



Weatherford

**CML MESSENGER SHUTTLE
CALIPER LOG**

COMPANY			WHITTING OIL AND GAS CORPORATION		
WELL			RAZOR 21A-2814B		
FIELD			WILDCAT		
PROVINCE/COUNTY			WELD		
COUNTRY/STATE			U.S.A. / COLORADO		
LOCATION			SHL: 405' FNL & 661' FEL		
SEC 21	TWP 10N	RGE 58W	Other Services		
			MAI		
			MDNMMPD		
API Number			05-123-37854		
Permanent Datum G.L.,			Elevation 4833 feet		
Log Measured From KB					
Drilling Measured From K.B. @ 17.3 FEET					
Date	19-SEP-2013			Elevations:	
Run Number	ONE			KB 4850.30	
Service Order	3535723			DF 4849.30	
Depth Driller	12721.00	feet		GL 4833.00	
Depth Logger	12721.00	feet			
First Reading	12678.00	feet			
Last Reading	6203.00	feet			
Casing Driller	6203.00	feet			
Casing Logger	6203.00	feet			
Bit Size	6.000	inches			
Hole Fluid Type	WBM				
Density / Viscosity	9.30 lb/USg	46.00	CP		
PH / Fluid Loss	8.00	4.80	ml/30Min		
Sample Source	FLOWLINE				
Rm @ Measured Temp	1.70 @ 70.0	ohm-m			
Rmf @ Measured Temp	1.28 @ 70.0	ohm-m			
Rmc @ Measured Temp	2.55 @ 70.0	ohm-m			
Source Rmf / Rmc	CALC	CALC			
Rm @ BHT	0.59 @ 207.0	ohm-m			
Time Since Circulation	1 HOUR				
Max Recorded Temp	207.00	deg F			
Equipment / Base	18088	OKC			
Recorded By	M. JOHNSON				
Witnessed By	P. BUCKNAM				

BOREHOLE RECORD				Last Edited: 19-SEP-2013 15:57	
Bit Size inches		Depth From feet		Depth To feet	
6.000		6203.00		12721.00	
CASING RECORD					
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft	
INTERMED	7.000	0.00	6203.00	26.00	

REMARKS
LOGGED WITH WLS 13.06.9804
LOGGED USING MESSENGER SHUTTLE METHOD OF DEPLOYMENT
TOOLS RAN: SRT-67, SKJ-589, MBS 1, MBS 2,200V MBS-134,MMSE174,MTI-55,MGS-170,MCL-064,SKJ-348,SHA-635,MIS-768, MDN-214, MPD-497,MIS-770, SHA-579, SKJ-657,MIS-023, MIM-263, MIE 263, MIS-276, SKJ-654, MAI-494 RAN IN COMBINATION
HARDWARE: MAI: MIS-B 0.5" STANDOFF USED ABOVE MAI, ISA STAND-OFF RAN BELOW MAI MFE: MIS-B 0.5" STANDOFF USED ABOVE MFE MDN: MIS-A DOUBLE BOWSPRING USED ABOVE MDN. MPD: 4INCH PROFILE PLATE USED, MIS-A SINGLE BOWSPRING USED BELOW MP

2.71 G/CC DENSITY MATRIX USED TO CALCULATE POROSITY
ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST

LONGITUDE:-103.863442

LATITUDE: 40.830067

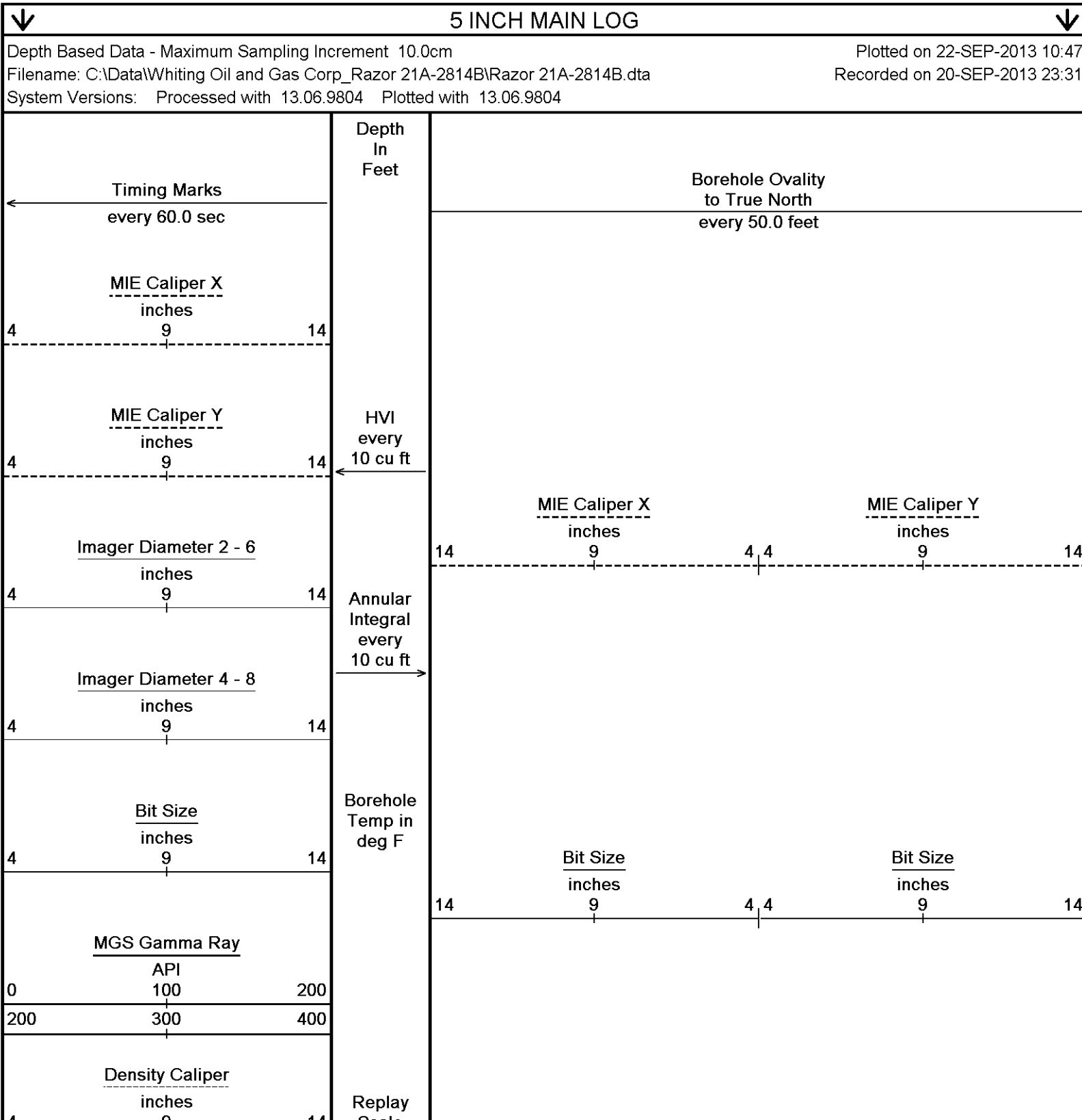
DATE CODE: 13.06.9804

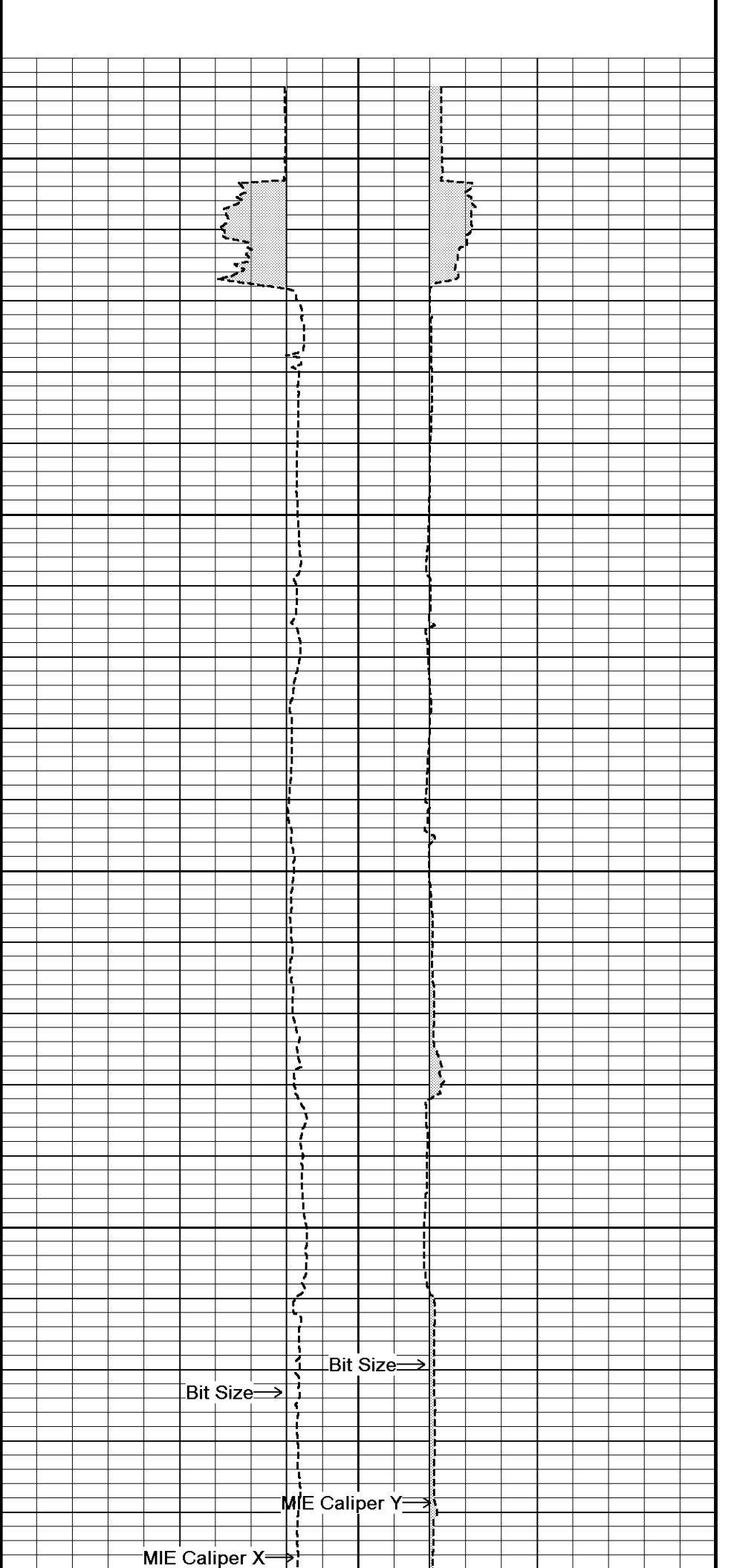
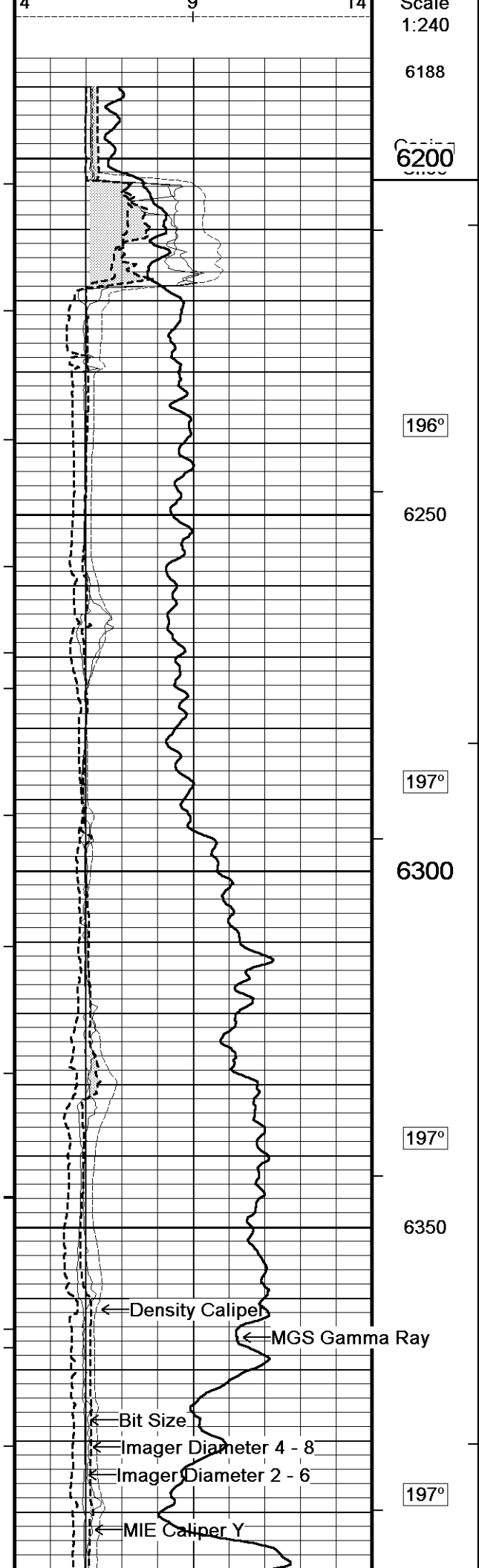
DRILL PIPE DEPTH DURING DEPLOYMENT: 12590
LOGGING TOOL DEPTH AFTER DEPLOYMENT: 12692

