



# NABORS

**COMPLETION  
& PRODUCTION  
SERVICES CO.**

## DUAL INDUCTION LOG

|                              |                                 |                    |                |
|------------------------------|---------------------------------|--------------------|----------------|
| Company                      | WOOLSEY OPERATING COMPANY, LLC. |                    |                |
| Well                         | TUCKER B GU #7                  |                    |                |
| Field                        | SCHUPBACH                       |                    |                |
| County                       | BARBER                          | State              | KANSAS         |
| Location:                    | AP1 # : 15-007-24207-0000       |                    | Other Services |
| SEC 11 TWP 34S RGE 11W       |                                 | CDL/CNL/PE         |                |
| Permanent Datum              | GROUND LEVEL                    | Elevation          | 1383           |
| Log Measured From            | KELLY BUSHING 12' A.G.L.        | K.B. 1395          | D.F. 1393      |
| Drilling Measured From       | KELLY BUSHING                   | G.L. 1383          |                |
| Date                         | 8/20/14                         |                    |                |
| Run Number                   | ONE                             |                    |                |
| Depth Driller                | 5125                            |                    |                |
| Depth Logger                 | 5128                            |                    |                |
| Bottom Logged Interval       | 5126                            |                    |                |
| Top Log Interval             | 00                              |                    |                |
| Casing Driller               | 13 3/8" @ 235                   |                    |                |
| Casing Logger                | 232                             |                    |                |
| Bit Size                     | 7.875                           |                    |                |
| Type Fluid in Hole           | CHEMICAL MUD                    | CHLORIDES 5200 PPM |                |
| Density / Viscosity          | 8.9/50                          |                    |                |
| pH / Fluid Loss              | 9.0/10.0                        |                    |                |
| Source of Sample             | FLOWLINE                        |                    |                |
| Rm @ Meas. Temp              | .65 @ 90F                       |                    |                |
| Rmt @ Meas. Temp             | .48 @ 90F                       |                    |                |
| Rmc @ Meas. Temp             | .78 @ 90F                       |                    |                |
| Source of Rmt / Rmc          | MEASURED                        |                    |                |
| Rm @ BHT                     | .46 @ 126F                      |                    |                |
| Time Circulation Stopped     | 2 HOURS                         |                    |                |
| Time Logger on Bottom        |                                 |                    |                |
| Maximum Recorded Temperature | 126F                            |                    |                |
| Equipment Number             | 4010                            |                    |                |
| Location                     | HAYS, KS.                       |                    |                |
| Recorded By                  | JASON CAPPELLUCCI               |                    |                |
| Witnessed By                 | BILL KLAVER                     |                    |                |

<<< Fold Here >>>

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

NABORS COMPLETION & PRODUCTION SERVICES  
785-628-6395

THANK YOU FOR YOUR BUSINESS

MEDICINE LODGE, KS. - SOUTH TO GERLANE RD. - 7 EAST TO BETHEL RD. - 2 SOUTH - 3/4 WEST -  
NORTH INTO



**NABORS**  
COMPLETION  
& PRODUCTION

# MAIN SECTION

Database File:

25854pe.db

Dataset Pathname:

pass3.2

Presentation Format:

\_dil2

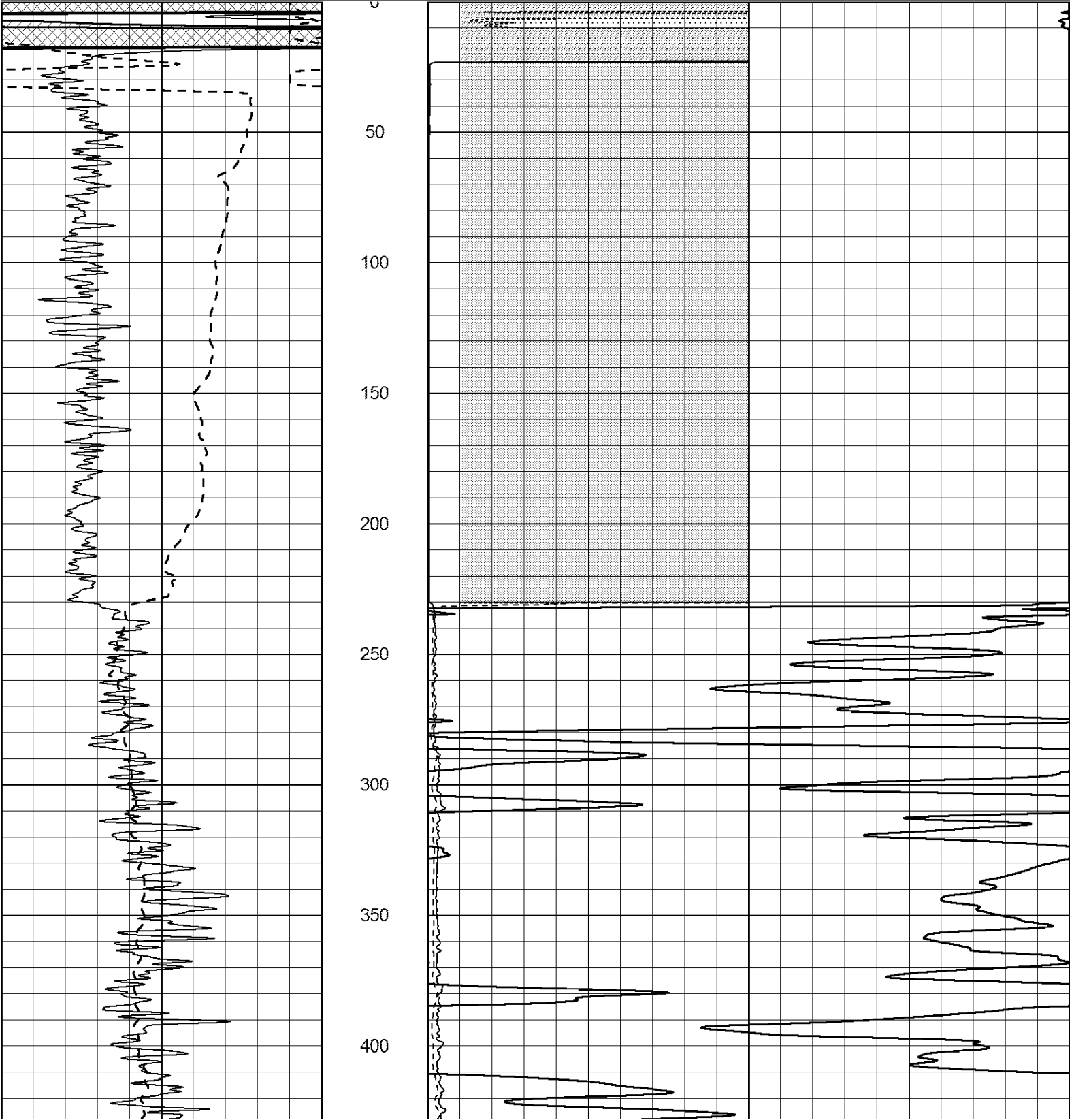
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Wed Aug 20 06:42:12 2014 by Calc Open-Cased 090629

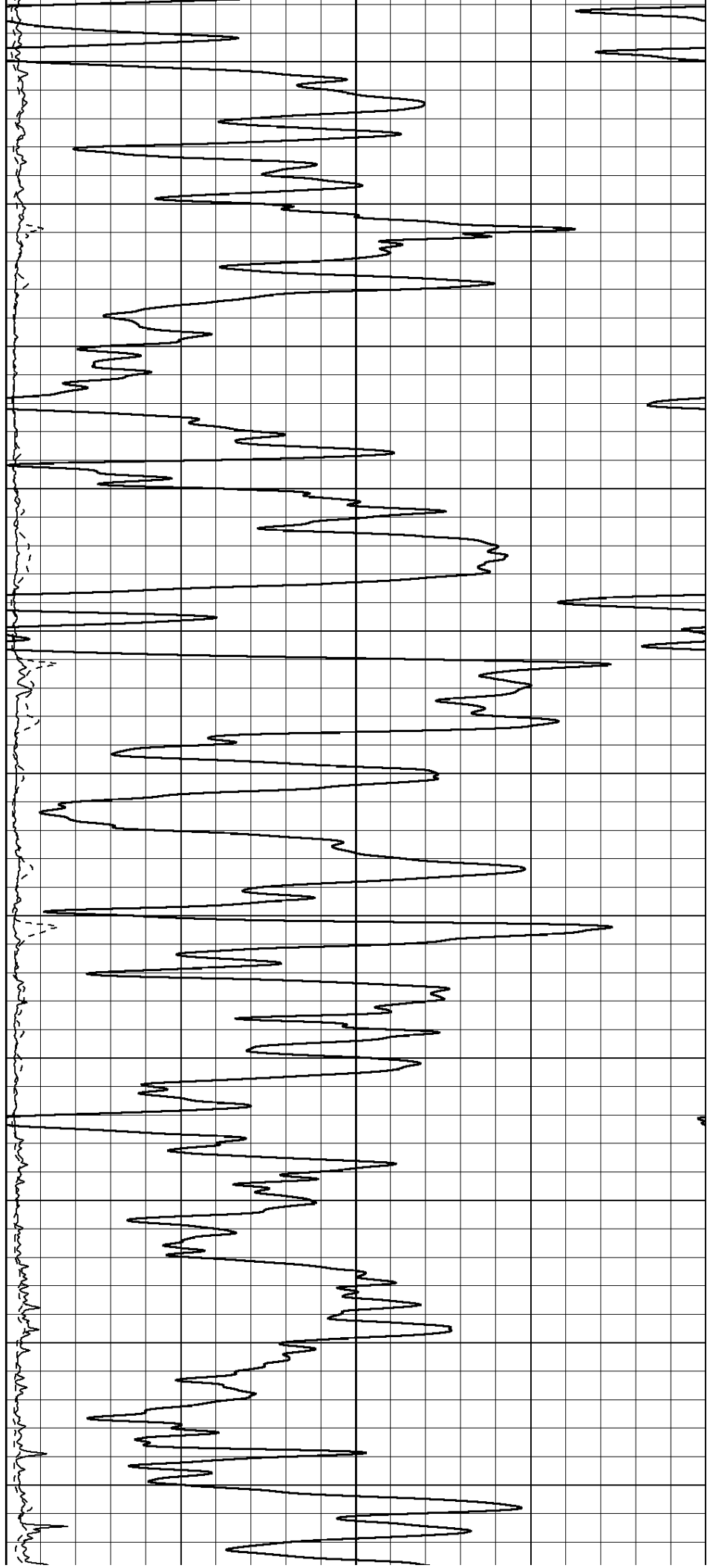
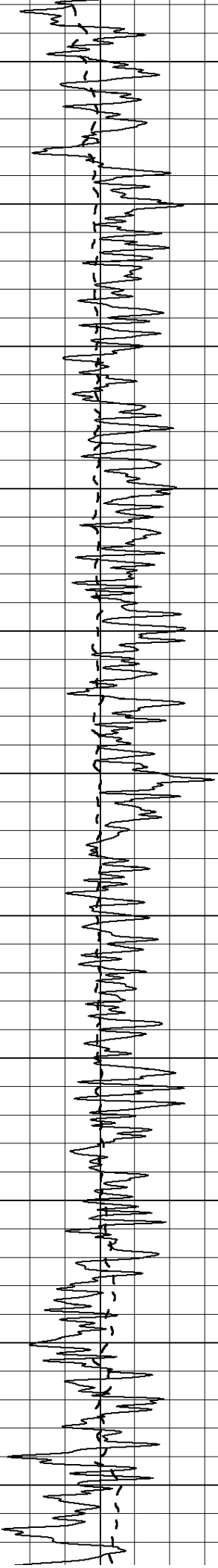
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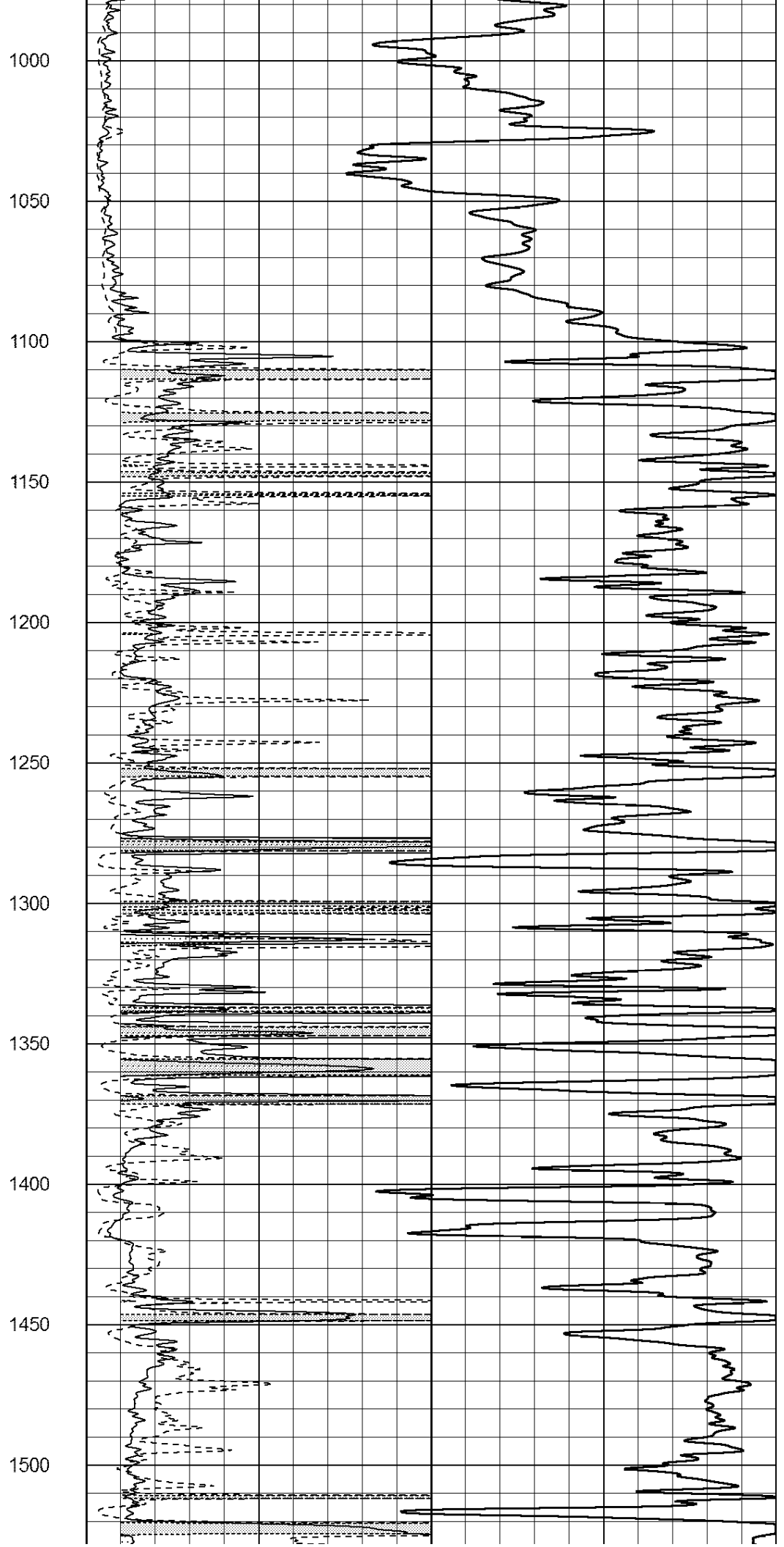
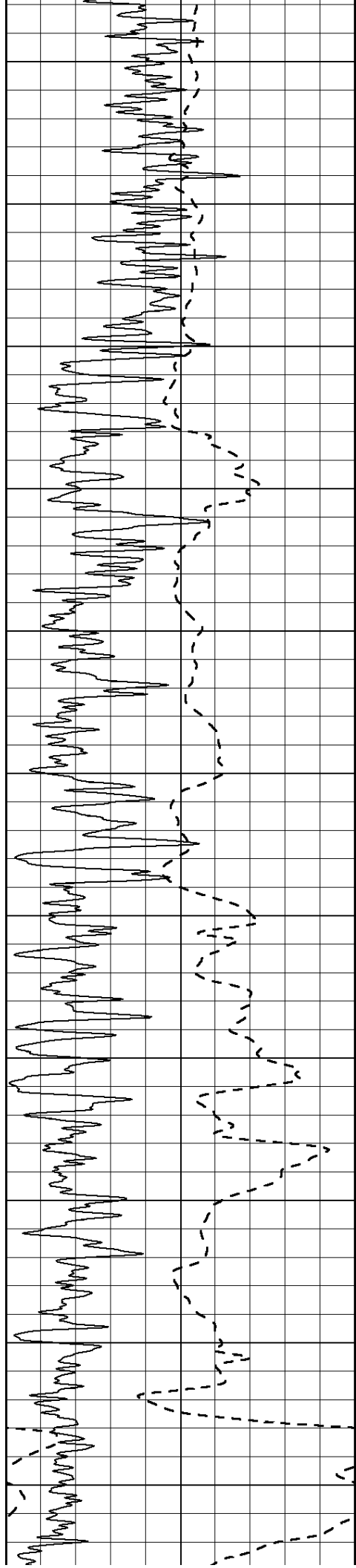
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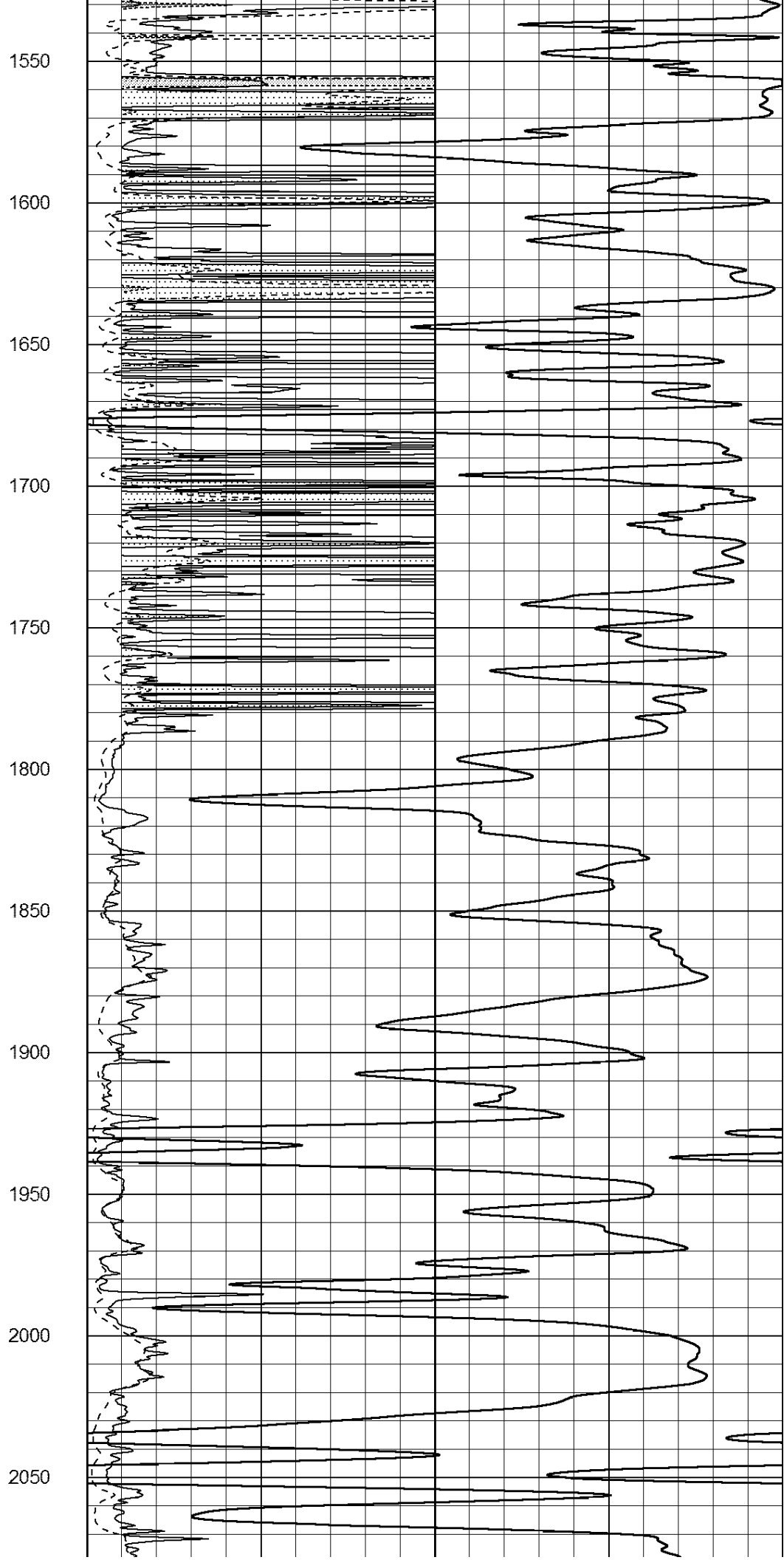
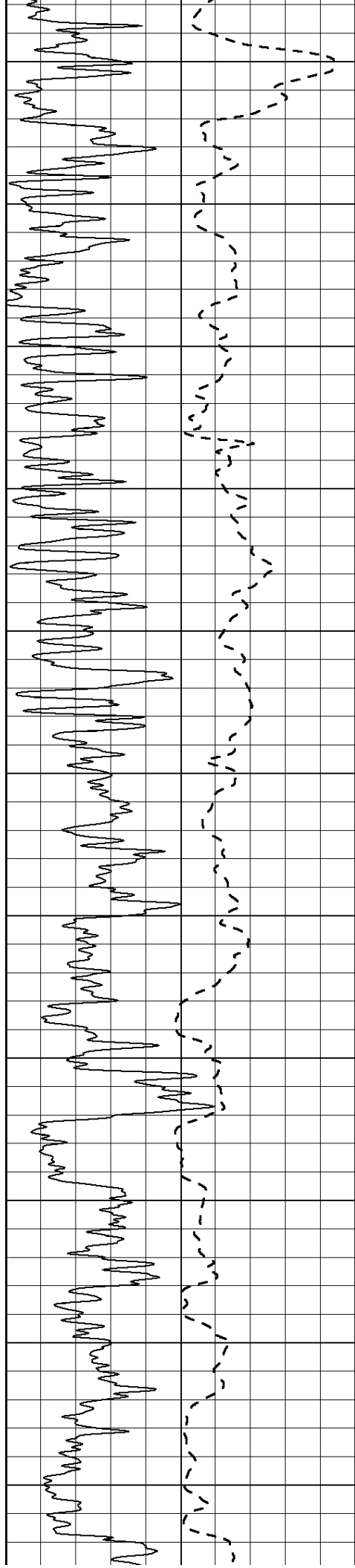
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|-------|------------------|-----|------|------------------|-----|-----------------|
| 0     | Gamma Ray (GAPI) | 150 | 0    | RLL3 (Ohm-m)     | 50  |                 |
| -100  | SP (mV)          | 100 | 0    | RILD (Ohm-m)     | 50  |                 |
| ----- |                  |     | 1000 |                  |     | CILD (mmho/m) 0 |
|       |                  |     | 50   | RILD X10 (Ohm-m) | 500 |                 |
|       |                  |     | 50   | RLL3 X10 (Ohm-m) | 500 |                 |

