



PIONEER
Pioneer Energy Services

**DUAL IND / DUAL COMP
POROSITY LOG**

Company **EXTRACTION OIL AND GAS, INC.**
Well **ALMA 1S-66-2524 NO. 20CDH**
Field **WATTENBERG**
County **ADAMS**
State **COLORADO**

Company **EXTRACTION OIL AND GAS, INC.**
Well **ALMA 1S-66-2524 NO. 20CDH**
Field **WATTENBERG**
County **ADAMS** State **COLORADO**

Location: API #: 05-001-10027-00

SEC 25 TWP 1S RGE 66W
237' FSL & 2038' FEL

NONE

Permanent Datum **GROUND LEVEL** Elevation **5173'**
Log Measured From **KELLY BUSHING**
Drilling Measured From **KELLY BUSHING**

Elevation
K.B. 5201'
D.F. N/A
G.L. 5173'

Date	11/22/2017		
Run Number	ONE		
Depth Driller	16203'		
Depth Logger	8114'		
Bottom Logged Interval	8114'		
Top Log Interval	1650'		
Casing Driller	9.625" @ 1675'		
Casing Logger	1688'		
Bit Size	8.5"		
Type Fluid in Hole	OIL BASED MUD		
Salinity, ppm CL	N/A		
Density / Viscosity	9.6 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	2 HOURS		
Max Rec. Temp. F	N/A		
Equipment Number	108		
Location	HAYS		
Recorded By	J. HENRICKSON		
Witnessed By	HANS CARY		

<<< 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.

SO# EB41

NO FOCUS TOOL DUE TO OIL BASED MUD

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: J. HENRICKSON

Operator:

Operator:

Operator:

This Log Record Was Witnessed By

Primary Witness: HANS CARY





Secondary Witness:

Secondary Witness:

Secondary Witness:

Top - Bottom

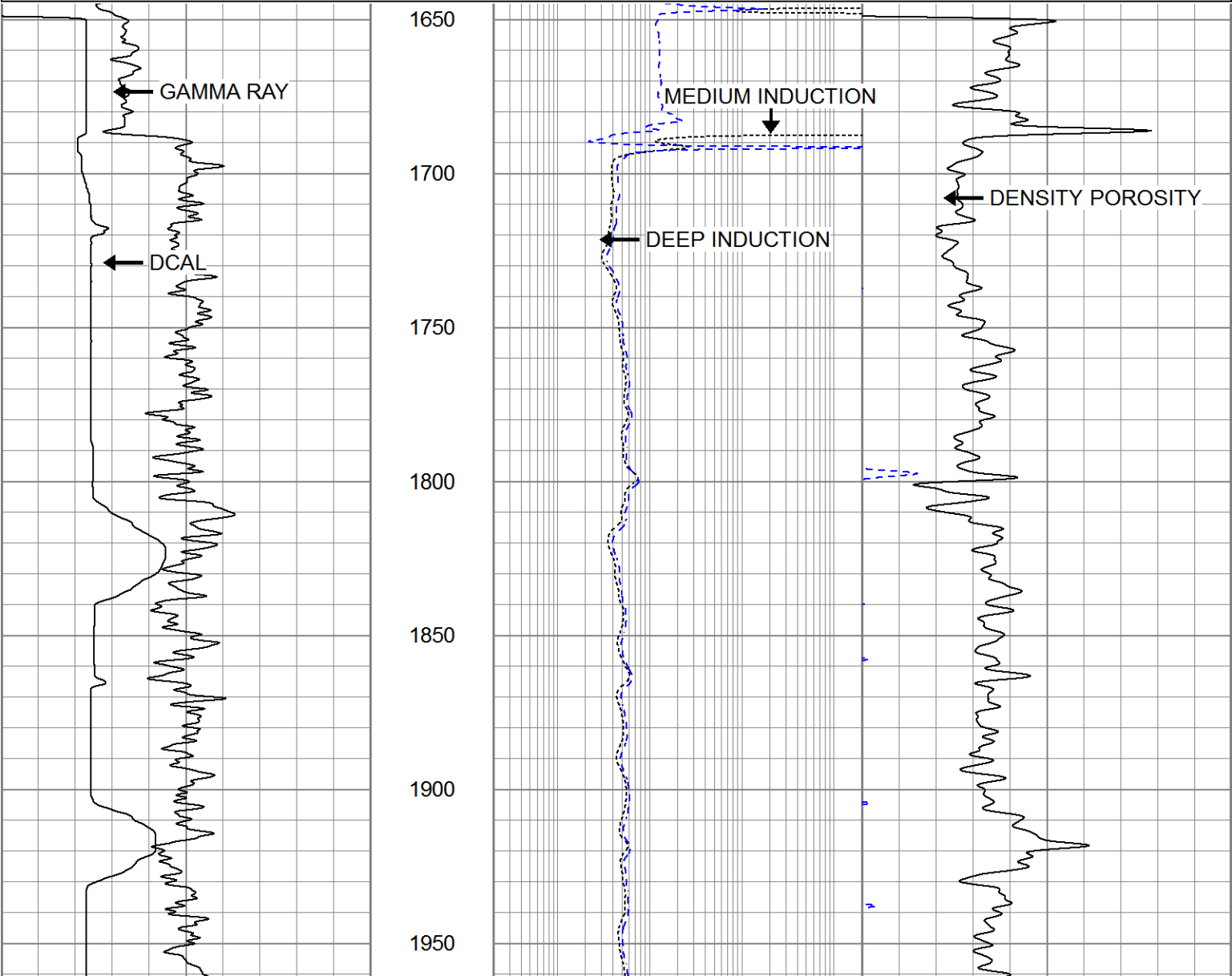
A	BOREID	BOTTEMP	CASEOD	CASETHCK	FLUIDDEN	M	MATRXDEN
1	in 8.5	degF 100	in 5.5	in 0	g/cc 1	2	g/cc 2.71
NPORSEL	PERFS	SNDERR	SNDERRM	SPSHIFT	SRFTEMP	SZCOR	TDEPTH
Limestone	0	mmho/m 0	mmho/m 0	mV 0	degF 0	Off	ft 8114

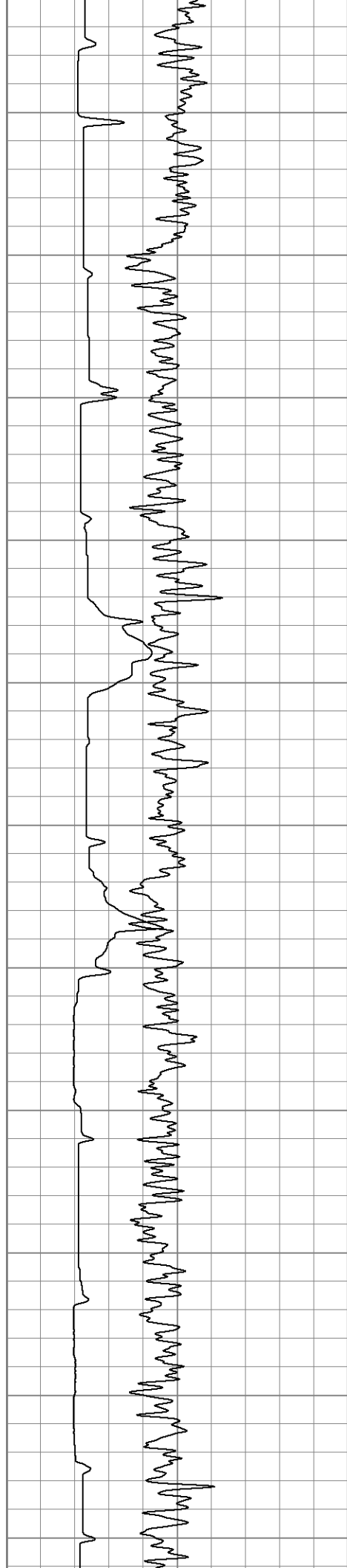
Sensor	Offset (ft)	Schematic		Description	Length (ft)	O.D. (in)	Weight (lb)
GR	33.00			GR-M&W (89-M&W)	3.00	3.50	50.00
CNLSC	29.90			CNT-M&W (tk10-MW)	5.50	3.50	100.00
CNSSC	29.15						
LSD DCAL SSD	20.85			CDL-M&W (168-986)	8.50	4.00	250.00
	20.83						
	20.35						
RLL3	15.80			DIL-M&W (1987)	18.50	3.50	220.00
RLL3F	15.79						
CILD	8.00						

CILM	4.70								
SP	0.20								
Dataset: extraction_alma_1s_66_2524_20cdh.db: field/well/stack/pass2.1									
Total length: 35.50 ft									
Total weight: 620.00 lb									
O.D.: 4.00 in									

Database File	extraction_alma_1s_66_2524_20cdh.db
Dataset Pathname	stack/pass2.1
Presentation Format	split
Dataset Creation	Wed Nov 22 16:00:38 2017
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			





2000

2050

2100

2150

2200

2250

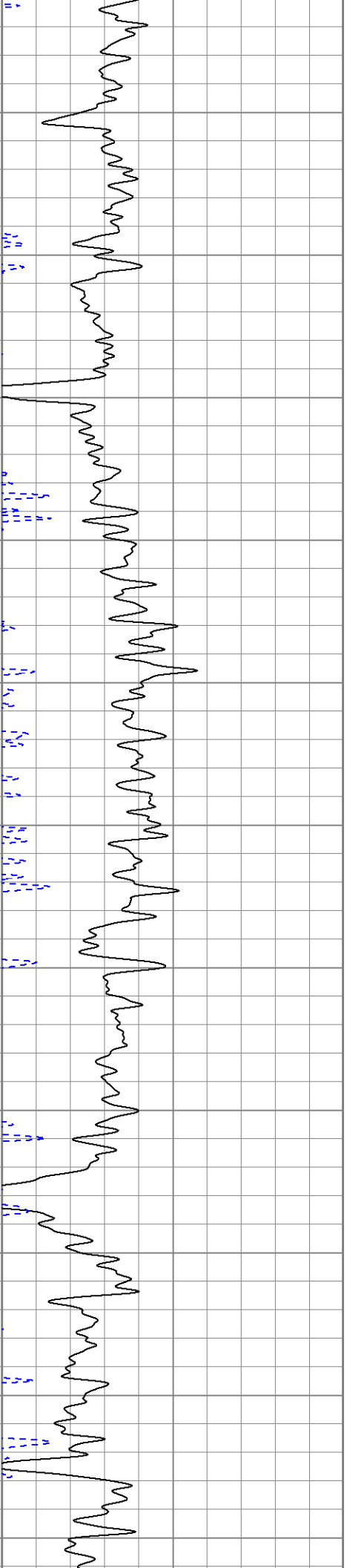
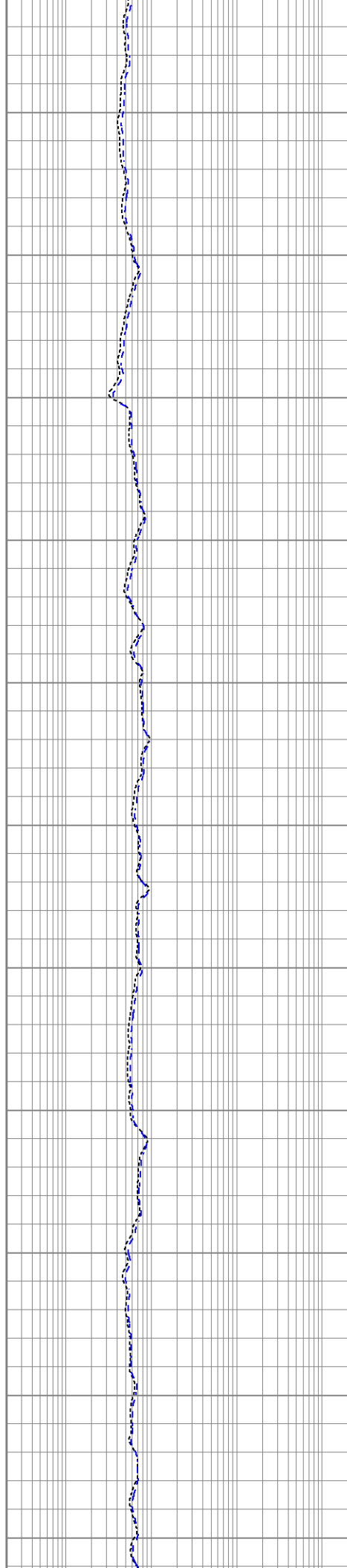
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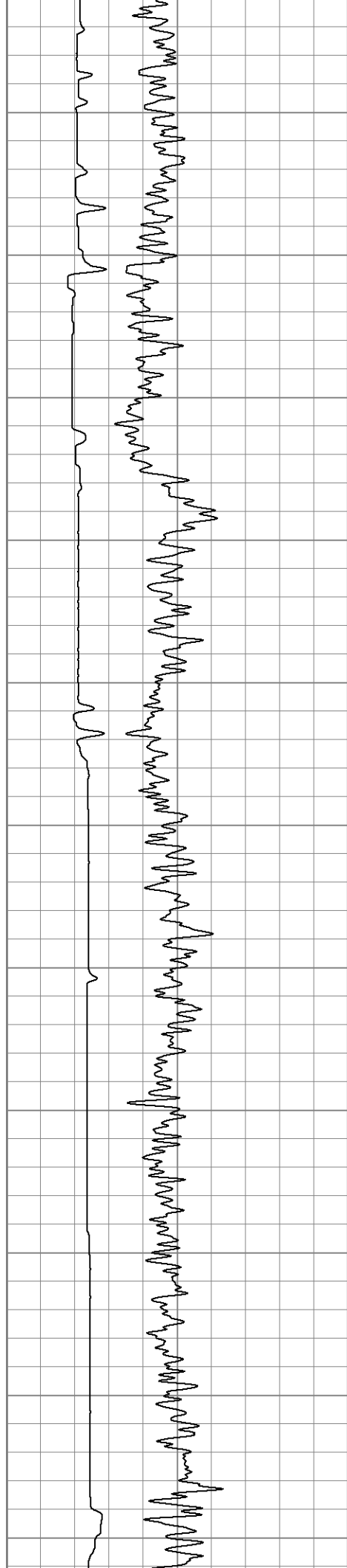
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2800

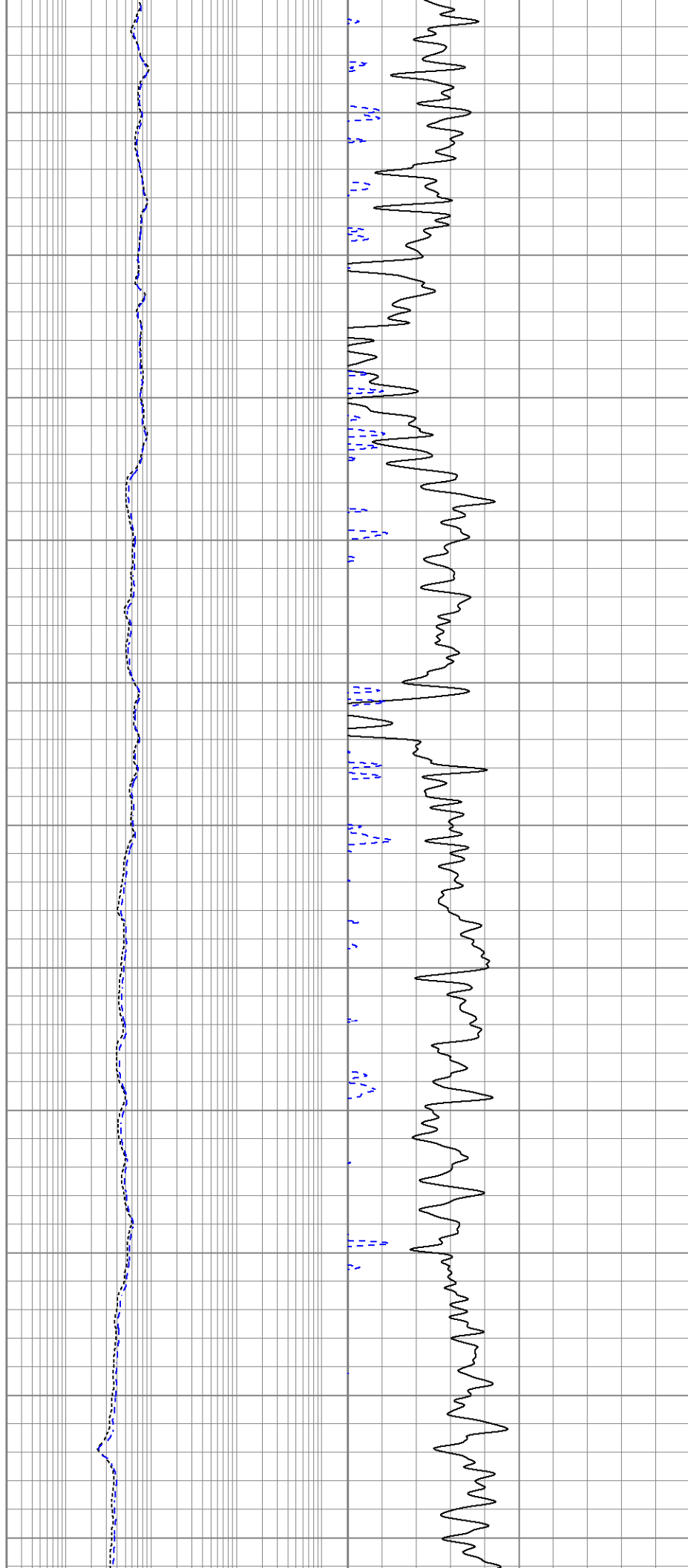
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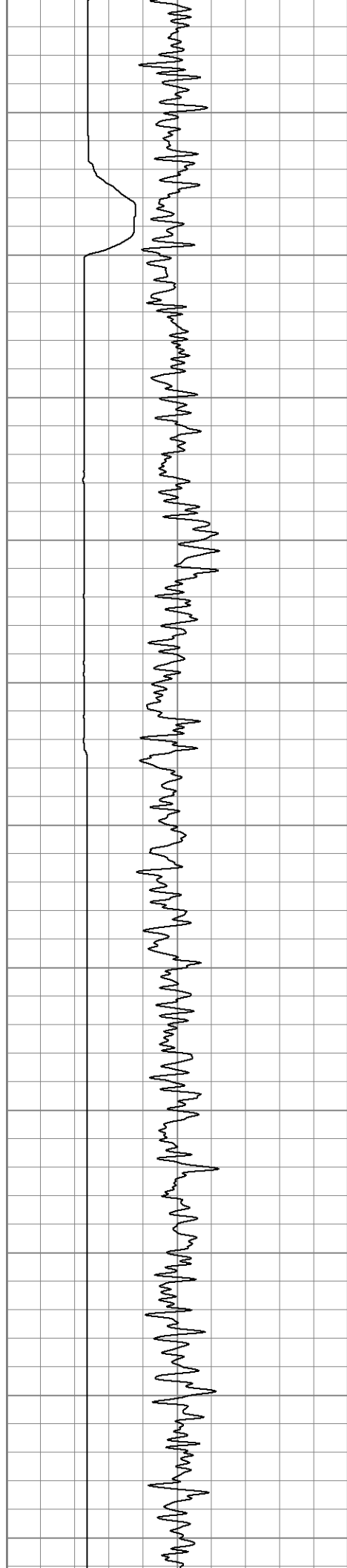
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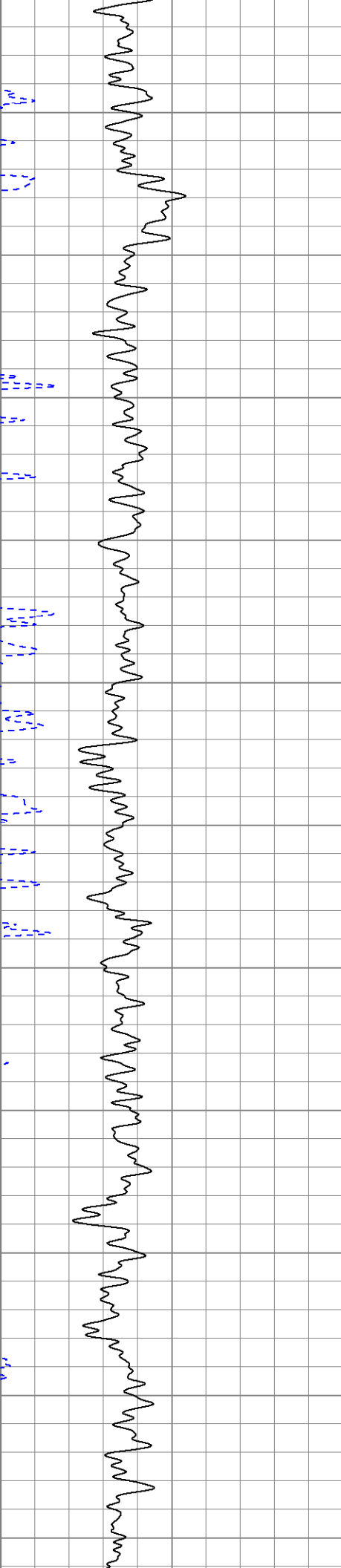
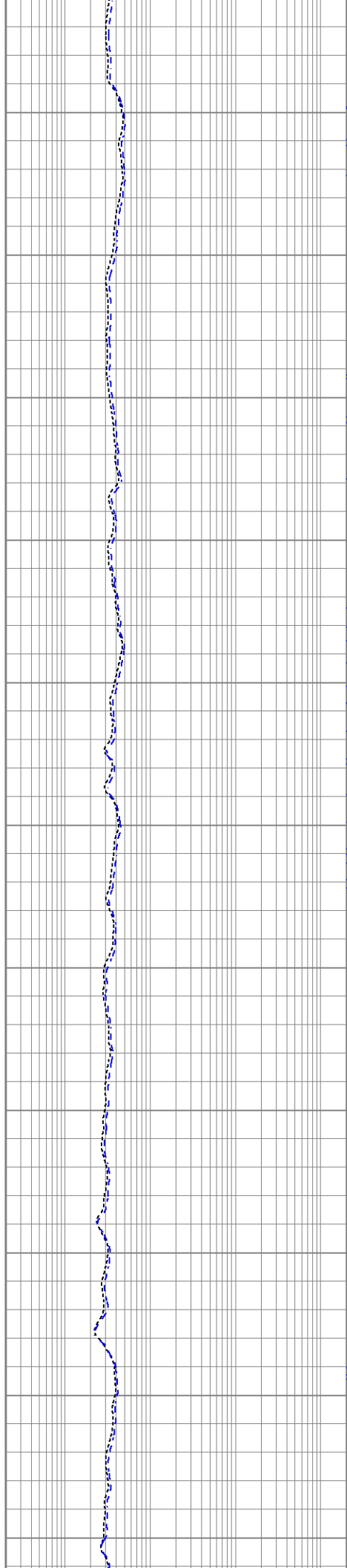
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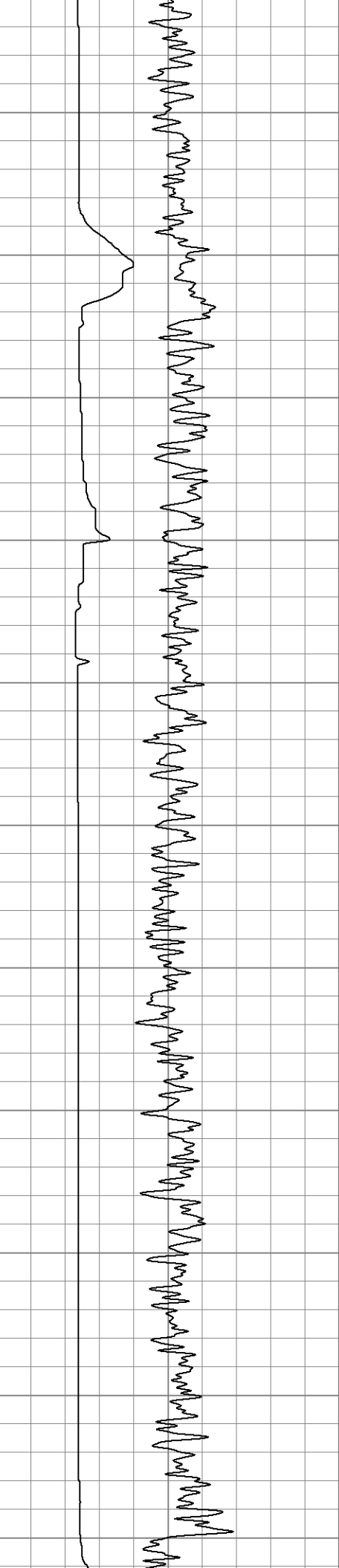
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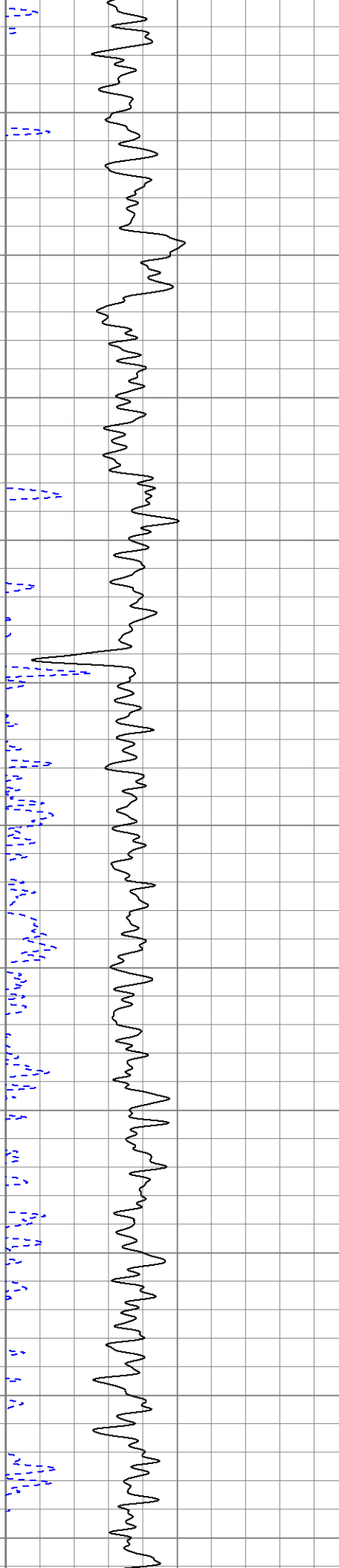
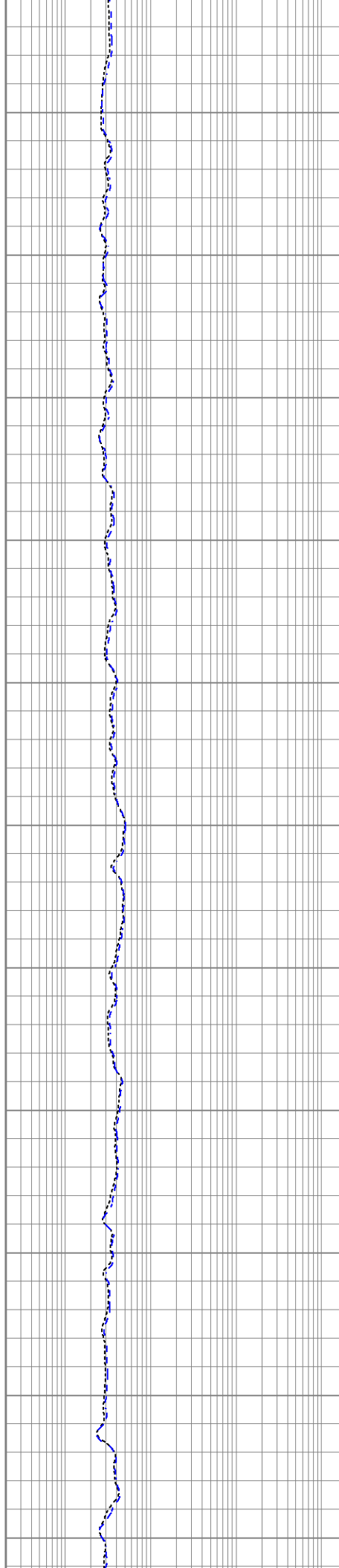
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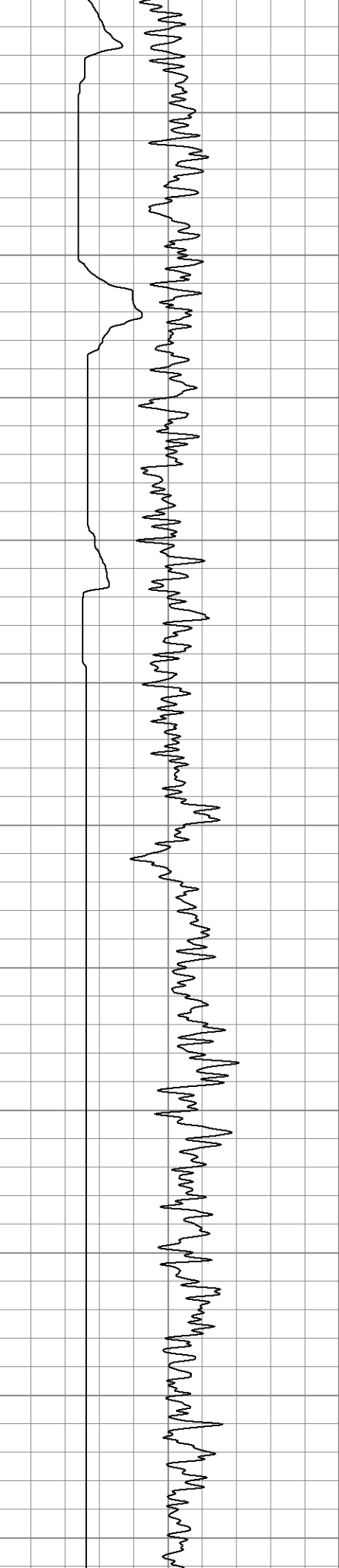
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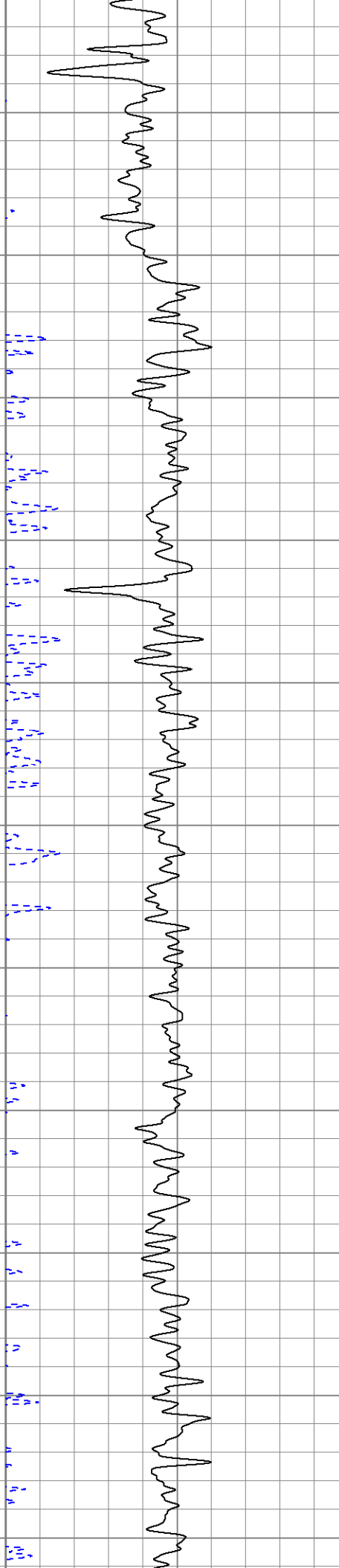
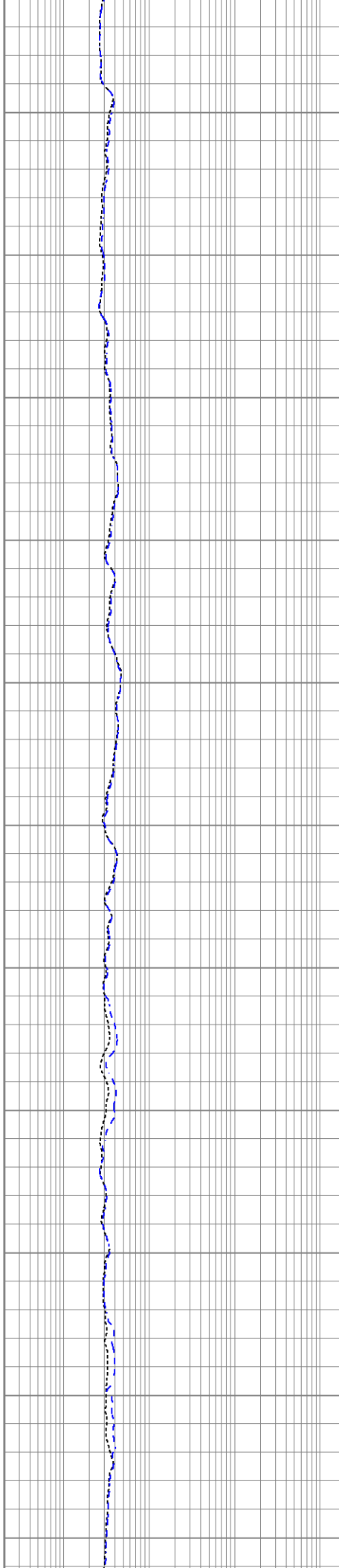
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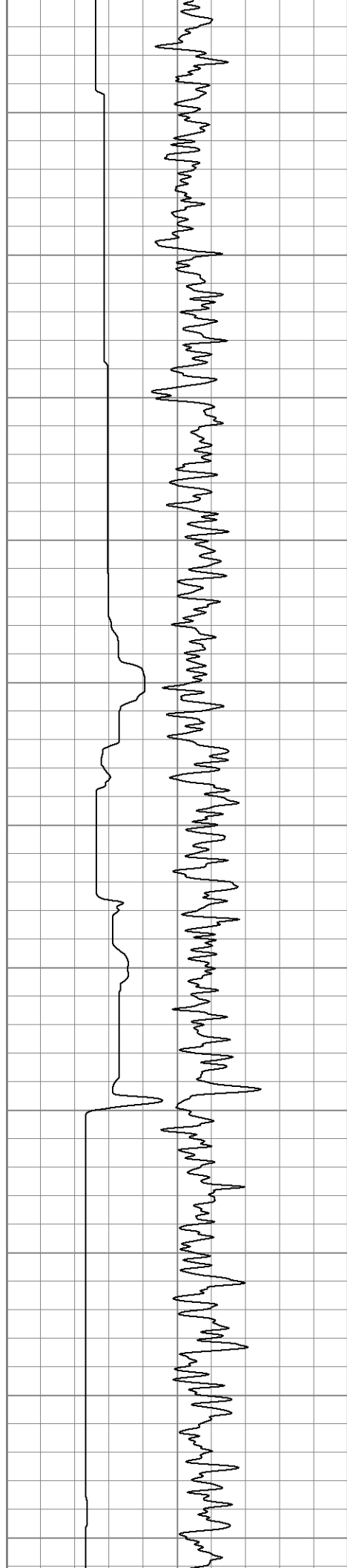
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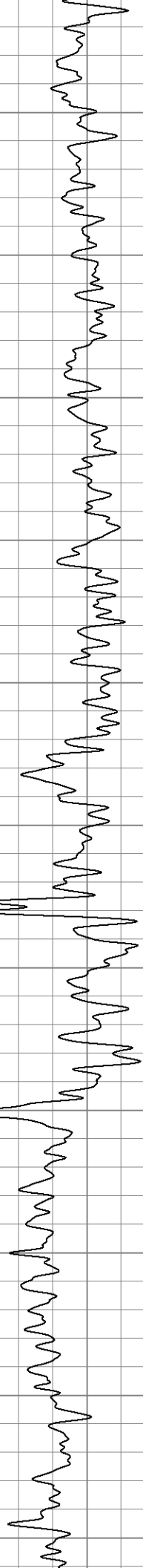
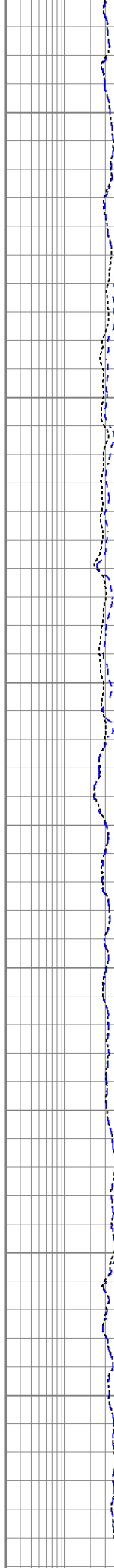


