Case No.

1978

Large Exhibits

5-19

Halliburton
OIL WELL CEMENTING CO.

RADIOACTIVITY LOG

NATURAL GAMMA RADIATION — INDUCED GAMMA RADIATION

COMPANY SHELL OIL
CO. FILE
WELL STATE E.T.A.#1
FIELD Townsend
County Lea State N.Mex.

COMPANY SHELL OIL COMPANY
FILE
WELL STATE ETA #1
FIELD Townsend
COUNTY Lea STATE New Mexico
SEC 8 TWP 16-S RGE 35-E
SURVEY MNPM

Location
990' from N&E
Sec 8
Twp 16-S
Rge 35-E
MNPM survey
GR-NG
Elev. D.F. 4041'
K.B. 4043
Grd. 4029

Log Measured From	Top of drive bushing	Elevation	4043
Drilling Measured From	Top of drive bushing	Elevation	4043
Permanent Datum	Ground level	Elevation	4029

Type Log	GAMMA	N GAMMA	
Run No.	ONE	ONE	
Date	8-4-54	8-4-54	
Footage Logged	10,413'	10,423'	
Total Depth, Driller	10,464'	10,464'	
Total Depth, Logged	10,463'	10,473'	
Type of Fluid in Hole	Mud	Mud	
Fluid Level		88'	
Max. Temp.	151 °F	151 °F	°F
Neutron Source Strength		400mc	
Source to Center of Counter	in.	15 in.	in.
Length Meas. Device-in	29 in	16 in	
O.D. of Instrument-in	3 5/8"	3 5/8"	
Time Constant-sec	2	2	
Logging Speed Ft. min.	See remarks	See remarks	
Recorded by	[illegible]	[illegible]	
Witnessed by	[illegible]	[illegible]	

CASING RECORD

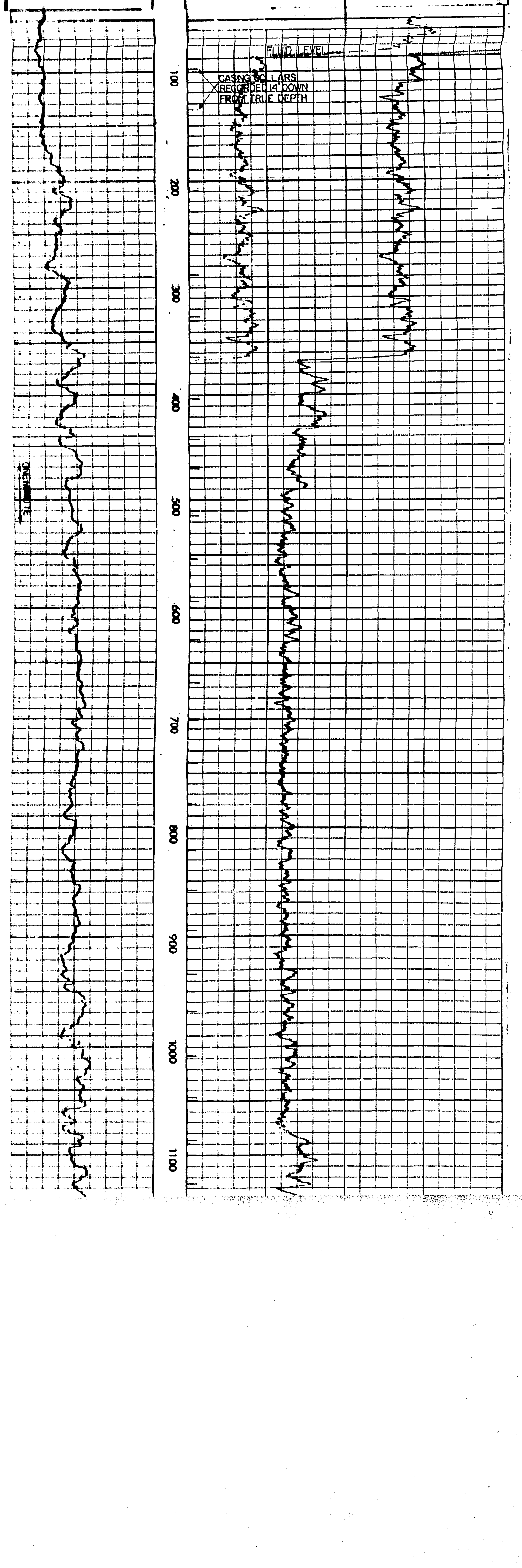
RUN NO	SIZE - IN	WT. - LB.	INTERVAL		
ONE	13 3/8"		0	TO	347'
[illegible]	[illegible]		0	TO	4651
[illegible]	[illegible]		0	TO	10,488
				TO	
				TO	

OPEN HOLE RECORD

BIT-SIZE-IN	INTERVAL		
17 1/4"	0'	TO	347'
11"	347'	TO	4655'
7 7/8"	4655	TO	10,490'
		TO	
		TO	

REMARKS NOT AVAILABLE [illegible] EQUIPMENT
[illegible] 2003 SOURCE CODE BLUE
RECORDED SPOTS ON LEFT INDICATE GAMMA RAY LOGGING SPEED
CASING COLLARS RECORDED 14' DOWN FROM TRUE DEPTH

GAMMA COUNTS PER SECOND	Depth & Casing Collars	NEUTRON - GAMMA COUNTS PER SECOND
10 — 100		100 — 350 — 600
100 — 190		350 — 600 — 850
Time Constant 2 Sec		Time Constant 2 Sec



101-B
FORM 941-N-REVISED-J. WALLACE 10
THIS FORM CONF

RADIOACTIVITY LOG
WELEX JET SERVICES, Inc.

LICENSED BY: WELL SURVEYS, INC.
FILE NO.

Location of Well

COMPANY SHELL OIL COMPANY
WELL STATE EDA # 2
FIELD EDISON
COUNTY LEA STATE NEW MEXICO
LOCATION 660' FSL & 947' FWL OF
SEC. 7 16-S 35-E N.M.P.M. SURVEY

COMPANY SHELL OIL COMPANY
WELL STATE EDA # 2
FIELD EDISON
COUNTY LEA STATE NEW MEXICO
LOCATION 660' FSL & 947' FWL OF
SEC. 7 16-S 35-E N.M.P.M. SURVEY

LOG MEAS. FROM 12' ABV. 8 5/8" CSG. FLANGE ELEV. 4059
DRLG. MEAS. FROM DERRICK FLOOR ELEV. 4559
PERM. DATUM 8 5/8" CASING FLANGE ELEV. 4047

TYPE OF LOG	GAMMA RAY	NEUTRON		
RUN NO.	1	1		
DATE	10-6-55	10-6-55		
JOB NO.	255-485 &	103-695		
TOTAL DEPTH (DRILLER)	10760	10760		
EFFECTIVE DEPTH (DRILLER)	10758	10758		
TOTAL DEPTH (R/A LOG)	10768	10768		
TOP OF LOGGED INTERVAL	50	50		
BOTTOM OF LOGGED INTERVAL	10757	10766		
TYPE OF FLUID IN HOLE	OIL & FORMATION WATER			
FLUID LEVEL	379	379		
MAXIMUM RECORDED TEMPERATURE				
NEUTRON SOURCE STRENGTH & TYPE		600N		
SOURCE SPACING—IN.		3.75		
LENGTH OF MEASURING DEVICE—IN.	30	9.1		
O.D. OF INSTRUMENT—IN.	3 5/8	3 5/8		
TIME CONSTANT—SECONDS	5.3	3.9		
LOGGING SPEED FT./MIN. 2"	40	40		
5"	20	20		
STATISTICAL VARIATION—IN.	0.25	0.3		
SENSITIVITY REFERENCE	274	275		
RECORDED BY	HONDEN	HONDEN		
WITNESSED BY	CABINESS	CABINESS		

CASING RECORD

SIZE—INS	WT.—LB.	FROM WELL RECORD			FROM R/A LOG		
13 3/4		SURF.	TO	332		TO	
8 5/8		SURF.	TO	4674		TO	
5 1/2		SURF.	TO	10759		TO	
			TO			TO	

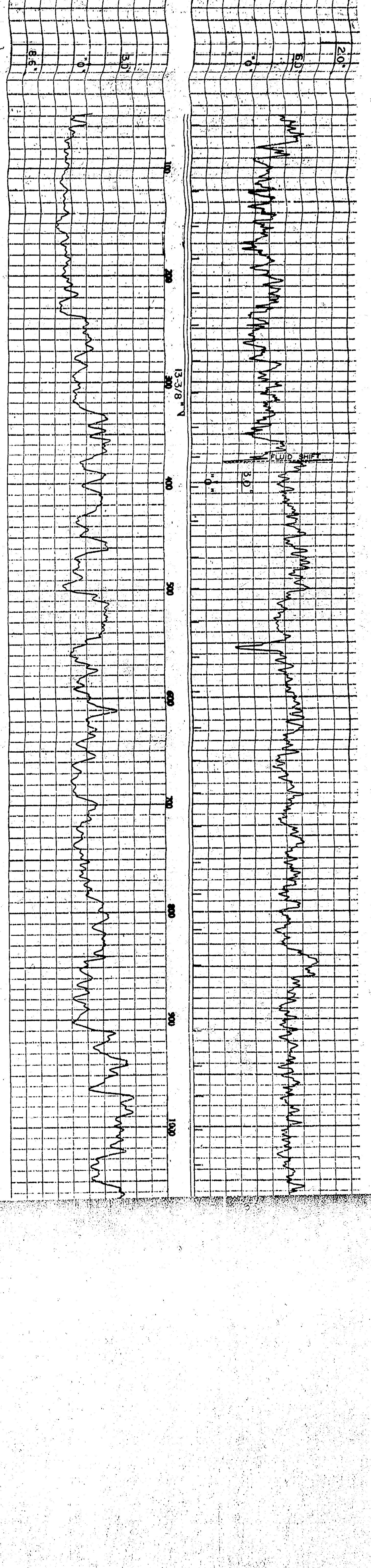
BORE HOLE

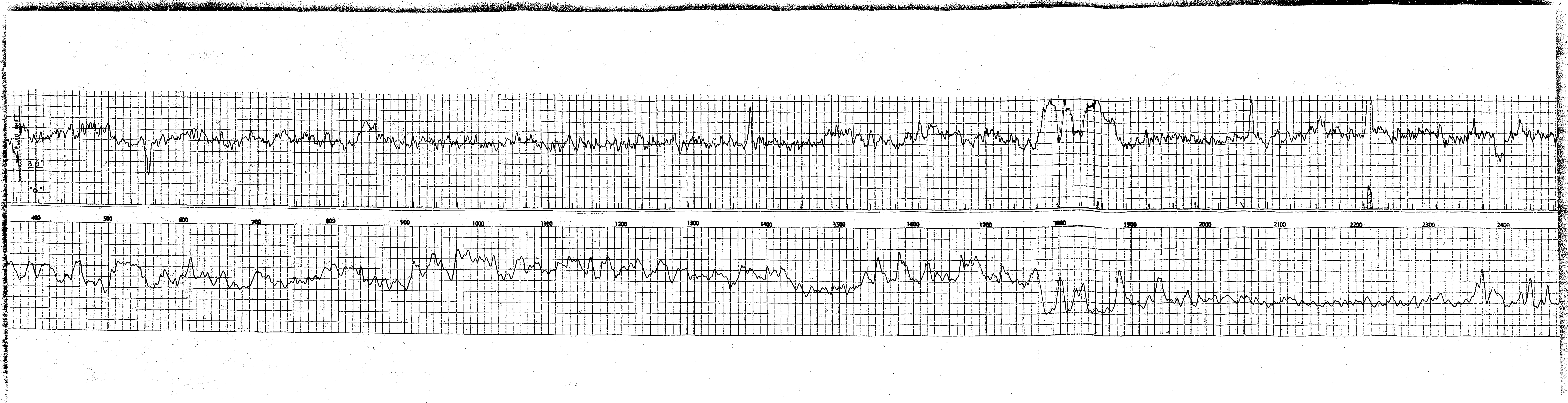
BIT SIZE INS.	FROM WELL RECORD			FROM R/A LOG		
		TO			TO	
		TO			TO	
		TO			TO	
		TO			TO	

