



Weatherford

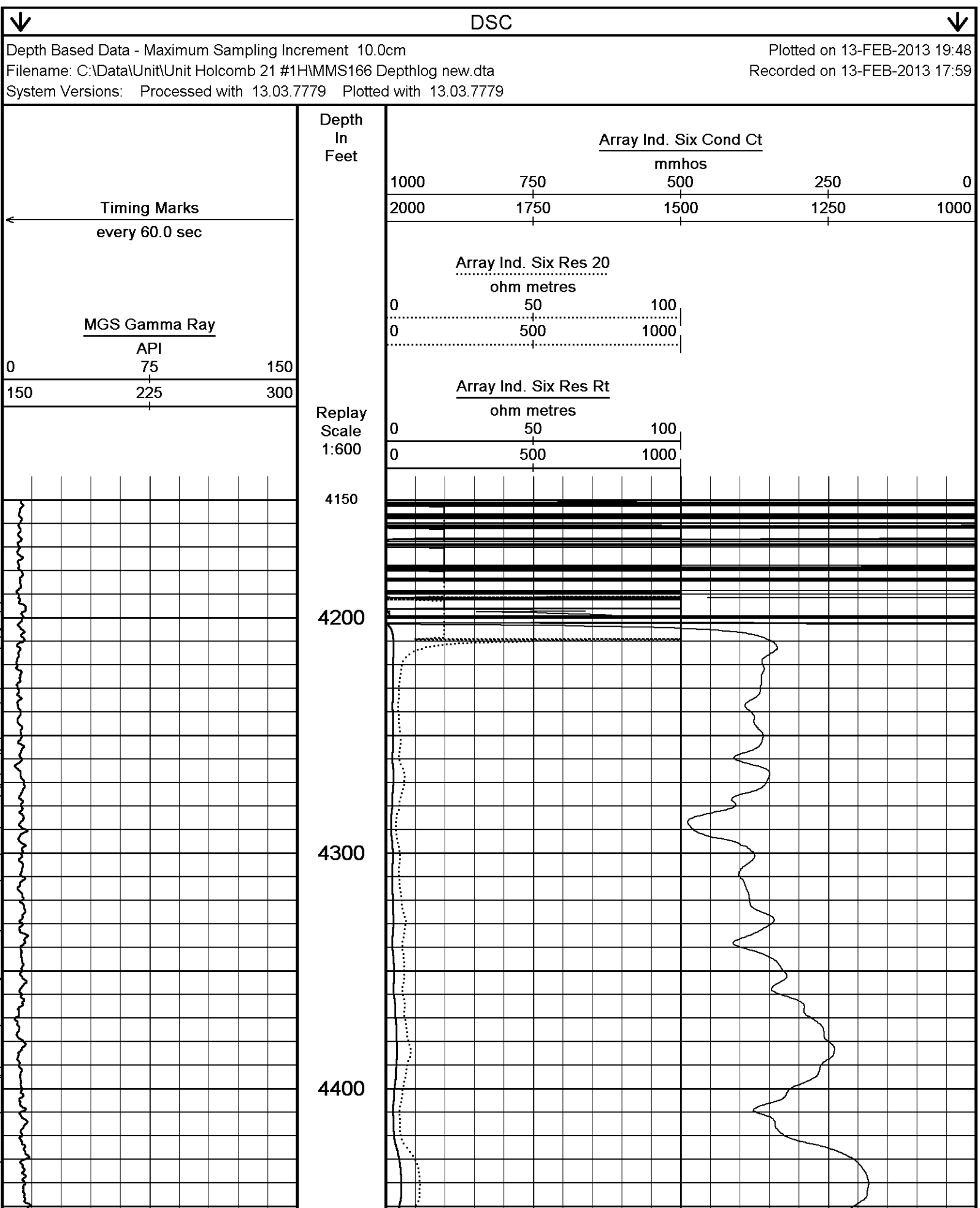
**CML WELL SHUTTLE
COMPACT ARRAY INDUCTION
LOG**

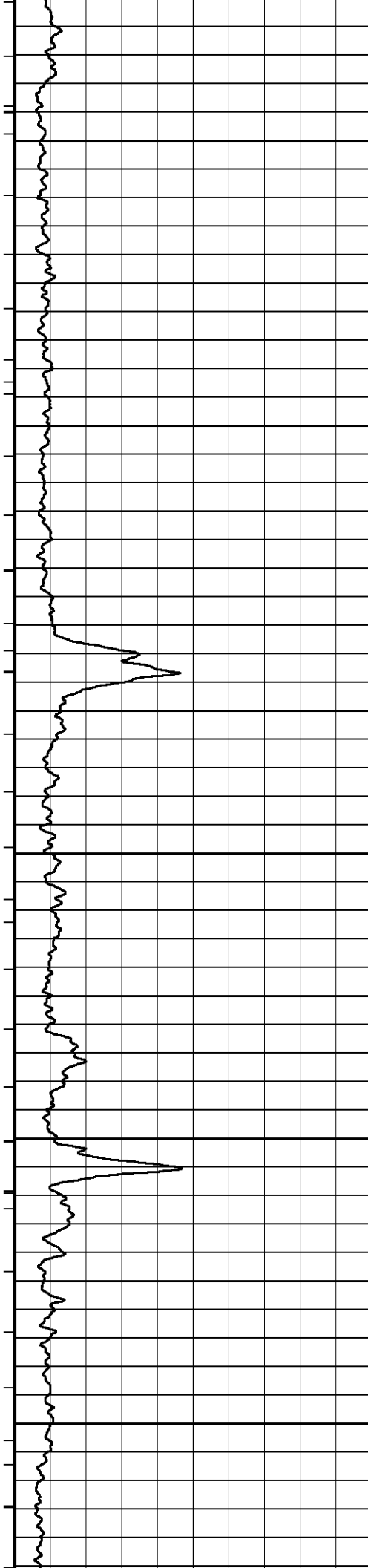
COMPANY	UNIT PETROLEUM		
WELL	HOLCOMB 21-1H		
FIELD	PLEVNA SOUTH		
PROVINCE/COUNTY	RENO		
COUNTRY/STATE	USA / KANSAS		
LOCATION	1570' FNL & 660' FWL N2 N2 SW SW		
SEC	TWP	RGE	Other Services
21	24	9W	MDN/MPPD
API Number	15-155-21626-01		CMI
Permit Number			
Permanent Datum G.L., Elevation 1681 feet			Elevations:
Log Measured From KB			KB 1695.00
Drilling Measured From K.B.			DF 1695.00
			GL 1681.00
Date	13-FEB-2013		
Run Number	ONE		
Depth Driller	10053.00	feet	
Depth Logger	10030.00	feet	
First Reading	10015.00	feet	
Last Reading	4194.00	feet	
Casing Driller	4186.00	feet	
Casing Logger	4194.00	feet	
Bit Size	6.125	inches	
Hole Fluid Type	WATER		
Density / Viscosity	8.50 lb/USg	27.00 CP	
PH / Fluid Loss	8.50	90.00 ml/30Min	
Sample Source	FLOWLINE		
Rm @ Measured Temp	1.40 @ 77.0	ohm-m	
Rmf @ Measured Temp	1.12 @ 77.0	ohm-m	
Rmc @ Measured Temp	1.68 @ 77.0	ohm-m	
Source Rmf / Rmc	CALC	CALC	
Rm @ BHT	0.86 @ 124.0	ohm-m	
Time Since Circulation	1 HOUR		
Max Recorded Temp	124.00	deg F	
Equipment Name	COMPACT		
Equipment / Base	18064	OKC	
Recorded By	C. GRIFFIN		
Witnessed By	R. WILSON		
S.O.#/AFE	3539589 / 1300500		

BOREHOLE RECORD			Last Edited: 13-FEB-2013 15:32	
Bit Size inches	Depth From feet		Depth To feet	
6.125	4186.00		10053.00	
CASING RECORD				
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
INTERMED	7.000	0.00	4186.00	26.00
INTERMED	9.625	0.00	1536.00	36.00

REMARKS
WLS SOFTWARE VERSION 13.03. USED. TOOLS RUN ON DRILLPIPE USING COMPACT WELL SHUTTLE DEPLOYMENT TECHNIQUE. DEPTH MEASURED USING ADVANTAGE RIG DEPTH CORRECTED TO PIPE TALLY. TOOLS DEPLOYED WITH MULE SHOE SITTING AT 9929FT. AFTER DEPLOYMENT LOGGING TOOL WAS AT 10030 FT. TIGHT SECTIONS PRESENT DOWNHOLE WILL AFFECT CALIPER AND IMAGE READINGS 4.5 " PRODUCTION CASING USED TO CALCULATE ANNULAR HOLE VOLUMES. OPERATORS: S. WORLEY, P. BURGER RIG: UNIT 331

or correctness of any interpretations, and we shall not, except in the case of gross or wilful 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 in our price schedule.





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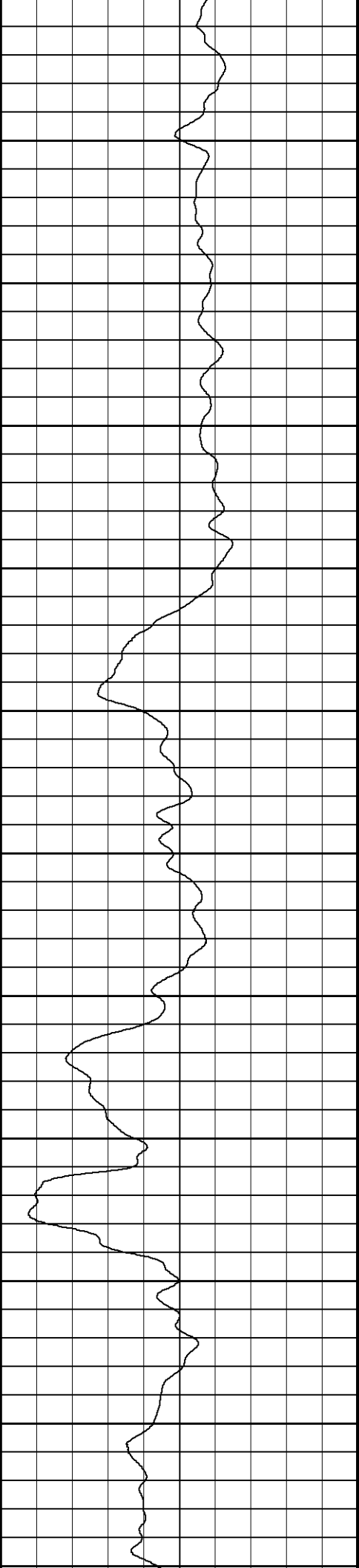
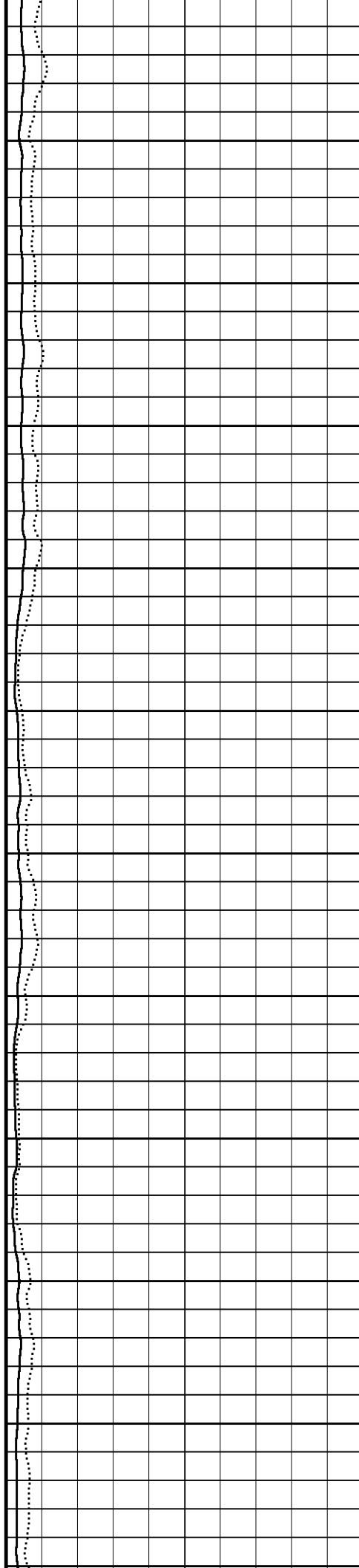
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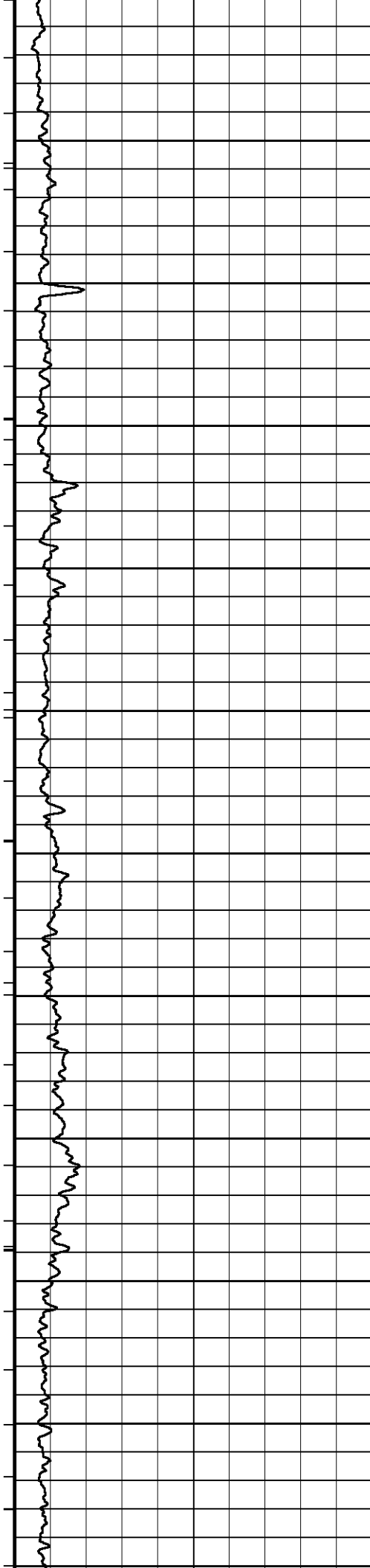
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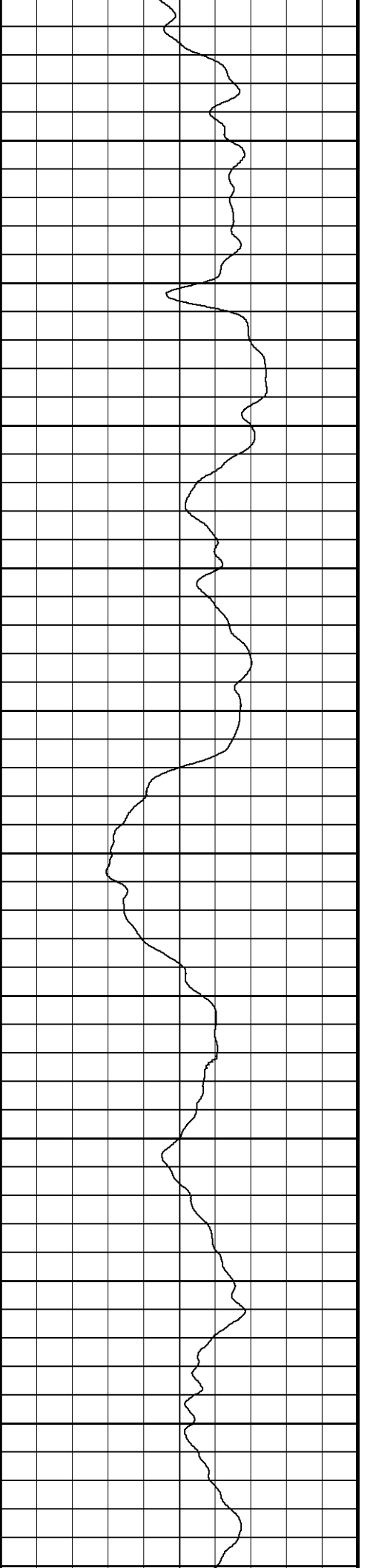
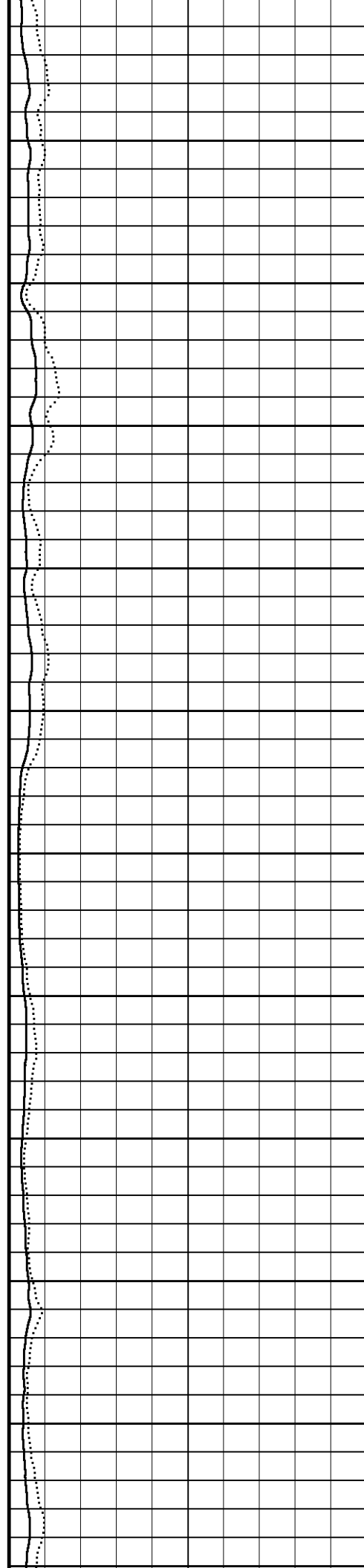
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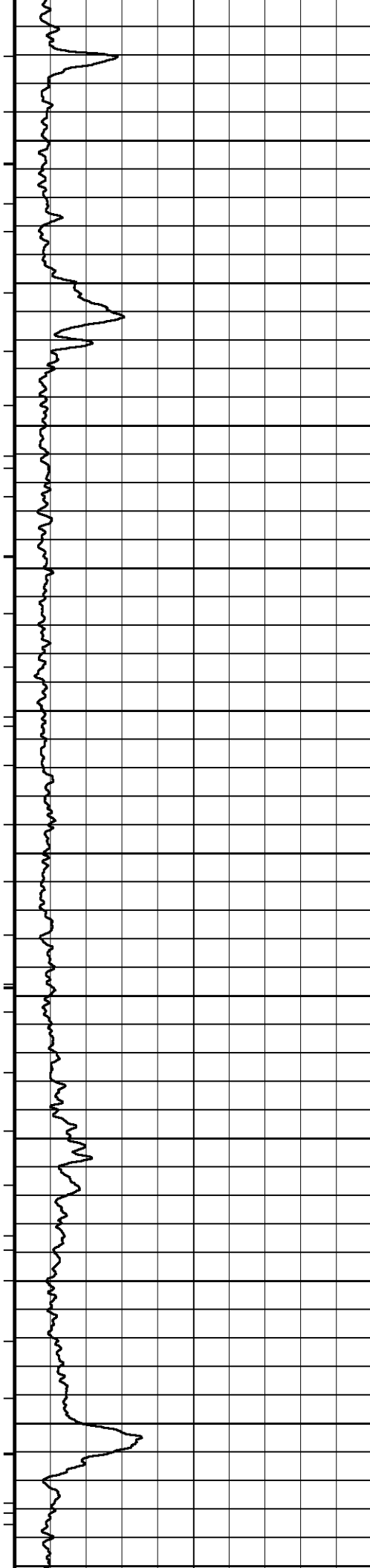
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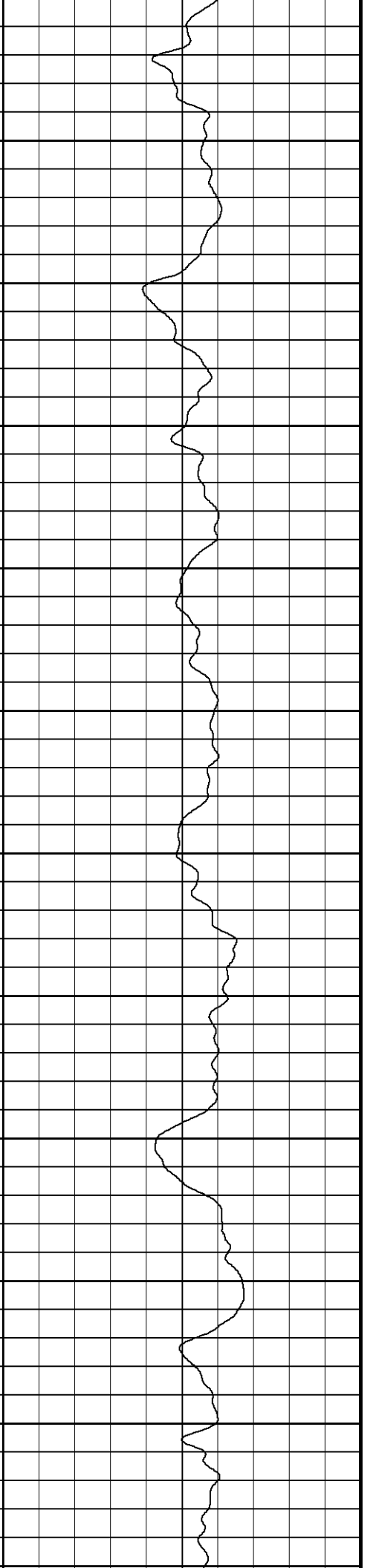
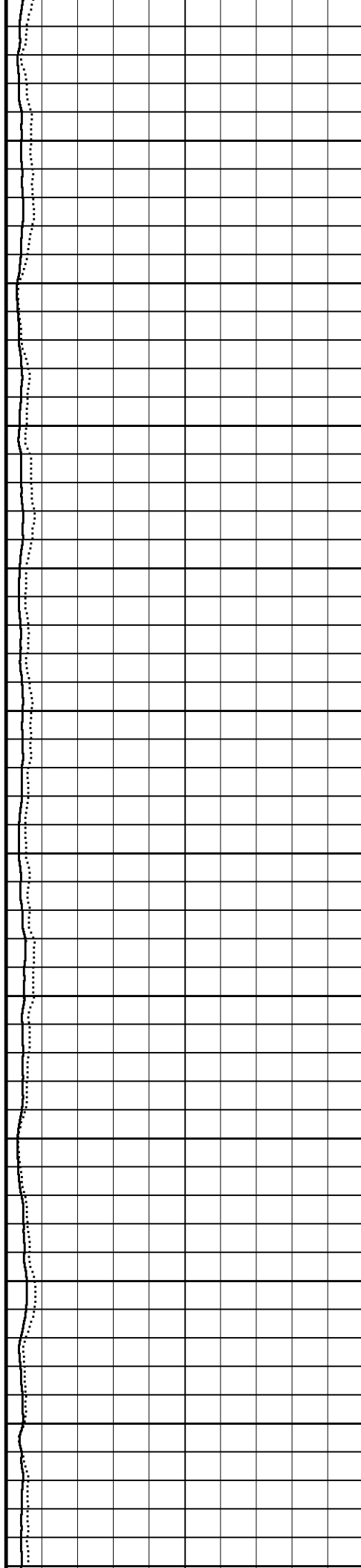


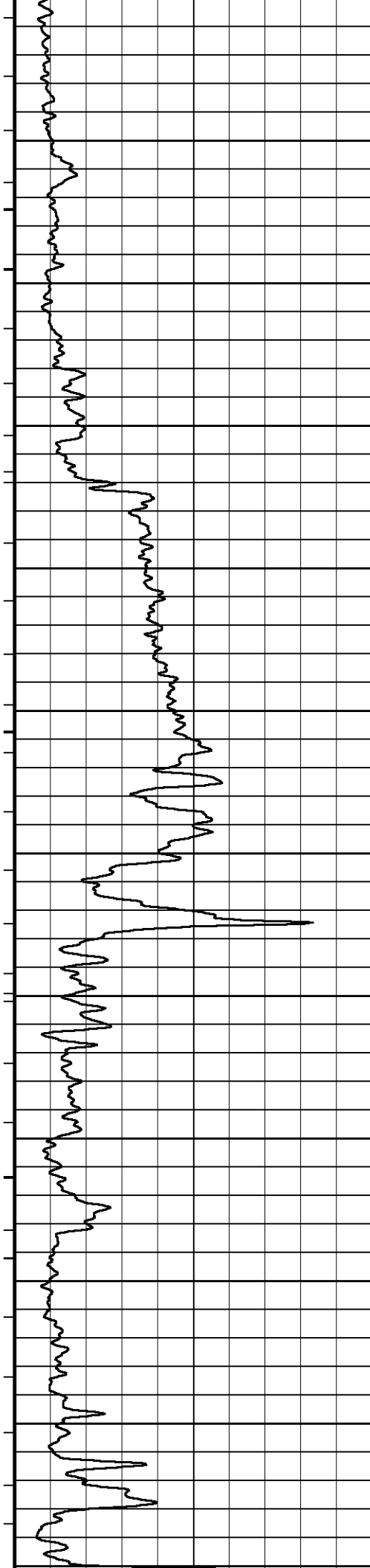
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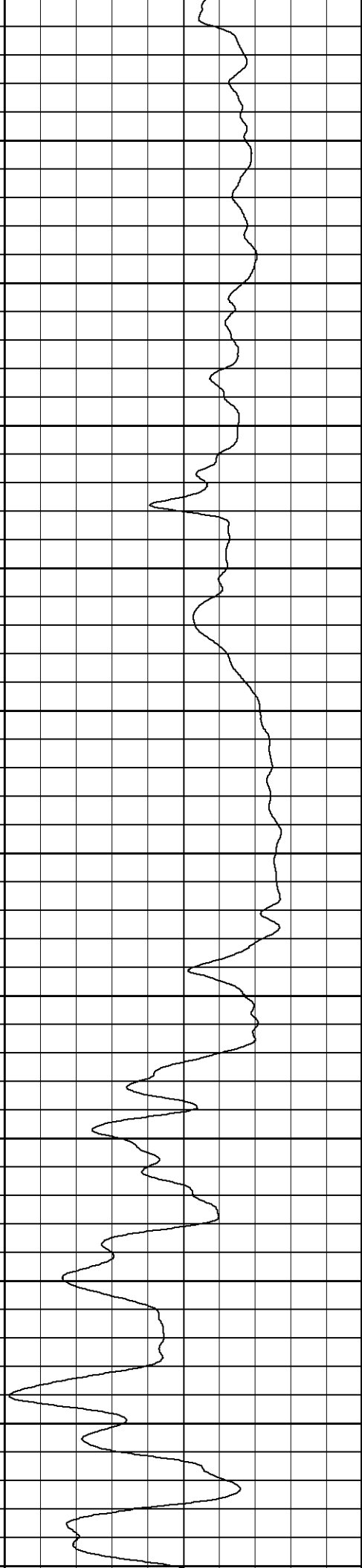
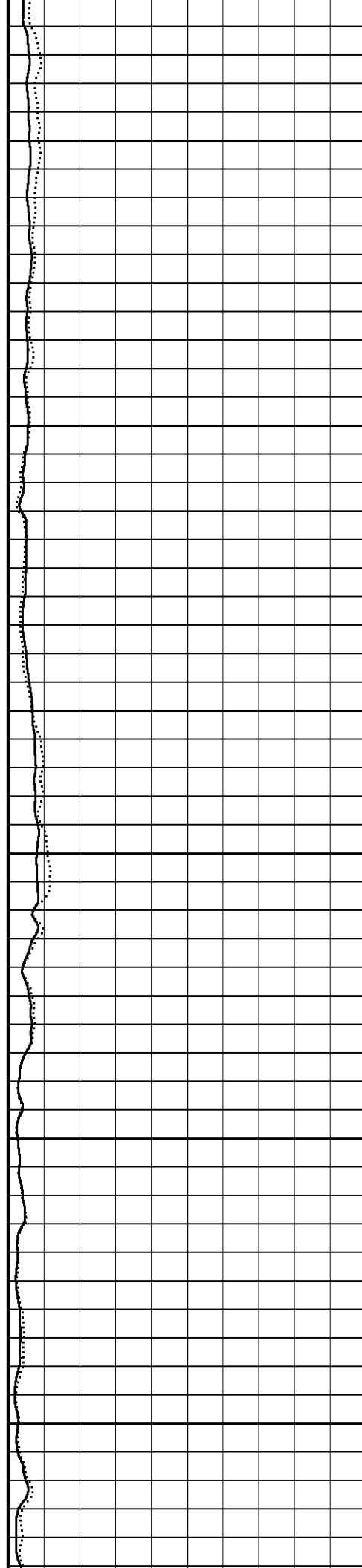


