



Acoustic Cement Bond Log

FILE NO. R-294 COMPANY REYNOLDS ELECTRIC & ENGINEERING
 WELL RRGE # 2
 FIELD RAFT RIVER GEOTHERMAL
 COUNTY CASSIA STATE IDAHO
 LOCATION: NE 1/4 - NE 1/4 Other Services
 DEPTH DETERMINATION
 SEC 23 TWP 15 S. RGE 26 E.

Permanent Datum GROUND LEVEL Elev. 4845 KB 4863
 Log Measured from GROUND LEVEL, 0 Ft. Above Permanent Datum DF 4862
 Drilling Measured from KELLY BUSHING GL 4845

Date	6(4-9)75	CSG. RECORD	Surface	Protection	Production	Liner
Run No.	2-11	Size	20		13 3/8	
Depth-Driller	4806	Wt./Ft.	94		54.5, 61, 68	
Depth-Logger		Grade	HYO			
Bottom Logged Int.		Type Joint	LT & C		LT & C	
Top Logged Int.		Top	ZERO		ZERO	
Ft. Measured		Bottom	904		4245	
Type Fluid in Csg.	WATER	PRIMARY CEMENTING DATA				
Density of Fluid		Type Cement			50-50 POZ	
Fluid Level	SURFACE	Vol. of Cement			SEE REMARKS	
Max. Temp. Deg. F.	250	Additive				
Tool Series No.	1408 M	% Additive				
Tool Diam.	3.5	Retarder				
Standoff Size	CENTERED	% Retarder				
Logging Speed	50 FPM	Slurry Wt.			14.28	
R/A Log Type	PFC	Water Loss			8	
T.C.	1.0	Drlg. Mud Type			LO VIS.	
Sens. Setting	300	Drlg. Mud Wt.			9.3	
API Units/Div.		PRIMARY CEMENTING PROCEDURE				
Truck or Unit No.	HP-6102	Started Pumping	15455/22	Preceding Fluid	MUD FLUSH	
Location	ROSVLT	Plug on Bottom	19395/22	Vol.	23 Bbls.	
Opr. Rig Time	30 HOURS	Pres. Released		Returns:	Full Partial None	
Recorded by	TIPTON	Started Bond Log	22006/22	Pipe Rot. During Pumping:	Yes No	
Witnessed by	MR. MASON	Finished Bond Log	03006/3	Pipe Rot. After Plugdown:	Yes No	

FOLD HERE

REMARKS 1ST STAGE 50-50 POZ, 100 SKS OF 35 % SILCA FLOUR, 4 OF 1 % HRIZ, 75 OF 1 % CFRZ, 25 OF 1 % LWL 4 % CHLORIDE IN MIXING H₂O FOLLOWED BY 50-50 POZ 35 % SILCA FLOUR AND 3 % CHLORIDE.

NO GEL IN EITHER STAGE.
 CASING COLLARS ON DEPTH.

SQUEEZE JOB DETAIL

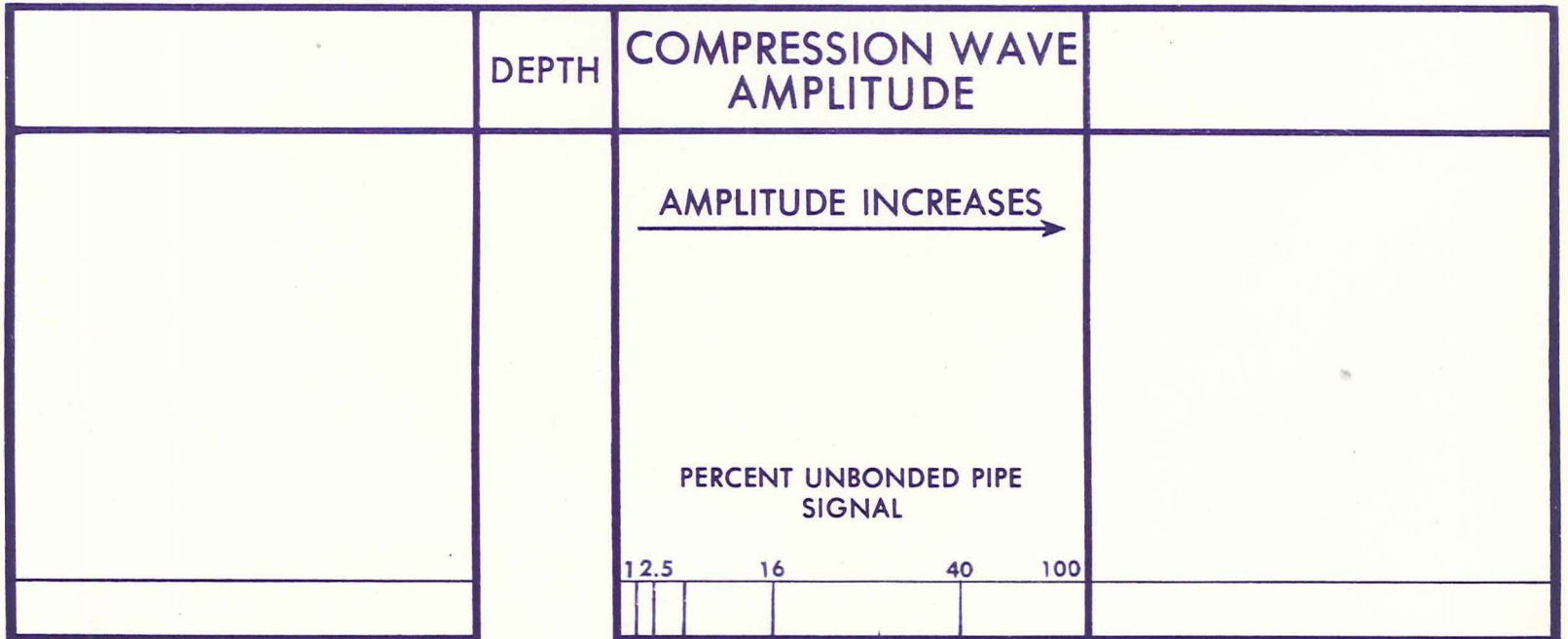
Squeeze No.	1	2	3	4	5	6
Date	6-5-75	6-5-75				
Depth Interval						
Type Cement	50-50 POZ					
Vol. of Cement	200 SKS	200 SKS	200 SKS	50 SKS	200 SKS	100 SKS
Additive						
% Additive						
Retarder						
% Retarder						
Slurry Wt.	15.1	15.1	15.1	15.2	15.2	15.1
Preceding Fluid	WATER	WATER	WATER	WATER	WATER	WATER
Vol. Preceding Fluid						
Breakdown Pressure						
Max. Pres. — Stage 1						
" " " 2						
" " " 3						
Final Max. Pressure						
Time Brkdn. (hr.-date)						
Pumping Stopped						
Pres. Released	6-4/2214	6-5/1518	6-6/0125	6-6/2025	6-6/2025	6-7/1011
Started Bond Log	6-5/0500	6-5/2000	6-6/0500	6-6/1340	6-6/0400	6-7/1430
Finished Bond Log	0700	2045	0545	1500	0500	1530
Pressure read at: Surface						
Bottom Hole						
SEQUENCE OF CEMENT BOND LOGS						
Log run following:	CBL Run	CBL Run	AVERAGE WELL DRIFT			
Surface Casing Cement	Squeeze No. 1	Squeeze No. 1	° from to			
Protection Casing Cement	Squeeze No. 2	Squeeze No. 2	° from to			
Production Casing Cement	Squeeze No. 3	Squeeze No. 3	° from to			
Liner Cement	Squeeze No. 4	Squeeze No. 4				

SQUEEZE JOB DETAIL

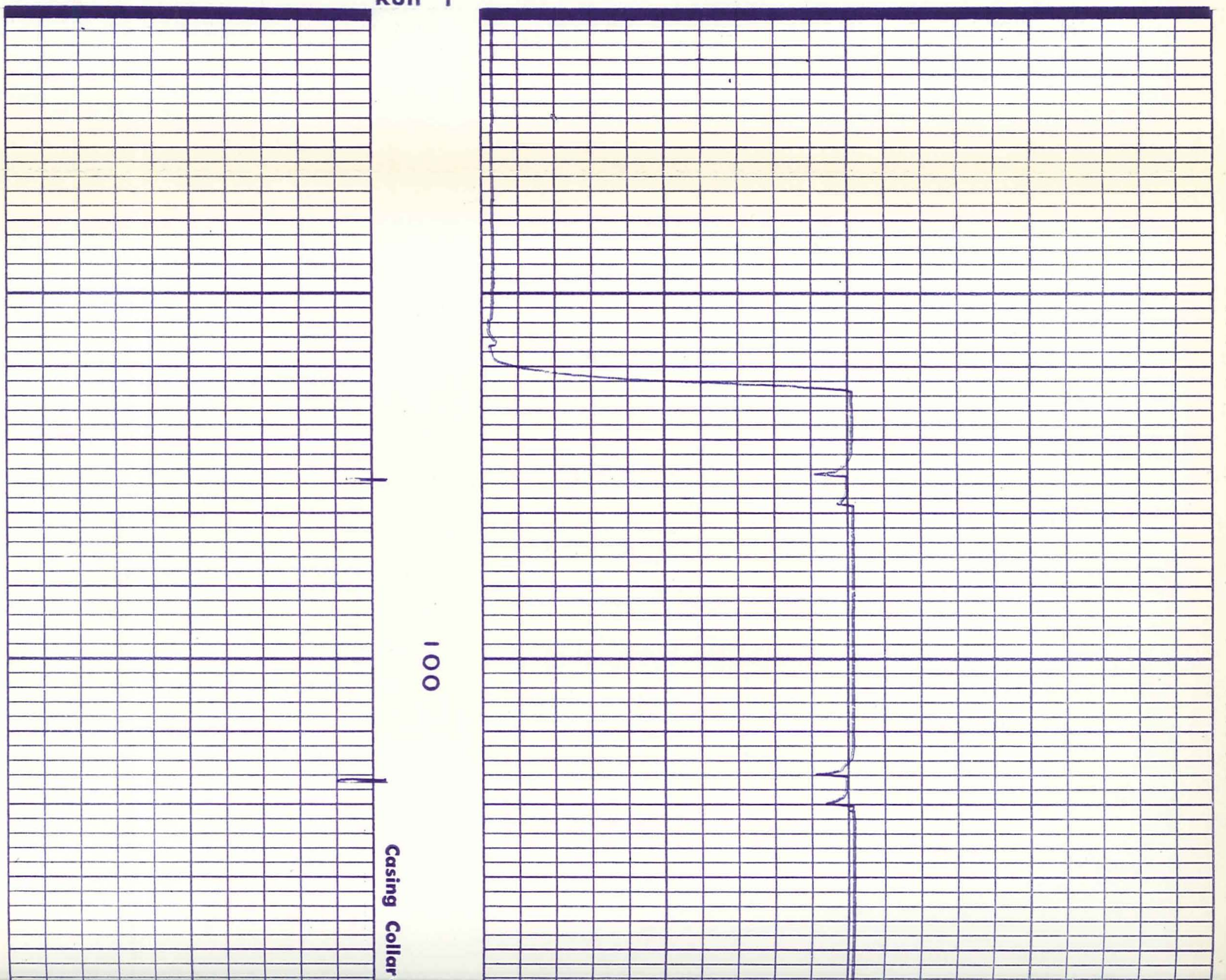
Squeeze No.	7	8	9	10
Date				
Depth Interval				
Type Cement				
Vol. of Cement	200 SKS	200 SKS		
Additive				
% Additive				
Retarder				
% Retarder				

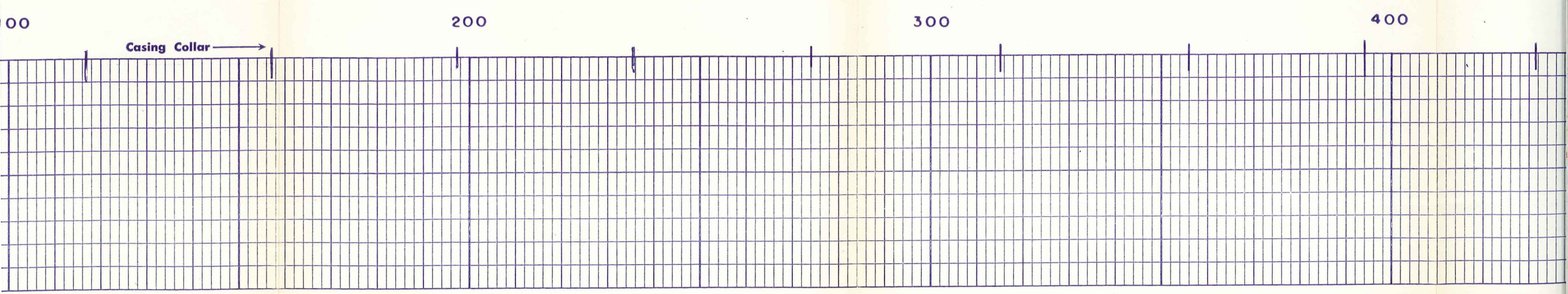
Production Casing Cement	Squeeze No. 2	_____ ° from _____ to _____
Liner Cement	Squeeze No. 4	

SQUEEZE JOB DETAIL				
Squeeze No.	7	8	9	10
Date				
Depth Interval				
Type Cement				
Vol. of Cement	200 SKS	200 SKS		
Additive				
% Additive				
Retarder				
% Retarder				
Slurry Wt.	15.1	15.1		
Preceding Fluid	WATER	WATER		
Vol. Preceding Fluid				
Breakdown Pressure				
Max. Pres. — Stage 1				
" " " 2				
" " " 3				
Final Max. Pressure				
Time Brkdn. (hr.-date)				
Pumping Stopped				
Pres. Released	6-7/2100	6-8/0448	6-8/2242	
Started Bond Log	6-7/2230	6-8/0700	6-8/1330	
Finished Bond Log	2330	0730	1400	
Pressure read at: Surface _____ Bottom Hole _____				
SEQUENCE OF CEMENT BOND LOGS			AVERAGE WELL DRIFT	
Log run following:	CBL Run	Squeeze No.	CBL Run	_____ ° from _____ to _____
Surface Casing Cement		Squeeze No. 1		_____ ° from _____ to _____
Protection Casing Cement		Squeeze No. 2		_____ ° from _____ to _____
Production Casing Cement		Squeeze No. 3		_____ ° from _____ to _____
Liner Cement		Squeeze No. 4		



