NABORS
COMPLETION & PRODUCTION SERVICES CO.

# DUAL INDUCTION LOG

Company RITCHIE EXPLORATION, INC.

Well #1 WEBER 15 UNIT

Field ANTELOPE RIDGE NORTHEAST

County GOVE State KANSAS

Location: API # : 15-063-22091

2520' FSL & 2400' FWL

SEC 15 TWP 13S RGE 31W

Other Services

Elevation

K.B. 2913
D.F.
G.L. 2908

Permanent Datum GROUND LEVEL Elevation 2908
Log Measured From KELLY BUSHING 5' A.G.L.
Drilling Measured From KELLY BUSHING

| | | | |
|---|---|---|---|
| Date | 3-15-13 | | |
| Run Number | ONE | | |
| Depth Driller | 4720 | | |
| Depth Logger | 4722 | | |
| Bottom Logged Interval | 4720 | | |
| Top Log Interval | 00 | | |
| Casing Driller | 224 | | |
| Casing Logger | 224 | | |
| Bit Size | 7.875 | | |
| Type Fluid in Hole | CHEMICAL MUD | | |
| Density / Viscosity | 9.3 / 59 | | |
| pH / Fluid Loss | 10.5 / 7.2 | | |
| Source of Sample | FLOWLINE | | |
| Rm @ Meas. Temp | 0.90 @ 96F | | |
| Rmf @ Meas. Temp | 0.68 @ 96F | | |
| Rmc @ Meas. Temp | 1.08 @ 96F | | |
| Source of Rmf / Rmc | MEASURED | | |
| Rm @ BHT | .710 @ 122F | | |
| Time Circulation Stopped | 3 HOURS | | |
| Time Logger on Bottom | 5:45 P.M. | | |
| Maximum Recorded Temperature | 122F | | |
| Equipment Number | 860 | | |
| Location | HAYS, KS. | | |
| Recorded By | RUPP | | |
| Witnessed By | ADAM ELDANI | | |

<<< 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

NABORS COMPLETION & PRODUCTION SERVICES
785-628-6395
THANK YOU FOR YOUR BUSINESS
DIRECTIONS: OAKLEY, S TO GOVE C.L., 5E, 2S, 1E, N INTO.

MAIN SECTION

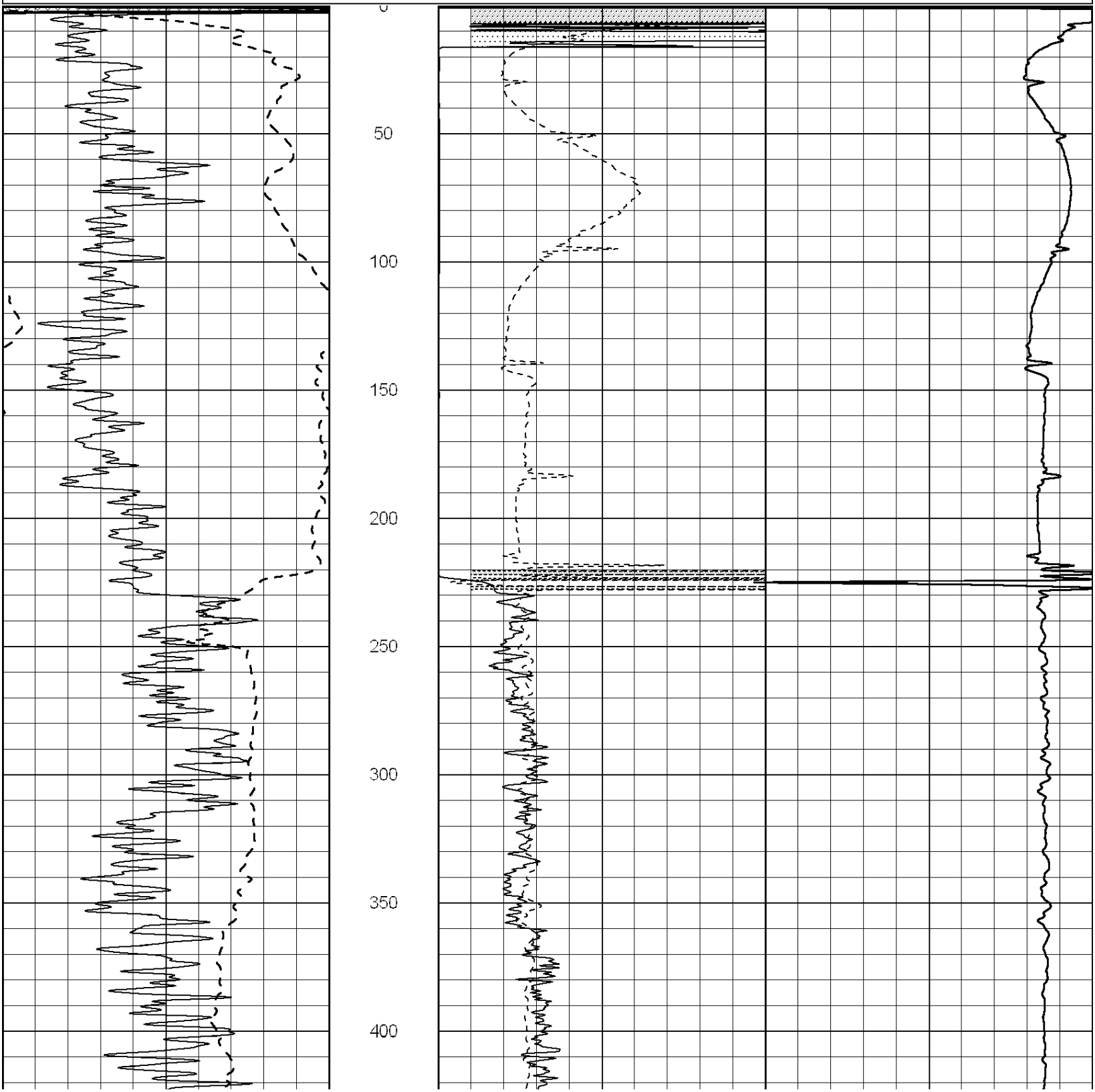
NABORS COMPLETION & PRODUCTION

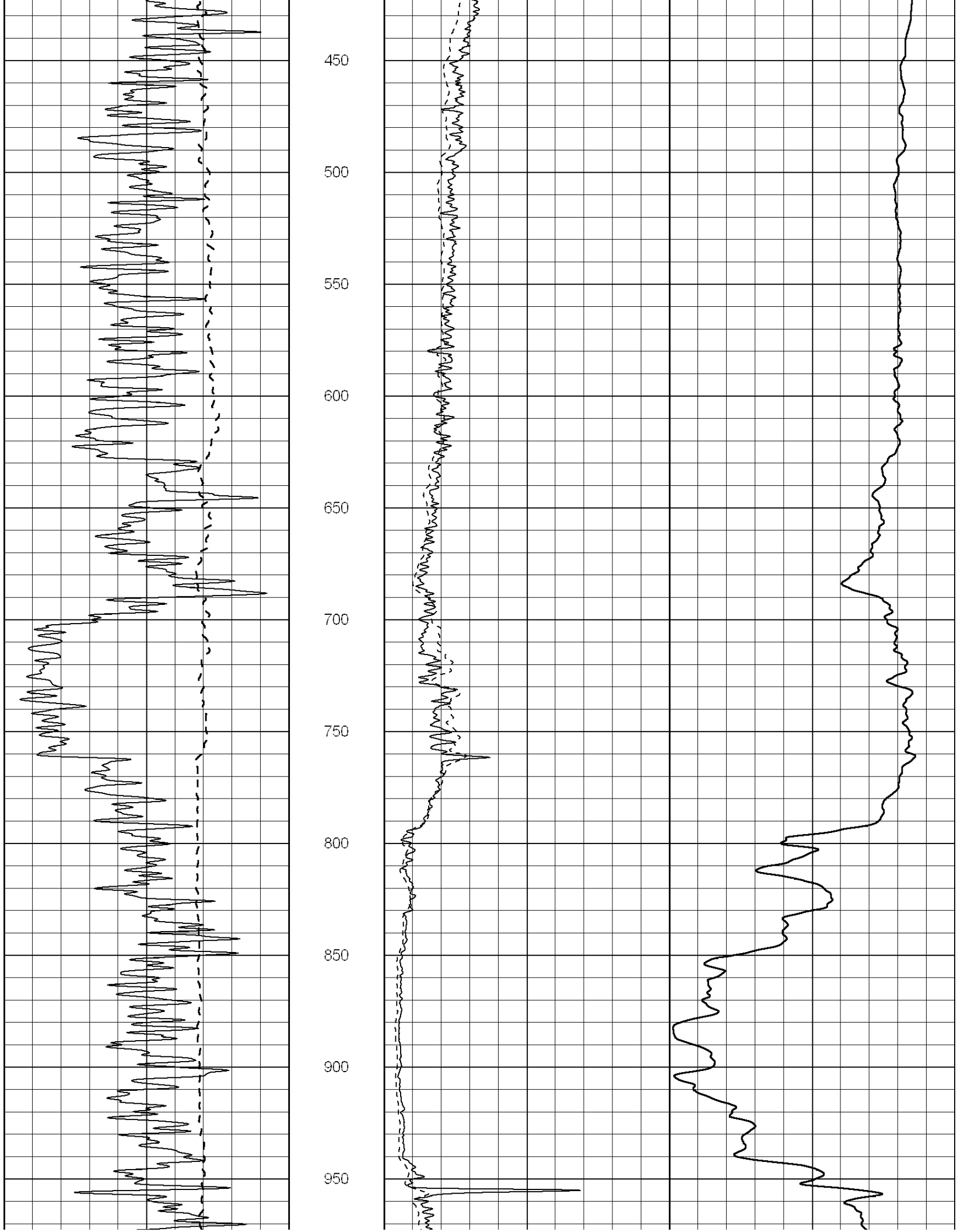
& PRODUCTION
SERVICES CO.

