



Weatherford[®]

CALIPER LOG

COMPANY	MCCOY PETROLEUM CORPORATION		
WELL	PATTERSON-O'BRATE 'A' #2-17		
FIELD	WILDCAT		
PROVINCE/COUNTY	MEADE		
COUNTRY/STATE	U.S.A. / KANSAS		
LOCATION	1980' FNL & 1980' FWL		
SEC 17	TWP 30S	RGE 30W	Other Services
Latitude			
Longitude			
API Number	15-119-21364		
Permanent Datum GL, Elevation	2814 feet		
Log Measured From	KB		
Drilling Measured From	KB		
Date	28-APR-2014		
Run Number	ONE		
Service Order	4558-85851716		
Depth Driller	5700.00	feet	Elevations: KB 2825.00
Depth Logger	5700.00	feet	DF 2823.00
First Reading	5681.00	feet	GL 2814.00
Last Reading	1826.00	feet	
Casing Driller	1827.00	feet	
Casing Logger	1826.00	feet	
Bit Size	7.875	inches	
Hole Fluid Type	CHEMICAL		
Density / Viscosity	9.20 lb/USg	56.00 CP	
PH / Fluid Loss	10.50	8.80 ml/30Min	
Sample Source	FLOWLINE		
Rm @ Measured Temp	0.99 @ 79.0	ohm-m	
Rmf @ Measured Temp	0.79 @ 79.0	ohm-m	
Rmc @ Measured Temp	1.19 @ 79.0	ohm-m	
Source Rmf / Rmc	CALC	CALC	
Rm @ BHT	0.65 @ 121.0	ohm-m	
Time Since Circulation	5 HOURS		
Max Recorded Temp	121.00	deg F	
Equipment / Base	13096	LIB	
Recorded By	ADAM SILL		
Witnessed By	DAVE WILLIAMS		
JOB #	LB14-130		

BOREHOLE RECORD			Last Edited: 28-APR-2014 02:56
Bit Size inches	Depth From feet	Depth To feet	
7.875	1827.00	5700.00	
CASING RECORD			
Type	Size inches	Depth From feet	Shoe Depth feet
SURFACE	8.625	0.00	1827.00
			Weight pounds/ft 24.00

REMARKS

- SOFTWARE ISSUE: WLS 13.08.2113

- TOOL STRING: MCG, MML, MDN, MPD, MFE, MAI RUN IN COMBINATION

- HARDWARE: DUAL BOWSPRING ECCENTRALIZER 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: 1510 CU. FT.

- ANNULAR HOLE VOLUME WITH 5.5 INCH CASING FROM TD TO 4000 FEET: 289 CU. FT.

- RIG: STERLING #2.

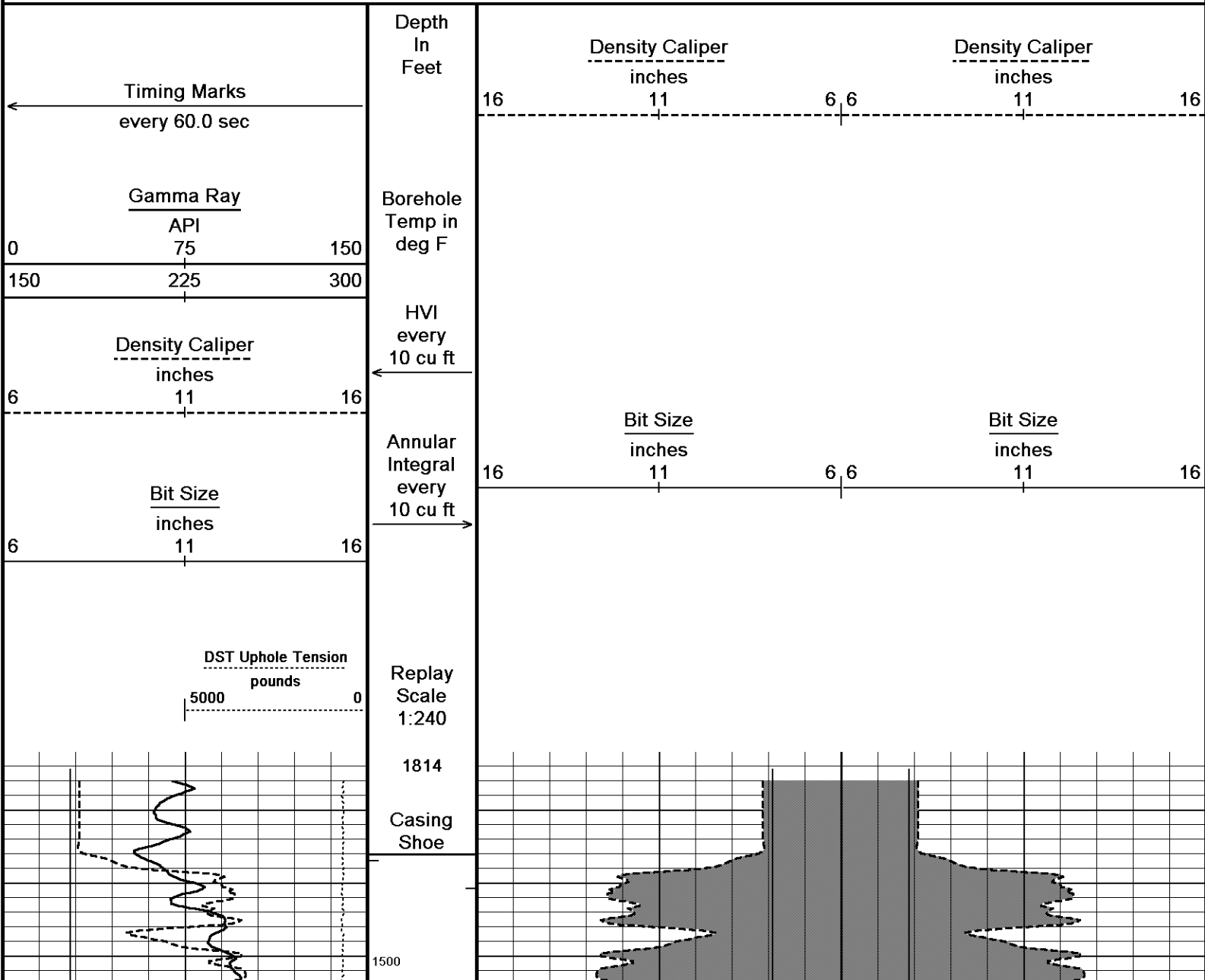
- ENGINEER: A. SILL.

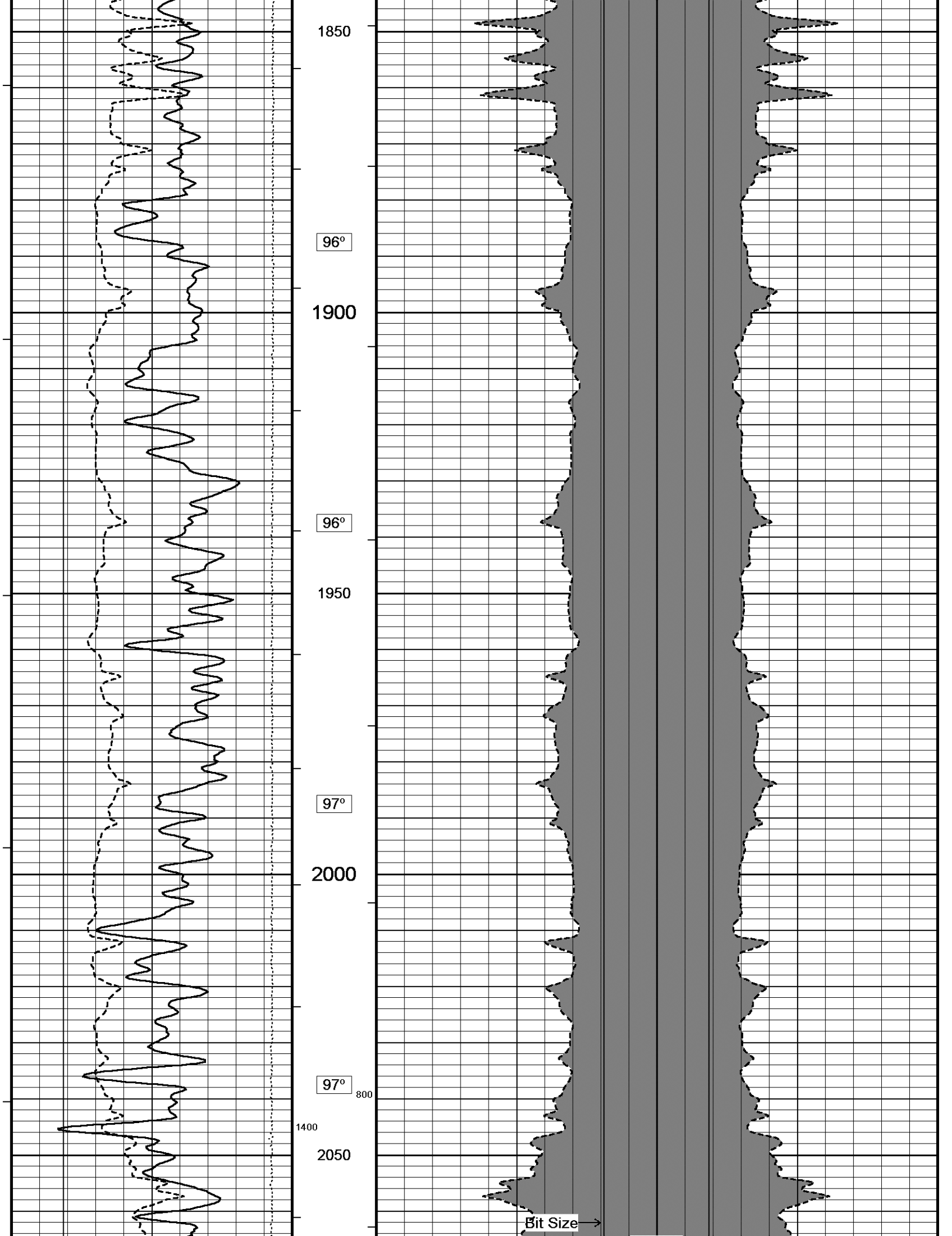
- OPERATORS: J. LaPOINT.