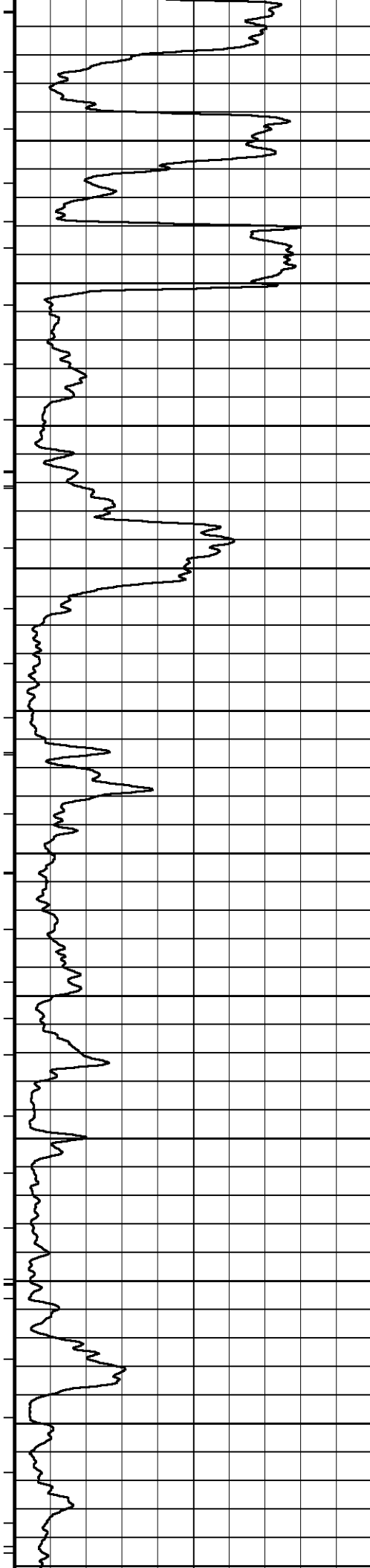
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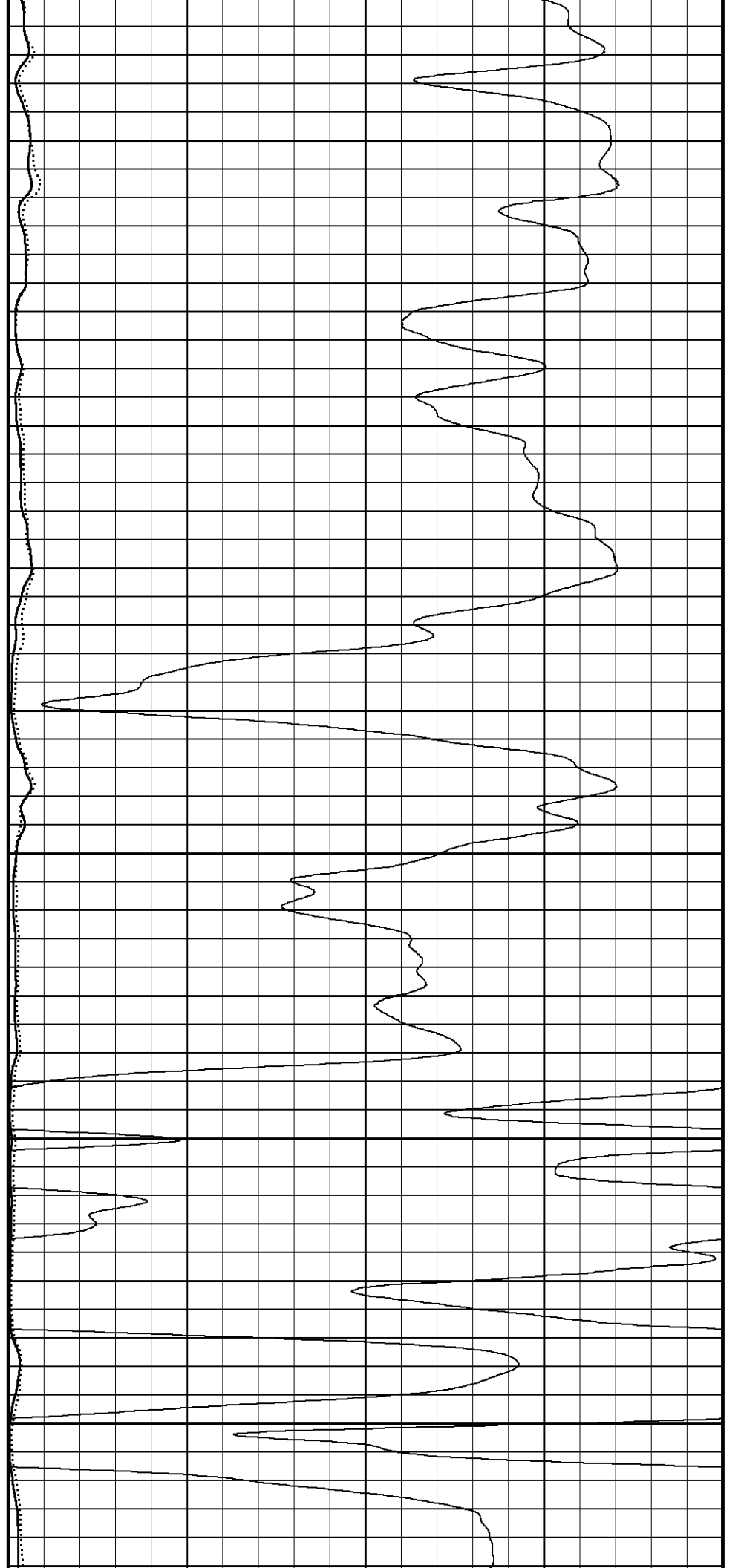
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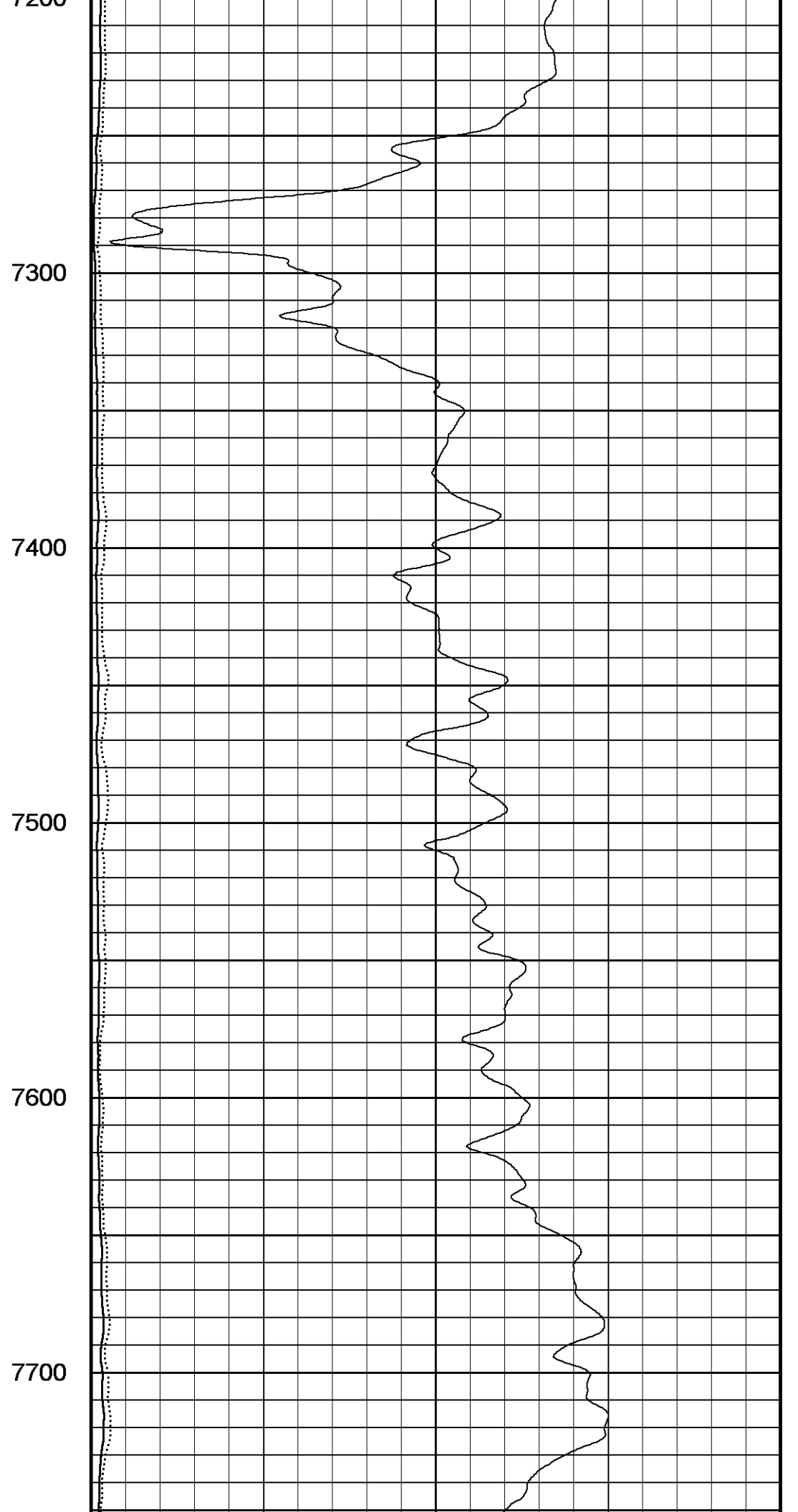
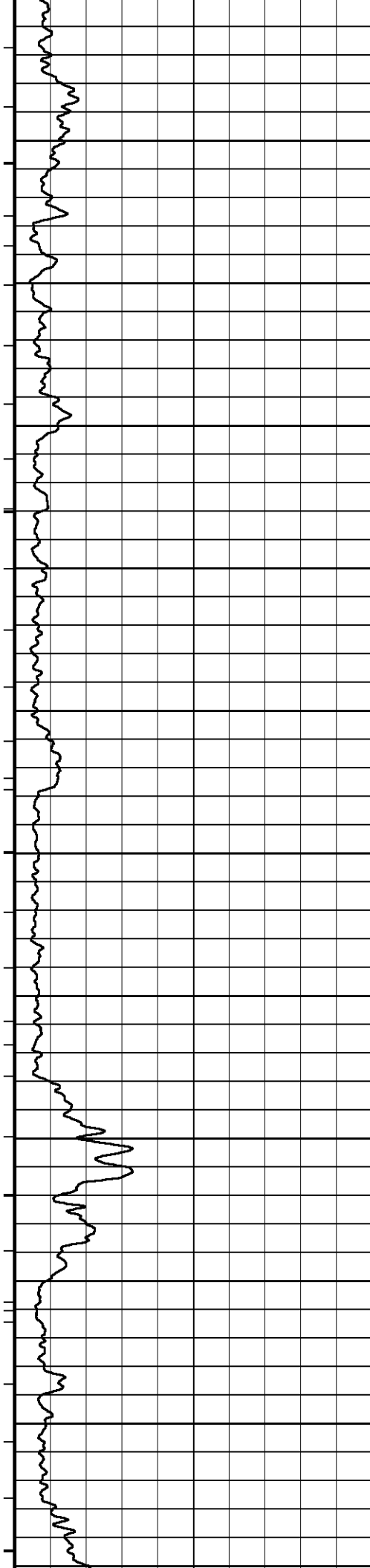
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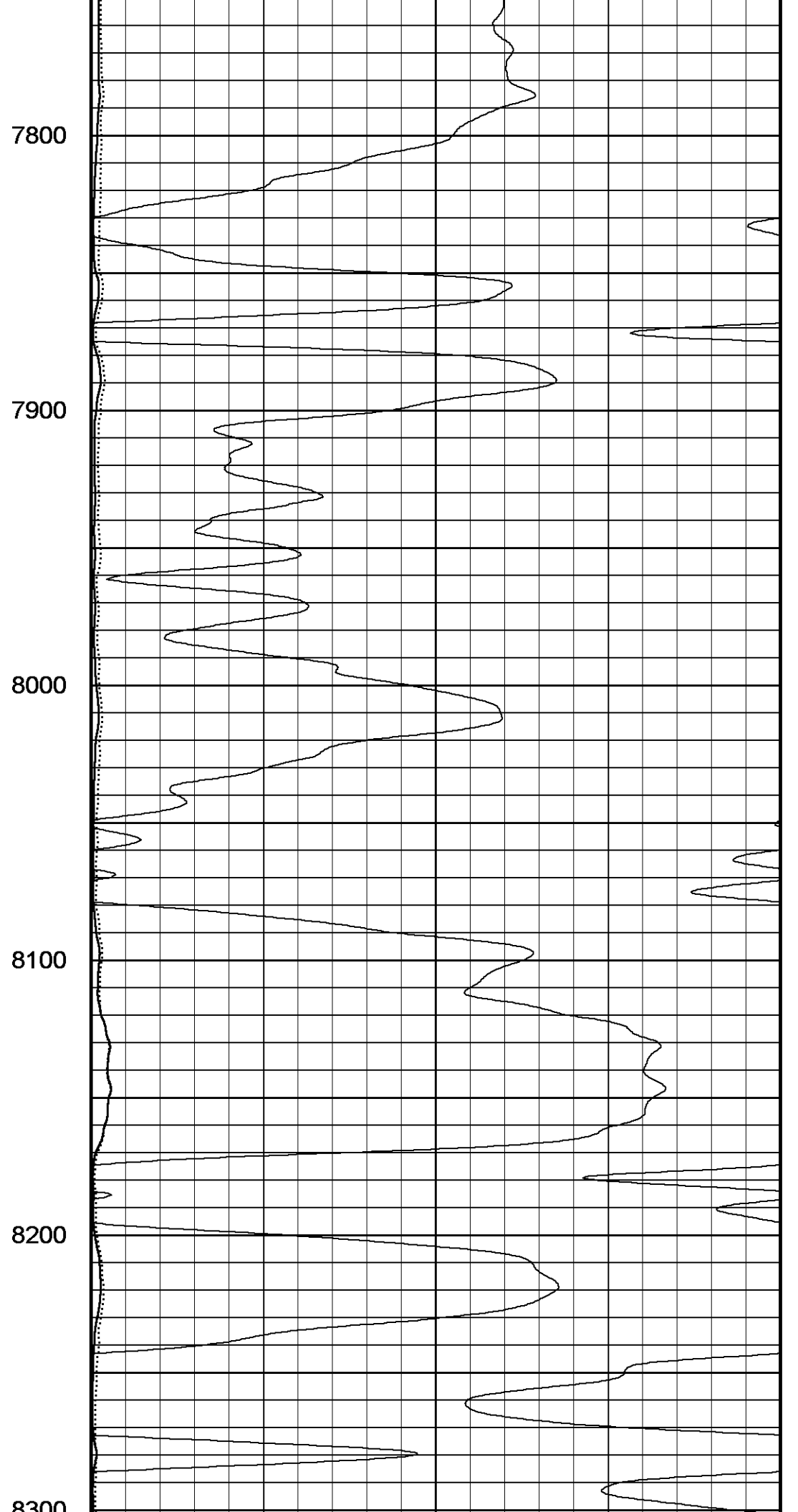
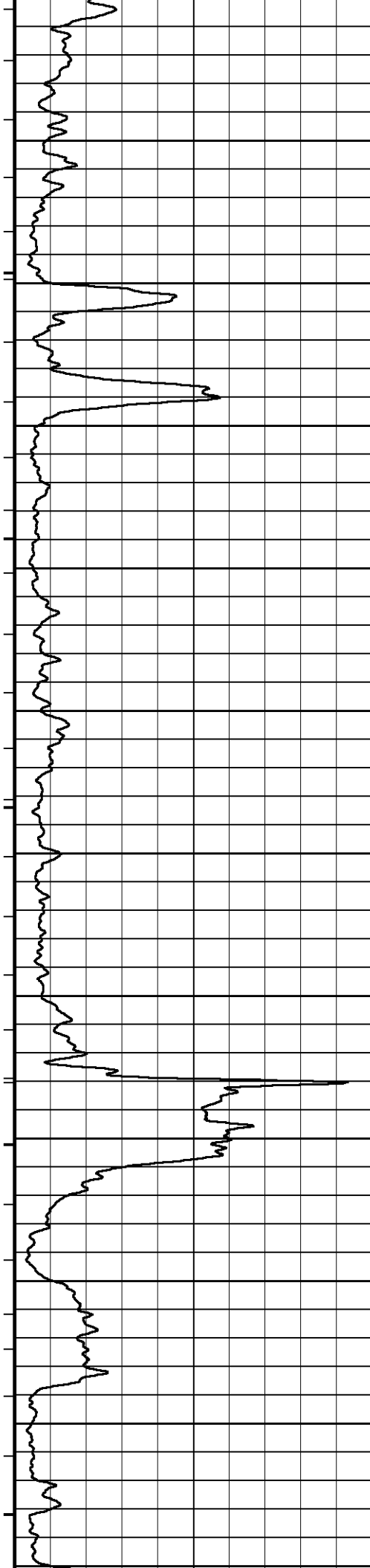
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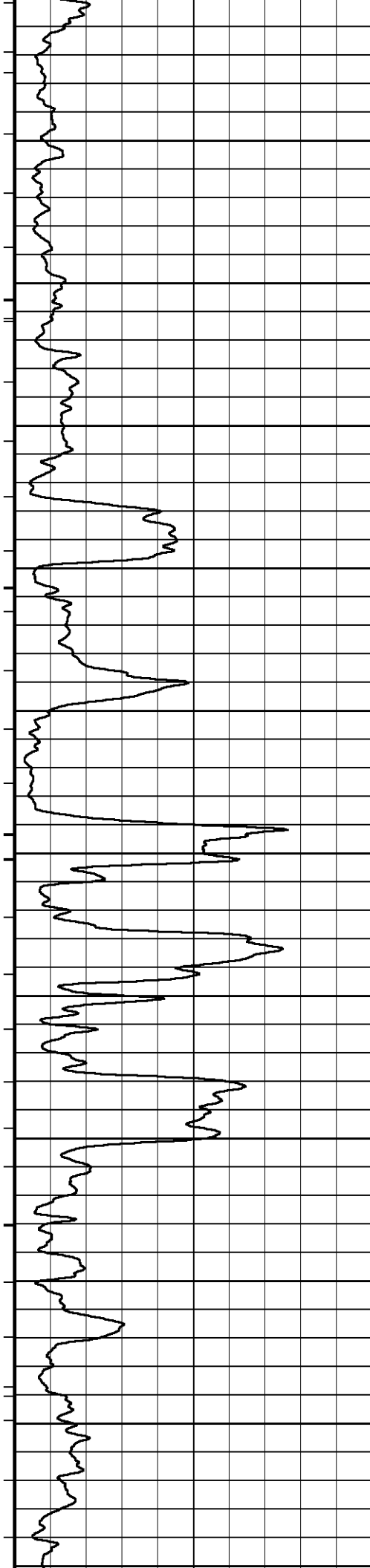
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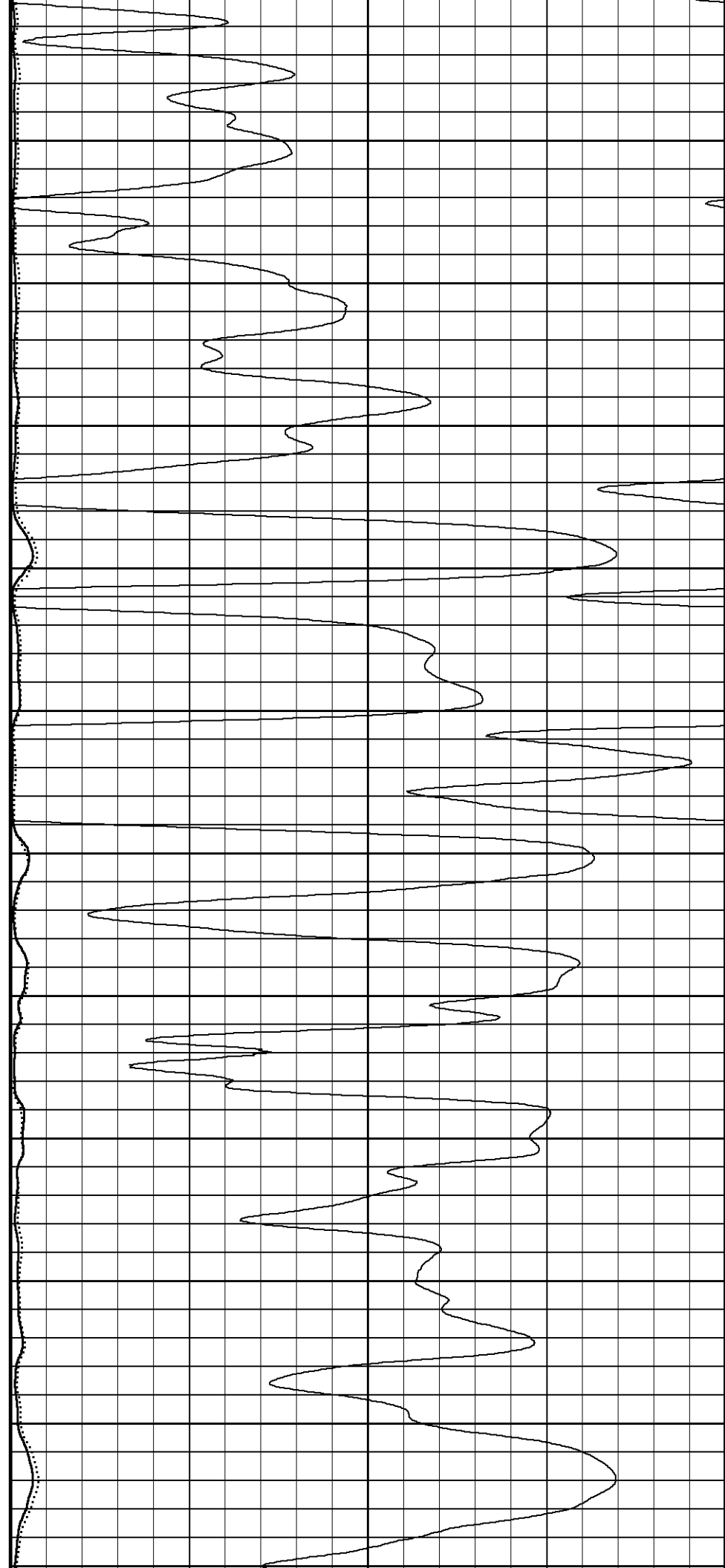
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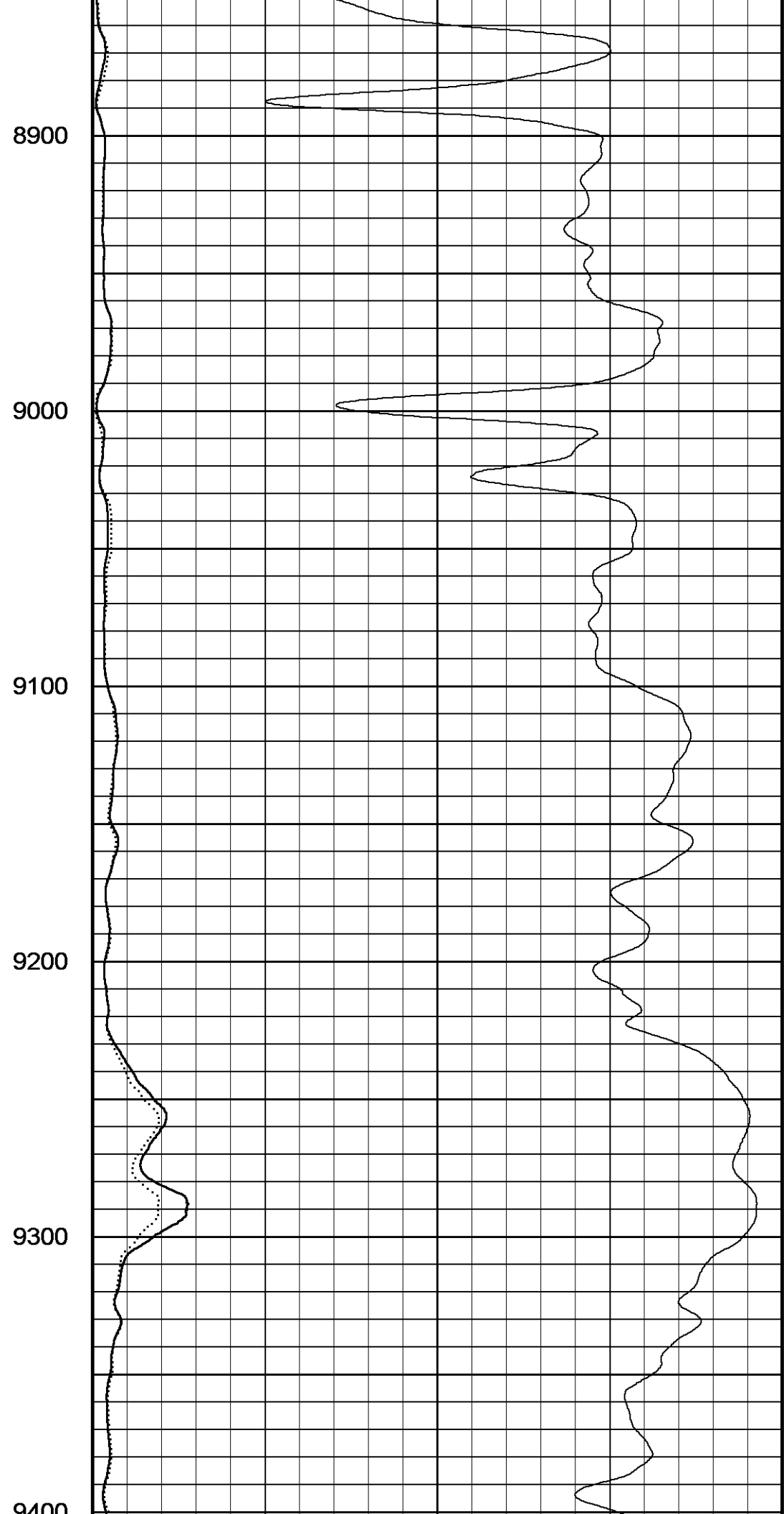
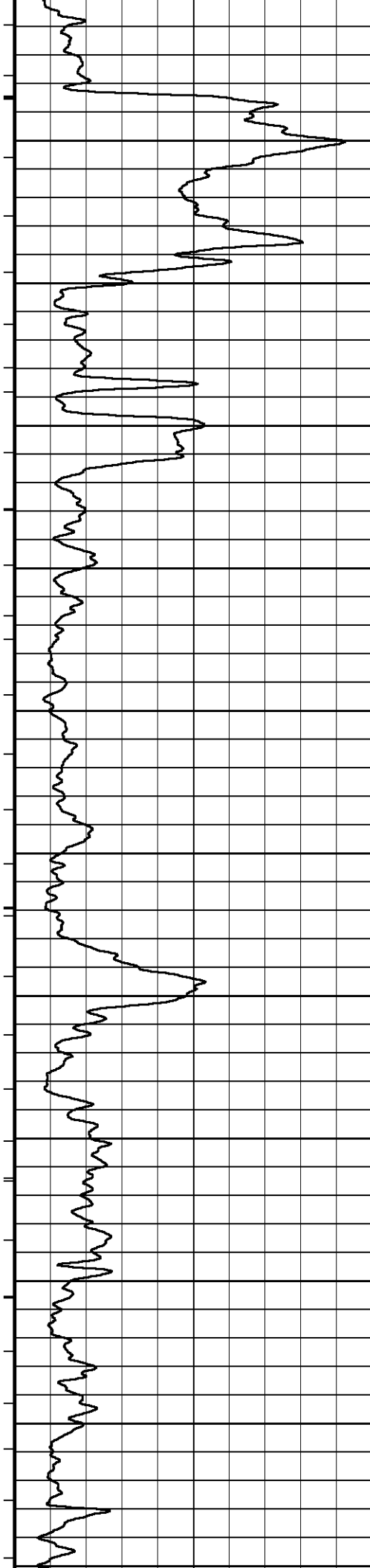
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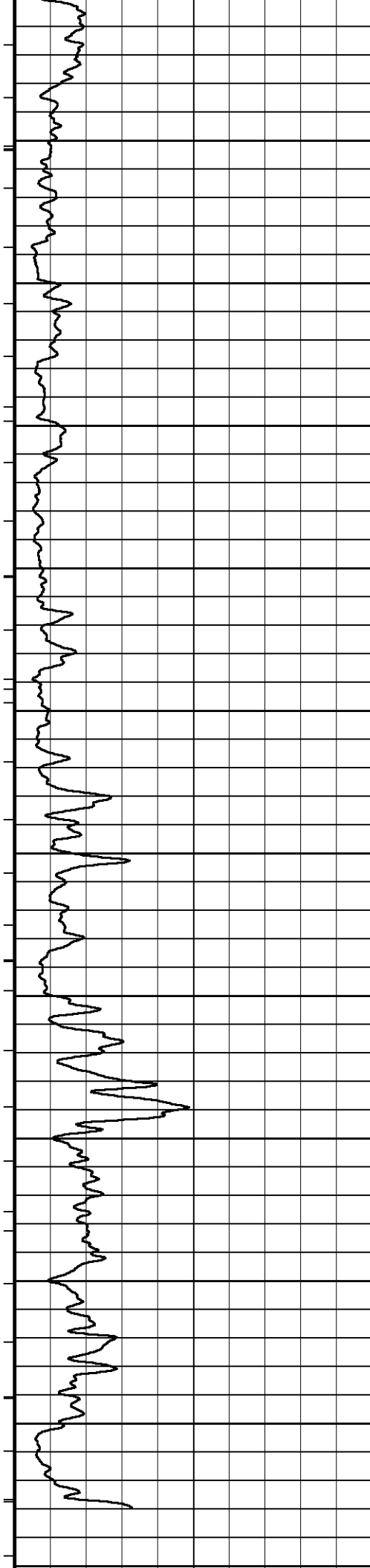
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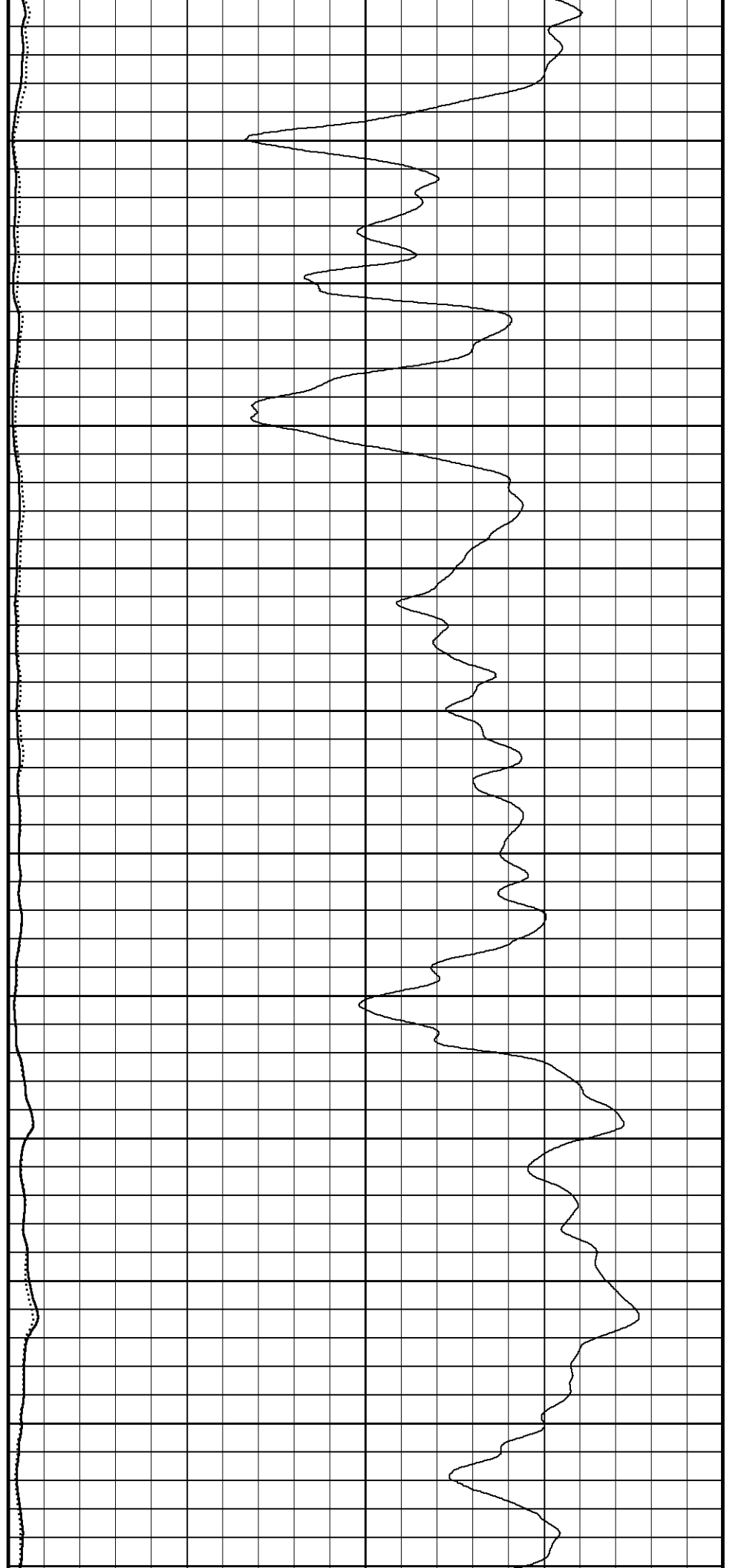
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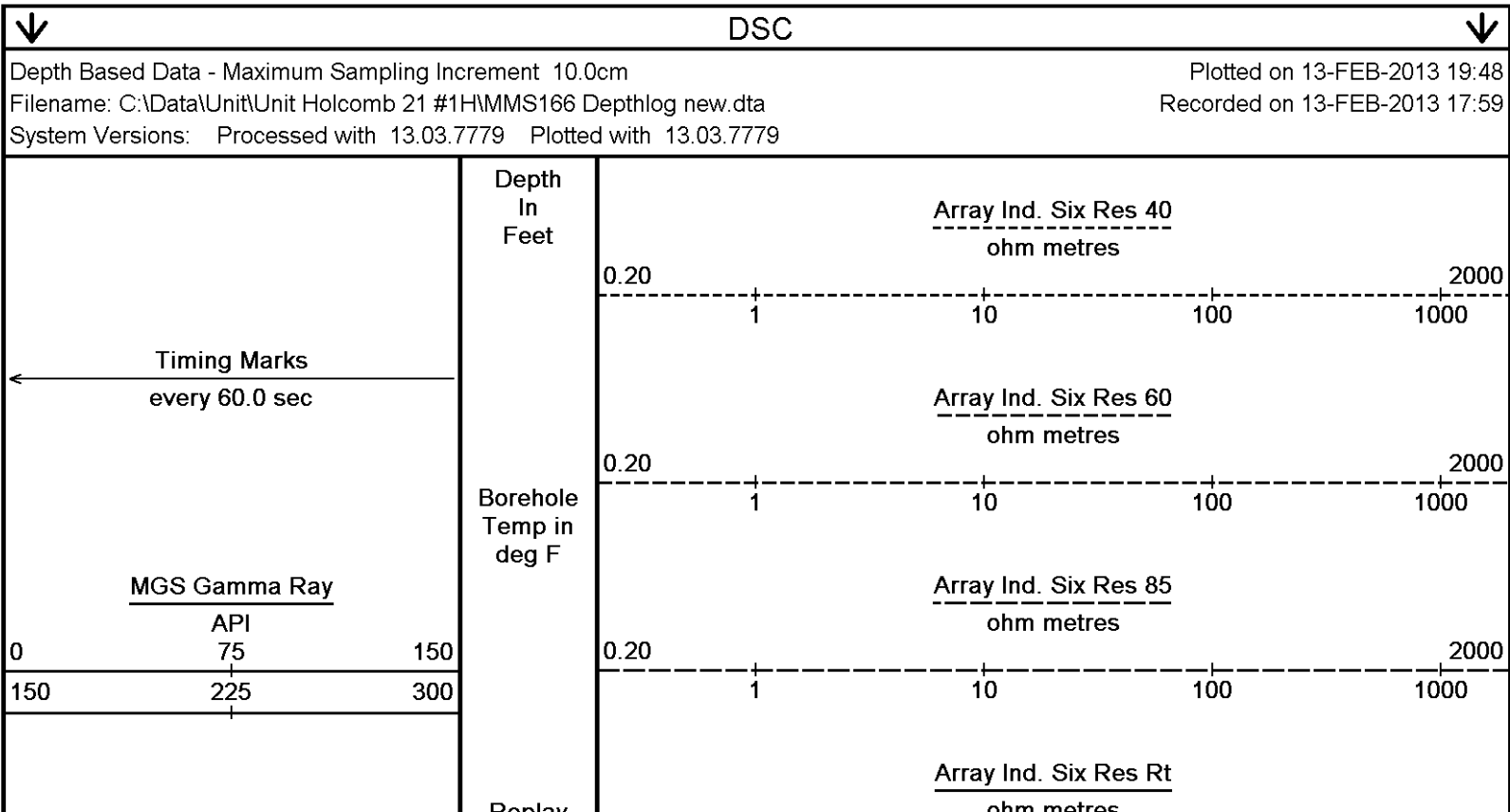
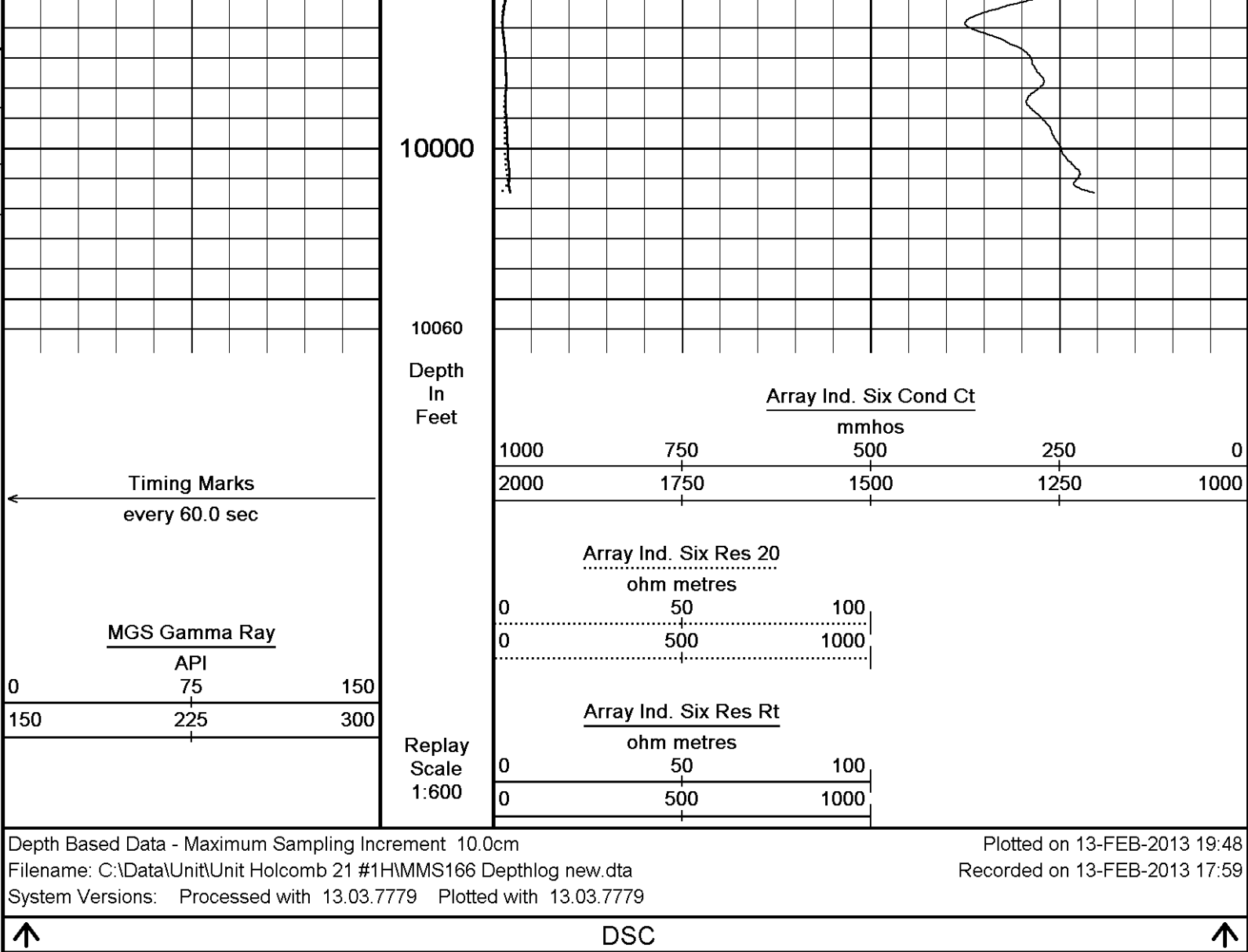






