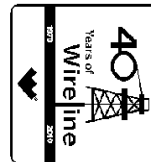


**Weatherford****HOLE VOLUME  
CALIPER  
LOG**

COMPANY **LARAMIE ENERGY II**  
WELL **BRUNTON 30-02B**  
FIELD **VEGA**  
PROVINCE/COUNTY **MESA**  
COUNTRY/STATE **U.S.A. / COLORADO**  
LOCATION **SHL: 828' FSL & 1745' FWL**  
**BHL: 493' FNL & 1961' FEL**



SEC **19** TWP **9S** RGE **93W** Other Services  
API Number **50-077-10092** MAI  
Permit Number **MPD/MDN**

Permanent Datum G.L., Elevation 7345 feet  
Log Measured From K.B. @ 21 FEET above Permanent Datum  
Drilling Measured From K.B.

Elevations:  
KB 7366.00  
DF 7365.00  
GL 7345.00

Date	15-JAN-2011	
Run Number	ONE	
Depth Driller	7910.00	feet
Depth Logger	7913.00	feet
First Reading	7889.00	
Last Reading	1522.00	
Casing Driller	1524.00	feet
Casing Logger	1522.00	feet
Bit Size	7.875	inches
Hole Fluid Type	GEL/CHEM	
Density / Viscosity	10.90 lb/USg	50.00 CP
PH / Fluid Loss	9.00	7.00 ml/30Min
Sample Source	FLOWLINE	
Rm @ Measured Temp	2.73 @ 65.0	ohm-m
Rmf @ Measured Temp	2.18 @ 65.0	ohm-m
Rmc @ Measured Temp	3.28 @ 65.0	ohm-m
Source Rmf / Rmc	CALC	CALC
Rm @ BHT	0.90 @203.0	ohm-m
Time Since Circulation	8 HOURS	
Max Recorded Temp	203.00	deg F
Equipment Name	COMPACT	
Equipment / Base	13037	RK SPR
Recorded By	J. PAULSON	
Witnessed By	K. CLAUSSEN	

**BOREHOLE RECORD**

Last Edited: 15-JAN-2011 09:42

Bit Size inches	Depth From feet	Depth To feet
7.875	1530.00	7910.00

**CASING RECORD**

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	1530.00	32.00

**REMARKS**

SOFTWARE VERSION: 11.01.2198

TOOLS RUN: MAI, MFE, SKJ, MPD, MDN, MCG, AND SHA RAN IN COMBINATION

HARDWARE: MPD: 8 INCH DENSITY SKID PLATE  
MDN: BOWSPRINGS  
MFE: ONE INCH STANDOFF  
MAI: 2 X ONE INCH STANDOFFS

TOTAL HOLE VOLUME TO SURFACE CASING = 2870 CUBIC FT

TOTAL HOLE VOLUME TO SURFACE CASING = 2019 CU. FT.

ANNULAR VOLUME WITH 4.5 INCH PRODUCTION CASING TO SURFACE CASING = 1960 CU. FT.

2.65 G/CC DENSITY MATRIX USED TO CALCULATE POROSITY

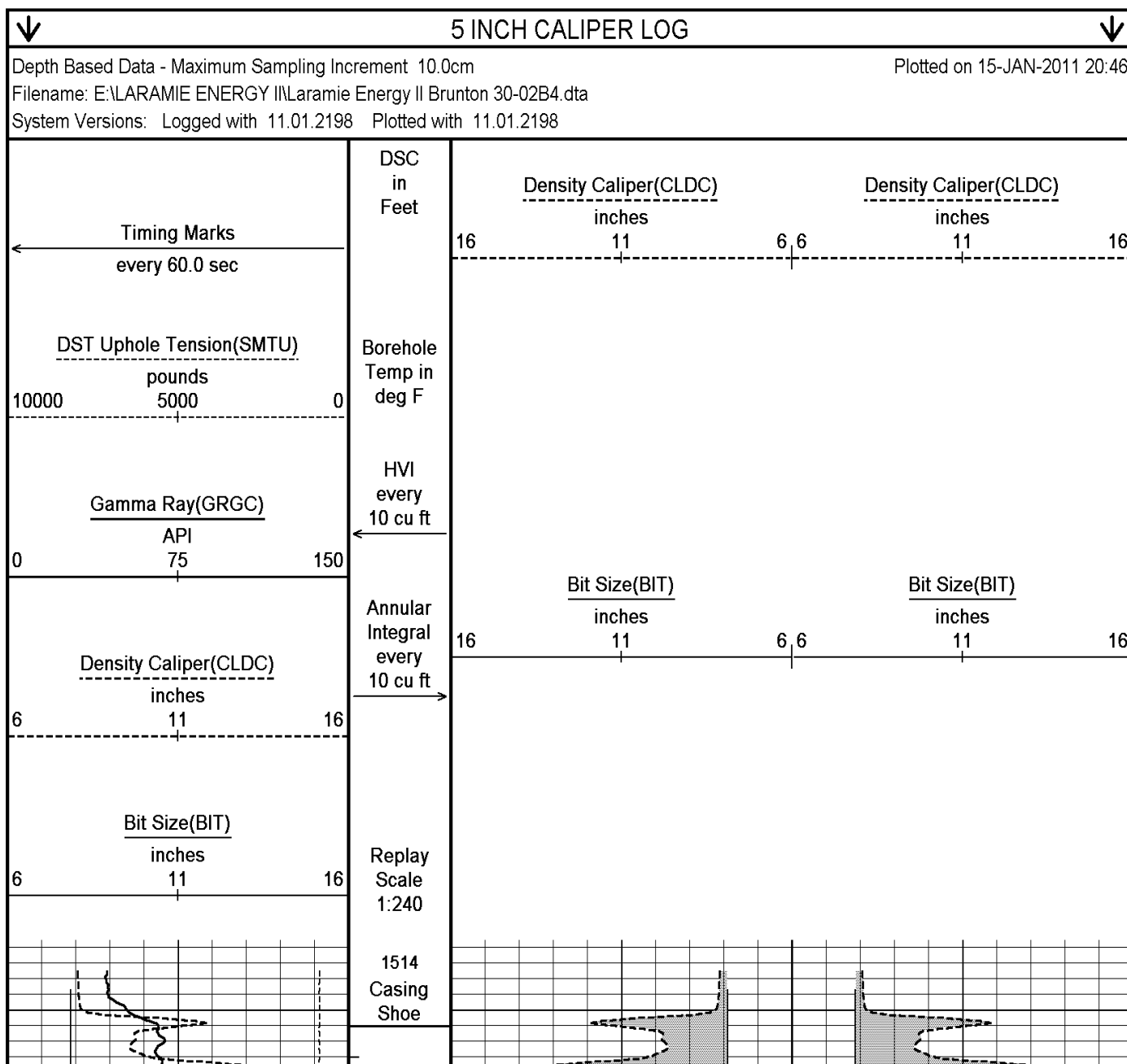
ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST

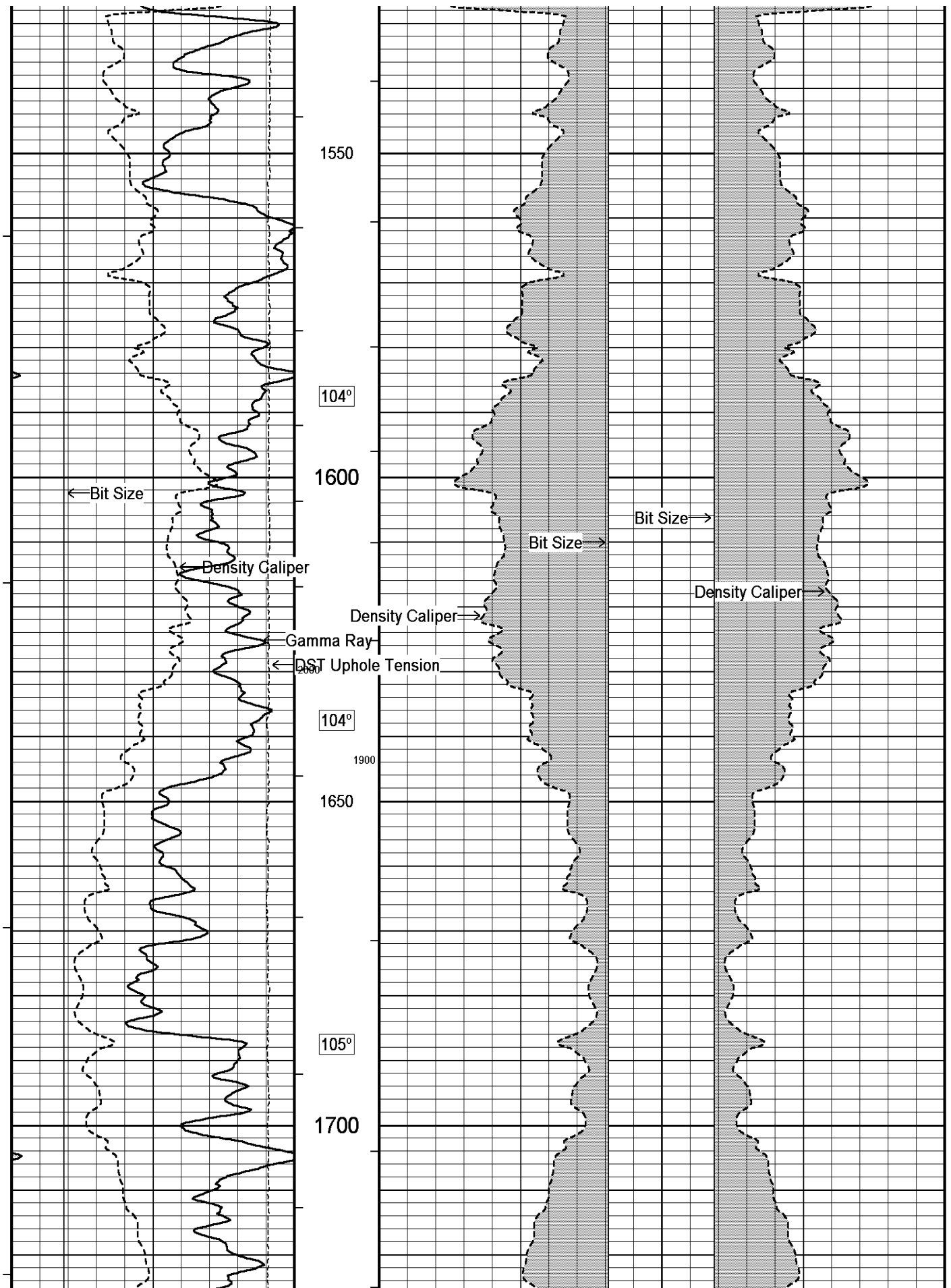
THE DENSITY READINGS CYCLED AT THE BOTTOM DUE TO BOREHOLE RUGOSITY

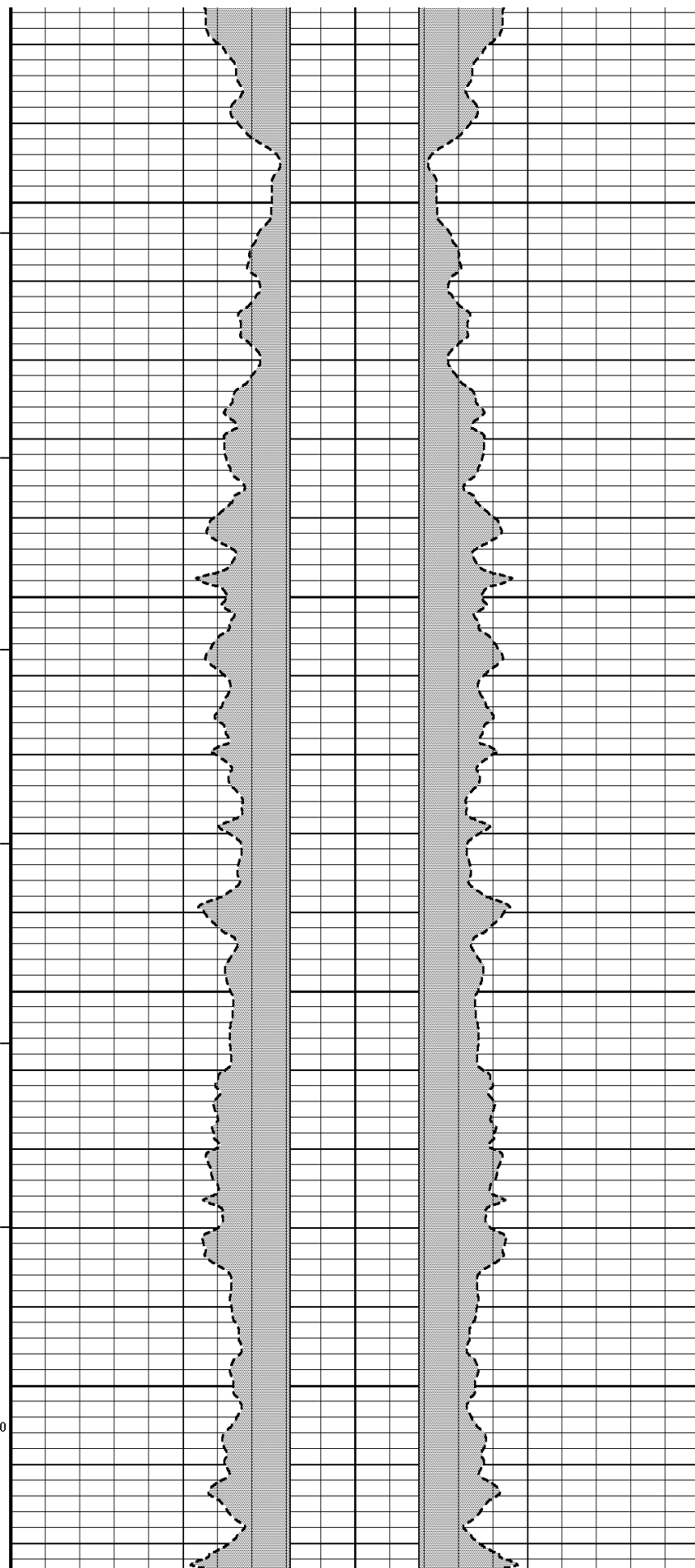
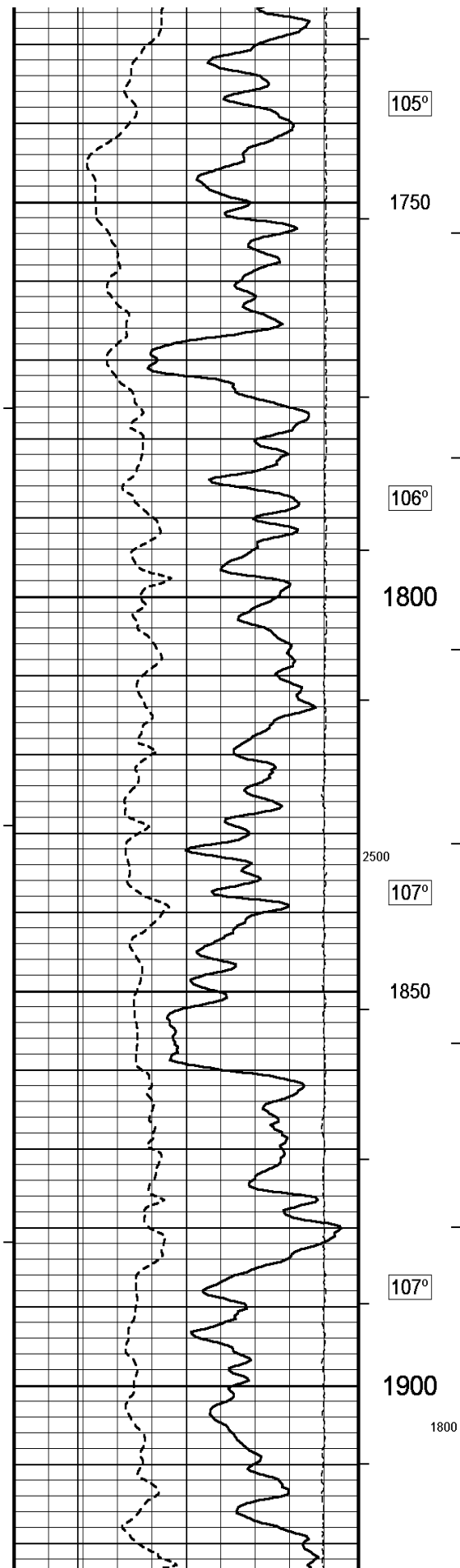
SERVICE ORDER: #3526688

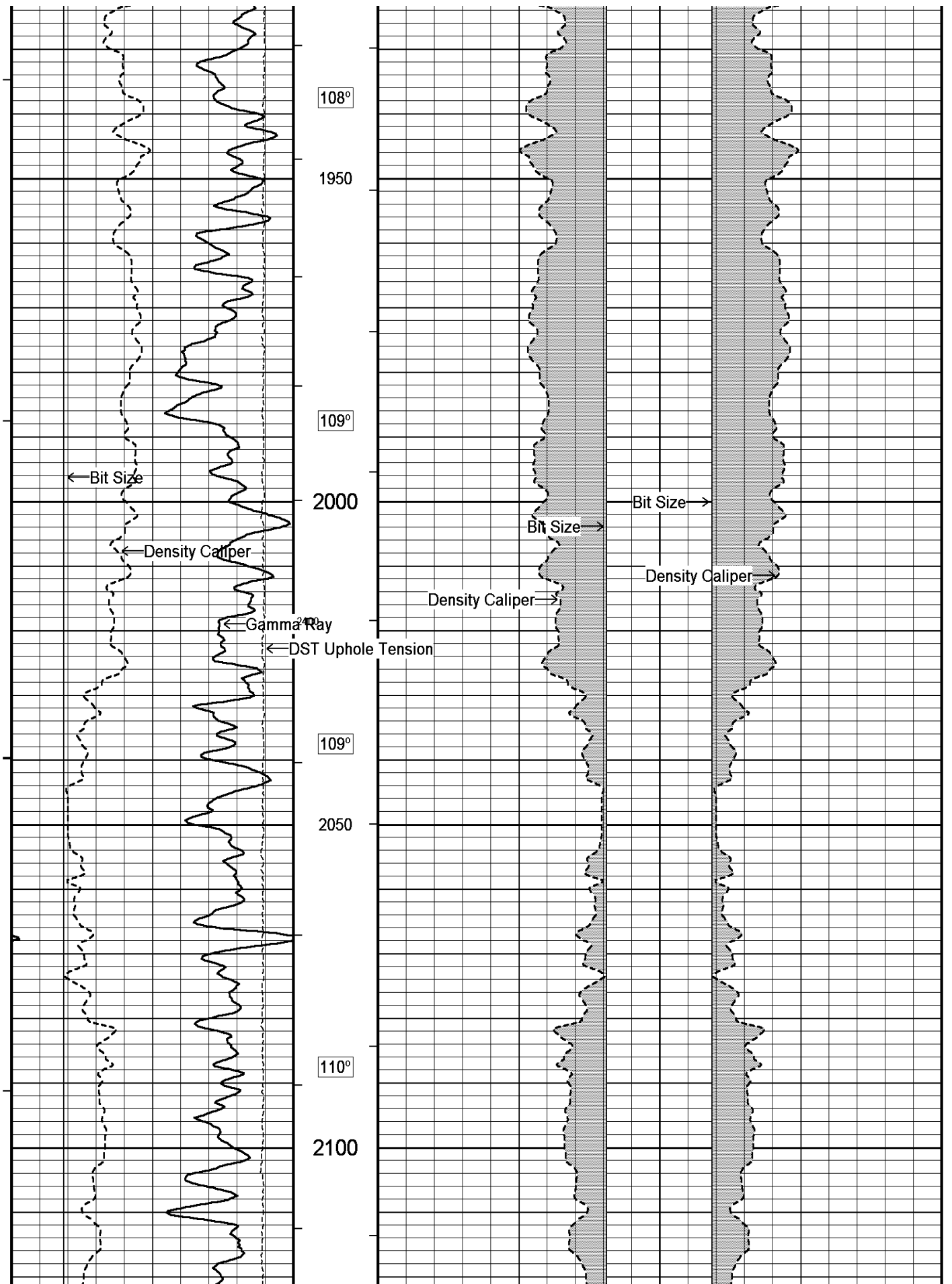
RIG: PRECISION 706

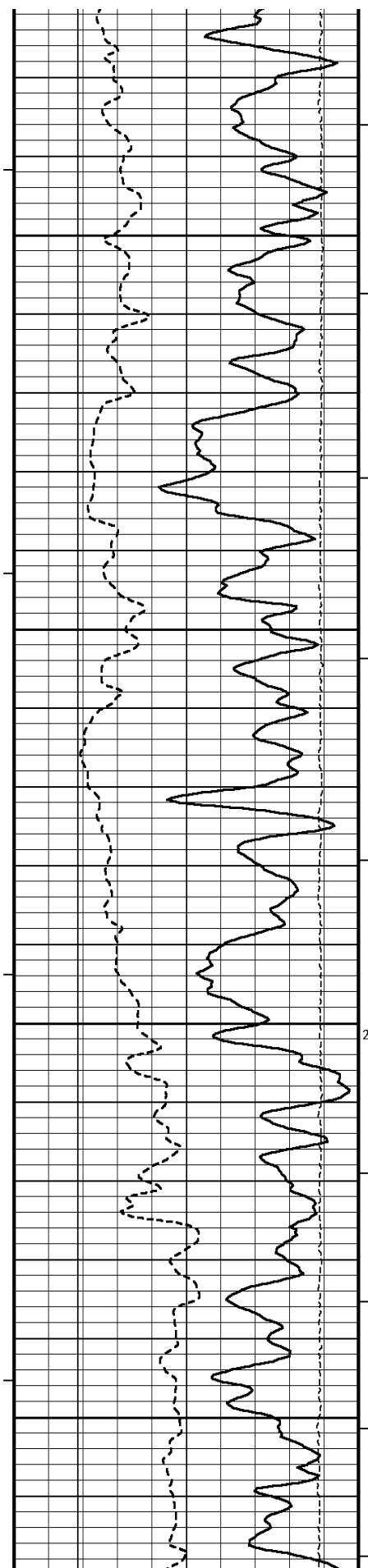
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions in our price schedule.











