# DUAL NEUTRON COMPENSATED DENSITY
## GAMMA RAY LOG

**Reeves**

| | |
|---|---|
| COMPANY | LAKE OIL |
| WELL | ECHIDNA HIGH NO.1 |
| FIELD | ANDICHI |
| PROVINCE/COUNTY | STRADBROKE |
| COUNTRY/STATE | AUSTRALIA / VICTORIA |
| LOCATION | 38DEG 17' 5.1" S / 147DEG 24' 2.7" E |

**FIELD PRINT**

| LSD | SEC | TWP | RGE | DF/SMS Other services |
|---|---|---|---|---|

| | | | |
|---|---|---|---|
| API Number | PERM | | |
| Permit Number | | | |

STA

Permanent Datum GROUND LEVEL, Elevation 88 meters above Permanent Datum

Log Measured From K.B. 3.0METRES above Permanent Datum

| | | | |
|---|---|---|---|
| GL | 88.00 | meters | |
| DF | 7.00 | meters | |
| KB | 10.00 | meters | |
| Elevations: | | | |

Drilling Measured From K.B.

| Date | 11-MAR-2005 | | |
|---|---|---|---|
| Run Number | ONE | | |
| Depth Logged | 1909.00 | meters | |
| Depth Driller | 1909.00 | meters | |
| First Reading | 1909.00 | meters | |
| Last Reading | 0.00 | meters | |
| Casing Driller | 213.00 | meters | |
| Casing Logger | 212.20 | meters | |
| Bit Size | 8.20 | inches | |
| Type Fluid in Hole | KCL POLYMER | | |
| Density / Viscosity | 1.05 g/cm3 | 47.00 CP | |
| Fluid Loss | 8.00 | ml/30min | |

| | | | |
|---|---|---|---|
| Source of Sample | FLOWLINE | | |
| Rm @ Measured Temp | 0.25 @ 138.0 | m-mho | |
| Rmf @ Measured Temp | 0.25 @ 89.0 | m-mho | |
| Rmc @ Measured Temp | 0.12 @ 121.0 | m-mho | |
| Source Rmf / Rmc | PRESS | PRESS | |
| Rm @ BHT | 0.520 @ 134.0 | m-mho | |
| Time Since Circulation | | | |
| Max Recorded Temp | 134.00 | deg C | |
| Equipment Name | OILFIELD | | |
| Equipment / Base | 1022 | | |
| Recorded By | B.MOSS | | |
| Witnessed By | MR ORRIEN | | |

| CREW STATUS | |
|---|---|
| 1) SOFTWARE ISSUE: JUN 17, 2004. | |
| 2) CUSTOMERSCALES AND INTERVALS LOGGED. | |
| 3) SPLIT RUN, DLS,MRS,ATS: RUN 3 PDS, CNS. | |
| 4) HARDWARE: SBT: ONE 1.25" STANDOFF | |
| ATS: TWO 1.25" STANDOFF | |
| DLS: TWO 1.25" STANDOFF | |
| MRS: ONE 1.25" STANDOFF | |
| CNS: DUAL NEUTRON BOWSPRING | |
| 5) PDS CORRECTED FOR BOREHOLE SIZE AND MUD DENSITY. | |
| 6) DENSITY MATRIX: 2.65 G/CC. | |
| 7) CNS CORRECTED FOR BOREHOLE SIZE, MUD DENSITY AND SALINITY. | |
| 8) SERVICE ORDER: 2028 | |
| 9) HUNT ENERGY RIG 5 | PRINTS: 3 FIELD 3 FINAL |
| 10) TOTAL HOLE VOLUME FROM TD TO SURFACE CASING = CU.M. | |
| 11) TOTAL ANNULAR VOLUME WITH 7 INCH CASING = CU.M. | |
| 12) CREW: B.MOSS, G.SYMES, B.GOODWIN, K.LUCIEER. | |

## REMARKS

## BOREHOLE RECORD

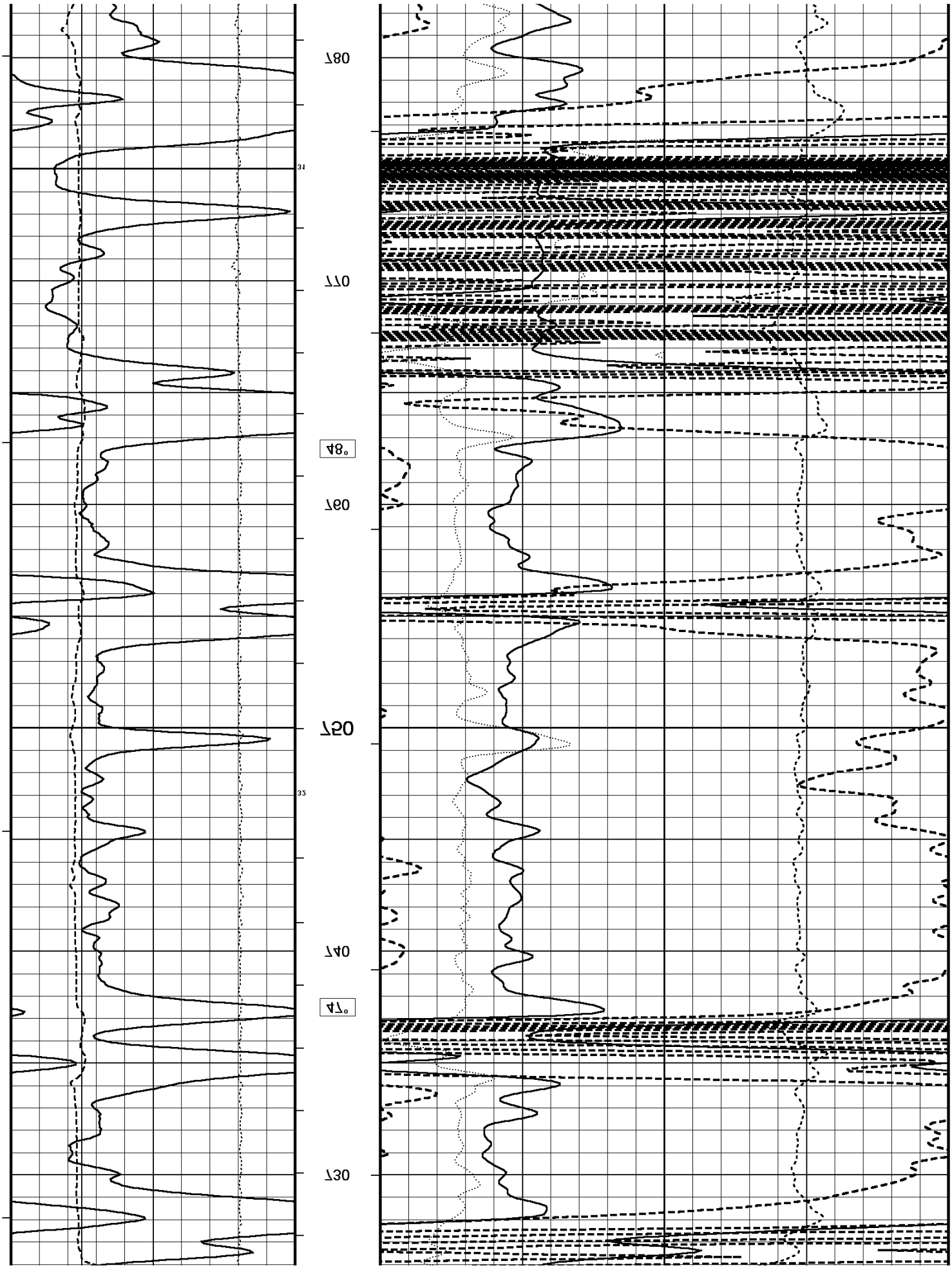
| Bit Size (inches) | Depth From (metres) | Depth To (metres) |
|---|---|---|
| 8.500 | 213.00 | 1909.00 |

