



Weatherford

CALIPER LOG

COMPANY

MURFIN DRILLING COMPANY, INC.

WELL

COLUMBINE #8-24

FIELD

WILDCAT

PROVINCE/COUNTY LINCOLN

COUNTRY/STATE

U.S.A. / COLORADO

LOCATION

2040' FNL & 600' FEL

SEC 24

TWP 9S

RGE 56W

Other Services

Latitude

Longitude

05-073-06753

Permanent Datum GL, Elevation 5380 feet

Log Measured From KB, 13.00 feet above Permanent Datum

Drilling Measured From KB

Date 15-NOV-2018

Run Number

ONE

Service Order

4558-229462509

Depth Driller

8574.00 feet

Depth Logger

8566.00 feet

First Reading

8532.00 feet

Last Reading

456.00 feet

Casing Driller

455.00 feet

Casing Logger

456.00 feet

Bit Size

7.875

inches

Hole Fluid Type

CHEMICAL

Density / Viscosity

9.40 lb/USg

70.00 CP

PH / Fluid Loss

10.50

6.40 ml/30Min

Sample Source

FLOWLINE

Rm @ Measured Temp

0.85 @ 75.0 ohm-m

Rmf @ Measured Temp

0.68 @ 75.0 ohm-m

Rmc @ Measured Temp

1.02 @ 75.0 ohm-m

Source Rmf / Rmc

CALC

CALC

Rm @ BHT

0.35 @180.0 ohm-m

Time Since Circulation

5 HOURS

Max Recorded Temp

180.00 deg F

Equipment / Base

13096

LIB

Recorded By

ADAM SILL

Witnessed By

GREGG SMITH

Elevations:
KB 5393.00 feet
DF 5391.00
GL 5380.00

BOREHOLE RECORD

Last Edited: 15-NOV-2018 20:38

Bit Size
inches

7.875

Depth From
feet

455.00

Depth To
feet

8574.00

CASING RECORD

Type

Size
inches

8.625

Depth From
feet

0.00

Shoe Depth
feet

455.00

Weight
pounds/ft

24.00

REMARKS

- SOFTWARE ISSUE: WLS 18.03.9344.
- 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: 4041 CU.FT.
- ANNULAR HOLE VOLUME WITH 5.5 INCH PRODUCTION CASING FROM TD TO 4200 FEET: 913 CU.FT.

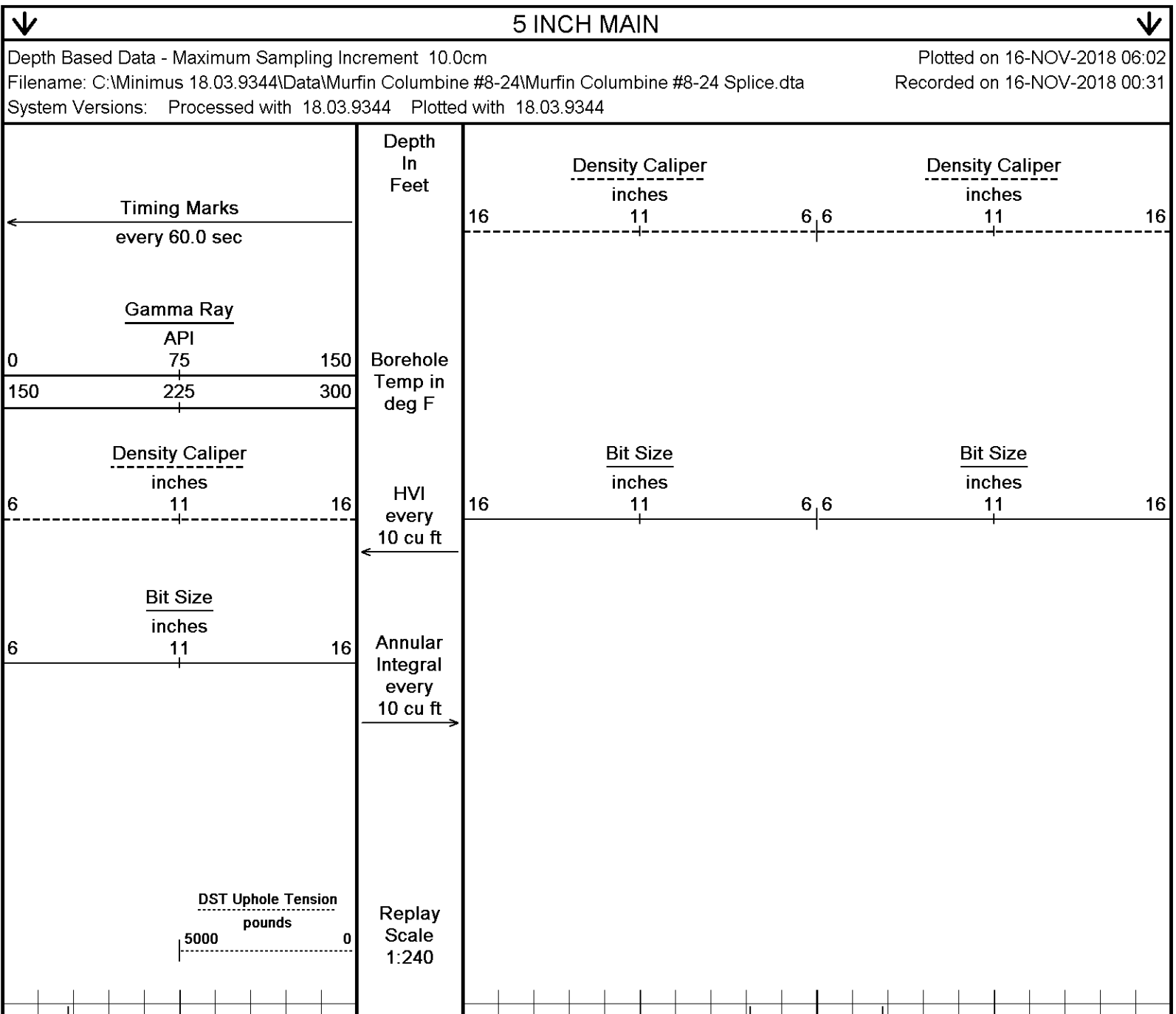
- RIG: MURFIN #25.

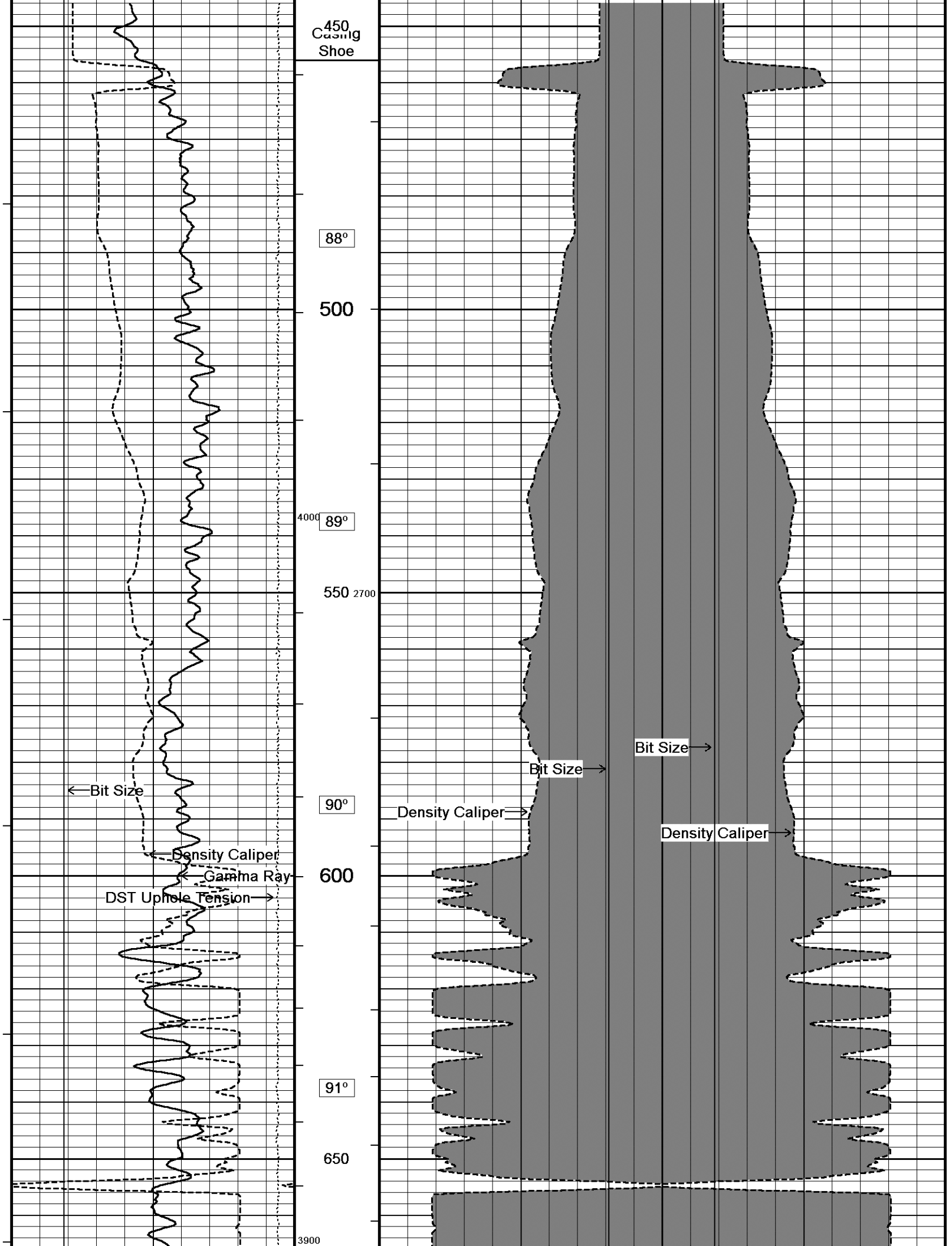
- ENGINEER: A. SILL.

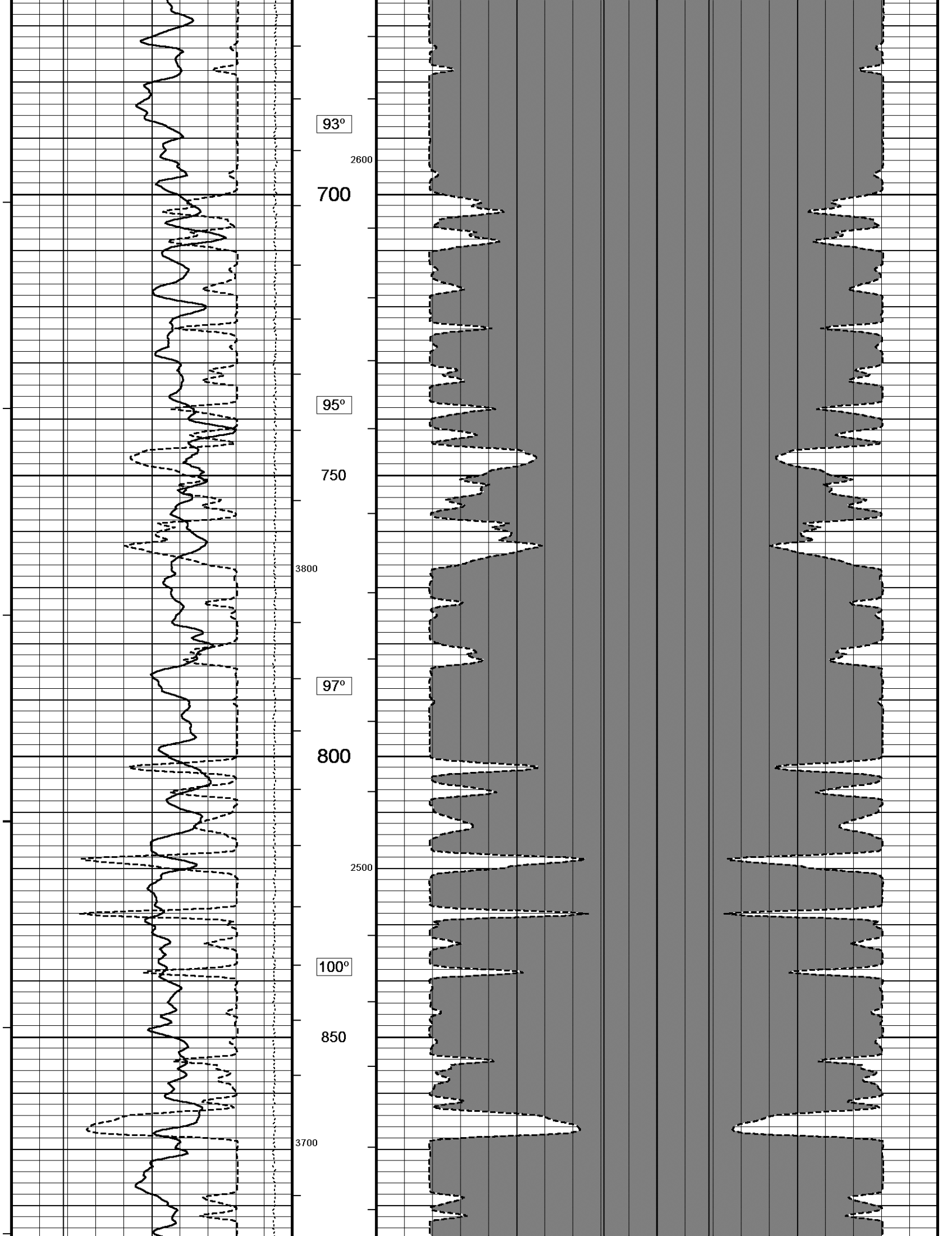
- OPERATOR: B. TOVAR, B. COPELAND.

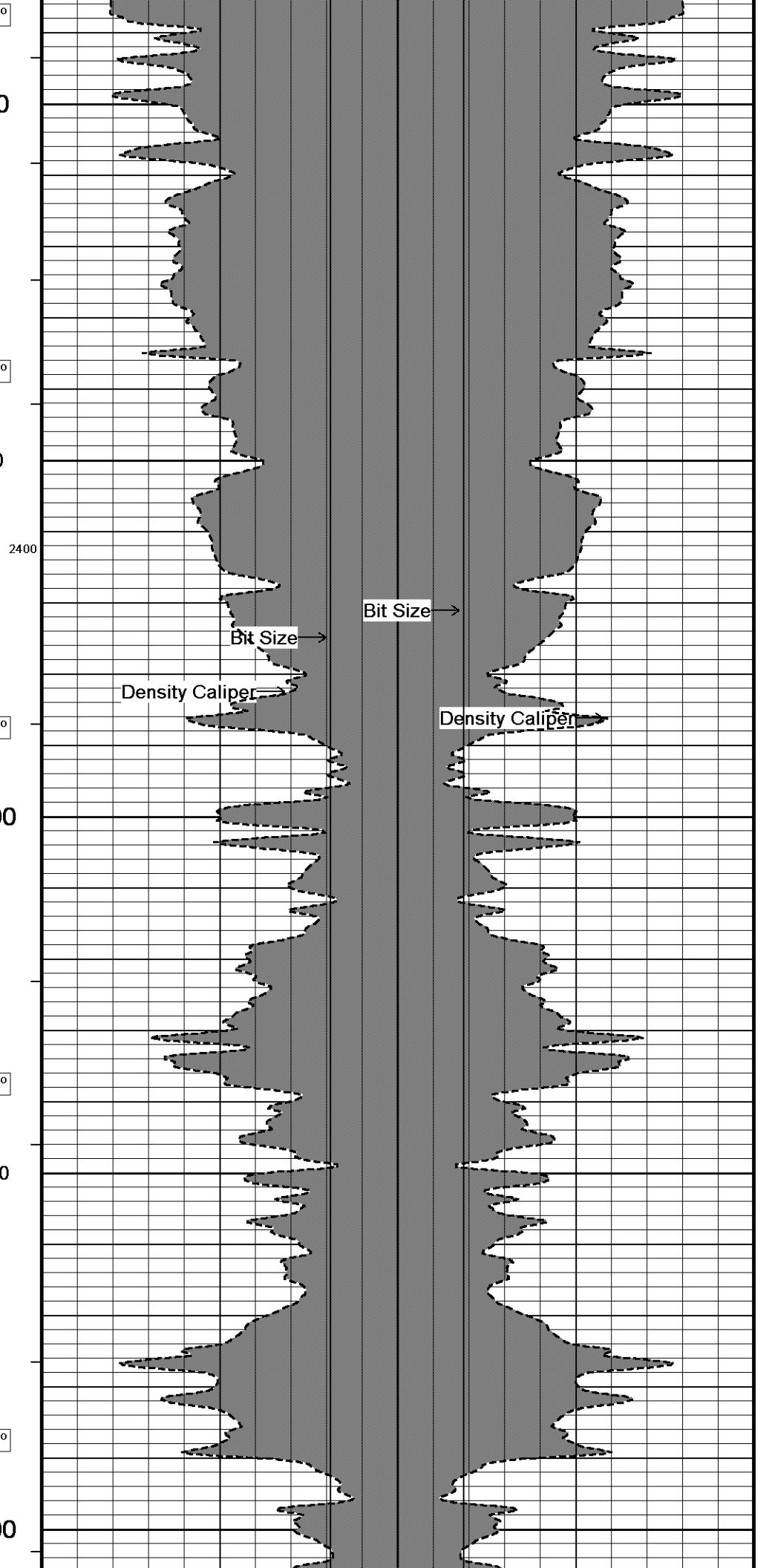
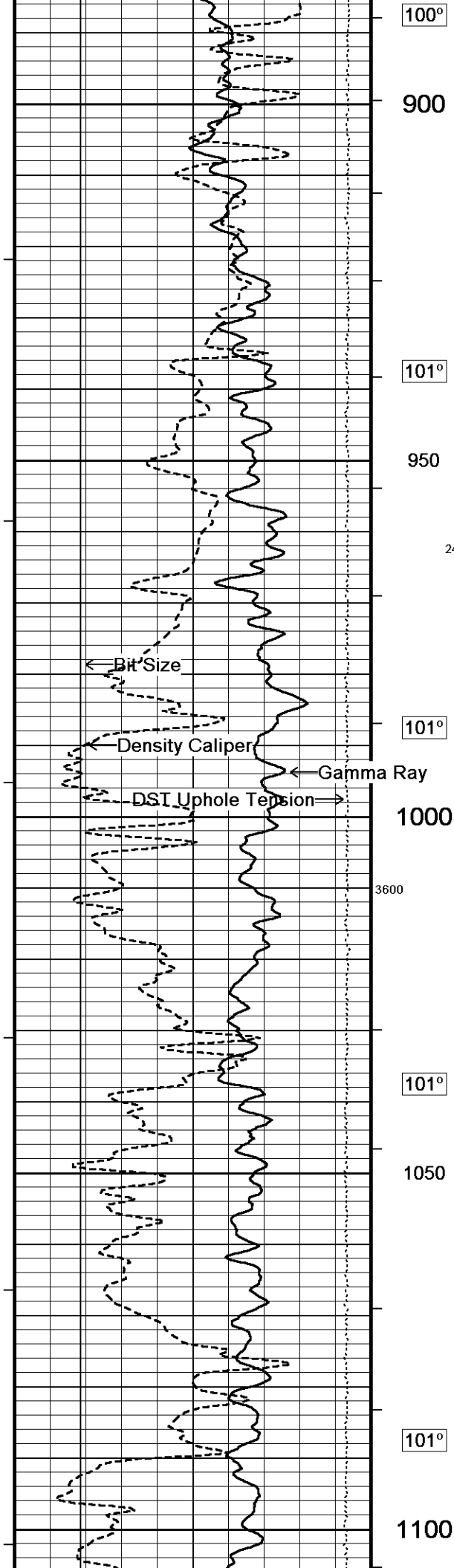
**** CALIPERS WERE CLOSED BETWEEN 5725 FEET AND 5900 FEET AS PER CUSTOMER'S REQUEST, DUE TO HOLE CONDITIONS THROUGH THAT INTERVAL. TOOL READINGS MAY NOT BE ACCURATE THROUGH THIS INTERVAL. ****

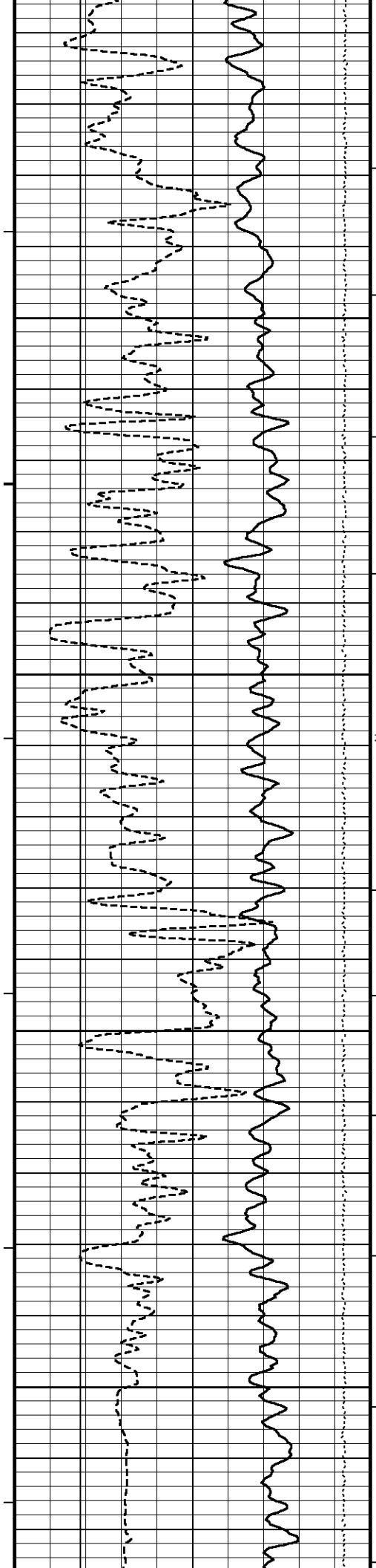
In interpreting, communicating or providing information and/or making recommendations, either written or oral, as to logs or test or other data, type or amount of material, or Work or other service to be furnished, or manner of performance, or in predicting results to be obtained, the Contractor will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











