Weatherford®

# CALIPER LOG

| | |
|---|---|
| COMPANY | GRAND MESA OPERATING COMPANY |
| WELL | RINGER #1-24 |
| FIELD | WILDCAT |
| PROVINCE/COUNTY | BARBER |
| COUNTRY/STATE | U.S.A. / KANSAS |
| LOCATION | 1792' FNL & 1266' FEL |

| | | | |
|---|---|---|---|
| SEC 24 | TWP 30S | RGE 12W | Other Services |
| Latitude | | | |
| Longitude | | | |
| API Number | 15-007-24329 | | |

Permanent Datum GL, Elevation 1791 feet
Log Measured From KB, 5.00 feet above Permanent Datum
Drilling Measured From KB

| Elevations: | feet |
|---|---|
| KB | 1796.00 |
| DF | 1794.00 |
| GL | 1791.00 |

| | | | | |
|---|---|---|---|---|
| Date | 24-JUN-2018 | | | |
| Run Number | ONE | | | |
| Service Order | 4558-217017166 | | | |
| Depth Driller | 4920.00 | feet | | |
| Depth Logger | 4914.00 | feet | | |
| First Reading | 4880.00 | feet | | |
| Last Reading | 218.00 | feet | | |
| Casing Driller | 217.00 | feet | | |
| Casing Logger | 218.00 | feet | | |
| Bit Size | 7.875 | inches | | |
| Hole Fluid Type | CHEMICAL | | | |
| Density / Viscosity | 9.40 lb/USg | | 45.00 CP | |
| PH / Fluid Loss | 9.00 | | 11.00 ml/30Min | |
| Sample Source | FLOWLINE | | | |
| Rm @ Measured Temp | 0.42 @ 75.0 | ohm-m | | |
| Rmf @ Measured Temp | 0.34 @ 75.0 | ohm-m | | |
| Rmc @ Measured Temp | 0.50 @ 75.0 | ohm-m | | |
| Source Rmf / Rmc | CALC | | CALC | |
| Rm @ BHT | 0.25 @126.0 | ohm-m | | |
| Time Since Circulation | 5 HOURS | | | |
| Max Recorded Temp | 126.00 | deg F | | |
| Equipment / Base | 13096 | | LIB | |
| Recorded By | ADAM SILL | | | |
| Witnessed By | DAVE BARKER | | | |

## BOREHOLE RECORD

Last Edited: 24-JUN-2018 08:52

| Bit Size inches | Depth From feet | Depth To feet |
|---|---|---|
| 7.875 | 217.00 | 4920.00 |

## CASING RECORD

| Type | Size inches | Depth From feet | Shoe Depth feet | Weight pounds/ft |
|---|---|---|---|---|
| SURFACE | 8.625 | 0.00 | 217.00 | 24.00 |

## REMARKS

- SOFTWARE ISSUE: WLS 18.01.6830.

- RUN ONE: MCG, MML, MDN, MPD, MFE, MSS, MAI RUN IN COMBINATION.
  - HARDWARE: DUAL BOWSPRING USED ON MDN.
  0.5 INCH STANDOFF USED ON MFE.
  TWO 0.5 INCH STANDOFFS USED ON MSS.
  0.5 INCH STANDOFF USED ON MAI.

- 2.71 G/CC LIMESTONE DENSITY MATRIX USED TO CALCULATE POROSITY.

- BOREHOLE RUGOSITY, TIGHT PULLS, AND WASHOUTS WILL AFFECT DATA QUALITY.

- ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST.

- TOTAL HOLE VOLUME FROM TD TO SURFACE CASING: 2550 CU.FT.

- ANNULAR HOLE VOLUME WITH 5.5 INCH PRODUCTION CASING FROM TD TO 2500 FEET: 625 CU.FT.

- RIG: WW DRILLING #4.

- ENGINEER: A. SILL.

- OPERATOR: J. KLINE.



## 5 INCH MAIN

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 24-JUN-2018 16:33

Filename: C:\Minimus 18.01.6830\Data\Grand Mesa Ringer #1-24\Grand Mesa Ringer #1-24_003.dta — Recorded on 24-JUN-2018 13:00