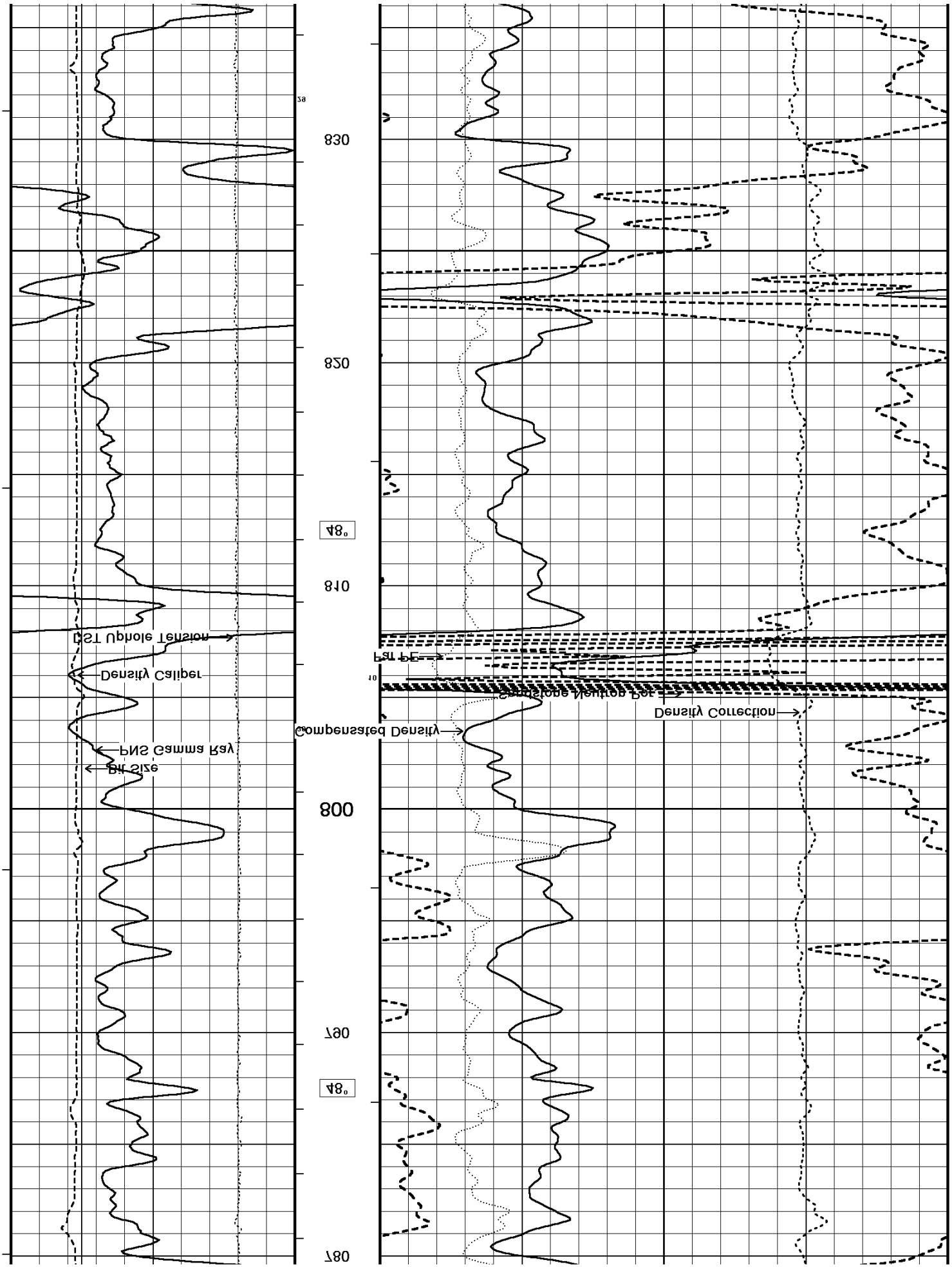
## CASING RECORD

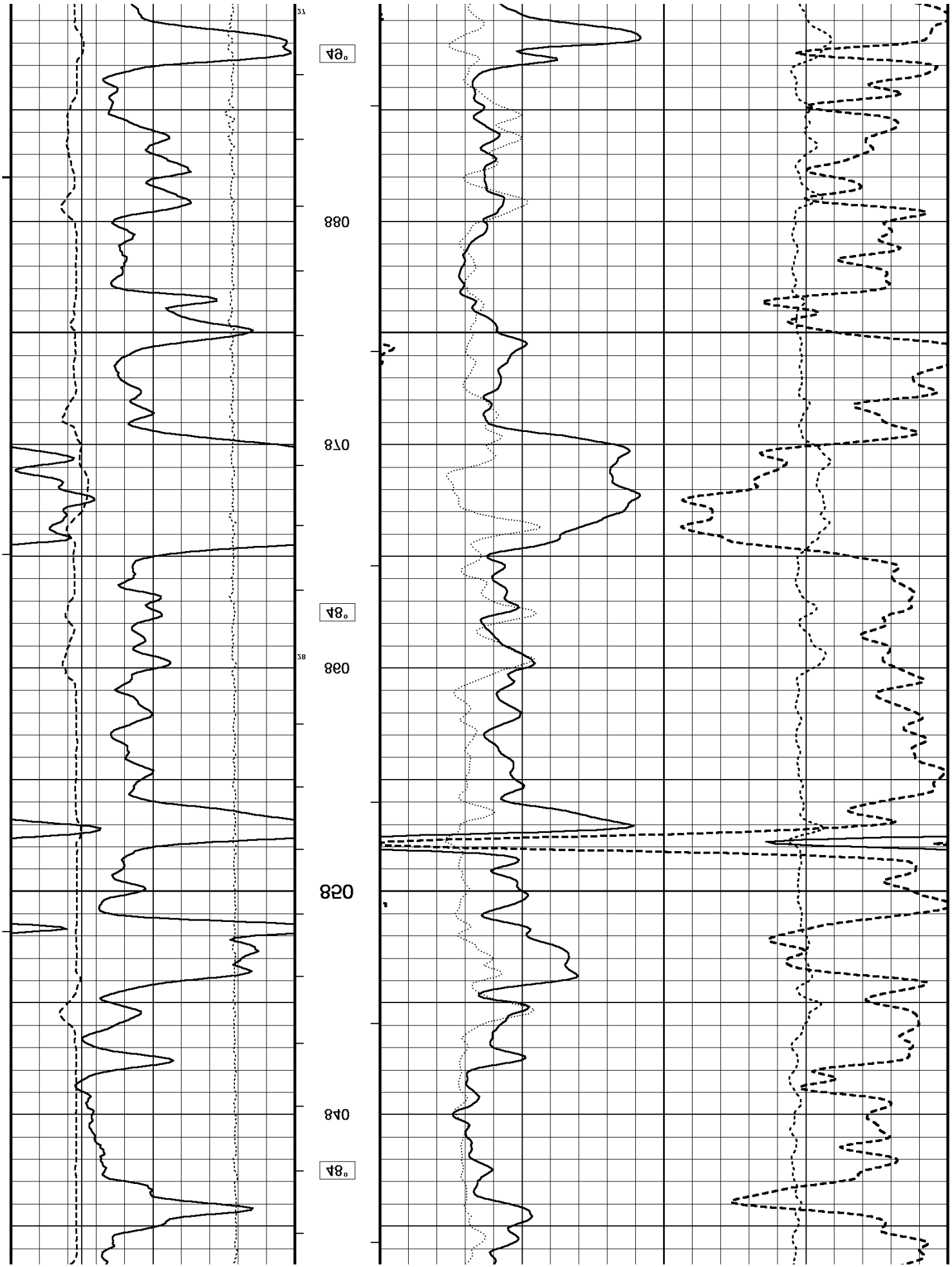
| Type | Size (inches) | Depth From (metres) | Shoe Depth (metres) | Weight (pounds/ft) |
|---|---|---|---|---|
| Surface | 9.625 | 0.00 | 213.00 | 47.00 |

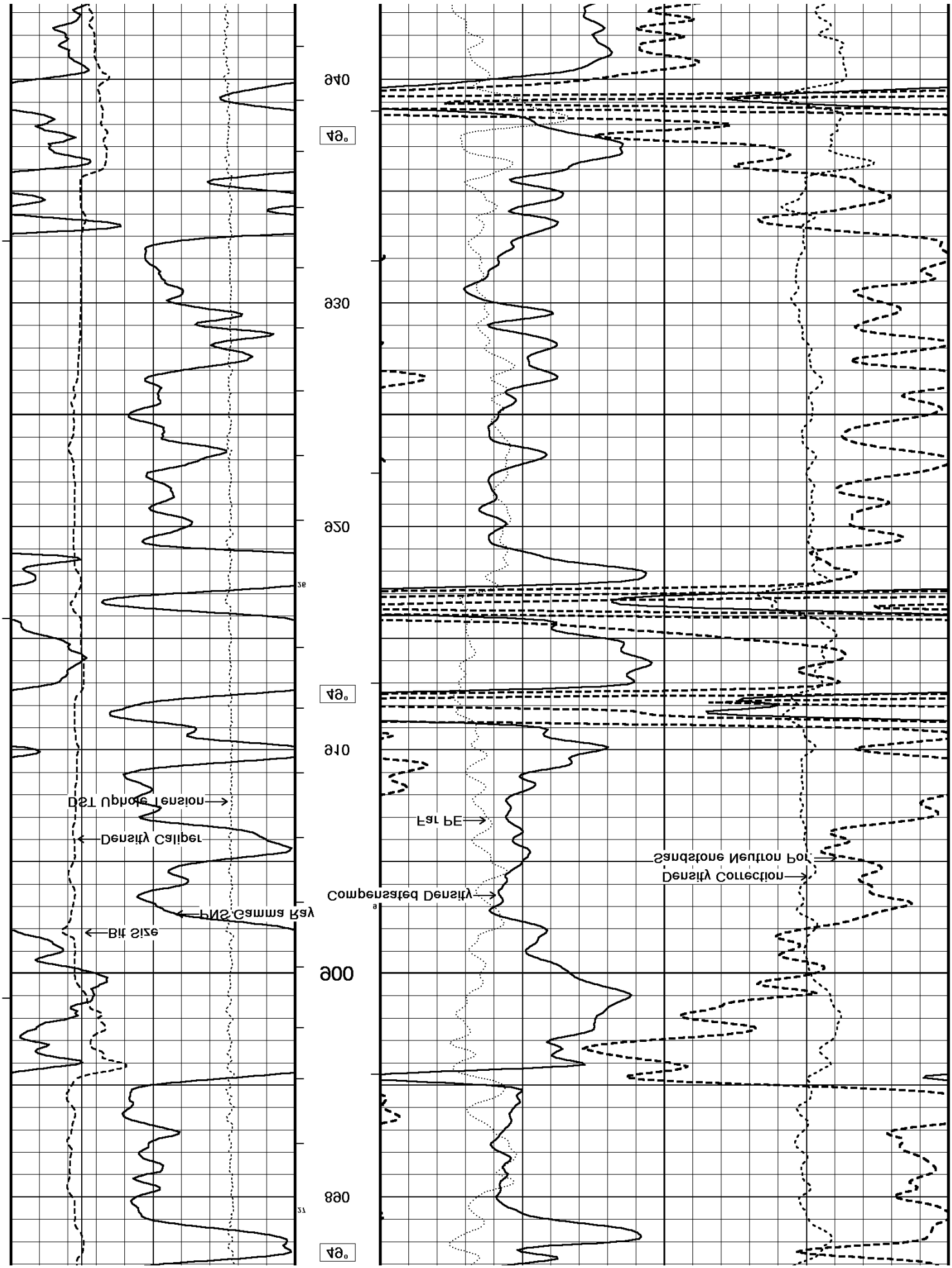
14) TOTAL ANNULAR VOLUME WITH 7 INCH CASING = CU.M.
15) CREW: B.MOSS, G.SYMES, B.GOODWIN, K.LUCIEER.