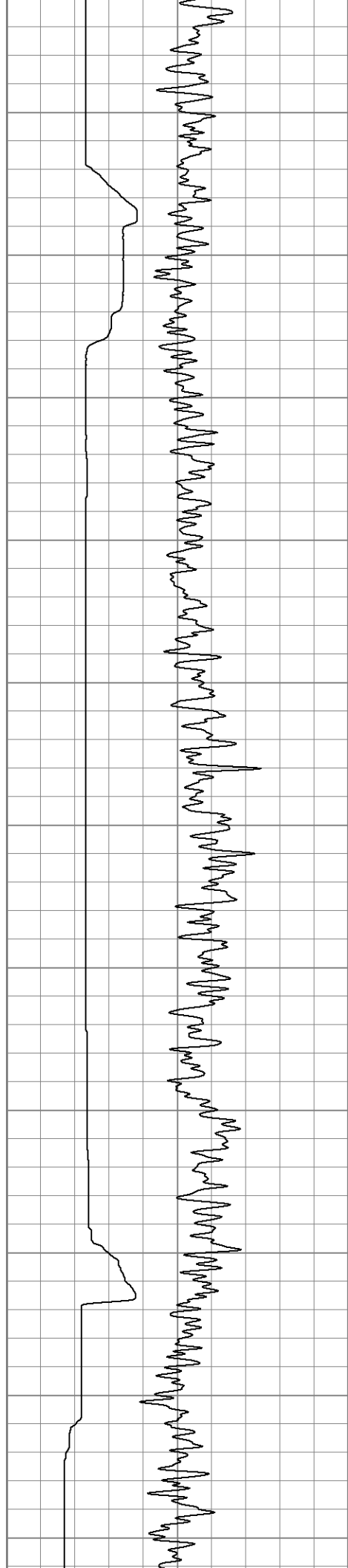
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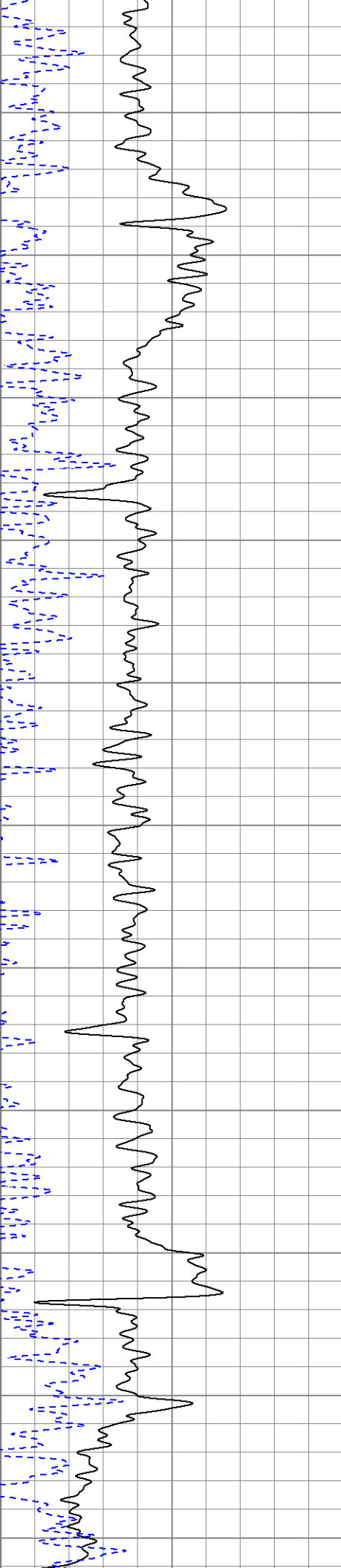
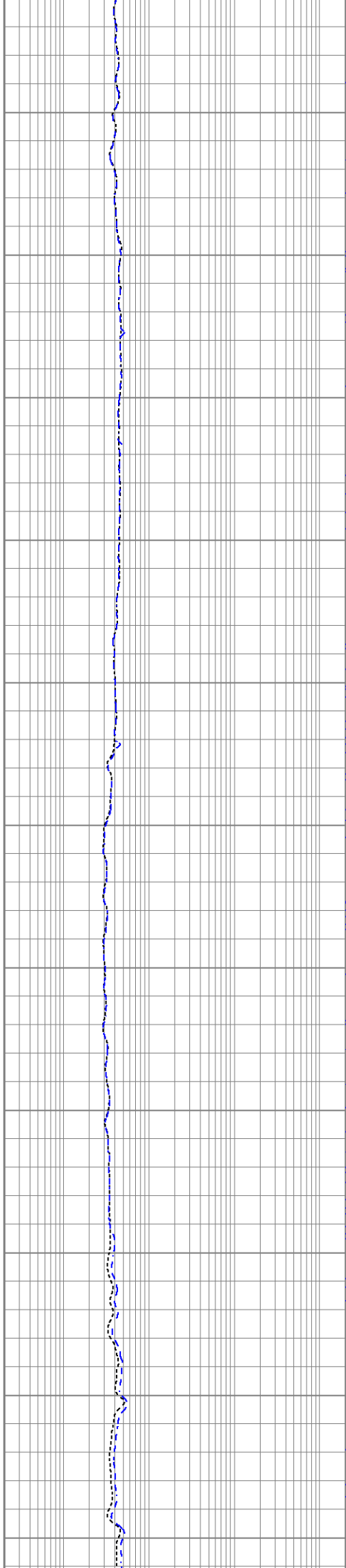


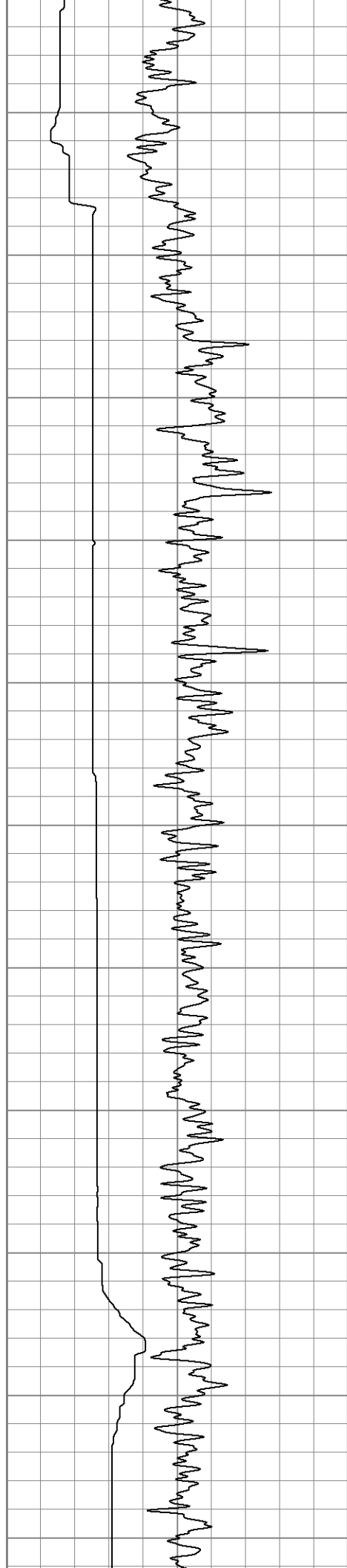
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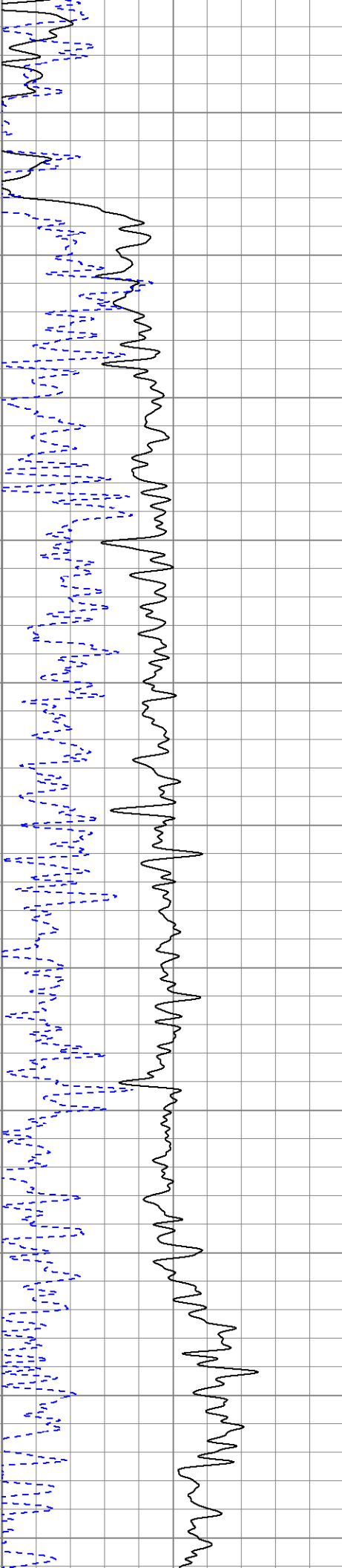
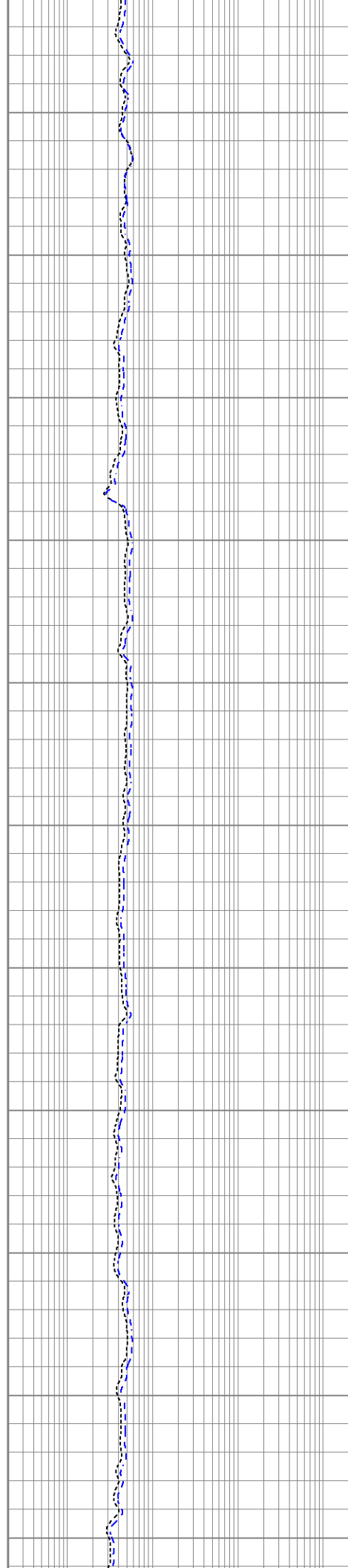
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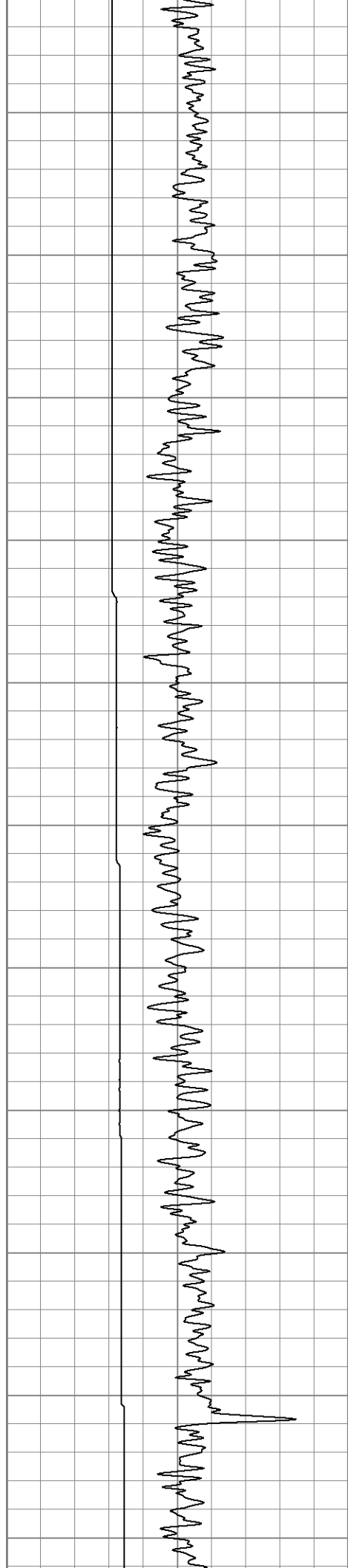
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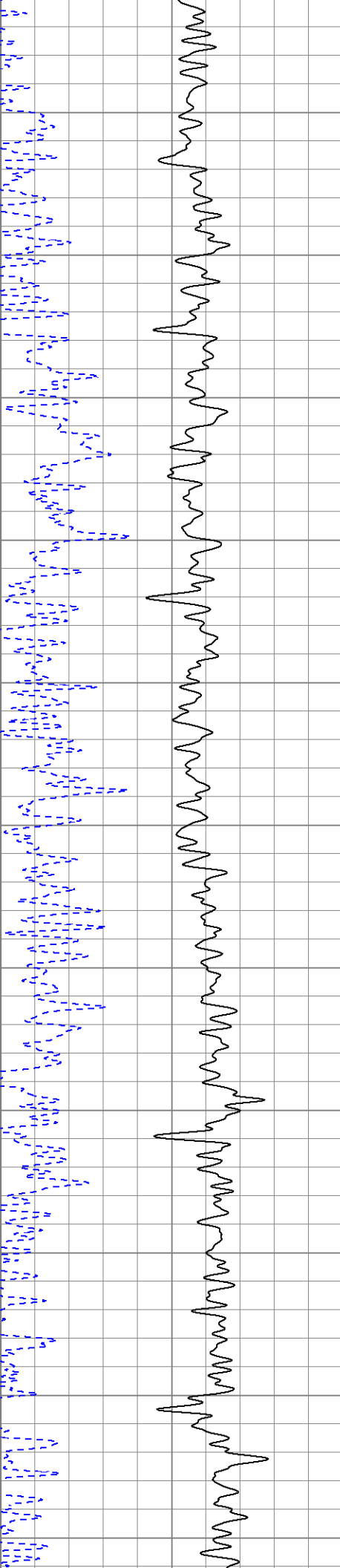
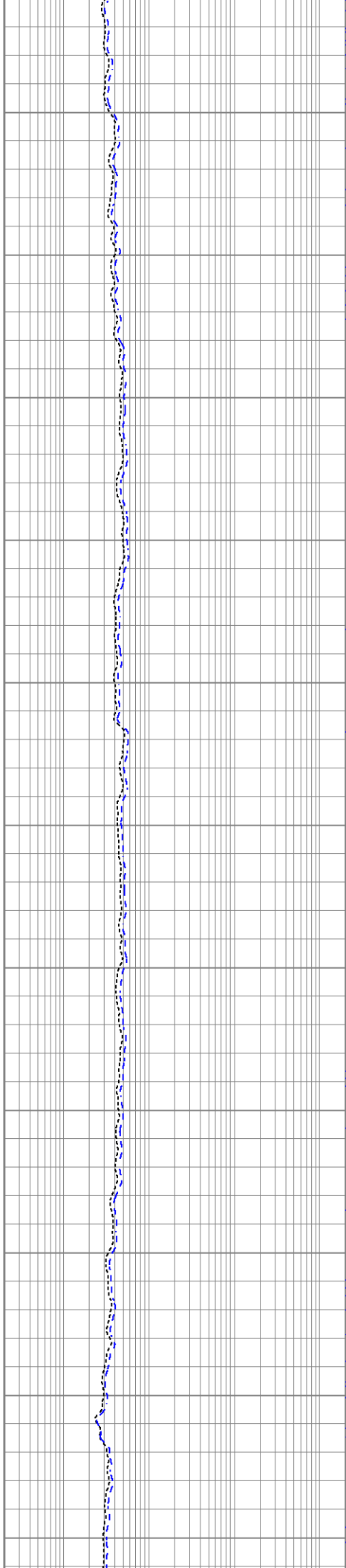
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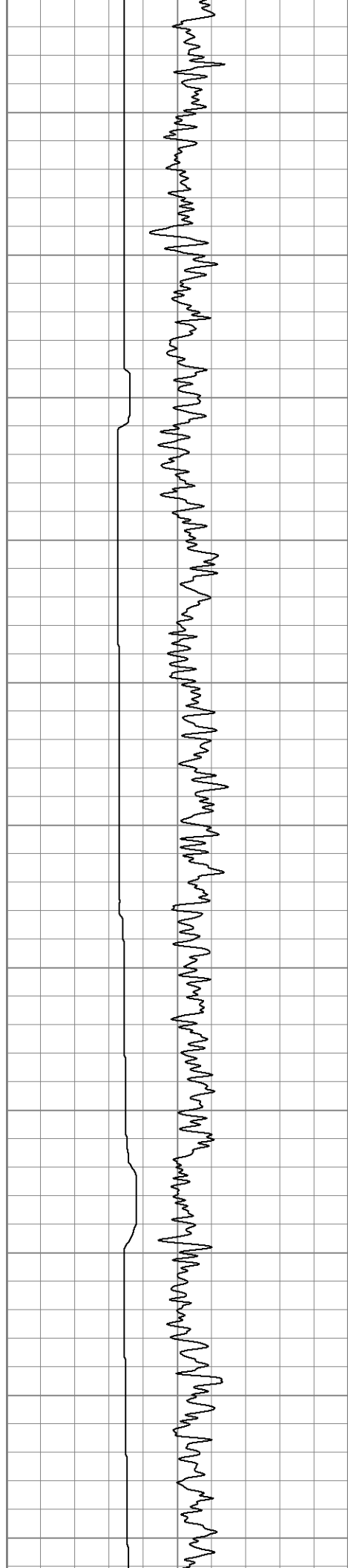
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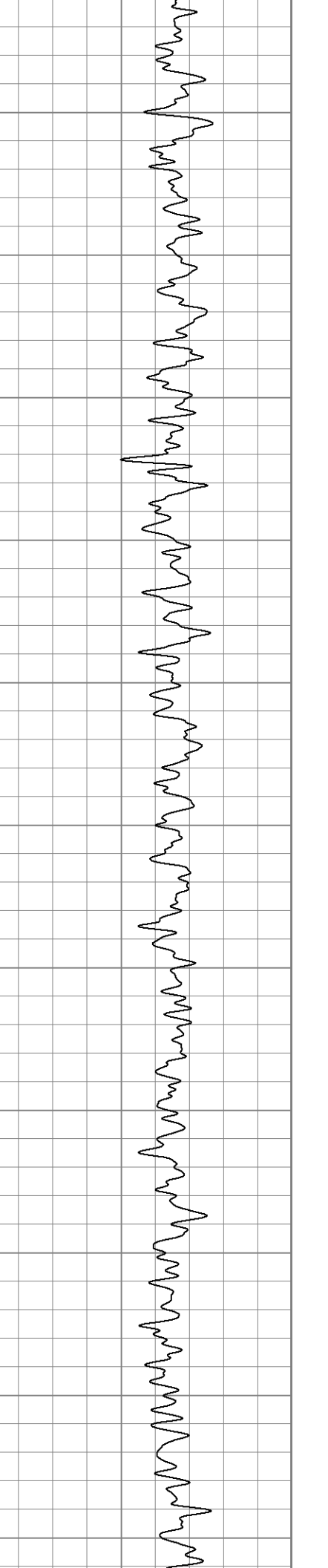
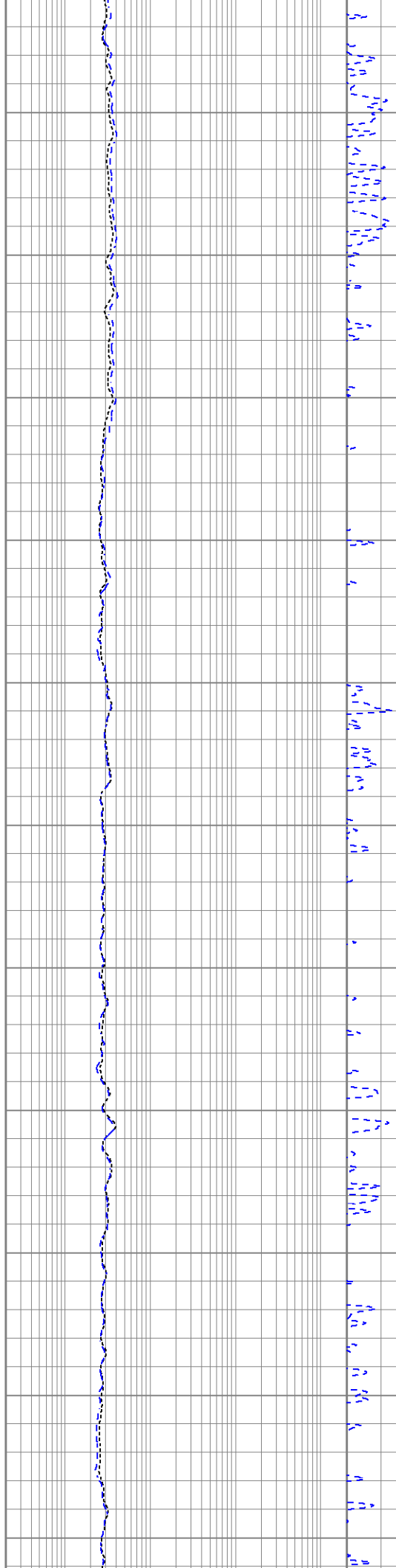
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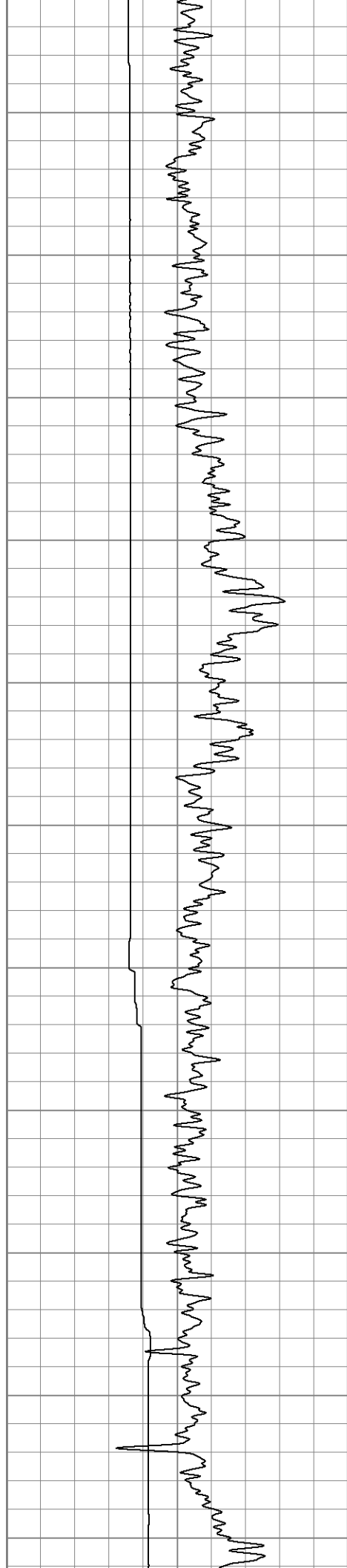
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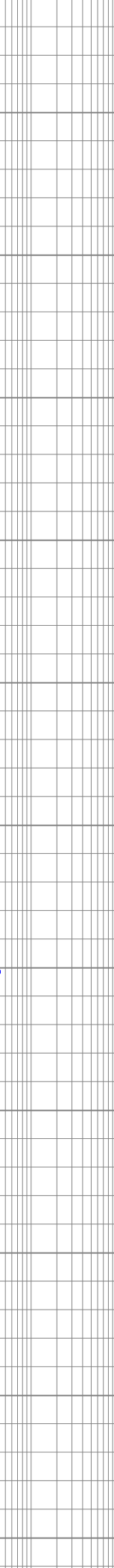
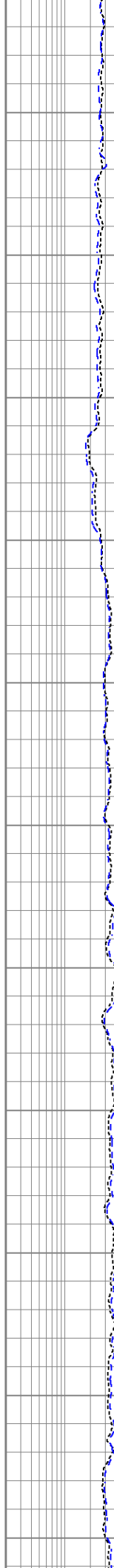
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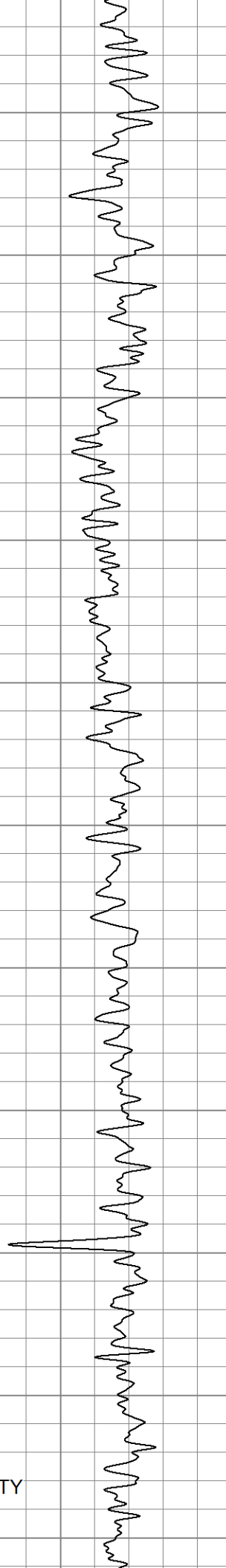


