# Schlumberger

# INDUCTION-ELECTRICAL LOG

COUNTY LEWIS
FIELD or LOCATION JACKSON PRAIRIE 17-12N-1W
WELL STORAGE UNIT #901
COMPANY JACKSON PRAIRIE

COMPANY JACKSON PRAIRIE GAS STORAGE COMPANY

WELL STORAGE UNIT #901

FIELD JACKSON PRAIRIE

COUNTY LEWIS STATE WASHINGTON

LOCATION 274'S & 834'E FROM THE N/4 CORNER OF:

Other Services: CBL, HDT, SNP, FDC

Sec. 17 Twp. 12N Rge. 1W

Permanent Datum: GL, Elev. 525
Log Measured From KB, 12 Ft. Above Perm. Datum
Drilling Measured From KB

Elev.: K.B. 537
D.F. -
G.L. 525

| | | | | |
|---|---|---|---|---|
| Date | 4/17/72 | 4/25/72 | | |
| Run No. | ONE | TWO | | |
| Depth—Driller | 2088 | 3144 | | |
| Depth—Logger | 2091 | 3144 | | |
| Btm. Log Interval | 2090 | 3143 | | |
| Top Log Interval | 618 | 2090 | | |
| Casing—Driller | 13-3/8 @ 618 | 13-3/8 @ 618 | @ | @ |
| Casing—Logger | 618 | 618 | | |
| Bit Size | 12-1/4 | 9-7/8 | | |
| Type Fluid in Hole | FRESH | FRESH | | |
| Dens. \| Visc. | 10.4 \| 40 | 10.6 \| 41 | \| | \| |
| pH \| Fluid Loss | 9 \| 6.5 ml | 9 \| 6.5ml | \| ml | \| ml |
| Source of Sample | CIRC. | CIRC. | | |
| $R_m$ @ Meas. Temp. | 3.48 @ 62 °F | 3.67 @ 53 °F | @ °F | @ °F |
| $R_{mf}$ @ Meas. Temp. | 3.63 @ 48 °F | 2.91 @ 50 °F | @ °F | @ °F |
| $R_{mc}$ @ Meas. Temp. | 5.2 @ 48 °F | 5.0 @ 50 °F | @ °F | @ °F |
| Source: $R_{mf}$ \| $R_{mc}$ | M \| M | M \| C | \| | \| |
| $R_m$ @ BHT | 2.4 @ 90 °F | 2.05 @ 100 °F | @ °F | @ °F |
| Time Since Circ. | 3 HRS. | 3 HRS. | | |
| Max. Rec. Temp. | 90 °F | 100 °F | °F | °F |
| Equip. \| Location | 5106 \| 4401 | 5106 \| 4401 | \| | \| |
| Recorded By | ANDERSEN | ANDERSEN | | |
| Witnessed By | WURDEN | WURDEN | | |

FOLD HERE The well name, location and borehole reference data were furnished by the customer.

REMARKS

Changes in Mud Type or Additional Samples

| | | |
|---|---|---|
| Date \| Sample No. | | |
| Depth—Driller | | |
| Type Fluid in Hole | | |
| | | |
| Dens. \| Visc. | | |
| ph \| Fluid Loss | ml | |
| Source of Sample | | |
| $R_m$ @ Meas. Temp. | @ °F | @ °F |
| $R_{mf}$ @ Meas. Temp. | @ °F | @ °F |
| $R_{mc}$ @ Meas. Temp. | @ °F | @ °F |
| Source: $R_{mf}$ \| $R_{mc}$ | | |
| $R_m$ @ BHT | @ °F | @ °F |
| $R_{mf}$ @ BHT | @ °F | @ °F |
| $R_{mc}$ @ BHT | @ °F | @ °F |

Scale Changes

| Type Log | Depth | Scale Up Hole | Scale Down Hole |
|---|---|---|---|
| | | | |

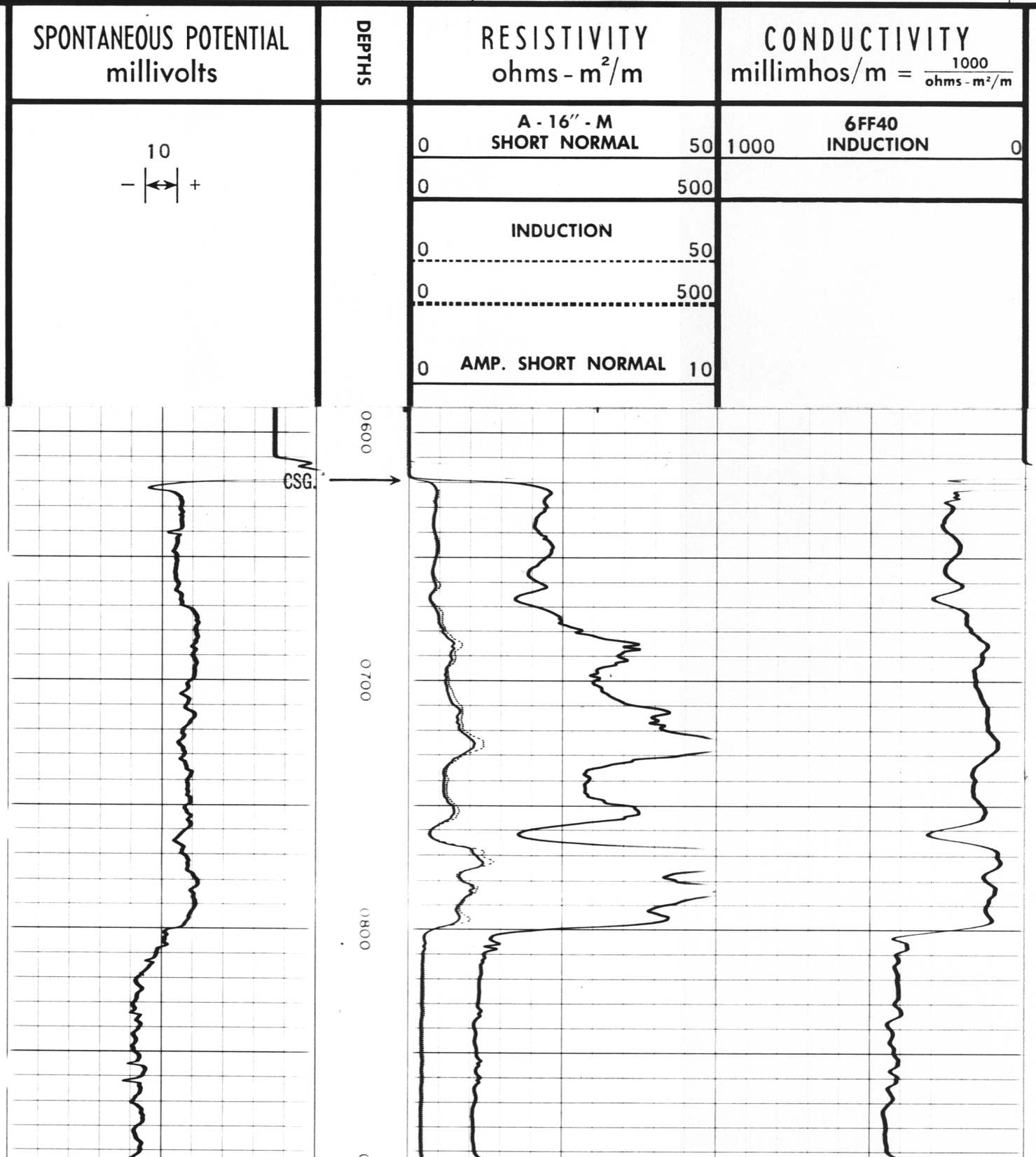
Equipment Data

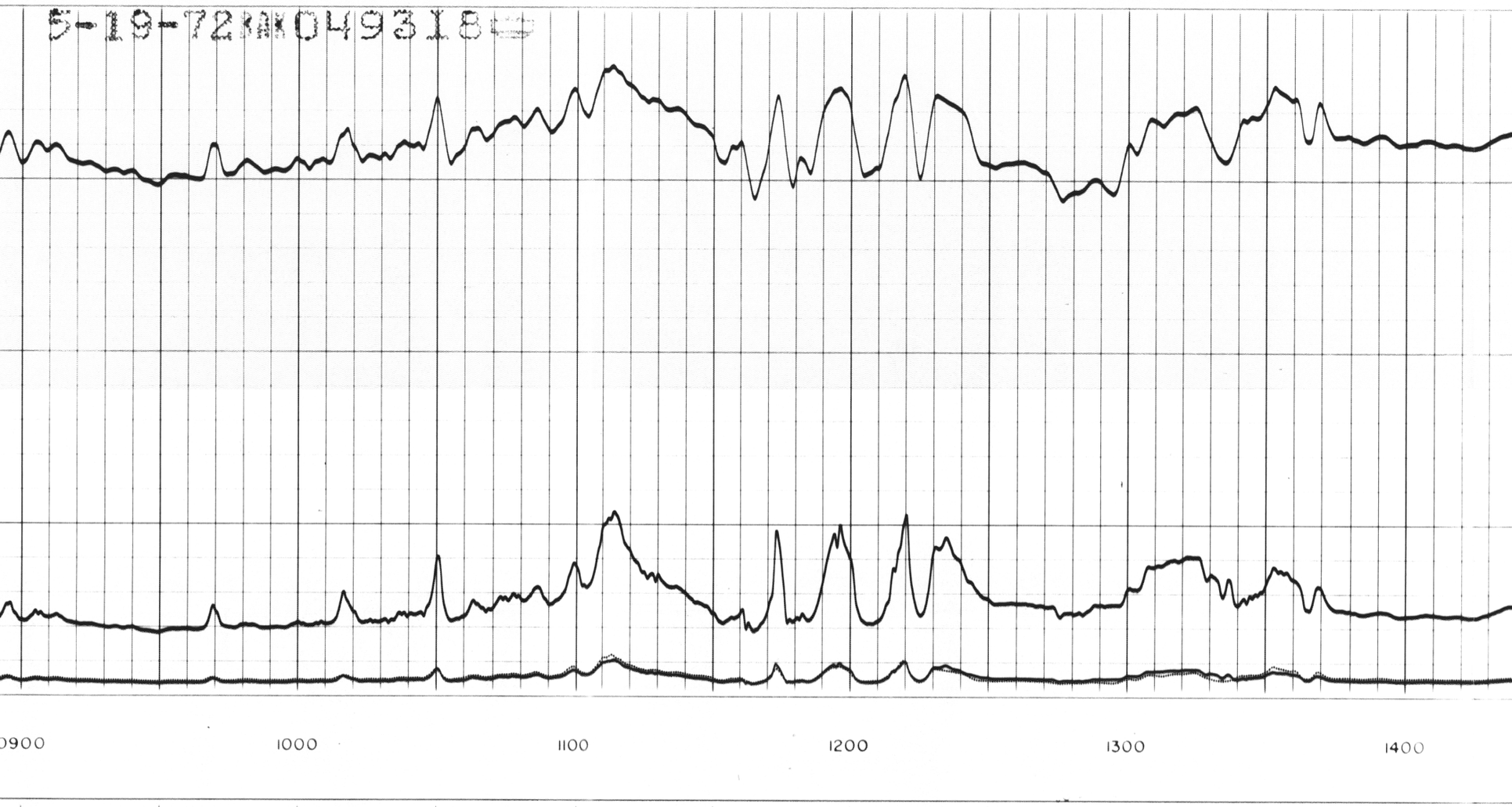
| Run No. | Tool Type | Tool Position | Other |
|---|---|---|---|
| ONE | 6FF40 | STAND-OFF | |

Run No.: ONE & TWO
C.D.: USED
S.O.: 1.5
Equip. PANEL No.: M-485
Used: CART. No.: F-419