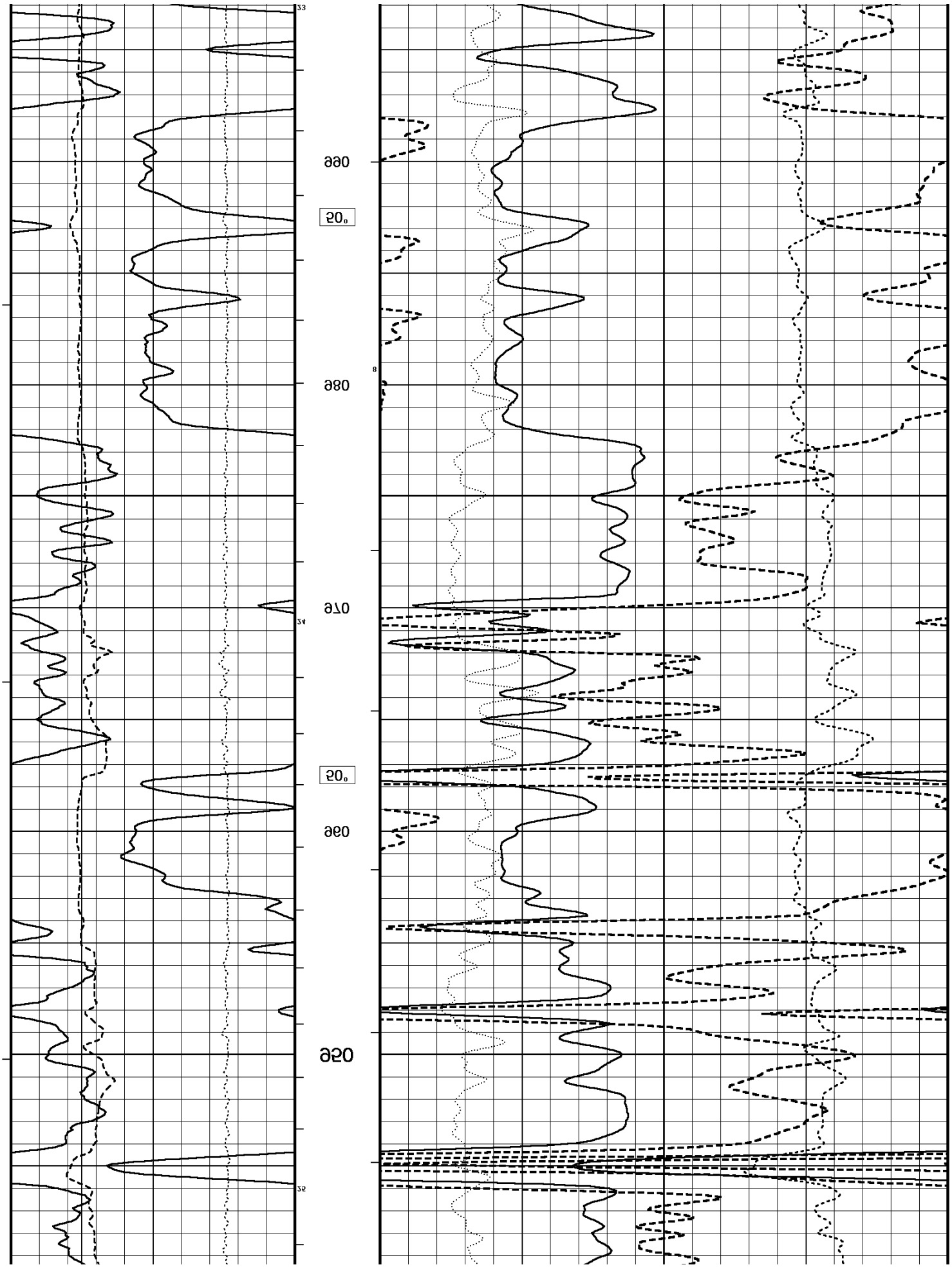
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, 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 in our price schedule.

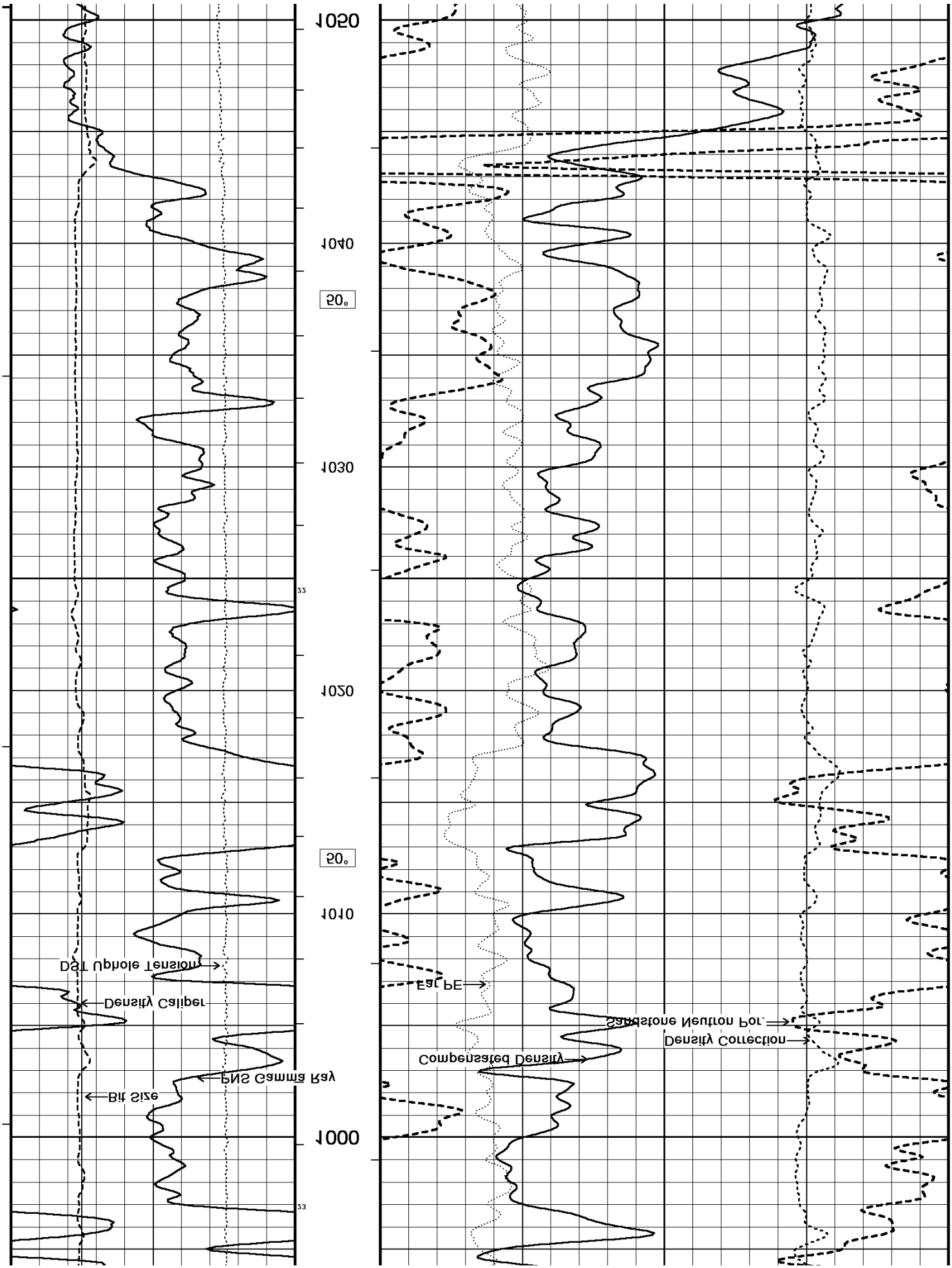

130
140
°14
150
160
°84
170
180

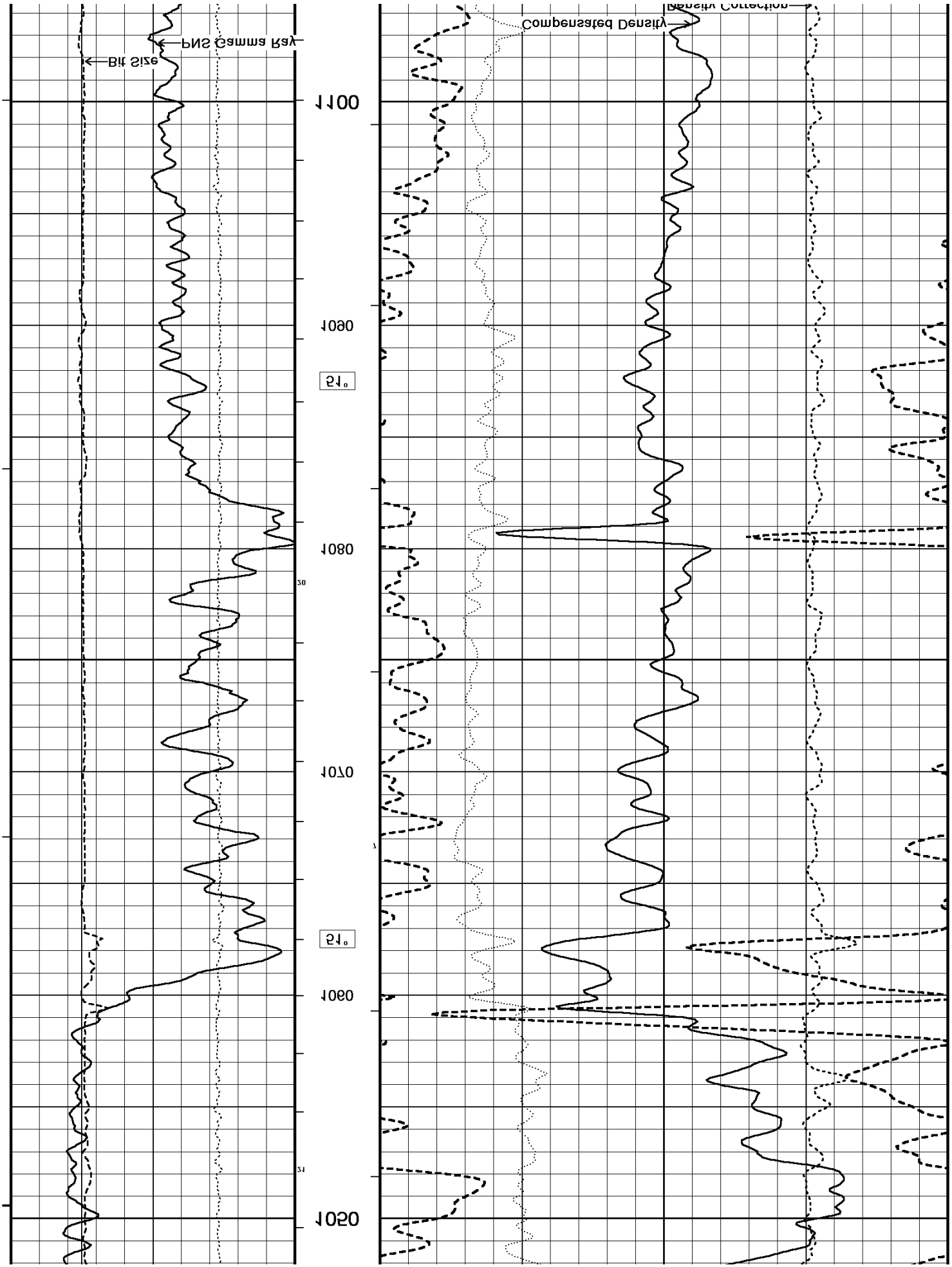

Density Caliper
DST Uphole Tension
Bit Size
HNS Gamma Ray
Compensated Density
Density Correction
Part PE
Sandstone Neutron Por
8°
8°
800
810
820
830