110°

2150

1700

111°

2200

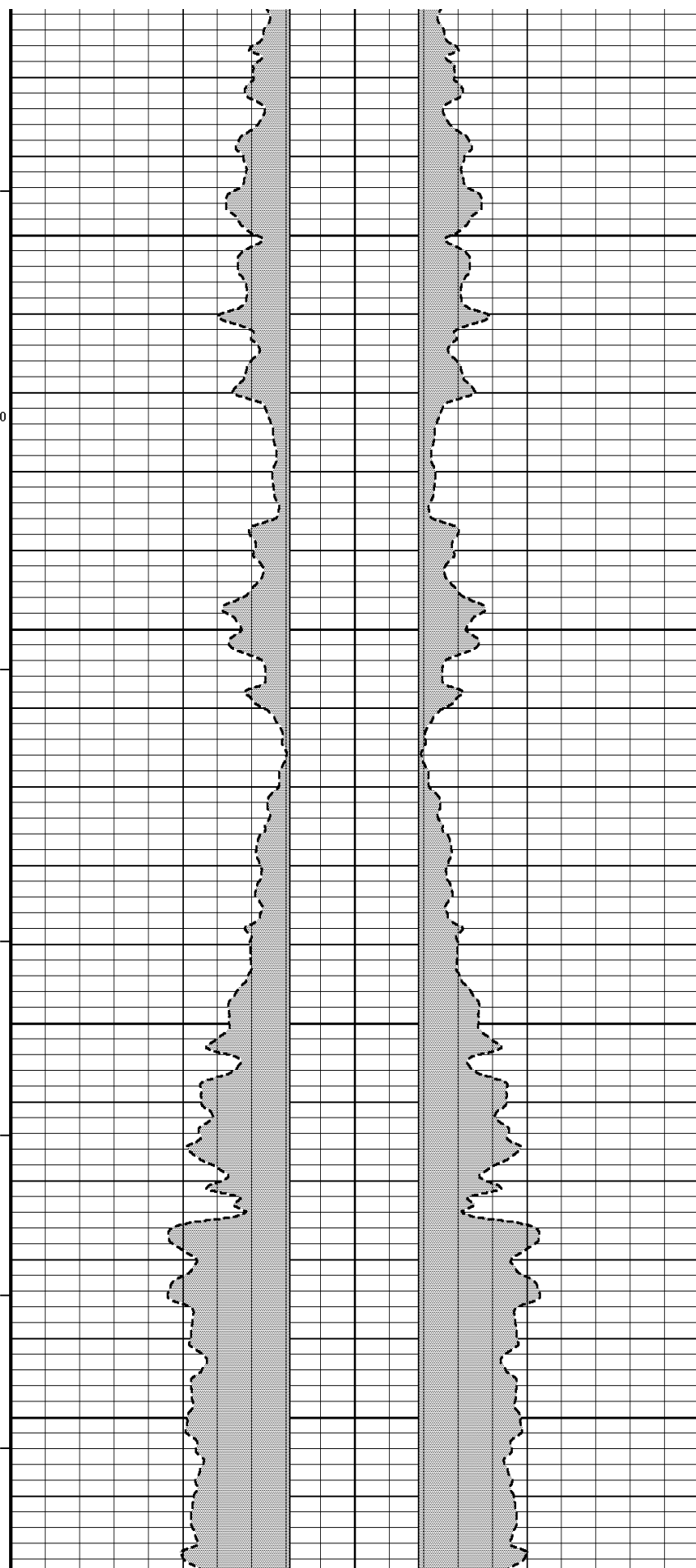
112°

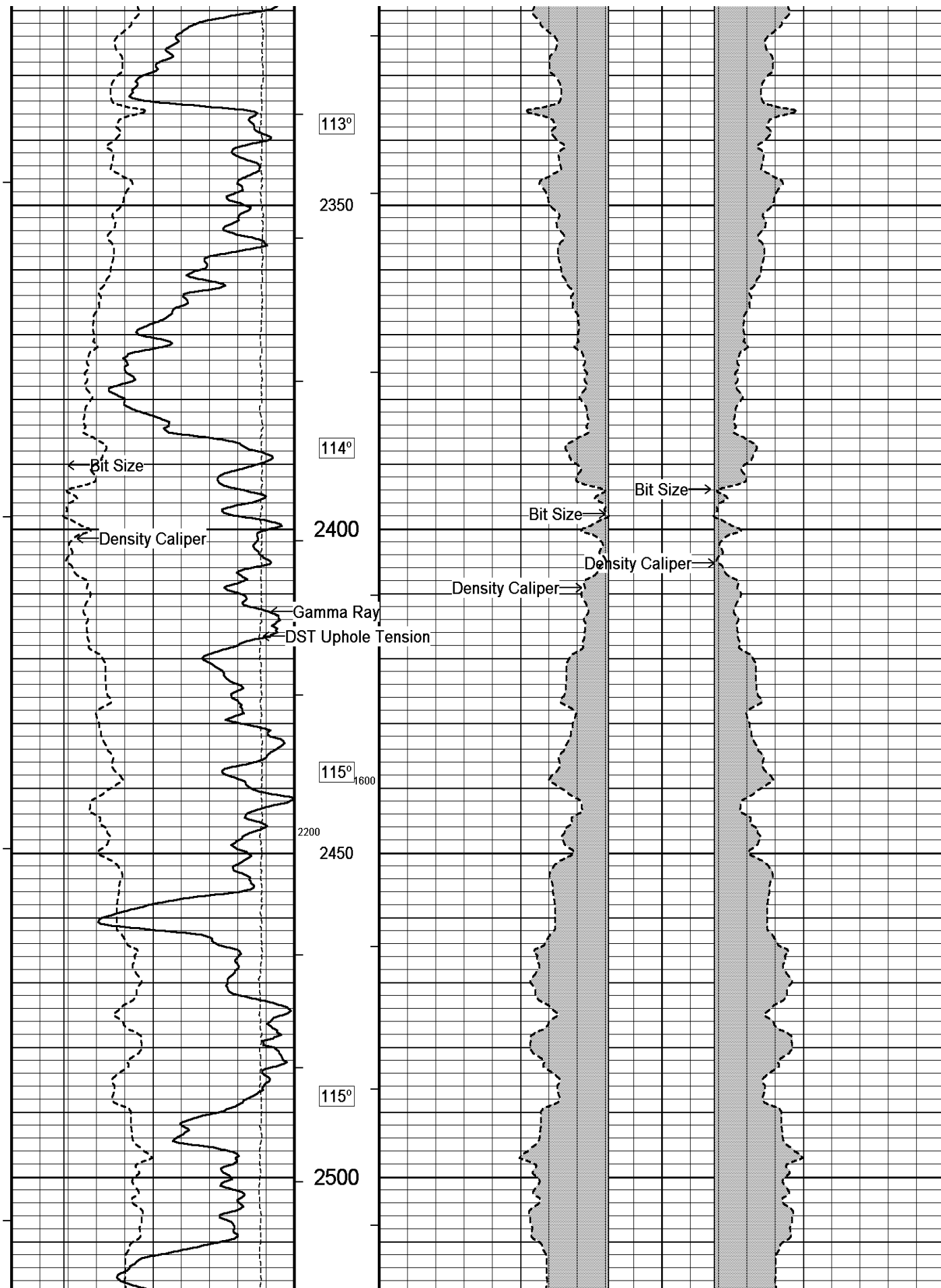
2250

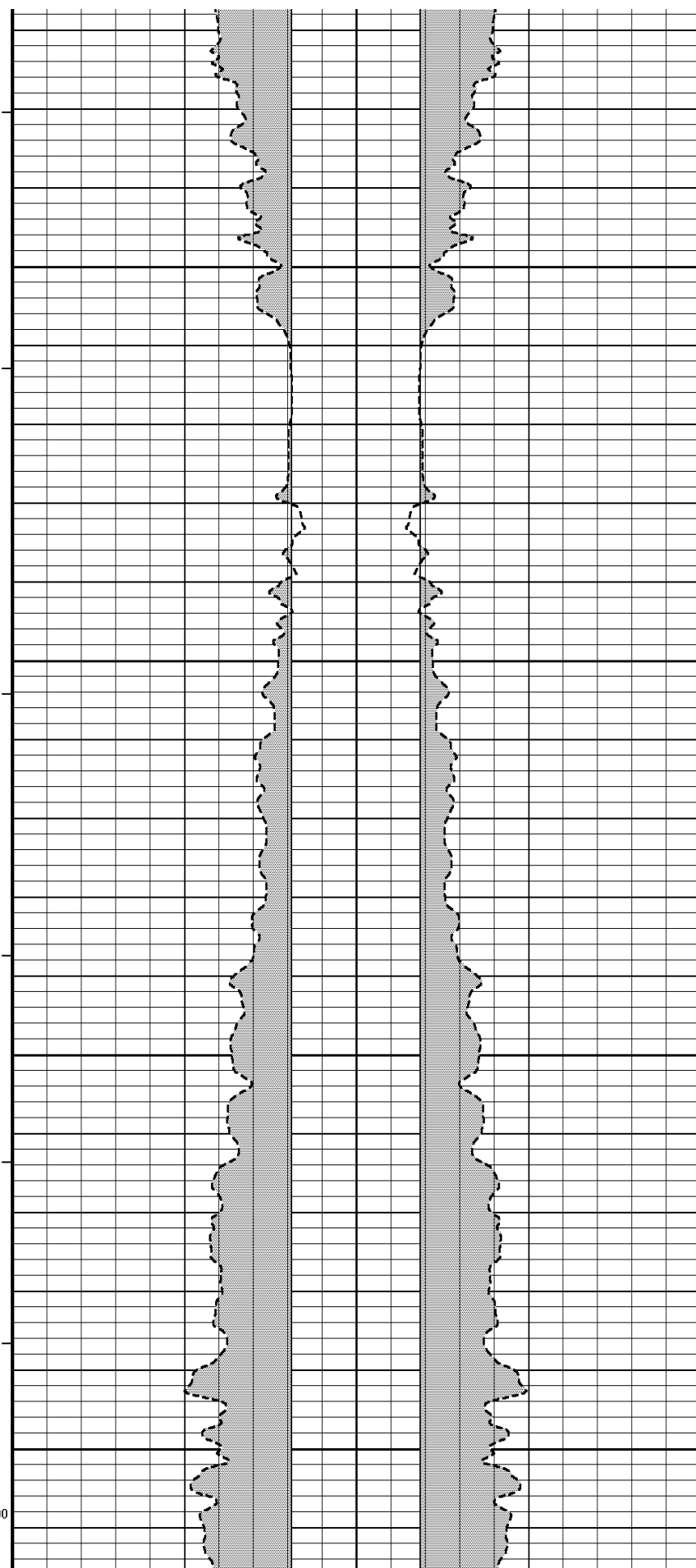
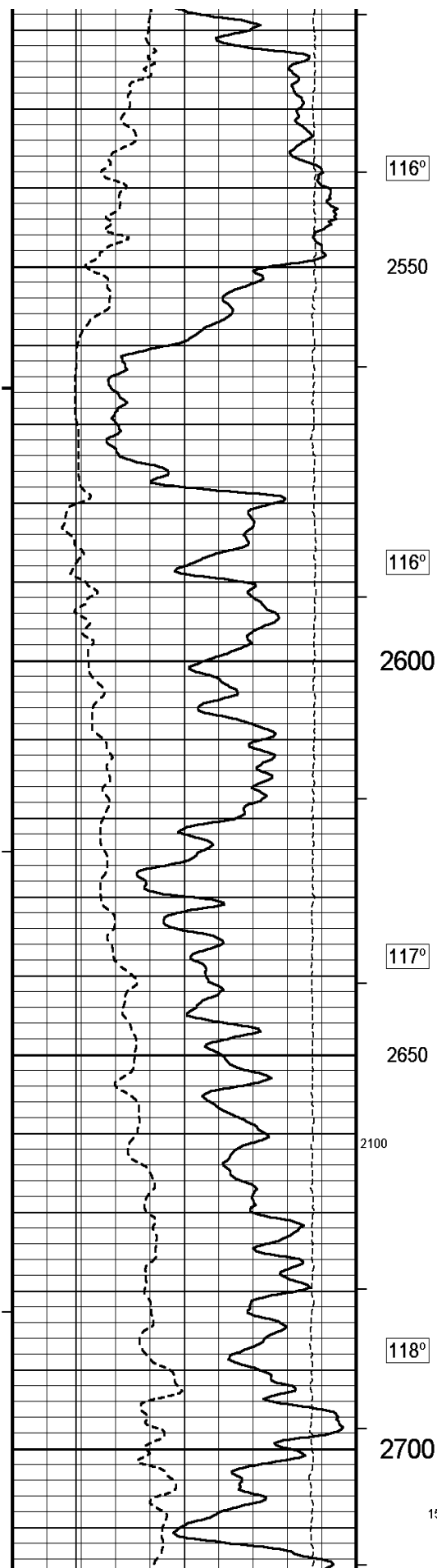
2300

112°

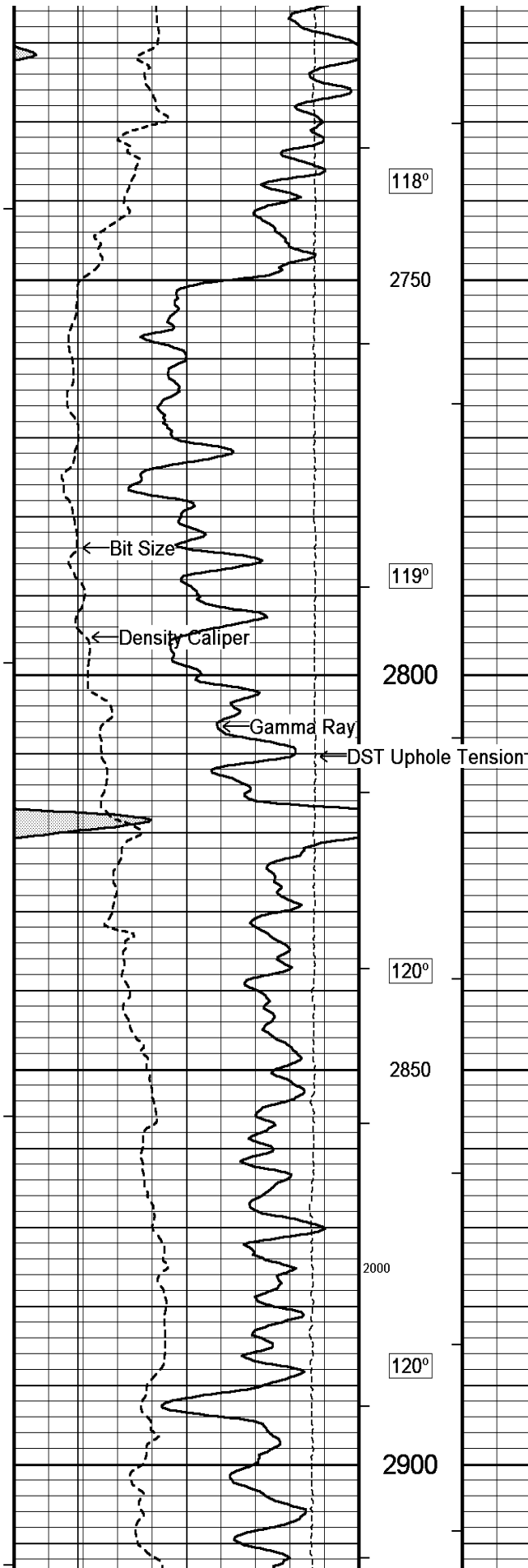
2300











118°

2750

119°

2800

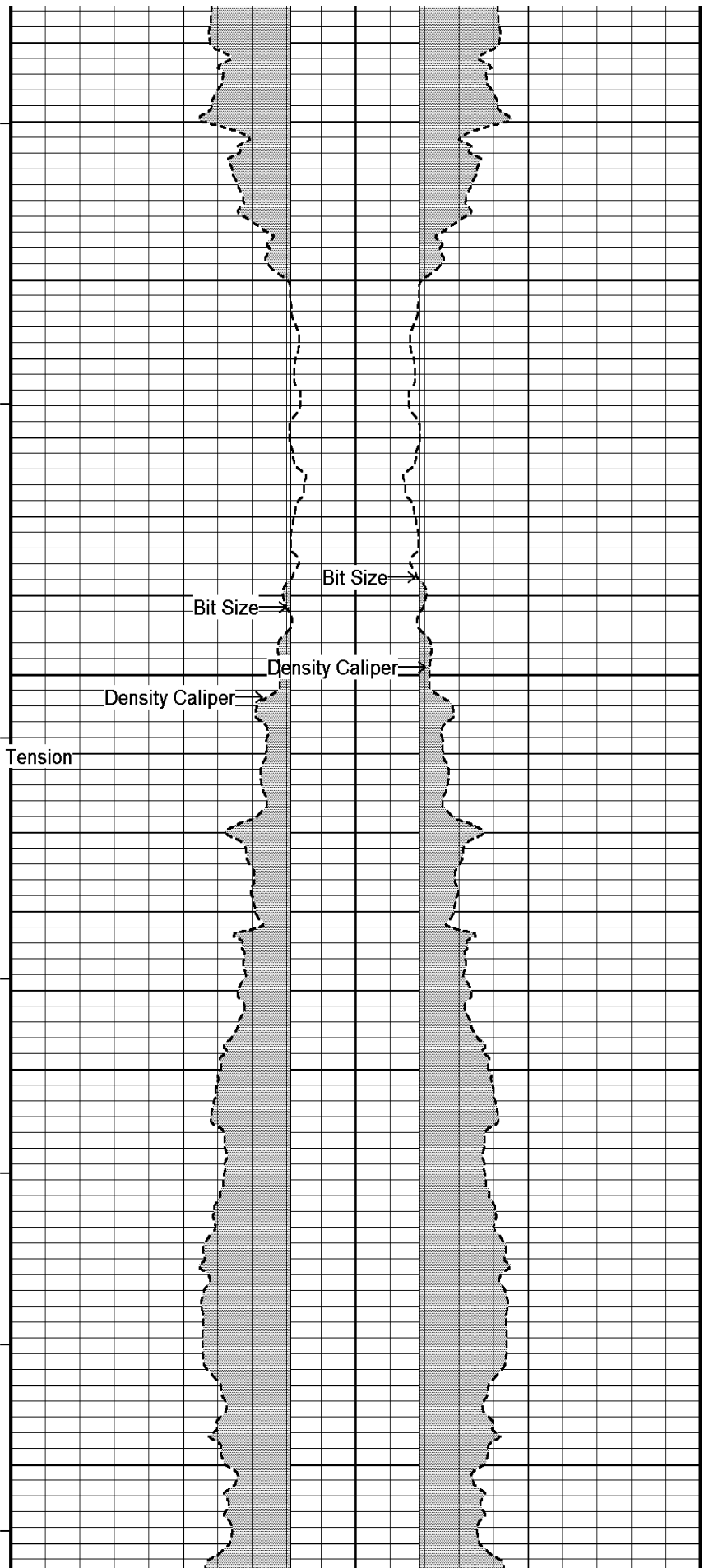
120°

2850

2000

120°

2900

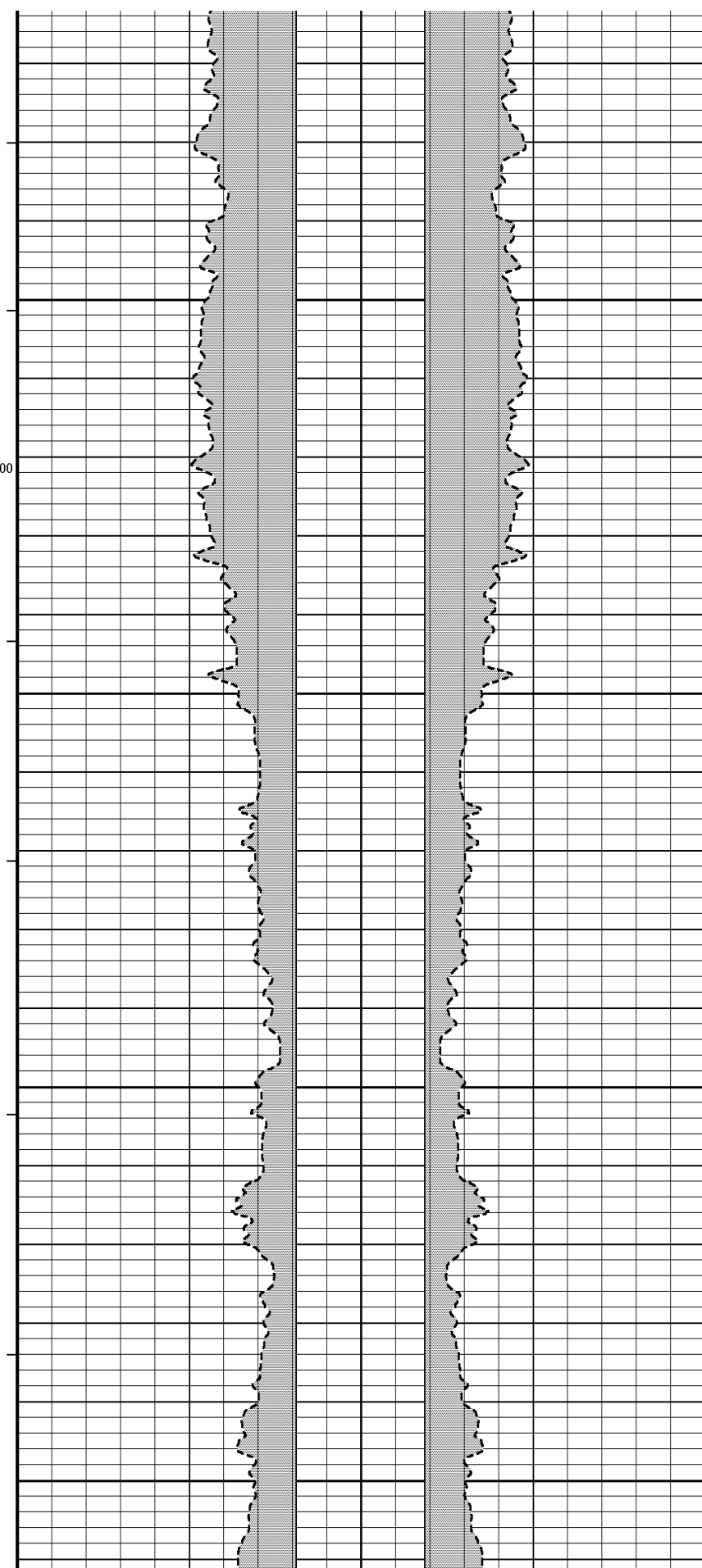
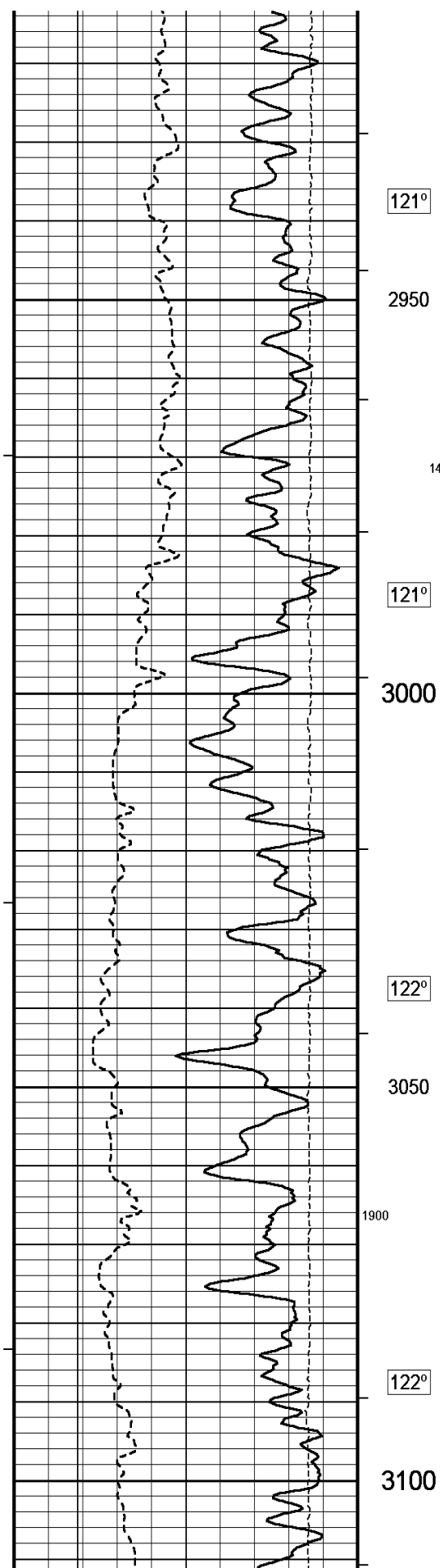


