PRECISION ENERGY SERVICES

**Compact**

# DUAL LATEROLOG - GR
# DENSITY - NEUTRON
## 1:200 MD

| | |
|---|---|
| COMPANY | ESSO AUSTRALIA PTY LTD |
| WELL | BREAM A10A |
| FIELD | BREAM |
| PROVINCE/COUNTY | BASS STRAIT |
| COUNTRY/STATE | AUSTRALIA |
| LOCATION | S 38 29 58.824, E 147 46 19.976 |
| | N 5738460.340 m, E 567336.310 m |

**FINAL PRINT**

| LSD | SEC | TWP | RGE | Other Services |
|---|---|---|---|---|
| | | | | COMPENSTAED SONIC |

API Number
Permit Number

Permanent Datum MSL , Elevation 0.0 metres
Log Measured From RT @ 32.82m above Permanent Datum
Drilling Measured From RT

Elevations:

| | | |
|---|---|---|
| KB | | metres |
| DF | 32.82 | metres |
| GL | -59.40 | metres |

| | | | |
|---|---|---|---|
| Date | 16-MAY-2005 | | |
| Run Number | ONE | | |
| Depth Driller | 3379.50 | metres | |
| Depth Logger | 3375.10 | metres | |
| First Reading | 3361.30 | metres | |
| Last Reading | 2258.80 | metres | |
| Casing Driller | 2258.20 | metres | |
| Casing Logger | 2258.80 | metres | |
| Bit Size | 8.50 | inches | |
| Hole Fluid Type | KCl/POLY/GYL | | |
| Density / Viscosity | 10.10 lb/USg | 30.00 cP | |
| PH / Fluid Loss | 9.00 | 3.00 ml/30Min | |
| Sample Source | FLOWLINE | | |
| Rm @ Measured Temp | 0.134 @ 25.0 | ohm-m | |
| Rmf @ Measured Temp | 0.103 @ 25.0 | ohm-m | |
| Rmc @ Measured Temp | 0.236 @ 25.0 | ohm-m | |
| Source Rmf / Rmc | PRESS | PRESS | |
| Rm @ BHT | 0.053 @ 97.3 | ohm-m | |
| Time Since Circulation | 28.5 HRS | | |
| Max Recorded Temp | 104.10 | deg C | |
| Equipment Name | CWS/CML | | |
| Equipment / Base | 1 | SALE | |
| Recorded By | G. MCMANUS , B. MOSS | | |
| Witnessed By | TREVOR LOBO | | |
| CIRC STOPPED | 21:00 14-MAY | | |

## BOREHOLE RECORD

| Bit Size inches | Depth From metres | Depth To metres |
|---|---|---|
| 8.500 | 2258.80 | 3379.50 |

## CASING RECORD

| Type | Size inches | Depth From metres | Shoe Depth metres | Weight pounds/ft |
|---|---|---|---|---|
| K-55 | 13.375 | 0.00 | 921.00 | 54.50 |
| L-80 | 9.625 | 0.00 | 2258.80 | 47.00 |

## REMARKS

RIG: NABORS 453

5" SHUTTLE/MEMORY COMPACT OPERATION.
CREW: G MCMANUS , R TENCH , B MOSS , K LUCIEER.

ALL LOGS DEPTH CORRELATED TO ANADRILL GAMMA LOG.

DENSITY CALIPER CLOSED BETWEEN 2594.50m MD AND 2598.2m MD
DUE TO THE INDUCTION SONDE DETECTING A PIECE OF BRASS DEBRIS
IN THE WELL. DENSITY - NEUTRON DATA IN THIS INTERVAL WILL BE INACCURATE.

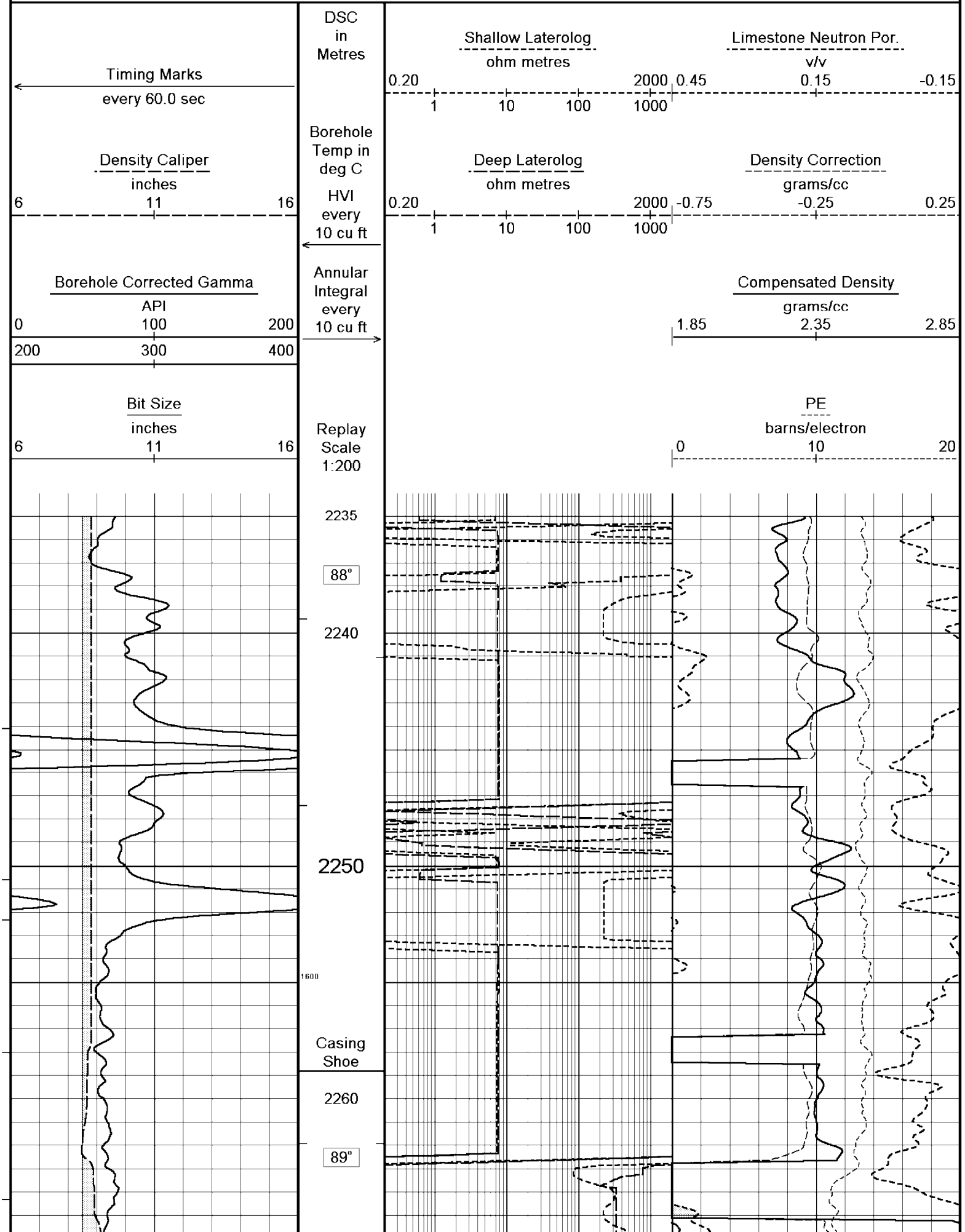
MAX. TEMPERATURE: 104.1 DEG C AT 3331.10m MD
MAX. INCLINATION: 47.28 DEG AT 2315.54m MD
MAX. DOGLEG SERVERITY: 4.68 DEG/30m AT 2775.31m MD
DEPLOYMENT ANGLE: 24 DEG

