



DUAL INDUCTION LOG

| | | | |
|------------------------|--|----------------|-------------------------------------|
| Company | RAYMOND OIL COMPANY, INC. | Company | RAYMOND OIL COMPANY, INC. |
| Well | W&H UNIT #2 | Well | W&H UNIT #2 |
| Field | ALAMOTA SOUTH | Field | ALAMOTA SOUTH |
| County | LANE | County | LANE |
| State | KANSAS | State | KANSAS |
| Location: | API # : 15-101-22601-00-00 | Other Services | CDL/CNL/MEEL SONIC |
| Permanent Datum | SEC 9 TWP 19S RGE 27W | Elevation | |
| Log Measured From | GROUND LEVEL | Elevation | 2718' |
| Drilling Measured From | 2314' FSL & 228' FWL KELLY BUSHING 5' A.G.L. KELLY BUSHING | Elevation | K.B. 2723 D.F. 2721 G.L. 2718 |

| | |
|------------------------------|-----------------|
| Date | 02/07/18 |
| Run Number | ONE |
| Depth Driller | 4770 |
| Depth Logger | 4773 |
| Bottom Logged Interval | 4771 |
| Top Log Interval | 00 |
| Casing Driller | 8 5/8" @ 260 |
| Casing Logger | 260 |
| Bit Size | 7 7/8" |
| Type Fluid in Hole | CHEMICAL MUD |
| Density / Viscosity | 9.25/50 |
| pH / Fluid Loss | 9.0/8.8 |
| Source of Sample | FLOWLINE |
| Rm @ Meas. Temp | 1.3@44 |
| Rmt @ Meas. Temp | .98@44 |
| Rmc @ Meas. Temp | 1.57@44 |
| Source of Rmf / Rmc | MEASURED |
| Rm @ BHT | .46@123 |
| Time Circulation Stopped | 2 HOURS |
| Time Logger on Bottom | /// |
| Maximum Recorded Temperature | 123F |
| Equipment Number | 4010 |
| Location | HAYS, KANSAS |
| Recorded By | GUS PFANENSTIEL |
| 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, KS. (785) 628-6395

DIRECTIONS
WEST OF NESS CITY TO TURKEY RED RD,
SOUTH 4 MILES, WEST 3/4 MILE
SOUTH INTO.



MAIN PASS

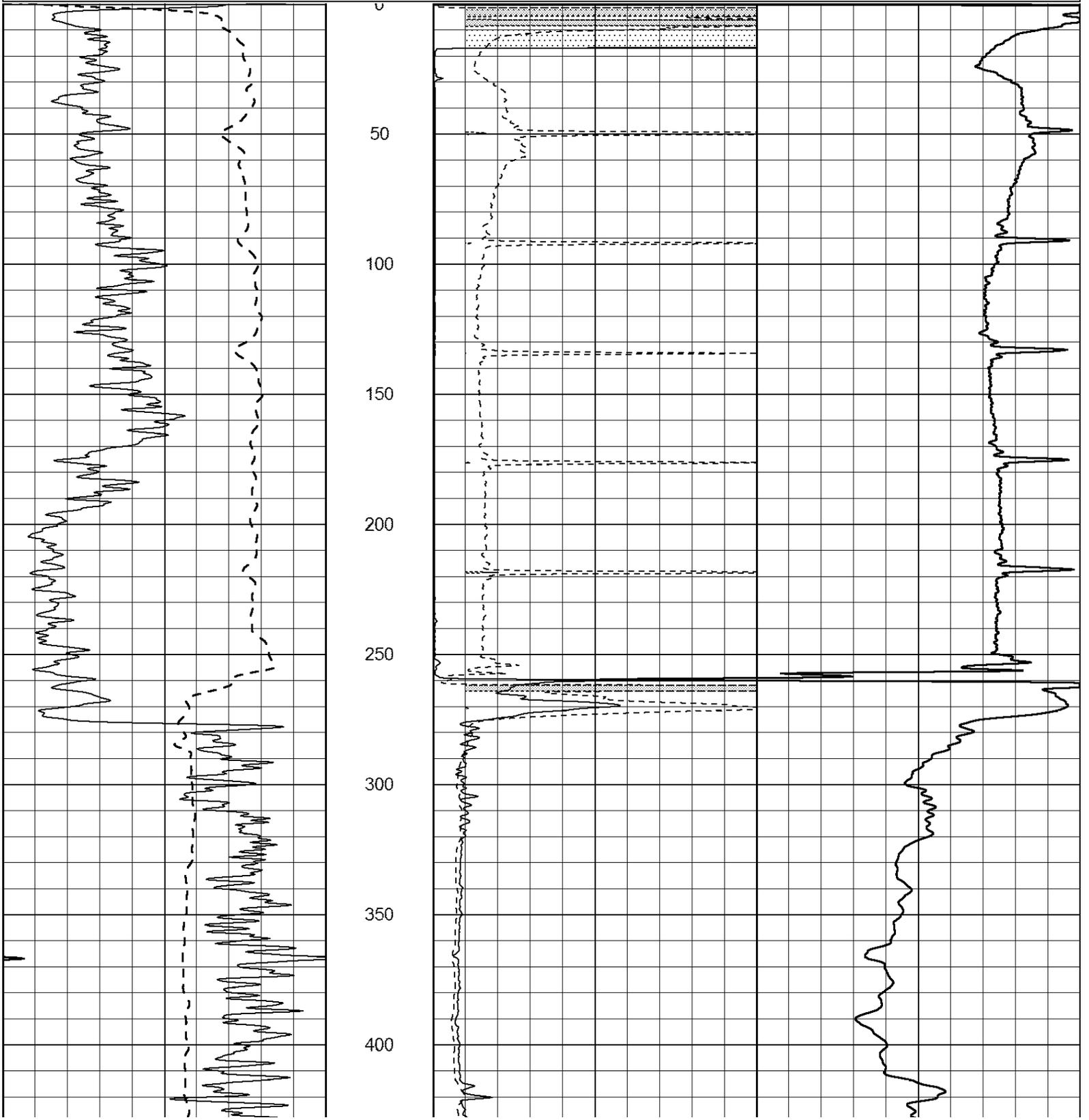
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 Presentation Format: _dil2
 Dataset Creation: Wed Feb 07 06:45:26 2018 by Calc Open-Cased 090629
 Charted by: Depth in Feet scaled 1:600

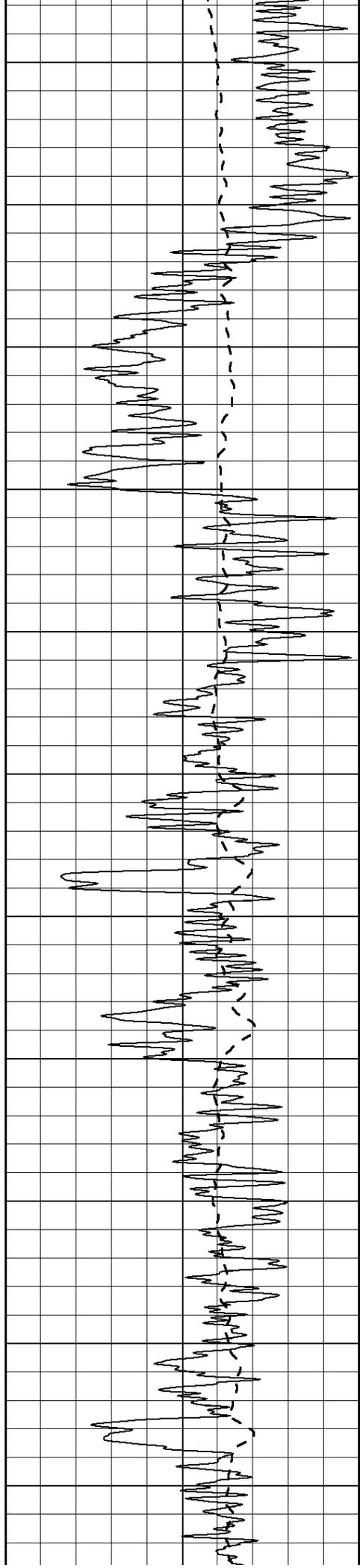
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 -100 SP (mV) 100

0 RLL3 (Ohm-m) 50
 0 RILD (Ohm-m) 50

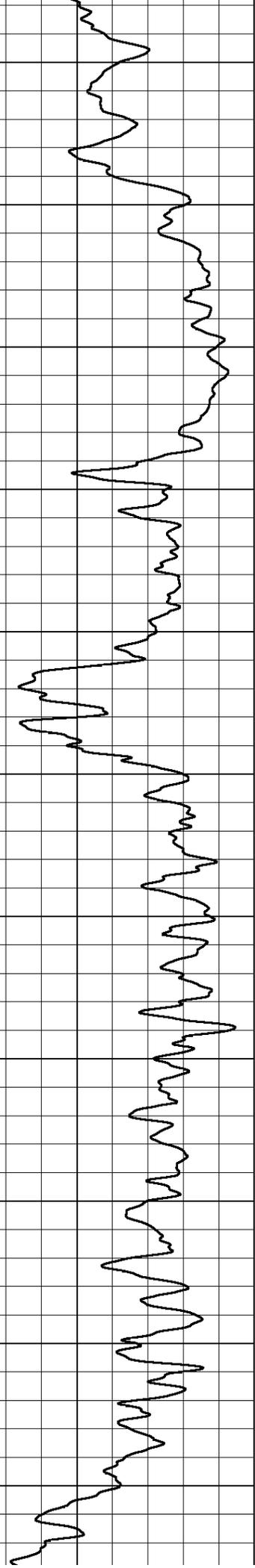
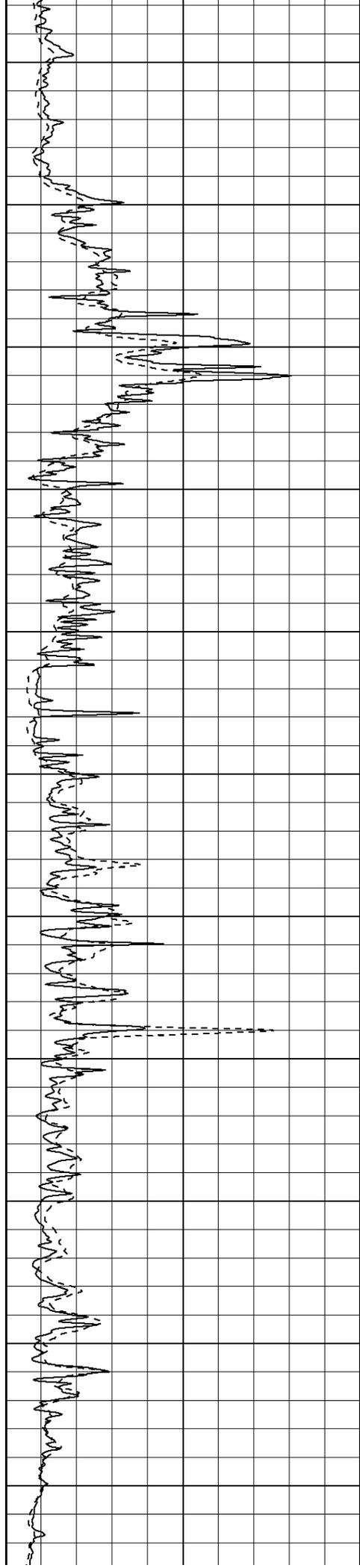
1000 CILD (mmho/m) 0

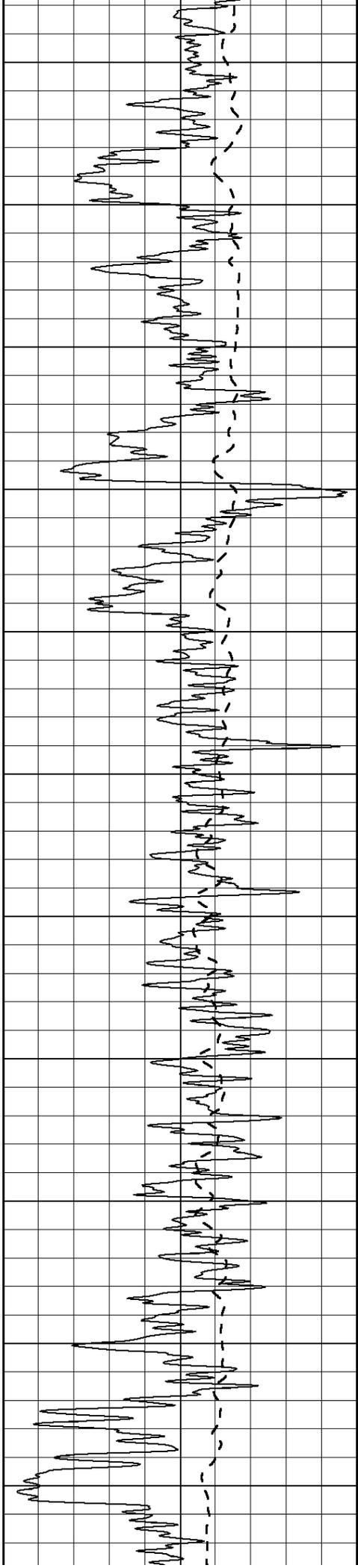
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 50 RLL3 X10 (Ohm-m) 500