System Versions: Logged with 18.01.6830 Plotted with 18.01.6830

Timing Marks every 60.0 sec

Gamma Ray API 0 75 150 / 150 225 300

Density Caliper inches 6 11 16

Bit Size inches 6 11 16

DST Uphole Tension pounds 5000 0

Depth in Feet

Borehole Temp in deg F

HVI every 10 cu ft

Annular Integral every 10 cu ft

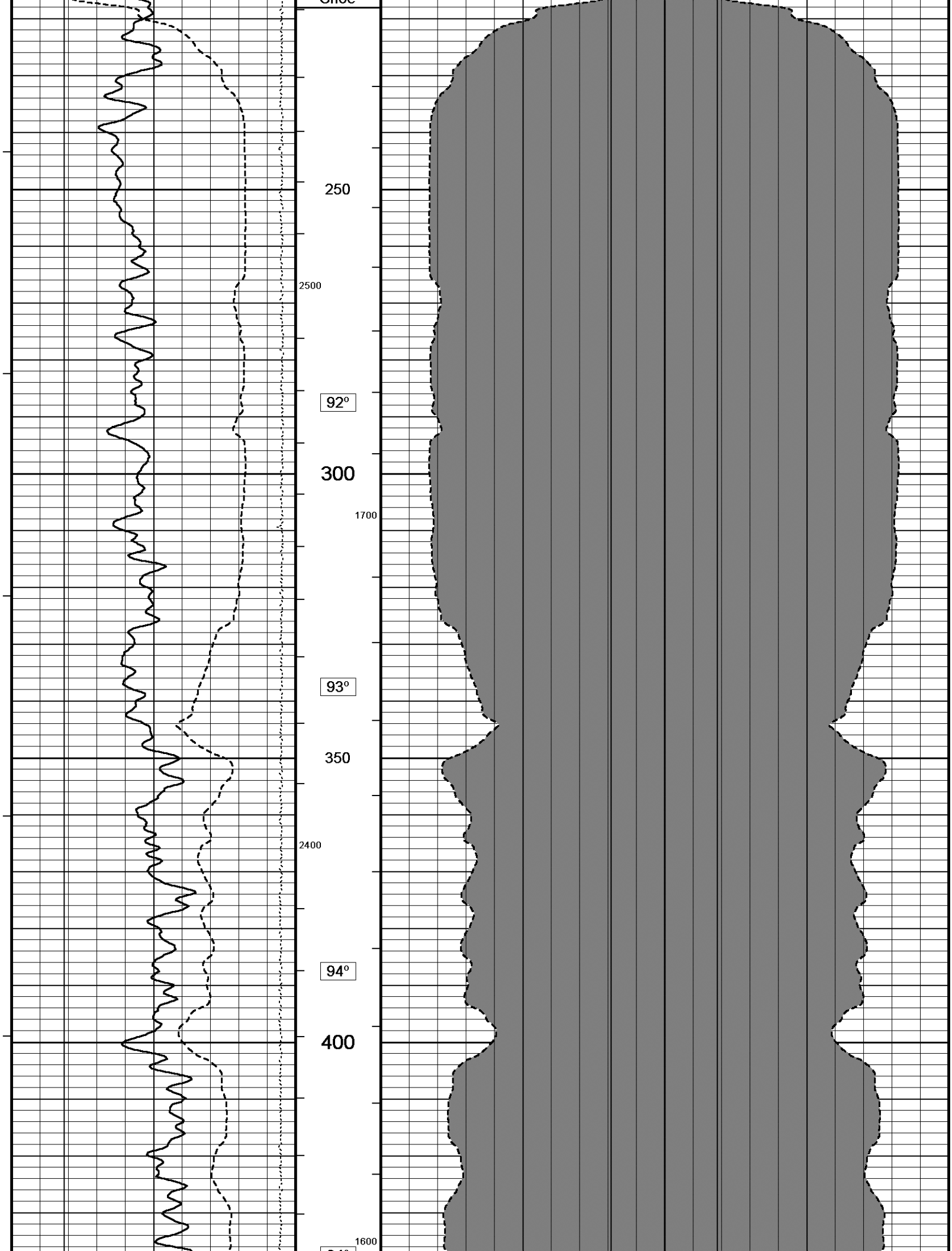
Replay Scale 1:240

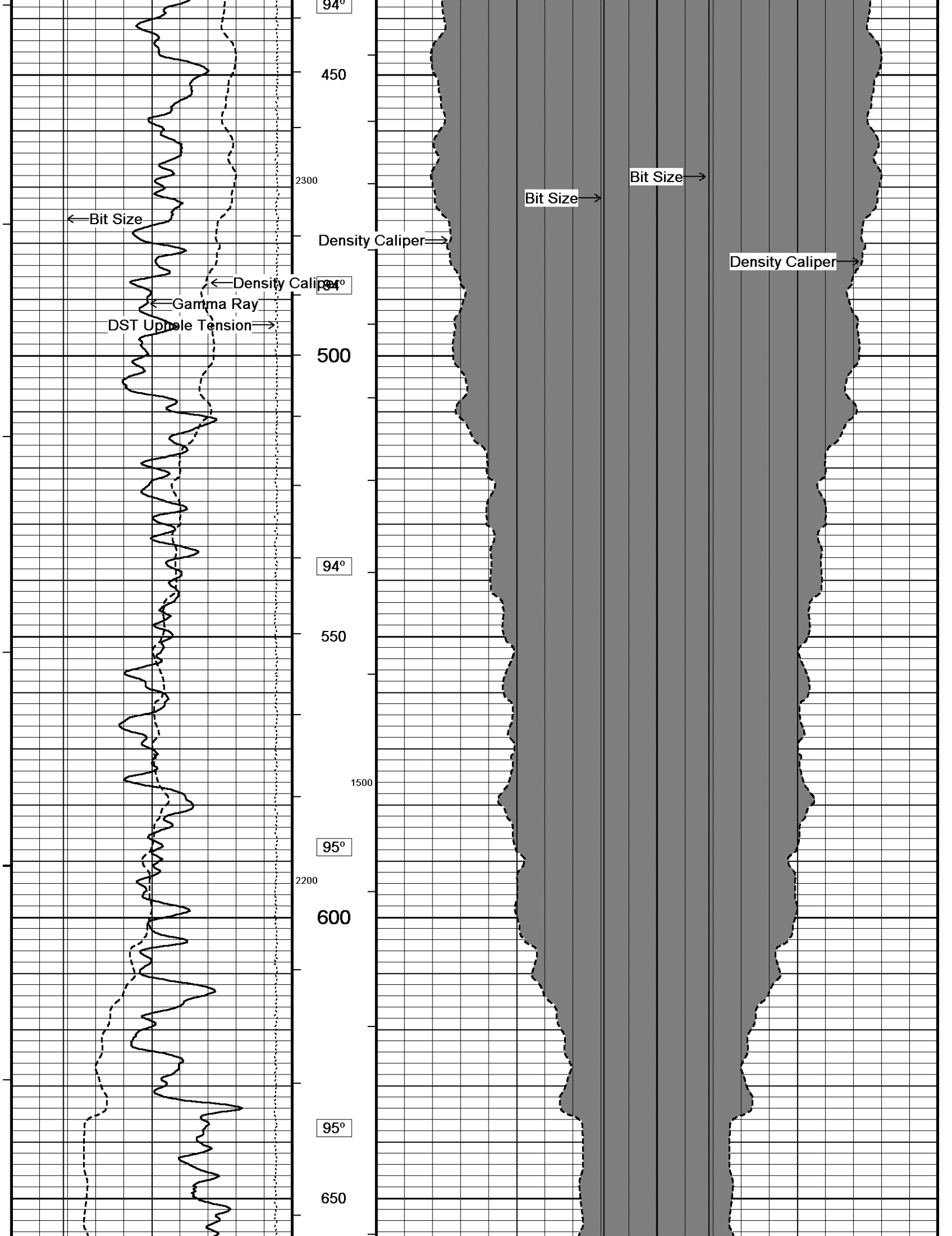
206

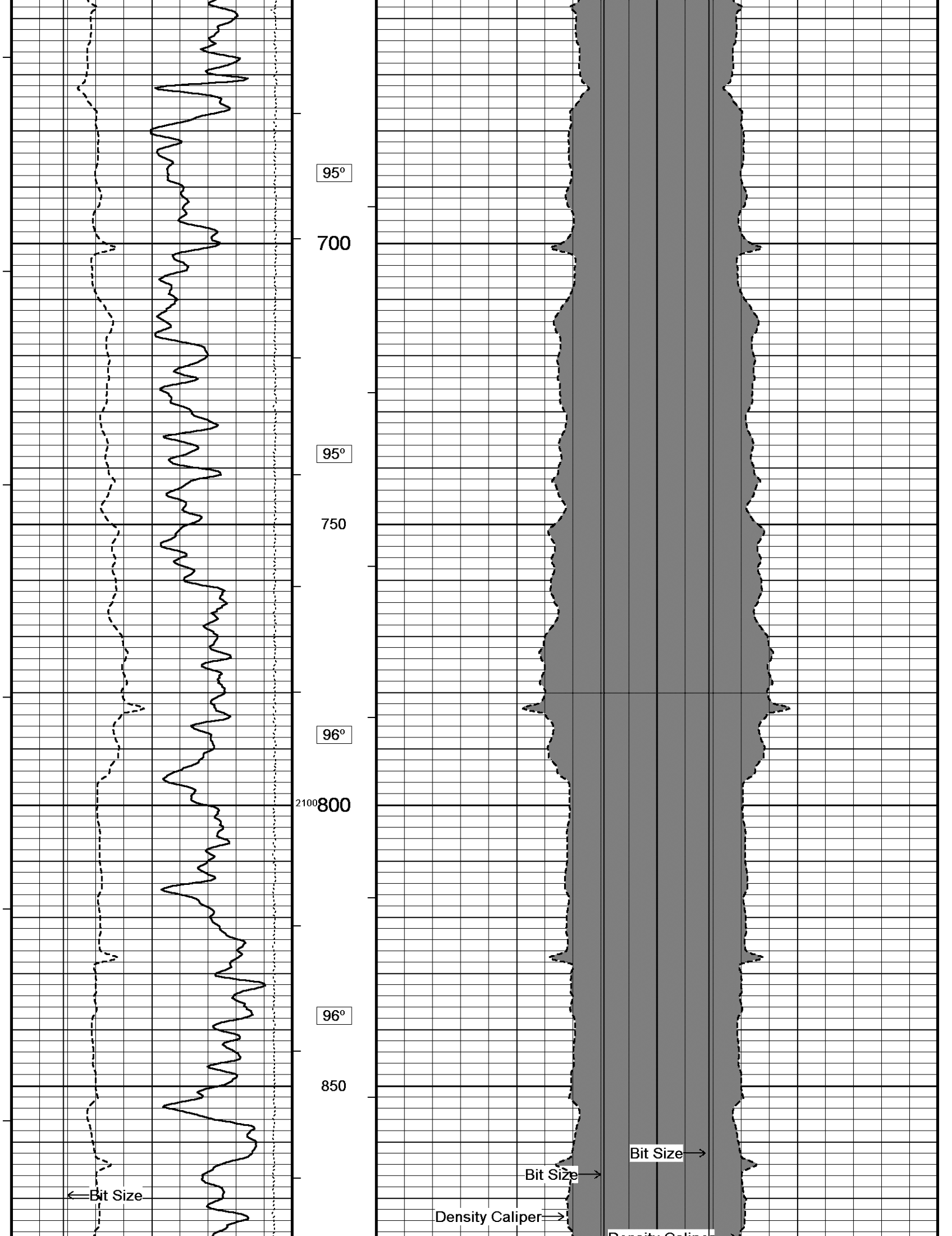
Casing Shoe

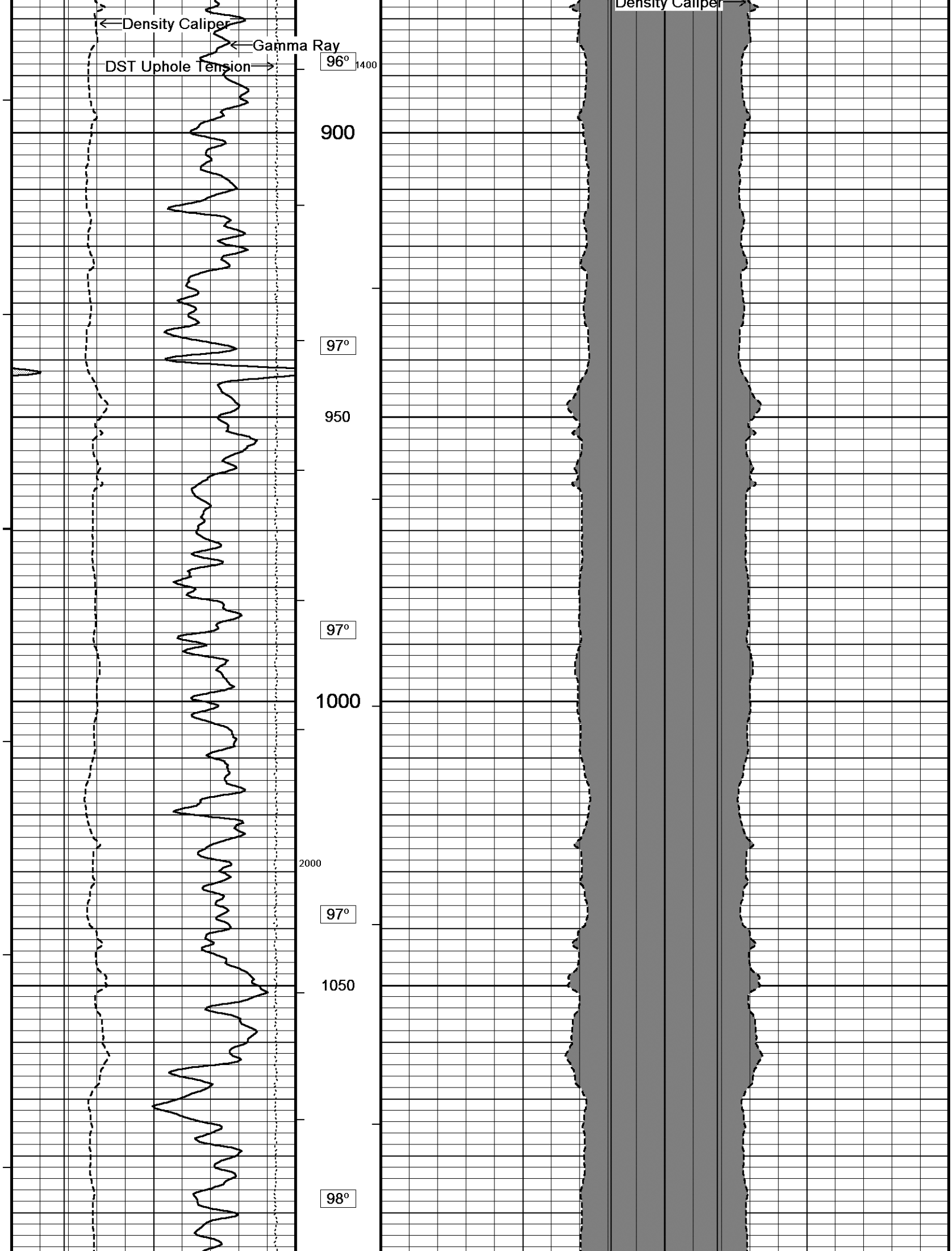
Density Caliper inches 16 11 6 / 6 11 16

