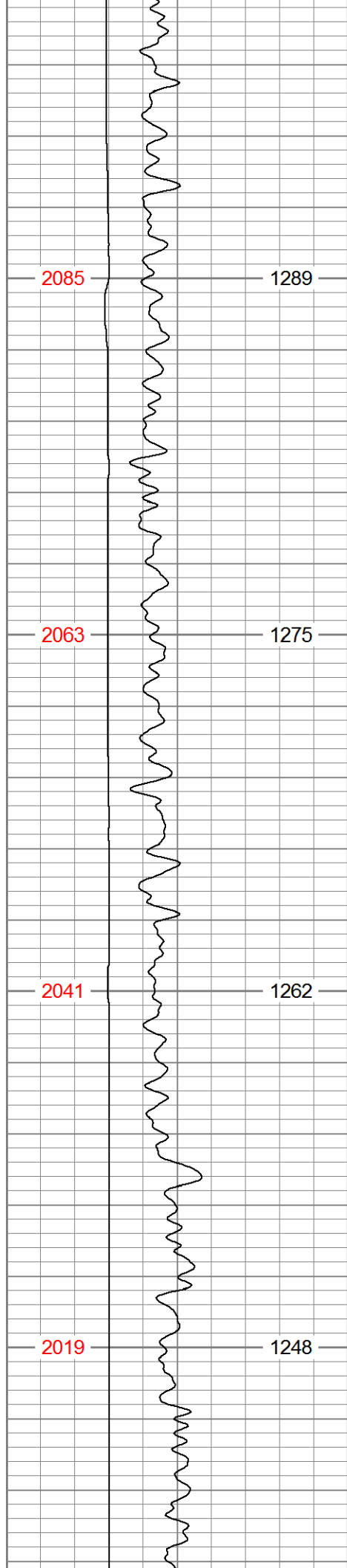
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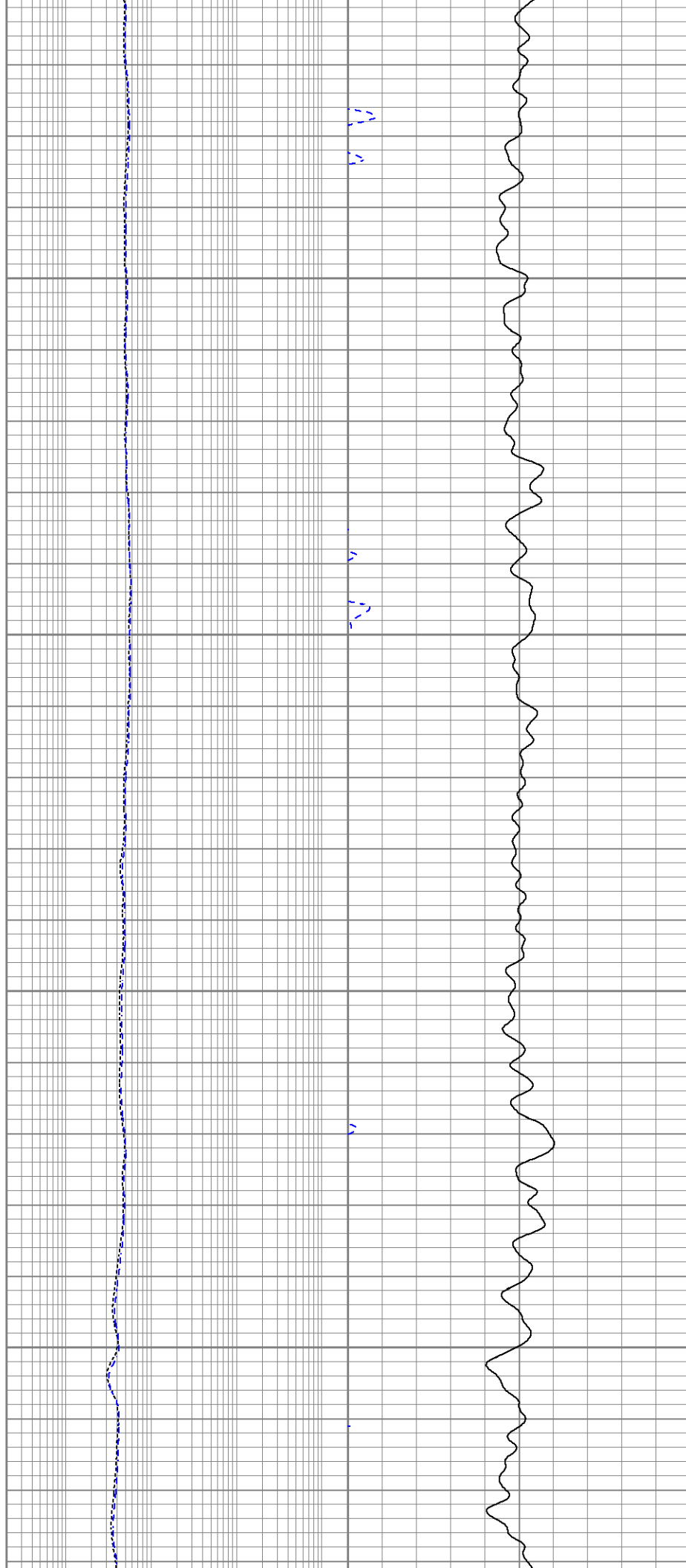


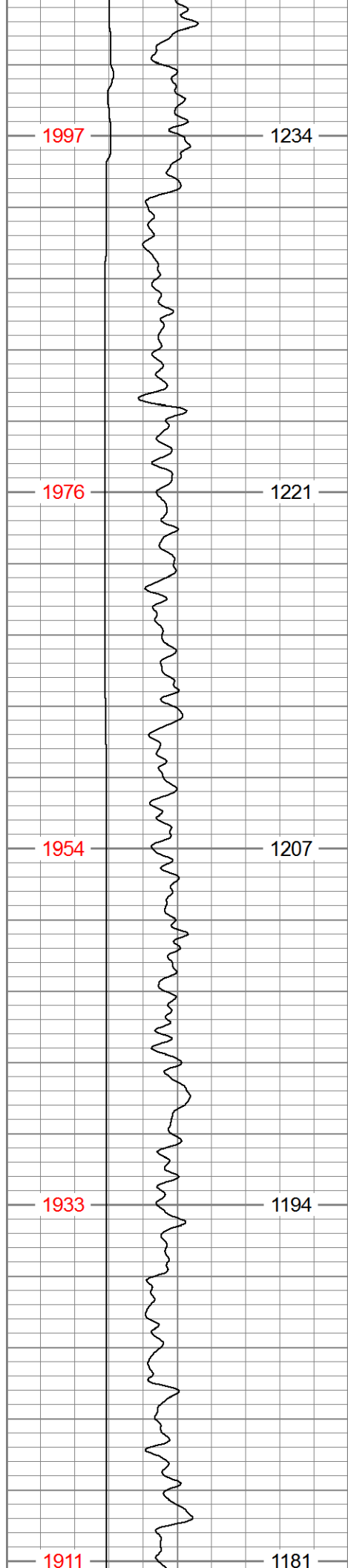
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2300

