



SUPERIOR  
Hays,  
Kansas

## DUAL INDUCTION LOG

|                              |                                                                    |                     |                                        |
|------------------------------|--------------------------------------------------------------------|---------------------|----------------------------------------|
| Company                      | DOWNING - NELSON OIL CO. INC.                                      |                     |                                        |
| Well                         | ELSIE HERMAN #1-32                                                 |                     |                                        |
| Field                        | WILDCAT                                                            |                     |                                        |
| County                       | RUSH                                                               |                     |                                        |
| State                        | KANSAS                                                             |                     |                                        |
| Company                      | DOWNING - NELSON OIL COMPANY, INC.                                 |                     |                                        |
| Well                         | ELSIE HERMAN #1-32                                                 |                     |                                        |
| Field                        | WILDCAT                                                            |                     |                                        |
| County                       | RUSH                                                               |                     |                                        |
| State                        | KANSAS                                                             |                     |                                        |
| Location:                    | API # : 15-165-21962-0000                                          |                     | Other Services<br>CDL/CNL<br>MEL/SONIC |
| Permanent Datum              | GROUND LEVEL                                                       |                     | Elevation                              |
| Log Measured From            | 1820' FNL & 2180' FWL<br>SW - NE - SE - NW                         |                     | 2087                                   |
| Drilling Measured From       | SEC 32 TWP 17S RGE 18W<br>KELLY BUSHING 8' A.G.L.<br>KELLY BUSHING |                     | K.B. 2095<br>D.F. 2093<br>G.L. 2087    |
| Date                         | 2/22/12                                                            |                     |                                        |
| Run Number                   | ONE                                                                |                     |                                        |
| Depth Driller                | 3893                                                               |                     |                                        |
| Depth Logger                 | 3893                                                               |                     |                                        |
| Bottom Logged Interval       | 3891                                                               |                     |                                        |
| Top Log Interval             | 00                                                                 |                     |                                        |
| Casing Driller               | 8 5/8"@1271'                                                       |                     |                                        |
| Casing Logger                | 1270                                                               |                     |                                        |
| Bit Size                     | 7 7/8"                                                             |                     |                                        |
| Type Fluid in Hole           | CHEMICAL MUD                                                       | CHLORIDES 2,400 PPM |                                        |
| Density / Viscosity          | 9.4/53                                                             |                     |                                        |
| pH / Fluid Loss              | 10.0/8.8                                                           |                     |                                        |
| Source of Sample             | FLOWLINE                                                           |                     |                                        |
| Rm @ Meas. Temp              | .700@76F                                                           |                     |                                        |
| Rmt @ Meas. Temp             | .525@76F                                                           |                     |                                        |
| Rmc @ Meas. Temp             | .840@76F                                                           |                     |                                        |
| Source of Rmt / Rmc          | MEASUREMENT                                                        |                     |                                        |
| Rm @ BHT                     | .463@115F                                                          |                     |                                        |
| Time Circulation Stopped     | 2 HOURS                                                            |                     |                                        |
| Time Logger on Bottom        | 5:00 P.M.                                                          |                     |                                        |
| Maximum Recorded Temperature | 115F                                                               |                     |                                        |
| Equipment Number             | 4010                                                               |                     |                                        |
| Location                     | HAYS, KANSAS                                                       |                     |                                        |
| Recorded By                  | JEFF LUEBBERS                                                      |                     |                                        |
| Witnessed By                 | AL DOWNING                                                         |                     |                                        |

<<< 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 SUPERIOR WELL SERVICE HAYS, KANSAS (785) 628-6395  
DIRECTIONS  
LACROSSE, KS., 1W. ON HWY 4 TO RR TRACKS, 1S., 1/2W., 1/2N. INTO



SUPERIOR  
Hays,  
Kansas

# MAIN SECTION

Database File: 408416ddn.db  
Dataset Pathname: pass3.10  
Presentation Format: dil2  
Dataset Creation: Wed Feb 22 18:20:43 2012  
Charted by: Depth in Feet scaled 1:600

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

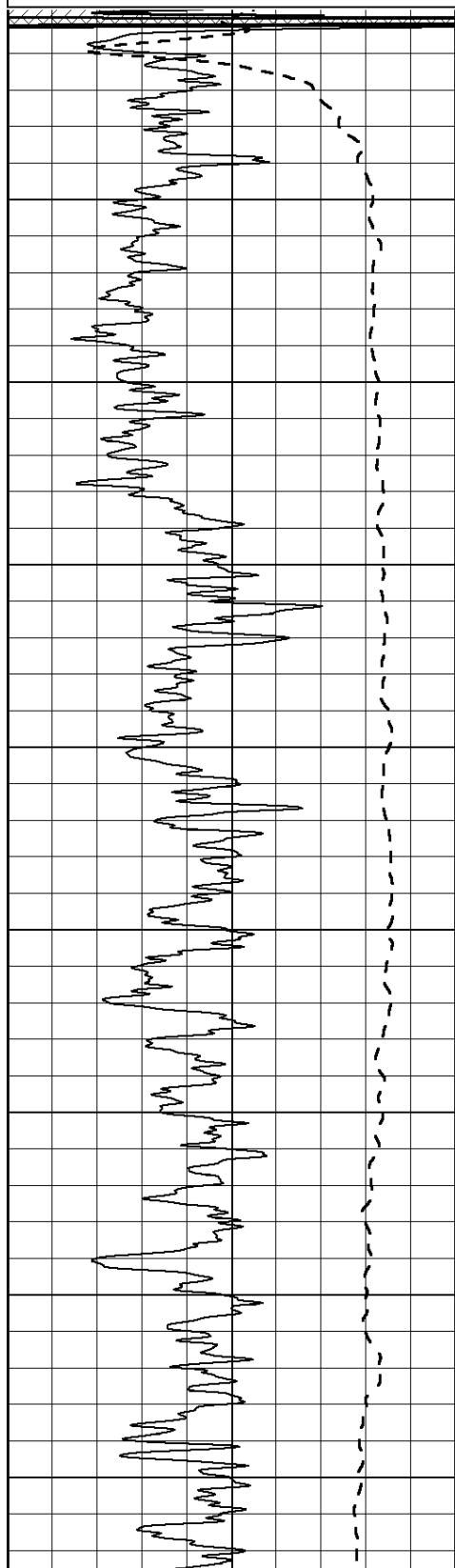
|   |              |    |
|---|--------------|----|
| 0 | RLL3 (Ohm-m) | 50 |
|---|--------------|----|

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

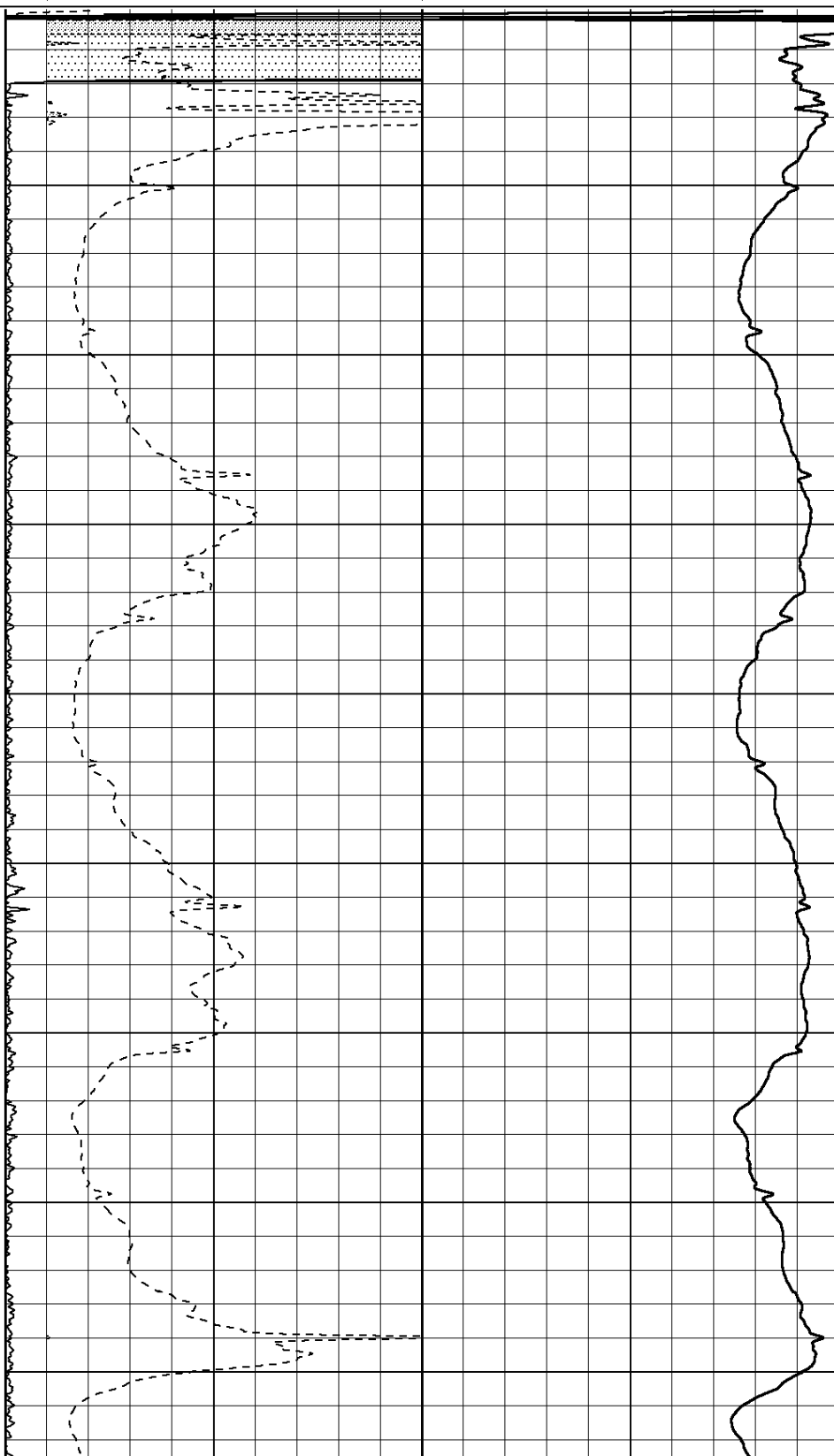
|      |               |   |
|------|---------------|---|
| 1000 | CILD (mmho/m) | 0 |
|------|---------------|---|