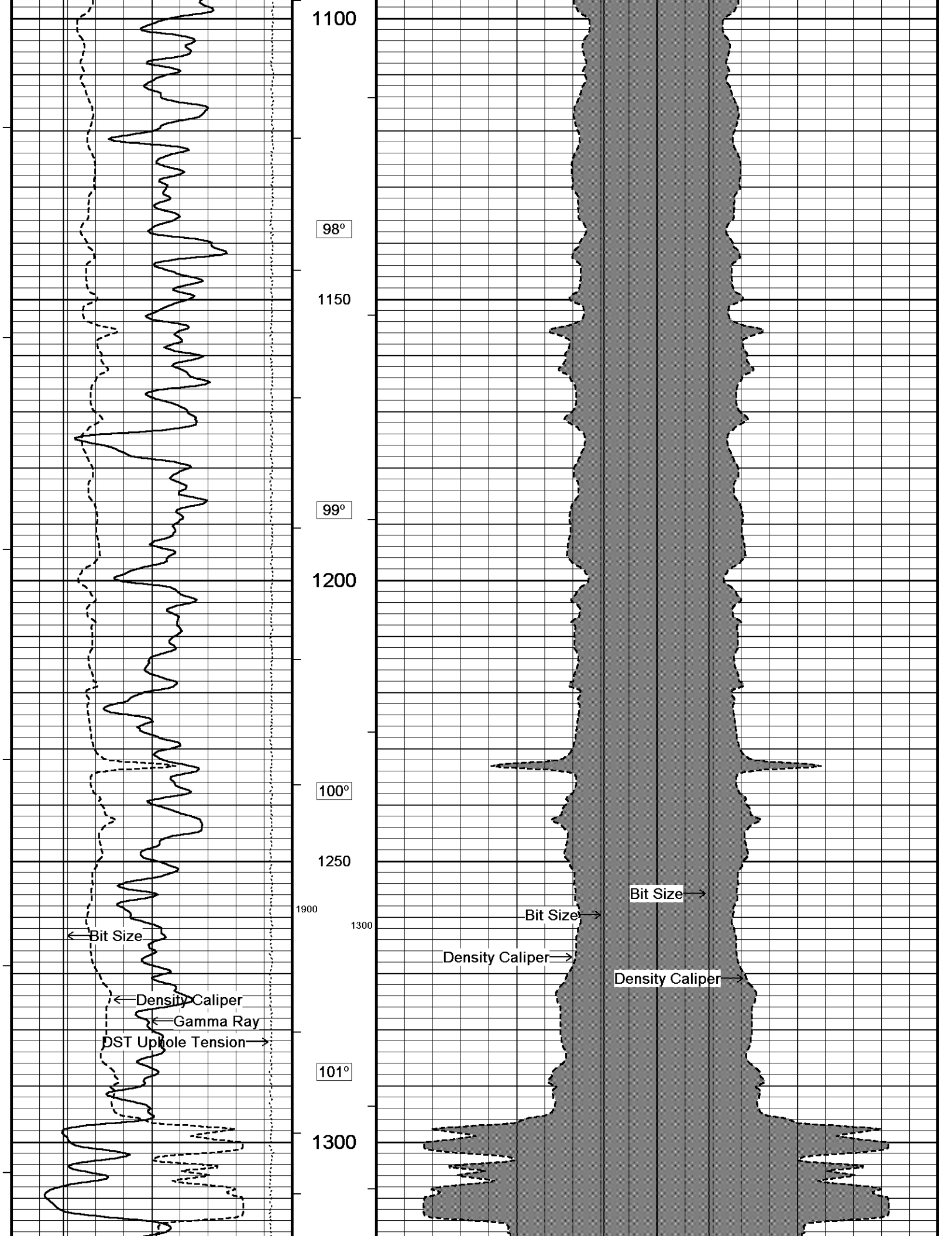
Bit Size inches 16 11 6 / 6 11 16

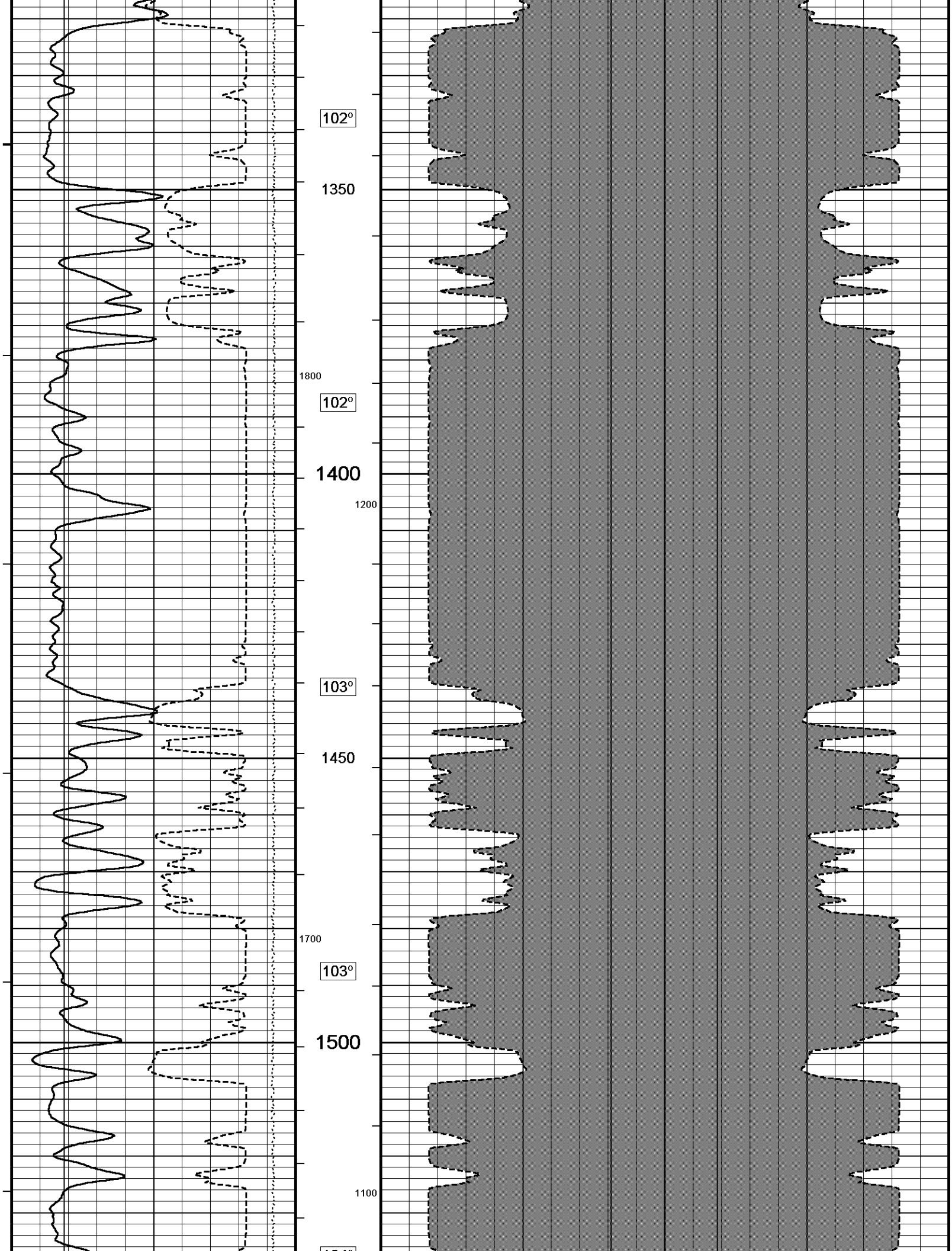

250
2500
92°
300
1700
93°
350
2400
94°
400
1600

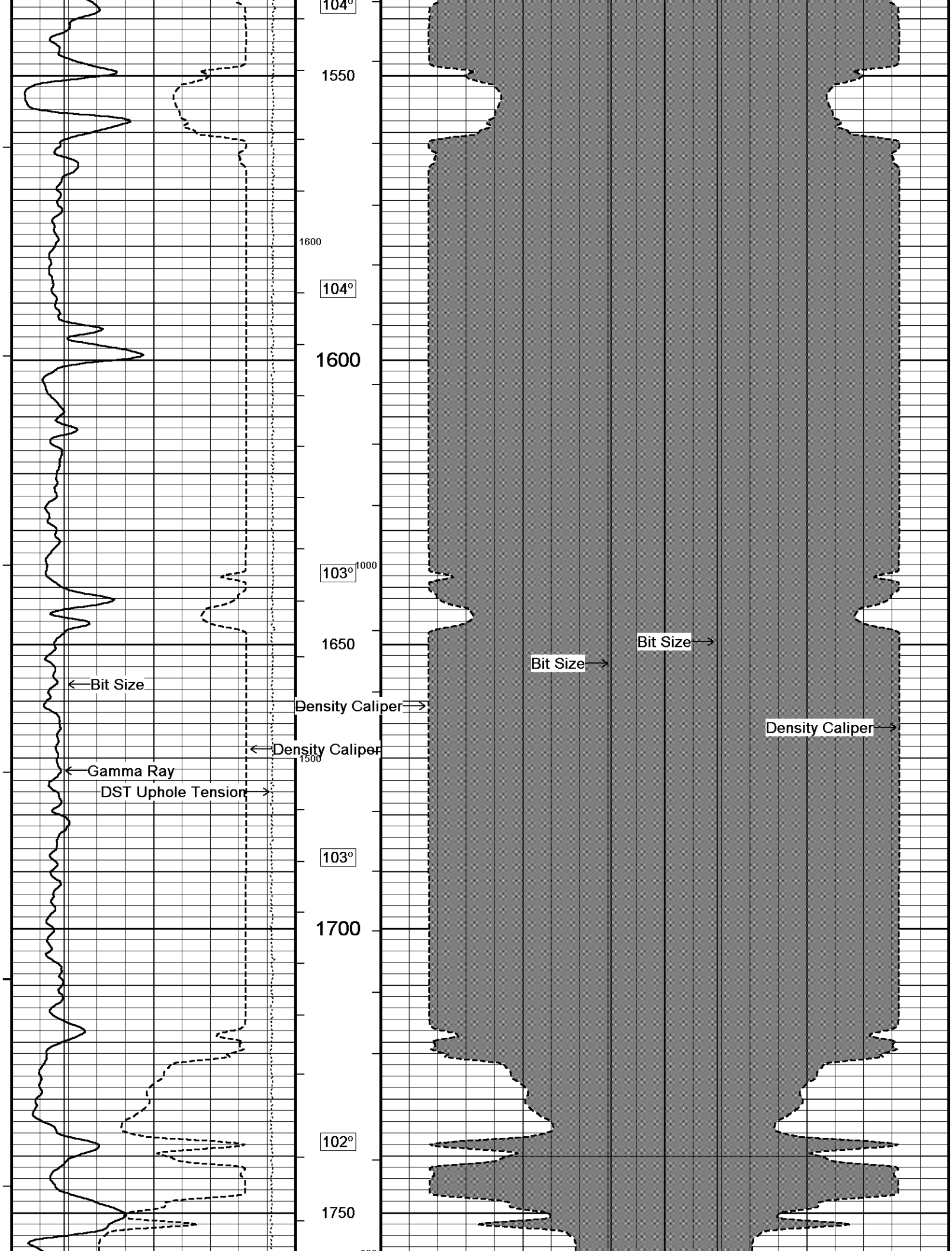

94°
450
2300
Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
94°
500
94°
550
1500
95°
2200
600
95°
650
Bit Size
Bit Size
Density Caliper
Density Caliper

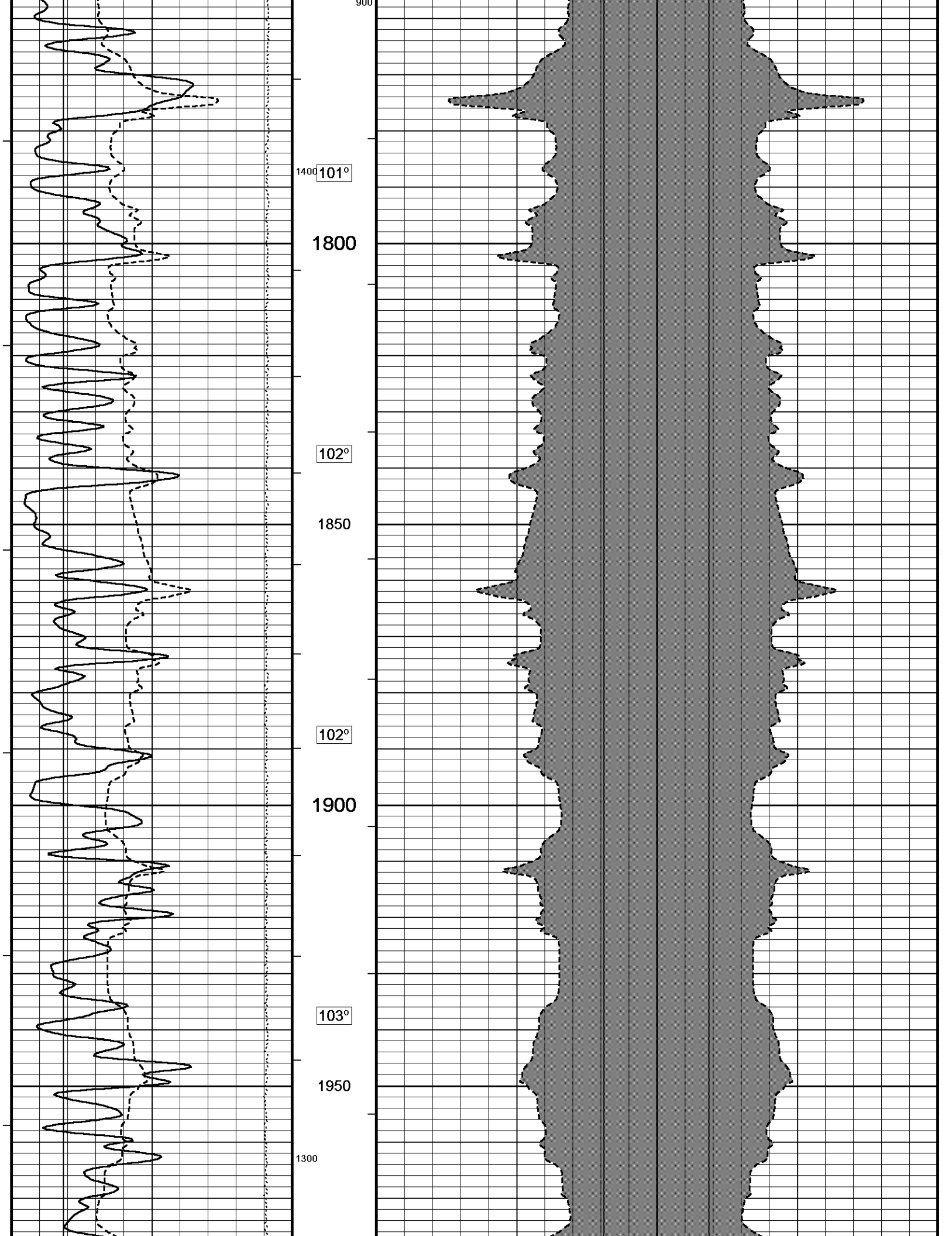

95°
700
95°
750
96°
2100
800
96°
850
Bit Size
Bit Size
Bit Size
Density Caliper

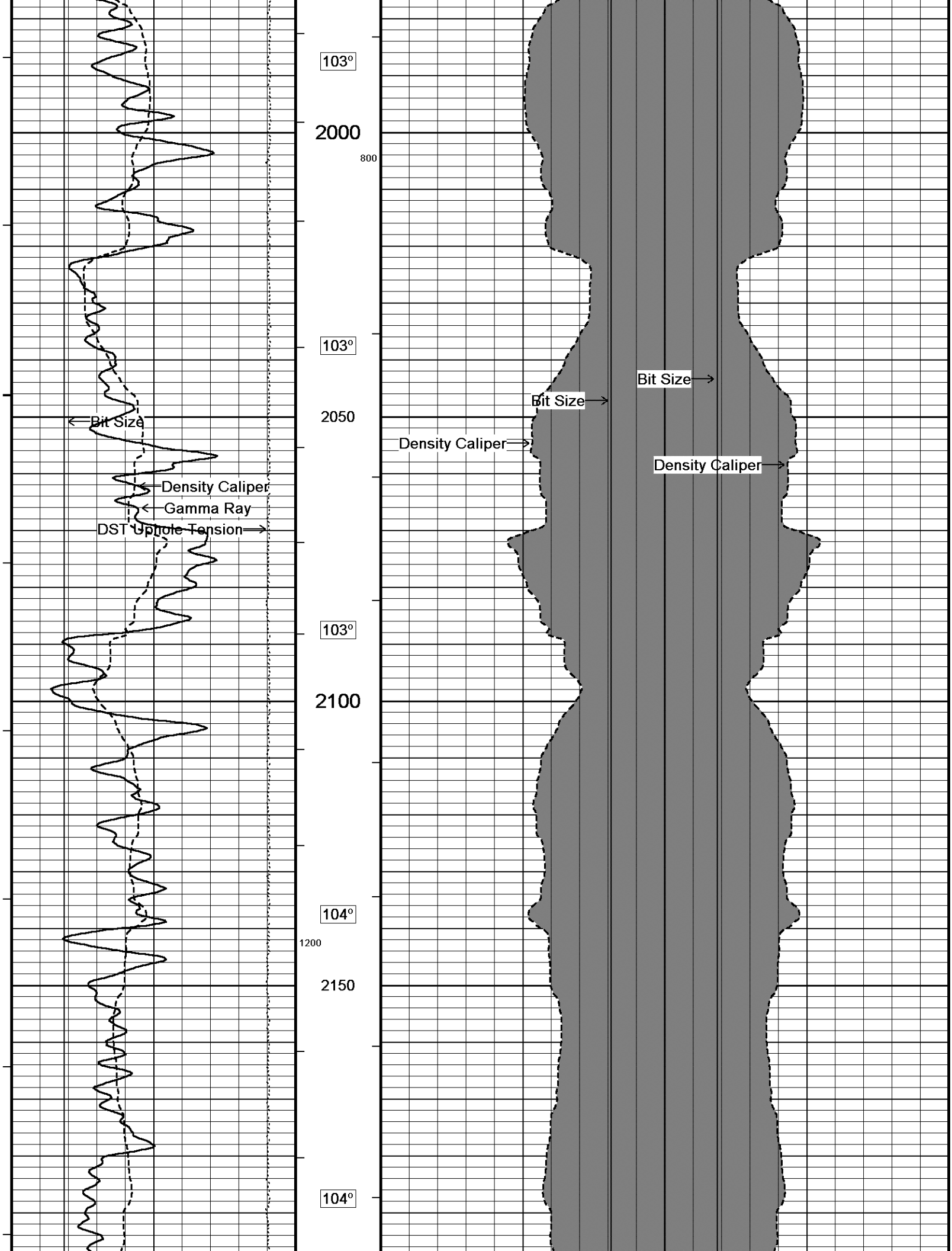

Density Caliper
Gamma Ray
DST Uphole Tension
96°
1400
900
97°
950
97°
1000
2000
97°
1050
98°
Density Caliper

