



SUPERIOR  
Hays,  
Kansas

## DUAL INDUCTION LOG

|                              |                           |                      |
|------------------------------|---------------------------|----------------------|
| Company                      | RITCHIE EXPLORATION, INC. |                      |
| Well                         | FRAVEL - FISHER #1        |                      |
| Field                        | WILDCAT                   |                      |
| County                       | FORD                      | State KANSAS         |
| Location:                    | AP1 # : 15-057-20762-0000 |                      |
| Well                         | FRAVEL - FISHER #1        |                      |
| Field                        | WILDCAT                   |                      |
| County                       | FORD                      | State KANSAS         |
| Permanent Datum              | GROUND LEVEL              | Elevation 2409       |
| Log Measured From            | KELLY BUSHING 11' A.G.L.  |                      |
| Drilling Measured From       | KELLY BUSHING             |                      |
| Date                         | 11/9/11                   |                      |
| Run Number                   | ONE                       |                      |
| Depth Driller                | 5210                      |                      |
| Depth Logger                 | 5210                      |                      |
| Bottom Logged Interval       | 5208                      |                      |
| Top Log Interval             | 00                        |                      |
| Casing Driller               | 8 5/8"@361'               |                      |
| Casing Logger                | 360                       |                      |
| Bit Size                     | 7 7/8"                    |                      |
| Type Fluid in Hole           | CHEMICAL MUD              | CHLORIDES 13,800 PPM |
| Density / Viscosity          | 9.1/55                    |                      |
| pH / Fluid Loss              | 9.0/13.0                  |                      |
| Source of Sample             | FLOWLINE                  |                      |
| Rm @ Meas. Temp              | .400@74F                  |                      |
| Rmt @ Meas. Temp             | .300@74F                  |                      |
| Rmc @ Meas. Temp             | .480@74F                  |                      |
| Source of Rmt / Rmc          | MEASUREMENT               |                      |
| Rm @ BHT                     | .233@127F                 |                      |
| Time Circulation Stopped     | 3 HOURS                   |                      |
| Time Logger on Bottom        | 4:30 P.M.                 |                      |
| Maximum Recorded Temperature | 127F                      |                      |
| Equipment Number             | 4010                      |                      |
| Location                     | HAYS, KANSAS              |                      |
| Recorded By                  | JEFF LUEBBERS             |                      |
| Witnessed By                 | MIKE ENGELBRECHT          |                      |

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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 SUPERIOR WELL SERVICE HAYS, KANSAS (785) 628-6395  
DIRECTIONS  
FORD, KS. 1 1/2 S.E. ON HWY 400 W. INTO



SUPERIOR  
Hays,  
Kansas

# MAIN SECTION

Database File: 007826ddn.db  
Dataset Pathname: pass4.6  
Presentation Format: dil2  
Dataset Creation: Wed Nov 09 18:22:45 2011  
Charted by: Depth in Feet scaled 1:600

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

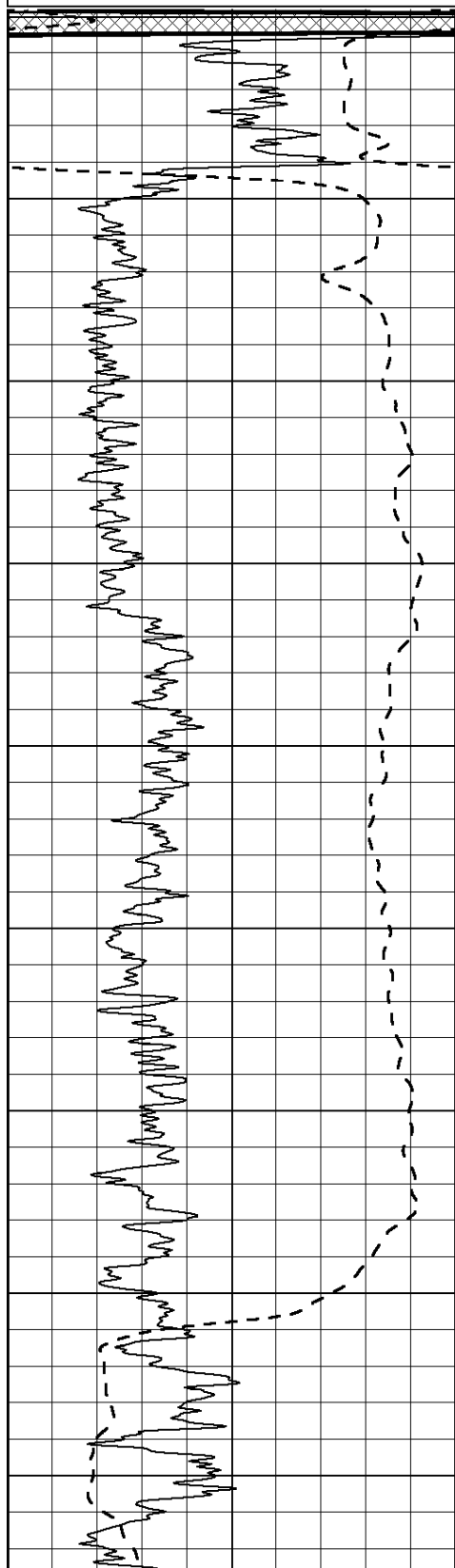
|   |              |    |
|---|--------------|----|
| 0 | RLL3 (Ohm-m) | 50 |
|---|--------------|----|

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

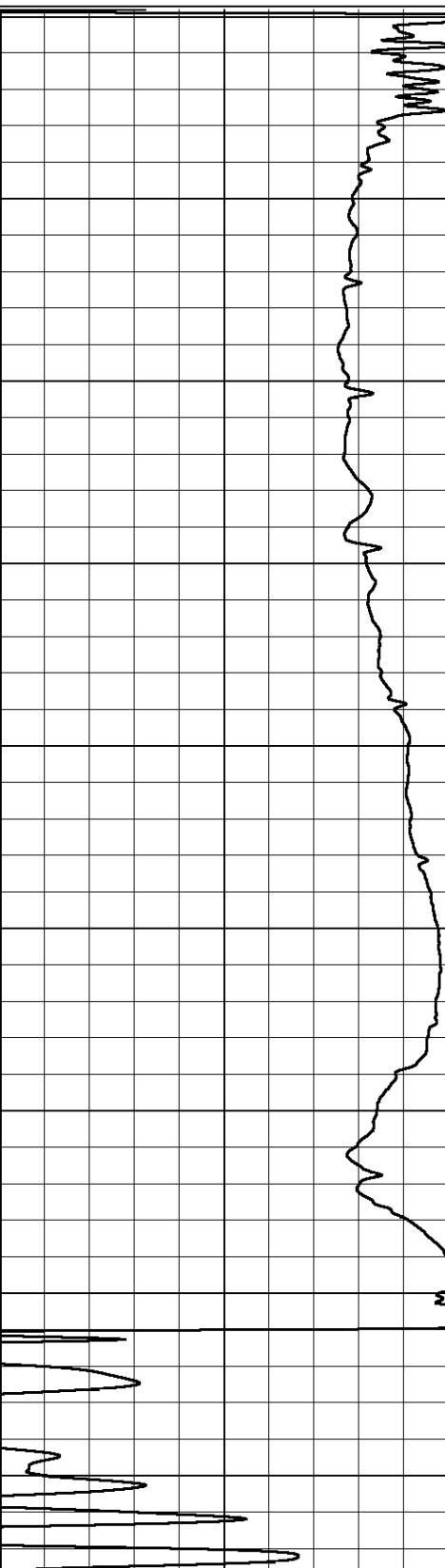
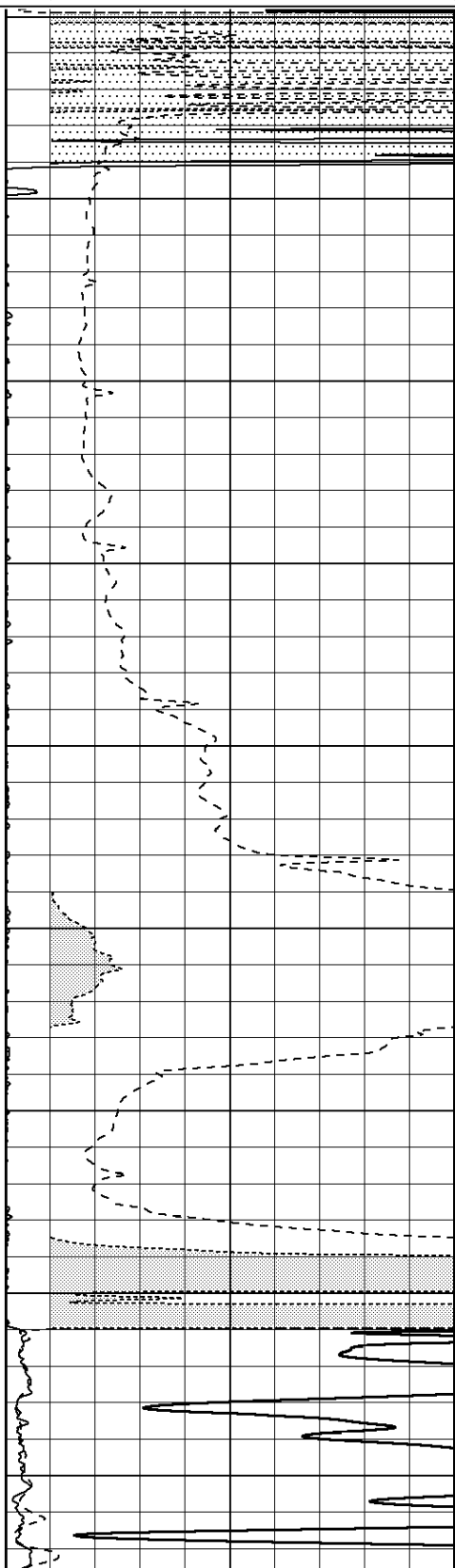
|      |               |   |
|------|---------------|---|
| 1000 | CILD (mmho/m) | 0 |
|------|---------------|---|

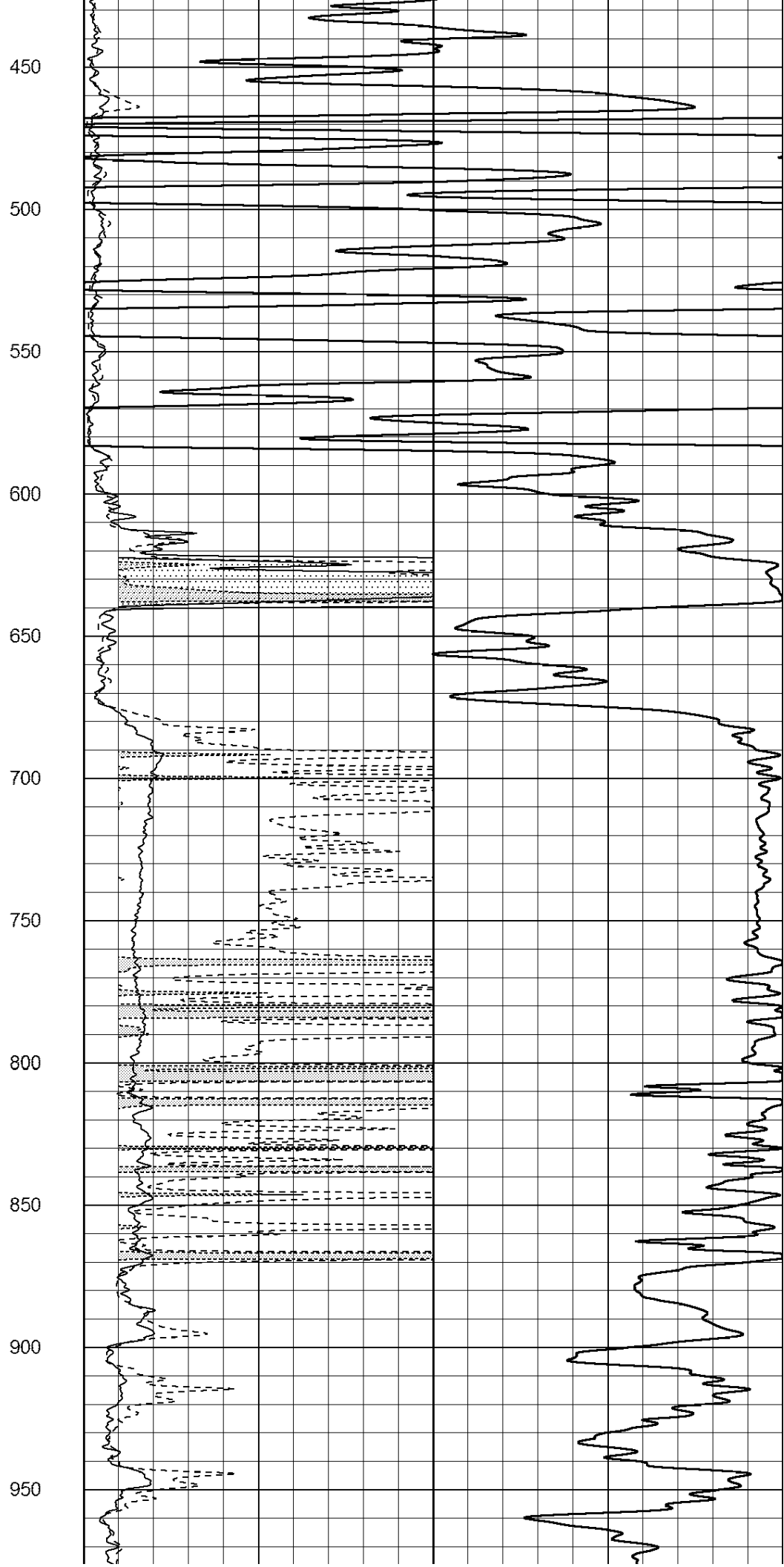
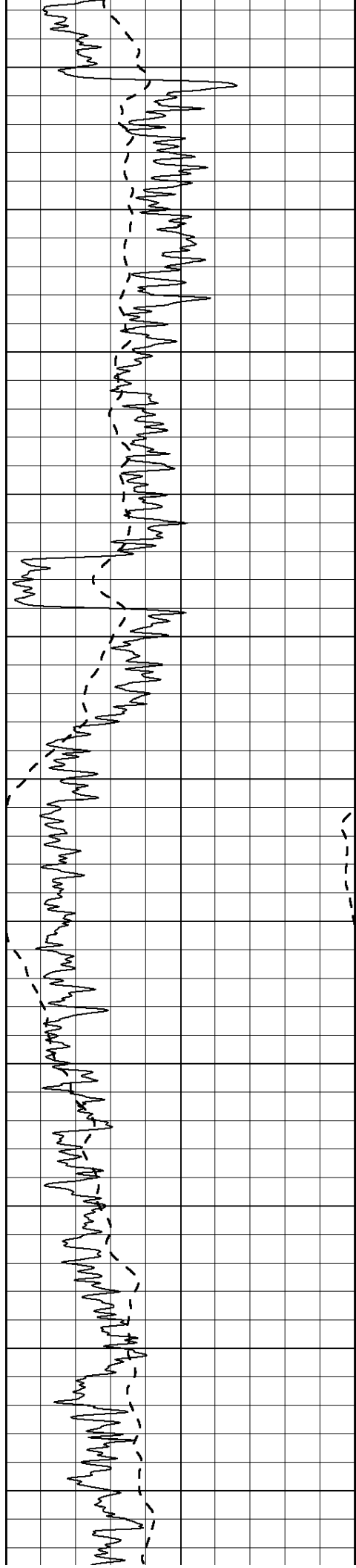
|    |                  |     |
|----|------------------|-----|
| 50 | RILD X10 (Ohm-m) | 500 |
|----|------------------|-----|