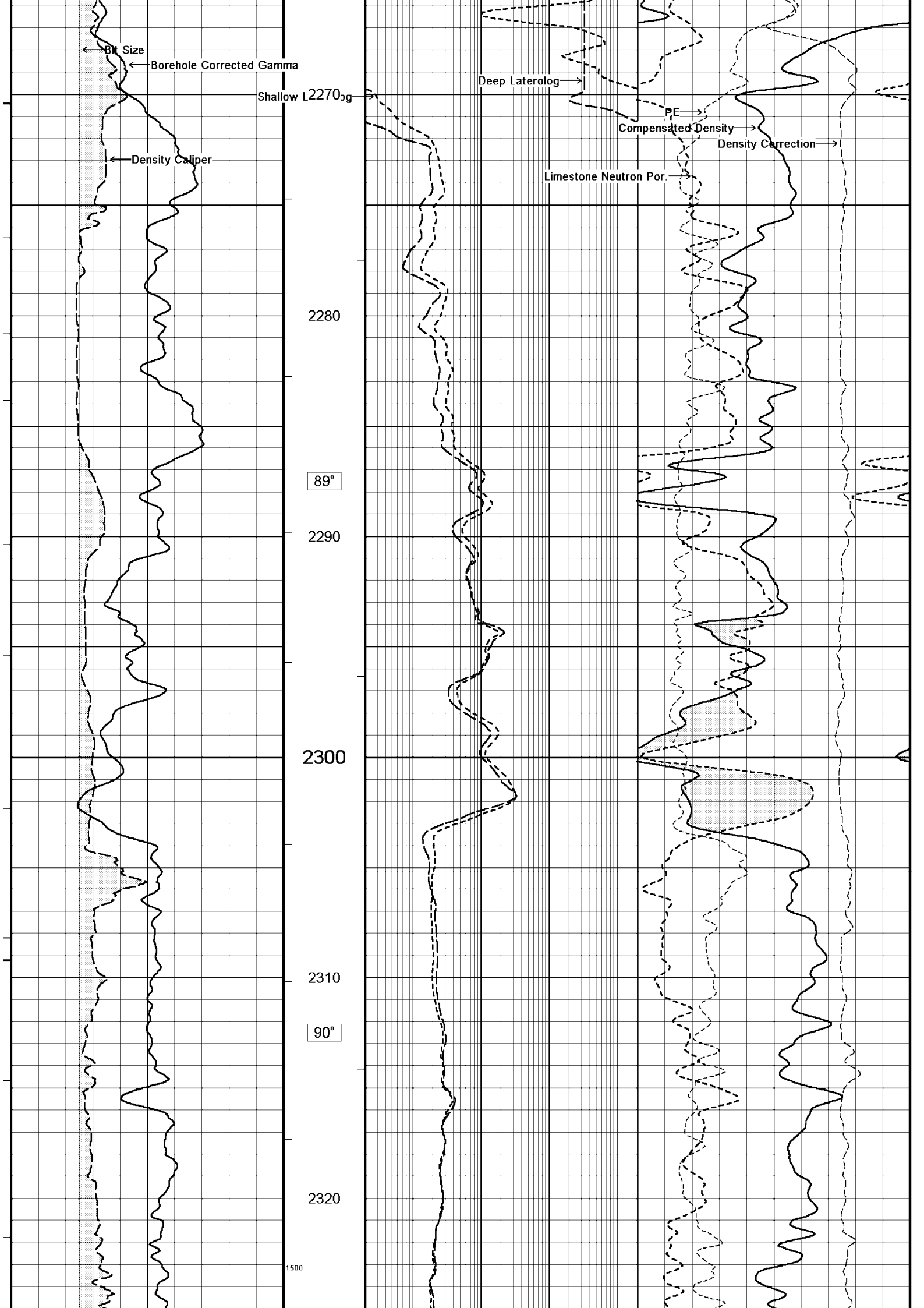
HVOL: 1620 FT^3
AVOL: 865 FT^3

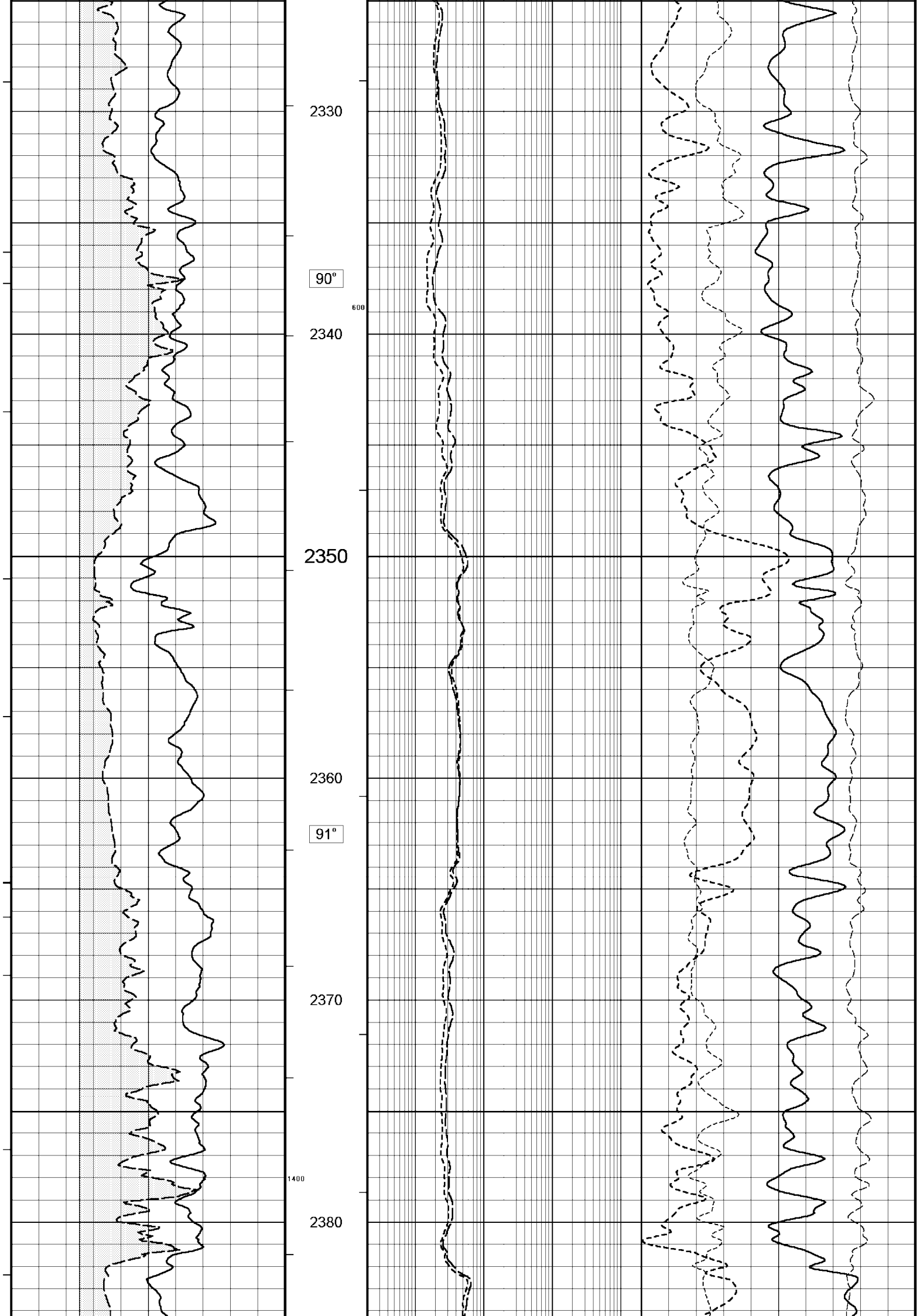
# MAIN LOG 1:200

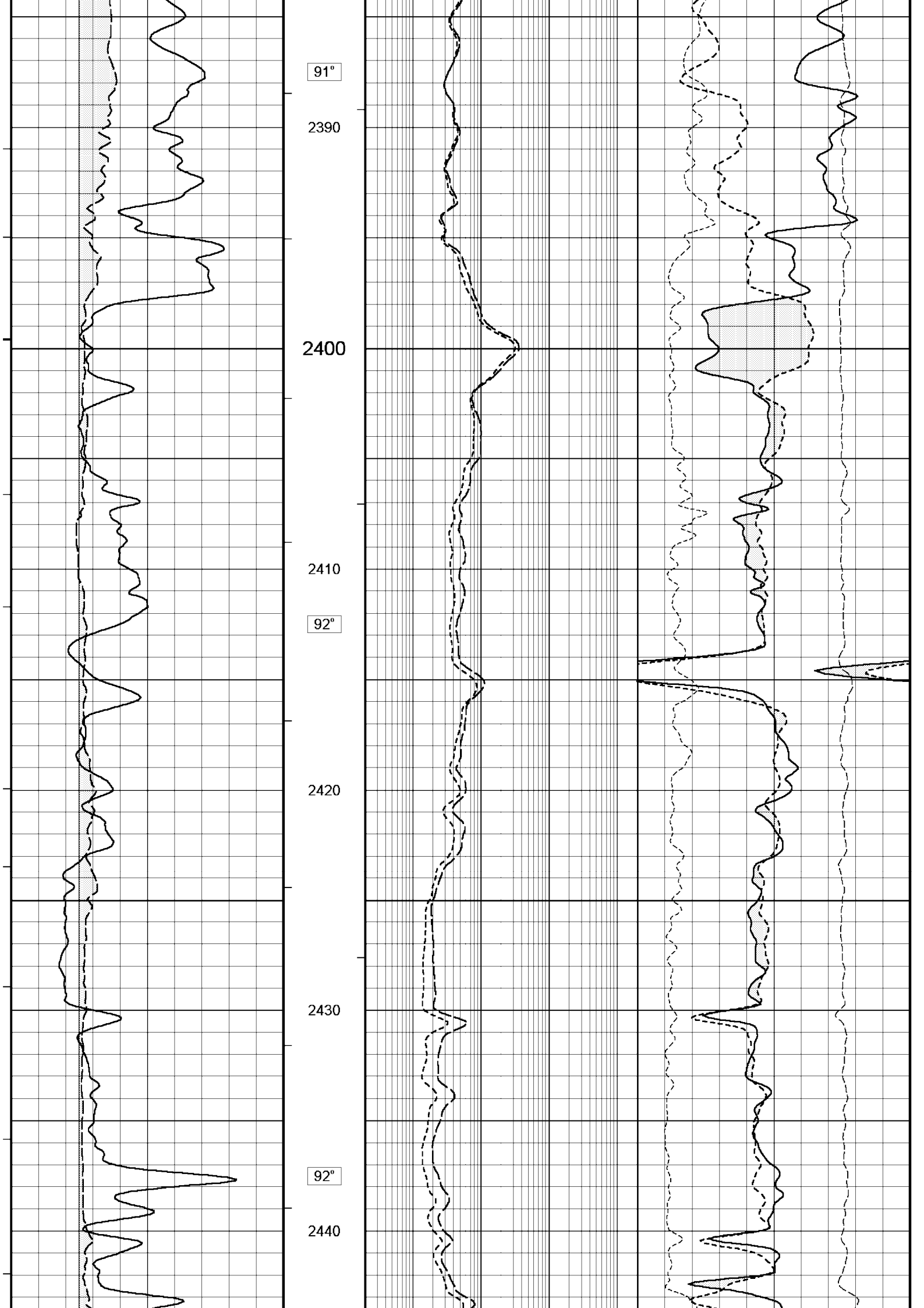
Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\logs\BMA_A10A\BMA_A10A_MAIN_LOG_Remake_2JUNE05.dta
System Configuration Dates: Logged : Processed 23-AUG-2004: Plotted 17-JUN-2004:

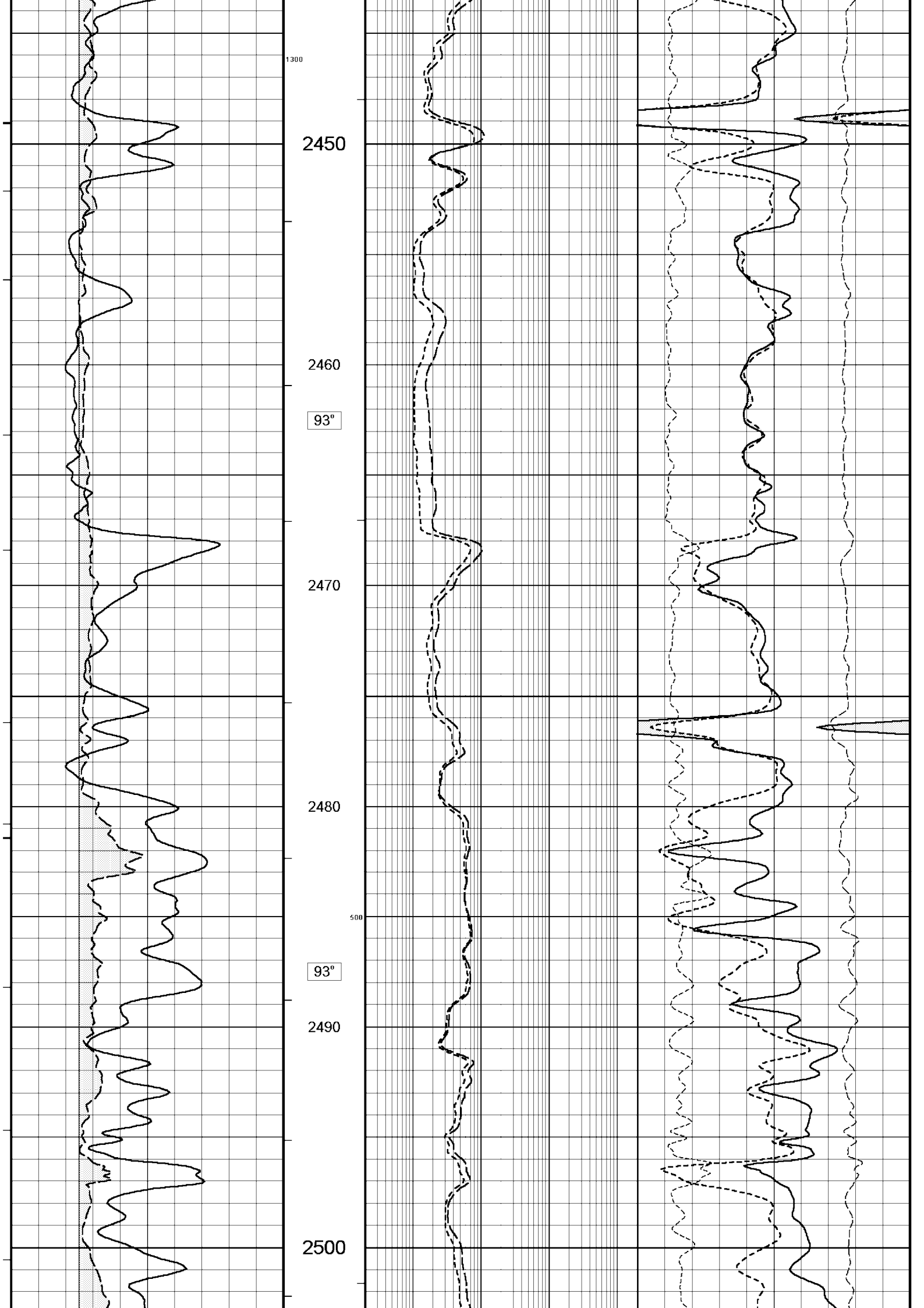
Plotted on 15-AUG-2005 11:56
Recorded on 16-MAY-2005 12:18

