



DUAL INDUCTION LOG

Company L.D. DRILLING, INC.
 Well #4-10 WATT
 Field DOLL EAST
 County LANE
 State KANSAS

Company L.D. DRILLING, INC.
 Well #4-10 WATT
 Field DOLL EAST
 County LANE State KANSAS

Location: 330' FSL & 840' FWL
 W/2 - SE - SW - SE
 API # : 15-101-22636-0000
 Permanent Datum GROUND LEVEL Elevation 2733
 Log Measured From KELLY BUSHING 5' A.G.L.
 Drilling Measured From KELLY BUSHING
 SEC 10 TWP 16S RGE 30W
 Other Services
 CDL/CNL
 MEL/SON
 Elevation
 K.B. 2738
 D.F. 2736
 G.L. 2733

| | | | |
|------------------------------|---------------|---------------------|--|
| Date | 11/8/79 | | |
| Run Number | ONE | | |
| Depth Driller | 4550 | | |
| Depth Logger | 4550 | | |
| Bottom Logged Interval | 4548 | | |
| Top Log Interval | 00 | | |
| Casing Driller | 8 5/8" @ 285' | | |
| Casing Logger | 286 | | |
| Bit Size | 7 7/8" | | |
| Type Fluid in Hole | CHEMICAL MUD | CHLORIDES 4,000 PPM | |
| Density / Viscosity | 9.7/61 | | |
| pH / Fluid Loss | 10.0/10.4 | | |
| Source of Sample | FLOWLINE | | |
| Rim @ Meas. Temp | .940 @ 74F | | |
| Rmf @ Meas. Temp | .705 @ 74F | | |
| Rmc @ Meas. Temp | 1.13 @ 74F | | |
| Source of Rmf / Rmc | MEASUREMENT | | |
| Rim @ BHT | .575 @ 121F | | |
| Time Circulation Stopped | 2 HOURS | | |
| Time Logger on Bottom | 2:45 A.M. | | |
| Maximum Recorded Temperature | 121F | | |
| Equipment Number | 922339 | | |
| Location | HAYS, KANSAS | | |
| Recorded By | JEFF LUEBBERS | | |
| Witnessed By | KIM SHOEMAKER | | |

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All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

Comments

THANK YOU FOR USING ELI WIRELINE HAYS, KANSAS (785) 628-6395
 DIRECTIONS
 HEALY, KS., 5N. ON "DODGE RD." 1/2 W. INTO @ TANK BATTERY



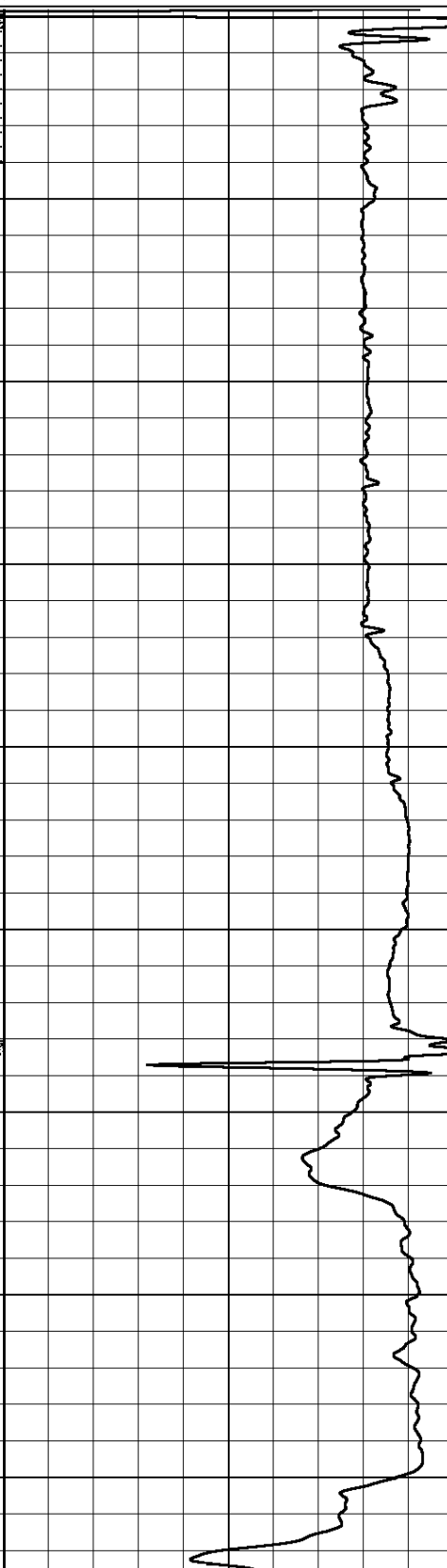
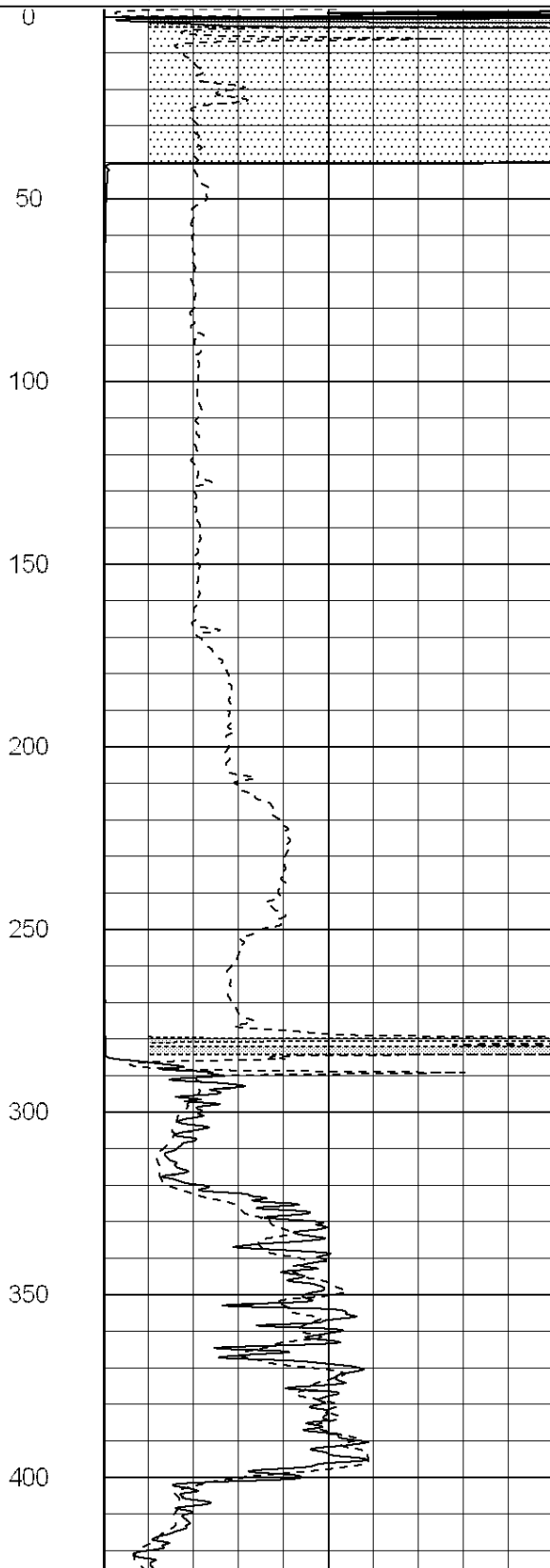
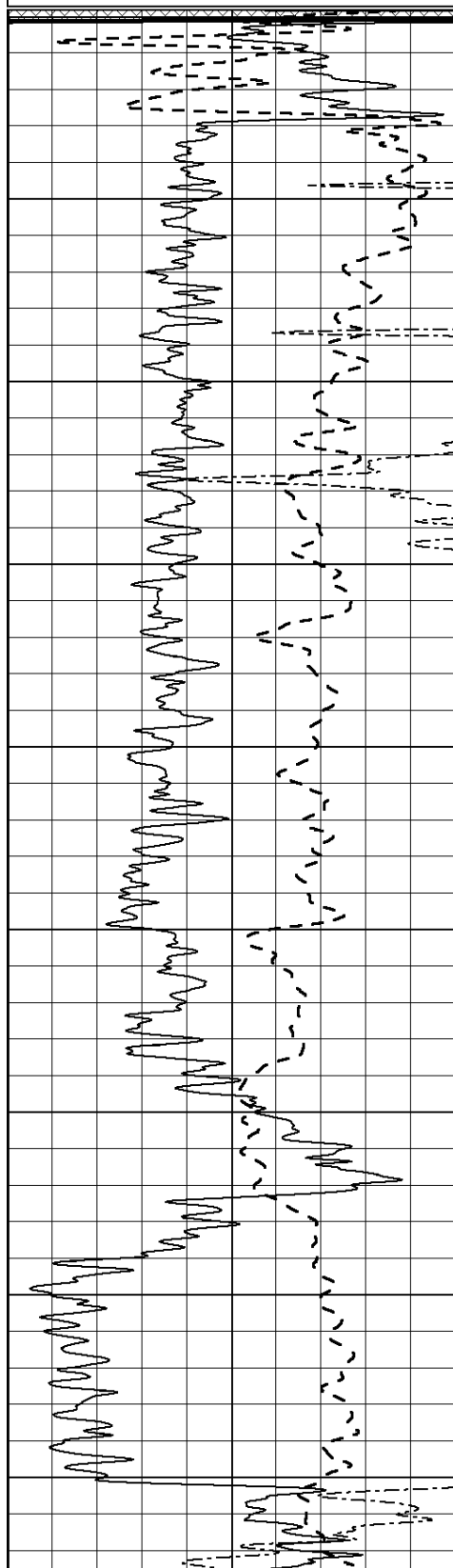
MAIN SECTION

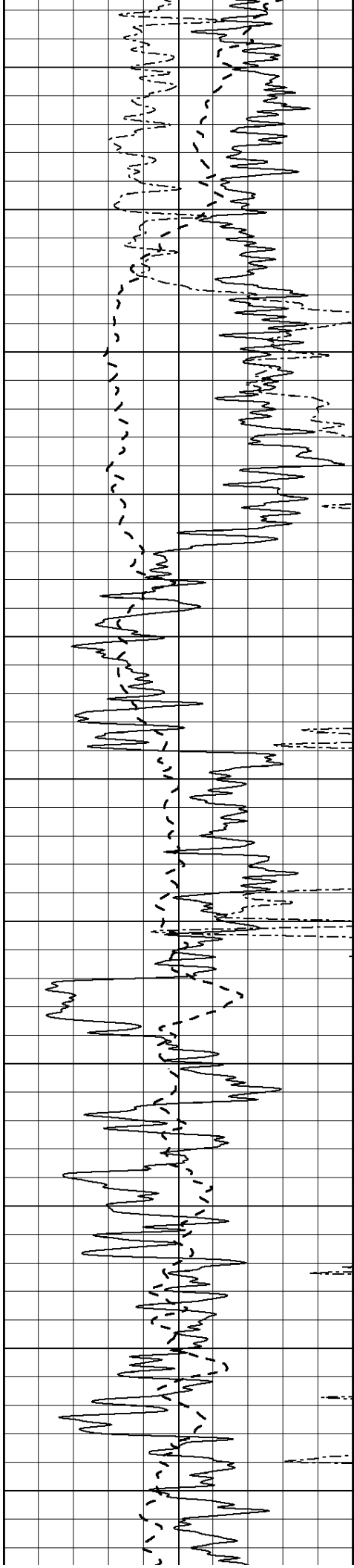
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 Dataset Pathname: pass4.6
 Presentation Format: dil2
 Dataset Creation: Fri Nov 08 04:20:36 2019 by Calc SOC 120430
 Charted by: Depth in Feet scaled 1:600

| | | |
|------|------------------|-----|
| 0 | Gamma Ray (GAPI) | 150 |
| -100 | SP (mV) | 100 |
| 0 | RWA (Ohm-m) | 1 |

| | | |
|------|---------------|----|
| 0 | RLL3 (Ohm-m) | 50 |
| 0 | RILD (Ohm-m) | 50 |
| 1000 | CILD (mmho/m) | 0 |

| | | |
|----|------------------|-----|
| 50 | RILD X10 (Ohm-m) | 500 |
| 50 | RLL3 X10 (Ohm-m) | 500 |





450

500

550

600

650

700

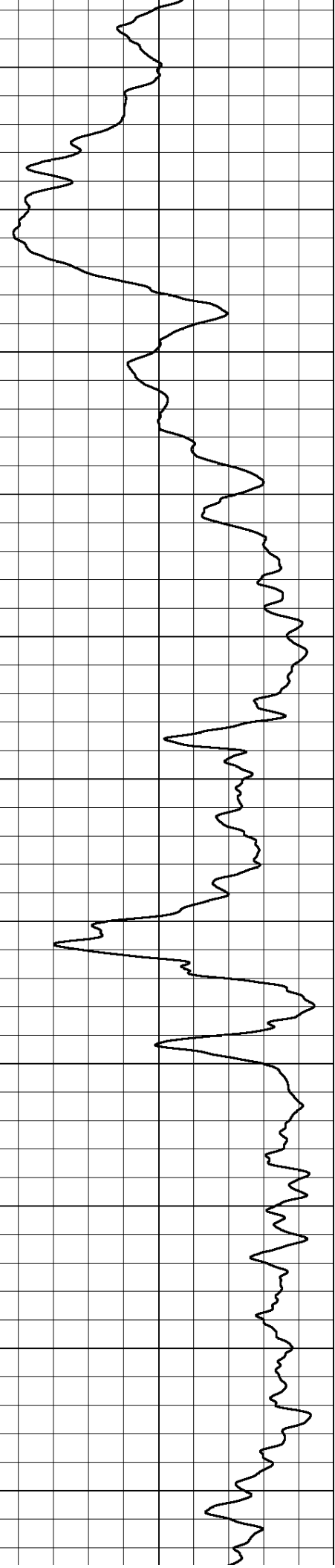
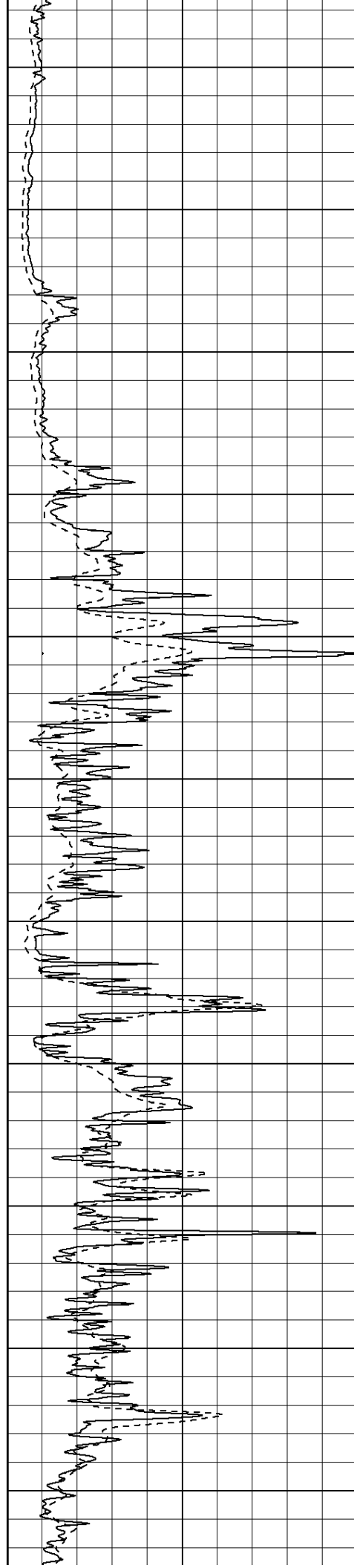
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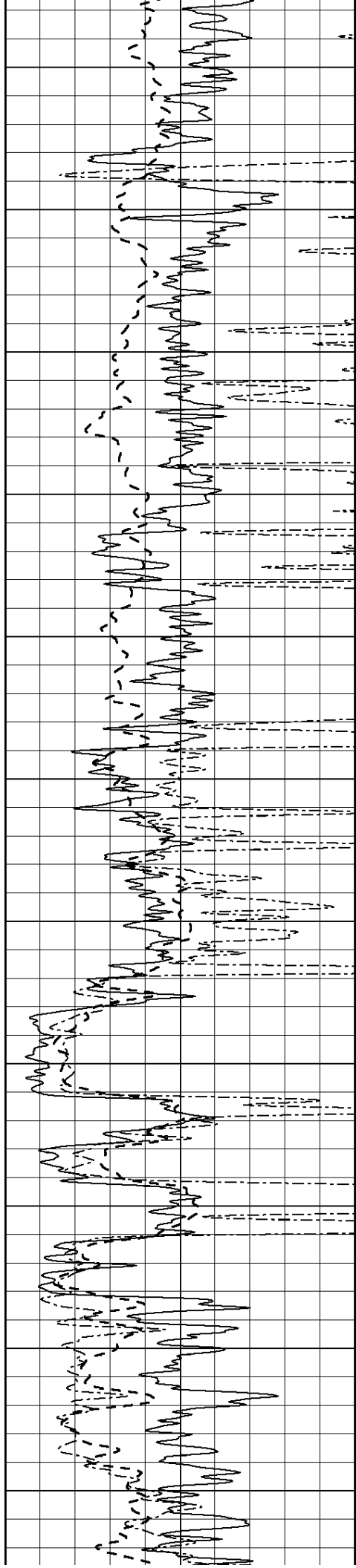
800