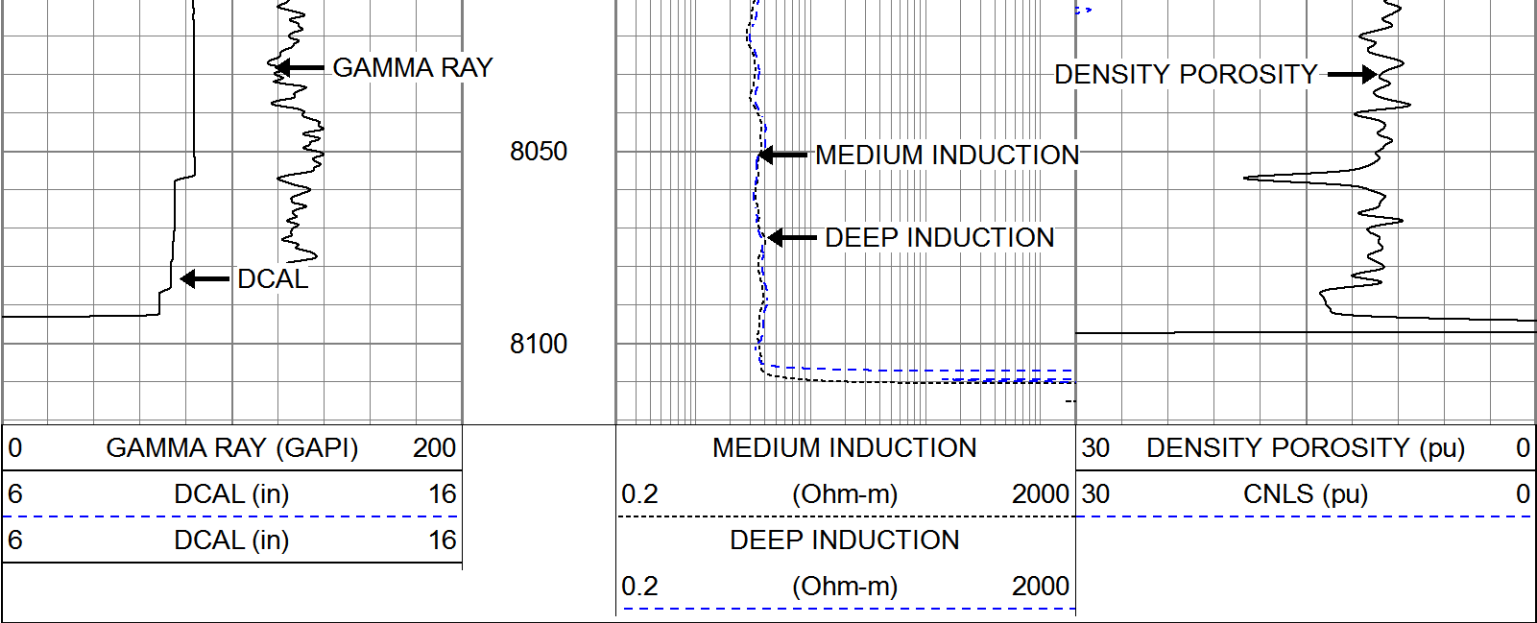


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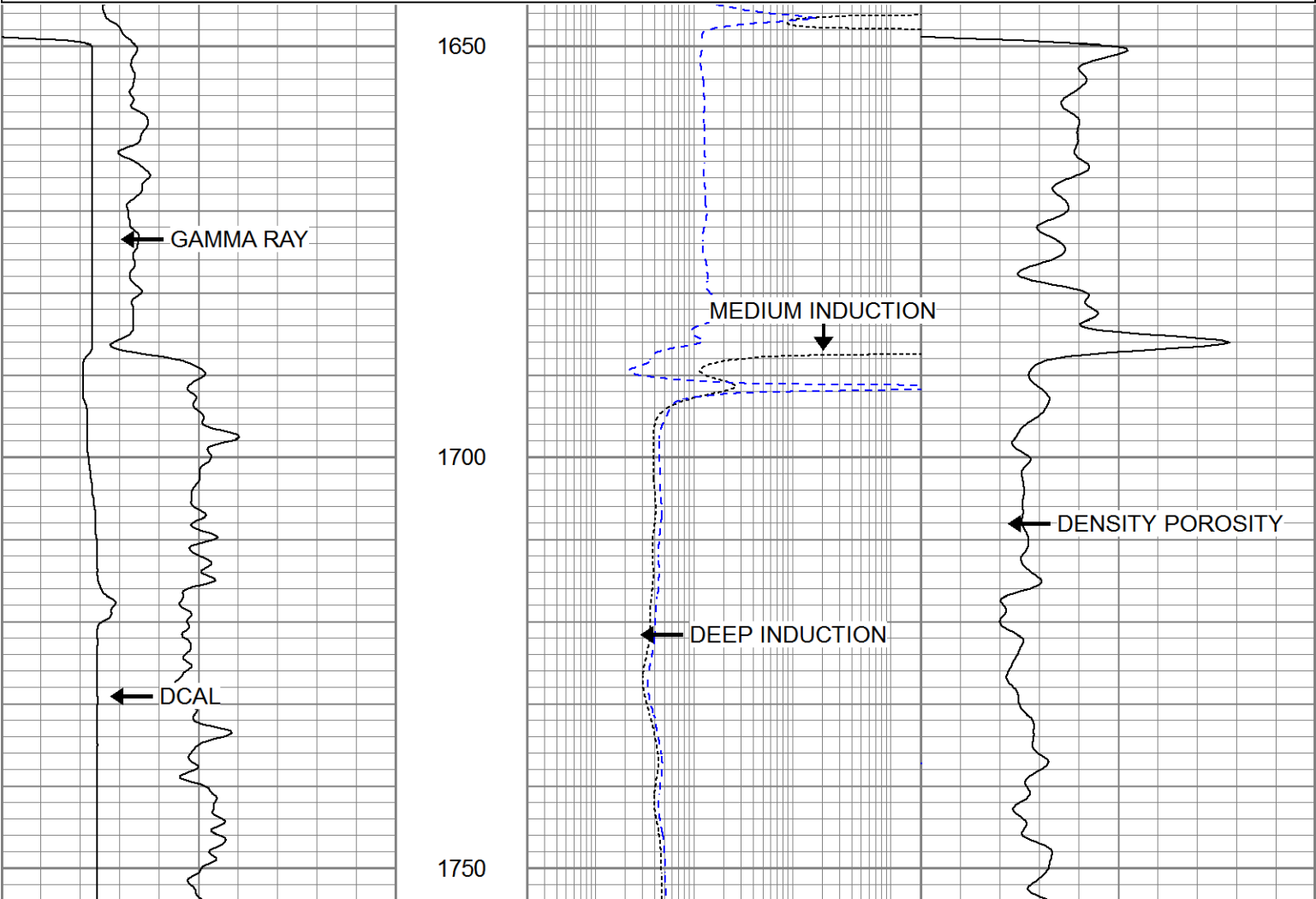
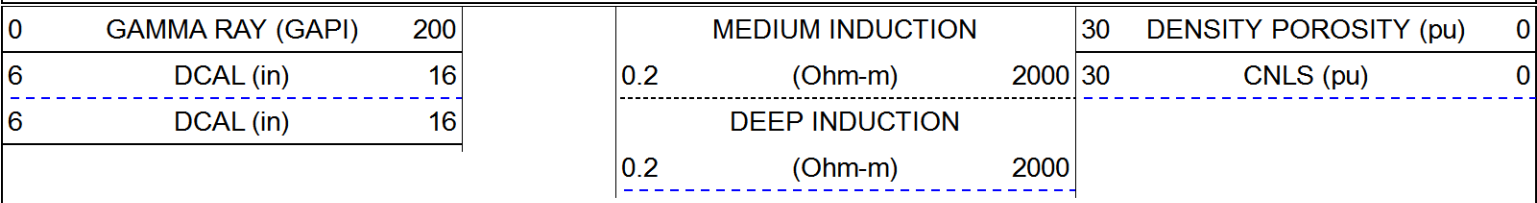


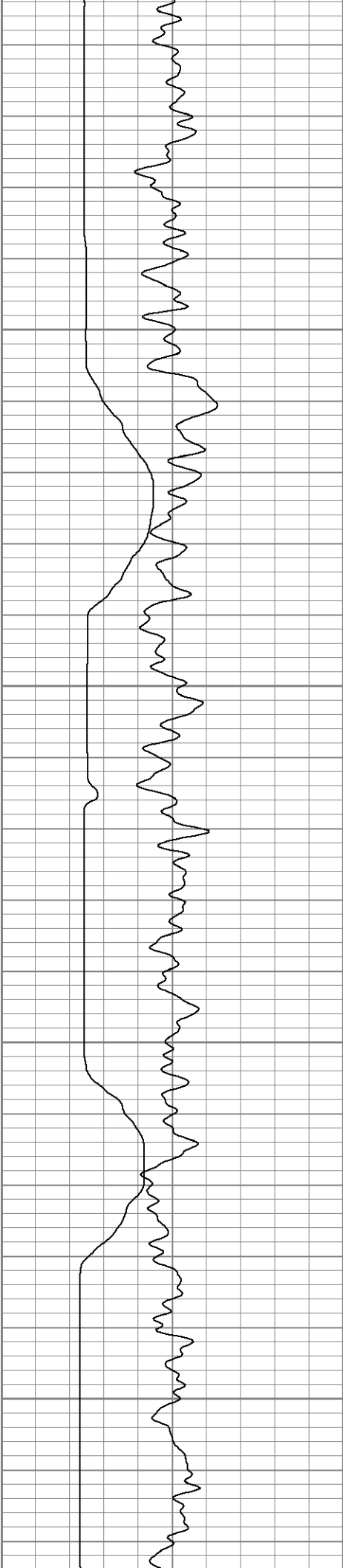
NEUTRON POROSITY





Database File	extraction_alma_1s_66_2524_20cdh.db
Dataset Pathname	stack/pass2.1
Presentation Format	split
Dataset Creation	Wed Nov 22 16:00:38 2017
Charted by	Depth in Feet scaled 1:240



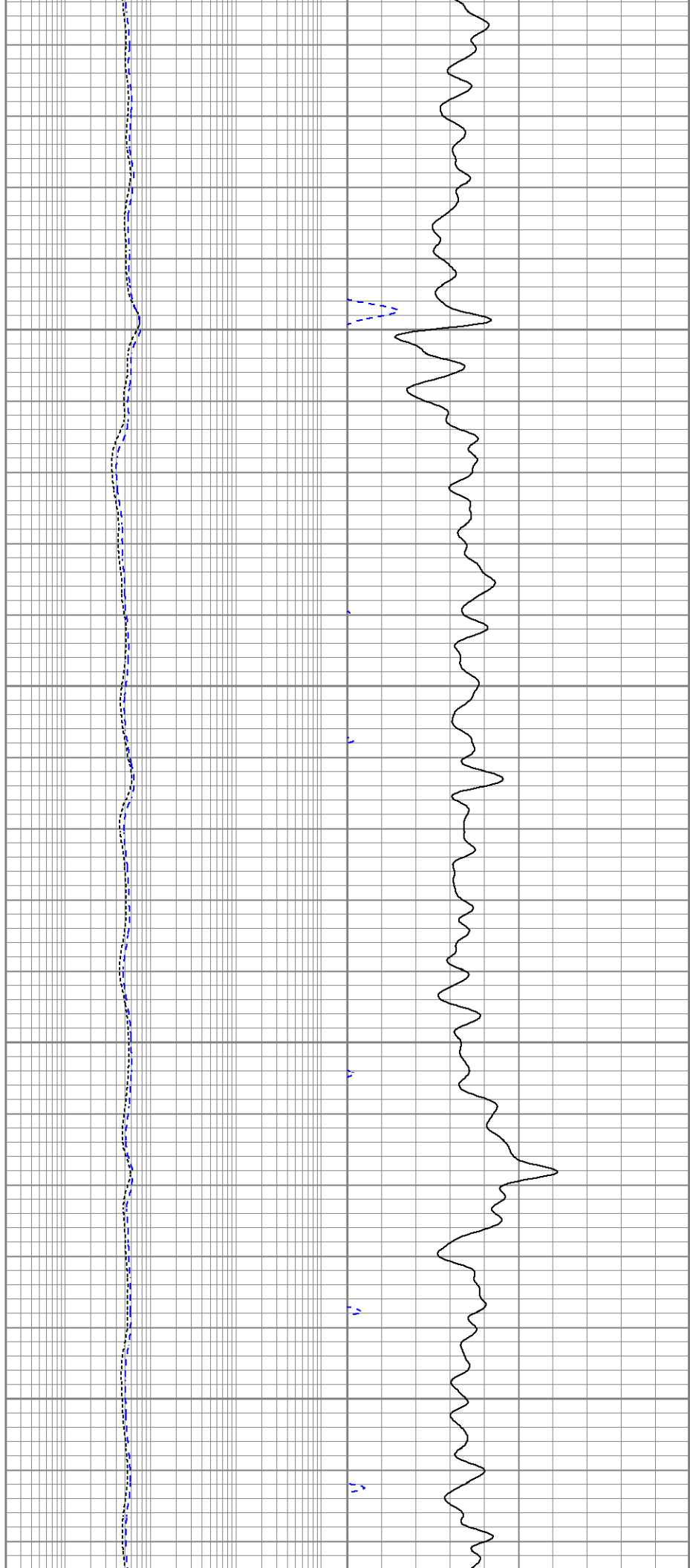


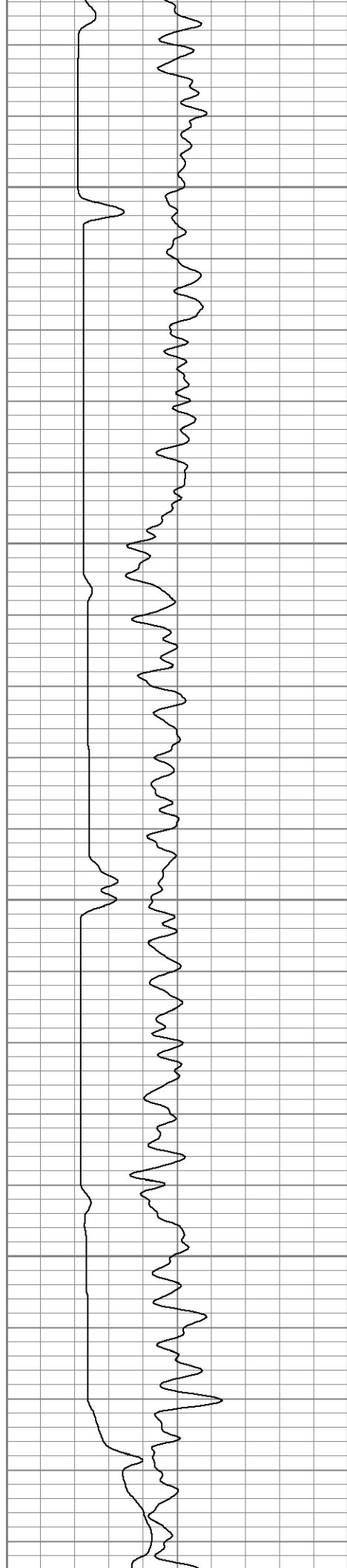
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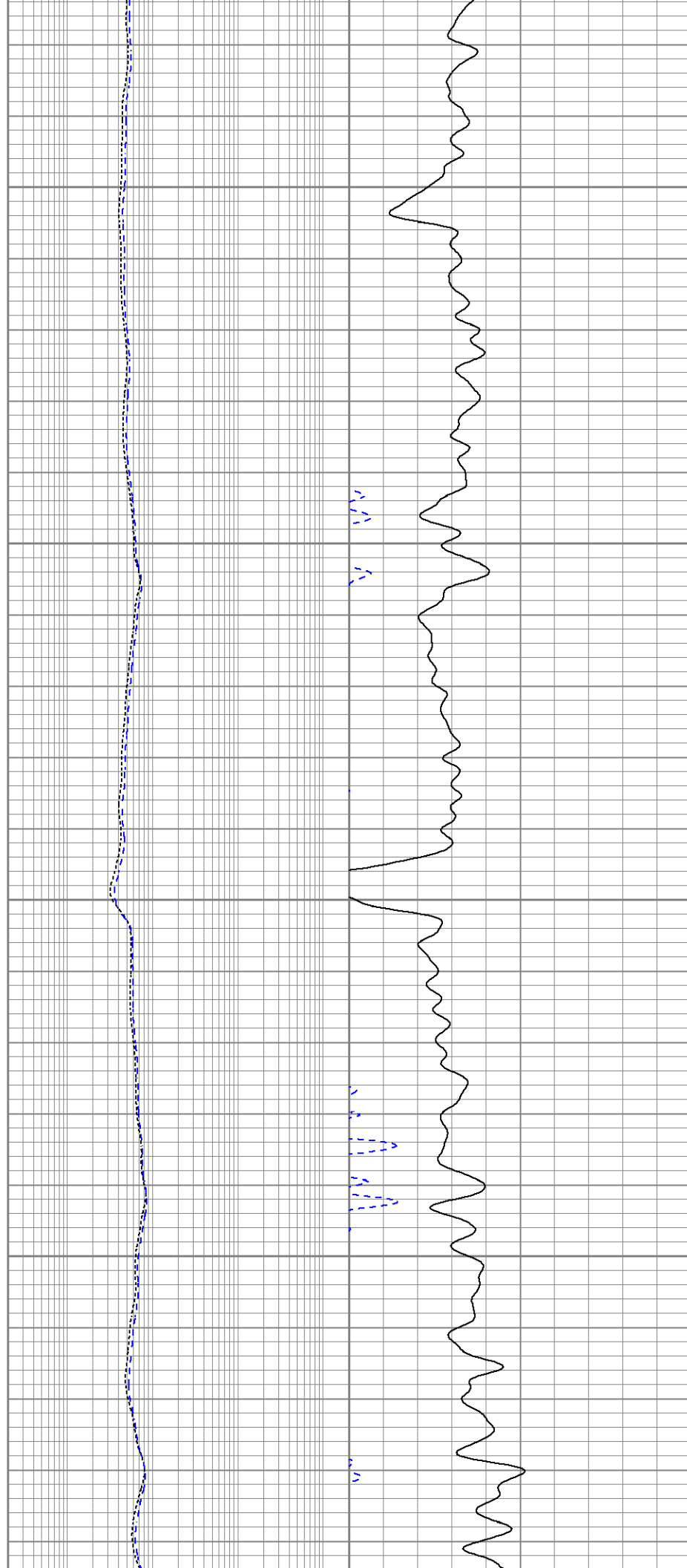


