Weatherford®

CALIPER LOG

COMPANY	McCOY PETROLEUM CORPORATION
WELL	MTPRC 'B' #3-22
FIELD	ALFORD
PROVINCE/COUNTY	KIOWA
COUNTRY/STATE	USA / KANSAS
LOCATION	1980' FSL & 1320' FEL

SEC 22	TWP 30S	RGE 19W	Other Services
Latitude			
Longitude			
API Number	15-097-21792		

Permanent Datum GL, Elevation 2230 feet
Log Measured From KB
Drilling Measured From KB

Elevations:	feet
KB	2243.00
DF	2241.00
GL	2230.00

Date	31-MAY-2014			
Run Number	ONE			
Service Order	4558-88689664			
Depth Driller	5200.00	feet		
Depth Logger	5200.00	feet		
First Reading	5181.00	feet		
Last Reading	643.00	feet		
Casing Driller	641.00	feet		
Casing Logger	643.00	feet		
Bit Size	7.875	inches		
Hole Fluid Type	CHEMICAL			
Density / Viscosity	9.40 lb/USg	69.00 CP		
PH / Fluid Loss	9.00	9.60 ml/30Min		
Sample Source	MUDPIT			
Rm @ Measured Temp	0.85 @ 73.0	ohm-m		
Rmf @ Measured Temp	0.68 @ 73.0	ohm-m		
Rmc @ Measured Temp	1.02 @ 73.0	ohm-m		
Source Rmf / Rmc	CALC	CALC		
Rm @ BHT	0.56 @113.0	ohm-m		
Time Since Circulation	4 HOURS			
Max Recorded Temp	113.00	deg F		
Equipment / Base	13244	LIB		
Recorded By	ADAM SILL		JEFFREY RANDLE	
Witnessed By	DAVE WILLIAMS		ZACH WIELE	
JOB #	LB14-164			

BOREHOLE RECORD

Last Edited: 31-MAY-2014 04:25

Bit Size inches	Depth From feet	Depth To feet
7.875	641.00	5200.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	641.00	24.00

REMARKS

- SOFTWARE ISSUE: WLS 13.08.2113.
- RUN ONE: MCG, MML, MDN, MPD, MFE, MAI RUN IN COMBINATION.
  - HARDWARE: DUAL BOWSPRING USED ON MDN.
  0.5 INCH STANDOFF USED ON MFE.
  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: 1902 CU.FT.
- ANNULAR HOLE VOLUME WITH 5.5 INCH PRODUCTION CASING FROM TD TO 3900 FEET: 218 CU.FT.
- RIG: STERLING DRILLING #5

- RIG: STERLING DRILLING #3.

- ENGINEER: A. SILL.

- OPERATOR: C. RAMIREZ.

- JUNIOR FIELD ENGINEER: J. RANDLE.

In interpreting, communicating or providing information and/or making recommendations, either written or oral, as to logs or test or other data, type or amount of material, or Work or other service to be furnished, or manner of performance, or in predicting results to be obtained, the Contractor will give the Company the benefit of the Contractor's best judgment based on its experience and will perform all such Work in a good and workmanlike manner. Any interpretation of test or other data, and any recommendation or reservoir description based upon such interpretations, are opinions based upon inferences from measurements and empirical relationships and assumptions, which inferences and assumptions are not infallible, and with respect to which professional engineers and analysts may differ. ACCORDINGLY ANY INTERPRETATION OR RECOMMENDATION RESULTING FROM THE SERVICES WILL BE AT THE SOLE RISK OF THE COMPANY, AND THE CONTRACTOR CANNOT AND DOES NOT WARRANT THE ACCURACY, CORRECTNESS OR COMPLETENESS OF ANY SUCH INTERPRETATION OR RECOMMENDATION, WHICH INTERPRETATIONS AND RECOMMENDATIONS SHOULD NOT, THEREFORE, UNDER ANY CIRCUMSTANCES BE RELIED UPON AS THE SOLE OR MAIN BASIS FOR ANY DRILLING, COMPLETION, WELL TREATMENT, PRODUCTION OR FINANCIAL DECISION, OR ANY PROCEDURE INVOLVING ANY RISK TO THE SAFETY OF ANY DRILLING ACTIVITY, DRILLING RIG OR ITS CREW OR ANY OTHER INDIVIDUAL. THE COMPANY HAS FULL RESPONSIBILITY FOR ALL DECISIONS CONCERNING THE SERVICES.

5 INCH MAIN PASS

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 31-MAY-2014 09:24

Filename: C:\Minimus 13.08.2113\Logs\MCCOY MTPRC...\MCCOY MTPRC 'B' #3-22 MAIN PASS2.dta — Recorded on 31-MAY-2014 05:42

System Versions: Logged with 13.08.2113 Processed with 13.08.2113 Plotted with 13.08.2113