850

900

950





1000

1050

1100

1150

1200

1250

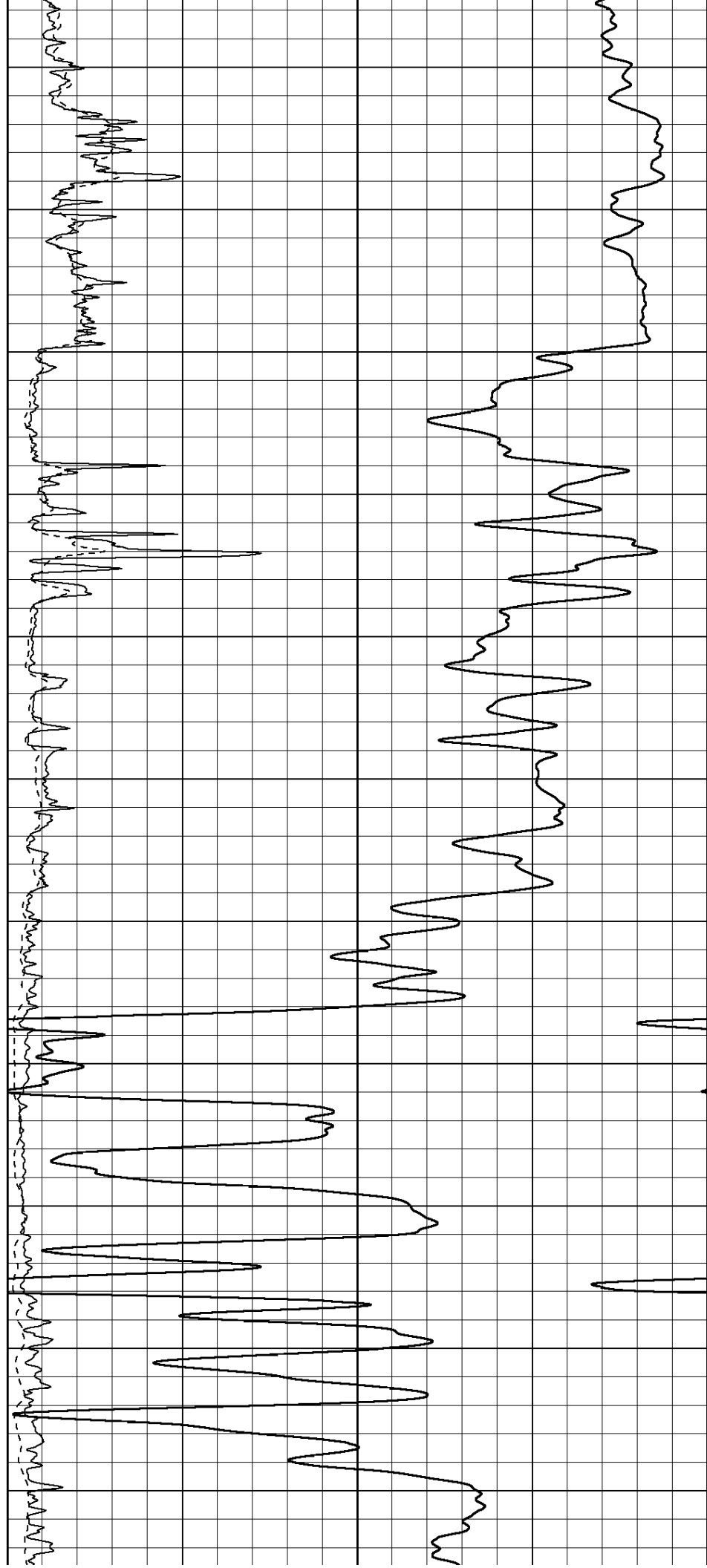
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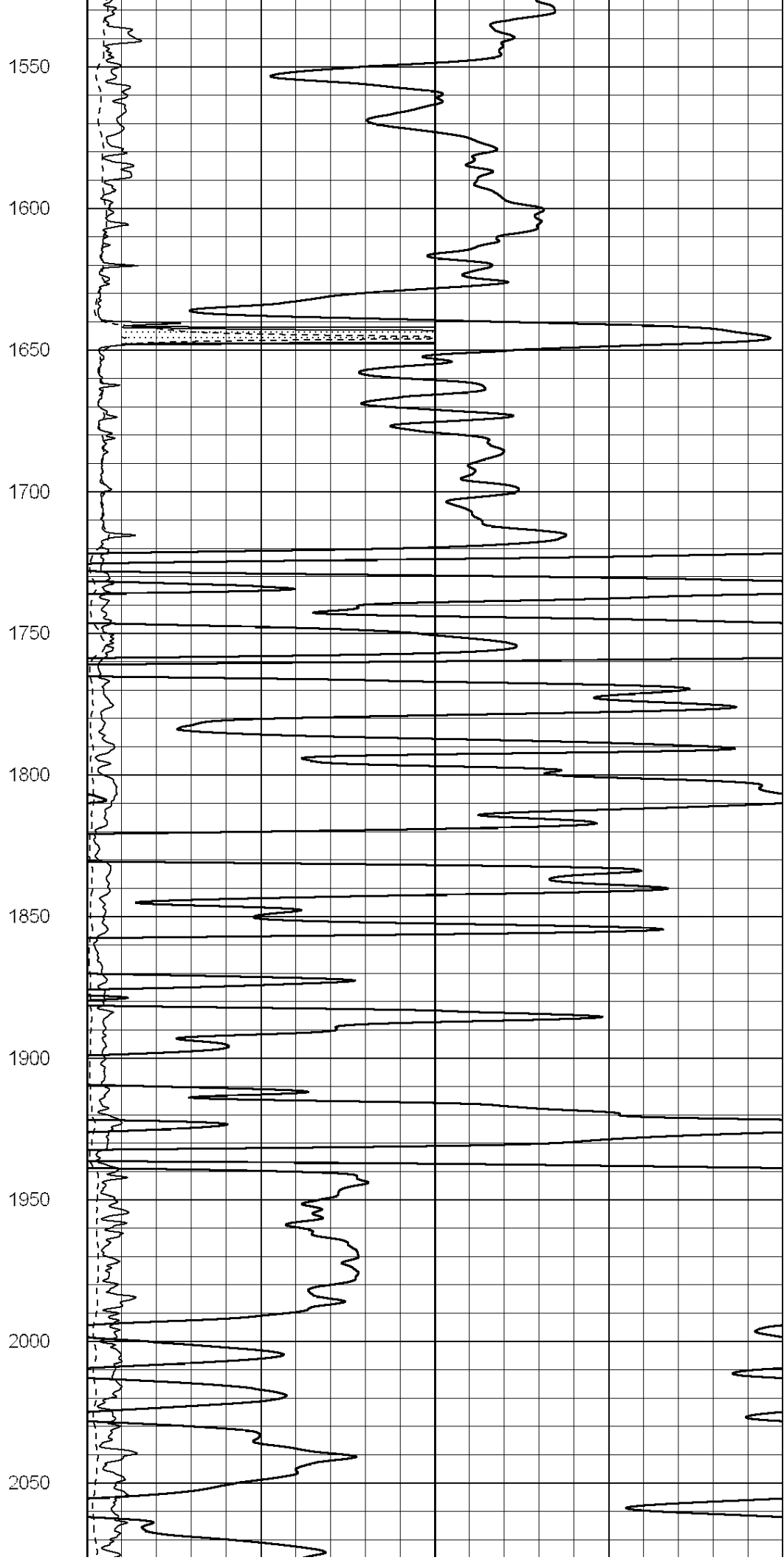
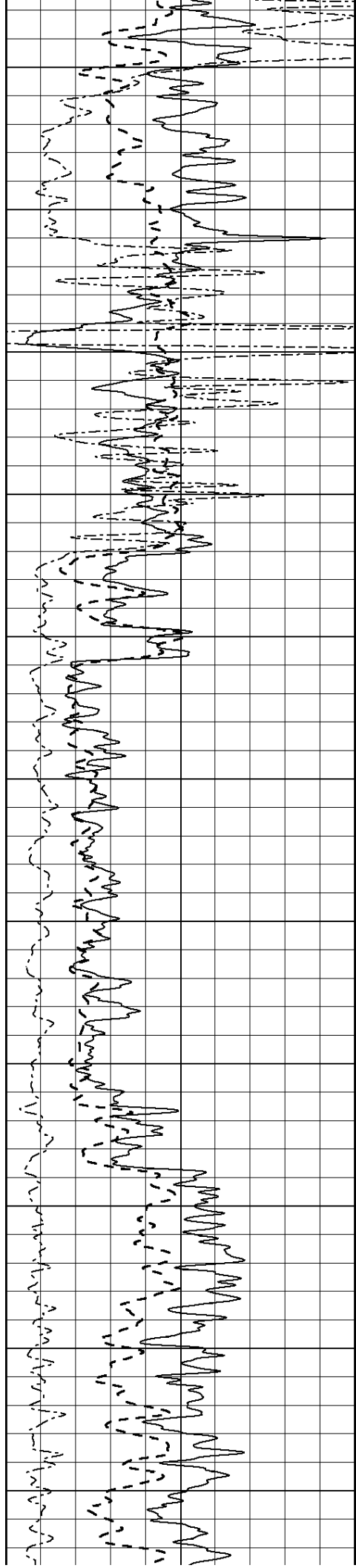
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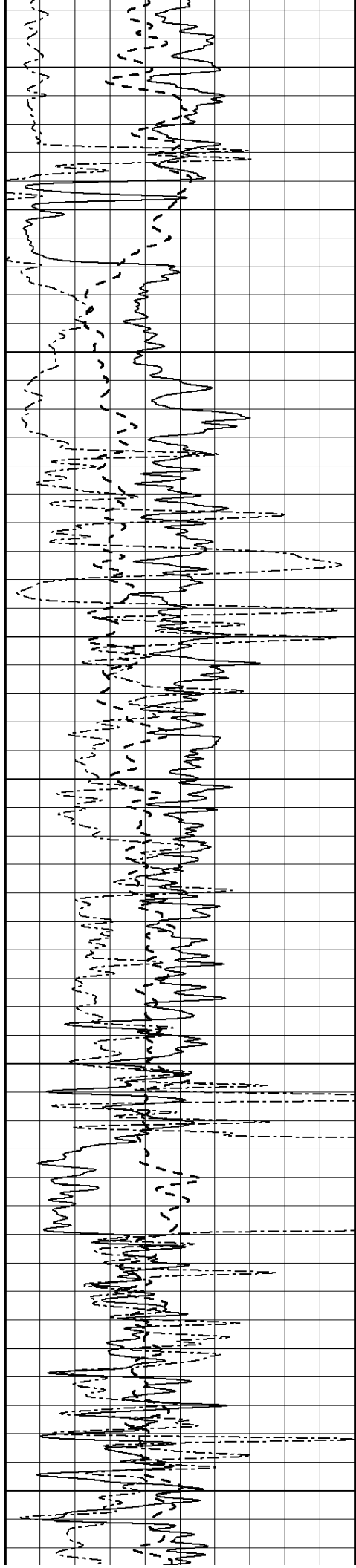
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1450