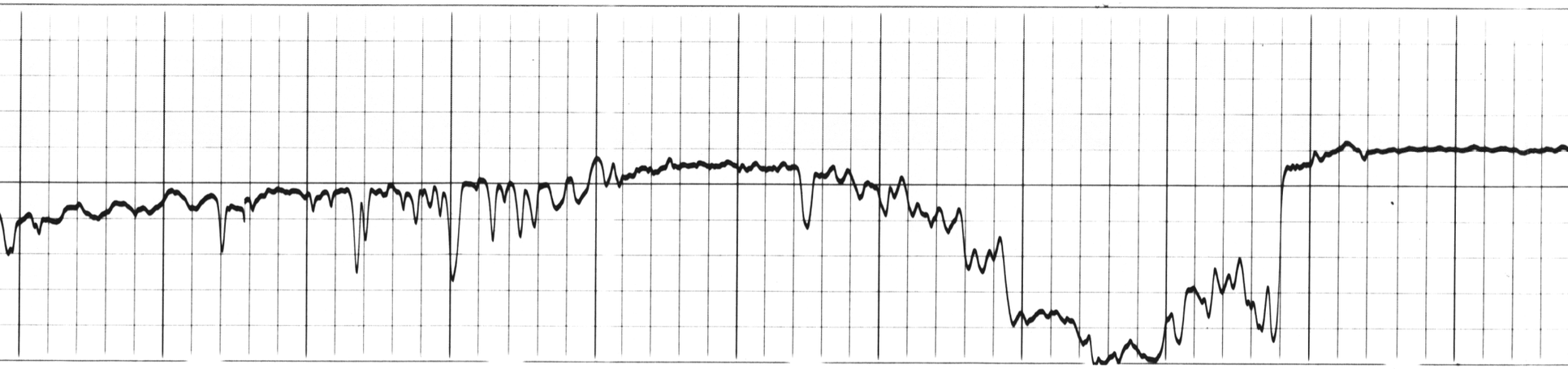
SONDE No.: M-585
IAP No.: B-370
S.B.R.: 1

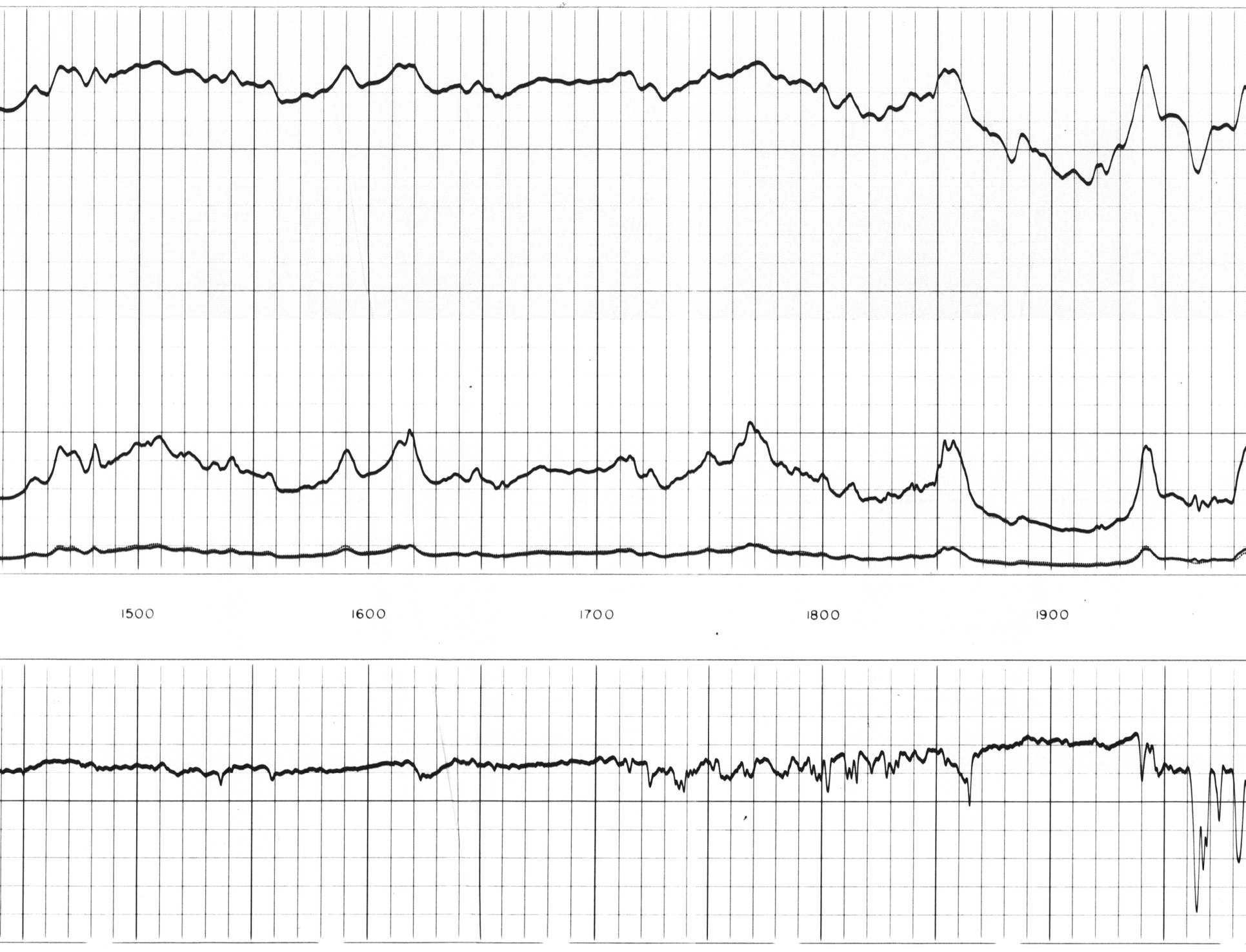
Check one, filling in blanks where applicable:
- [X] Surface determined sonde errors used for 6FF40.
- [ ] 6FF40 sonde error corrected for _____ inch borehole signal at Rm = _____
- [ ] 6FF40 zero set in hole at depth of _____ feet.