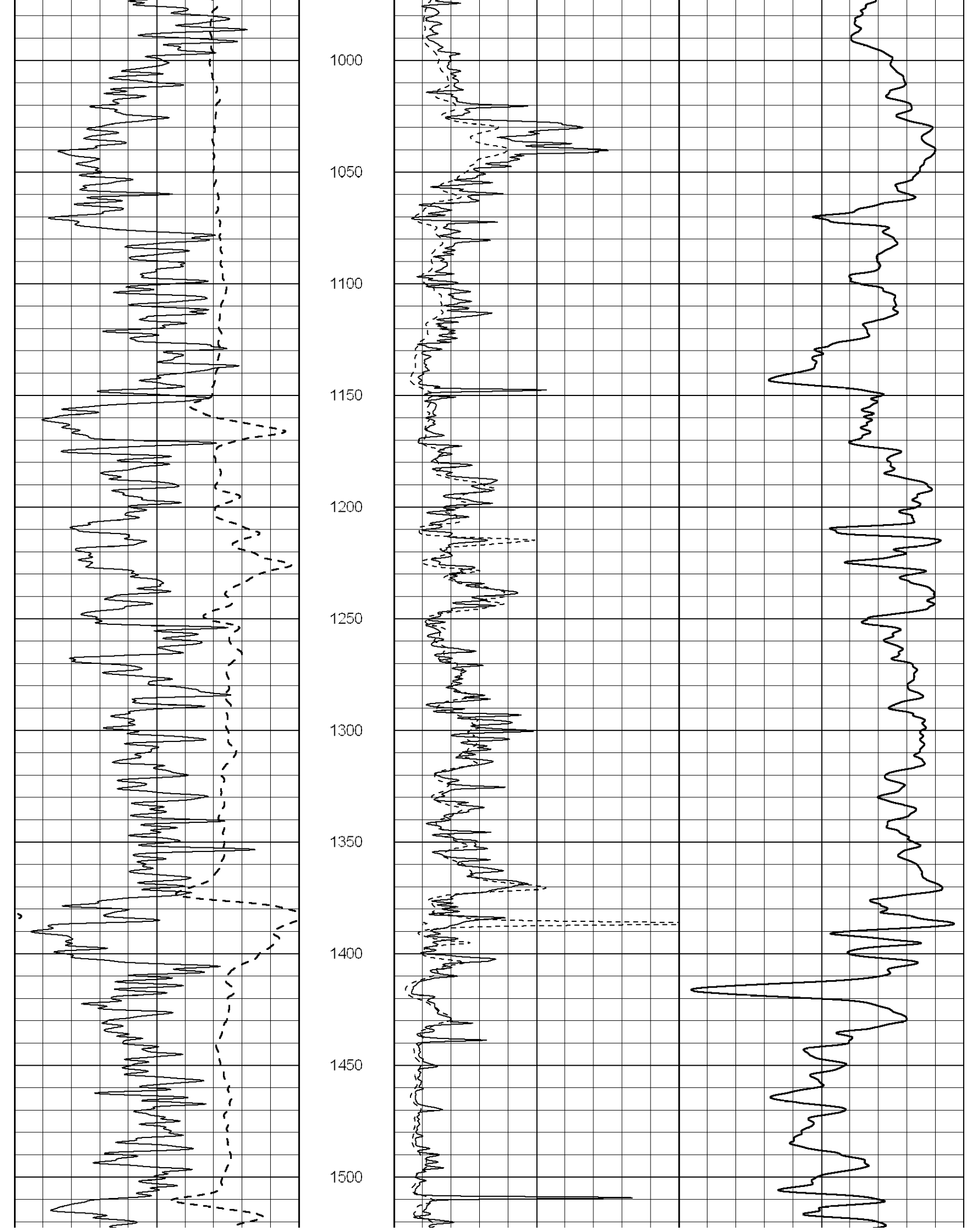
Database File: 010836ddn.db
Dataset Pathname: pass3.2A
Presentation Format: dil2
Dataset Creation: Fri Mar 15 19:22:16 2013
Charted by: Depth in Feet scaled 1:600

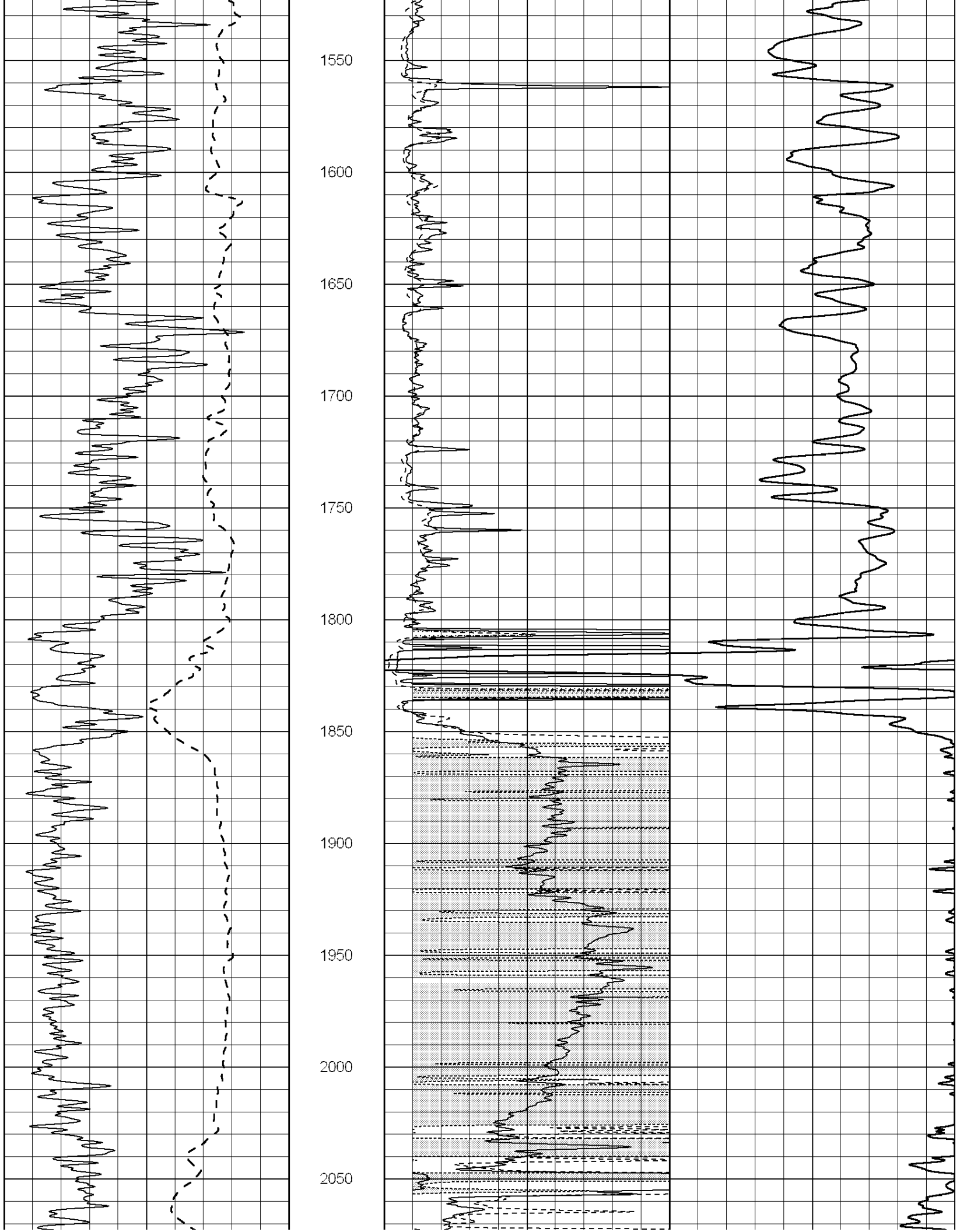
| 0 | Gamma Ray (GAPI) | 150 |
|---|---|---|