1500







2100

2150

2200

2250

2300

2350

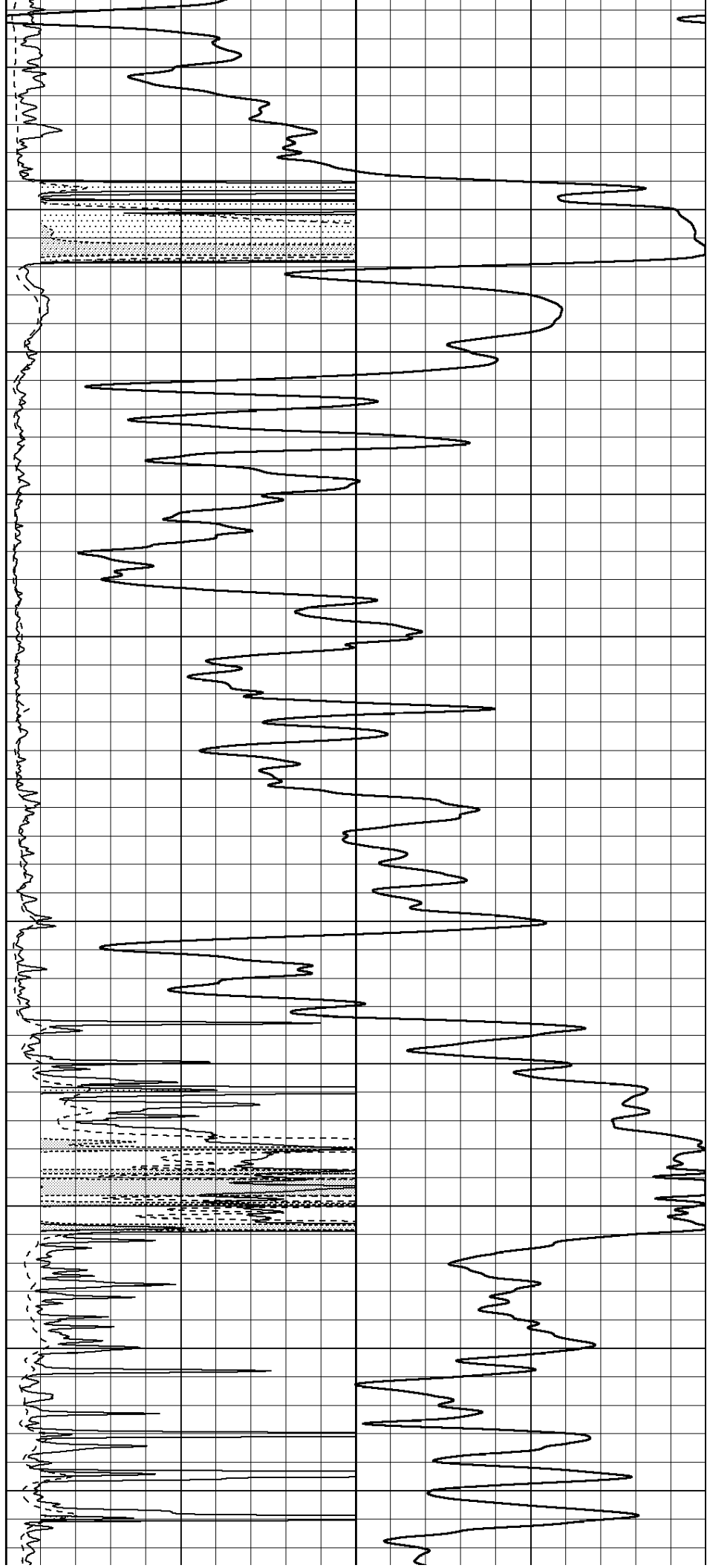
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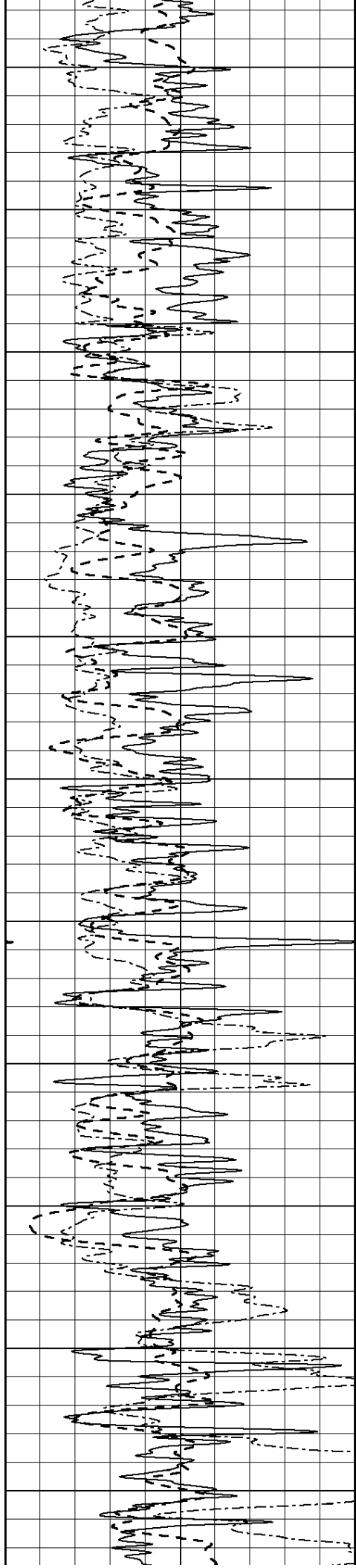
2450

2500

2550

2600





2650

2700

2750

2800

2850

2900

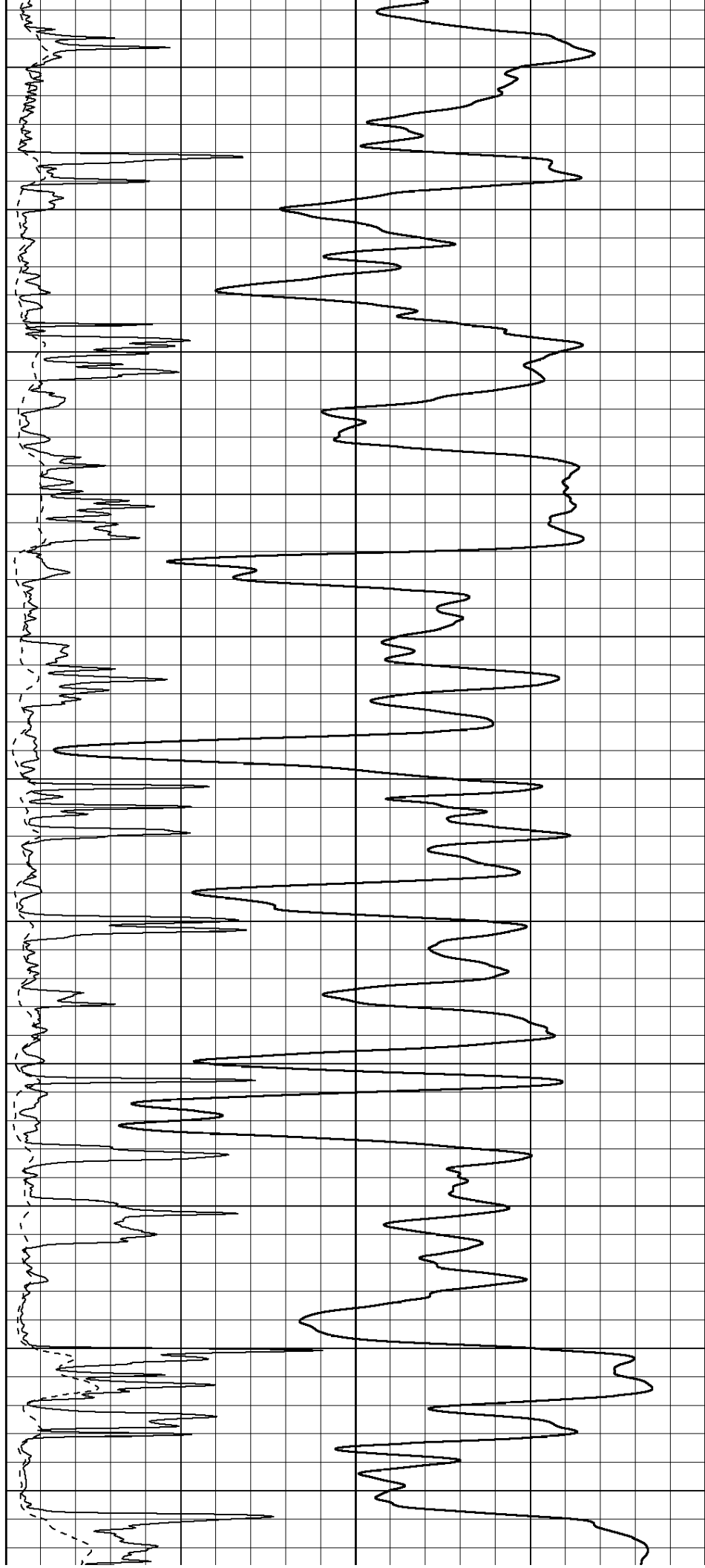
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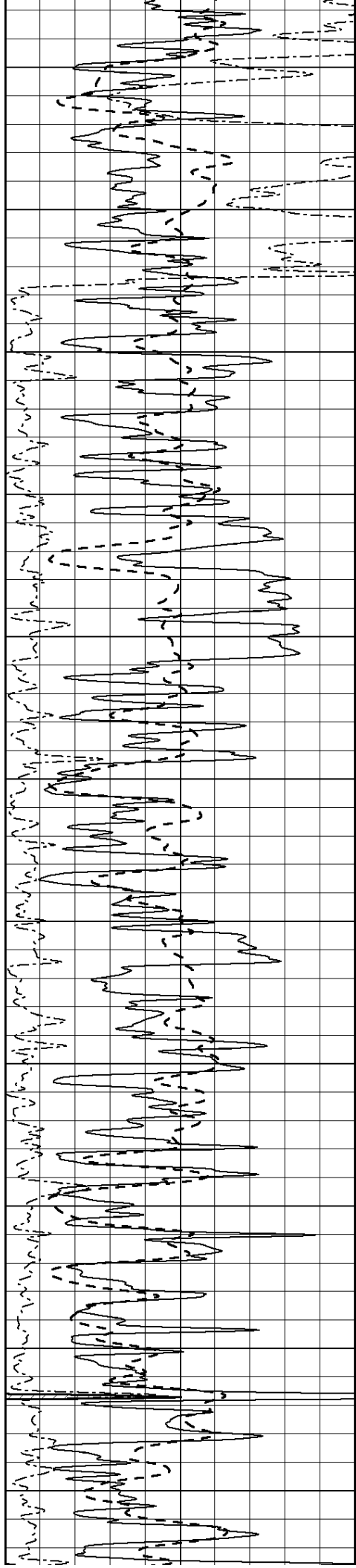
3000

3050

3100

3150





3200

3250

3300

3350

3400

3450

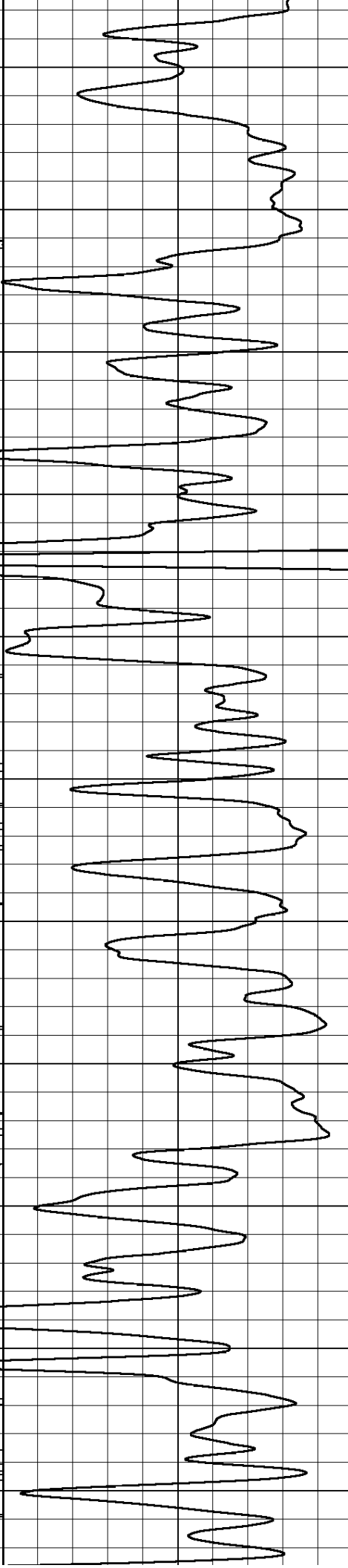
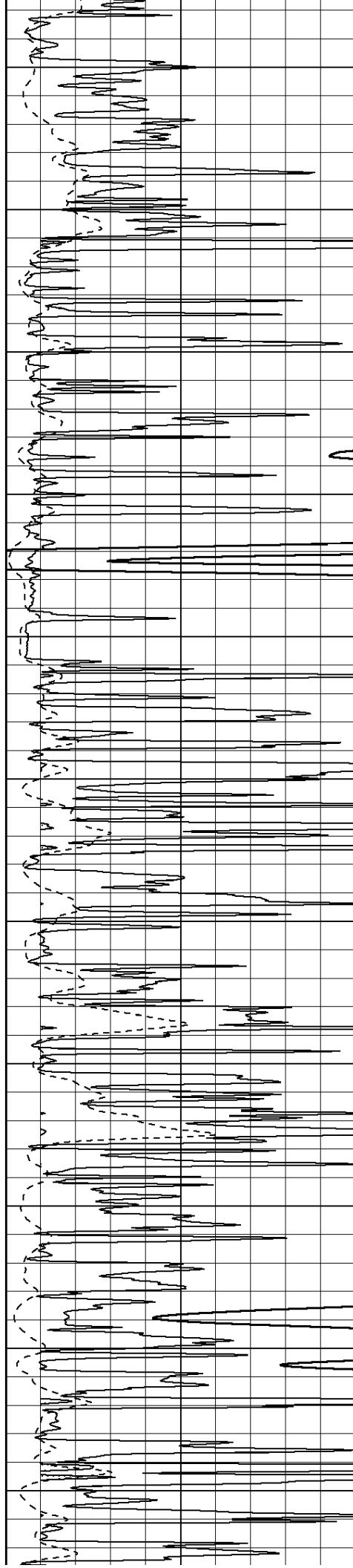
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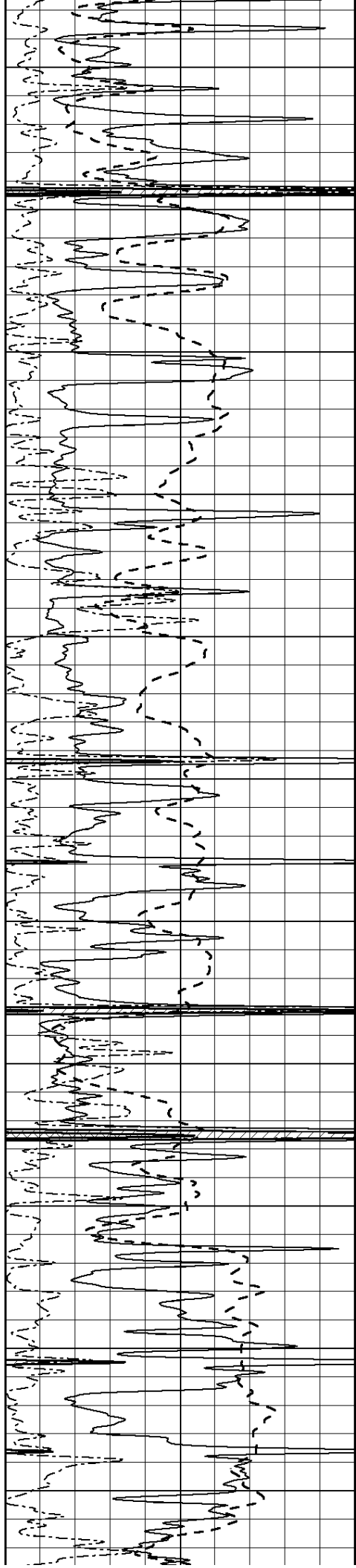
3550