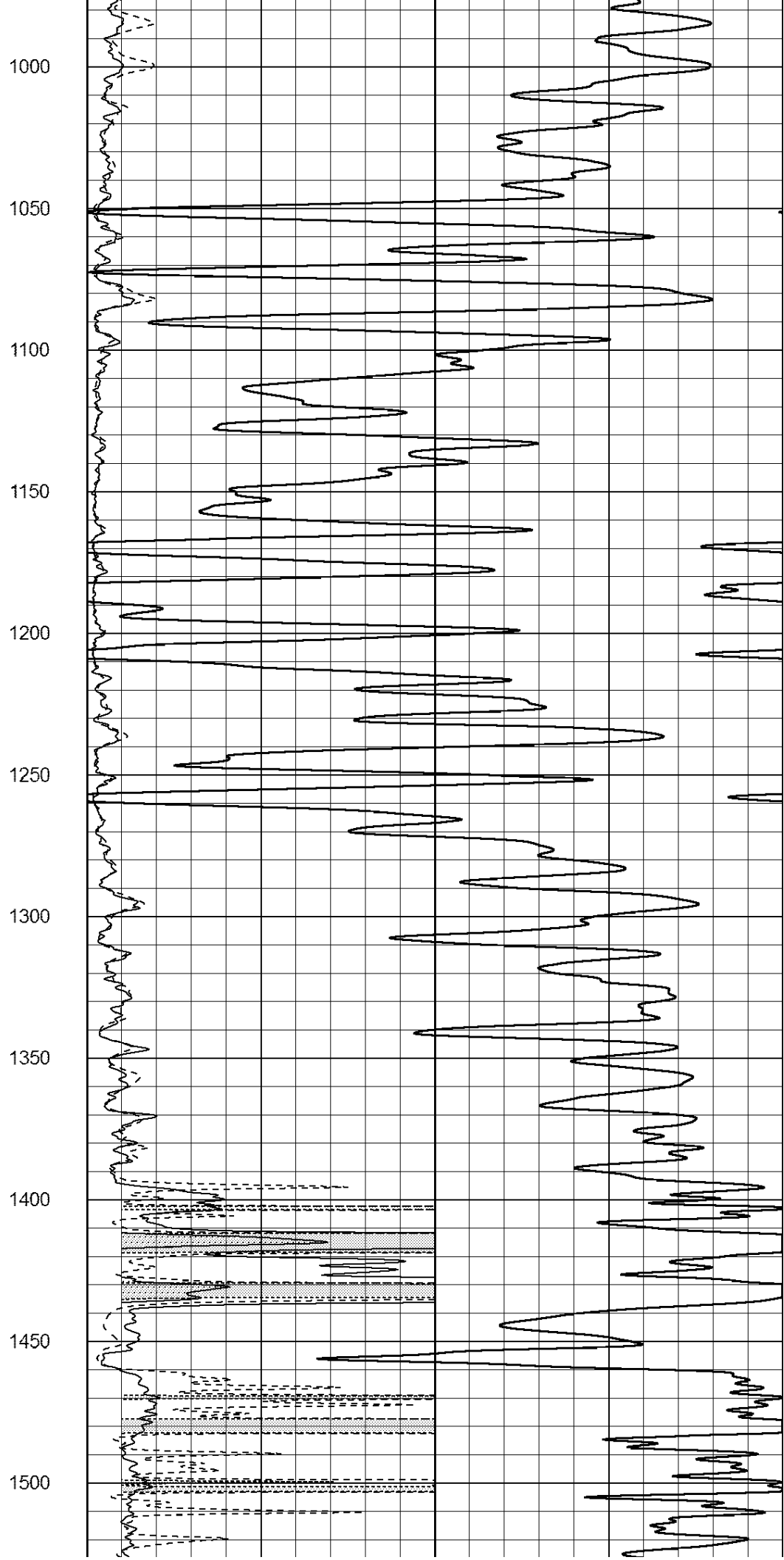
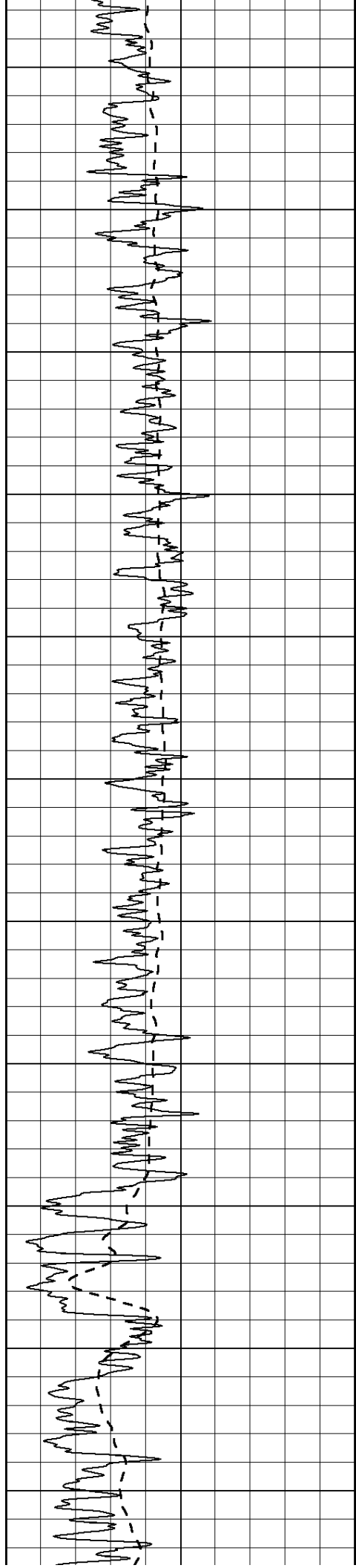
|    |                  |     |
|----|------------------|-----|
| 50 | RLL3 X10 (Ohm-m) | 500 |
|----|------------------|-----|

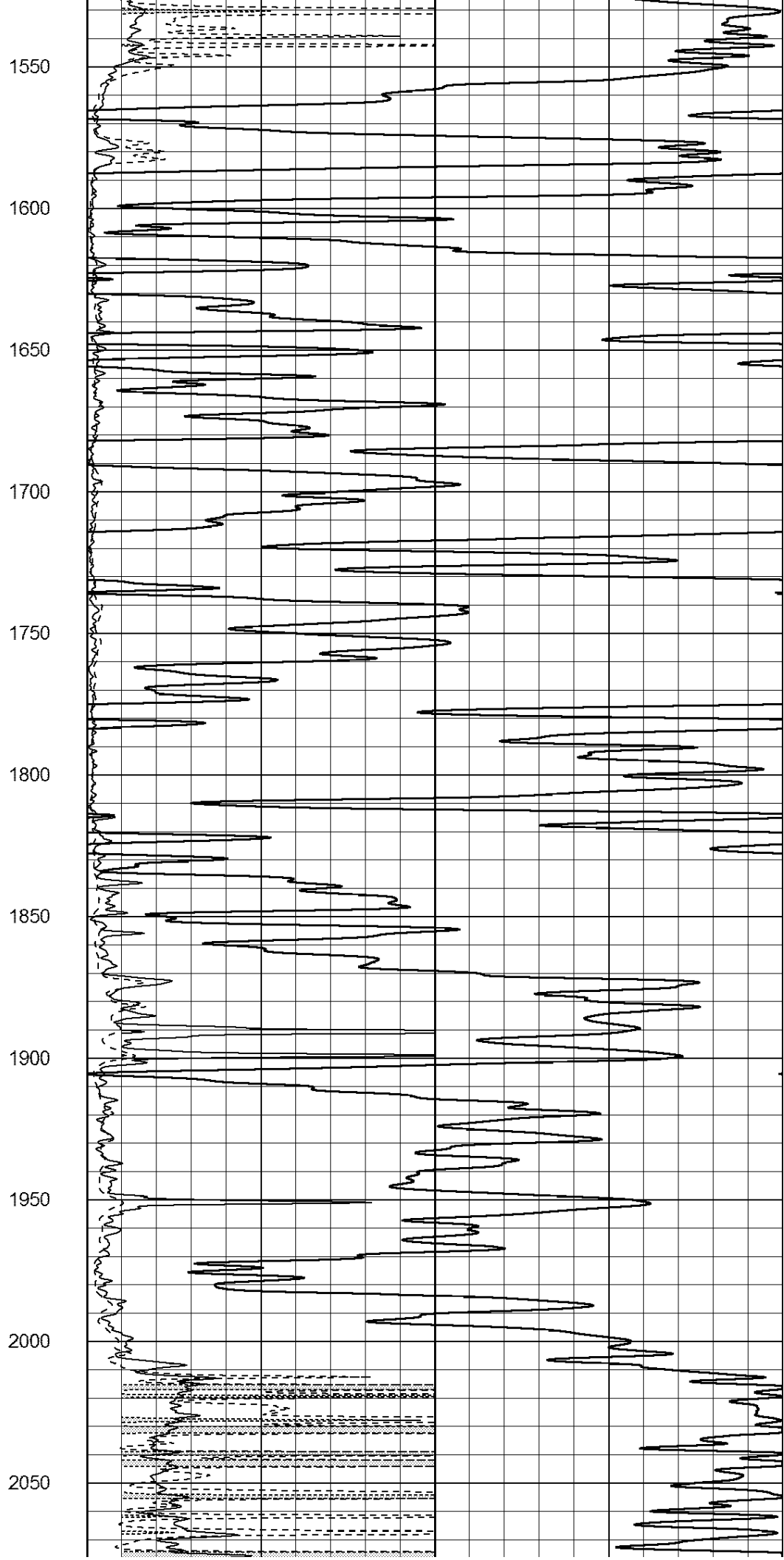
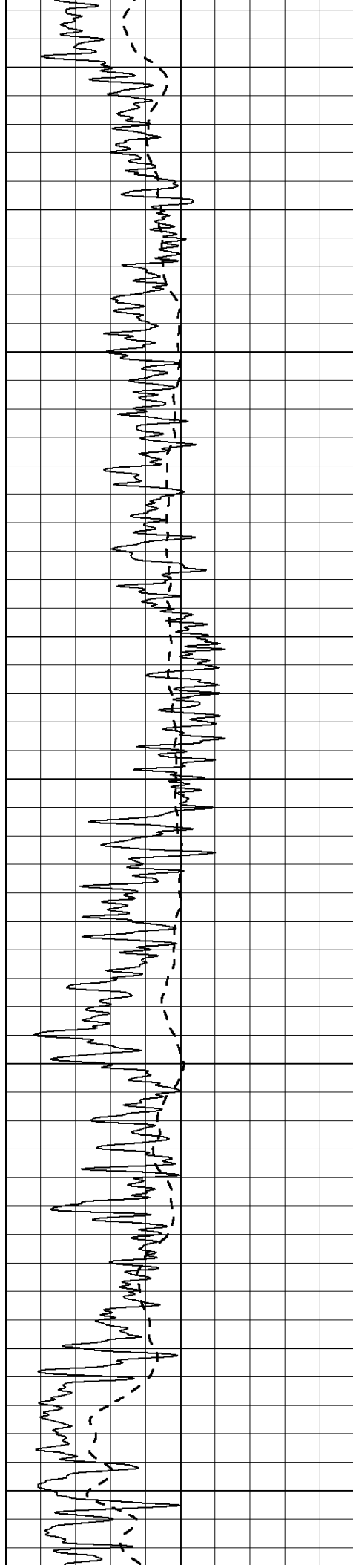


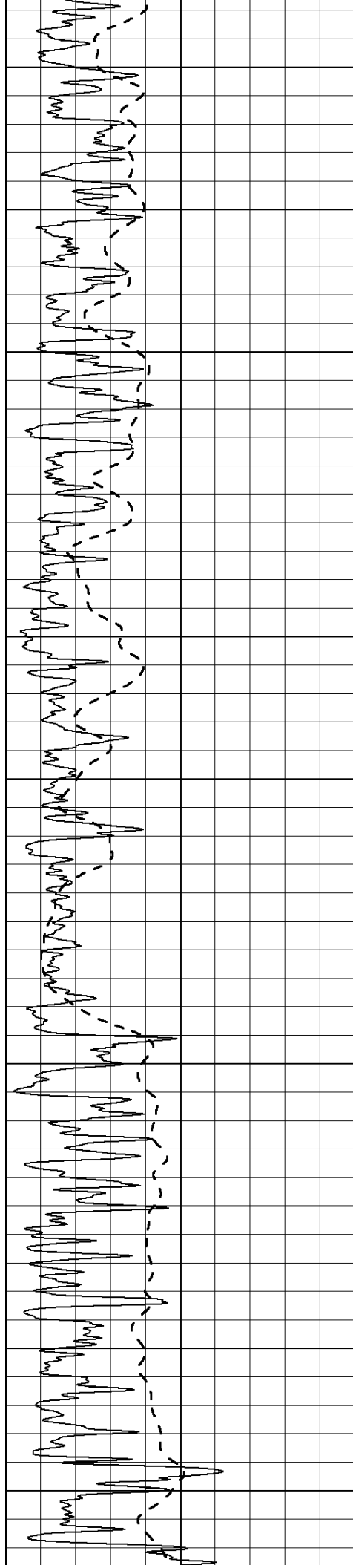
0  
50  
100  
150  
200  
250  
300  
350  
400