2350





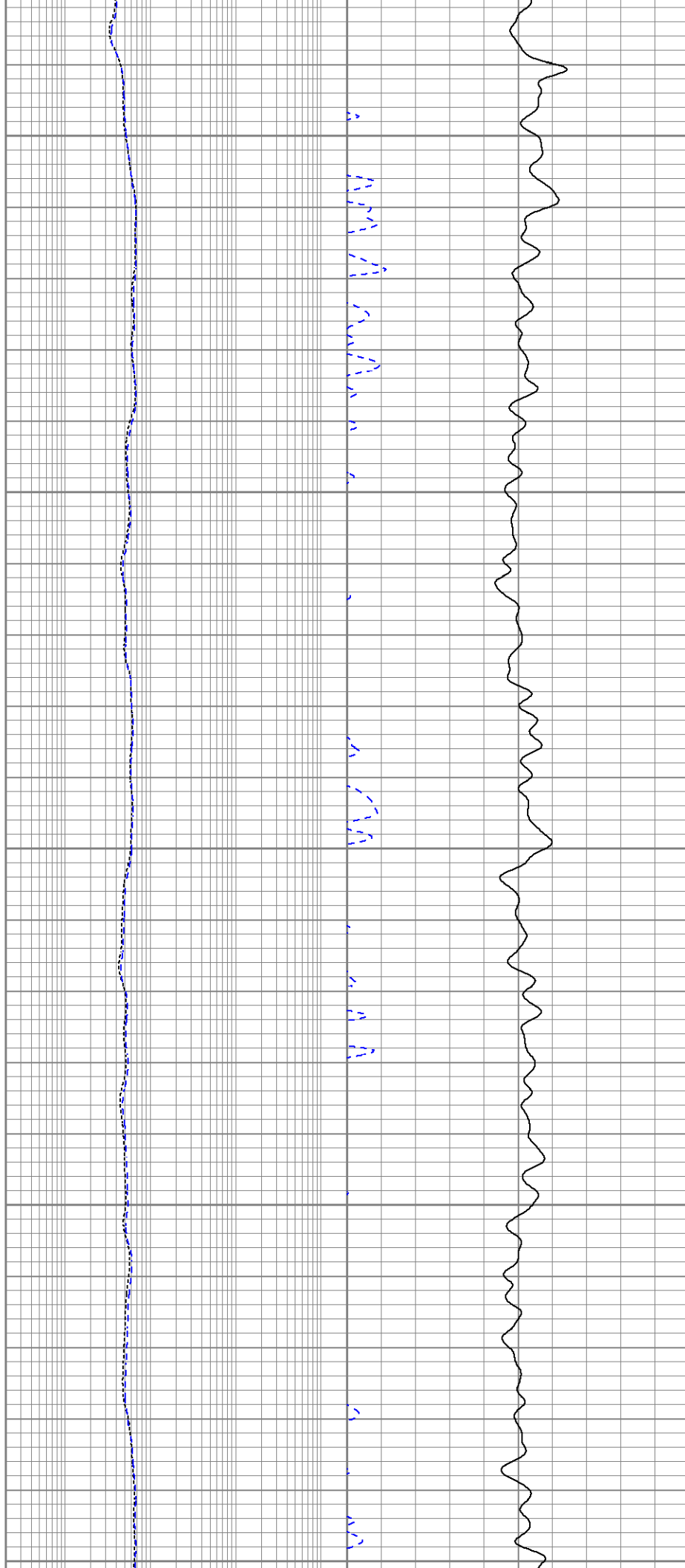
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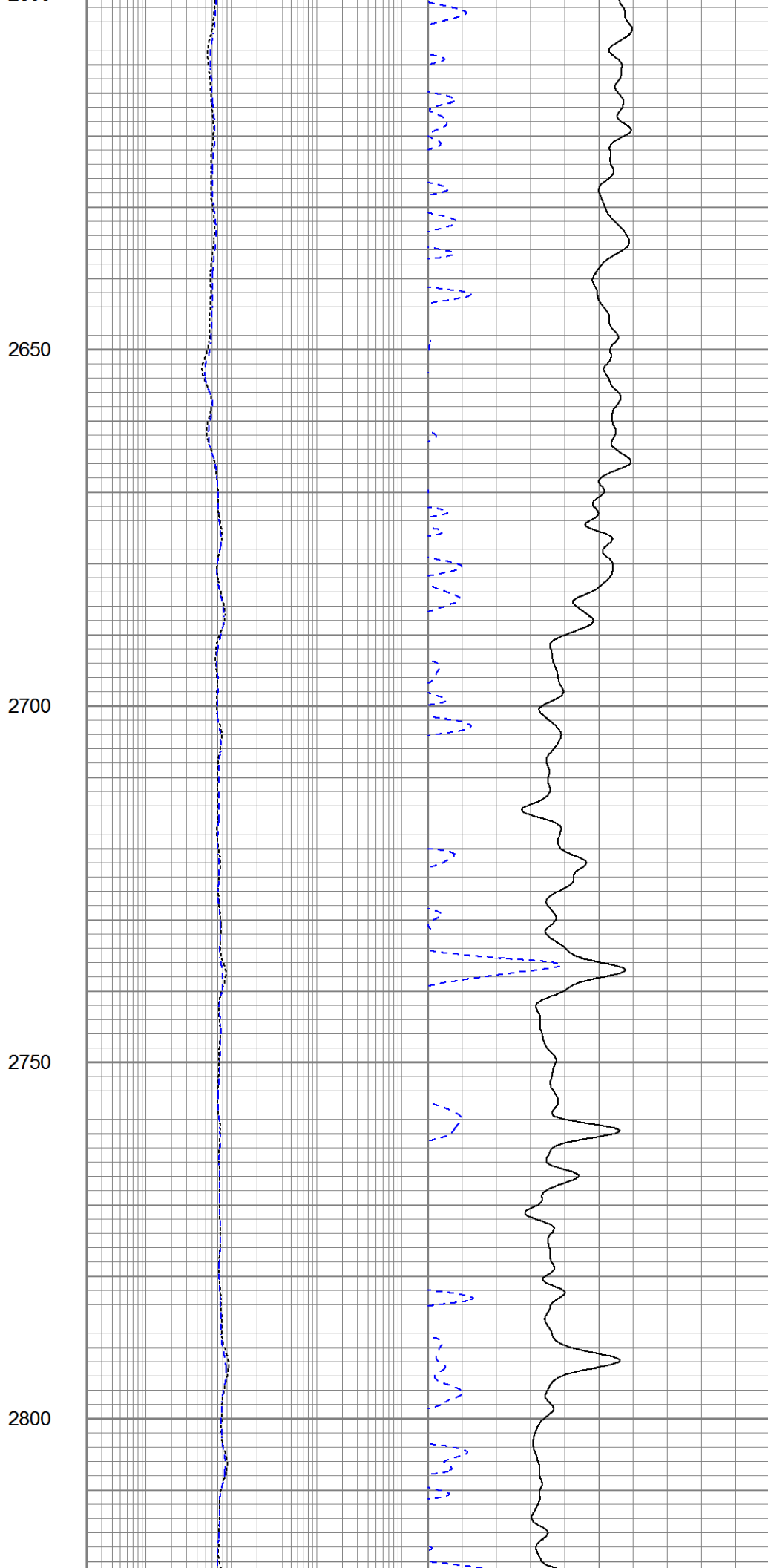
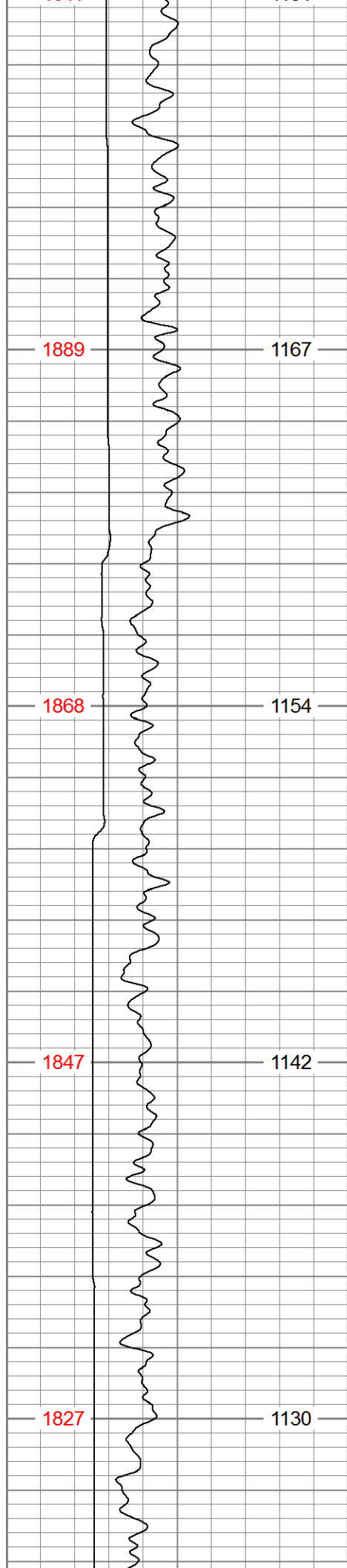
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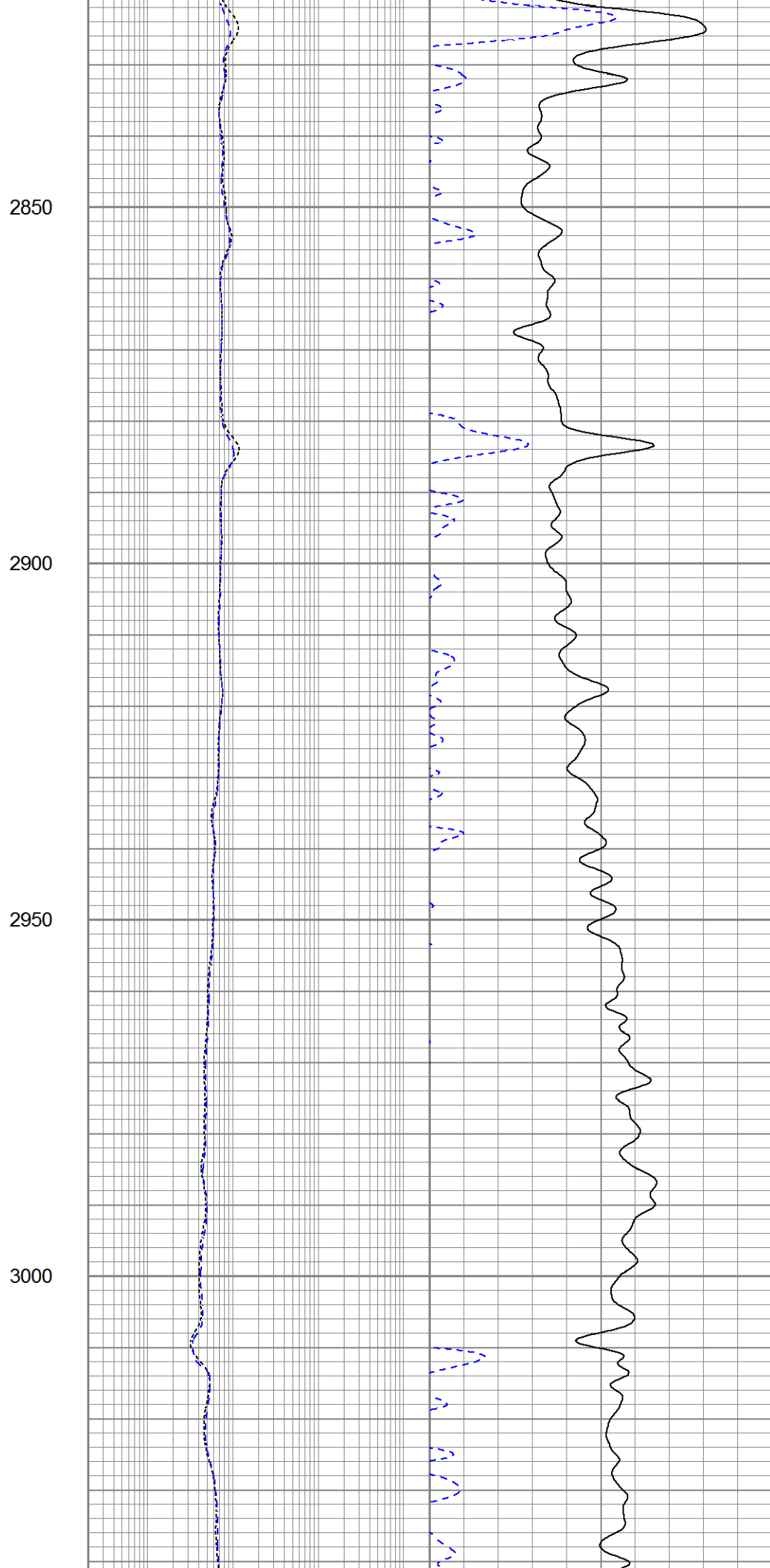
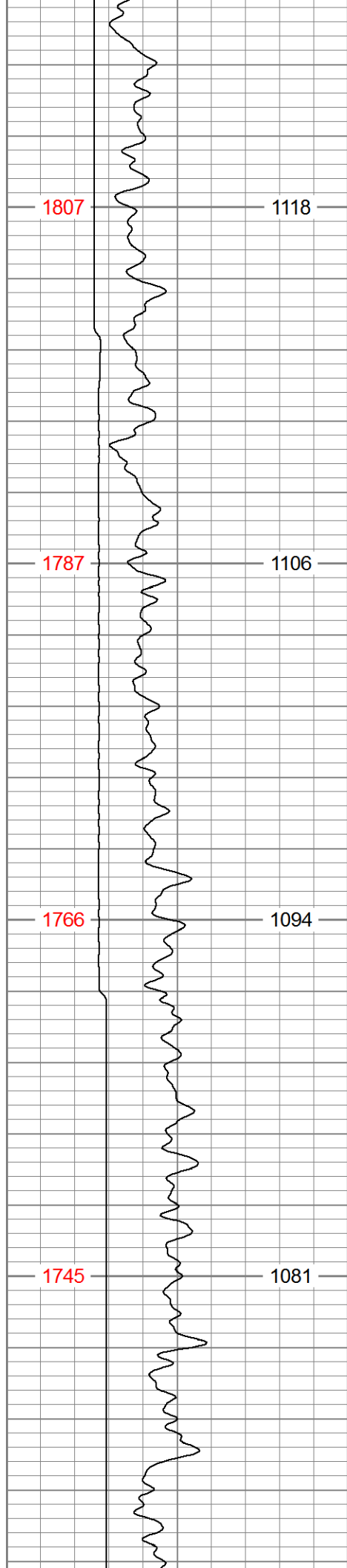
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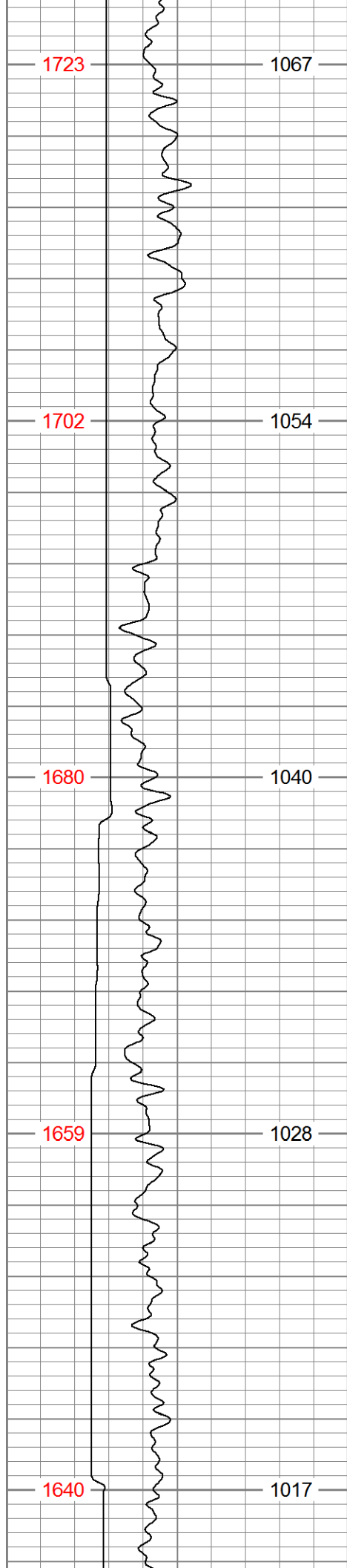
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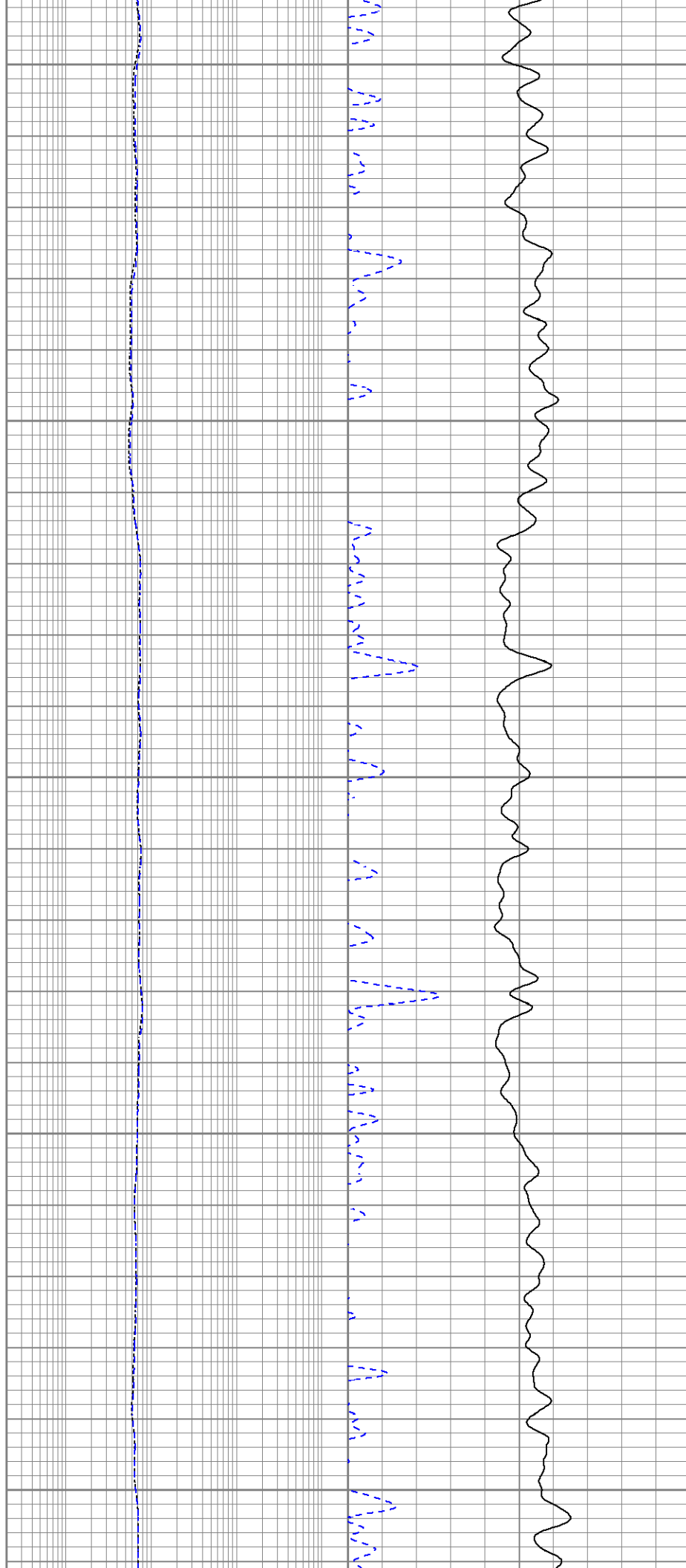