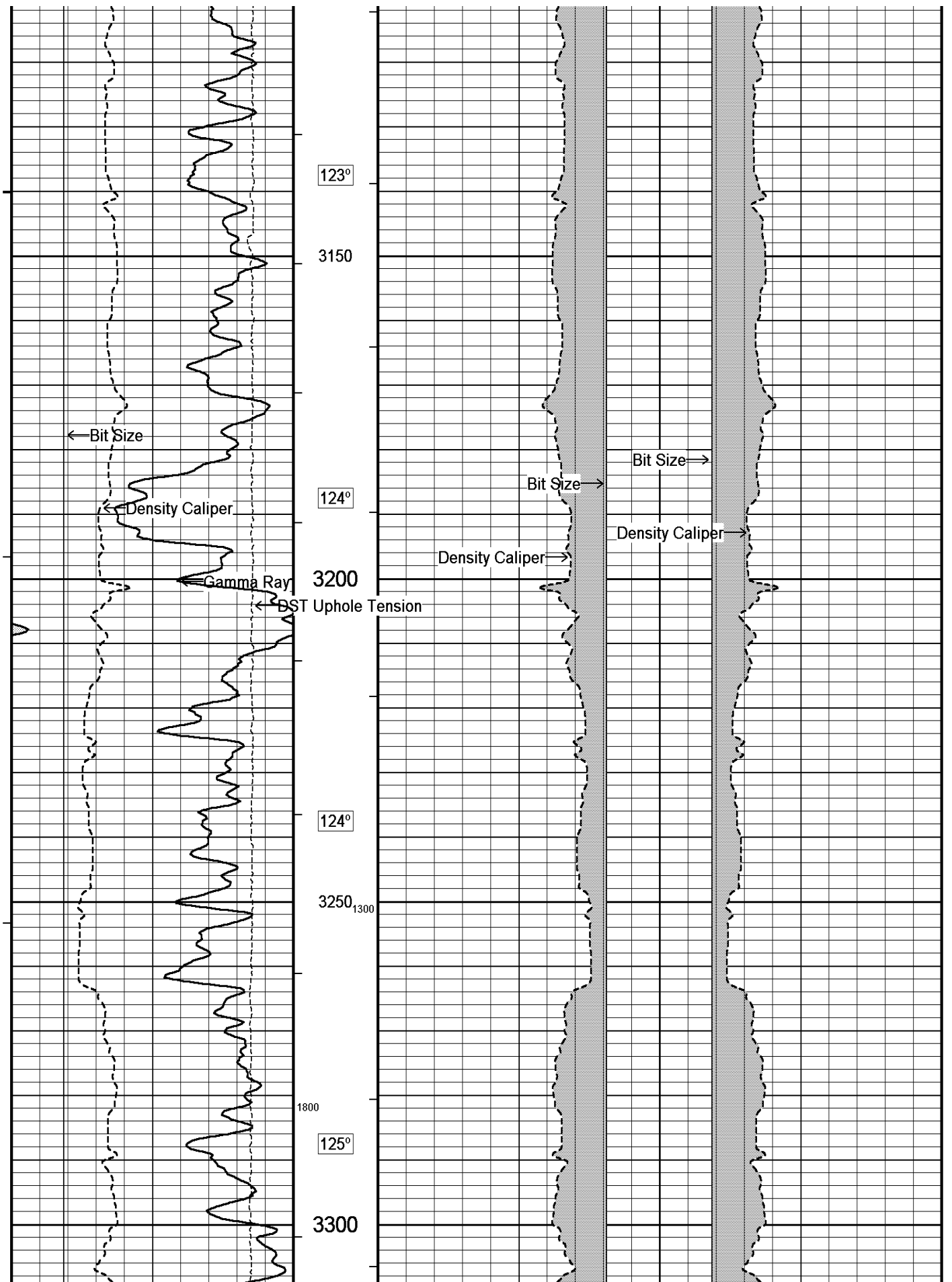
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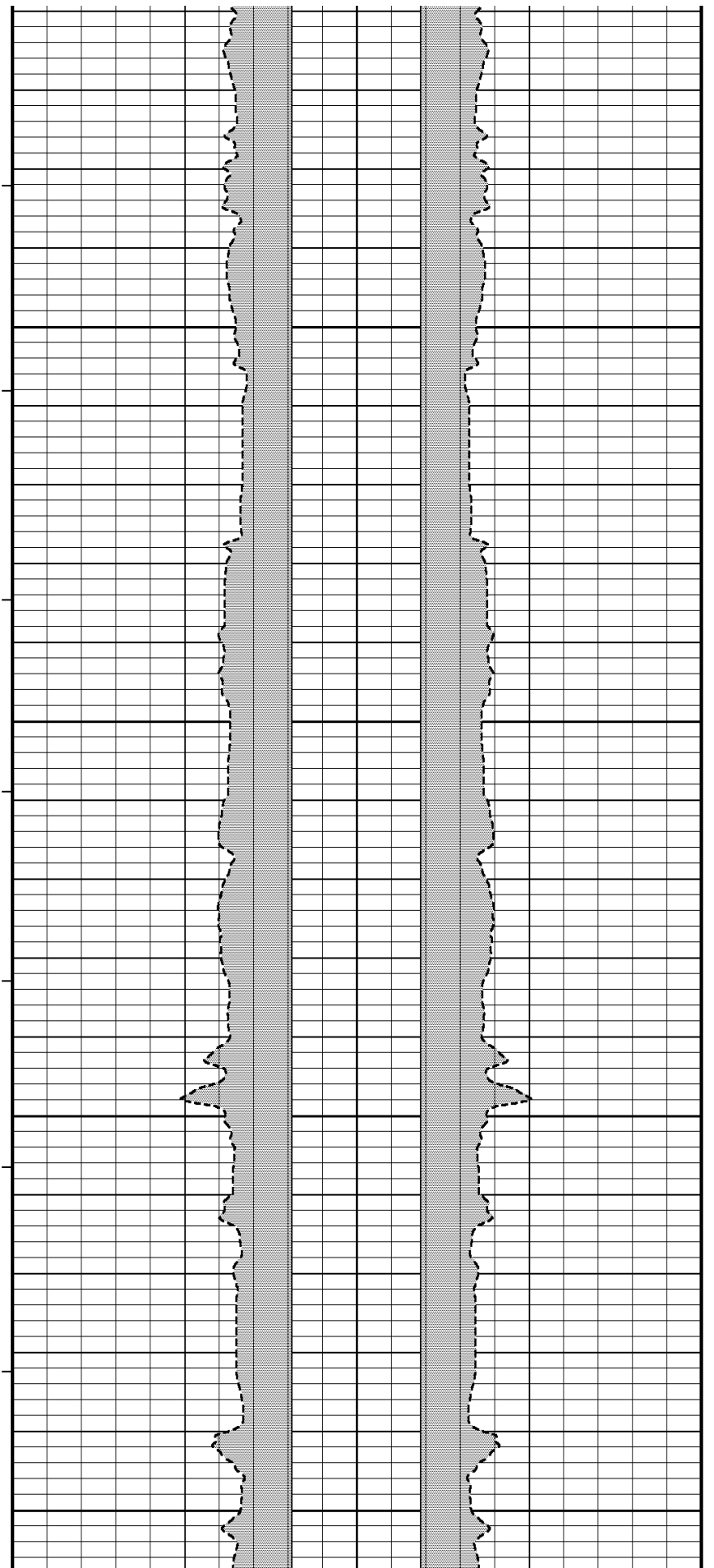
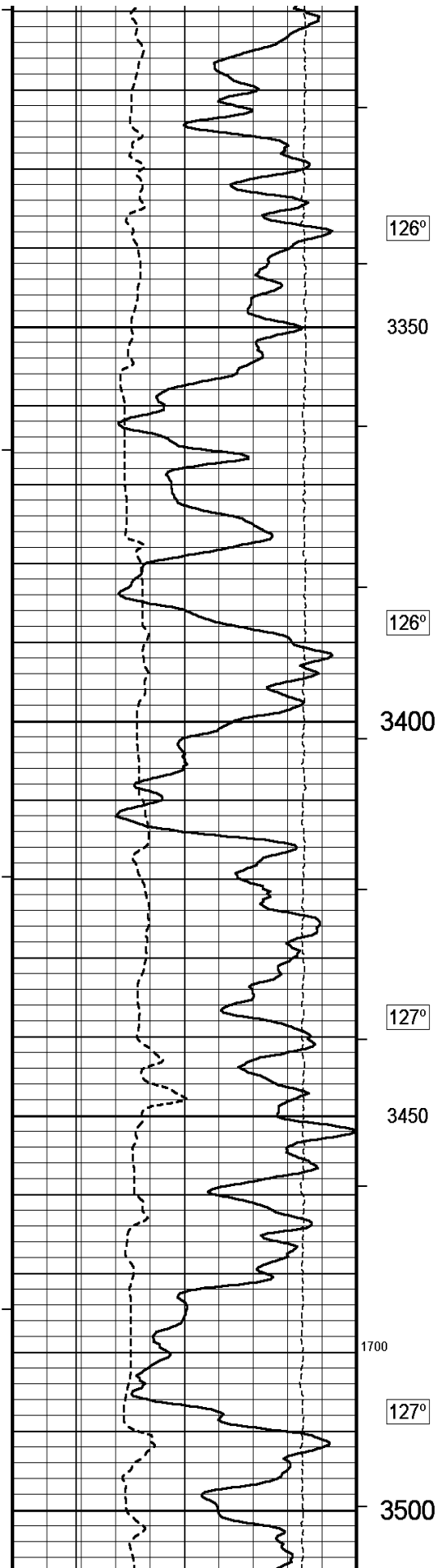
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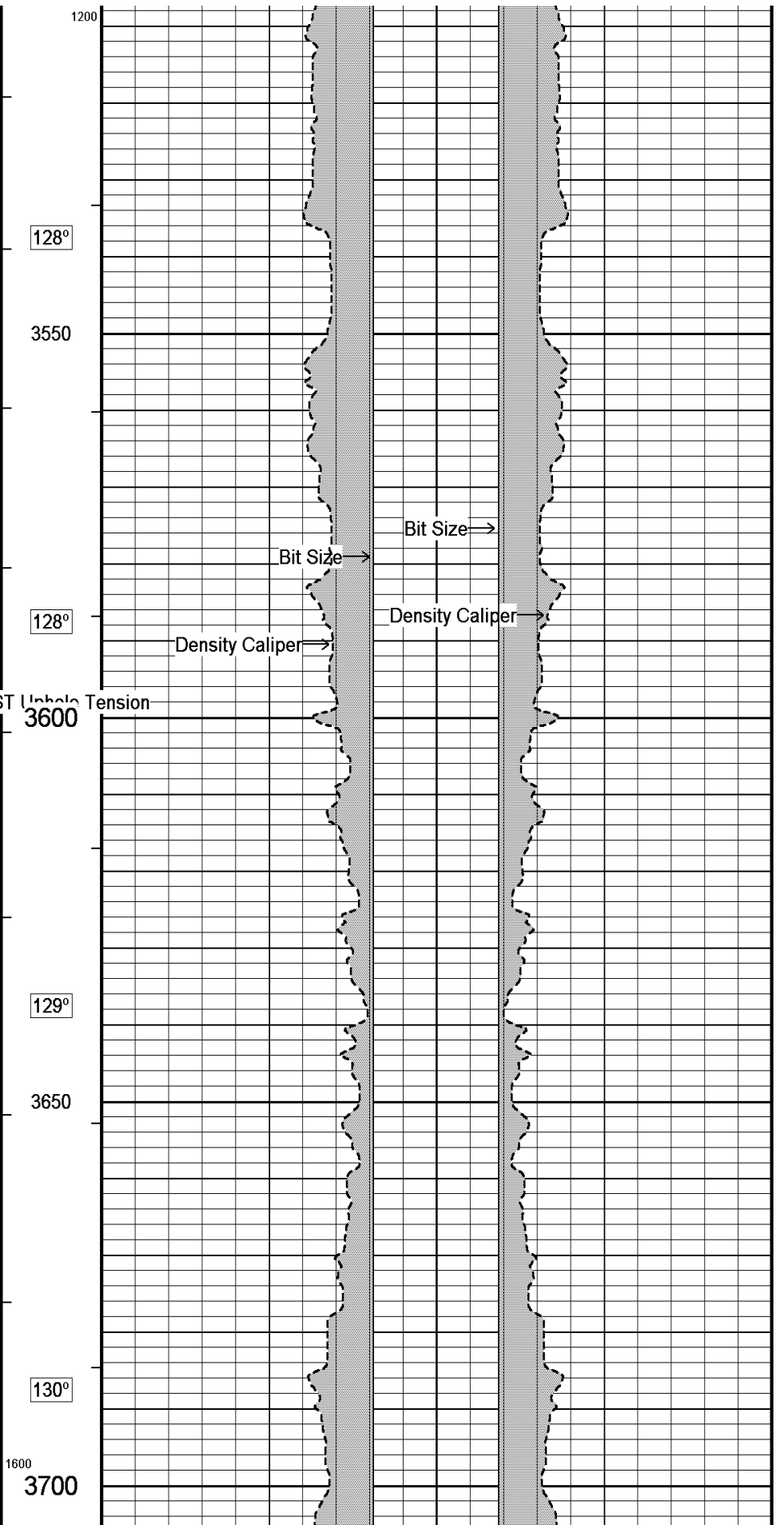
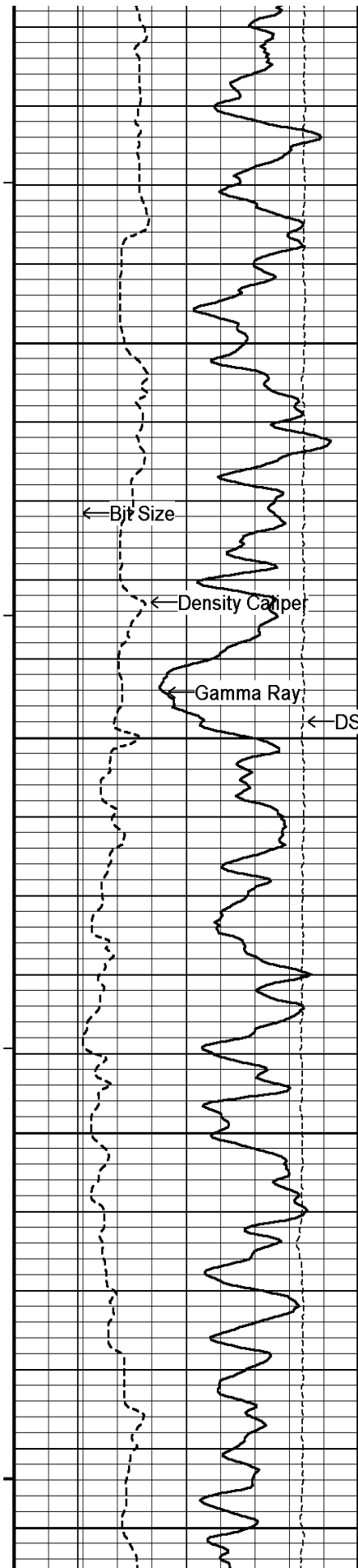
Density Caliper

