Weatherford®

HOLE VOLUME DENSITY CALIPER LOG

COMPANY	ENCANA
WELL	HERREN 1A-33H
FIELD	WATTENBERG
PROVINCE/COUNTY	WELD
COUNTRY/STATE	U.S.A. / COLORADO
LOCATION	SHL: 246' FNL & 253' FEL
	BHL: 1320' FNL & 460' FWL

40 Years of Wireline 1970 2010

FIELD PRINT

SEC	TWP	RGE
33	3N	67W

API Number 05-123-33249-00
Permit Number

Other Services
MAI
MPD/MDN
CMI

Permanent Datum G.L., Elevation 4824 feet
Log Measured From K.B.@ 12 FEET above Permanent Datum
Drilling Measured From KB

Elevations:	feet
KB	4836.00
DF	
GL	4824.00

Date	15-JUN-2011			
Run Number	ONE			
Depth Driller	11643.00	feet		
Depth Logger	11643.00	feet		
First Reading	11564.00	feet		
Last Reading	7438.00	feet		
Casing Driller	7438.00	feet		
Casing Logger	7438.00	feet		
Bit Size	6.125	inches		
Hole Fluid Type	WBM			
Density / Viscosity	10.50 lb/USg	33.00 CP		
PH / Fluid Loss	8.00	22.00 ml/30Min		
Sample Source	FLOW LINE			
Rm @ Measured Temp	1.62 @ 92.0	ohm-m		
Rmf @ Measured Temp	1.30 @ 92.0	ohm-m		
Rmc @ Measured Temp	1.94 @ 92.0	ohm-m		
Source Rmf / Rmc	CALC	CALC		
Rm @ BHT	0.69 @220.0	ohm-m		
Time Since Circulation	0.5 HOURS			
Max Recorded Temp	237.00	deg F		
Equipment Name	COMPACT			
Equipment / Base	13038	GD JCT		
Recorded By	S.LACKEY			
Witnessed By	BILL LaFORCE			

BOREHOLE RECORD

Last Edited: 15-JUN-2011 15:52

Bit Size inches	Depth From feet	Depth To feet
6.125	7438.00	11643.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	9.625	0.00	832.00	40.00
INTERM	7.000	832.00	7438.00	26.00

REMARKS

SOFTWARE VERSION USED: 11.02.3186

TOOLS CONVEYED VIA COMPACT WELL SHUTTLE.

HARDWARE USED: SEE TOOL DIAGRAM.

ALL DEPTHS RECORDED WITH WEATHERFORD TOTCO DEPTH SYSTEM.
ALL DEPTHS CORRECTED TO DRILLER'S STRAP DEPTH.

4.5 INCH PRODUCTION CASING USED TO CALCULATE ANNULAR HOLE VOLUME.

ANNULAR HOLE VOLUME FROM T.D. TO INTER. CASING = 460 CUBIC FEET

TOTAL HOLE VOLUME FROM T.D. TO INTER. CASING = 910 CUBIC FEET

BOREHOLE SIZE AND RUGOSITY WILL AFFECT DATA QUALITY.

TIGHT PULLS WILL AFFECT DATA QUALITY.