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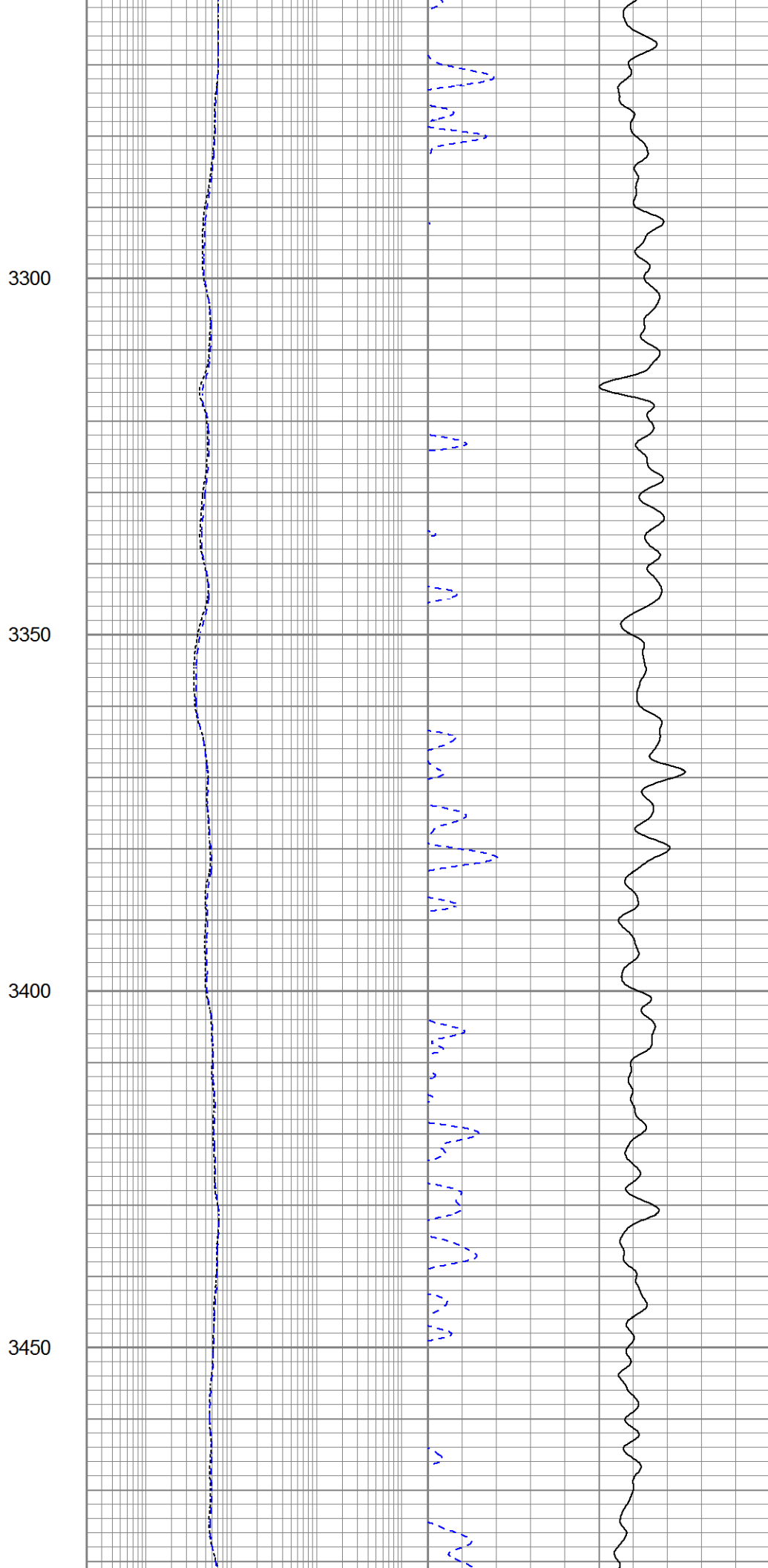
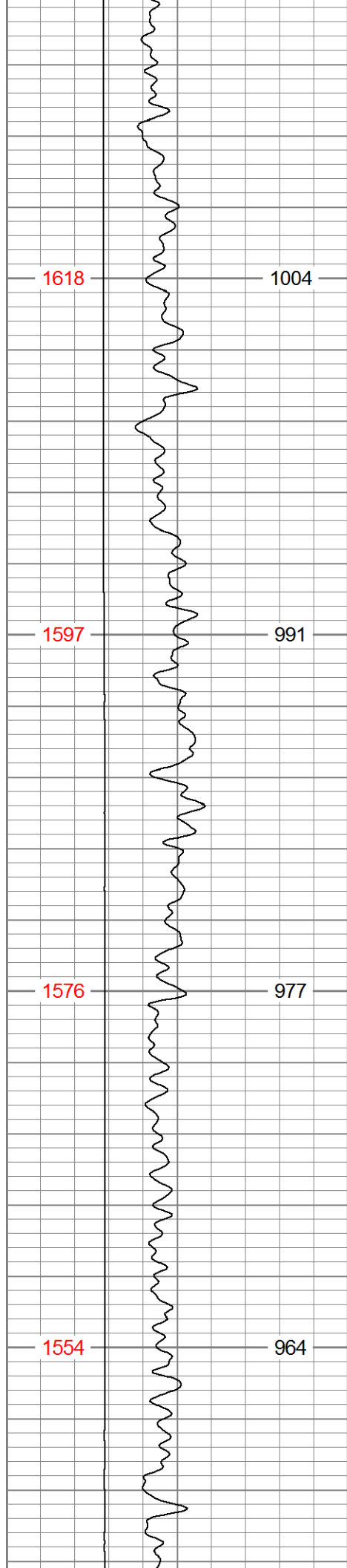
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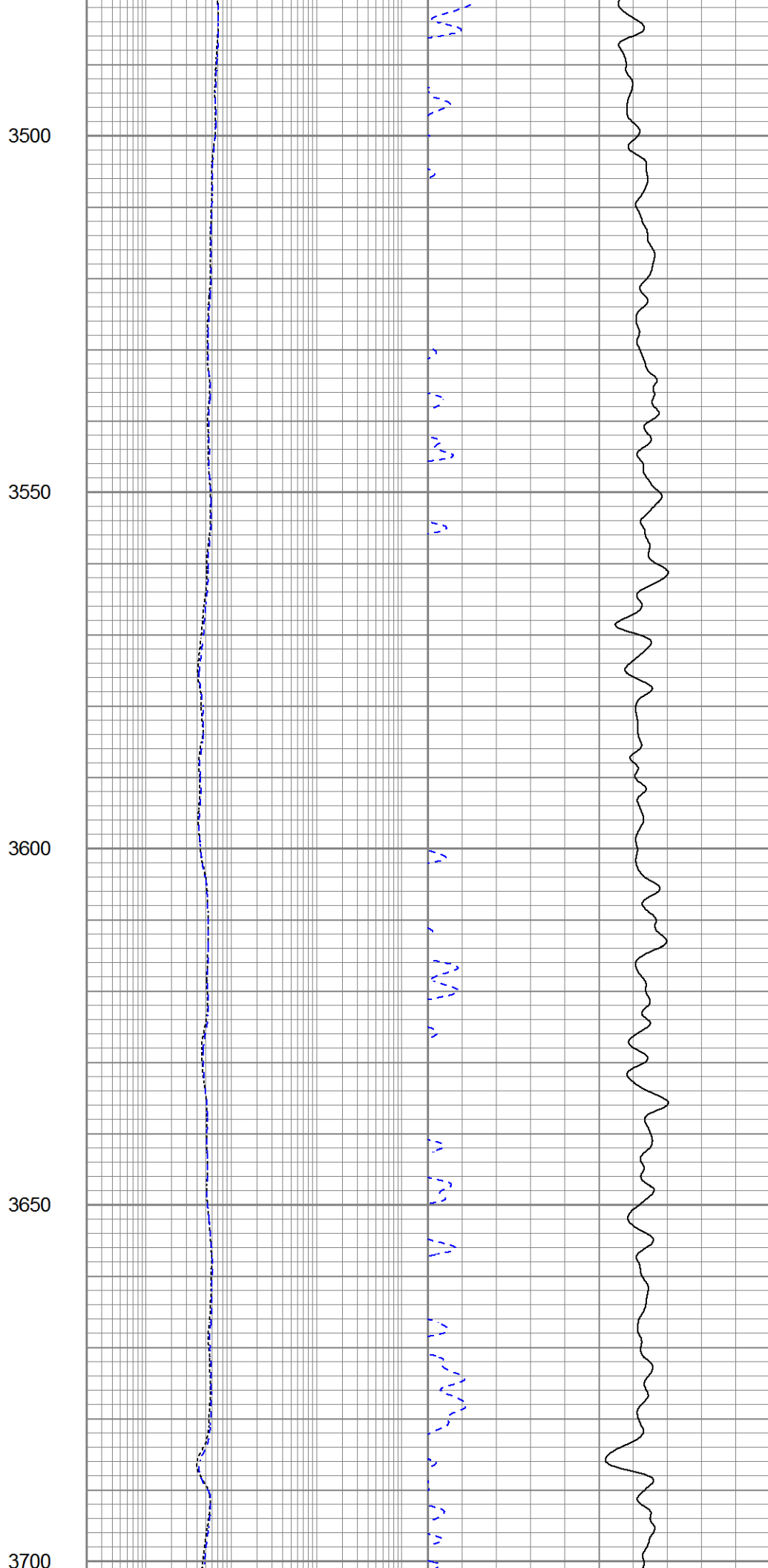
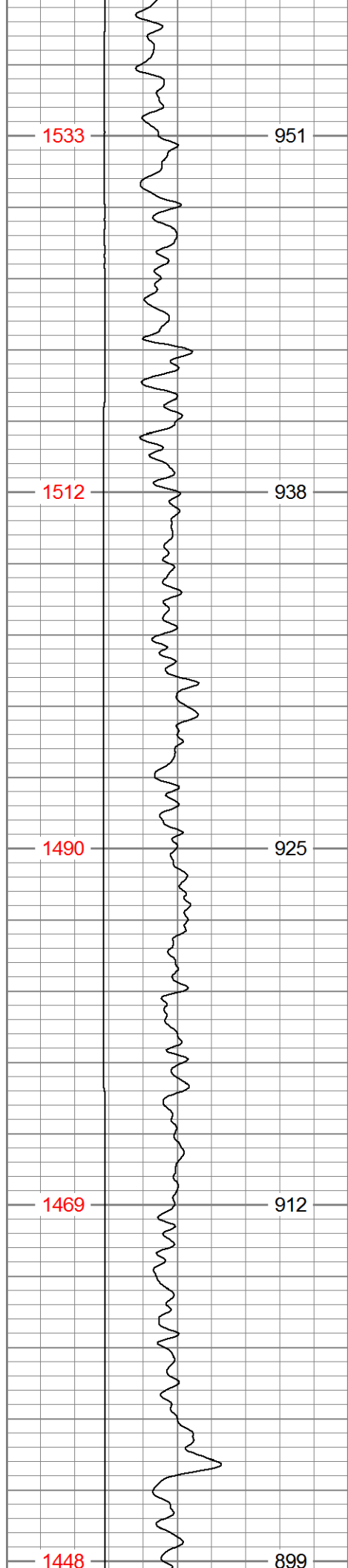
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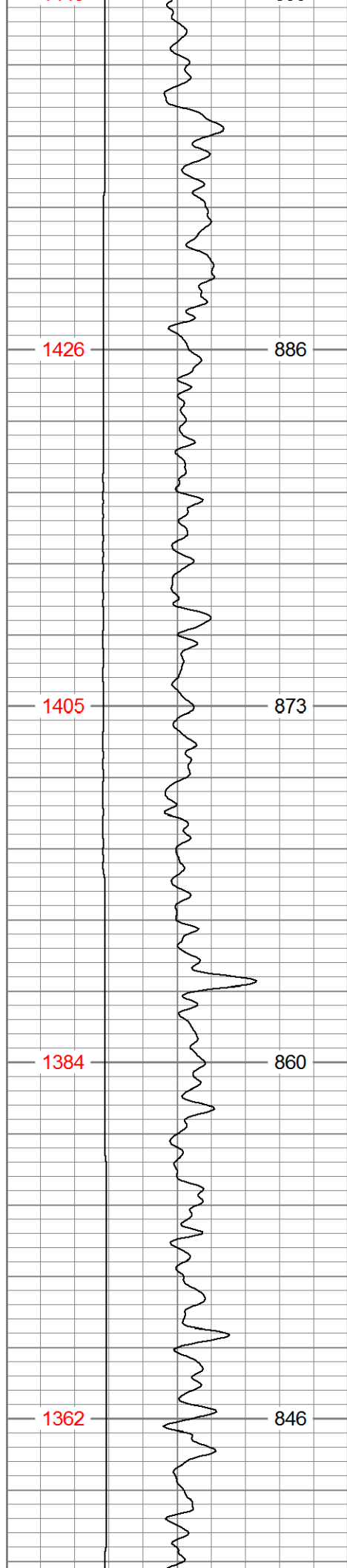
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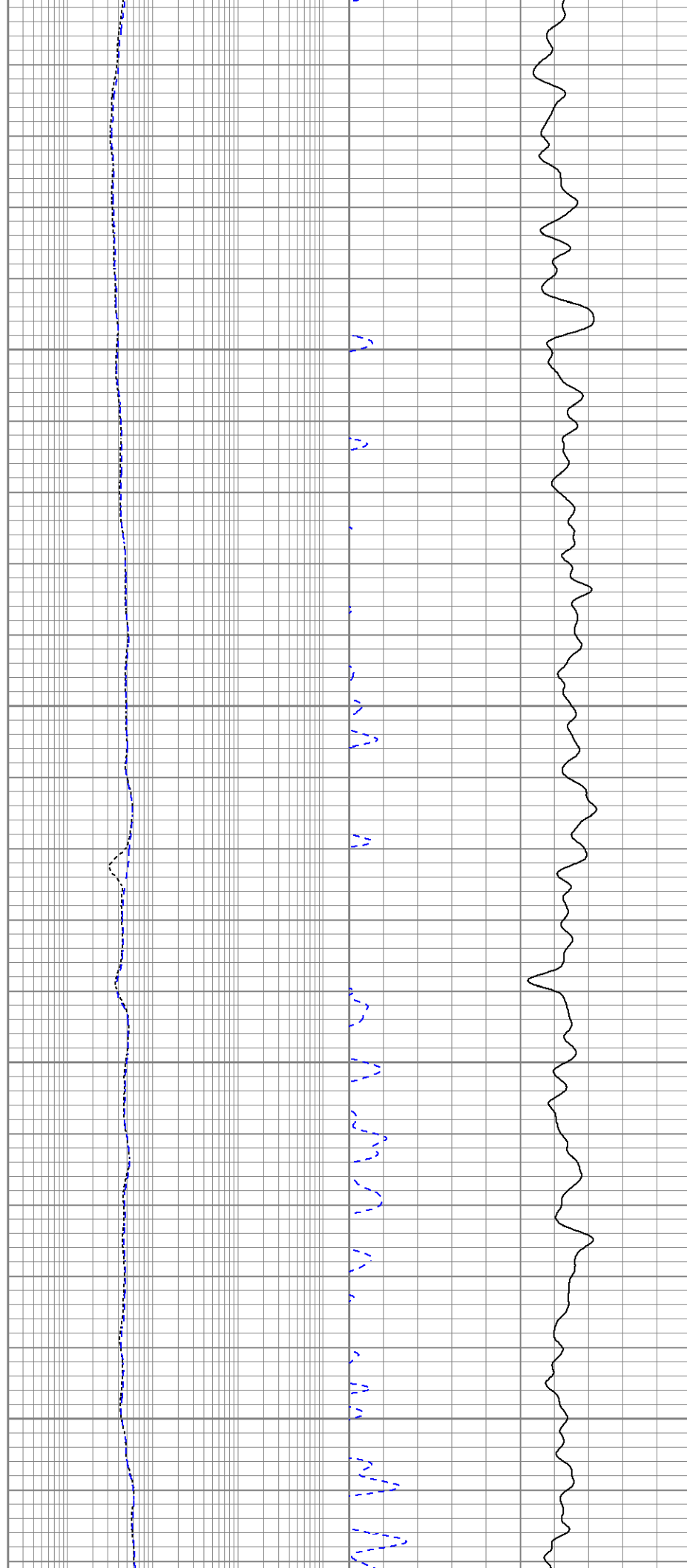