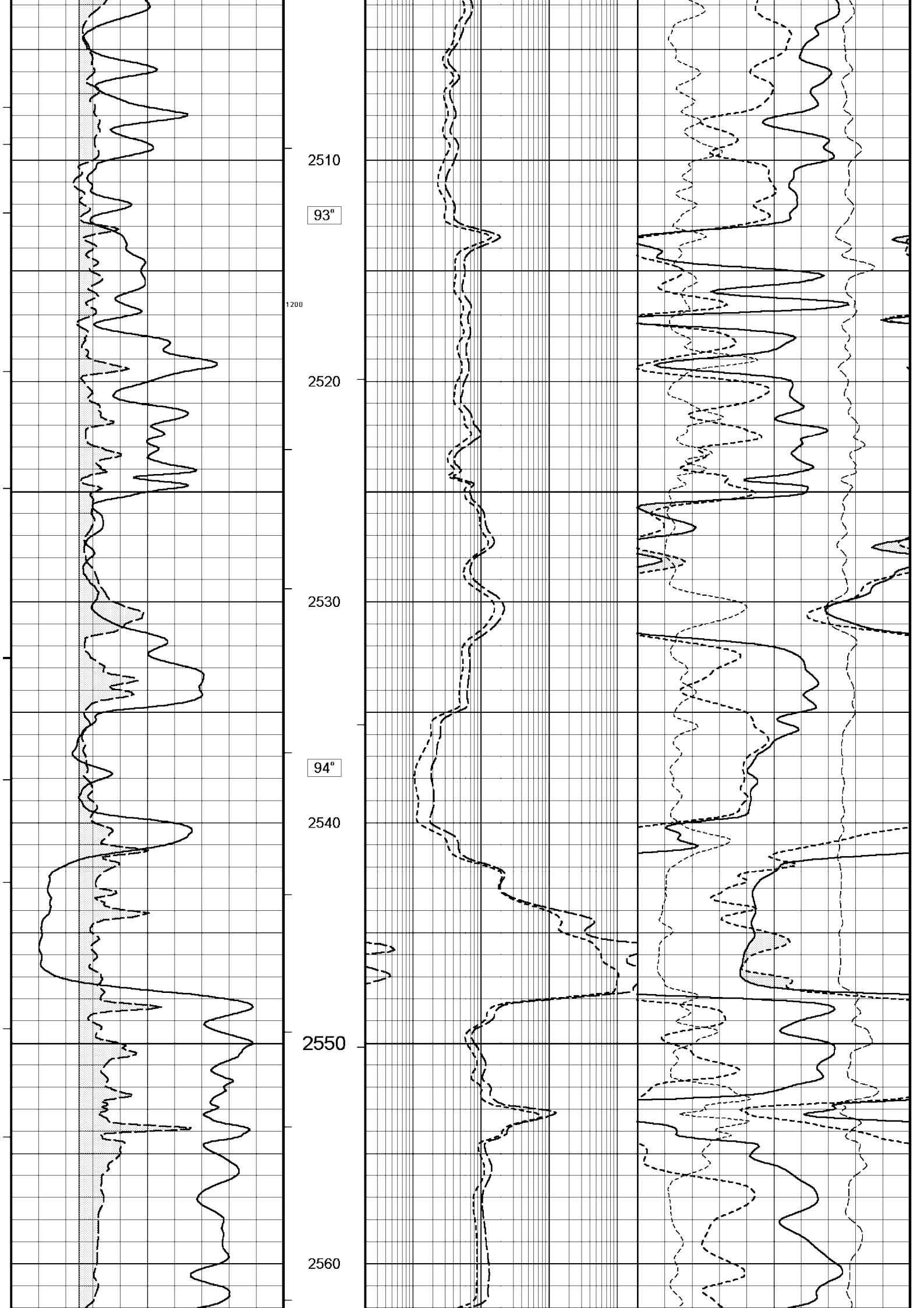


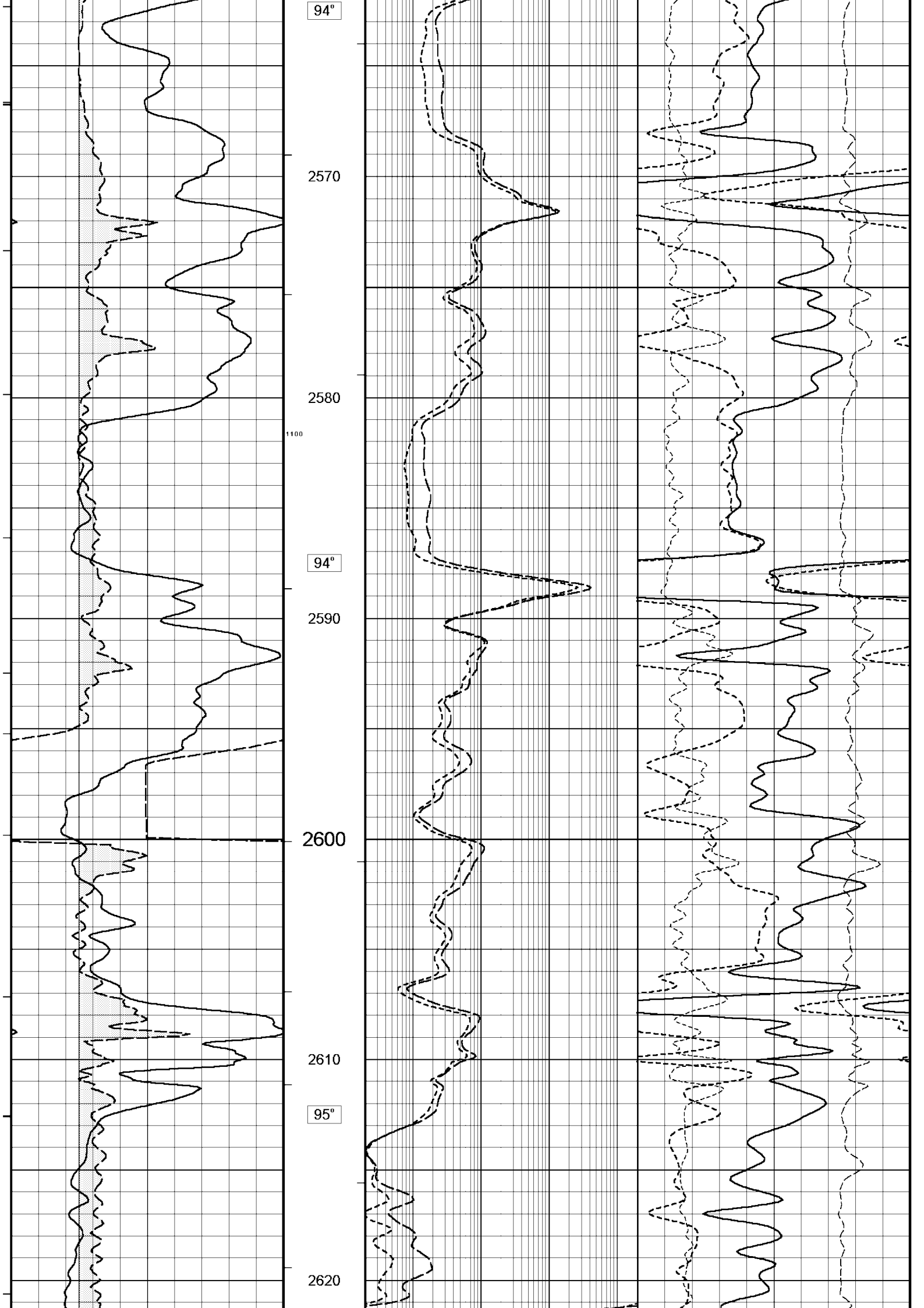

Bit Size
Borehole Corrected Gamma
Density Caliper
Shallow Log
Deep Laterolog
PE
Compensated Density
Density Correction
Limestone Neutron Por.
2270
2280
89°
2290
2300
2310
90°
2320
1500