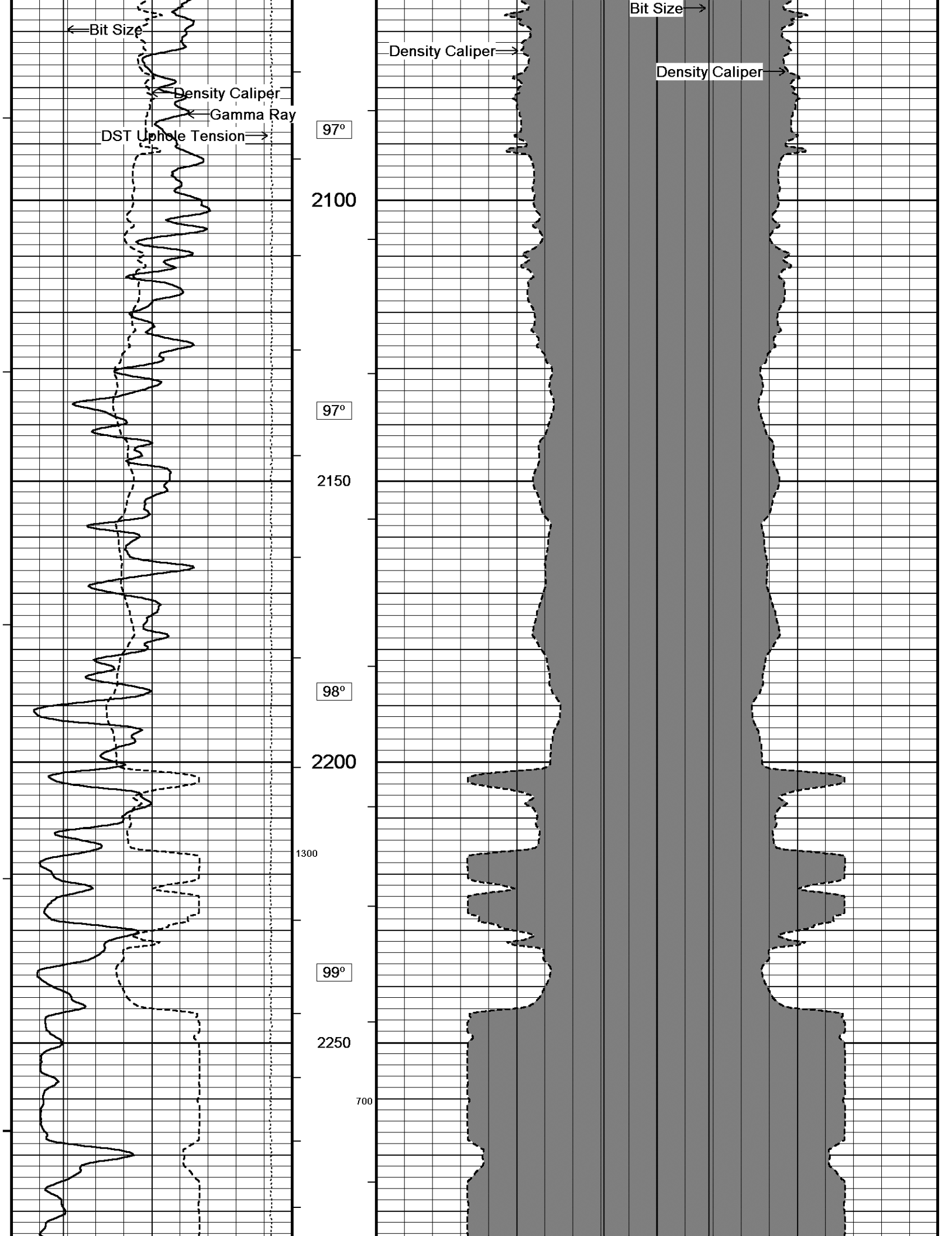
In interpreting, communicating or providing information and/or making recommendations, either written or oral, as to logs or test or other data, type or amount of material, or Work or other service to be furnished, or manner of performance, or in predicting results to be obtained, the Contractor will 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.

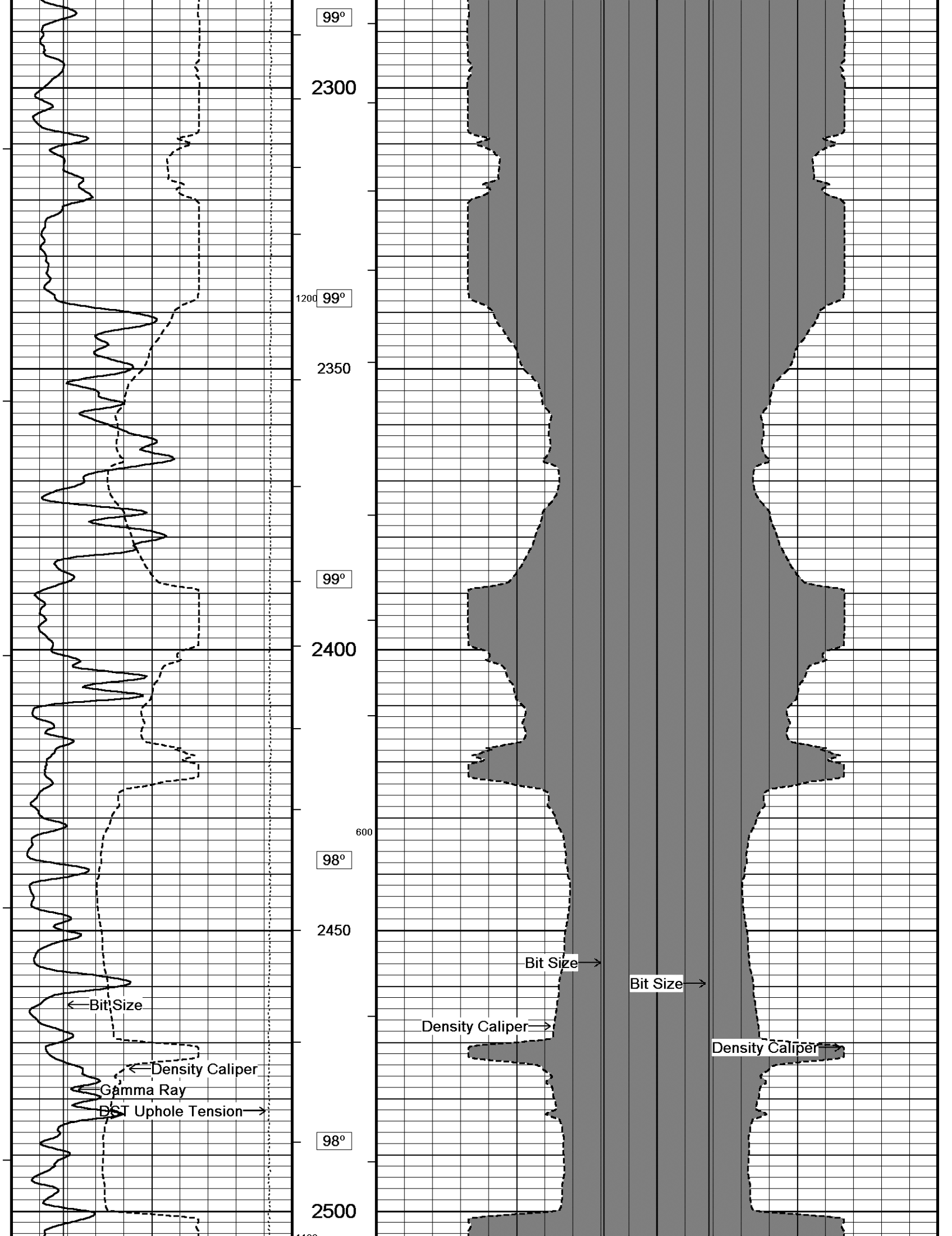
5 INCH MAIN

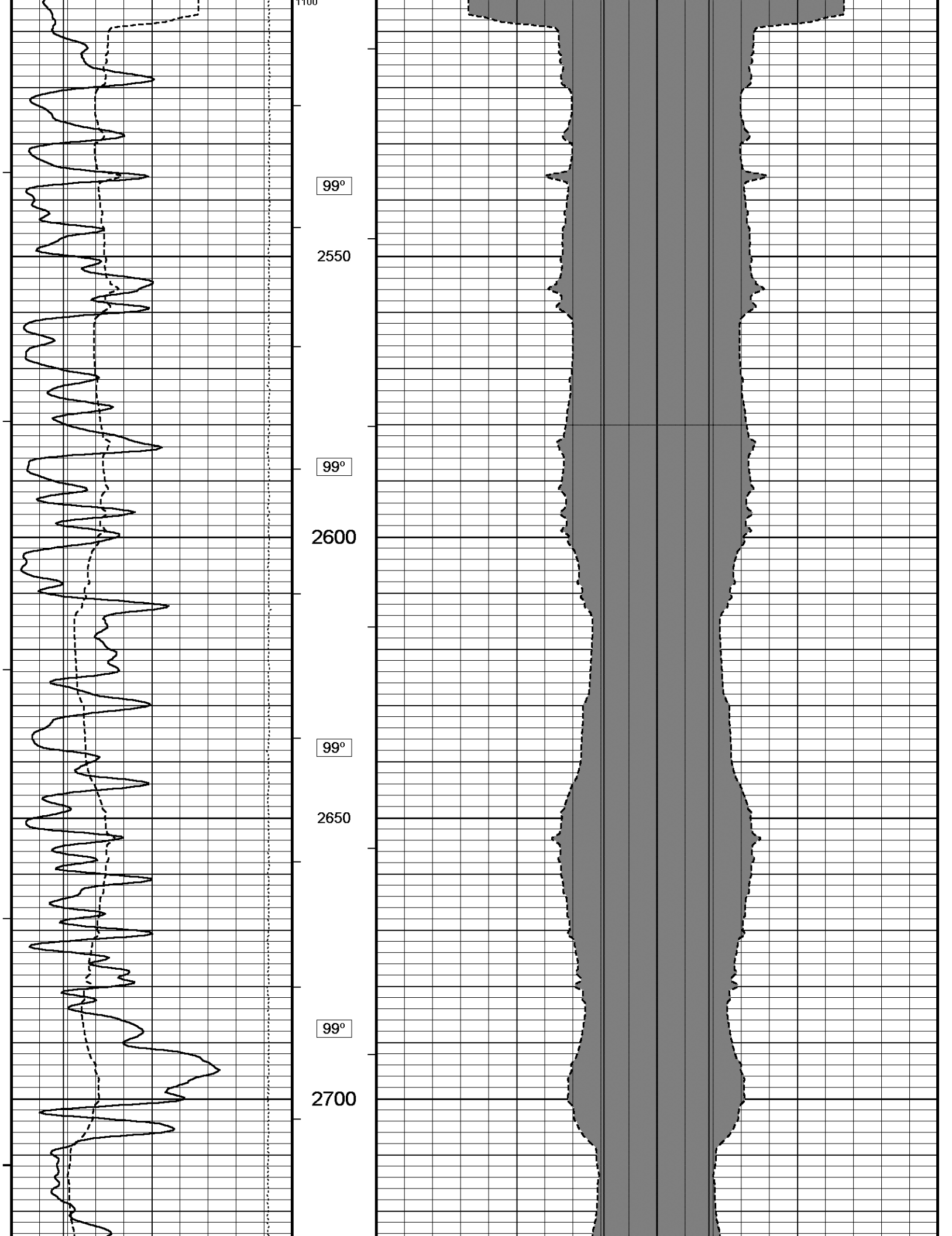
Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 28-APR-2014 15:22
 Filename: C:\WLS 13.08\Logs\McCoy Patterson-O'Brate '...' \McCoy Patterson-O'Brate 'A' #2-17_003.dta Recorded on 28-APR-2014 05:47
 System Versions: Logged with 13.08.2113 Processed with 13.08.2113 Plotted with 13.08.2113