RIG: ENSIGN 135

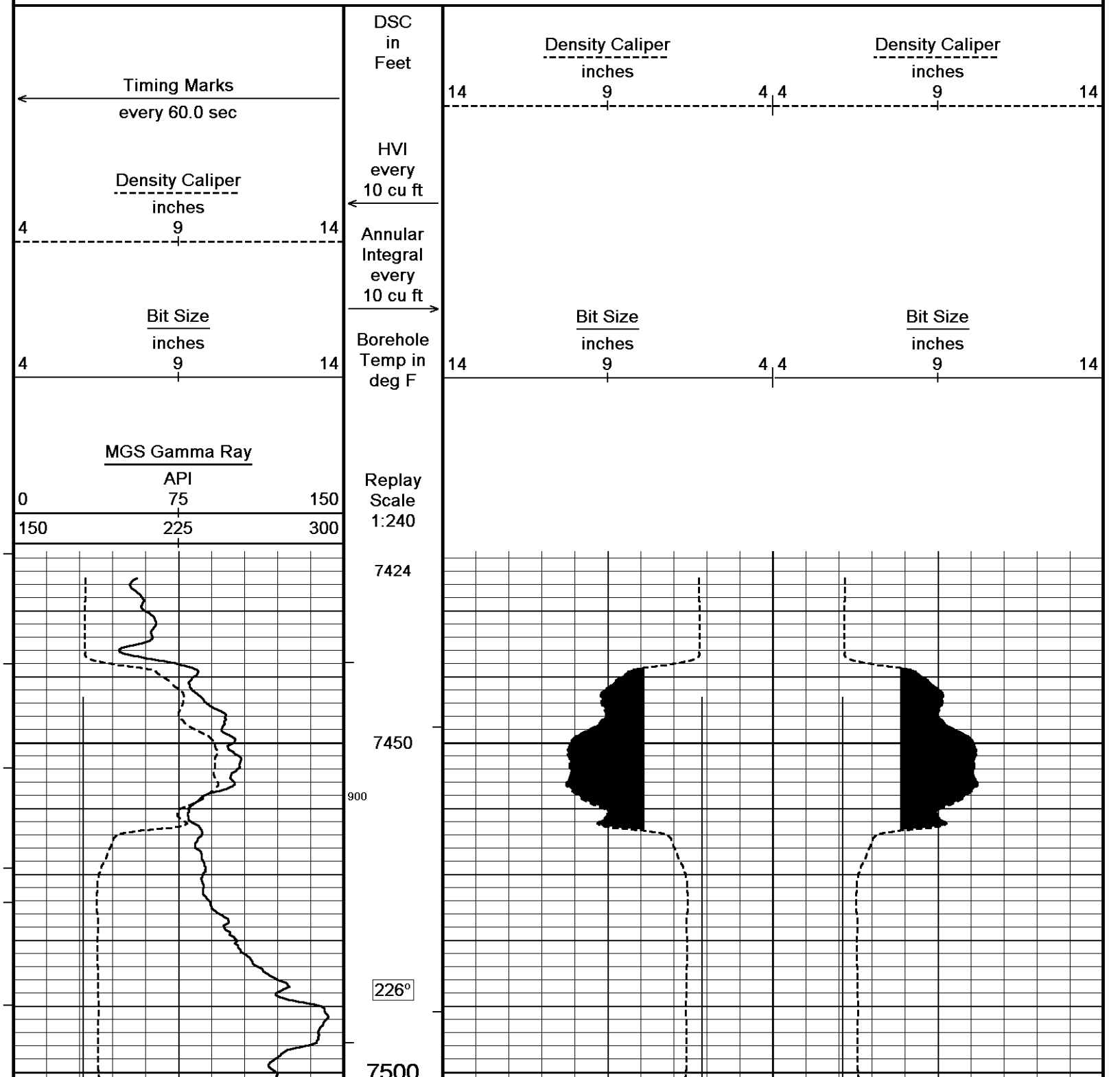
SERVICE ORDER #3526186

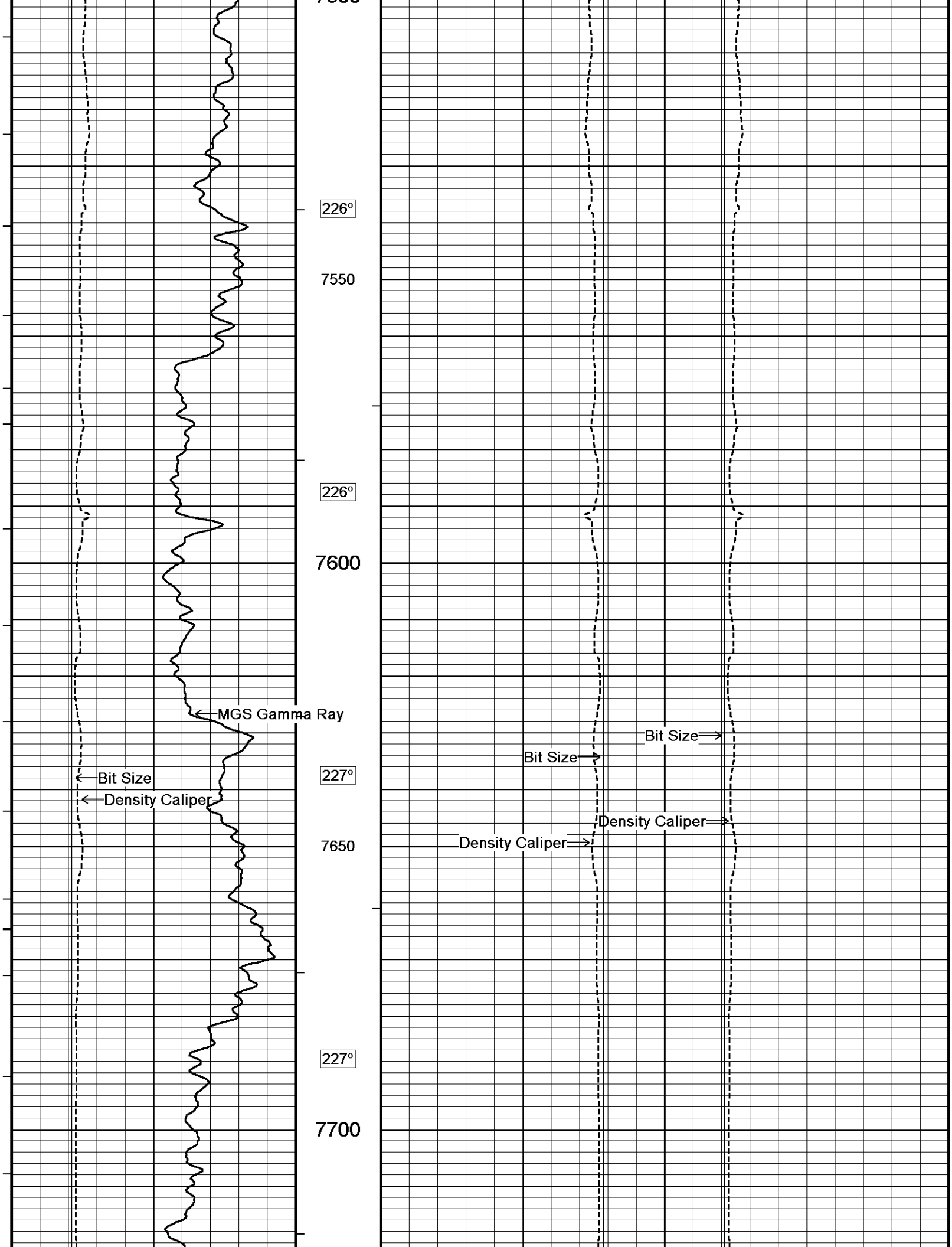
5 INCH MAIN LOG

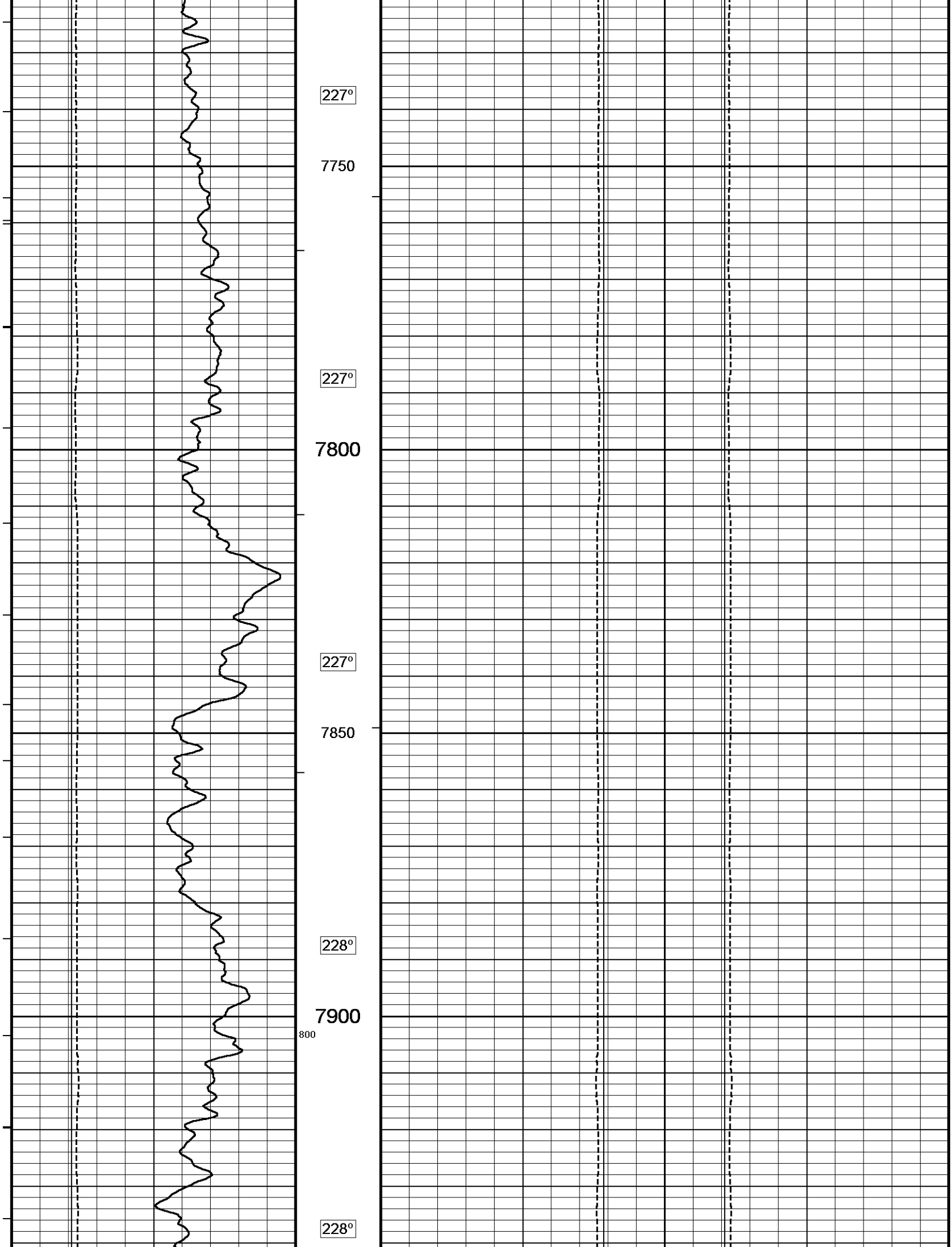
Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 15-JUN-2011 16:22

Filename: C:\MINIMUS\LOGS\Encana\Herren 1A-33H\DEPTH.dta — Recorded on 15-JUN-2011 12:22