2100

2150

2200

2250

2300

2350

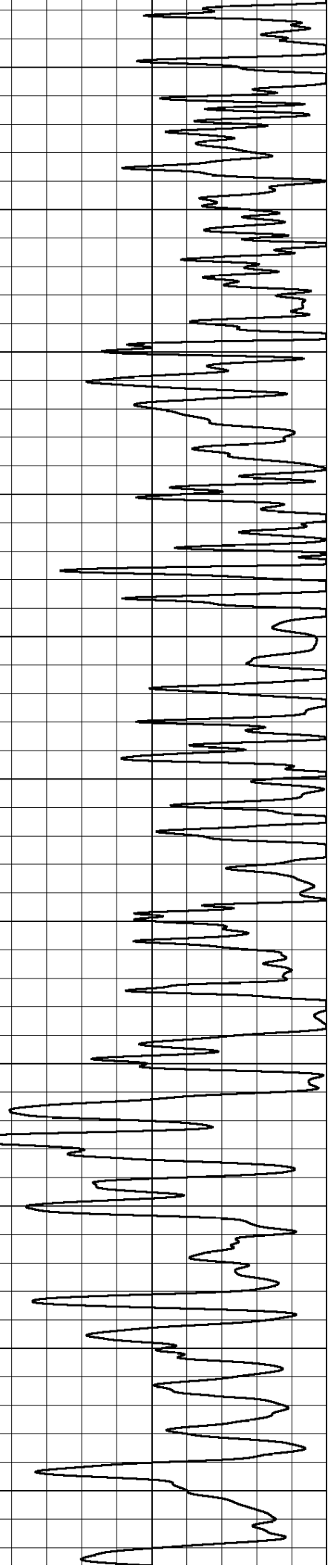
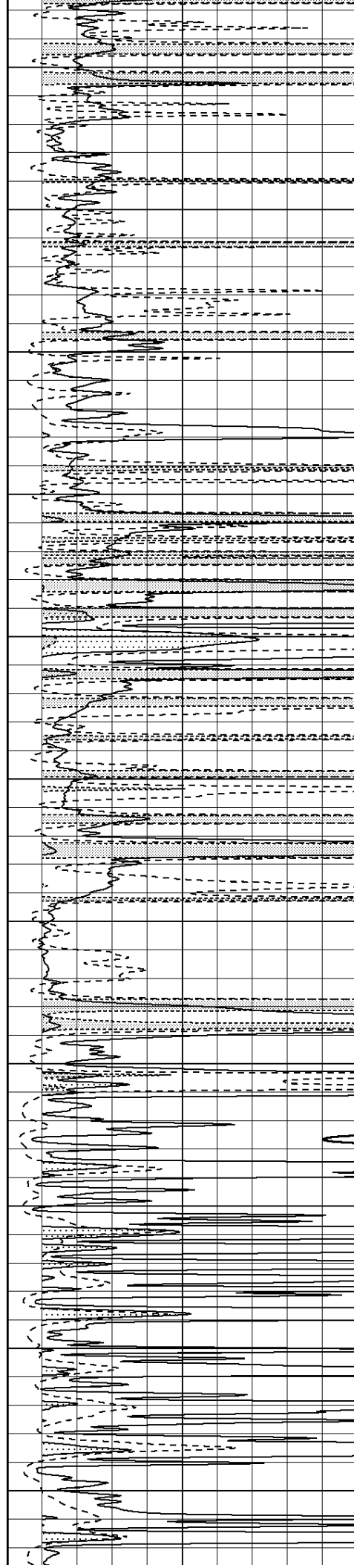
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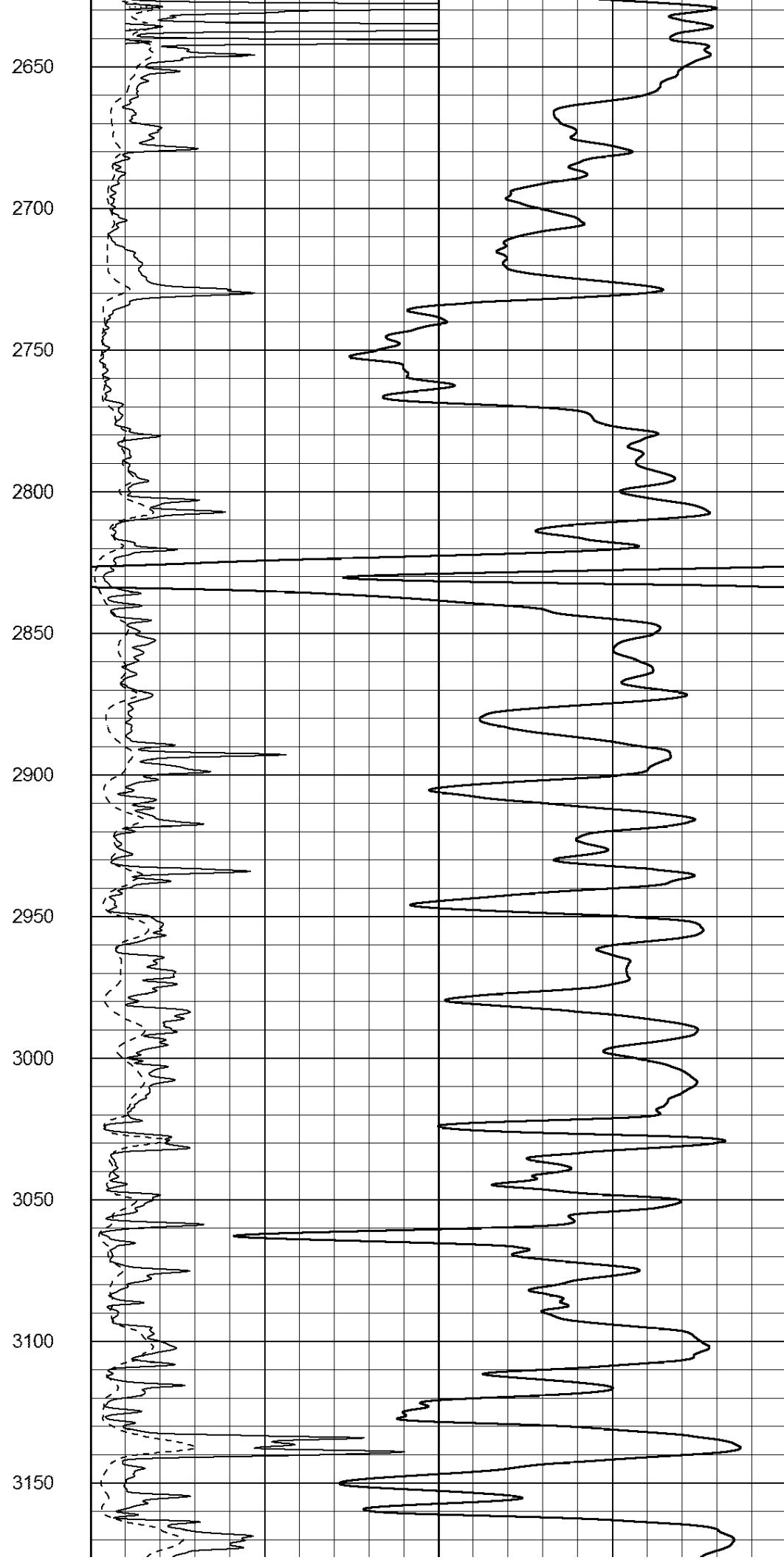
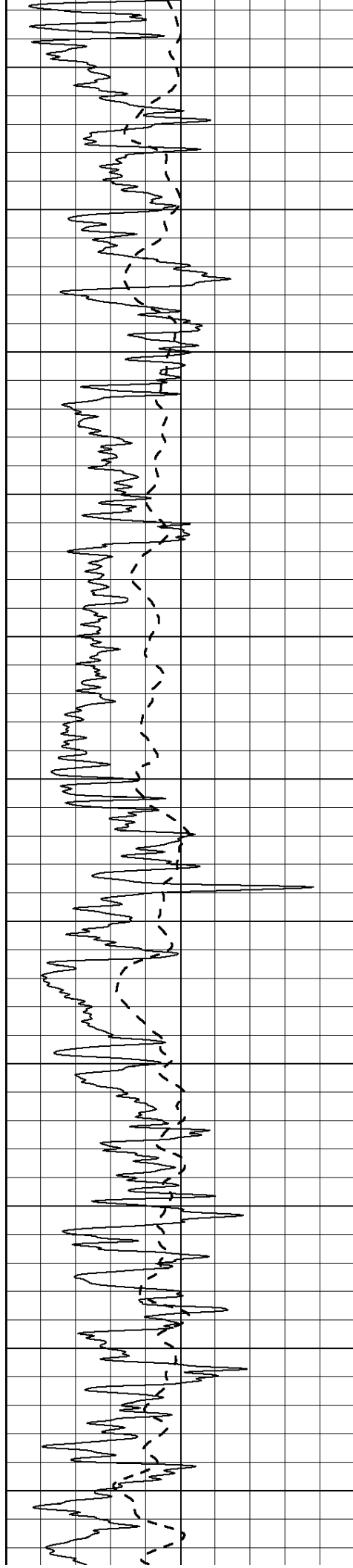
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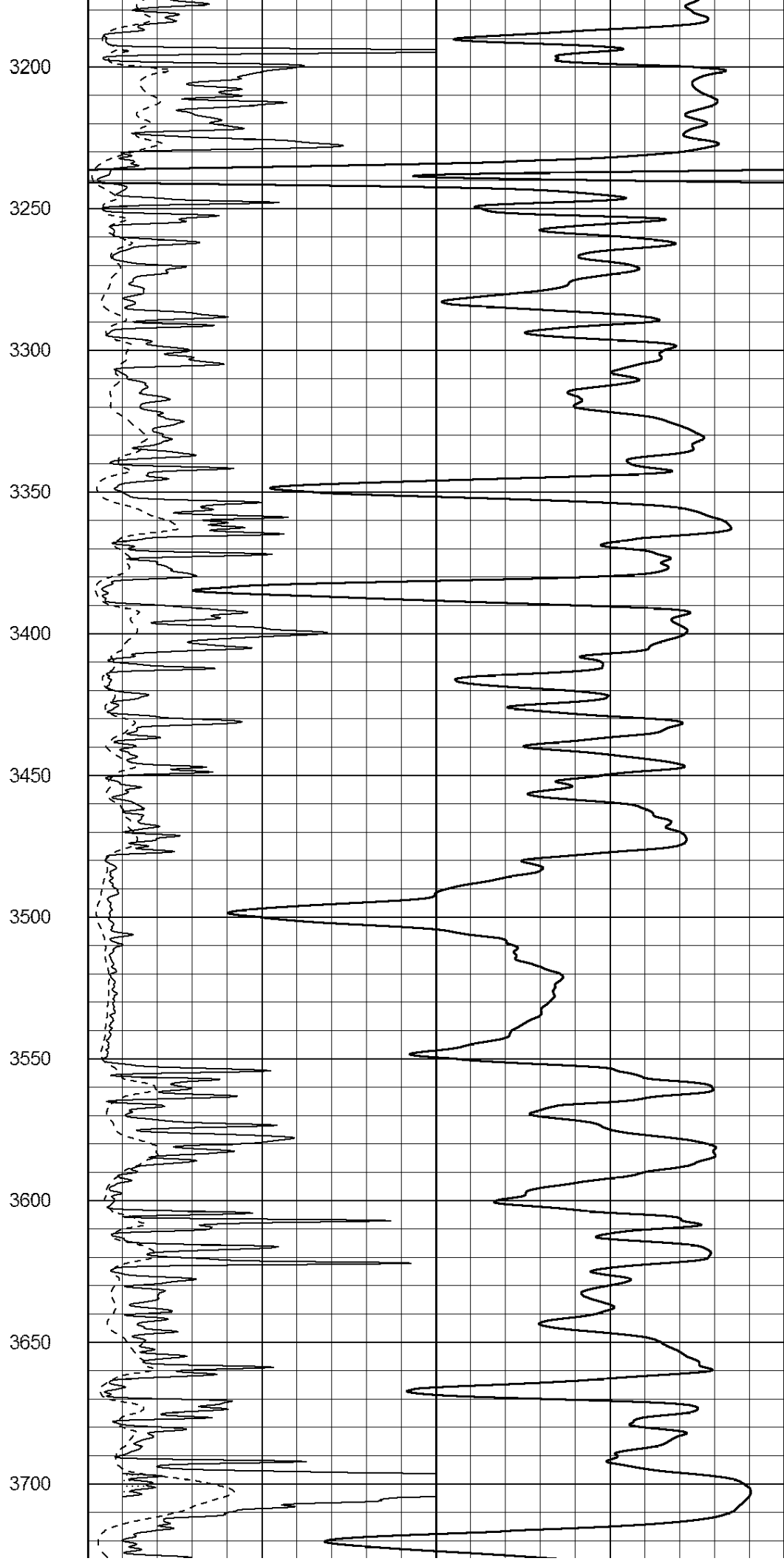
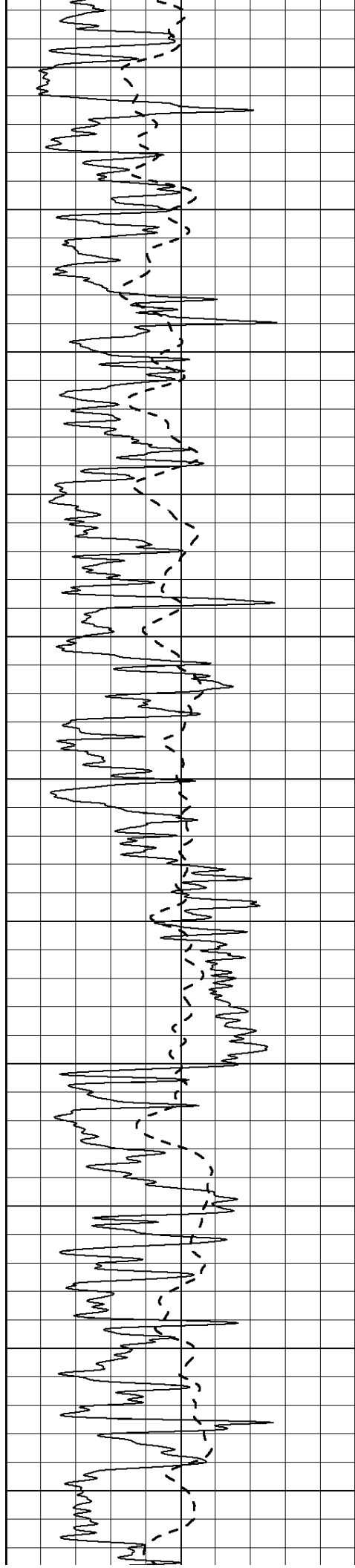
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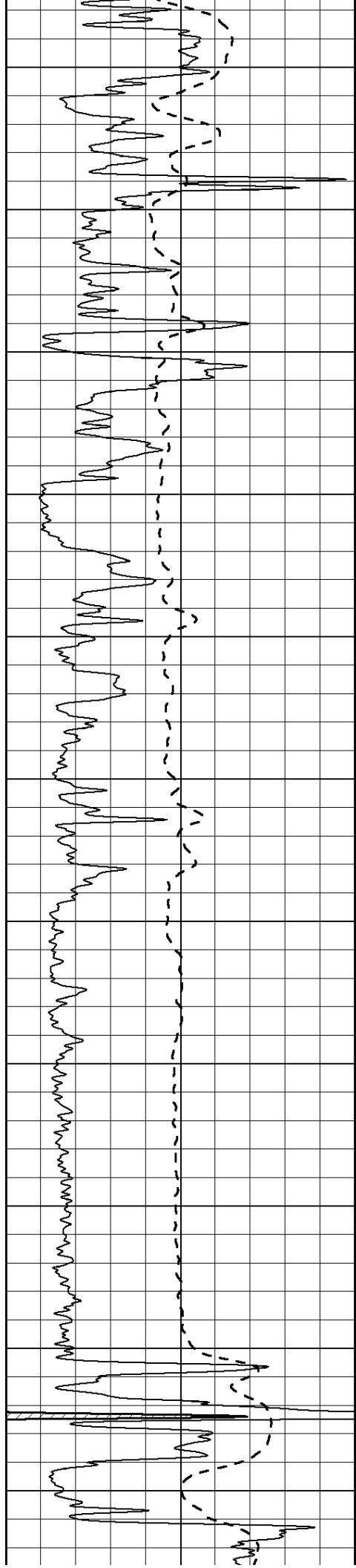
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3750