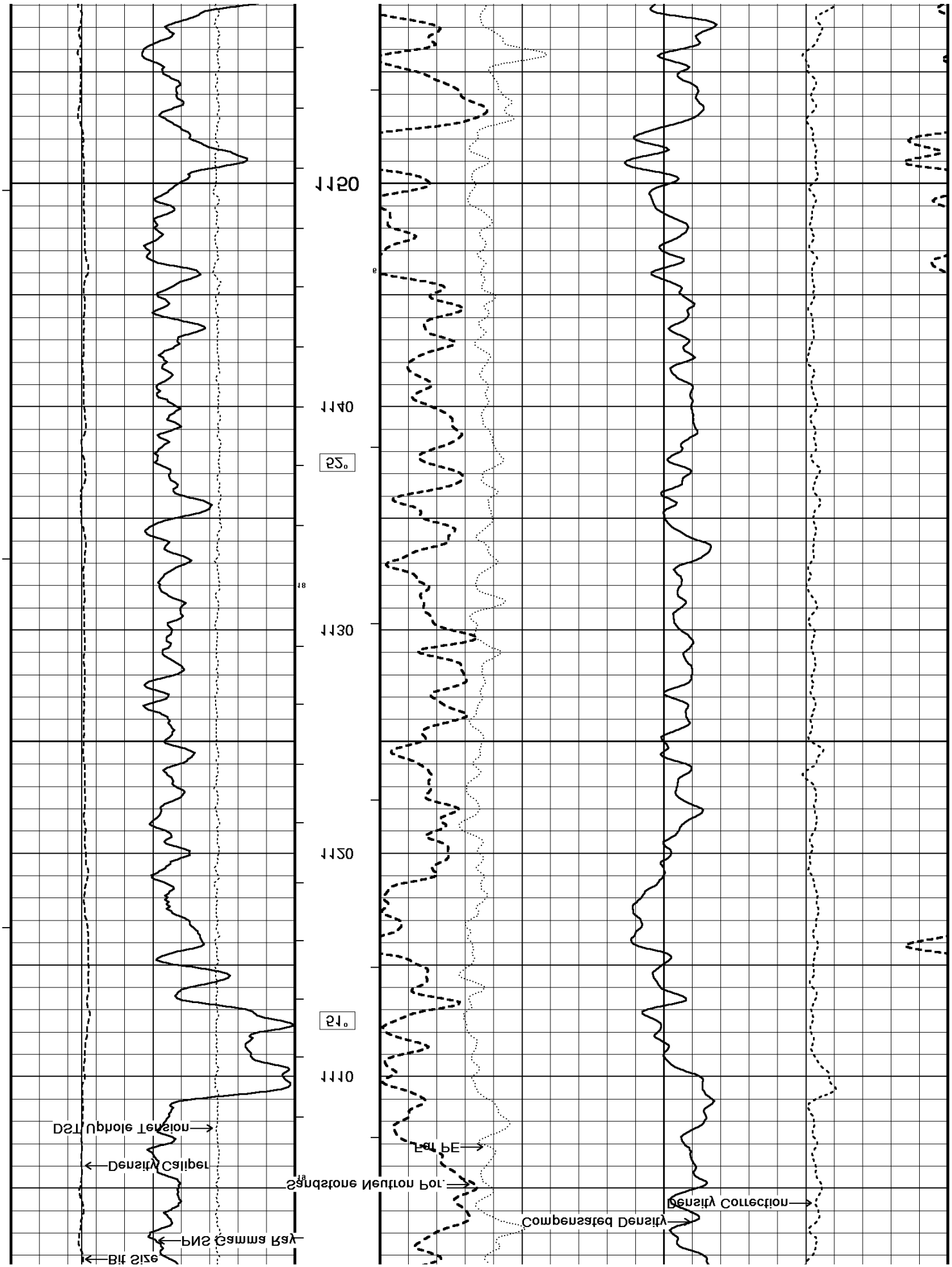

°8A
048
°8A
028
080
°8A
018
088
°6A

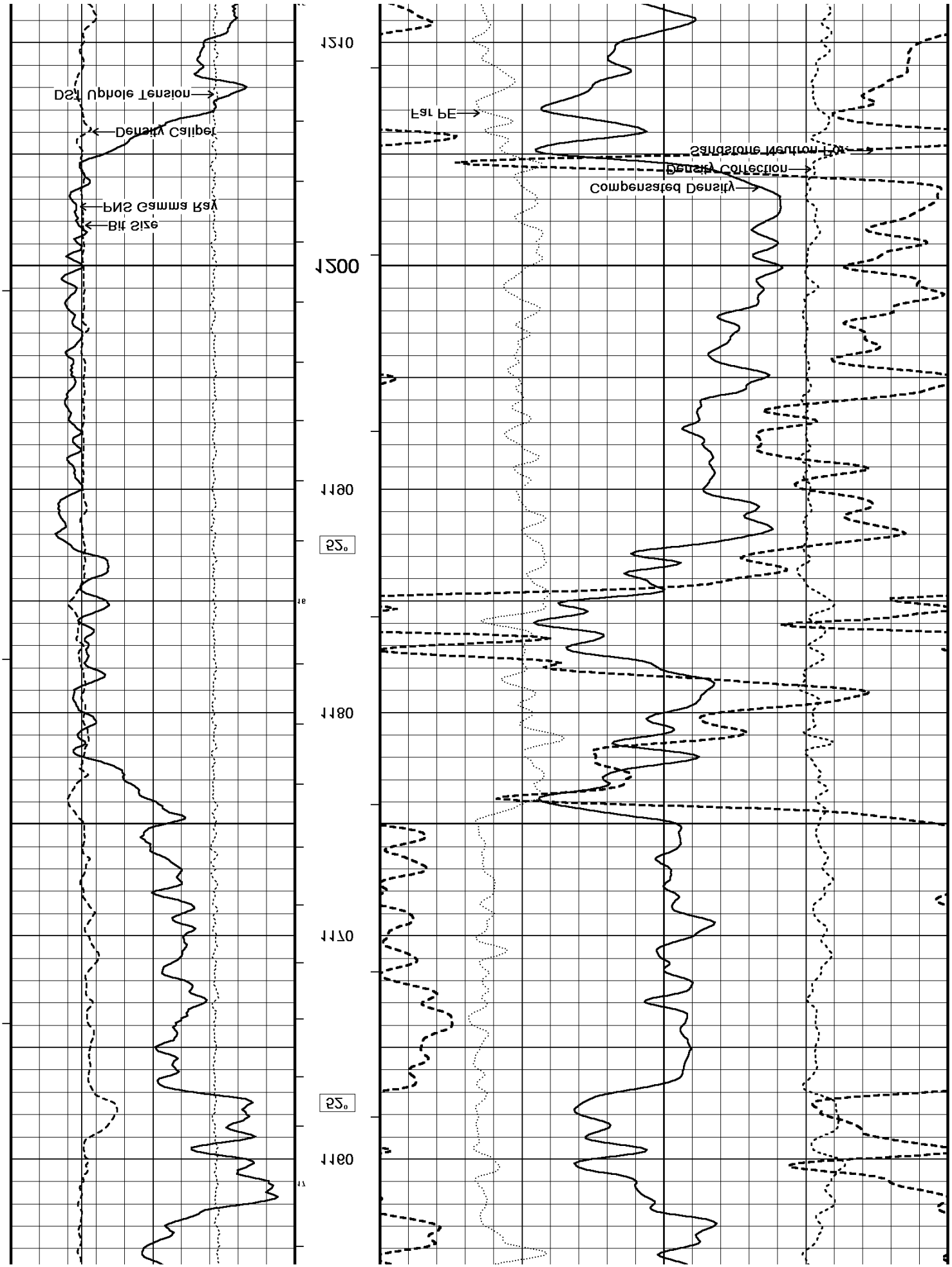

°GR
800
900
°GR
910
920
930
940
Bit Size
THNS Gamma Ray
Density Caliper
DST Uphole Tension
Compensated Density
Far PE
Density Correction
Sandstone Neutron Por