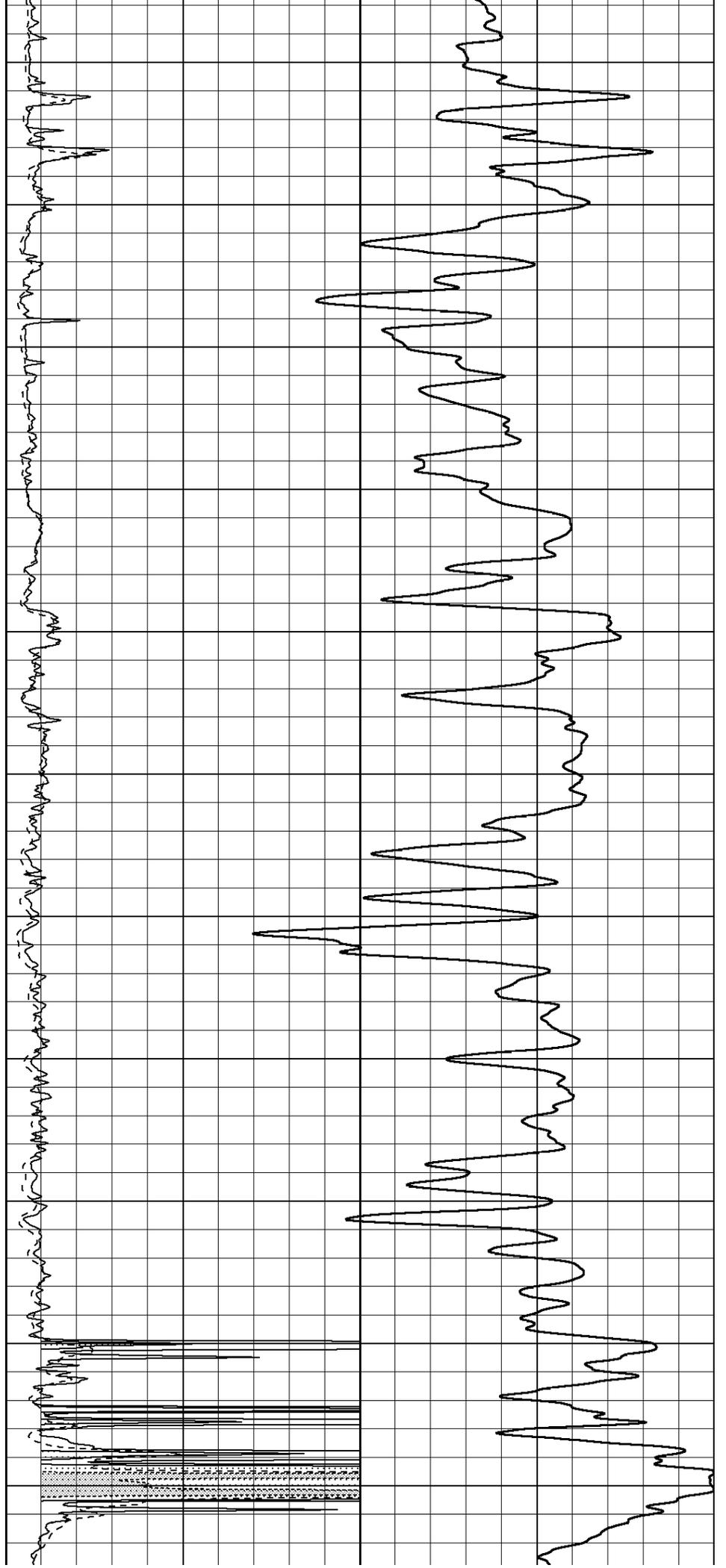


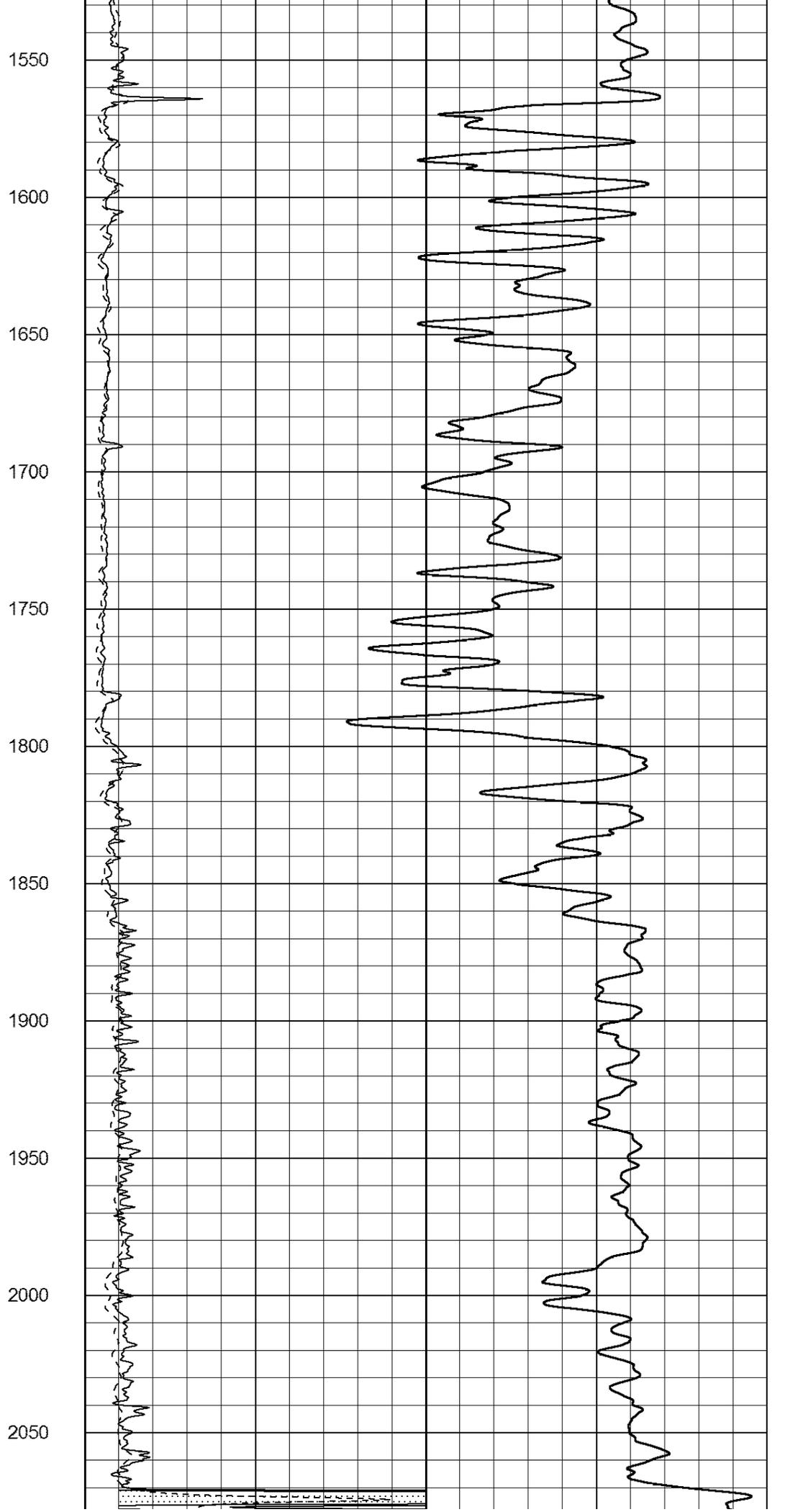
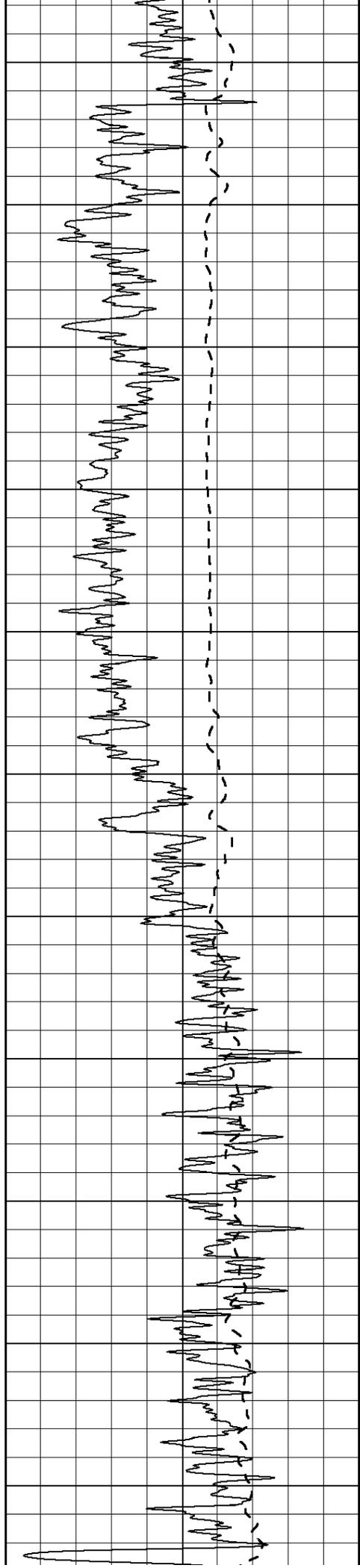
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950

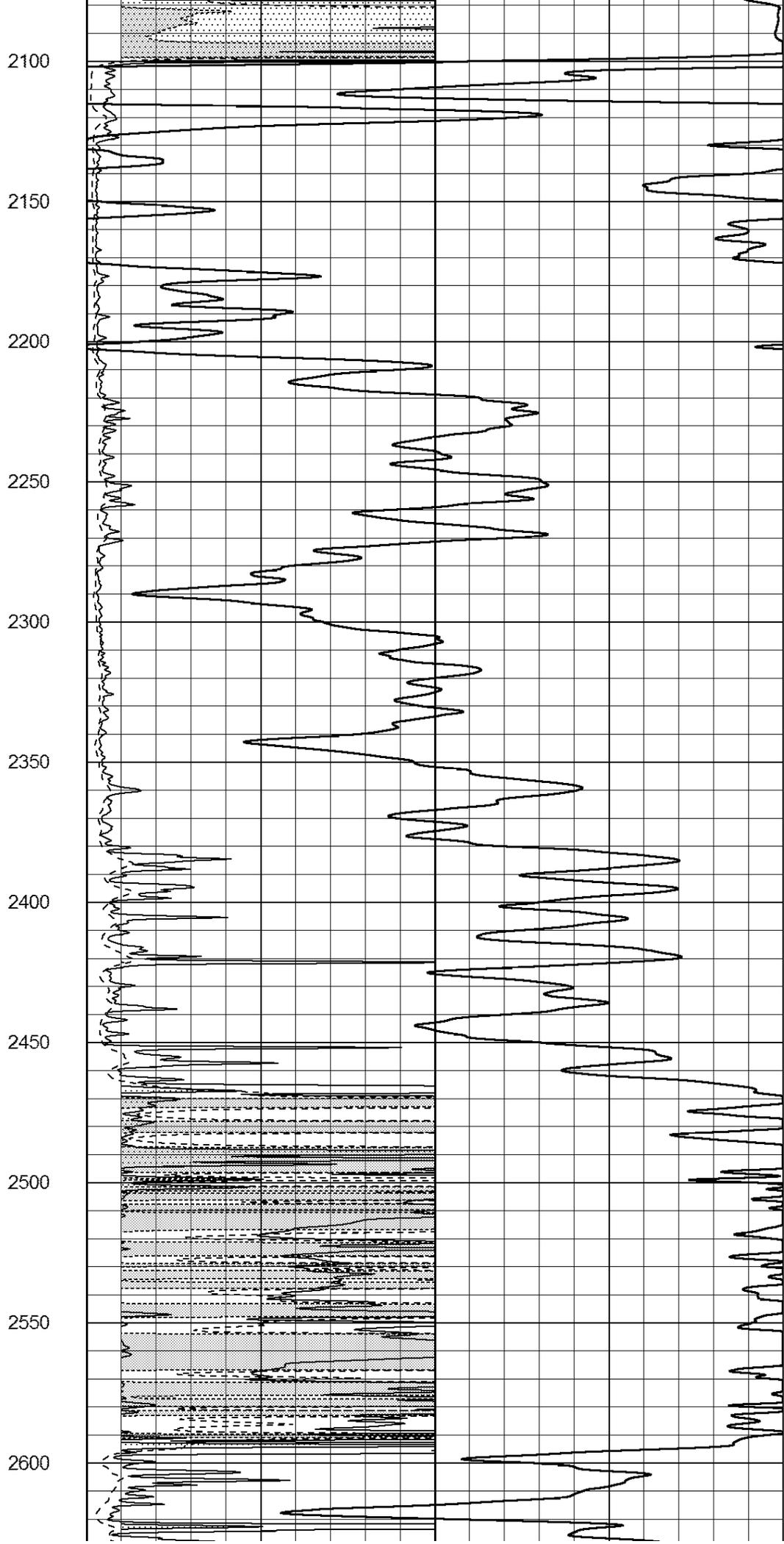
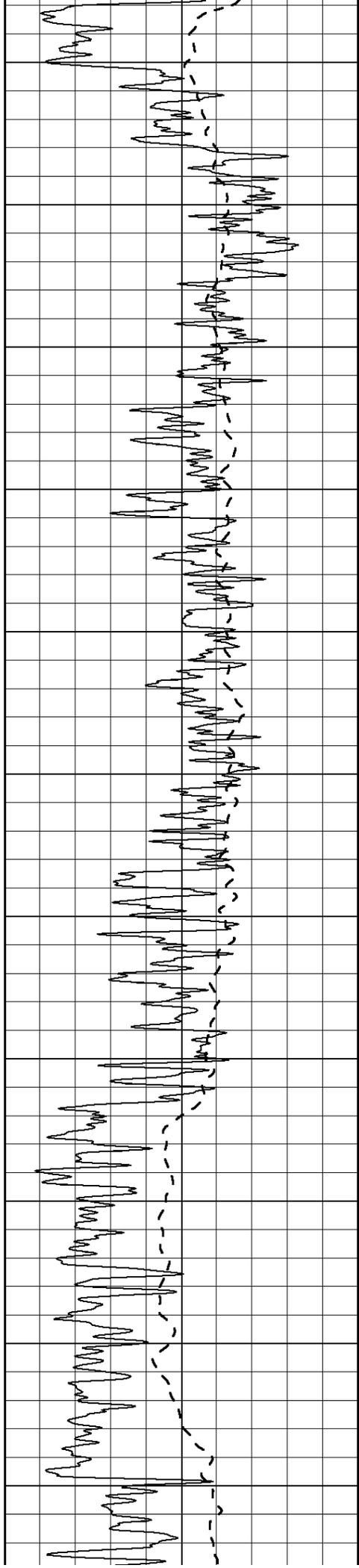