REMARKS OR OTHER DATA

C209 NEUTRON CHAMBER USED
SENSITIVITY SHOWN IS BOTTLE SENSITIVITY

GAMMA RAY	CASING & COLLAR LOG DEPTH	NEUTRON
RADIATION INTENSITY INCREASES		RADIATION INTENSITY INCREASES

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500
600
700
800
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1400
1500
1600
1700
1800
1900
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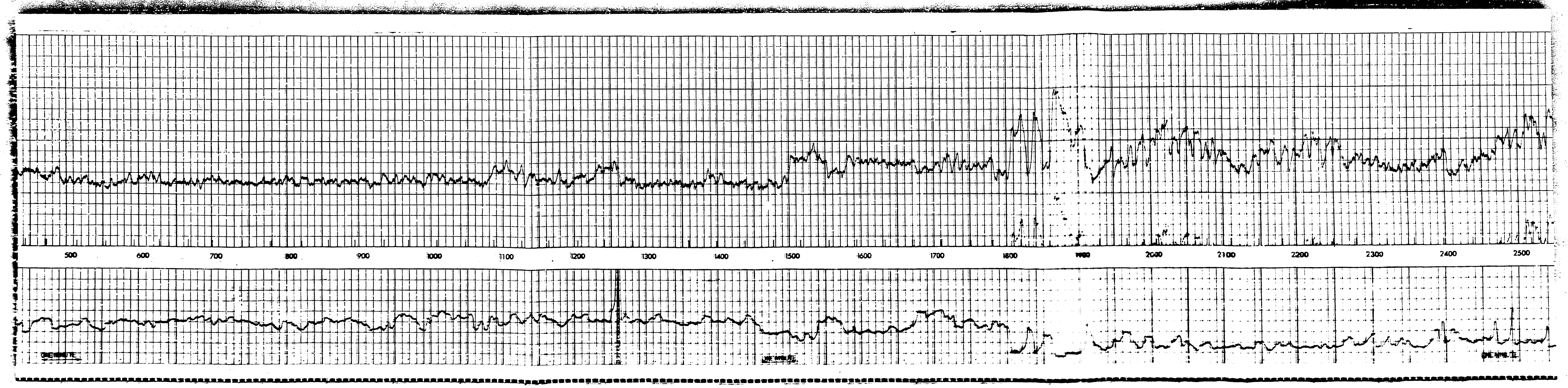
2200
2300
2400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600
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1000
1100
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1400
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1600
1700
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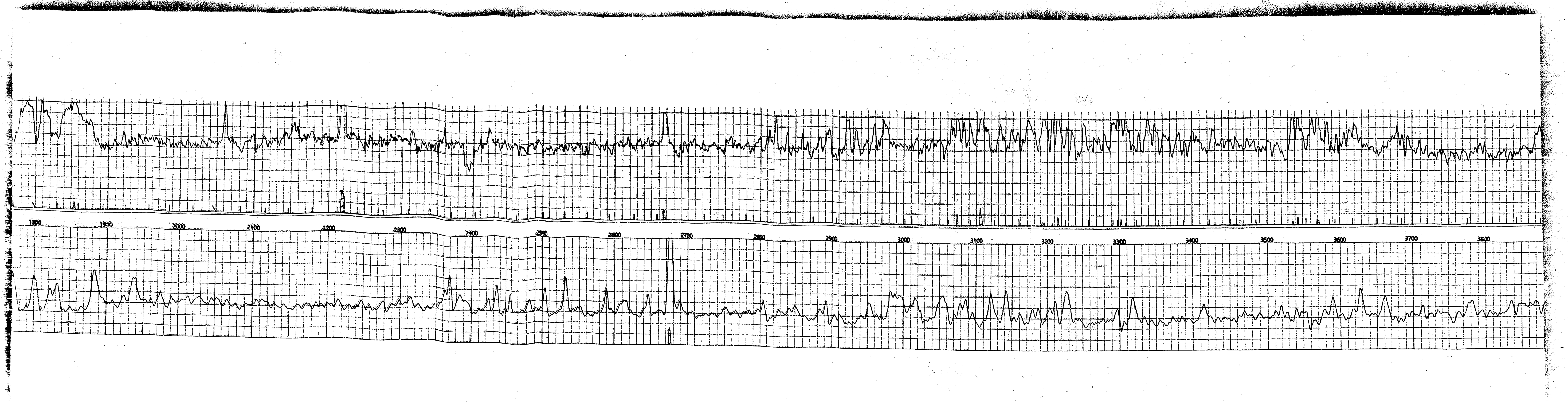
2300
2400
2500
ONE MINUTE
ONE MINUTE
ONE MINUTE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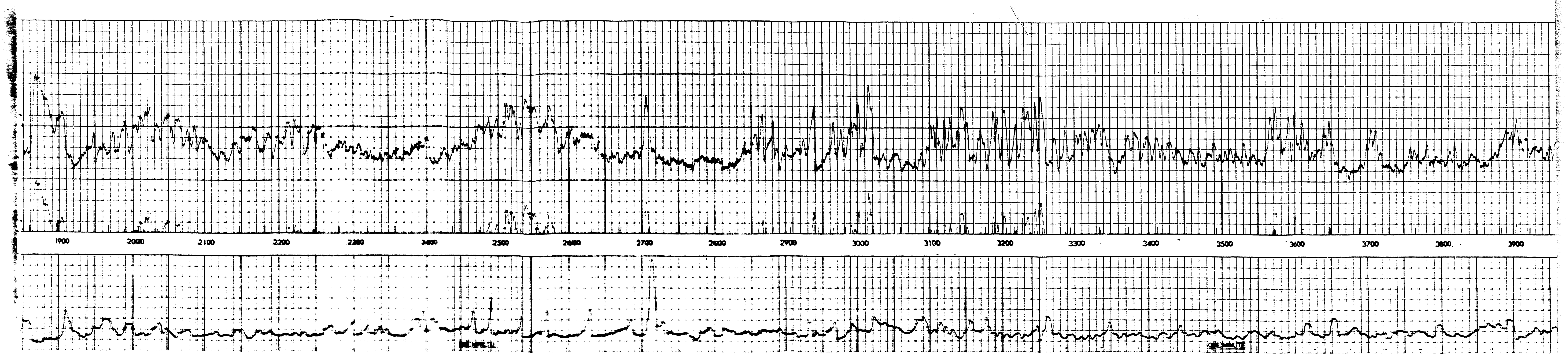
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3300
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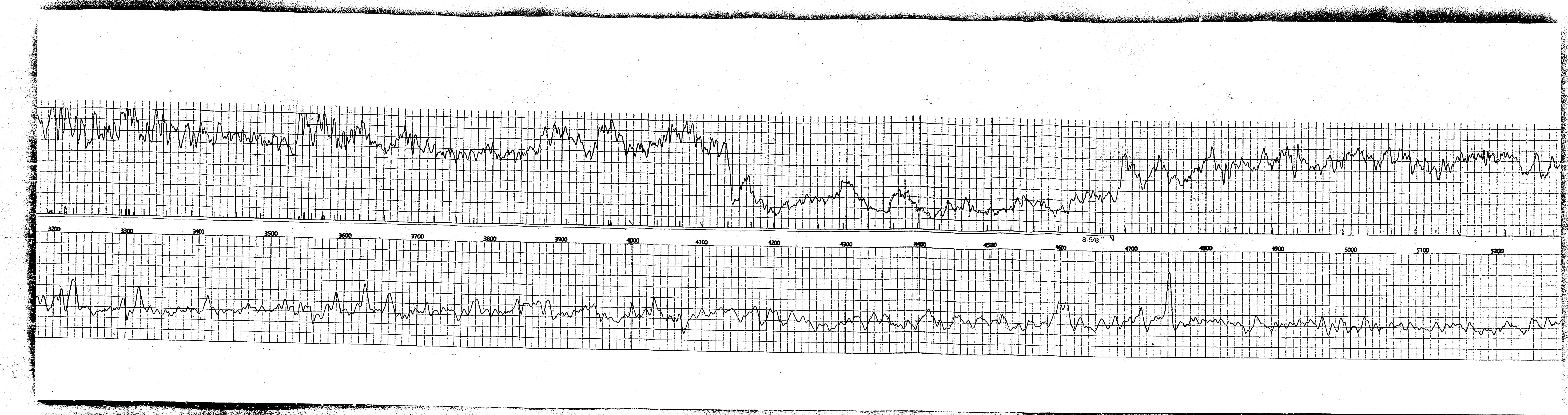
3600
3700
3800
3900
ONE MINUTE
ONE MINUTE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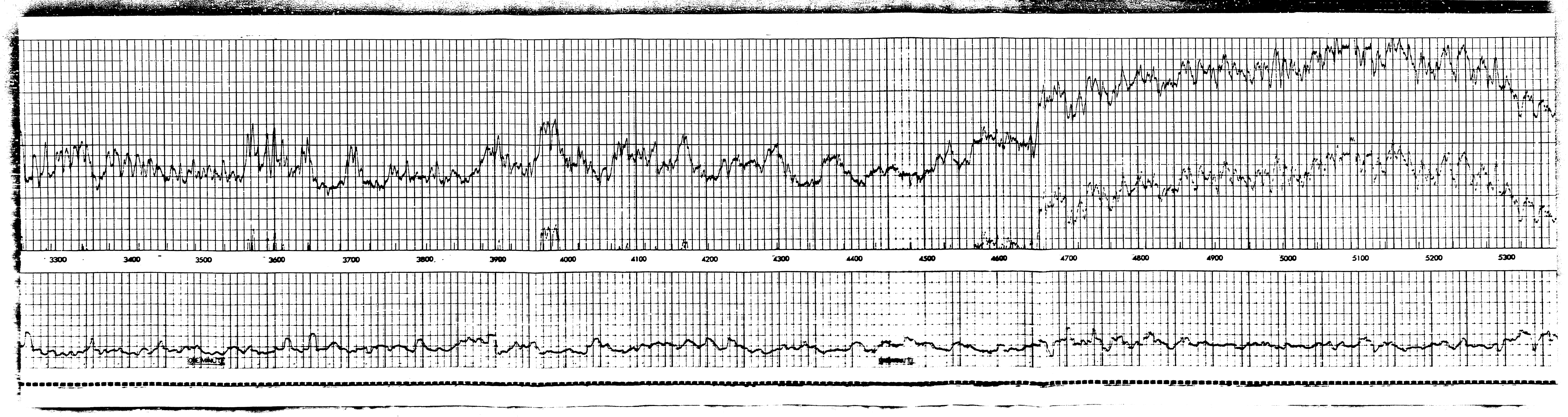
4900
5000
5100
5200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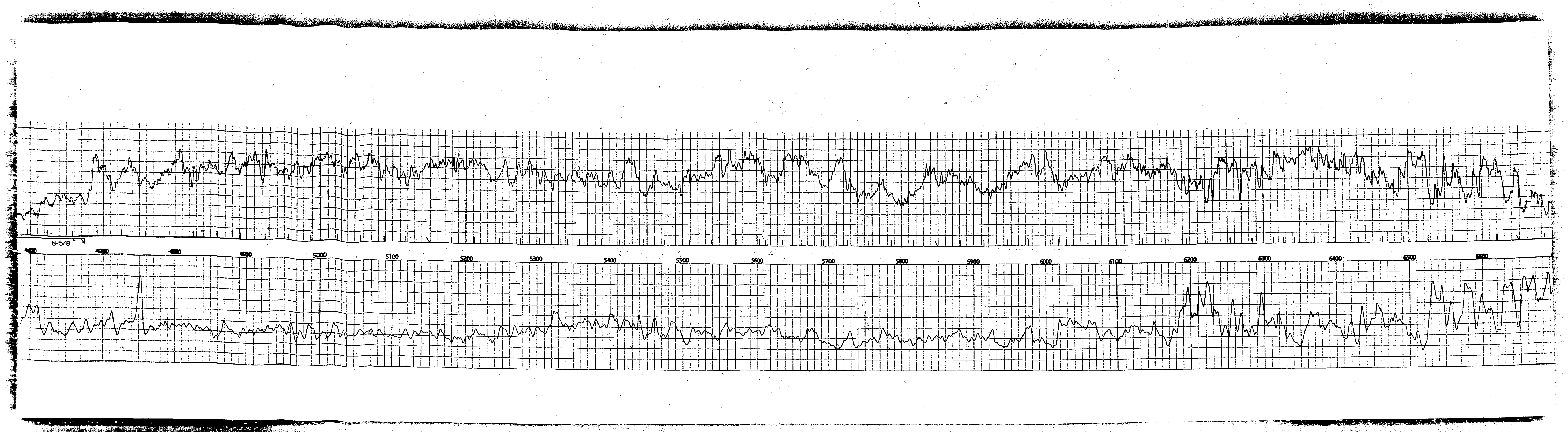
5000
5100
5200
5300


8-5/8" V
4600
4700
4800
4900
5000
5100
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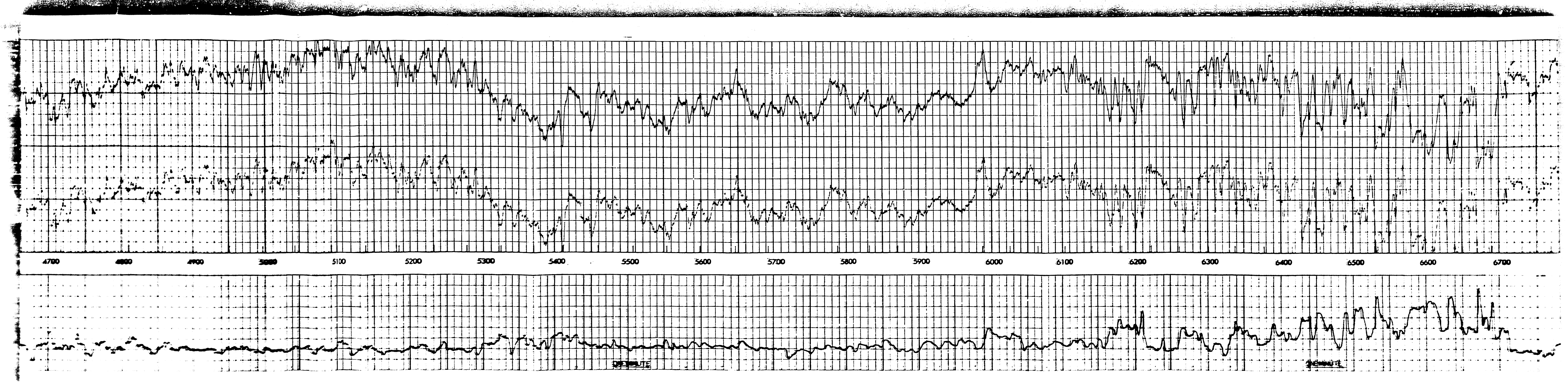
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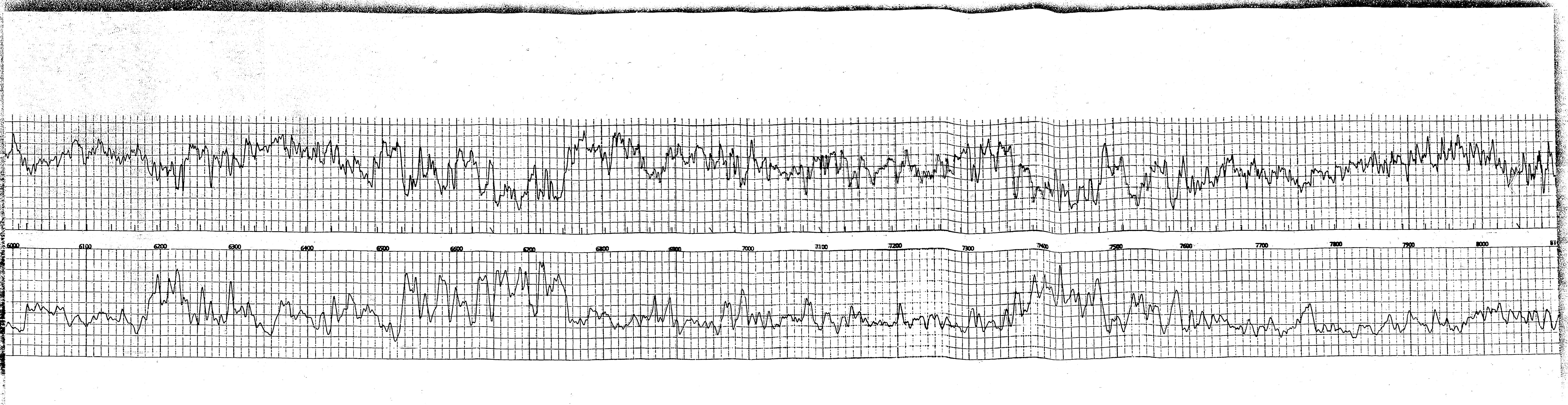
6700
ONE MINUTE
ONE MINUTE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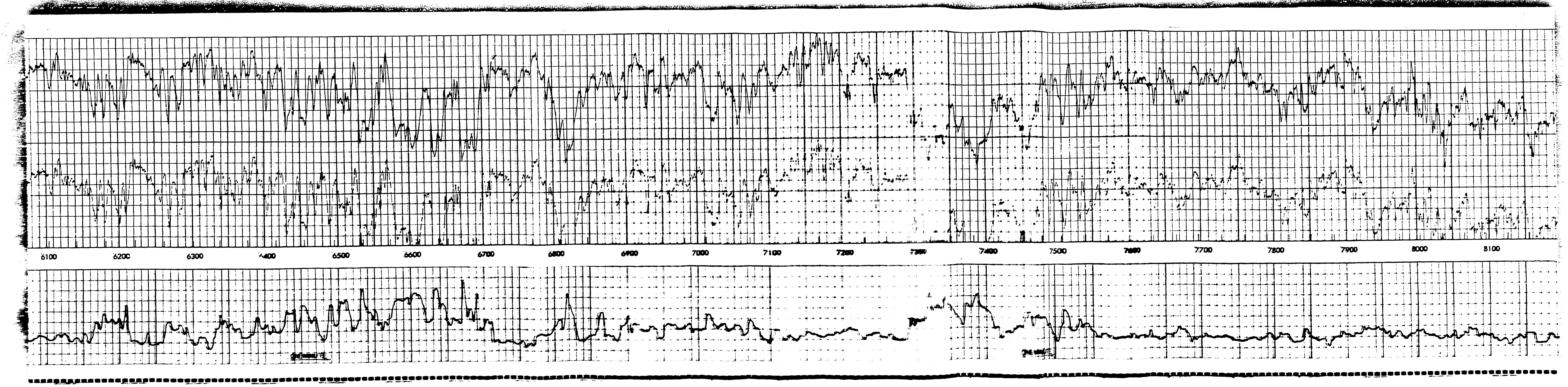
7900
8000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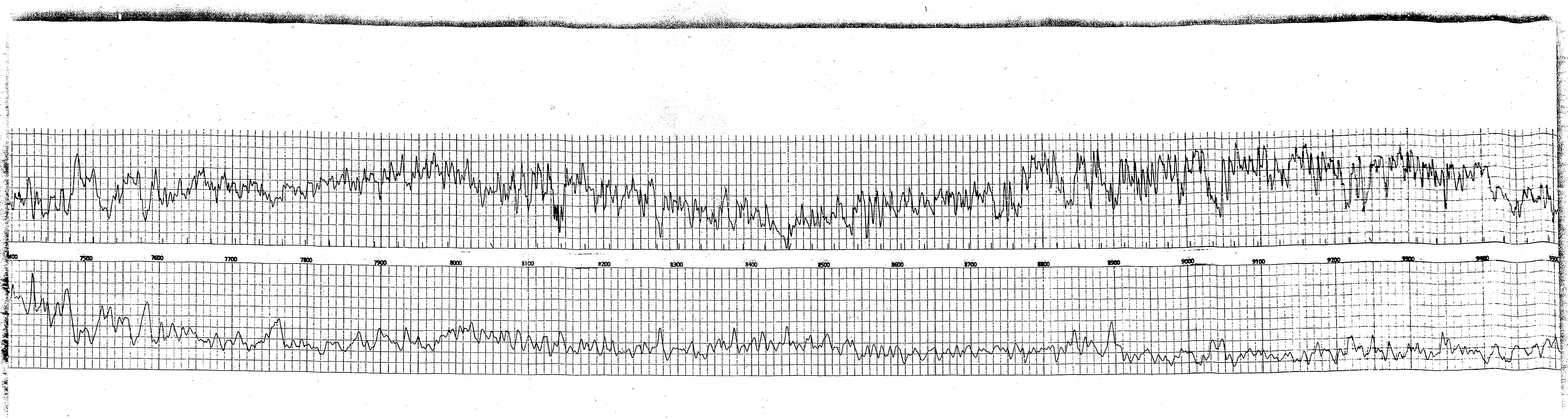
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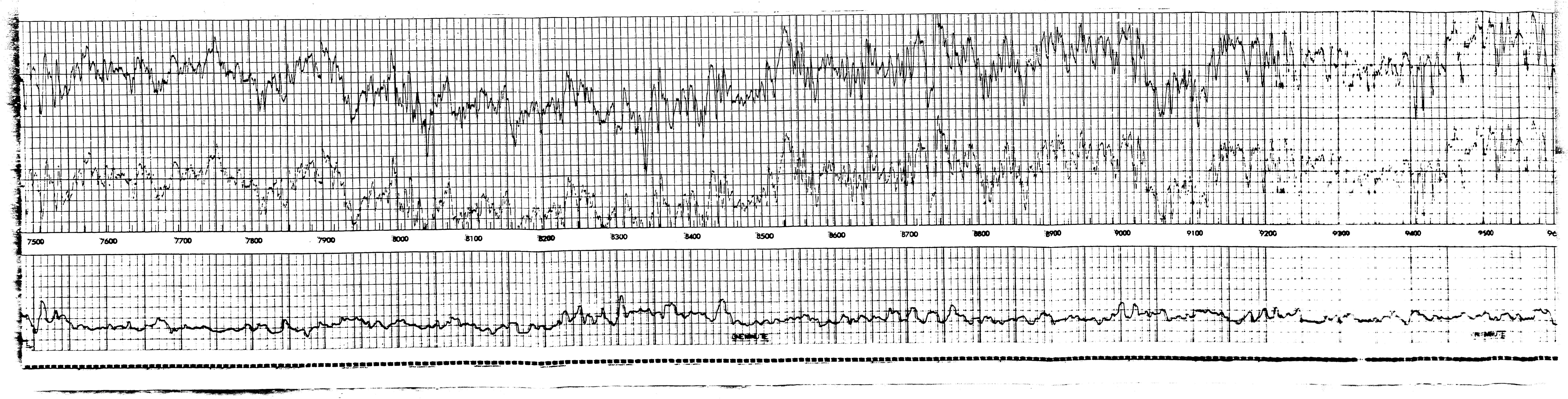
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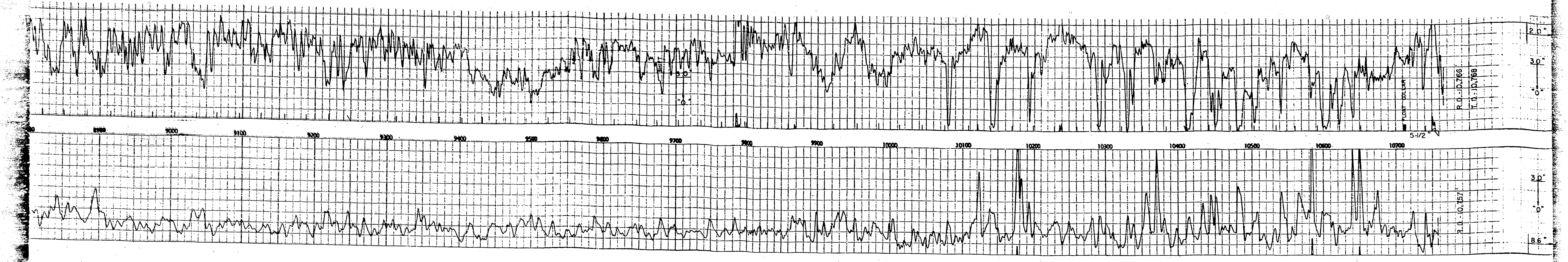
ONE MINUTE
ONE MINUTE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10000
10100
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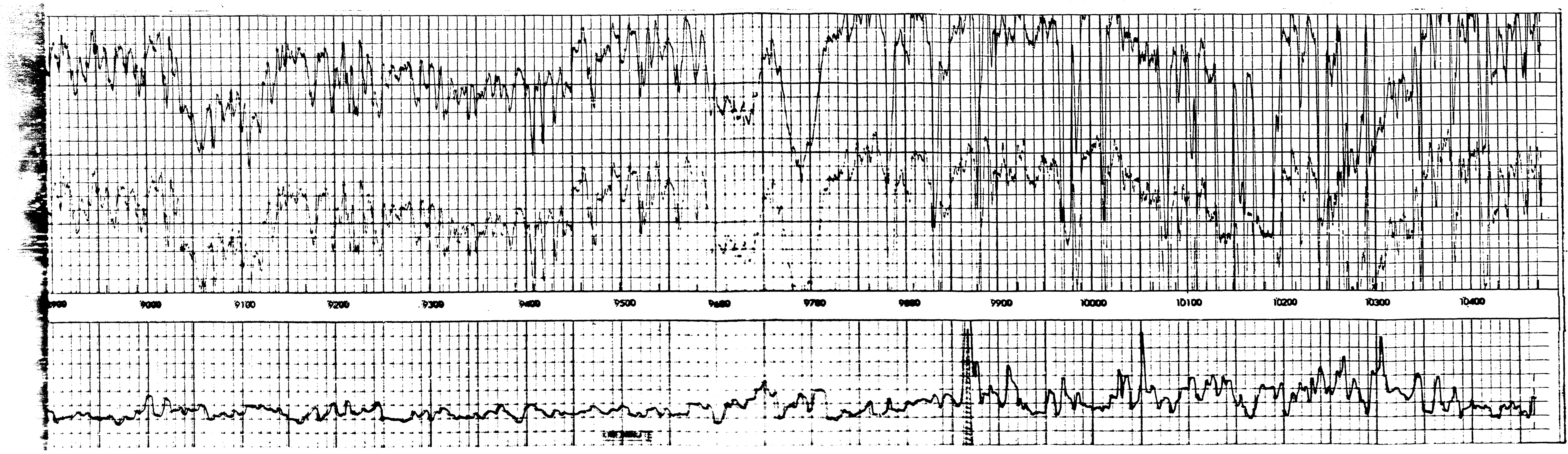
10400
10500
10600
10700
FLOAT COLLAR
5-1/2"
R.D.-10,766'
T.D.-10,768'
2.0"
3.0"
"0"
R.D.-10,757'
3.0"
"0"
8.6"


