



SUPERIOR  
Hays,  
Kansas

## DUAL INDUCTION LOG

|                              |                           |                      |                                  |
|------------------------------|---------------------------|----------------------|----------------------------------|
| Company                      | MAI OIL OPERATIONS, INC.  |                      |                                  |
| Well                         | HOLLAND #2                |                      |                                  |
| Field                        | TRAPP                     |                      |                                  |
| County                       | BARTON                    | State                | KANSAS                           |
| Location:                    | AP1 # : 15-009-25710-0000 |                      | Other Services<br>CDL/CNL<br>MEL |
| Permanent Datum              | GROUND LEVEL              |                      | Elevation                        |
| Log Measured From            | 2310' FNL & 1185' FWL     |                      | 1946                             |
| Drilling Measured From       | E/2 - SE - SW - NW        |                      |                                  |
|                              | SEC 21 TWP 16S RGE 13W    |                      |                                  |
| Date                         | 7/11/12                   |                      |                                  |
| Run Number                   | ONE                       |                      |                                  |
| Depth Driller                | 3460                      |                      |                                  |
| Depth Logger                 | 3460                      |                      |                                  |
| Bottom Logged Interval       | 3458                      |                      |                                  |
| Top Log Interval             | 00                        |                      |                                  |
| Casing Driller               | 8 5/8"@450'               |                      |                                  |
| Casing Logger                | 405                       |                      |                                  |
| Bit Size                     | 7 7/8"                    |                      |                                  |
| Type Fluid in Hole           | CHEMICAL MUD              | CHLORIDES 10,000 PPM |                                  |
| Density / Viscosity          | 9.4/47                    |                      |                                  |
| pH / Fluid Loss              | 11.0/1.2                  |                      |                                  |
| Source of Sample             | FLOWLINE                  |                      |                                  |
| Rm @ Meas. Temp              | .500@90F                  |                      |                                  |
| Rmt @ Meas. Temp             | .375@90F                  |                      |                                  |
| Rmc @ Meas. Temp             | .600@90F                  |                      |                                  |
| Source of Rmt / Rmc          | MEASUREMENT               |                      |                                  |
| Rm @ BHT                     | .405@111F                 |                      |                                  |
| Time Circulation Stopped     | 2 HOURS                   |                      |                                  |
| Time Logger on Bottom        | 3:30 P.M.                 |                      |                                  |
| Maximum Recorded Temperature | 111F                      |                      |                                  |
| Equipment Number             | 4010                      |                      |                                  |
| Location                     | HAYS, KANSAS              |                      |                                  |
| Recorded By                  | JEFF LUEBBERS             |                      |                                  |
| Witnessed By                 | KURT TALBOTT              | ALLEN BANGERT        | BRENT HOMEIER                    |

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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  
SUSANK, KS. 1/2N. TO TANK BATTERY, E. INTO



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# MAIN SECTION

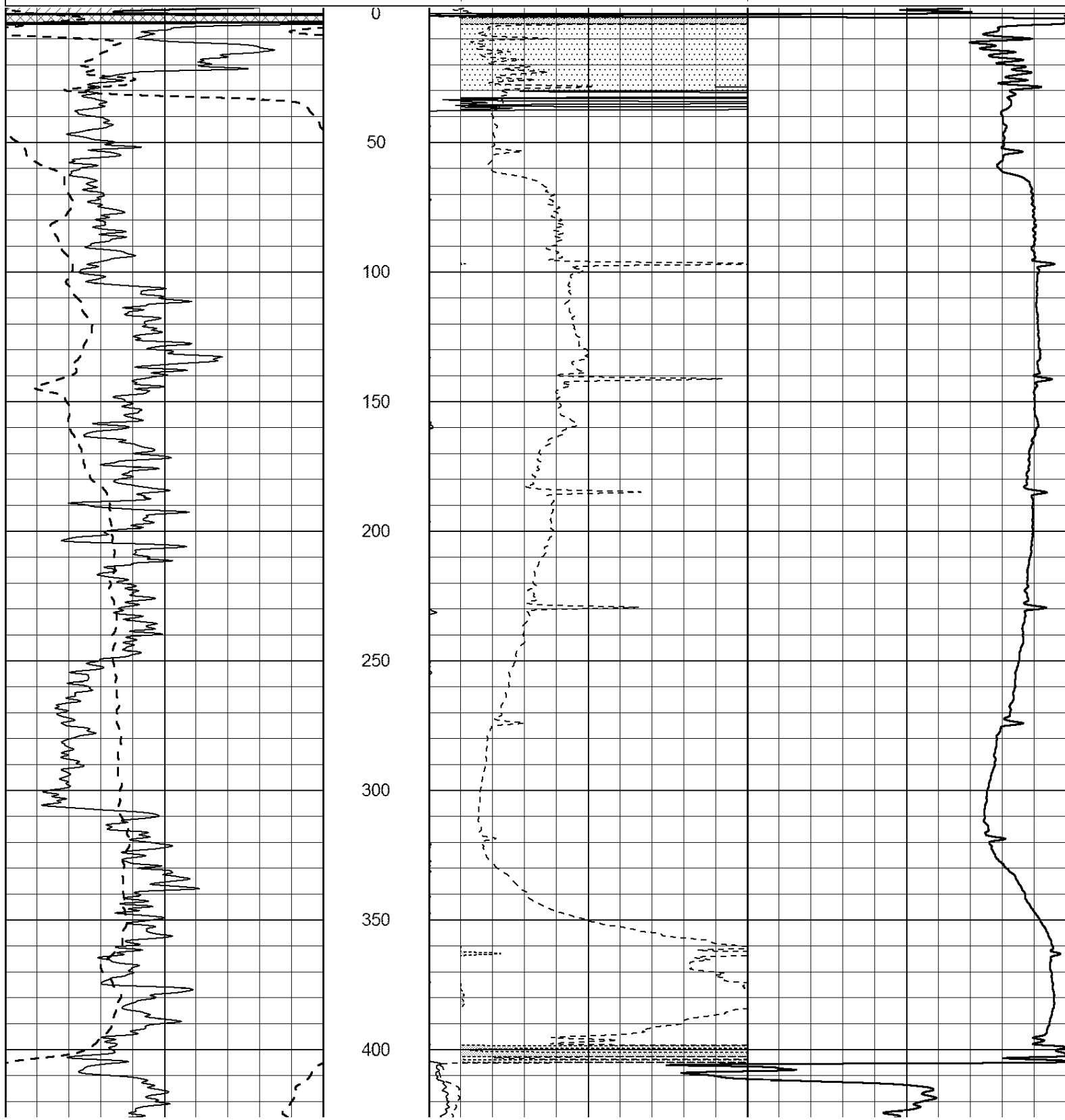
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 Dataset Pathname: pass3.7  
 Presentation Format: dil2  
 Dataset Creation: Wed Jul 11 16:47:01 2012 by Calc Open-Cased 110302  
 Charted by: Depth in Feet scaled 1:600

