GL02528-DOC1

Schlumberger

SIMULTANEOUS
COMPENSATED NEUTRON-FORMATION DENSITY

COMPANY MICHEL T. HALBOUTY ET AL

WELL J. N. JAMES #1

FIELD WILDCAT

COUNTY ADA STATE IDAHO

LOCATION 510' FEL & 825' FSL

SEC	TWP	RANGE
27	4N	1W

Other Services:
DIL
BHC-GR

COUNTY ADA, IDAHO
FIELD WILDCAT
LOCATION 27-4N-1W
WELL J. N. JAMES #1
COMPANY MICHEL T. HALBOUTY ET AL

Permanent Datum: GL ; Elev.: 2551
Log Measured From KB 20 Ft. Above Perm. Datum
Drilling Measured From KB

Elev.: K.B. 2571
D.F. ----
G.L. 2551

Date	7-10-76	8-20-76	9-22-76
Run No.	ONE	TWO	THREE
Depth - Driller	3961	10035	14000
Depth - Logger	3959	10056	13886
Btm. Log Interval	3958	10054	13886
Top Log Interval	770	3980	9800
Casing - Driller	16" @ 785	10-3/4@3974	10-3/4@3974
Casing - Logger	786	3980	---
Bit Size	14-3/4"	9-7/8"	9-7/8"
Type Fluid in Hole	LSND	FGM	FGM
Dens. / Visc.	8.9 / 47	10.0 / 70	10.6 / 60
pH / Fluid Loss	8.5 / 10.0ml	8.7 / 4.0 ml	10/4 / 18.2ml
Source of Sample	CIRCULATED	FLOWLINE	FLOWLINE
Rm @ Meas. Temp.	4.25 @ 84 F	2.52 @ 76 F	0.97 @ 74 F
Rmf @ Meas. Temp.	5.54 @ 70 F	1.04 @ 70 F	0.60 @ 74 F
Rmc @ Meas. Temp.	6.5 @ 84 F	3.78 @ 72 F	1.87 @ 74 F
Source: Rmf / Rmc	M / C	M / C	M / M
Rm @ BHT	2.5 @ 142F	0.74 @ 245F	0.30 @ 350F
TIME: Circulation Stopped	2200 7-9	0500 8-20	1300 9-21
TIME: Logger on Bottom	0600 7-10	1600 8-20	0030 9-22
Max. Rec. Temp.	1'.5 F	268 F	350 F
Equip. / Location	726 RS	8002 RS	7710 RS
Recorded By	PARKS	MARCHETTI	ELIAS
Witnessed By Mr.	MOSELEY	MOSELEY	MOSELEY

Reproduced By
Electrical Log Services
MIDLAND, TEXAS 79701

REFERENCE K 1193Y

COMPLETION RECORD

SPUD DATE

COMP DATE

DST RECORD

API NO.

CASING RECORD

PERFORATING RECORD

ACID. FRAC SHOT

I P

GOR GR

T P C P

REMARKS:

RUN NO.	ONE	TWO	THREE
Service Order No.	25160	18871	25279
Fluid Level	FULL	FULL	FULL
Salinity, PPM Cl.	---	800	1000
Speed - F.P.M.	30	30	30
EQUIPMENT DATA			
Dens. Panel	EH-653	EH-694	EJ-1159
Dens. Cart.	G-65	EB-1065	G-105
Dens. Skid.	D-1060	D-1264	E-93
Dens. Sonde	EC-86	D-1077	EC-230
Dens. Source	5020	B-3338	G-560
Dens. Calibrator	600	106-1095	106-1039
Neut. Panel	A-76	A-309	AB-1075
Neut. Cart.	A-85	A-535	A-422
Neut. Source	F-139	C-386	FA-386
Neut. Calibrator	A-82	AB-303	AB-1380
GR Cart.	J-510	JAA-684	JAA-1057
Memorizer Panel	AC-207	AC-220	AC-221
Tape Recorder (TTR)	E-898	1826	E-898
Depth Encoder (DRE)	C-1779	949	A-134
Pressure Wheel (CPW)	---	8002	H-1706
Centralizers: Enter Spring, Standoffs, In-line, or None — Type	ECCENT	CALIPER	ECCENT.
Centralizers: Enter Spring, Standoffs, In-line, or None — No.	1	ONE	ONE
Centralizers: Enter Spring, Standoffs, In-line, or None — S. O. — Inches	SPRING	---	---
CALIBRATION DATA			
GR — BKG. CPS	120	120	100
GR — Source CPS	570	560	385
GR — Sens. - Cal	0-165	0-165	165
GR — T. C. - Cal	CAL	CAL	6
CNL — Short Spacing - Before Log	1000	816	---
CNL — Long Spacing - Before Log	440	384	RA & CAL = 2.28
CNL — Short Spacing - After Log	1000	820	RA & CAL = 2.26
CNL — Long Spacing - After Log	440	384	---
FDC — P1 — Before Log	400	460	576
FDC — P2 — Before Log	560	728	836
FDC — P1 — After Log	400	460	568
FDC — P2 — After Log	560	720	844

Type Log	Depth		Down Hole

REMARKS:

LOGGING DATA

DEPTH Top	DEPTH Bottom	CNP Porosity Scale	CNP Matrix	CNP Auto Corr. or Hole Size Setting	FDC Porosity Scale	FDC Grain Density	FDC Liquid Density	FDC Hole Fluid	GR Sens. Logged	GR T. C.	GR Zero. Div. Left	GR Scale Per 100 Div.
RUN ONE -												
770	3958	20/TK	SS	AUTO	20/TK	2.68	1.0	LIQ.	0-150	2	--	150
RUN TWO -												
3980	10054	20/TK	SS	AUTO	20/TK	2.68	1.0	LIQ.	0-150	2	0	150
RUN THREE -												
9800	13886	30/TK	SS	AUTO	30/TK	2.65	1.0	LIQ.	150	2	--	150