9400
9500
9600
9700
9800
9900





Replay
Scale
1:240

0.20

0mm metres

2000

1

10

100

1000

4150

115°

4200

115°

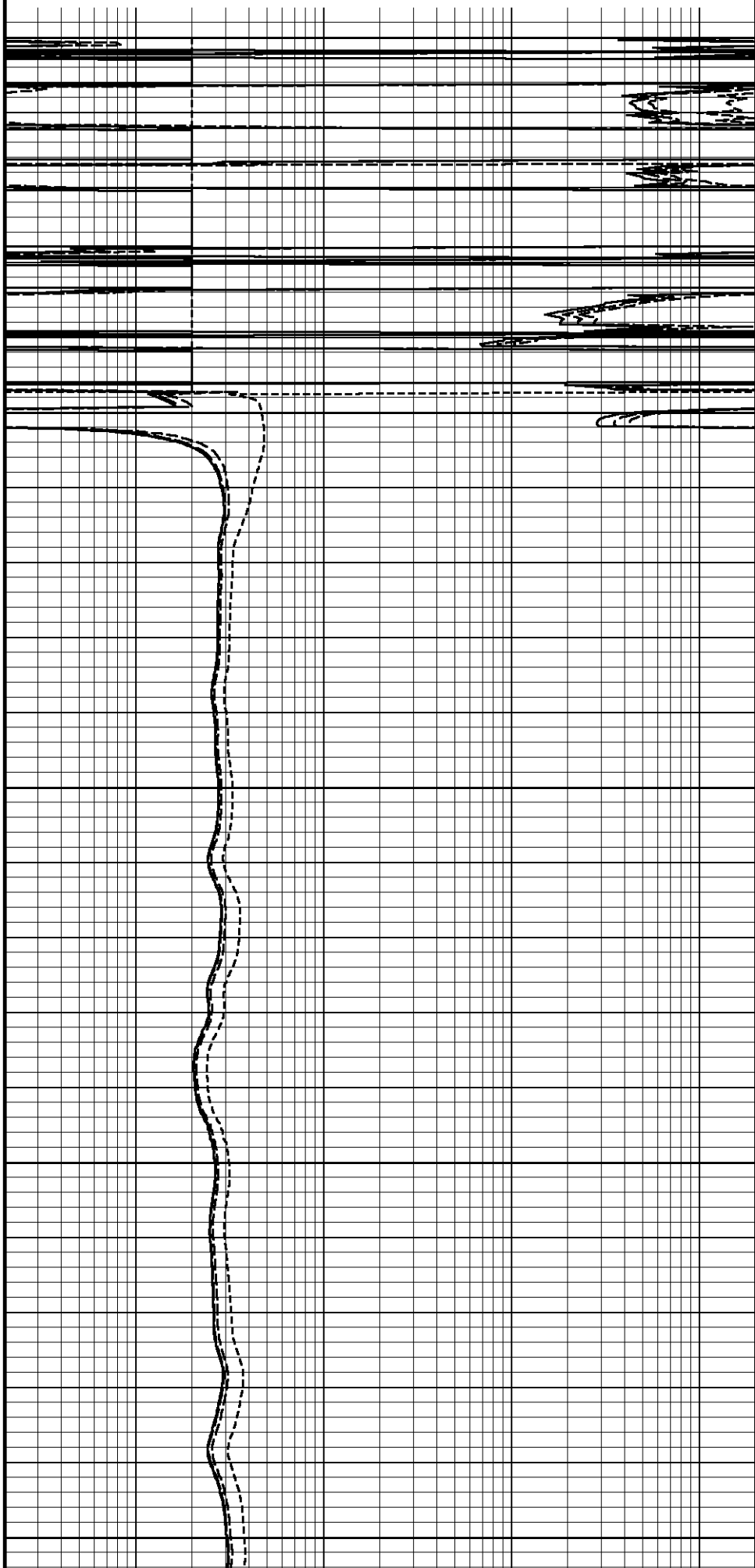
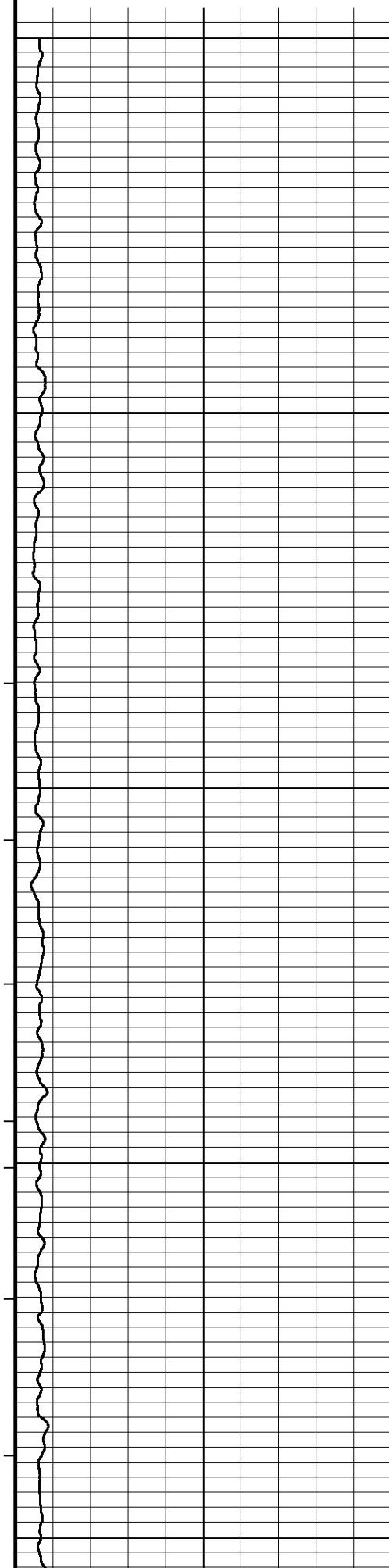
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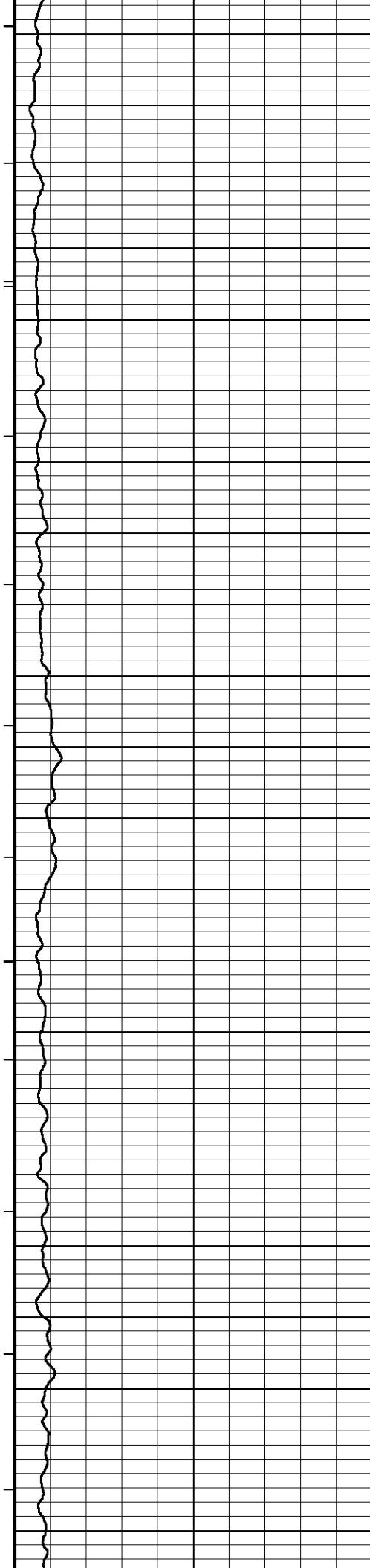
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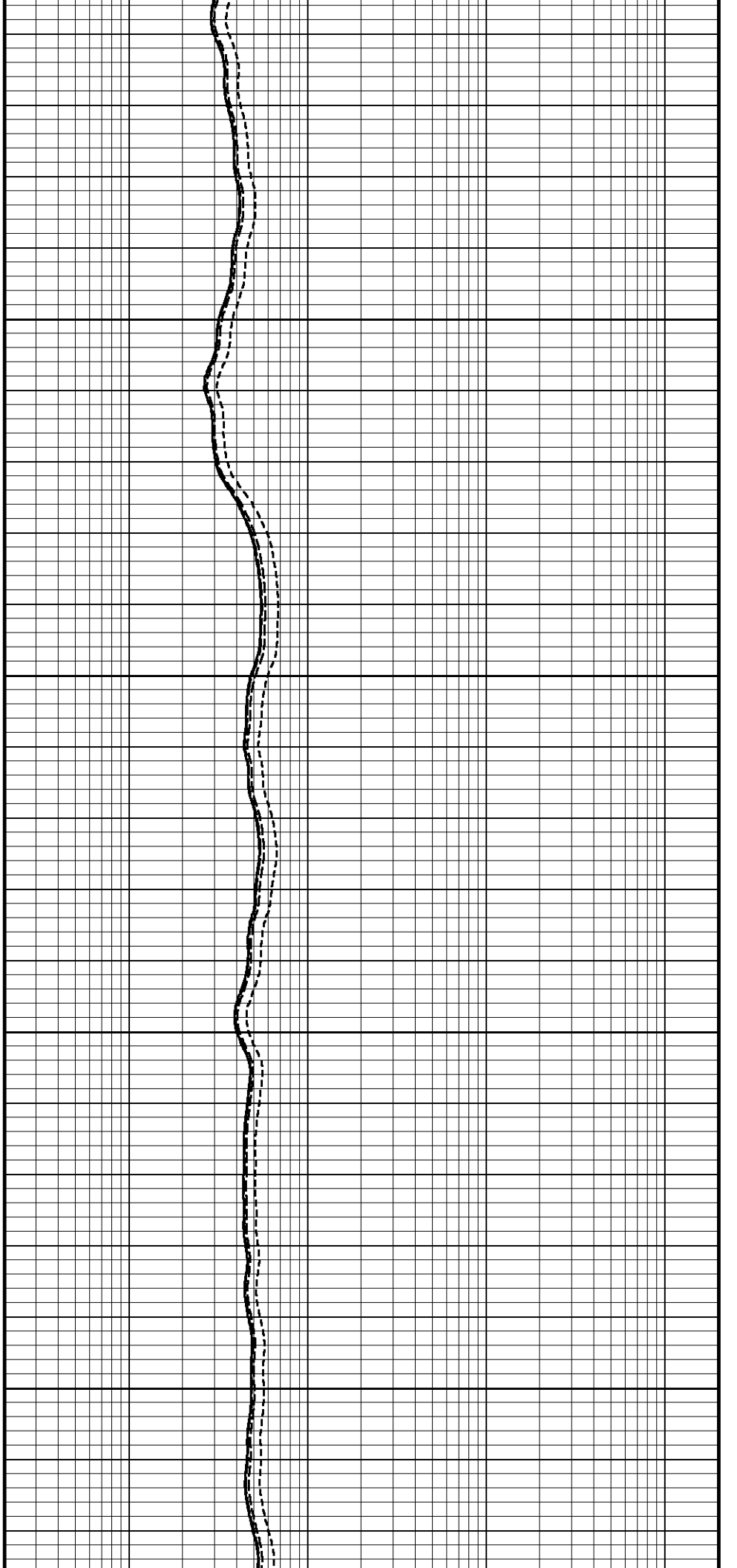
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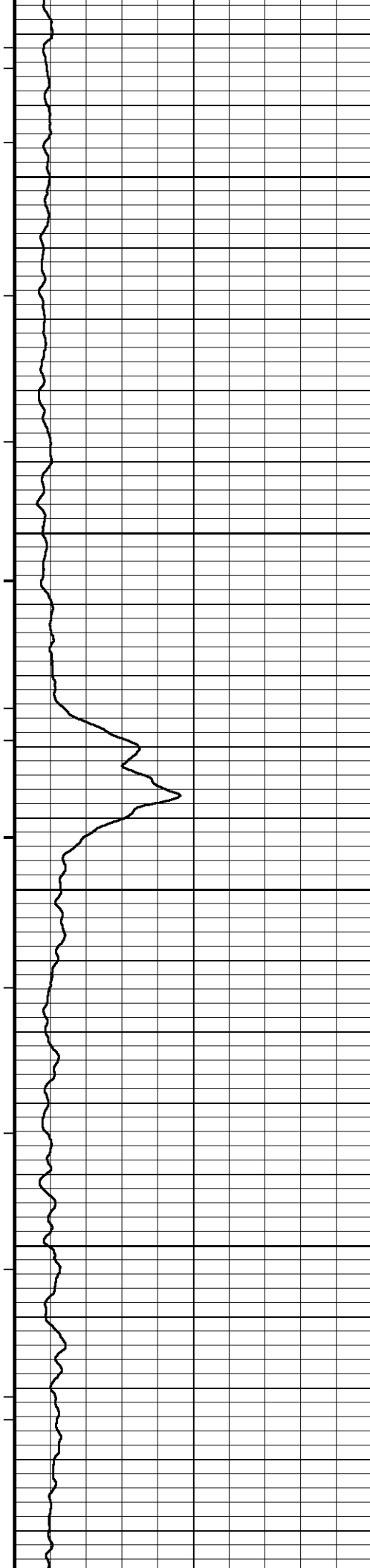
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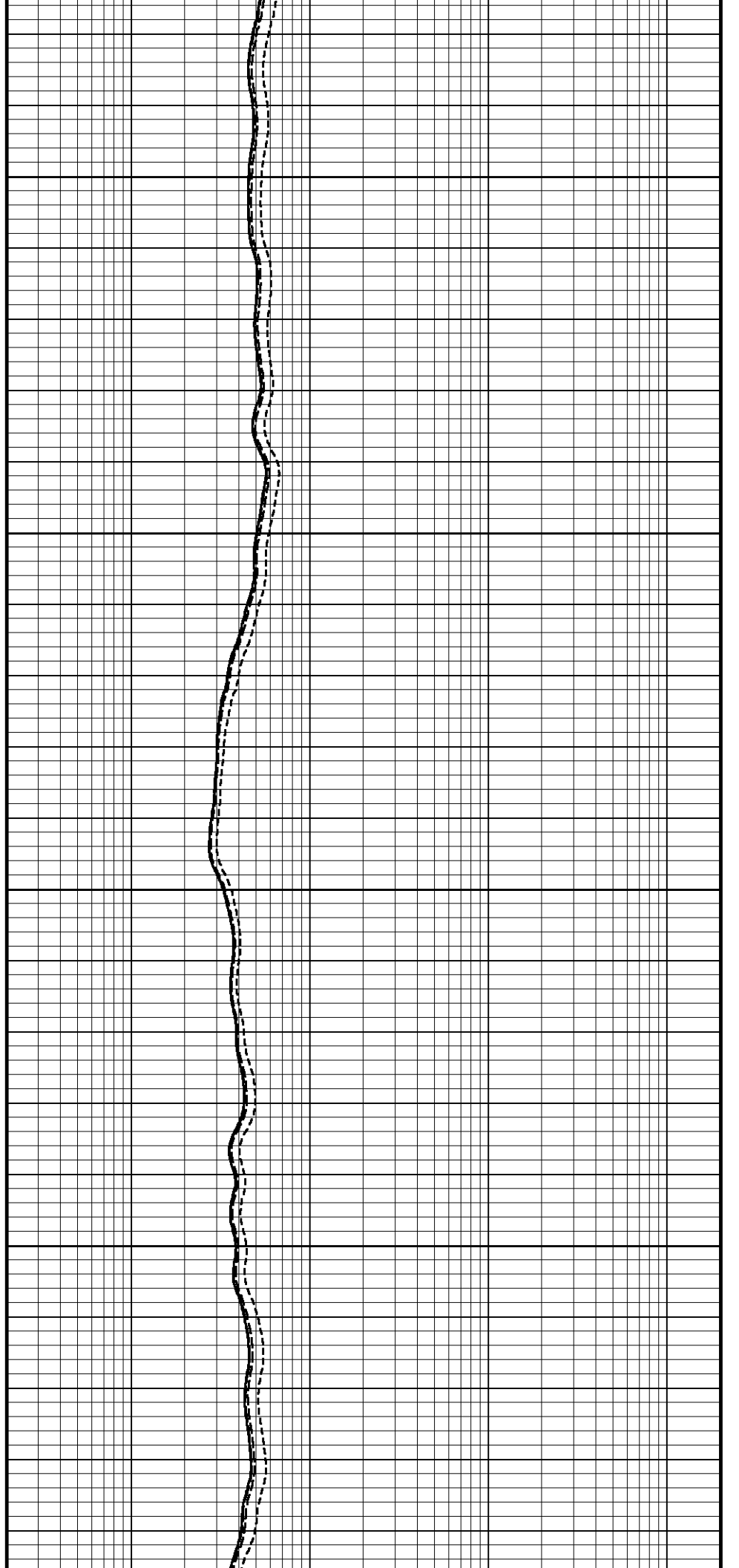
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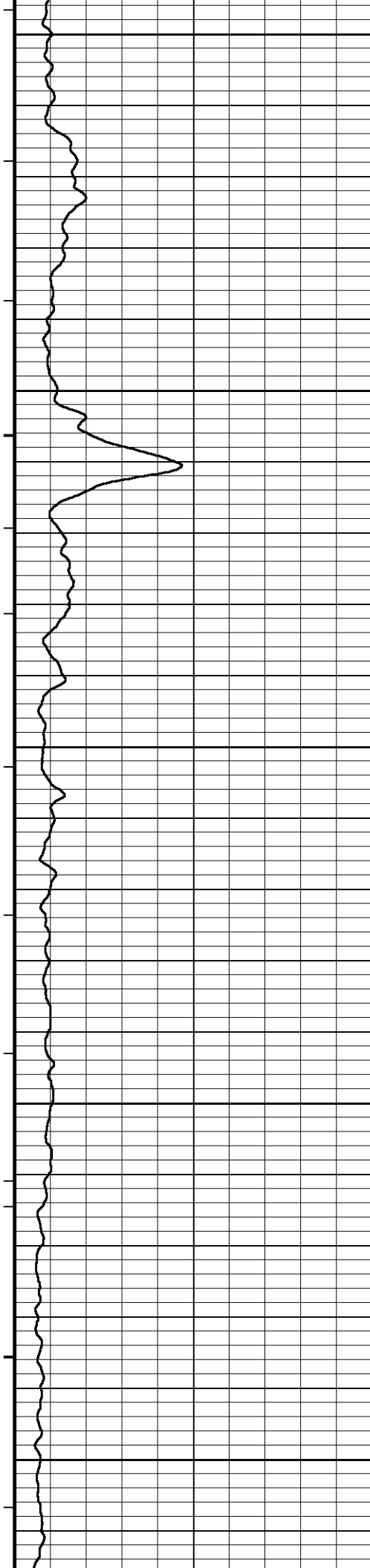
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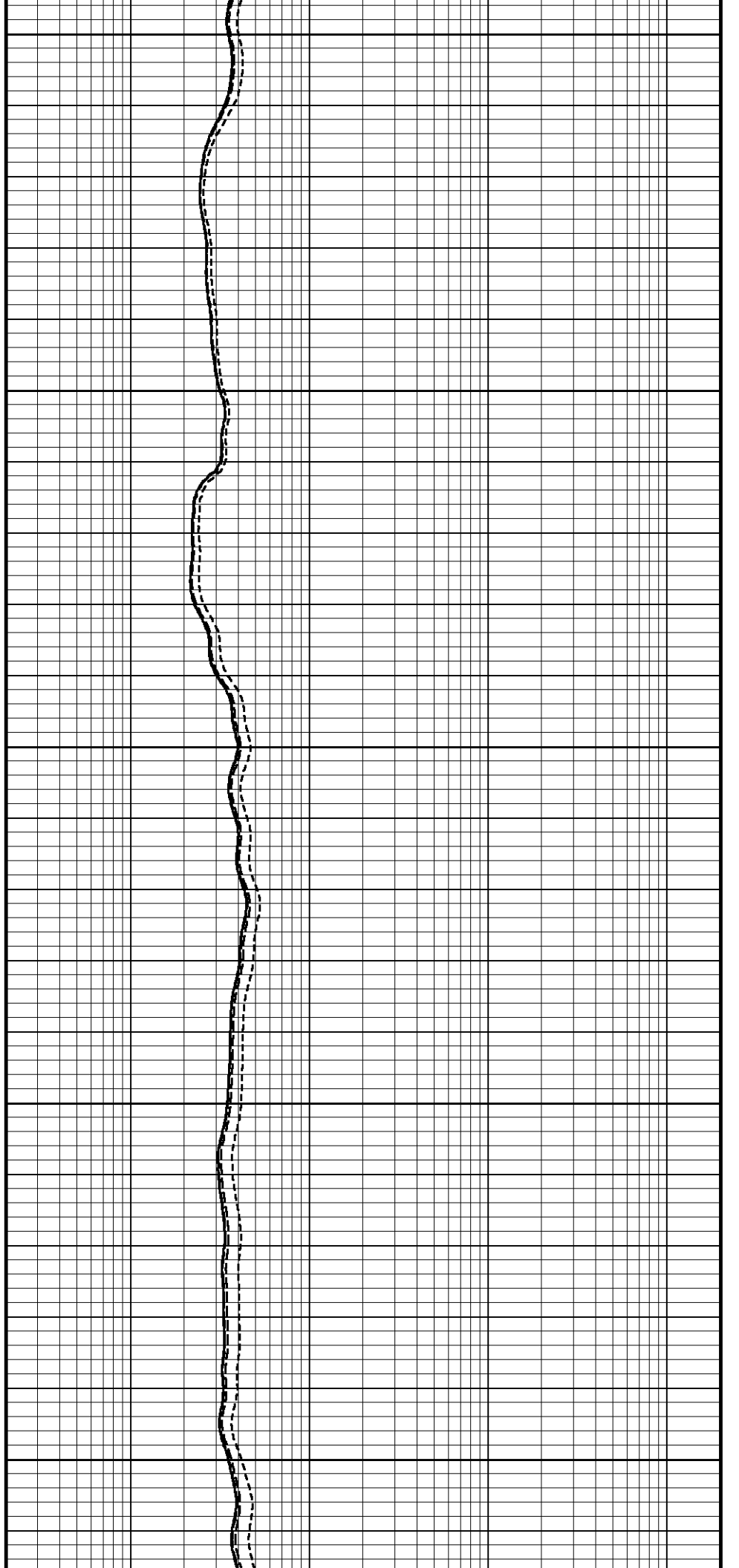
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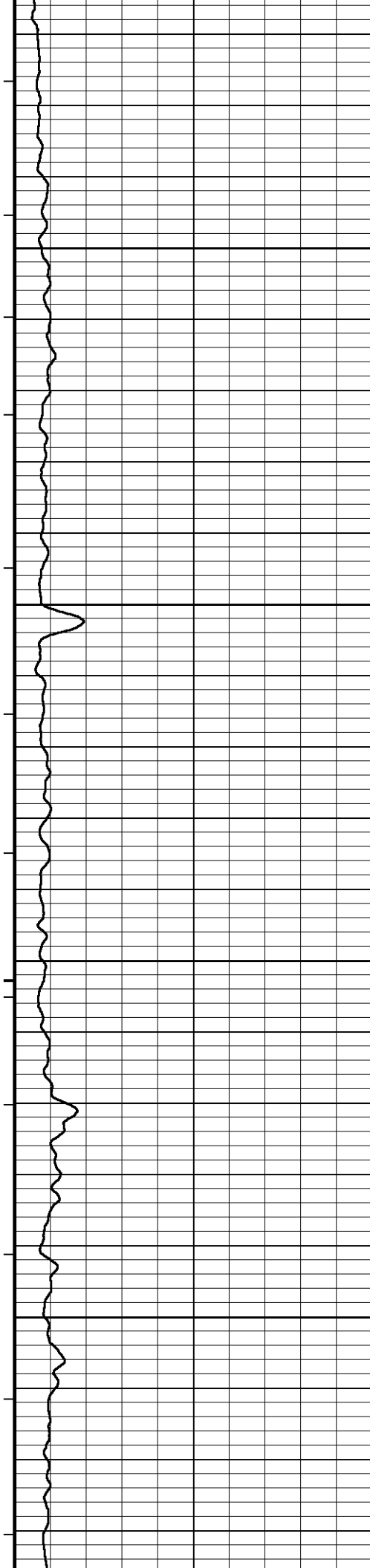
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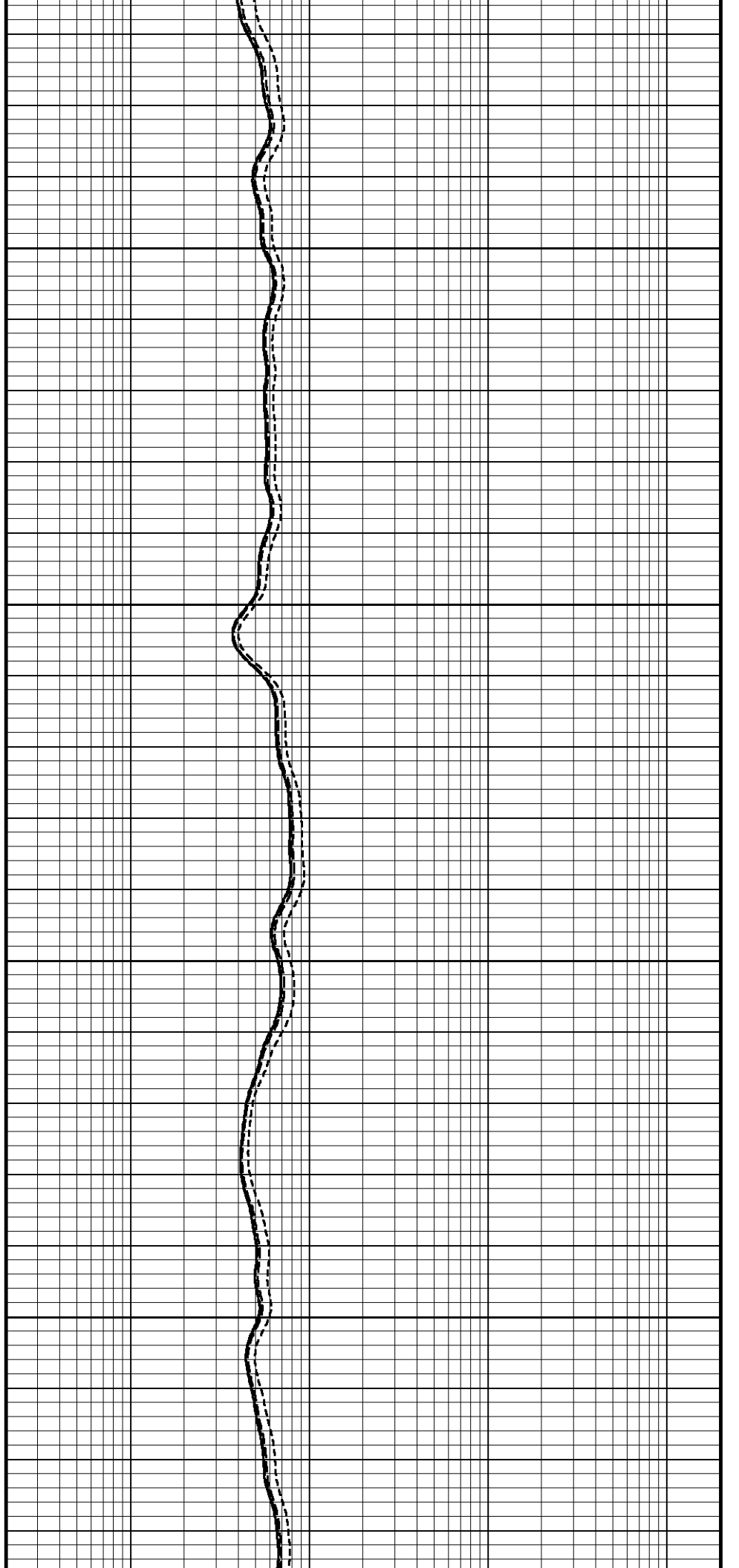
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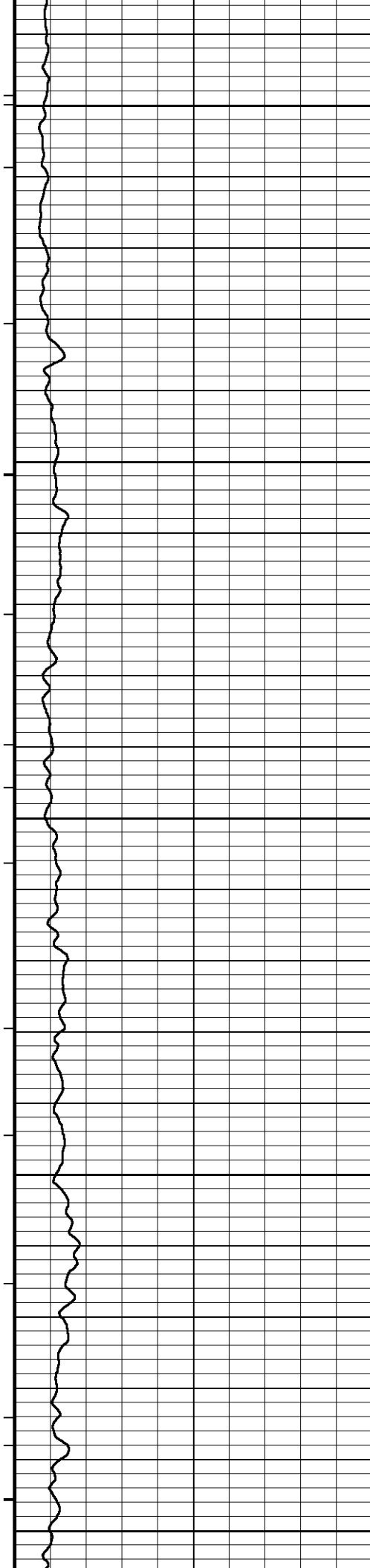
