SUPERIOR WELL SERVICES

SUPERIOR
Hays,
Kansas

# DUAL INDUCTION LOG

| | |
|---|---|
| Company | MULL DRILLING COMPANY, INC. |
| Well | JONES 'A' #1-30 |
| Field | WILDCAT |
| County | NESS |
| State | KANSAS |

Company MULL DRILLING COMPANY, INC.

Well JONES 'A' #1-30

Field WILDCAT

County NESS State KANSAS

Location: API # : 15-135-25211-0000

1249' FSL & 1136' FEL
NW - NW - SE - SE
SEC 30 TWP 16S RGE 22W

Other Services: CDL/CNL/PE, MEL/SON

Permanent Datum: GROUND LEVEL Elevation 2440

Log Measured From: KELLY BUSHING 5' A.G.L.

Drilling Measured From: KELLY BUSHING

Elevation: K.B. 2445, D.F. 2443, G.L. 2440

| | | | | |
|---|---|---|---|---|
| Date | 2/28/11 | | | |
| Run Number | ONE | | | |
| Depth Driller | 4550 | | | |
| Depth Logger | 4553 | | | |
| Bottom Logged Interval | 4551 | | | |
| Top Log Interval | 0 | | | |
| Casing Driller | 8 5/8" @ 227' | | | |
| Casing Logger | 227' | | | |
| Bit Size | 7 7/8 | | | |
| Type Fluid in Hole | CHEMICAL MUD | CHLORIDES 1700 PPM | | |
| Density / Viscosity | 9.1/54 | | | |
| pH / Fluid Loss | 11.0/6.8 | | | |
| Source of Sample | FLOWLINE | | | |
| Rm @ Meas. Temp | 0.75 @ 60F | | | |
| Rmf @ Meas. Temp | 0.56 @ 60F | | | |
| Rmc @ Meas. Temp | 0.90 @ 60F | | | |
| Source of Rmf / Rmc | MEASURED | | | |
| Rm @ BHT | 0.37 @ 121F | | | |
| Time Circulation Stopped | 2 HOURS | | | |
| Time Logger on Bottom | | | | |
| Maximum Recorded Temperature | 121F | | | |
| Equipment Number | 680 | | | |
| Location | HAYS, KS. | | | |
| Recorded By | JEFF GRONEWEG | | | |
| Witnessed By | KEVIN KESSLER | | | |

<<< Fold Here >>>



## Comments

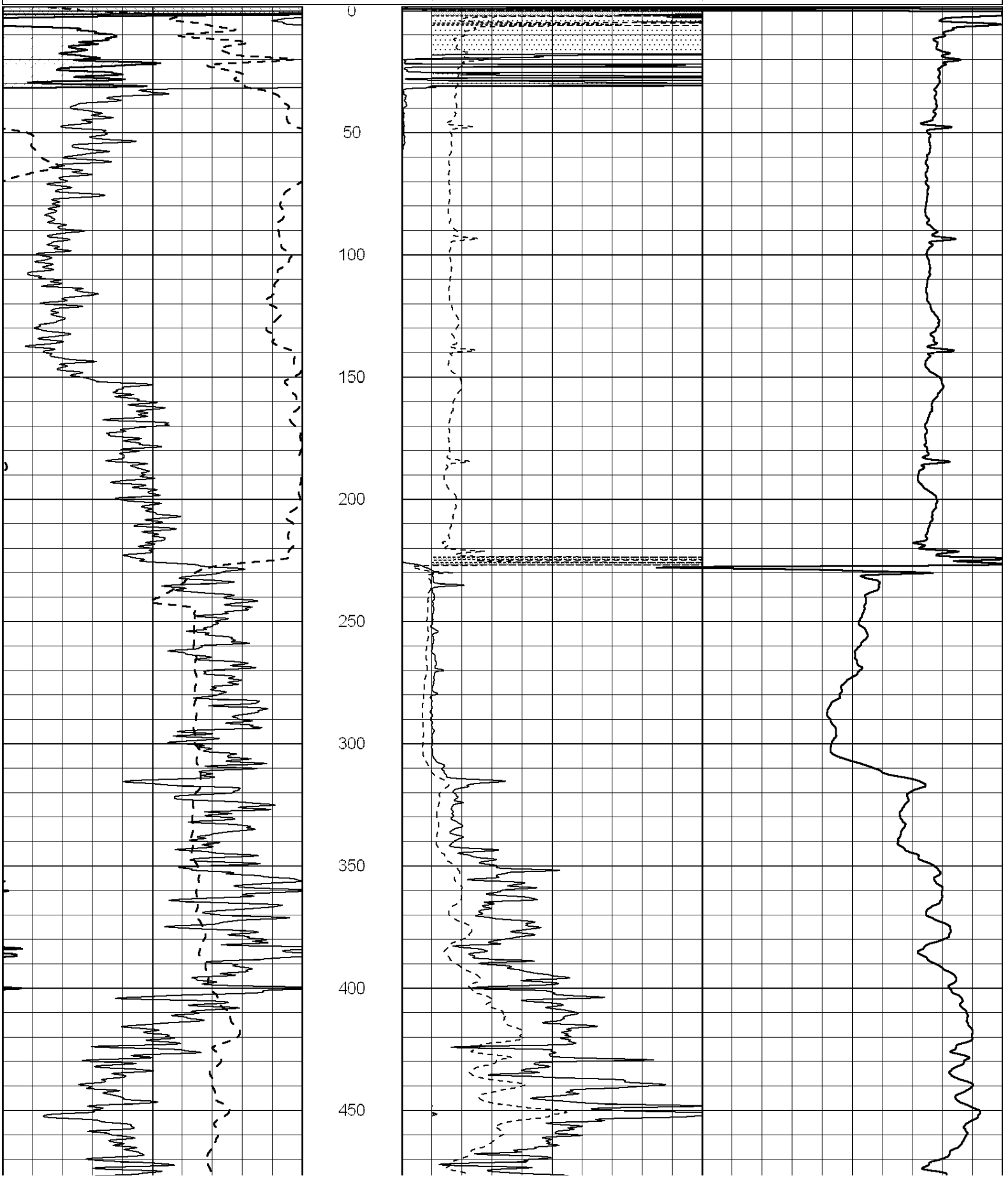
THANK YOU FOR USING SUPERIOR WELL SERVICE (785) 628-6395
DIRECTIONS
BROWNELL, KS - 1 1/2 MILES WEST TO RD Y - 3/4 MILE SOUTH - WEST INTO

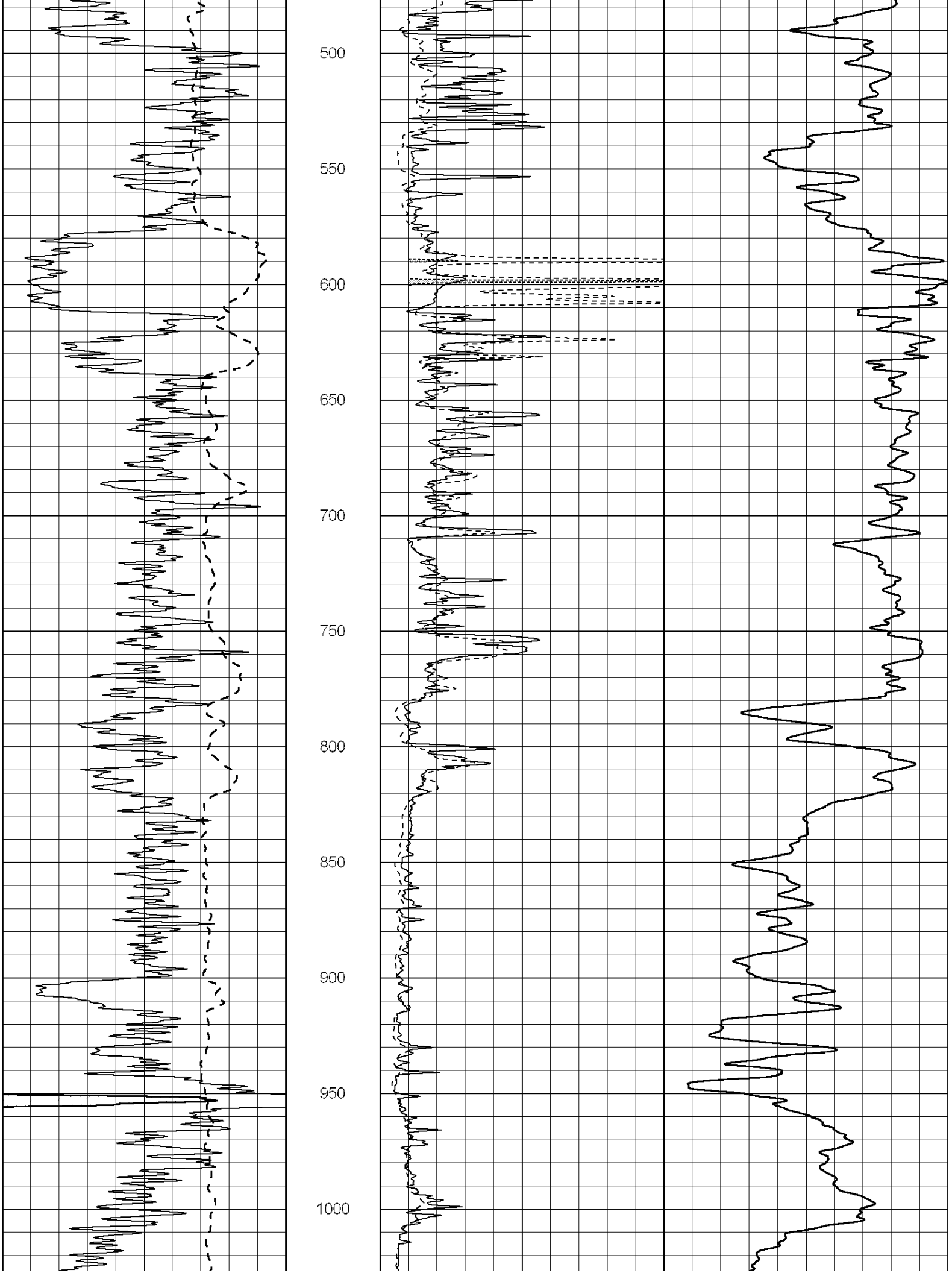
| | |
|---|---|
| Database File: | 006700pe.db |
| Dataset Pathname: | pass3.3 |
| Presentation Format: | _dil2 |
| Dataset Creation: | Mon Feb 28 11:03:50 2011 by Calc Open-Cased 090629 |
| Charted by: | Depth in Feet scaled 1:600 |