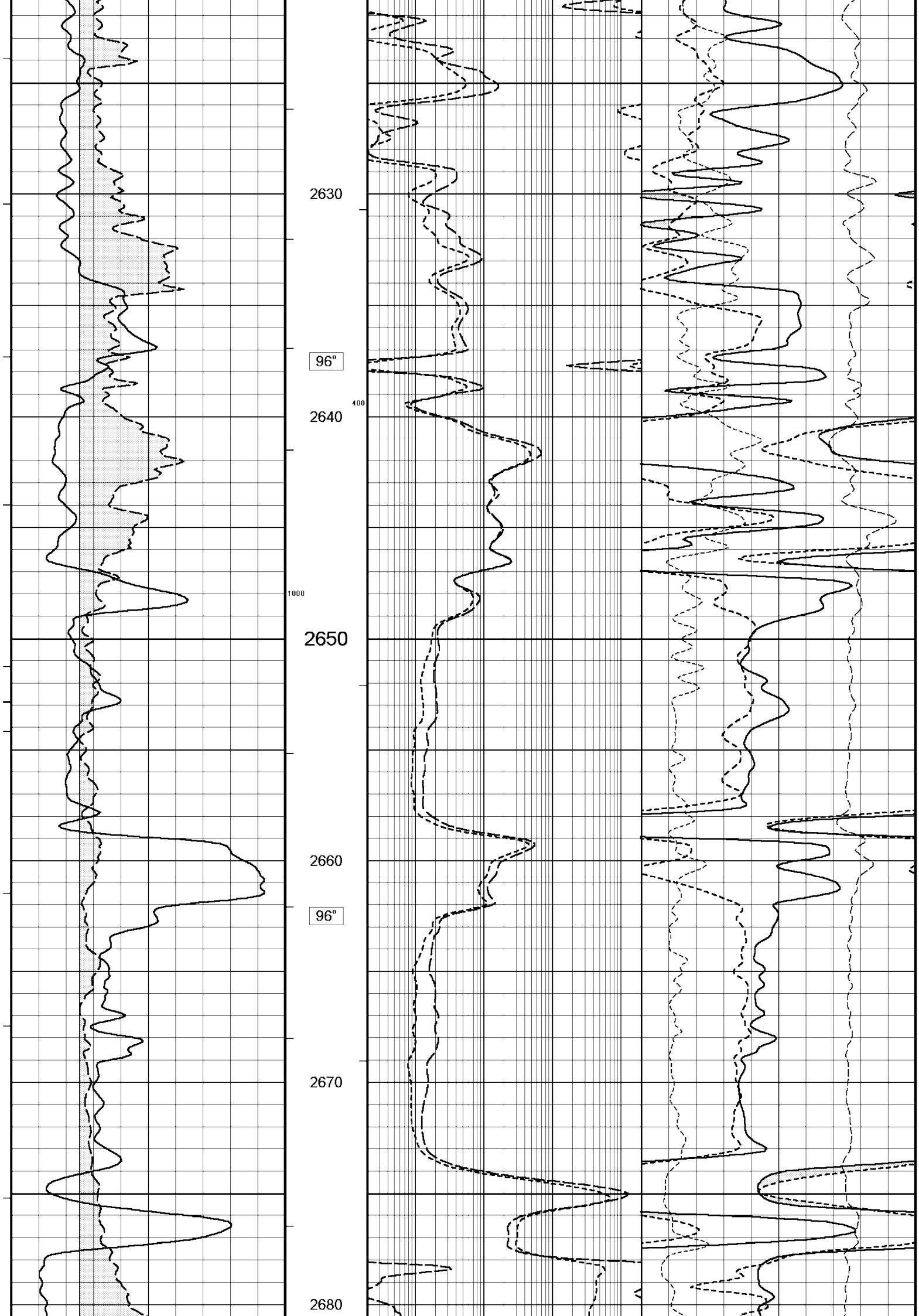

2330
90°
600
2340
2350
2360
91°
2370
1400
2380

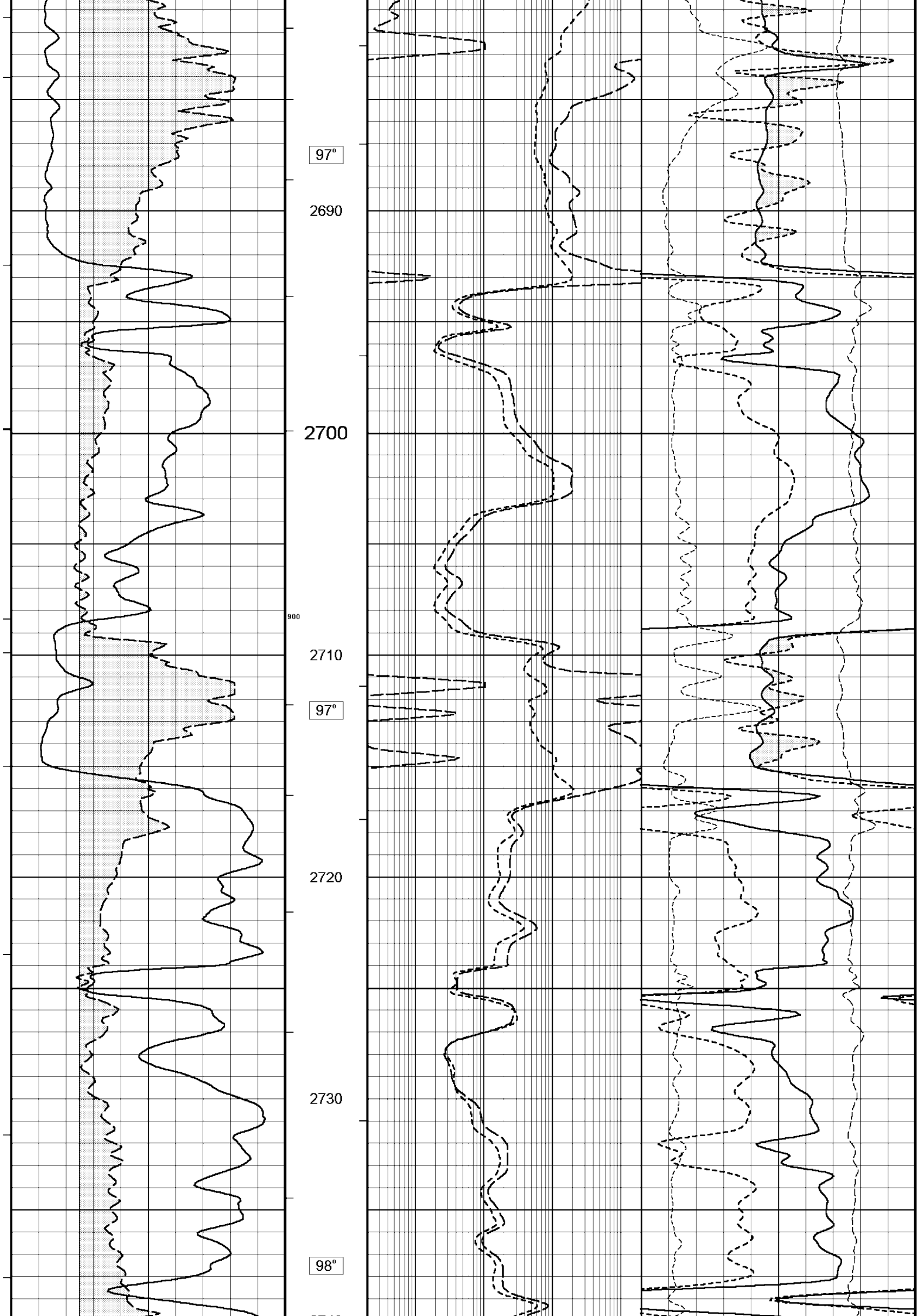

91°
2390
2400
2410
92°
2420
2430
92°
2440

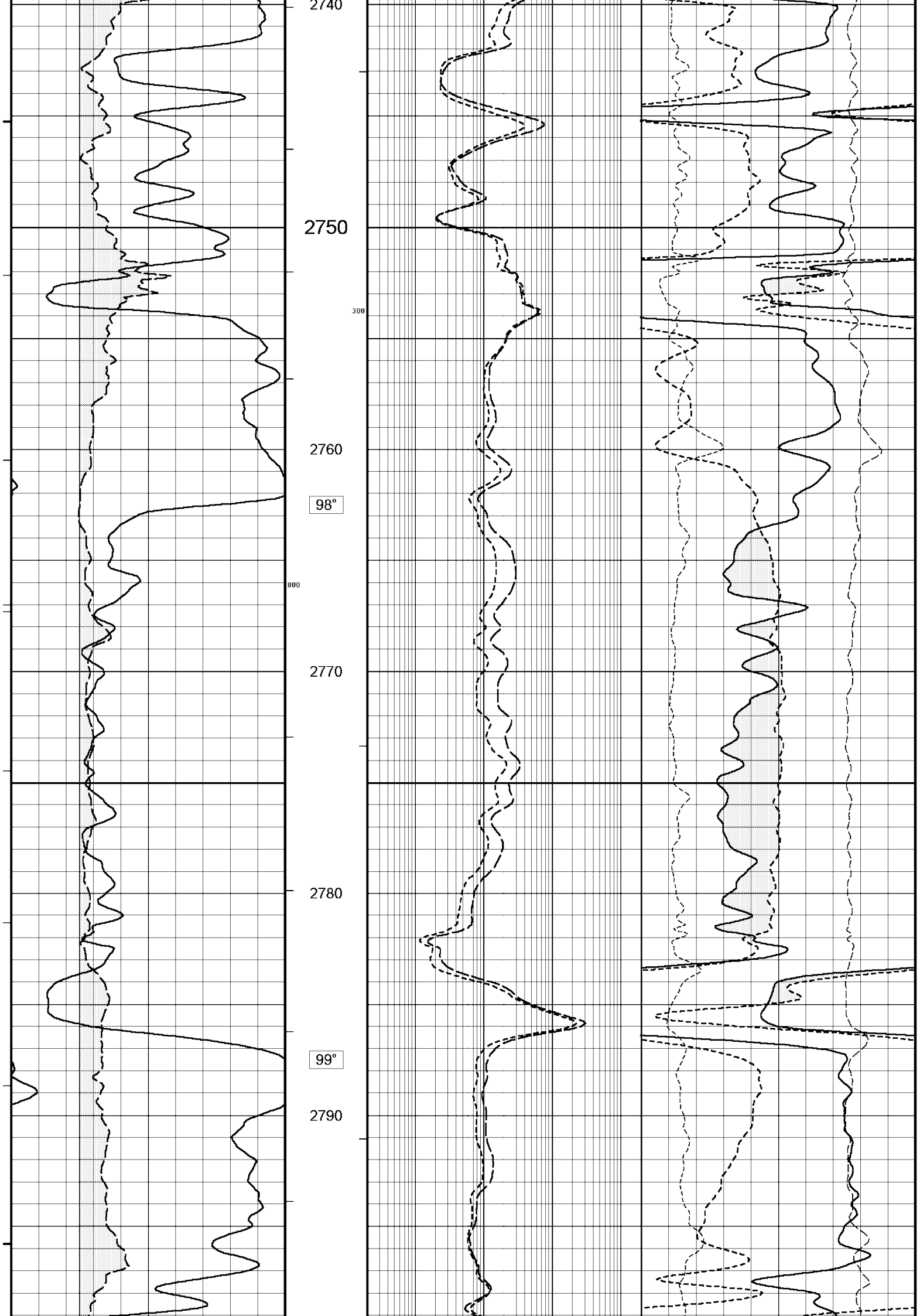

1300
2450
2460
93°
2470
2480
500
93°
2490
2500

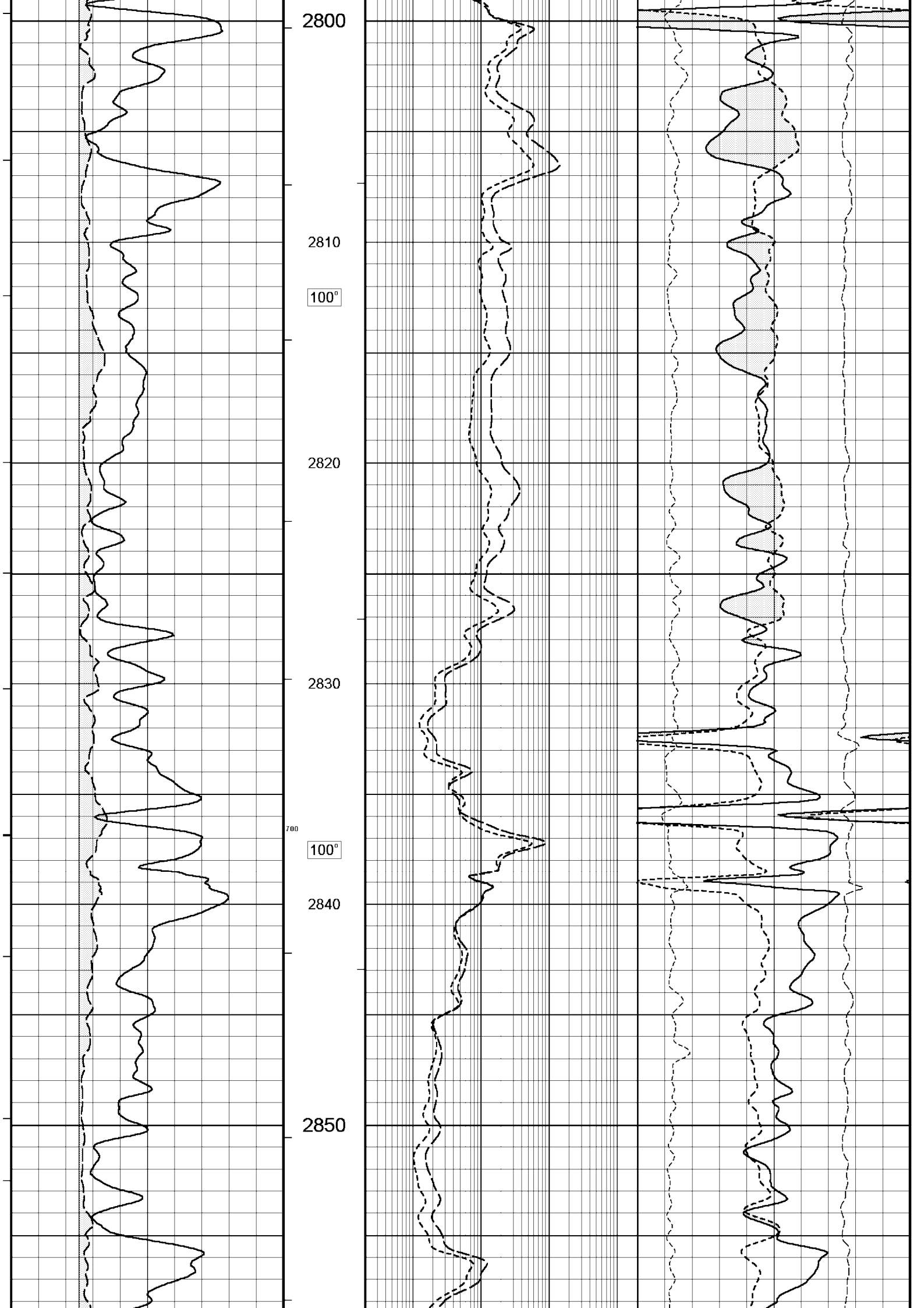

2510
93°
1200
2520
2530
94°
2540
2550
2560