3600

3650

3700





3750

3800

3850

3900

3950

4000

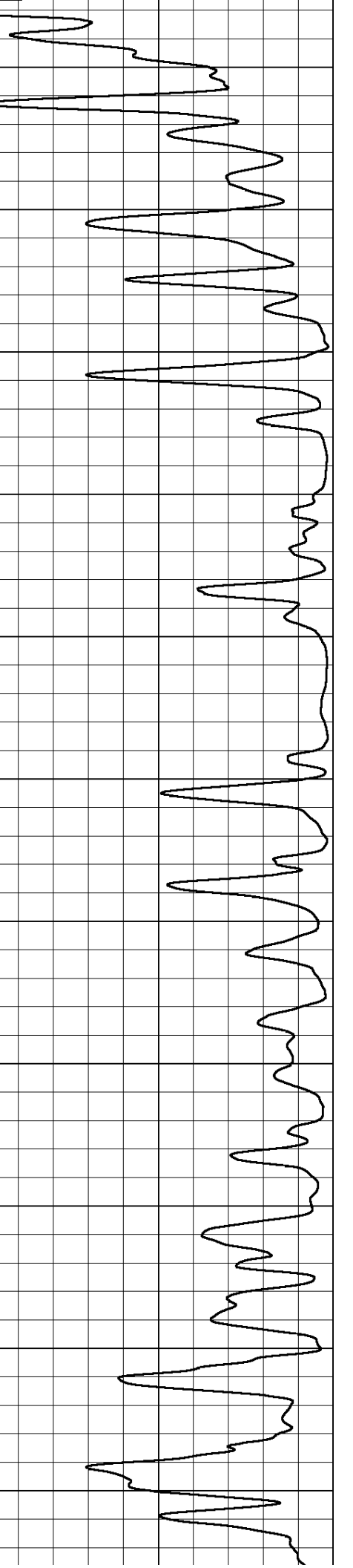
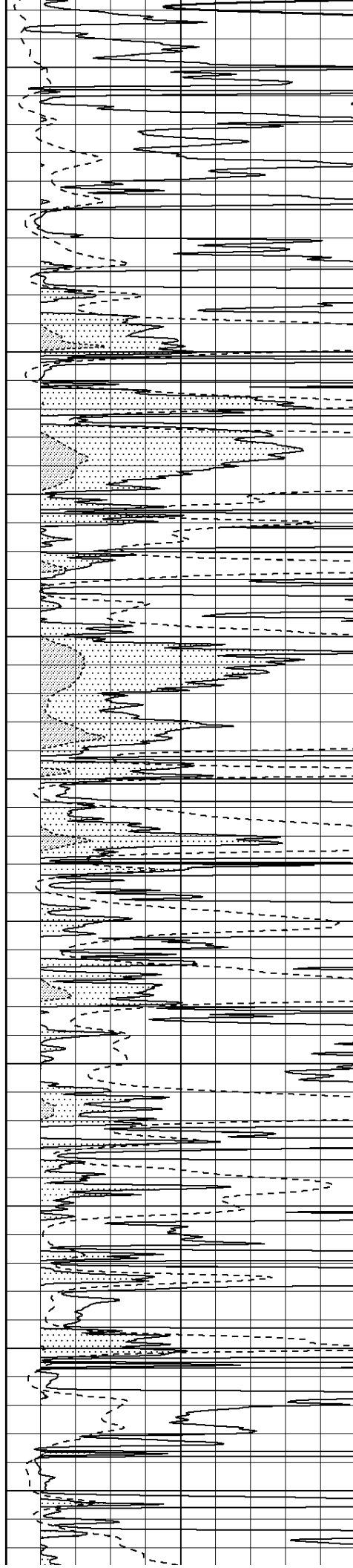
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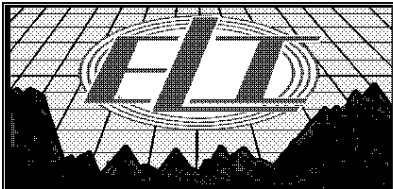
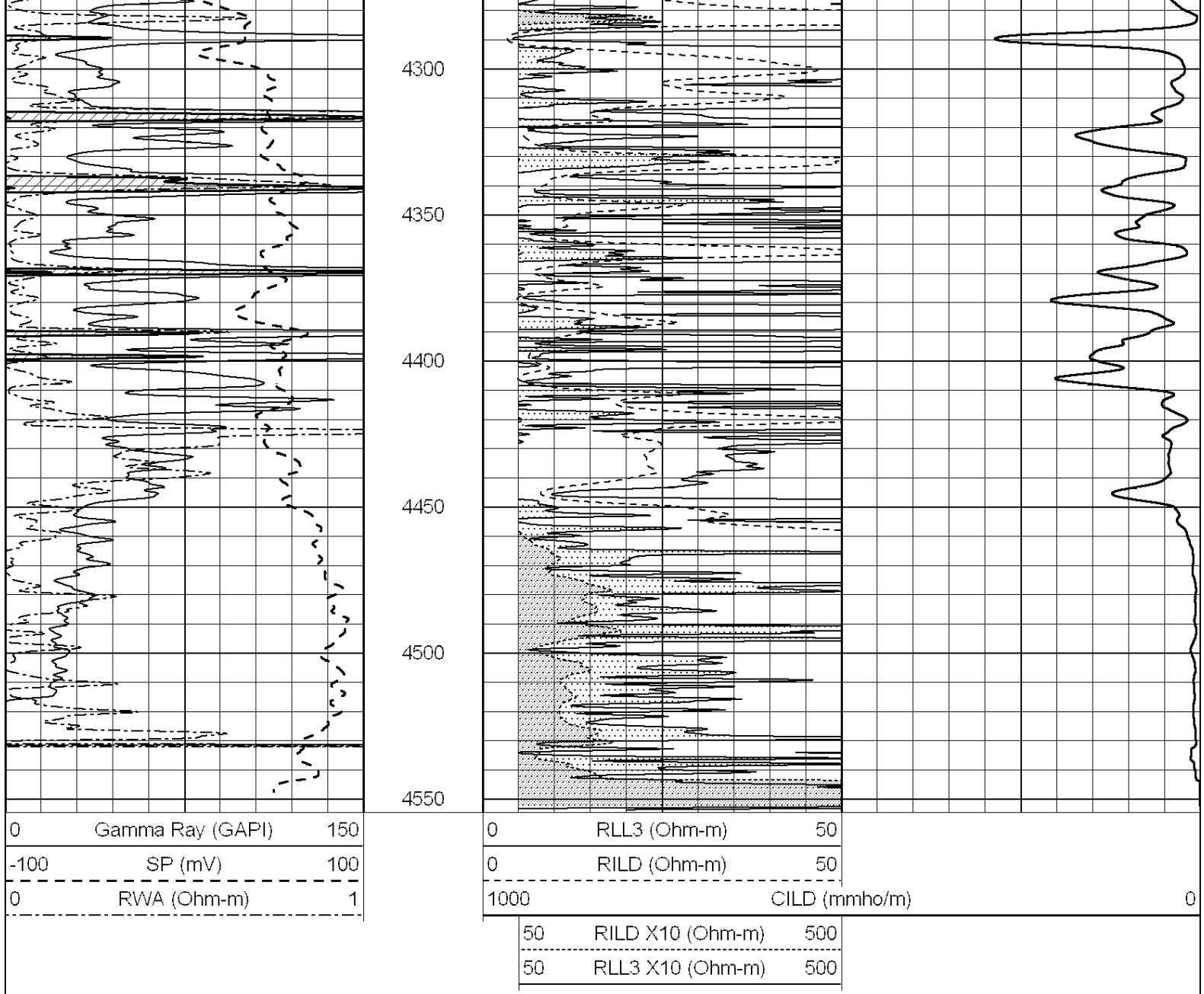
4100

4150

4200

4250

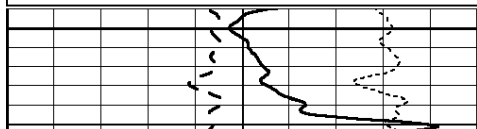




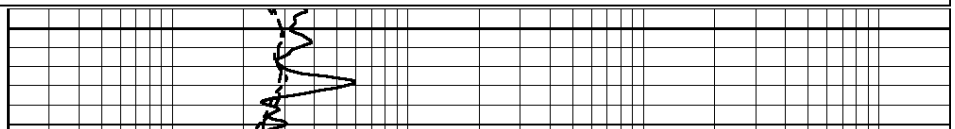
CEDAR HILLS

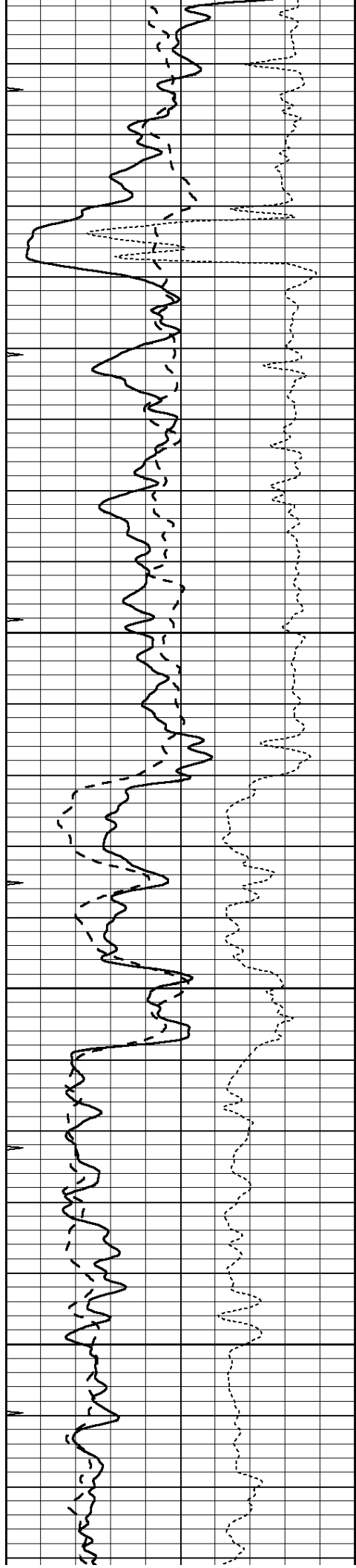
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 Dataset Pathname: pass4.5
 Presentation Format: _dil
 Dataset Creation: Fri Nov 08 04:04:23 2019 by Calc SOC 120430
 Charted by: Depth in Feet scaled 1:240

| | | | | | |
|------|------------------|-----|-----|--------------------------|------|
| 0 | GAMMA RAY (GAPI) | 150 | 0.2 | SHALLOW GUARD (Ohm-m) | 2000 |
| -100 | SP (mV) | 100 | 0.2 | DEEP INDUCTION (Ohm-m) | 2000 |
| -250 | Rxo/Rt | 50 | 0.2 | MEDIUM INDUCTION (Ohm-m) | 2000 |
| 0 | MINMK | 20 | | | |