Run 1





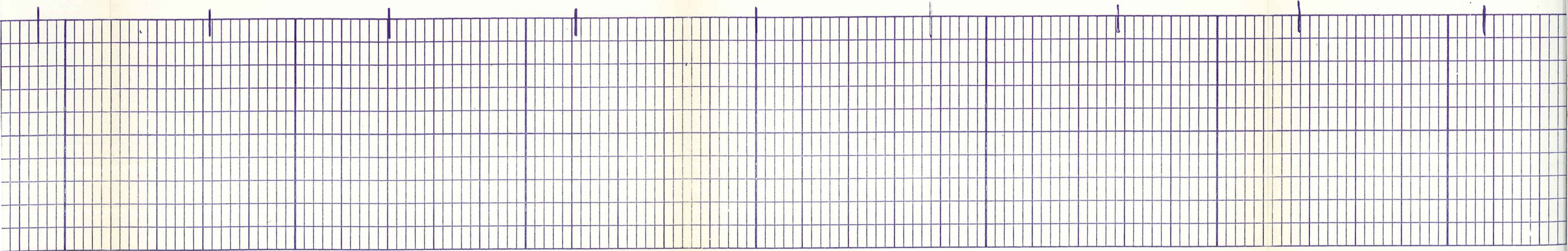


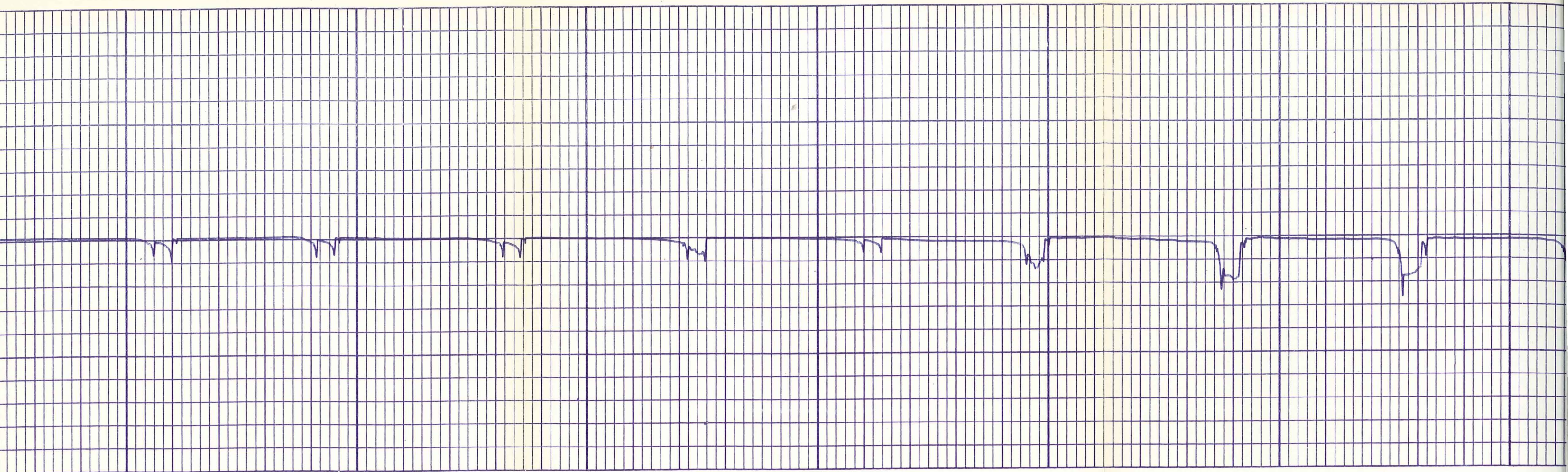
400

500

600

700



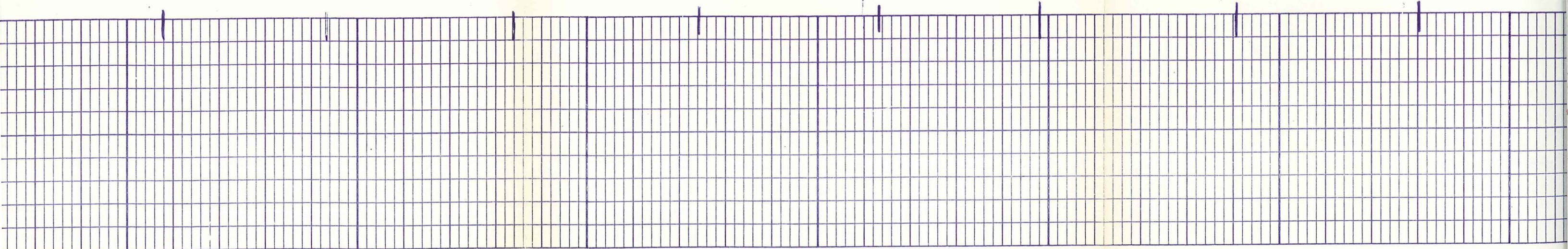


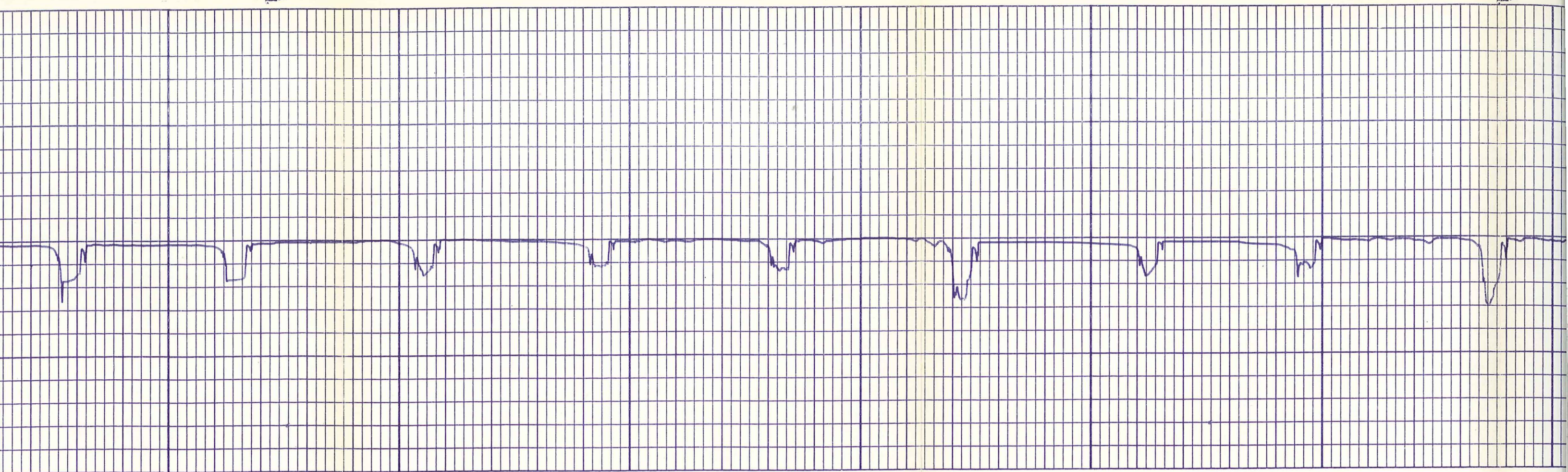
700

800

900

1000



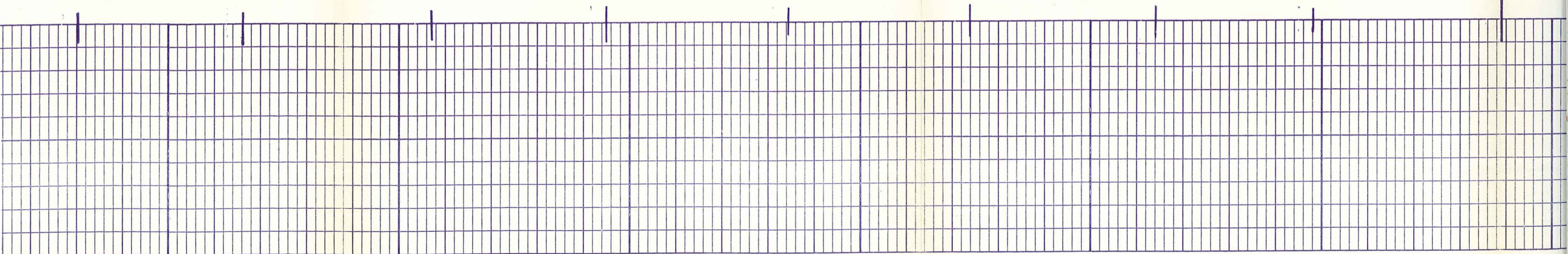


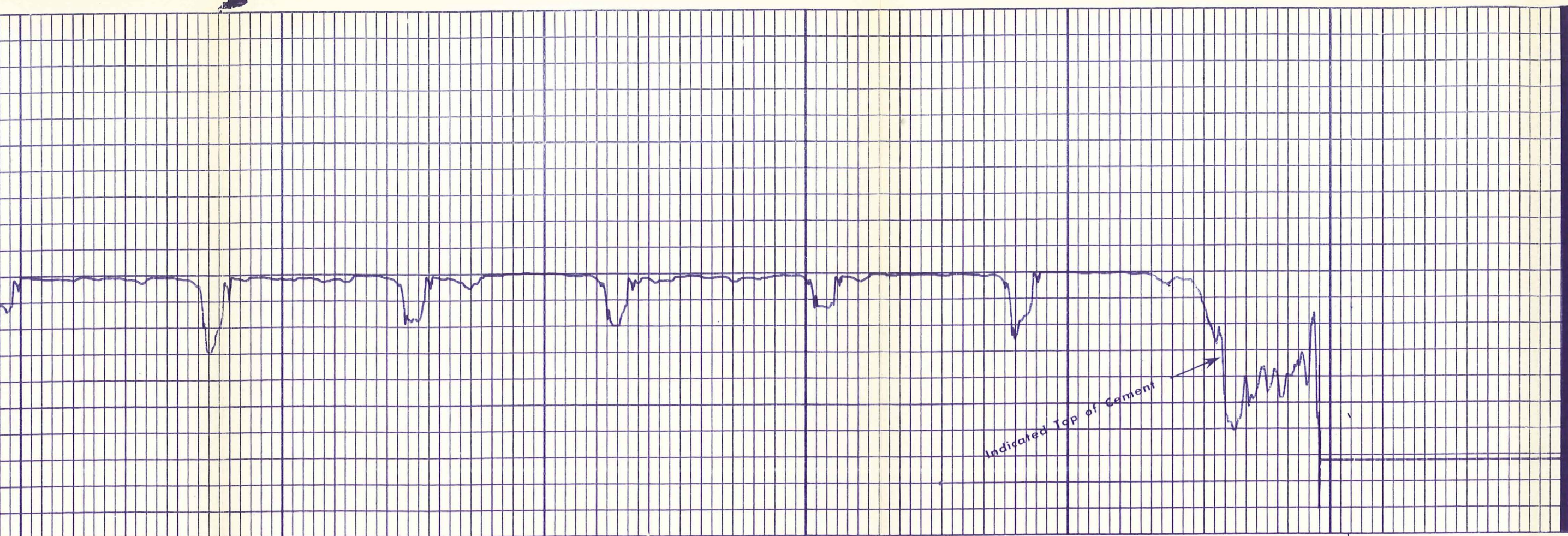
1000

1100

1200

1300



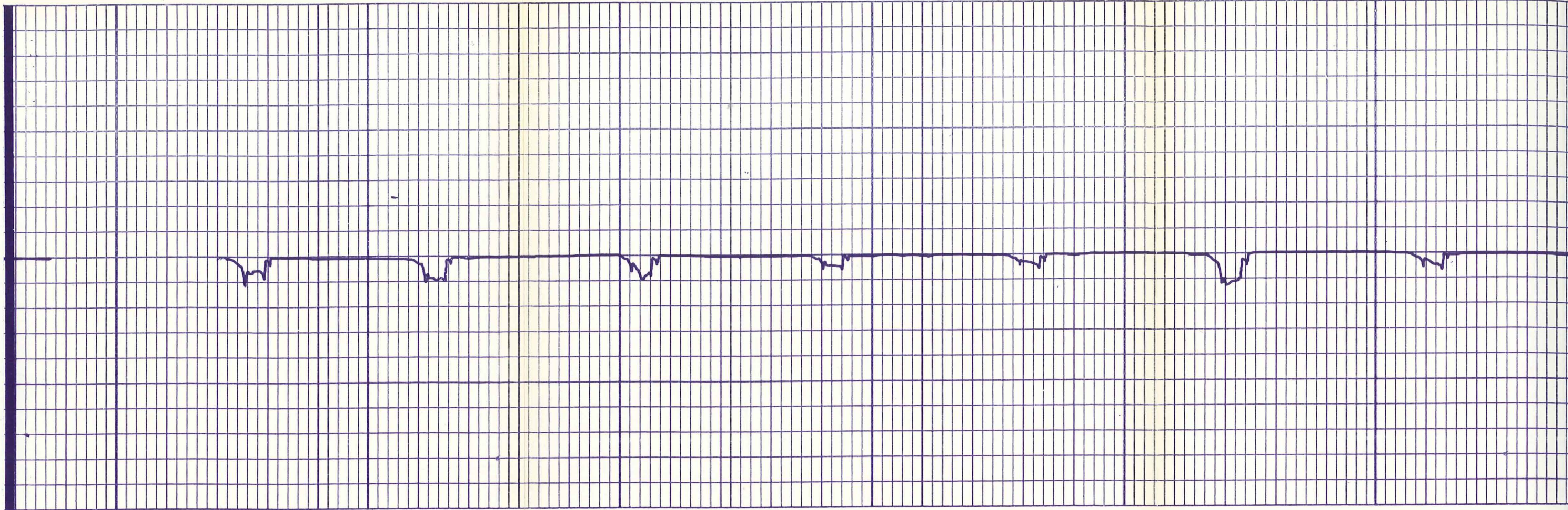


1300

1400

1500

Run 2

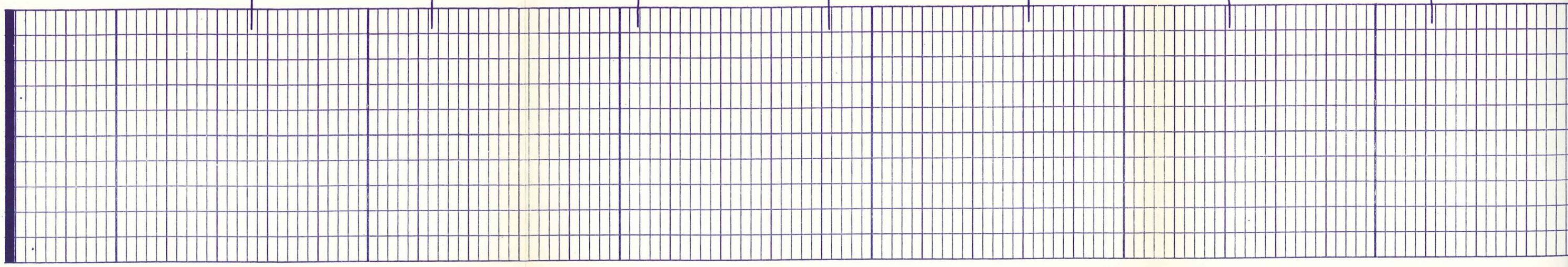


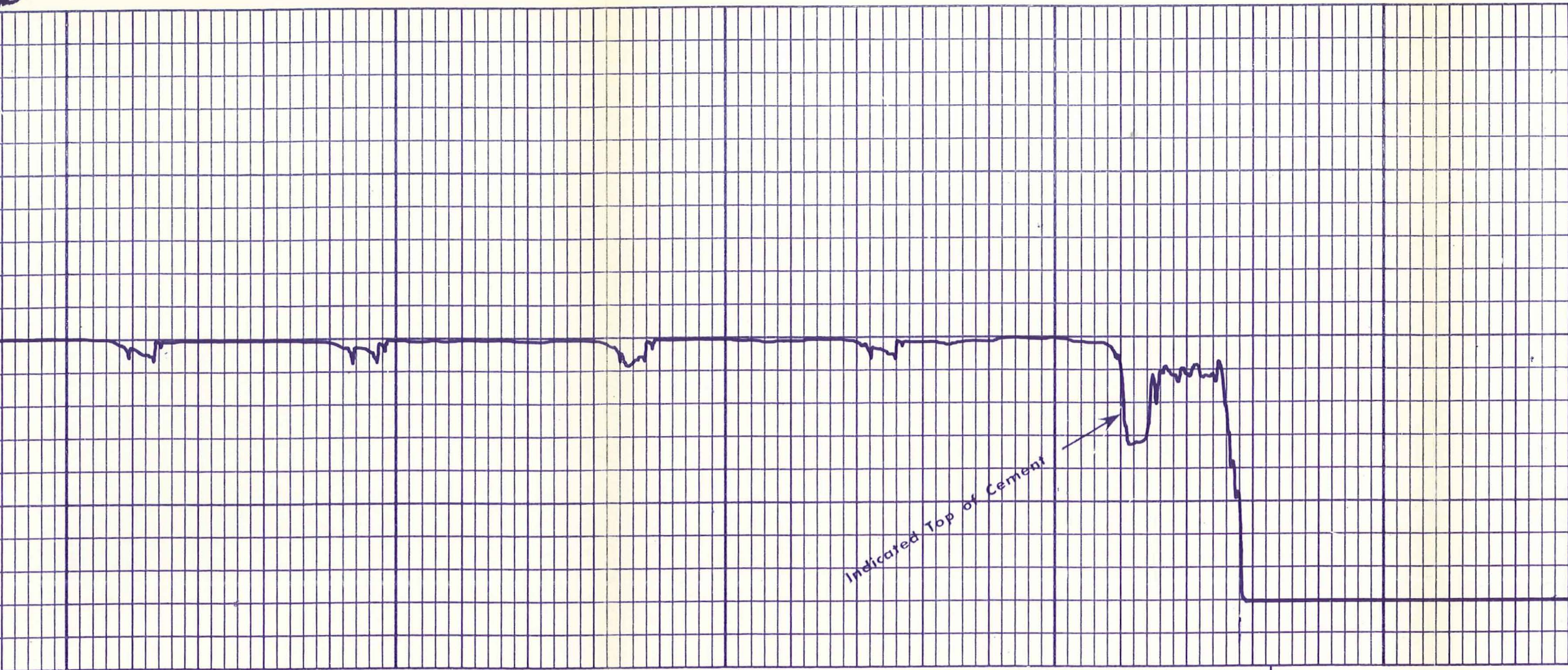
Run 2

1000

1100

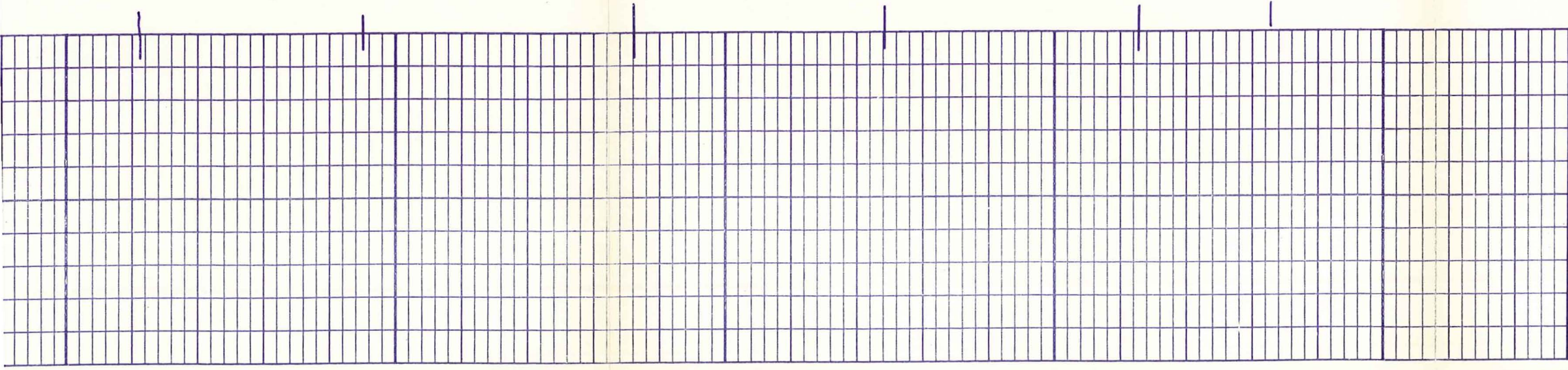
1200



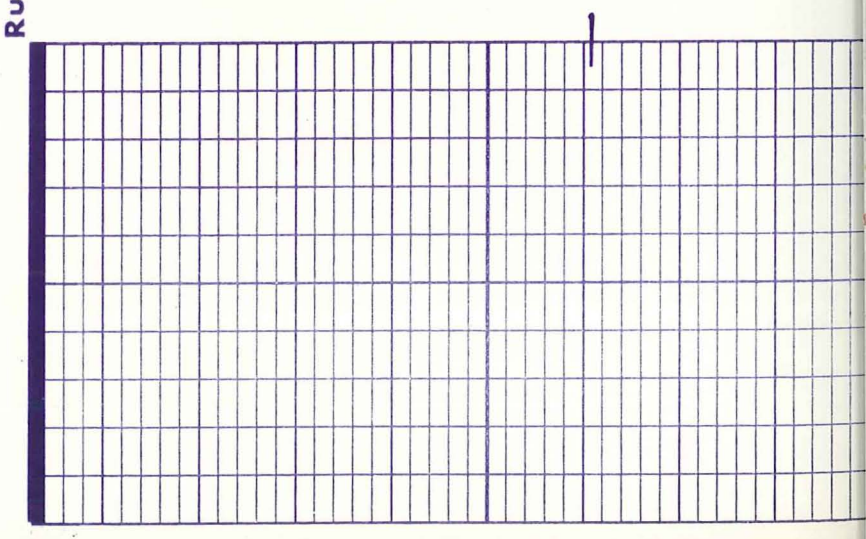
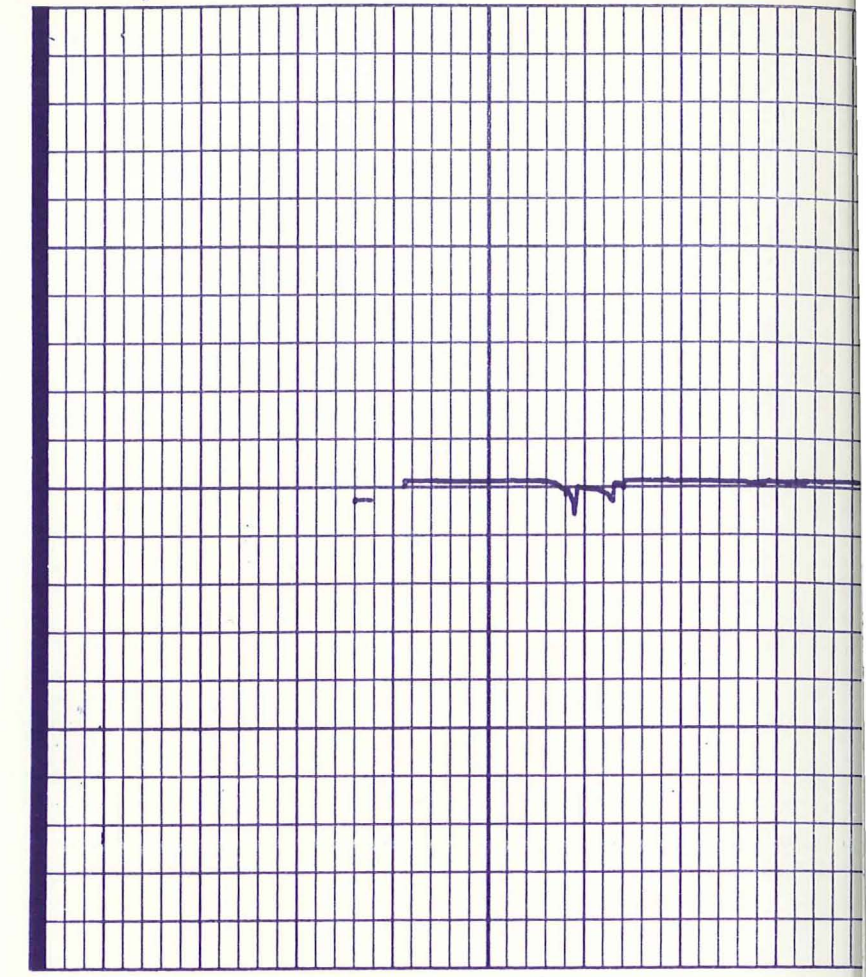