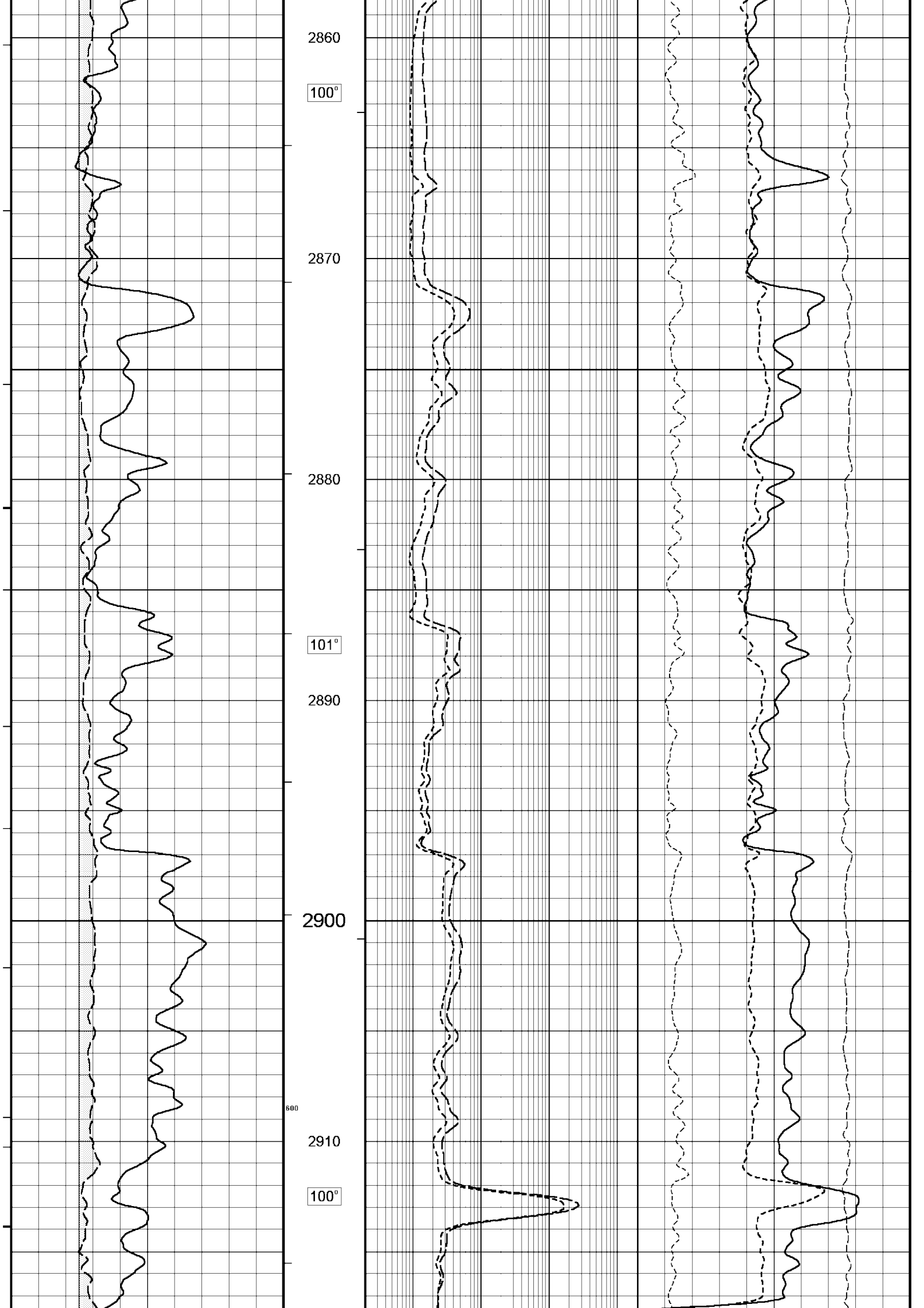

94°
2570
2580
1100
94°
2590
2600
2610
95°
2620

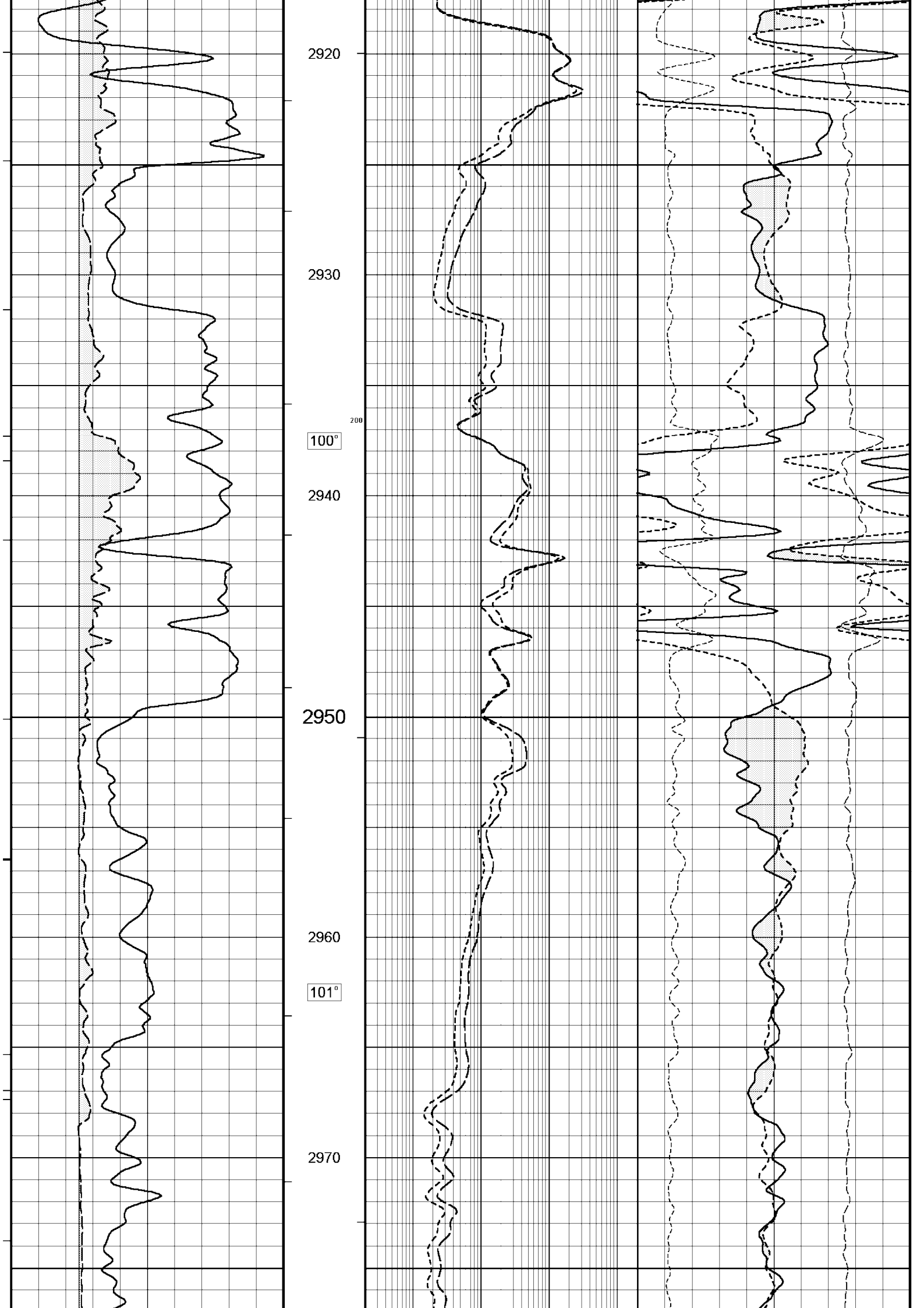

2630
96°
400
2640
1000
2650
2660
96°
2670
2680

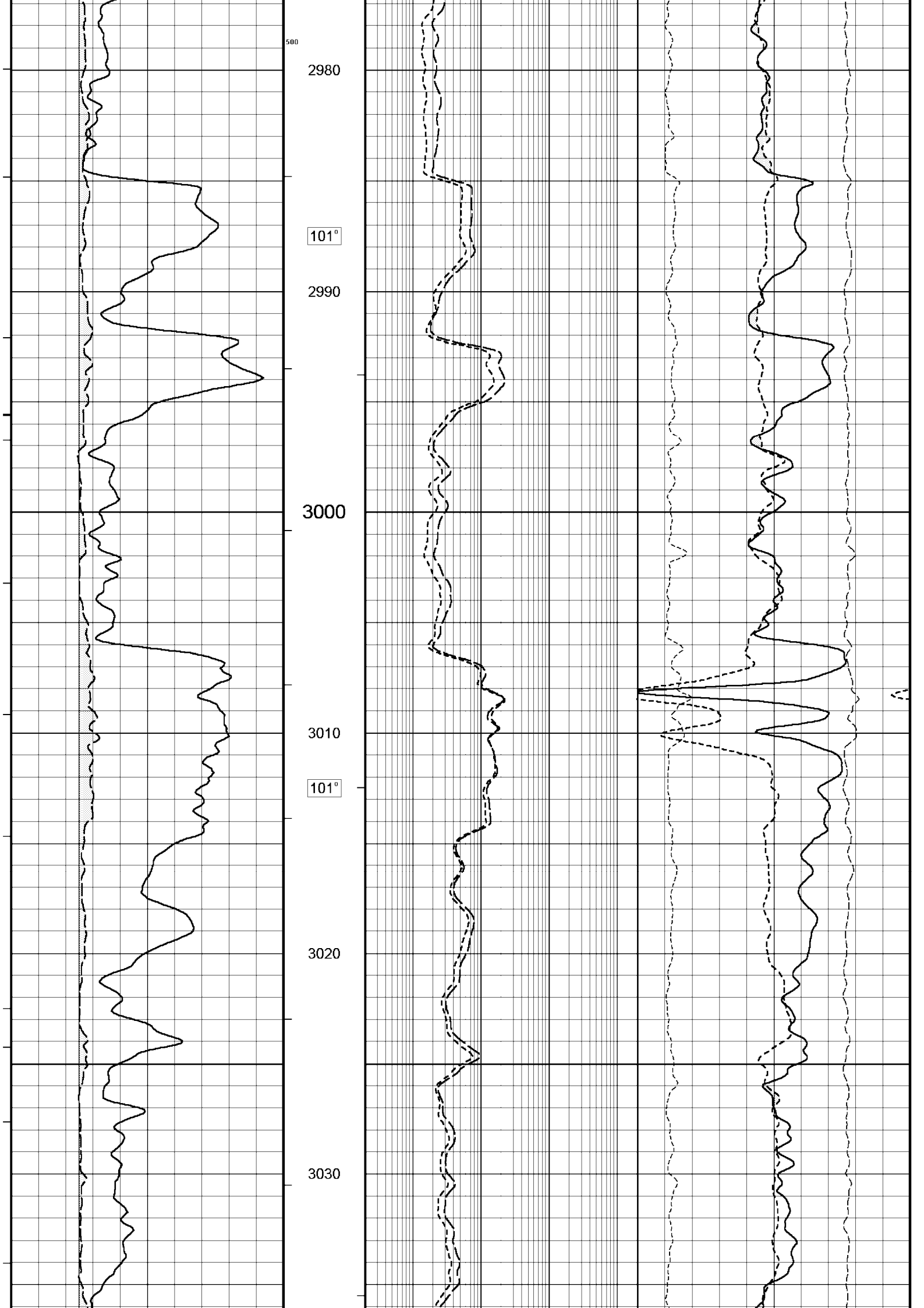

97°
2690
2700
900
2710
97°
2720
2730
98°

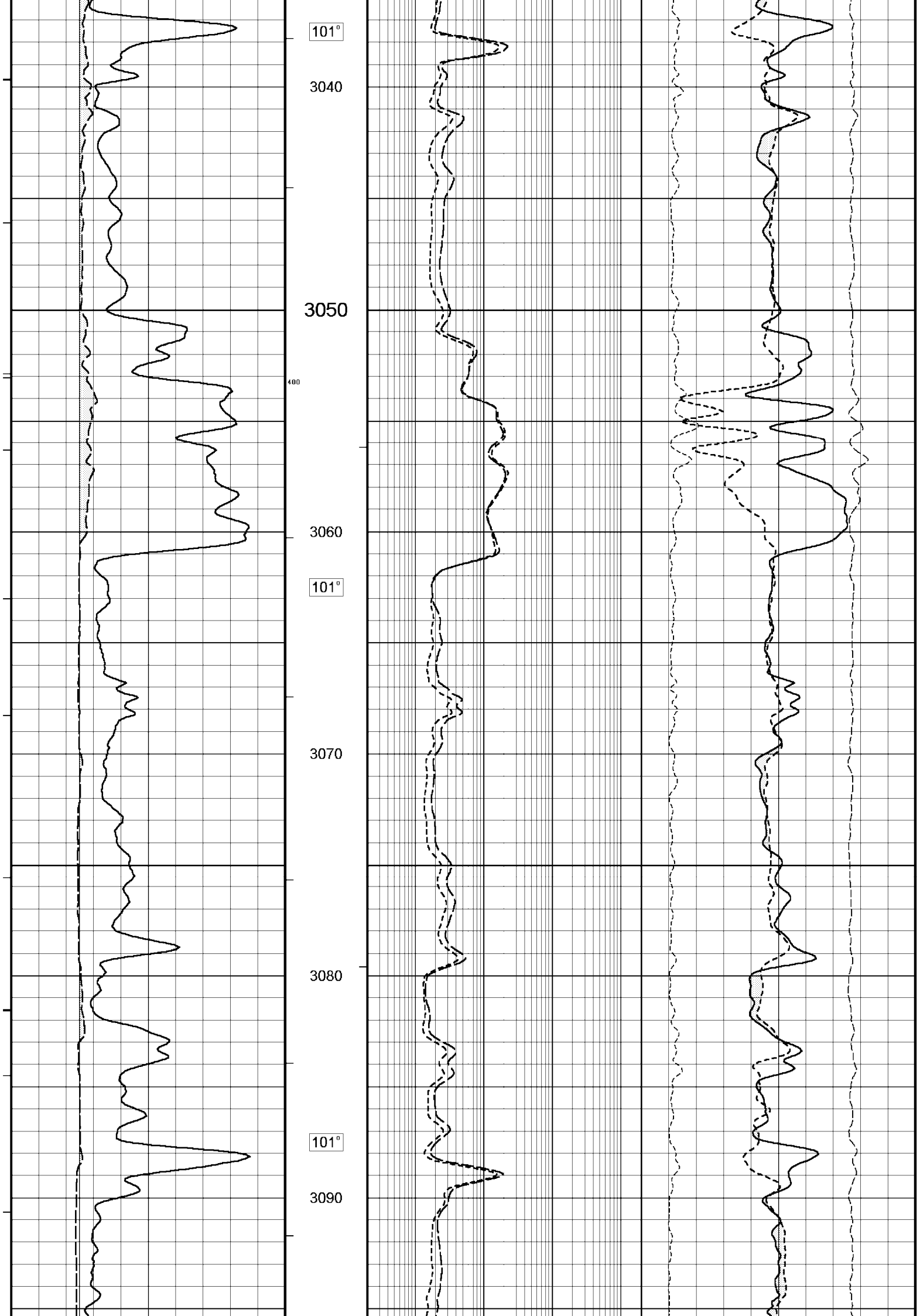

2740
2750
300
2760
98°
800
2770
2780
99°
2790

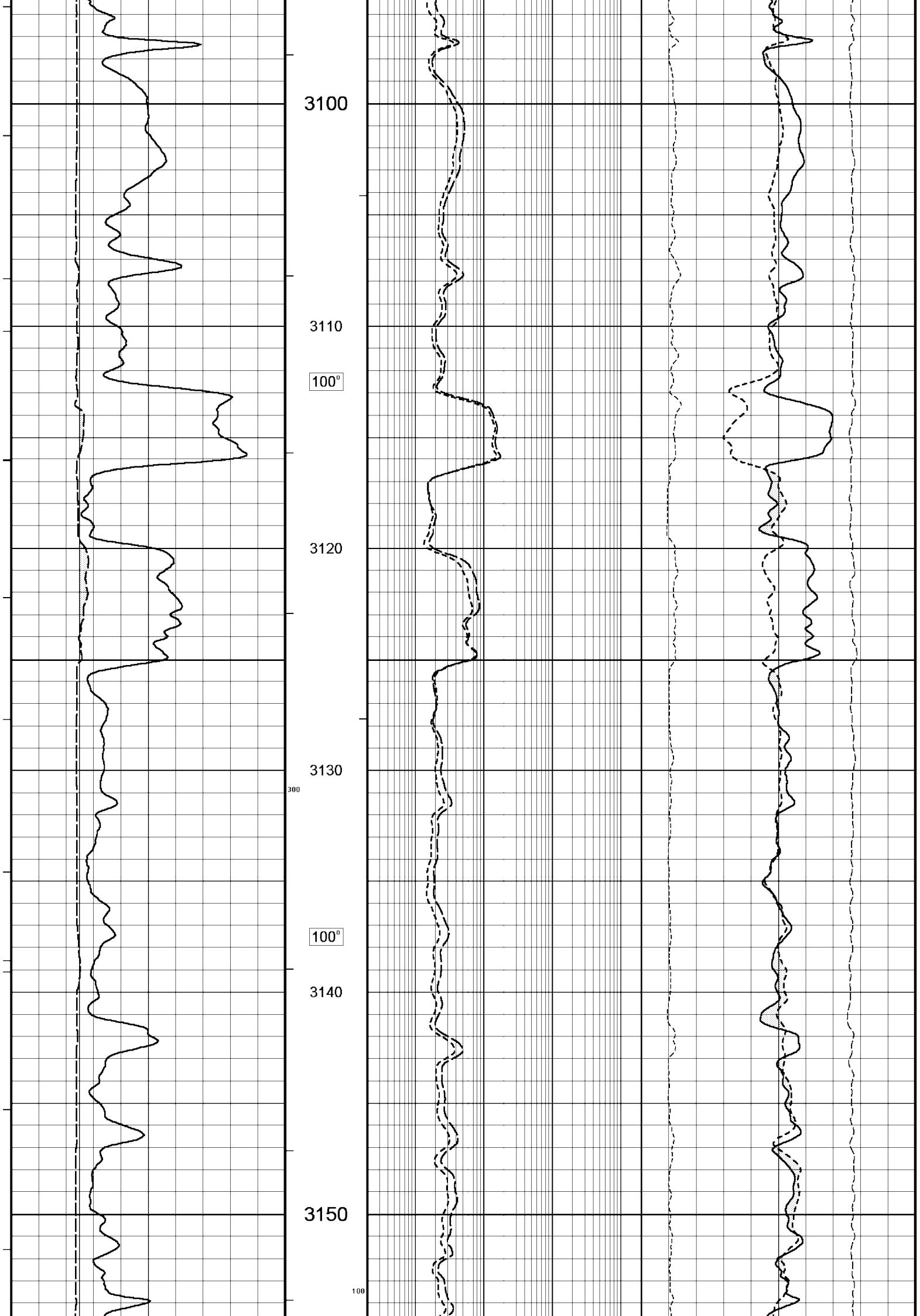