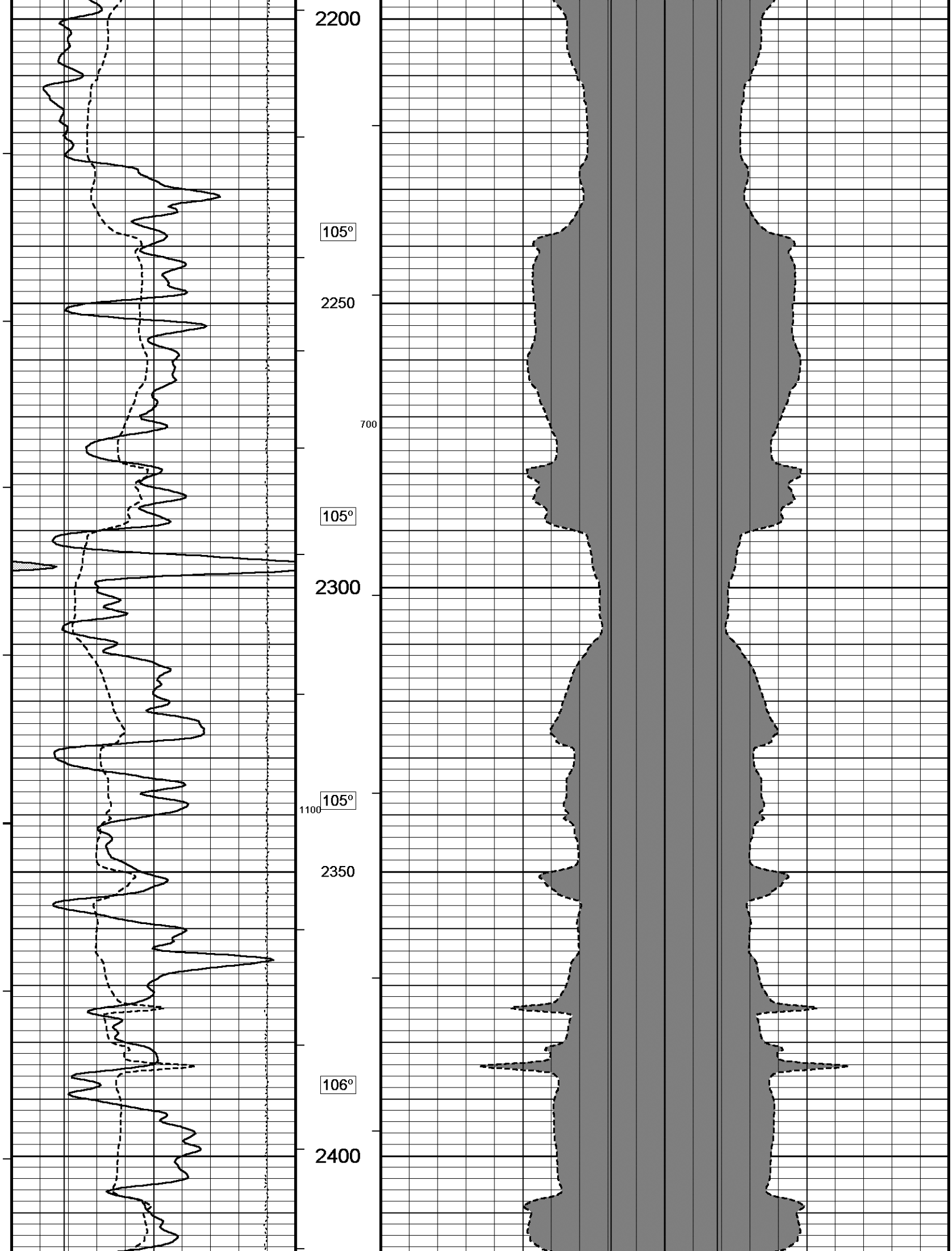

1100
98°
1150
99°
1200
100°
1250
1900
1300
101°
1300
Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
Bit Size
Bit Size
Density Caliper
Density Caliper

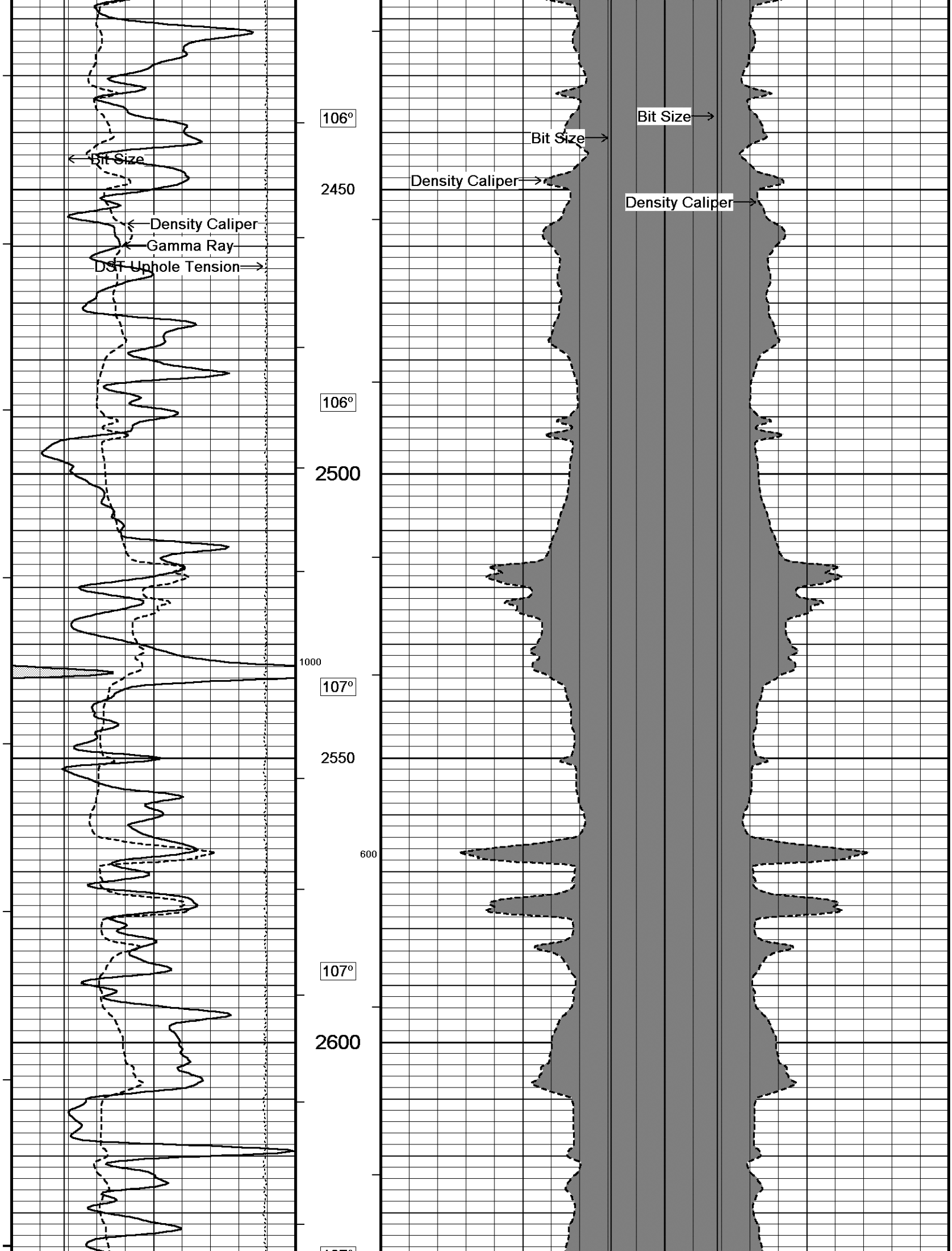

102°
1350
1800
102°
1400
1200
103°
1450
1700
103°
1500
1100

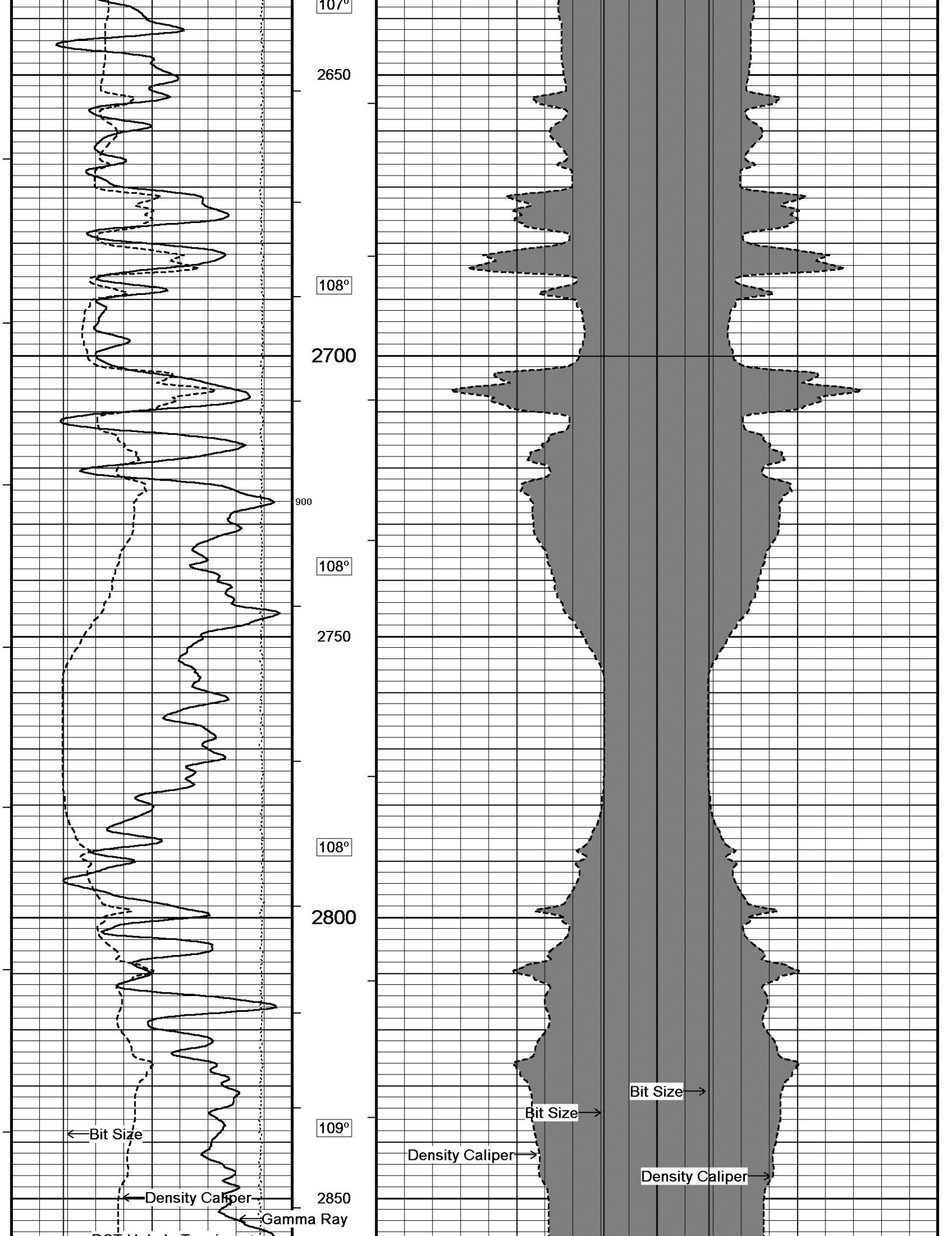

104°
1550
1600
104°
1600
103°
1000
1650
Bit Size
Bit Size
Bit Size
Density Caliper
Density Caliper
Density Caliper
1500
Gamma Ray
DST Uphole Tension
103°
1700
102°
1750