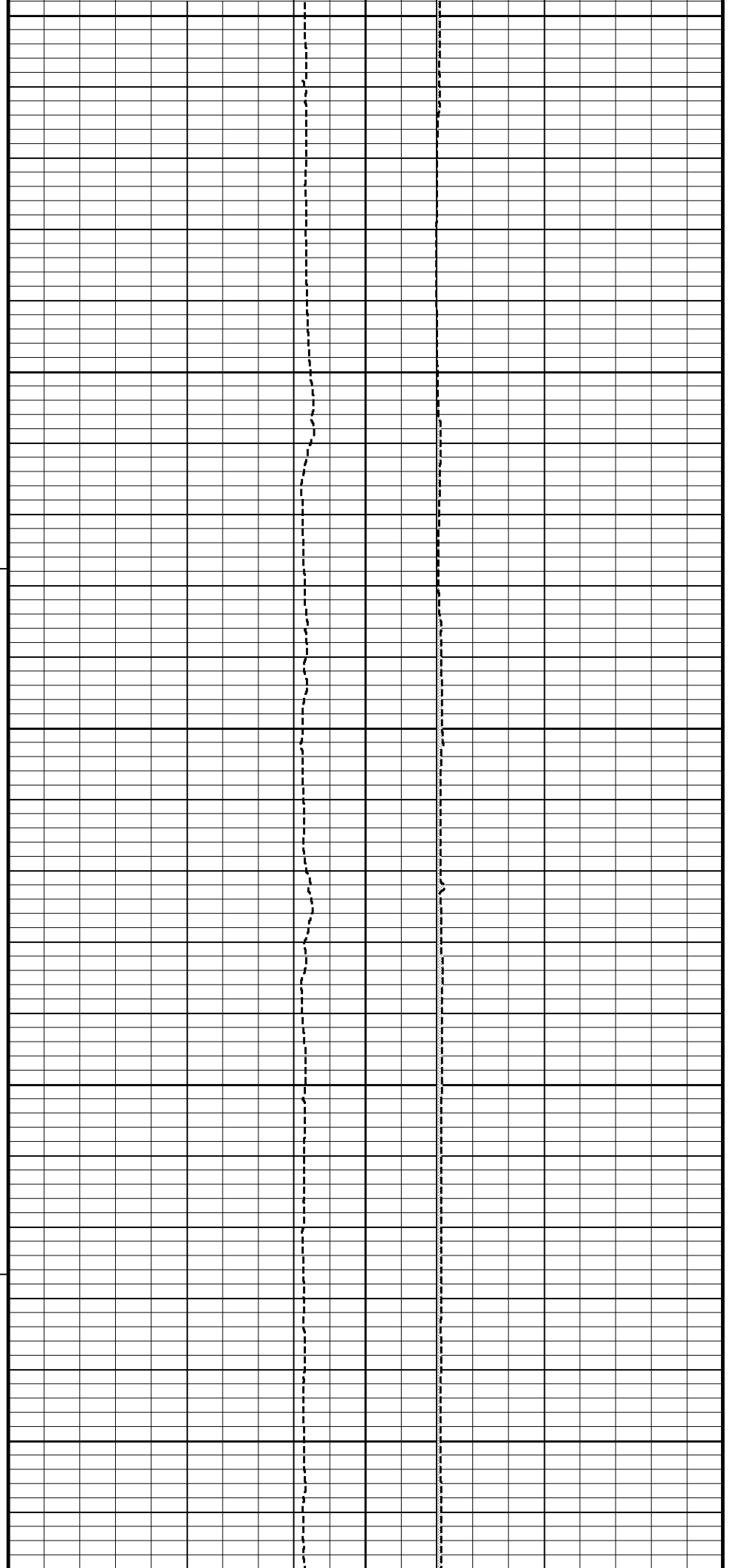
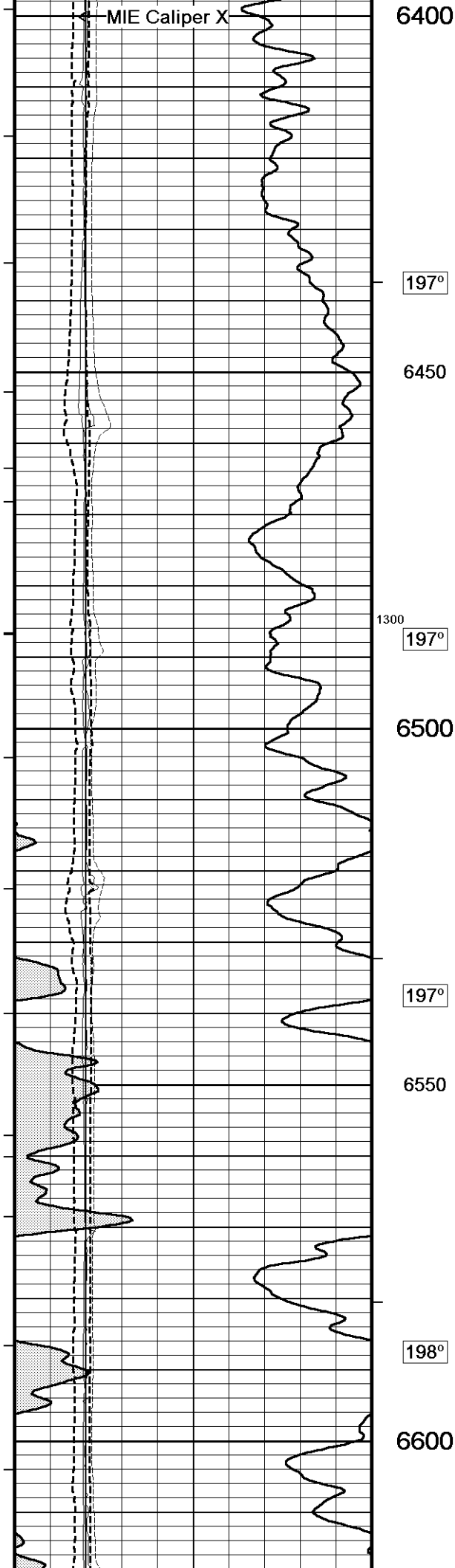
OPERATORS: W. WILLIAMS, T. WILLIAMS

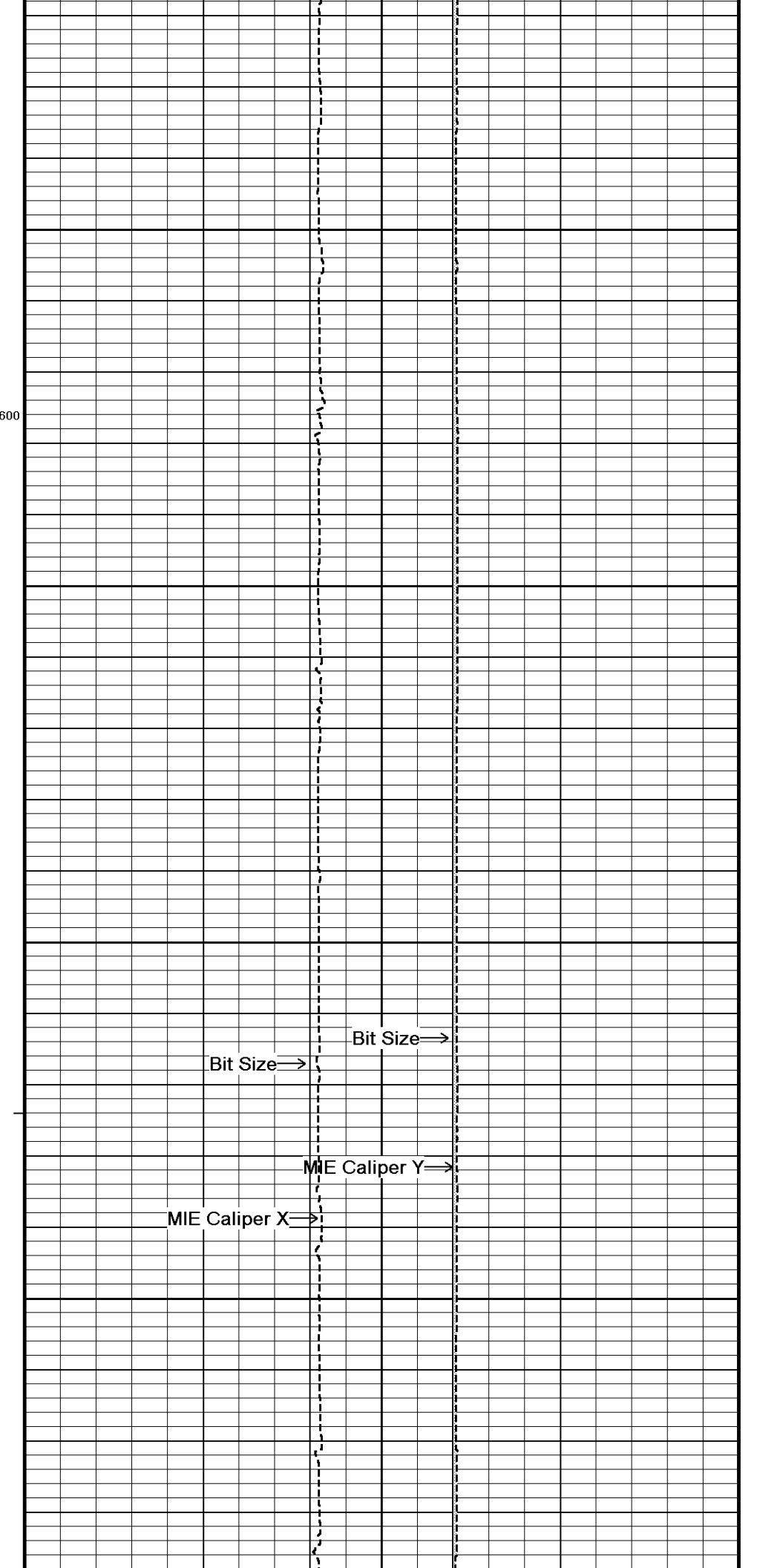
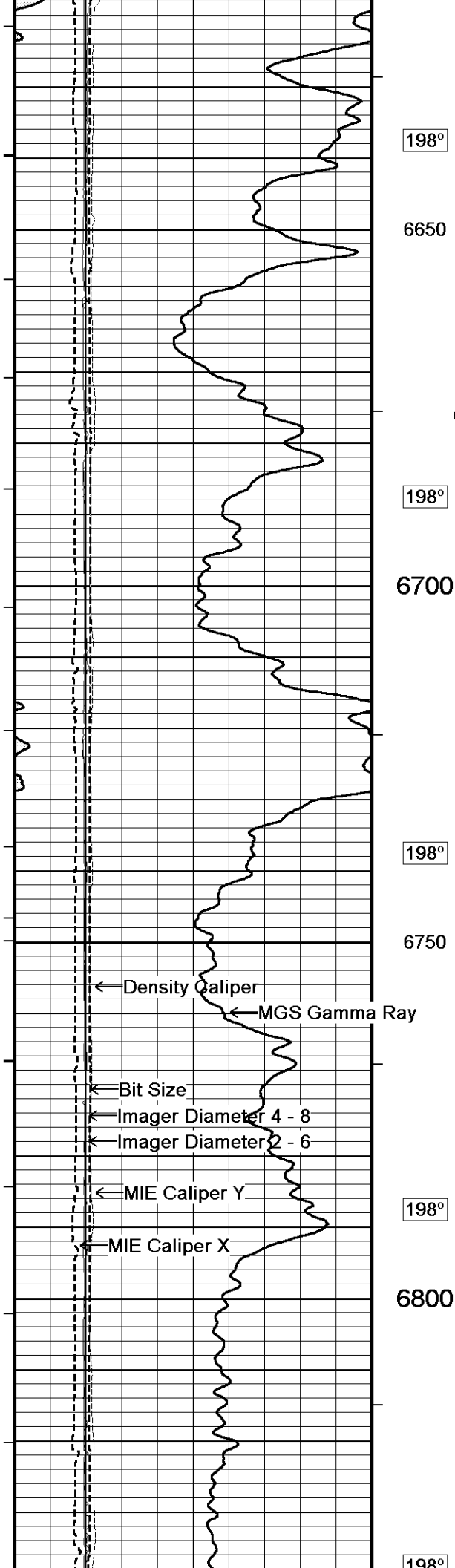
RIG: CADE DRILLING 21

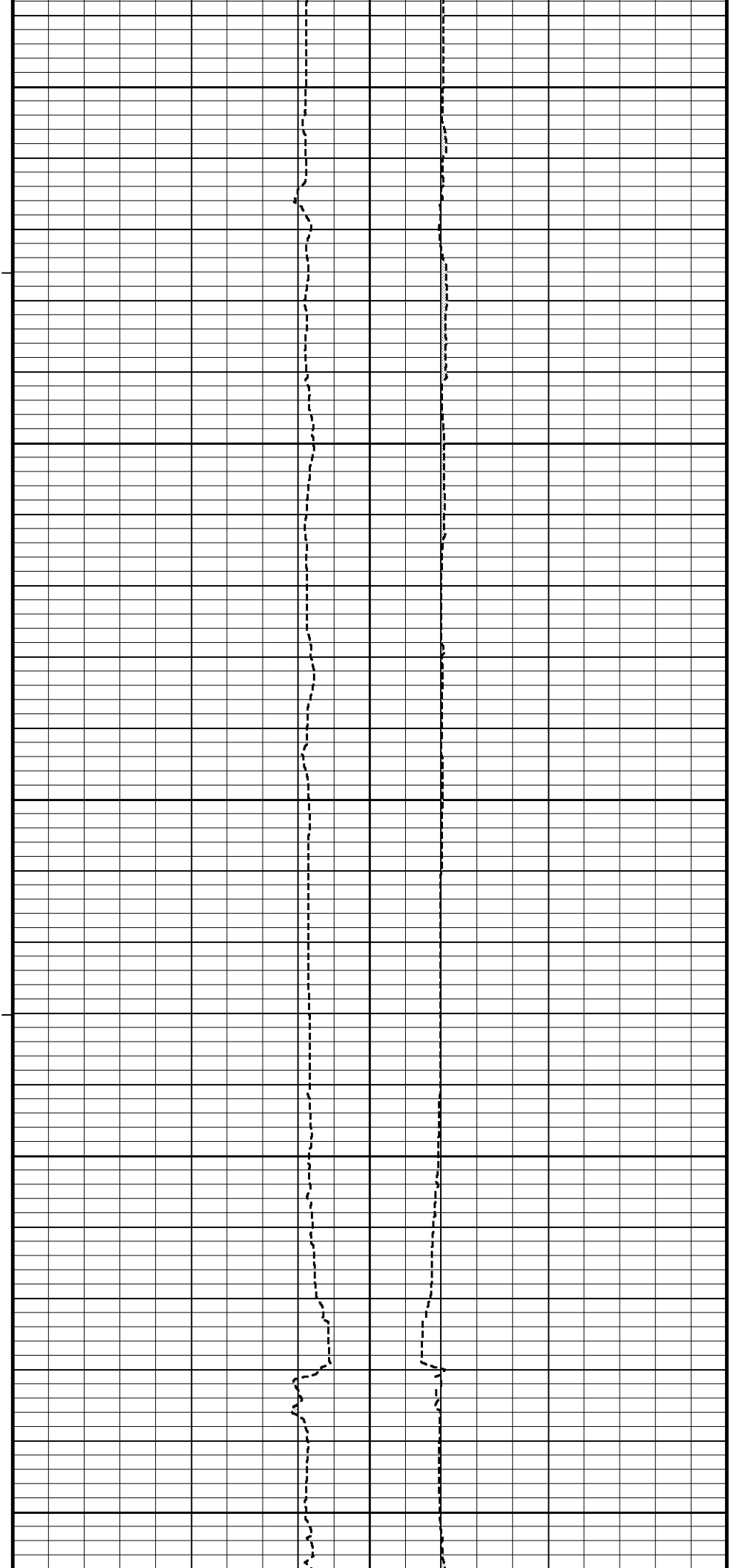
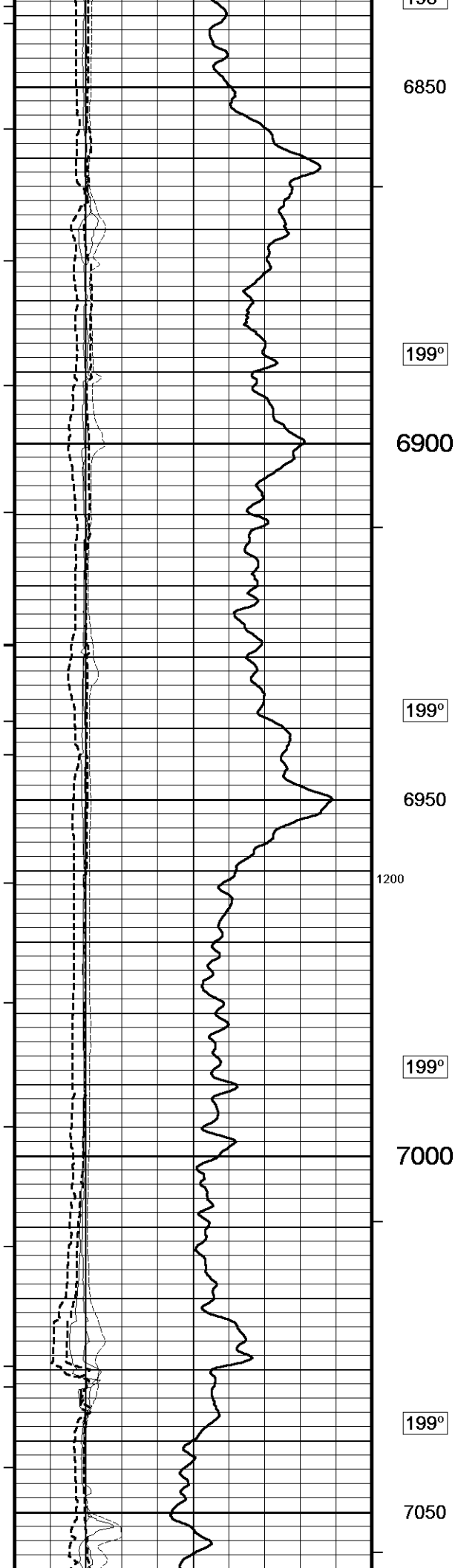
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs, 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.