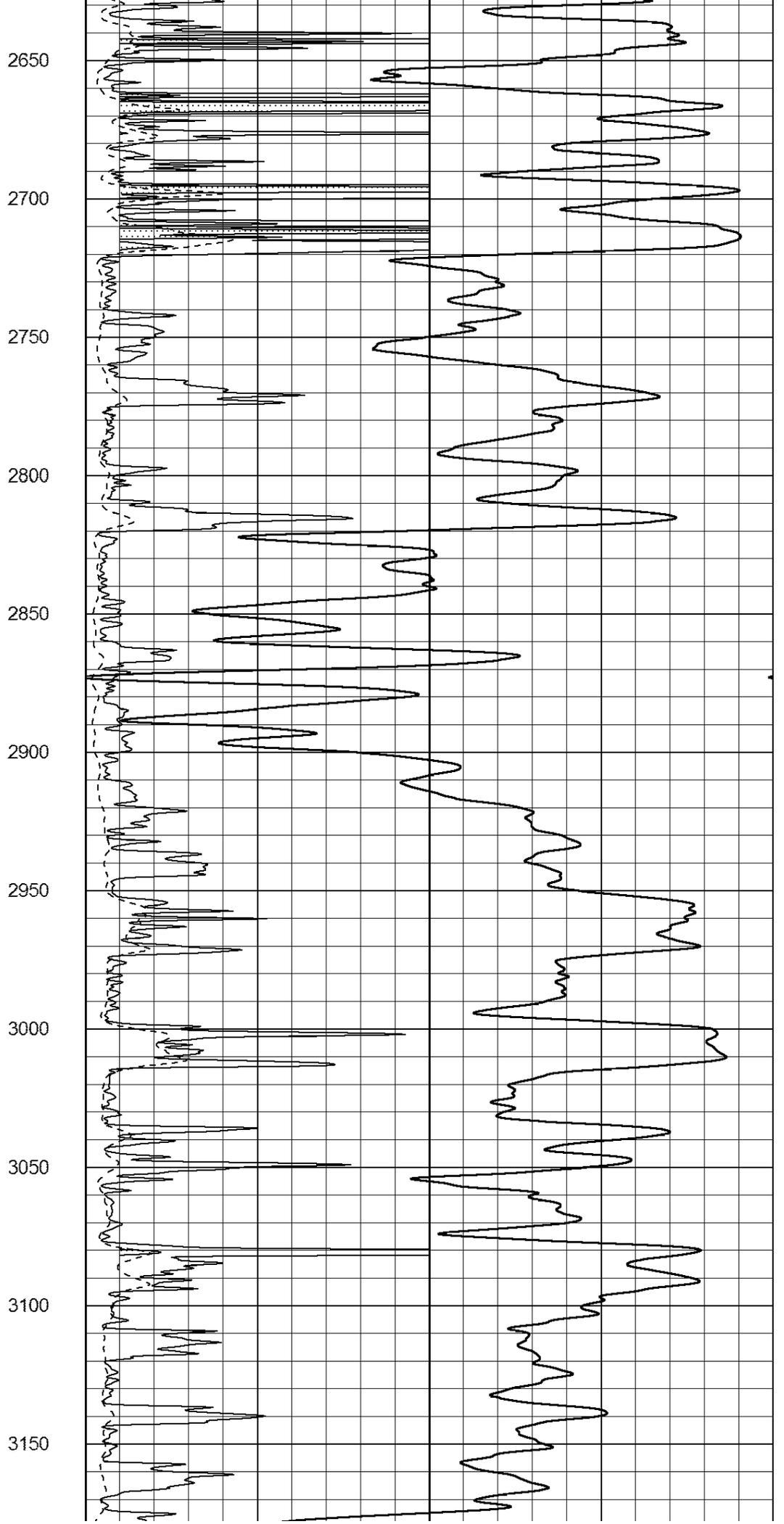
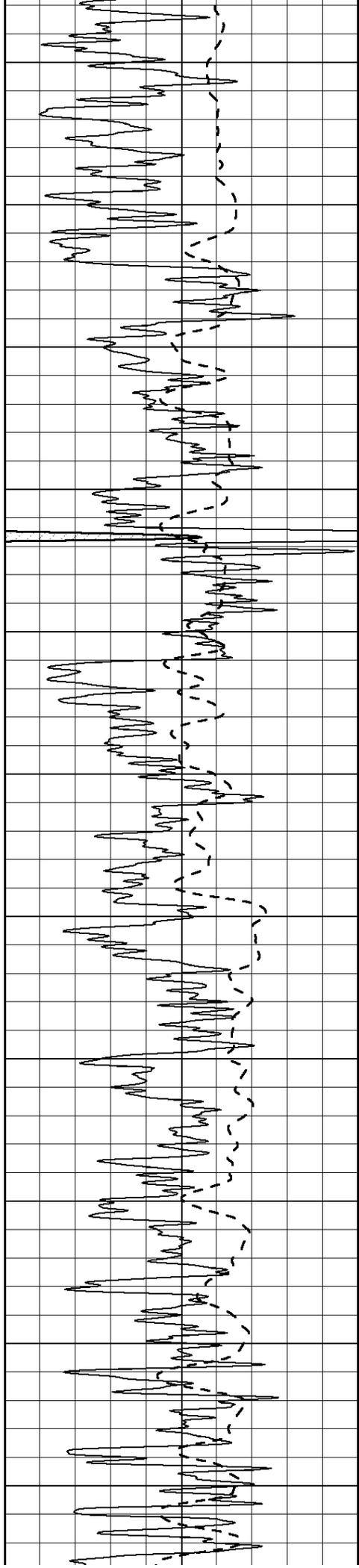


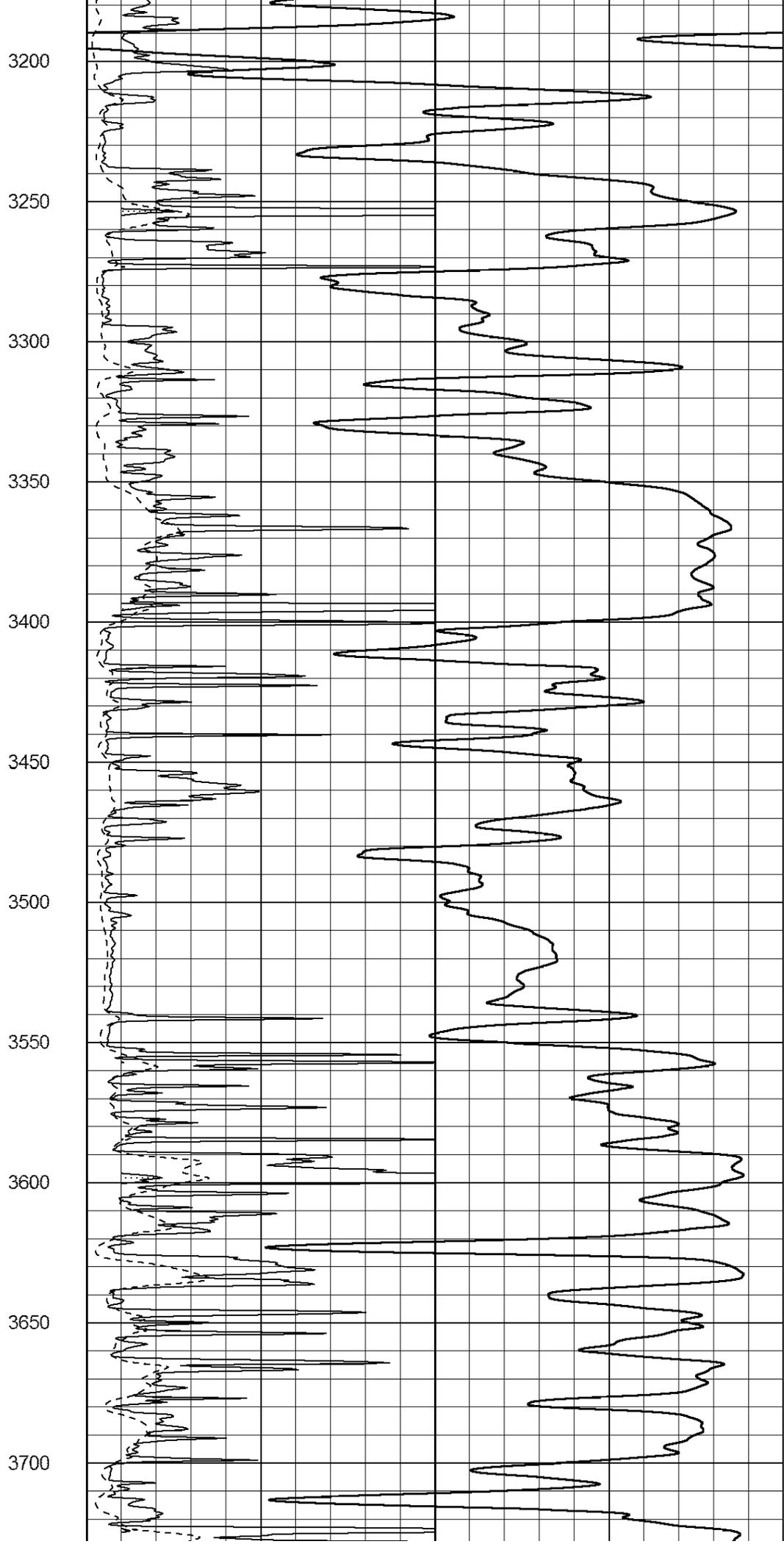
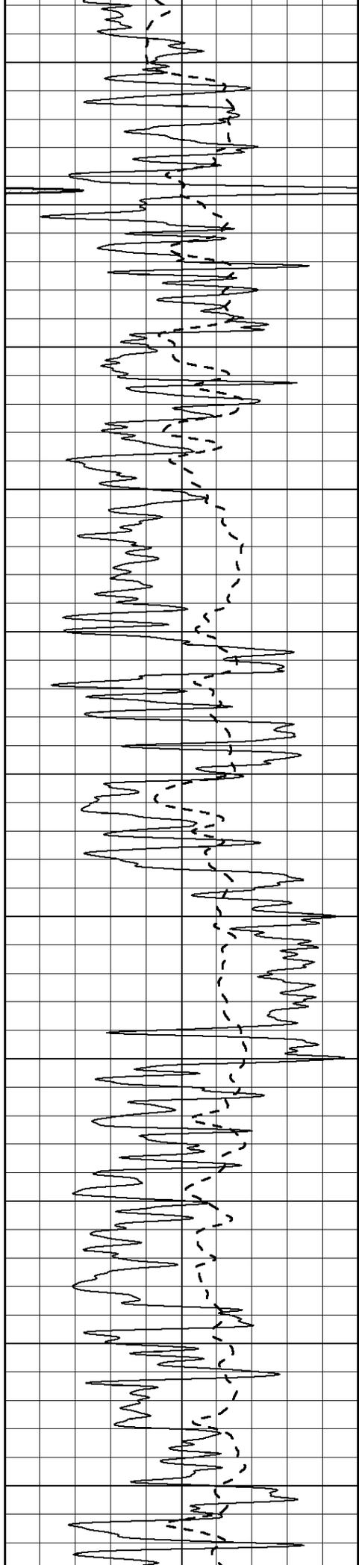
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1400
1450
1500