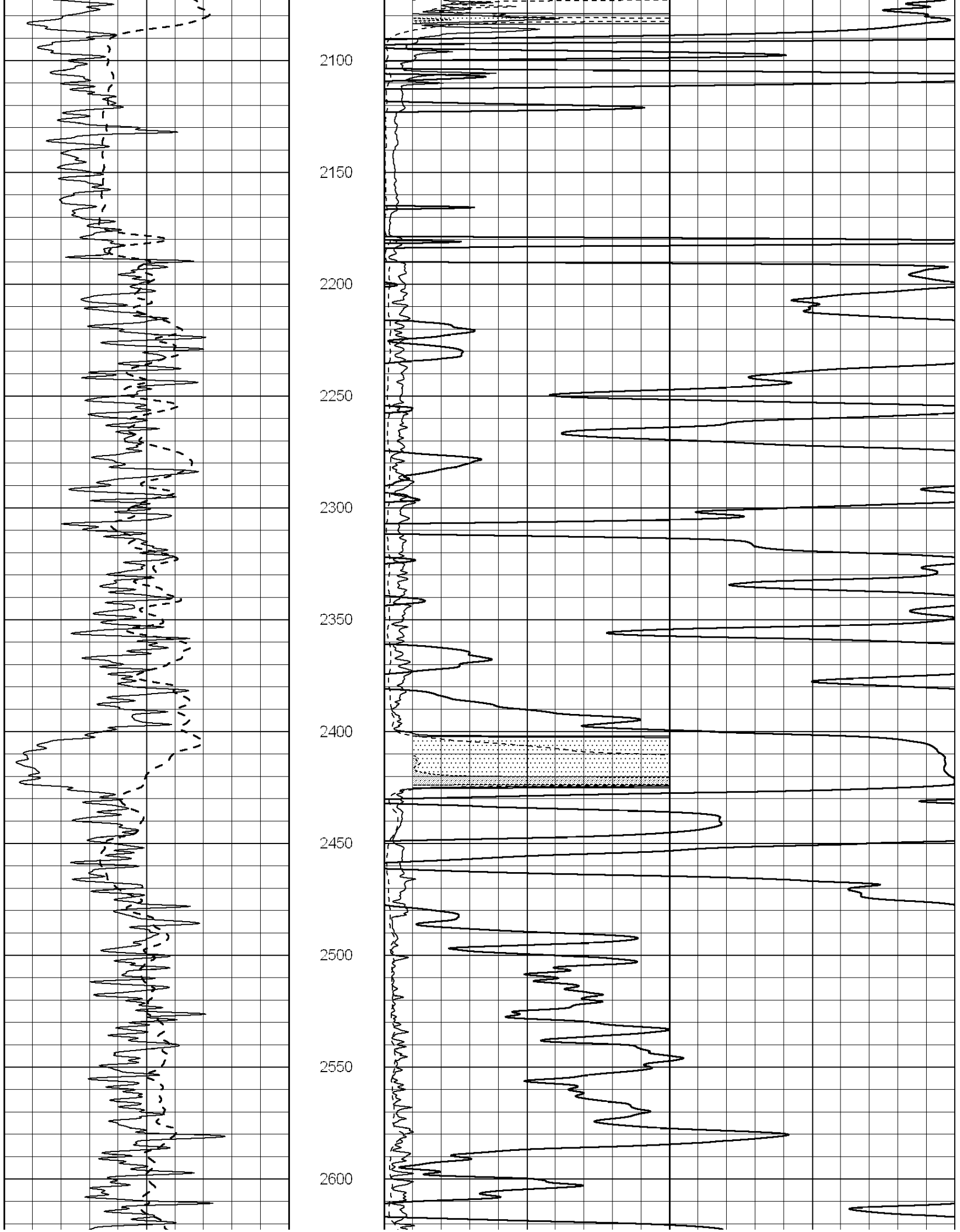
| 0 | RLL3 (Ohm-m) | 50 |
|---|---|---|
| 0 | Deep Induction (Ohm-m) | 50 |
| 1000 | CILD (mmho/m) | 0 |
| 50 | RILD X10 (Ohm-m) | 500 |
| 50 | RLL3 X10 (Ohm-m) | 500 |