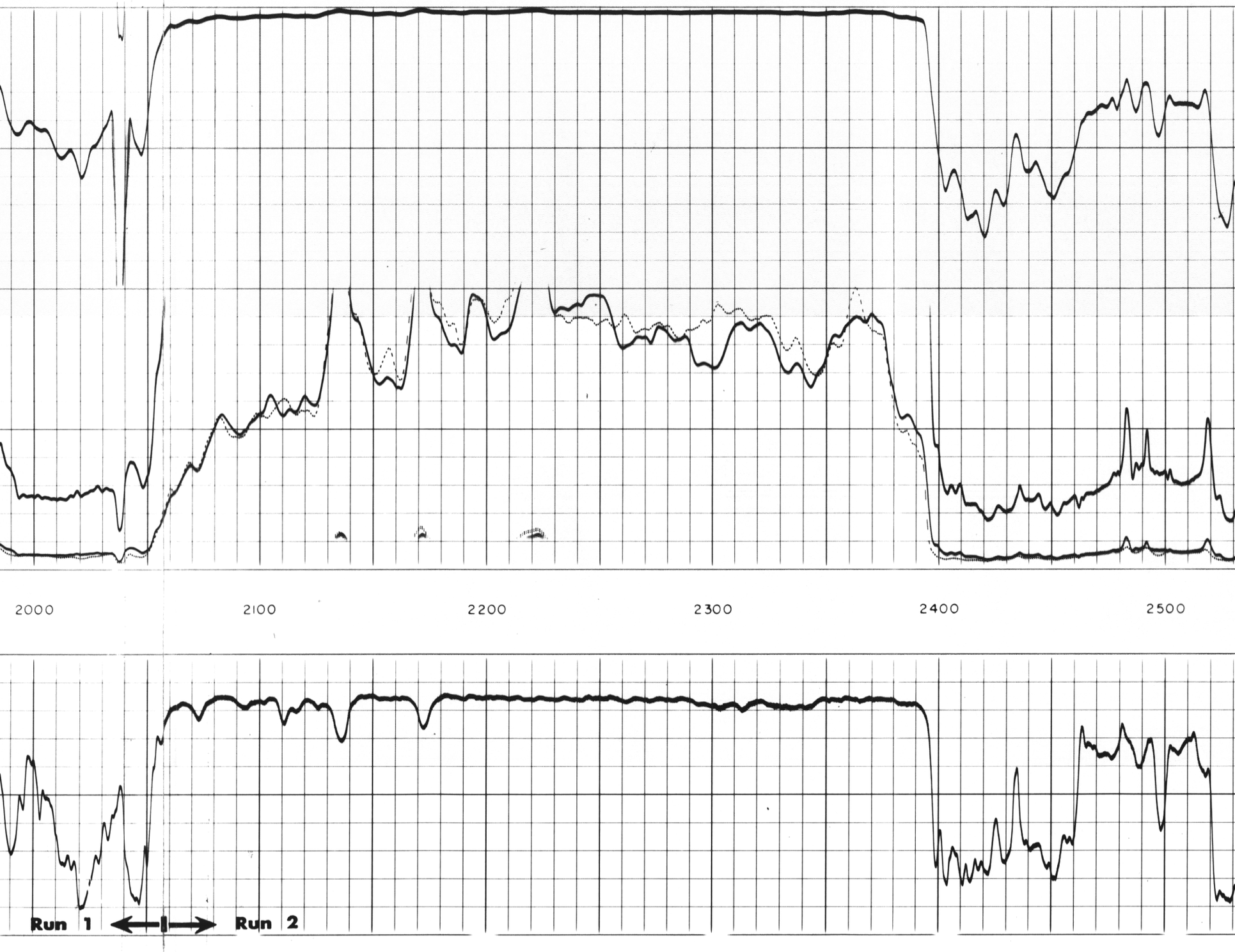


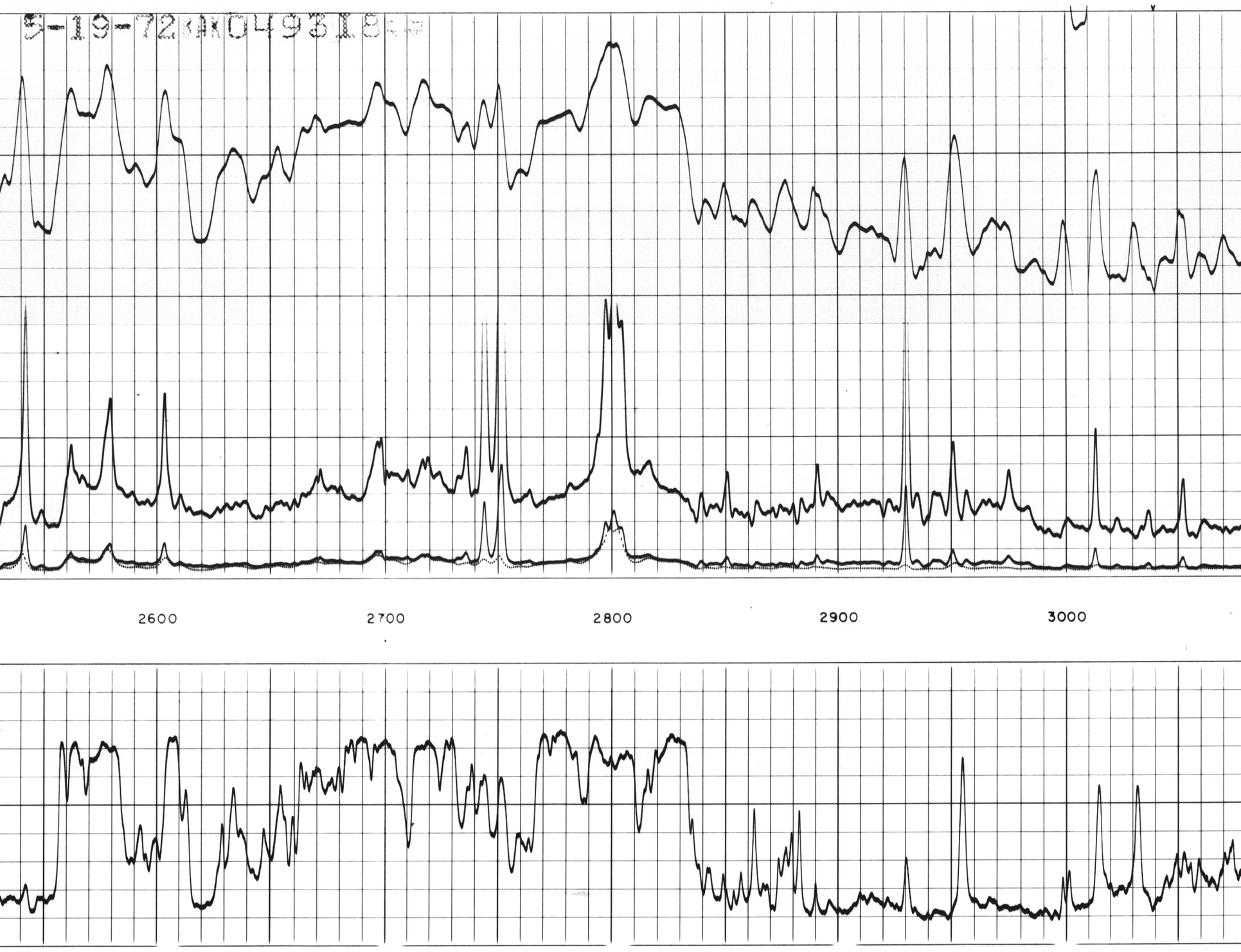


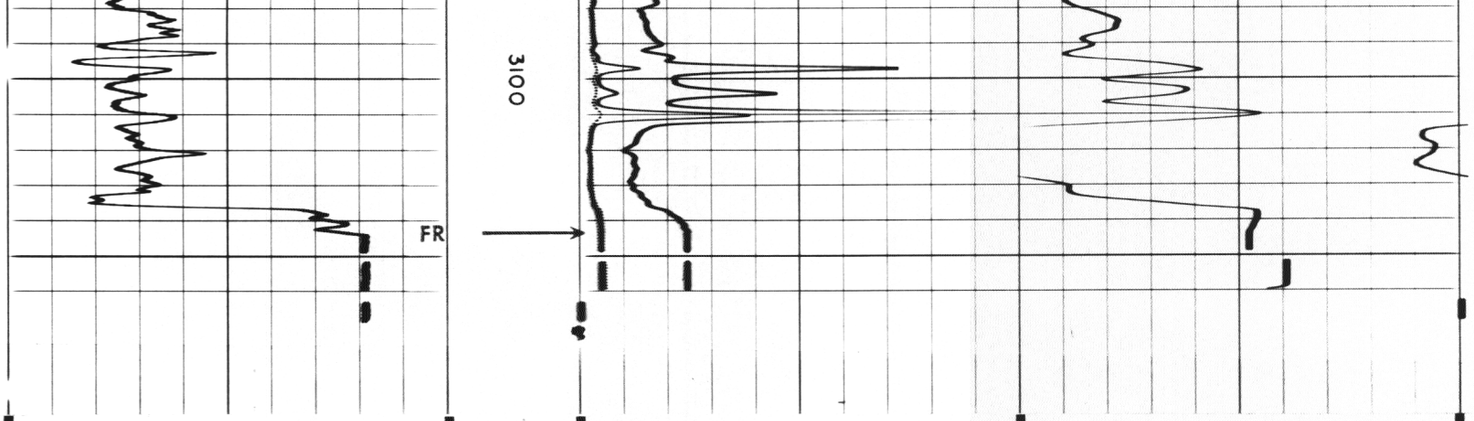

0900 1000 1100 1200 1300 1400




1500
1600
1700
1800
1900


2000
2100
2200
2300
2400
2500
Run 1
Run 2


5-19-72
2600
2700
2800
2900
3000




| SPONTANEOUS-POTENTIAL millivolts | DEPTHS | RESISTIVITY ohms - $m^2/m$ | CONDUCTIVITY millimhos/m = $\frac{1000}{\text{ohms-m}^2/\text{m}}$ |
|---|---|---|---|
| 10<br>– \|↔\| + | | 0 AMP. SHORT NORMAL 10<br>A-16″-M SHORT NORMAL<br>0 50<br>0 500<br>INDUCTION<br>0 50<br>0 500 | 6 FF40 INDUCTION<br>1000 0 |