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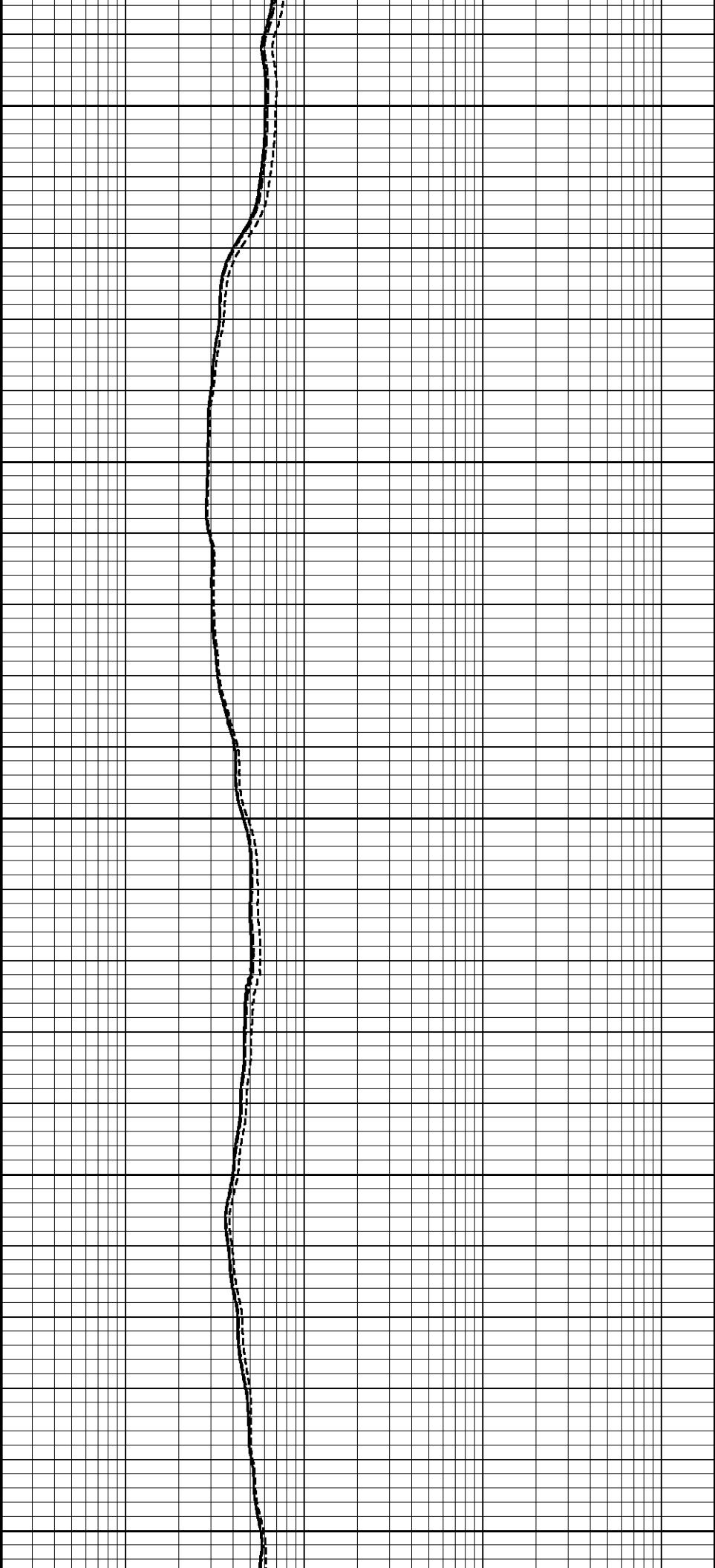
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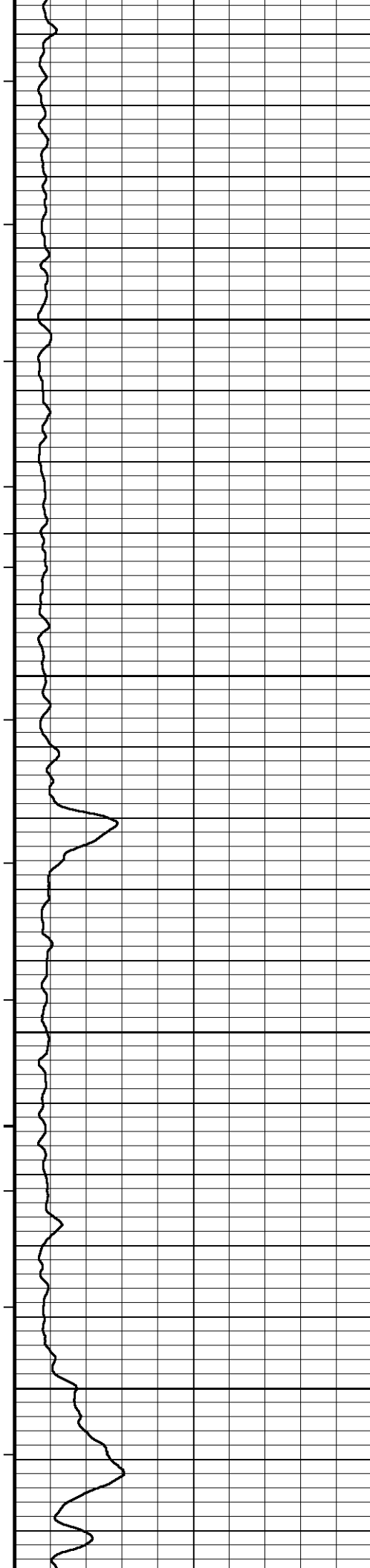
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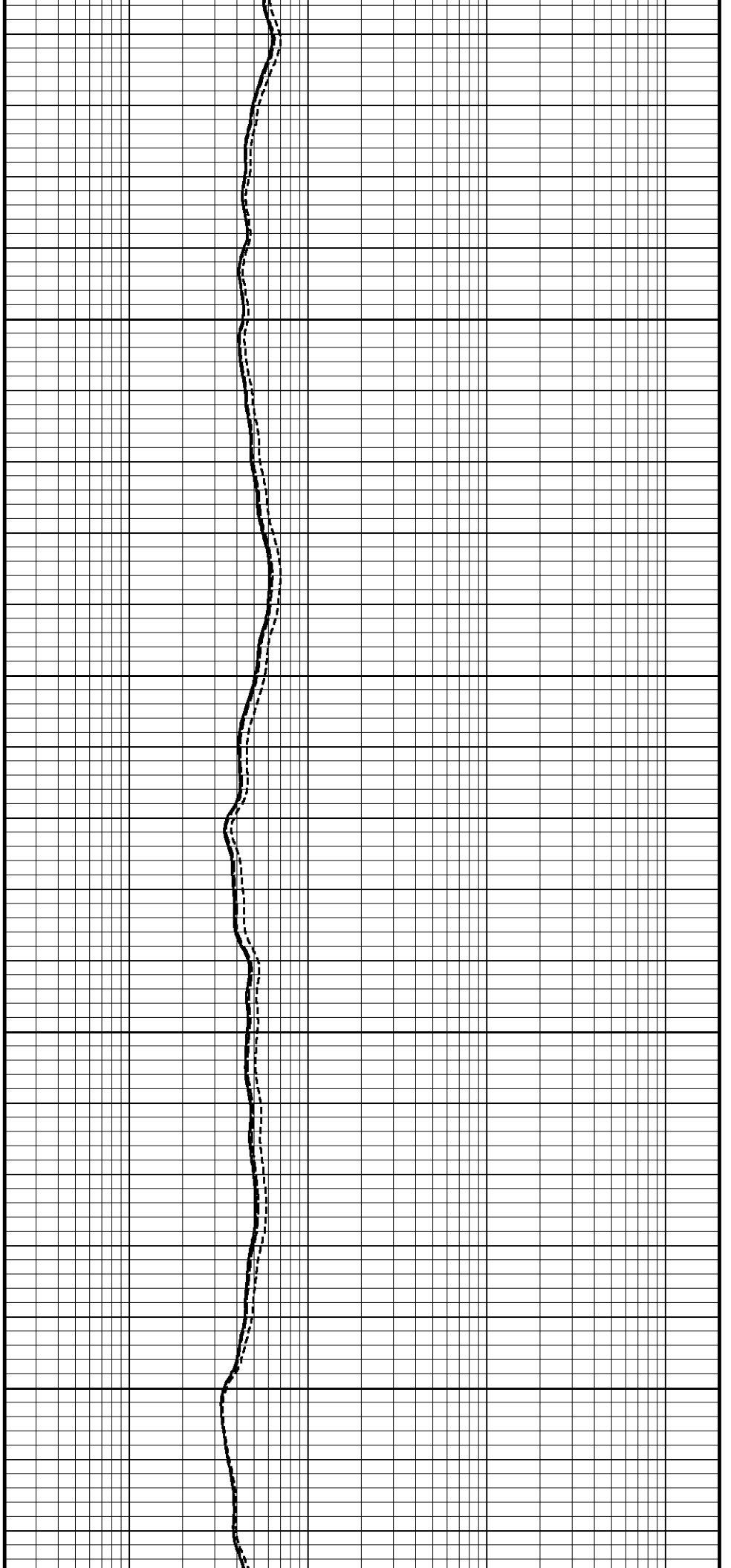
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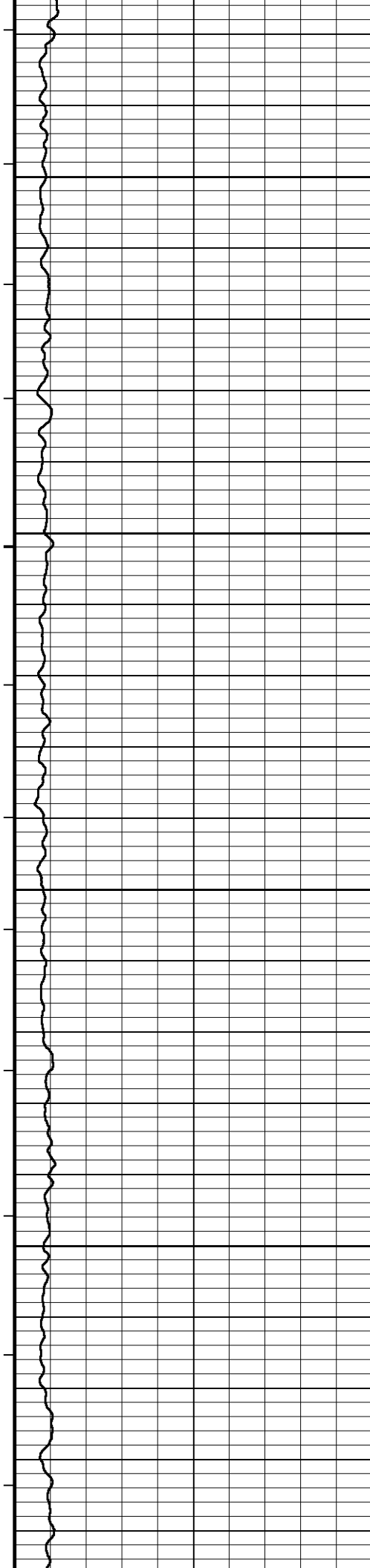
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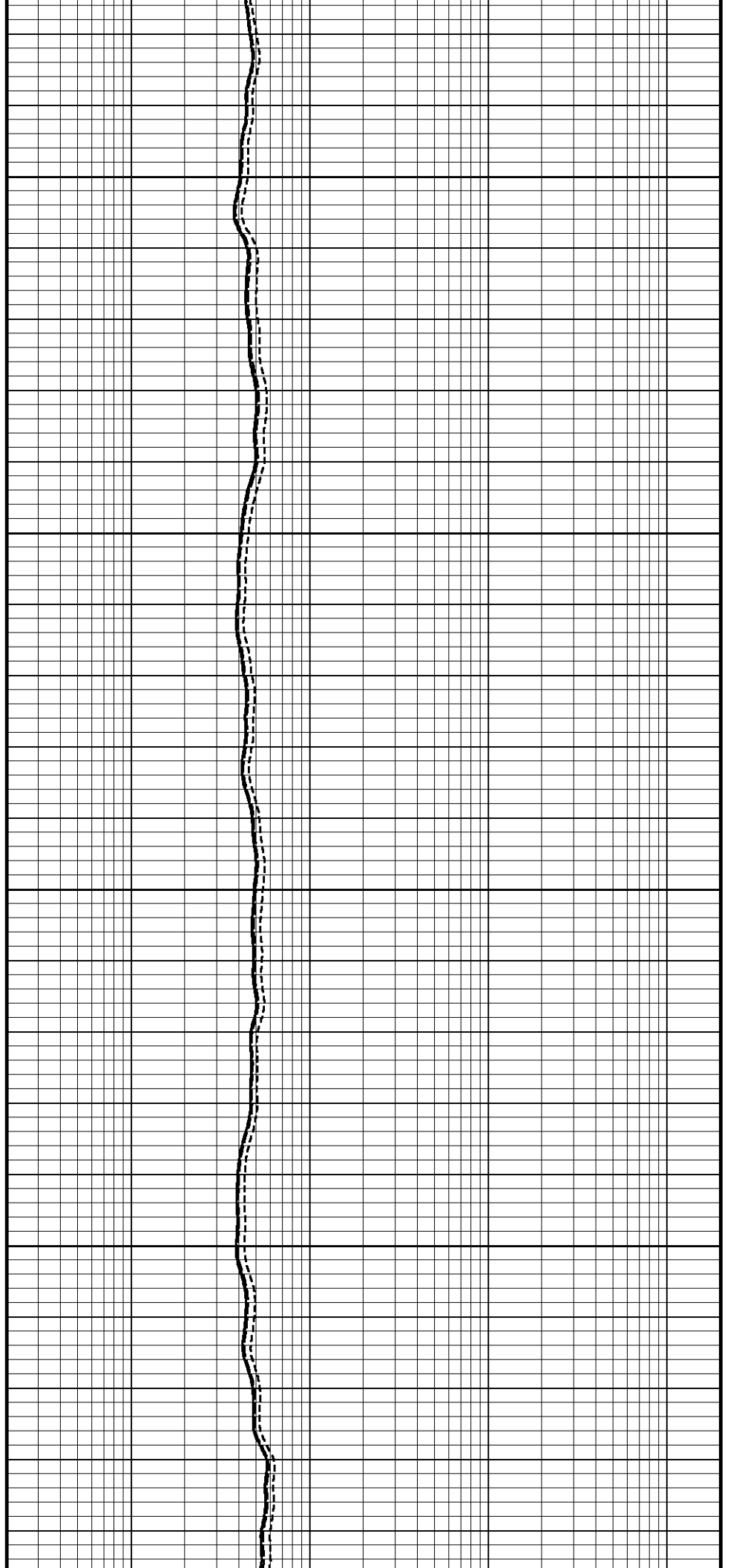
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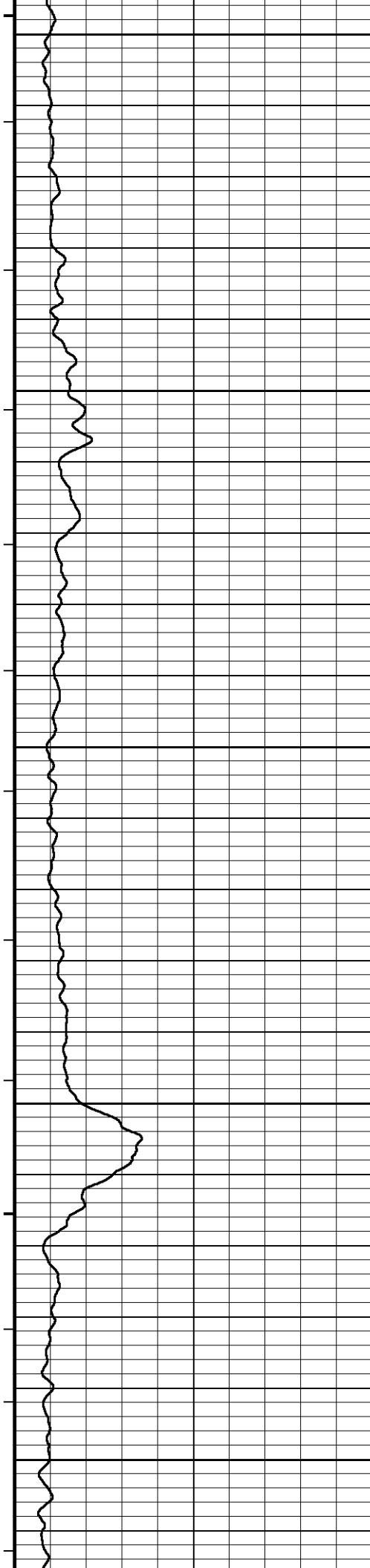
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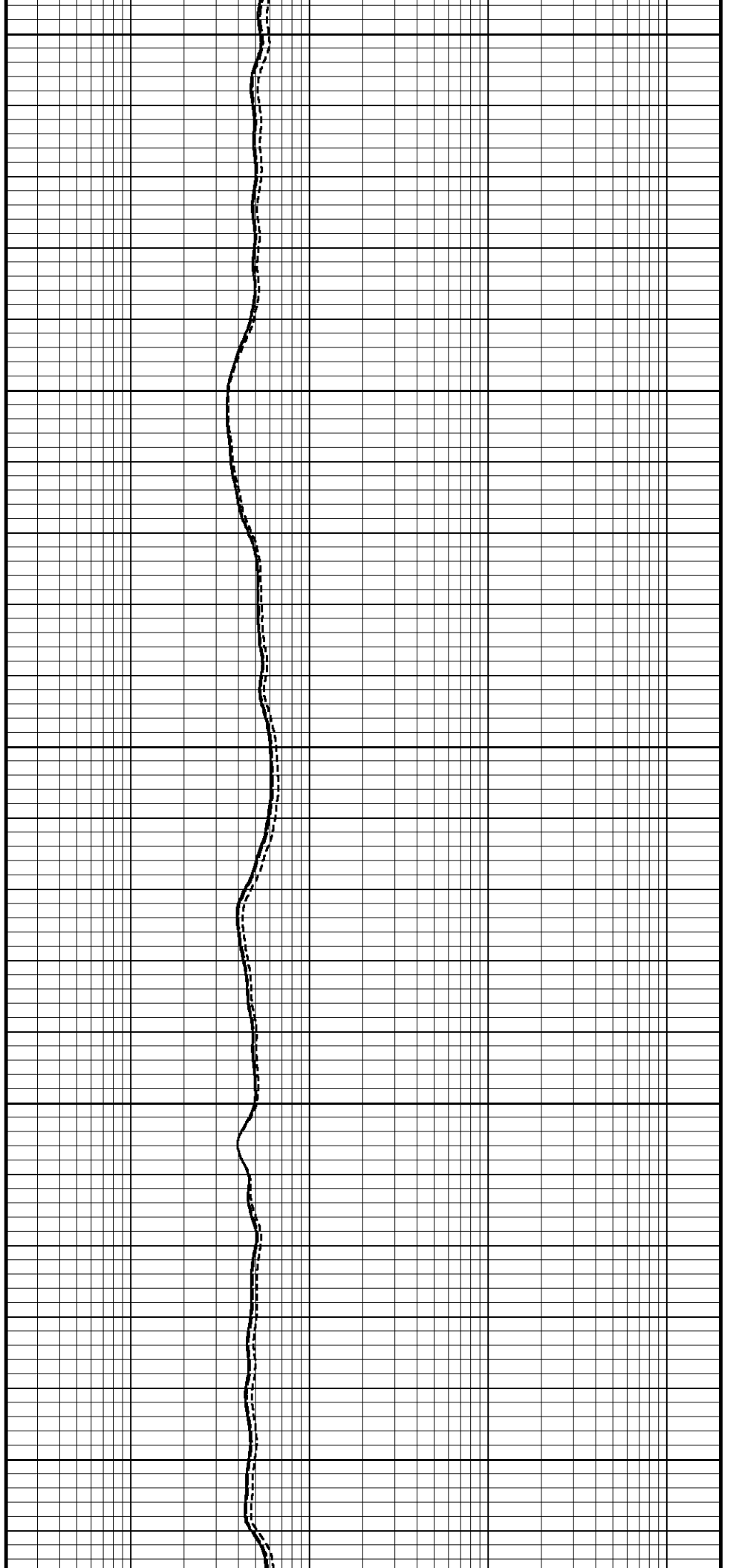
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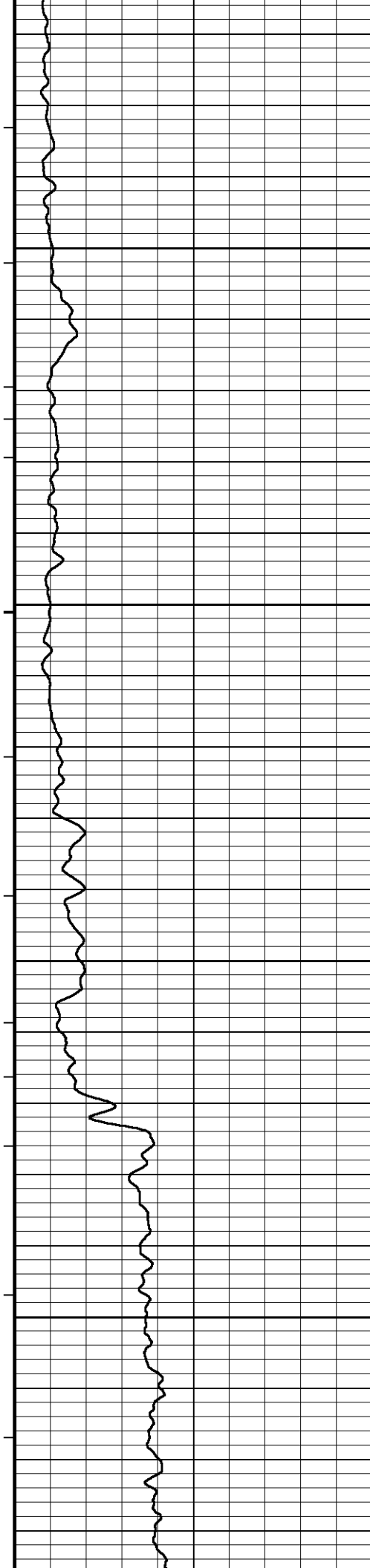
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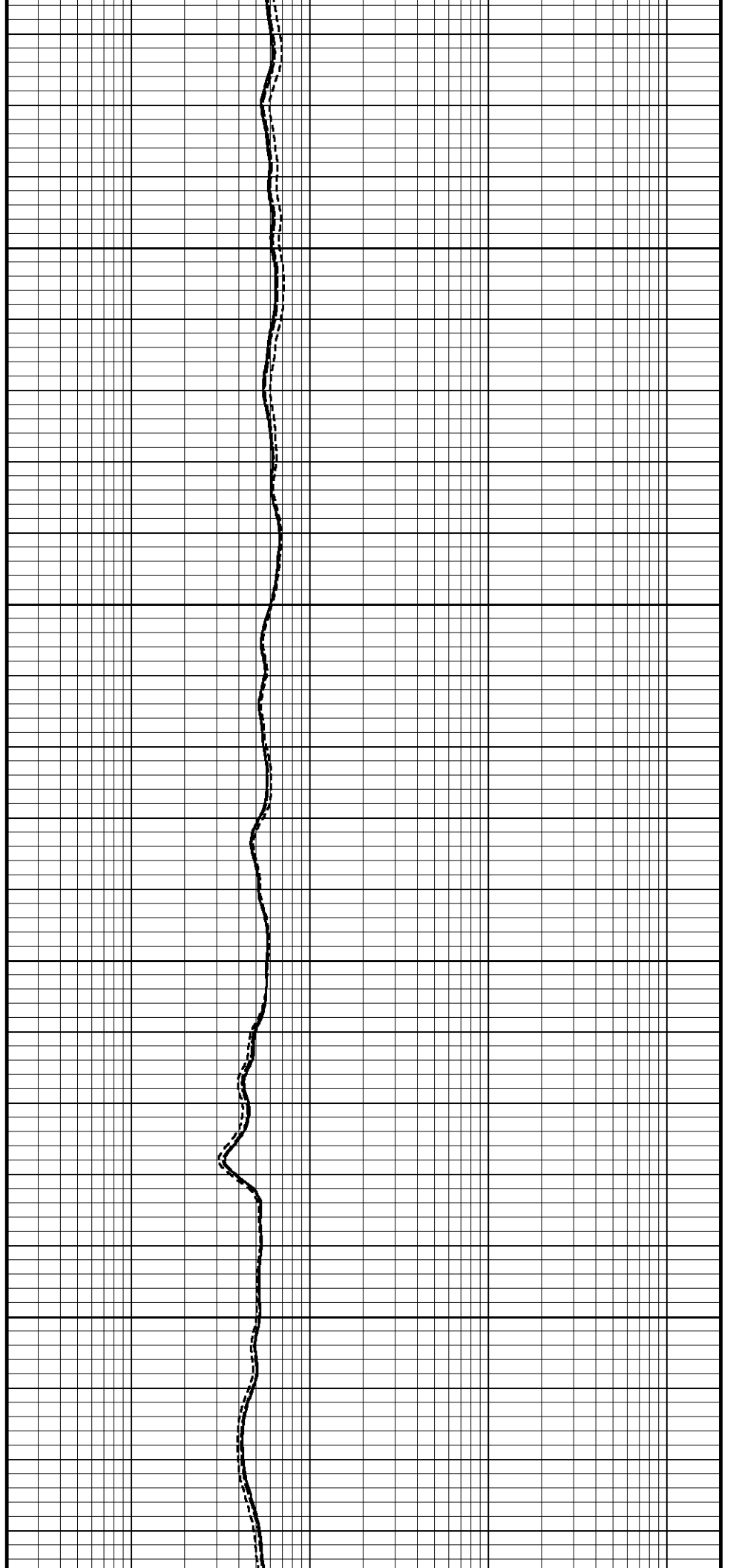
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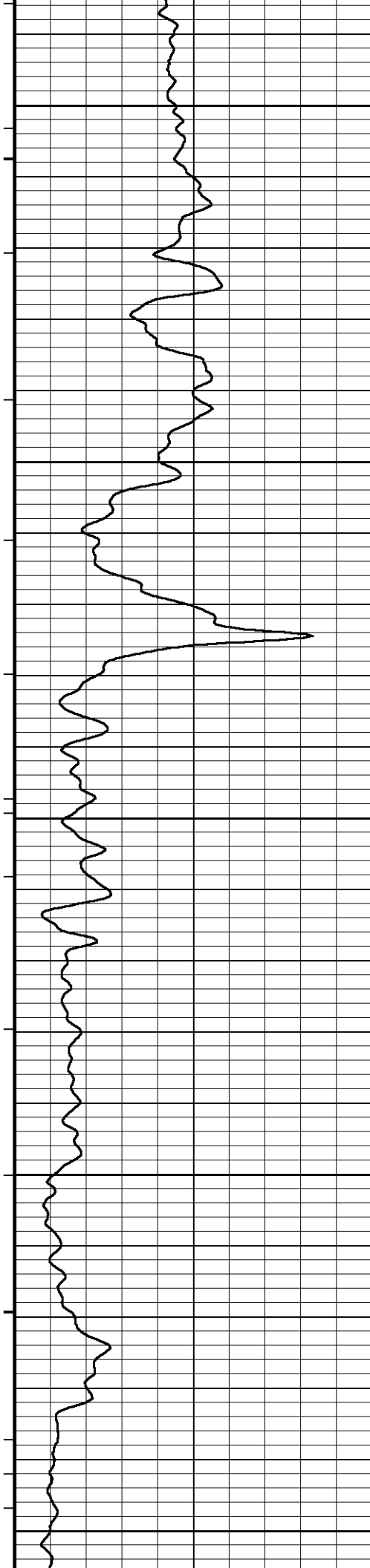
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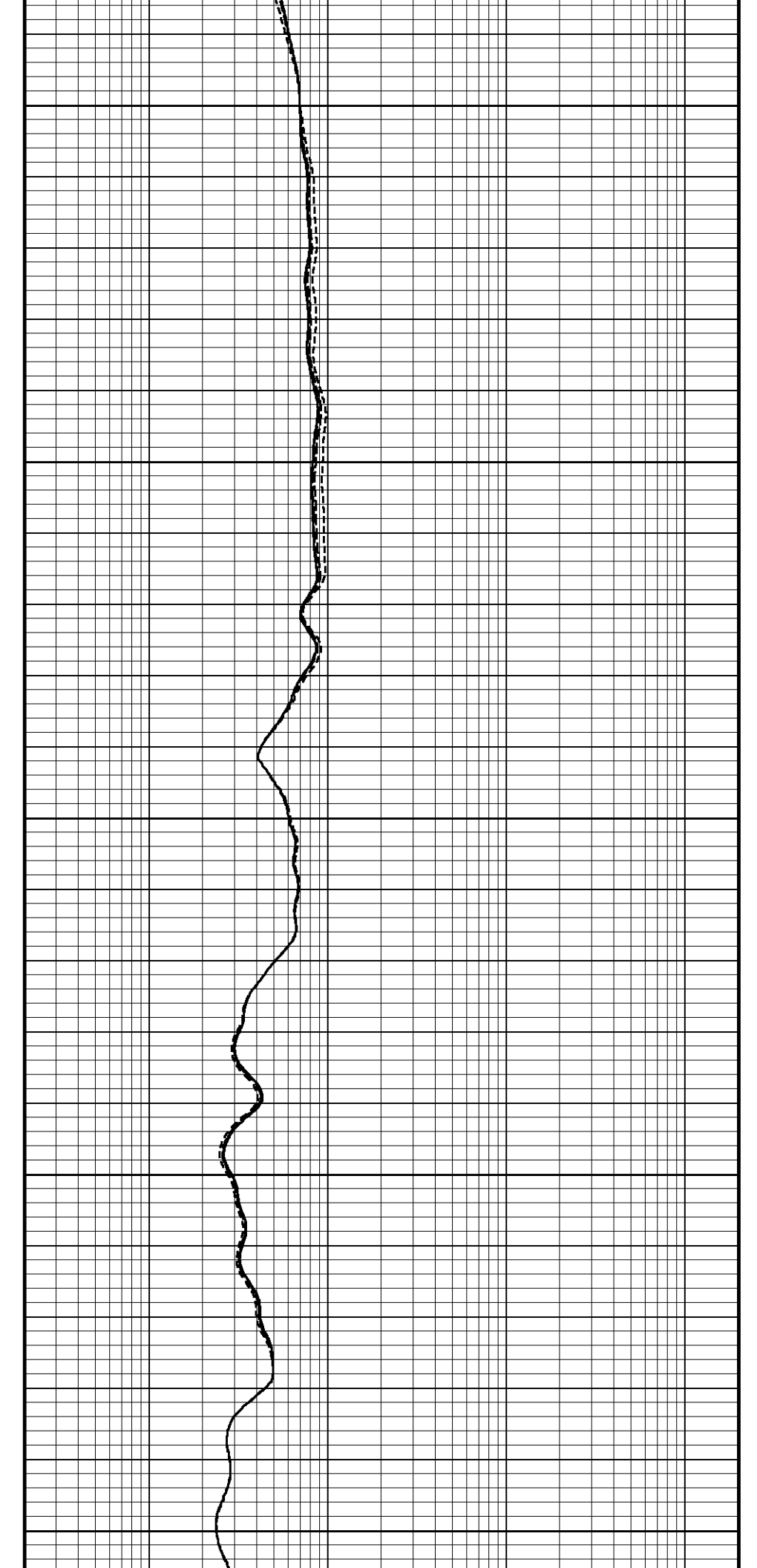