2800
2810
100°
2820
2830
700
100°
2840
2850

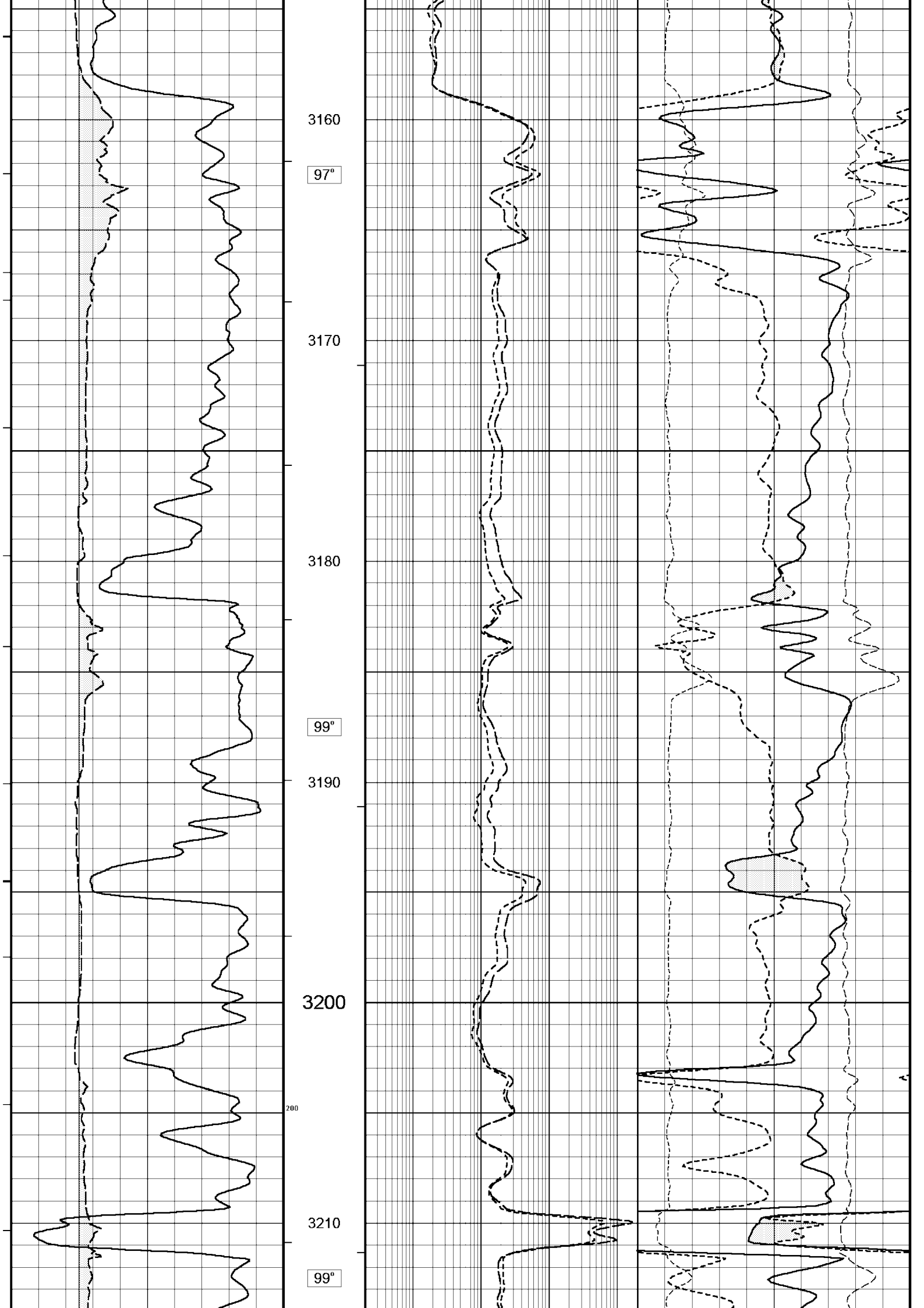

2860
100°
2870
2880
101°
2890
2900
600
2910
100°

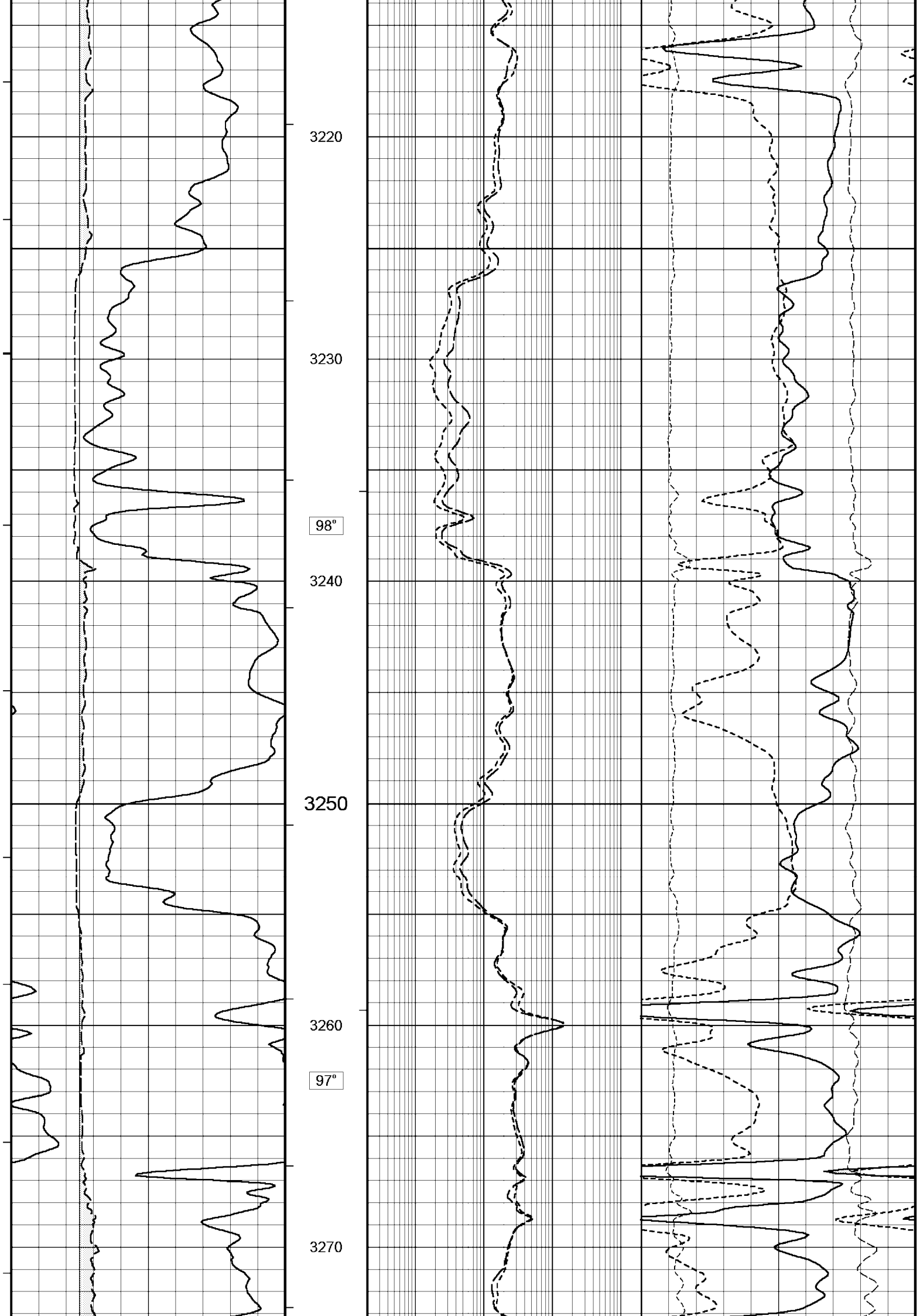

2920
2930
200
100°
2940
2950
2960
101°
2970

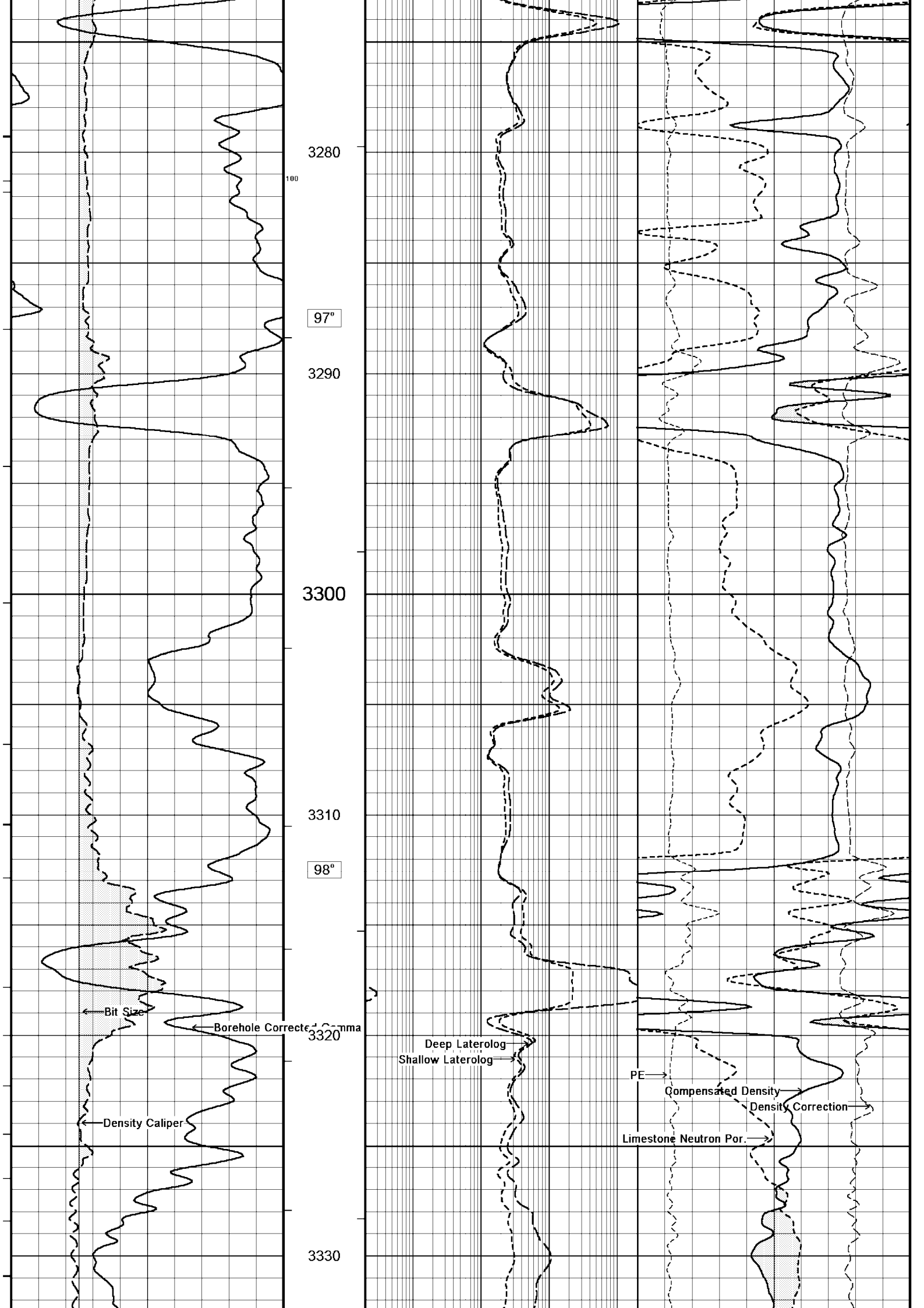

500
2980
101°
2990
3000
3010
101°
3020
3030

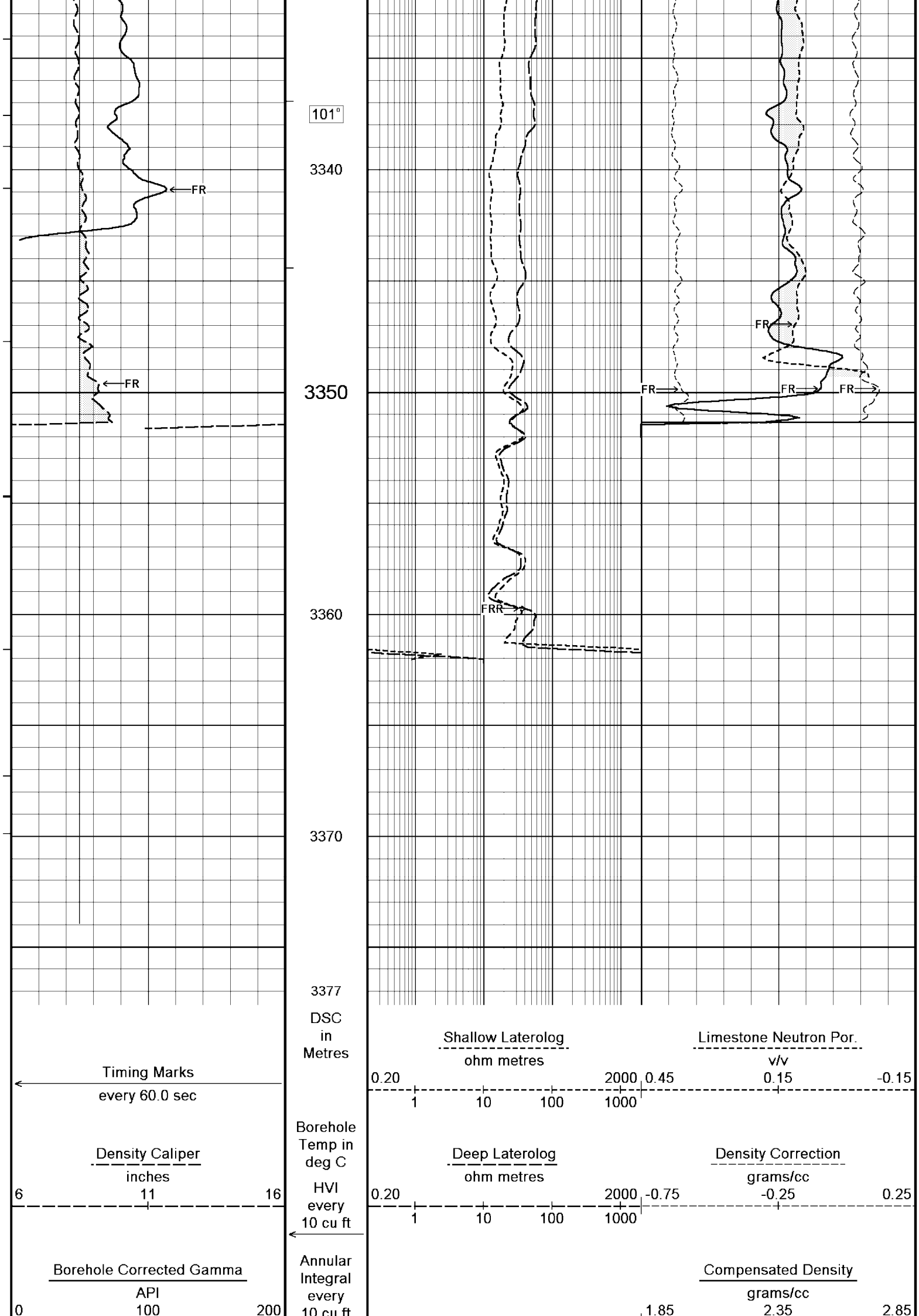

101°
3040
3050
400
3060
101°
3070
3080
101°
3090


3100
3110
100°
3120
3130
300
100°
3140
3150
100


3160
97°
3170
3180
99°
3190
3200
200
3210
99°


3220
3230
98°
3240
3250
3260
97°
3270


3280
100
97°
3290
3300
3310
98°
3320
3330
Bit Size
Borehole Corrected Gamma
Density Caliper
Deep Laterolog
Shallow Laterolog
PE
Compensated Density
Density Correction
Limestone Neutron Por.