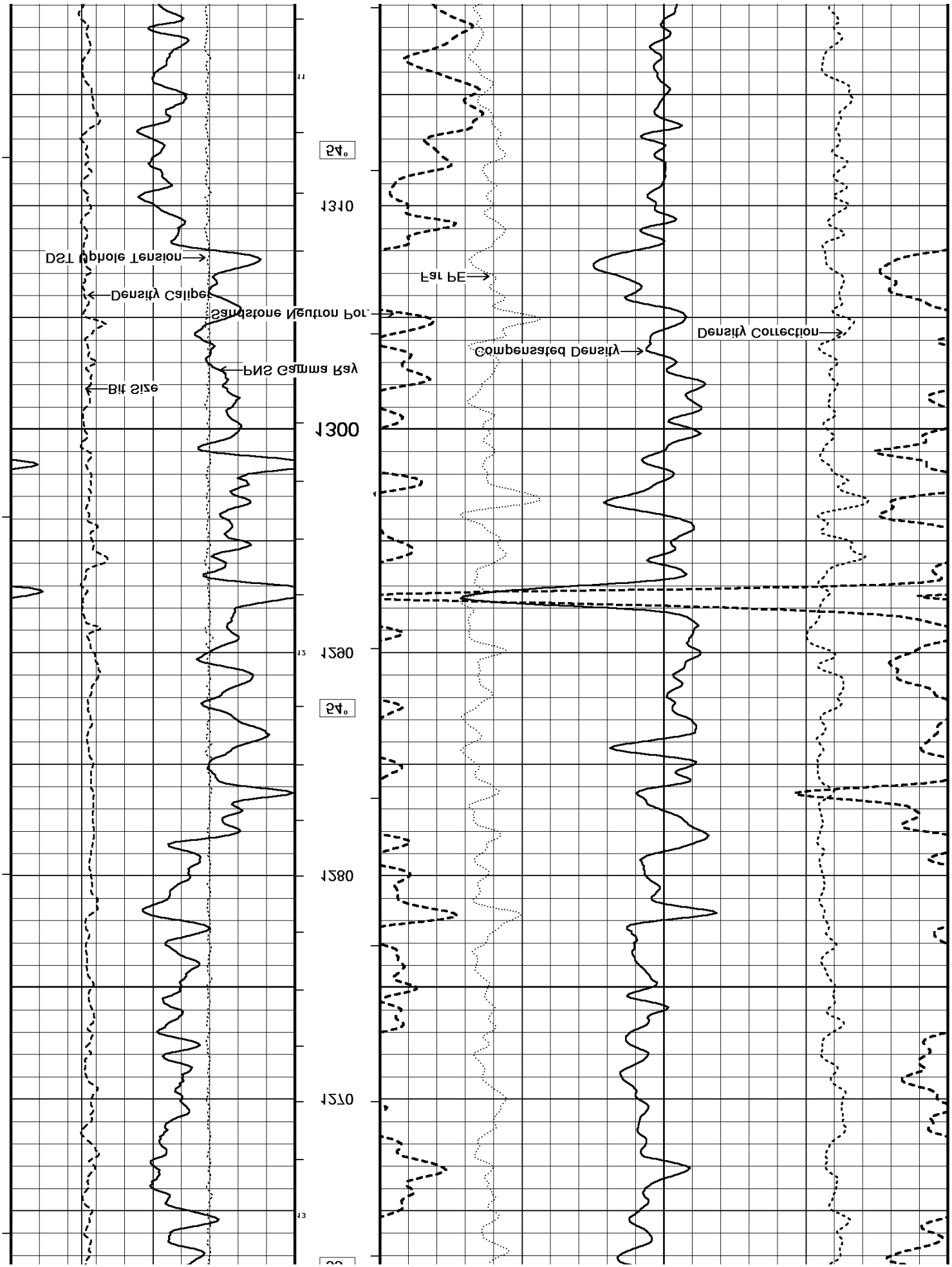

020
060
020
060
010
060
020
060

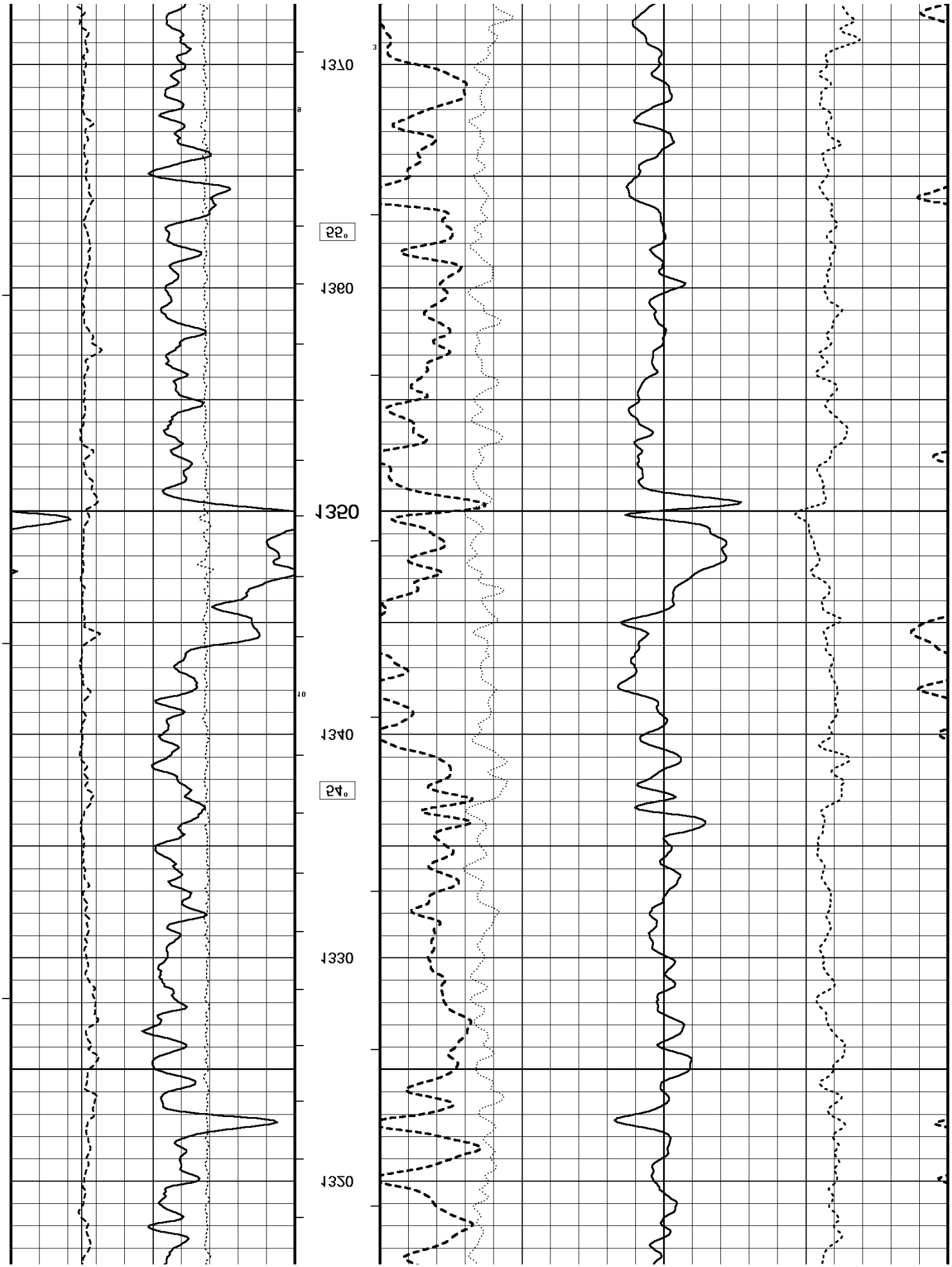

1000
1010
1020
1030
1040
1050
1060
1070
50°
50°
Bit Size
PNS Gamma Ray
Density Caliper
DST Uphole Tension
Compensated Density
Density Correction
Sandstone Neutron Por.
Eff PE

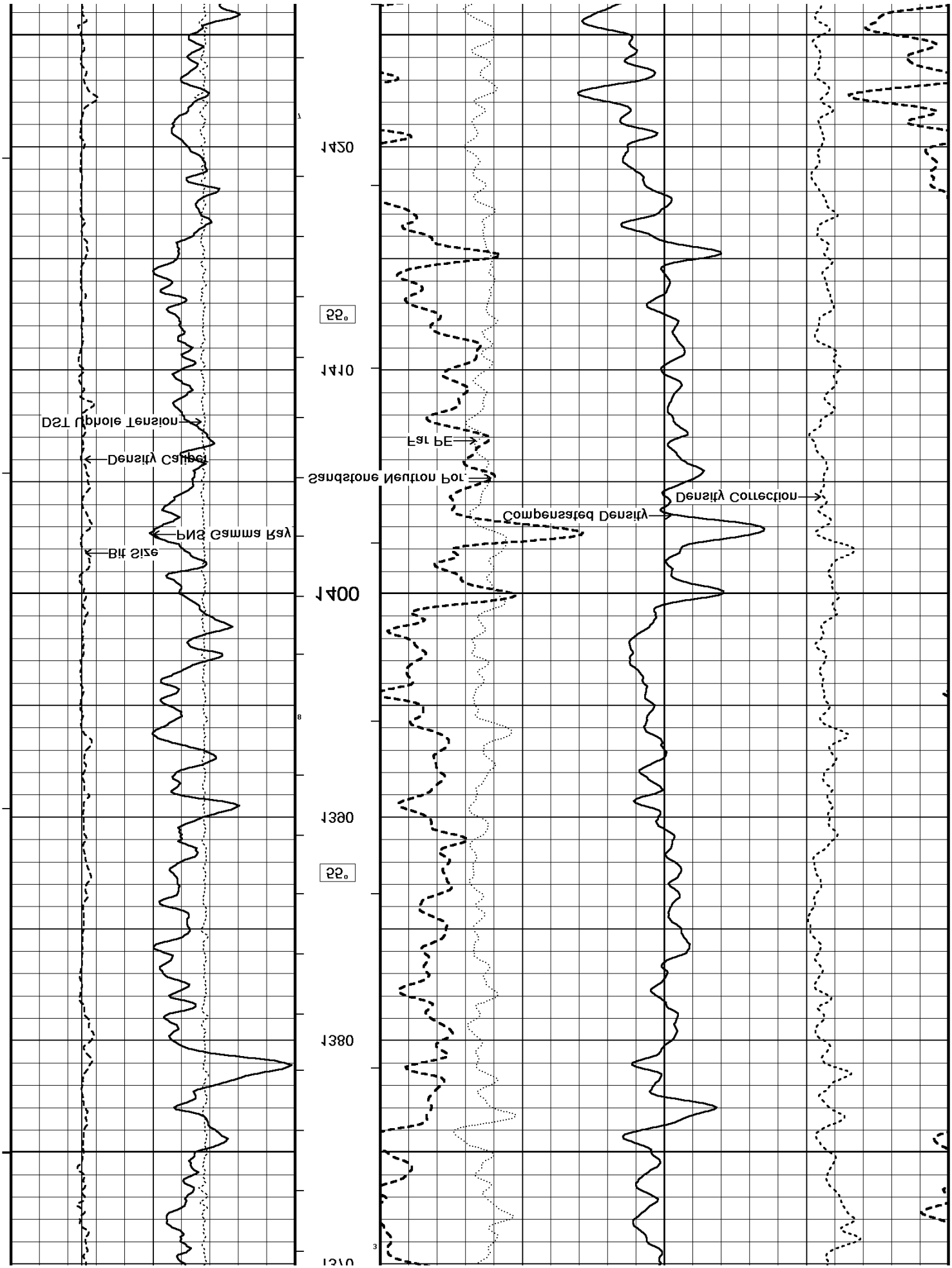

Bit Size
PNS Gamma Ray
Compensated Density
Density Correction
1020
1080
1070
1080
1090
1100