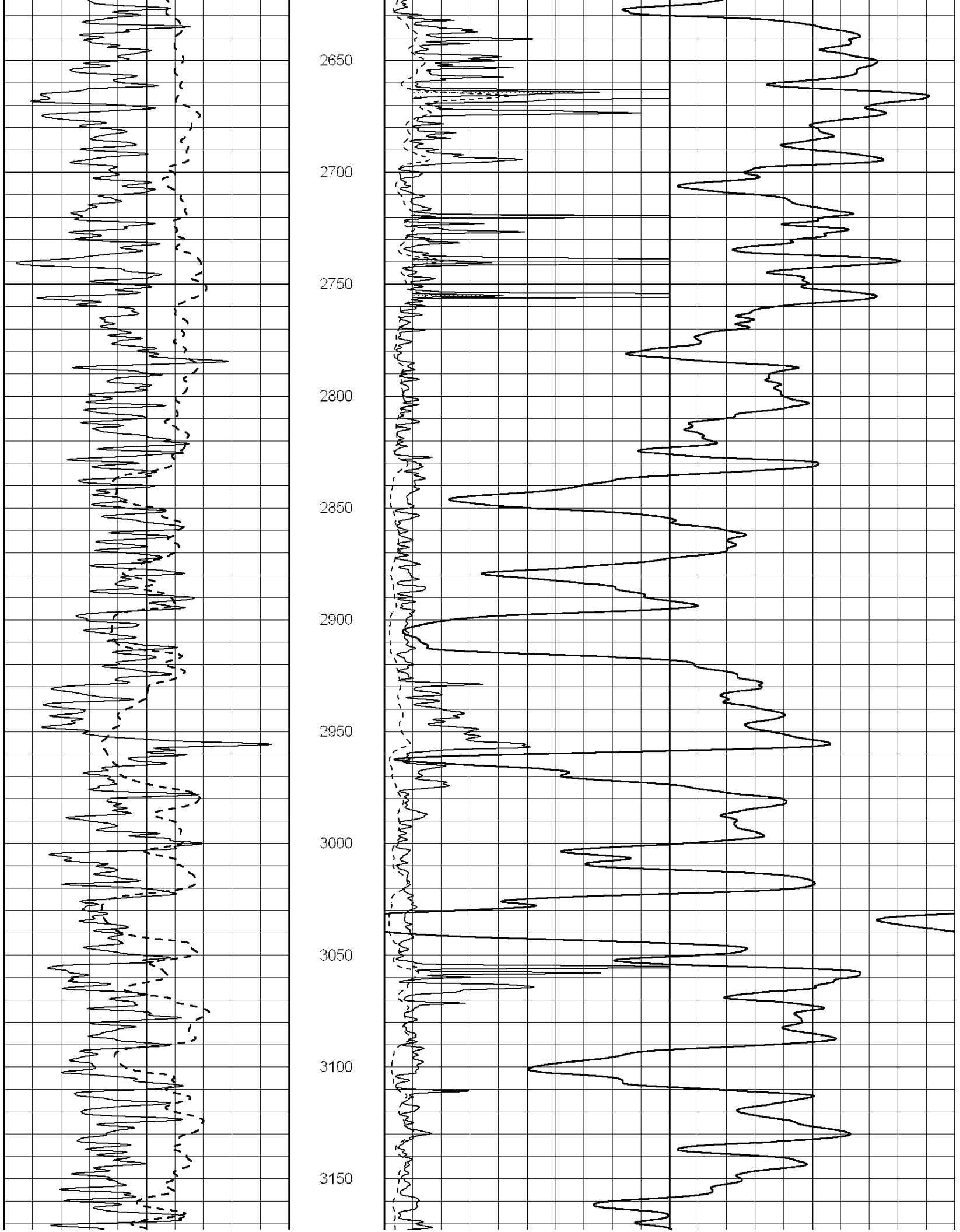


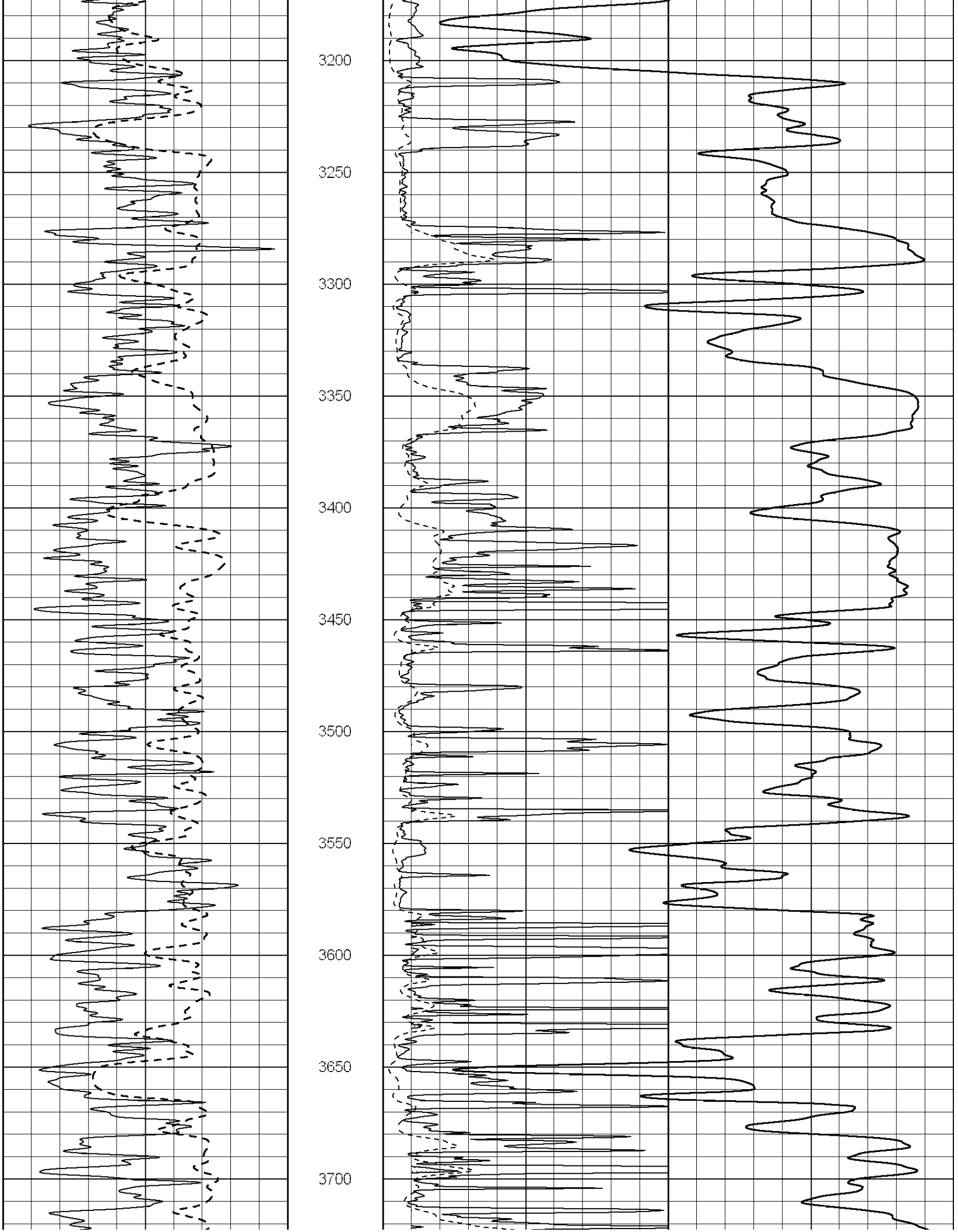

450
500
550
600
650
700
750
800
850
900
950

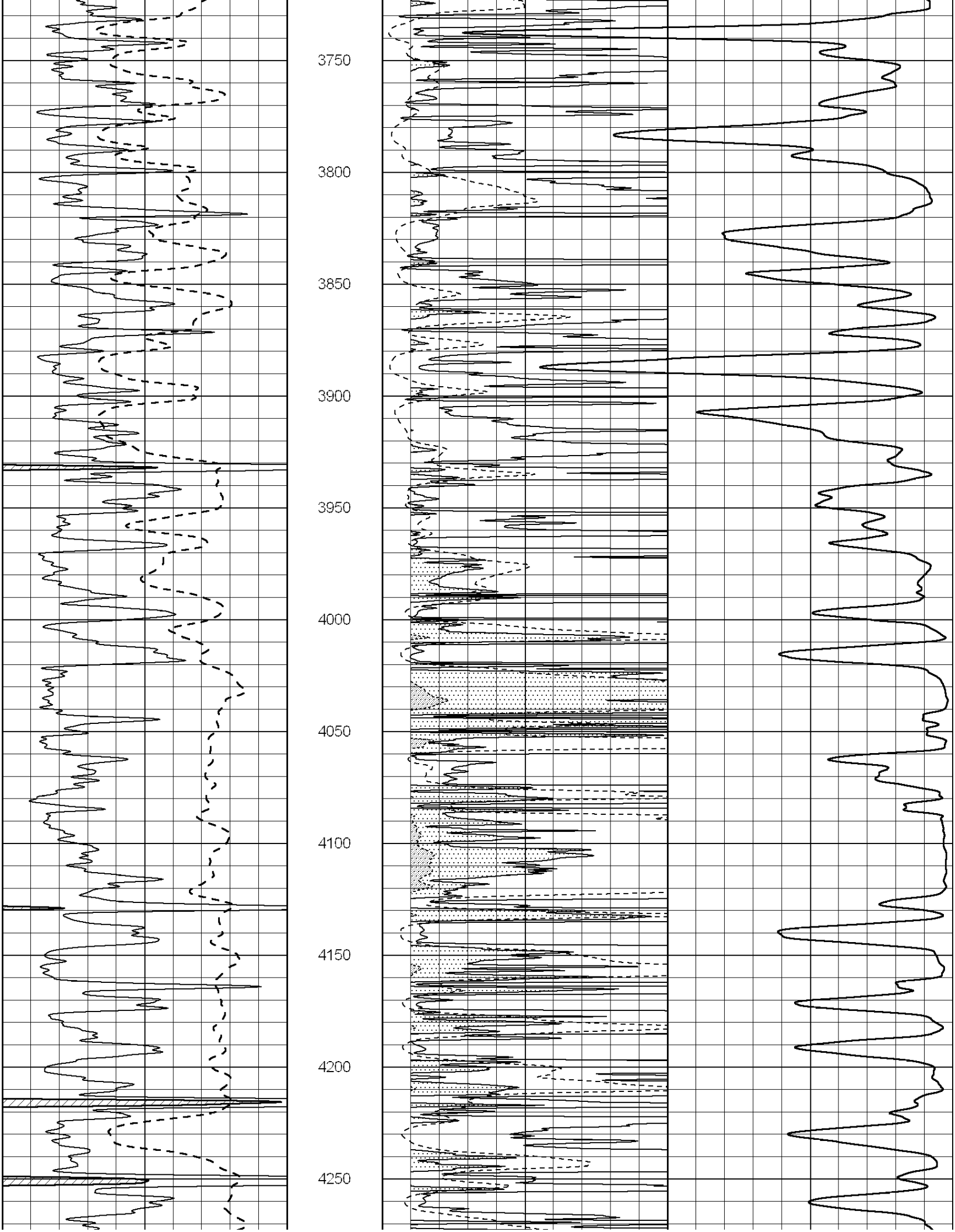

1000
1050
1100
1150
1200
1250
1300
1350
1400
1450
1500

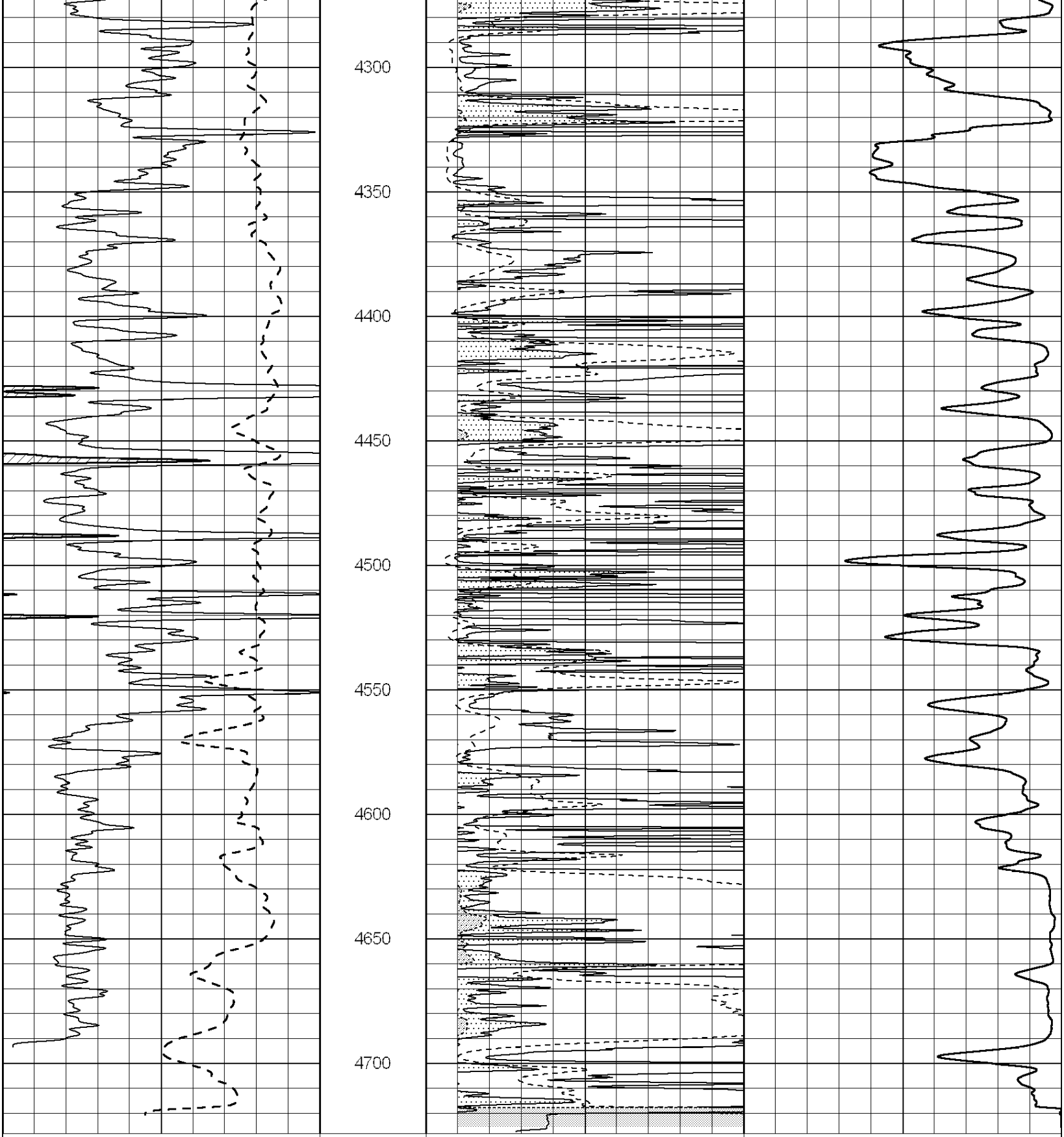

1550
1600
1650
1700
1750
1800
1850
1900
1950
2000
2050


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


3750
3800
3850
3900
3950
4000
4050
4100
4150
4200
4250