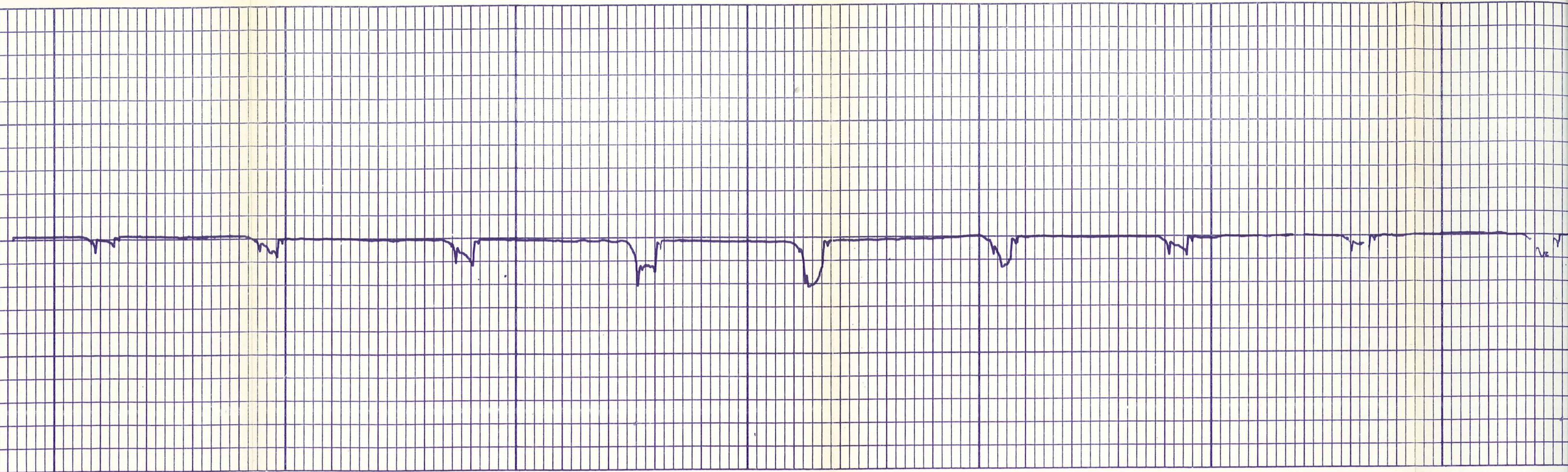
1200

1300



Run 3

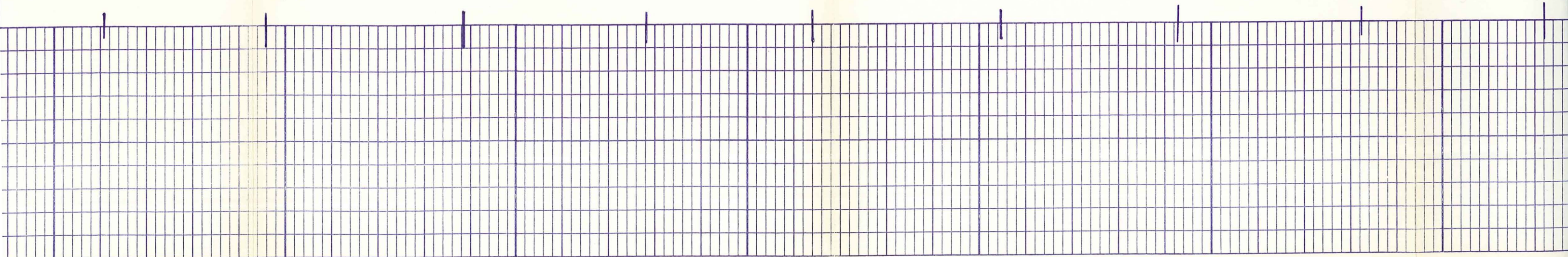


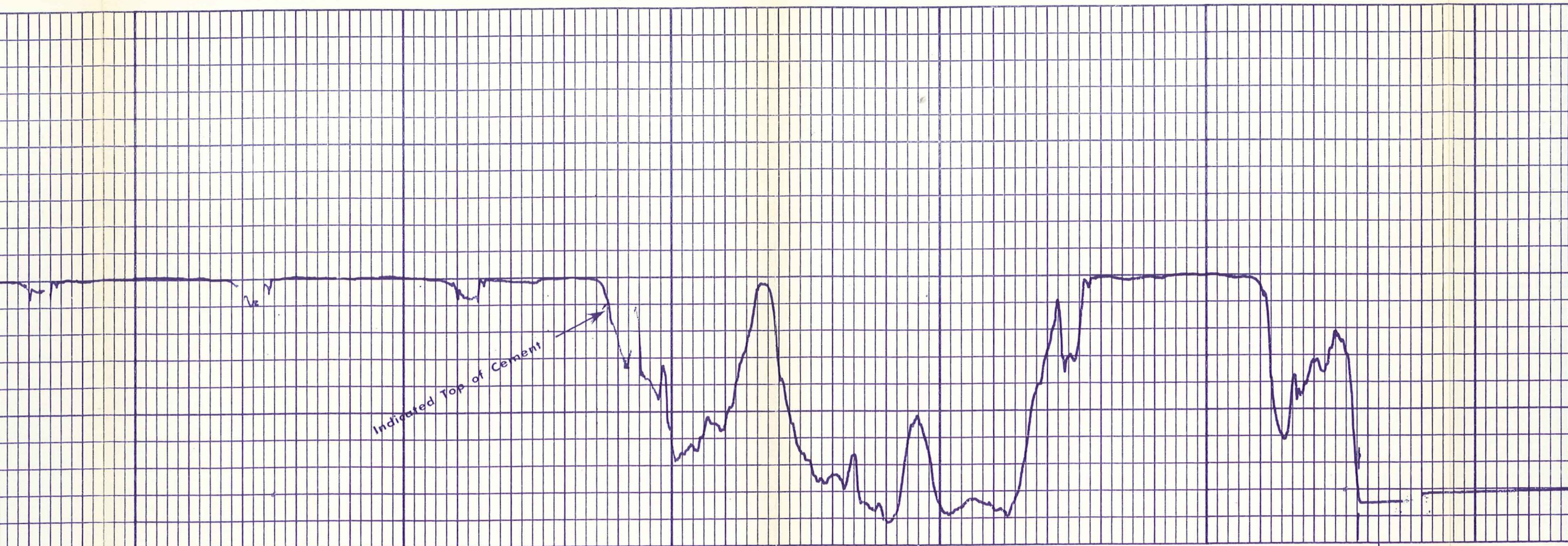


900

1000

1100

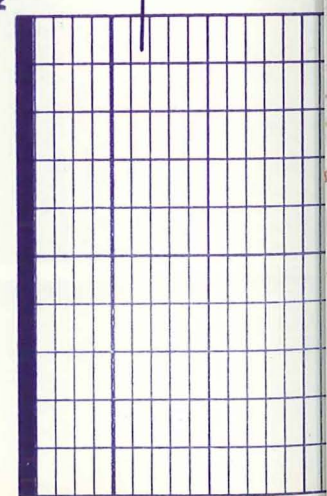
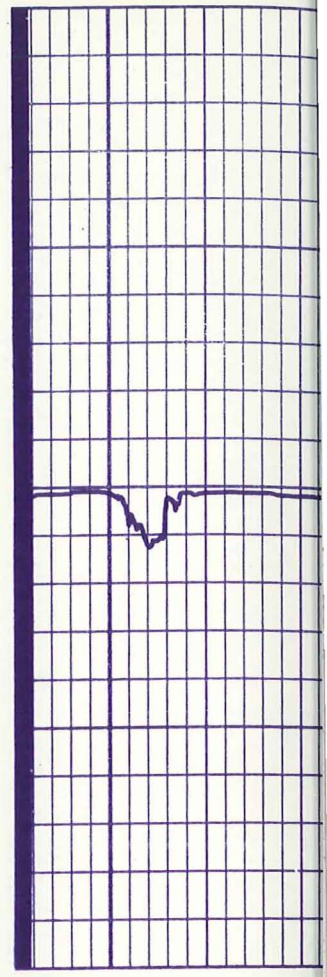




