



**COMPLETION  
& PRODUCTION  
SERVICES CO.**

**DUAL  
INDUCTION  
LOG**

|                              |  |                                 |  |
|------------------------------|--|---------------------------------|--|
| Company                      |  | WOOLSEY OPERATING COMPANY, LLC. |  |
| Well                         |  | CIRCLE GU A-2                   |  |
| Field                        |  | KOCHIA                          |  |
| County                       |  | BARBER                          |  |
| State                        |  | KANSAS                          |  |
| Location:                    |  | API # : 15-007-24043-00-00      |  |
| Permanent Datum              |  | 330' FNL & 900' FWL             |  |
| Log Measured From            |  | W2 - NE - NW - NW               |  |
| Drilling Measured From       |  | SEC 5 TWP 34S RGE 10W           |  |
| Ground Level Elevation       |  | 1430                            |  |
| Kelly Bushing 8' A.G.L.      |  | K.B. 1438                       |  |
| Kelly Bushing                |  | D.F. 1436                       |  |
|                              |  | G.L. 1430                       |  |
| Date                         |  | 8 - 8 - 13                      |  |
| Run Number                   |  | ONE                             |  |
| Depth Driller                |  | 5140                            |  |
| Depth Logger                 |  | 5134                            |  |
| Bottom Logged Interval       |  | 5132                            |  |
| Top Log Interval             |  | 00                              |  |
| Casing Driller               |  | 222                             |  |
| Casing Logger                |  | 218                             |  |
| Bit Size                     |  | 10.875                          |  |
| Type Fluid in Hole           |  | CHEMICAL MUD                    |  |
| Density / Viscosity          |  | 9.1 / 48                        |  |
| pH / Fluid Loss              |  | 9.0 / 9.6                       |  |
| Source of Sample             |  | FLOWLINE                        |  |
| Rm @ Meas. Temp              |  | 0.85 @ 97F                      |  |
| Rmf @ Meas. Temp             |  | 0.64 @ 97F                      |  |
| Rmc @ Meas. Temp             |  | 1.02 @ 97F                      |  |
| Source of Rmf / Rmc          |  | MEASURED                        |  |
| Rm @ BHT                     |  | 0.65 @ 126F                     |  |
| Time Circulation Stopped     |  | 2 HOURS                         |  |
| Time Logger on Bottom        |  |                                 |  |
| Maximum Recorded Temperature |  | 126F                            |  |
| Equipment Number             |  | 860                             |  |
| Location                     |  | HAYS, KS.                       |  |
| Recorded By                  |  | IAN MABB                        |  |
| Witnessed By                 |  | BILL KLAVER                     |  |

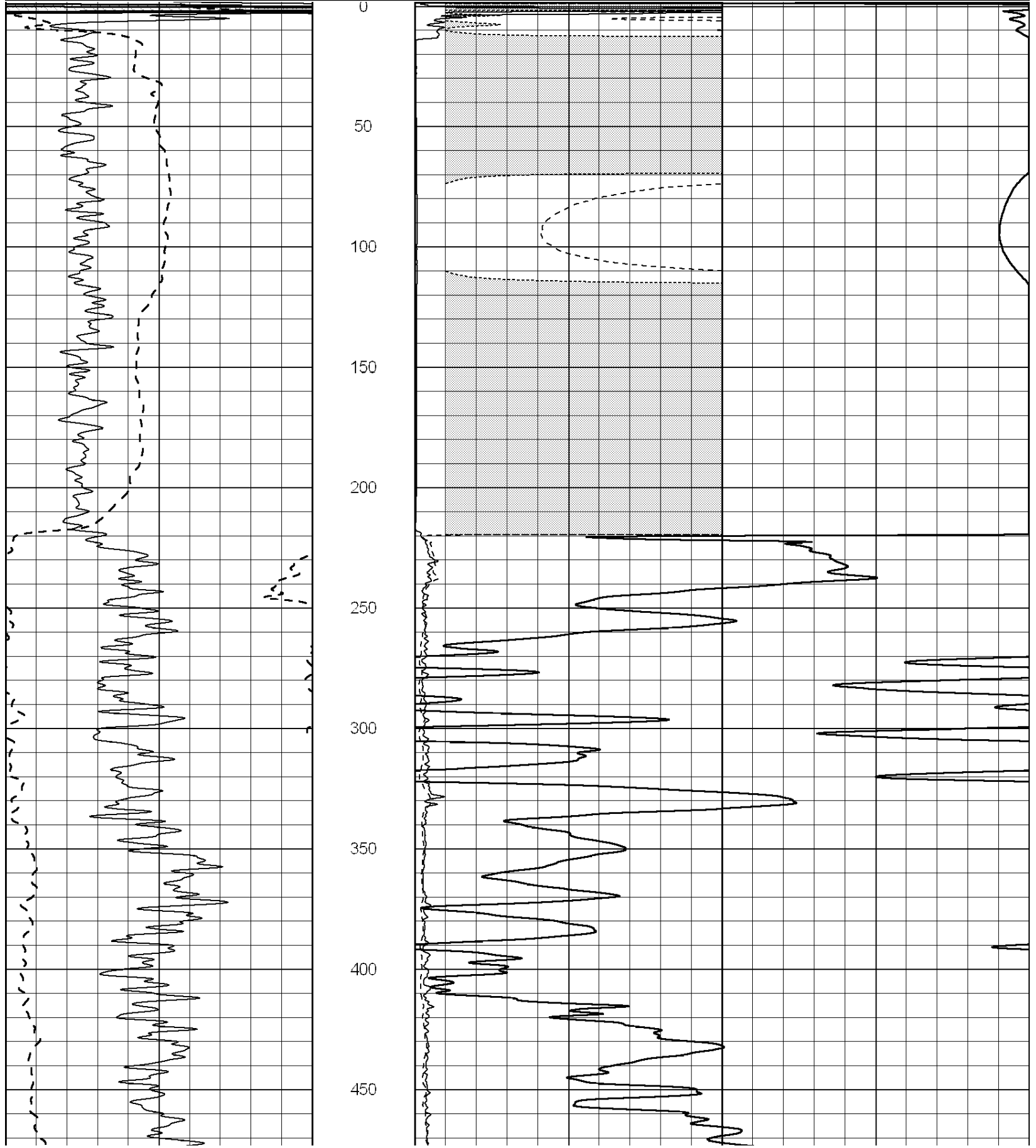
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All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on 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

NABORS COMPLETION & PRODUCTION SERVICES  
785-628-6395  
THANK YOU FOR YOUR BUSINESS  
DIRECTIONS: SHARON, KS. - SOUTH ON TRI-CITY BLACKTOP TO GERLANE RD. - WEST 1.8 MILES SOUTH

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



500

550

600

650

700

750

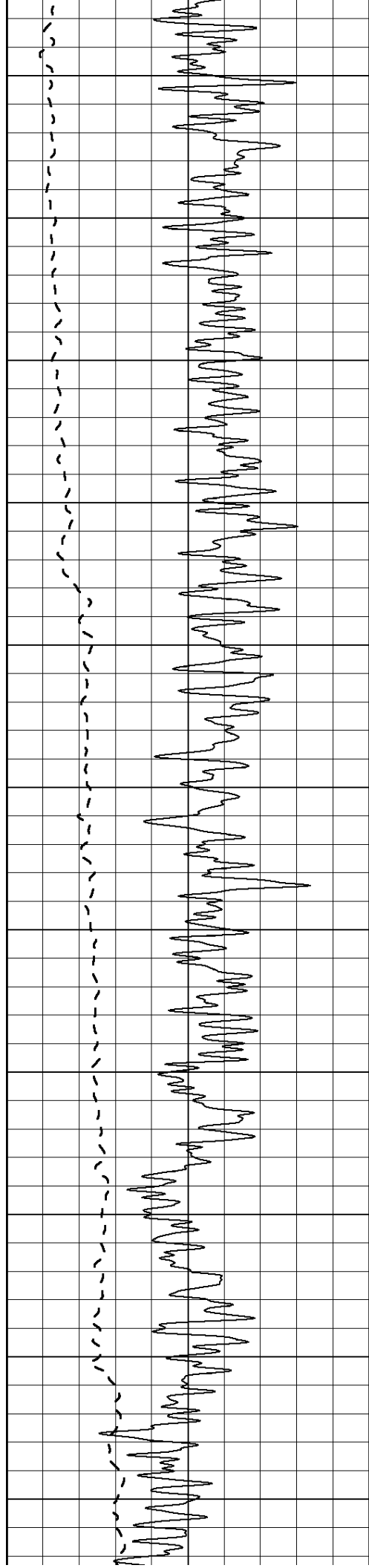
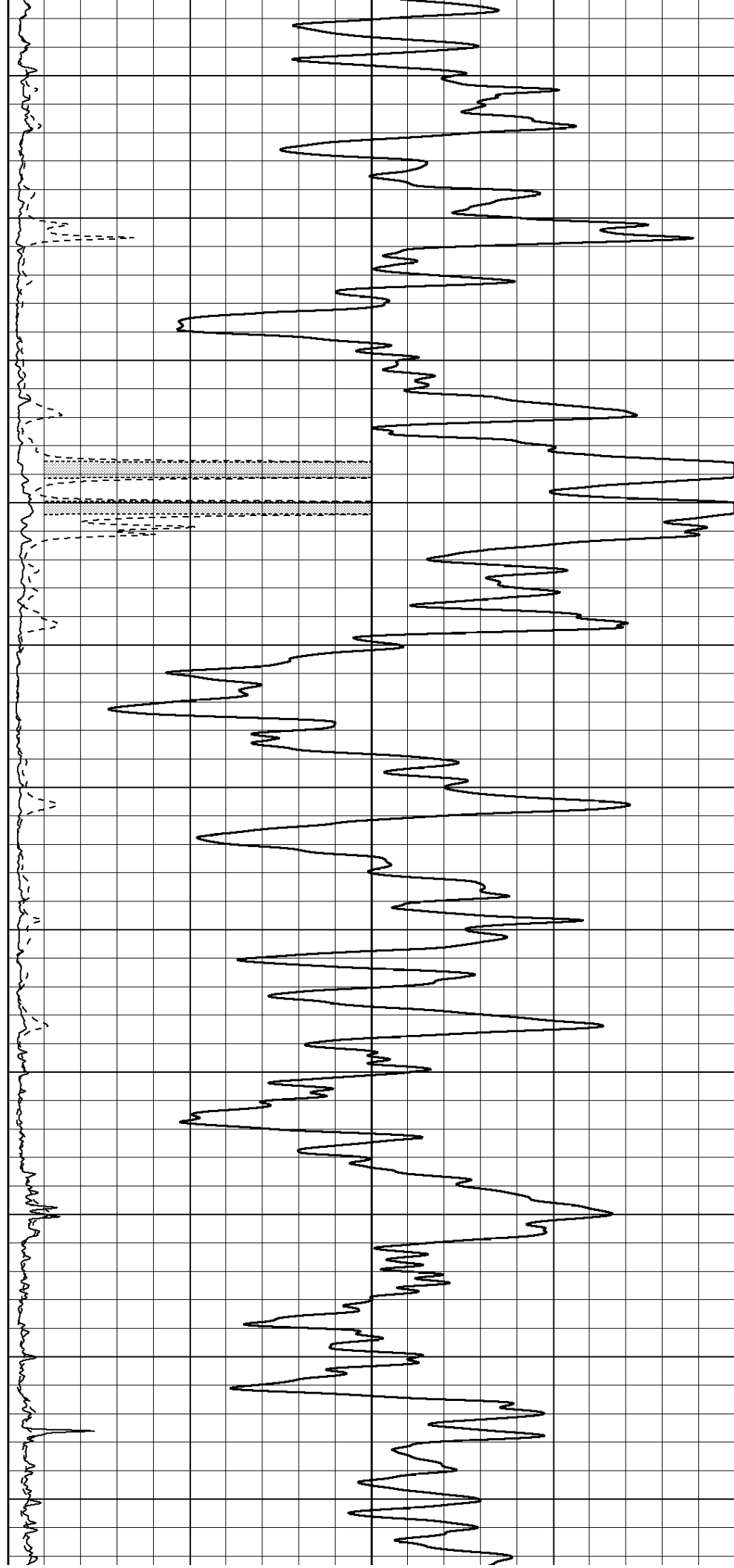
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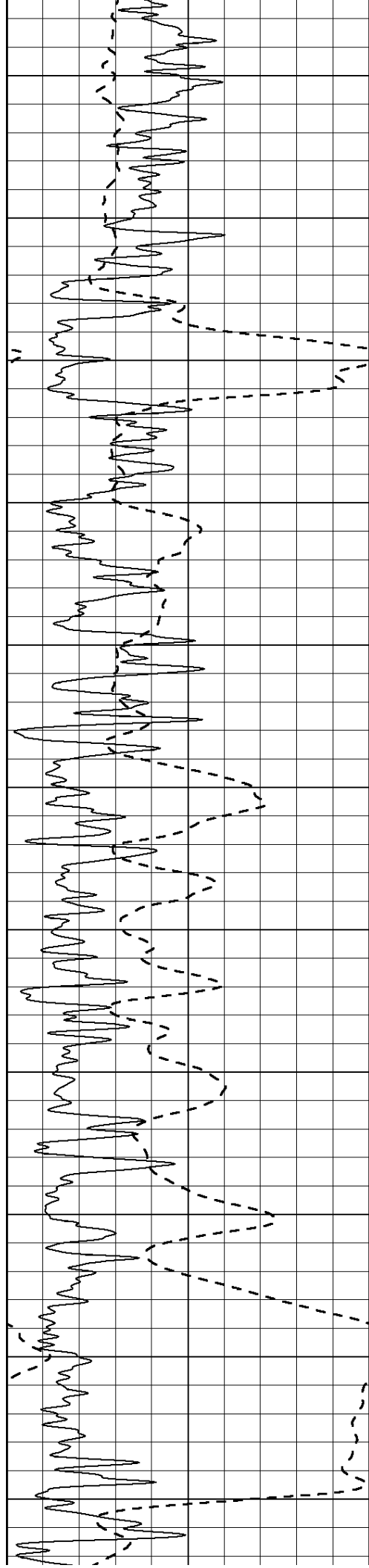
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900

950

1000





1050

1100

1150

1200

1250

1300

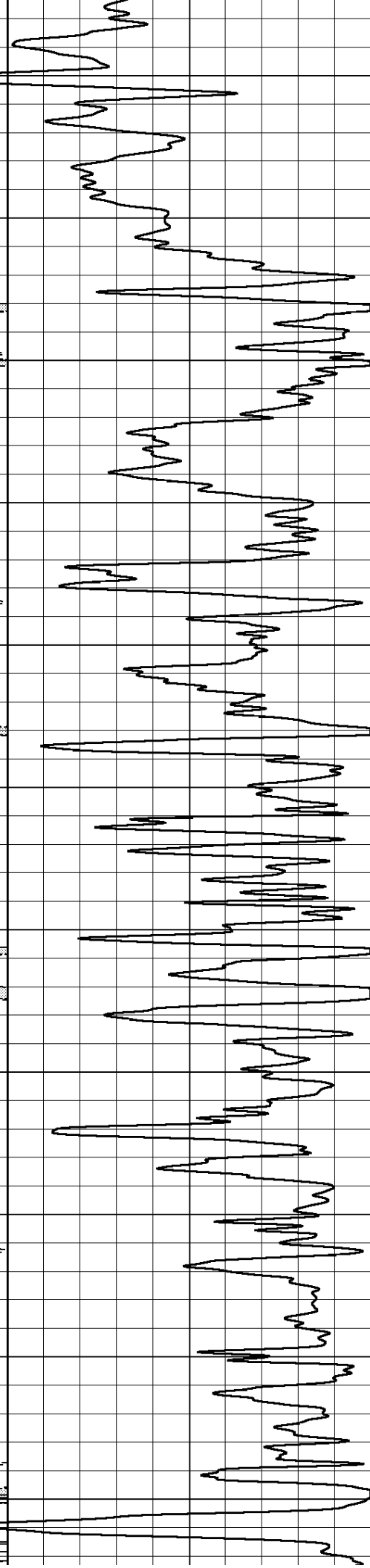
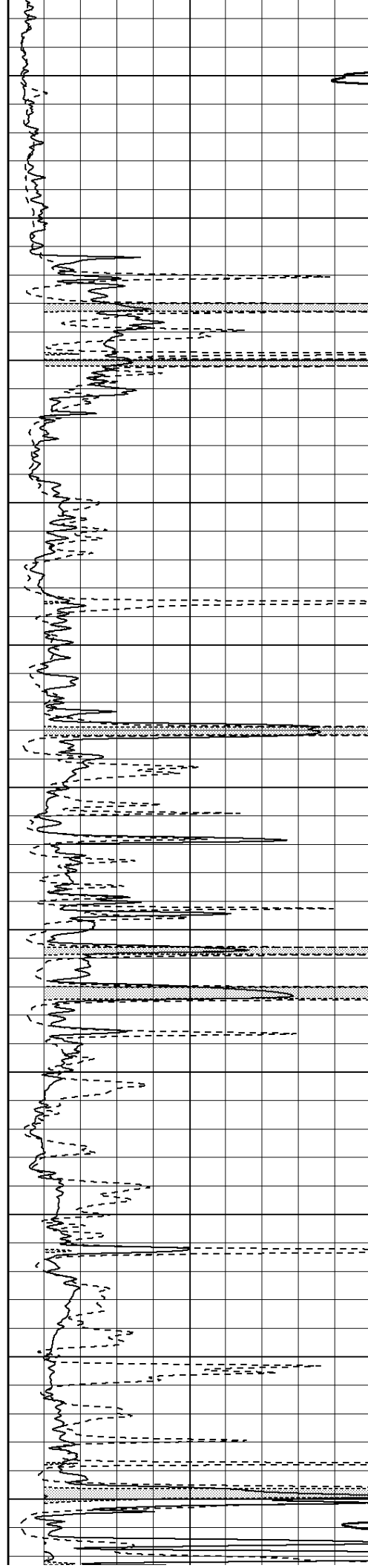
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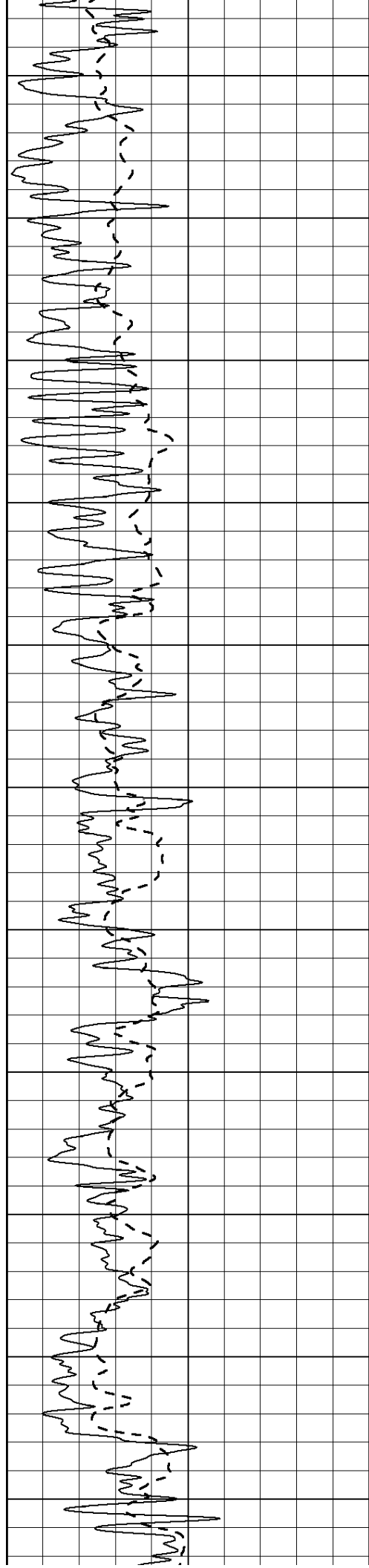
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1550