Started by: Depth in Feet scaled 1:600

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

| 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 |

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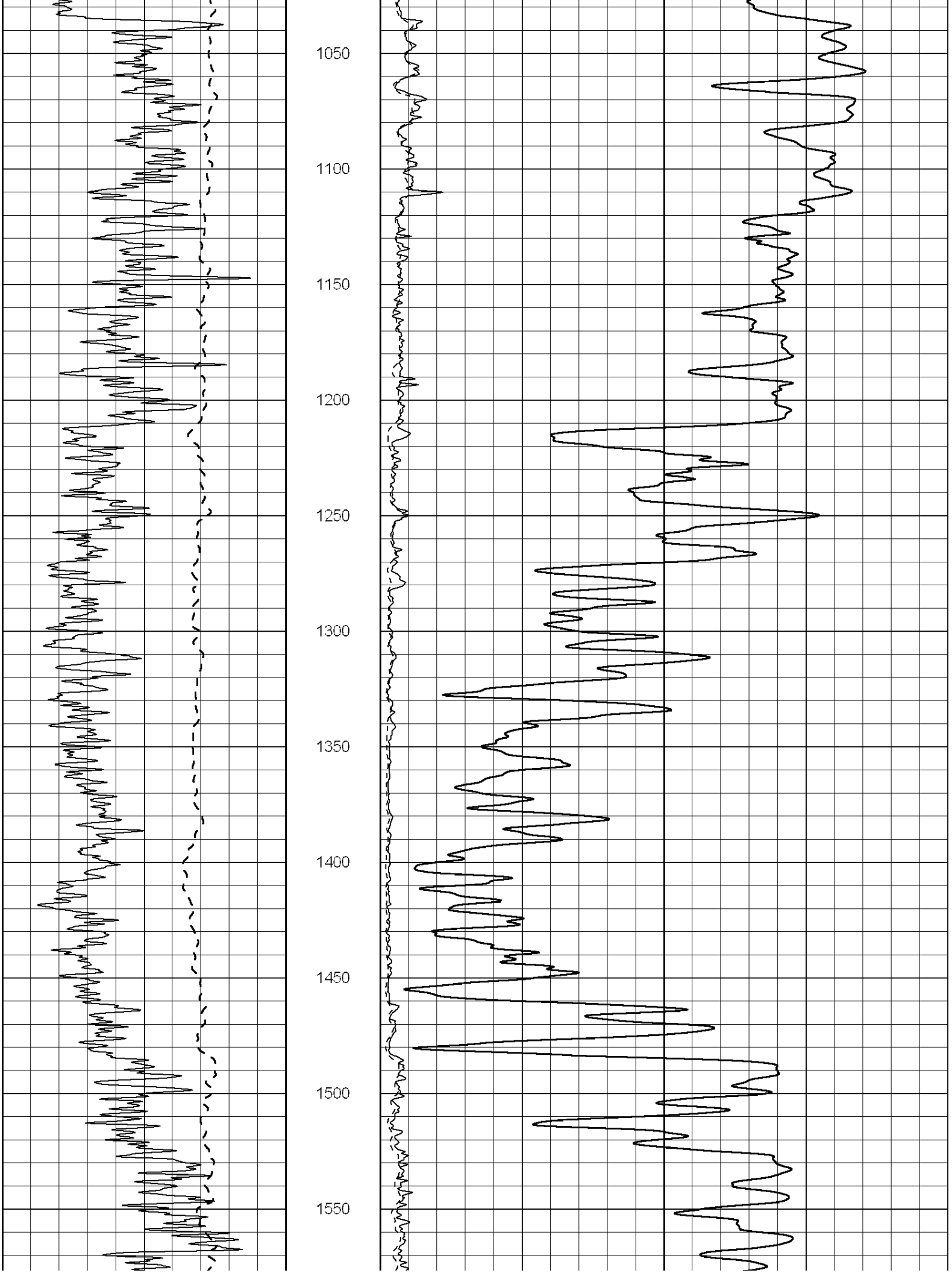