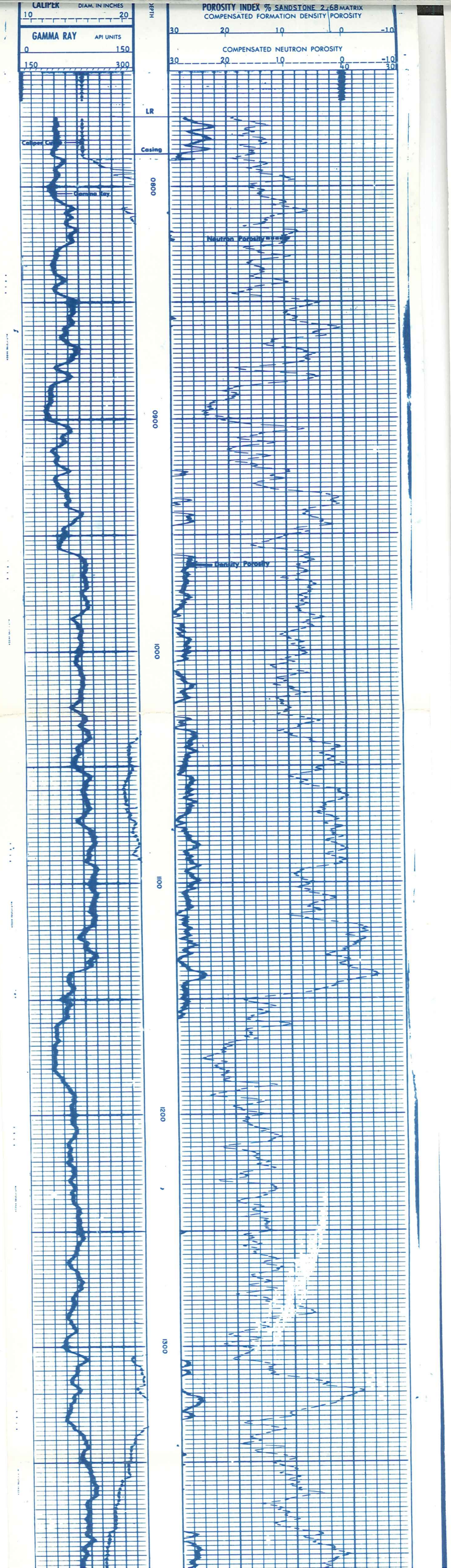
CALIPER DIAM. IN INCHES
10 — 20

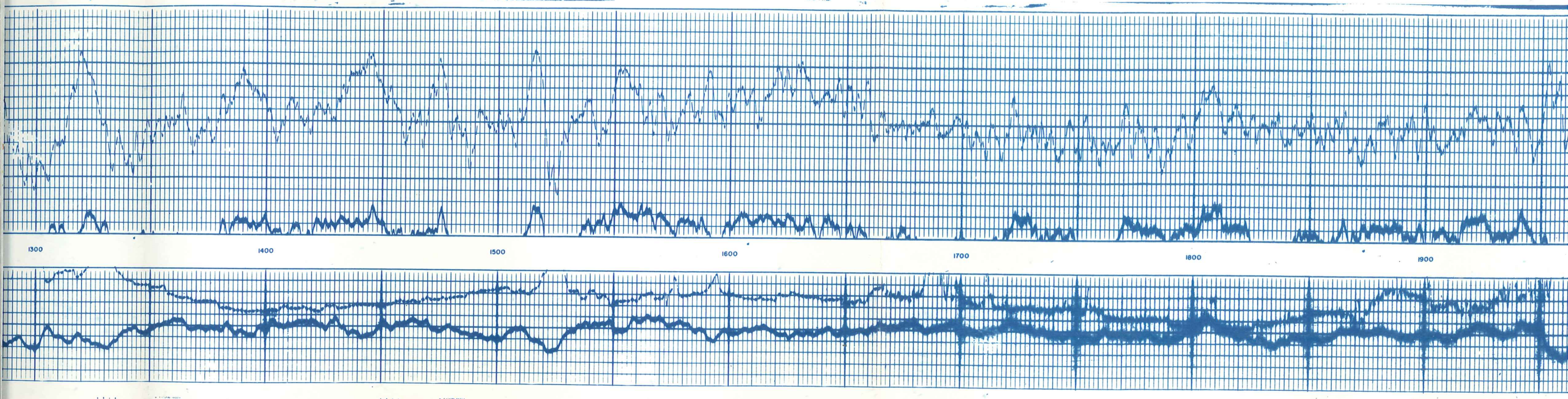
GAMMA RAY API UNITS
0 — 150
150 — 300

DEPTH

POROSITY INDEX % SANDSTONE 2.68 MATRIX
COMPENSATED FORMATION DENSITY POROSITY
30 — 20 — 10 — 0 — -10

COMPENSATED NEUTRON POROSITY
30 — 20 — 10 — 0 — -10
40 — 30


CALIPER
DIAM. IN INCHES
10
20
GAMMA RAY
API UNITS
0
150
150
300
DEPTH
POROSITY INDEX % SANDSTONE 2.68 MATRIX
COMPENSATED FORMATION DENSITY POROSITY
30
20
10
0
-10
COMPENSATED NEUTRON POROSITY
30
20
10
0
-10
40
30
LR
Caliper Curve
Casing
Gamma Ray
Neutron Porosity
Density Porosity
0800
0900
1000
1100
1200
1300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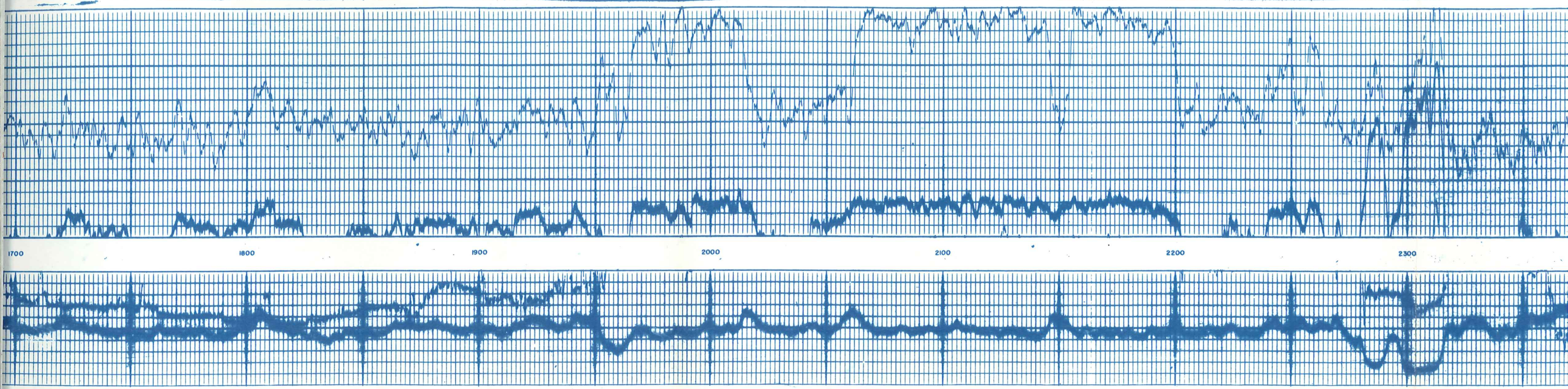
1400
1500
1600
1700
1800
1900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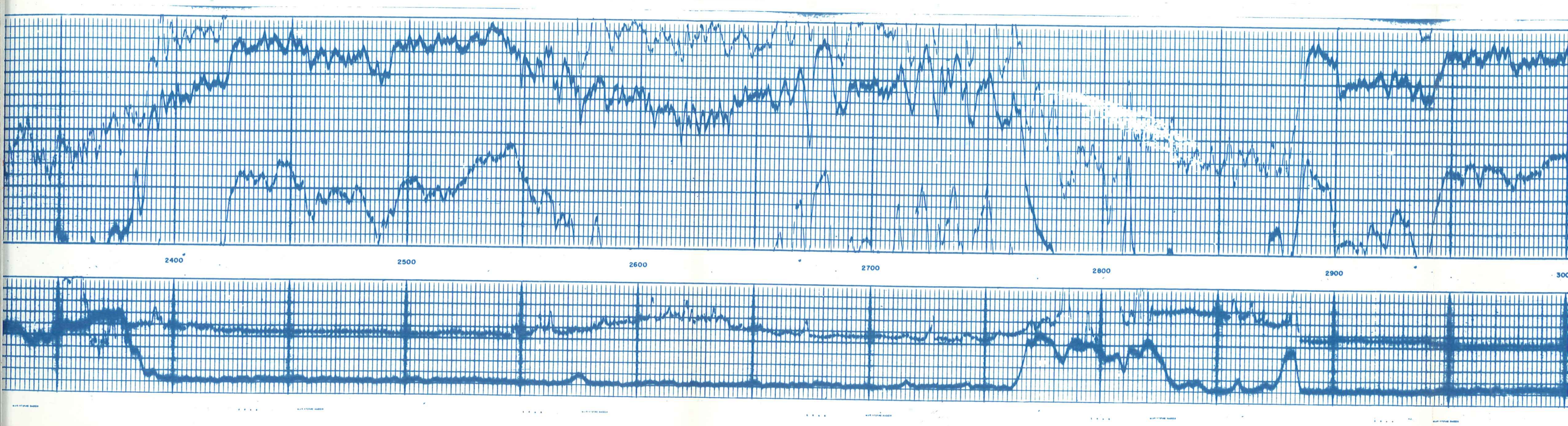
2000
2100
2200
2300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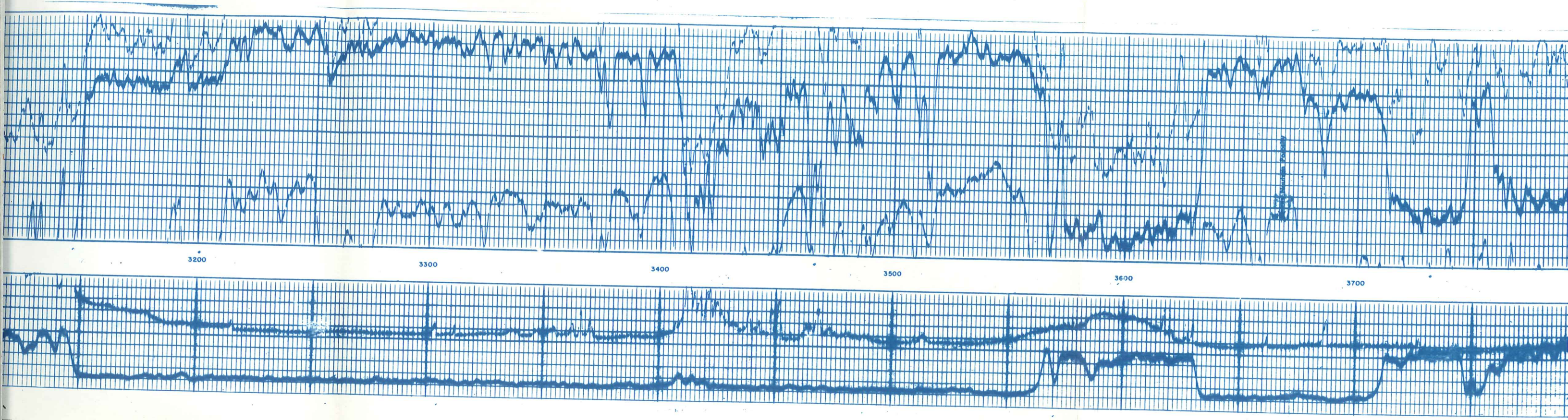
2700
2800
2900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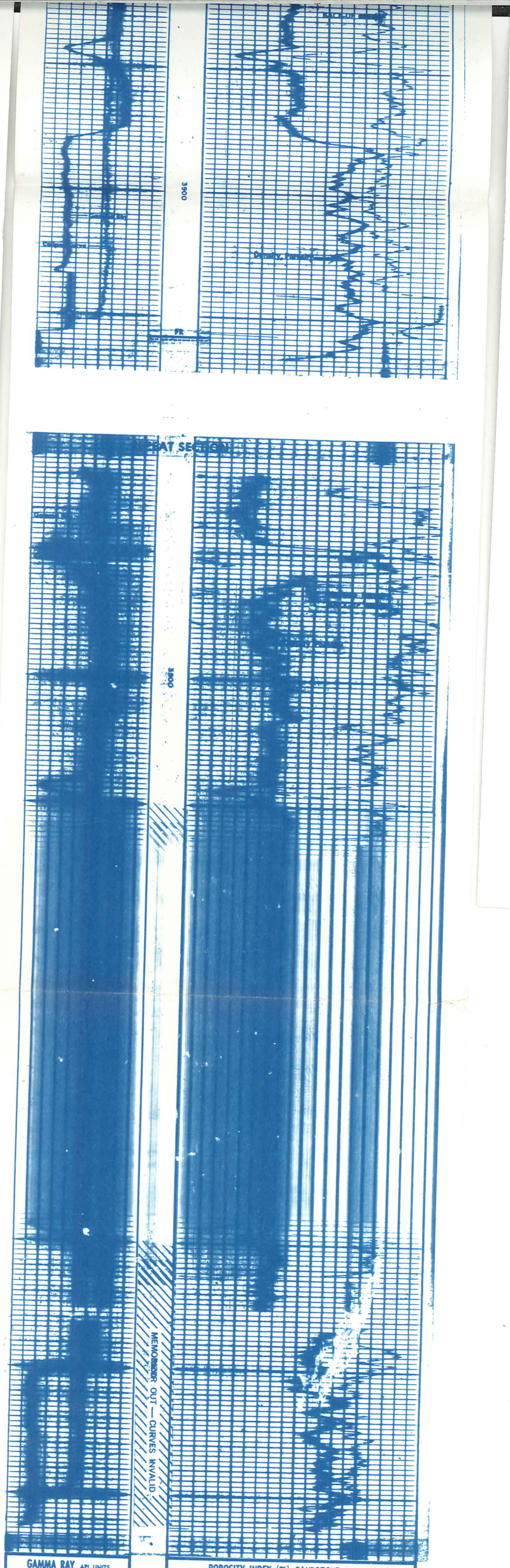
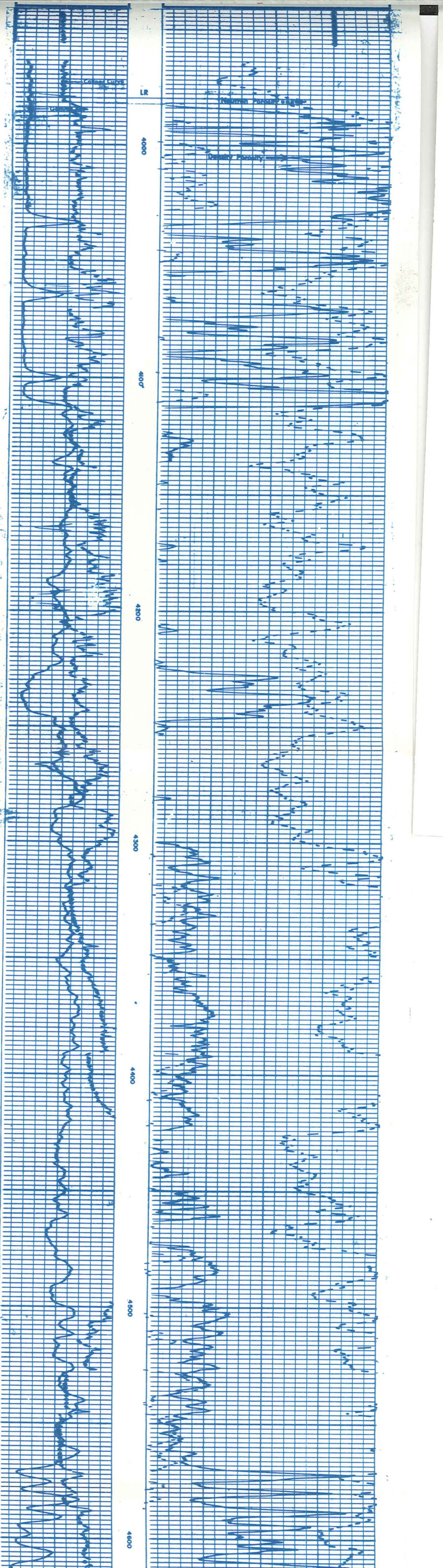
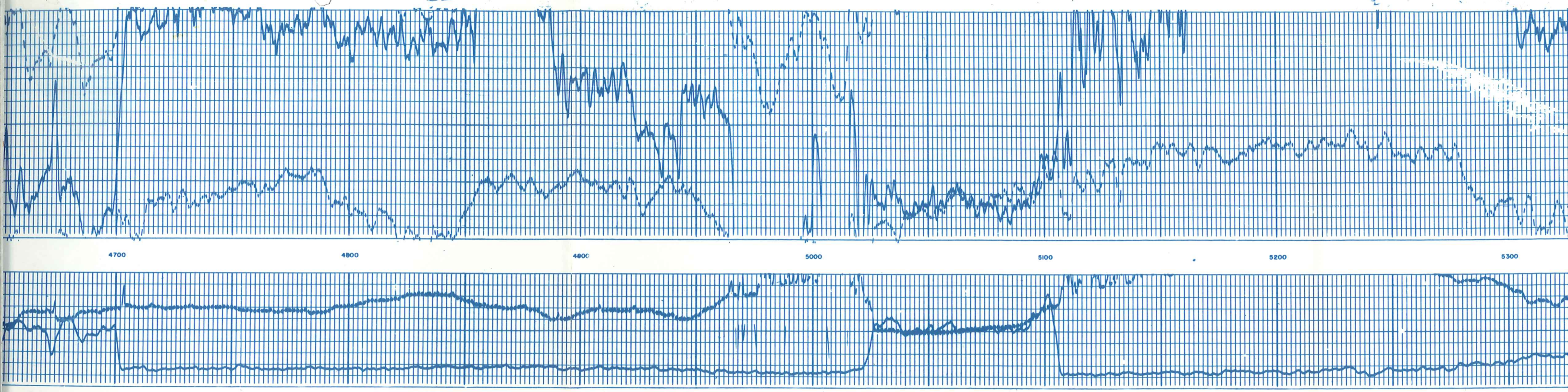

3900
MEMORIZER OUT — CURVES INVALID
GAMMA RAY API UNITS
0
150
150
300
CALIPER DIAM. IN INCHES
10
20
CALIPER DIAM. IN INCHES
Run 2
POROSITY INDEX (%) SANDSTONE MATRIX 2.68
COMPENSATED FORMATION DENSITY POROSITY
30
20
10
0
-10
COMPENSATED NEUTRON POROSITY
30
20
10
0
40
-10
30
POROSITY INDEX (%) SANDSTONE MATRIX 2.68