1600

1650

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1800

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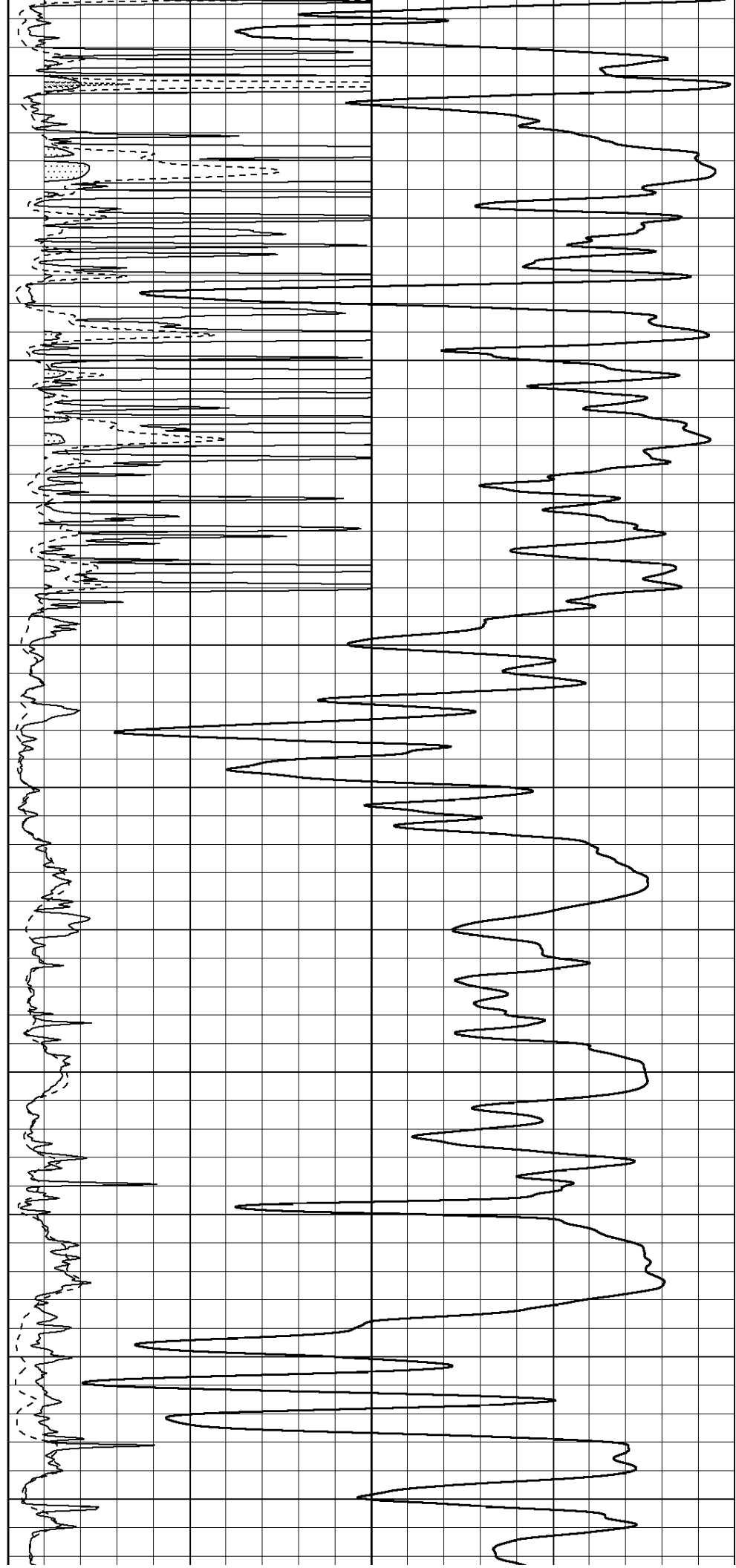
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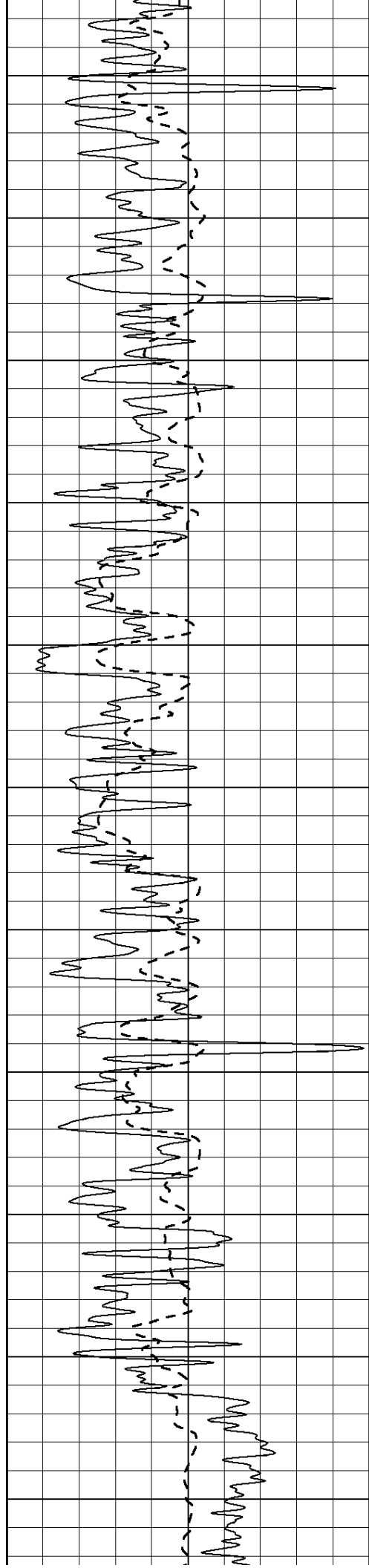
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2000

2050

2100





2150

2200

2250

2300

2350

2400

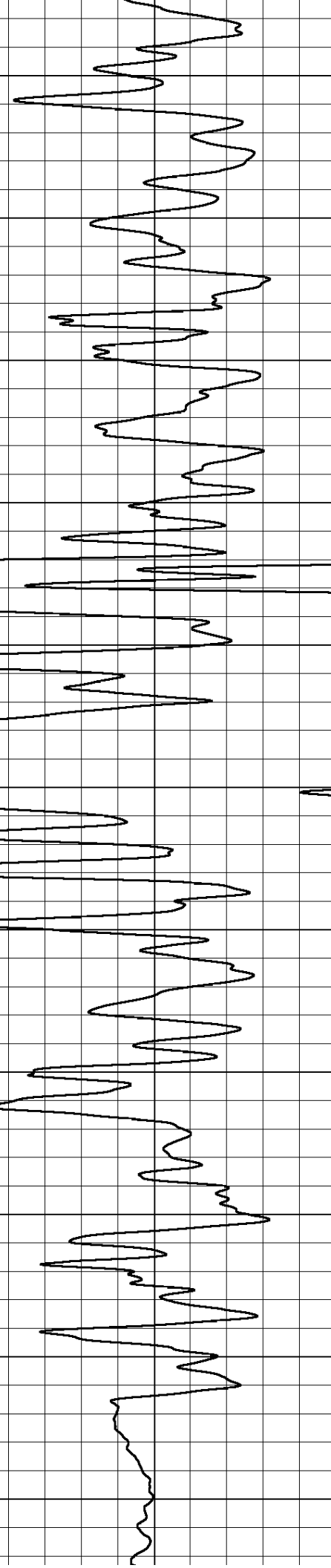
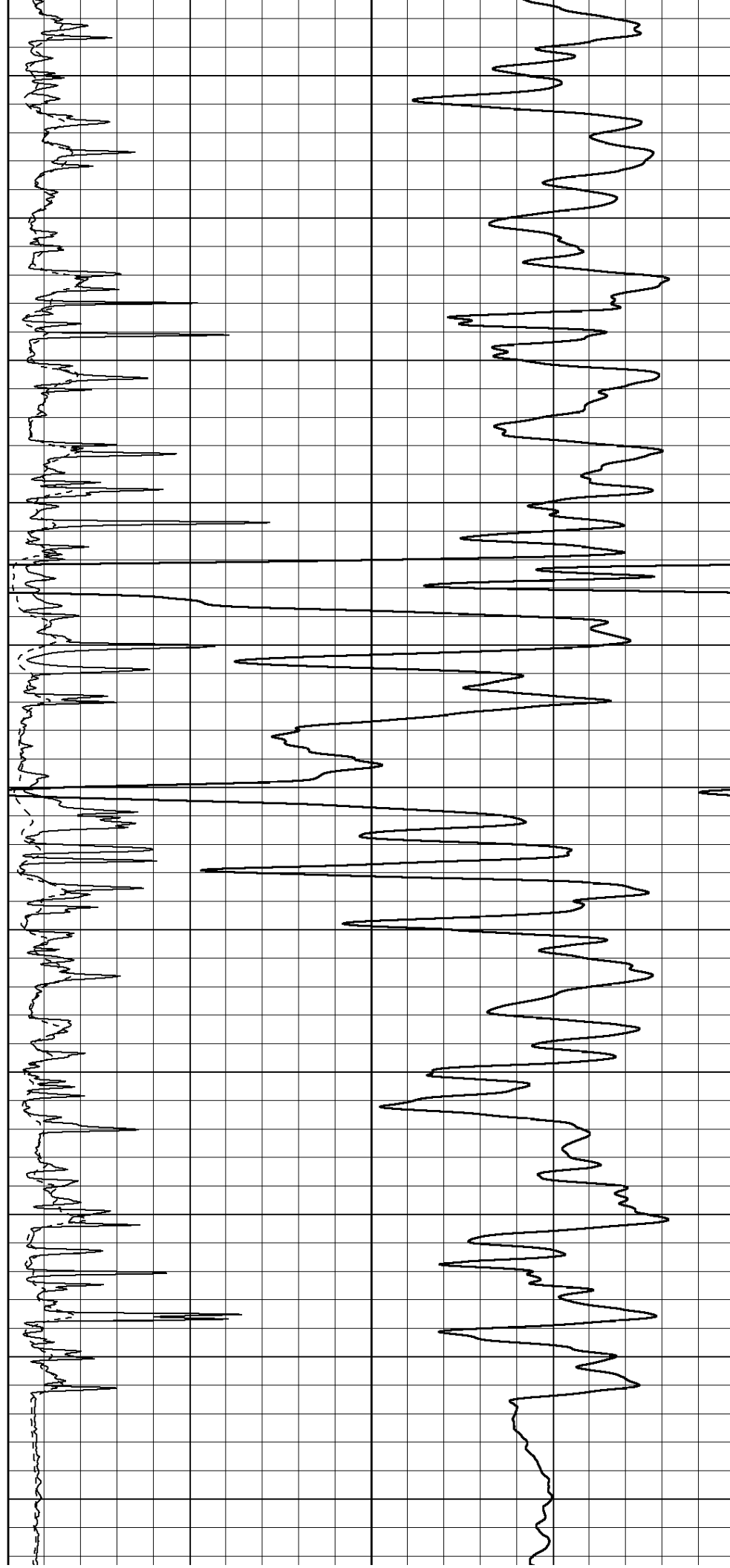
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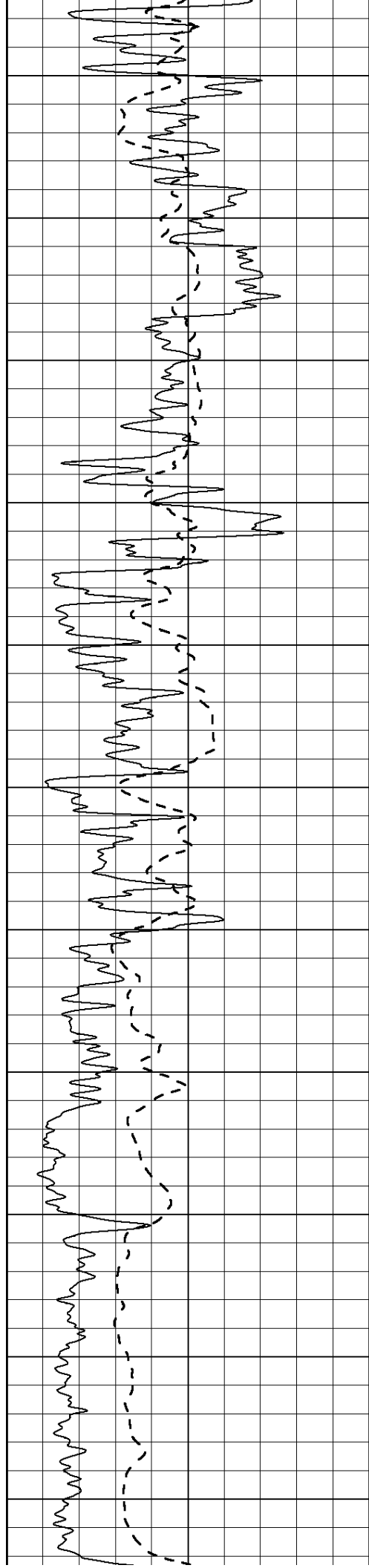
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2550

2600

2650





2700

2750

2800

2850

2900

2950

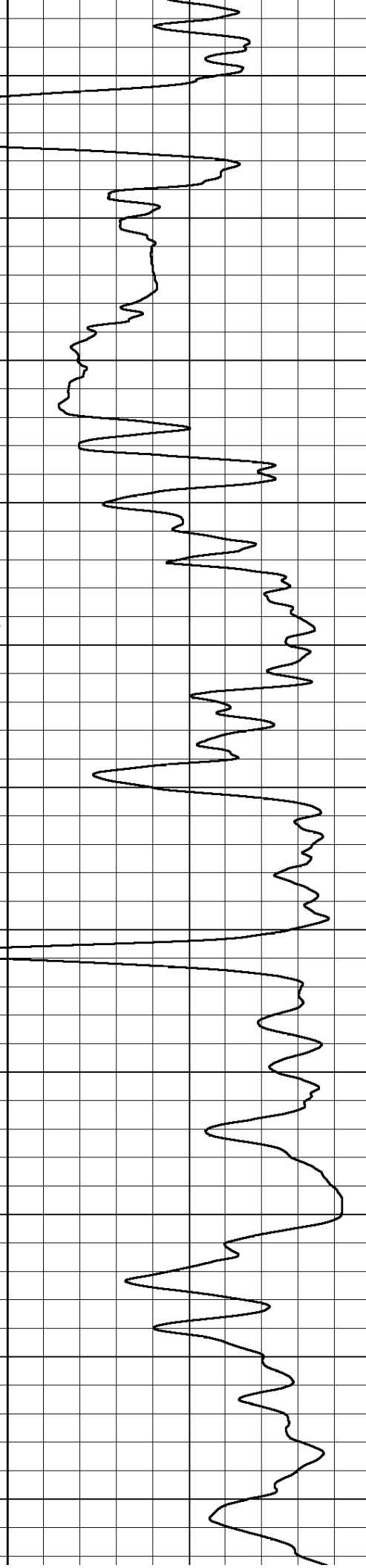
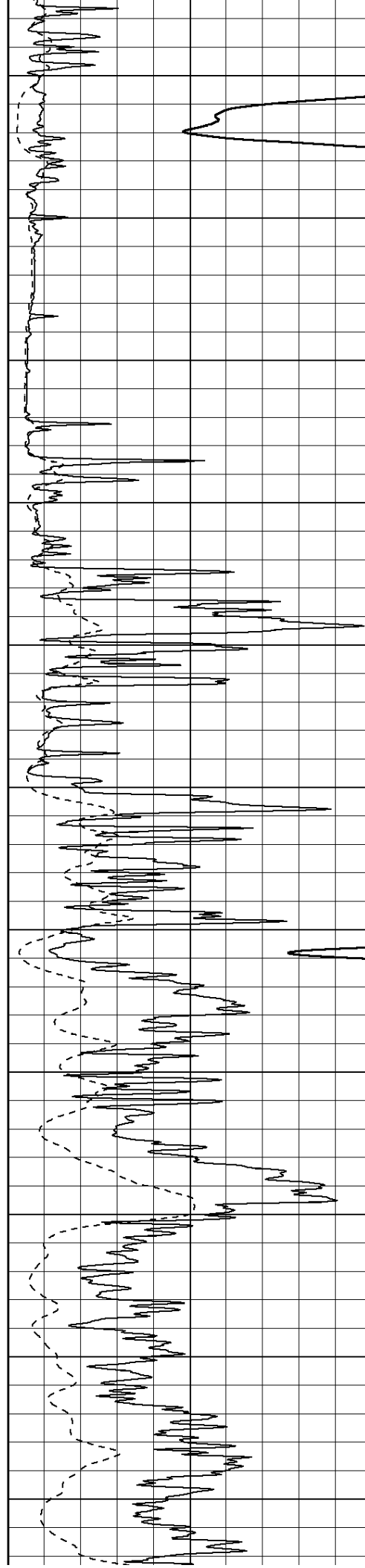
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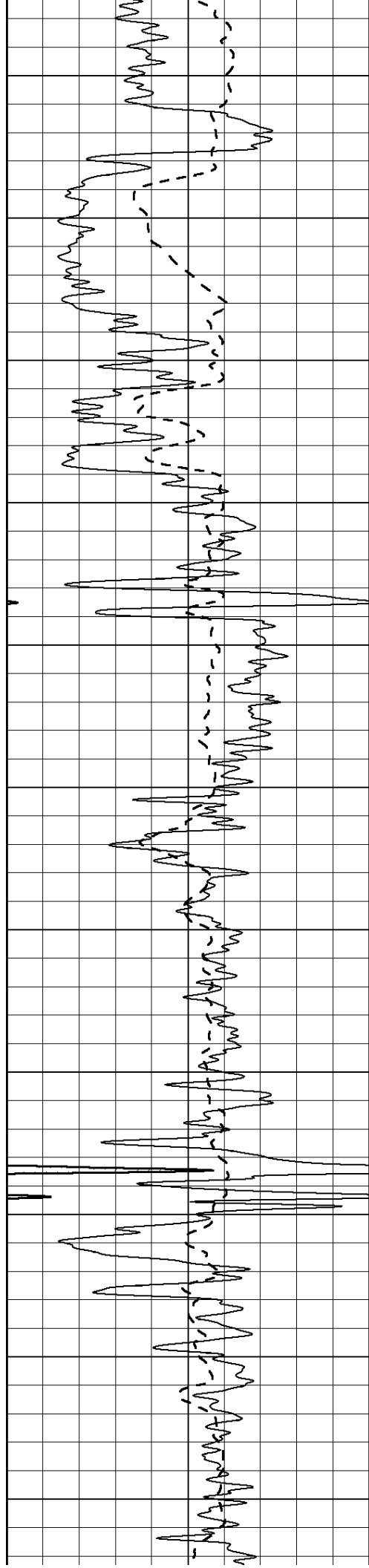
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3300