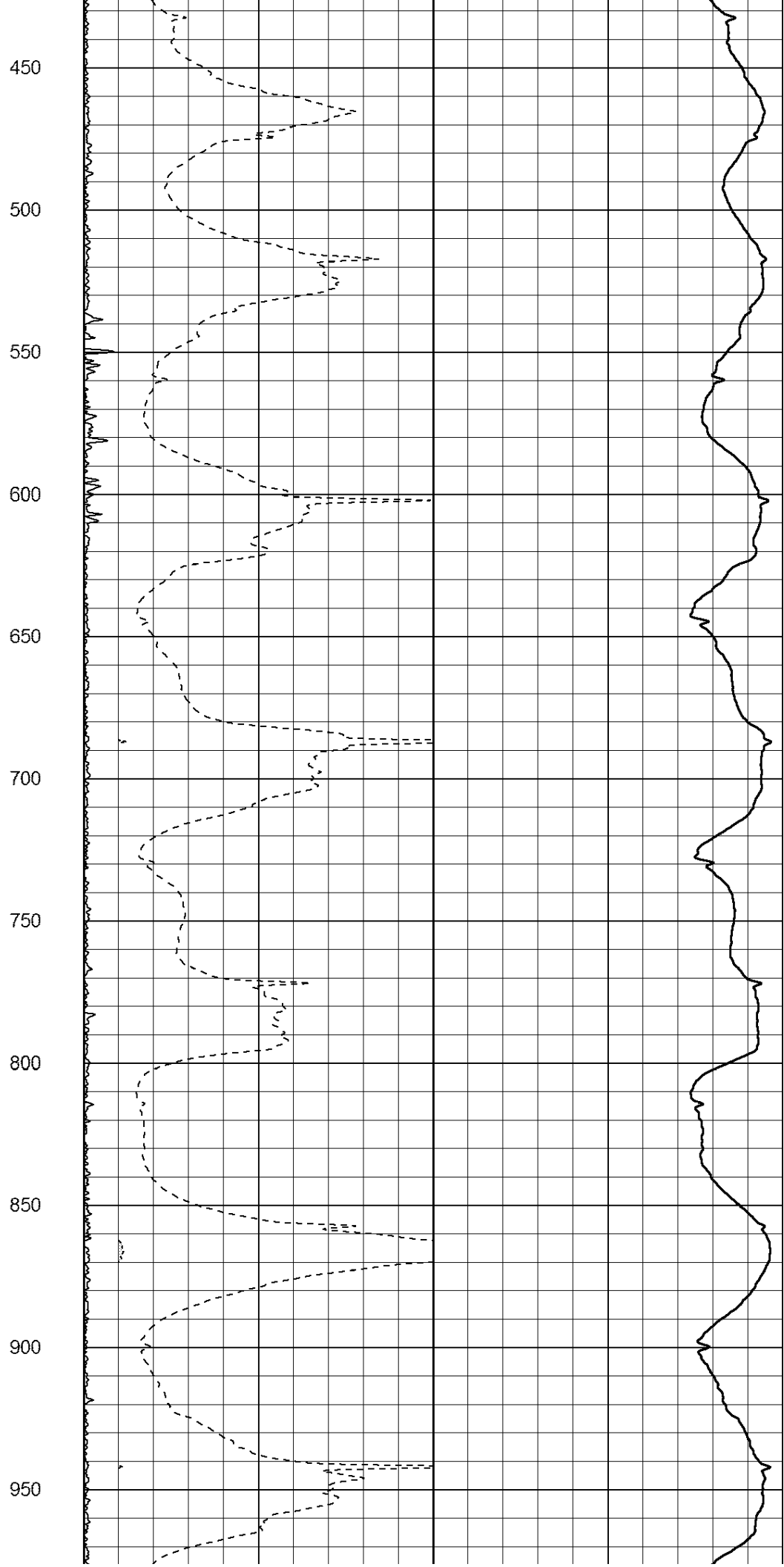
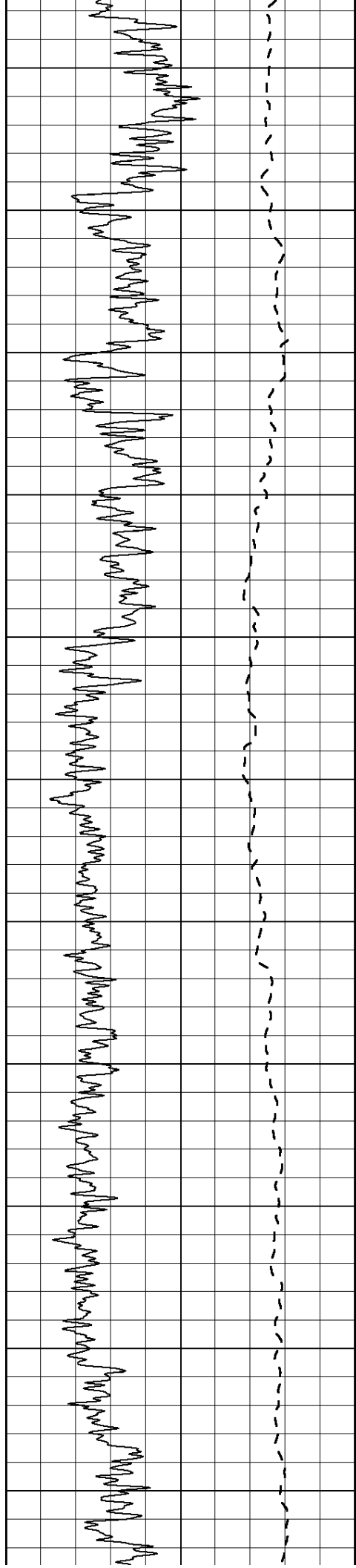
|    |                  |     |
|----|------------------|-----|
| 50 | RILD X10 (Ohm-m) | 500 |
|----|------------------|-----|

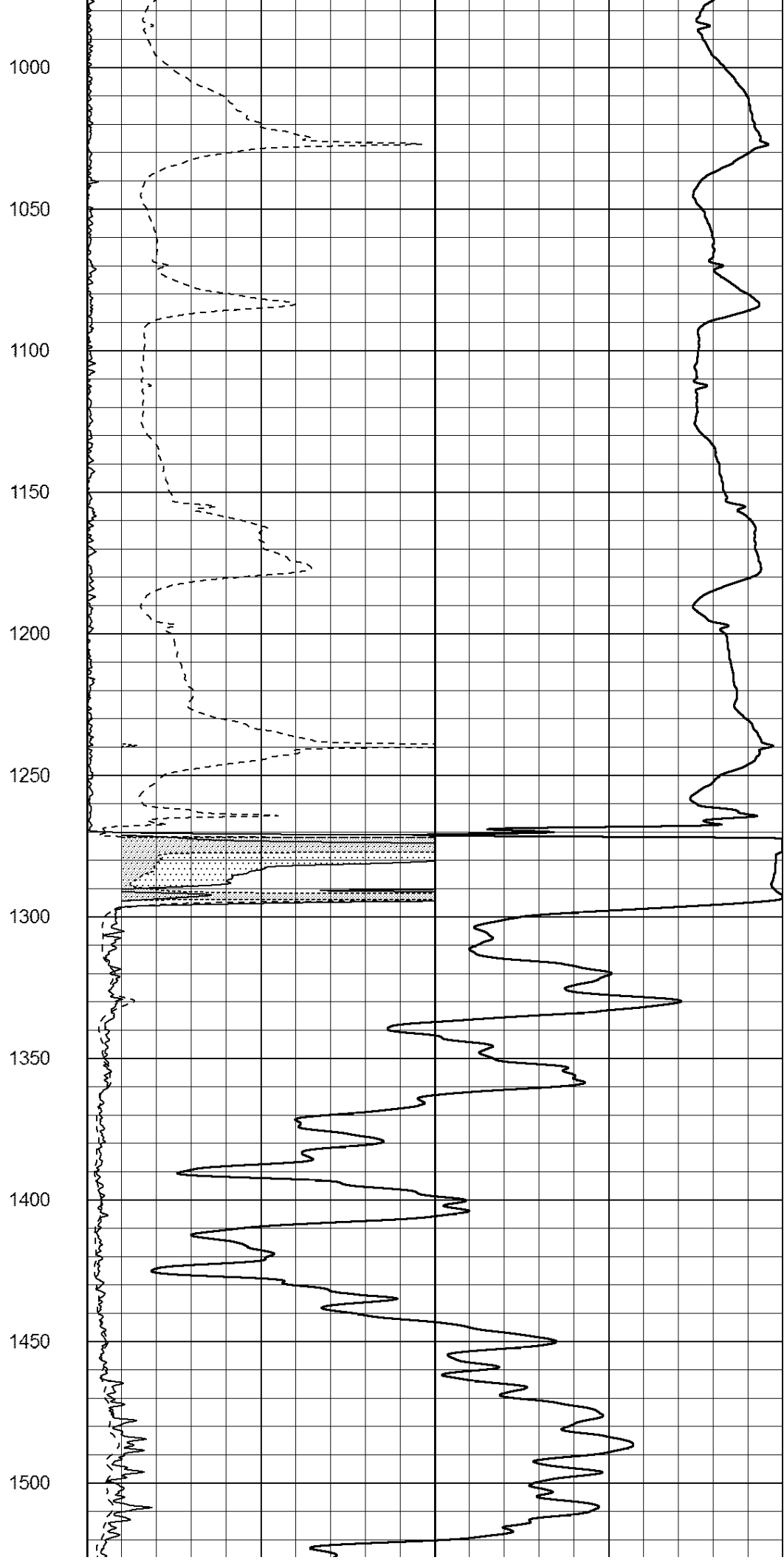
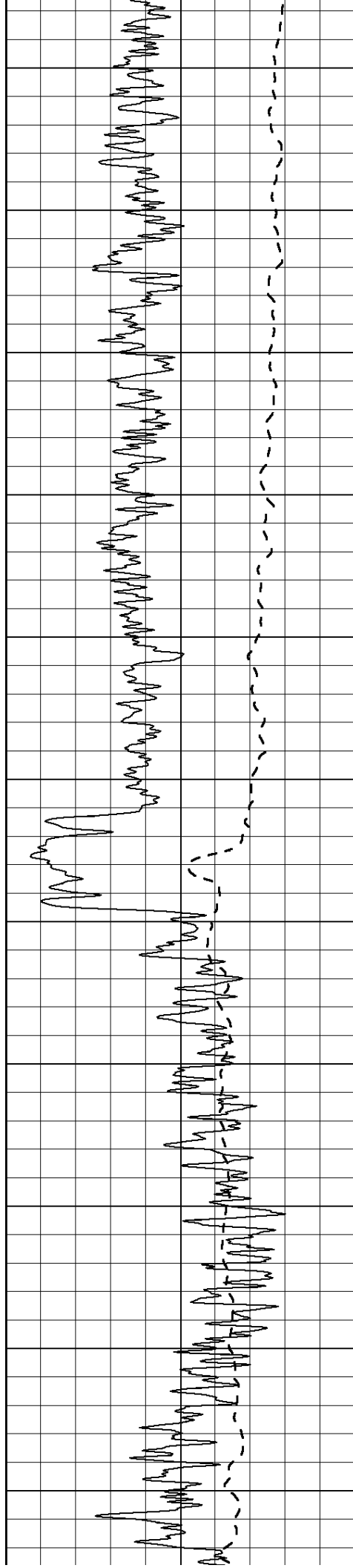
|    |                  |     |
|----|------------------|-----|
| 50 | RLL3 X10 (Ohm-m) | 500 |
|----|------------------|-----|