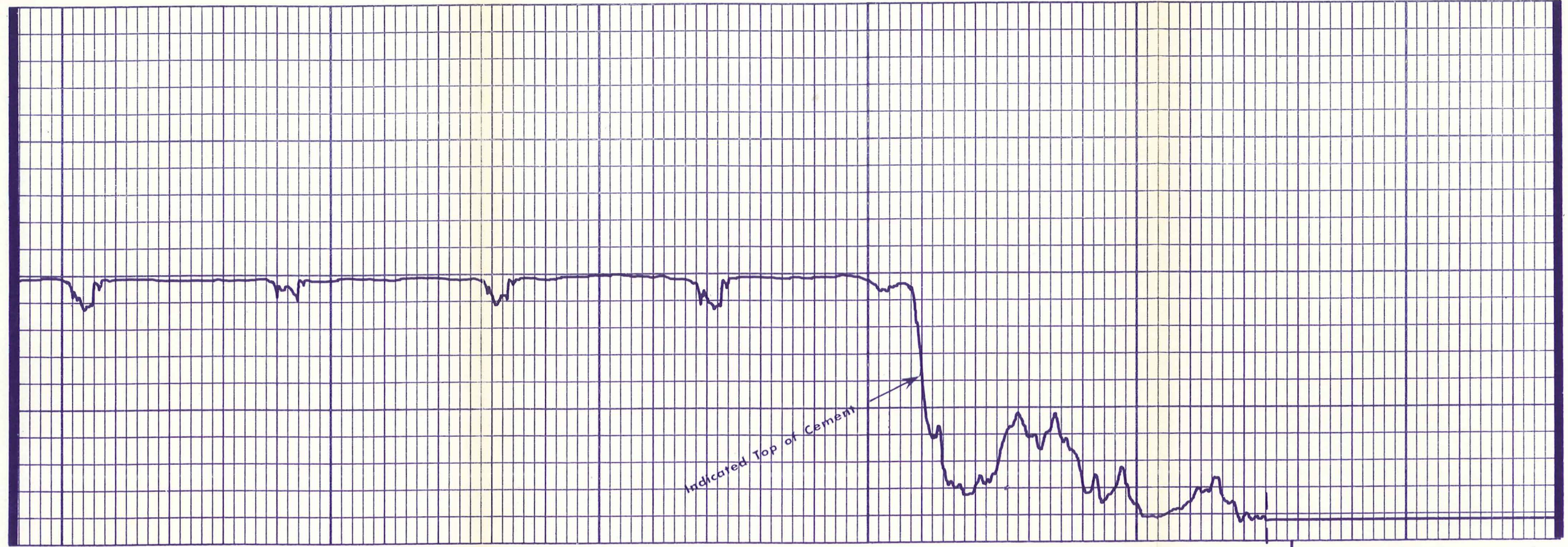
1200

1300

Run 4



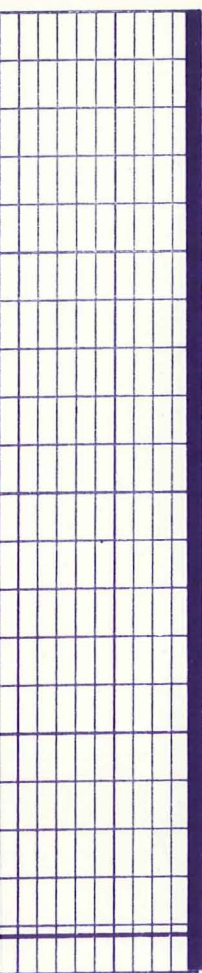
Run 4



1100

1200

Run 5



Indicated Top of Cement

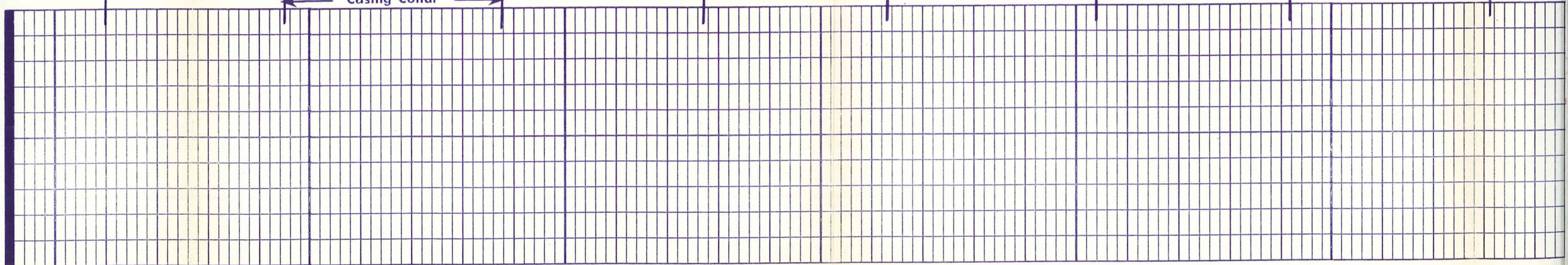
Run 5

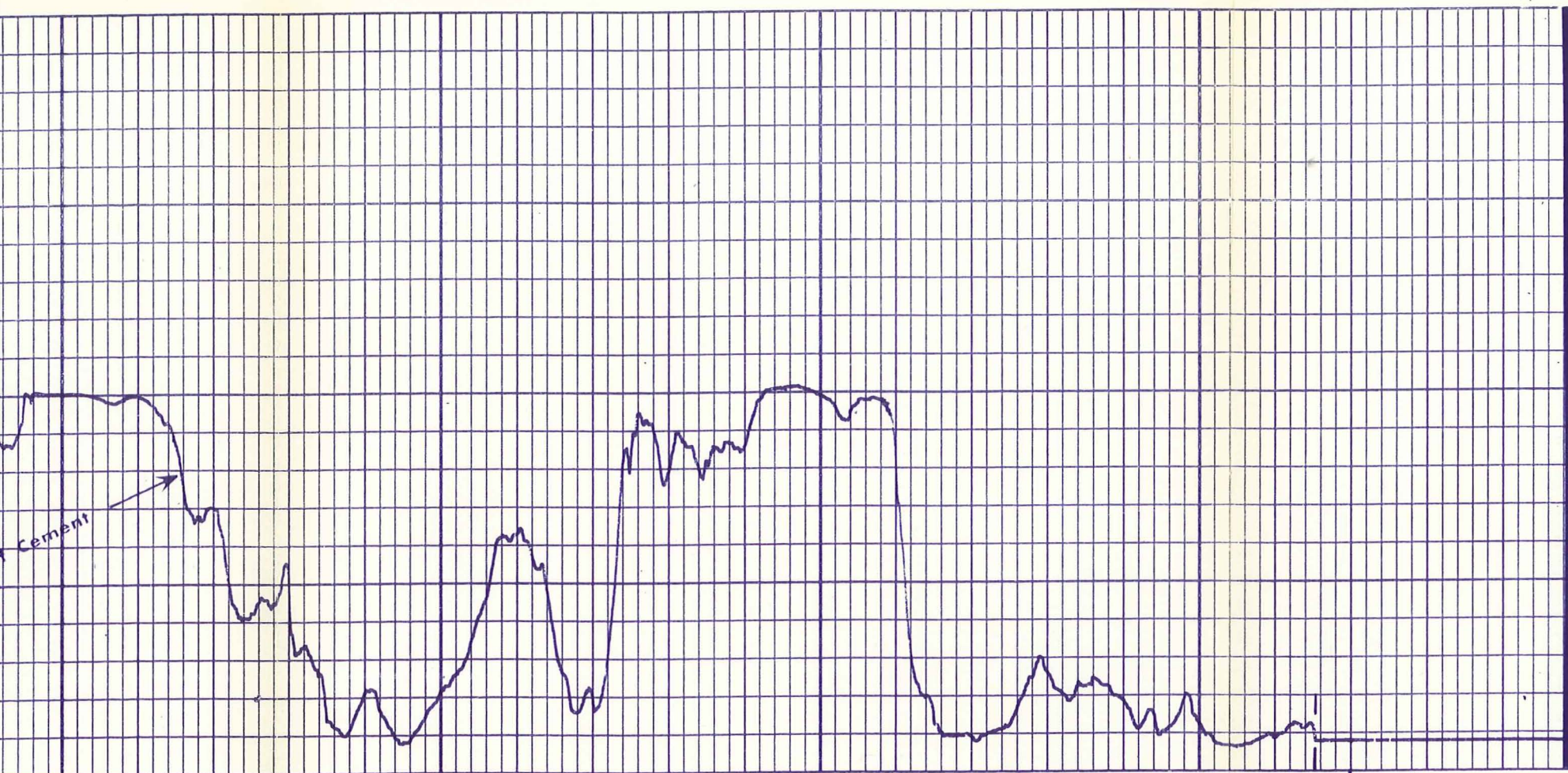
900

1000

1100

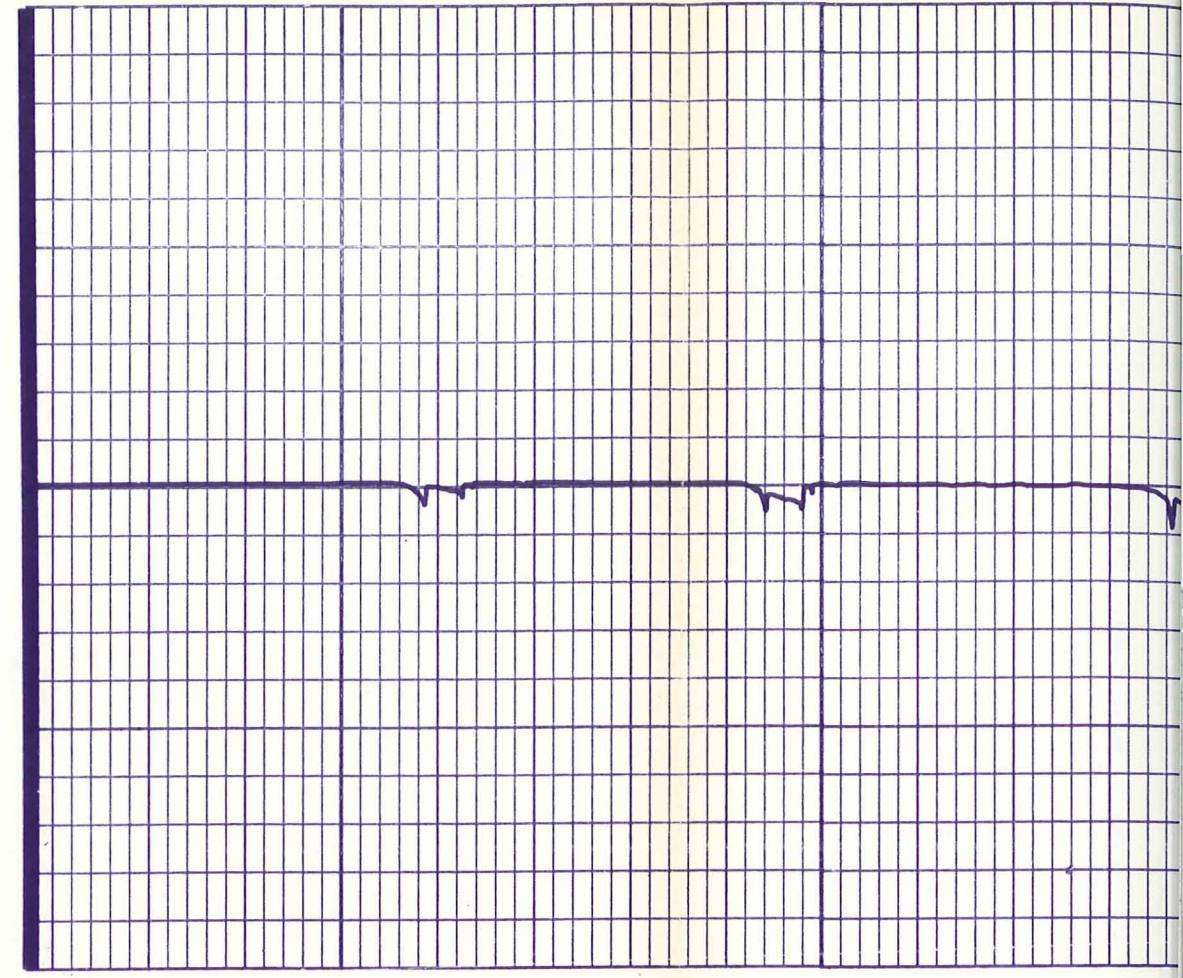
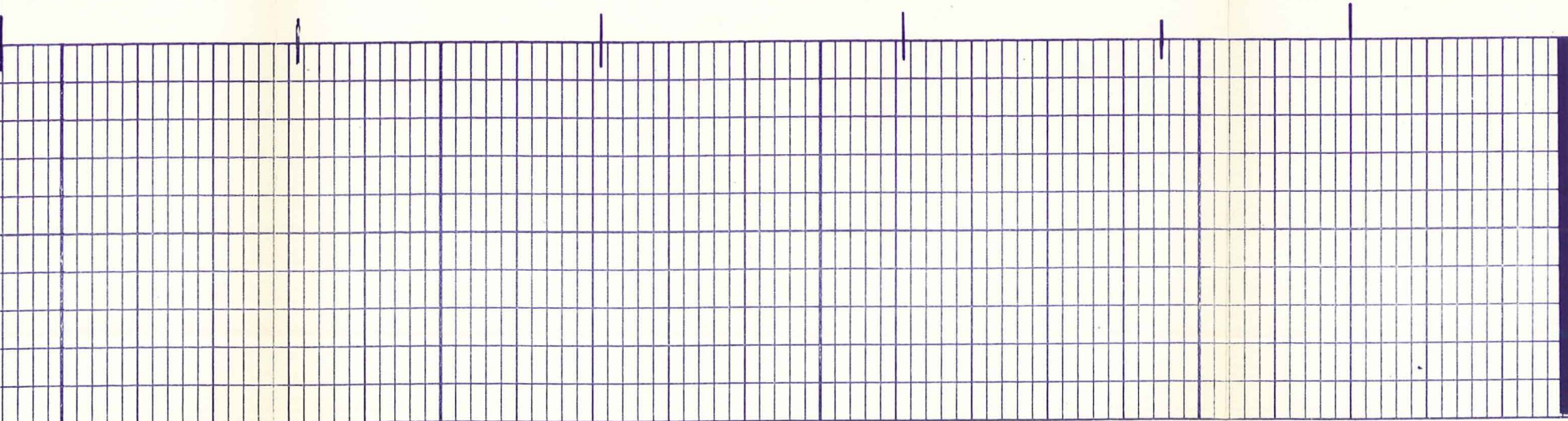
Casing Collar





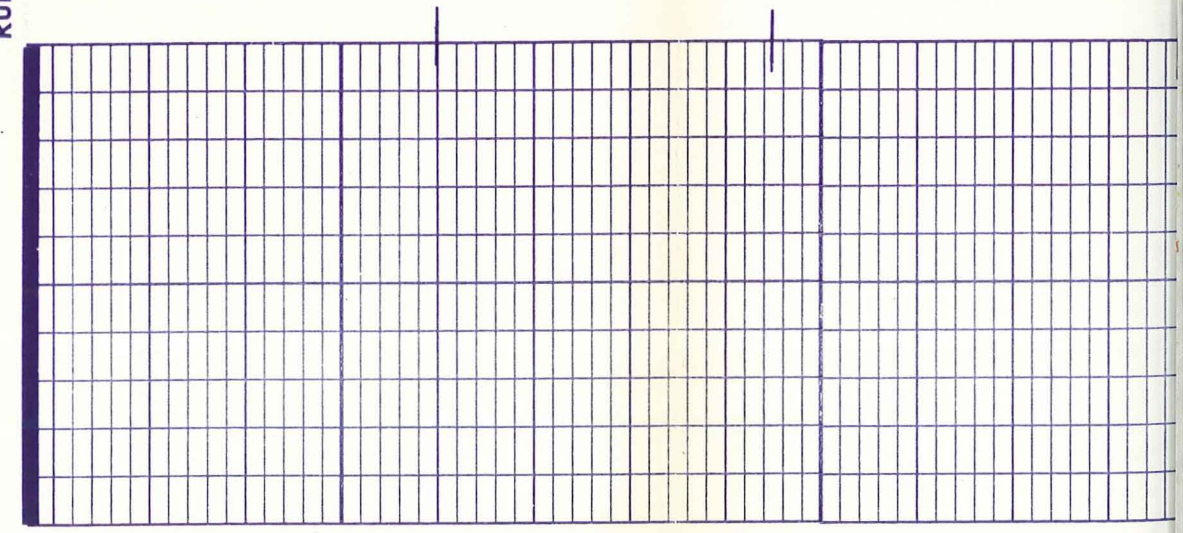
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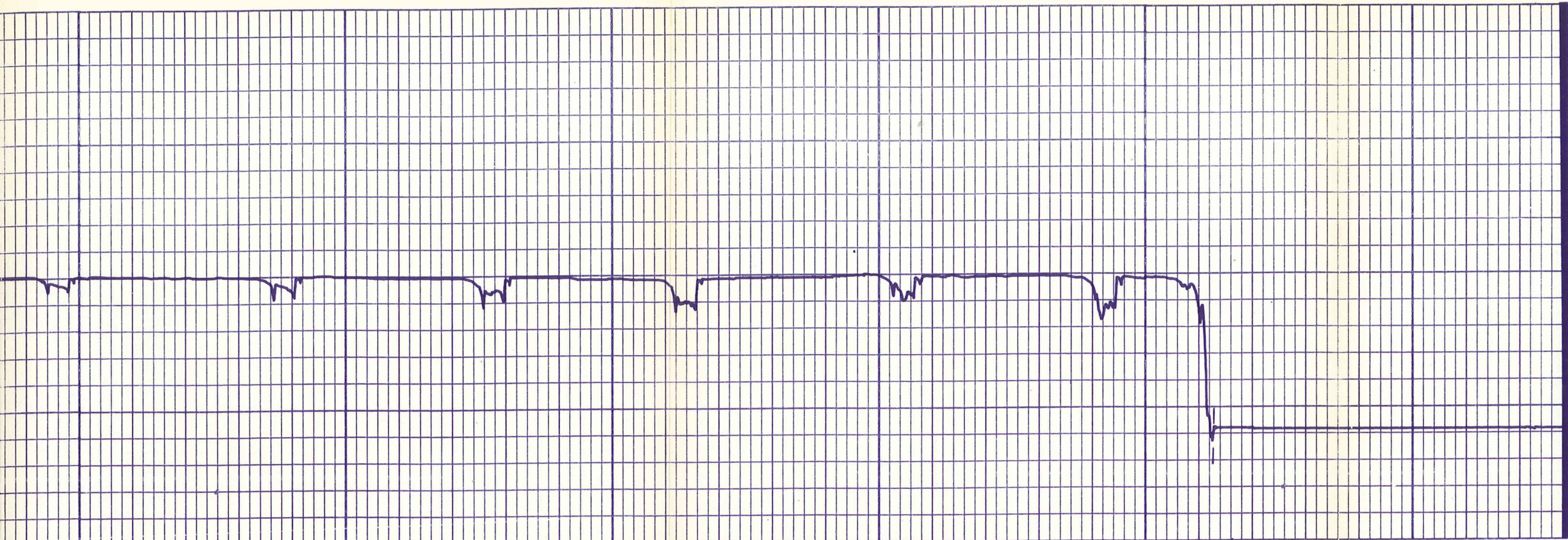
1200



Rún 6

900

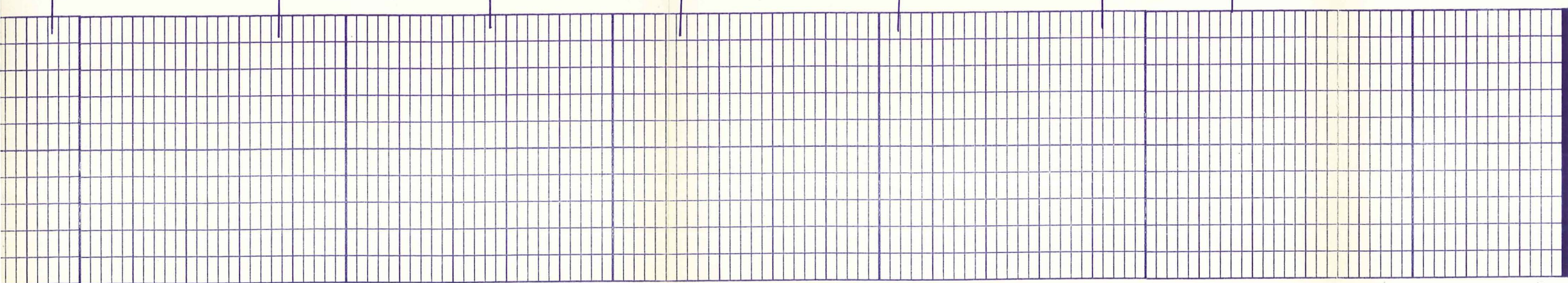




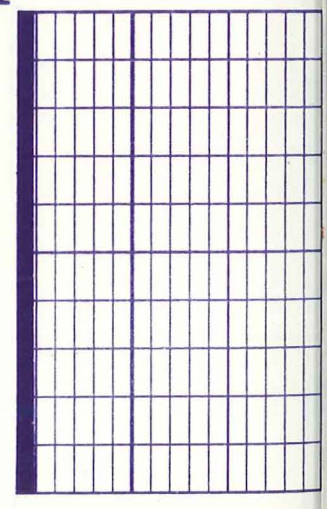
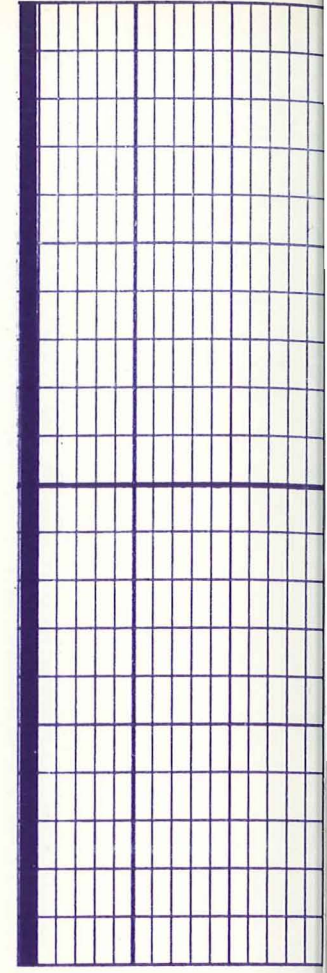
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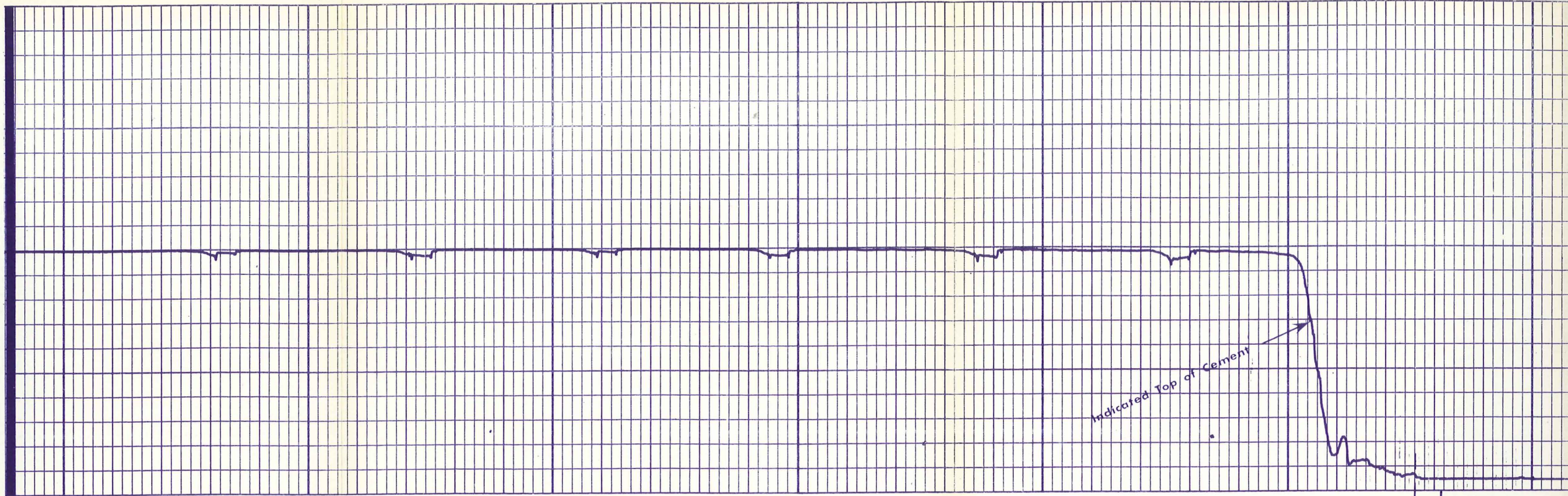
1100