1600



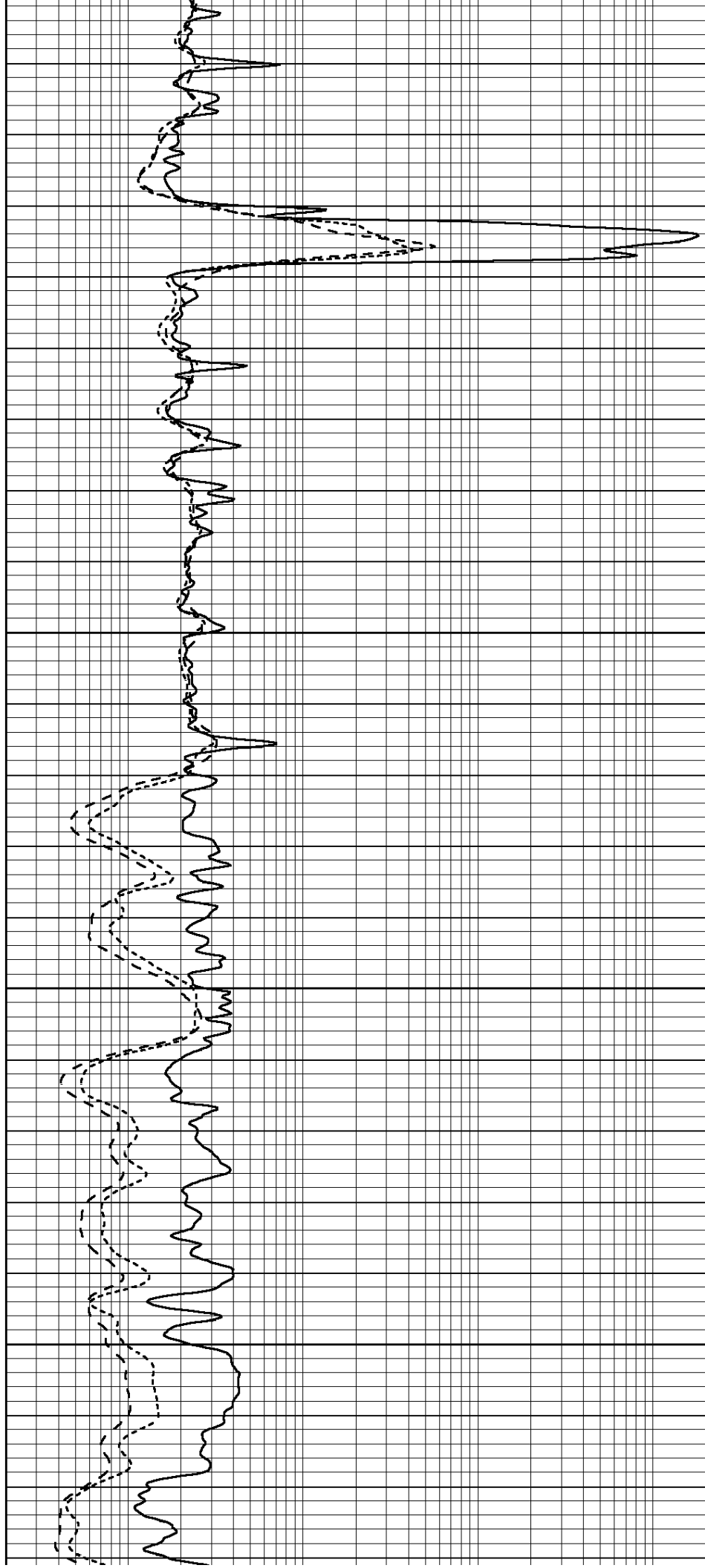


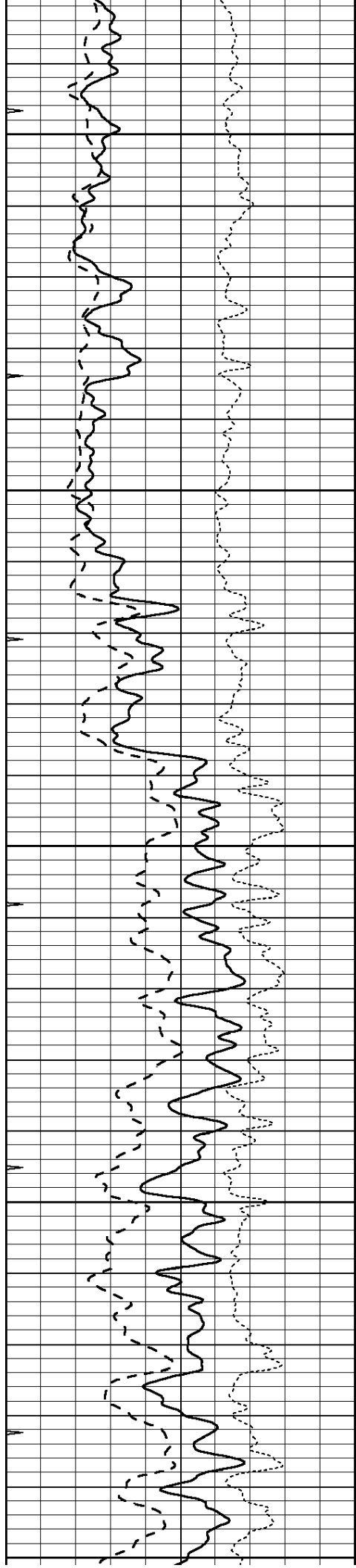
1650

1700

1750

1800





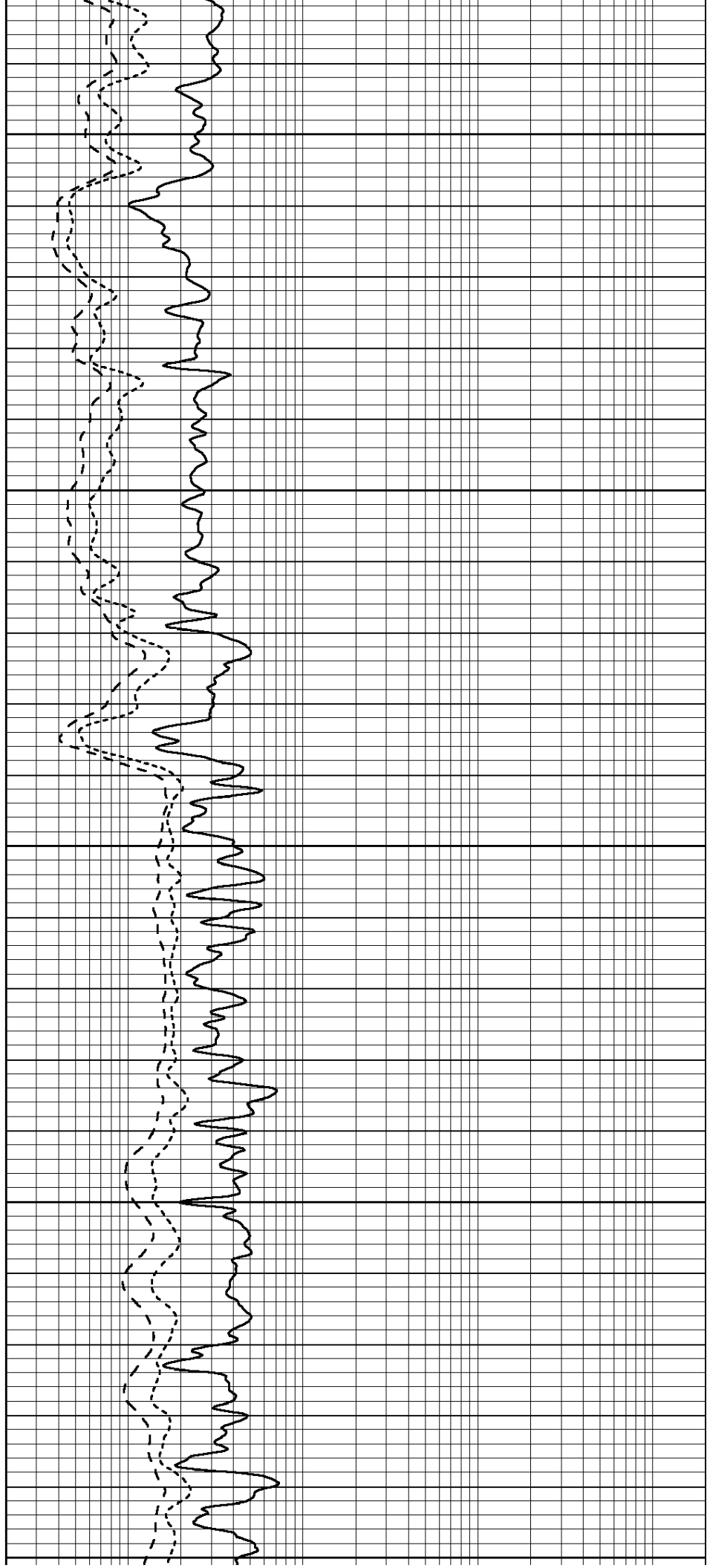
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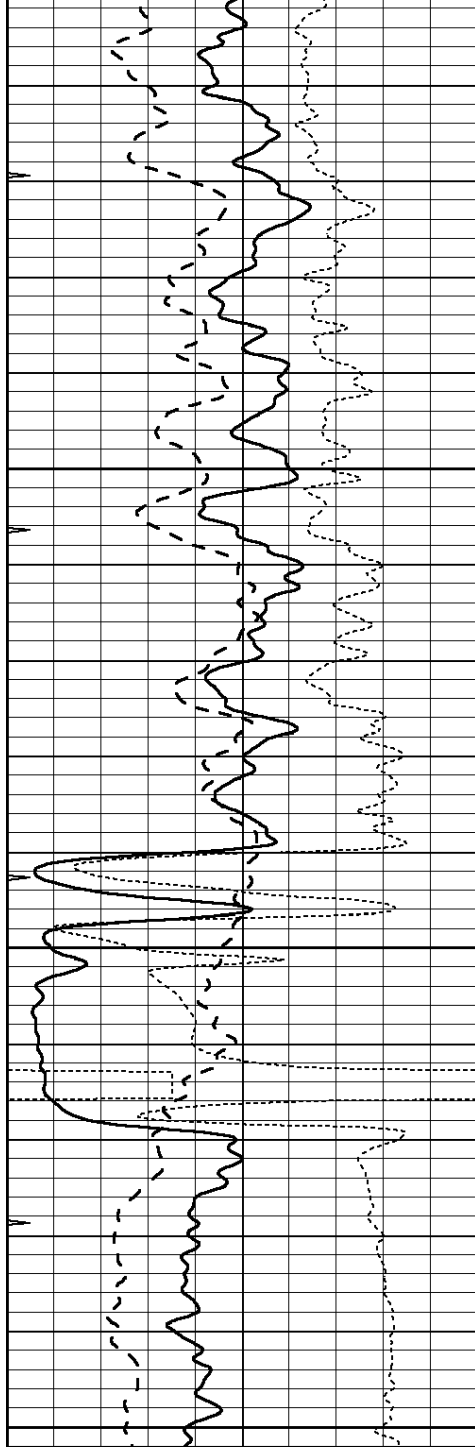
1900

1950

2000

2050



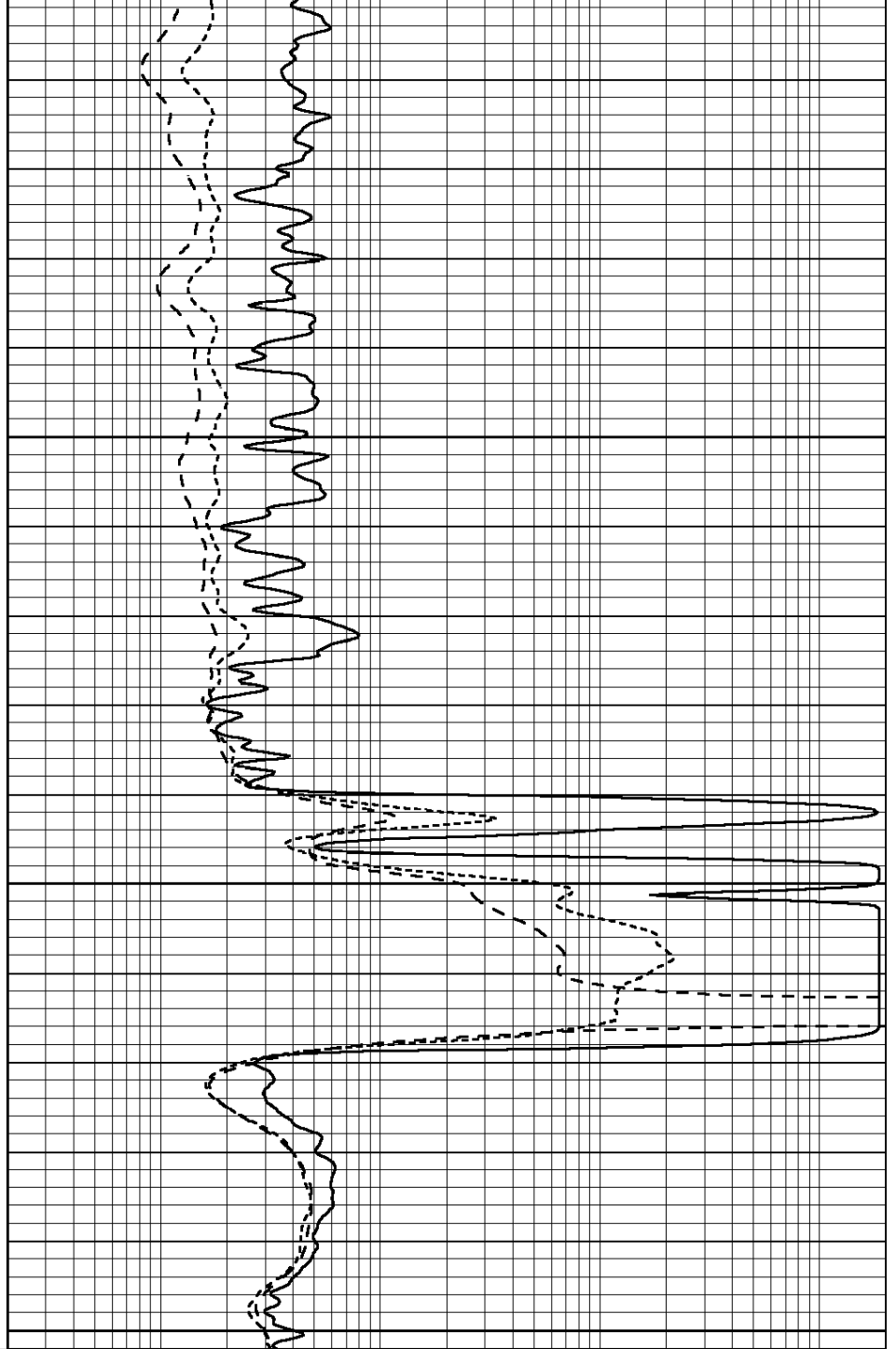


2100

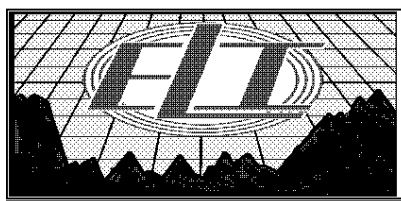
2150

2200

| | | |
|------|------------------|-----|
| 0 | GAMMA RAY (GAPI) | 150 |
| -100 | SP (mV) | 100 |
| -250 | Rxo/Rt | 50 |
| 0 | MINMK | 20 |



| | | |
|-----|--------------------------|------|
| 0.2 | SHALLOW GUARD (Ohm-m) | 2000 |
| 0.2 | DEEP INDUCTION (Ohm-m) | 2000 |
| 0.2 | MEDIUM INDUCTION (Ohm-m) | 2000 |

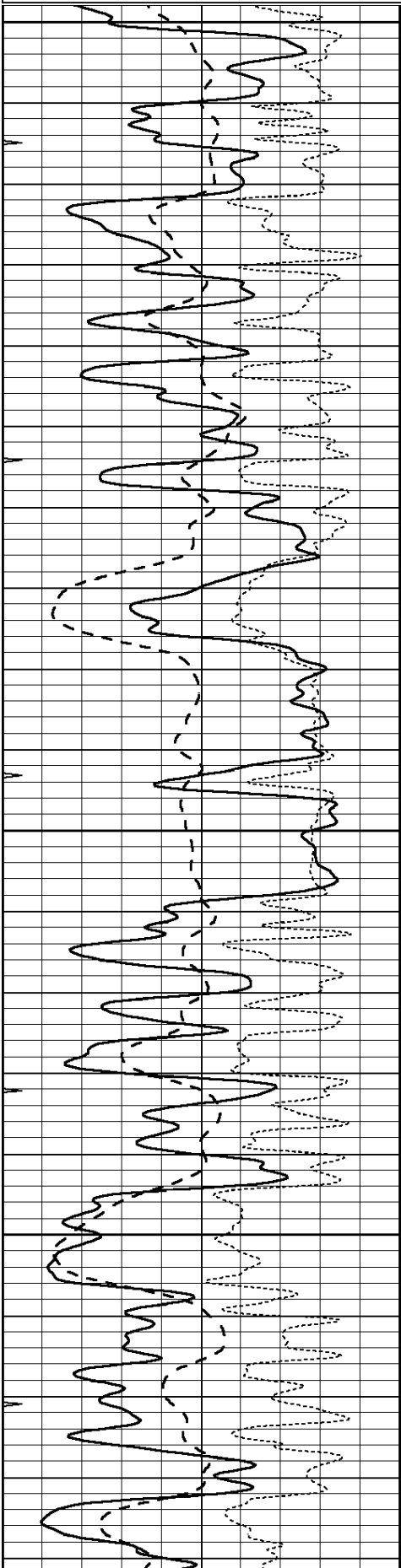


MAIN SECTION

Database File: 4380ddn.db
 Dataset Pathname: pass4.4
 Presentation Format: _dil
 Dataset Creation: Fri Nov 08 03:40:06 2019
 Charted by: Depth in Feet scaled 1:240

| | | |
|------|------------------|-----|
| 0 | GAMMA RAY (GAPI) | 150 |
| -100 | SP (mV) | 100 |
| -250 | Rxo/Rt | 50 |
| 0 | MINMK | 20 |

| | | |
|-----|--------------------------|------|
| 0.2 | SHALLOW GUARD (Ohm-m) | 2000 |
| 0.2 | DEEP INDUCTION (Ohm-m) | 2000 |
| 0.2 | MEDIUM INDUCTION (Ohm-m) | 2000 |