LR
4000
4100
4200
4300
4400
4500
4600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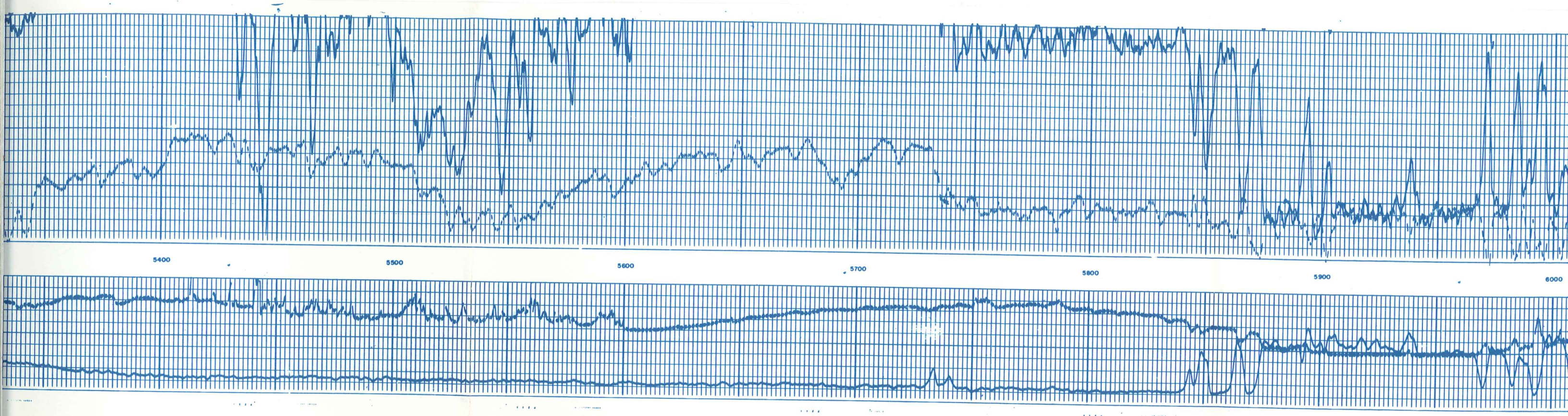
4800
4900
5000
5100
5200
5300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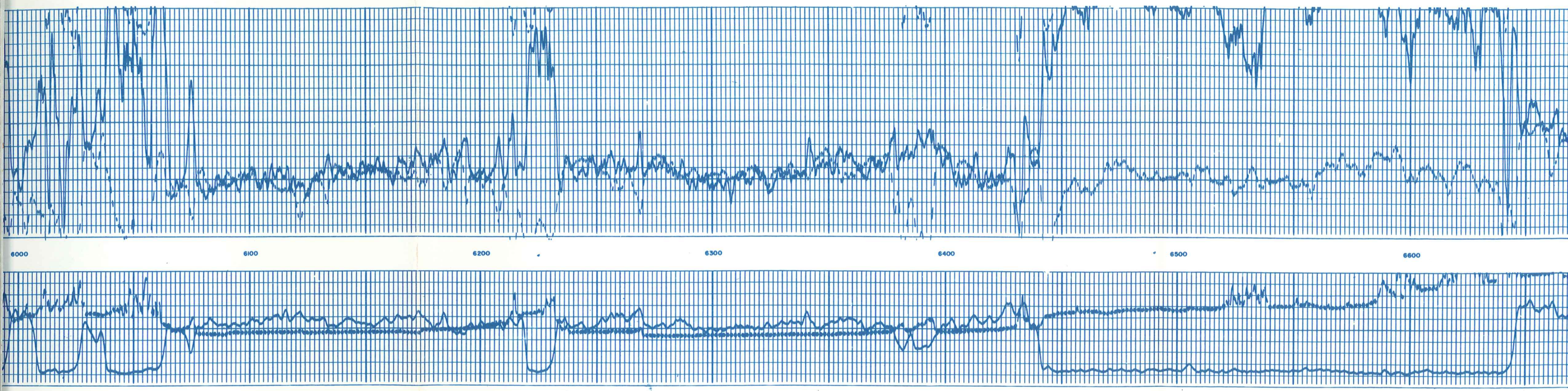
5500
5600
5700
5800
5900
6000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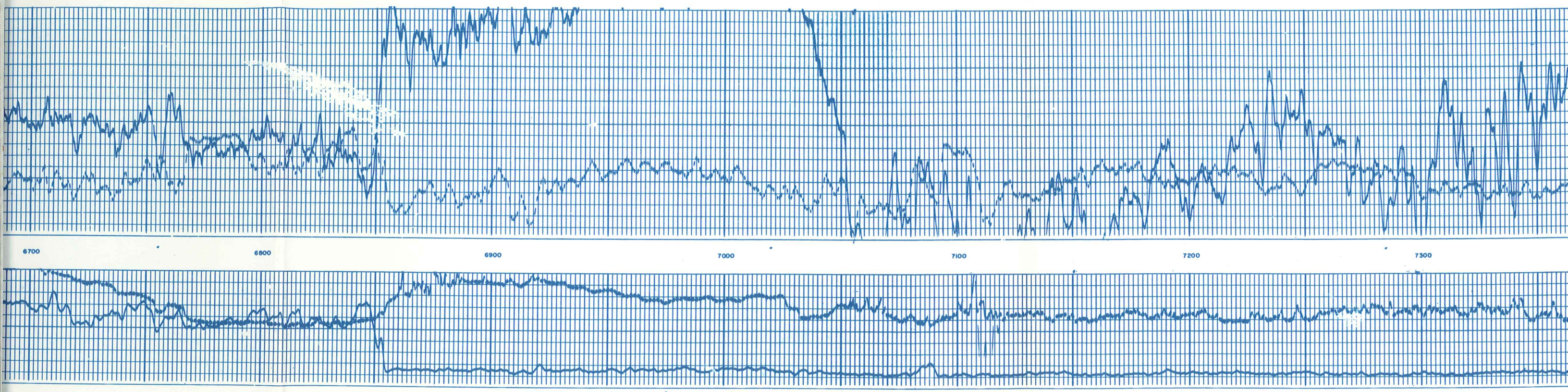
6100
6200
6300
6400
6500
6600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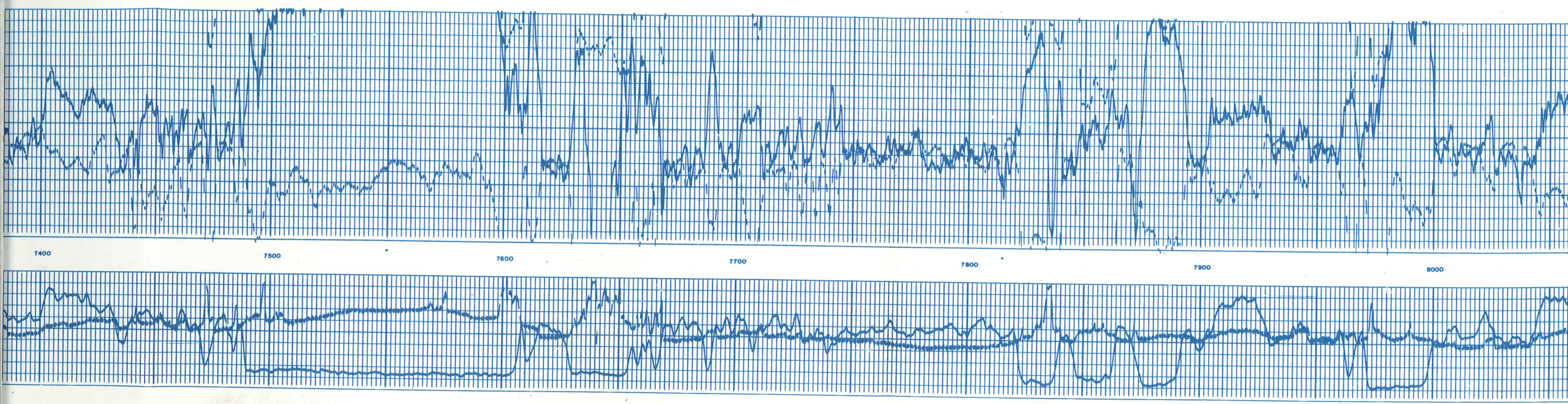
6800
6900
7000
7100
7200
7300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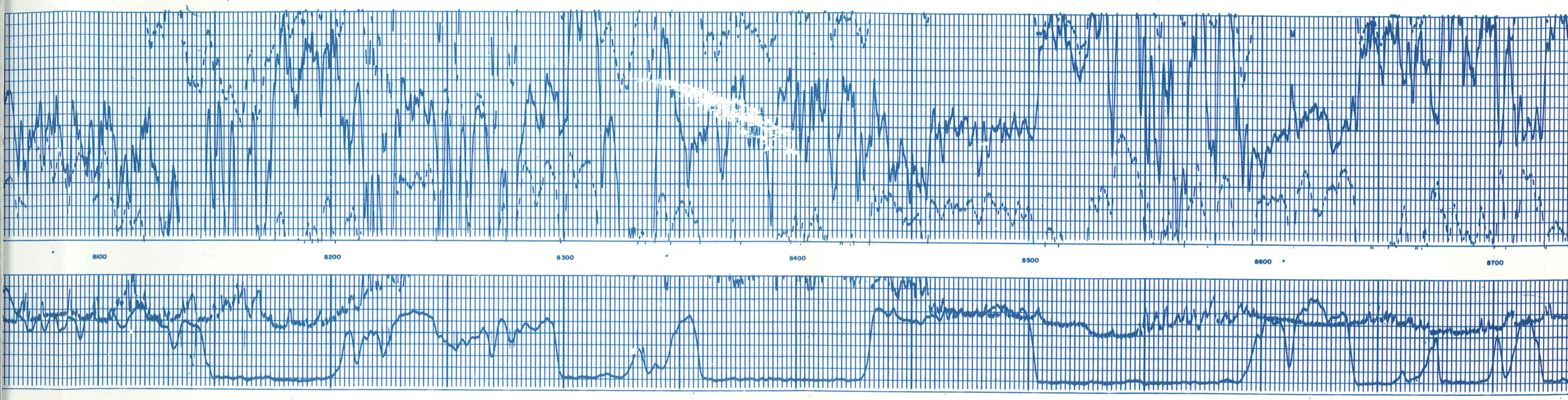
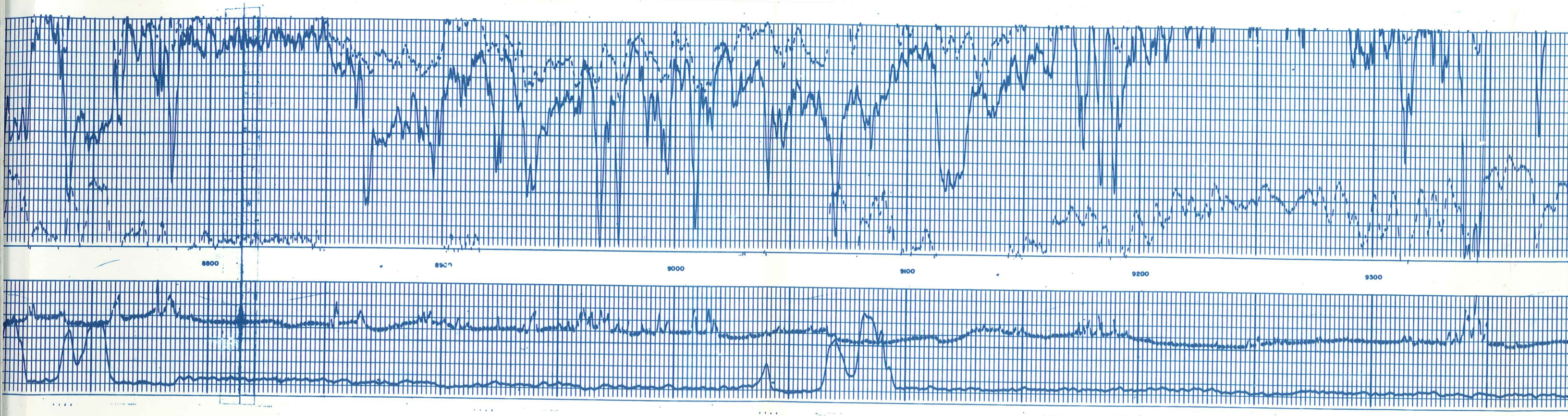
7500
7600
7700
7800
7900
8000


8100
8200
8300
8400
8500
8600
8700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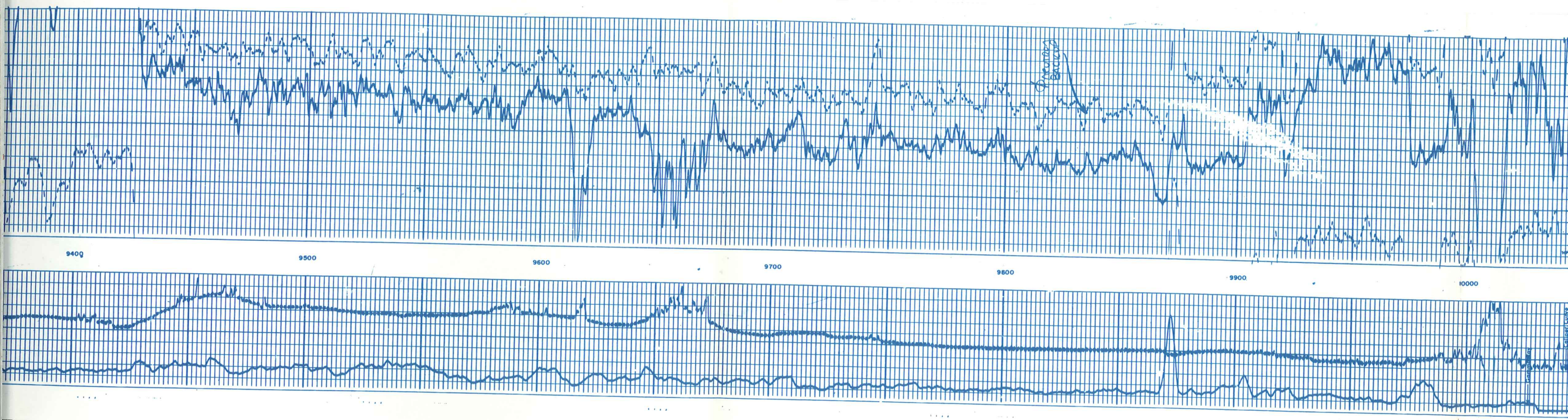
8900
9000
9100
9200
9300