8900
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10000
10100
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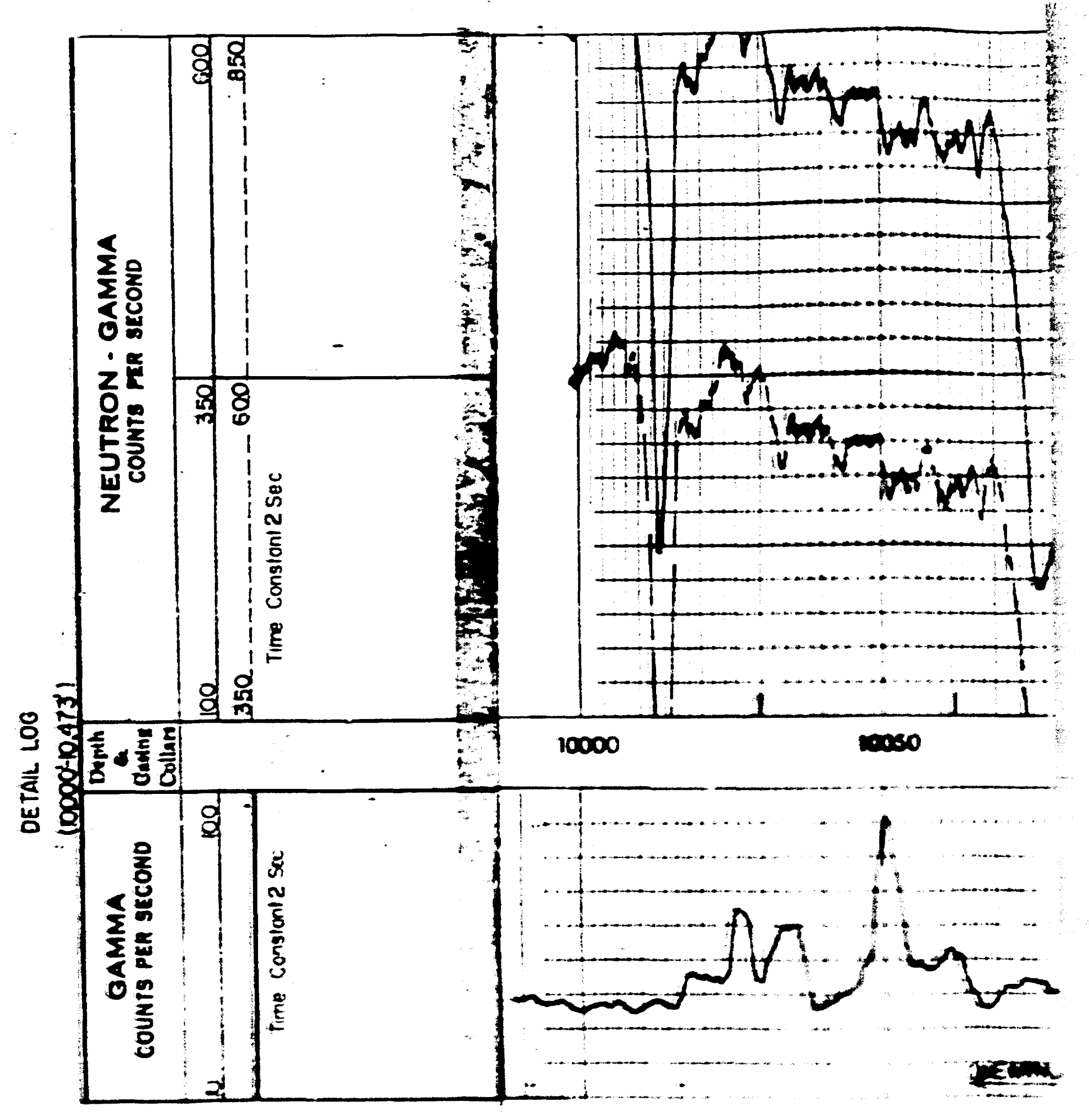
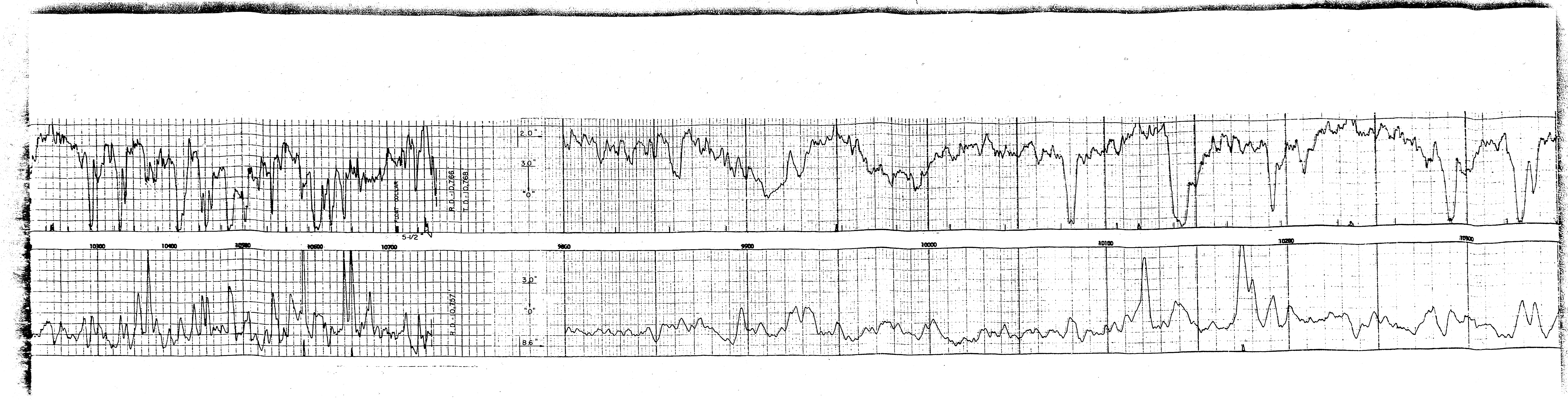
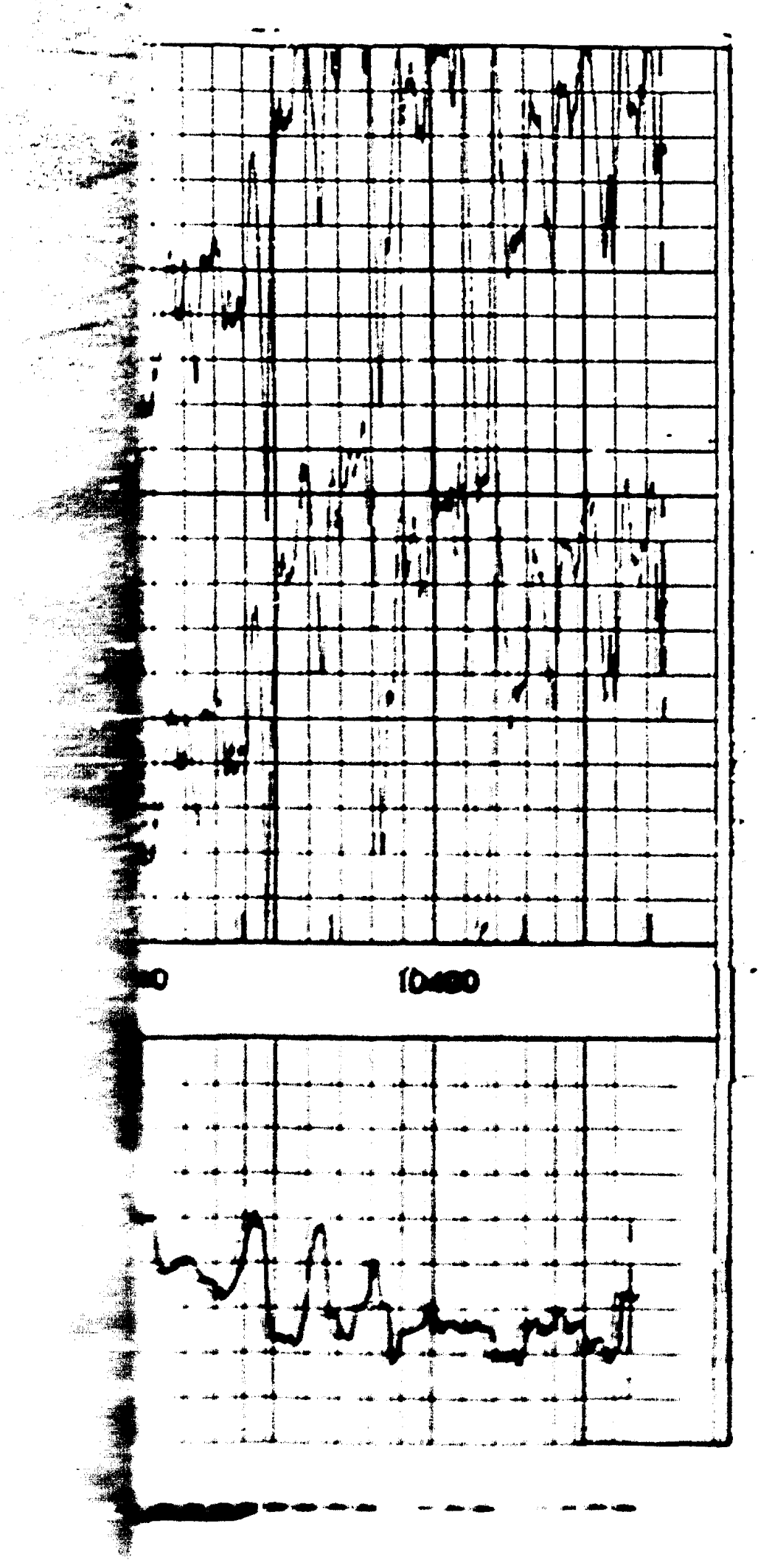
10300
10400


DETAIL LOG
(10000-10,473')
NEUTRON - GAMMA
COUNTS PER SECOND
100
350
600
350
600
850
Time Constant 2 Sec
Depth & Gamma Collars
GAMMA
COUNTS PER SECOND
0
100
Time Constant 2 Sec
10000
10050