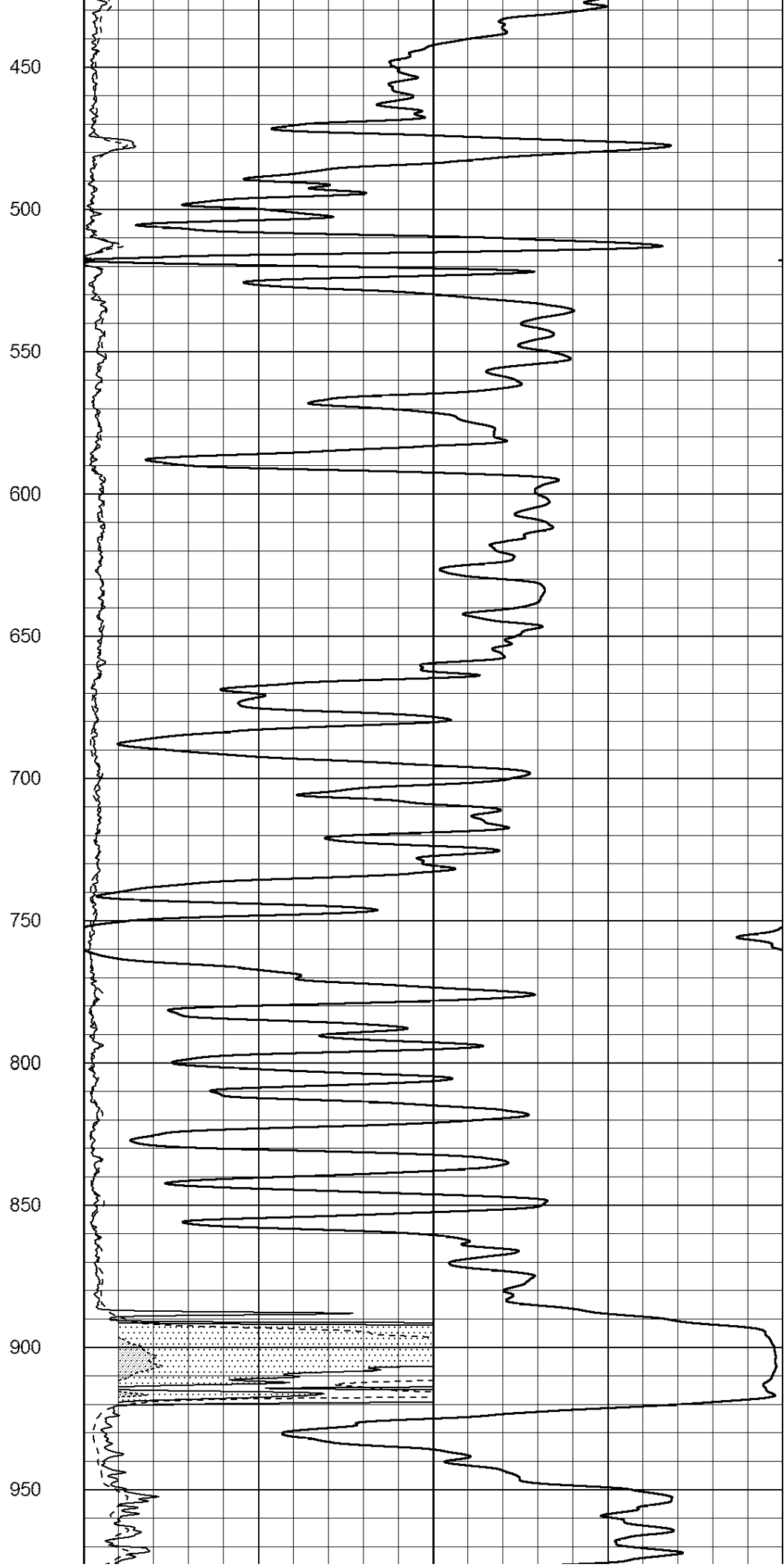
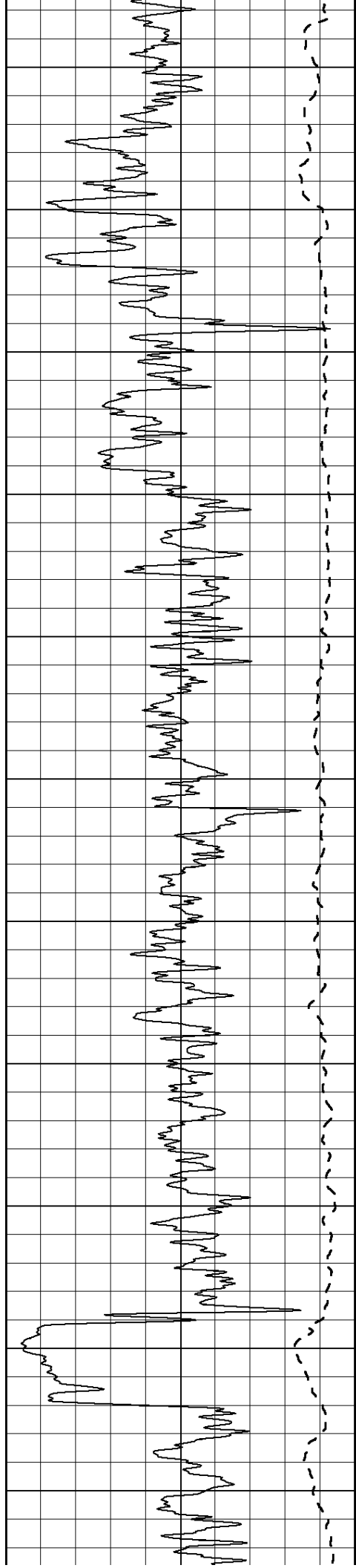
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|------|------------------|-----|
| 0    | Gamma Ray (GAPI) | 150 |
| -100 | SP (mV)          | 100 |

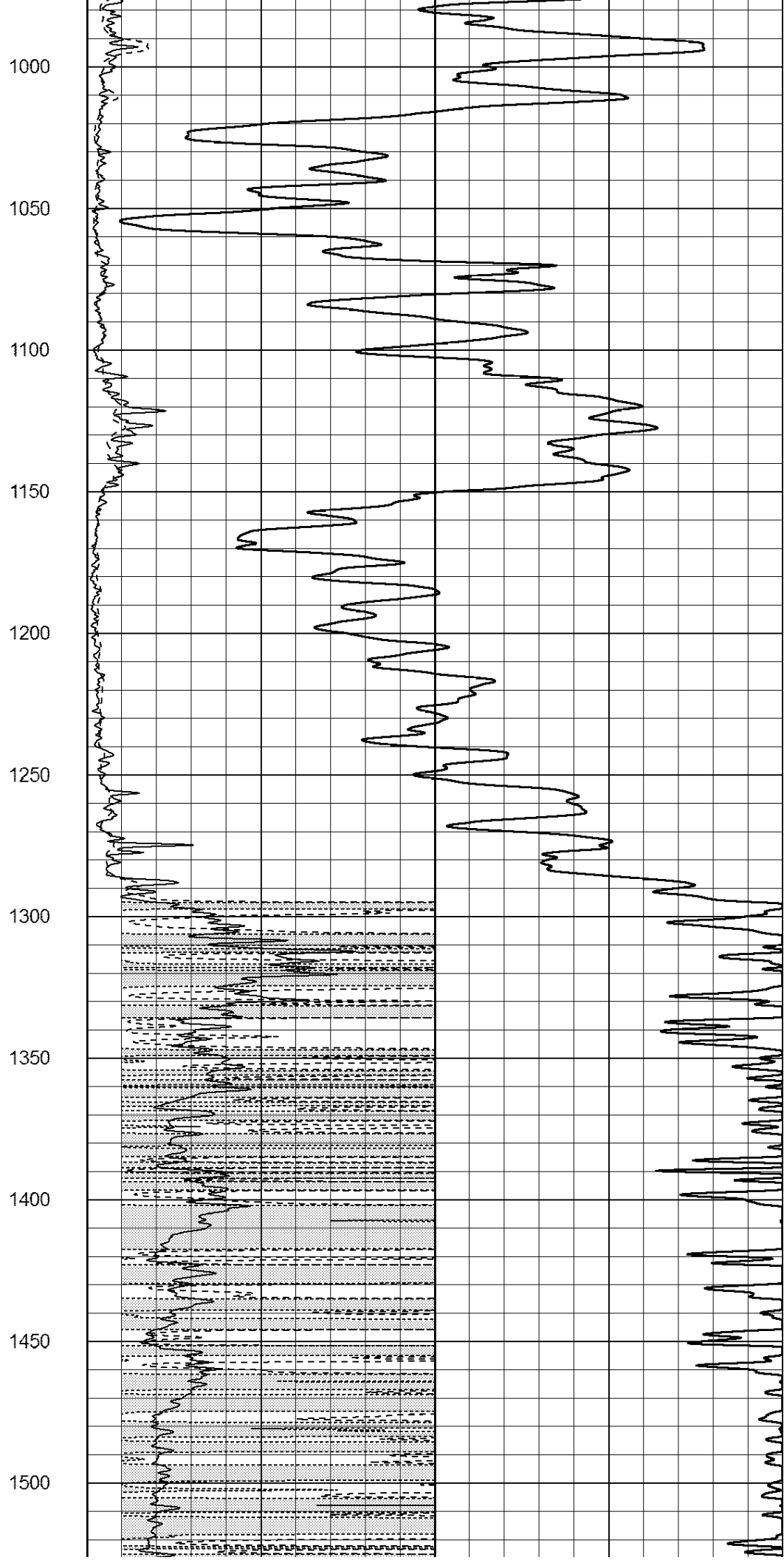
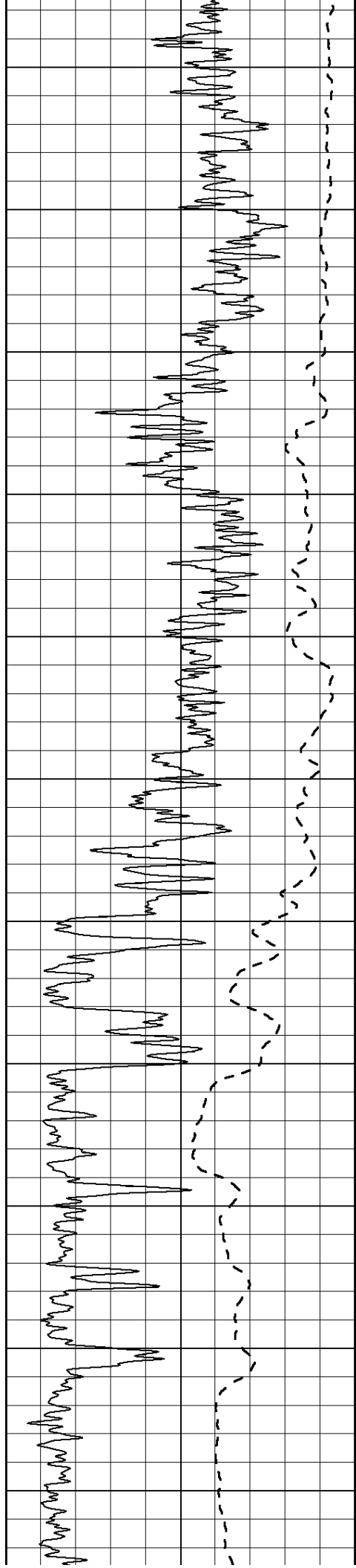
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|---|--------------|----|
| 0 | RLL3 (Ohm-m) | 50 |
| 0 | RILD (Ohm-m) | 50 |