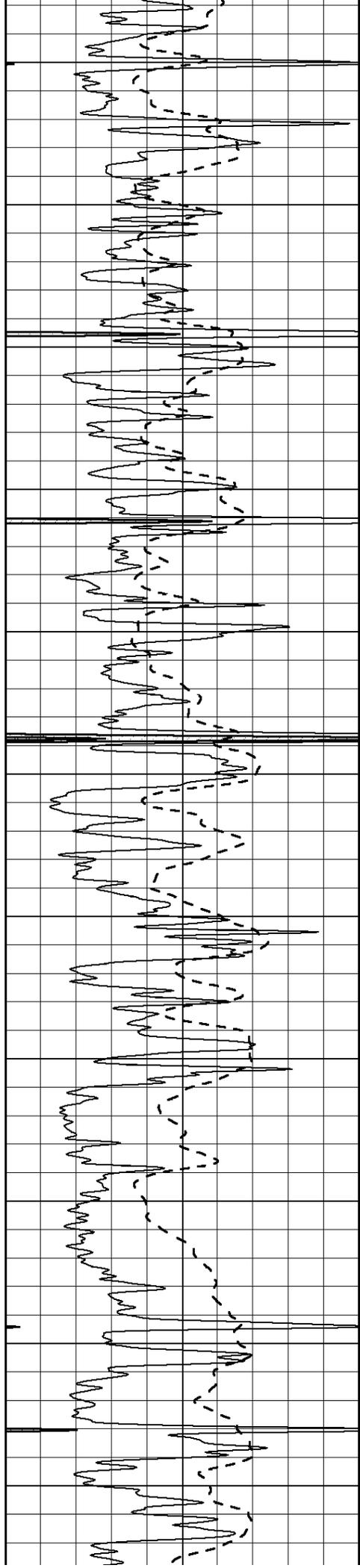




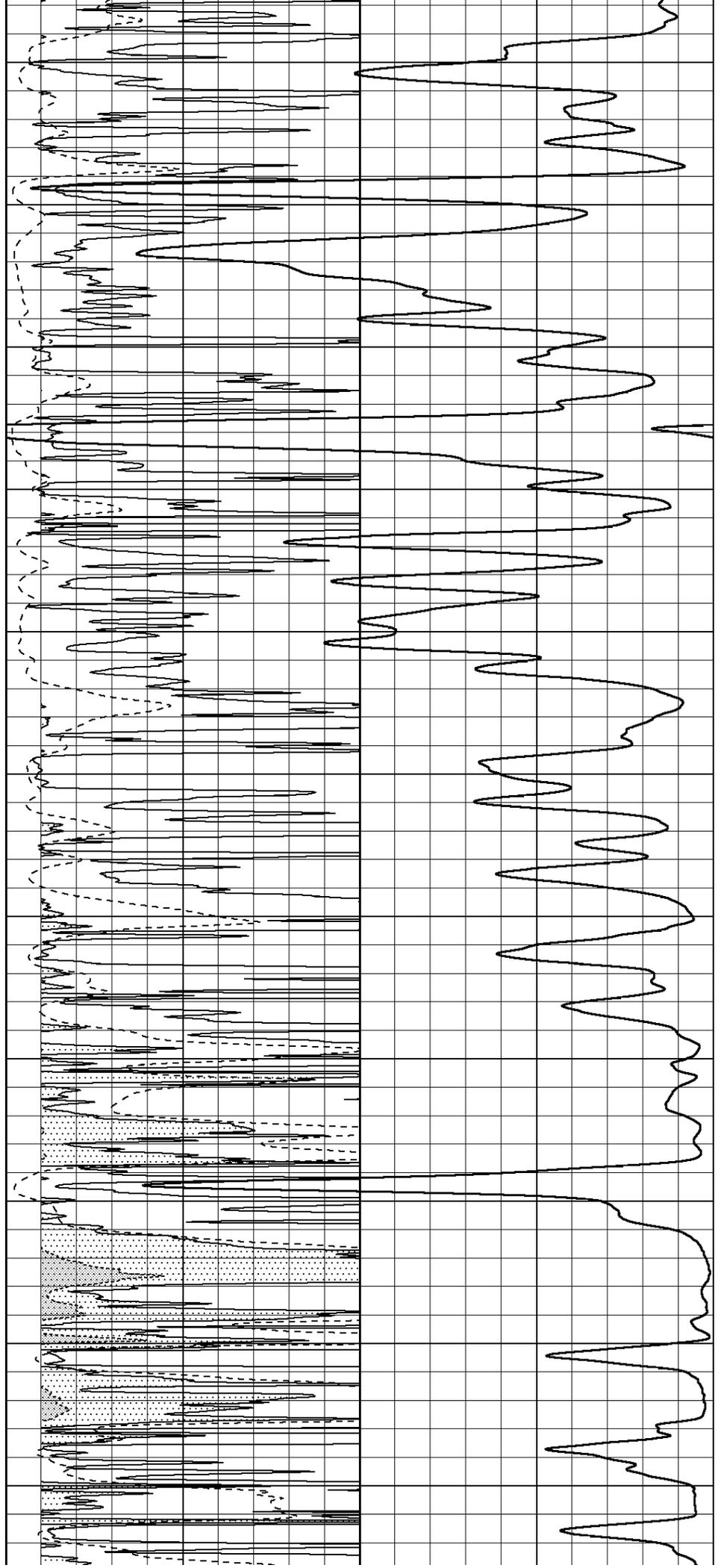


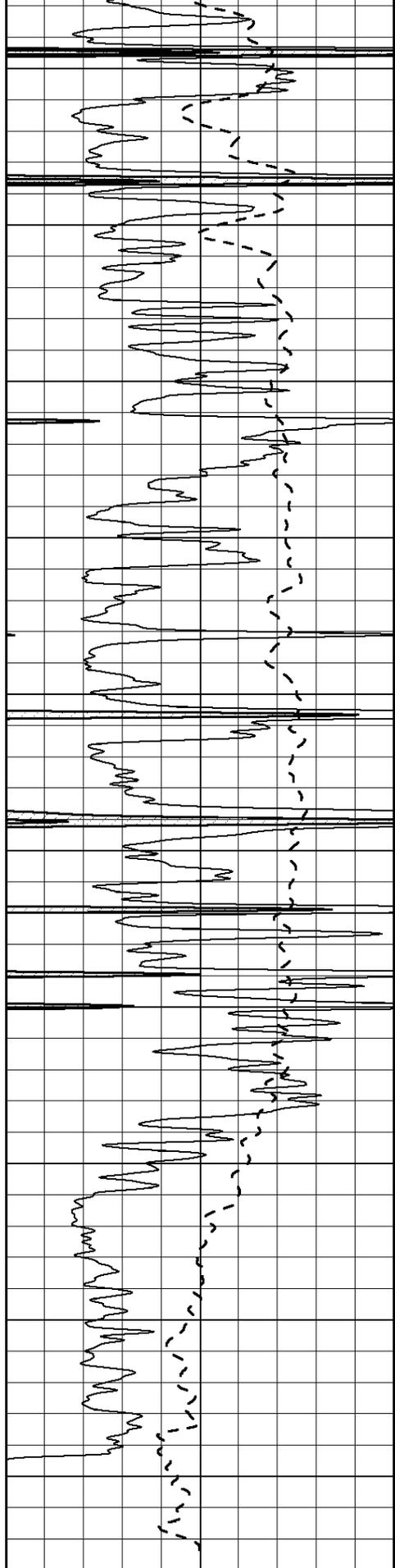




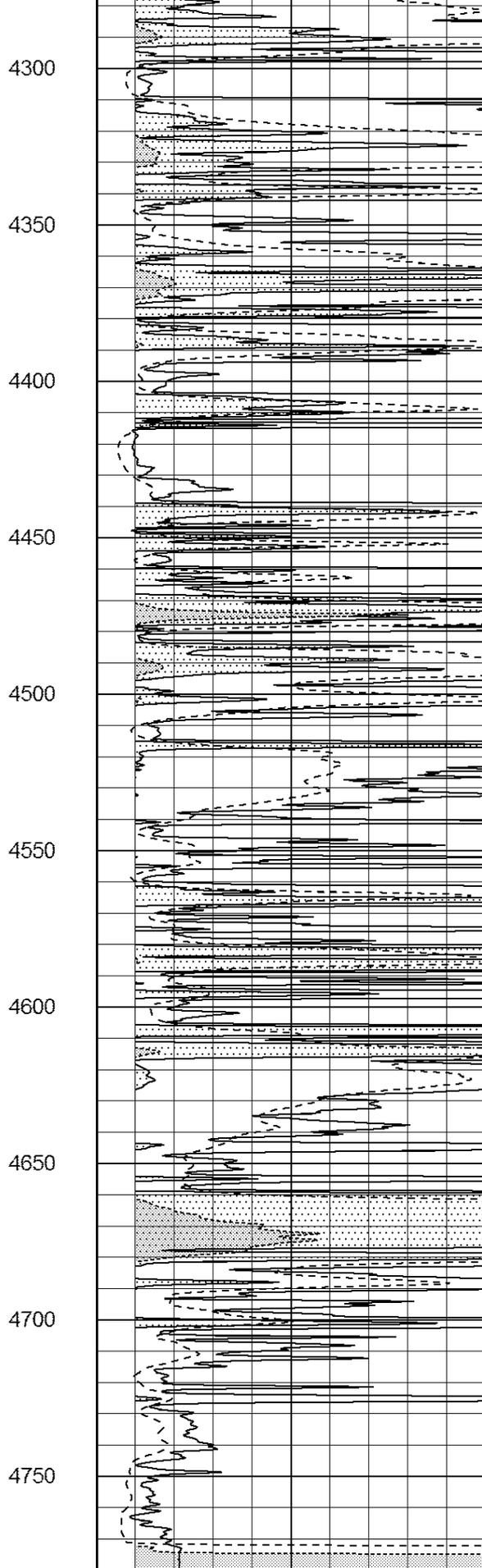


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3800
3850
3900
3950
4000
4050
4100
4150
4200
4250

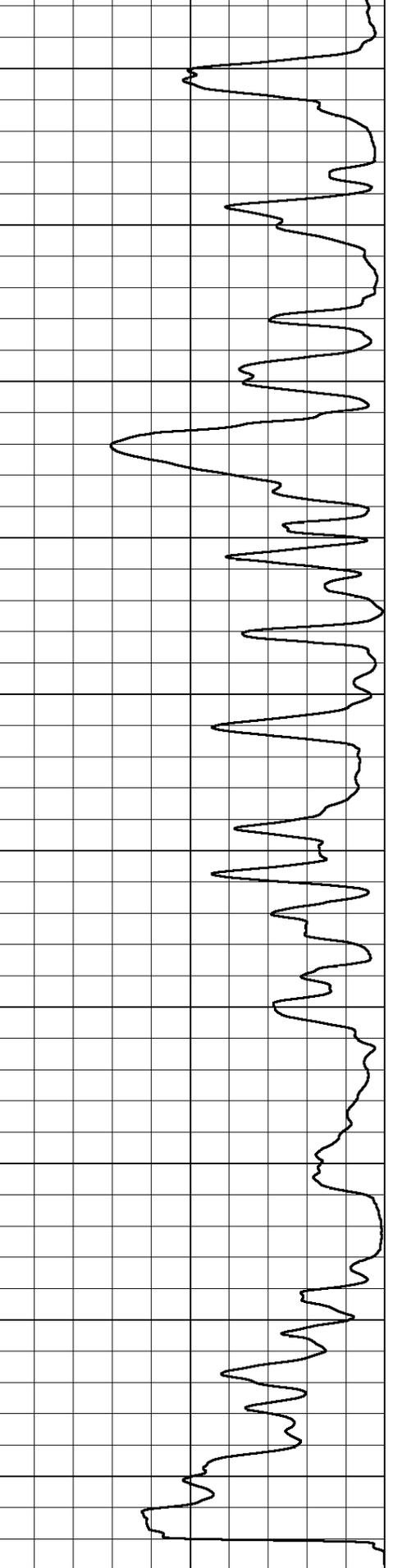




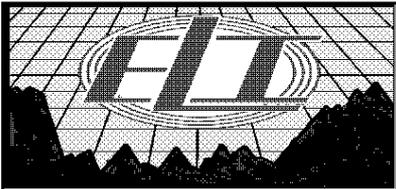
0 Gamma Ray (GAPI) 150
 -100 SP (mV) 100



0 RLL3 (Ohm-m) 50
 0 RILD (Ohm-m) 50
 1000 CILD (mmho/m) 0
 50 RILD X10 (Ohm-m) 500



1000 CILD (mmho/m) 0

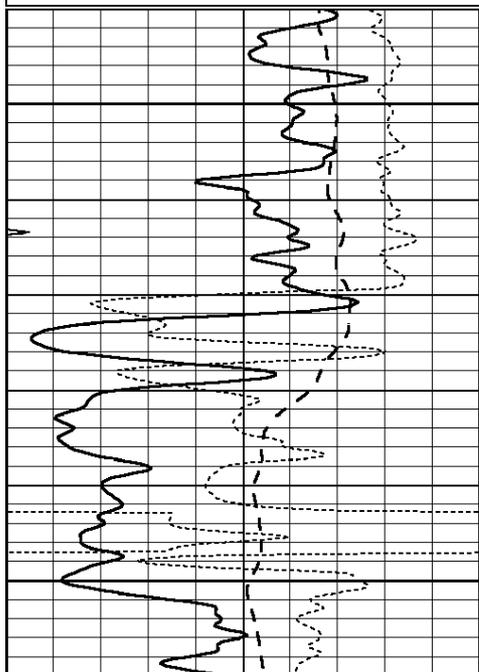


MAIN PASS

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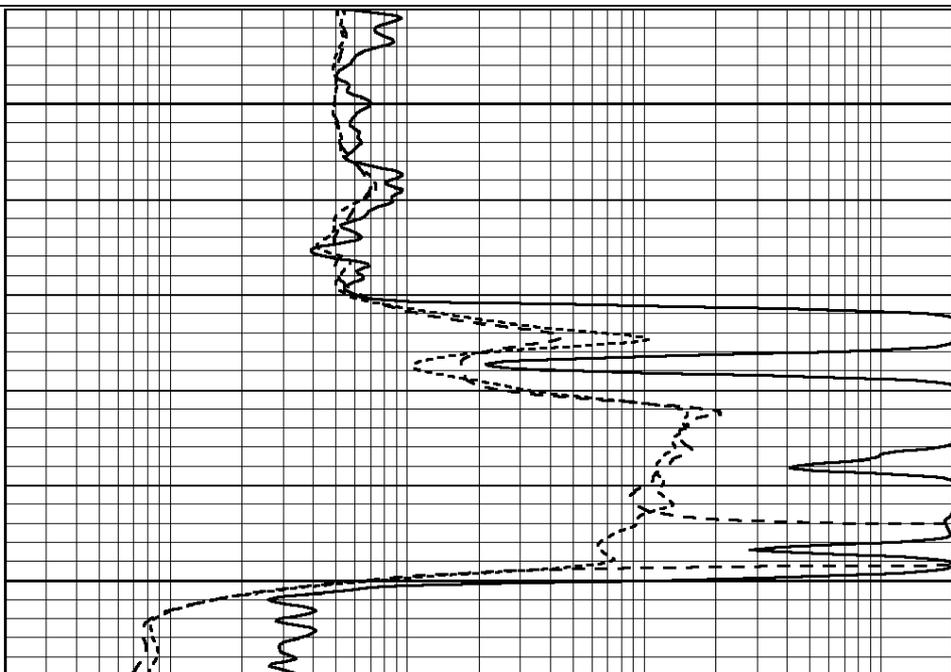
| | | |
|------|------------------|-----|
| 0 | GAMMA RAY (GAPI) | 150 |
| -100 | SP (mV) | 100 |
| -250 | Rxo/Rt | 50 |
| 0 | MINMK | 20 |