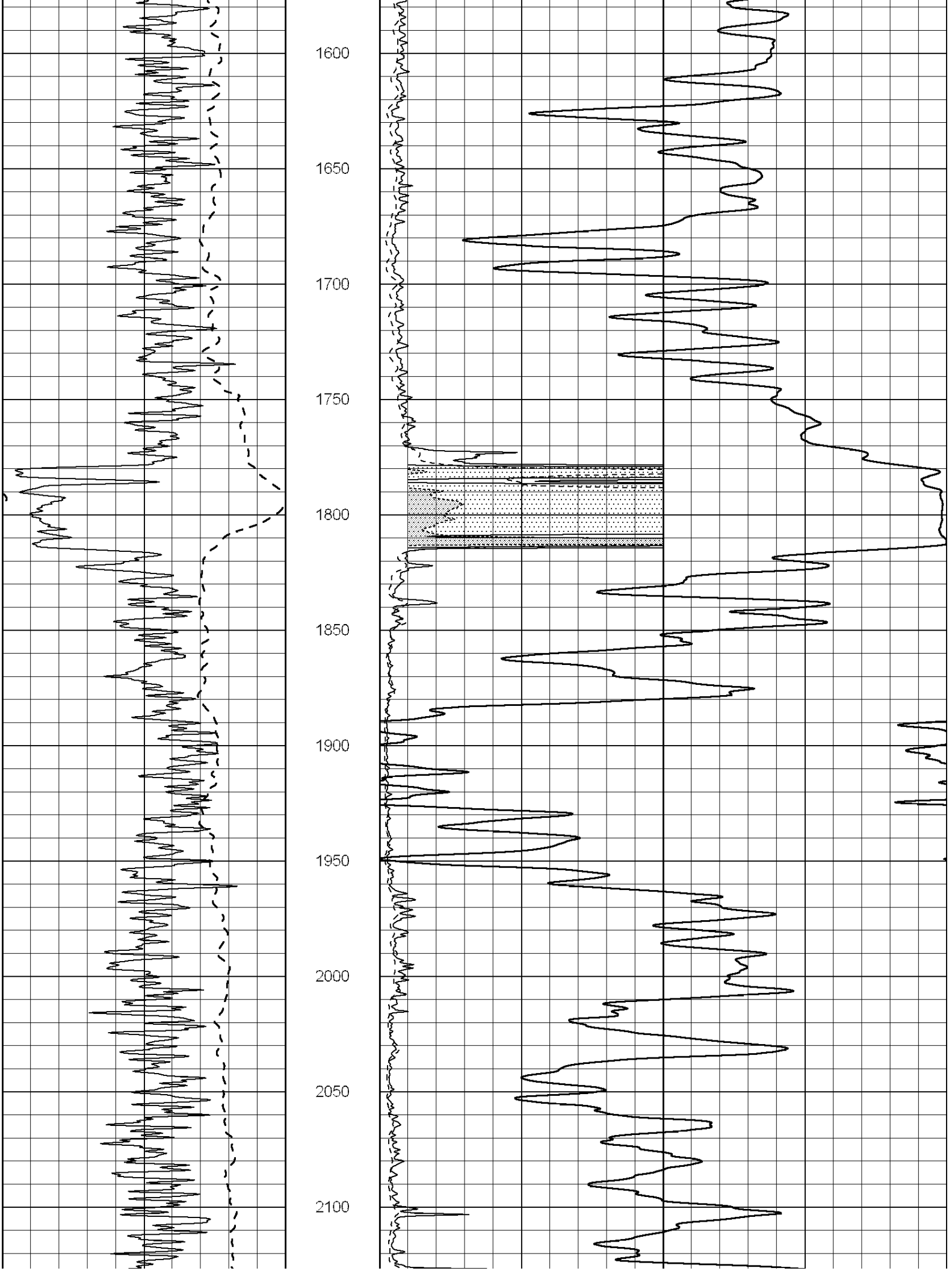
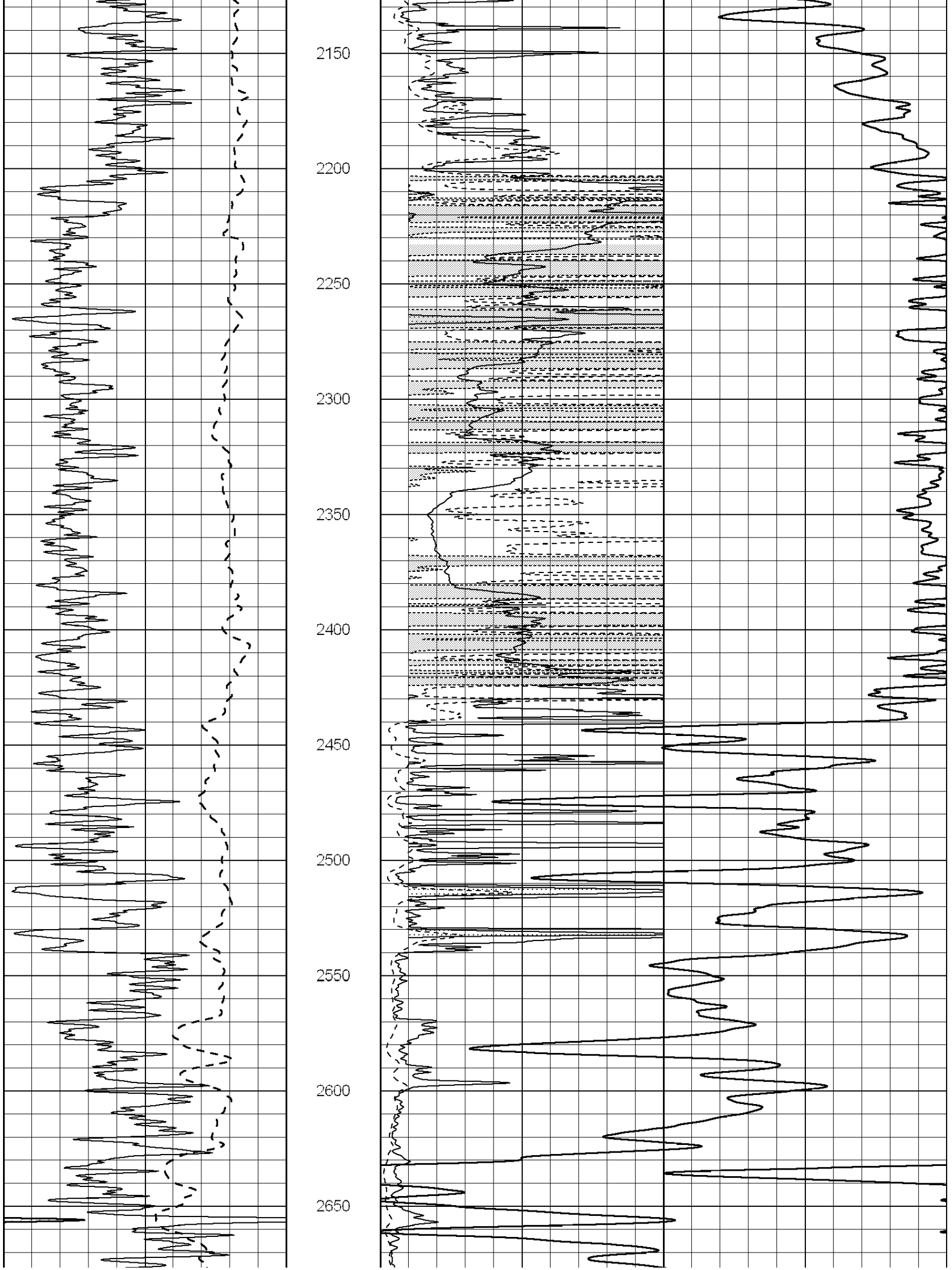
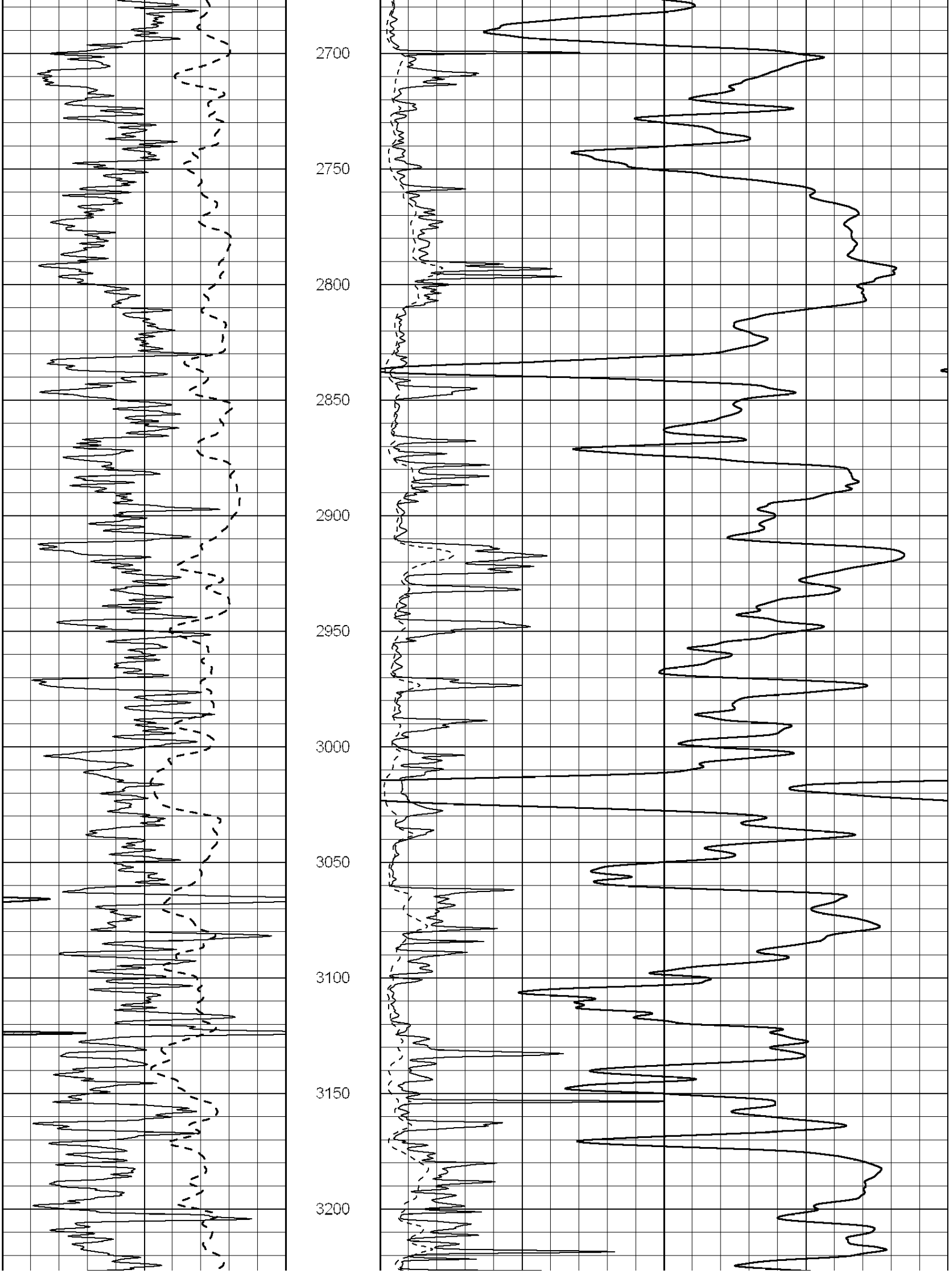
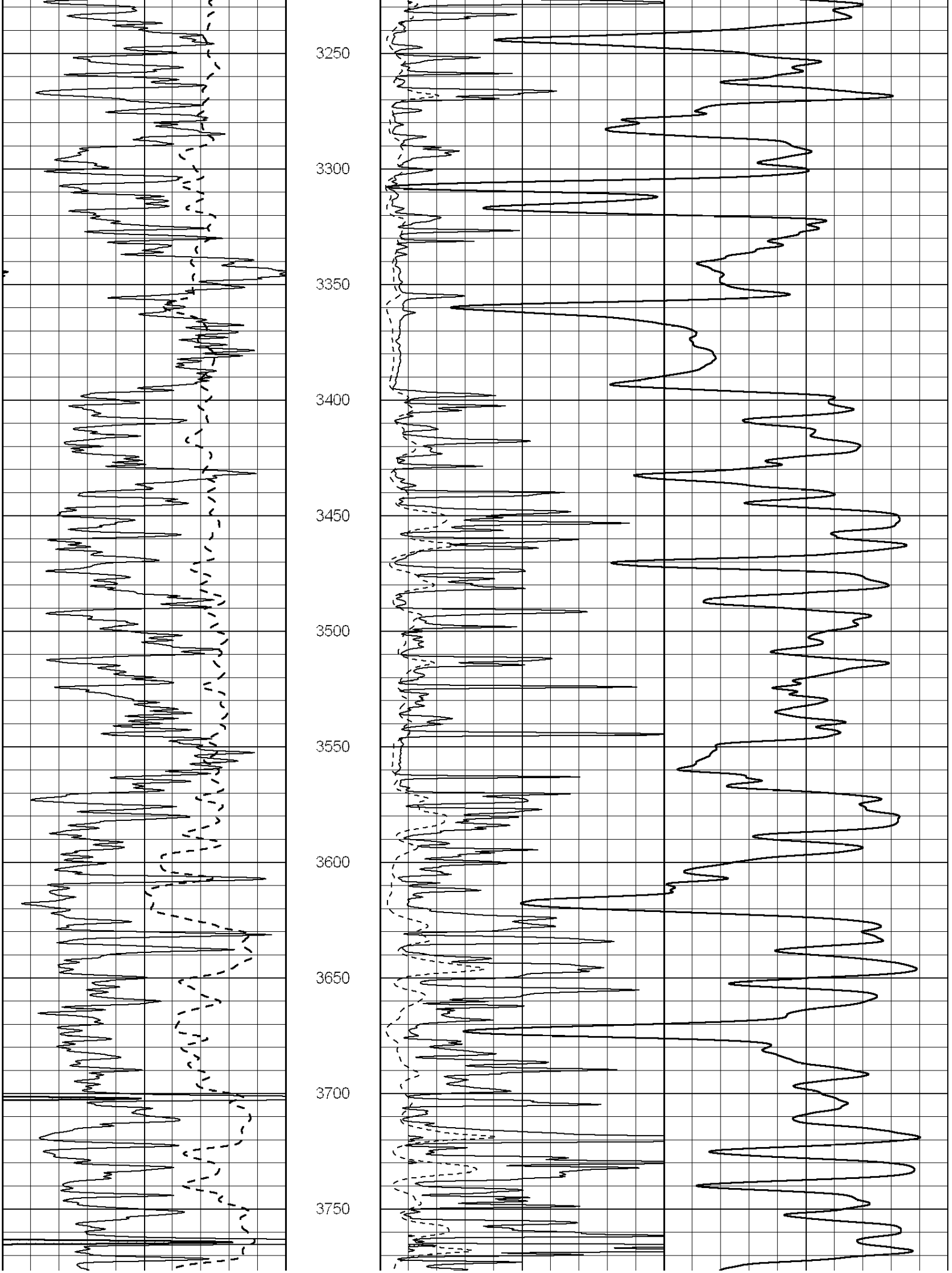
600
650
700
750
800
850
900
950
1000