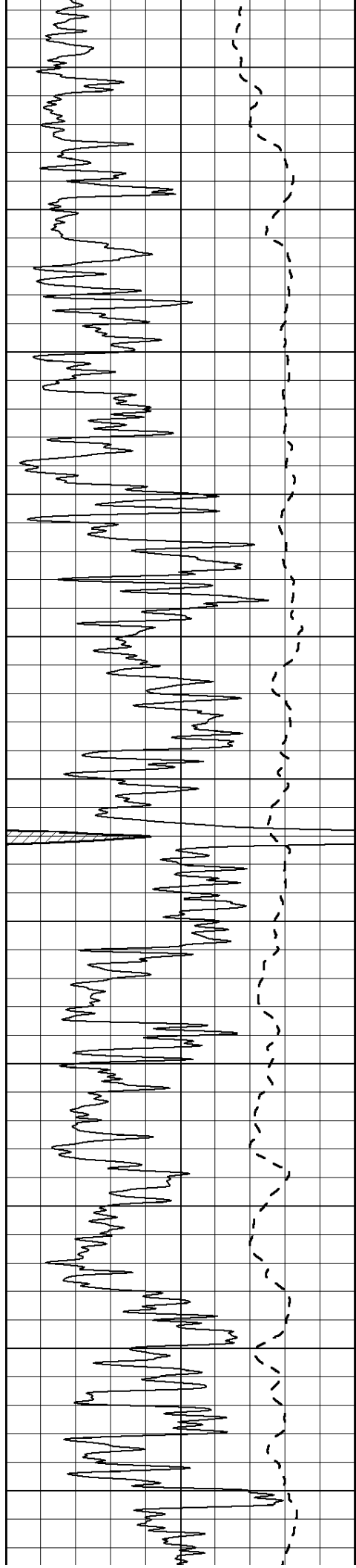
|      |               |   |
|------|---------------|---|
| 1000 | CILD (mmho/m) | 0 |
|------|---------------|---|

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









1550

1600

1650

1700

1750

1800

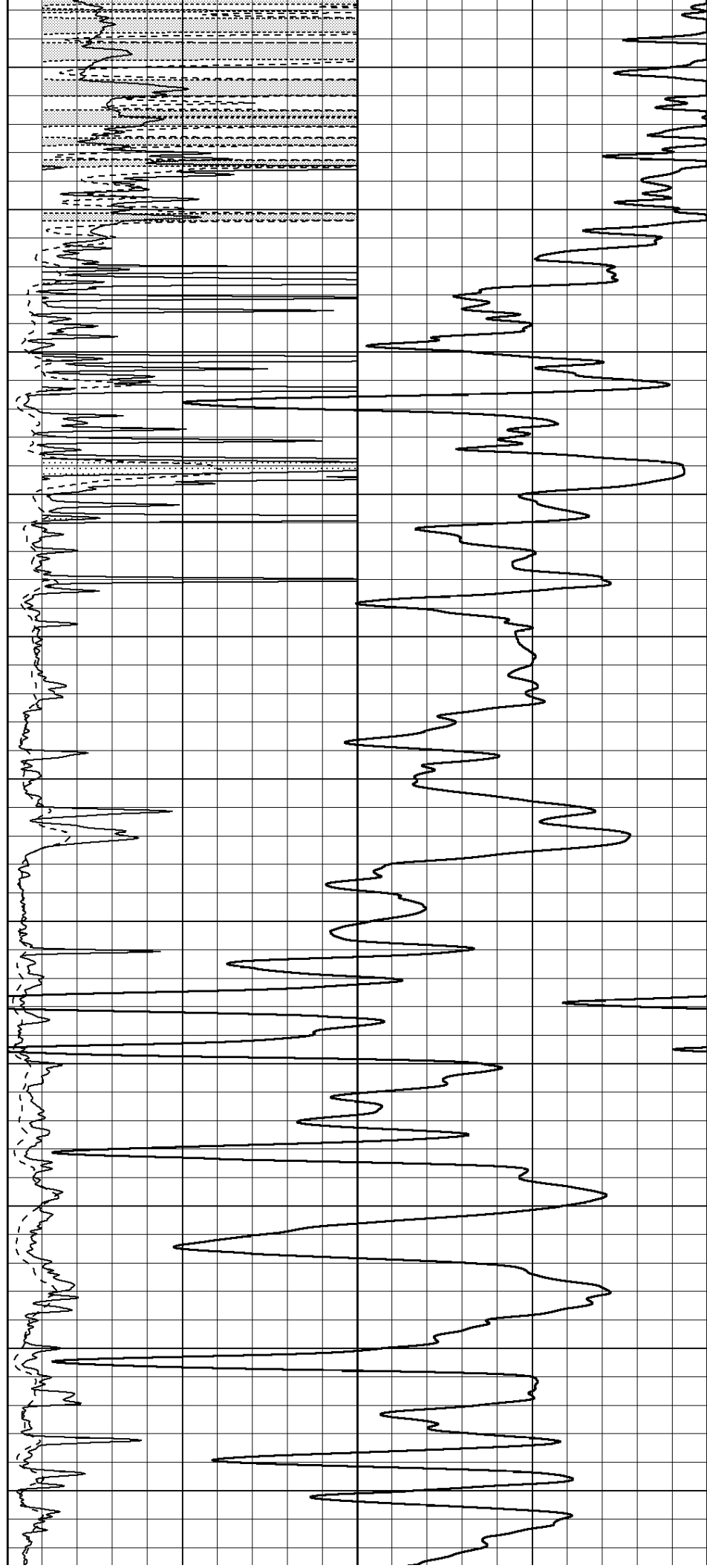
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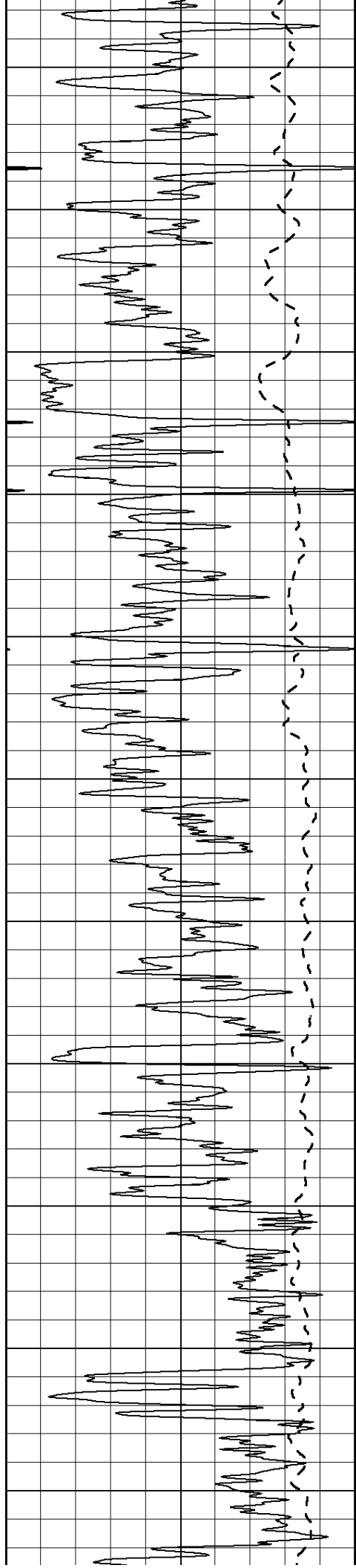
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1950

2000

2050





2100

2150

2200

2250

2300

2350

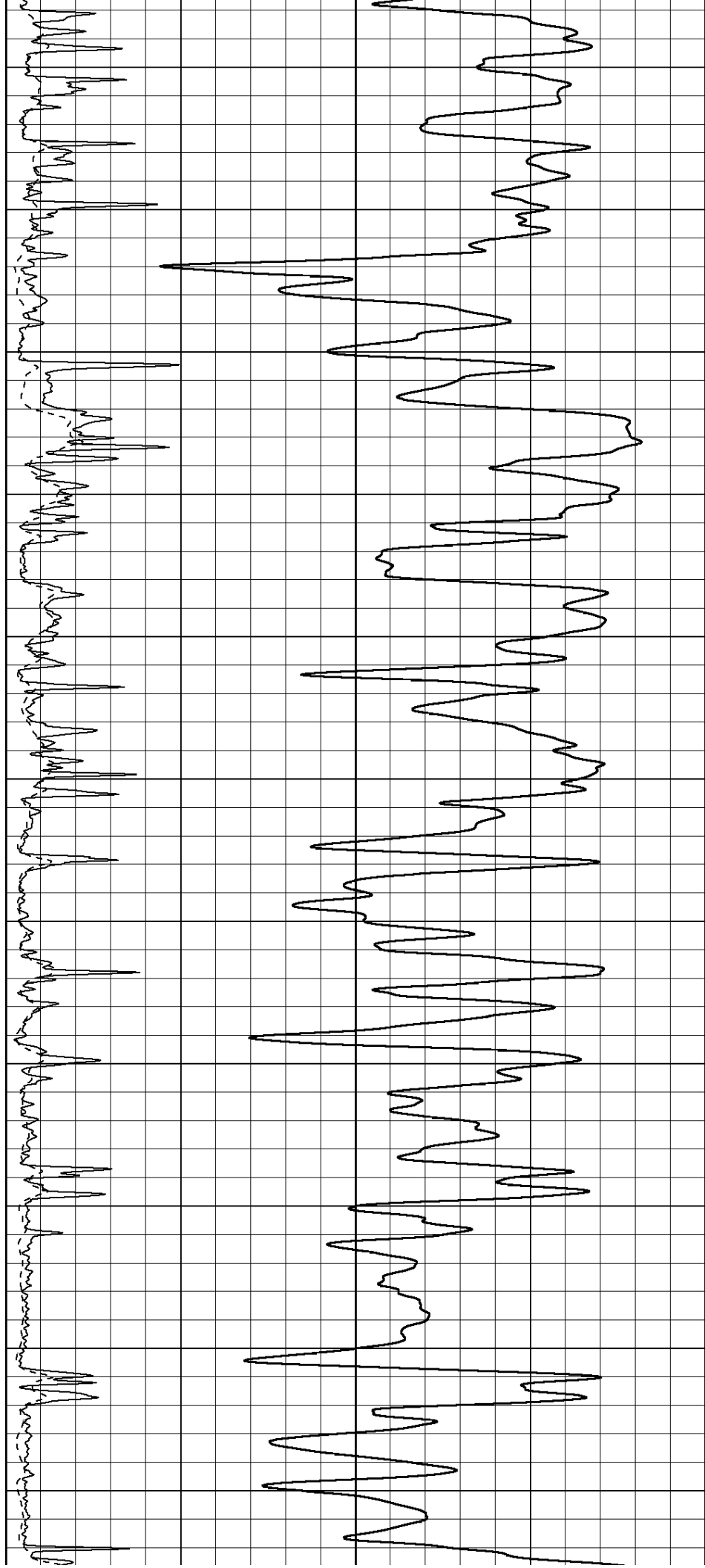
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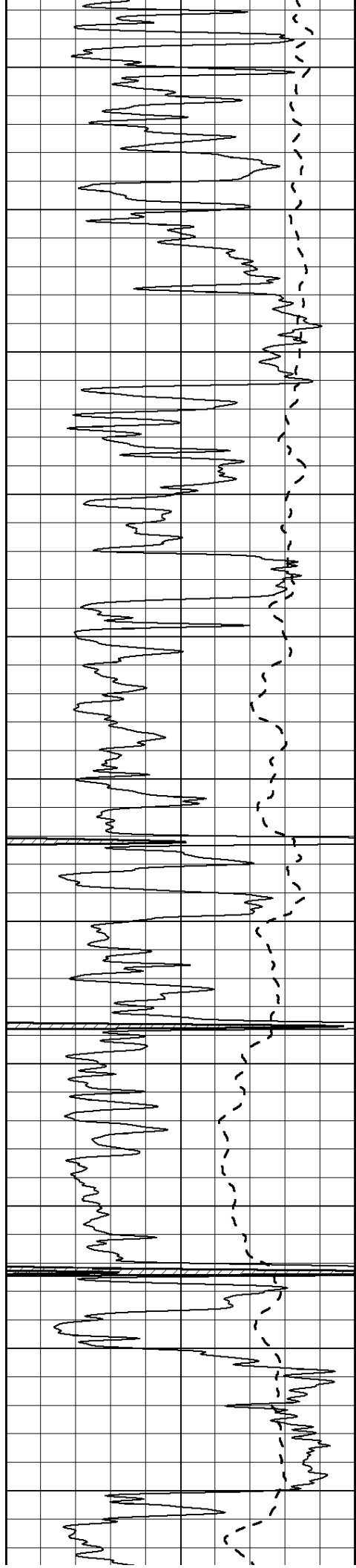
2450