9400
9500
9600
9700
9800
9900
10000

Mech. Zero

REPEAT SECTION

MEMORIZER OUT — CURVES INVALID

9900

Caliper Curve

Gamma Ray

Neutron Porosity

Density Porosity

Mech. Zero

GAMMA RAY API UNITS

0 — 150

150 — 300

CALIPER DIAM. IN INCHES

6 — 16

POROSITY INDEX (%) SANDSTONE MATRIX 2.68

COMPENSATED FORMATION DENSITY POROSITY

30 — 20 — 10 — 0 — -10

COMPENSATED NEUTRON POROSITY

30 — 20 — 10 — 0 — -10

40 — 30

CALIPER DIAM. IN INCHES

6 — 16

GAMMA RAY API UNITS

0 — 150

150 — 300

POROSITY INDEX (%) SANDSTONE MATRIX 2.65

COMPENSATED FORMATION DENSITY POROSITY

45 — 30 — 15 — 0 — -15

COMPENSATED NEUTRON POROSITY

45 — 30 — 15 — 0 — -15

60 — 45

9800

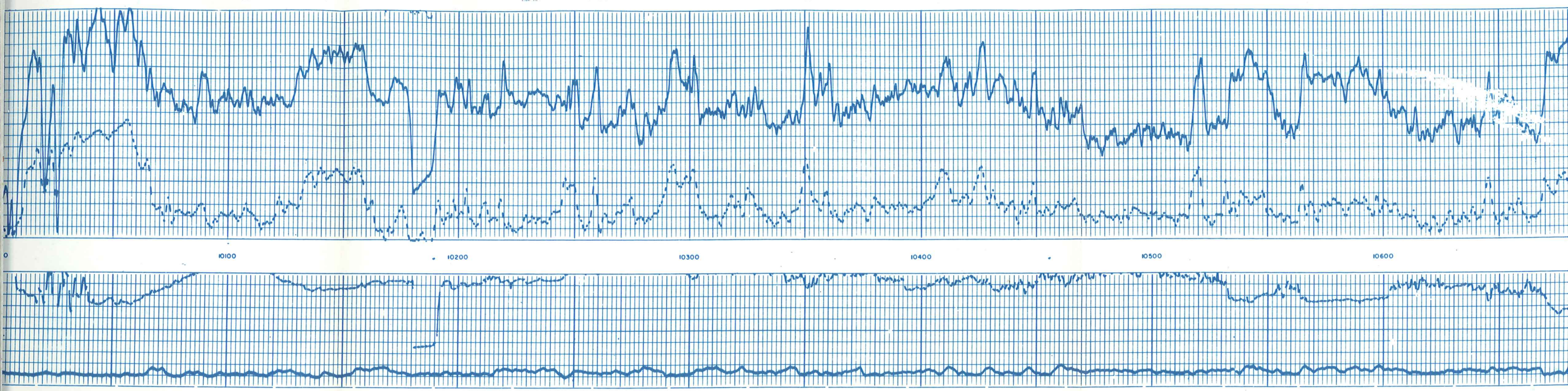
9900

Caliper Curve

Gamma Ray

Density Porosity

Neutron Porosity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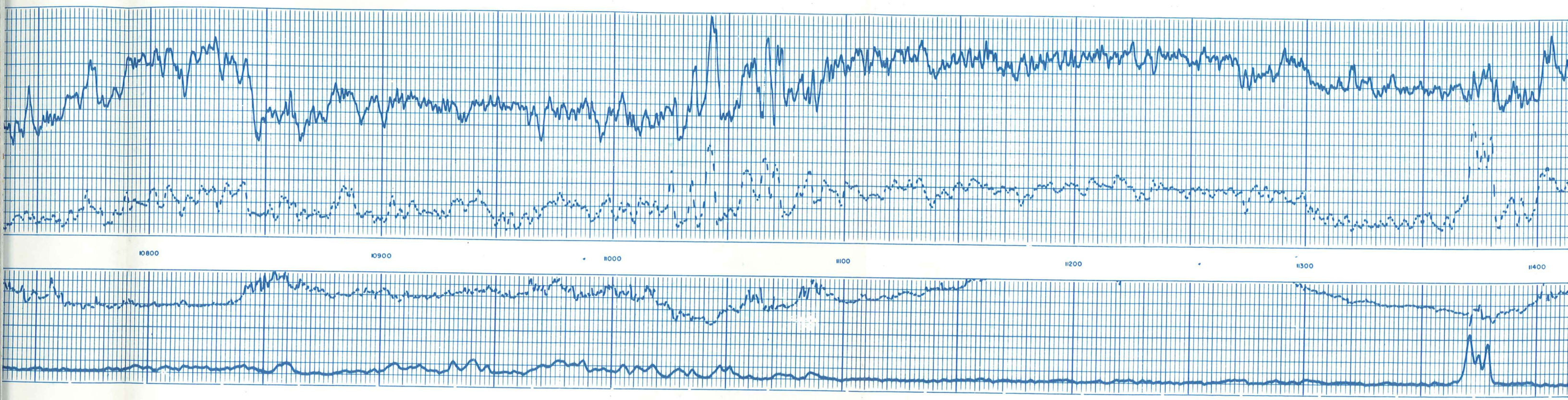
10200
10300
10400
10500
10600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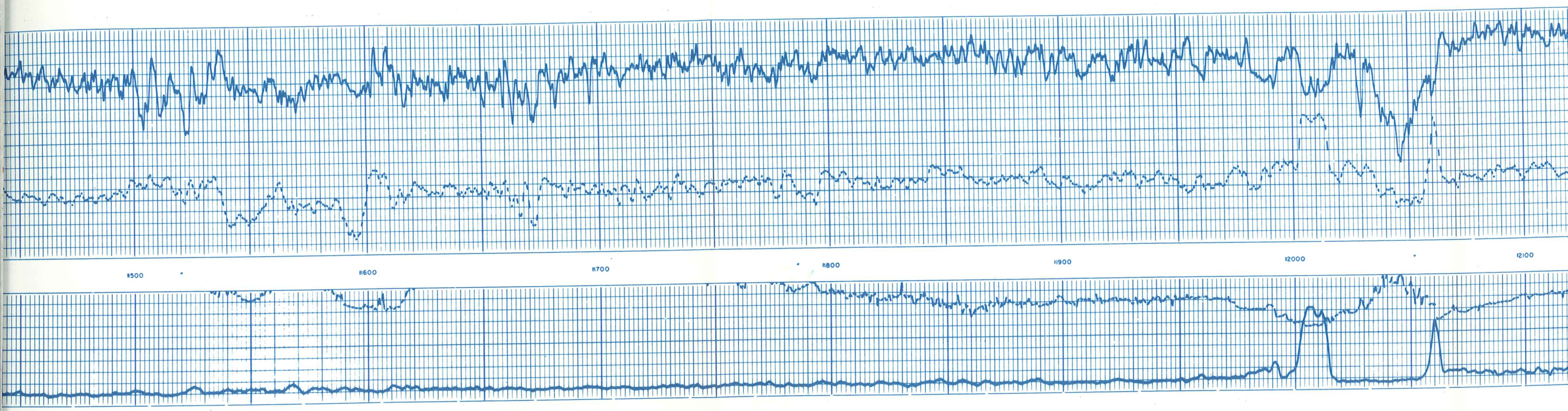
10900
11000
11100
11200
11300
11400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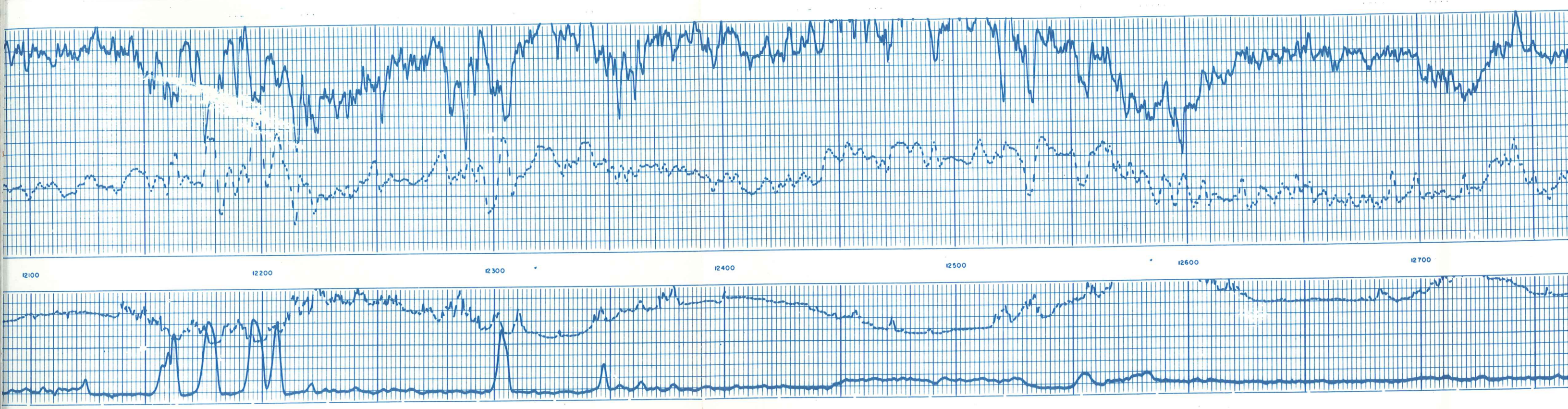
11600
11700
11800
11900
12000
12100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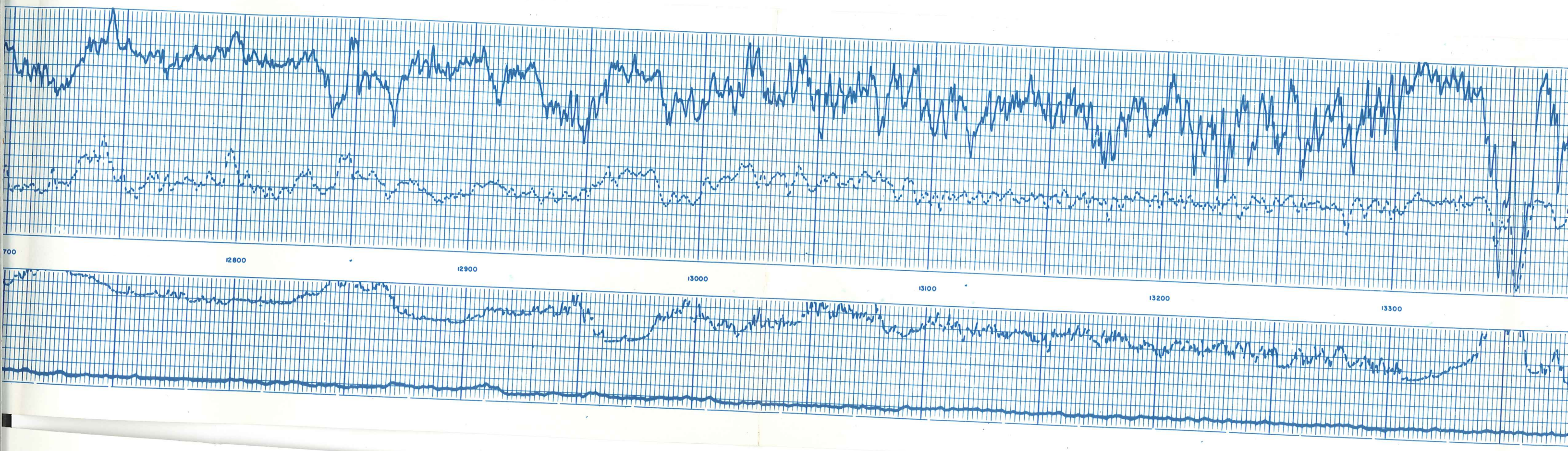
12200
12300
12400
12500
12600
12700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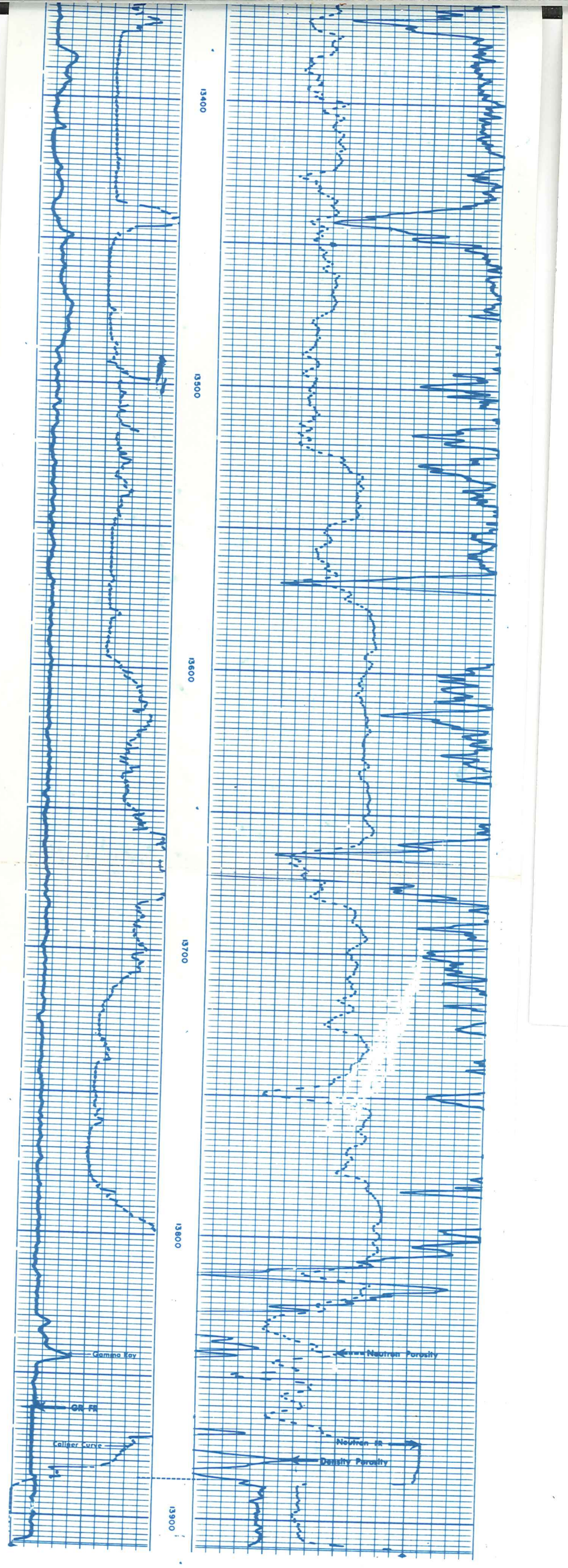
12800
12900
13000
13100
13200
13300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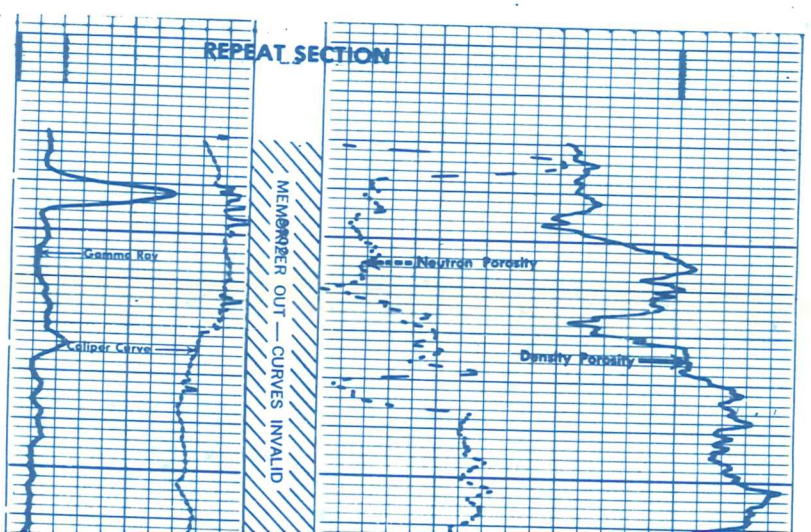
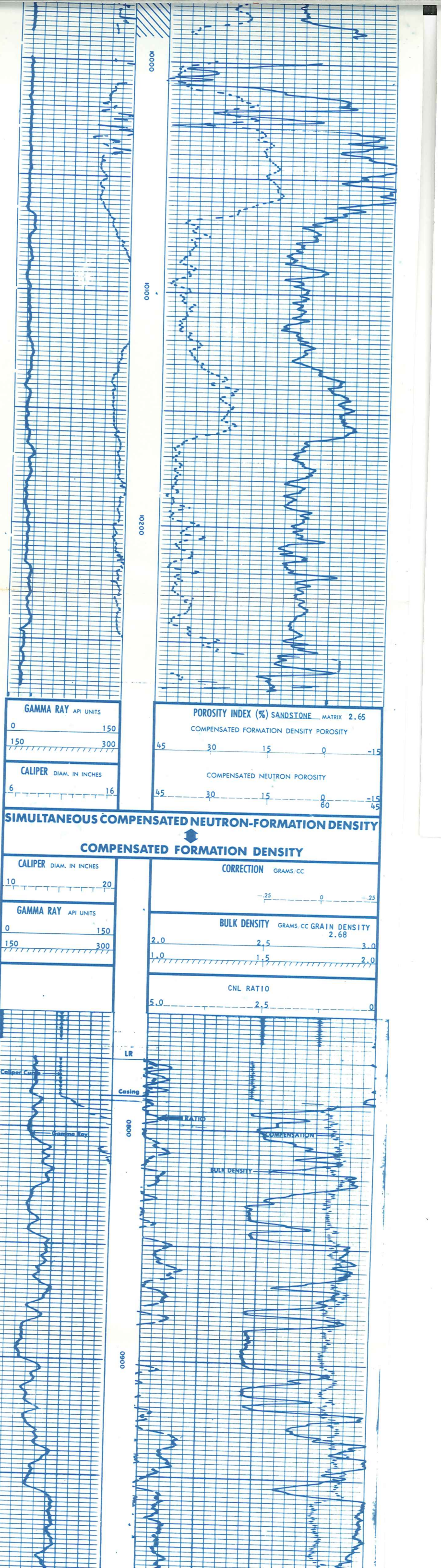
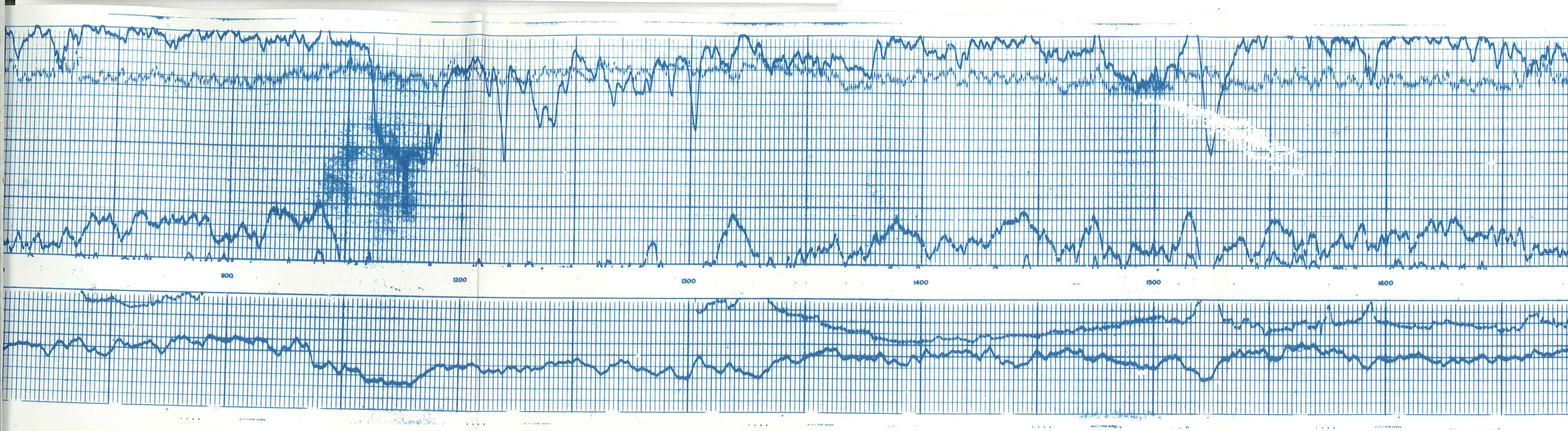
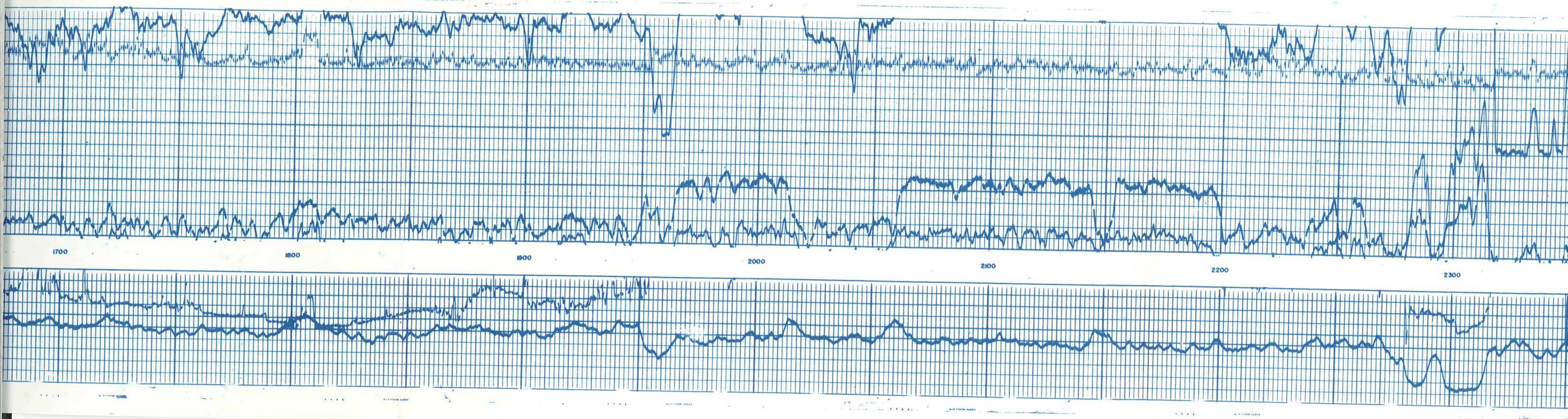
13500
13600
13700
13800
13900
Gamma Ray
GR FR
Caliper Curve
Neutron Porosity
Neutron FR
Density Porosity


