

SCHLUMBERGER

SIDEWALL NEUTRON POROSITY LOG

SCHLUMBERGER OF CANADA Calgary Alberta

PROVINCE YUKON TERRITORIES
 FIELD CHEVRON SOBC WM E PORCUPINE
 WELL YT F-18
 COMPANY CHEVRON STANDARD LIMITED

COMPANY CHEVRON STANDARD LIMITED
 WELL CHEVRON SOBC WM E PORCUPINE YT
 FIELD
 PROVINCE YUKON TERRITORIES
 LOCATION 66° 07' 25" N LAT
 137° 48' 16" W LONG
 Permanent Datum: GL Elev. 1701
 Log Measured From: KB 15 Ft. Above Perm. Datum
 Other Services: FDC-GR, SLC-GR, DIL, MLC, CST
 ELEV: KB 1716
 GL 1701
 GBF

Date	22 APR 72
Run No.	ONE
First Reading	6724
Last Reading	800
Feet Measured	4324
Depth Reached	6725
Bottom Driller	6728
Cq. SOC	800
Cq. Driller	802
Mud Nature	GEL
Dens. Visc.	11.3 104
Mud pH	9.5
Water Loss	6.1
Res.	3.44 @ 72 of
Rinf	3.37 @ 64 of
BHT	- @ of
Rmc	3.54 @ 65 of
ppm-Cl	- @ of
Bit Size	8 3/4"
Equipment Type	PNT-A
Op. Rig Time	6 HRS
Truck No.	OSU-C 108 REM
Recorded By	NICKERSON
Witness	POLLARD

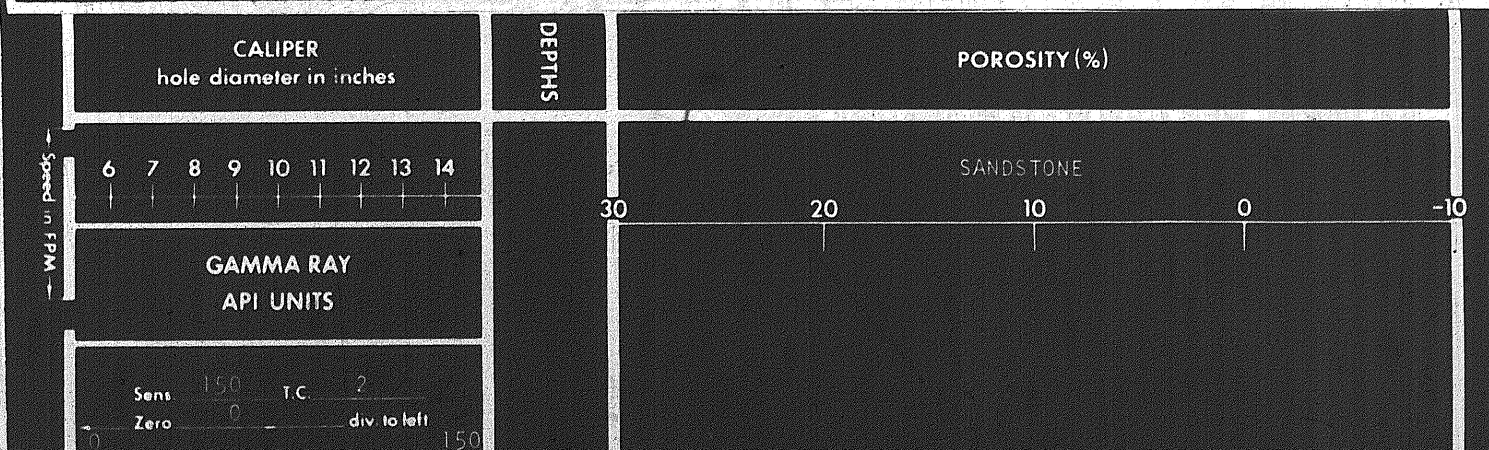
17 MAY 72 CAL CT

REMARKS 1st Run Service Order # 3432
 Drilling Stopped 1000 / 21st : Circulation Stopped 0500 / 22nd : Tool on Bottom 0230 / 23rd : B.H.T. 126 of

Panel No. EA 234
 Cartridge No. A 341
 Sonde No. E 556
 Detector No. A 88
 SFT-116 No. 34 SGH 57

CALIBRATION: Gamma Ray				Neutron Environmental Cal.	
Background CPS	Test Source CPS	Galv. Deflection	Sens. Tap	Drawer In-CPS	Drawer Out-CPS
24	420	10.0	CAL	Before 382	216
Panel Settings: Function Former Temp. Comp. Setting T.C.				After 382	216
LIMESTONE	125	2	from 6724 to 5800	Neutron Auxiliary Cal.-CPS	
SANDSTONE	110	2	from 4200 to 800	Before	
			from to	After	

This interpretation represents our best judgment. Nevertheless since all interpretations are opinions based solely on inferences from electrical or other measurements, we cannot and do not guarantee the accuracy or correctness of any interpretation and shall not be liable or responsible for any loss, cost, damages, or expenses that may be incurred or sustained resulting from this or any other interpretation.



126

CALIBER
hole diameter in inches

PHS

POROSITY (%)

Speed in FPM

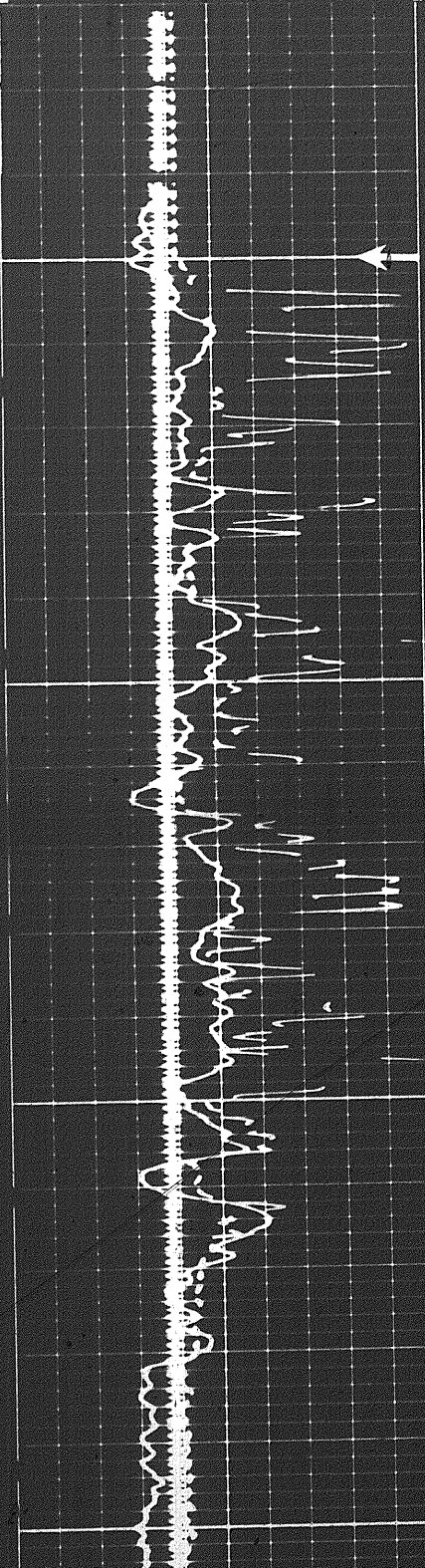
6 7 8 9 10 11 12 13 14

GAMMA RAY
API UNITS

Sens 150 T.C. 2
Zero 0 div to left 150
300

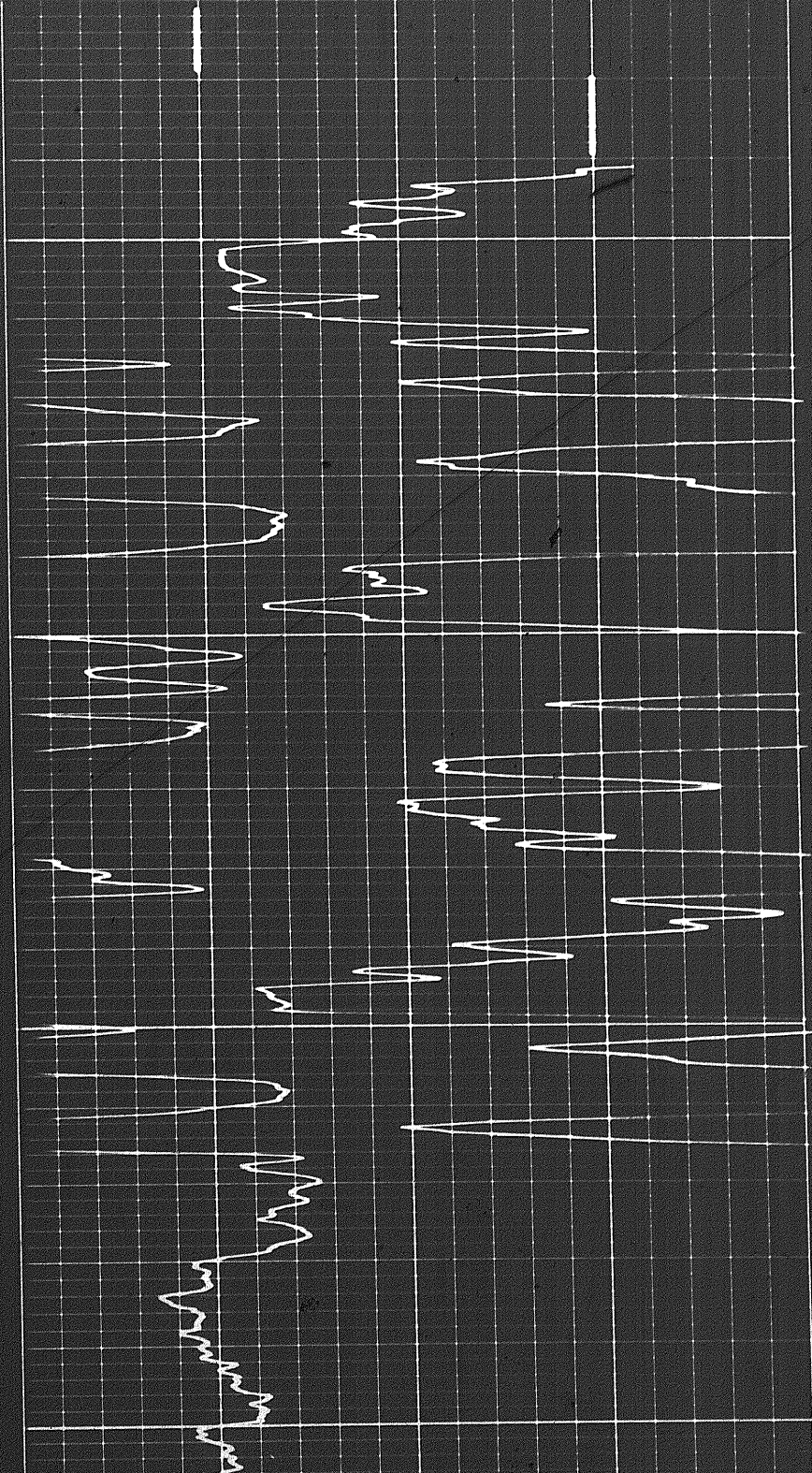
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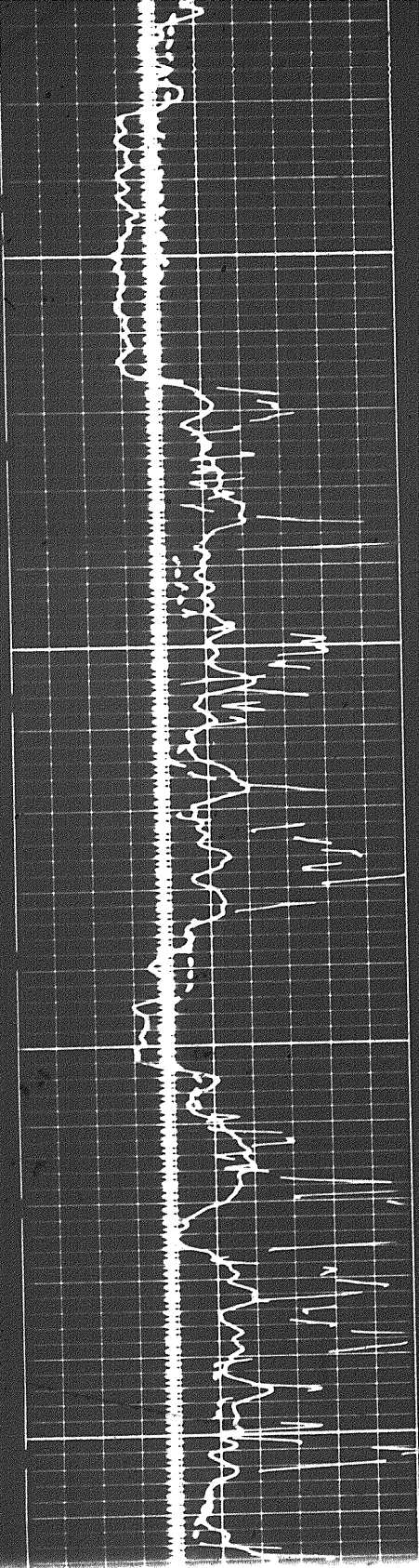
SANDSTONE



Cas
0060

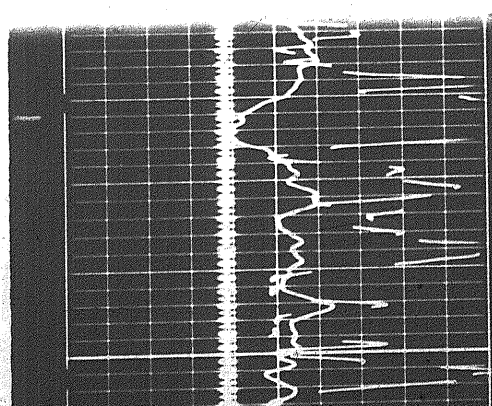
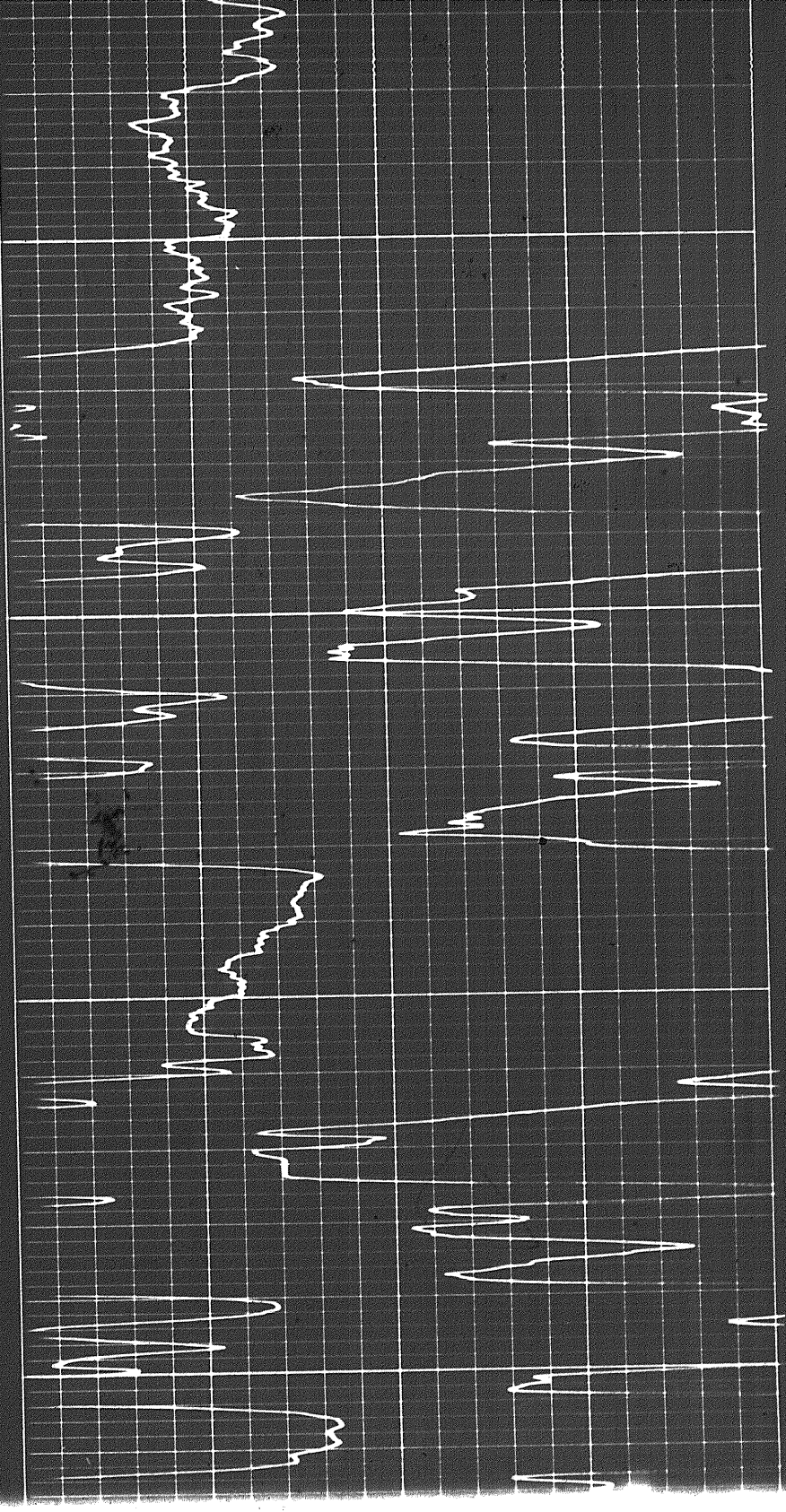
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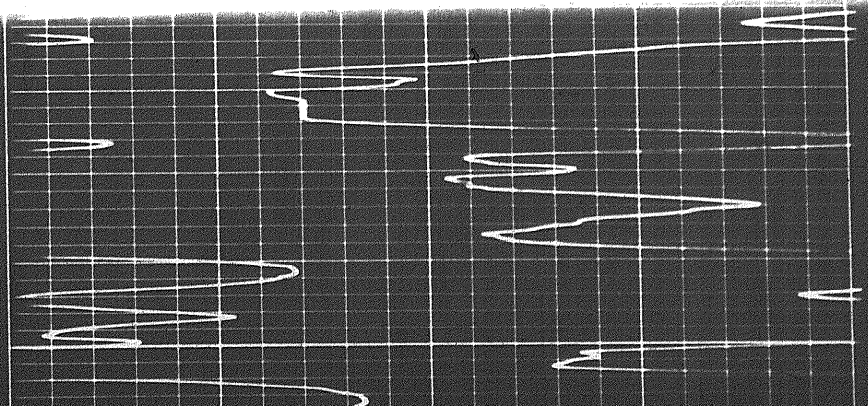


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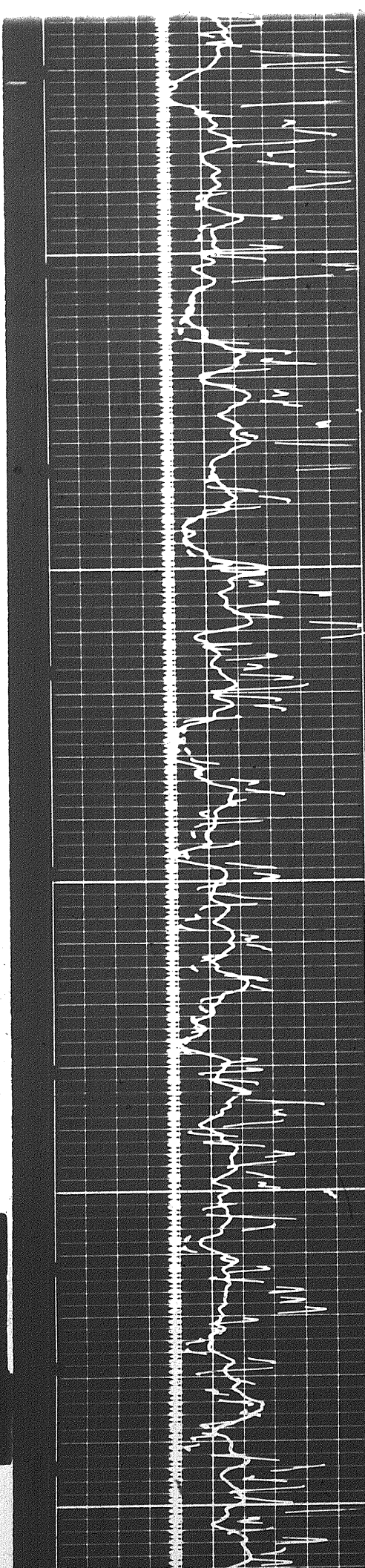
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0011