3800

3850

3900

3950

4000

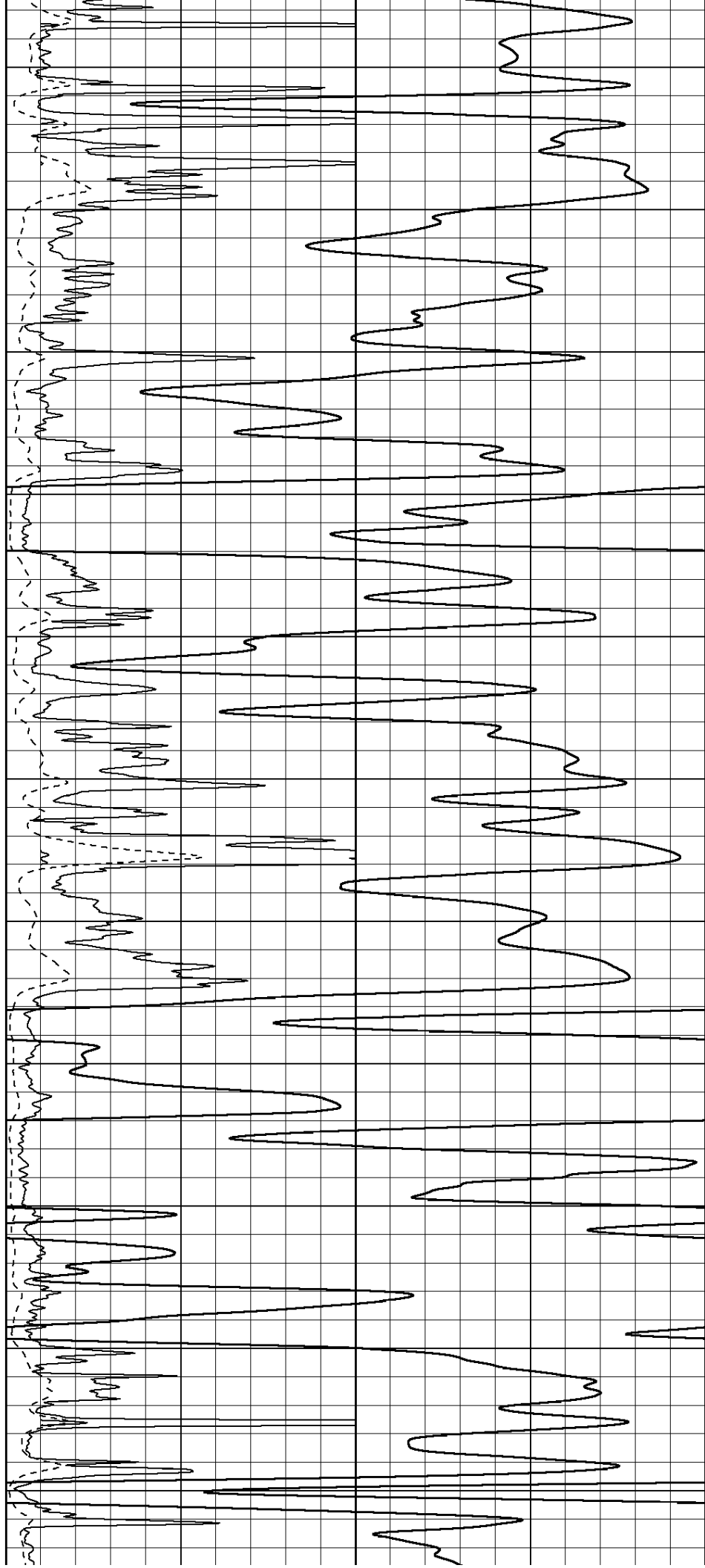
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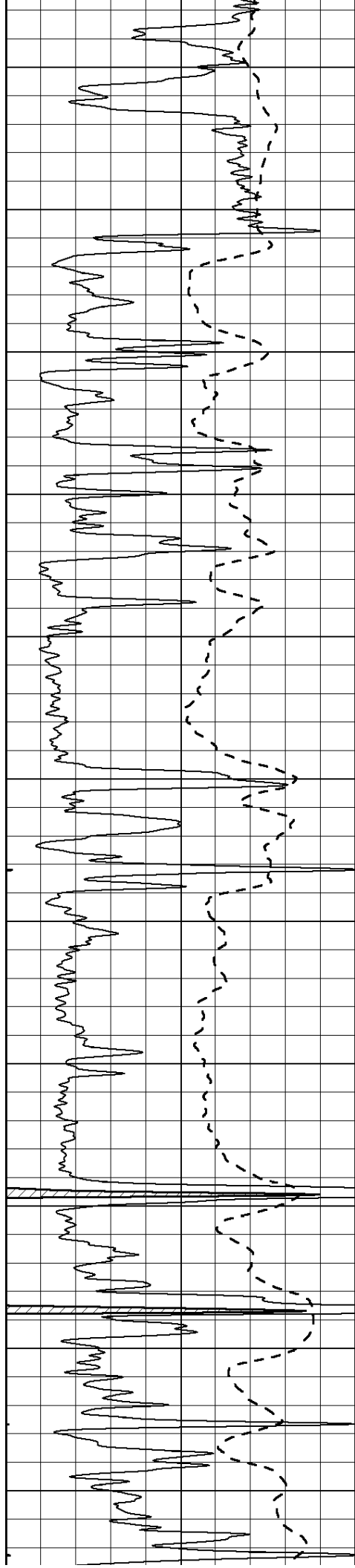
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4150

4200

4250





4300

4350

4400

4450

4500

4550

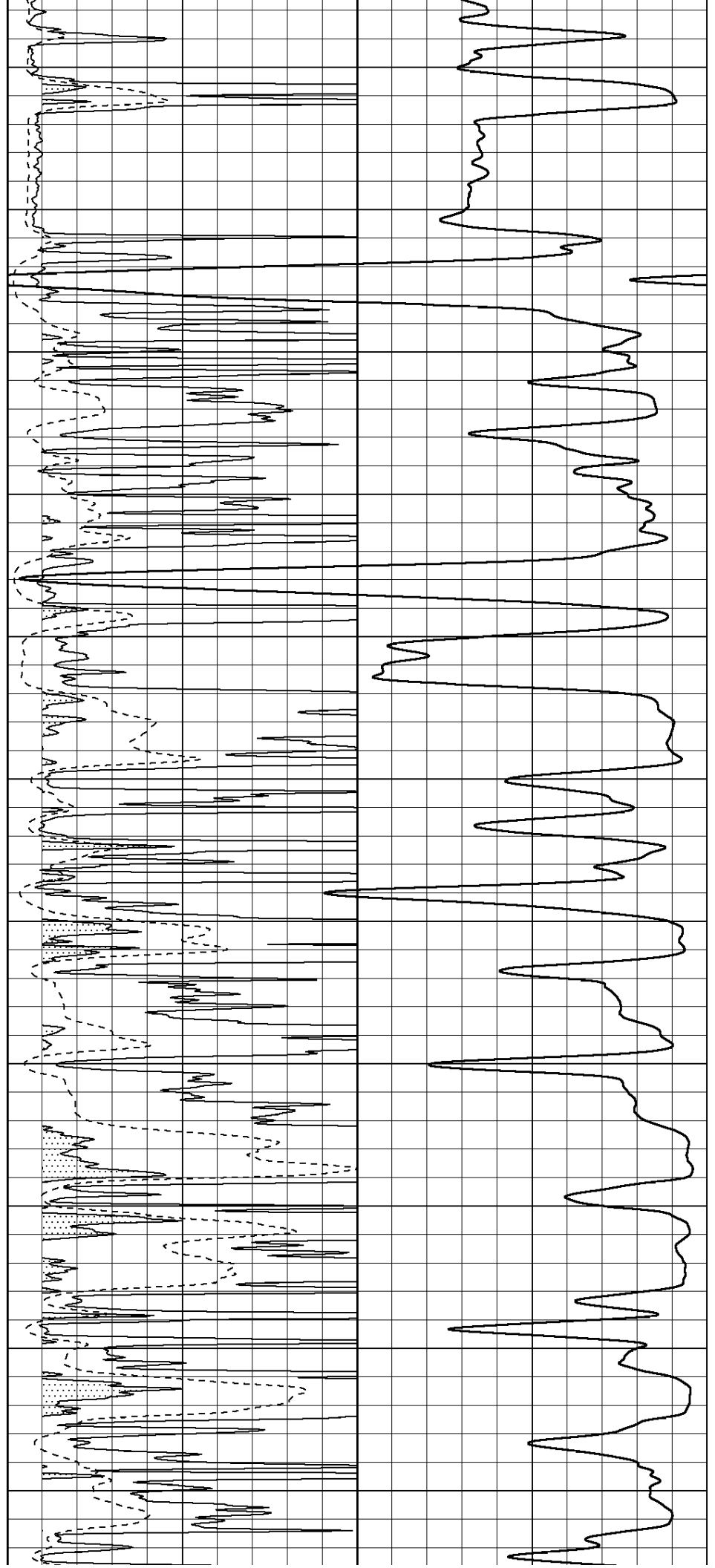
4600

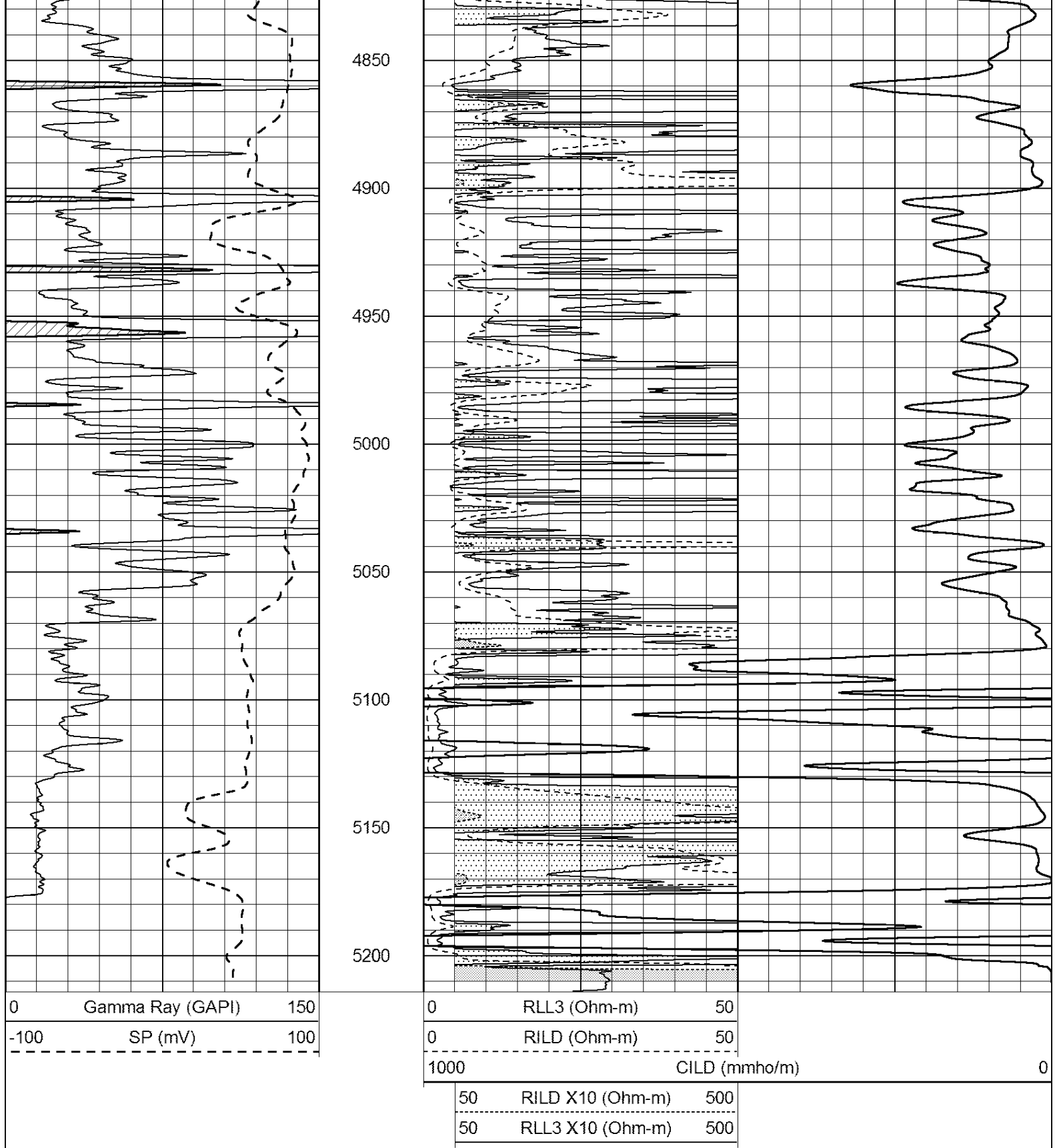
4650

4700

4750

4800





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# MAIN SECTION

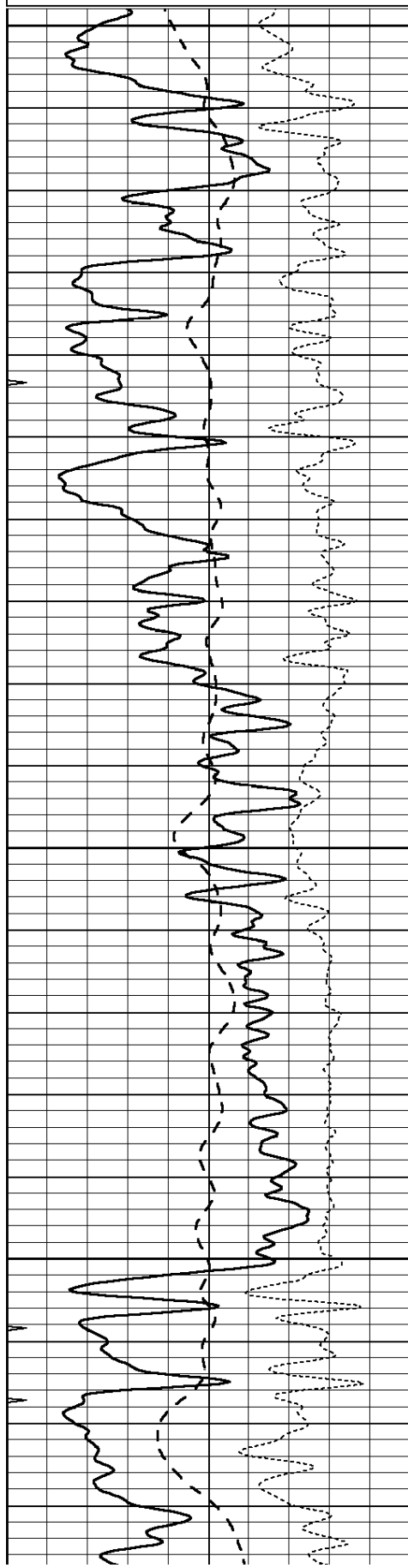
Database File: 007826ddn.db  
Dataset Pathname: pass4.6  
Presentation Format: dil  
Dataset Creation: Wed Nov 09 18:22:45 2011