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

632

Casing Shoe

1900

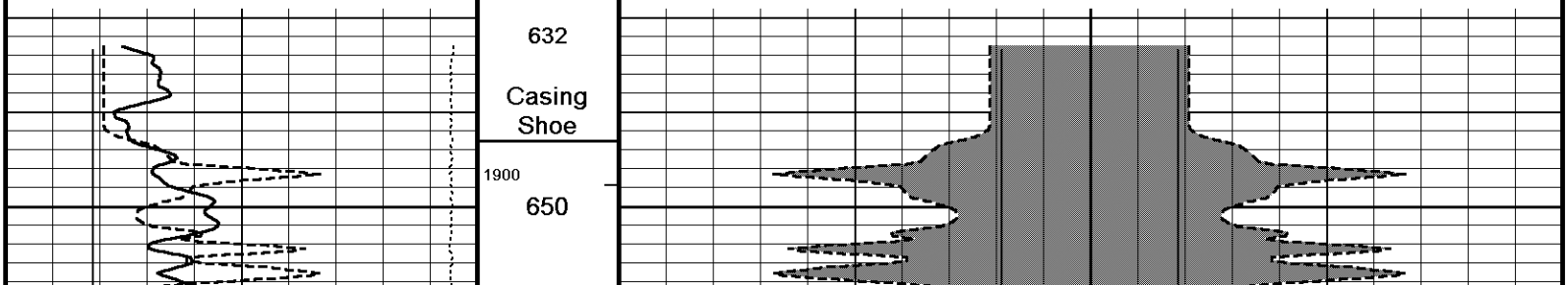
650

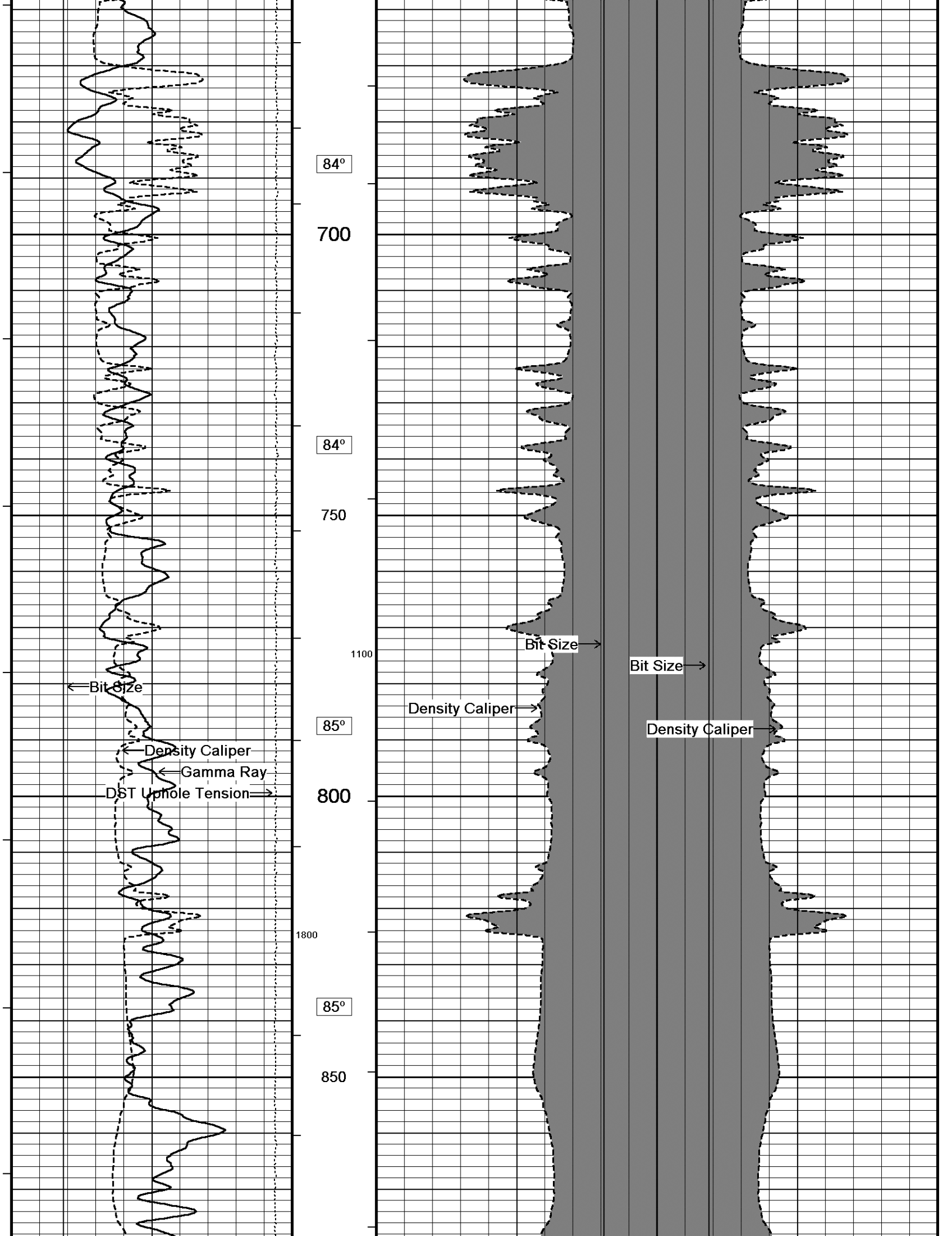
Density Caliper inches 16 11 6 6 11 16

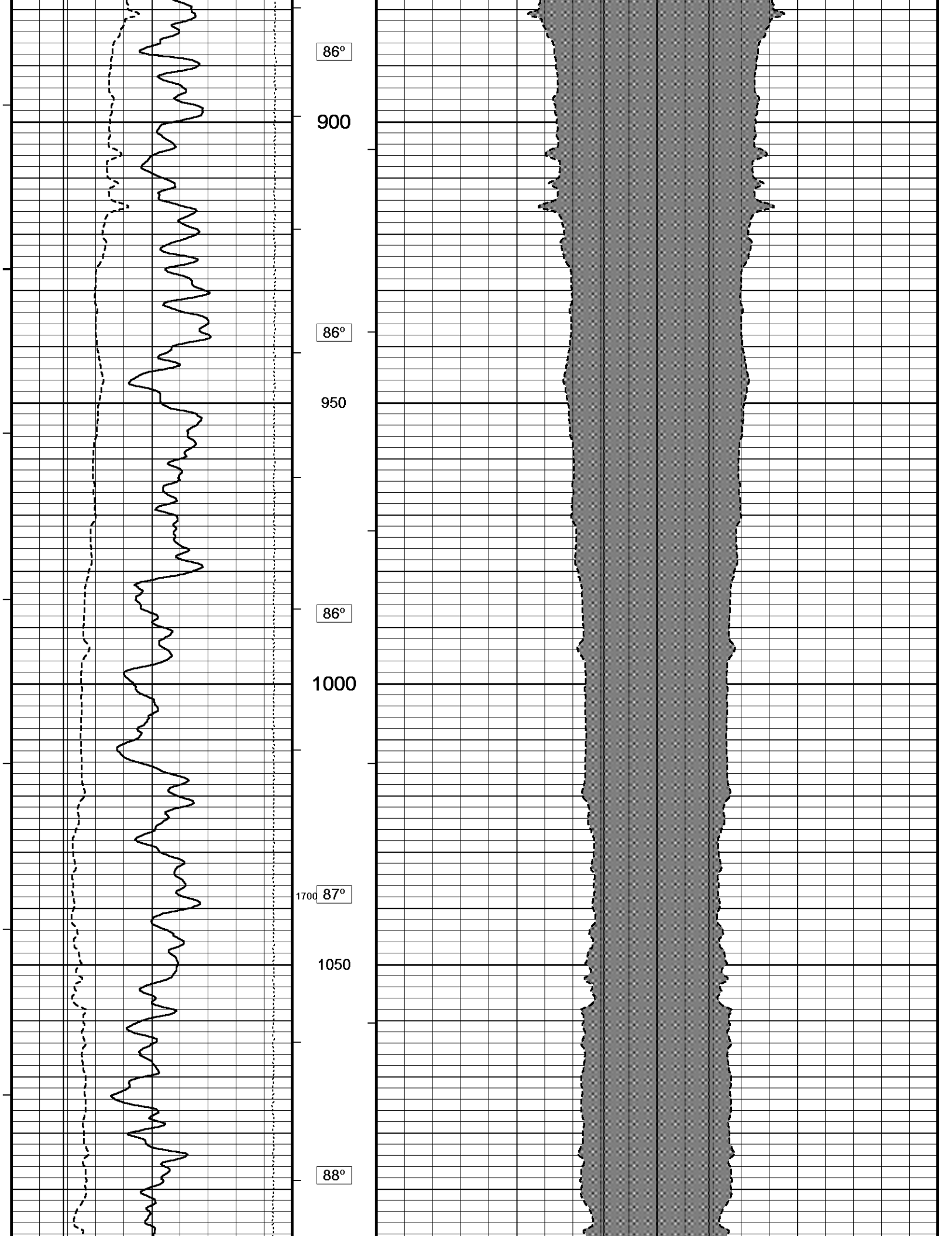
Density Caliper inches 16 11 6 6 11 16

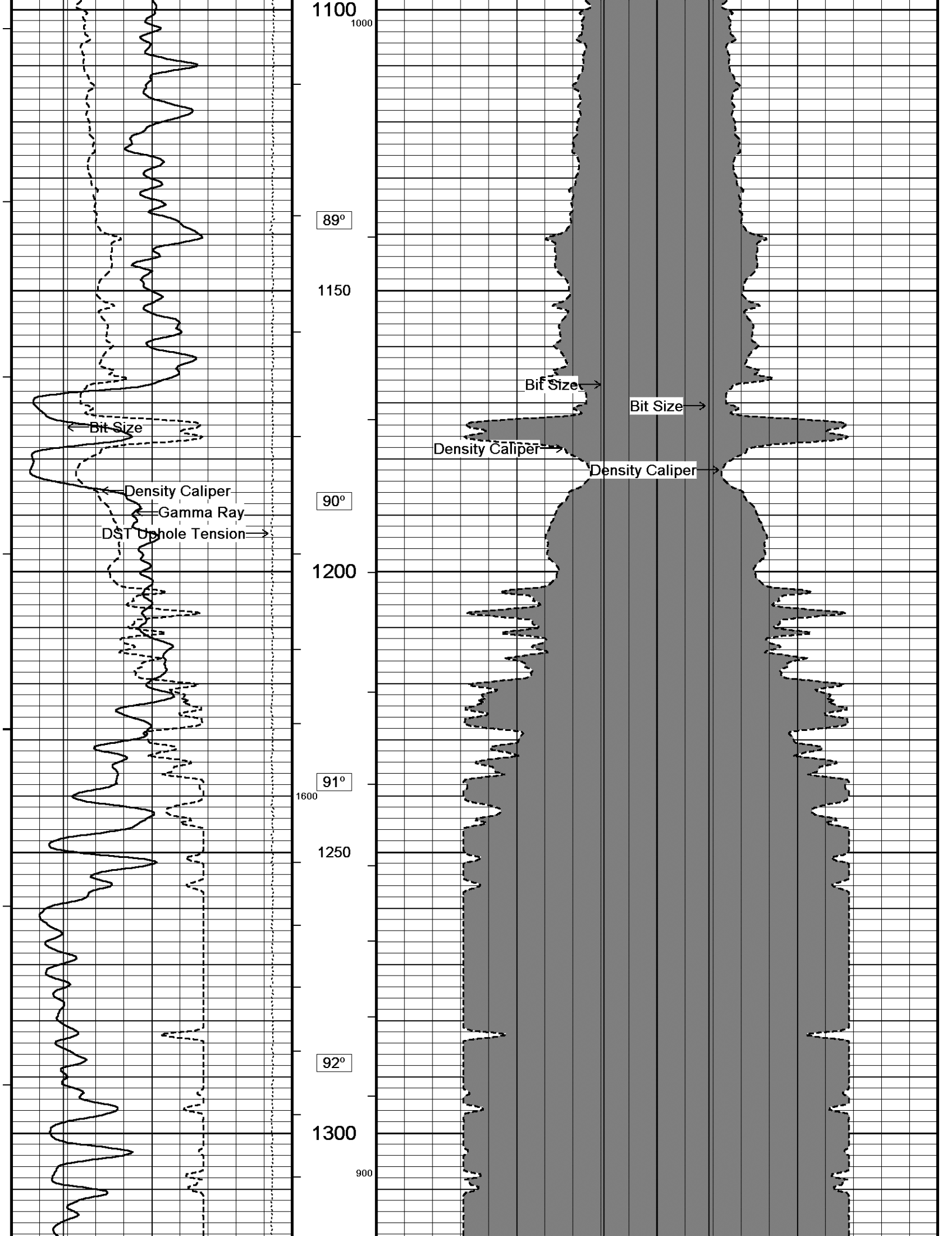
Bit Size inches 16 11 6 6 11 16

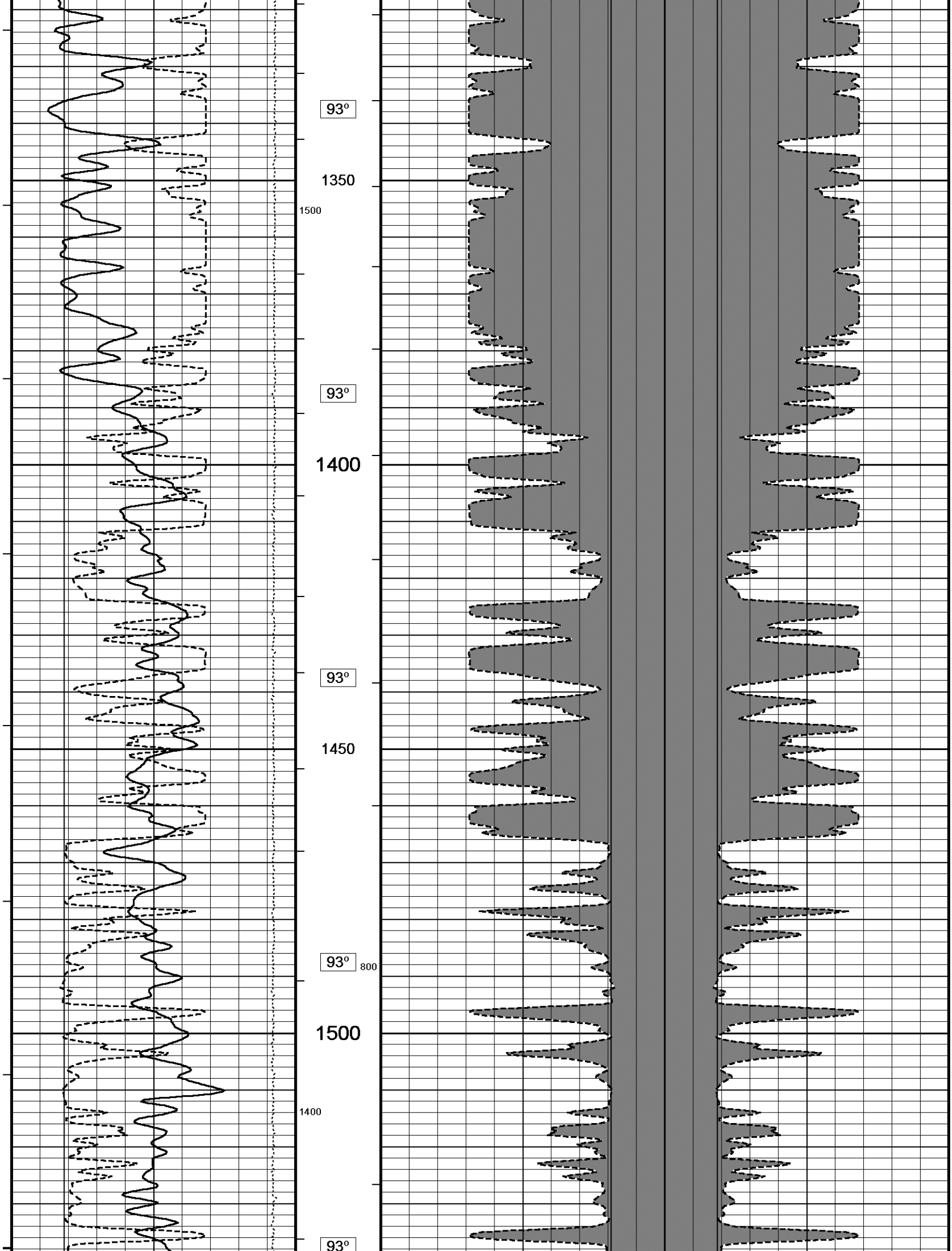
Bit Size inches 16 11 6 6 11 16

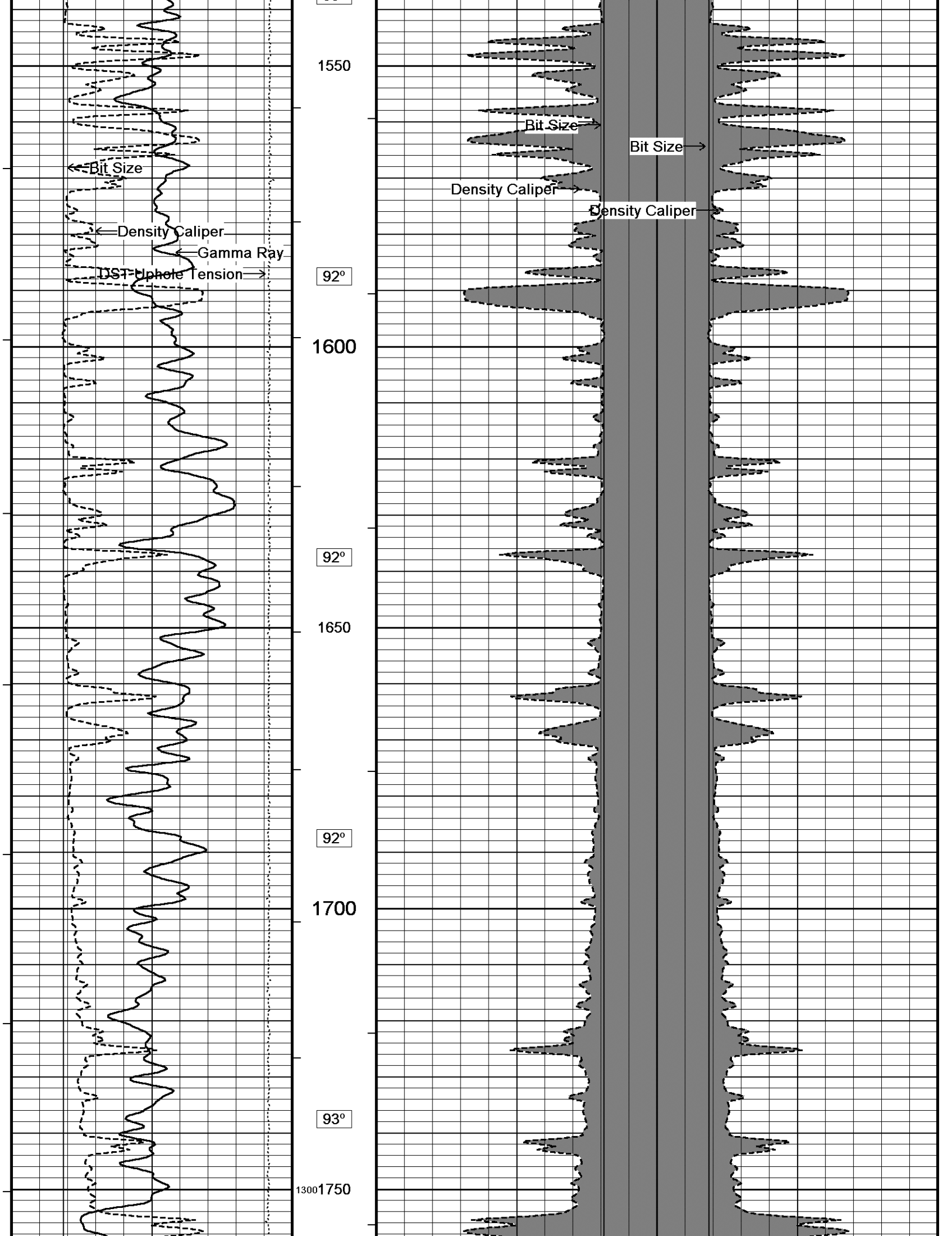