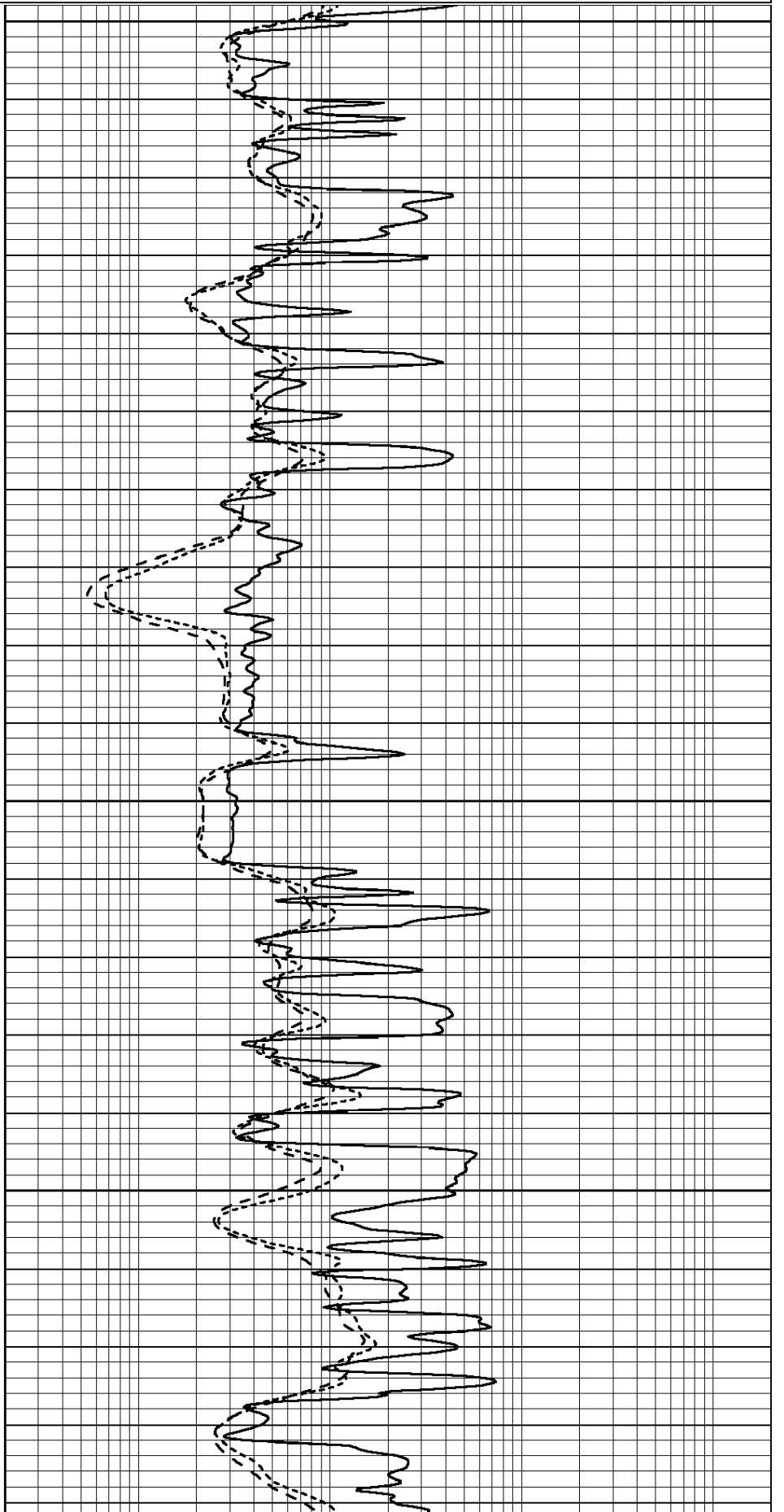


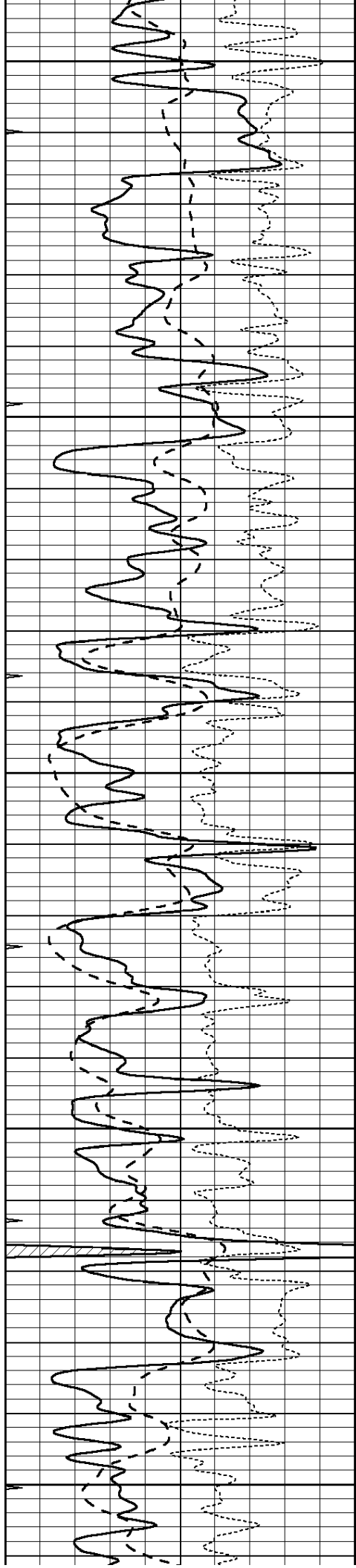
3300

3350

3400

3450





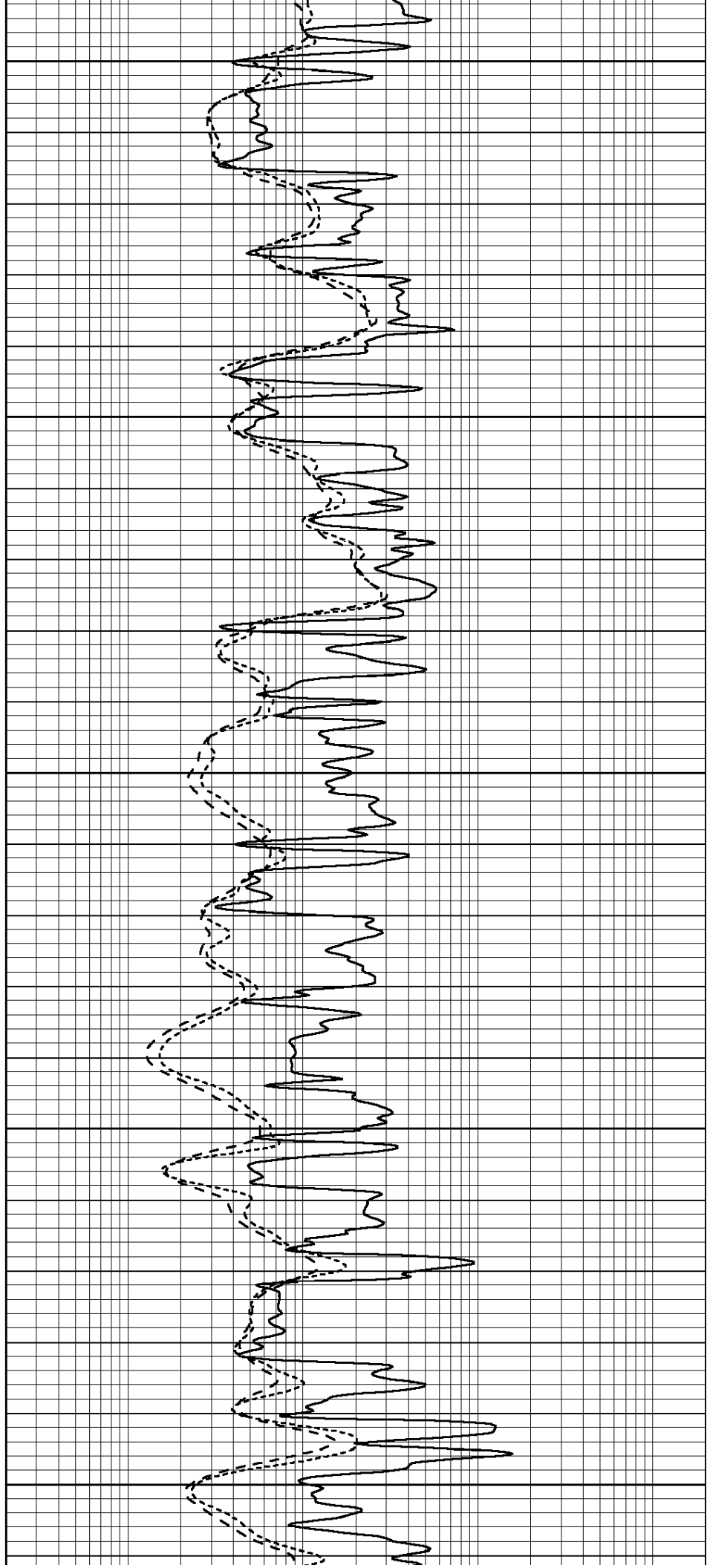
3500

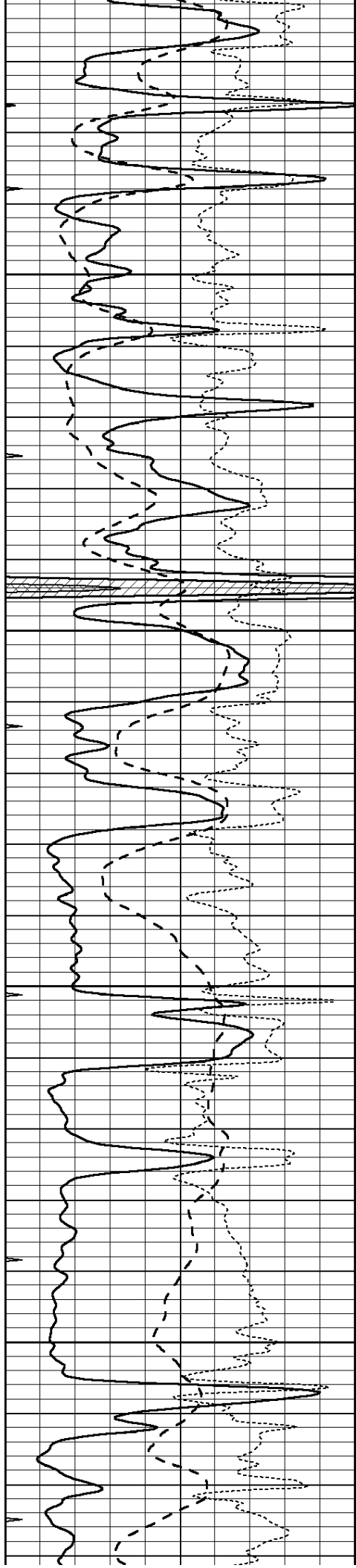
3550

3600

3650

3700



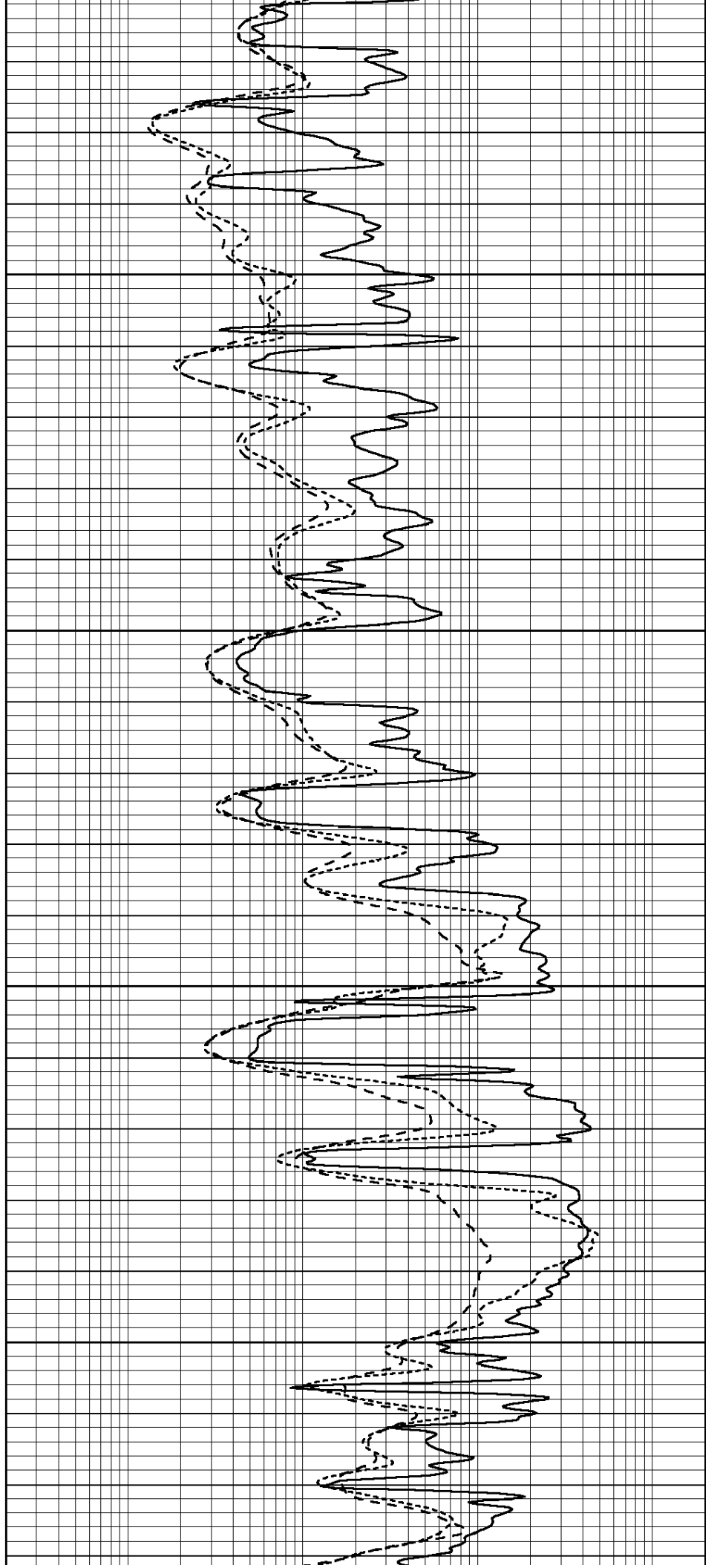


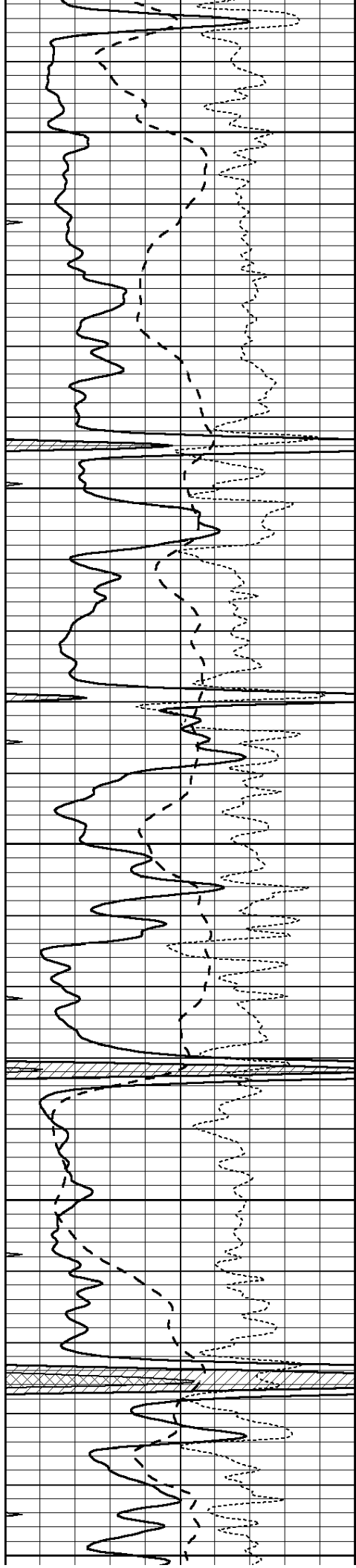
3750

3800

3850

3900





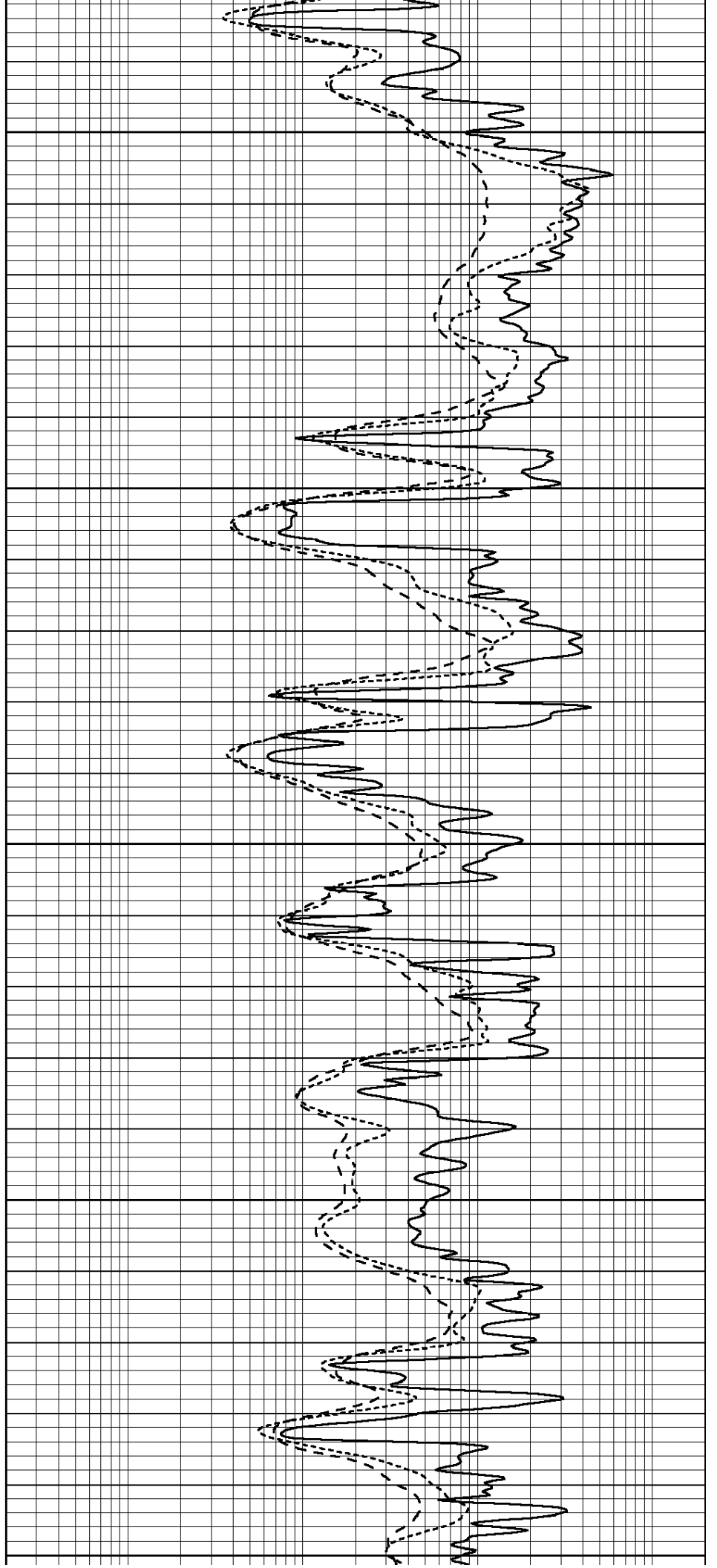
3950

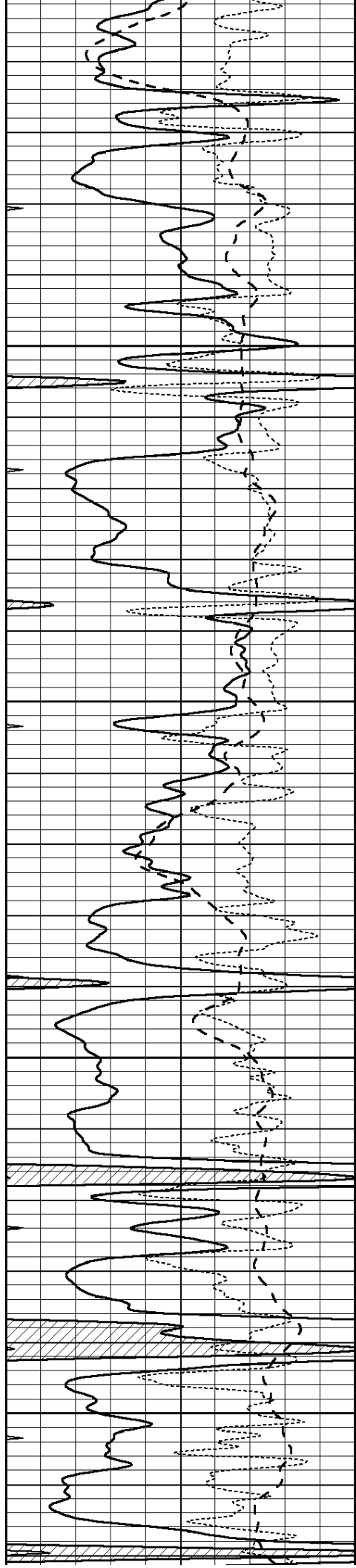
4000

4050

4100

4150



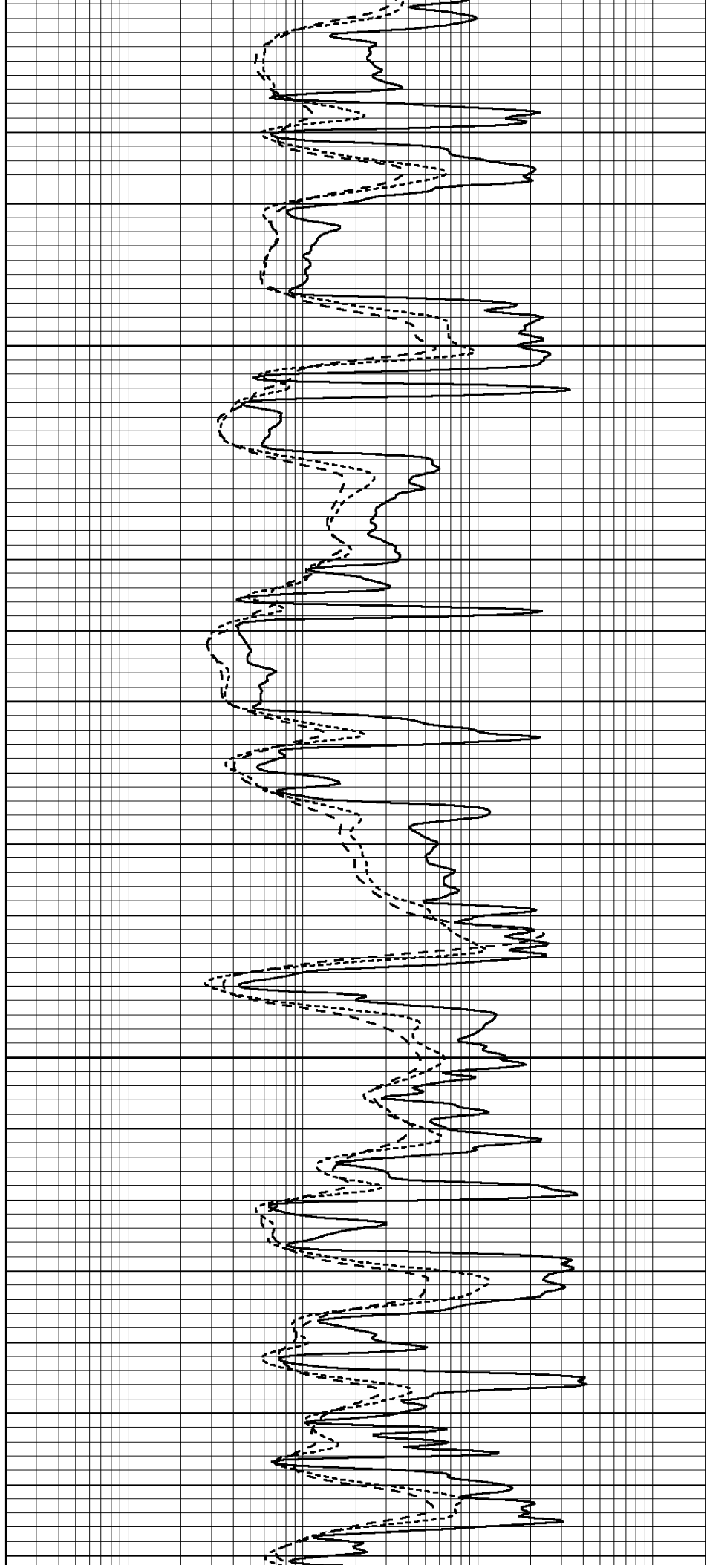


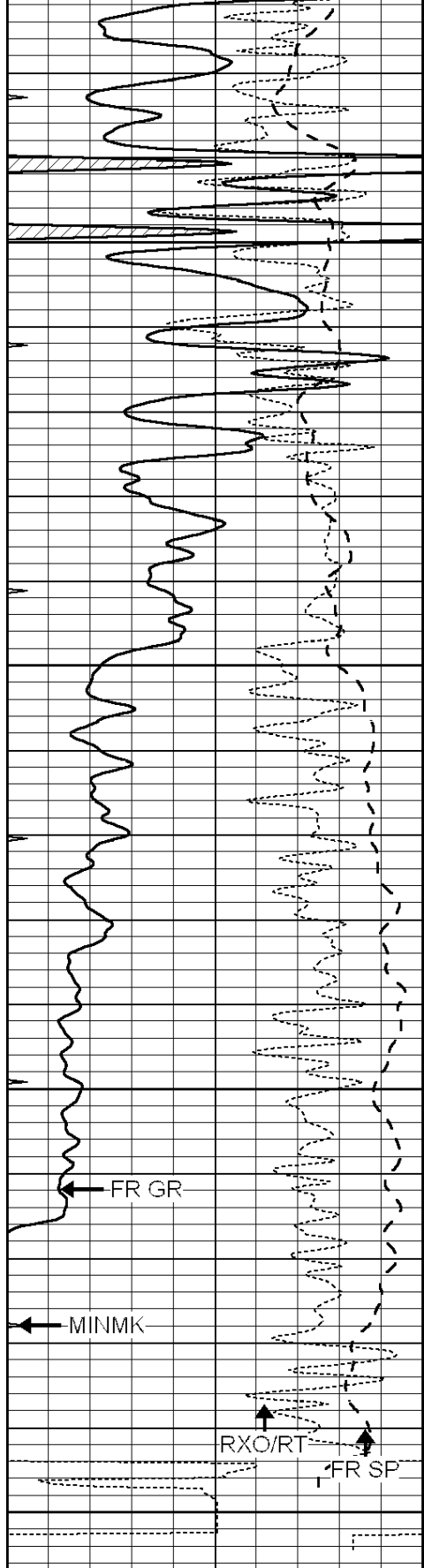