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 |

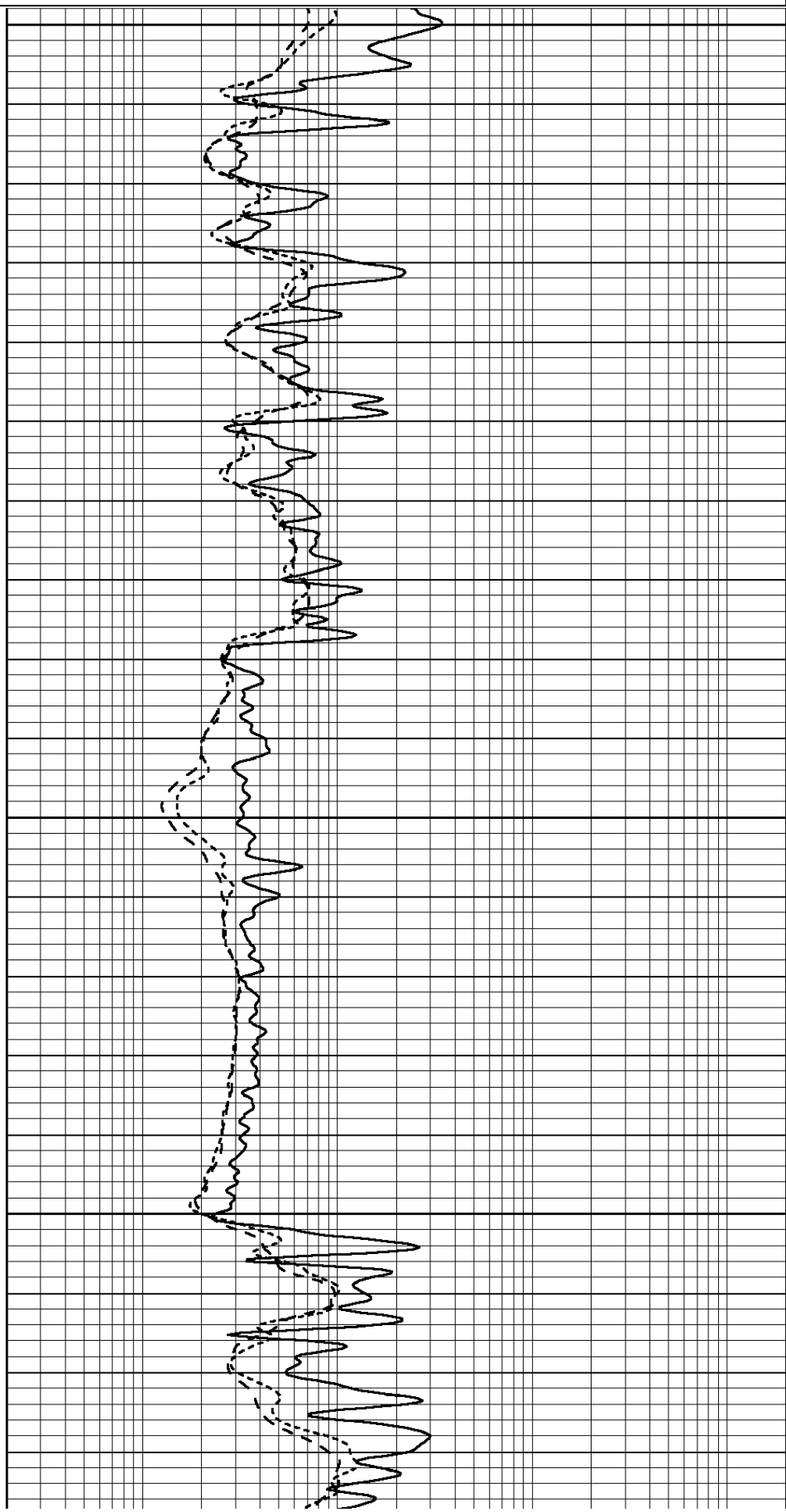


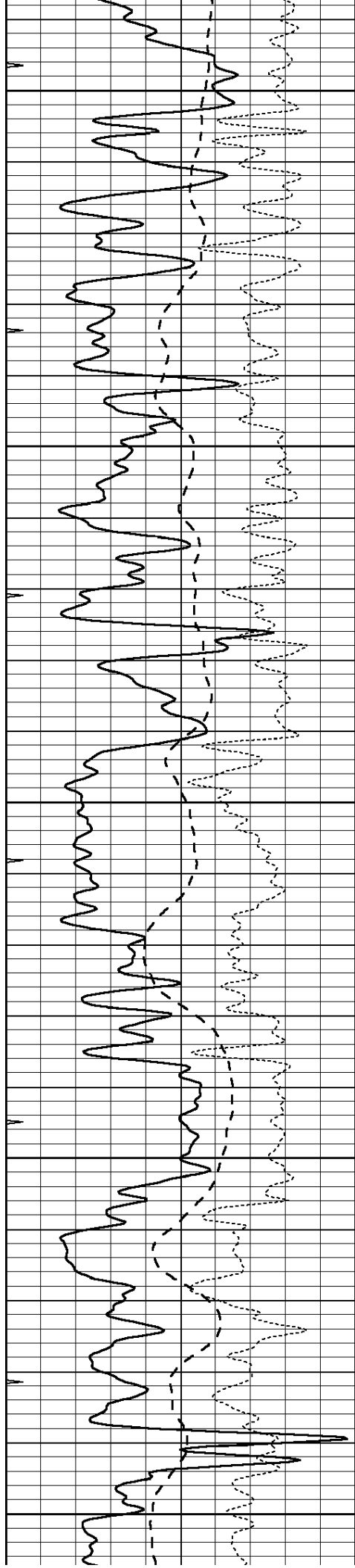
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3450

3500

3550





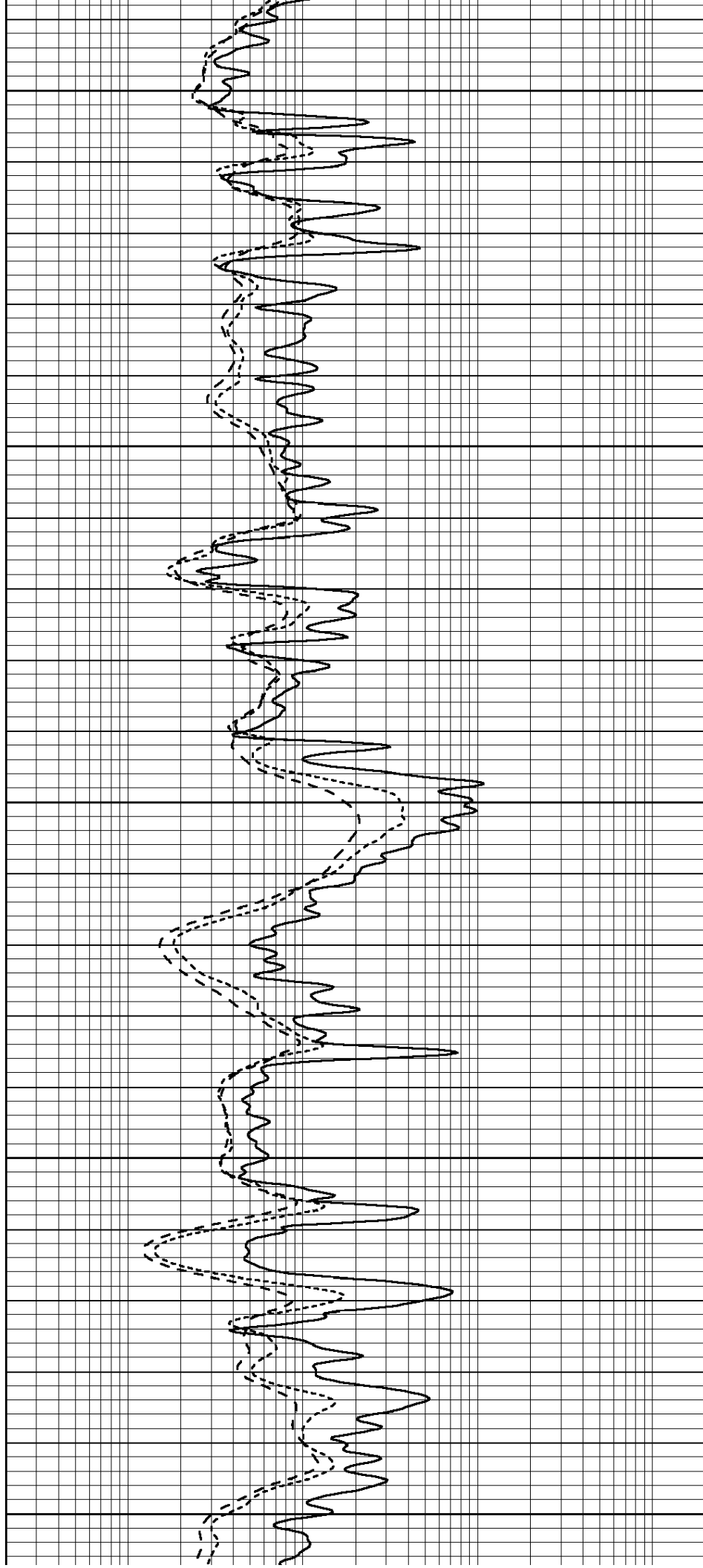
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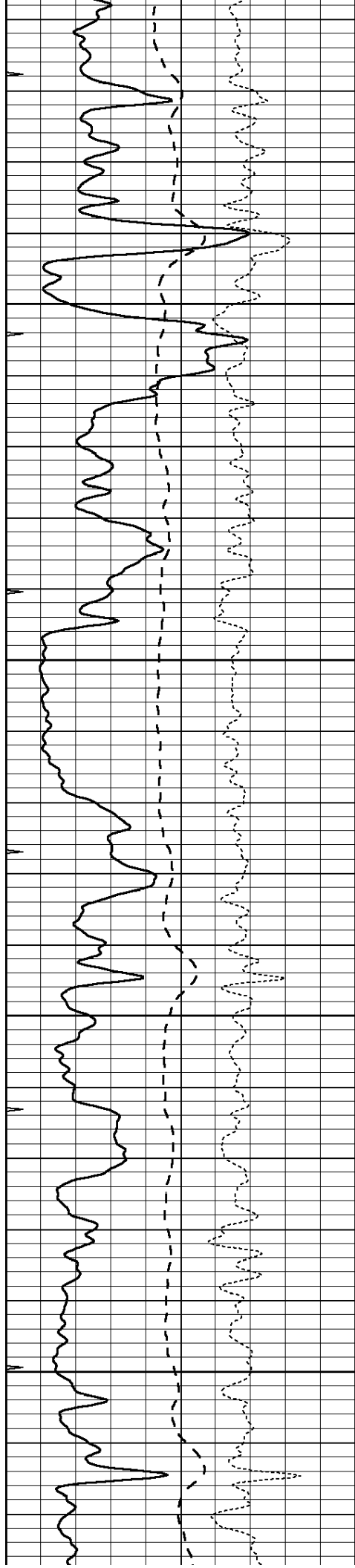
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3700