NABORS

# MAIN SECTION

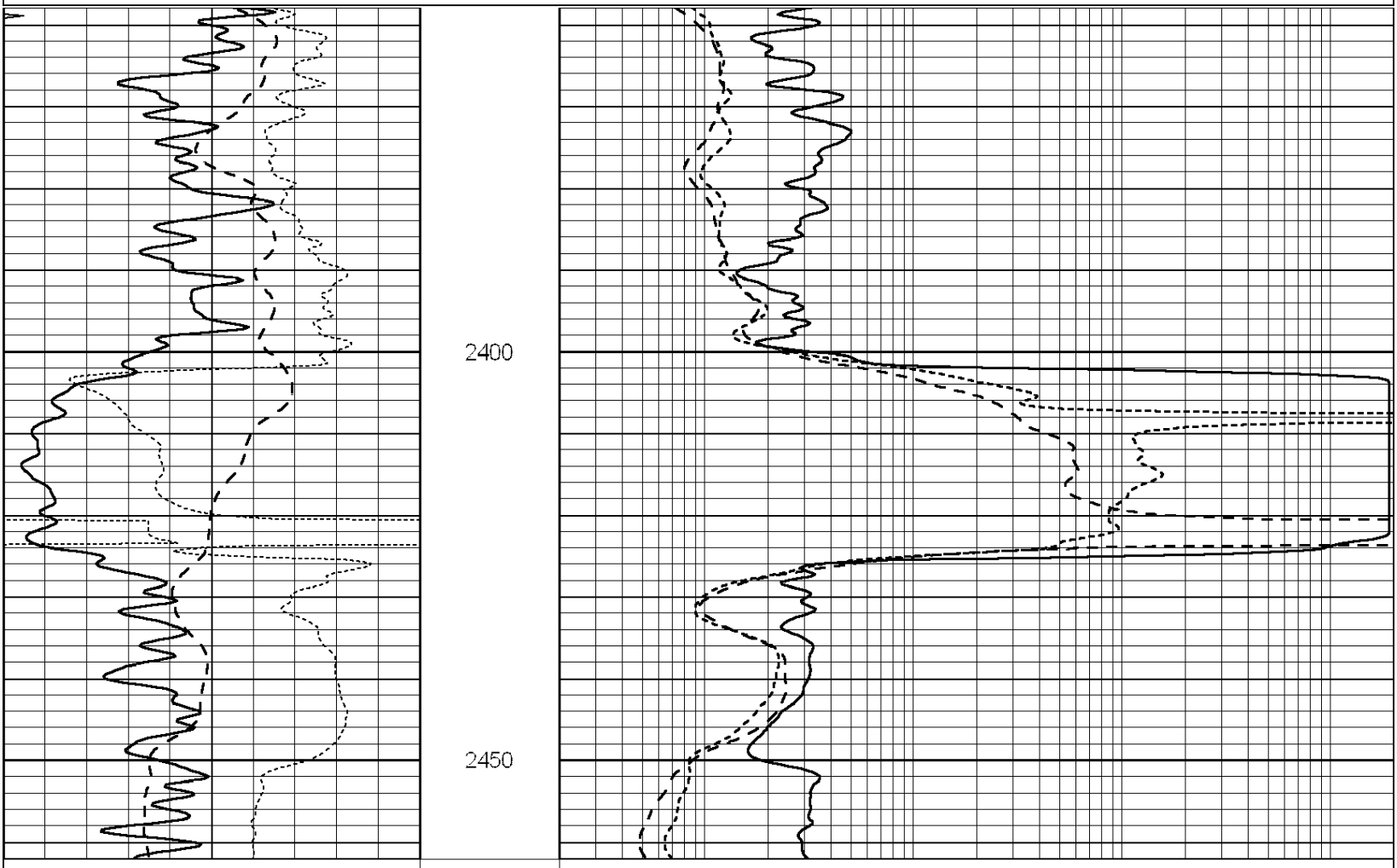
NABORS
COMPLETION
& PRODUCTION
SERVICES CO.

# MAIN SECTION

Database File: 010836ddn.db
Dataset Pathname: pass3.2A
Presentation Format: dil
Dataset Creation: Fri Mar 15 19:22:16 2013
Charted by: Depth in Feet scaled 1:240

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





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



NABORS
COMPLETION
& PRODUCTION
SERVICES CO.

