



Weatherford

CALIPER LOG

COMPANY			GRAND MESA OPERATING COMPANY		
WELL			MILLER #2-10		
FIELD			ZENITH-PEACE CREEK		
PROVINCE/COUNTY			RENO		
COUNTRY/STATE			U.S.A. / KANSAS		
LOCATION			1950' FSL & 1273' FWL		
SEC 10	TWP 23S	RGE 10W	Other Services		
Latitude		15-155-21759			
Longitude					
API Number					
Permanent Datum GL, Elevation 1765 feet					
Log Measured From KB, 5.00 feet above Permanent Datum			Elevations: feet		
Drilling Measured From KB			KB 1770.00		
			DF 1765.00		
			GL		
Date	20-SEP-2018				
Run Number	ONE				
Service Order	4558-224651393				
Depth Driller	3860.00		feet		
Depth Logger	3856.00		feet		
First Reading	3822.00		feet		
Last Reading	169.00		feet		
Casing Driller	168.00		feet		
Casing Logger	169.00		feet		
Bit Size	7.875		inches		
Hole Fluid Type	CHEMICAL				
Density / Viscosity	9.25 lb/USg		48.00 CP		
PH / Fluid Loss	9.00		12.40 ml/30Min		
Sample Source	FLOWLINE				
Rm @ Measured Temp	0.43 @ 75.0		ohm-m		
Rmf @ Measured Temp	0.34 @ 75.0		ohm-m		
Rmc @ Measured Temp	0.52 @ 75.0		ohm-m		
Source Rmf / Rmc	CALC	CALC			
Rm @ BHT	0.30 @107.0		ohm-m		
Time Since Circulation	4 HOURS				
Max Recorded Temp	107.00		deg F		
Equipment / Base	13096	LIB			
Recorded By	ADAM SILL				
Witnessed By	STEVE CARL				

BOREHOLE RECORD

Last Edited: 20-SEP-2018 20:35

Bit Size inches	Depth From feet	Depth To feet
7.875	168.00	3860.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	168.00	24.00

REMARKS

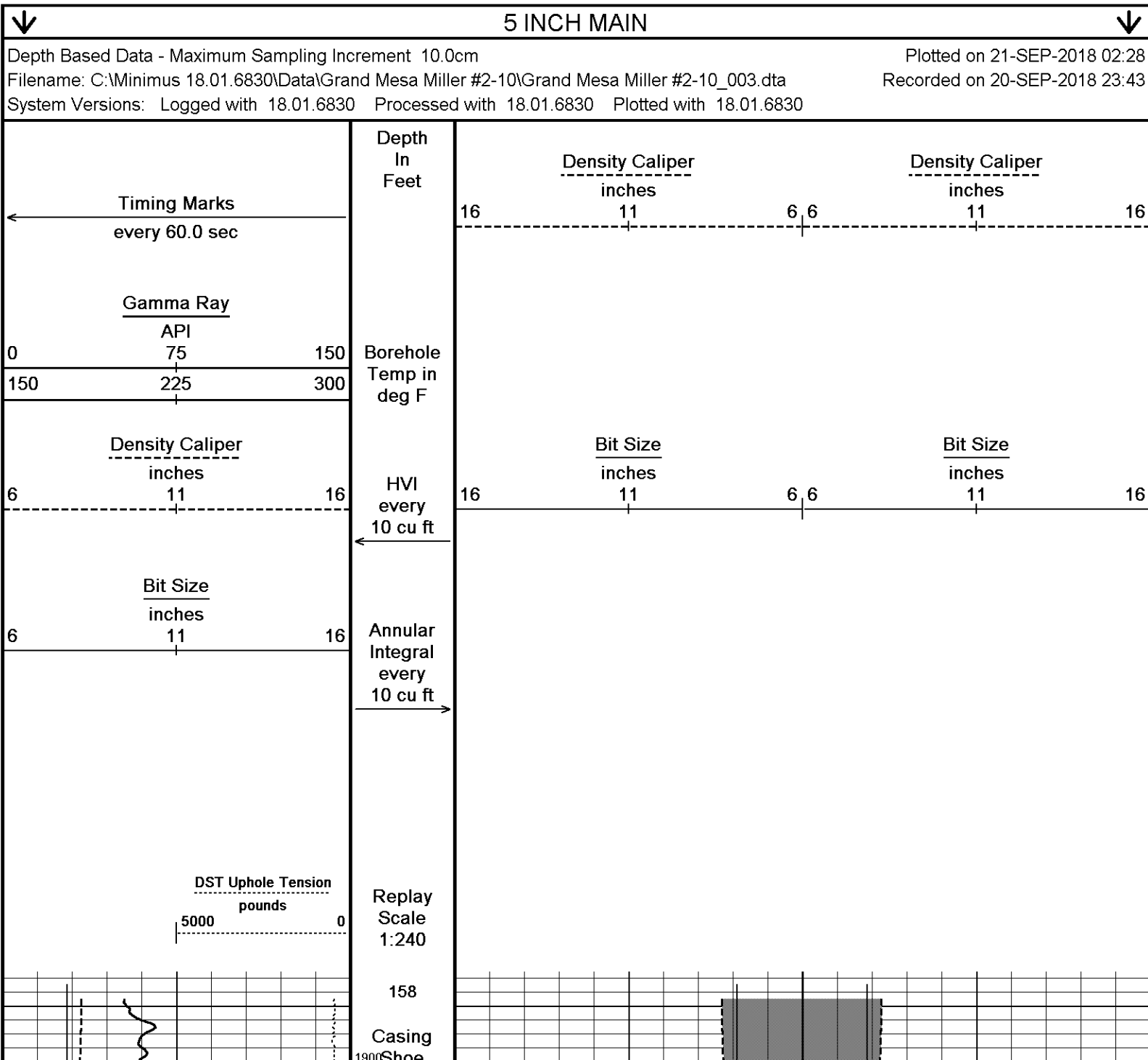
- SOFTWARE ISSUE: WLS 18.01.6830.
- RUN ONE: MCG, MML, MDN, MPD, MFE, MSS, MAI RUN IN COMBINATION.
 - HARDWARE: DUAL BOWSPRING USED ON MDN.
 - 0.5 INCH STANDOFF USED ON MFE.
 - TWO 0.5 INCH STANDOFFS USED ON MSS.
 - 0.5 INCH STANDOFF USED ON MAI.
- 2.71 G/CC LIMESTONE DENSITY MATRIX USED TO CALCULATE 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: 1899 CU.FT.
- ANNULAR HOLE VOLUME WITH 5.5 INCH PRODUCTION CASING FROM TD TO SURFACE CASING: 1293 CU.FT.

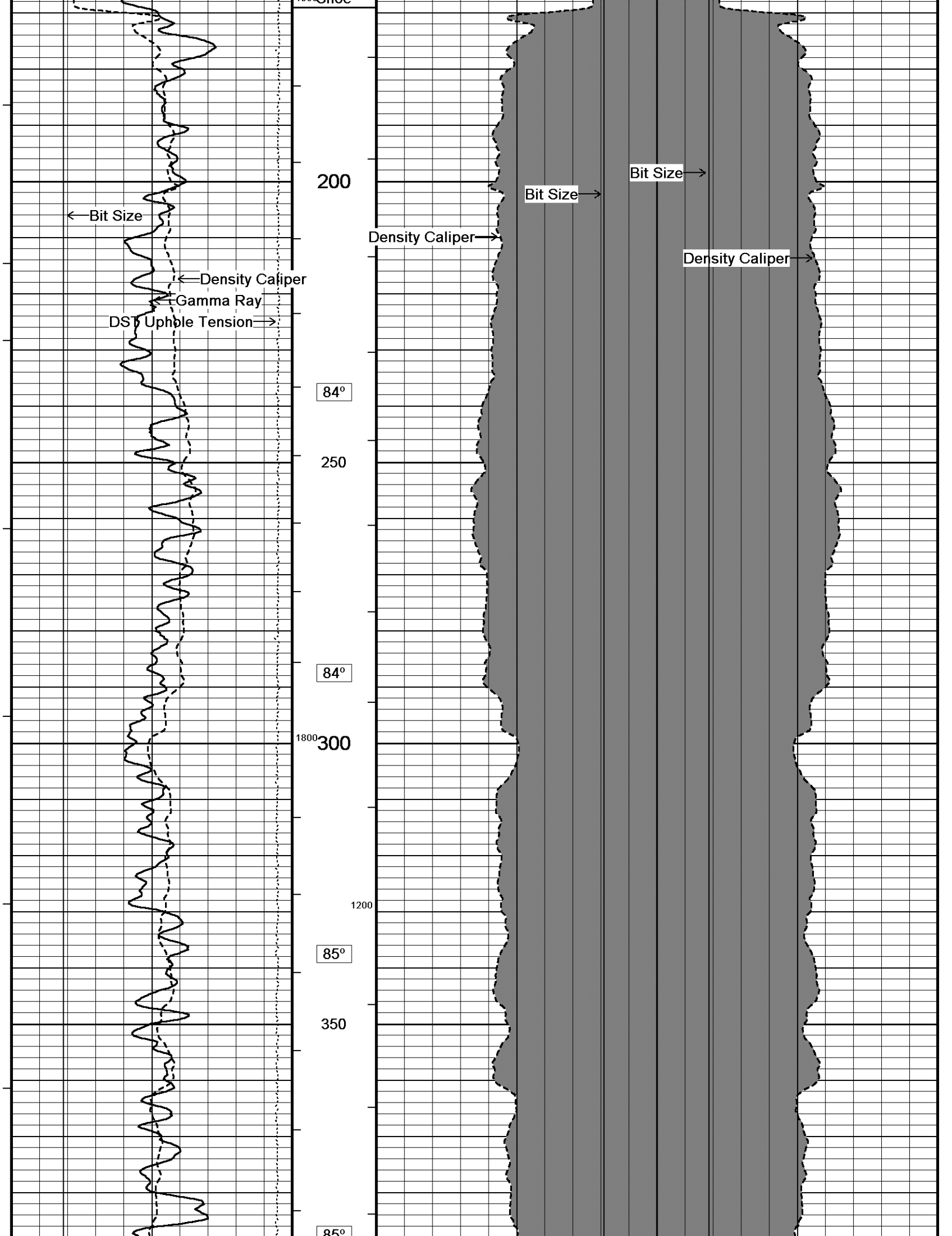
- RIG: WW DRILLING #4.

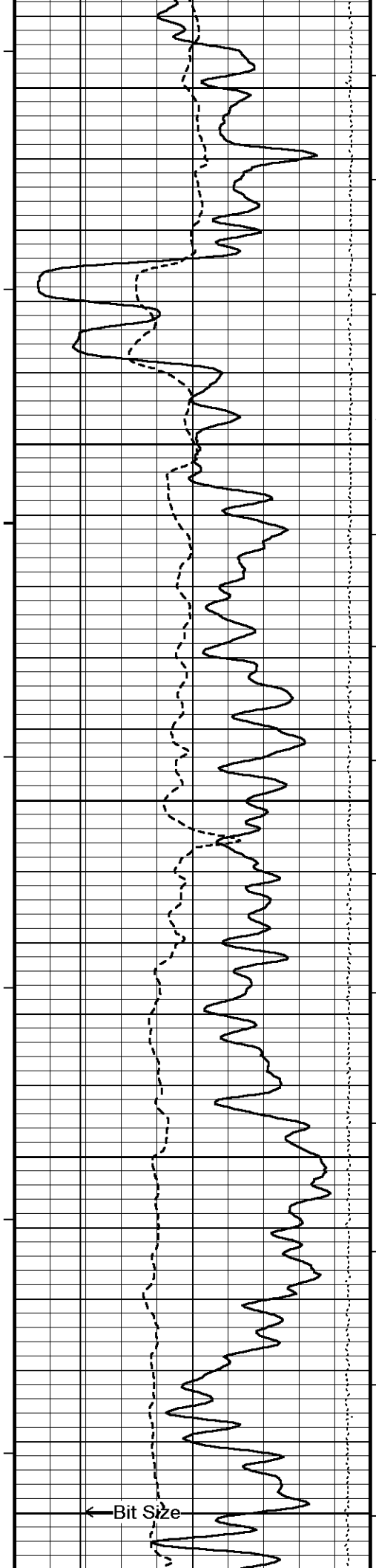
- ENGINEER: A. SILL.