101°

1150

102°

1200

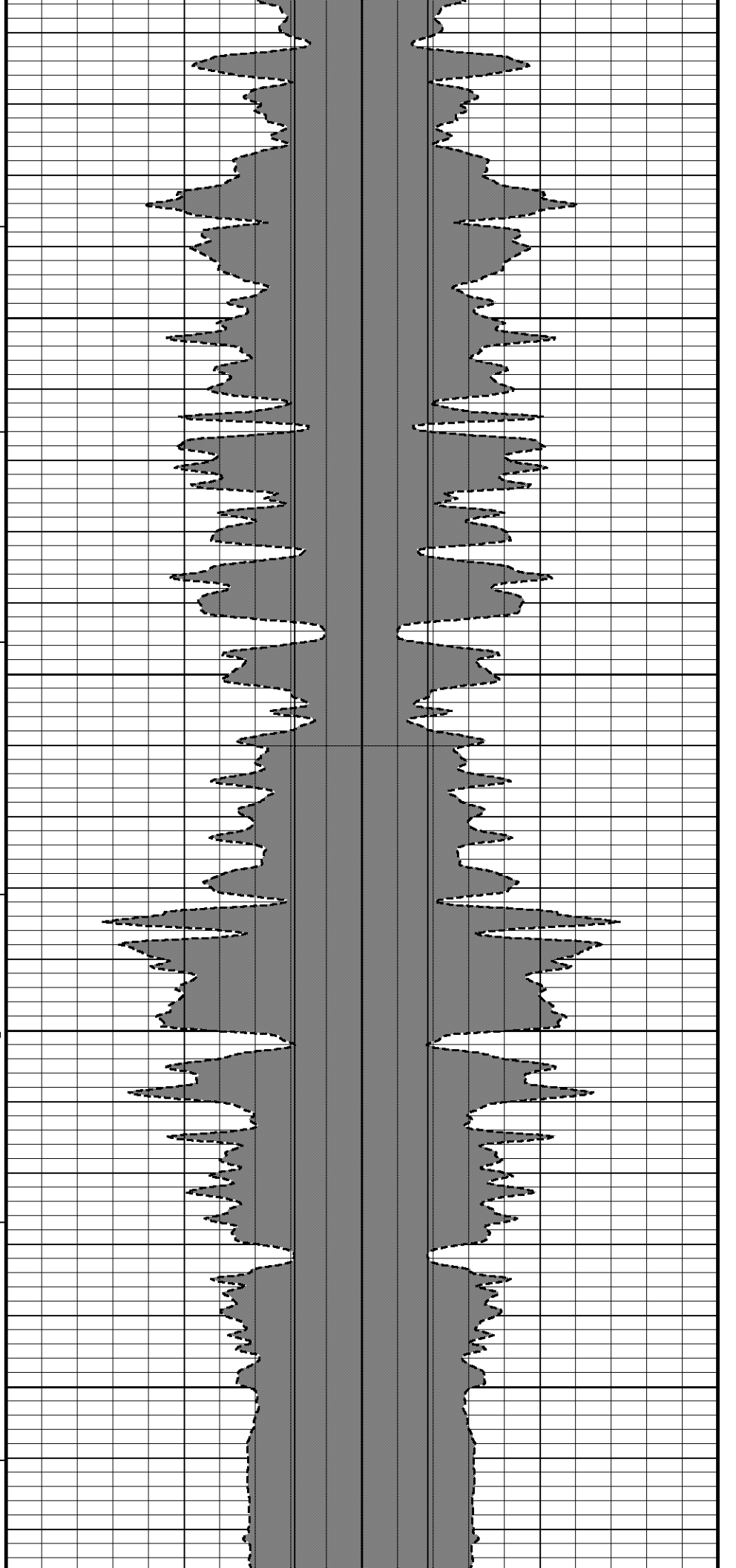
3500

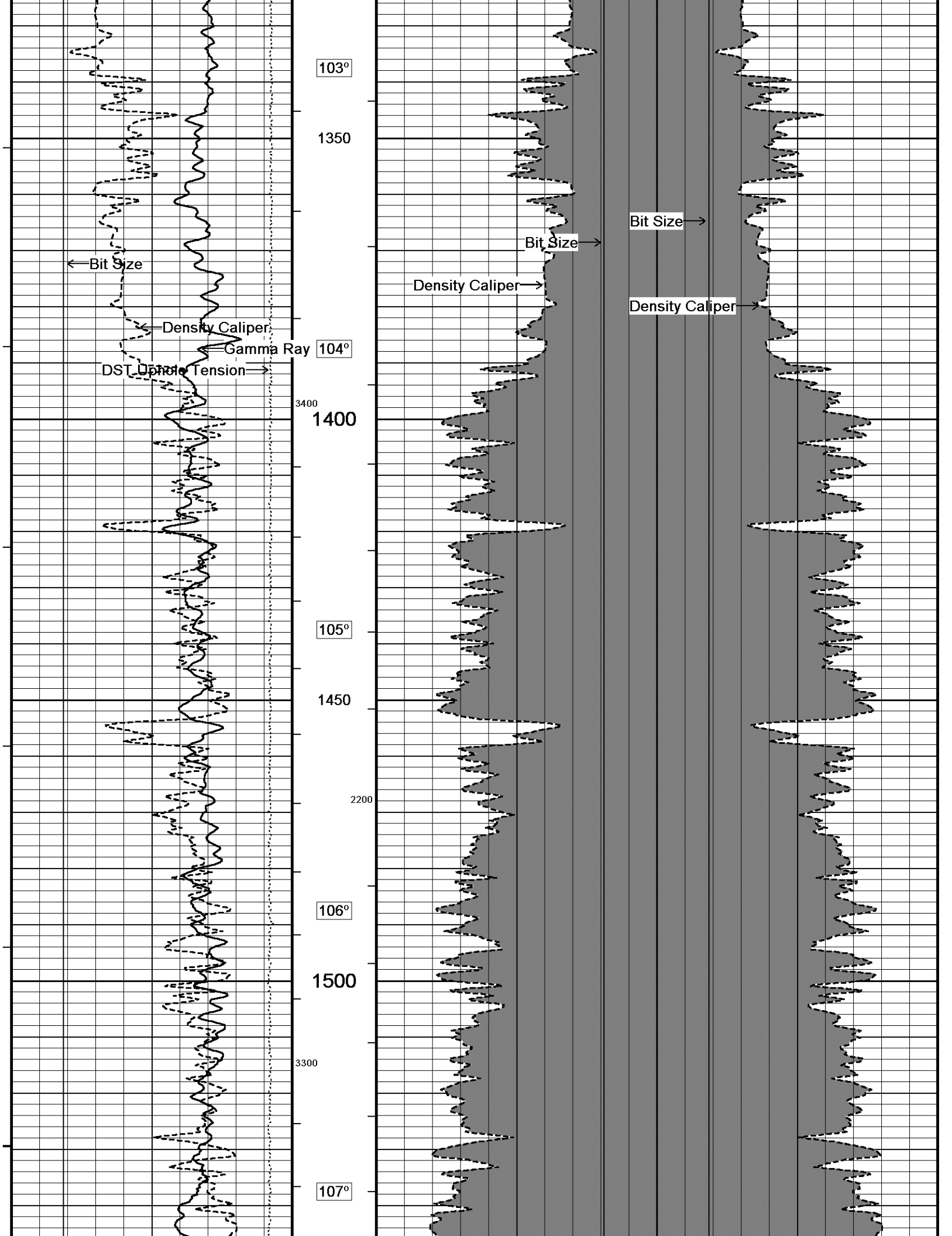
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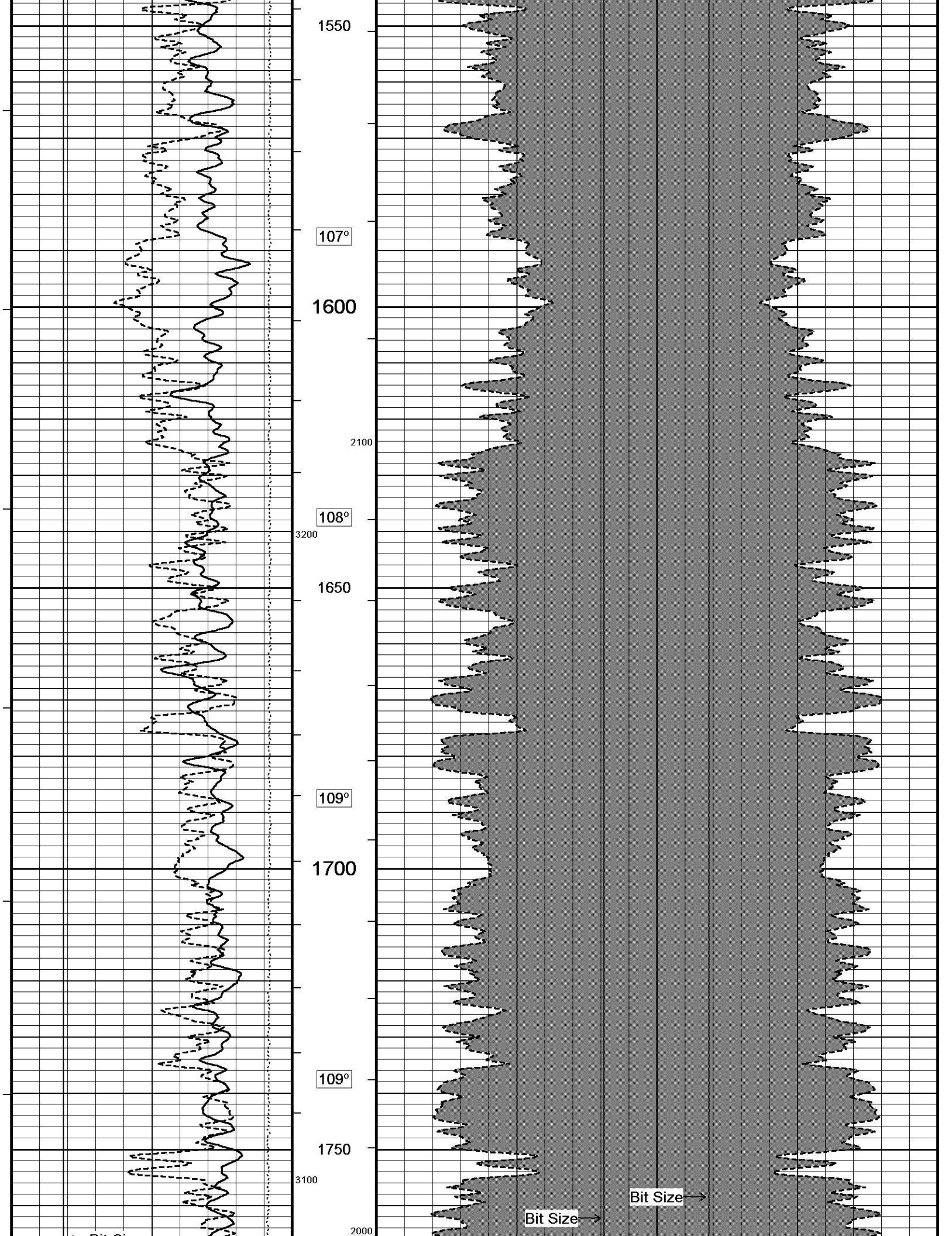
1250₂₃₀₀

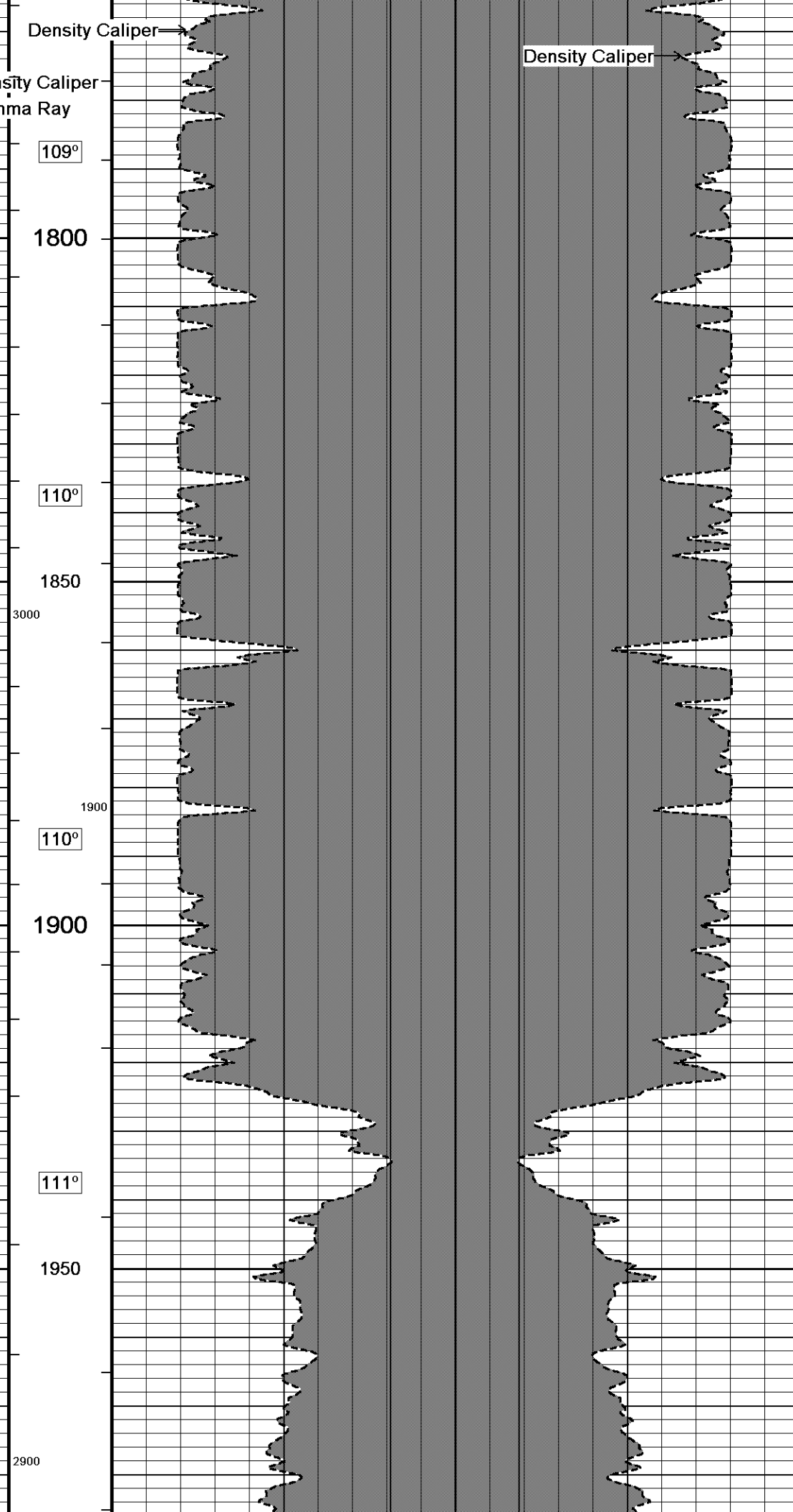
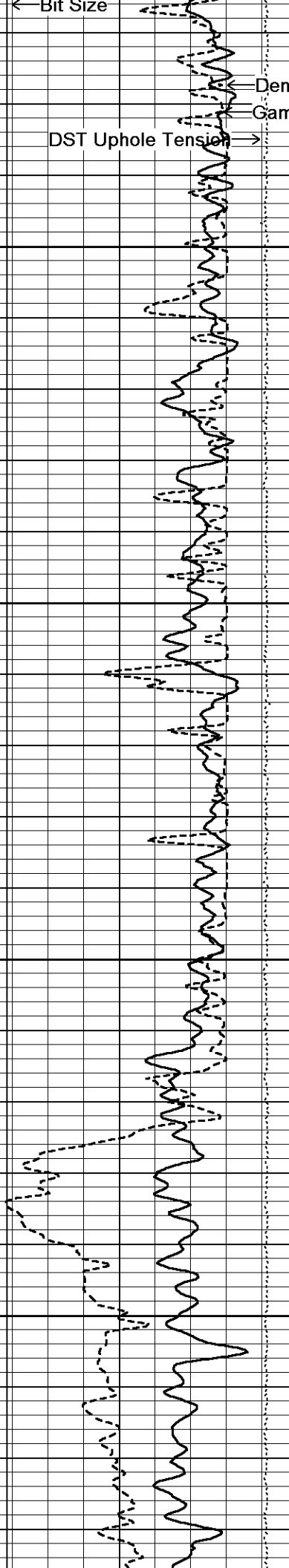
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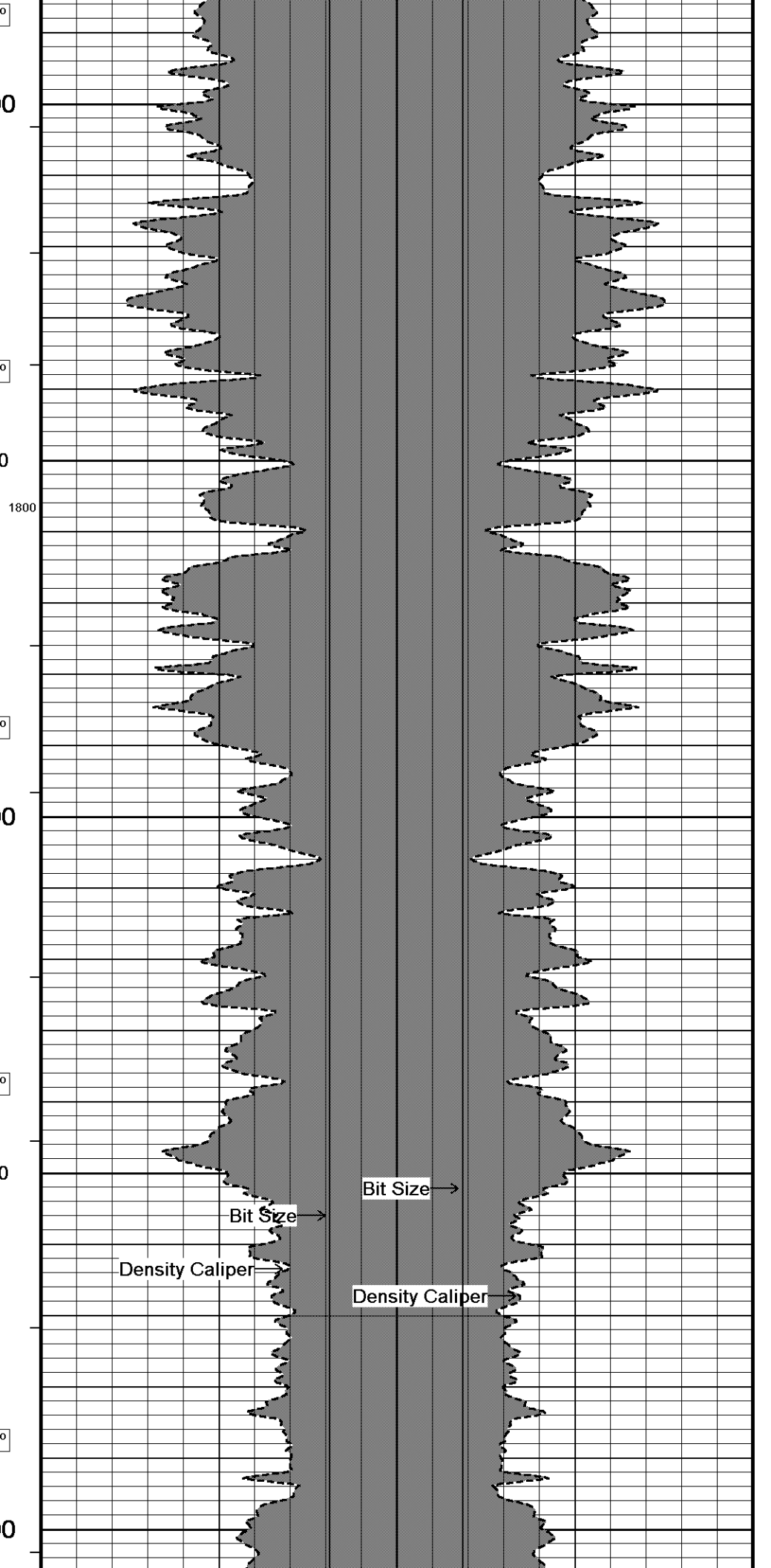
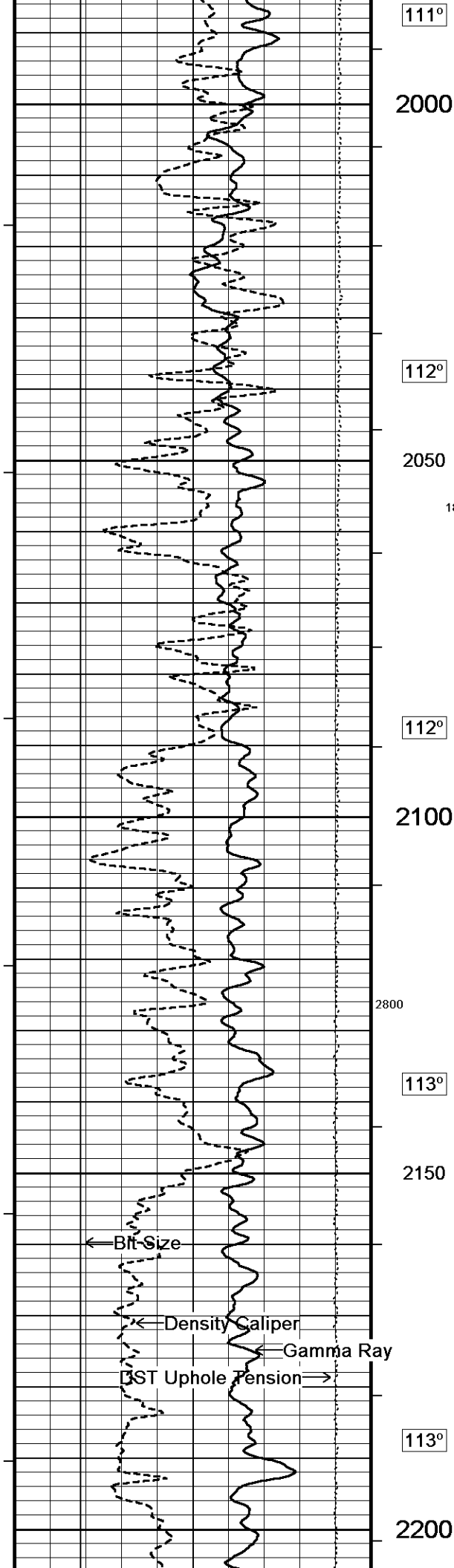
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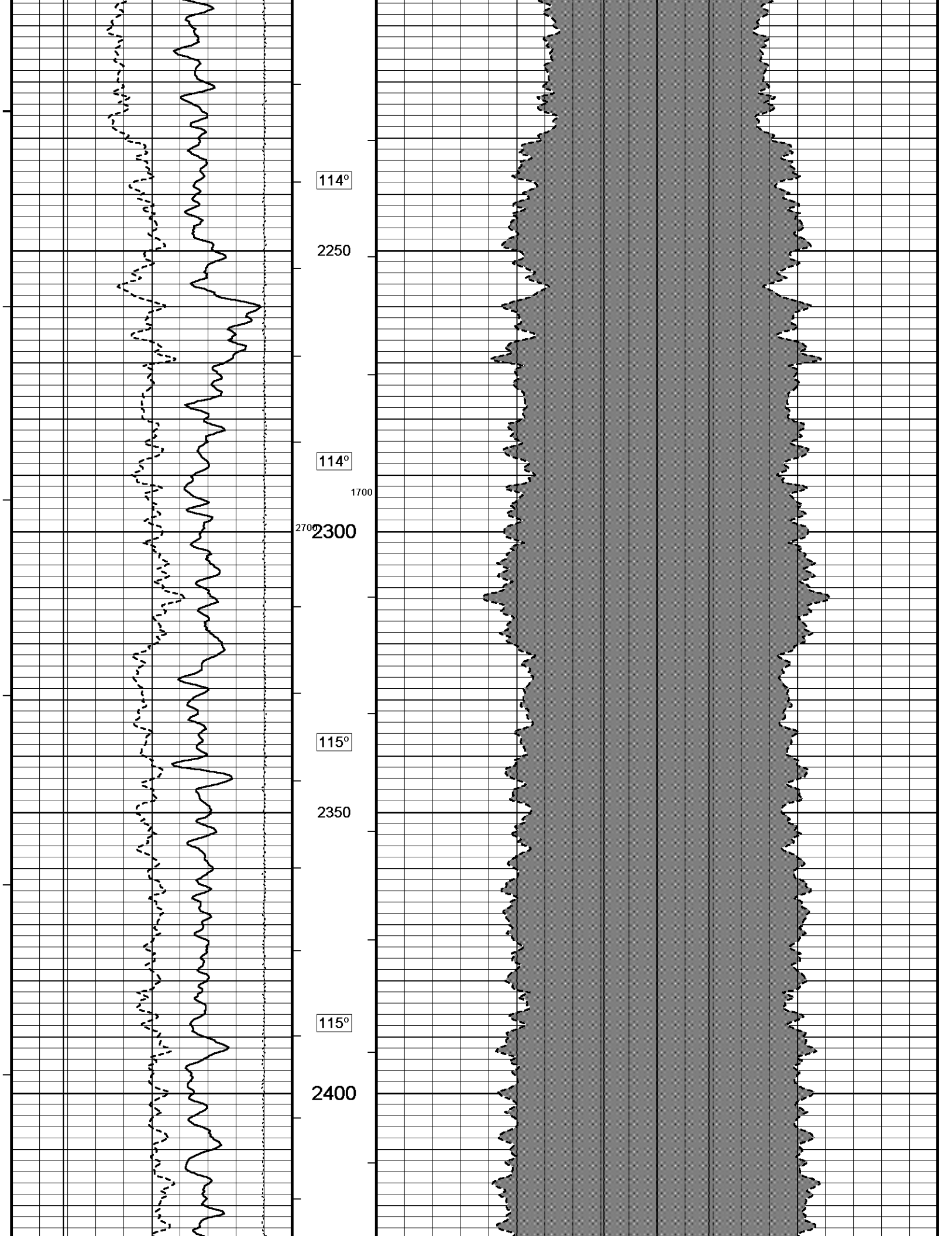