3750

3800



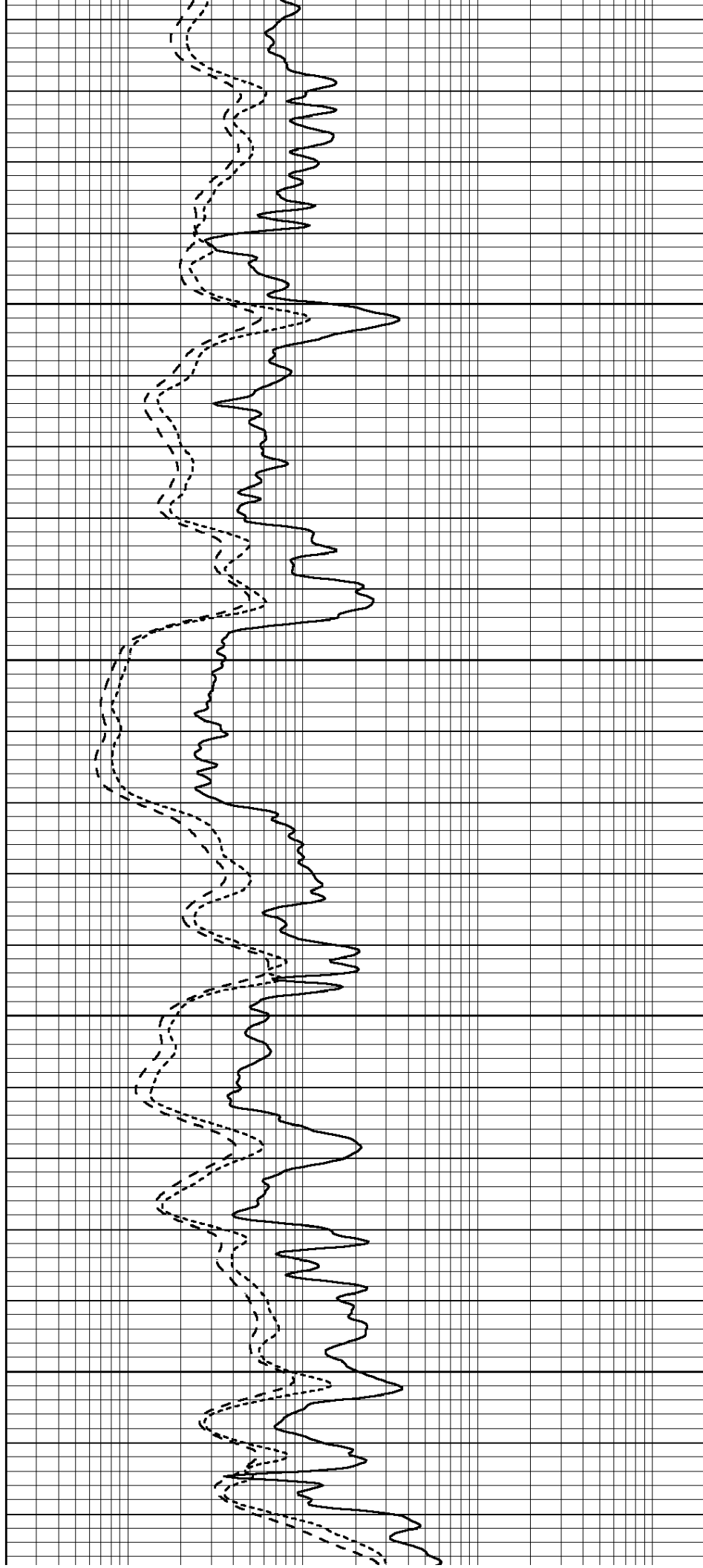


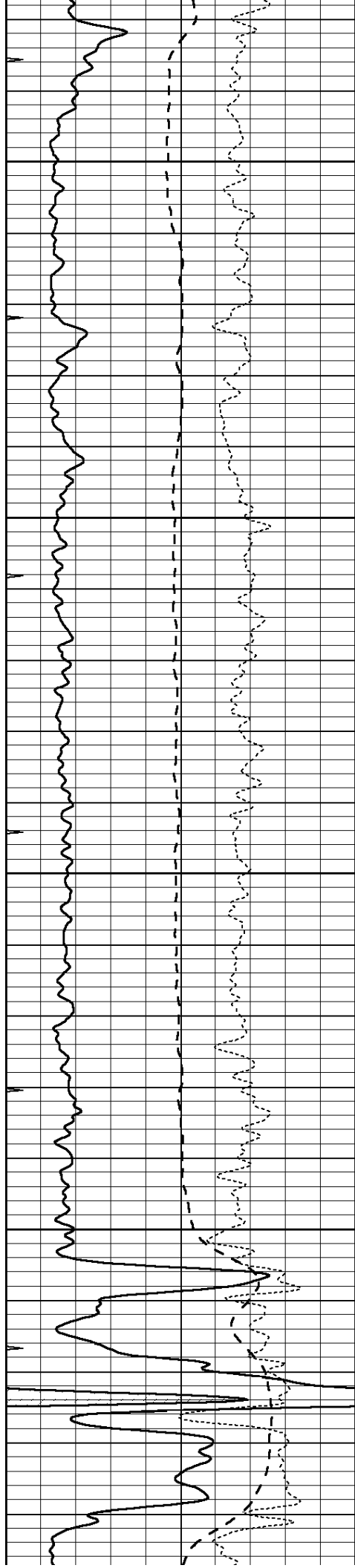
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3900

3950

4000



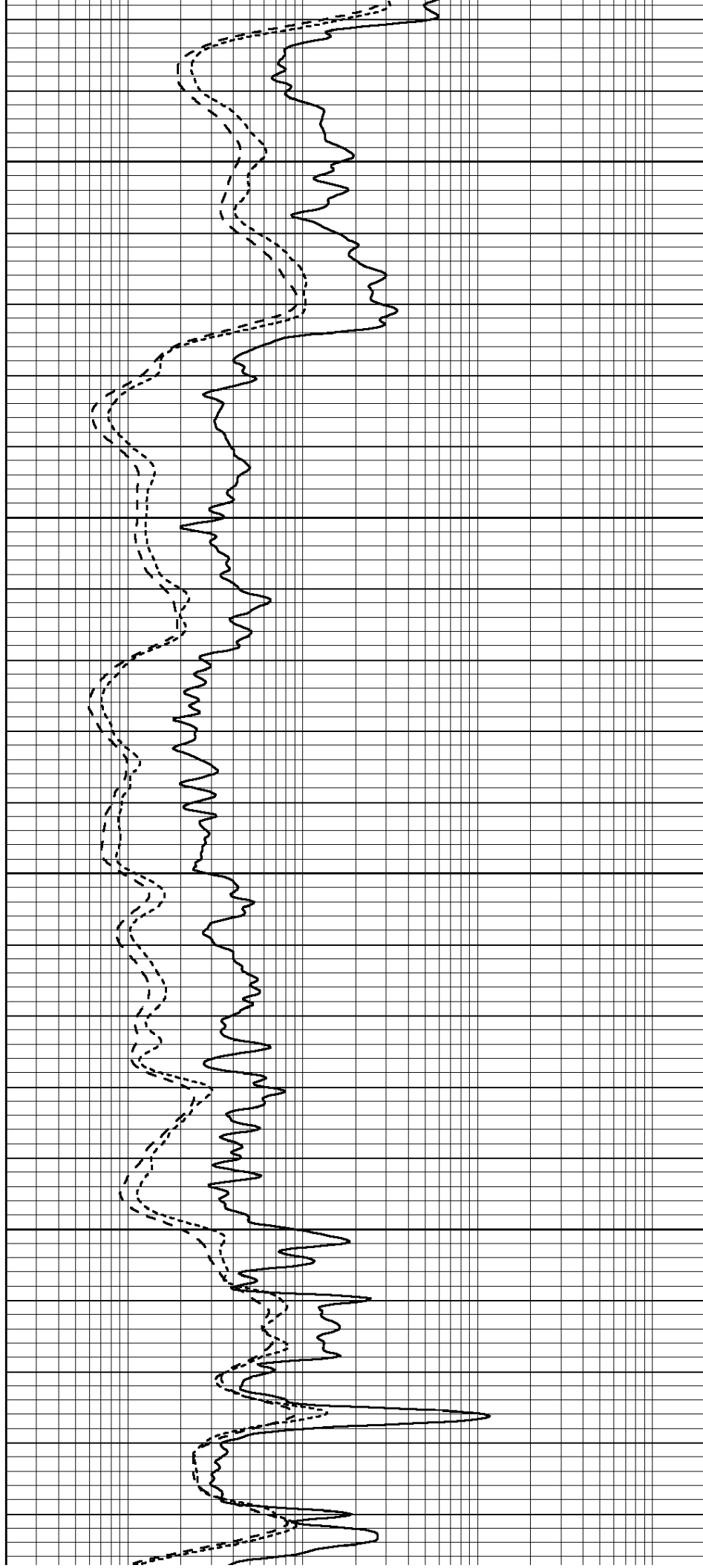


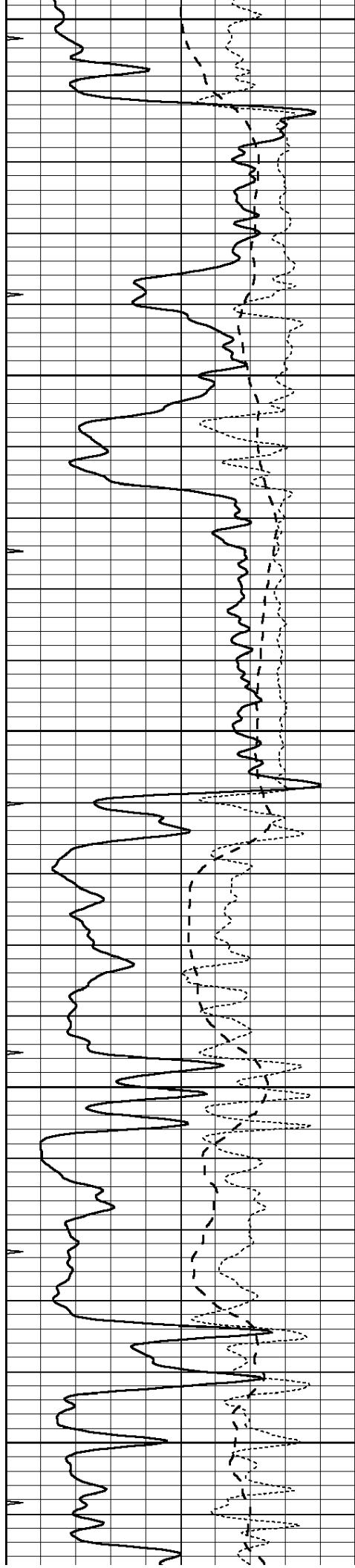
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4100

4150

4200





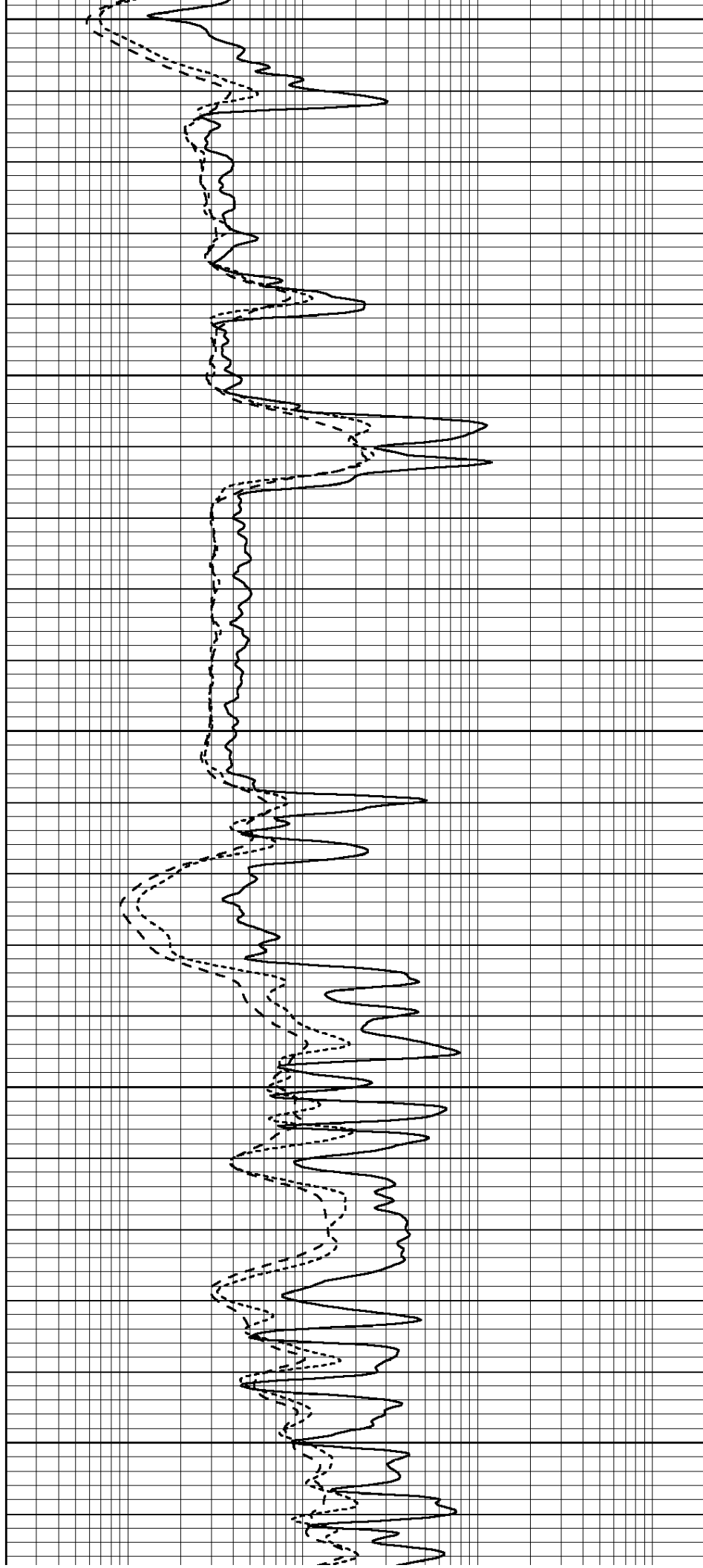
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4300

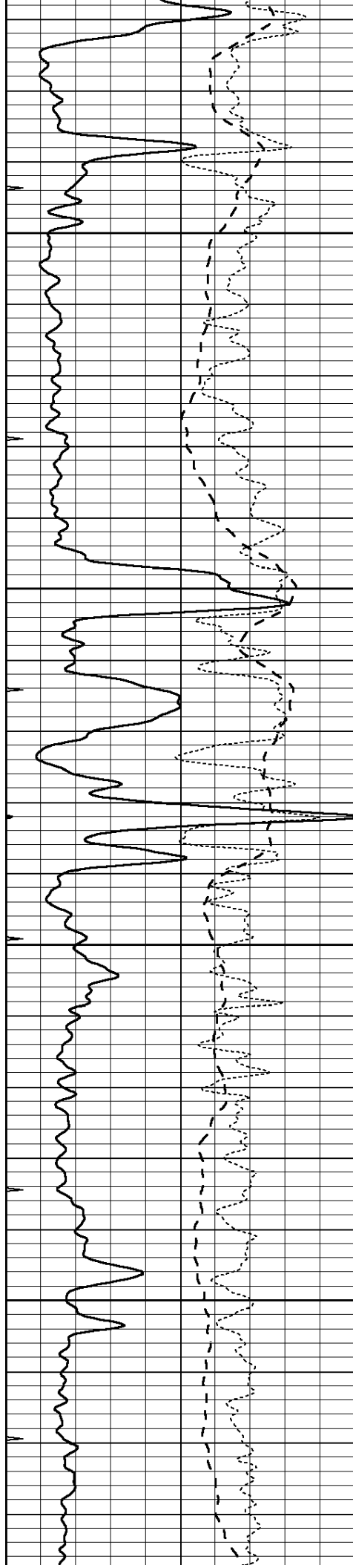
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4400