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



2050

2100



| | | |
|------|------------------|-----|
| 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 PASS

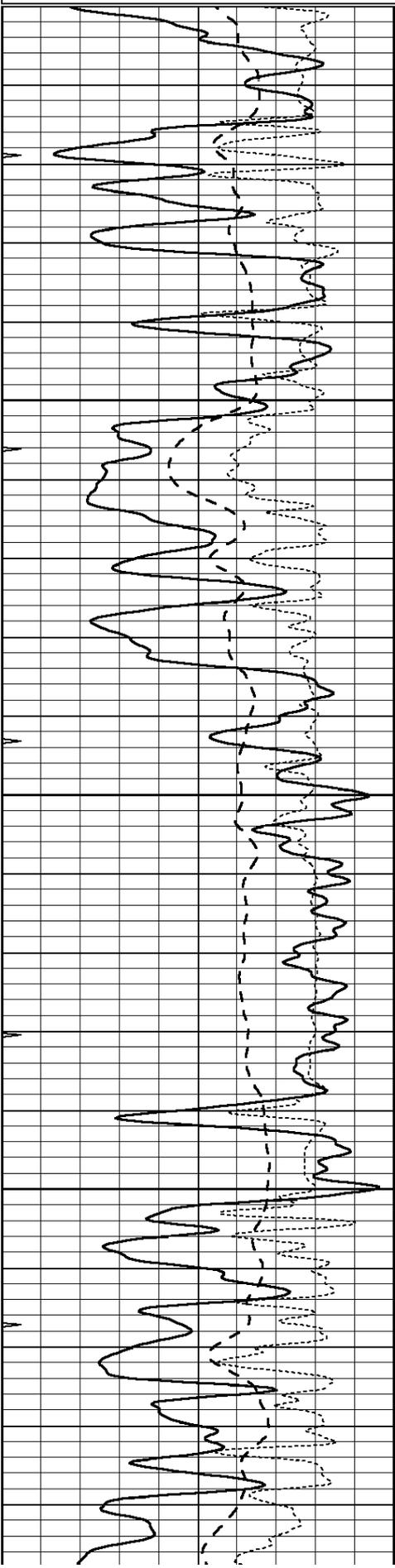
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 Dataset Creation: Wed Feb 07 06:45:26 2018 by Calc Open-Cased 090629
 Charted by: Depth in Feet scaled 1:240

| | | |
|---|------------------|-----|
| 0 | GAMMA RAY (GAPI) | 150 |
|---|------------------|-----|

| | | |
|-----|-----------------------|------|
| 0.2 | SHALLOW GUARD (Ohm-m) | 2000 |
|-----|-----------------------|------|

| | | |
|------|---------|-----|
| -100 | SP (mV) | 100 |
| -250 | Rxo/Rt | 50 |
| 0 | MINMK | 20 |

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

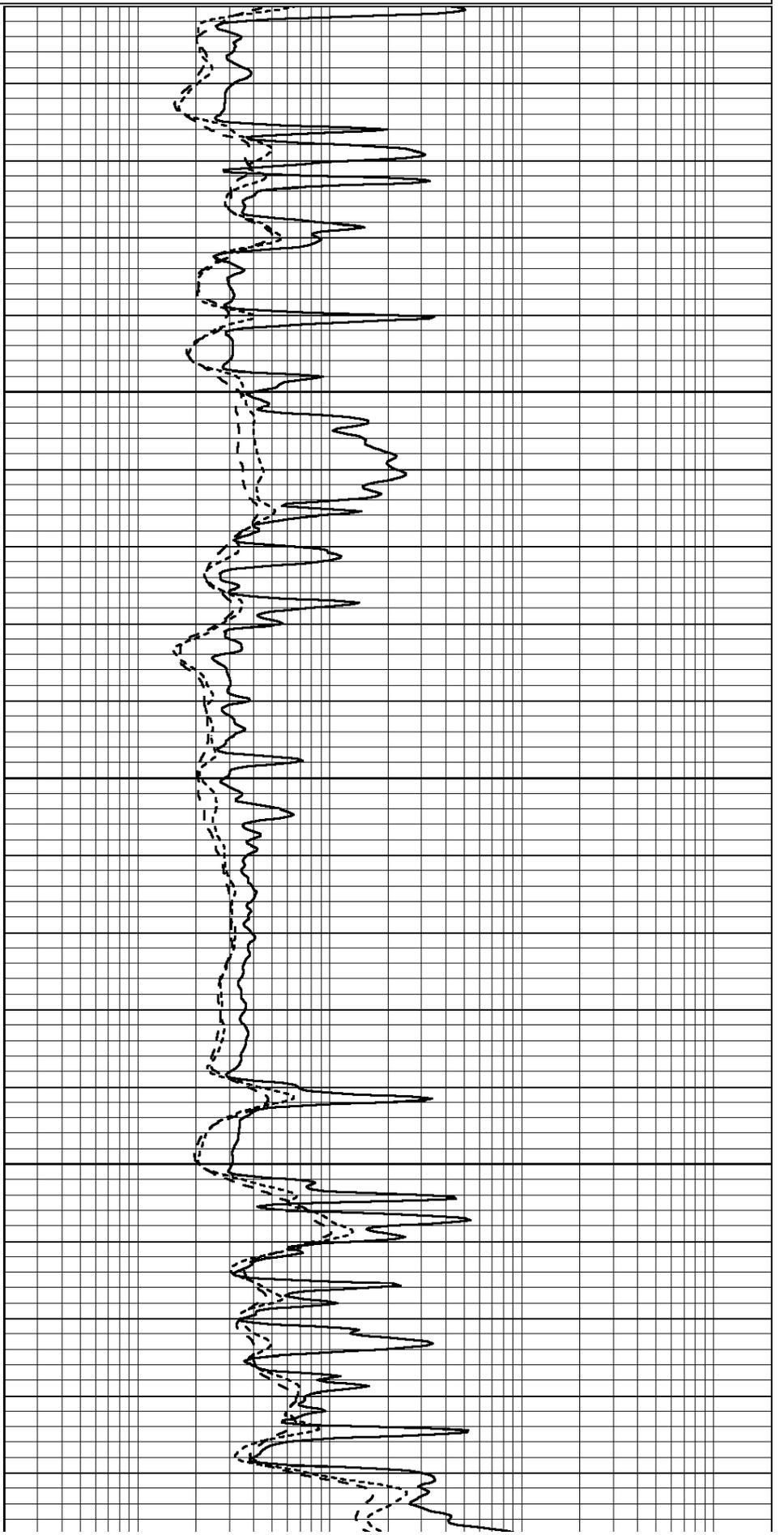


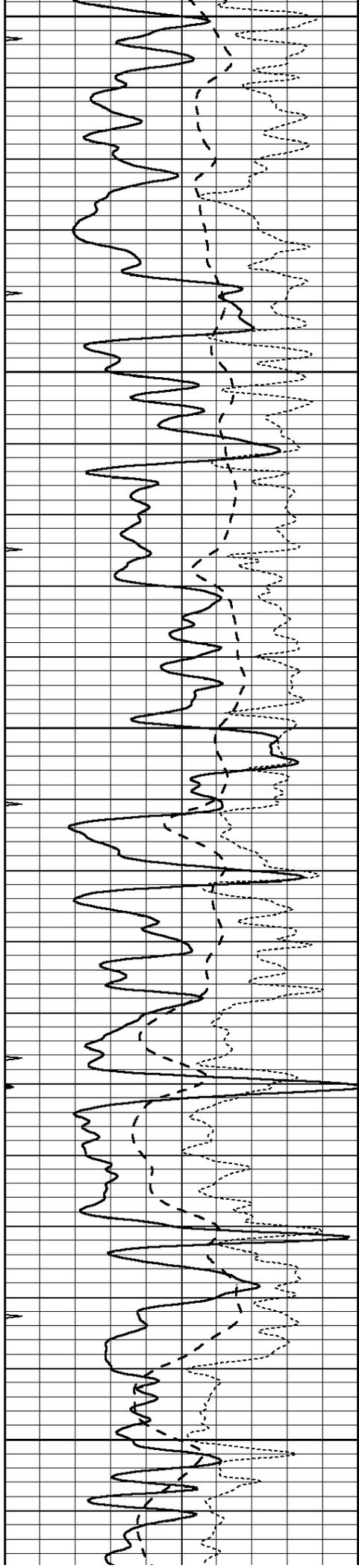
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3500

3550





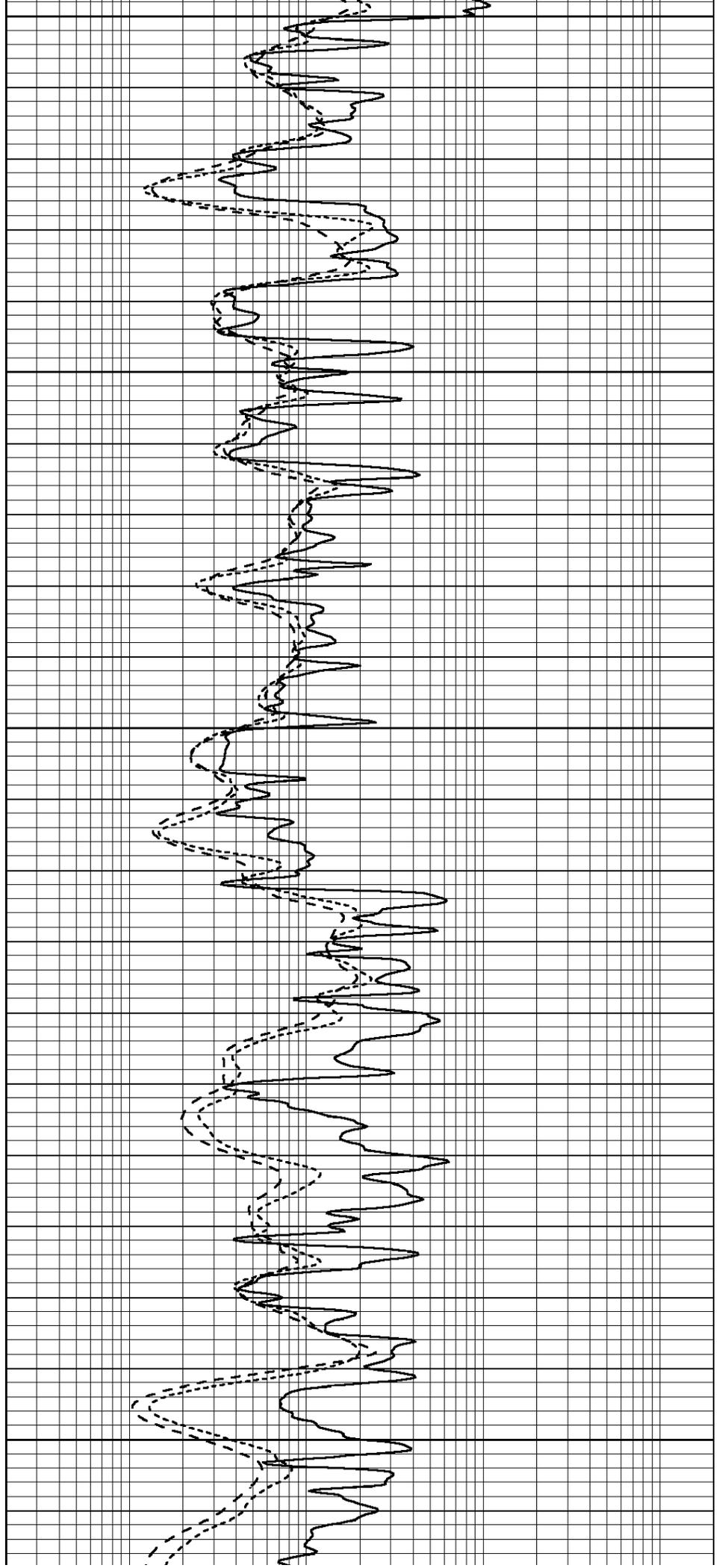
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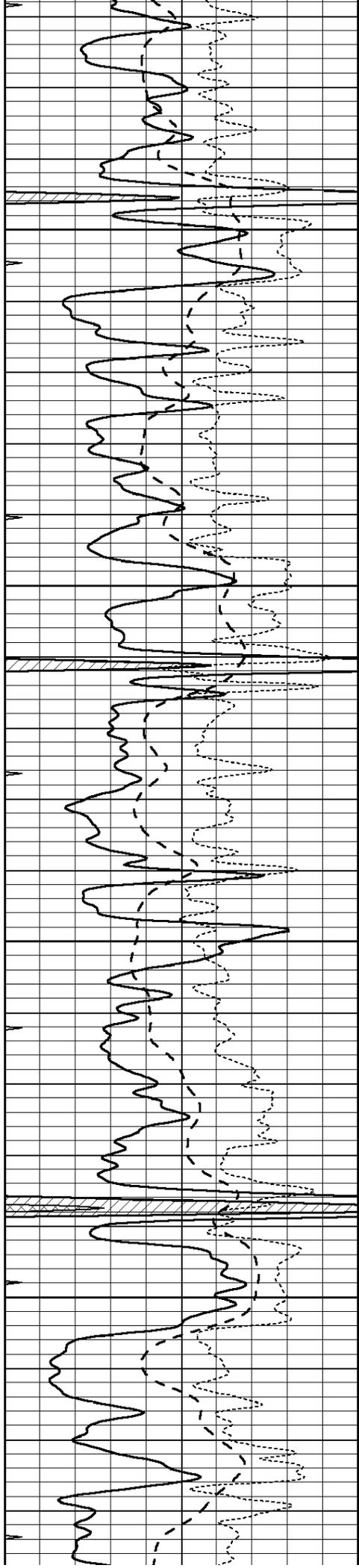
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3700