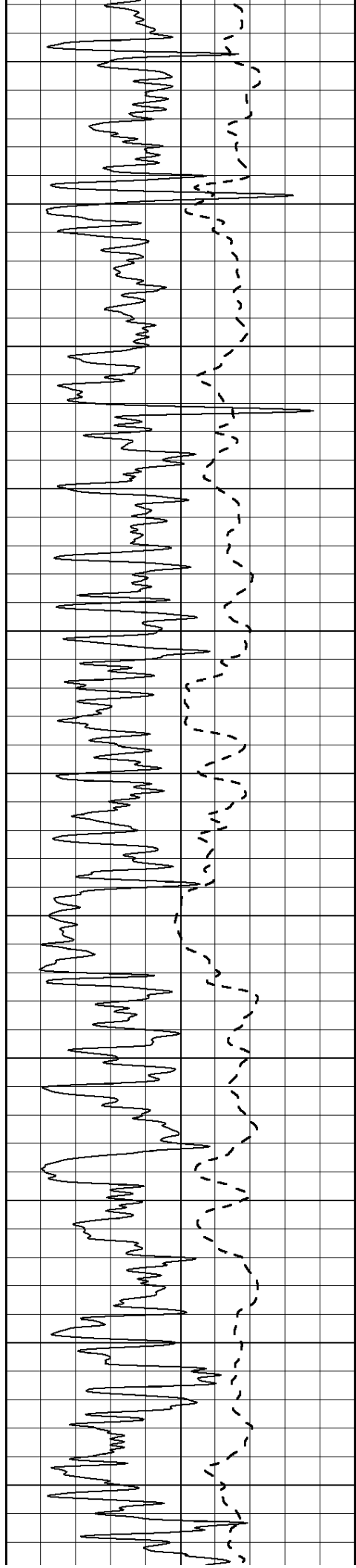


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500  
550  
600  
650  
700  
750  
800  
850  
900  
950









