



**COMPLETION
& PRODUCTION
SERVICES CO.**

**DUAL
INDUCTION
LOG**

Company DOWNING NELSON OIL COMPANY, INC.
Well HERMAN #1-11
Field WILDCAT
County TREGO
State KANSAS

Company DOWNING NELSON OIL COMPANY, INC.
Well HERMAN #1-11
Field WILDCAT
County TREGO State KANSAS

Location: API # : 15-195-22849-0000
1100' FSL & 775' FWL
SEC 11 TWP 14S RGE 21W
Permanent Datum GROUND LEVEL Elevation 2224
Log Measured From KELLY BUSHING 8' A.G.L.
Drilling Measured From KELLY BUSHING
Other Services
CDL/CNL
MEL/SON
Elevation
K.B. 2232
D.F. 2230
G.L. 2224

| | | | |
|------------------------------|-------------------|--------------------|--|
| Date | 2/6/13 | | |
| Run Number | ONE | | |
| Depth Driller | 4111 | | |
| Depth Logger | 4112 | | |
| Bottom Logged Interval | 4110 | | |
| Top Log Interval | 00 | | |
| Casing Driller | 8 5/8" @ 221 | | |
| Casing Logger | 219 | | |
| Bit Size | 7 7/8" | | |
| Type Fluid in Hole | CHEMICAL MUD | CHLORIDES 7000 PPM | |
| Density / Viscosity | 9.1/56 | | |
| pH / Fluid Loss | 10.5/8.8 | | |
| Source of Sample | FLOWLINE | | |
| Rm @ Meas. Temp | 1.1 @ 58F | | |
| Rmt @ Meas. Temp | .82 @ 58F | | |
| Rmc @ Meas. Temp | 1.3 @ 58F | | |
| Source of Rmf / Rmc | MEASUREMENT | | |
| Rm @ BHT | .54 @ 117F | | |
| Time Circulation Stopped | 2 HOURS | | |
| Time Logger on Bottom | | | |
| Maximum Recorded Temperature | 117F | | |
| Equipment Number | 4010 | | |
| Location | HAYS, KANSAS | | |
| Recorded By | JASON CAPPELLUCCI | | |
| Witnessed By | RON NELSON | | |

<<< 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

THANK YOU FOR USING NABORS HAYS, KANSAS (785) 628-6395
DIRECTIONS
ELLIS, KS. - S. TO VICTORIA RD. - 4 W. TO 390TH RD. - 2 S. - E. INTO



MAIN SECTION

Database File: 010642ddn.db
 Dataset Pathname: pass3.3
 Presentation Format: _dil2
 Dataset Creation: Wed Feb 06 11:52:04 2013 by Calc Open-Cased 090629
 Charted by: Depth in Feet scaled 1:600