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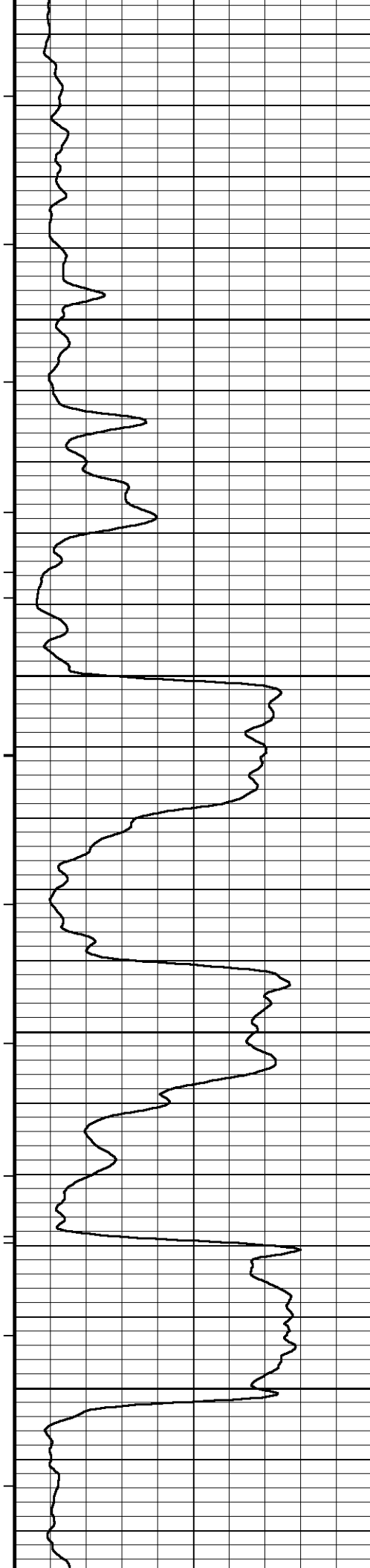
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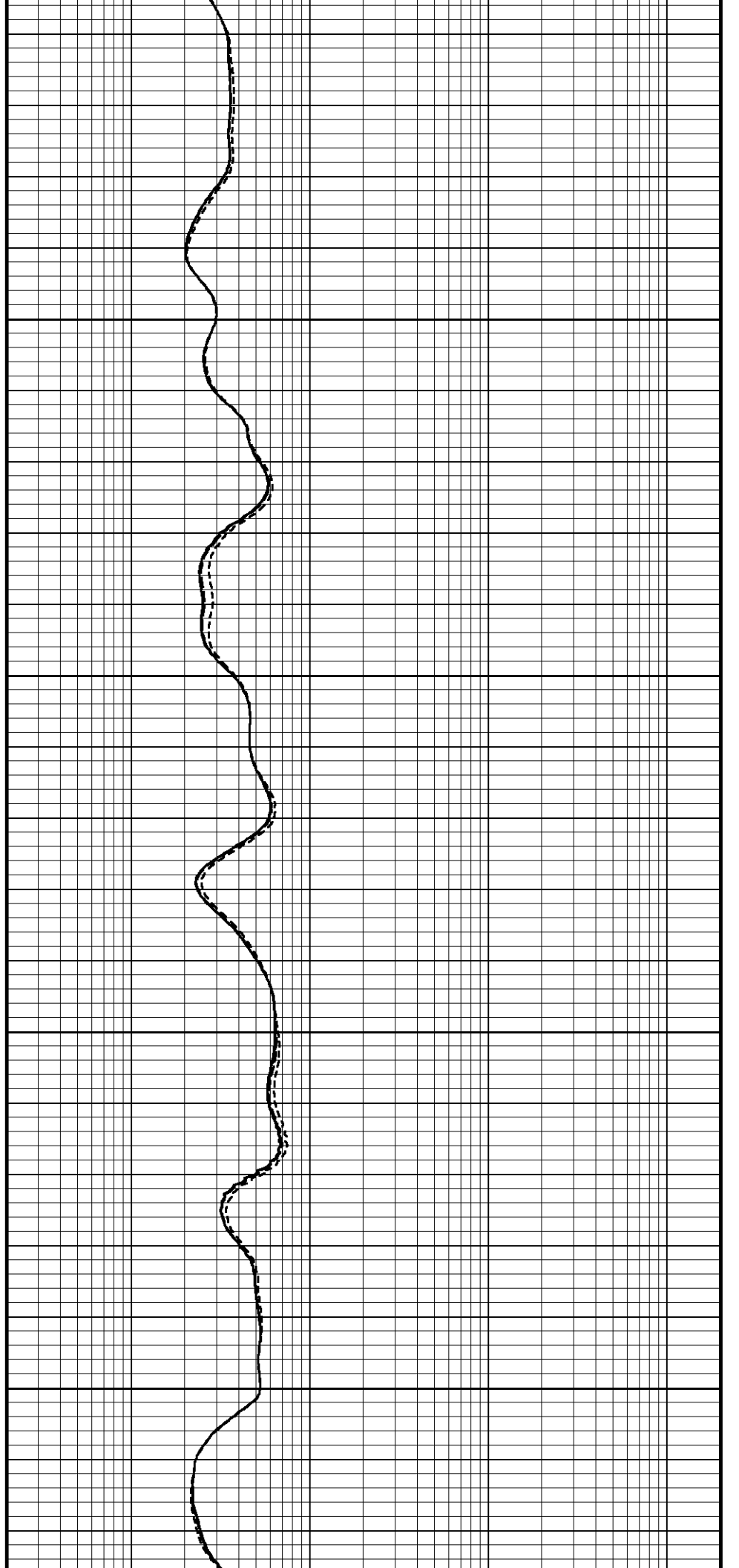
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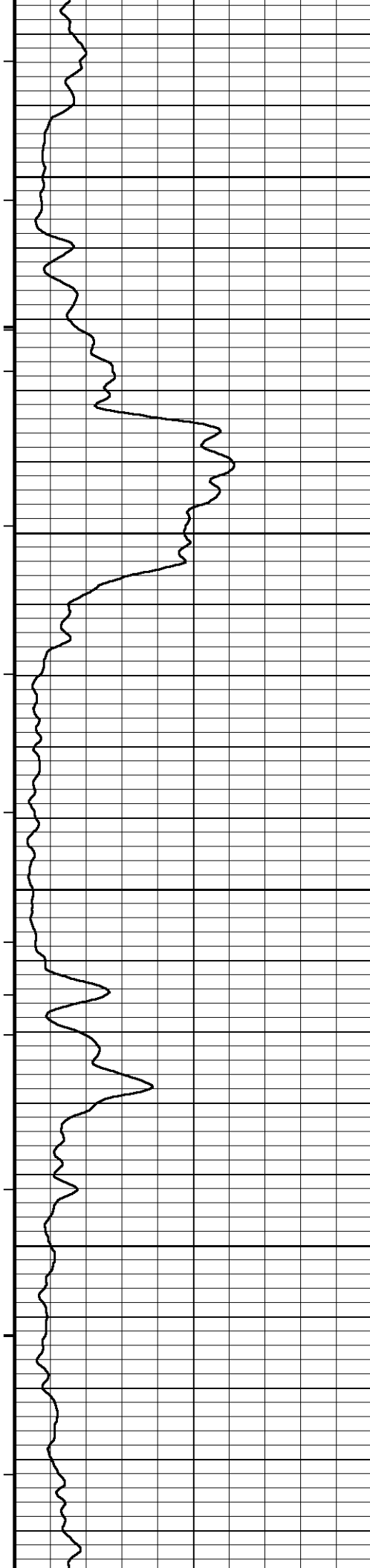
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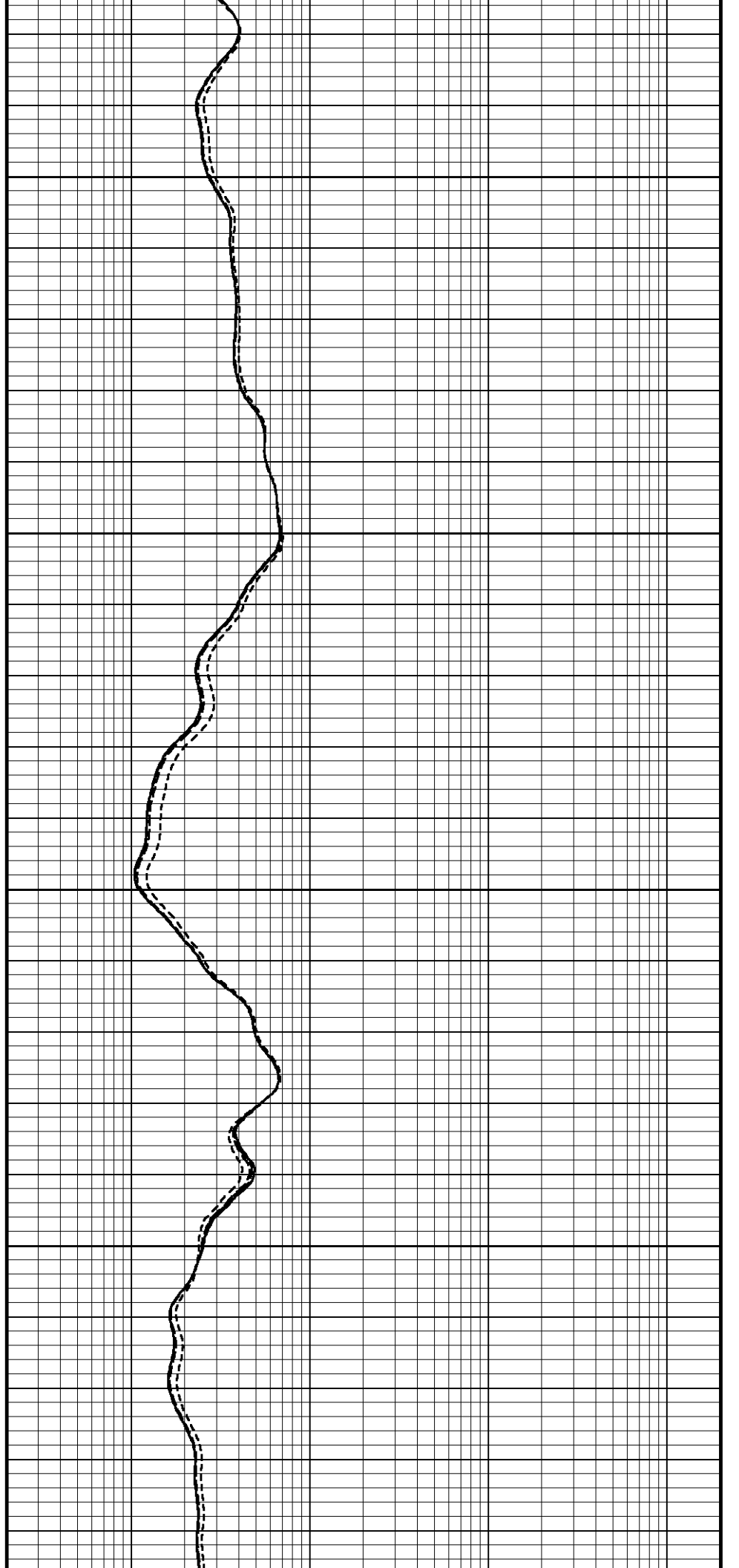
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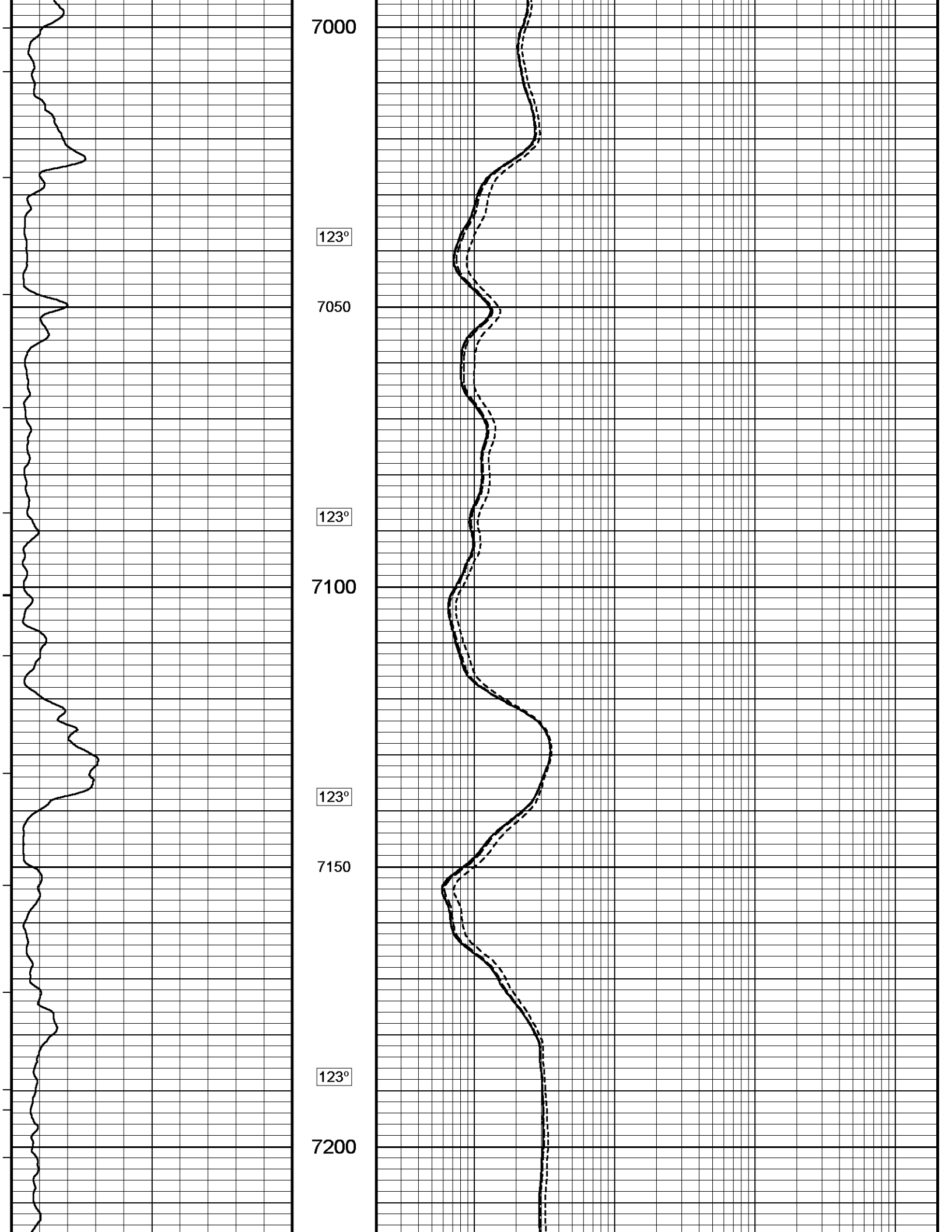
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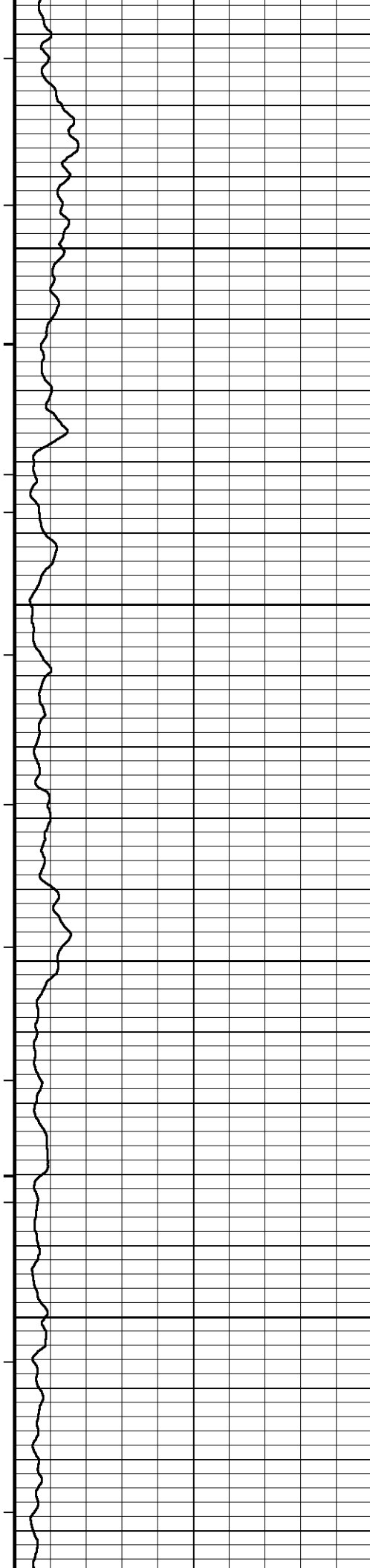
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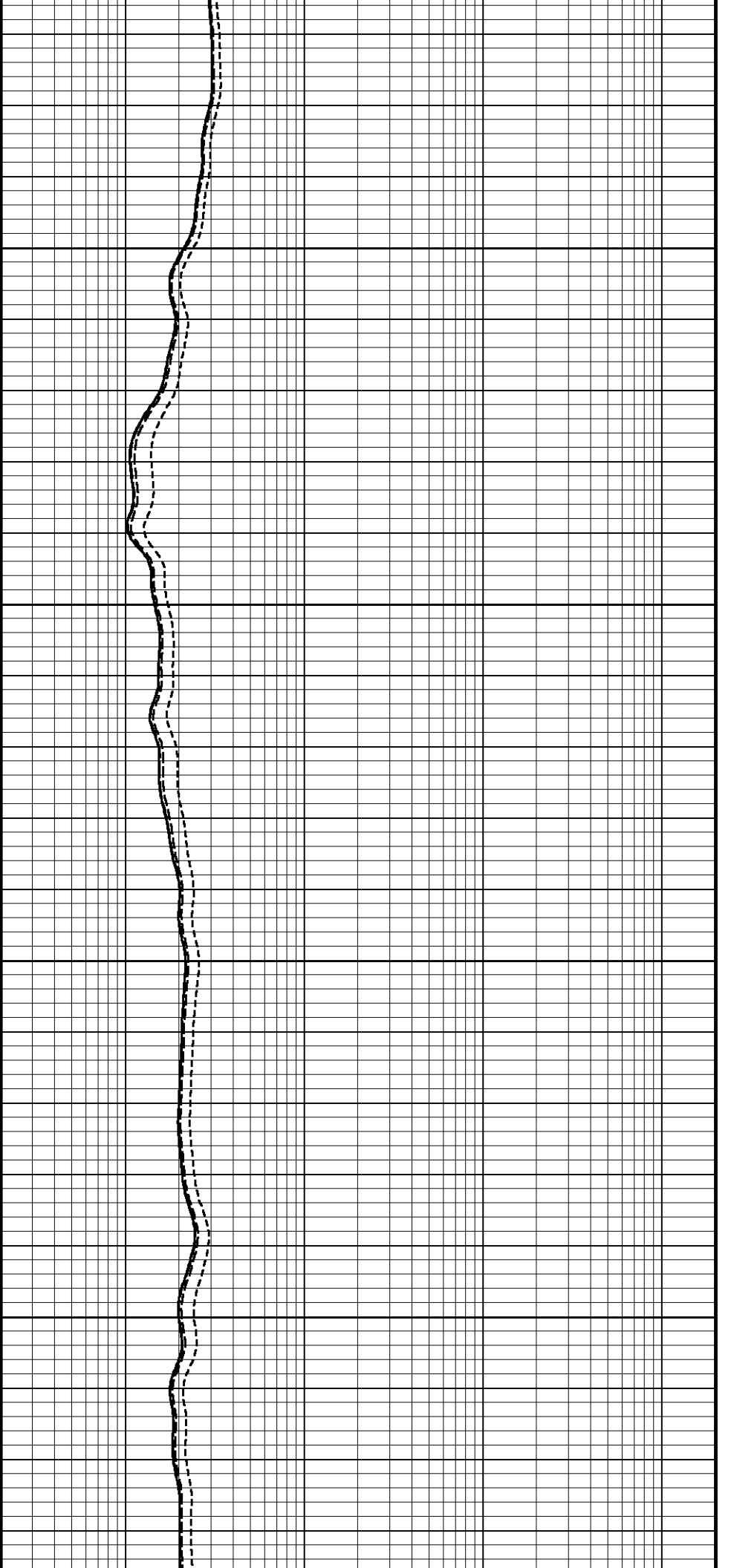
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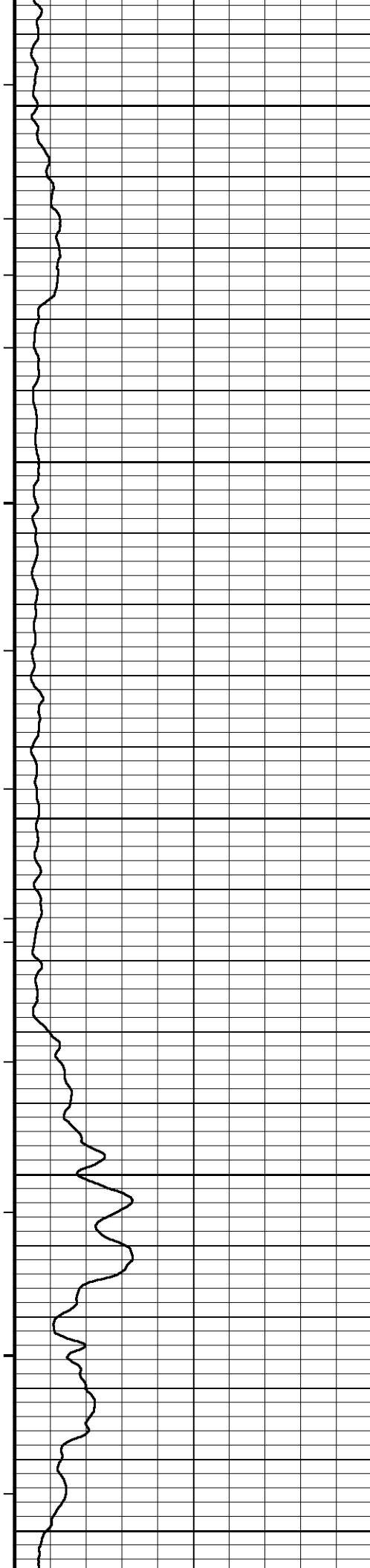
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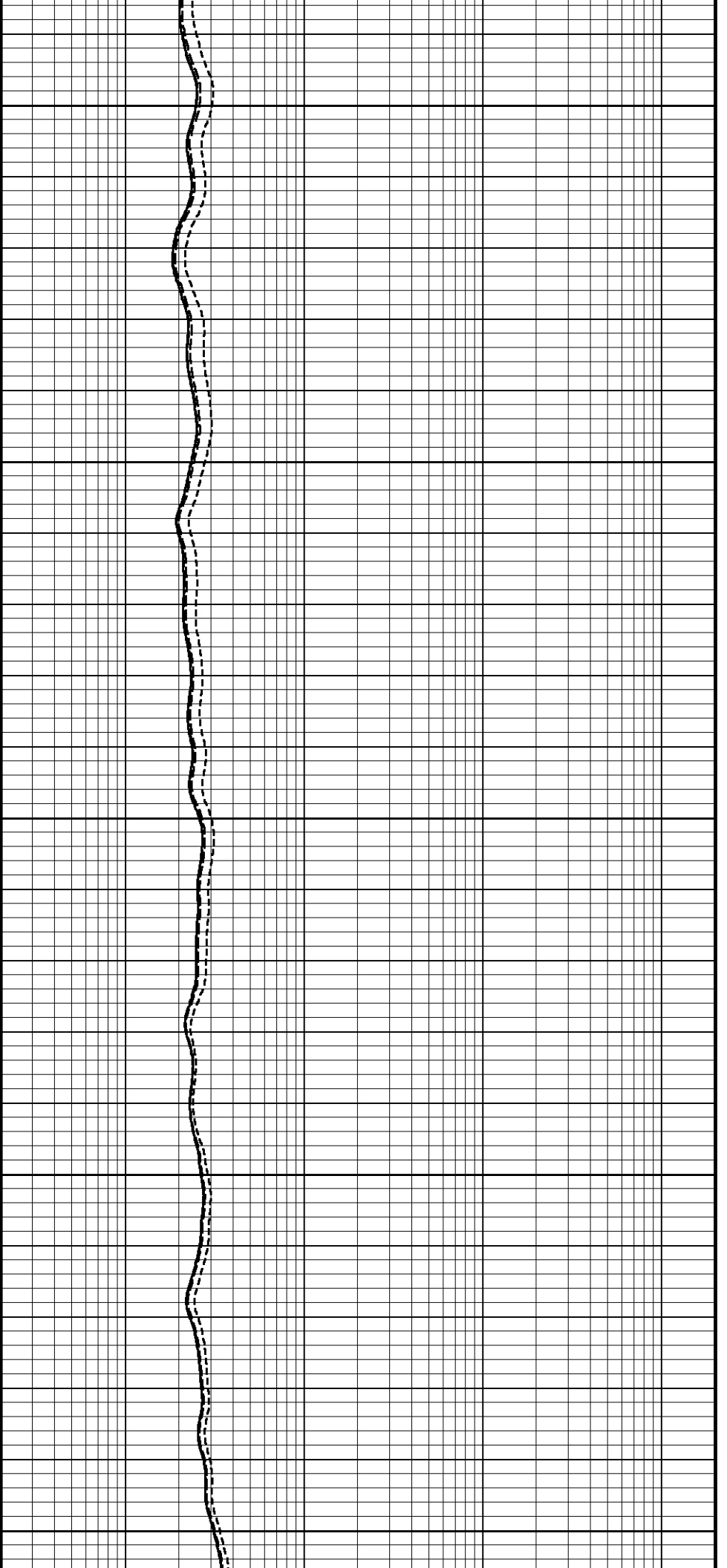
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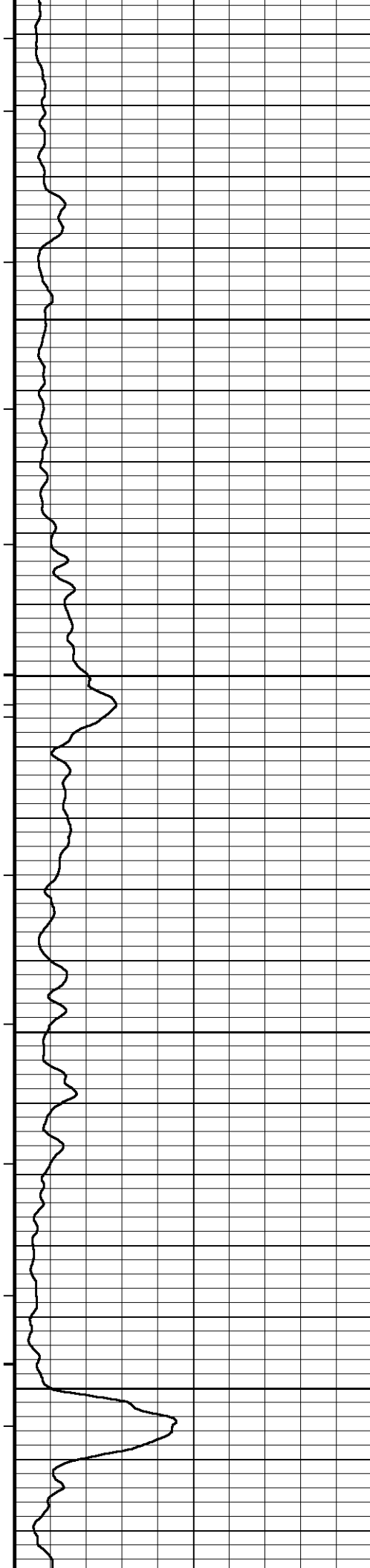
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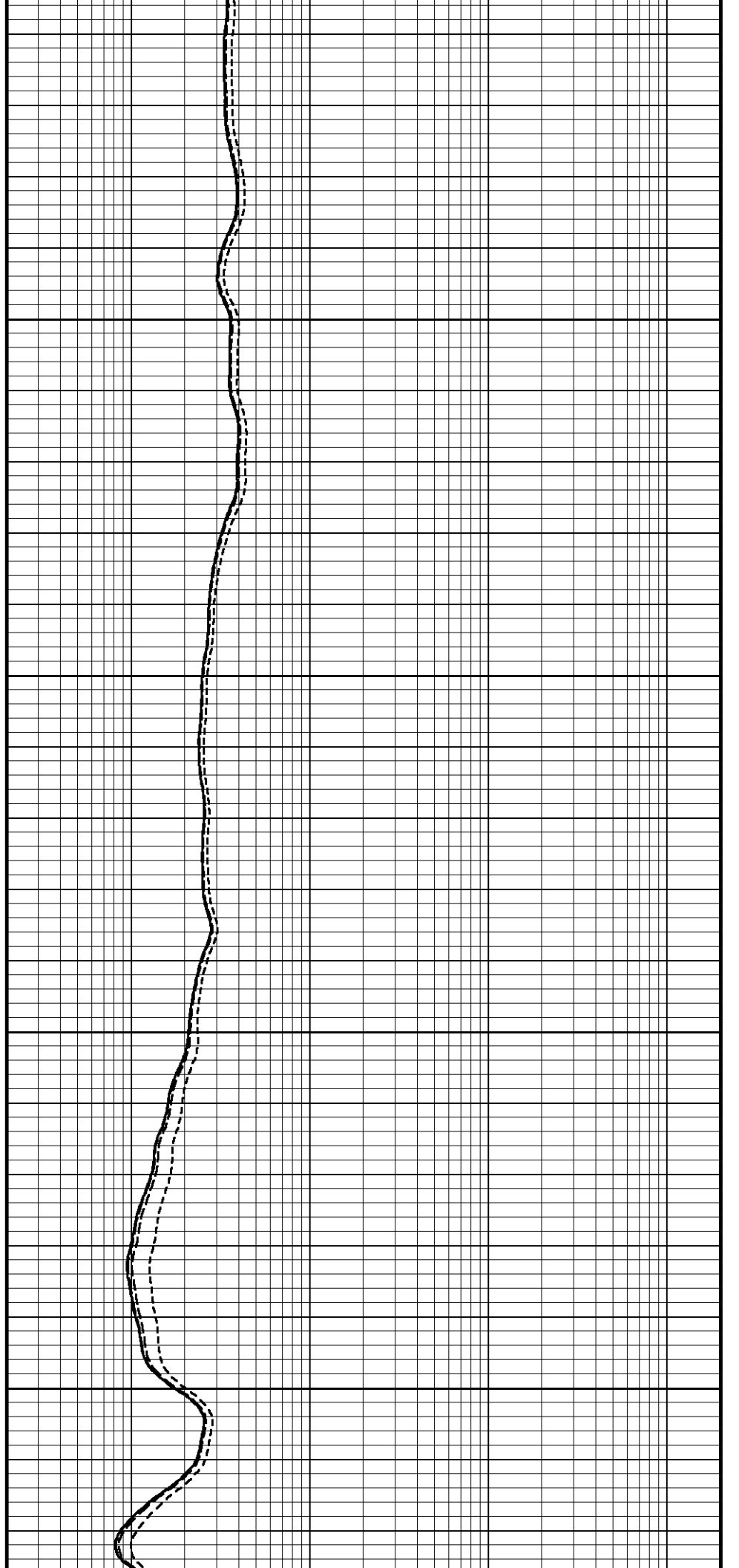