2.0"
3.0"
"0"
FLOAT COLLAR
5-1/2"
R.D.-10,766
T.D.-10,768
10300
10400
10500
10600
10700
9800
9900
10000
10100
10200
10300
3.0"
"0"
8.6"
R.D.-10,757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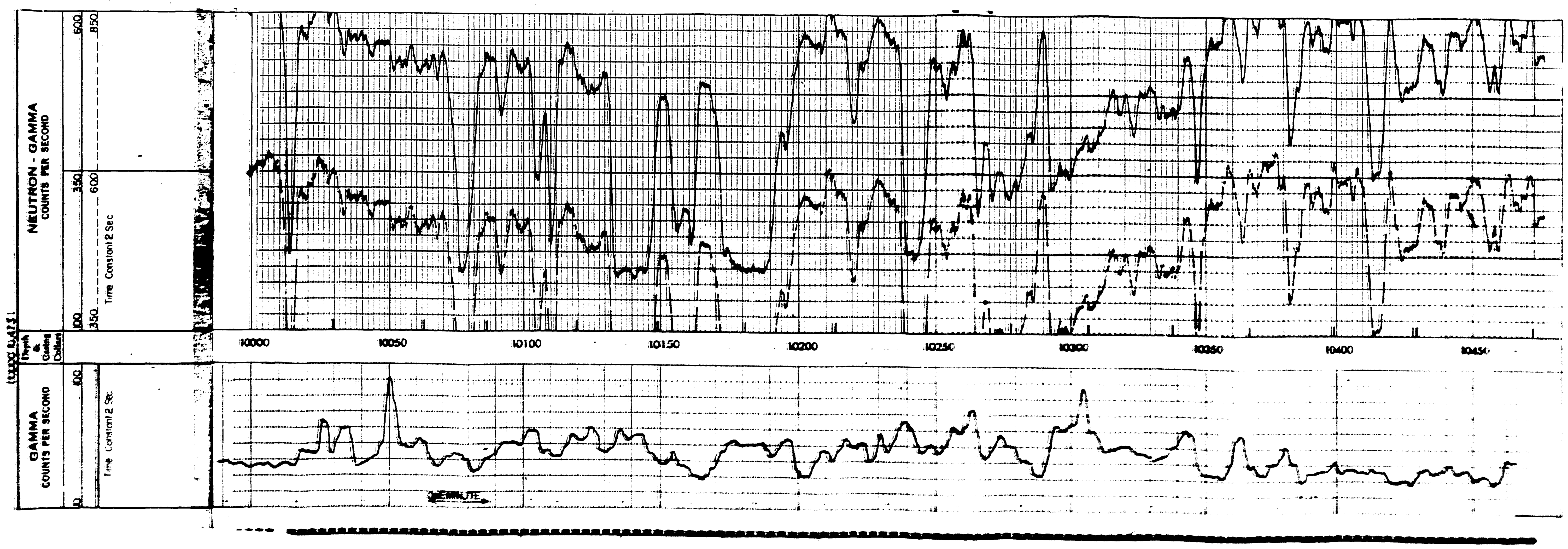
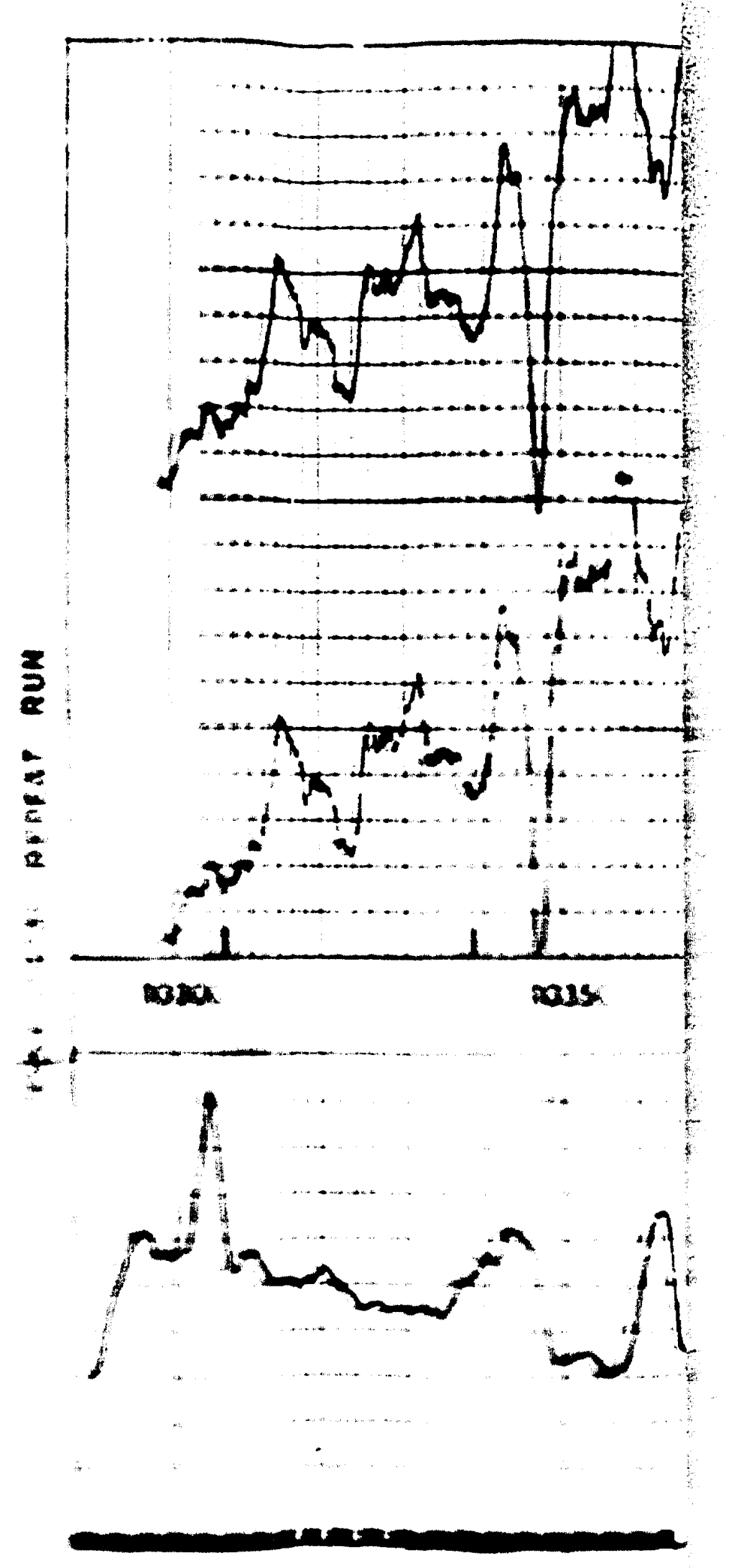
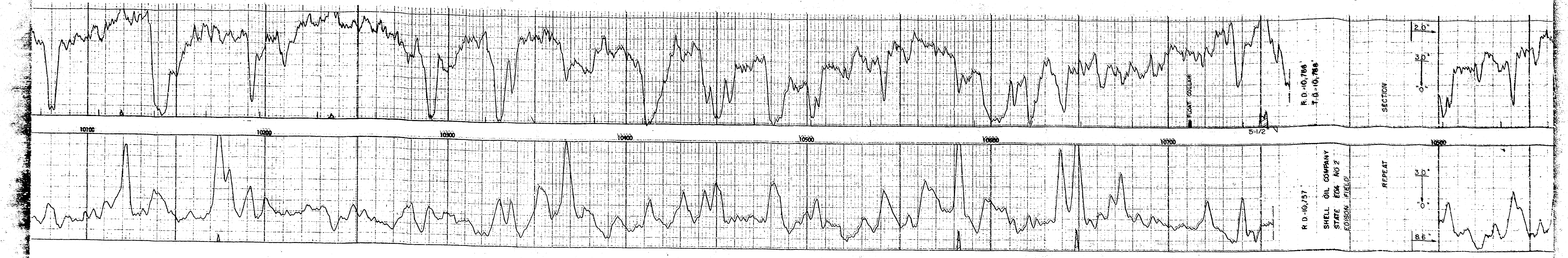
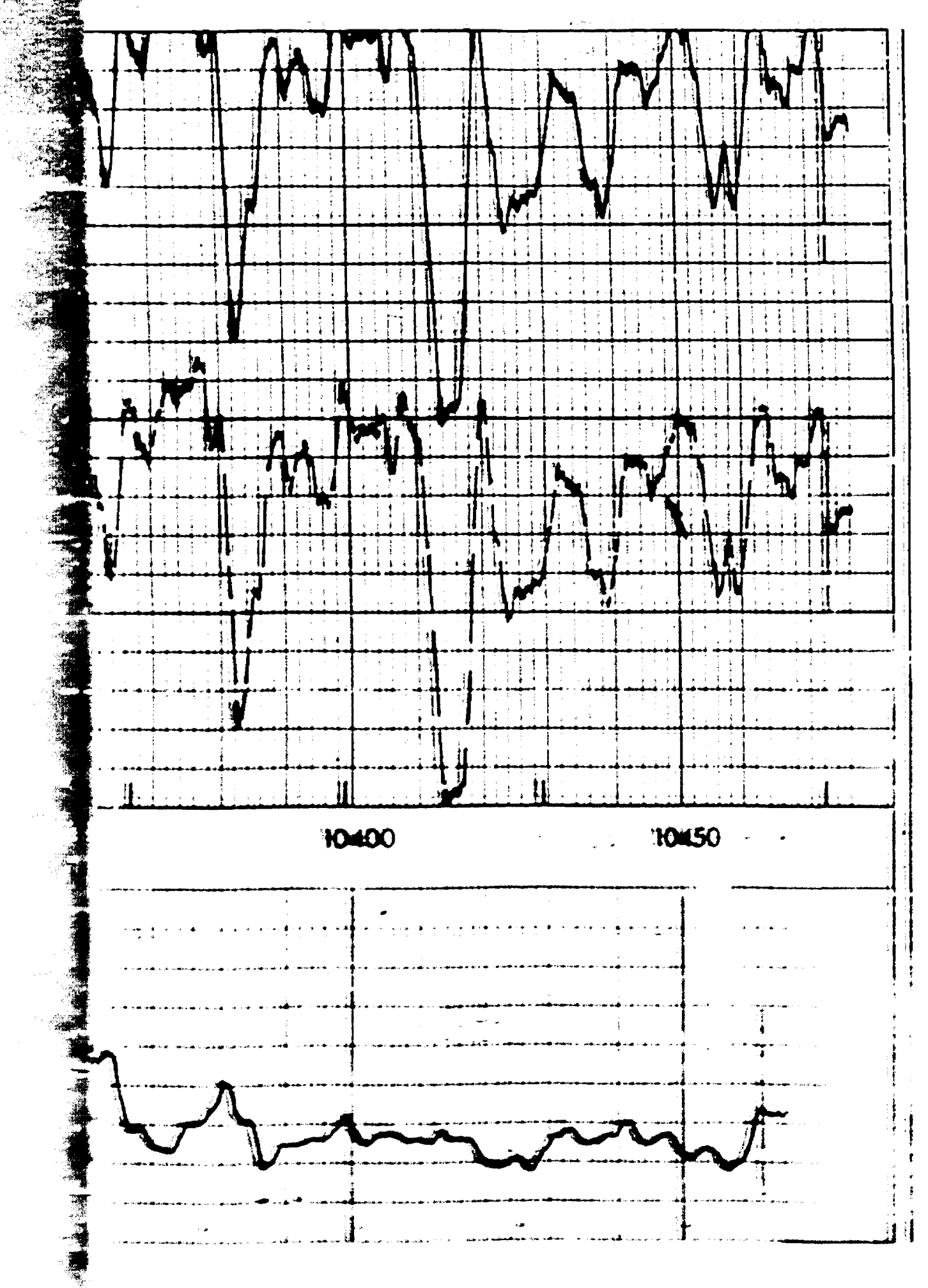
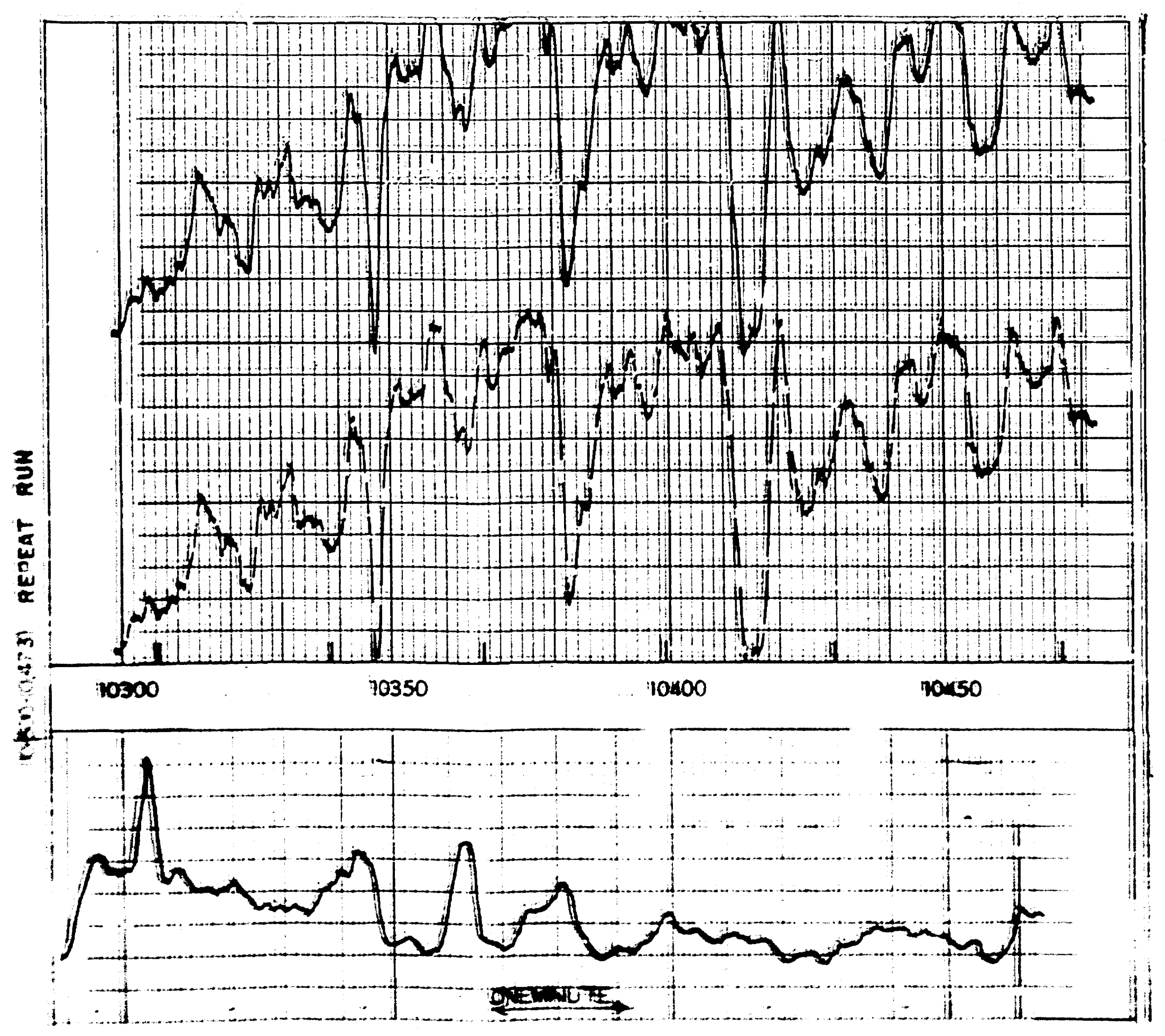

NEUTRON - GAMMA
COUNTS PER SECOND
600
850
350
600
100
350
Time Constant 2 Sec
DETAIL LOG
Depth & Casing Collars
10000
10050
10100
10150
10200
10250
10300
10350
10400
10450
GAMMA
COUNTS PER SECOND
100
0
Time Constant 2 Sec