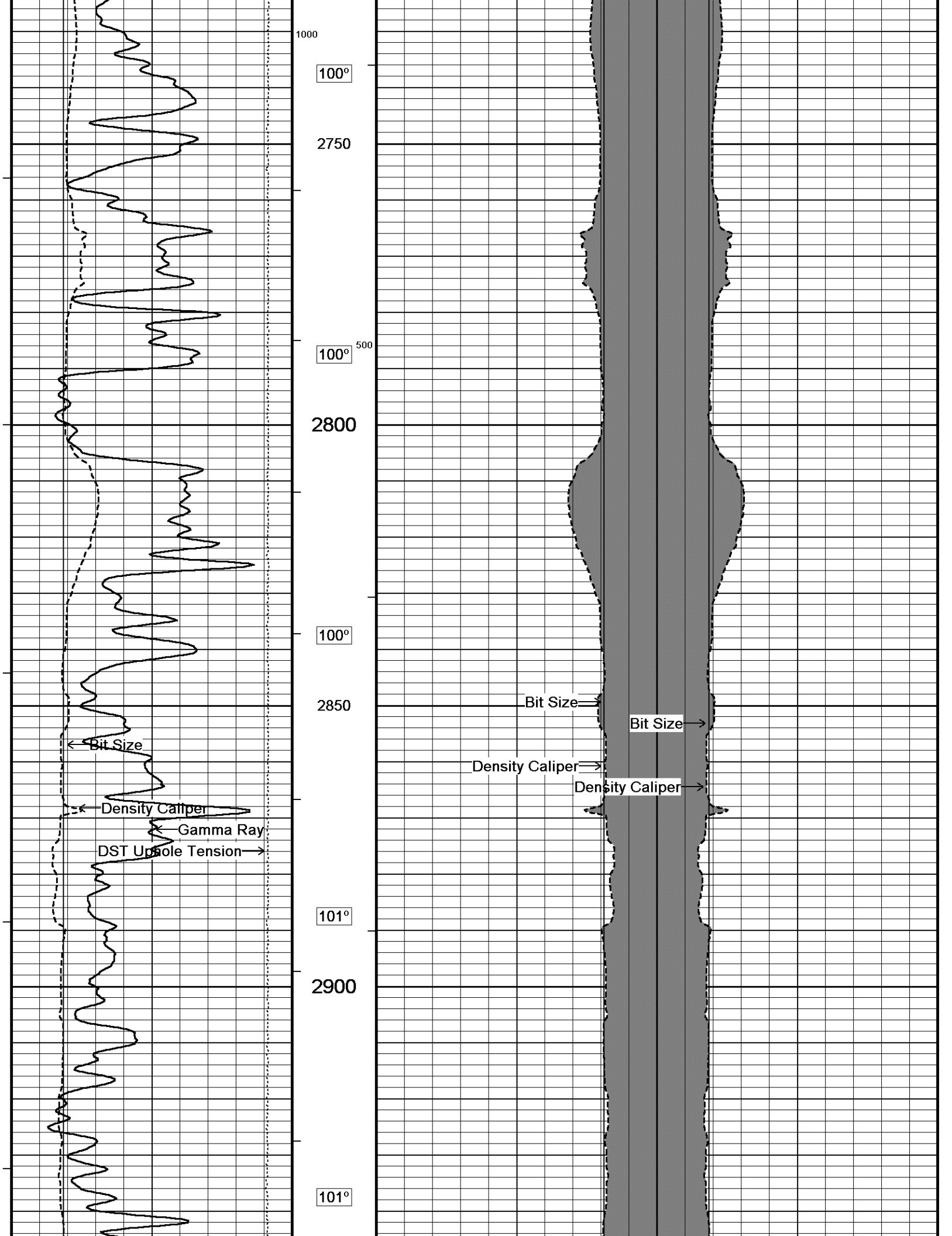


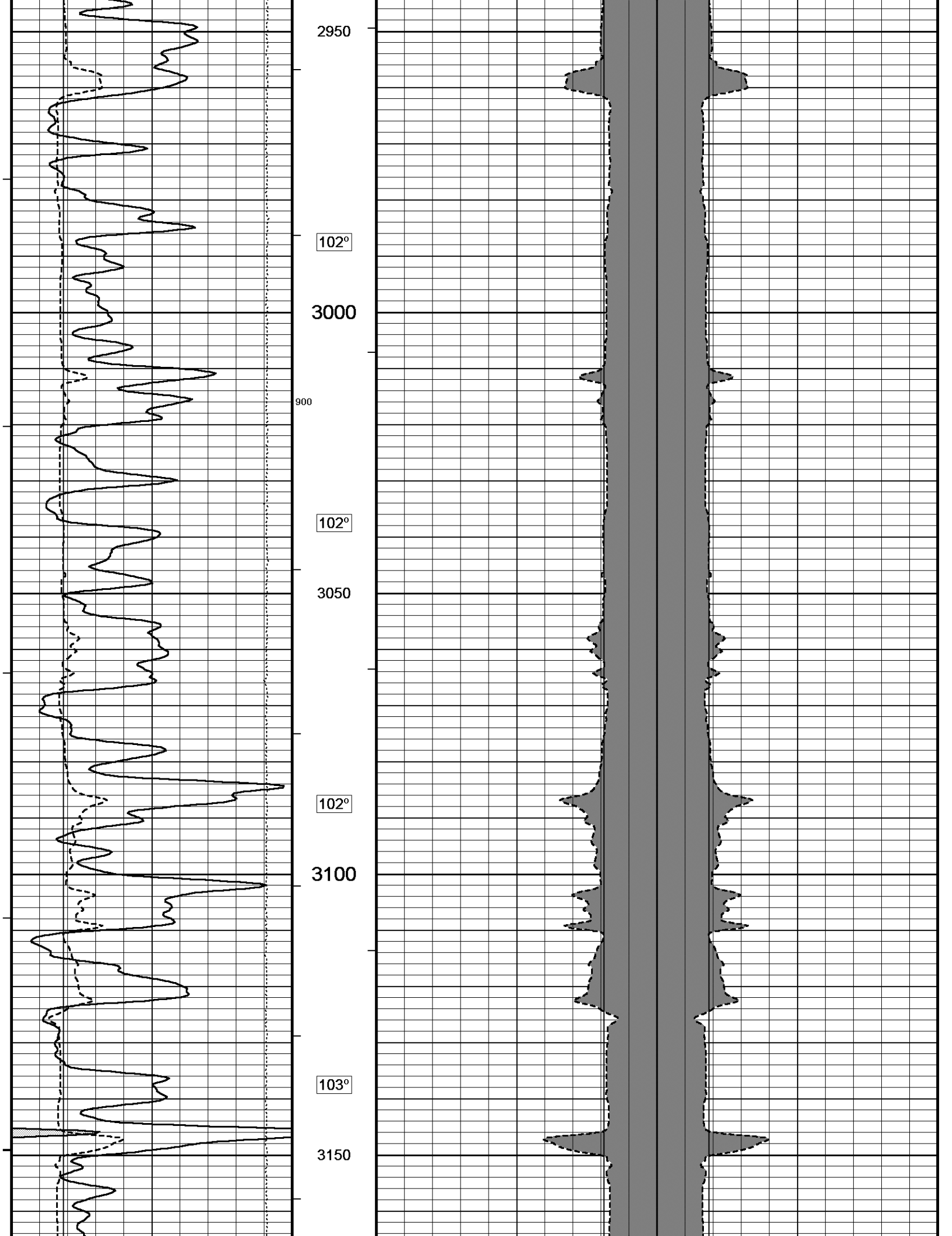


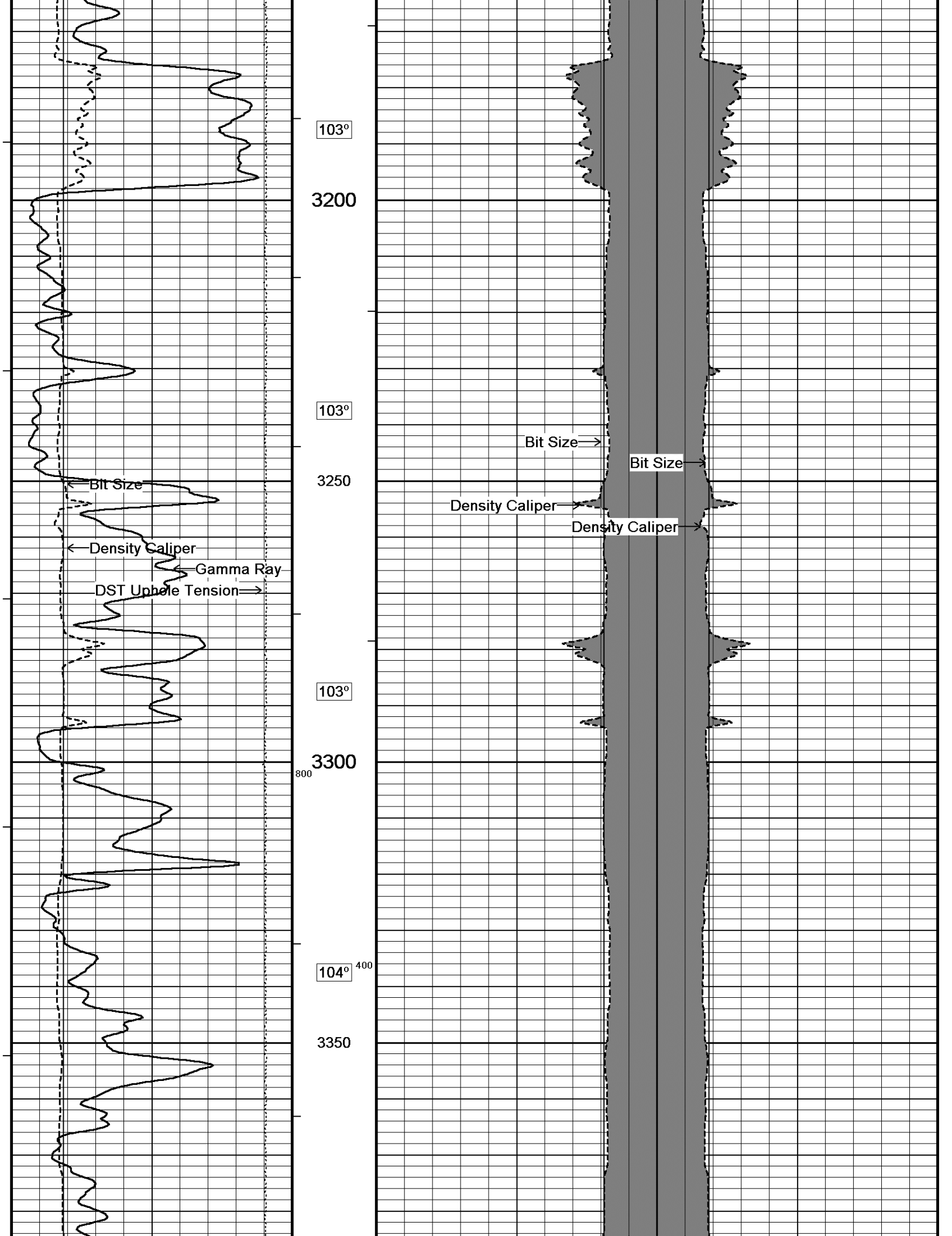


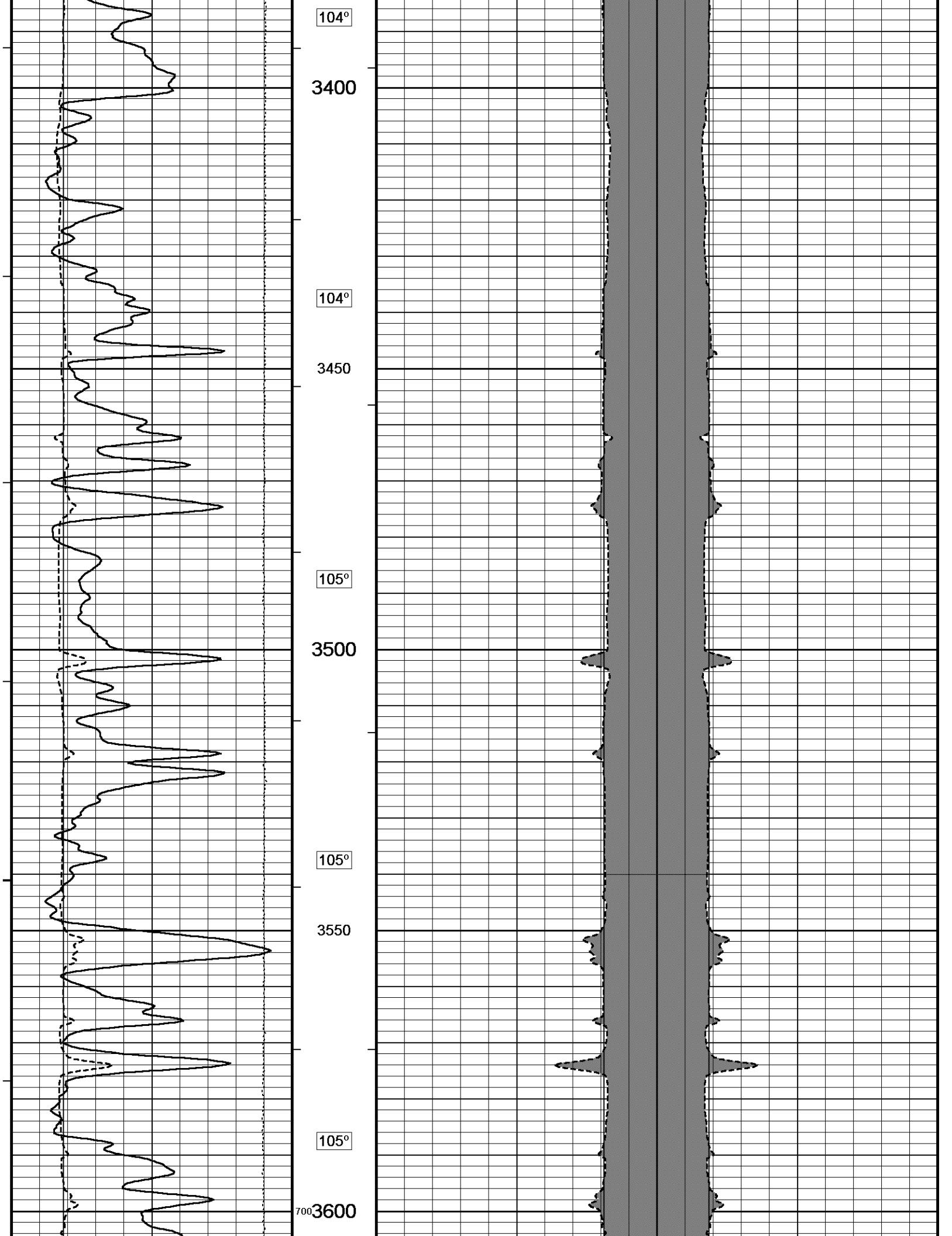


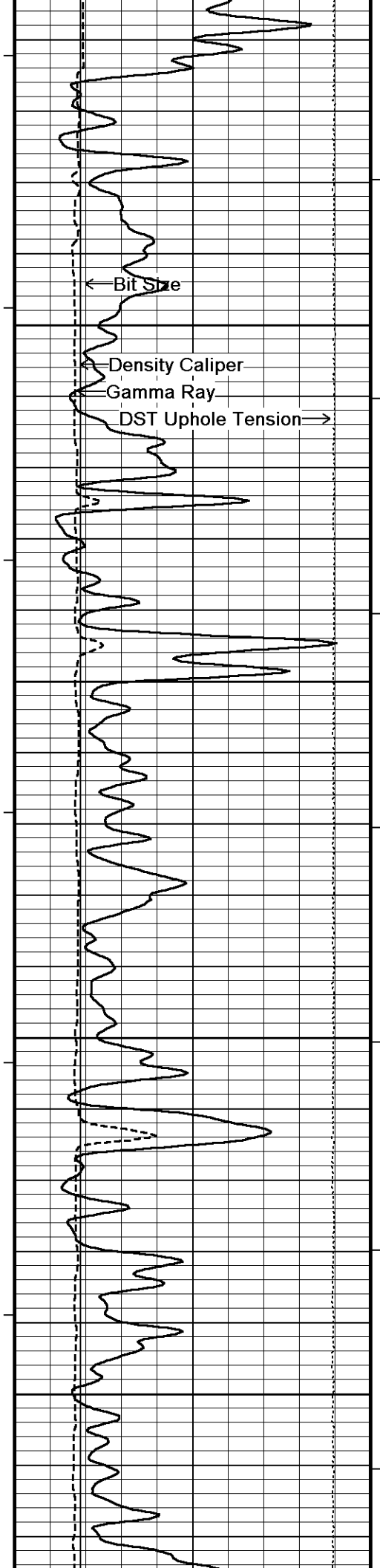












106°

3650

106°

3700

106°

3750

107°

3800