2100

2150

2200

2250

2300

2350

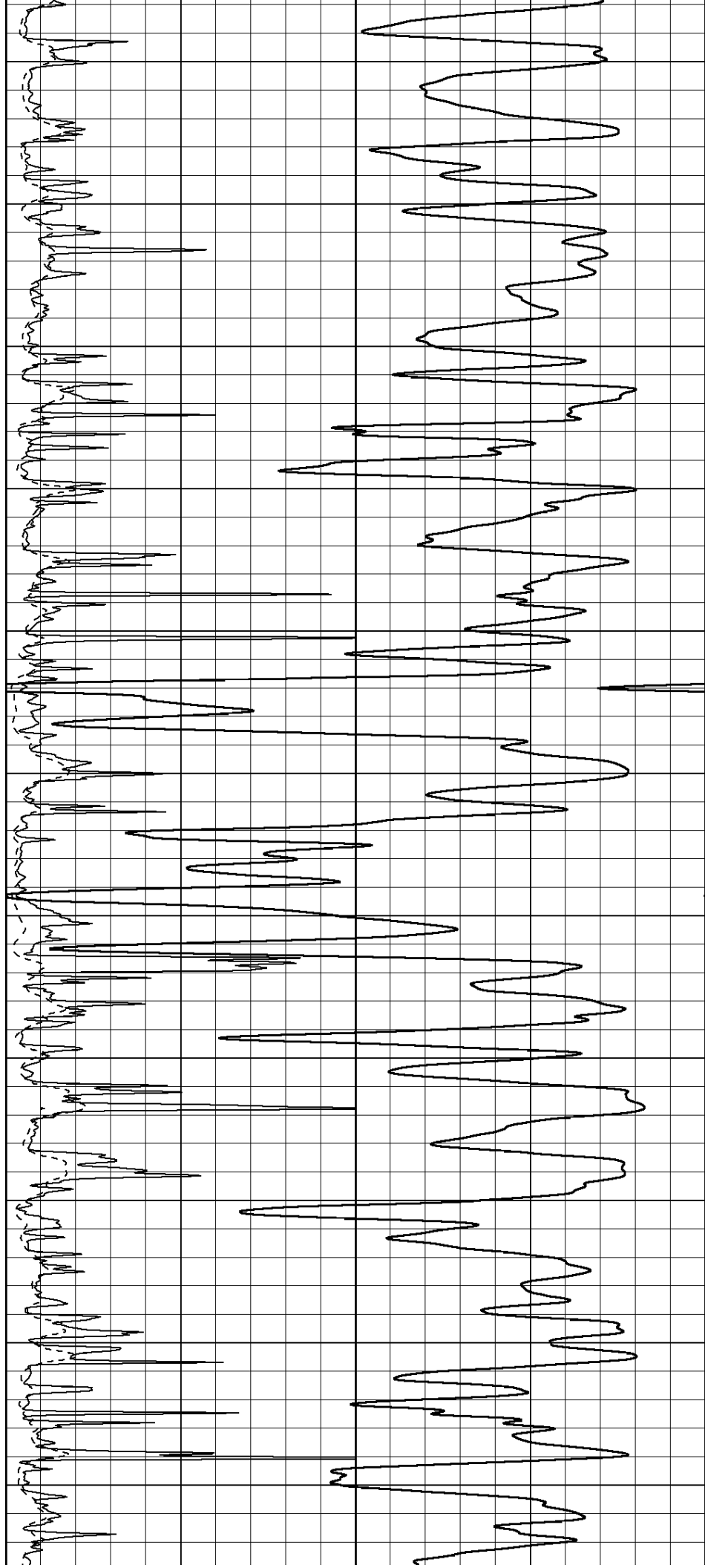
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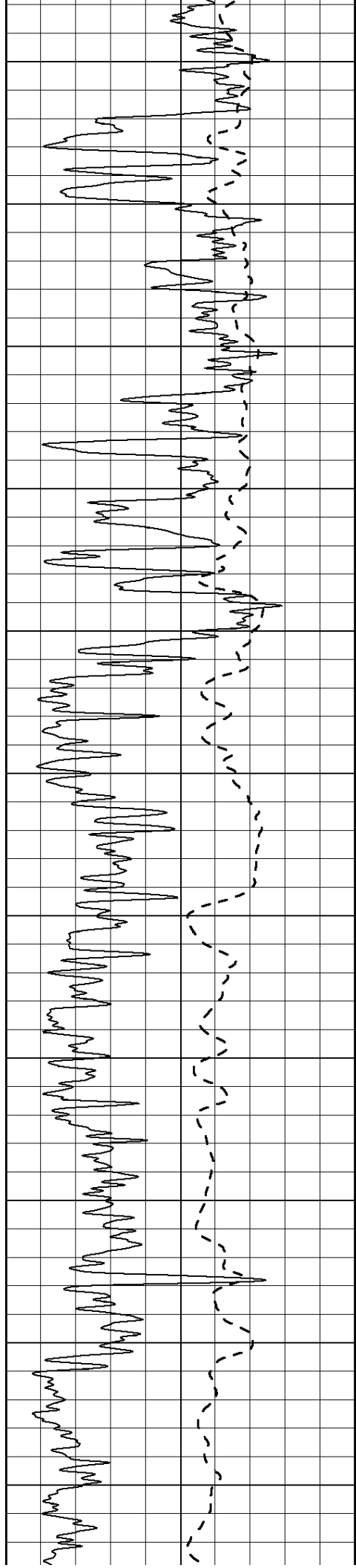
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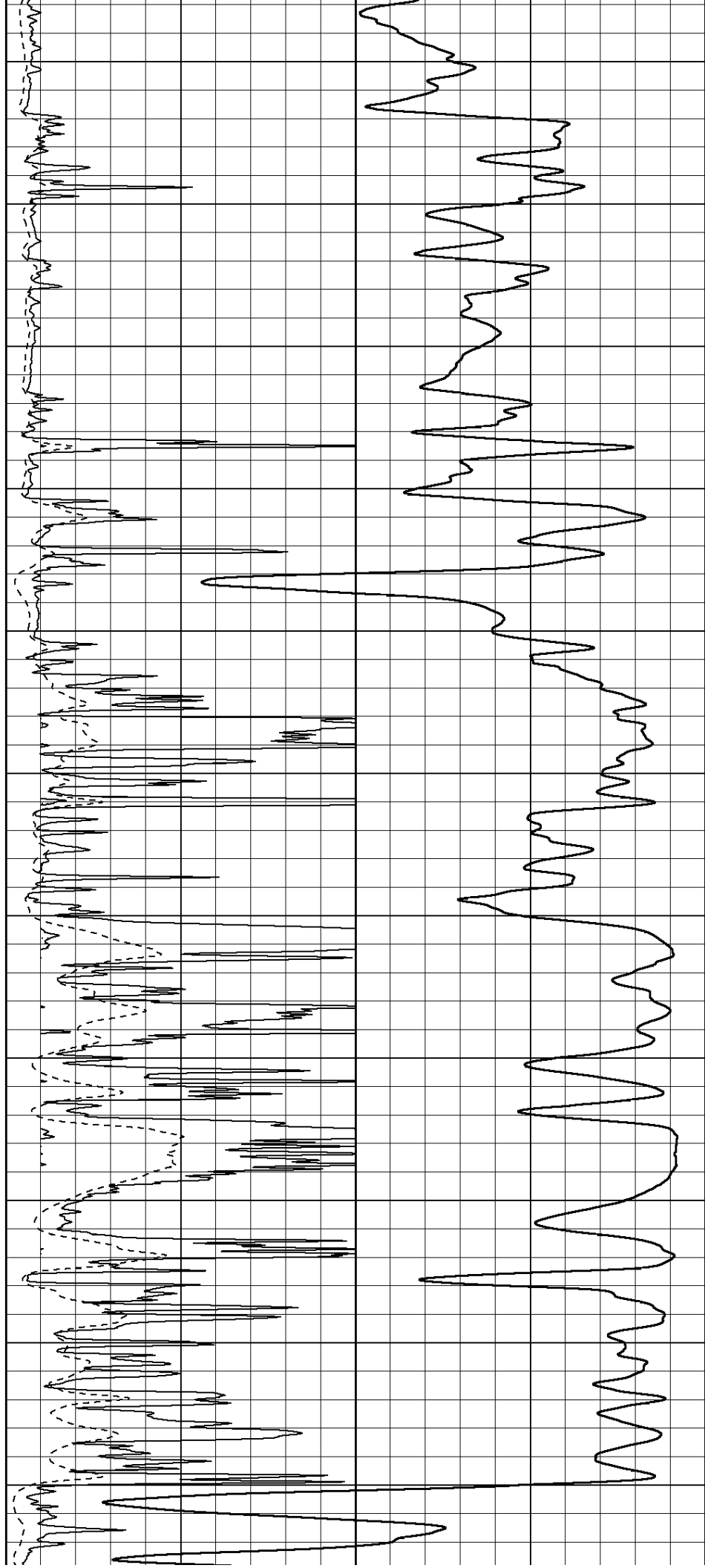
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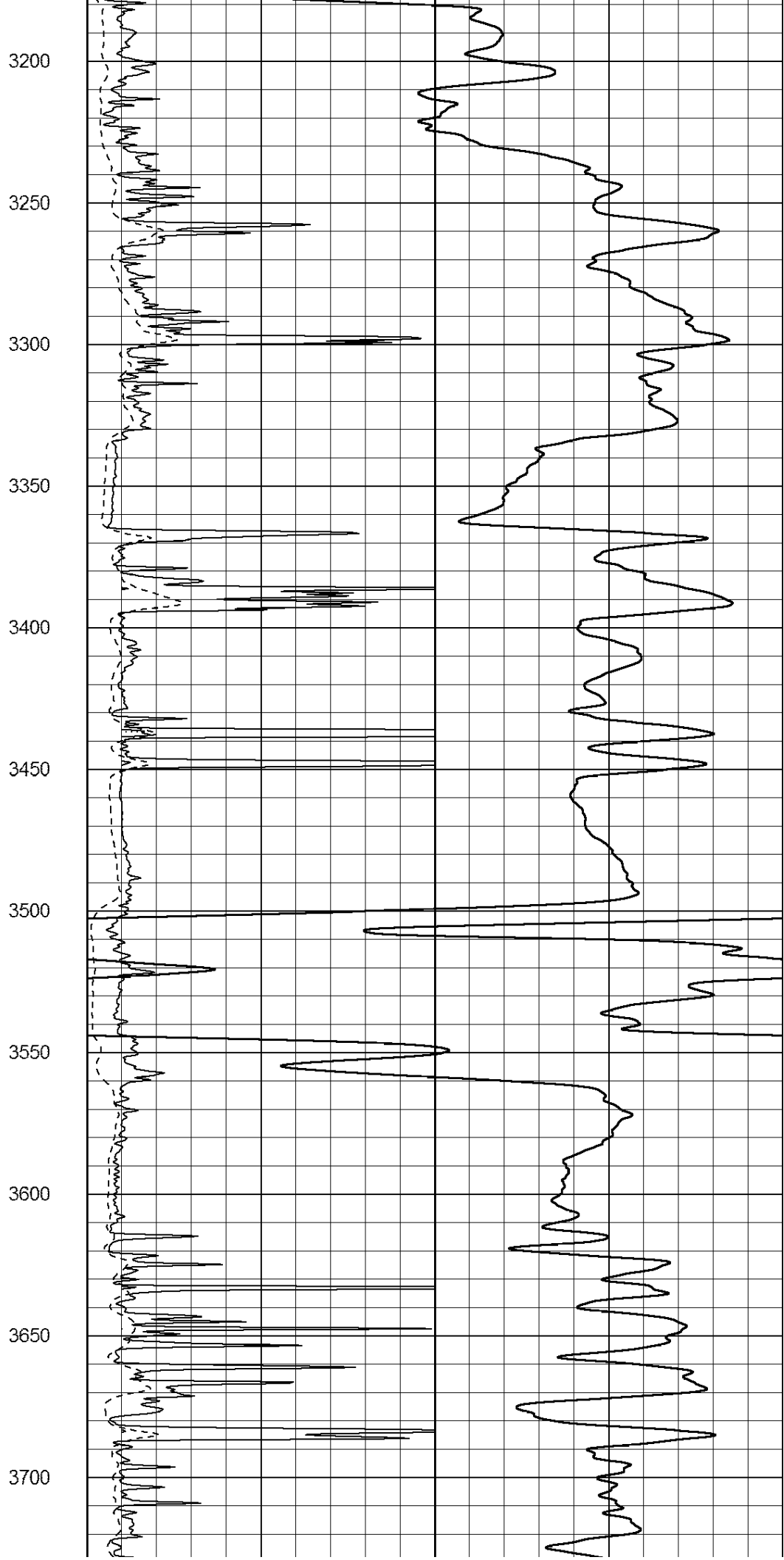
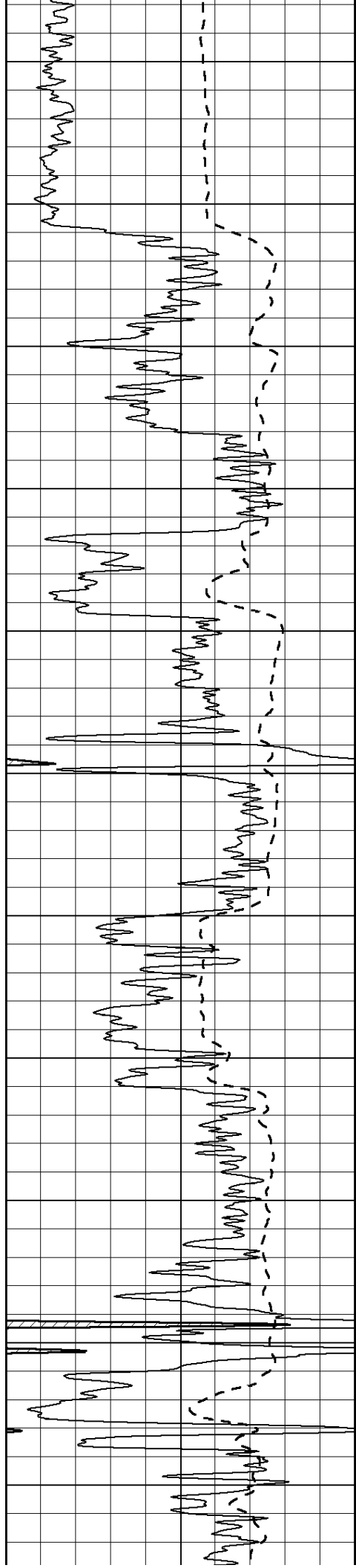
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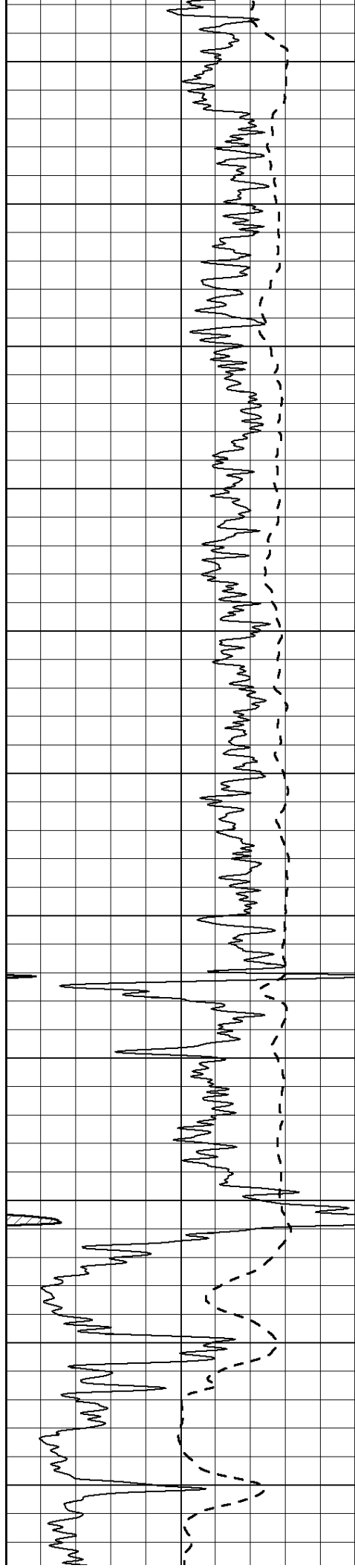
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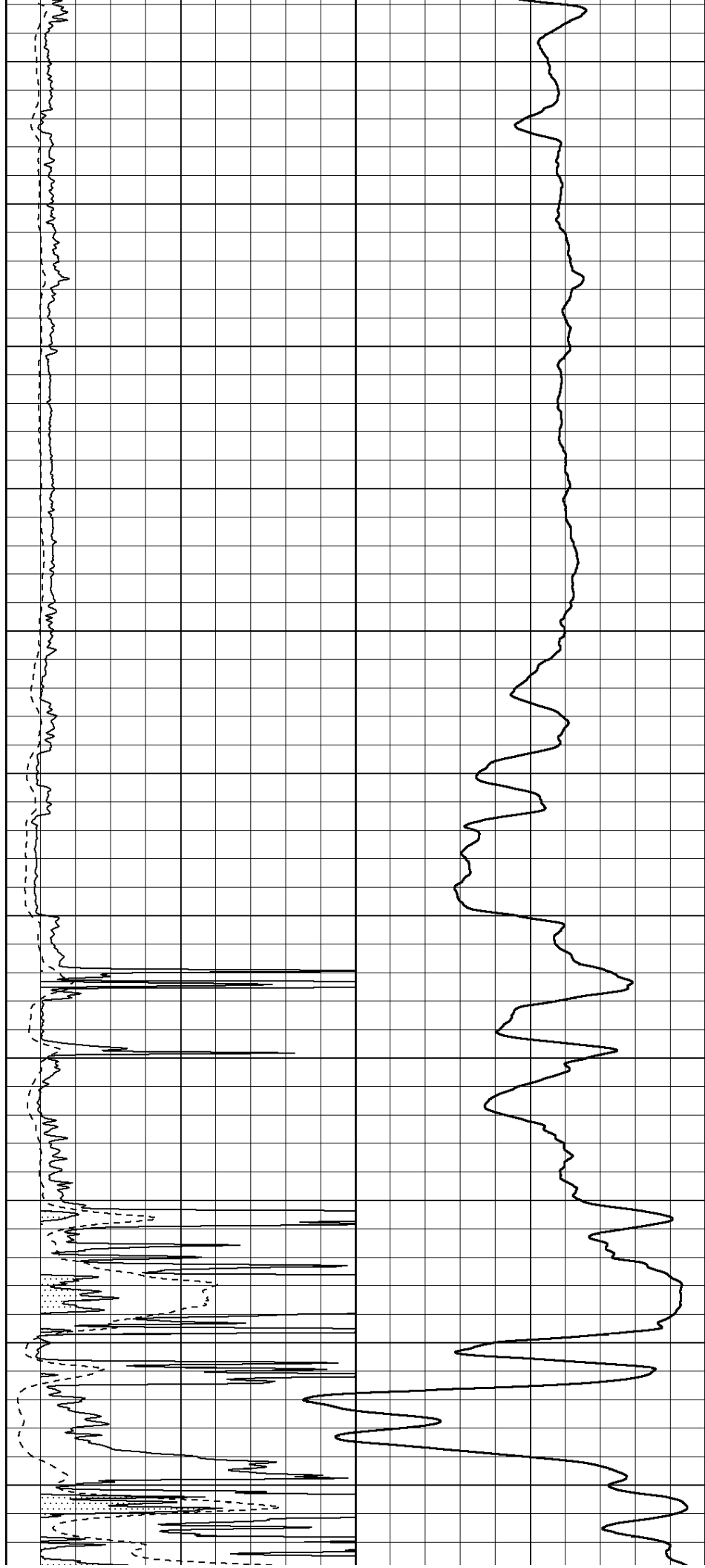
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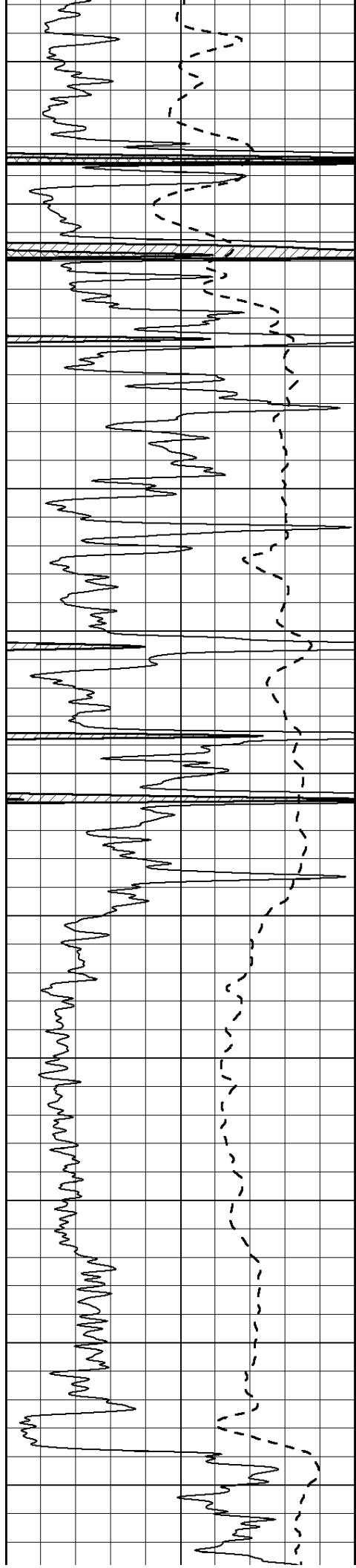
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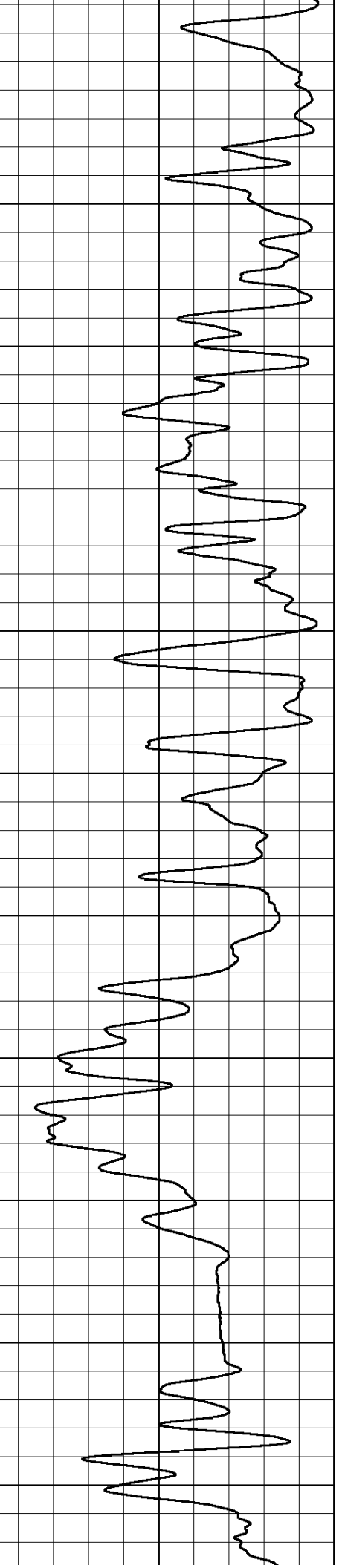
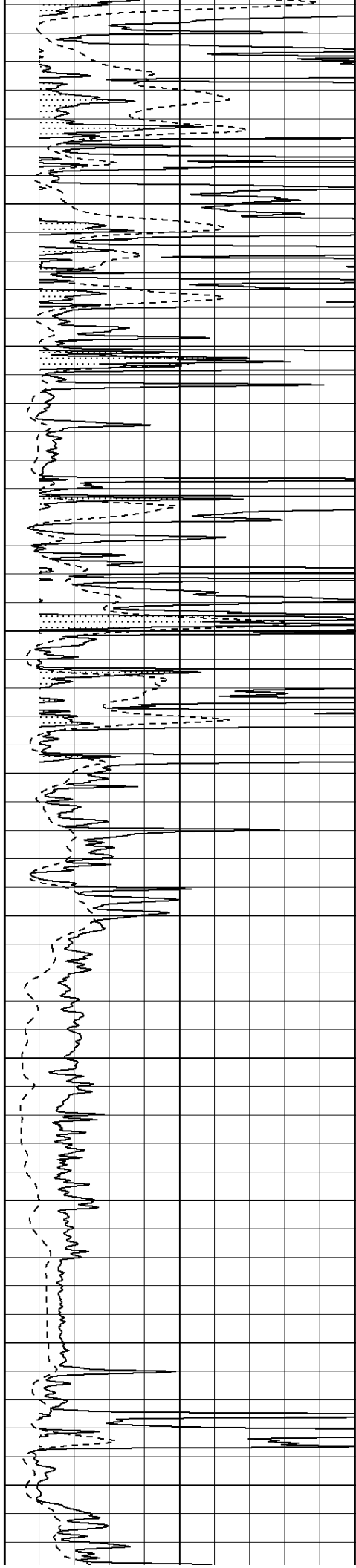
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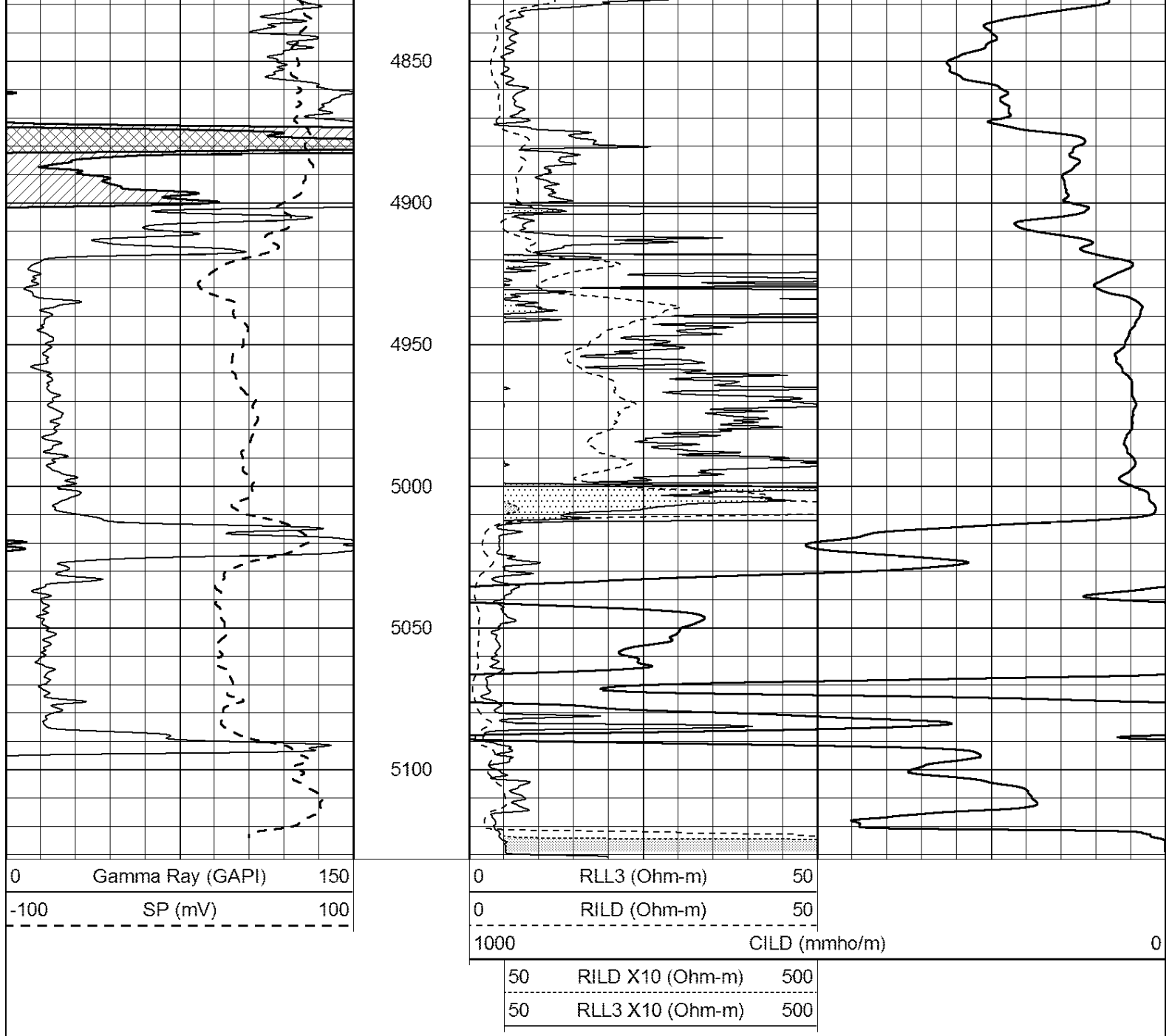
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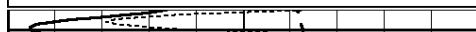


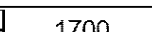
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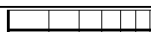
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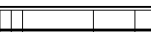
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 Presentation Format: \_dil  
 Dataset Creation: Wed Aug 20 06:12:11 2014 by Calc Open-Cased 090629  
 Charted by: Depth in Feet scaled 1:240

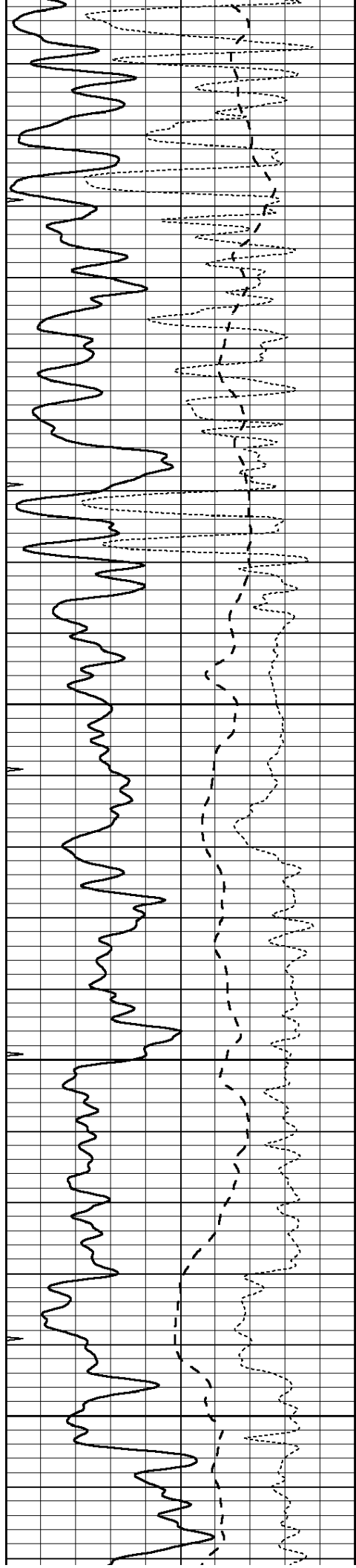
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|------|------------------|-----|-----|--------------------------|------|
| 0    | GAMMA RAY (GAPI) | 150 | 0.2 | SHALLOW GUARD (Ohm-m)    | 2000 |
| -100 | SP (mV)          | 100 | 0.2 | DEEP INDUCTION (Ohm-m)   | 2000 |
| -250 | Rxo/Rt          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