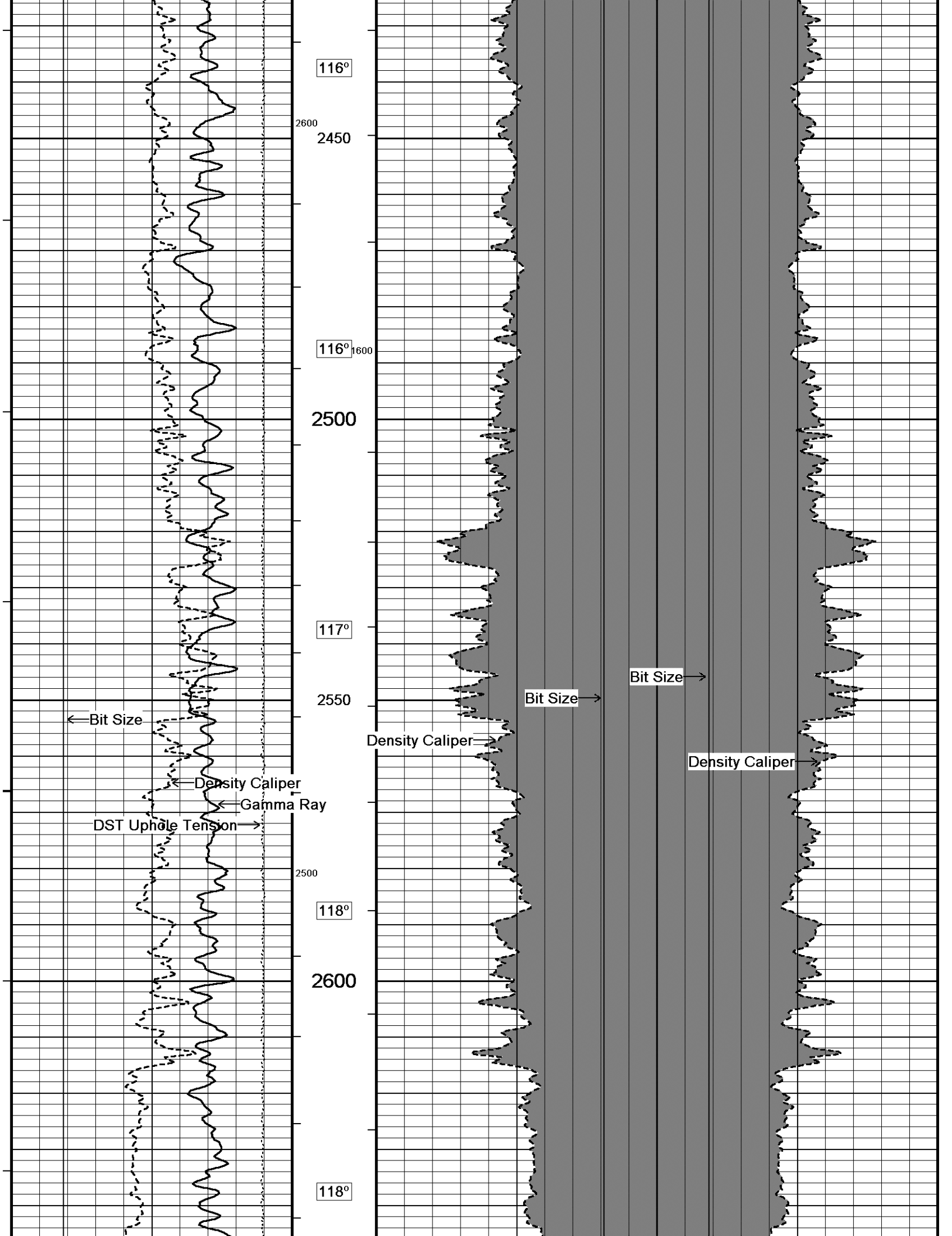


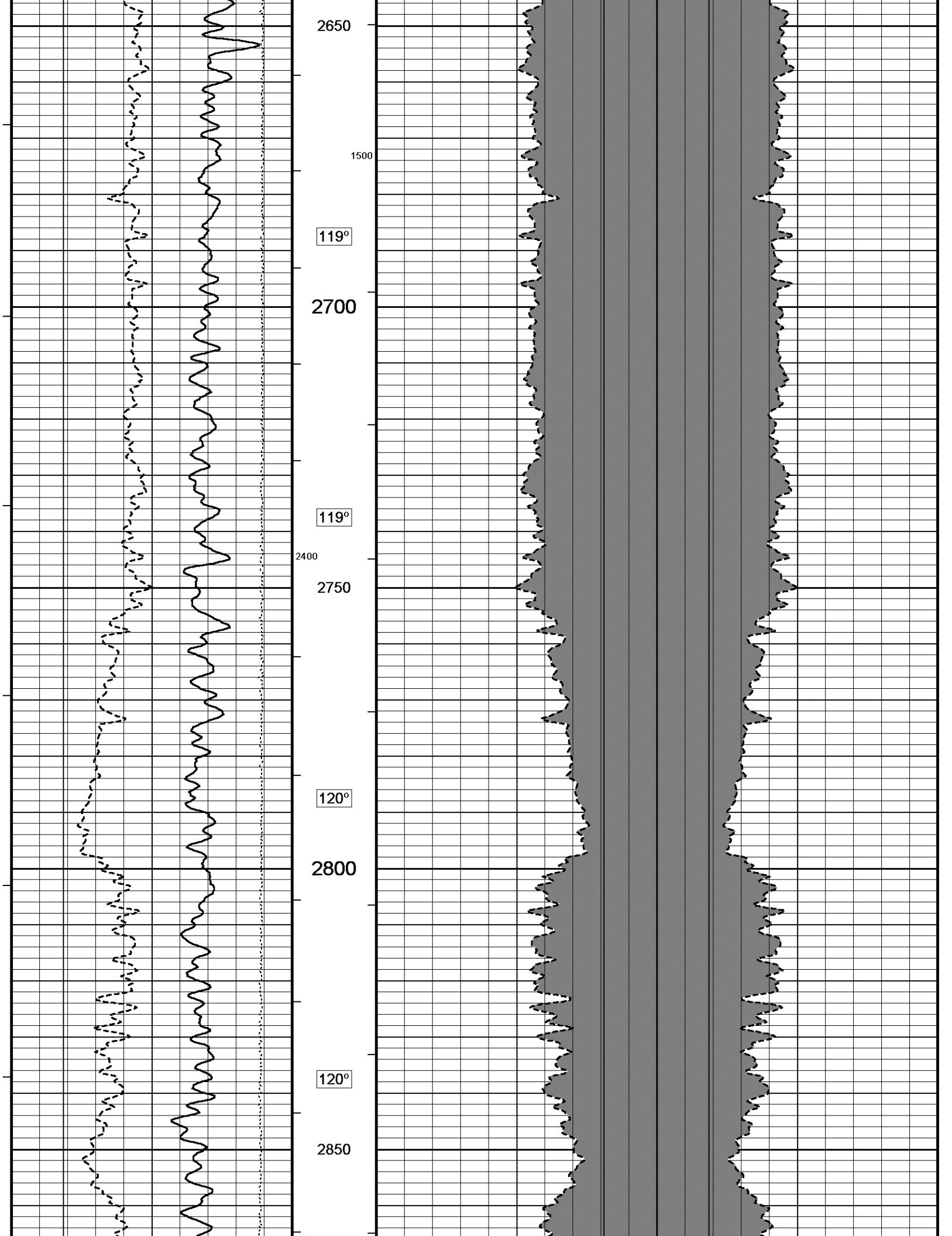


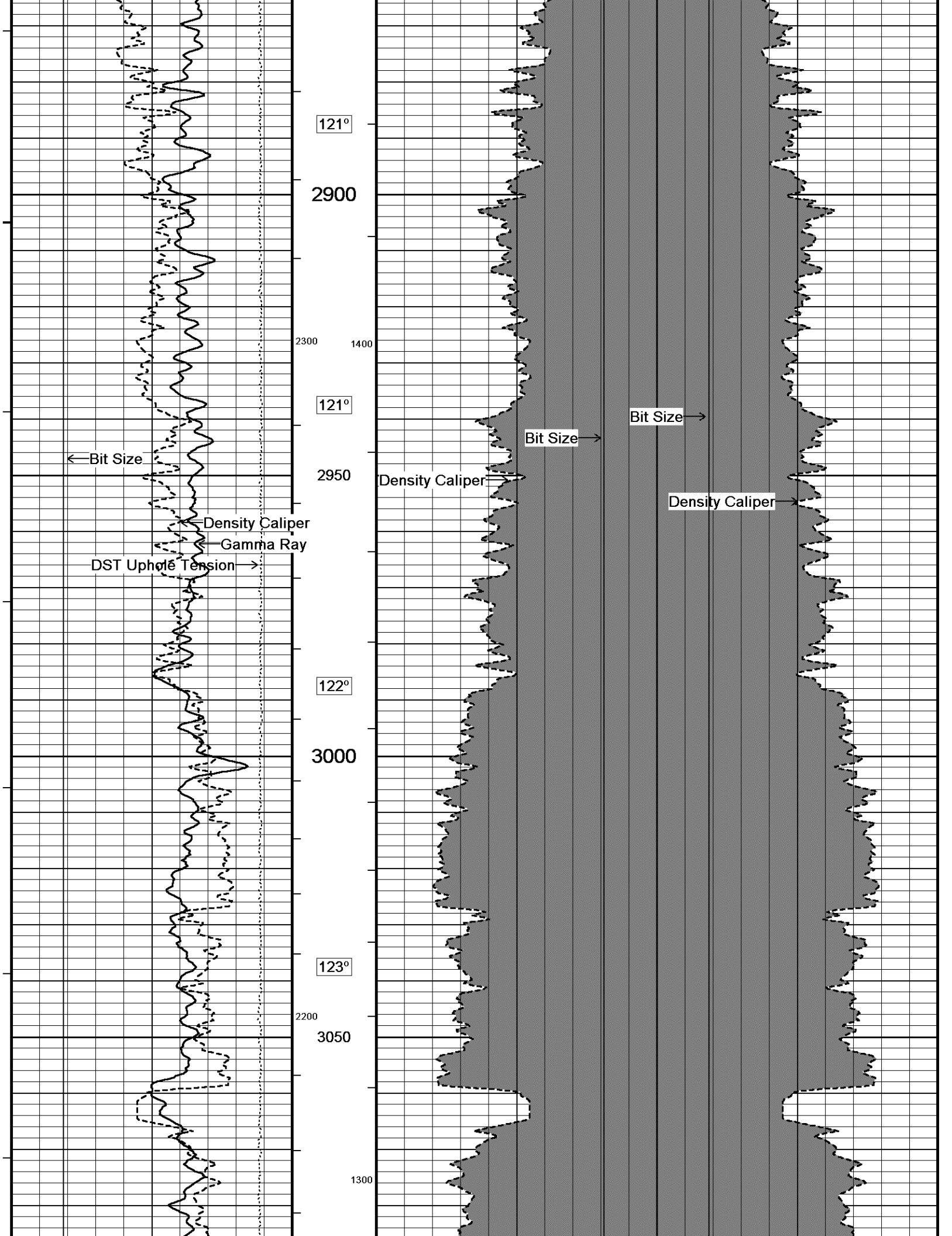


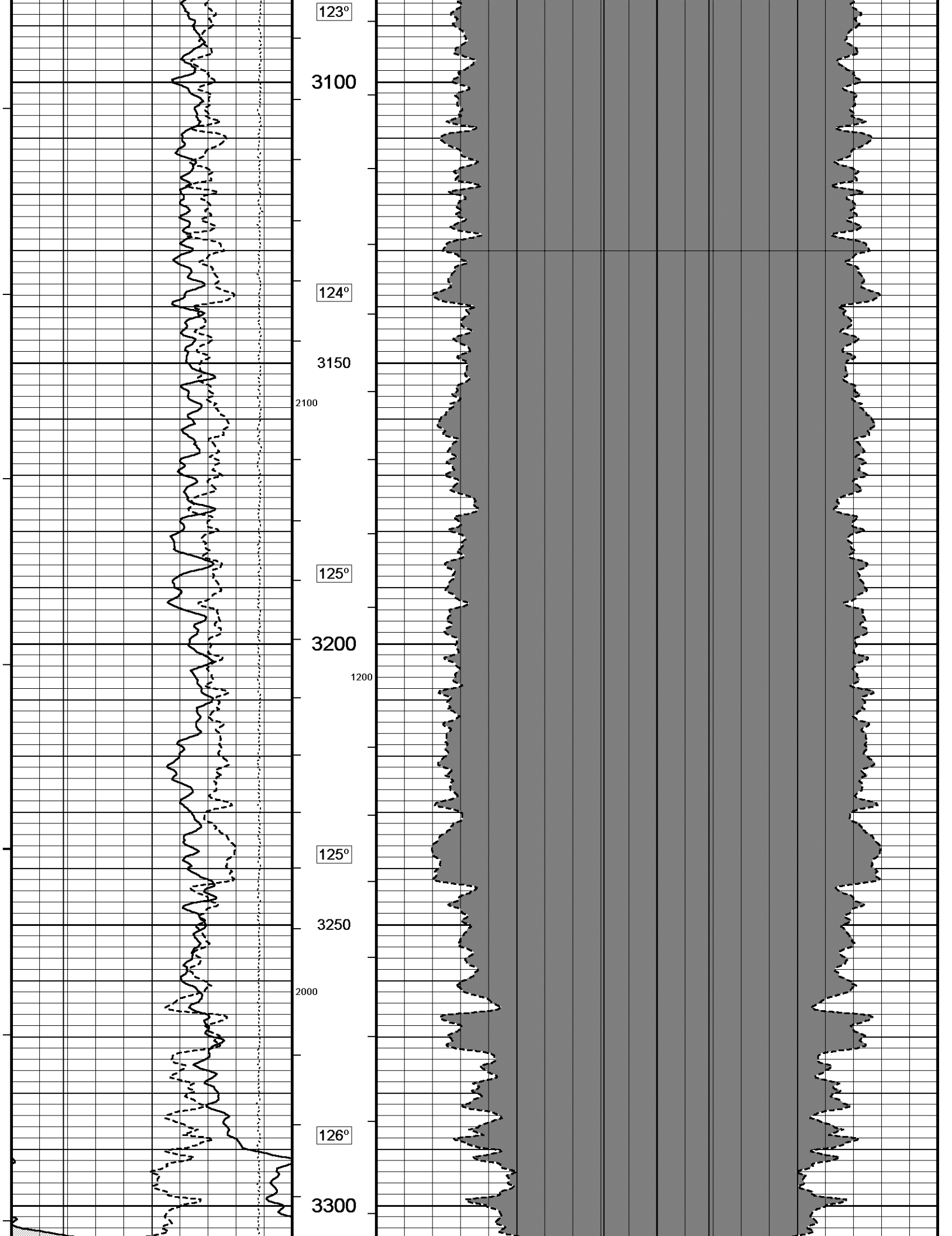


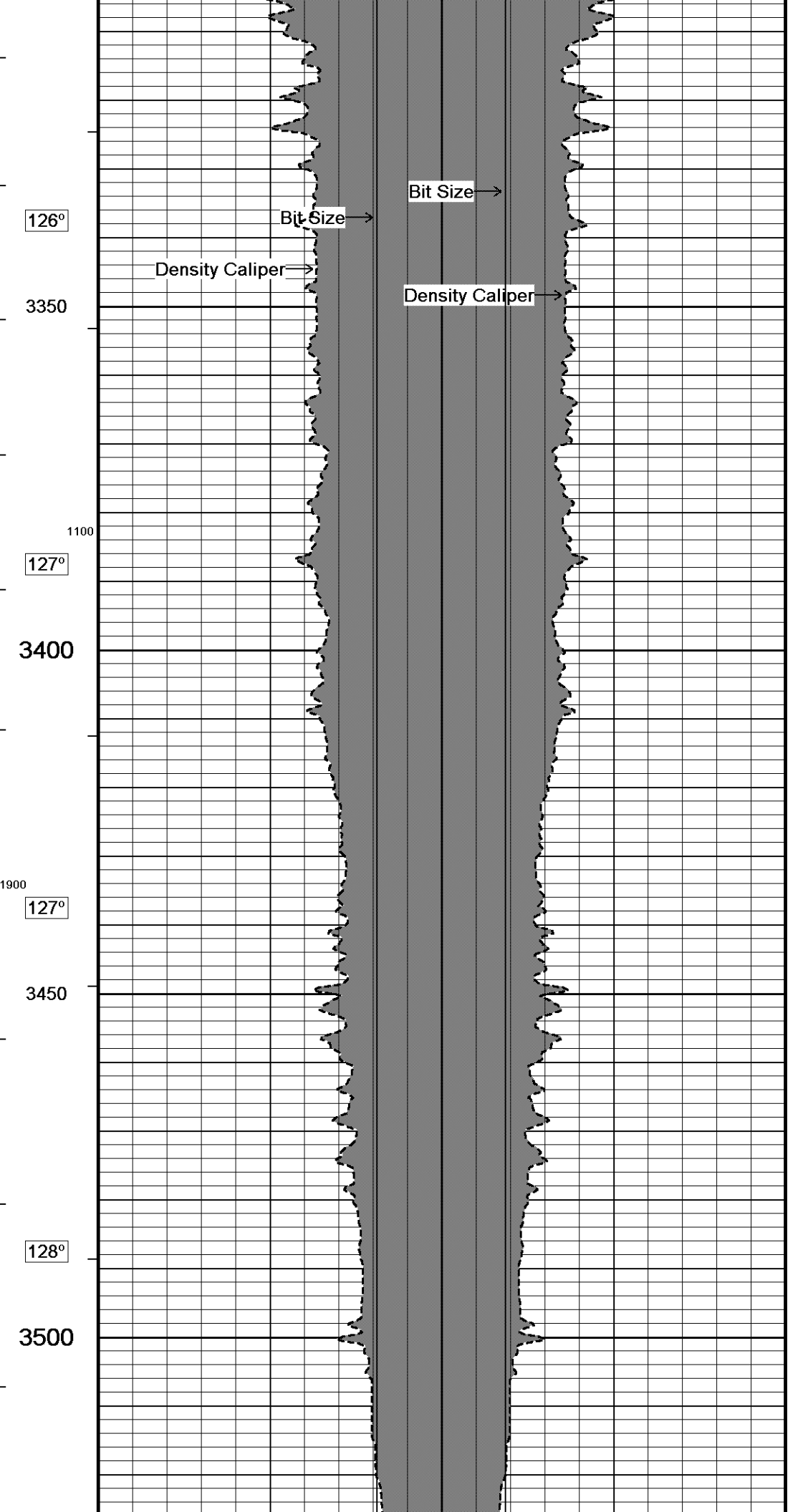
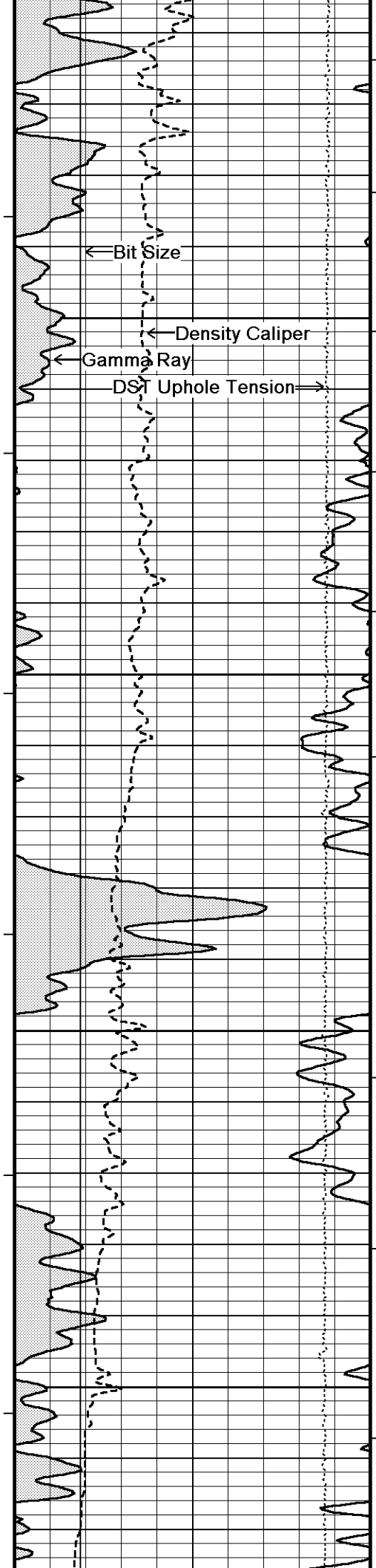


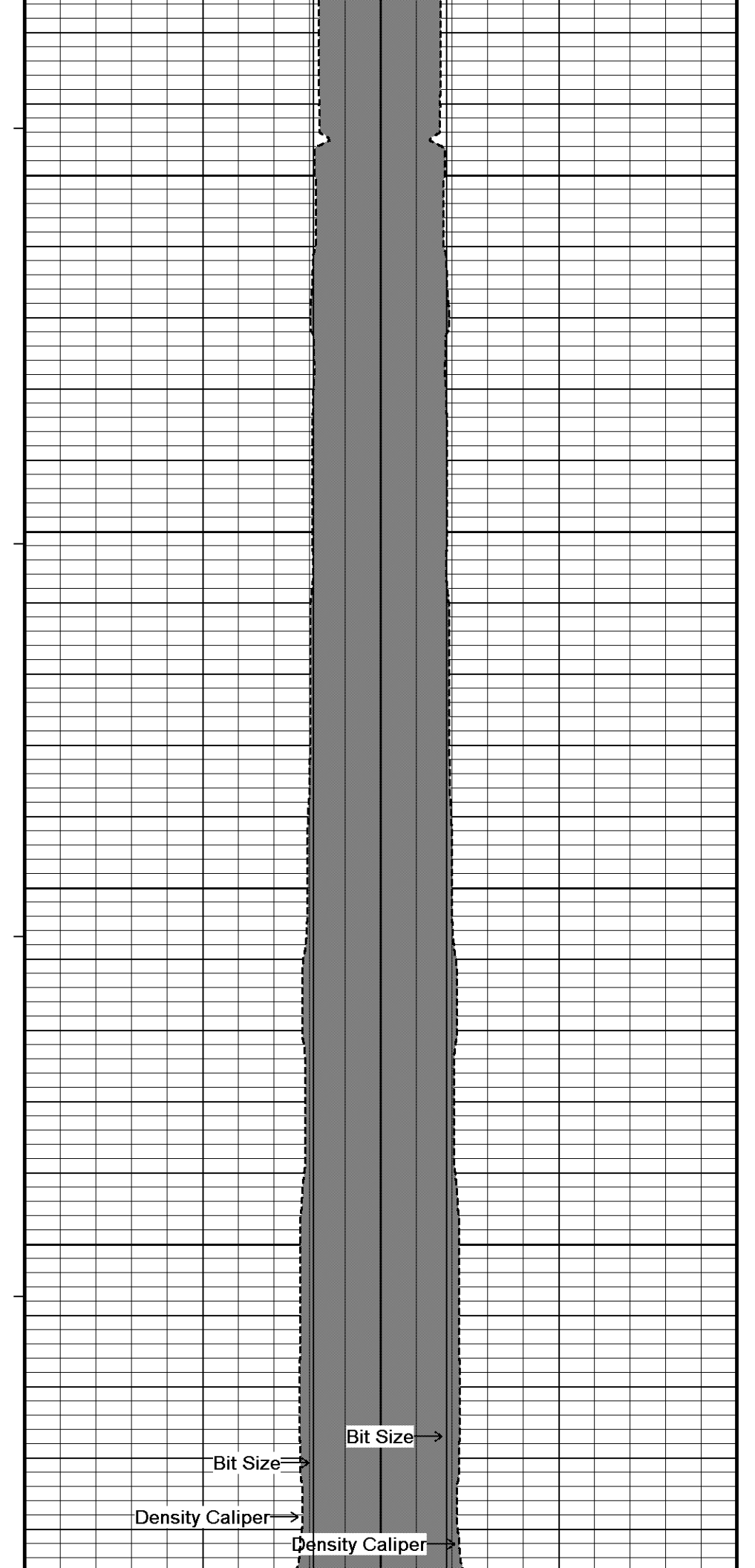
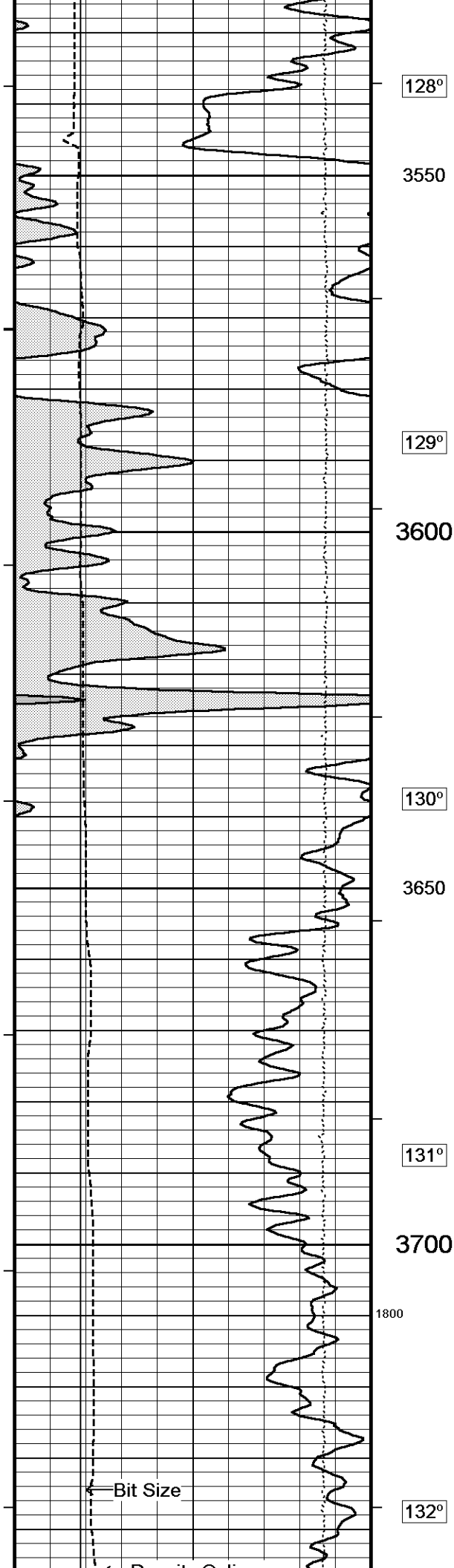