REPEAT SECTION
MEMORIZER OUT — CURVES INVALID
Gamma Ray
Caliper Curve
Neutron Porosity
Density Porosity


0000
0100
0200
GAMMA RAY API UNITS
0
150
150
300
CALIPER DIAM. IN INCHES
6
16
POROSITY INDEX (%) SANDSTONE MATRIX 2.65
COMPENSATED FORMATION DENSITY POROSITY
45
30
15
0
-15
COMPENSATED NEUTRON POROSITY
45
30
15
0
60
-15
45
SIMULTANEOUS COMPENSATED NEUTRON-FORMATION DENSITY
COMPENSATED FORMATION DENSITY
CALIPER DIAM. IN INCHES
10
20
GAMMA RAY API UNITS
0
150
150
300
CORRECTION GRAMS/CC
-.25
0
+.25
BULK DENSITY GRAMS/CC GRAIN DENSITY 2.68
2.0
2.5
3.0
1.0
1.5
2.0
CNL RATIO
5.0
2.5
0
LR
Caliper Curve
Casing
Gamma Ray
RATIO
COMPENSATION
BULK DENSITY
0800
0900


1100
1200
1300
1400
1500
1600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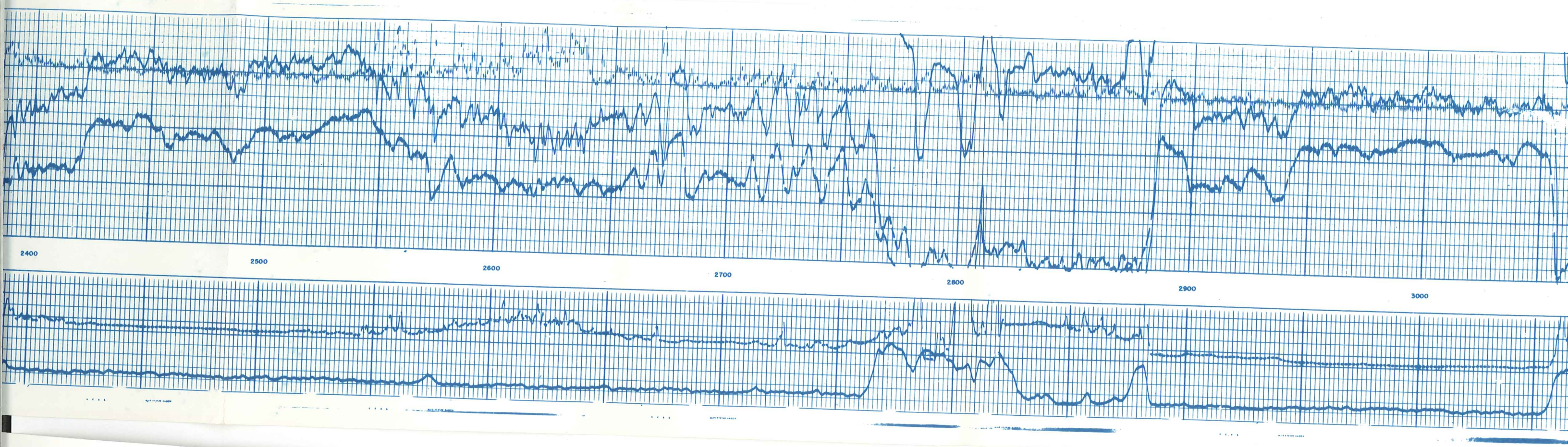
1800
1900
2000
2100
2200
2300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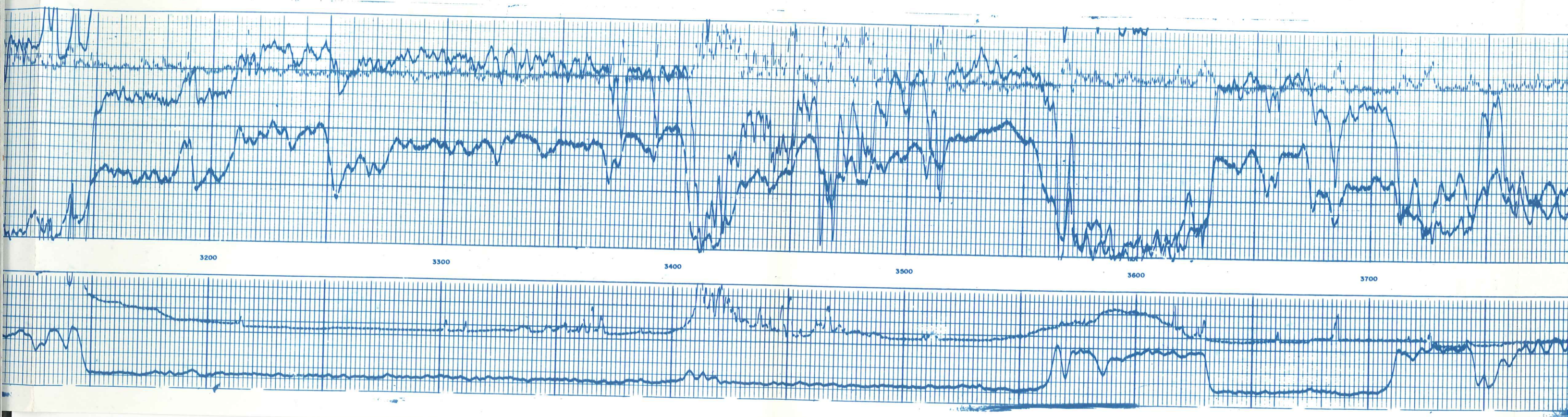
2500
2600
2700
2800
2900
3000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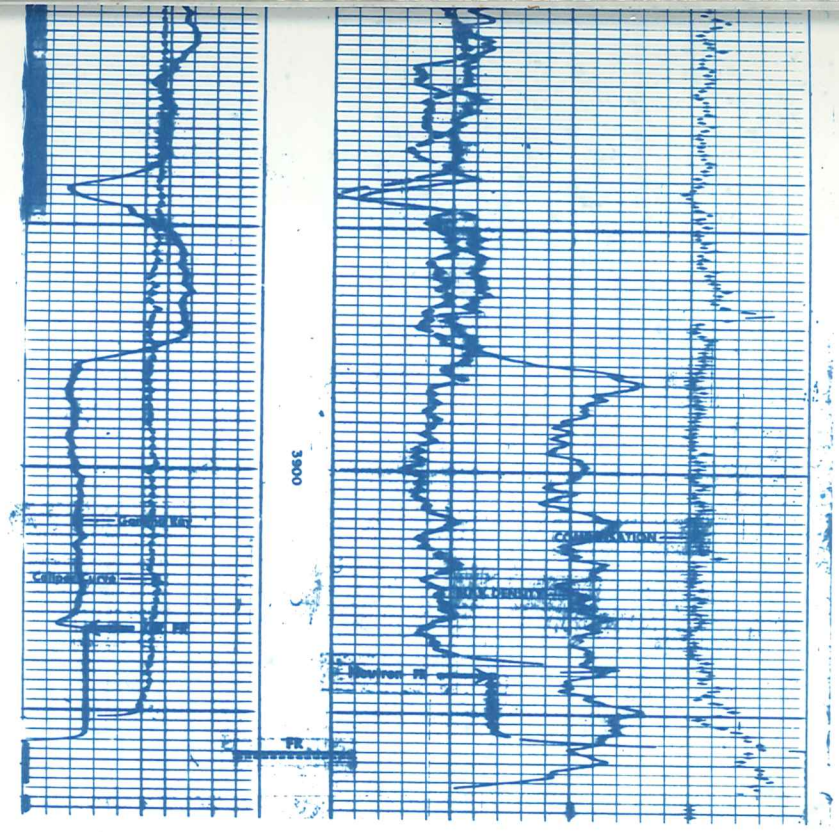
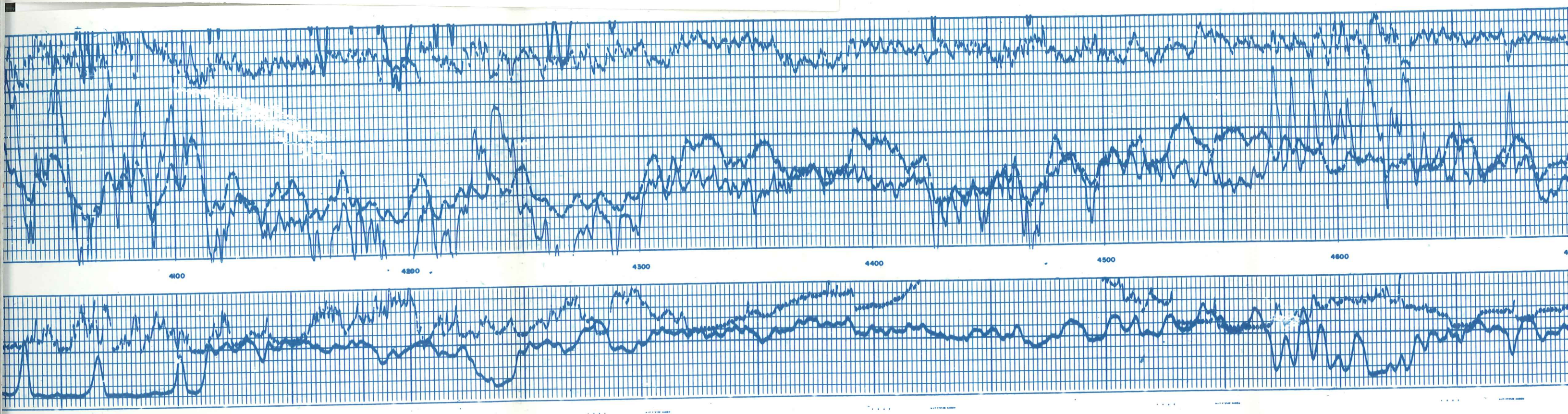
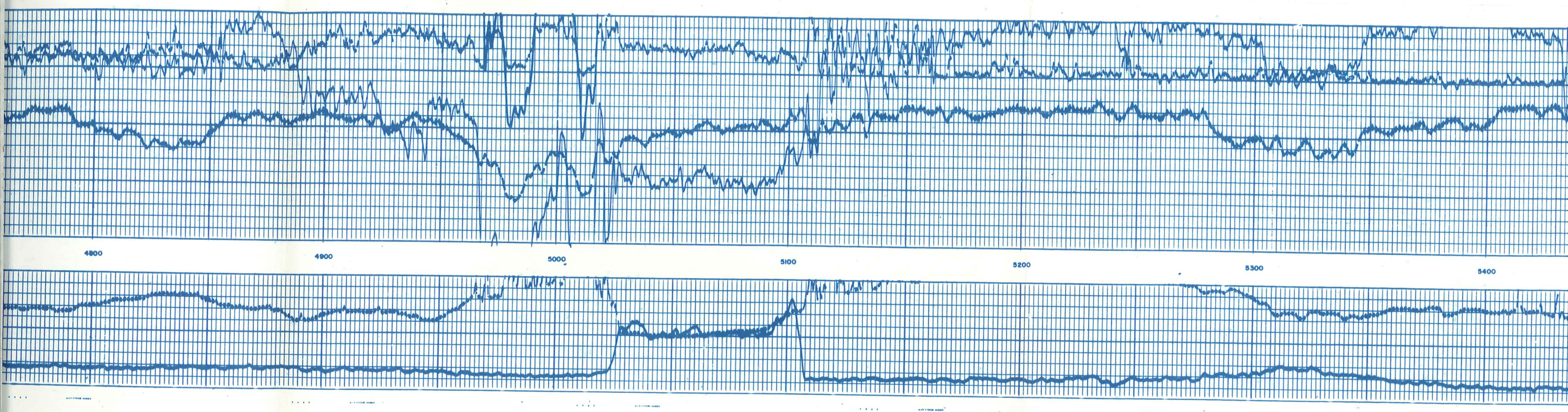
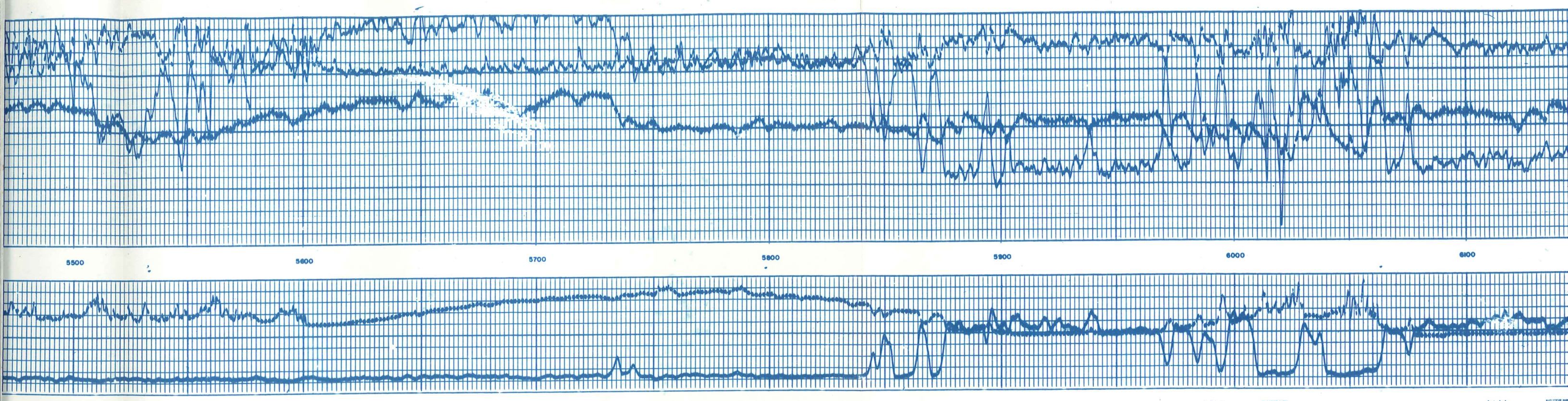
3300
3400
3500
3600
3700