Run 7



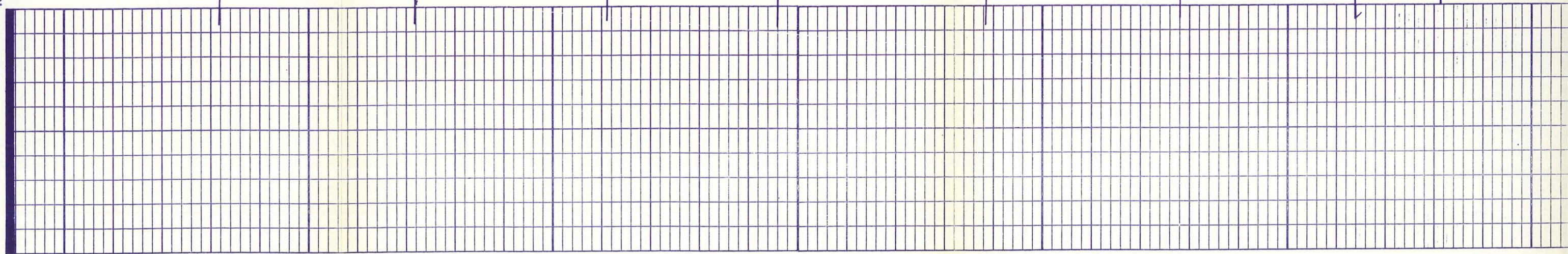
Run 7

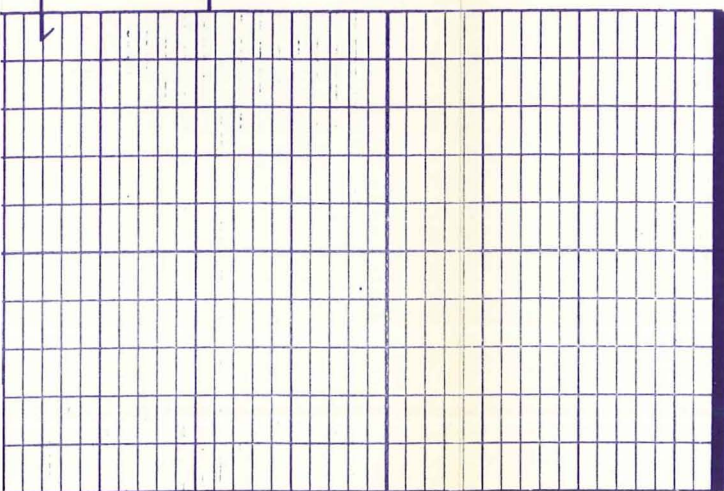
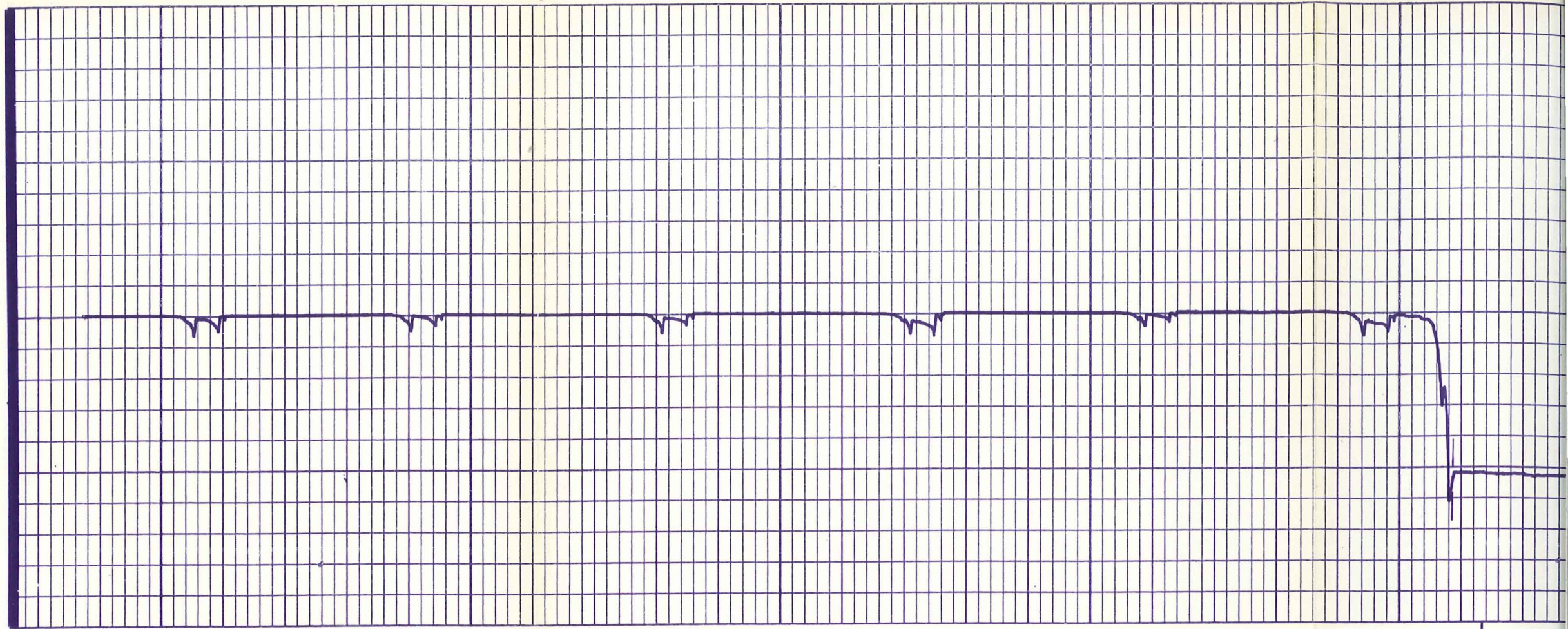
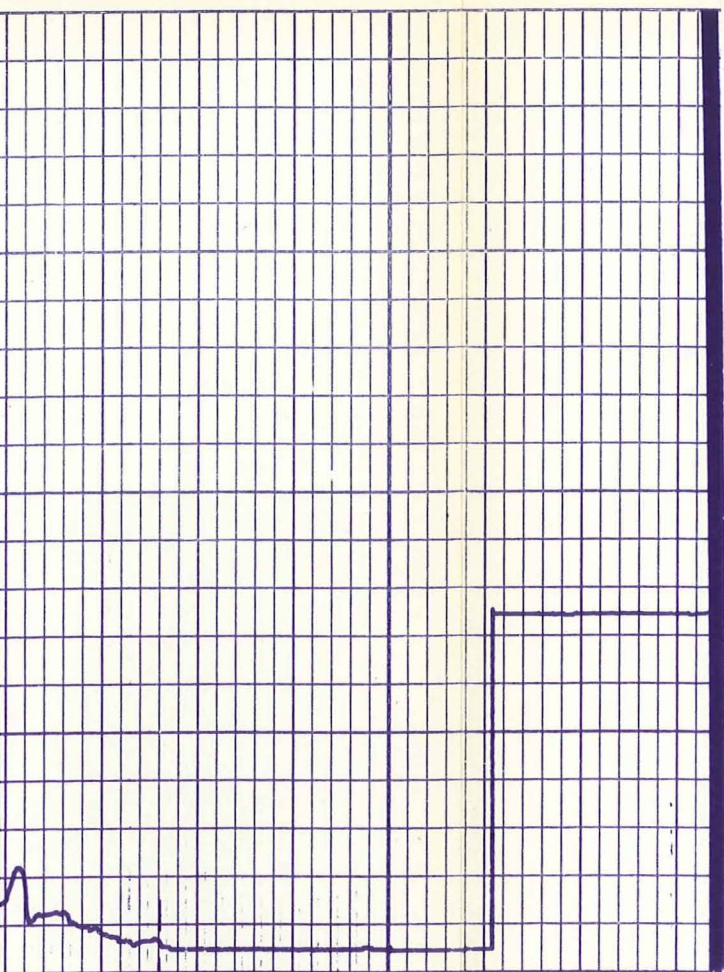


800

900

1000



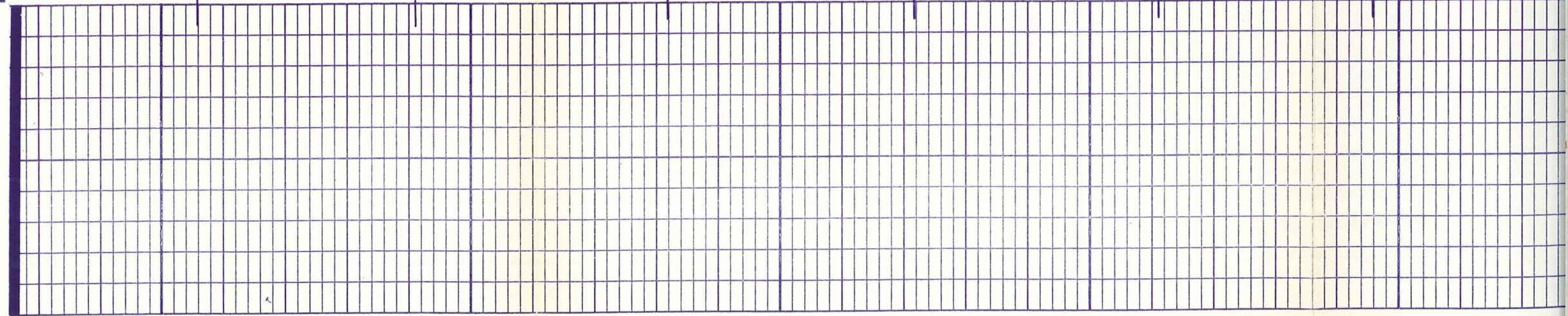


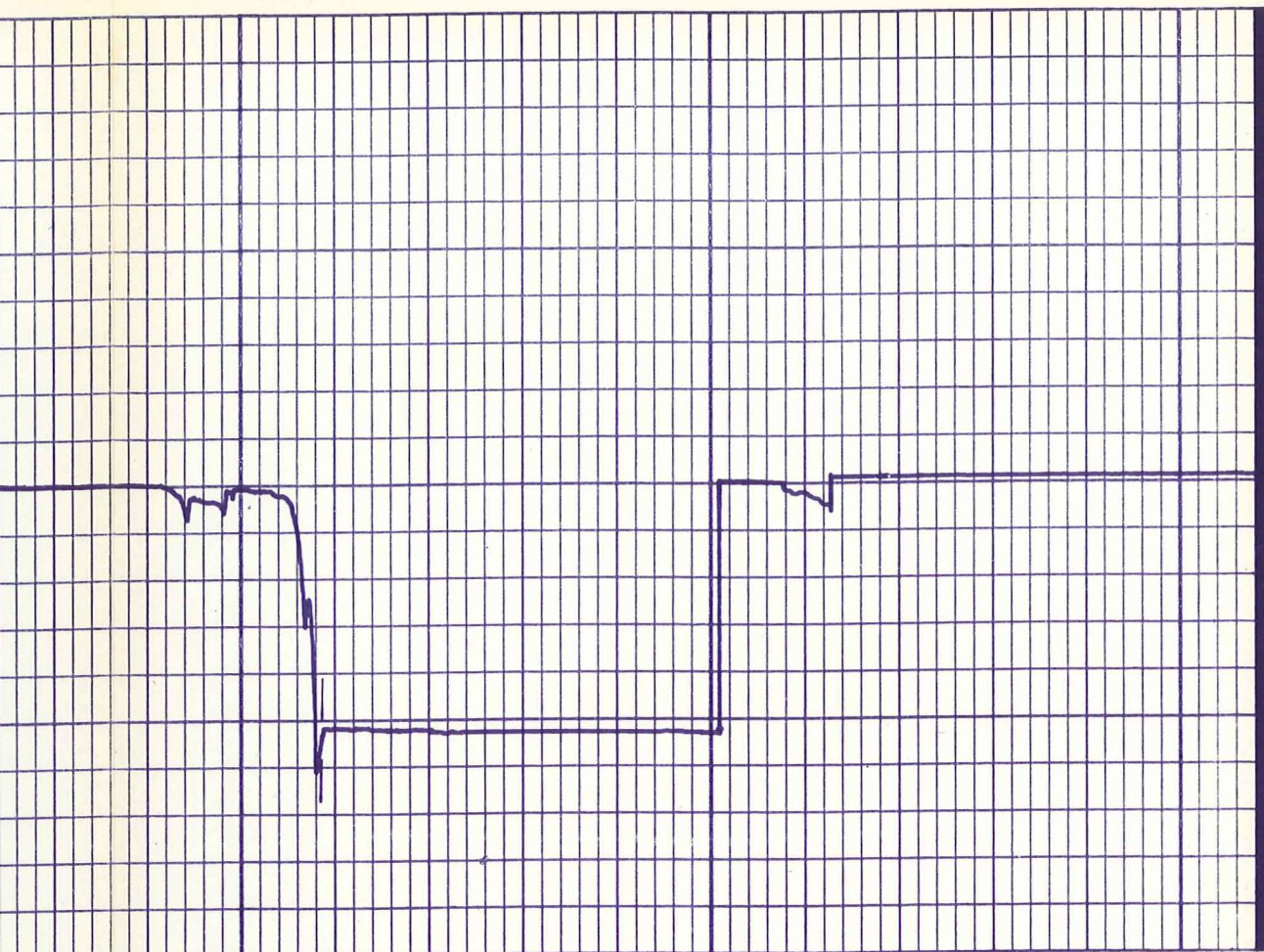
Run 8

700

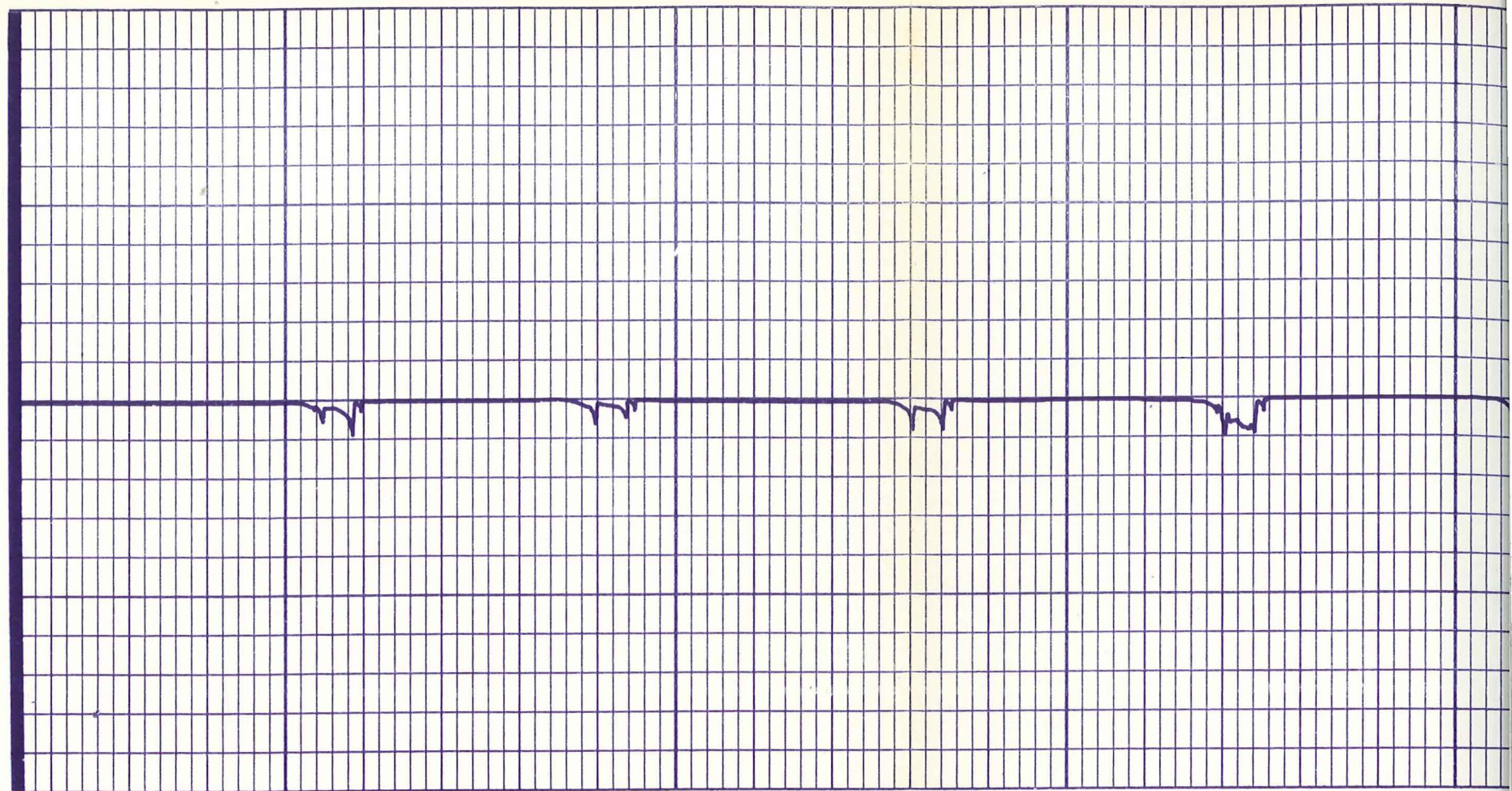
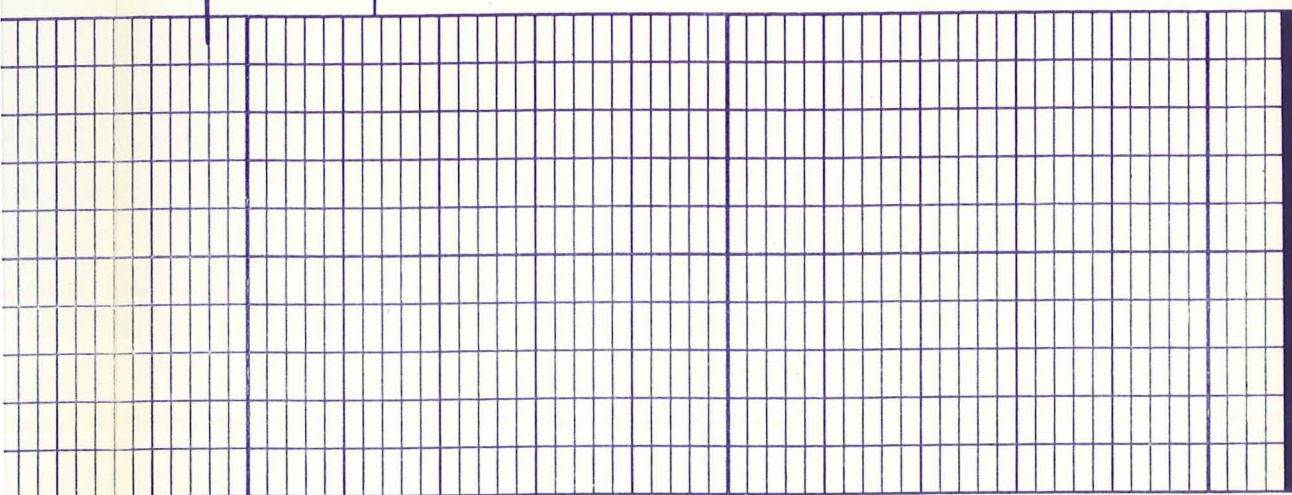
800