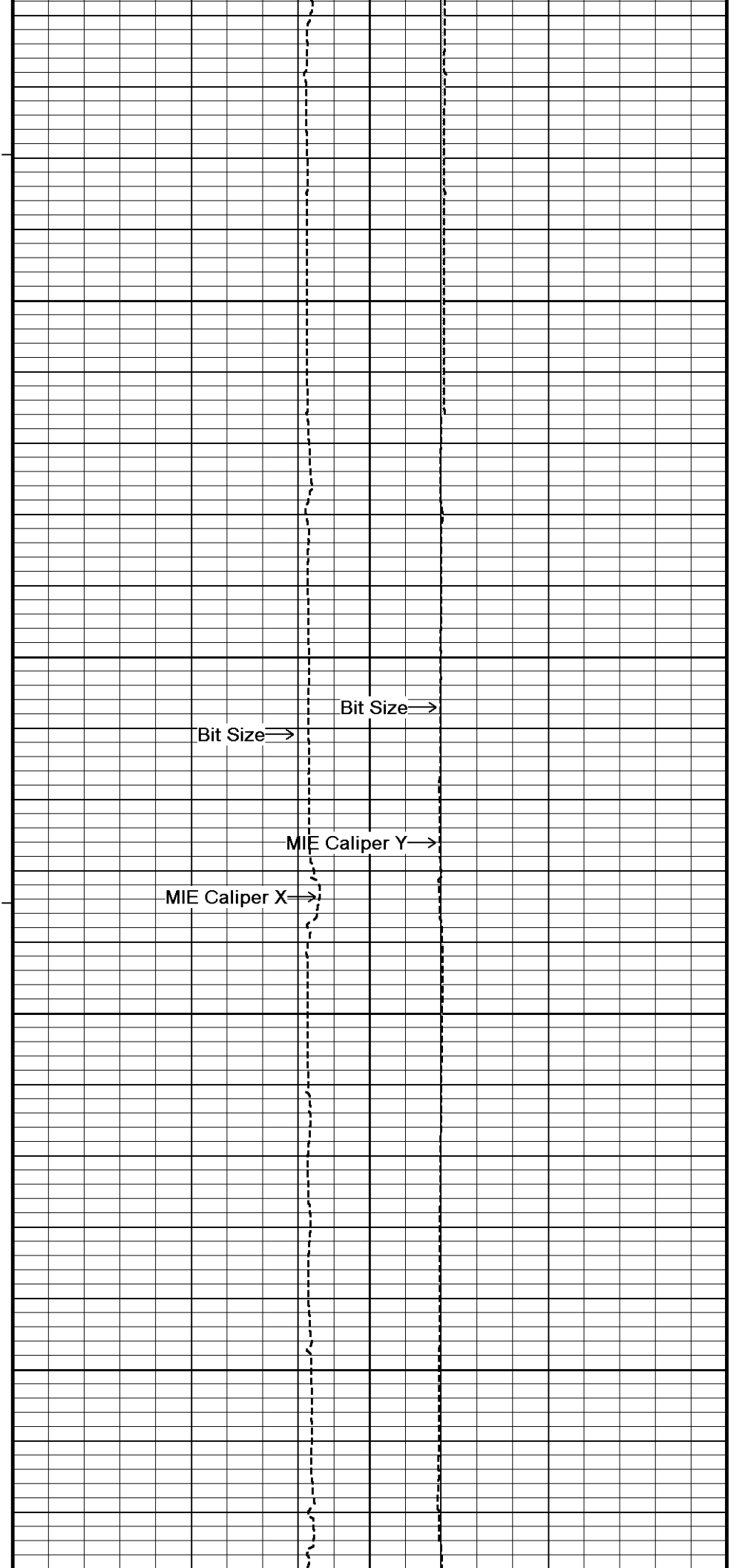
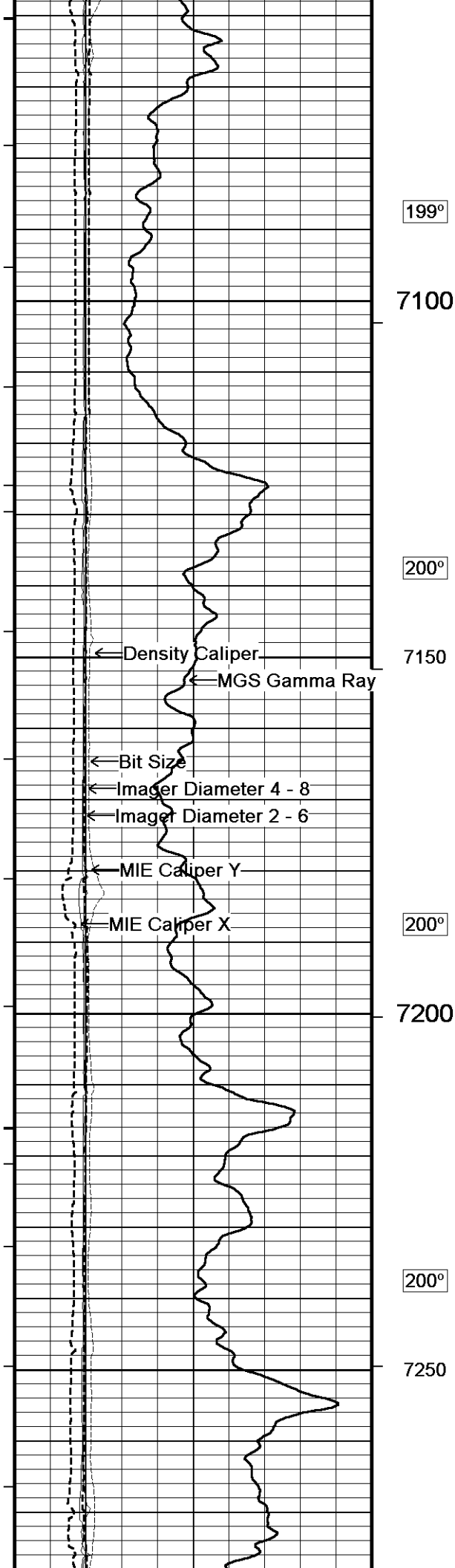


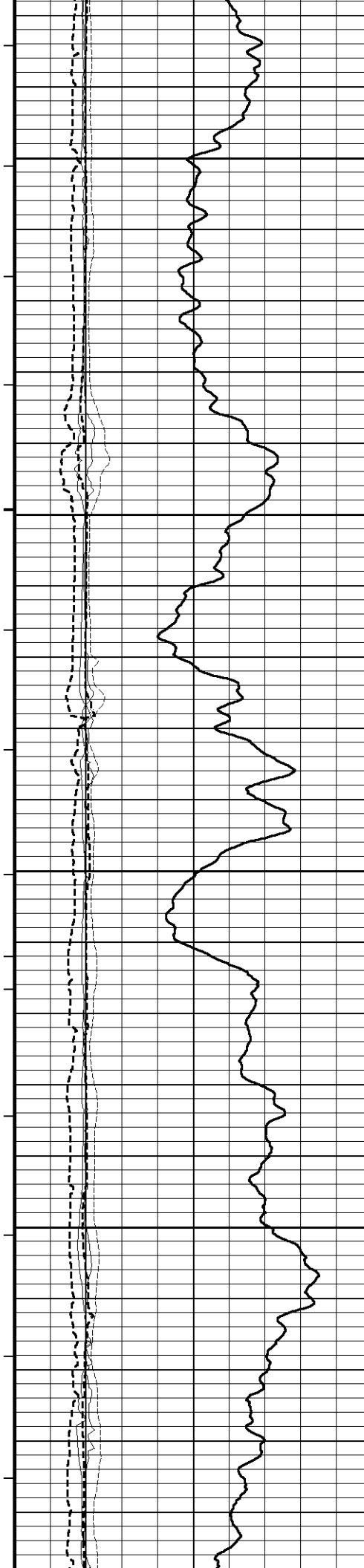




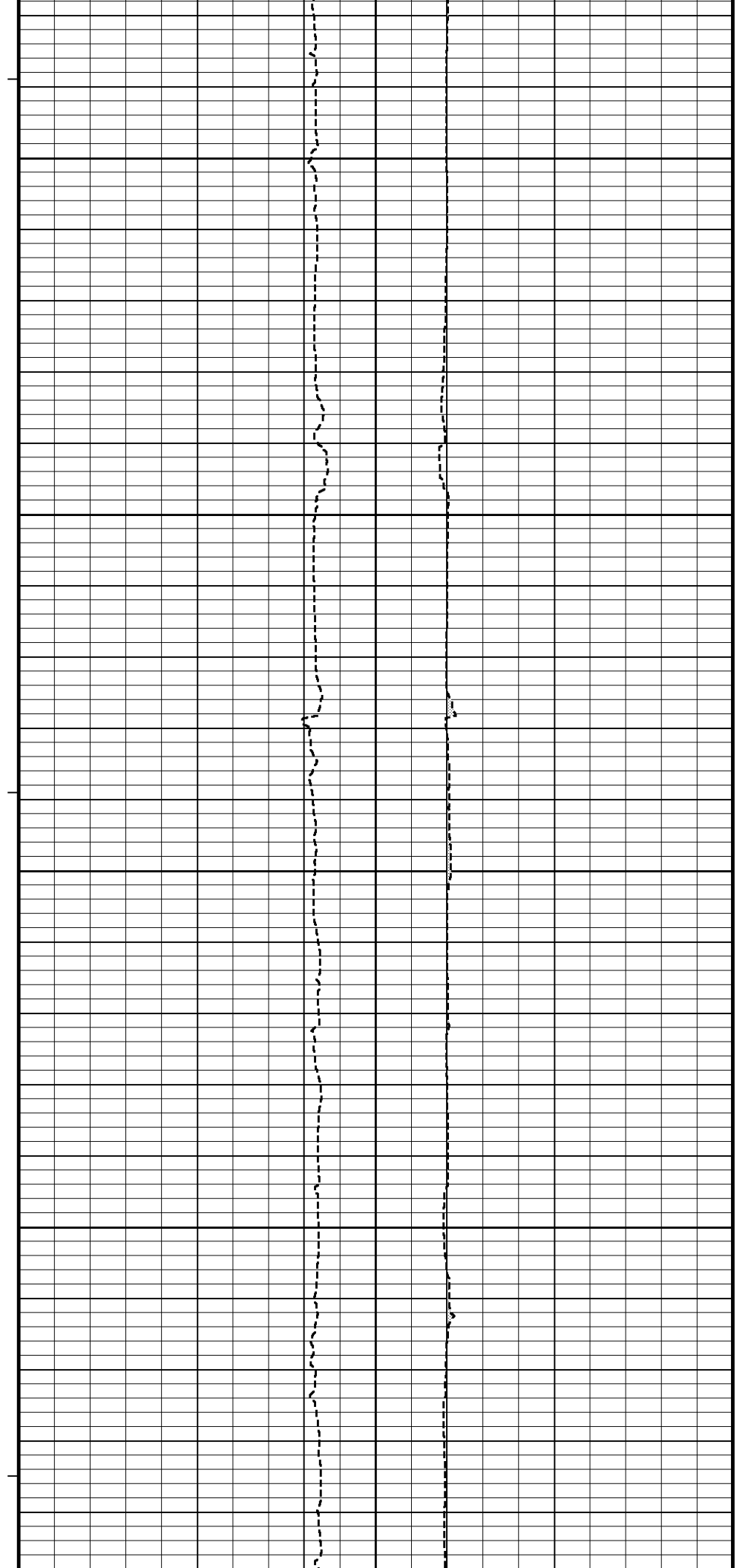


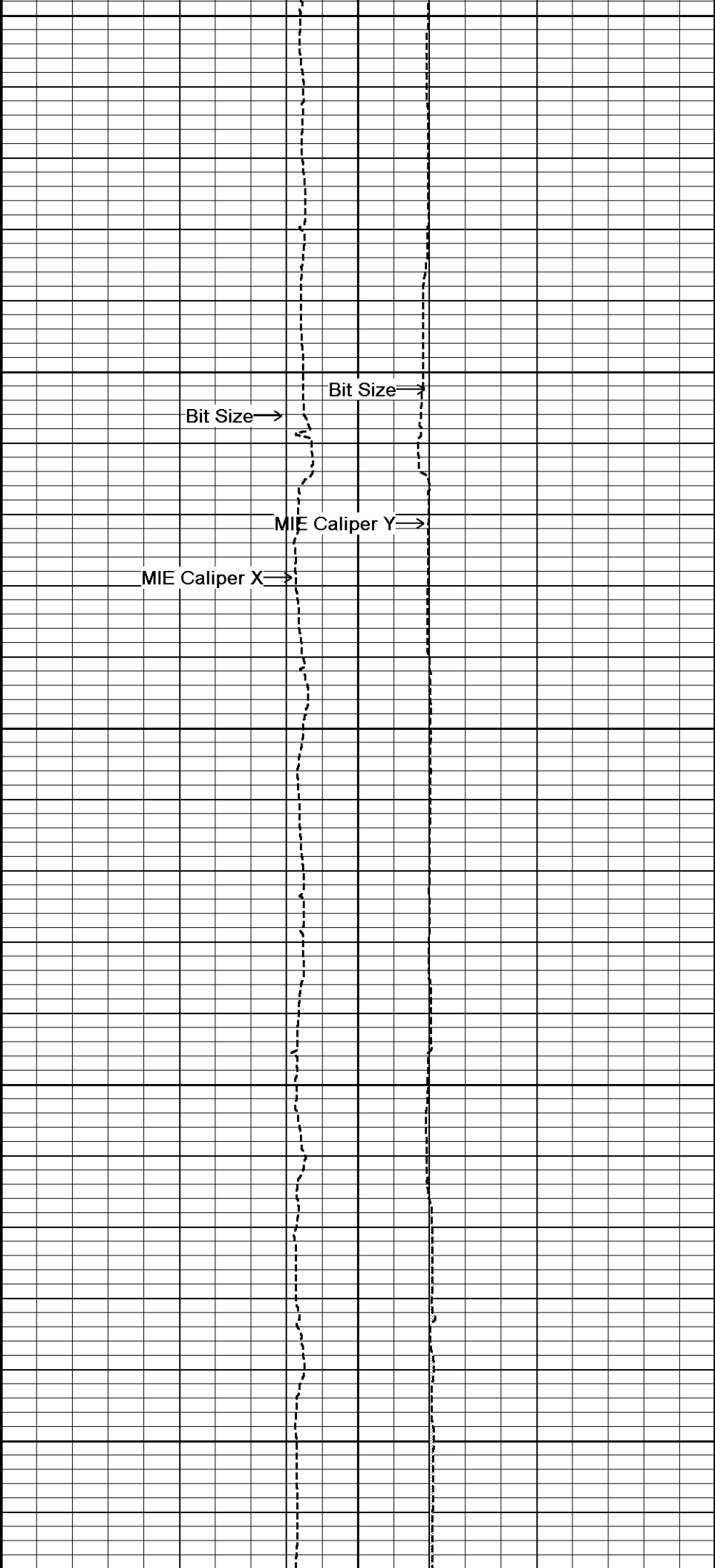
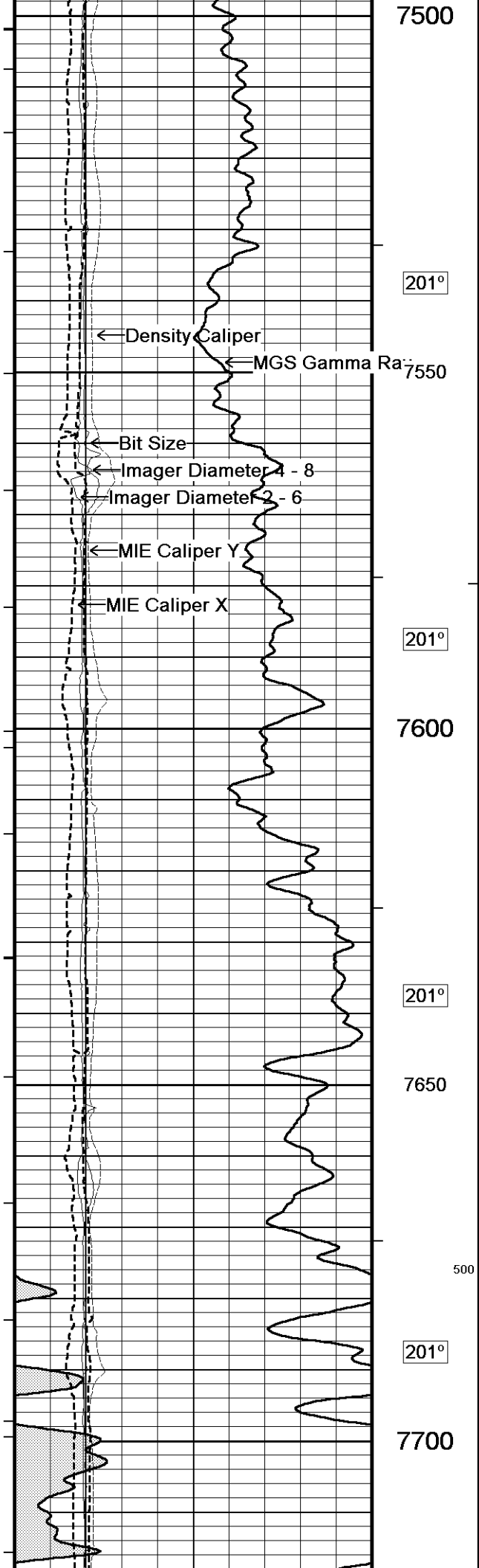