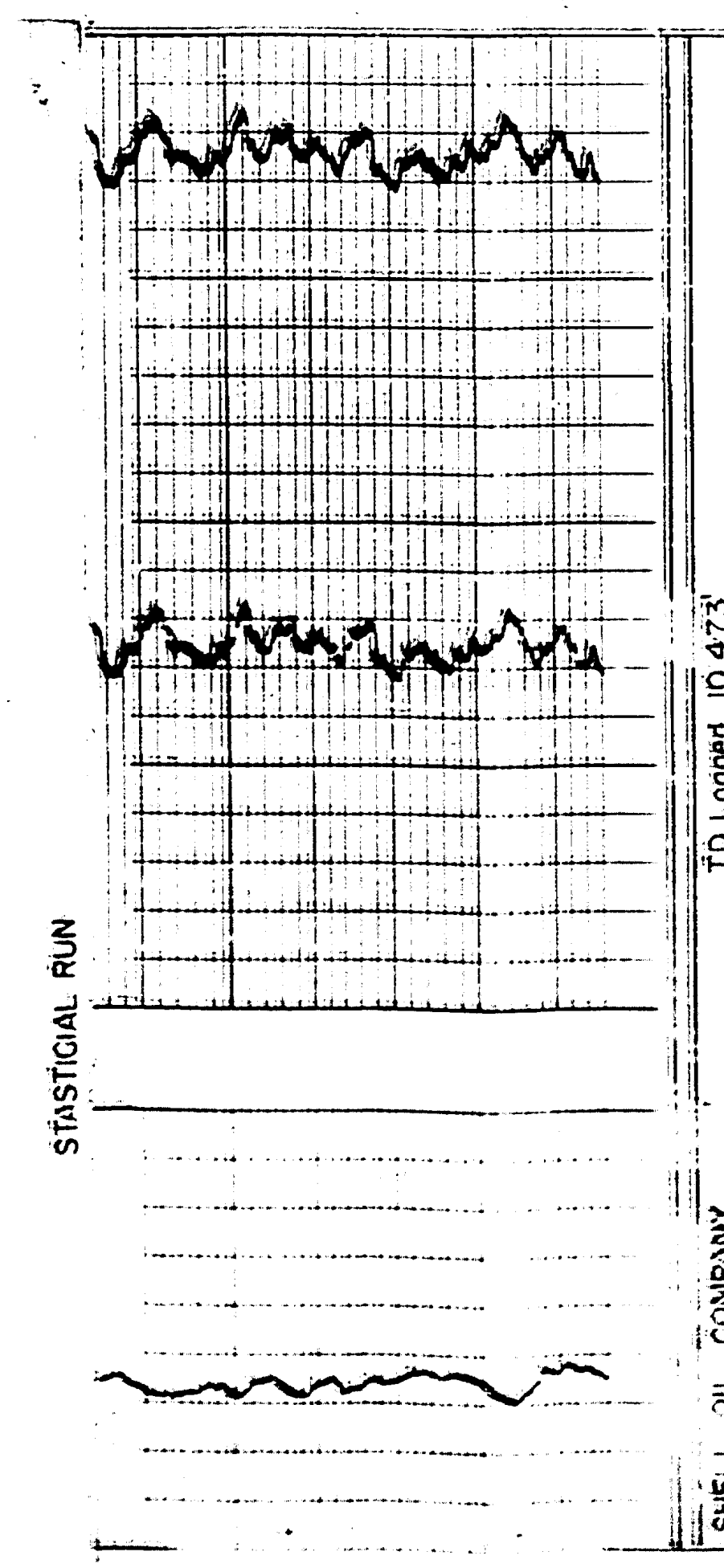

REPEAT RUN



SHELL OIL COMPANY
STATE EDA NO 2
EDISON FIELD

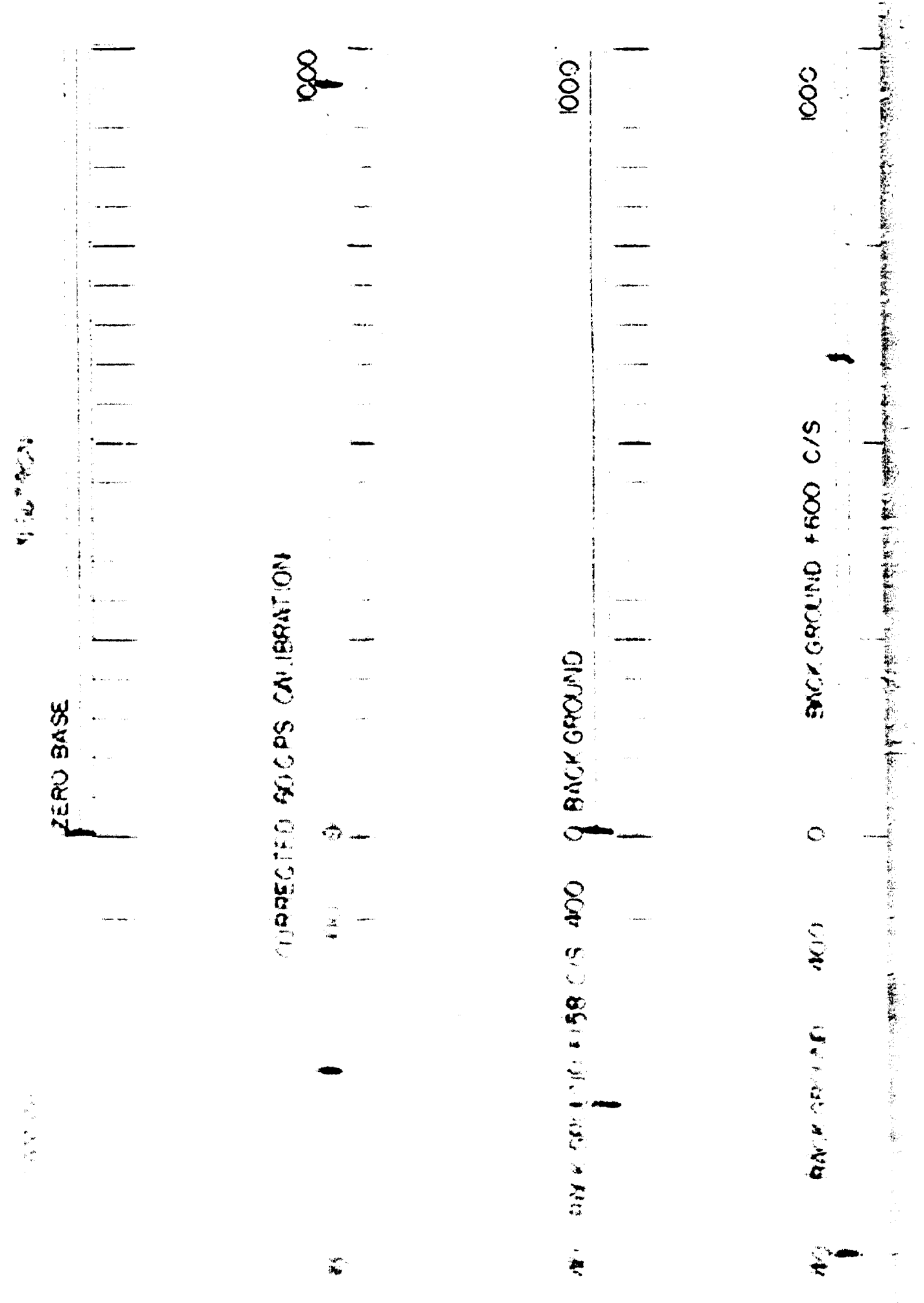


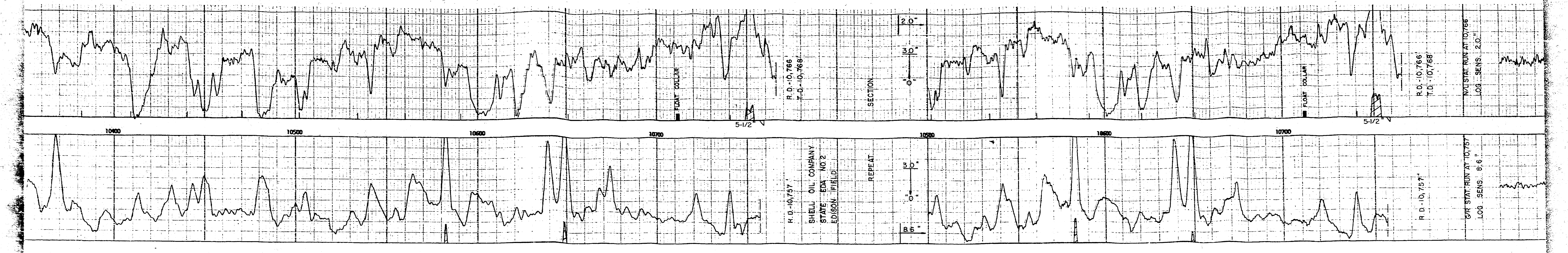


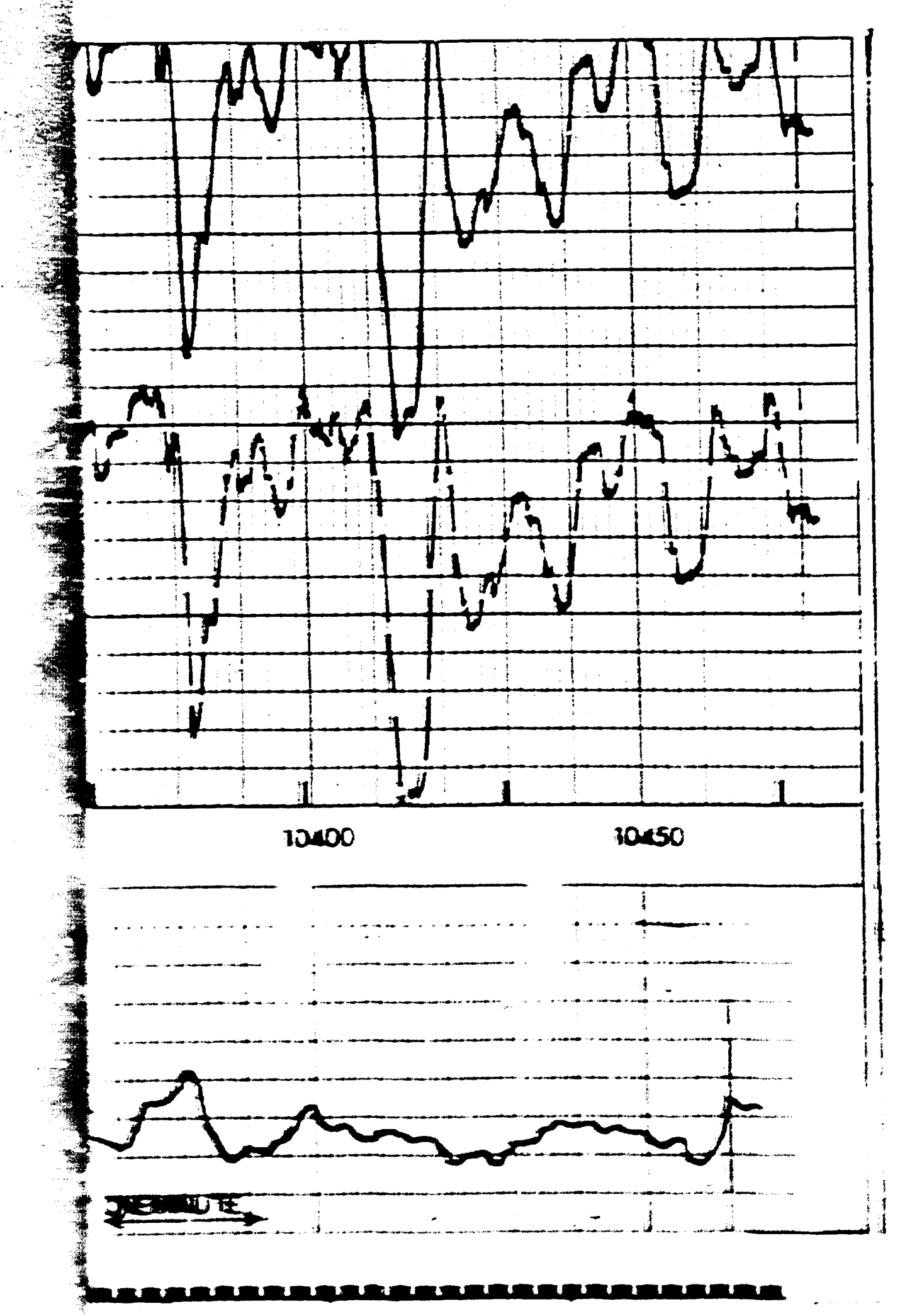


TD Logged 10,473'
TD Driller 10,464'
TD Reached 10,473'

SHELL OIL COMPANY
STATE E T A # 1
Townsend Field
Lea County, New Mexico




10400
10500
10600
10700
10500
10600
10700
FLOAT COLLAR
FLOAT COLLAR
5-1/2"
5-1/2"
R.D.-10,766'
T.D.-10,768'
SECTION
2.0"
3.0"
"0"
R.D.-10,757'
SHELL OIL COMPANY
STATE EDA NO. 2
EDISON FIELD
REPEAT
3.0"
"0"
8.6"
R.D.-10,766'
T.D.-10,768'
R.D.-10,757'
N/L STAT. RUN AT 10,766
LOG SENS. 2.0"
G/R STAT. RUN AT 10,757
LOG SENS. 8.6"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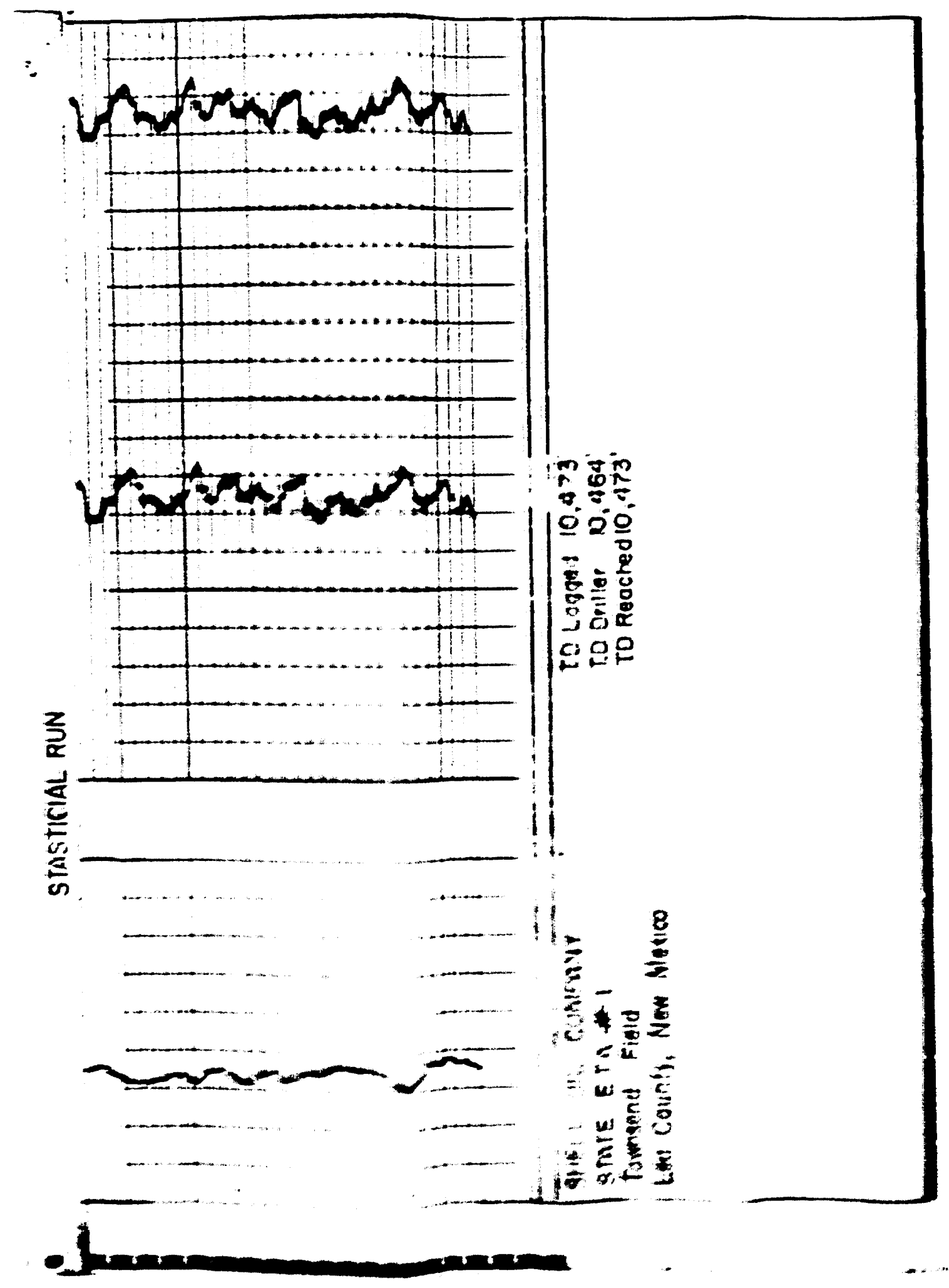
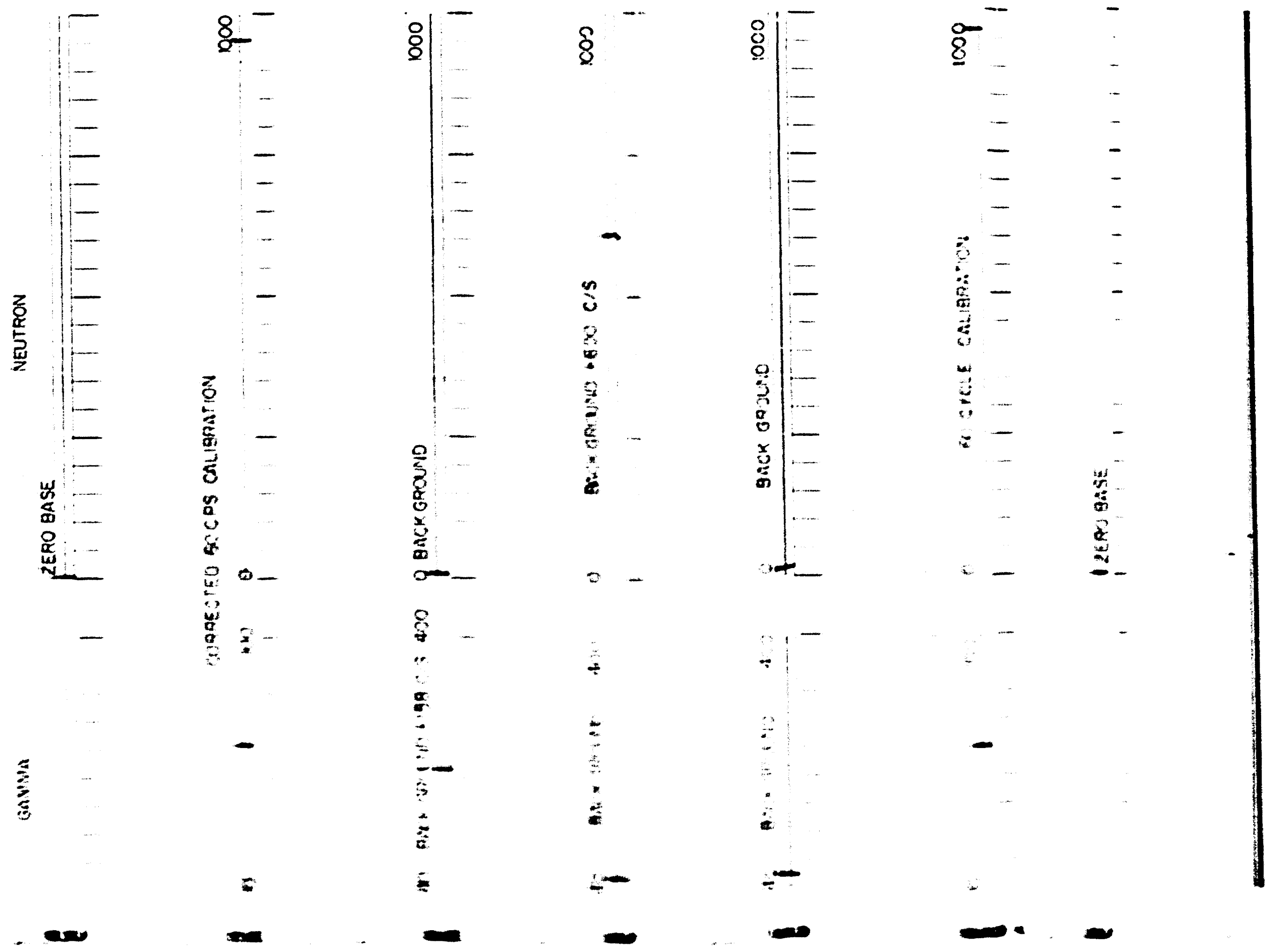
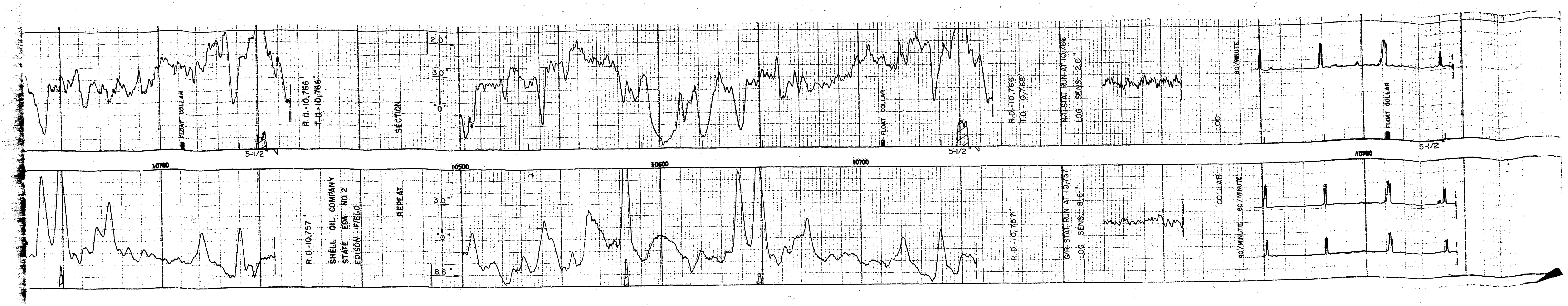
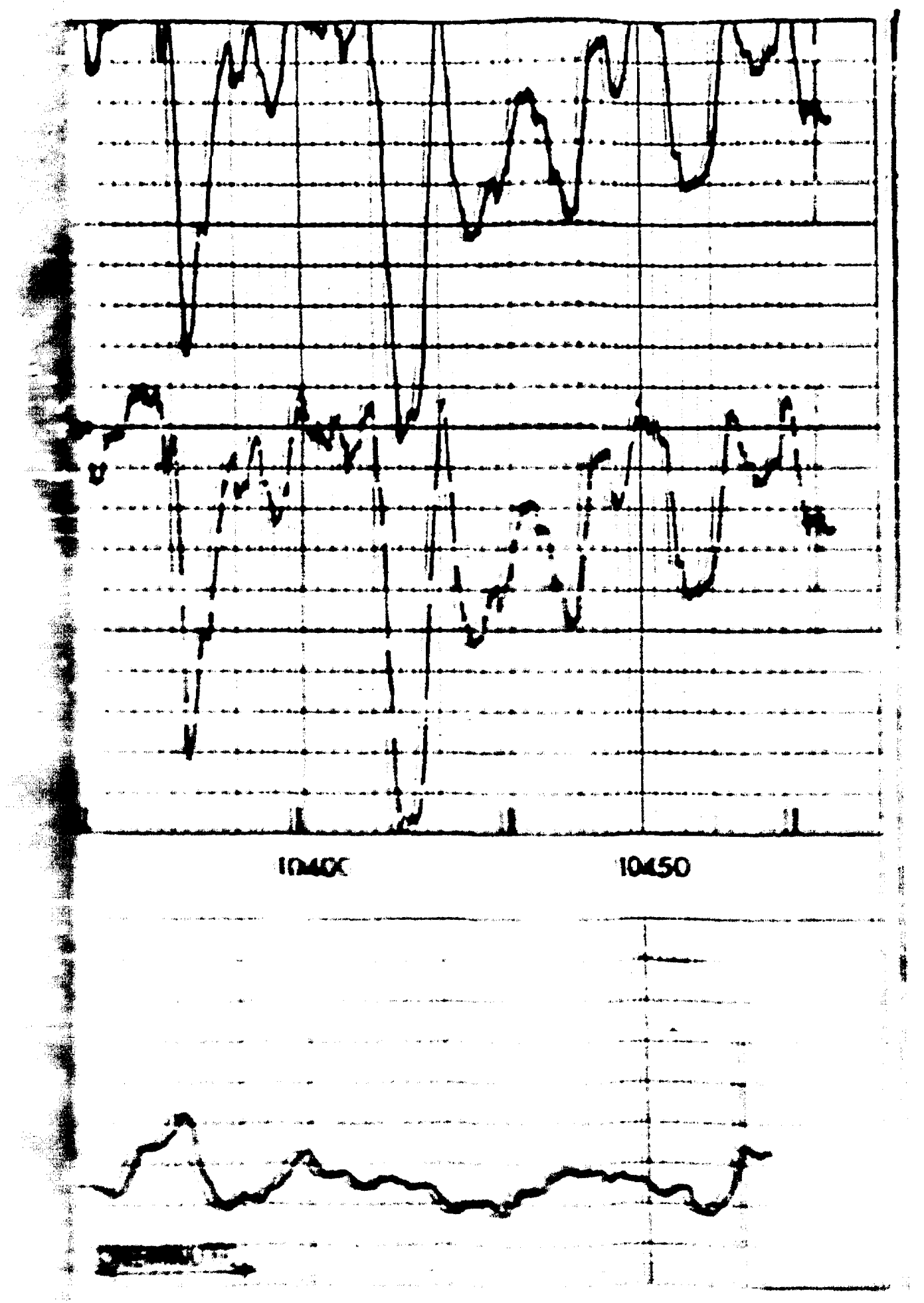