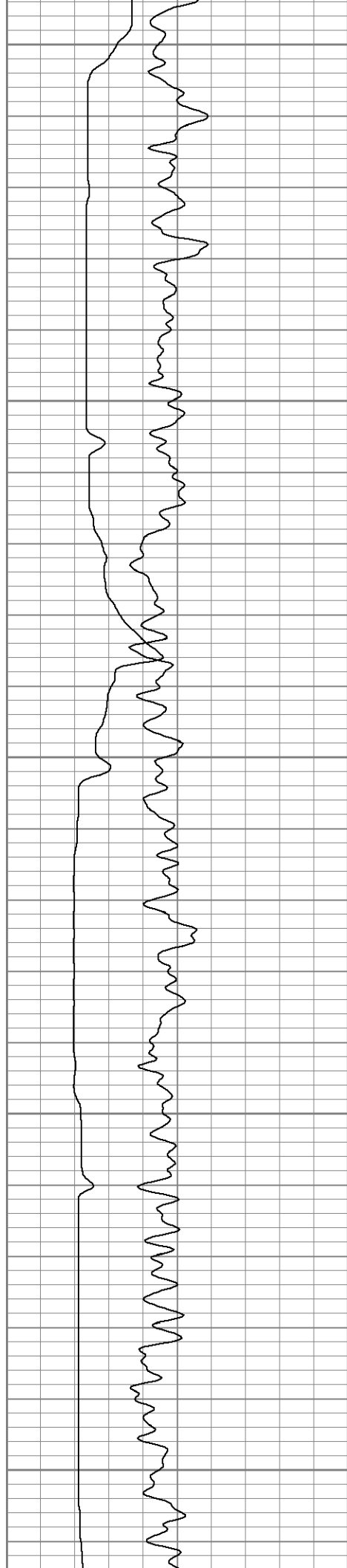
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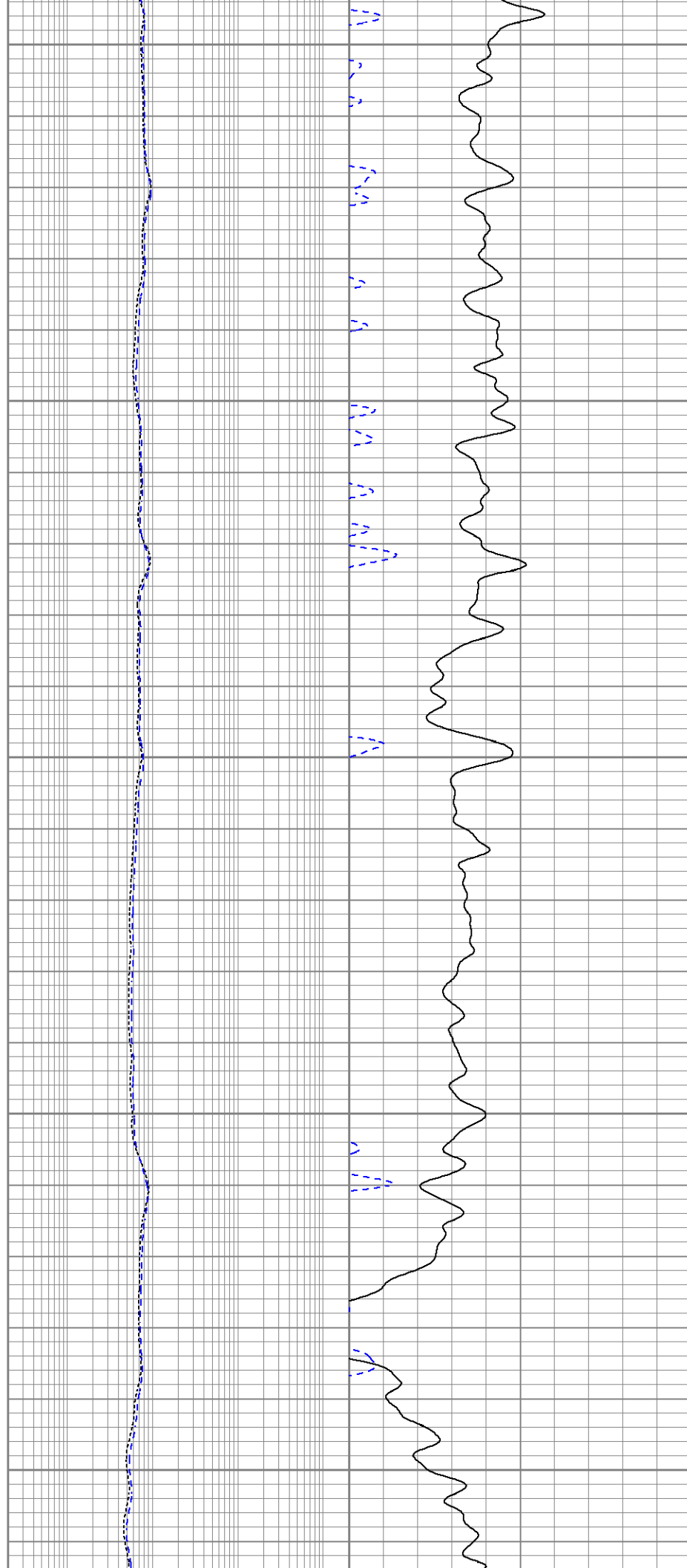
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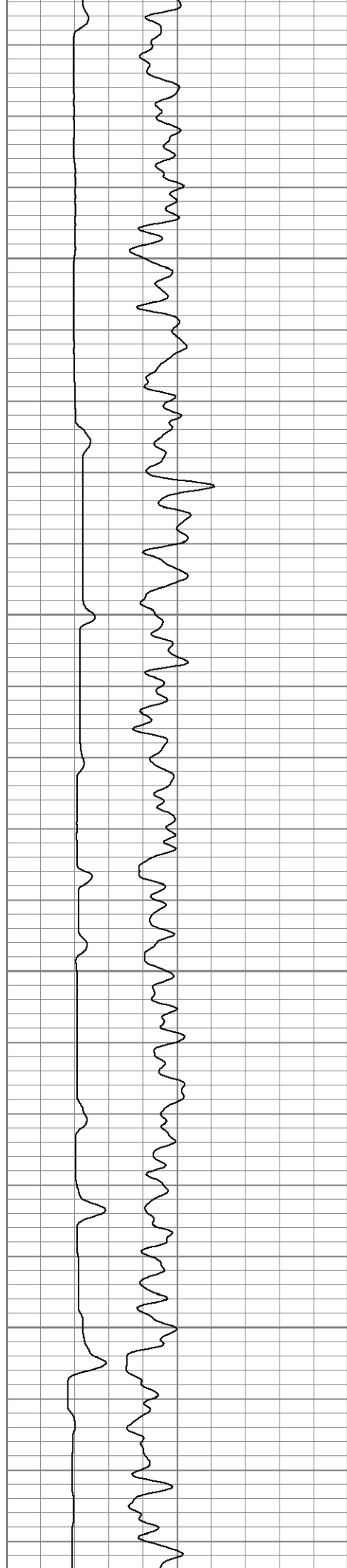
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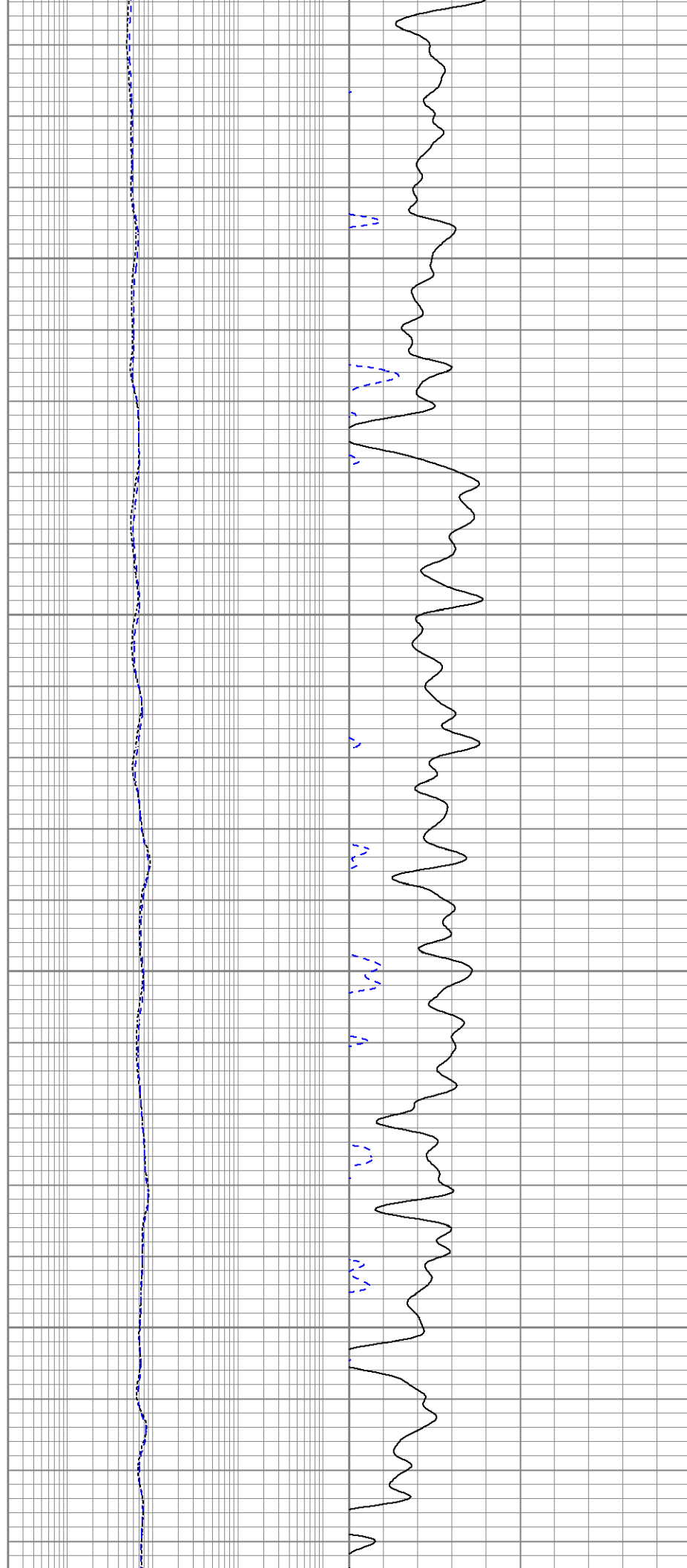


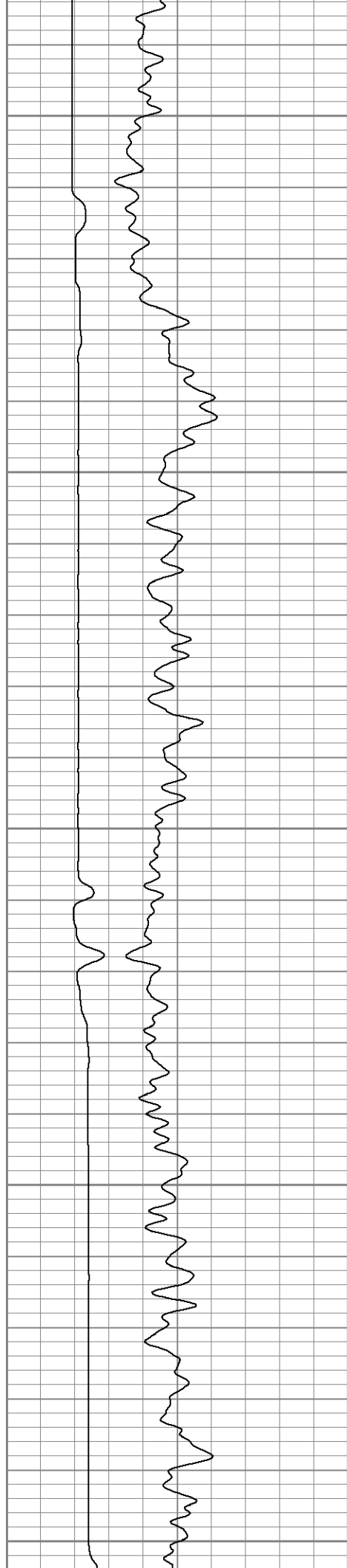
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2600





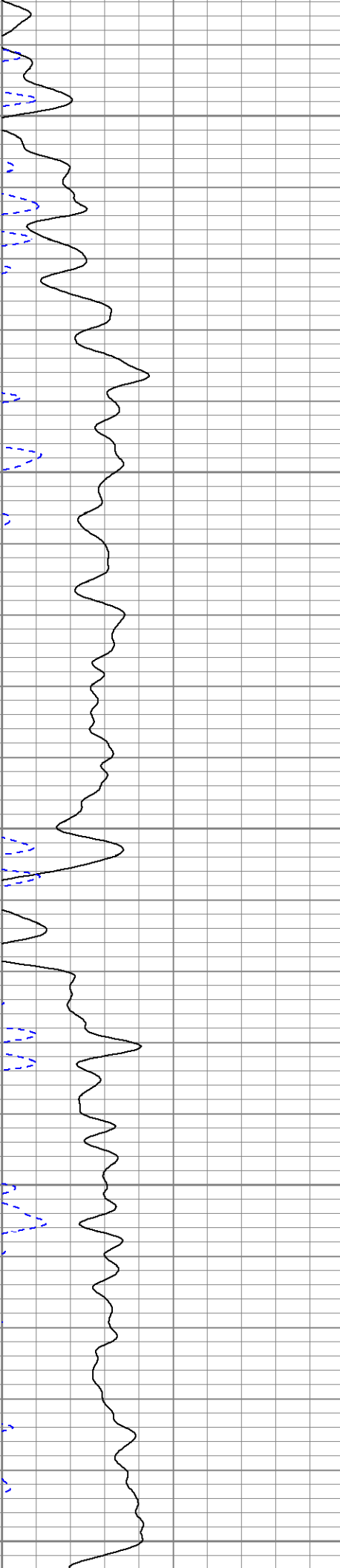
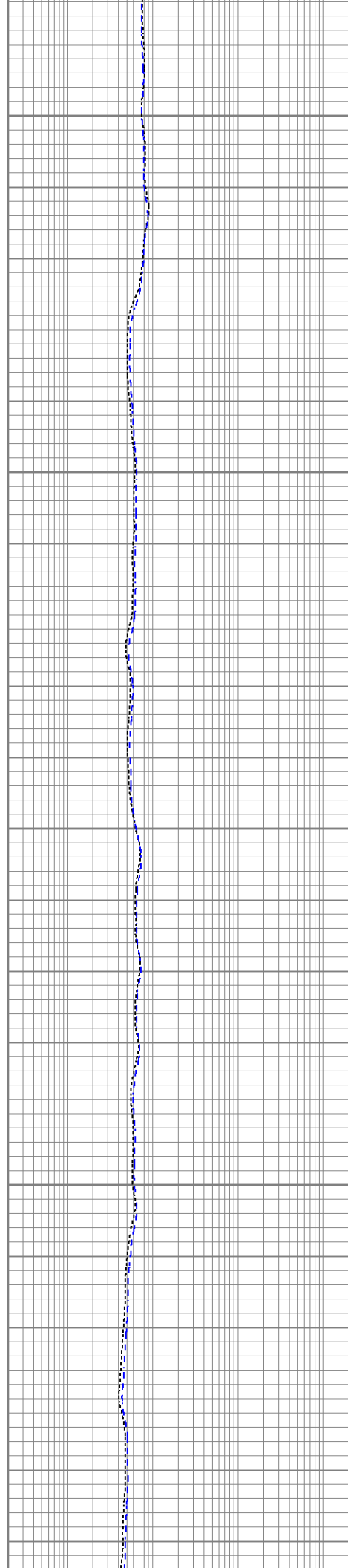
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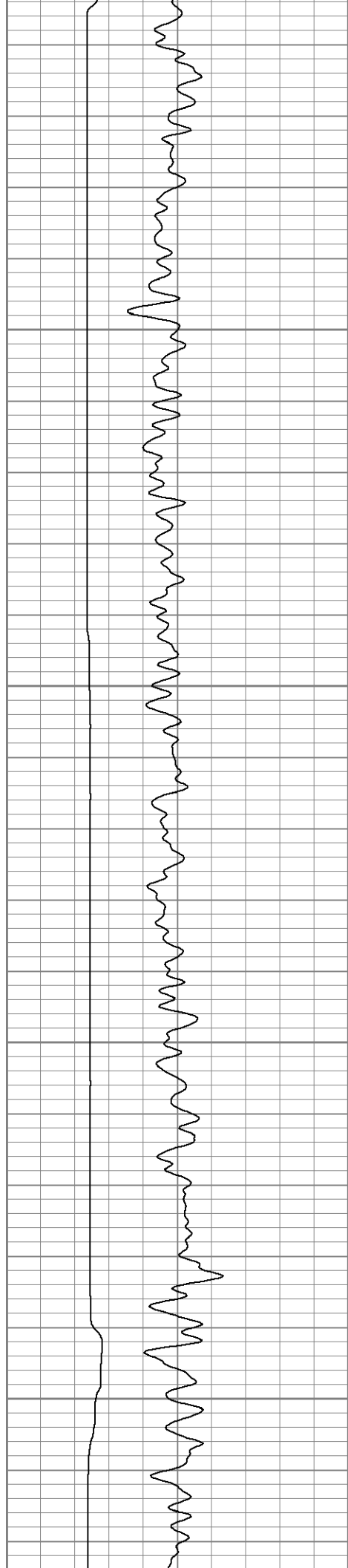
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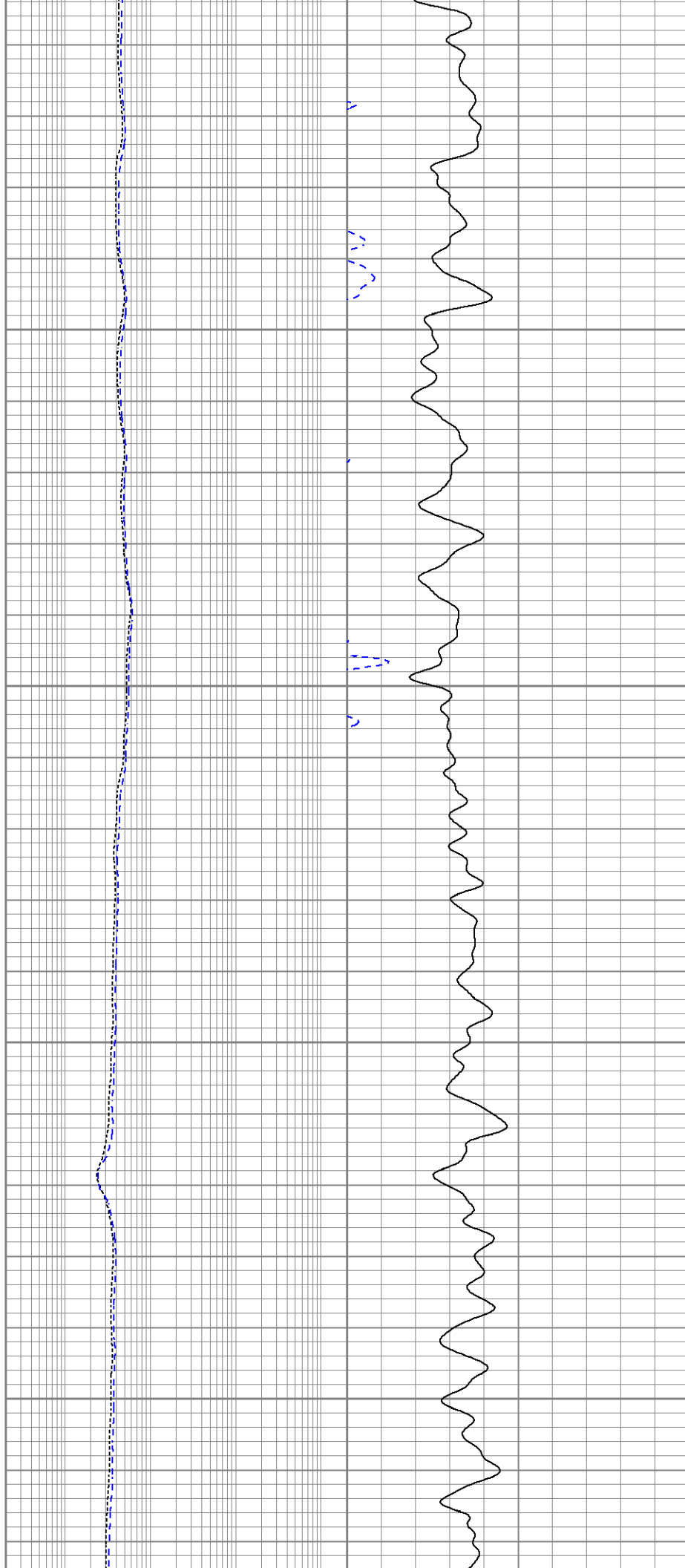


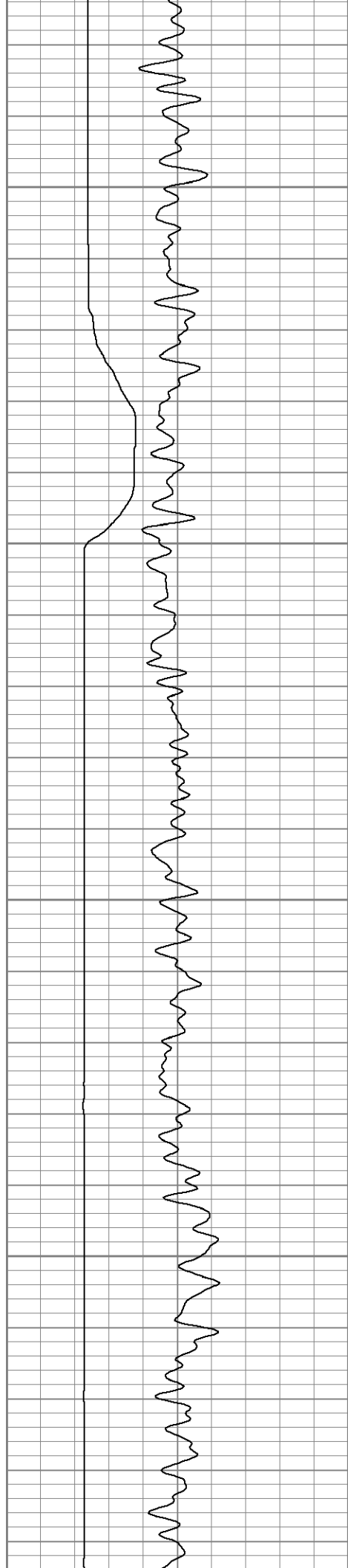
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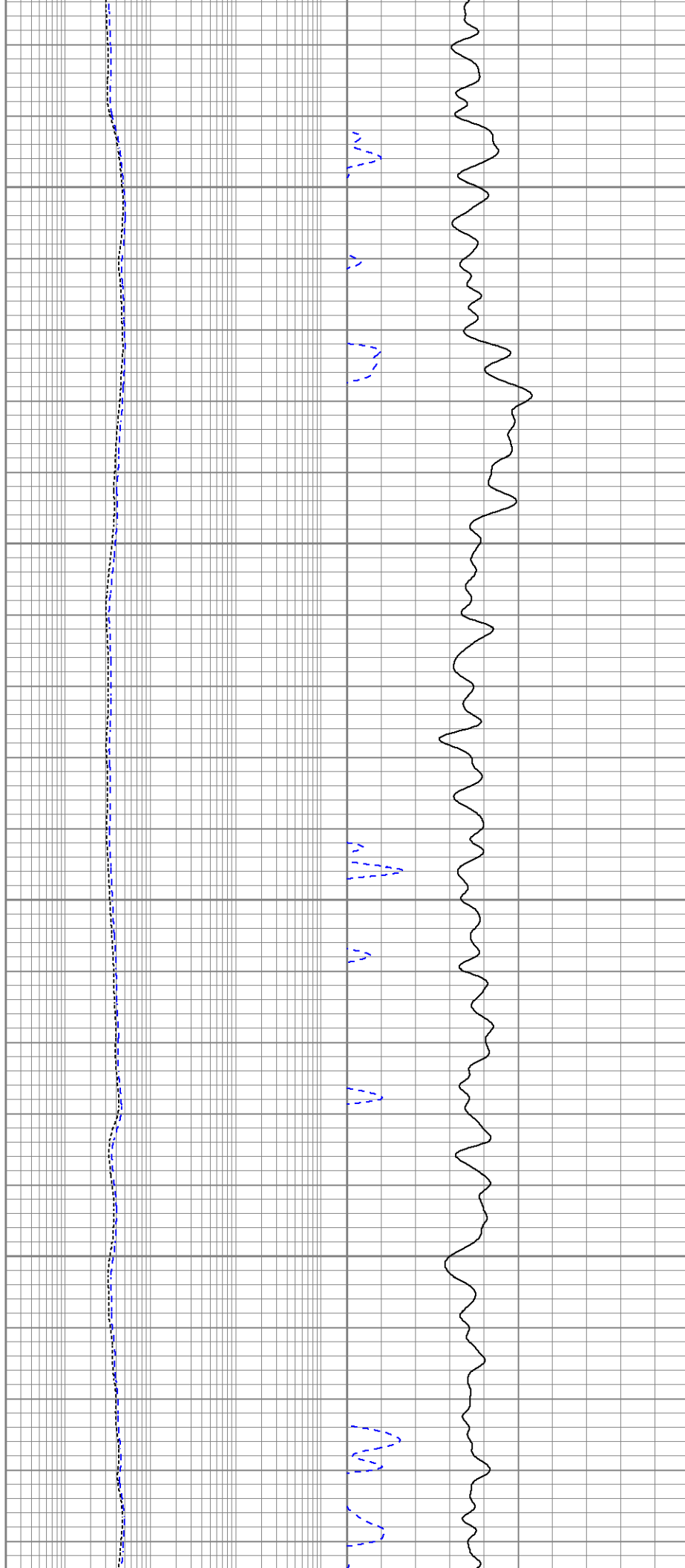