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

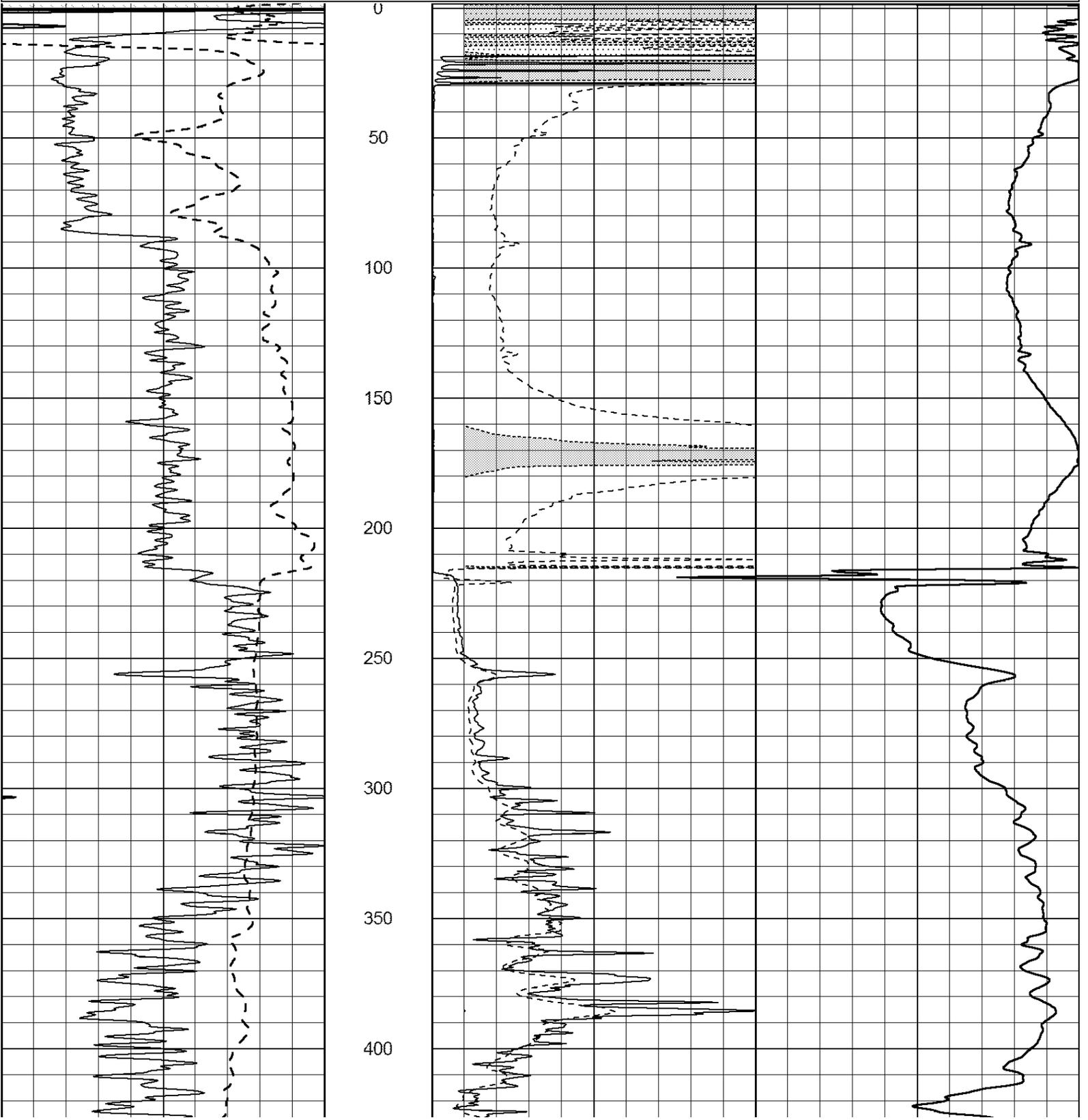
0 RLL3 (Ohm-m) 50

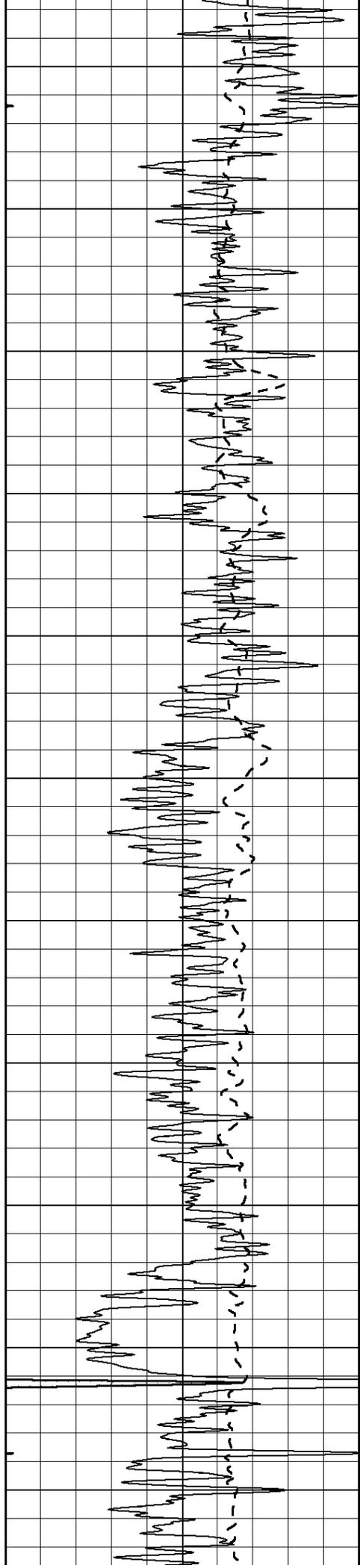
0 RILD (Ohm-m) 50

1000 CILD (mmho/m) 0

50 RILD X10 (Ohm-m) 500

50 RLL3 X10 (Ohm-m) 500





450

500

550

600

650

700

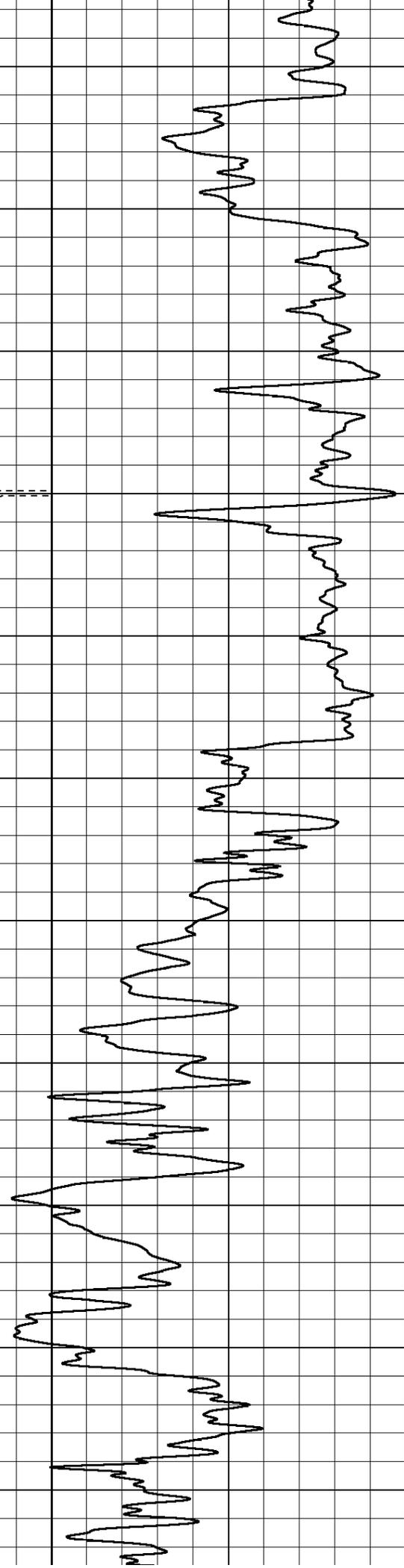
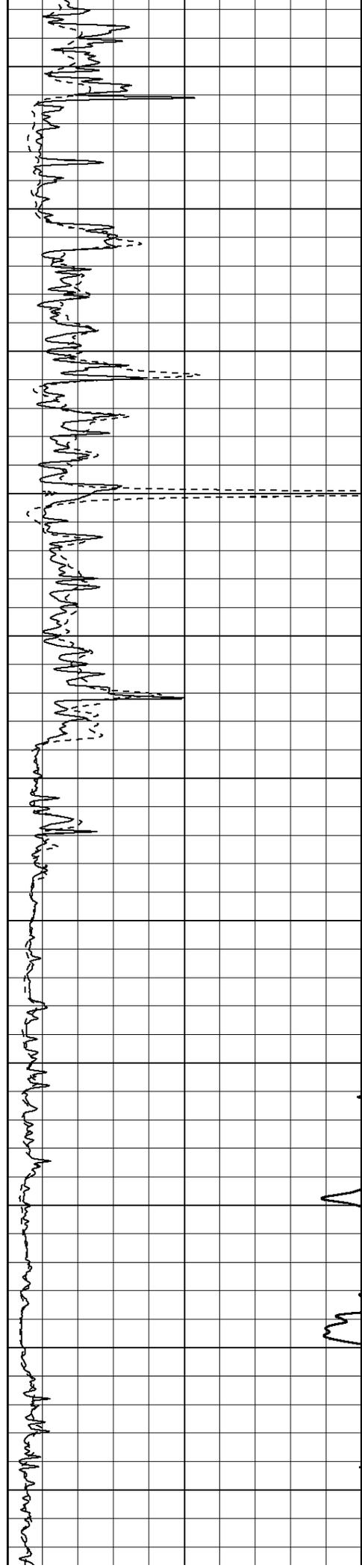
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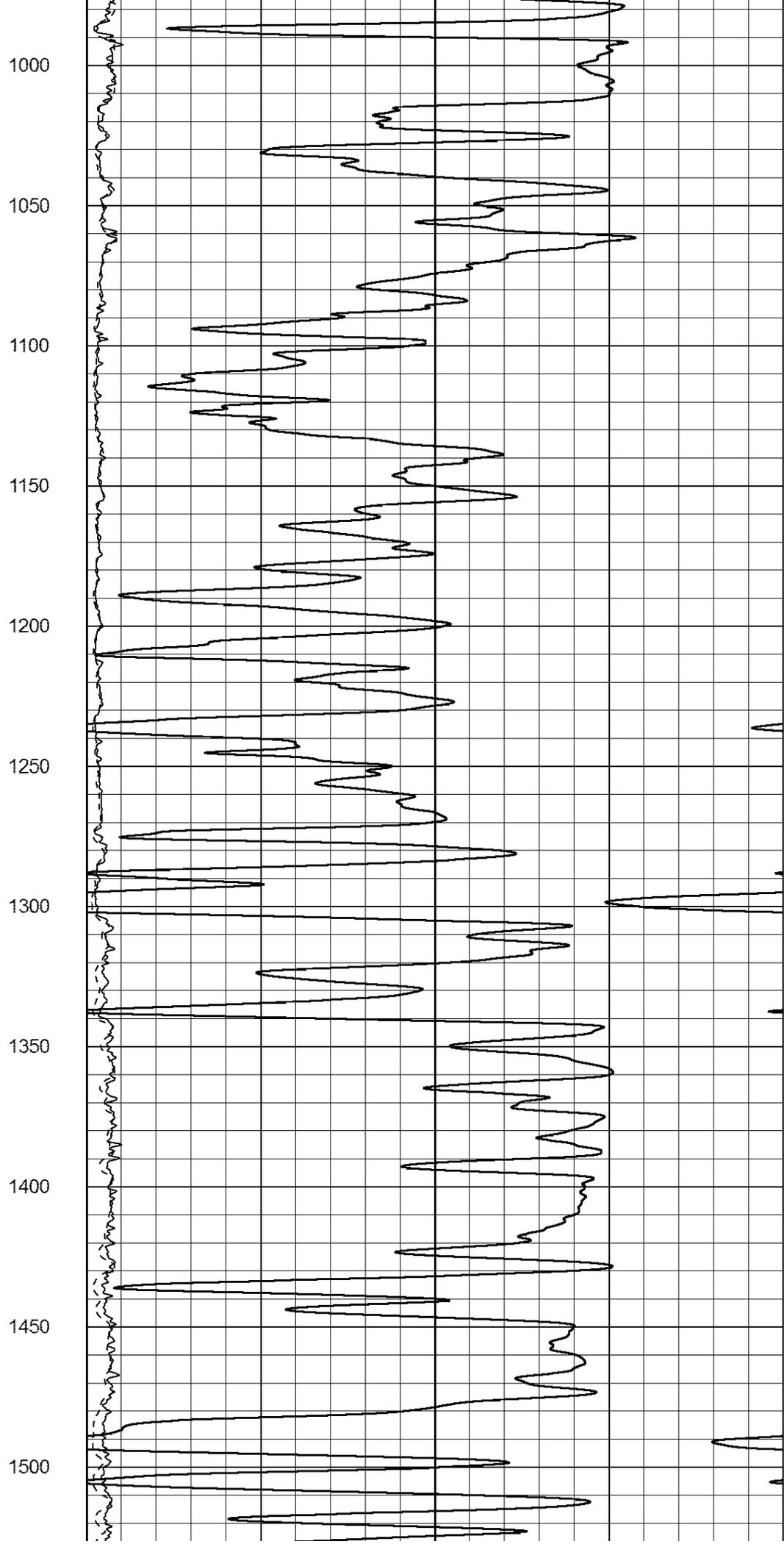
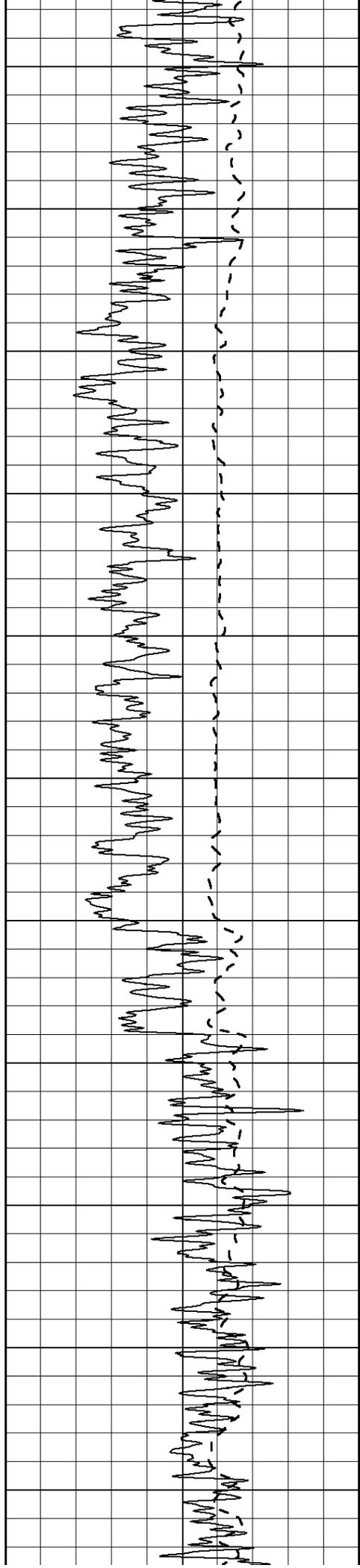
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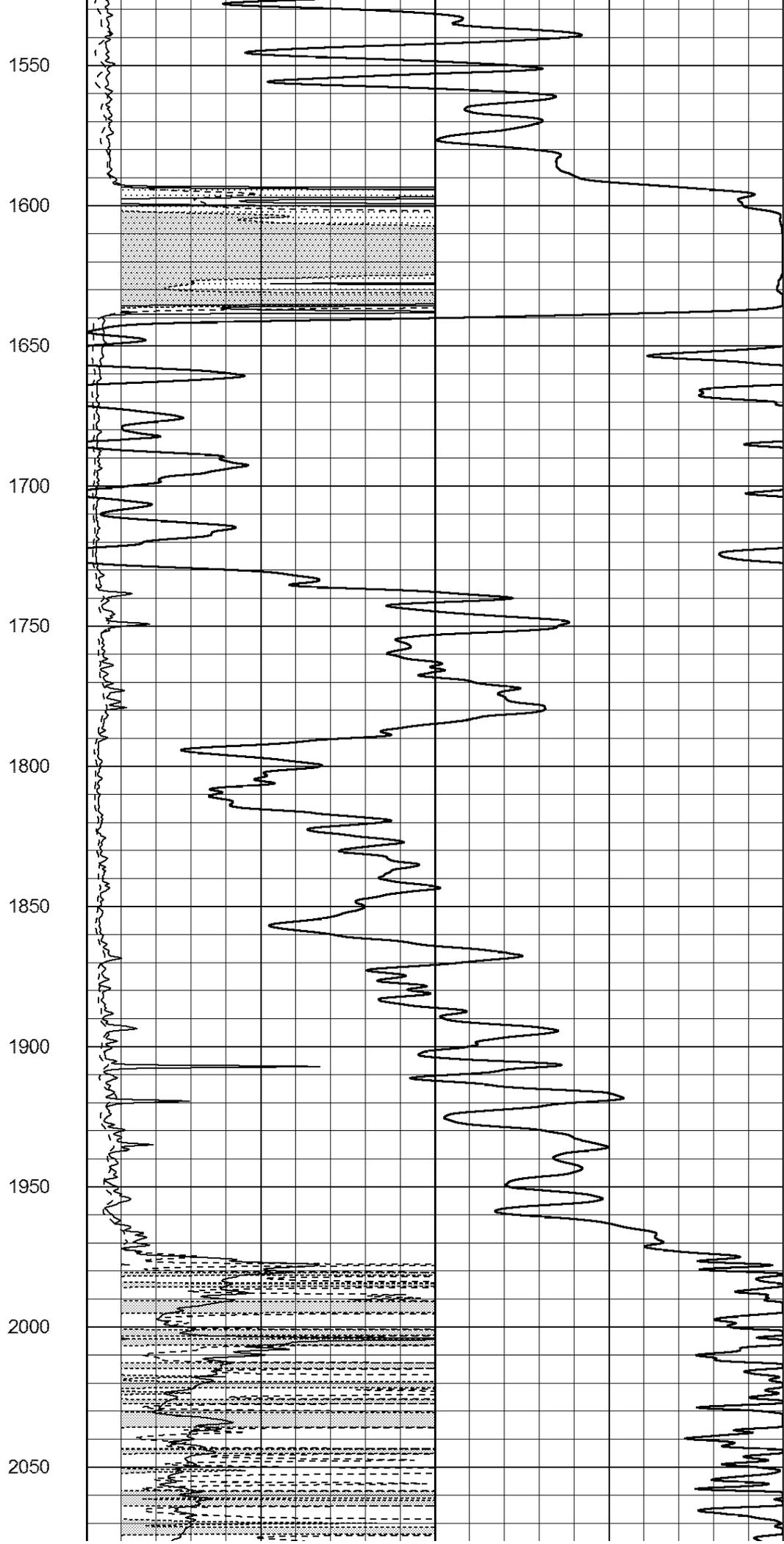
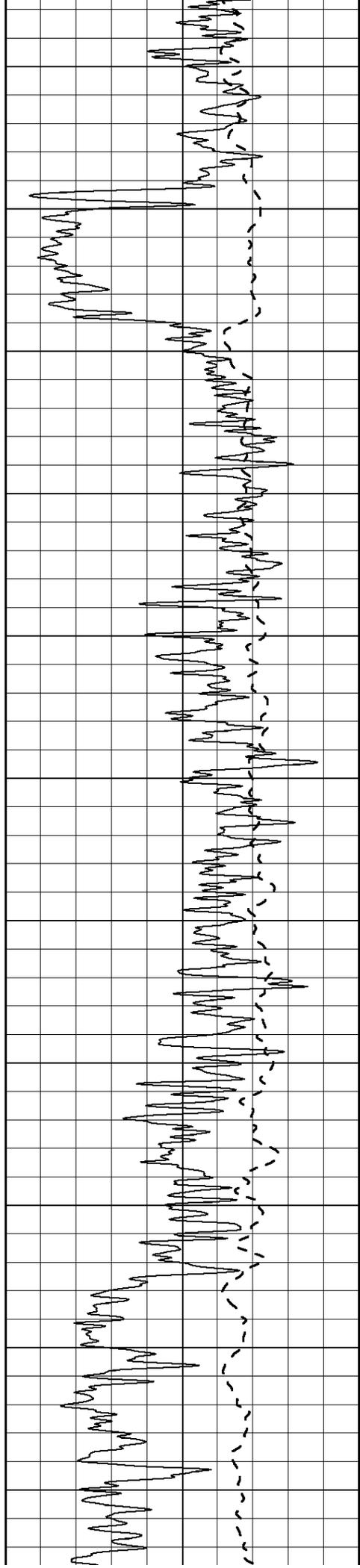
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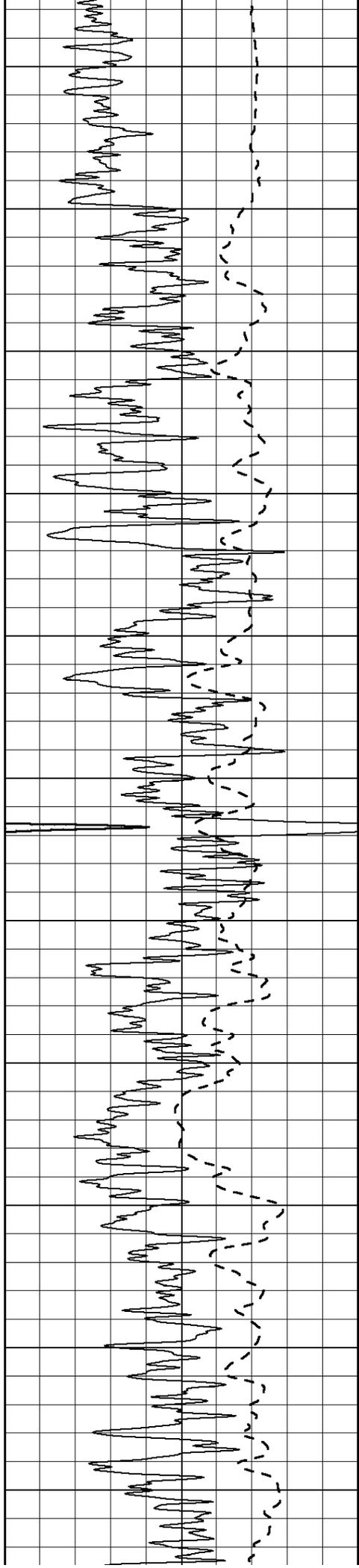
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950