- OPERATOR: B. TOVAR.

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.







350
400
450
500
550
600

86°

86°

87°

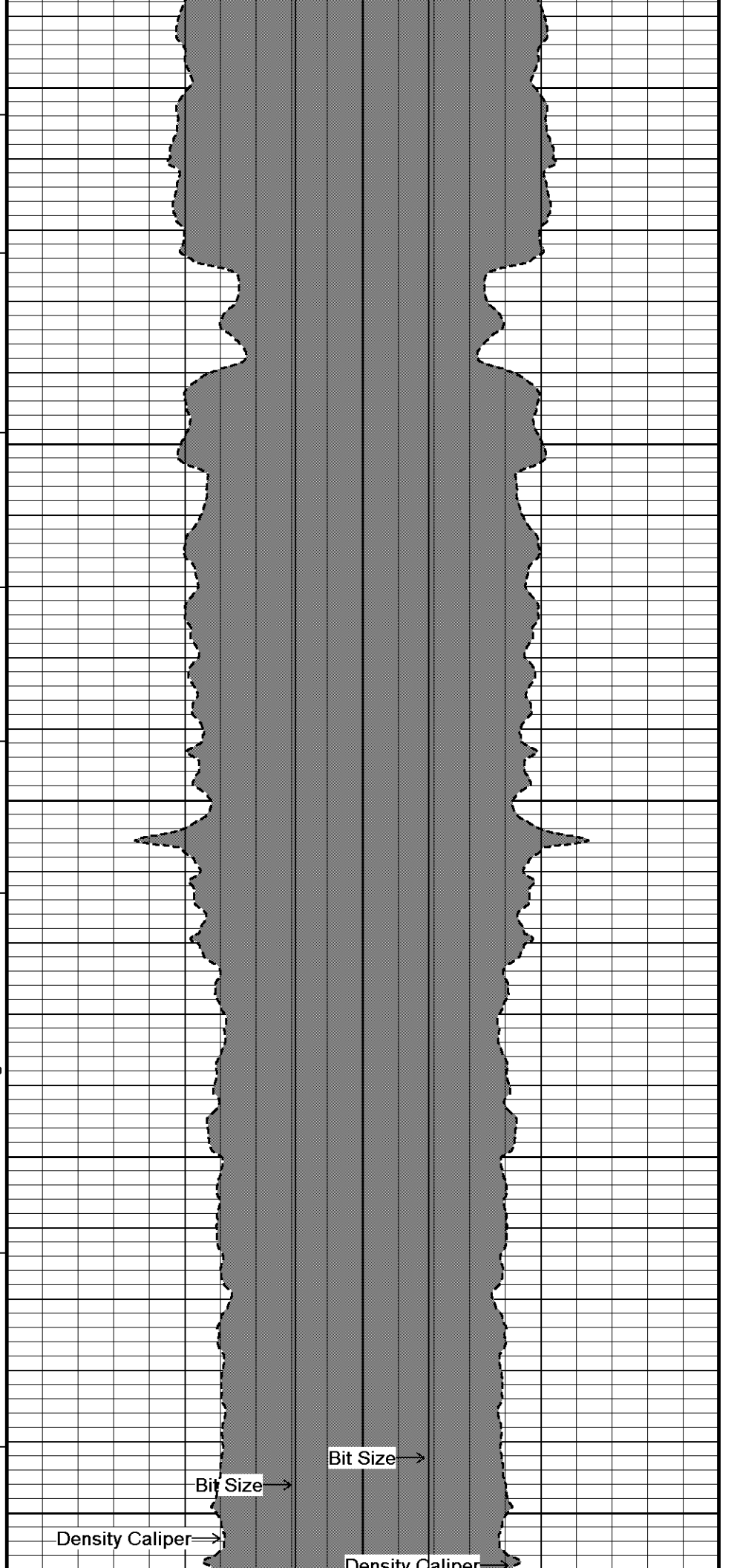
87°

1700

1100

← Bit Size

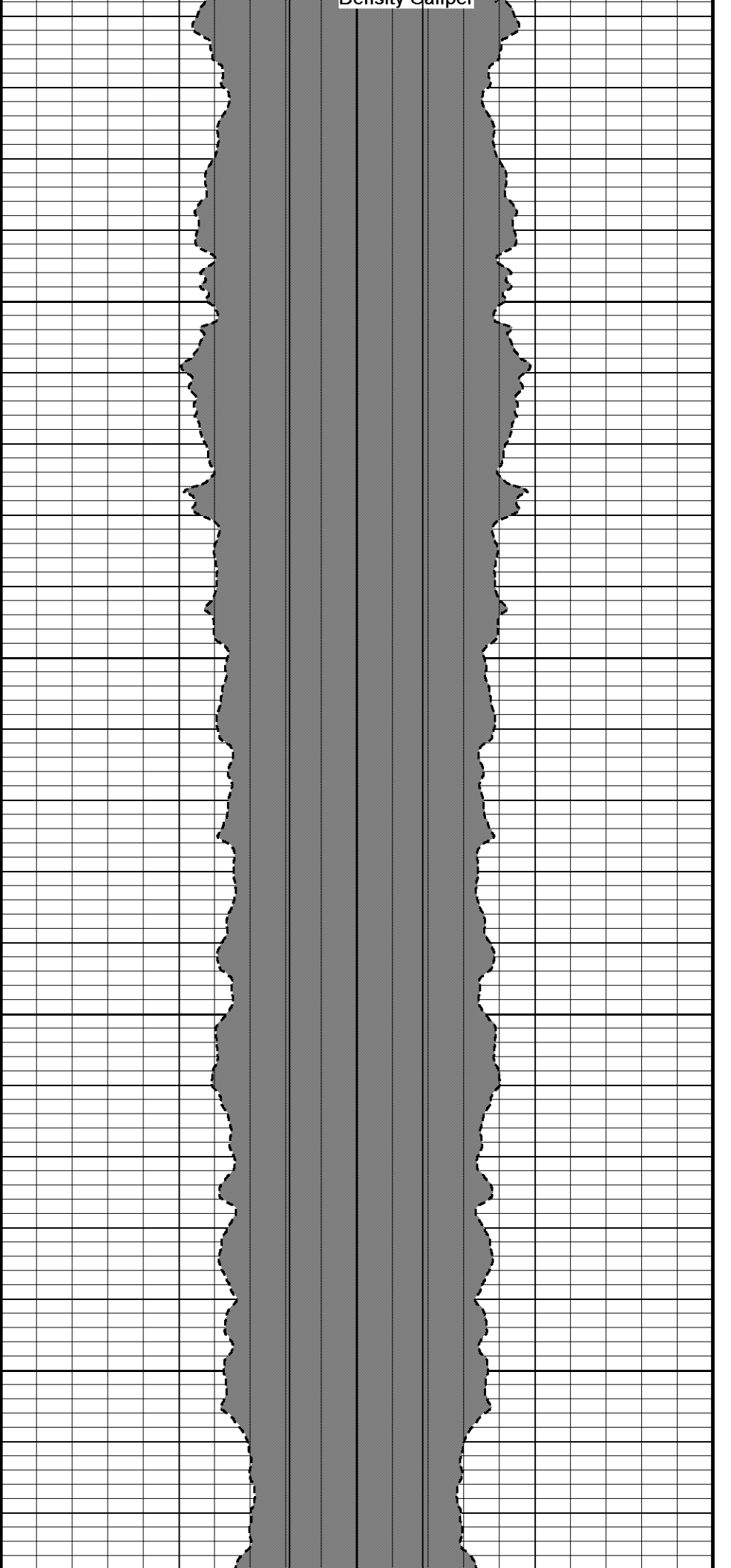
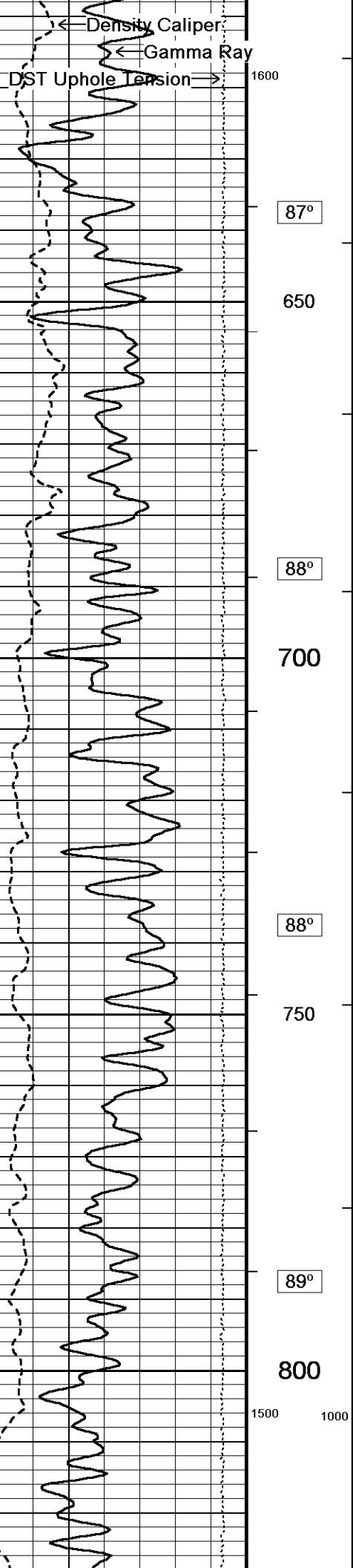
Density Caliper →