STATISTICAL RUN
TD Logged 10,473
TD Driller 10,464
TD Reached 10,473'
COMPANY
STATE E.T.A. #1
Townsend Field
Lea County, New Mexico


NEUTRON
GAMMA
ZERO BASE
CORRECTED CPS CALIBRATION
1000
0
BACK GROUND
1000
0
BACK GROUND +600 C/S
1000
0
BACK GROUND
1000
0
CALIBRATION
1000
ZERO BASE


10760
5-1/2"
FLOAT COLLAR
R.D.-10,766'
T.D.-10,768'
SECTION
2.0"
3.0"
"0"
10500
10600
10700
FLOAT COLLAR
5-1/2"
R.D.-10,766'
T.D.-10,768'
N/L STAT. RUN AT 10,766
LOG SENS. 2.0"
LOG
80'/MINUTE
10760
FLOAT COLLAR
5-1/2"
R.D.-10,757'
SHELL OIL COMPANY
STATE EDA NO. 2
EDISON FIELD
REPEAT
3.0"
"0"
8.6"
R.D.-10,757'
G/R STAT. RUN AT 10,757
LOG SENS. 8.6"
COLLAR
60'/MINUTE
40'/MINUTE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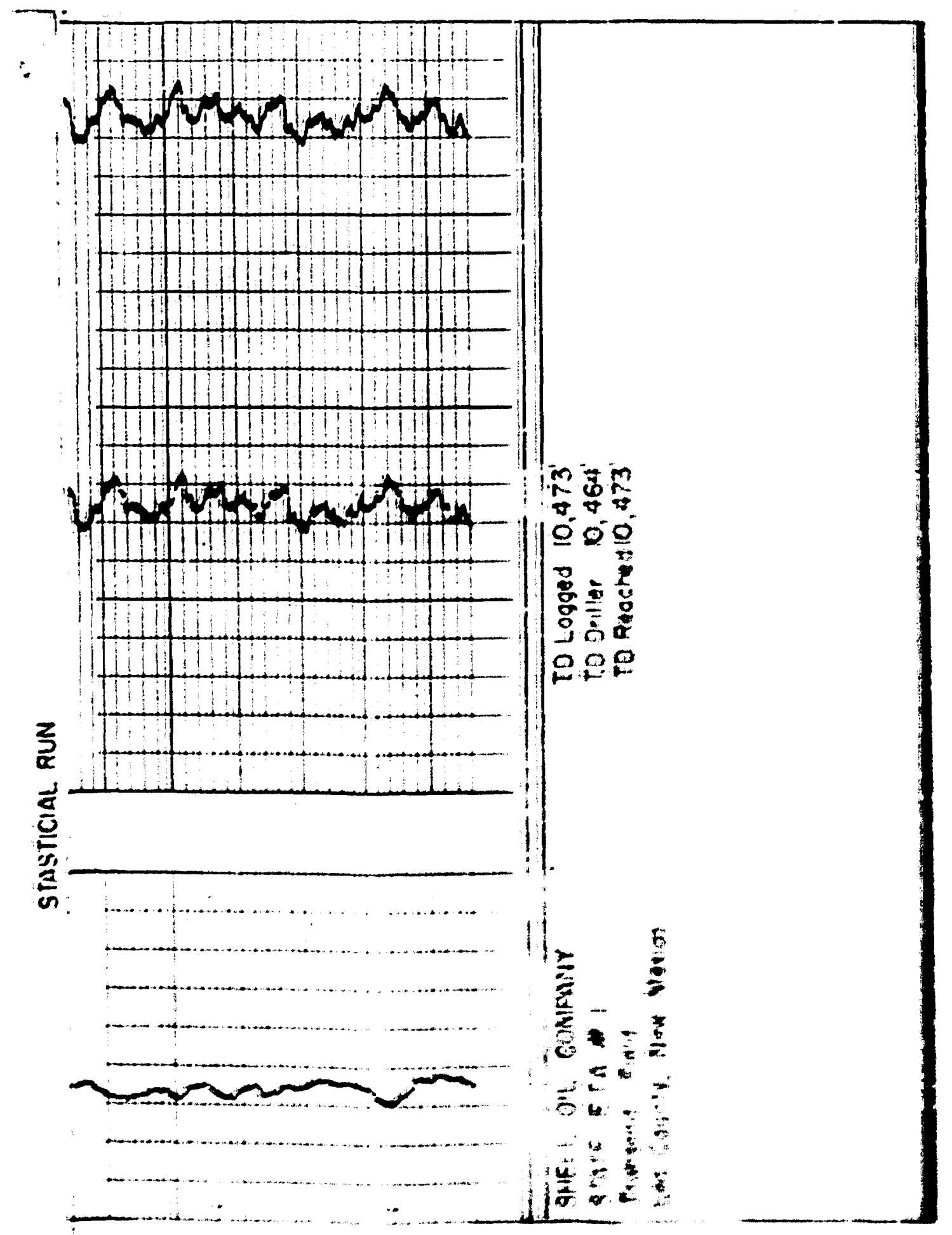
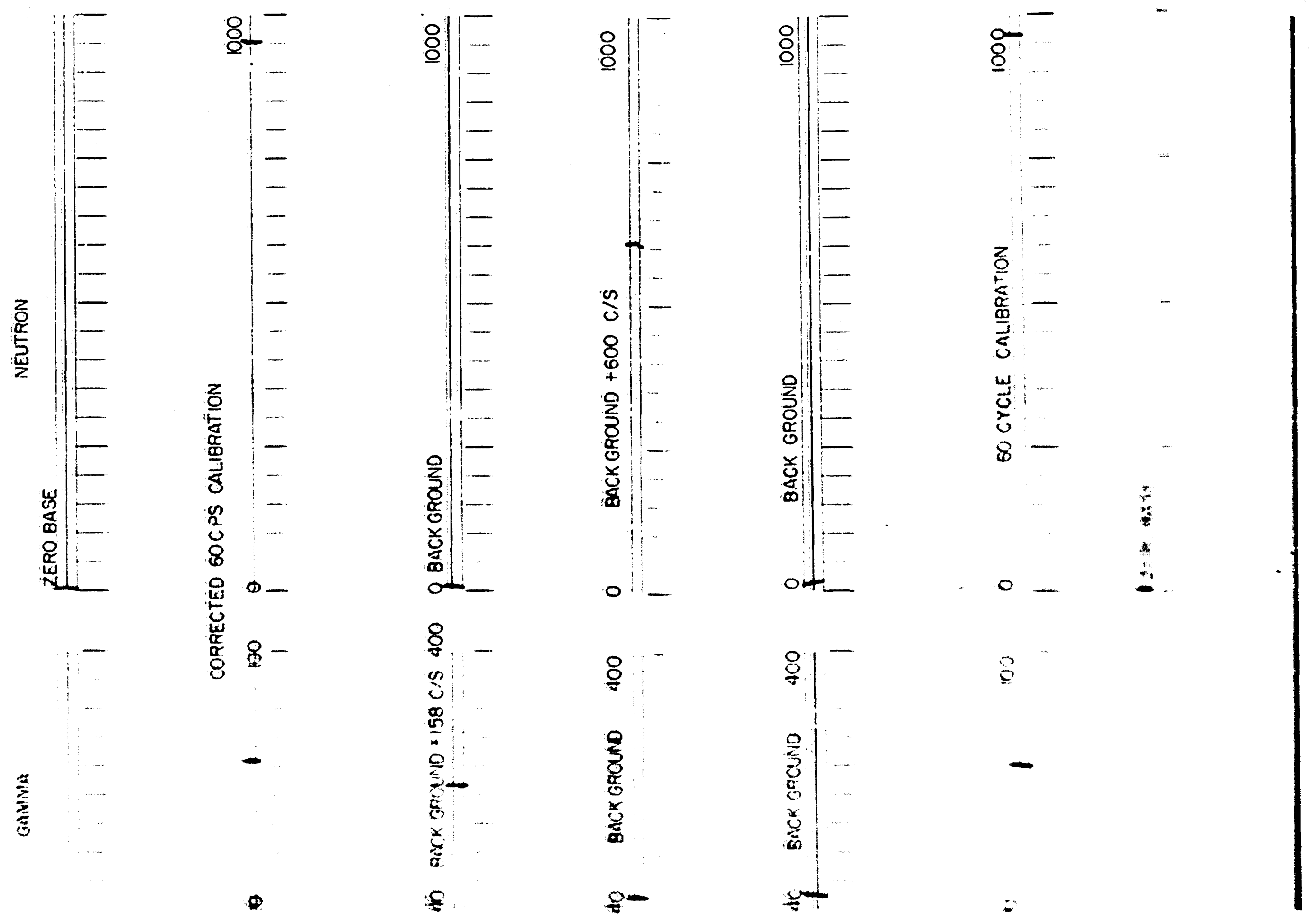
10450


STATISTICAL RUN
TD Logged 10,473'
TD Driller 10,464'
TD Reached 10,473
SHELL OIL COMPANY
STATE ETA #1
Pleasant Field
Lea County, New Mexico


NEUTRON
ZERO BASE
GAMMA
CORRECTED 60 C.P.S. CALIBRATION
1000
0
100
0
BACK GROUND
1000
0
BACK GROUND +158 C/S 400
40
BACK GROUND +600 C/S
1000
0
BACK GROUND
400
40
BACK GROUND
1000
0
BACK GROUND
400
40
60 CYCLE CALIBRATION
1000
0
100
0

Case 1978

SCHLUMBERGER WELL SURVEYING CORPORATION
HOUSTON, TEXAS

Electrical Log

COUNTY Lea
FIELD or LOCATION Townsend-Wolfcamp
WELL State ETA # 1
COMPANY Shell Oil Co.

COMPANY SHELL OIL CO.
WELL STATE ETA # 1
FIELD TOWNSEND-WOLFCAMP
LOCATION SEC. 8-16S-35E
COUNTY LEA
STATE NEW MEXICO

Location of Well
990' f N&E/L
Sec. 8-16S-35E

~~RETURN TO MIDLAND AREA PRODUCTION LOG FILES~~

~~RETURN TO CENTRAL FILES AND LIBRARY ... AREA PRODUCTION LOG FILES ROOM 1107~~

ES
(ML)

Elevation: D.F.: 4041
K.B.:
or G.L.:

FILING No.

RUN No.	1				
Date	7-31-54				
First Reading	10448				
Last Reading	4653				
Feet Measured	5795				
Csg. Schlum.	4653				
Csg. Driller	4653				
Depth Reached	10551				
Bottom Driller	10492				
Depth Datum	KB 14' Abv. GL				
Mud Nat.	Chemicals				
" Density	9.2				
" Viscosity	55				
" Resist.	1.1 @ 76 °F	@ °F	@ °F	@ °F	@ °F
" Res. BHT	.53 @ 160 °F	@ °F	@ °F	@ °F	@ °F
" pH	11 @ °F	@ °F	@ °F	@ °F	@ °F
" Wtr. Loss	8 CC 30 min.	CC 30 min.	CC 30 min.	CC 30 min.	CC 30 min.
Max. Temp. °F	160				
Bit Size	7 7/8"				
Spcgs.—AM	10"				
A	32" LS				
AO	19'				
Opr. Rig Time	2 Hrs.				
Truck No.	1760-Hobbs				
Recorded By	Maxwell				
Witness By	Cabaniss				

~~RETURN TO MIDLAND AREA PRODUCTION LOG FILES~~

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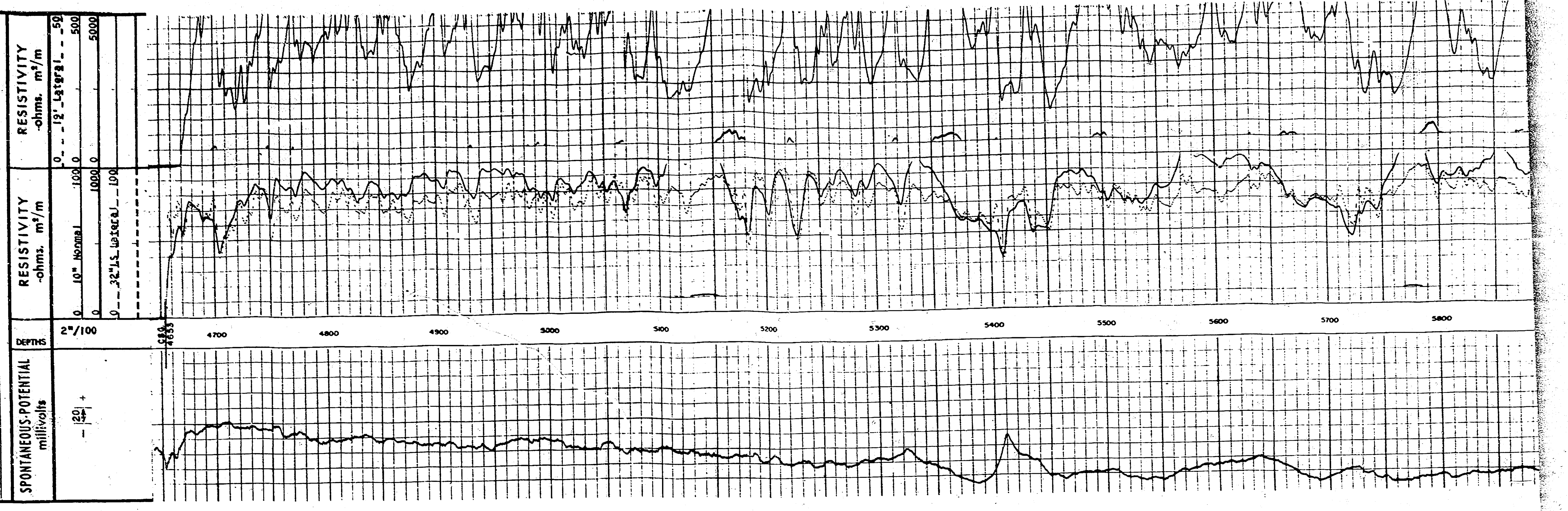
REMARKS



SCHLUMBERGER WELL SURVEYING CORPORATION
HOUSTON, TEXAS

Electrical Log

COUNTY Lea
FIELD or LOCATION Eidson
WELL State EDA # 2
COMPANY Shell Oil Co.