2100

2150

2200

2250

2300

2350

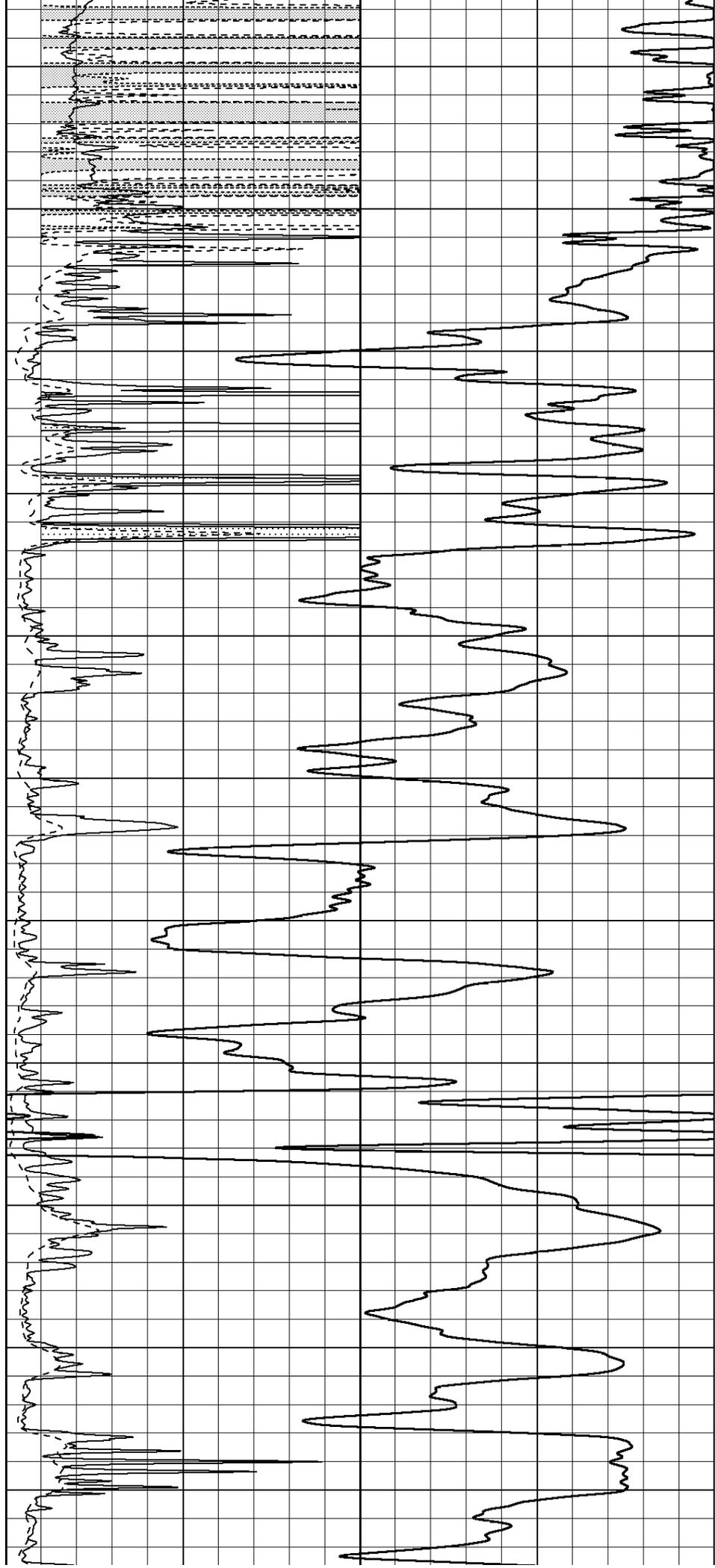
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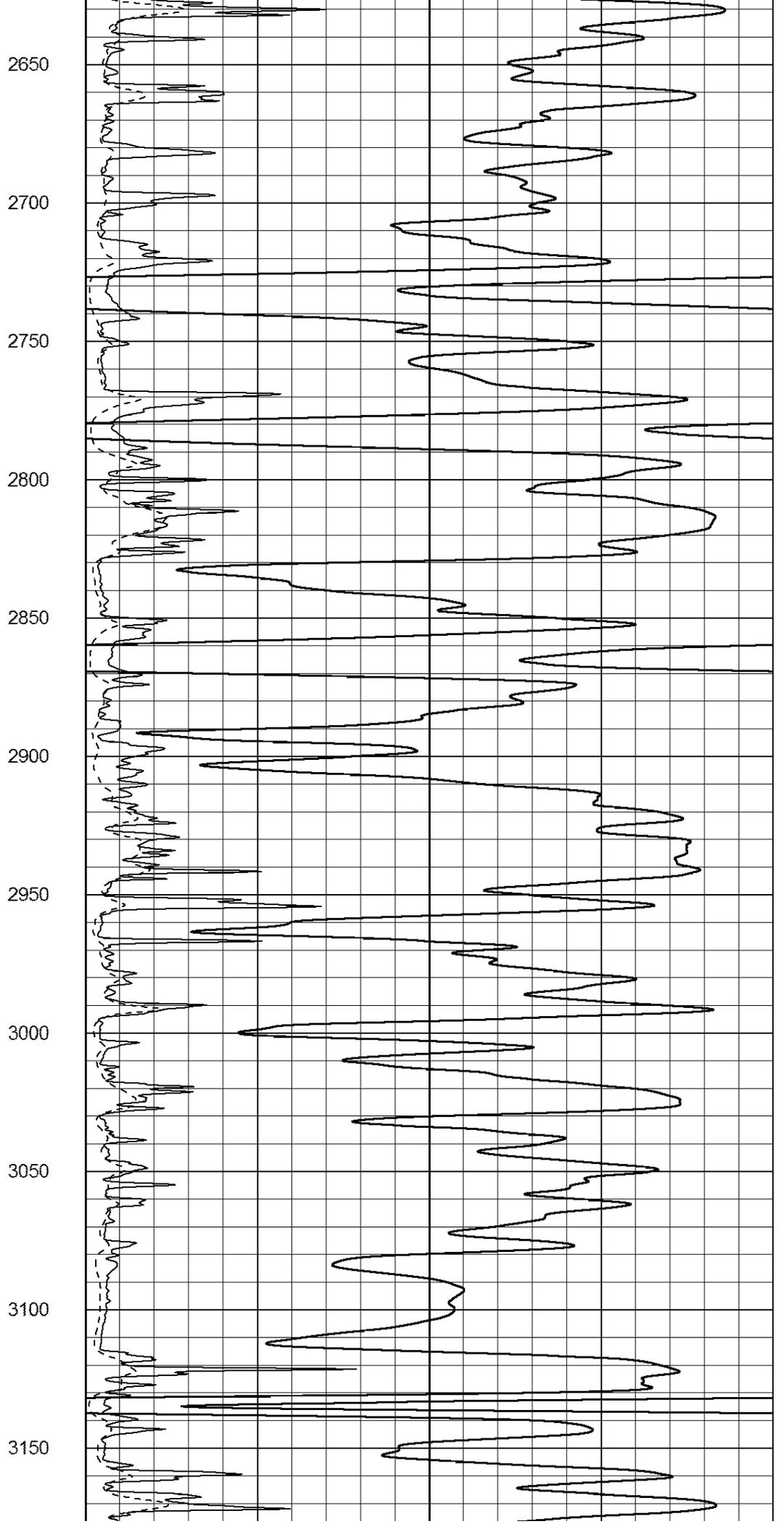
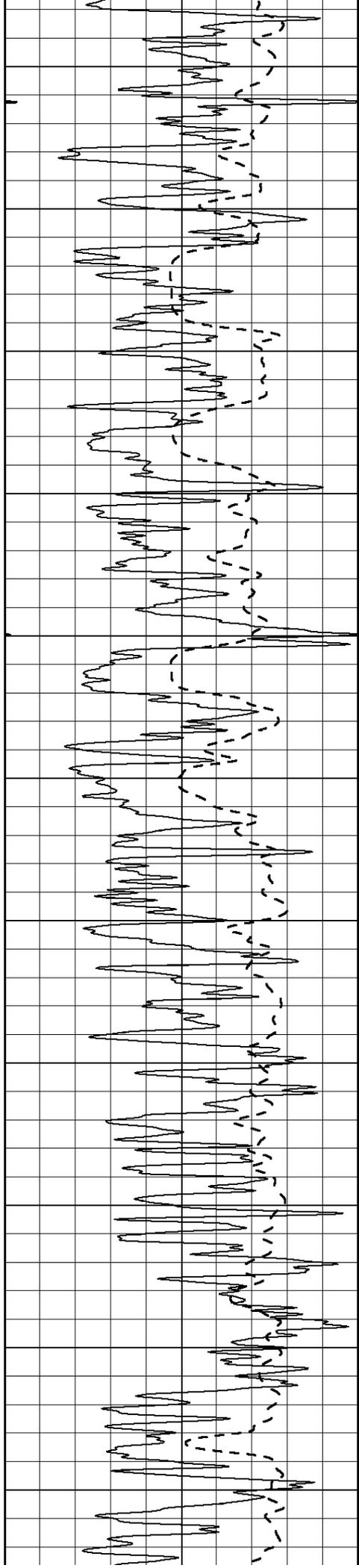
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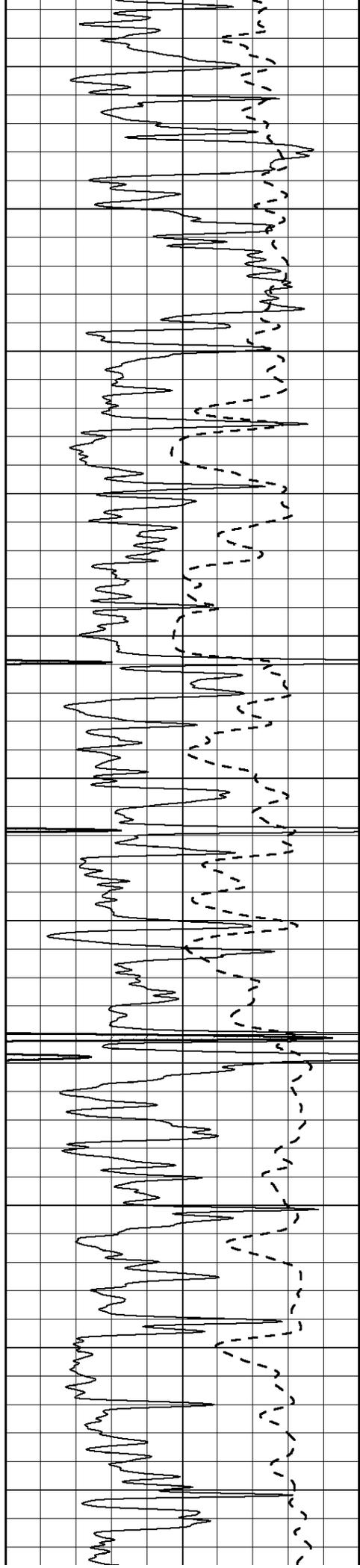
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2550