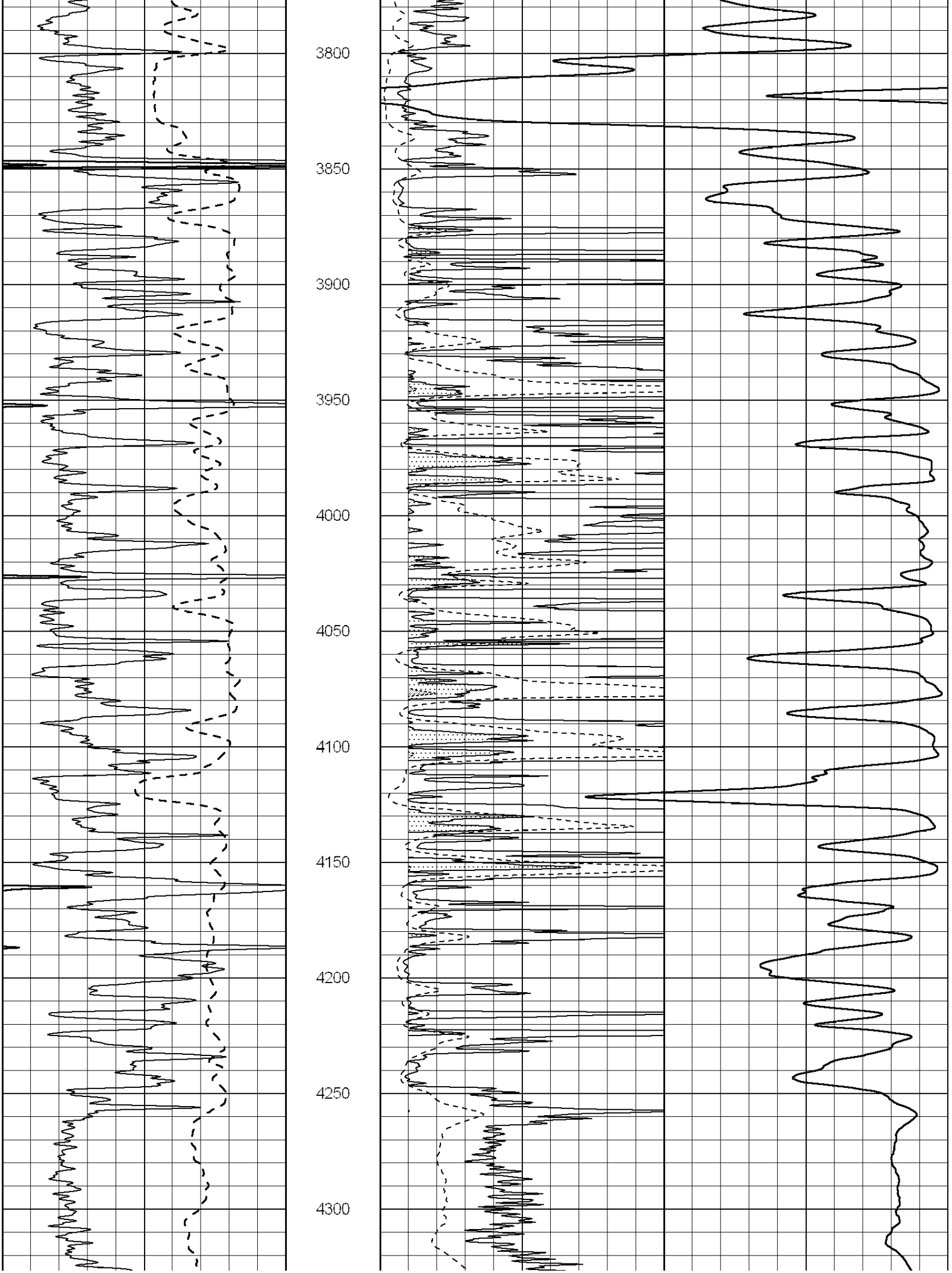

1050
1100
1150
1200
1250
1300
1350
1400
1450
1500
1550

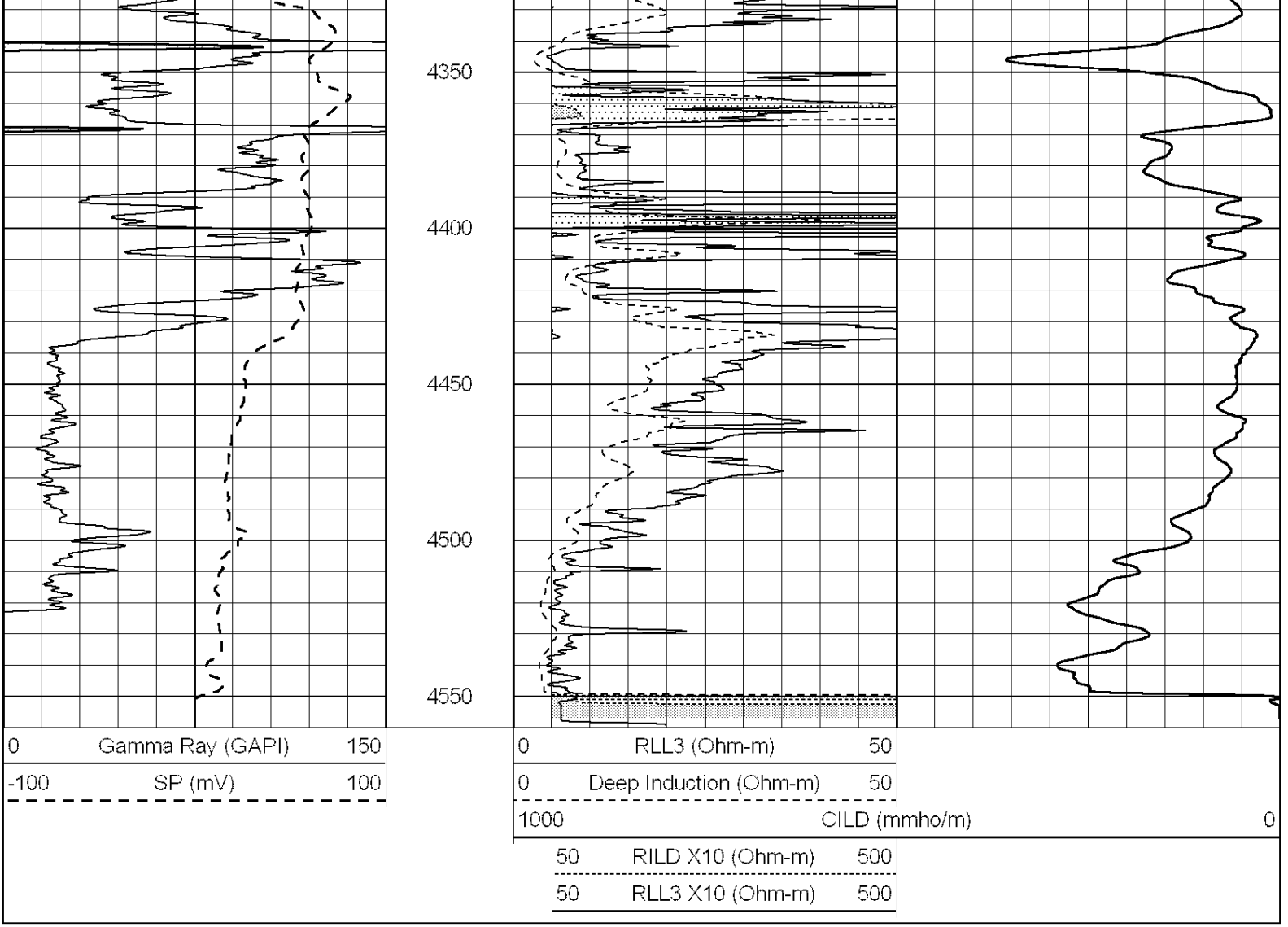

1600
1650
1700
1750
1800
1850
1900
1950
2000
2050
2100


2150
2200
2250
2300
2350
2400
2450
2500
2550
2600
2650

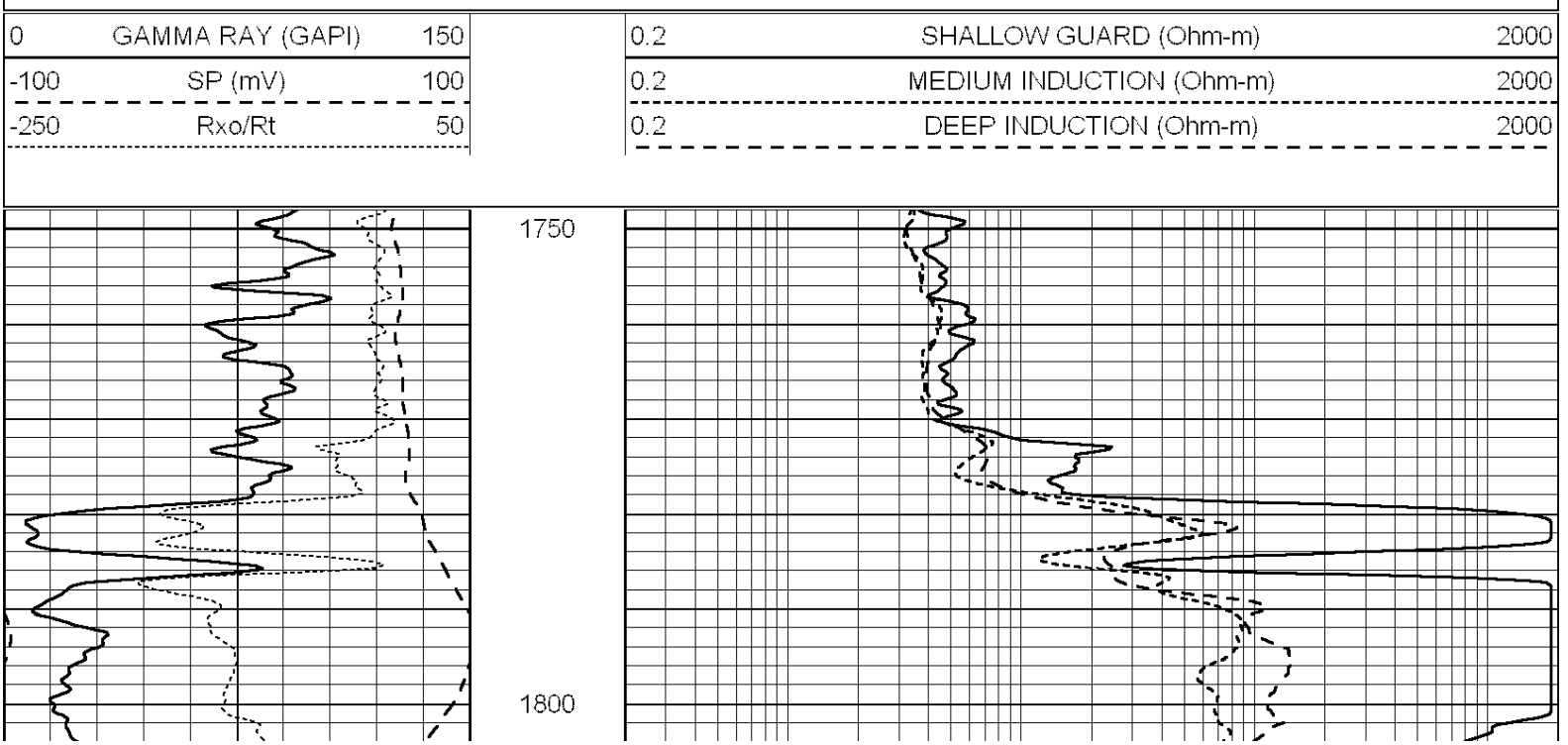

2700
2750
2800
2850
2900
2950
3000
3050
3100
3150
3200