COMPANY SHELL OIL CO.
WELL STATE EDA # 2
FIELD EIDSON
LOCATION SEC. 7-16S-35E
COUNTY LEA
STATE NEW MEXICO

Location of Well
330' f SL
947' f WL
Sec. 7-16S-35E

ES
(ML)

Elevation: D.F.: 4059
K.B.:
or G.L.:

FILING No.

RUN No.	1				
Date	12-31-53				
First Reading	10749				
Last Reading	4676				
Feet Measured	6073				
Csg. Schlum.	4676				
Csg. Driller	4674				
Depth Reached	10752				
Bottom Driller	10750				
Depth Datum	1' Abv. RT				
Mud Nat.	Gel-Chemicals				
" Density	9.2				
" Viscosity	61				
" Resist.	1.9 @ 44 °F	@ °F	@ °F	@ °F	@ °F
" Res. BHT	0.6 @ 155 °F	@ °F	@ °F	@ °F	@ °F
" pH	@ °F	@ °F	@ °F	@ °F	@ °F
" Wtr. Loss	CC 30 min.	CC 30 min.	CC 30 min.	CC 30 min.	CC 30 min.
Max. Temp. °F					
Bit Size	7 7/8"				
Spcgs.—AM	10"				
A	32"				
AO	[illegible]				
Opr. Rig Time	2 [illegible]				
Truck No.	[illegible]				
Recorded By	[illegible]				
Witness By	[illegible]				

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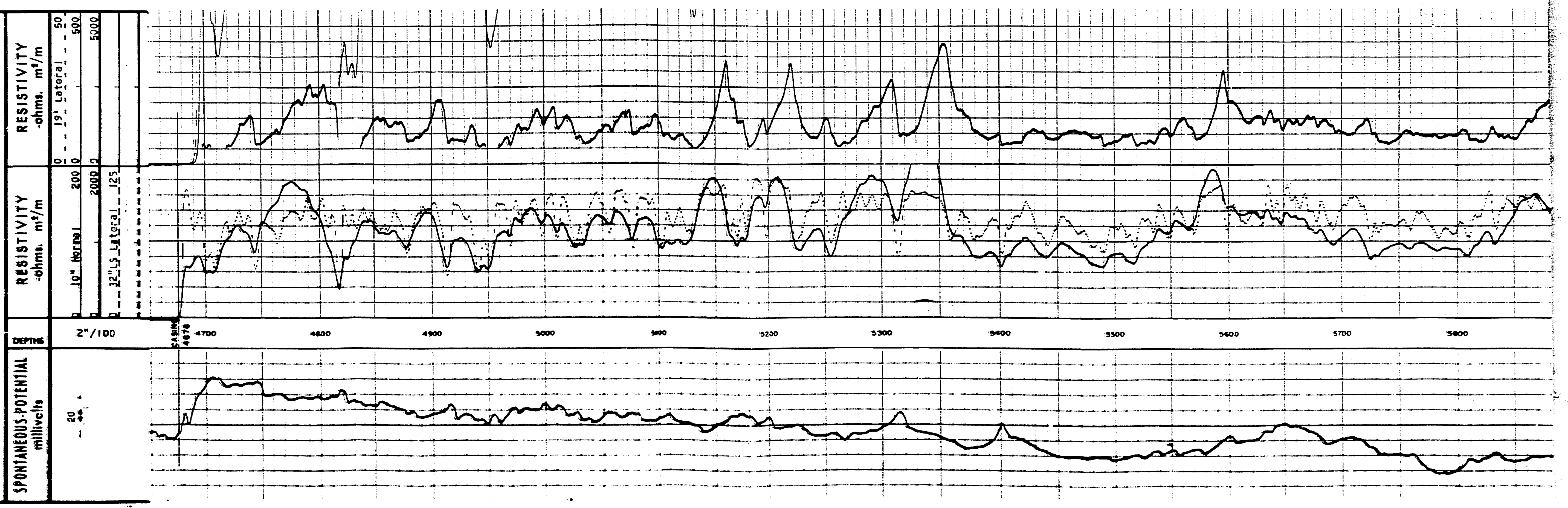
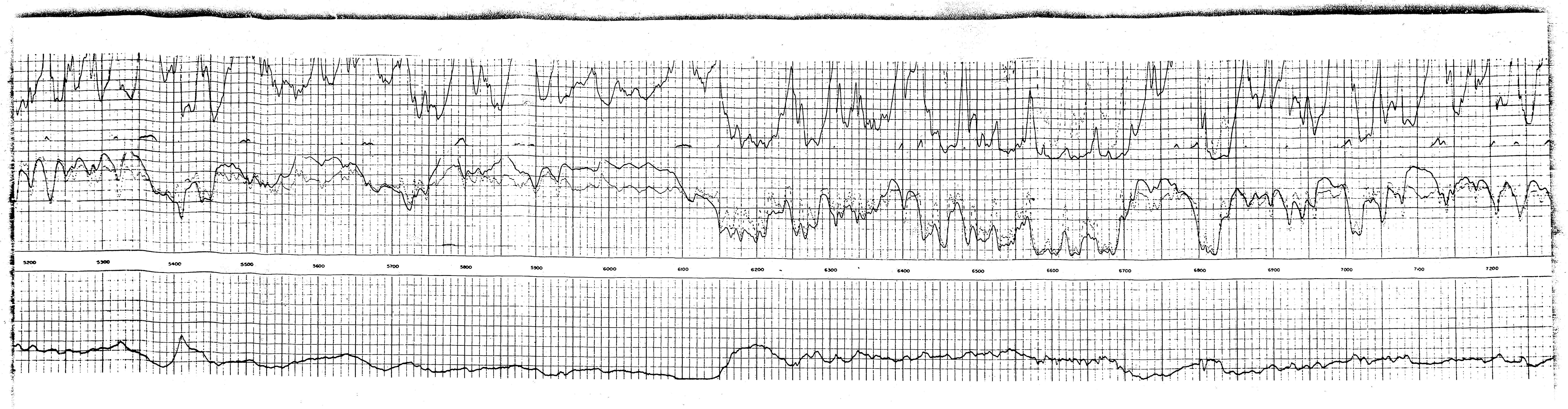
REMARKS