2600







3200

3250

3300

3350

3400

3450

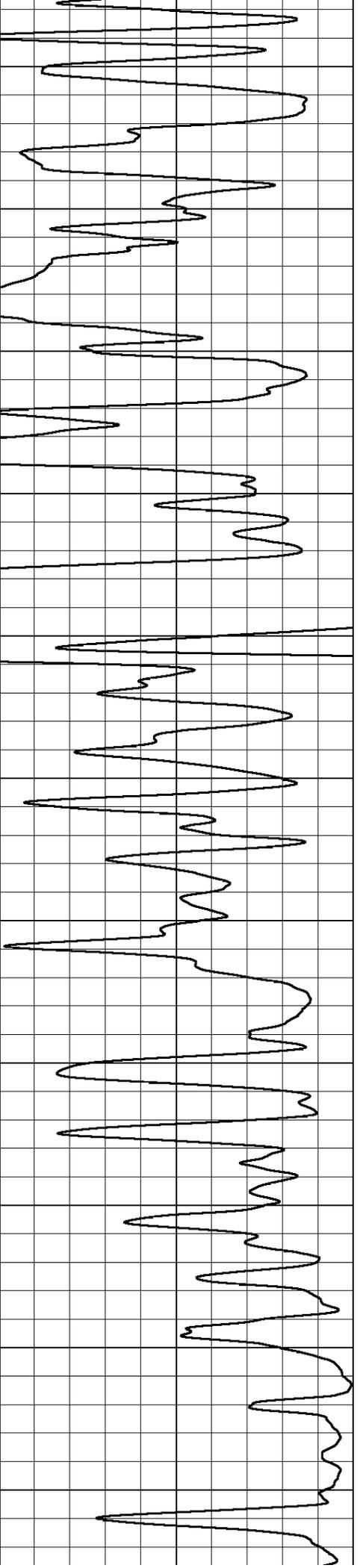
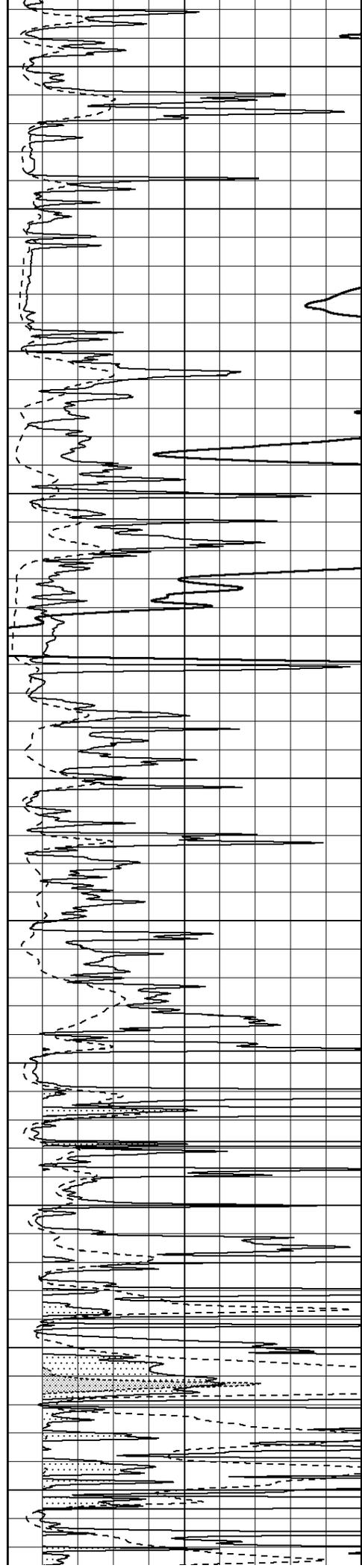
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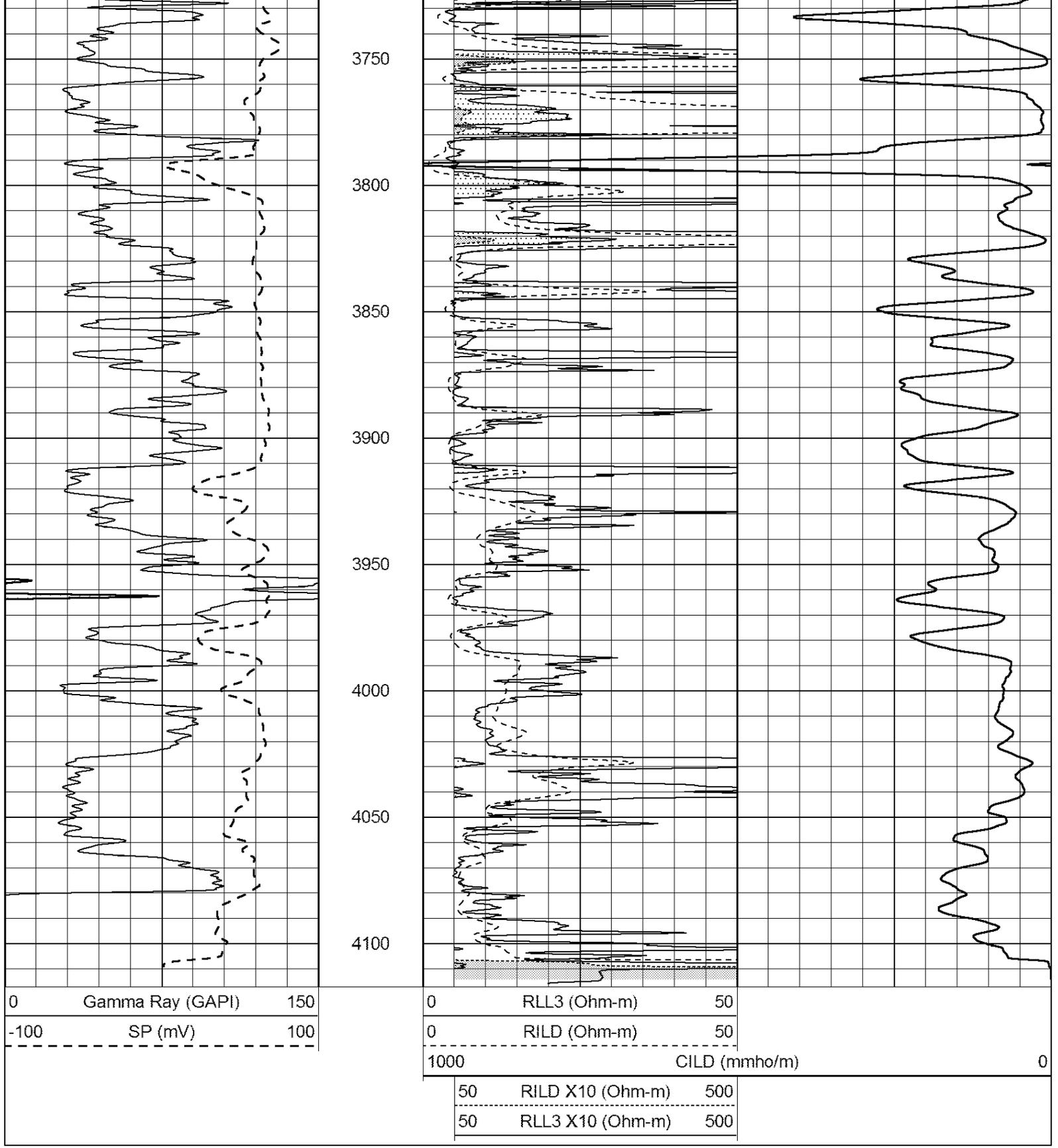
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3600