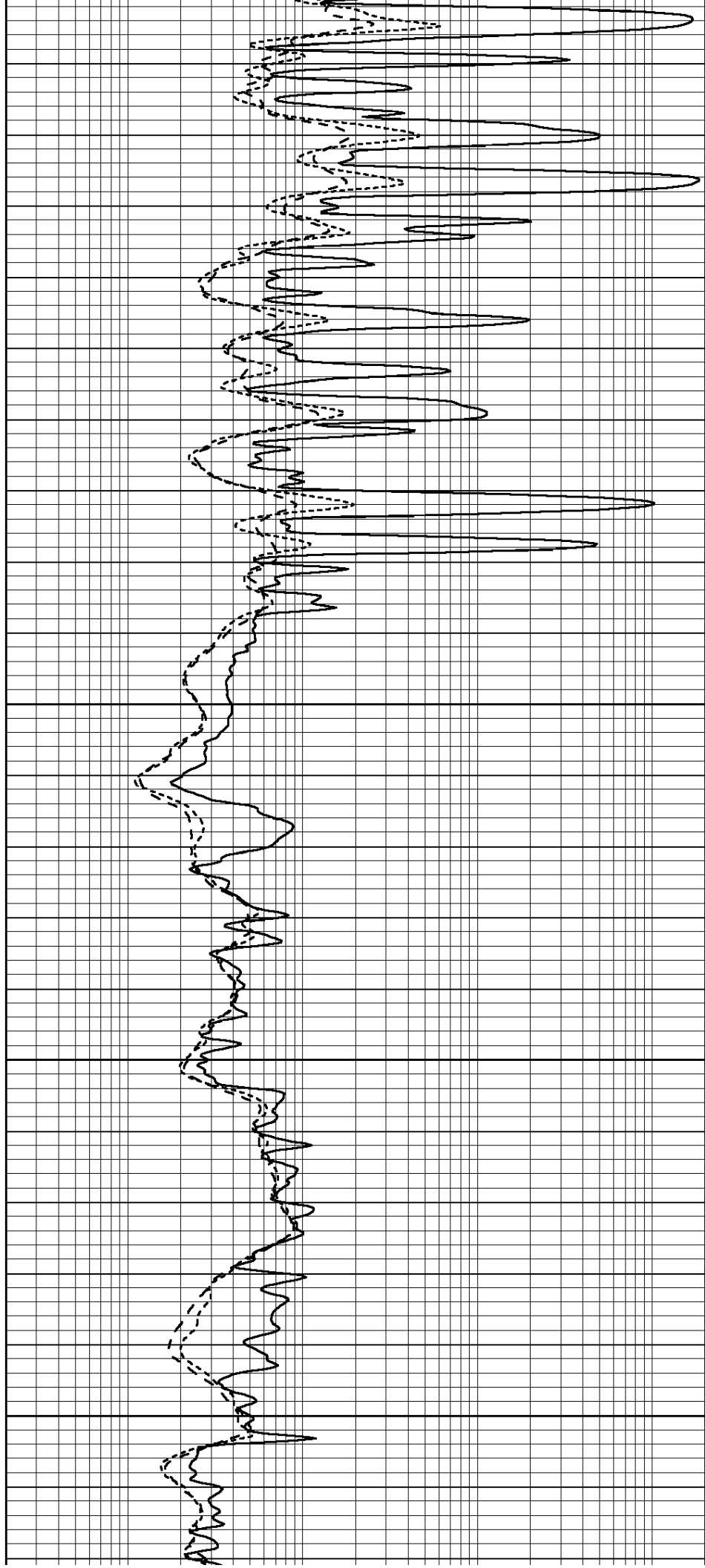


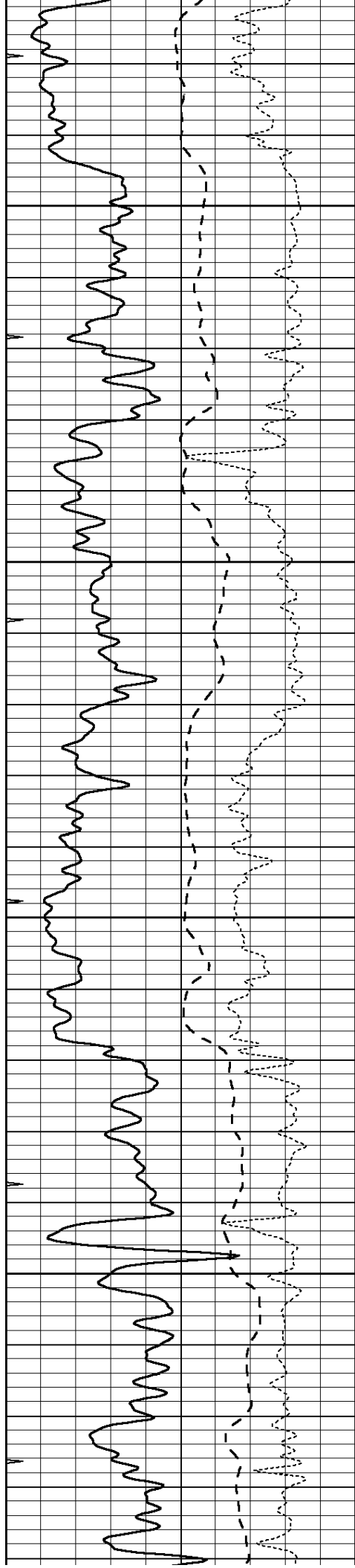
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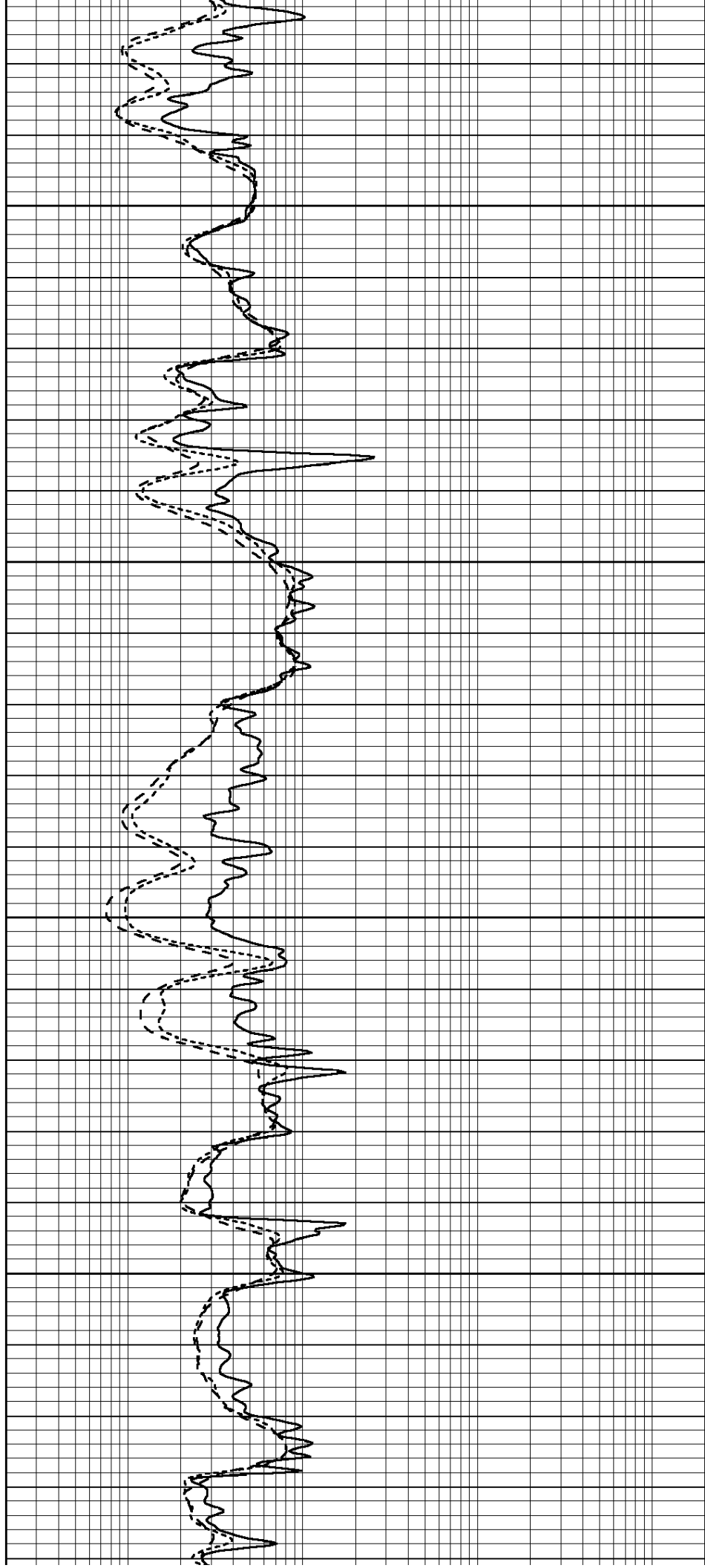


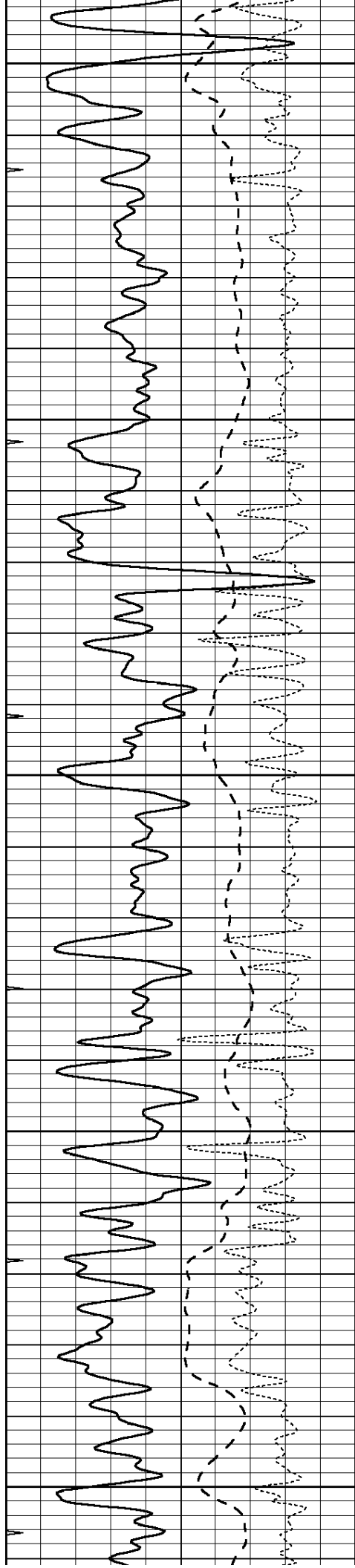
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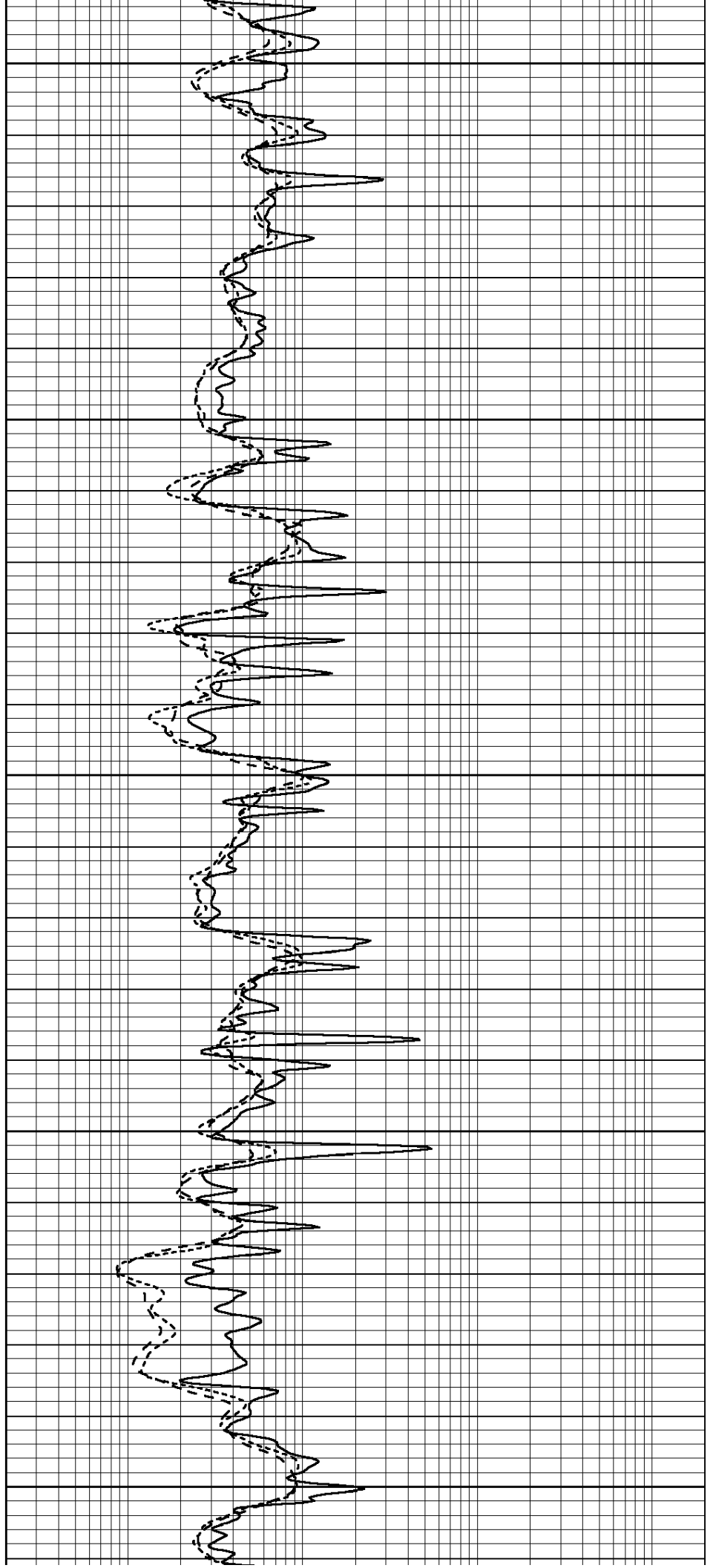
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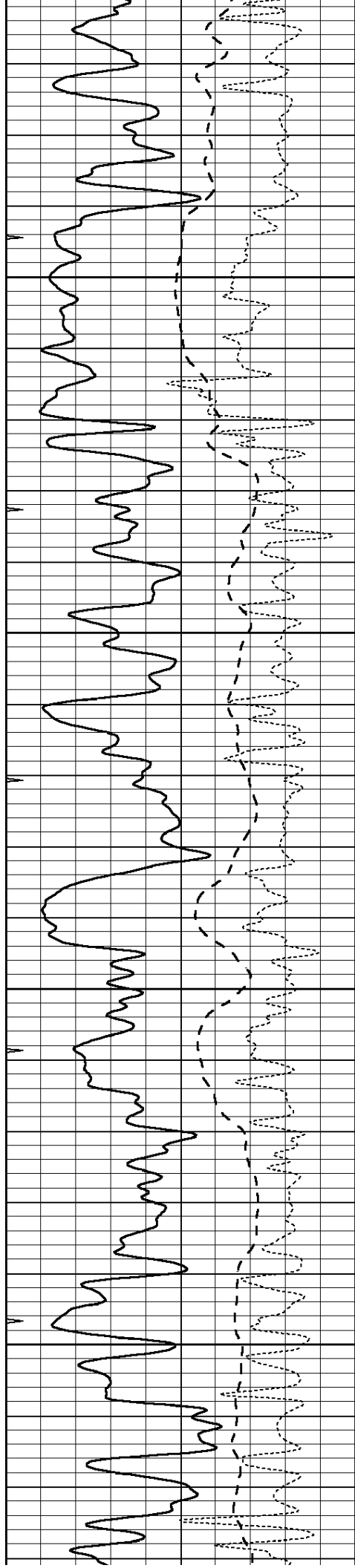
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2300