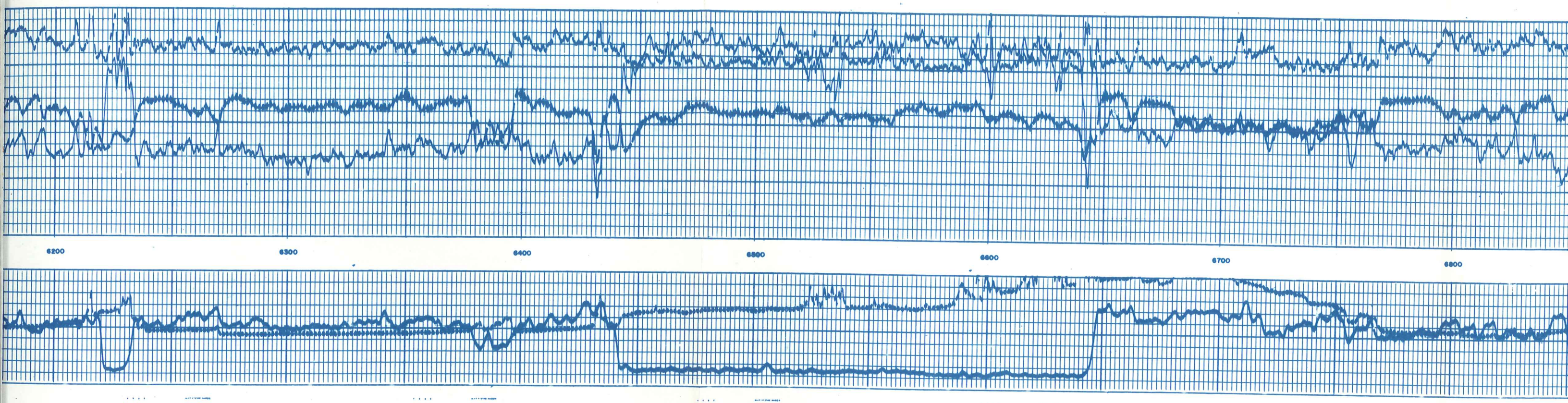


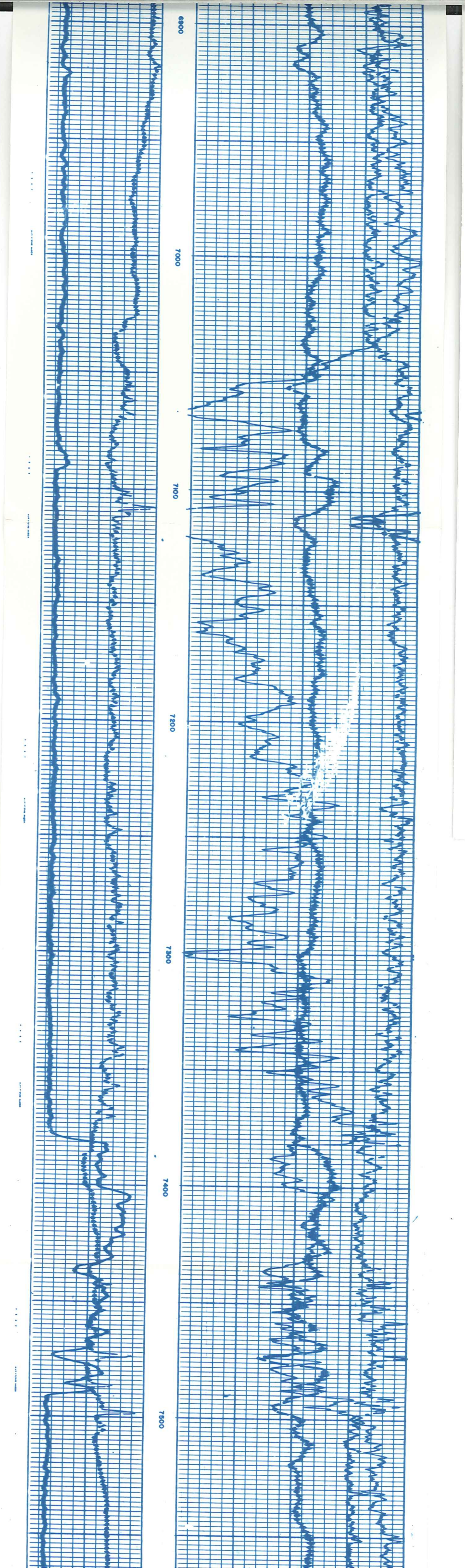
REPEAT SECTION


4100
4200
4300
4400
4500
4600


4800
4900
5000
5100
5200
5300
5400


5500
5600
5700
5800
5900
6000
6100


6200
6300
6400
6500
6600
6700
6800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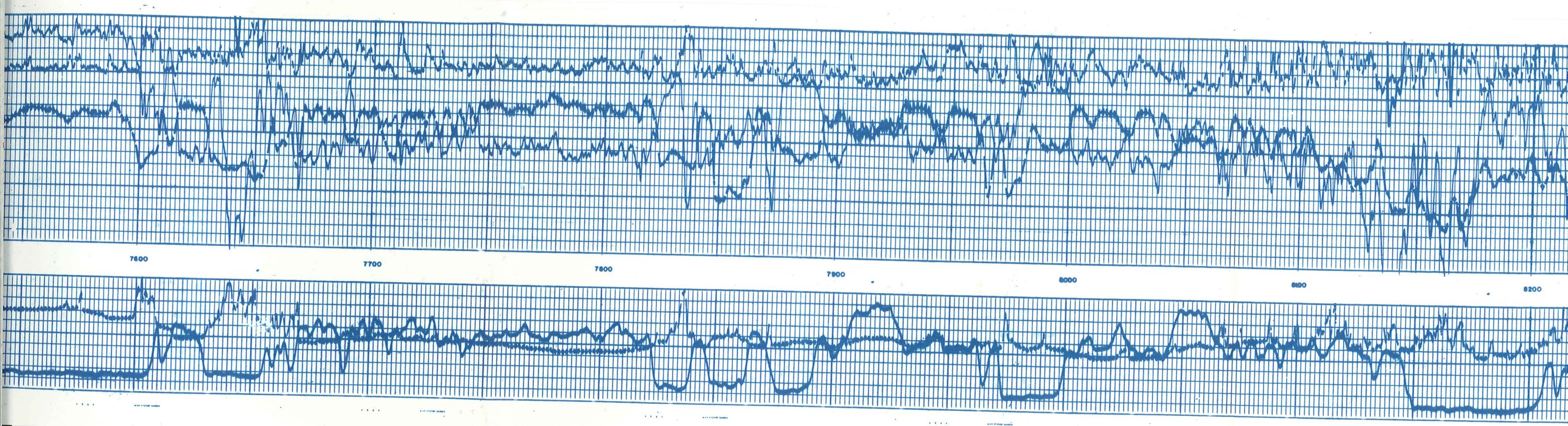
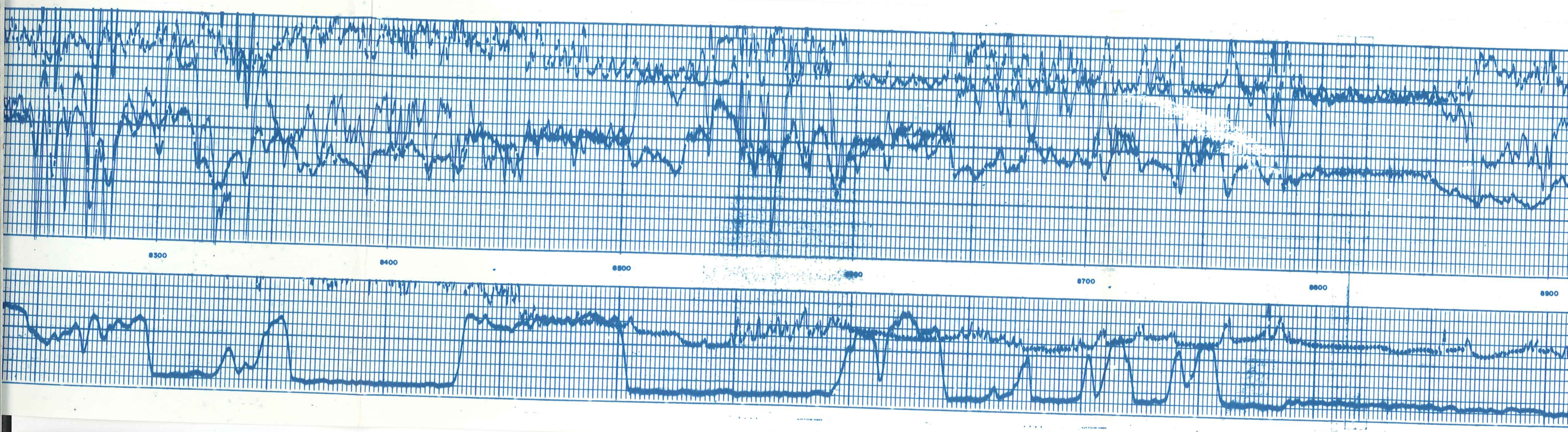
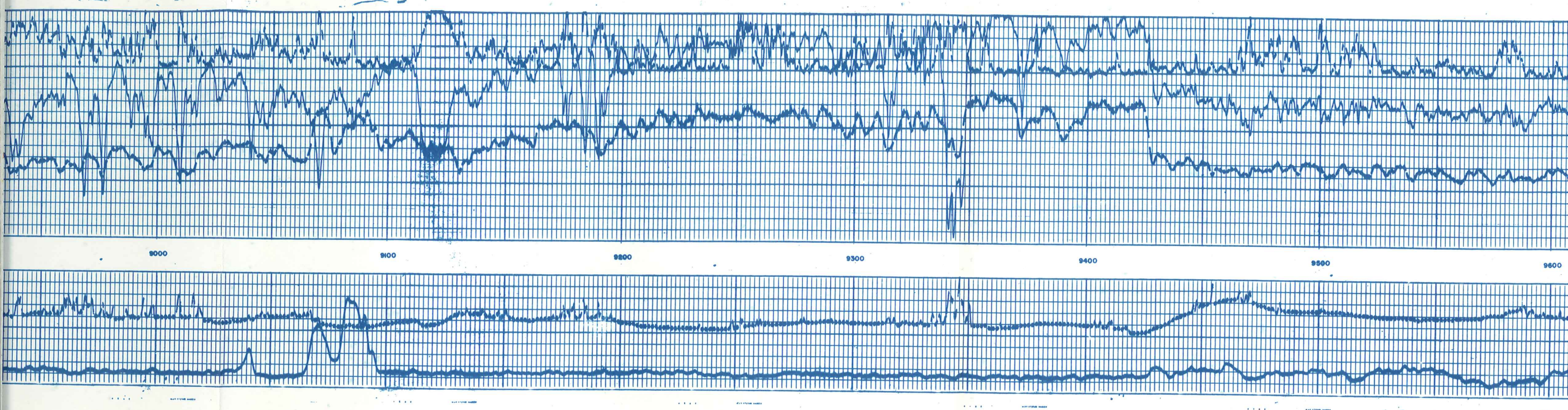
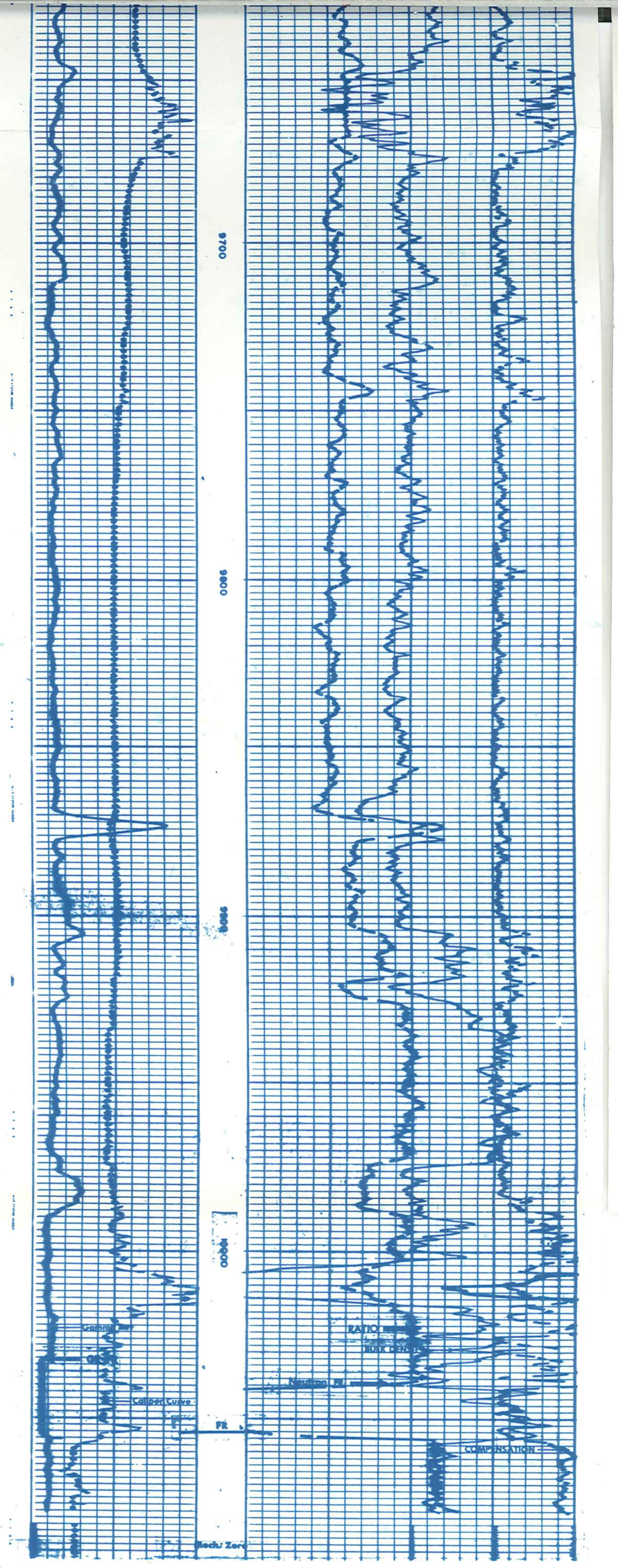
7000
7100
7200
7300
7400
7500