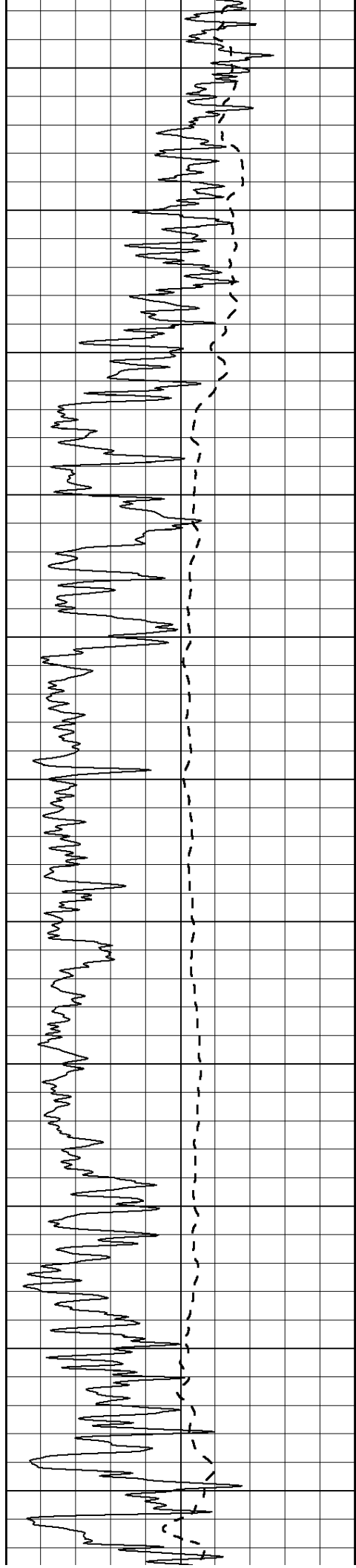


0  
50  
100  
150  
200  
250  
300  
350  
400









1550

1600

1650

1700

1750

1800

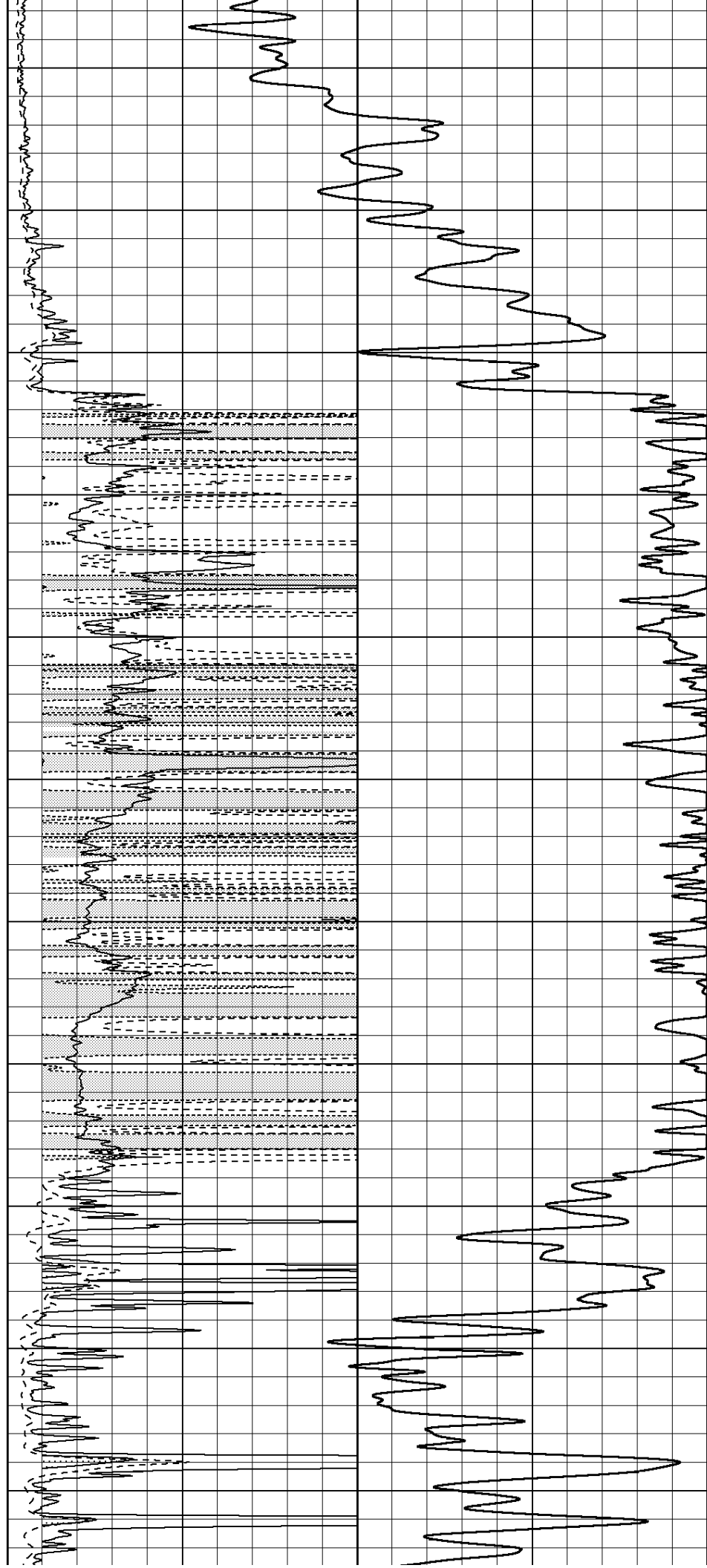
1850

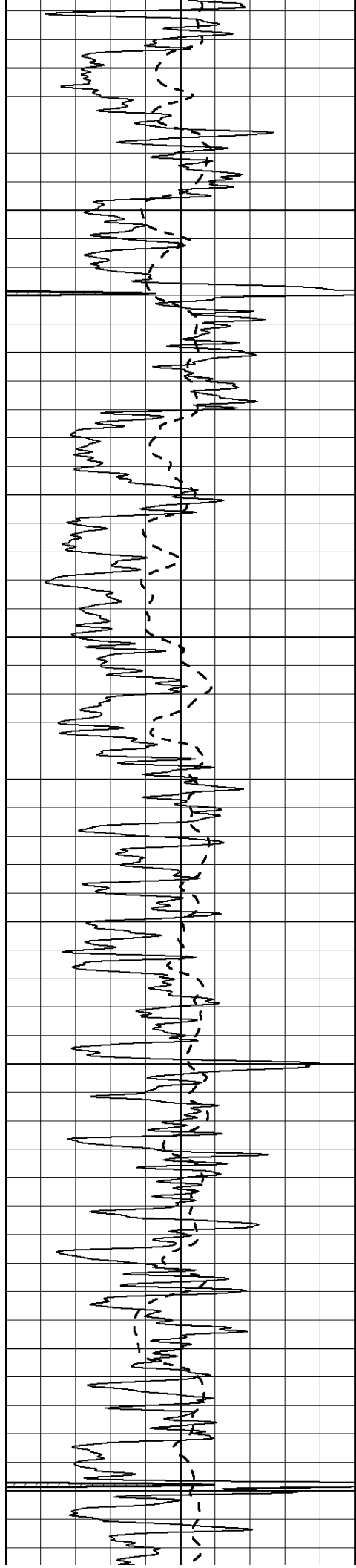
1900

1950

2000

2050





2100

2150

2200

2250

2300

2350

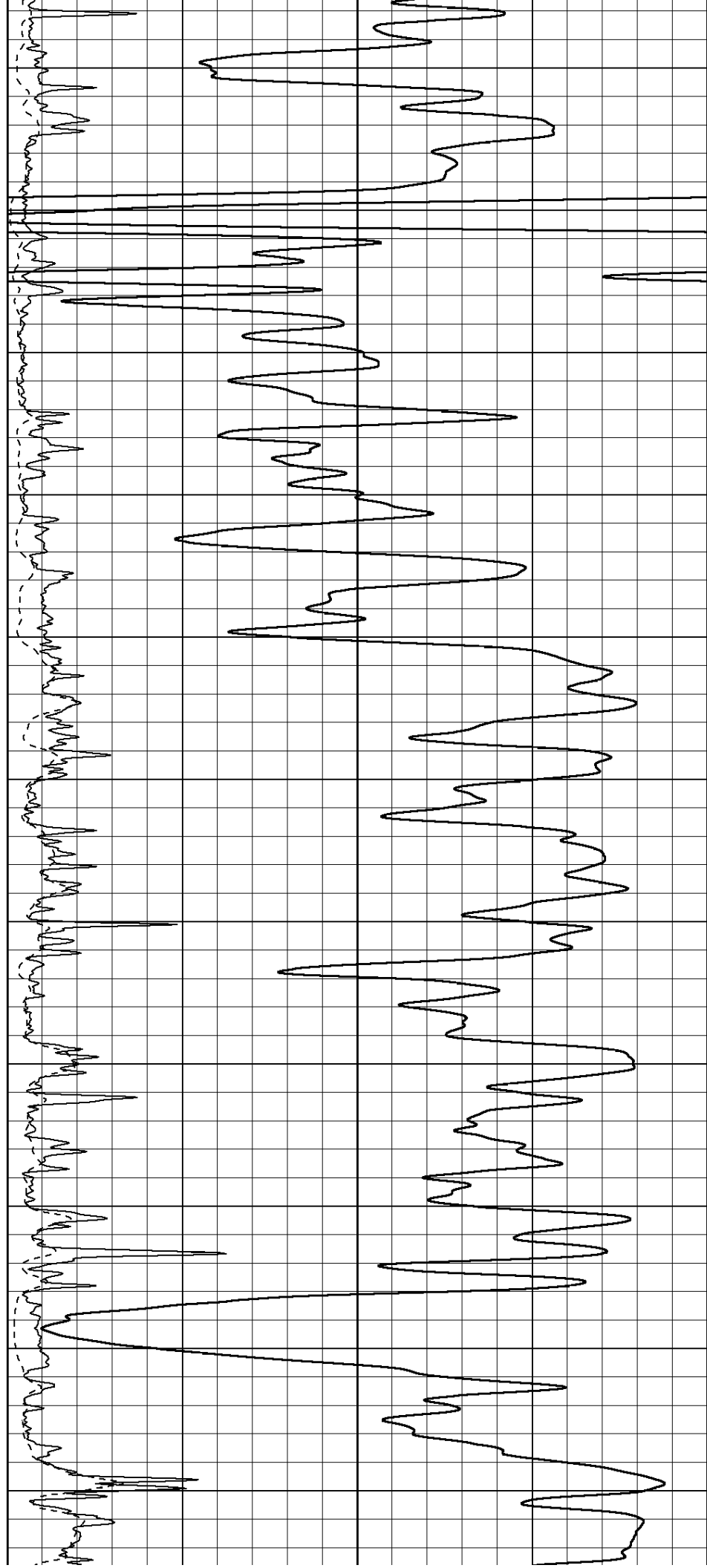
2400

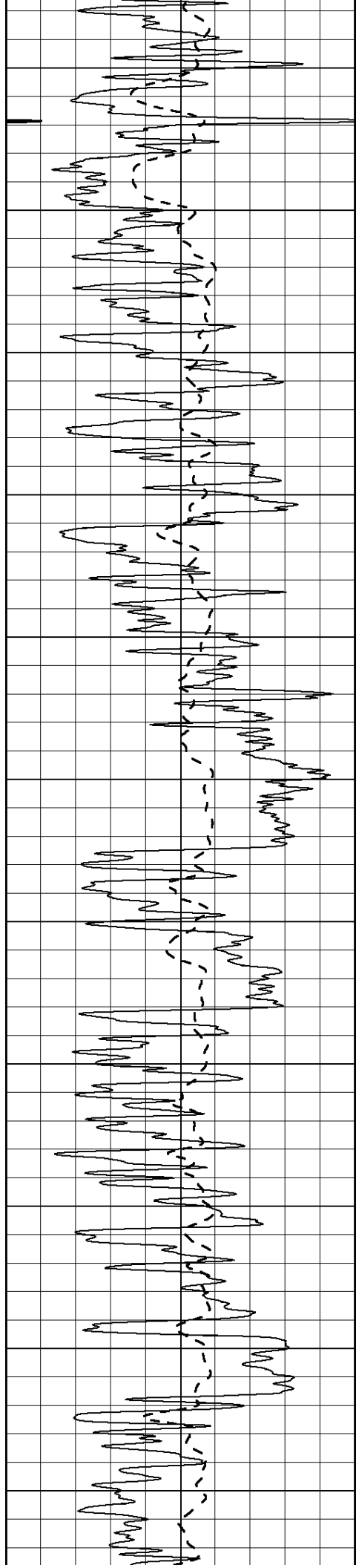
2450

2500

2550

2600





2650

2700

2750

2800

2850

2900

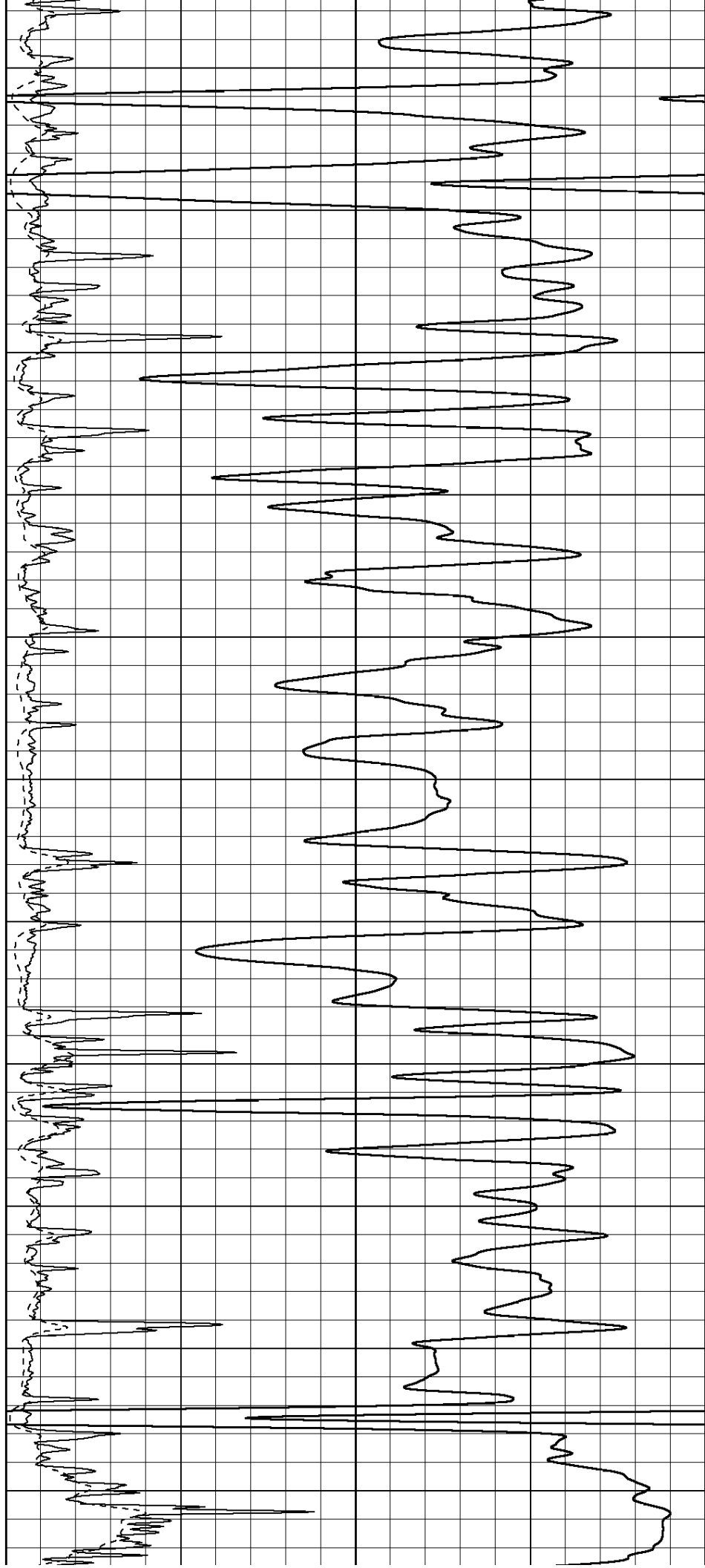
2950

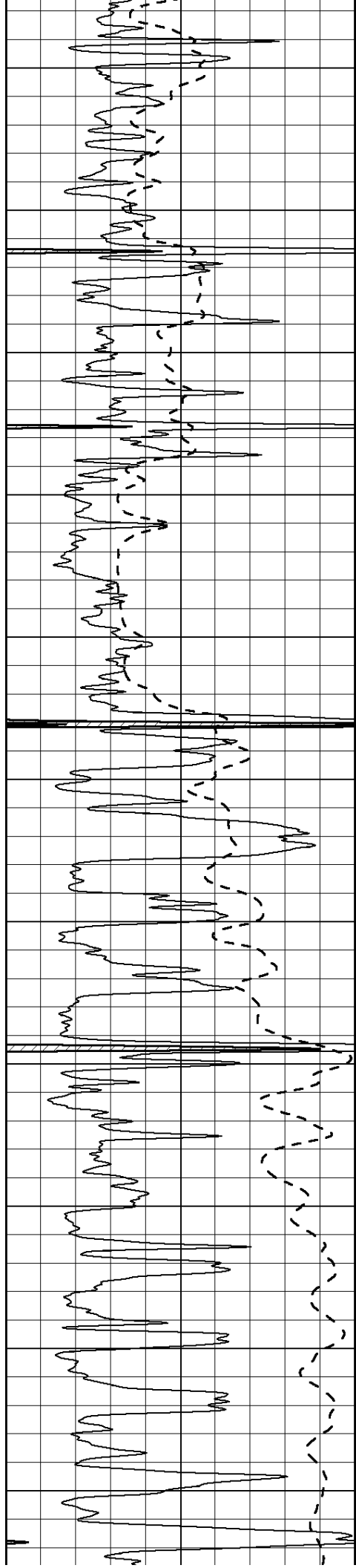
3000

3050

3100

3150





3200

3250