2350



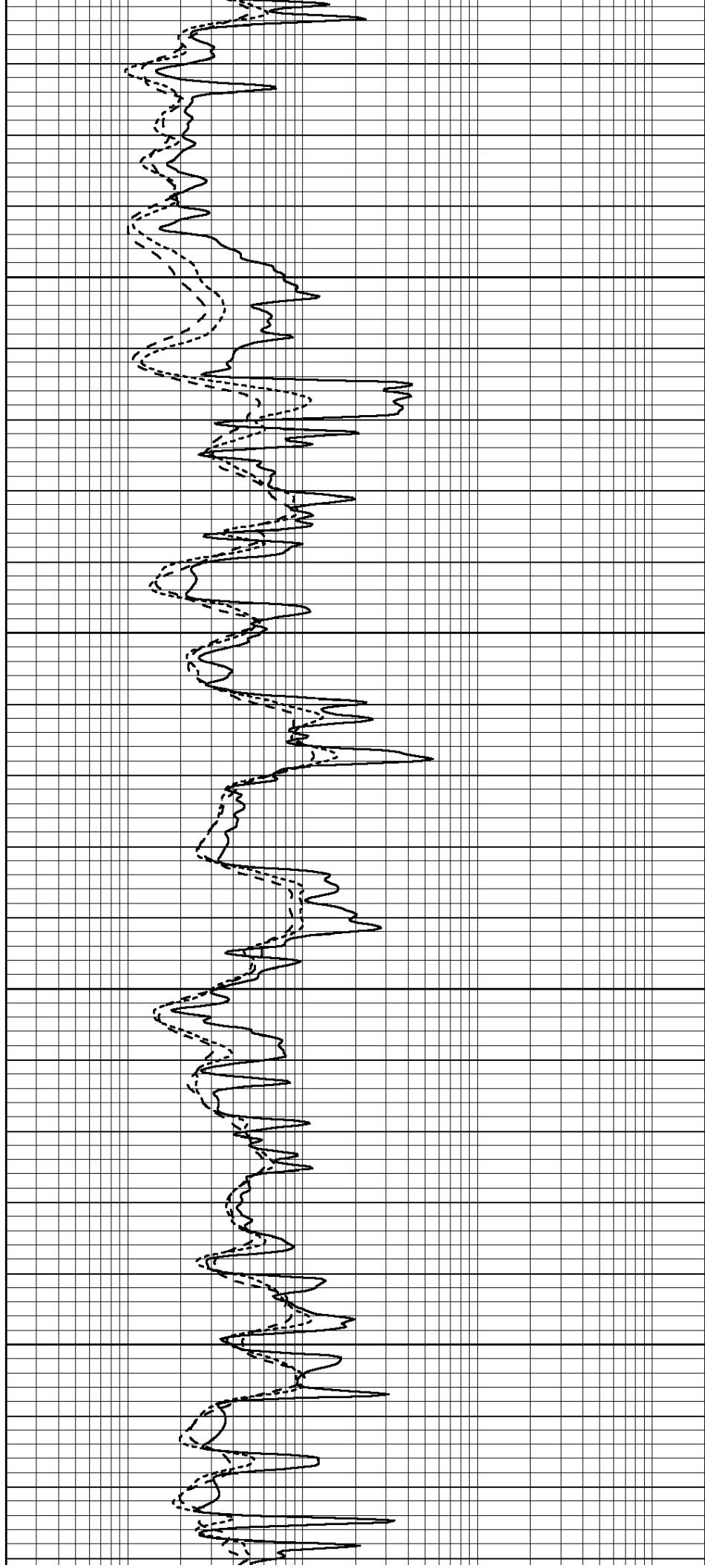


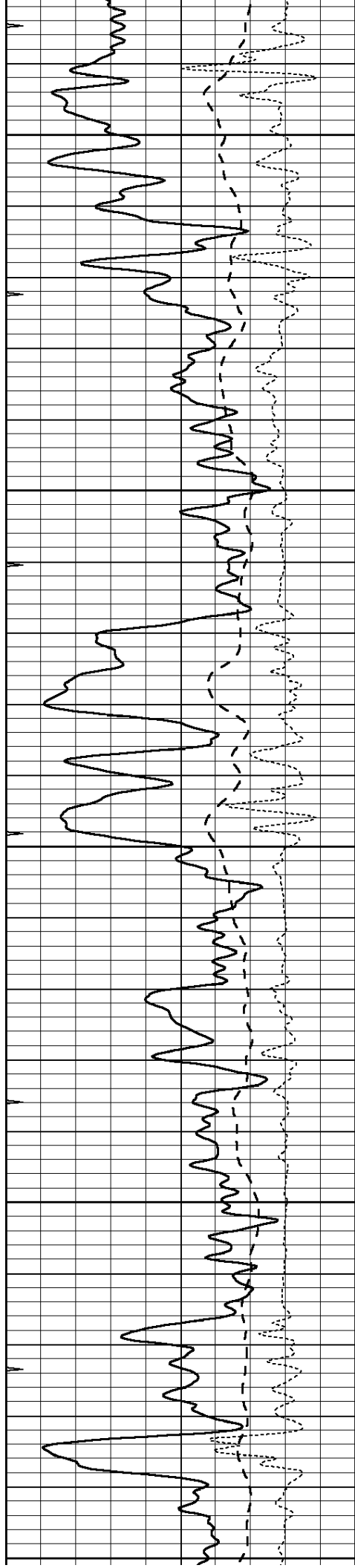
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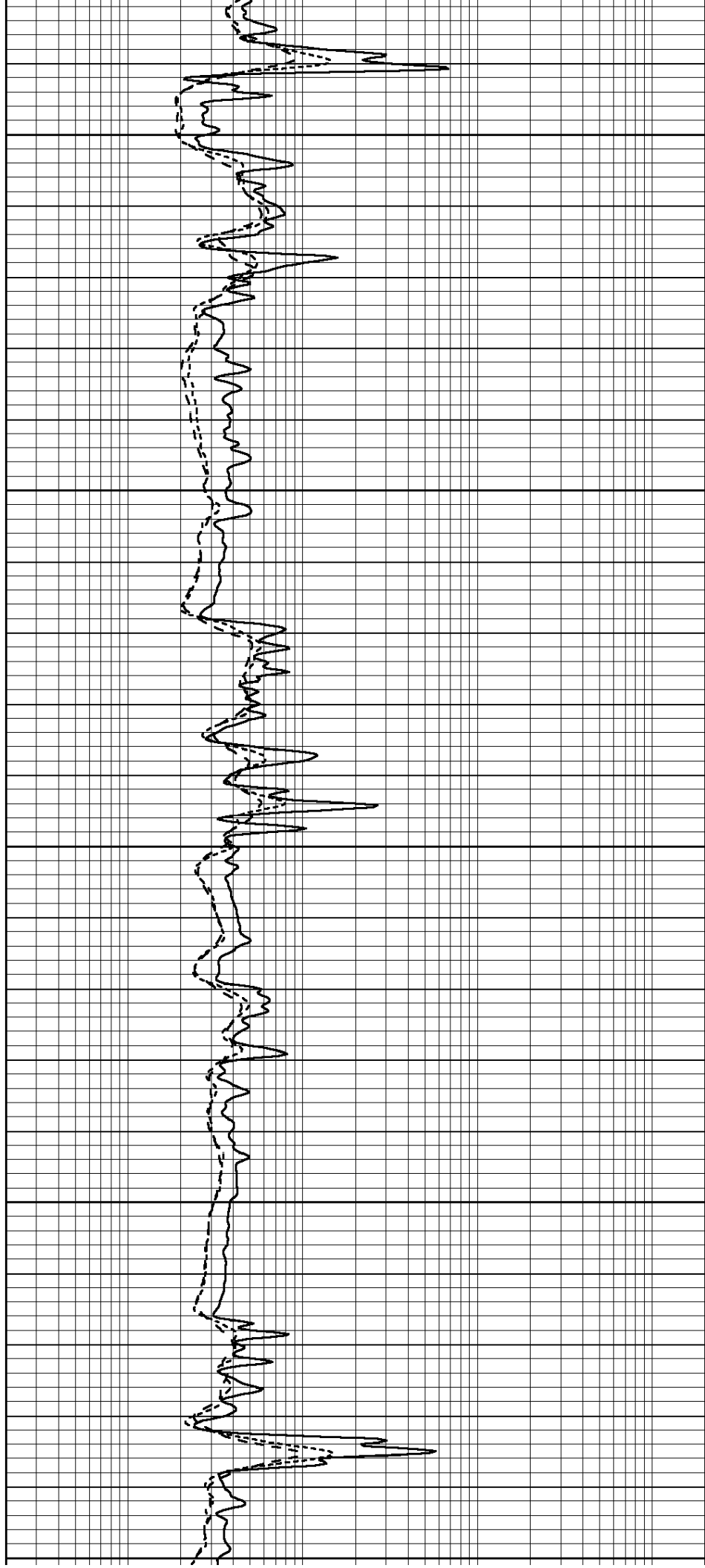
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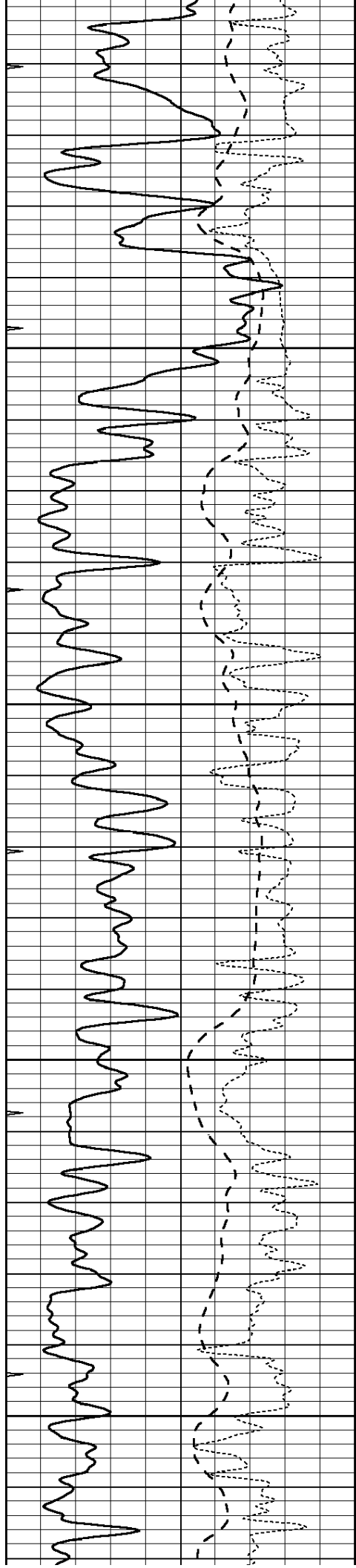
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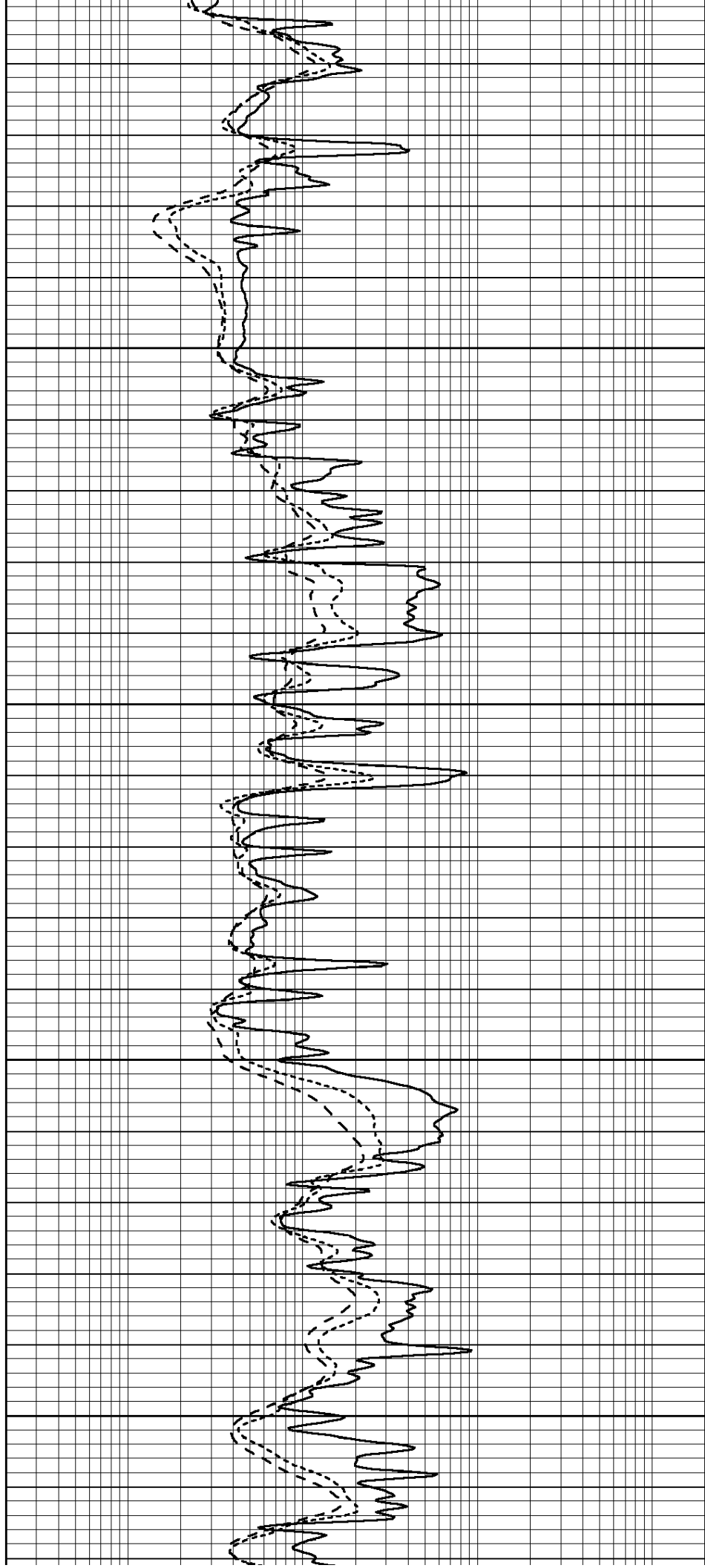


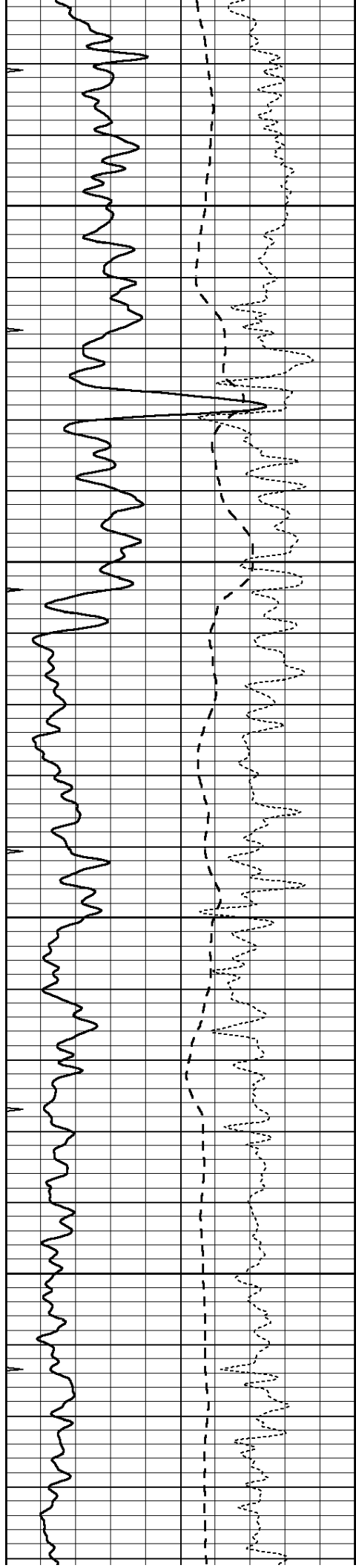
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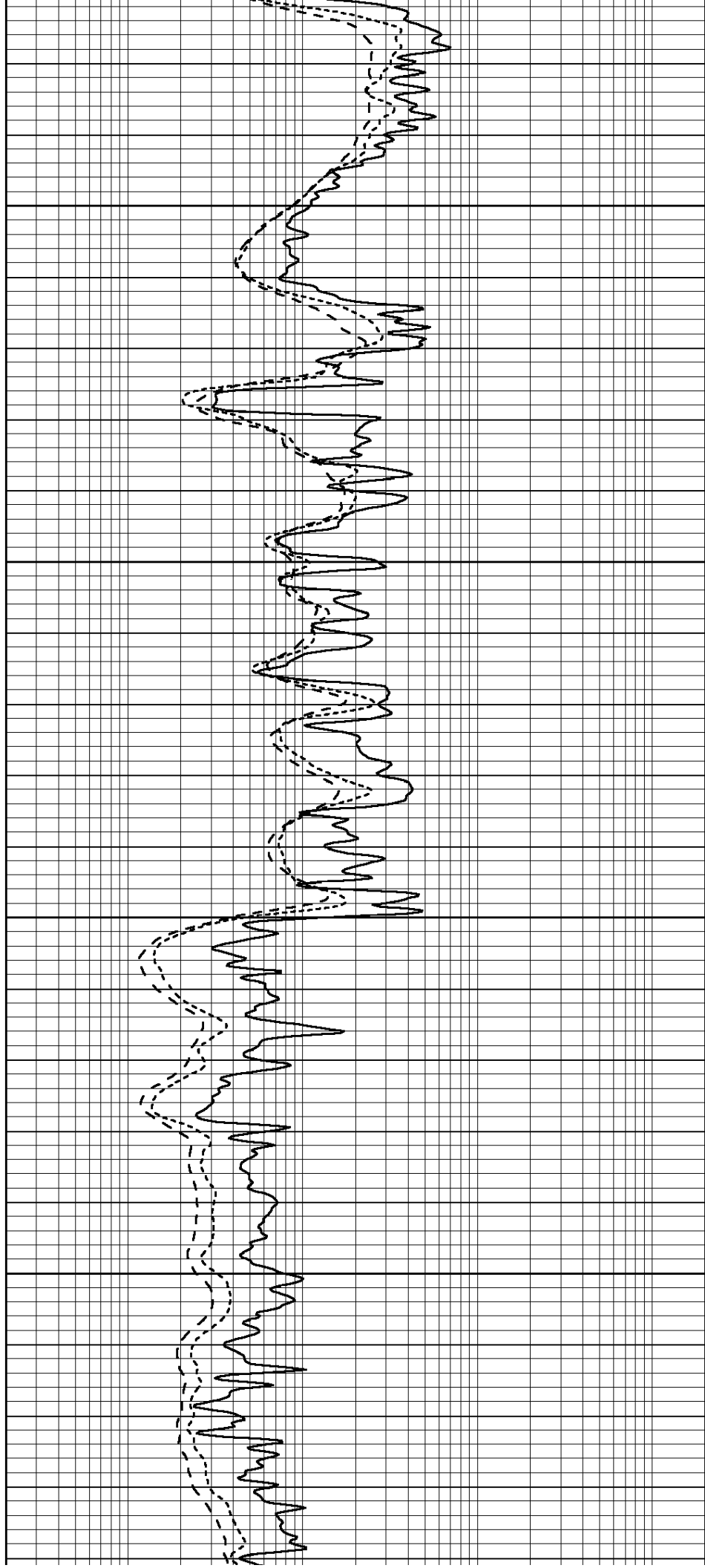