System Versions: Logged with 11.02.3186 Processed with 11.02.3186 Plotted with 11.02.3186




226°
7550
226°
7600
MGS Gamma Ray
Bit Size
Density Caliper
227°
7650
Bit Size
Bit Size
Density Caliper
Density Caliper
227°
7700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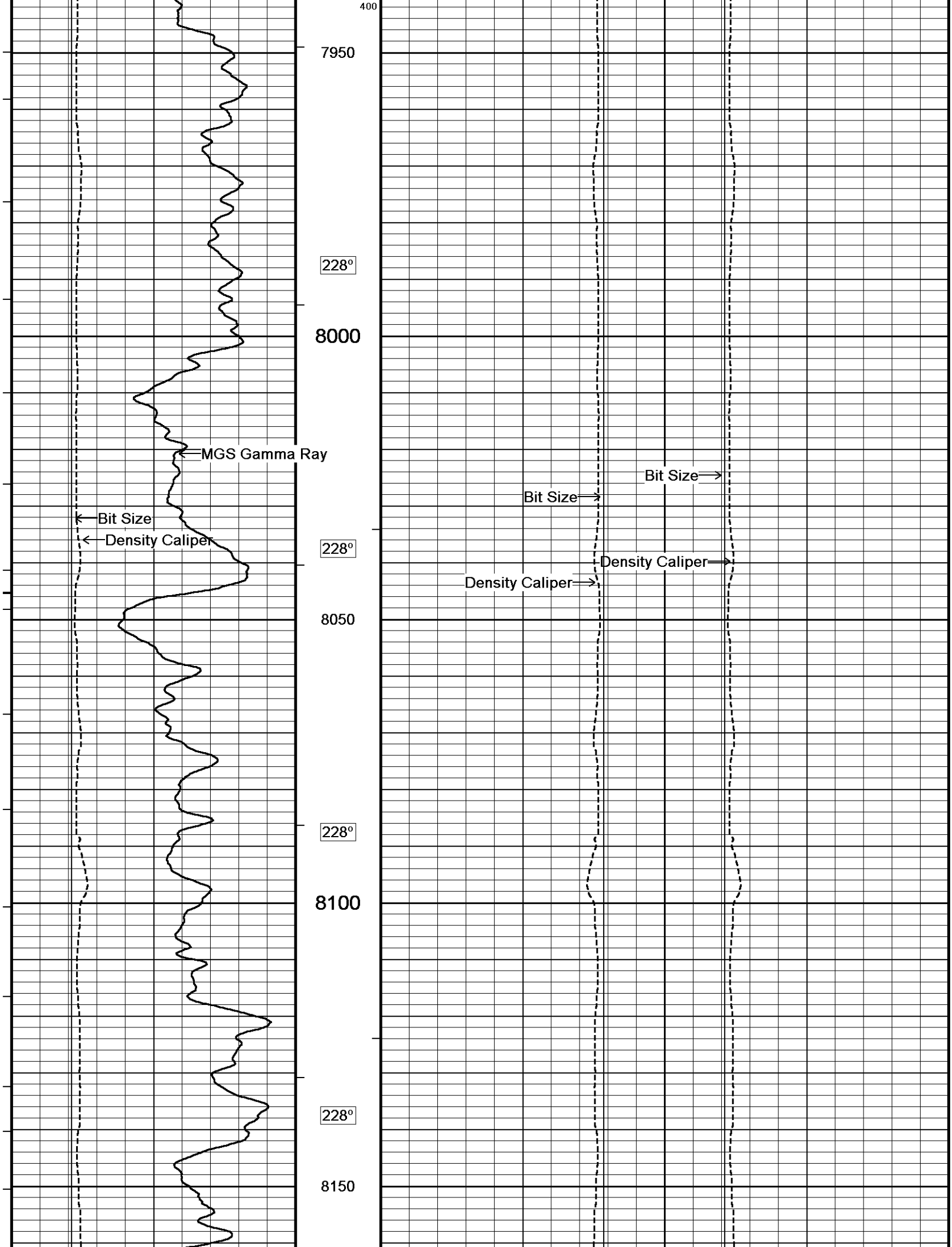
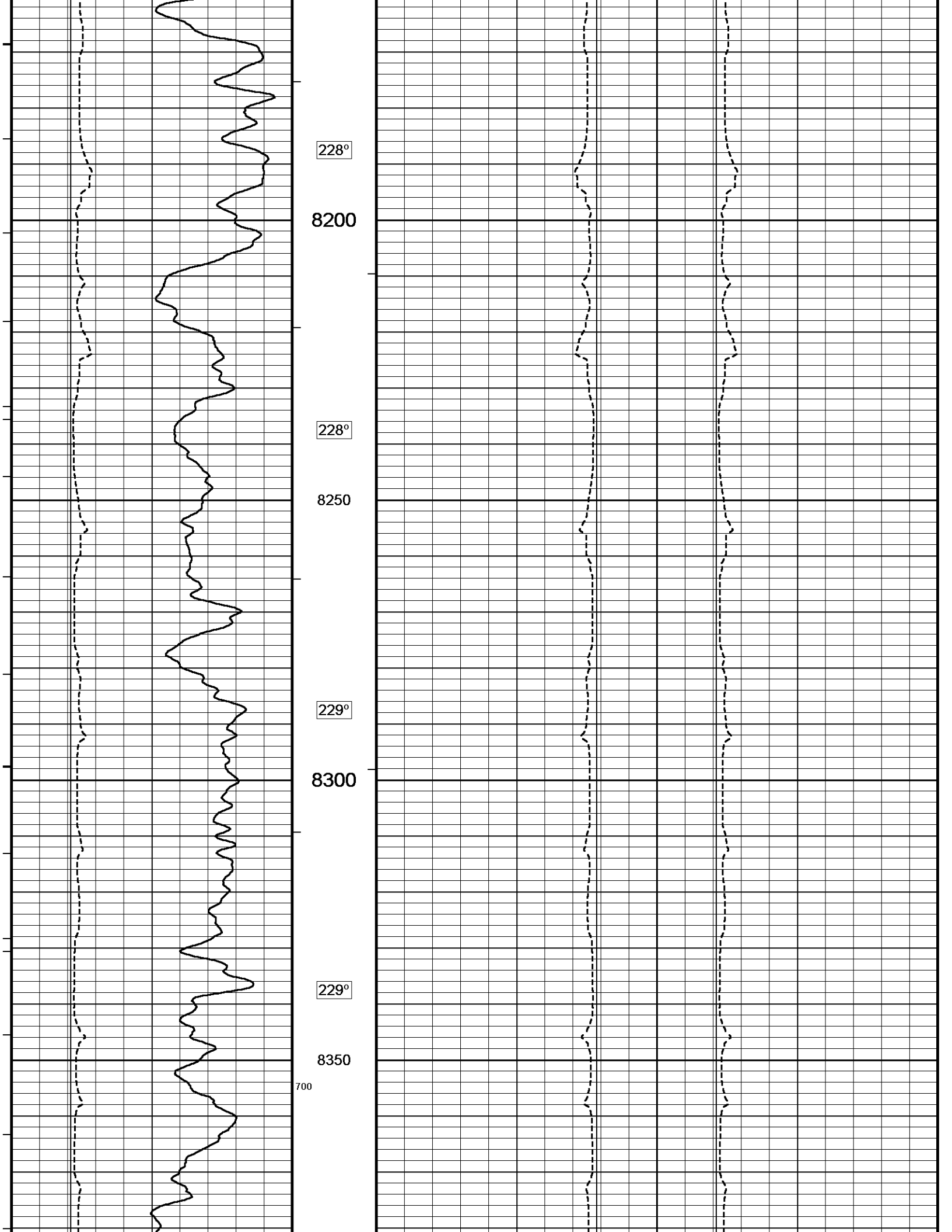
7750
227°
7800
227°
7850
228°
7900
800
228°