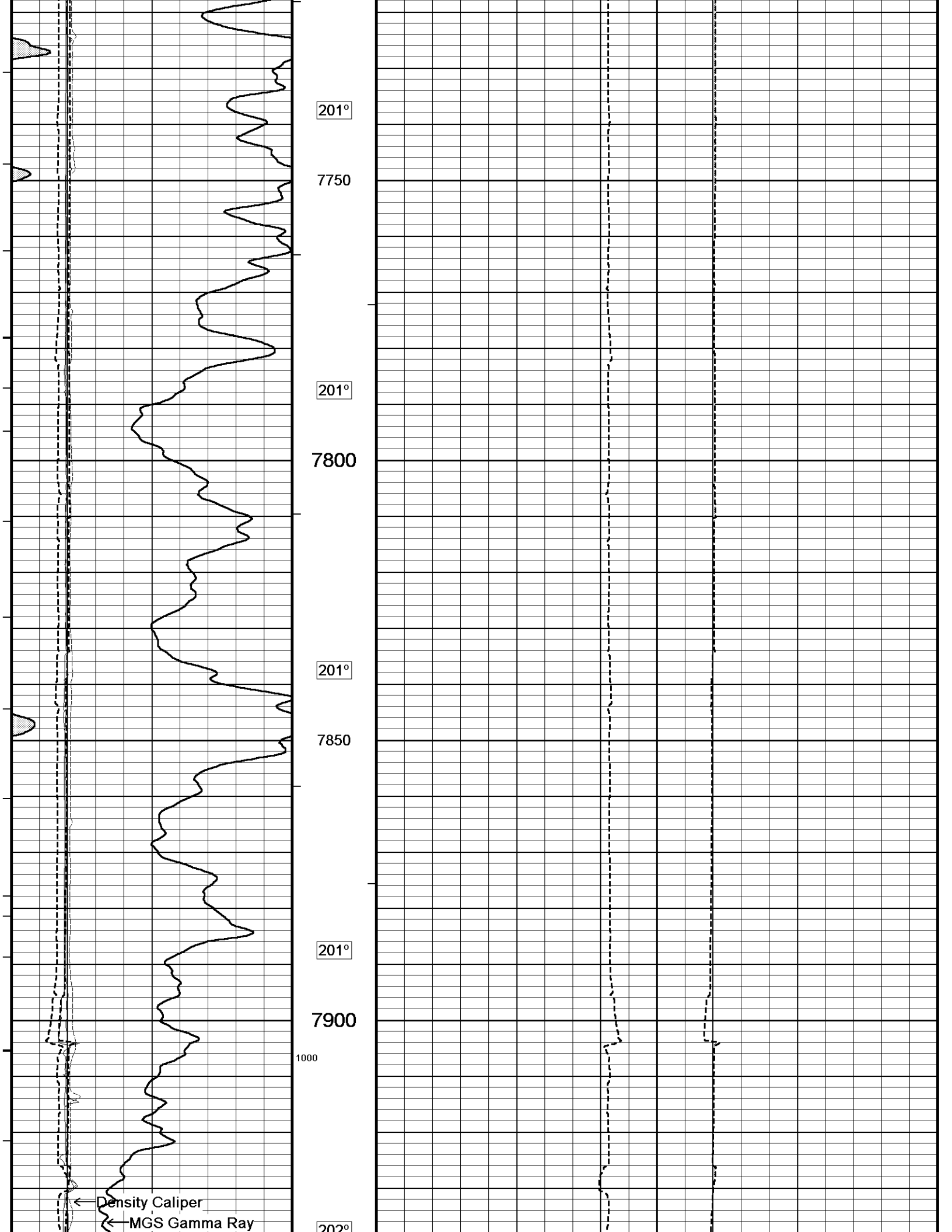


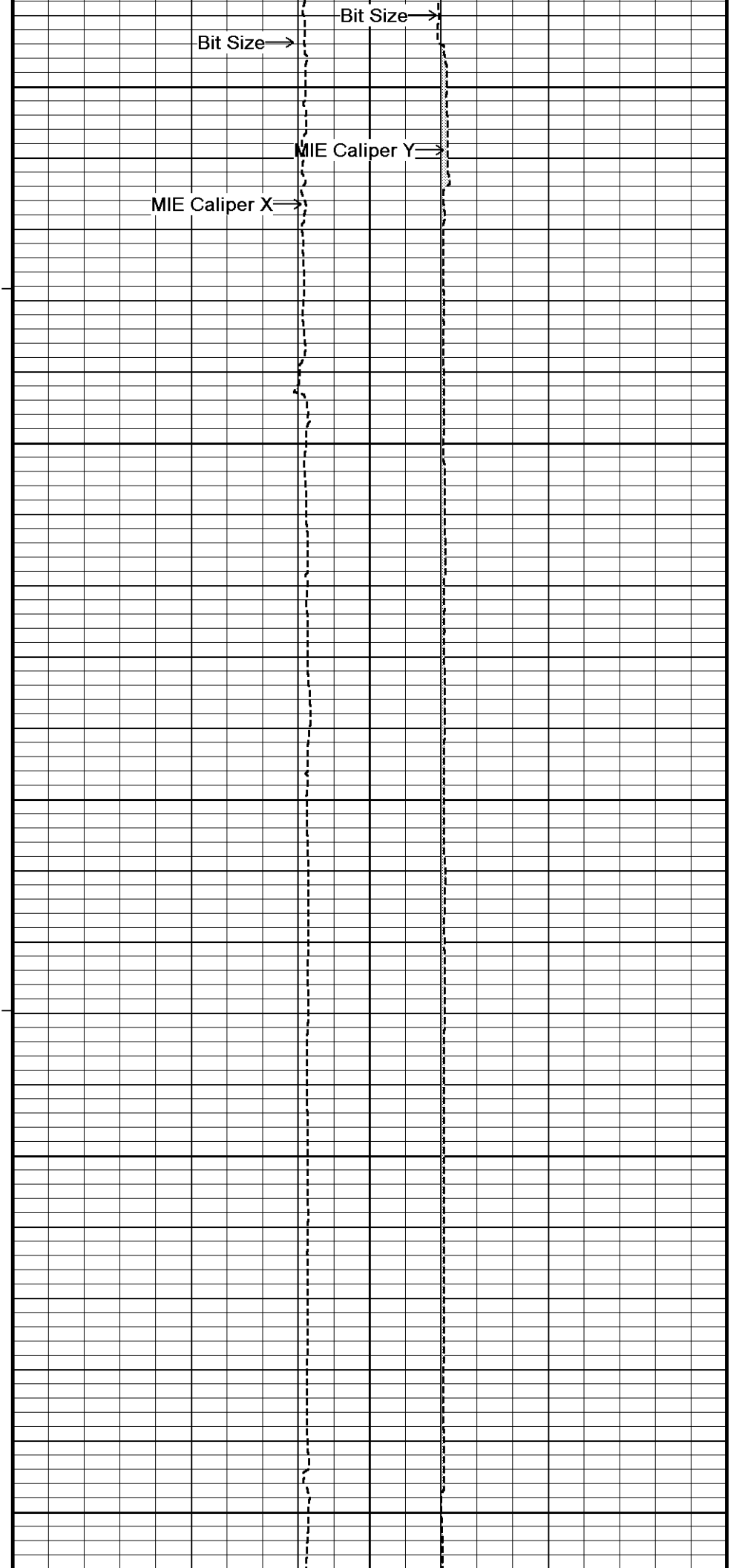
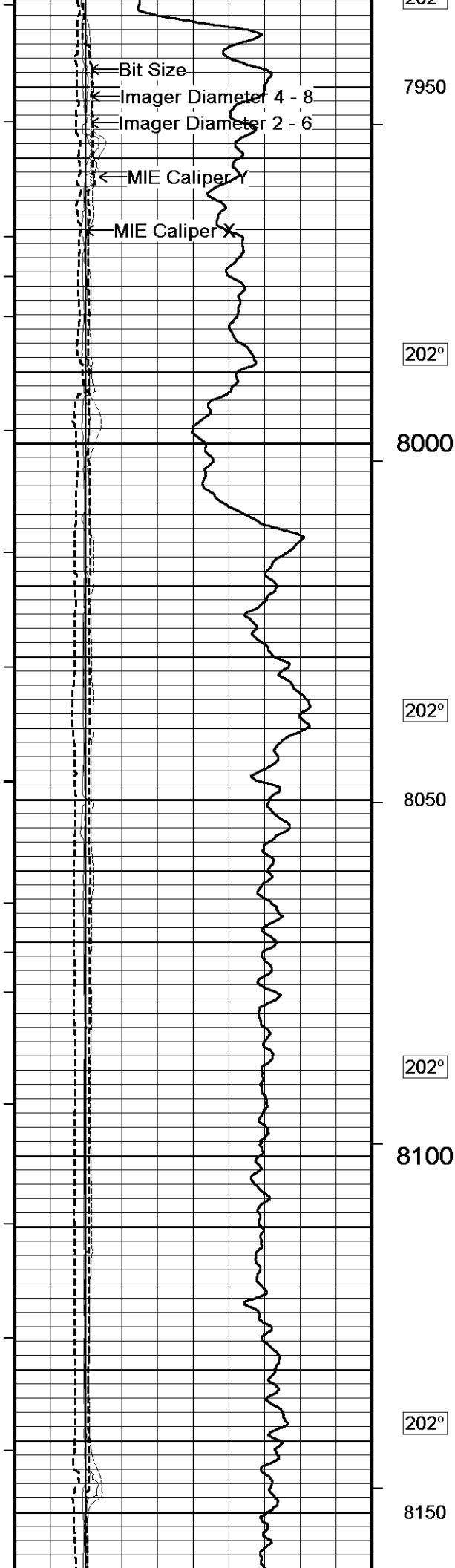


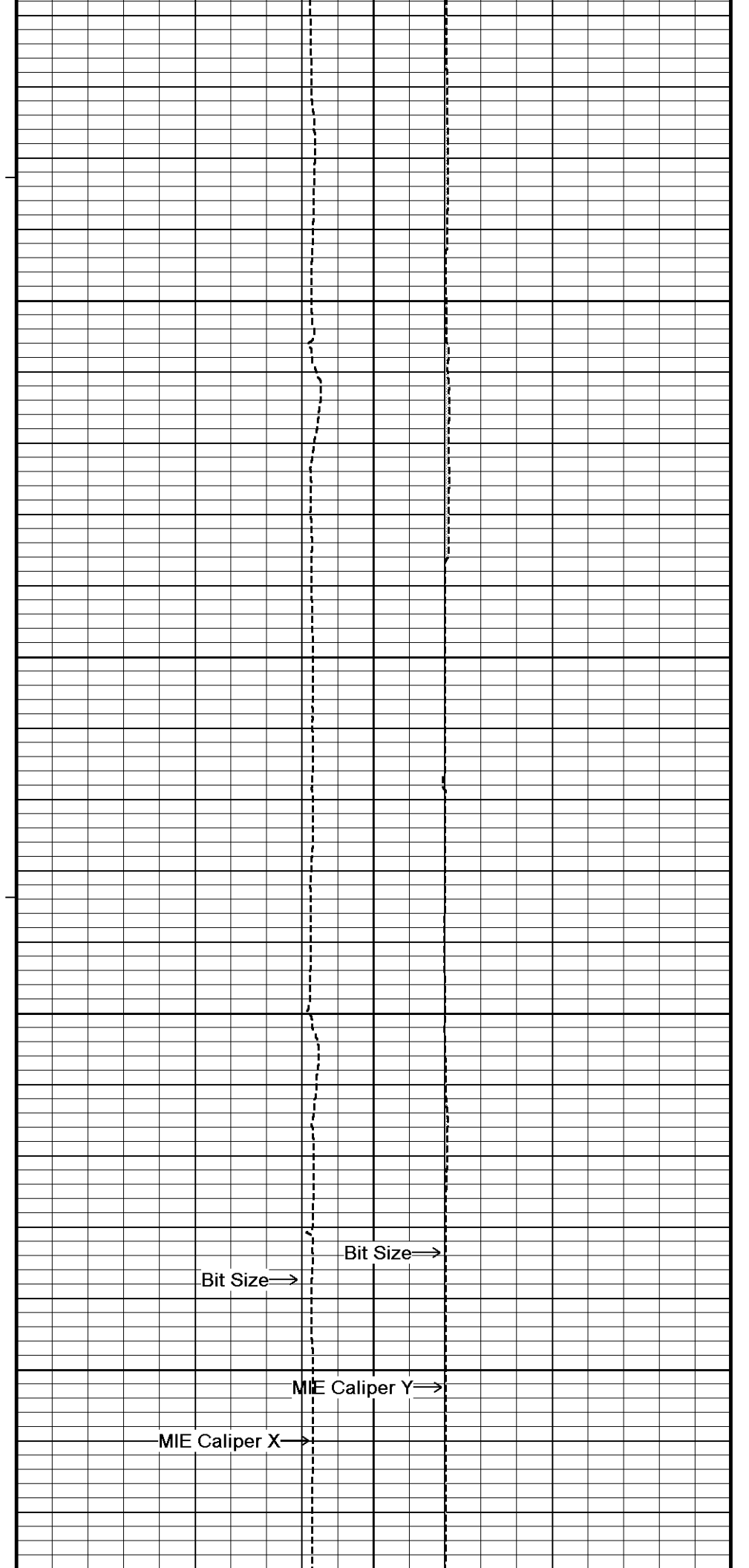
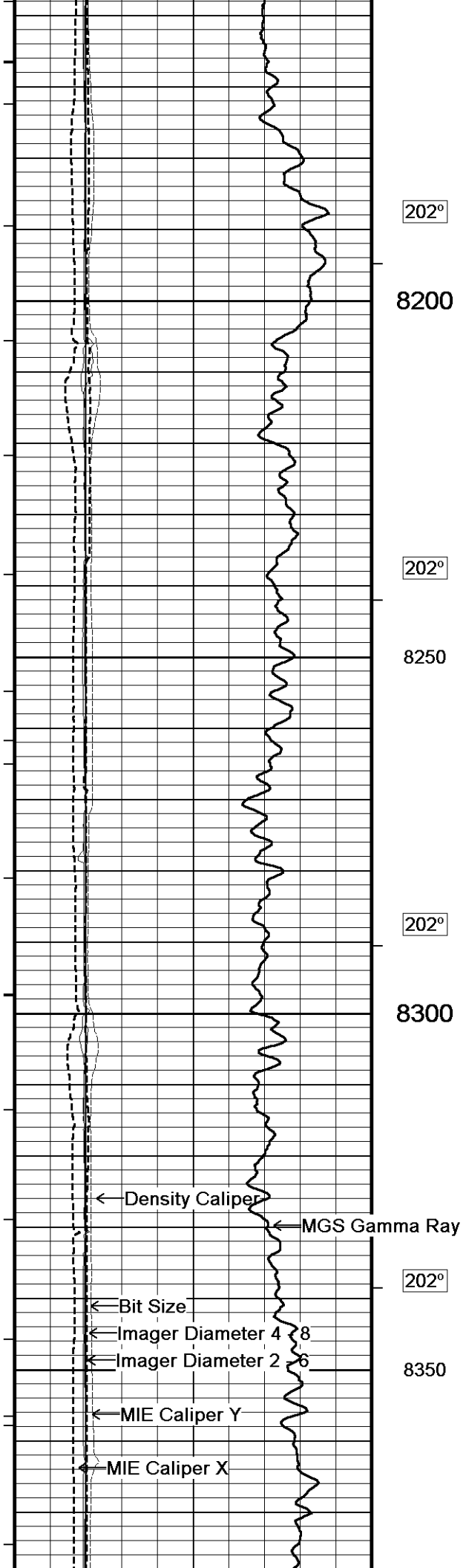
200°
7300
200°
7350
200°
7400
201°
1100
7450
201°