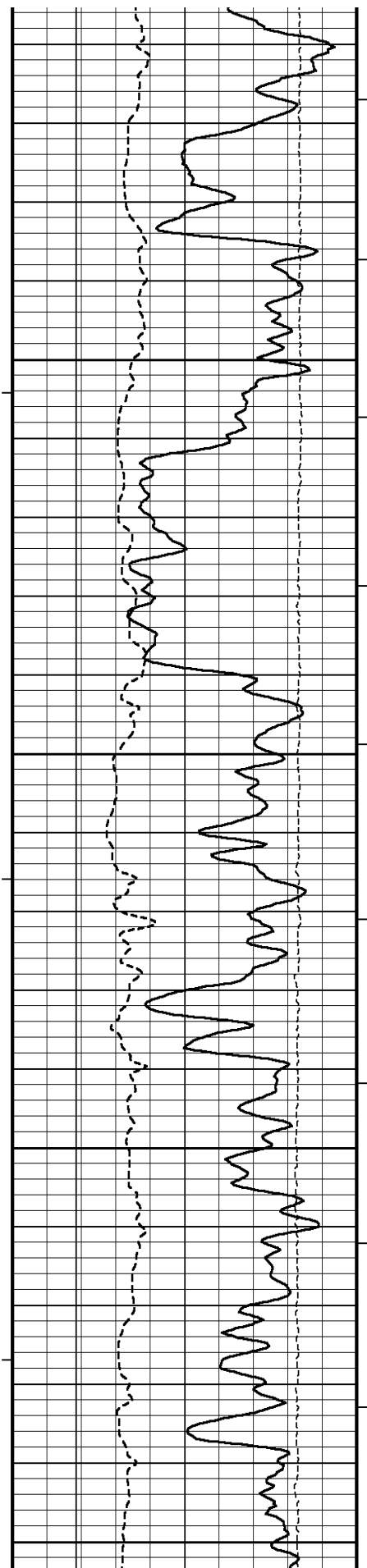
Density Caliper











130°

3750

131°

1100

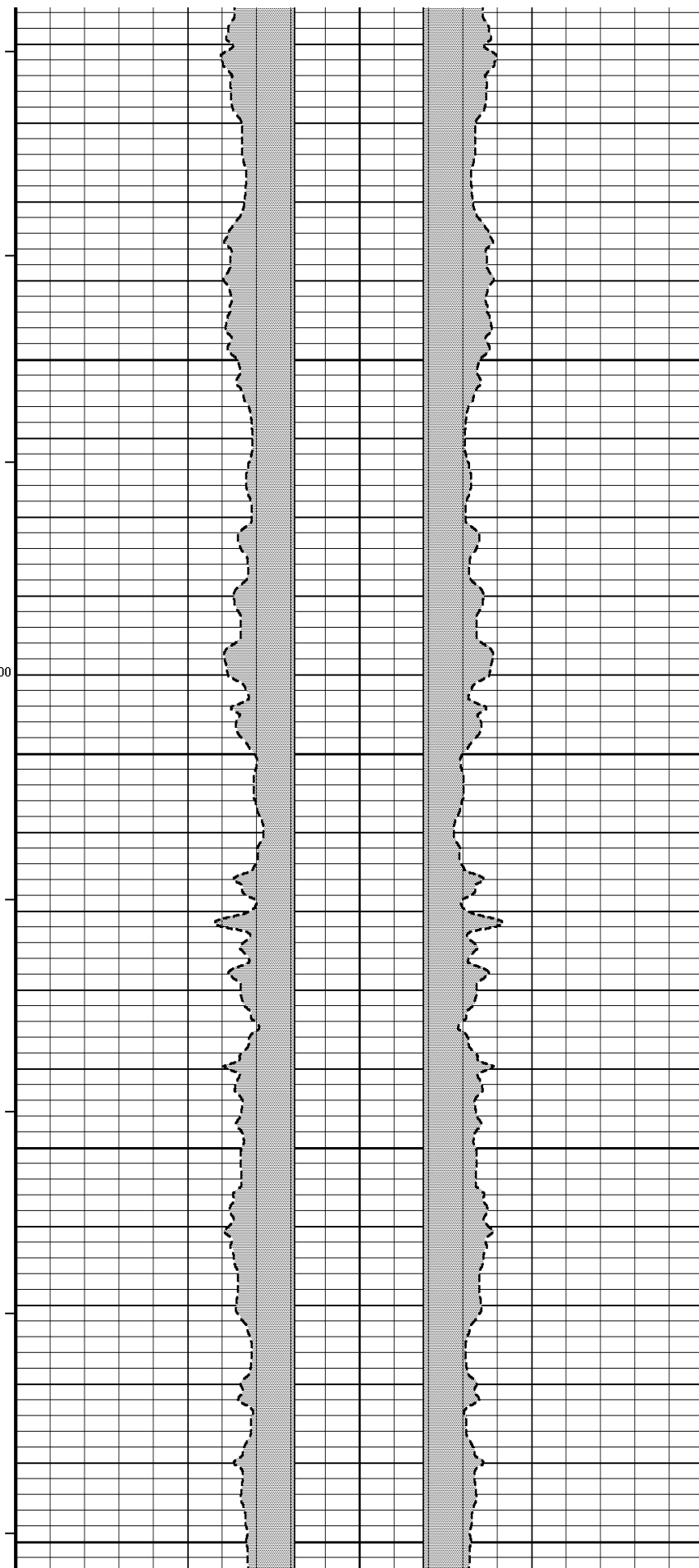
3800

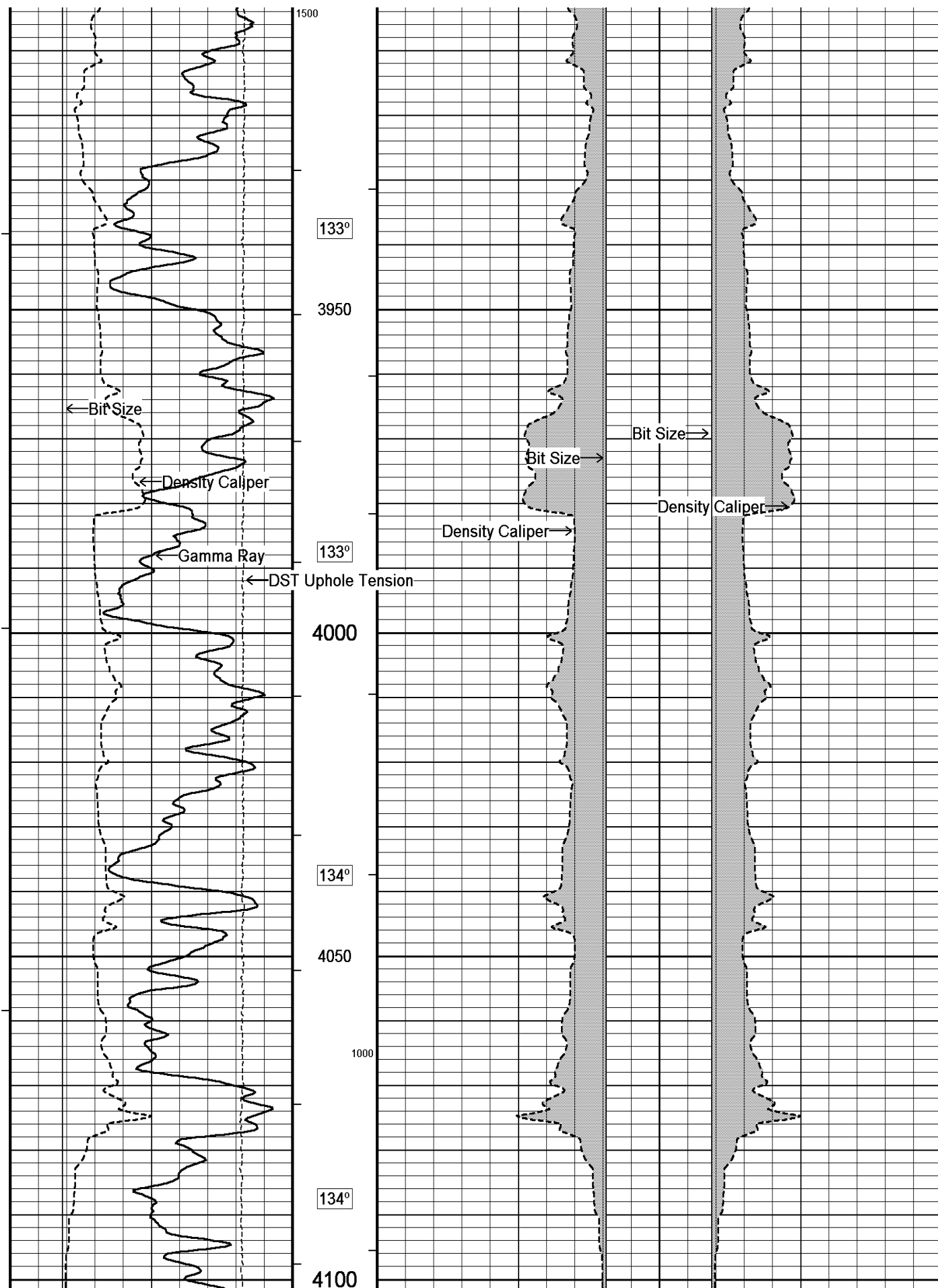
132°

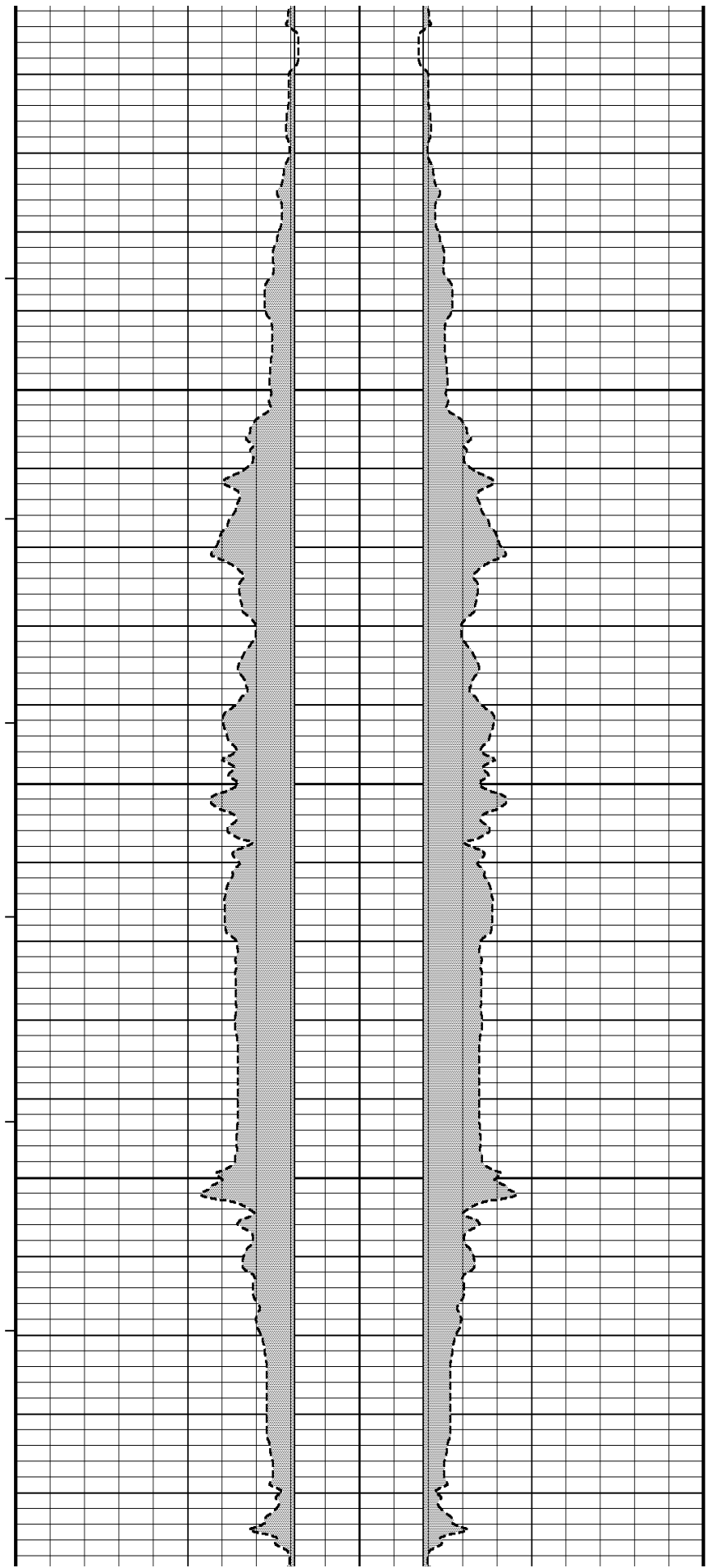
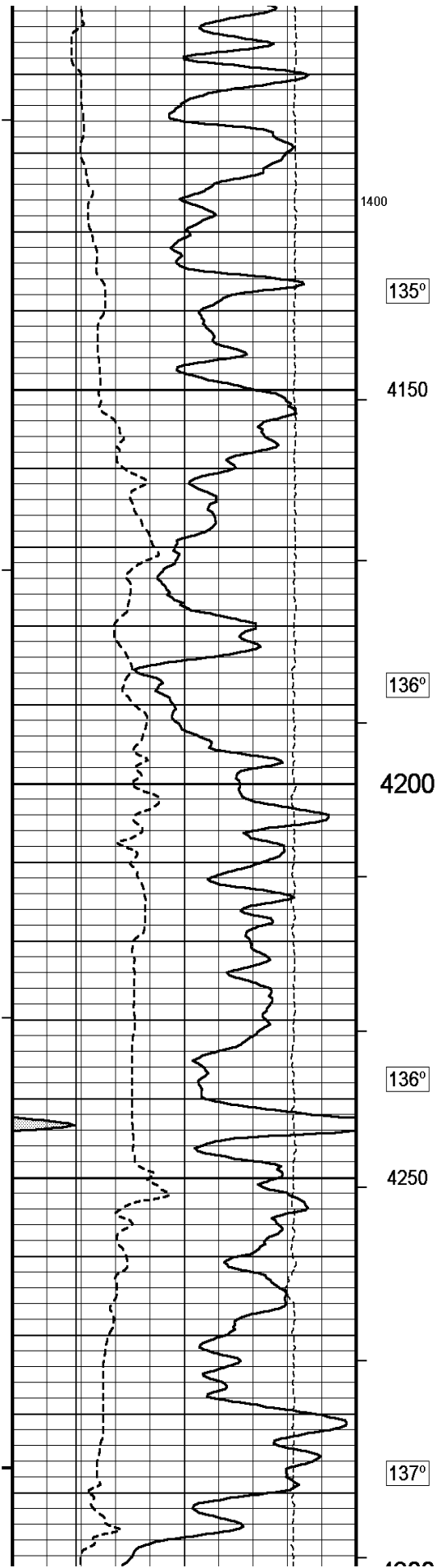
3850

132°

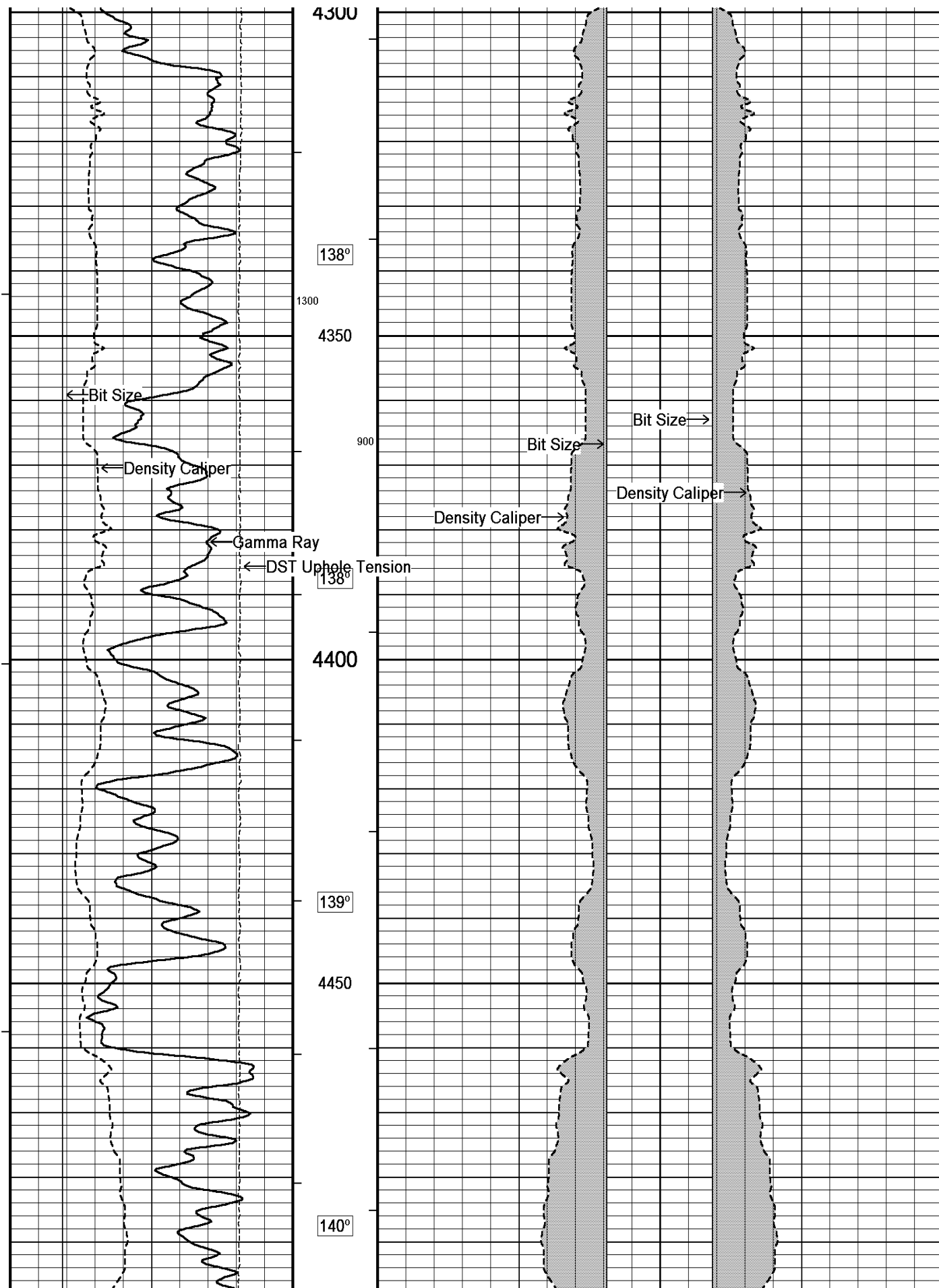
3900

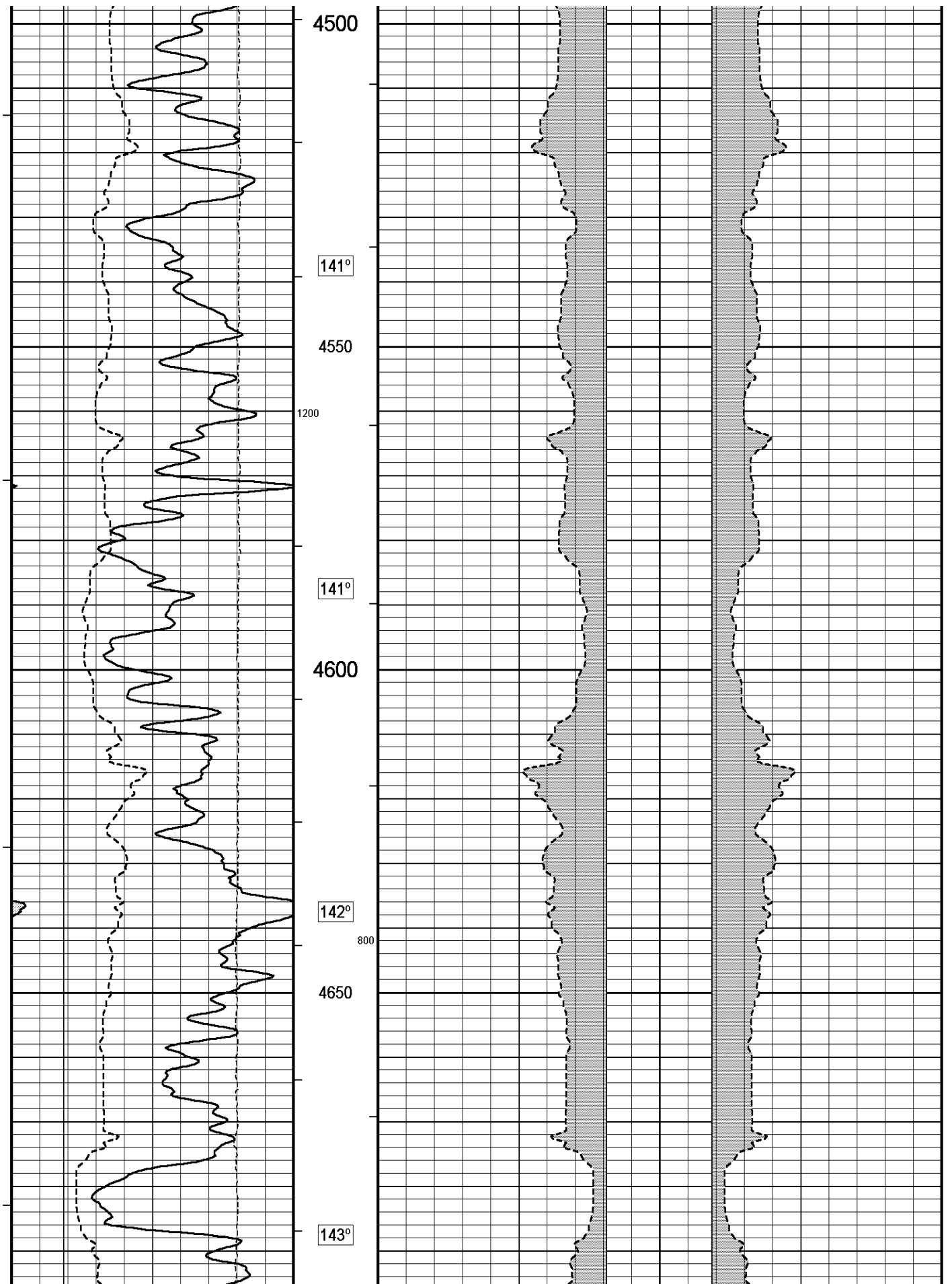


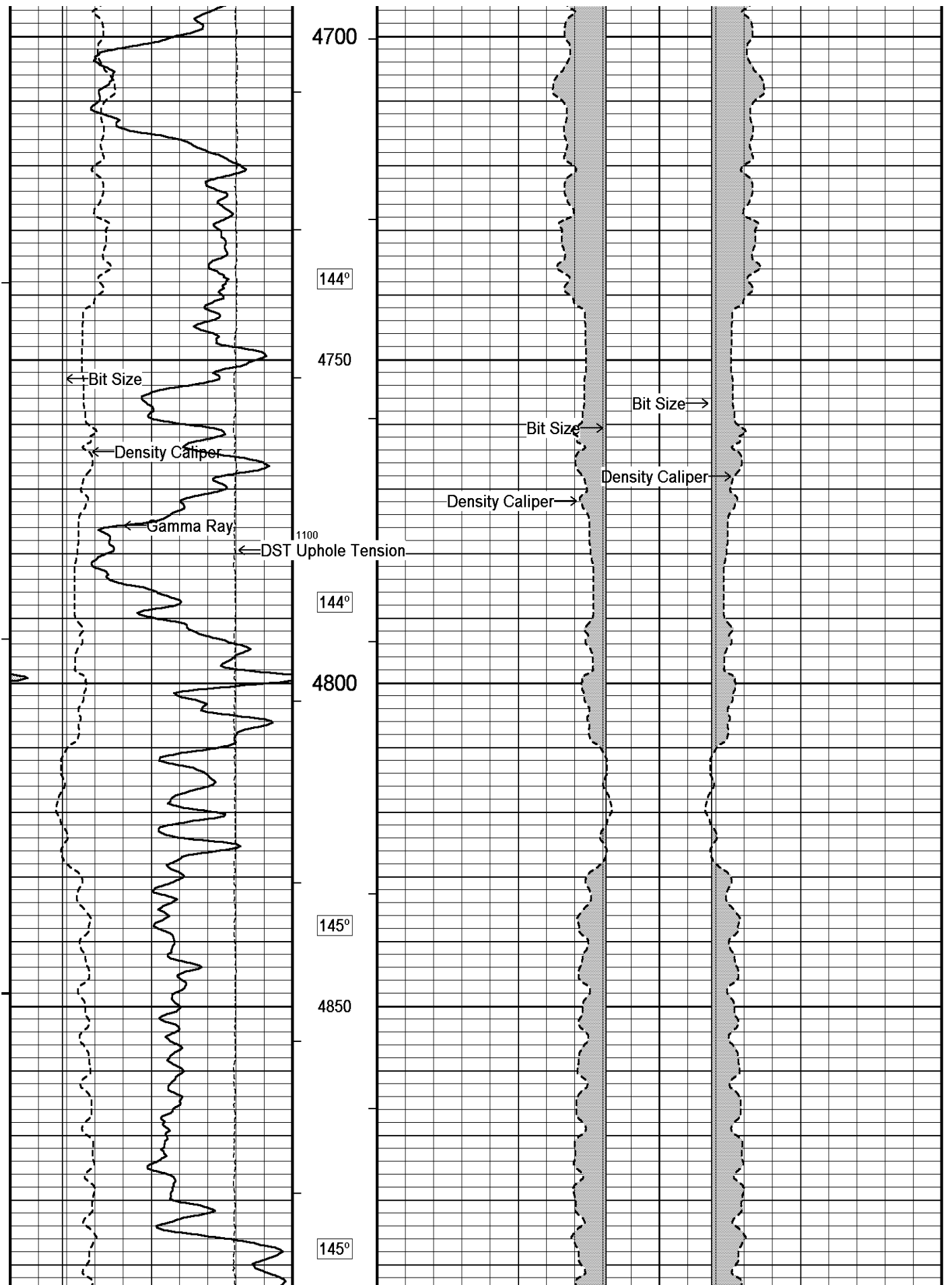


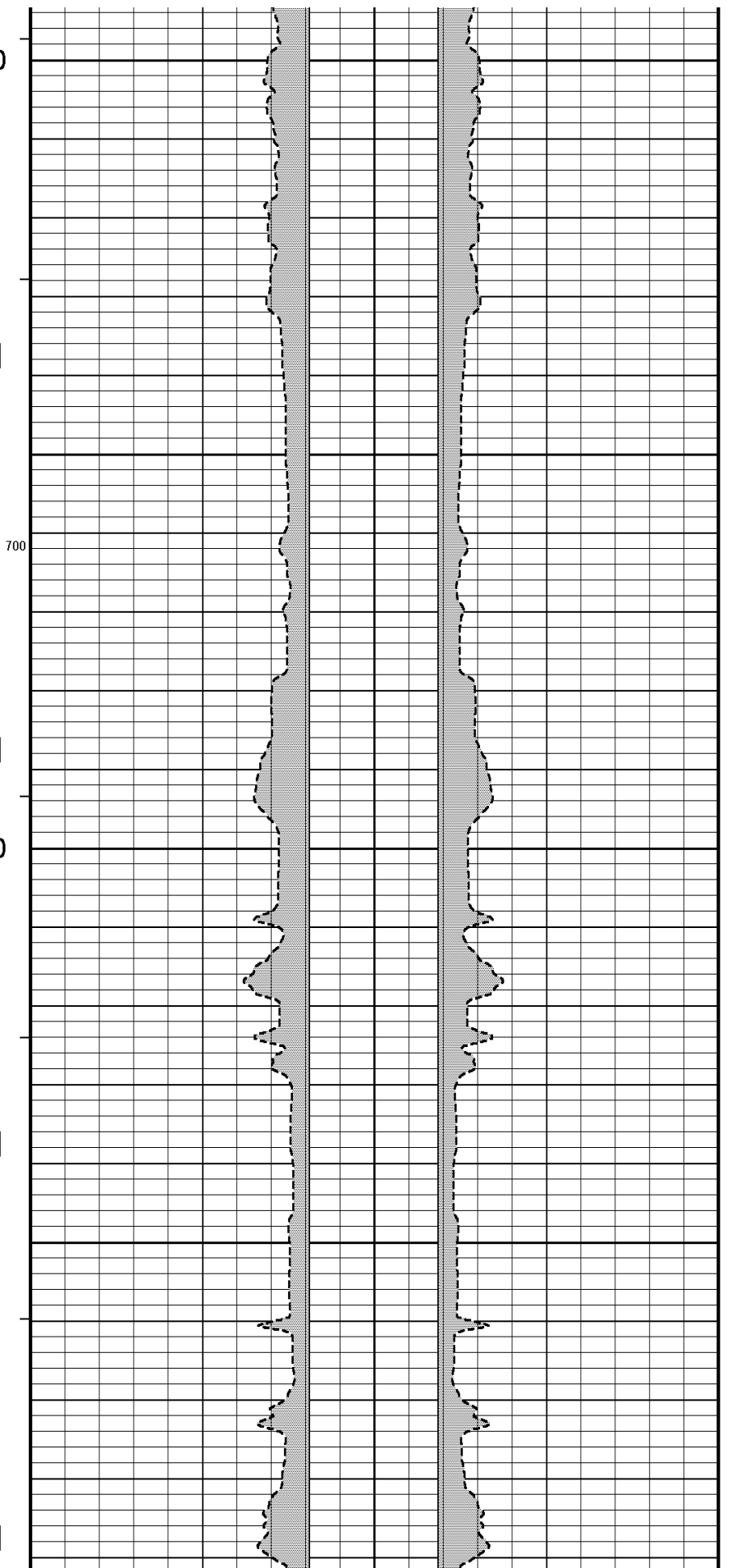
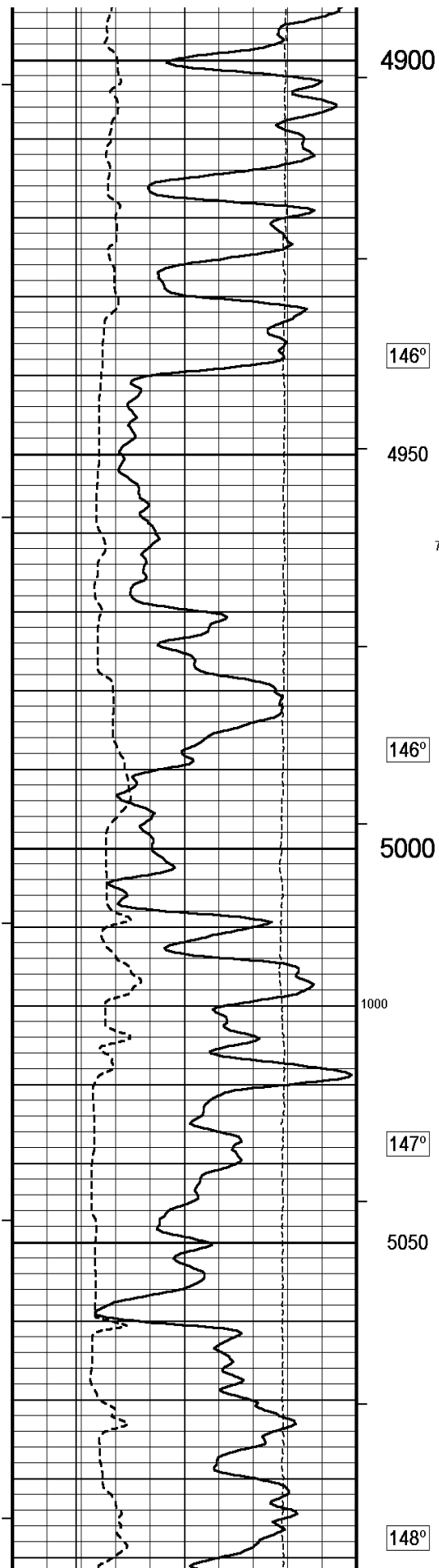