900





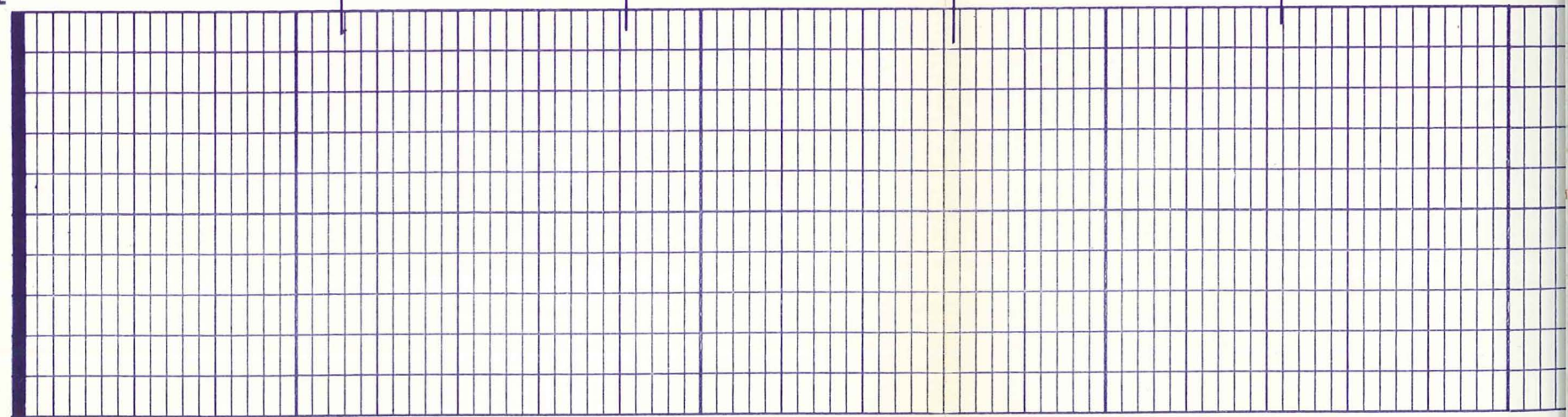
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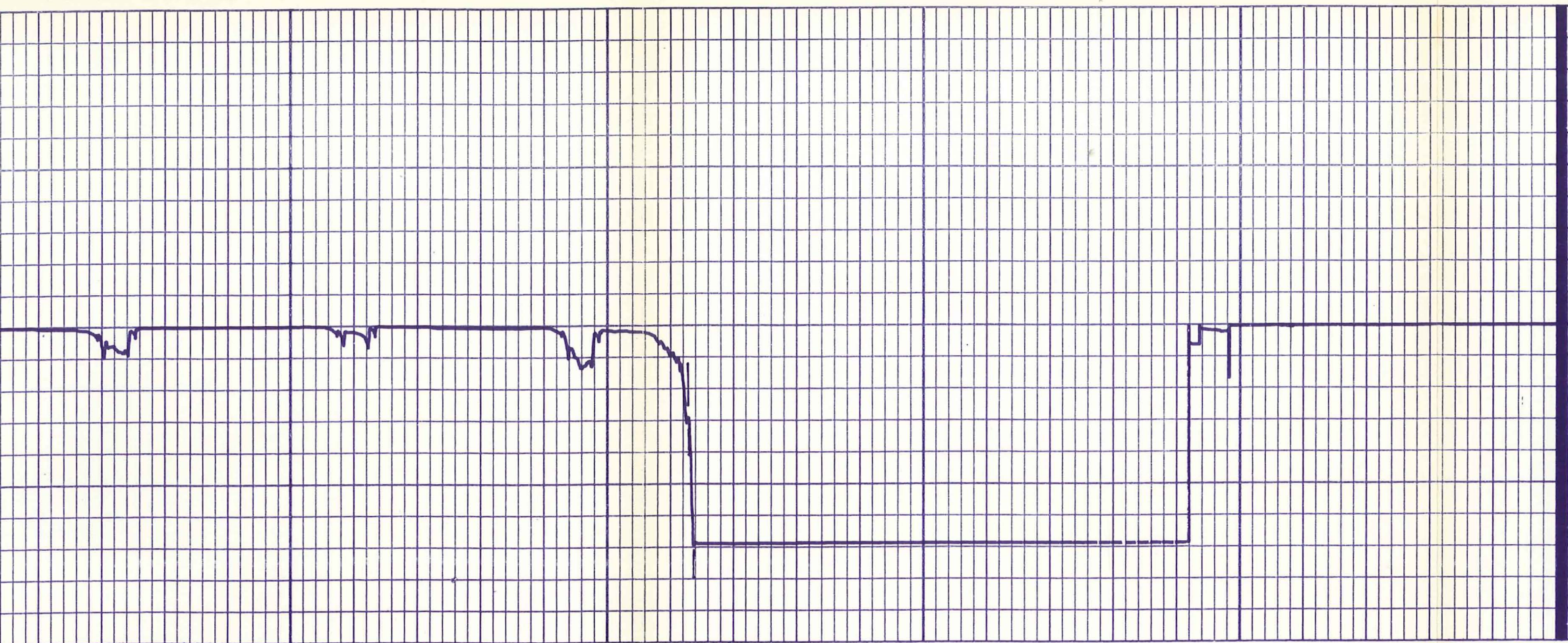


Run 9

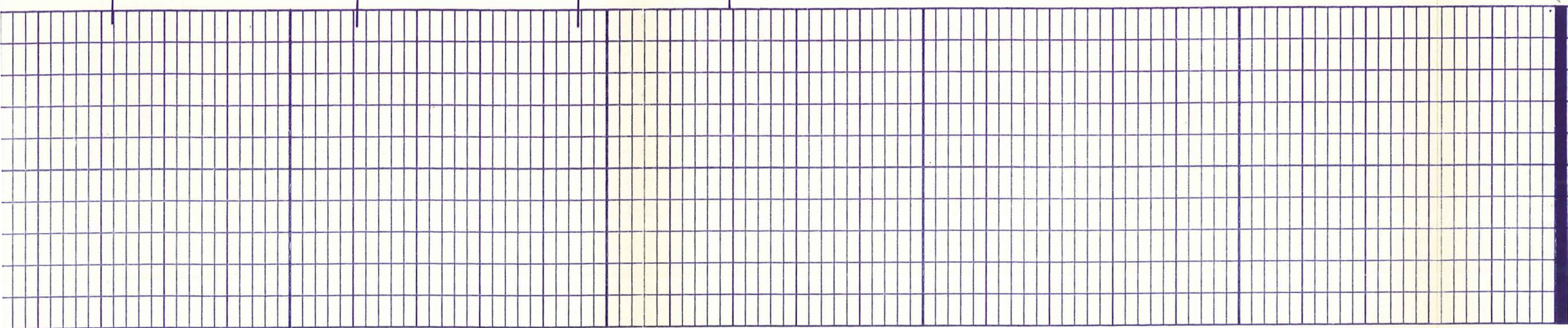
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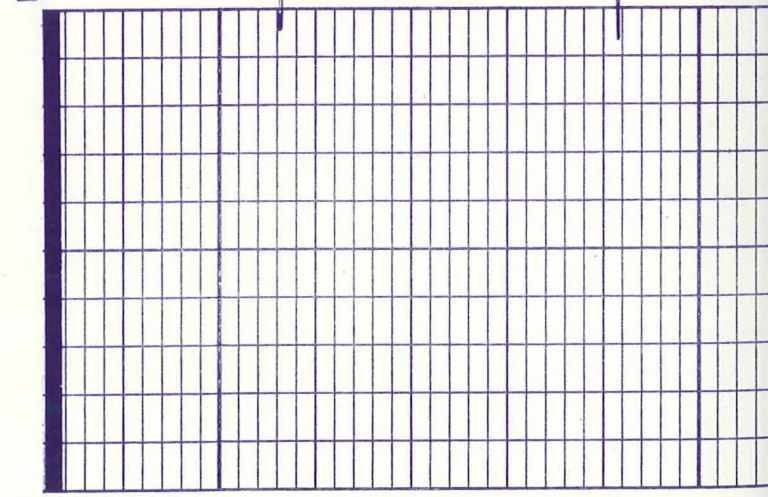


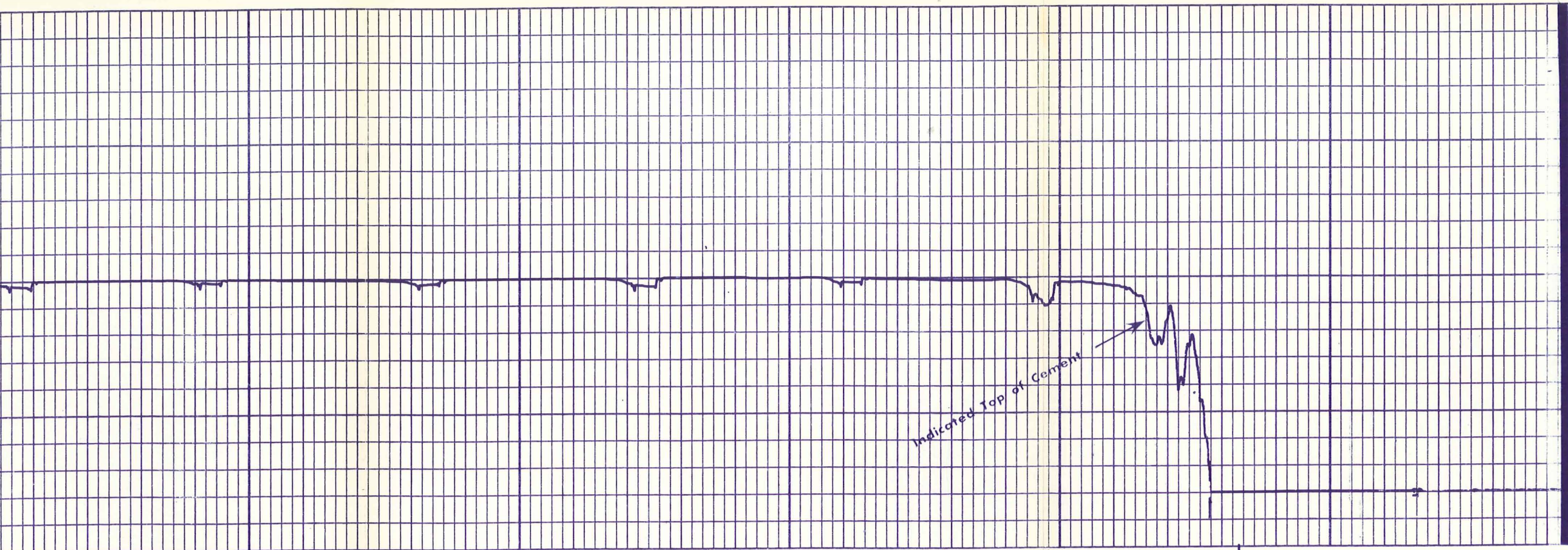
900



Run 10

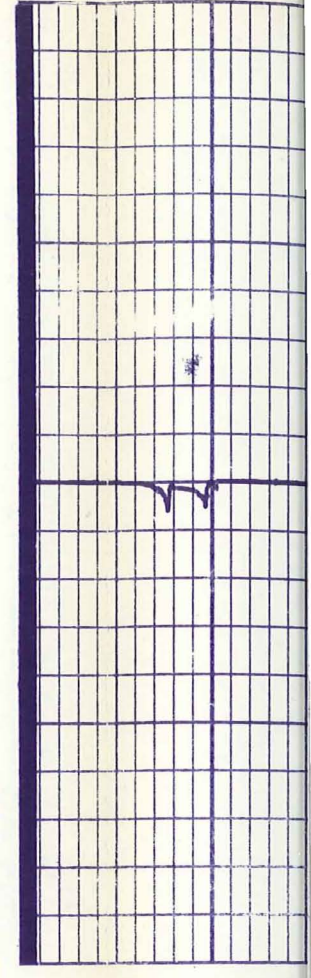
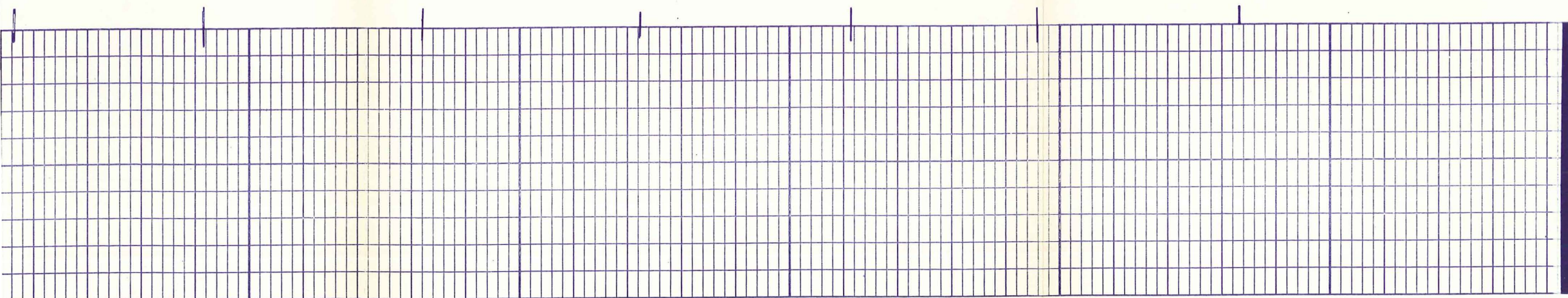
700





800

900



700

DEPTH DETERMINATION

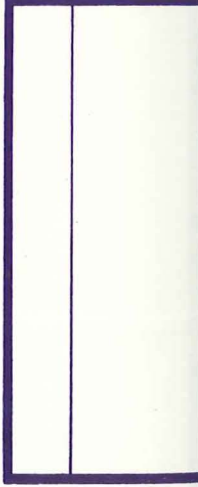
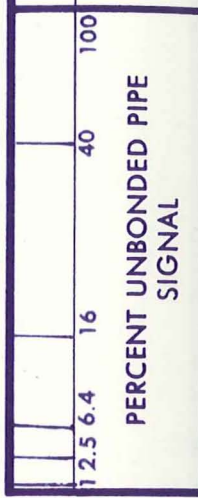
DEPTH DETERMINATION

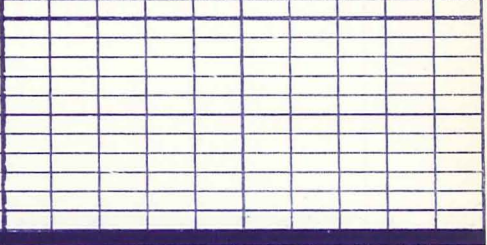
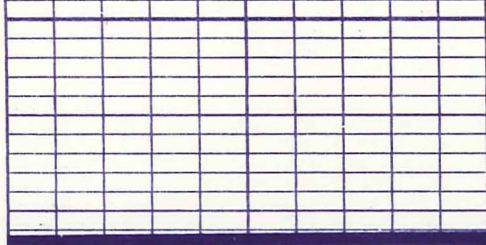
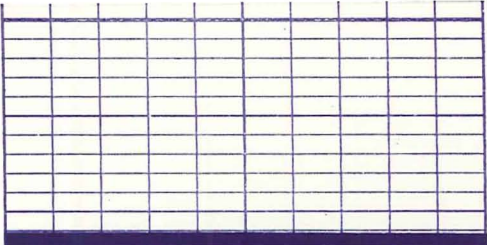


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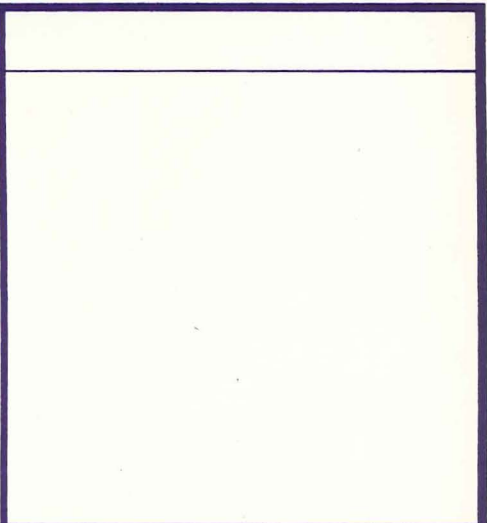
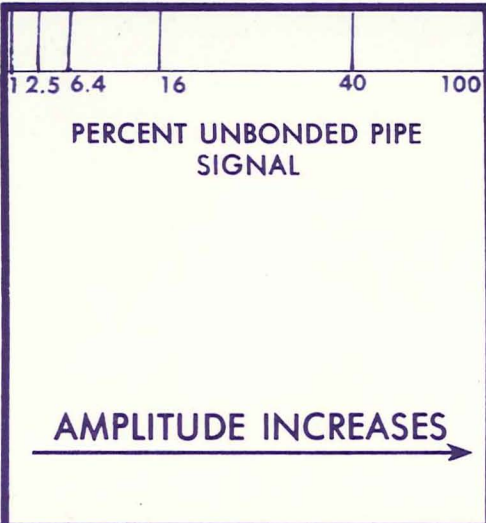
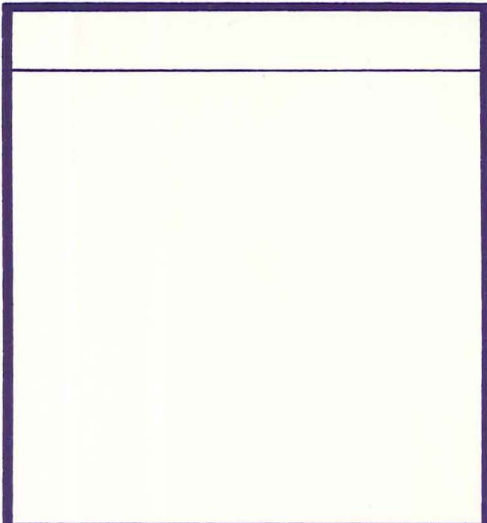
800

900





FORM 925192 A



DEPTH

COMPRESSION WAVE AMPLITUDE

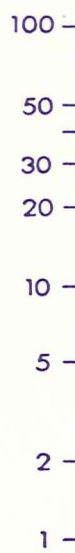


Company REYNOLDS ELECTRIC & ENGINEERING Drillers T.D. 4860
 Well RRGE # 2 Log F.R.
 Field RAFT RIVER GEOTHERMAL Log T.D.
 County CASSIA Elevations:
 State IDAHO K.B. 4863 D.F. 4862 G.L. 4845

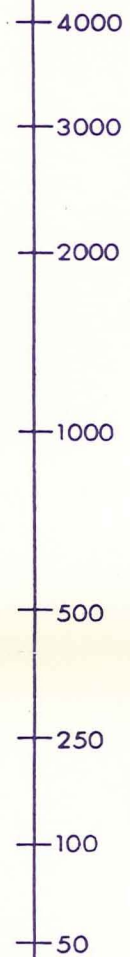
CEMENT STRENGTH

PERCENT OF SIGNAL IN UNBONDED PIPE

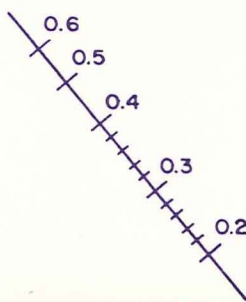
Spacing 5'