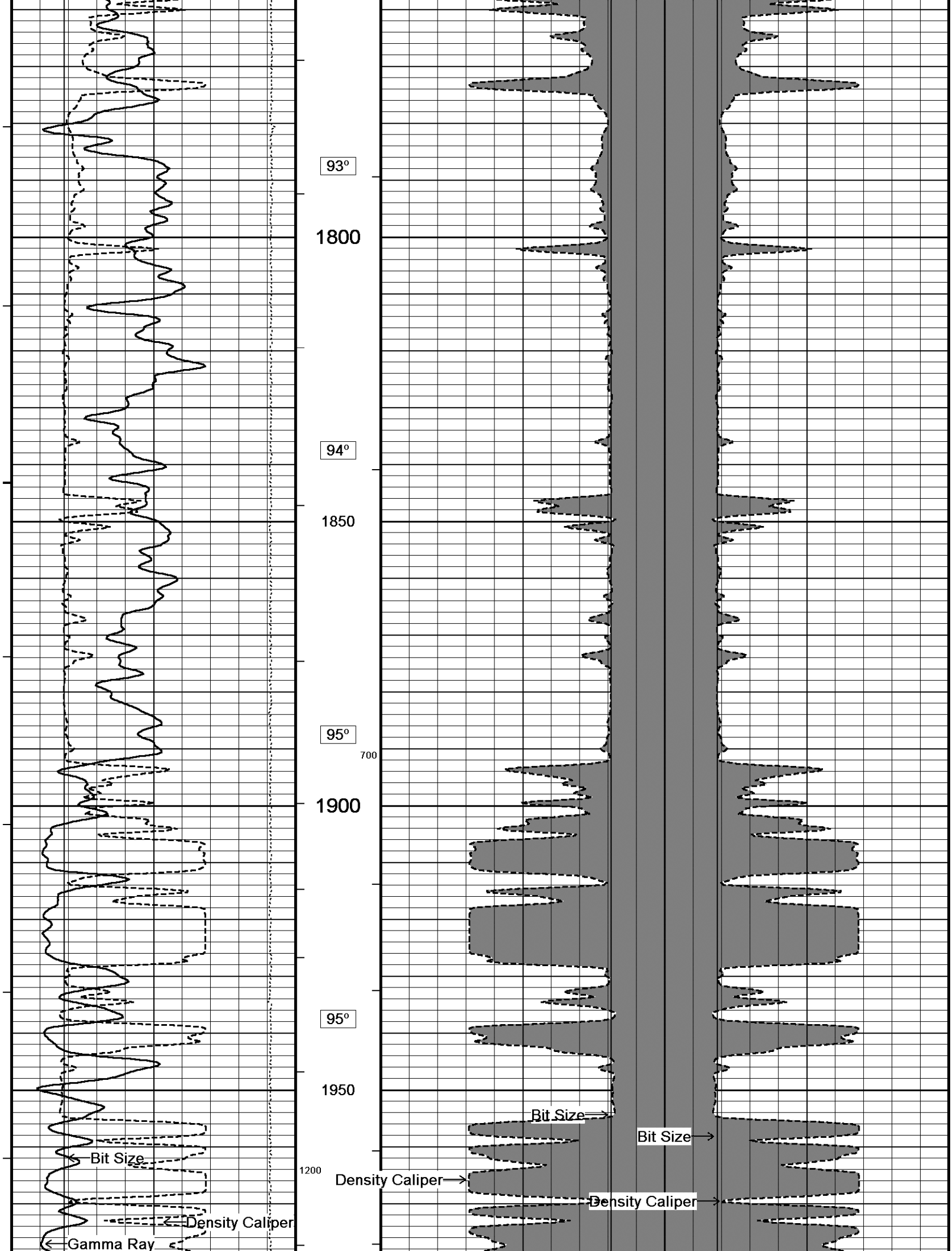

84°
700
84°
750
1100
Bit Size
Bit Size
Bit Size
Density Caliper
Density Caliper
Density Caliper
Gamma Ray
DST Uphole Tension
800
1800
85°
850

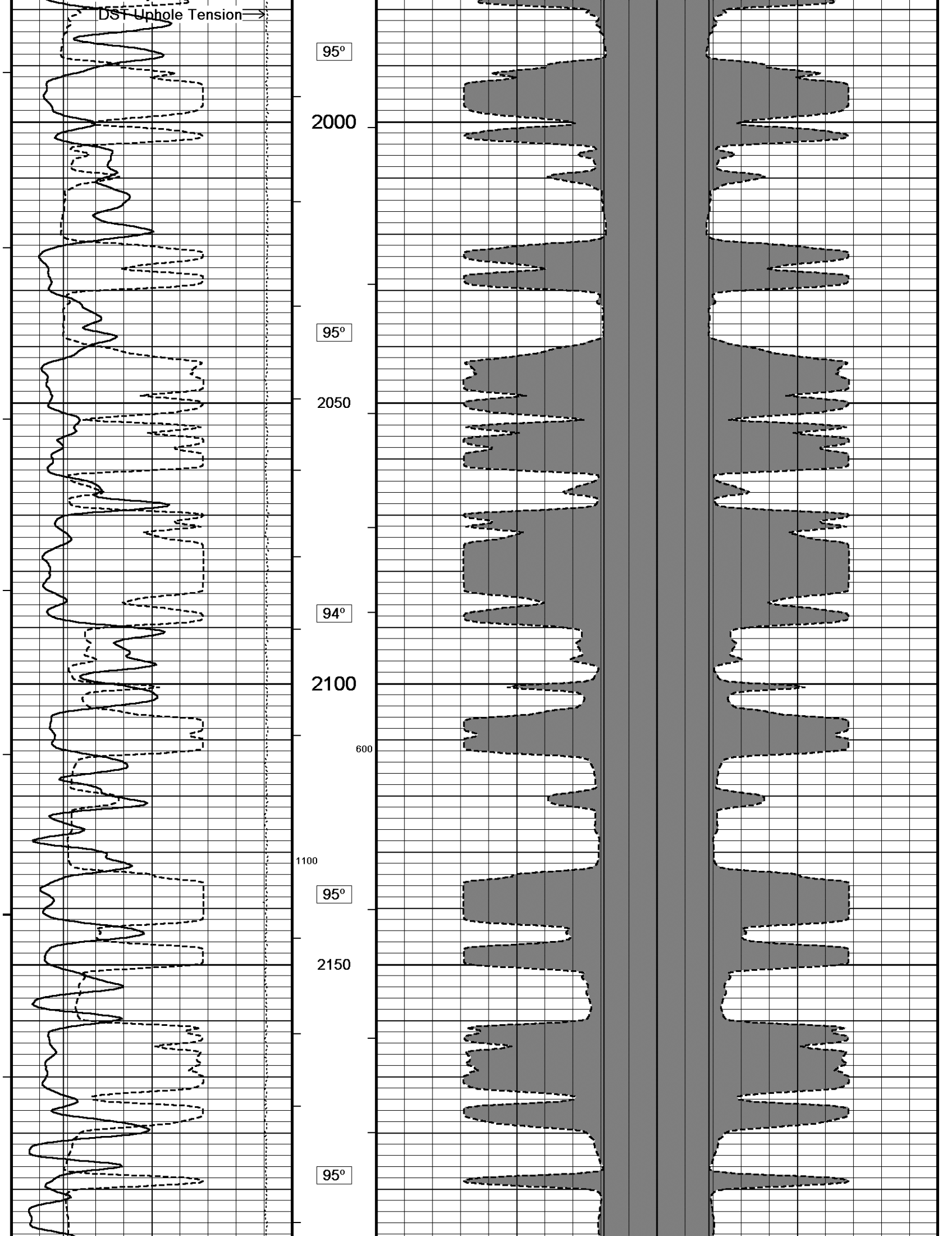

86°
900
86°
950
86°
1000
1700
87°
1050
88°

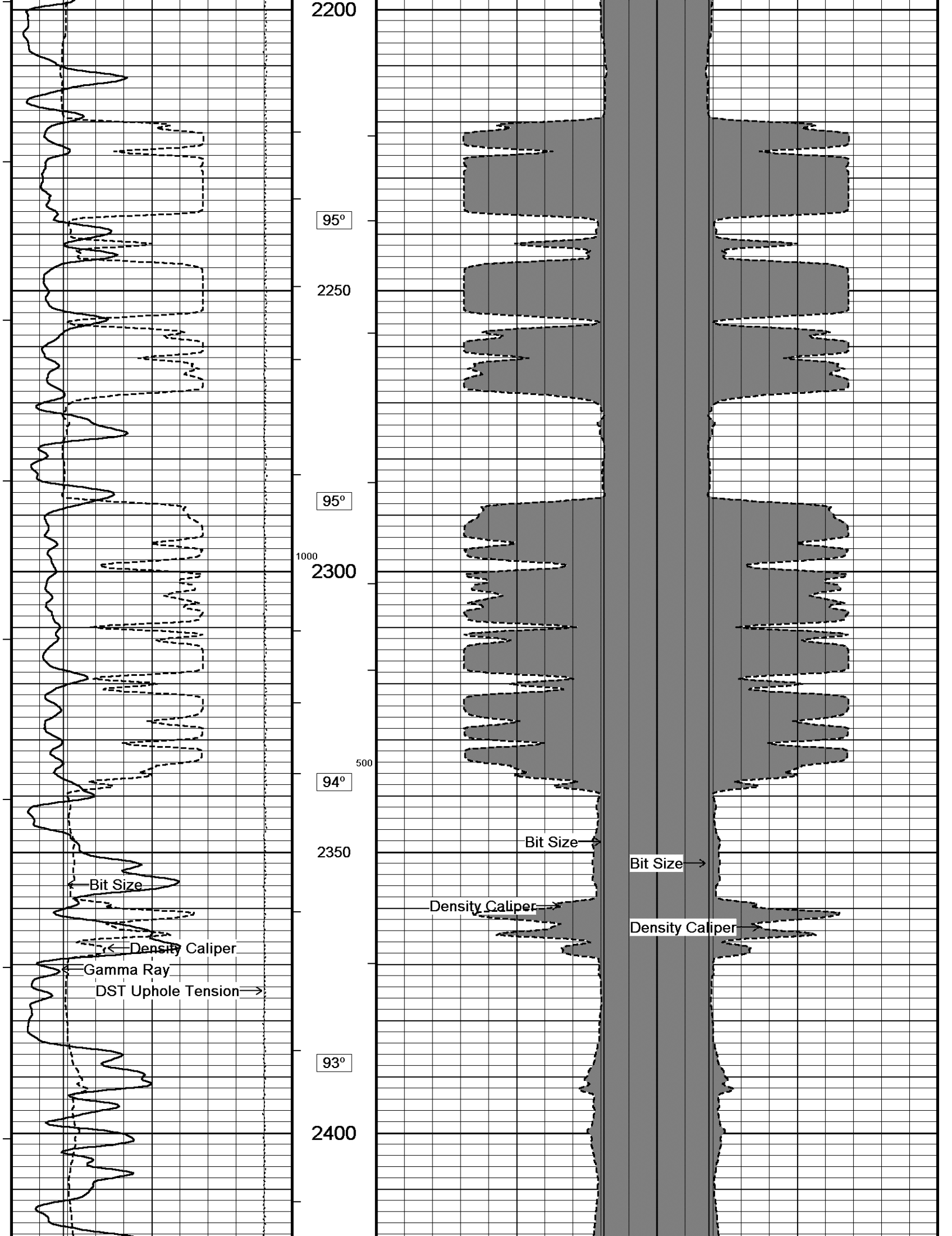

1100
1000
89°
1150
Bit Size
Bit Size
Density Caliper
Density Caliper
Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
90°
1200
91°
1600
1250
92°
1300
900