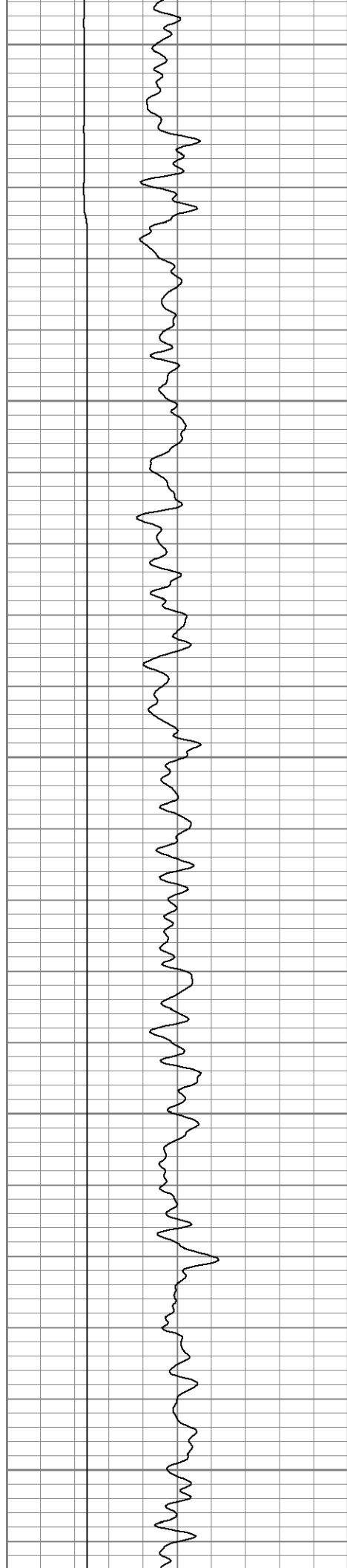
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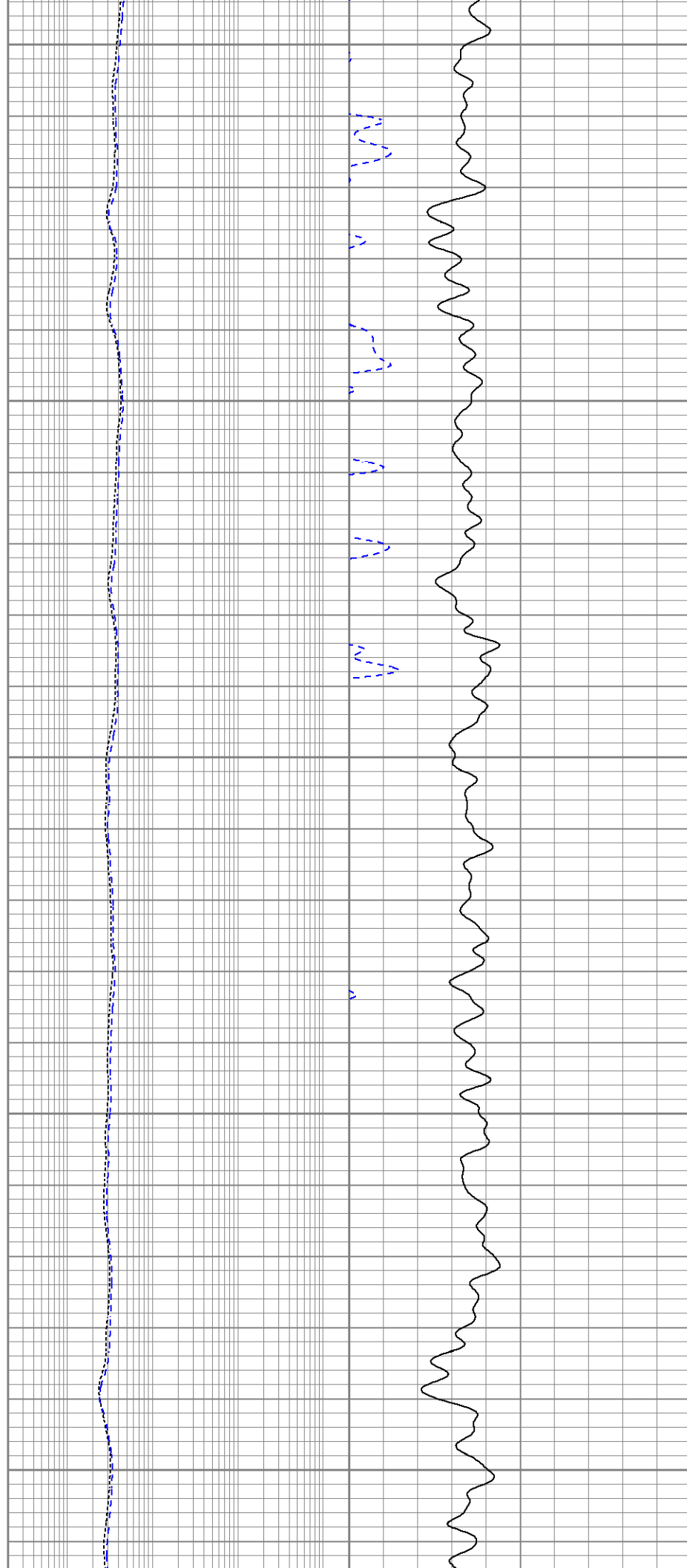
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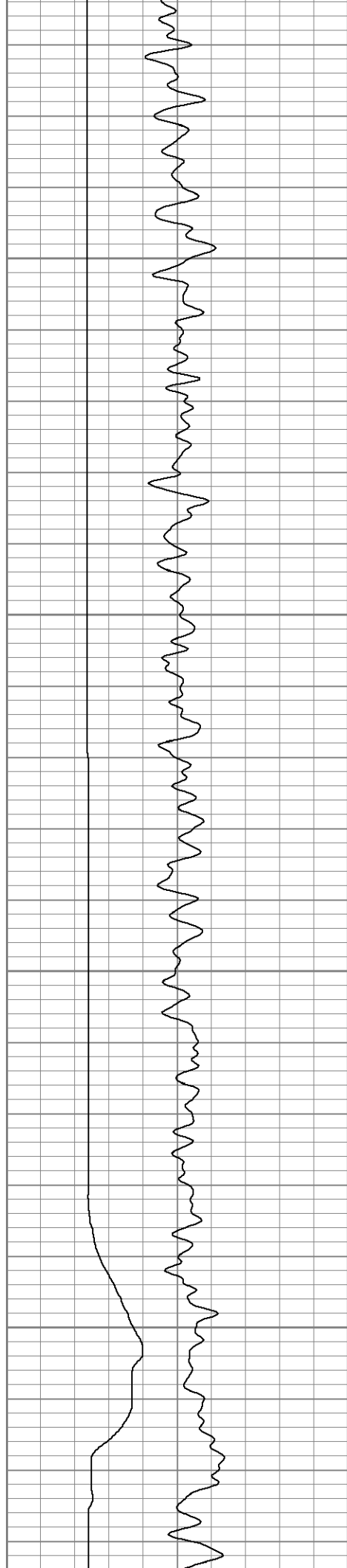
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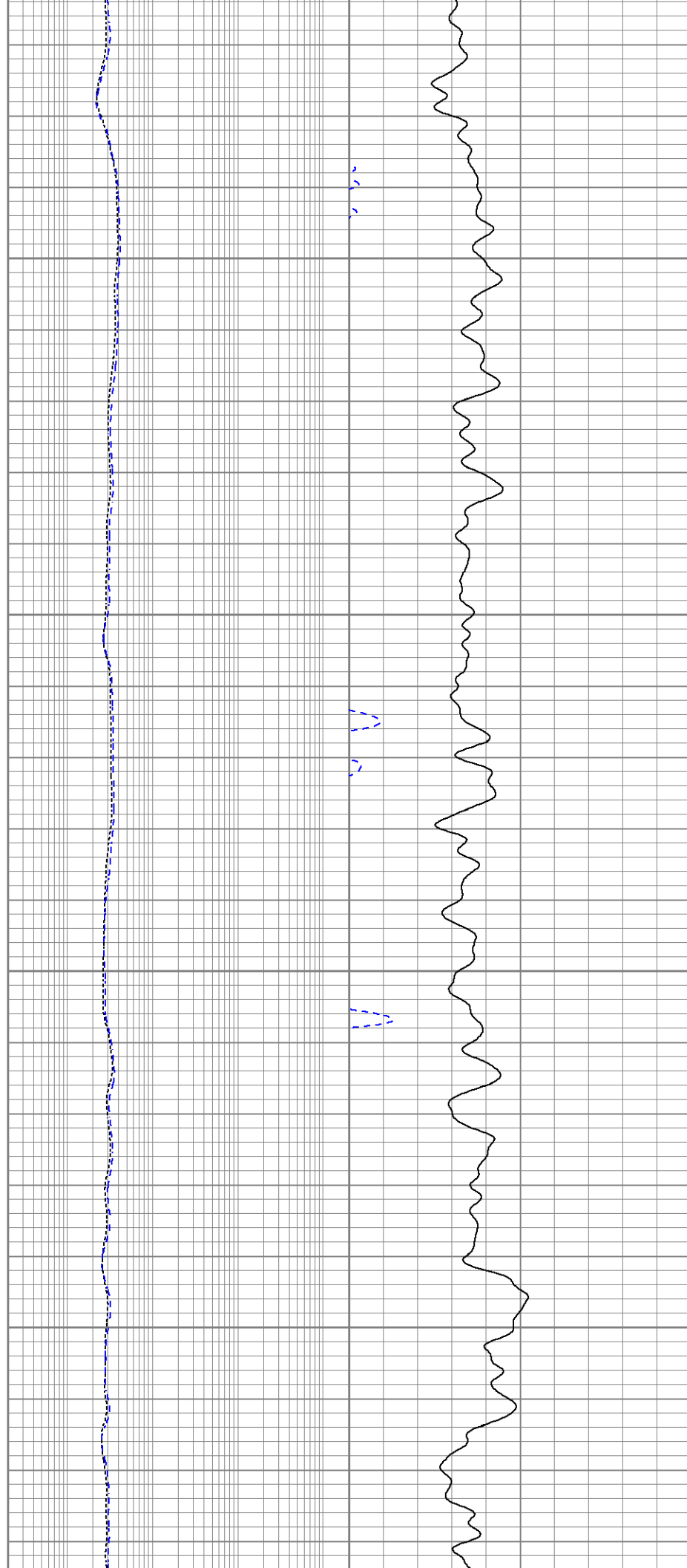


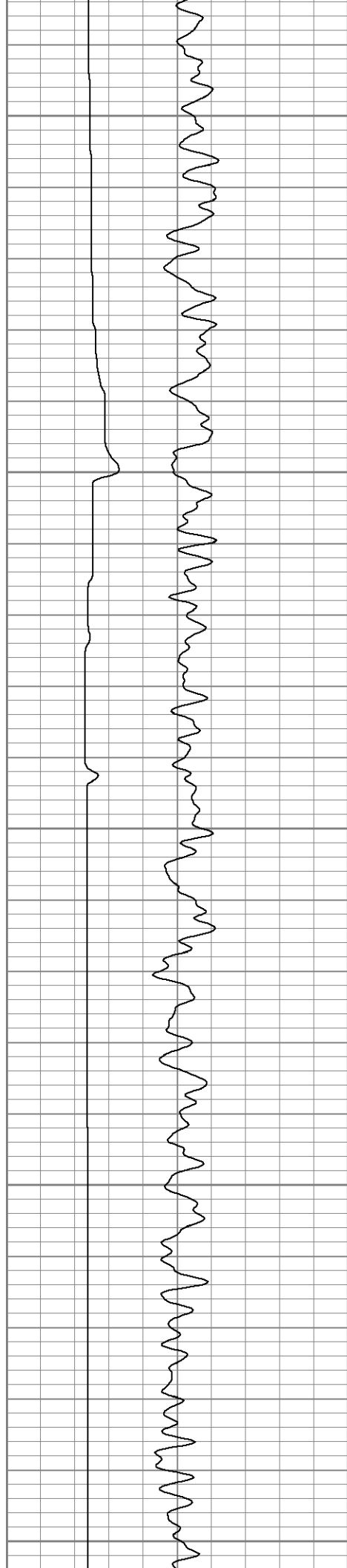
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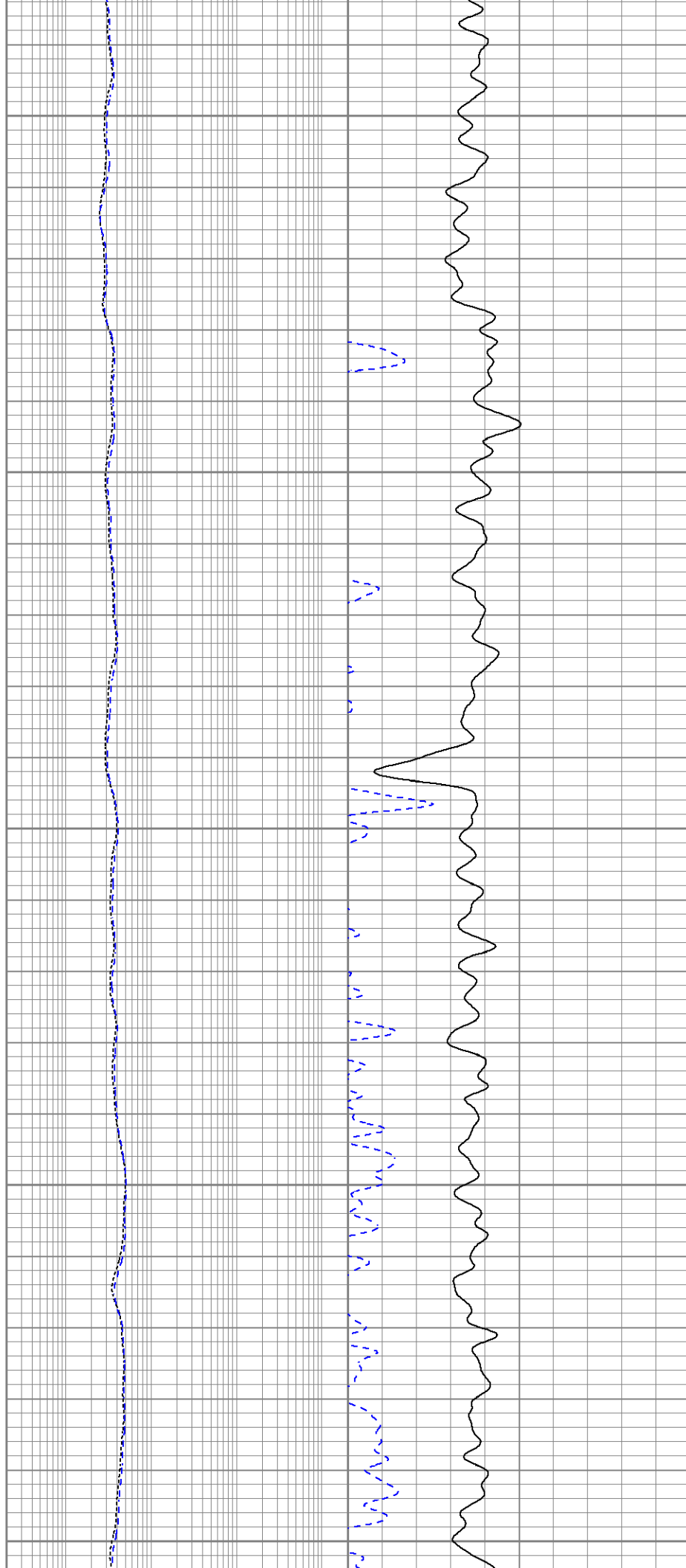
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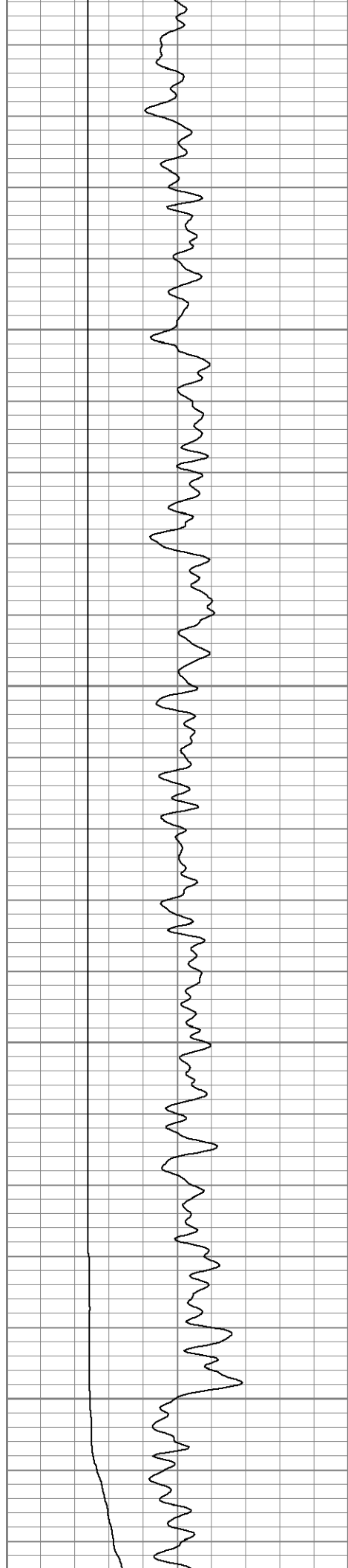
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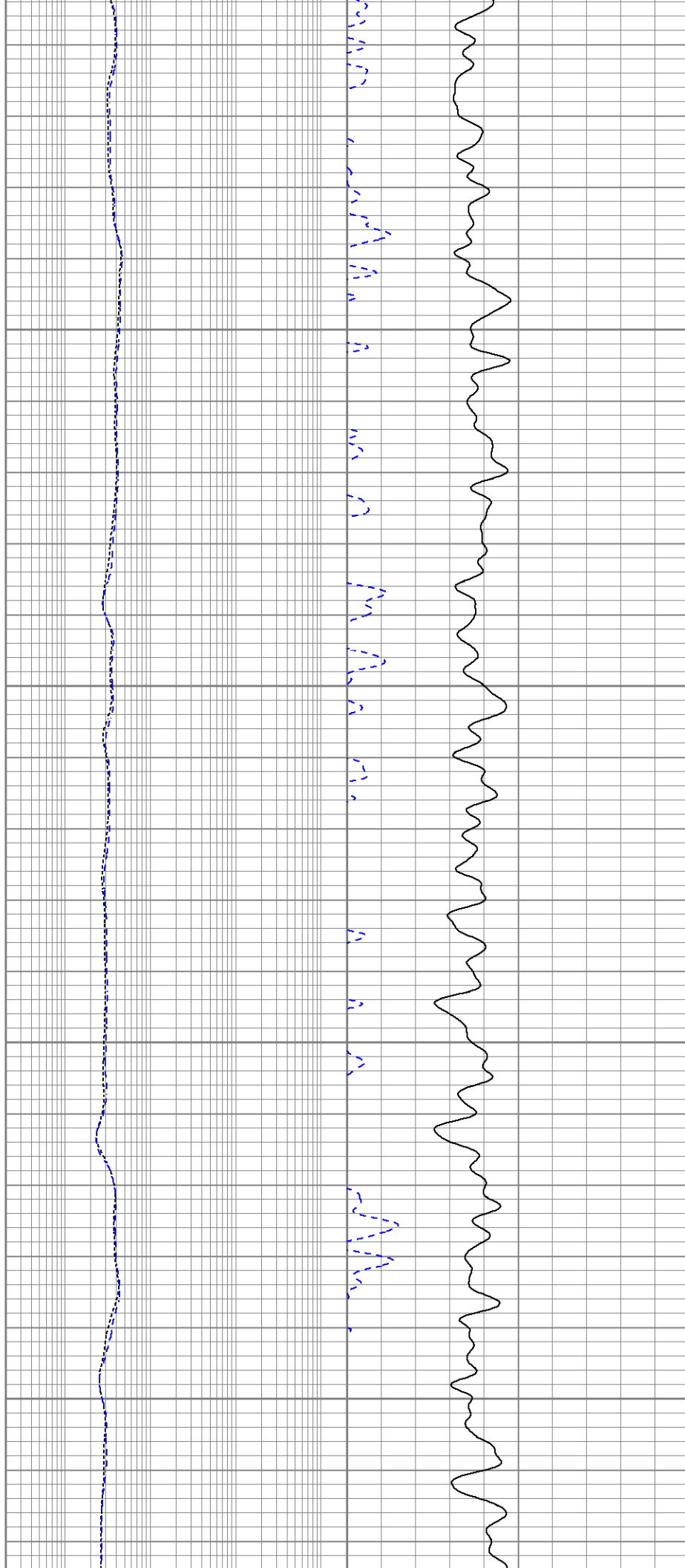


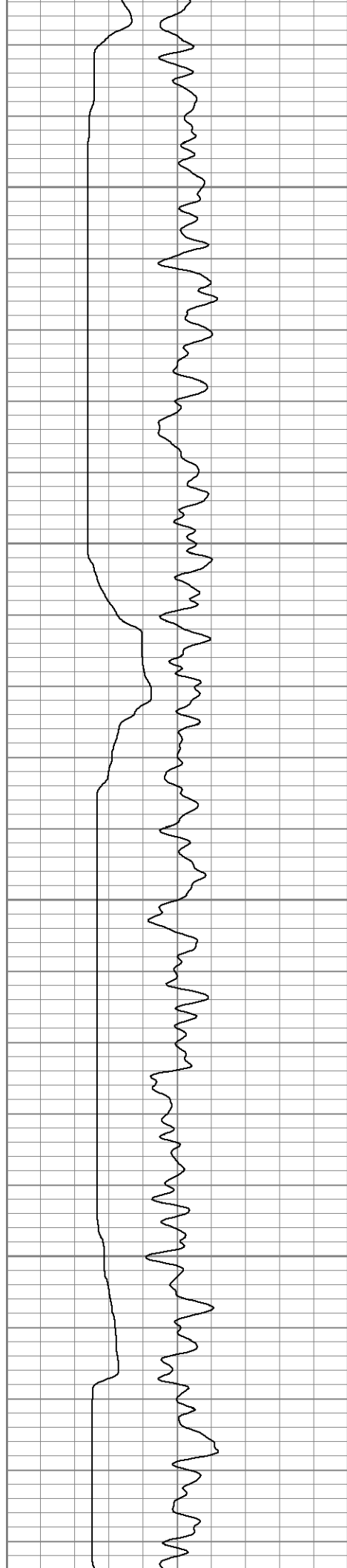
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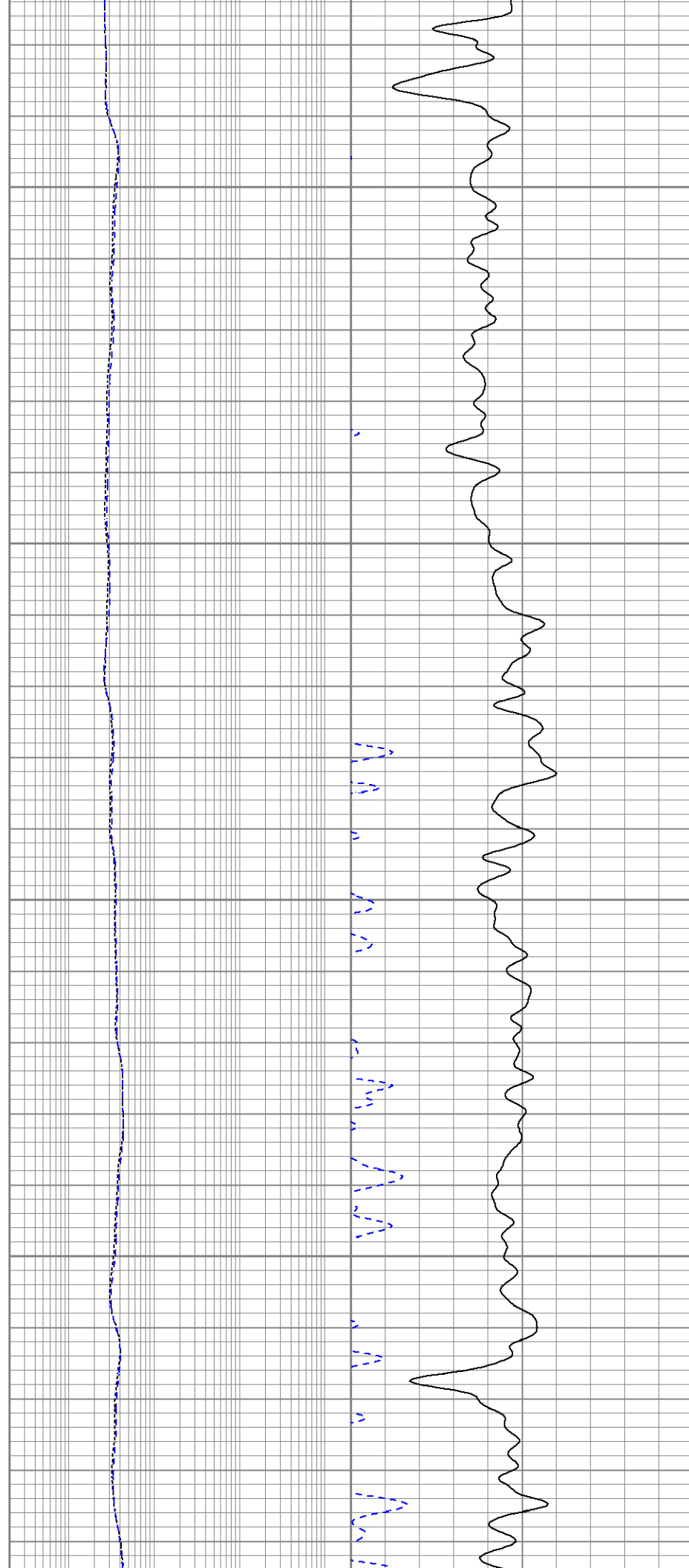


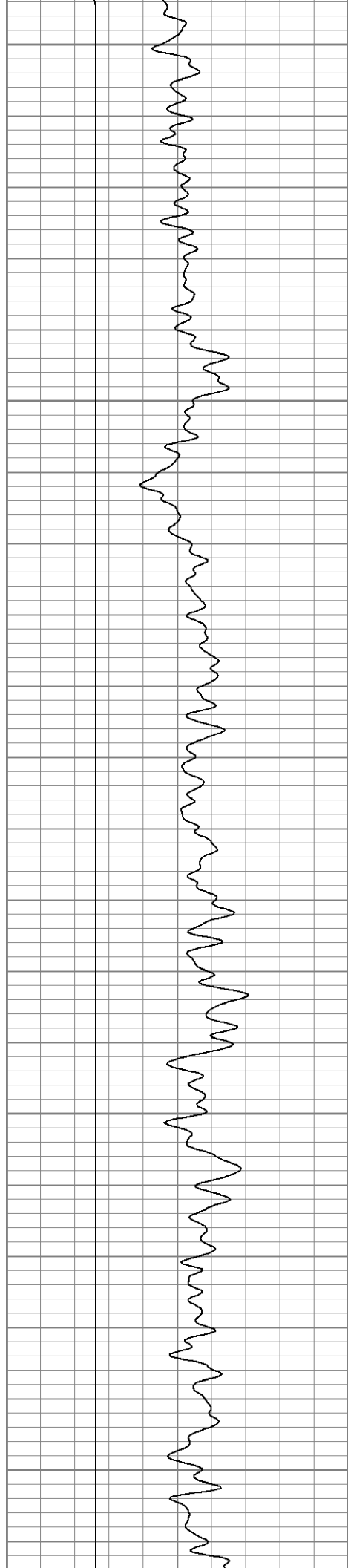
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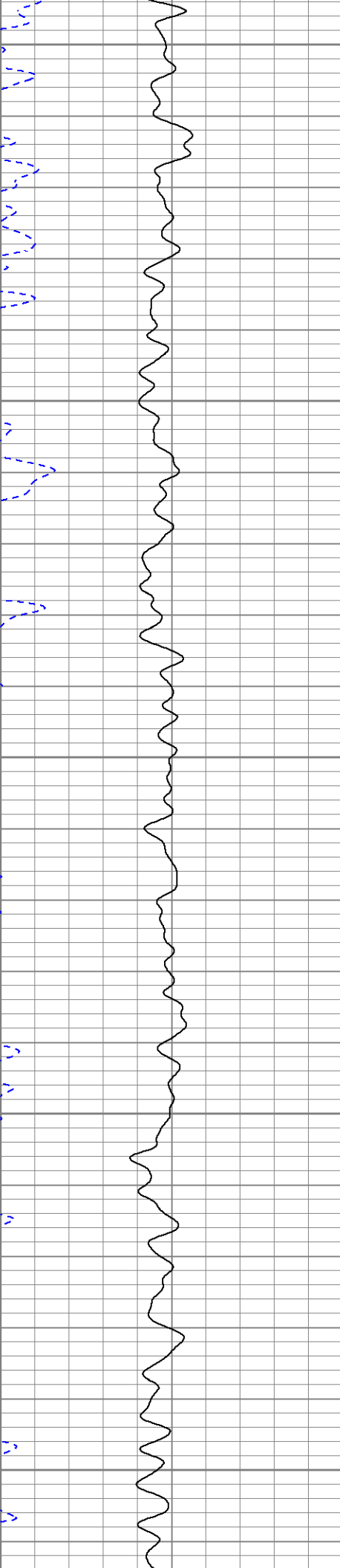
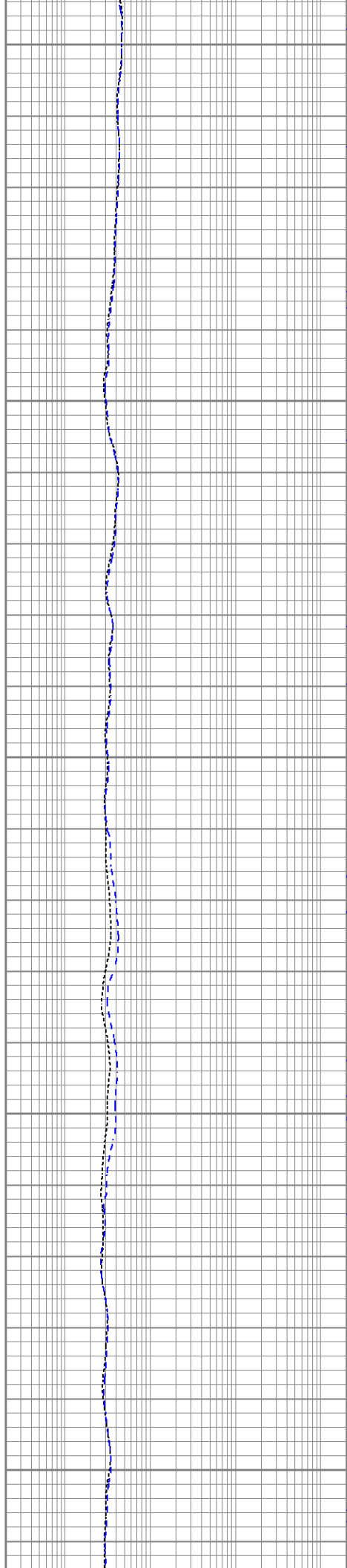
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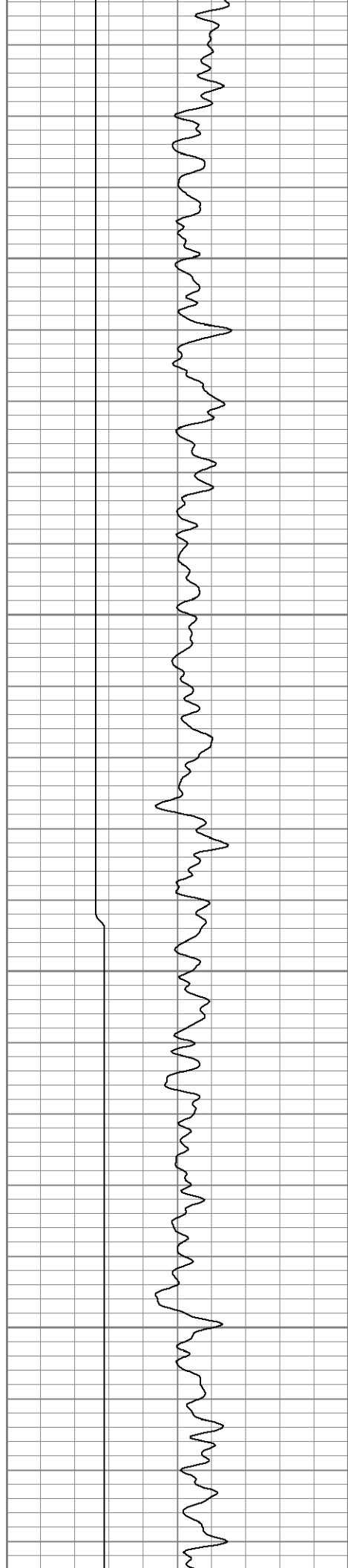
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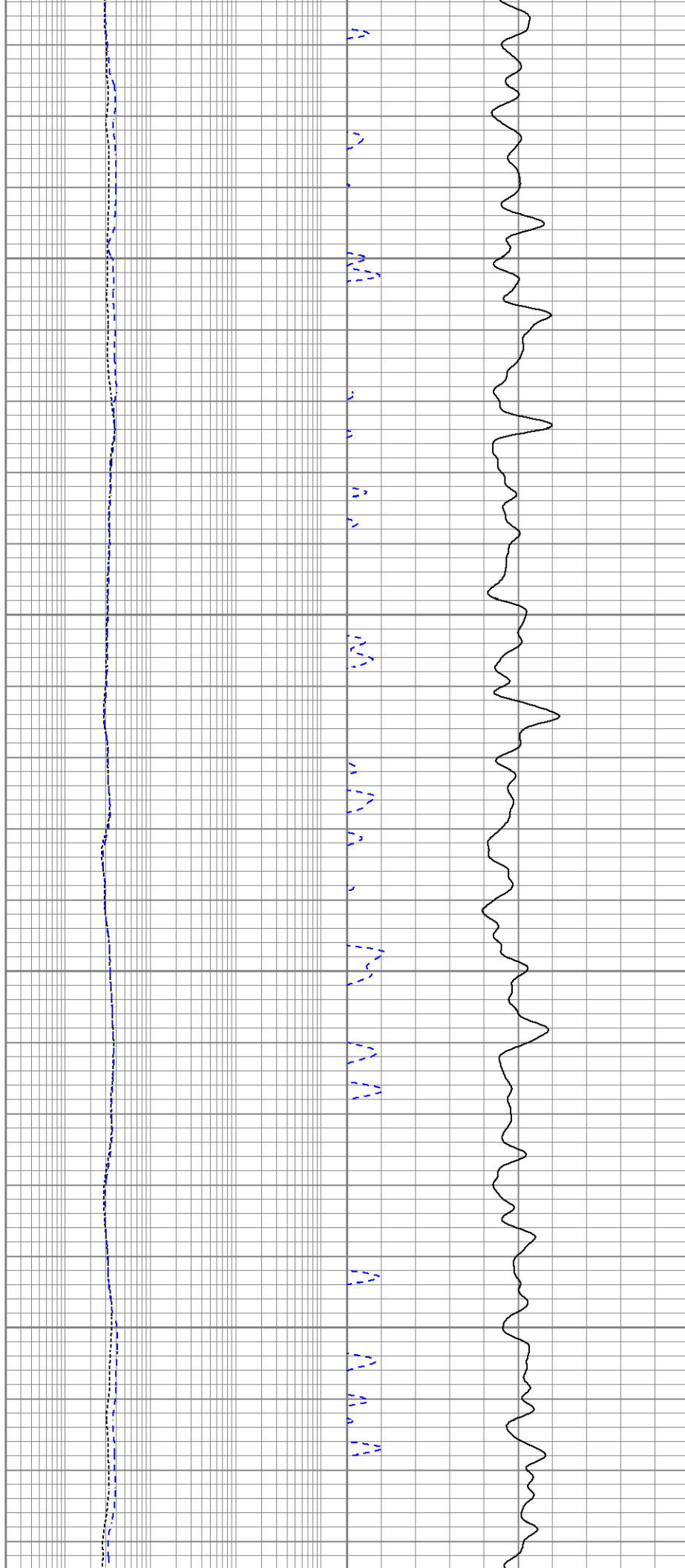