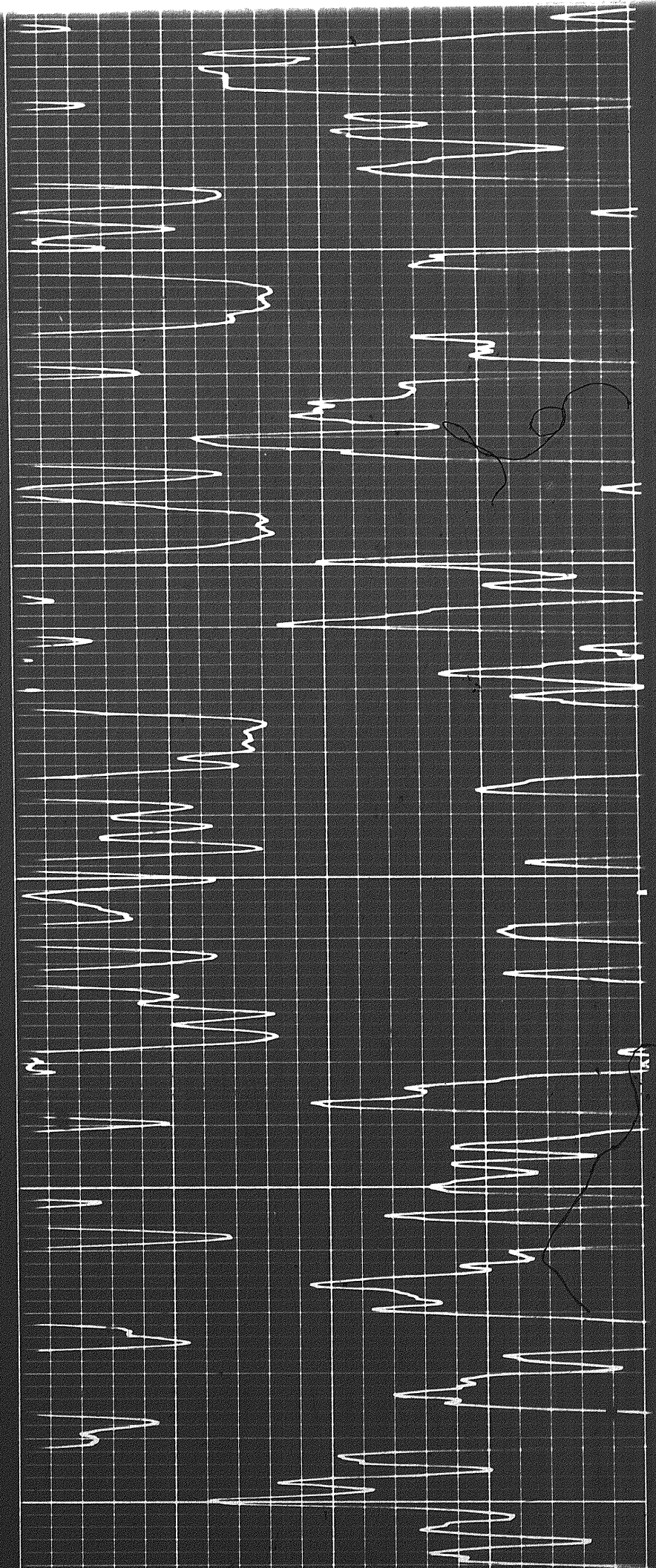
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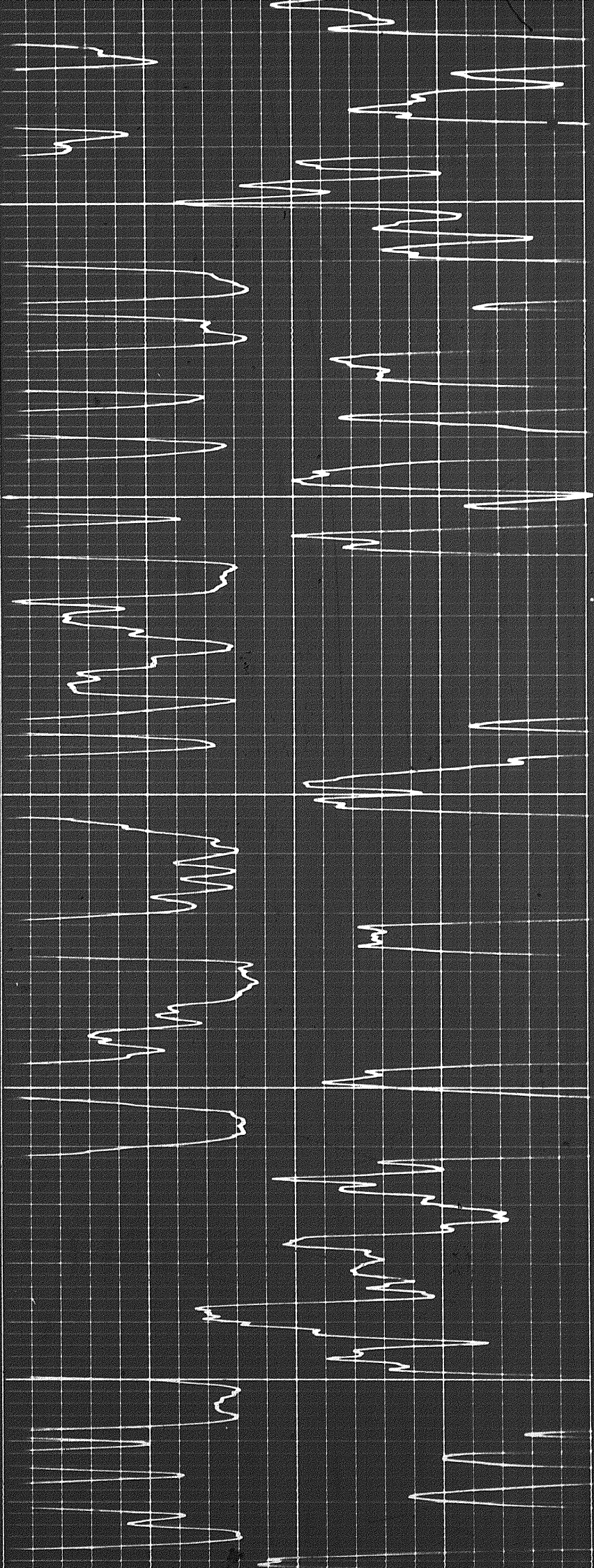


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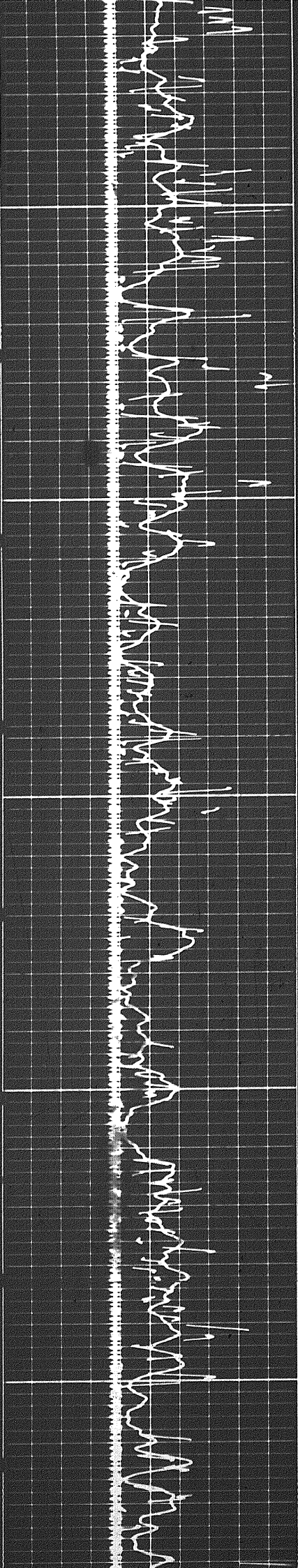
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1300



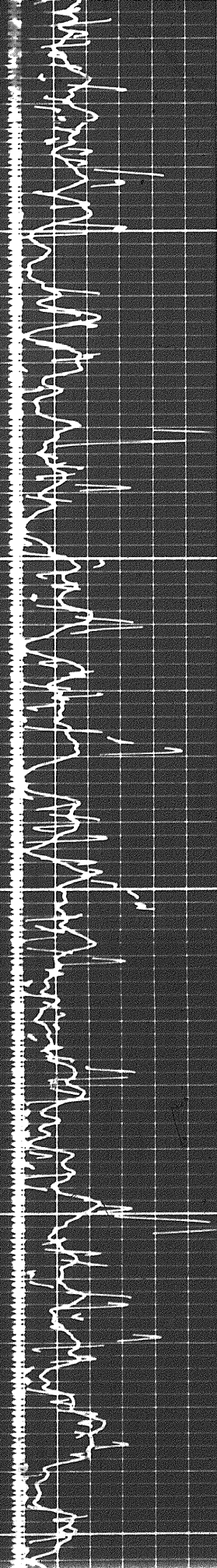


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1400

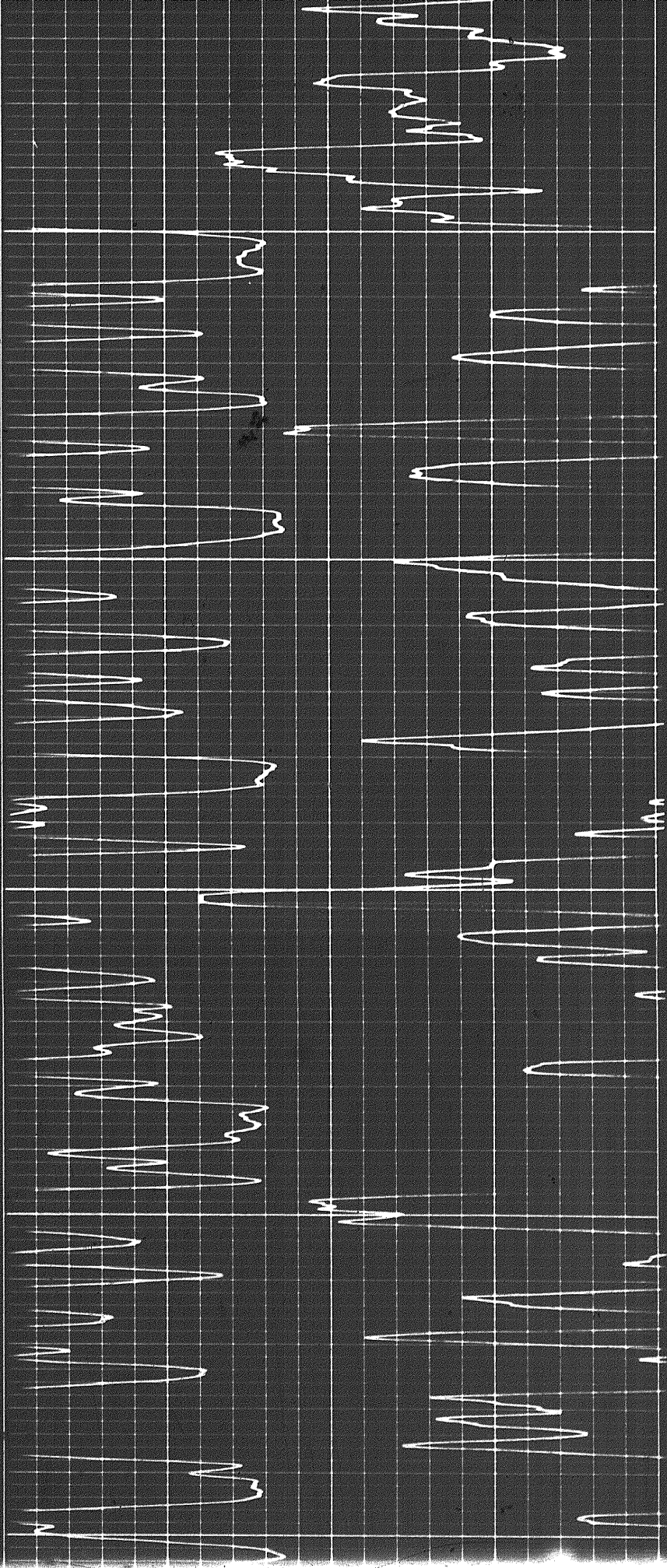
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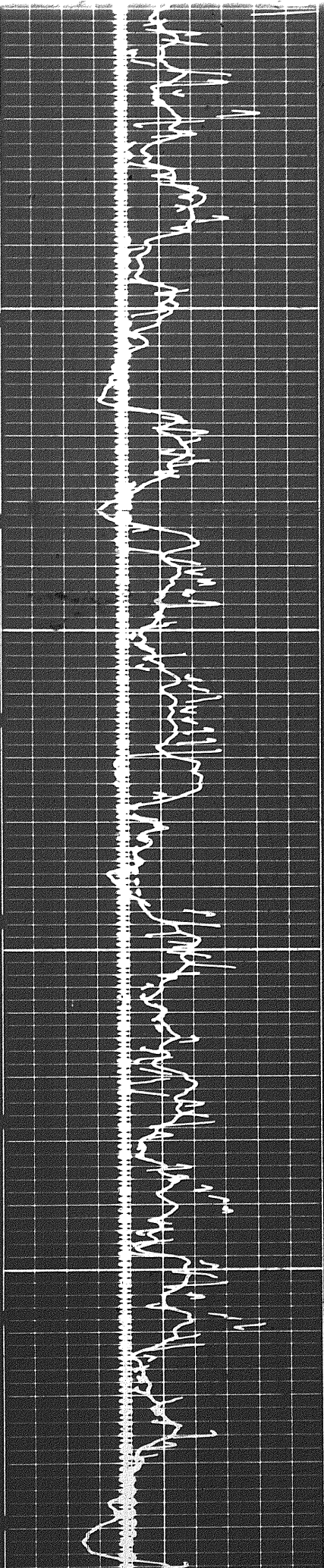


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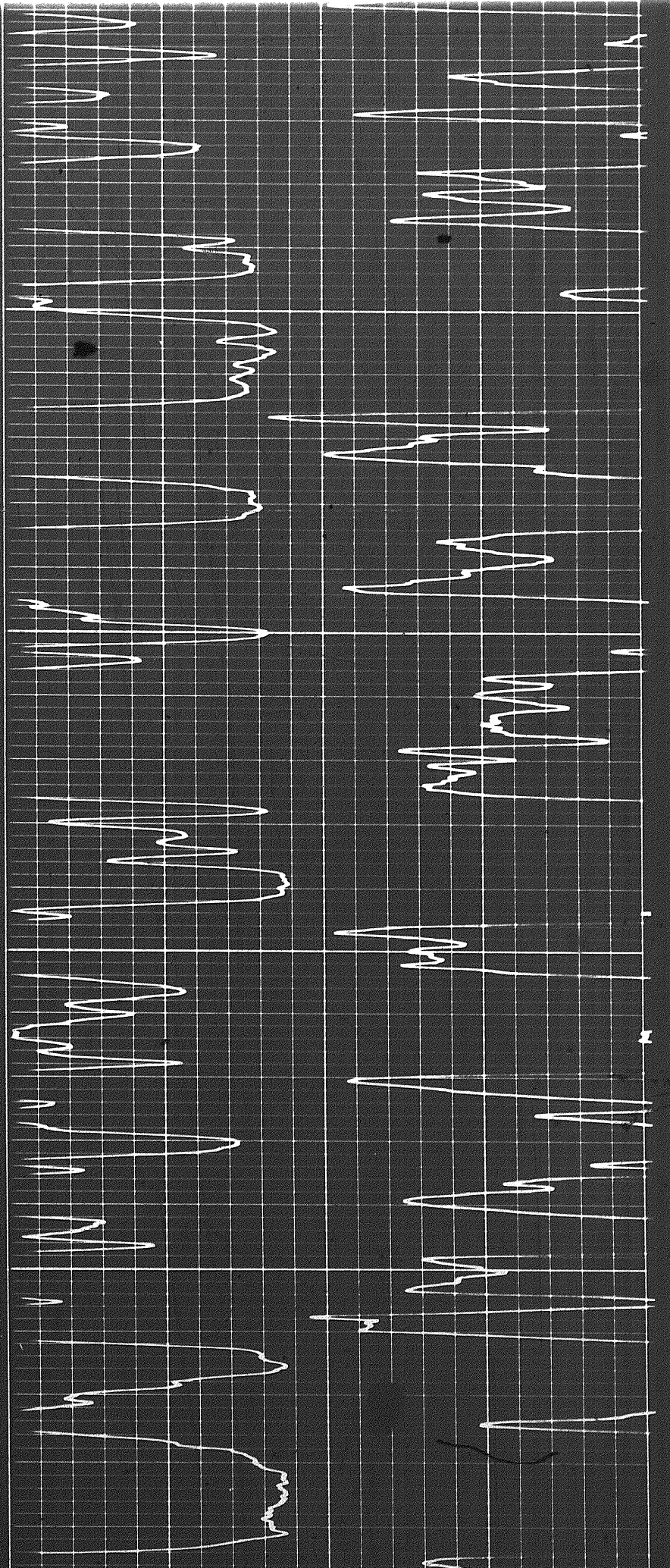
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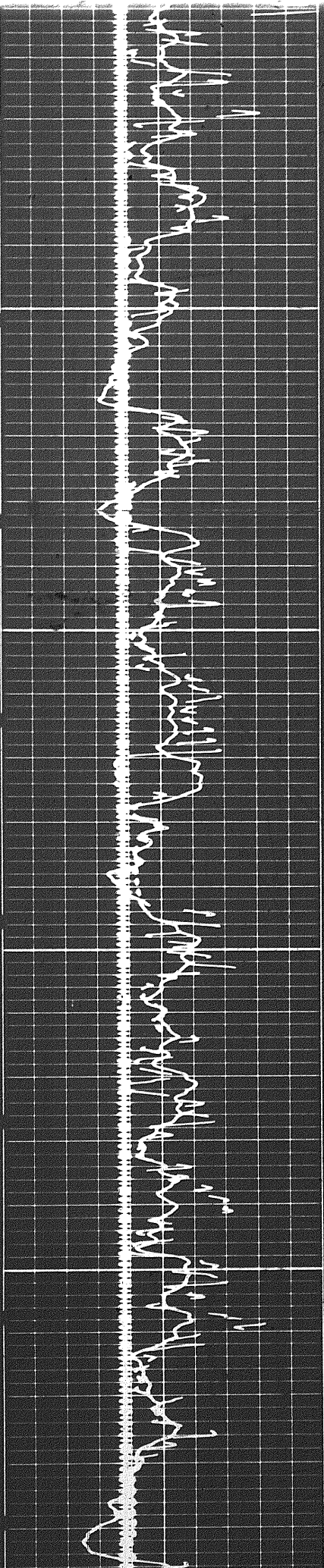




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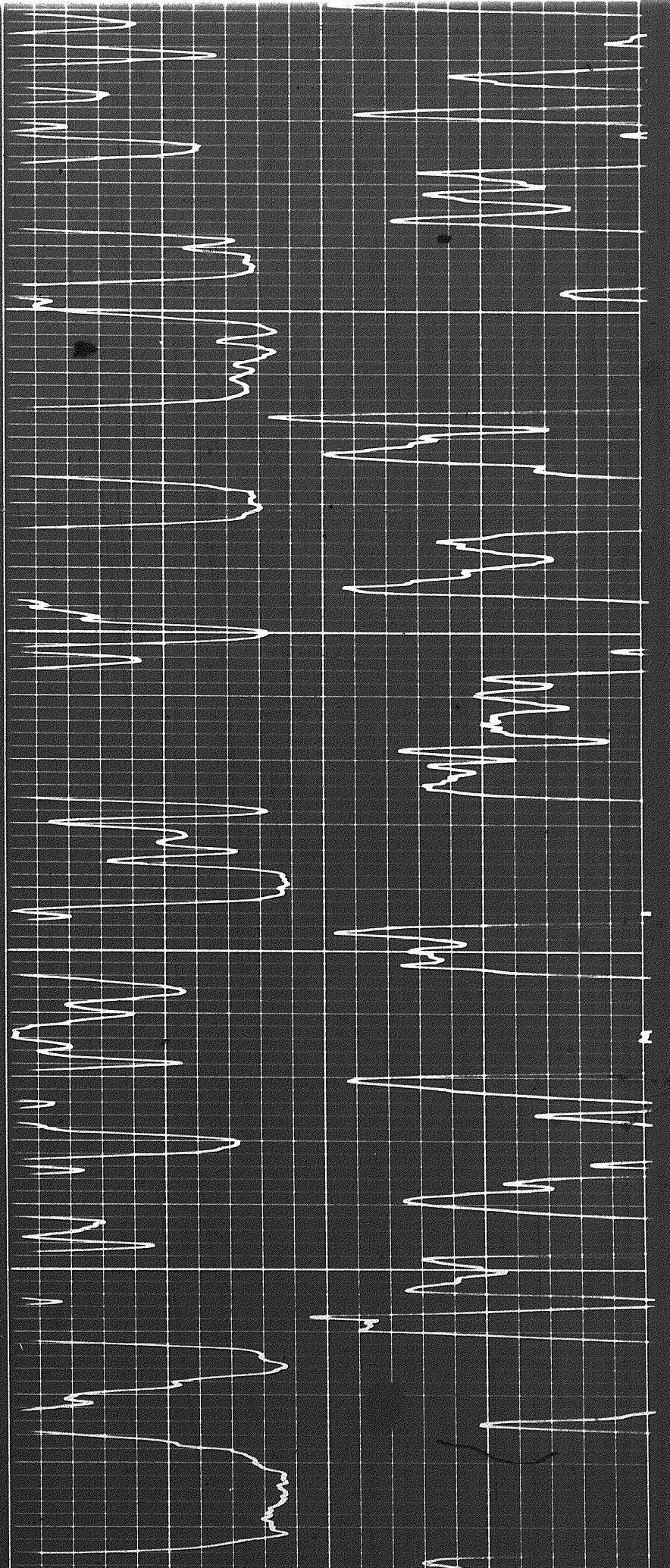
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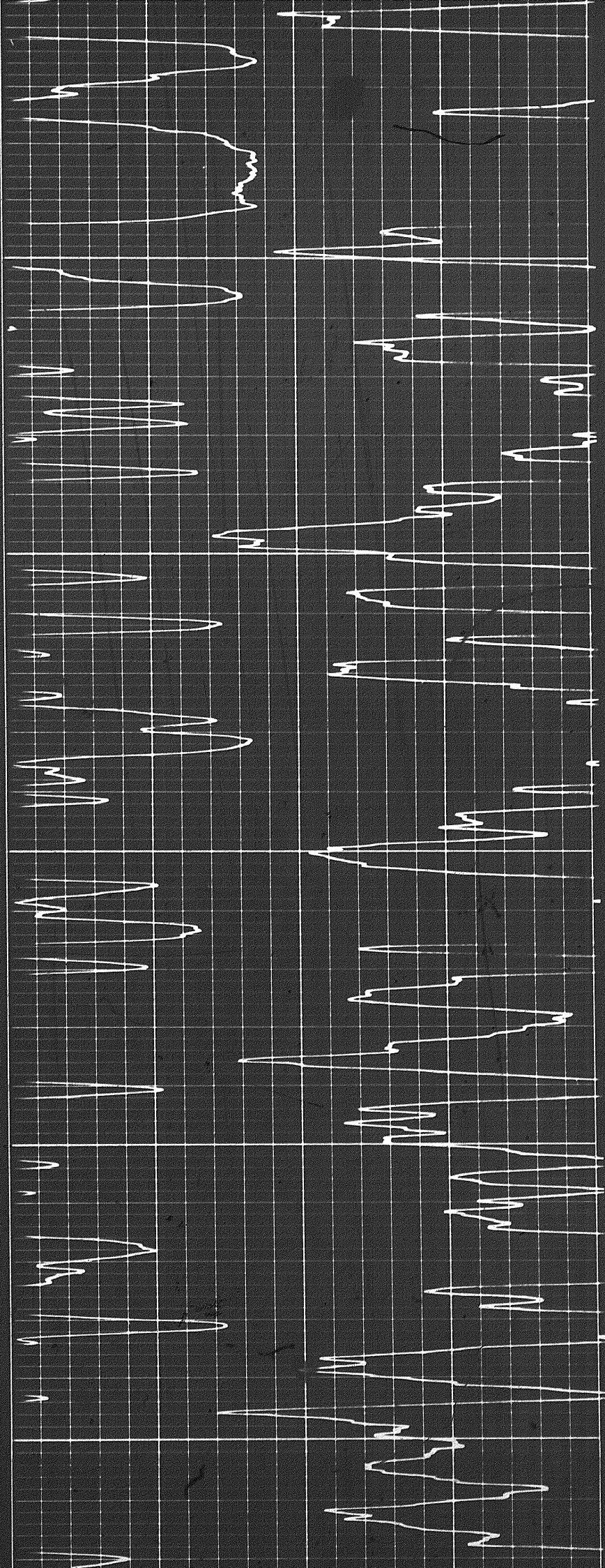