3750

3800



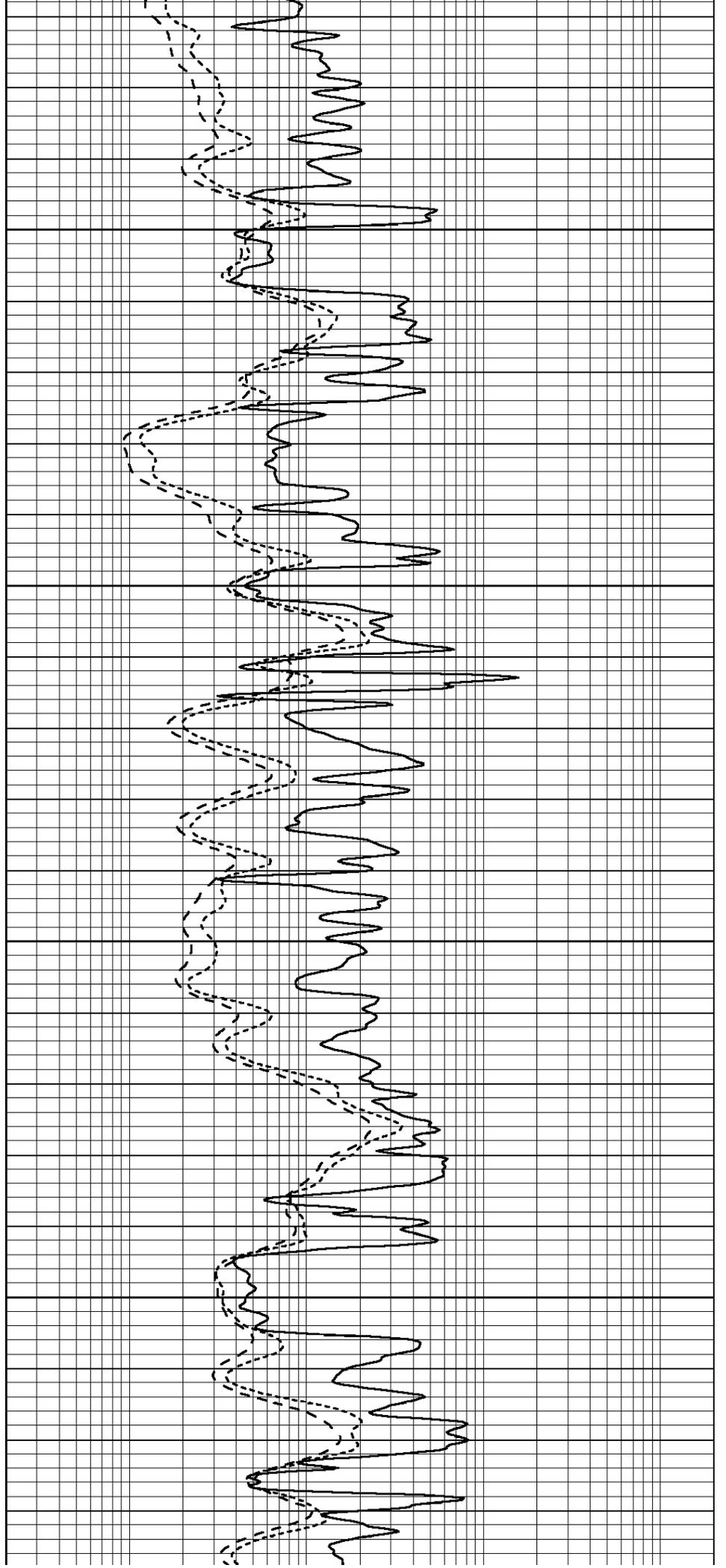


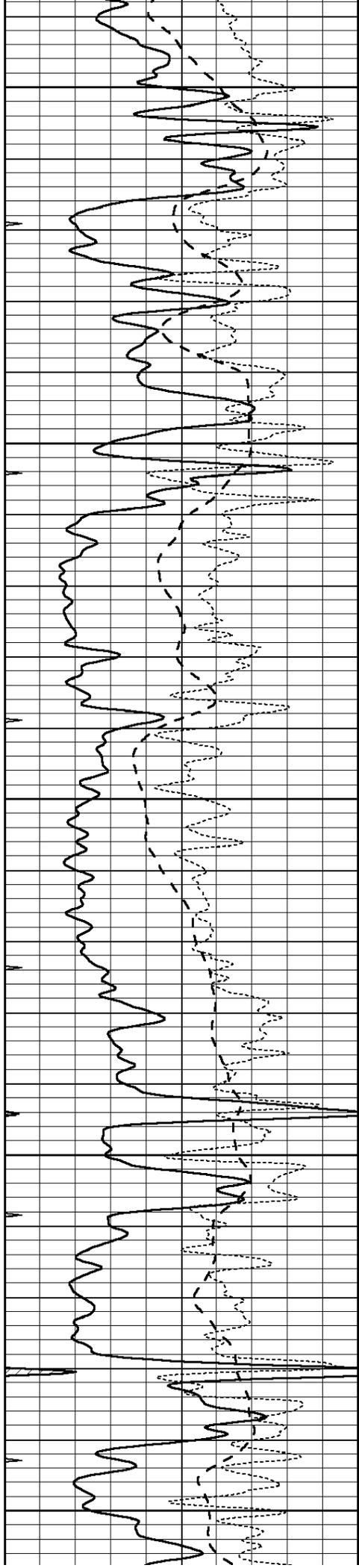
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3900

3950

4000





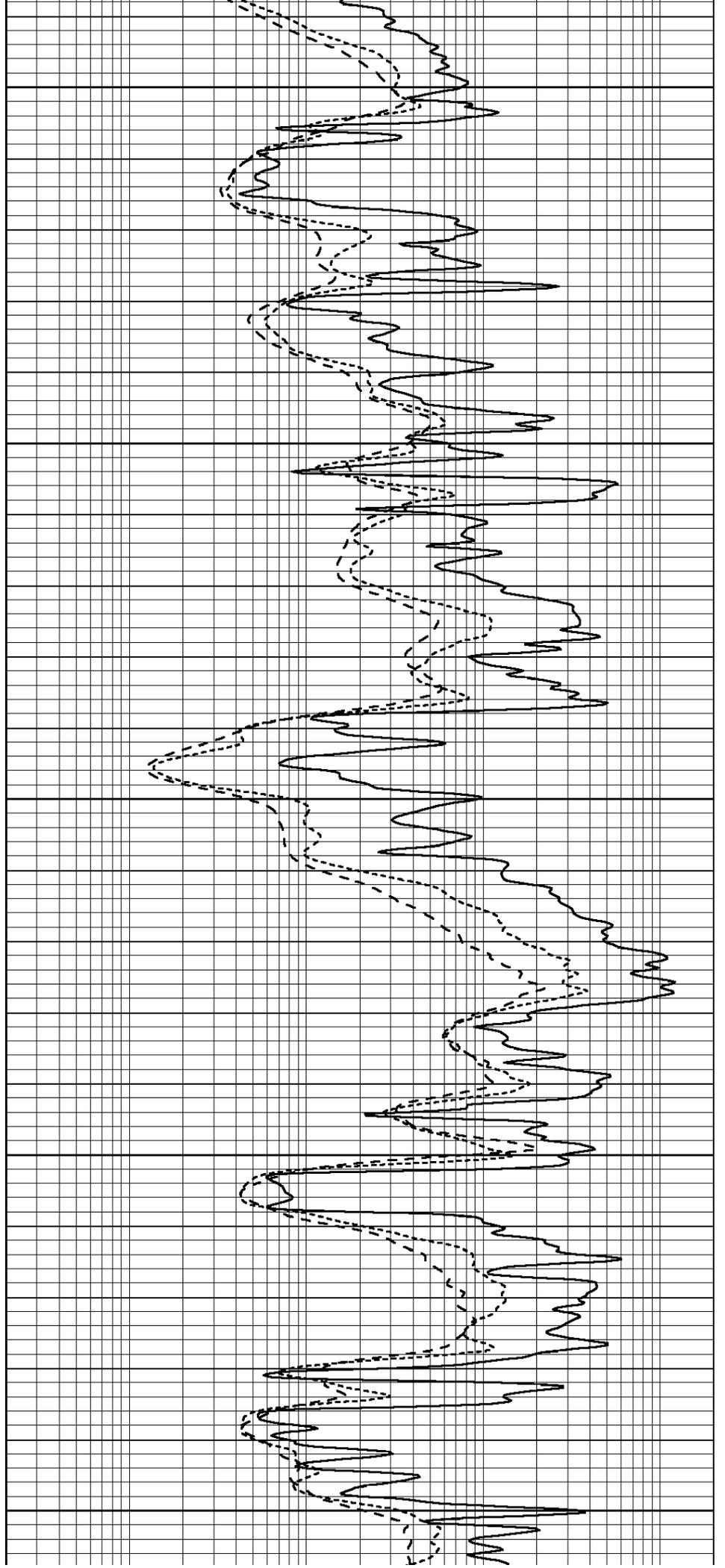
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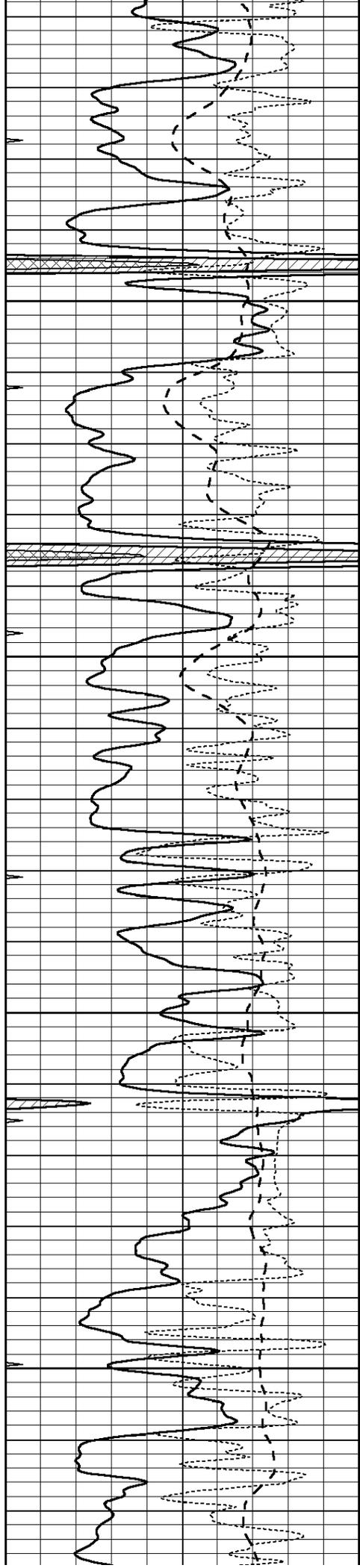
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4150