101°
3340
3350
3360
3370
3377
FR
FR
FR
FR
FR
FR
FRR
DSC
in
Metres
Timing Marks
every 60.0 sec
Shallow Laterolog
ohm metres
0.20
2000
1
10
100
1000
Limestone Neutron Por.
v/v
0.45
0.15
-0.15
Density Caliper
inches
6
11
16
Borehole
Temp in
deg C
HVI
every
10 cu ft
Deep Laterolog
ohm metres
0.20
2000
1
10
100
1000
Density Correction
grams/cc
-0.75
-0.25
0.25
Borehole Corrected Gamma
API
0
100
200
Annular
Integral
every
10 cu ft
Compensated Density
grams/cc
1.85
2.35
2.85


Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 15-AUG-2005 11:56
Filename: C:\logs\BMA_A10A\BMA_A10A_MAIN_LOG_Remake_2JUNE05.dta — Recorded on 16-MAY-2005 12:18
System Configuration Dates: Logged : Processed 23-AUG-2004: Plotted 17-JUN-2004:

MAIN LOG 1:200

## BEFORE SURVEY CALIBRATION

C:\logs\BMA_A10A\BMA_A10A_MAIN_LOG_Remake_2JUNE05.dta

### General Constants All 000

| | | |
|---|---|---|
| **General Parameters** | | |
| Mud Resistivity | 0.134 | ohm-metres |
| Mud Resistivity Temperature | 25.000 | degrees C |
| Water Level | 0.000 | metres |
| Density/Neutron Processing | Wet Hole | |
| **Hole/Annular Volume and Differential Caliper Parameters** | | |
| HVOL Caliper 1 | Density Caliper | |
| HVOL Caliper 2 | Density Caliper | |
| Annular Volume Diameter | 7.000 | inches |
| Caliper for Differential Caliper | Density Caliper | |
| **Rwa Parameters** | | |
| Porosity used | Base Density Porosity | |
| Resistivity used | Deep Induction | |
| RWA Constant A | 0.610 | |
| RWA Constant M | 2.150 | |

### High Resolution Temperature Calibration MCG 098

Field Calibration on 8-MAY-2005,02:39

| | Measured | Calibrated(Deg C) |
|---|---|---|
| Lower | 0.00 | 0.00 |
| Upper | 100.00 | 100.00 |

### High Resolution Temperature Constants MCG 098

| | |
|---|---|
| Pre-filter Length | 11 |

### Gamma Calibration MCG 098

Field Calibration on 8-MAY-2005 02:39

| | Measured | Calibrated (API) |
|---|---|---|
| Background | 9 | 6 |
| Calibrator (Gross) | 1373 | 915 |
| Calibrator (Net) | 1364 | 909 |

### Gamma Constants MCG 098

| | | |
|---|---|---|
| Gamma Calibrator Number | 060 | |
| Mud Density | 1.21 | gm/cc |
| Caliper Source for Processing | Density Caliper | |
| Tool Position | Eccentred | |
| Concentration of KCl | 0.00 | kppm |

### Neutron Calibration MDN 085

Base Calibration on 3-MAY-2005 14:38
Field Check on 8-MAY-2005 02:26

**Base Calibration**

| | Measured | | Calibrated (cps) | |
|---|---|---|---|---|
| | Near | Far | Near | Far |
| | 3175 | 99 | 3714 | 110 |
| Ratio | 32.086 | | 33.764 | |

**Field Calibrator at Base**

| | Calibrated (cps) | |
|---|---|---|
| | 1662 | 2343 |
| Ratio | 0.709 | |

Field Check

| Field Check | Calibrated (cps) | |
|---|---|---|
| | 1642 | 2394 |
| Ratio | 0.686 | |

## Neutron Constants MDN 085

| | | |
|---|---|---|
| Neutron Source Id | NSN-E-739 | |
| Neutron Jig Number | NEC-C-052 | |
| Epithermal Neutron | No | |
| Caliper Source for Processing | Density Caliper | |
| Stand-off | 0.00 | inches |
| Mud Density | 1.21 | gm/cc |
| Limestone Sigma | 7.10 | cu |
| Sandstone Sigma | 4.26 | cu |
| Dolomite Sigma | 4.70 | cu |
| Formation Pressure Source | None | |
| Formation Pressure | N/A | kpsi |
| Temperature Source | MCG External Temperature | |
| Temperature | N/A | degrees C |
| Mud Salinity | 48.80 | kppm |
| Formation Fluid Salinity Source | None | |
| Formation Fluid Salinity | N/A | kppm |
| Barite Mud Correction | Not Applied | |

## Caliper Calibration MPD 083

Base Calibration on 29-APR-2005 11:31
Field Calibration on 8-MAY-2005 02:30

Base Calibration

| Reading No | Measured | Calibrator Size (in) |
|---|---|---|
| 1 | 13428 | 4.01 |
| 2 | 21585 | 5.99 |
| 3 | 30000 | 7.98 |
| 4 | 38511 | 9.94 |
| 5 | 47824 | 12.01 |
| 6 | N/A | N/A |

Field Calibration

| Measured Caliper (in) | Actual Caliper (in) |
|---|---|
| 8.03 | 7.98 |

## Photo Density Calibration MPD 083

Base Calibration on 29-APR-2005 12:03
Field Check on 8-MAY-2005 02:34

Density Calibration

| Base Calibration | Measured | | Calibrated (sdu) | |
|---|---|---|---|---|
| | Near | Far | Near | Far |
| Reference 1 | 54668 | 18905 | 53111 | 19310 |
| Reference 2 | 25684 | 2508 | 24951 | 2530 |

Field Check at Base

| | |
|---|---|
| 961.4 | 1114.9 |

Field Check

| | |
|---|---|
| 959.5 | 1116.1 |

PE Calibration

| Base Calibration | Measured | | | Calibrated |
|---|---|---|---|---|
| | WS | WH | Ratio | Ratio |
| Background | 183 | 826 | | |
| Reference 1 | 17043 | 54473 | 0.314 | 0.320 |
| Reference 2 | 6783 | 25540 | 0.267 | 0.273 |

Field Check at Base

| | |
|---|---|
| 182.7 | 825.8 |

Field Check

| | |
|---|---|
| 182.5 | 824.4 |

## Density Constants MPD 083

| | | |
|---|---|---|
| Density Source Id | 242 | |
| Nylon Calibrator Number | 536 | |
| Aluminium/Fe Calibrator Number | 536 | |
| Density Shoe Profile | 4 inch | |
| Caliper Source for Processing | Density Caliper | |
| PE Correction to Density | Not Applied | |
| Mud Density | 1.21 | gm/cc |
| Mud Density Z/A Correction | 1.11 | |
| Mud Filtrate Density | 1.00 | gm/cc |

| | | |
|---|---|---|
| Mud Filtrate Density | 1.00 | gm/cc |
| Dry Hole Mud Filtrate Density | 1.00 | gm/cc |
| DNCT | 0.00 | gm/cc |
| CRCT | 0.00 | gm/cc |

| Matrix Density (gm/cc) | Depth (m) |
|---|---|
| 2.71 | |
| 0.00 | 0.00 |
| 0.00 | 0.00 |
| 0.00 | 0.00 |
| 0.00 | 0.00 |
| 0.00 | 0.00 |
| 0.00 | 0.00 |
| 0.00 | 0.00 |
| 0.00 | 0.00 |

## Laterolog Calibration MLE 016

Base Calibration on 29-APR-2005 15:49
Field Check on

Base Calibration

| Channel | Measured Resistor 1 | Measured Resistor 2 | Calibrated (ohm-m) Resistor 1 | Calibrated (ohm-m) Resistor 2 |
|---|---|---|---|---|
| Shallow | 9.7 | 965.8 | 13.2 | 1321.0 |
| Deep | 9.9 | 965.6 | 7.5 | 755.0 |
| Groningen | 9.7 | 966.4 | 8.5 | 854.0 |

| Channel | Base Check (ohm-m) | Field Check (ohm-m) |
|---|---|---|
| Shallow | 49.2 | 0.0 |
| Deep | 27.9 | 0.0 |
| Groningen | 254.2 | 0.0 |

## Laterolog Constants MLE 016

| | | |
|---|---|---|
| Squasher Start | 40000 | ohm-m |
| Shallow Laterolog K Factor | 1.3210 | |
| Deep Laterolog K Factor | 0.7550 | |
| Groningen Laterolog K Factor | 0.8540 | |
| Interference Rejection | 50 Hz | |
| SP Connection | SP Bridle Electrode | |
| Groningen Connection | Groningen Electrode | |

## DOWNHOLE EQUIPMENT

C:\logs\BMA_A10A\BMA_A10A_MAIN_LOG_Remake_2JUNE05.dta

Compact Swivel Head Adaptor F
SHA 71 Length: 0.83 m Weight: 26.5 lb

Compact Knuckle Joint
SKJ 100 Length: 0.66 m Weight: 24.3 lb

Compact Battery Sub.
MBS 99 Length: 4.41 m Weight: 90.4 lb

Compact Inline Standoff B
MIS 73 Length: 0.65 m Weight: 15.4 lb

Compact Stiff Bridle Electrode Sub.
MBE 18 Length: 3.76 m Weight: 94.8 lb

Compact Inline Standoff B

Compact Inline Standoff B
MIS 139 Length: 0.65 m Weight: 15.4 lb

Compact Stiff Bridle Electrode Sub.
MBE 19 Length: 3.76 m Weight: 94.8 lb

Compact Inline Standoff B
MIS 136 Length: 0.65 m Weight: 15.4 lb

MBE 21 - THIRD BRIDLE
MLK 111 Length: 3.76 m Weight: 88.2 lb

Compact Gamma
MCG 98 Length: 2.65 m Weight: 63.9 lb

32.22 m GGCE - Borehole Corrected Gamma
31.33 m CGXT - MCG External Temperature

Compact Memory Sub A.C
MMS 38 Length: 0.95 m Weight: 30.9 lb

Compact Knuckle Joint
SKJ 46 Length: 0.66 m Weight: 24.3 lb

Compact Swivel Head Adaptor F
SHA 64 Length: 0.83 m Weight: 26.5 lb

Compact Inline Bowspring A
MIS 94 Length: 1.74 m Weight: 33.1 lb

Compact Neutron
MDN 85 Length: 1.53 m Weight: 50.7 lb

26.17 m NPRL - Limestone Neutron Por.

Compact Density/Caliper
MPD 83 Length: 2.92 m Weight: 90.4 lb

23.48 m AVOL - Annular Volume
23.48 m HVOL - Hole Volume
23.48 m CLDC - Density Caliper
23.27 m DEN - Compensated Density

Compact Inline Bowspring A
MIS 24 Length: 1.74 m Weight: 33.1 lb

23.27 m DCOR - Density Correction
23.25 m PDPE - PE

Compact Swivel Head Adaptor
SHA 28 Length: 0.83 m Weight: 26.5 lb

Compact Knuckle Joint
SKJ 110 Length: 0.66 m Weight: 24.3 lb

Compact Inline Standoff B
MIS 140 Length: 0.65 m Weight: 15.4 lb

Compact Upper Guard Sub.
MUG 20 Length: 2.74 m Weight: 68.3 lb

Compact Inline Standoff B
MIS 129 Length: 0.65 m Weight: 15.4 lb

Compact Laterolog Electrode Sub.
MLE 16 Length: 3.76 m Weight: 92.6 lb

13.35 m DSLL - Shallow Laterolog
13.35 m DDLL - Deep Laterolog

Compact Inline Standoff B
MIS 127 Length: 0.65 m Weight: 15.4 lb

Compact Lower Guard Sub.
MLG 7 Length: 2.44 m Weight: 55.1 lb

Compact Inline Standoff B
MIS 133 Length: 0.65 m Weight: 15.4 lb

Compact Sonic
MSS 66 Length: 3.82 m Weight: 72.8 lb

Compact Inline Standoff B
MIS 128 Length: 0.65 m Weight: 15.4 lb

Compact Induction
MAI 39 Length: 3.29 m Weight: 48.5 lb

Tool Zero (0.44m from bottom)

Pressure Bung + Hole Finder
HFS 3 Length: 0.40 m Weight: 6.6 lb

All measurements relative to tool zero.

| | | |
|---|---|---|
| Total | Length: 53.36 m | Weight: 1289.7 lb |

| | |
|---|---|
| COMPANY | ESSO AUSTRALIA PTY LTD |
| WELL | BREAM A10A |
| FIELD | BREAM |
| PROVINCE/COUNTY | BASS STRAIT |
| COUNTRY/STATE | AUSTRALIA |

| | | | | | |
|---|---|---|---|---|---|
| Elevation Kelly Bushing | | metres | First Reading | 3361.30 | metres |
| Elevation Drill Floor | 32.82 | metres | Depth Driller | 3379.50 | metres |
| Elevation Ground Level | -59.40 | metres | Depth Logger | 3375.10 | metres |

PRECISION ENERGY SERVICES

Compact

DUAL LATEROLOG - GR

DENSITY - NEUTRON

1:200 MD