3300

3350

3400

3450

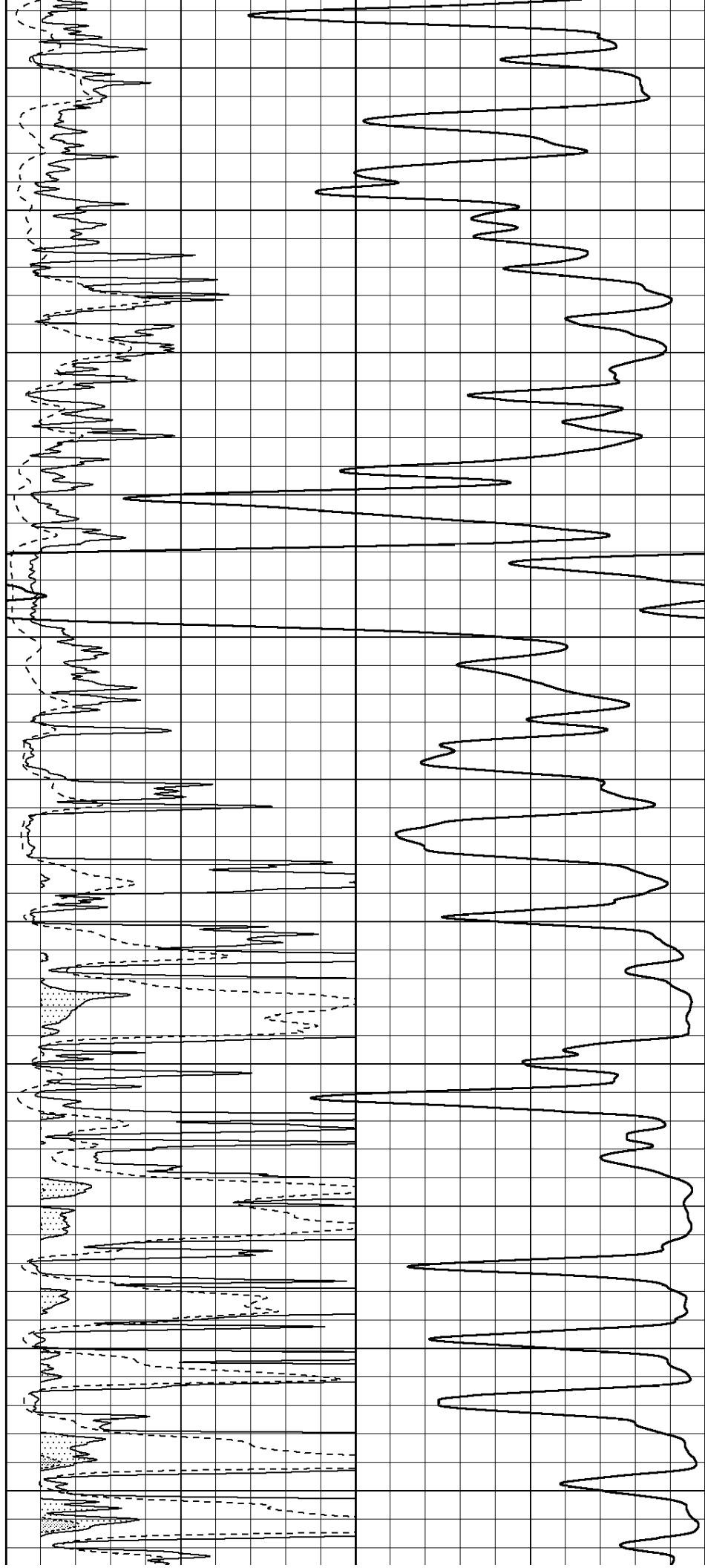
3500

3550

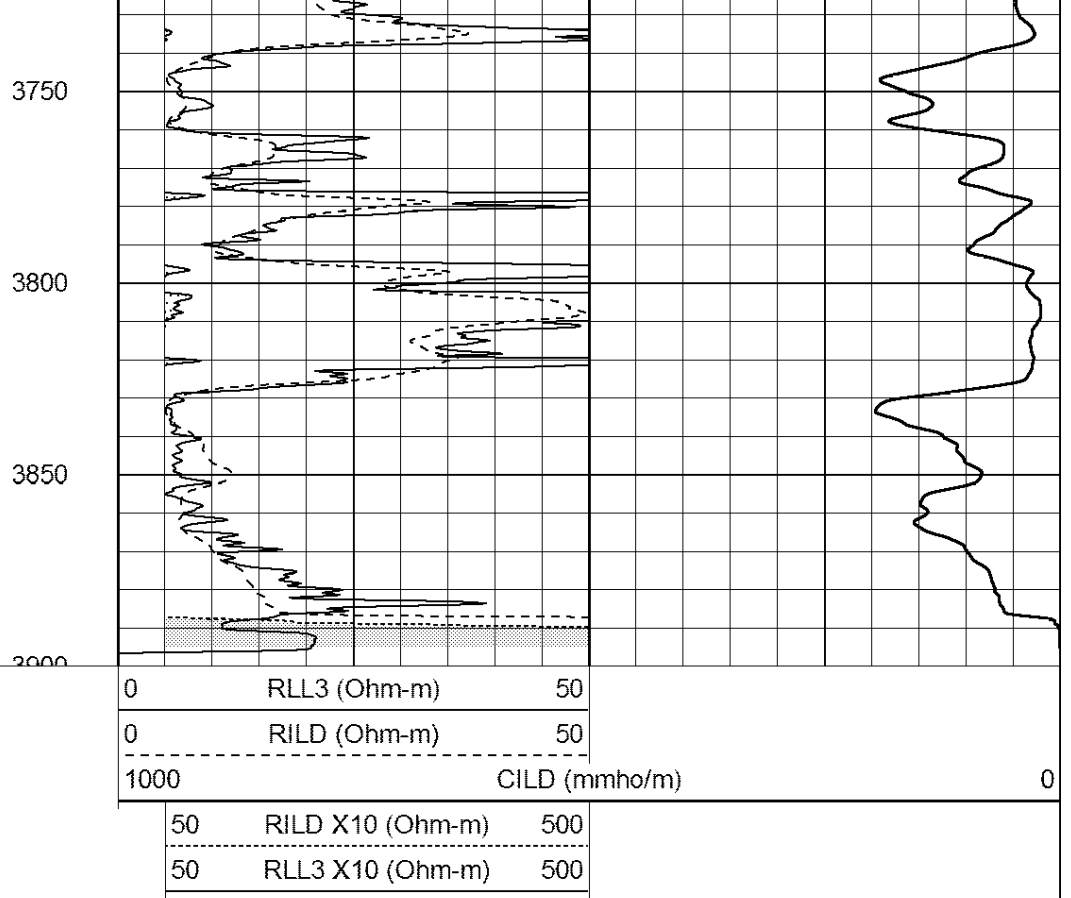
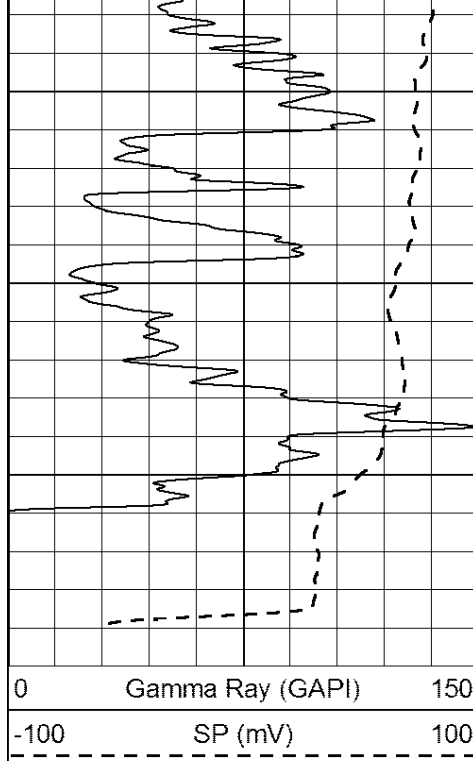
3600

3650

3700







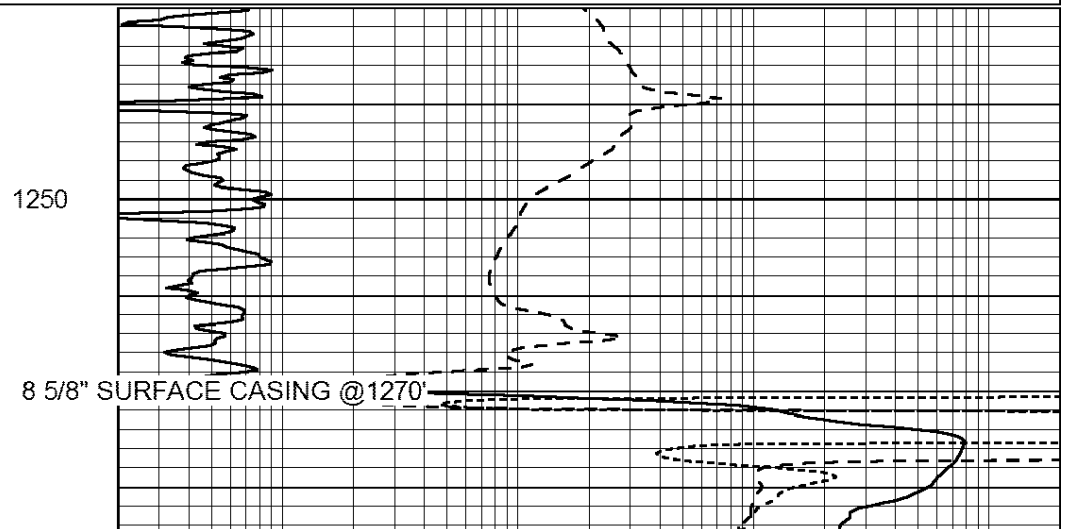
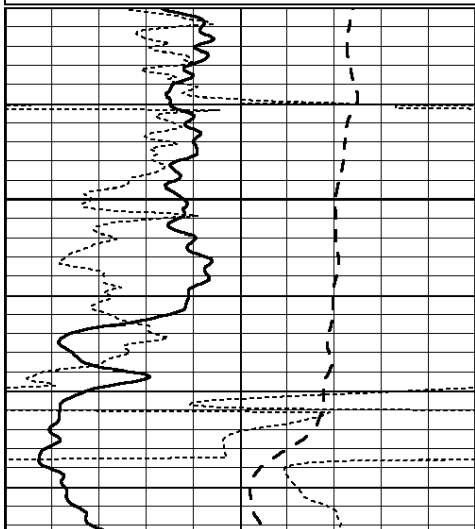
SUPERIOR  
Hays,  
Kansas

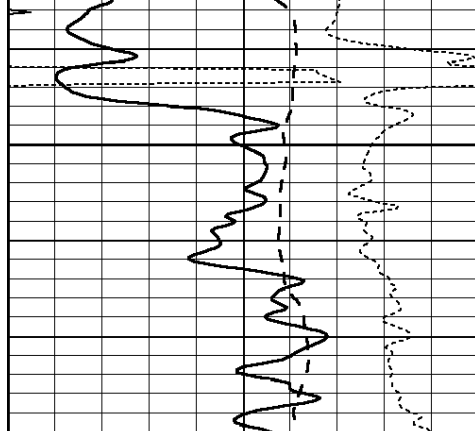
# ANHYDRITE

Database File: 408416ddn.db  
Dataset Pathname: pass3.11  
Presentation Format: dil  
Dataset Creation: Wed Feb 22 18:20:57 2012  
Charted by: Depth in Feet scaled 1:240

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