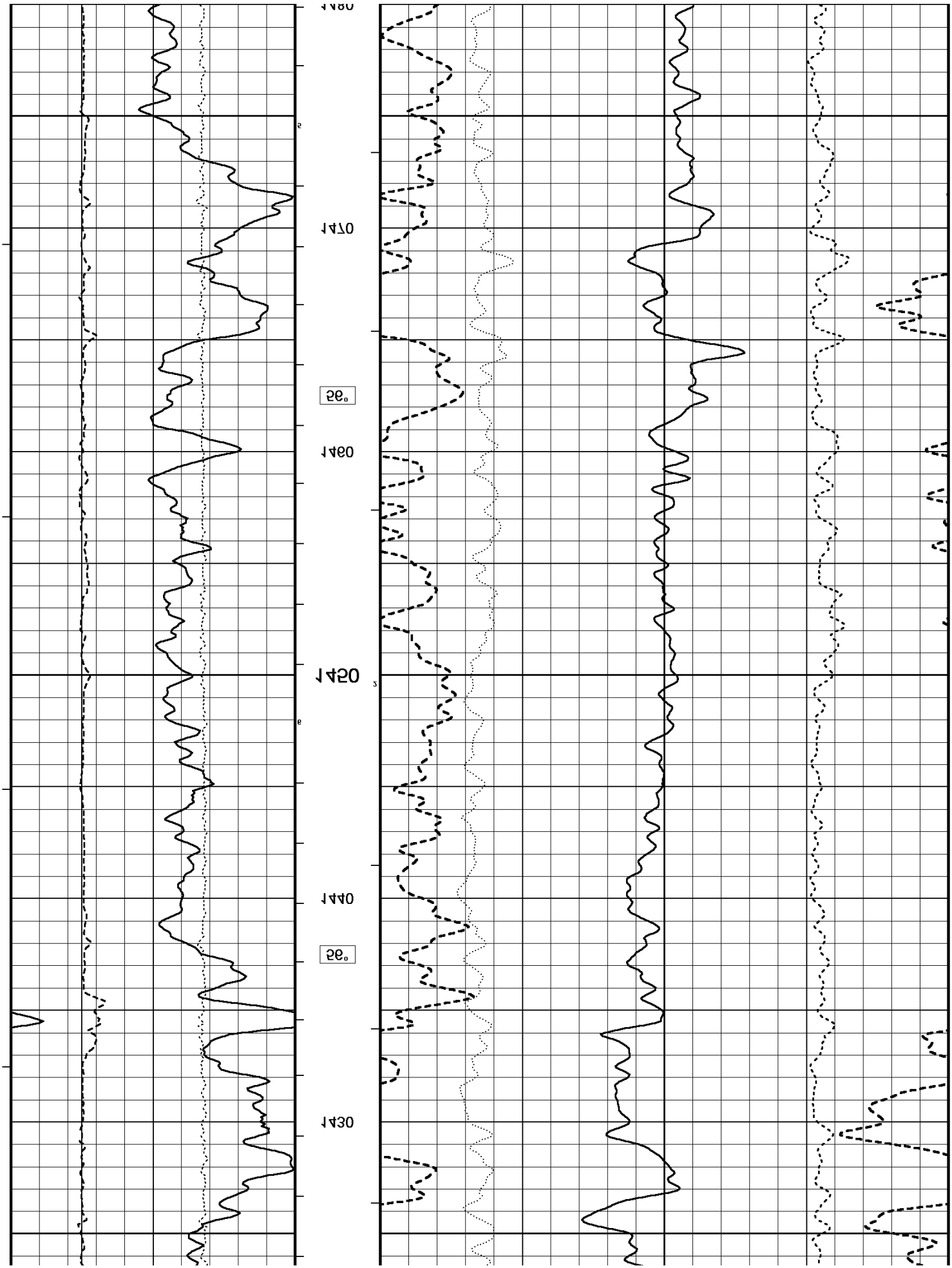

Bit Size
PNS Gamma Ray
Density Caliper
DST Uphole Tension
Sandstone Neutron Por.
Fat PE
Compensated Density
Density Correction
1110
1120
1130
1140
1150
1160
1170
1180
1190
1200

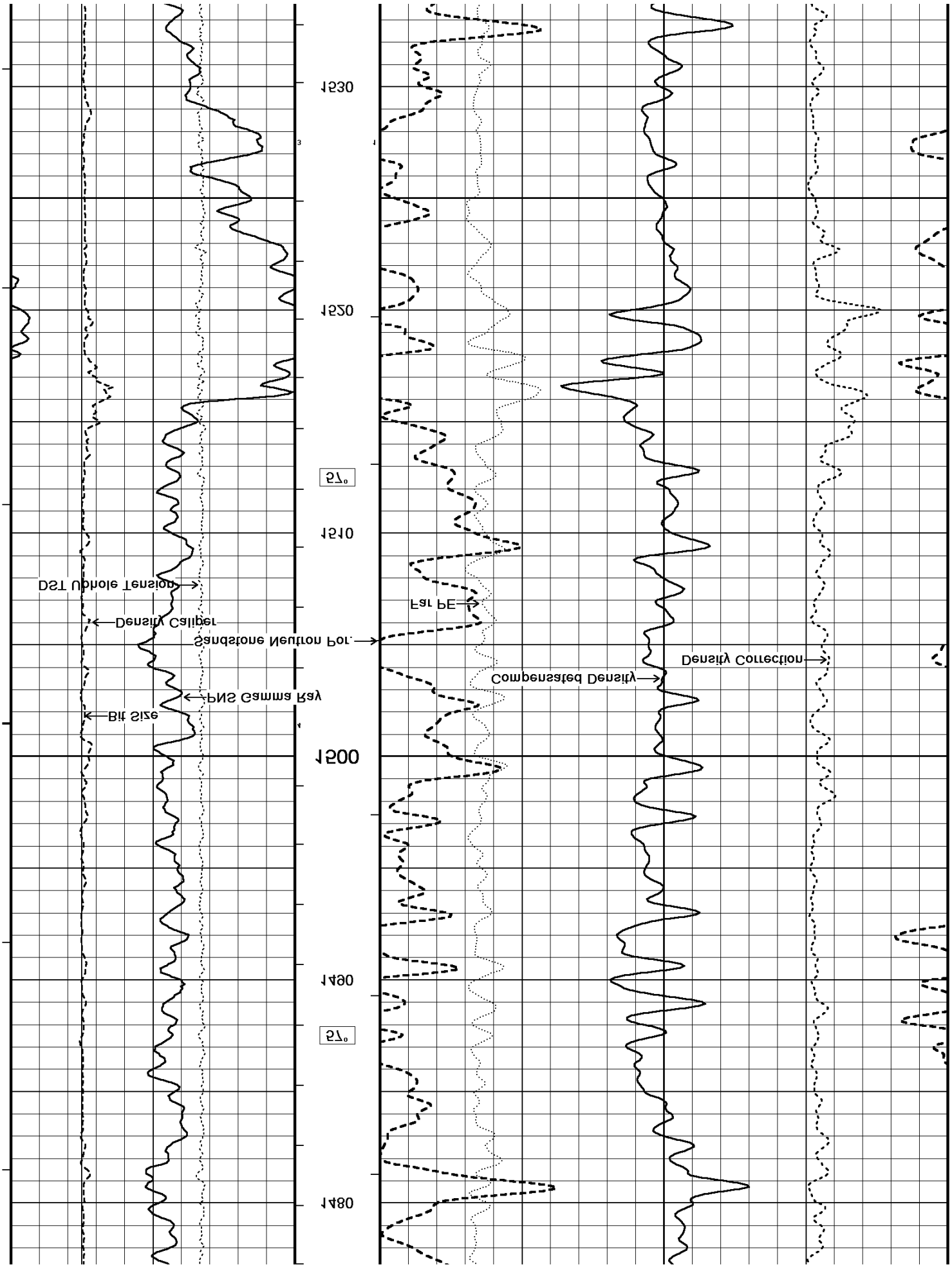

Compensated Density
Density Correction
Standoff Medium Low
Fm PE
Density Caliper
DST Uphole Tension
Bit Size
PNS Gamma Ray
4180
4190
4200
4210
25°
25°