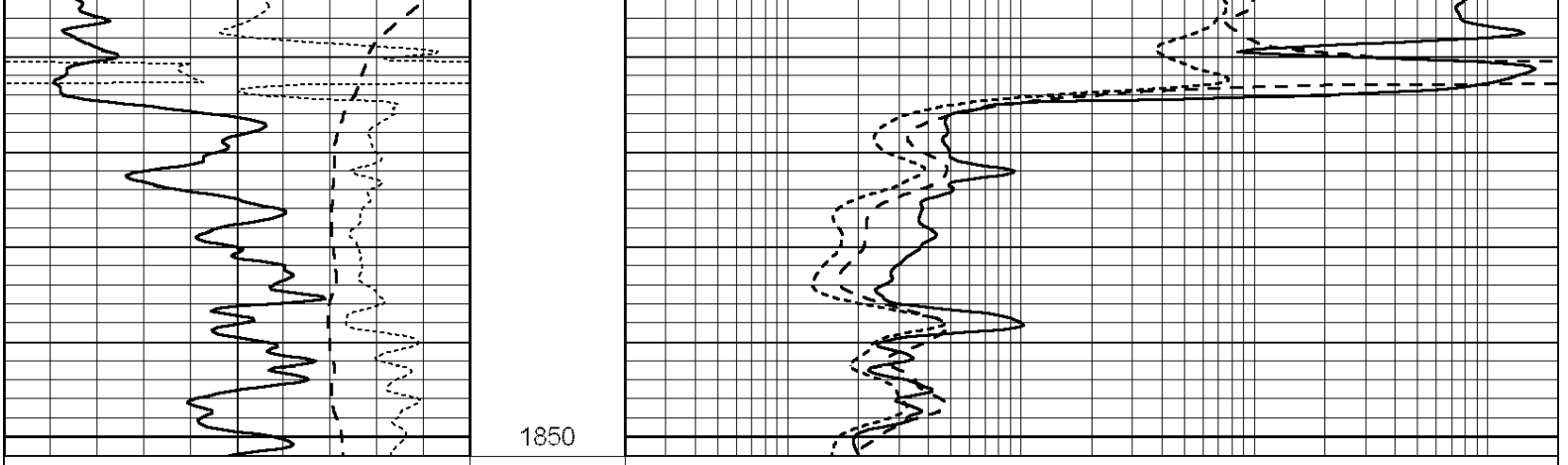

3250
3300
3350
3400
3450
3500
3550
3600
3650
3700
3750


3800
3850
3900
3950
4000
4050
4100
4150
4200
4250
4300




Database File: 006700pe.db
Dataset Pathname: pass3.3
Presentation Format: _dil
Dataset Creation: Mon Feb 28 11:03:50 2011 by Calc Open-Cased 090629
Charted by: Depth in Feet scaled 1:240