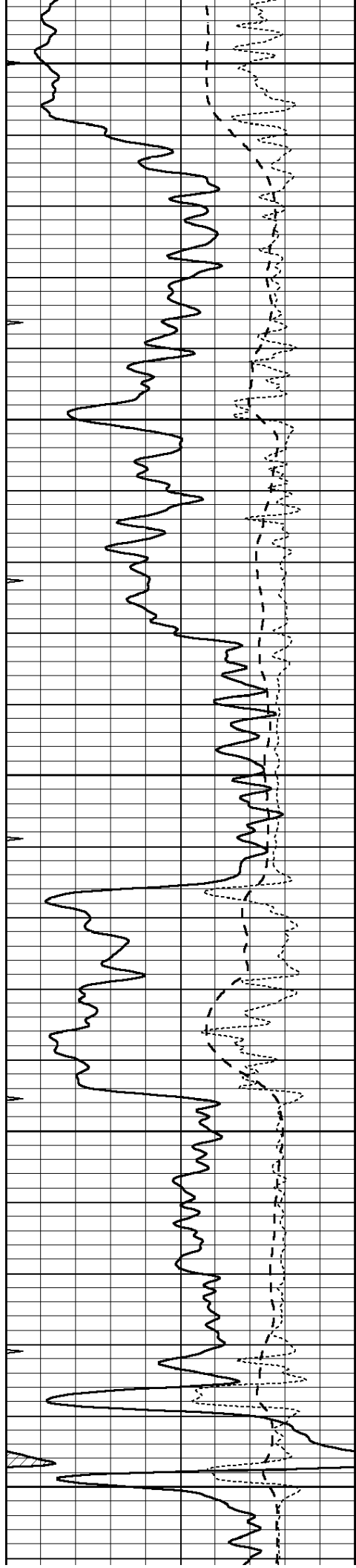
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3150

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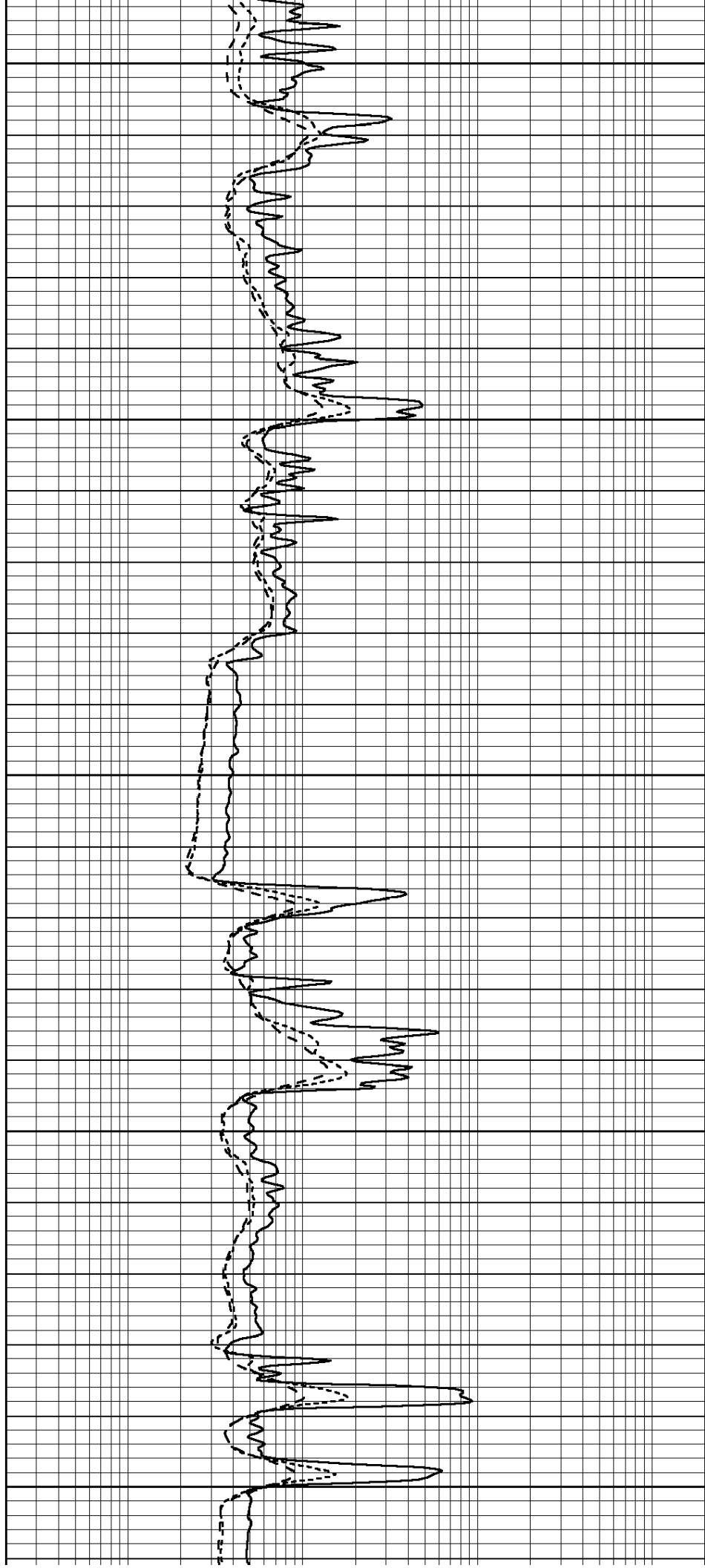
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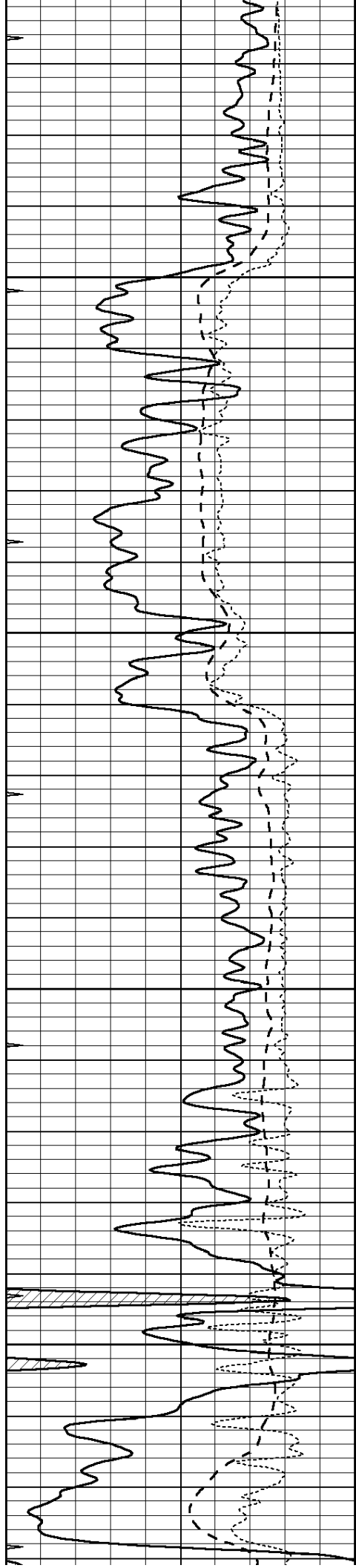
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3400

3450



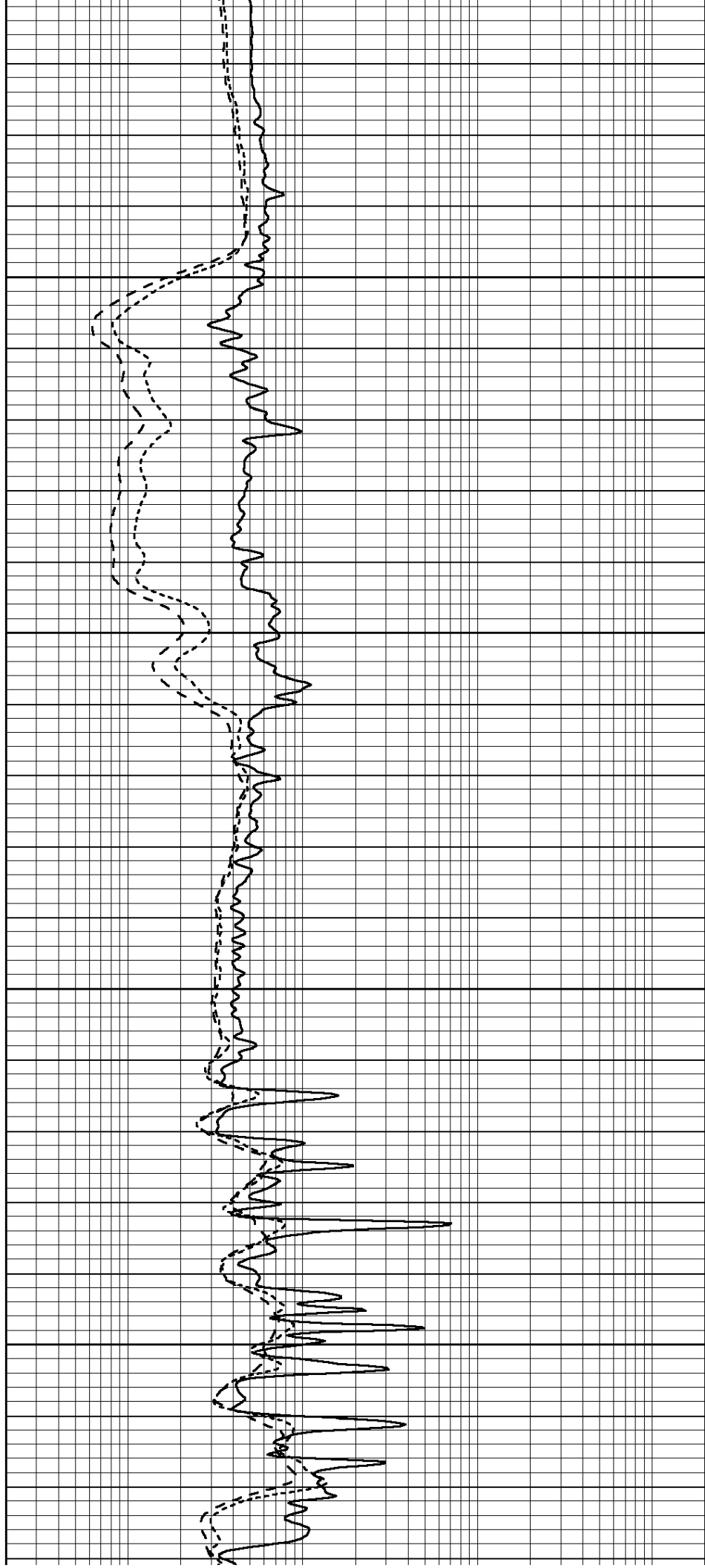


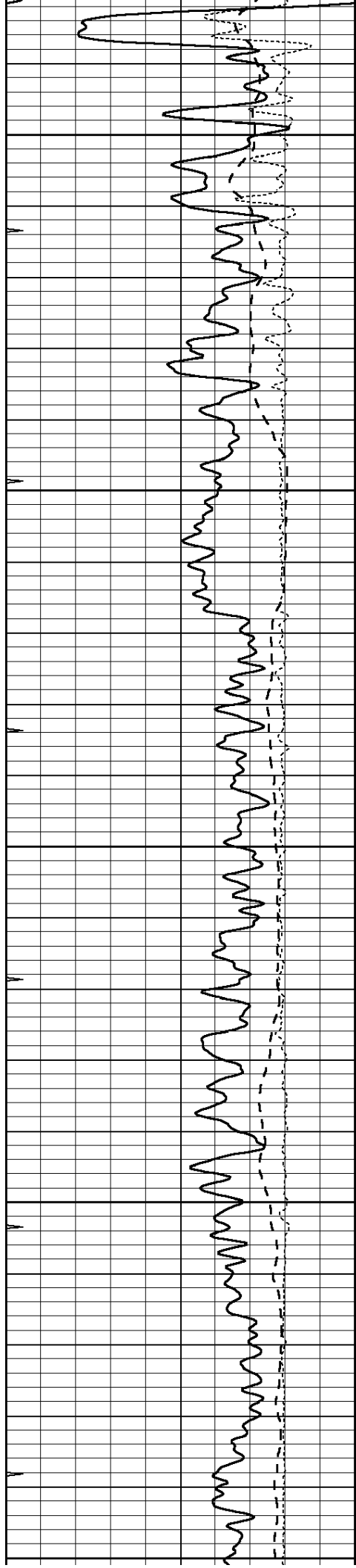
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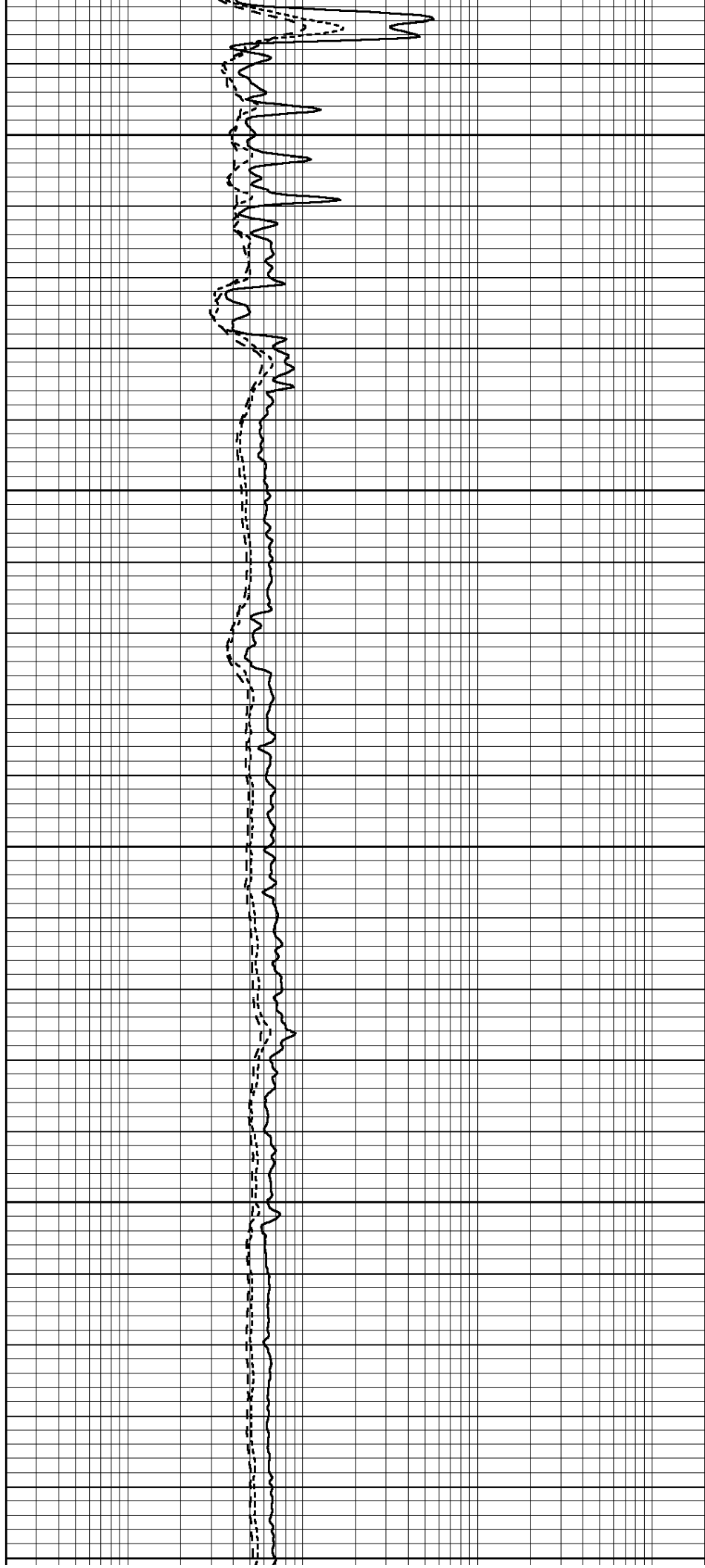
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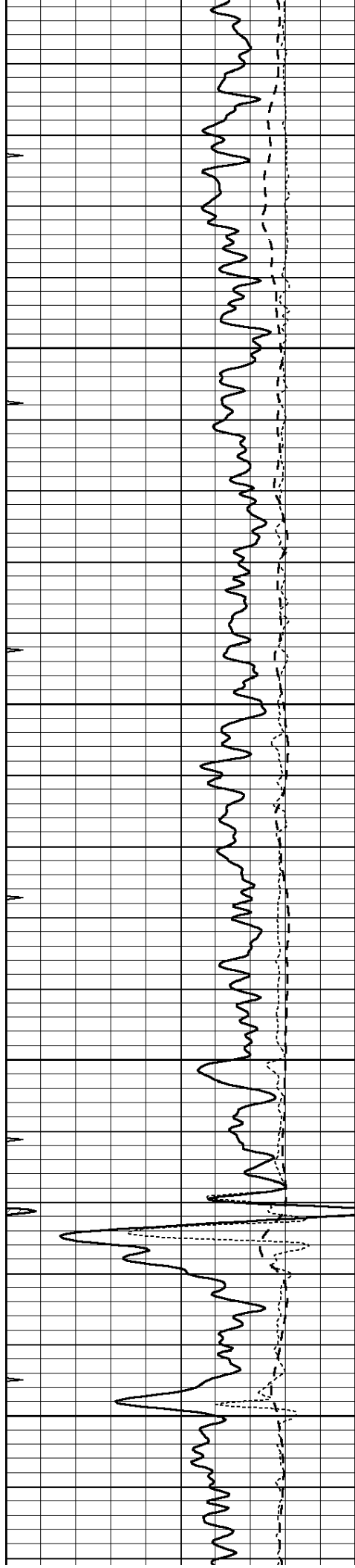
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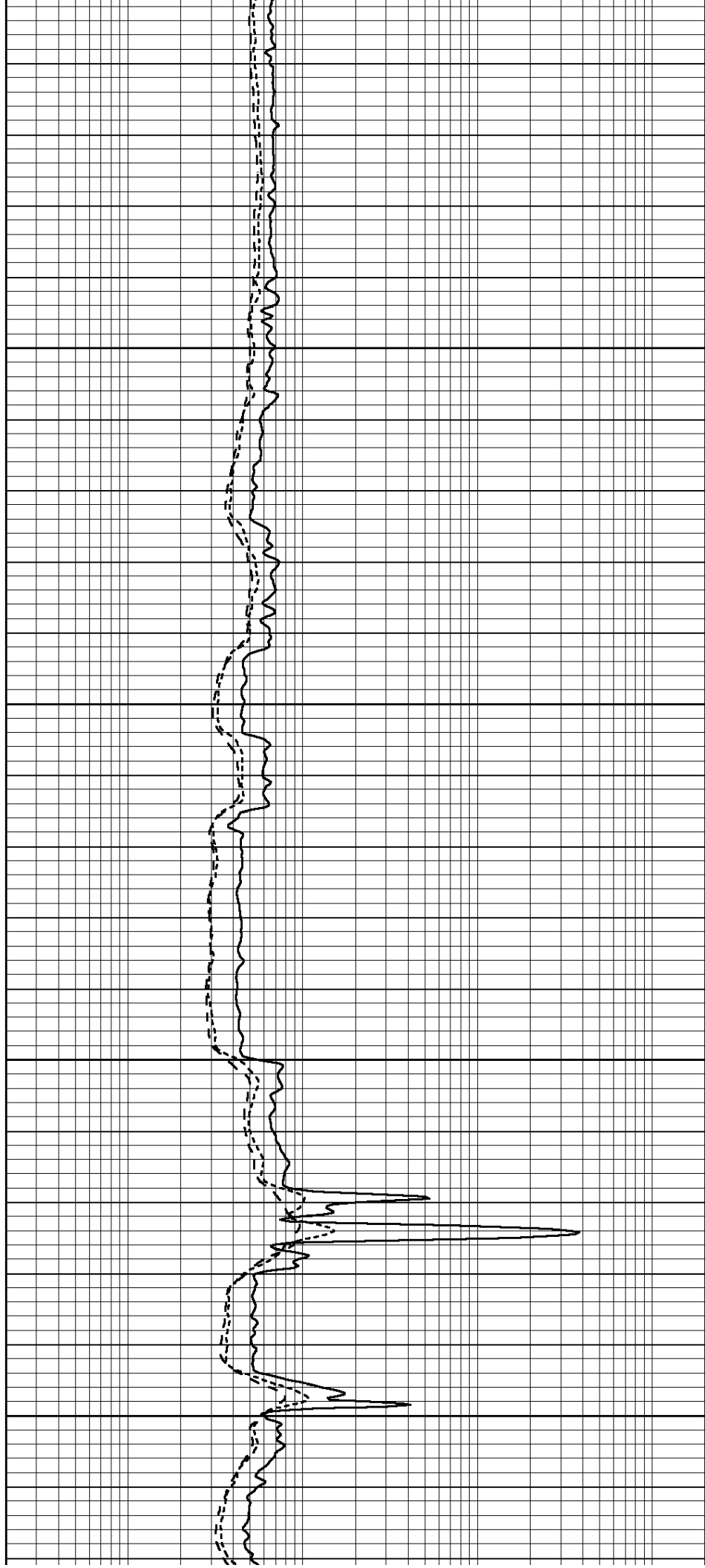