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WELL STORAGE UNIT #901

FIELD JACKSON PRAIRIE

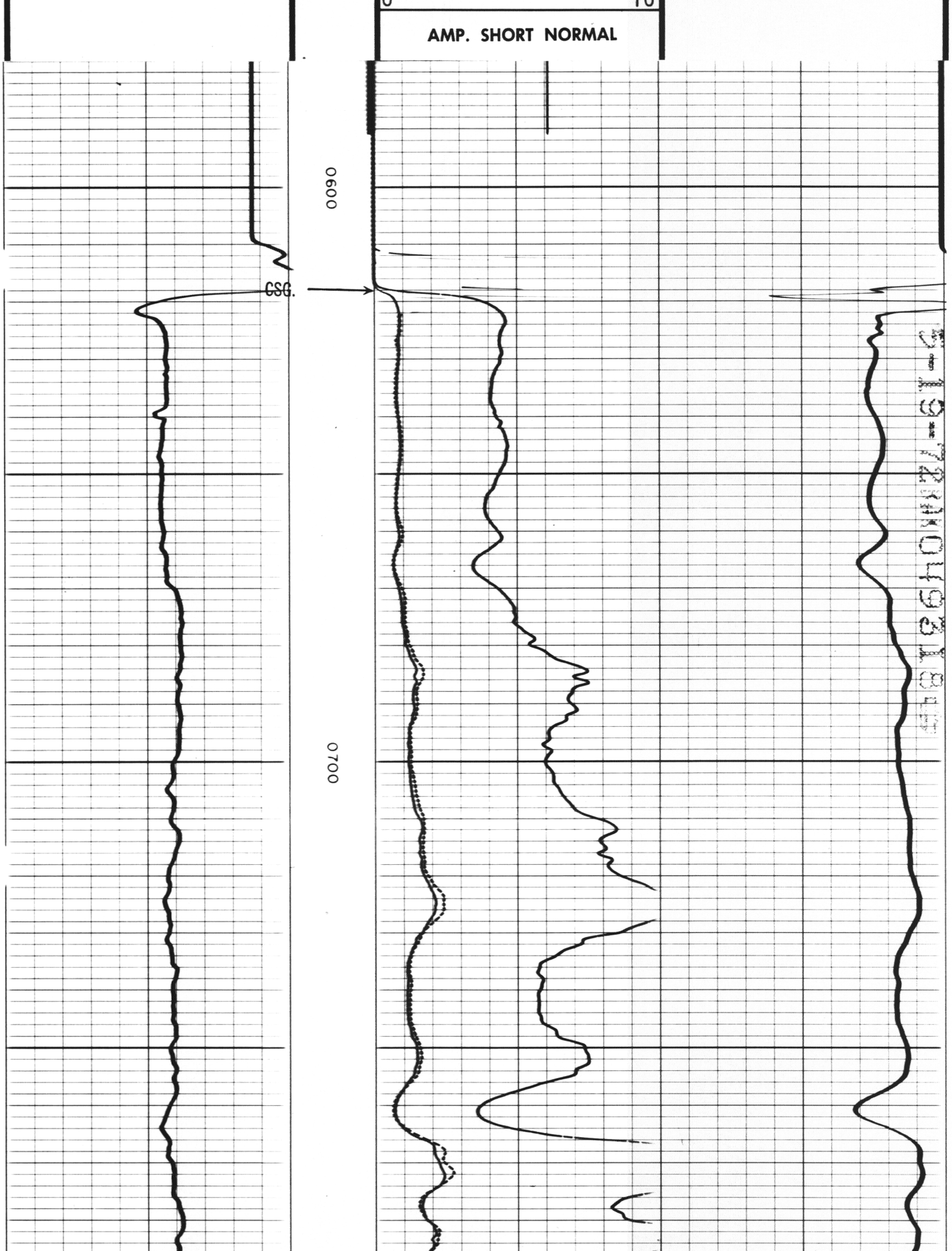
COUNTY LEWIS STATE WASHINGTON

SCHL. FR 3143
SCHL. TD 3144
DRLR TD 3144
Elev:
KB 537
DF -
GL 525

## DETAIL LOG

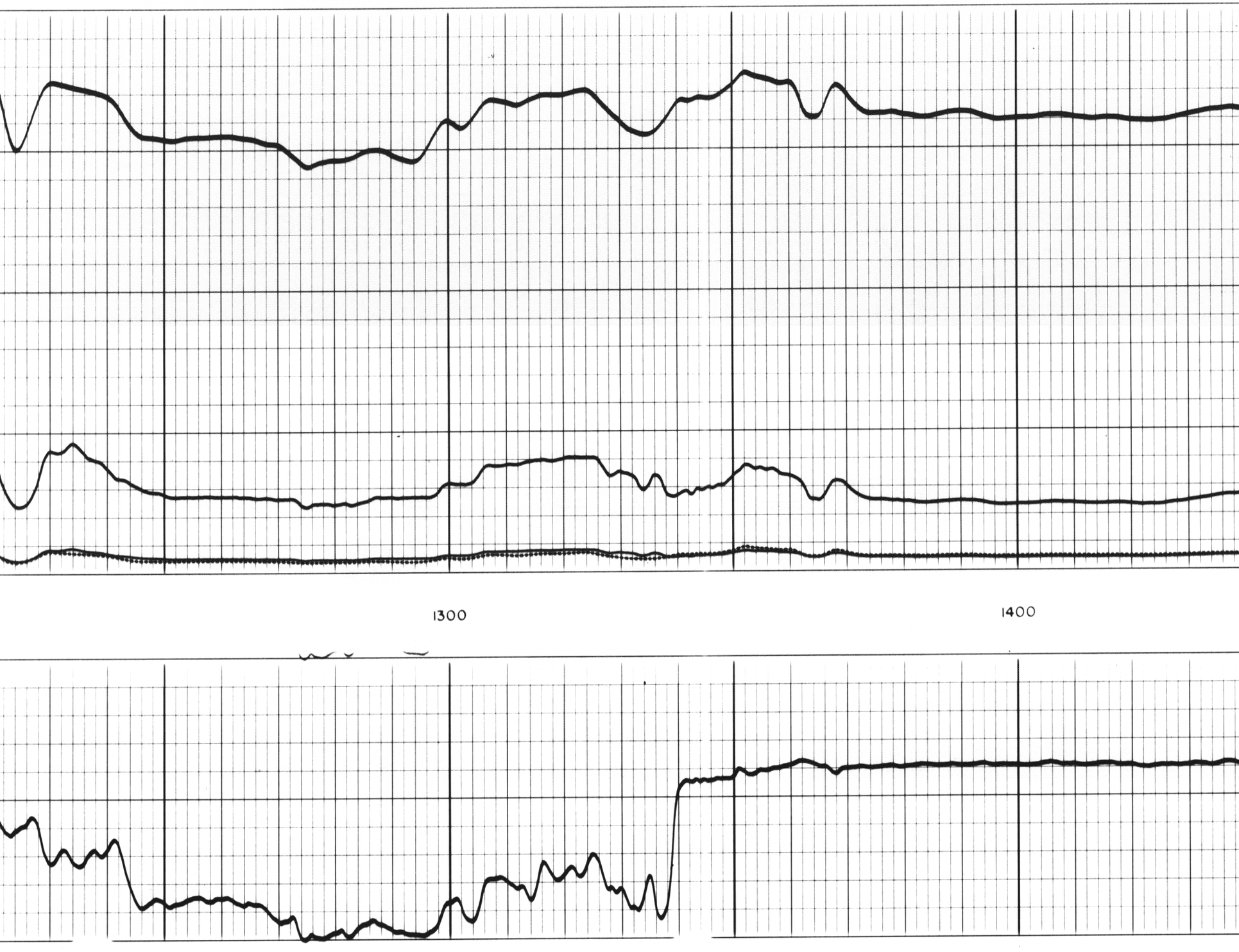
5″ = 100′

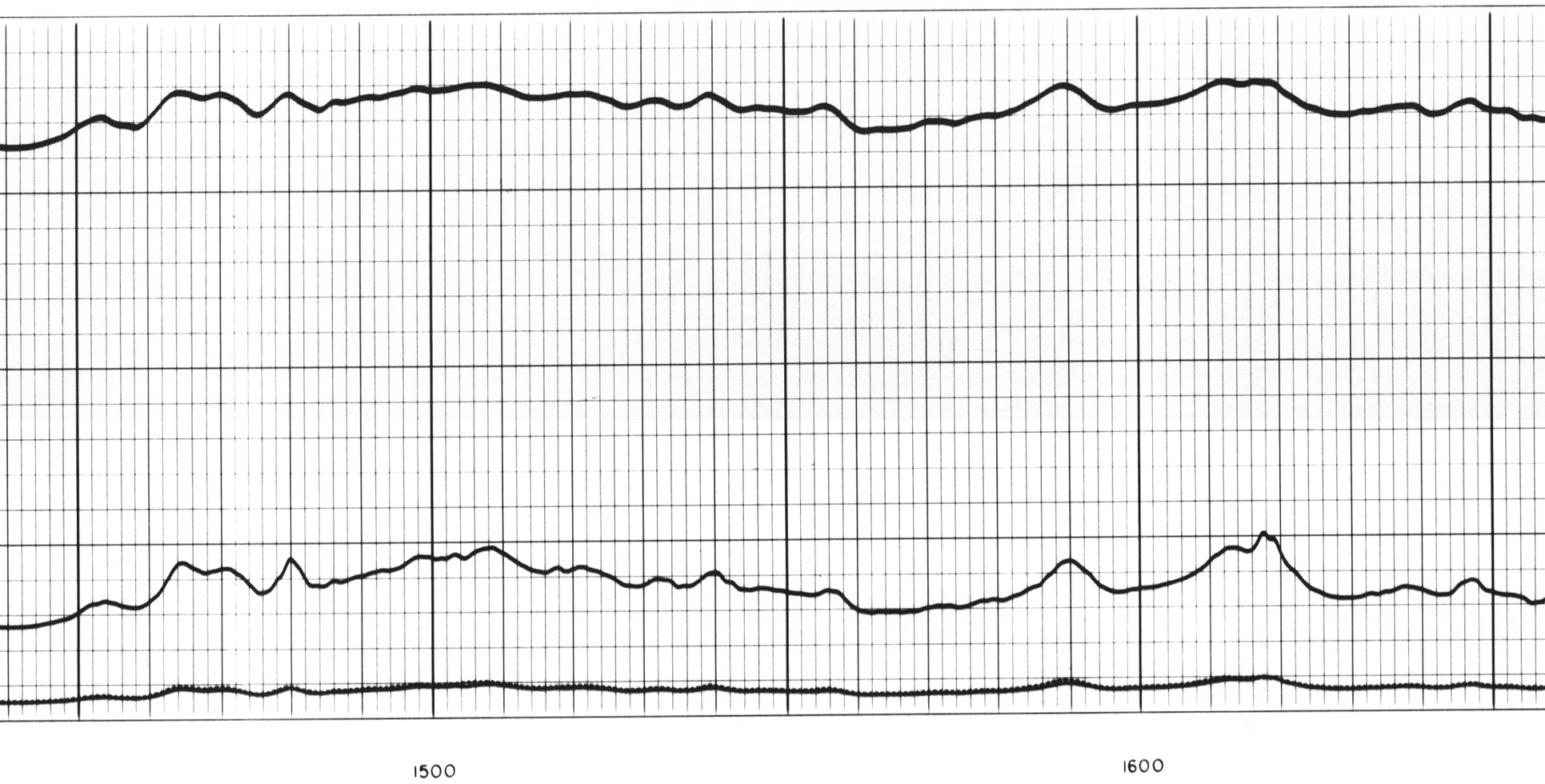
| SPONTANEOUS-POTENTIAL millivolts | DEPTHS | RESISTIVITY ohms - $m^2/m$ | CONDUCTIVITY millimhos/m = $\frac{1000}{\text{ohms-m}^2/\text{m}}$ |
|---|---|---|---|
| 10<br>– \|↔\| + | | A-16″-M SHORT NORMAL<br>0 50<br>0 500<br>0 50<br>INDUCTION<br>0 500<br>0 10 | 6 FF40 INDUCTION<br>1000 0 |