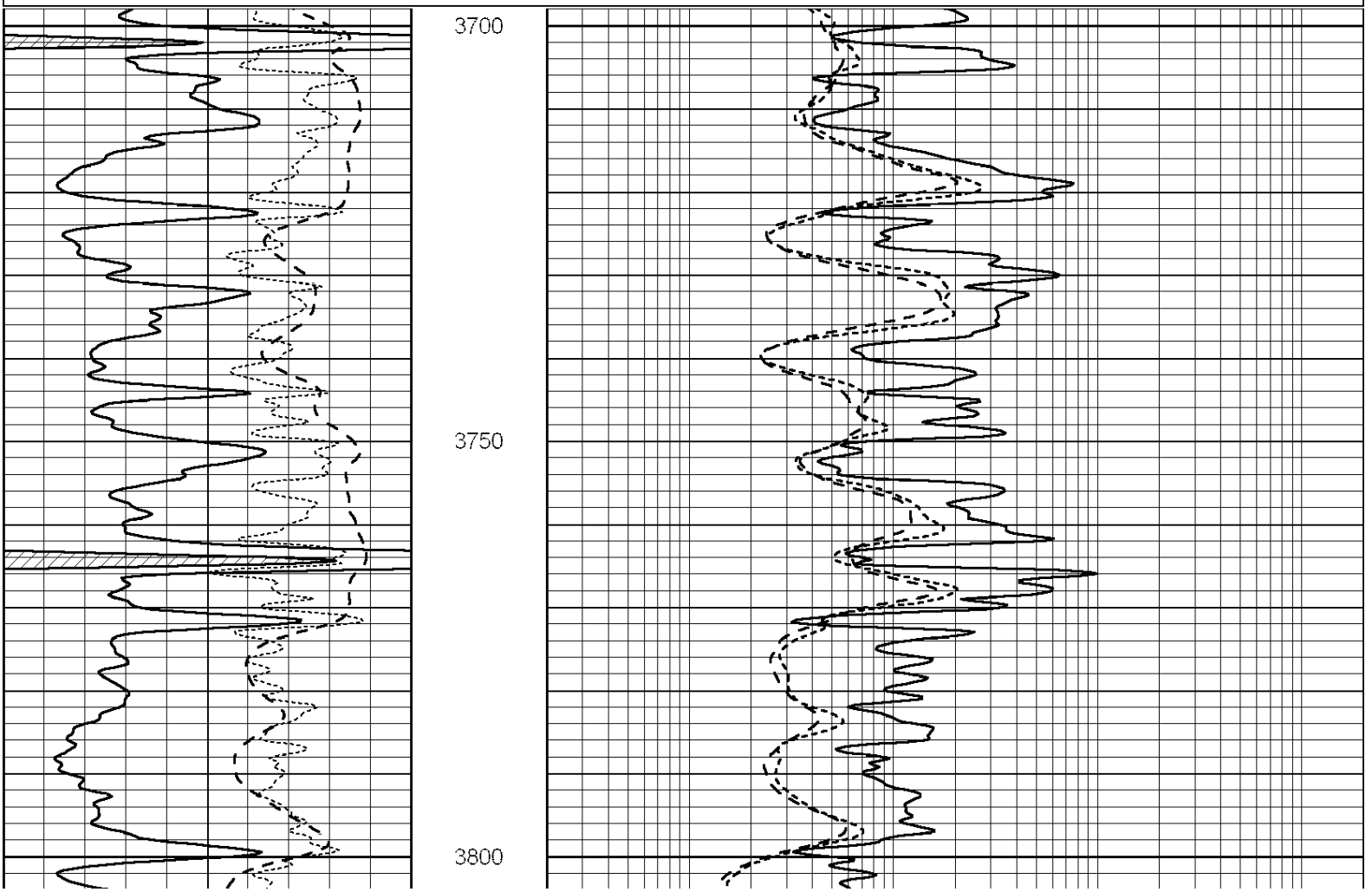

| | | |
|---|---|---|
| 0 | GAMMA RAY (GAPI) | 150 |
| -100 | SP (mV) | 100 |
| -250 | Rxo/Rt | 50 |

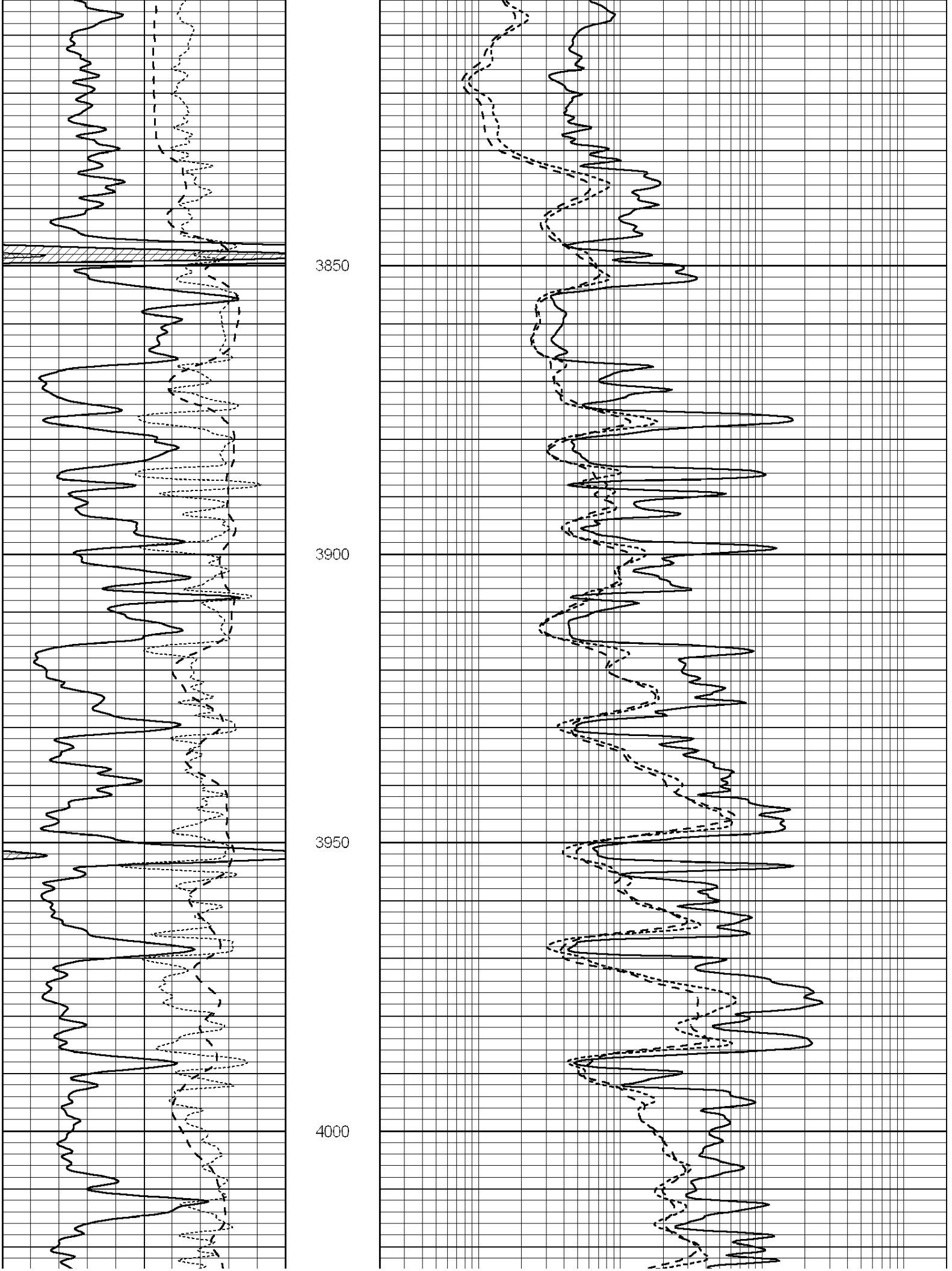
| | | |
|---|---|---|
| 0.2 | SHALLOW GUARD (Ohm-m) | 2000 |
| 0.2 | MEDIUM INDUCTION (Ohm-m) | 2000 |
| 0.2 | DEEP INDUCTION (Ohm-m) | 2000 |

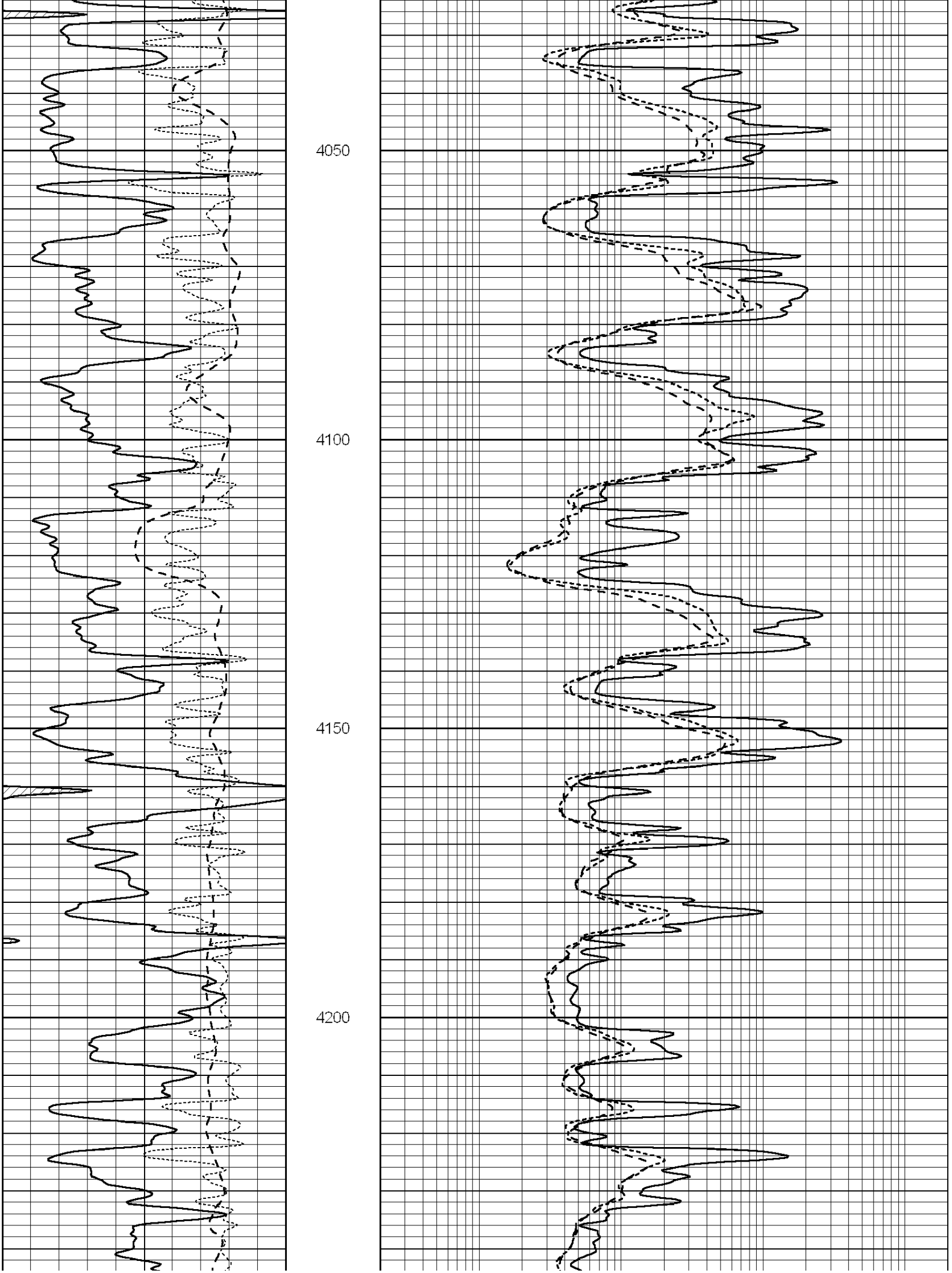
| | |
|---|---|
| Database File: | 006700pe.db |
| Dataset Pathname: | pass3.2 |
| Presentation Format: | _dil |
| Dataset Creation: | Mon Feb 28 09:47:13 2011 by Calc Open-Cased 090629 |
| Charted by: | Depth in Feet scaled 1:240 |