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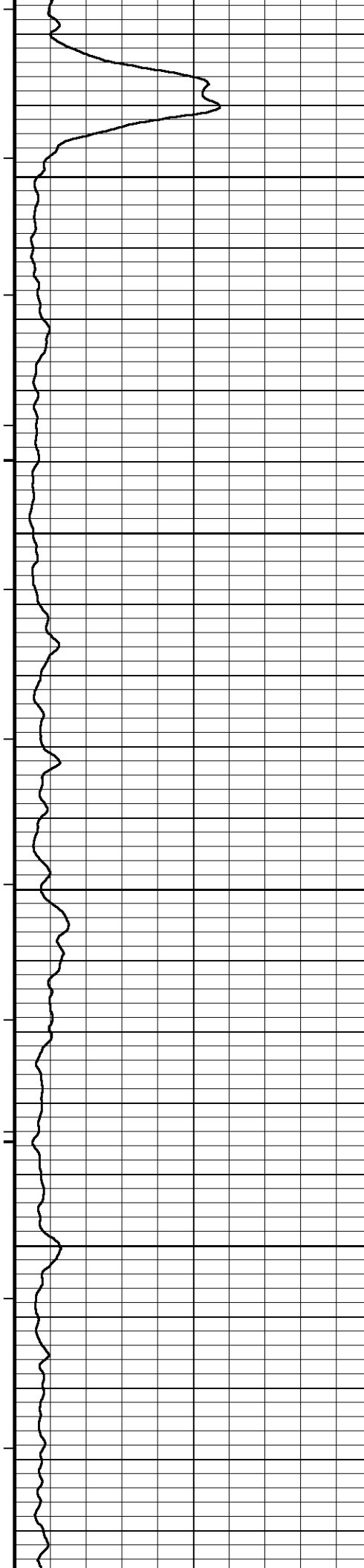
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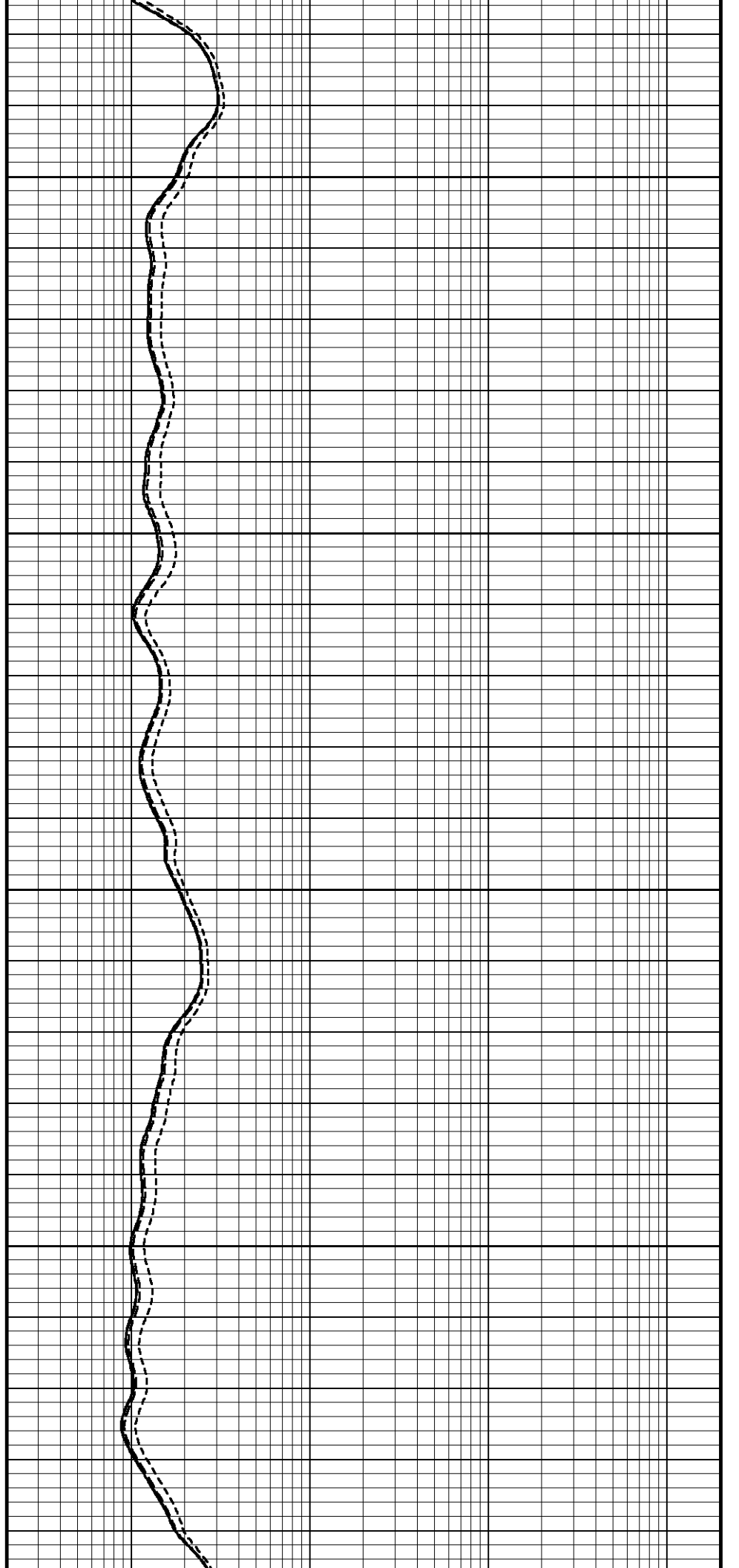
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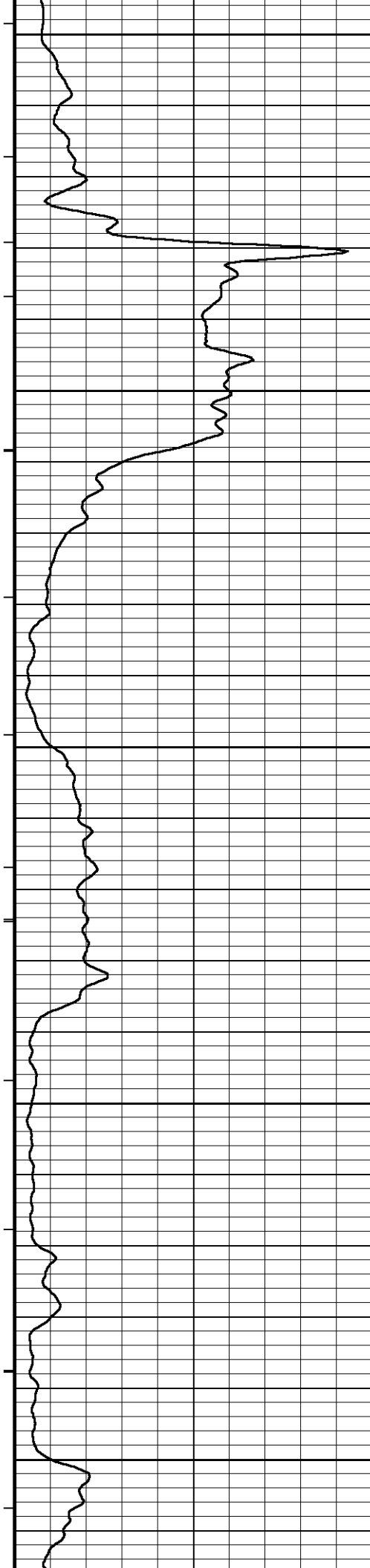
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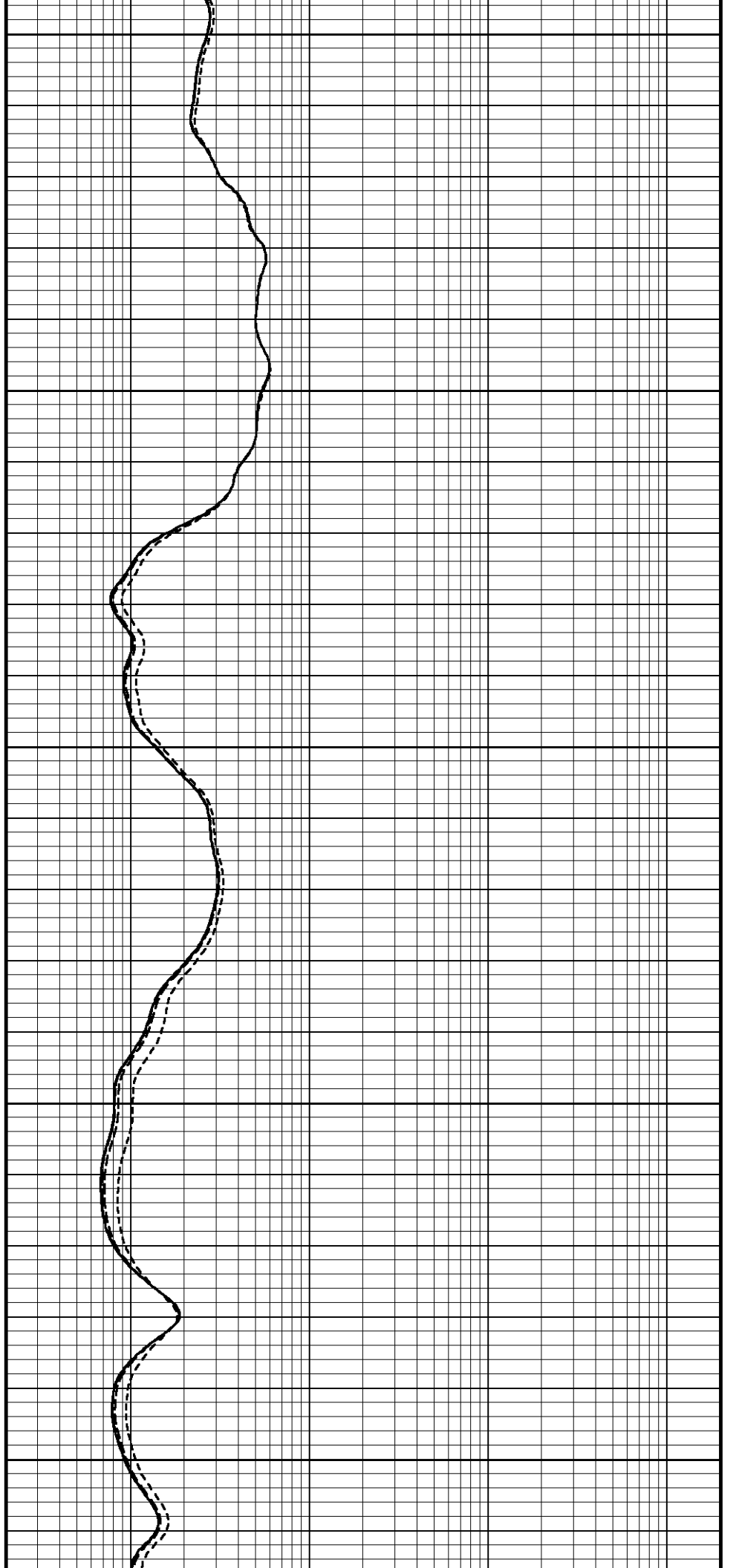
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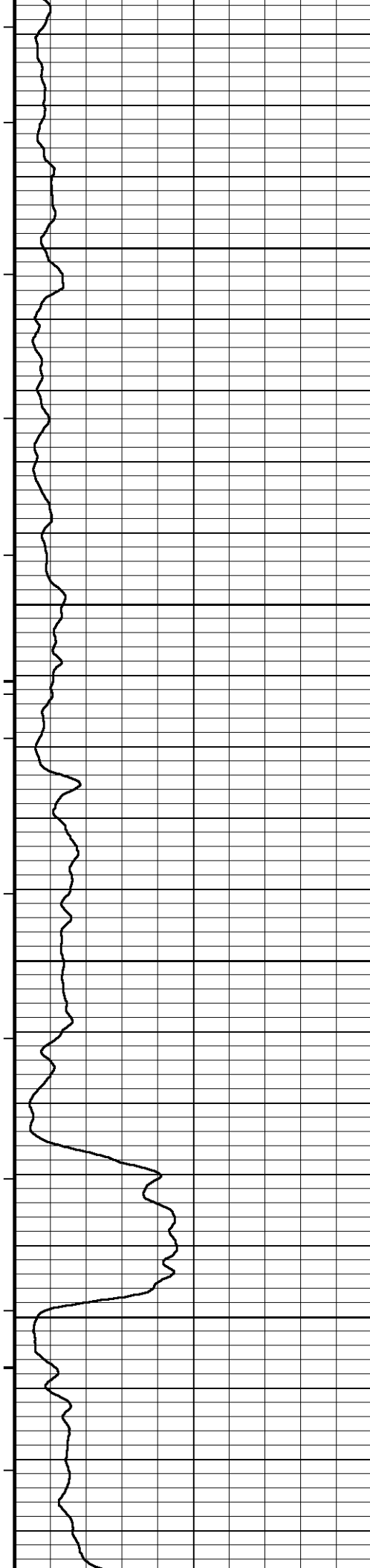
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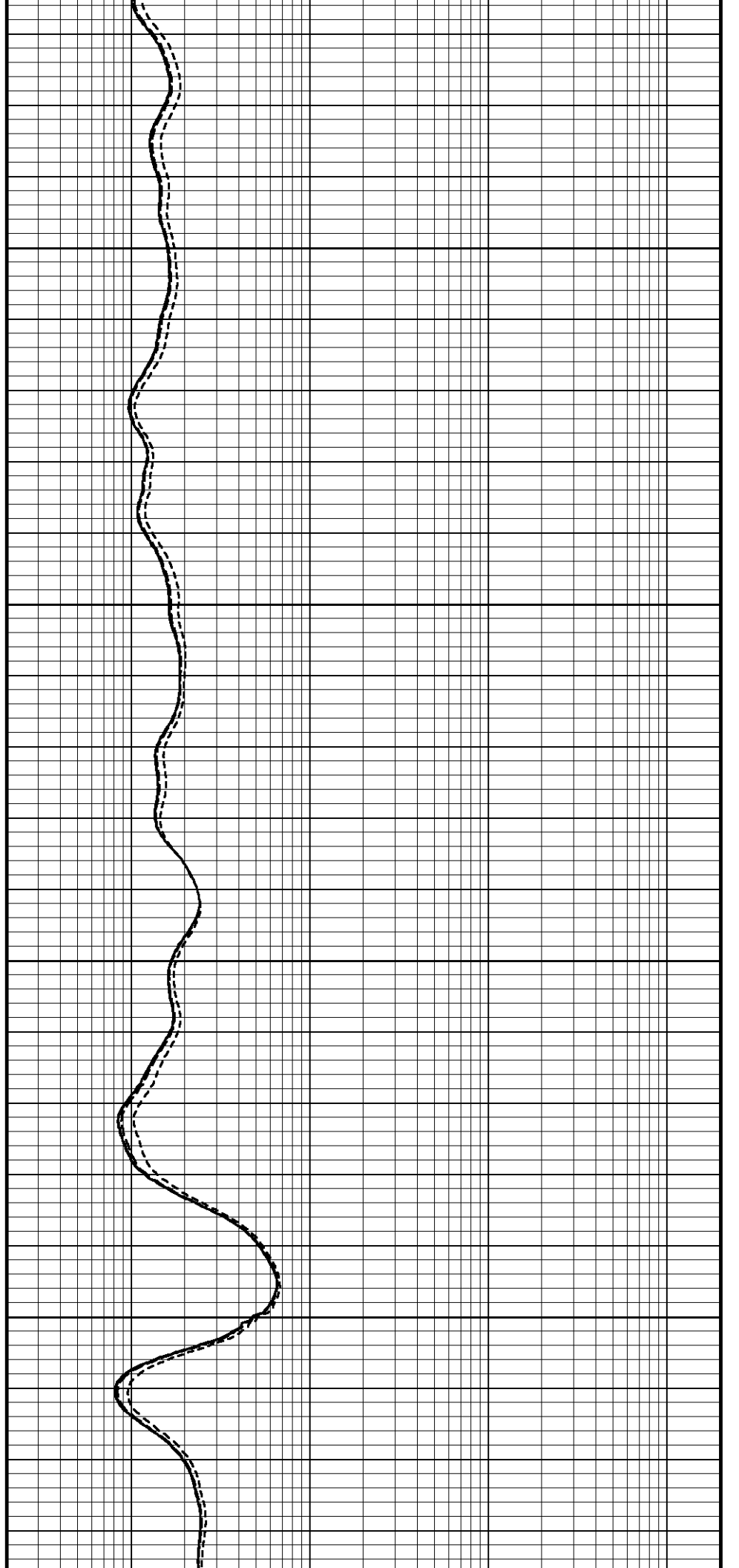
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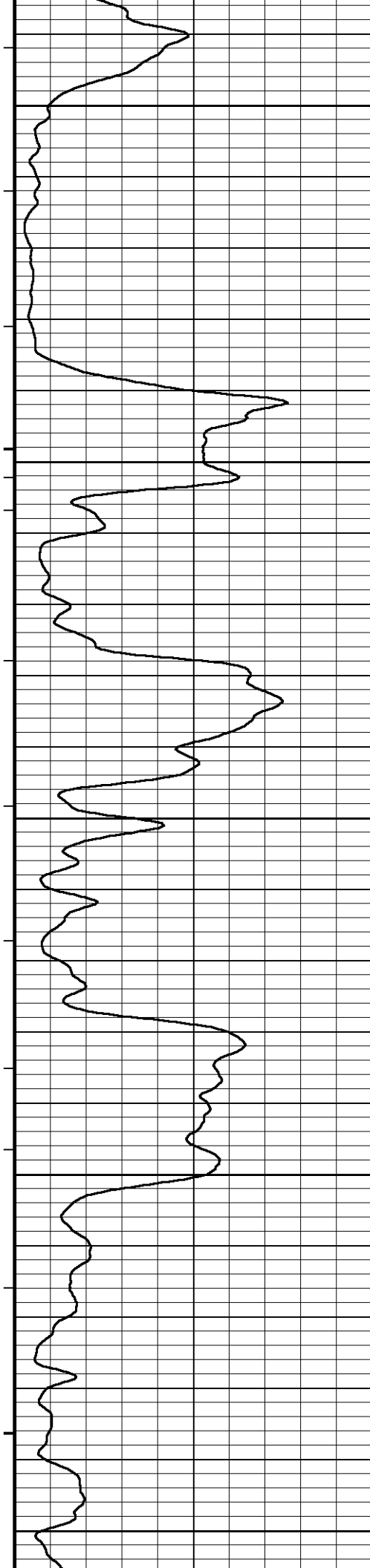
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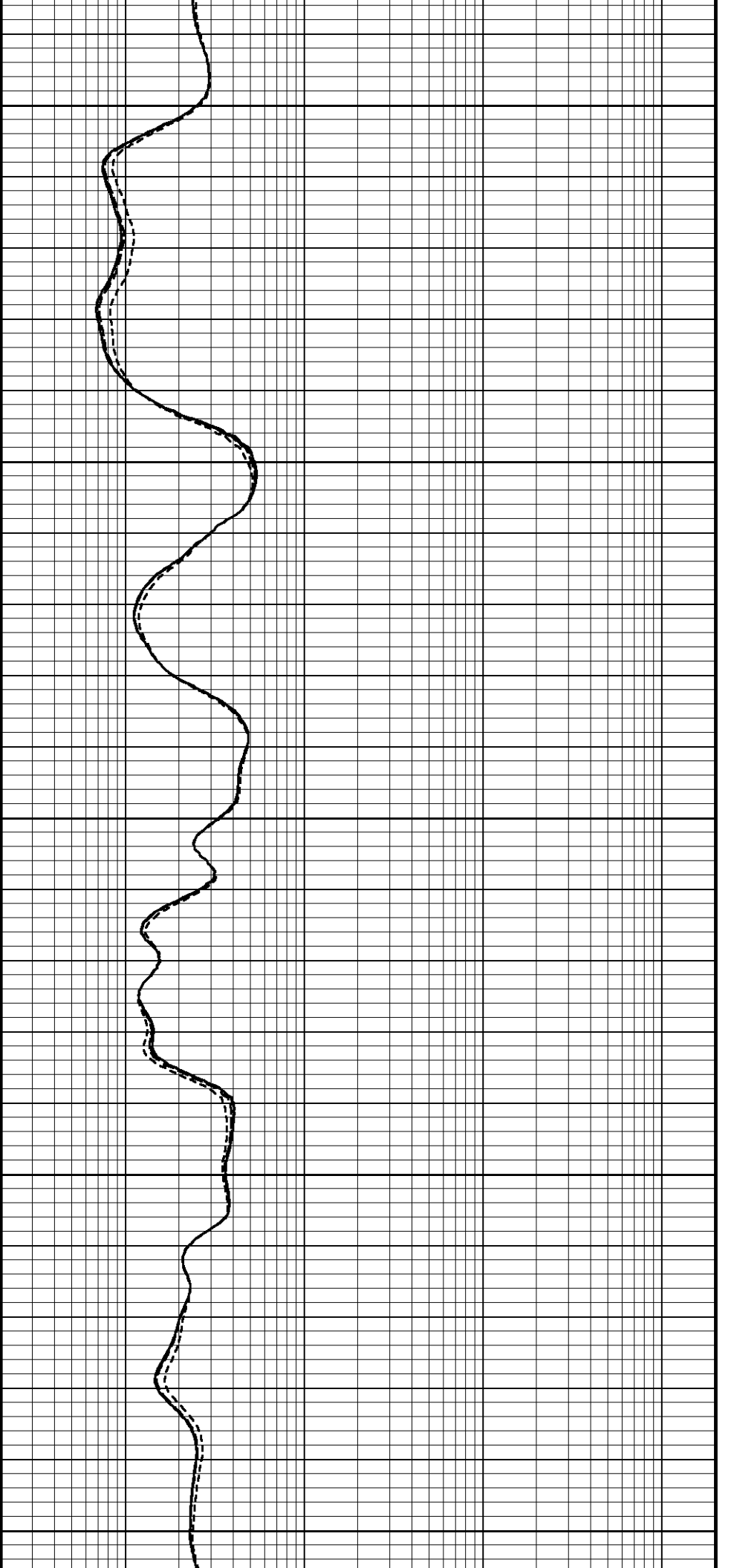
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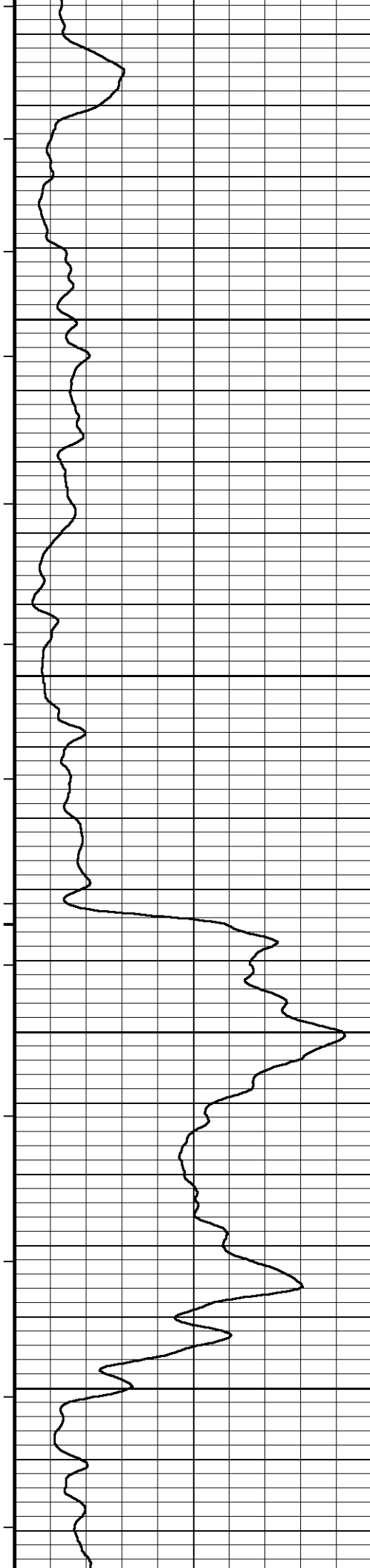
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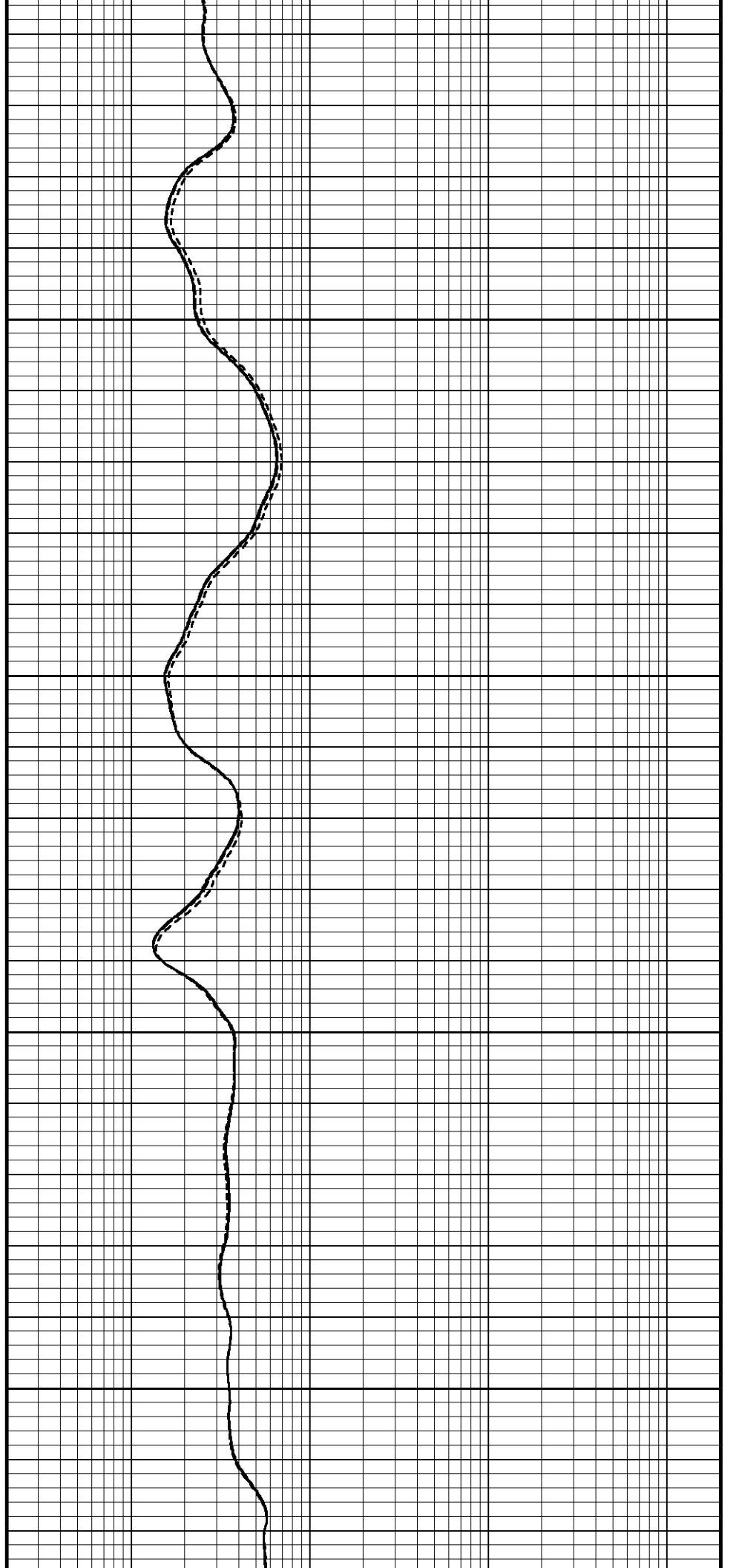
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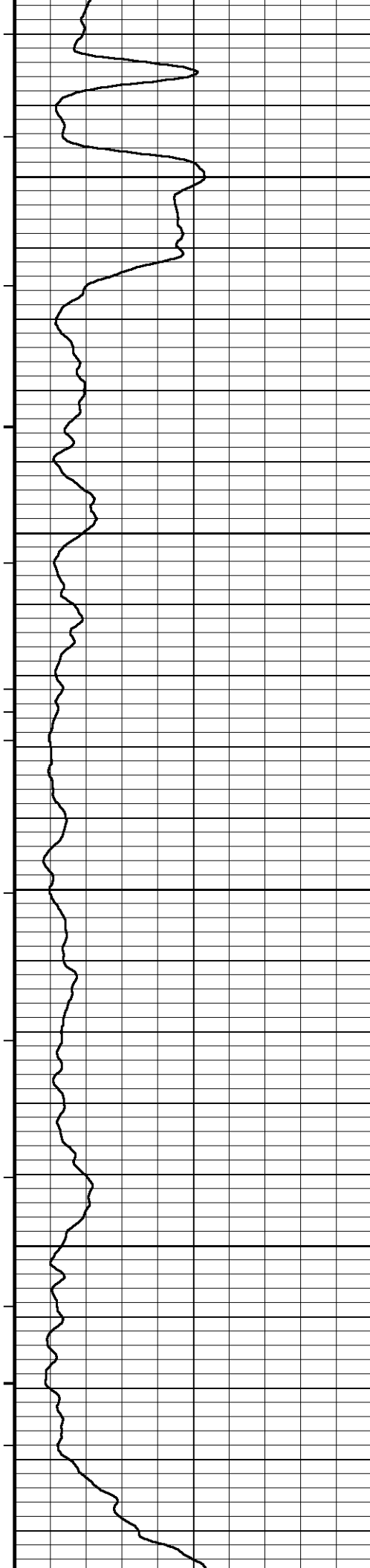
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125°