400
7950
228°
8000
MGS Gamma Ray
Bit Size
Density Caliper
228°
8050
228°
8100
228°
8150
Bit Size
Bit Size
Density Caliper
Density Caliper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228°
8250
229°
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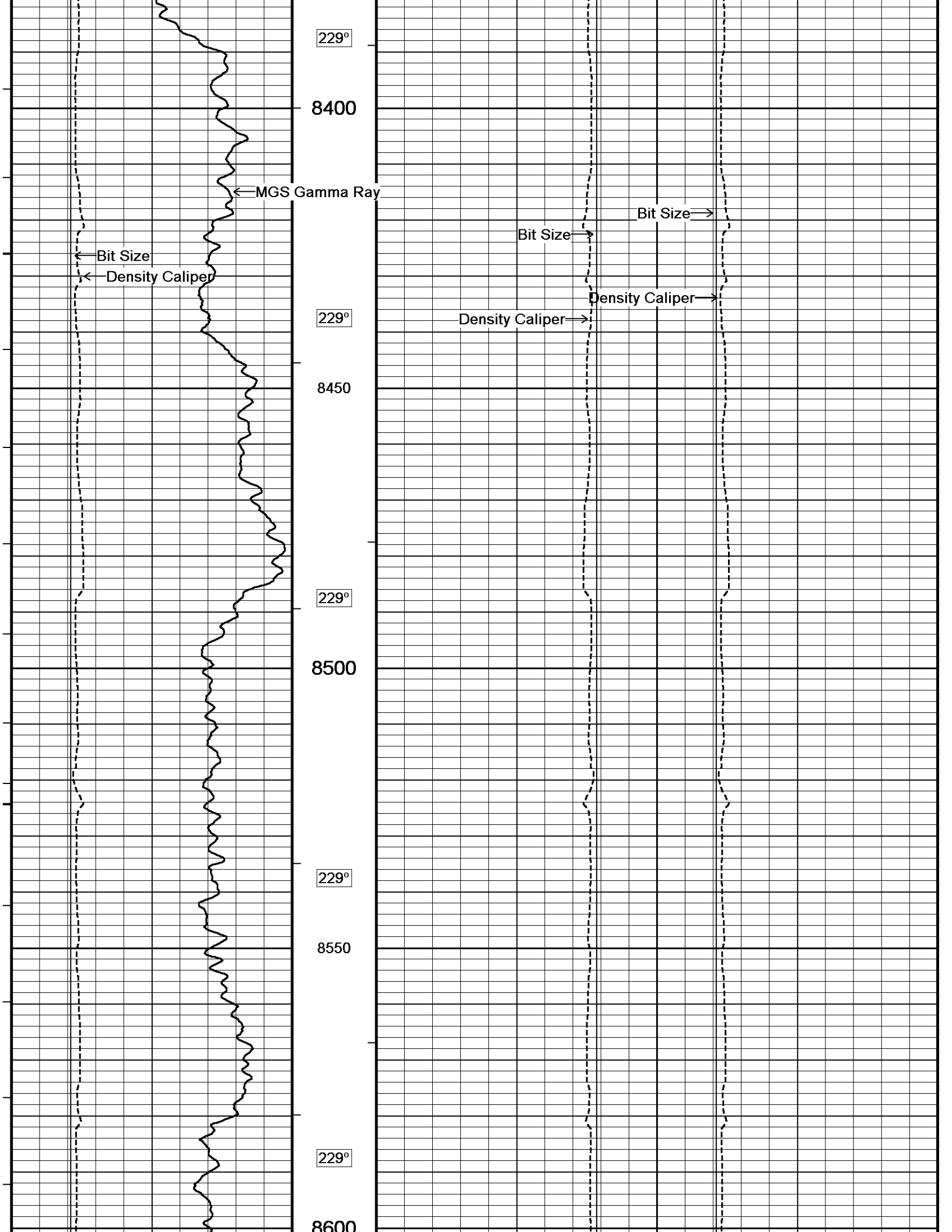
229°
8350
700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8400
MGS Gamma Ray
Bit Size
Density Caliper
Bit Size
Density Caliper
Bit Size
Density Caliper
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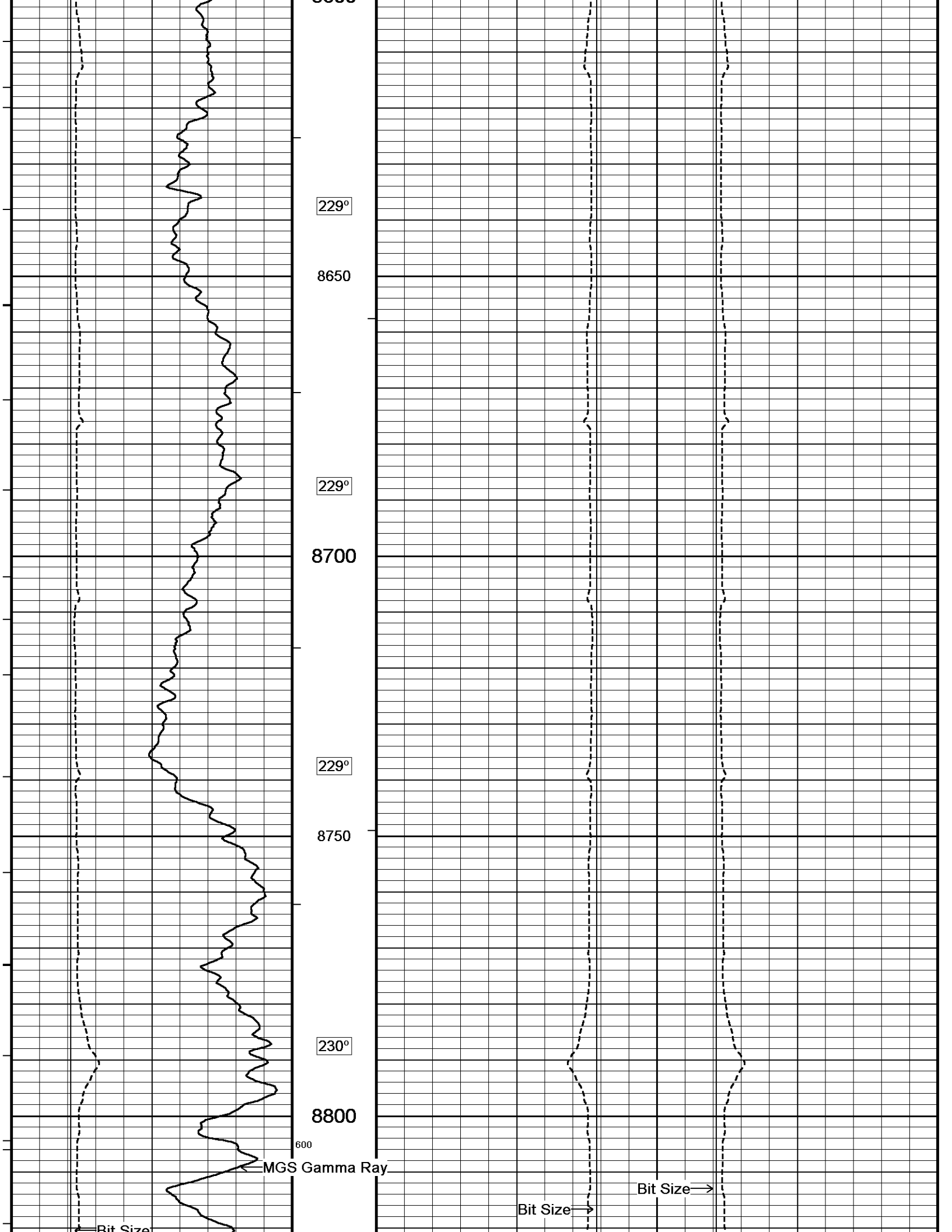
229°
8500
229°
8550
229°
8600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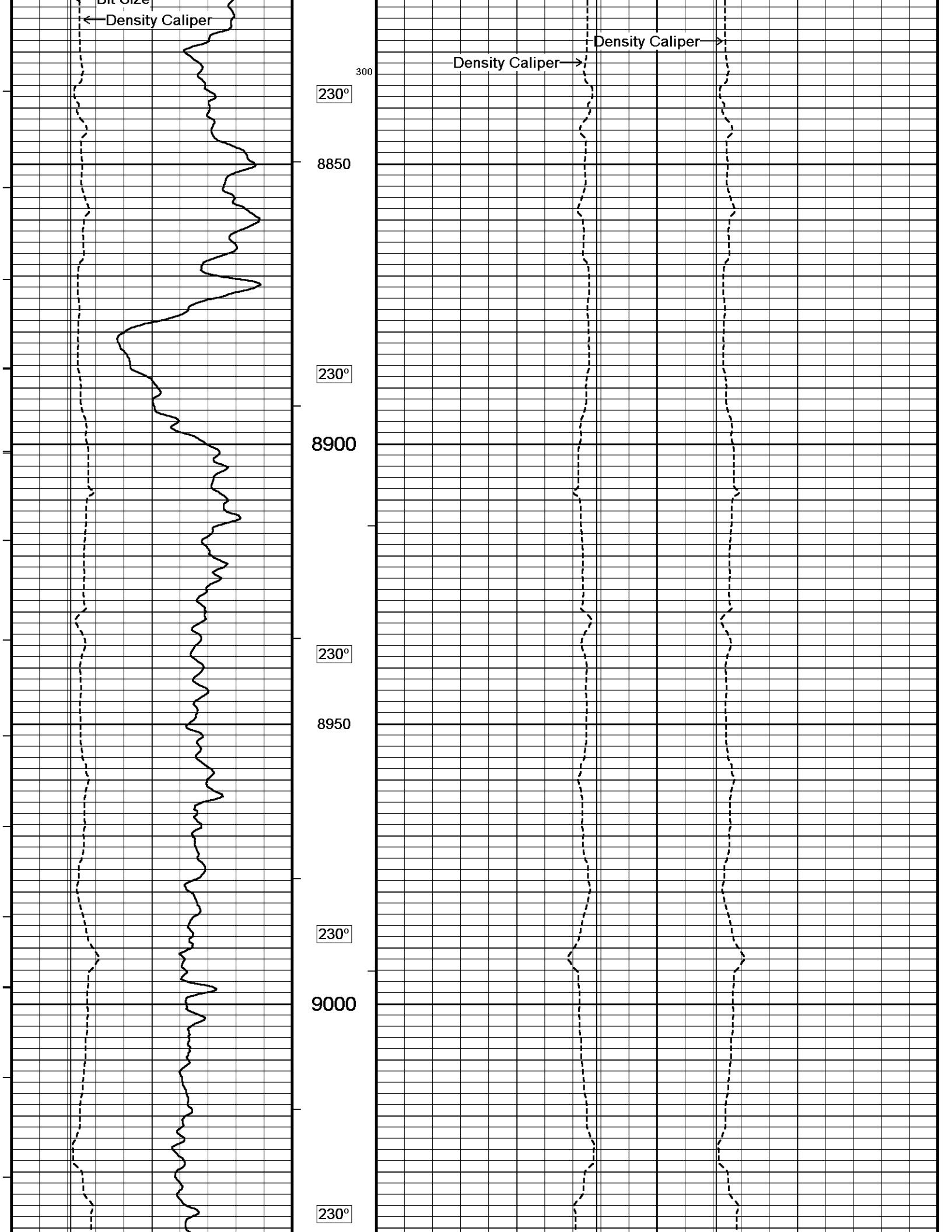
8650
229°
8700
229°
8750
230°
8800
600
MGS Gamma Ray
Bit Size
Bit Size
Bit Size