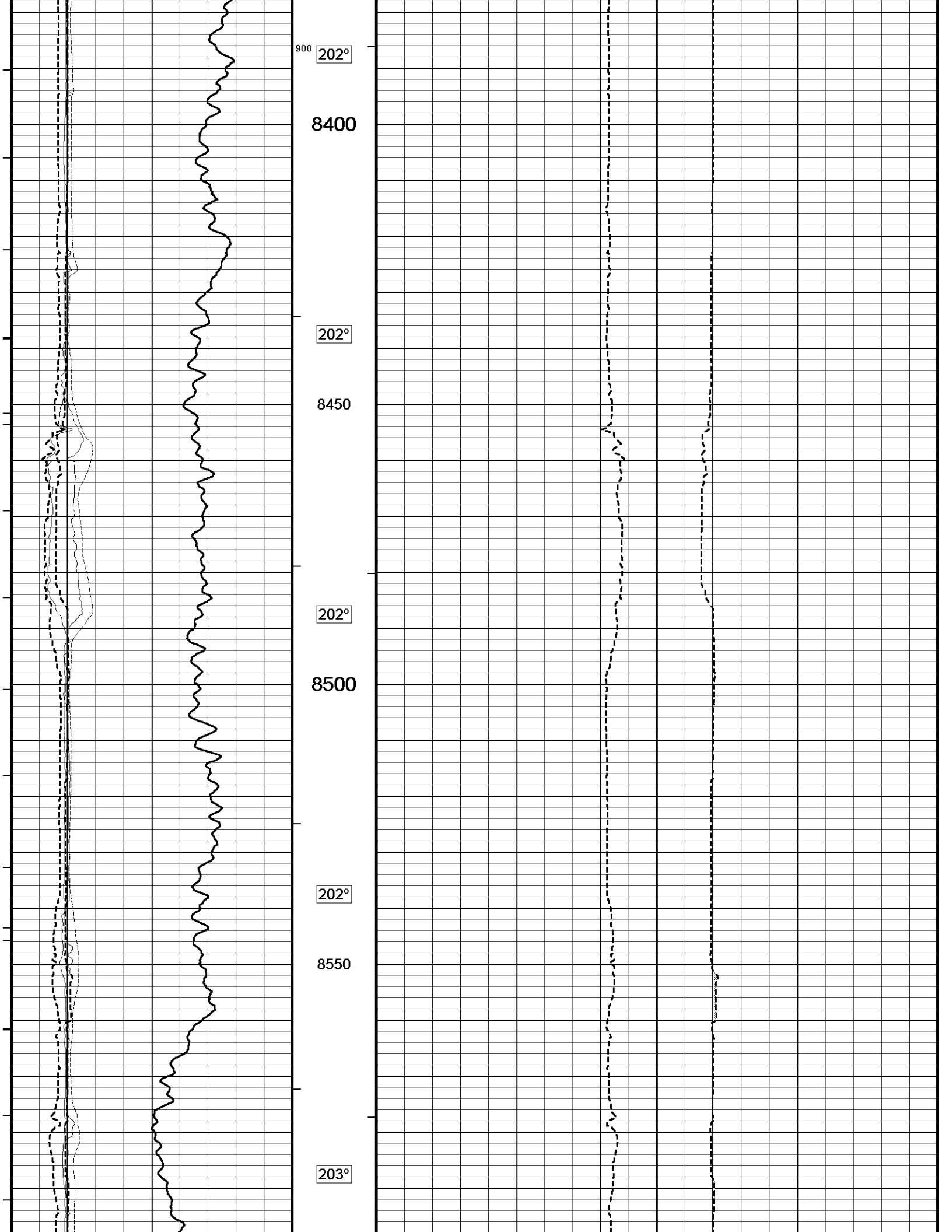


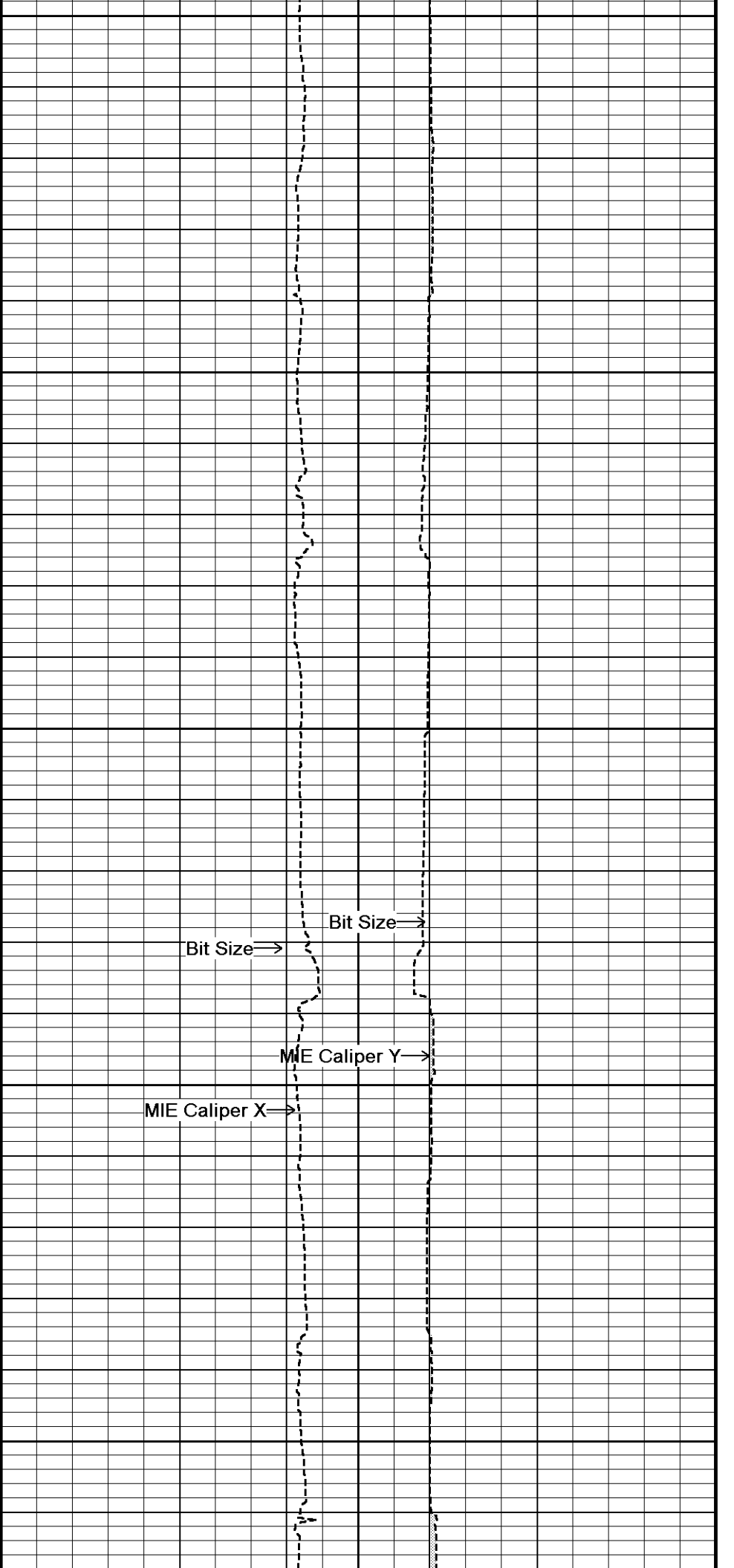
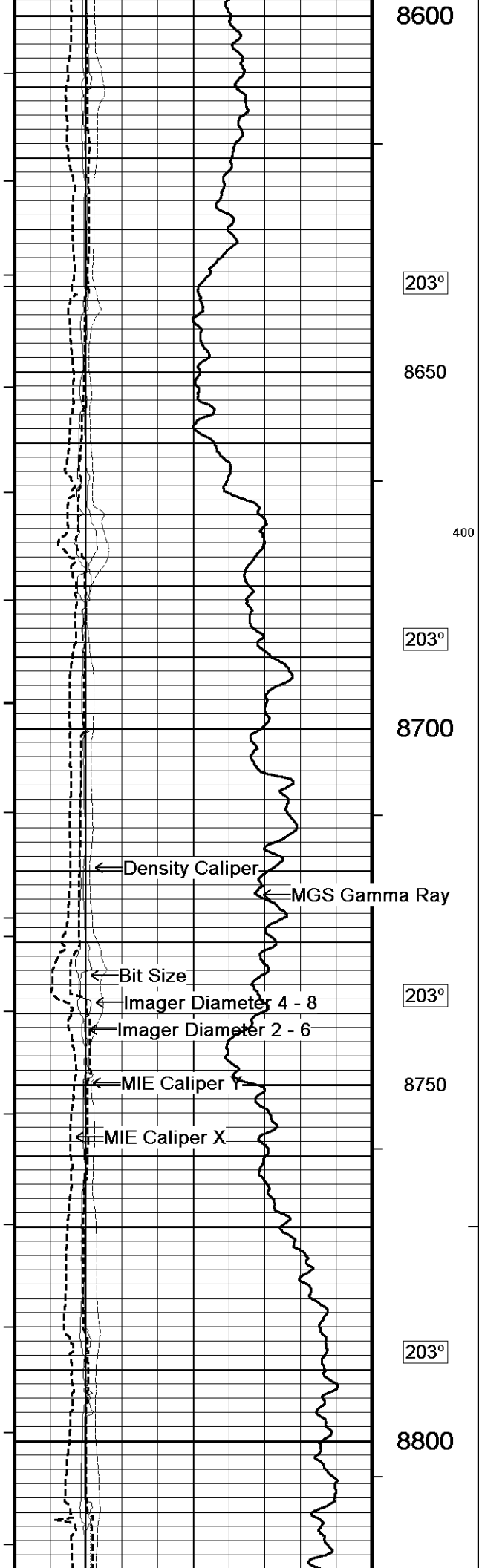