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125°

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125°

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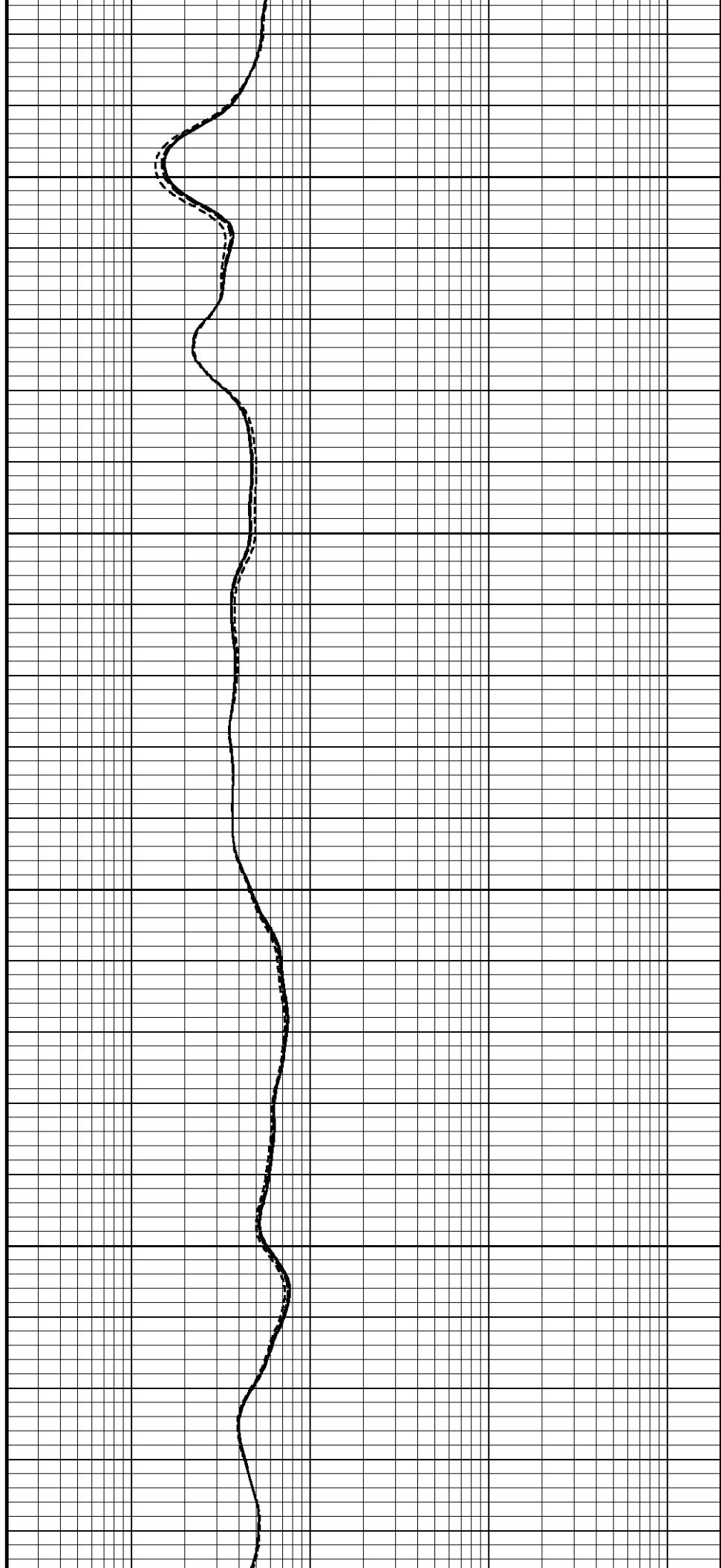
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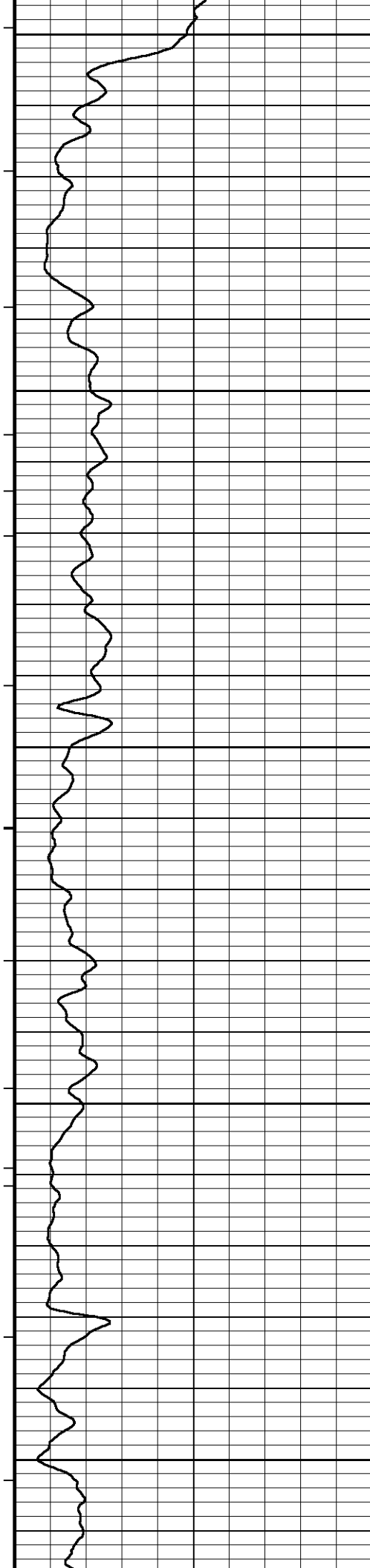
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125°

9150

124°





9200

124°

9250

124°

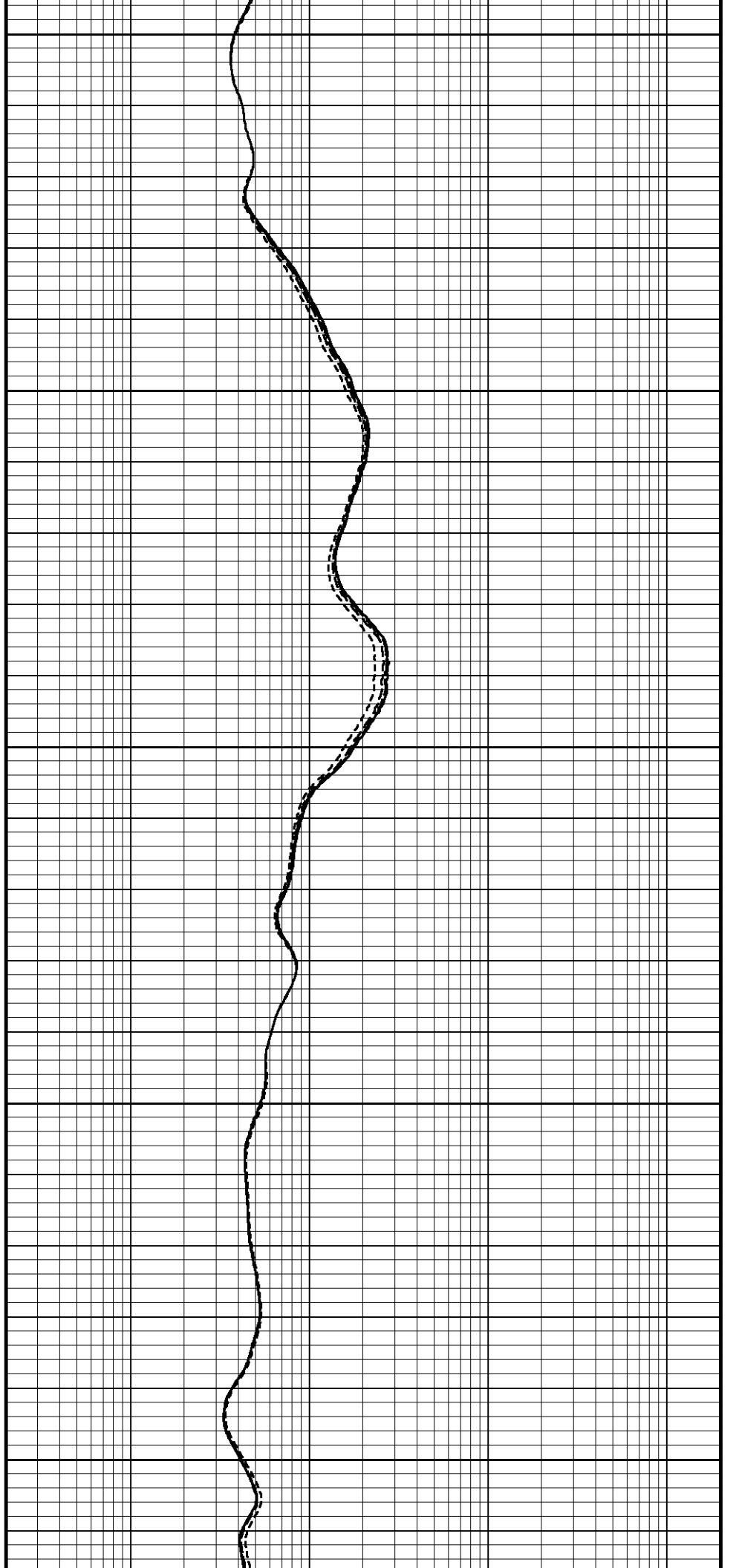
9300

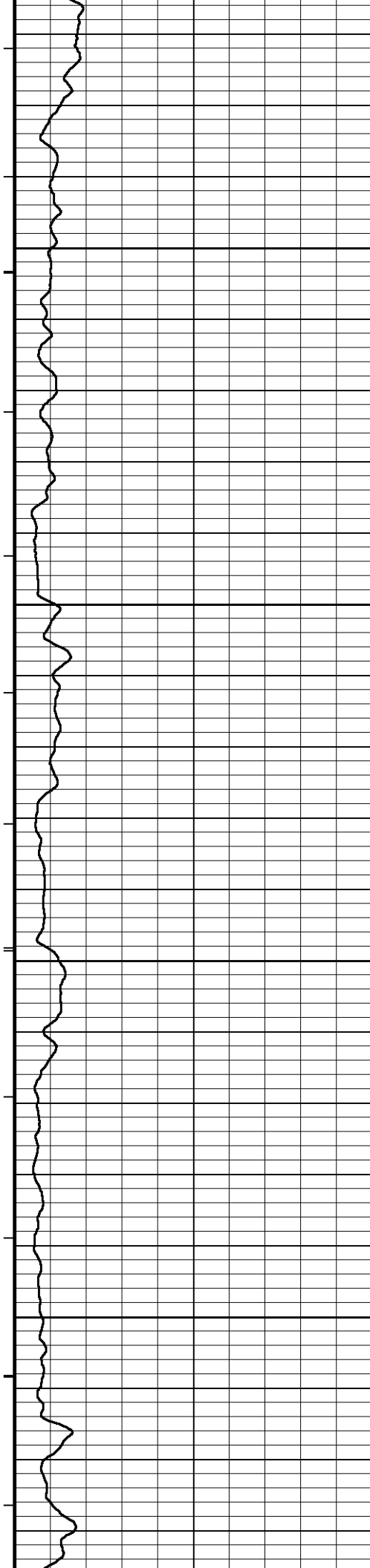
124°

9350

124°

9400





124°

9450

124°

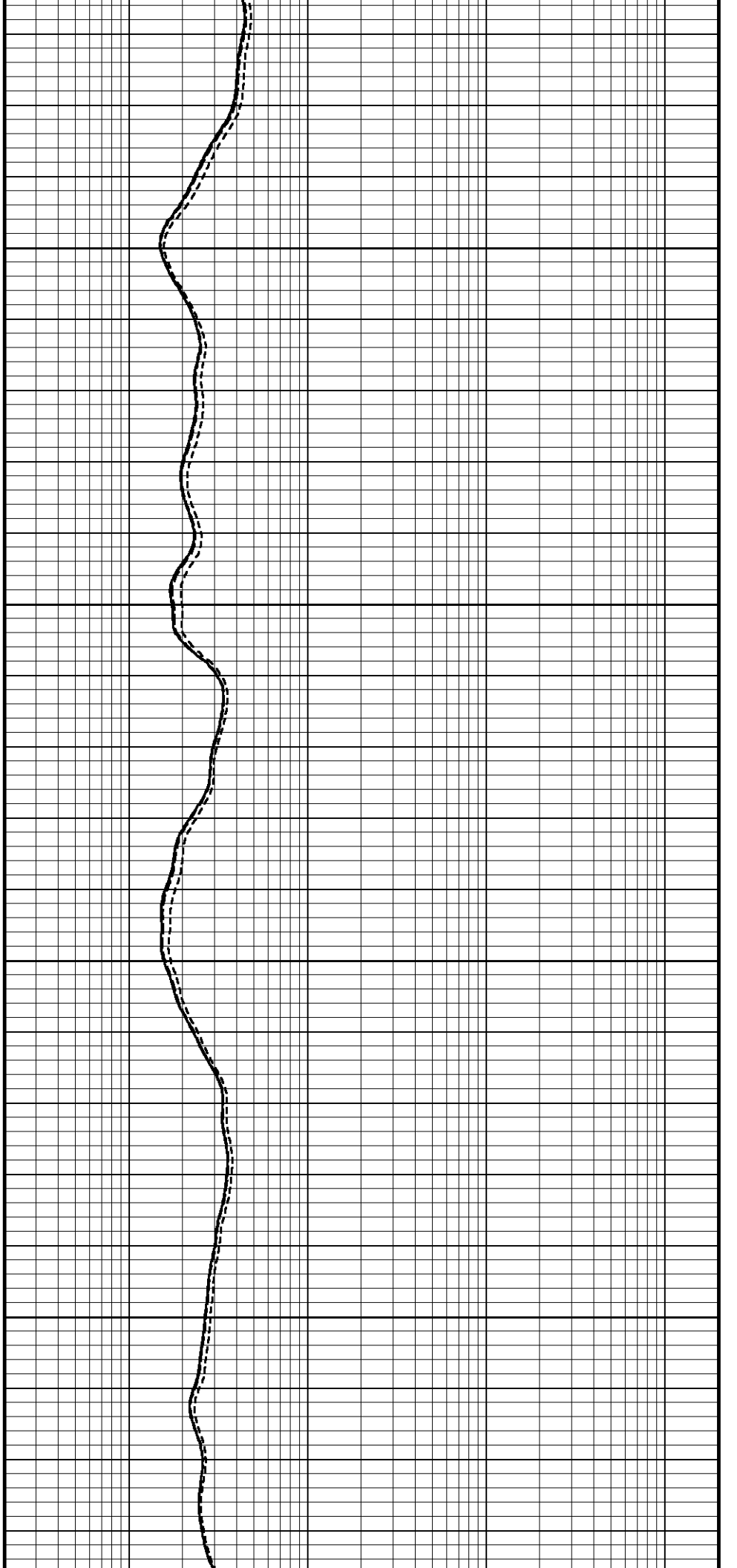
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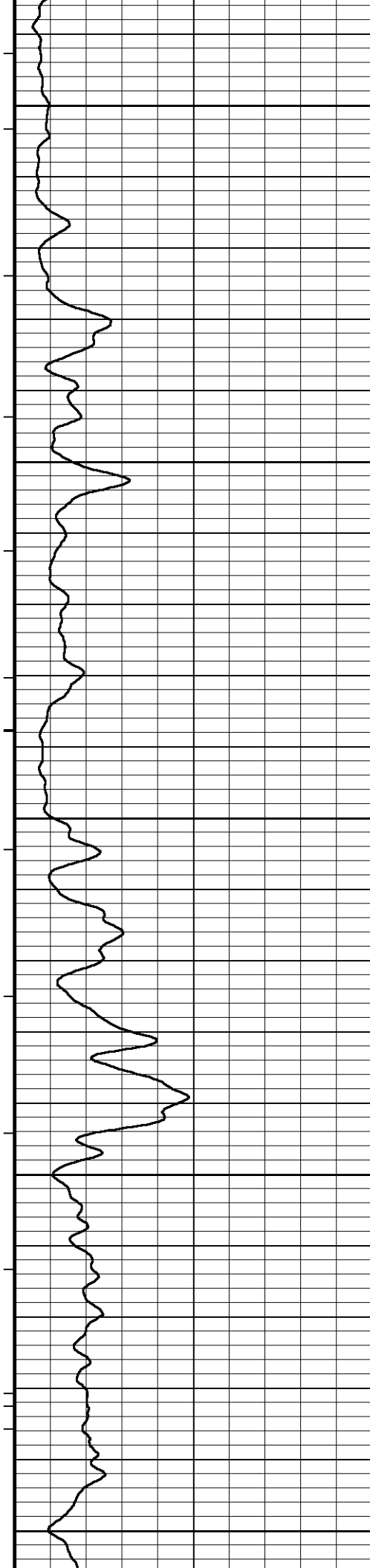
124°

9550

124°

9600





124°

9650

124°

9700

124°

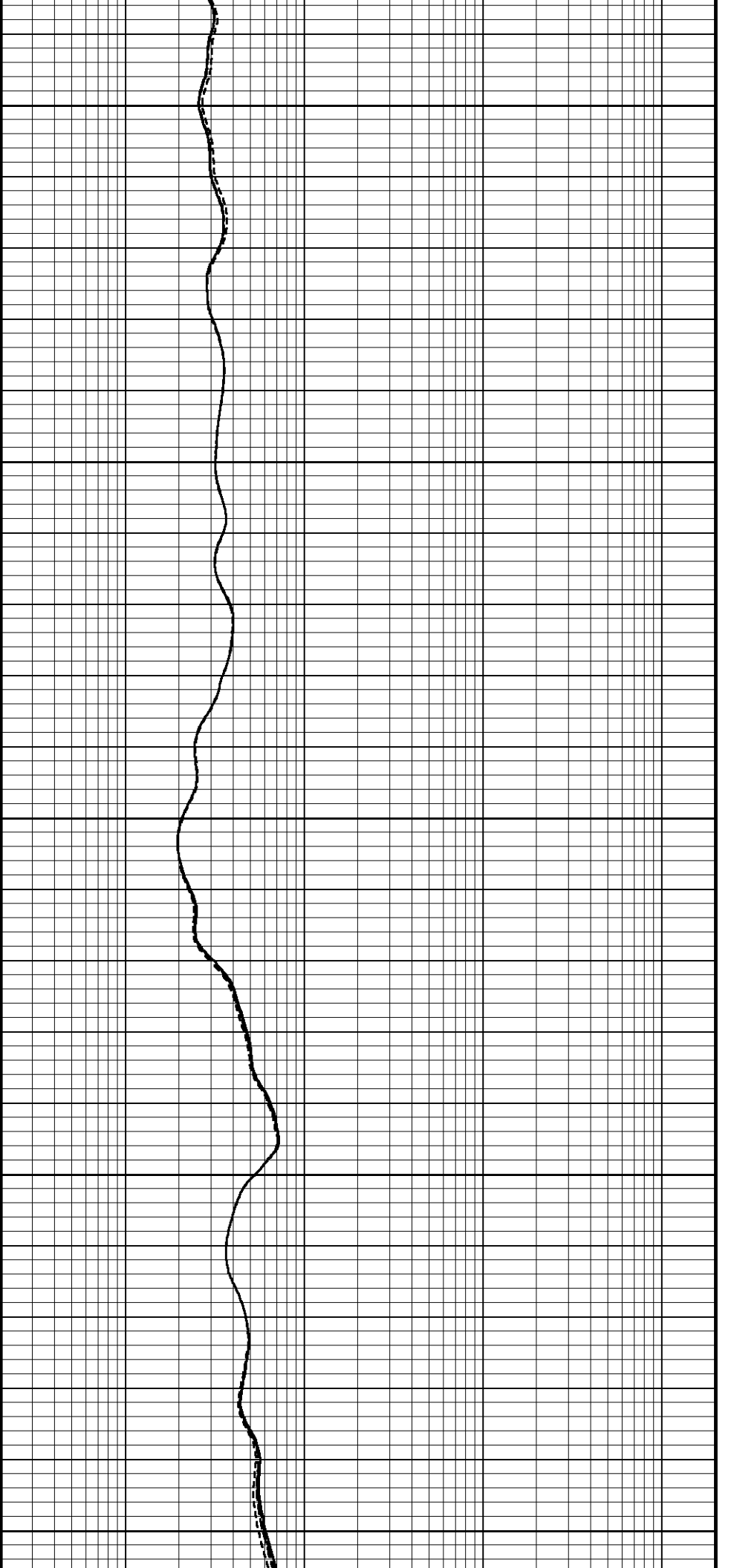
9750

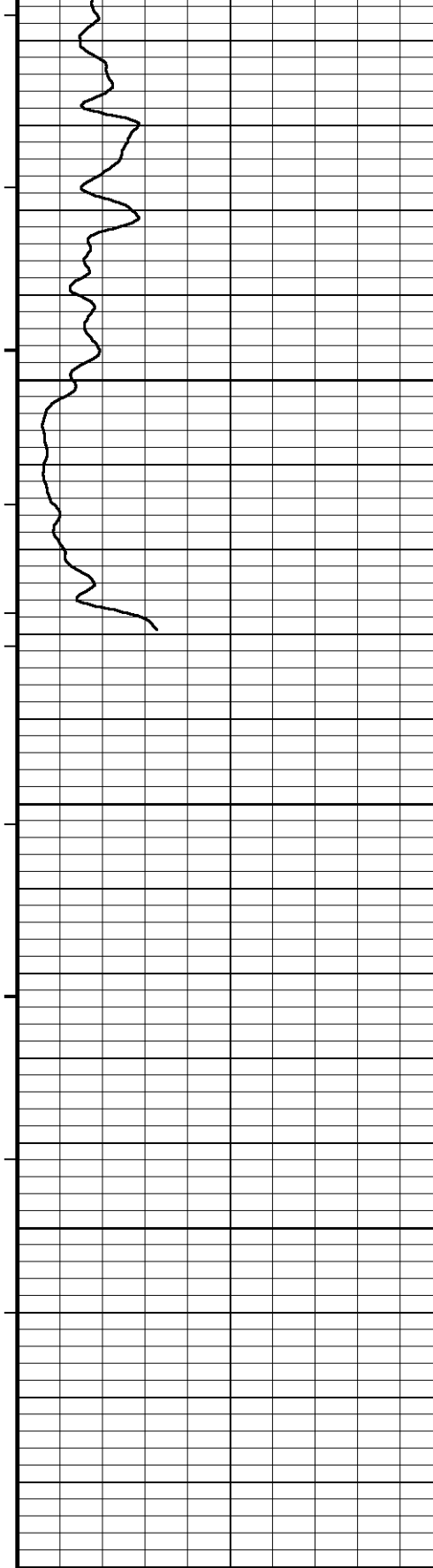
124°

9800

124°

9850





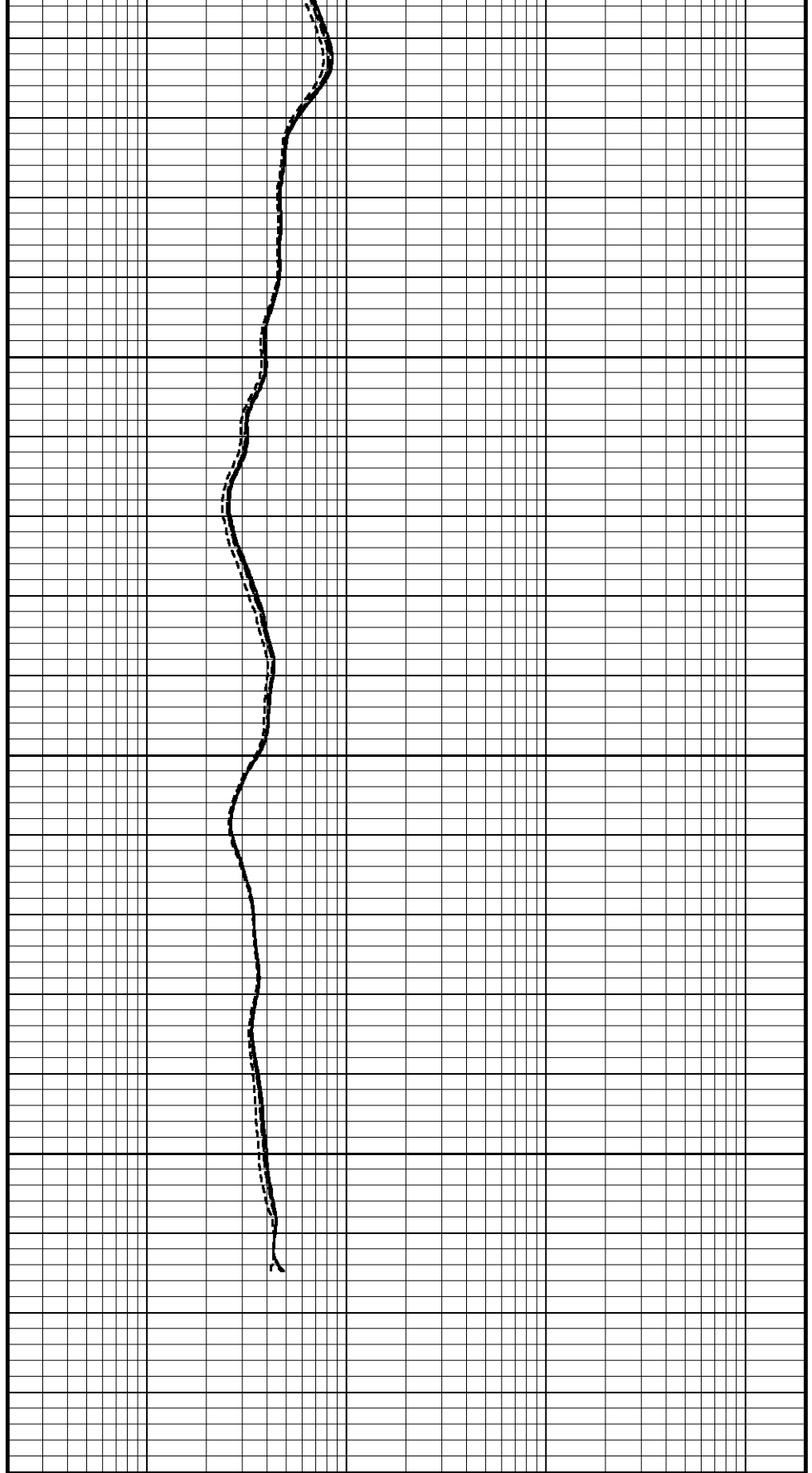
124°

9900

9950

10000

10038
Depth
In
Feet



Array Ind. Six Res 40
ohm metres

0.20

1

10

100

1000

2000

Array Ind. Six Res 60
ohm metres

0.20

2000

Timing Marks
every 60.0 sec



	Measured	Calibrated (API)
Background	37	14
Calibrator (Gross)	1836	710
Calibrator (Net)	1800	696

Gamma Constants MGS-C.J 133

Last Edited on 09-FEB-2013,12:46

Gamma Calibrator Number	036	
Mud Density	1.01	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl	0.00	kppm

SP Calibration MGS-C.J 133

Field Calibration on 07-FEB-2013,10:52

	Measured	Calibrated (mV)
Reference 1	-100.0	-100.0
Reference 2	100.0	100.0

High Resolution Temperature Calibration MGS-C.J 133

Field Calibration on 09-FEB-2013,12:46

	Measured	Calibrated(Deg F)
Lower	0.00	0.00
Upper	0.00	0.00

High Resolution Temperature Constants MGS-C.J 133

Last Edited on 09-FEB-2013,12:46

Pre-filter Length	11
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Neutron Calibration MDN-B.J 423

Base Calibration on 21-JAN-2013 09:28

Field Check on 09-FEB-2013 07:55

Base Calibration

	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	2797	85	3714	110
Ratio	32.949		33.764	

Field Calibrator at Base

	Calibrated (cps)	
	2242	3339
Ratio	0.671	

Field Check

	Calibrated (cps)	
	2206	3107
Ratio		

Neutron Constants MDN-B.J 423

Last Edited on 12-FEB-2013,10:45

Neutron Source Id	000	
Neutron Jig Number	000	
Epithermal Neutron	No	
Caliper Source for Processing	Density Caliper	
Stand-off	0.00	inches
Mud Density	0.99	gm/cc
Limestone Sigma	7.10	cu
Sandstone Sigma	4.26	cu
Dolomite Sigma	4.70	cu
Formation Pressure Source	None	
Formation Pressure	N/A	kpsi
Temperature Source	None	
Temperature	N/A	degrees F
Mud Salinity	0.00	kppm
Salinity Correction	Not Applied	
Formation Fluid Salinity Source	None	
Formation Fluid Salinity	N/A	kppm
Barite Mud Correction	Not Applied	

Navigation Constants MIE-A.A 209

Last Edited on

Magnetic Declination	0.00	degrees	East
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Imager Pad Check MIE-A.A 209

Field Check on

Pad 1	Pad Not Tested	Pad 5	Pad Not Tested
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Pad 1	Pad Not Tested	Pad 5	Pad Not Tested
Pad 2	Pad Not Tested	Pad 6	Pad Not Tested
Pad 3	Pad Not Tested	Pad 7	Pad Not Tested
Pad 4	Pad Not Tested	Pad 8	Pad Not Tested

Compact Micro Imager Constants MIE-A.A 209			Last Edited on 12-FEB-2013,10:40	
Sonde Configuration		Imager Mode		
Arm-Pad Kit		Normal Pads (12.25 in)		
Arm-Pad Kit Serial Number		N/A		
Centre Pad 1 Rotational Offset		0.00	degrees	
Image/Borehole Ovality Reference		Azimuth of Pad 1		
Non Active Buttons		Omit		
Search Angle		0.00	degrees	
Correlation Interval		3.28	feet	
Correlation Step		1.64	feet	
Current Offset		0.0000	mAmp	
Squasher Start		0.0500	mAmp	
Image Processing		Enabled		

Magnetometer Parameters MIE-A.A 209				
Date Of Last Magnetometer Calibration		26-NOV-2010,12:01		
	X Magnetometer	Y Magnetometer	Z Magnetometer	
Slope	-1.000000	-1.001951	-1.007691	
Offset	0.007782	-0.016800	0.011730	

Magnetometer Constants MIE-A.A 209		Last Edited on	
Magnetometer Calibrator Number	000		

Accelerometer Parameters MIE-A.A 209				
Date Of Last Accelerometer Calibration		25-NOV-2010,12:19		
	X Accelerometer	Y Accelerometer	Z Accelerometer	
Slope	-1.113214	-1.109979	-1.101653	
Offset	0.005467	0.005399	0.010368	