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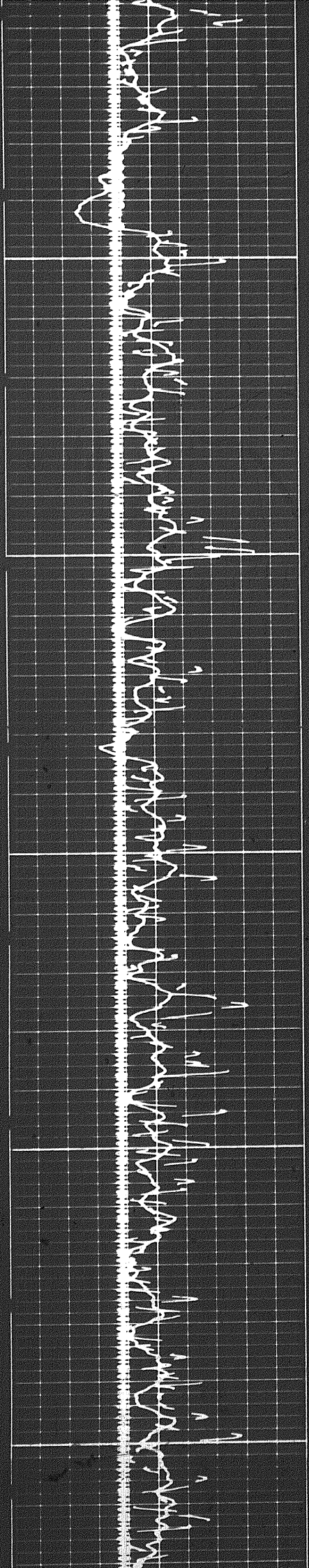


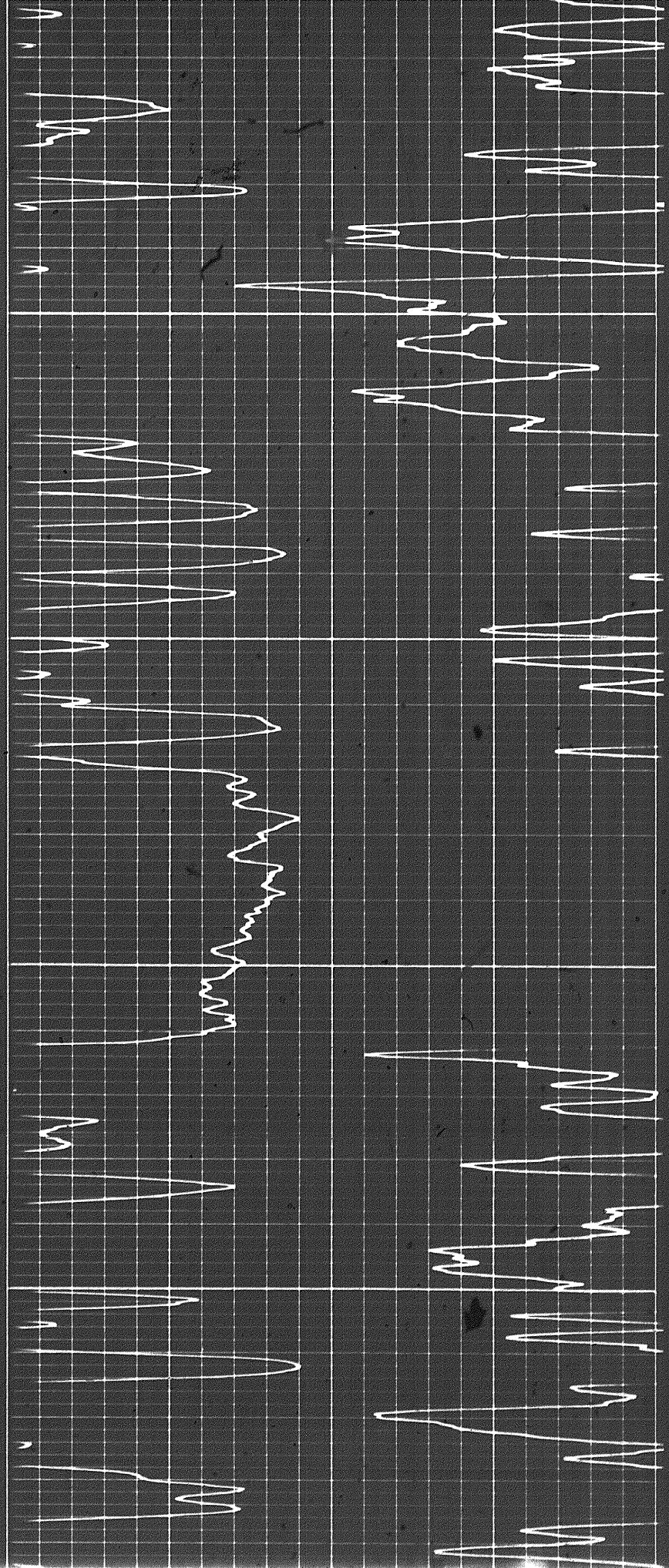


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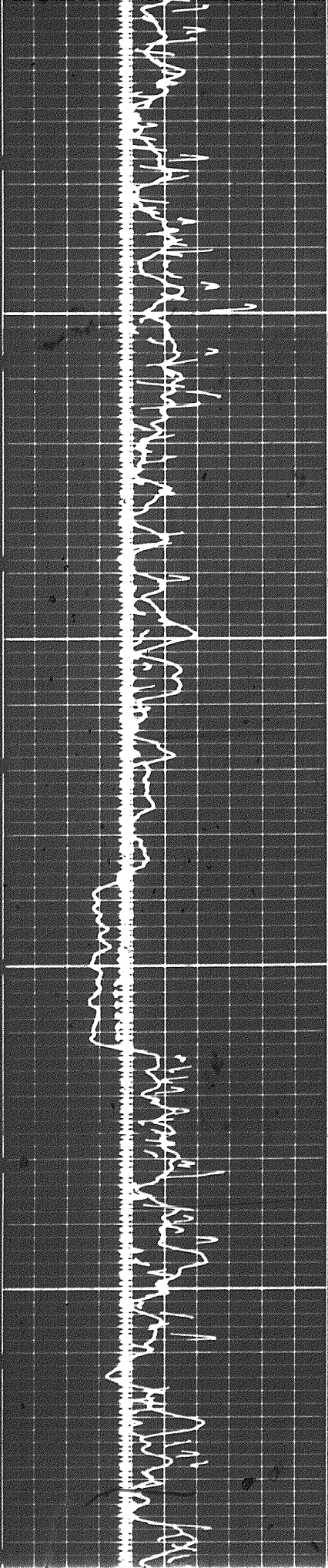
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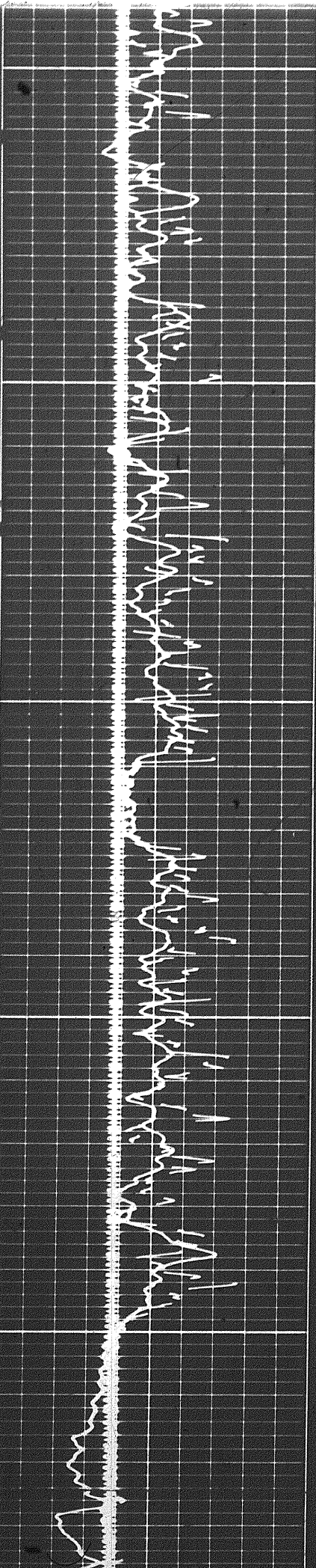




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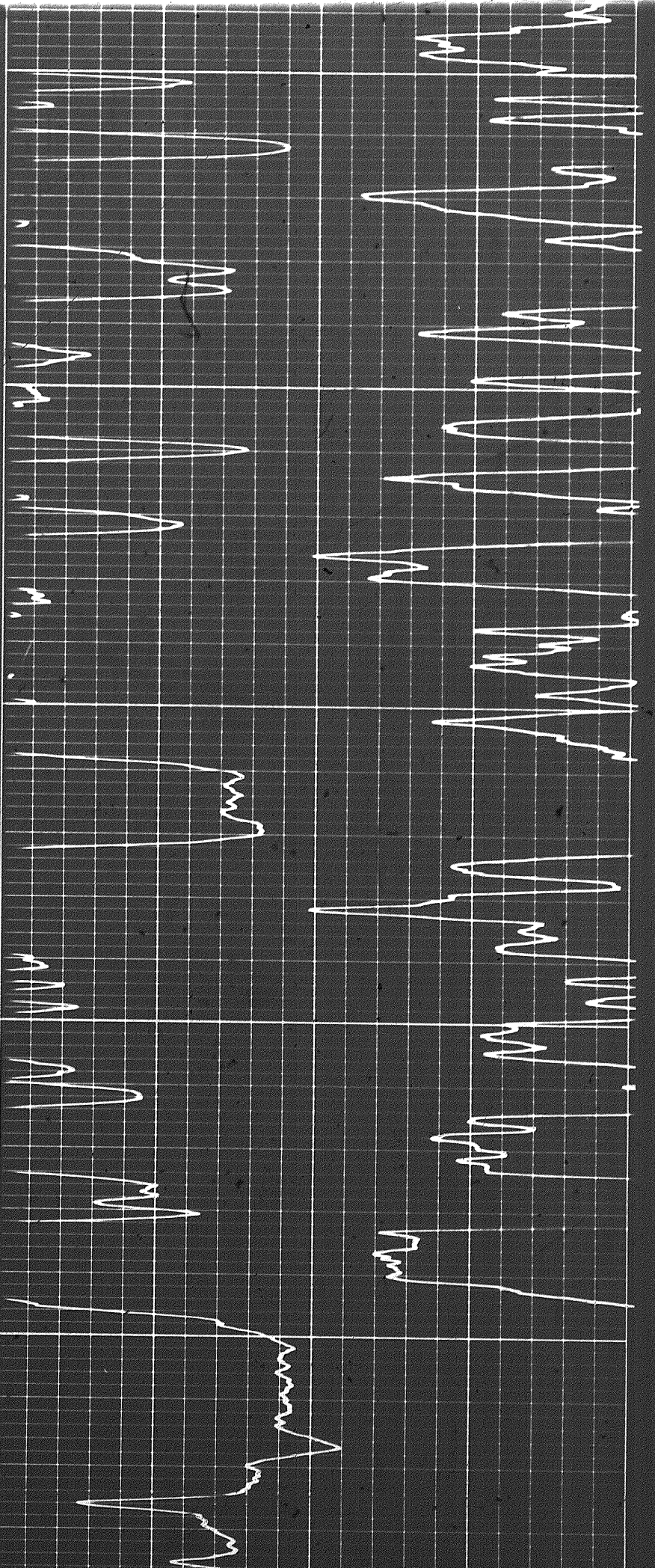
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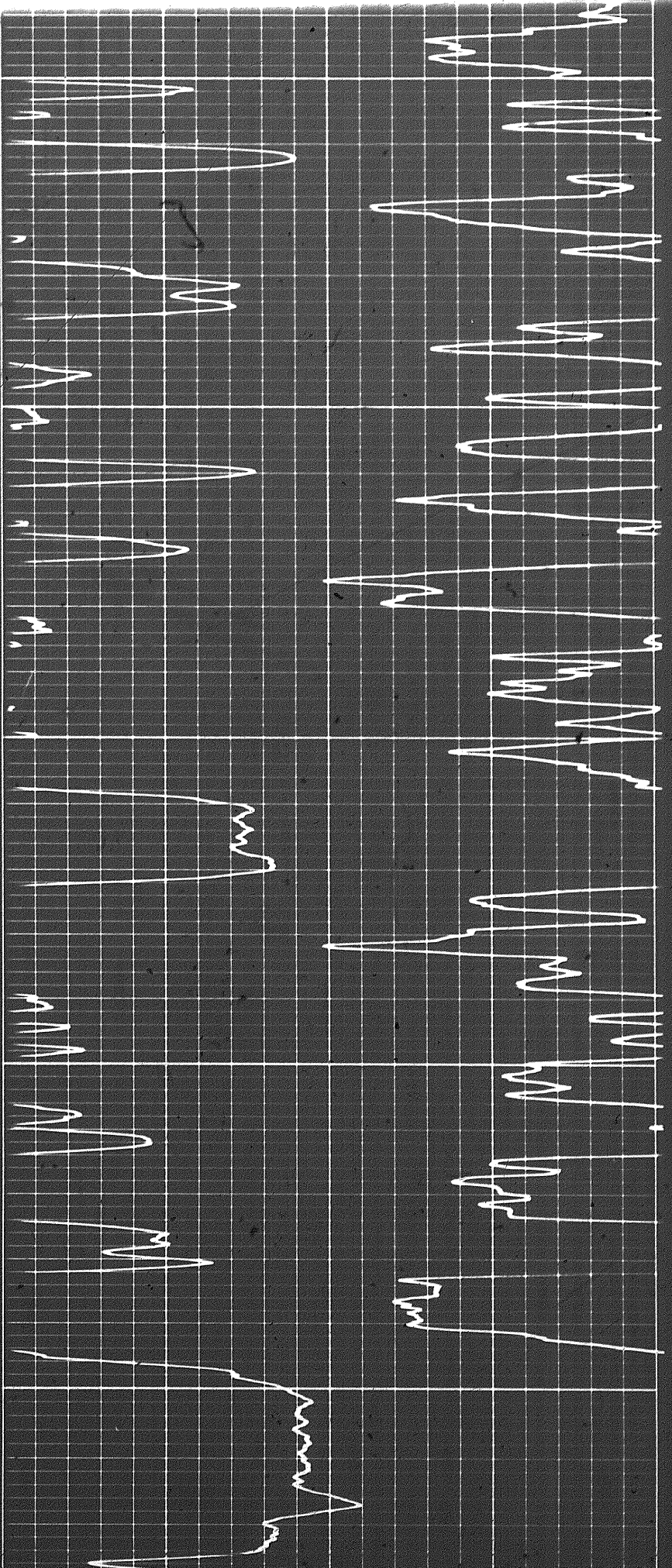




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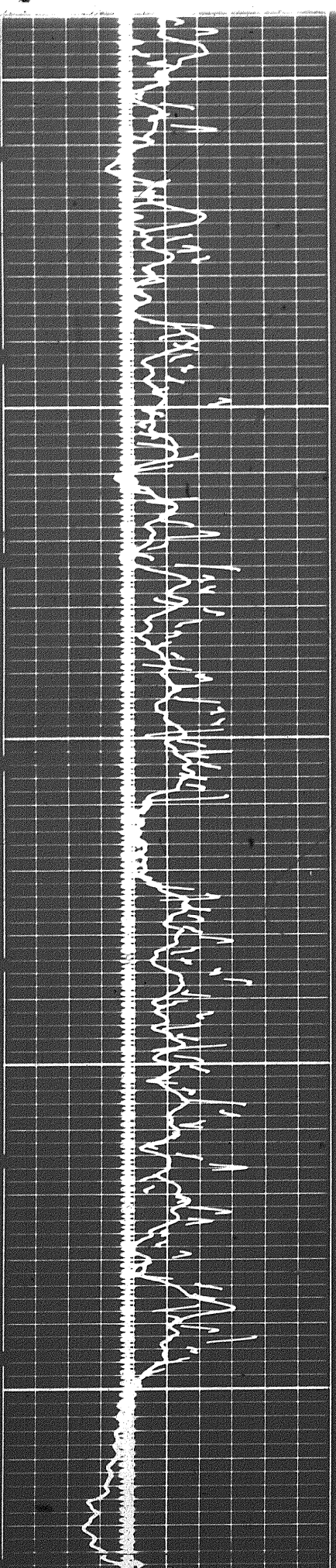
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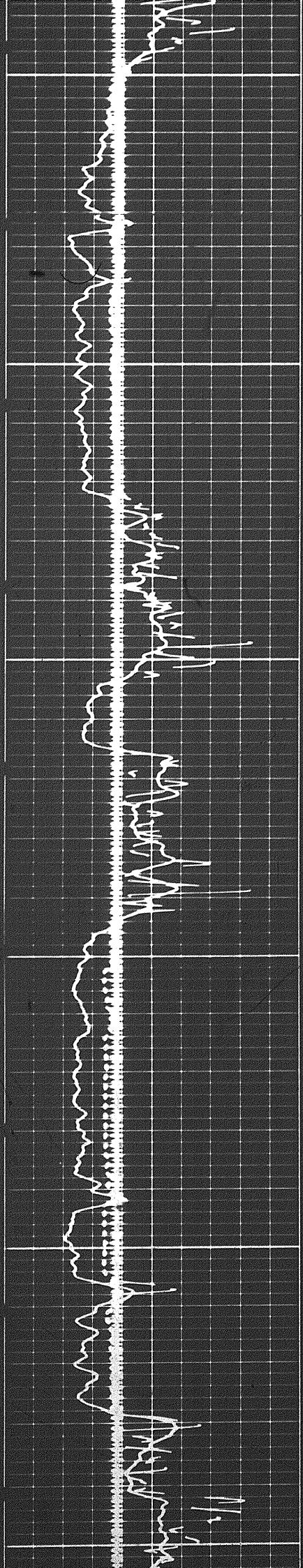
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2400



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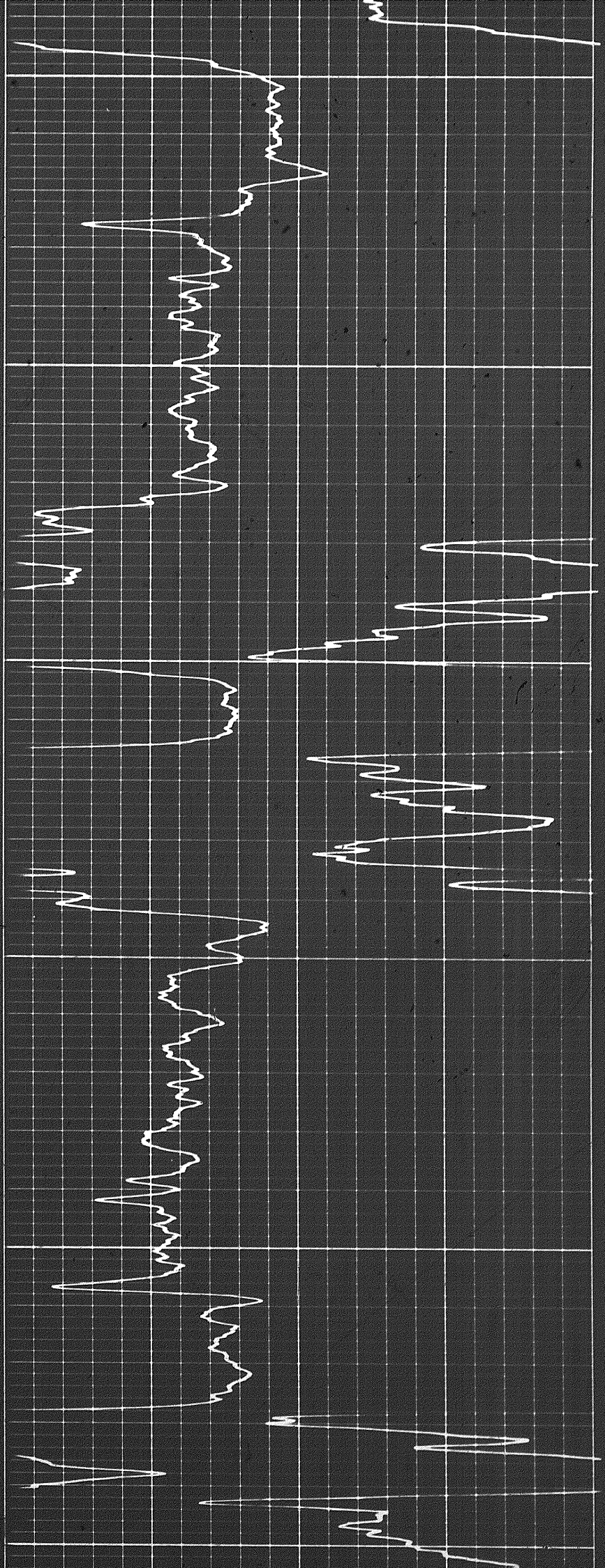
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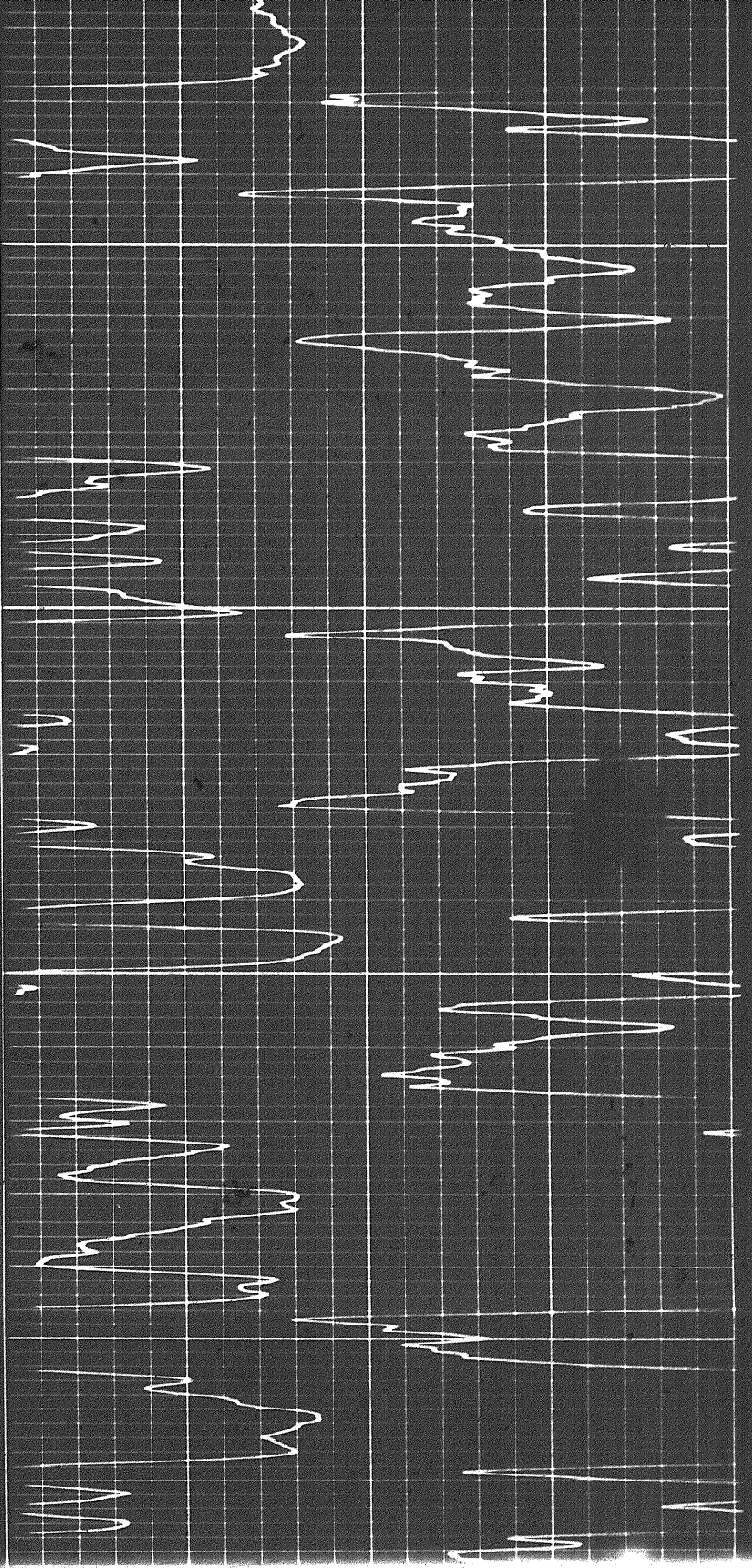