2500

2550

2600





2650

2700

2750

2800

2850

2900

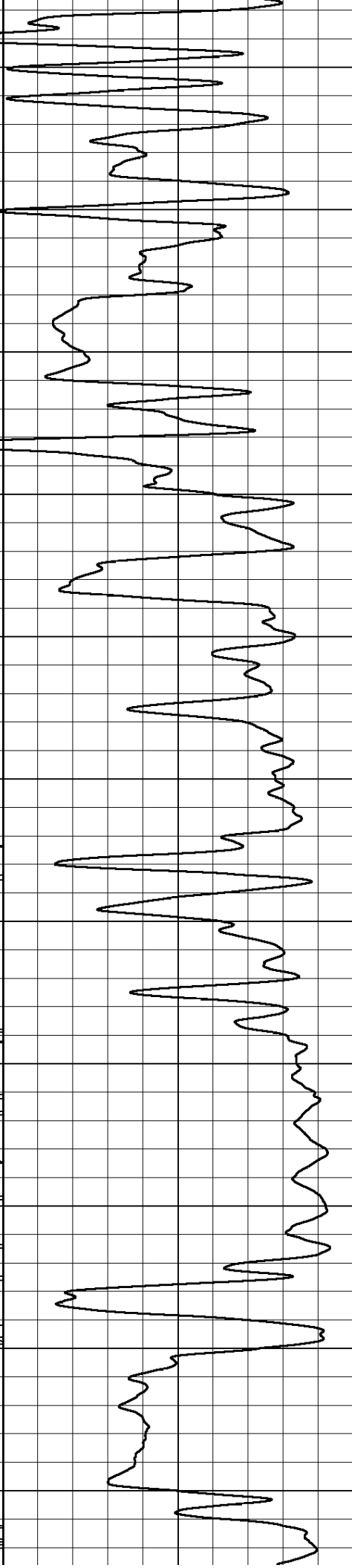
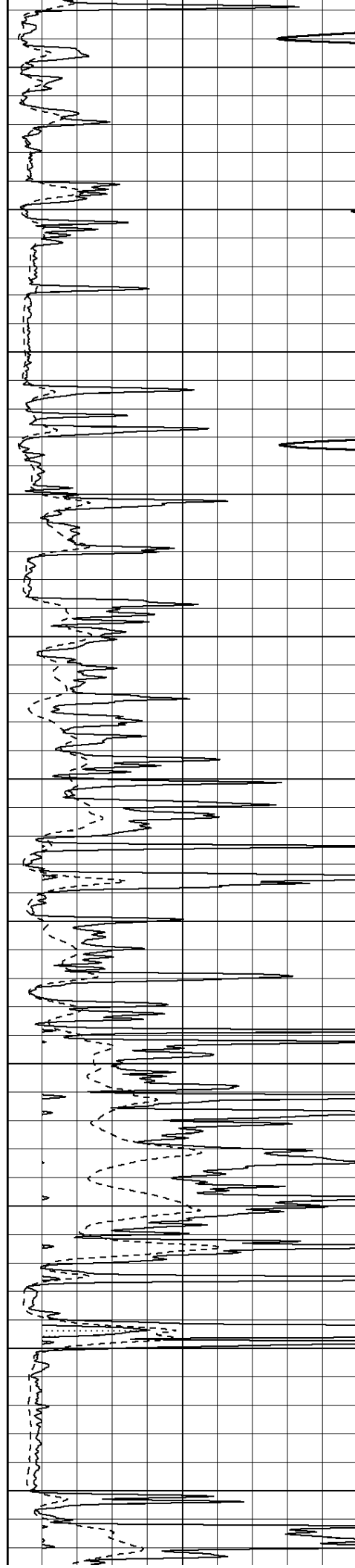
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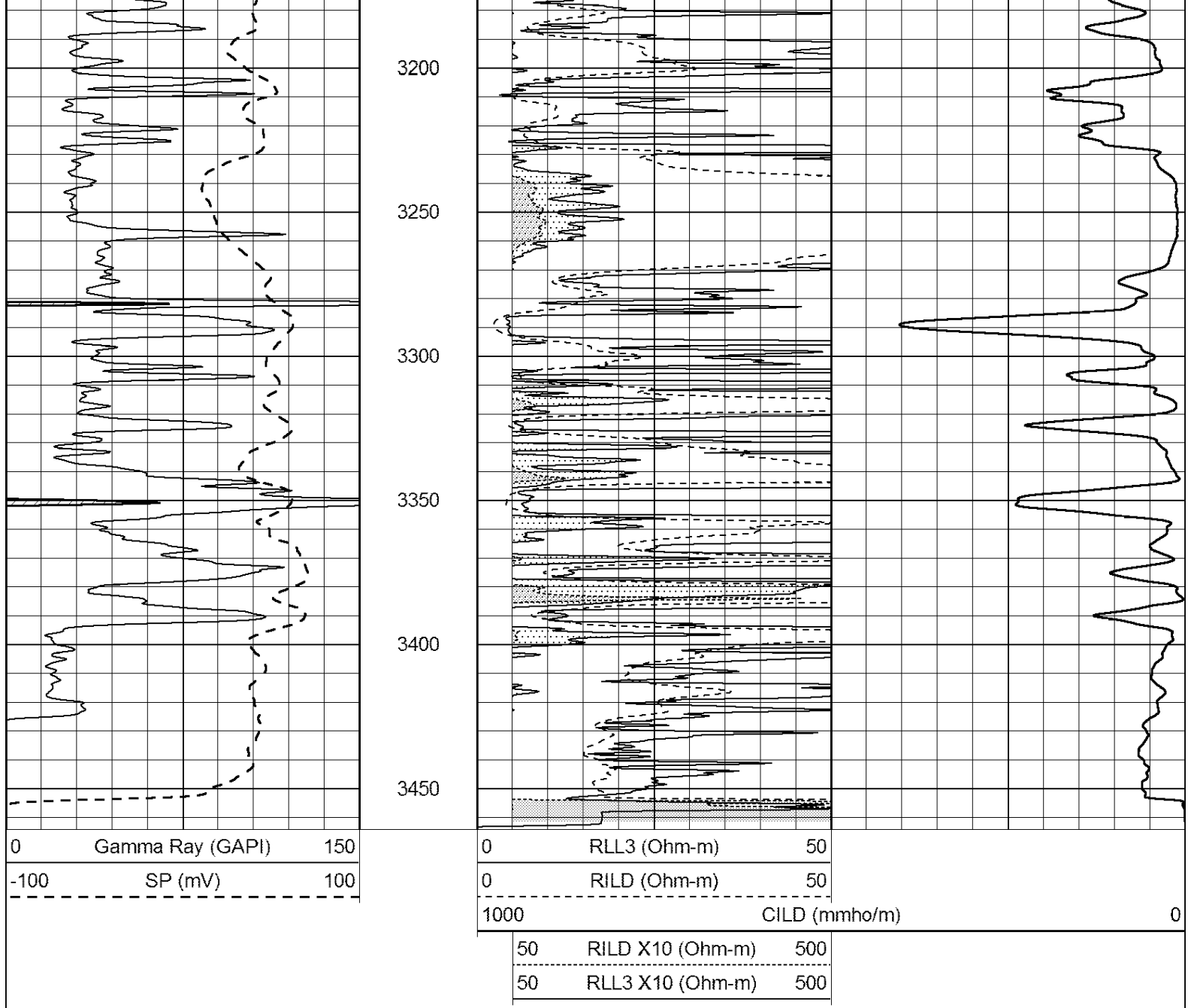
3000