Accelerometer Constants MIE-A.A 209			Last Edited on 25-NOV-2010,12:25	
Accelerometer Calibrator Number		000		
Accelerometer Temperature Characterisation				
X Accelerometer				
Serial Number		826		
Calibration Date		01-Jan-1998		
	B0	B1	B2	B3
Bias(g)	0.00000e+000	2.32377e-005	-1.87334e-008	9.07324e-011
	SF0	SF1	SF2	SF3
Scale Factor(mA/g)	3.00000e+000	2.71389e-004	4.55326e-007	4.58364e-010
Y Accelerometer				
Serial Number		617		
Calibration Date		11-May-2008		
	B0	B1	B2	B3
Bias(g)	0.00000e+000	1.76675e-005	6.93464e-010	2.98691e-011
	SF0	SF1	SF2	SF3
Scale Factor(mA/g)	3.00000e+000	2.56882e-004	5.72598e-007	2.37496e-010
Z Accelerometer				
Serial Number		844		
Calibration Date		01-Jan-1998		
	B0	B1	B2	B3
Bias(g)	0.00000e+000	-1.21769e-005	-1.46867e-008	-6.44015e-011
	SF0	SF1	SF2	SF3
Scale Factor(mA/g)	3.00000e+000	2.73539e-004	4.65657e-007	2.88996e-010

Caliper Calibration MIE-A.A 209			Base Calibration on 20-JUL-2012 05:31	
			Field Calibration on	
Base Calibration				
Reading No	Pads 1-5 Meas.	Pads 3-7 Meas.	Calibrator Size (in)	
1	26963	26793	5.96	
2	36961	37191	7.97	
3	38961	39191	9.96	

3	46401	44863	9.84		
4	58072	58409	11.91		
5	0	0	0.00		
Reading No	Pad 2 Meas.	Pad 4 Meas.	Pad 6 Meas.	Pad 8 Meas.	Calibrator Size (in)
1	24829	25688	24937	24692	5.96
2	33487	34230	33721	33433	7.97
3	40559	41186	42962	42856	9.84
4	51771	52426	51758	51697	11.91
5	0	0	0	0	0.00

Field Calibration

Measured	Measured	Actual
Pads 1-5 Caliper(in)	Pads 3-7 Caliper(in)	Caliper(in)
0.00	0.00	0.00
Measured	Measured	Measured
Pad 2 Caliper(in)	Pad 4 Caliper(in)	Pad 6 Caliper(in)
0.00	0.00	0.00
		Actual
		Caliper(in)
		0.00

Caliper Constants MIE-A.A 209

Last Edited on 25-NOV-2010,07:57

Caliper Difference for BRKT 0.120 inches

High Resolution Temperature Calibration MAI-C.A 427

Field Calibration on 07-FEB-2013,10:52

	Measured	Calibrated(Deg F)
Lower	10.00	10.00
Upper	100.00	100.00

High Resolution Temperature Constants MAI-C.A 427

Last Edited on 07-FEB-2013,10:51

Pre-filter Length 11

Induction Calibration MAI-C.A 427

Base Calibration on 27-JAN-2013,14:35

Field Check on 12-FEB-2013 10:40

Base Calibration

Test Loop Calibration

Channel	Measured		Calibrated (mmho/m)	
	Low	High	Low	High
1	14.4	434.9	9.3	966.2
2	5.8	355.4	7.6	821.4
3	2.7	244.4	5.2	566.0
4	1.8	129.3	2.6	279.2

Array Temperature 22.9 Deg F

Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1			17.2	4141.7
2			32.0	3771.6
3			31.4	3210.4
4			20.1	2124.7
Deep			19.6	2020.0
Medium			46.0	4289.6
Shallow			47.2	5681.2

Array Temperature 37.3 Deg F

Induction Constants MAI-C.A 427

Last Edited on 13-FEB-2013,18:08

Induction Model	RtAP-WBM
Caliper for Borehole Corr.	Density Caliper
Hole Size for Borehole Correction	N/A inches
Tool Centred	No
Stand-off Type	Fins
Stand-off	0.50 inches
Number of Fins on Stand-off	6.0000
Stand-off Fin Angle	60.00 degrees
Stand-off Fin Width	0.5000 inches
Borehole Corr. Rm Source	Temperature Corr
Temp. for Rm Corr.	MGS External Temperature
Squasher Start	0.0020 mhos/metre
Squasher Offset	N/A mhos/metre

Borehole Normalisation

DRM1	0.0000	DRC1	0.0000
DRM2	0.0000	DRC2	0.0000
MRM1	0.0000	MRC1	0.0000
MRM2	0.0000	MRC2	0.0000
SRM1	0.0000	SRC1	0.0000
SRM2	0.0000	SRC2	0.0000

Calibration Site Corrections

Channel 1	0.00	mmhos/metre
Channel 2	0.00	mmhos/metre
Channel 3	0.00	mmhos/metre
Channel 4	0.00	mmhos/metre

Apparent Porosity and Water Saturation Constants

Archie Constant (A)	1.00	
Cementation Exponent (M)	2.00	
Saturation Exponent (N)	2.00	
Saturation of Water for Apor	100.00	percent
Resistivity of Water for Apor and Sw	0.05	ohm-m
Resistivity of Mud Filtrate for Sw	0.00	ohm-m
Source for Rt	0.00	
Source for Rxo	0.00	

Photo Density Calibration MPD-D.A 471

Base Calibration on 04-FEB-2013 13:31
Field Check on 12-FEB-2013 10:45

Density Calibration

Base Calibration

Measured

Calibrated (sdu)

	Near	Far	Near	Far
Reference 1	54416	27473	59869	31110
Reference 2	22802	2732	24557	2522

Field Check at Base

1278.8 1479.3

Field Check

1280.0 1469.0

PE Calibration

Base Calibration

Measured

Calibrated

	WS	WH	Ratio	Ratio
Background	247	1133		
Reference 1	24125	54197	0.450	0.369
Reference 2	7025	22646	0.315	0.271

Field Check at Base

247.3 1133.4

Field Check

243.9 1132.6

Density Constants MPD-D.A 471

Last Edited on 09-FEB-2013,12:47

Density Source Id	243	
Nylon Calibrator Number	633	
Aluminium Calibrator Number	633	
Density Shoe Profile	4 inch	
Caliper Source for Processing	Density Caliper	
PE Correction to Density	Not Applied	
Mud Density	1.01	gm/cc
Mud Density Z/A Multiplier	1.11	
Mud Filtrate Density	1.00	gm/cc
Dry Hole Mud Filtrate Density	1.00	gm/cc
DNCT	0.00	gm/cc
CRCT	0.00	gm/cc
Density Z/A Correction	Hybrid	
Matrix Density (gm/cc)	Depth (ft)	
2.71	0.00	
0.00	0.00	
0.00	0.00	
0.00	0.00	

0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00

Caliper Calibration MPD-D.A 471			Base Calibration on 04-FEB-2013 23:20
			Field Calibration on 09-FEB-2013 07:48
Base Calibration			
Reading No	Measured	Calibrator Size (in)	
1	19168	3.99	
2	28887	5.97	
3	38925	7.99	
4	48364	9.86	
5	59511	11.93	
6	N/A	N/A	
Field Calibration			
	Measured Caliper (in)	Actual Caliper (in)	
	5.92	5.96	

DOWNHOLE EQUIPMENT

C:\Data\Unit\Unit Holcomb 21 #1H\MMS166 Depthlog new.dta

Shuttle Running Tool 3.5")
SRT-A.A 40 LG: 6.62 ft WT: 37.5 lb OD: 2.52 in

MBS-G.A 200v Compact Battery Sub
MBS-G.A 135 LG: 17.06 ft WT: 123.5 lb OD: 2.24 in

Compact Memory Sub E.B
MMS-E.B 166 LG: 5.20 ft WT: 37.5 lb OD: 2.24 in

Compact Tool Isolator sub.
MTI-B.A 63 LG: 1.54 ft WT: 13.2 lb OD: 2.24 in

Compact Short Gamma
MGS-C.J 133 LG: 3.41 ft WT: 24.3 lb OD: 2.24 in

Compact Collar Locator
MCL-B.J 72 LG: 3.17 ft WT: 26.5 lb OD: 2.24 in

SKJ-E.B Compact Knuckle Joint
SKJ-E.B 458 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

SHA-J.A Compact Swivel Head Adaptor
SHA-J.A 432 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

MIS-A.A Compact Inline Bowspring sub
MIS-A.A 247 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

Compact Neutron
MDN-B.J 423 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper
MPD-D.A 471 LG: 9.59 ft WT: 90.4 lb OD: 2.24 in

MIS-D.A Compact Inline Bowspring sub
MIS-D.A 315 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

SHA-J.B Compact Swivel Head Adaptor
SHA-J.B 595 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in



SKJ-E.B Compact Knuckle Joint

SKJ-E.B Compact Knuckle Joint
SKJ-E.B 477 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

MIS-D.A Compact Inline Bowspring sub
MIS-D.A 333 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

Compact MMI Memory Section
MIM-A.A 157 LG: 4.65 ft WT: 26.5 lb OD: 2.24 in

Compact MMI Electrode Section
MIE-A.A 209 LG: 13.96 ft WT: 99.2 lb OD: 4.09 in

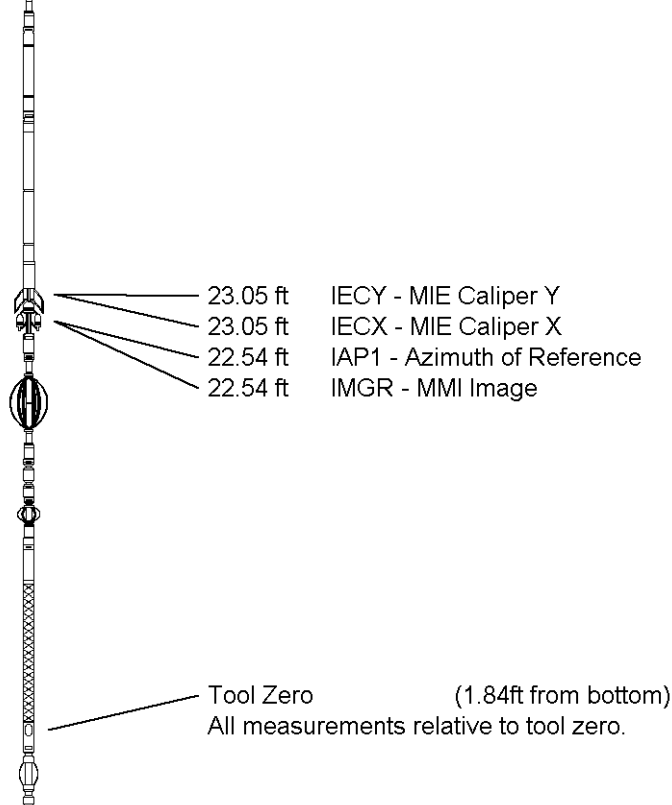
MIS-D.B Compact Inline Bowspring sub
MIS-D.B 606 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

SKJ-D.A Compact Knuckle Joint
SKJ-D.A 209 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

MIS-E.A Compact Inline Standoff sub
MIS-E.A 336 LG: 2.14 ft WT: 15.4 lb OD: 2.24 in

Compact Induction
MAI-C.A 427 LG: 12.52 ft WT: 48.5 lb OD: 2.24 in

Total Length: 118.79 ft Weight: 842.2 lb



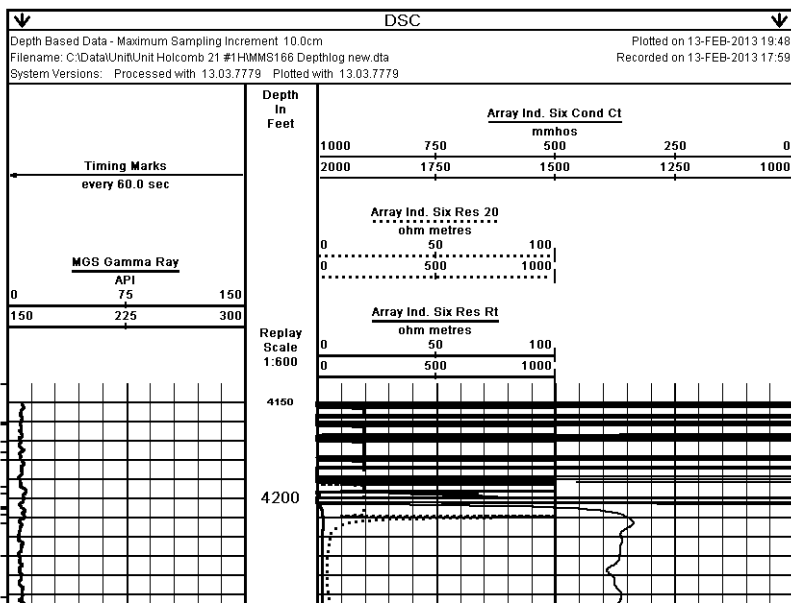
COMPANY UNIT PETROLEUM
WELL HOLCOMB 21-1H
FIELD PLEVNA SOUTH
PROVINCE/COUNTY RENO
COUNTRY/STATE USA / KANSAS

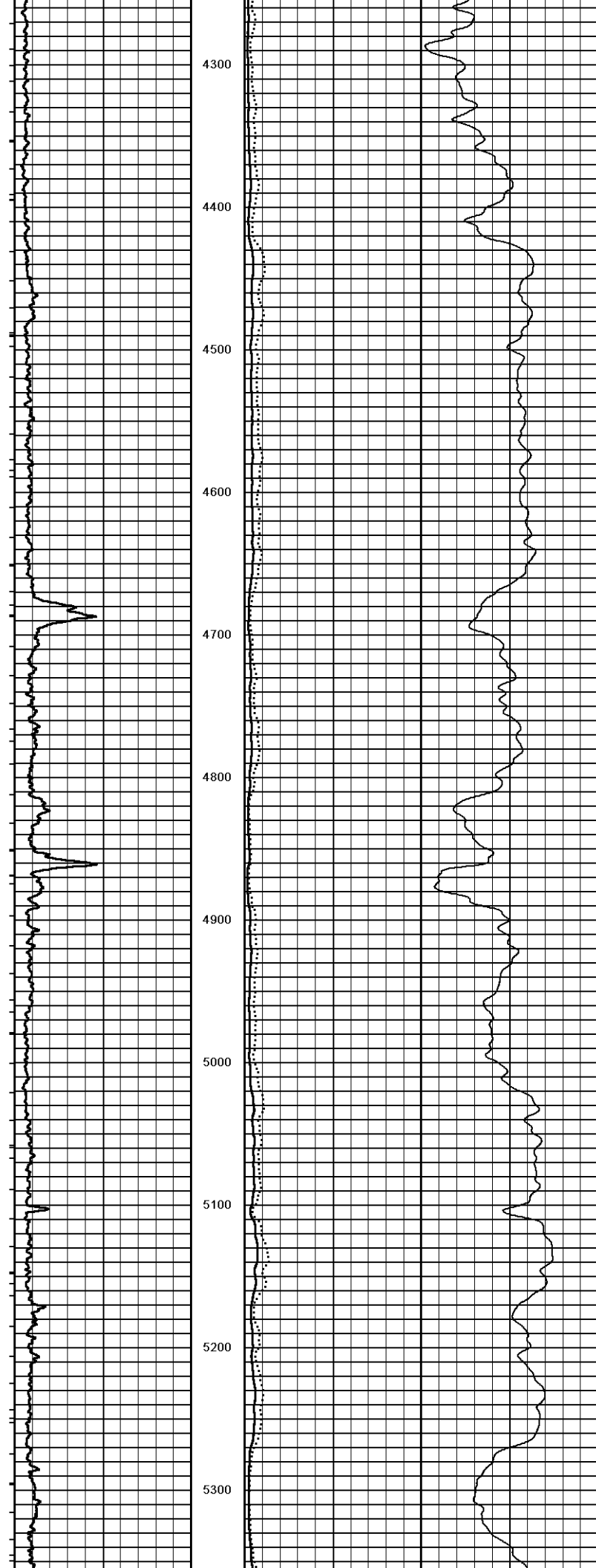
Elevation Kelly Bushing	1695.00	feet	First Reading	10015.00	feet
Elevation Drill Floor	1695.00	feet	Depth Driller	10053.00	feet
Elevation Ground Level	1681.00	feet	Depth Logger	10030.00	feet

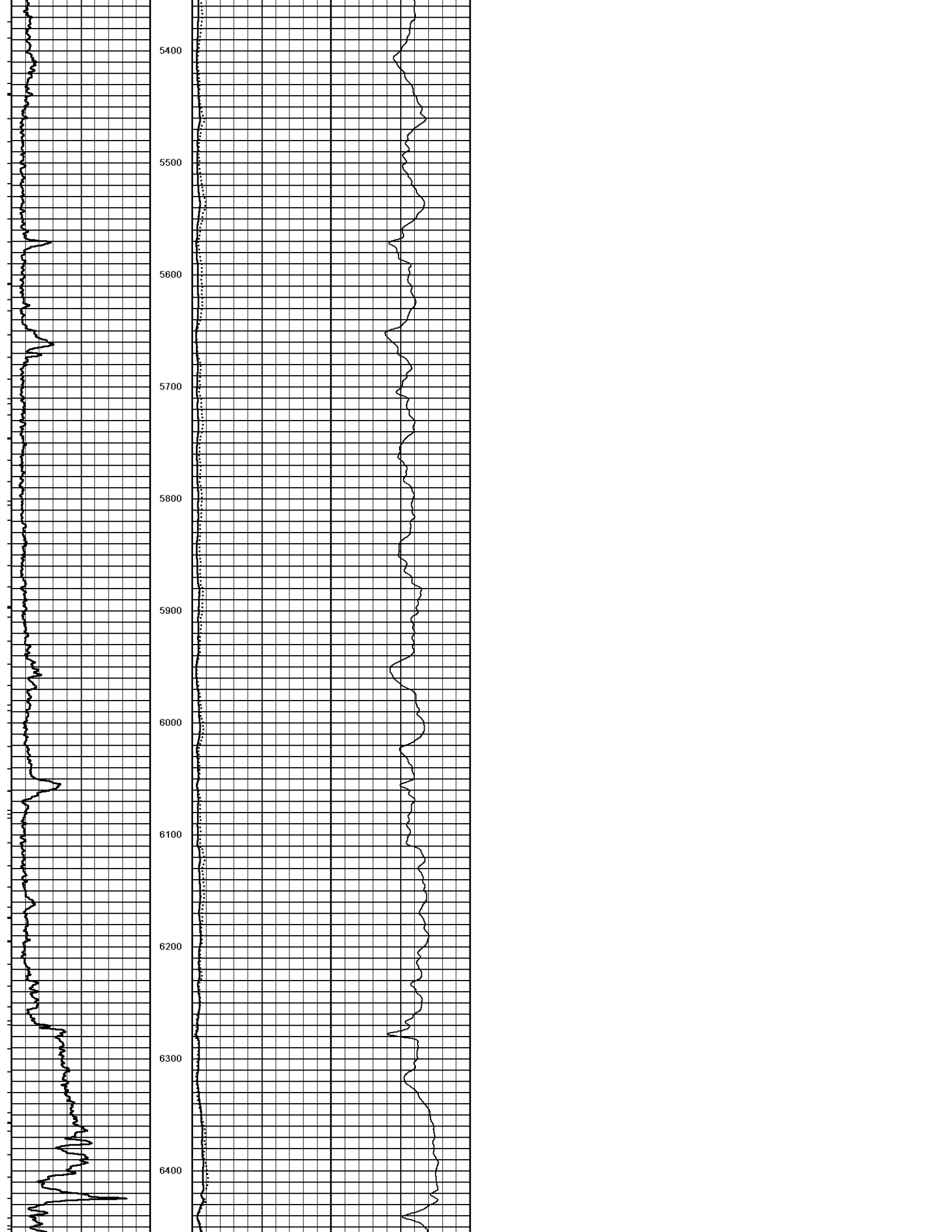


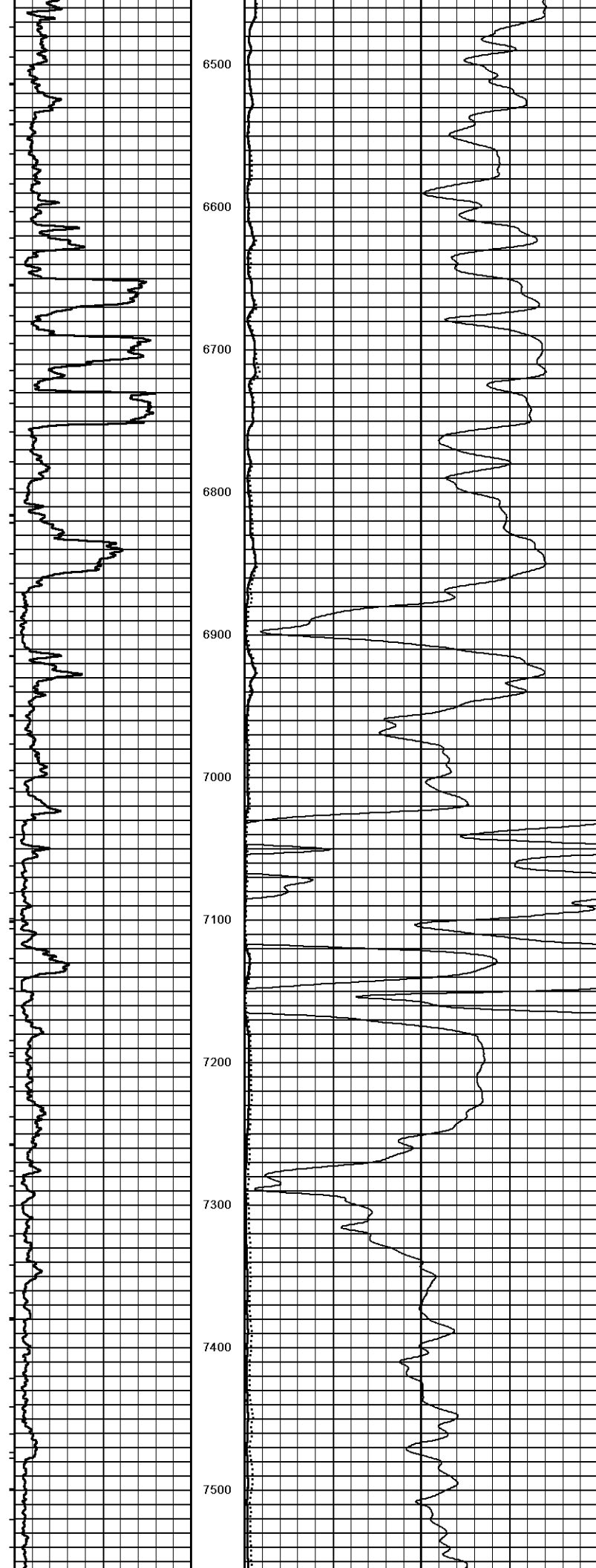
Weatherford®

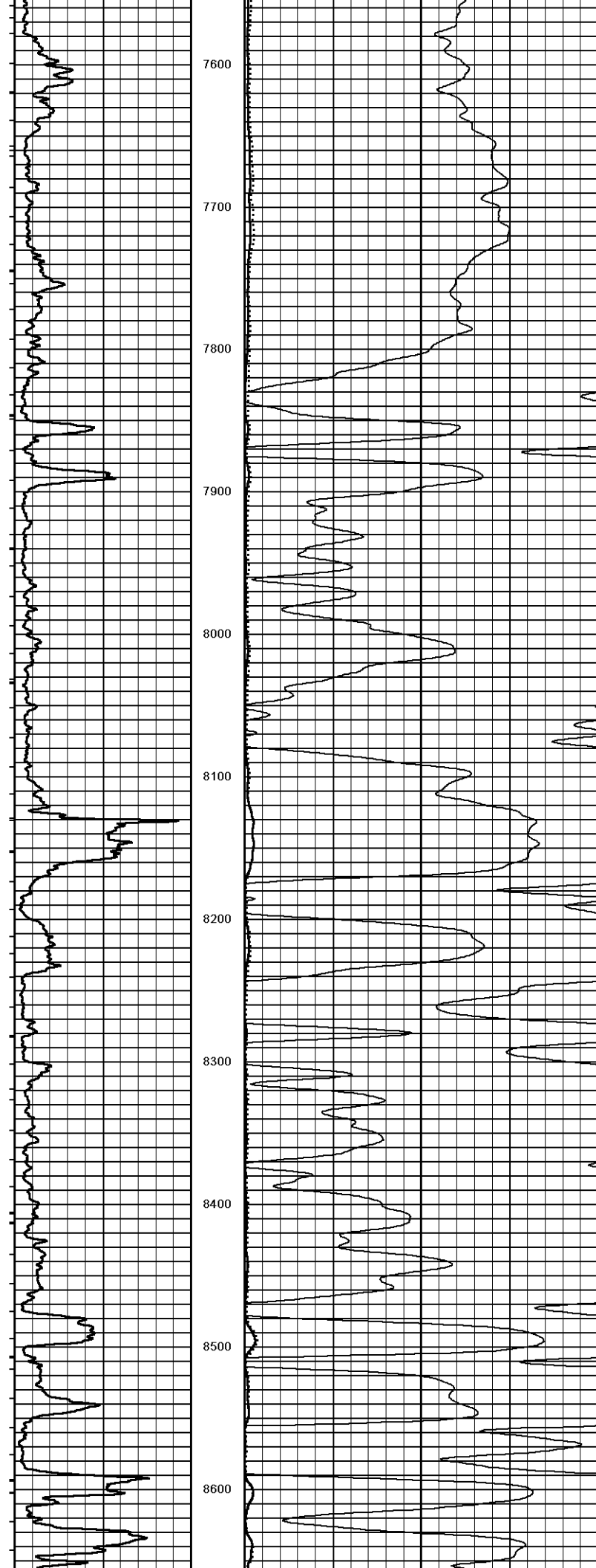
CML WELL SHUTTLE
COMPACT ARRAY INDUCTION
LOG

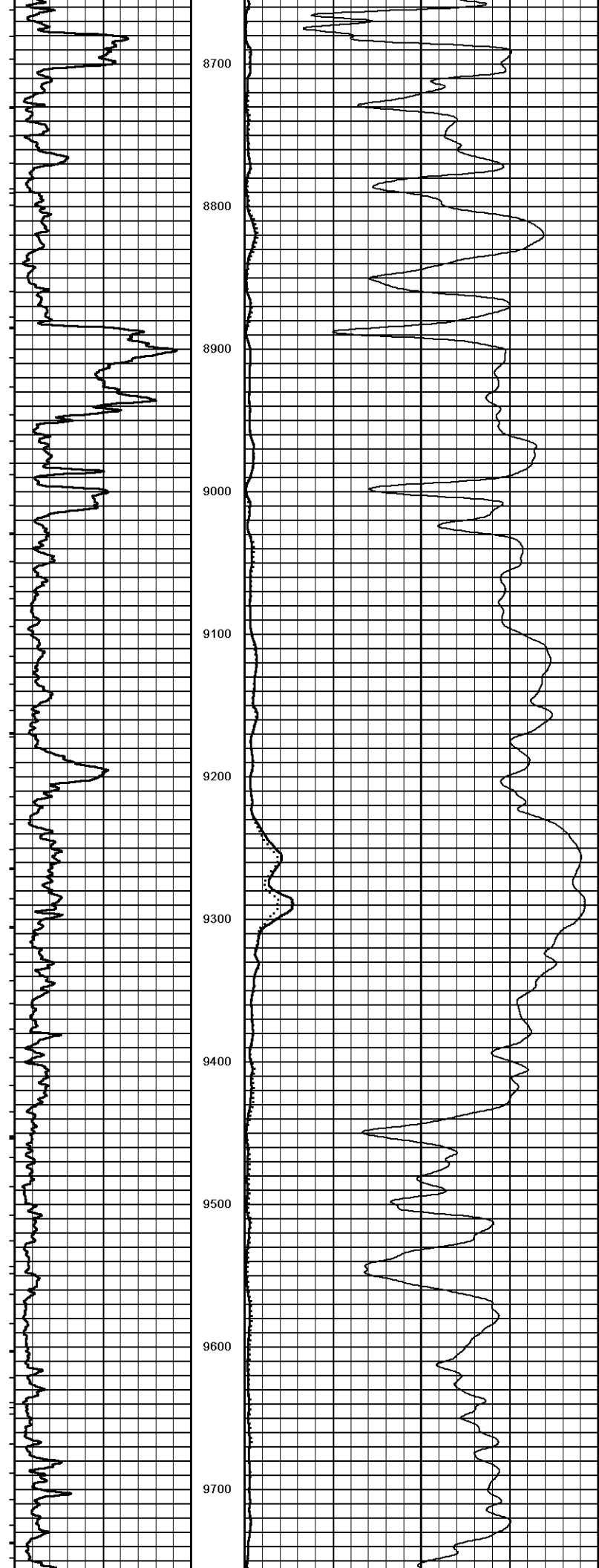


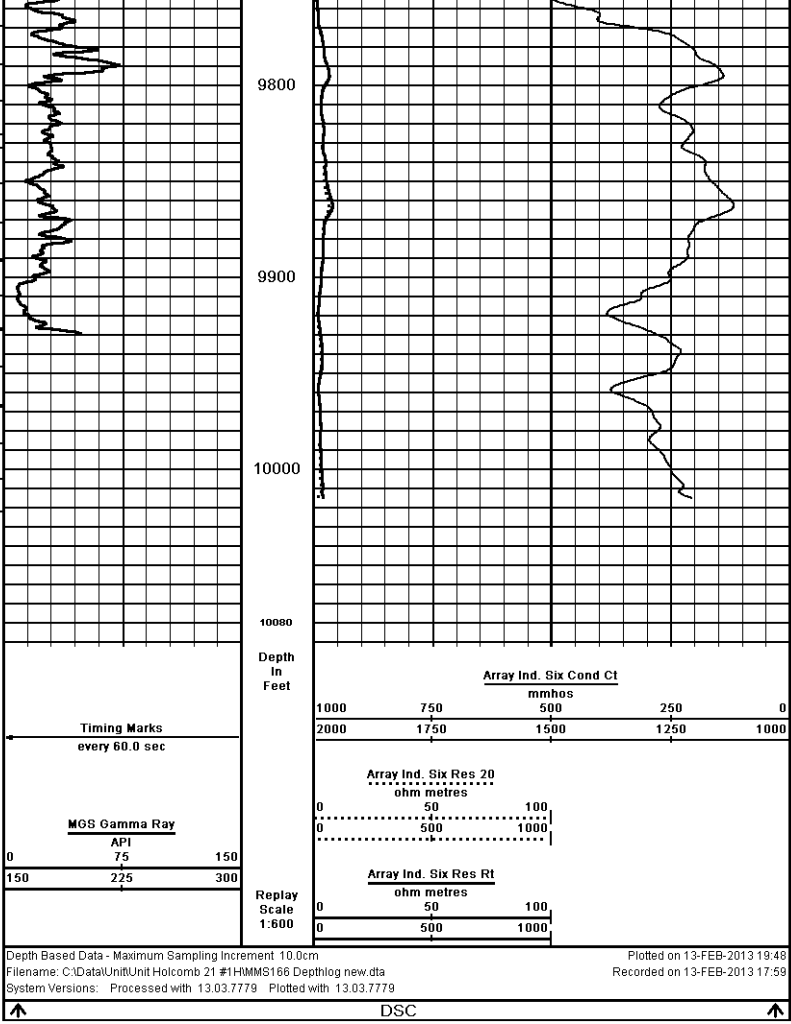












COMPANY		UNIT PETROLEUM			
WELL		HOLCOMB 21-1H			
FIELD		PLEVNA SOUTH			
PROVINCE/COUNTY		RENO			
COUNTRY/STATE		USA / KANSAS			
Elevation Kelly Bushing	1695.00	feet	First Reading	10015.00	feet
Elevation Drill Floor	1695.00	feet	Depth Driller	10053.00	feet
Elevation Ground Level	1681.00	feet	Depth Logger	10030.00	feet
		CML WELL SHUTTLE			
Weatherford		COMPACT ARRAY INDUCTION			
		LOG			