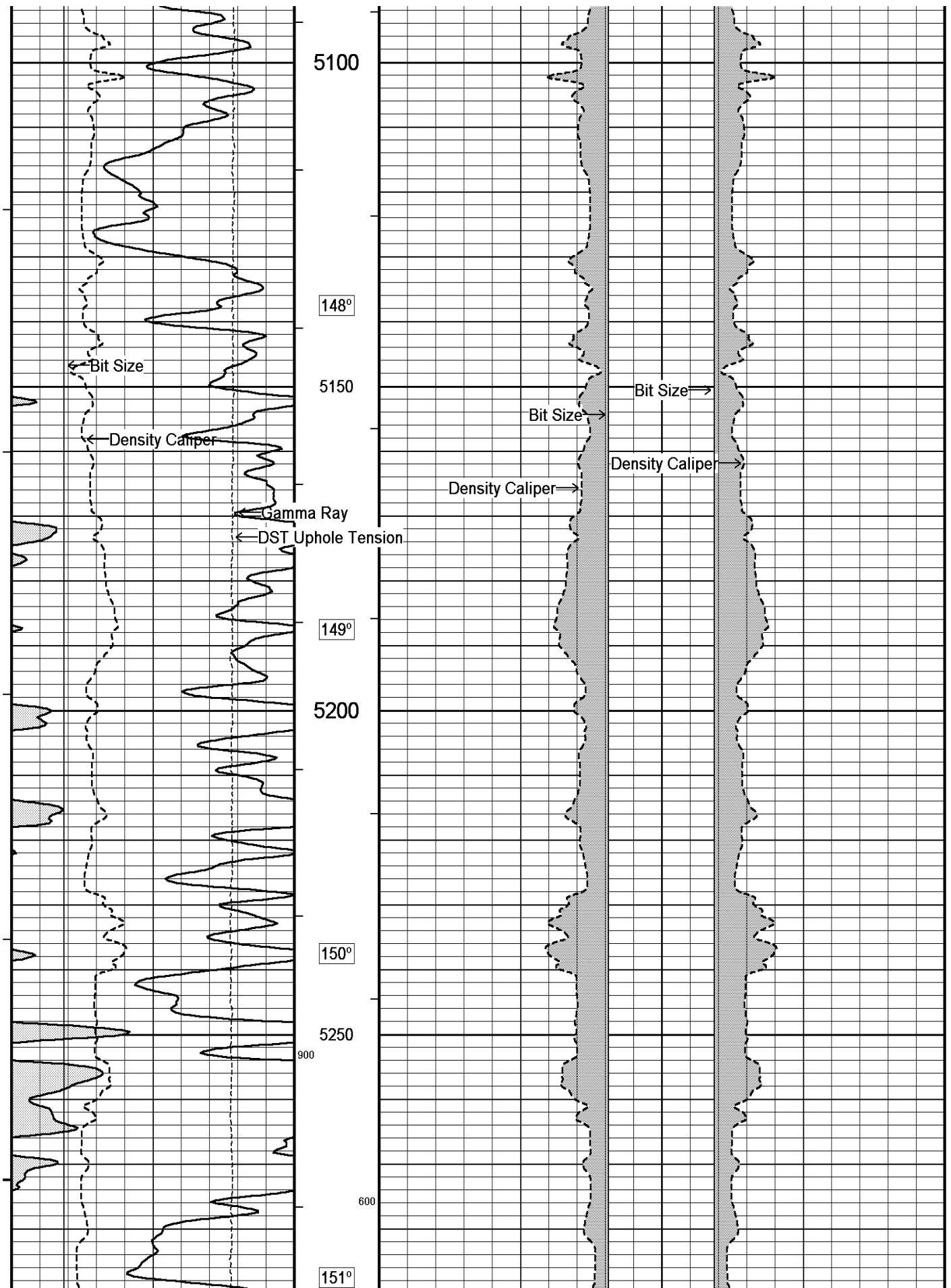


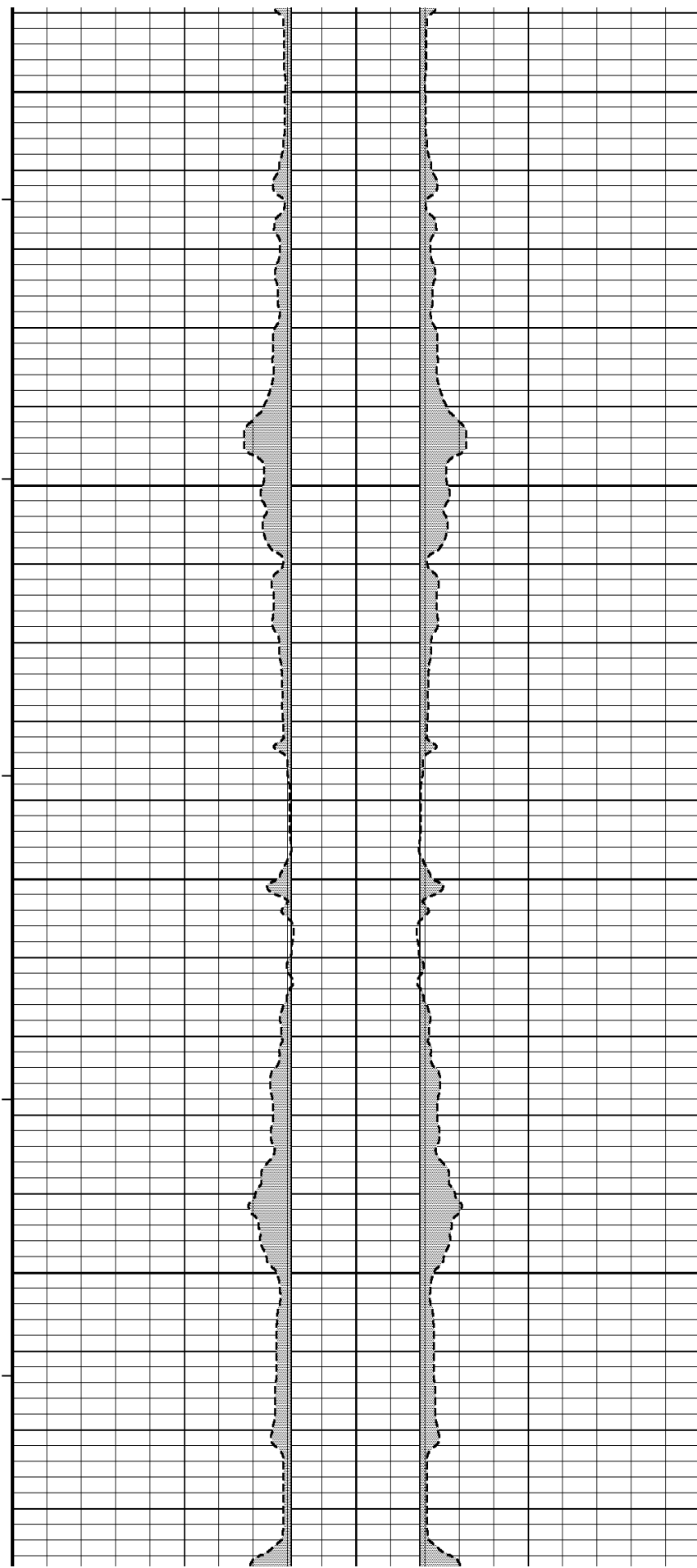
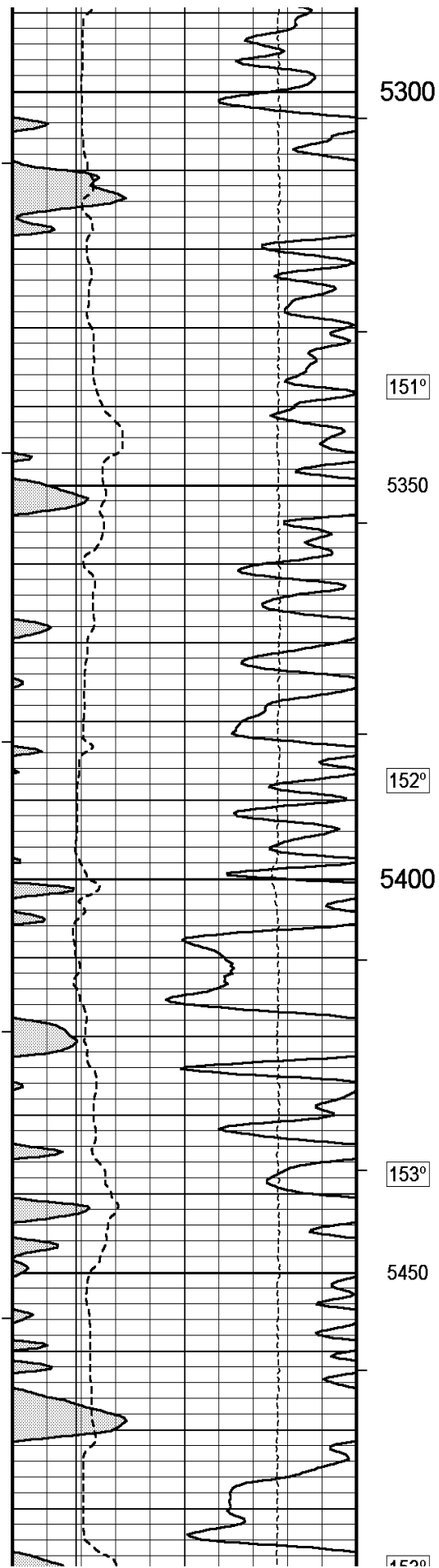


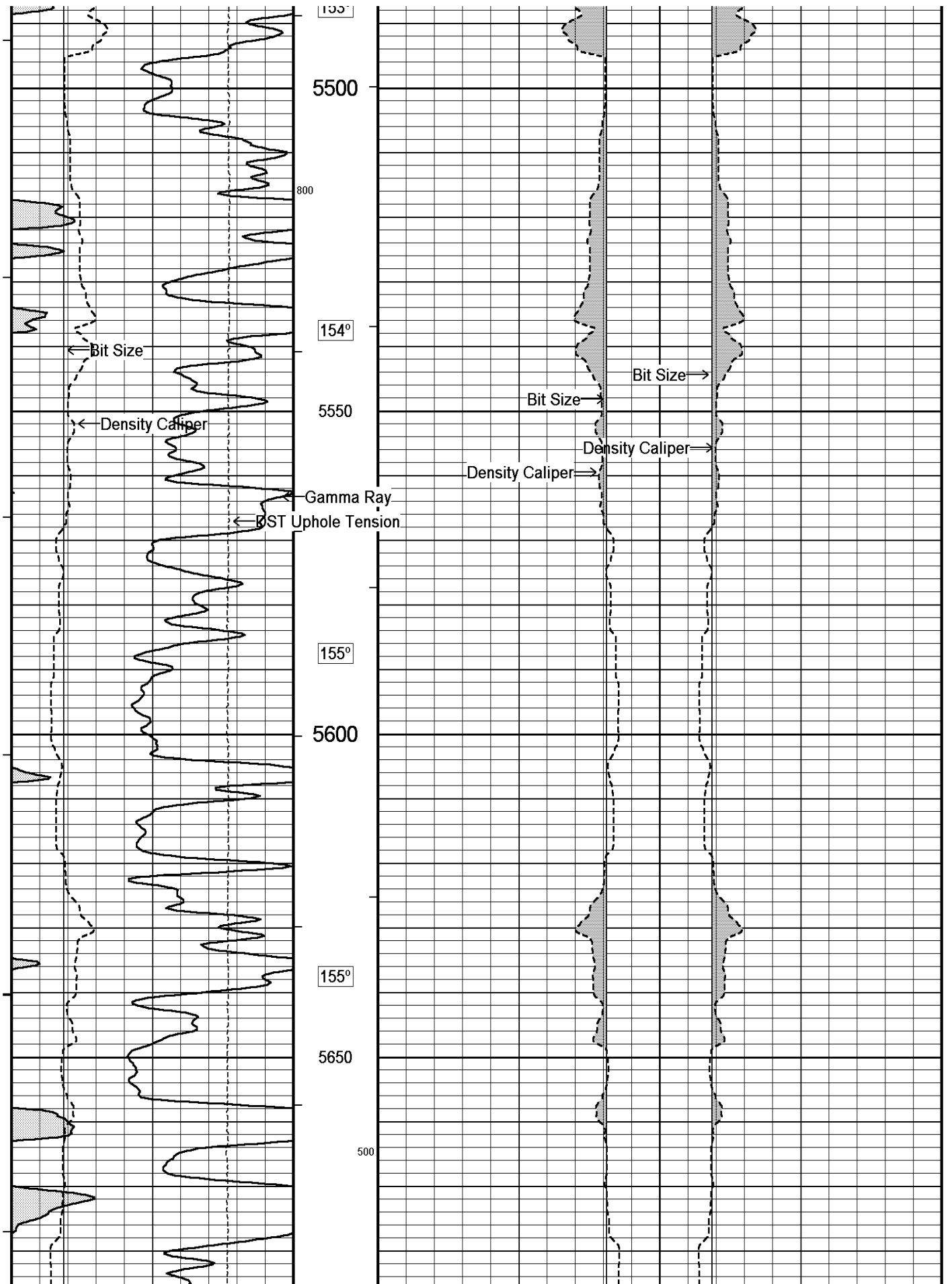


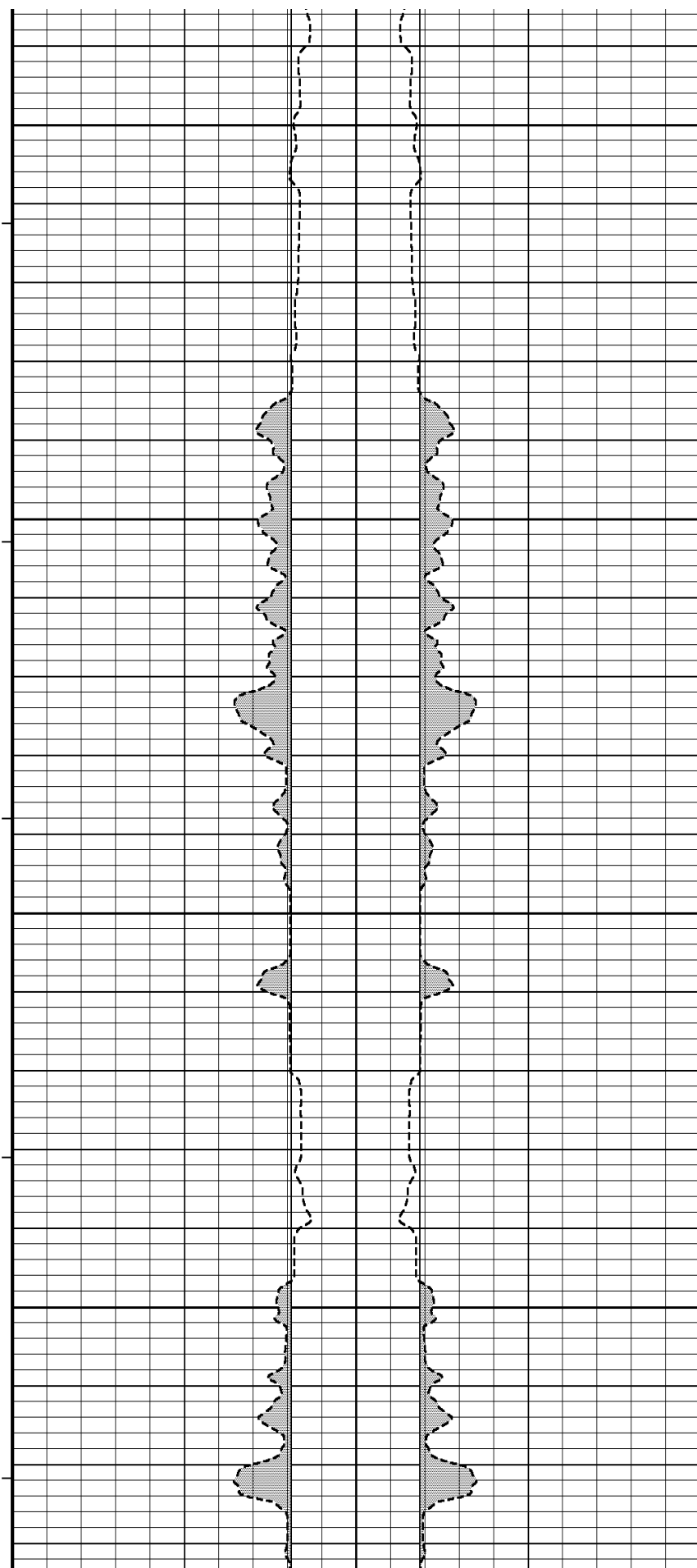
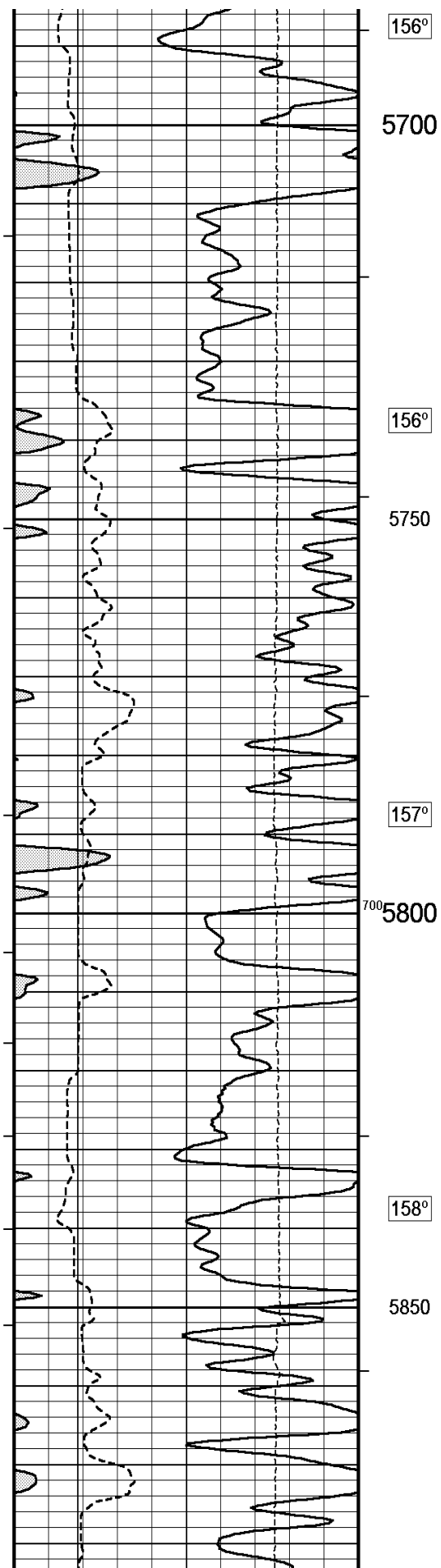