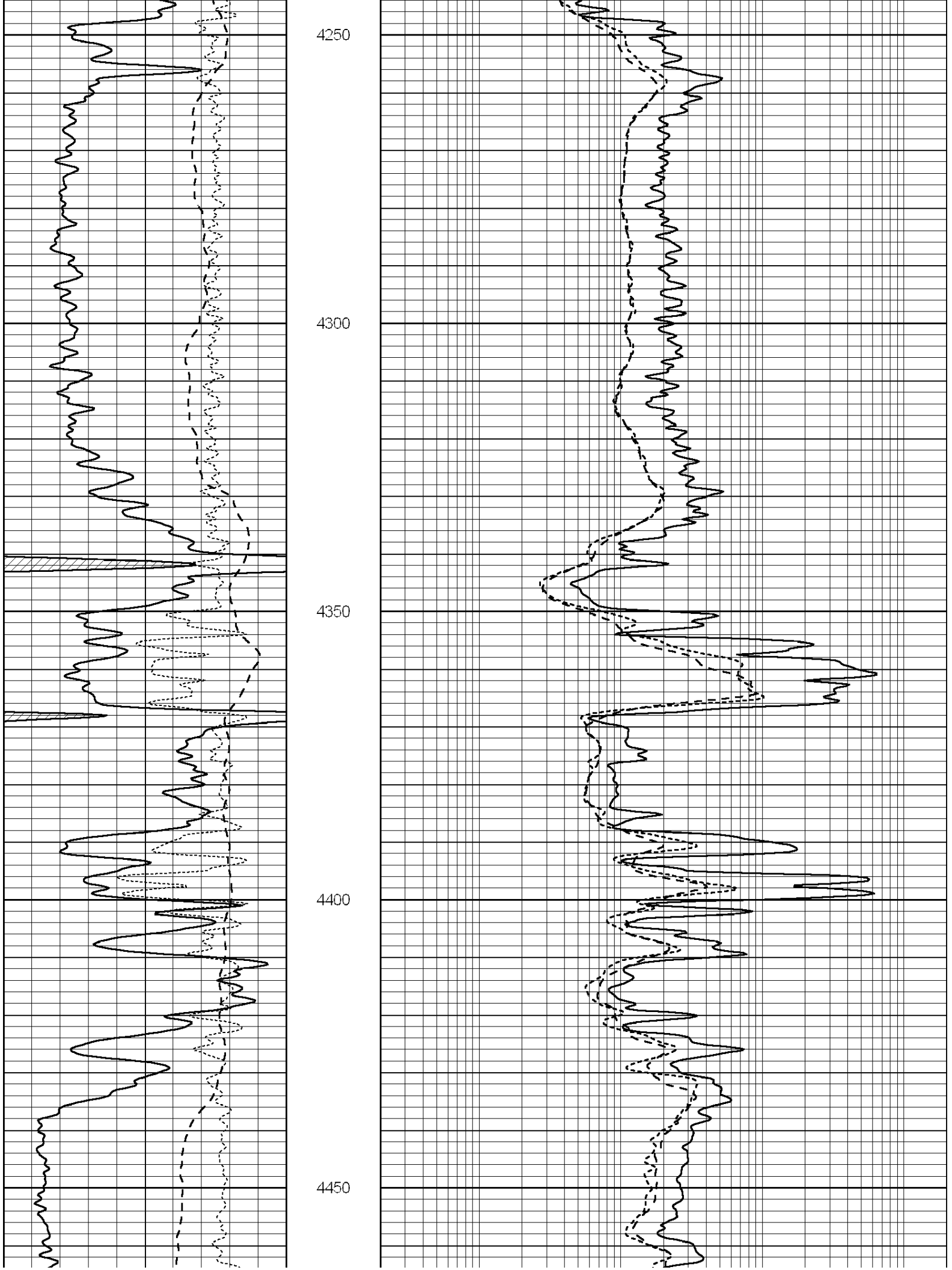
| | | |
|---|---|---|
| 0 | GAMMA RAY (GAPI) | 150 |
| -100 | SP (mV) | 100 |
| -250 | Rxo/Rt | 50 |

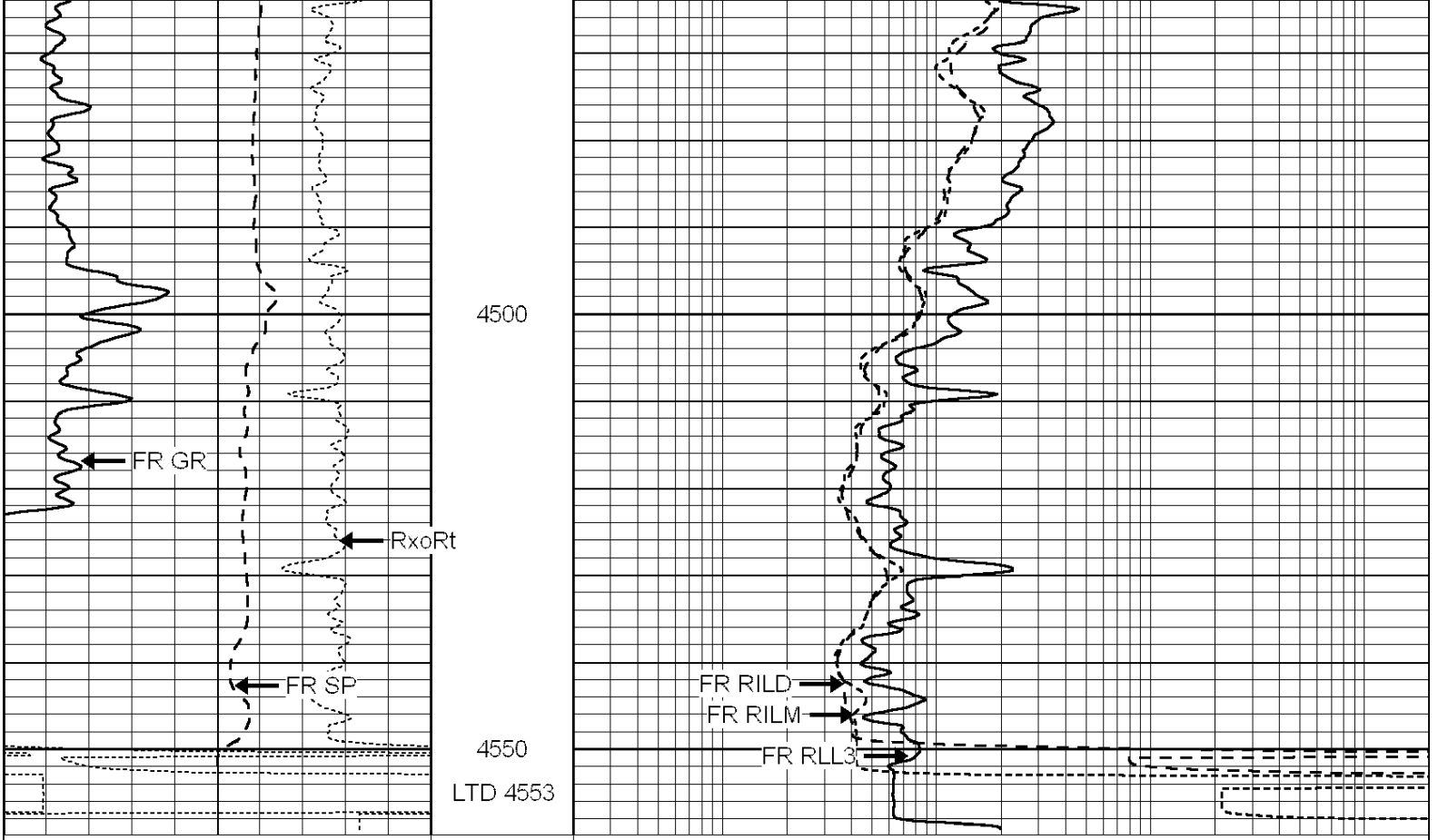
| | | |
|---|---|---|
| 0.2 | SHALLOW GUARD (Ohm-m) | 2000 |
| 0.2 | MEDIUM INDUCTION (Ohm-m) | 2000 |
| 0.2 | DEEP INDUCTION (Ohm-m) | 2000 |