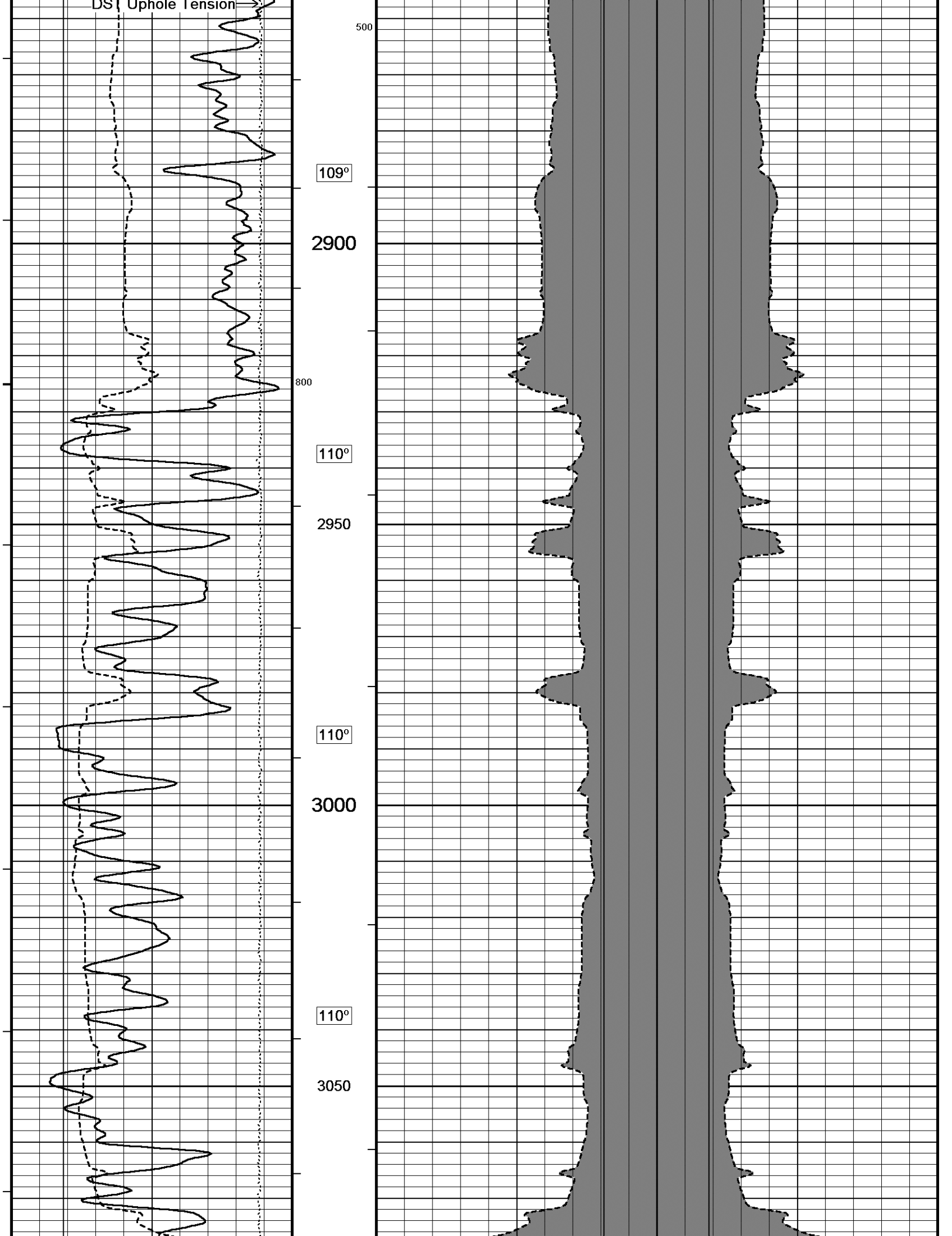

900
1400
101°
1800
102°
1850
102°
1900
103°
1950
1300

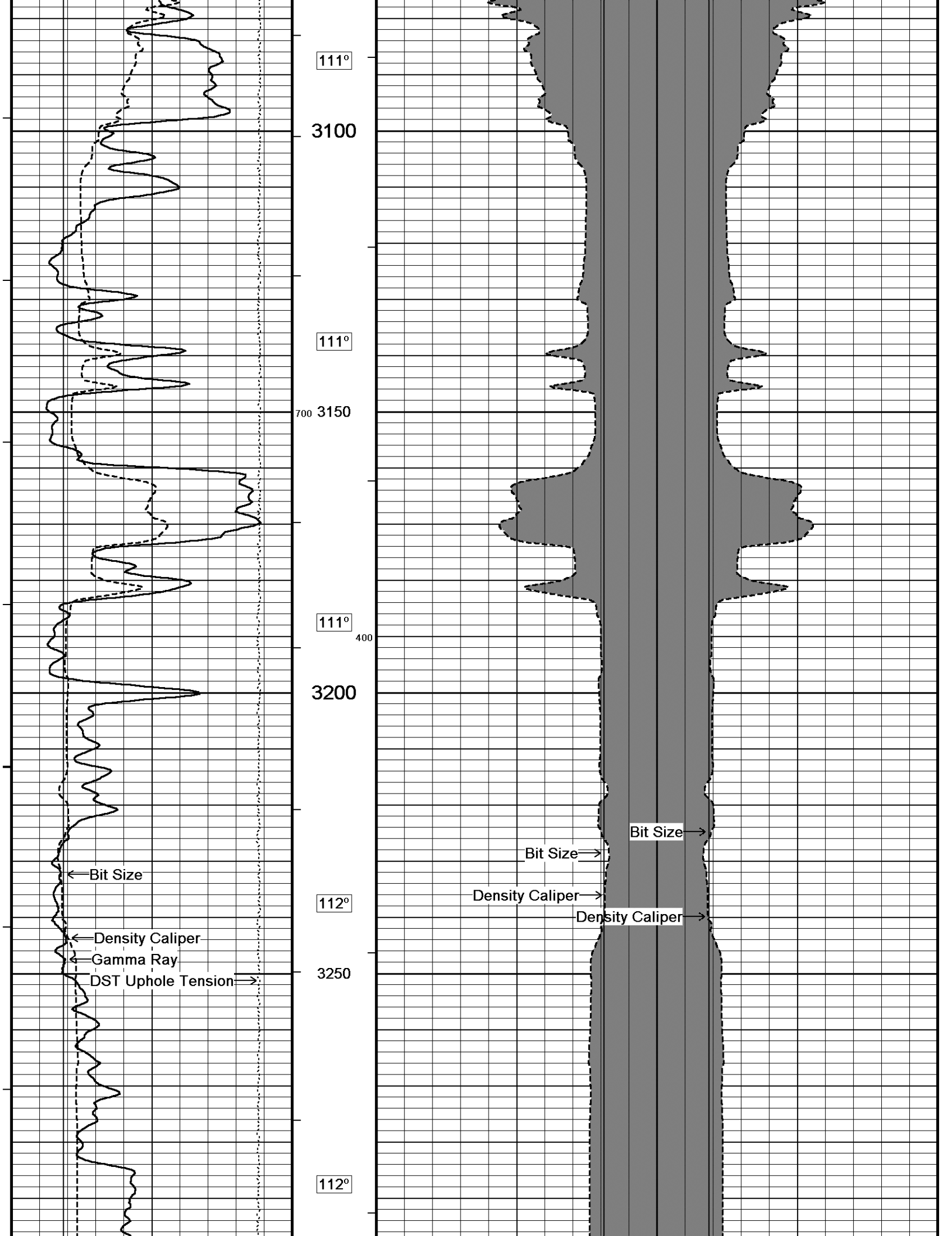

103°
2000
800
103°
Bit Size
Bit Size
2050
Density Caliper
Density Caliper
Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
103°
2100
104°
1200
2150
104°