3050

3100

3150





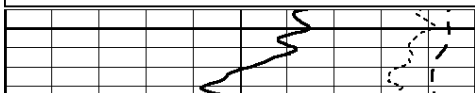
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# ANHYDRITE

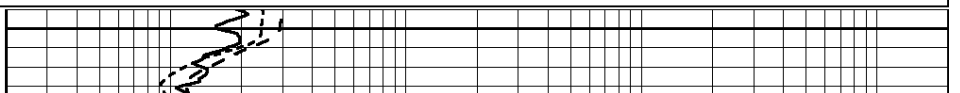
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Presentation Format: dil  
Dataset Creation: Wed Jul 11 16:48:13 2012 by Calc Open-Cased 110302  
Charted by: Depth in Feet scaled 1:240

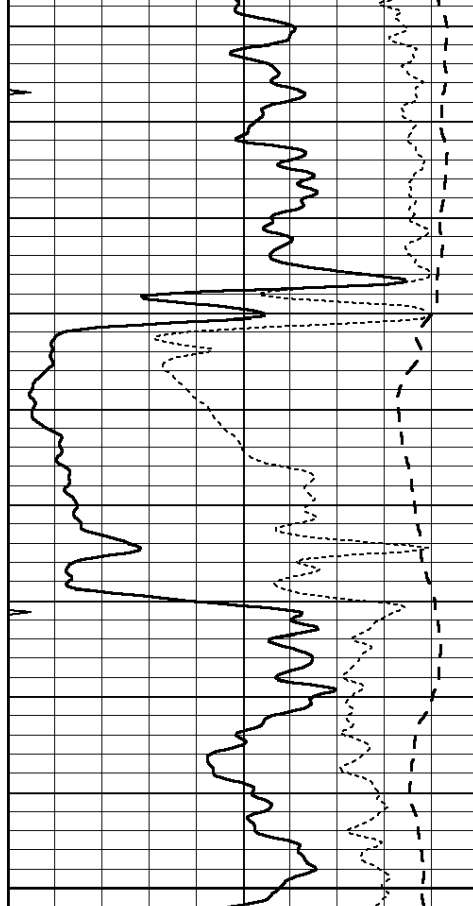
|      |                  |     |
|------|------------------|-----|
| 0    | GAMMA RAY (GAPI) | 150 |
| -100 | SP (mV)          | 100 |
| -250 | Rxo/Rt           | 50  |
| 0    | MINMK            | 20  |

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



850

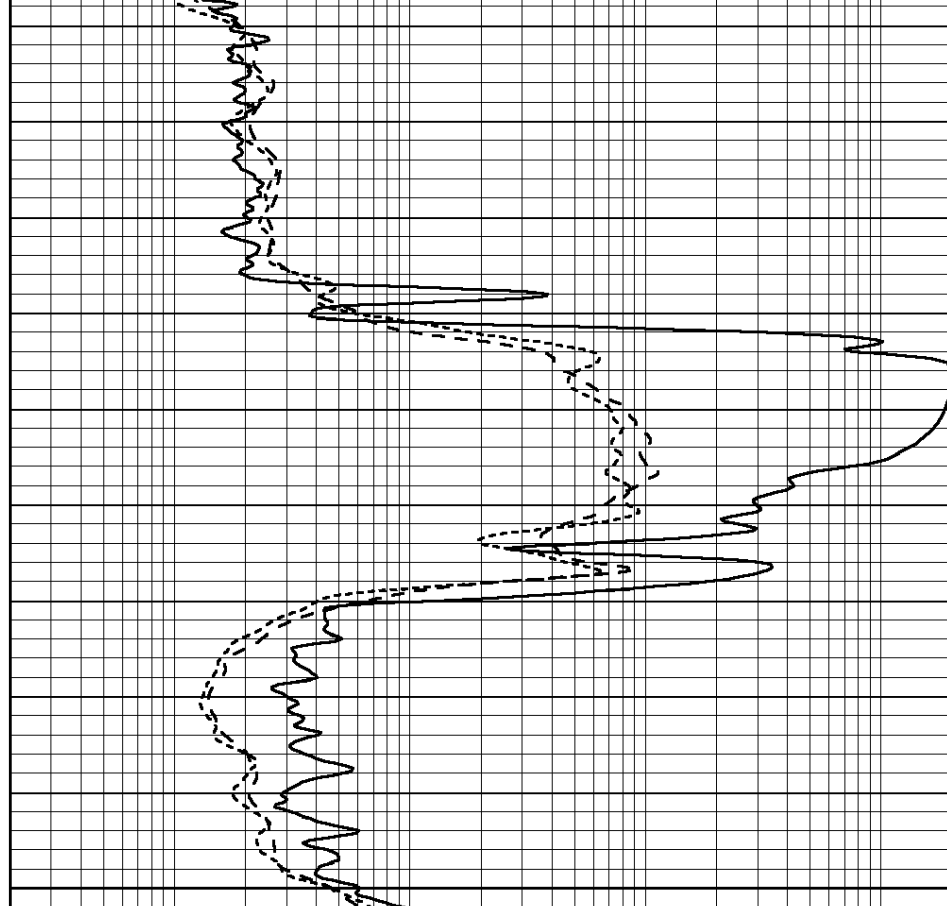




|      |                  |     |
|------|------------------|-----|
| 0    | GAMMA RAY (GAPI) | 150 |
| -100 | SP (mV)          | 100 |
| -250 | Rxo/Rt           | 50  |
| 0    | MINMK            | 20  |

900

950



|     |                          |      |
|-----|--------------------------|------|
| 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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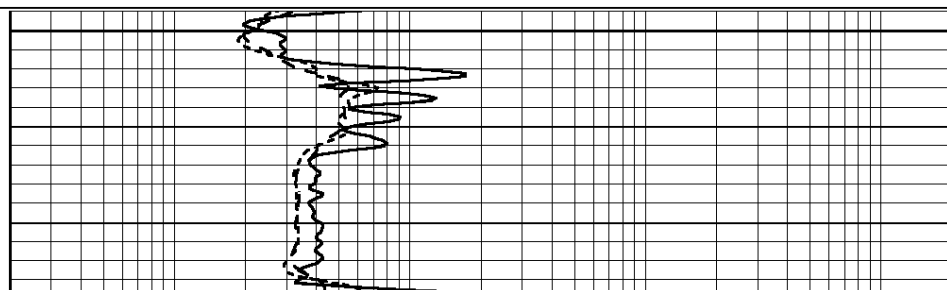
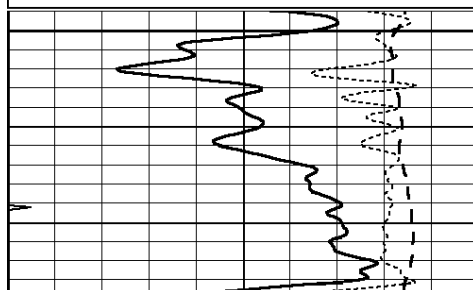
# MAIN SECTION

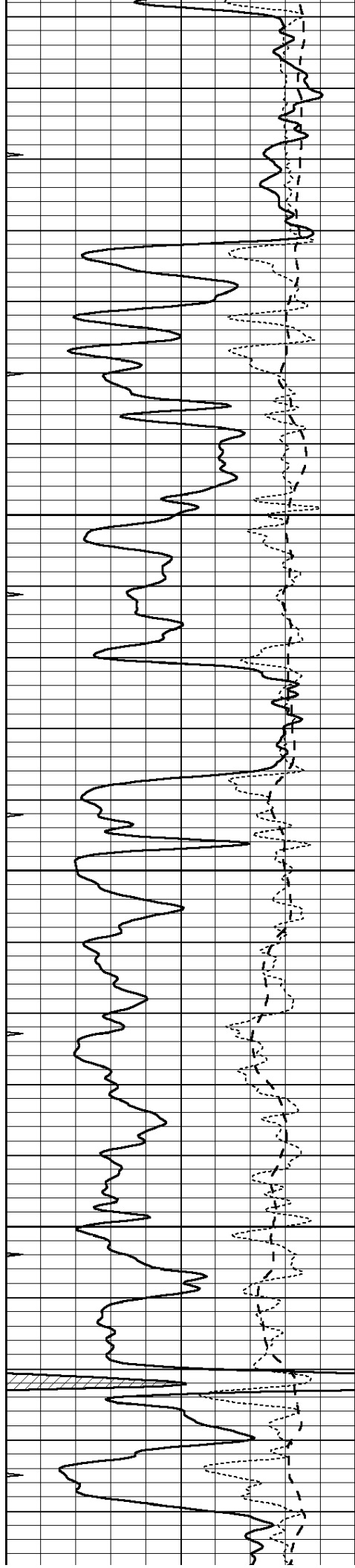
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 Dataset Creation: Wed Jul 11 16:47:01 2012 by Calc Open-Cased 110302  
 Charted by: Depth in Feet scaled 1:240