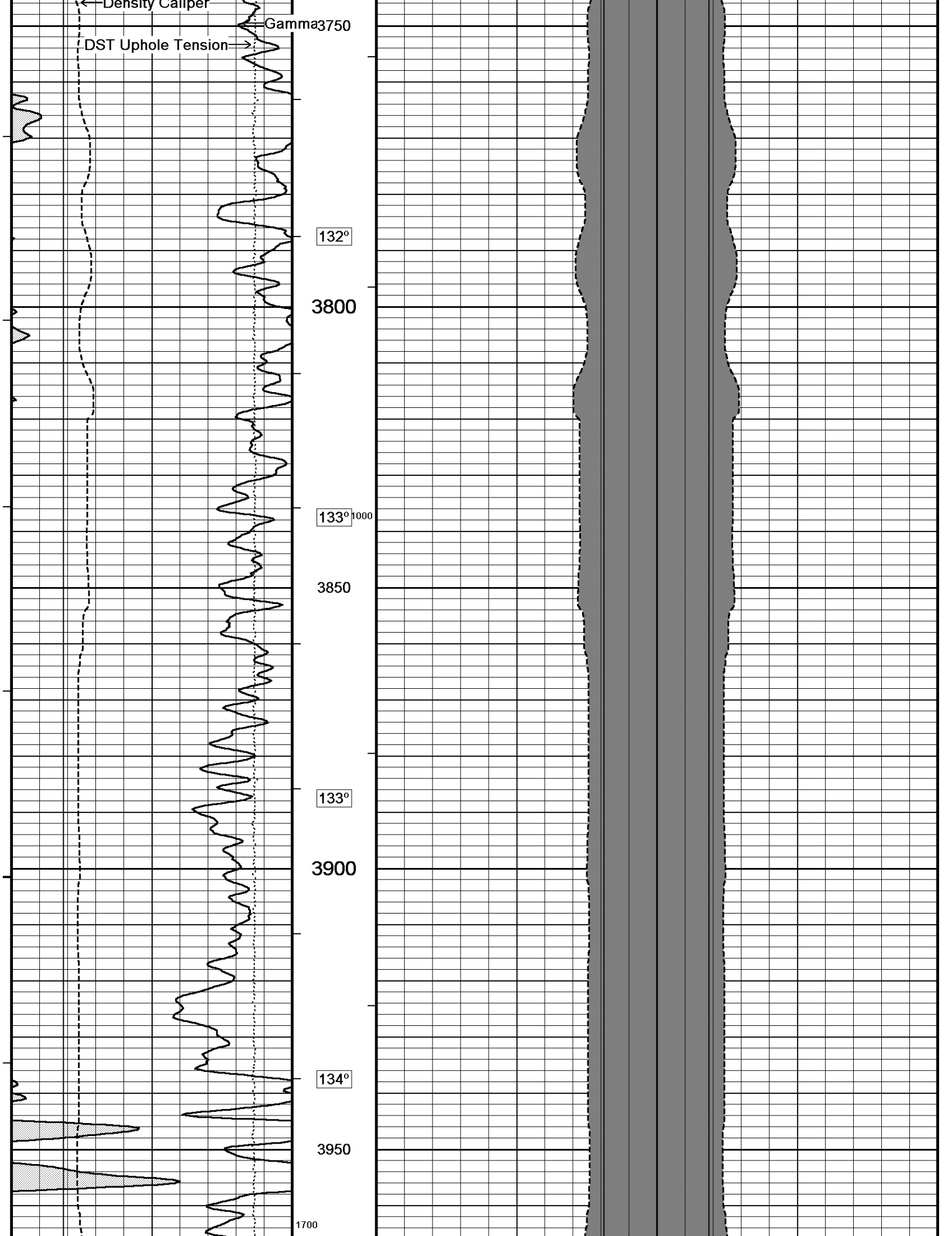


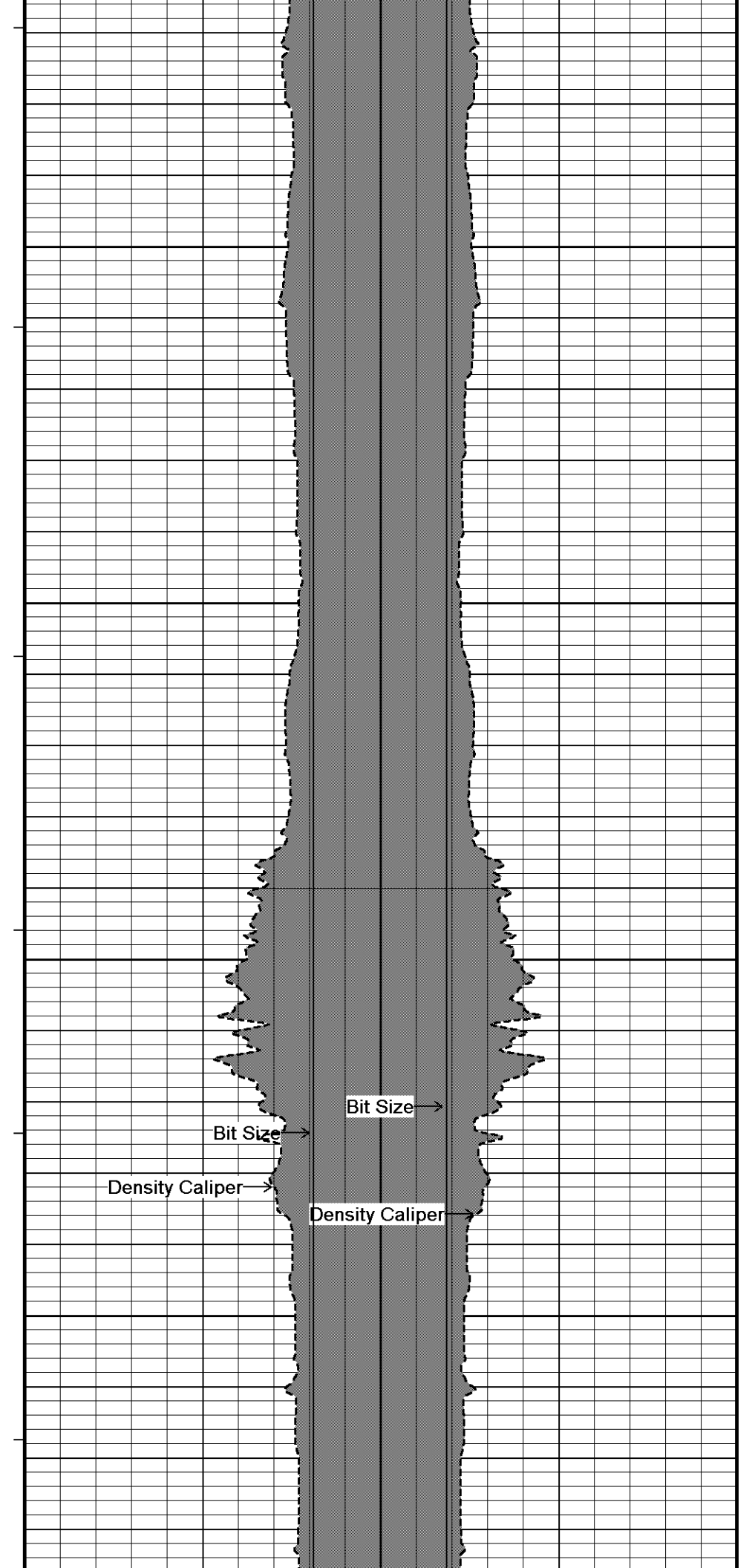
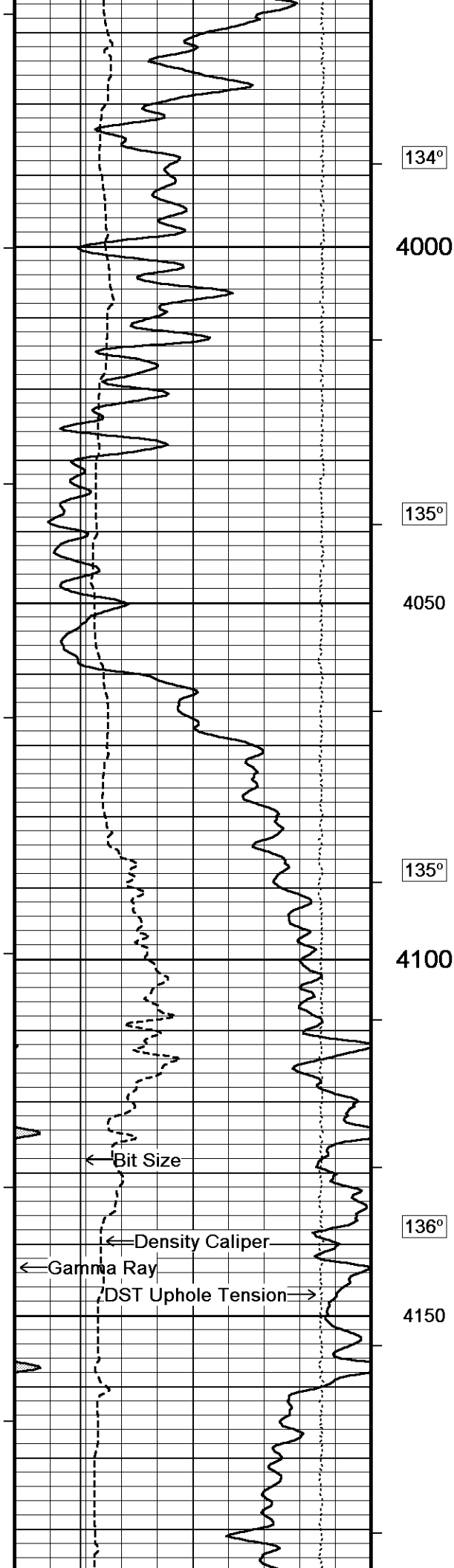


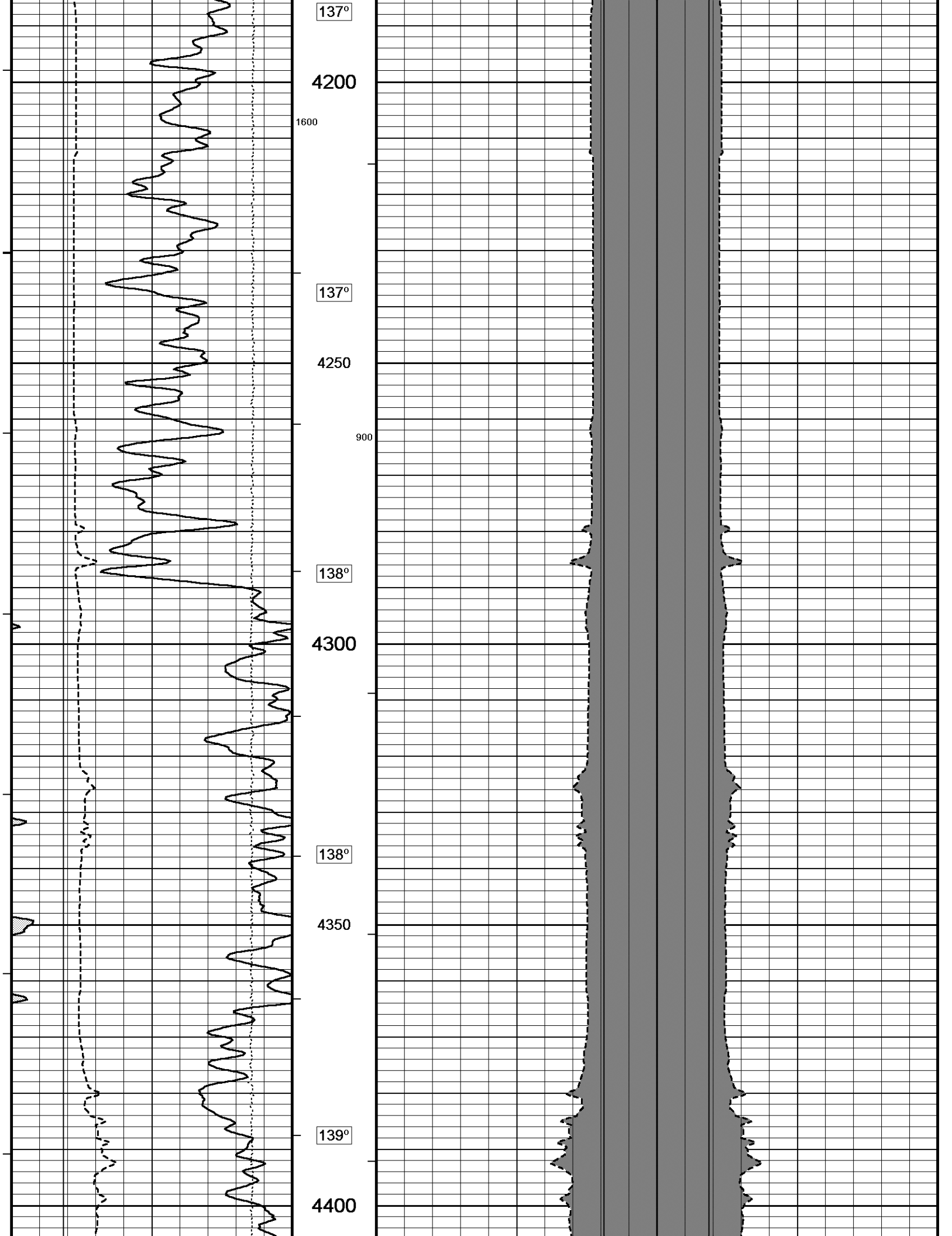


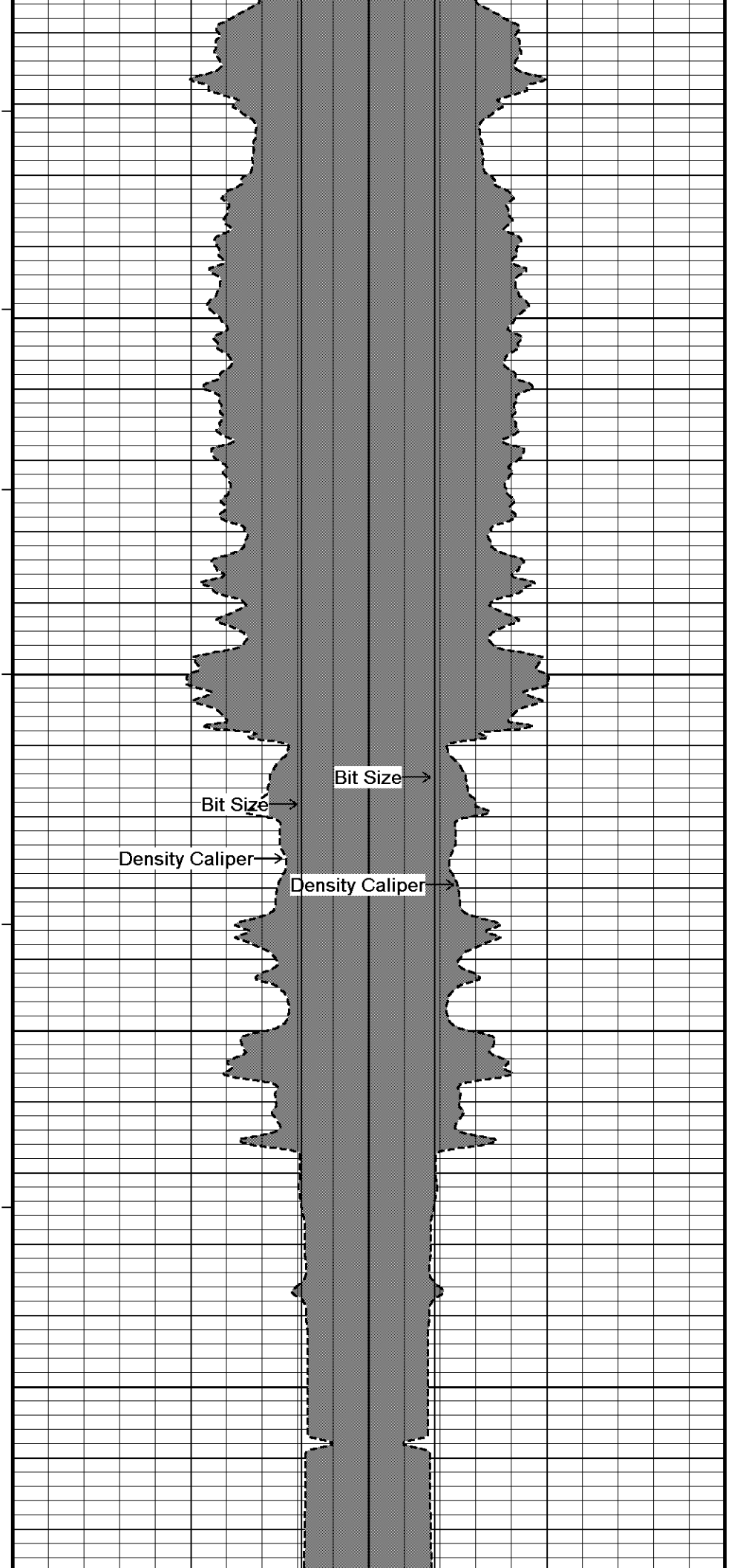
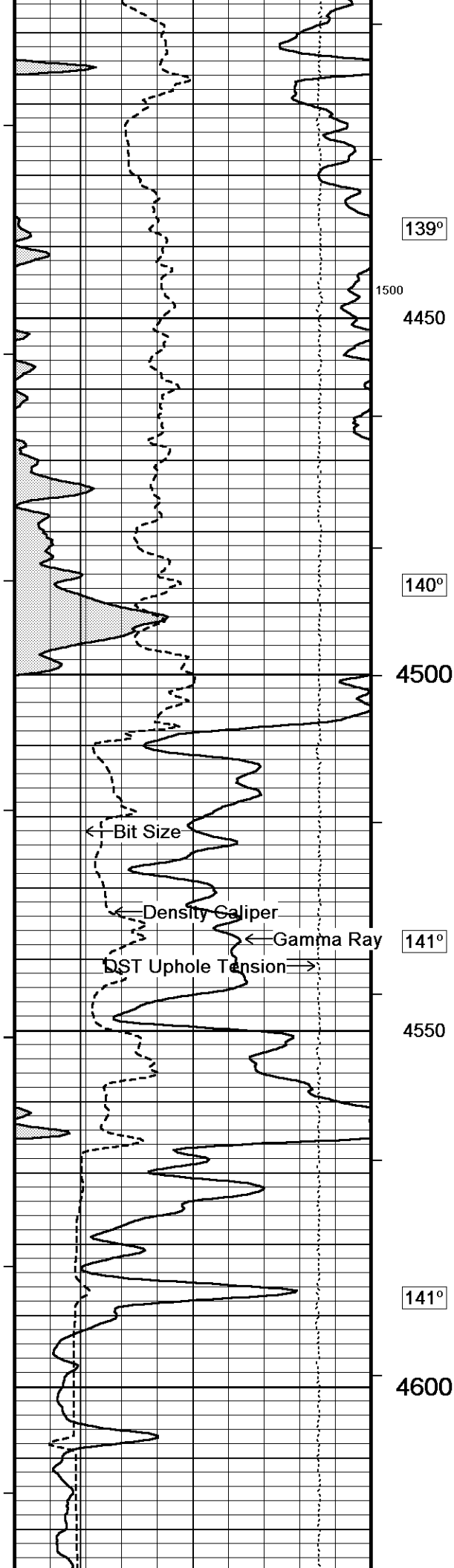