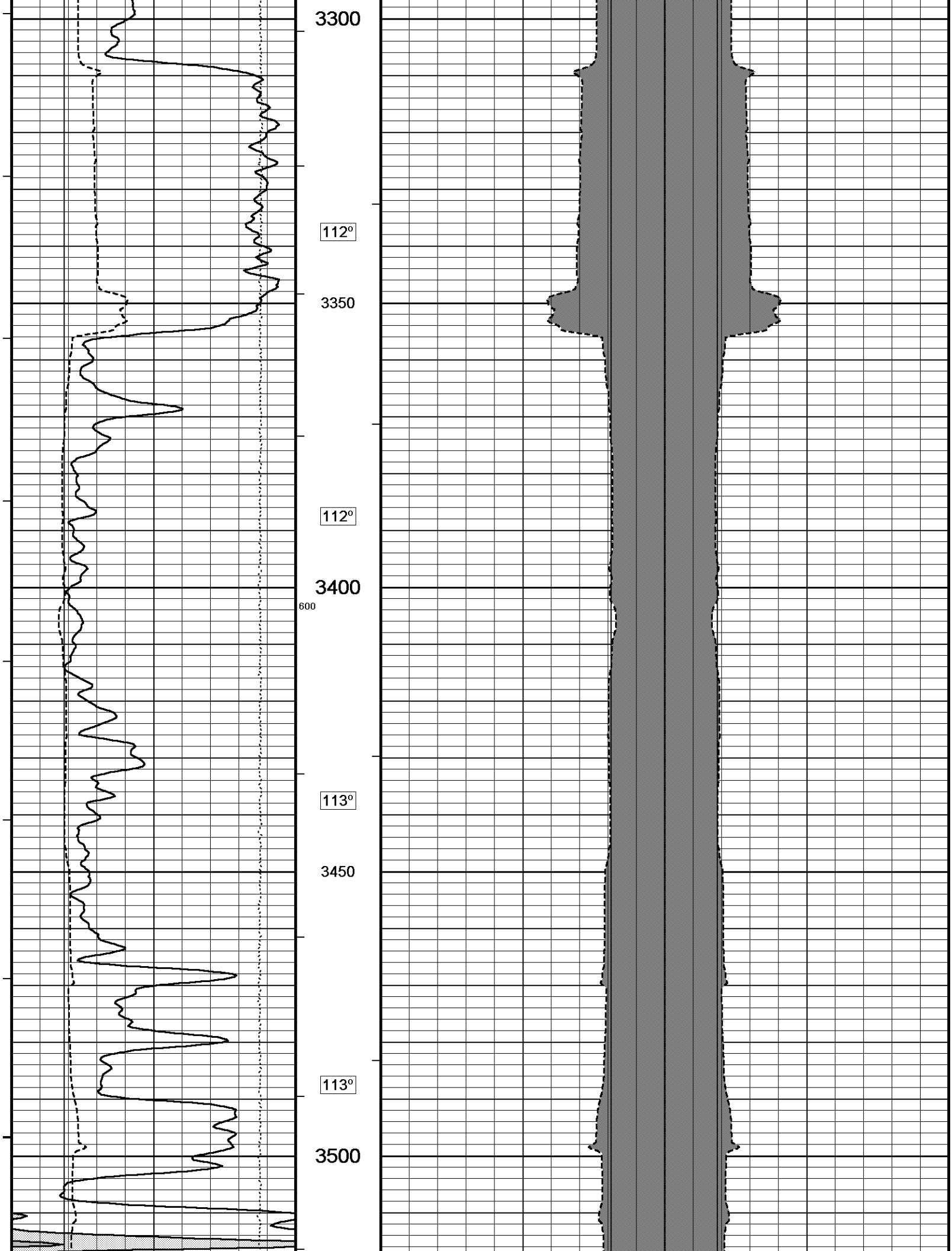

2200
105°
2250
700
105°
2300
105°
1100
2350
106°
2400

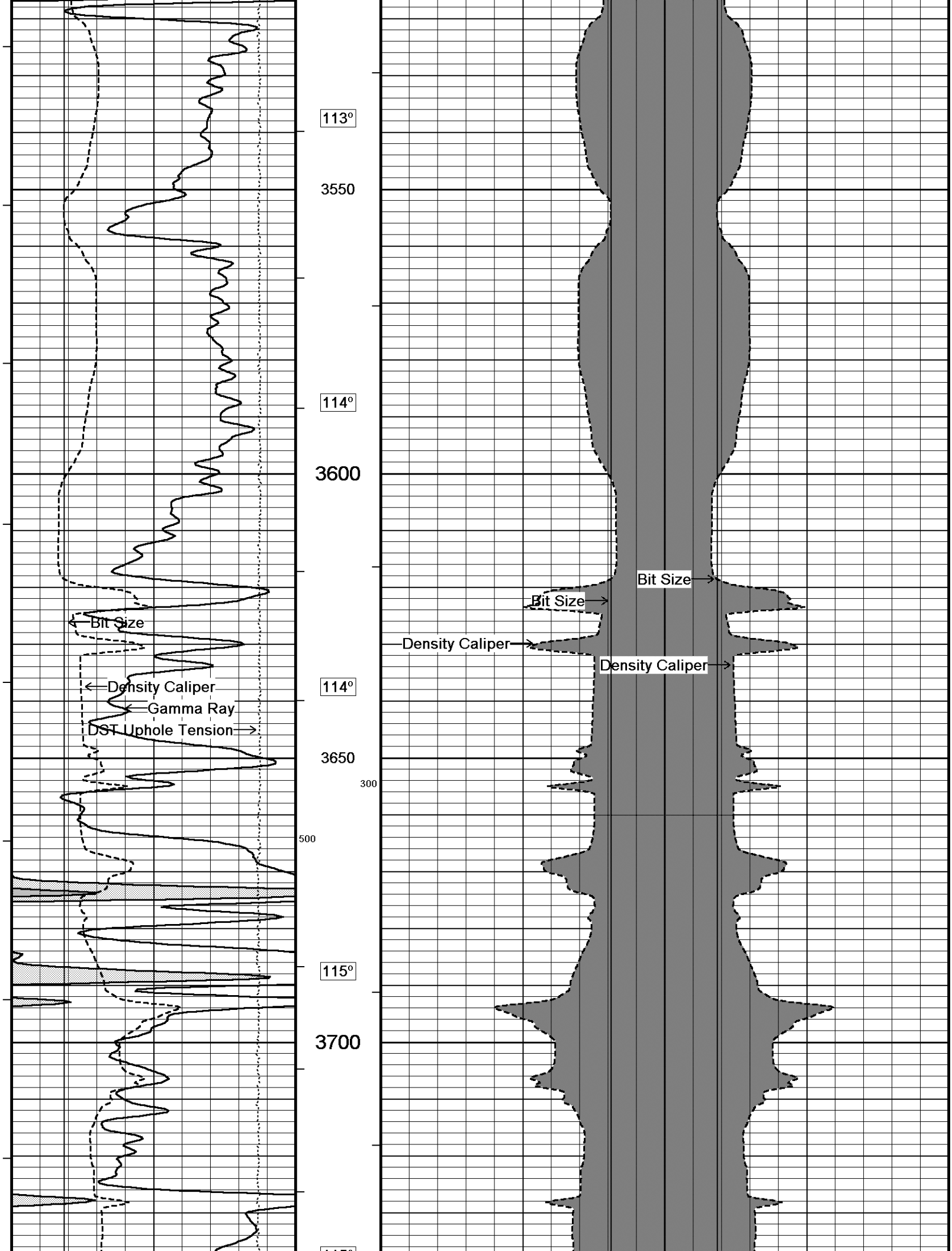

Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
106°
2450
106°
2500
1000
107°
2550
600
107°
2600
Bit Size
Bit Size
Density Caliper
Density Caliper

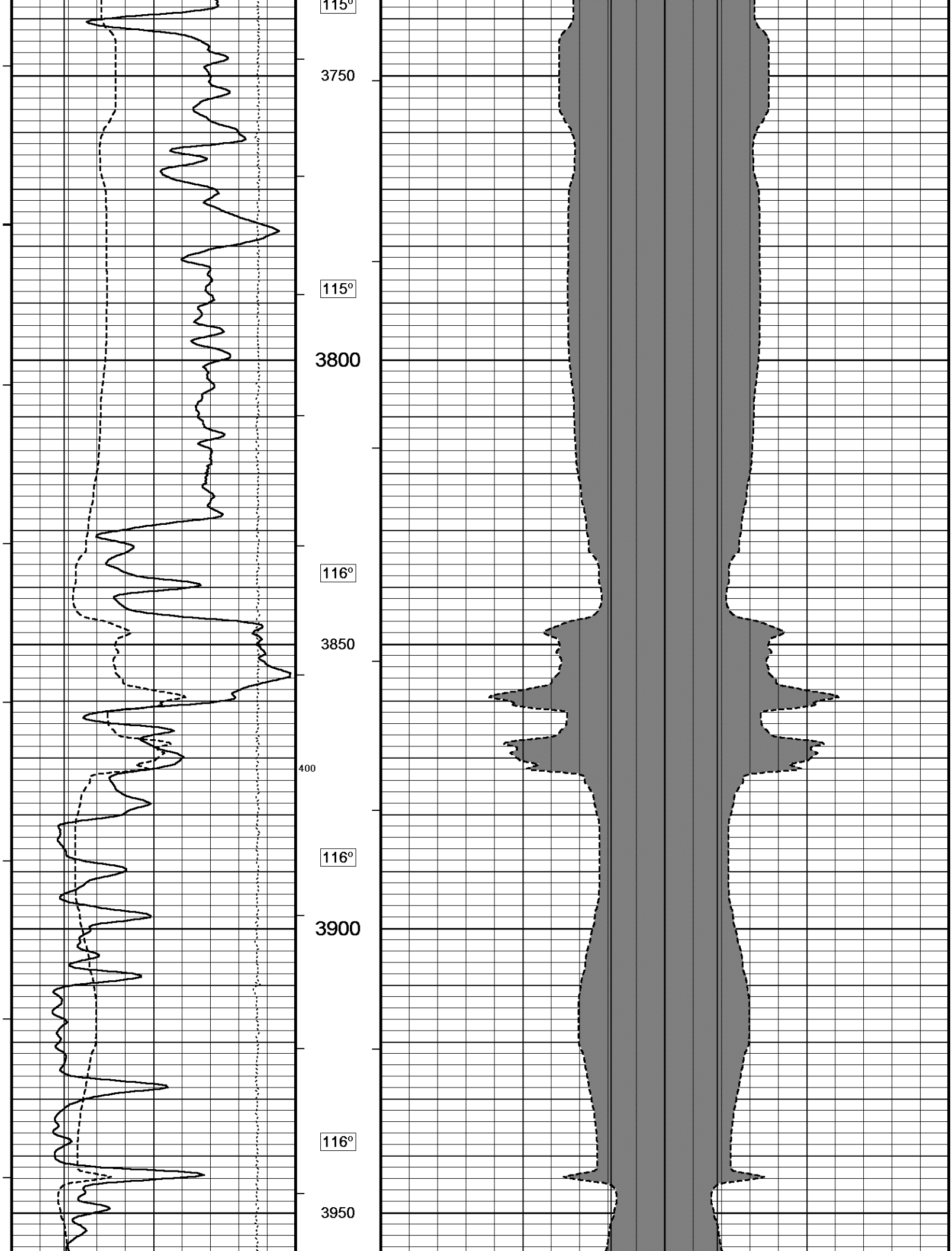

107°
2650
108°
2700
900
108°
2750
108°
2800
109°
2850
Bit Size
Density Caliper
Gamma Ray
Bit Size
Bit Size
Density Caliper
Density Caliper