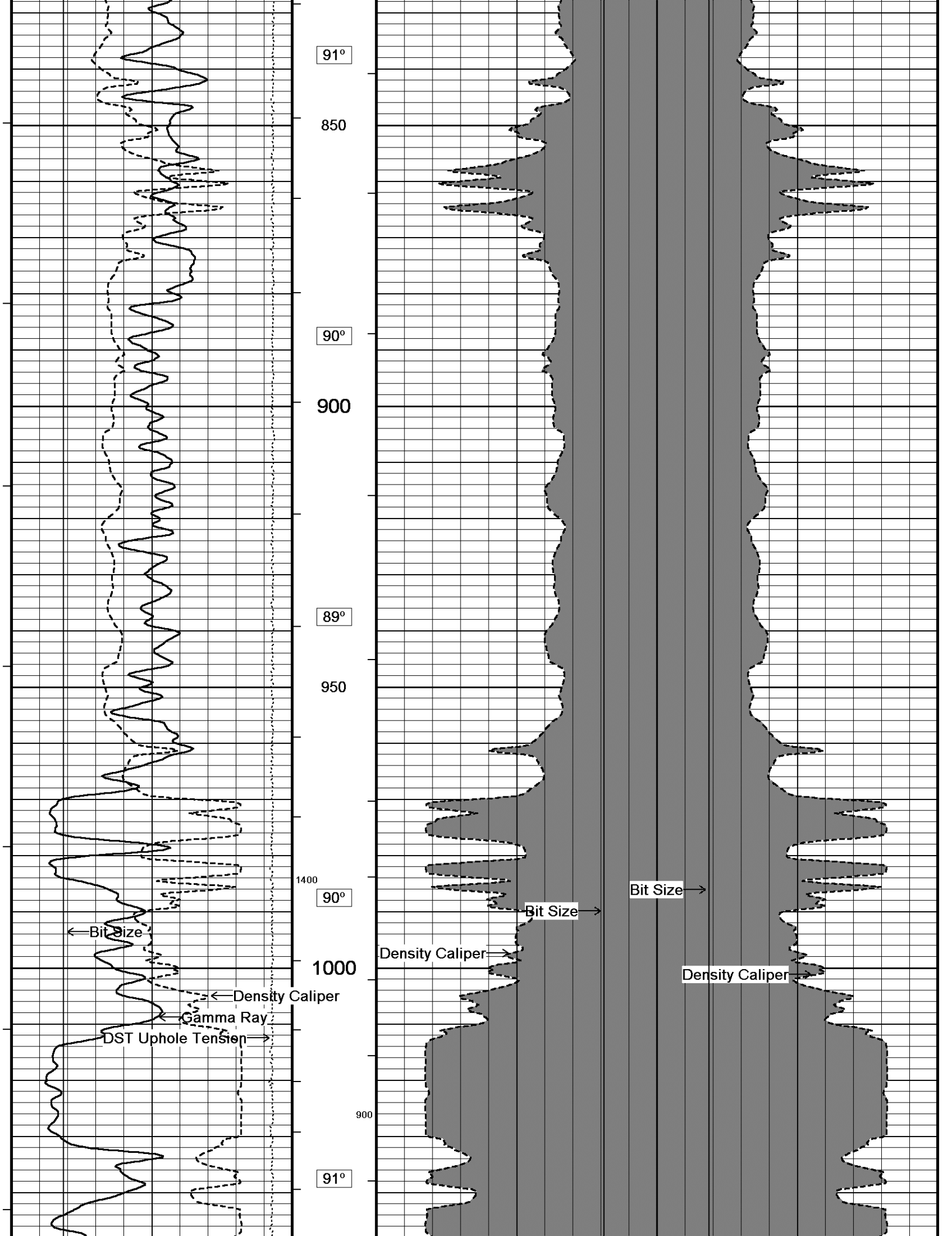


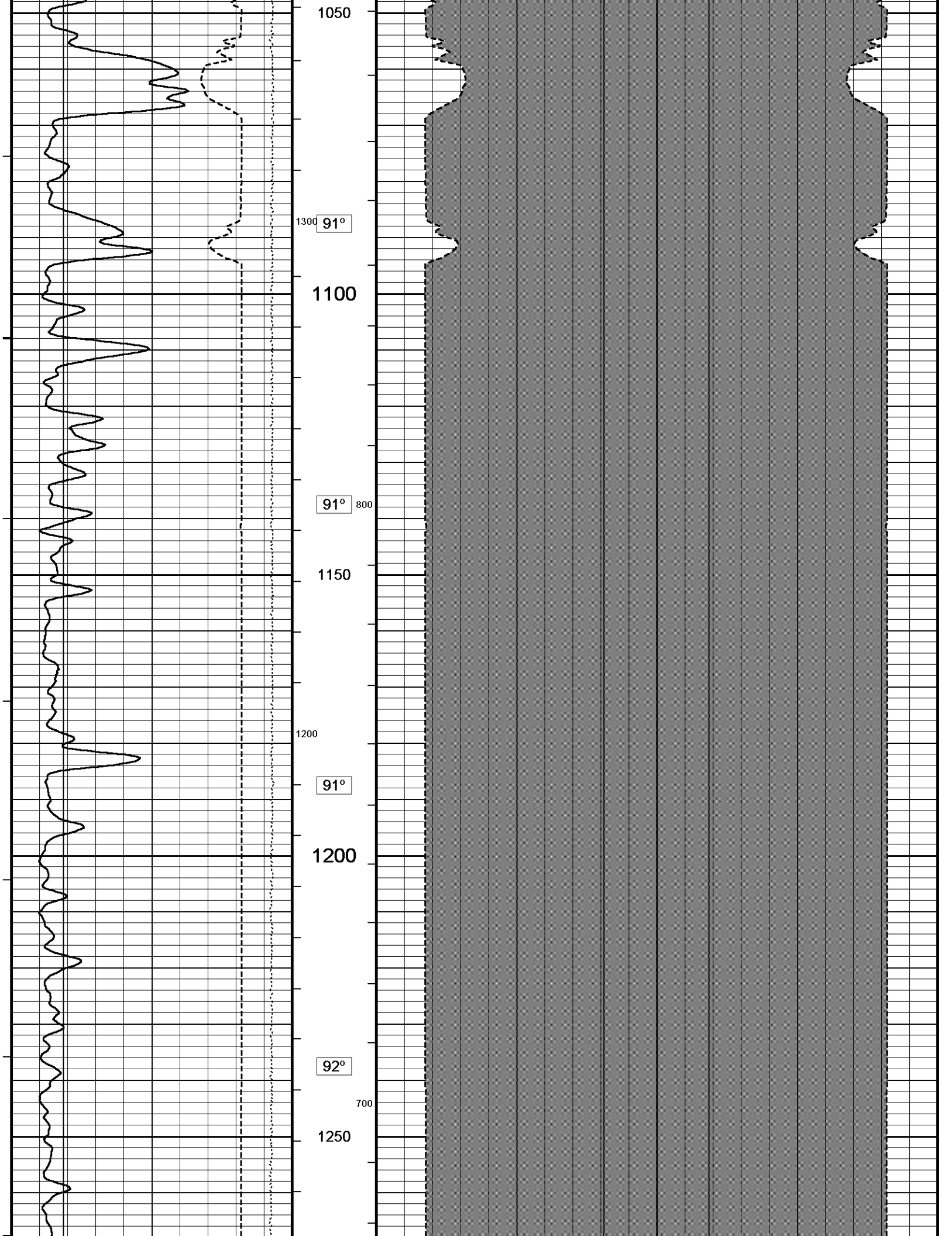
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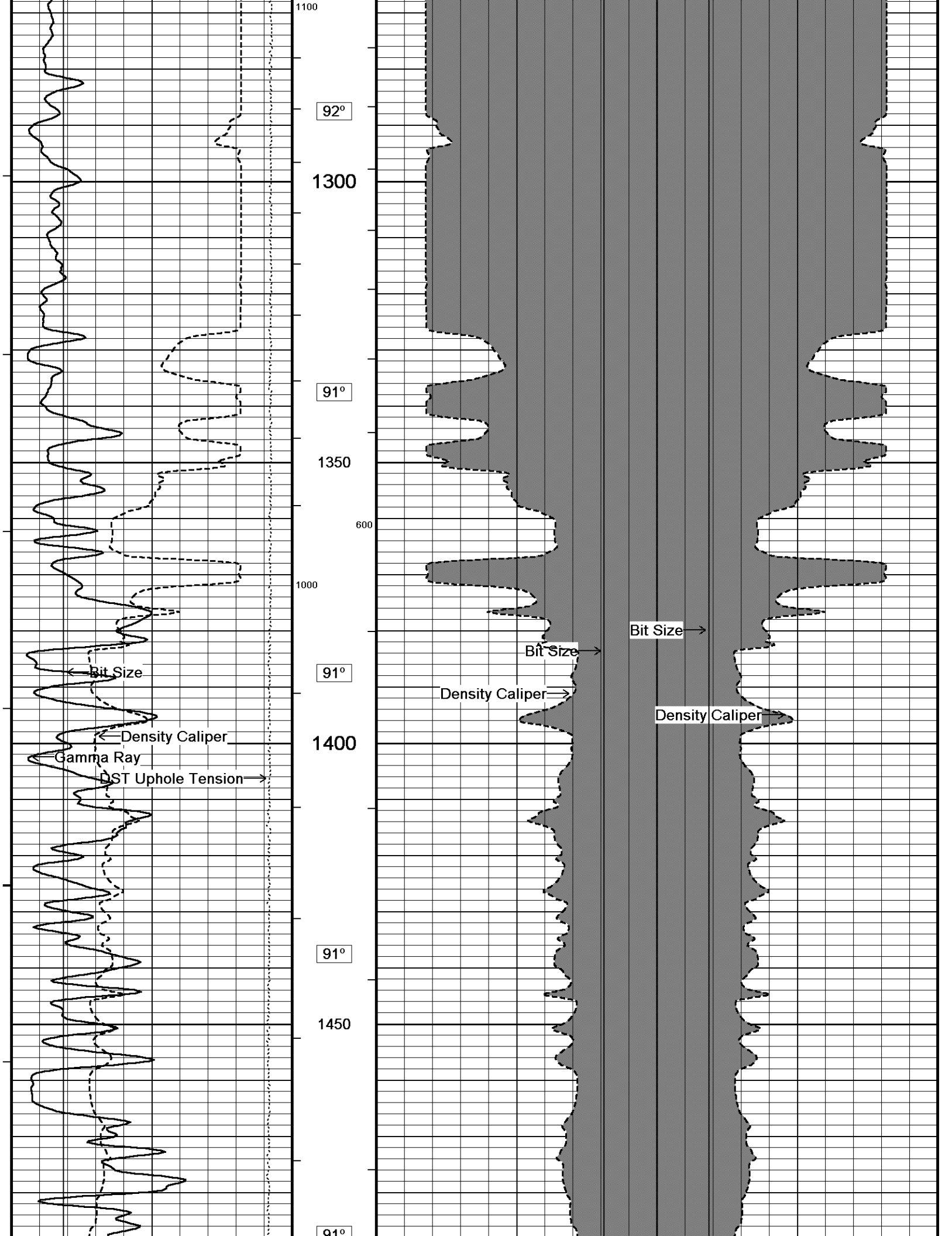
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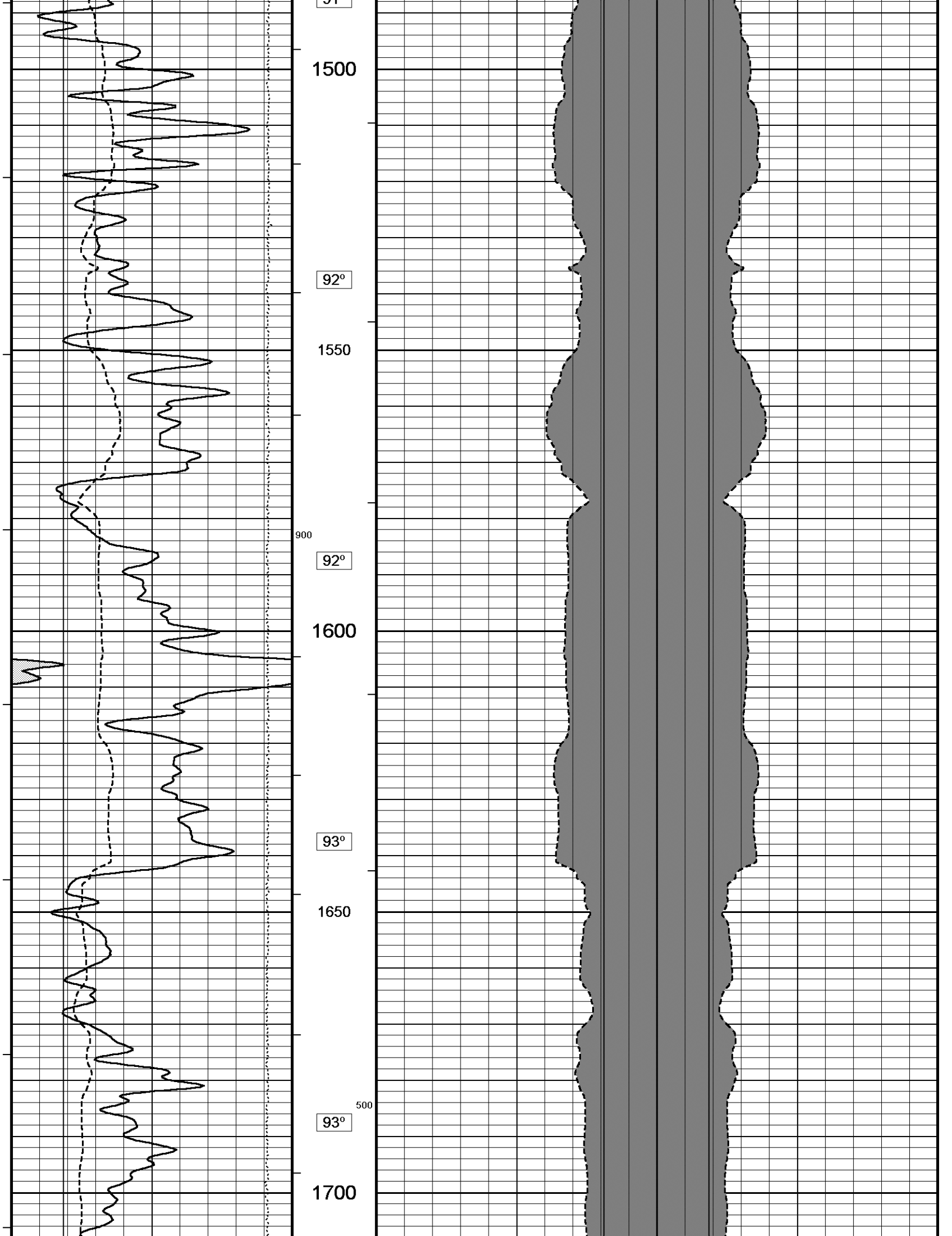
Density Caliper →