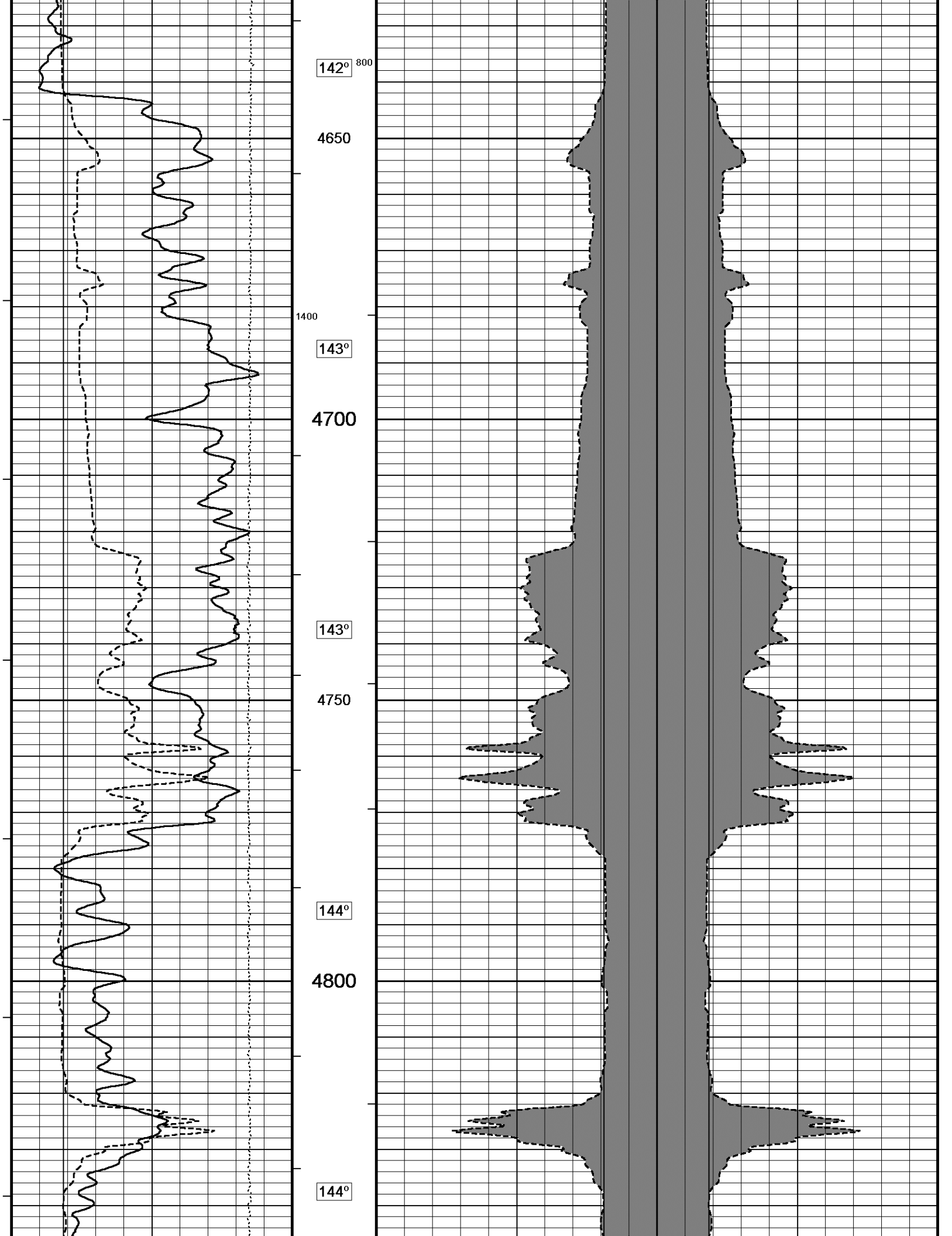


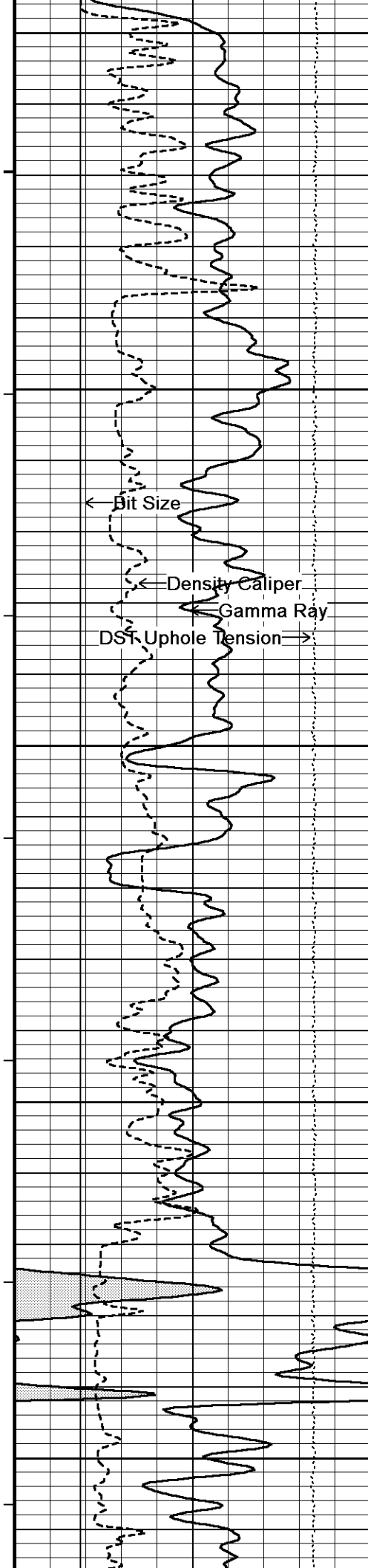












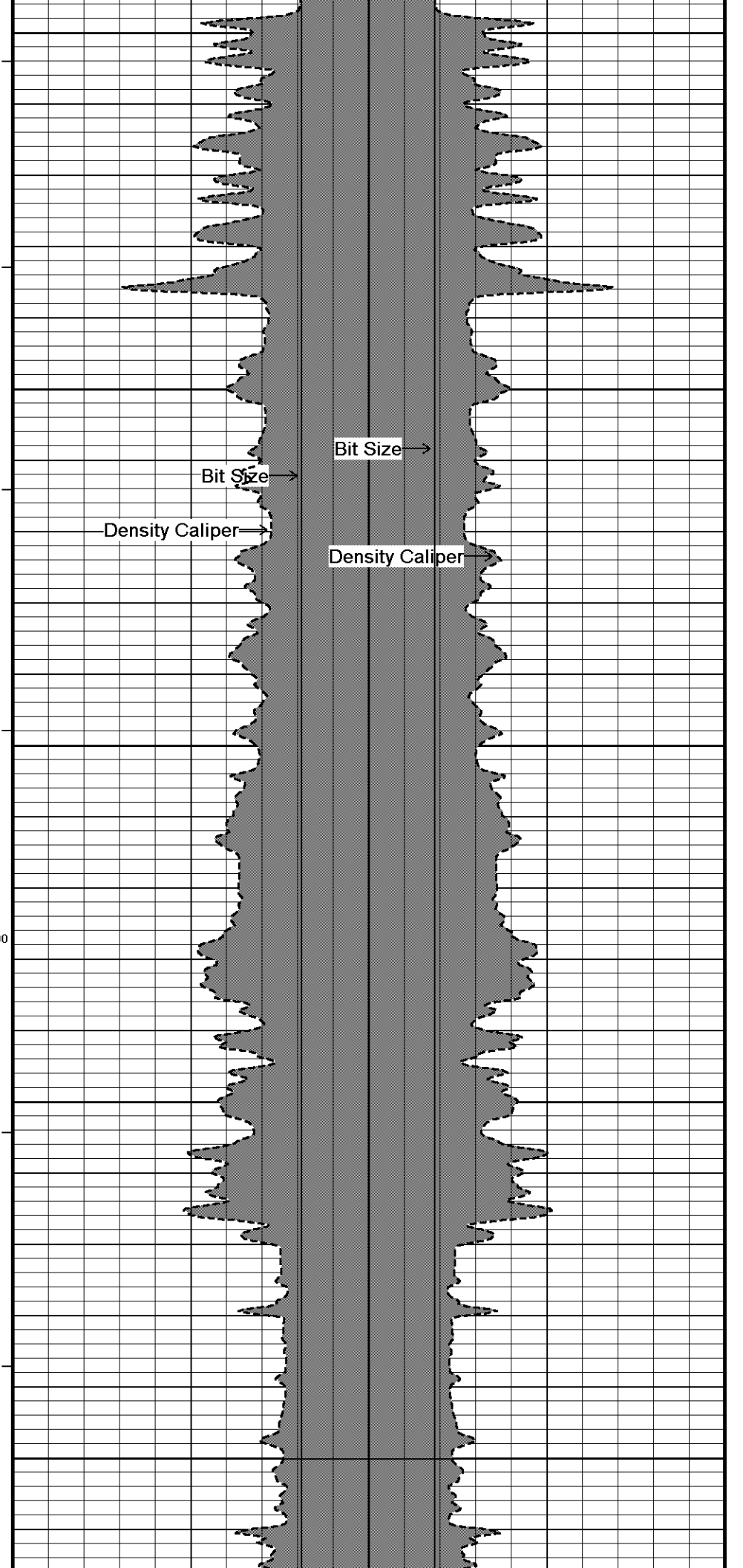
4850
1300
4900
4950
700
5000
5050

145°

145°

145°

146°

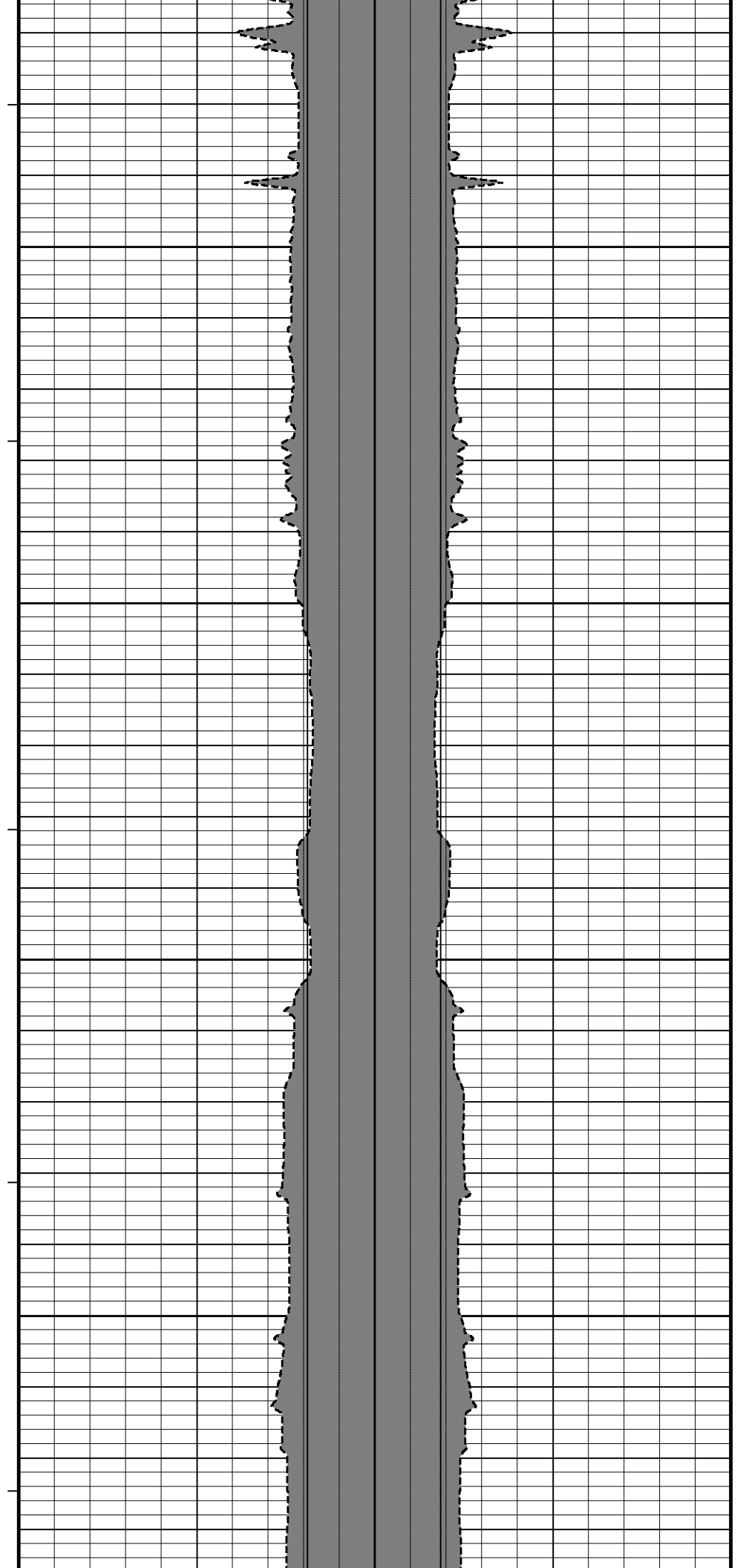
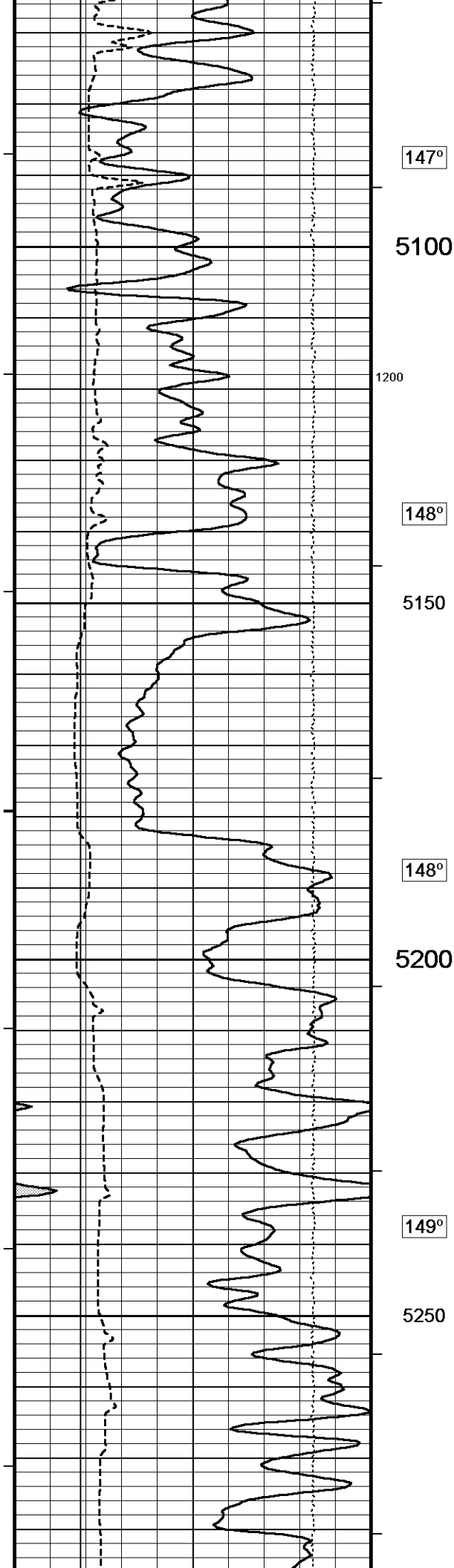


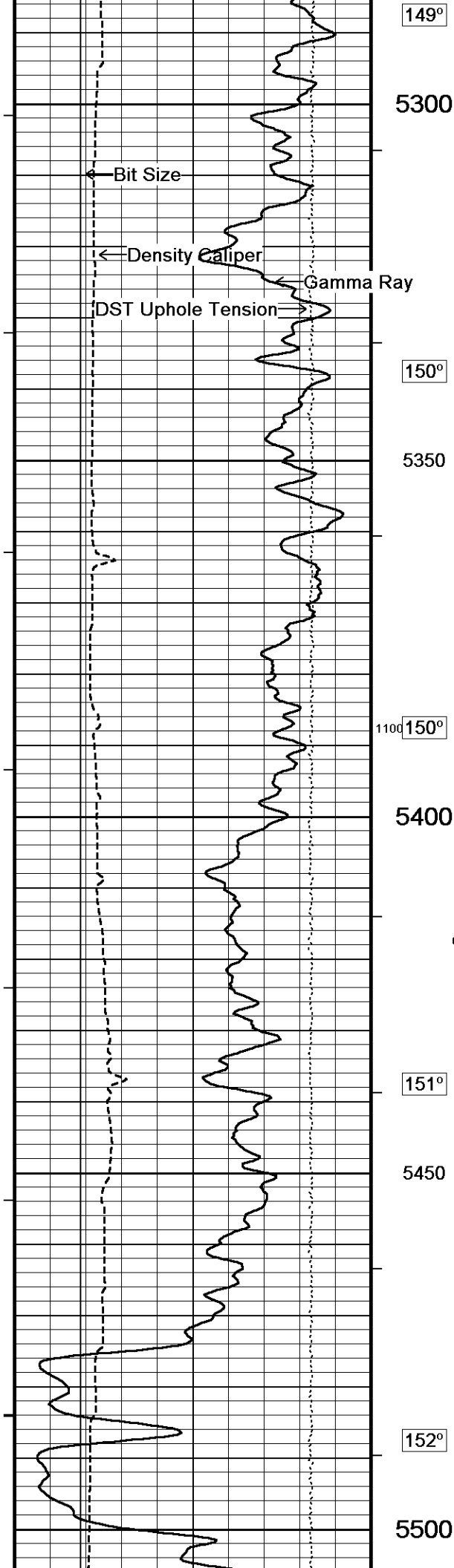
Bit Size

Density Caliper

Bit Size

Density Caliper





149°

5300

150°

5350

1100 150°

5400

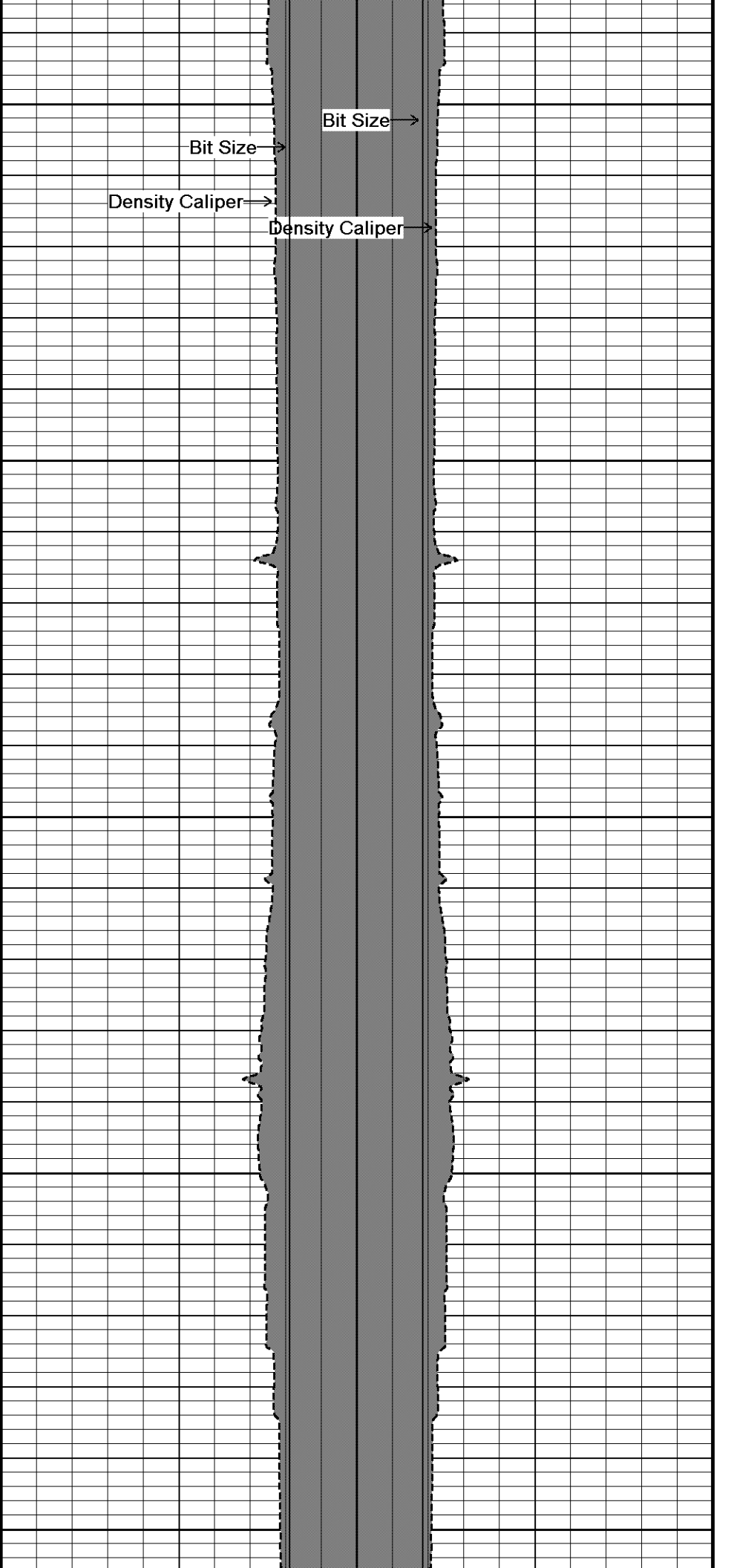
600

151°

5450

152°

5500

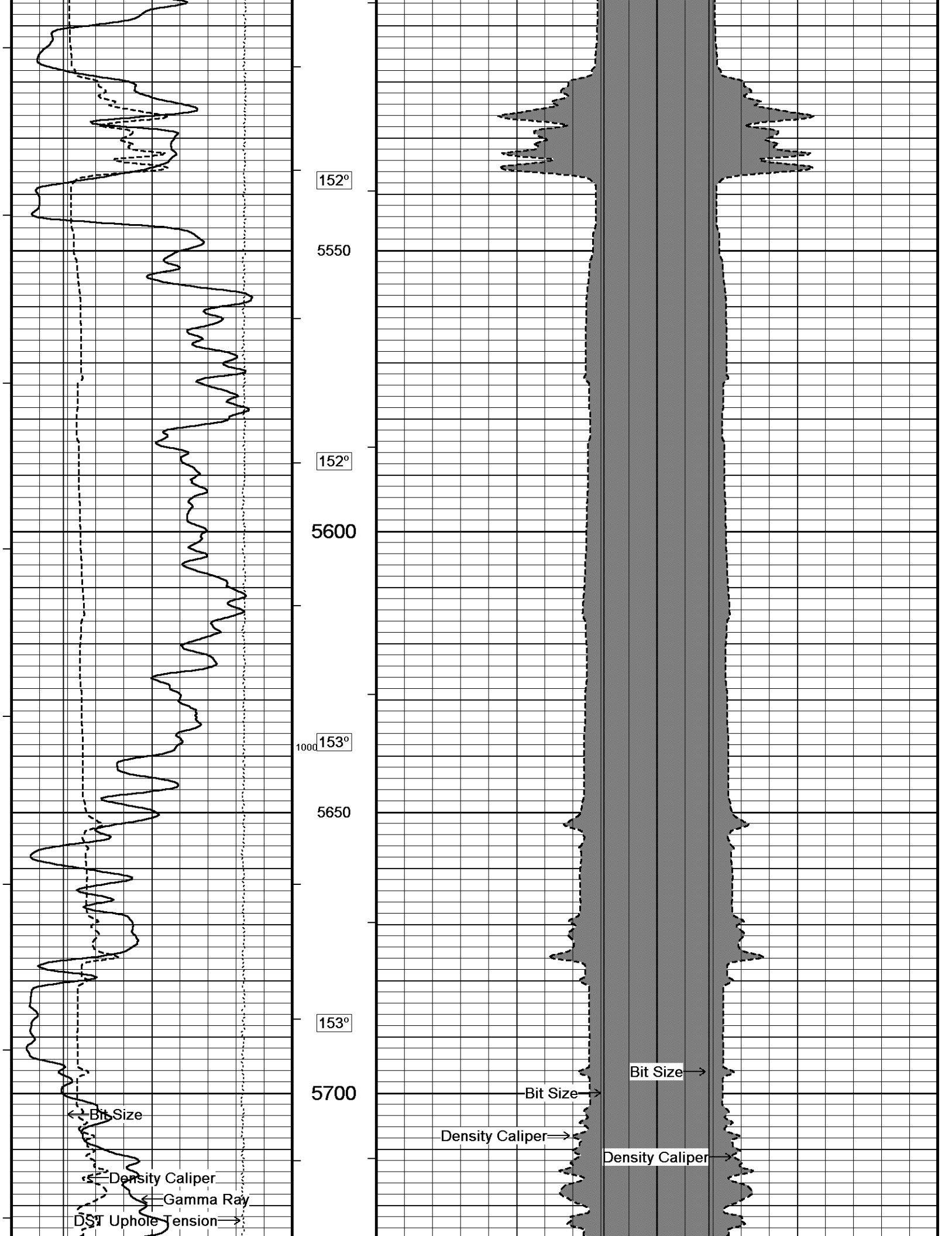


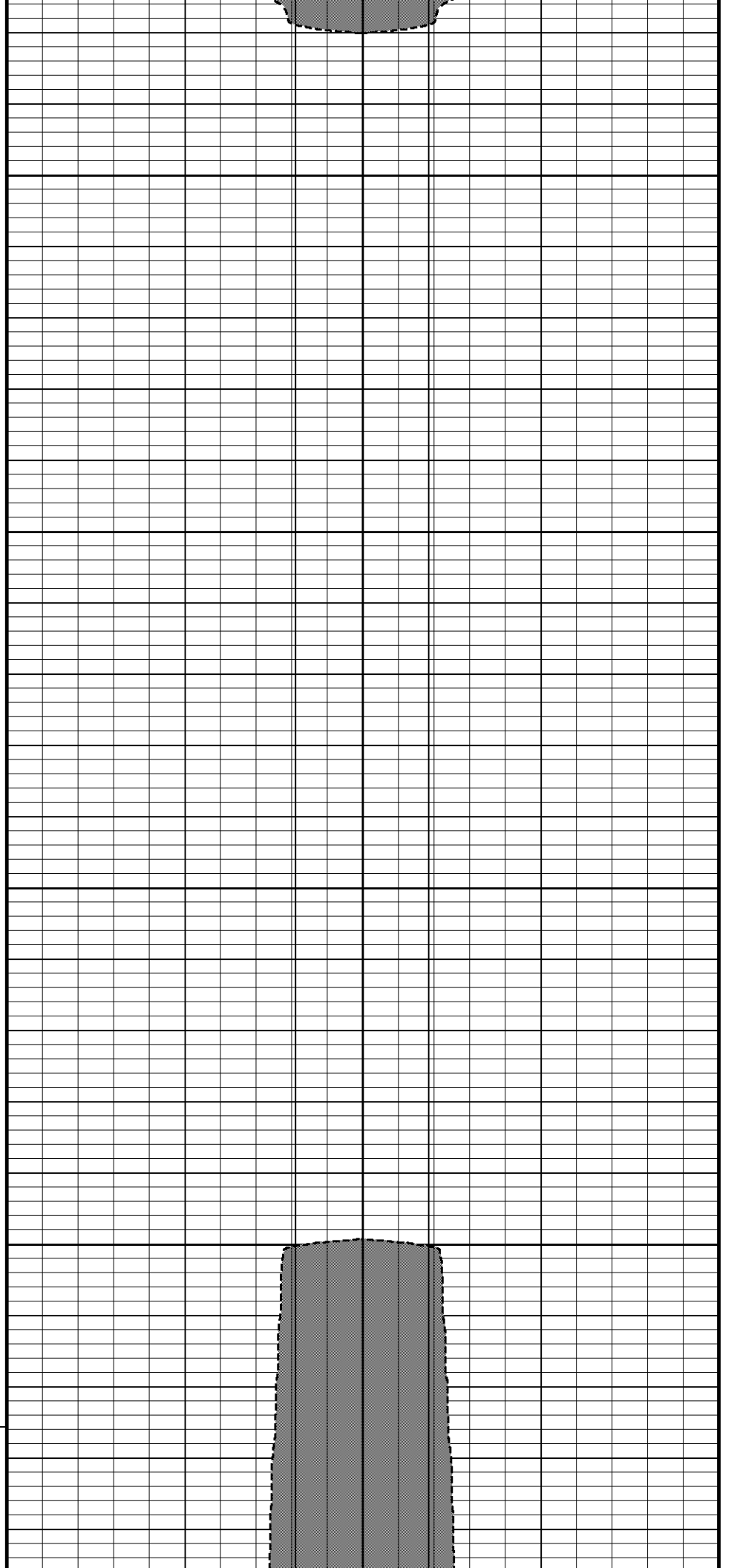
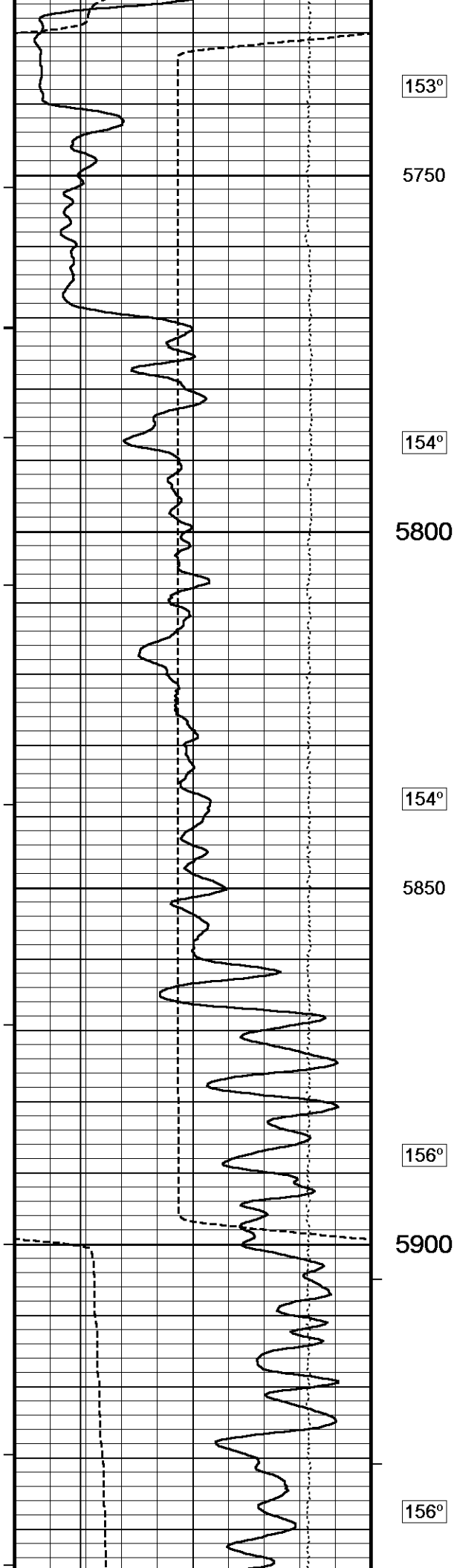
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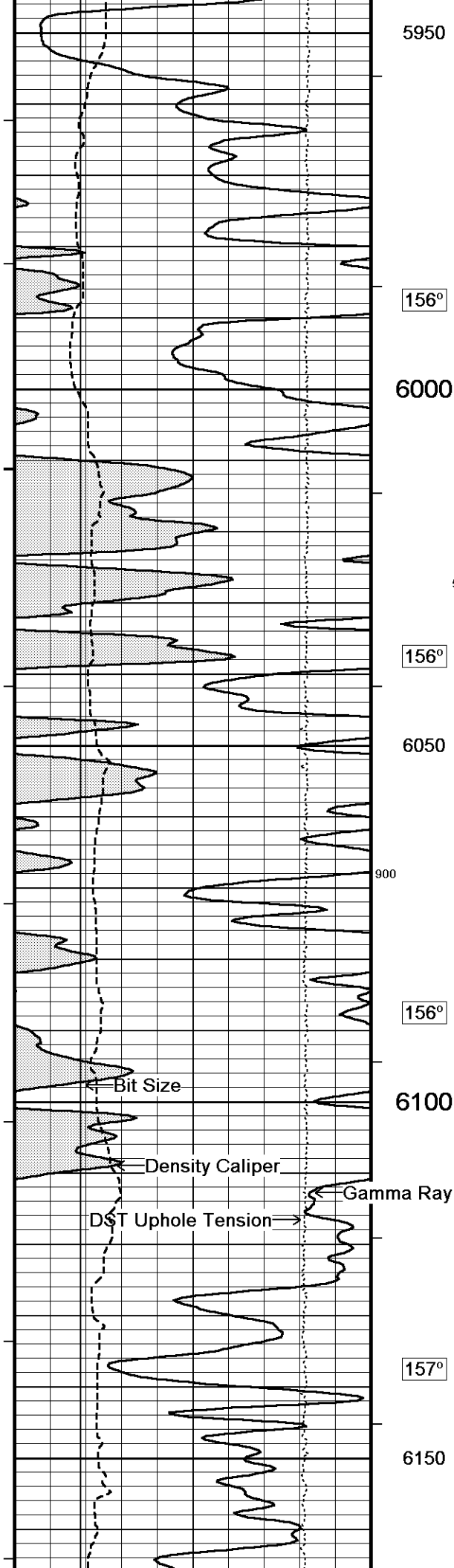
Bit Size

Density Caliper

Density Caliper







5950

156°

6000

500

156°

6050

900

156°

6100

157°

6150

Bit Size

Bit Size

Density Caliper

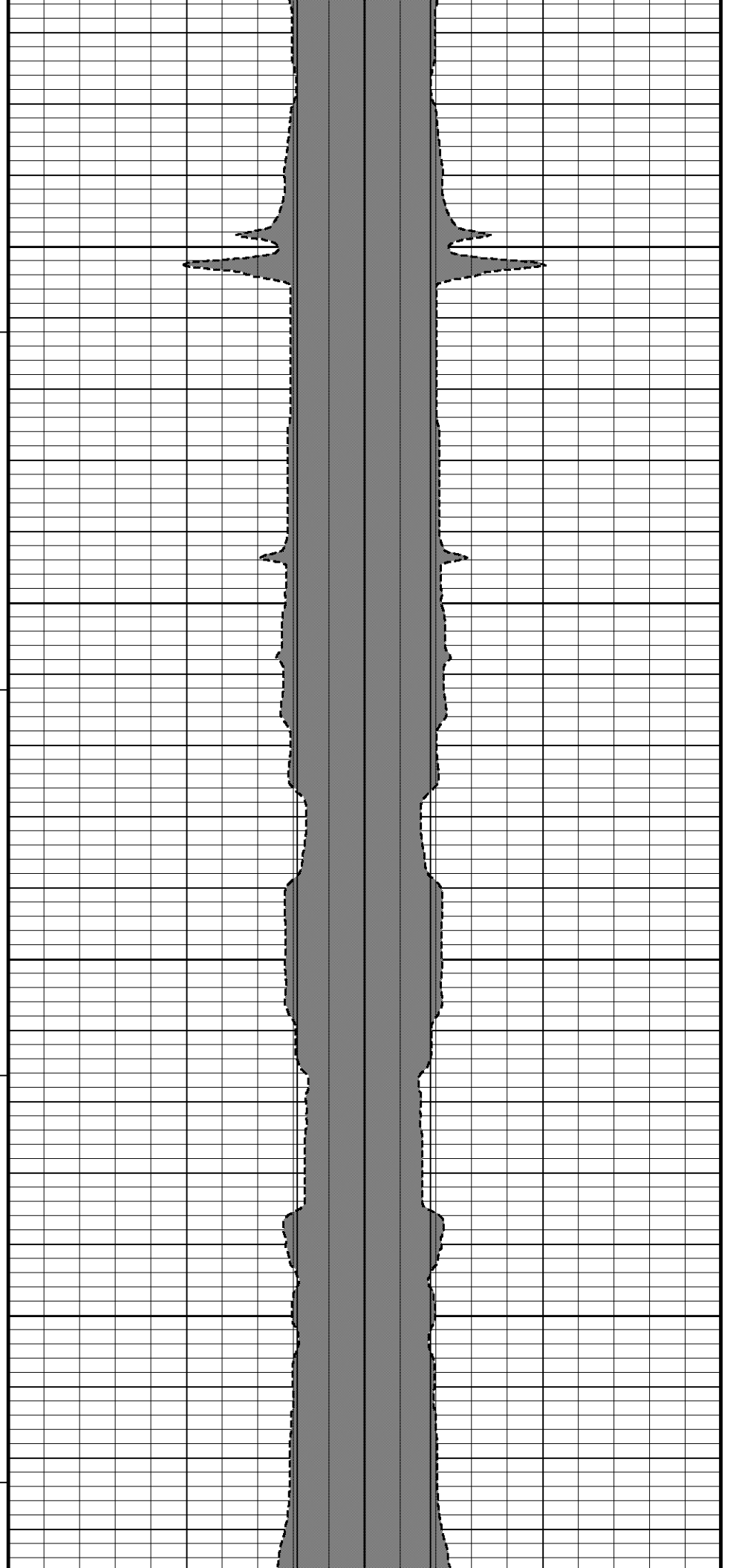
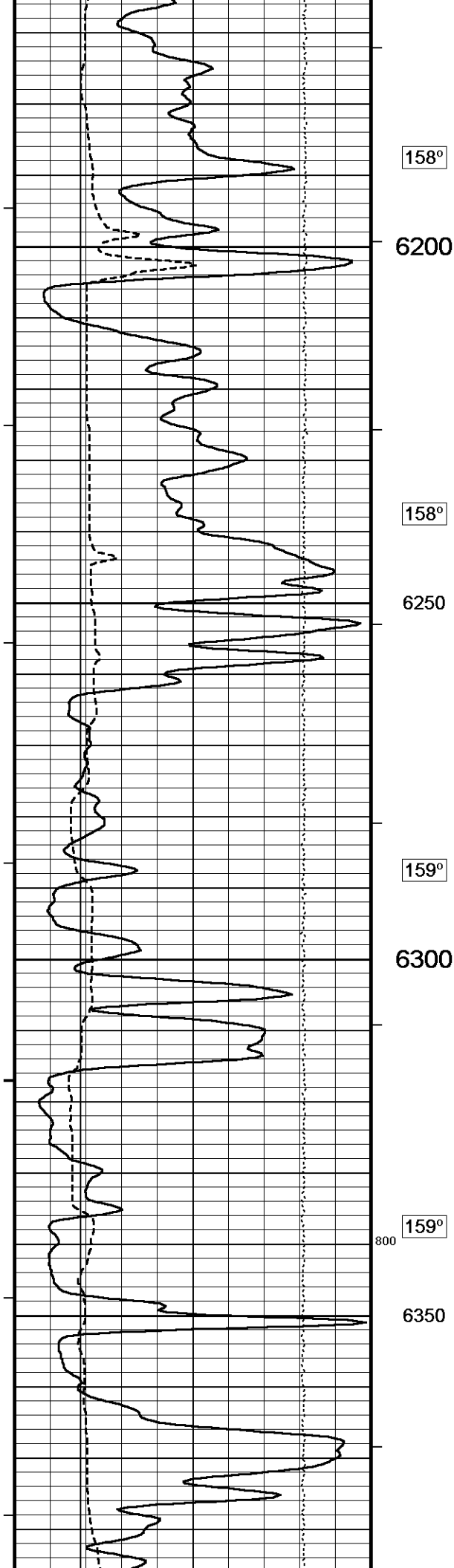
Density Caliper