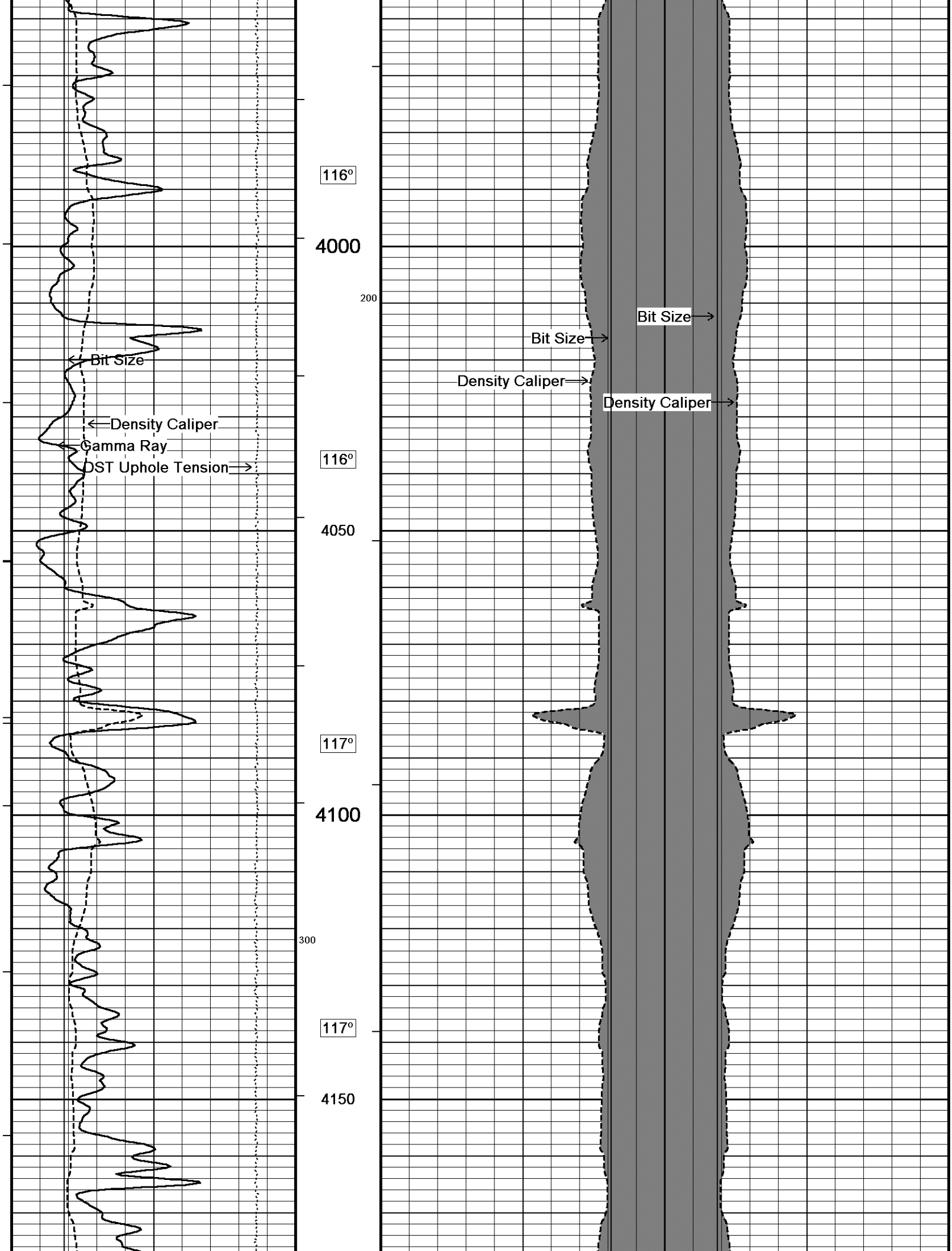

DST Uphole Tension
500
109°
2900
800
110°
2950
110°
3000
110°
3050

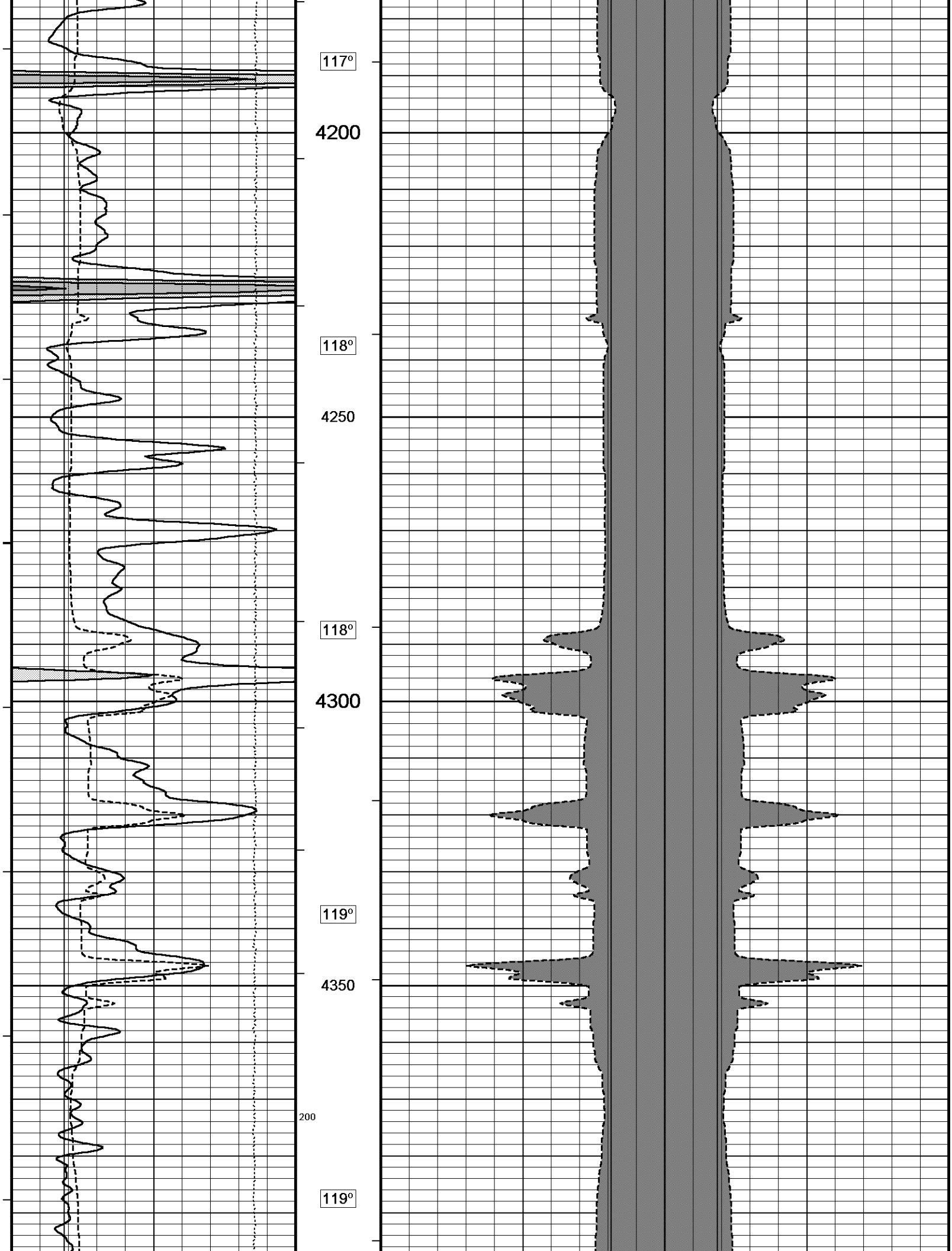

111°
3100
111°
700
3150
111°
400
3200
112°
3250
112°
Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
Bit Size
Bit Size
Density Caliper
Density Caliper

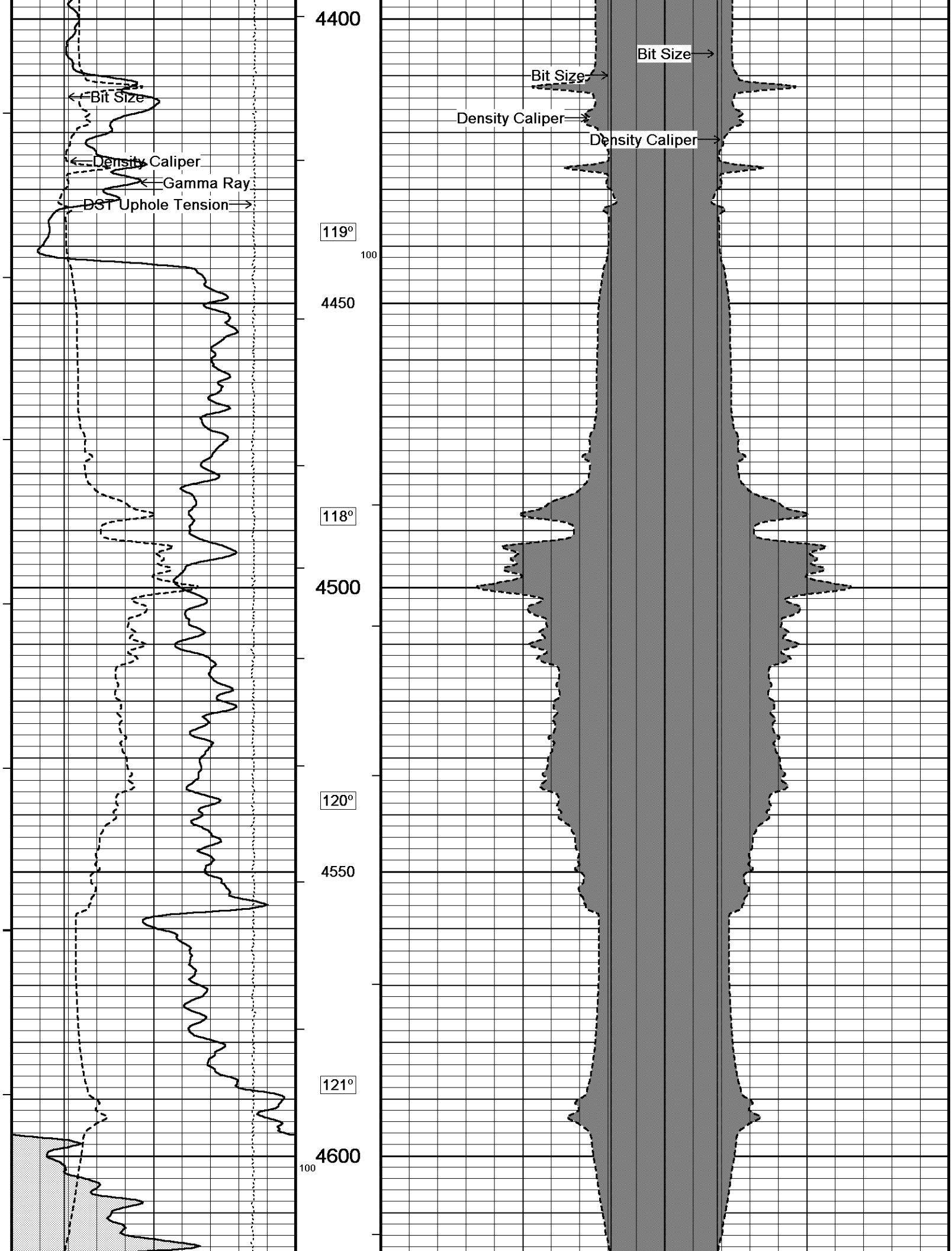

3300
112°
3350
112°
3400
600
113°
3450
113°
3500

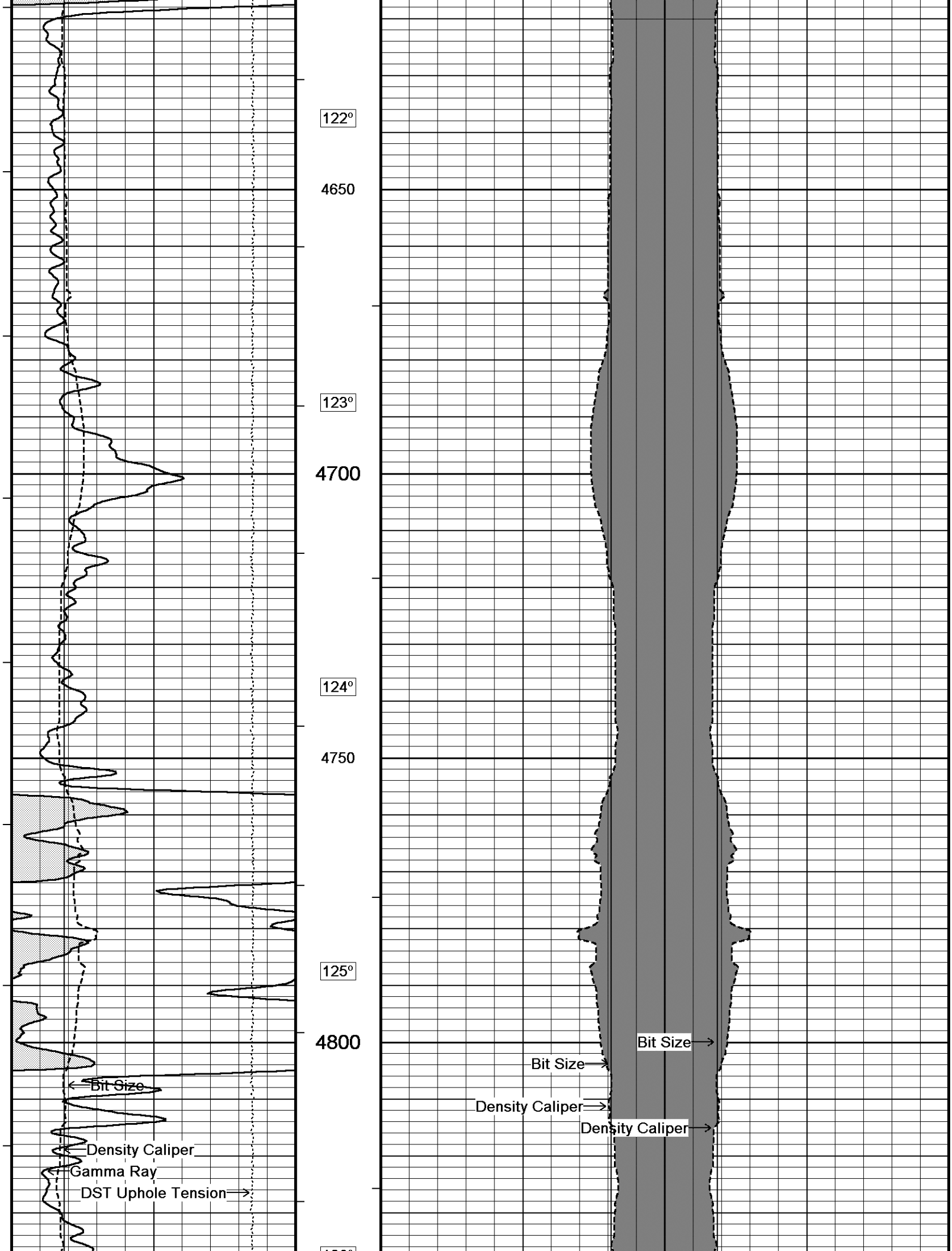

113°
3550
114°
3600
Bit Size
Bit Size
Density Caliper
Density Caliper
Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
114°
3650
300
500
115°
3700