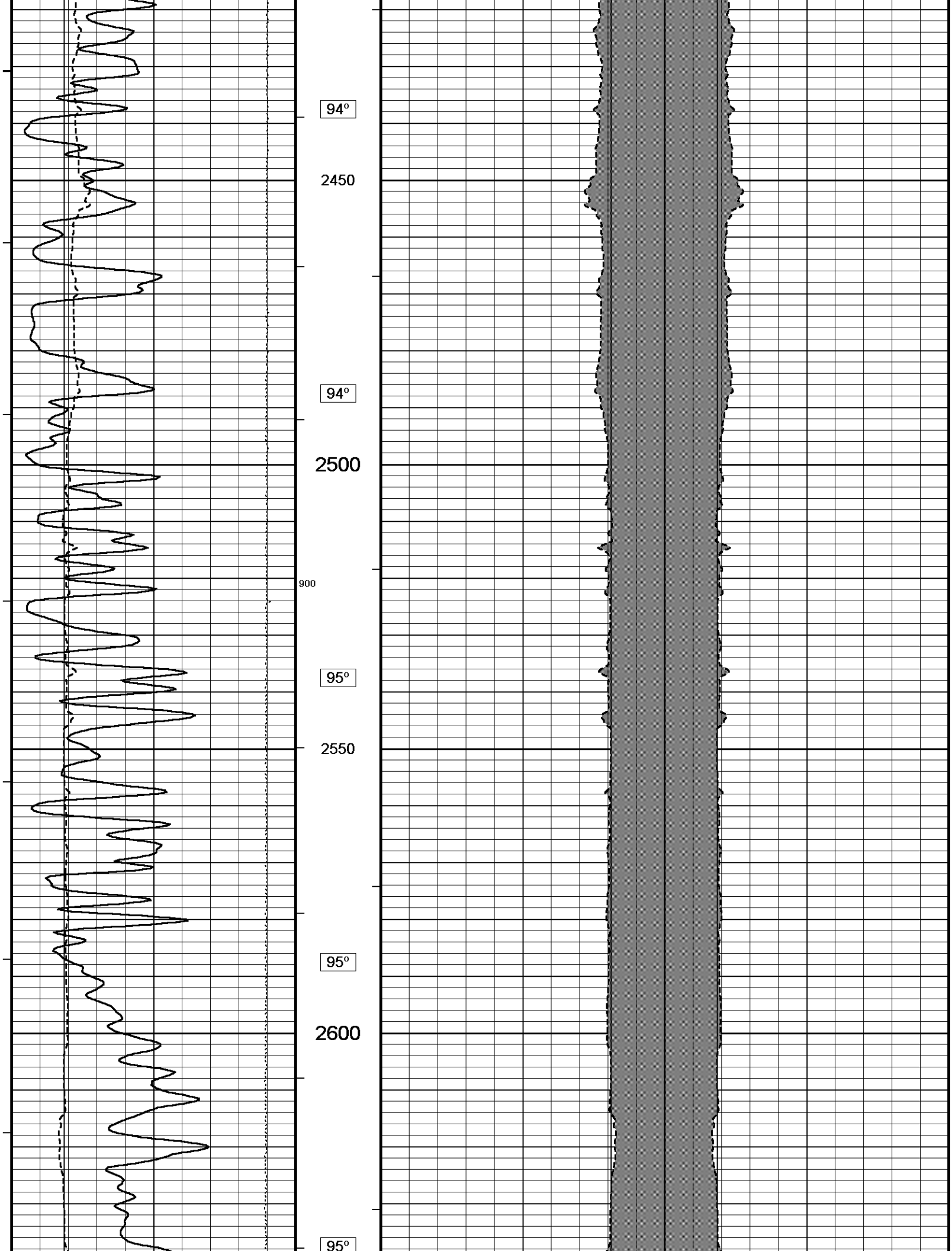

93°
1350
1500
93°
1400
93°
1450
93°
800
1500
1400
93°

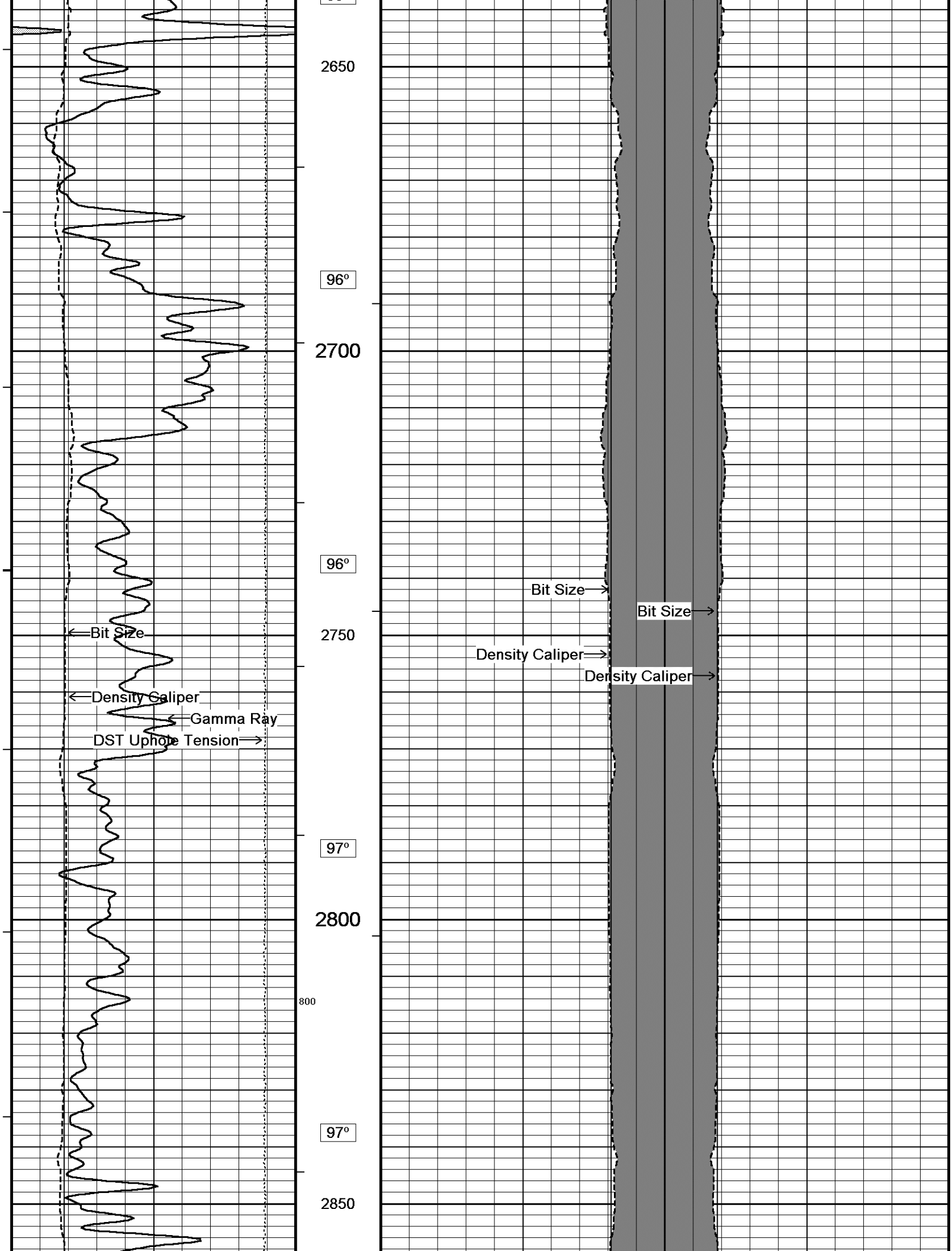

1550
Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
92°
1600
92°
1650
92°
1700
93°
1300
1750
Bit Size
Bit Size
Density Caliper
Density Caliper

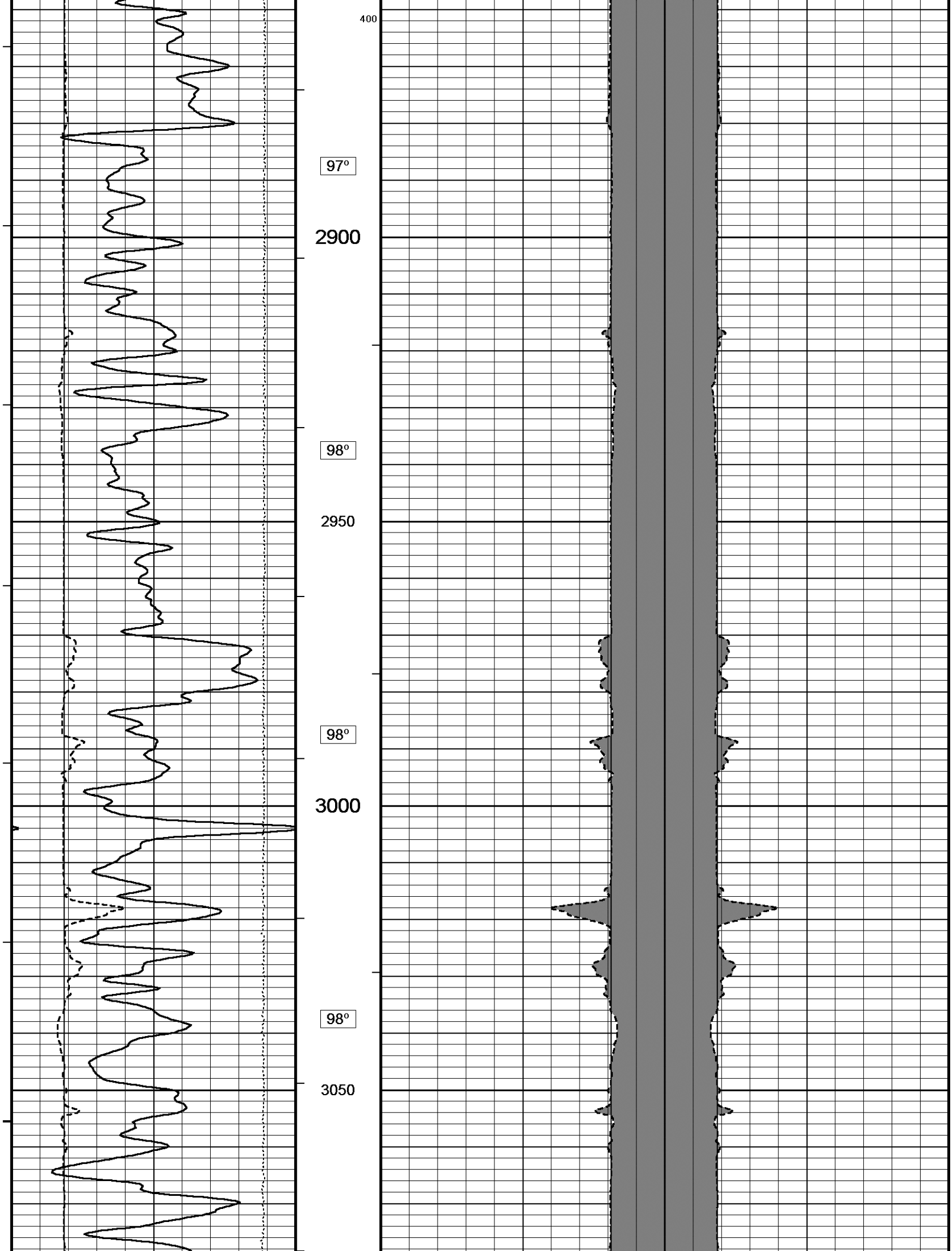

93°
1800
94°
1850
95°
700
1900
95°
1950
Bit Size
Bit Size
Bit Size
1200
Density Caliper
Density Caliper
Density Caliper
Gamma Ray