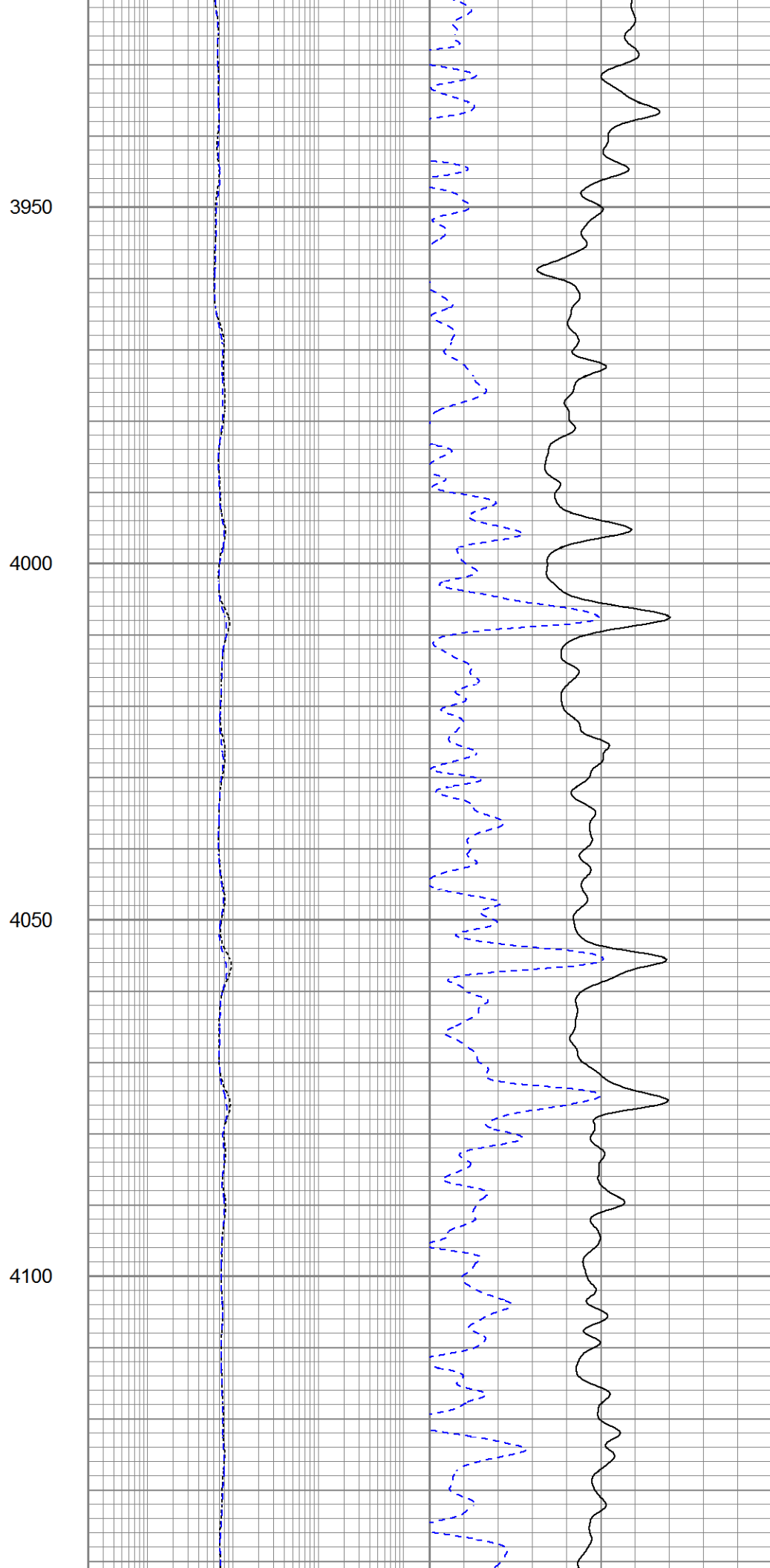
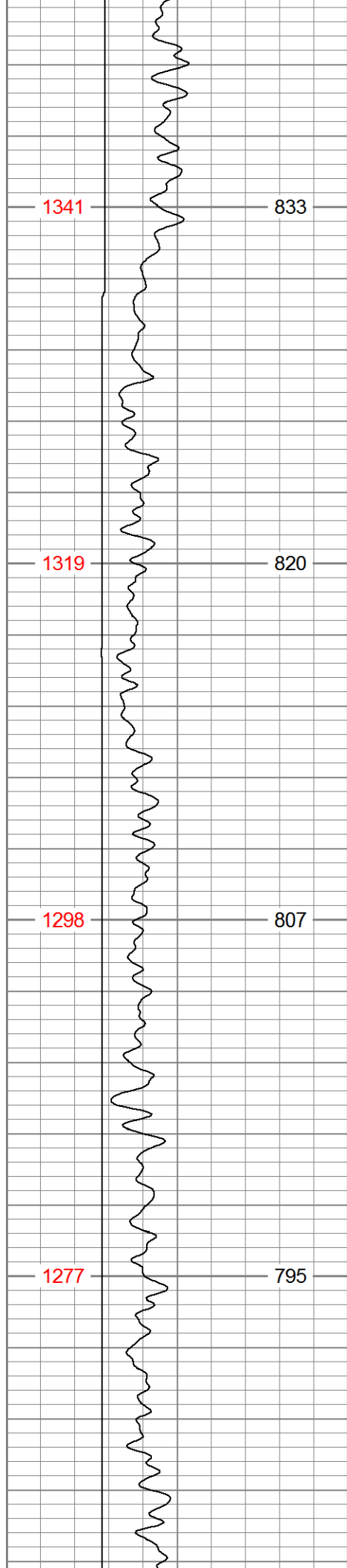
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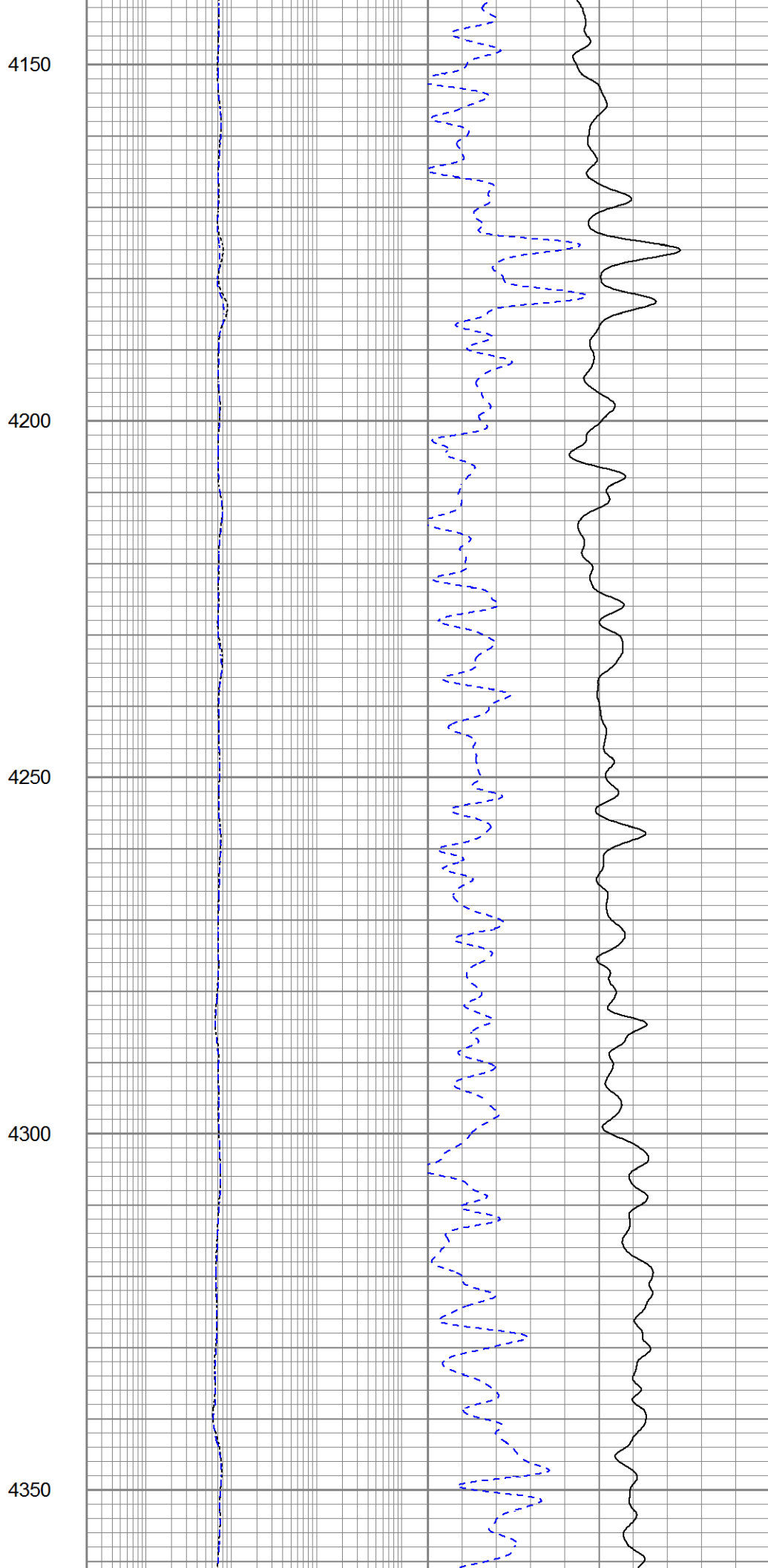
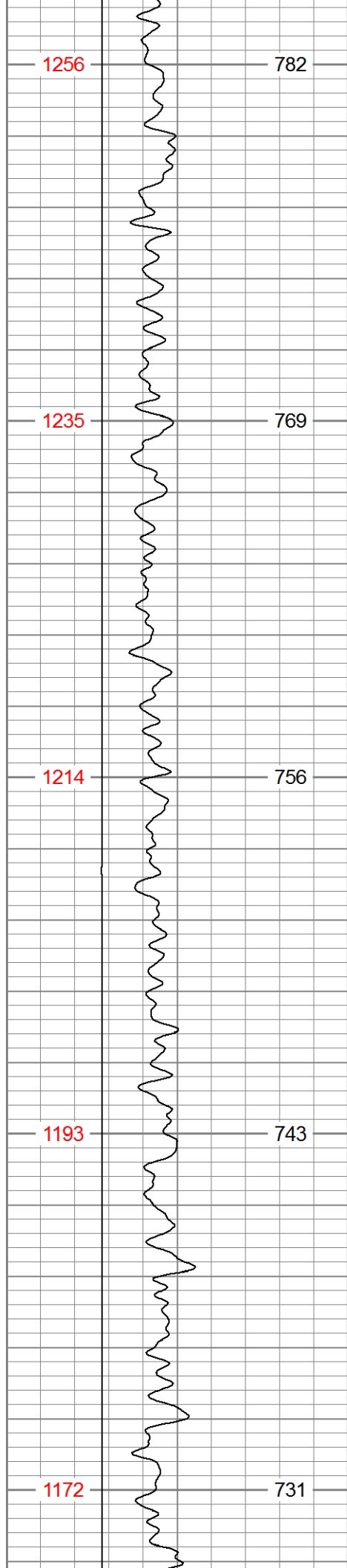
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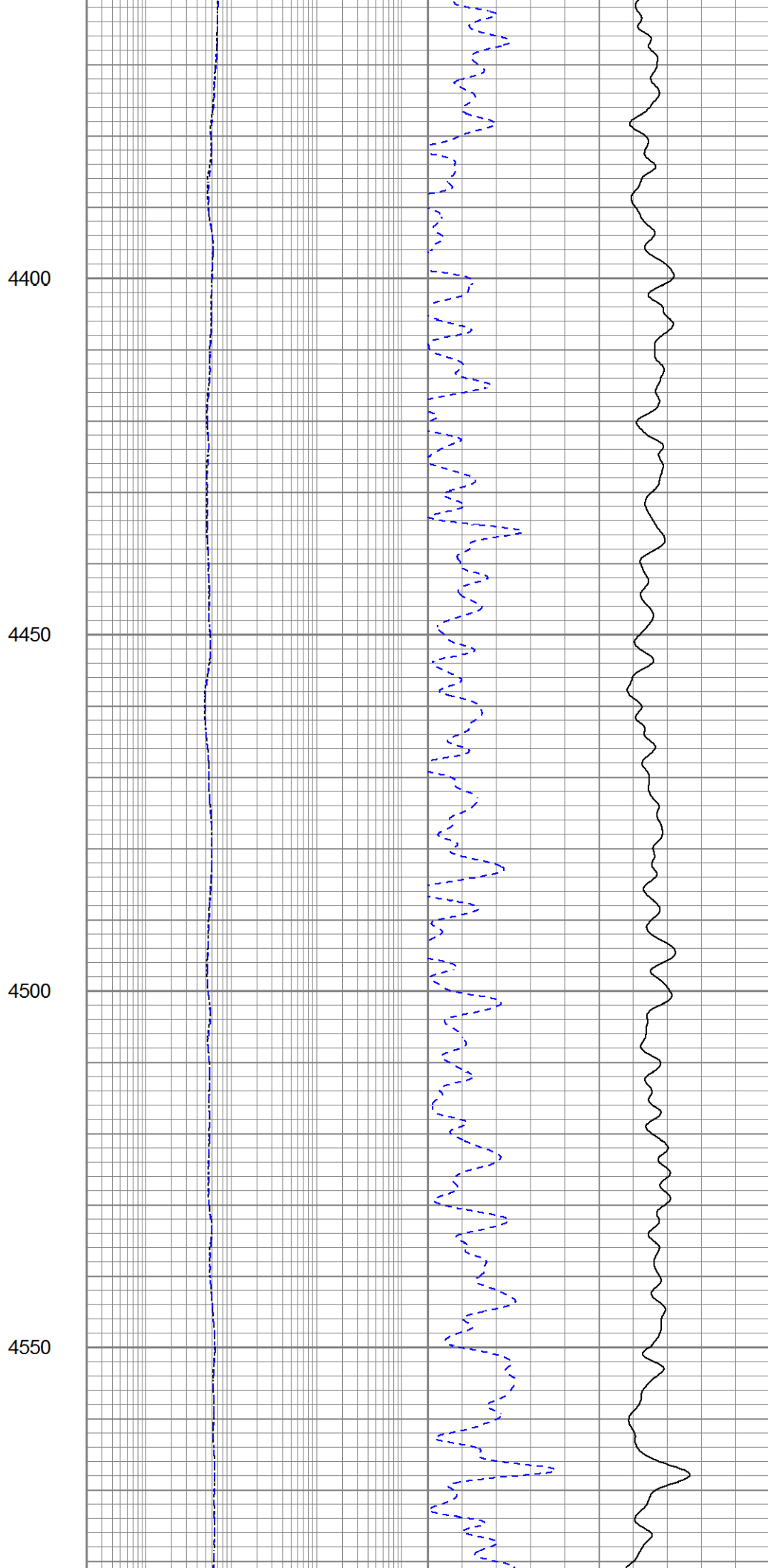
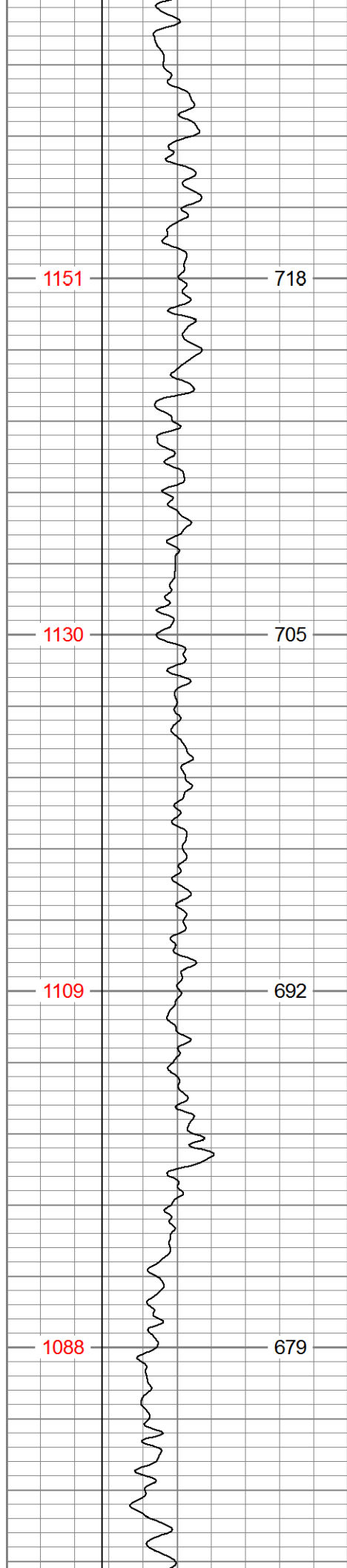
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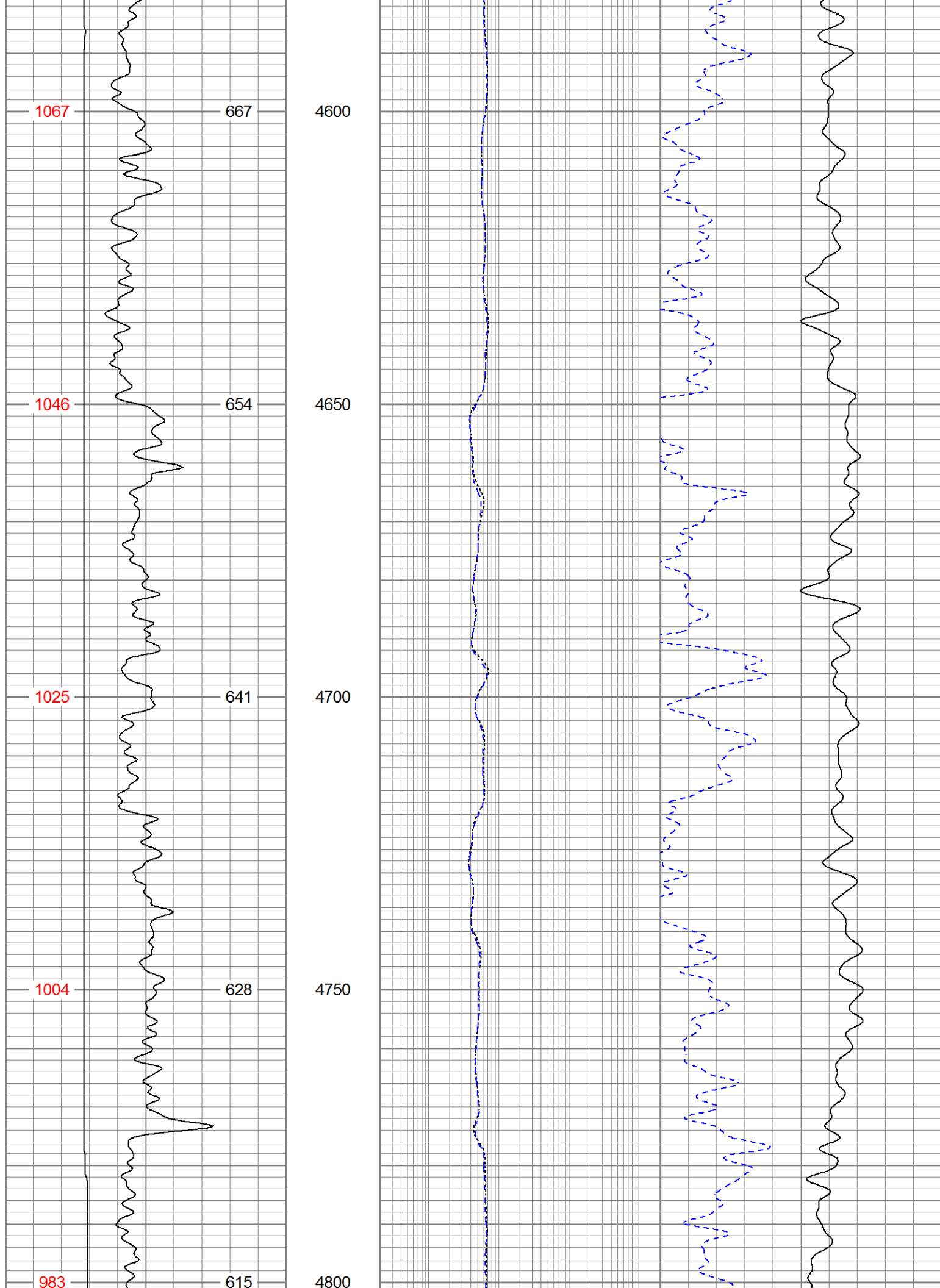
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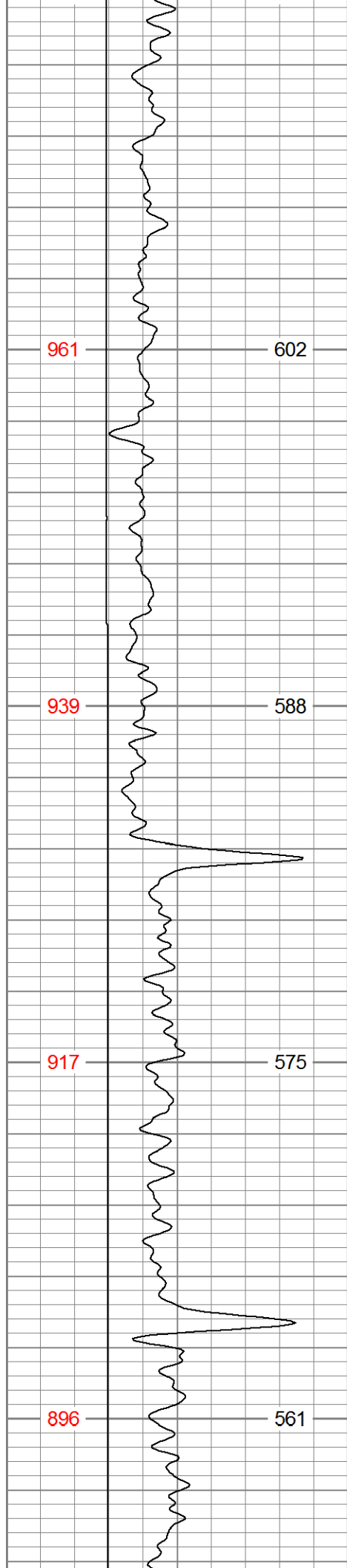