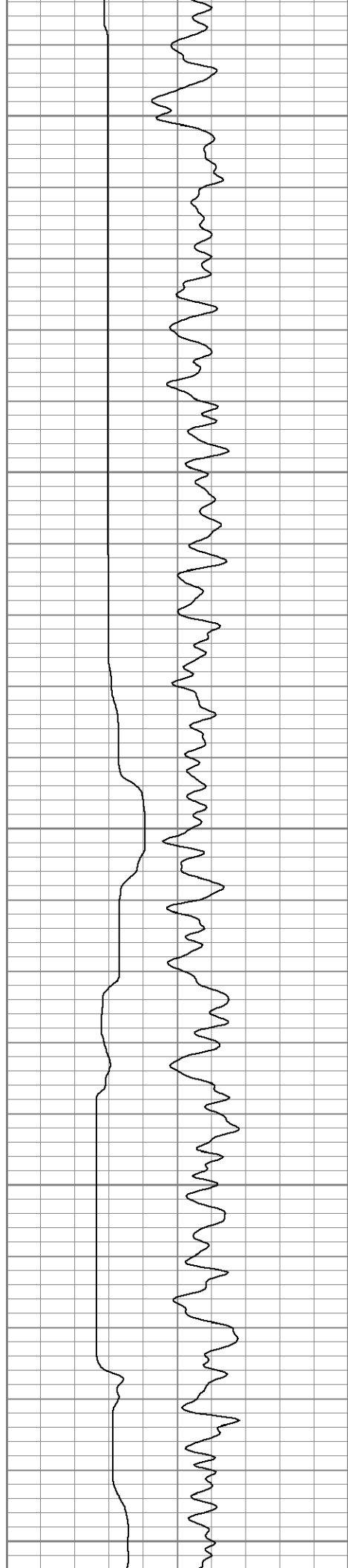
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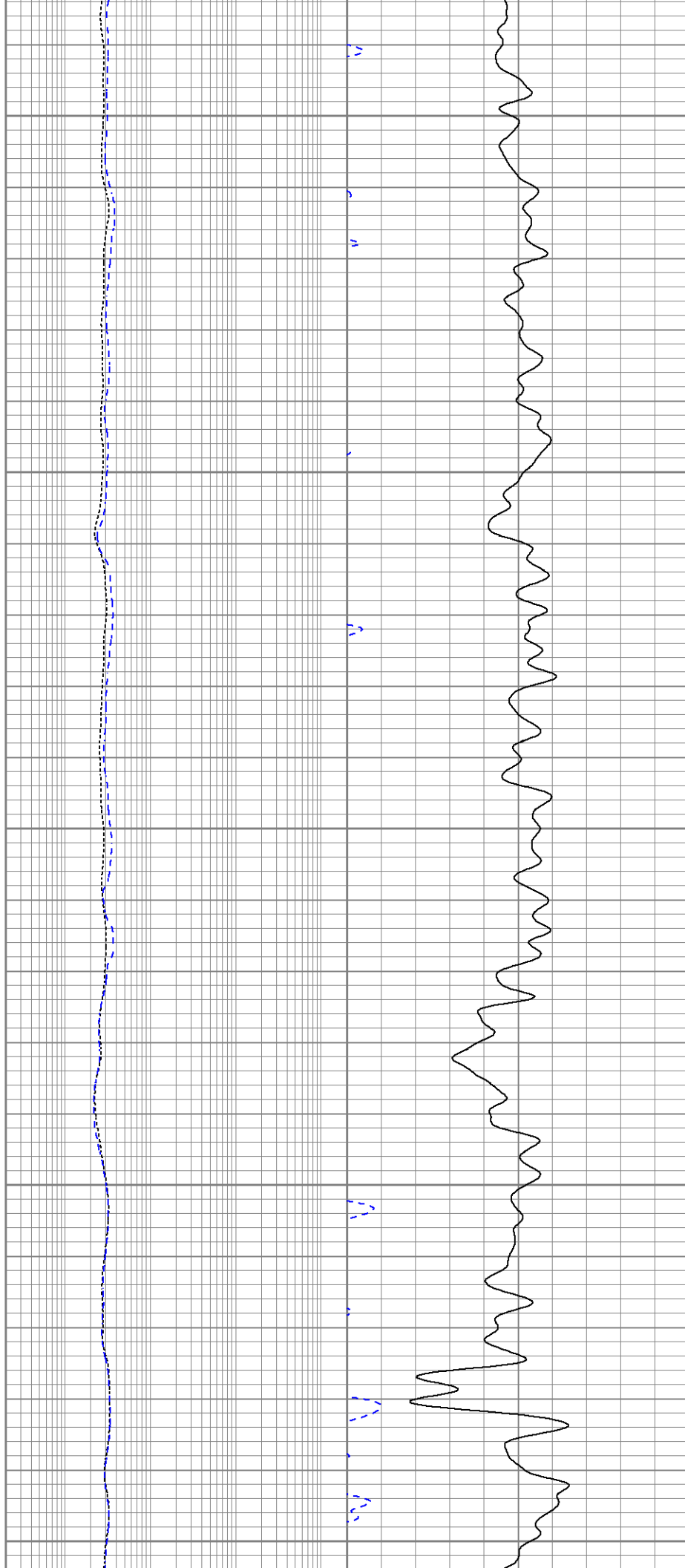
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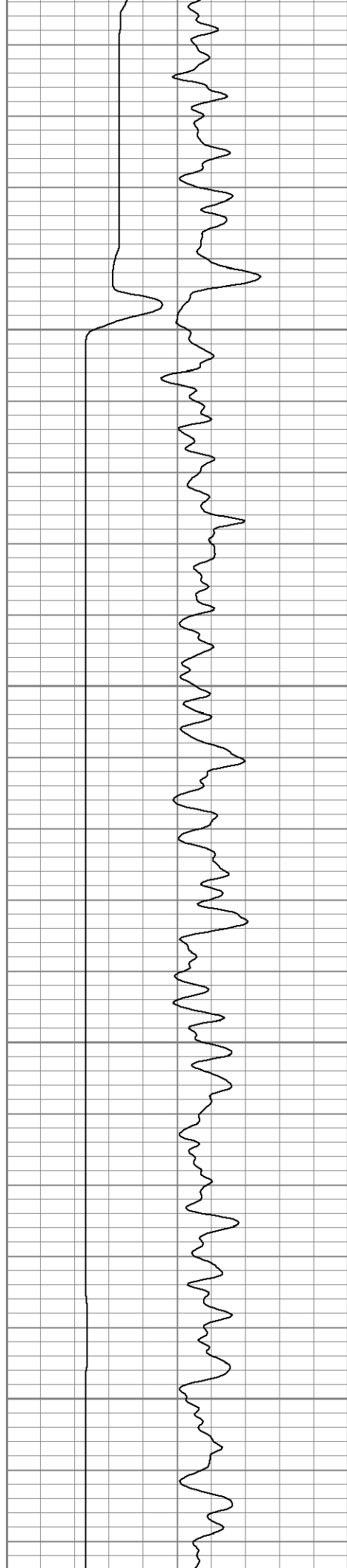
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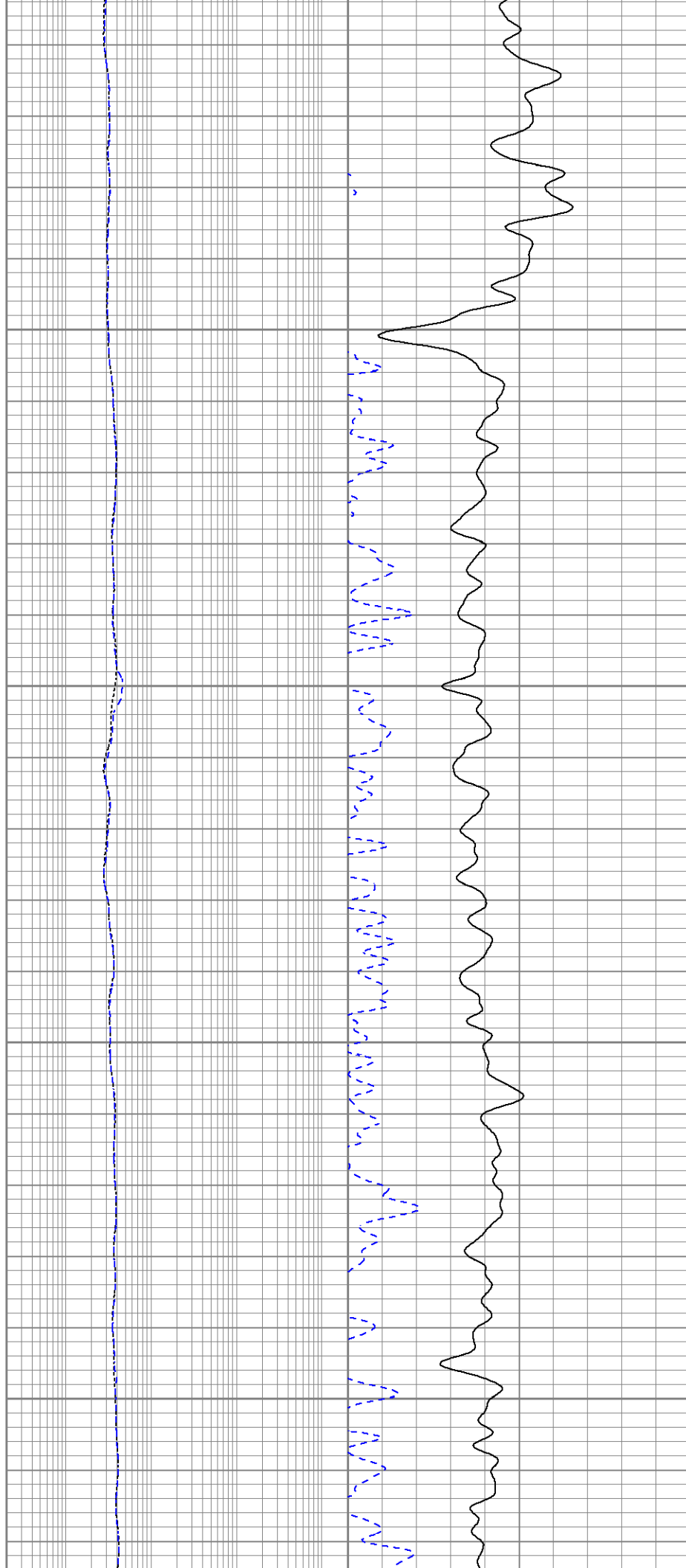


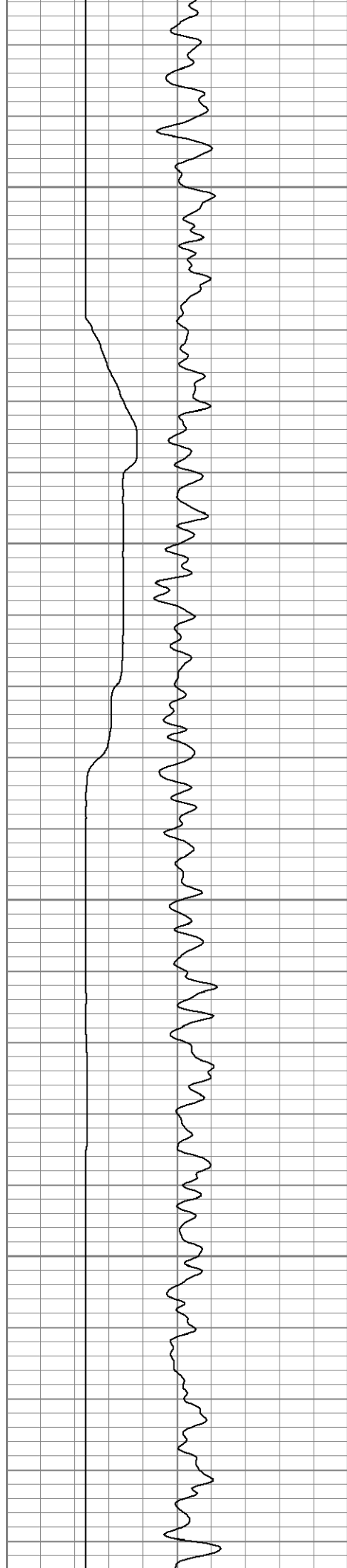
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5200

5250



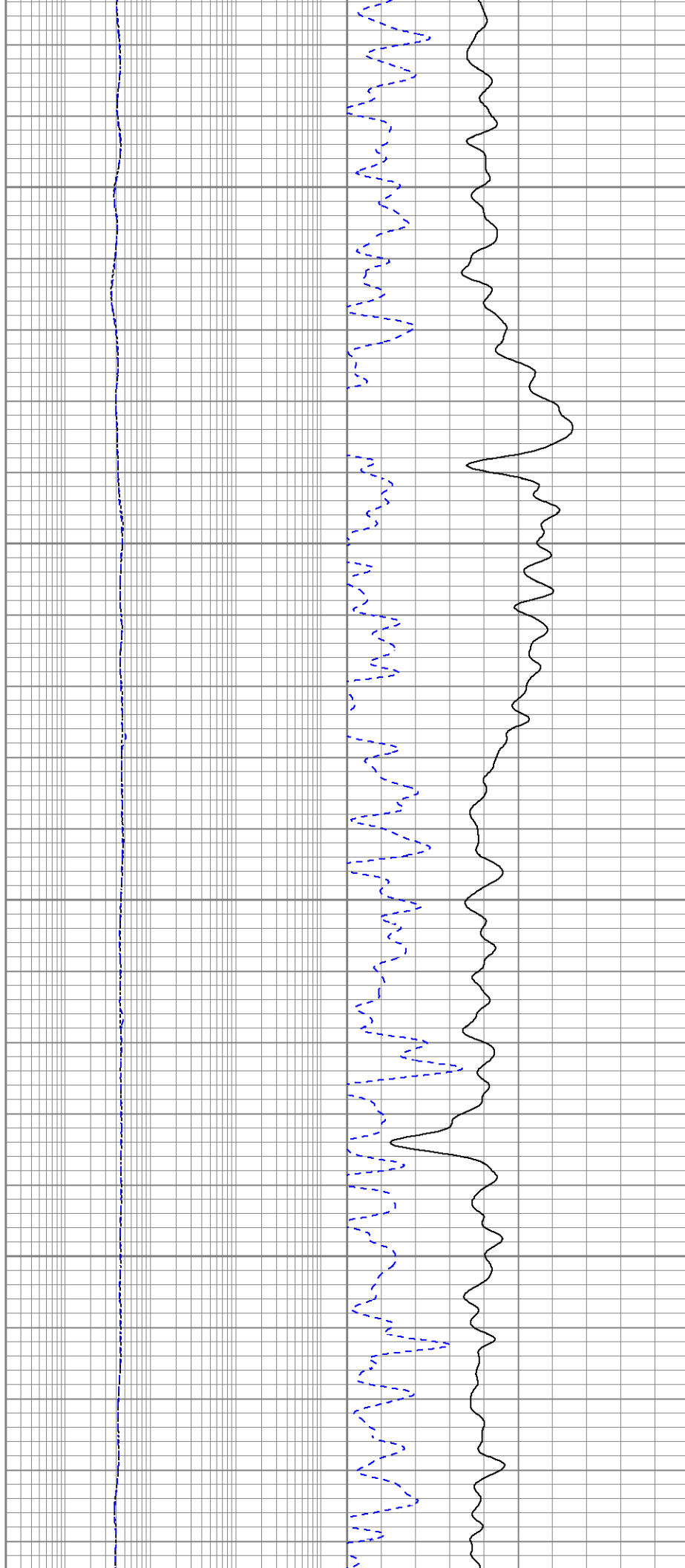


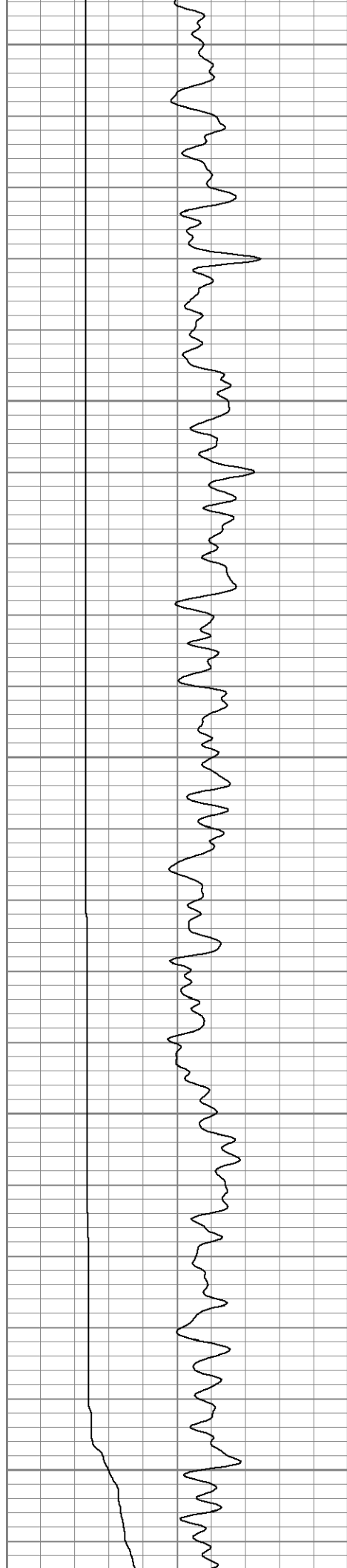
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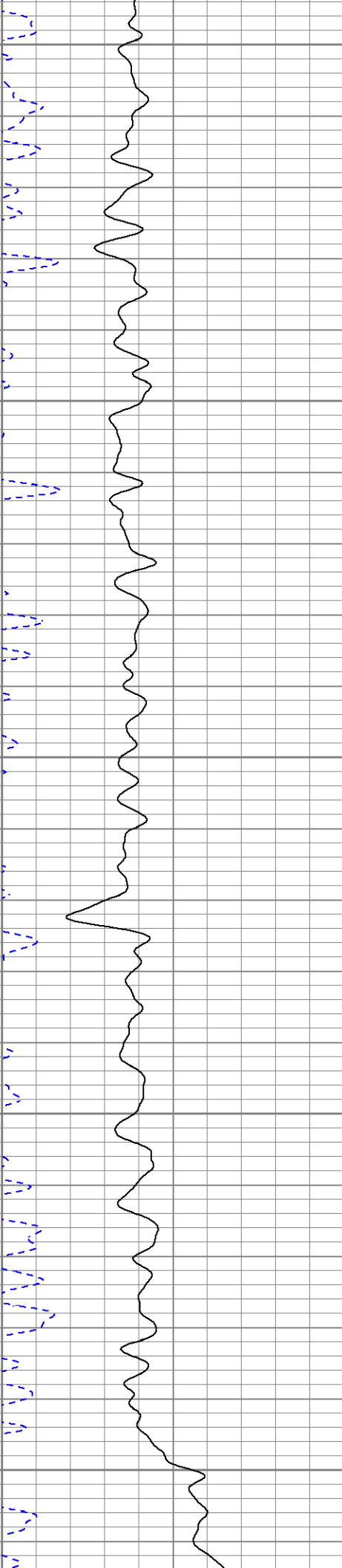
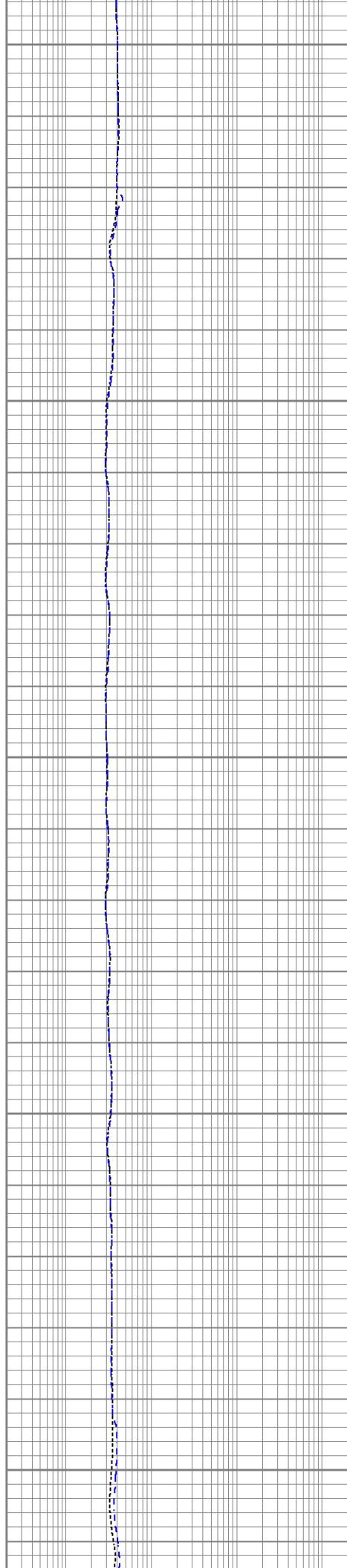
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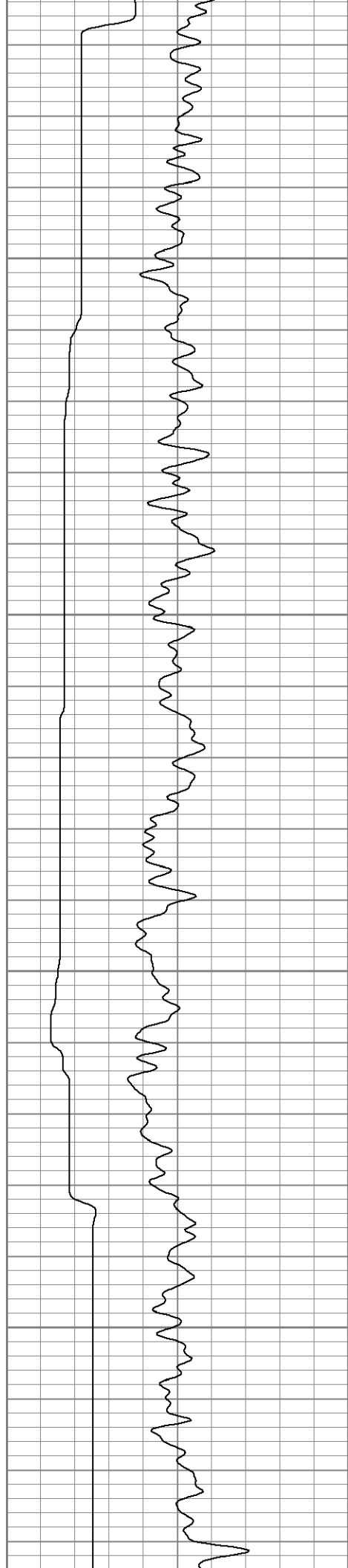
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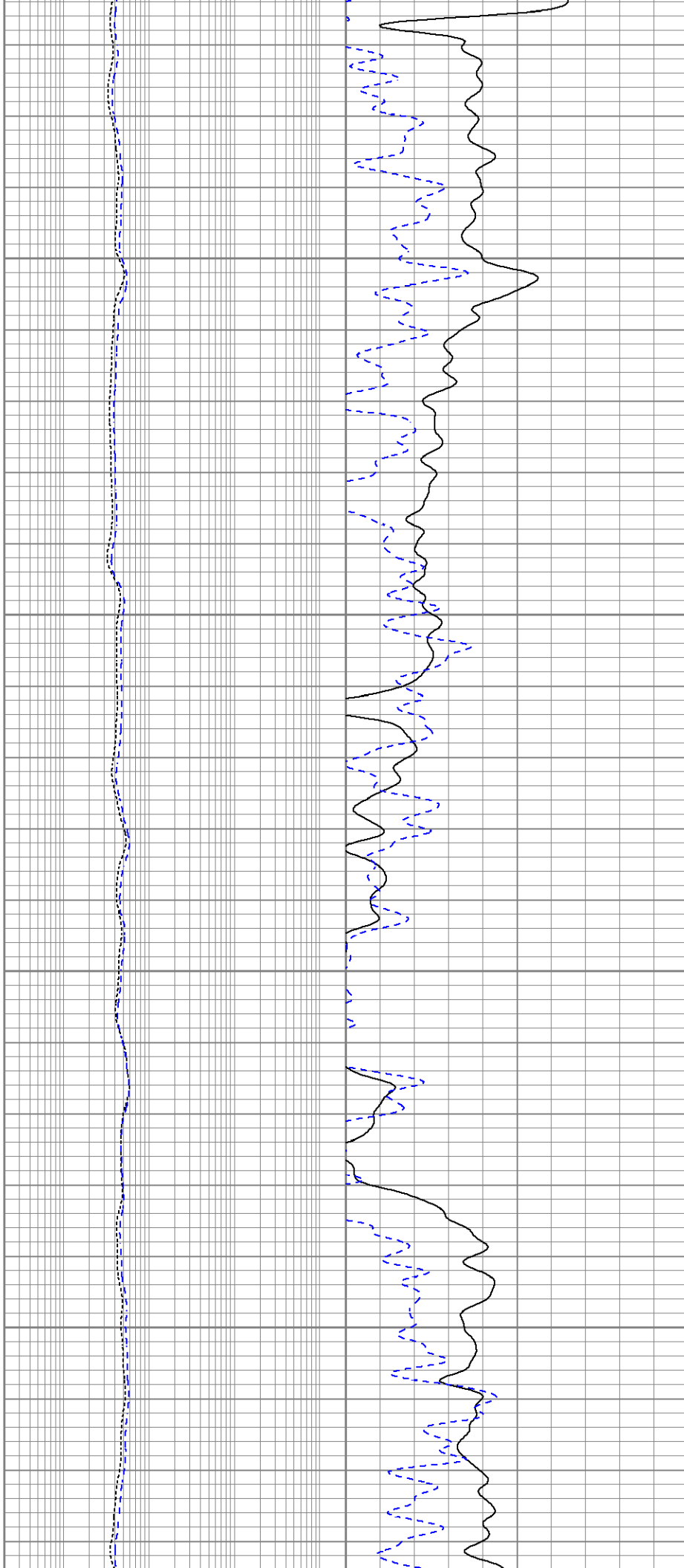