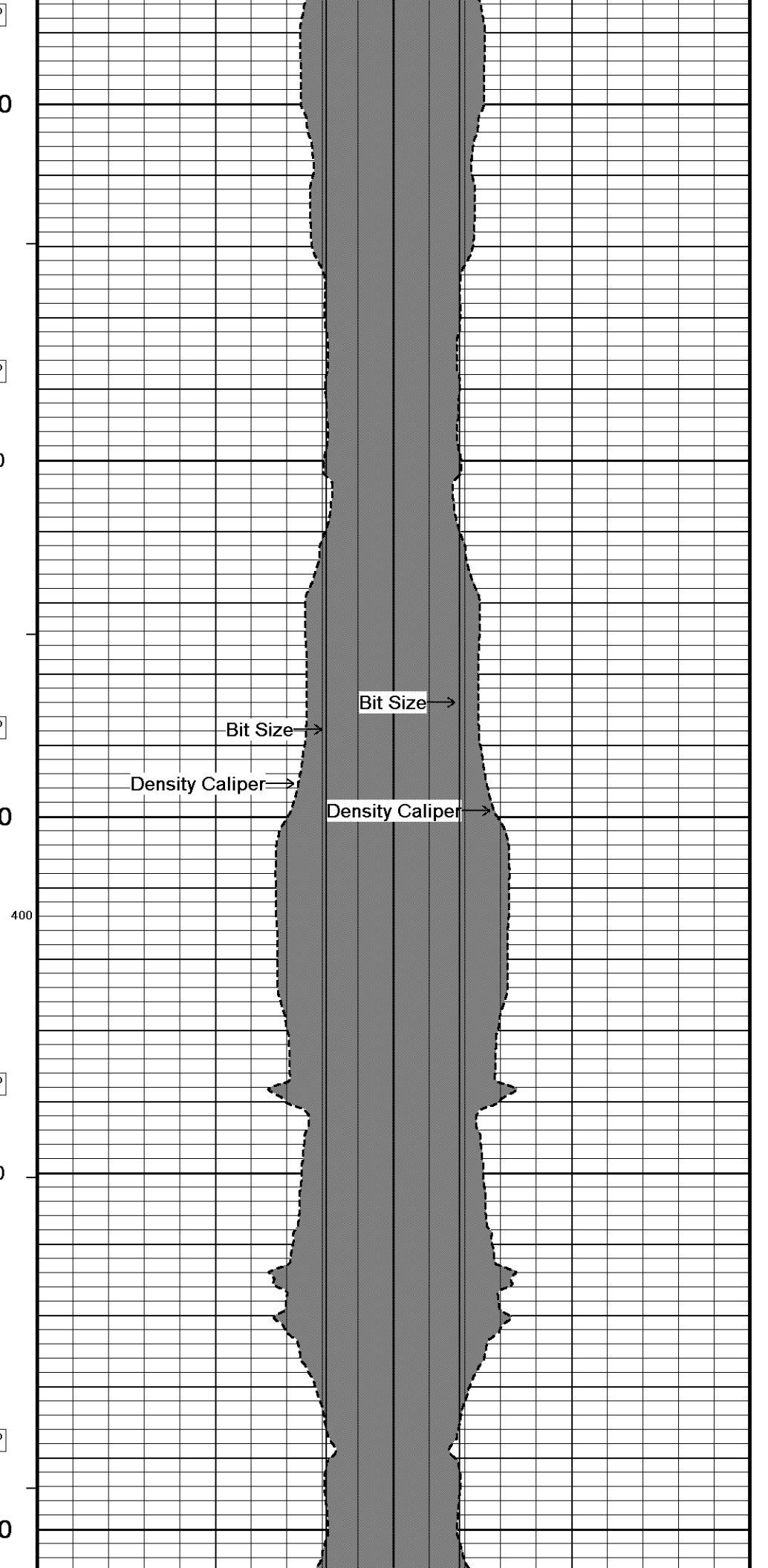
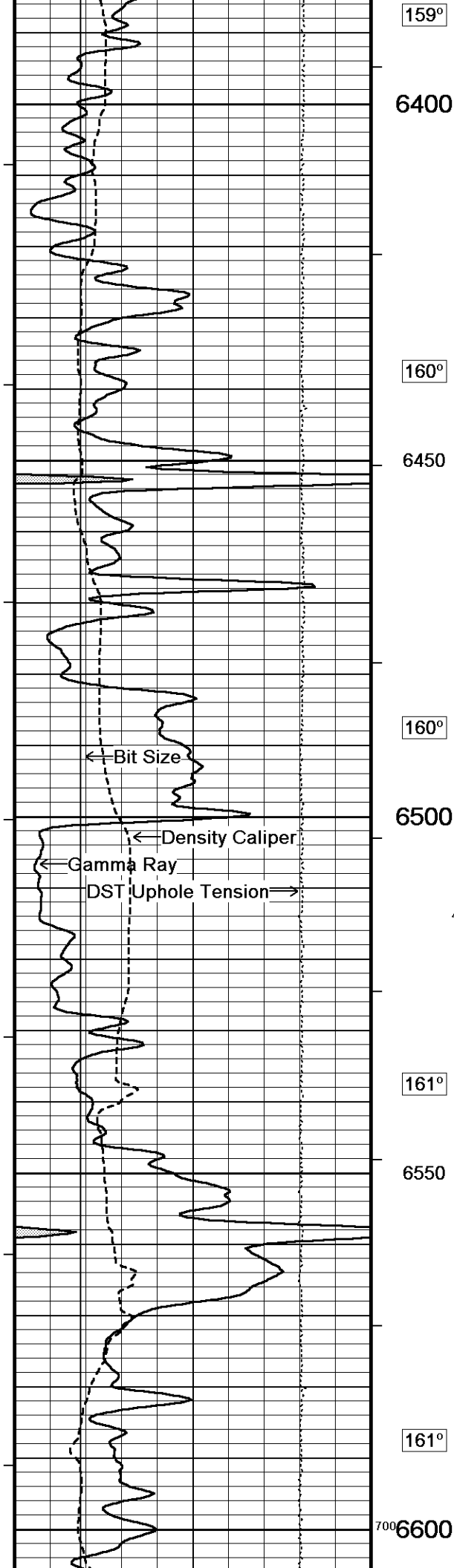
Bit Size

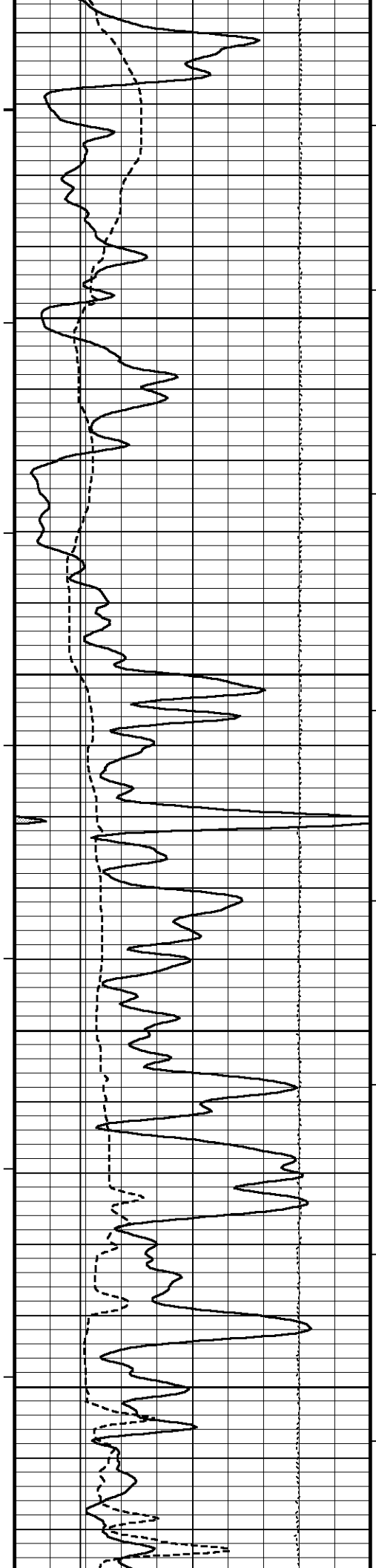
Density Caliper

DST Uphole Tension

Gamma Ray







161°

6650

162°

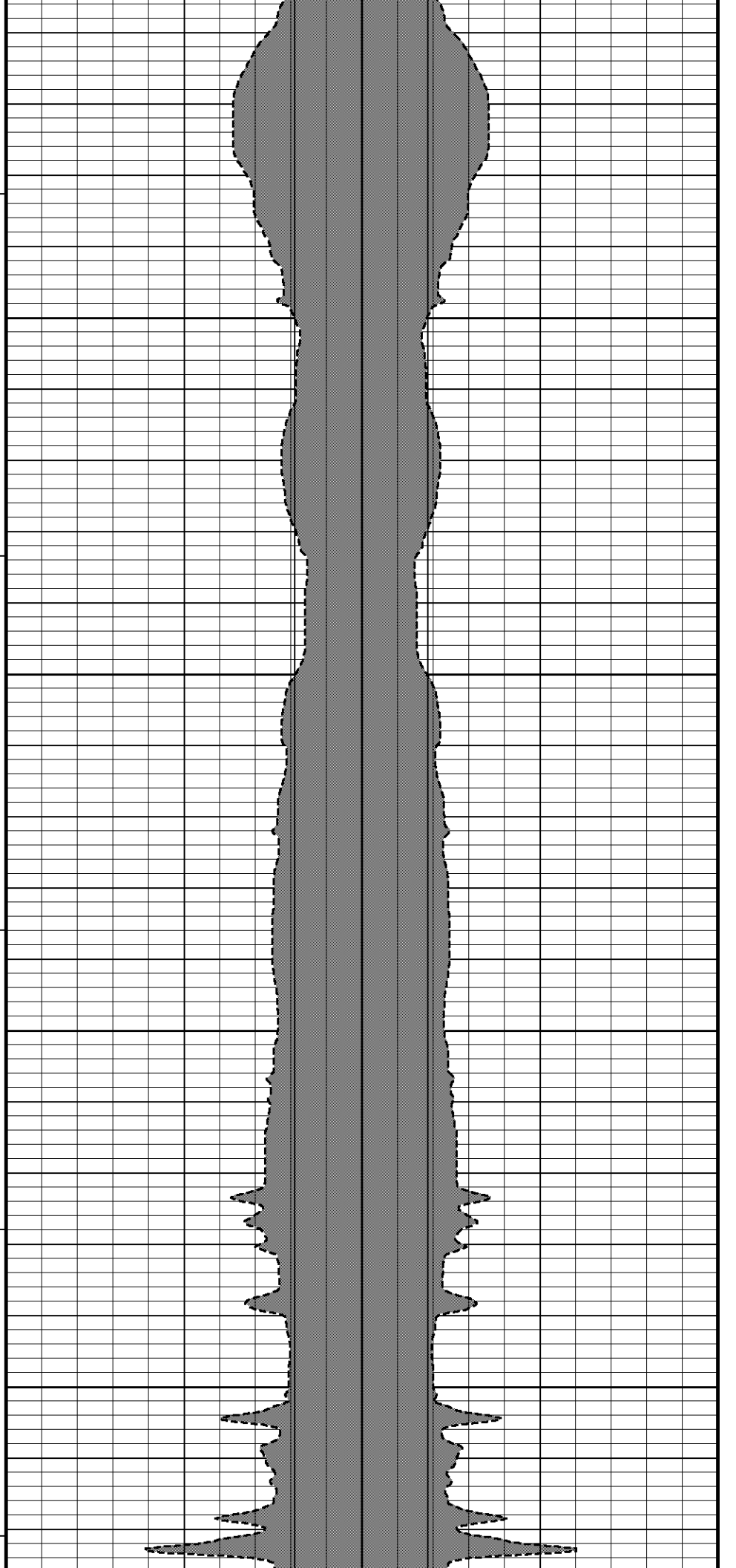
6700

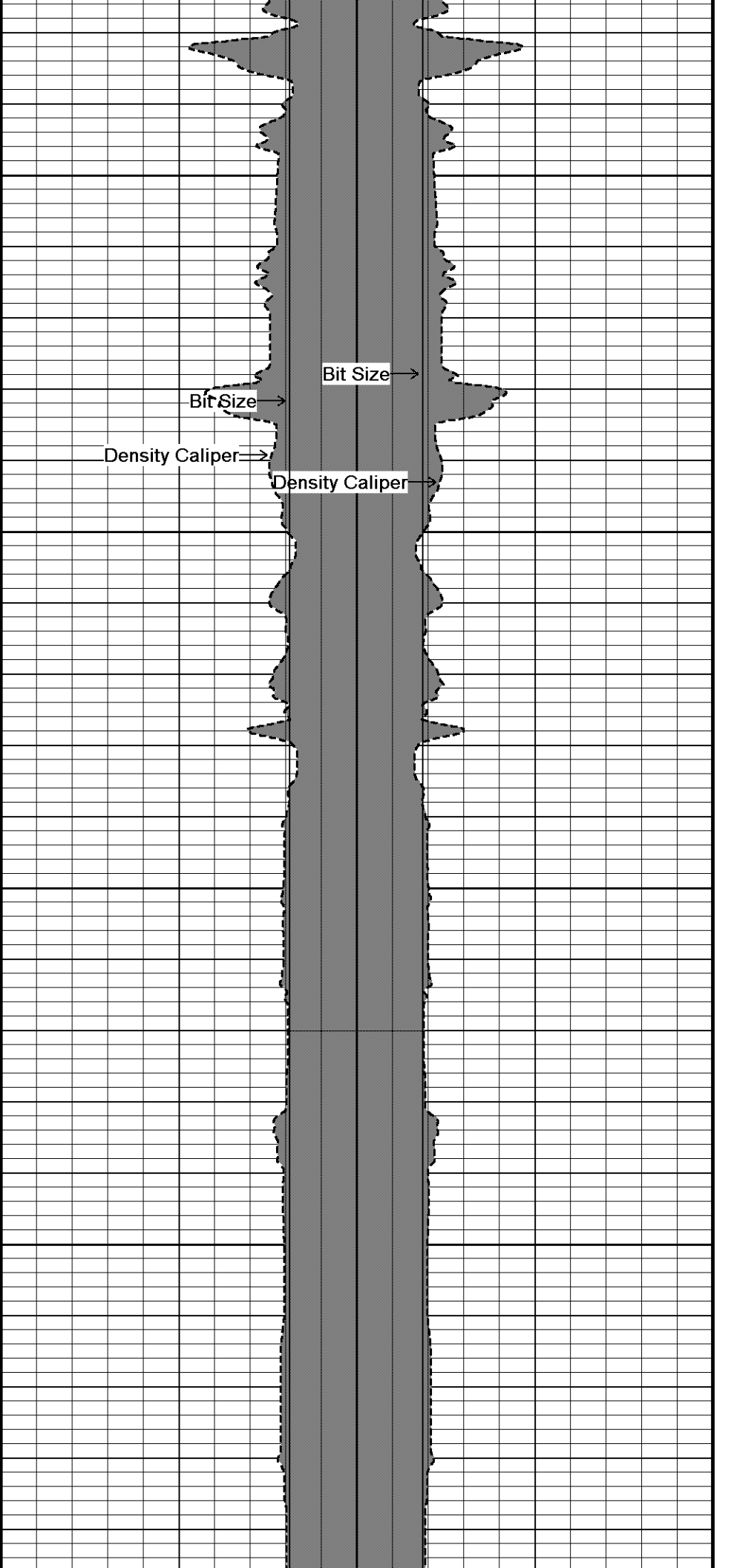
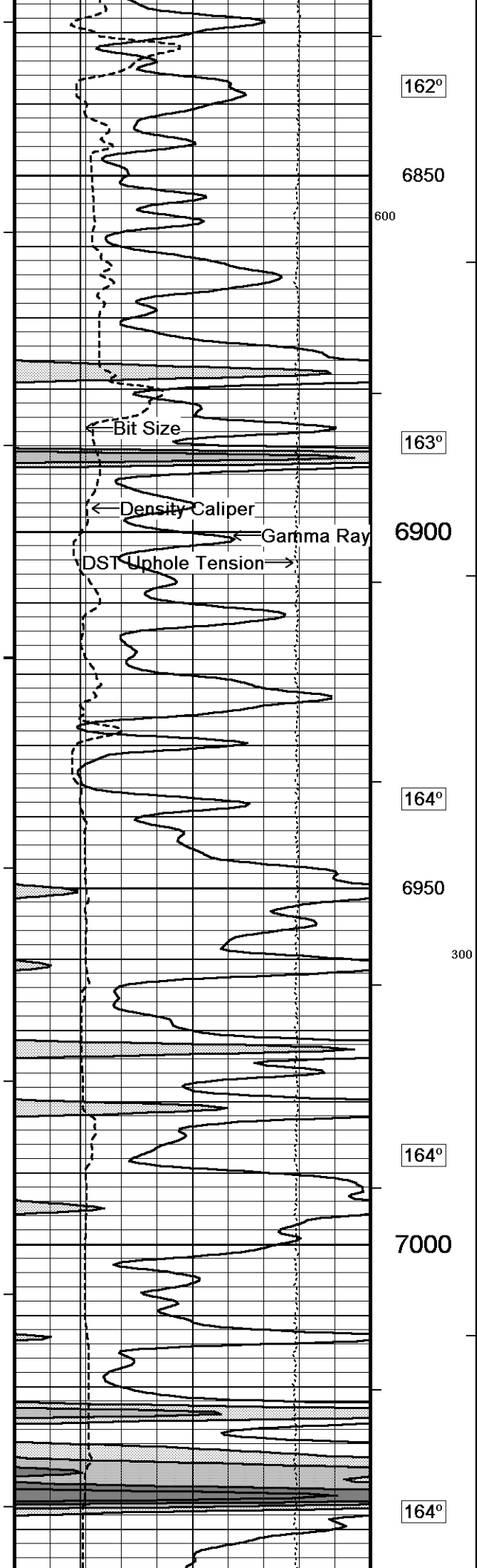
162°