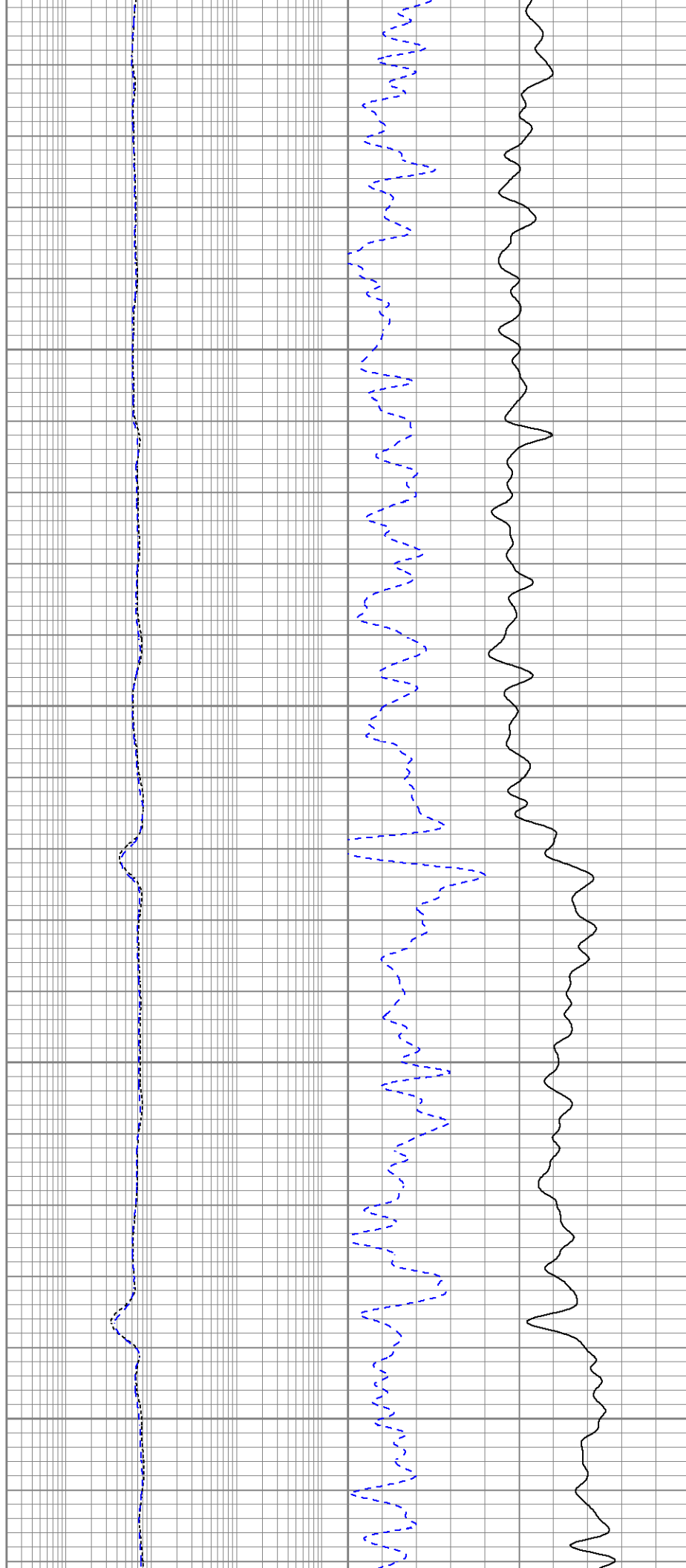


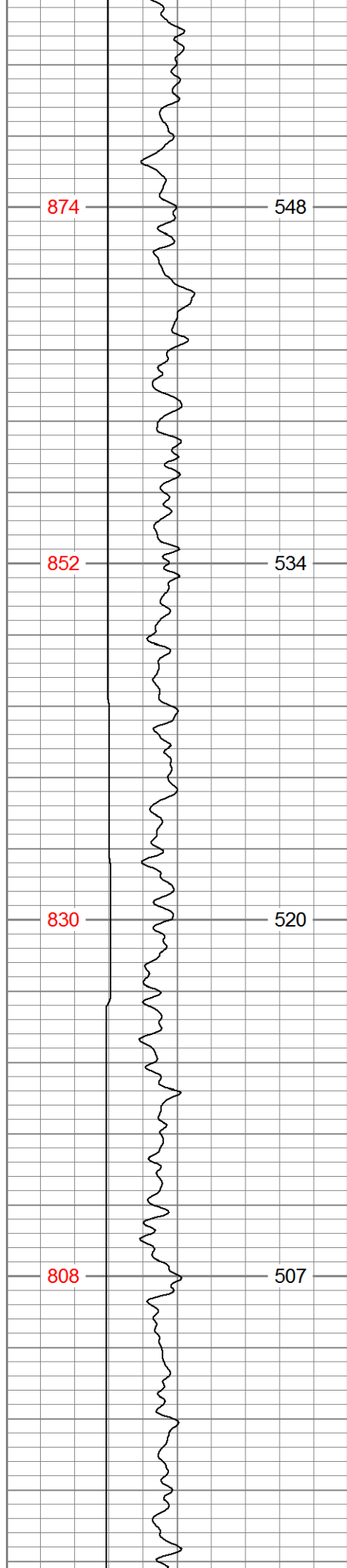
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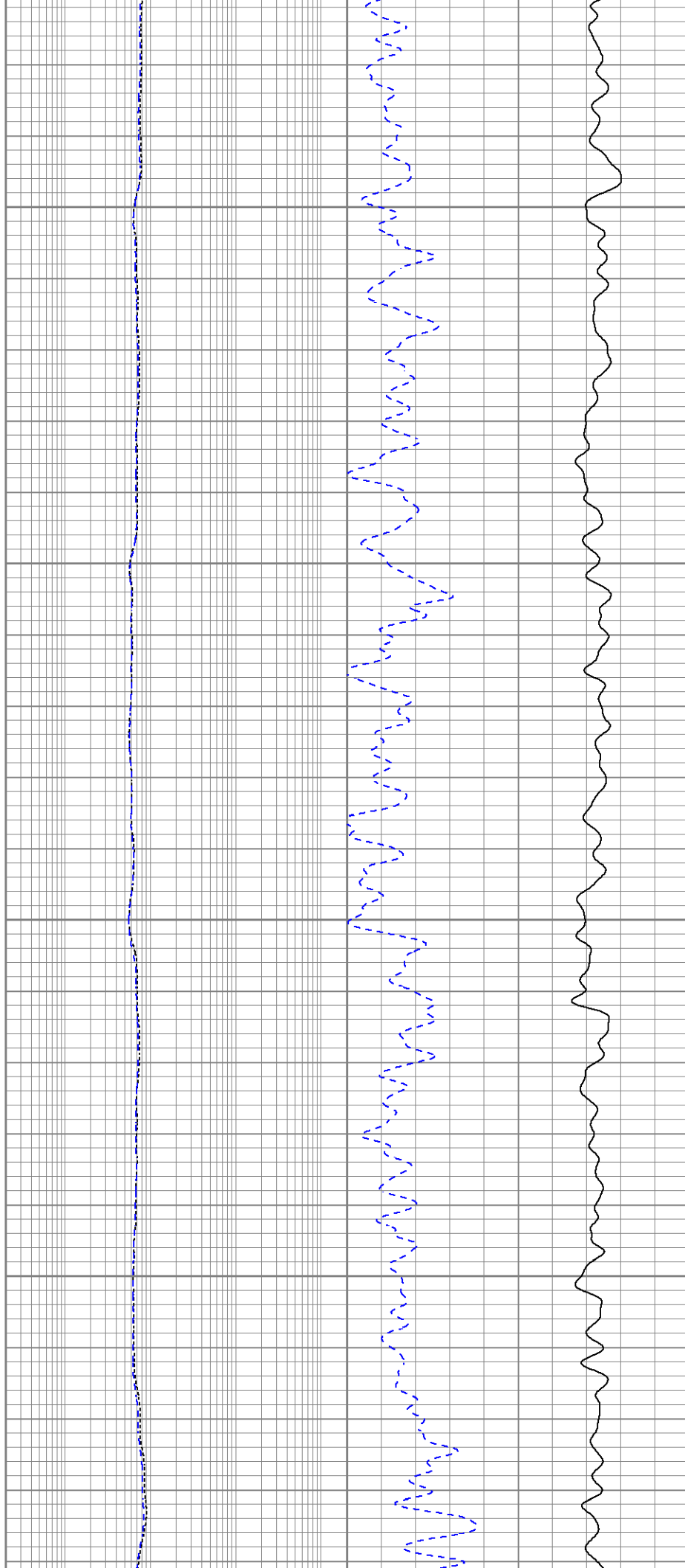


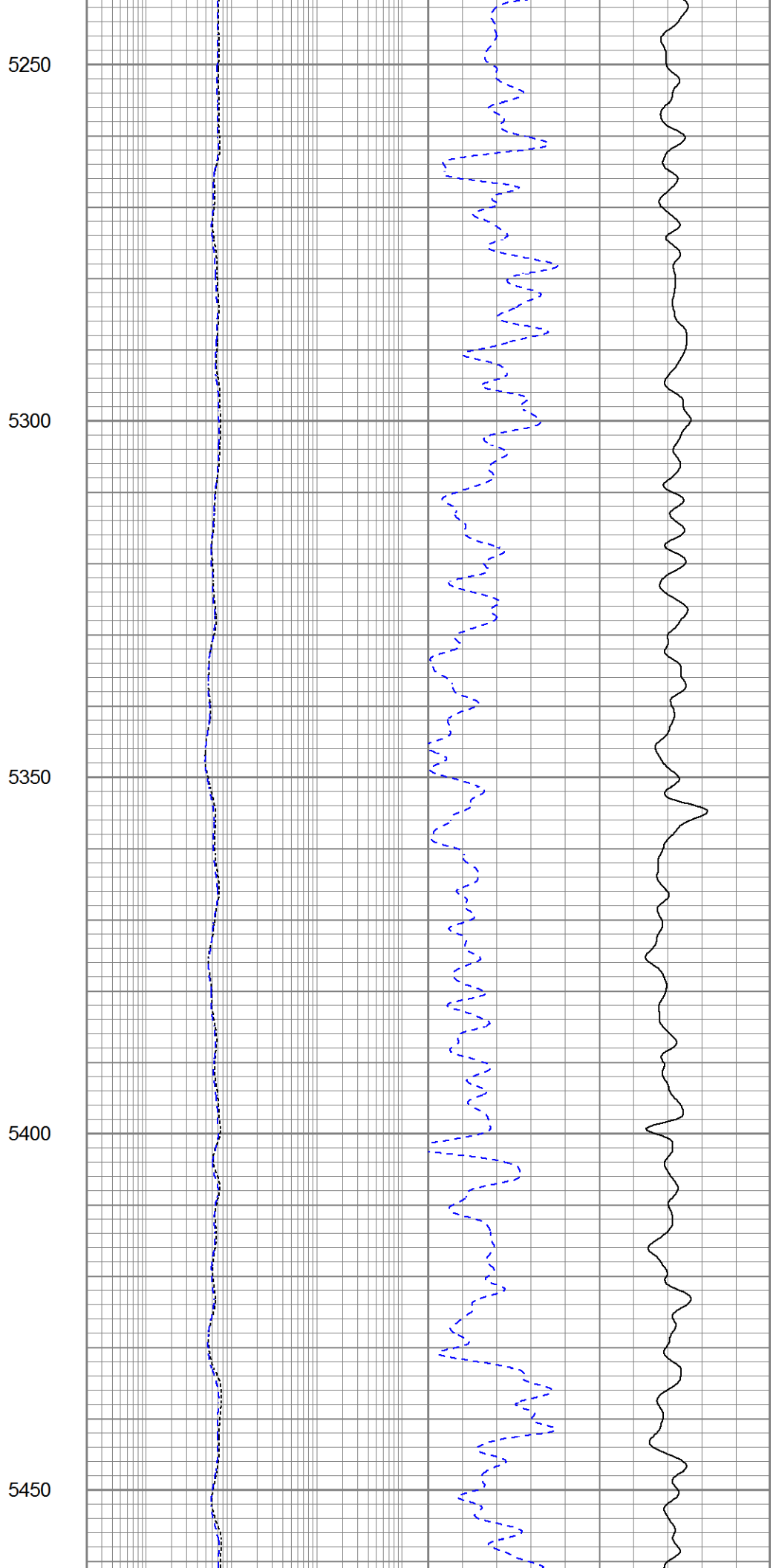
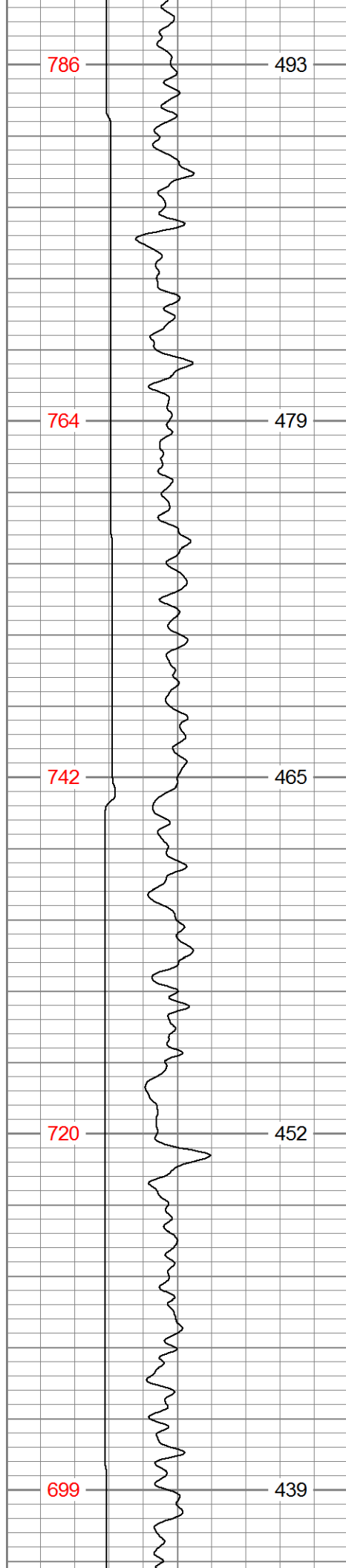
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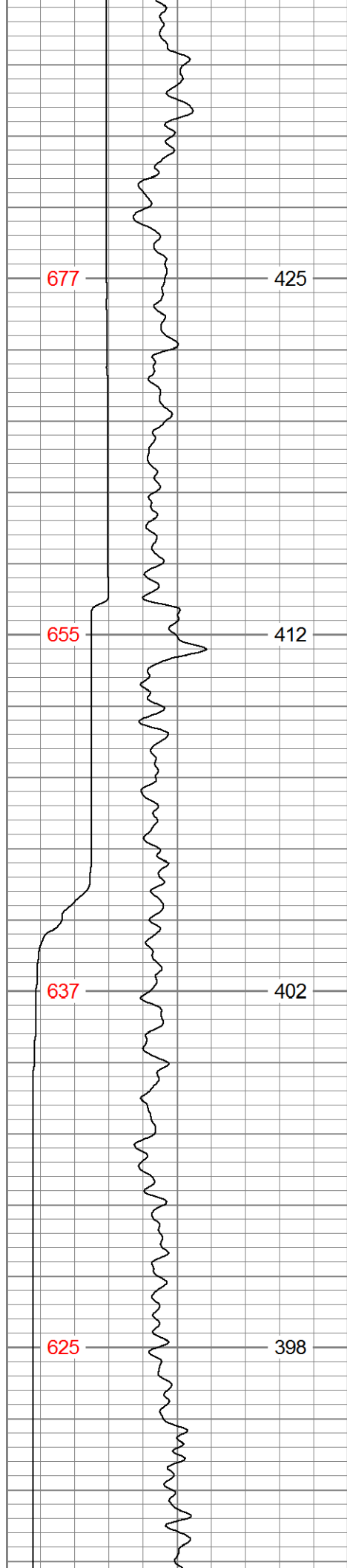
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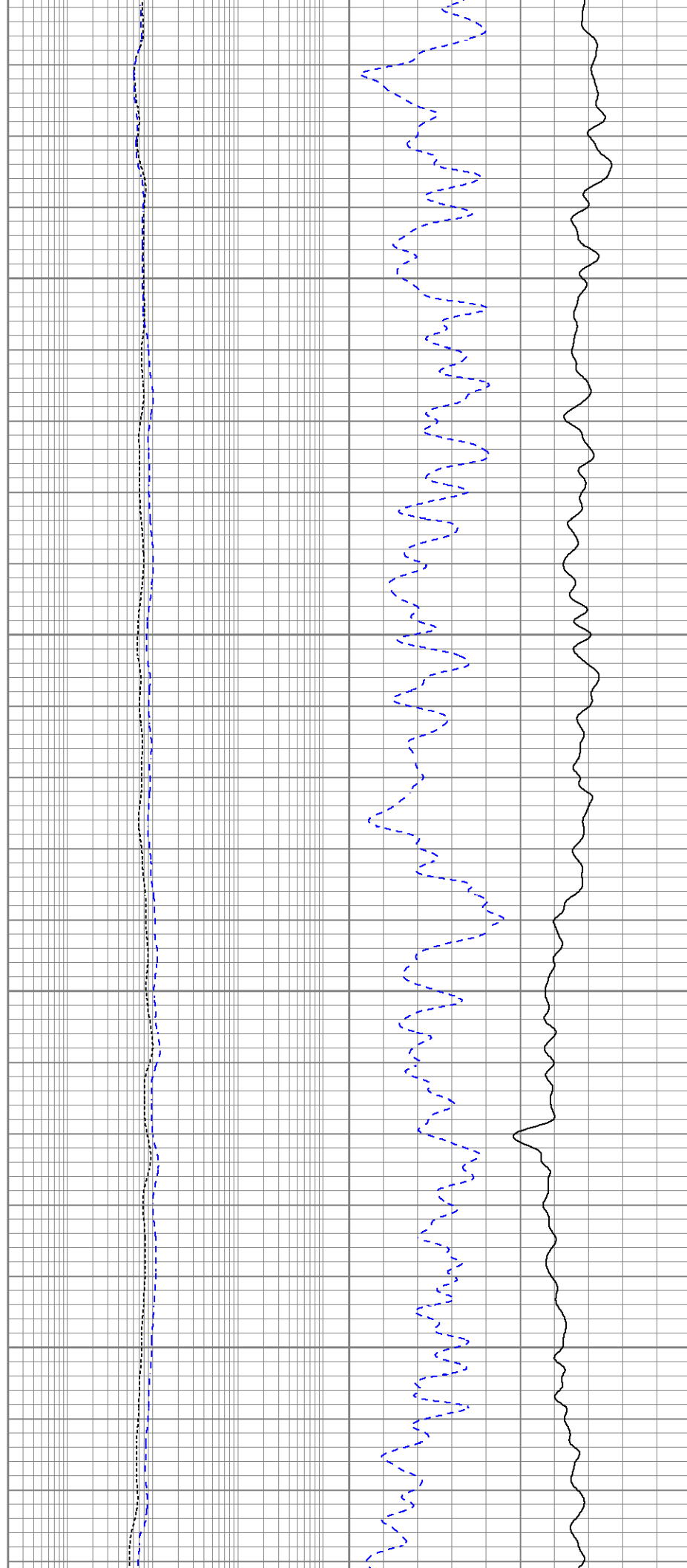