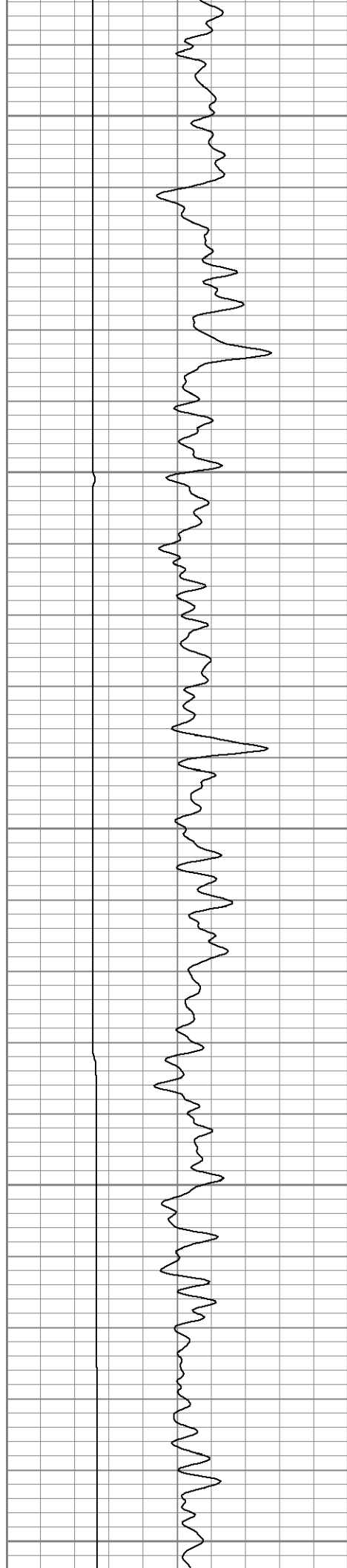
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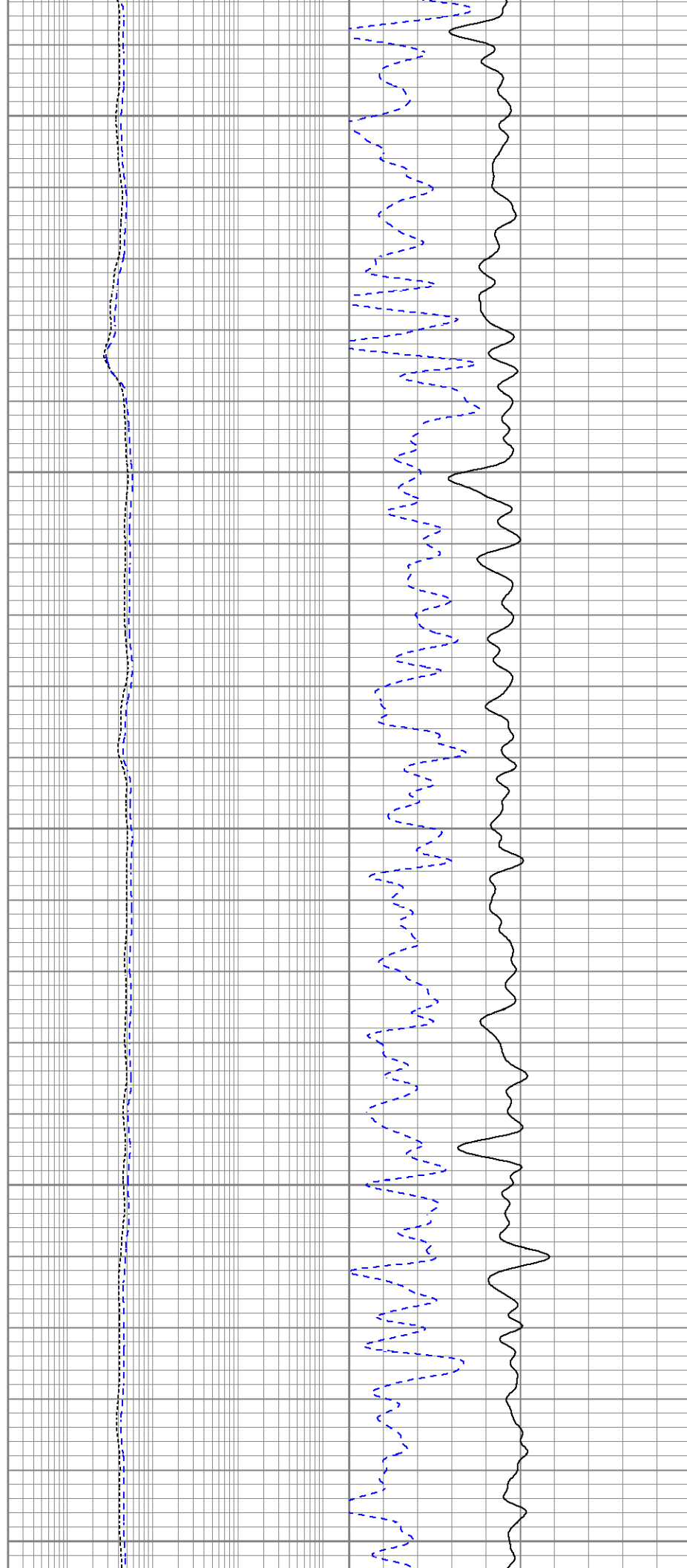
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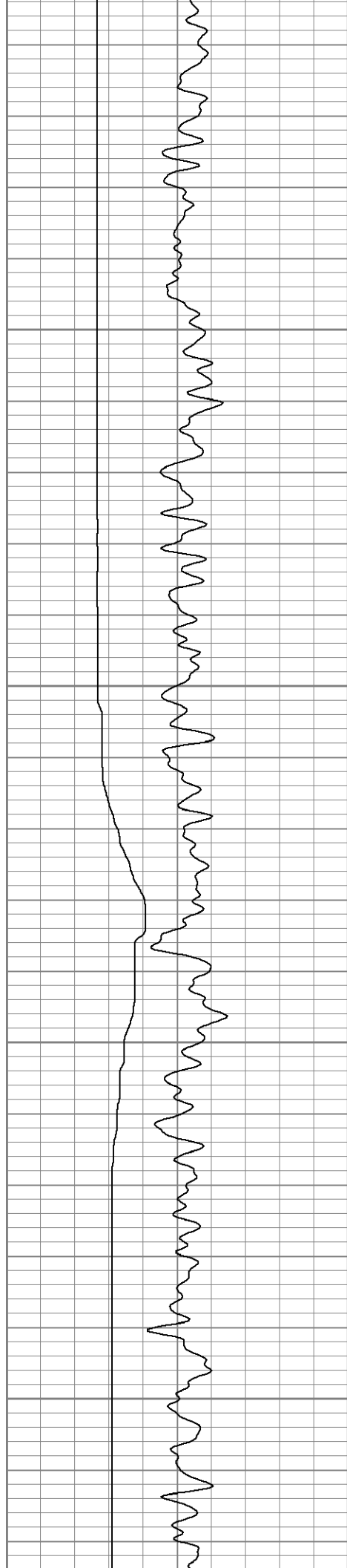
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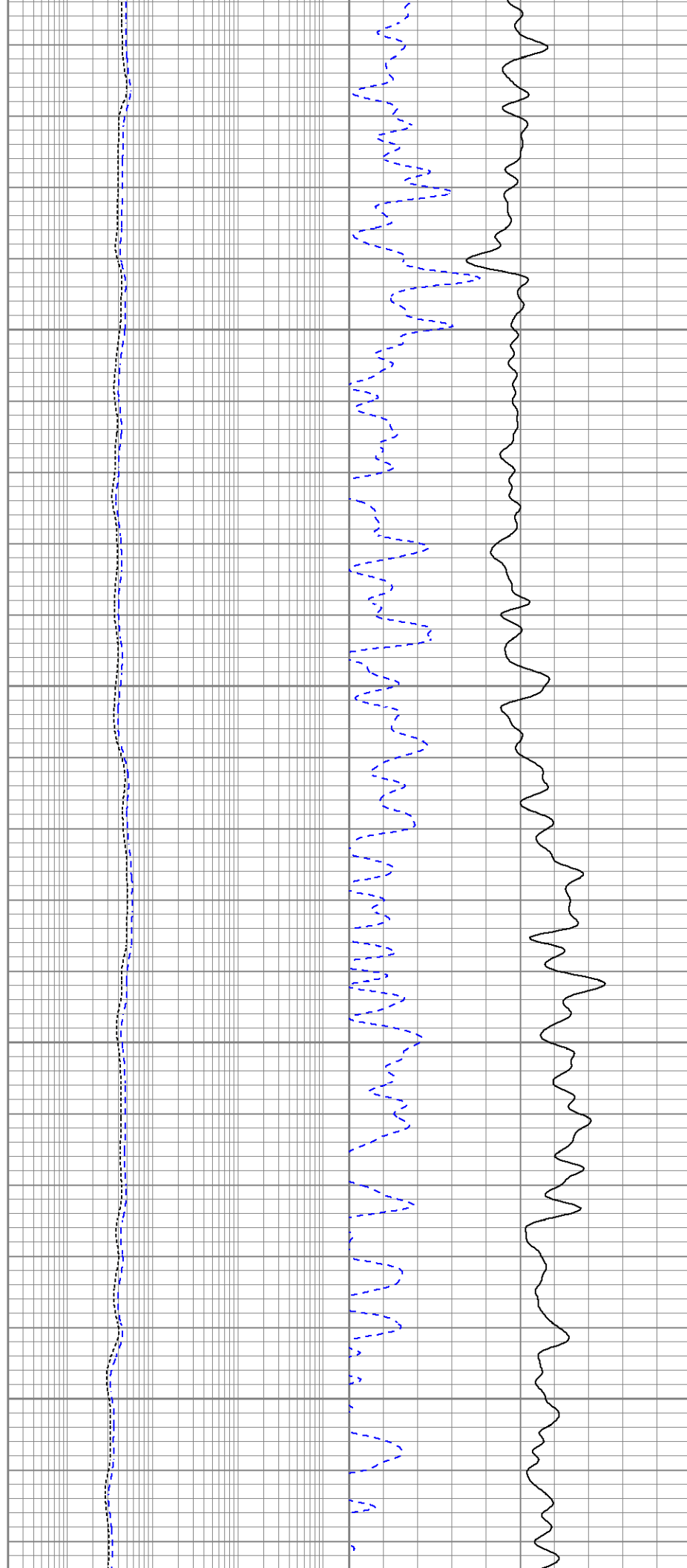


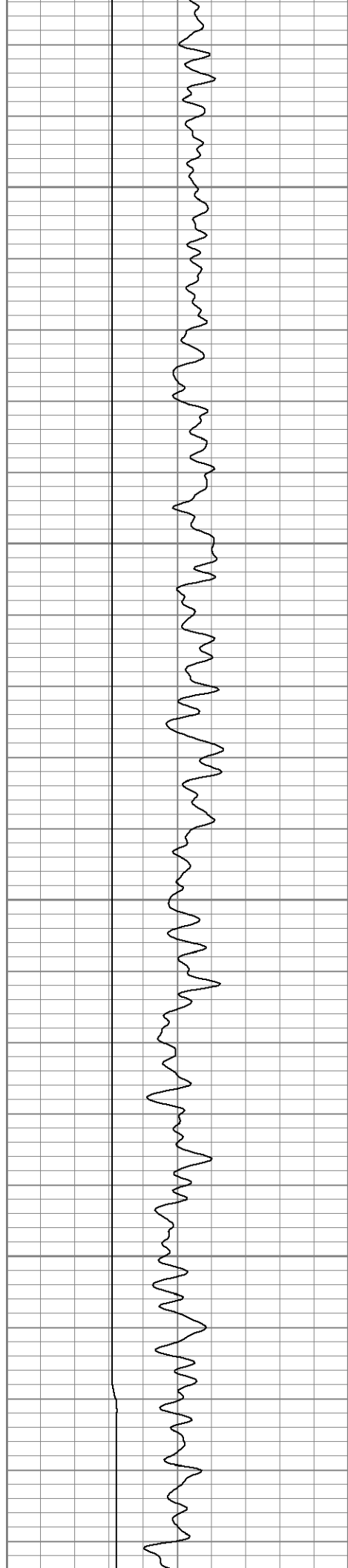
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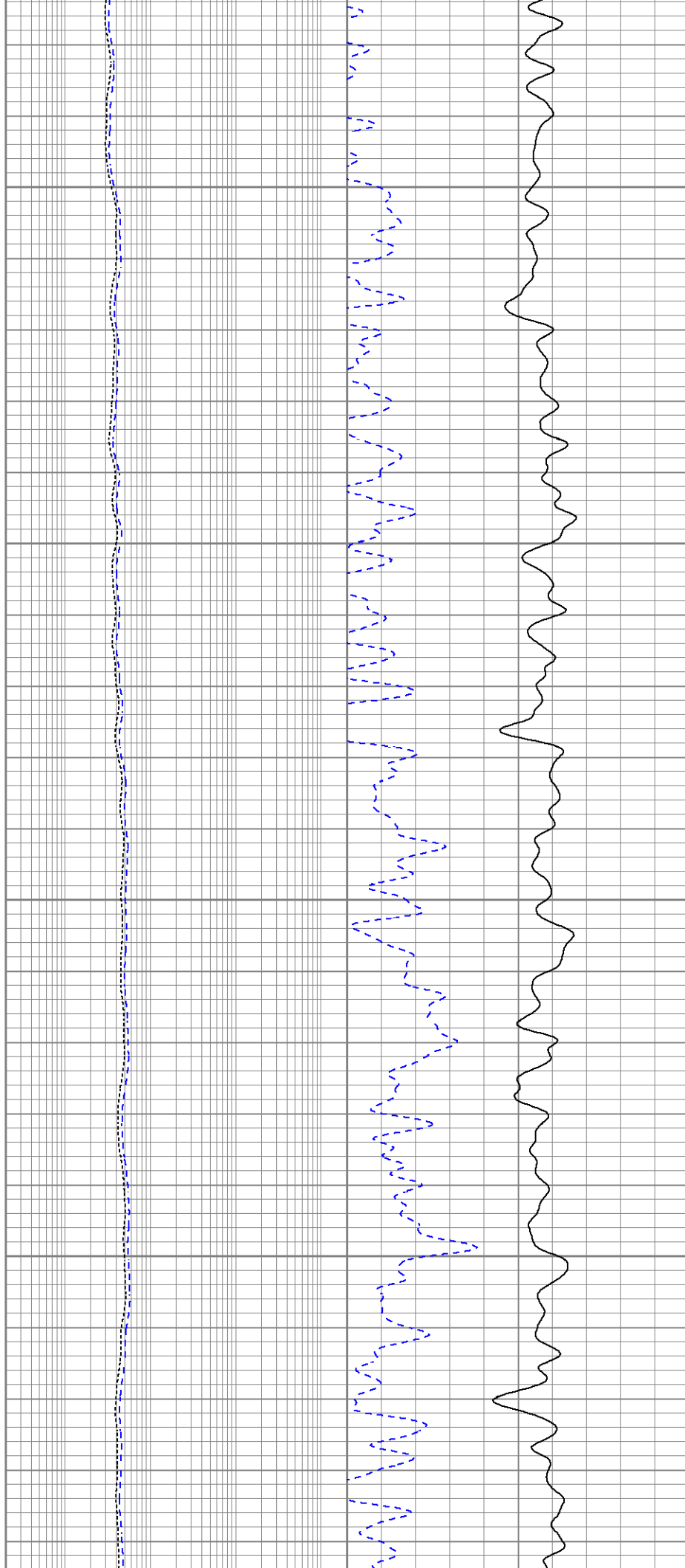


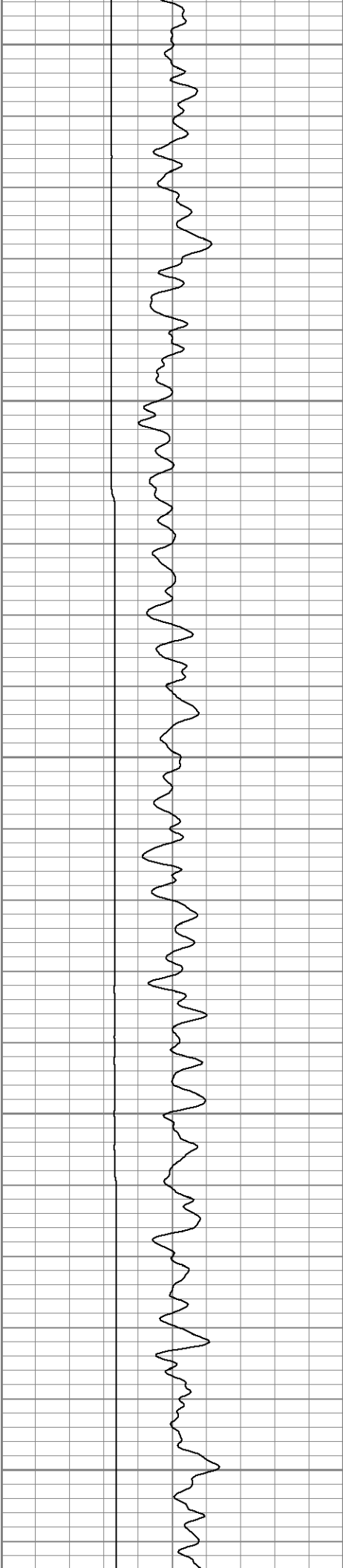
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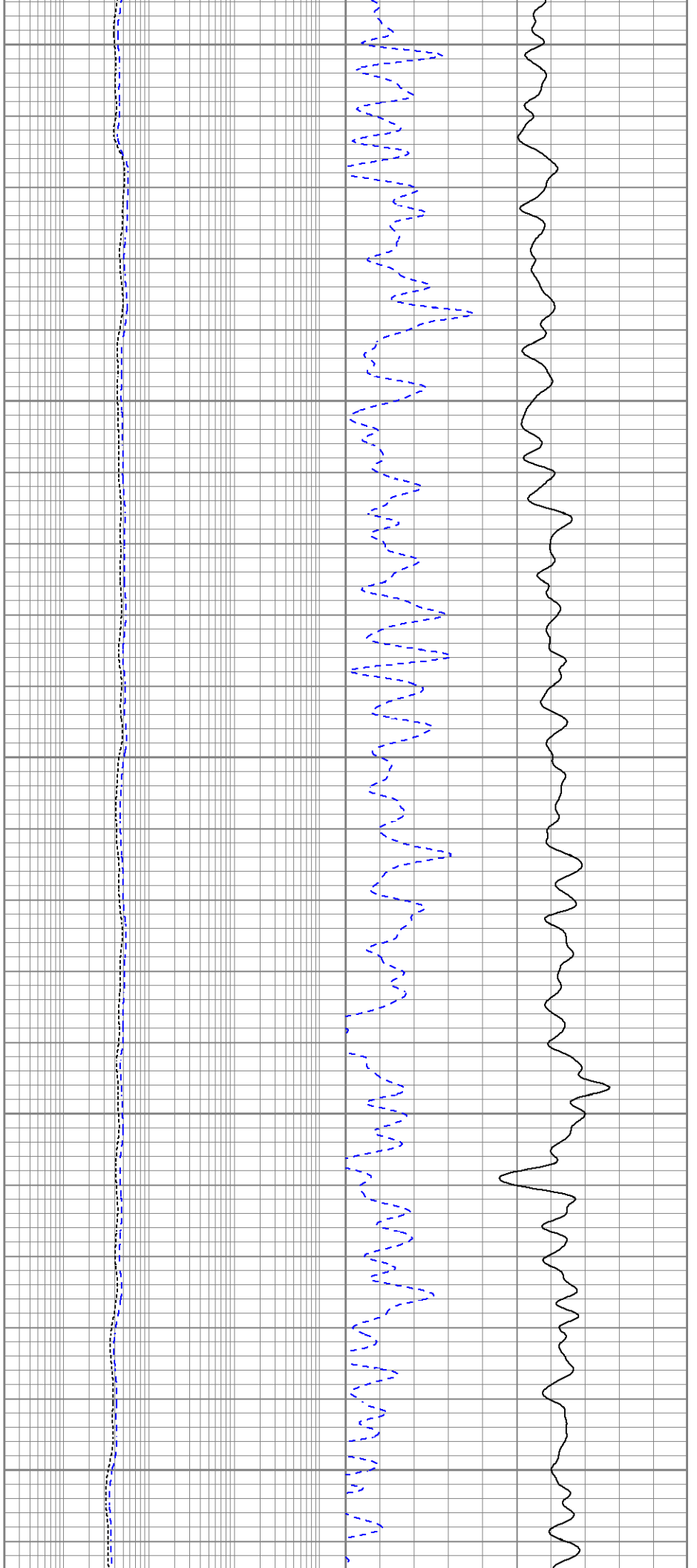
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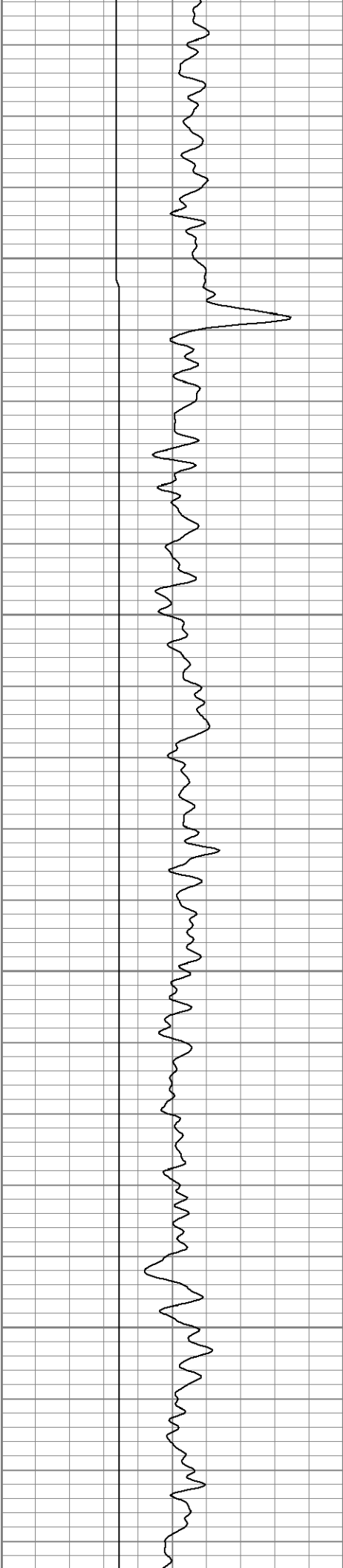
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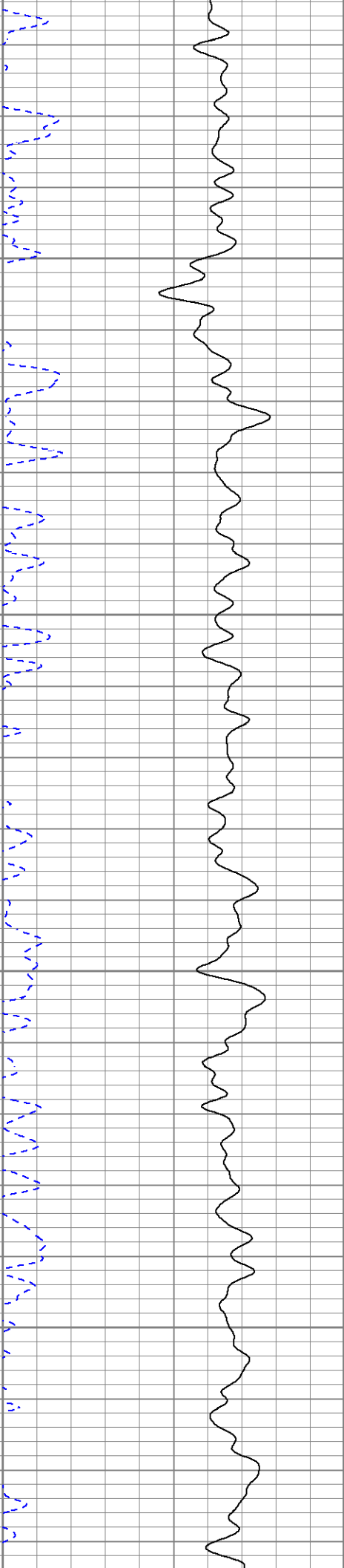
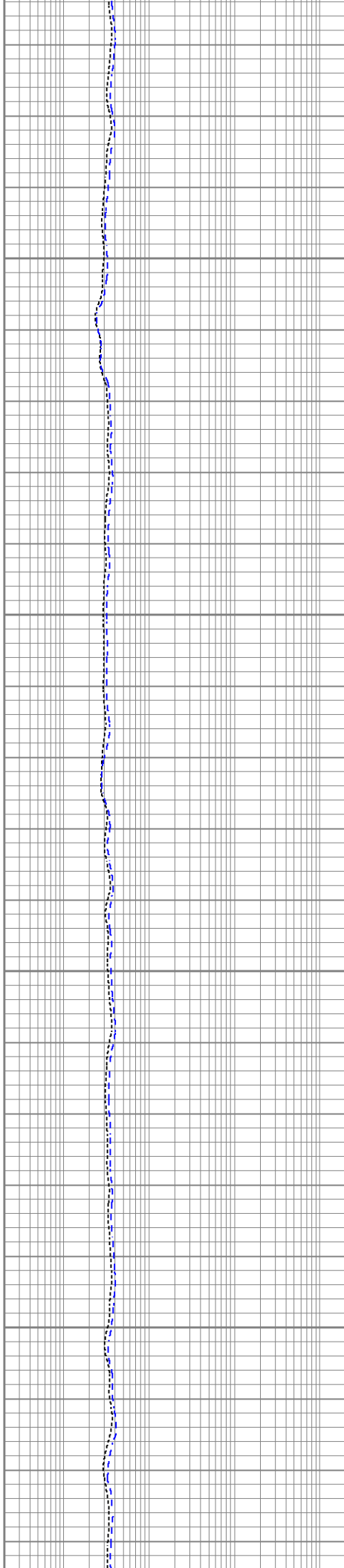