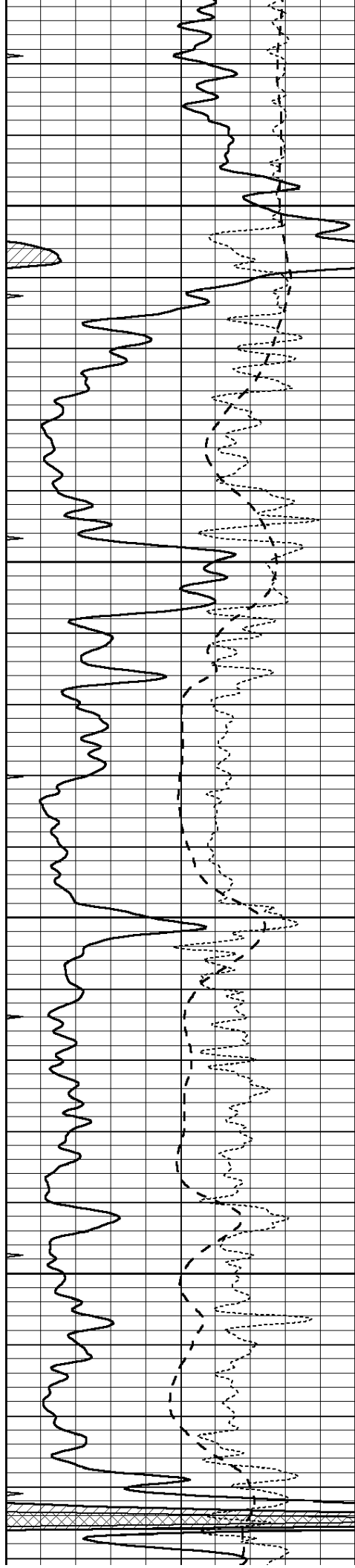
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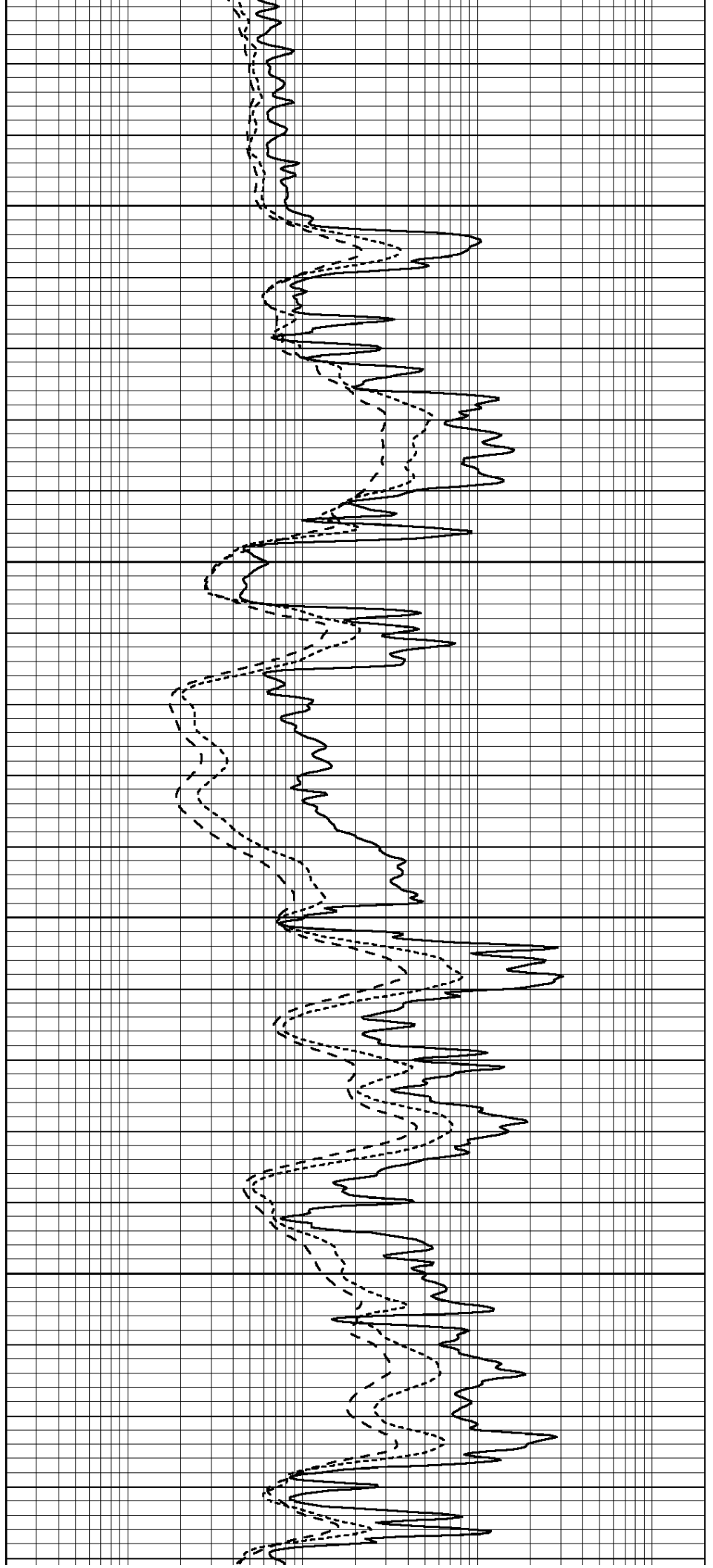


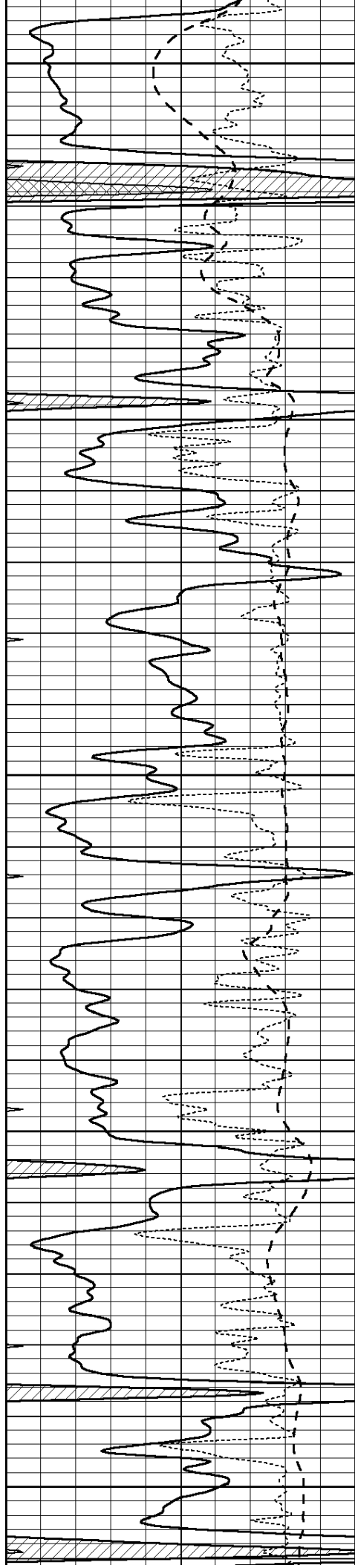
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4200

4250

4300





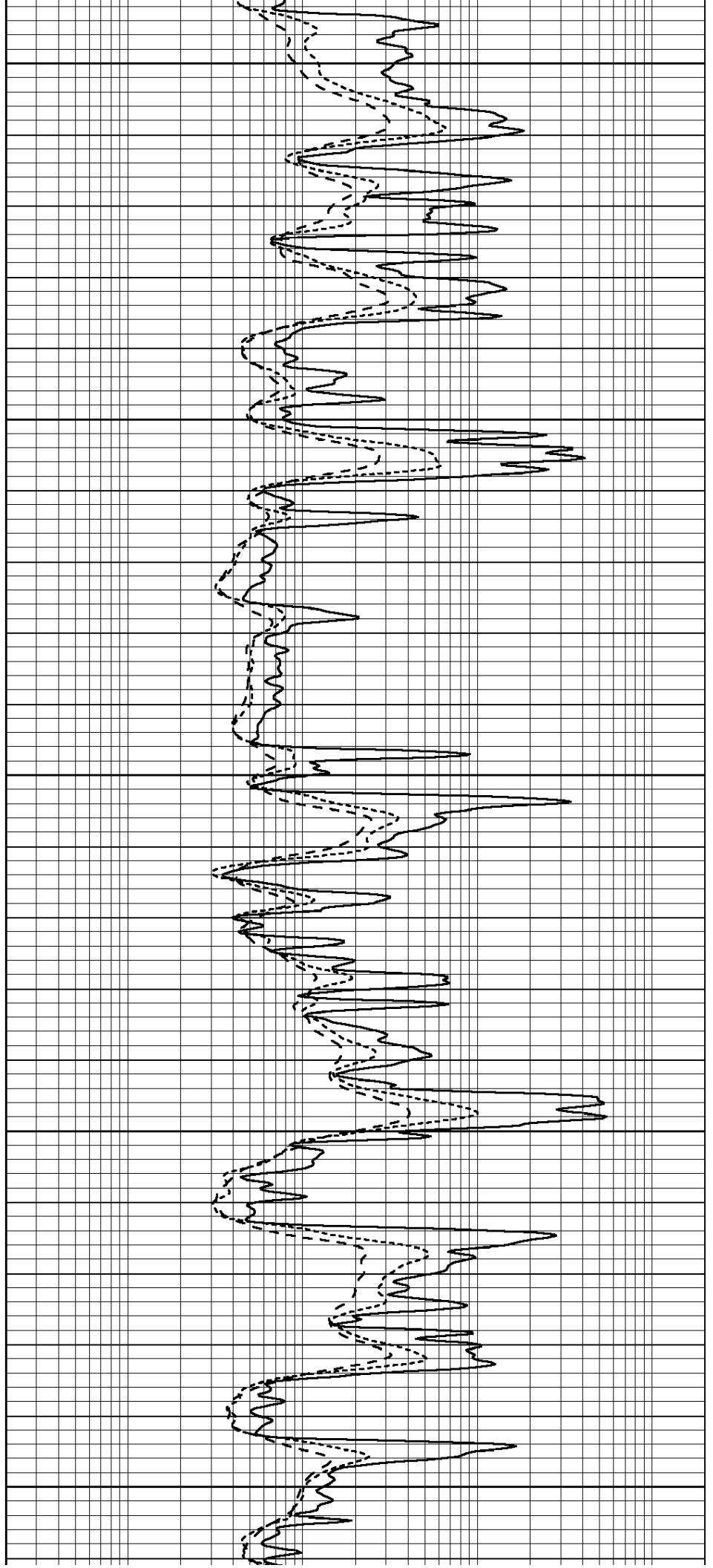
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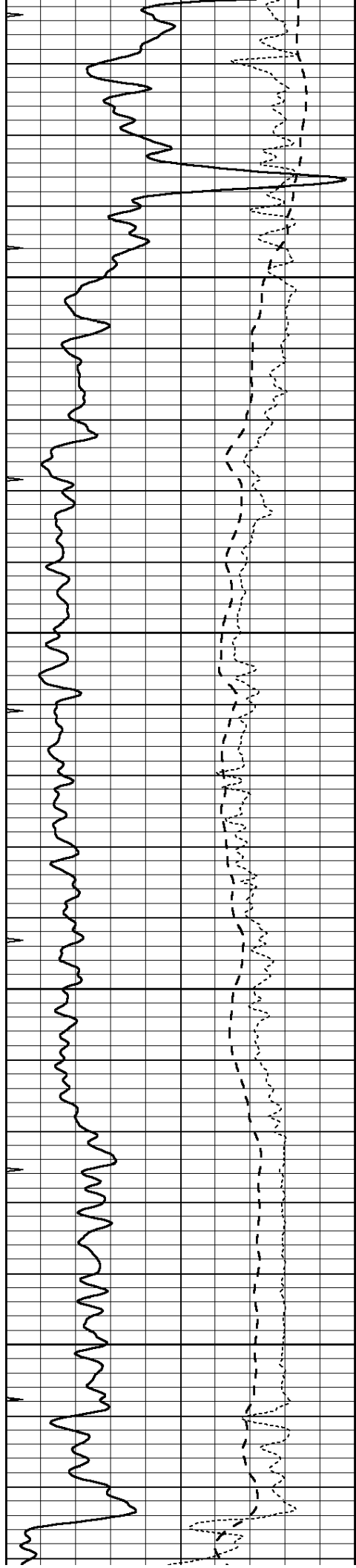
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4550



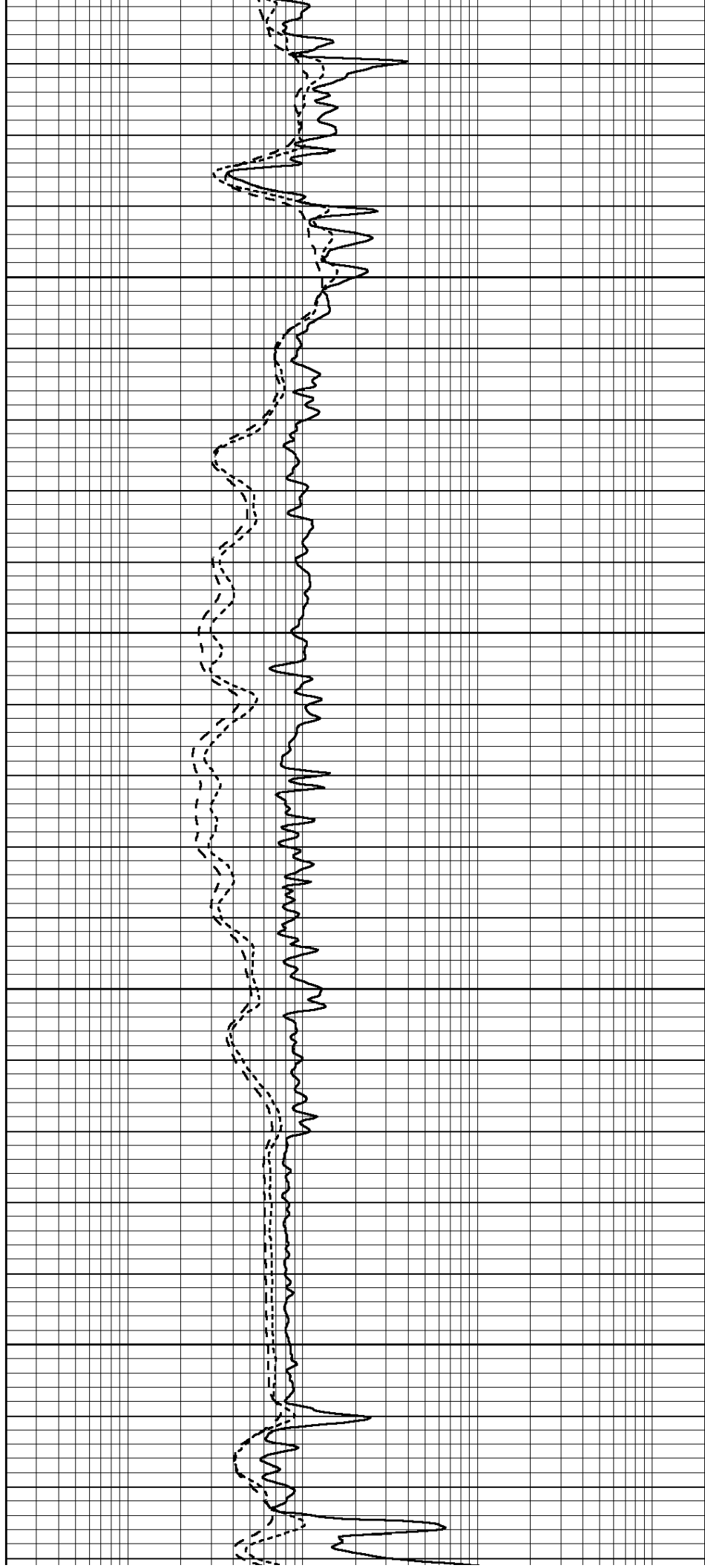


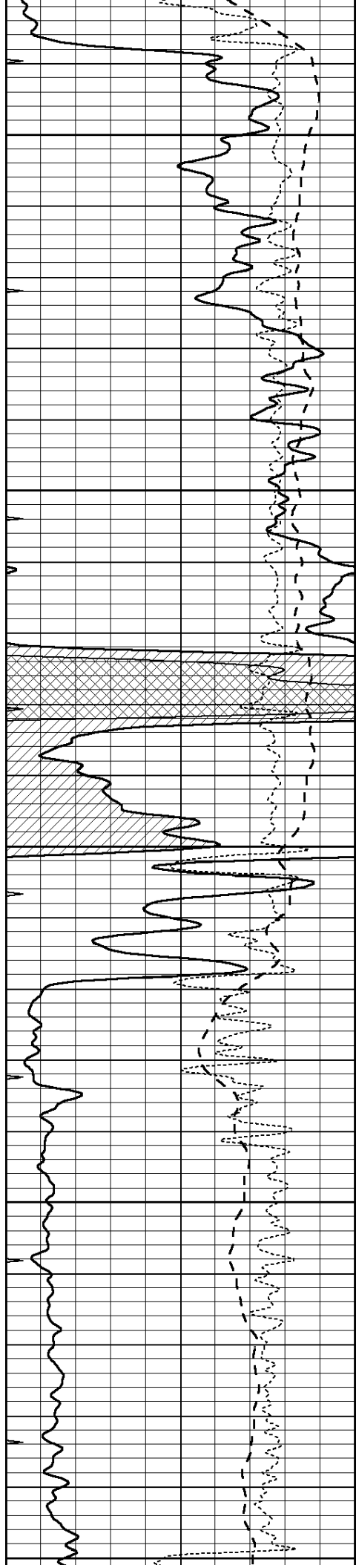
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4650