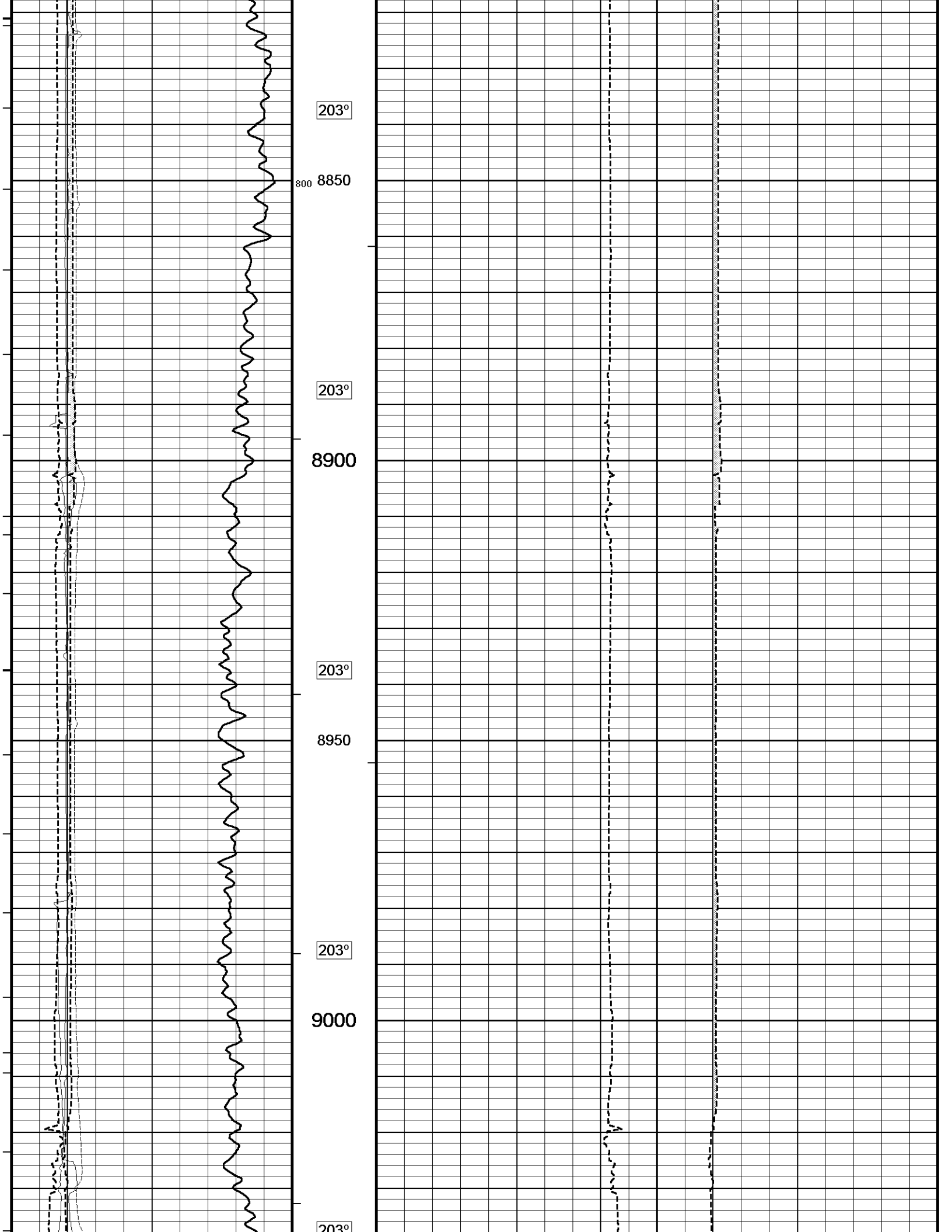


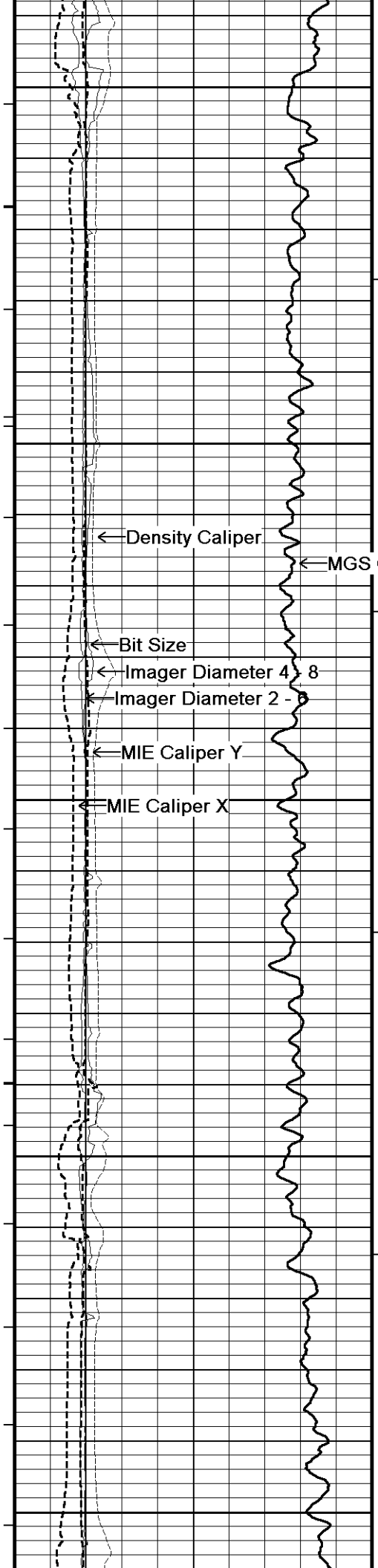












203°

9050

203°

9100

← Density Caliper

← MGS Gamma Ray

← Bit Size

← Imager Diameter 4 - 8

← Imager Diameter 2 - 6

← MIE Caliper Y

← MIE Caliper X

204°

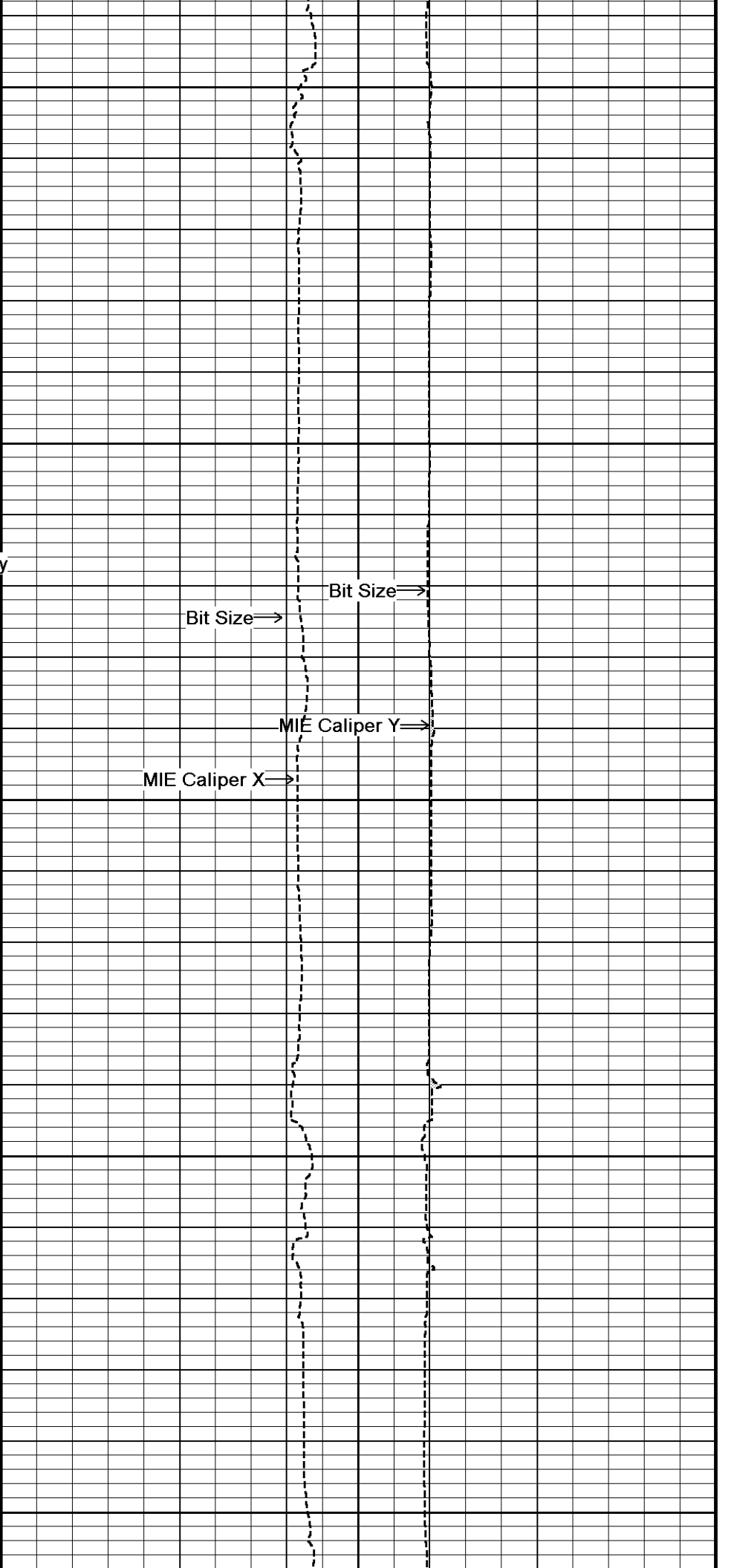
9150

204°

9200

204°

9250

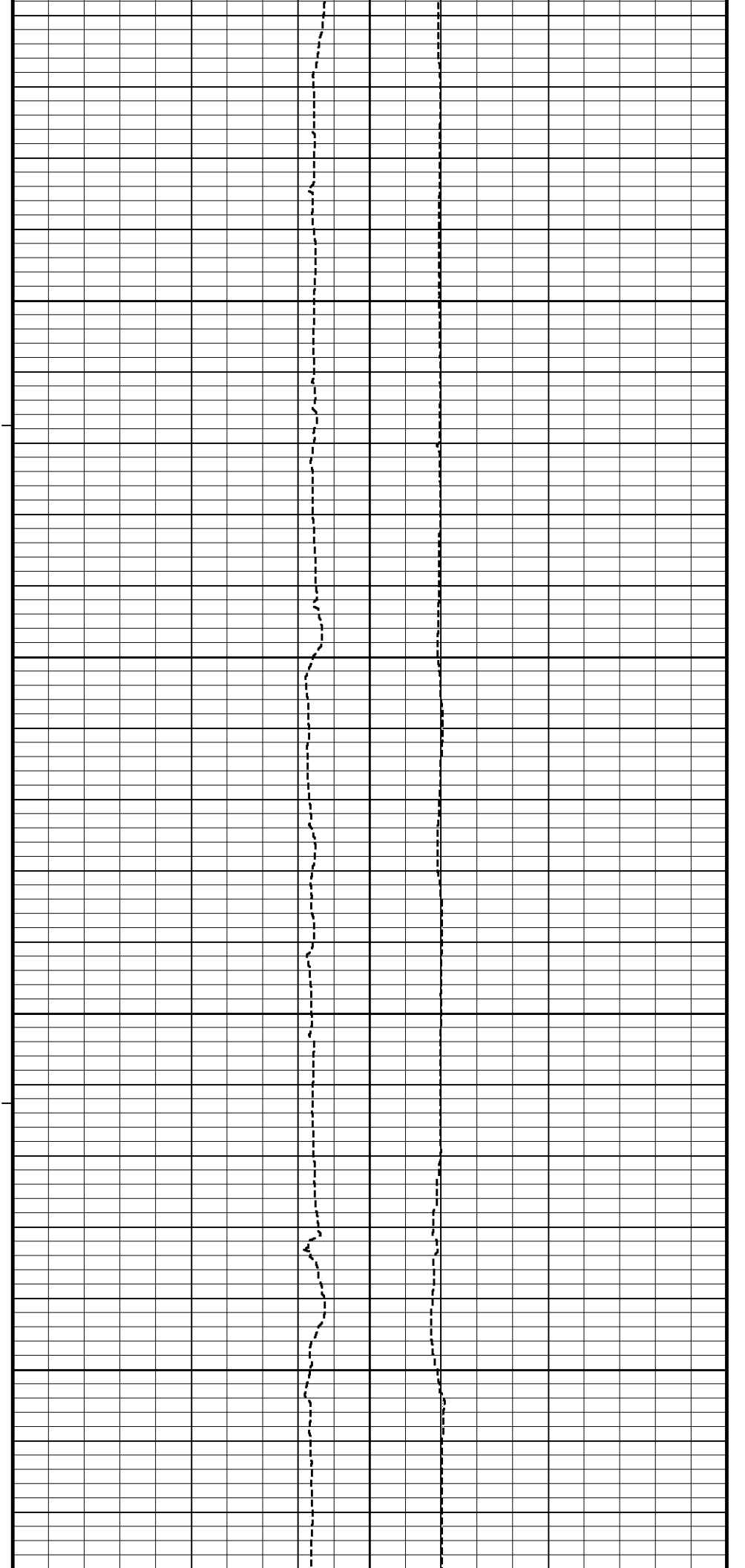
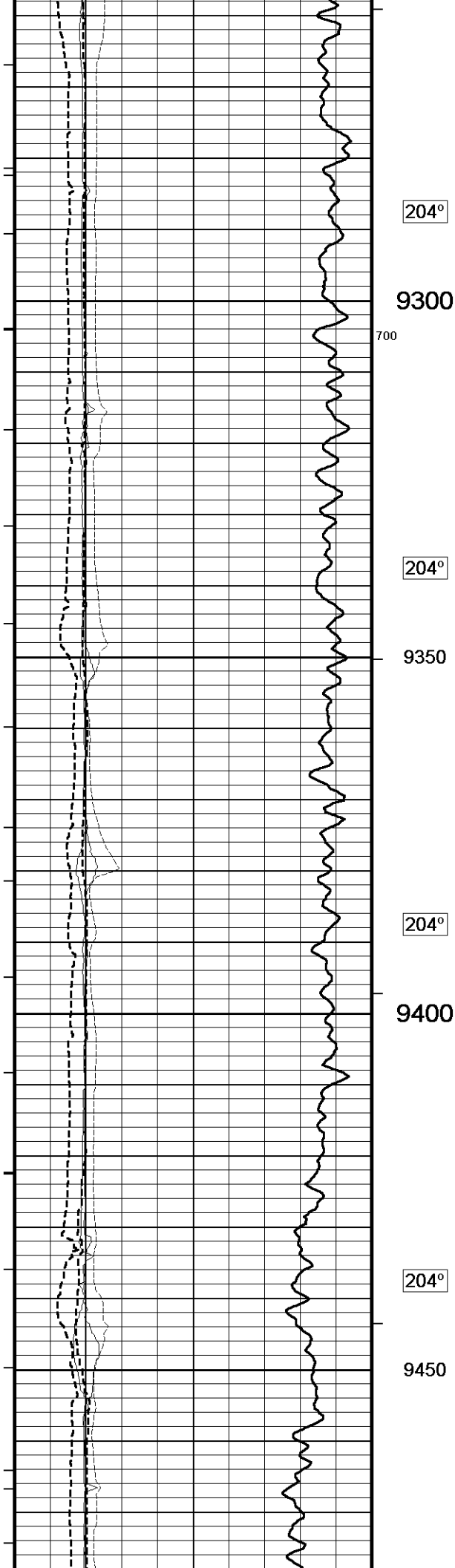