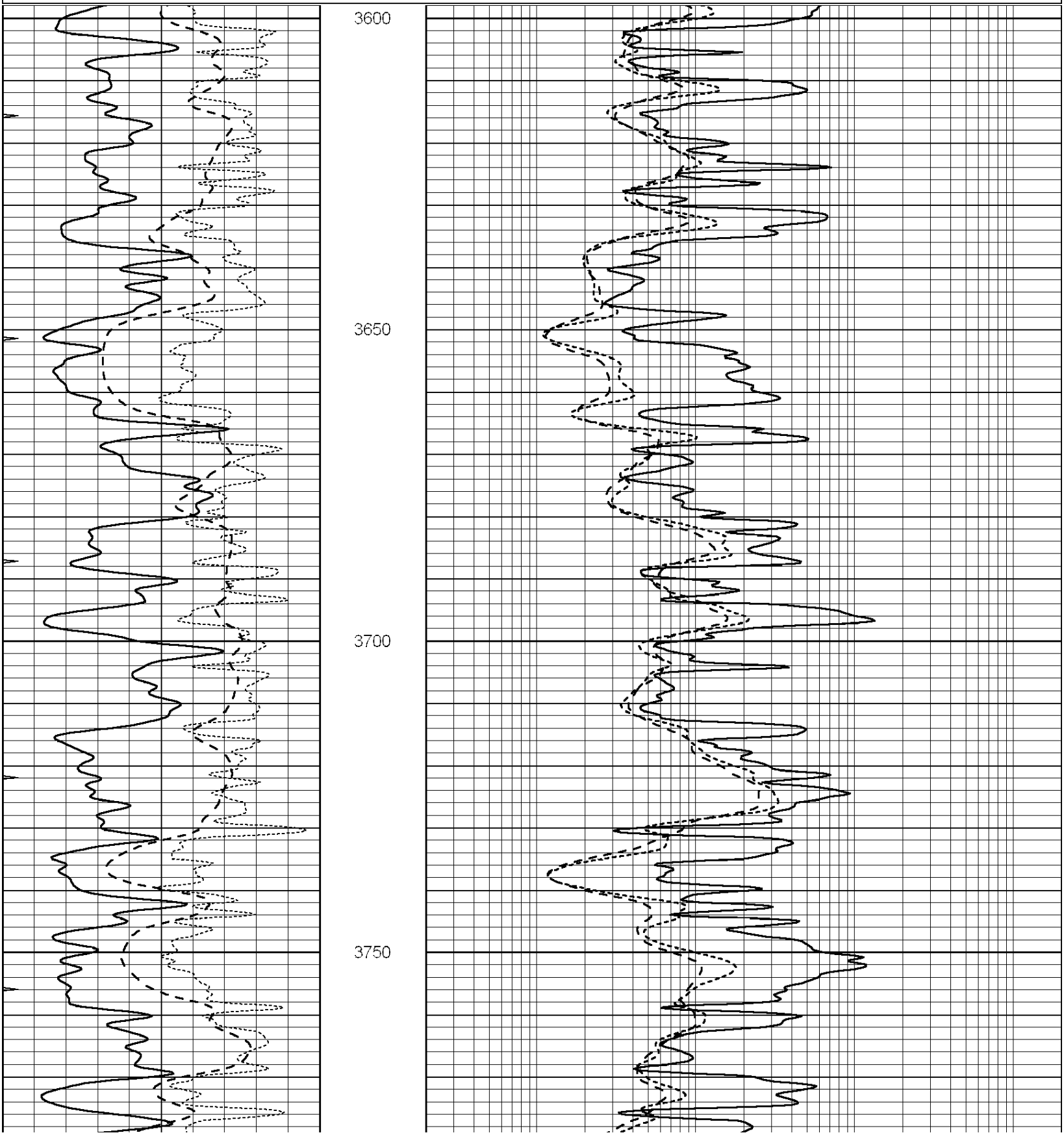
# MAIN SECTION

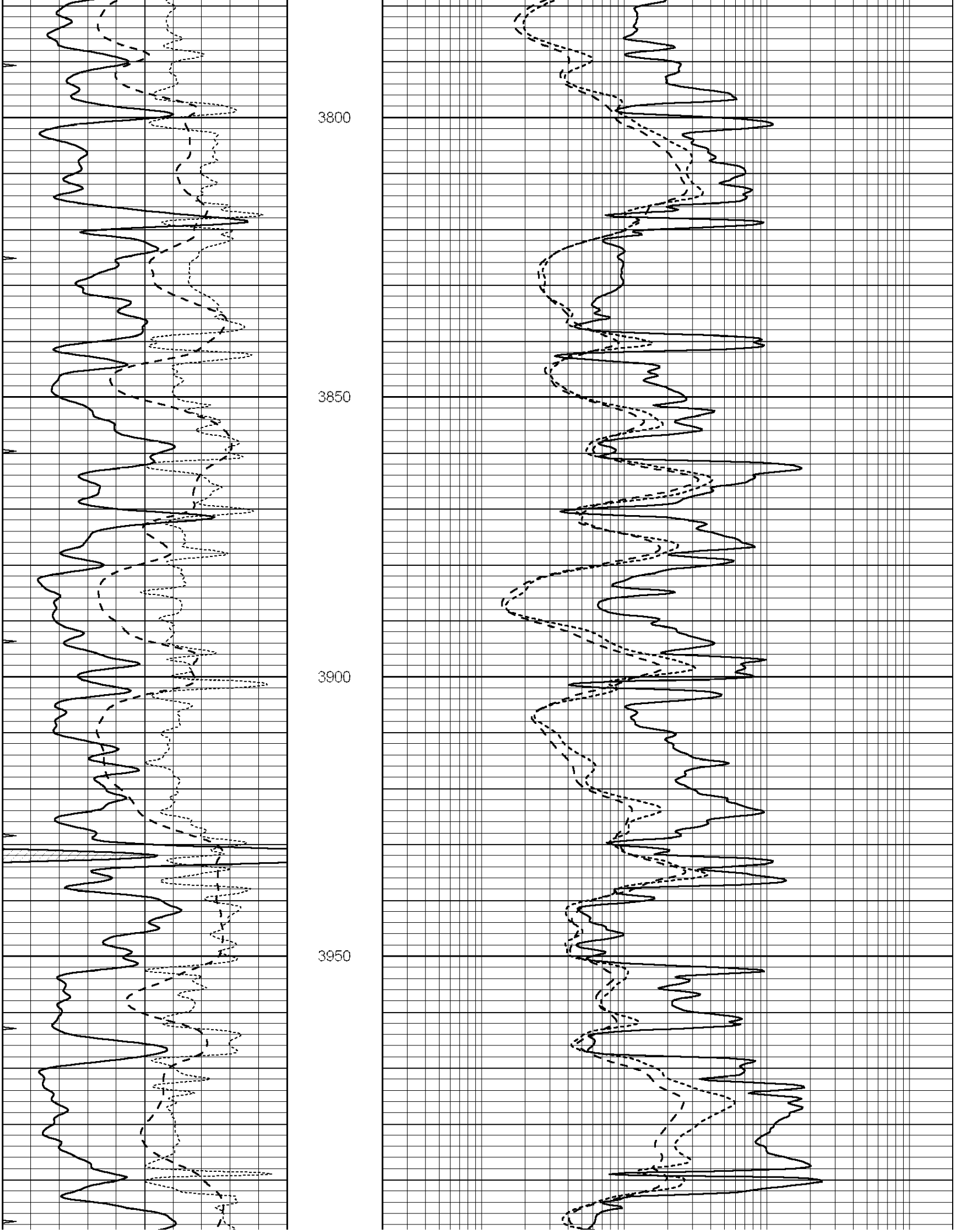
Database File: 010836ddn.db

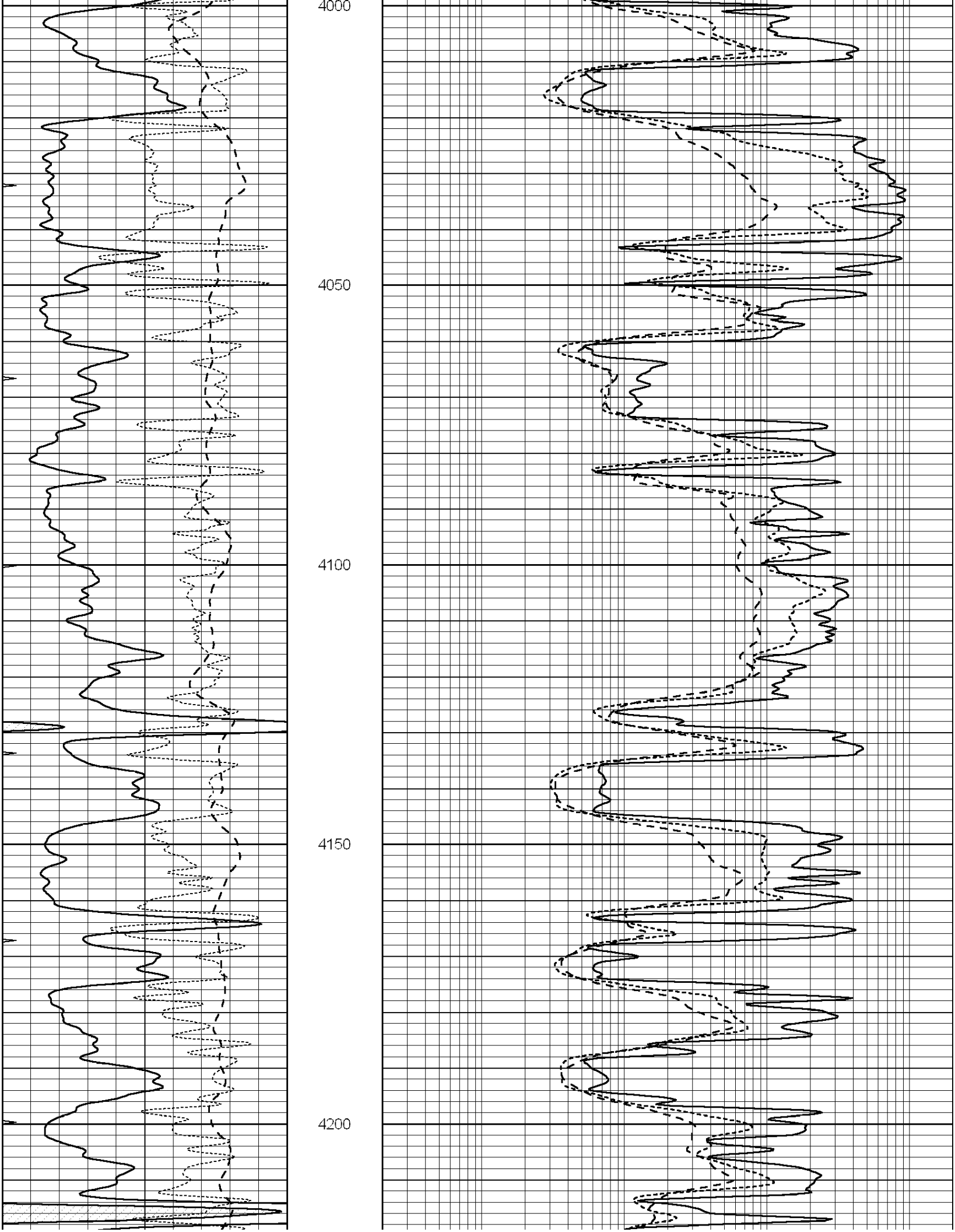
| | |
|---|---|
| Dataset Pathname: | pass3.2A |
| Presentation Format: | dil |
| Dataset Creation: | Fri Mar 15 19:22:16 2013 |
| Charted by: | Depth in Feet scaled 1:240 |