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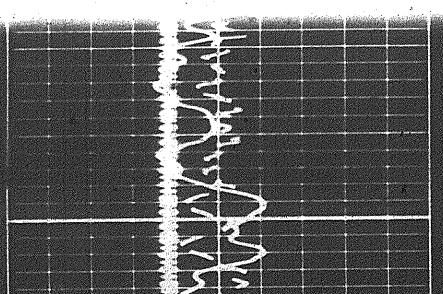
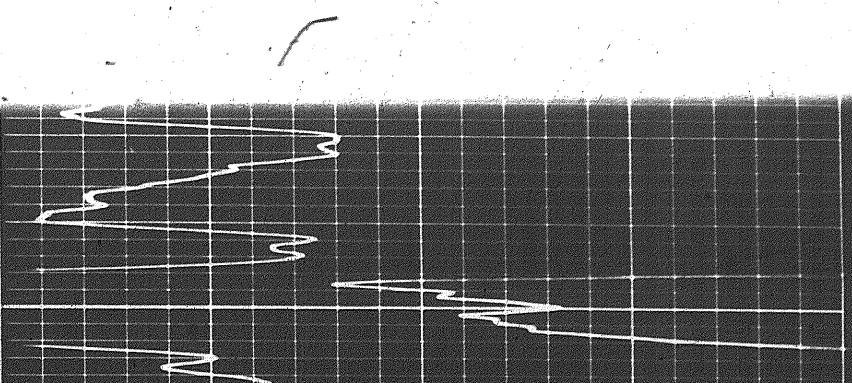
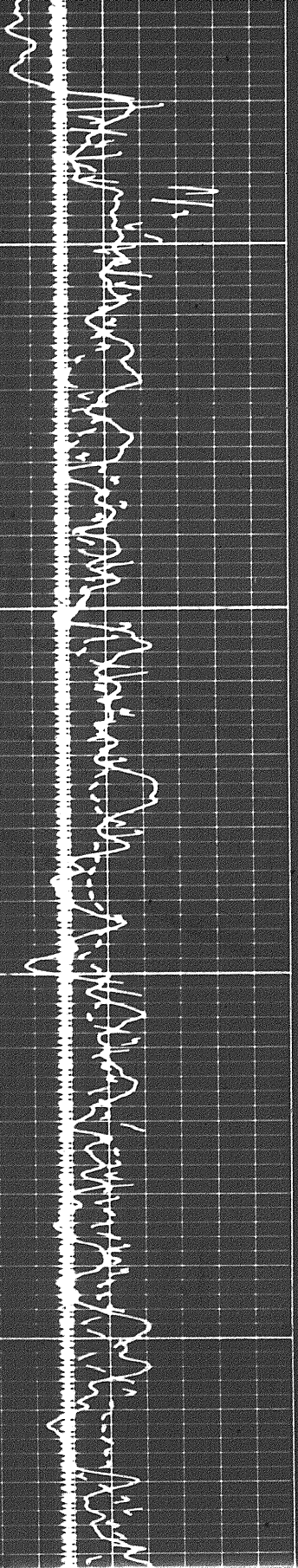
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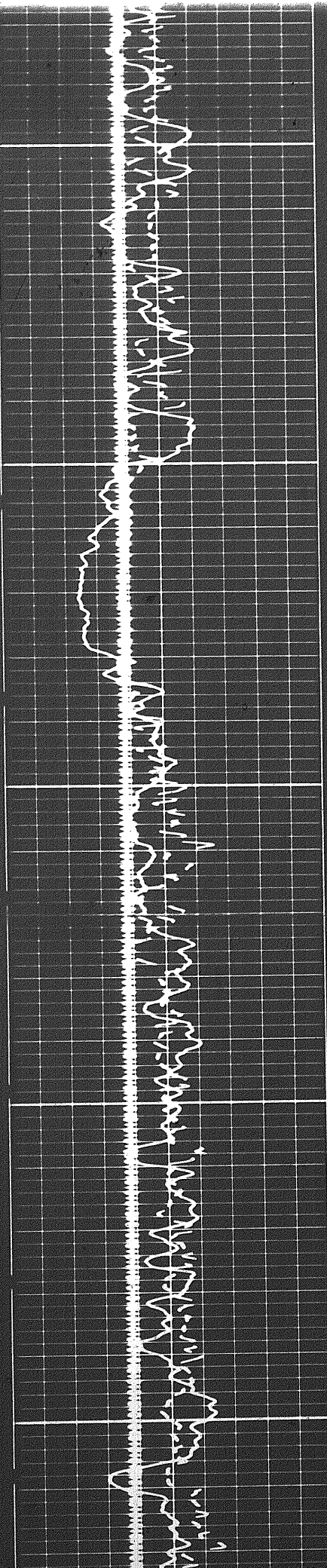


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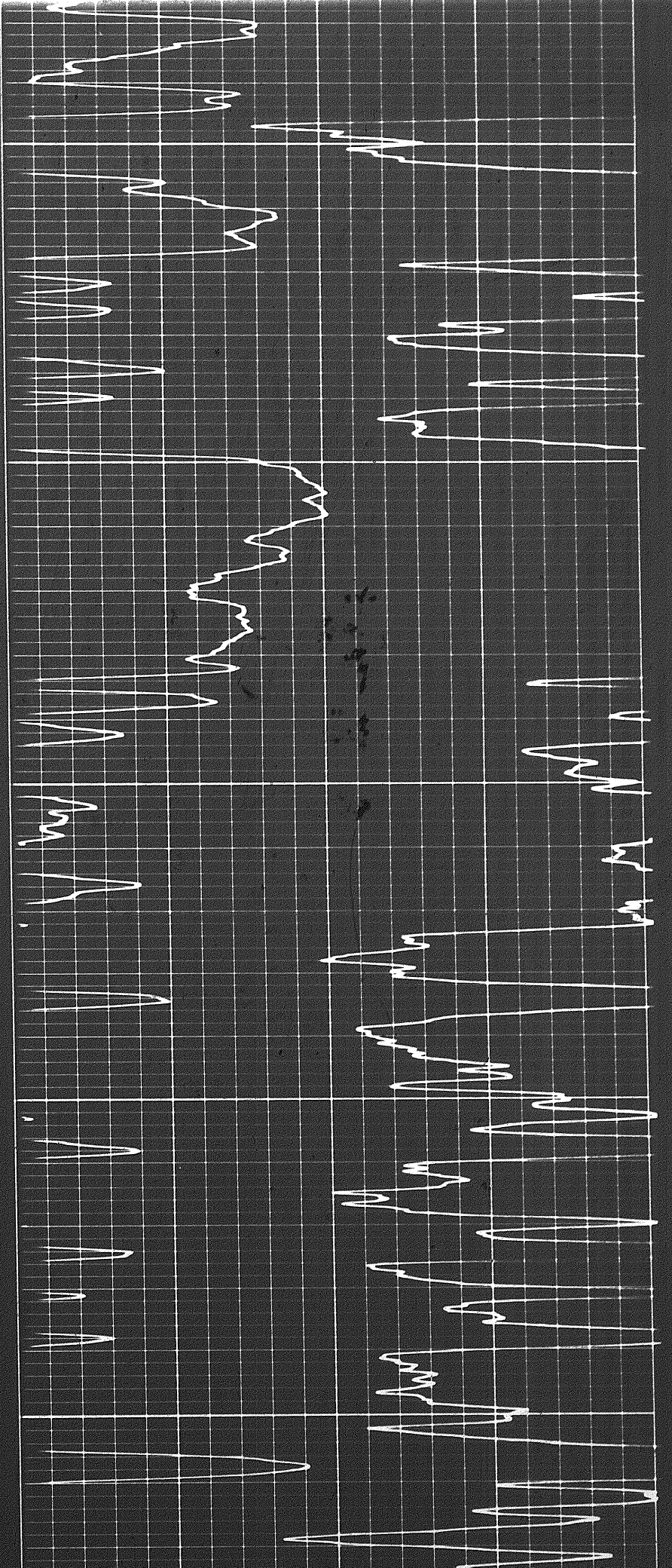


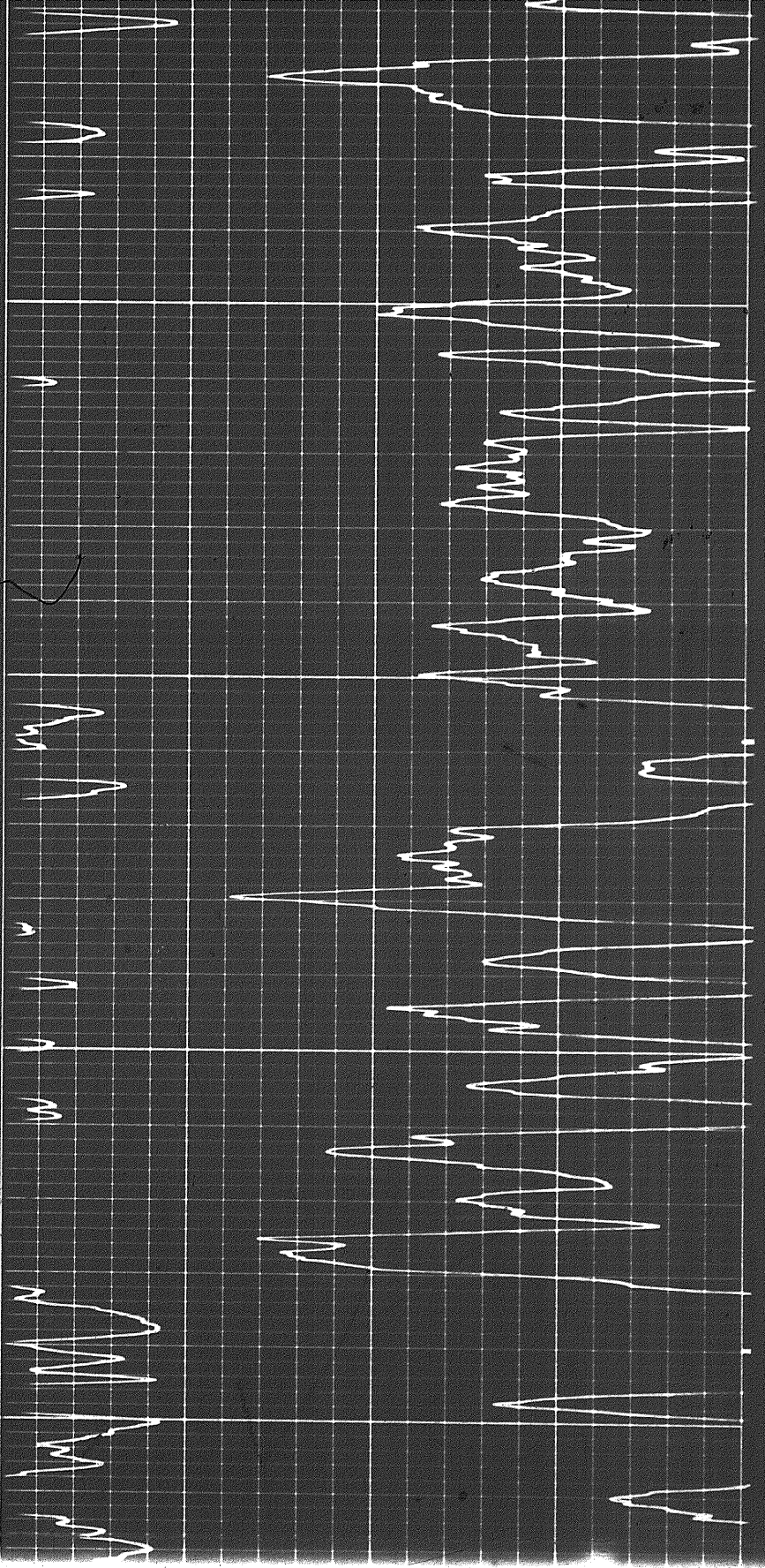
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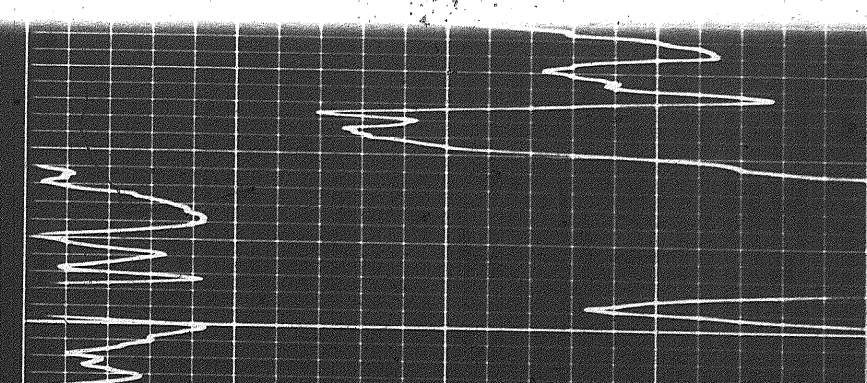
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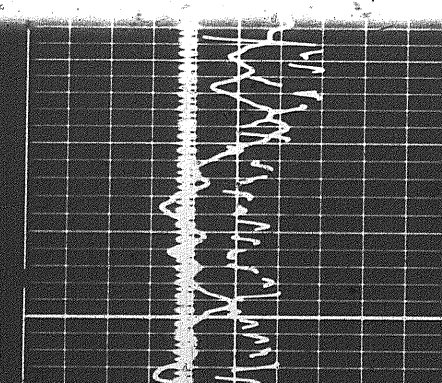
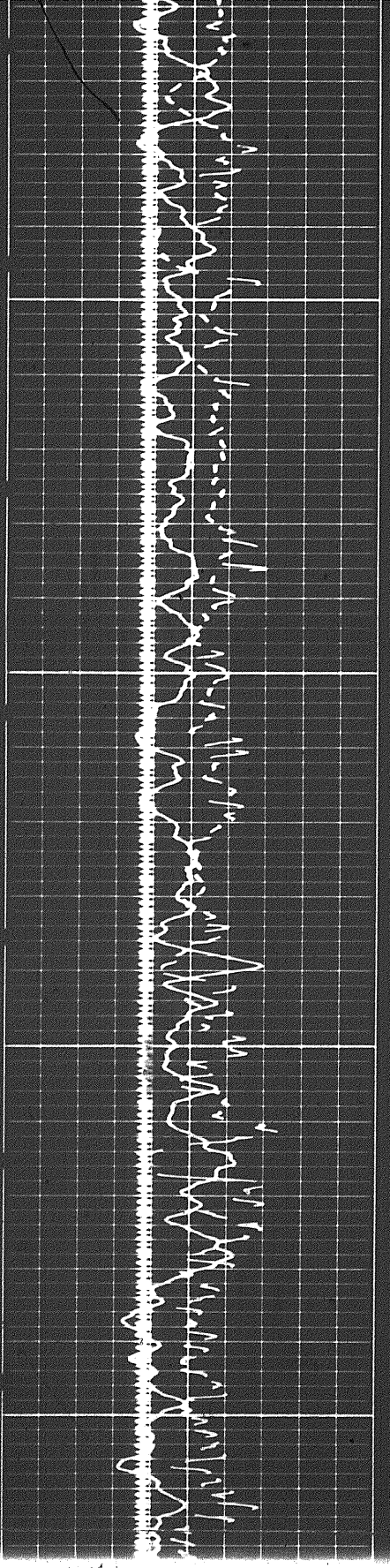


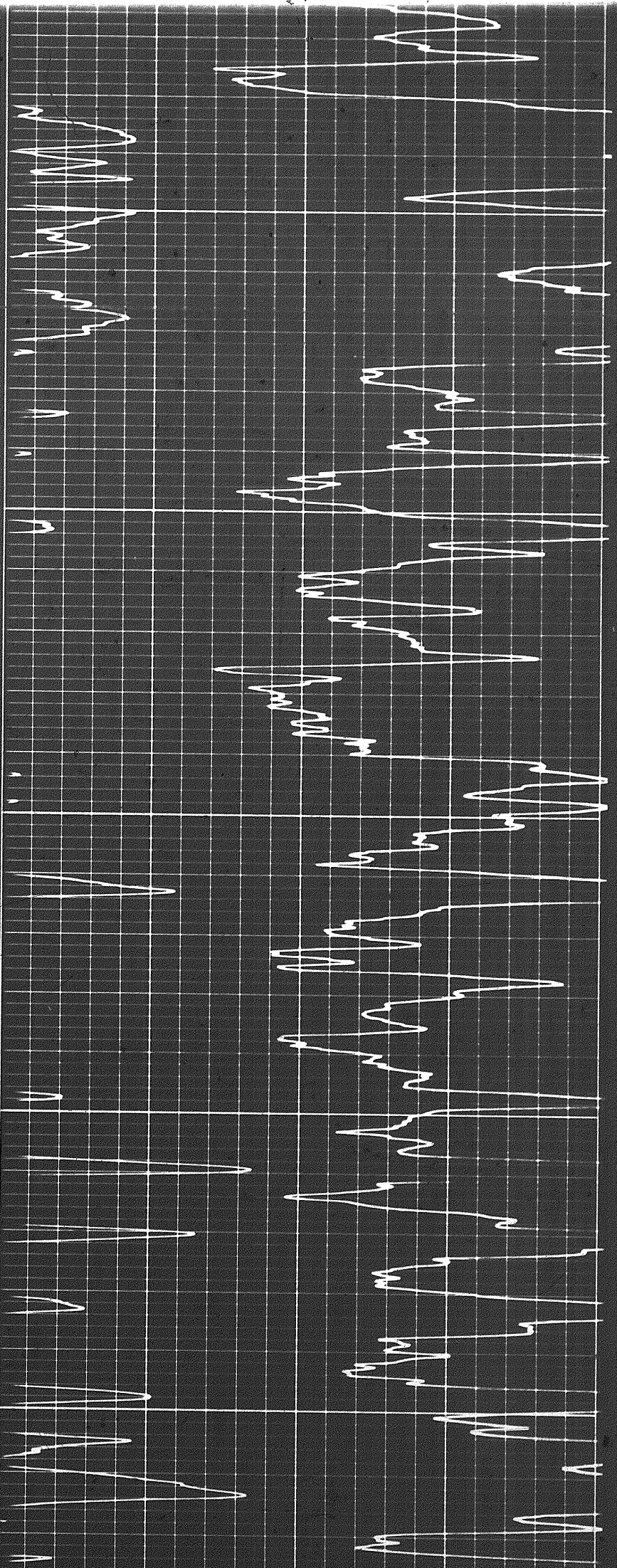


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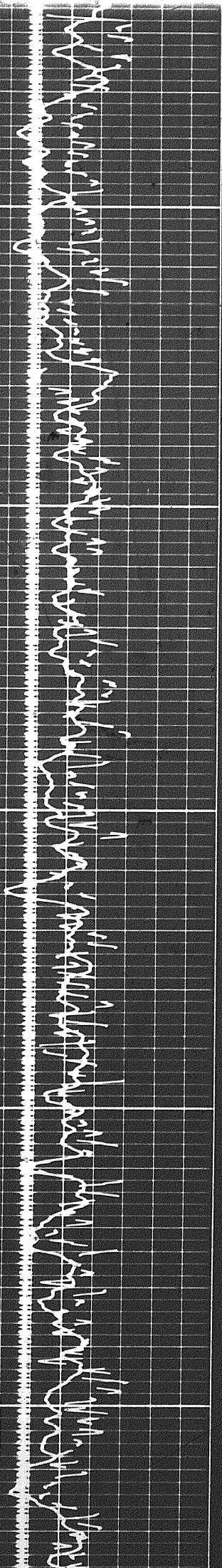
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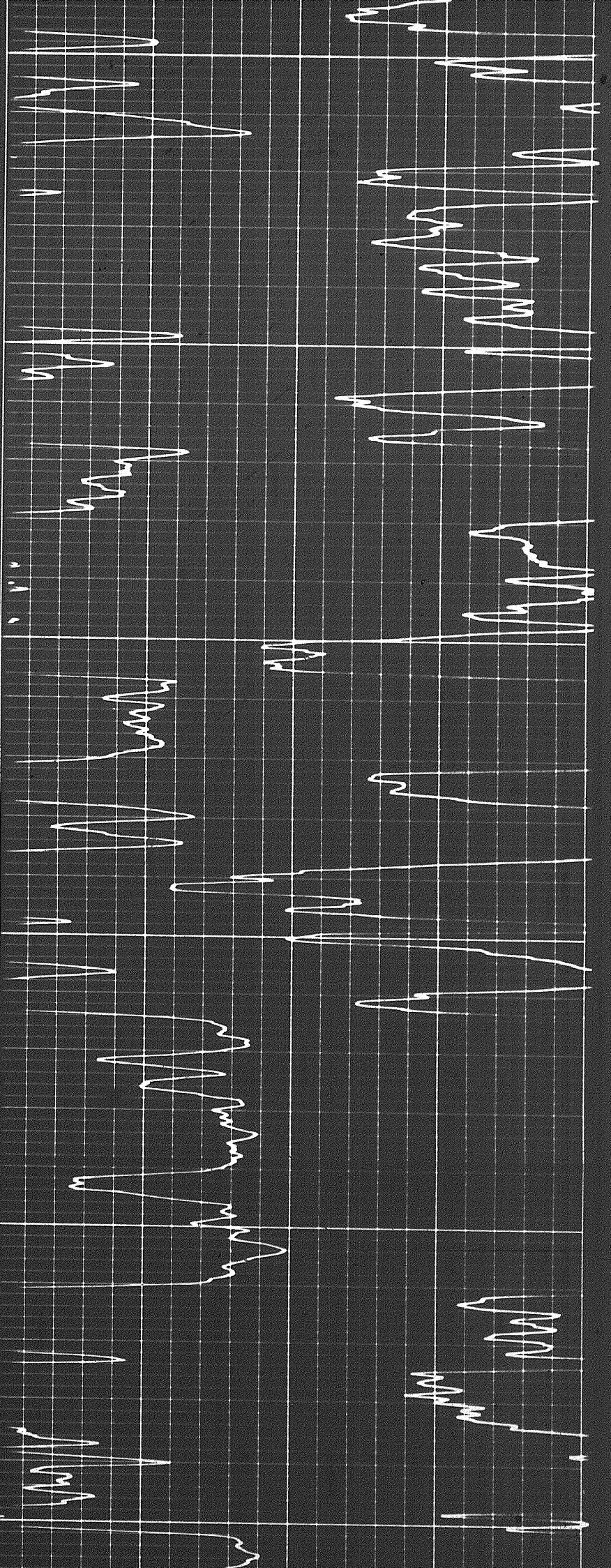