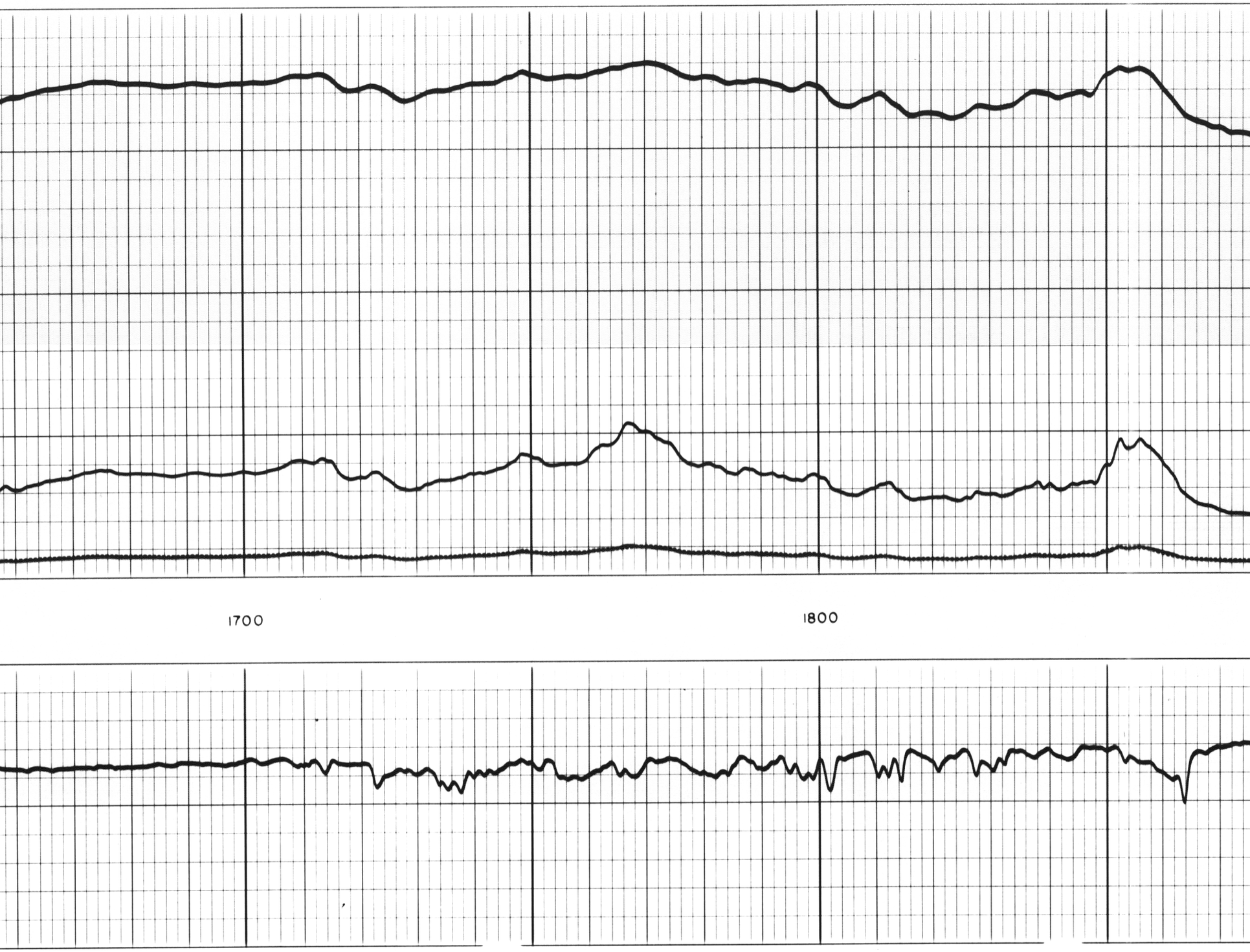

AMP. SHORT NORMAL
0600
CSG.
0700

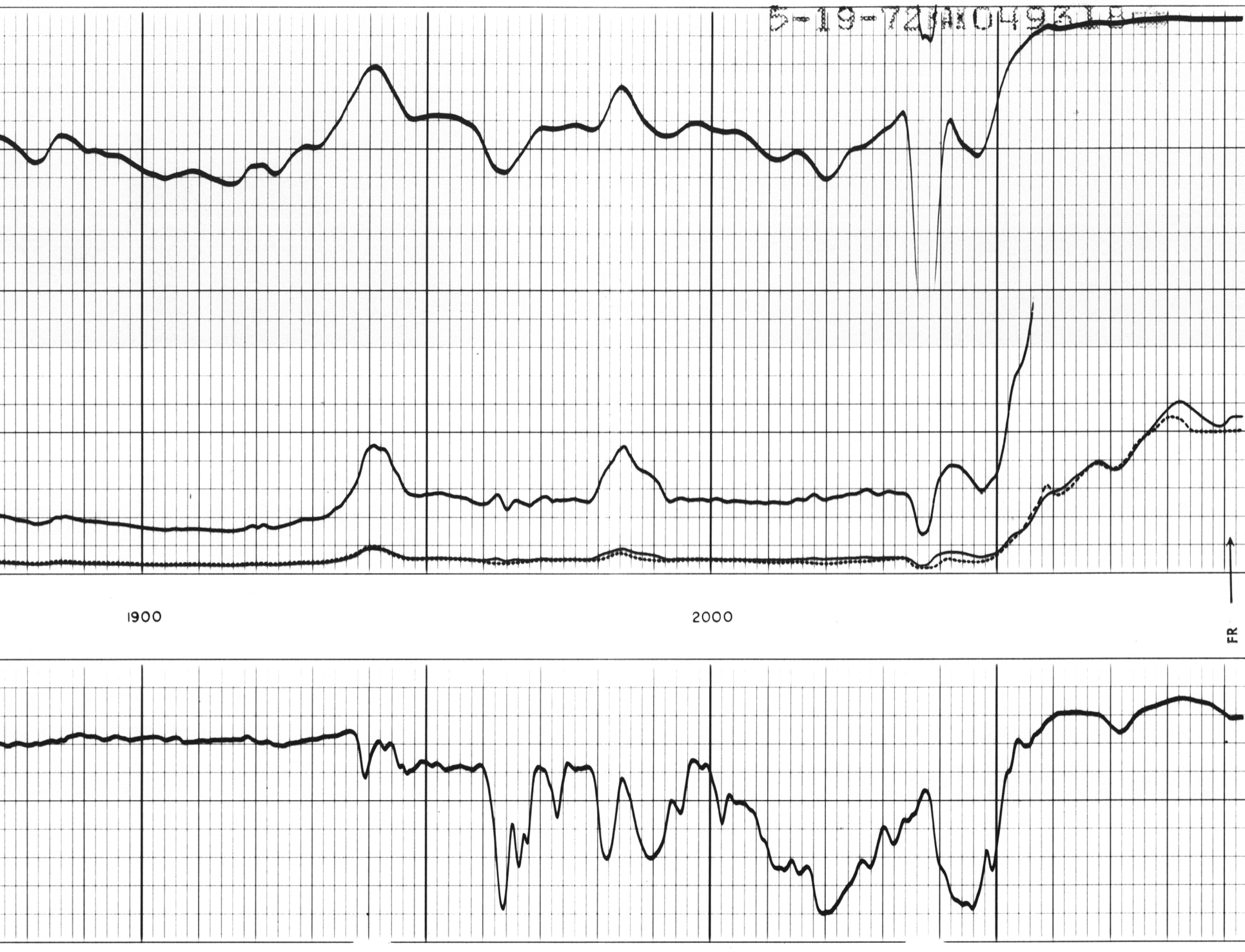
0001
0060
0080

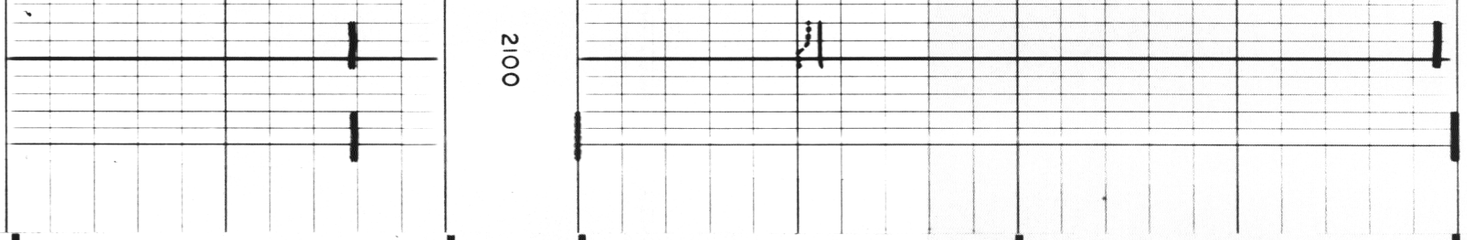
1100
1200


1300
1400


1500
1600


1700
1800

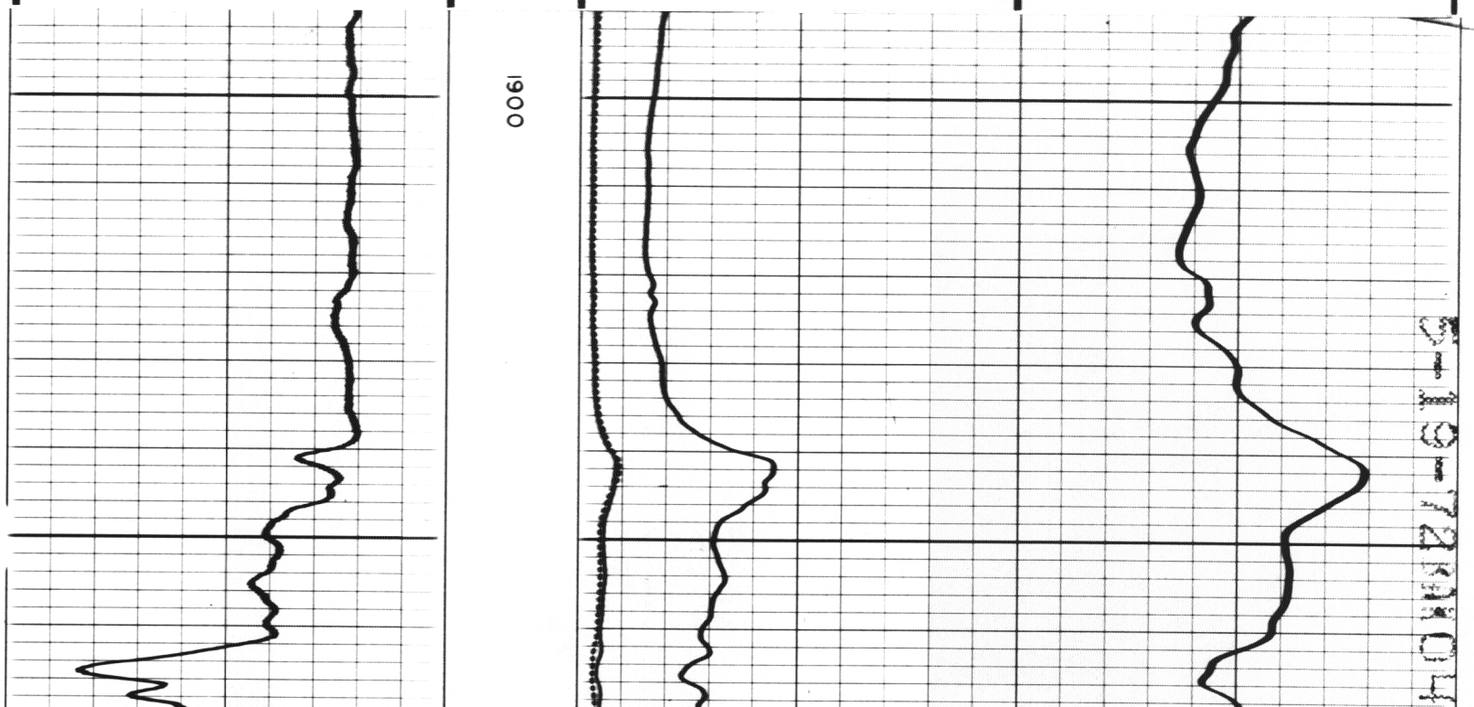

5-19-72
1900
2000
FR



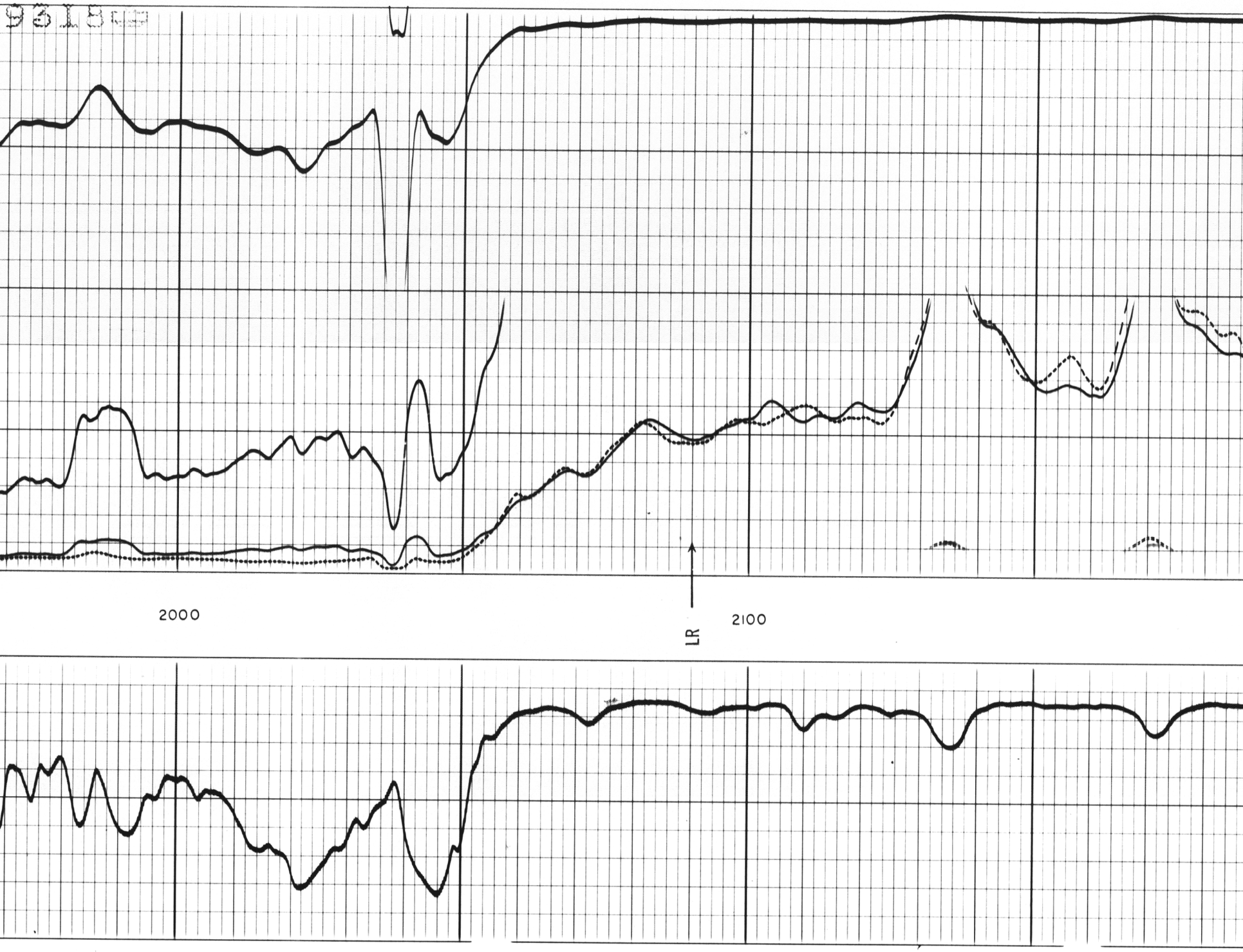
2100

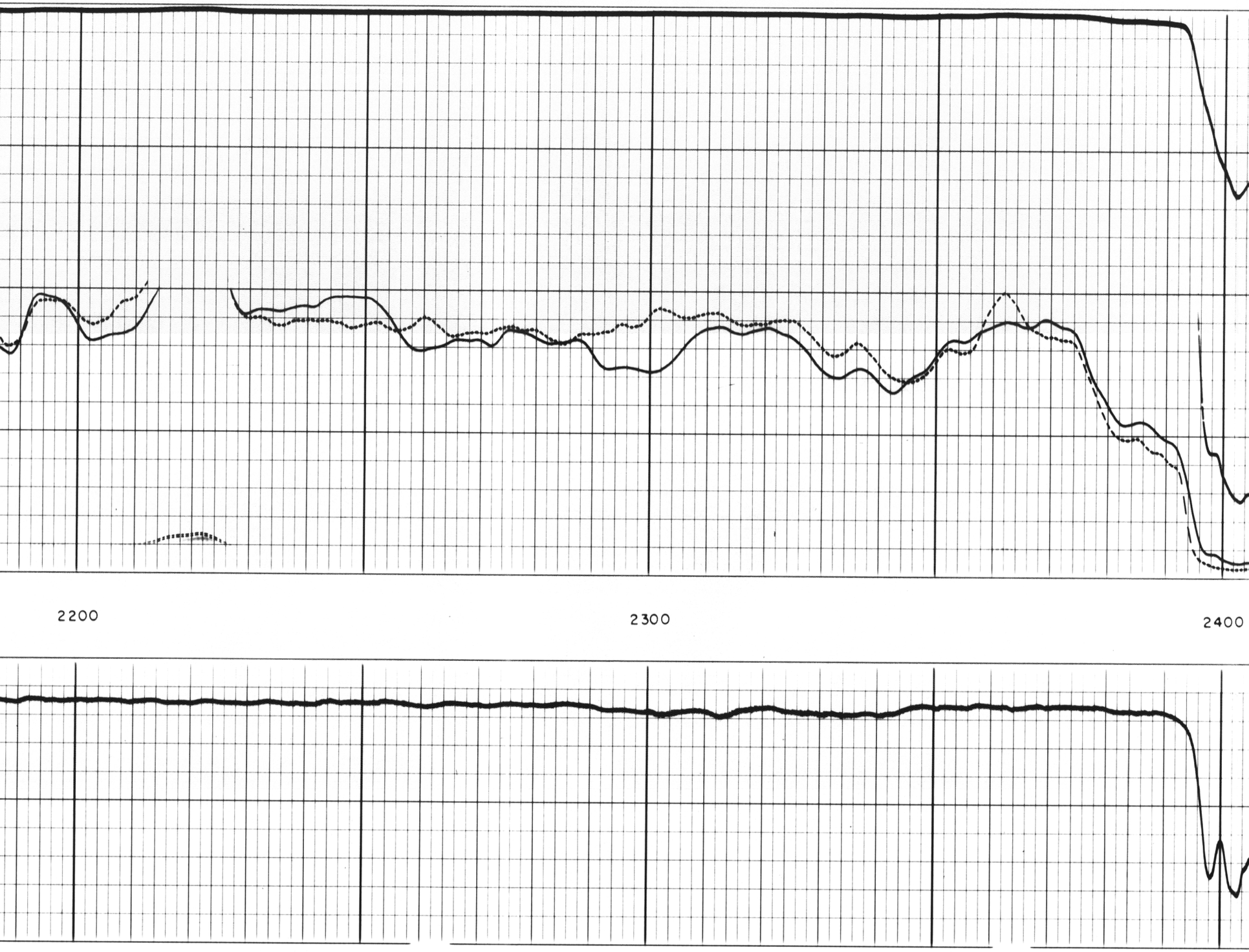
| Run 1 | | A-16″-M SHORT NORMAL | 6 FF40 INDUCTION |
|---|---|---|---|
| 10 — ↔ + | | 0 — 50 | 1000 — 0 |
| | | 0 — 500 | |
| | | INDUCTION<br>0 — 50<br>0 — 500 | |
| | | 0 Amplified Short Normal 10 | |
| SPONTANEOUS-POTENTIAL<br>millivolts | DEPTHS | RESISTIVITY<br>ohms - $m^2/m$ | CONDUCTIVITY<br>millimhos/m = $\frac{1000}{\text{ohms - m}^2/\text{m}}$ |