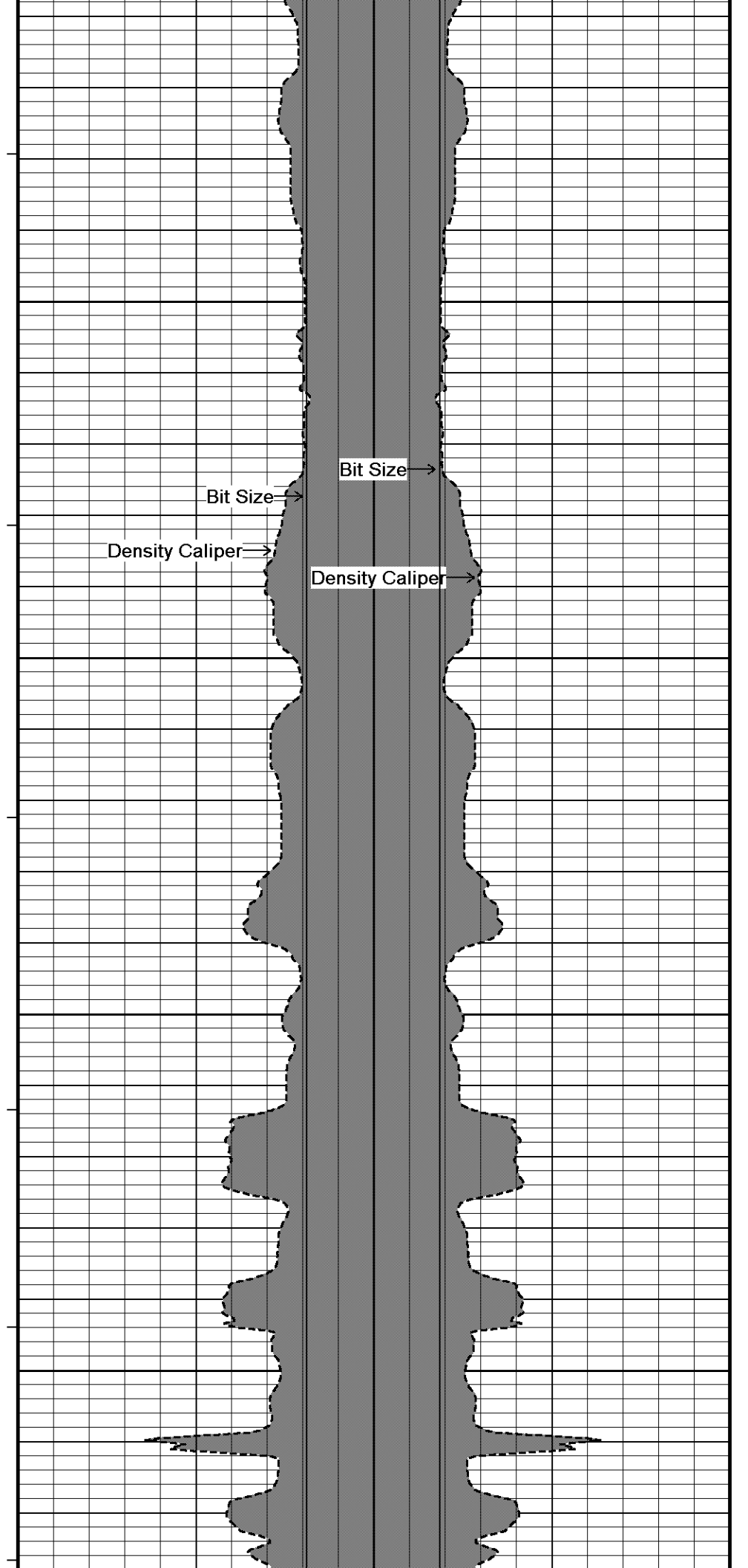
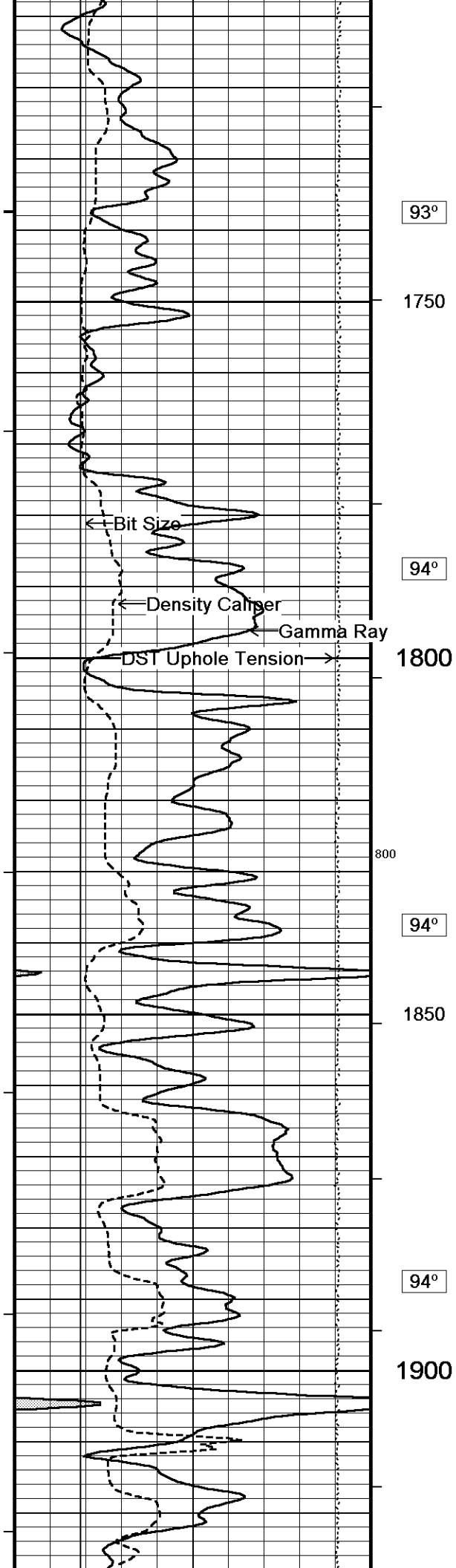