4450





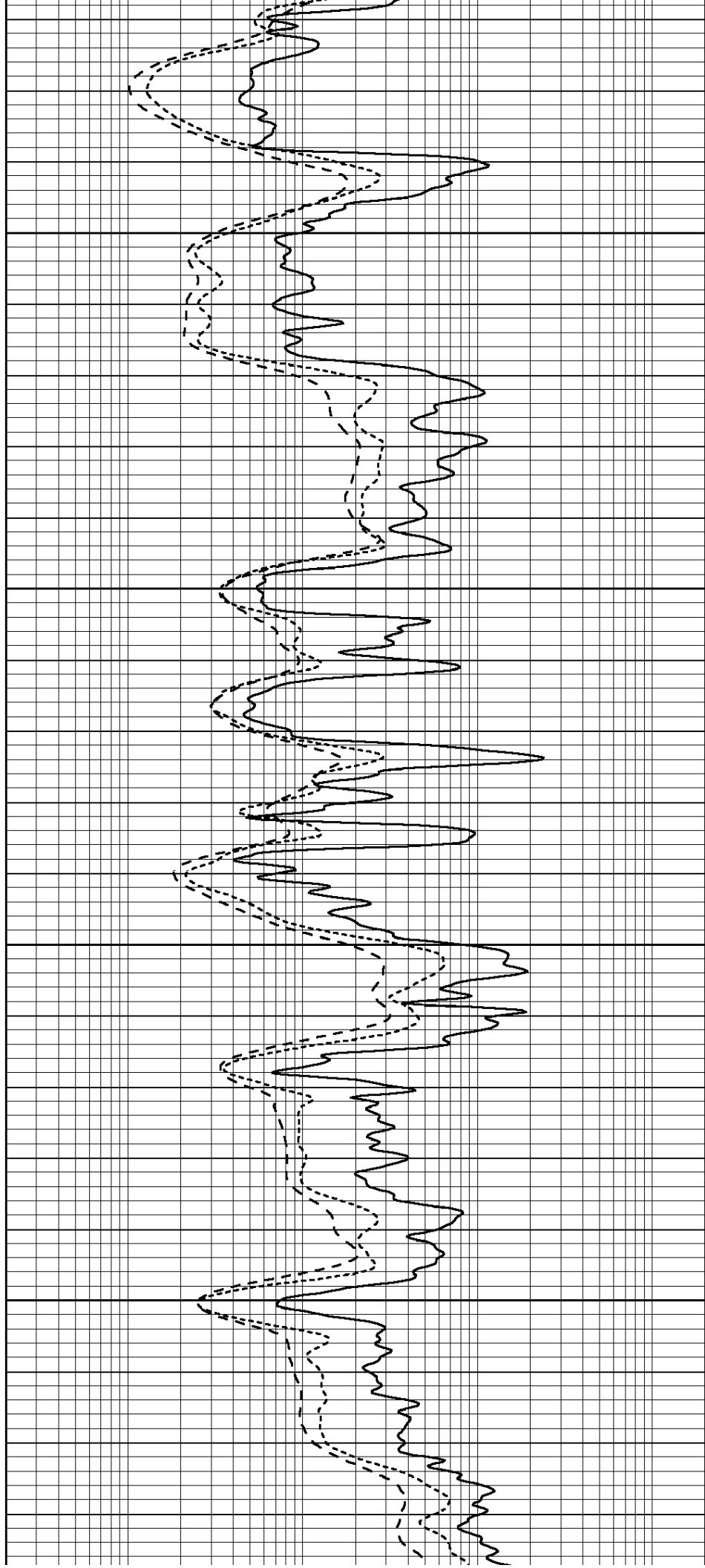


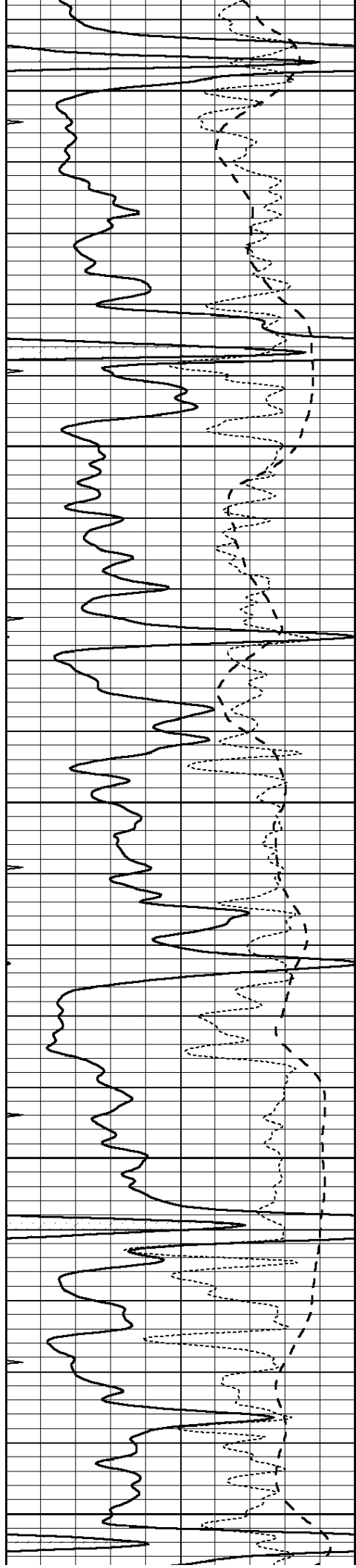
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4550

4600

4650





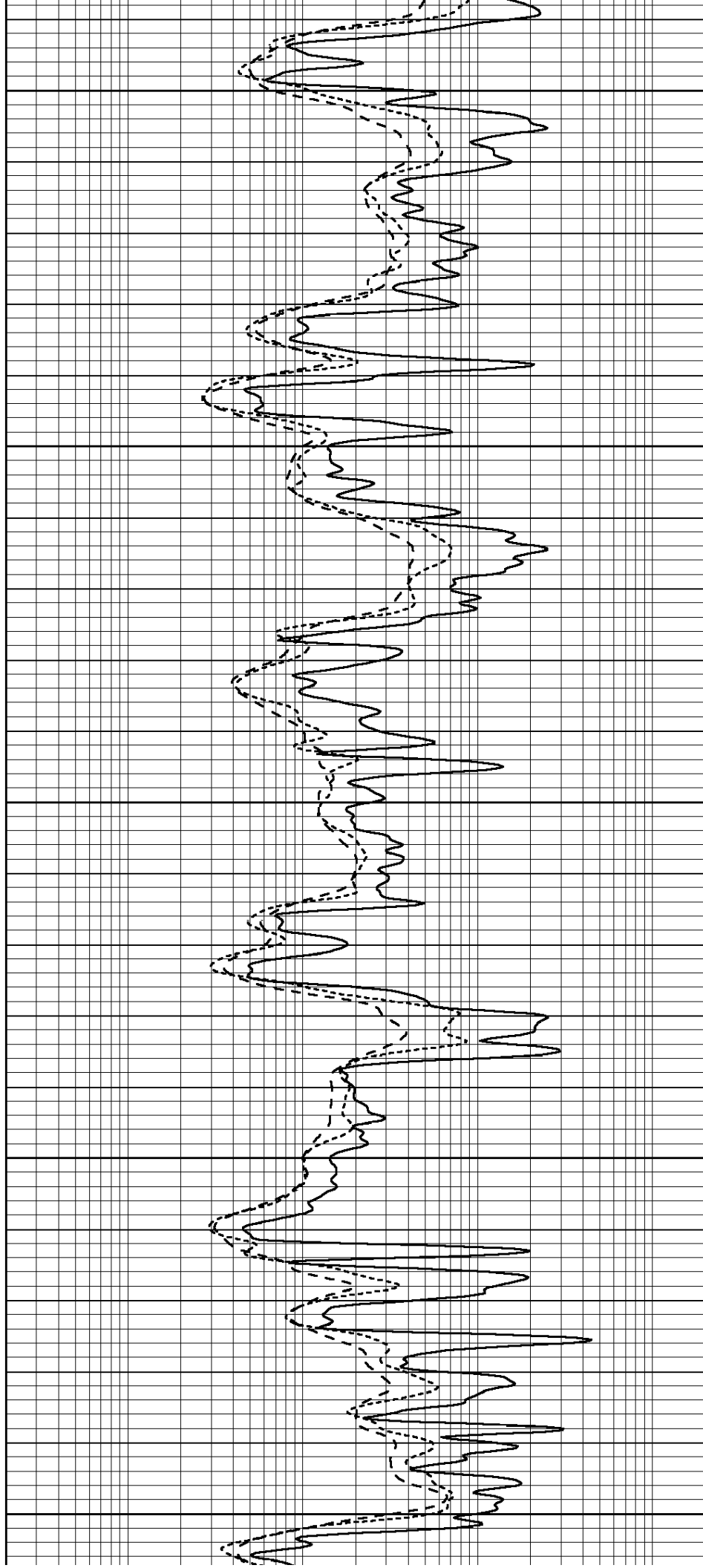
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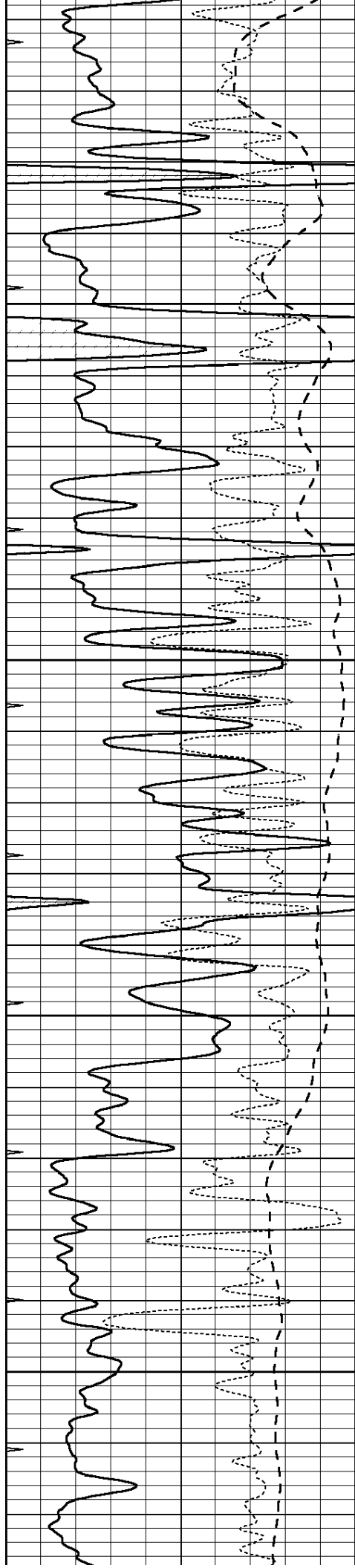
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4800