Bit Size
Density Caliper
Density Caliper
Density Caliper
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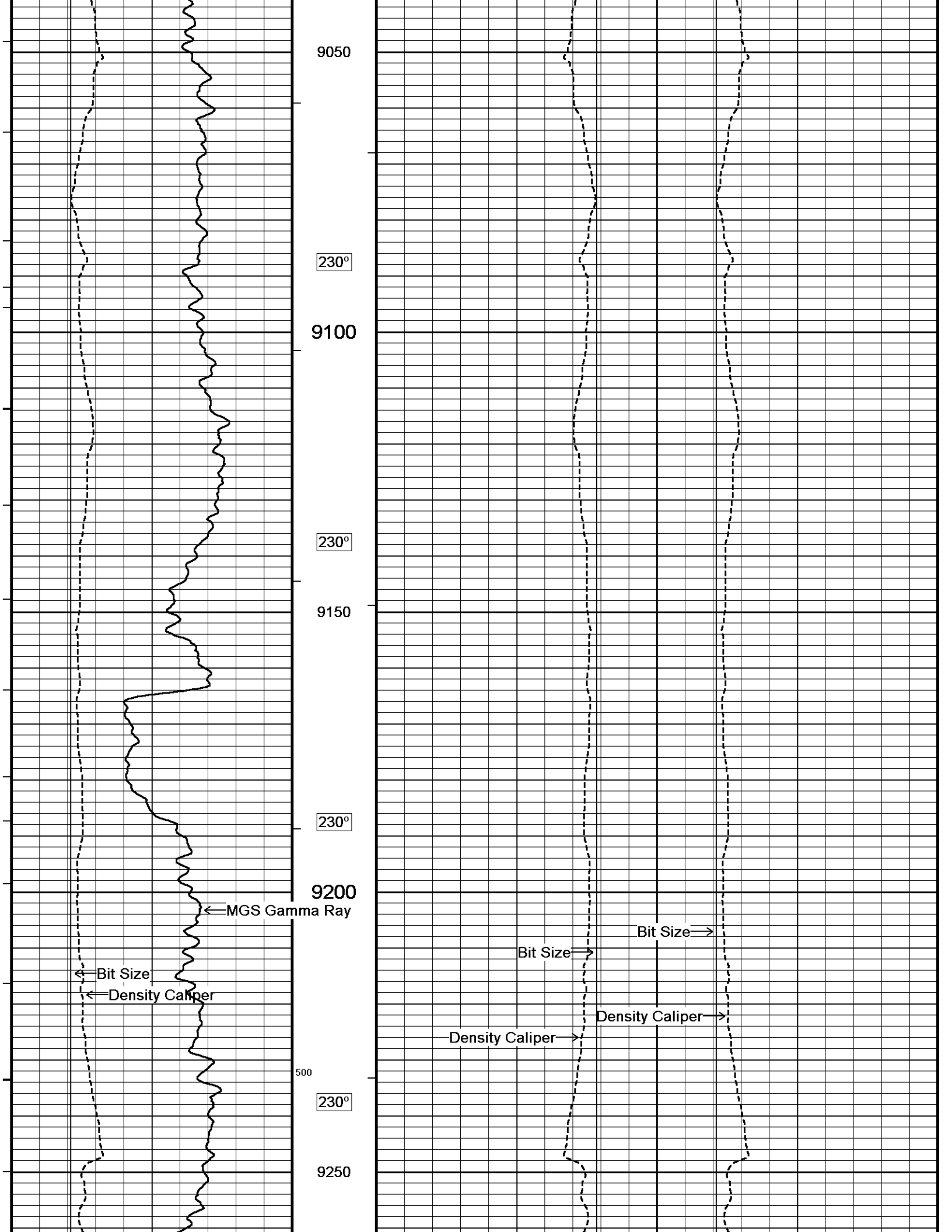
230°
8850
230°
8900
230°
8950
230°
9000
230°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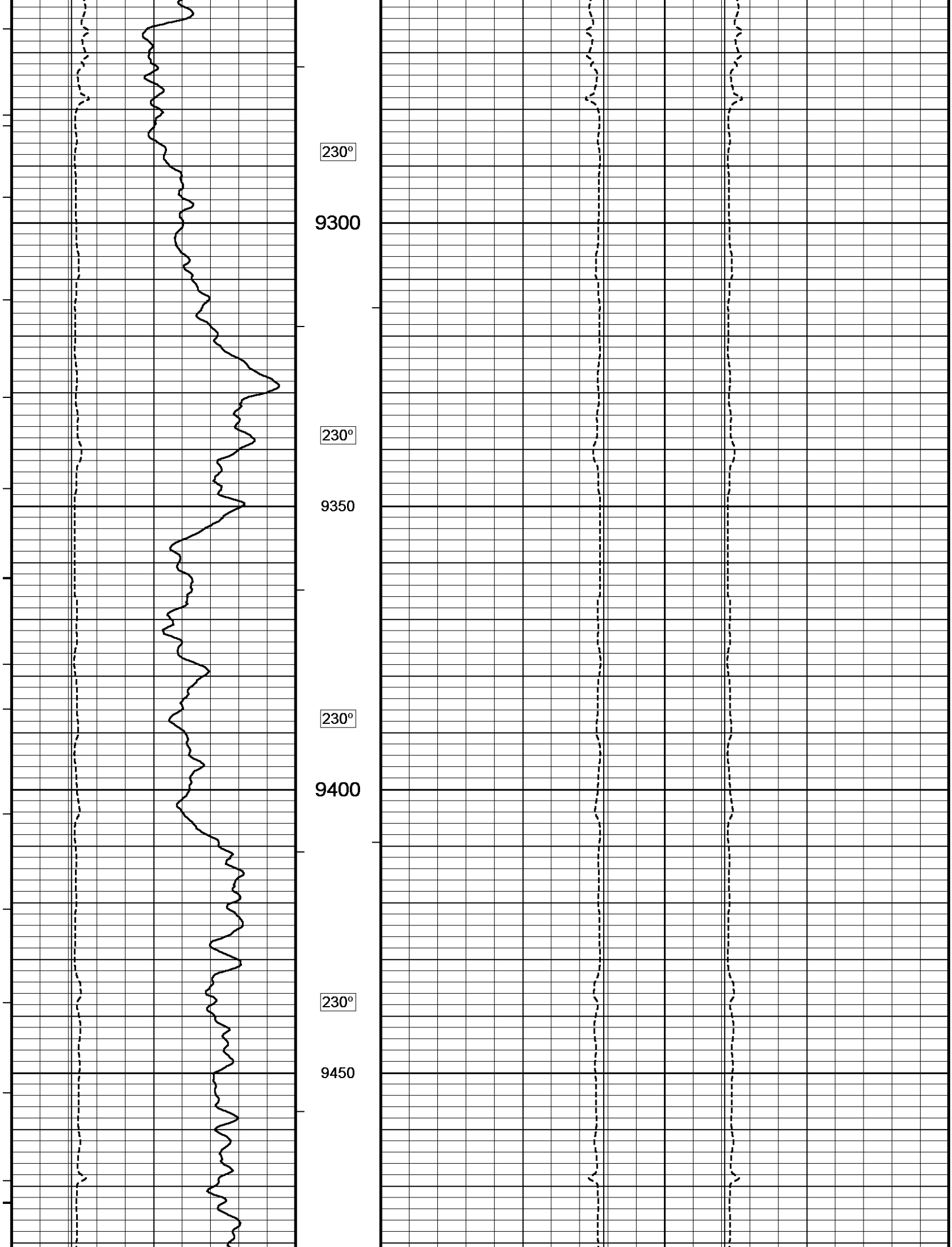
230°
9100
230°
9150
230°
9200
MGS Gamma Ray
Bit Size
Density Caliper
500
230°
9250
Bit Size
Density Caliper
Bit Size
Density Caliper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230°
9350
230°
9400
230°