Bit Size →

Density Caliper →

Bit Size →

Density Caliper →

← Bit Size

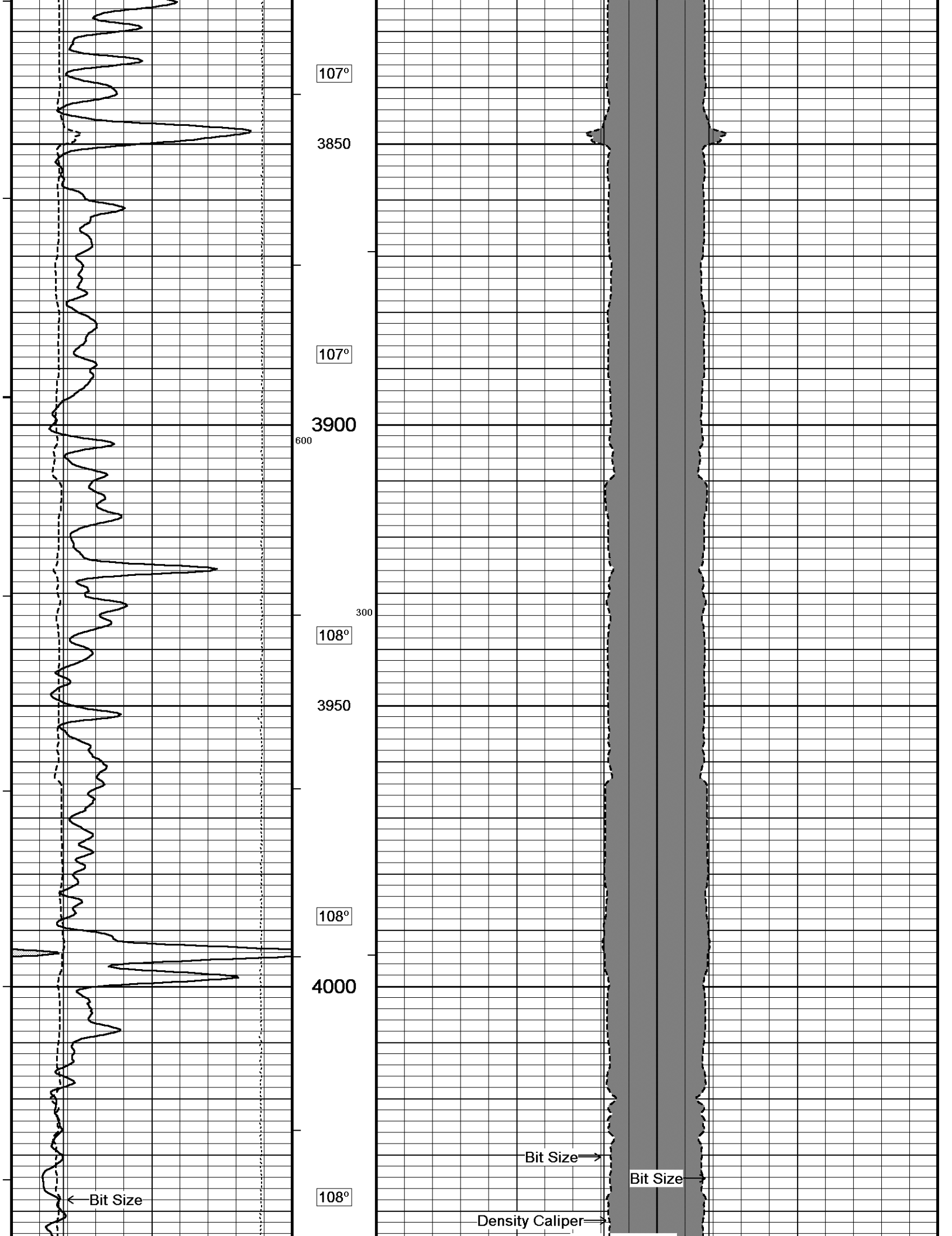
← Density Caliper

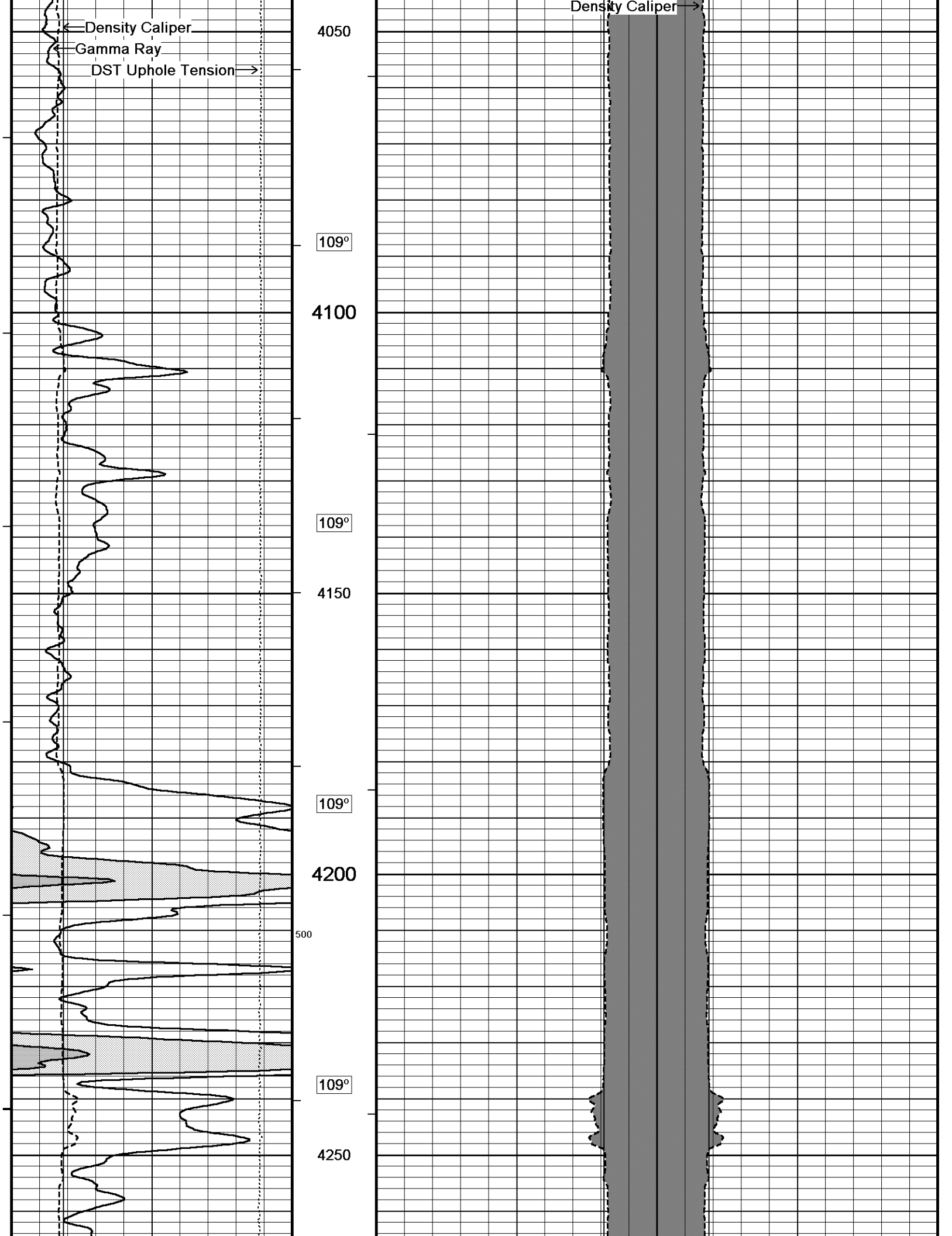
← Gamma Ray

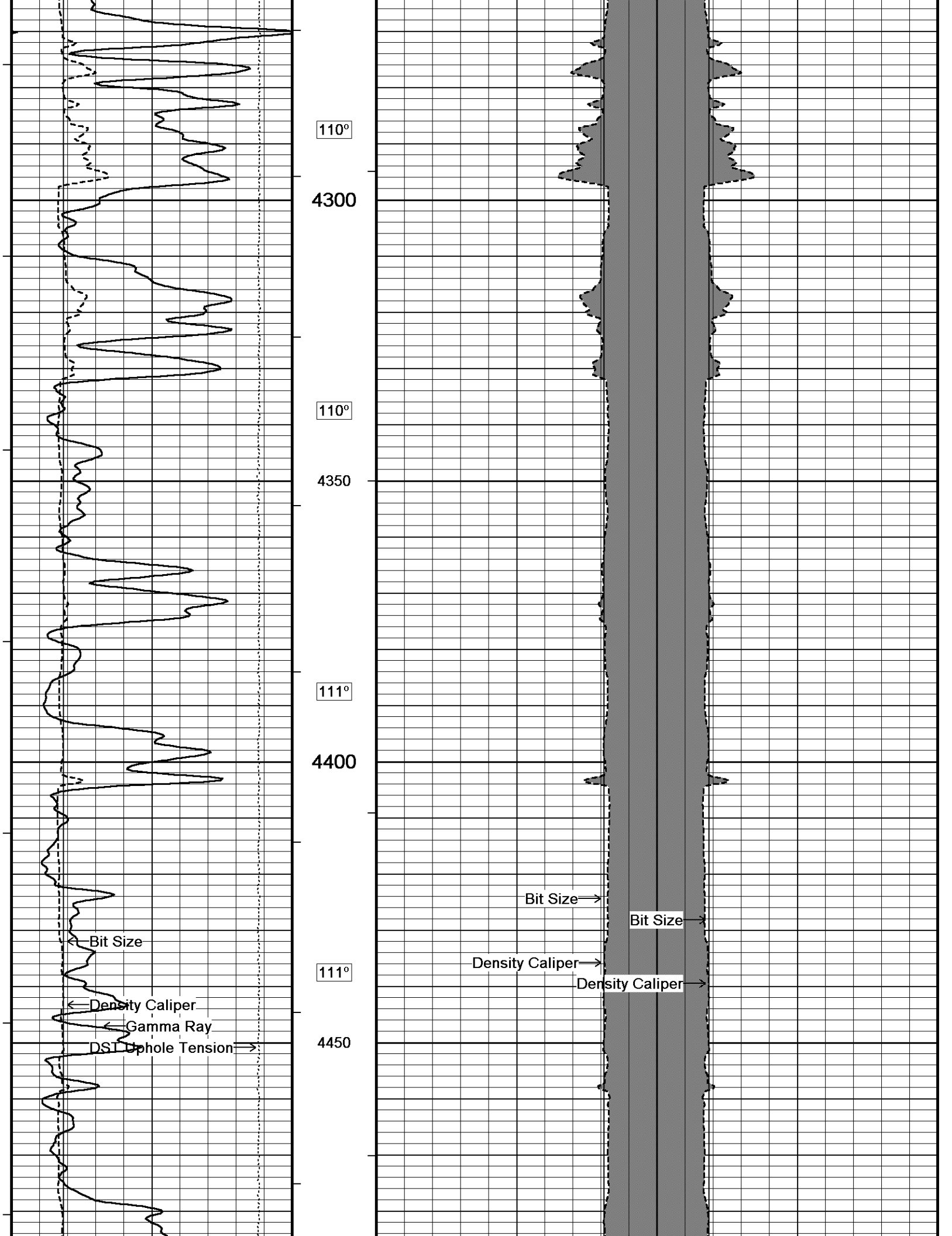
← DST Uphole Tension

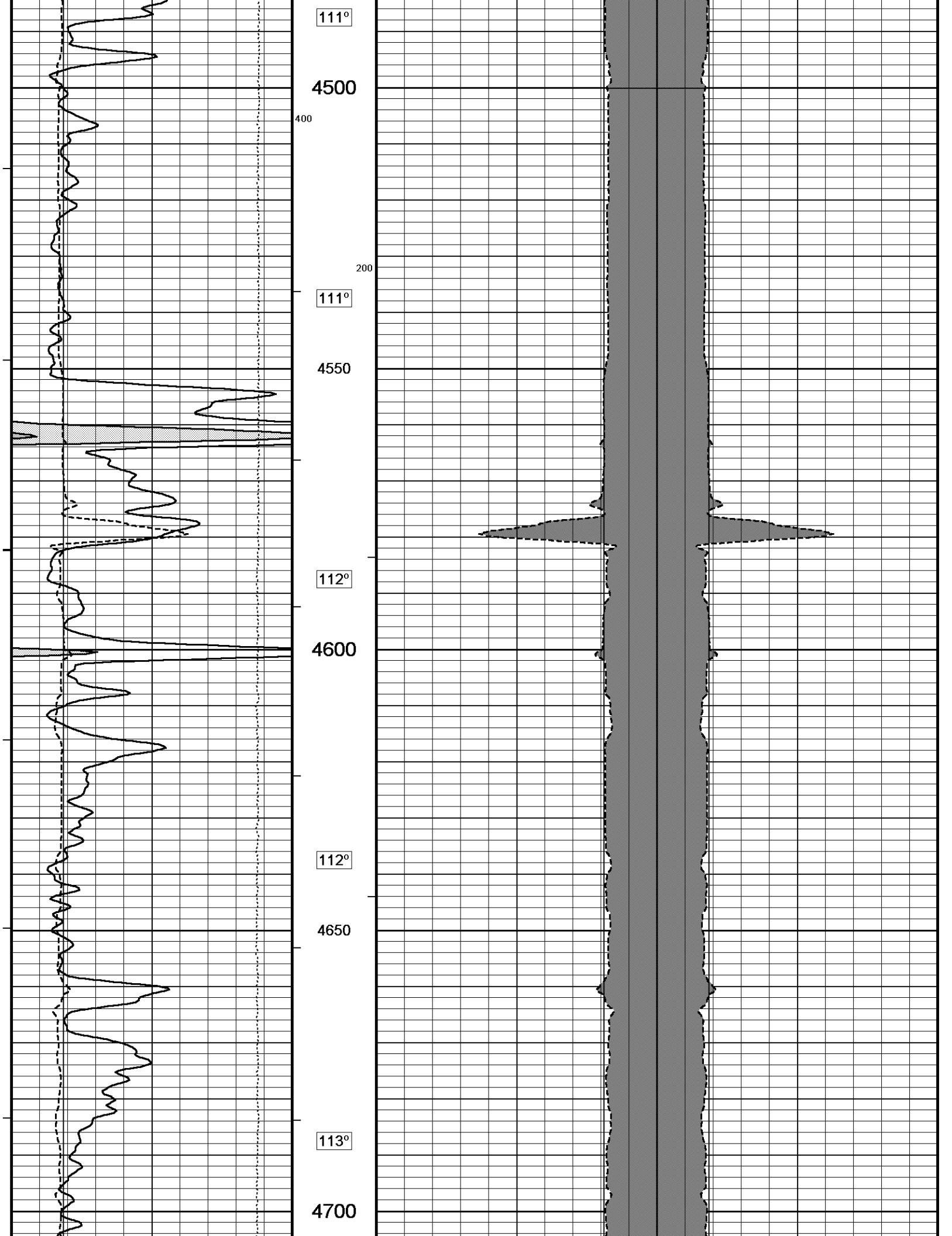