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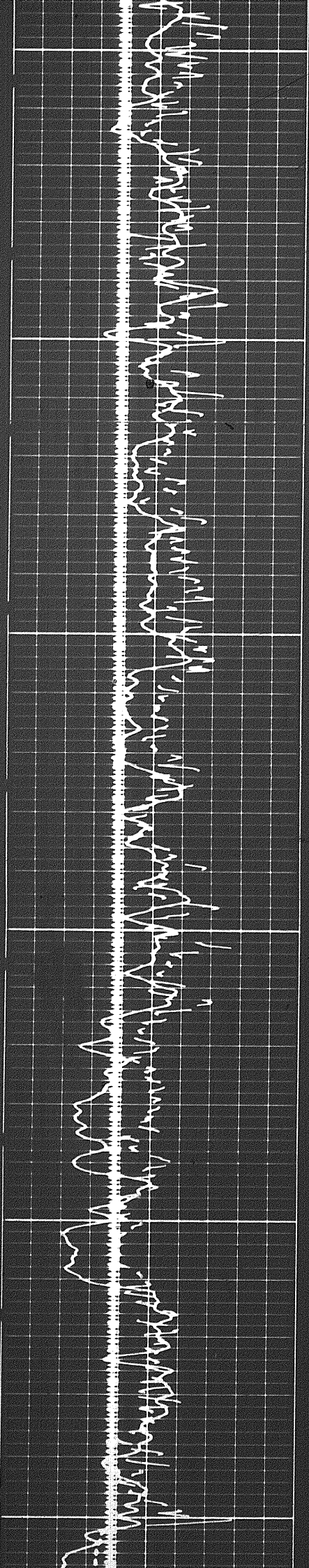
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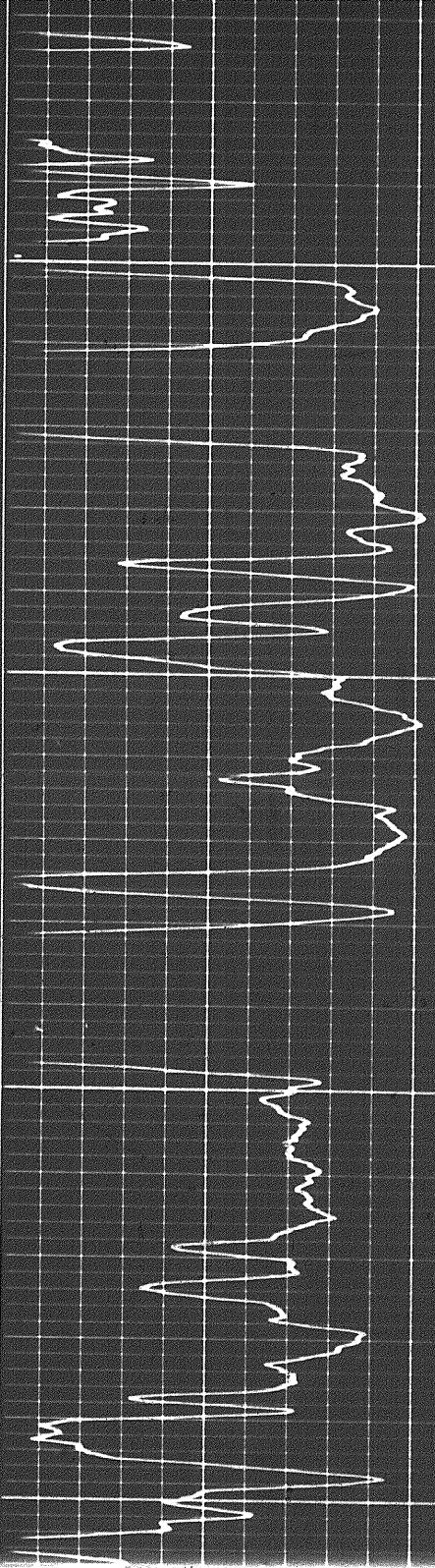
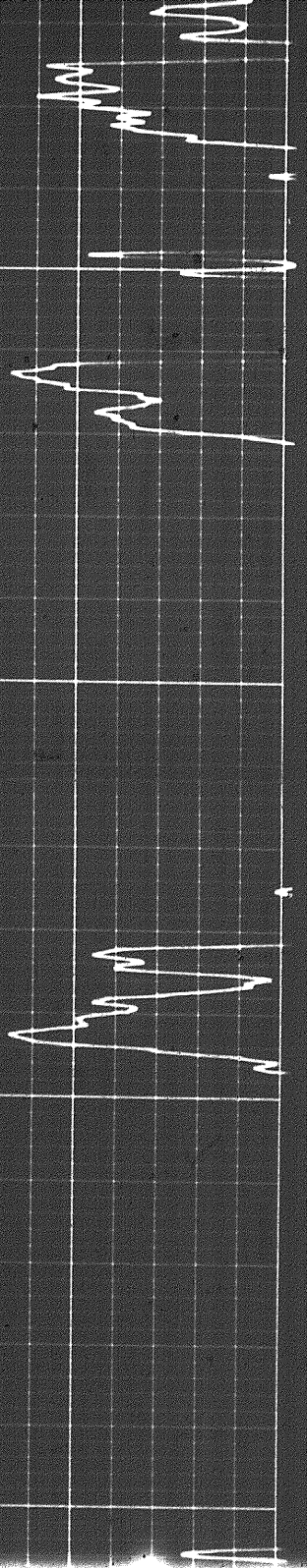


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3800

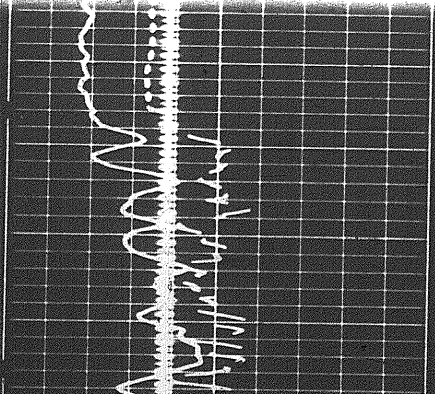
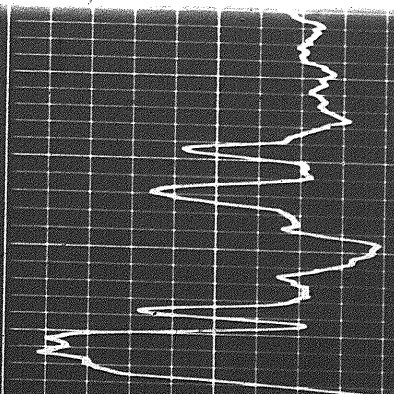
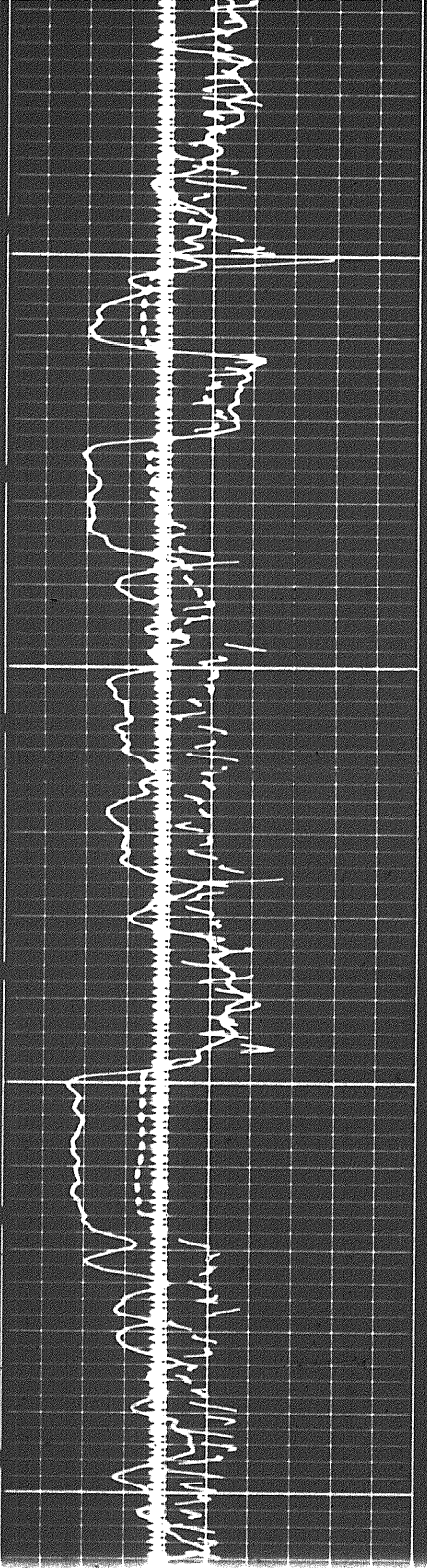
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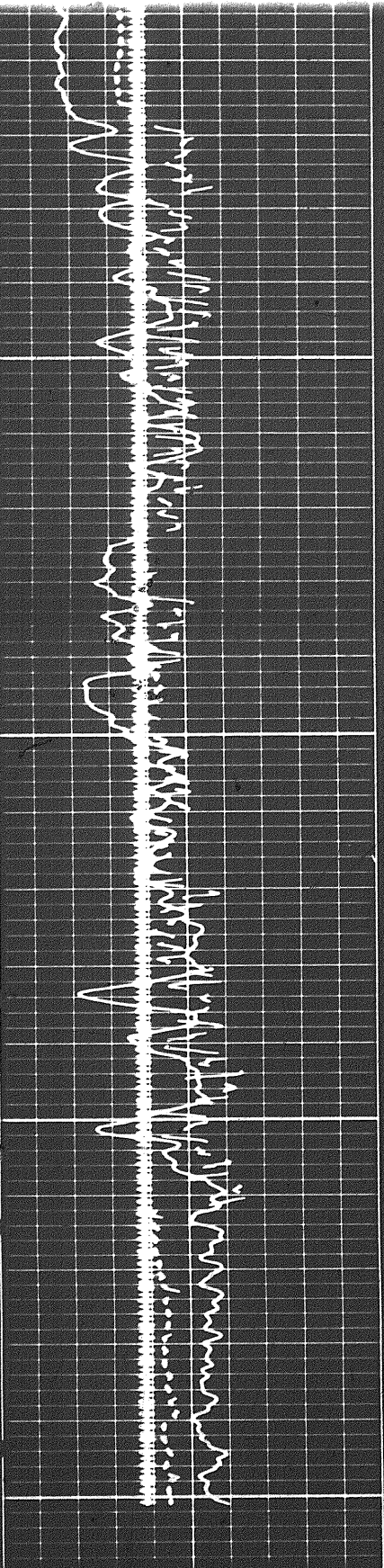


3900

4000

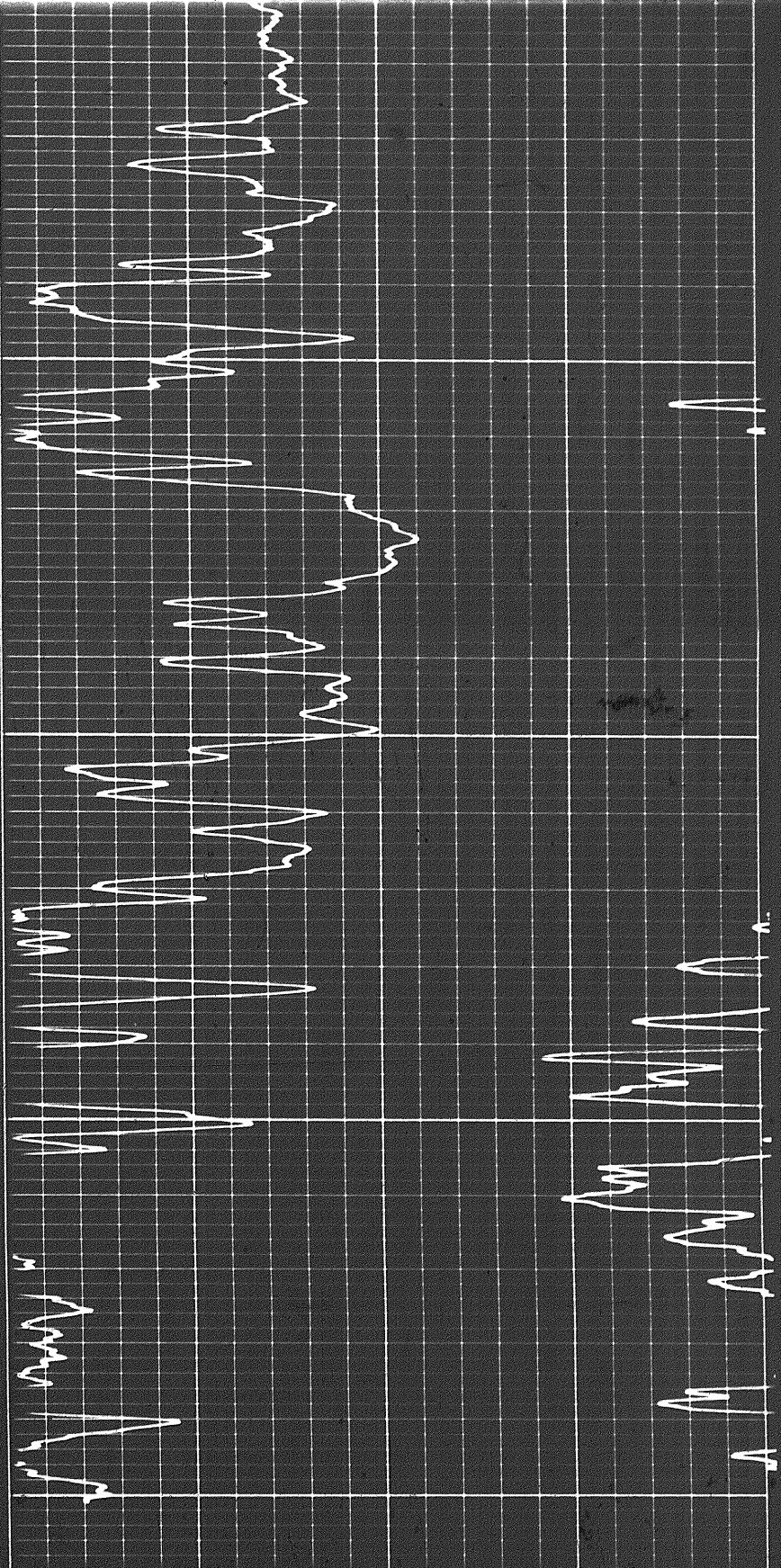


702



410

4200



Sens.	150	T.C.	2
Zero	0	div. to left	
0		150	
150		300	

GAMMA RAY
API UNITS

5

Sens. 150 T.C. 2
Zero 0 div. to left

0 150
150 300

GAMMA RAY
API UNITS

6 7 8 9 10 11 12 13 14

Speed in FPM

30 20 10 0 -10

SANDSTONE

CALIPER
hole diameter in inches

DEPTH

POROSITY (%)

DETAIL LOG
5" = 100'

CALIPER
hole diameter in inches

DEPTH

POROSITY (%)

6 7 8 9 10 11 12 13 14

Speed in FPM

30 20 10 0 -10

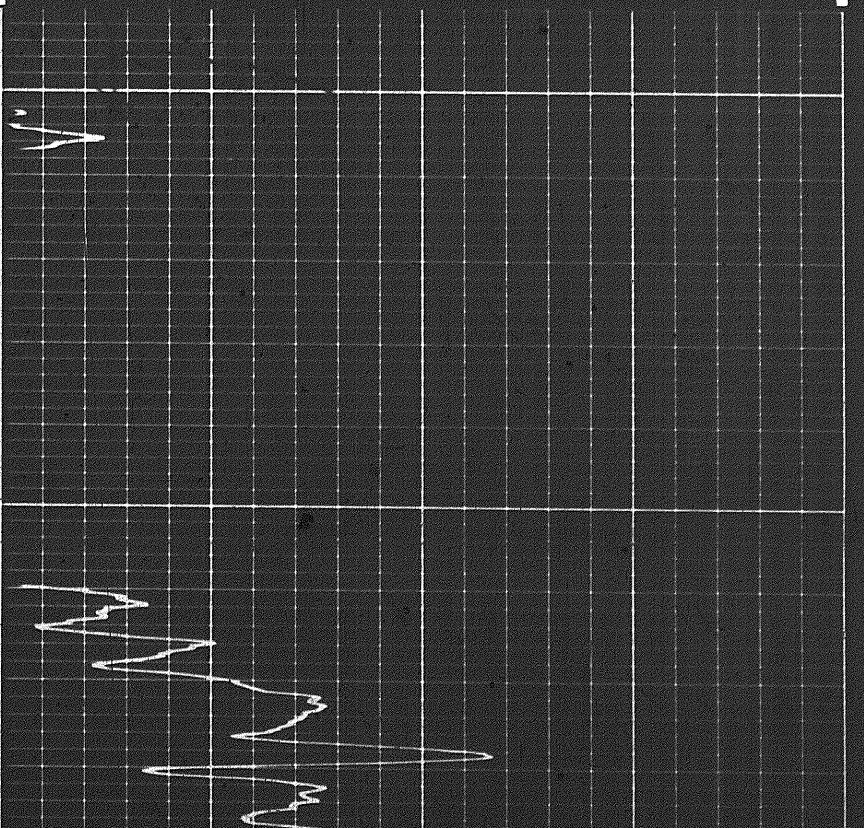
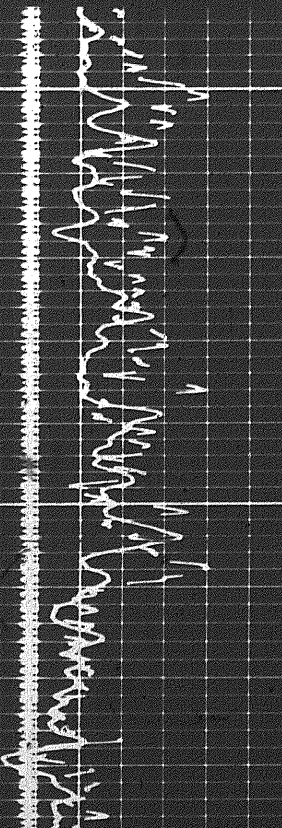
LIMESTONE