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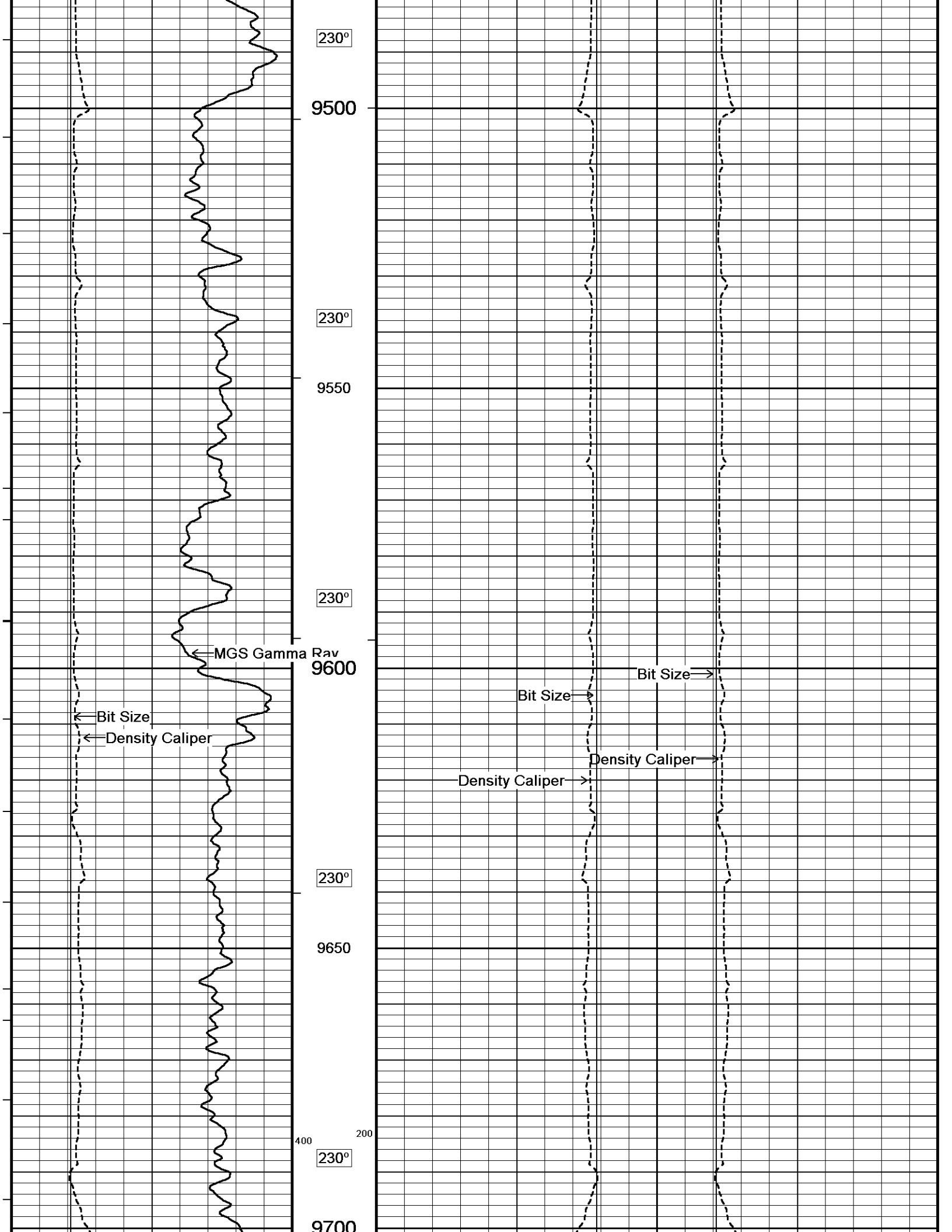
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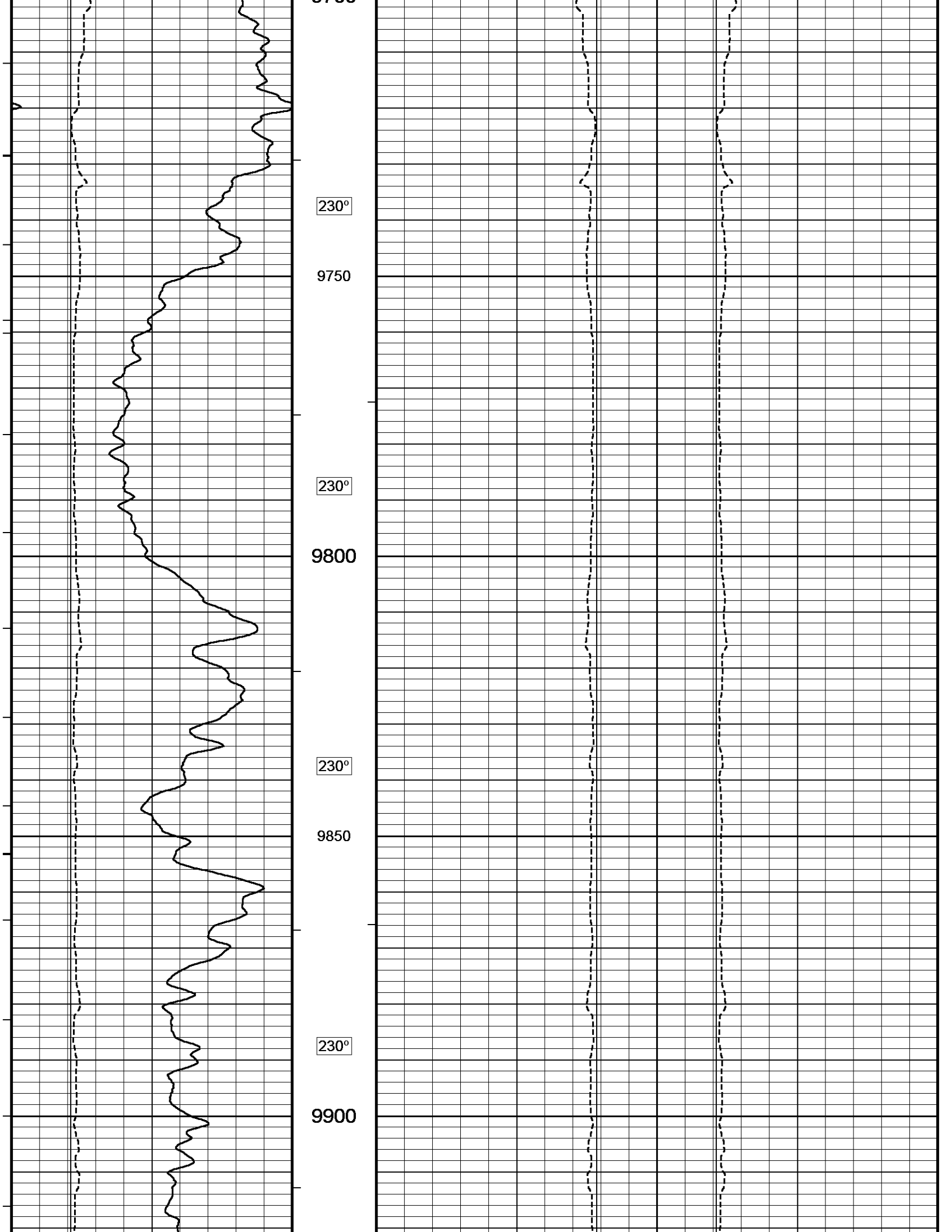
9500
230°
9550
230°
MGS Gamma Ray
9600
Bit Size
Density Caliper
Bit Size
Bit Size
Density Caliper
Density Caliper
230°
9650
400
200
230°
9700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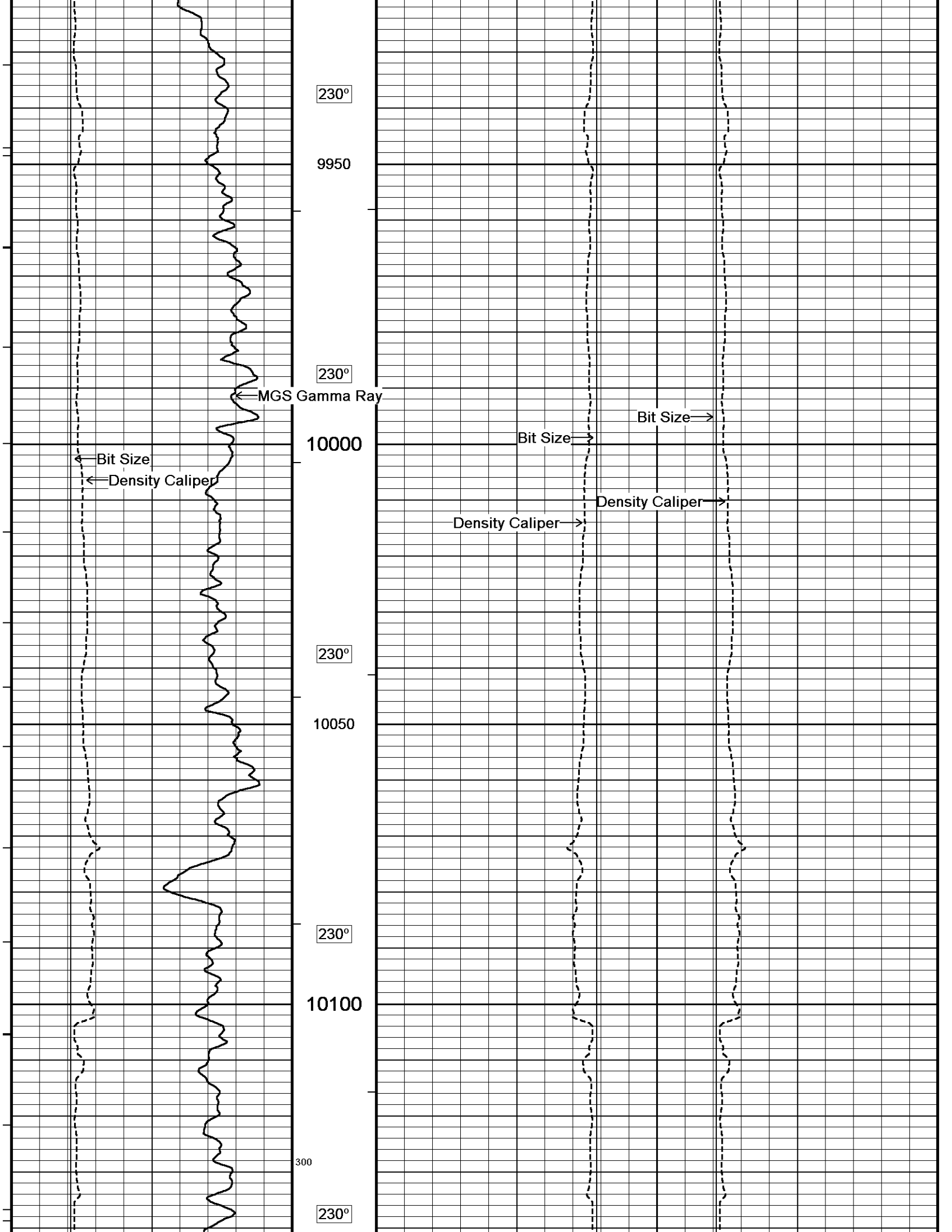
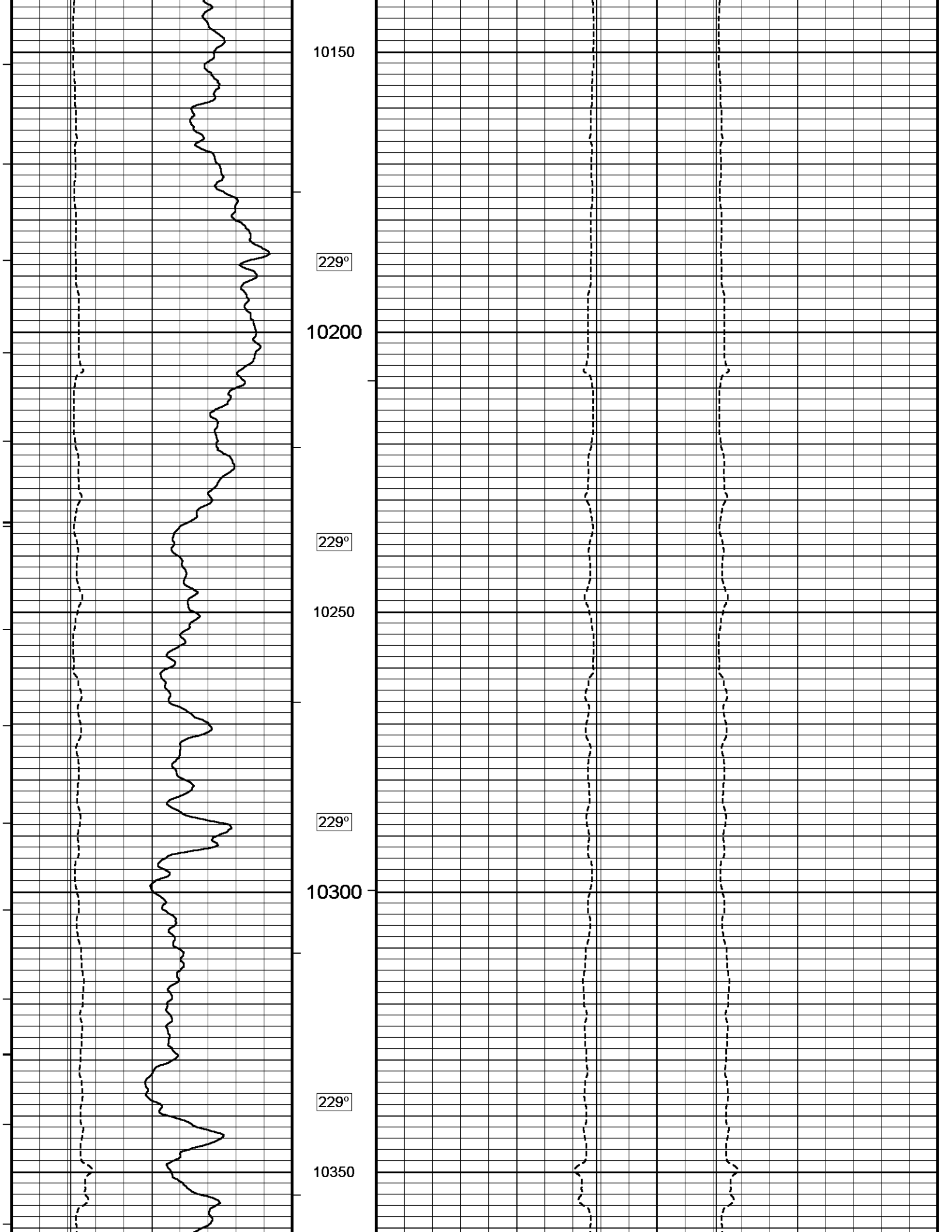
9750
230°
9800
230°
9850
230°
9900