← Bit Size

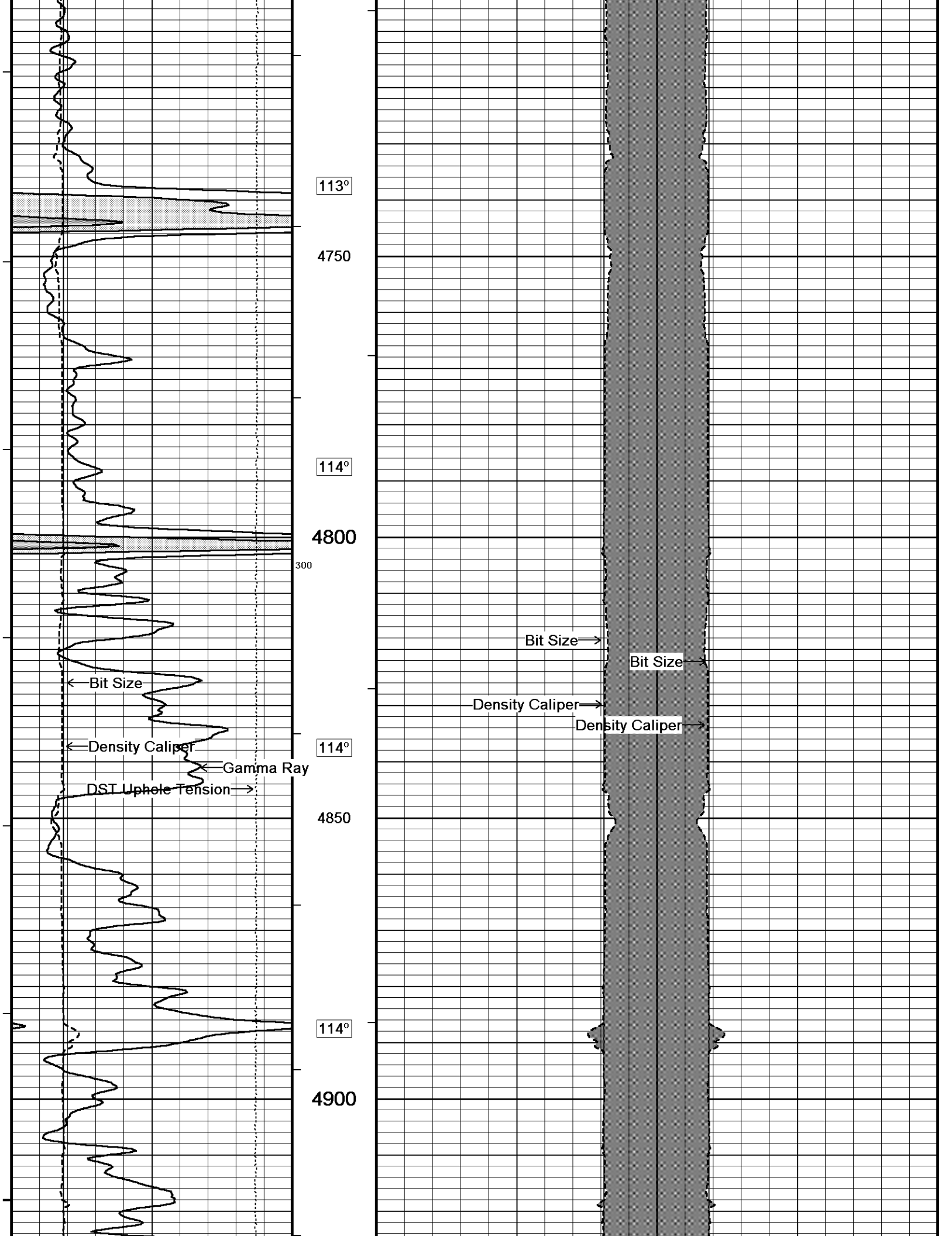
← Density Caliper

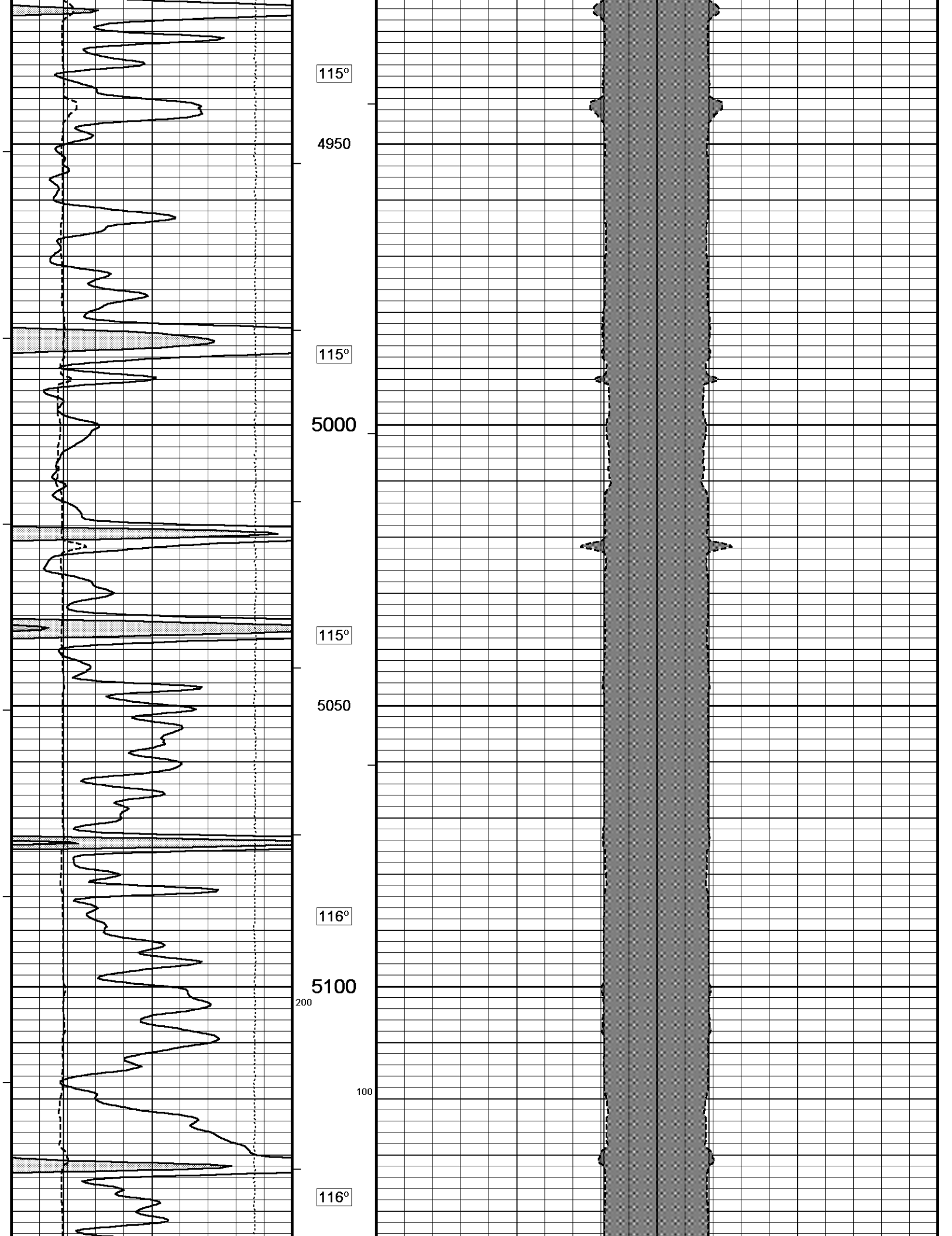


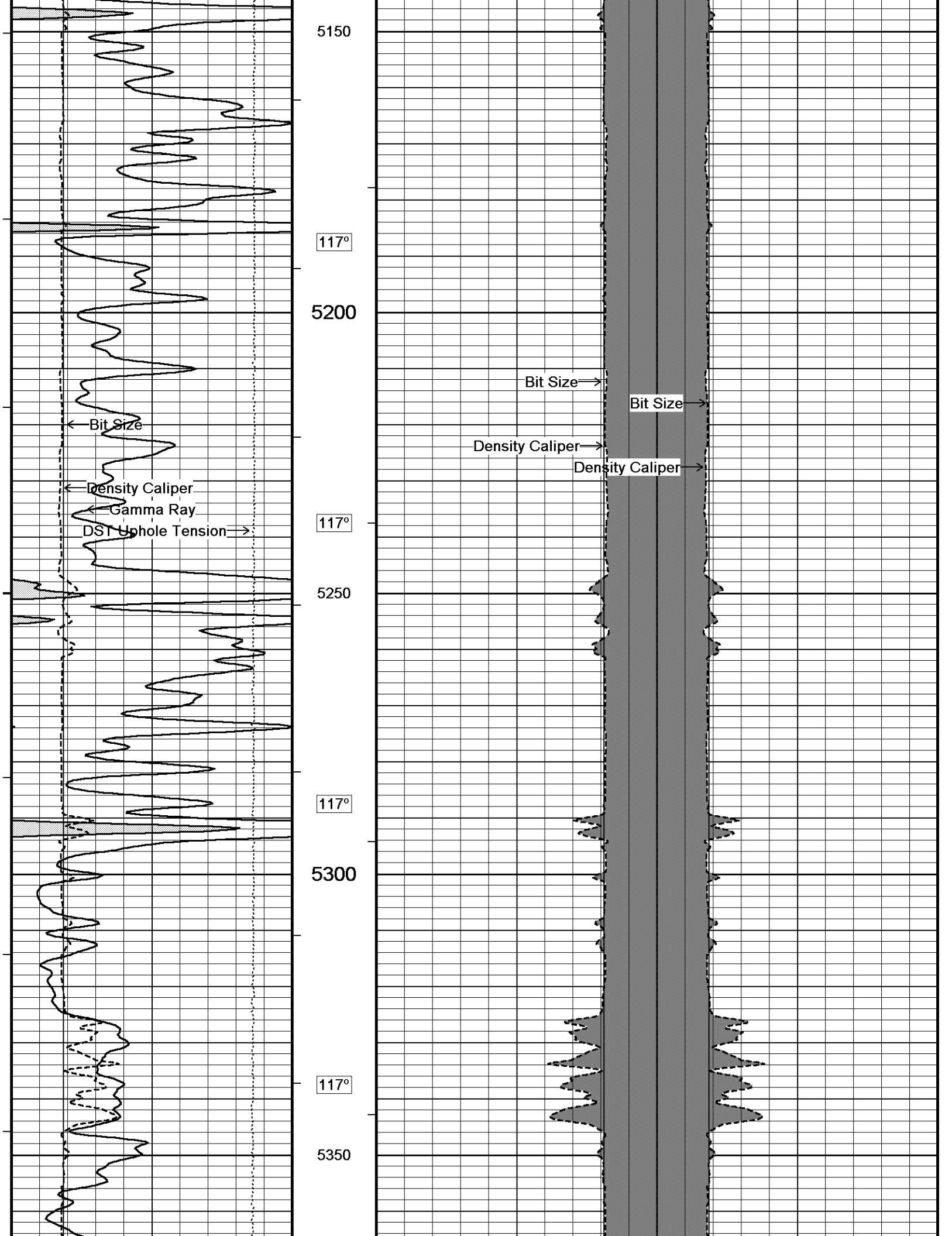


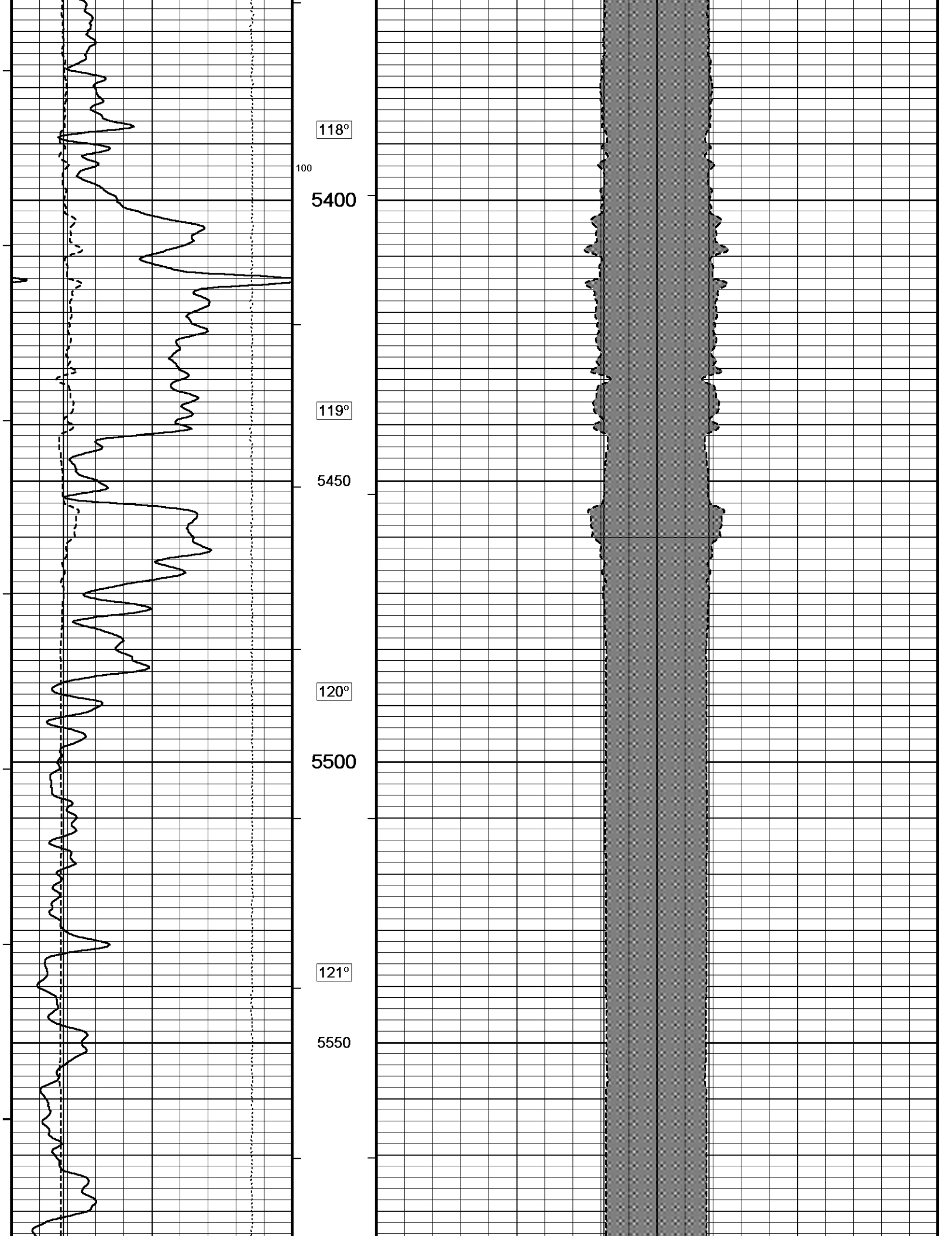


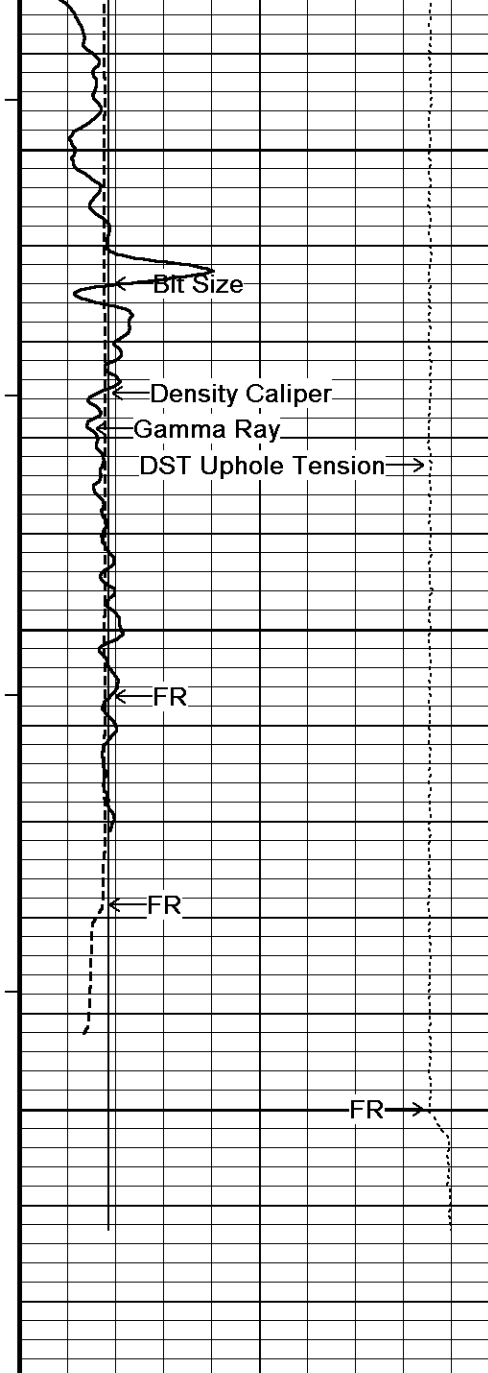




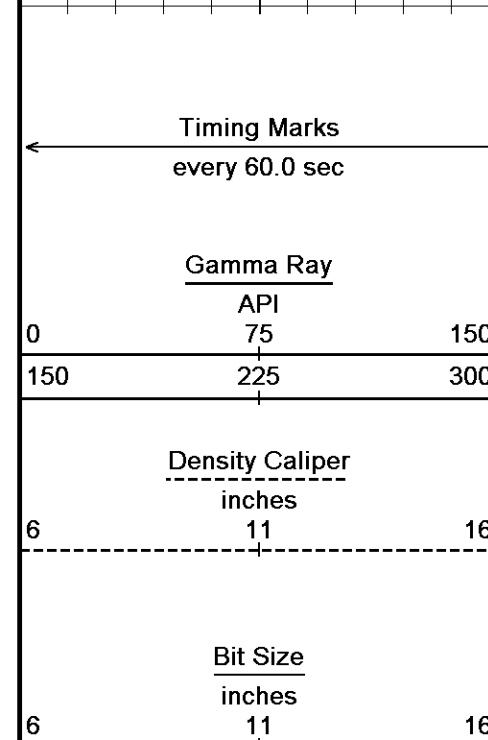