3650

3700



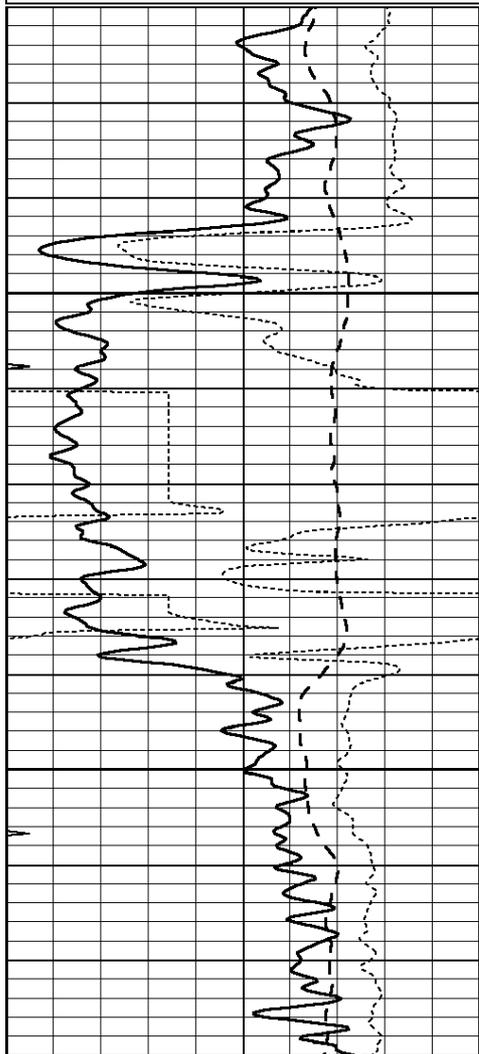


ANHYDRITE

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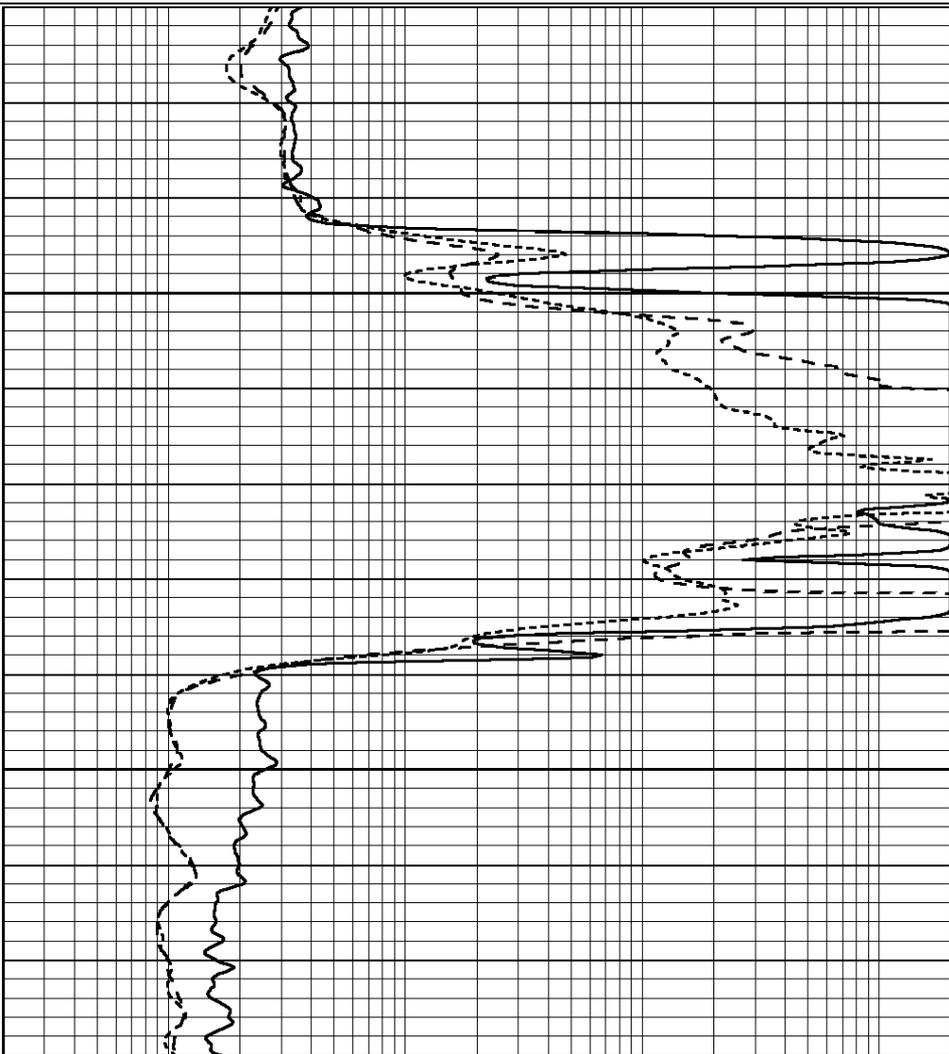
| | | |
|------|------------------|-----|
| 0 | GAMMA RAY (GAPI) | 150 |
| -100 | SP (mV) | 100 |
| -250 | Rxo/Rt | 50 |
| 0 | MINMK | 20 |

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



1600

1650



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

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



MAIN SECTION

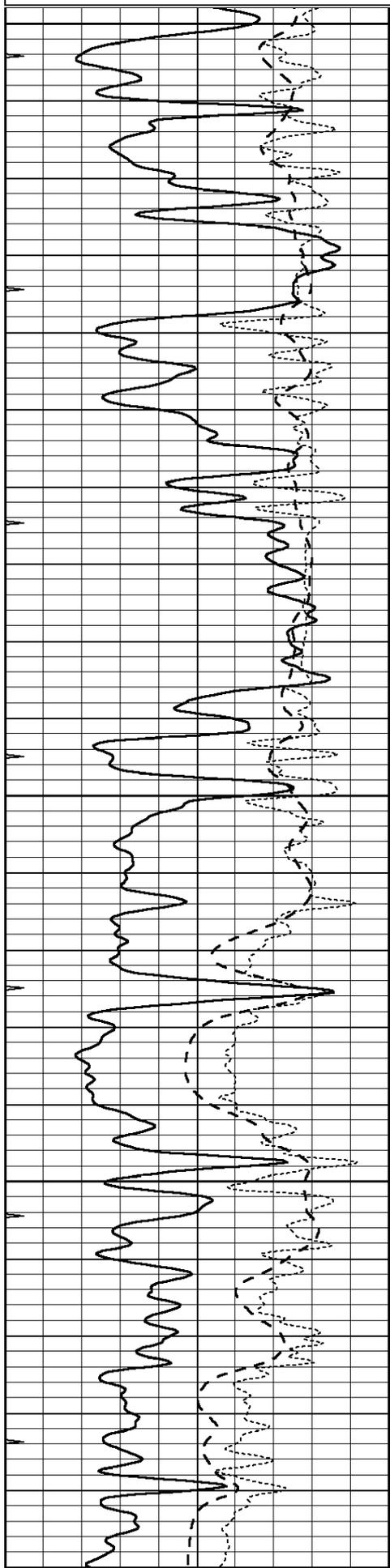
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 Presentation Format: _dil
 Dataset Creation: Wed Feb 06 11:04:49 2013 by Calc Open-Cased 090629
 Charted by: Depth in Feet scaled 1:240