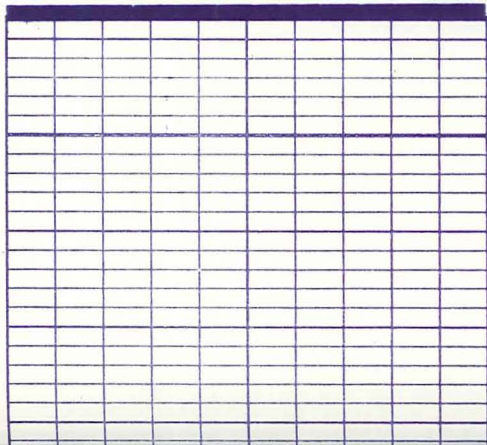
AVERAGE COMPRESSIVE STRENGTH (psi)



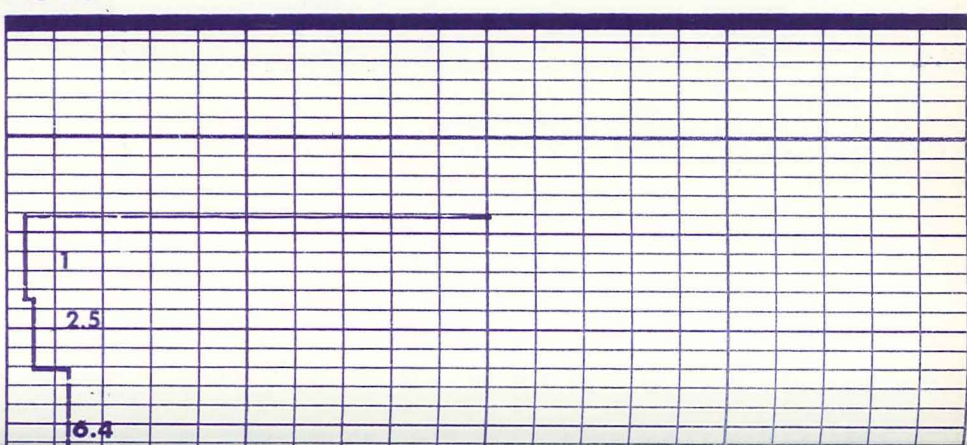
CASING THICKNESS (inches)



CALIBRATION

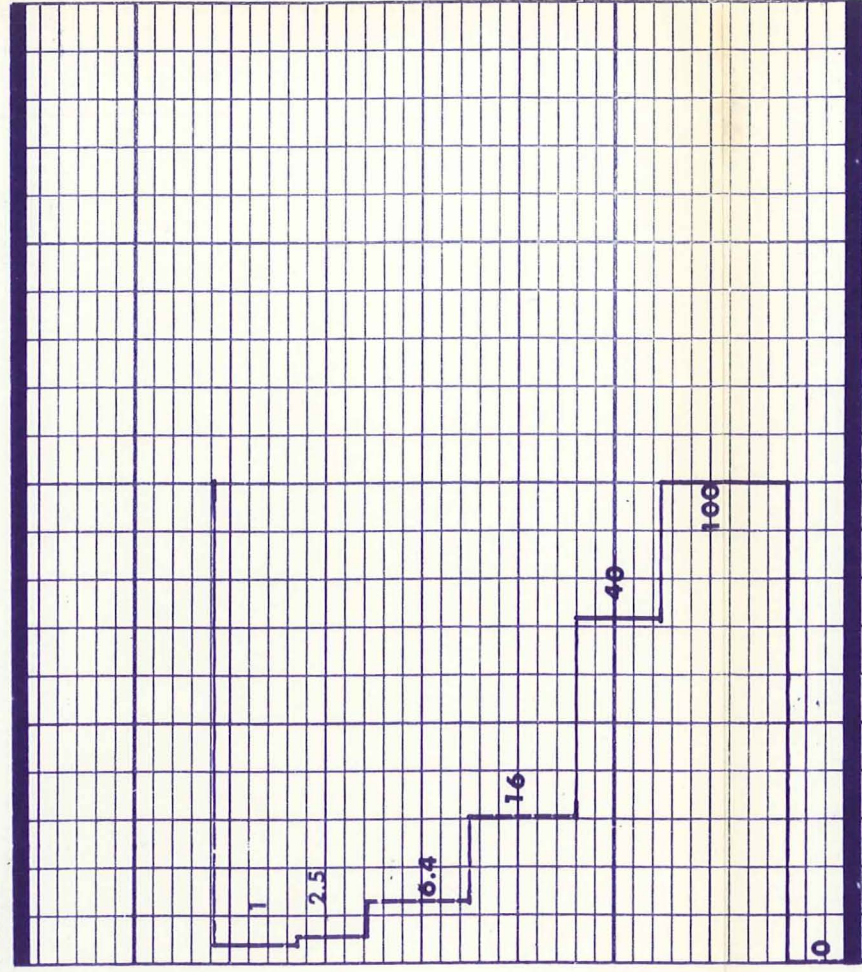


Run 1

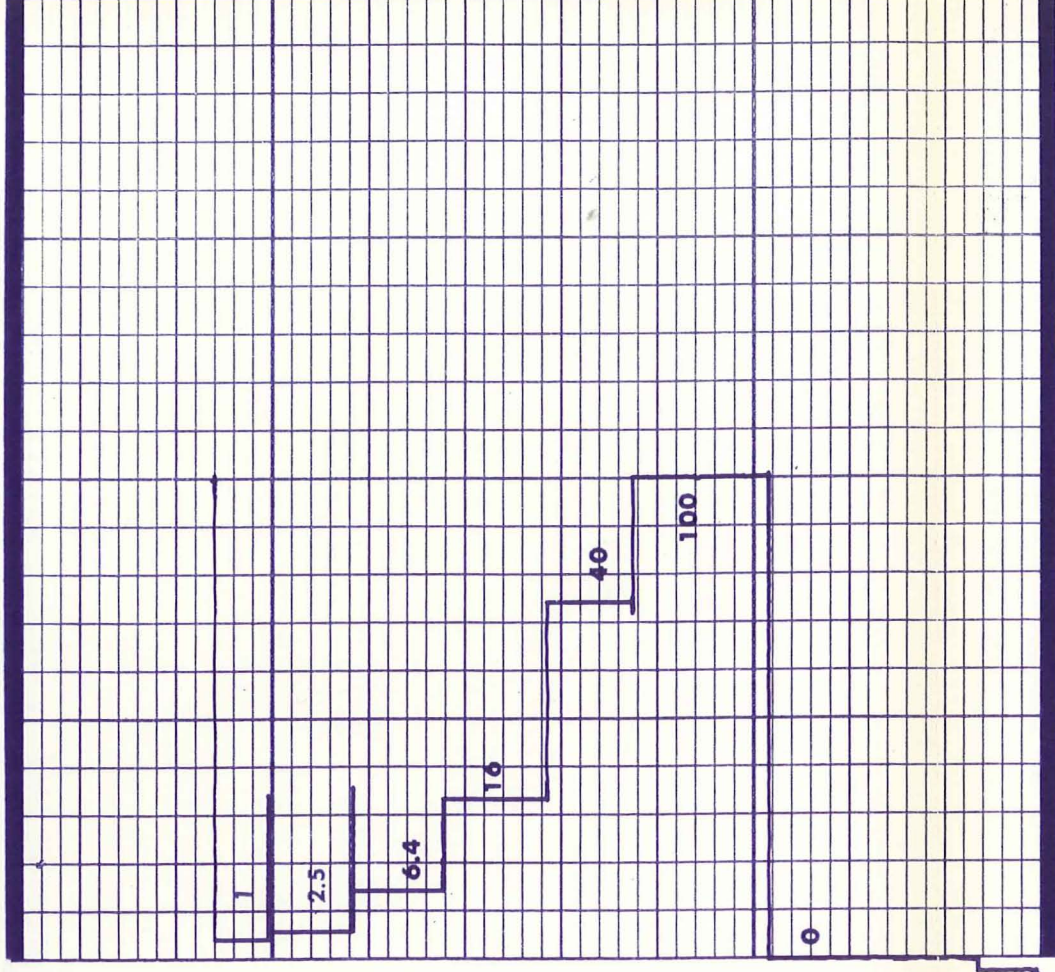


CALIBRATION

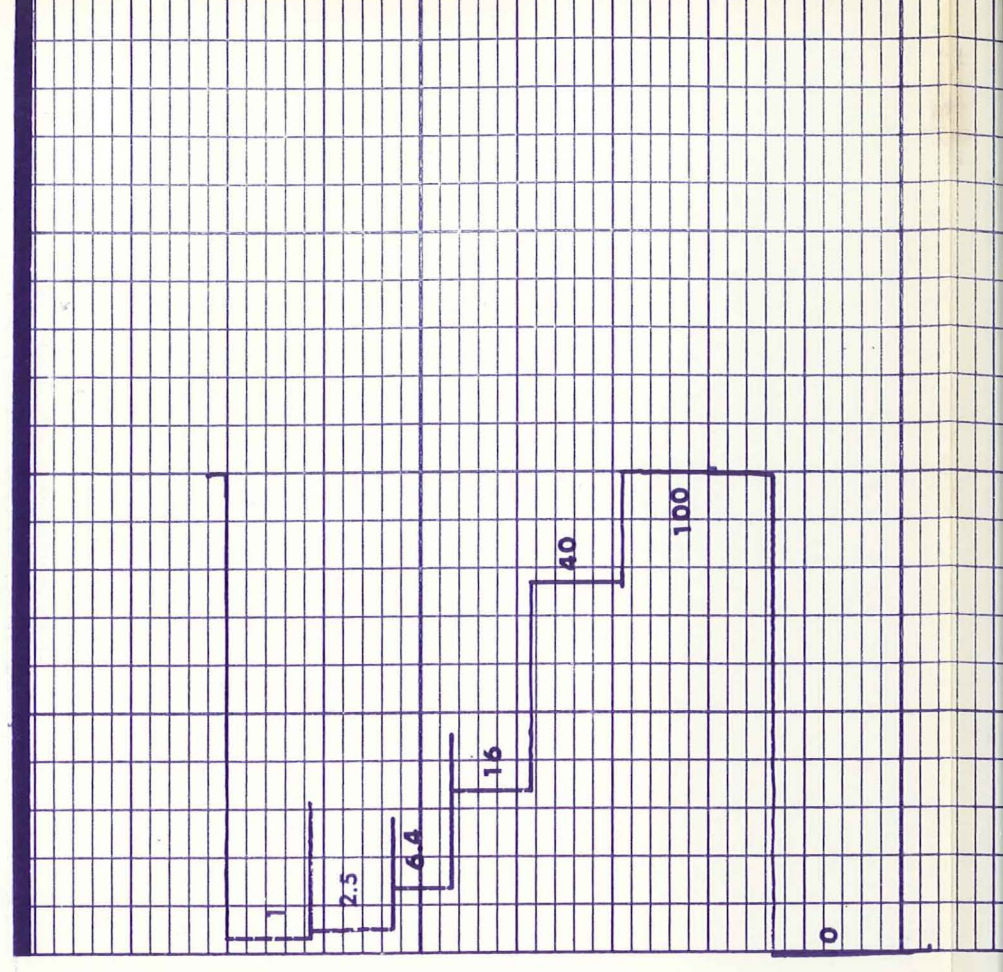
Run 1

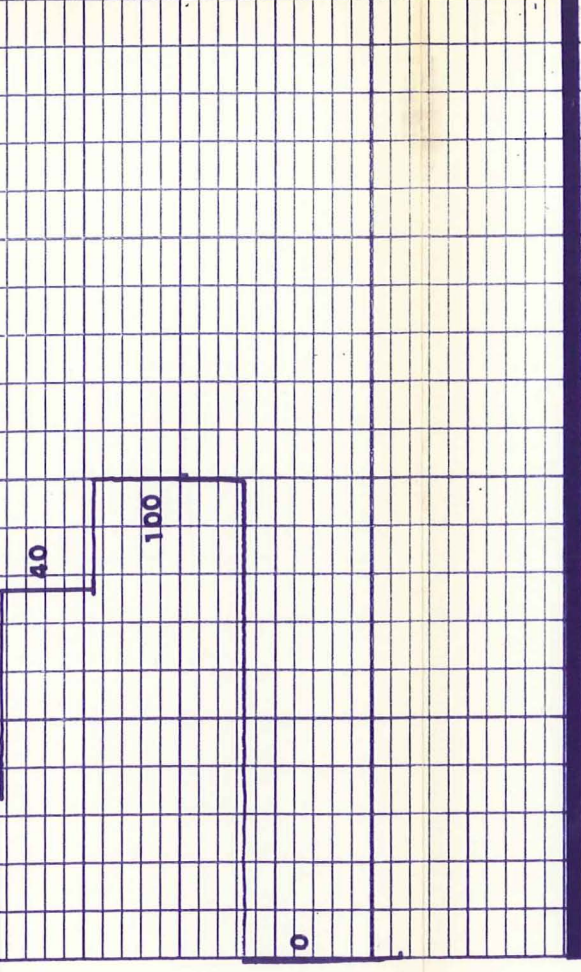
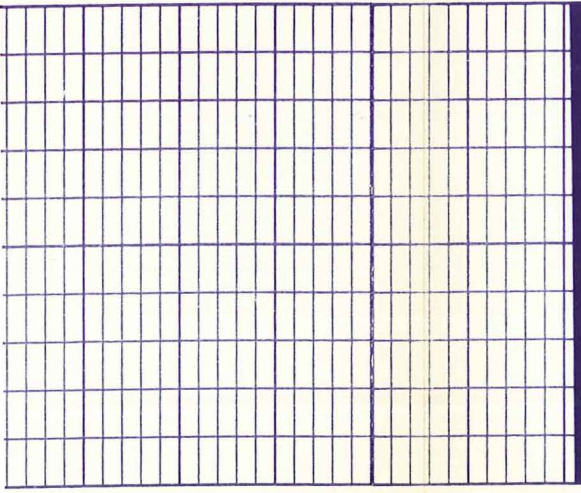


Run 2

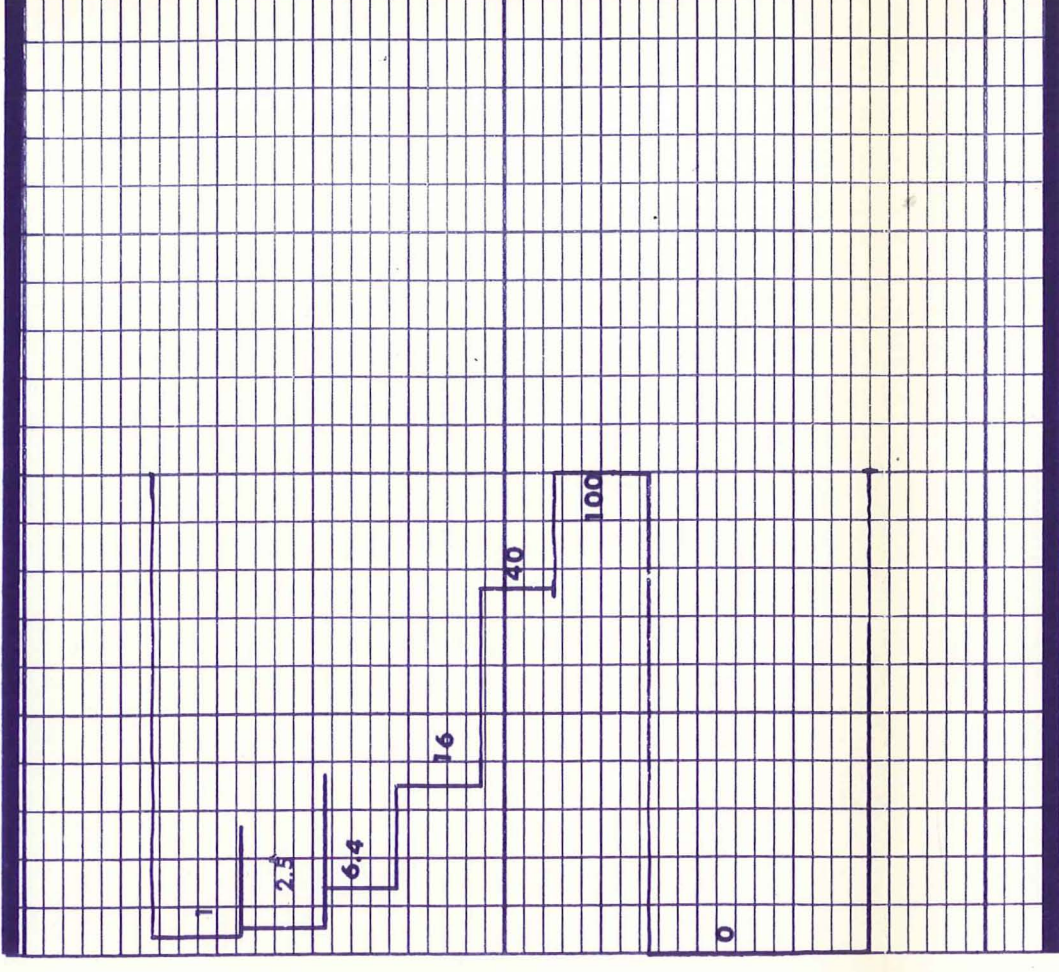
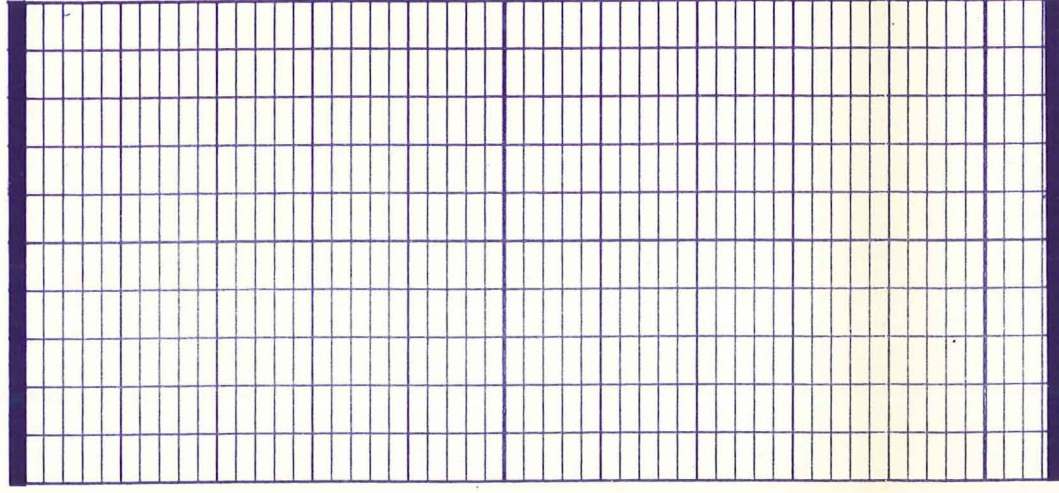