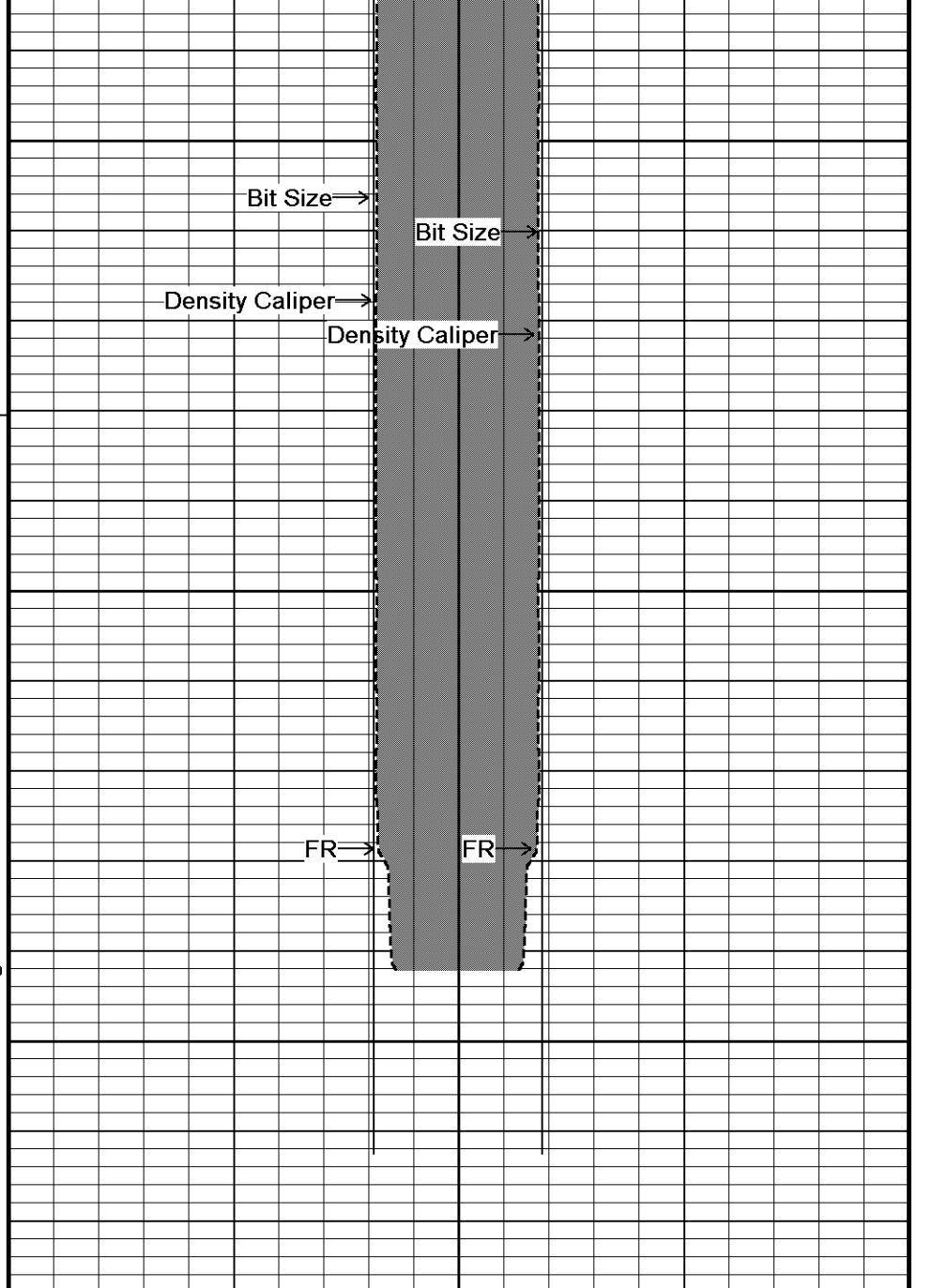




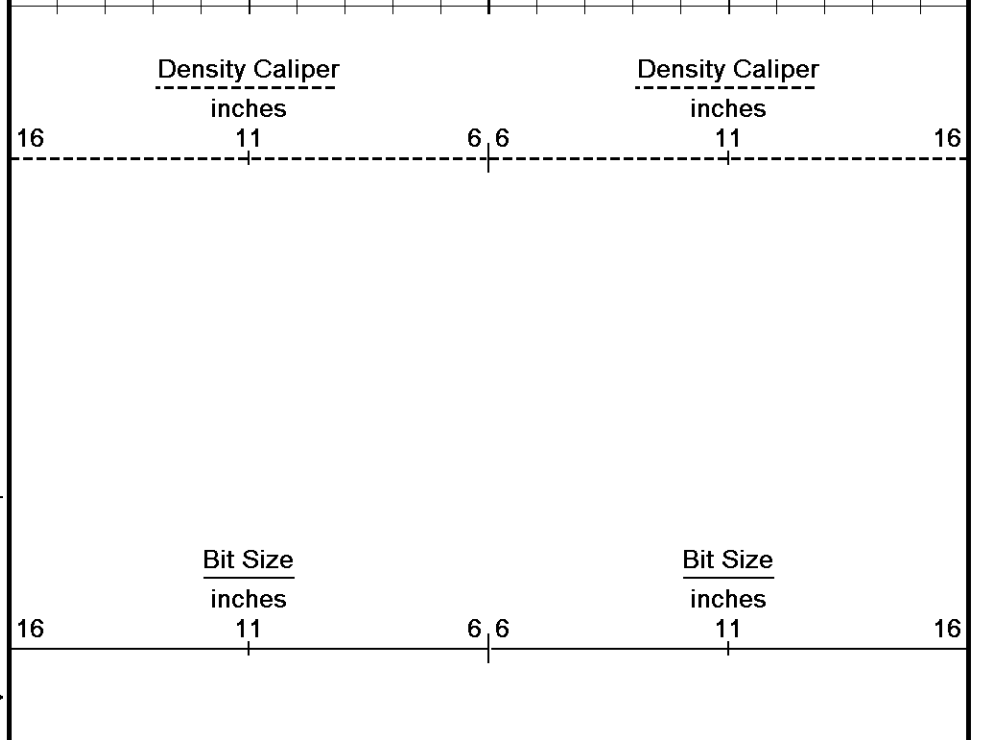




121°
5600
120°
5650
0
5700



5726
Depth
In
Feet
Borehole
Temp in
deg F
HVI
every
10 cu ft
Annular
Integral
every
10 cu ft



DST Uphole Tension
pounds
5000 0

Replay
Scale
1:240

Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 28-APR-2014 15:22
 Filename: C:\WLS 13.08\Logs\McCoy Patterson-O'Brate 'A' #2-17_003.dta Recorded on 28-APR-2014 05:47
 System Versions: Logged with 13.08.2113 Processed with 13.08.2113 Plotted with 13.08.2113