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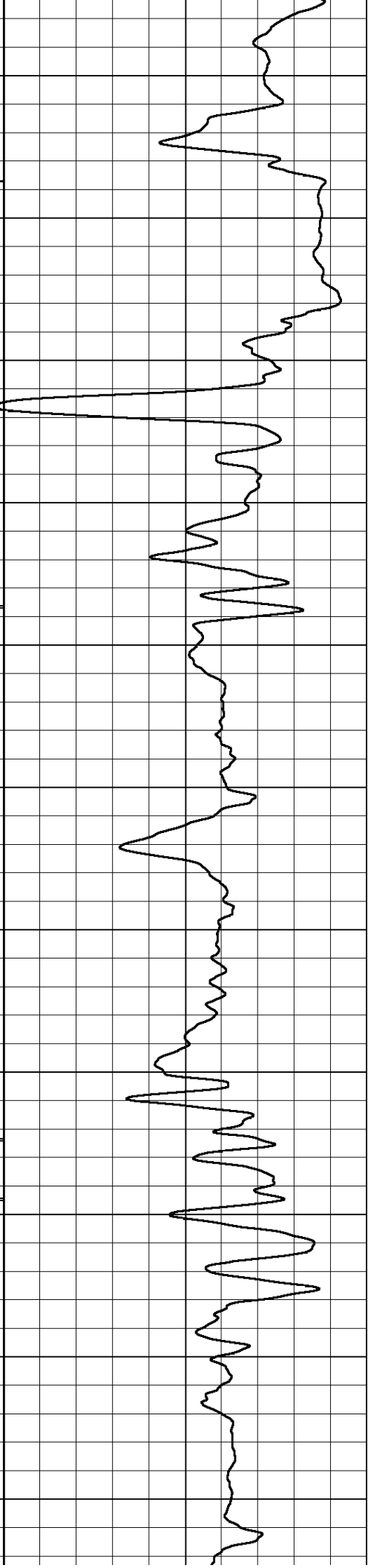
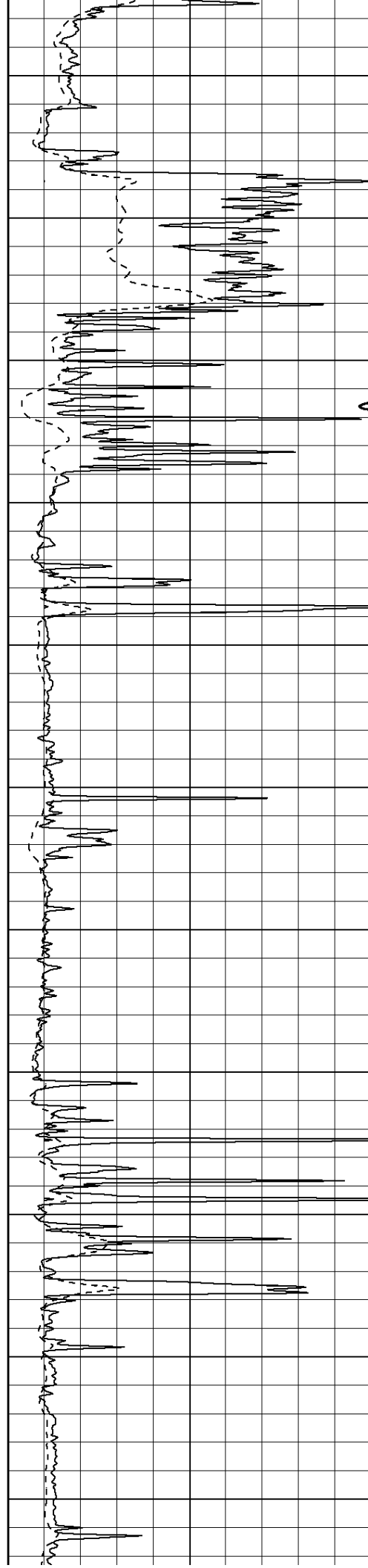
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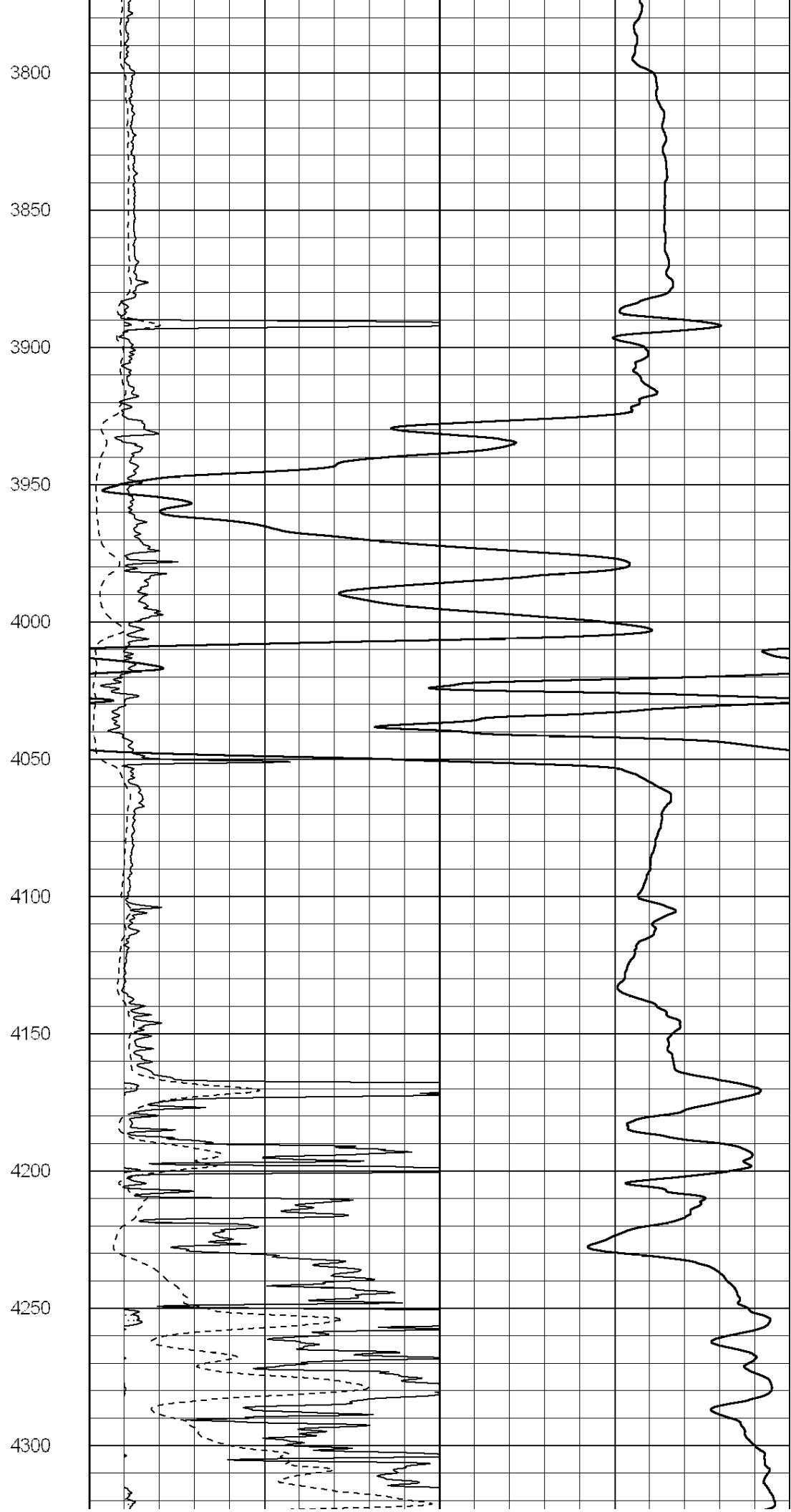
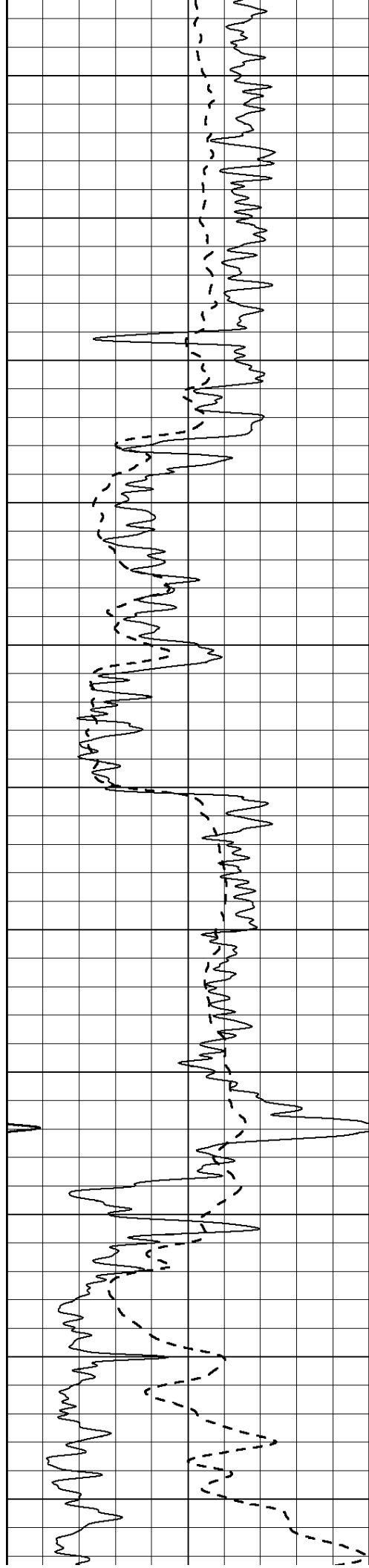
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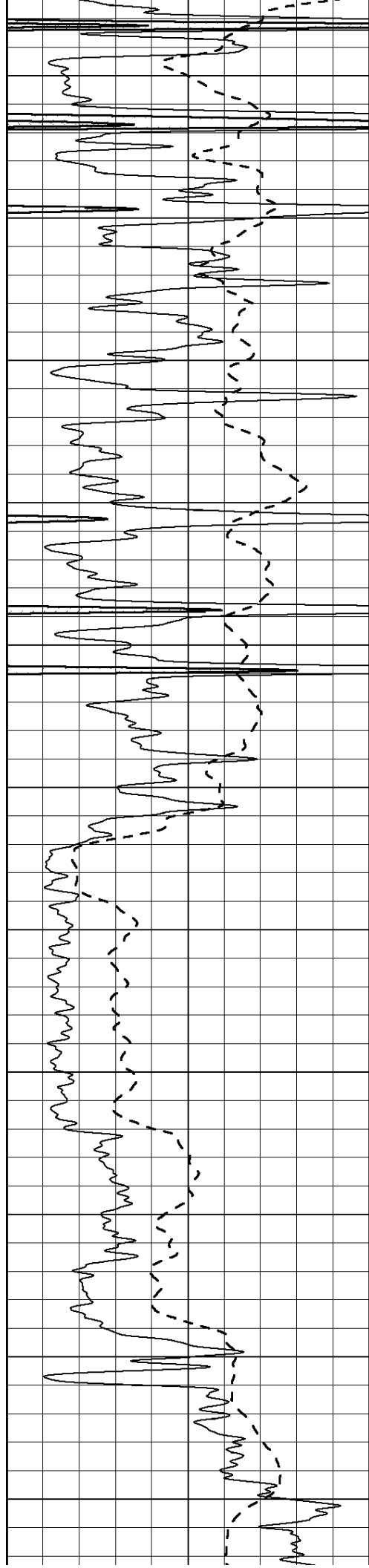
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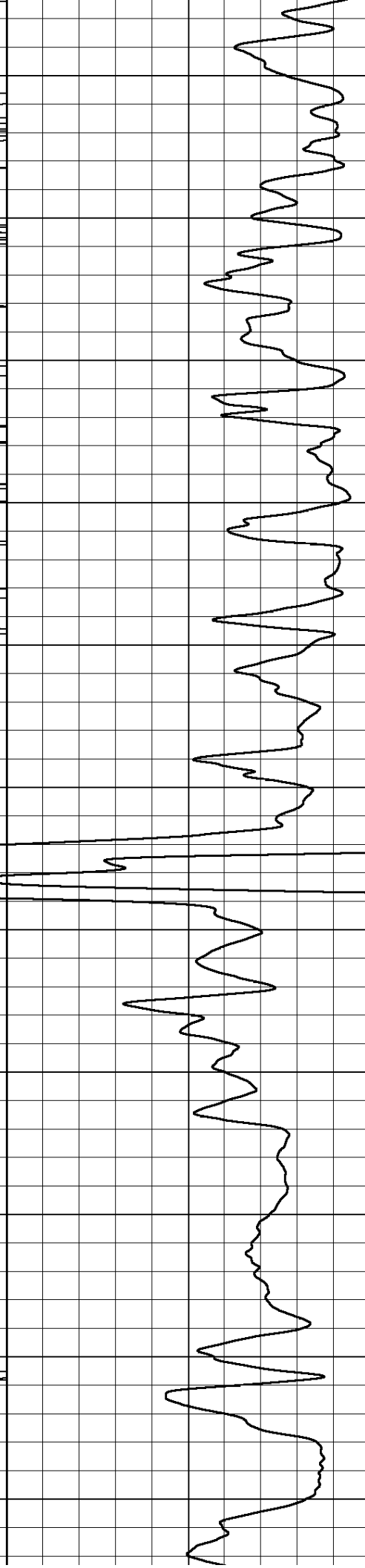
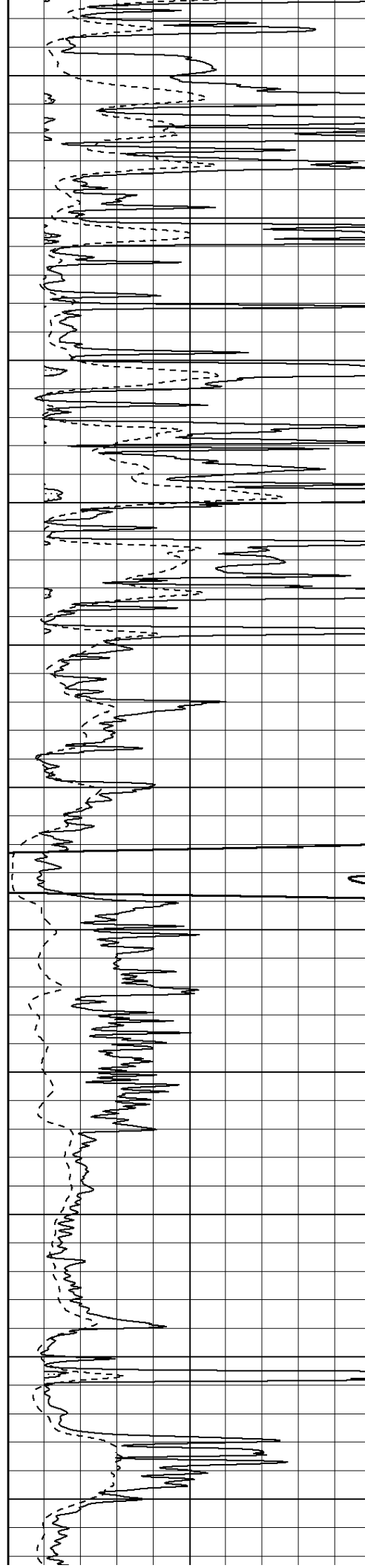
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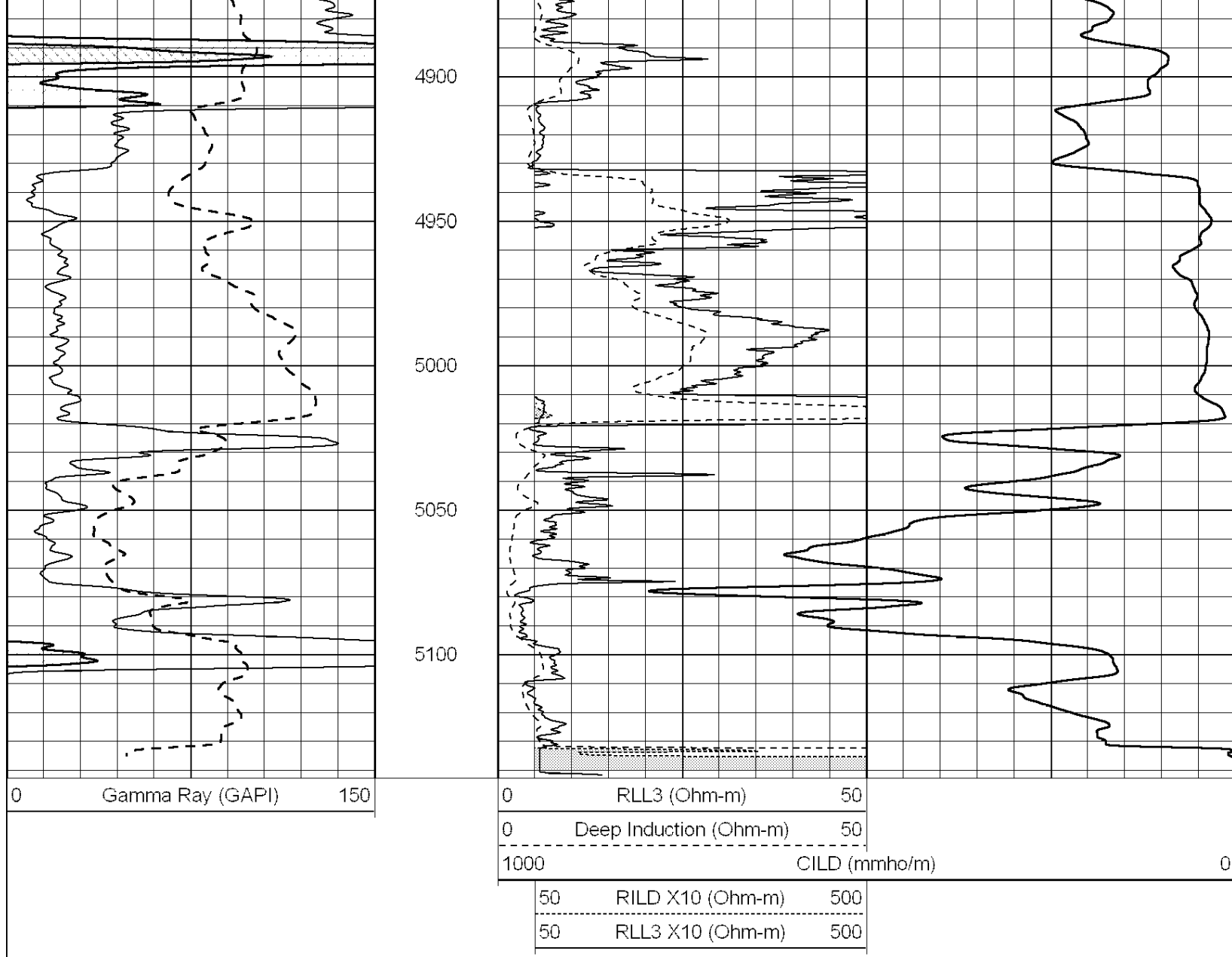
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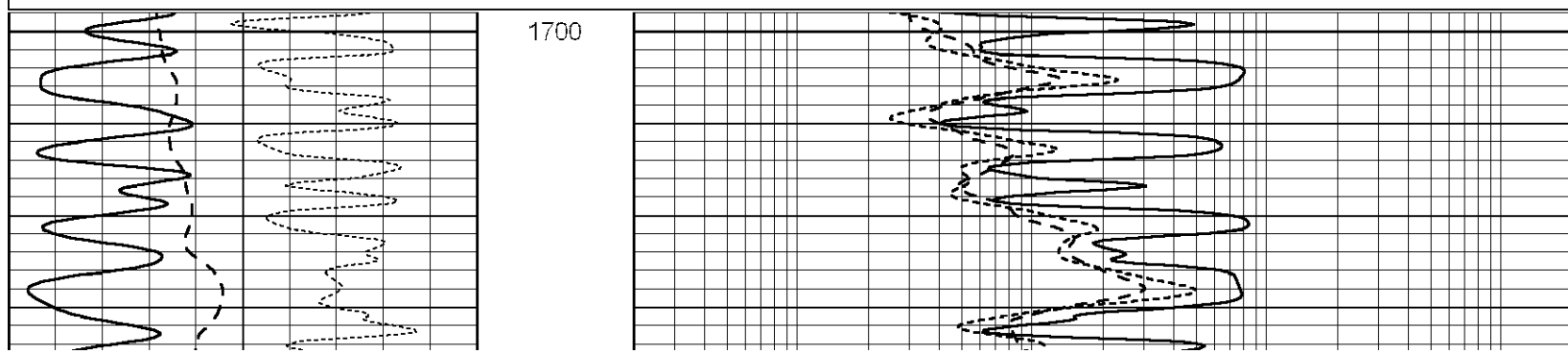
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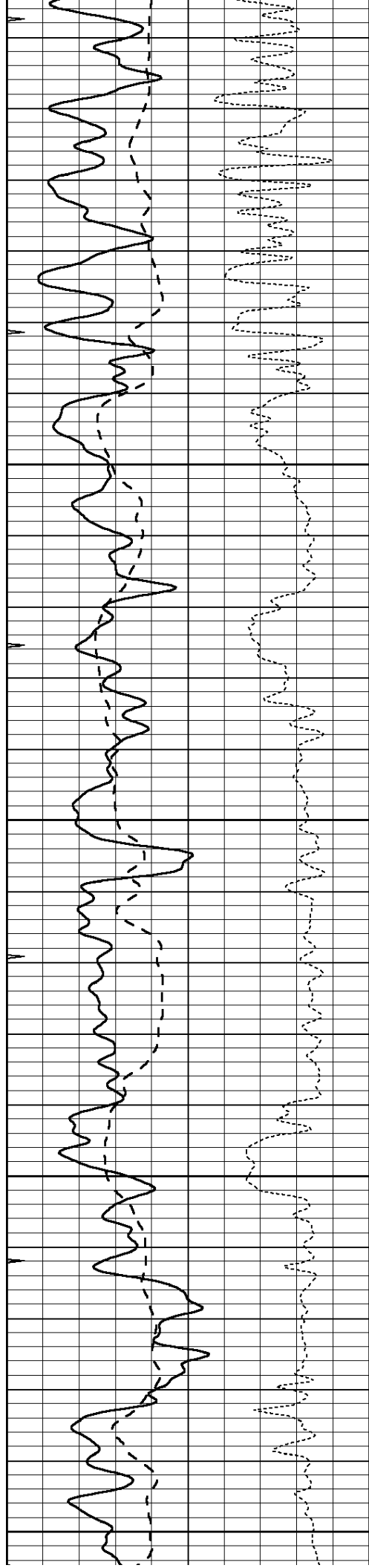