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

2700



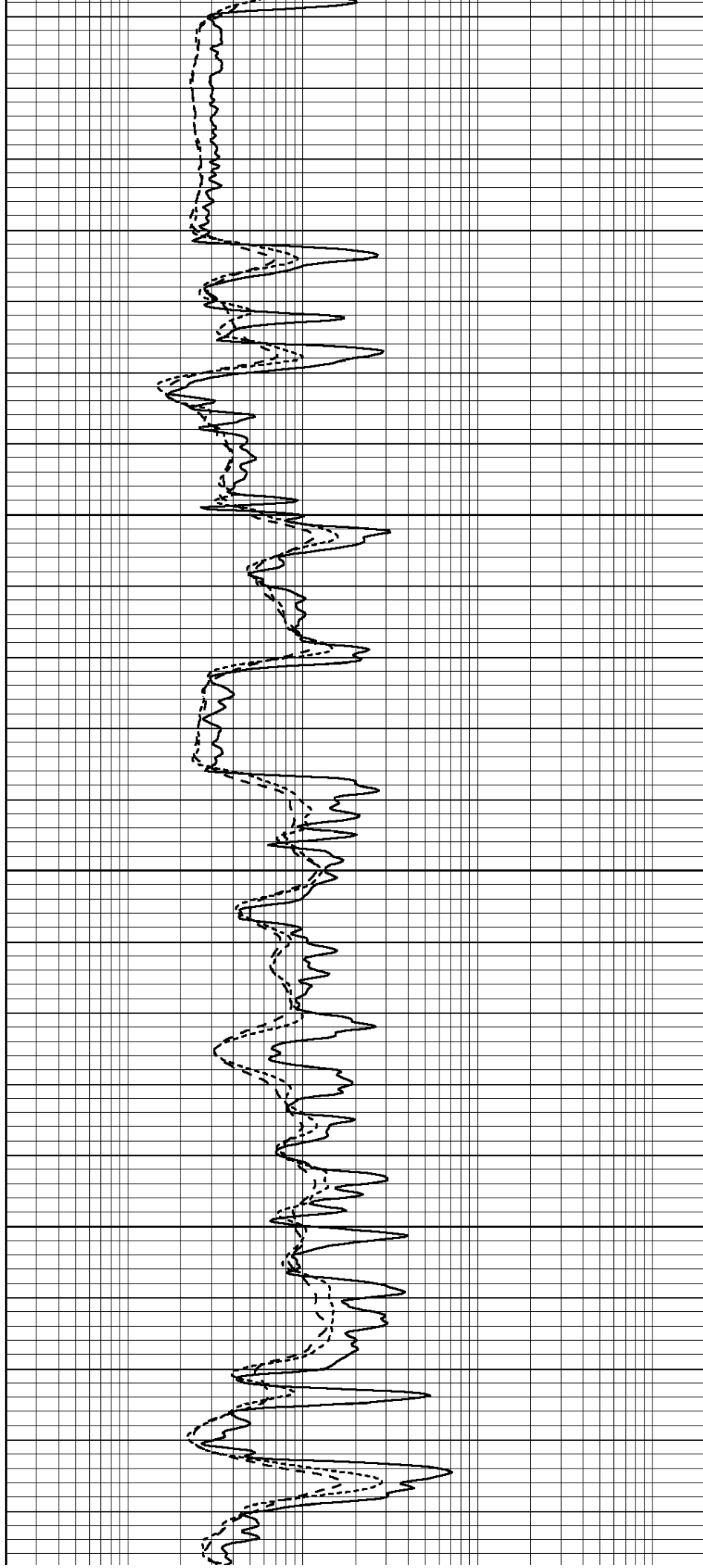


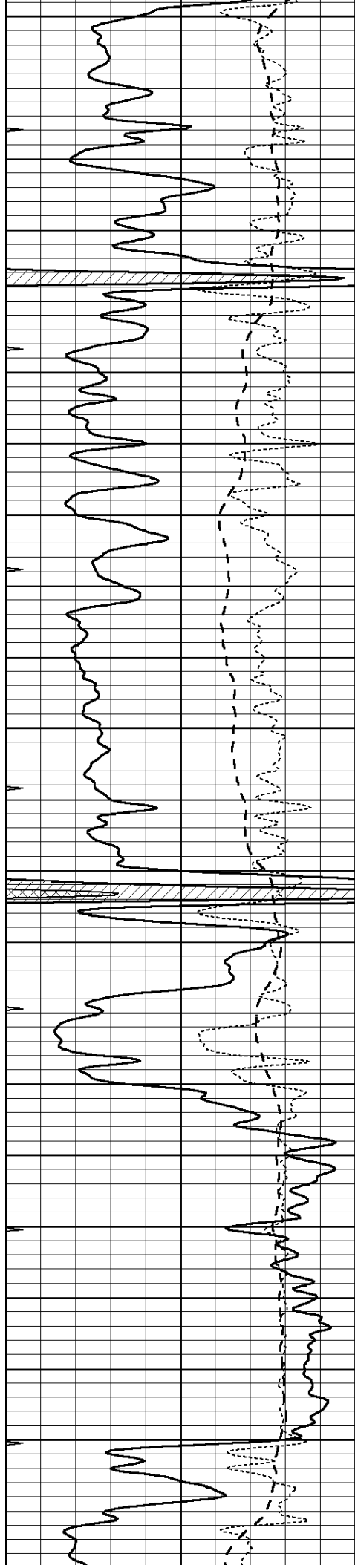
2750

2800

2850

2900





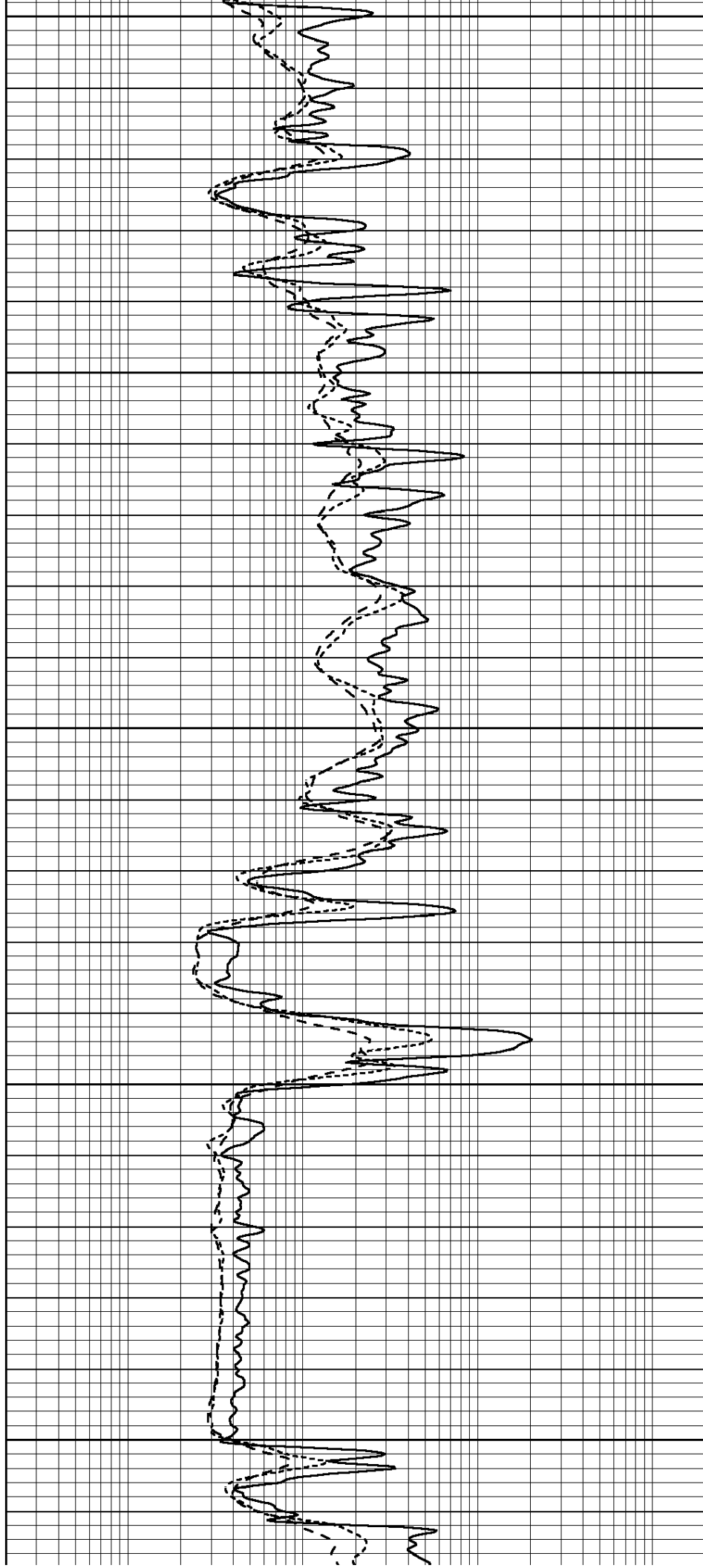
2950

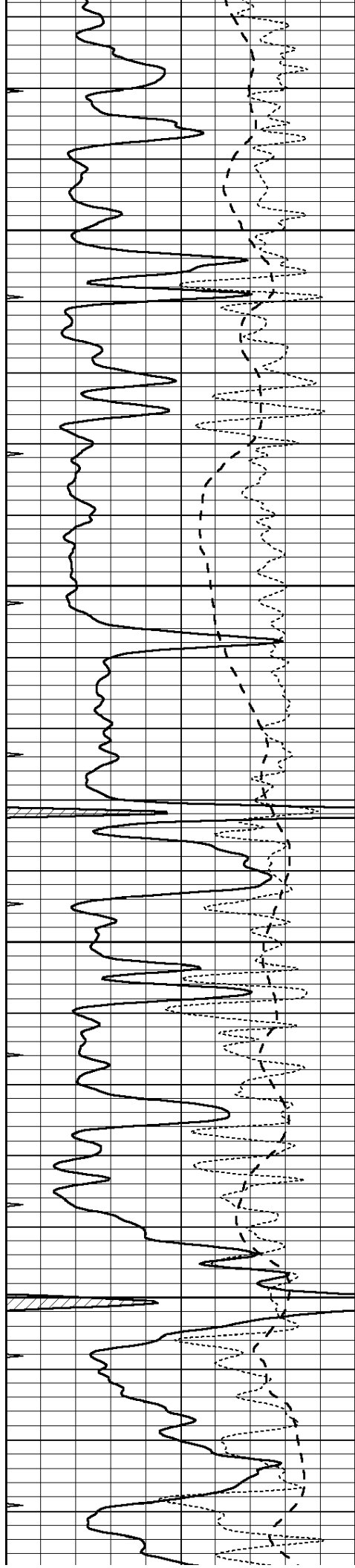
3000

3050

3100

3150



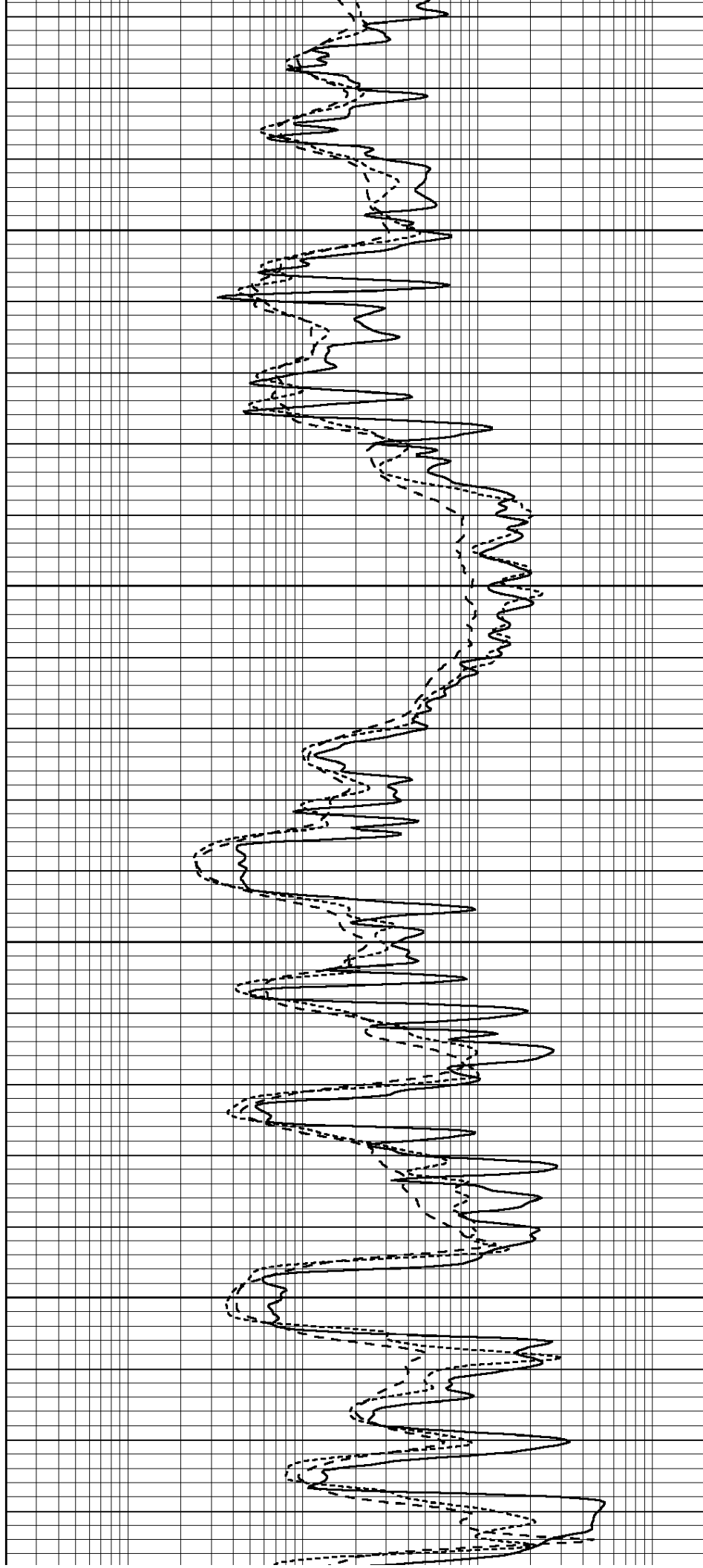