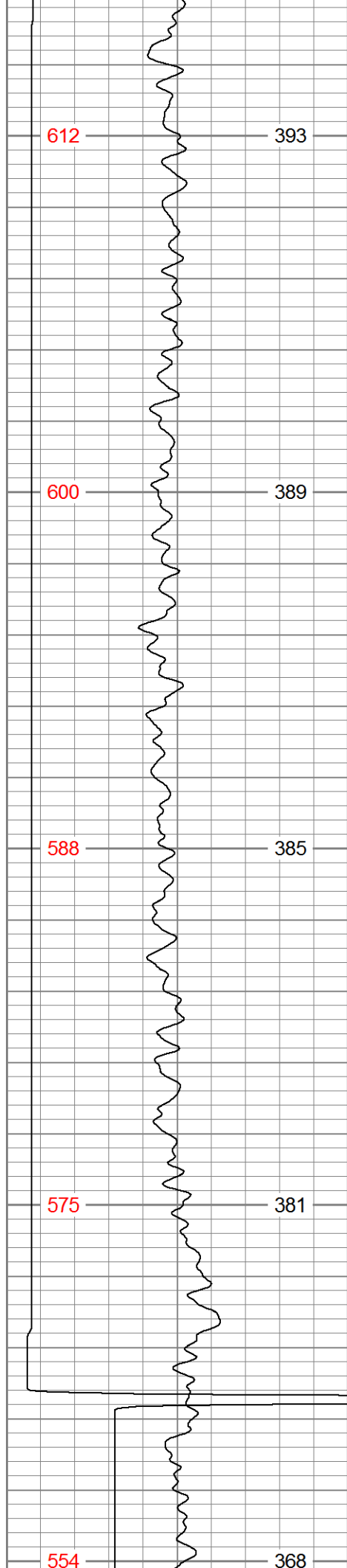
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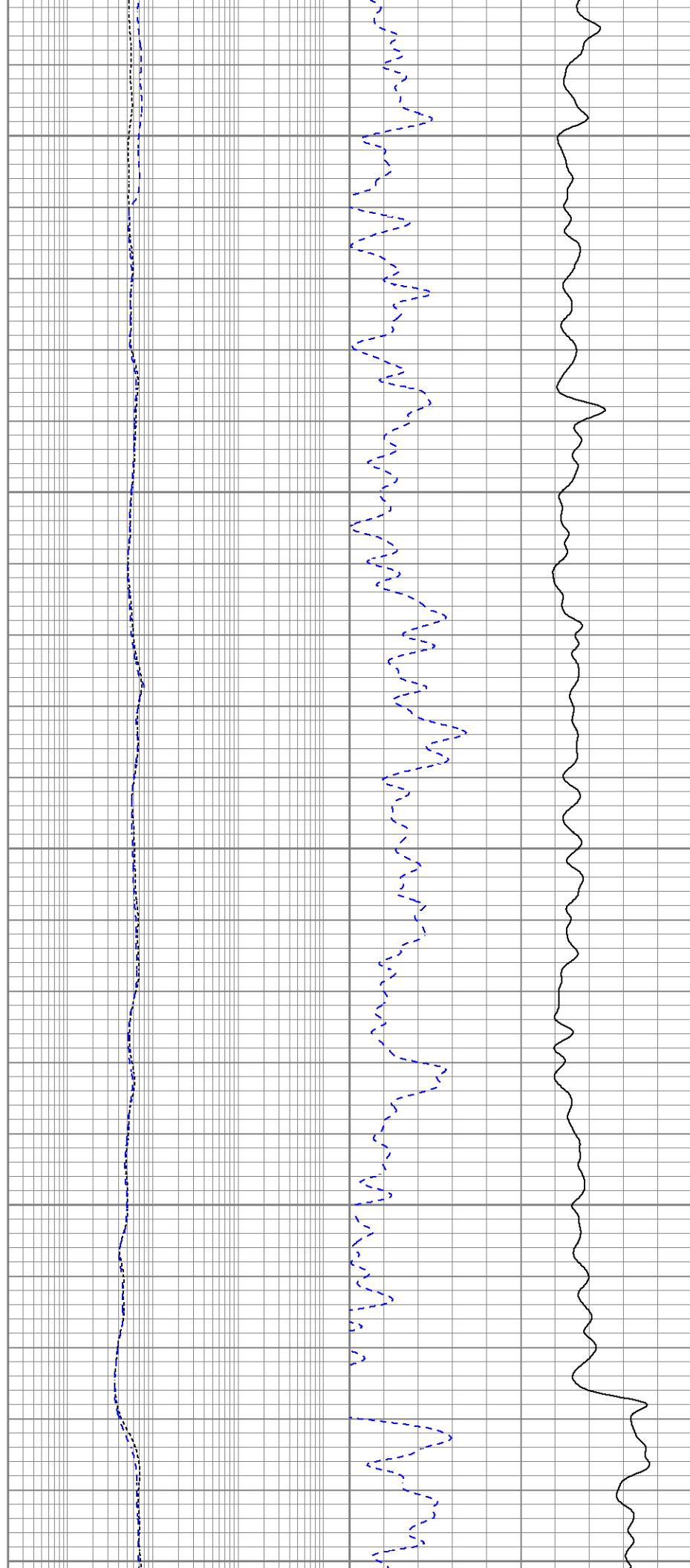
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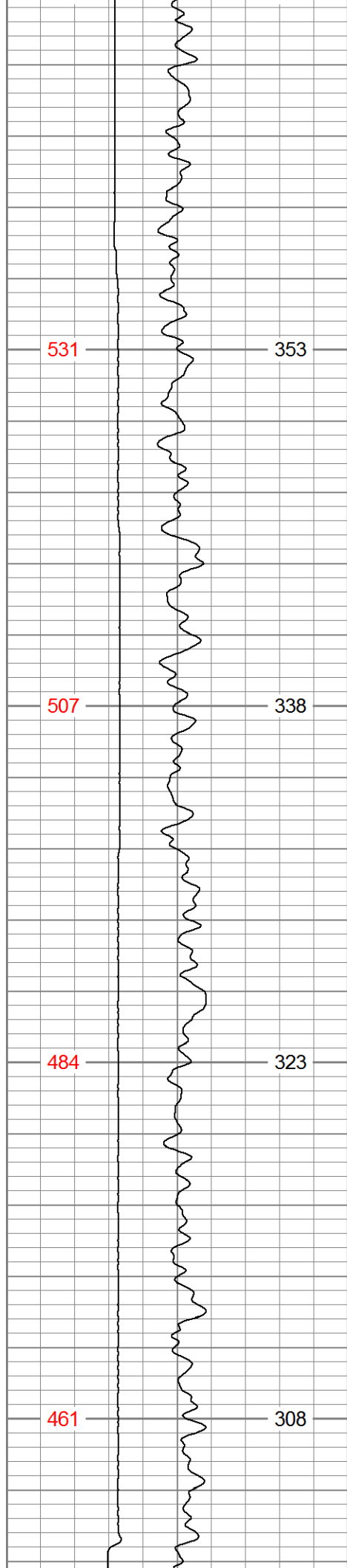
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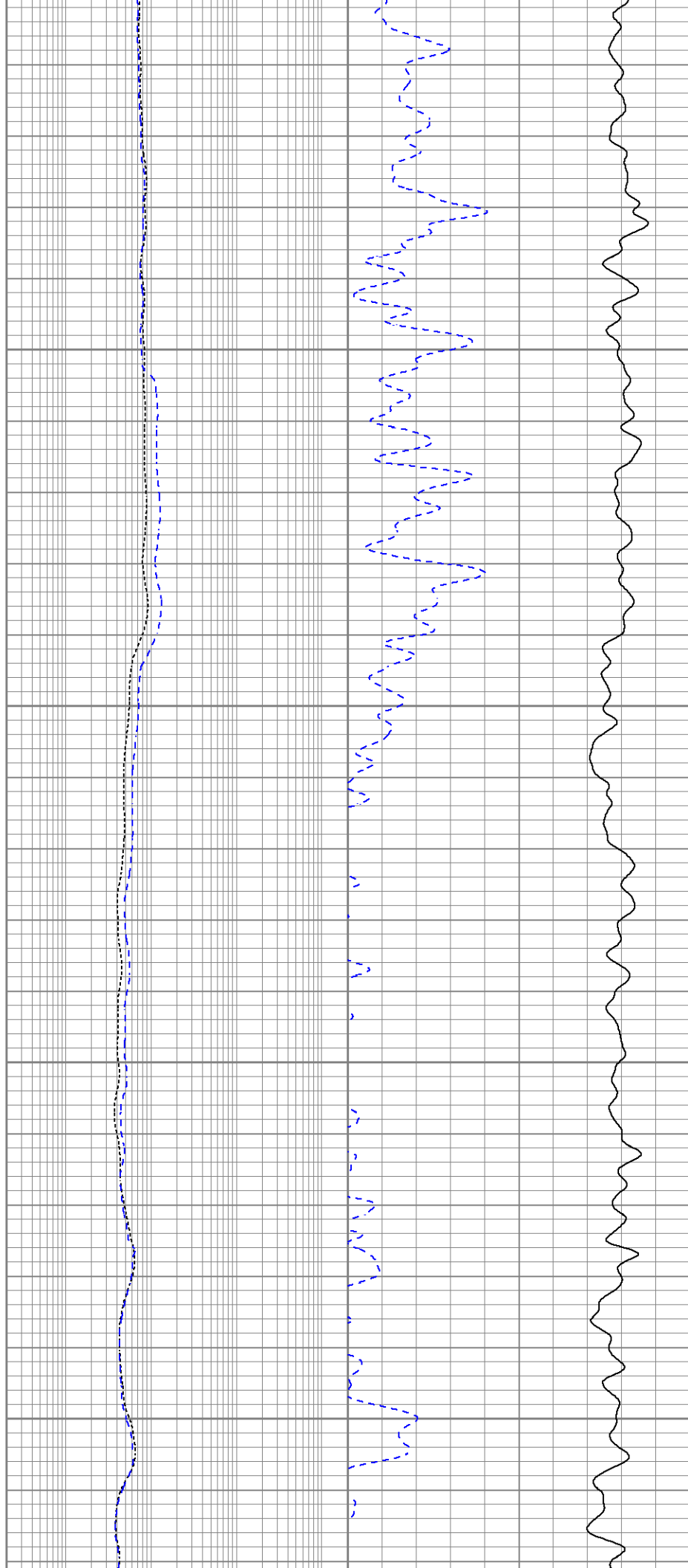


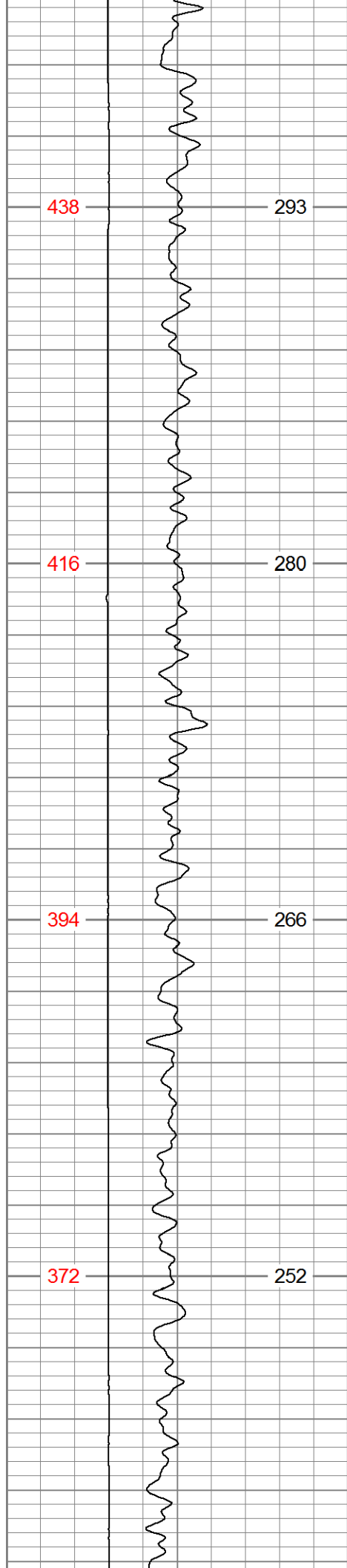
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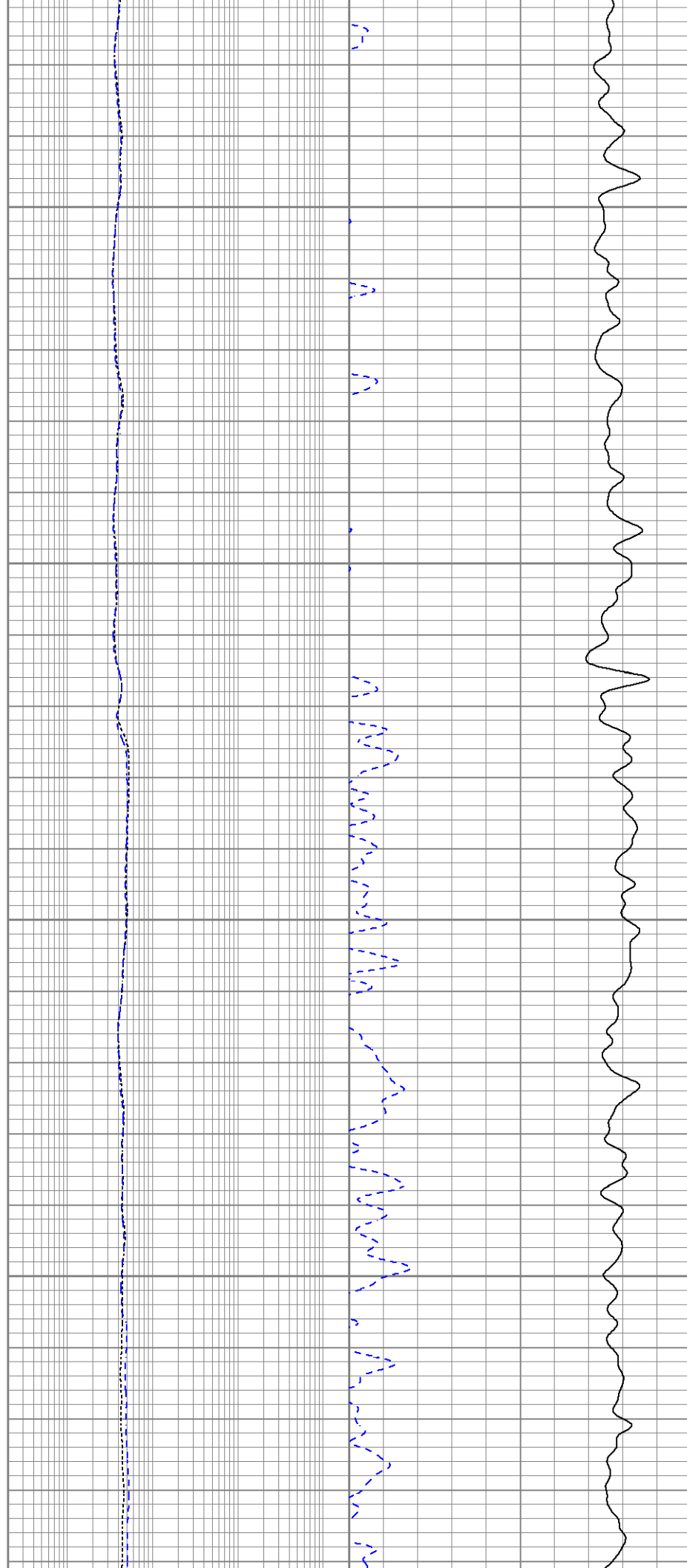