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Dataset Creation: Thu Aug 08 12:18:21 2013 by Calc Open-Cased 090629  
Charted by: Depth in Feet scaled 1:240

|      |                  |     |     |                          |      |
|------|------------------|-----|-----|--------------------------|------|
| 0    | GAMMA RAY (GAPI) | 150 | 0.2 | RLL3 (Ohm-m)             | 2000 |
| -100 | SP (mV)          | 100 | 0.2 | DEEP INDUCTION (Ohm-m)   | 2000 |
| -250 | RxoRt            | 50  | 0.2 | MEDIUM INDUCTION (Ohm-m) | 2000 |
| 0    | MINMK            | 20  |     |                          |      |





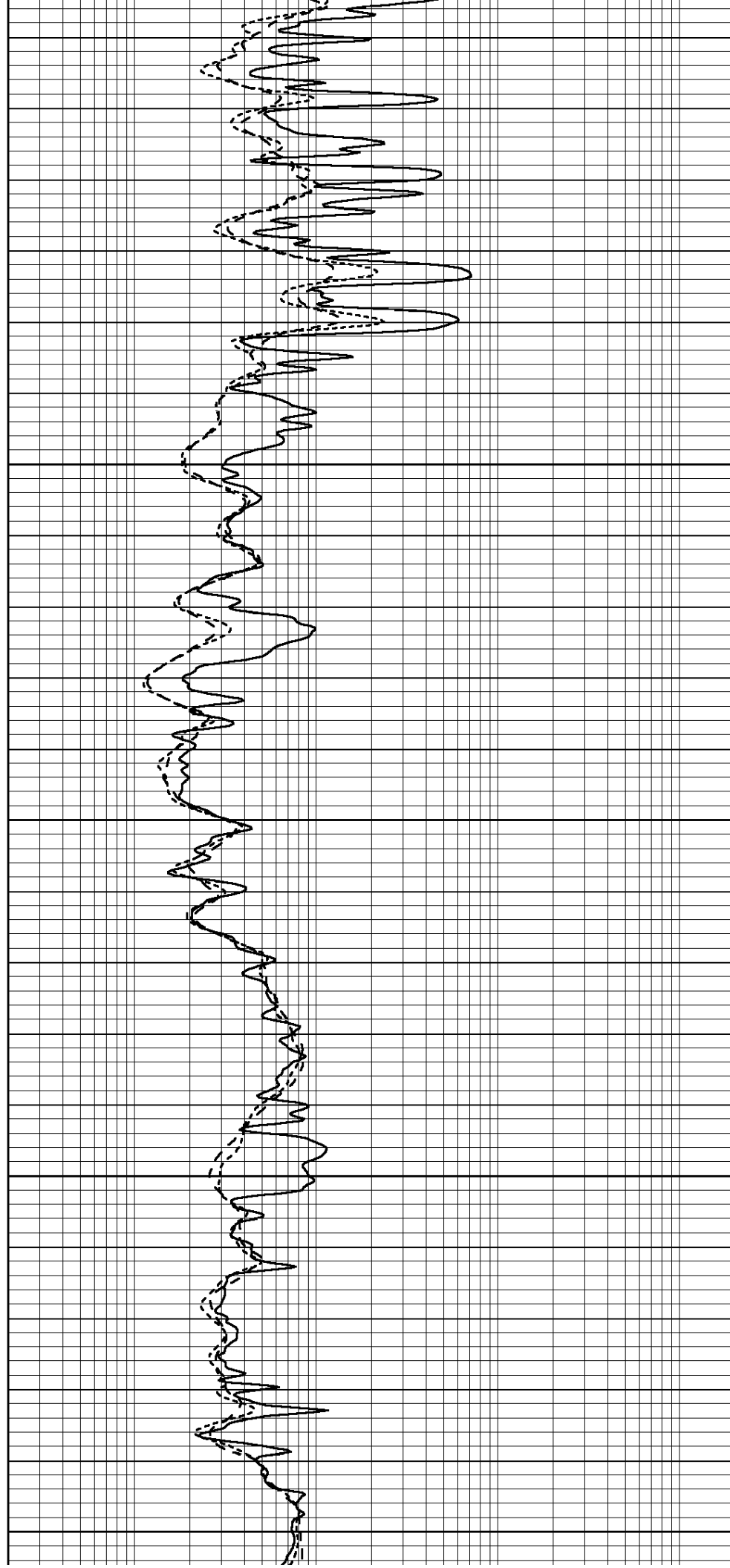
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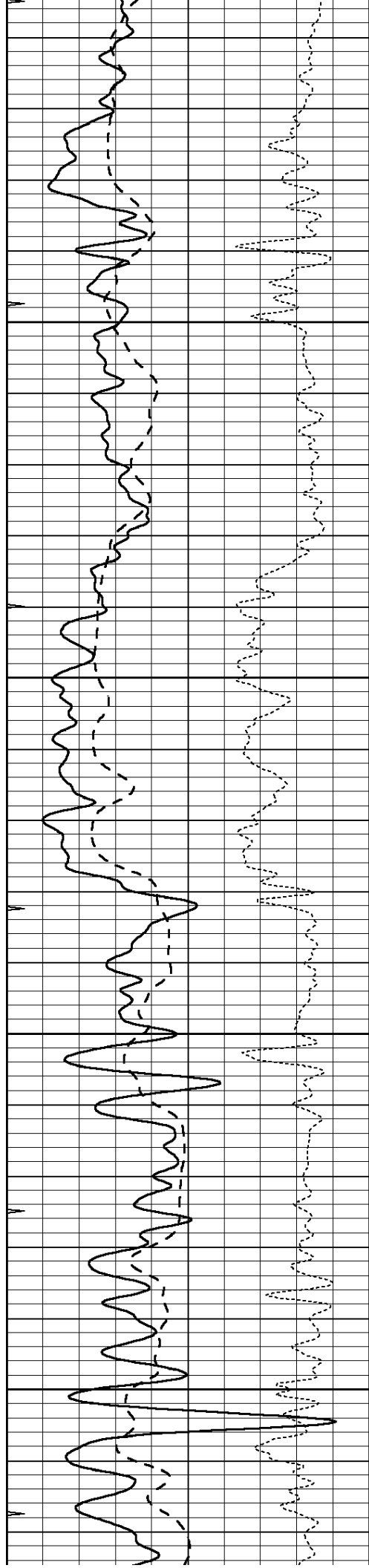
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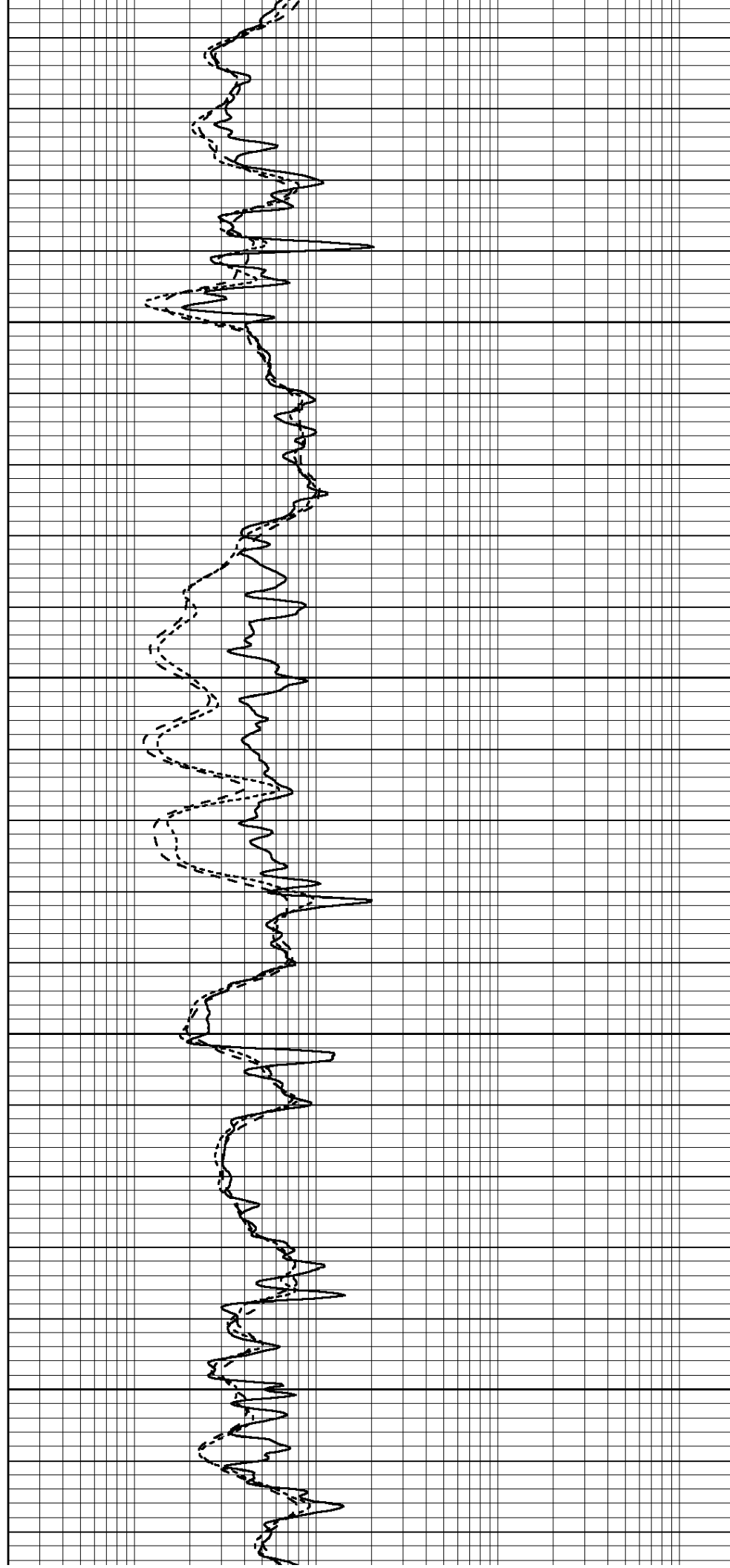


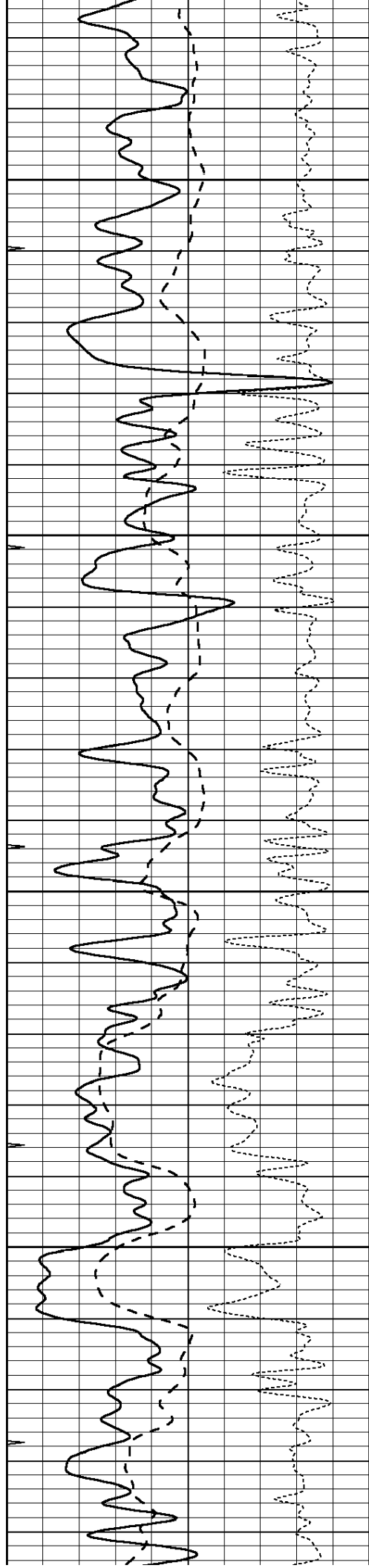
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2150