4200

4250

4300

4350





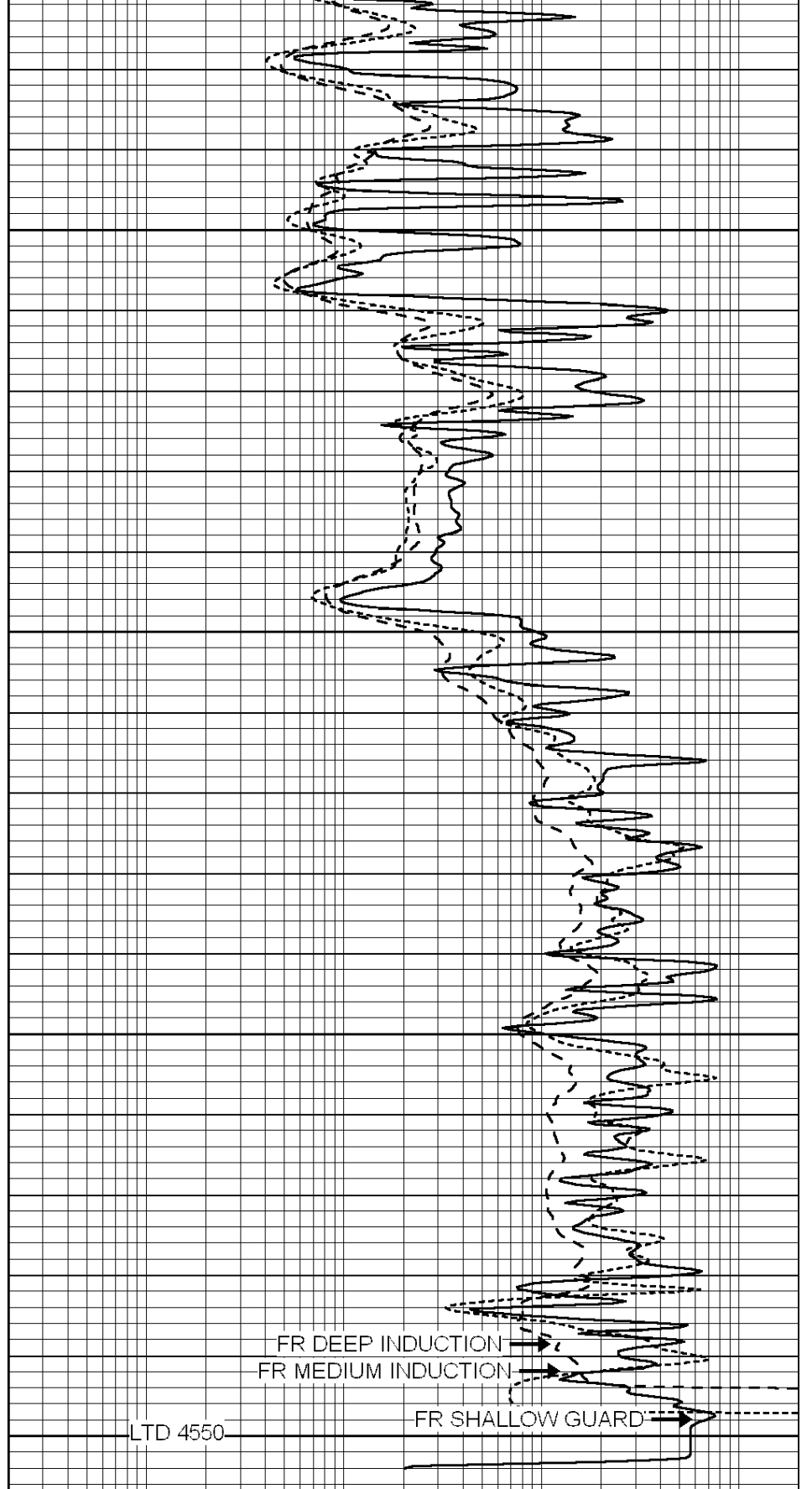
4400

4450

4500

4550

| | | |
|------|------------------|-----|
| 0 | GAMMA RAY (GAPI) | 150 |
| -100 | SP (mV) | 100 |
| -250 | Rxo/Rt | 50 |
| 0 | MINMK | 20 |



FR DEEP INDUCTION

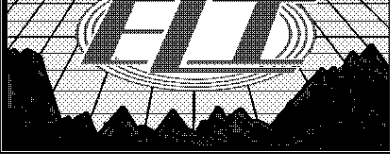
FR MEDIUM INDUCTION

FR SHALLOW GUARD

LTD 4550

| | | |
|-----|--------------------------|------|
| 0.2 | SHALLOW GUARD (Ohm-m) | 2000 |
| 0.2 | DEEP INDUCTION (Ohm-m) | 2000 |
| 0.2 | MEDIUM INDUCTION (Ohm-m) | 2000 |