↑ 5 INCH MAIN ↑

BEFORE SURVEY CALIBRATION

C:\WLS 13.08\Logs\McCoy Patterson-O'Brate 'A' 2-17\McCoy Patterson-O'Brate 'A' #2-17_003.dta

General Constants All 000

Last Edited on 28-APR-2014,04:44

General Parameters

Mud Resistivity	0.990	ohm-metres
Mud Resistivity Temperature	79.000	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	MML Caliper	

Rwa Parameters

Porosity used	Crossplot Porosity
Resistivity used	Array Ind. One Res Rt
RWA Constant A	1.000
RWA Constant M	2.000
SW/APOR Tool Source	0.000

Down-hole Tension Calibration SMS 0

Field Calibration on 28-APR-2014 04:29

Reading No	Measured	Calibrated (lbs)
1	15715.05	0.00
2	16399.64	408.00

Gamma Calibration MCG-D.K 469

Field Calibration on 28-APR-2014 01:21

	Measured	Calibrated (API)
Background	63	41
Calibrator (Gross)	1157	766
Calibrator (Net)	1094	725

Gamma Constants MCG-D.K 469

Last Edited on 28-APR-2014,03:02

Gamma Calibrator Number	GRC038	
Mud Density	1.10	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl		kppm
K Mud Type	Chloride	
K Mud Concentration	0.00	%

High Resolution Temperature Calibration MCG-D.K 469

Field Calibration on 18-APR-2014,19:10

	Measured	Calibrated(Deg F)
Lower	10.00	10.00
Upper	100.00	100.00

High Resolution Temperature Constants MCG-D.K 469

Last Edited on 25-APR-2014,03:00

Pre filter Length 11

SP Calibration MCG-D.K 469

Field Calibration on 17-APR-2014 09:58

	Measured	Calibrated (mV)
Reference 1	100.1	99.9
Reference 2	-99.0	-100.0

Caliper Calibration MML-A 3

Base Calibration on 25-MAR-2014 11:38

Field Calibration on 28-APR-2014 01:05

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	14836	5.98
2	18178	7.97
3	21362	9.86
4	25372	11.92
5	0	0.00
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
8.01	7.97

Micro Normal and Micro Inverse Calibration MML-A 3

Base Calibration on 25-MAR-2014 11:48

Field Check on 28-APR-2014 01:07

Base Calibration

Channel	Measured		Calibrated (ohm-m)	
	Resistor 1	Resistor 2	Resistor 1	Resistor 2
Micro Normal	10.0	50.0	5.1	25.6
Micro Inverse	10.0	49.9	3.4	16.9

Channel	Base Check (ohm-m)	Field Check (ohm-m)
Micro Normal	77.3	77.3
Micro Inverse	51.2	51.2

Micro Normal and Micro Inverse Constants MML-A 3

Last Edited on 28-APR-2014,03:02

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	N/A	inches	

Neutron Calibration MDN-A.B 66

Base Calibration on 24-MAR-2014 14:50

Field Check on 28-APR-2014 01:27

Base Calibration

	Measured		Calibrated (cps)	
	Near	Far	Near	Far
Ratio	3064	94	3714	110
	32.437		33.764	

Field Calibrator at Base

Calibrated (cps)
1641
2431
Ratio
0.675

Field Check

Calibrated (cps)
1667
2436
Ratio
0.686

Neutron Constants MDN-A.B 66

Last Edited on 28-APR-2014,03:02

Neutron Source Id	P0204NN	
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 135

Base Calibration on 25-MAR-2014 12:07
Field Check on 28-APR-2014 00:57

Base Calibration

	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	963.6	126.8
Base Check		281.2
Field Check		281.2

FE Constants MFE-A.A 135

Last Edited on 28-APR-2014,03:01

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 167

Base Calibration on 22-FEB-2014,14:07
Field Check on 28-APR-2014 00:55

Base Calibration

Test Loop Calibration Channel	Measured		Calibrated (mmho/m)	
	Low	High	Low	High
1	17.3	474.2	9.3	967.1
2	6.3	388.4	7.6	822.1
3	3.3	259.4	5.2	566.5
4	1.9	133.0	2.6	279.5

Array Temperature 76.8 Deg F

Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1			12.3	3842.5
2			29.4	3480.1
3			29.0	3055.8
4			19.8	2083.6
Deep			18.5	2050.8
Medium			42.2	3994.8
Shallow			42.7	5058.6

Array Temperature 62.5 Deg F

Induction Constants MAI-A.A 167

Last Edited on 28-APR-2014,03:01

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 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
SDM1	0.0000	SDC1	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 167

Field Calibration on 18-APR-2014,18:52

	Measured	Calibrated(Deg F)
Lower	10.00	10.00
Upper	100.00	100.00

High Resolution Temperature Constants MAI-A.A 167

Last Edited on 18-APR-2014,18:52

Pre-filter Length 11

Caliper Calibration MPD-D.A 482

Base Calibration on 10-APR-2014 12:34
Field Calibration on 28-APR-2014 00:59

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	16267	3.99
2	26446	5.98
3	36593	7.97
4	46367	9.86
5	57395	11.92
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
7.94	7.97

Photo Density Calibration MPD-D.A 482

Base Calibration on 24-MAR-2014 13:51
Field Check on 28-APR-2014 01:04

Density Calibration

Base Calibration		Measured	Calibrated (sdu)	
		Near	Far	
Background	1244	1407		
Reference 1	59945	29818	59556	30836
Reference 2	25150	2828	24941	2541

Field Check at Base

1243.8	1406.7
--------	--------

Field Check

1237.9	1409.9
--------	--------

PE Calibration

Base Calibration		Measured	Calibrated	
		WS	WH	Ratio
Background	235	1114		
Reference 1	26220	59734	0.443	0.371
Reference 2	7692	25010	0.312	0.272

Field Check at Base

235.0	1114.4
-------	--------

Field Check

235.4	1109.7
-------	--------

Density Source Id	18235B	
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	1.10	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	0.00
0.00	0.00

DOWNHOLE EQUIPMENT

C:\WLS 13.08\Logs\McCoy Patterson-O'Brate 'A' 2-17\McCoy Patterson-O'Brate 'A' #2-17_003.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-D.K 469 LG: 8.70 ft WT: 63.9 lb OD: 2.244 in

Compact Micro-log
 MML-A 3 LG: 7.97 ft WT: 81.6 lb OD: 2.240 in

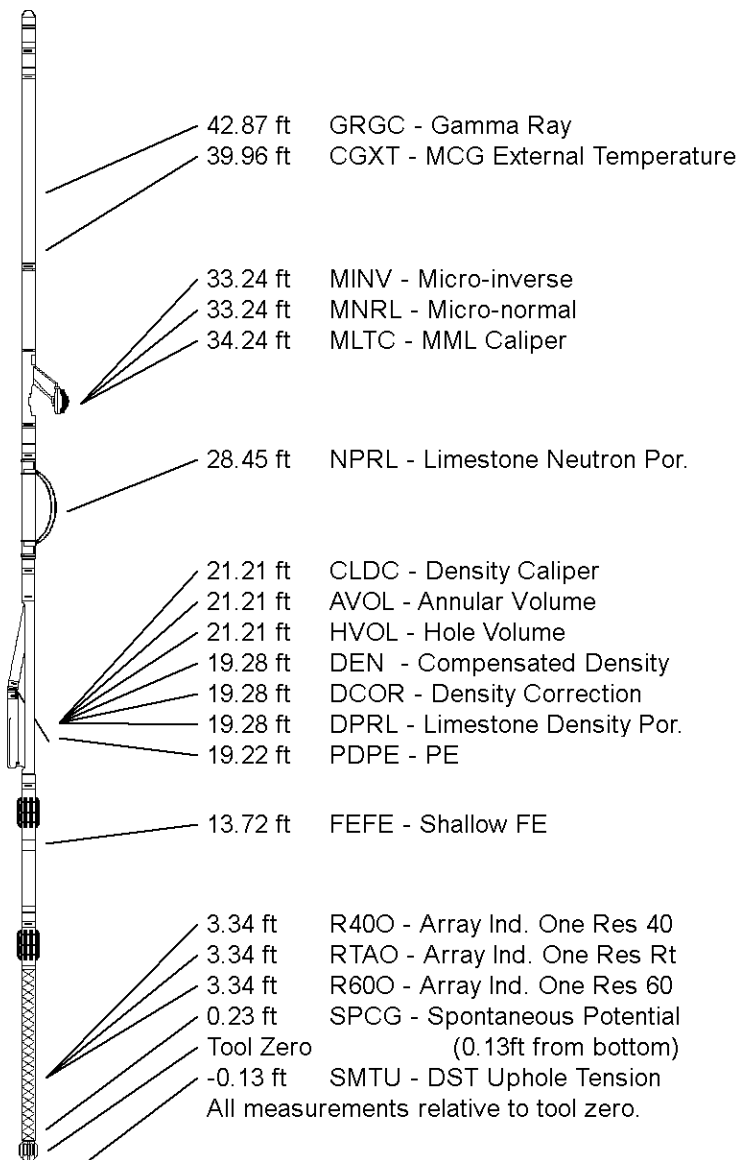
Compact Neutron
 MDN-A.B 66 LG: 5.04 ft WT: 50.7 lb OD: 2.244 in

Compact Density/Caliper
 MPD-D.A 482 LG: 9.59 ft WT: 90.4 lb OD: 2.449 in

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

Compact Induction
 MAI-A.A 167 LG: 10.81 ft WT: 48.5 lb OD: 2.244 in

Total Length: 50.55 ft Weight: 407.9 lb



COMPANY	McCOY PETROLEUM CORPORATION
WELL	PATTERSON-O'BRATE 'A' #2-17
FIELD	WILDCAT
PROVINCE/COUNTY	MEADE
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	2825.00	feet	First Reading	5681.00	feet
Elevation Drill Floor	2823.00	feet	Depth Driller	5700.00	feet
Elevation Ground Level	2814.00	feet	Depth Logger	5700.00	feet



Weatherford[®]

CALIPER LOG