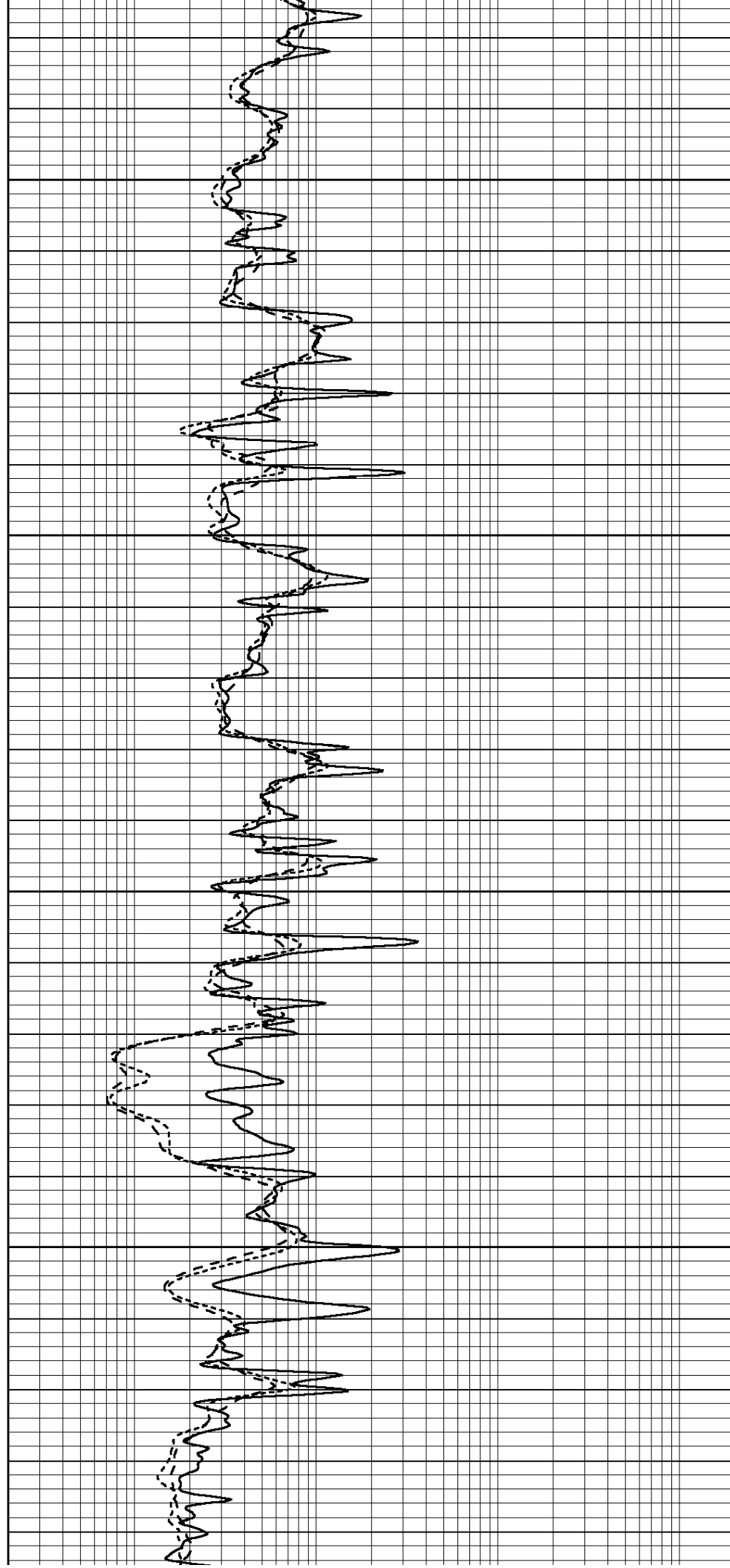


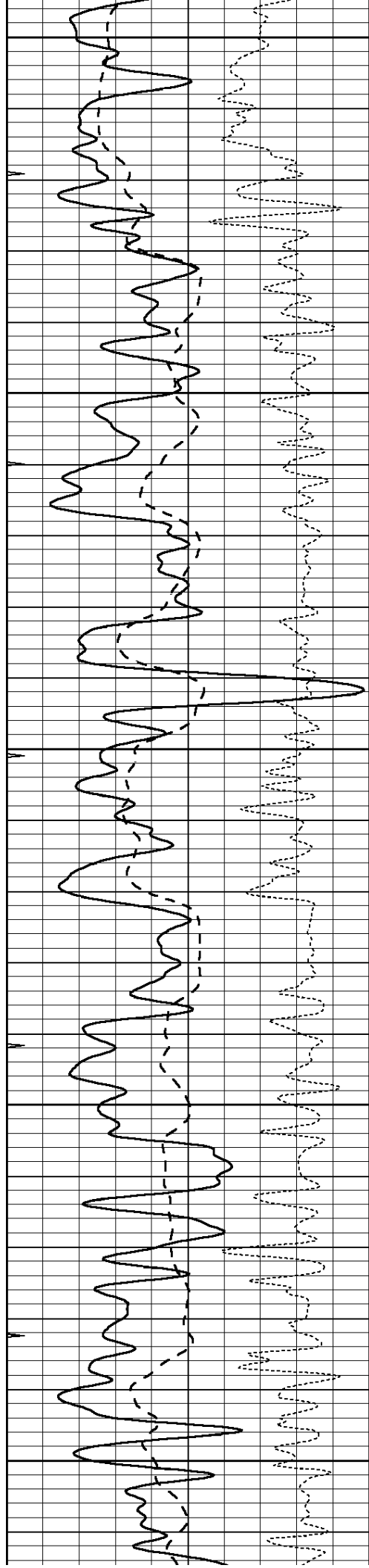
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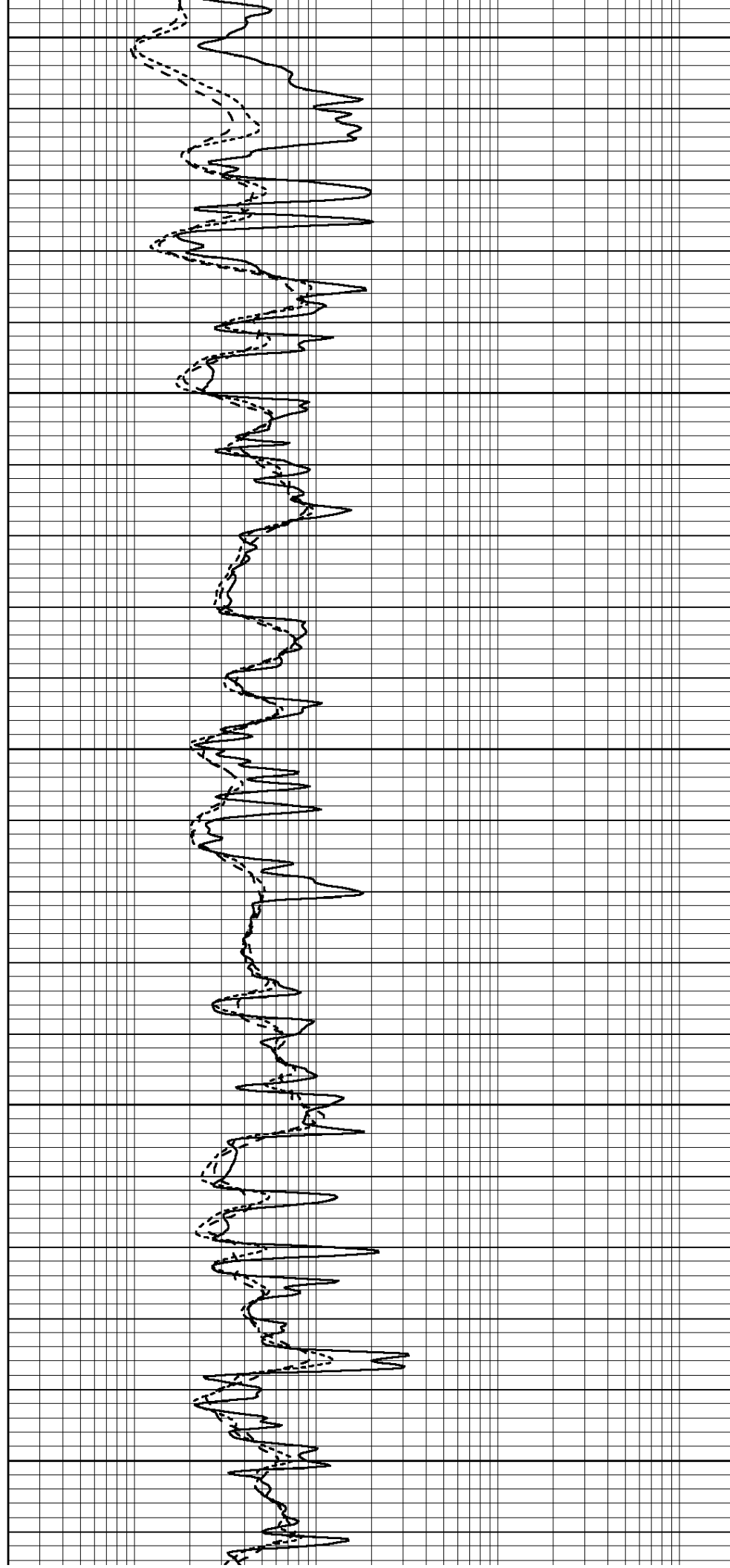
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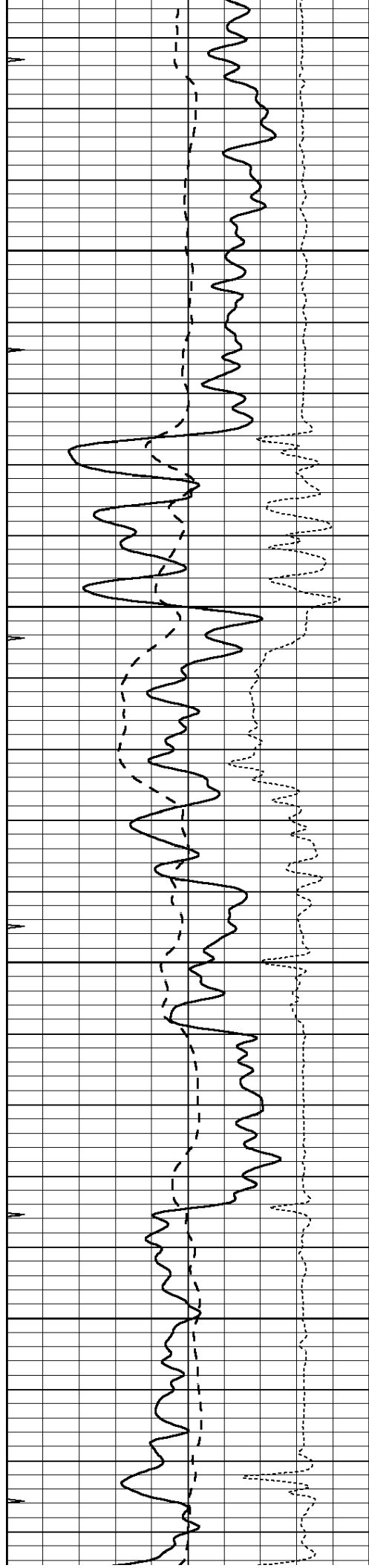
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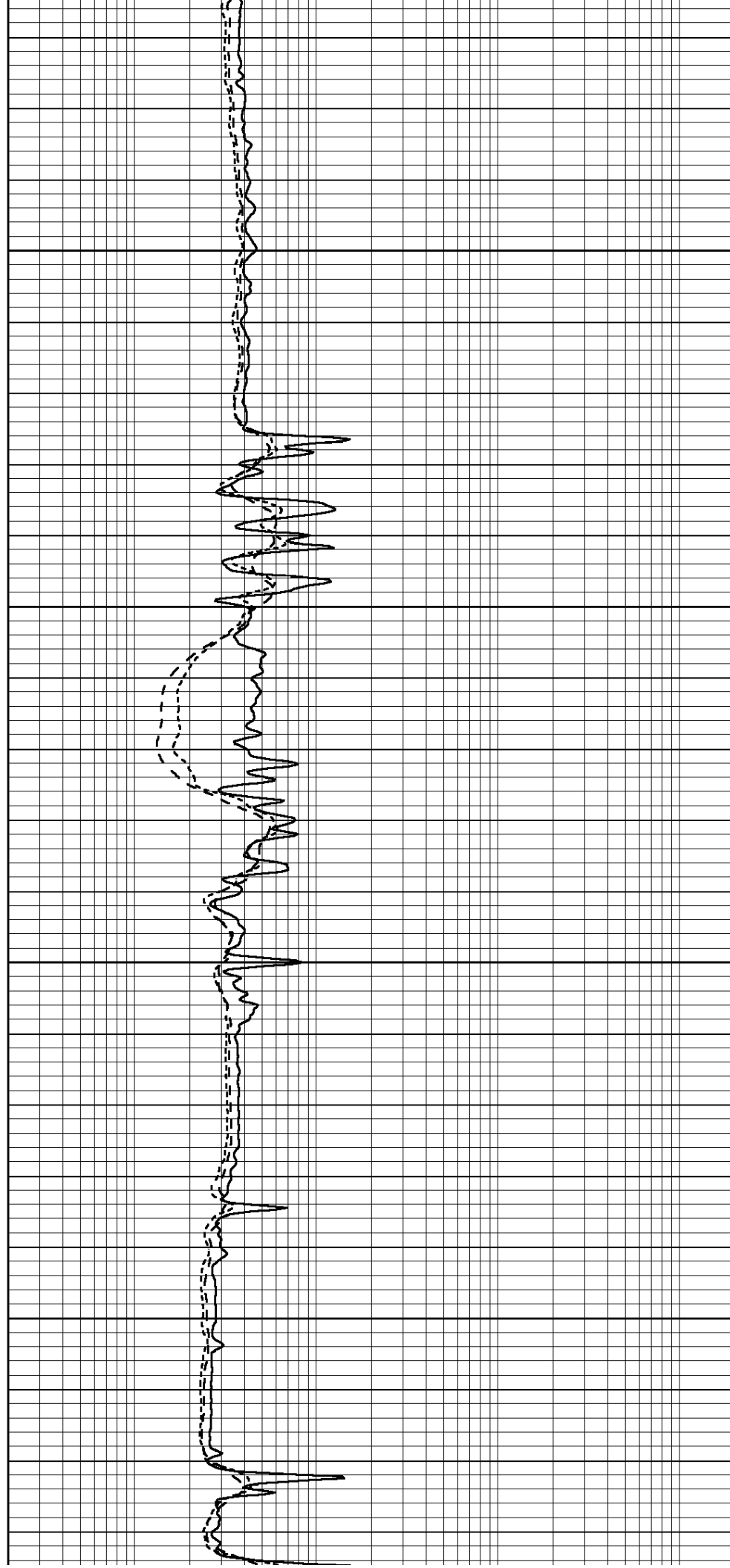


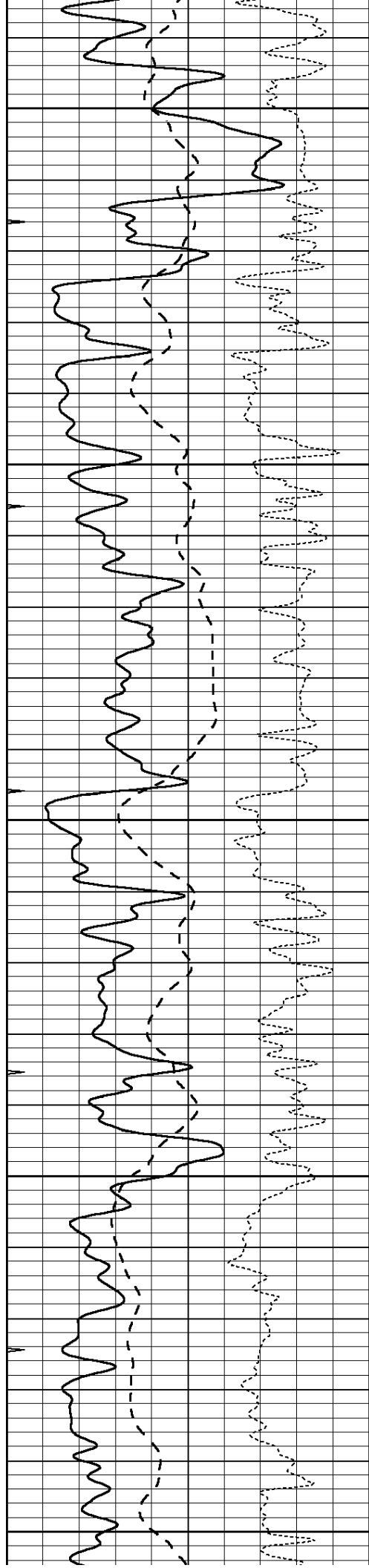
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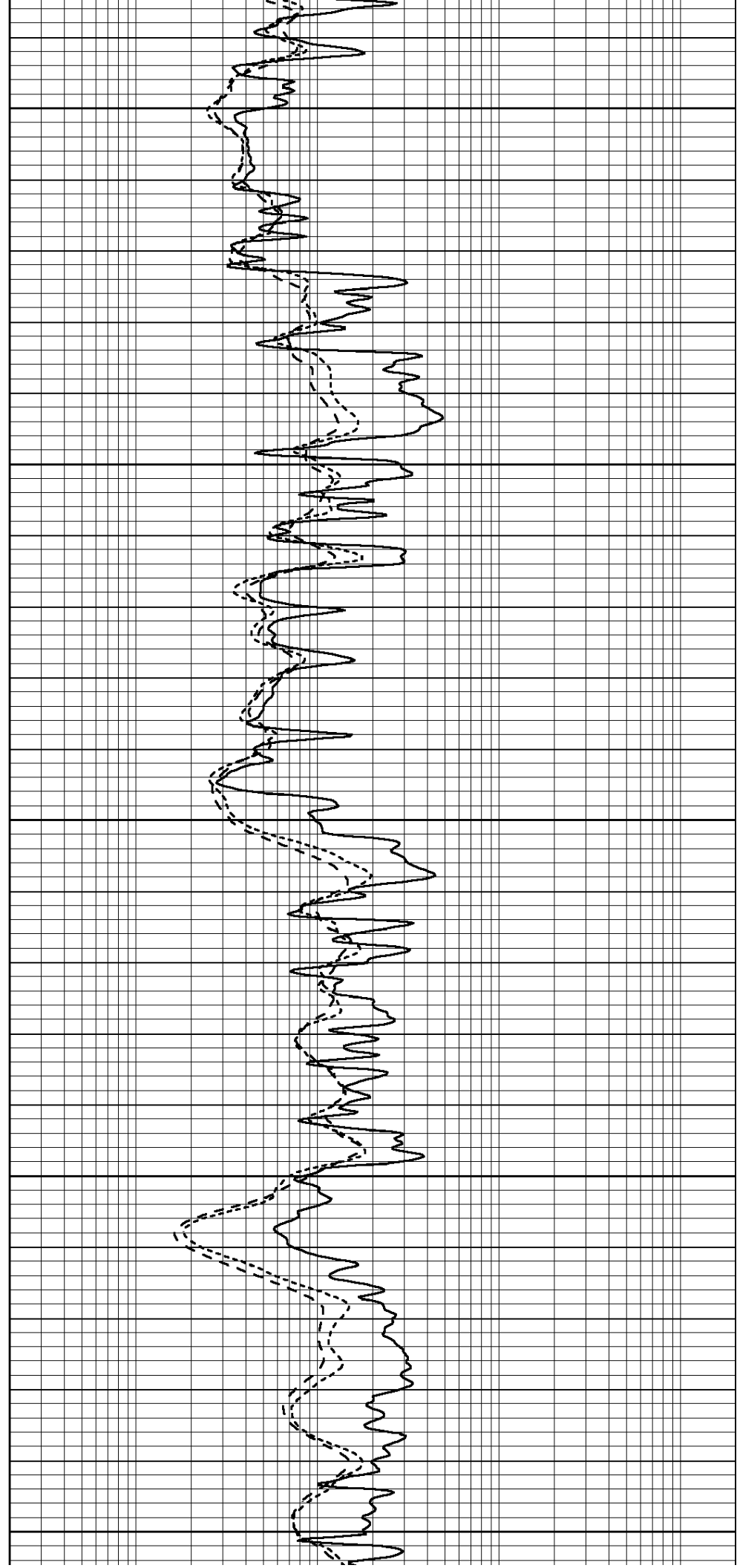
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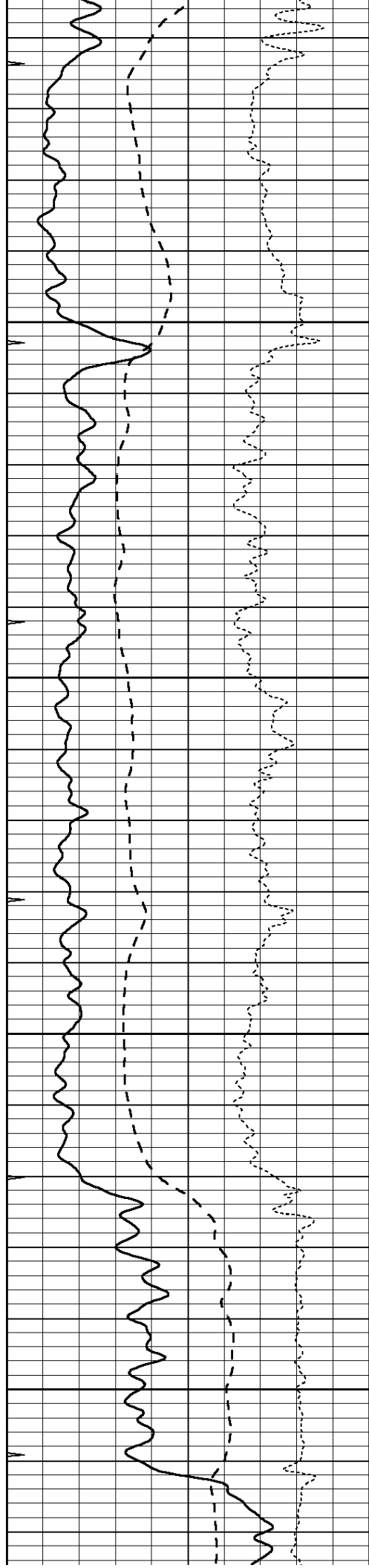
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3050



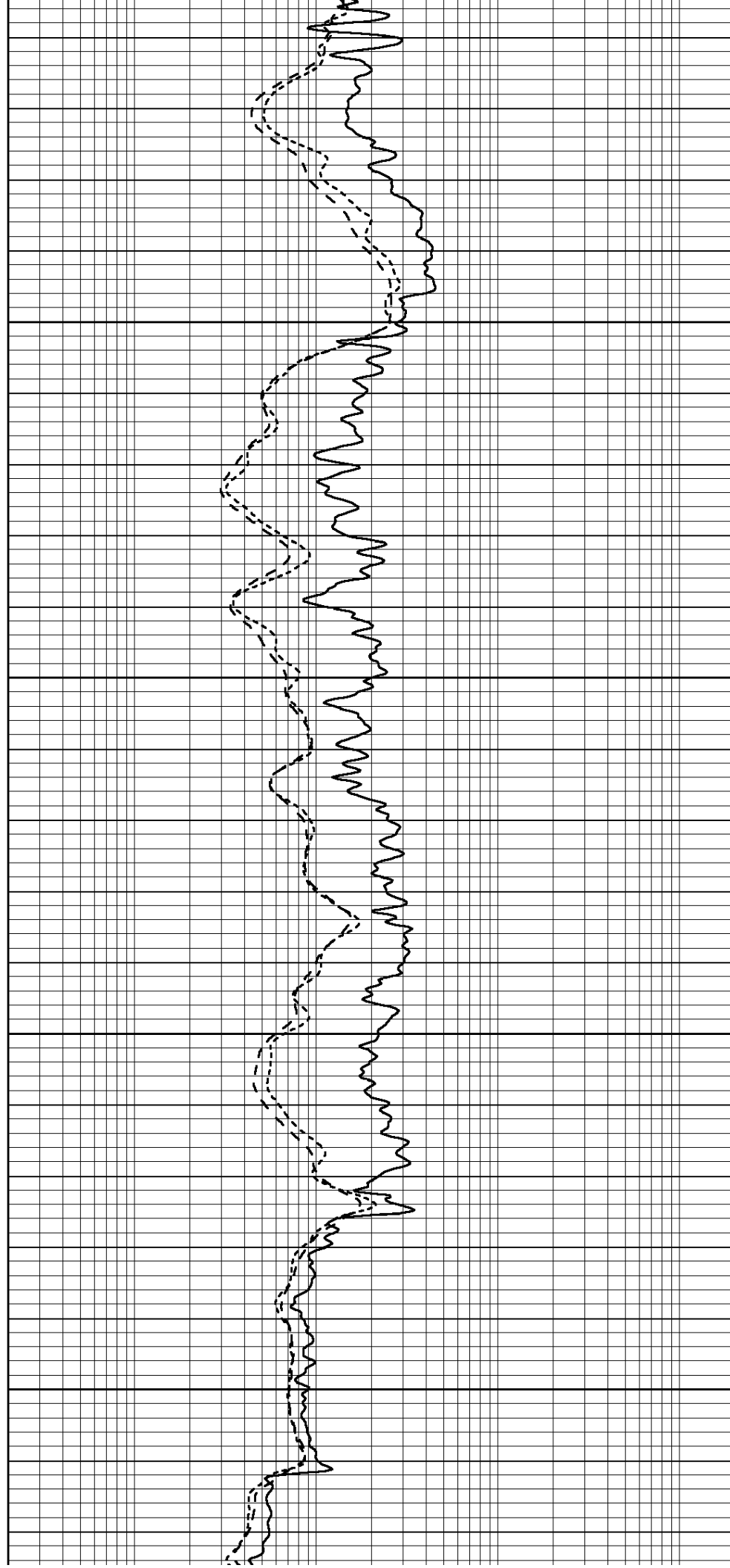


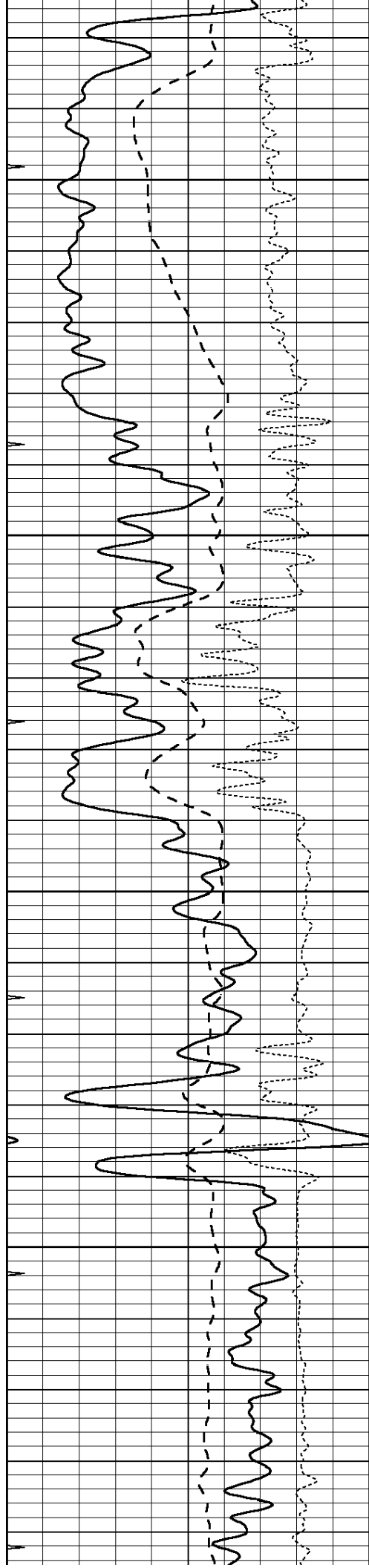
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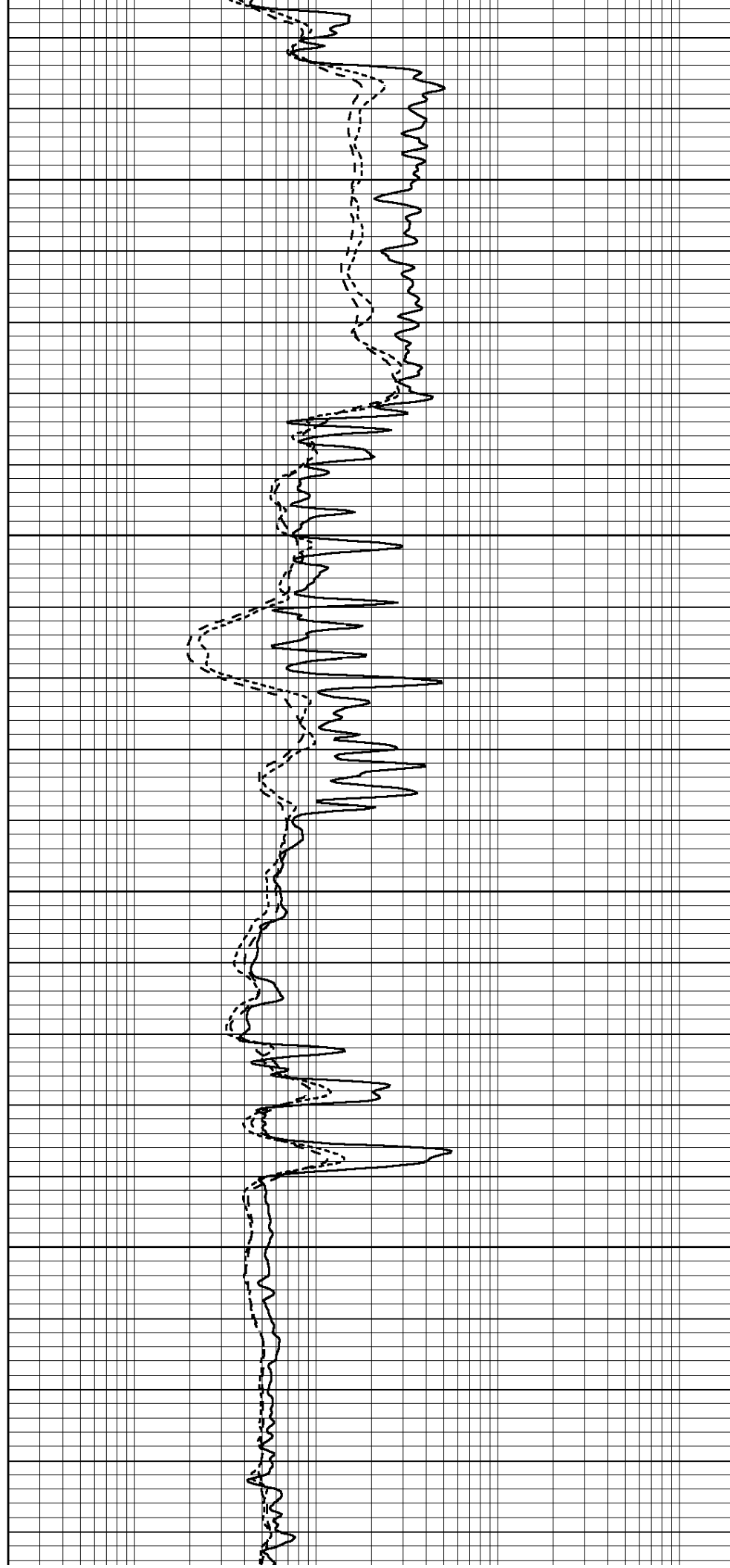