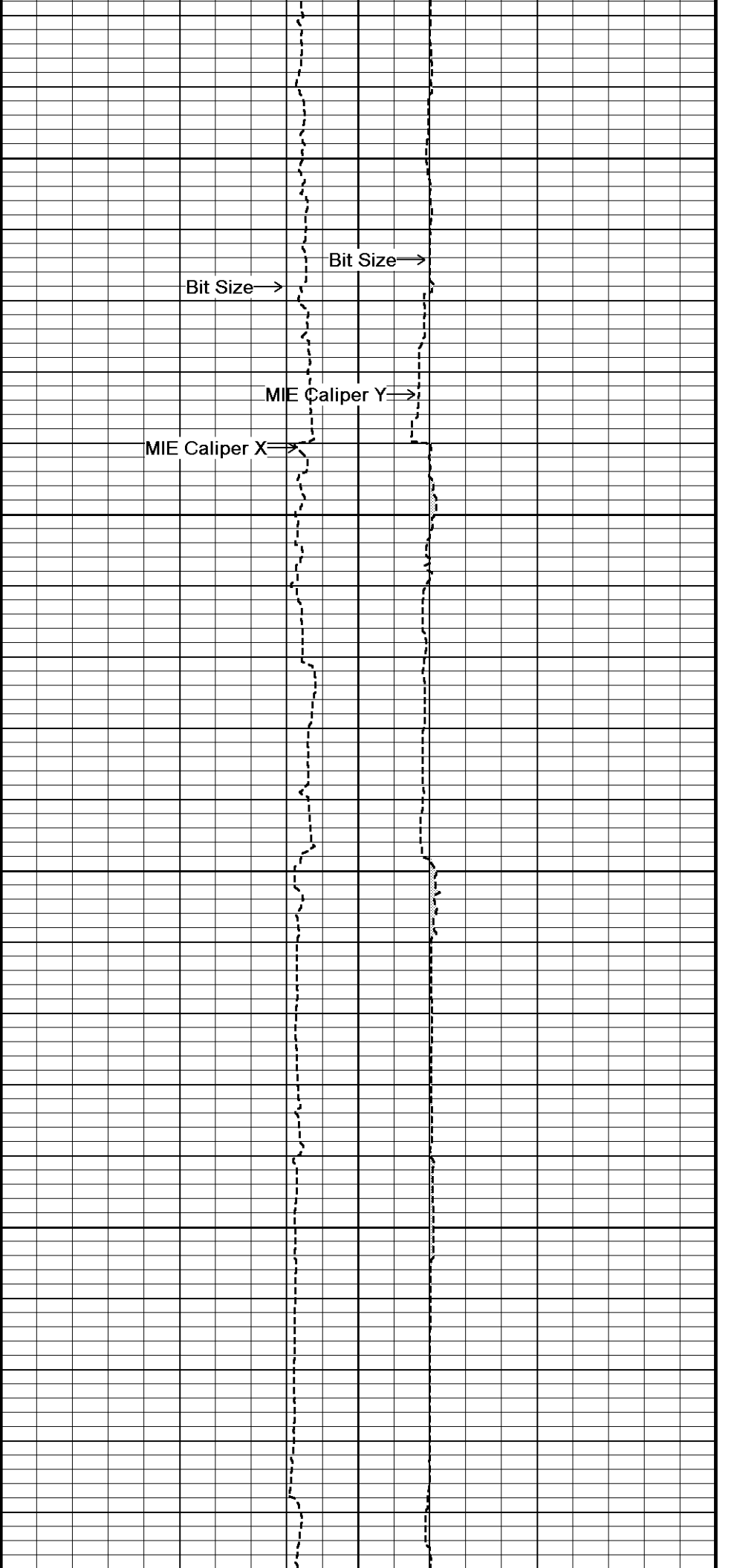
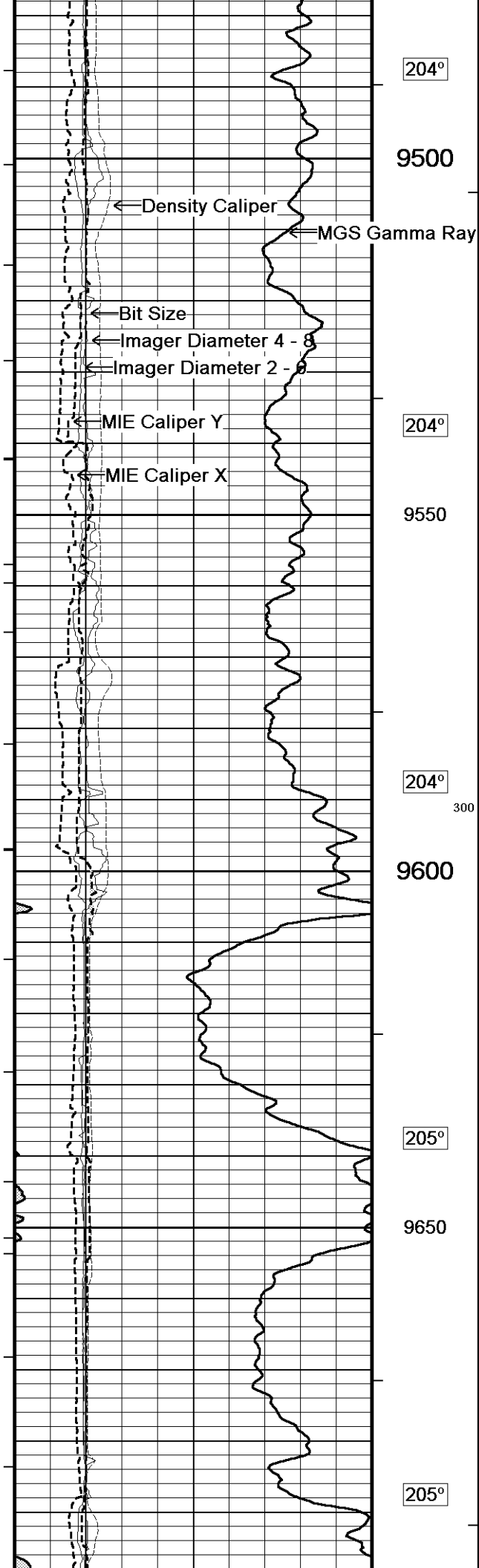
Bit Size →

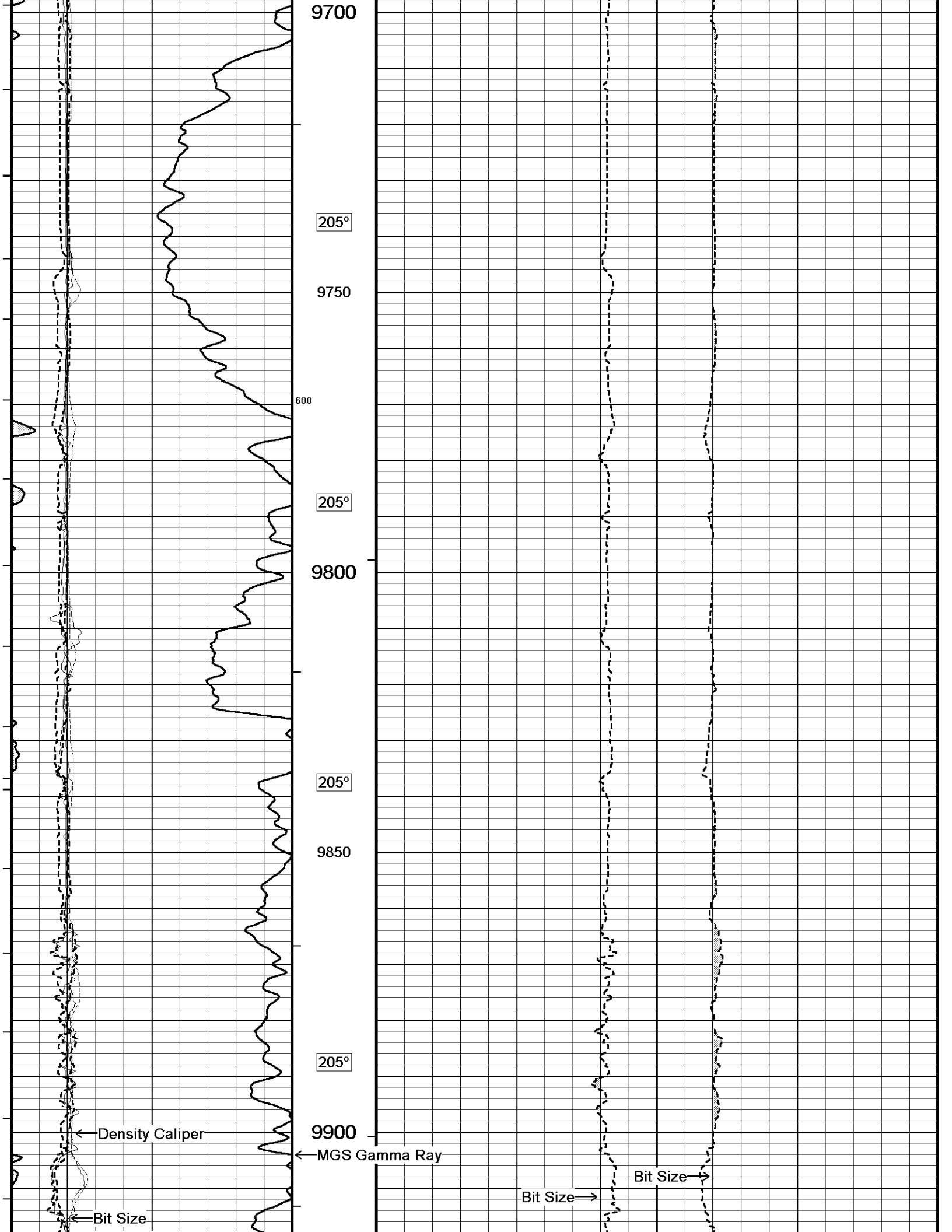
Bit Size →

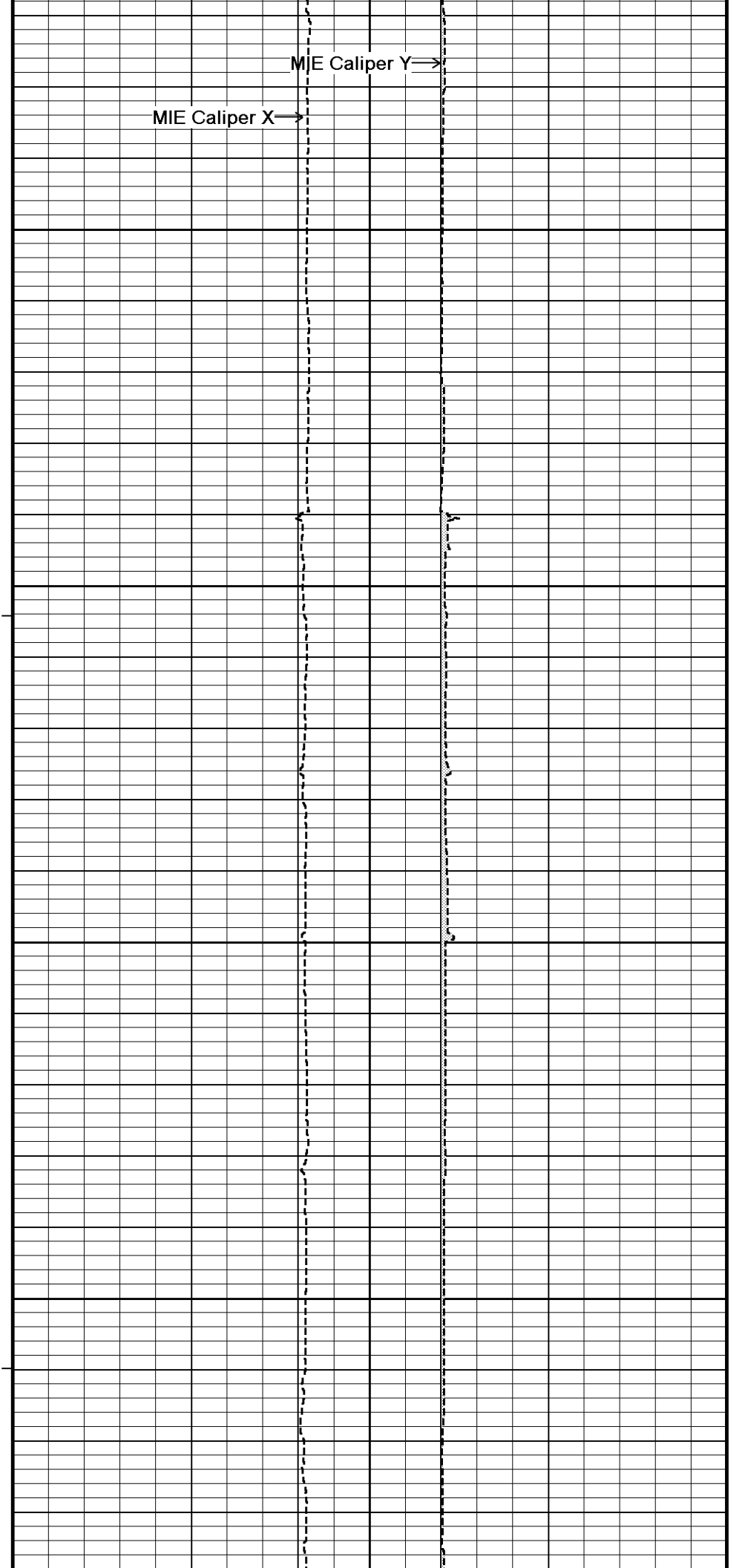
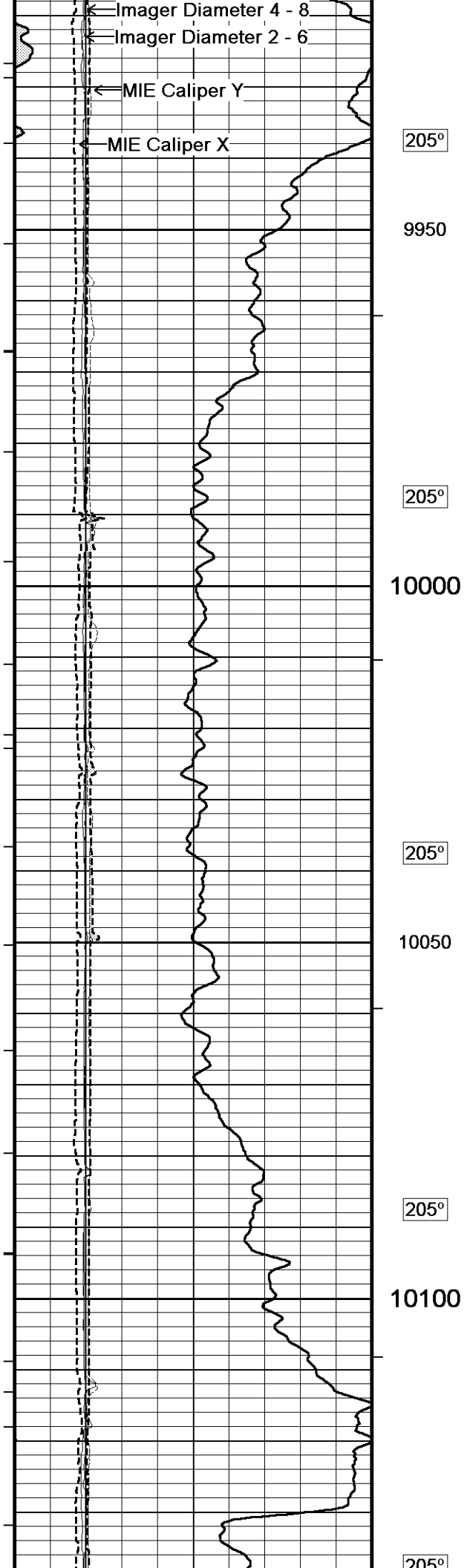
MIE Caliper Y →