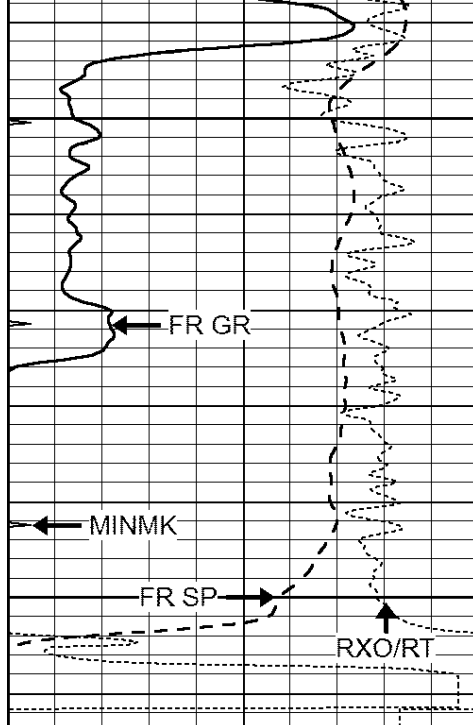
3200

3250

3300

3350



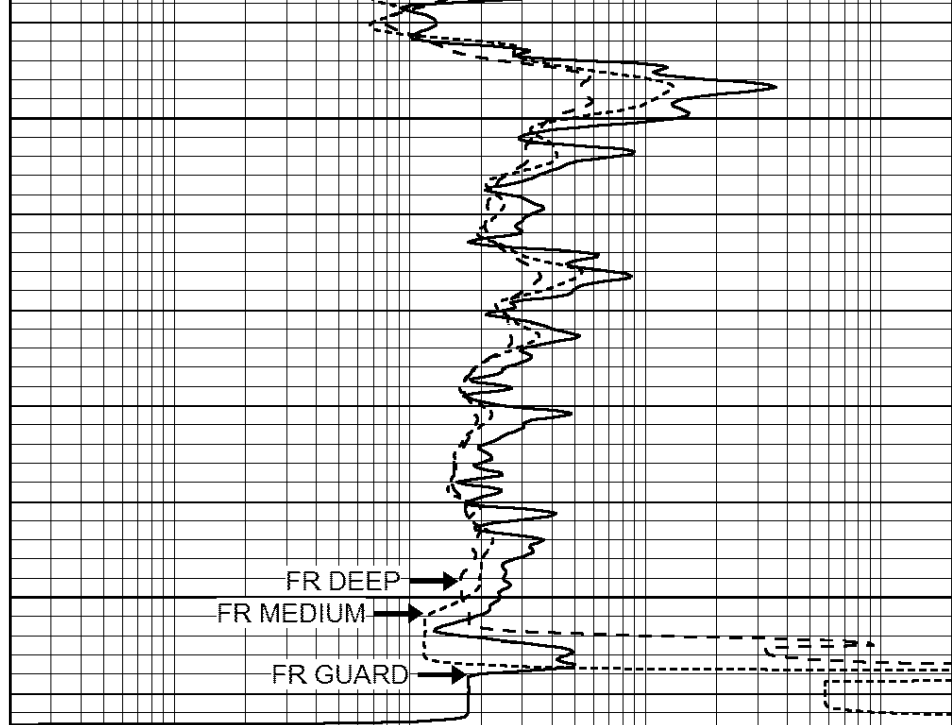


3400

3450

LTD 3460

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



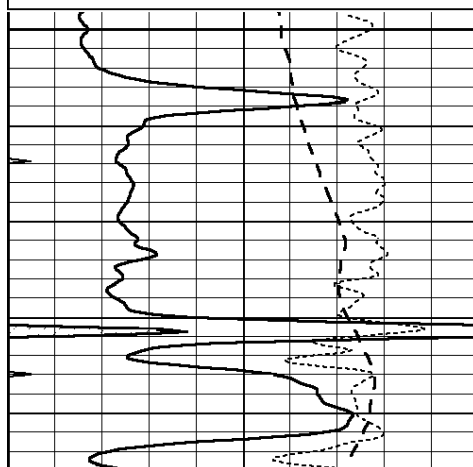
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# REPEAT SECTION