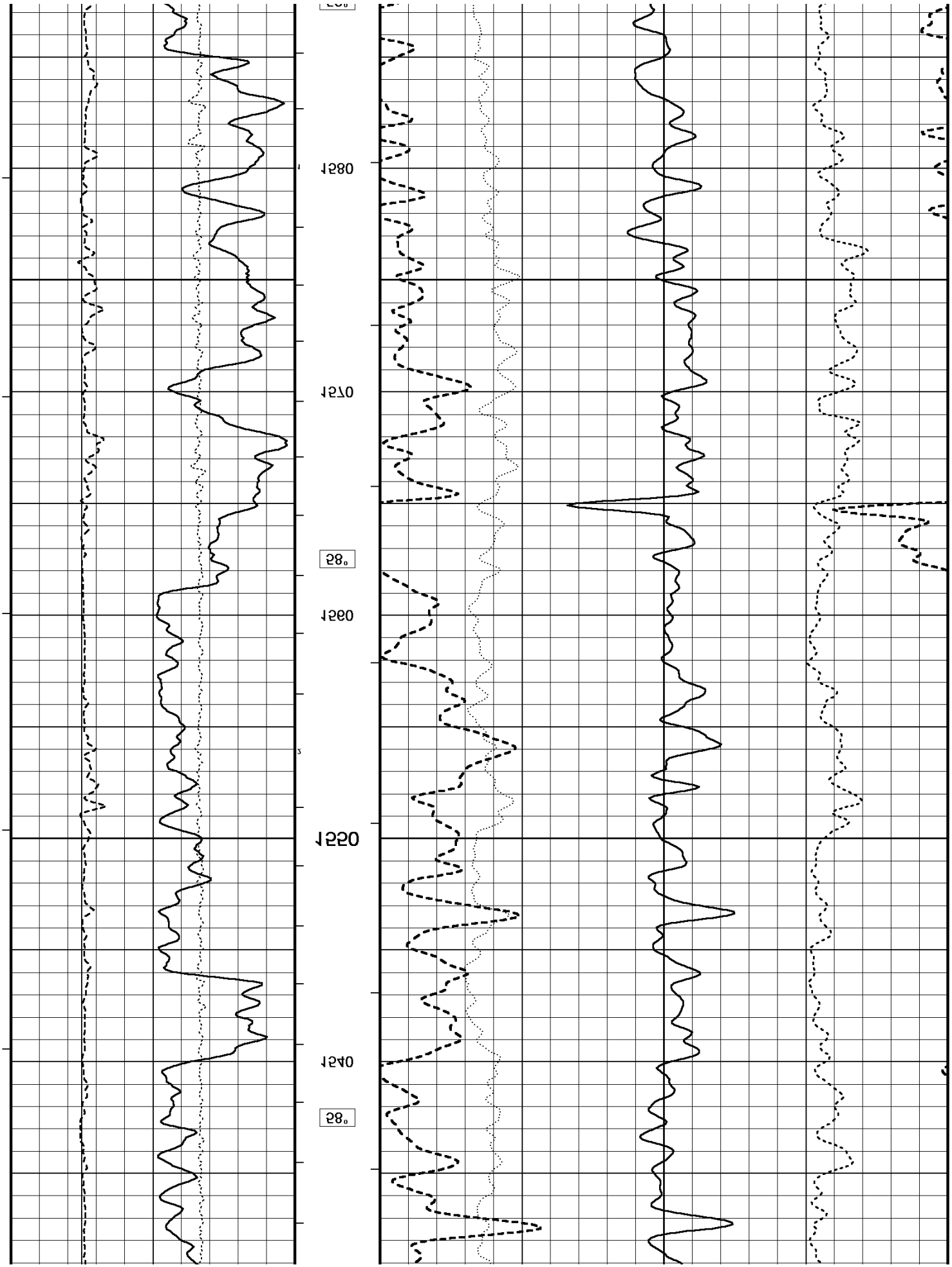

Bit Size
Density Caliper
DST Downhole Tension
PNS Gamma Ray
Sandstone Neutron Por.
Fat PE
Compensated Density
Density Correction
1300
1310
1320
1330
1340

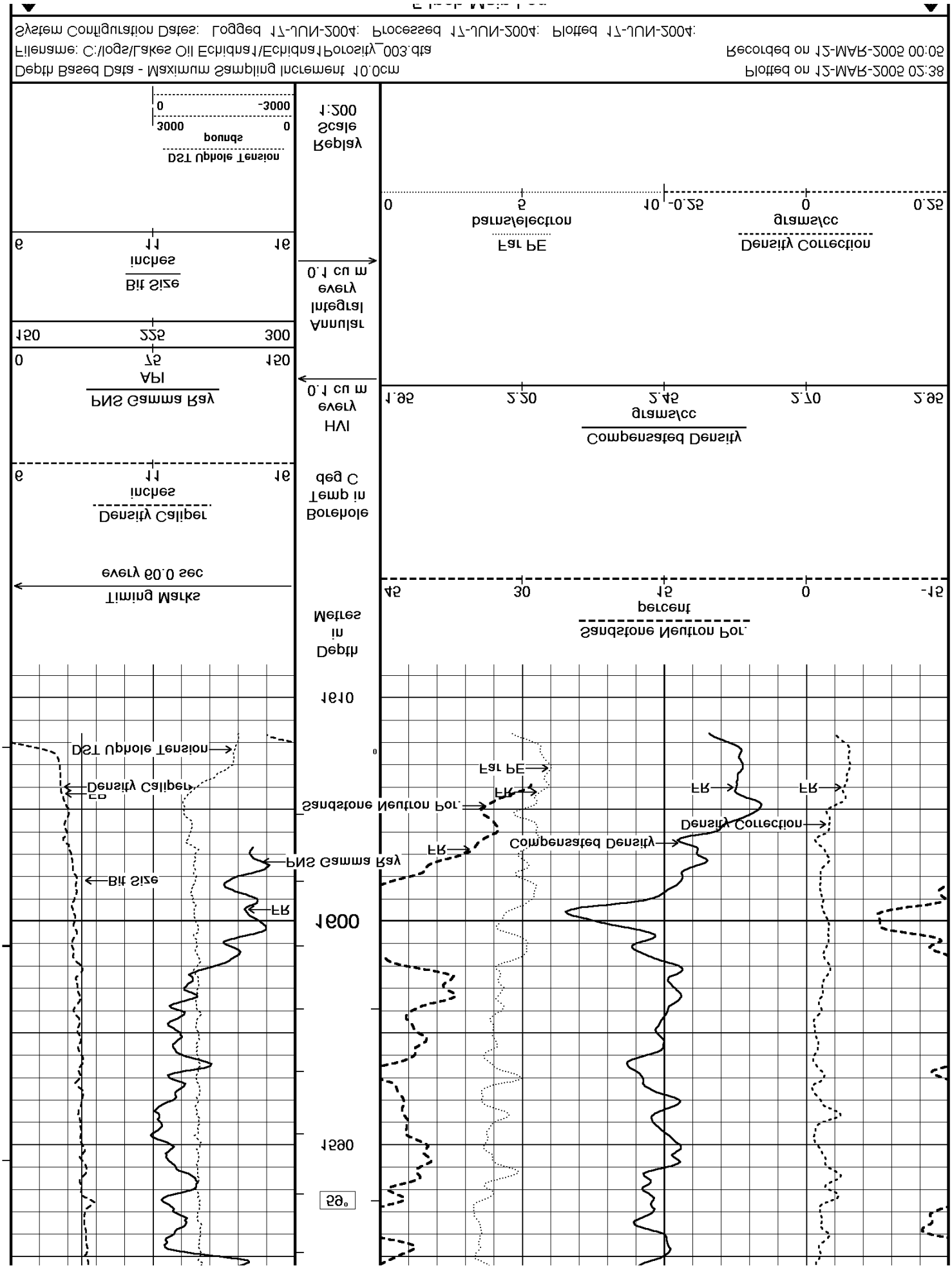

1320
1330
1340
1350
1360
1370
24°
25°


1310
1380
1390
1400
1410
1420
Bit Size
PNS Gamma Ray
Density Caliper
DST Uphole Tension
Sandstone Neutron Por.
Far PE
Compensated Density
Density Correction

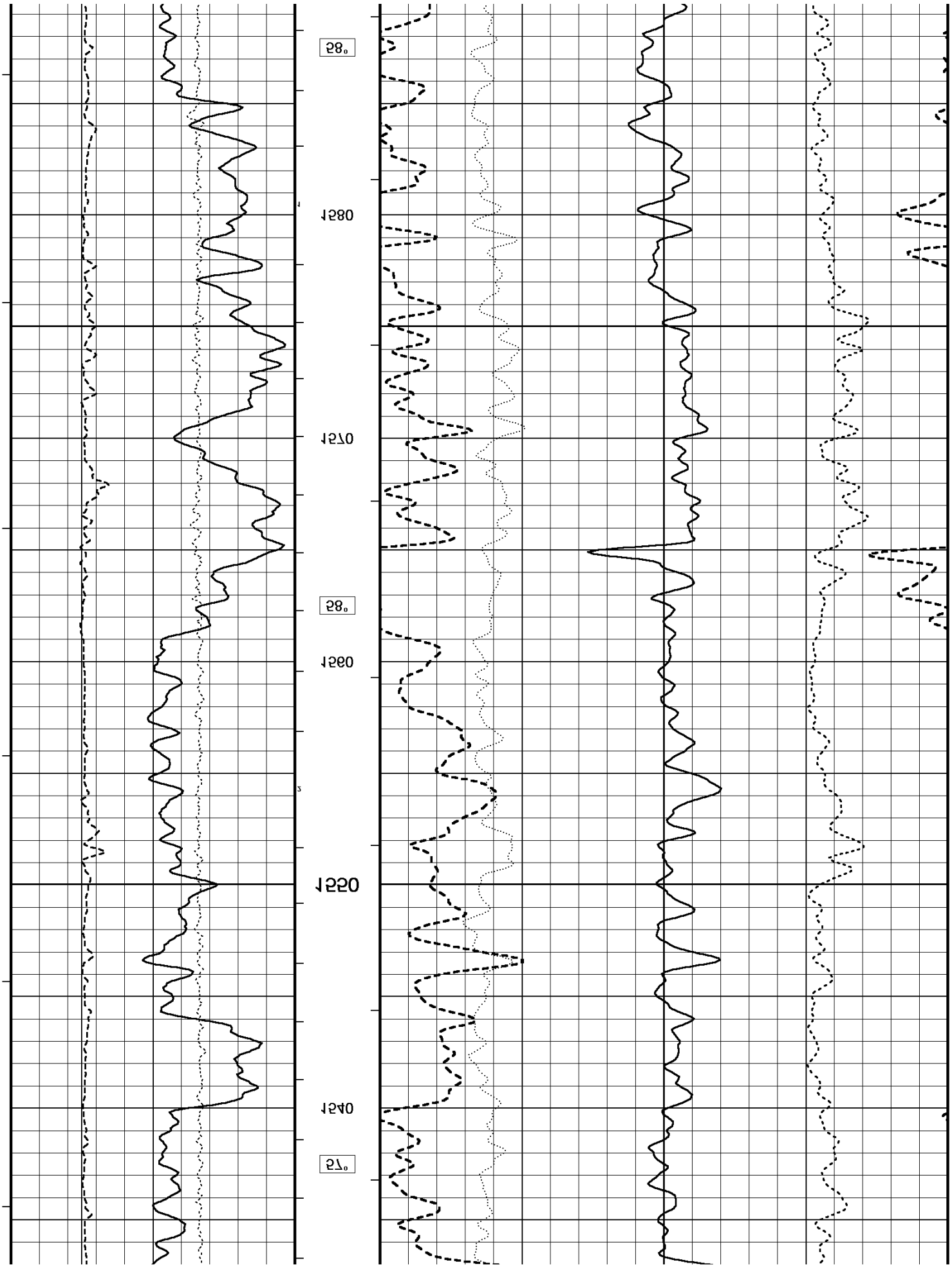

1430
°35
1440
1450
°35
1480
1410
1480


1480
1490
1500
1510
1520
1530
Bit Size
PNS Gamma Ray
Sandstone Neutron Por.
Density Caliper
DST Nonole Tension
Corrected Density
Density Correction
Far PE