230°
9950
230°
MGS Gamma Ray
Bit Size
Density Caliper
10000
Bit Size
Density Caliper
Bit Size
Density Caliper
230°
10050
230°
10100
300
230°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229°
10200
229°
10250
229°
10300
229°
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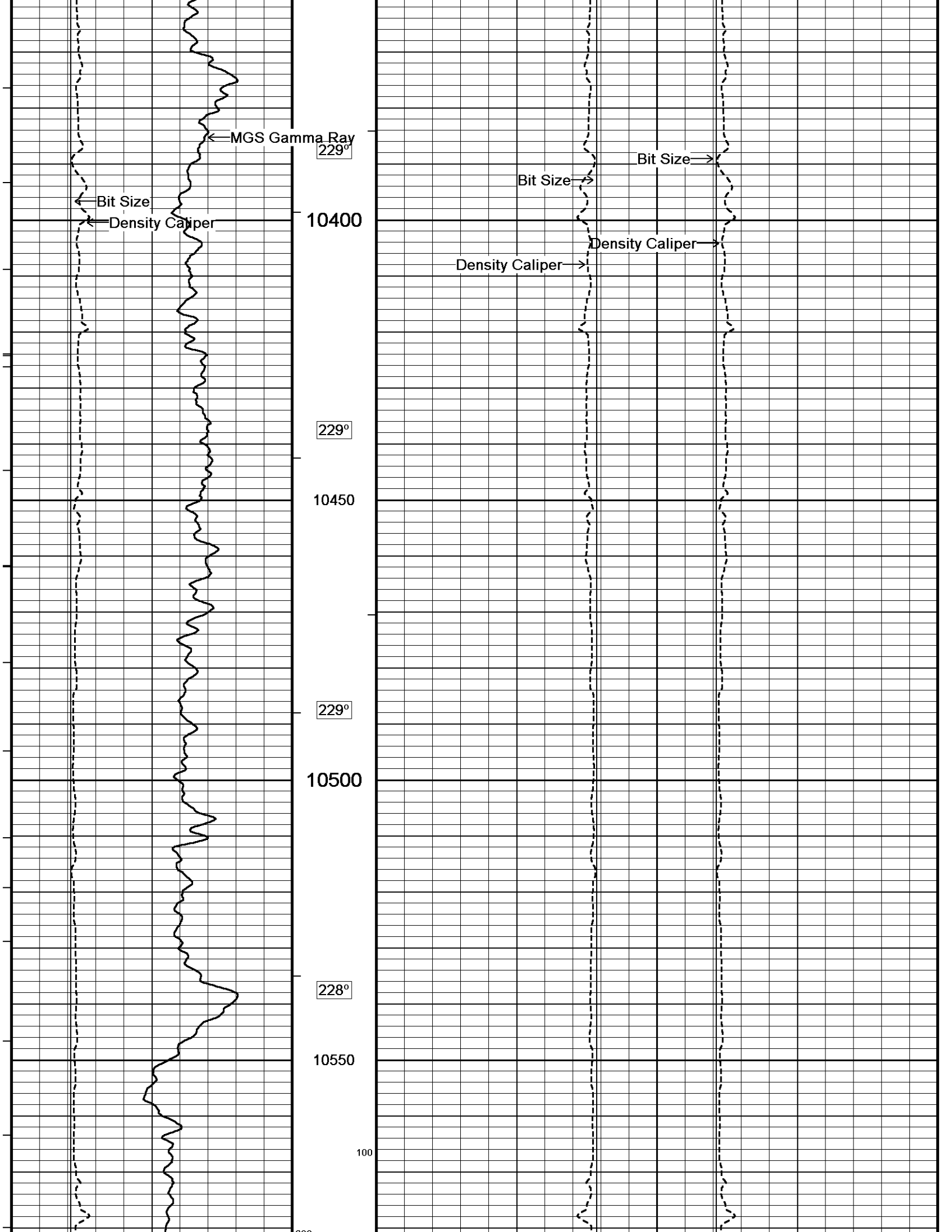
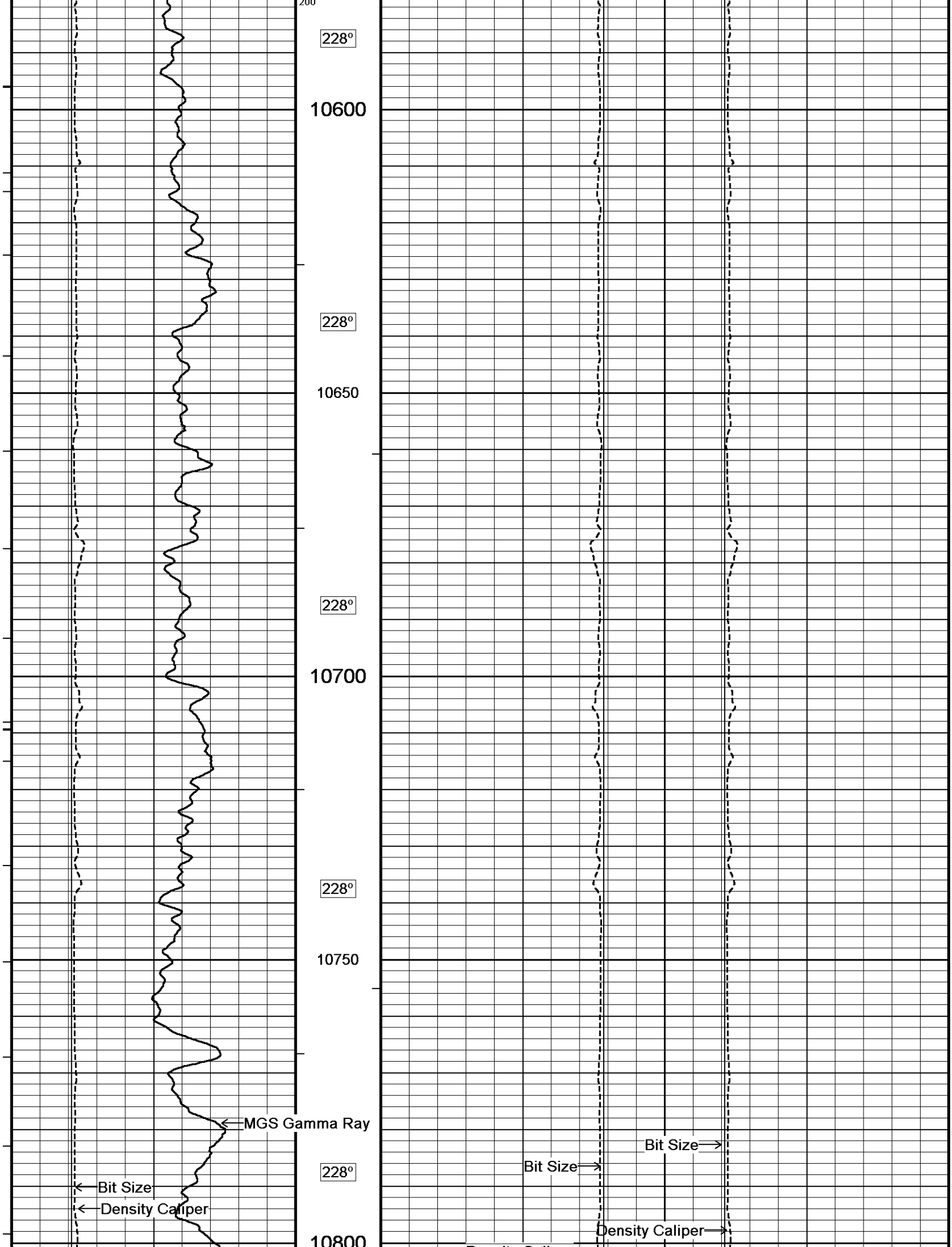
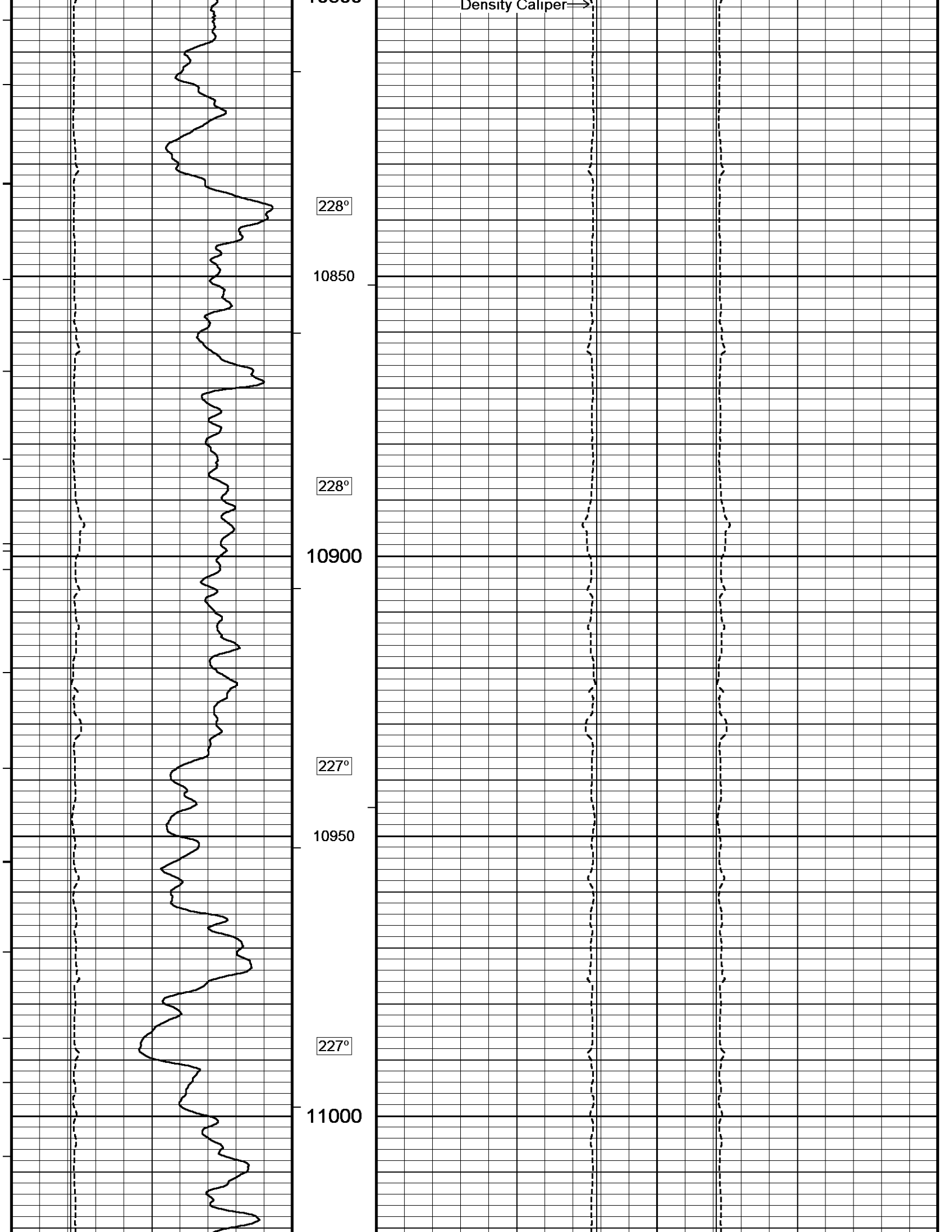
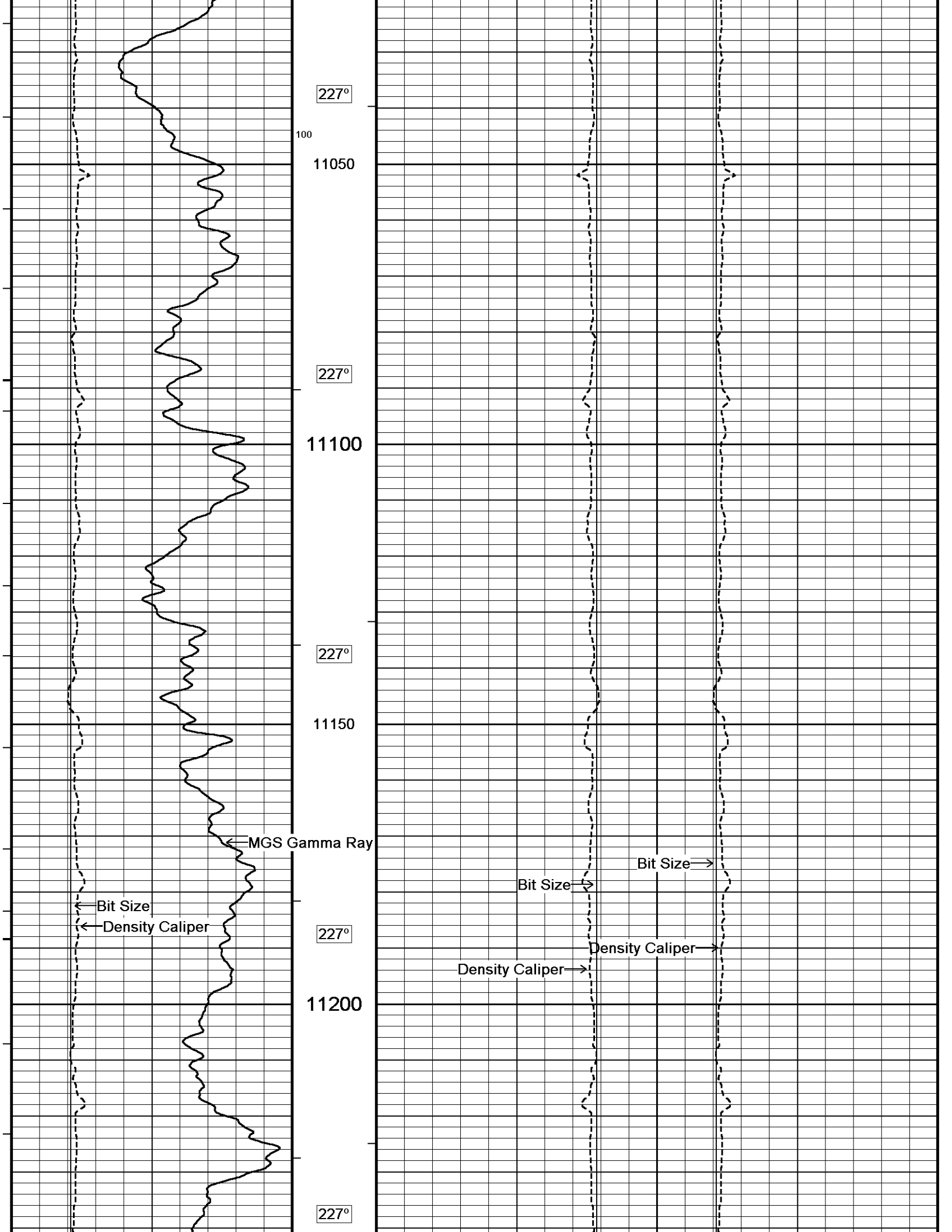
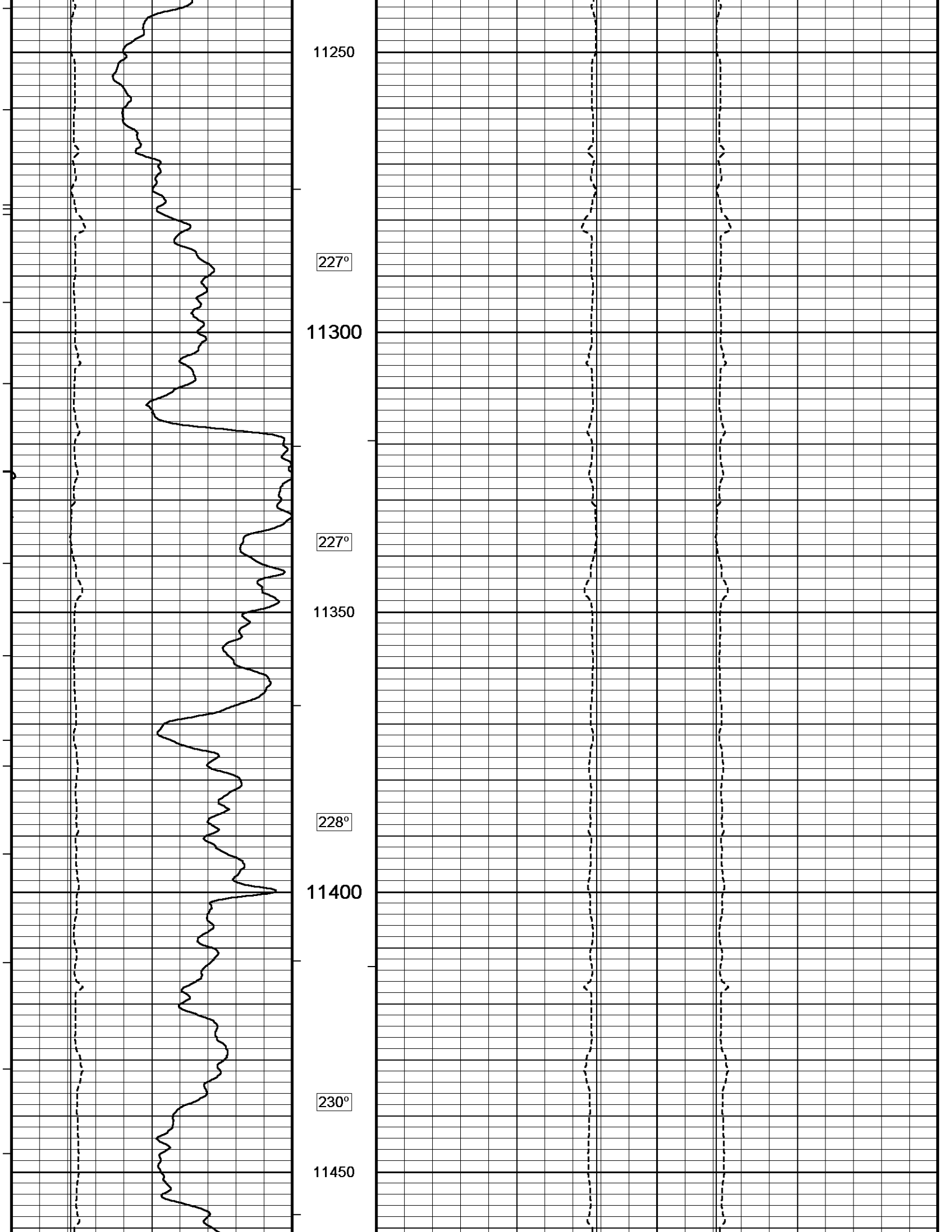