| | | |
|------|------------------|-----|
| 0 | GAMMA RAY (GAPI) | 150 |
| -100 | SP (mV) | 100 |

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

-250 Rxo/Rt 50
0 MINMK 20

0.2 MEDIUM INDUCTION (Ohm-m) 2000



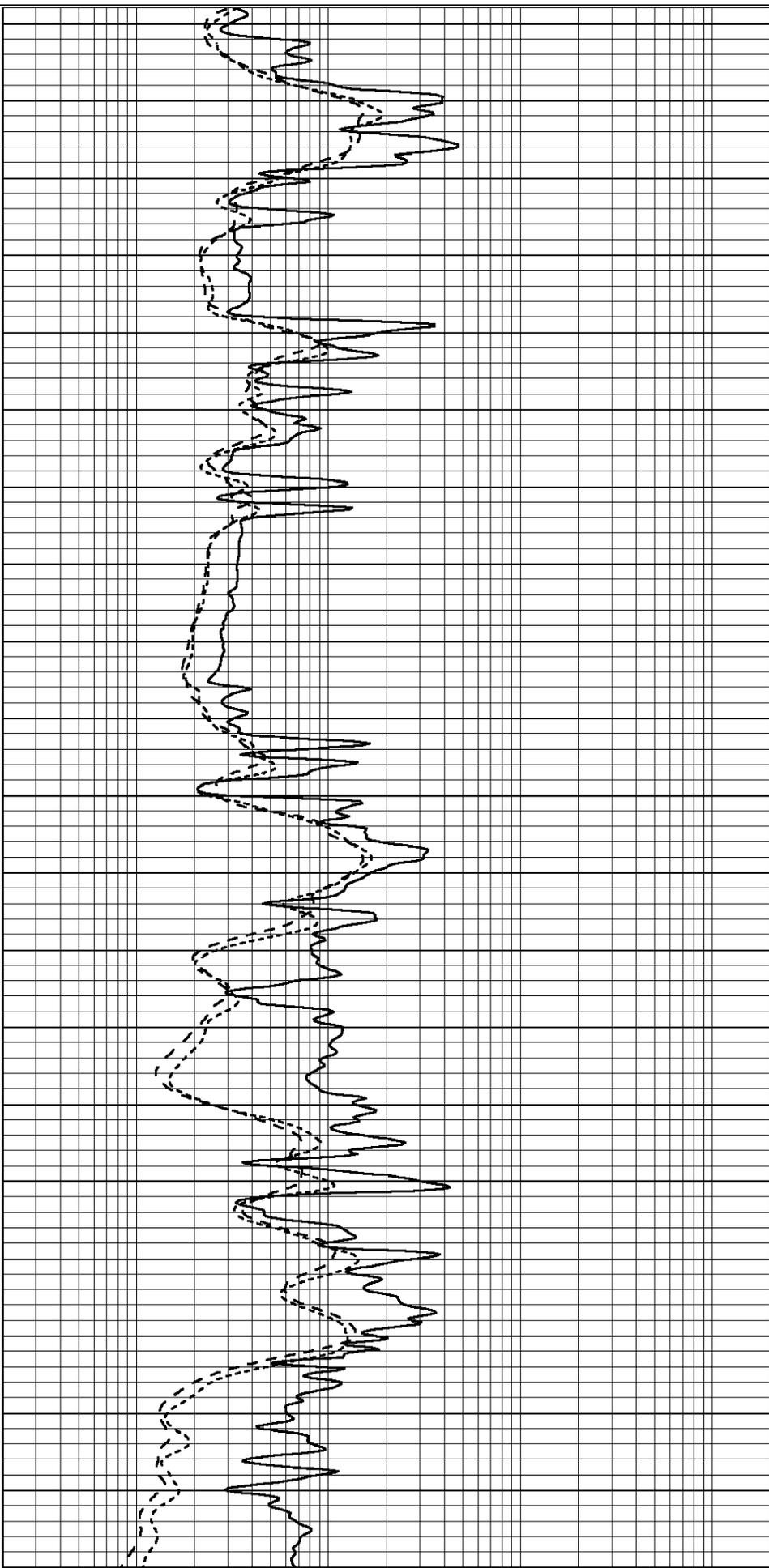
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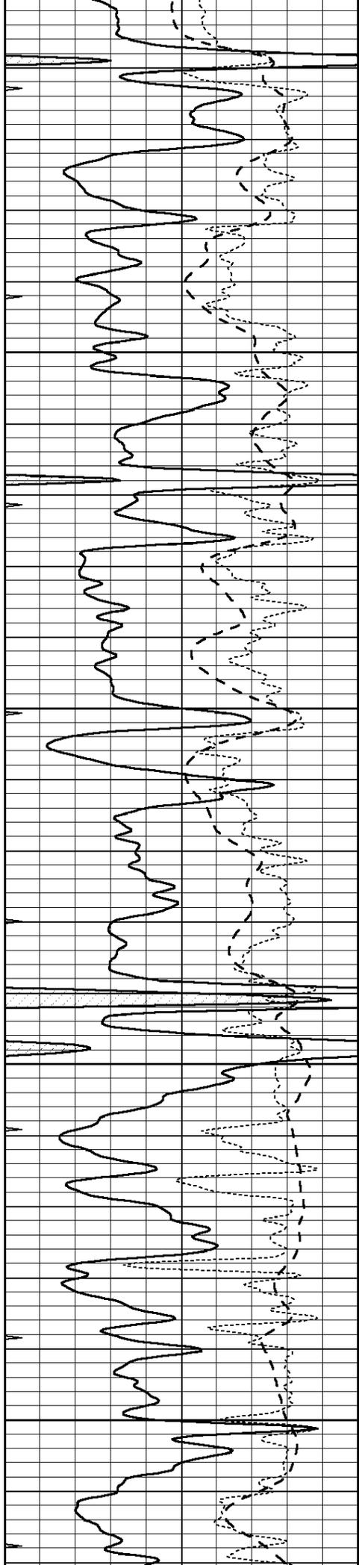
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3300

3350

3400





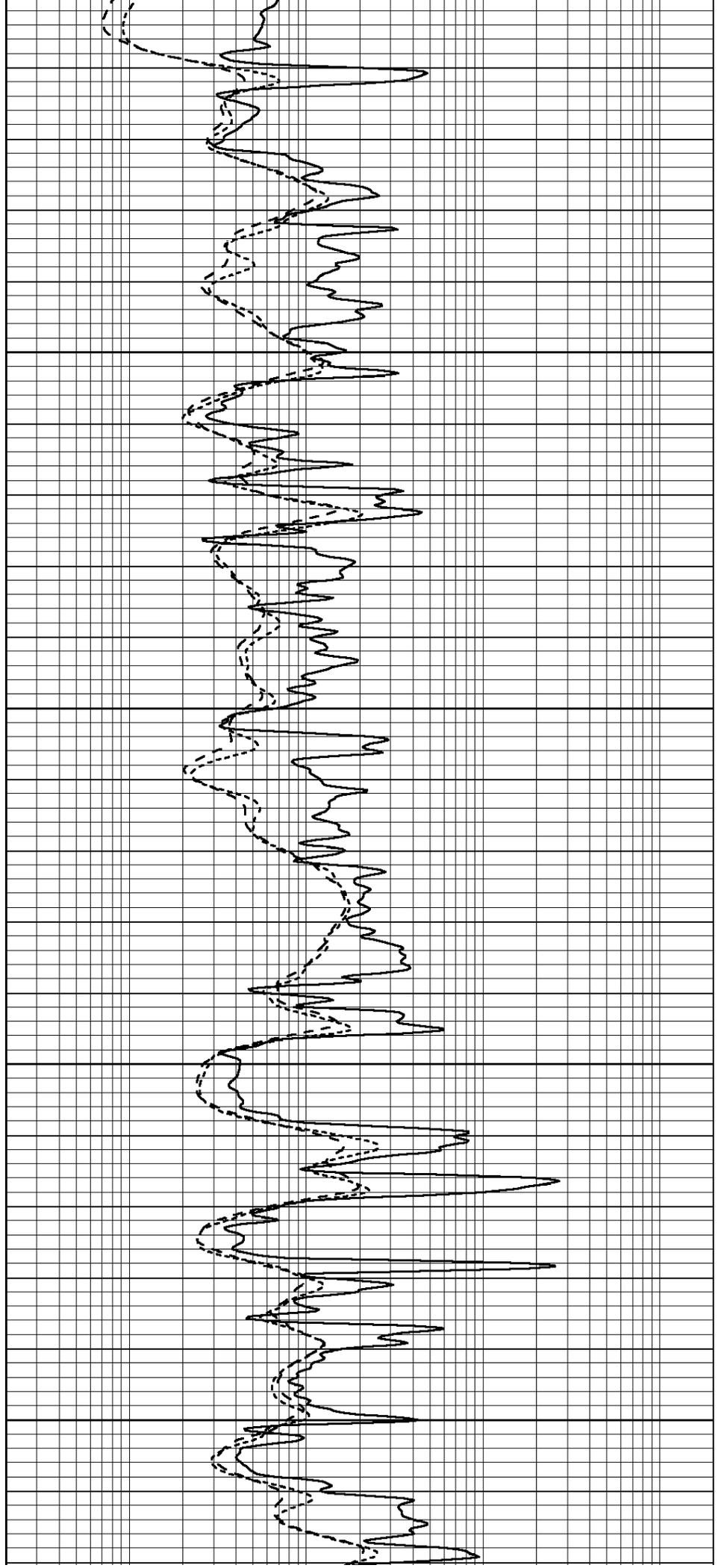
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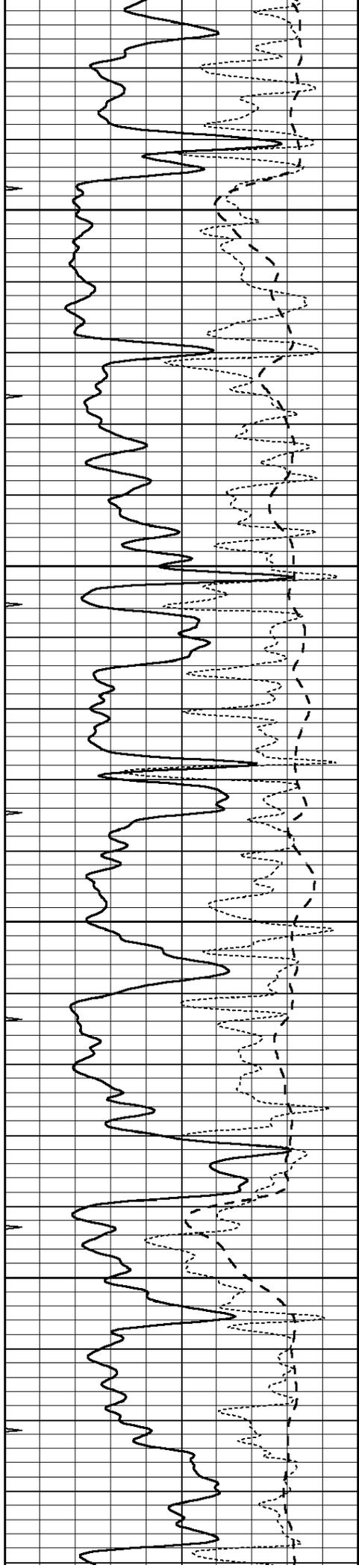
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3500