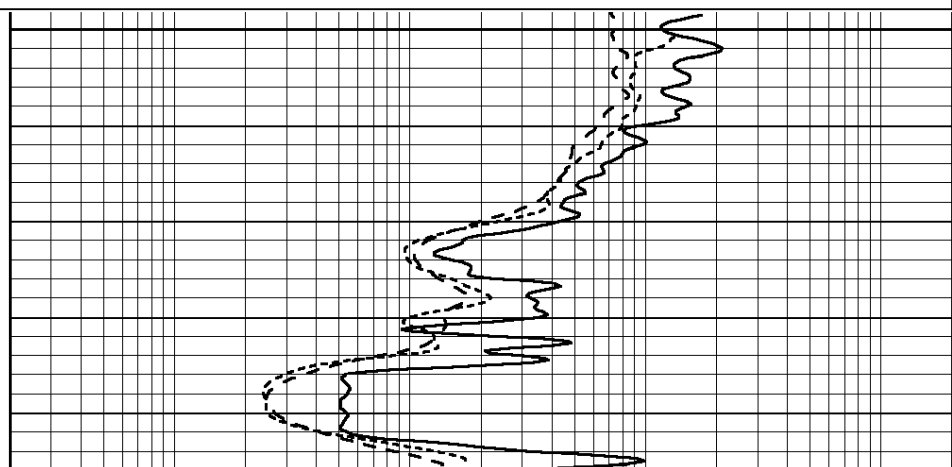
Database File: 409430ddn.db  
 Dataset Pathname: pass2.2  
 Presentation Format: dil  
 Dataset Creation: Wed Jul 11 15:46:45 2012 by Calc Open-Cased 110302  
 Charted by: Depth in Feet scaled 1:240

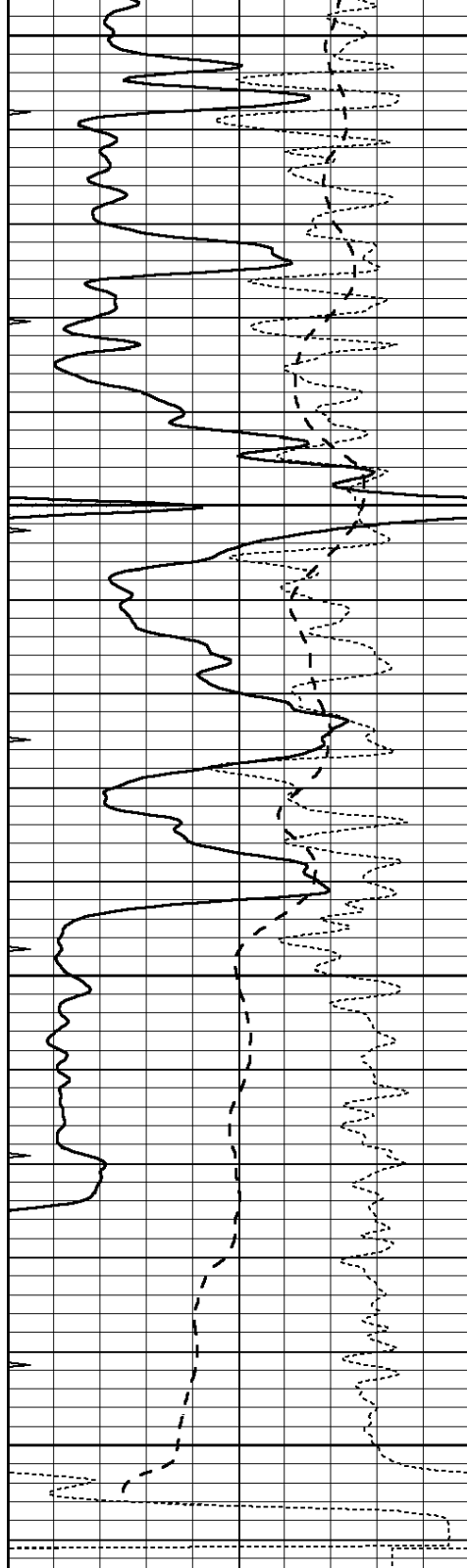
|      |                  |     |
|------|------------------|-----|
| 0    | GAMMA RAY (GAPI) | 150 |
| -100 | SP (mV)          | 100 |
| -250 | Rxo/Rt           | 50  |
| 0    | MINMK            | 20  |

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



3250





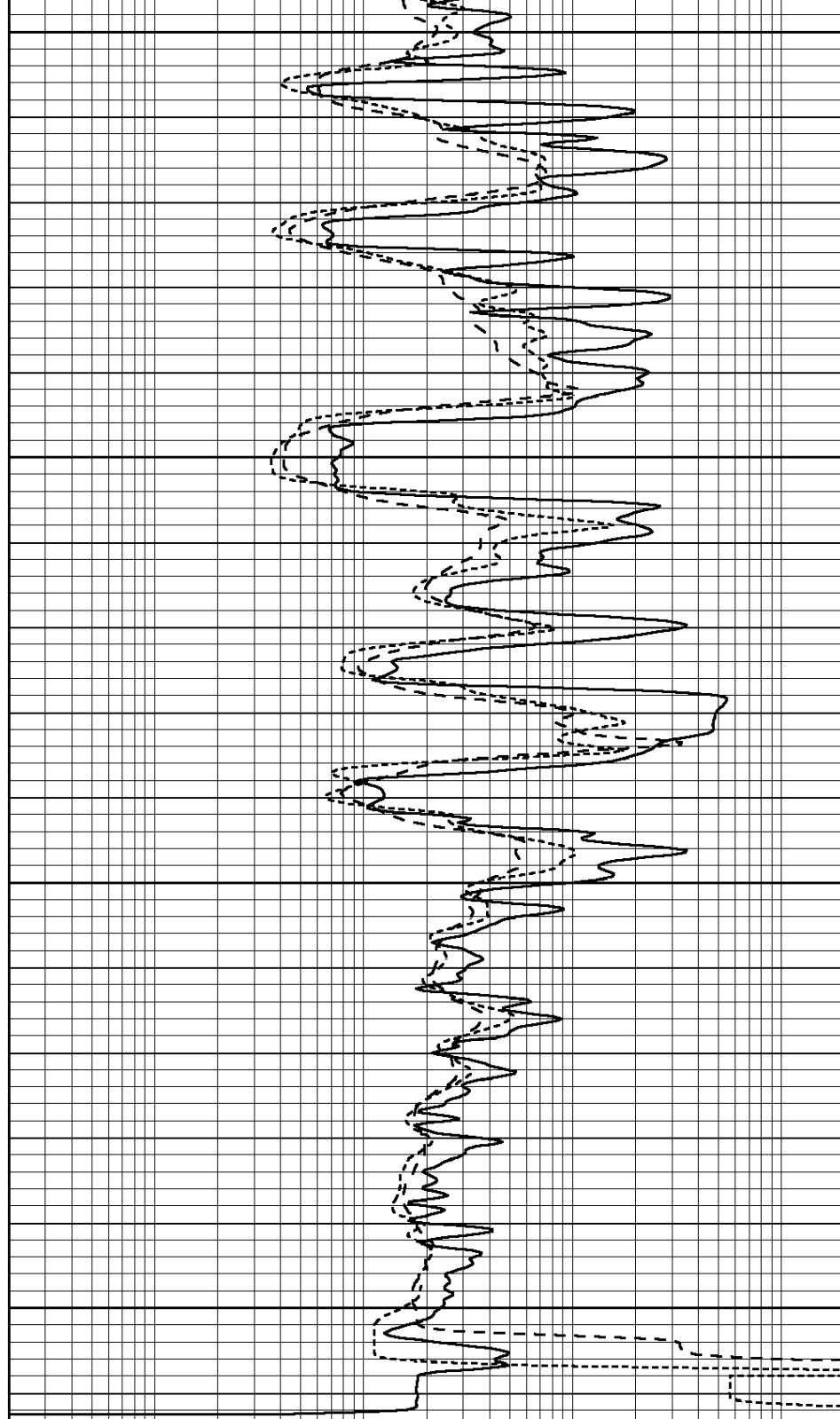
|      |                  |     |
|------|------------------|-----|
| 0    | GAMMA RAY (GAPI) | 150 |
| -100 | SP (mV)          | 100 |
| -250 | Rxo/Rt           | 50  |
| 0    | MINMK            | 20  |

3300

3350

3400

3450



|     |                          |      |
|-----|--------------------------|------|
| 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: 409430ddn.db  
 Dataset Pathname: pass3.7  
 Dataset Creation: Wed Jul 11 16:47:01 2012 by Calc Open-Cased 110302

### Dual Induction Calibration Report

Serial-Model:  
Performed:

DIL4-GEAR  
Wed Jul 11 15:47:41 2012

| Readings  |        |       |   | References |         |        | Results |         |
|-----------|--------|-------|---|------------|---------|--------|---------|---------|
| Loop:     | Air    | Loop  |   | Air        | Loop    |        | m       | b       |
| Deep      | 0.008  | 0.666 | V | 0.000      | 400.000 | mmho/m | 570.000 | -2.000  |
| Medium    | -0.003 | 0.769 | V | 0.000      | 462.500 | mmho/m | 560.000 | -6.000  |
| Internal: | Zero   | Cal   |   | Zero       | Cal     |        | m       | b       |
| Deep      | 0.013  | 0.651 | V | 0.000      | 400.000 | mmho/m | 627.541 | -8.365  |
| Medium    | 0.020  | 0.754 | V | 0.000      | 462.500 | mmho/m | 630.311 | -12.549 |

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   | 3.4      | 7.9          |
| High Ref  | 5.5      | 15.0         |
| Gain: 3.4 |          | Offset: -3.5 |

Compensated Neutron Calibration Report

Serial Number: 070808  
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: 070559  
Tool Model: OPEN\_GR  
Performed: Tue Jul 03 02:09:35 2012  
  
Calibrator Value: 1.0      GAPI

|                     |        |          |
|---------------------|--------|----------|
| Background Reading: | 0.0    | cps      |
| Calibrator Reading: | 1.0    | cps      |
| Sensitivity:        | 0.3000 | GAPI/cps |