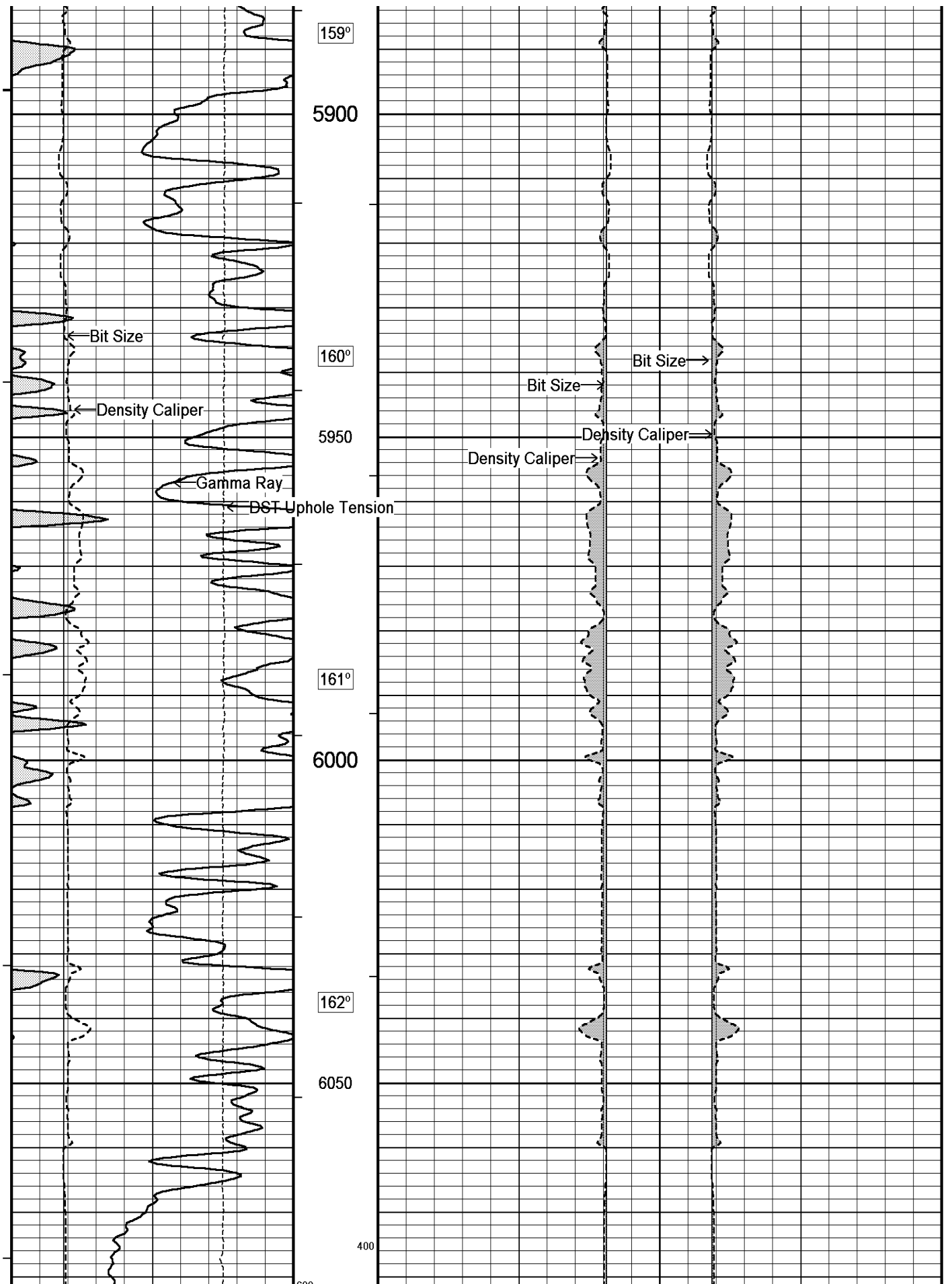


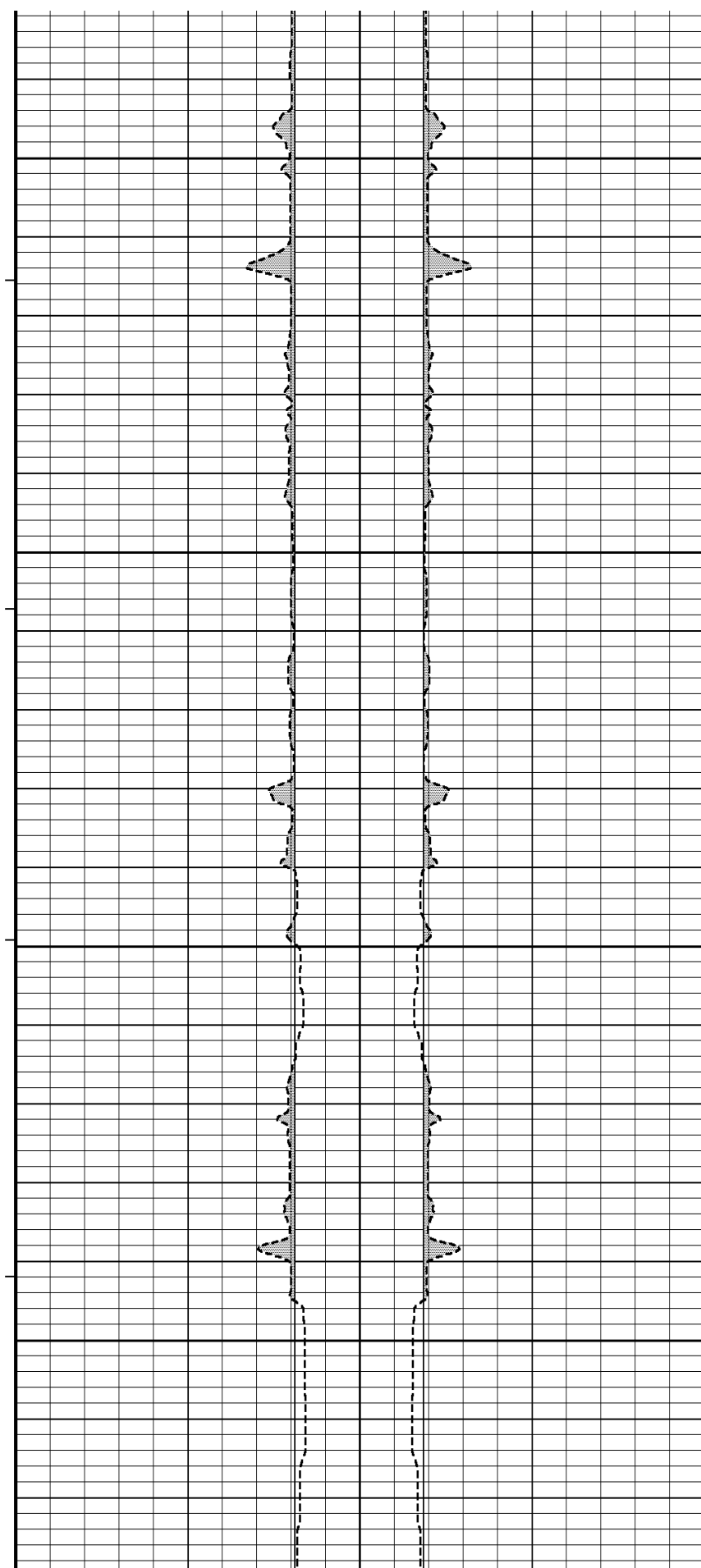
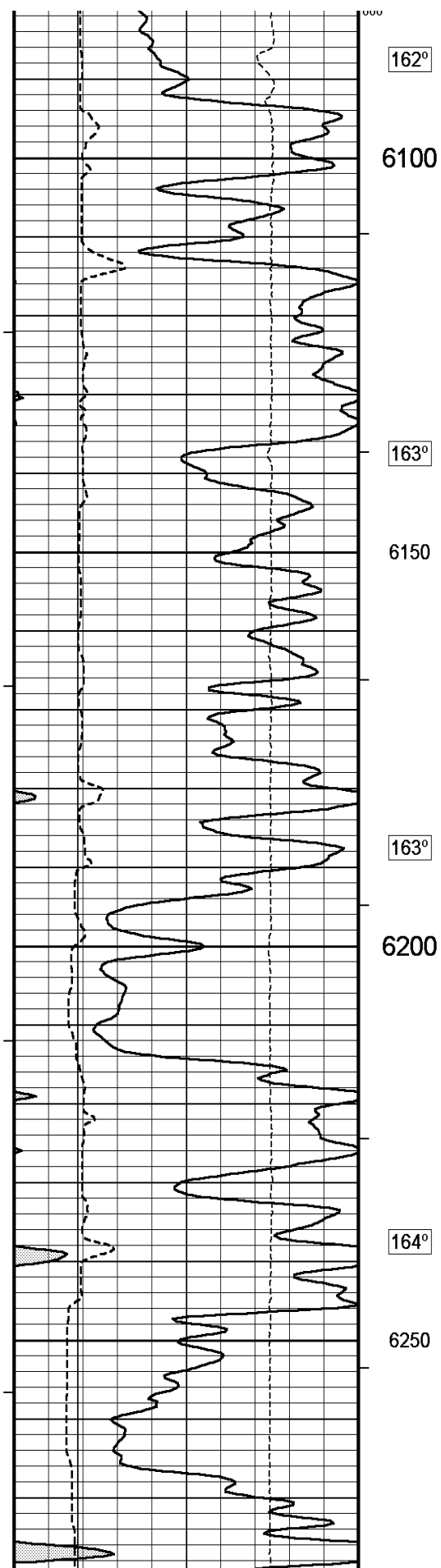


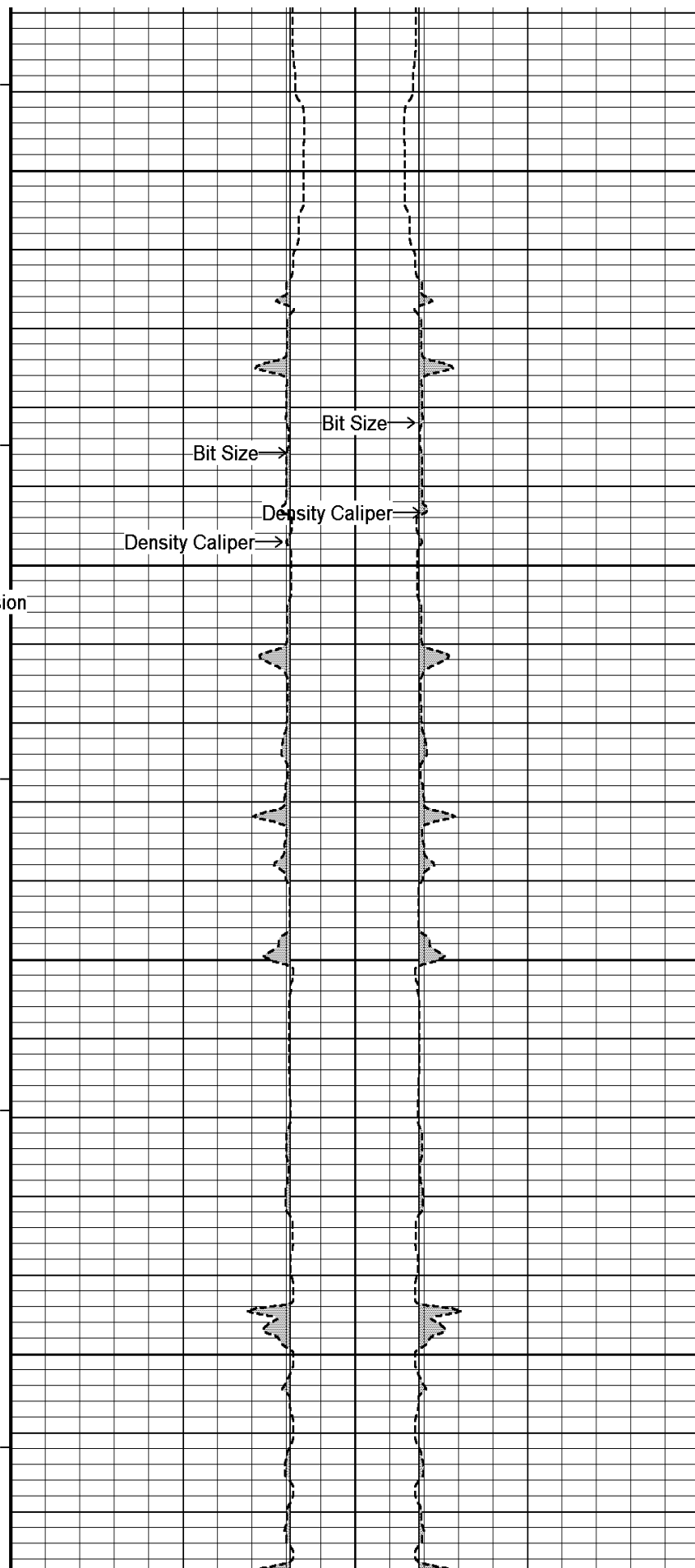
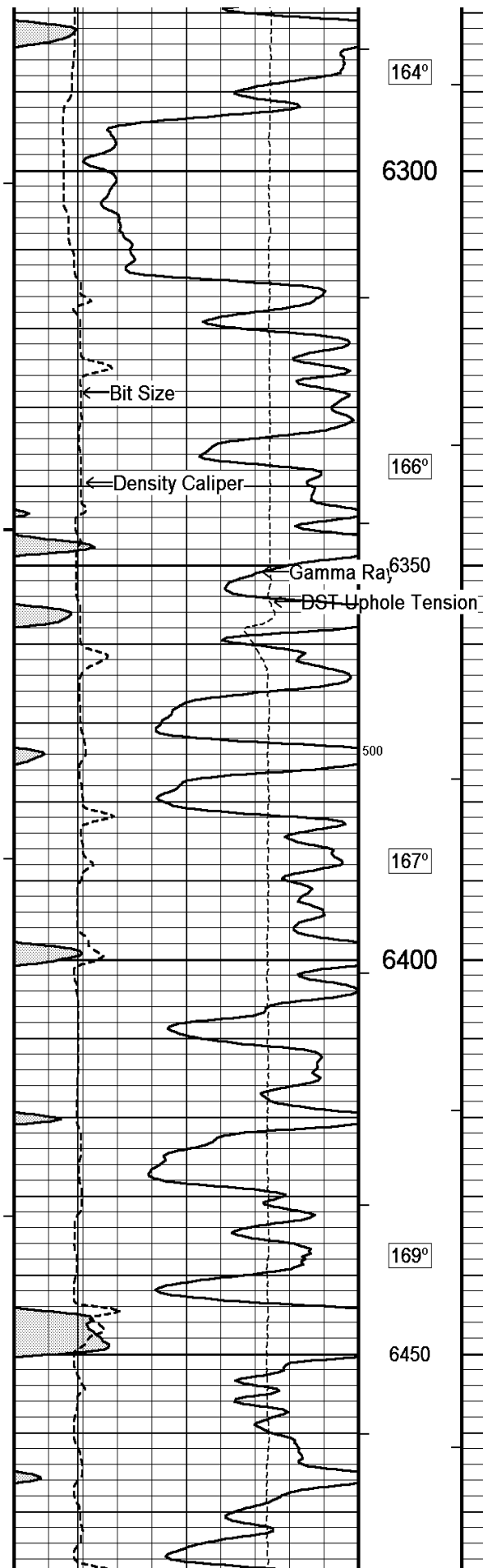


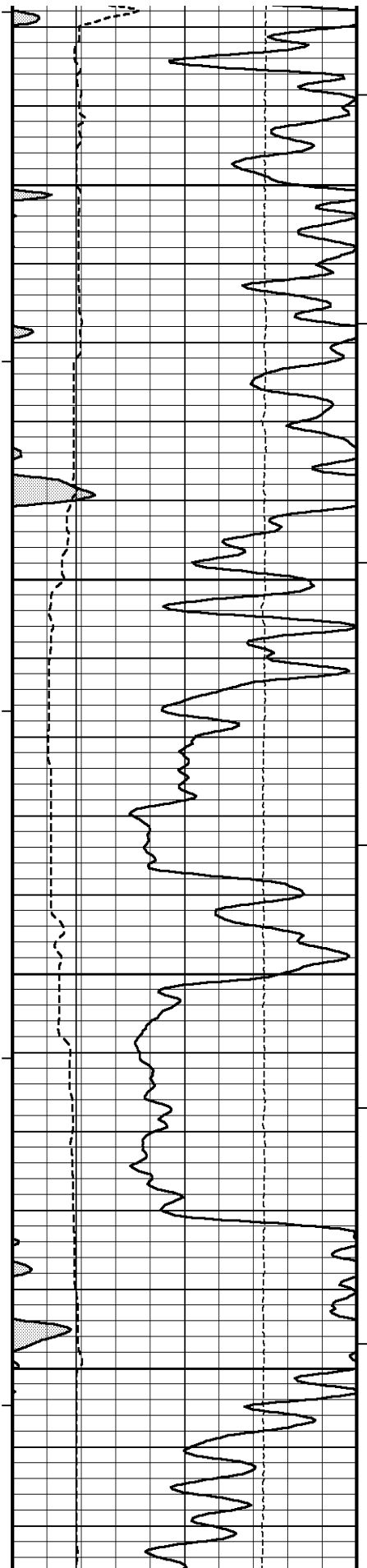












171°

6500

300

173°

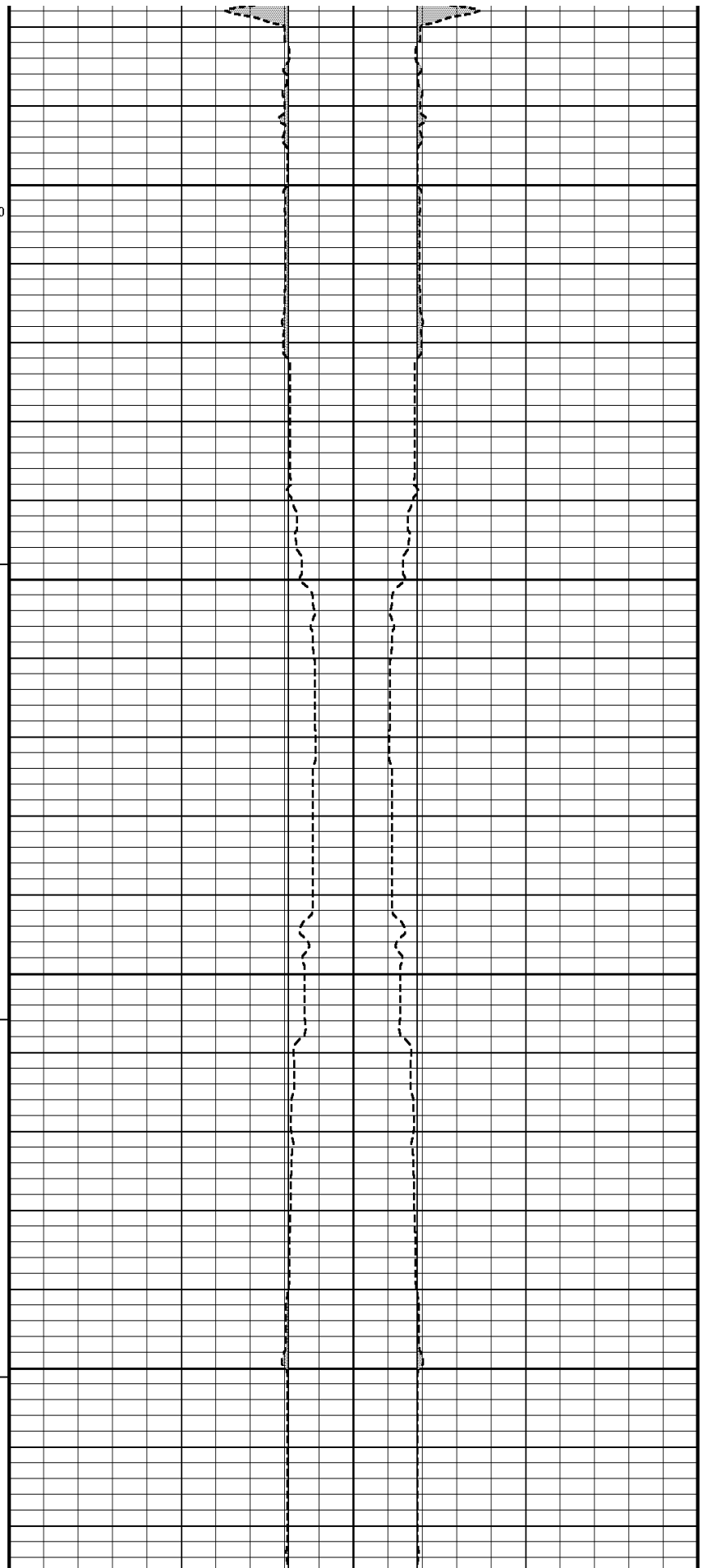
6550

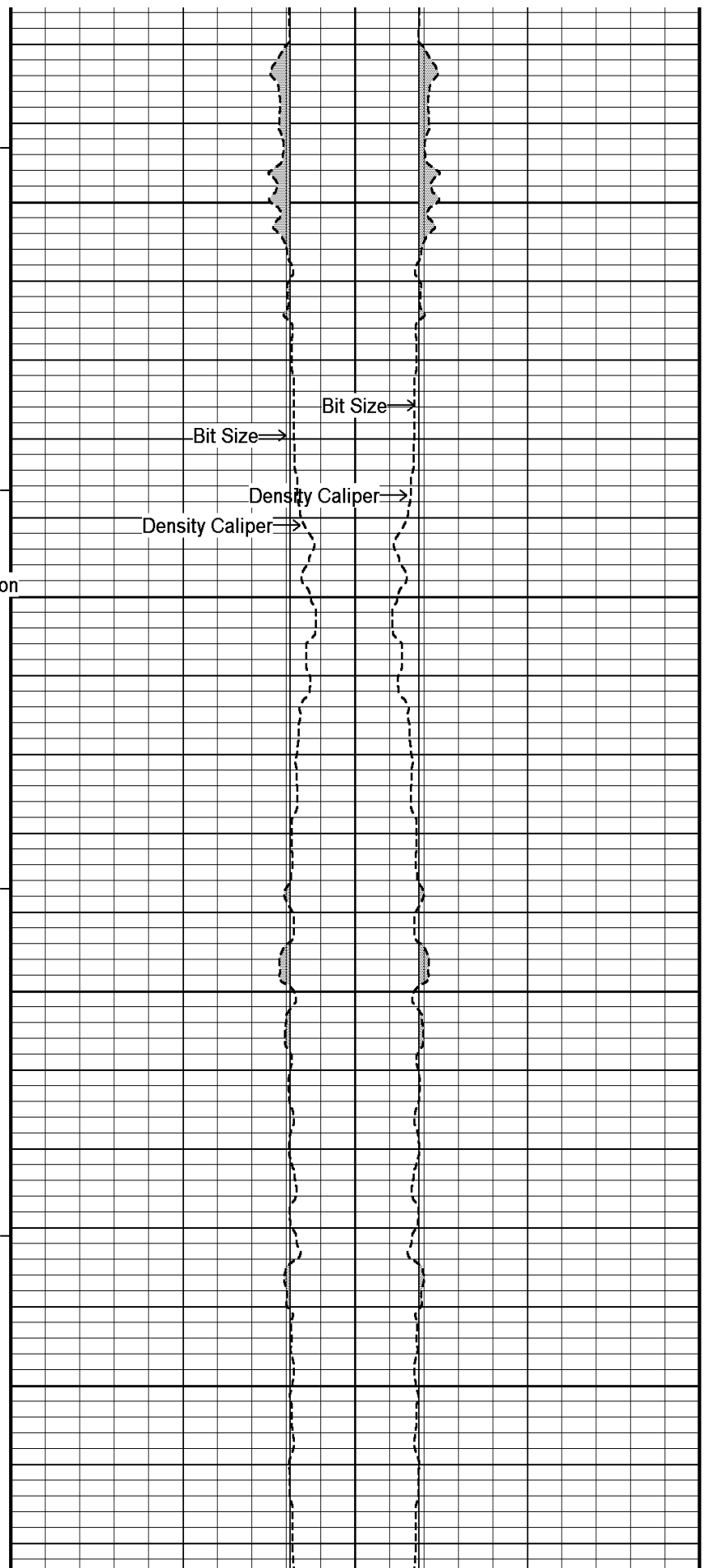
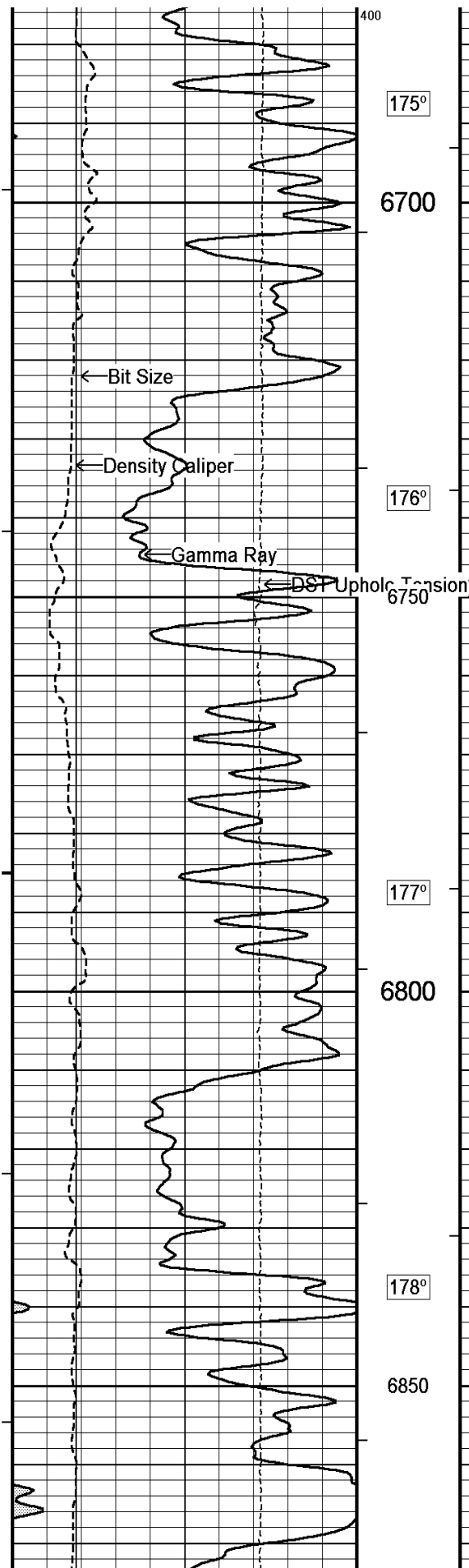
174°