GAMMA RAY
API UNITS

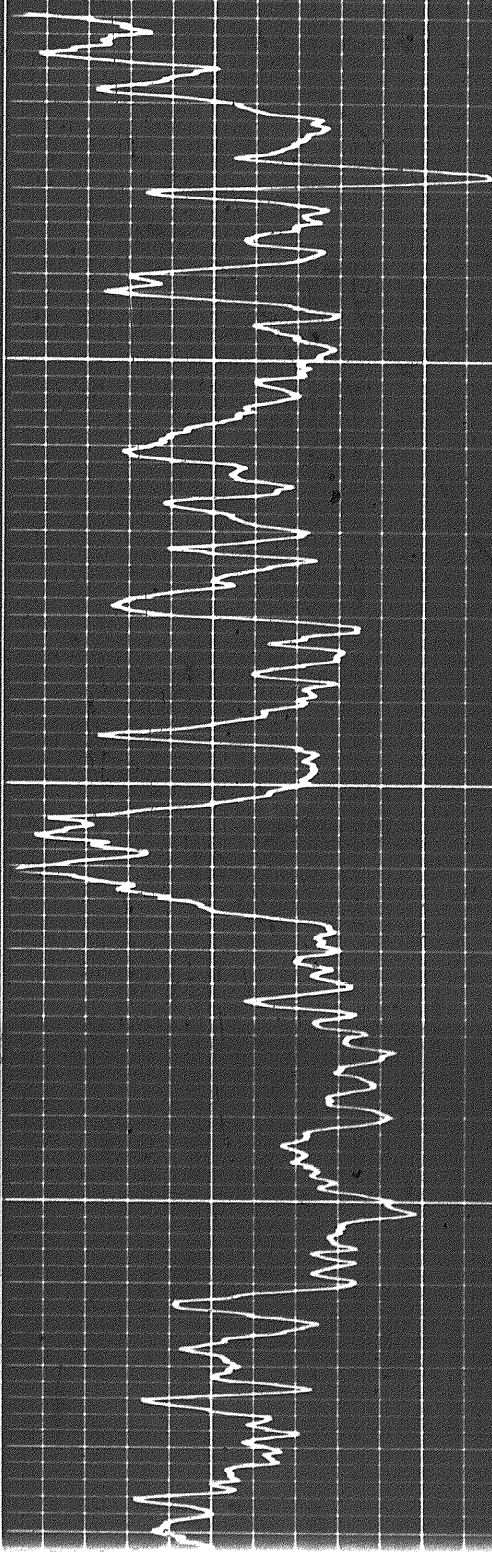
Sens. 150 T.C. 2
Zero 0 div. to left

0 150
150 300

5800

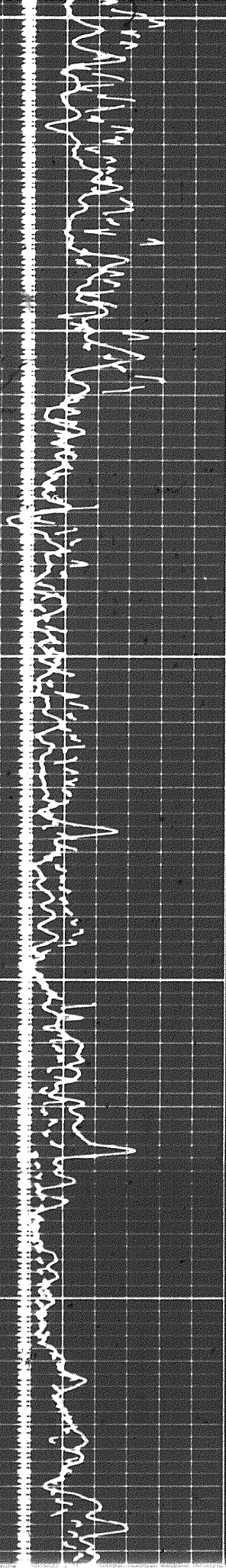


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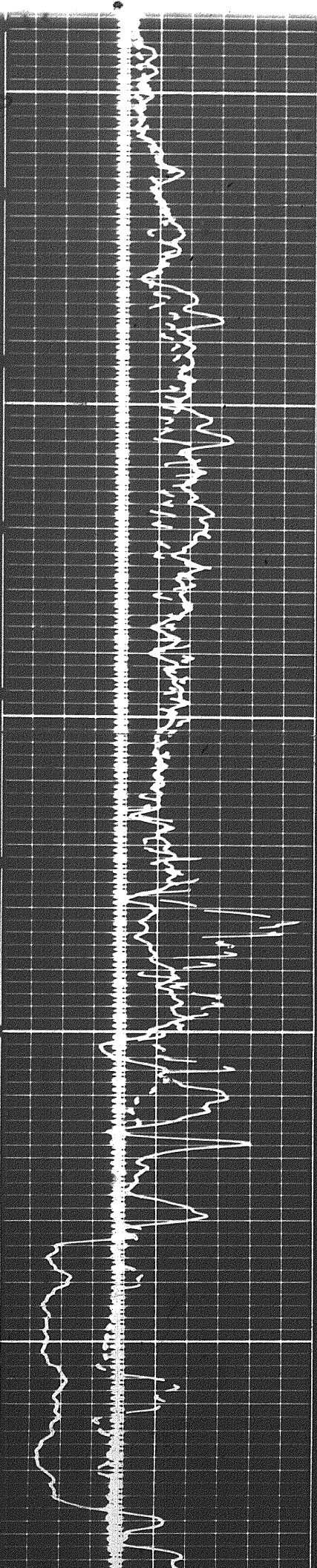


5900

6000



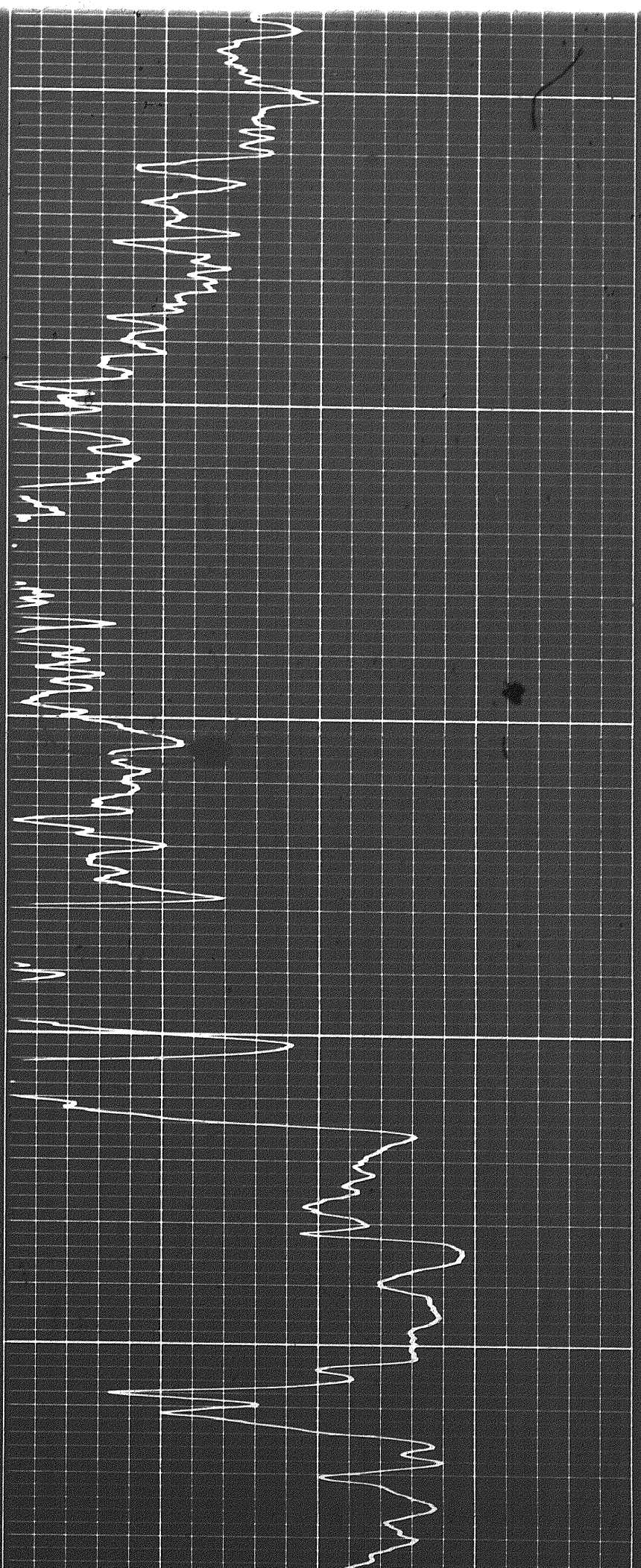
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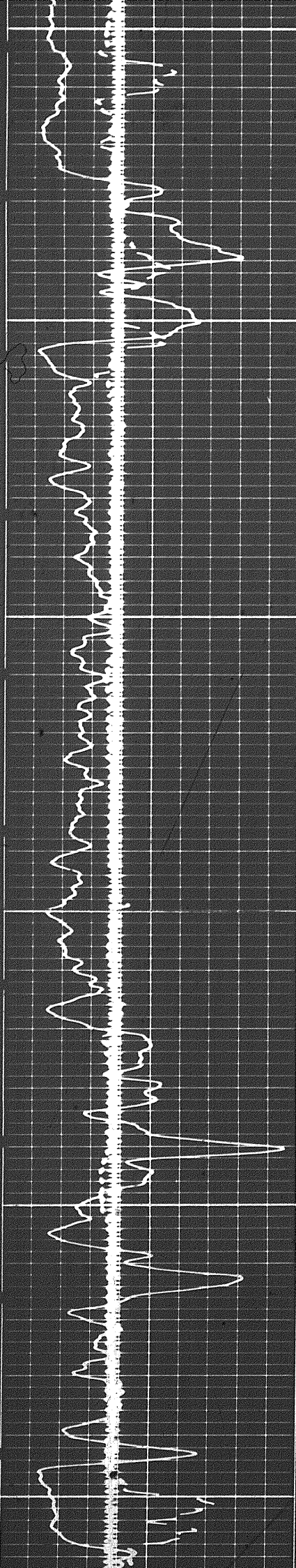
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6100

6200



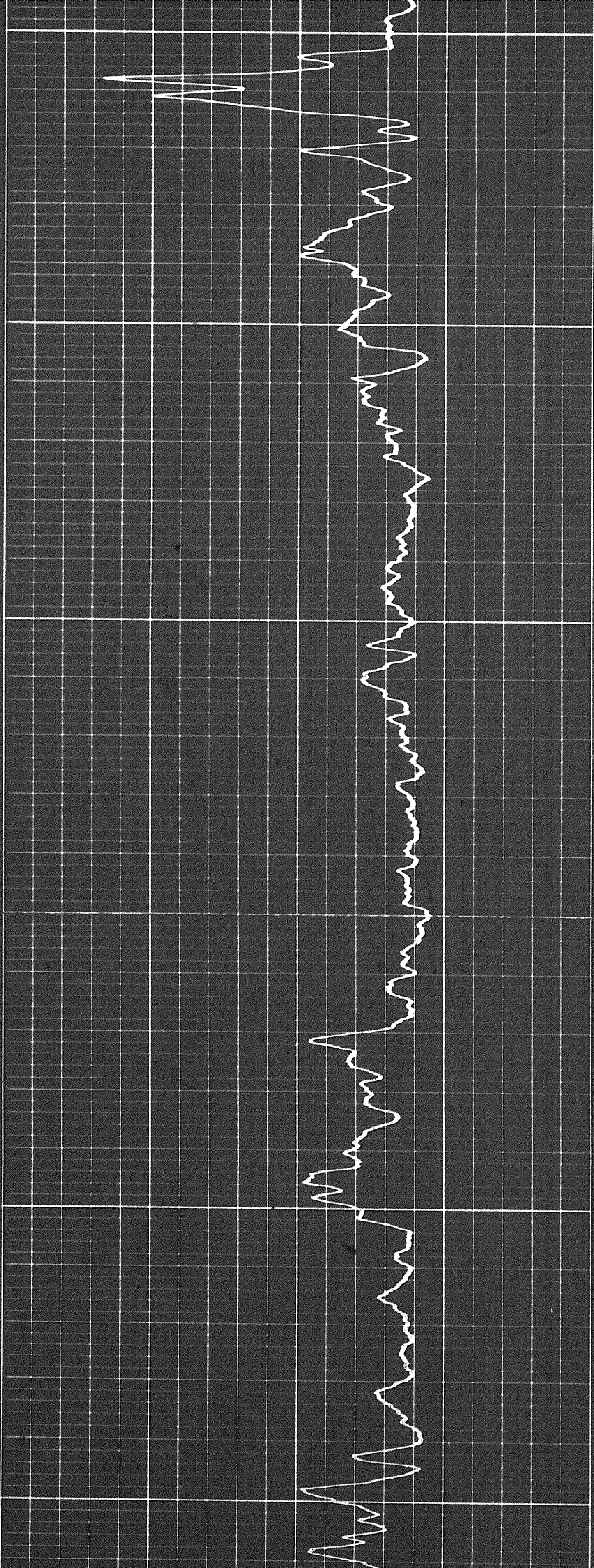
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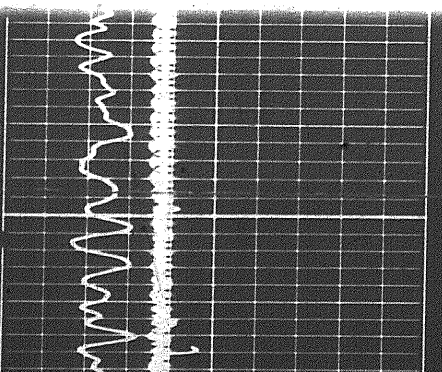


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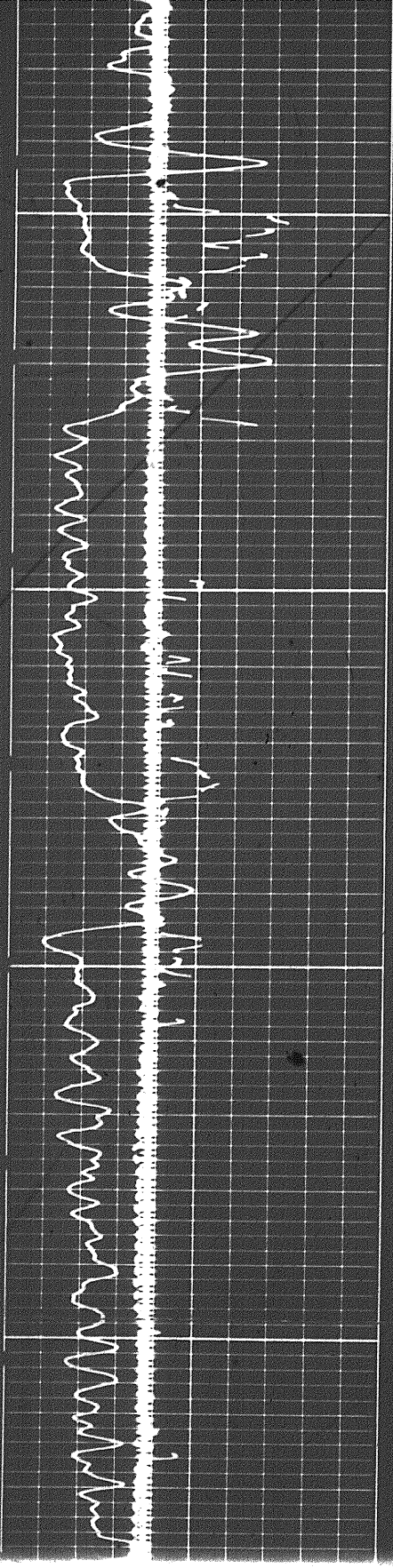
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6400



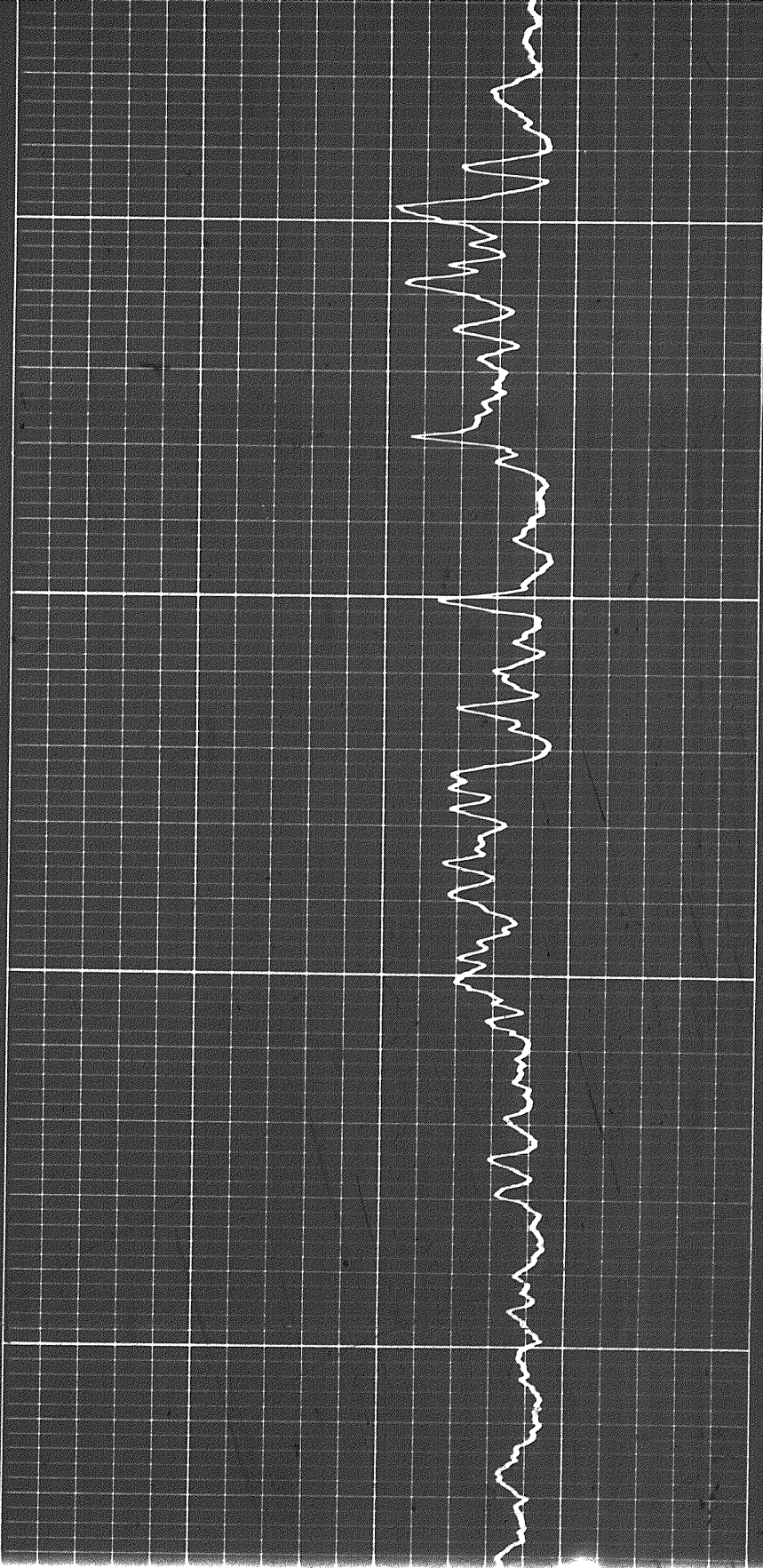
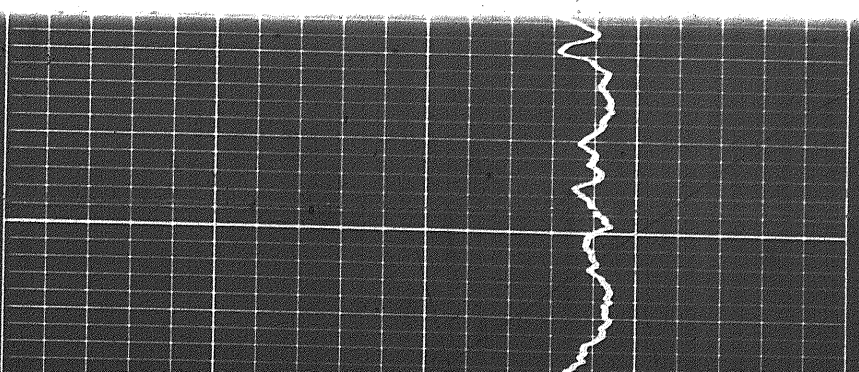


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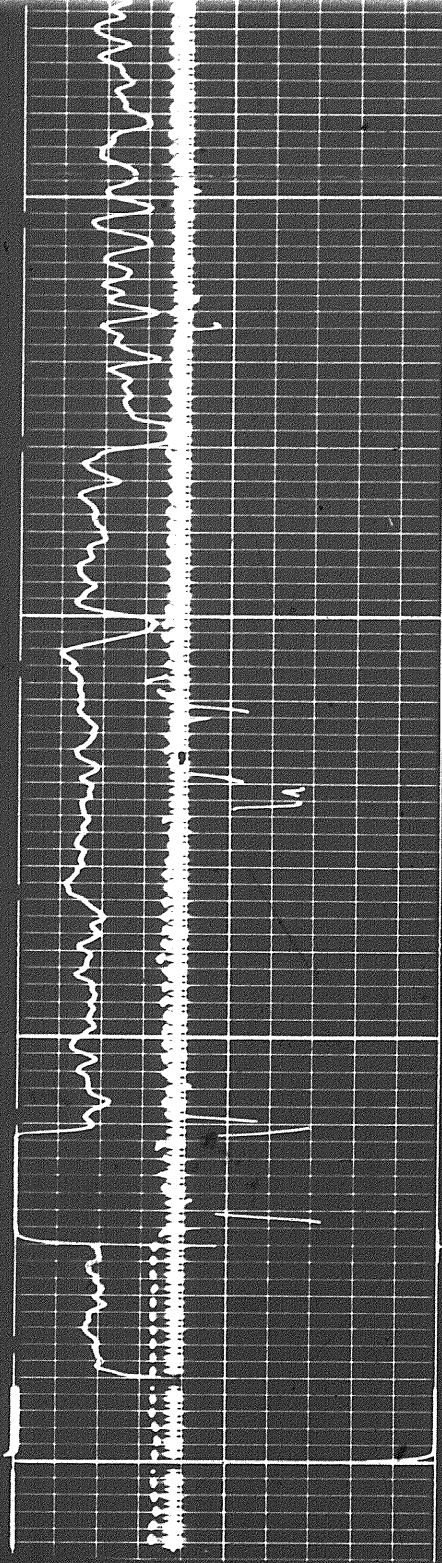