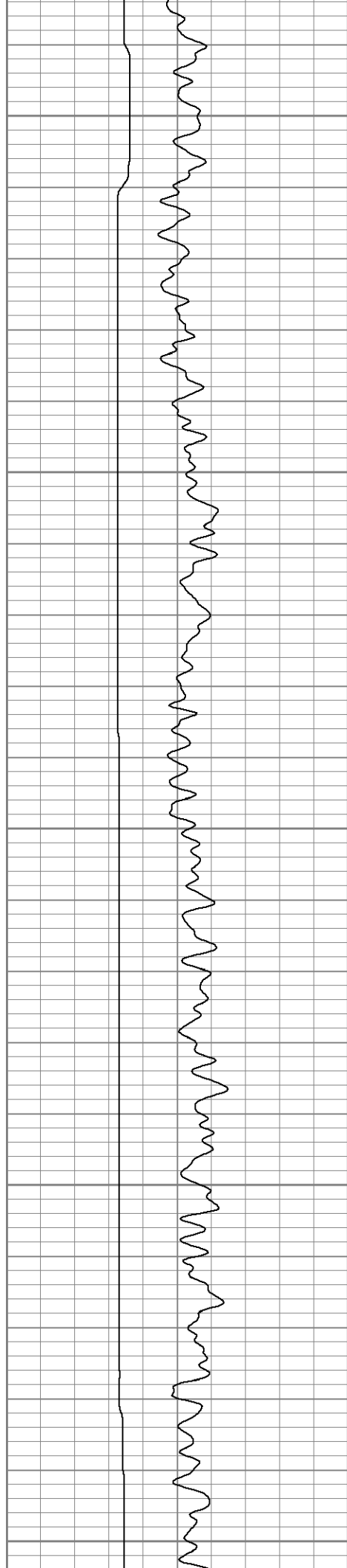
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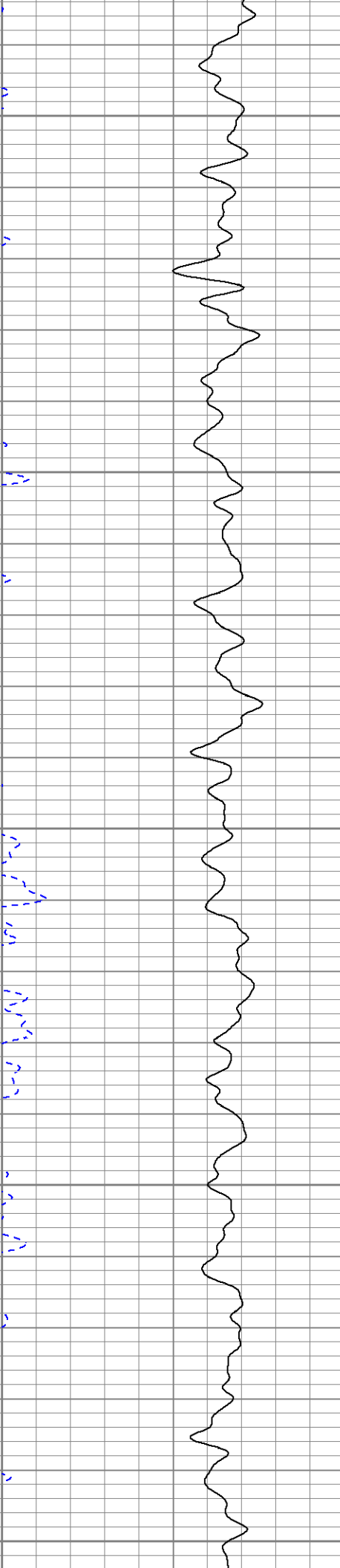
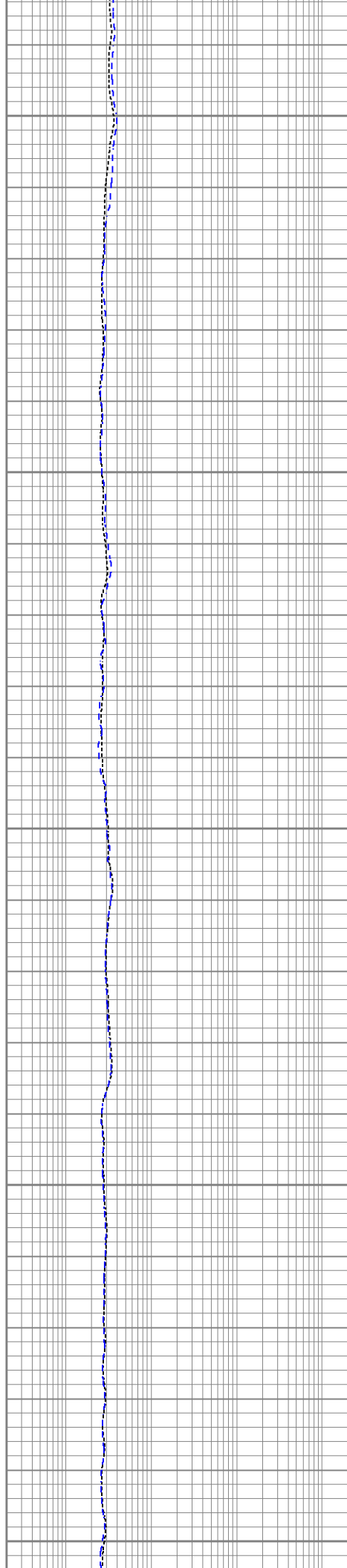
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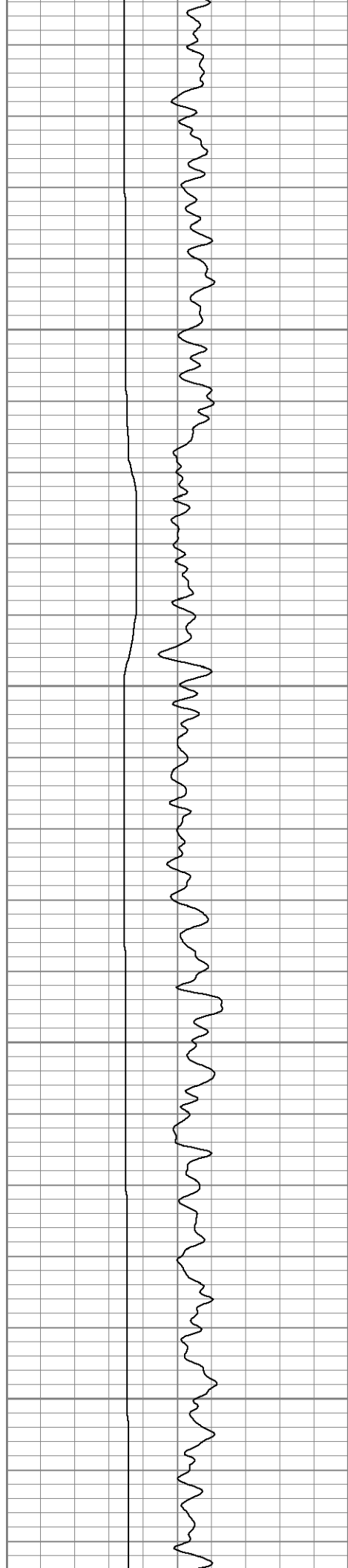
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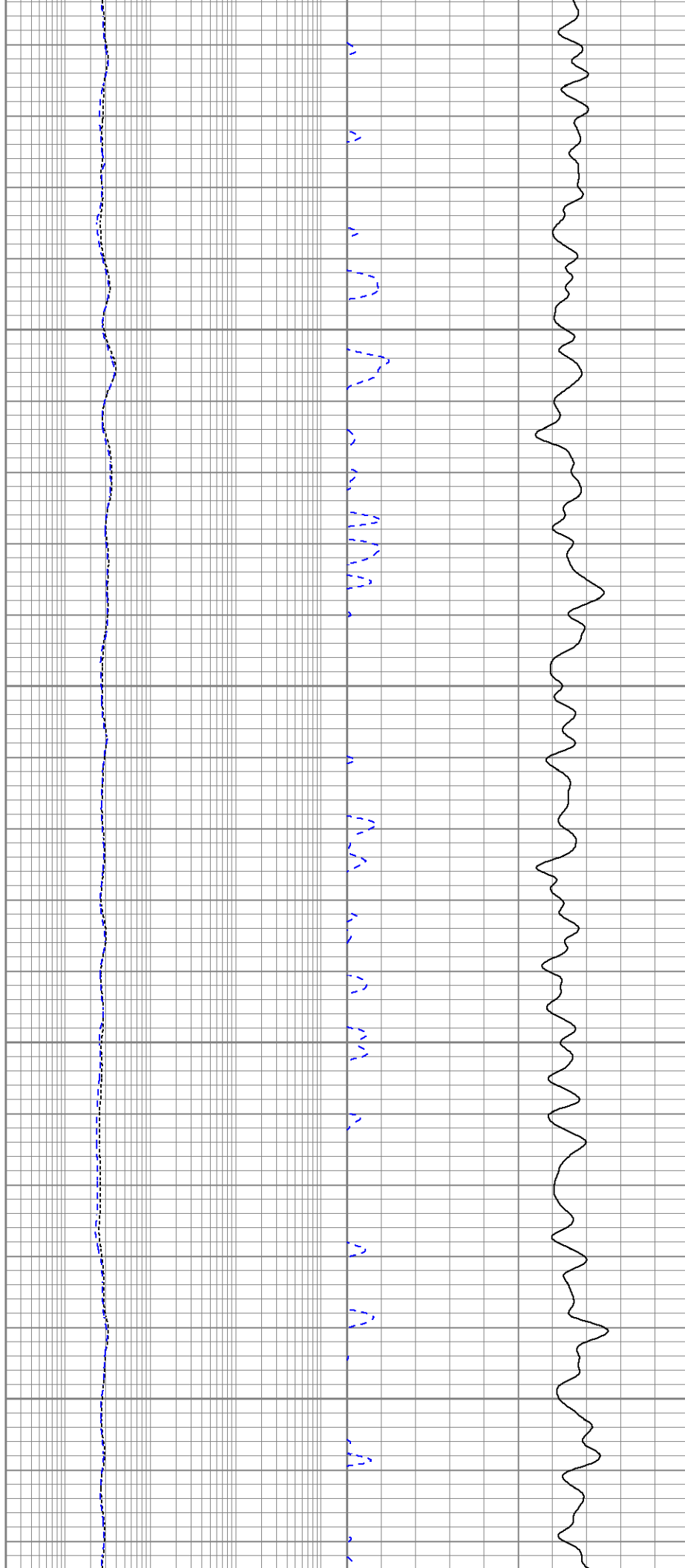


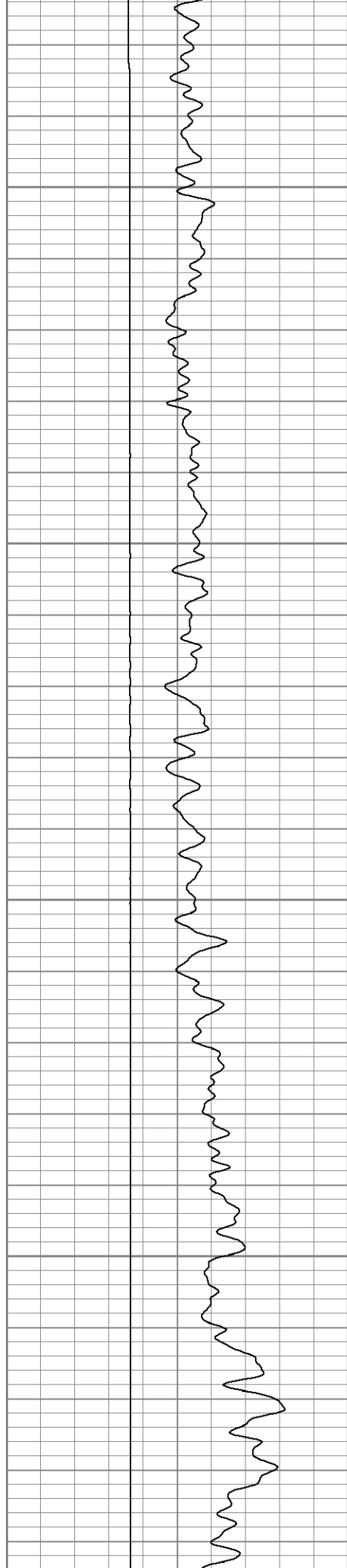
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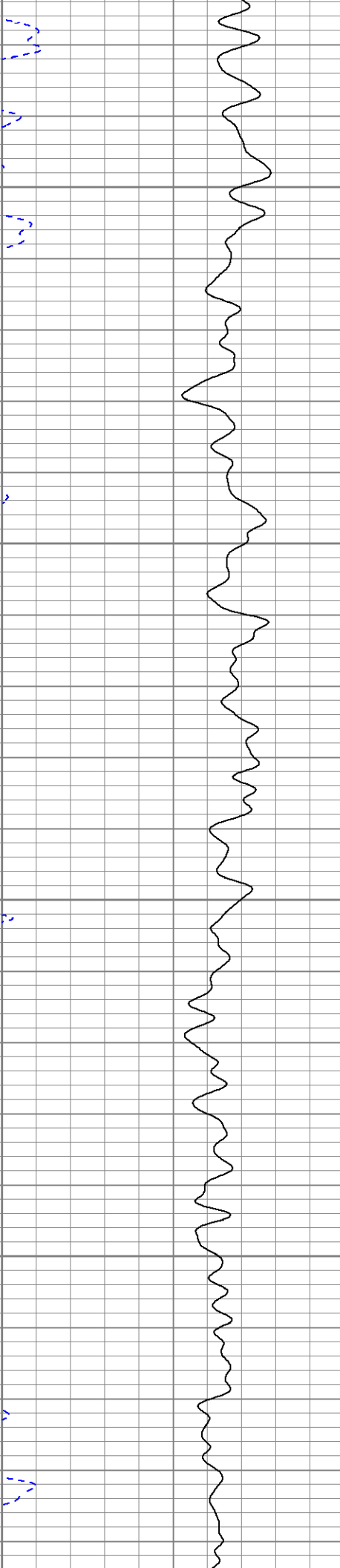
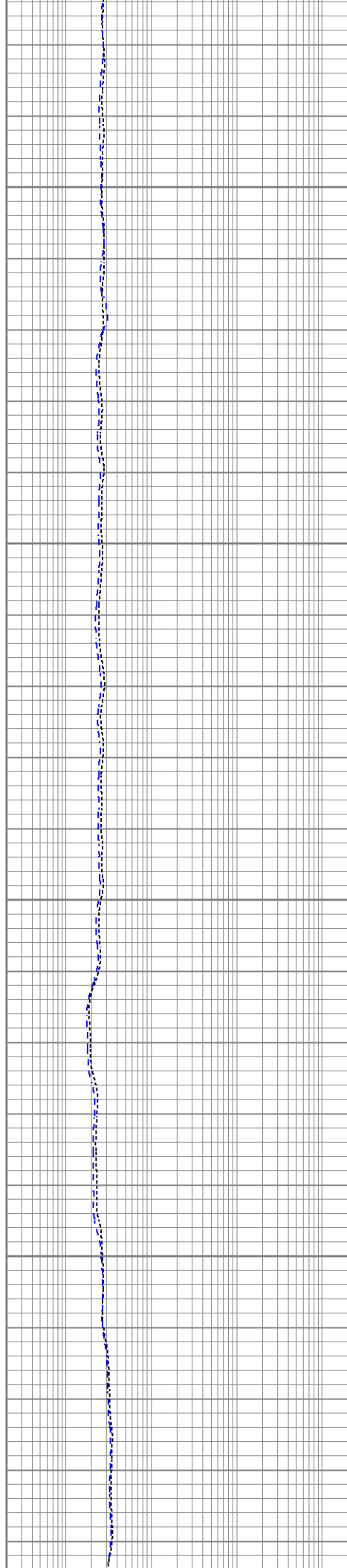


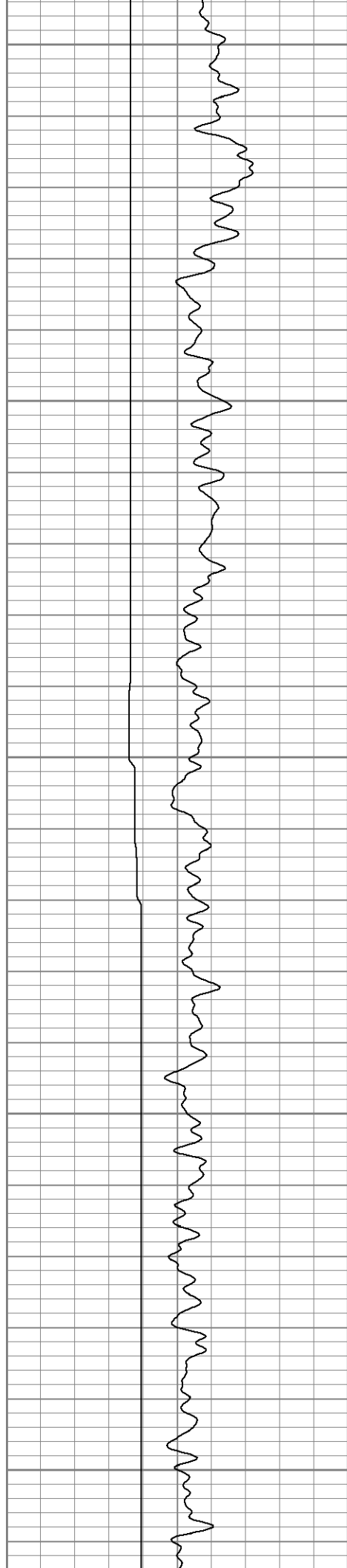
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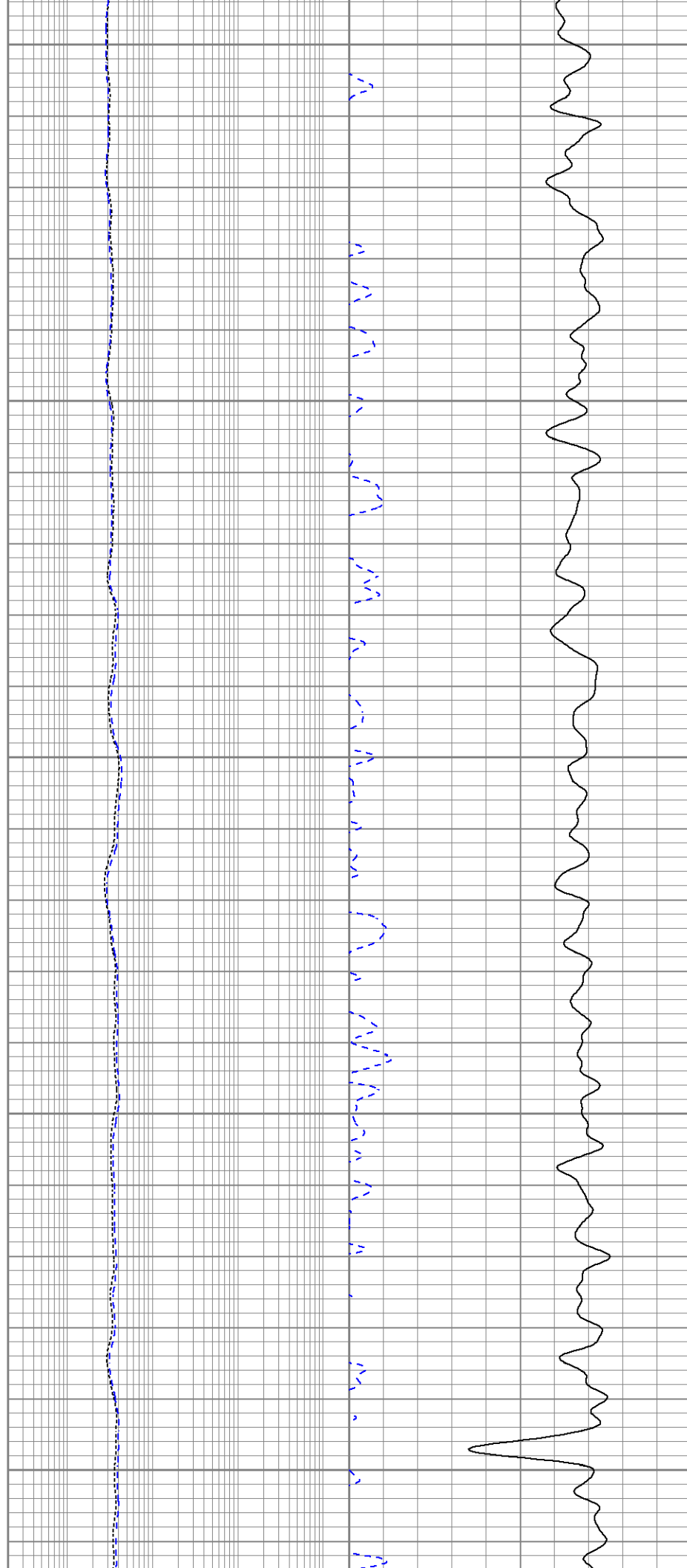
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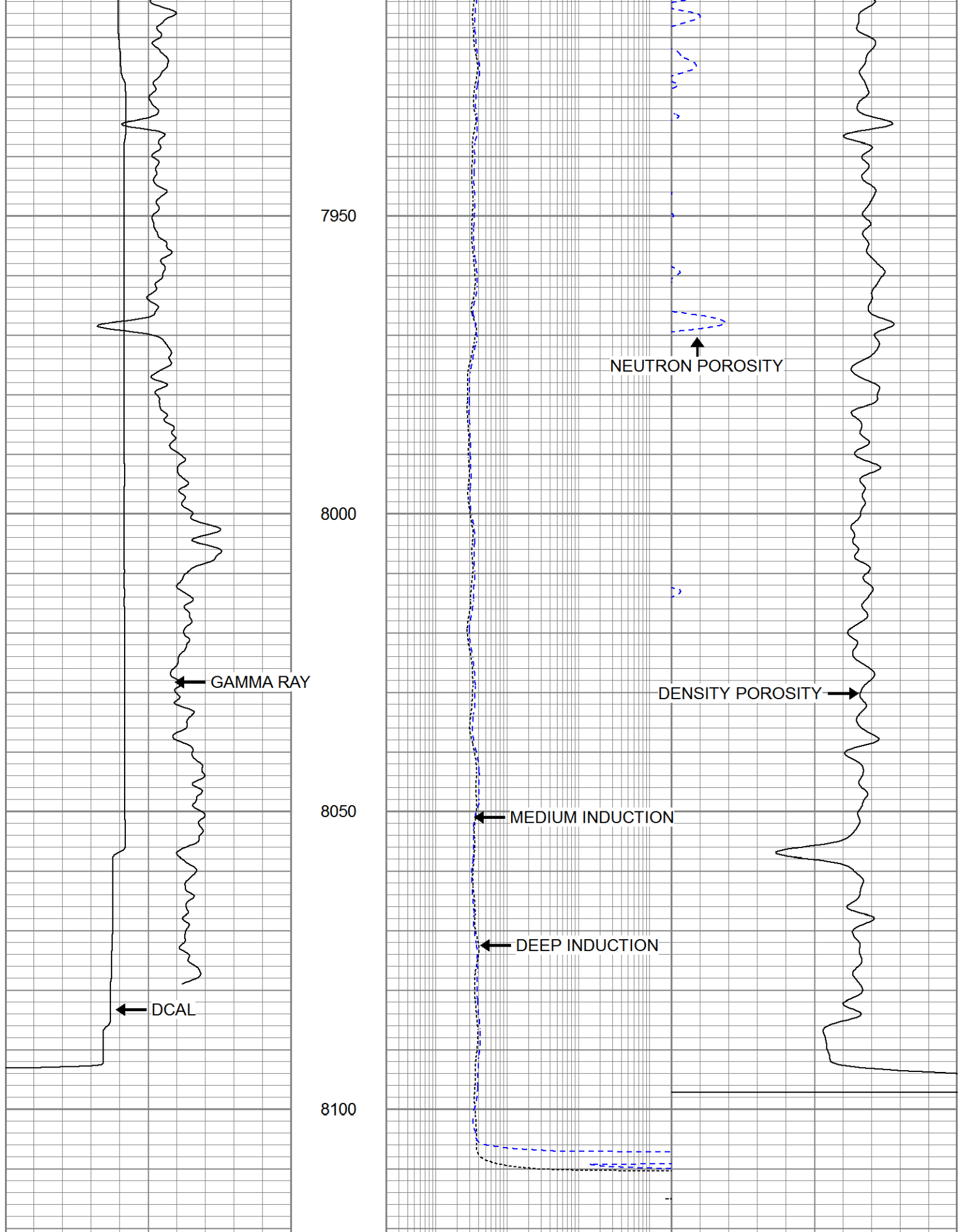
7750

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7900





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

0.2	(Ohm-m)	2000
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Calibration Report	
Database File	extraction_alma_1s_66_2524_20cdh.db
Dataset Pathname	stack/pass2.1
Dataset Creation	Wed Nov 22 16:00:38 2017

Dual Induction Calibration Report

Serial-Model:	1987-M&W
Calibration Performed:	Tue Apr 11 17:07:38 2017

Loop:	Readings		References			Results	
	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
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Serial-Model:	168-986-M&W
Source / Verifier:	/
Master Calibration Performed:	Tue Apr 11 17:07:47 2017

Master Calibration						
	Density		Far Detector		Near Detector	
Magnesium	1.755	g/cc	4691.86		4818.19	cps
Aluminum	2.675	g/cc	859.57		3020.22	cps
Spine Angle = 74.61			Density/Spine Ratio = 0.523			
	Size		Reading			
Small Ring	4.00	in	1.03			
Large Ring	14.00	in	1.23			

Compensated Neutron Calibration Report
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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



PIONEER

Pioneer Energy Services

Company	EXTRACTION OIL AND GAS, INC.
Well	ALMA 1S-66-2524 NO. 20CDH
Field	WATTENBERG
County	ADAMS
State	COLORADO