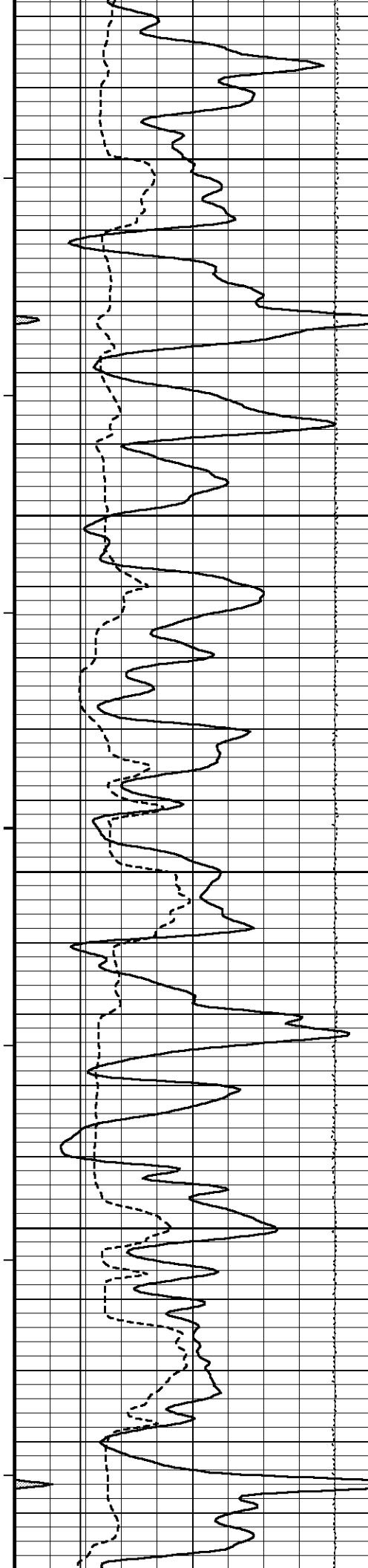




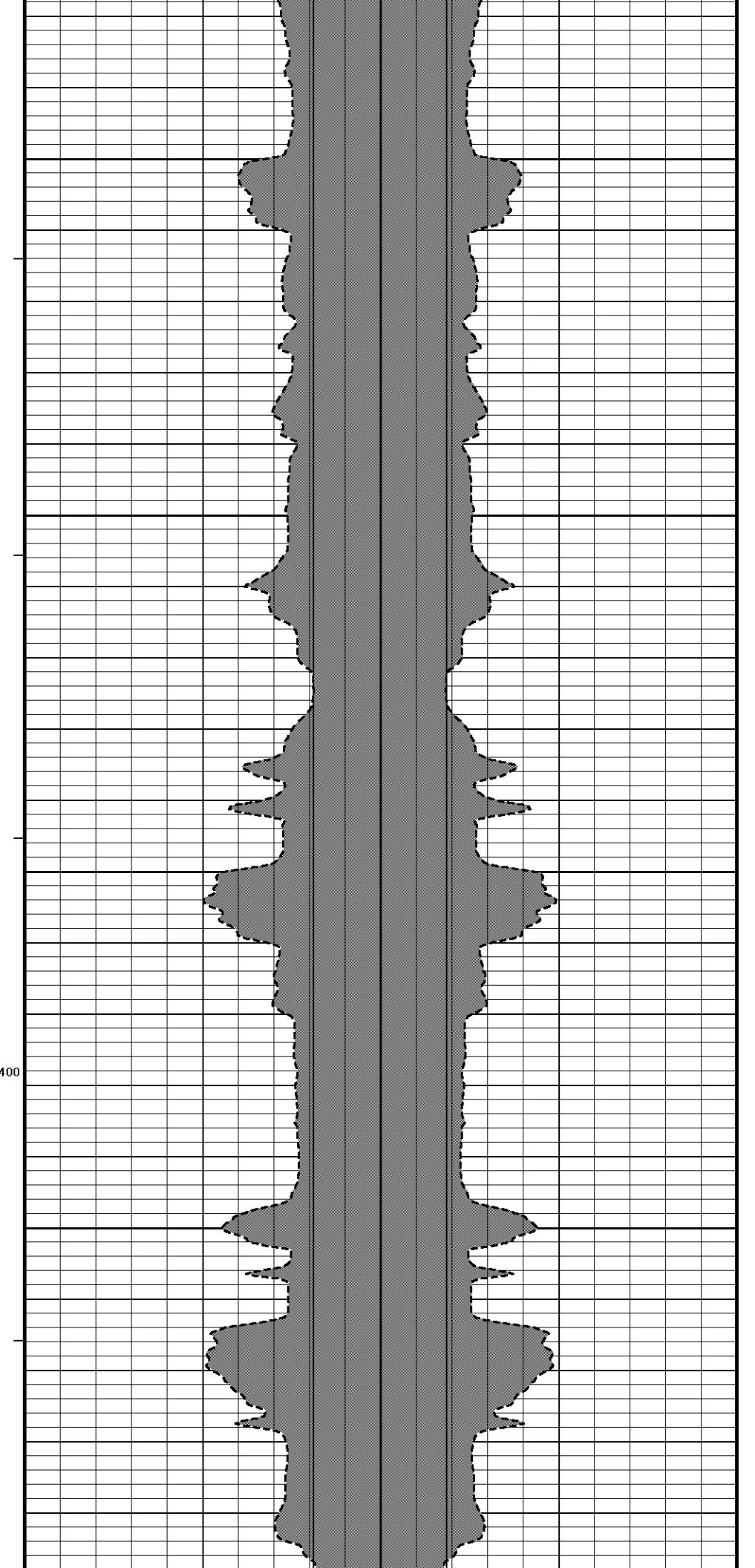


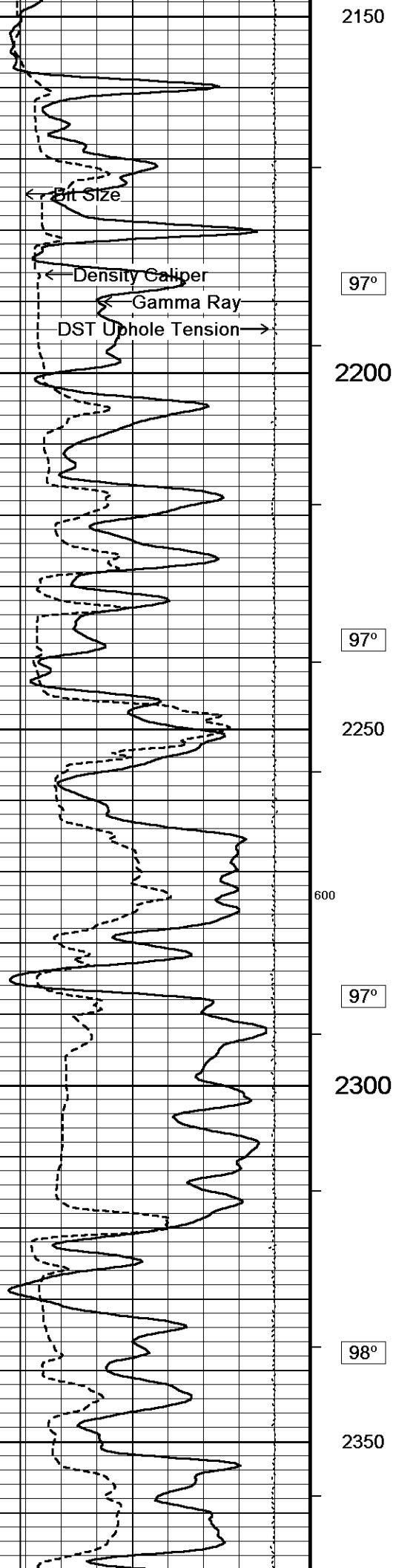




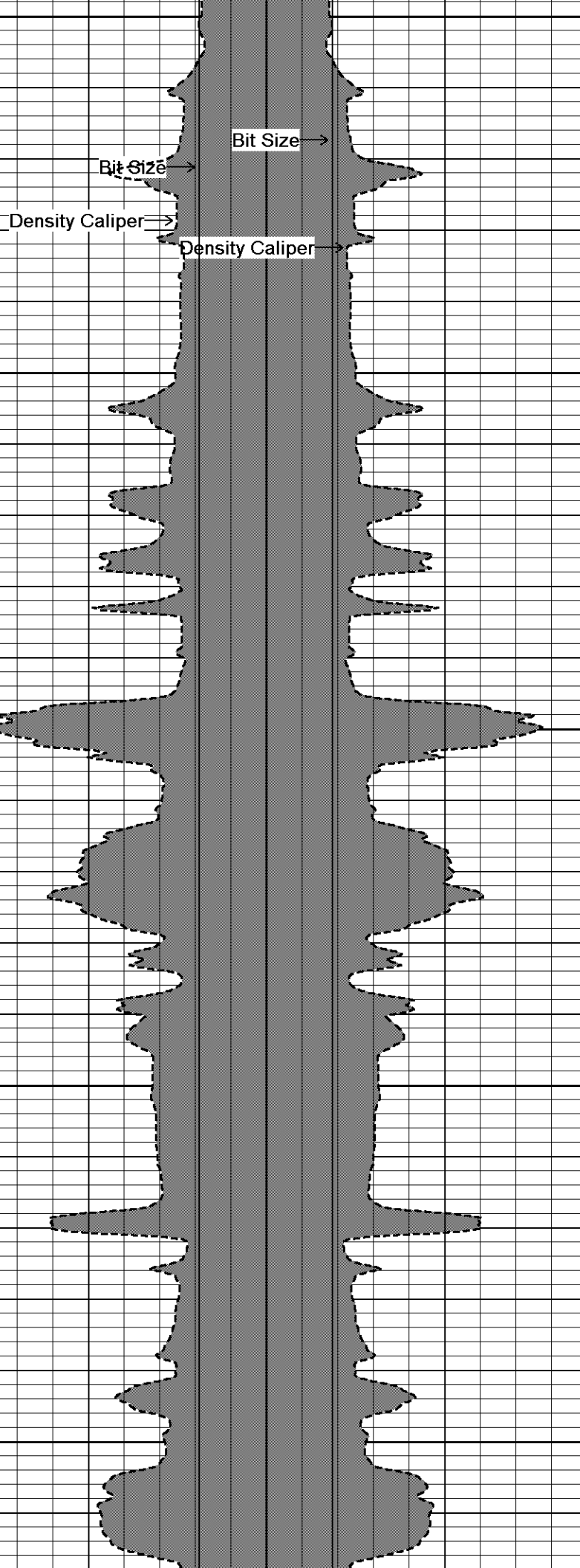


95°
1950
95°
2000
96°
2050
700
400
96°
2100
96°

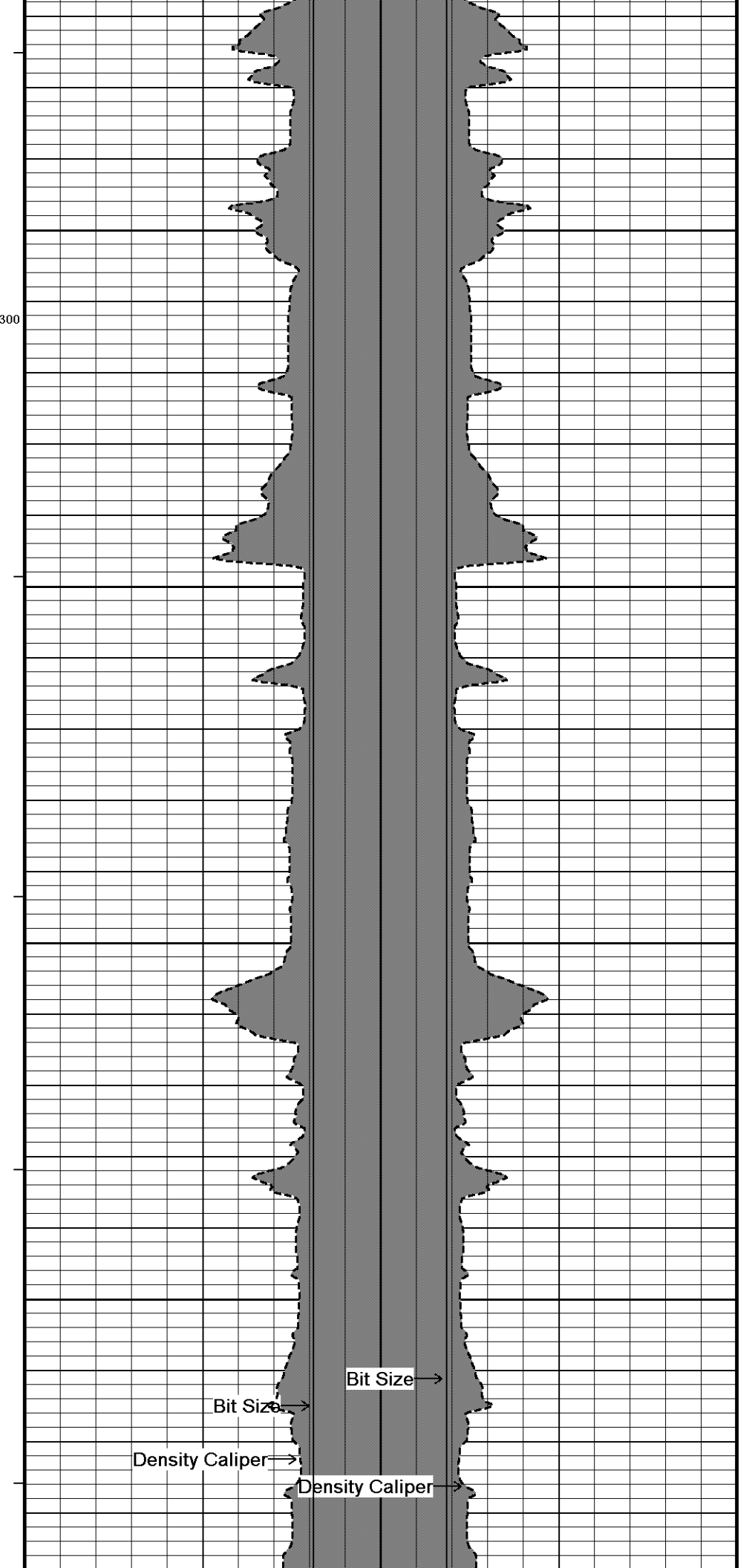
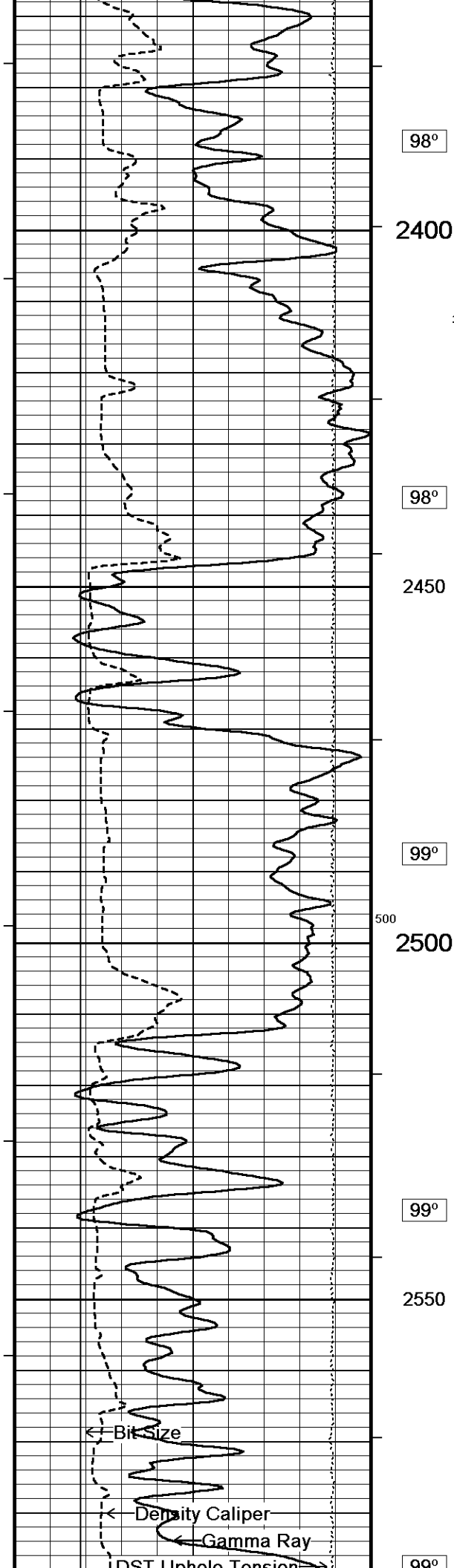