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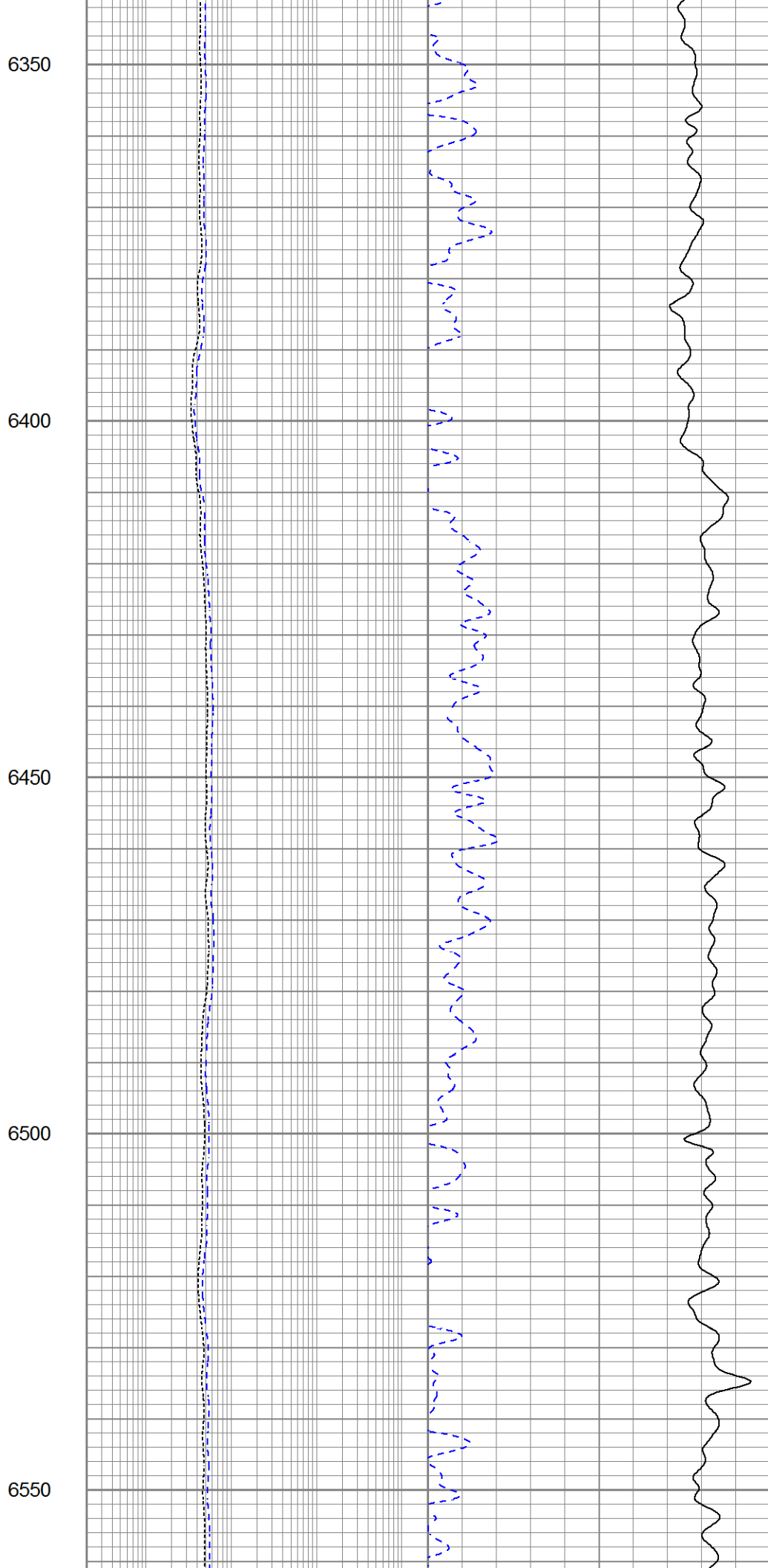
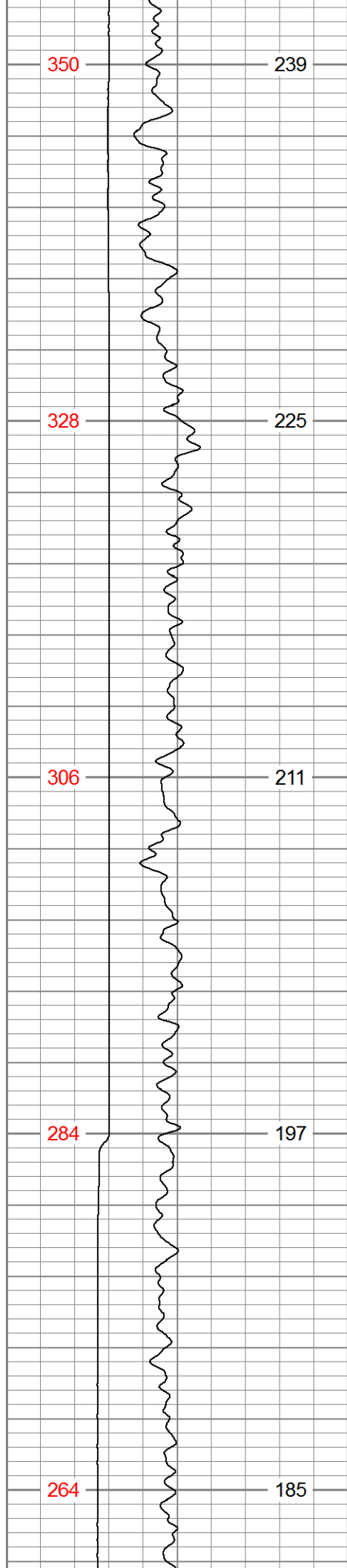
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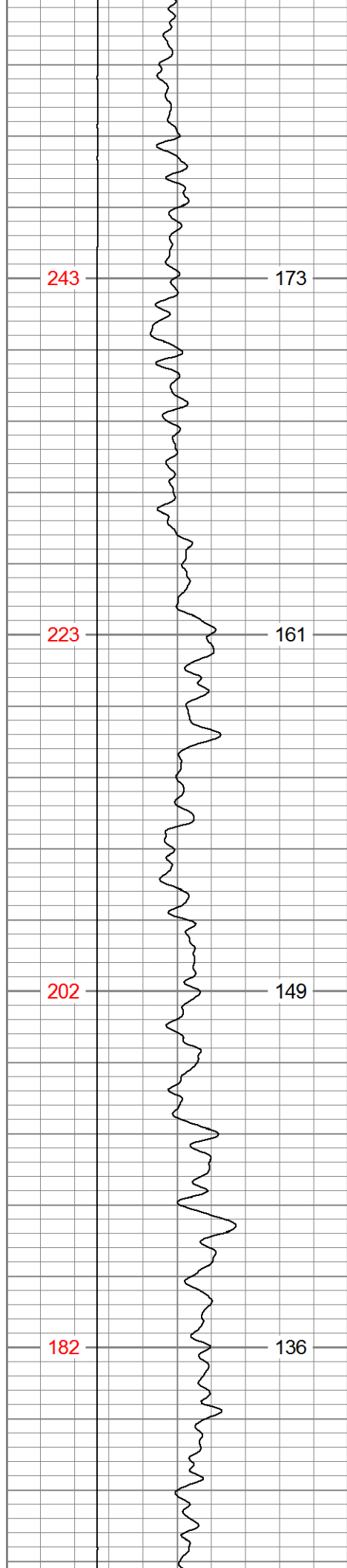
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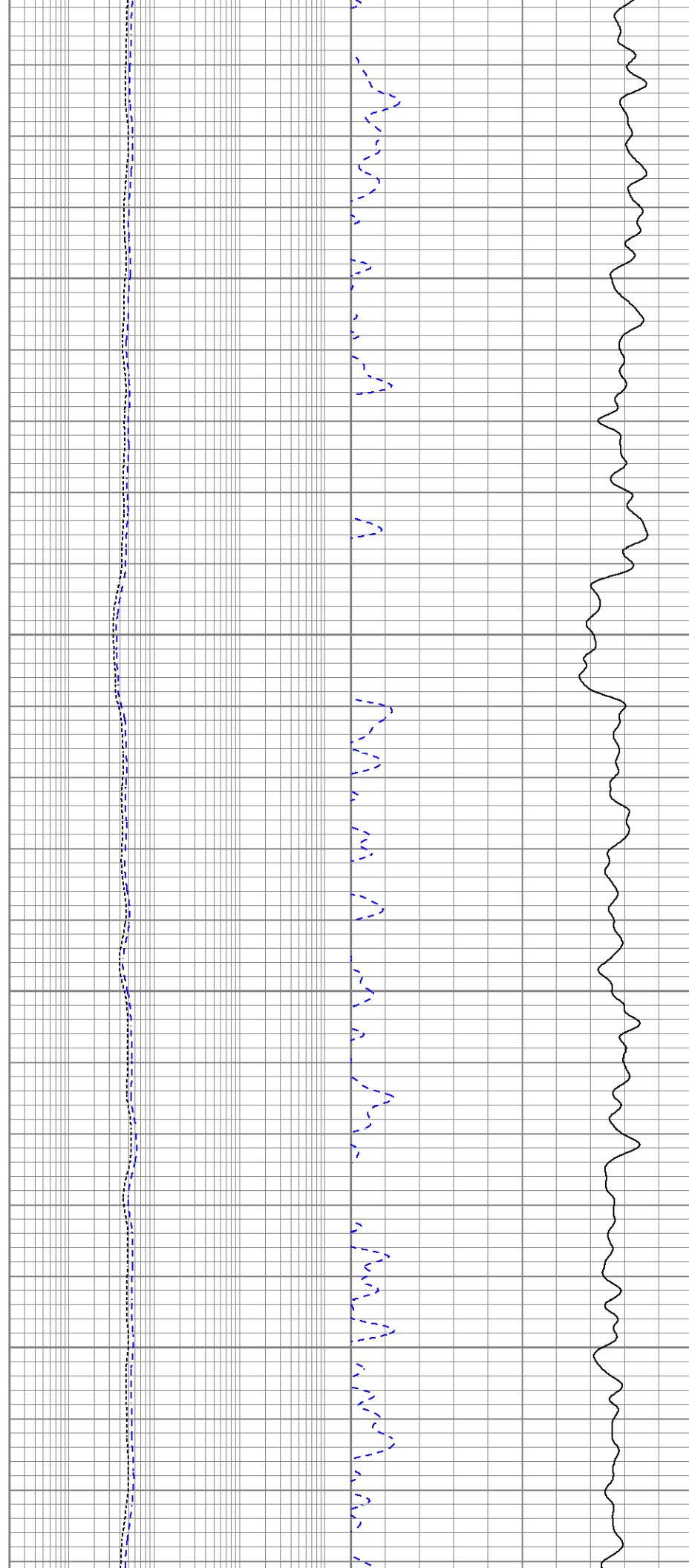


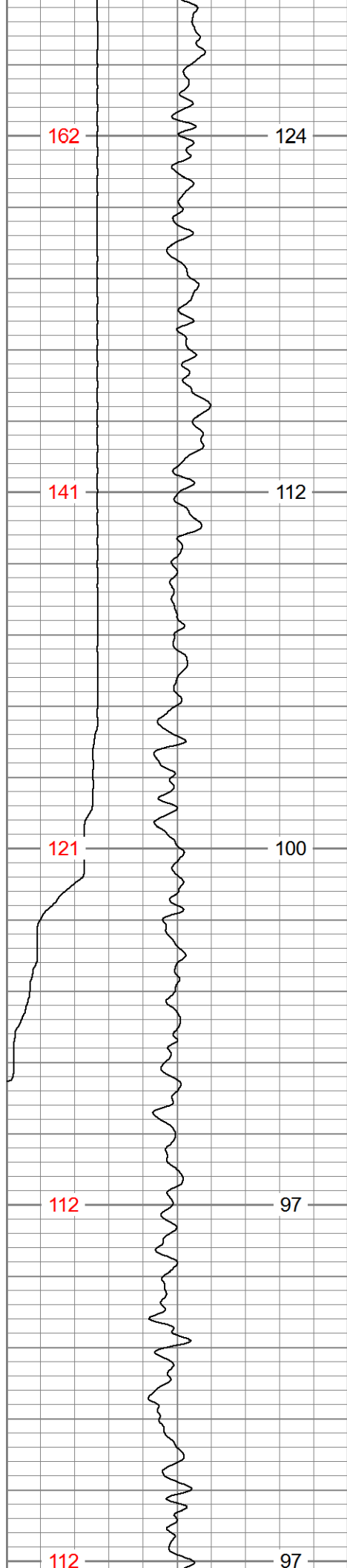
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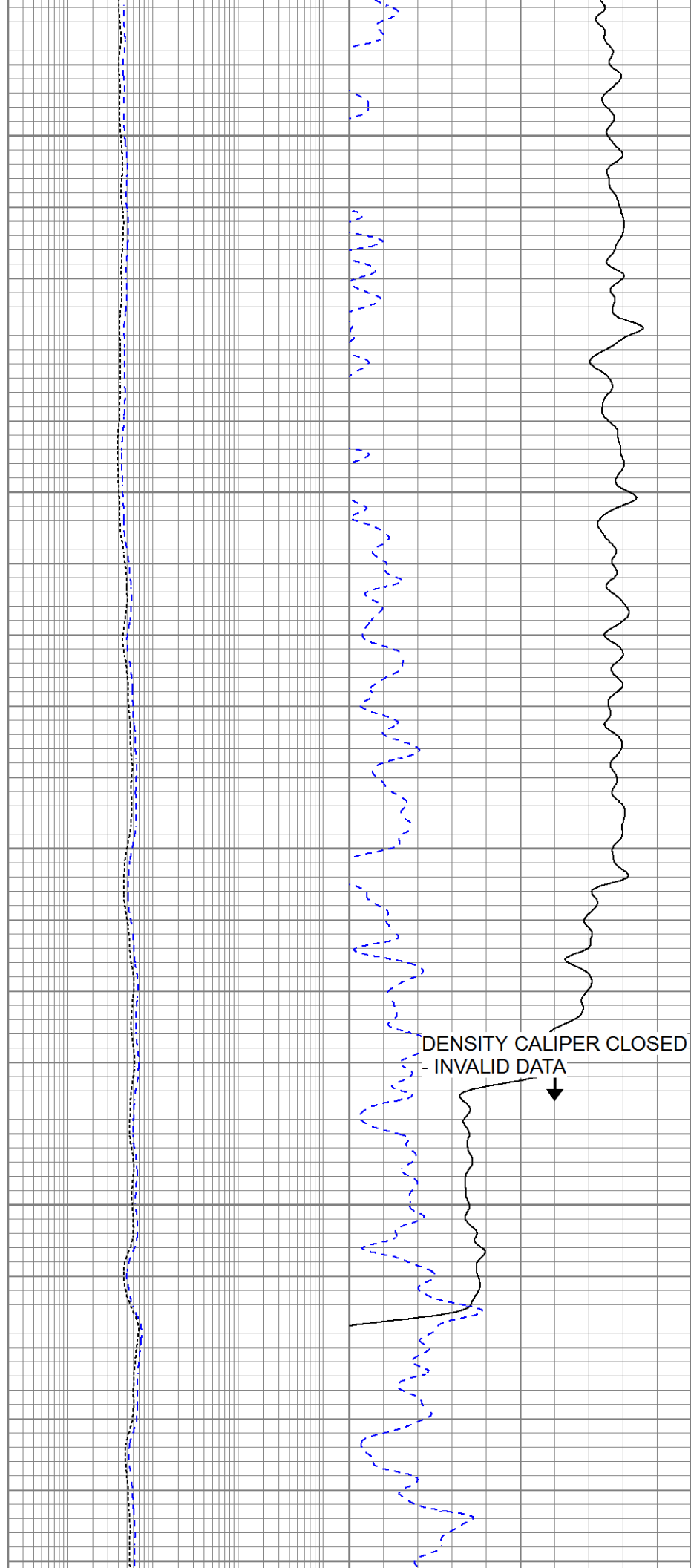
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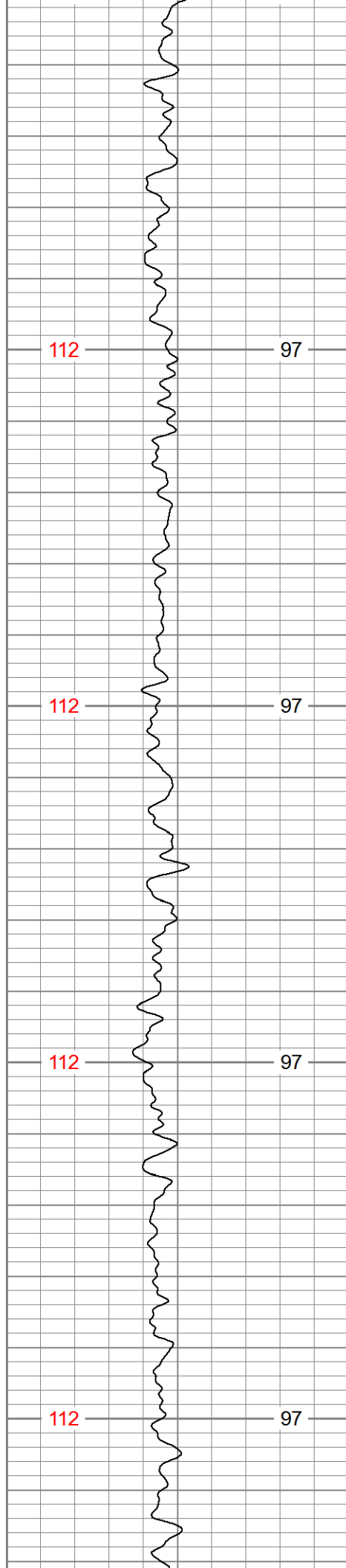
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7000