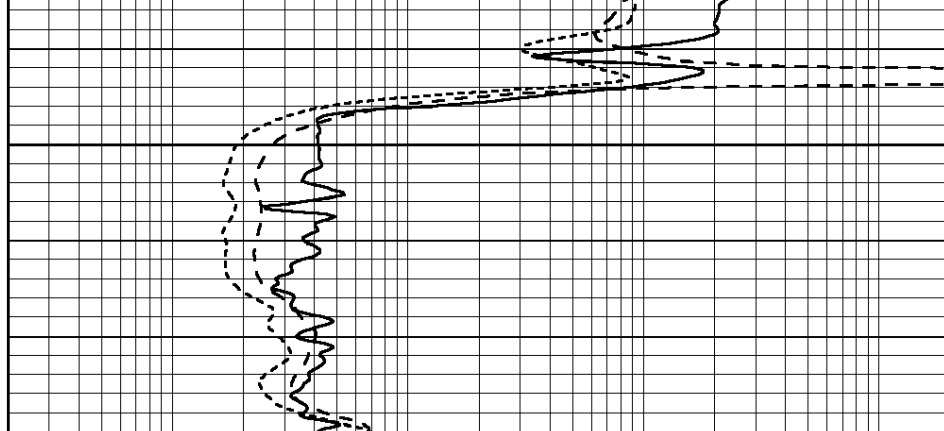
|     |                          |      |
|-----|--------------------------|------|
| 0.2 | SHALLOW GUARD (Ohm-m)    | 2000 |
| 0.2 | DEEP INDUCTION (Ohm-m)   | 2000 |
| 0.2 | MEDIUM INDUCTION (Ohm-m) | 2000 |





1300

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



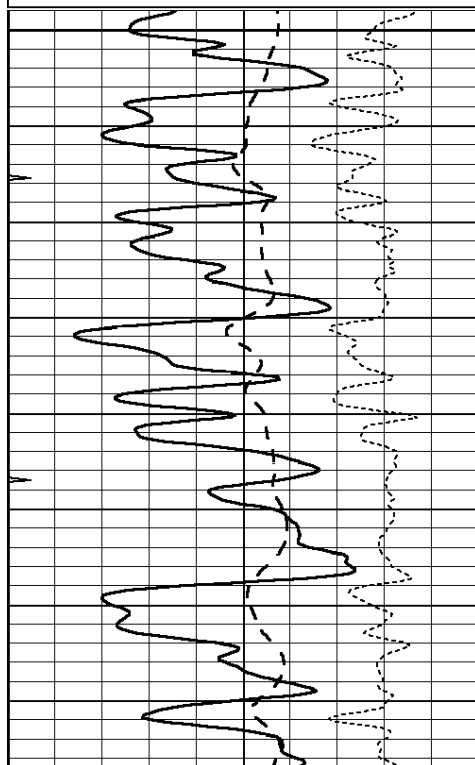
SUPERIOR  
Hays,  
Kansas

# MAIN SECTION

Database File: 408416ddn.db  
Dataset Pathname: pass3.10  
Presentation Format: dil  
Dataset Creation: Wed Feb 22 18:20:43 2012  
Charted by: Depth in Feet scaled 1:240