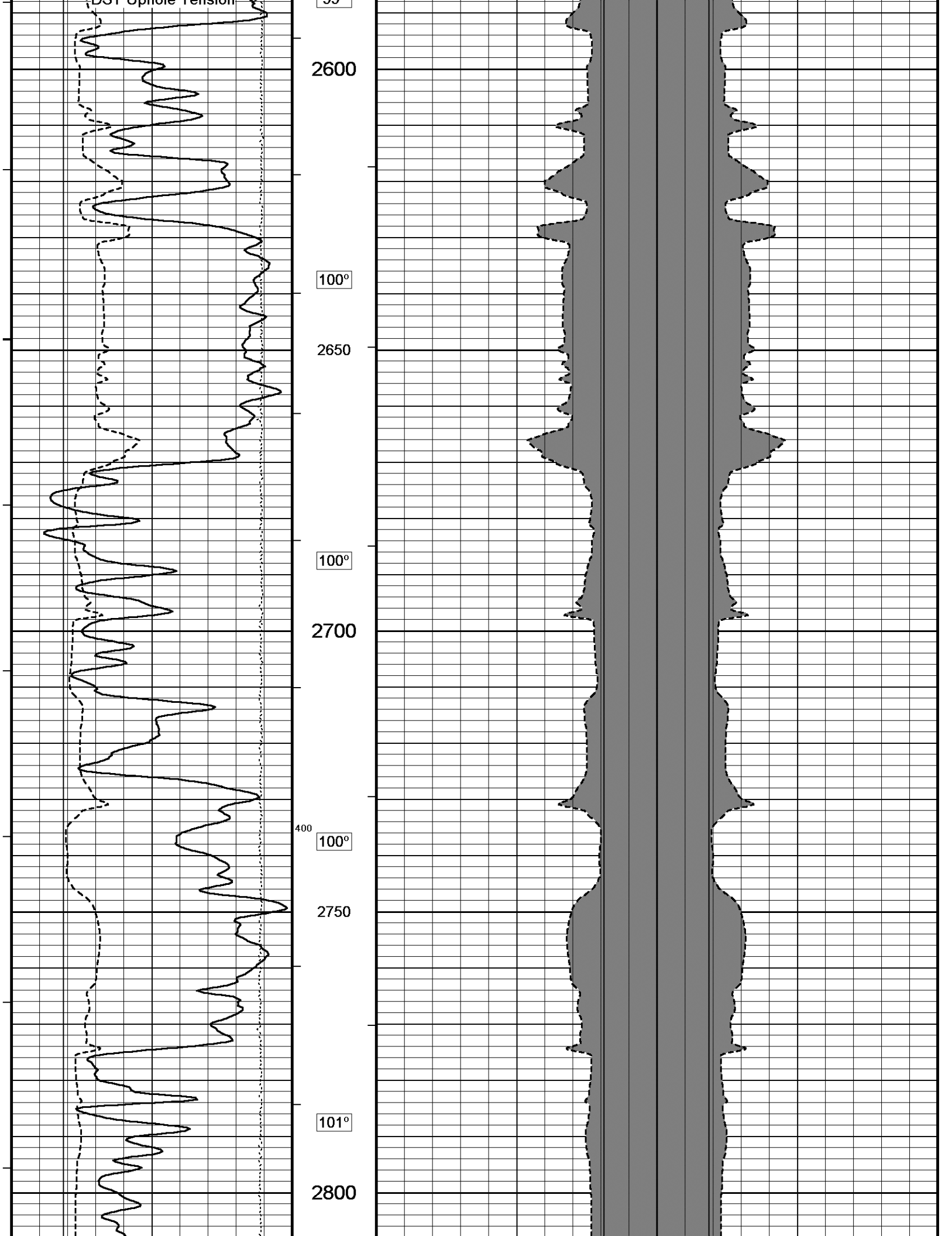


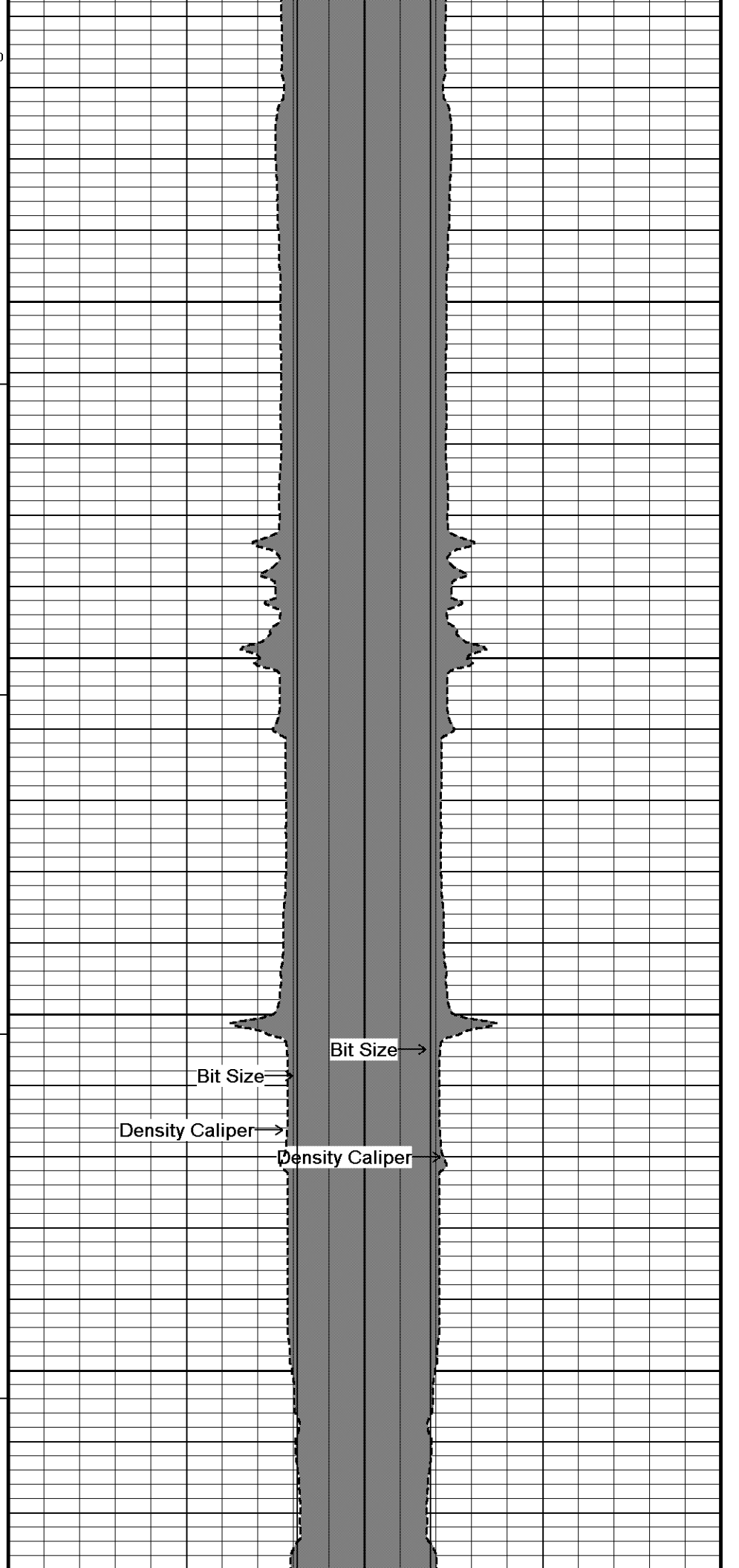
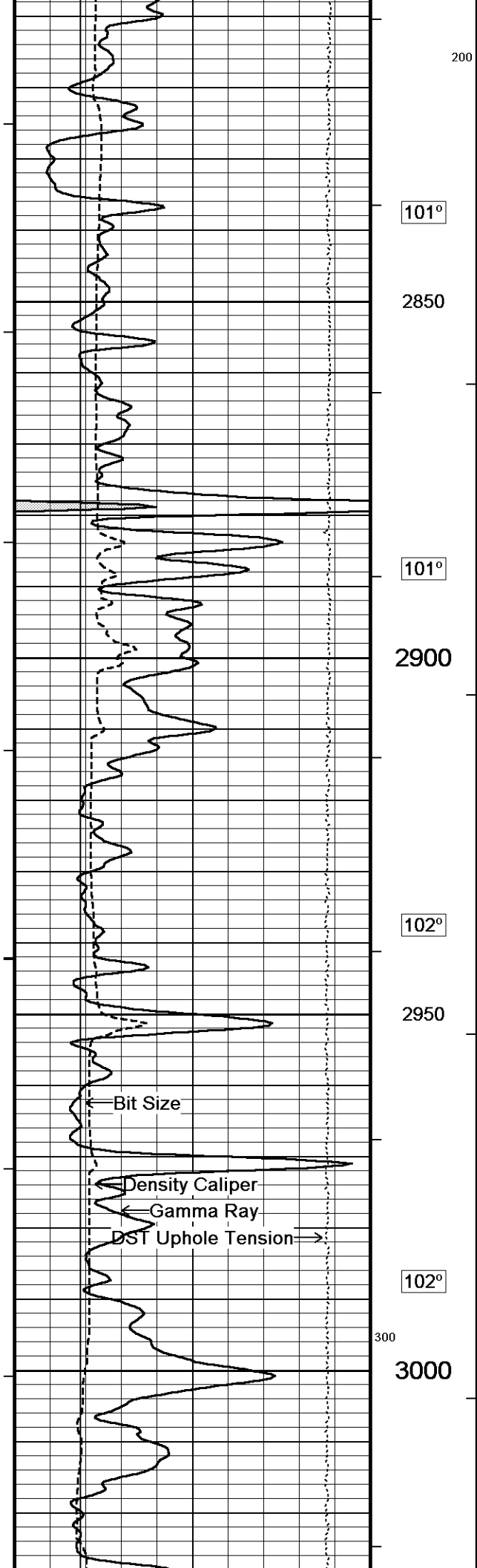
2150
97°
2200
97°
2250
600
97°
2300
98°
2350