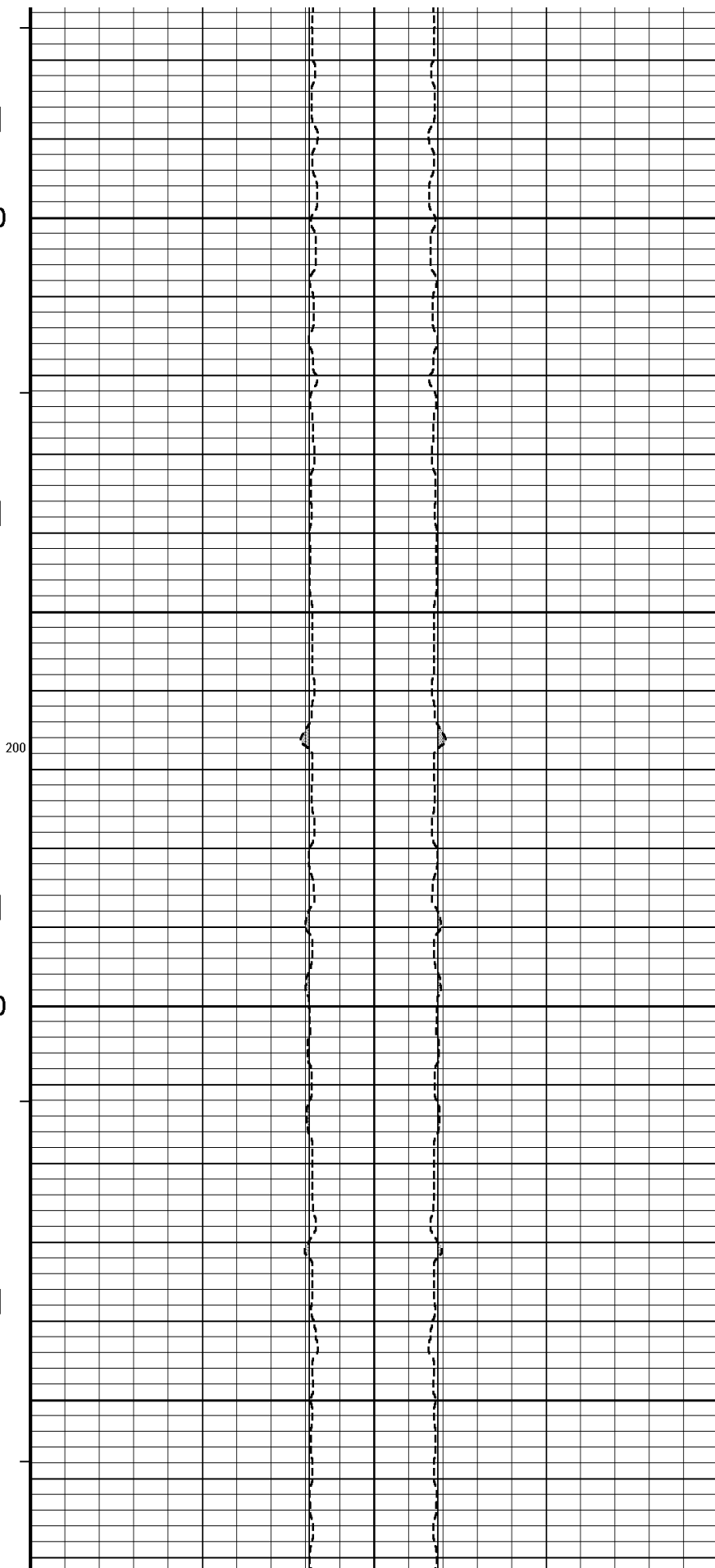
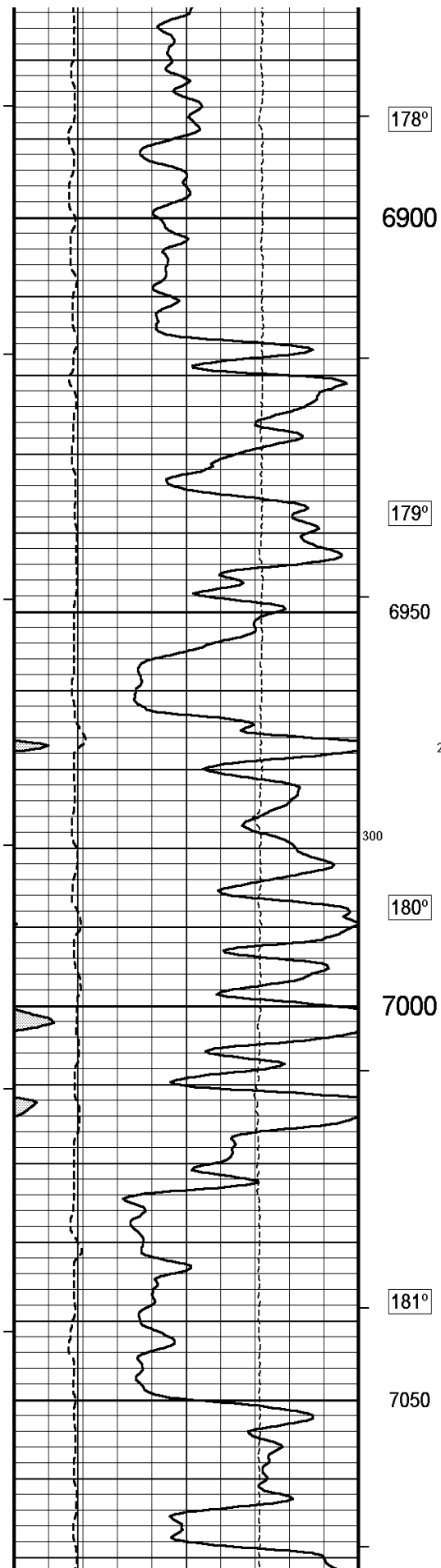
6600

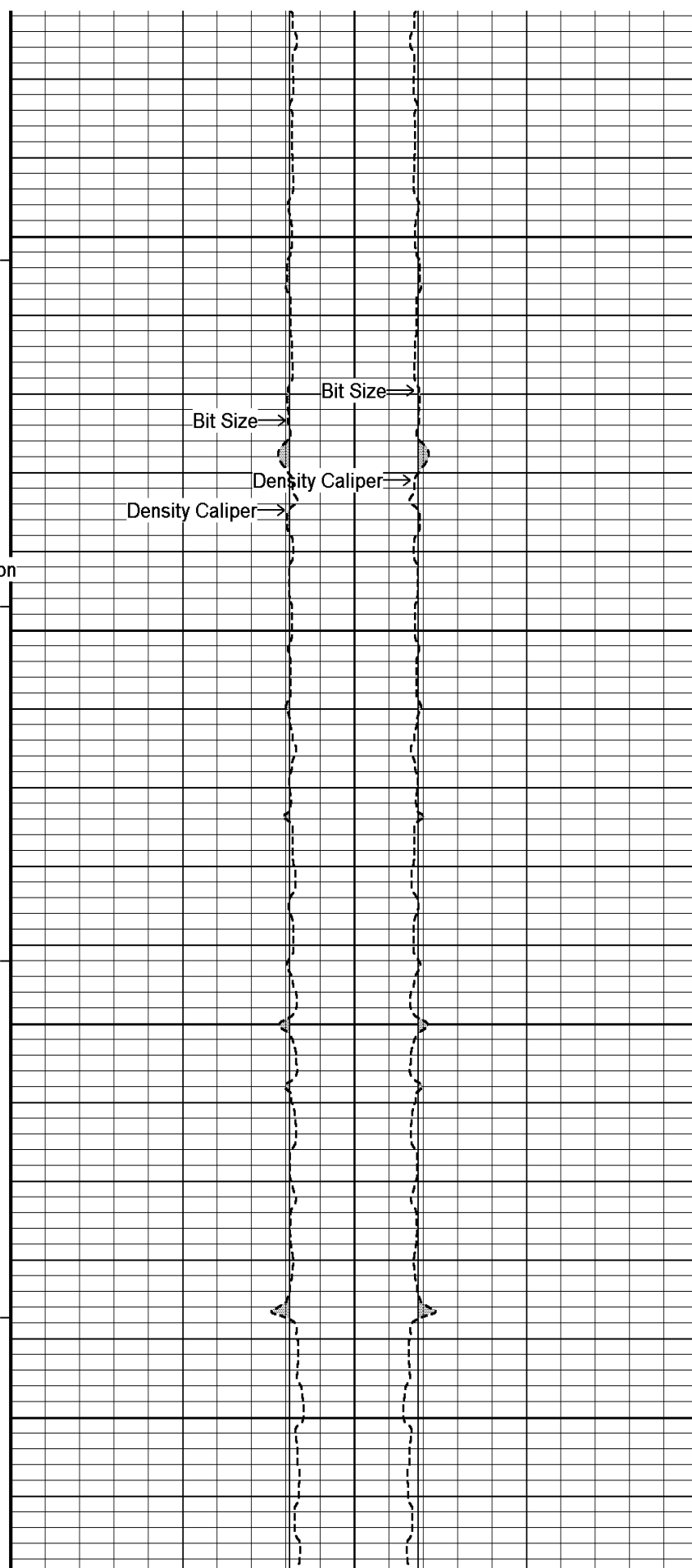
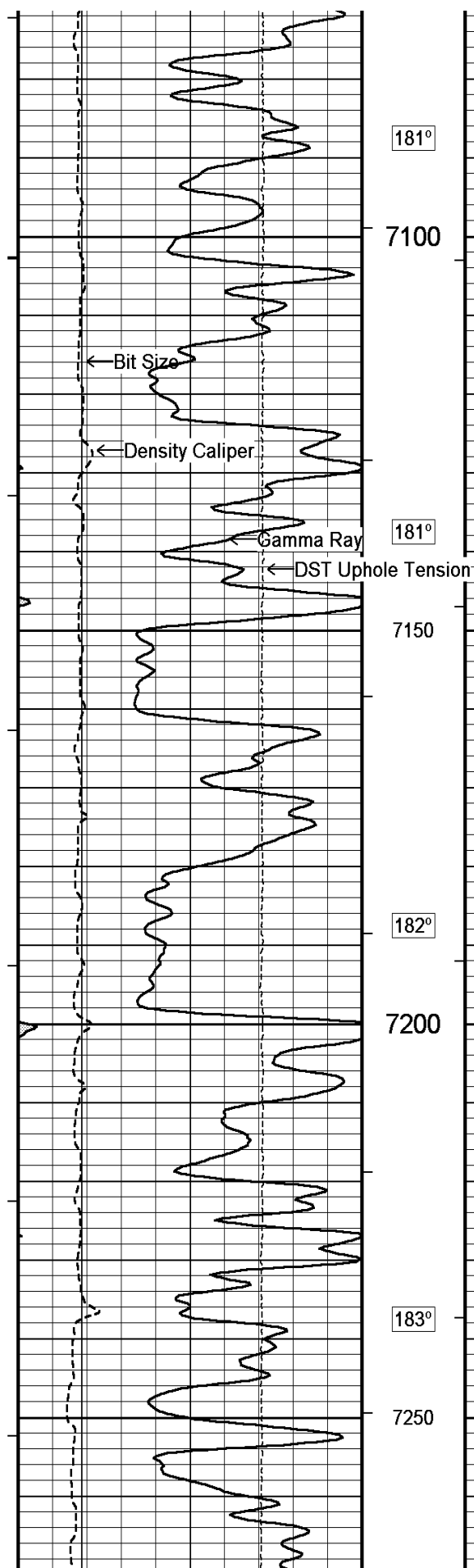
174°

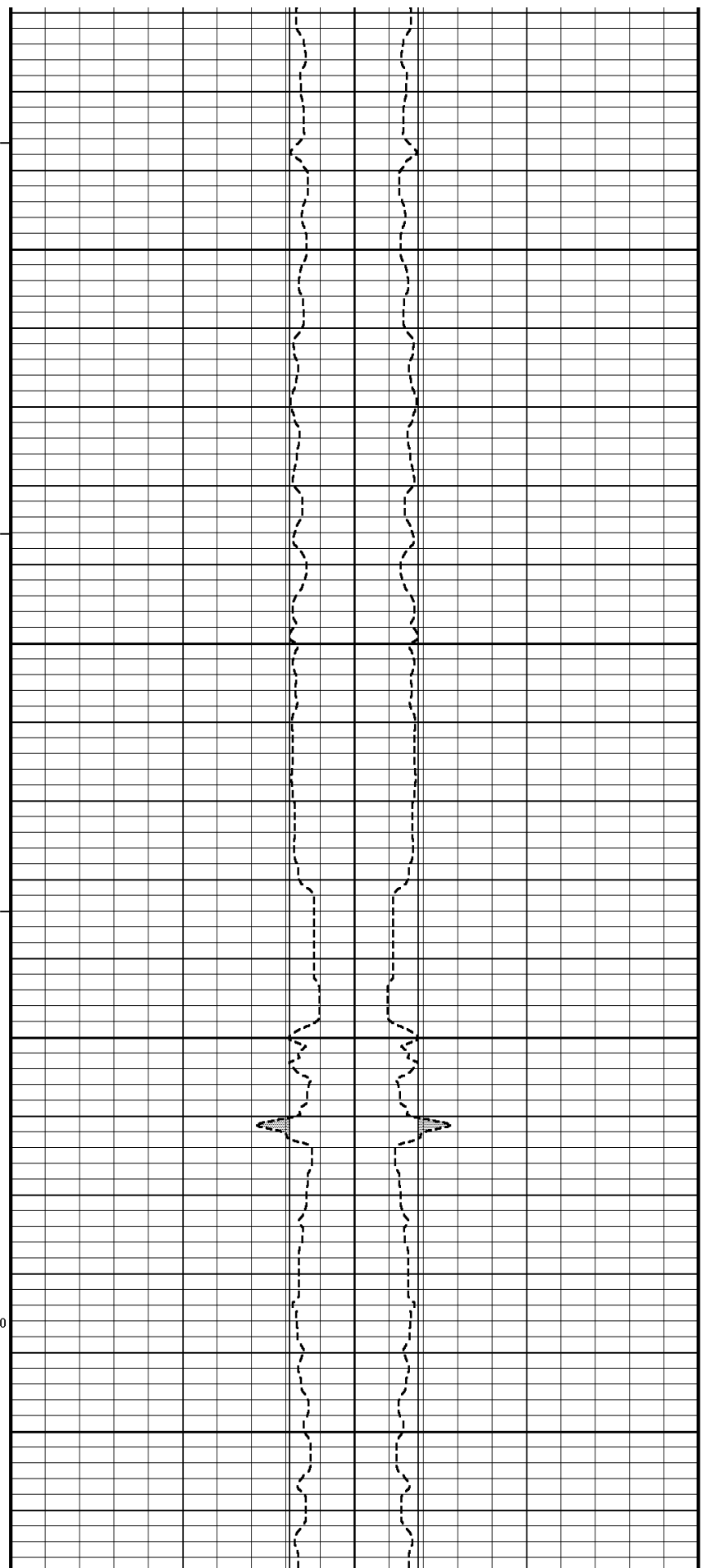
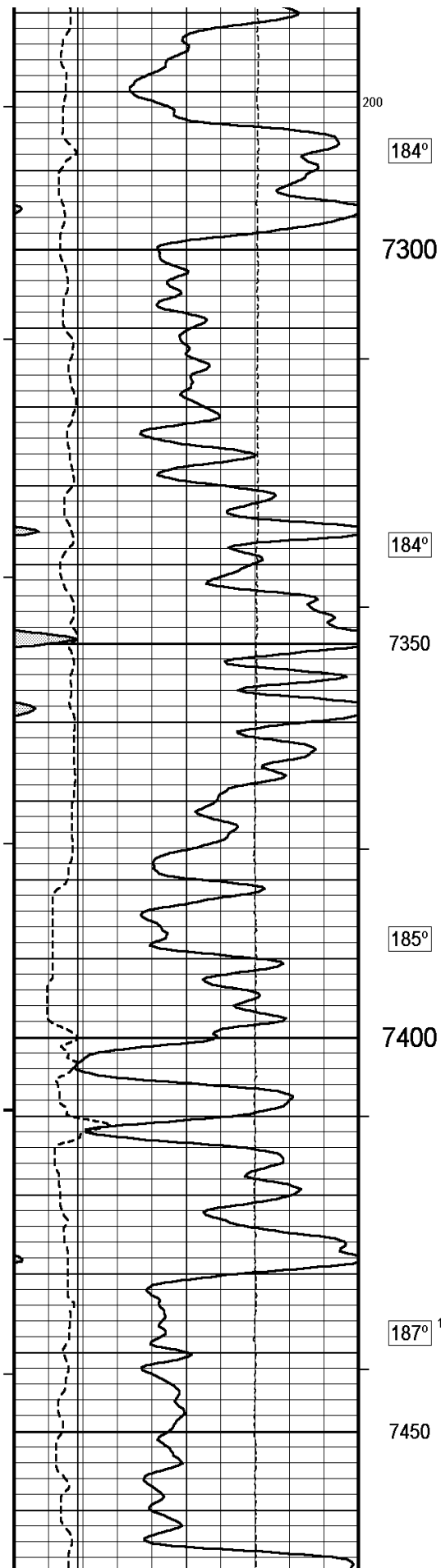
6650



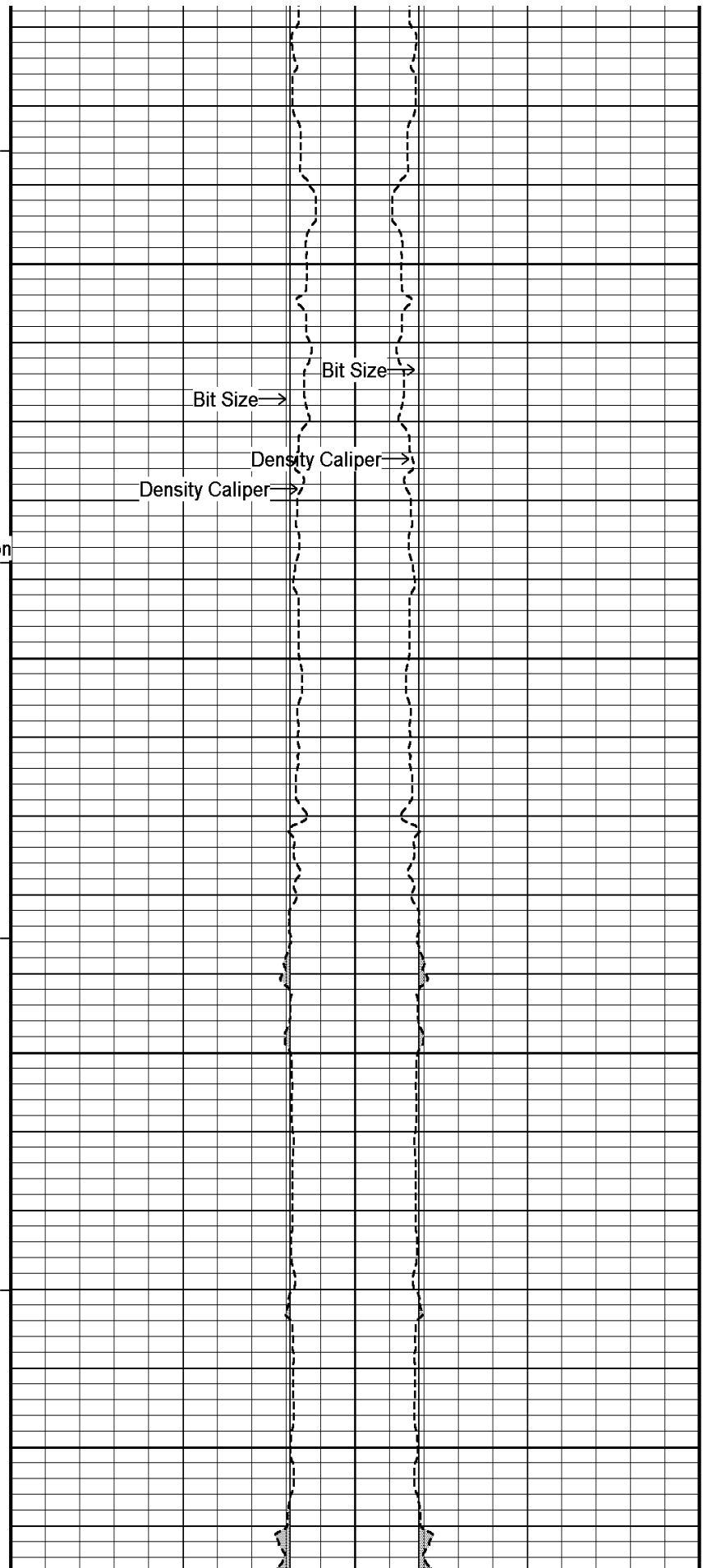
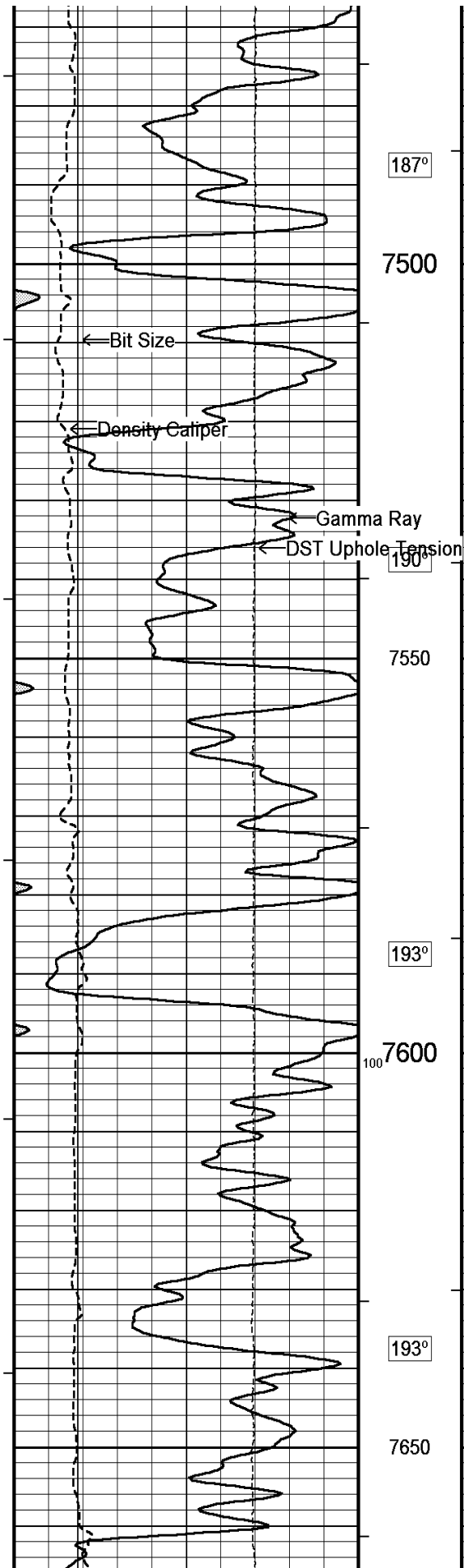