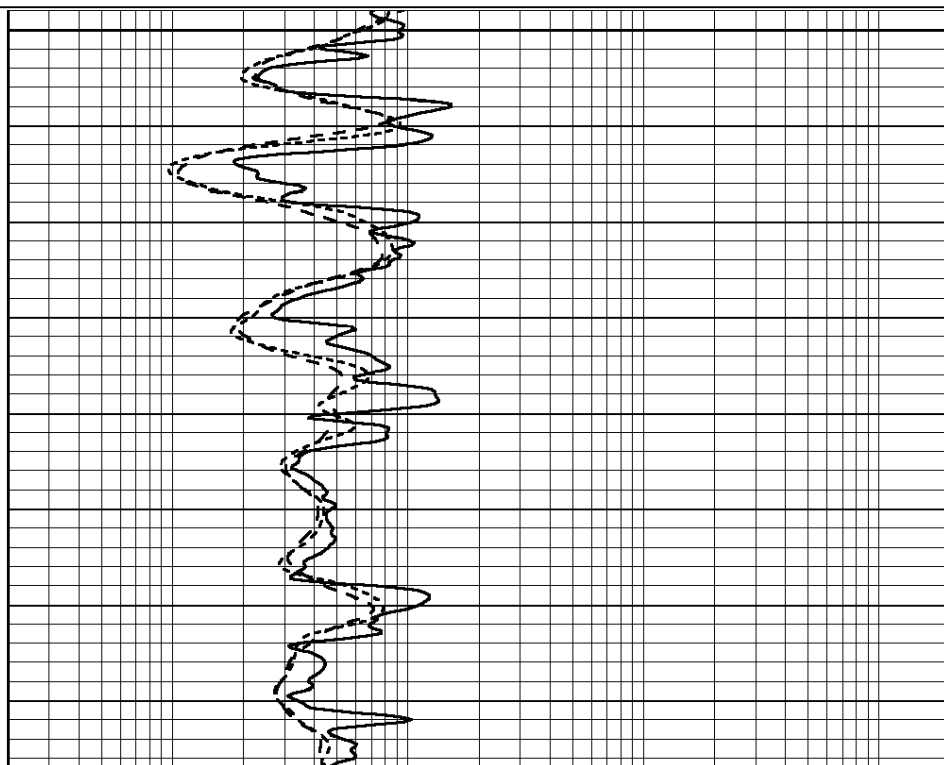
|      |                  |     |
|------|------------------|-----|
| 0    | GAMMA RAY (GAPI) | 150 |
| -100 | SP (mV)          | 100 |
| -250 | Rxo/Rt           | 50  |
| 0    | MINMK            | 20  |

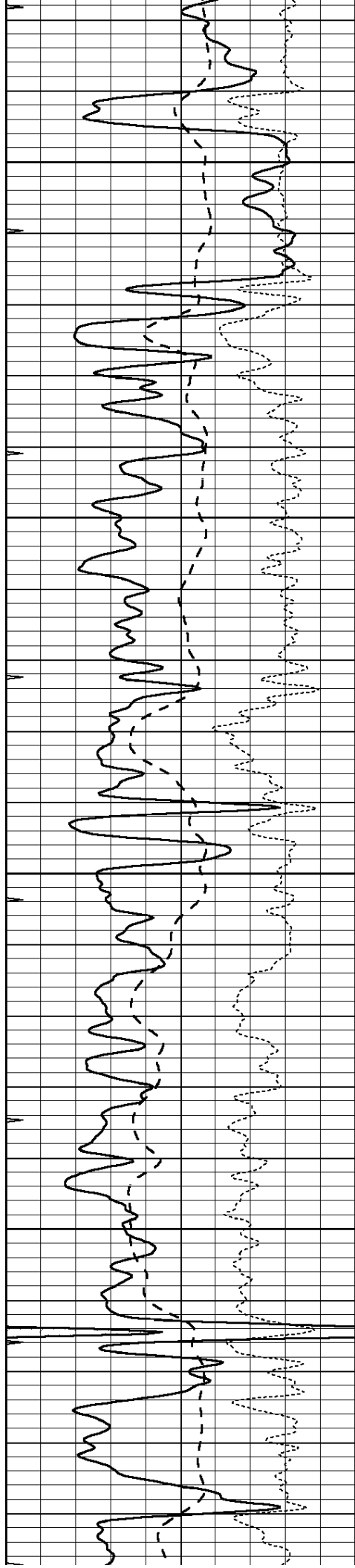
|     |                          |      |
|-----|--------------------------|------|
| 0.2 | SHALLOW GUARD (Ohm-m)    | 2000 |
| 0.2 | DEEP INDUCTION (Ohm-m)   | 2000 |
| 0.2 | MEDIUM INDUCTION (Ohm-m) | 2000 |