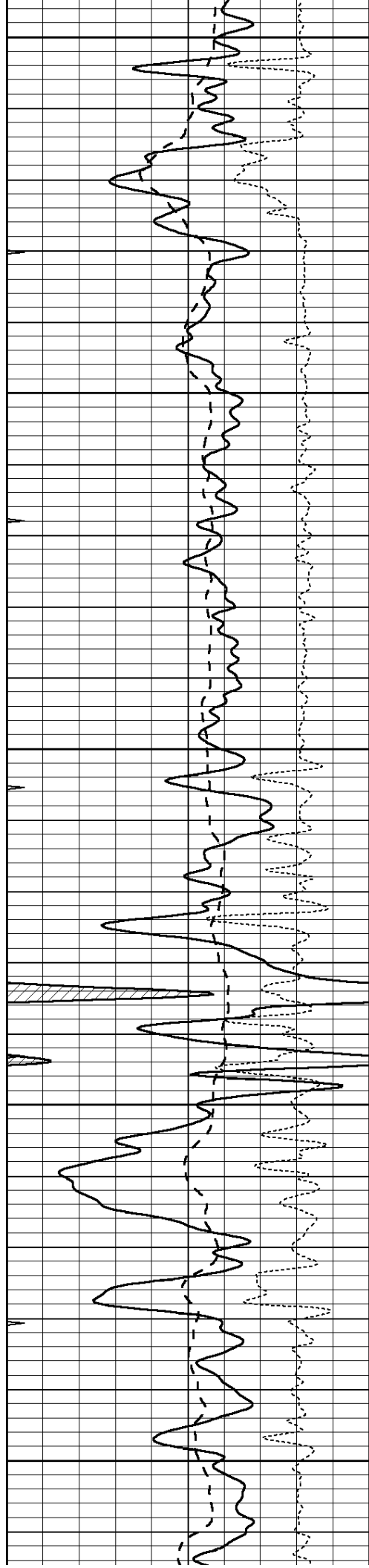
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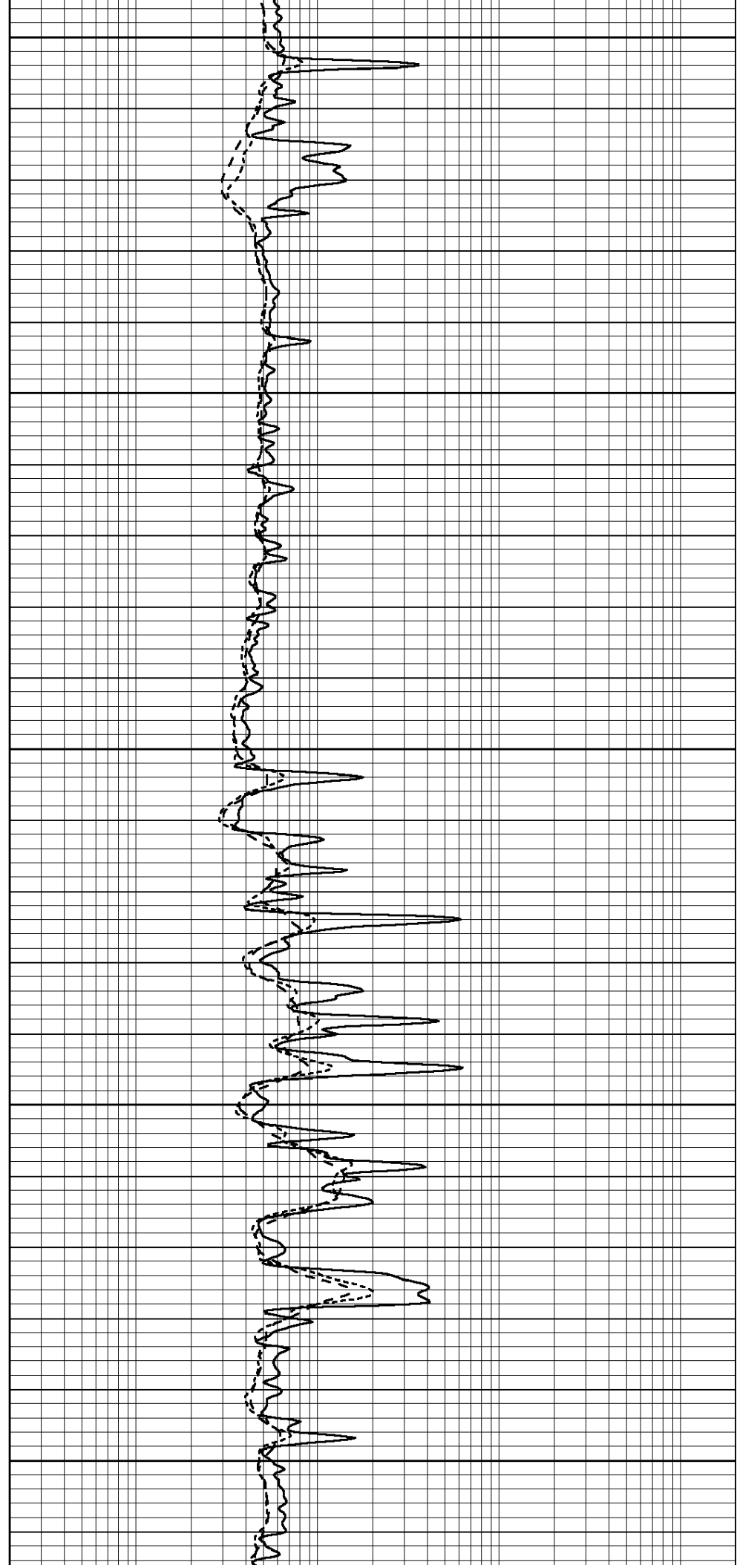
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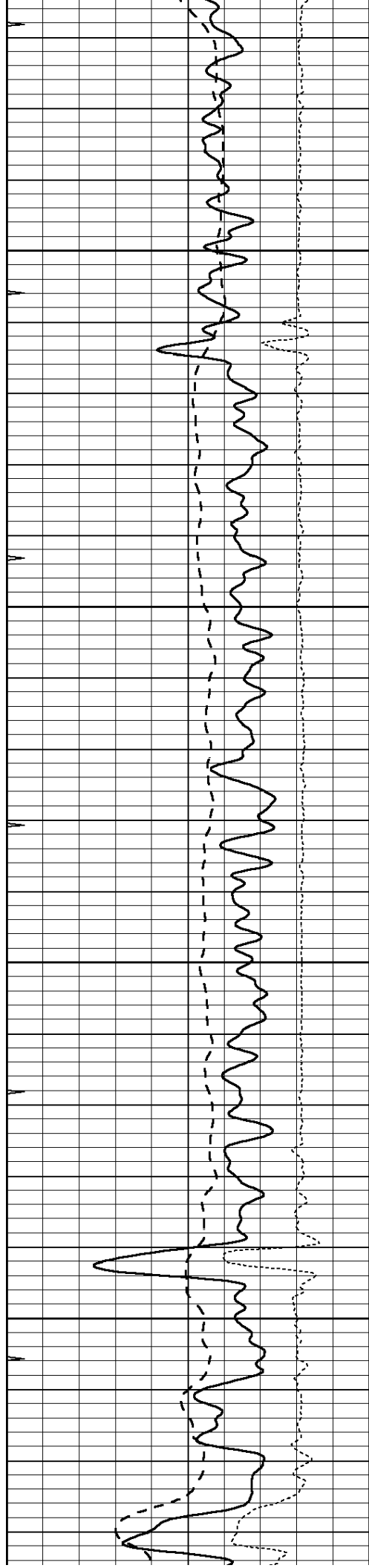
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3700



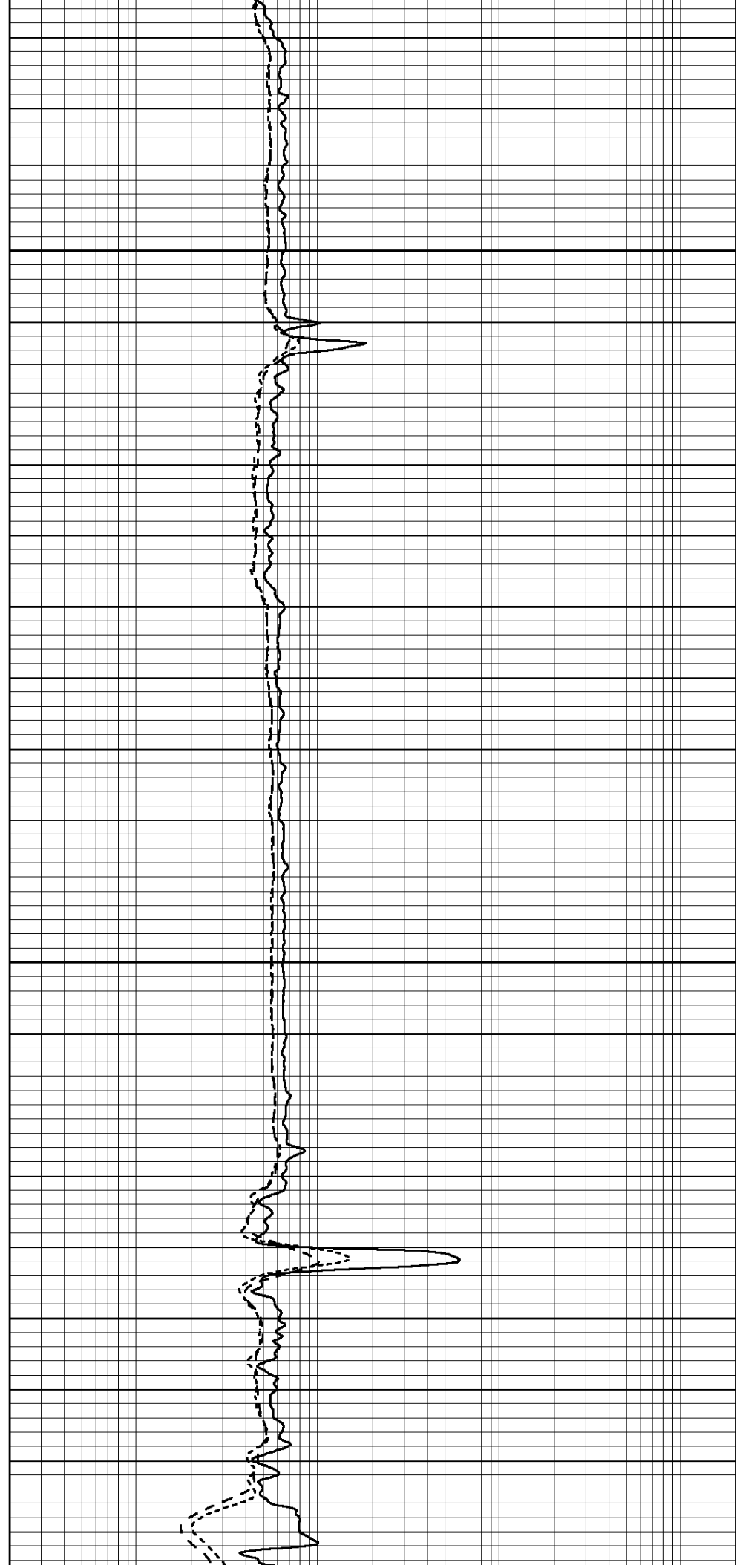


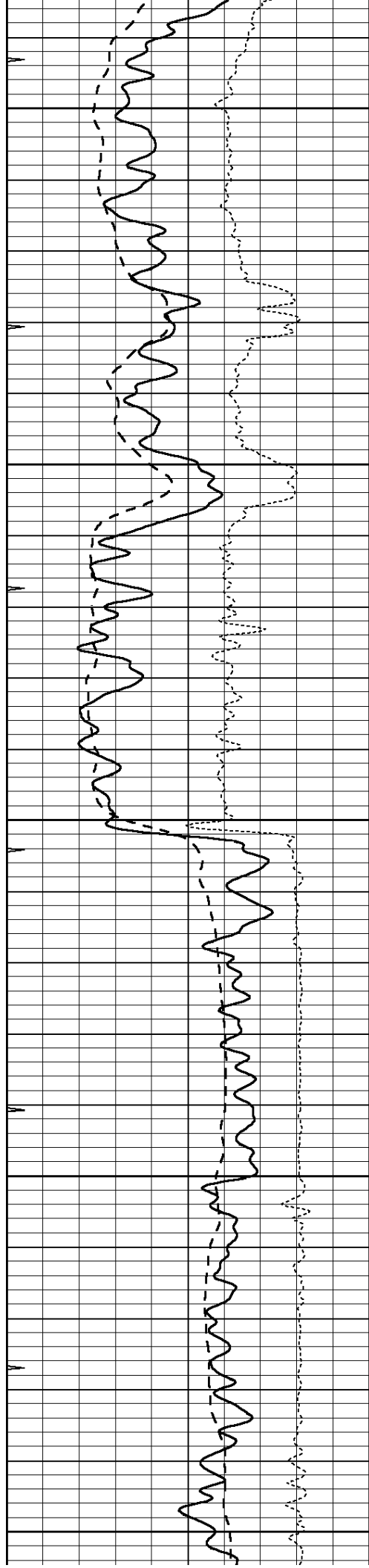
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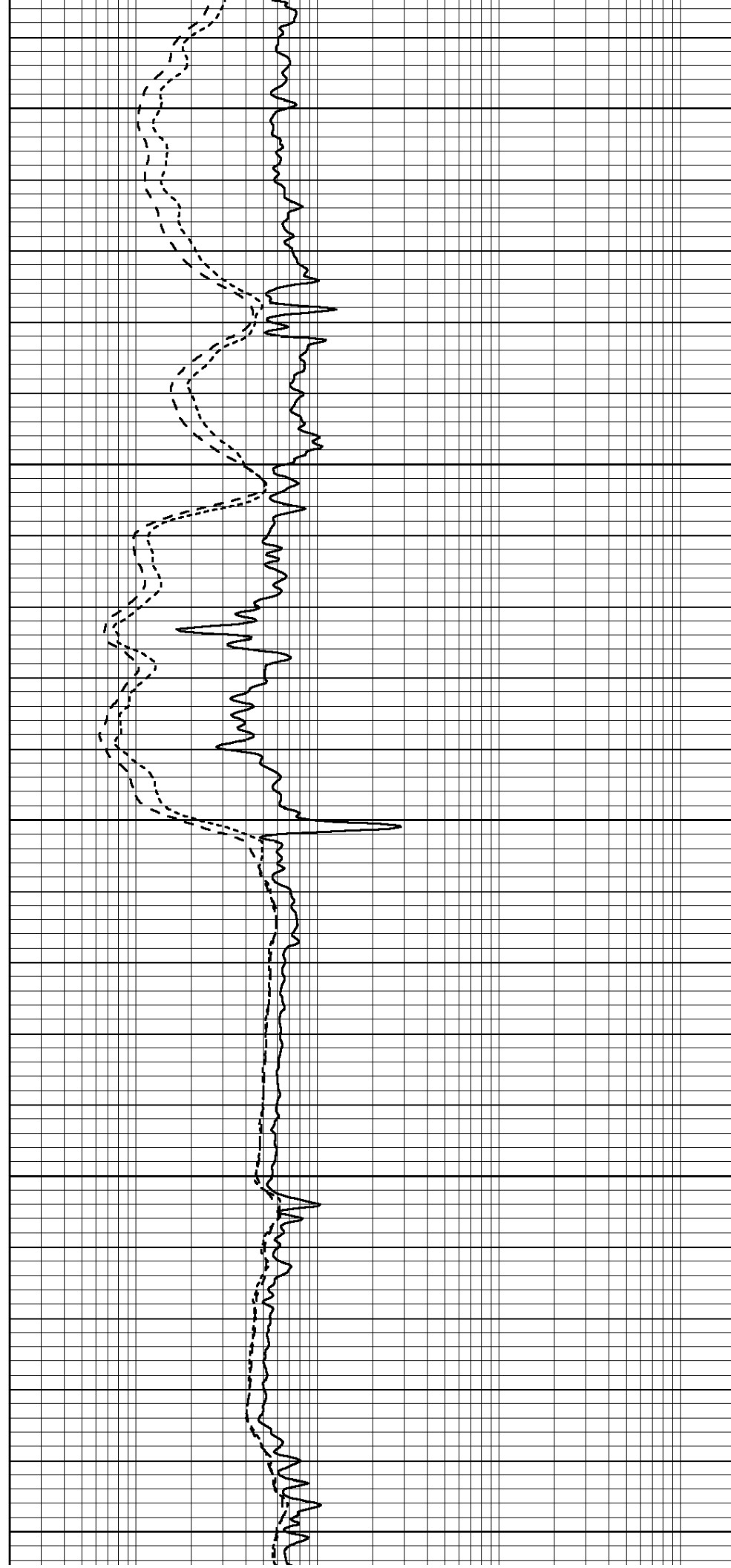
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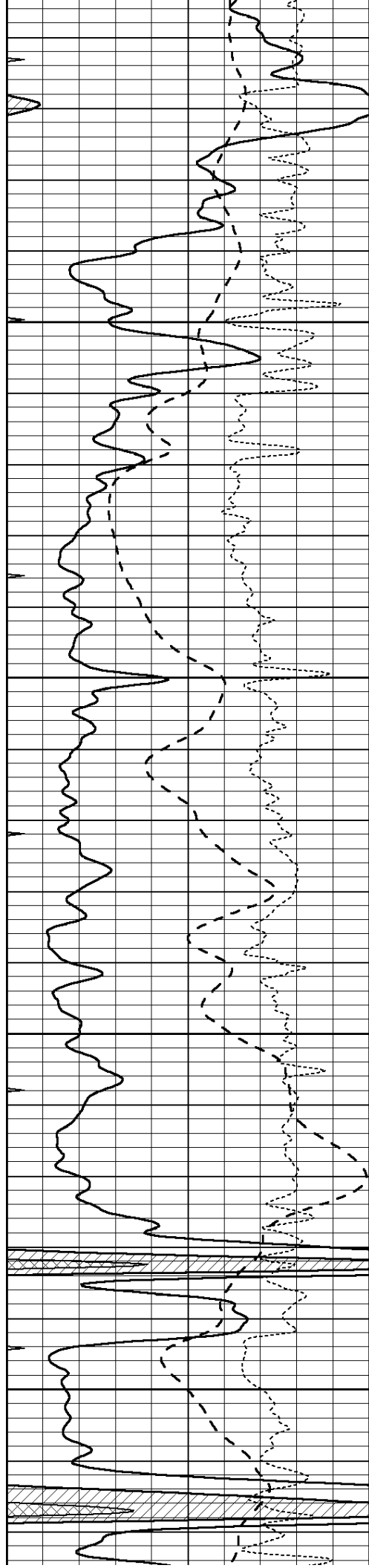
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4150