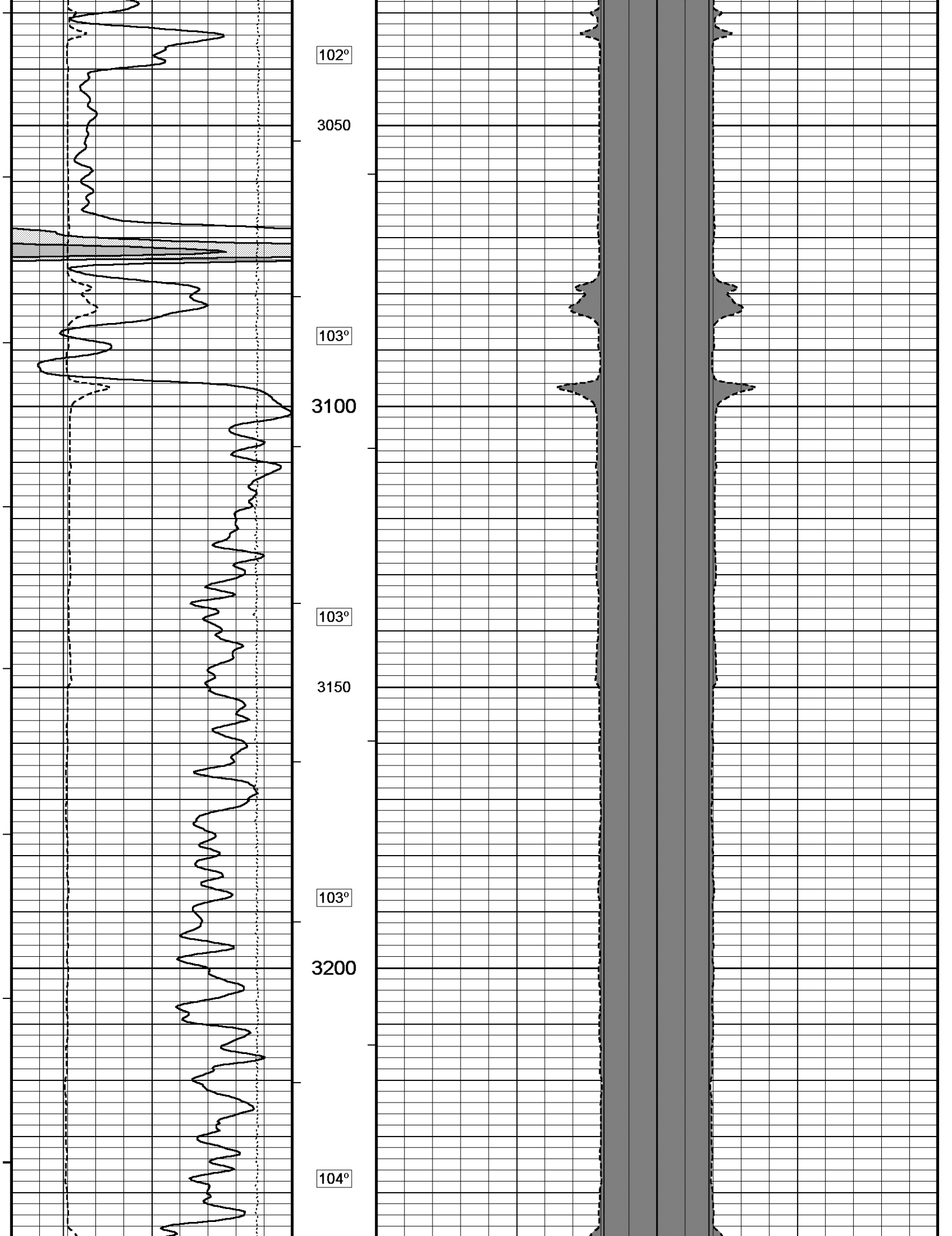


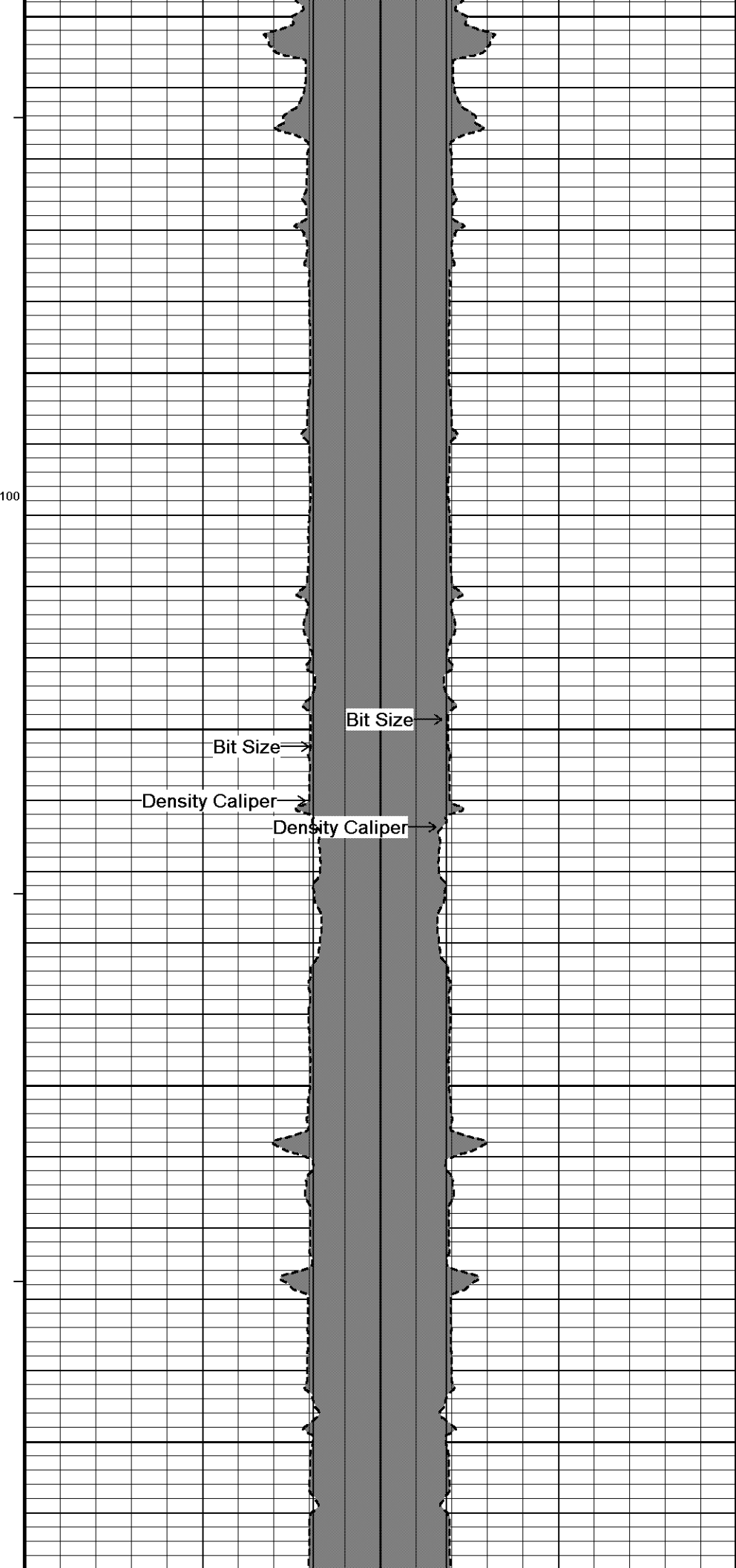
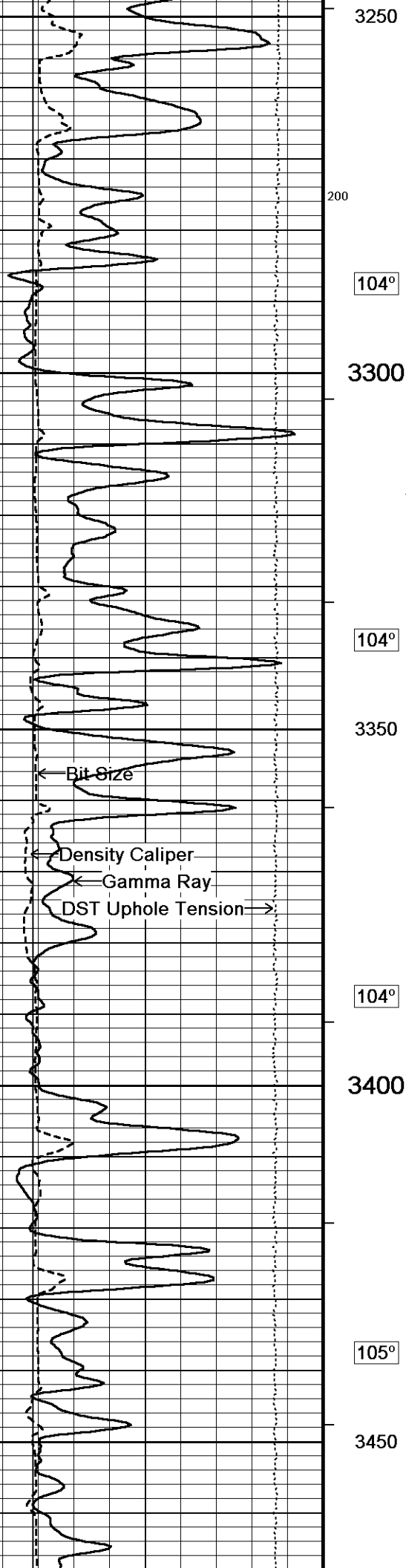
2150
97°
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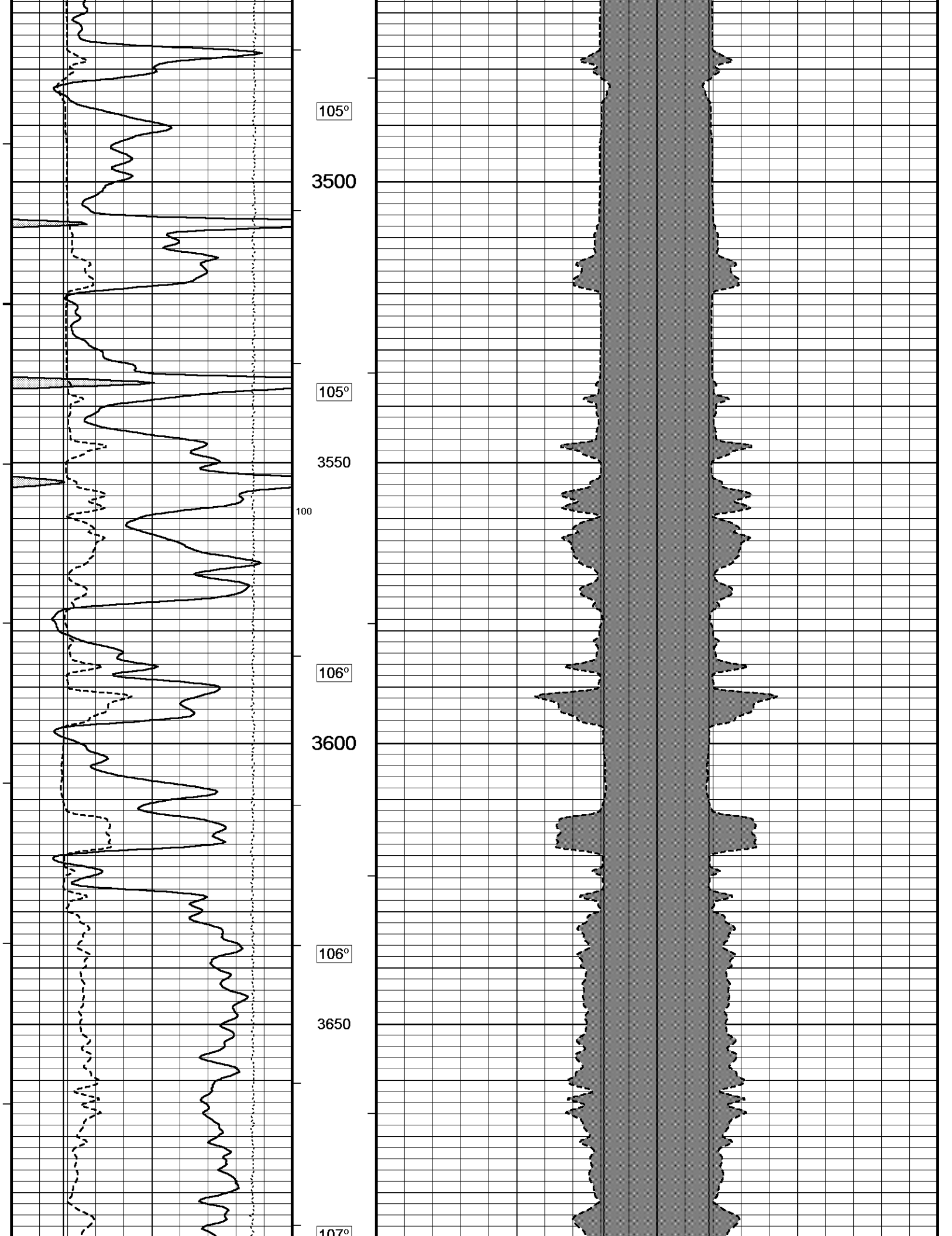