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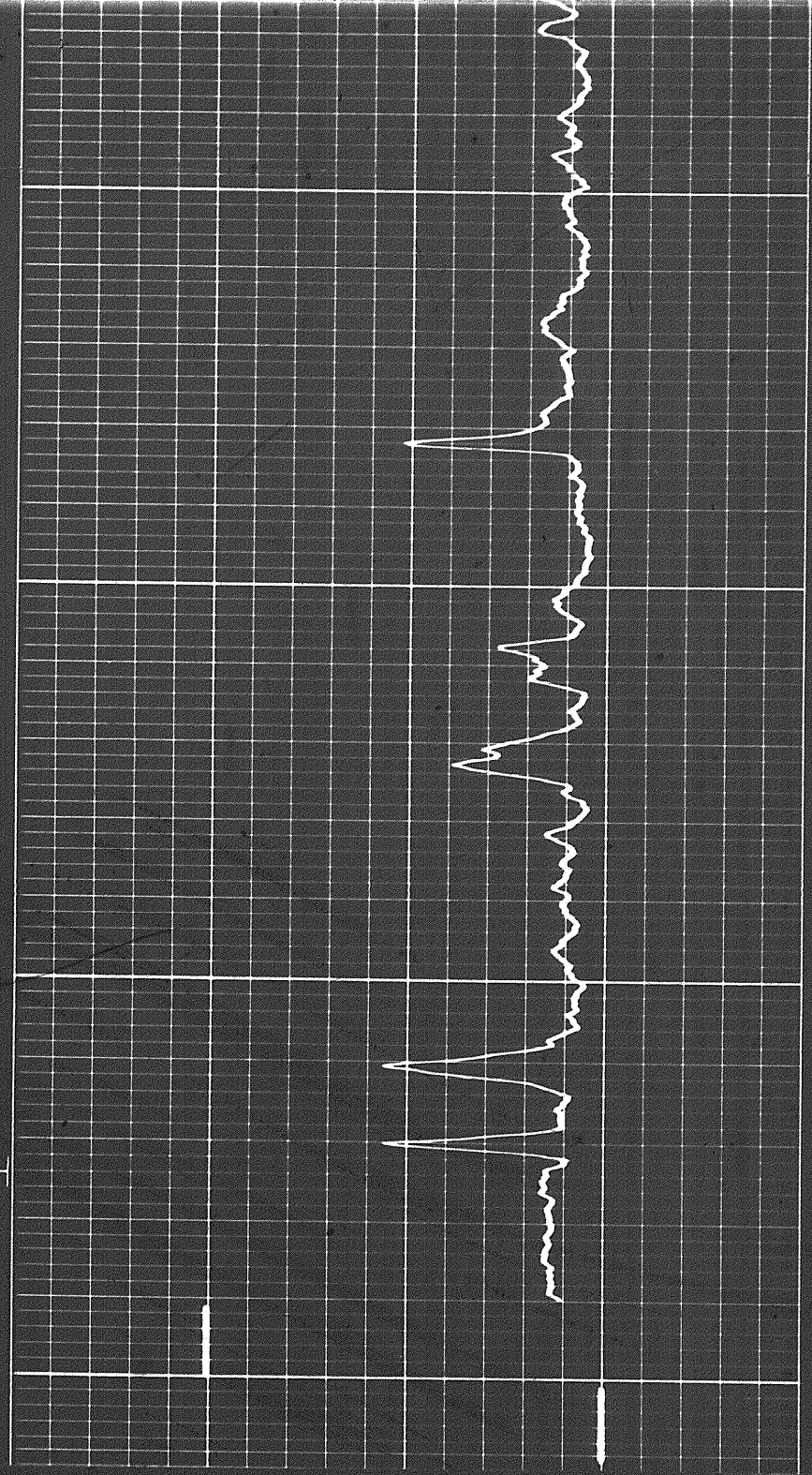
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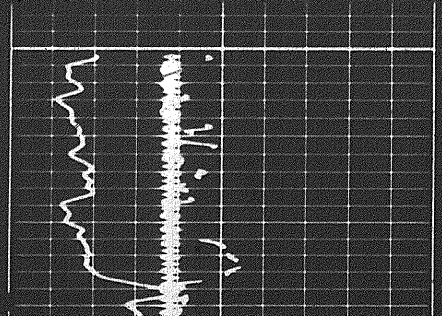
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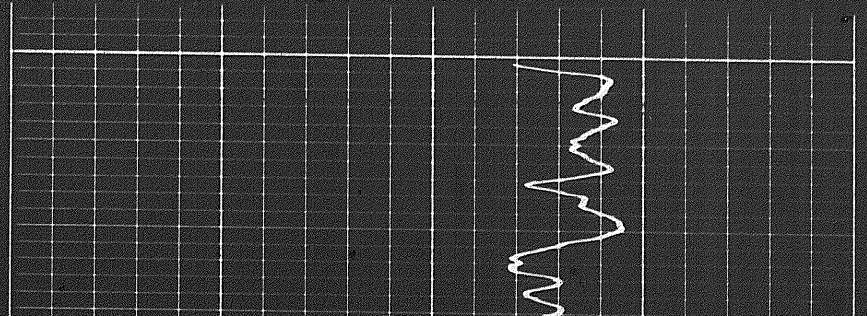
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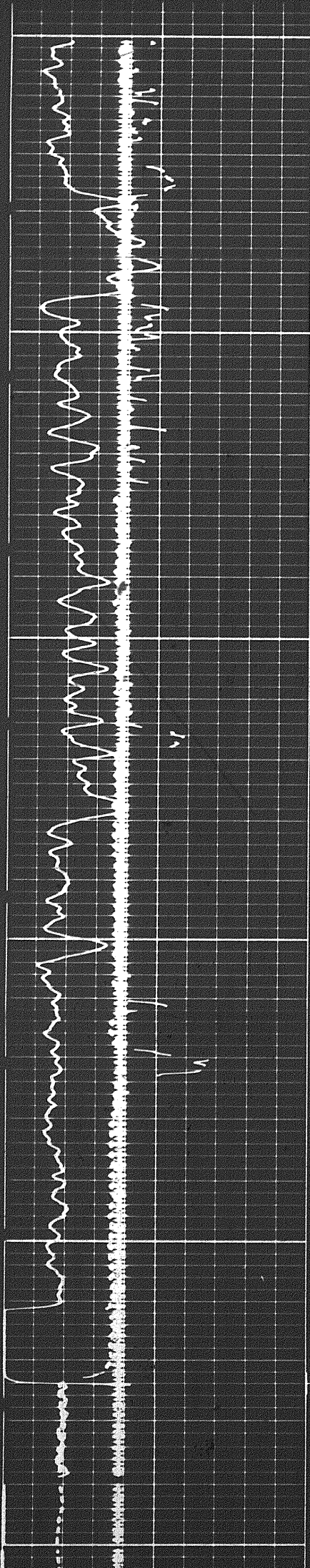


REPEAT SECTION



6500



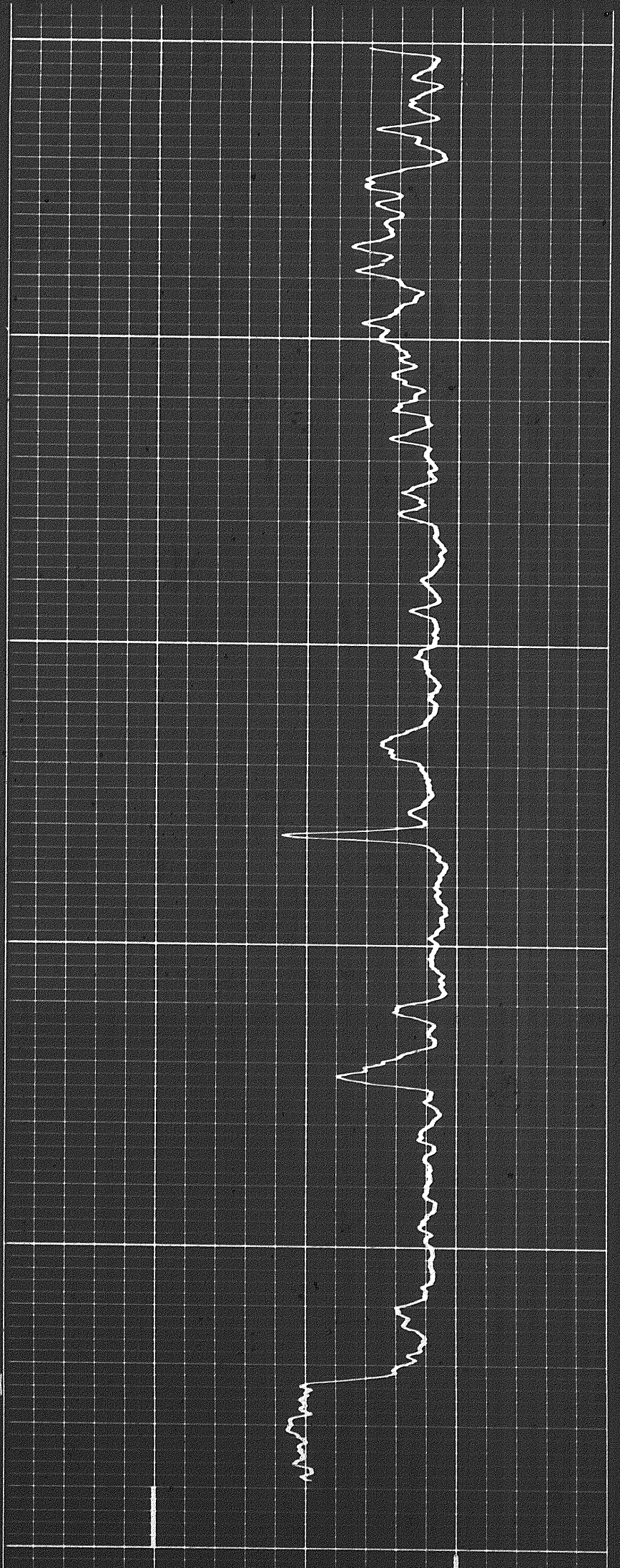


6500

6600

6700

FR



FR

Sens. 150 T.C. 2
Zero 0 div. to left

0 150 150 300

GAMMA RAY
API UNITS

6 7 8 9 10 11 12 13 14

Speed in FPM

30 20 10 0 -10
LIMESTONE

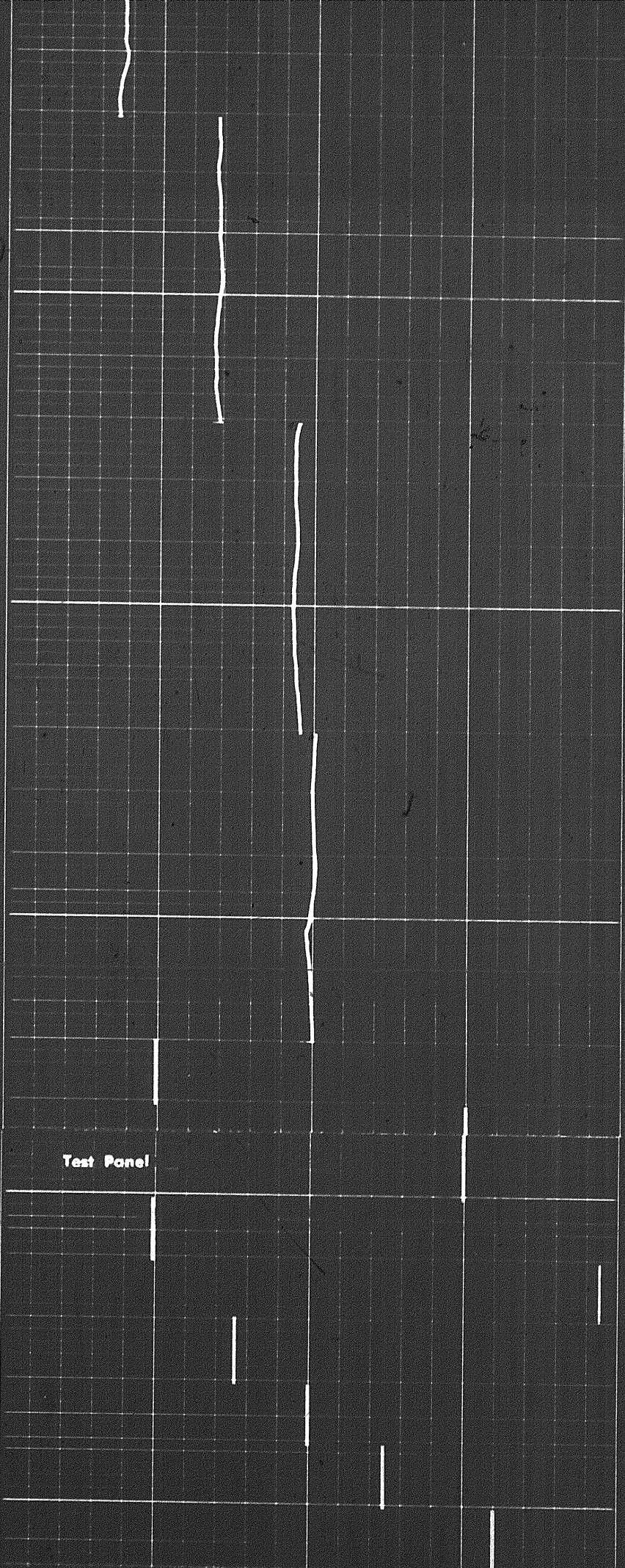
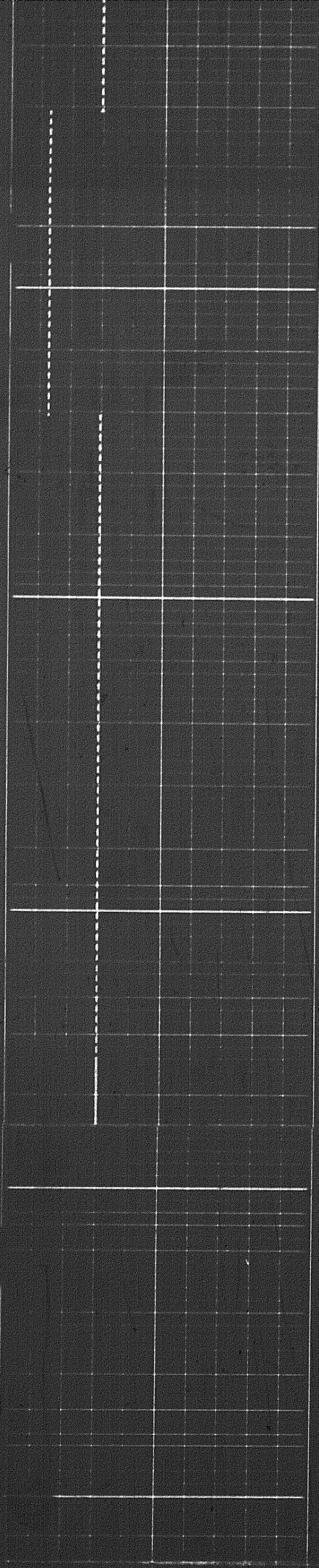
CALIPER
hole diameter in inches

DEPTH

POROSITY (%)

Calibration after Survey

1001



Test Panel

Test Panel

Test Panel

Calibration before Survey

9706

0096

COMPANY CHEVRON STANDARD LIMITED

WELL CHEVRON SOBC WM E PORCUPINE YT F-18

FIELD PROVINCE YUKON TERRITORIES

Schlumberger

PURPOSE

The porosity overlay is designed to identify lithology in a matrix comprised of more than one mineral. This information makes possible a more accurate porosity determination.

METHOD

The SNP log is recorded assuming a limestone matrix, with a duplicate curve recorded twelve porosity units to the right. The duplicate curve

LITHOLOGY IDENTIFICATION SUMMARY

A—Liquid Filled Pores

Additional requirements

Limestone $\Phi_{FDC} = \Phi_{SNP}$
Dolomite $\Phi_{FDC} = \Phi_{SNP} - 12$
Sand $\Phi_{FDC} = \Phi_{SNP} + 6$

COMPANY CHEVRON STANDARD LIMITED

WELL CHEVRON SOBC WM E PORCUPINE YT F-18

FIELD PROVINCE YUKON TERRITORIES

Schlumberger

PURPOSE



PURPOSE

The porosity overlay is designed to identify lithology in a matrix comprised of more than one mineral. This information makes possible a more accurate porosity determination.

METHOD

The SNP log is recorded assuming a limestone matrix, with a duplicate curve recorded twelve porosity units to the right. The duplicate curve is referred to as the "Dolomite Limit". Bulk density from the FDC log is converted to limestone porosity and is superimposed on the SNP log.

INTERPRETATION

- 1) Limestone - Dolomite
 - a) Limestone. $\Phi_{FDC} = \Phi_{SNP}$. Porosities are read directly.
 - b) Dolomite. $\Phi_{FDC} = \Phi_{SNP} - 12$. SNP curve readings are converted to porosity using the dolomite scaler.
 - c) Limestone - Dolomite matrix. $\Phi_{SNP} > \Phi_{FDC} > \Phi_{SNP} - 12$. Percentage of dolomite is interpolated from the relative displacement of Φ_{FDC} from the Φ_{SNP} line toward the dolomite limit line. Porosity is calculated by plotting the Φ_{SNP} and the percent dolomite on the dolomite scaler.
- 2) Other minerals

When minerals other than limestone and dolomite are present, interpretation is made using chart CP-1 of the interpretation manual.

Minerals can be identified according to the accompanying table:

LITHOLOGY IDENTIFICATION SUMMARY

A—Liquid Filled Pores

Limestone $\Phi_{FDC} = \Phi_{SNP}$
 Dolomite $\Phi_{FDC} = \Phi_{SNP} - 12$
 Sand $\Phi_{FDC} = \Phi_{SNP} + 6$

Additional requirements

B—No Porosity

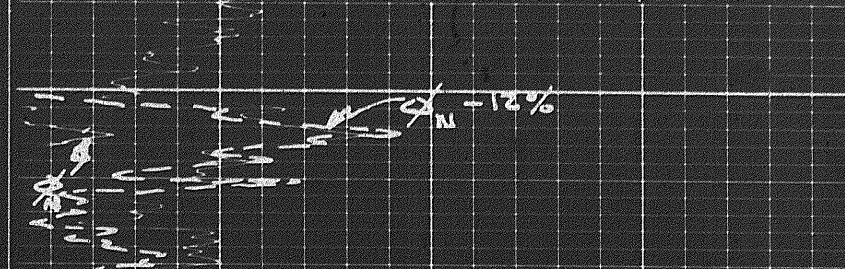
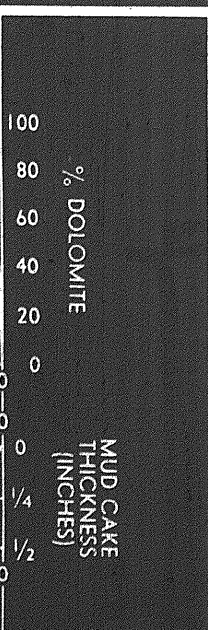
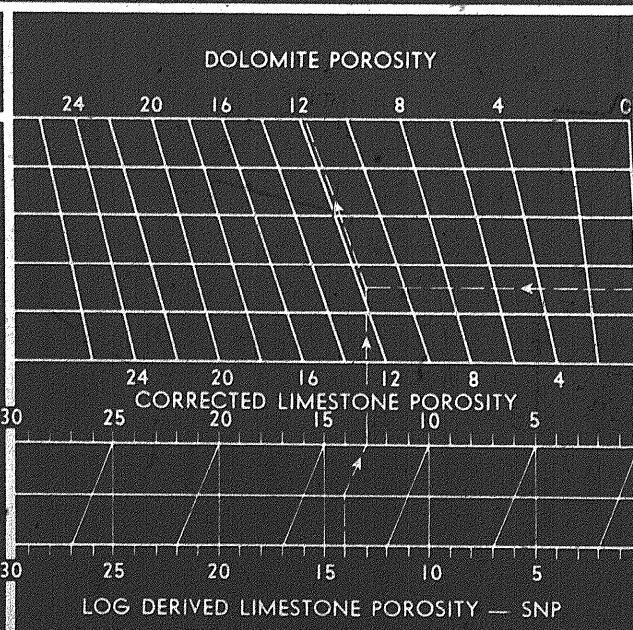
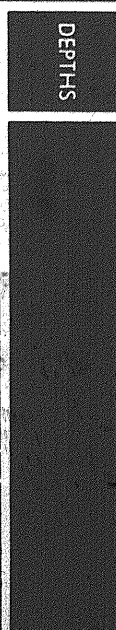
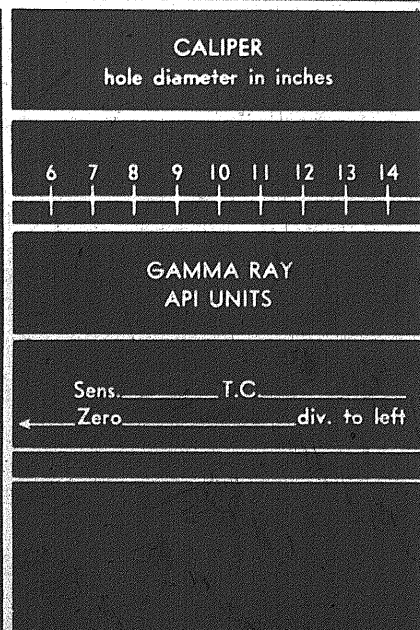
	Φ_{FDC}	Φ_{SNP}	ΔT_{SONIC}
Salt	$\Phi_{FDC} = \Phi_{SNP} + 39.5$	4	43.5
Gypsum	$\Phi_{FDC} = \Phi_{SNP} - 28$	49	21
Anhydrite	$\Phi_{FDC} = \Phi_{SNP} - 16$	-1	-17
Sulphur	$\Phi_{FDC} = \Phi_{SNP} + 40$	0	40
Shale	$\Phi_{FDC} = \Phi_{SNP} - N$		

(N is variable - confirm with gamma ray)

COLOR LEGEND

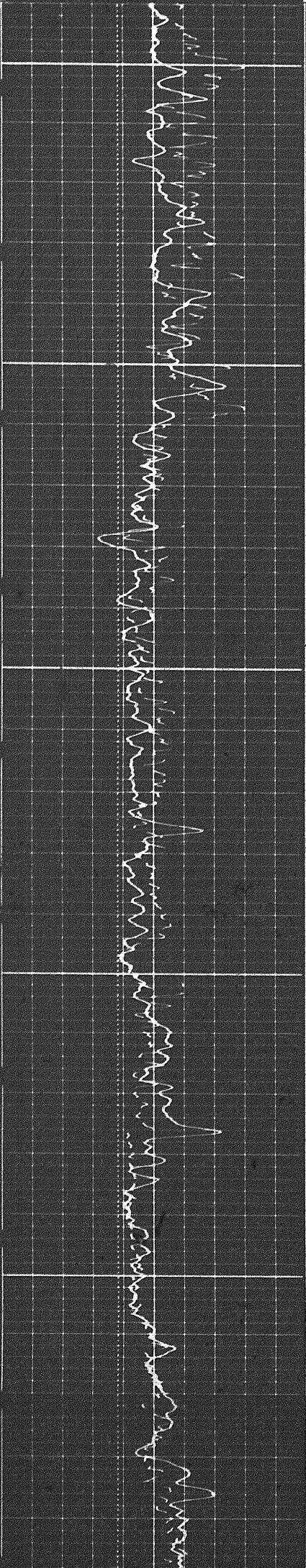
- Sand
- Shale
- Limestone
- Dolomite
- Anhydrite
- Salt

Remarks:



LOG DERIVED LIMESTONE POROSITY — SNP

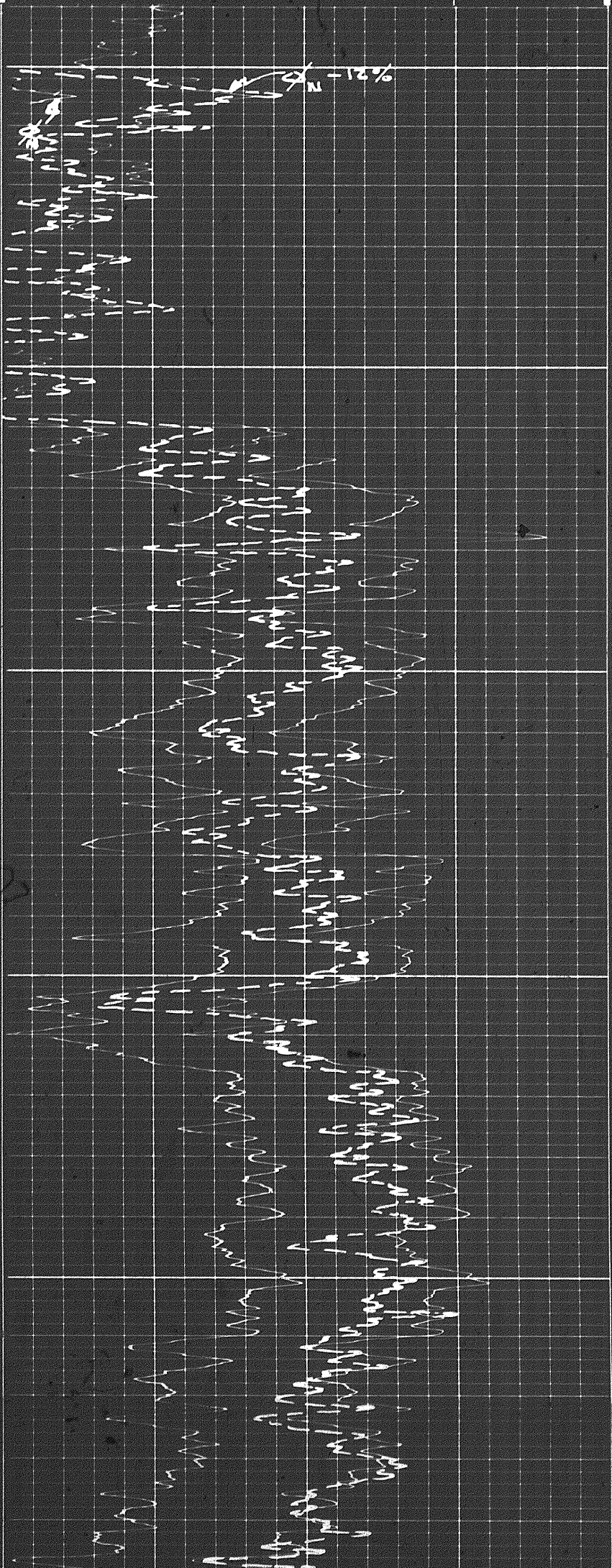
30 25 20 15 10 5 0

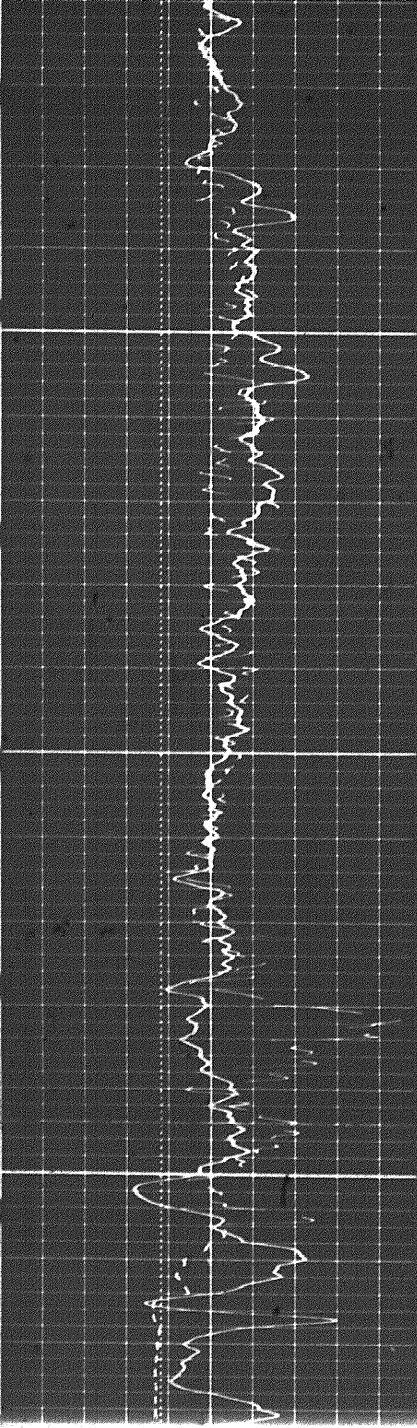


5800

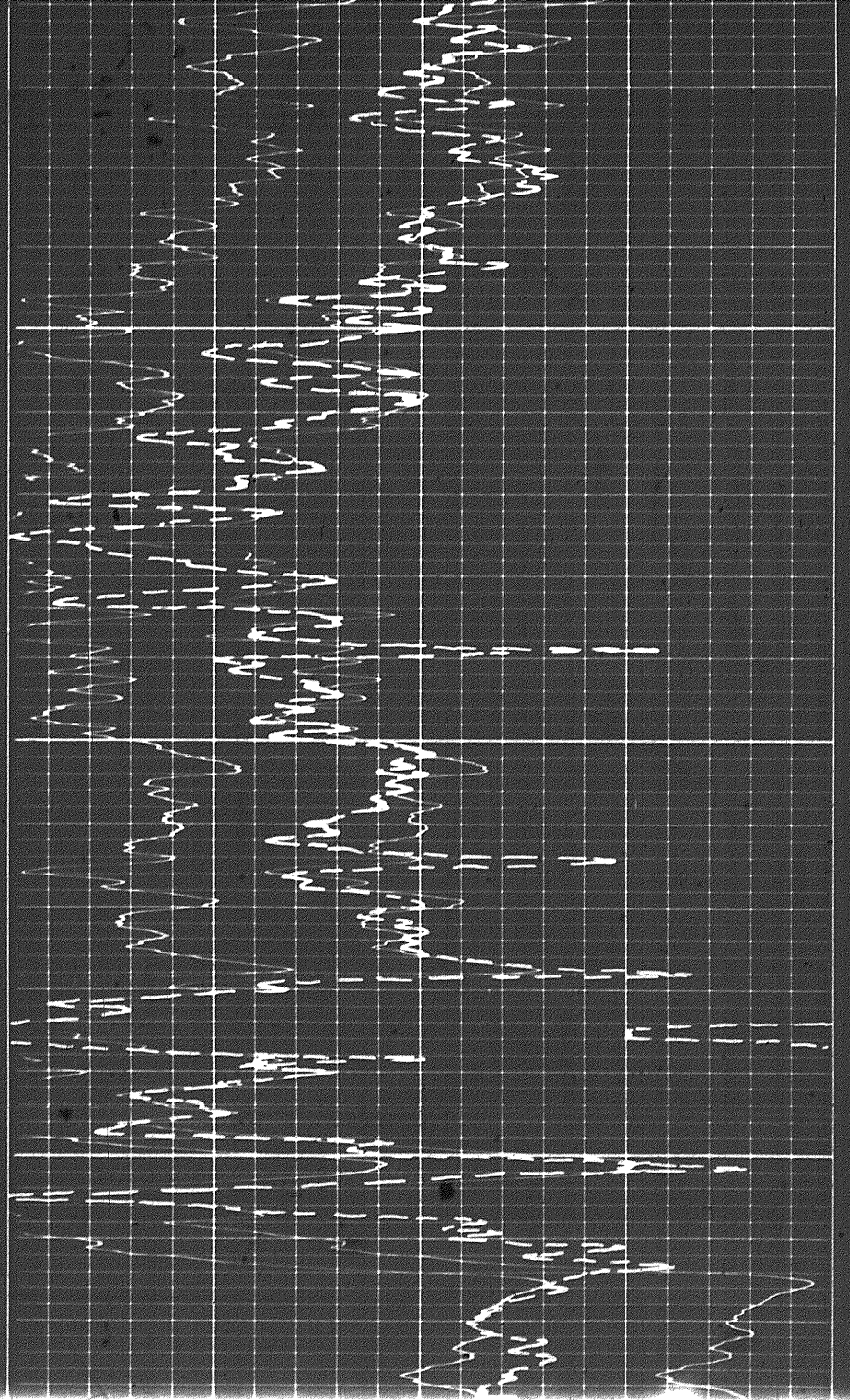
5900

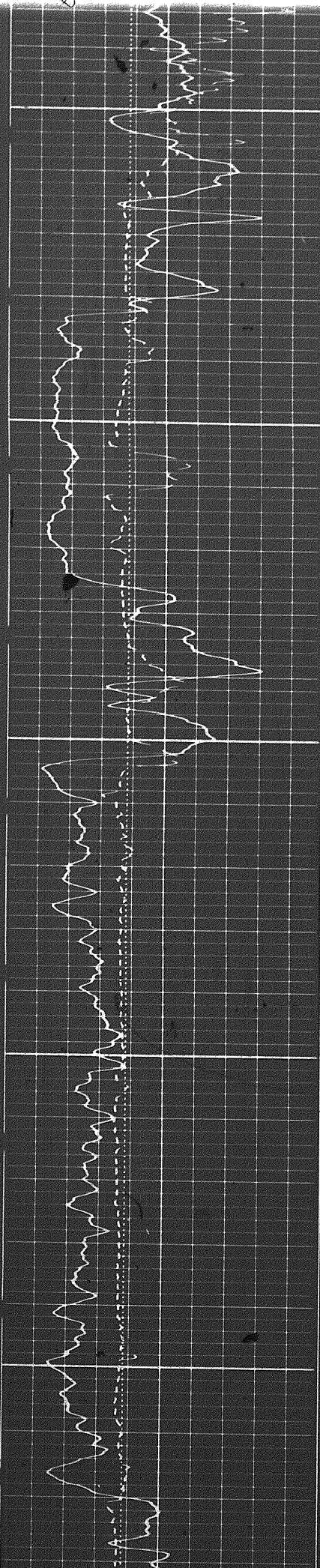
6000





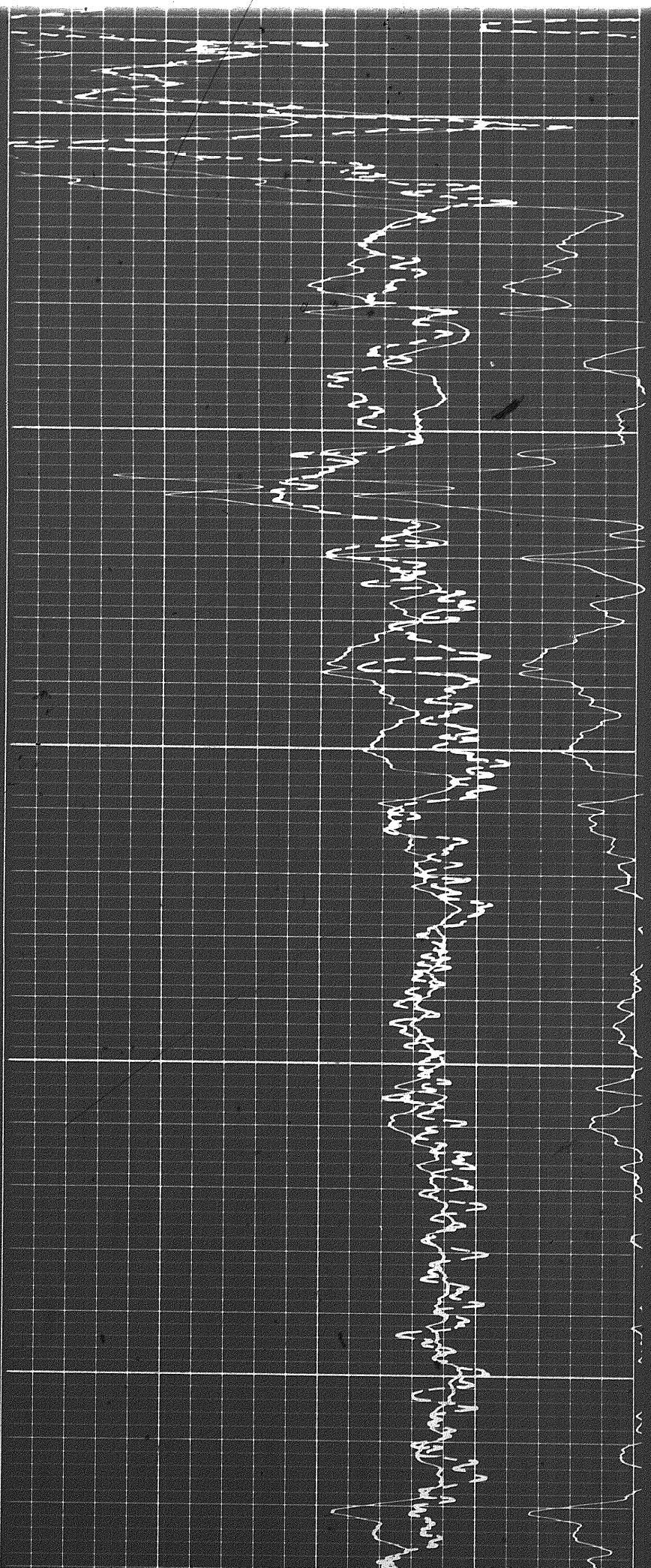
0019

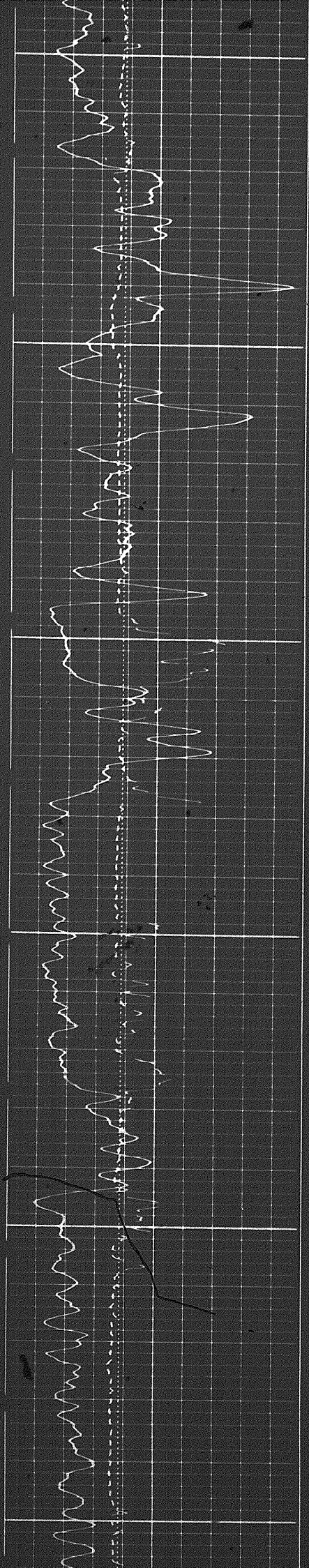




6200

6300

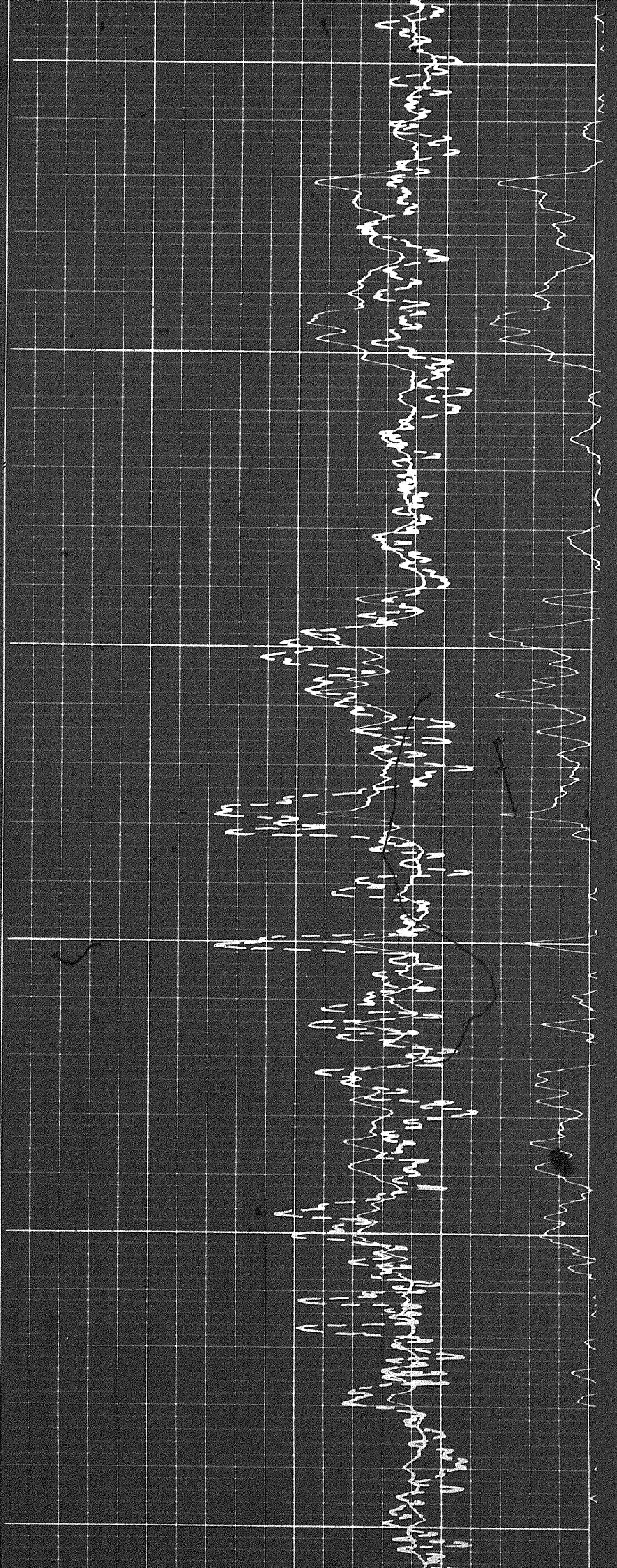


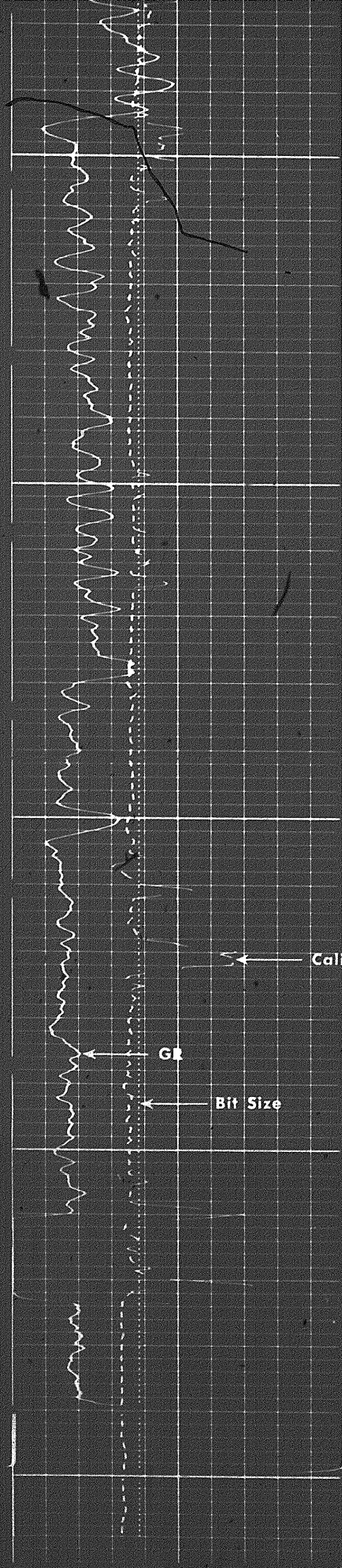


6400

6500

6600





6660

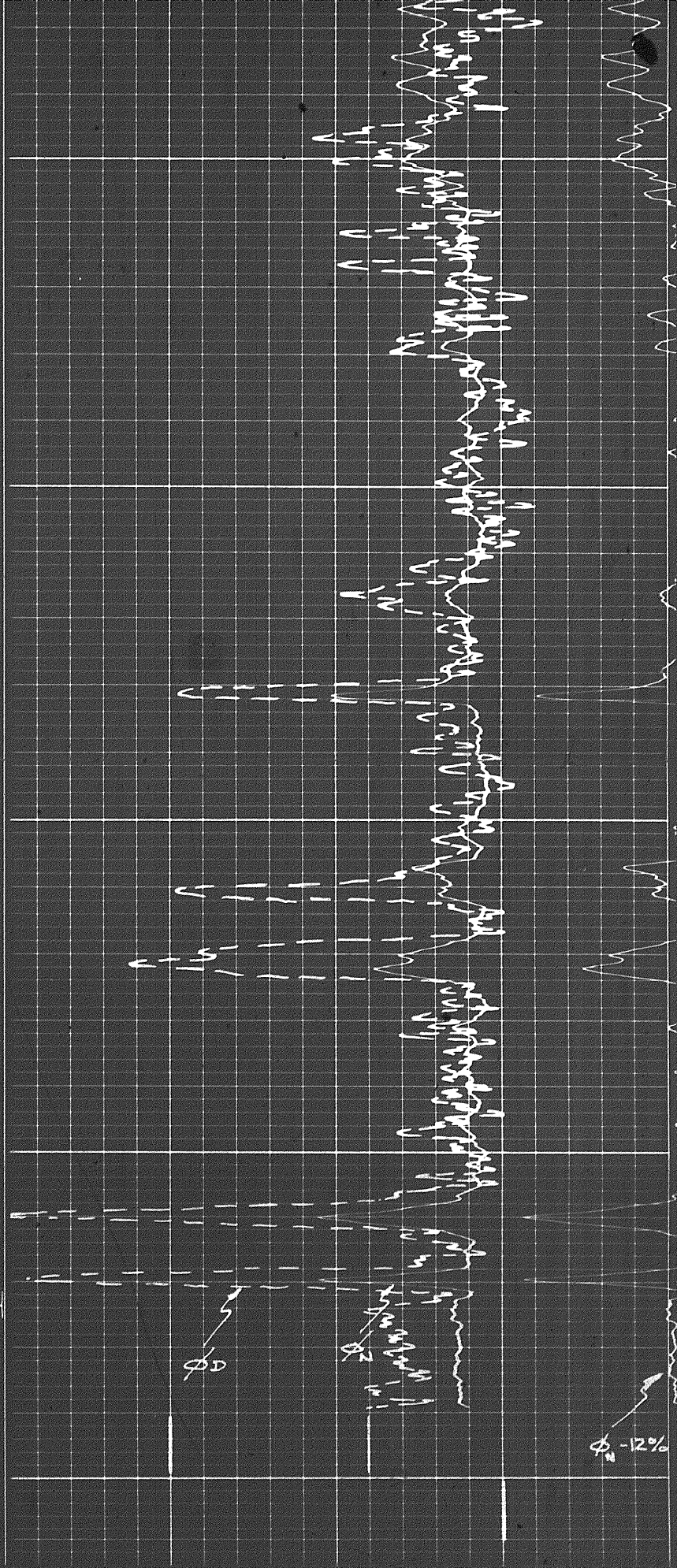
Caliper

GR

Bit Size

6700

FR



$\phi -12\%$