3000

3050



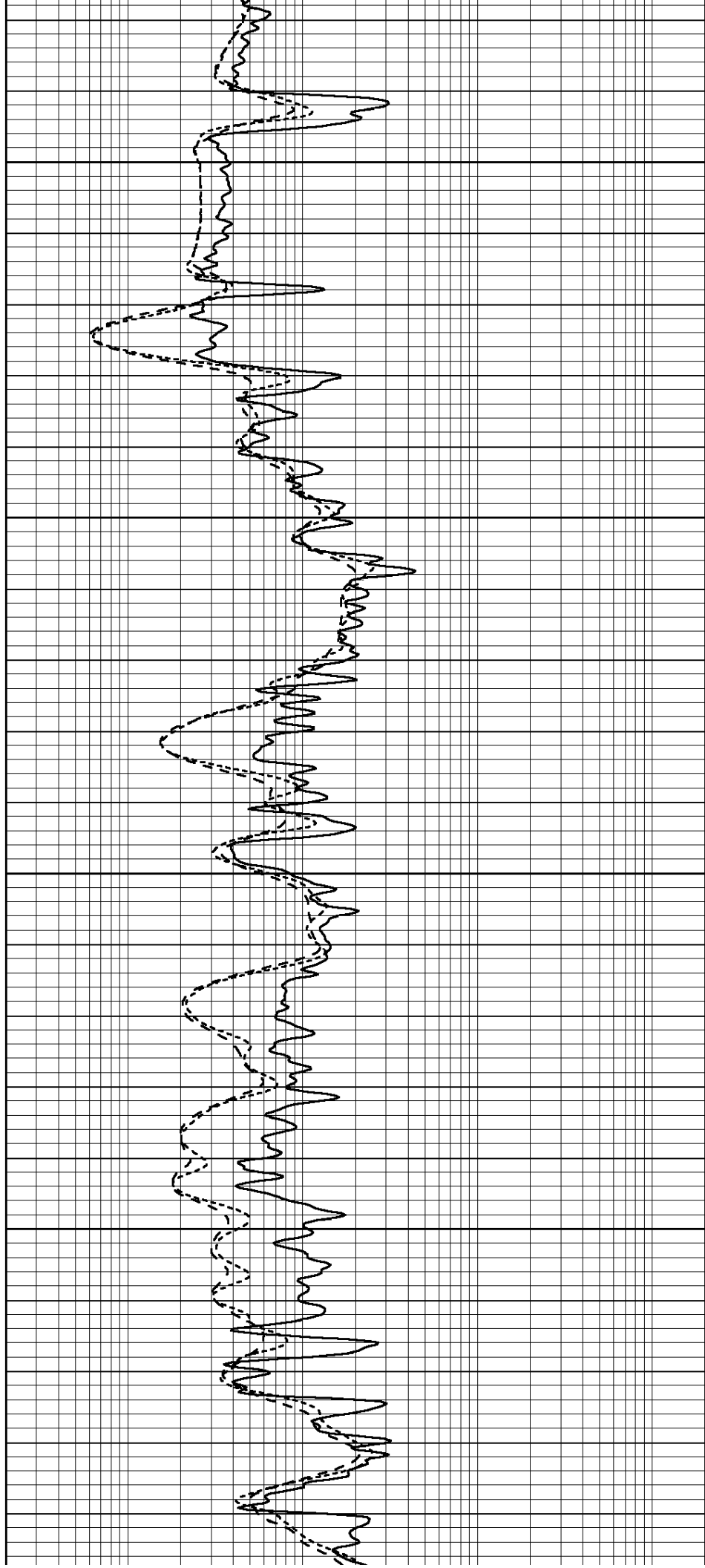


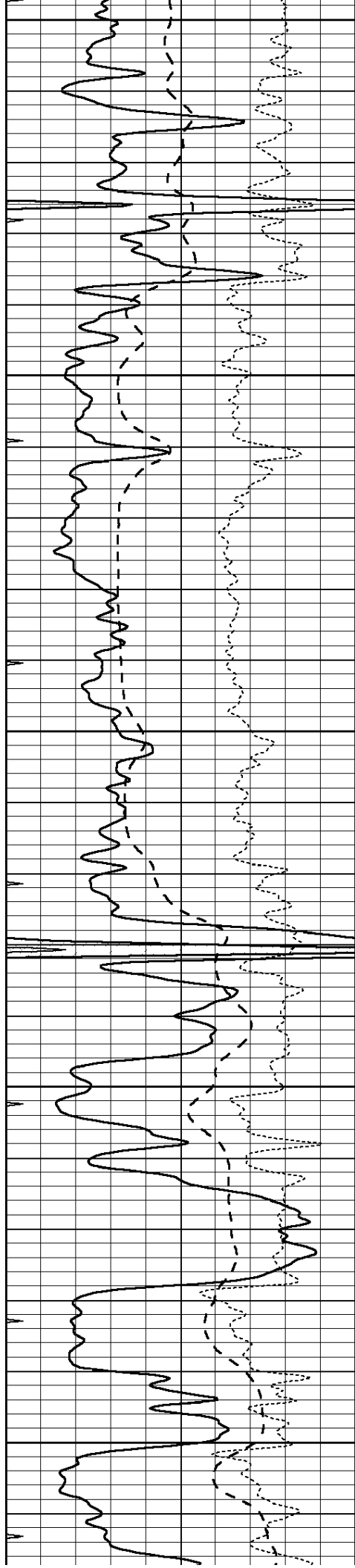
3100

3150

3200

3250





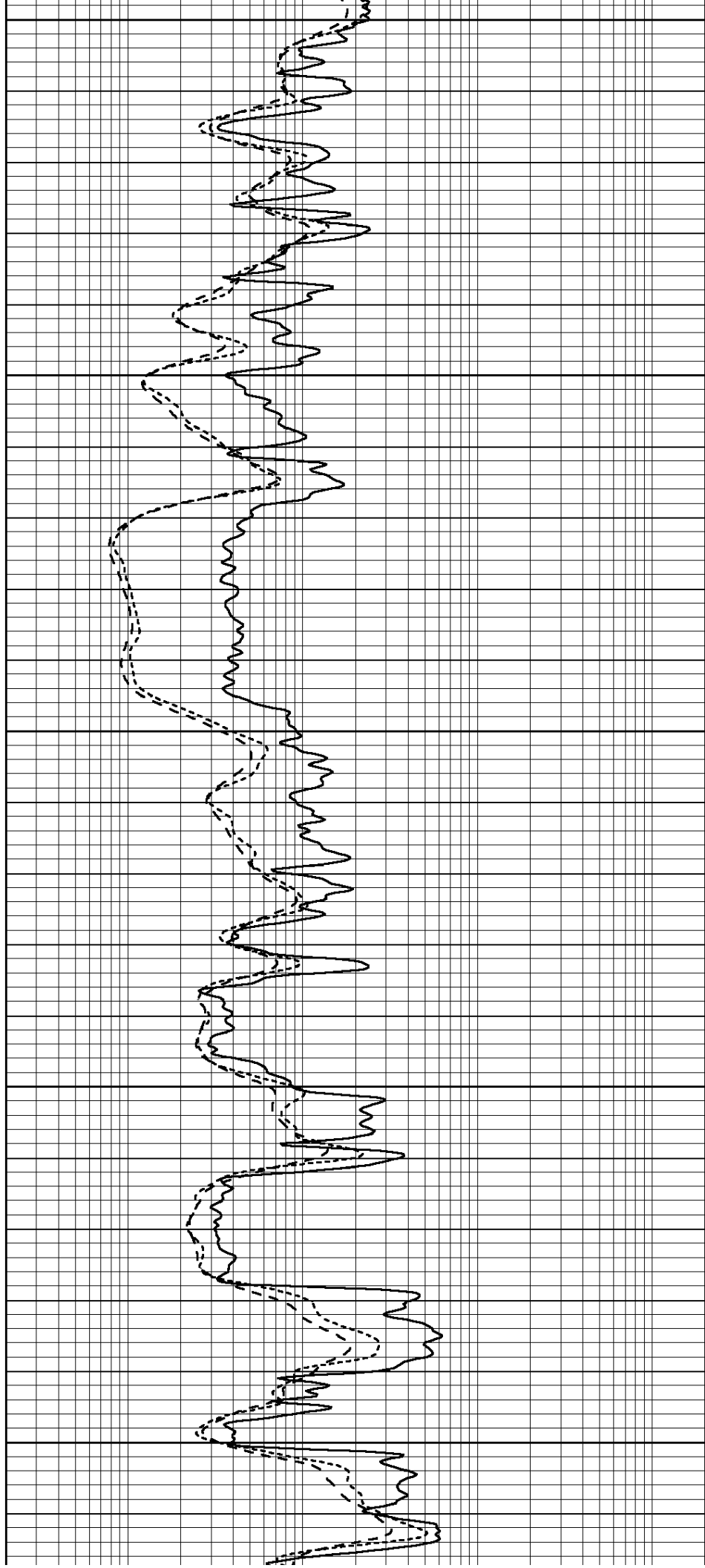
3300

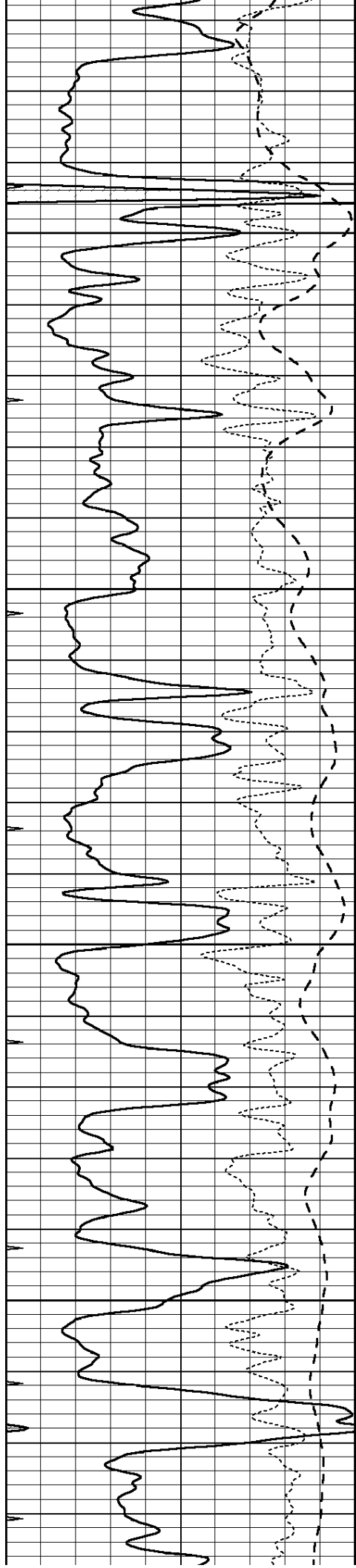
3350

3400

3450

3500



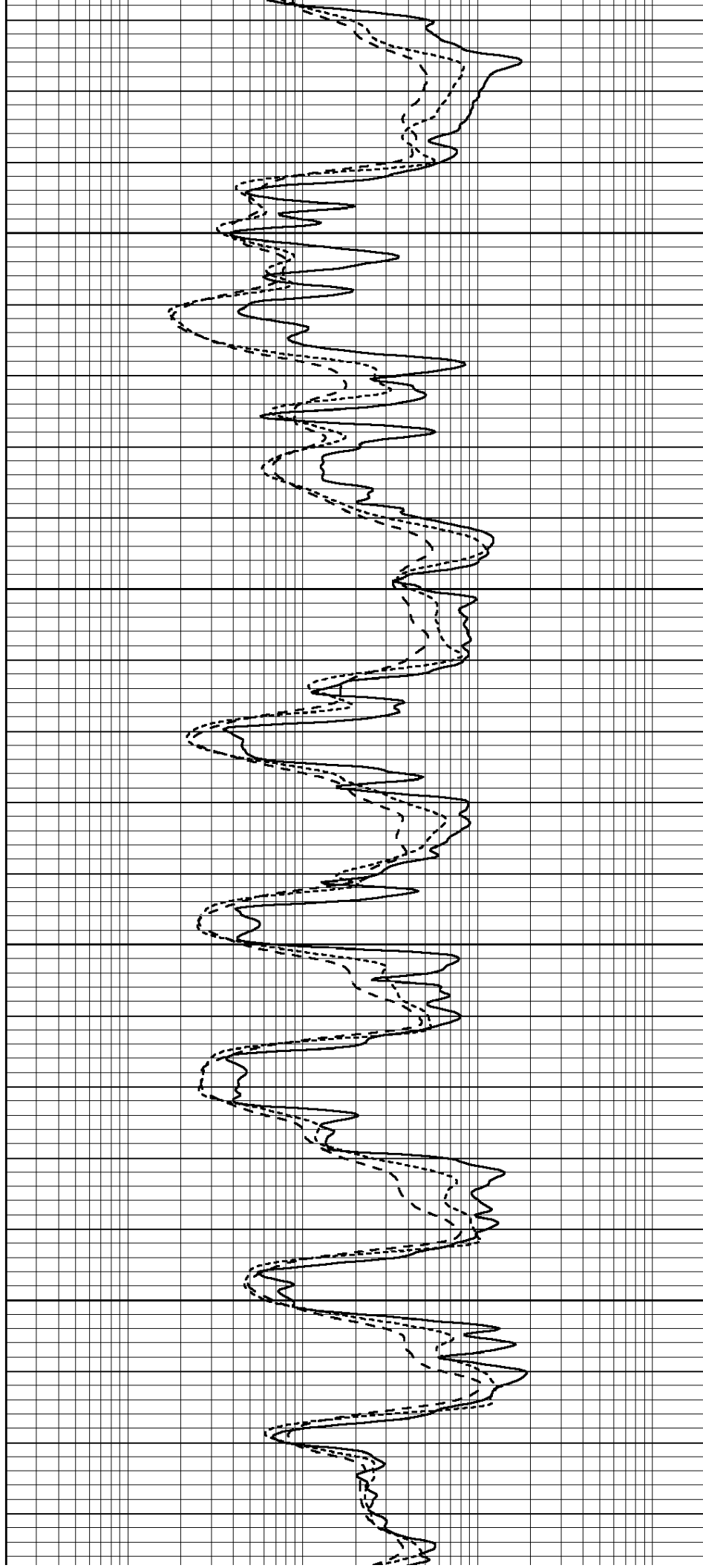


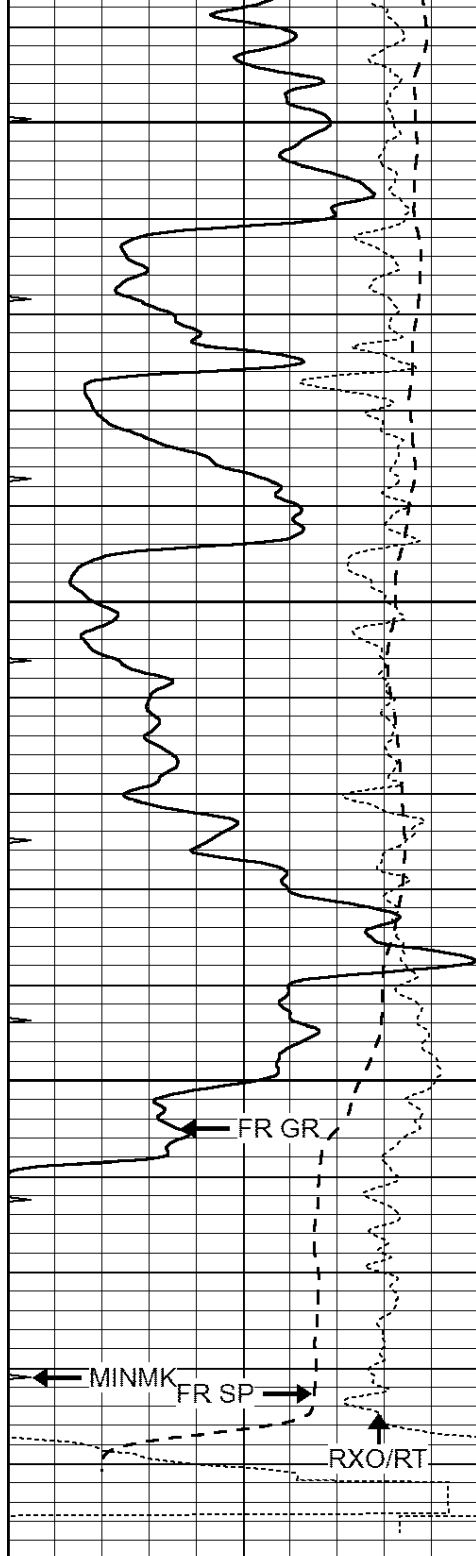
3550

3600

3650

3700





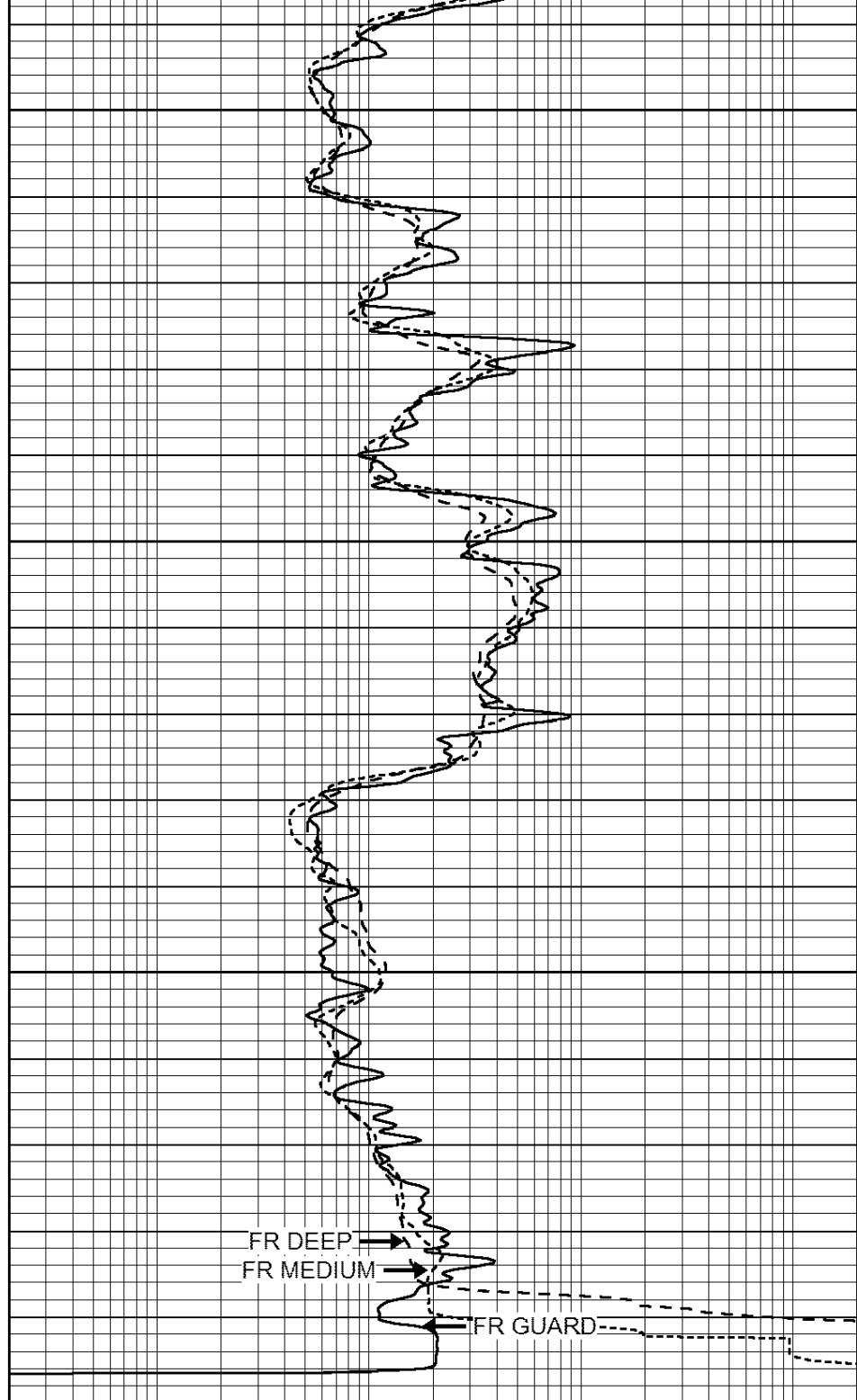
3750

3800

3850

LTD 3893

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



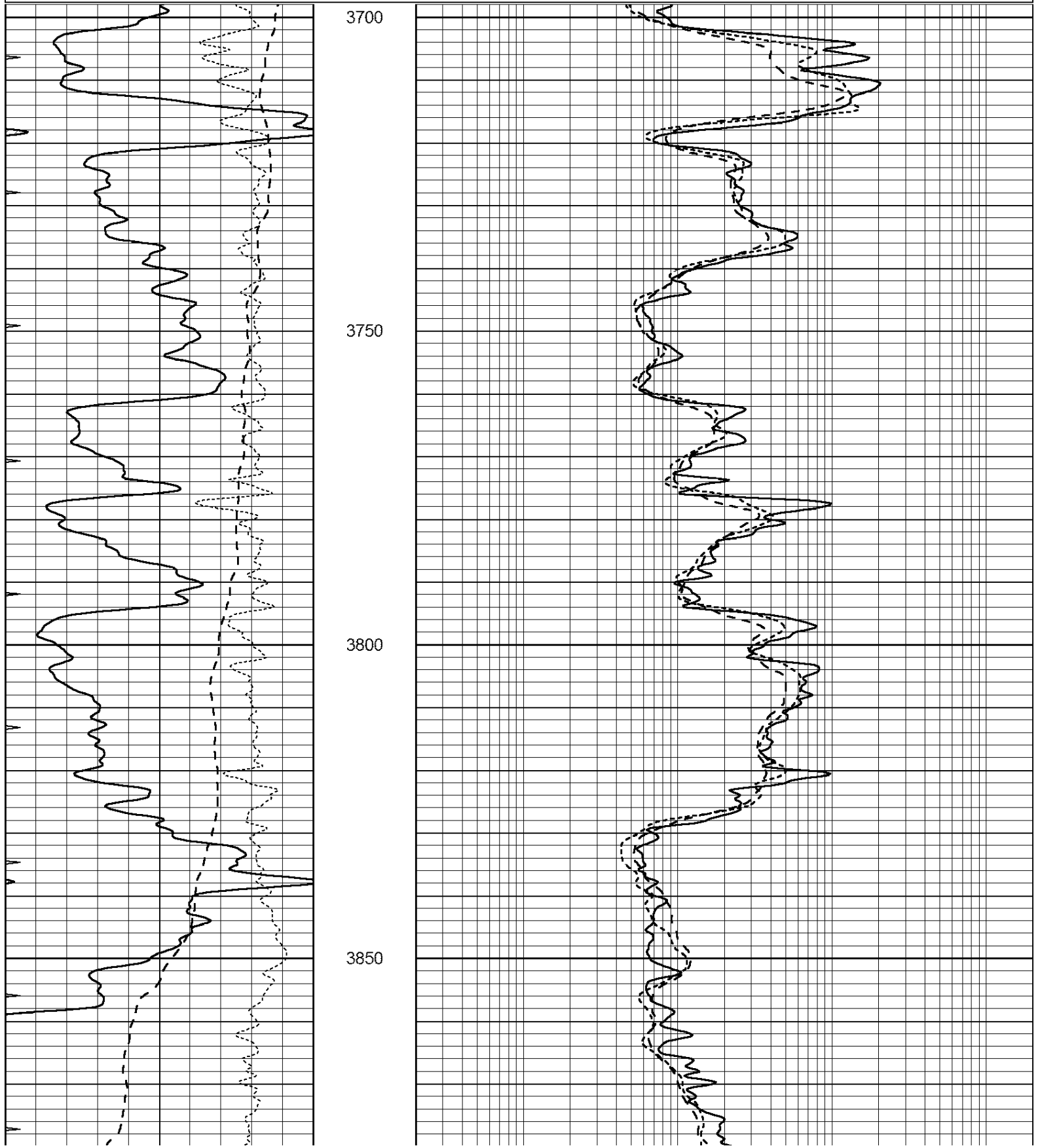
|     |                          |      |
|-----|--------------------------|------|
| 0.2 | SHALLOW GUARD (Ohm-m)    | 2000 |
| 0.2 | DEEP INDUCTION (Ohm-m)   | 2000 |
| 0.2 | MEDIUM INDUCTION (Ohm-m) | 2000 |

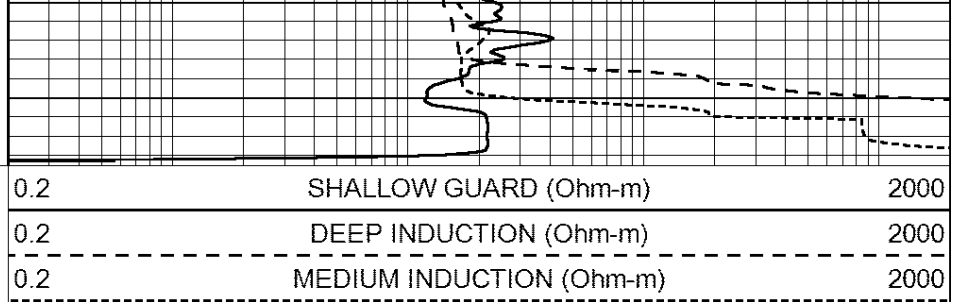
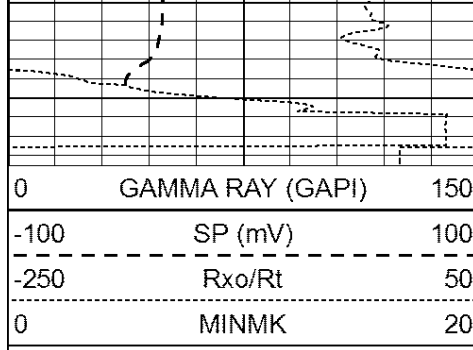


SUPERIOR  
Hays,  
Kansas

# REPEAT SECTION

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





### Calibration Report

Database File: 408416ddn.db  
 Dataset Pathname: pass3.10  
 Dataset Creation: Wed Feb 22 18:20:43 2012

### Dual Induction Calibration Report

Serial-Model: DIL4-GEAR  
 Performed: Wed Feb 22 16:20:07 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 | 4.000   |
| 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   | 2.0      | 7.5         |
| High Ref  | 4.0      | 15.0        |
| Gain: 3.7 |          | Offset: 0.3 |

### 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 Feb 21 13:32:46 2012 |          |        |
| Calibrator Value:            | 1.0                      | GAPI     |        |
| Background Reading:          | 0.0                      | cps      |        |
| Calibrator Reading:          | 1.0                      | cps      |        |
| Sensitivity:                 | 0.3000                   | GAPI/cps |        |