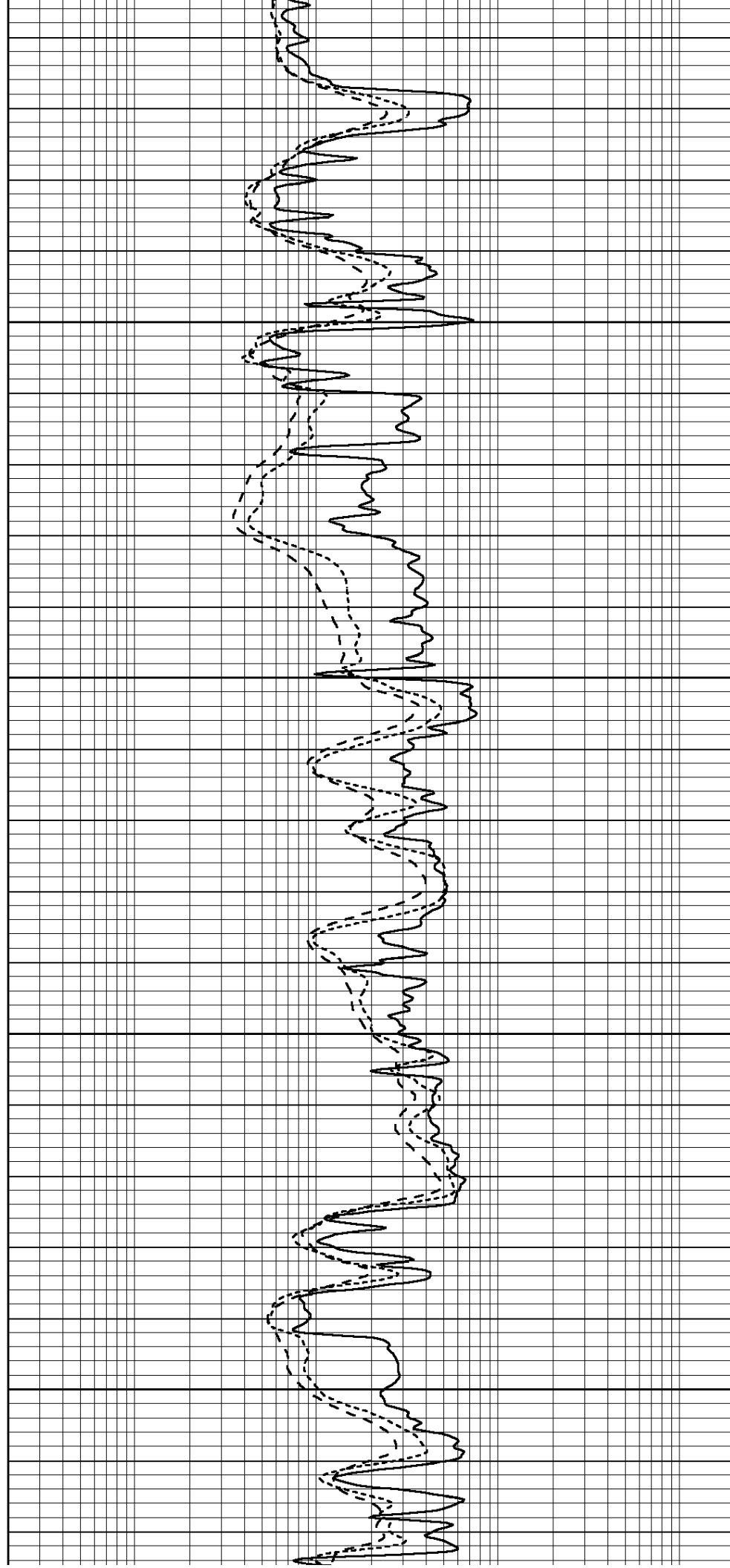


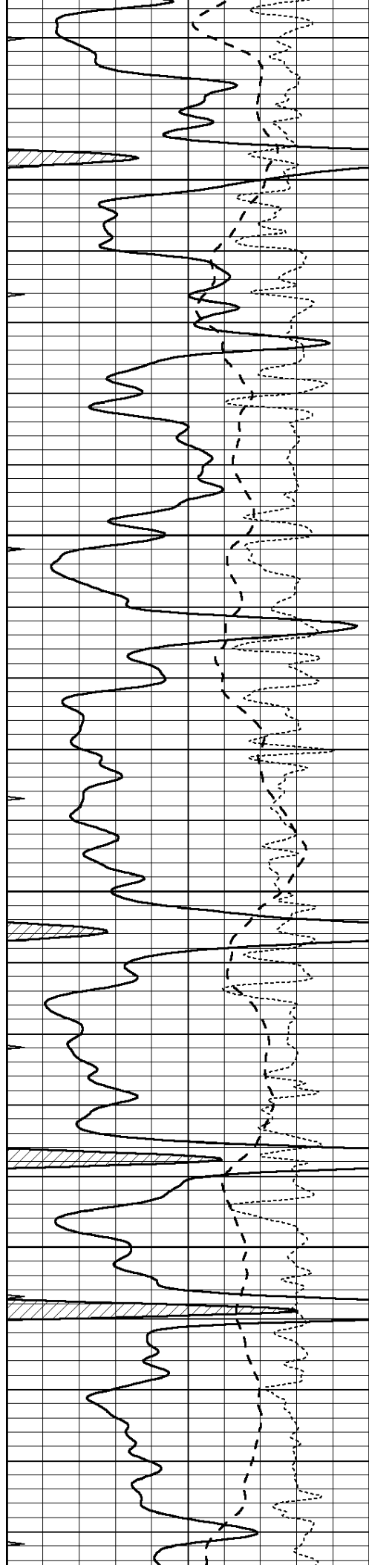
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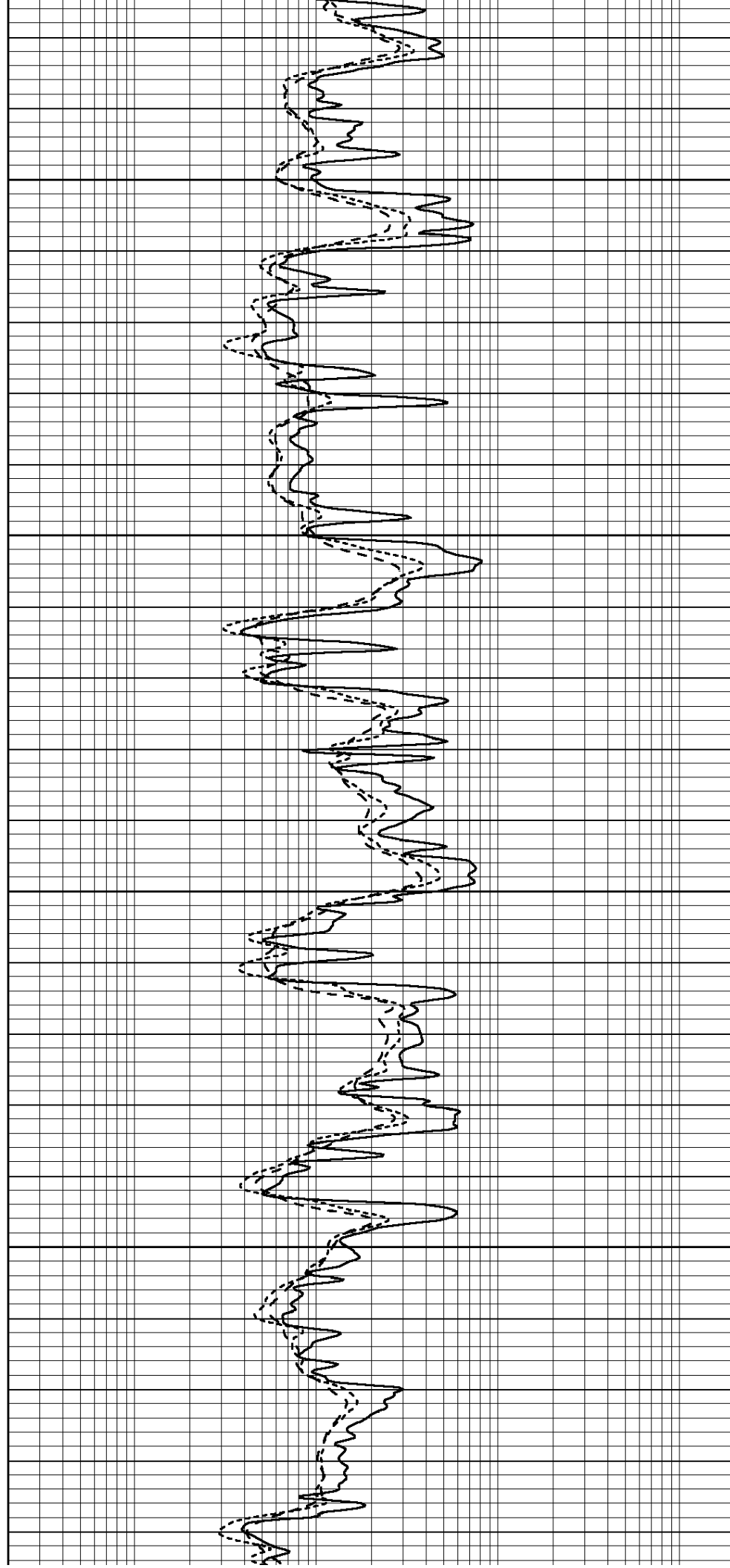


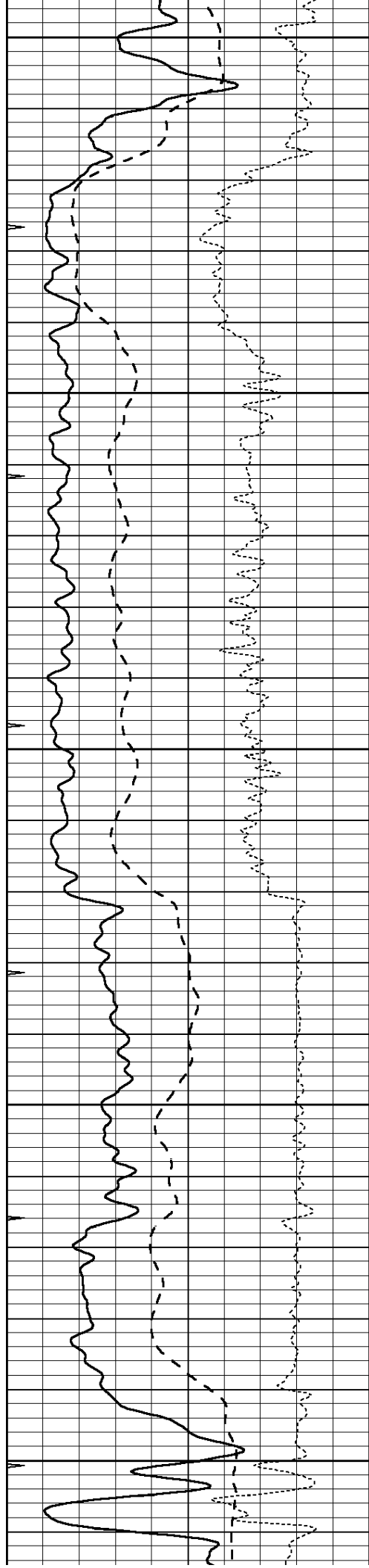
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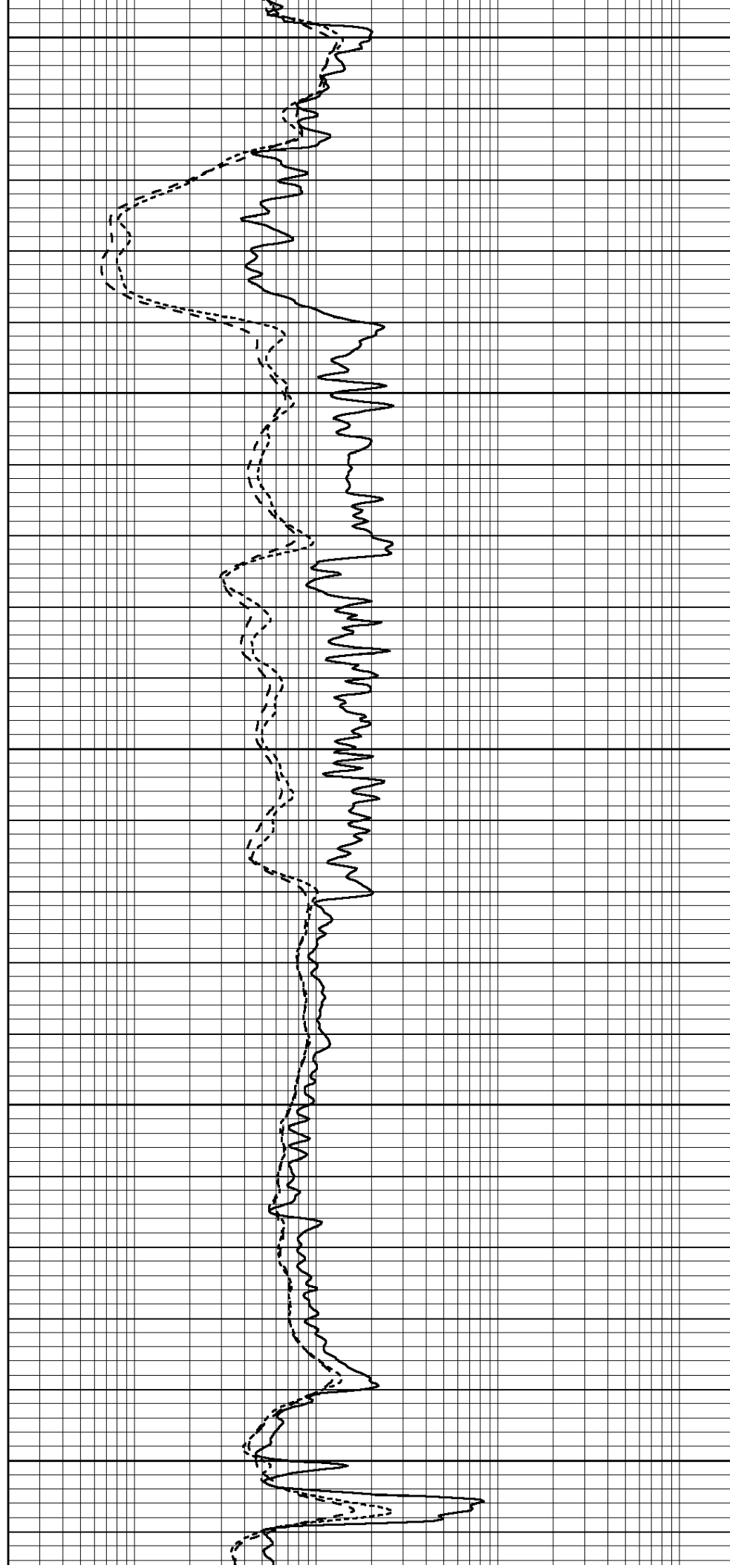
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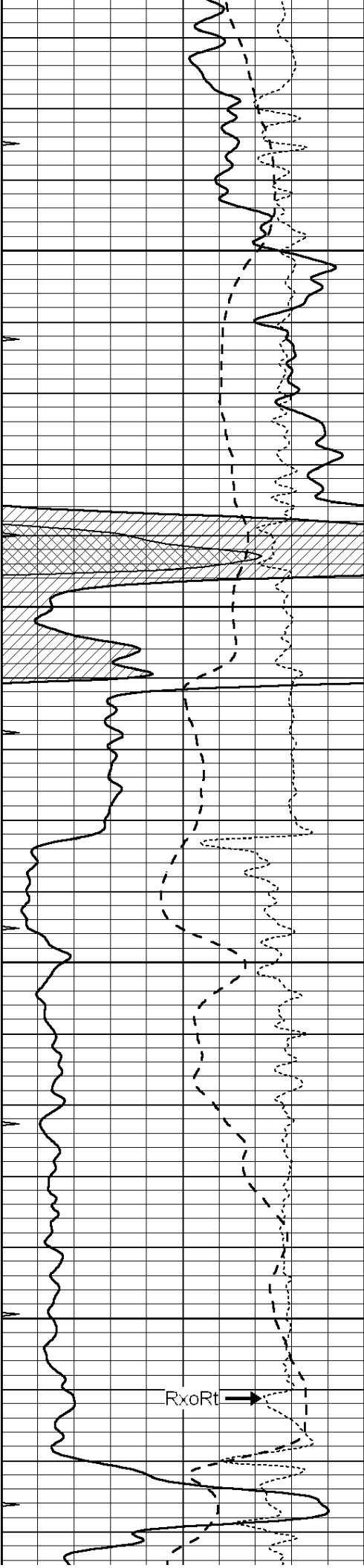
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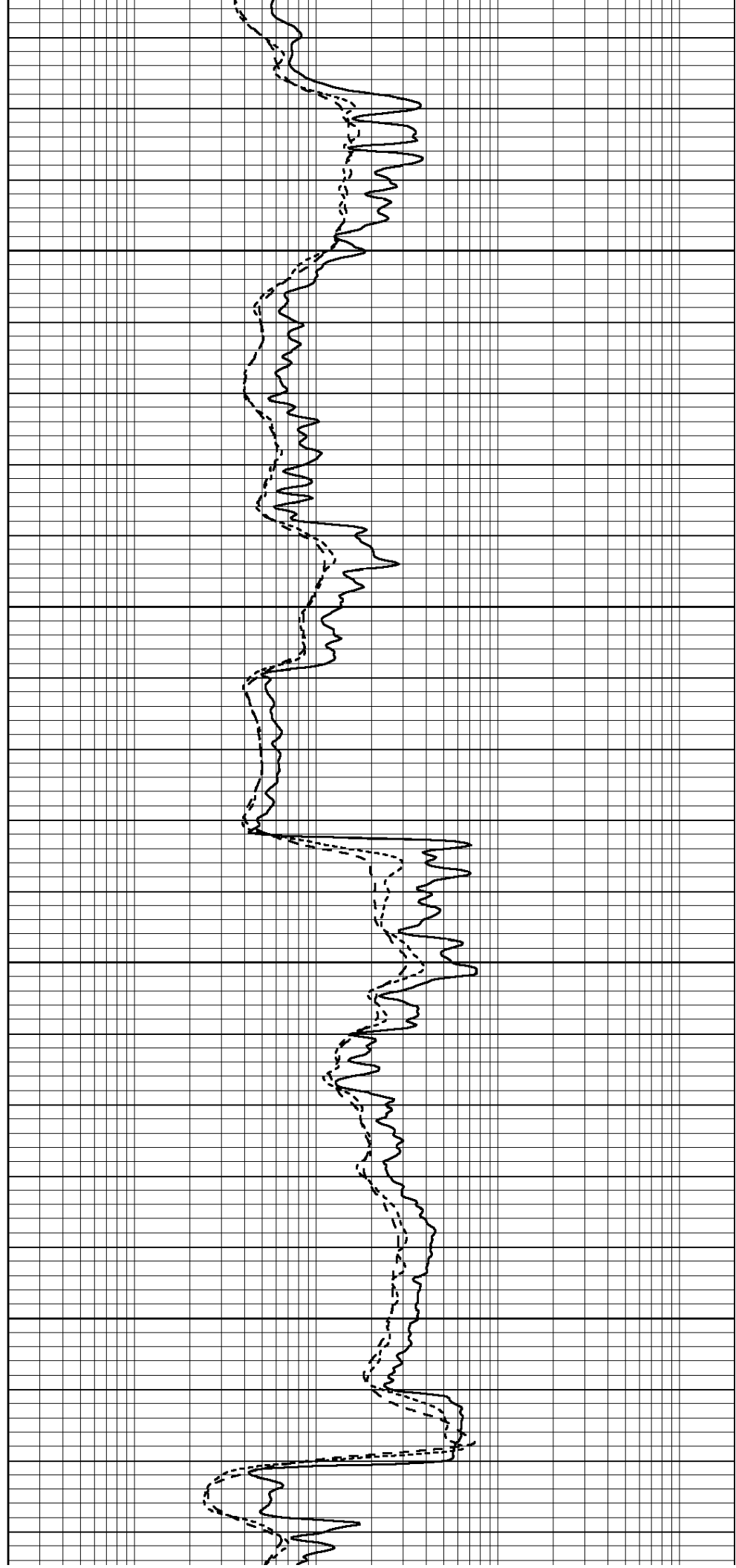
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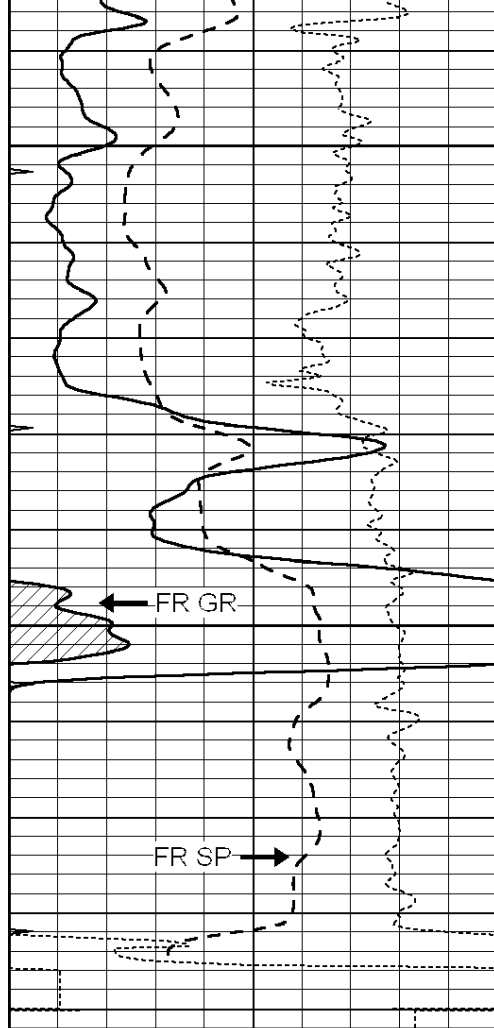
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RxoRt →