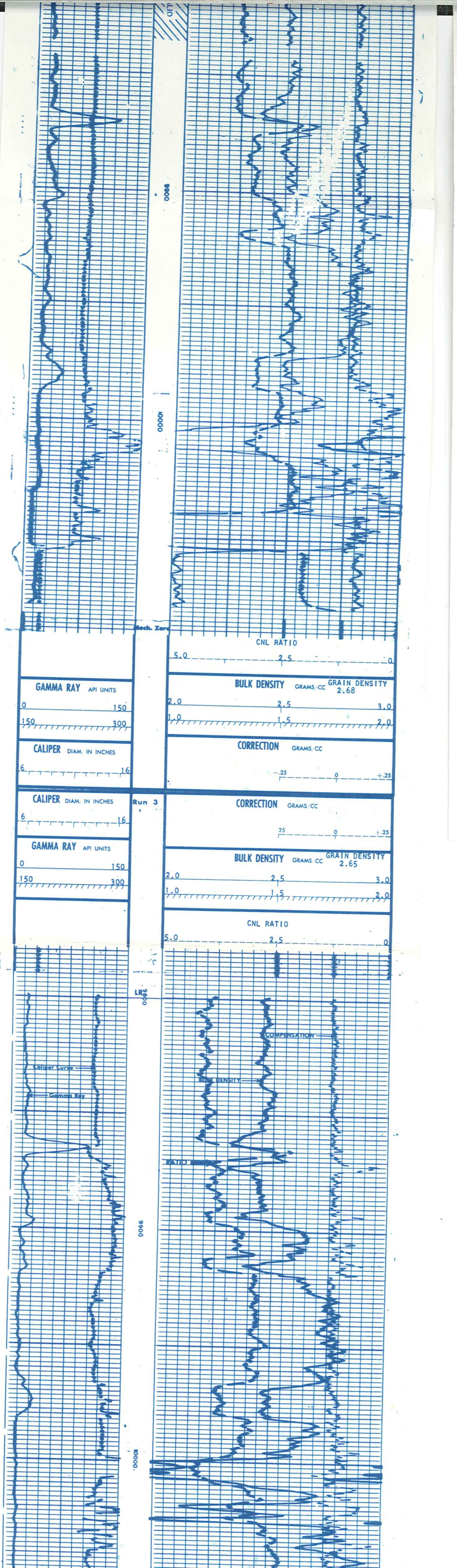

7600
7700
7800
7900
8000
8100
8200

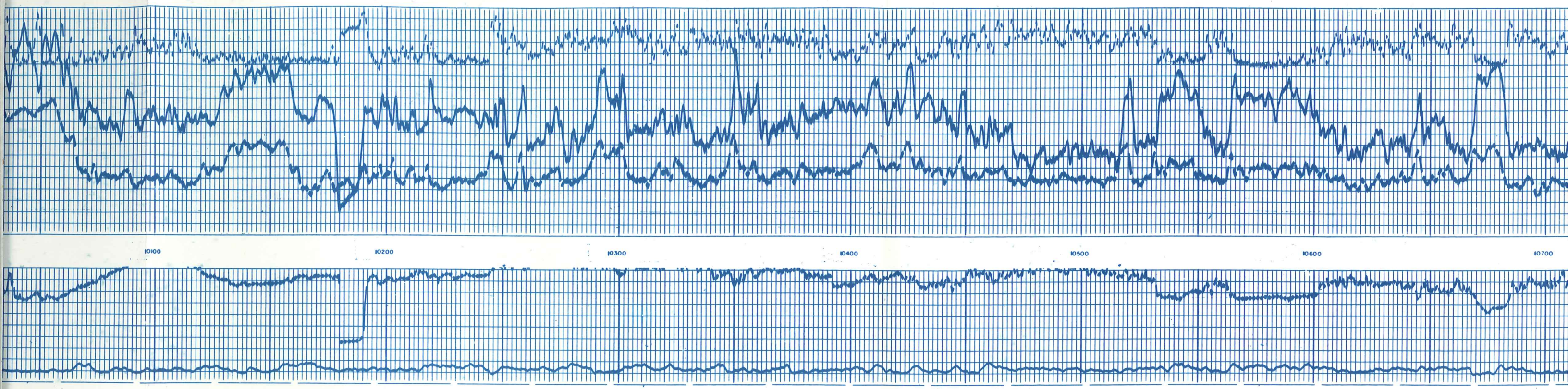

8300
8400
8500
8600
8700
8800
8900

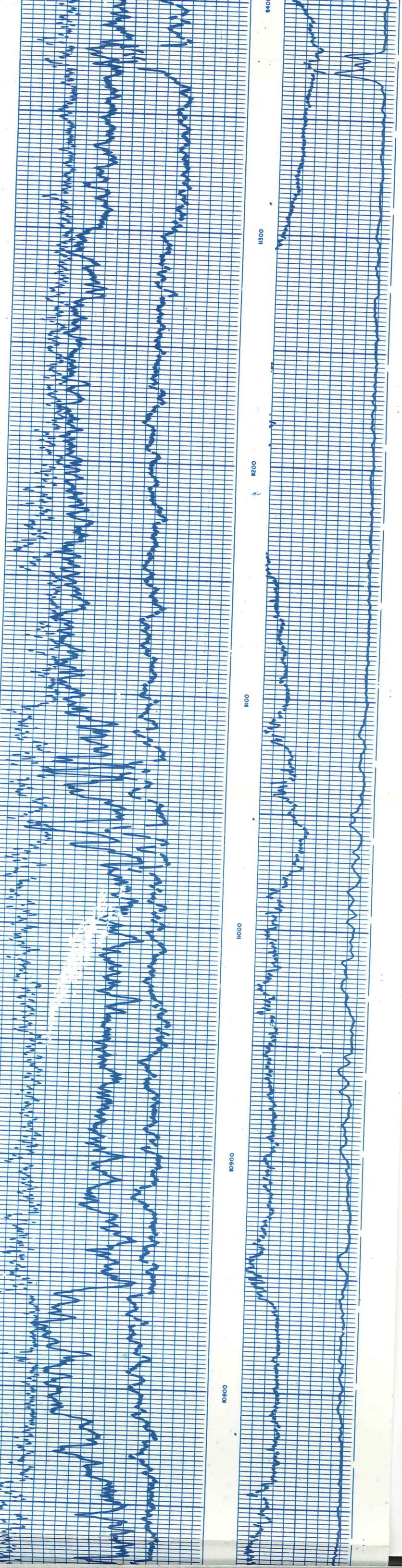

9000
9100
9200
9300
9400
9500
9600

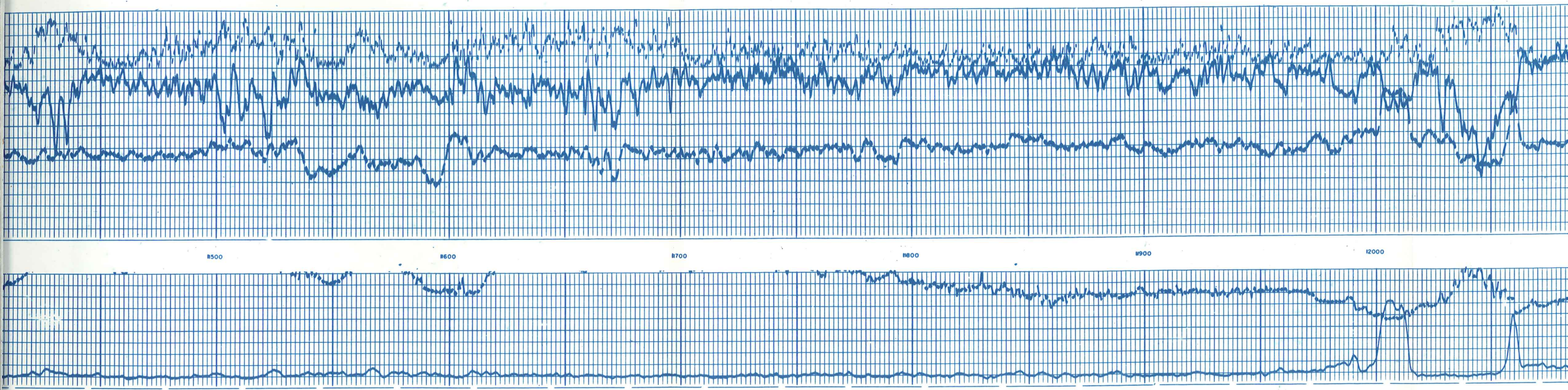

9700
9800
9900
Caliper Curve
FR
COMPENSATION
Mech. Zero

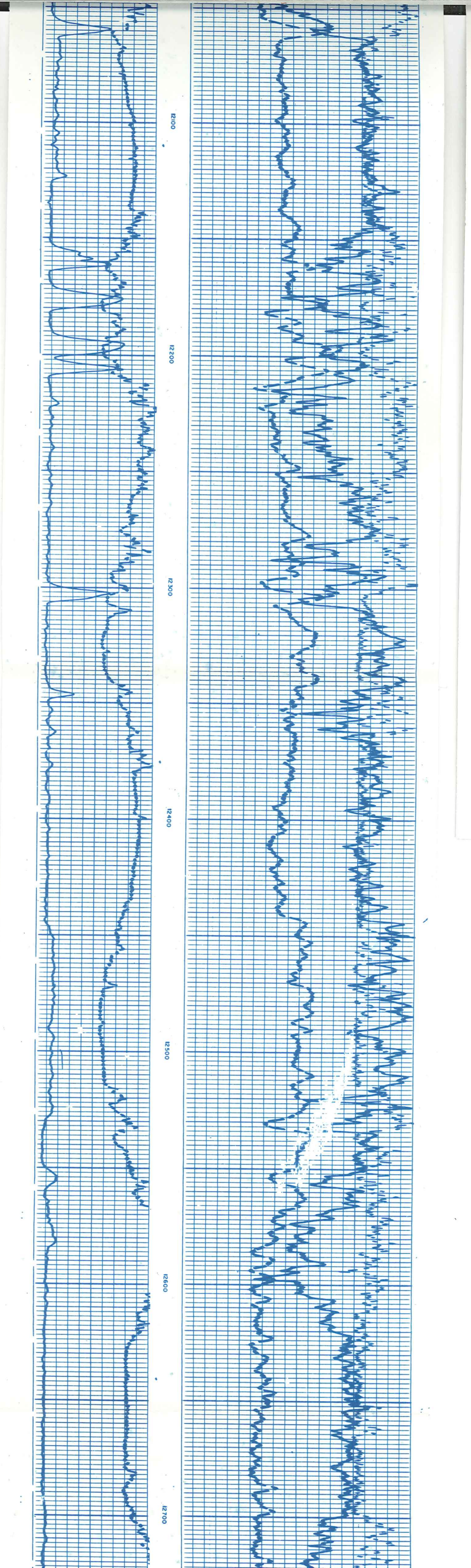
REPEAT SECTION
MEMORIZED CURVES INVALID
Caliper Curve
Gamma Ray
RATIO
COMPENSATION

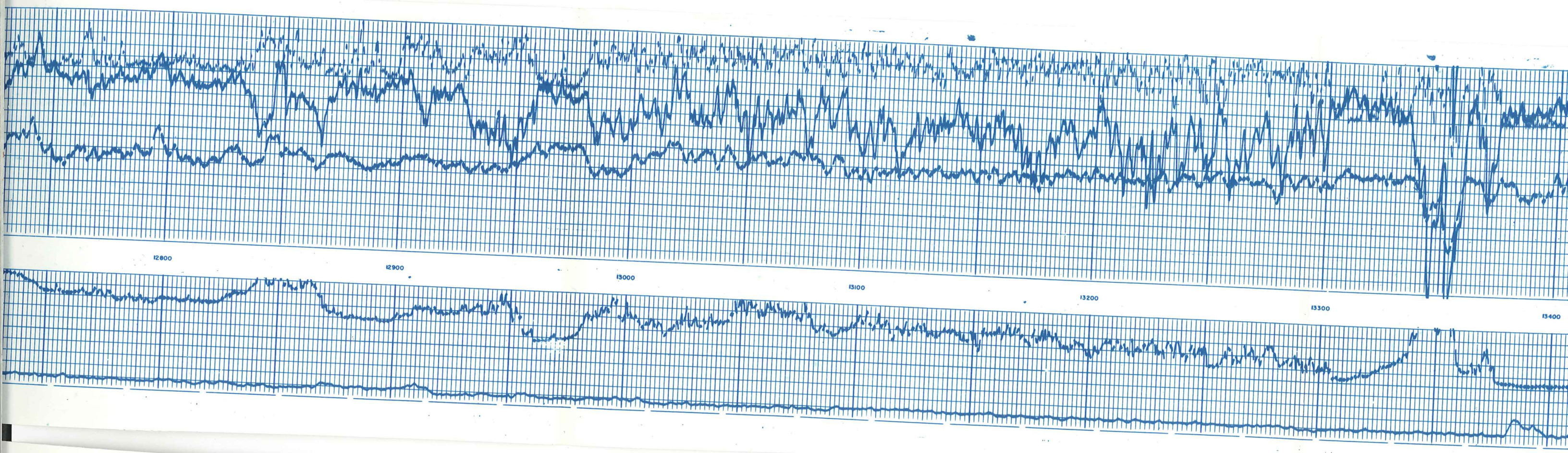

CNL RATIO
5.0
2.5
0
GAMMA RAY API UNITS
0
150
150
300
BULK DENSITY GRAMS/CC
GRAIN DENSITY 2.68
2.0
2.5
3.0
1.0
1.5
2.0
CALIPER DIAM. IN INCHES
6
16
CORRECTION GRAMS/CC
-.25
0
+.25
Run 3
CALIPER DIAM. IN INCHES
6
16
CORRECTION GRAMS/CC
.25
0
+.25
GAMMA RAY API UNITS
0
150
150
300
BULK DENSITY GRAMS/CC
GRAIN DENSITY 2.65
2.0
2.5
3.0
1.0
1.5
2.0
CNL RATIO
5.0
2.5
0
9900
10000
COMPENSATION
Caliper Curve
Gamma Ray
BULK DENSITY
RATIO