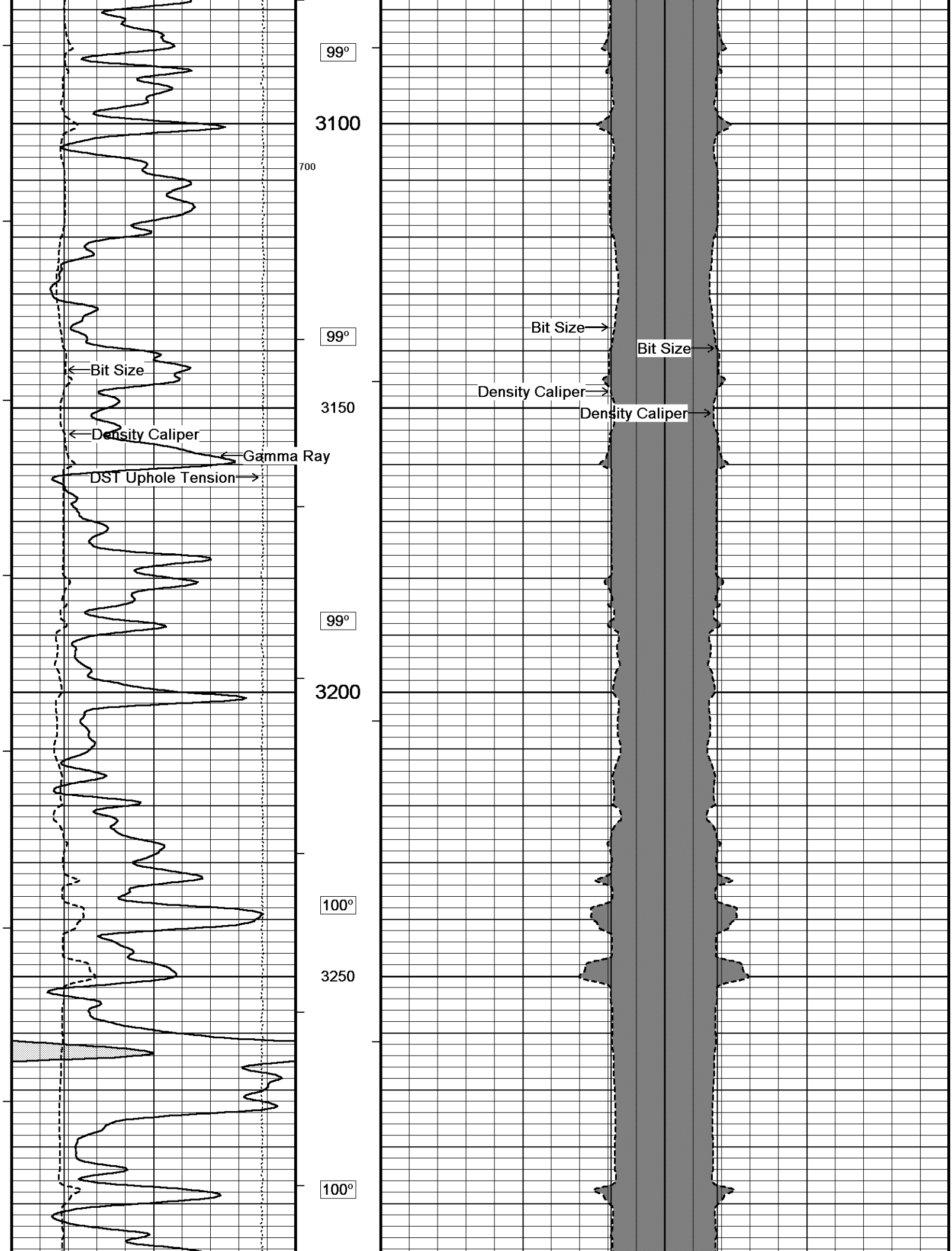

DST Uphole Tension
95°
2000
95°
2050
94°
2100
600
1100
95°
2150
95°

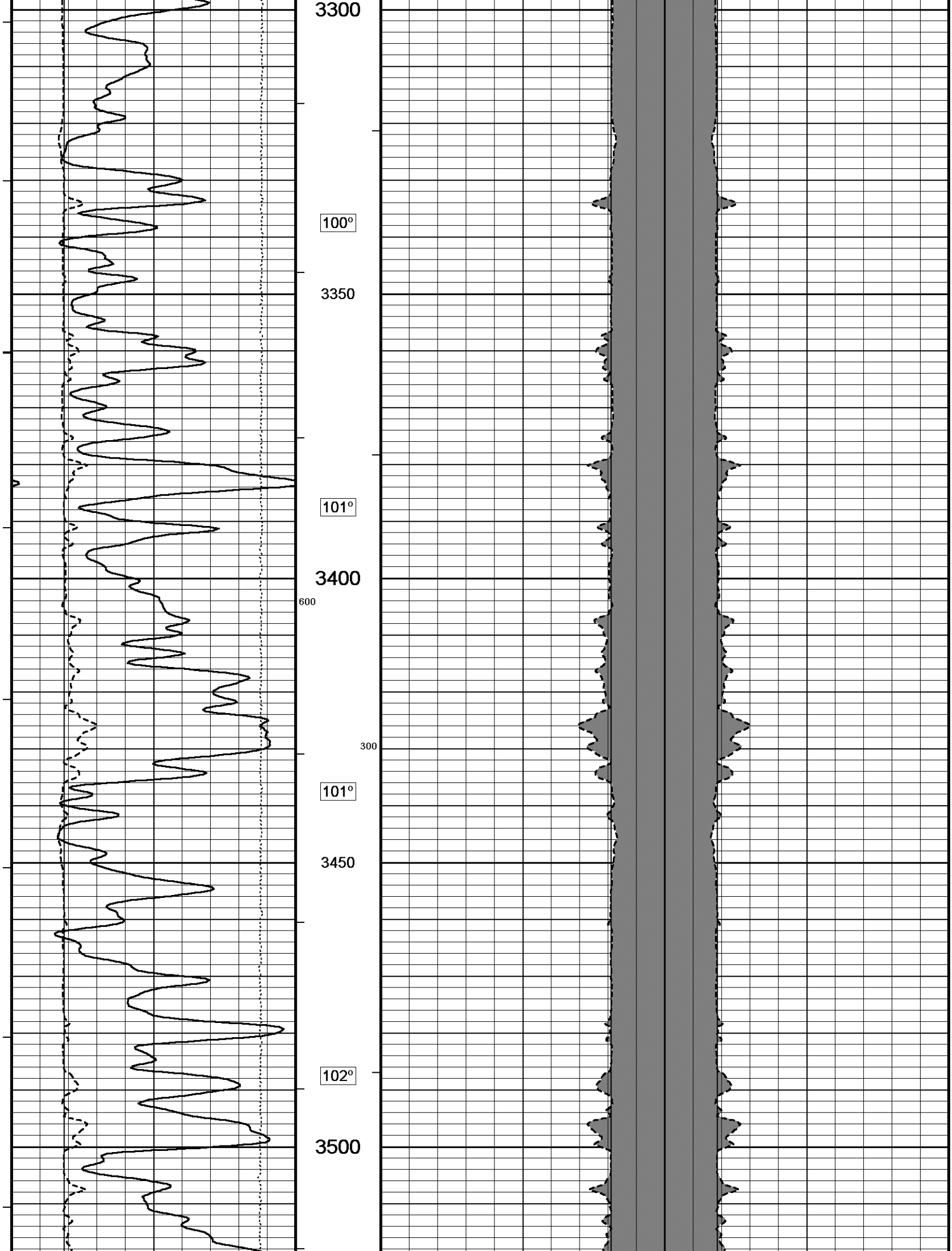

2200
95°
2250
95°
1000
2300
500
94°
2350
93°
2400
Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
Bit Size
Bit Size
Density Caliper
Density Caliper

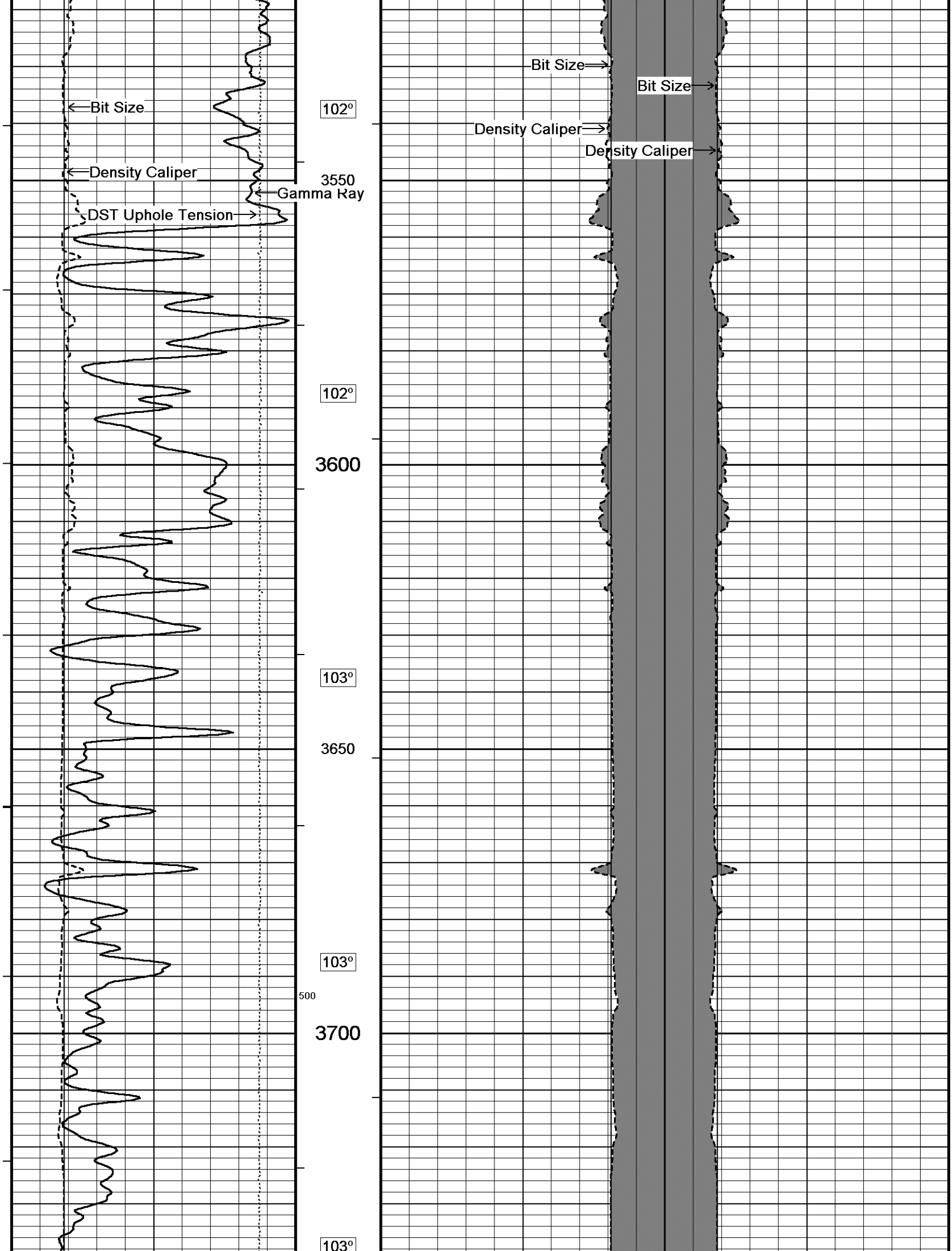

94°
2450
94°
2500
900
95°
2550
95°
2600
95°

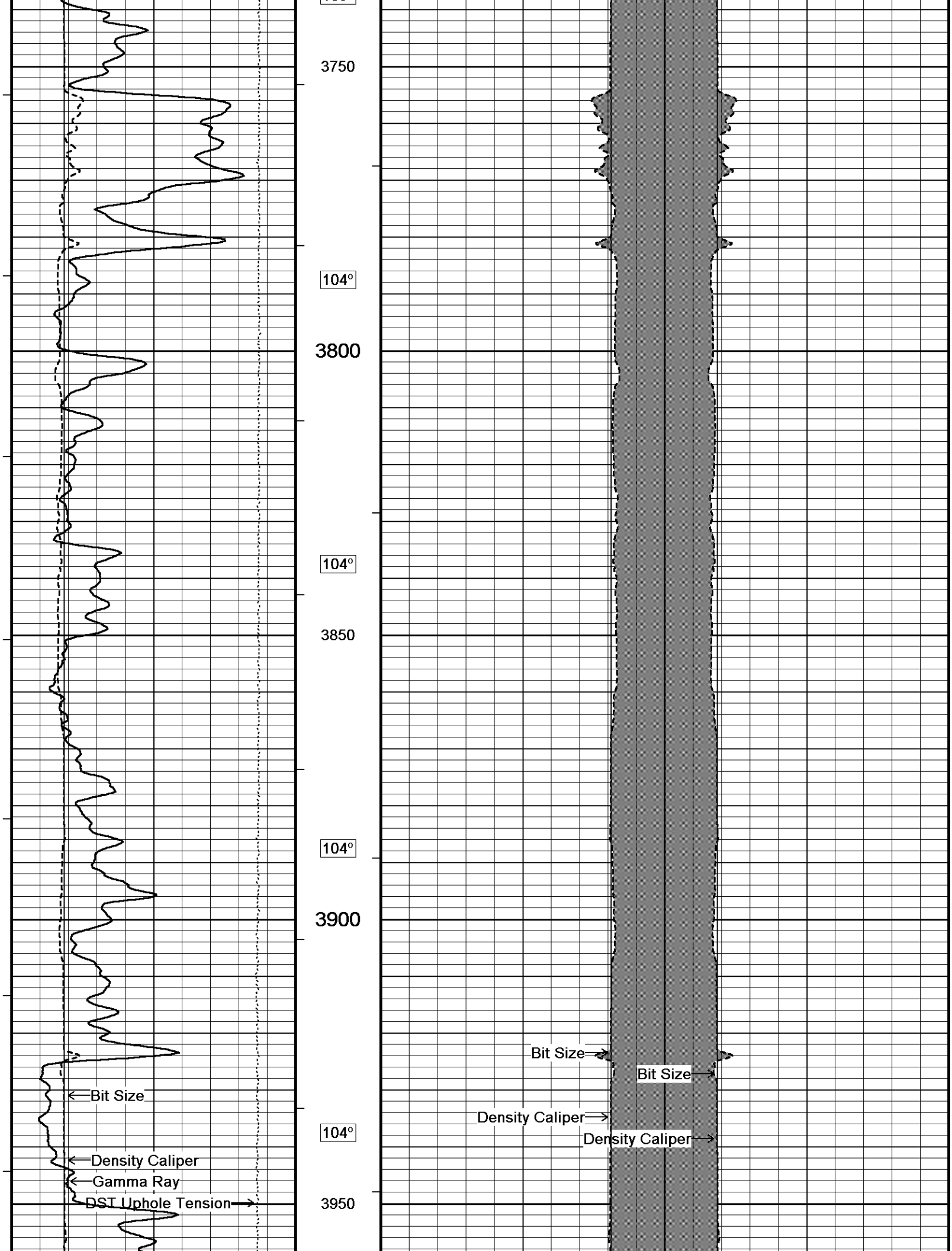

2650
96°
2700
96°
Bit Size
Bit Size
Bit Size
2750
Density Caliper
Density Caliper
Density Caliper
Gamma Ray
DST Uphole Tension
97°
2800
800
97°
2850