3850
3900
3950
4000


4050
4100
4150
4200


4250
4300
4350
4400
4450




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

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

SUPERIOR WELL SERVICES

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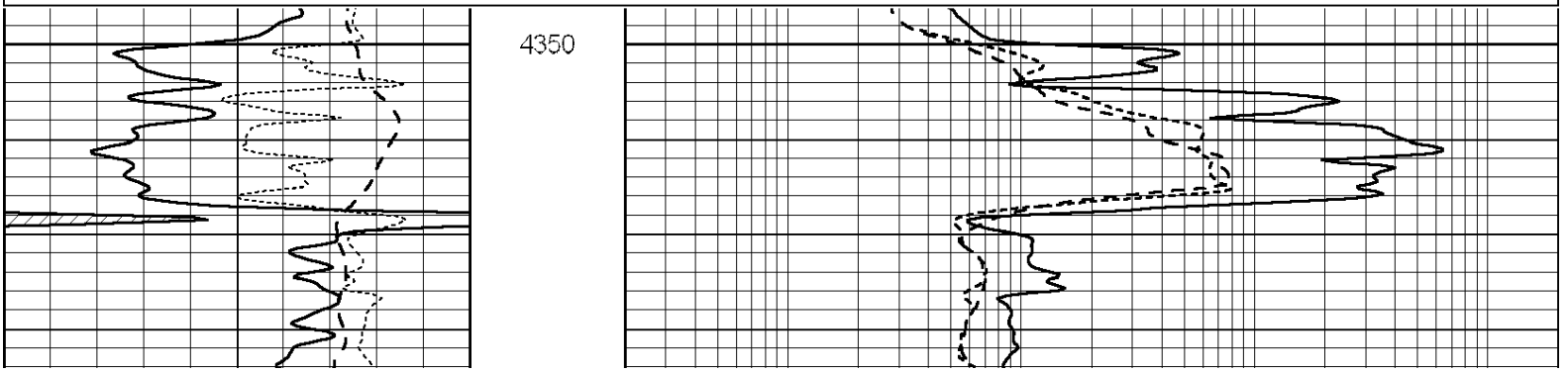
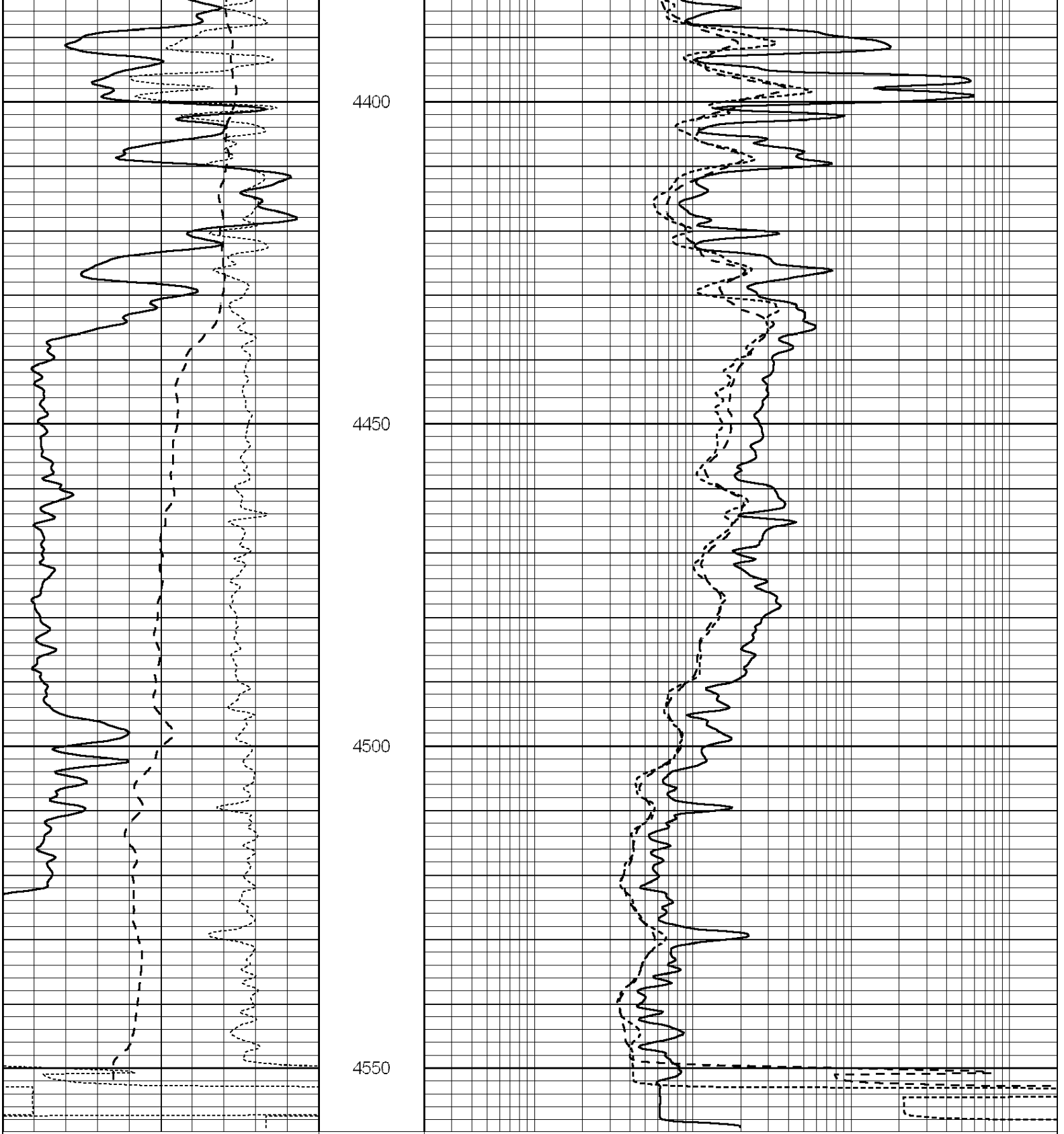
# REPEAT SECTION

| | |
|---|---|
| Database File: | 006700pe.db |
| Dataset Pathname: | pass2.2 |
| Presentation Format: | _dil |
| Dataset Creation: | Mon Feb 28 09:52:41 2011 by Calc Open-Cased 090629 |
| Charted by: | Depth in Feet scaled 1:240 |

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

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






Calibration Report

Database File: 006700pe.db
Dataset Pathname: pass3.3
Dataset Creation: Mon Feb 28 11:03:50 2011 by Calc Open-Cased 090629

## Dual Induction Calibration Report

| | |
|---|---|
| Serial-Model: | PROBE7-DILG |
| Surface Cal Performed: | Wed Jul 30 06:14:24 2008 |
| Downhole Cal Performed: | Mon Jul 28 12:02:56 2008 |
| After Survey Verification Performed: | Mon Jul 28 12:02:56 2008 |

### Surface Calibration

| | Readings | | | References | | | Results | |
|---|---|---|---|---|---|---|---|---|
| Loop: | Air | Loop | | Air | Loop | | m | b |
| Deep | -0.014 | 0.629 | V | 0.000 | 400.000 | mmho/m | 621.923 | 8.759 |
| Medium | 0.039 | 0.728 | V | 0.000 | 464.000 | mmho/m | 673.322 | -26.058 |
| Internal: | Zero | Cal | | Zero | Cal | | m | b |
| Deep | 0.011 | 0.610 | V | 0.000 | 400.000 | mmho/m | 667.135 | -7.256 |
| Medium | 0.005 | 0.712 | V | 0.000 | 464.000 | mmho/m | 655.677 | -3.102 |

### Downhole Calibration

| | Readings | | | References | | | Results | |
|---|---|---|---|---|---|---|---|---|
| | Zero | Cal | | Zero | Cal | | m' | b' |
| Deep | 0.000 | 0.000 | mmho/m | 14.508 | 388.384 | mmho/m | 1.000 | 0.000 |
| Medium | 0.000 | 0.000 | mmho/m | 166.367 | 504.400 | mmho/m | 1.000 | 0.000 |
| LL3 | | 7.500 | V | | 1400.000 | Ohm-m | | |
| | | 0.000 | V | | 20.000 | Ohm-m | | |
| | | -7.200 | V | | 4000.000 | 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 | | |

## Litho Density Calibration Report

Serial: 002 Model: PRB
Performed Mon Oct 29 15:40:49 2007

### Litho Density Calibration

| | Background | Magnesium | Aluminum | Sandstone | |
|---|---|---|---|---|---|
| Window 1 | 1056.3 | 9118.0 | 2809.7 | 10378.4 | cps |
| Window 2 | 969.9 | 7671.9 | 2431.6 | 8565.8 | cps |
| Window 3 | 683.8 | 2939.8 | 1161.0 | 3161.8 | cps |
| Window 4 | 231.4 | 231.6 | 226.7 | 230.8 | cps |
| Long Space | 0.0 | 6702.0 | 1461.7 | 7595.9 | cps |
| Short Space | 1.2 | 1433.6 | 959.4 | 1568.6 | cps |
| Rho | | 1.7100 | 2.5900 | 1.3800 | g/cc |
| Pe | | | 2.5700 | 1.5500 | |

| | | | | | |
|---|---|---|---|---|---|
| Rib Angle | : 45.2 | Rib Slope | : 1.008 | Density/Spine Ratio | : 0.559 |
| Spine Angle | : 75.2 | Spine Slope | : 3.791 | Spine Intercept | : -18.7 |

### Caliper

| | Readings | Reference |
|---|---|---|
| Low Ref | 2.8 | 8.0 |
| High Ref | 5.0 | 14.0 |
| | Gain: 2.7 | Offset: -2.0 |

## 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 |

## Gamma Ray Calibration Report

| | | |
|---|---|---|
| Serial Number: | #8 | |
| Tool Model: | OPEN | |
| Performed: | Fri Feb 18 03:07:29 2011 | |
| Calibrator Value: | 150.0 | GAPI |
| Background Reading: | 0.0 | cps |
| Calibrator Reading: | 175.0 | cps |
| Sensitivity: | 0.8971 | GAPI/cps |