4850

4900



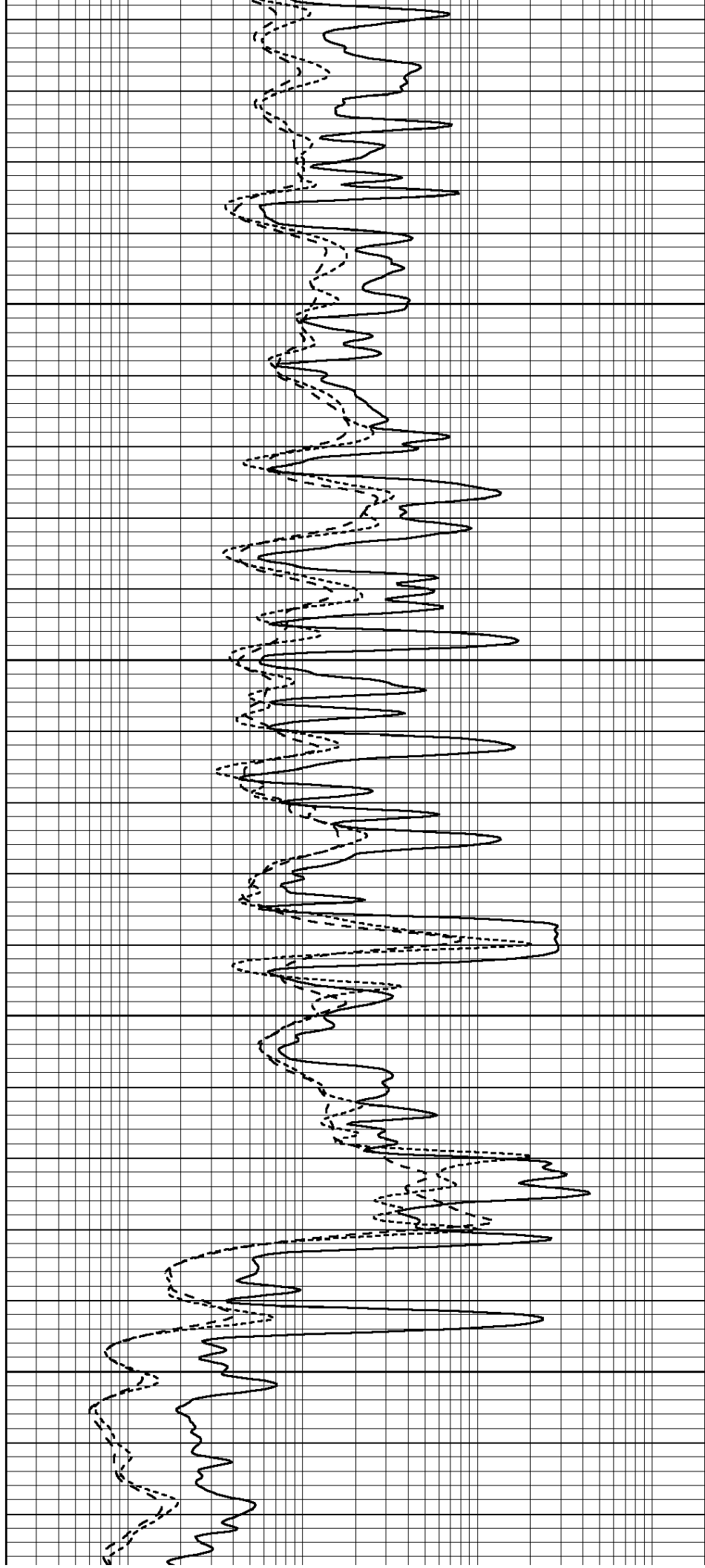


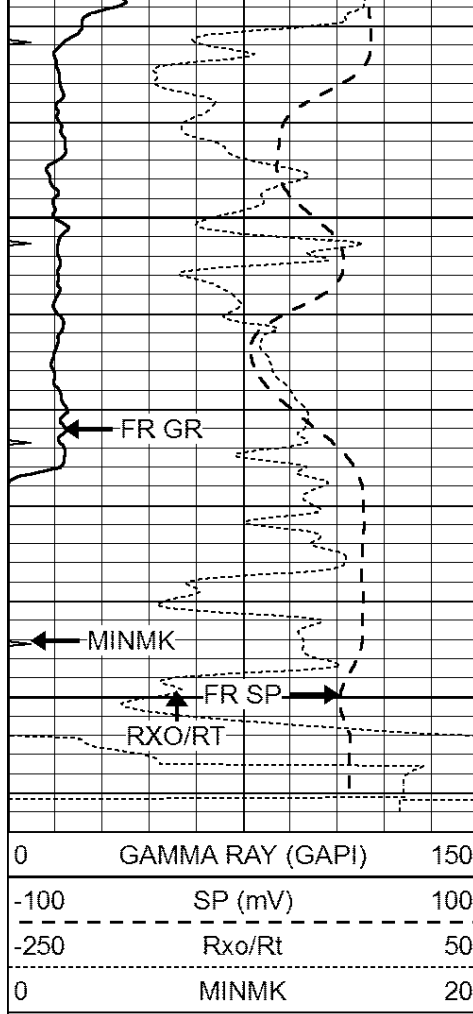
4950

5000

5050

5100

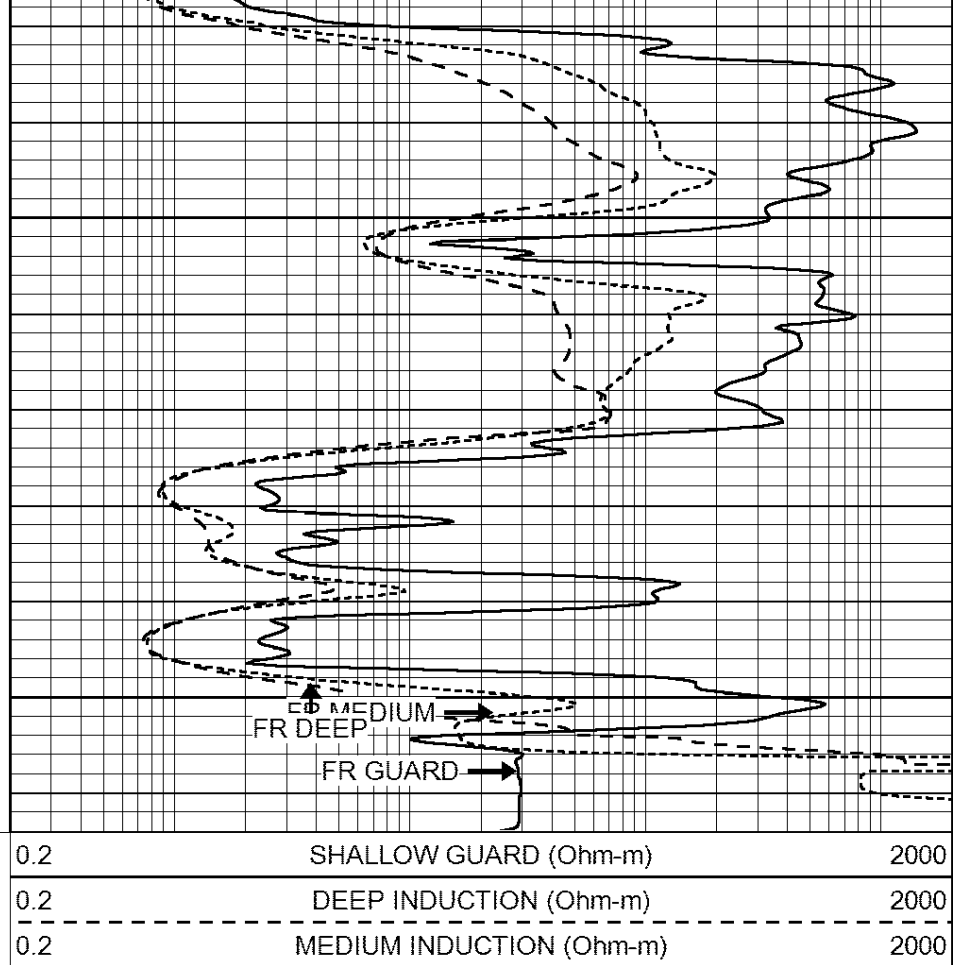




5150

5200

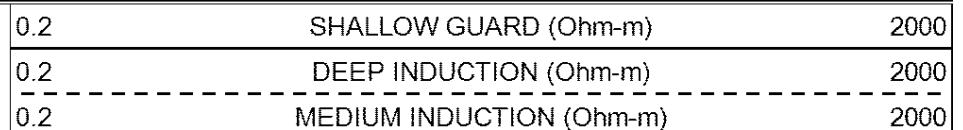
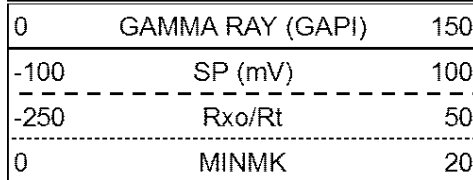
LTD 5210



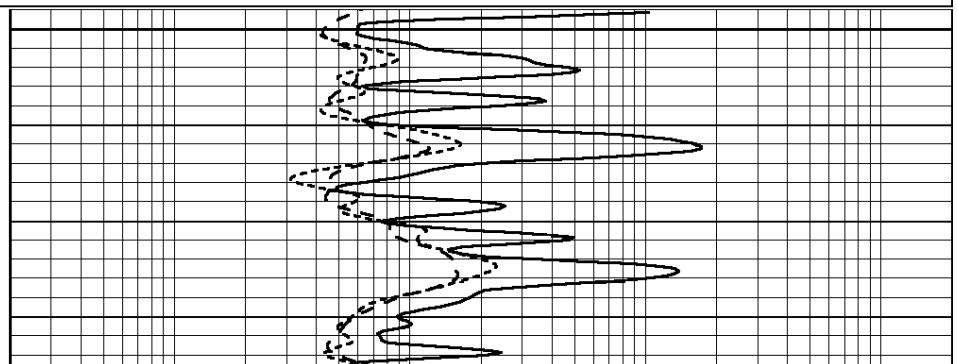
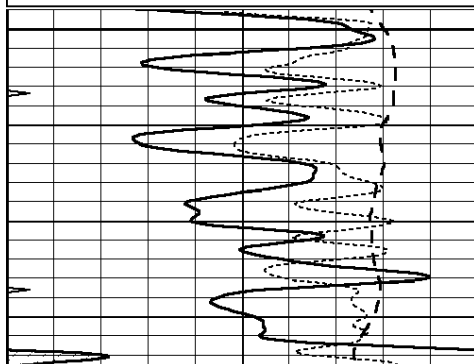
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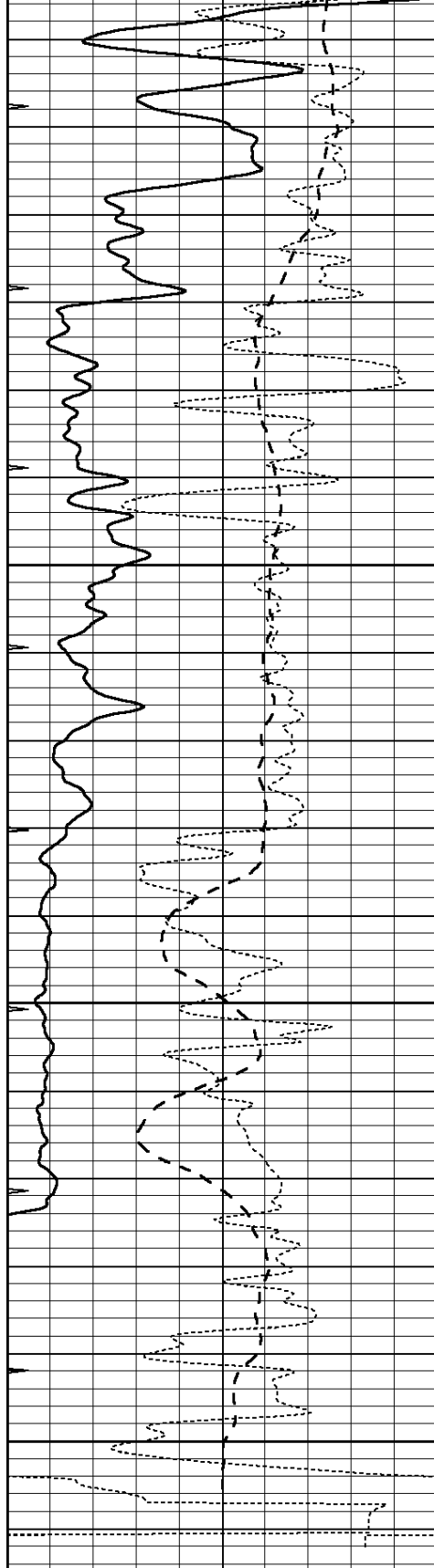
# REPEAT SECTION

Database File: 007826ddn.db  
 Dataset Pathname: pass3.4  
 Presentation Format: dil  
 Dataset Creation: Wed Nov 09 17:53:18 2011  
 Charted by: Depth in Feet scaled 1:240



5000





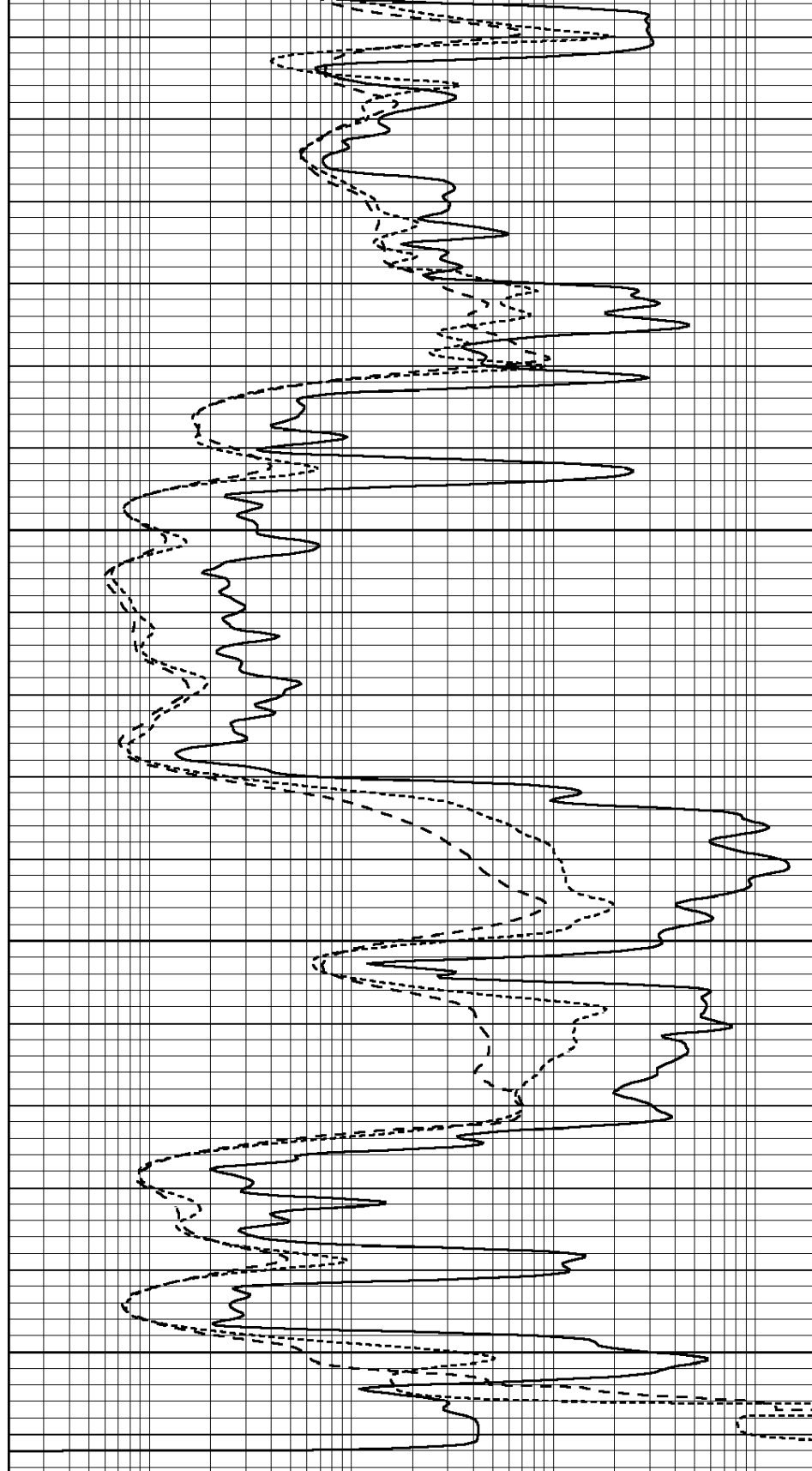
|      |                  |     |
|------|------------------|-----|
| 0    | GAMMA RAY (GAPI) | 150 |
| -100 | SP (mV)          | 100 |
| -250 | Rxo/Rt           | 50  |
| 0    | MINMK            | 20  |

5050

5100

5150

5200



|     |                          |      |
|-----|--------------------------|------|
| 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: 007826ddn.db  
Dataset Pathname: nace4 6

## Dual Induction Calibration Report

Serial-Model:  
Performed:

DIL3-GEAR  
Wed Nov 09 16:43:52 2011

| Readings  |       |       |   | References |         |        | Results |        |
|-----------|-------|-------|---|------------|---------|--------|---------|--------|
| Loop:     | Air   | Loop  |   | Air        | Loop    |        | m       | b      |
| Deep      | 0.011 | 0.656 | V | 0.000      | 400.000 | mmho/m | 640.000 | 11.000 |
| Medium    | 0.013 | 0.740 | V | 0.000      | 462.500 | mmho/m | 700.000 | -5.000 |
| Internal: | Zero  | Cal   |   | Zero       | Cal     |        | m       | b      |
| Deep      | 0.002 | 0.645 | V | 0.000      | 400.000 | mmho/m | 622.059 | -1.071 |
| Medium    | 0.007 | 0.740 | V | 0.000      | 462.500 | mmho/m | 631.393 | -4.555 |

Litho Density Calibration Report  
Serial: 003N      Model: PRB  
Performed Tue Sep 08 14:14:44 2009

## Litho Density Calibration

|             | Background | Magnesium   | Aluminum | Sandstone           |         |
|-------------|------------|-------------|----------|---------------------|---------|
| Window 1    | 2042.6     | 12312.8     | 4225.8   | 13758.4             | cps     |
| Window 2    | 1855.8     | 10134.7     | 3624.2   | 11113.1             | cps     |
| Window 3    | 1639.4     | 6760.2      | 2716.3   | 7260.3              | cps     |
| Window 4    | 466.4      | 469.2       | 466.1    | 476.5               | cps     |
| Long Space  | 0.0        | 8278.9      | 1768.4   | 9257.4              | cps     |
| Short Space | 2.2        | 2377.3      | 1544.1   | 2574.2              | cps     |
| Rho         |            | 1.7100      | 2.5900   | 1.3800              | g/cc    |
| Pe          |            |             | 2.5700   | 1.5500              |         |
| Rib Angle   | : 44.4     | Rib Slope   | : 0.979  | Density/Spine Ratio | : 0.549 |
| Spine Angle | : 74.4     | Spine Slope | : 3.577  | Spine Intercept     | : -18.8 |

Caliper

|          |           |           |             |
|----------|-----------|-----------|-------------|
|          | Readings  | Reference |             |
| Low Ref  | 2.0       | 7.6       |             |
| High Ref | 4.0       | 15.0      |             |
|          | Gain: 3.6 |           | Offset: 0.5 |

# Compensated Neutron Calibration Report

Serial Number: 070807  
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 | cps      |          |        |
| Long Space  | cps      | pu       | pu     |

# Gamma Ray Calibration Report

Serial Number: 070558  
Tool Model: OPEN GR

Performed: Wed Nov 09 16:43:36 2011

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps

Calibrator Reading: 1.0 cps

Sensitivity: 0.2500 GAPI/cps