3550

3600



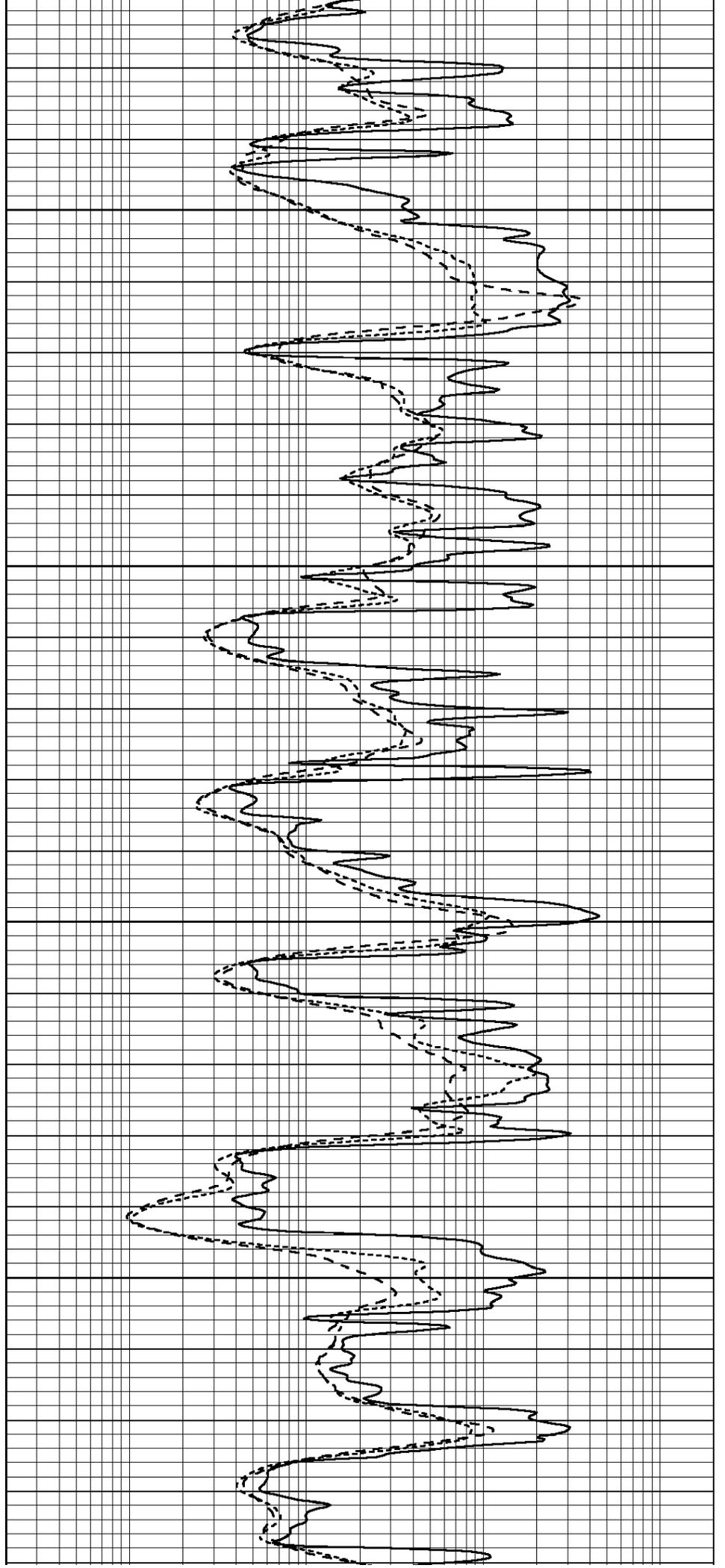


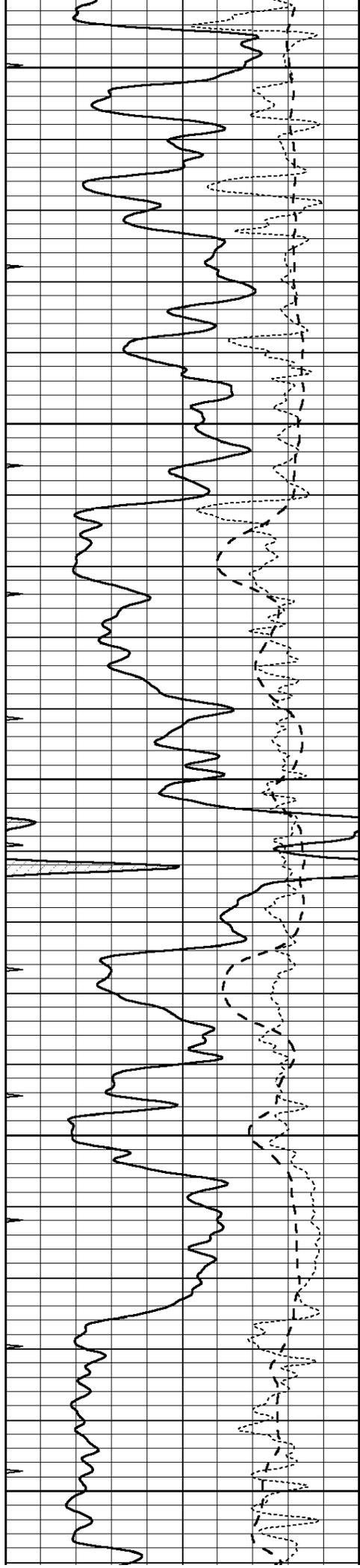
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3700

3750

3800





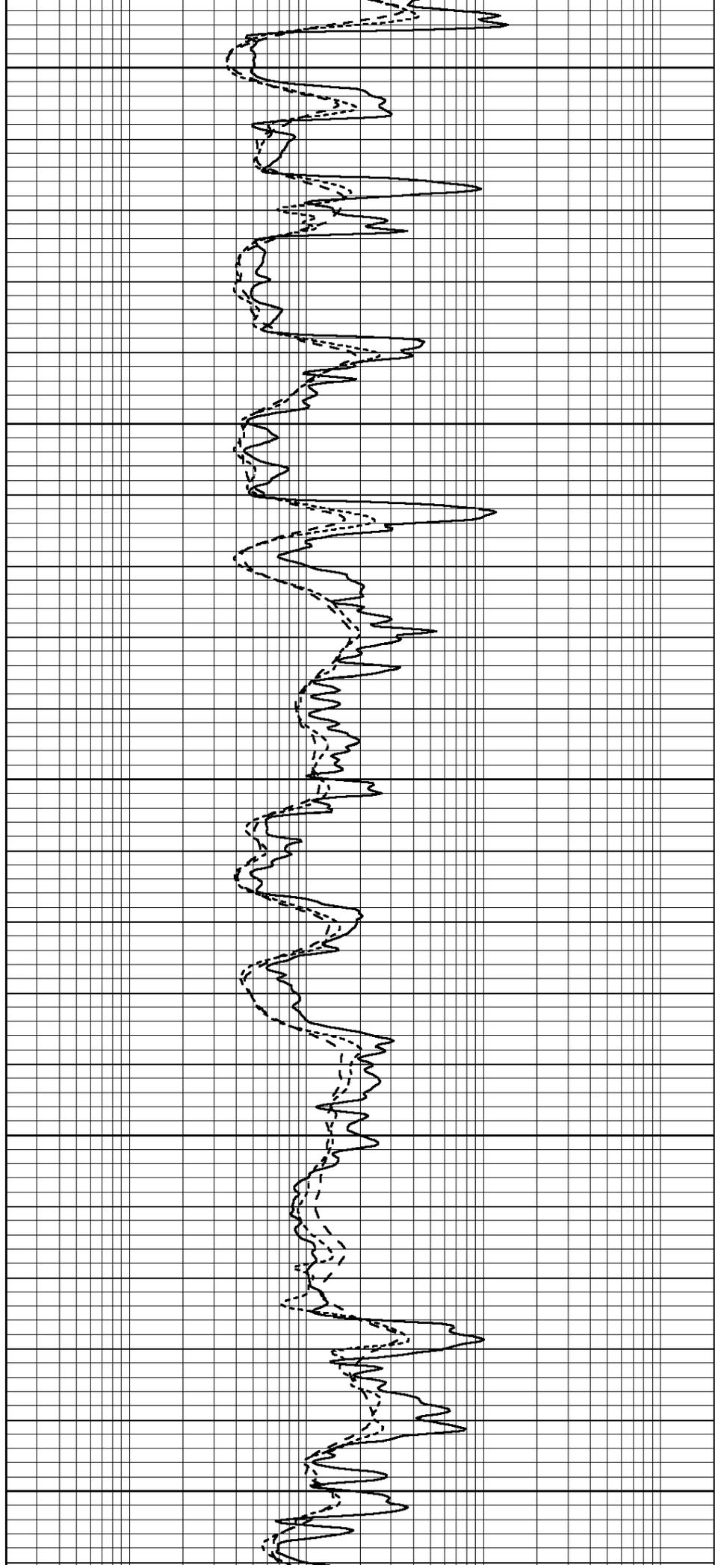
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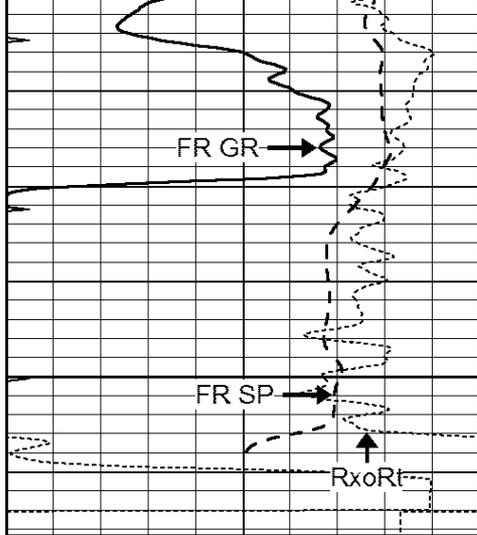
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3950

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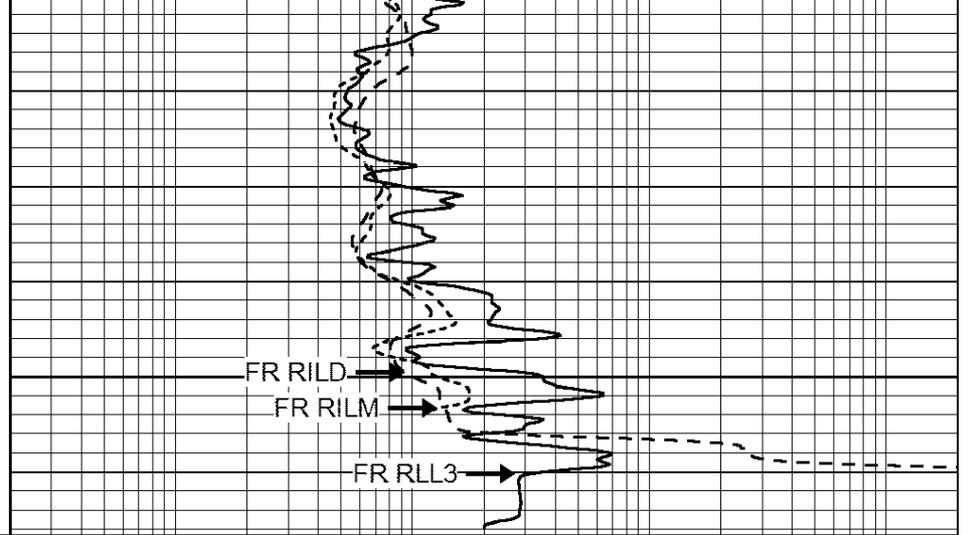
4050