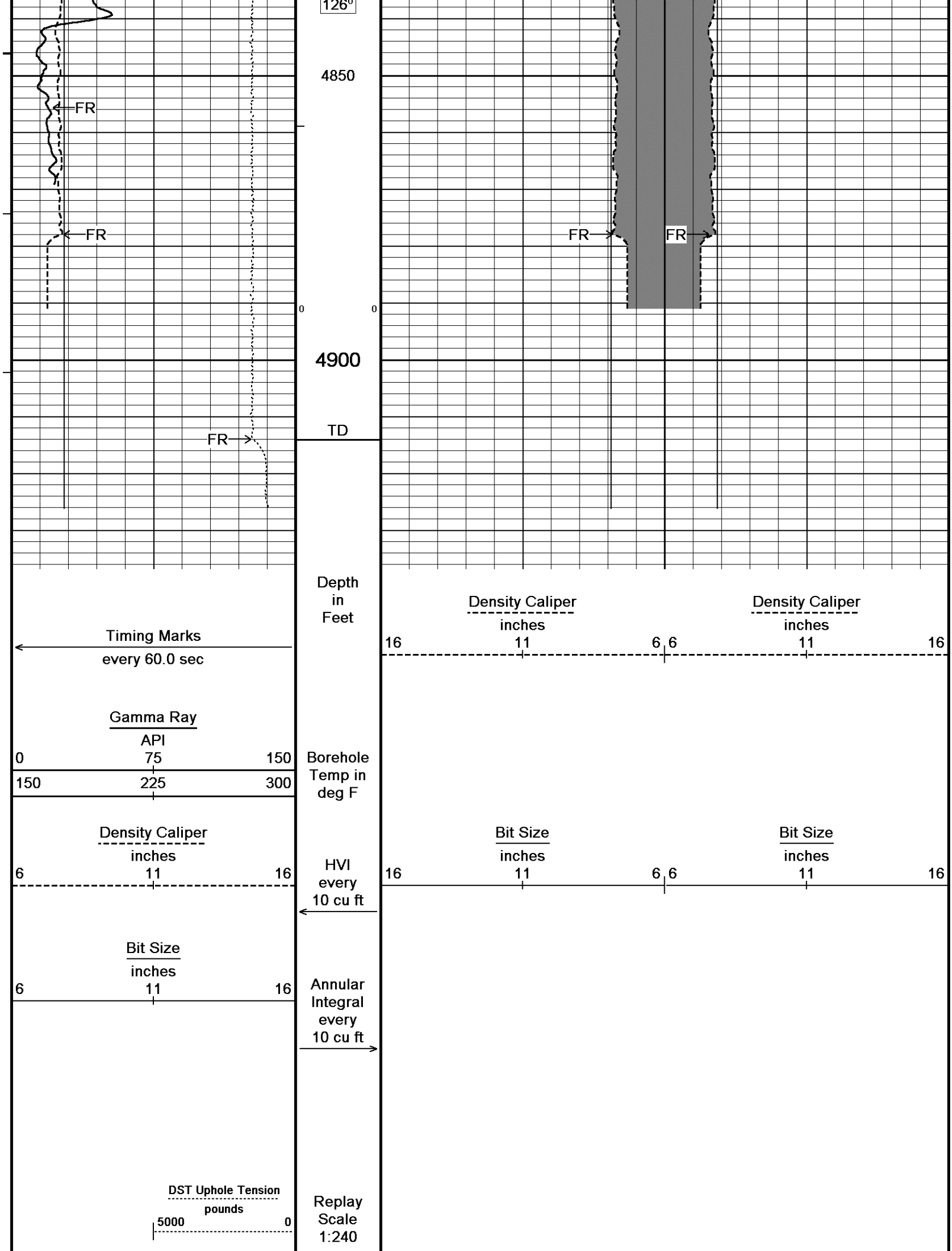

115°
3750
115°
3800
116°
3850
400
116°
3900
116°
3950


116°
4000
200
Bit Size
Bit Size
Density Caliper
Density Caliper
Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
116°
4050
117°
4100
300
117°
4150


117°
4200
118°
4250
118°
4300
119°
4350
200
119°


4400
Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
119°
100
4450
118°
4500
120°
4550
121°
4600
100
Bit Size
Bit Size
Density Caliper
Density Caliper


122°
4650
123°
4700
124°
4750
125°
4800
Bit Size
Bit Size
Density Caliper
Density Caliper
Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension


126°
4850
FR
FR
FR
FR
FR
0
0
4900
TD
Depth
in
Feet
Timing Marks
every 60.0 sec
Gamma Ray
API
0
75
150
150
225
300
Borehole
Temp in
deg F
Density Caliper
inches
6
11
16
HVI
every
10 cu ft
Bit Size
inches
6
11
16
Annular
Integral
every
10 cu ft
DST Uphole Tension
pounds
5000
0
Replay
Scale
1:240
Density Caliper
inches
16
11
6
6
Density Caliper
inches
11
16
Bit Size
inches
16
11
6
6
Bit Size
inches
11
16

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 24-JUN-2018 16:33
Filename: C:\Minimus 18.01.6830\Data\Grand Mesa Ringer #1-24\Grand Mesa Ringer #1-24_003.dta — Recorded on 24-JUN-2018 13:00
System Versions: Logged with 18.01.6830 Plotted with 18.01.6830

5 INCH MAIN

# BEFORE SURVEY CALIBRATION

C:\Minimus 18.01.6830\Data\Grand Mesa Ringer #1-24\Grand Mesa Ringer #1-24_002.dta

## General Constants All 000

Last Edited on 24-JUN-2018,11:52

| | | |
|---|---|---|
| **General Parameters** | | |
| Mud Resistivity | 0.420 | ohm-metres |
| Mud Resistivity Temperature | 75.000 | degrees F |
| Water Level | 0.000 | feet |
| Borehole Fluid Processing | Wet Hole | |
| **Hole/Annular Volume and Differential Caliper Parameters** | | |
| HVOL Method | Single Caliper | |
| HVOL Caliper 1 | Density Caliper | |
| HVOL Caliper 2 | N/A | |
| Annular Volume Diameter | 5.500 | inches |
| Caliper for Differential Caliper | Density Caliper | |
| **Rwa Parameters** | | |
| Porosity used | Crossplot Porosity | |
| Resistivity used | Deep Induction | |
| RWA Constant A | 0.620 | |
| RWA Constant M | 2.150 | |
| SW/APOR Tool Source | 0.000 | |

## Gamma Calibration MCG-D.A 246

Field Calibration on 24-JUN-2018,09:00

| | Measured | Calibrated (API) |
|---|---|---|
| Background | 57 | 39 |
| Calibrator (Gross) | 734 | 495 |
| Calibrator (Net) | 676 | 456 |

## Gamma Calibration Tolerances MCG-D.A 246

Ratio 1.483 (1.40 | 1.475 | 1.55) Counts/API

## Gamma Constants MCG-D.A 246

Last Edited on 24-JUN-2018,09:01

| | | |
|---|---|---|
| Gamma Calibrator Number | MCGGRCC141 | |
| GRC-M Calibrator Jig in Use? | NO | |
| Inactive Background Jig in Use? | NO | |
| Mud Density | 1.13 | gm/cc |
| Caliper Source for Processing | Density Caliper | |
| Tool Position | Eccentred | |
| Potassium Equivalence | Chloride | |
| K Mud Concentration | 0.00 | % |

## High Resolution Temperature Calibration MCG-D.A 246

Field Calibration on 22-JUN-2018,16:25

| | Measured | Calibrated(Deg F) |
|---|---|---|
| Lower | 50.00 | 50.00 |
| Upper | 212.00 | 212.00 |

## High Resolution Temperature Constants MCG-D.A 246

Last Edited on 07-JUN-2018,10:42

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

## Caliper Calibration MPD-C.A 216

Base Calibration on 07-JUN-2018 14:09
Field Calibration on 24-JUN-2018,08:58

Base Calibration

| Reading No | Measured | Calibrator Size (in) |
|---|---|---|
| 1 | 14245 | 3.99 |
| 2 | 22960 | 5.98 |
| 3 | 31650 | 7.97 |
| 4 | 39952 | 9.86 |

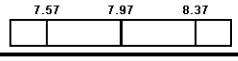
| | | |
|---|---|---|
| 4 | 39952 | 9.86 |
| 5 | 49231 | 11.92 |
| 6 | N/A | N/A |

Field Calibration

| Measured Caliper (in) | Actual Caliper (in) |
|---|---|
| 7.98 | 7.97 |

Caliper Calibration Tolerances MPD-C.A 216

Long Arm Field Cal. 7.98 in




## DOWNHOLE EQUIPMENT

C:\Minimus 18.01.6830\Data\Grand Mesa Ringer #1-24\Grand Mesa Ringer #1-24_002.dta

Cablehead, 11 pin
CBH-C 0 LG: 2.40 ft WT: 24.3 lb OD: 2.244 in

Compact Swivel Head Adaptor
SHA-J.B 724 LG: 2.30 ft WT: 22.0 lb OD: 2.244 in

Compact Comms Gamma
MCG-D.A 246 LG: 8.70 ft WT: 63.9 lb OD: 2.244 in

Compact Micro-Resistivity
MMR-B.A 91 LG: 8.59 ft WT: 81.6 lb OD: 4.882 in

Compact Neutron
MDN-B.A 292 LG: 5.04 ft WT: 50.7 lb OD: 2.244 in

Compact Density/Caliper
MPD-C.A 216 LG: 9.59 ft WT: 90.4 lb OD: 2.913 in

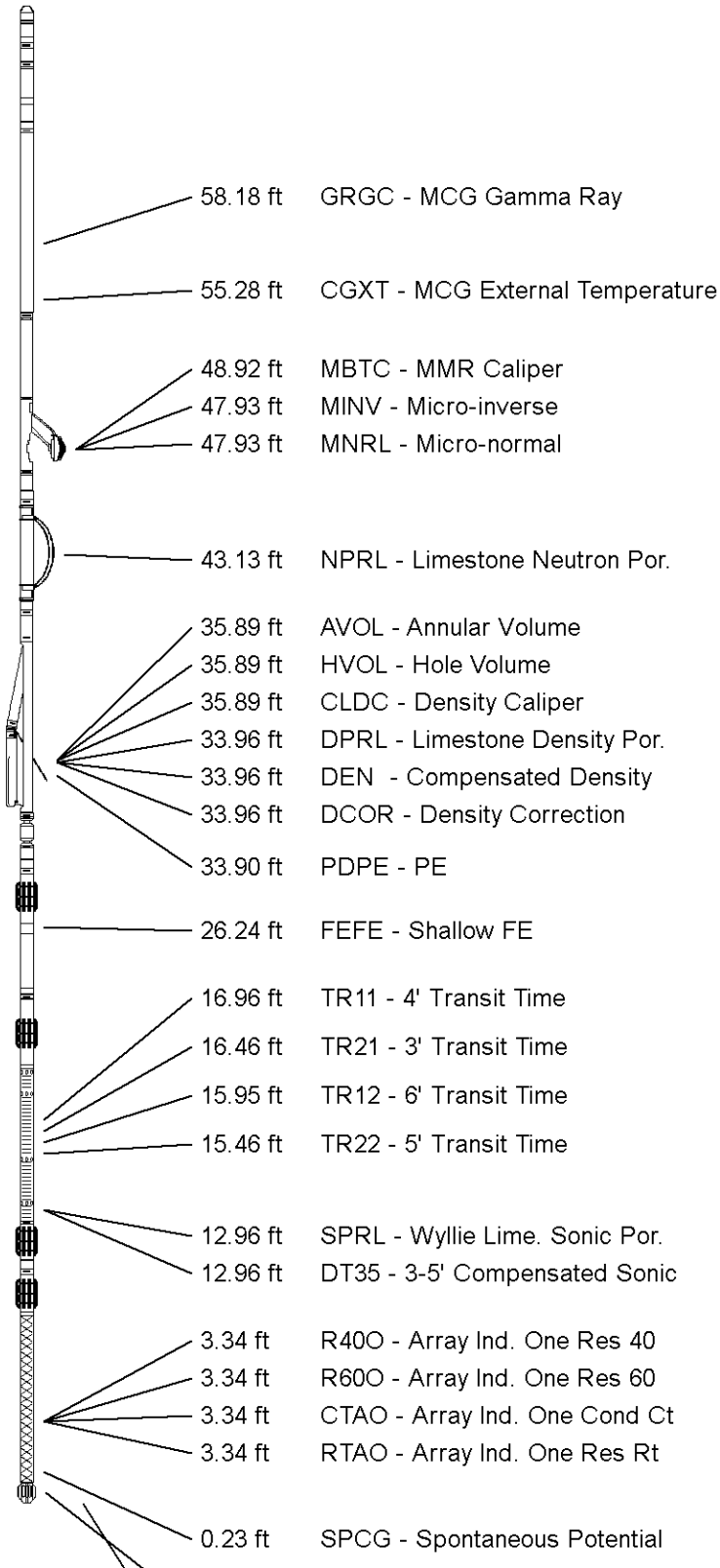
Compact Knuckle Joint
SKJ-D.A 167 LG: 2.17 ft WT: 24.3 lb OD: 2.244 in

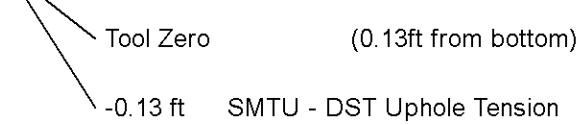
Compact Focussed Electric
MFE-A.A 135 LG: 6.05 ft WT: 48.5 lb OD: 2.244 in

Compact Sonic
MSS-C.K 319 LG: 12.52 ft WT: 72.8 lb OD: 2.244 in

Compact Induction
MAI-A.A 111 LG: 10.81 ft WT: 48.5 lb OD: 2.244 in

Total Length: 68.16 ft Weight: 526.9 lb






All measurements relative to tool zero.

| | |
|---|---|
| COMPANY | GRAND MESA OPERATING COMPANY |
| WELL | RINGER #1-24 |
| FIELD | WILDCAT |
| PROVINCE/COUNTY | BARBER |
| COUNTRY/STATE | U.S.A. / KANSAS |

| | | | | | |
|---|---|---|---|---|---|
| Elevation Kelly Bushing | 1796 | feet | First Reading | 4880.00 | feet |
| Elevation Drill Floor | 1794 | feet | Depth Driller | 4920.00 | feet |
| Elevation Ground Level | 1791 | feet | Depth Logger | 4914.00 | feet |

Weatherford®

# CALIPER LOG