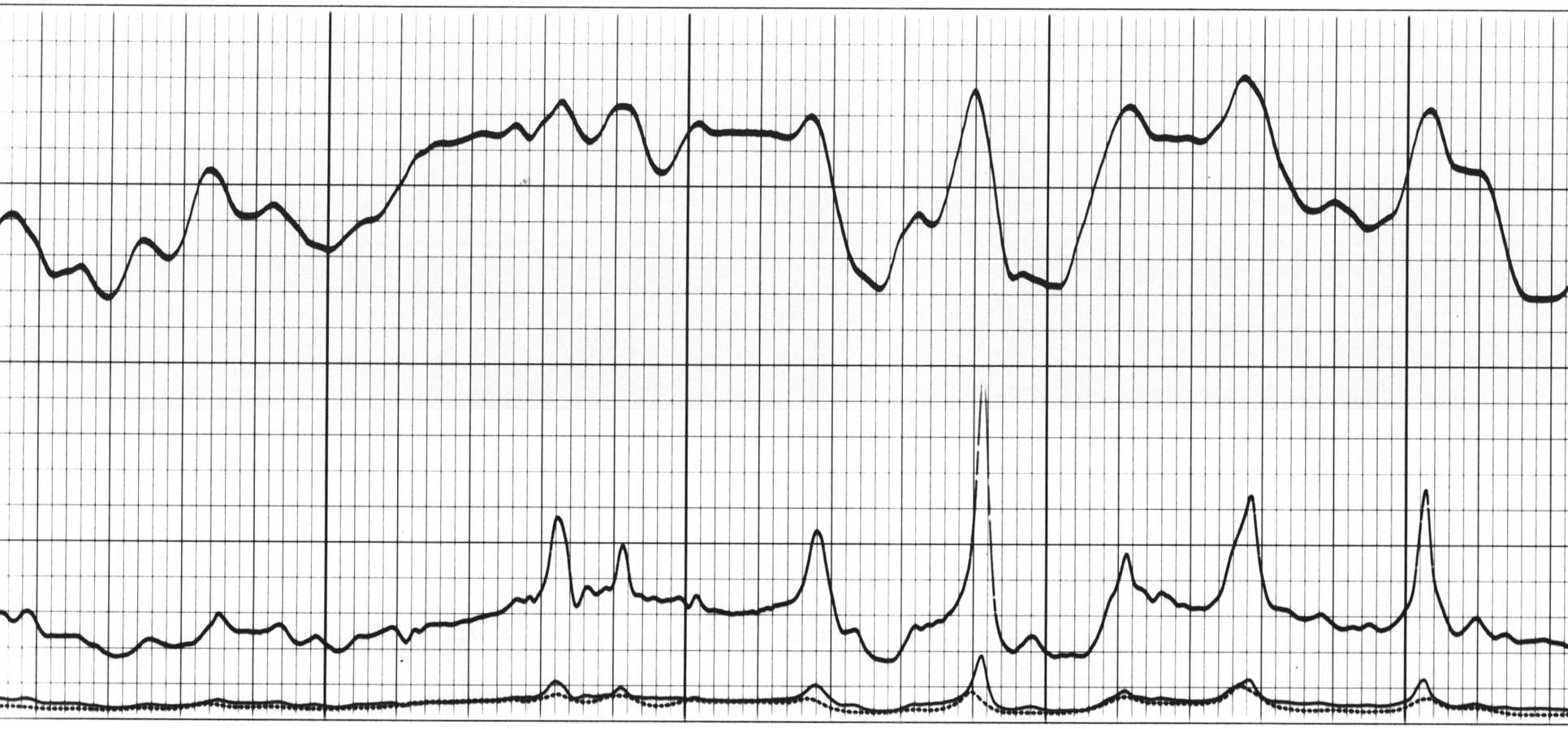
| SPONTANEOUS-POTENTIAL<br>millivolts | DEPTHS | RESISTIVITY<br>ohms - $m^2/m$ | CONDUCTIVITY<br>millimhos/m = $\frac{1000}{\text{ohms - m}^2/\text{m}}$ |
|---|---|---|---|
| 10 — ↔ + | | A-16″-M SHORT NORMAL<br>0 — 50 | 6 FF40 INDUCTION<br>1000 — 0 |
| | | 0 — 500 | |
| | | INDUCTION<br>0 — 50<br>0 — 500 | |
| Run 2 | | 0 Amplified Short Normal 10 | |