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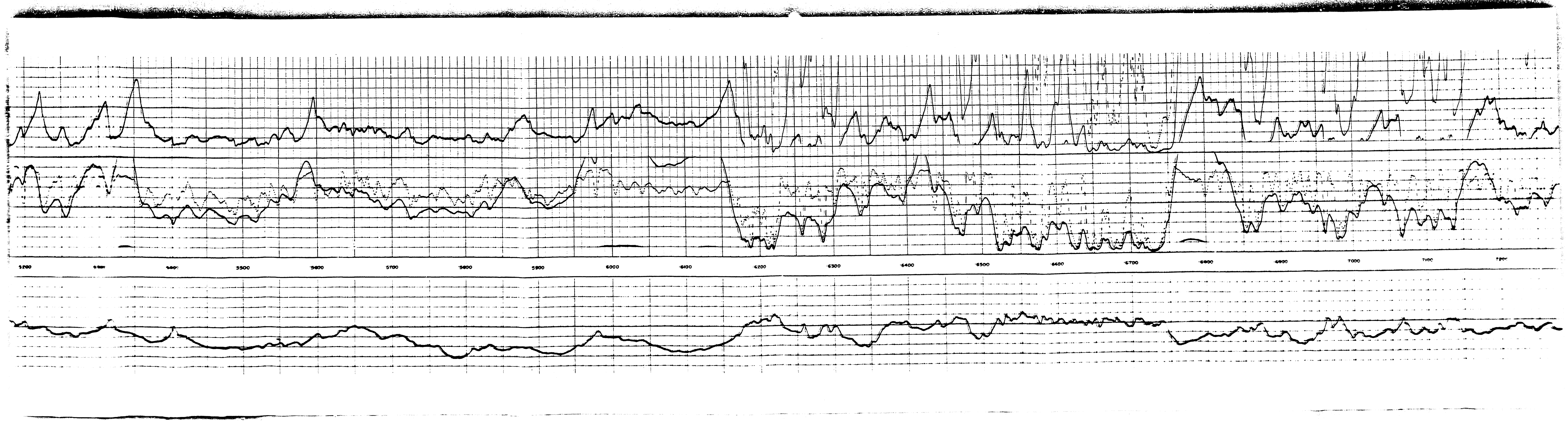
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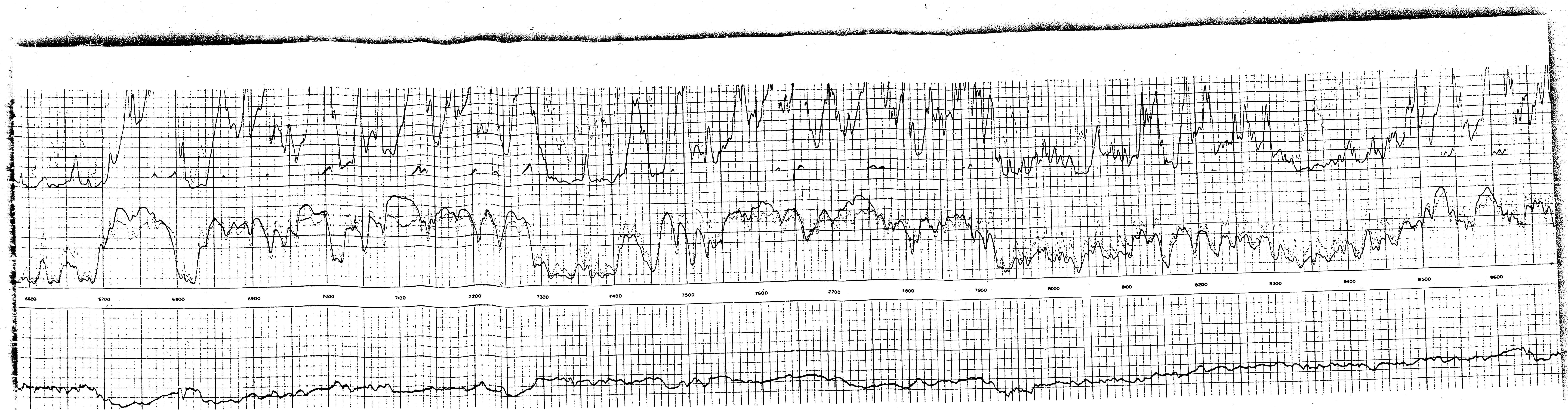
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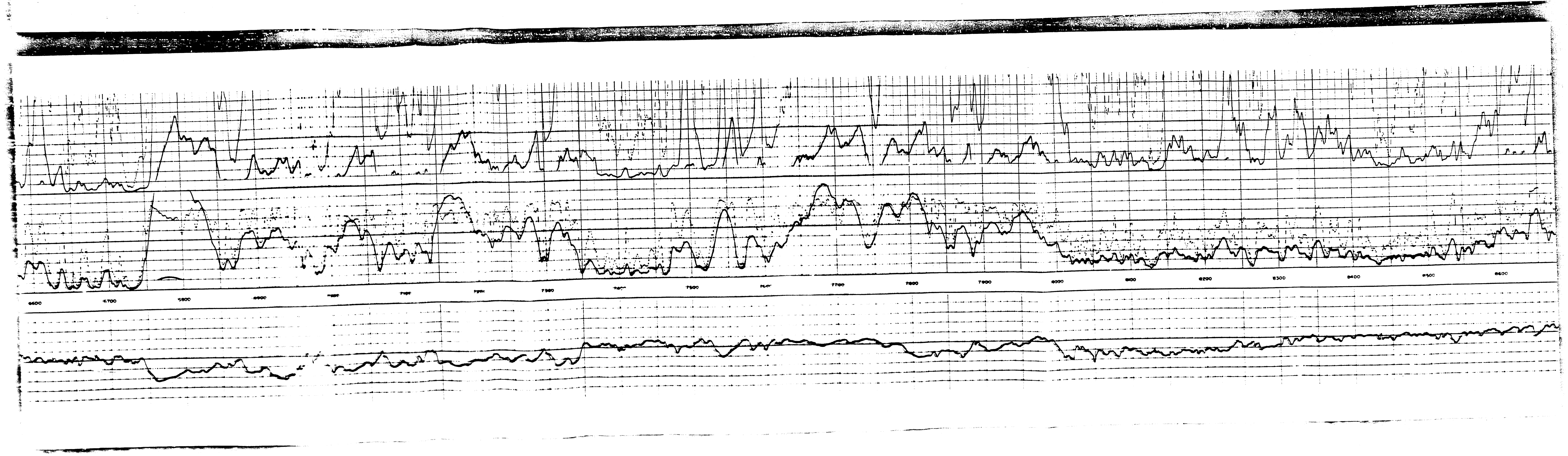
8600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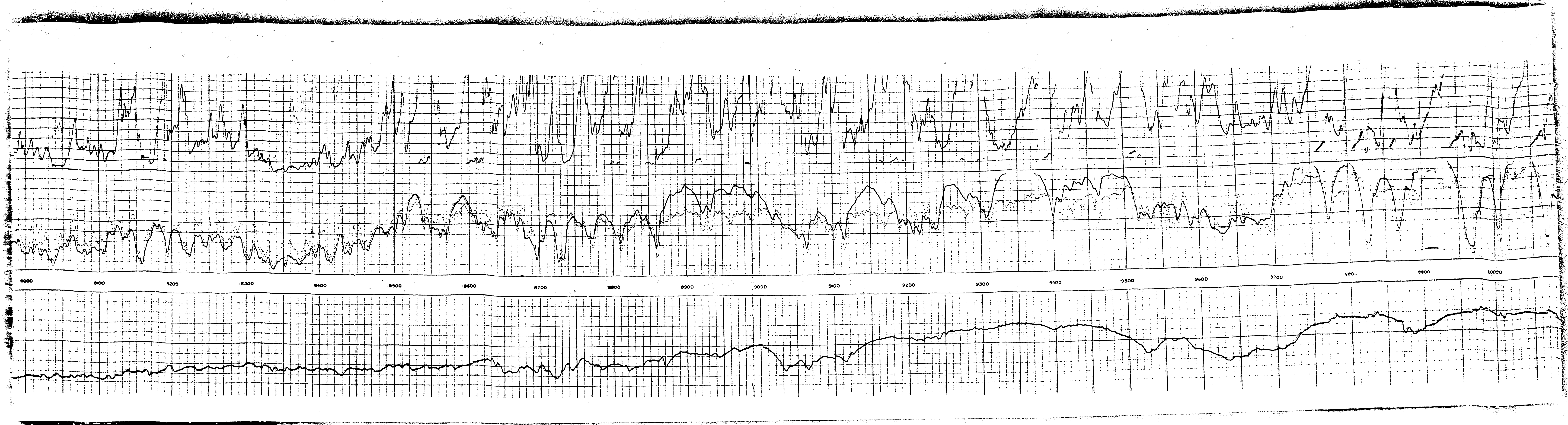
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9900
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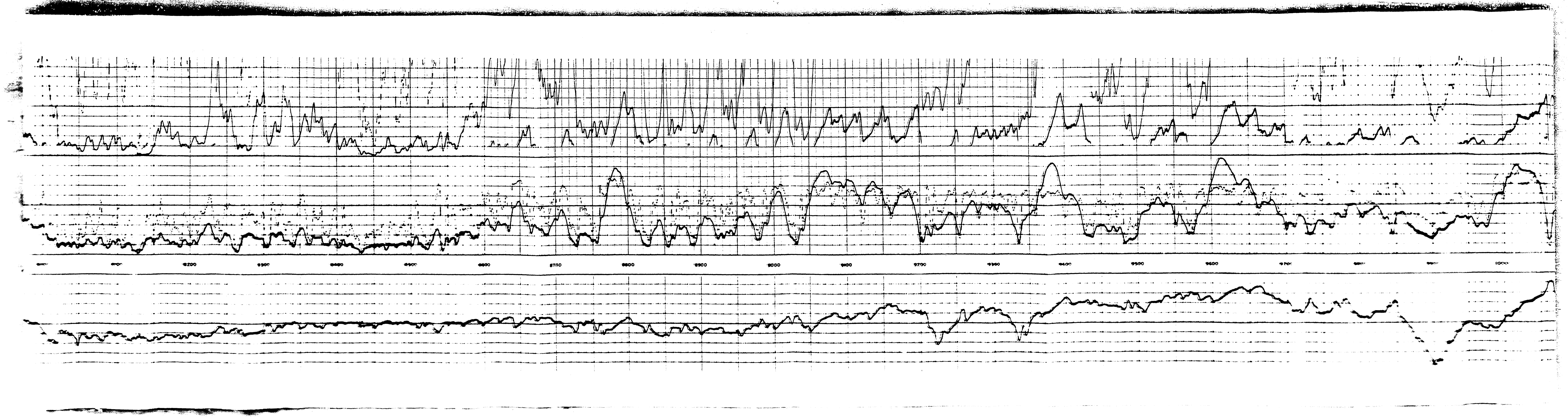
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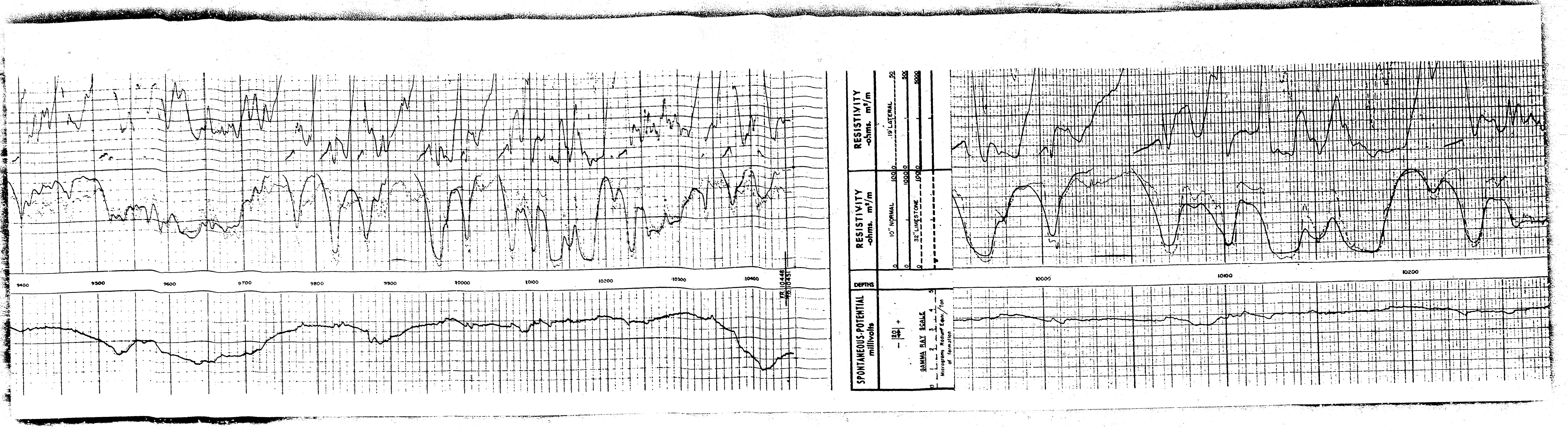
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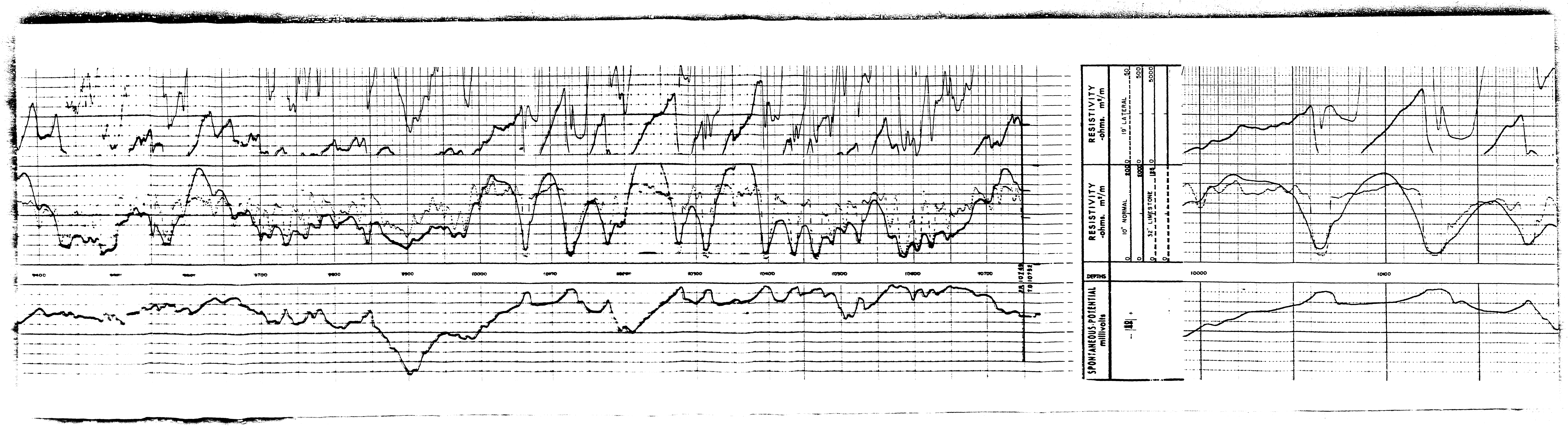
19' LATERAL
0 50
0 500
0 5000
RESISTIVITY -ohms. m²/m
10" NORMAL
32" LIMESTONE
0 1000
0 10000
0 1000
DEPTHS
SPONTANEOUS-POTENTIAL millivolts
− 20 +
GAMMA RAY SCALE
0 1 2 3 4 5
Micrograms Radium Equiv./Ton of formation
9400
9500
9600
9700
9800
9900
10000
10100
10200
10300
10400
F.R. 10446
T.D. 10451
10000
10100
10200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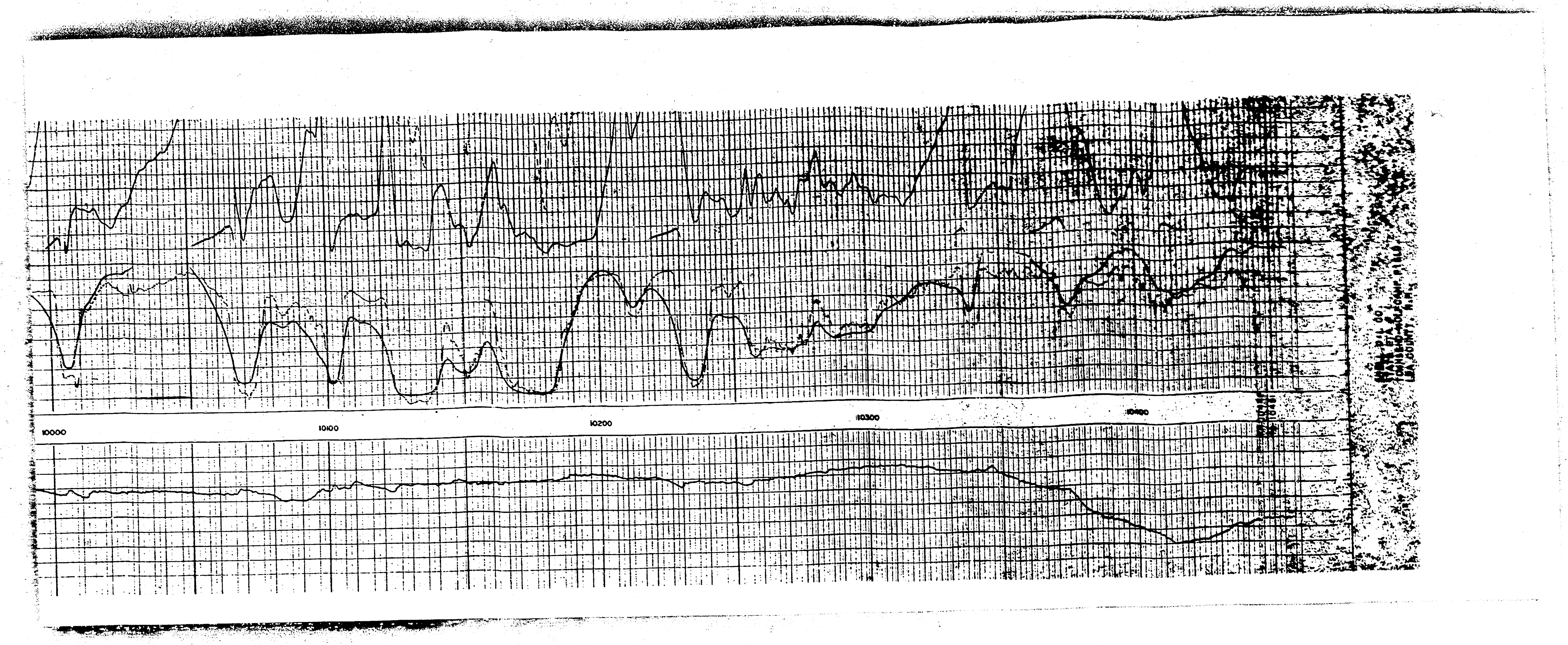
19' LATERAL
0 50
0 500
0 5000
RESISTIVITY -ohms. m²/m
10" NORMAL
32" LIMESTONE
0 2000
0 2000
0 150
DEPTHS
SPONTANEOUS-POTENTIAL millivolts
− 10 +
9400
9700
9800
9900
10000
10100
10300
10400
10500
10600
10700
F.R. 10748
T.D. 10752
10000
10100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10100
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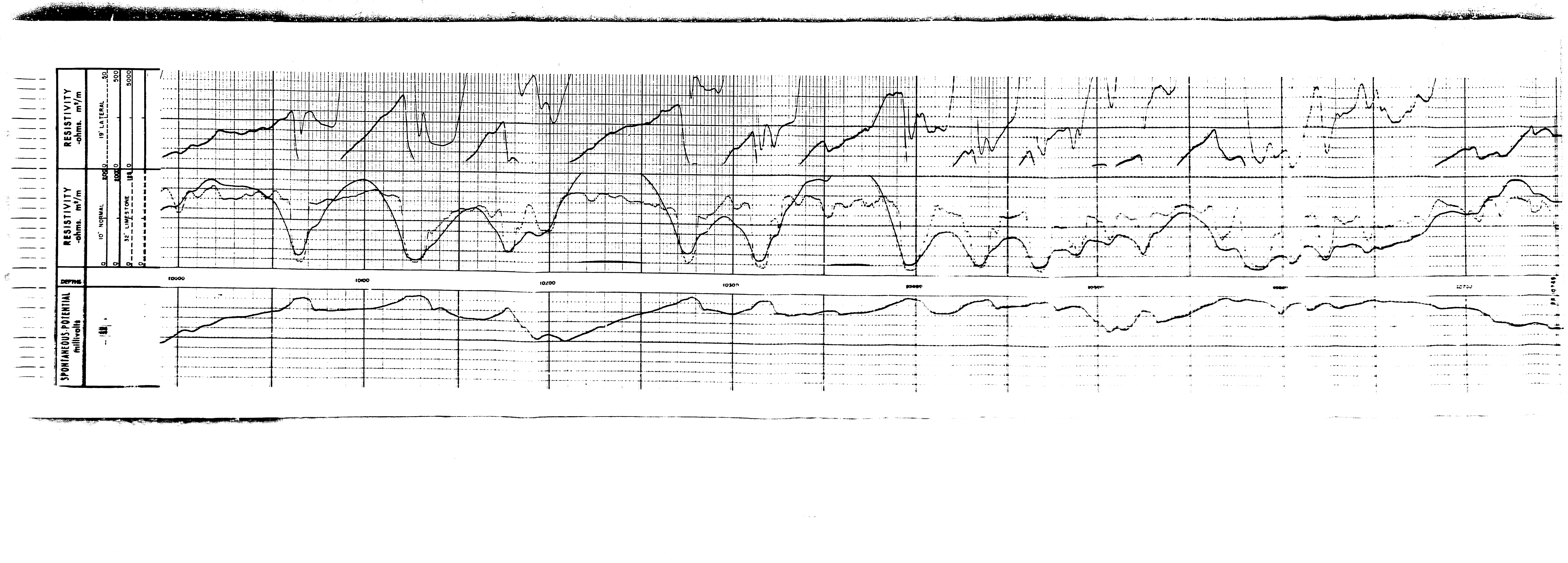
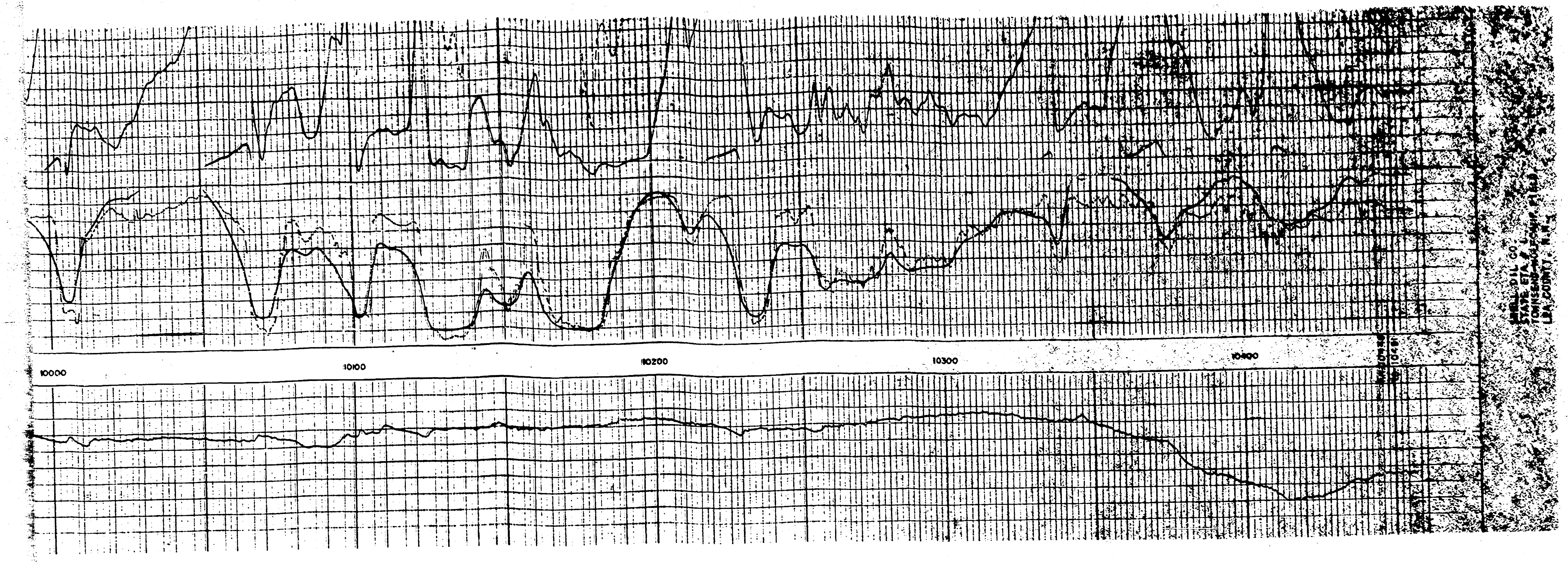
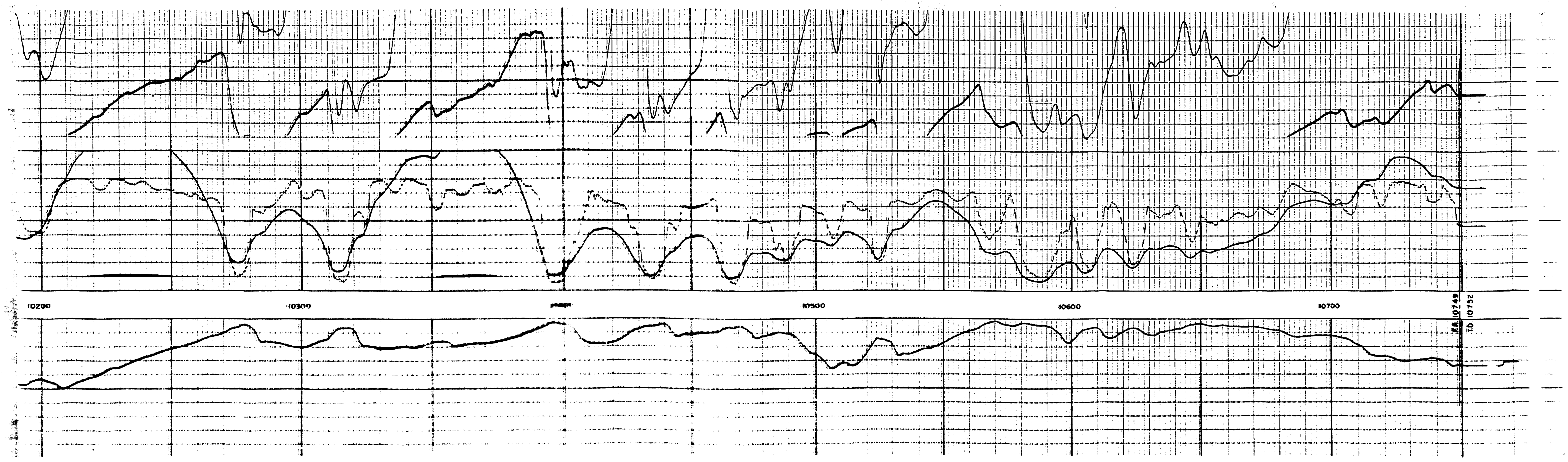
10400
Oil Co.
Lea County, N.M.


RESISTIVITY -ohms. m²/m
19' LATERAL
0
50
0
500
0
5000
RESISTIVITY -ohms. m²/m
10" NORMAL
0
200
0
2000
32" LIMESTONE
0
150
DEPTHS
SPONTANEOUS-POTENTIAL millivolts
10000
10100
10200
10300





T-132

SHELL OIL CO.
STATE EDA # 2
EIDSON FIELD
LEA COUNTY, N.M.

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