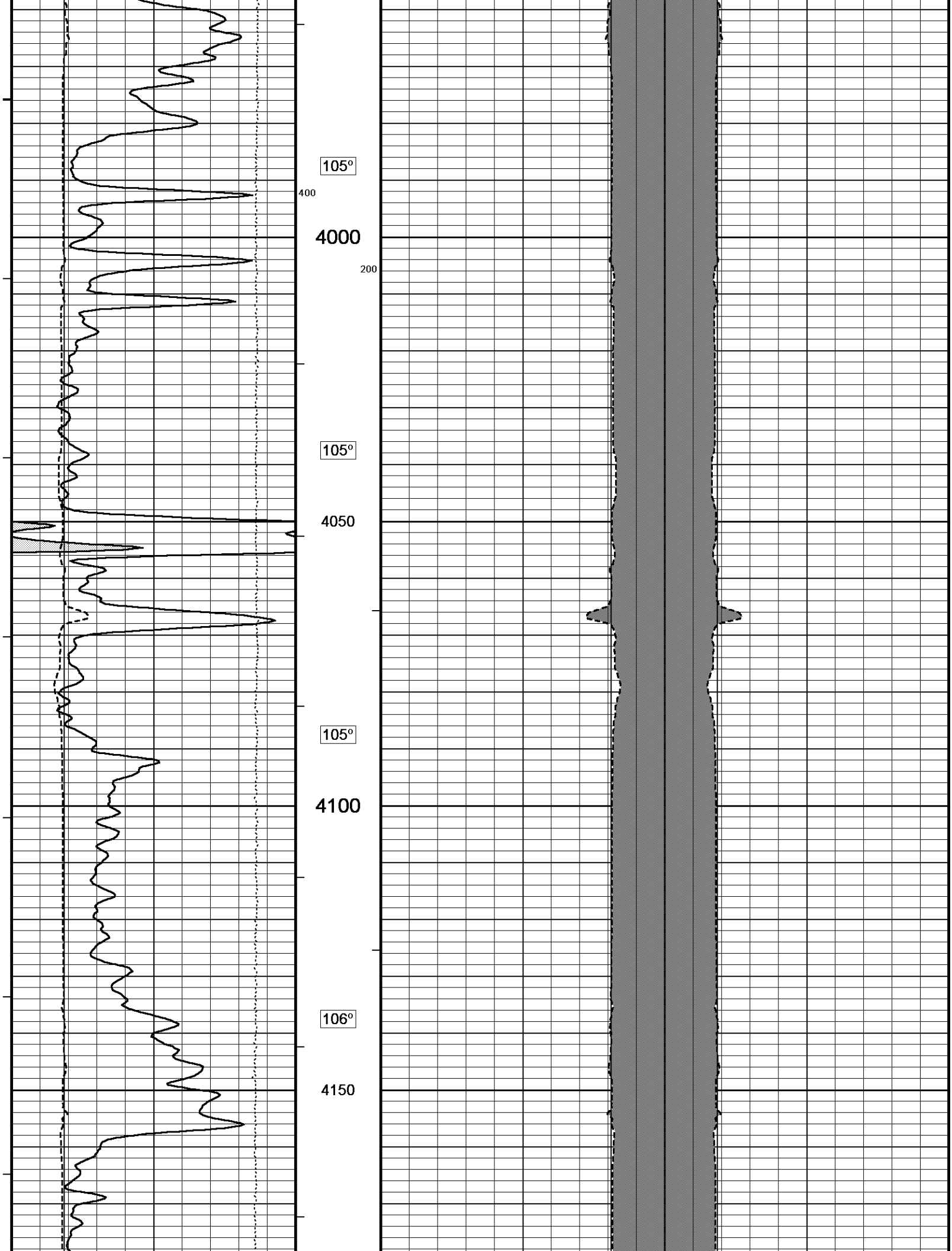

400
97°
2900
98°
2950
98°
3000
98°
3050

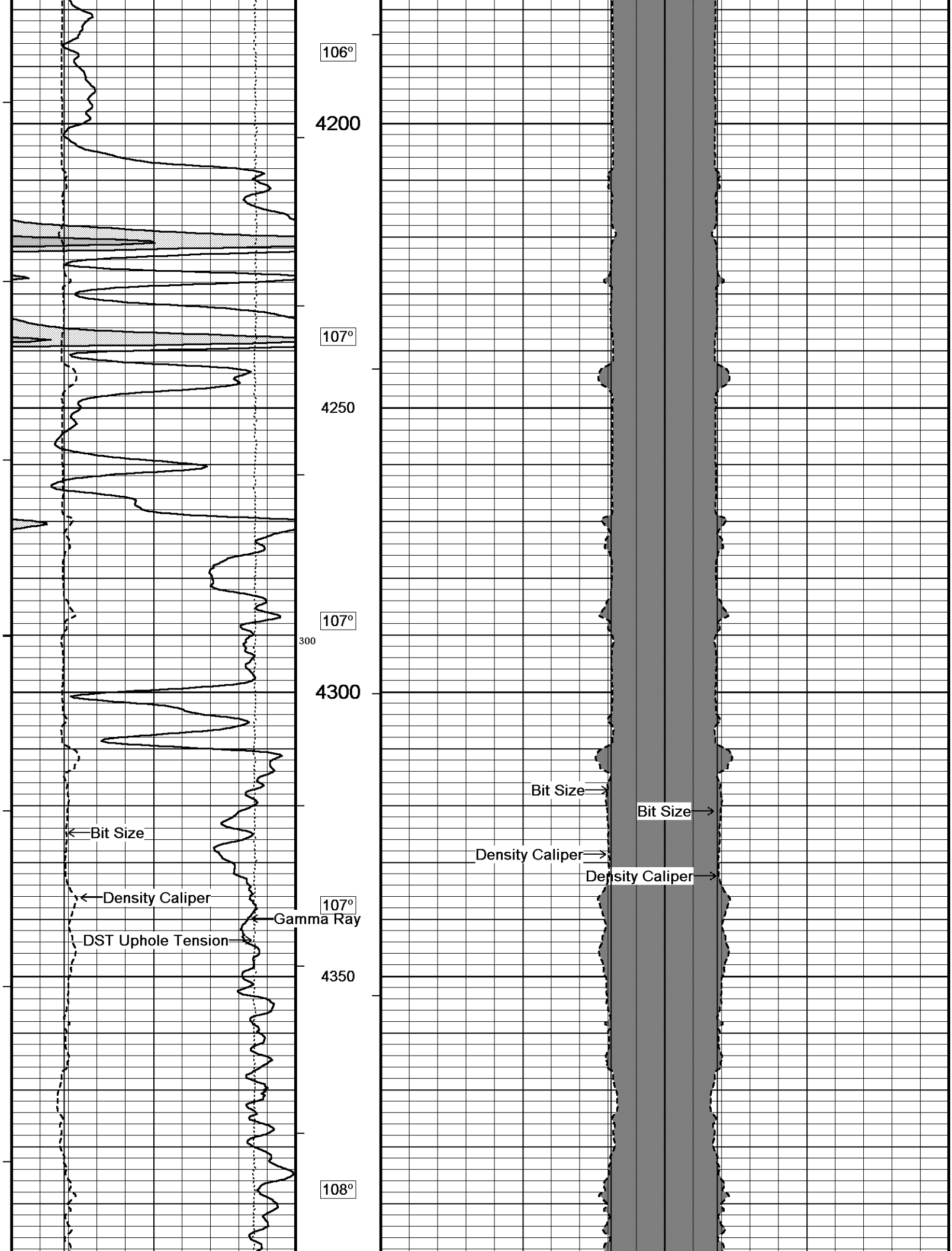

99°
3100
700
99°
Bit Size
3150
Density Caliper
Gamma Ray
DST Uphole Tension
99°
3200
100°
3250
100°
Bit Size
Bit Size
Density Caliper
Density Caliper