MGS Gamma Ray
229°
Bit Size
Density Caliper
10400
229°
10450
229°
10500
228°
10550
100
Bit Size
Bit Size
Density Caliper
Density Caliper


200
228°
10600
228°
10650
228°
10700
228°
10750
MGS Gamma Ray
228°
Bit Size
Density Caliper
10800
Bit Size
Bit Size
Density Caliper


Density Caliper⟹
228°
10850
228°
10900
227°
10950
227°
11000


227°
100
11050
227°
11100
227°
11150
MGS Gamma Ray
Bit Size
Density Caliper
227°
11200
227°
Bit Size
Bit Size
Density Caliper
Density Caliper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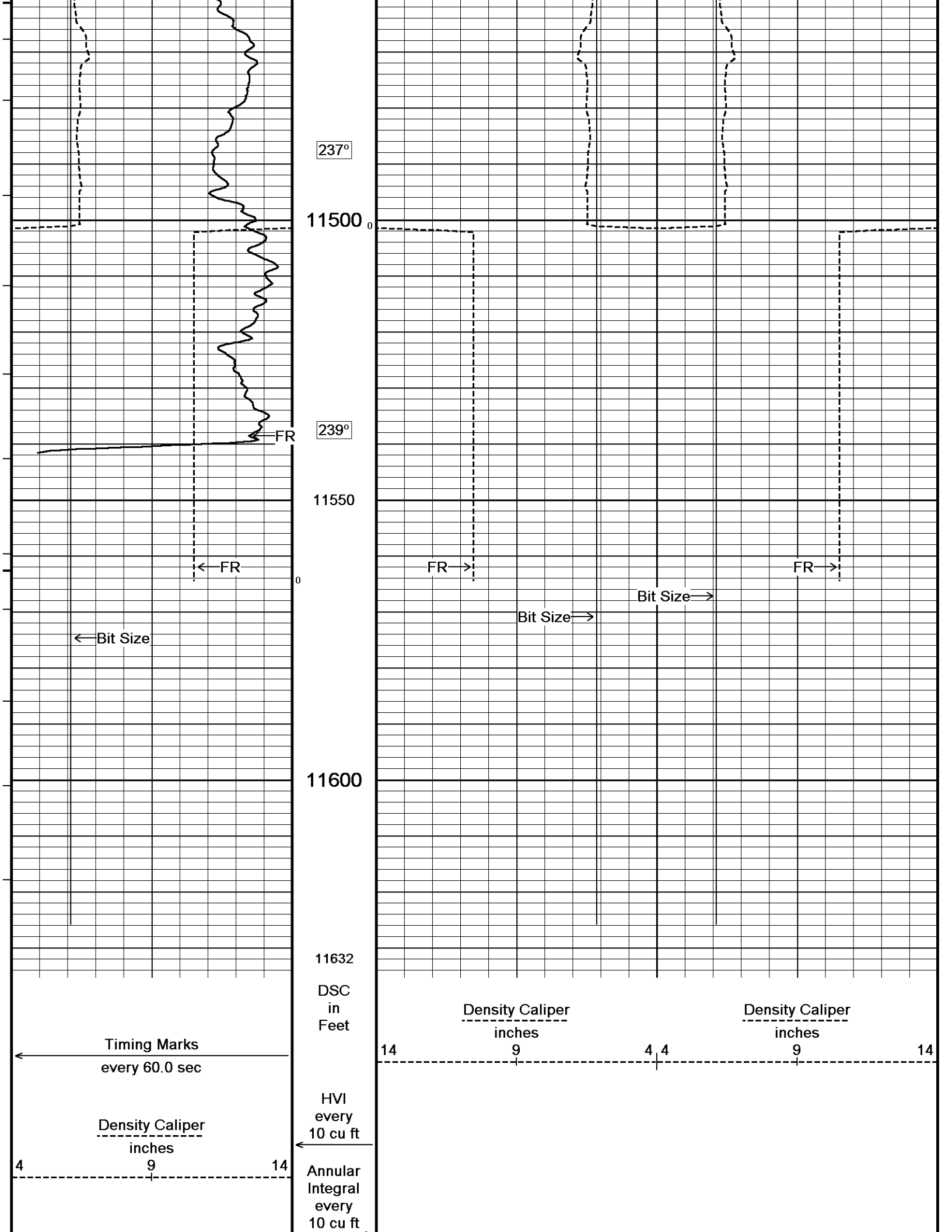
227°
11300
227°
11350
228°
11400
230°
11450


237°
11500
0
239°
FR
11550
FR
0
Bit Size
FR
Bit Size
FR
Bit Size
11600
11632
DSC
in
Feet
Timing Marks
every 60.0 sec
Density Caliper
inches
4
9
14
HVI
every
10 cu ft
Annular
Integral
every
10 cu ft
Density Caliper
inches
14
9
4
4
Density Caliper
inches
9
14

Bit Size
inches
4 9 14

Borehole Temp in deg F

Bit Size
inches
14 9 4

Bit Size
inches
4 9 14

MGS Gamma Ray
API
0 75 150
150 225 300

Replay Scale 1:240

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 15-JUN-2011 16:23
Filename: C:\MINIMUS\LOGS\Encana\Herren 1A-33H\DEPTH.dta
Recorded on 15-JUN-2011 12:22
System Versions: Logged with 11.02.3186 Processed with 11.02.3186 Plotted with 11.02.3186

5 INCH MAIN LOG

DOWNHOLE EQUIPMENT

C:\MINIMUS\LOGS\Encana\Herren 1A-33H\DEPTH.dta

Shuttle Running Tool 3.5" (SRT A)
SRT-A 5 LG: 5.90 ft WT: 37.5 lb OD: 2.52 in

Compact Linker
MLK-A 1 LG: 14.27 ft WT: 30.9 lb OD: 2.24 in

Compact Linker
MLK-A 2 LG: 14.27 ft WT: 30.9 lb OD: 2.24 in

MBS-F.A 200v Compact Battery Sub
MBS-F.A 119 LG: 17.06 ft WT: 123.5 lb OD: 2.24 in

Compact Memory Sub E.B
MMS-E.B 151 LG: 5.20 ft WT: 37.5 lb OD: 2.24 in

Compact Tool Isolator sub.
MTI-B.A 55 LG: 1.54 ft WT: 13.2 lb OD: 2.24 in

Compact Short Gamma
MGS-C.J 119 LG: 3.41 ft WT: 24.3 lb OD: 2.24 in

SKJ-E.A Compact Knuckle Joint
SKJ-E.A 154 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

SHA-F Compact Swivel Head Adaptor
SHA-F 25 LG: 2.74 ft WT: 26.5 lb OD: 2.24 in

MIS-D.A Compact Inline Bowspring sub
MIS-D.A 292 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

Compact Neutron
MDN-B.A 296 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper
MPD-C.A 297 LG: 9.59 ft WT: 90.4 lb OD: 2.24 in

MIS-D.A Compact Inline Bowspring sub
MIS-D.A 439 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

SHA-J.A Compact Swivel Head Adaptor
SHA-J.A 314 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

85.18 ft GRGM - MGS Gamma Ray
83.19 ft GSXT - MGS External Temperature
69.04 ft NPRL - Limestone Neutron Por.
61.79 ft CLDC - Density Caliper
59.87 ft DPRS - Sandstone Density Por.
59.87 ft DCOR - Density Correction
59.80 ft PDPE - PE

SKJ-E.A Compact Knuckle Joint
SKJ-E.A 260 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

MIS-E.A Compact Inline Standoff sub
MIS-E.A 365 LG: 2.14 ft WT: 15.4 lb OD: 2.24 in

SKJ-D.A Compact Knuckle Joint
SKJ-D.A 203 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

MIS-D.A Compact Inline Bowspring sub
MIS-D.A 296 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

Compact MMI Memory Section
MIM-A.A 210 LG: 4.65 ft WT: 26.5 lb OD: 2.24 in

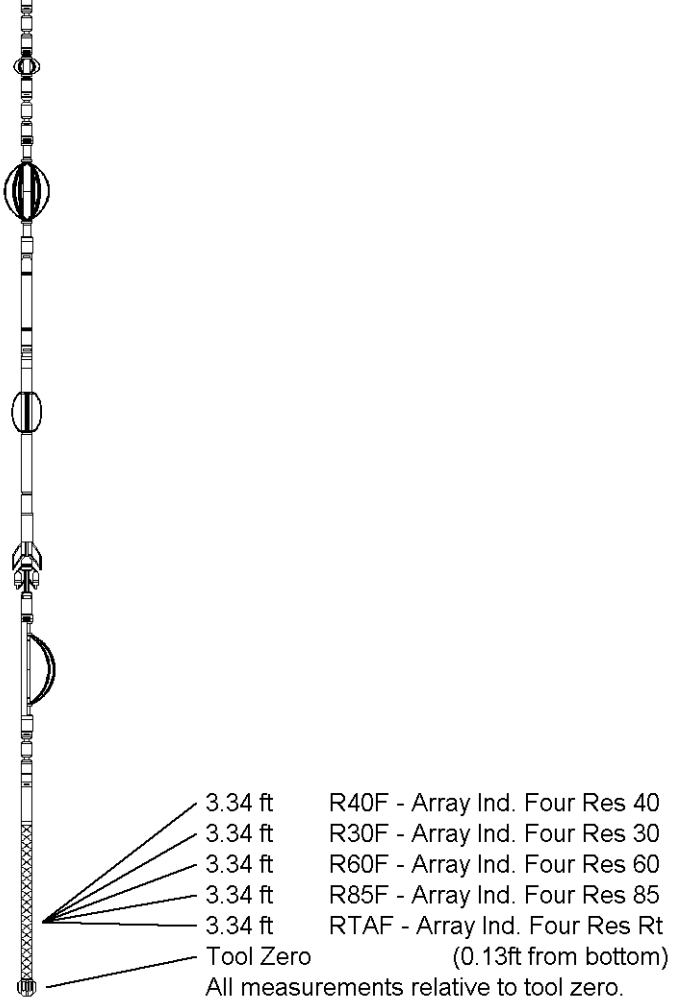
Compact MMI Electrode Section
MIE-A.A 210 LG: 13.96 ft WT: 99.2 lb OD: 4.10 in

MIS-D.A Compact Inline Bowspring sub
MIS-D.A 442 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

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

Compact Induction
MAI-B.A 286 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 144.32 ft Weight: 906.1 lb



COMPANY	ENCANA
WELL	HERREN 1A-33H
FIELD	WATTENBERG
PROVINCE/COUNTY	WELD
COUNTRY/STATE	U.S.A. / COLORADO

Elevation Kelly Bushing	4836.00	feet	First Reading	11564.00	feet
Elevation Drill Floor		feet	Depth Driller	11643.00	feet
Elevation Ground Level	4824.00	feet	Depth Logger	11643.00	feet

Weatherford®

HOLE VOLUME DENSITY CALIPER LOG

40 Years of Wireline 1970 2010