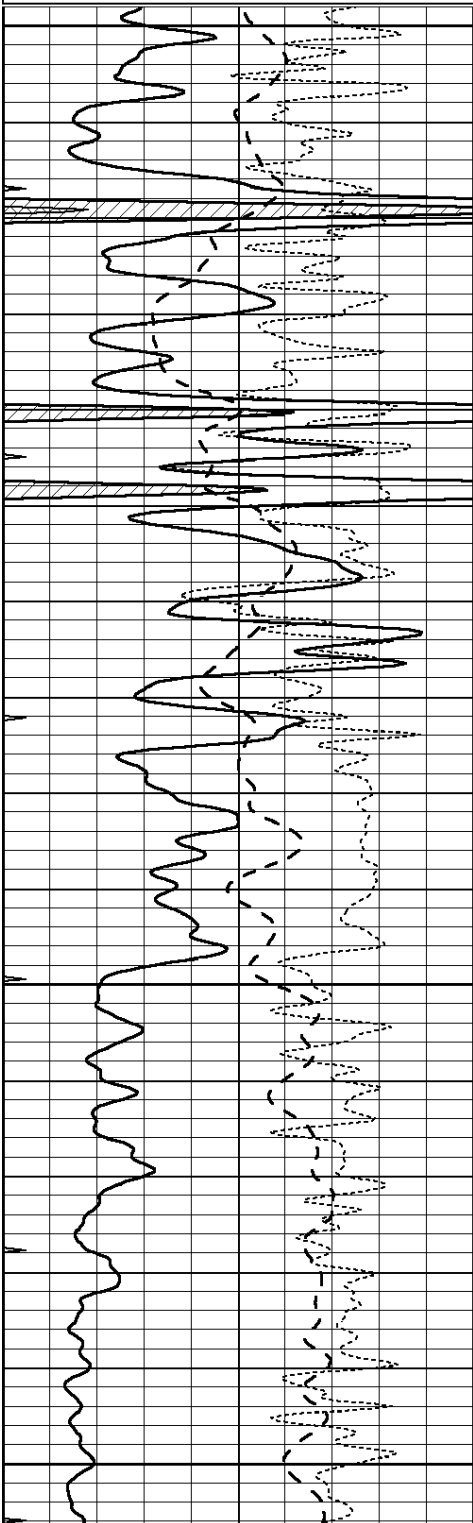


REPEAT SECTION

Database File: 4380ddn.db
Dataset Pathname: pass3.4
Presentation Format: _dil
Dataset Creation: Fri Nov 08 03:03:22 2019 by Calc SOC 120430
Charted by: Depth in Feet scaled 1:240

| | | |
|------|------------------|-----|
| 0 | GAMMA RAY (GAPI) | 150 |
| -100 | SP (mV) | 100 |
| -250 | Rxo/Rt | 50 |
| 0 | MINMK | 20 |

| | | |
|-----|--------------------------|------|
| 0.2 | SHALLOW GUARD (Ohm-m) | 2000 |
| 0.2 | DEEP INDUCTION (Ohm-m) | 2000 |
| 0.2 | MEDIUM INDUCTION (Ohm-m) | 2000 |

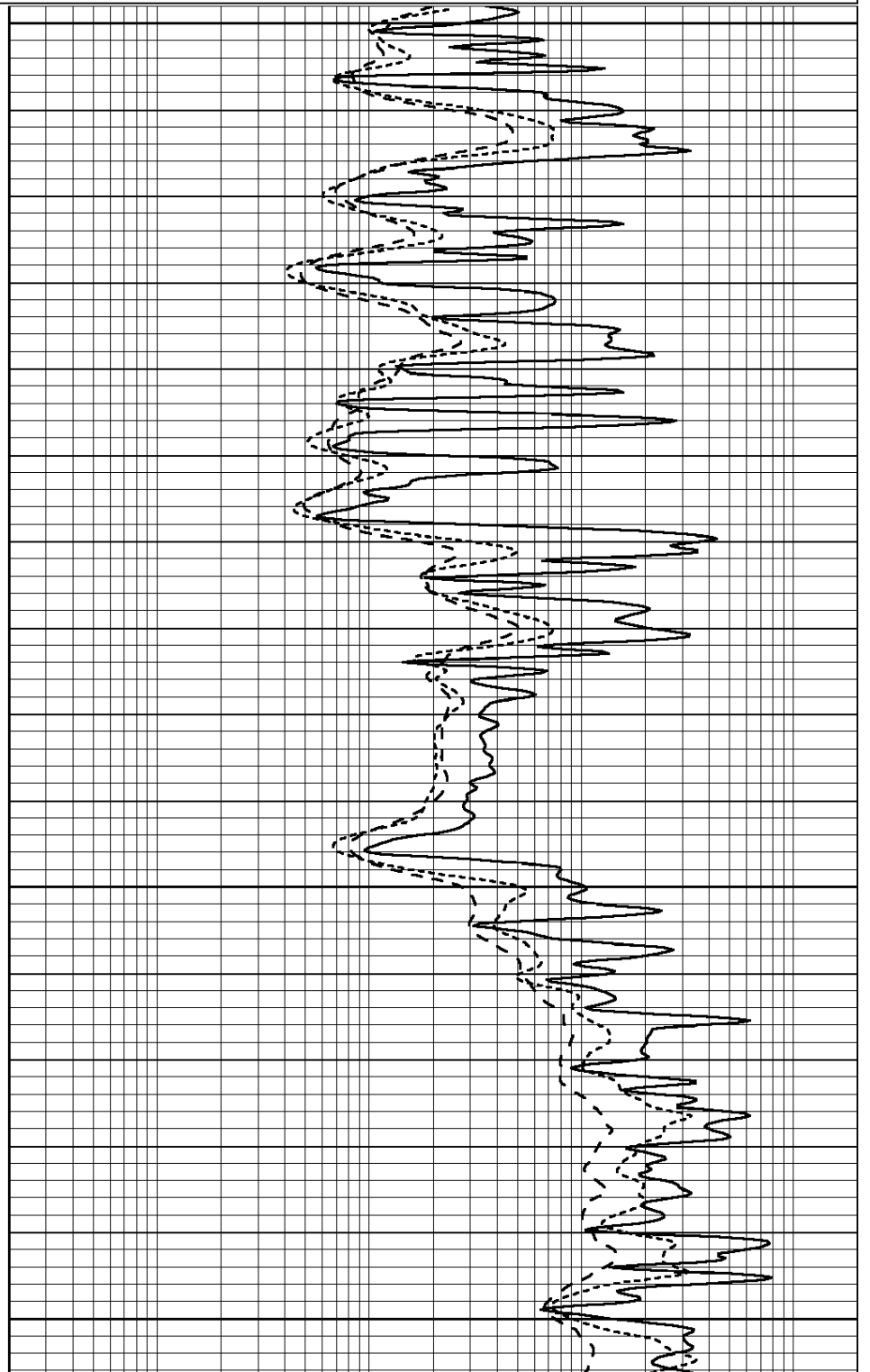


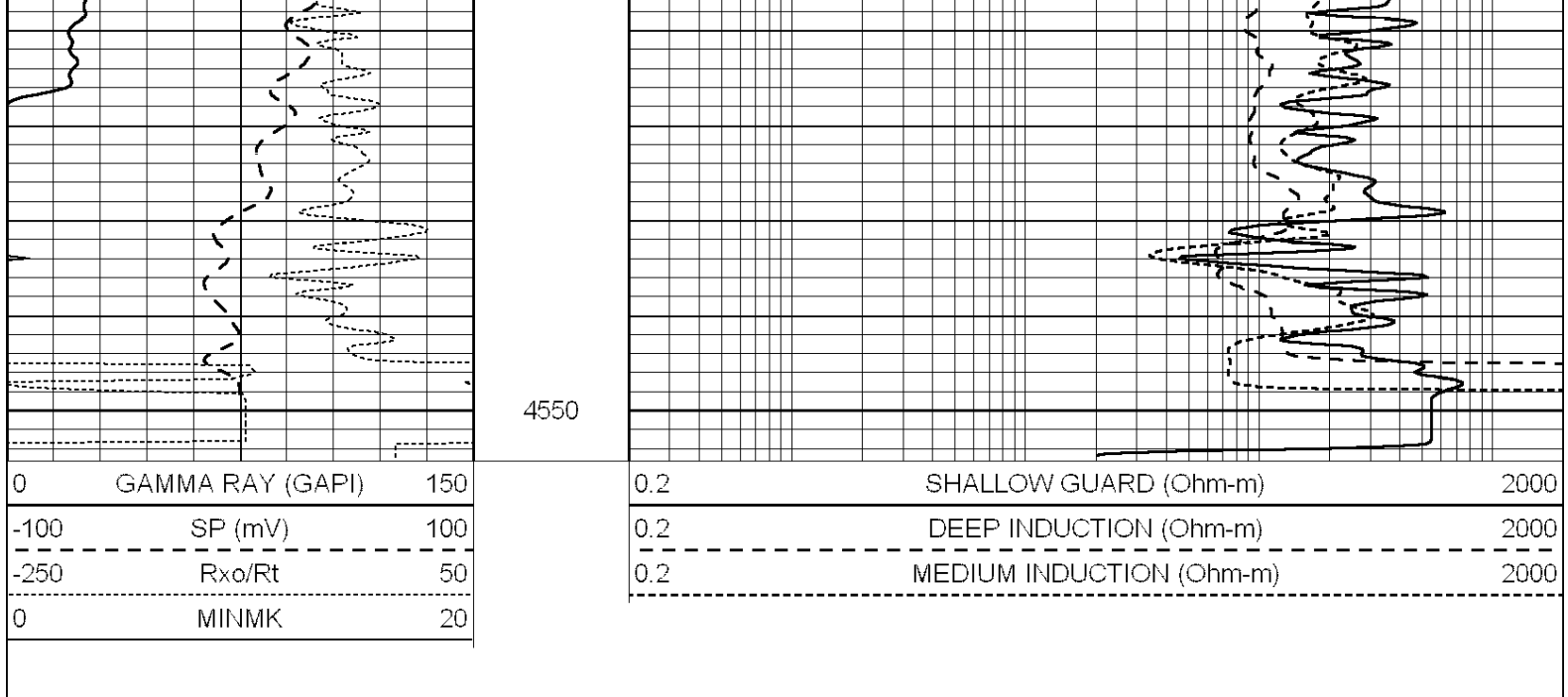
4350

4400

4450

4500





Calibration Report

Database File: 1598ddn.db
 Dataset Pathname: pass4
 Dataset Creation: Wed Aug 30 02:13:00 2017 by Log SOC 120430

Dual Induction Calibration Report

Serial-Model: PROBE7-DILG
 Surface Cal Performed: Wed Aug 30 00:06:33 2017
 Downhole Cal Performed: Mon Jul 28 12:02:56 2008
 After Survey Verification Performed: Mon Jul 28 12:02:56 2008

Surface Calibration

| Loop: | Readings | | | | References | | Results | |
|-----------|----------|-------|---|-------|------------|--------|---------|---------|
| | Air | Loop | | | Air | Loop | m | b |
| Deep | -0.014 | 0.629 | V | 0.000 | 400.000 | mmho/m | 620.000 | 0.000 |
| Medium | 0.039 | 0.728 | V | 0.000 | 464.000 | mmho/m | 675.000 | -44.000 |
| Internal: | Zero | Cal | | Zero | Cal | | m | b |
| Deep | 0.011 | 0.610 | V | 0.000 | 400.000 | mmho/m | 667.135 | -7.256 |
| Medium | 0.005 | 0.712 | V | 0.000 | 464.000 | mmho/m | 655.677 | -3.102 |

Downhole Calibration

| | Readings | | | | References | | Results | |
|--------|----------|--------|--------|---------|------------|--------|---------|-------|
| | Zero | Cal | | | Zero | Cal | m' | b' |
| Deep | 0.000 | 0.000 | mmho/m | 14.508 | 388.384 | mmho/m | 1.000 | 0.000 |
| Medium | 0.000 | 0.000 | mmho/m | 166.367 | 504.400 | mmho/m | 1.000 | 0.000 |
| LL3 | | 7.500 | V | | 1400.000 | Ohm-m | | |
| | | 0.000 | V | | 20.000 | Ohm-m | | |
| | | -7.200 | V | | 4000.000 | mmho-m | | |

After Survey Verification

| | Readings | | | | Targets | | Results | |
|--------|----------|-------|--------|-------|---------|--------|---------|-------|
| | Zero | Cal | | | Zero | Cal | m' | b' |
| Deep | 0.000 | 0.000 | mmho/m | 0.000 | 0.000 | mmho/m | 0.000 | 0.000 |
| Medium | 0.000 | 0.000 | mmho/m | 0.000 | 0.000 | mmho/m | 0.000 | 0.000 |
| LL3 | | 1.000 | Ohm-m | | 1.000 | Ohm-m | | |

0.000 Ohm-m
1.000 mmho-m

0.000 Ohm-m
1.000 mmho-m

Litho Density Calibration Report
Serial: 002 Model: PRB

Master Calibration

Performed Mon Aug 21 11:27:42 2017

| | Background | Magnesium | Aluminum | Sandstone | |
|-------------|------------|-------------|----------|---------------------|---------|
| Window 1 | 837.1 | 10632.5 | 2945.1 | 12110.1 | cps |
| Window 2 | 772.0 | 9117.4 | 2570.1 | 10197.3 | cps |
| Window 3 | 631.7 | 4669.0 | 1481.9 | 5042.9 | cps |
| Window 4 | 187.0 | 187.5 | 185.9 | 189.9 | cps |
| Long Space | 0.0 | 8345.4 | 1798.1 | 9425.3 | cps |
| Short Space | 1.1 | 1927.9 | 1285.9 | 2050.2 | cps |
| Rho | | 1.7100 | 2.5960 | 1.3800 | g/cc |
| Pe | | 0.0000 | 2.5700 | 1.5500 | |
| Rib Angle | : 45.2 | Rib Slope | : 1.008 | Density/Spine Ratio | : 0.558 |
| Spine Angle | : 75.2 | Spine Slope | : 3.790 | Spine Intercept | : -19.6 |

Before Survey Verification

Performed Wed Dec 31 18:00:00 1969

| Window 1 | 0.0 | 0.0 | 0.0 | 0.0 | cps |
|---------------------|-----|--------|--------|--------|------|
| Window 2 | 0.0 | 0.0 | 0.0 | 0.0 | cps |
| Window 3 | 0.0 | 0.0 | 0.0 | 0.0 | cps |
| Window 4 | 0.0 | 0.0 | 0.0 | 0.0 | cps |
| Long Space | 0.0 | 0.0 | 0.0 | 0.0 | cps |
| Short Space | 0.0 | 0.0 | 0.0 | 0.0 | cps |
| Measured Rho | | 0.0000 | 0.0000 | 0.0000 | g/cc |
| Measured Correction | | 0.0000 | 0.0000 | 0.0000 | g/cc |
| Measured Pe | | | 0.0000 | 0.0000 | |

After Survey Verification

Performed Wed Dec 31 18:00:00 1969

| Window 1 | 0.0 | 0.0 | 0.0 | 0.0 | cps |
|---------------------|-----|--------|--------|--------|------|
| Window 2 | 0.0 | 0.0 | 0.0 | 0.0 | cps |
| Window 3 | 0.0 | 0.0 | 0.0 | 0.0 | cps |
| Window 4 | 0.0 | 0.0 | 0.0 | 0.0 | cps |
| Long Space | 0.0 | 0.0 | 0.0 | 0.0 | cps |
| Short Space | 0.0 | 0.0 | 0.0 | 0.0 | cps |
| Measured Rho | | 0.0000 | 0.0000 | 0.0000 | g/cc |
| Measured Correction | | 0.0000 | 0.0000 | 0.0000 | g/cc |
| Measured Pe | | | 0.0000 | 0.0000 | |

Compensated Neutron Calibration Report

Serial Number: 070808
Tool Model: Probe

PRE-SURVEY VERIFICATION

| Detector | Readings | Measured | Target |
|-------------|----------|----------|--------|
| Short Space | cps | | |
| Long Space | cps | pu | pu |

POST-SURVEY VERIFICATION

| Detector | Readings | Measured | Target |
|----------|----------|----------|--------|
|----------|----------|----------|--------|

Short Space
Long Space

cps
cps

pu

pu

Gamma Ray Calibration Report

| | | |
|---------------------|--------------------------|----------|
| Serial Number: | 070558 | |
| Tool Model: | OPEN_GR | |
| Performed: | Wed May 31 00:09:32 2017 | |
| Calibrator Value: | 1.0 | GAPI |
| Background Reading: | 0.0 | cps |
| Calibrator Reading: | 1.0 | cps |
| Sensitivity: | 0.2800 | GAPI/cps |