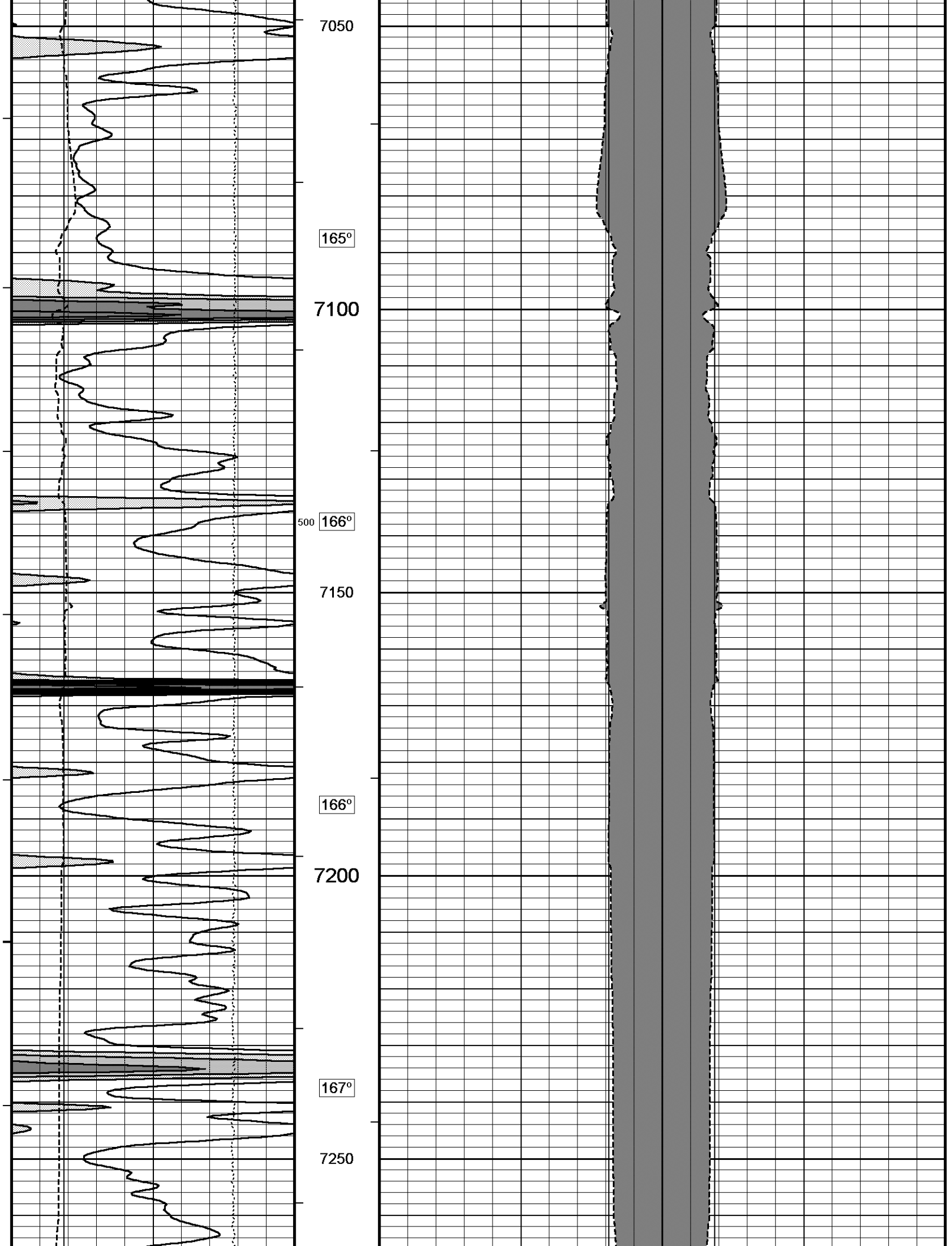
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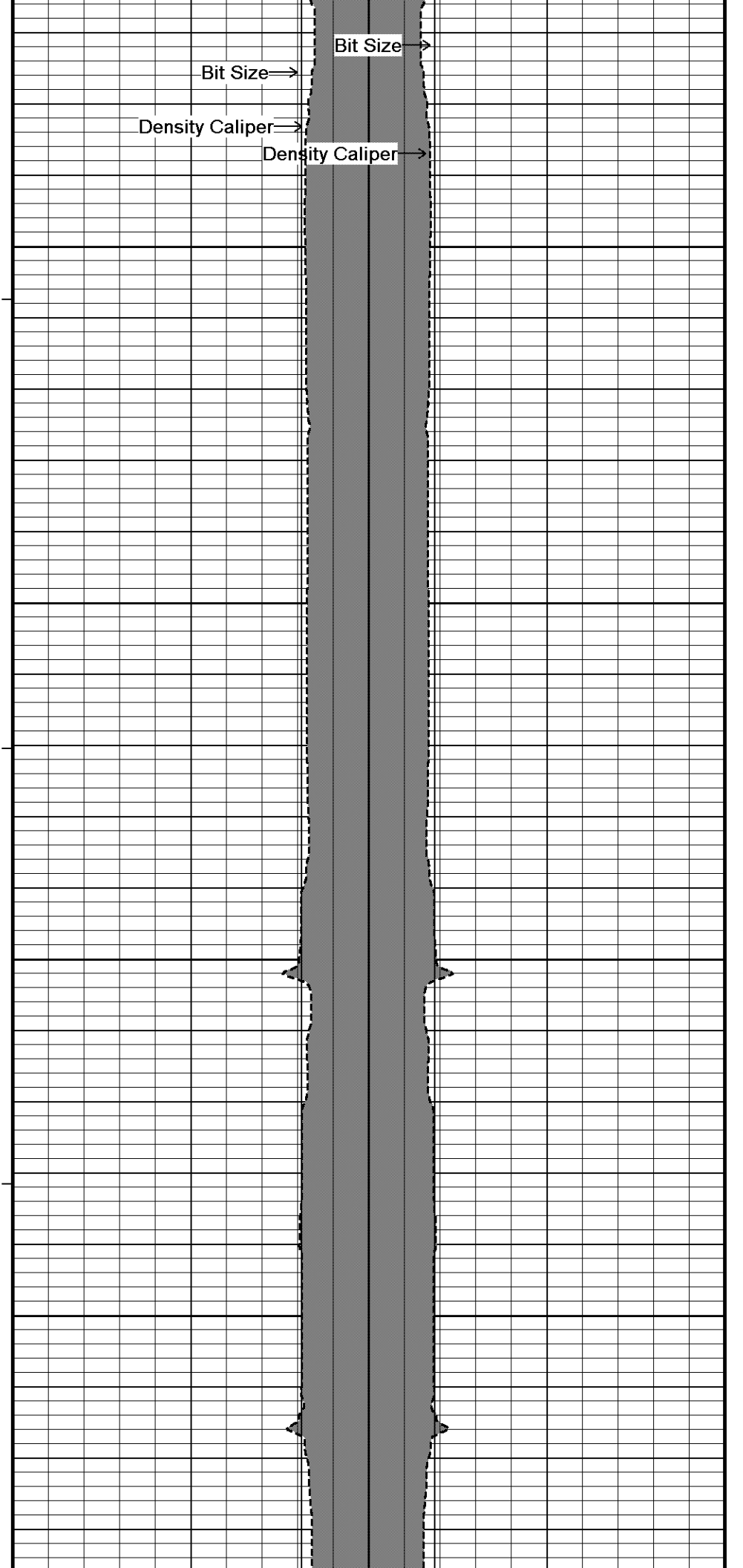
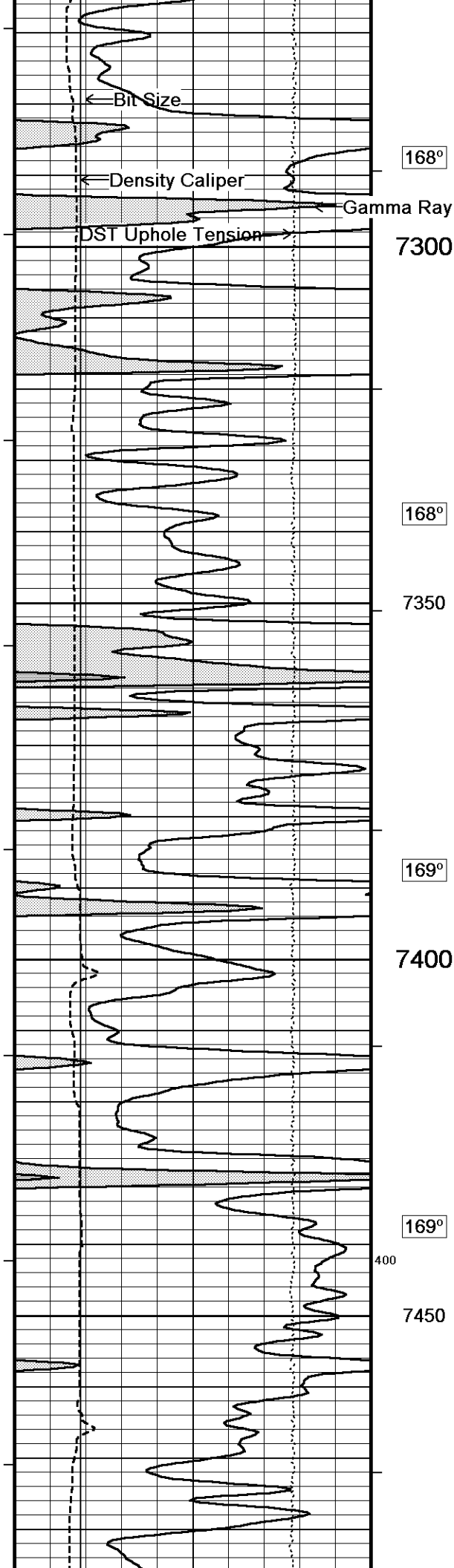
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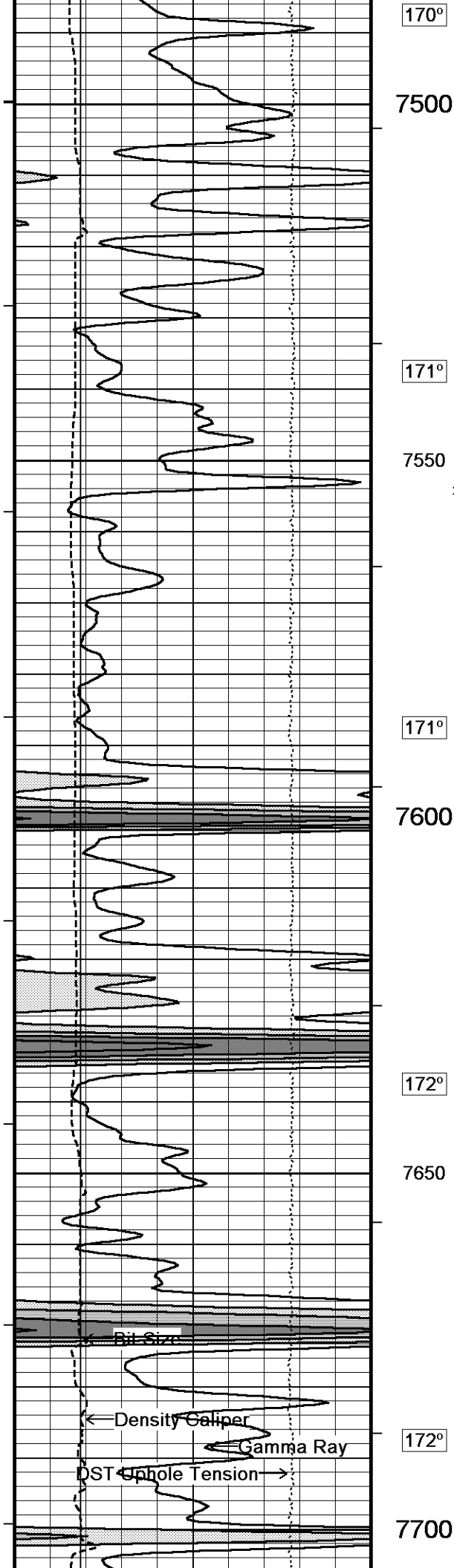
6800











170°

7500

171°

7550

171°

7600

172°

7650

172°

7700

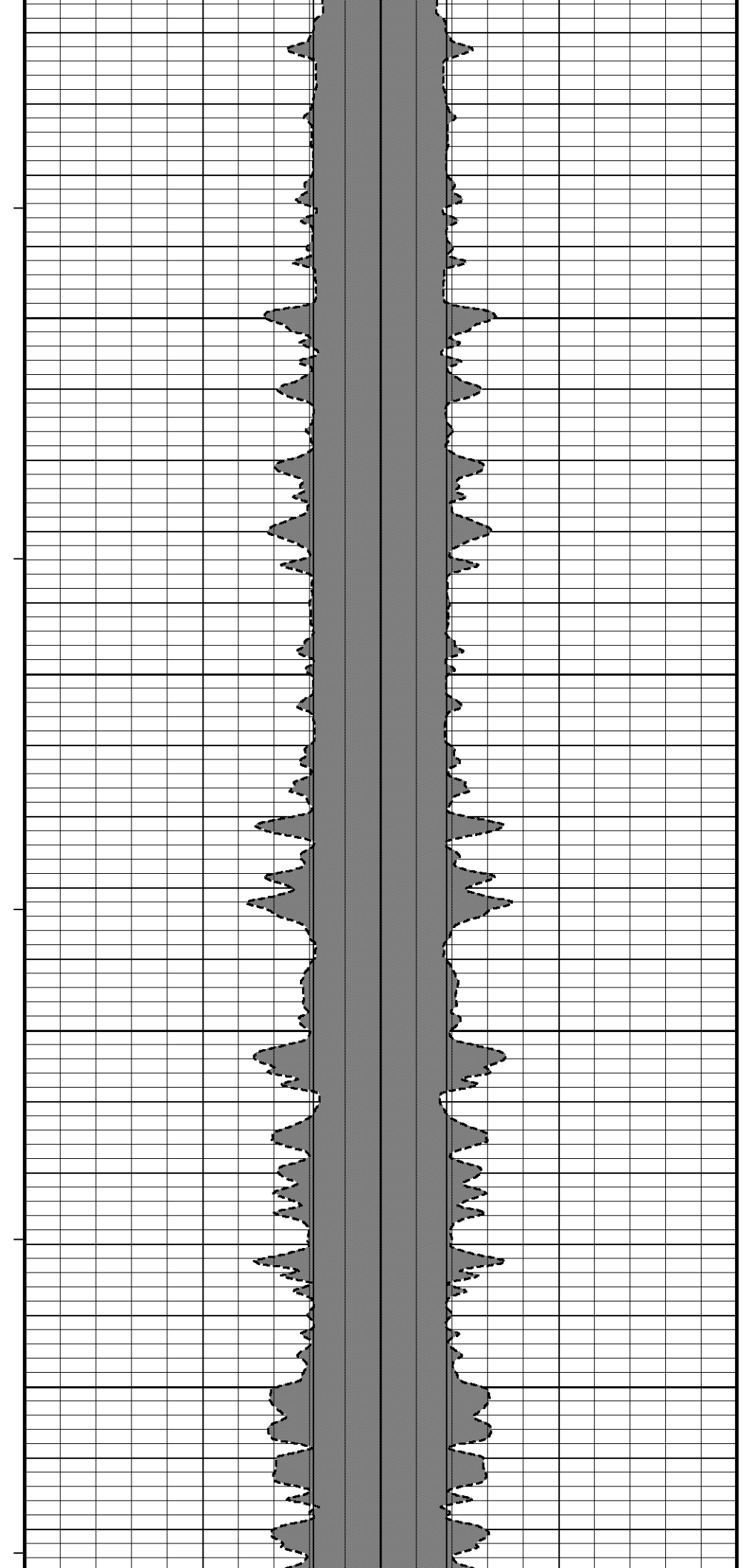
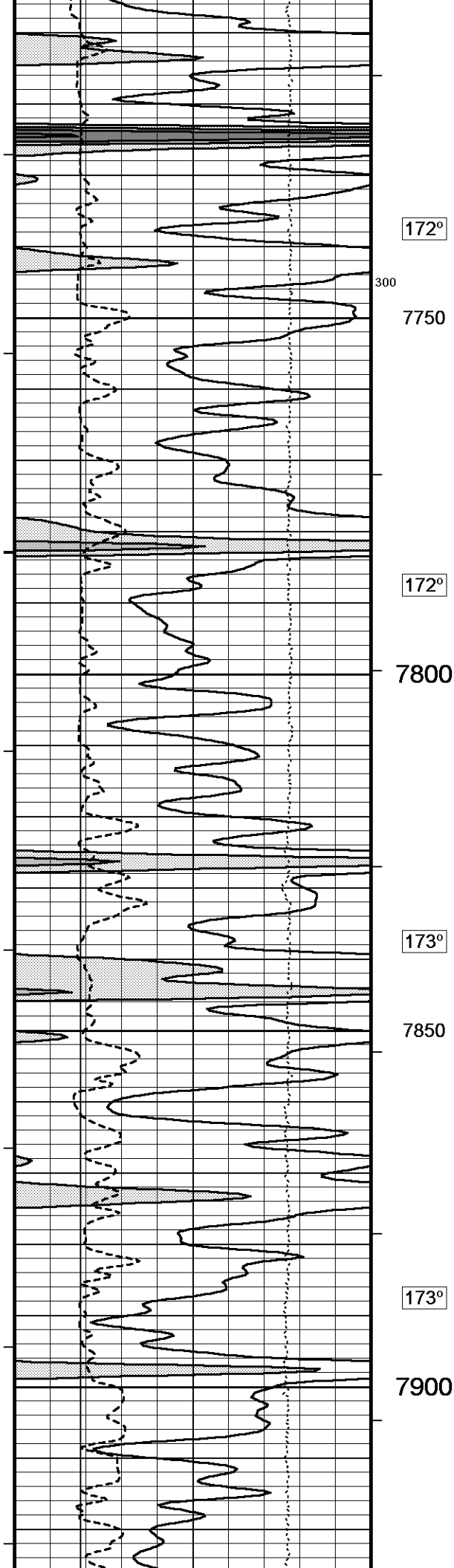
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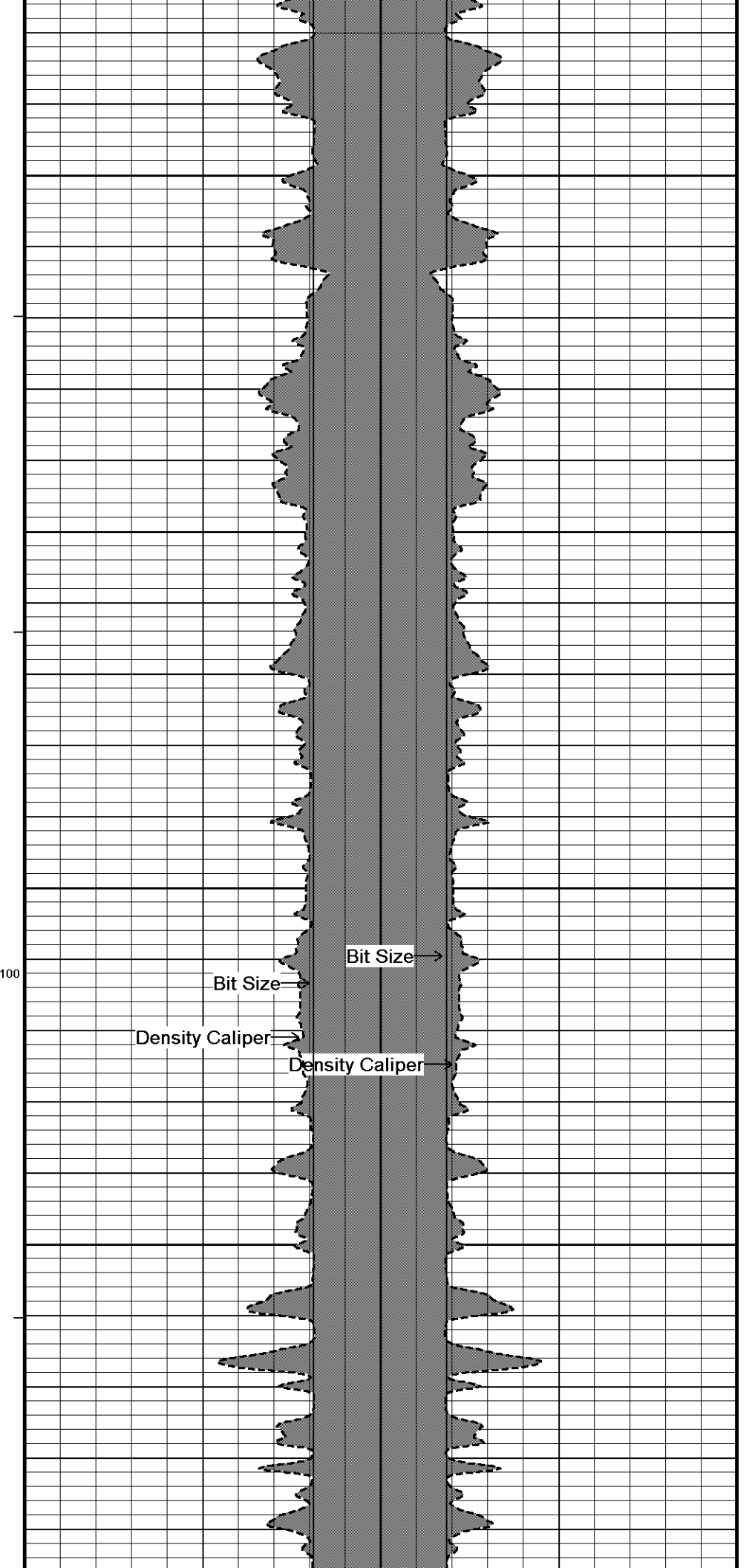
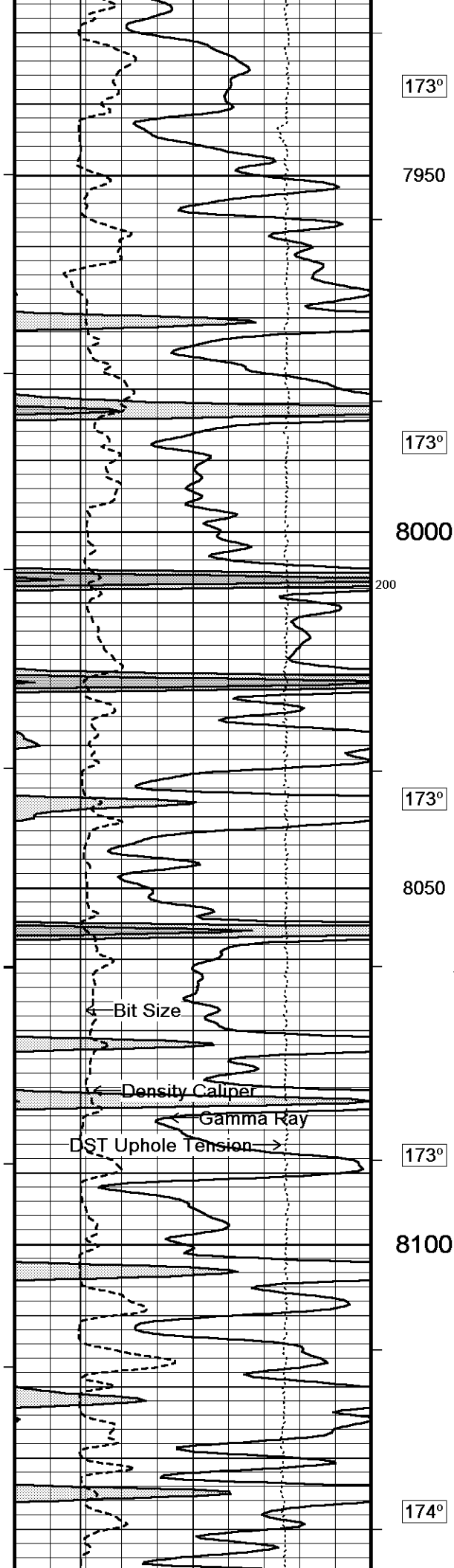
Bit Size

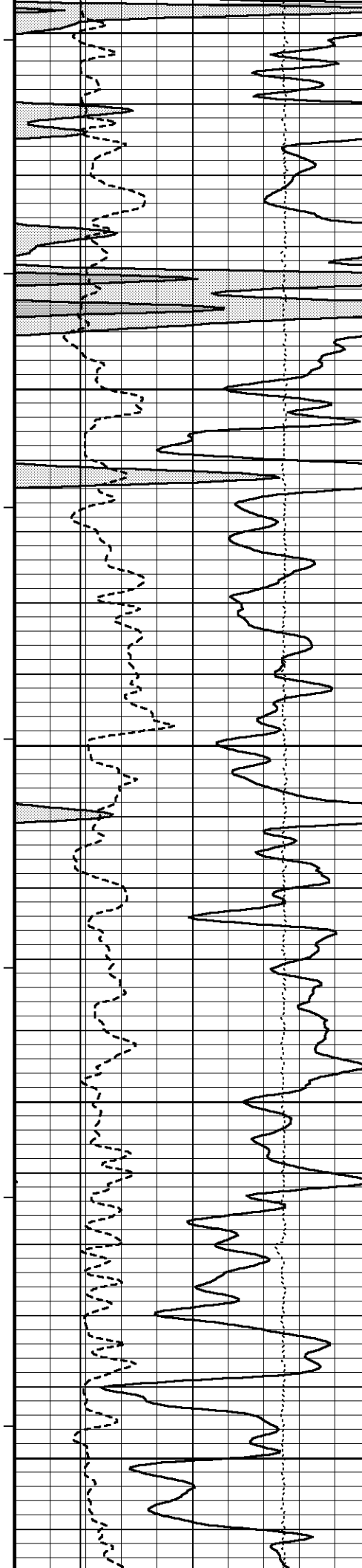
Density Caliper

Bit Size

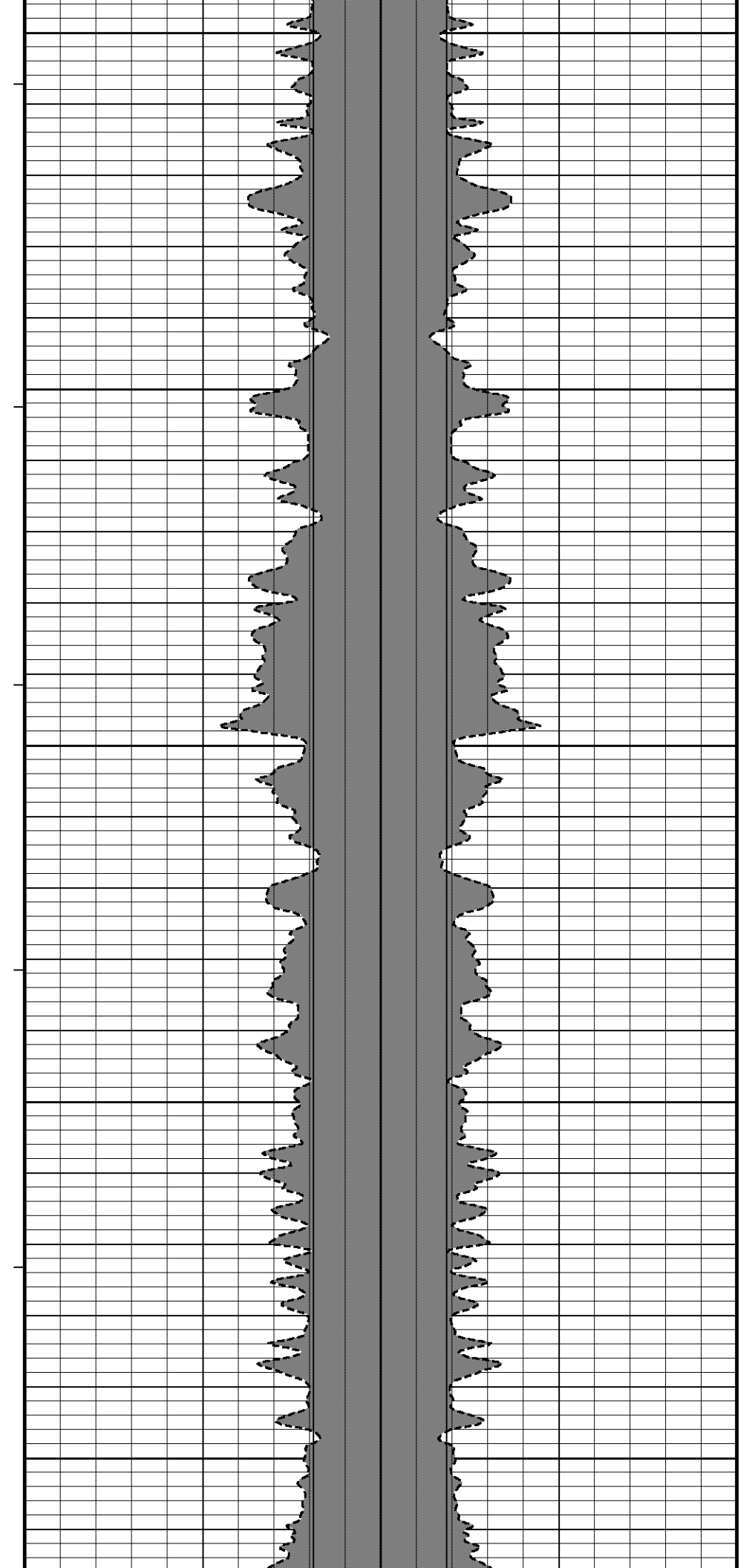
Density Caliper

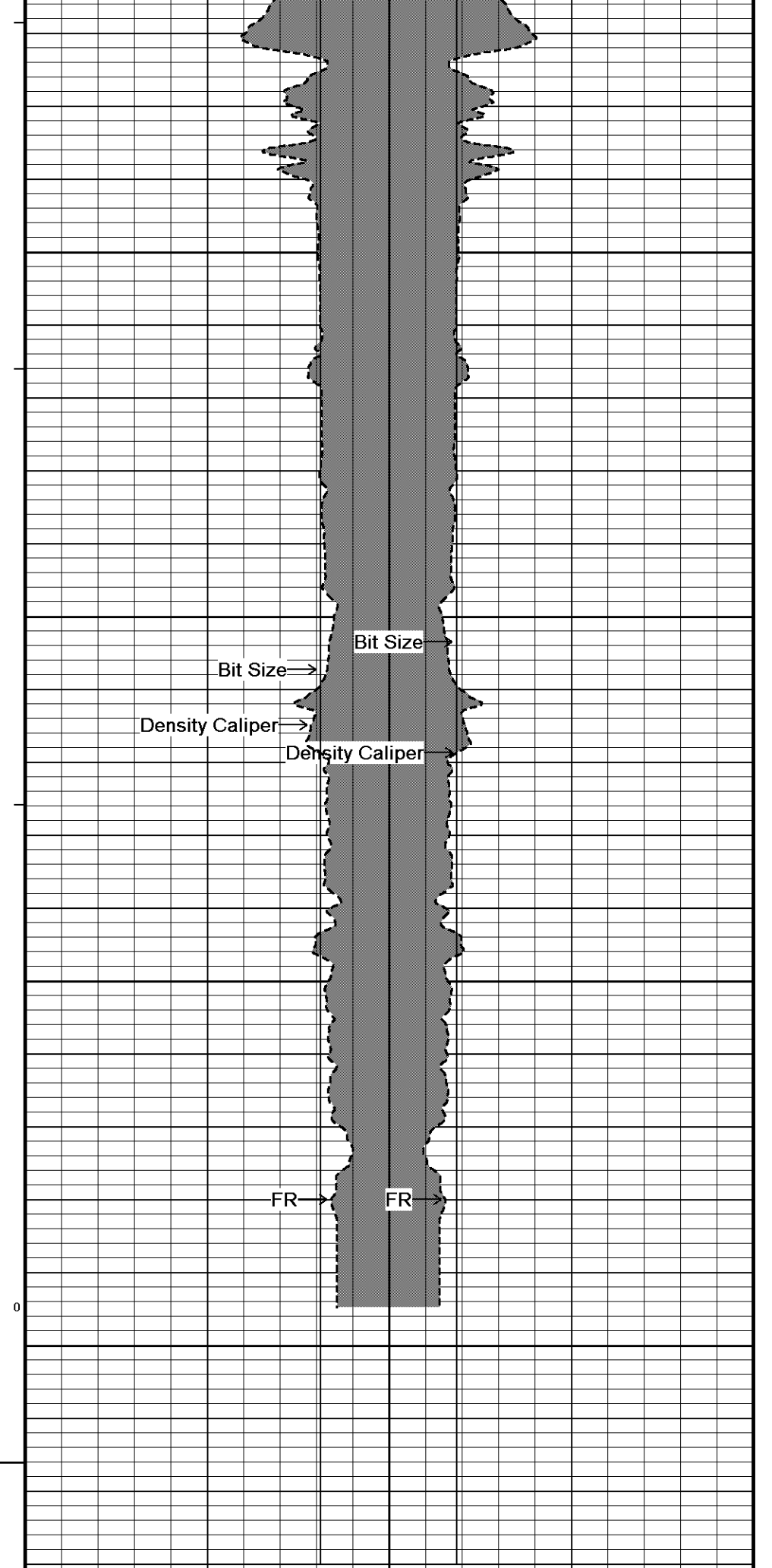
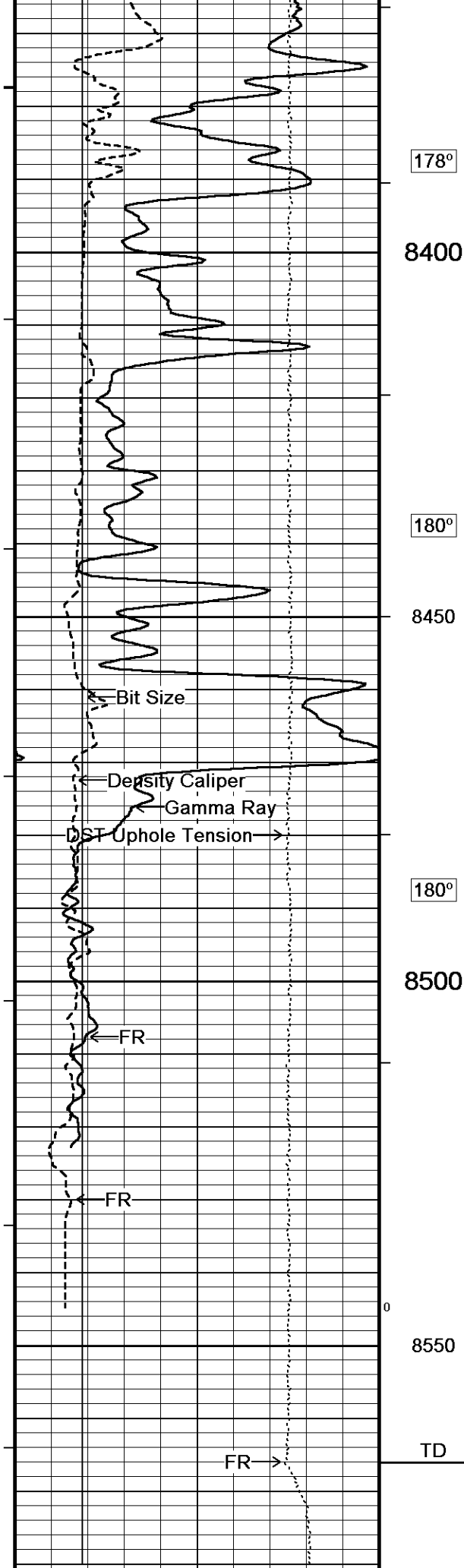