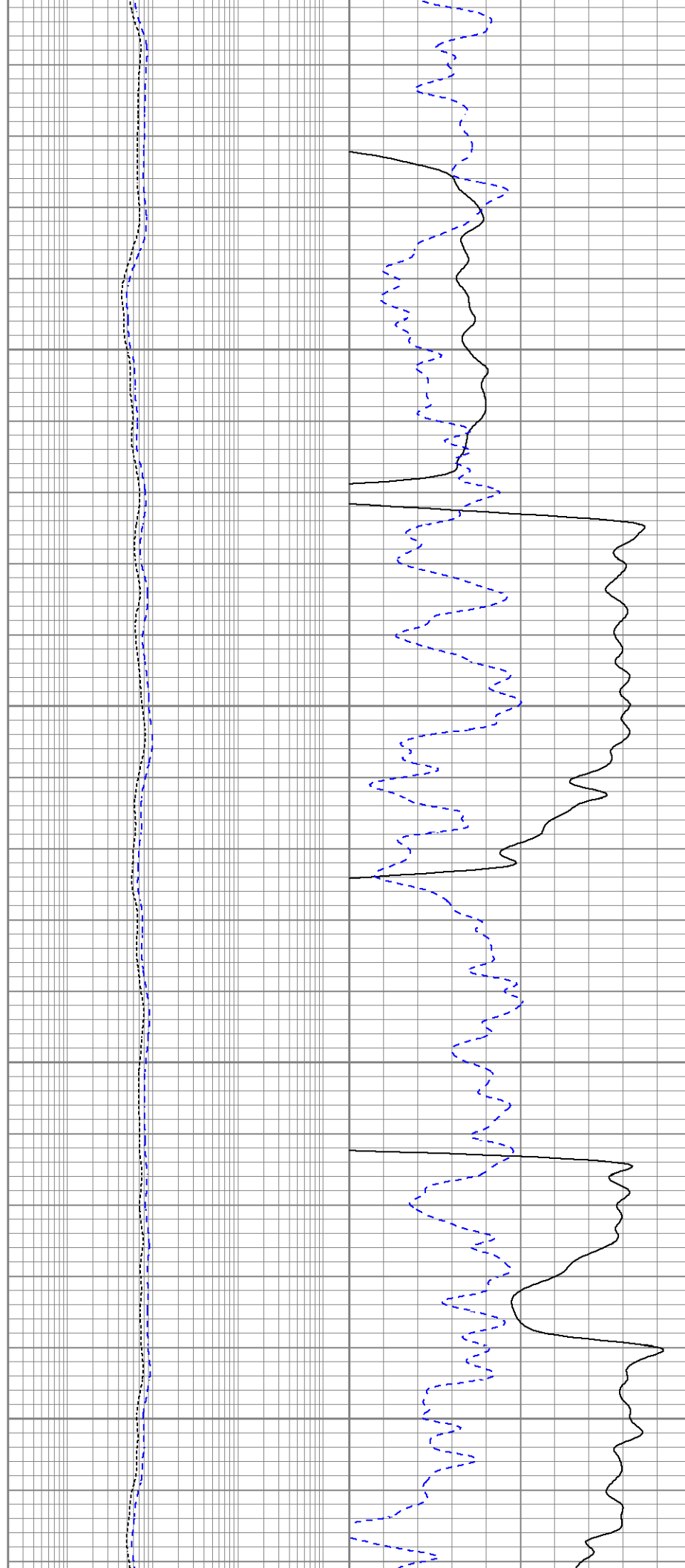


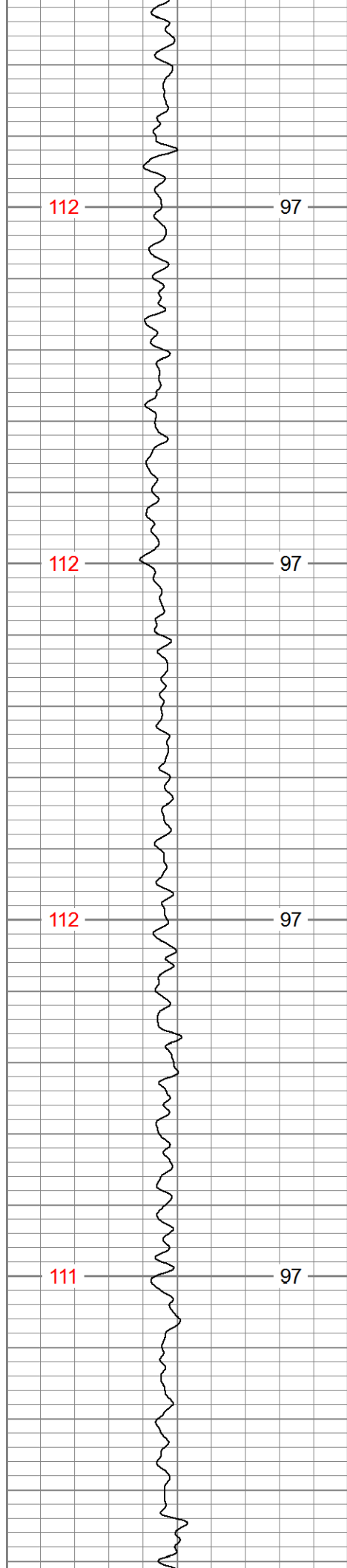
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7150

7200



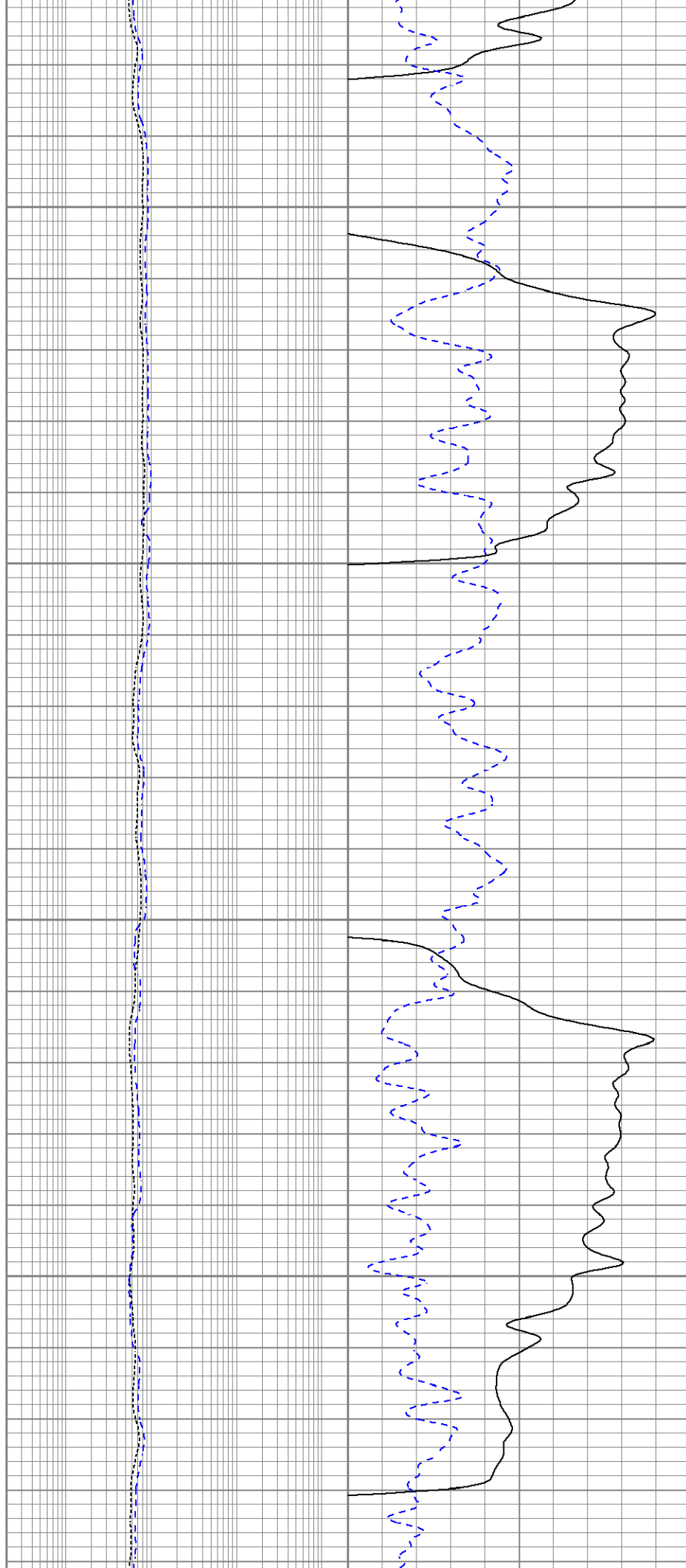


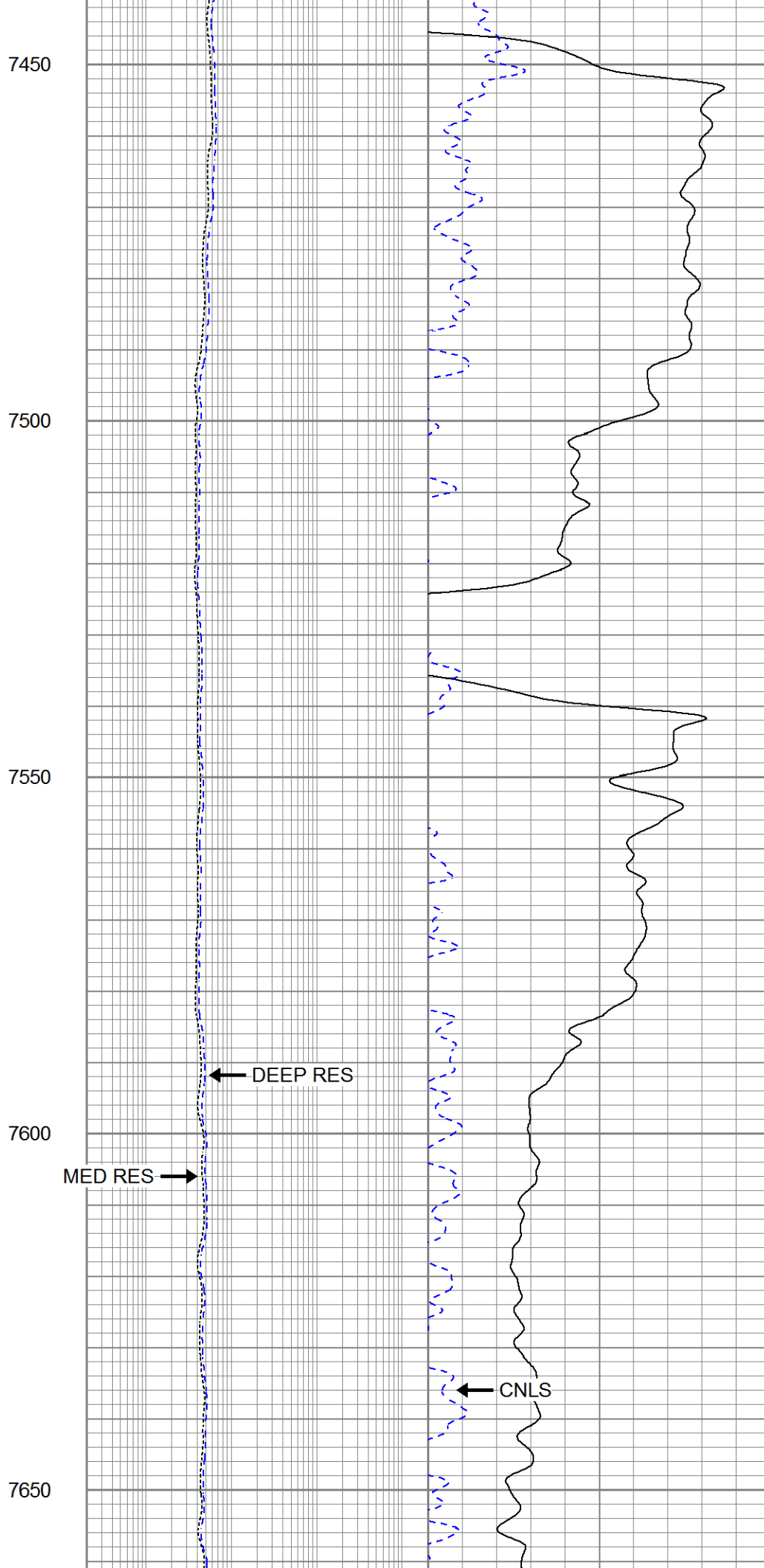
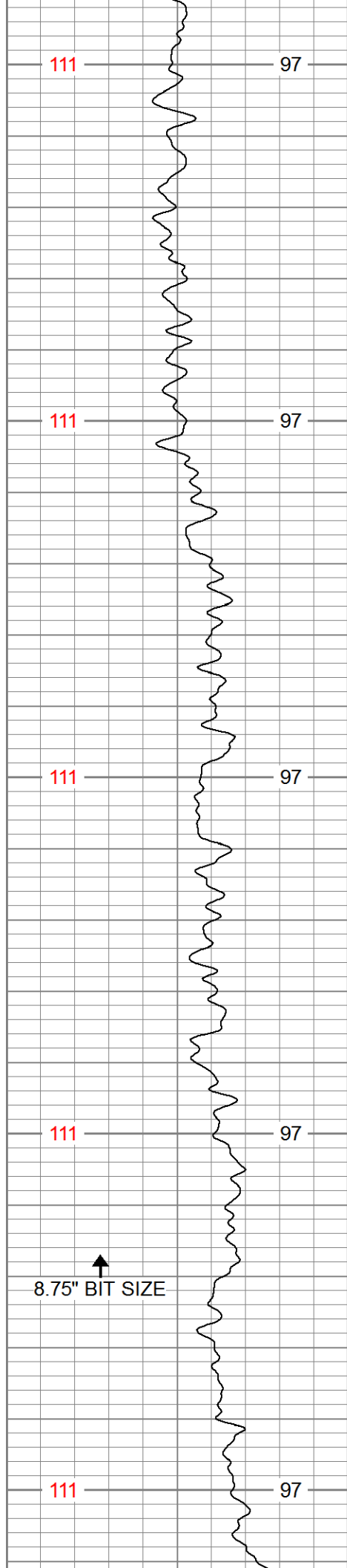
7250

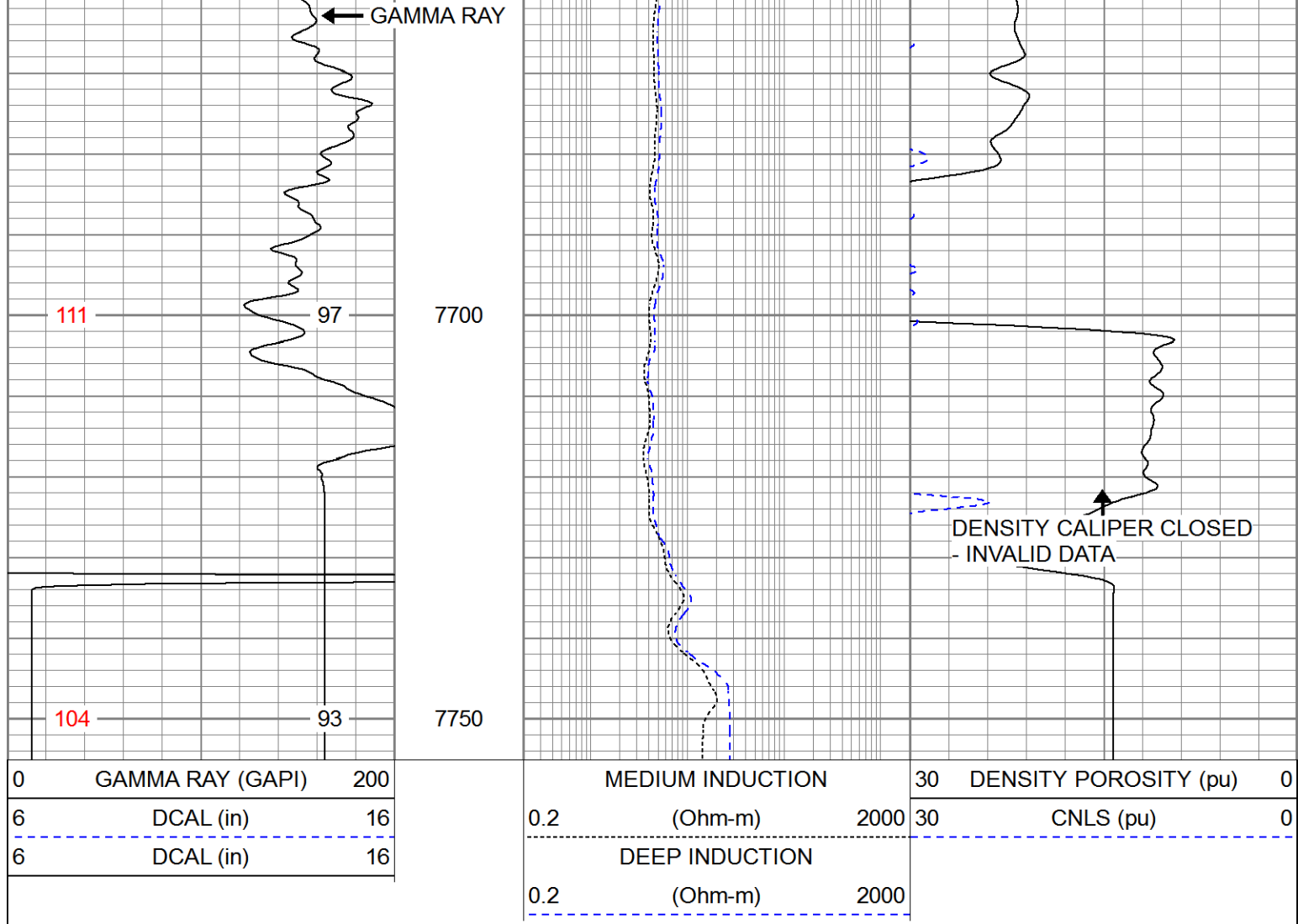
7300

7350

7400







Calibration Report							
Database File	extraction_vt-lds c2 16 18.db						
Dataset Pathname	STACK/pass2.2						
Dataset Creation	Sat Jun 23 16:59:35 2018						
Dual Induction Calibration Report							
Serial-Model:		1987-M&W					
Calibration Performed:		Tue Apr 11 17:07:38 2017					
Readings		References			Results		
Loop:	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:		979-229-M&W					
Source / Verifier:		21170B /					
Master Calibration Performed:		Fri Jun 22 09:12:59 2018					
Master Calibration							
Density		Far Detector		Near Detector			

Magnesium	1.755	g/cc	7726.98	9910.47	cps
Aluminum	2.710	g/cc	1442.93	6391.03	cps

Spine Angle = 75.35

Density/Spine Ratio = 0.551

	Size		Reading
Small Ring	4.00	in	1.16
Large Ring	16.00	in	1.03

### 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 17:08:01 2017
Calibrator Value:	1000.0 GAPI
Background Reading:	0.0 cps
Calibrator Reading:	6.2 cps
Sensitivity:	0.5200 GAPI/cps



Company	EXTRACTION OIL AND GAS, LLC
Well	VT-LDS #C2-16-18
Field	WATTENBERG
County	WELD
State	COLORADO