4200

4250



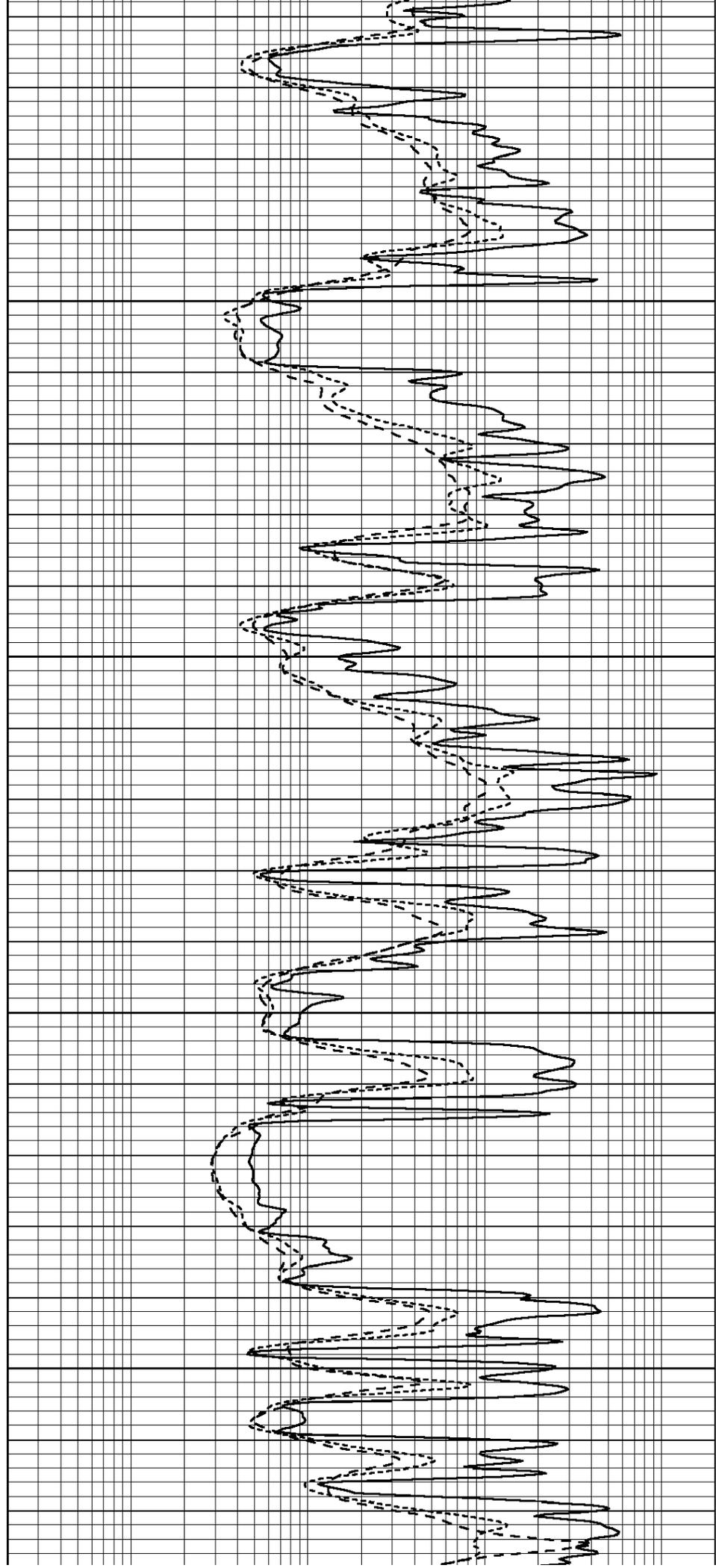


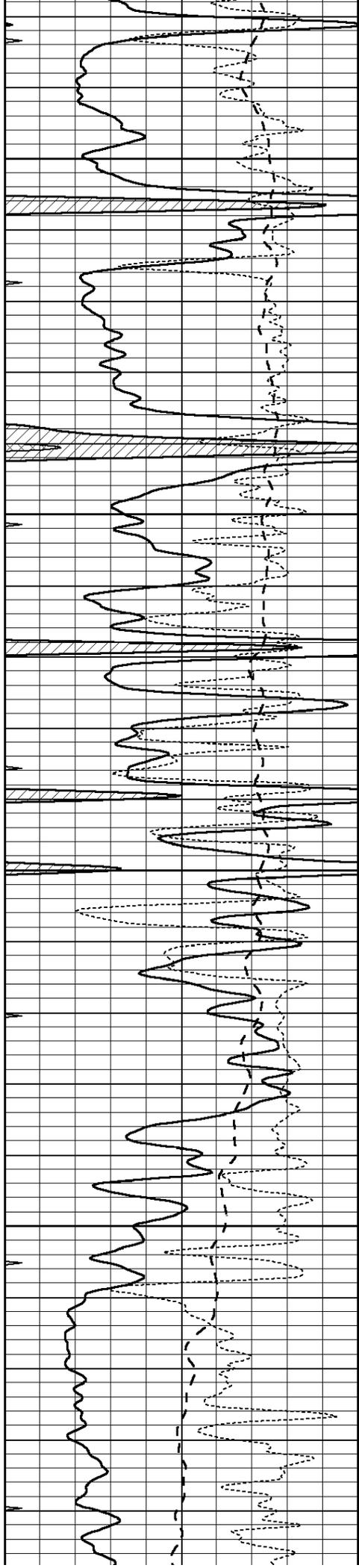
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4350

4400

4450



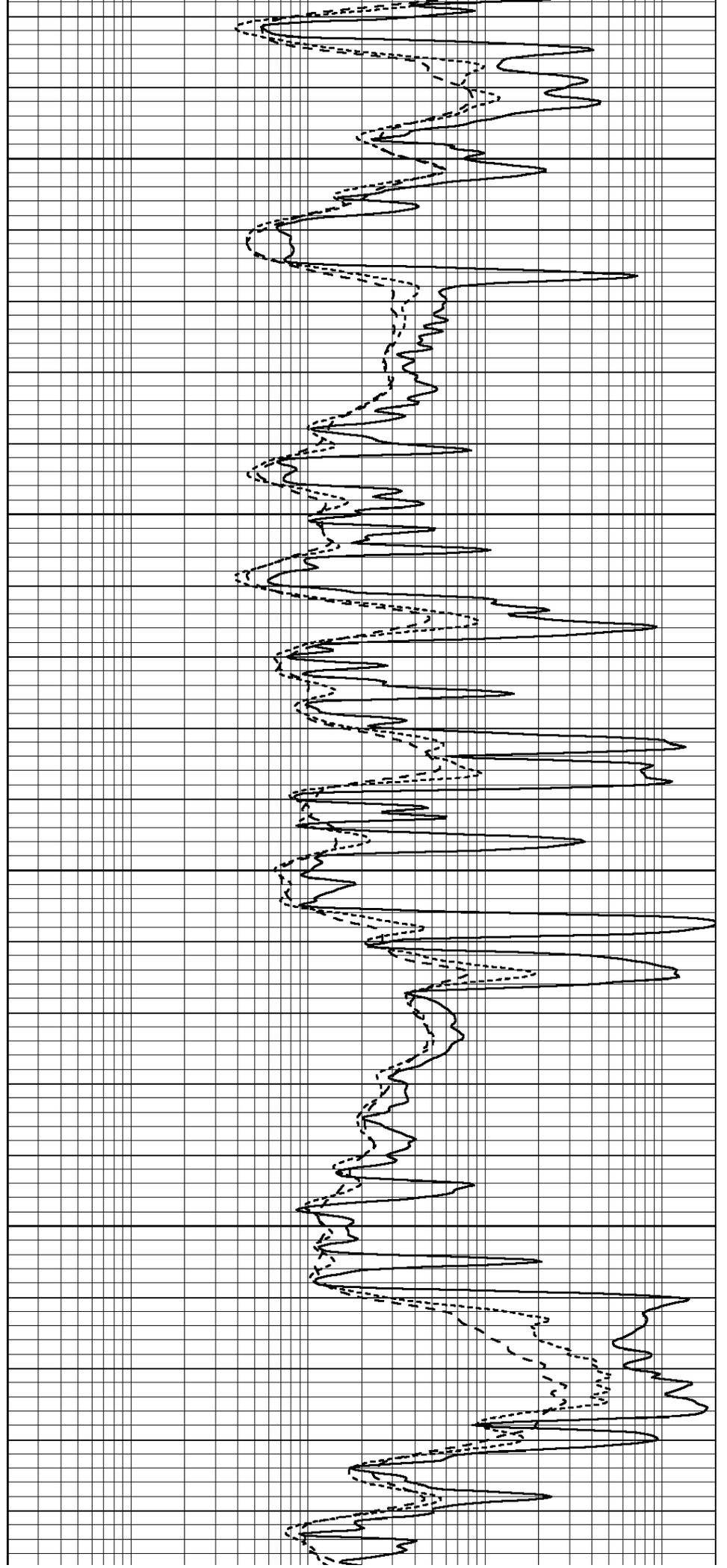


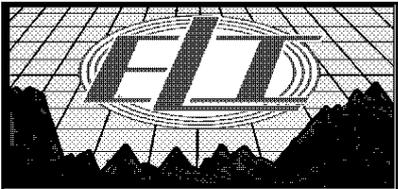
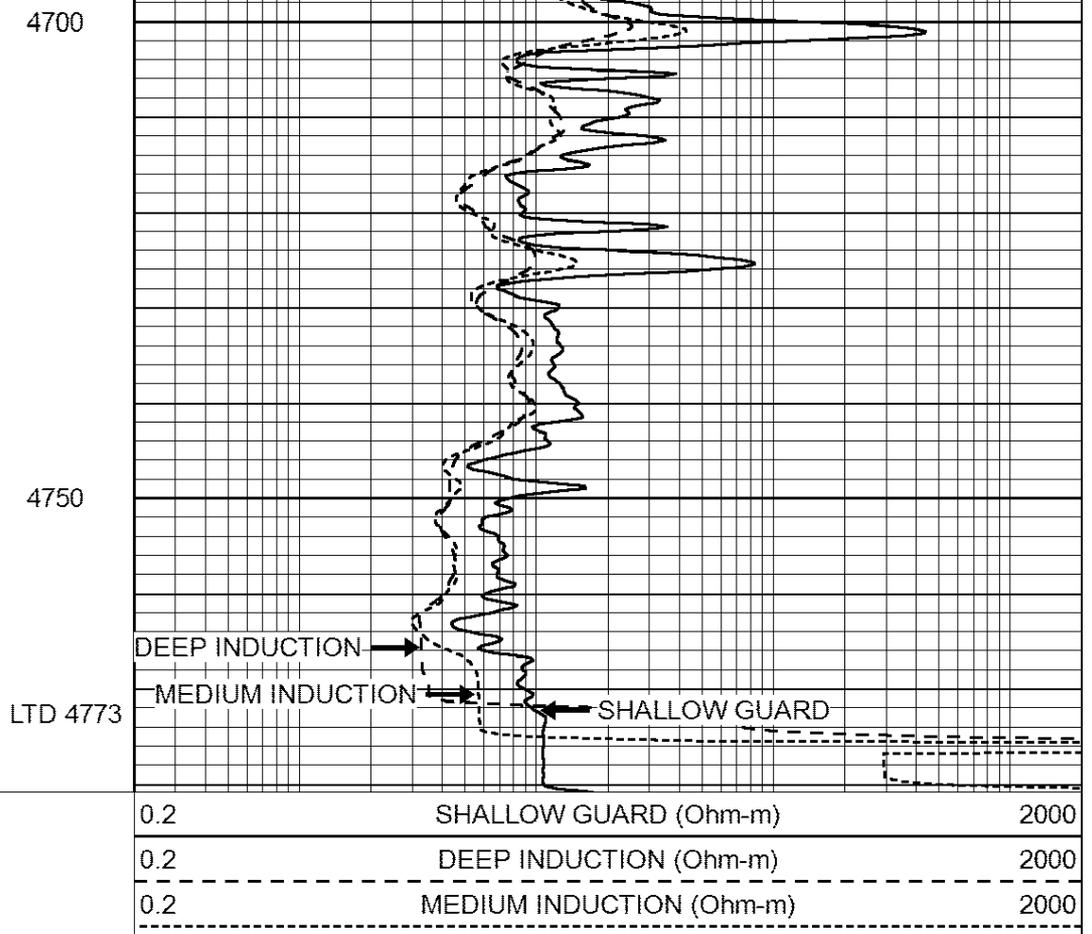
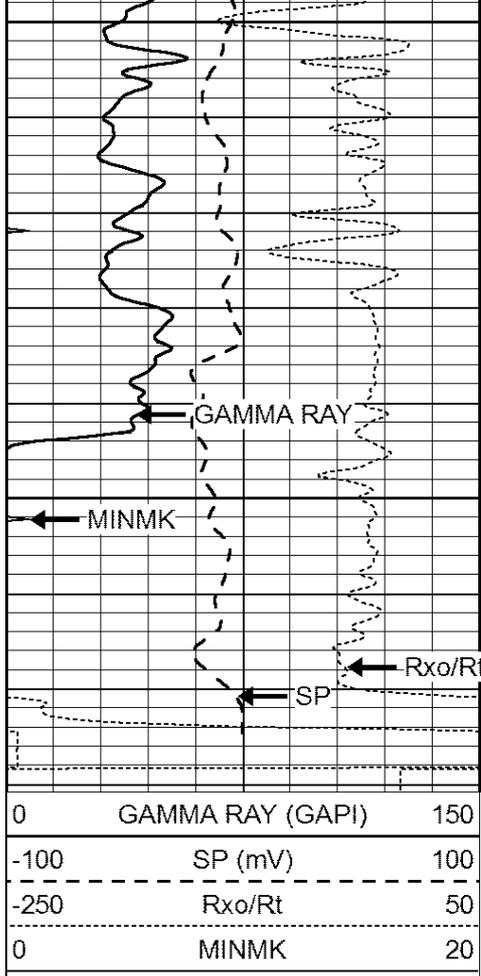
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4550