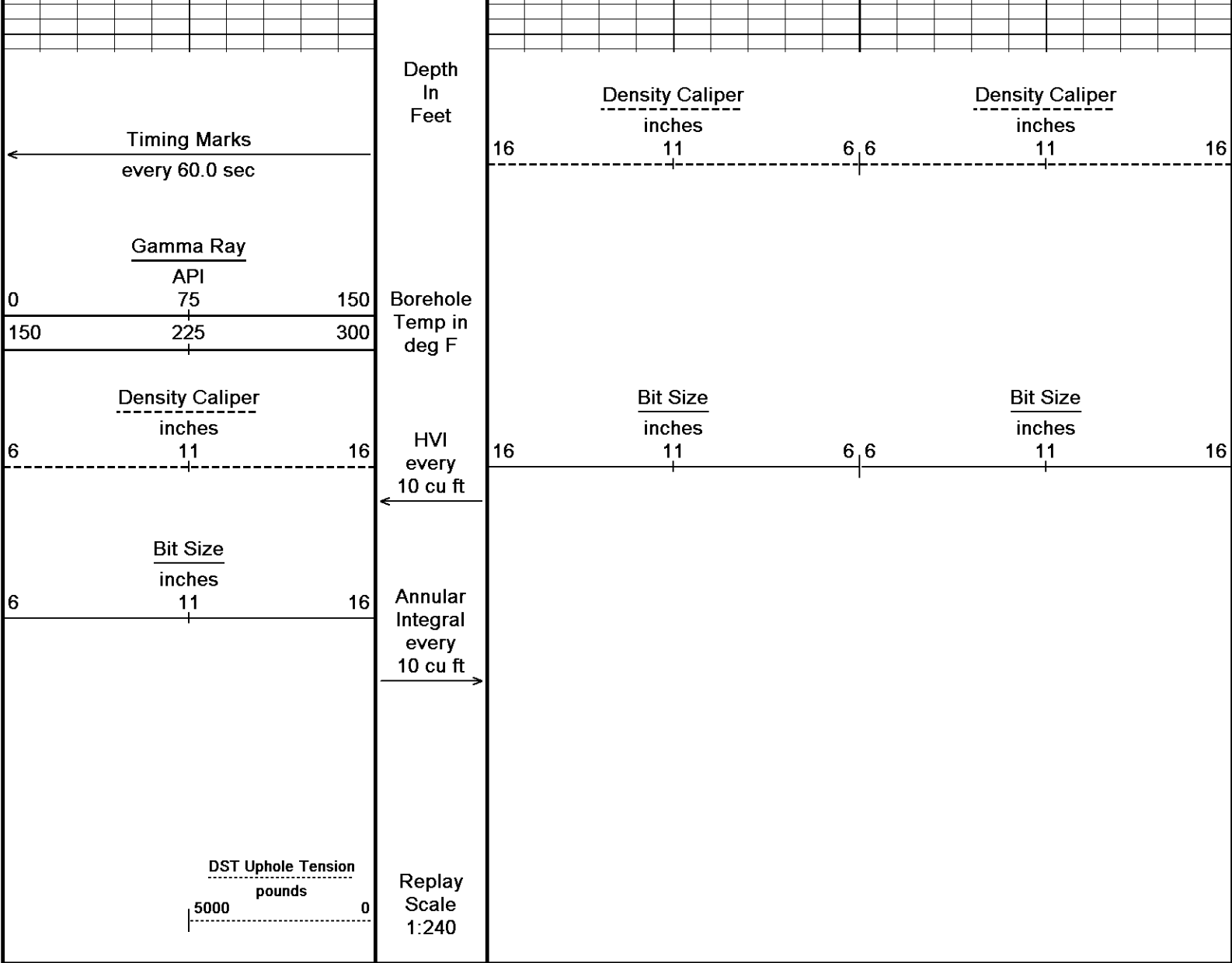




8150
174°
8200
175°
8250
100
176°
8300
177°
8350







Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\Minimus 18.03.9344\Data\Murfin Columbine #8-24\Murfin Columbine #8-24 Splice.dta
System Versions: Processed with 18.03.9344 Plotted with 18.03.9344

Plotted on 16-NOV-2018 06:02
Recorded on 16-NOV-2018 00:31

BEFORE SURVEY CALIBRATION		
C:\Minimus 18.03.9344\Data\Murfin Columbine #8-24\Murfin Columbine #8-24_002.dta		
General Constants All 000		Last Edited on 15-NOV-2018,23:03
General Parameters		
Mud Resistivity	0.850	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 A	0.025
RWA Constant M	2.150
SW/APOR Tool Source	0.000

Down-hole Tension Calibration SMS 0			Field Calibration on 15-NOV-2018 22:34
Reading No	Measured	Calibrated (lbs)	
1	15808.85	0.00	
2	17295.28	527.00	

SP Calibration MCG-D.K 443			Field Calibration on 12-OCT-2018,05:20
	Measured	Calibrated (mV)	
Reference 1	103.5	100.0	
Reference 2	-96.9	-100.1	

High Resolution Temperature Calibration MCG-D.K 443			Field Calibration on 12-OCT-2018,05:20
	Measured	Calibrated(Deg F)	
Lower	50.00	50.00	
Upper	212.00	212.00	

High Resolution Temperature Constants MCG-D.K 443			Last Edited on 12-OCT-2018,05:20
Pre-filter Length	11		

Gamma Calibration MCG-D.K 443			Field Calibration on 14-NOV-2018 17:02
	Measured	Calibrated (API)	
Background	73	51	
Calibrator (Gross)	728	507	
Calibrator (Net)	655	456	

Gamma Calibration Tolerances MCG-D.K 443			
Ratio	1.436	<div> <div>1.40</div> <div>1.475</div> <div>1.55</div> </div>	Counts/API

Gamma Constants MCG-D.K 443			Last Edited on 15-NOV-2018,20:40
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	%	

Micro Normal and Micro Inverse Calibration MMR-B.A 91			Base Calibration on 14-NOV-2018 16:15
	Resistor 1 (ohm)	Resistor 2 (ohm)	Field Check on 14-NOV-2018 16:19
	10.0	50.0	
Base Calibration			
	Measured	Calibrated (ohm-m)	
Micro Normal	10.3 49.8	5.1 25.6	
Micro Inverse	9.9 49.4	3.4 16.9	
Channel			
	Base Check (ohm-m)	Field Check (ohm-m)	
Micro Normal	93.9	93.9	
Micro Inverse	62.3	62.3	

Micro Normal & Micro Inverse Calibration Tolerance MMR-B.A 91			
Micro Normal Res. 1	10.3	<div> <div>-5%</div> <div>10.0</div> <div>+5%</div> </div>	ohm
Micro Inverse Res. 1	9.9	<div> <div>-5%</div> <div>10.0</div> <div>+5%</div> </div>	ohm
Micro Normal Res. 2	49.8	<div> <div>-5%</div> <div>50.0</div> <div>+5%</div> </div>	ohm
Micro Inverse Res. 2	49.4	<div> <div>-5%</div> <div>50.0</div> <div>+5%</div> </div>	ohm
Micro Normal Base Check	93.9	<div> <div>-2%</div> <div>93.28</div> <div>+2%</div> </div>	ohm-m
Micro Inverse Base Check	62.3	<div> <div>-2%</div> <div>62.25</div> <div>+2%</div> </div>	ohm-m
Micro Normal Field Check	93.9	<div> <div>-2%</div> <div>93.9</div> <div>+2%</div> </div>	ohm-m
Micro Inverse Field Check	62.3	<div> <div>-2%</div> <div>62.3</div> <div>+2%</div> </div>	ohm-m

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	

Caliper Calibration MMR-B.A 91

Base Calibration on 14-NOV-2018 16:08

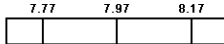
Field Calibration on 14-NOV-2018 16:09

Base Calibration	Reading No	Measured	Calibrator Size (in)
	1	14000	5.98
	2	17358	7.97
	3	20707	9.86
	4	24750	11.92
	5	0	0.00
	6	N/A	N/A

Field Calibration

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

Caliper Calibration Tolerances MMR-B.A 91

Short Arm Field Cal. 7.97  in

Micro-Resistivity Caliper Constants MMR-B.A 91

Sonde Configuration	Resistivity Mode
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Micro Laterolog Calibration MMR-B.A 91

Base Calibration on 31-DEC-1999 00:00

Field Check on 31-DEC-1999 00:00

Base Calibration	Resistor 1 (ohm)	Resistor 2 (ohm)
	0.0	0.0
	Measured	Calibrated (ohm-m)
	Ref 1	Ref 2
	0.0	0.0
	Base Check (ohm-m)	Field Check (ohm-m)
	0.0	0.0

Micro Laterolog Constants MMR-B.A 91

Pad Type	6 in Solid Nylon B23059		
Standoff Offset	0.0000	inches	
Micro Laterolog K Factor	0.0128		
Micro Laterolog Rm K Factor	N/A		
Mudcake Thickness Correction Constants			
Mud Cake Source	Constant Value		
Mud Cake Thickness	0.4000	inches	
Mud Cake Thickness Caliper			
Mud Cake Resistivity	0.1500	ohm-m	
Mud Cake Resistivity Temp.	20.00	Degrees C	
Mud Cake Resistivity Source	Constant Value		
Temp. for Rmc Corr.	MCG External Temperature		

Neutron Calibration MDN-B.A 292

Base Calibration on 25-OCT-2018,14:15

Field Check on 14-NOV-2018 17:08

Base Calibration	Measured	Calibrated (cps)
	Near	Far
	2910	91
Ratio	31.871	33.764
Field Calibrator at Base	Calibrated (cps)	
	2207	3209
Ratio	0.688	
Field Check	Calibrated (cps)	
	2170	3165
Ratio	0.686	

Neutron Calibration Tolerances MDN-B.A 292

Ratio	31.871	<div><div></div><div></div><div></div><div></div><div></div></div>
Base Check	0.688	<div><div></div><div></div><div></div><div></div><div></div></div>
Field Check	0.686	<div><div></div><div></div><div></div><div></div><div></div></div>

Neutron Constants MDN-B.A 292

Last Edited on 15-NOV-2018,20:40

Neutron Source Id	P0204NN	
Neutron Jig Number	NJ5736	
Air Hole Processing	Legacy	
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-B.J 352

Base Calibration on 25-OCT-2018 13:00
Field Check on 14-NOV-2018 16:37

	Resistor 1 (ohm)	Resistor 2 (ohm)
	0.0	1000.0
Base Calibration		
	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	963.2	126.8
Base Check		281.4
Field Check		281.4

FE Calibration Tolerances MFE-B.J 352

Reference 2	963.2	<div><div></div><div></div><div></div><div></div><div></div></div>	ohm
Base Check	281.4	<div><div></div><div></div><div></div><div></div><div></div></div>	ohm-m
Field Check	281.4	<div><div></div><div></div><div></div><div></div><div></div></div>	ohm-m

FE Constants MFE-B.J 352

Last Edited on 15-NOV-2018,20:39

Running Mode	No Sleeve	
MFE K Factor	0.1268	
Borehole Correction Constants		
Sonde Position	0.5	inches
Hole Size Source	Density Caliper	
Hole Size Constant Value	N/A	inches
Rm Source	Global Value: Temperature Corrected	
Temp. for Rm Corr.	MCG External Temperature	

Sonic Constants MSS-C.K 319

Last Edited on 08-JUL-2018,09:57

Maximum Boundary Contrast	70.00	micro-sec/ft
Fluid Transit Time	189.00	micro-sec/ft
Limestone Transit Time	47.50	micro-sec/ft
Sandstone Transit Time	55.50	micro-sec/ft
Dolomite Transit Time	42.50	micro-sec/ft

Dolomite Transit Time	45.50	micro-sec/ft
Sonic used for Porosities	3-5' Compensated	
Correction for Sonde Skew	Applied	
Cycle Stretch Algorithm	Applied	
MN3FT	0.00	micro-sec
MX3FT	1500.00	micro-sec
Hunt-Raymer Constant	83.13	micro-sec/ft

Sonde Mode	Compensated
Hole Type	Open Hole

Sonde Parameters

	Measured	Calibrated
Offset		0.0000
Free Pipe	0.0000	

Peak Amplitude Source

Waveform	Start Time (micro-sec)	Width (micro-sec)	Pre Gain	Start Gain	Discriminator (mV)
3'	N/A	N/A	N/A	N/A	N/A
4'	N/A	N/A	N/A	N/A	N/A
5'	N/A	N/A	N/A	N/A	N/A
6'	N/A	N/A	N/A	N/A	N/A

Processed Fixed Gate Parameters

Waveform Used For Processing	N/A			
Start Time (micro-sec)	End Time (micro-sec)	Discriminator (mV)	Depth (ft)	
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	0.00	0.00	

Full Waveform Parameters

Use 3' Waveform to derive TR	No
Use 4' Waveform to derive TR	No
Use 5' Waveform to derive TR	No
Use 6' Waveform to derive TR	No
3' Waveform Discriminator Level	0.30 mV
4' Waveform Discriminator Level	0.30 mV
5' Waveform Discriminator Level	0.15 mV
6' Waveform Discriminator Level	0.15 mV

Waveform Discriminator Filter	Not Applied	
Semblance Window Width	150.00	micro-sec
Semblance Processing Enabled	Yes	
Tracking Boxes Enabled In Processing	Yes	

Induction Calibration MAI-B.J 390

Factory Loop Calibration 25-OCT-2018 13:24

Field Check on 14-NOV-2018 16:35

Factory Loop Calibration

High Conductivity Reference Resistor	3.3 ohm
Low Conductivity Reference Resistor	333.3 ohm

Array	Measured Signal (unitless)		Reference Conductivity (mmho/m)		Calibration	
	Low	High	Low	High	Gain	Offset
1 (near)	16.8	458.6	9.3	966.2	2.166	-27.2
2	6.3	377.7	7.6	821.4	2.191	-6.2
3	3.8	258.6	5.2	566.0	2.200	-3.0
4 (far)	1.9	132.3	2.6	279.2	2.121	-1.4
Array Temperature	77.9	Deg F				

Tool Checks

Array	Factory Reference (mmho/m)		Before Survey (mmho/m)	
	Low	High	Low	High
1 (near)	11.3	3958.7	10.4	3957.3
2	28.3	3562.5	27.6	3561.2
3	26.5	3060.2	25.8	3059.6
4 (far)	18.8	2087.1	18.3	2086.7

Array Temperature

61.2

65.5

Deg F

Induction Check Tolerances MAI-B.J 390

Low Array 1	10.4	<div><div>9.8</div><div>11.3</div><div>12.8</div></div>	mmho/m
Low Array 2	27.6	<div><div>26.8</div><div>28.3</div><div>29.8</div></div>	mmho/m
Low Array 3	25.8	<div><div>25.0</div><div>26.5</div><div>28.0</div></div>	mmho/m
Low Array 4	18.3	<div><div>17.3</div><div>18.8</div><div>20.3</div></div>	mmho/m

High Array 1	3957.3	<div><div>-0.5%</div><div>3958.7</div><div>+0.5%</div></div>	mmho/m
High Array 2	3561.2	<div><div>-0.5%</div><div>3562.5</div><div>+0.5%</div></div>	mmho/m
High Array 3	3059.6	<div><div>-0.5%</div><div>3060.2</div><div>+0.5%</div></div>	mmho/m
High Array 4	2086.7	<div><div>-0.5%</div><div>2087.1</div><div>+0.5%</div></div>	mmho/m

Induction Constants MAI-B.J 390

Last Edited on 15-NOV-2018,20:39

Induction Model RtAP-WBM

Borehole Correction Constants

Tool Centred	No	
Hole Size Source	Density Caliper	
Hole Size Constant Value	N/A	inches
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
Rm Source	Global Value: Constant Temperature	
Temp. for Rm Corr.	N/A	
Borehole Correction Method	Default	

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
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

Symmetrised Receiver Gains

Receiver 1	1.00
Receiver 2	1.00
Receiver 3	1.00
Receiver 4	1.00

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-B.J 390

Field Calibration on 15-MAY-2018,12:48

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

High Resolution Temperature Constants MAI-B.J 390

Last Edited on 06-MAR-2018,13:01

Pre-filter Length	11
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Caliper Calibration MPD-C.A 216

Base Calibration on 25-OCT-2018 13:33

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	15197	3.99
2	23984	5.98
3	32561	7.97
4	40928	9.86
5	50160	11.92
6	N/A	N/A

Field Calibration

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

Caliper Calibration Tolerances MPD-C.A 216

Long Arm Field Cal.	7.97	<div><div></div><div></div><div></div><div></div></div>	in
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Photo Density Calibration MPD-C.A 216

Base Calibration on 25-OCT-2018 13:50
Field Check on 14-NOV-2018 16:47

Density Calibration

Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Background	1004	1211		
Reference 1	49178	24022	59556	30836
Reference 2	19804	2279	24941	2541

Field Check at Base

1003.7 1210.8

Field Check

995.0 1181.9

PE Calibration

Base Calibration	Measured			Calibrated
	WS	WH	Ratio	Ratio
Background	184	904		
Reference 1	20688	49027	0.426	0.371
Reference 2	5715	19697	0.294	0.272

Field Check at Base

183.9 904.0

Field Check

181.4 892.8

Photo Density Calibration Tolerances MPD-C.A 216

Near Density Ratio	2.56	<div><div></div><div></div><div></div><div></div></div>
PE Calibration	0.123	<div><div></div><div></div><div></div><div></div></div>

Far Density Ratio	21.36	<div><div></div><div></div><div></div><div></div></div>
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Near Den. Field Check	995.0	<div><div></div><div></div><div></div><div></div></div>
PE WS Field Check	181.4	<div><div></div><div></div><div></div><div></div></div>

Far Den. Field Check	1181.9	<div><div></div><div></div><div></div><div></div></div>
PE WH Field Check	892.8	<div><div></div><div></div><div></div><div></div></div>

Density Constants MPD-C.A 216

Last Edited on 15-NOV-2018,20:40

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 Type		
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	
Precision Enhanced Density Processing	Applied	

Matrix Density (gm/cc)	Depth (ft)
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 18.03.9344\Data\Murfin Columbine #8-24\Murfin Columbine #8-24_002.dta

Cablehead, 11 pin
CBH-CB 264 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.K 443 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

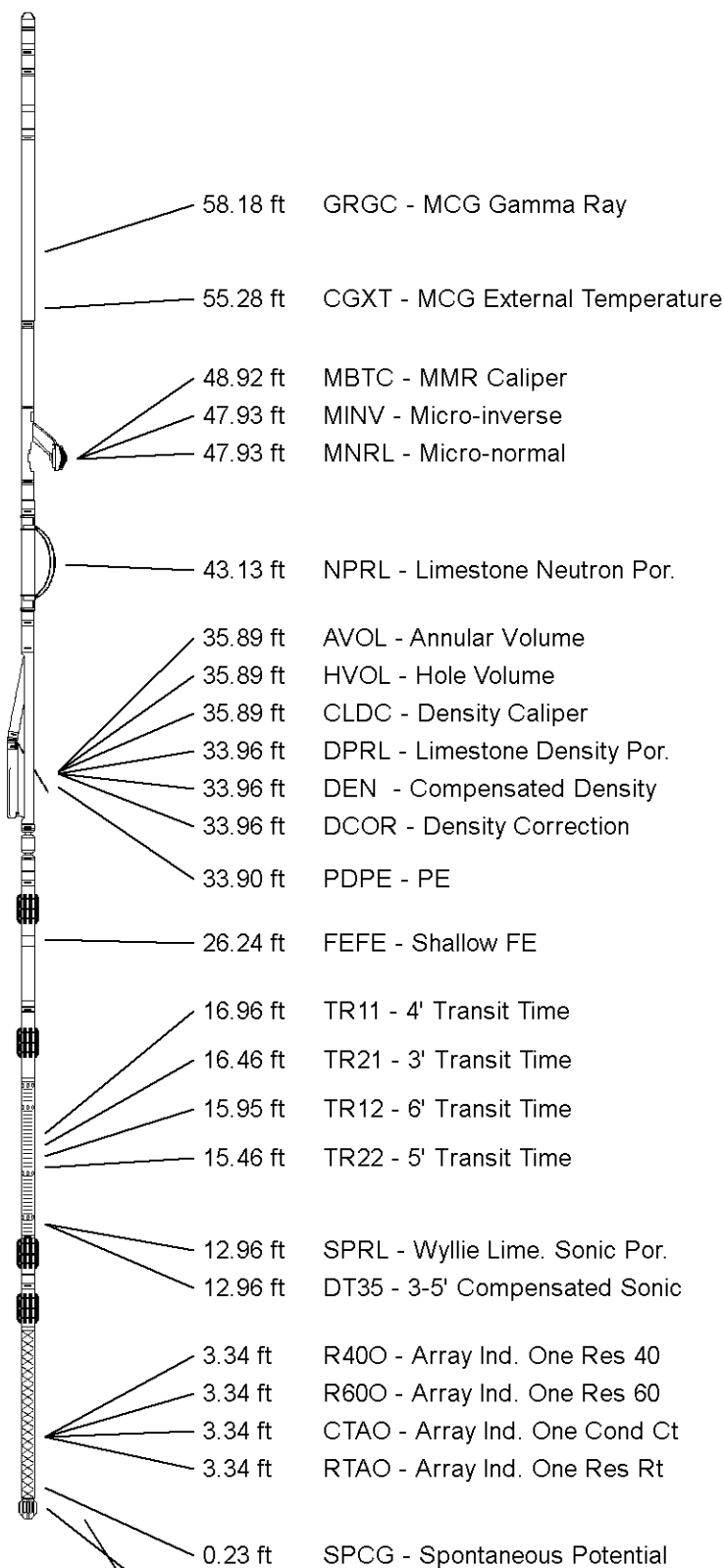
Compact Knuckle Joint
SKJ-D.A 167 LG: 2.17 ft WT: 24.3 lb OD: 2.244 in

Compact Focussed Electric
MFE-B.J 352 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-B.J 390 LG: 10.81 ft WT: 48.5 lb OD: 2.244 in

Total Length: 68.16 ft Weight: 526.9 lb



Tool Zero (0.13ft from bottom)

-0.13 ft SMTU - DST Uphole Tension

All measurements relative to tool zero.

COMPANY	MURFIN DRILLING COMPANY, INC.
WELL	COLUMBINE #8-24
FIELD	WILDCAT
PROVINCE/COUNTY	LINCOLN
COUNTRY/STATE	U.S.A. / COLORADO

Elevation Kelly Bushing	5393	feet	First Reading	8532.00	feet
Elevation Drill Floor	5391	feet	Depth Driller	8574.00	feet
Elevation Ground Level	5380	feet	Depth Logger	8566.00	feet



CALIPER LOG

Weatherford®