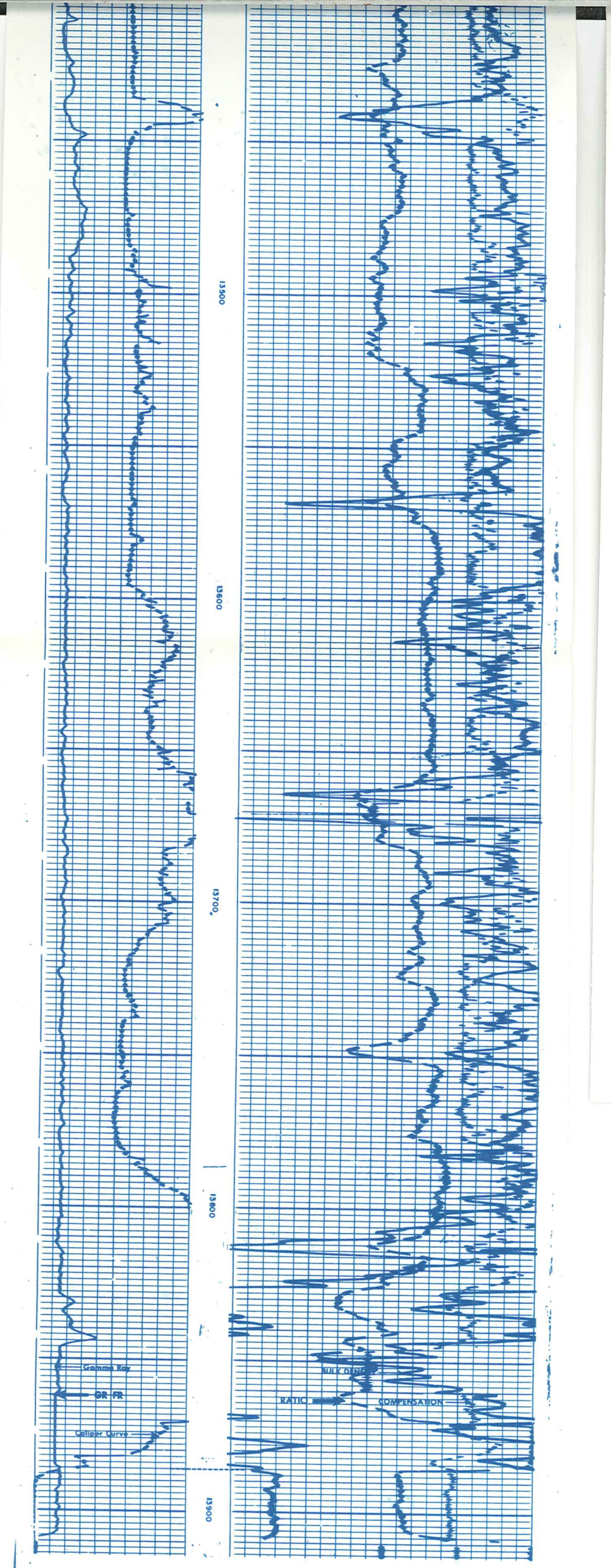

10100
10200
10300
10400
10500
10600
10700

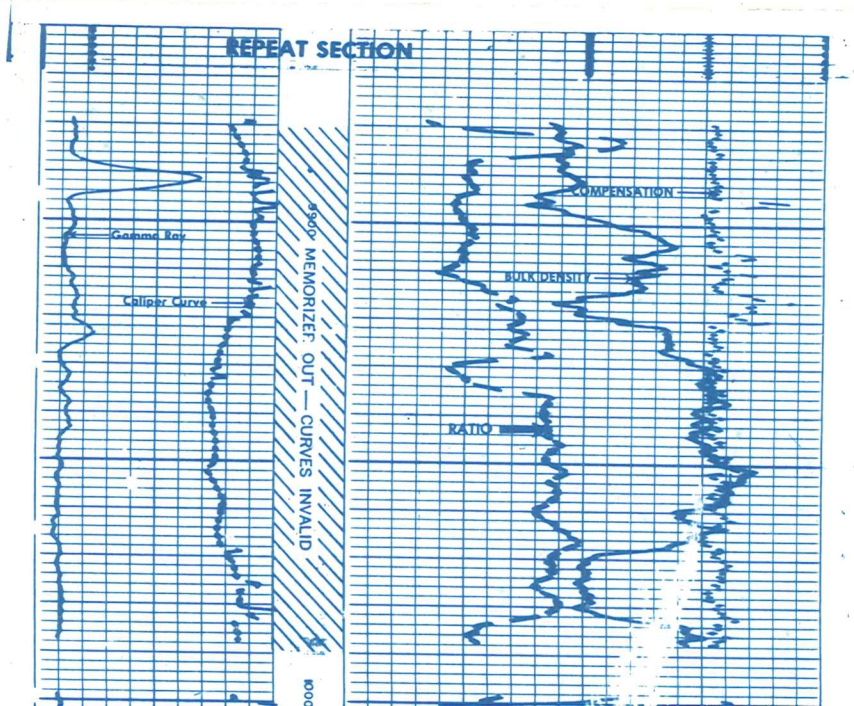

8400
11300
8200
11100
10900
10800


11500
11600
11700
11800
11900
12000


12100
12200
12300
12400
12500
12600
12700


12800
12900
13000
13100
13200
13300
13400


13500
13600
13700
13800
13900
Gamma Ray
SR FR
Caliper Curve
BULK DENSITY
RATIO
COMPENSATION


REPEAT SECTION
Gamma Ray
Caliper Curve
13900 MEMORIZED OUT — CURVES INVALID
COMPENSATION
BULK DENSITY
RATIO

10000

10100

10200

CNL RATIO

5.0 2.5 0

GAMMA RAY API UNITS

0 150

150 300

BULK DENSITY GRAMS/CC GRAIN DENSITY 2.65

2.0 2.5 3.0

1.0 1.5 2.0

CALIPER DIAM. IN INCHES

6 16

CORRECTION GRAMS/CC

-.25 0 +.25

CALIBRATION RECORD

G. R. SURFACE CALIBRATION

Run 1

6

5

4

3

1

CALIBRATION AFTER SURVEY

NEUTRON CALIBRATION

Run 1

8

7

2

1

CALIBRATION BEFORE SURVEY

NEUTRON CALIBRATION

Run 1

8

7

6

5

4

3

2

1

CNC-A-65

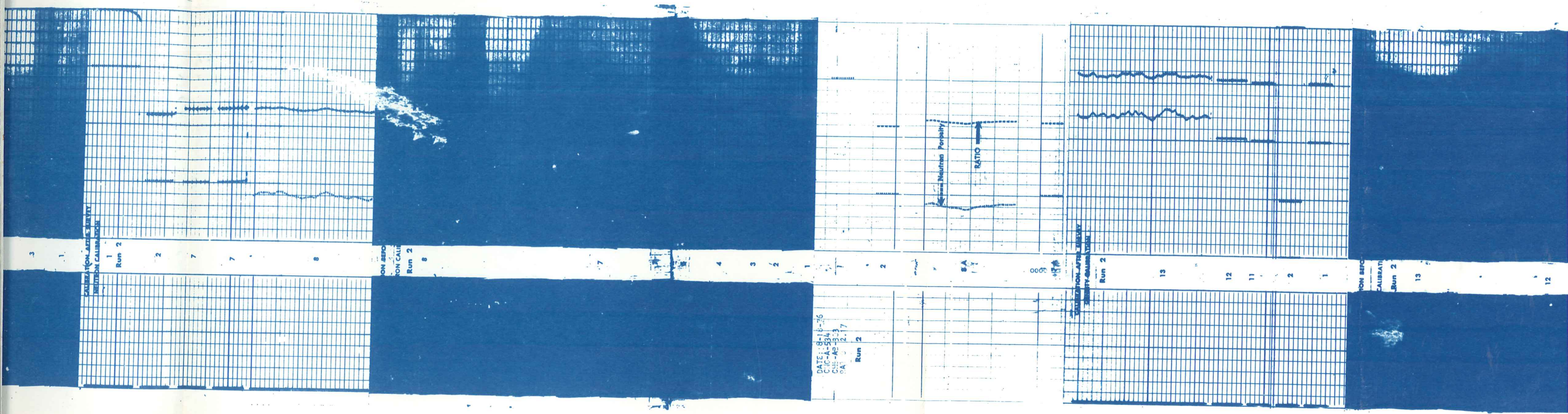
CNE-A-32

RATIO 5.3

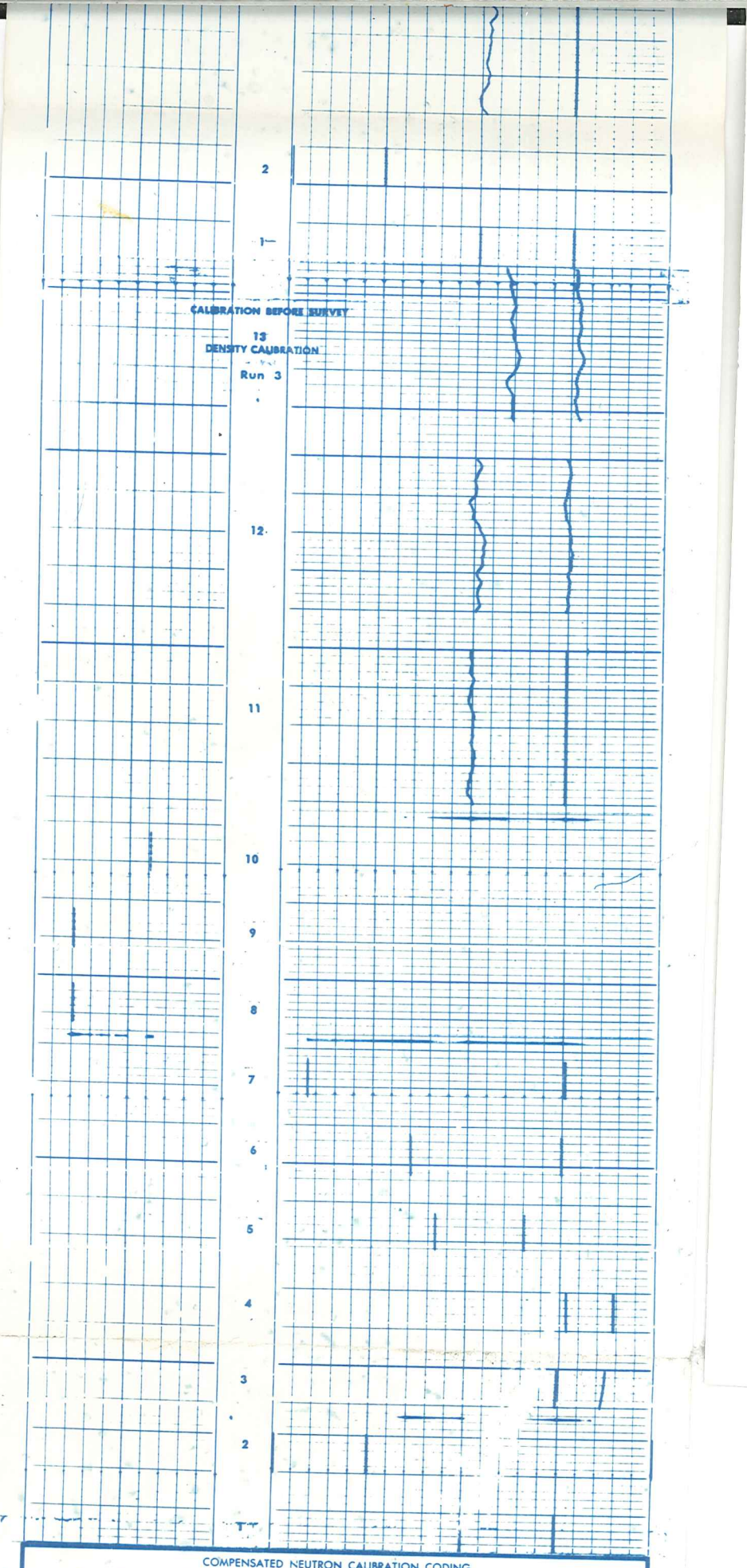
CPS-A-394

CPS-F-432

8Å
Neutron Porosity
RATIO
7 A
2
1
CALIBRATION AFTER SURVEY
DENSITY CALIBRATION
13
12
11
2
1
CALIBRATION BEFORE SURVEY
DENSITY CALIBRATION
13
12
11
10
9
8
7
6
5
4
3
2
1
7-24-76
SFT-186-600
PDH-D-1060
PGS-EC-86
P1 405
P2 564
Run 1
12
11
2
1
FACE CALIB
Run 2
6
5


Run 2
Run 2
Run 2
Run 2
Run 2
Run 2
Neutron Porosity
RATIO
DATE: 8-18-36
CIC-A 534
CIC-A 533
RA - 2.17

9
8
7
6
5
4
3
2
1
FDL
JUNE 15 1976
GSR-B3338
SFT-106-1095
PDH-0-1264
PGD-0-1077
P. 456
P 700
Run 2
1
CALIBRATION AFTER SURVEY
NEUTRON CALIBRATION
Run 3
2
8
7
CALIBRATION BEFORE SURVEY
NEUTRON CALIBRATION
Run 3
3
4
5
6
8
7
CALIBRATION AFTER SURVEY
19
DENSITY CALIBRATION
Run 3
12
11
2



COMPENSATED NEUTRON CALIBRATION CODING

1. MECHANICAL ZERO
2. RECORDED SENSITIVITY (THRU MEMORIZER IF USED

PANEL TEST

RATIO	OH POROSITY LS ☐	OH POROSITY SS ☐	OH POROSITY DOL ☐	CH POROSITY SS ☐	CH POROSITY LS ☐
3. 1	1.6	4.9	−0.2	2.4	0.1
4. 2	15.6	19.7	8.1	13.0	9.0
5. 3	30.5	36.0	25.2	29.1	24.1
6. 4	45.4	53.1	47.5	47.4	43.2

7. POROSITY NORMALIZED WITH CNB-A IN PLACE
   7A. TOOL IN NCT-B
8. LOG POSITION WITH CNB-A IN PLACE
   8A. LOG POSITION WITH TOOL IN NCT-B

OH LS	OH SS	OH DOL	CH SS	CH LS
18	22.2	10.4	15.3	11.2

RATIO (NORMALIZED) = $\frac{2.17}{\text{RATIO (NCT-B)}}$ RATIO LOG

FORMATION DENSITY COMPENSATED CALIBRATION CODING

1. MECHANICAL ZERO
2. RECORDER SENSITIVITY

PANEL TEST — FDC LIQUID

POS	ρ	$\Delta\rho$
3. # 1	2.92	.00
4. # 2	2.78	+.14
6. # 3	2.42	−.10
6. # 4	2.35	.00
7. # 5	2.08	.01

8. MECHANICAL ZERO CALIPER
9. 8" RING
10. 1"" RING
11. TOOL CALIBRATE #1 SET $\rho = 2.50$
12. TOOL CALIBRATE #2 SET $\Delta\rho = .00$
13. LOG POSITION $\rho = 2.59$, $\Delta\rho = .015$

GAMMA RAY CALIBRATION CODING

1. MECHANICAL ZERO
2. ELECTRICAL ZERO
3. RECORDER SENSITIVITY
4. MEMORIZER ADJUSTMENT
5. BACKGROUND
6. CALIBRATE - SOURCE IN PLACE

CALIBRATION RECORD

COMPANY MICHEL T. HALBOUTY ET AL

WELL J. N. JAMES #1

FIELD WILDCAT

COUNTY ADA STATE IDAHO

SCHL. FR 13886
SCHL. TD 13886
DRLR. TD 14000

Elev: KB 2571
DF ----
GL 2551

BWB-2244