4600

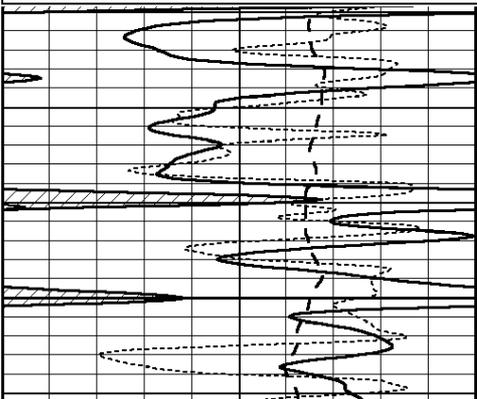
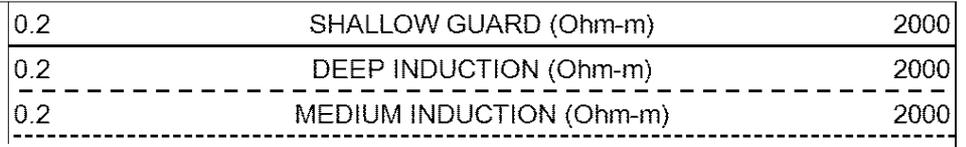
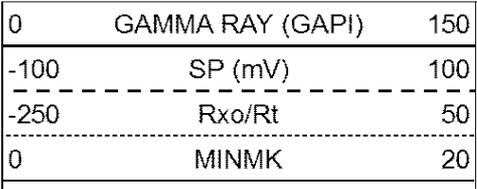
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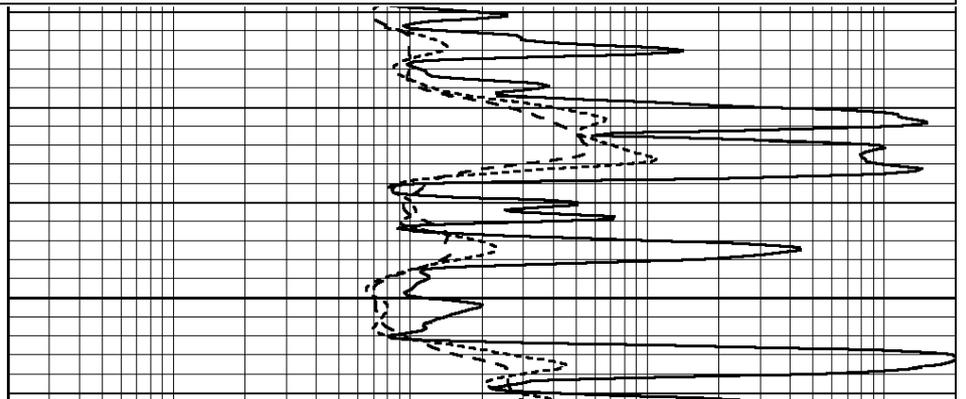


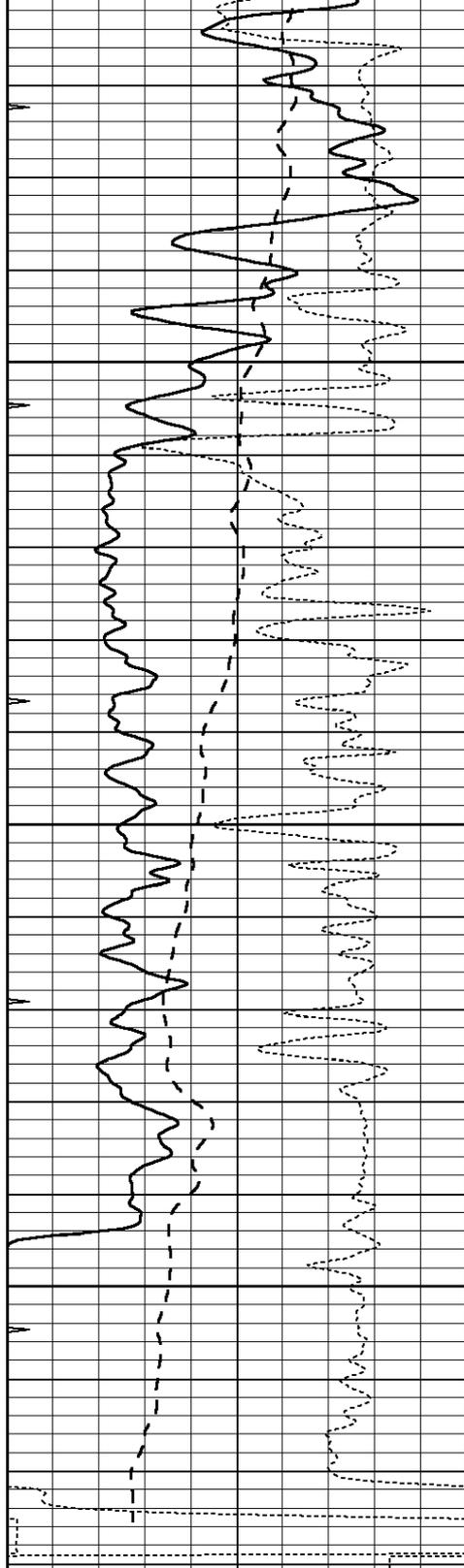
REPEAT SECTION

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4600



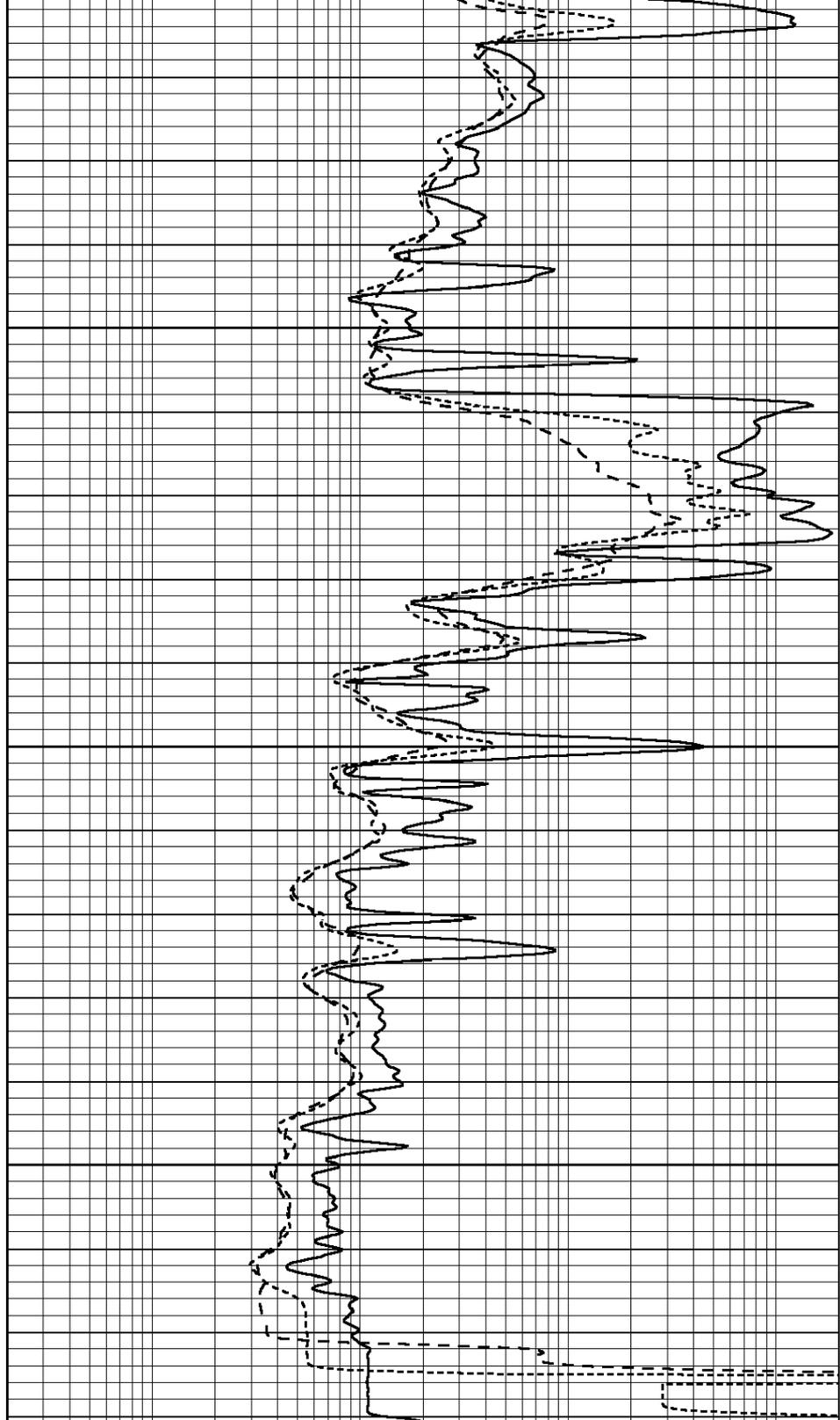


4650

4700

4750

| | | |
|------|------------------|-----|
| 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 |

Calibration Report

Database File: pe2.db
 Dataset Pathname: pass2
 Dataset Creation: Mon Aug 21 11:58:02 2017 by Log Open-Cased 090629

Dual Induction Calibration Report

Serial-Model: PROBE8-DILG
 Surface Cal Performed: Mon Aug 21 11:58:18 2017
 Downhole Cal Performed: Mon Aug 21 11:58:21 2017
 After Survey Verification Performed: Mon Aug 21 11:58:23 2017

Surface Calibration

| Loop: | Readings | | | References | | | Results | |
|-----------|----------|-------|---|------------|---------|--------|---------|---------|
| | Air | Loop | | Air | Loop | | m | b |
| Deep | 0.015 | 0.648 | V | 0.000 | 400.000 | mmho/m | 620.000 | 0.000 |
| Medium | 0.029 | 0.796 | V | 0.000 | 464.000 | mmho/m | 590.000 | -12.000 |
| Internal: | Zero | Cal | | Zero | Cal | | m | b |
| Deep | 0.017 | 0.657 | V | 0.000 | 400.000 | mmho/m | 625.153 | -10.619 |
| Medium | 0.016 | 0.757 | V | 0.000 | 464.000 | mmho/m | 625.992 | -9.739 |

Downhole Calibration

| | Readings | | | References | | | Results | |
|--------|----------|--------|--------|------------|----------|--------|---------|-------|
| | Zero | Cal | | Zero | Cal | | m' | b' |
| Deep | 0.000 | 0.000 | mmho/m | 2.011 | 405.777 | mmho/m | 1.000 | 0.000 |
| Medium | 0.000 | 0.000 | mmho/m | 7.590 | 503.393 | mmho/m | 1.000 | 0.000 |
| LL3 | | 7.500 | V | | 1500.000 | Ohm-m | | |
| | | 0.000 | V | | 20.000 | Ohm-m | | |
| | | -7.200 | V | | 3800.000 | 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 | | 0.000 | Ohm-m | | |
| | | 1.000 | mmho-m | | 1.000 | mmho-m | | |

Litho Density Calibration Report
Serial: 002 Model: PRB

Master Calibration

Performed Mon Aug 21 11:56:41 2017

| | Background | Magnesium | Aluminum | Sandstone | |
|-------------|------------|-------------|----------|---------------------|---------|
| Window 1 | 833.6 | 7394.2 | 2287.3 | 8111.8 | cps |
| Window 2 | 768.9 | 6322.3 | 1995.6 | 6800.0 | cps |
| Window 3 | 621.5 | 3261.9 | 1186.4 | 3380.9 | cps |
| Window 4 | 184.2 | 185.7 | 184.9 | 184.8 | cps |
| Long Space | 0.0 | 5553.4 | 1226.6 | 6031.1 | cps |
| Short Space | 1.2 | 1307.5 | 903.9 | 1387.7 | cps |
| Rho | | 1.7100 | 2.5900 | 1.3800 | g/cc |
| Pe | | 0.0000 | 2.5700 | 1.5500 | |
| Rib Angle | : 46.3 | Rib Slope | : 1.045 | Density/Spine Ratio | : 0.566 |
| Spine Angle | : 76.3 | Spine Slope | : 4.090 | Spine Intercept | : -20.7 |

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: | 61 |
| Tool Model: | G |

| CALIBRATION | | | | | | |
|-------------|-------------|----------|-----|--------|-----|---------------|
| | Detector | Readings | | Target | | Normalization |
| | Short Space | 1.00 | cps | 1.00 | cps | 1.0000 |
| | Long Space | 1.00 | cps | 1.00 | cps | 1.0000 |

| PRE-SURVEY VERIFICATION | | | | | | |
|-------------------------|-------------|----------|-----|----------|--------|----|
| | Detector | Readings | | Measured | Target | |
| 1) | Short Space | | cps | | | |
| | Long Space | | cps | pu | | pu |
| 2) | Short Space | | cps | | | |
| | Long Space | | cps | pu | | |
| 3) | Short Space | | cps | | | |
| | Long Space | | cps | pu | | |

| POST-SURVEY VERIFICATION | | | | | | |
|--------------------------|-------------|----------|-----|----------|--------|----|
| | Detector | Readings | | Measured | Target | |
| 1) | Short Space | | cps | | | |
| | Long Space | | cps | pu | | pu |
| 2) | Short Space | | cps | | | |
| | Long Space | | cps | pu | | pu |
| 3) | Short Space | | cps | | | |
| | Long Space | | cps | pu | | pu |

Gamma Ray Calibration Report

| | |
|---------------------|--------------------------|
| Serial Number: | GR6 |
| Tool Model: | OPEN |
| Performed: | Mon Aug 21 11:59:01 2017 |
| Calibrator Value: | 150.0 |
| Background Reading: | 0.0 |
| | GAPI |
| | cps |

Background Reading:

0.0

cps

Calibrator Reading:

276.0

cps

Sensitivity:

0.5500

GAPI/cps