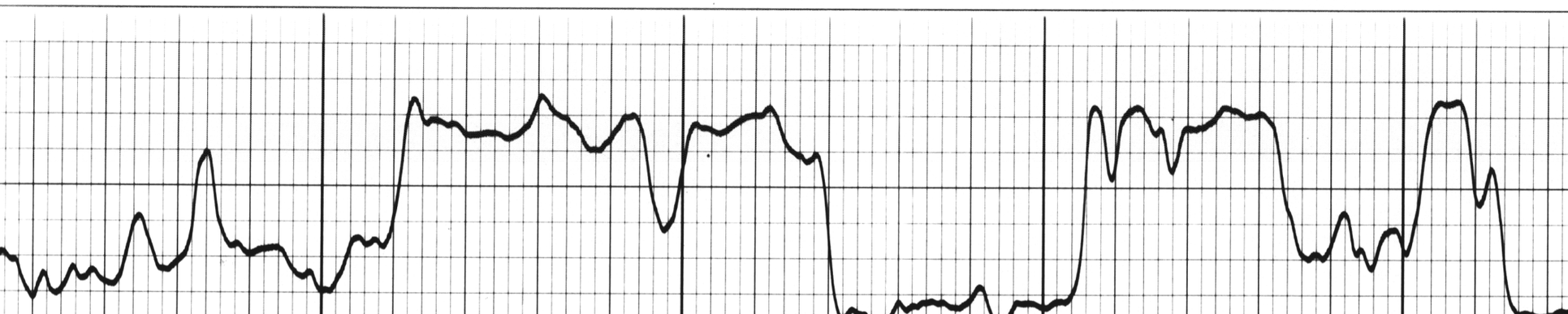


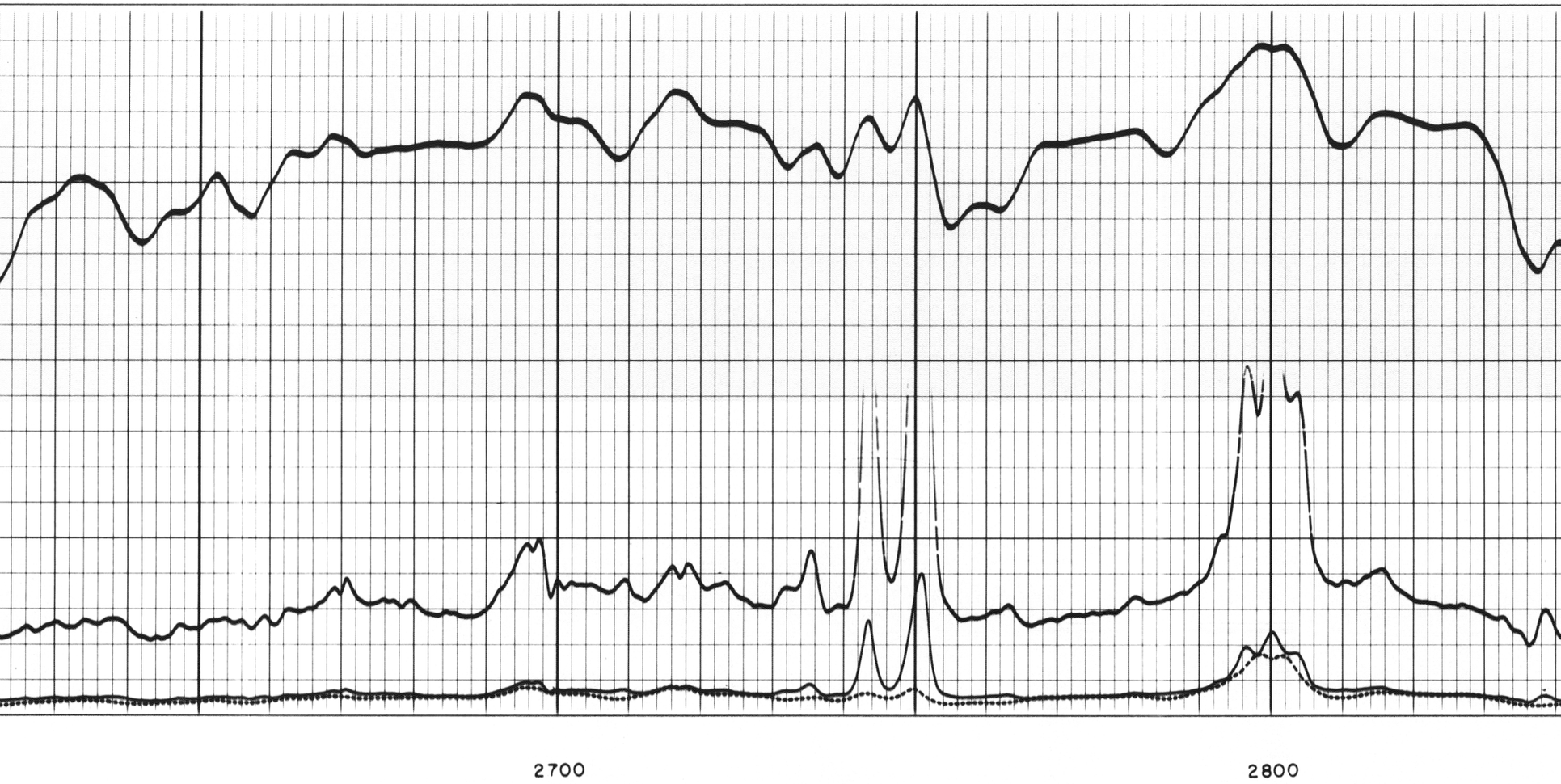
1900

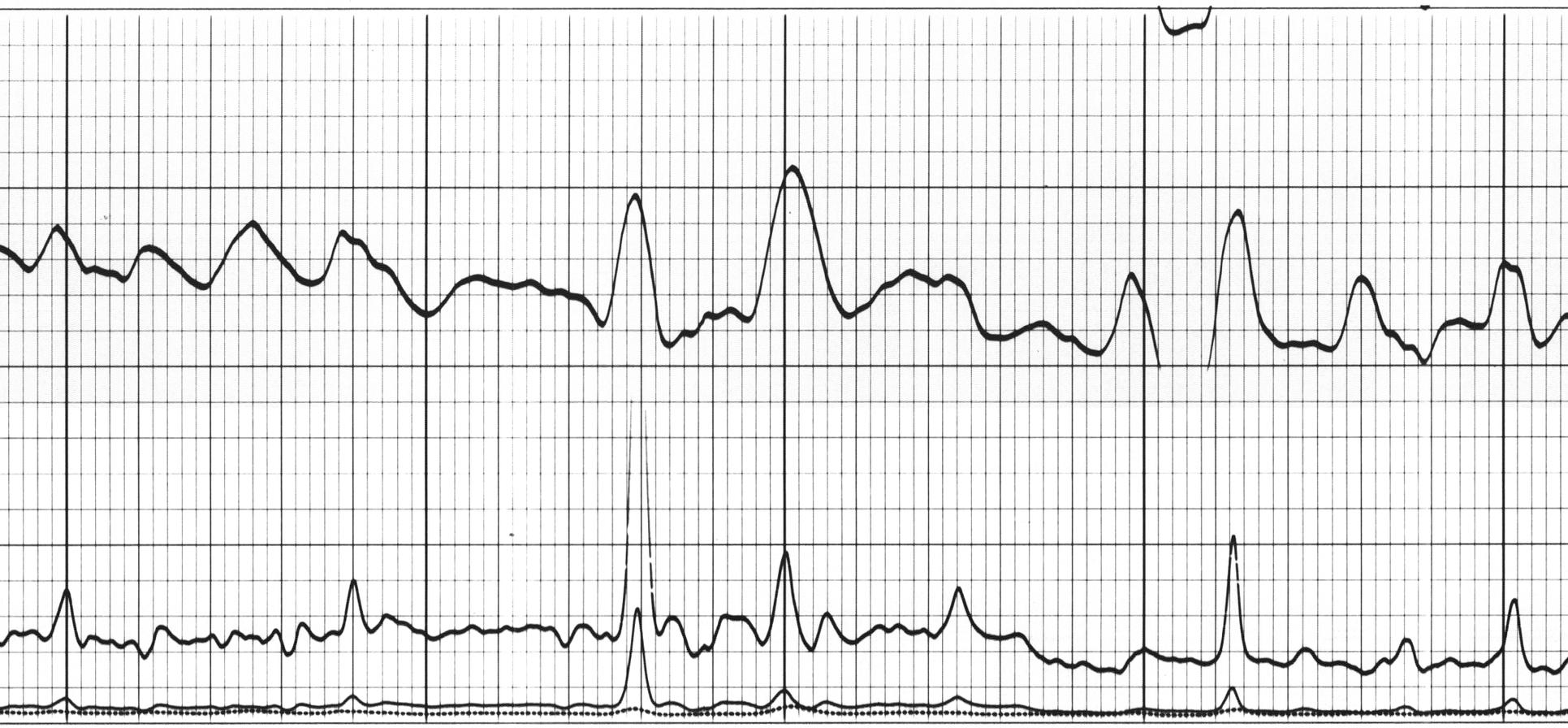

2000
LR
2100

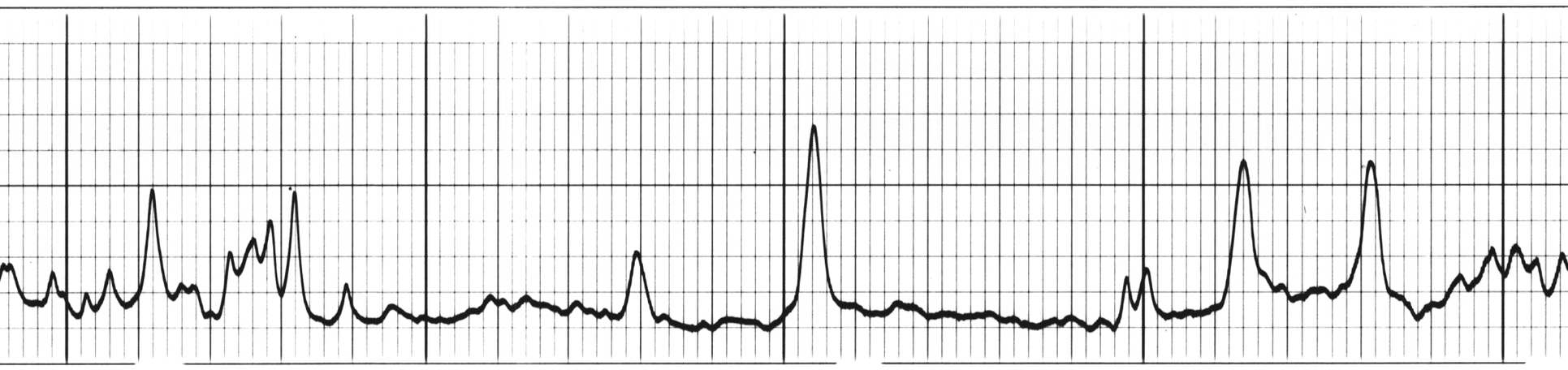

2200
2300
2400

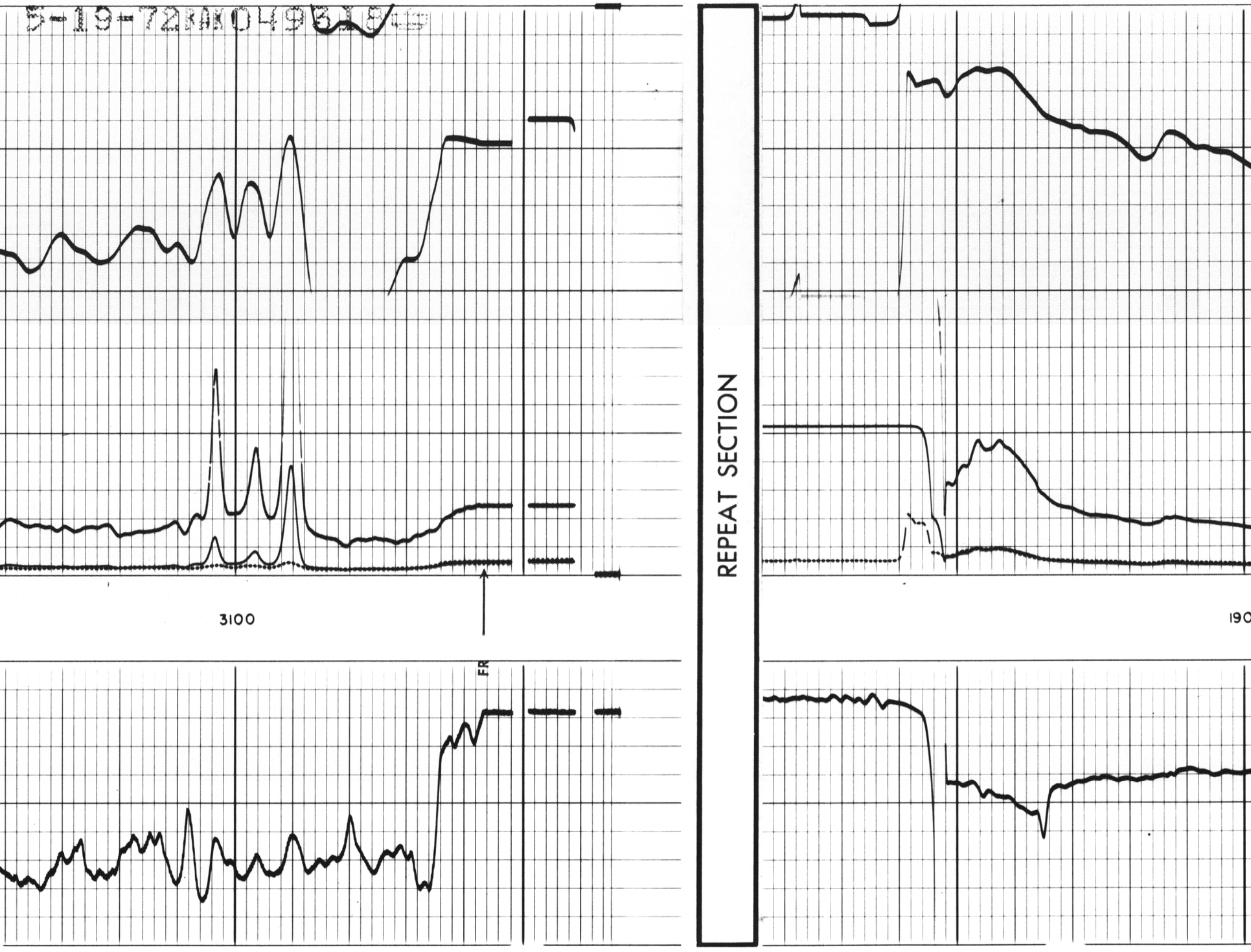

2500
2600

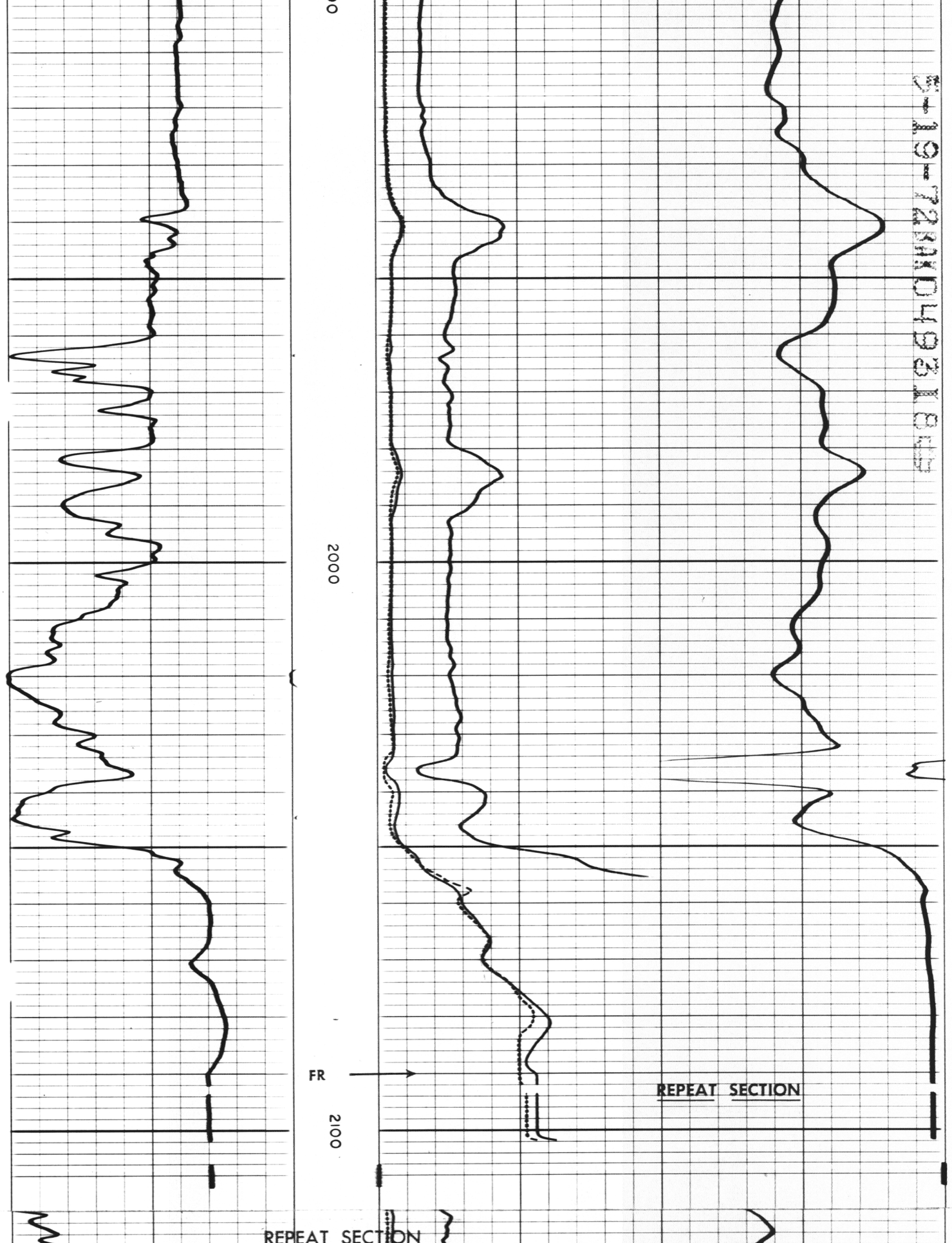



2700
2800

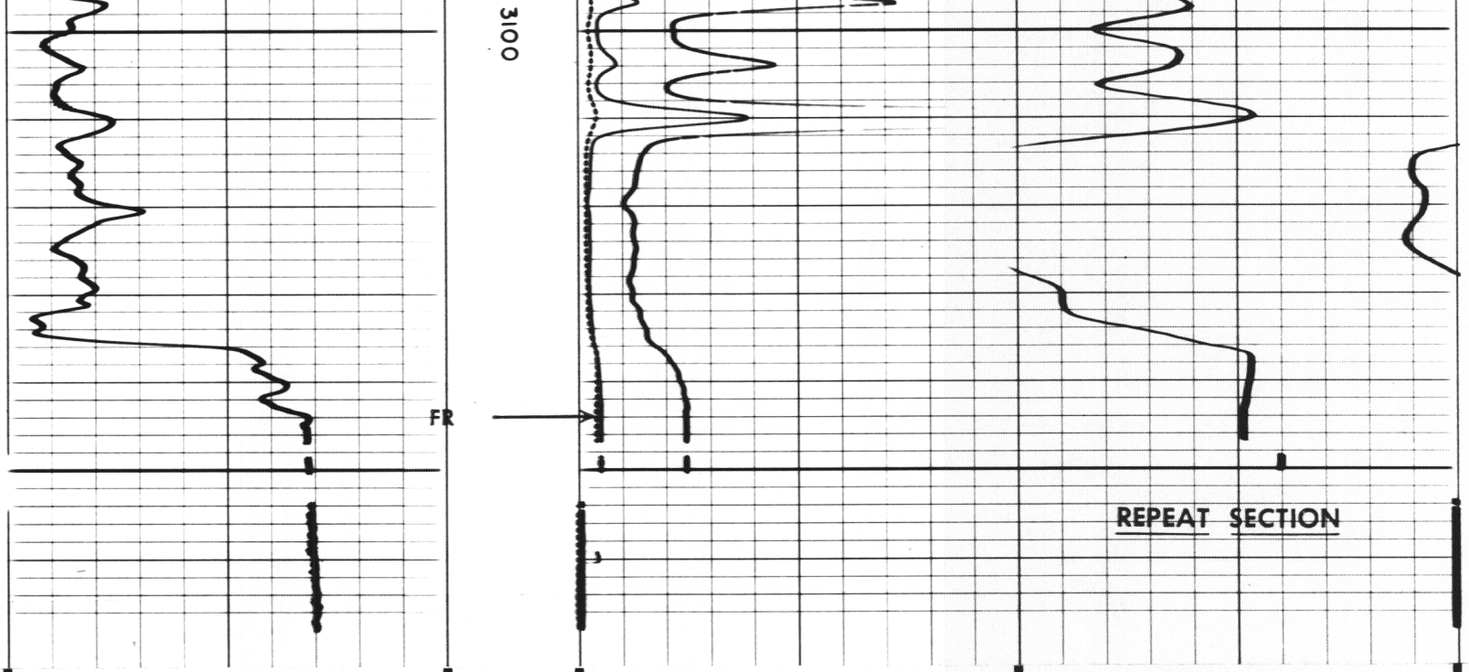

2900
3000




5-19-72
3100
REPEAT SECTION
190


2000
2100
FR
REPEAT SECTION
REPEAT SECTION

5-19-72 BAK
Run 2
2900
3000




| SPONTANEOUS-POTENTIAL millivolts | DEPTHS | RESISTIVITY ohms - $m^2/m$ | CONDUCTIVITY millimhos/m = $\frac{1000}{\text{ohms - } m^2/m}$ |
|---|---|---|---|
| – 10 + | | AMP. SHORT NORMAL 0 – 10 | |
| | | A-16″-M SHORT NORMAL 0 – 50 | 6 FF40 INDUCTION 1000 – 0 |
| | | 0 – 500 | |
| | | INDUCTION 0 – 50 | |
| | | 0 – 500 | |