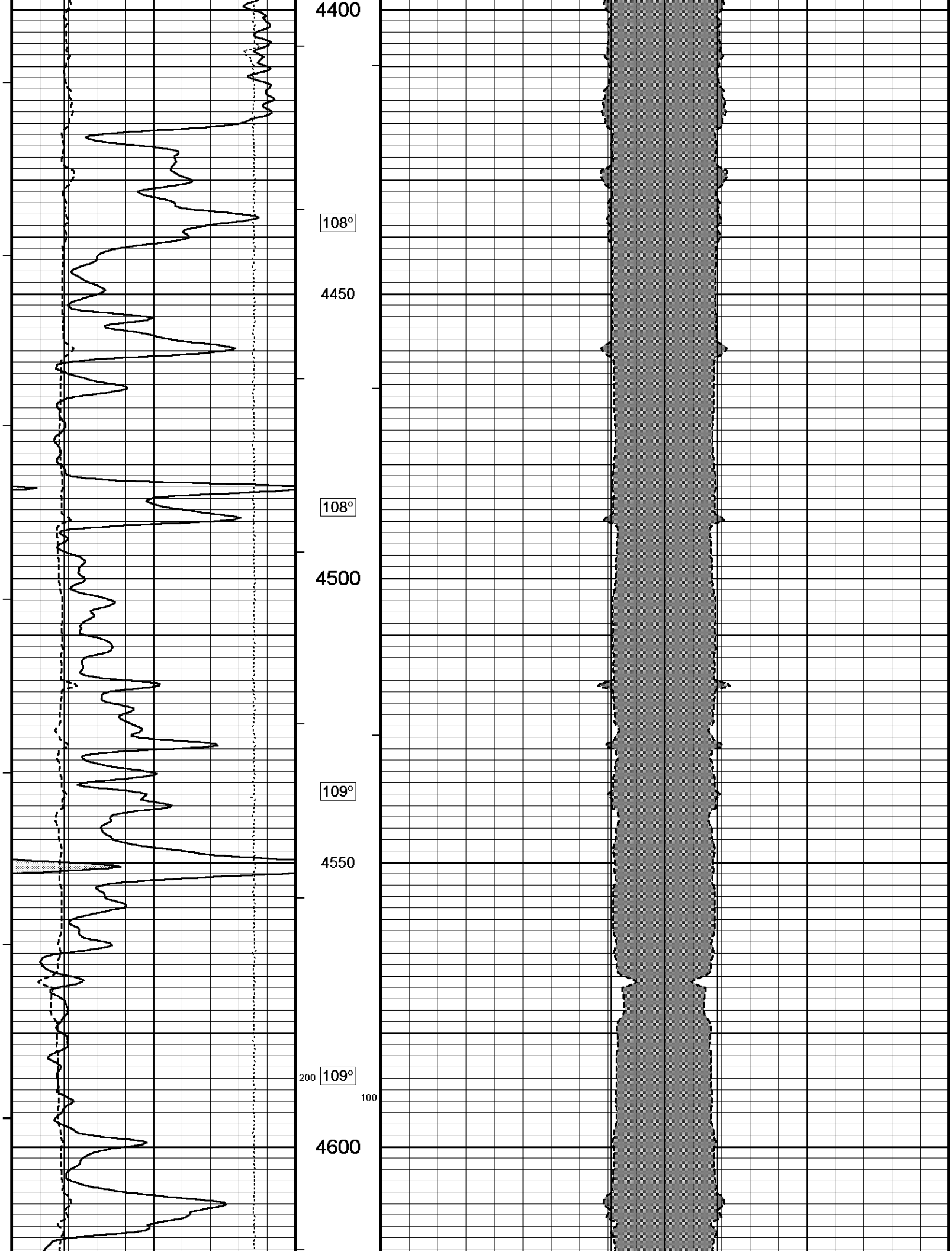

3300
100°
3350
101°
3400
600
300
101°
3450
102°
3500

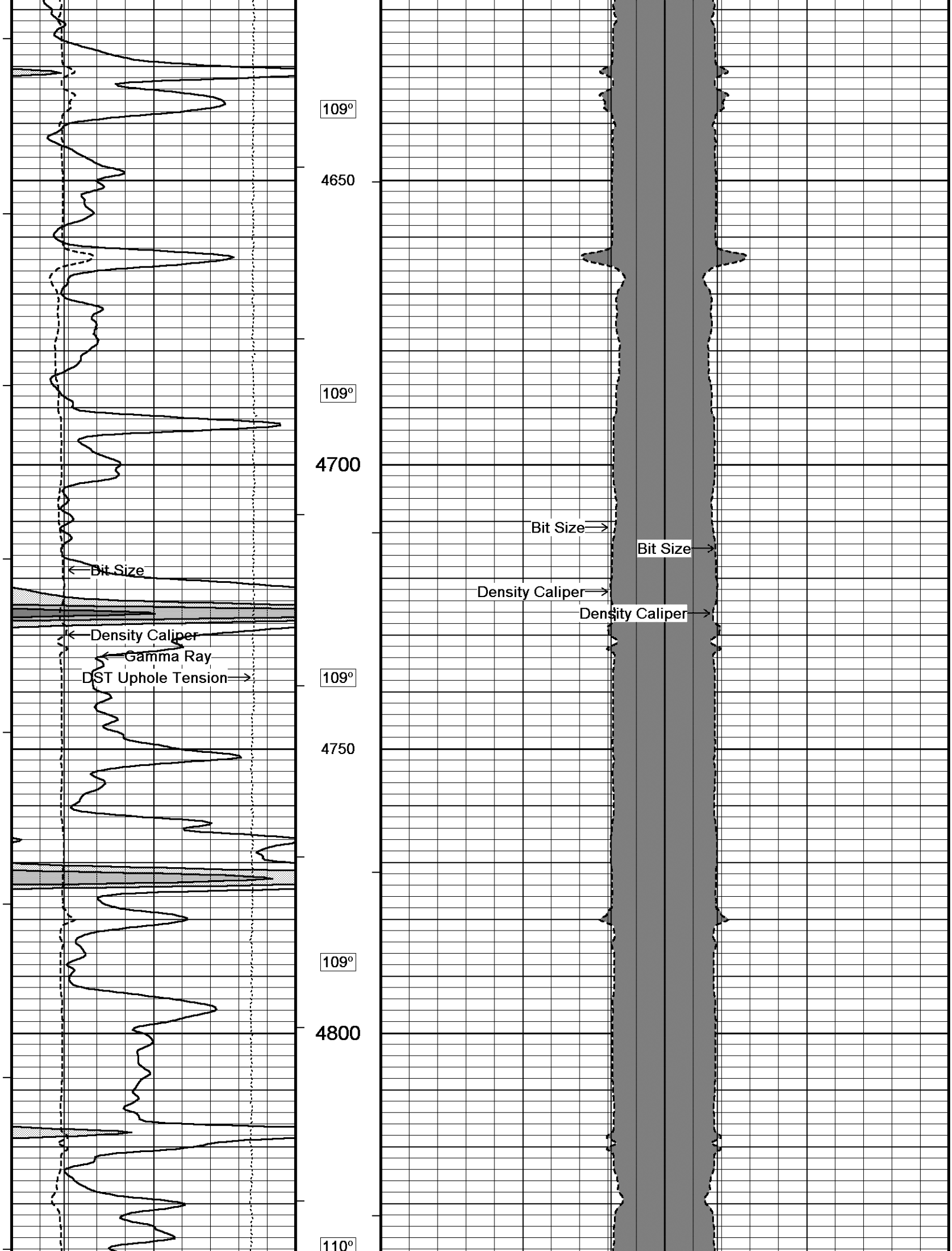

Bit Size
Density Caliper
DST Uphole Tension
Gamma Ray
102°
3550
102°
3600
103°
3650
103°
500
3700
103°
Bit Size
Bit Size
Density Caliper
Density Caliper

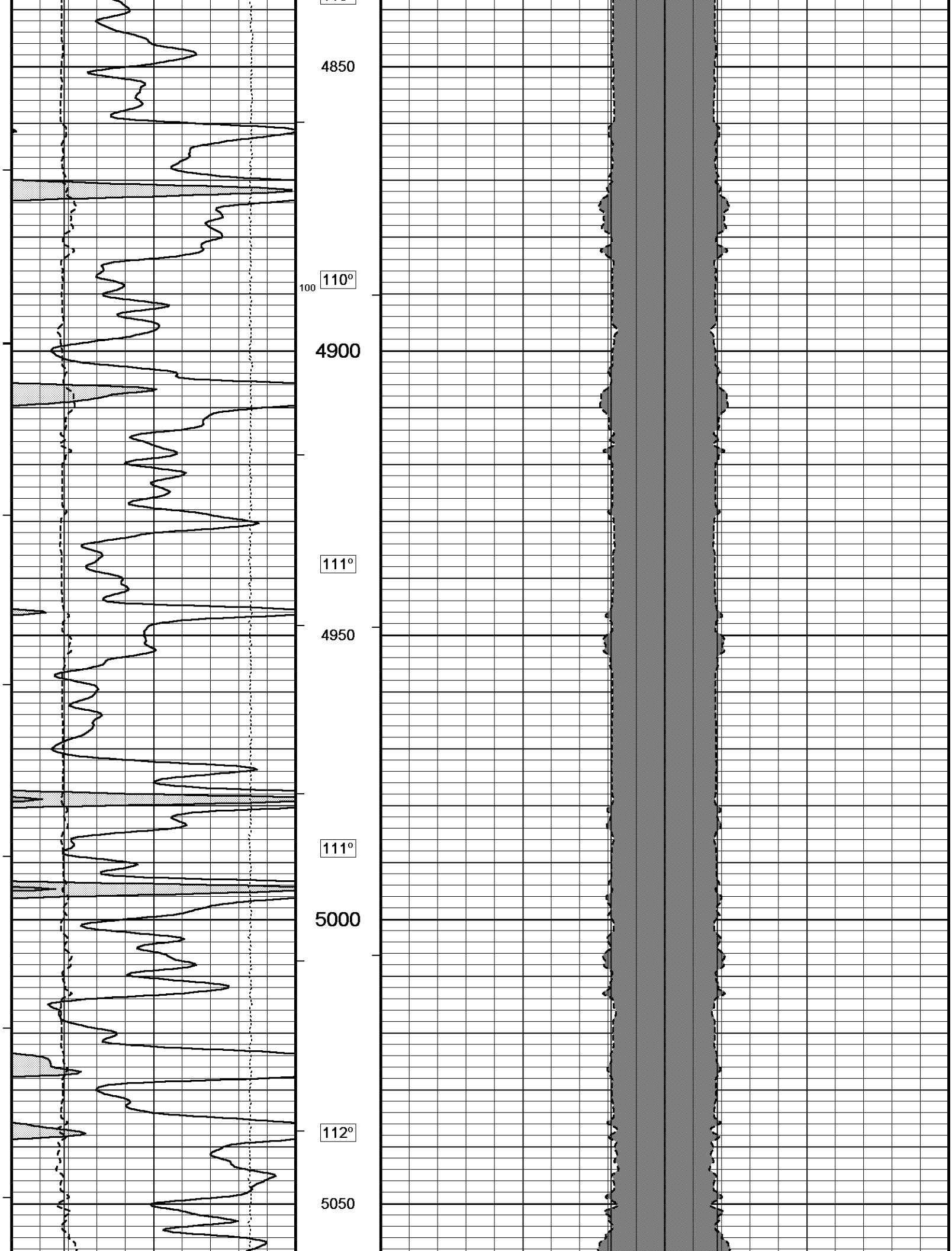

3750
104°
3800
104°
3850
104°
3900
104°
3950
Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
Bit Size
Bit Size
Density Caliper
Density Caliper

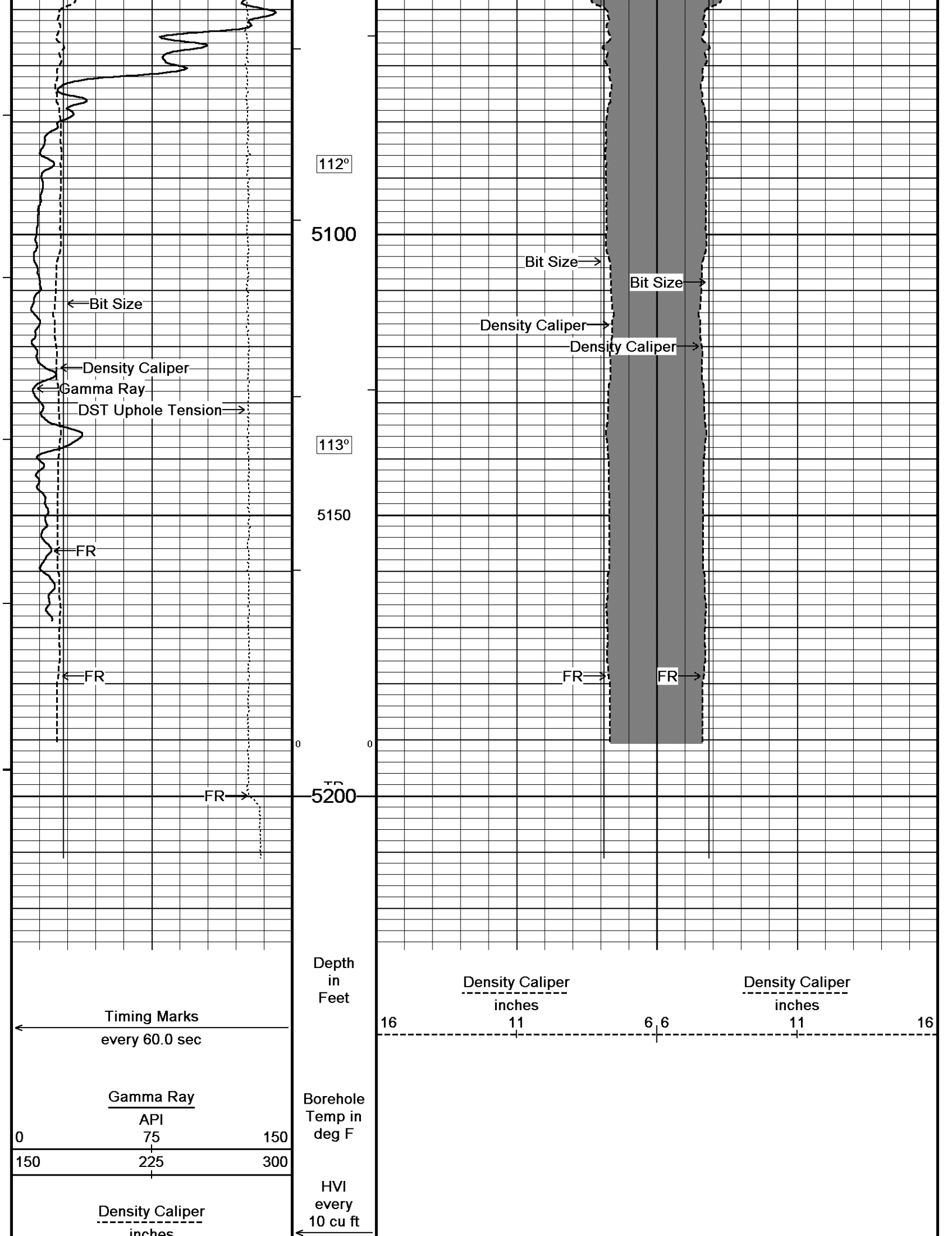

105°
400
4000
200
105°
4050
105°
4100
106°
4150

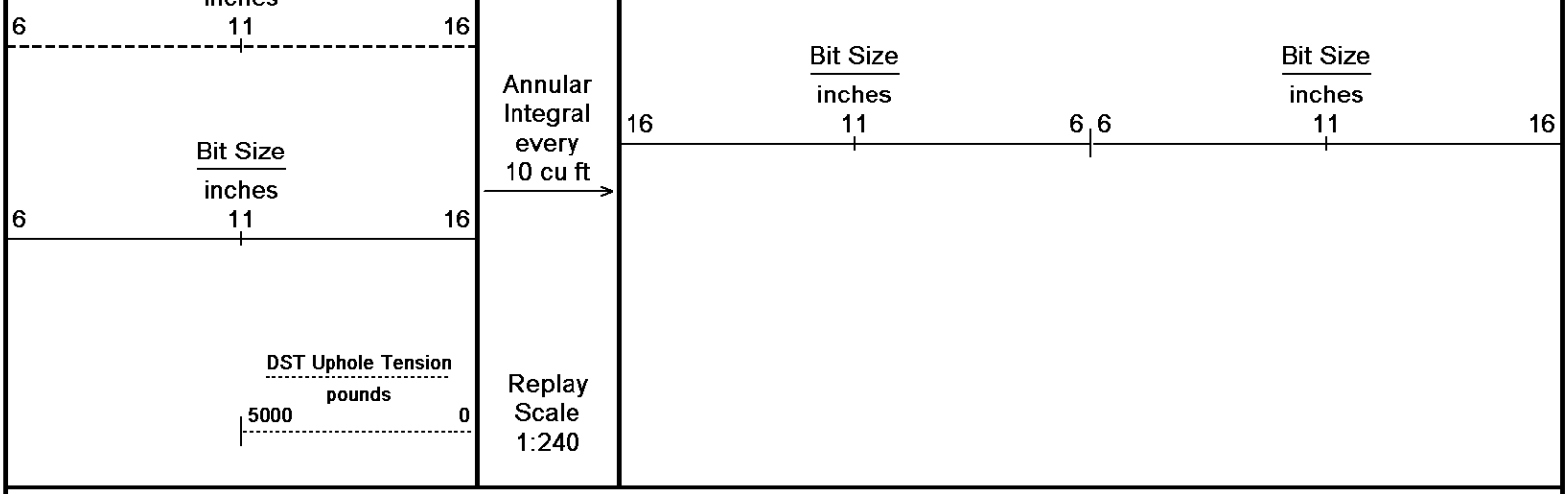

106°
4200
107°
4250
107°
300
4300
Bit Size
Density Caliper
107°
Gamma Ray
DST Uphole Tension
4350
108°
Bit Size
Bit Size
Density Caliper
Density Caliper