Run 3

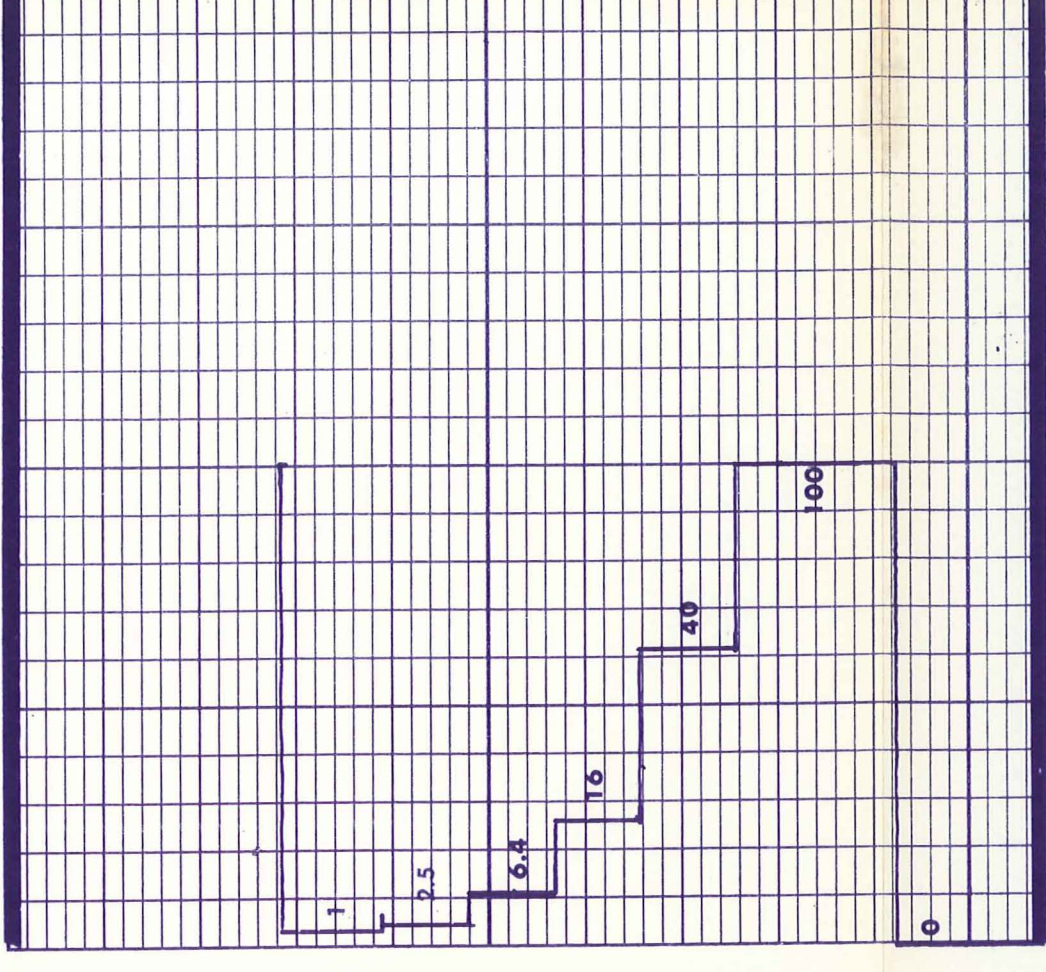
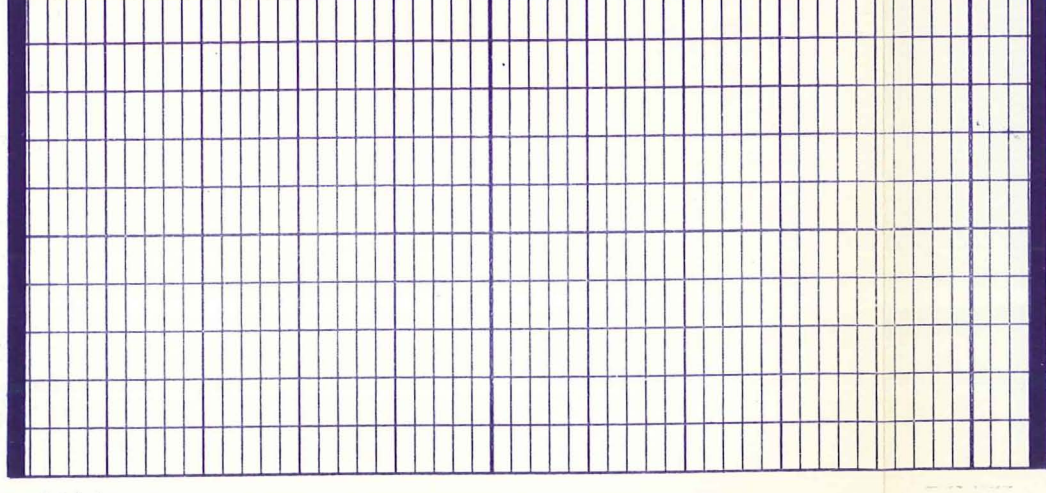




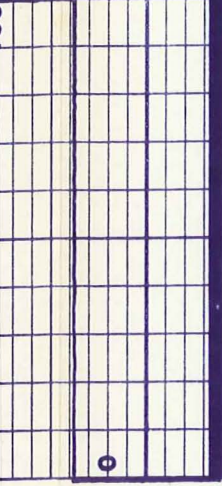
Run 4



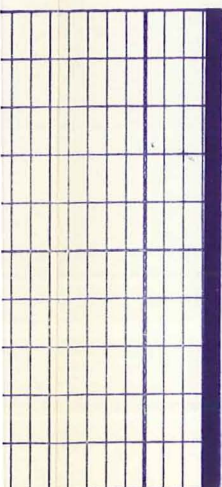
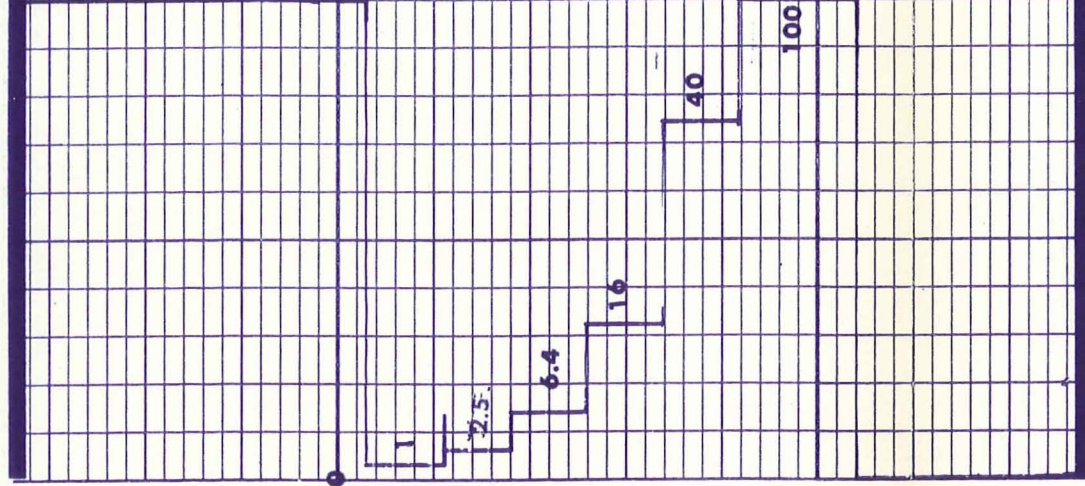
Run 5



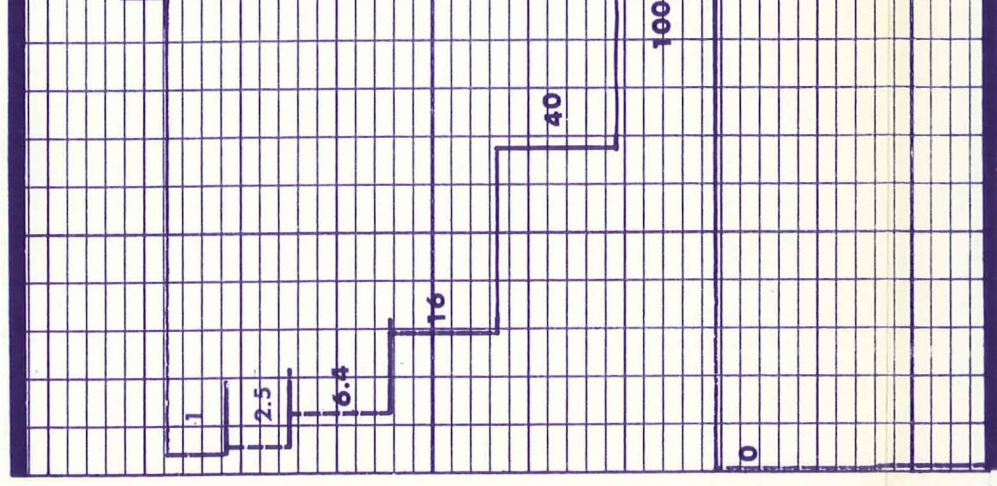
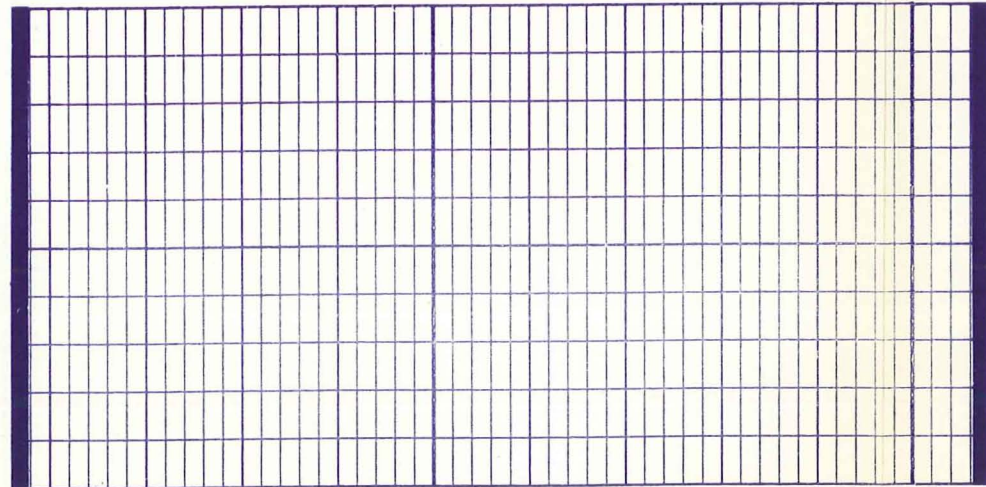
Run 6



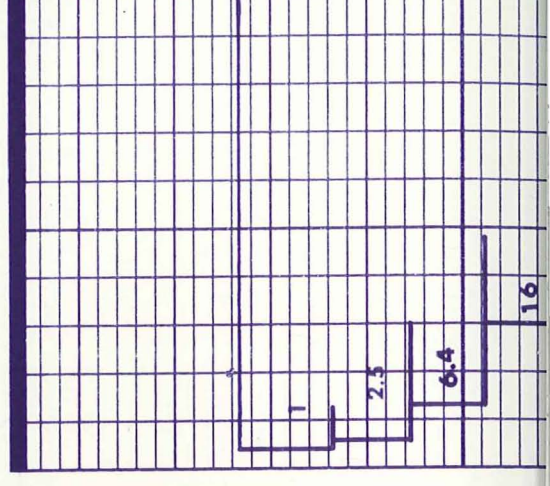
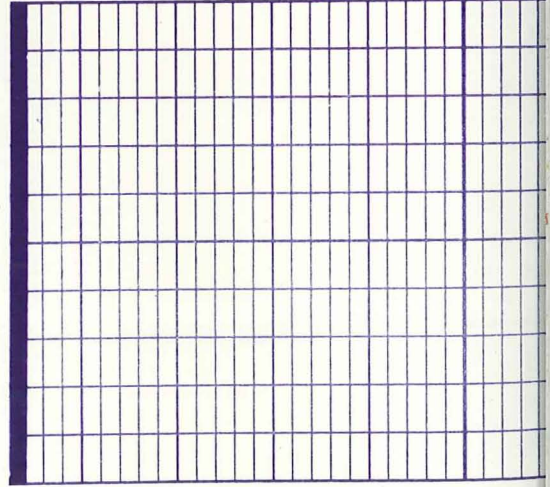
Run 6

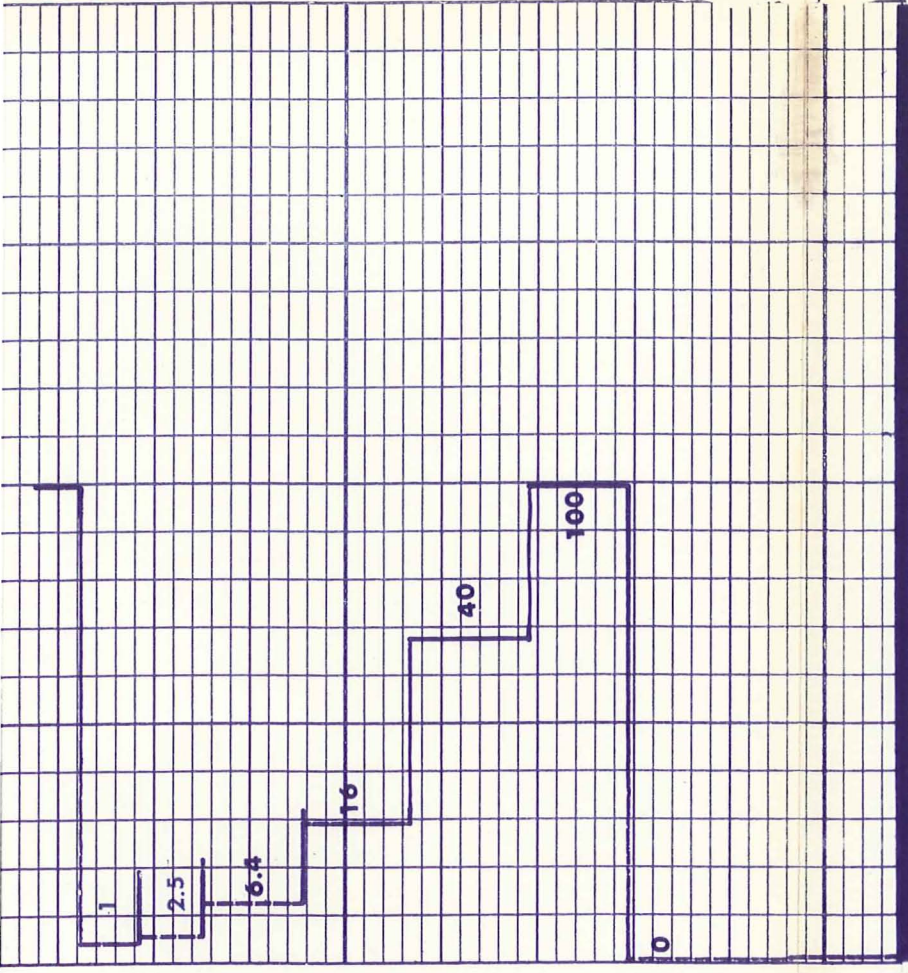


Run 7

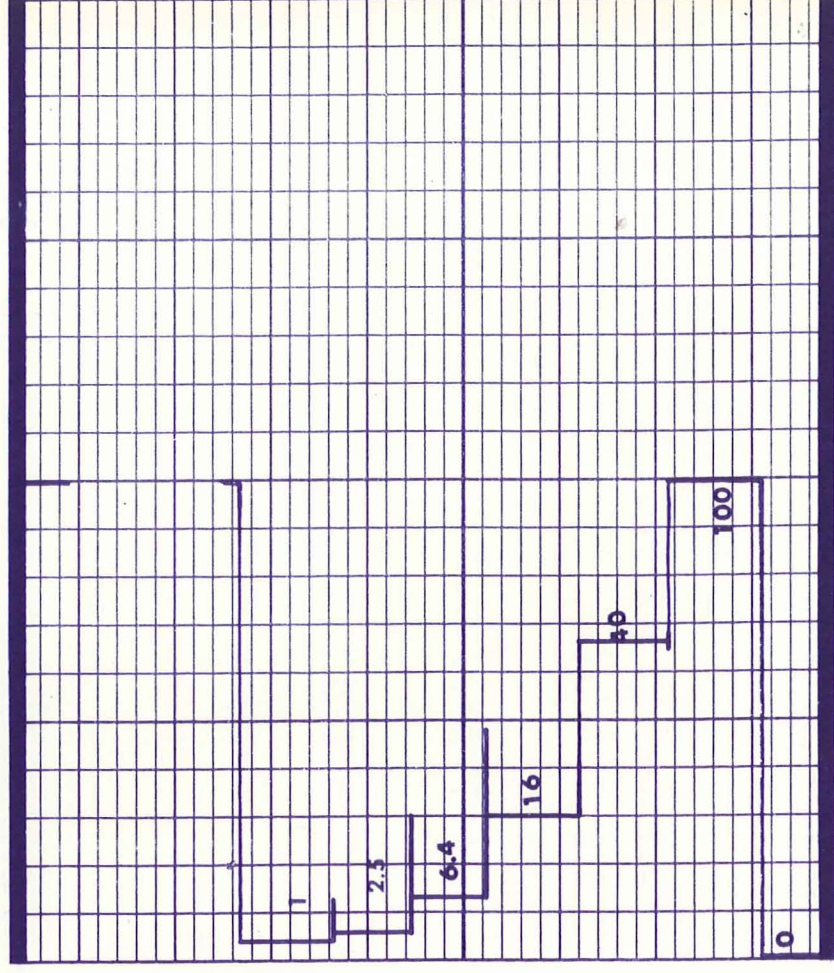


Run 8





Run 8



Run 9