4100
LTD 4112

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

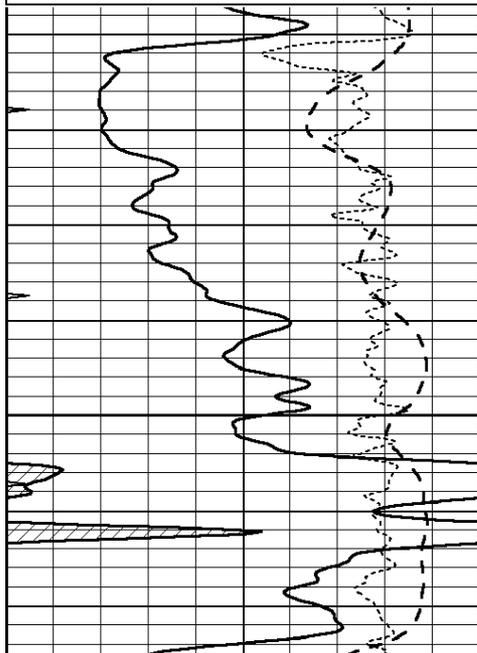


REPEAT SECTION

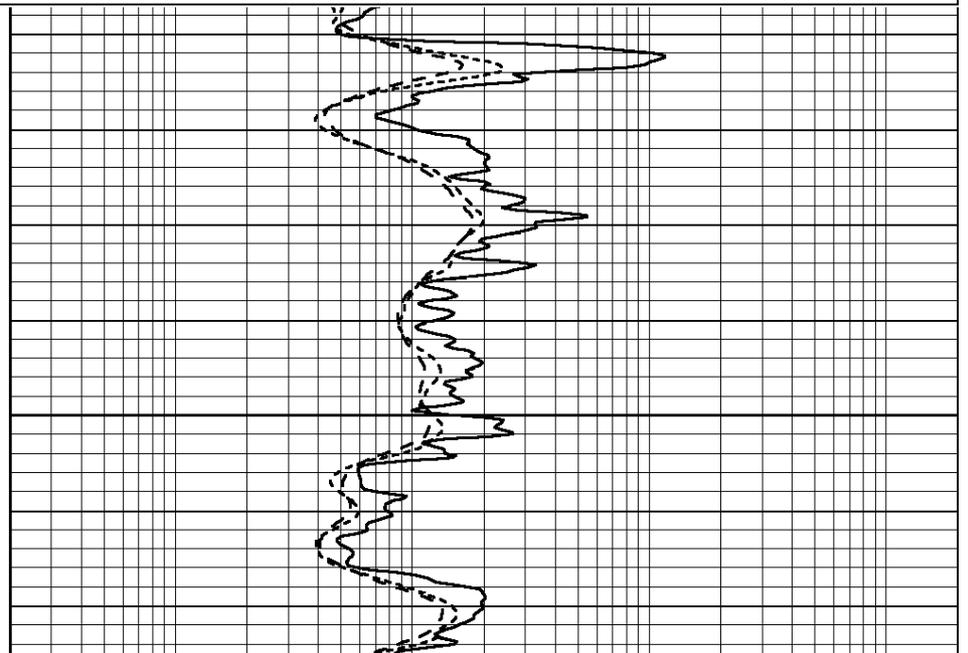
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 Presentation Format: _dil
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 Charted by: Depth in Feet scaled 1:240

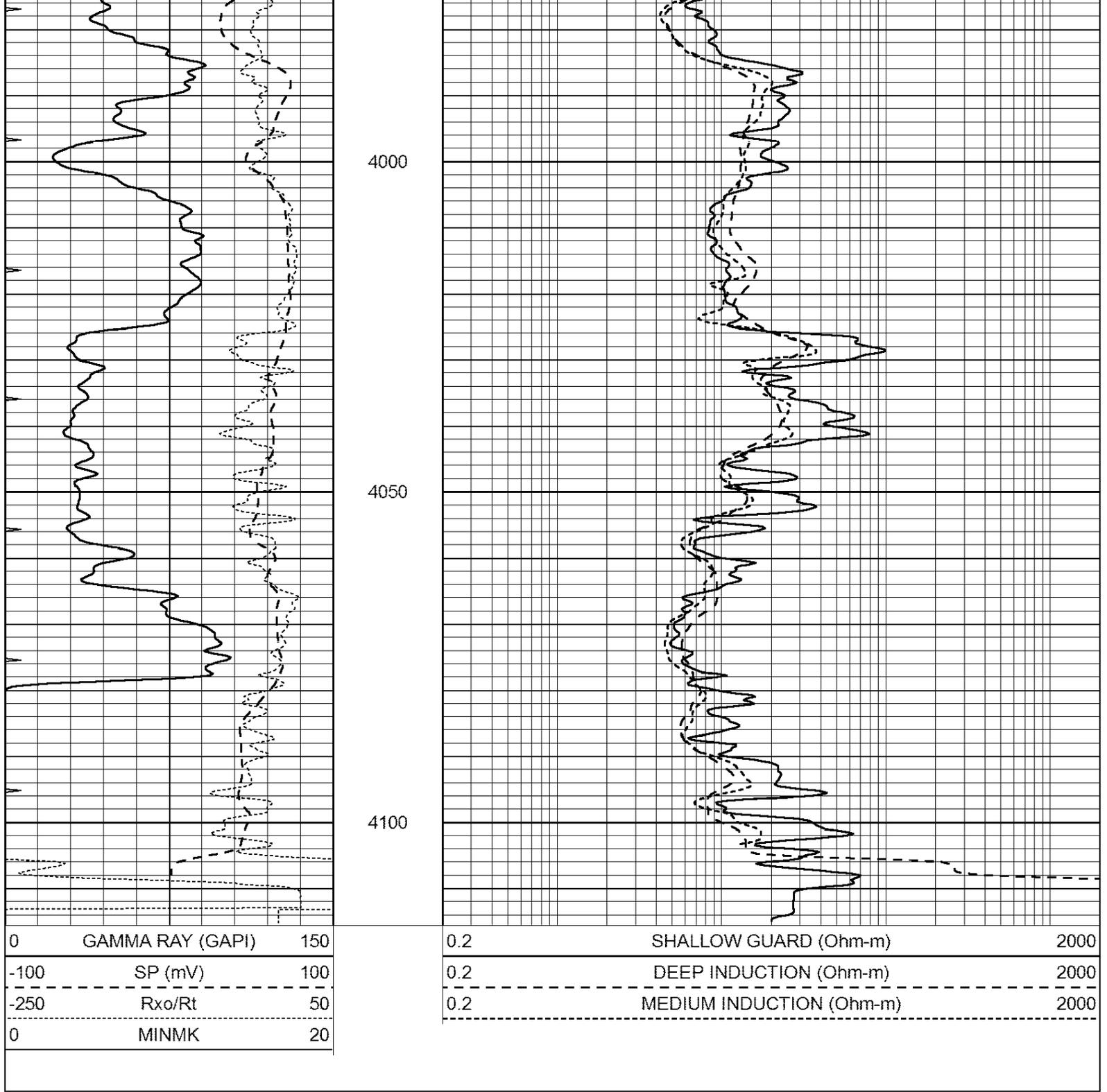
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|------|------------------|-----|
| 0 | GAMMA RAY (GAPI) | 150 |
| -100 | SP (mV) | 100 |
| -250 | Rxo/Rt | 50 |
| 0 | MINMK | 20 |

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



3950





Calibration Report

Database File: 010642ddn.db
 Dataset Pathname: pass2.1
 Dataset Creation: Wed Feb 06 11:01:36 2013 by Calc Open-Cased 090629

Dual Induction Calibration Report

Serial-Model: PROBE8-DILG
 Surface Cal Performed: Fri Aug 01 06:33:19 2008
 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 | 632.616 | -9.730 |
| Medium | 0.029 | 0.796 | V | 0.000 | 464.000 | mmho/m | 605.049 | -17.680 |
| 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 | | |

Compensated Density Calibration Report

| | |
|---------------------------------------|--------------------------|
| Serial-Model: | GEAR3-GEARHART |
| Source / Verifier: | 143 / 143 |
| Master Calibration Performed: | Fri Jan 04 15:48:16 2013 |
| Before Survey Verification Performed: | |
| After Survey Verification Performed: | |

| Master Calibration | | | | | | |
|---------------------|---------|------|-----------------------------|--------------|---------------|-----|
| | Density | | | Far Detector | Near Detector | |
| Magnesium | 1.710 | g/cc | | 935.36 | 501.55 | cps |
| Aluminum | 2.580 | g/cc | | 209.32 | 357.01 | cps |
| Spine Angle = 77.21 | | | Density/Spine Ratio = 0.567 | | | |
| | Size | | | Reading | | |
| Small Ring | 8.00 | in | | 4.29 | V | |
| Large Ring | 14.00 | in | | 6.24 | V | |

| Before Survey Verification | | | | | | |
|----------------------------|--------|------|--|----------|--|------|
| | Target | | | Measured | | |
| | | g/cc | | | | g/cc |
| | | g/cc | | | | g/cc |
| | | g/cc | | | | g/cc |

| After Survey Verification | | | | | | |
|---------------------------|--------|------|--|----------|--|------|
| | Target | | | Measured | | |
| | | g/cc | | | | g/cc |
| | | g/cc | | | | g/cc |
| | | g/cc | | | | g/cc |

Compensated Neutron Calibration Report

Serial Number: 6I
 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: #8
 Tool Model: OPEN
 Performed: Mon Jun 13 16:56:43 2011

Calibrator Value: 150.0 GAPI

Background Reading: 0.0 cps
 Calibrator Reading: 175.0 cps

Sensitivity: 0.8371 GAPI/cps