4400
108°
4450
108°
4500
109°
4550
200
109°
100
4600


109°
4650
109°
4700
Bit Size
Bit Size
Bit Size
Density Caliper
Density Caliper
Density Caliper
Gamma Ray
DST Uphole Tension
109°
4750
109°
4800
110°


4850
110°
100
4900
111°
4950
111°
5000
112°
5050


112°
5100
113°
5150
5200
Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
FR
Bit Size
Bit Size
Density Caliper
Density Caliper
FR
FR
0
0
Depth
in
Feet
Timing Marks
every 60.0 sec
Gamma Ray
API
0
75
150
150
225
300
Density Caliper
inches
Borehole
Temp in
deg F
HVI
every
10 cu ft
Density Caliper
inches
16
11
6
6
11
16



Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 31-MAY-2014 09:24

Filename: C:\Minimus 13.08.2113\Logs\MCCOY MTPRC...\MCCOY MTPRC 'B' #3-22 MAIN PASS2.dta — Recorded on 31-MAY-2014 05:42

System Versions: Logged with 13.08.2113 Processed with 13.08.2113 Plotted with 13.08.2113

5 INCH MAIN PASS

BEFORE SURVEY CALIBRATION

C:\Minimus 13.08.2113\Logs\MCCOY MTPRC 'B' #3-22\MCCOY MTPRC 'B' #3-22 REPEAT2.dta

General Constants All 000

Last Edited on 31-MAY-2014,03:48

General Parameters		
Mud Resistivity	0.850	ohm-metres
Mud Resistivity Temperature	73.000	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	MMR Caliper	
Rwa Parameters		
Porosity used	Crossplot Porosity	
Resistivity used	Array Ind. One Res Rt	
RWA Constant A	0.610	
RWA Constant M	2.150	
SW/APOR Tool Source	0.000	

Down-hole Tension Calibration SMS 0

Field Calibration on 28-MAY-2014 17:56

Reading No	Measured	Calibrated (lbs)
1	15108.43	0.00
2	15841.14	436.00

SP Calibration MCG-C 208

Field Calibration on 10-MAY-2014 11:38

	Measured	Calibrated (mV)
Reference 1	99.7	99.0
Reference 2	-97.7	-98.8

High Resolution Temperature Calibration MCG-C 208

Field Calibration on 23-JAN-2014,17:11

	Measured	Calibrated(Deg F)
Lower	50.00	50.00
Upper	75.00	75.00

High Resolution Temperature Constants MCG-C 208

Last Edited on 23-JAN-2014,17:11

Pre-filter Length	11

Gamma Calibration MCG-C 208

Field Calibration on 30-MAY-2014 21:32

Field Calibration on 30-MAY-2014 21:32

	Measured	Calibrated (API)
Background	65	44
Calibrator (Gross)	1146	769
Calibrator (Net)	1081	725

Gamma Constants MCG-C 208

Last Edited on 31-MAY-2014,08:48

Gamma Calibrator Number	GRC038	
Mud Density	1.13	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl		kppm
K Mud Type	Chloride	
K Mud Concentration	0.00	%

Caliper Calibration MMR-C.A 248

Base Calibration on 10-MAY-2014 09:28
Field Calibration on 30-MAY-2014 21:09

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	13446	5.98
2	16585	7.97
3	19782	9.86
4	23693	11.92
5	0	0.00
6	N/A	N/A

Field Calibration

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

Micro Normal and Micro Inverse Calibration MMR-C.A 248

Base Calibration on 10-MAY-2014 09:40
Field Check on 30-MAY-2014 21:06

Base Calibration

	Measured		Calibrated (ohm-m)	
Channel	Resistor 1	Resistor 2	Resistor 1	Resistor 2
Micro Normal	10.1	49.8	5.1	25.6
Micro Inverse	9.9	49.5	3.4	16.9

Channel	Base Check (ohm-m)	Field Check (ohm-m)
Micro Normal	93.6	93.6
Micro Inverse	62.2	62.2

Micro Normal and Micro Inverse Constants MMR-C.A 248

Last Edited on 23-JAN-2014,17:04

Pad Type	8-12 in Soft Rubber Inflatable 006-9011-159	
Micro Normal K Factor	0.5110	
Micro Inverse K Factor	0.3380	
Standoff Offset	0.0000	inches

Neutron Calibration MDN-B.J 387

Base Calibration on 08-MAY-2014 14:03
Field Check on 30-MAY-2014 21:39

Base Calibration

	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	2970	91	3714	110
Ratio	32.668		33.764	

Field Calibrator at Base

	Calibrated (cps)	
	1688	2486
Ratio	0.679	

Field Check

	Calibrated (cps)	
	1689	2475
Ratio	0.681	

Neutron Constants MDN-B.J 387

Last Edited on 31-MAY-2014,03:01

Neutron Source Id	P58125B	
Neutron Jig Number	5824NE	
Epithermal Neutron		
Caliper Source for Processing	Density Caliper	
Stand-off	0.00	inches

Mud Density	1.00	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	68.00	degrees F
Mud Salinity	0.00	kppm
Salinity Correction	Not Applied	
Formation Fluid Salinity Source	None	
Formation Fluid Salinity	N/A	kppm
Barite Mud Correction	Not Applied	

FE Calibration MFE-A.A 55

Base Calibration on 10-MAY-2014 09:55
Field Check on 30-MAY-2014 21:05

Base Calibration

	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	952.2	126.8
Base Check		281.3
Field Check		281.3

FE Constants MFE-A.A 55

Last Edited on 31-MAY-2014,03:00

Running Mode	No Sleeve	
MFE K Factor	0.1268	
Caliper Source for FE correction	Density Caliper	
Caliper Value for FE correction	N/A	inches
Rm Source for FE correction	Temperature Corr	
Temp. for Rm Corr.	MCG External Temperature	
Stand-off	0.5	inches

Induction Calibration MAI-A.A 5

Base Calibration on 21-JAN-2014,09:50
Field Check on 30-MAY-2014 21:03

Base Calibration

Test Loop Calibration

Channel	Measured Low	Measured High	Calibrated (mmho/m) Low	Calibrated (mmho/m) High
1	16.3	470.8	9.3	966.2
2	5.6	376.1	7.6	821.4
3	2.6	266.1	5.2	566.0
4	1.6	130.0	2.6	279.2

Array Temperature 71.1 Deg F

Channel	Base Check (mmho/m) Low	Base Check (mmho/m) High	Field Check (mmho/m) Low	Field Check (mmho/m) High
1			15.8	3862.6
2			31.9	3590.4
3			29.8	2971.1
4			20.8	2126.0
Deep			18.5	1912.1
Medium			43.0	3860.7
Shallow			47.4	5371.9

Array Temperature 86.3 Deg F

Induction Constants MAI-A.A 5

Last Edited on 31-MAY-2014,03:00

Induction Model	RtAP-WBM	
Caliper for Borehole Corr.	Density Caliper	
Hole Size for Borehole Correction	N/A	inches
Tool Centred	No	
Stand-off Type	Fins	
Stand-off	0.50	inches
Number of Fins on Stand-off	8.0000	
Stand-off Fin Angle	45.00	degrees
Stand-off Fin Width	0.5000	inches
Borehole Corr. Rm Source	Temperature Corr	
Temp. for Rm Corr.	MCG External Temperature	
Squasher Start	0.0020	mhos/metre

Squasher Start		0.0328	mhos/metre
Squasher Offset		N/A	mhos/metre

Borehole Normalisation

DRM1	0.0000	DRC1	0.0000
DRM2	0.0000	DRC2	0.0000
MRM1	0.0000	MRC1	0.0000
MRM2	0.0000	MRC2	0.0000
SRM1	0.0000	SRC1	0.0000
SRM2	0.0000	SRC2	0.0000

Calibration Site Corrections

Channel 1	0.00	mmhos/metre
Channel 2	0.00	mmhos/metre
Channel 3	0.00	mmhos/metre
Channel 4	0.00	mmhos/metre

Apparent Porosity and Water Saturation Constants

Archie Constant (A)	1.00	
Cementation Exponent (M)	2.00	
Saturation Exponent (N)	2.00	
Saturation of Water for Apor	100.00	percent
Resistivity of Water for Apor and Sw	0.05	ohm-m
Resistivity of Mud Filtrate for Sw	0.00	ohm-m
Source for Rt	0.00	
Source for Rxo	0.00	

High Resolution Temperature Calibration MAI-A.A 5

Field Calibration on 21-JAN-2014,15:43

	Measured	Calibrated(Deg F)
Lower	50.00	50.00
Upper	75.00	75.00

High Resolution Temperature Constants MAI-A.A 5

Last Edited on 09-MAY-2014,12:22

Pre-filter Length	11

Caliper Calibration MPD-D.A 480

Base Calibration on 08-MAY-2014 14:36
Field Calibration on 30-MAY-2014 21:12

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	17491	3.99
2	27463	5.98
3	37484	7.97
4	47415	9.86
5	58518	11.92
6	N/A	N/A

Field Calibration

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

Photo Density Calibration MPD-D.A 480

Base Calibration on 08-MAY-2014 14:53
Field Check on 30-MAY-2014 21:18

Density Calibration

Base Calibration

	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Background	1275	1464		
Reference 1	55908	26147	59556	30836
Reference 2	22982	2651	24941	2541

Field Check at Base

1274.5	1464.0

Field Check

1271.2	1468.9

PE Calibration

Base Calibration

	Measured			Calibrated
	WS	WH	Ratio	Ratio
Background	241	1140		
Reference 1	23265	55701	0.422	0.371
Reference 2	6806	22836	0.303	0.273

Reference 2	6806	22836	0.303	0.272

Field Check at Base

	240.7	1139.6

Field Check

	240.2	1135.7

Density Constants MPD-D.A 480

Last Edited on 31-MAY-2014,08:48

Density Source Id	P50557B	
Nylon Calibrator Number	DNCE695	
Aluminium Calibrator Number	DACD698	
Density Shoe Profile	8 inch	
Caliper Source for Processing	Density Caliper	
PE Correction to Density	Not Applied	
Mud Density	1.13	gm/cc
Mud Density Z/A Multiplier	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
Density Z/A Correction	Hybrid	

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

DOWNHOLE EQUIPMENT

C:\Minimus 13.08.2113\Logs\MCCOY MTPRC 'B' #3-22\MCCOY MTPRC 'B' #3-22 REPEAT2.dta

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

Compact Comms Gamma
MCG-C 208 LG: 8.70 ft WT: 63.9 lb OD: 2.244 in

Compact Micro-Resistivity
MMR-C.A 248 LG: 8.59 ft WT: 81.6 lb OD: 4.882 in

Compact Neutron
MDN-B.J 387 LG: 5.04 ft WT: 50.7 lb OD: 2.244 in

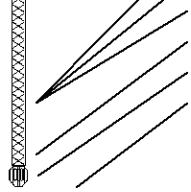
Compact Density/Caliper
MPD-D.A 480 LG: 9.59 ft WT: 90.4 lb OD: 2.449 in

Compact Focussed Electric
MFE-A.A 55 LG: 6.05 ft WT: 48.5 lb OD: 2.244 in

Compact Induction
MAI-A.A 5 LG: 10.81 ft WT: 48.5 lb OD: 2.244 in

43.50 ft	GRGC - Gamma Ray
40.59 ft	CGXT - MCG External Temperature
33.24 ft	MINV - MMR MicroLog Inverse
33.24 ft	MNRL - MMR MicroLog Normal
28.45 ft	NPRL - Limestone Neutron Por.
21.21 ft	CLDC - Density Caliper
21.21 ft	AVOL - Annular Volume
21.21 ft	HVOL - Hole Volume
19.28 ft	DPRL - Limestone Density Por.
19.28 ft	DEN - Compensated Density
19.28 ft	DCOR - Density Correction
19.22 ft	PDPE - PE
13.72 ft	FEFE - Shallow FE
3.34 ft	R40O - Array Ind. One Res 40
3.34 ft	R60O - Array Ind. One Res 60

Total Length: 51.18 ft Weight: 407.9 lb



3.34 ft	RTAO - Array Ind. One Res Rt
0.23 ft	SPCG - Spontaneous Potential
Tool Zero	(0.13ft from bottom)
-0.13 ft	SMTU - DST Uphole Tension

All measurements relative to tool zero.

COMPANY	McCOY PETROLEUM CORPORATION
WELL	MTPRC 'B' #3-22
FIELD	ALFORD
PROVINCE/COUNTY	KIOWA
COUNTRY/STATE	USA / KANSAS

Elevation Kelly Bushing	2243.00	feet	First Reading	5181.00	feet
Elevation Drill Floor	2241.00	feet	Depth Driller	5200.00	feet
Elevation Ground Level	2230.00	feet	Depth Logger	5200.00	feet

Weatherford®

CALIPER LOG