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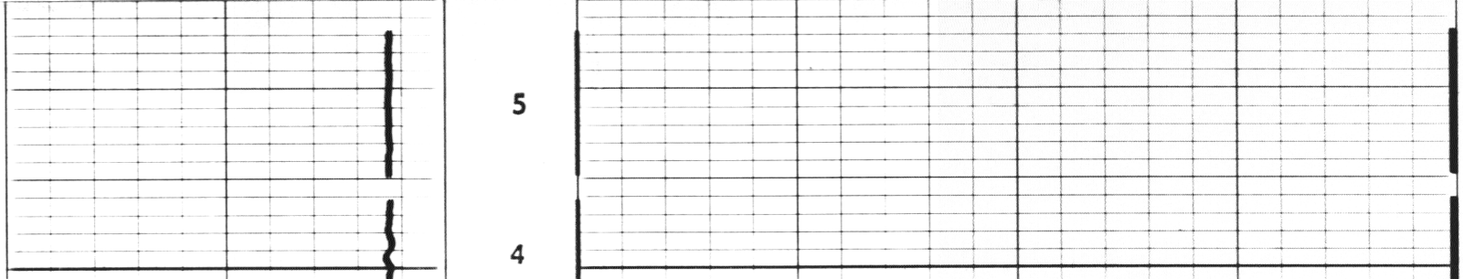
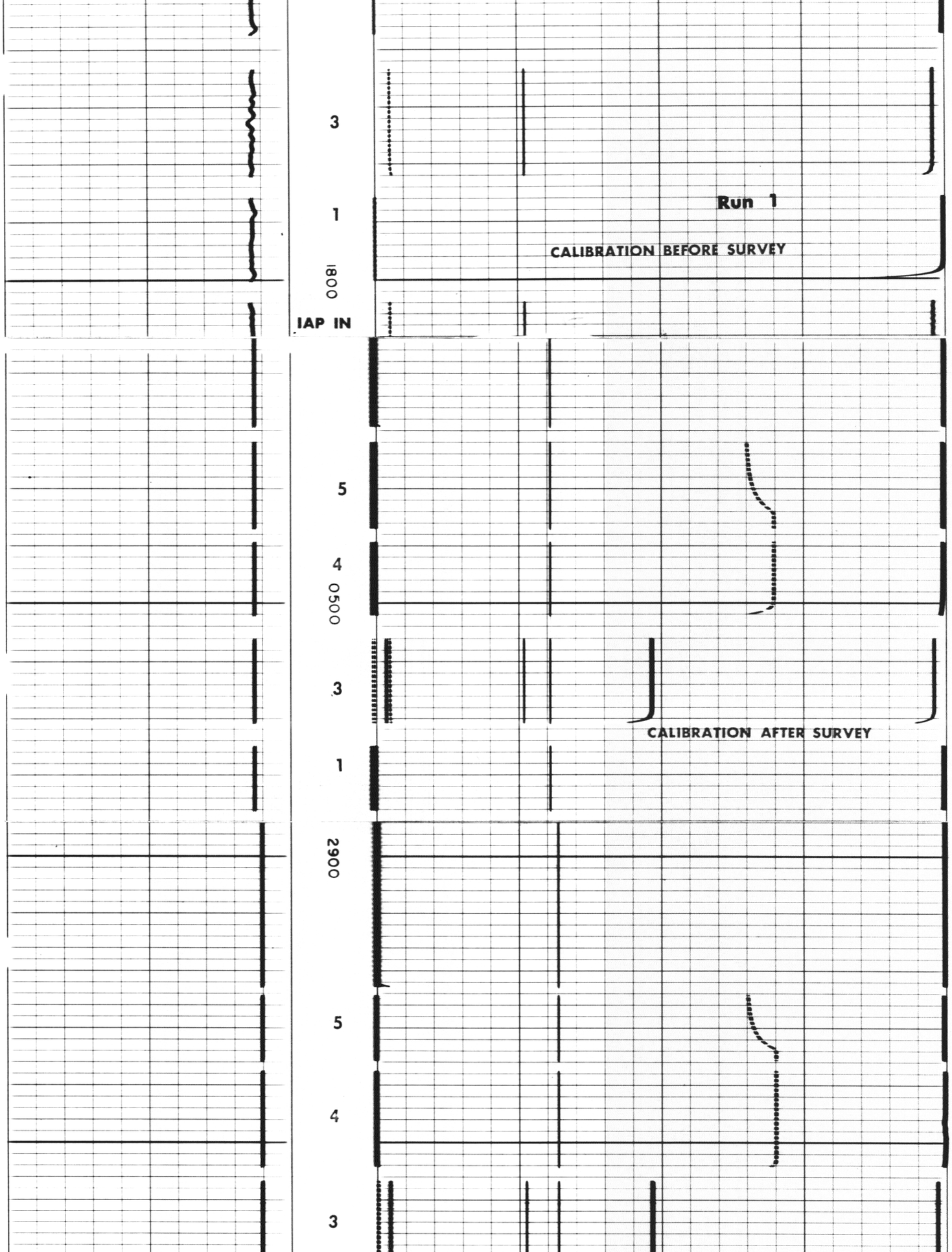
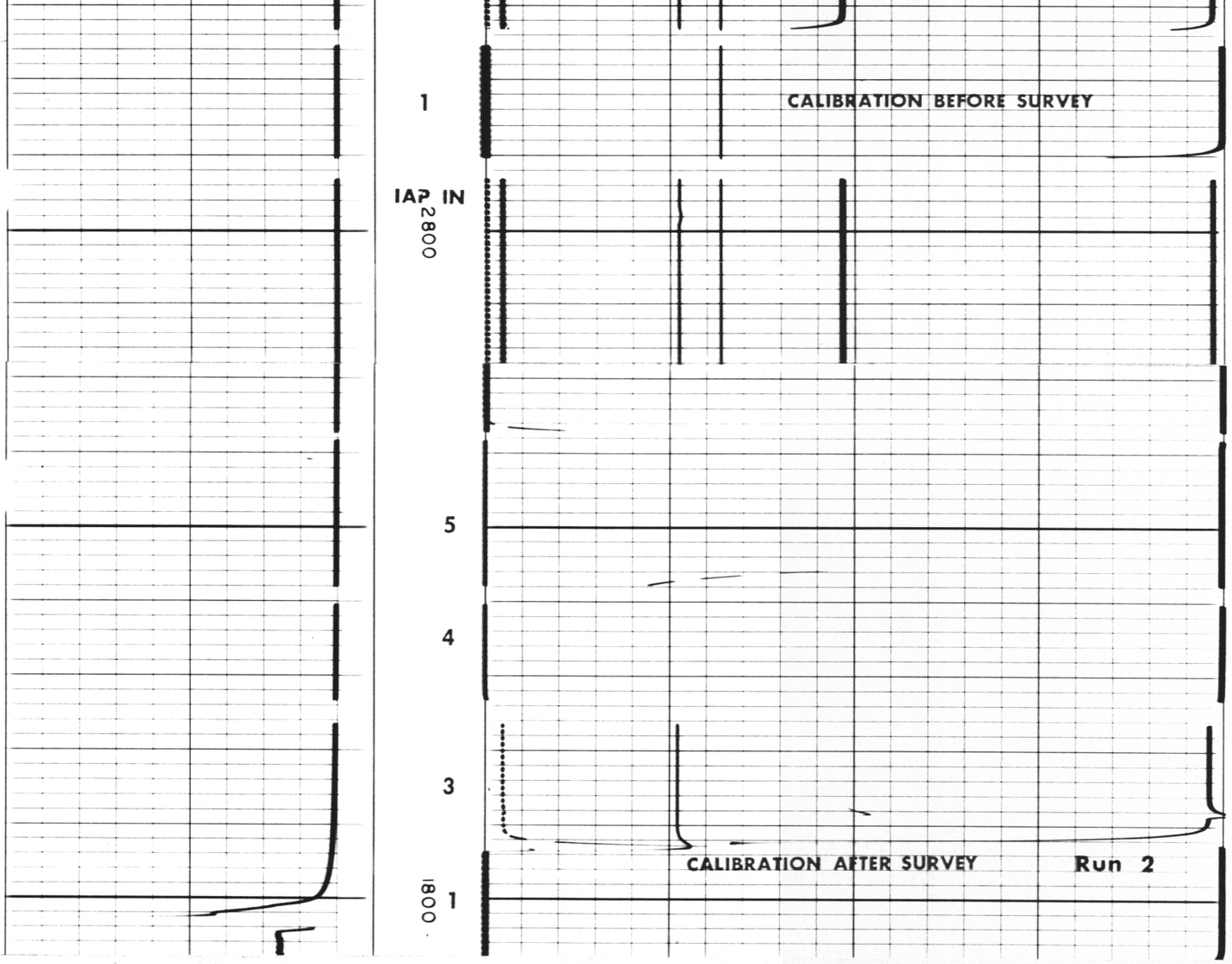
CALIBRATION DATA



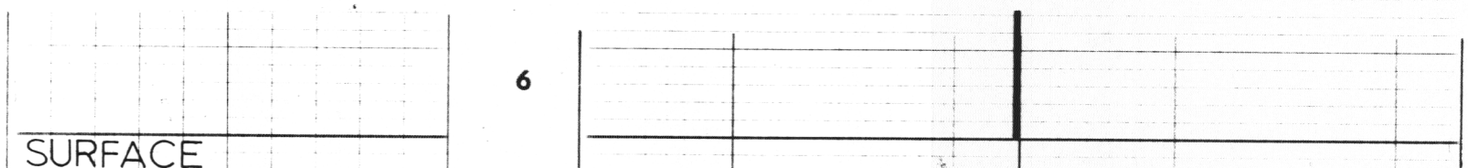

3
1
Run 1
CALIBRATION BEFORE SURVEY
1800
IAP IN
5
4
0500
3
CALIBRATION AFTER SURVEY
1
2900
5
4
3




## CALIBRATION DATA

### CALIBRATION STEPS

| SURFACE | DOWNHOLE |
|---|---|
| 8. TEST LOOP | |
| 7. ZERO CONDUCTIVITY | |
| 6. DIODE ERROR | |
| 5. SONDE ERROR | 5. DIODE ERROR |
| 4. INTERNAL CALIBRATION | 4. SONDE ERROR |
| 3. ZERO CONDUCTIVITY | 3. INTERNAL CALIBRATION |
| 2. MECHANICAL ZERO | 2. - |
| 1. INTERNAL CALIBRATION THRU IAP | 1. MECHANICAL ZERO |



CALIBRATION
APRIL 12, 1972
IRS-M-729
IRC-F-381

5
4
3
2
1

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