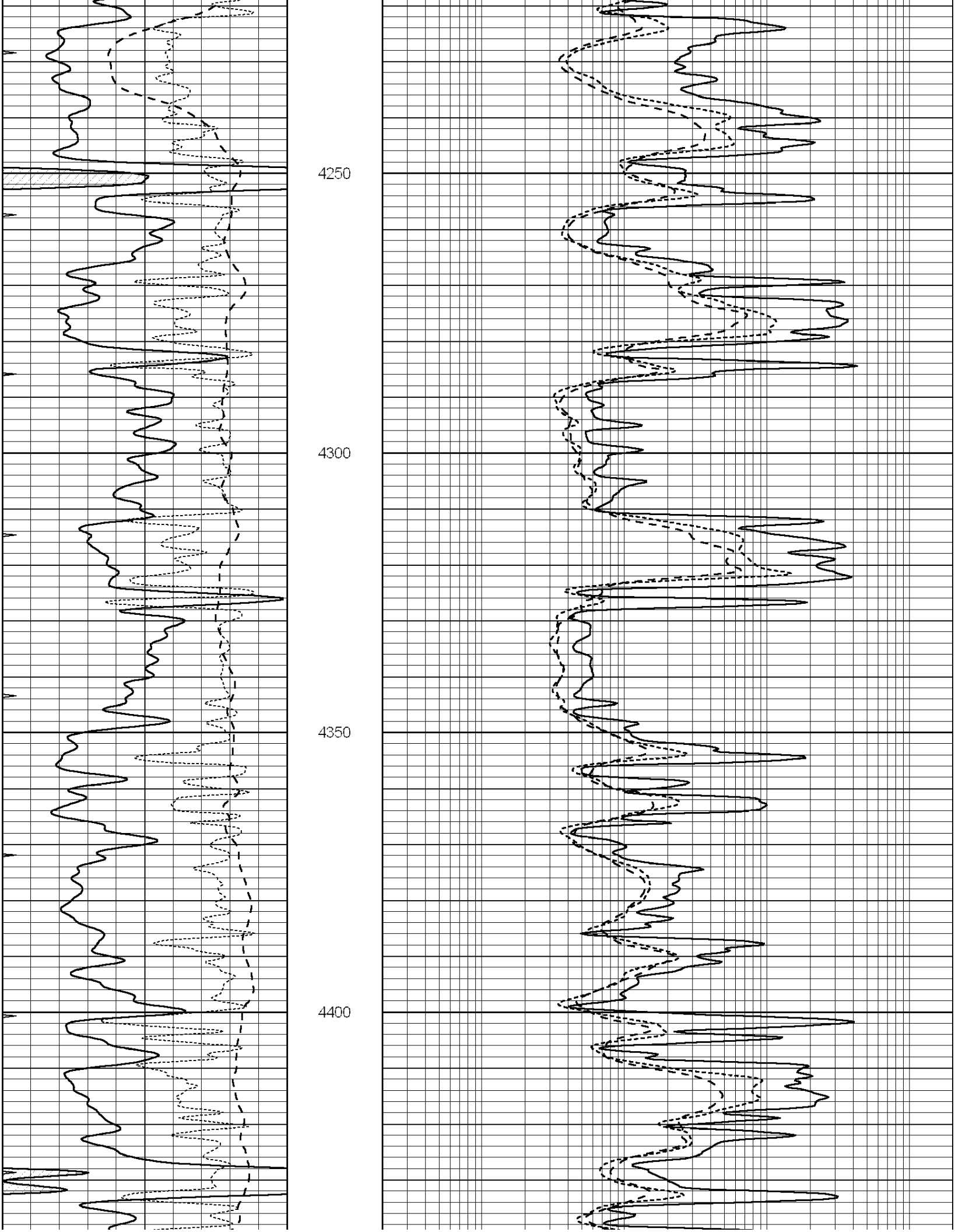
| | | |
|---|---|---|
| 0 | GAMMA RAY (GAPI) | 150 |
| -100 | SP (mV) | 100 |
| -250 | RxoRt | 50 |
| 0 | MINMK | 20 |

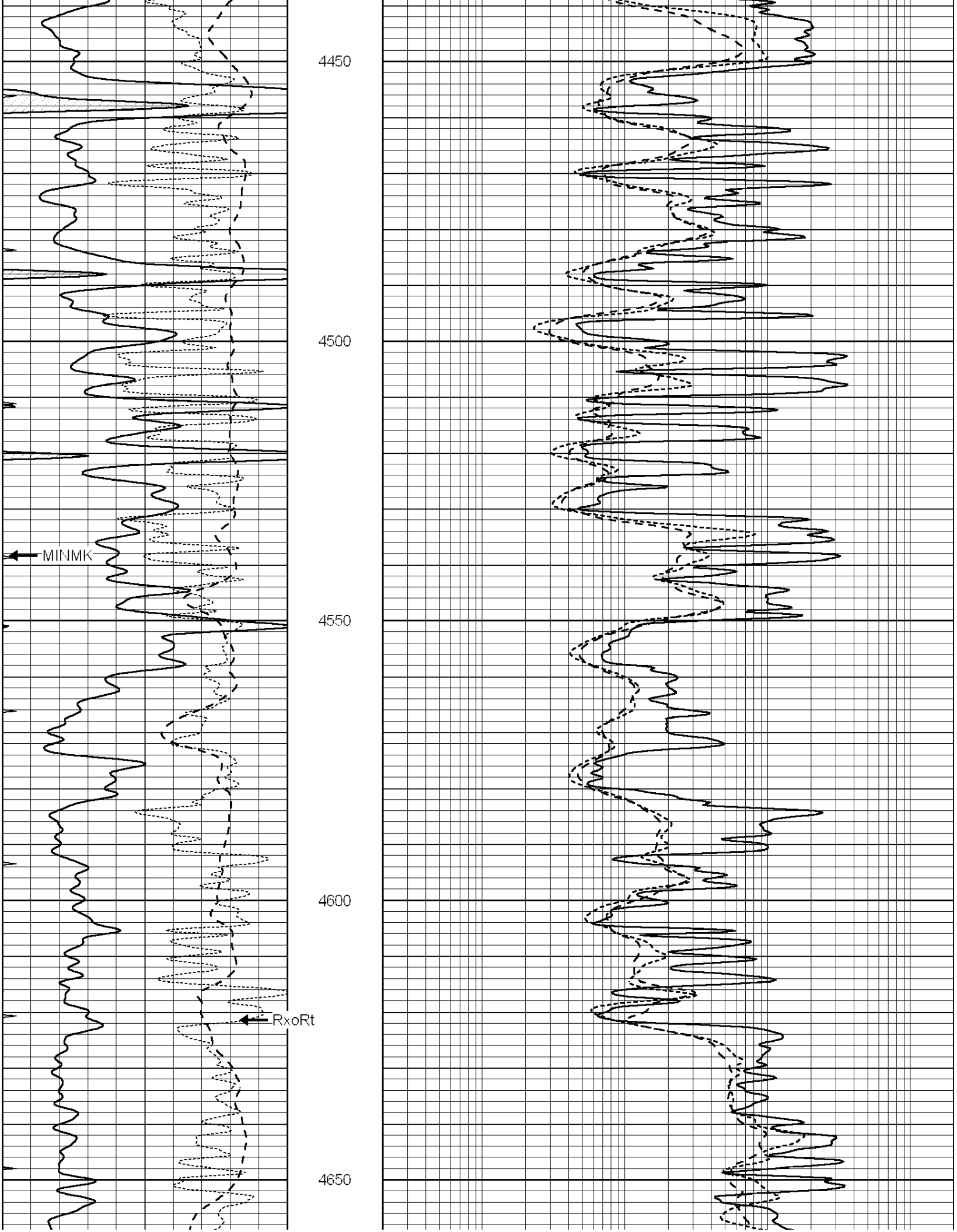
| | | |
|---|---|---|
| 0.2 | RLL3 (Ohm-m) | 2000 |
| 0.2 | DEEP INDUCTION (Ohm-m) | 2000 |
| 0.2 | MEDIUM INDUCTION (Ohm-m) | 2000 |