4700

4750





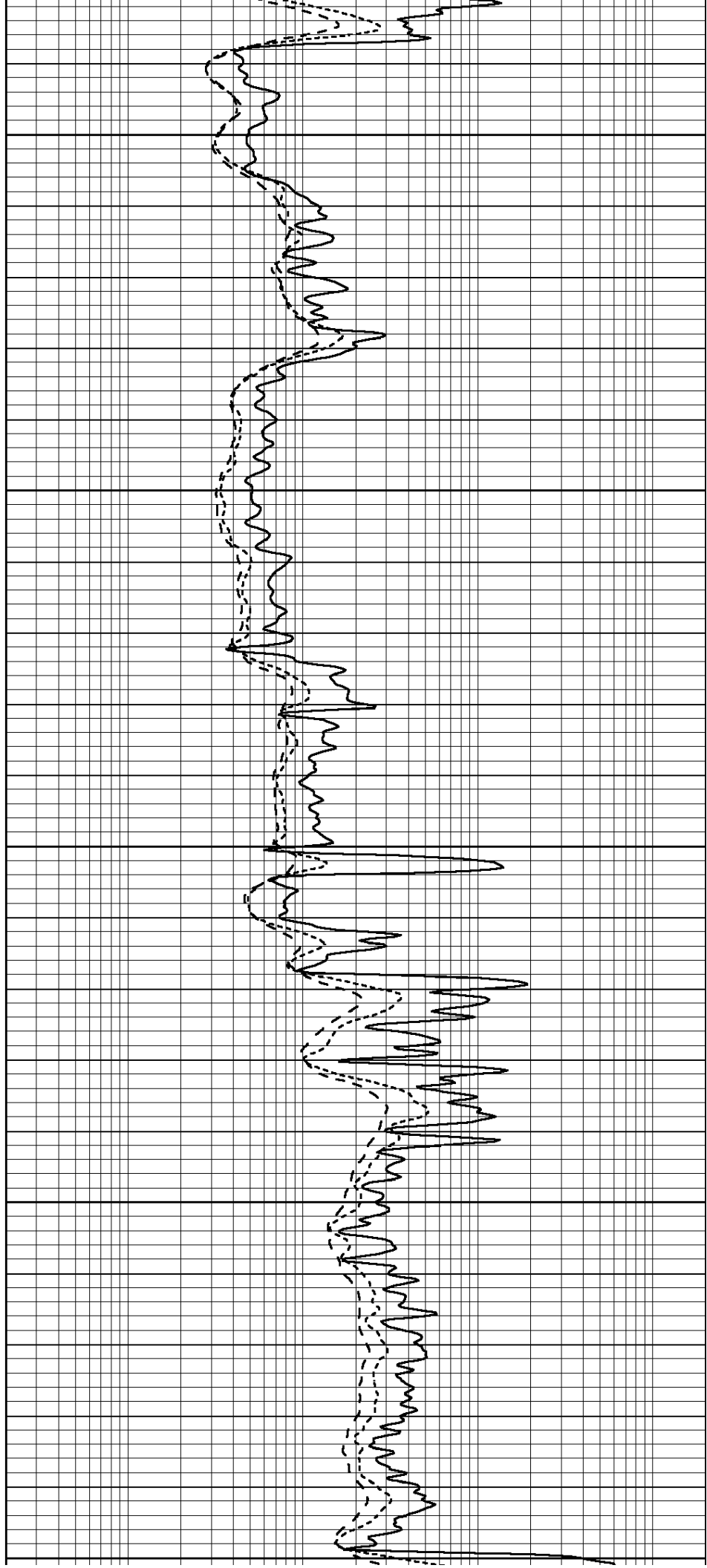
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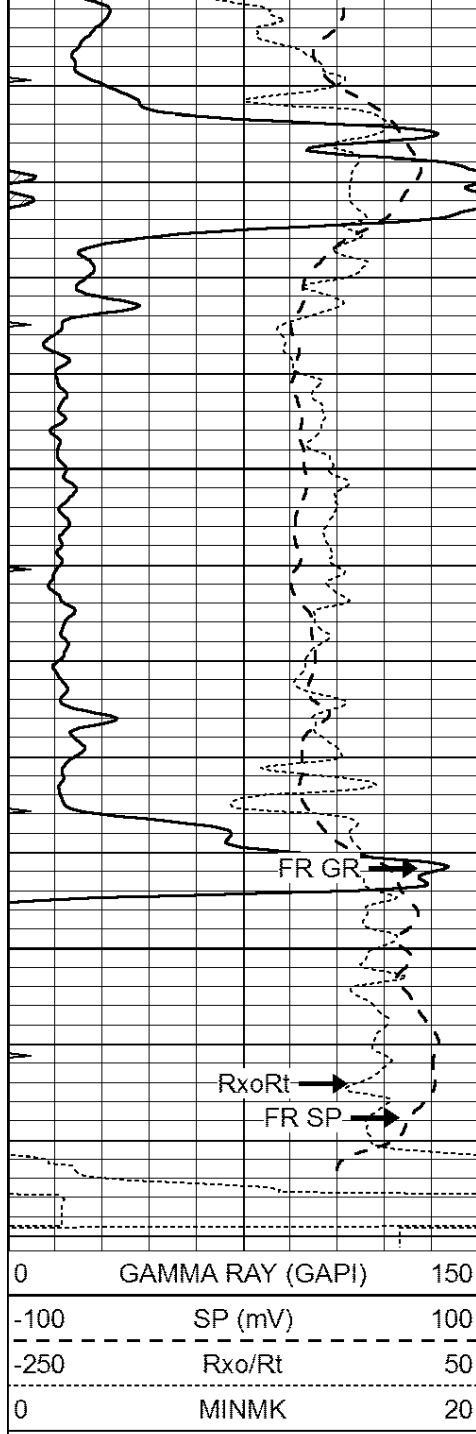
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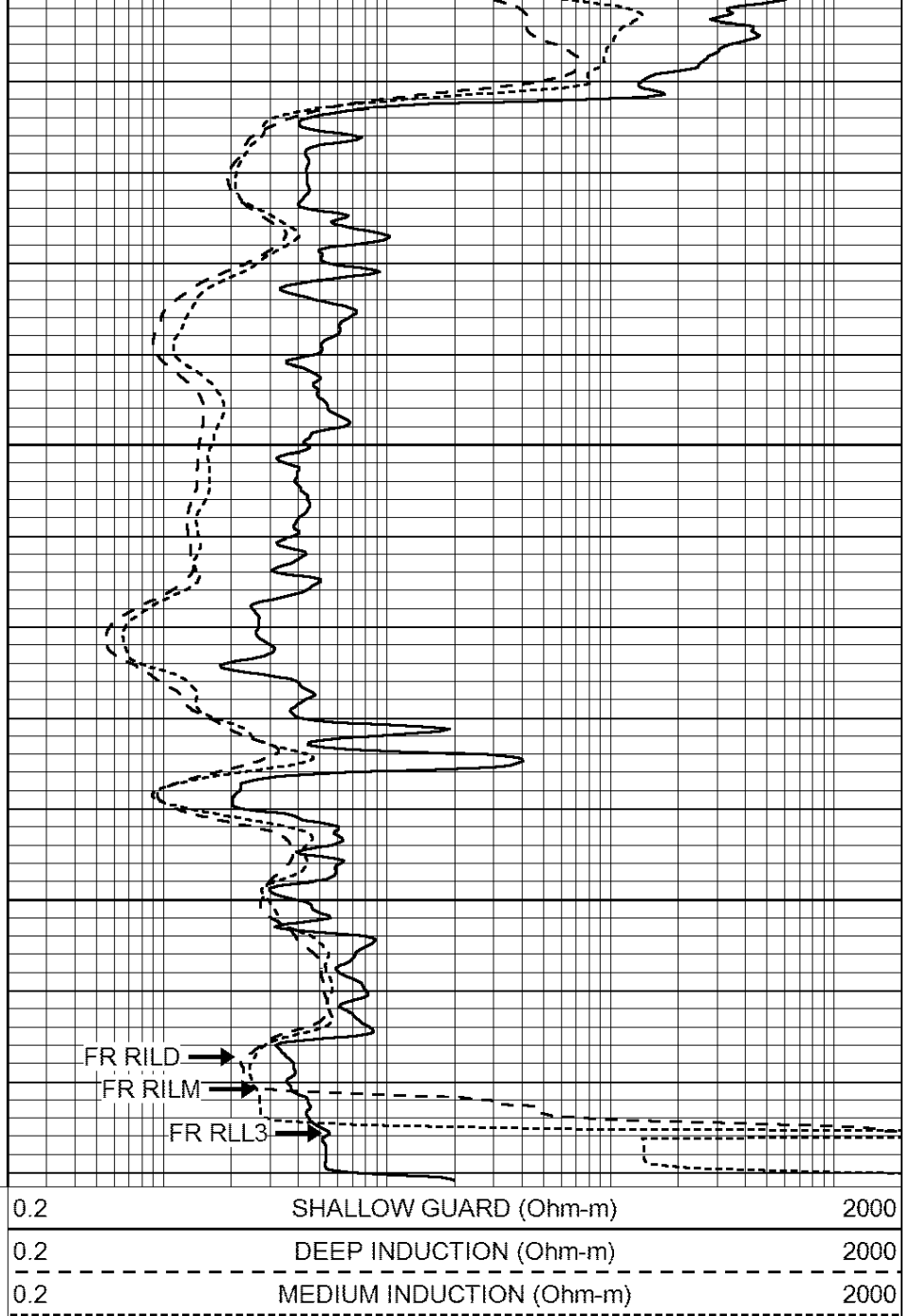
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LTD 5128

FR GR →

RxoRt →

FR SP →



FR RILD →

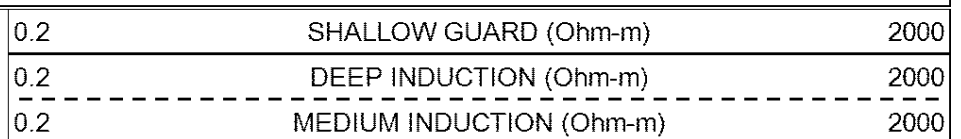
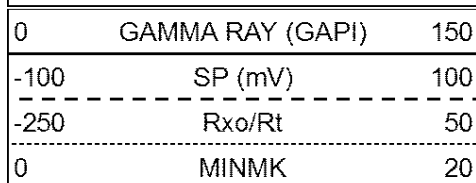
FR RILM →

FR RLL3 →



# REPEAT SECTION

Database File: 25854pe.db  
 Dataset Pathname: pass2.1  
 Presentation Format: \_dil  
 Dataset Creation: Wed Aug 20 05:06:23 2014 by Calc Open-Cased 090629  
 Charted by: Depth in Feet scaled 1:240



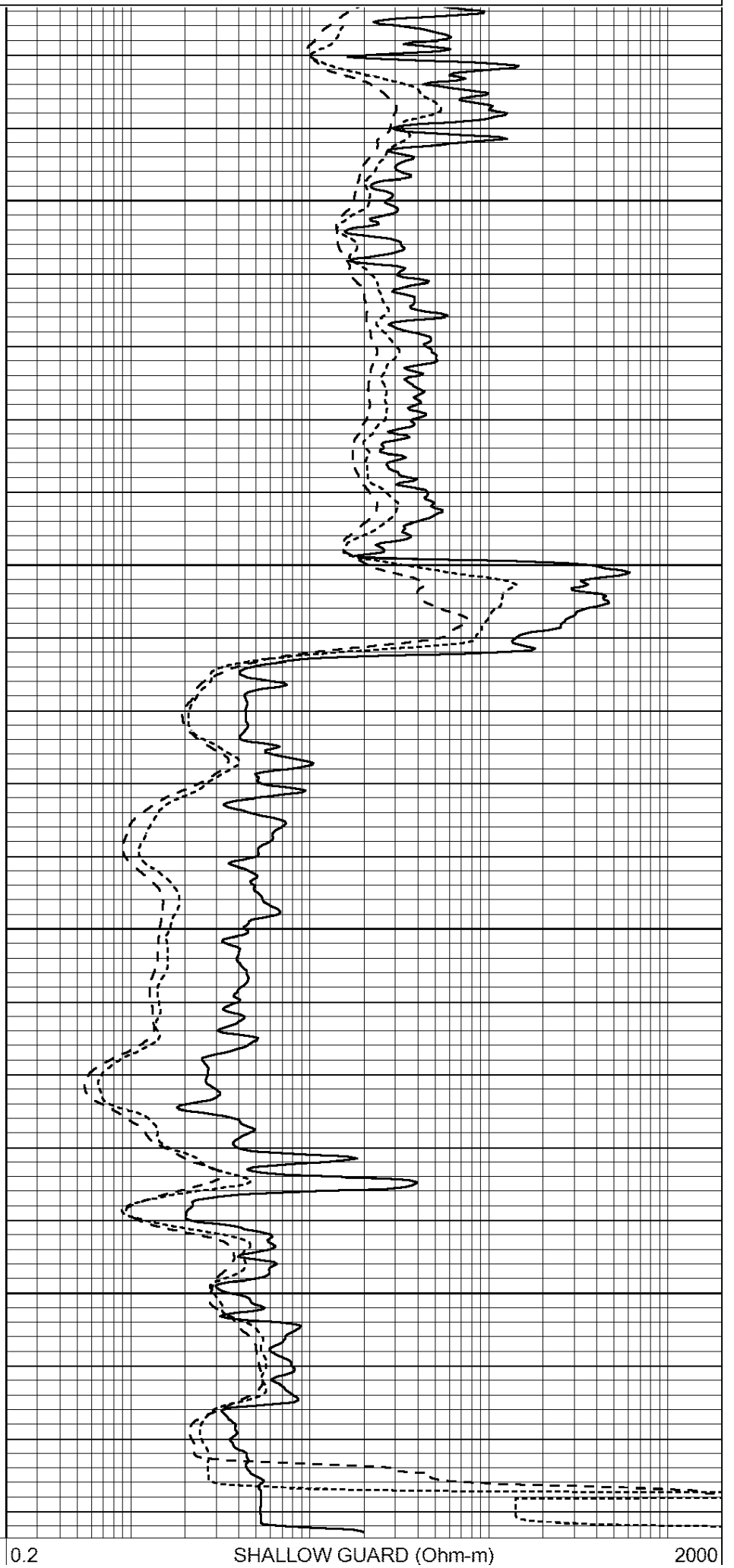


4950

5000

5050

5100



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 |

### Calibration Report

Database File: 25854pe.db  
Dataset Pathname: pass2.1  
Dataset Creation: Wed Aug 20 05:06:23 2014 by Calc Open-Cased 090629

### Dual Induction Calibration Report

Serial-Model: PROBE8-DILG  
Surface Cal Performed: Sun Aug 17 08:09:53 2014  
Downhole Cal Performed: Mon Jul 28 11:08:27 2008  
After Survey Verification Performed: Mon Jul 28 11:08:27 2008

#### Surface Calibration

| Readings  |       |       |   | References |         |        | Results |         |
|-----------|-------|-------|---|------------|---------|--------|---------|---------|
| Loop:     | Air   | Loop  |   | Air        | Loop    |        | m       | b       |
| Deep      | 0.015 | 0.648 | V | 0.000      | 400.000 | mmho/m | 620.000 | -2.000  |
| Medium    | 0.029 | 0.796 | V | 0.000      | 464.000 | mmho/m | 590.000 | -16.000 |
| 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 Wed Feb 26 14:40:29 2014

|             | Background | Magnesium | Aluminum | Sandstone |      |
|-------------|------------|-----------|----------|-----------|------|
| Window 1    | 844.3      | 7247.0    | 2284.1   | 7908.3    | cps  |
| Window 2    | 800.5      | 6081.1    | 1985.0   | 6521.4    | cps  |
| Window 3    | 688.8      | 3783.7    | 1363.3   | 3972.6    | cps  |
| Window 4    | 191.6      | 192.1     | 191.7    | 191.4     | cps  |
| Long Space  | 0.0        | 5280.6    | 1184.5   | 5720.9    | cps  |
| Short Space | 1.1        | 1287.1    | 882.6    | 1385.1    | cps  |
| Rho         |            | 1.7100    | 2.5900   | 1.3800    | g/cc |

|             |        |             |         |                     |         |
|-------------|--------|-------------|---------|---------------------|---------|
| Rib Angle   | : 45.8 | Rib Slope   | : 1.030 | Density/Spine Ratio | : 0.571 |
| Spine Angle | : 75.8 | Spine Slope | : 3.962 | Spine Intercept     | : -19.8 |

|                            |     |        |                                    |        |      |
|----------------------------|-----|--------|------------------------------------|--------|------|
| 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: |  | 6I |  |  |  |
| Tool Model:    |  | G  |  |  |  |

|             |  |          |     |        |               |
|-------------|--|----------|-----|--------|---------------|
| CALIBRATION |  |          |     |        |               |
| Detector    |  | Readings |     | Target | Normalization |
| Short Space |  | 1.00     | cps | 1.00   | 1.0000        |
| Long Space  |  | 1.00     | cps | 1.00   | 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:          | Sun Aug 17 15:23:09 2014 |          |  |
| Calibrator Value:   | 150.0                    | GAPI     |  |
| Background Reading: | 0.0                      | cps      |  |
| Calibrator Reading: | 276.0                    | cps      |  |
| Sensitivity:        | 0.7000                   | GAPI/cps |  |