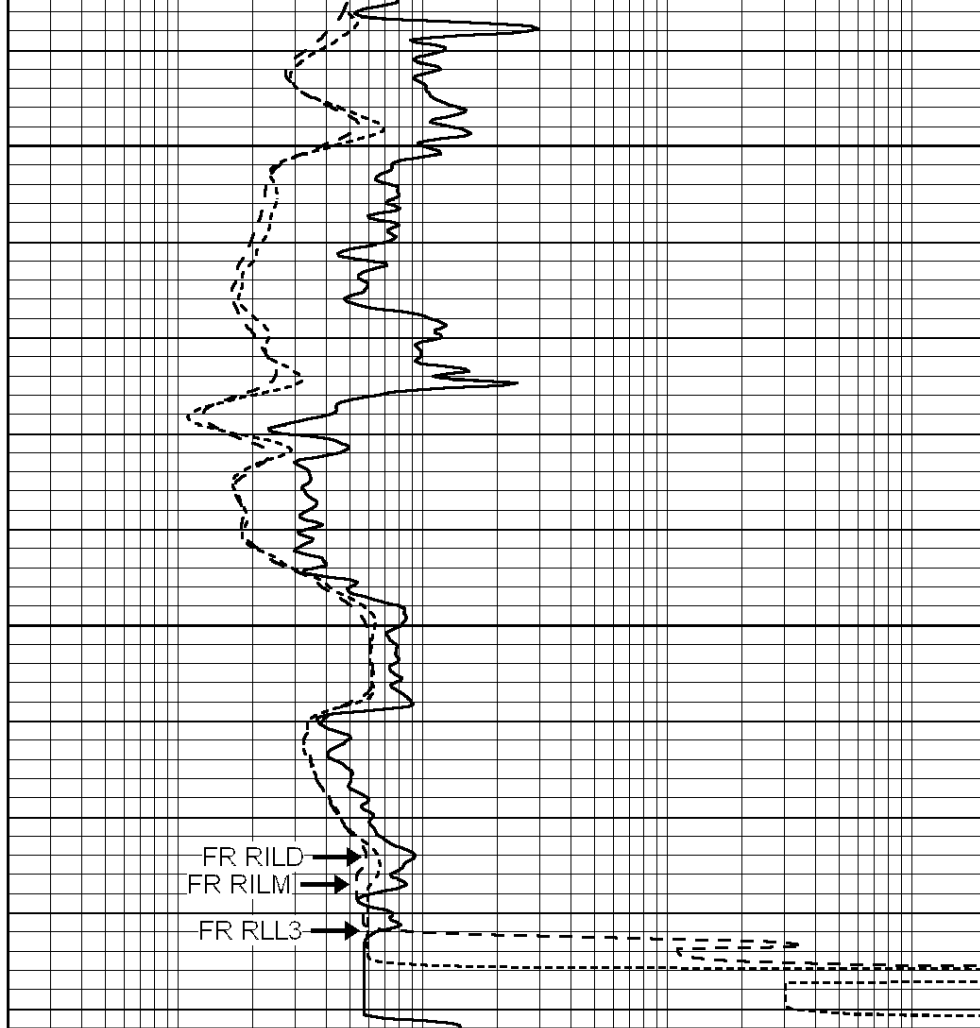


5050

5100

LTD 5134

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



|     |                          |      |
|-----|--------------------------|------|
| 0.2 | RLL3 (Ohm-m)             | 2000 |
| 0.2 | DEEP INDUCTION (Ohm-m)   | 2000 |
| 0.2 | MEDIUM INDUCTION (Ohm-m) | 2000 |

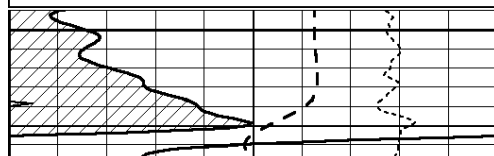


# REPEAT SECTION

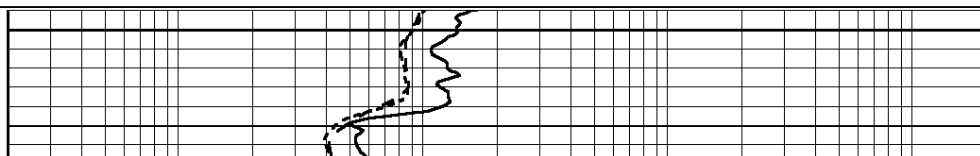
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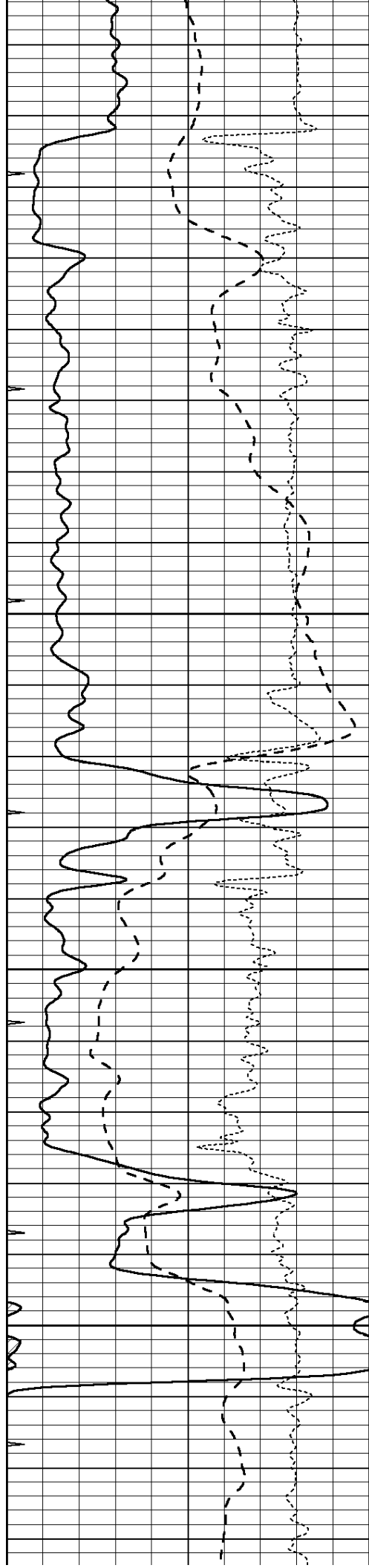
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|------|------------------|-----|
| 0    | GAMMA RAY (GAPI) | 150 |
| -100 | SP (mV)          | 100 |
| -250 | RxoRt            | 50  |
| 0    | MINMK            | 20  |

|     |                          |      |
|-----|--------------------------|------|
| 0.2 | RLL3 (Ohm-m)             | 2000 |
| 0.2 | DEEP INDUCTION (Ohm-m)   | 2000 |
| 0.2 | MEDIUM INDUCTION (Ohm-m) | 2000 |



4900



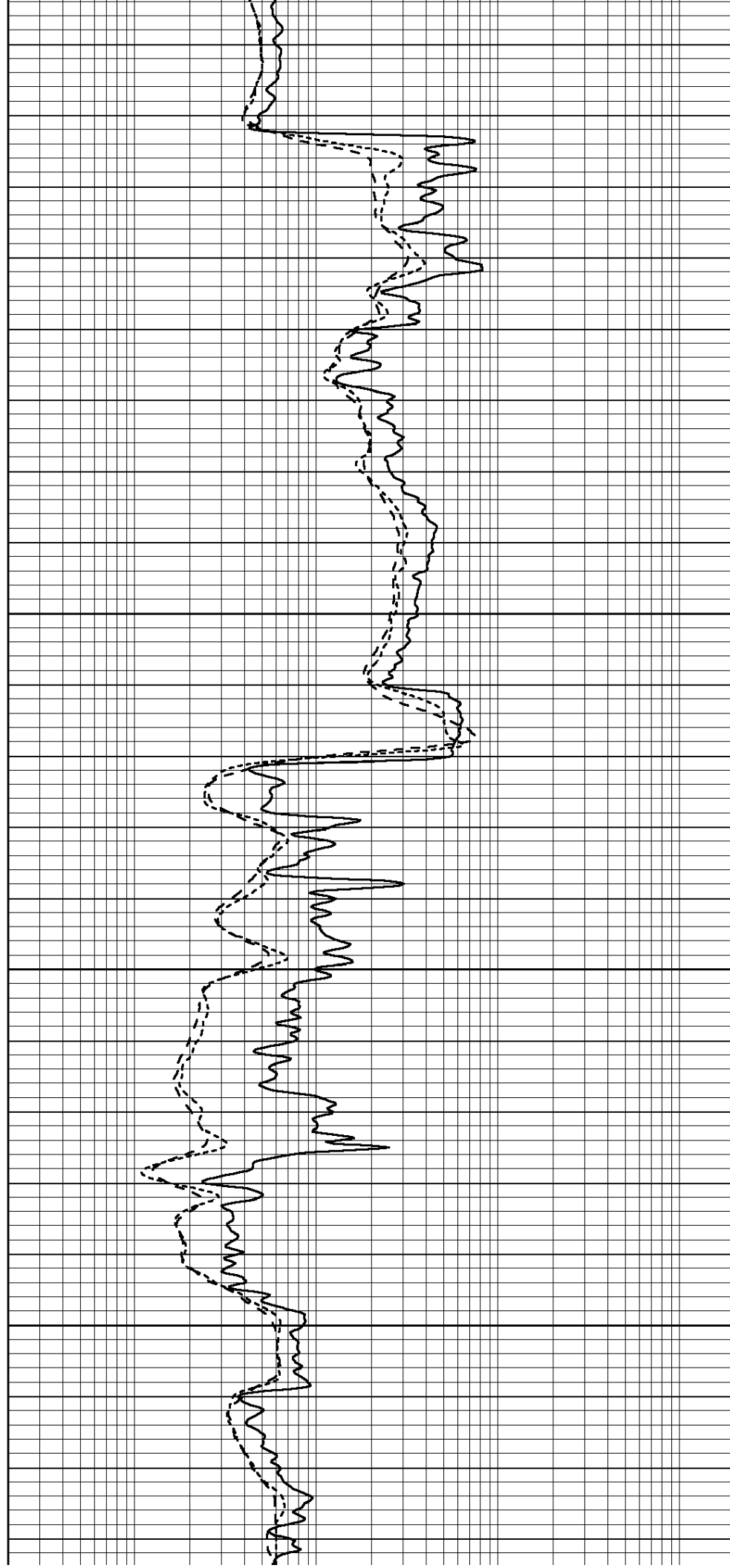


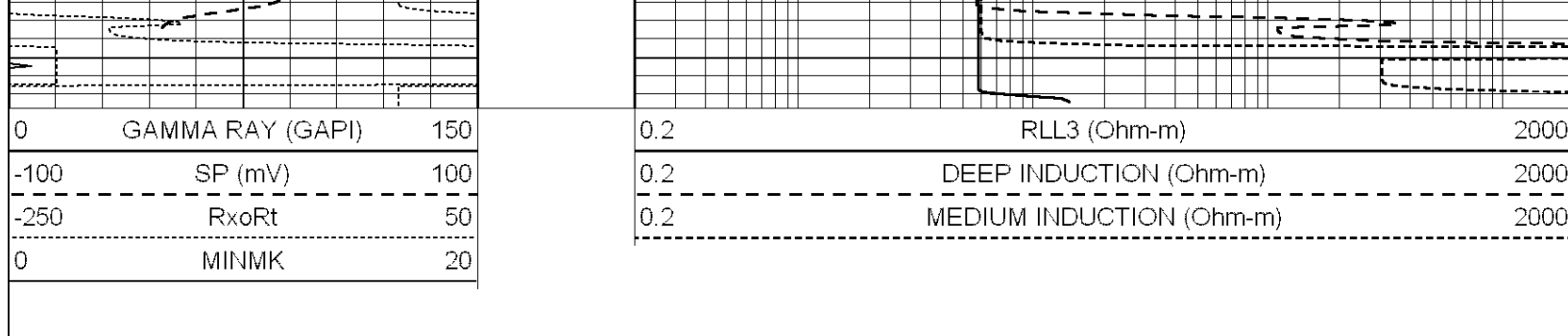
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5050

5100





Calibration Report

Database File: 011375pe.db  
Dataset Pathname: pass3.10  
Dataset Creation: Thu Aug 08 12:18:21 2013 by Calc Open-Cased 090629

Dual Induction Calibration Report

Serial-Model: PROBE7-DILG  
Surface Cal Performed: Sun Jul 21 21:02:02 2013  
Downhole Cal Performed: Sat Jan 19 19:51:38 2013  
After Survey Verification Performed: Sat Jan 19 19:51:38 2013

| Surface Calibration |       |       |            |       |         |         |         |         |
|---------------------|-------|-------|------------|-------|---------|---------|---------|---------|
| Readings            |       |       | References |       |         | Results |         |         |
| Loop:               | Air   | Loop  |            | Air   | Loop    |         | m       | b       |
| Deep                | 0.793 | 0.790 | V          | 0.000 | 400.000 | mmho/m  | 500.000 | -2.000  |
| Medium              | 0.992 | 1.002 | V          | 0.000 | 464.000 | mmho/m  | 560.000 | -48.000 |
| Internal:           | Zero  | Cal   |            | Zero  | Cal     |         | m       | b       |
| Deep                | 0.041 | 0.642 | V          | 0.000 | 400.000 | mmho/m  | 664.874 | -27.011 |
| Medium              | 0.035 | 0.802 | V          | 0.000 | 464.000 | mmho/m  | 604.936 | -21.367 |

| Downhole Calibration |            |           |            |            |           |         |       |         |
|----------------------|------------|-----------|------------|------------|-----------|---------|-------|---------|
| Readings             |            |           | References |            |           | Results |       |         |
|                      | Zero       | Cal       |            | Zero       | Cal       |         | m'    | b'      |
| Deep                 | 135384.000 | 27094.500 | mmho/m     | 135400.000 | 27082.400 | mmho/m  | 1.000 | -19.259 |
| Medium               | -47330.100 | -9381.740 | mmho/m     | -47327.100 | -9389.280 | mmho/m  | 1.000 | -10.154 |
| LL3                  |            | 7.322     | V          |            | 1400.000  | Ohm-m   |       |         |
|                      |            | 0.038     | V          |            | 20.000    | Ohm-m   |       |         |
|                      |            | -7.273    | V          |            | 4000.000  | mmho-m  |       |         |

| After Survey Verification |       |       |         |            |           |         |       |       |
|---------------------------|-------|-------|---------|------------|-----------|---------|-------|-------|
| Readings                  |       |       | Targets |            |           | Results |       |       |
|                           | Zero  | Cal   |         | Zero       | Cal       |         | m'    | b'    |
| Deep                      | 0.000 | 0.000 | mmho/m  | 135384.000 | 27094.500 | mmho/m  | 1.000 | 0.000 |
| Medium                    | 0.000 | 0.000 | mmho/m  | -47330.100 | -9381.740 | mmho/m  | 1.000 | 0.000 |
| LL3                       |       | 0.000 | Ohm-m   |            | 1400.000  | Ohm-m   |       |       |
|                           |       | 0.000 | Ohm-m   |            | 20.000    | Ohm-m   |       |       |
|                           |       | 0.000 | mmho-m  |            | 4000.000  | mmho-m  |       |       |

Litho Density Calibration Report  
Serial: 002 Model: PRB  
Performed Mon Apr 02 17:56:53 2012

| Litho Density Calibration |            |           |          |           |
|---------------------------|------------|-----------|----------|-----------|
|                           | Background | Magnesium | Aluminum | Sandstone |
| Window 1                  | 872.3      | 7266.3    | 2292.6   | 7931.5    |
|                           |            |           |          | cns       |

|             |        |             |         |                     |         |
|-------------|--------|-------------|---------|---------------------|---------|
| Window 1    | 822.9  | 5957.5      | 1958.0  | 6389.6              | cps     |
| Window 2    | 670.4  | 3219.9      | 1211.9  | 3388.2              | cps     |
| Window 3    | 201.6  | 201.1       | 202.3   | 204.6               | cps     |
| Window 4    | 0.0    | 5134.6      | 1135.0  | 5566.6              | cps     |
| Long Space  | 1.1    | 994.2       | 674.4   | 1059.2              | cps     |
| Short Space |        | 1.7100      | 2.5960  | 1.3800              | g/cc    |
| Rho         |        |             | 2.5700  | 1.5500              |         |
| Pe          |        |             |         |                     |         |
| Rib Angle   | : 45.6 | Rib Slope   | : 1.020 | Density/Spine Ratio | : 0.569 |
| Spine Angle | : 75.6 | Spine Slope | : 3.888 | Spine Intercept     | : -18.3 |

|          |           |           |             |  |  |
|----------|-----------|-----------|-------------|--|--|
| Caliper  |           |           |             |  |  |
| Low Ref  | Readings  | Reference |             |  |  |
| High Ref | 1.8       | 8.4       |             |  |  |
|          | 6.1       | 14.0      |             |  |  |
|          | Gain: 1.3 |           | Offset: 2.9 |  |  |

Compensated Neutron Calibration Report

|                |        |
|----------------|--------|
| Serial Number: | NEU_4I |
| 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        |

Gamma Ray Calibration Report

|                     |                          |          |
|---------------------|--------------------------|----------|
| Serial Number:      | GR5                      |          |
| Tool Model:         | OPEN                     |          |
| Performed:          | Sun Jul 21 23:02:12 2013 |          |
| Calibrator Value:   | 1.0                      | GAPI     |
| Background Reading: | 0.0                      | cps      |
| Calibrator Reading: | 1.0                      | cps      |
| Sensitivity:        | 0.8700                   | GAPI/cps |