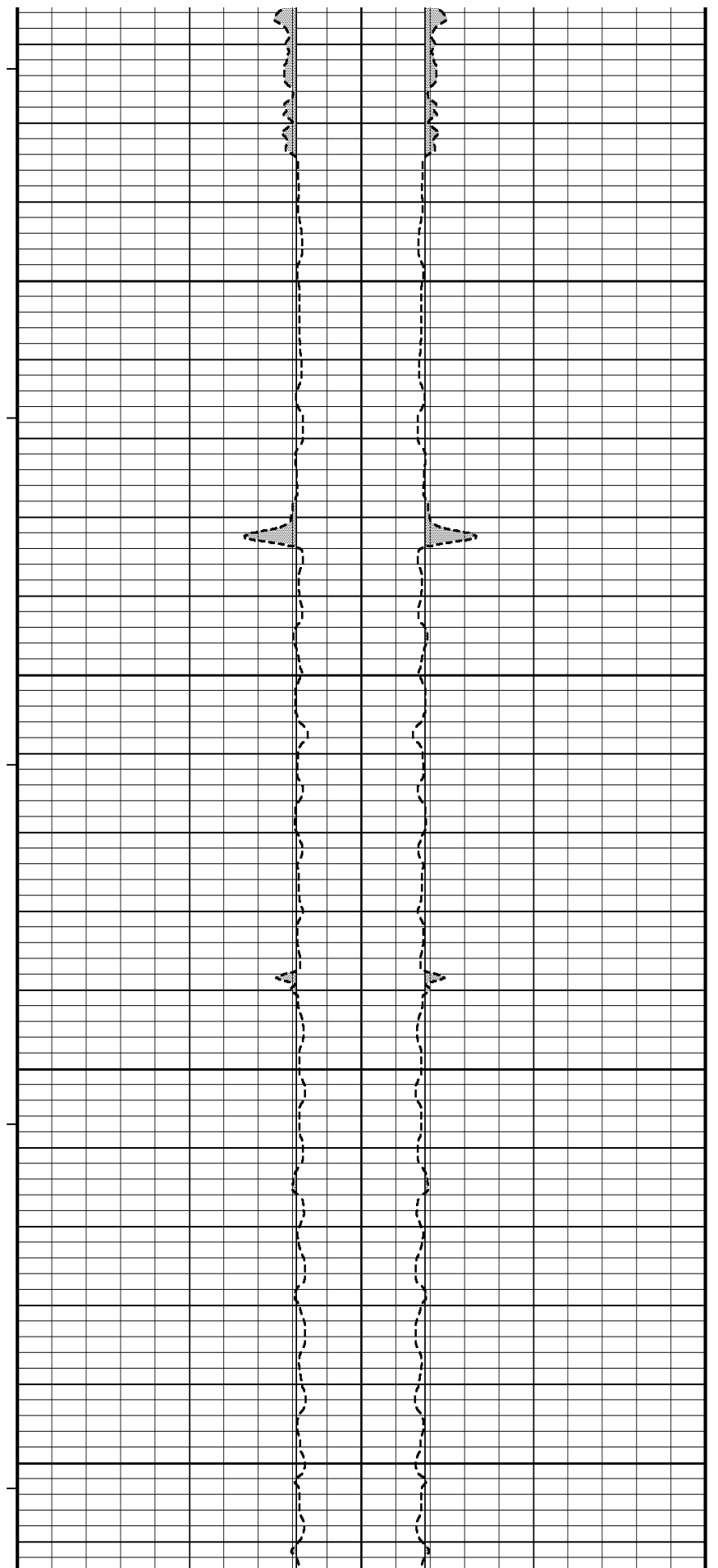
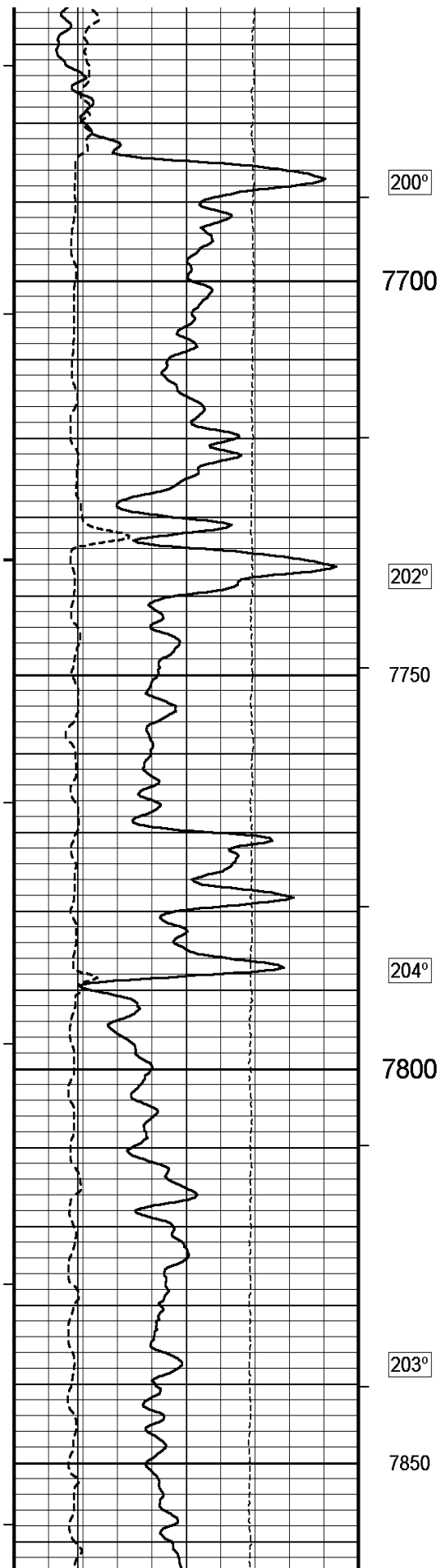


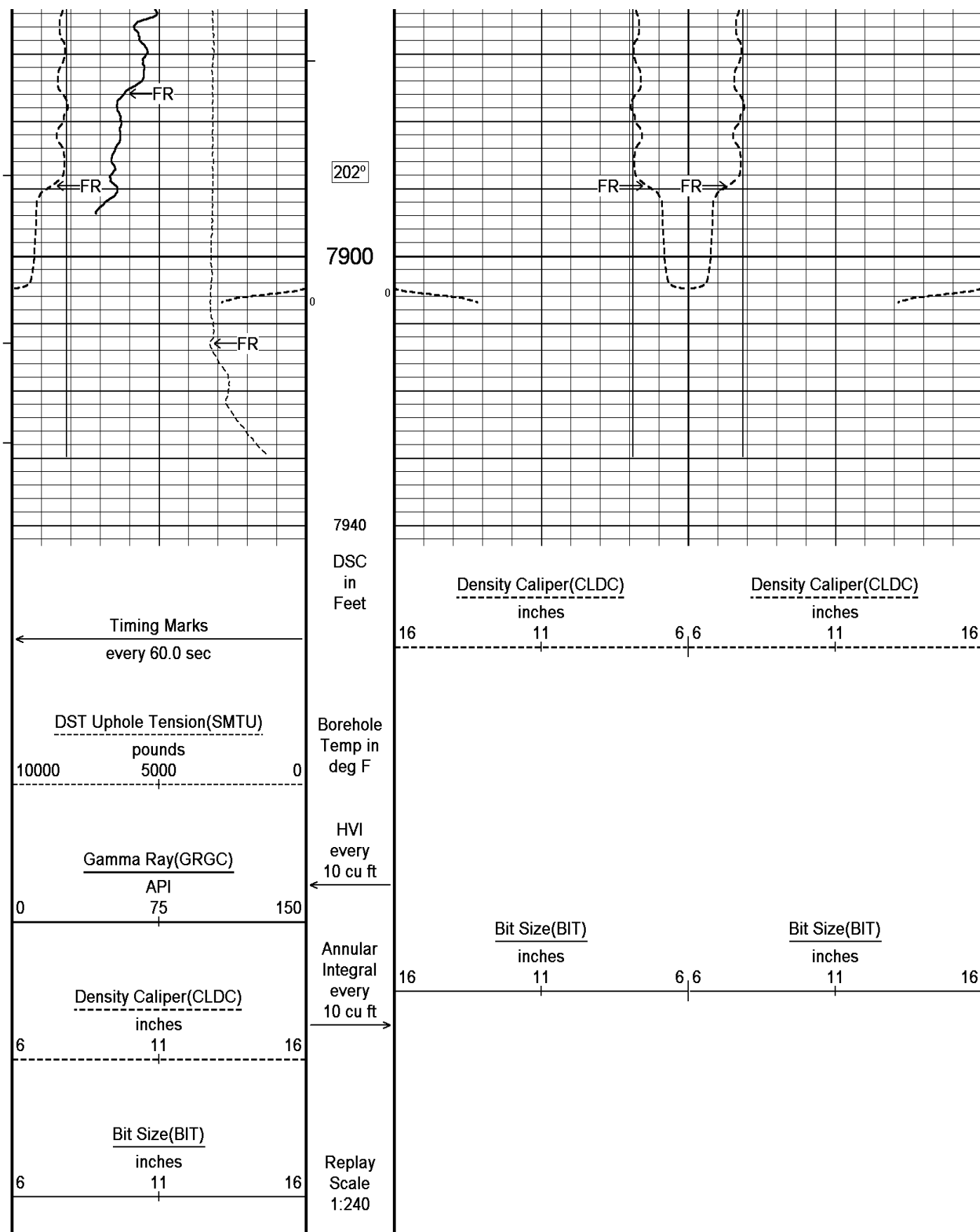












Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 15-JAN-2011 20:46

Filename: E:\LARAMIE ENERGY II\Laramie Energy II Brunton 30-02B4.dta

System Versions: Logged with 11.01.2198 Plotted with 11.01.2198



5 INCH CALIPER LOG



# BEFORE SURVEY CALIBRATION

E:\LARAMIE ENERGY II\Laramie Energy II Brunton 30-02B.dta

## General Constants All 000

Last Edited on 15-JAN-2011,10:00

### General Parameters

Mud Resistivity	2.730	ohm-metres
Mud Resistivity Temperature	65.000	degrees F
Water Level	0.000	feet
Density/Neutron 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	4.500	inches
Caliper for Differential Caliper	None	

### Rwa Parameters

Porosity used	Base Density Porosity
Resistivity used	Array Ind. One Res Rt
RWA Constant A	0.610
RWA Constant M	2.150

## Down-hole Tension Calibration SMS 0

Field Calibration on 15-JAN-2011 12:18

Reading No	Measured	Calibrated (lbs)
1	14531.91	0.00
2	16112.13	370.00

## High Resolution Temperature Calibration MCG-C 145

Field Calibration on 17-NOV-2010,12:09

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

## High Resolution Temperature Constants MCG-C 145

Last Edited on 24-NOV-2009,08:49

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

## SP Calibration MCG-C 145

Field Calibration on 27-DEC-2010 14:53

	Measured	Calibrated (mV)
Reference 1	103.2	100.1
Reference 2	-96.7	-100.1

## Gamma Calibration MCG-C 145

Field Calibration on 12-JAN-2011 11:33

	Measured	Calibrated (API)
Background	81	58
Calibrator (Gross)	753	538
Calibrator (Net)	672	480

## Gamma Constants MCG-C 145

Last Edited on 15-JAN-2011,08:50

Gamma Calibrator Number	GRCC 112	
Mud Density	1.00	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl	0.00	kppm

## Neutron Calibration MDN-B.A 191

Base Calibration on 22-DEC-2010 16:27

Field Check on 12-JAN-2011 11:40

Base Calibration

		Measured	Calibrated (cps)	
	Near	Far	Near	Far
	2878	90	3714	110
Ratio		32.150		33.764
Field Calibrator at Base			Calibrated (cps)	
			1662	2415
Ratio				0.688
Field Check			Calibrated (cps)	
			1658	2417
Ratio				0.686
Neutron Constants MDN-B.A 191				Last Edited on 15-JAN-2011,08:49
Neutron Source Id		P44382B		
Neutron Jig Number		6531NK		
Epithermal Neutron		No		
Caliper Source for Processing	Density Caliper			
Stand-off		0.00	inches	
Mud Density		1.00	gm/cc	
Limestone Sigma		7.10	cu	
Sandstone Sigma		7.00	cu	
Dolomite Sigma		4.70	cu	
Formation Pressure Source		None		
Formation Pressure		N/A	kpsi	
Temperature Source		None		
Temperature		N/A	degrees F	
Mud Salinity		0.00	kppm	
Formation Fluid Salinity Source		None		
Formation Fluid Salinity		N/A	kppm	
Barite Mud Correction		Not Applied		
Micro Normal and Micro Inverse Calibration MDN-B.A 191				Base Calibration on 3-MAY-2007 19:21 Field Check on
Base Calibration				
		Measured	Calibrated (ohm-m)	
Channel	Resistor 1	Resistor 2	Resistor 1	Resistor 2
Micro Normal	8.2	41.0	10.0	50.0
Micro Inverse	8.2	41.2	10.0	50.0
Channel	Base Check (ohm-m)		Field Check (ohm-m)	
Micro Normal		0.0		0.0
Micro Inverse		0.0		0.0
Micro Normal and Micro Inverse Constants MDN-B.A 191				Last Edited on 13-FEB-2007,11:14
Pad Type			0	
Micro Normal K Factor			1.0000	
Micro Inverse K Factor			1.0000	
Standoff Offset			N/A	inches
FE Calibration MFE-B.A 220				Base Calibration on 27-DEC-2010 16:26 Field Check on 12-JAN-2011 11:28
Base Calibration				
		Measured	Calibrated (ohm-m)	
Reference 1		0.0		0.0
Reference 2		964.5		126.8
Base Check				280.9
Field Check				281.1
FE Constants MFE-B.A 220				Last Edited on 15-JAN-2011,08:49

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	1.0	inches		

Induction Calibration MAI-B.J 362					Base Calibration on 27-DEC-2010,15:17	
					Field Check on 12-JAN-2011 11:25	
Base Calibration						
Test Loop Calibration		Measured		Calibrated (mmho/m)		
Channel	Low	High	Low	High		
1	16.0	468.7	9.3	966.2		
2	6.2	374.5	7.6	821.4		
3	3.6	258.3	5.2	566.0		
4	1.8	133.1	2.6	279.2		
Array Temperature		74.8	Deg F			
Channel	Base Check (mmho/m)		Field Check (mmho/m)			
	Low	High	Low	High		
1	14.0	3874.1	14.6	3875.2		
2	30.3	3606.6	30.4	3606.9		
3	28.3	3070.1	28.4	3070.1		
4	19.7	2079.7	19.7	2079.7		
Deep	17.4	1954.7	17.4	1954.7		
Medium	41.1	4078.2	41.1	4078.1		
Shallow	45.3	5402.0	45.3	5402.4		
Array Temperature		46.1		56.4	Deg F	

Induction Constants MAI-B.J 362					Last Edited on 15-JAN-2011,08:47	
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		1.00	inches			
Number of Fins on Stand-off		6.0000				
Stand-off Fin Angle		60.00	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			
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-B.J 362			Field Calibration on 17-NOV-2010,12:11
	Measured	Calibrated(Deg F)	
Lower	10.00	50.00	
Upper	100.00	212.00	

High Resolution Temperature Constants MAI-B.J 362			Last Edited on
Pre-filter Length	11		

Caliper Calibration MPD-C.A 215			Base Calibration on 07-JAN-2011 01:06	Field Calibration on 12-JAN-2011 11:19
Base Calibration				
Reading No	Measured	Calibrator Size (in)		
1	15212	3.99		
2	23984	5.96		
3	32799	7.99		
4	40800	9.86		
5	50187	11.93		
6	N/A	N/A		
Field Calibration				
	Measured Caliper (in)	Actual Caliper (in)		
	7.93	7.99		

Photo Density Calibration MPD-C.A 215			Base Calibration on 07-JAN-2011 01:23	Field Check on 12-JAN-2011 11:17
Density Calibration				
Base Calibration		Measured	Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	43536	15059	52994	19128
Reference 2	20646	2470	25185	2558
Field Check at Base				
	1316.1	1398.6		
Field Check				
	1314.3	1384.5		
PE Calibration				
Base Calibration		Measured	Calibrated	
	WS	WH	Ratio	Ratio
Background	239	1177		
Reference 1	14681	43360	0.342	0.309
Reference 2	5763	20497	0.286	0.274
Field Check at Base				
	239.0	1176.6		
Field Check				
	240.0	1176.9		

Density Constants MPD-C.A 215			Last Edited on 15-JAN-2011,08:48
Density Source Id	2859GW		
Nylon Calibrator Number	DNC-E-527		
Aluminium Calibrator Number	DAC-D-527		
Density Shoe Profile	8 inch		

Caliper Source for Processing	Density Caliper	
PE Correction to Density	Not Applied	
Mud Density	1.31	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 (ft)	
2.68	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

E:\LARAMIE ENERGY II\Laramie Energy II Brunton 30-02B.dta

MCB-A.A 11B Tension Cablehead  
MCB-A.A 102 LG: 2.40 ft WT: 19.8 lb OD: 2.24 in

SHA-F Compact Swivel Head Adaptor  
SHA-F 38 LG: 2.74 ft WT: 26.5 lb OD: 2.24 in

Compact Comms Gamma  
MCG-C 145 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Compact Neutron  
MDN-B.A 191 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

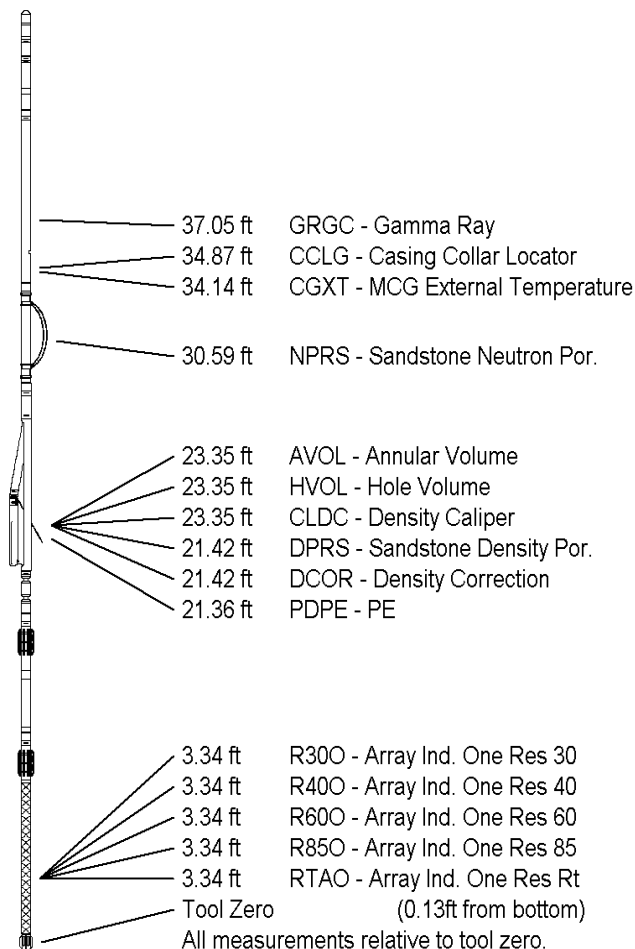
Compact Density/Caliper  
MPD-C.A 215 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

SKJ-D.A Compact Knuckle Joint  
SKJ-D.A 66 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

Compact Focussed Electric  
MFE-B.A 220 LG: 6.03 ft WT: 48.5 lb OD: 2.24 in

Compact Induction  
MAI-B.J 362 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 47.47 ft Weight: 372.6 lb



COMPANY  
WELL

LARAMIE ENERGY II  
BRUNTON 30-02B



FIELD VEGA  
PROVINCE/COUNTY MESA  
COUNTRY/STATE U.S.A. / COLORADO

Elevation Kelly Bushing	7366.00	feet	First Reading	7889.00	
Elevation Drill Floor	7365.00	feet	Depth Driller	7910.00	feet
Elevation Ground Level	7345.00	feet	Depth Logger	7913.00	feet



**Weatherford®**

HOLE VOLUME  
CALIPER  
LOG