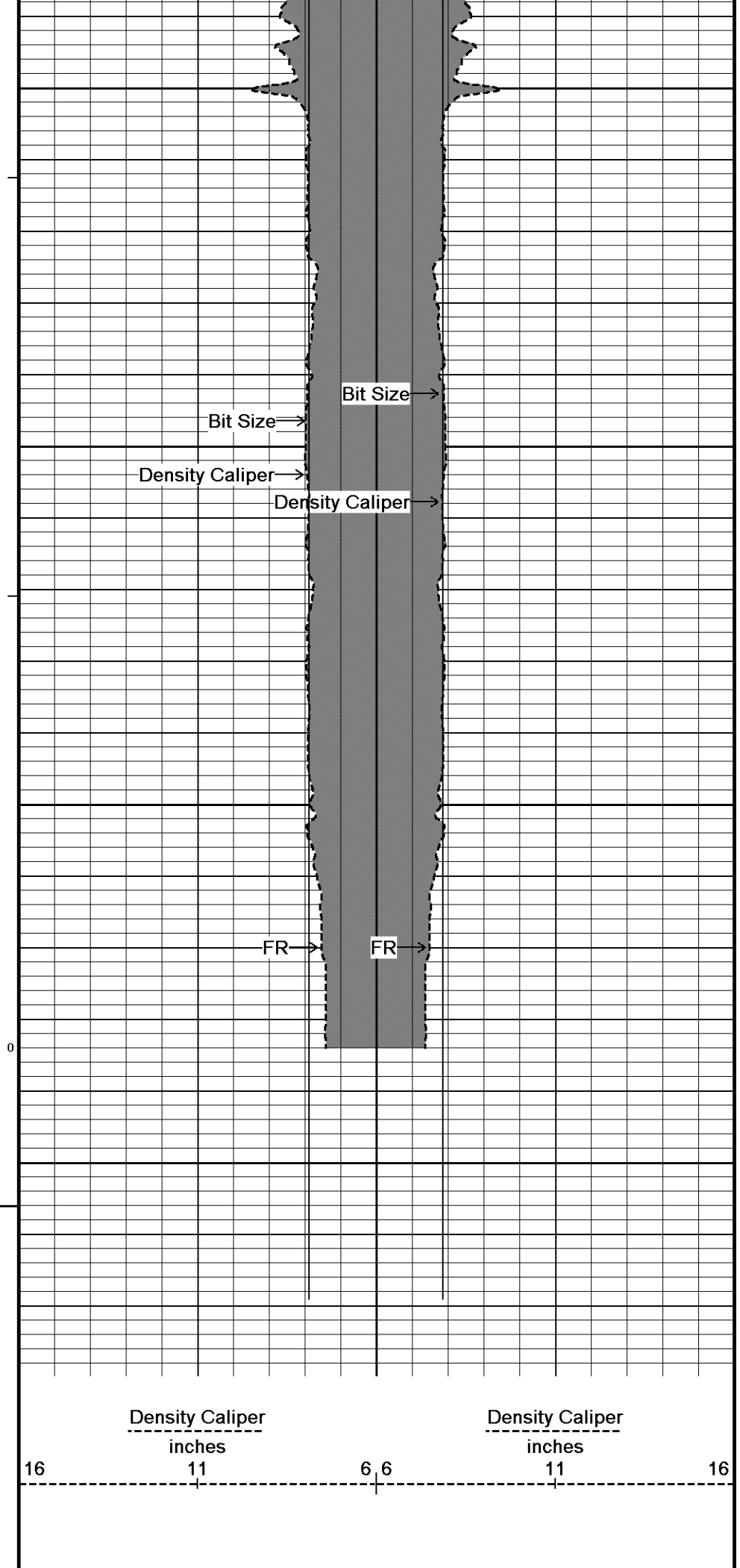
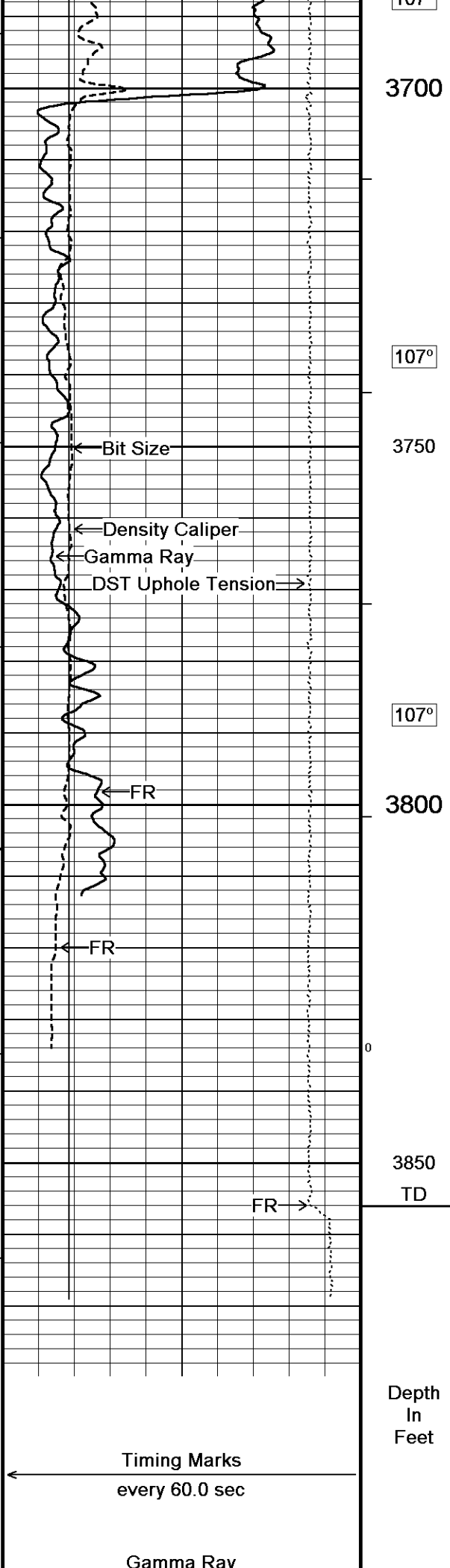


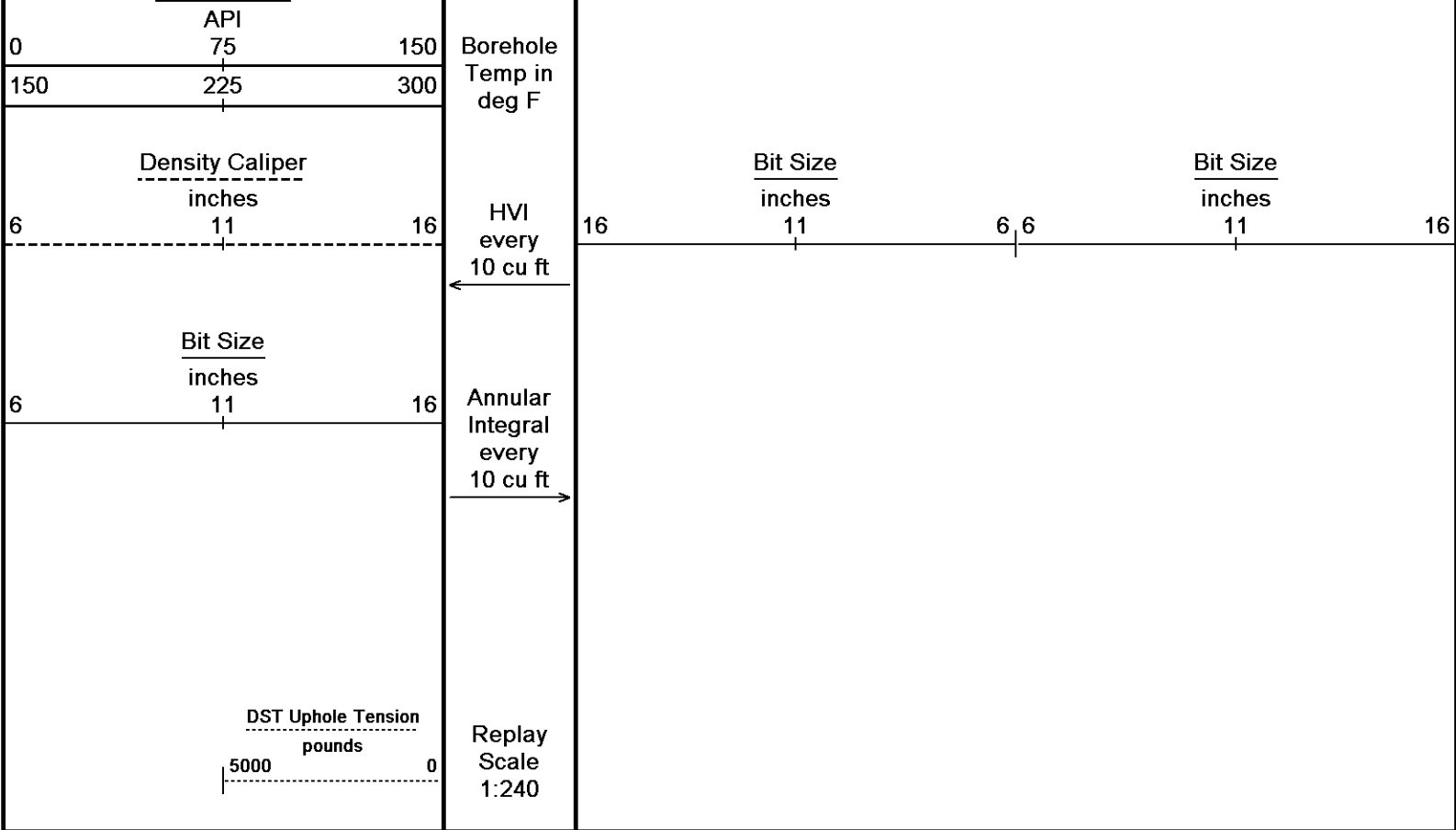












Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\Minimus 18.01.6830\Data\Grand Mesa Miller #2-10\Grand Mesa Miller #2-10_003.dta
System Versions: Logged with 18.01.6830 Processed with 18.01.6830 Plotted with 18.01.6830

↑ 5 INCH MAIN ↑

BEFORE SURVEY CALIBRATION		
C:\Minimus 18.01.6830\Data\Grand Mesa Miller #2-10\Grand Mesa Miller #2-10_002.dta		
General Constants All 000		Last Edited on 20-SEP-2018,22:43
General Parameters		
Mud Resistivity	0.430	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	Array Ind. Two Res Rt	
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 20-SEP-2018,10:55
	Measured	Calibrated (API)
Background	107	74
Calibrator (Gross)	770	530
Calibrator (Net)	663	456
Gamma Calibration Tolerances MCG-D.A 246		

Ratio 1.454 Counts/API

Gamma Constants MCG-D.A 246

Last Edited on 20-SEP-2018,21:39

Gamma Calibrator Number	MCGGRCC141	
GRC-M Calibrator Jig in Use?	NO	
Inactive Background Jig in Use?	NO	
Mud Density	1.11	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 01-AUG-2018,13:29
	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 02-SEP-2018,10:42	Field Calibration on 20-SEP-2018,10:42
Base Calibration				
Reading No	Measured	Calibrator Size (in)		
1	14688	3.99		
2	23495	5.98		
3	32176	7.97		
4	40480	9.86		
5	49713	11.92		
6	N/A	N/A		
Field Calibration				
	Measured Caliper (in)	Actual Caliper (in)		
	8.08	8.10		

Caliper Calibration Tolerances MPD-C.A 216	
Long Arm Field Cal.	8.08 in

DOWNHOLE EQUIPMENT

C:\Minimus 18.01.6830\Data\Grand Mesa Miller #2-10\Grand Mesa Miller #2-10_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 595 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-log MML-A 7 LG: 7.97 ft WT: 81.6 lb OD: 2.244 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	
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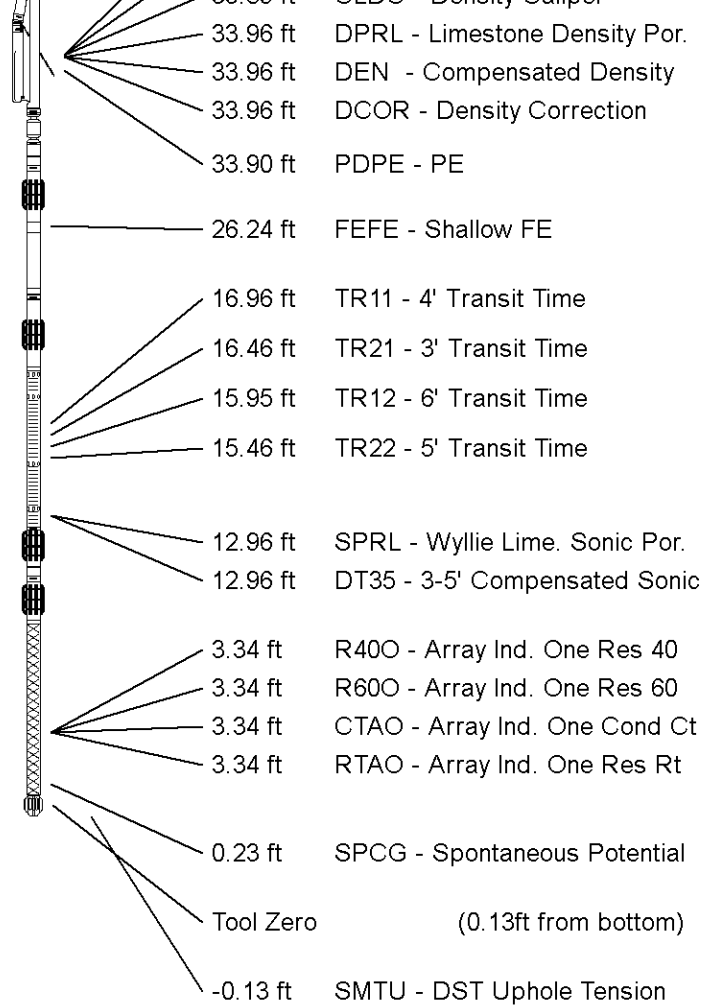
Compact Knuckle Joint
SKJ-D.A 167 LG: 2.17 ft WT: 24.3 lb OD: 2.244 in

Compact Focussed Electric
MFE-A.A 135 LG: 6.05 ft WT: 48.5 lb OD: 2.240 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: 2.240 in

Total Length: 67.54 ft Weight: 526.9 lb



All measurements relative to tool zero.

COMPANY	GRAND MESA OPERATING COMPANY
WELL	MILLER #2-10
FIELD	ZENITH-PEACE CREEK
PROVINCE/COUNTY	RENO
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	1770	feet	First Reading	3822.00	feet
Elevation Drill Floor	1765	feet	Depth Driller	3860.00	feet
Elevation Ground Level		feet	Depth Logger	3856.00	feet



Weatherford®

CALIPER LOG