1240
28°
1250
1260
28°
1270
1280


Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 15-MAR-2002 02:38
Filename: C:/logs/Lakes Oil Eriphyra/Eriphyra Porosity_003.dfs
Recorded on 15-MAR-2002 00:00
System Configuration Date: Logged 17-JUN-2004: Processed 17-JUN-2004: Plotted 17-JUN-2004:
Sandstone Neutron Por.
percent
Compensated Density
g/cm/cc
Density Correction
g/cm/cc
Fm PE
barns/electron
Density Caliper
inches
Bit Size
inches
DST Uphole Tension
pounds
Time Marks
every 60.0 sec
Borehole
Temp in
deg C
HV
every
1.0 cm m
PNS Gamma Ray
API
Annular
Integral
every
1.0 cm m
Replay
Scale
1:200
Depth
in
Meters
DST Uphole Tension
Density Caliper
Bit Size
PNS Gamma Ray
ER
Sandstone Neutron Por.
Fm PE
Compensated Density
Density Correction
ER
ER
ER

Repeat Section
Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:/logs/Lakes Oil Eriqhna1/Eriqhna1Porosity_003.dfs
System Configuration Dates: Logged 17-JUN-2004: Processed 17-JUN-2004: Plotted 17-JUN-2004:
Plotted on 15-MAR-2005 05:38
Recorded on 11-MAR-2005 23:49
Sandstone Neutron Por.
percent
Depth
in
Meters
Timing Marks
every 60.0 sec
Density Caliper
inches
Borehole
Temp in
deg C
Compensated Density
g/cm3/cc
HV
every
1.0 cm
PNS Gamma Ray
API
Annulus
Integral
every
1.0 cm
Bit Size
inches
Density Correction
g/cm3/cc
Far PE
barns/electron
Replay
Scale
1:200
DST Uphole Tension
pounds
5 Inch Main Log
Filename: C:/logs/Lakes Oil Eriqhna1/Eriqhna1Porosity_003.dfs
System Configuration Dates: Logged 17-JUN-2004: Processed 17-JUN-2004: Plotted 17-JUN-2004:
Recorded on 15-MAR-2005 00:02


27°
1240
28°
1250
1260
28°
1270
1280

Repeat Section

System Configuration Date: Logged 17-JUN-2004: Processed 17-JUN-2004: Plotted 17-JUN-2004:
Filename: C:/logs/Lakes Oil Equipment/Equipment Porosity_002.dat
Recorded on 11-MAR-2002 23:49
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 15-MAR-2002 02:38

Repeat Section

## BEFORE SURVEY CALIBRATION

C:/logs/Lakes Oil Echidna1/Echidna1Porosity.dta

### General Constants All 000

General Parameters

| | | |
|---|---|---|
| Mud Resistivity | 0.138 | ohm-meters |
| Mud Resistivity Temperature | 25.000 | degrees C |
| Water Level | 0.000 | meters |
| 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 | N/A |
| Resistivity used | N/A |
| RWA Constant A | N/A |
| RWA Constant M | N/A |

### Neutron Calibration CNS 084

Base Calibration on 14-FEB-2005 16:44
Field Check on 11-MAR-2005,22:30

Base Calibration

| | Measured | | Calibrated (cps) | |
|---|---|---|---|---|
| | Near | Far | Near | Far |
| | 3956 | 389 | 2930 | 356 |
| Ratio | 10.176 | | 8.230 | |

Field Calibrator at Base

| | Calibrated (cps) | |
|---|---|---|
| | 222 | 1311 |
| Ratio | 0.169 | |

Field Check

| | Calibrated (cps) | |
|---|---|---|
| | 220 | 1280 |
| Ratio | 0.172 | |

### Neutron Constants CNS 084

| | | |
|---|---|---|
| Neutron Source Id | 6999NE | |
| Neutron Jig Number | 37 | |
| Epithermal Neutron | No | |
| Caliper Source for Processing | Density Caliper | |
| Stand-off | 0.00 | inches |
| Mud Density | 1.26 | 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 | Constant Value | |
| Temperature | 20.00 | degrees C |
| Mud Salinity | 0.00 | kppm |
| Formation Fluid Salinity Source | None | |
| Formation Fluid Salinity | N/A | kppm |
| Barite Mud Correction | Not Applied | |

### Gamma Calibration CNS 084

Field Calibration on 11-MAR-2005,22:29

| | Measured | Calibrated (API) |
|---|---|---|
| Background | 54 | 49 |
| Calibrator (Gross) | 1003 | 910 |
| Calibrator (Net) | 949 | 861 |

### Gamma Constants CNS 084

| | | | |
|---|---|---|---|
| Calibrator (Net) | 949 | | 861 |

## Gamma Constants CNS 084

| | | |
|---|---|---|
| Gamma Calibrator Number | 142 | |
| Mud Density | 1.26 | gm/cc |
| Caliper Source for Processing | Density Caliper | |
| Tool Position | Eccentred | |
| Concentration of KCl | 0.55 | kppm |

## Photo Density Calibration PDS 084

Base Calibration on
Field Check on 11-MAR-2005,22:40

Density Calibration

| Base Calibration | Measured | | Calibrated (sdu) | |
|---|---|---|---|---|
| | Near | Far | Near | Far |
| Reference 1 | 47115 | 20410 | 22668 | 7411 |
| Reference 2 | 28771 | 2461 | 13306 | 1767 |

Field Check at Base

| | | |
|---|---|---|
| | 600.2 | 583.5 |

Field Check

| | | |
|---|---|---|
| | 597.1 | 584.8 |

PE Calibration

| Base Calibration | Measured | | | | Measured | | | Calibrated | |
|---|---|---|---|---|---|---|---|---|---|
| | Near WS | Near WH | Near Ratio | Far WS | Far WH | Far Ratio | Near Ratio | Far Ratio |
| Background | 79 | 489 | | 64 | 471 | | | |
| Reference 2 | 3120 | 18560 | 0.168 | 361 | 1590 | 0.265 | 0.159 | 0.371 |
| Reference 3 | 2255 | 17640 | 0.127 | 260 | 1531 | 0.185 | 0.123 | 0.250 |

Field Check at Base

| | | | | |
|---|---|---|---|---|
| | 79.4 | 489.2 | 64.3 | 471.3 |

Field Check

| | | | | |
|---|---|---|---|---|
| | 75.8 | 487.6 | 64.6 | 470.3 |

## Density Constants PDS 084

| | | |
|---|---|---|
| Density Source Id | 2454GW | |
| Nylon Calibrator Number | Orange | |
| Aluminium Calibrator Number | Orange | |
| Aluminium/Fe Calibrator Number | Orange | |
| Caliper Source for Processing | Density Caliper | |
| PE Correction to Density | Not Applied | |
| Mud Density | 1.26 | gm/cc |
| Mud Density Z/A Correction | 1.11 | |
| 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) |
|---|---|
| 2.65 | |
| 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 |

## Caliper Calibration PDS 084

Base Calibration on 3-MAR-2005,20:42
Field Calibration on 11-MAR-2005,22:40

Base Calibration

| Reading No | Measured | Calibrator Size (in) |
|---|---|---|
| 1 | 5767 | 5.99 |
| 2 | 4869 | 8.01 |
| 3 | 3998 | 10.01 |
| 4 | 3182 | 11.82 |
| 5 | 2158 | 14.01 |
| 6 | N/A | N/A |

# GAMMA RAY LOG
# COMPENSATED DENSITY
# DUAL NEUTRON

| | | | | | |
|---|---|---|---|---|---|
| Elevation Ground Level | 68.00 | metres | Depth Logged | 1808.00 | metres |
| Elevation Drill Floor | 77.80 | metres | Depth Drilled | 1809.00 | metres |
| Elevation Kelly Bushing | 77.80 | metres | First Reading | 1802.00 | metres |

| | |
|---|---|
| COUNTRY\STATE | AUSTRALIA \ VICTORIA |
| PROVINCE\COUNTY | STRADBROKE |
| FIELD | ECHIDNA |
| WELL | ECHIDNA HIGH NO.1 |
| COMPANY | LAKES OIL |

## DOWNHOLE EQUIPMENT

C:/logs/Lakes Oil Echidna1/Echidna1Porosity.dlis



| | | |
|---|---|---|
| 2.46 m | GRPD - PNS Gamma Ray | |
| 2.76 m | NPRL - Limestone Neutron Por. | |
| 2.71 m | BHTF - Borehole Temperature | |
| 0.65 m | AVOL - Annulus Volume | |
| 0.65 m | HVOL - Hole Volume | |
| 0.65 m | CAPD - Density Caliper | |
| 0.71 m | PEDF - Far PE | |
| 0.00 m | DCOR - Density Correction | |
| 0.00 m | DEN - Compensated Density | |
| Tool Zero | (1.50m from bottom) | |

All measurements relative to tool zero.

| | | |
|---|---|---|
| Compensated Neutron Sub CNS 84 | Length: 3.87 m | Weight: 255.1 lb |
| Photo Density Sub PDS 84 | Length: 3.61 m | Weight: 245.2 lb |
| Basic Hole Finder HFS 1 | Length: 0.20 m | Weight: 8.8 lb |
| Total | Length: 9.67 m | Weight: 478.4 lb |

| | | |
|---|---|---|
| 4 | 3128 | 11.85 |
| 2 | 2128 | 14.01 |
| 0 | N/A | N/A |

Field Calibration

| Measured Caliper (in) | Actual Caliper (in) |
|---|---|
| 7.96 | 10.8 |