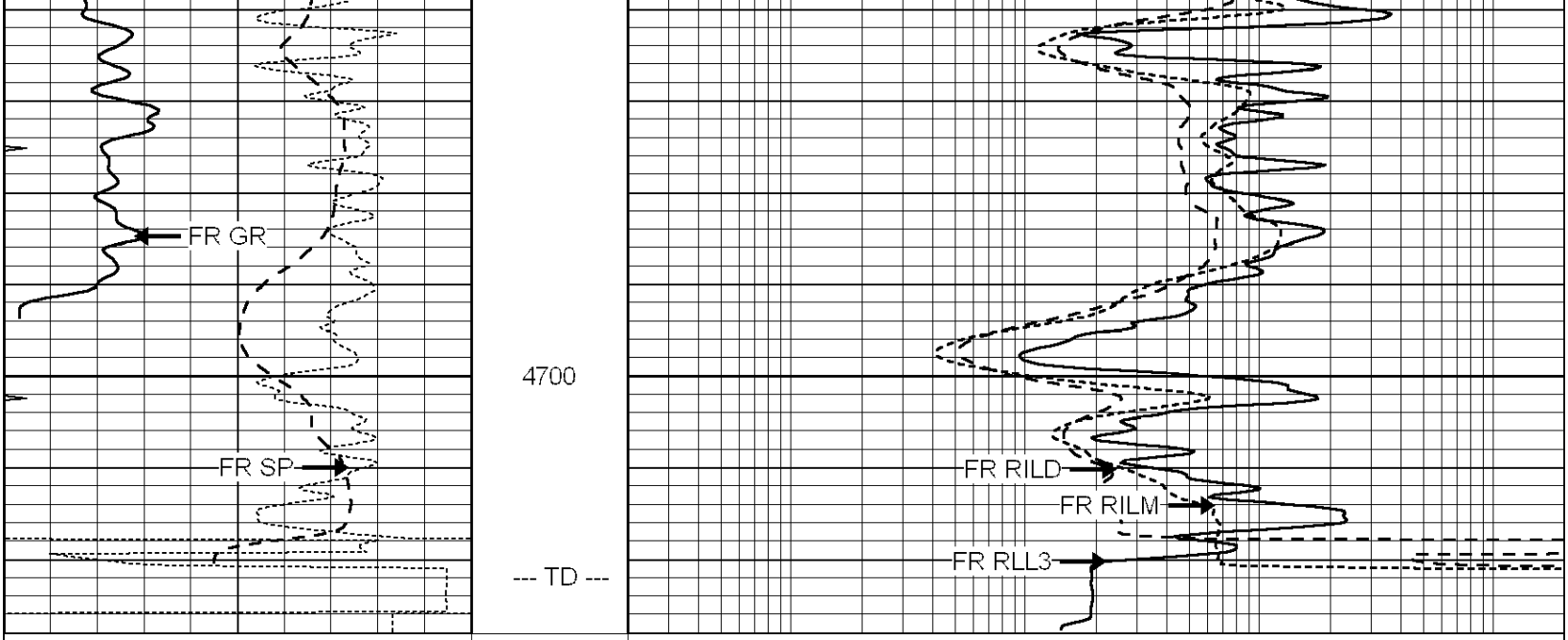



3800
3850
3900
3950


4000
4050
4100
4150
4200


4250
4300
4350
4400


4450
4500
MINMK
4550
4600
RxoRt
4650




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

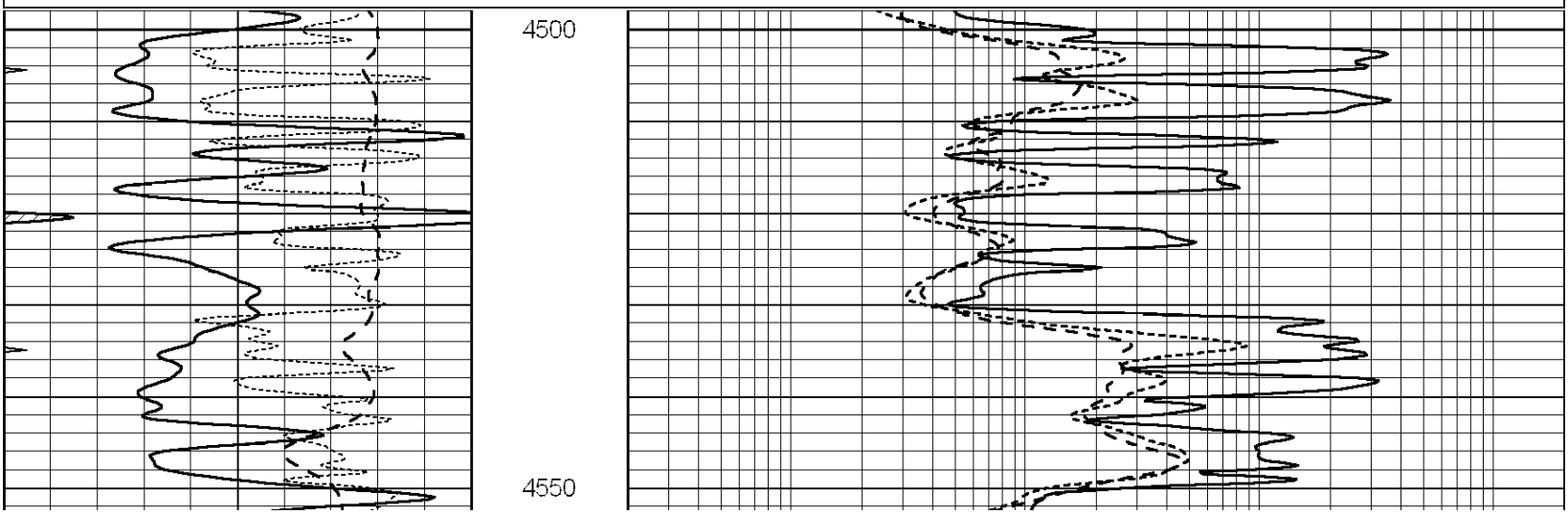
**NABORS**
COMPLETION & PRODUCTION SERVICES CO.

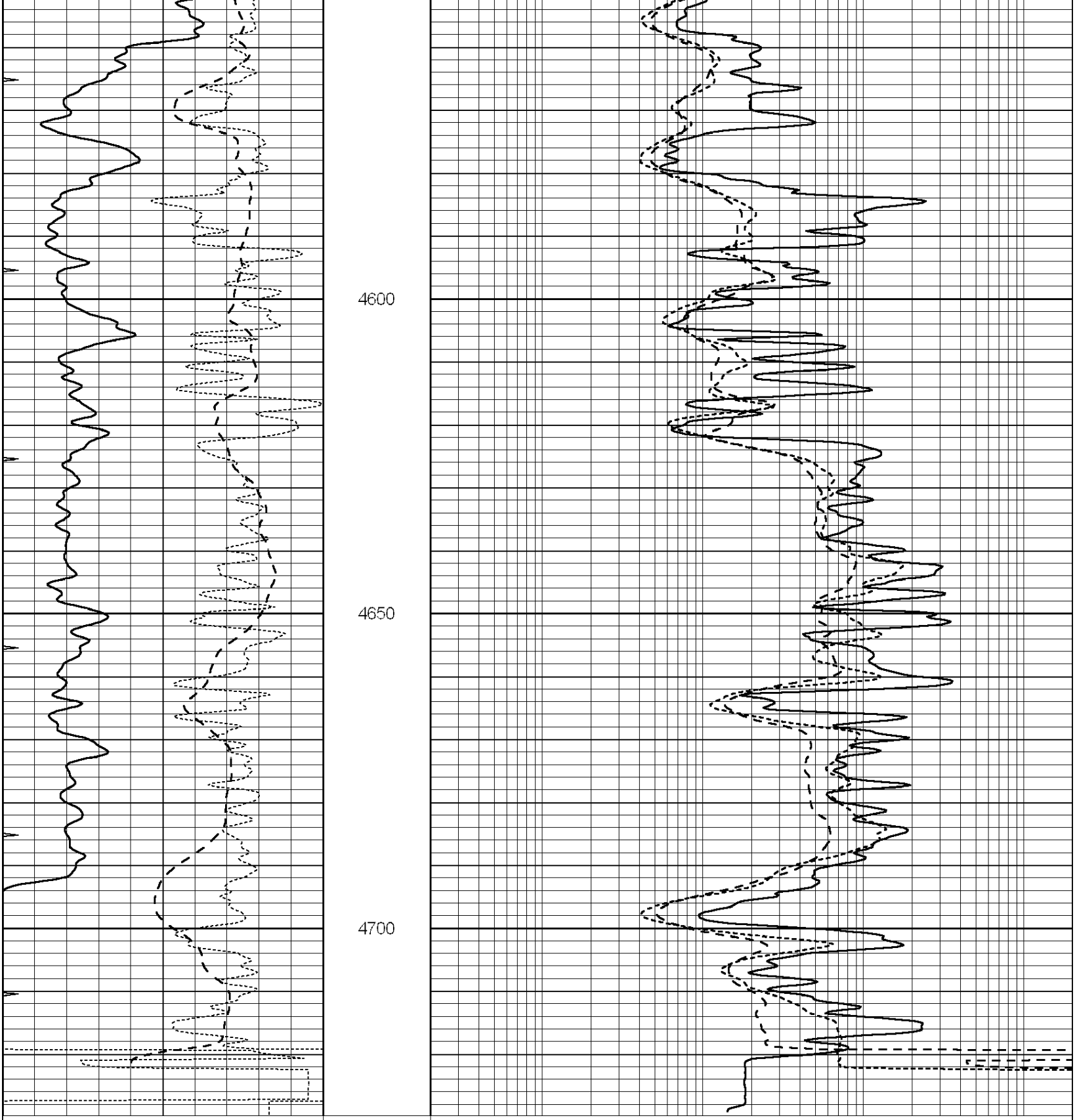
# REPEAT SECTION

| | |
|---|---|
| Database File: | 010836ddn.db |
| Dataset Pathname: | pass2A |
| Presentation Format: | dil |
| Dataset Creation: | Fri Mar 15 18:39:21 2013 by Calc Open-Cased 090629 |
| Charted by: | Depth in Feet scaled 1:240 |

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






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

Calibration Report

Database File: 010836ddn.db
Dataset Pathname: pass3.2A

Dataset Creation: Fri Mar 15 19:22:16 2013

## Dual Induction Calibration Report

| | |
|---|---|
| Serial-Model: | PROBE7-DILG |
| Surface Cal Performed: | Fri Mar 15 18:44:03 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 | 600.000 | -7.000 |
| Medium | 0.992 | 1.002 | V | 0.000 | 464.000 | mmho/m | 700.000 | -63.000 |
| 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 | cps |
| Window 2 | 822.9 | 5957.5 | 1958.0 | 6389.6 | cps |
| Window 3 | 670.4 | 3219.9 | 1211.9 | 3388.2 | cps |
| Window 4 | 201.6 | 201.1 | 202.3 | 204.6 | cps |
| Long Space | 0.0 | 5134.6 | 1135.0 | 5566.6 | cps |
| Short Space | 1.1 | 994.2 | 674.4 | 1059.2 | cps |
| Rho | | 1.7100 | 2.5960 | 1.3800 | g/cc |
| Pe | | | 2.5700 | 1.5500 | |

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

| | Readings | Reference | |
|---|---|---|---|
| Low Ref | 4.3 | 8.4 | |
| High Ref | 6.1 | 14.0 | |
| | Gain: 3.0 | | Offset: -4.4 |

## 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: Fri Mar 15 18:42:26 2013

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps
Calibrator Reading: 1.0 cps

Sensitivity: 2.3000 GAPI/cps