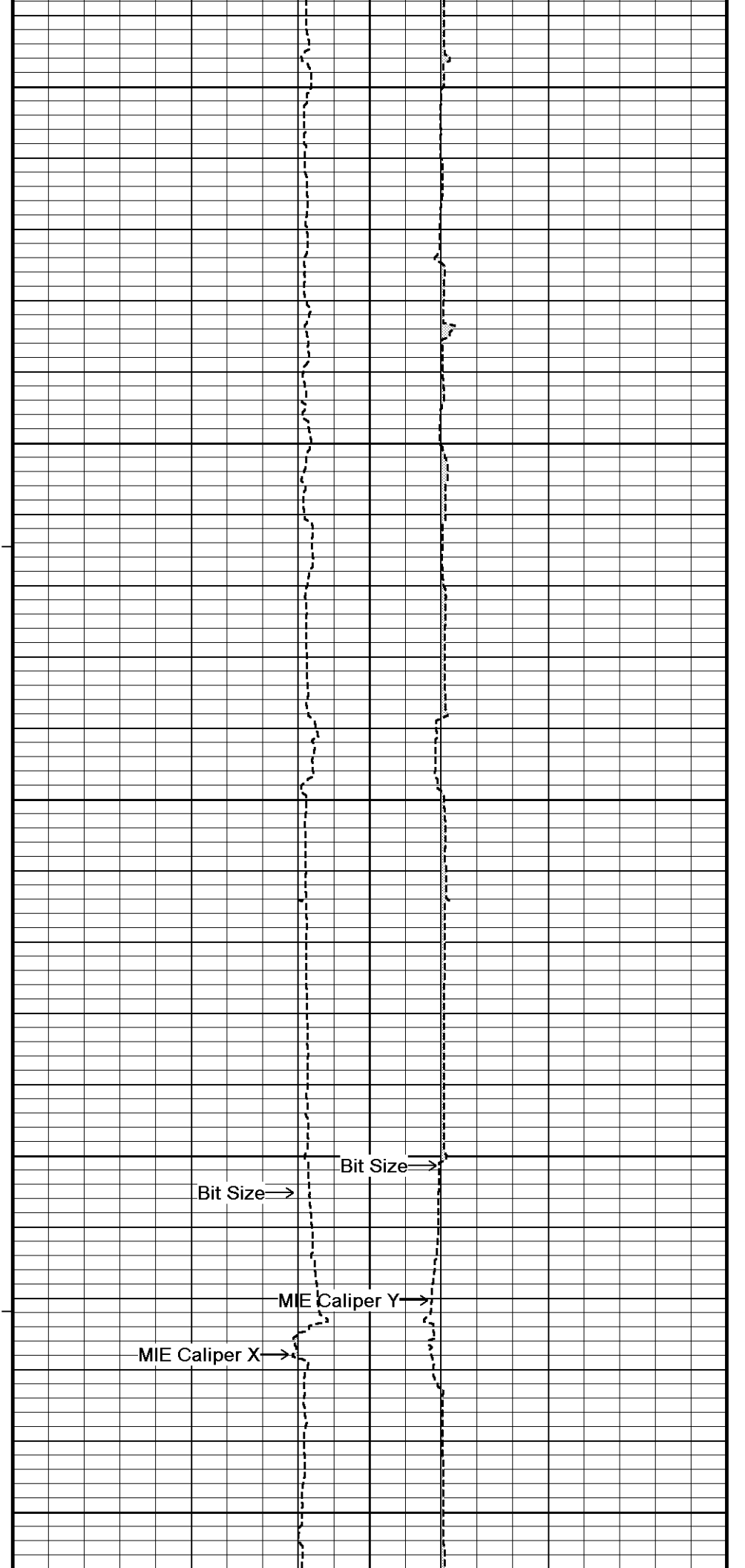
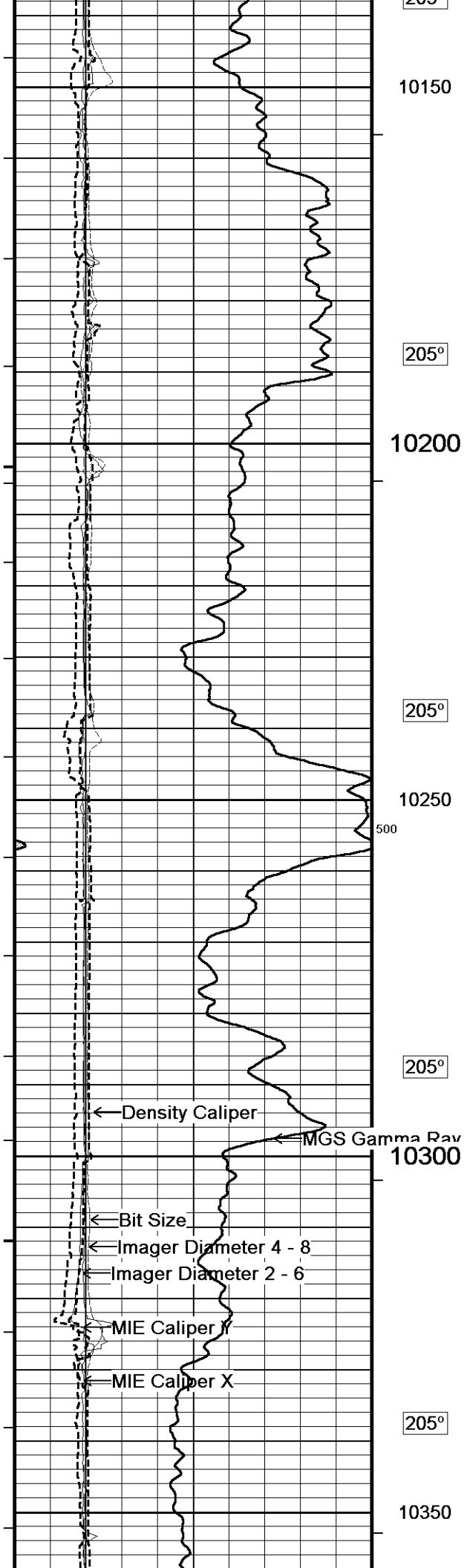
MIE Caliper X →

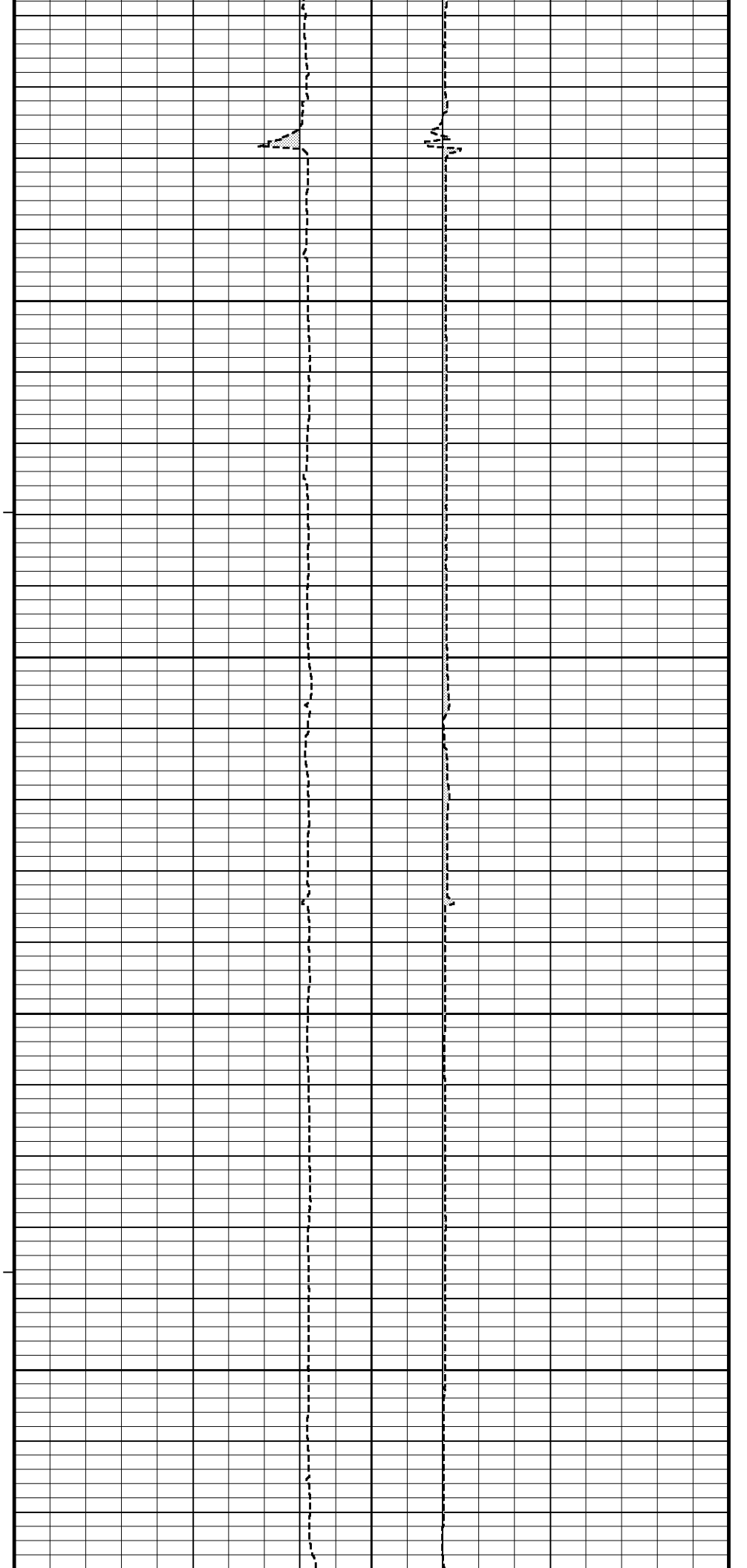
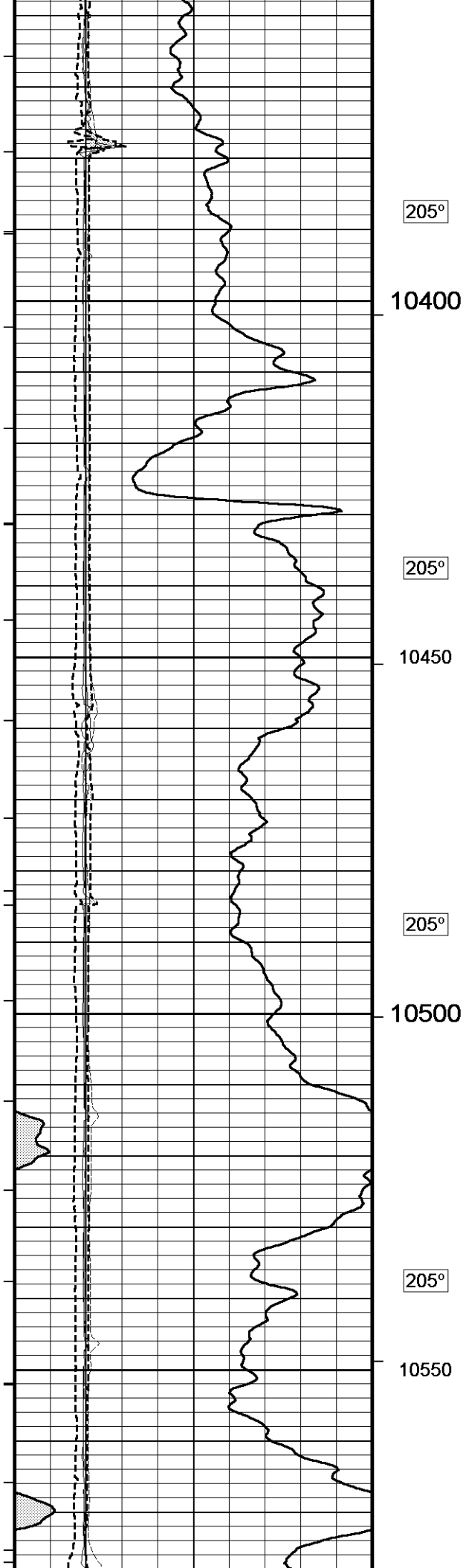


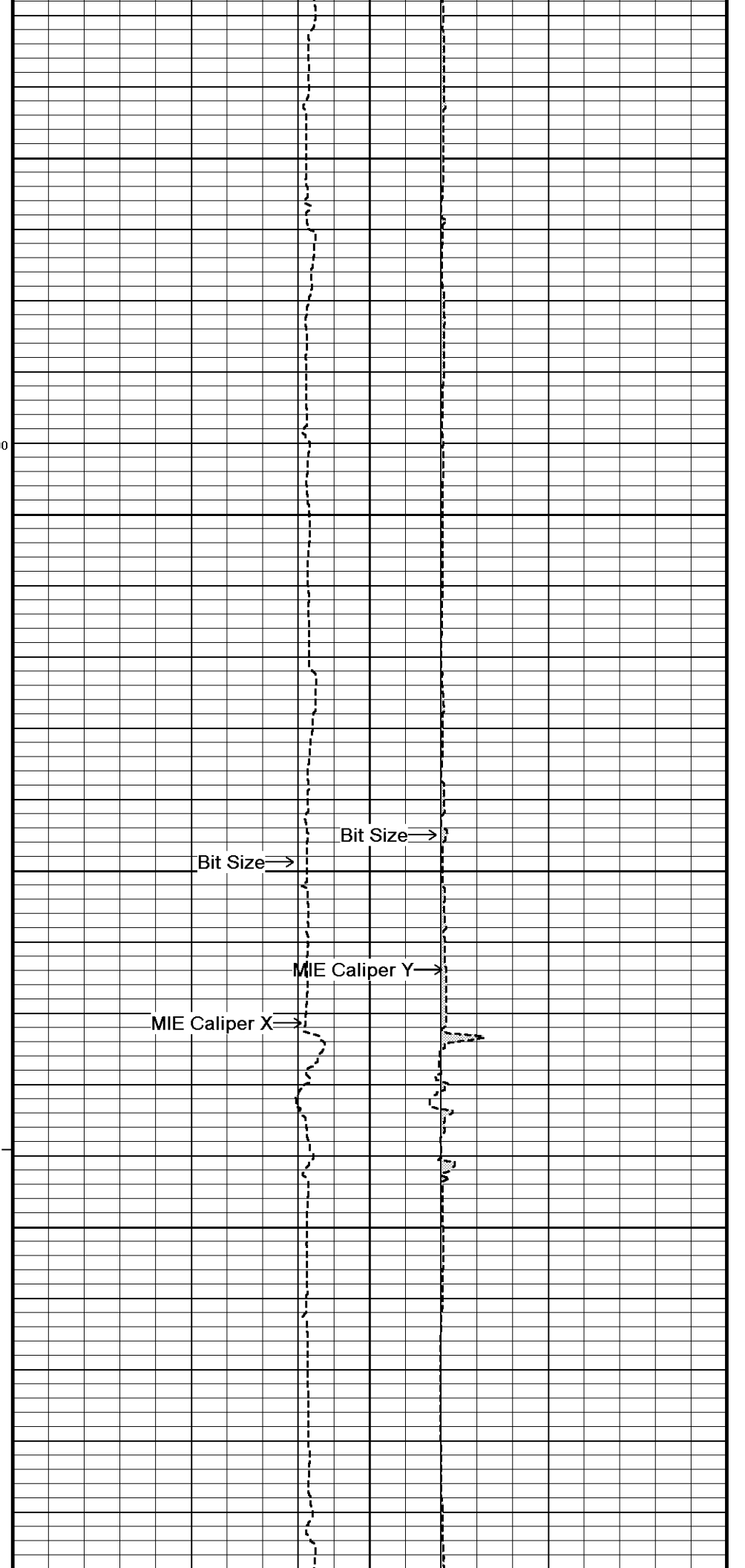
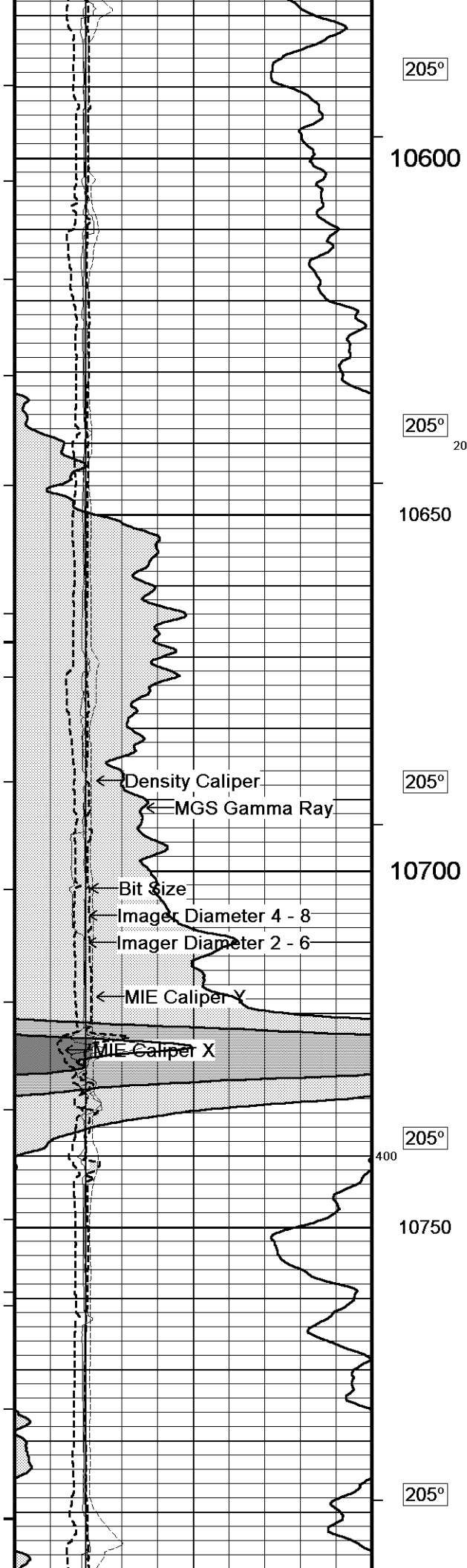


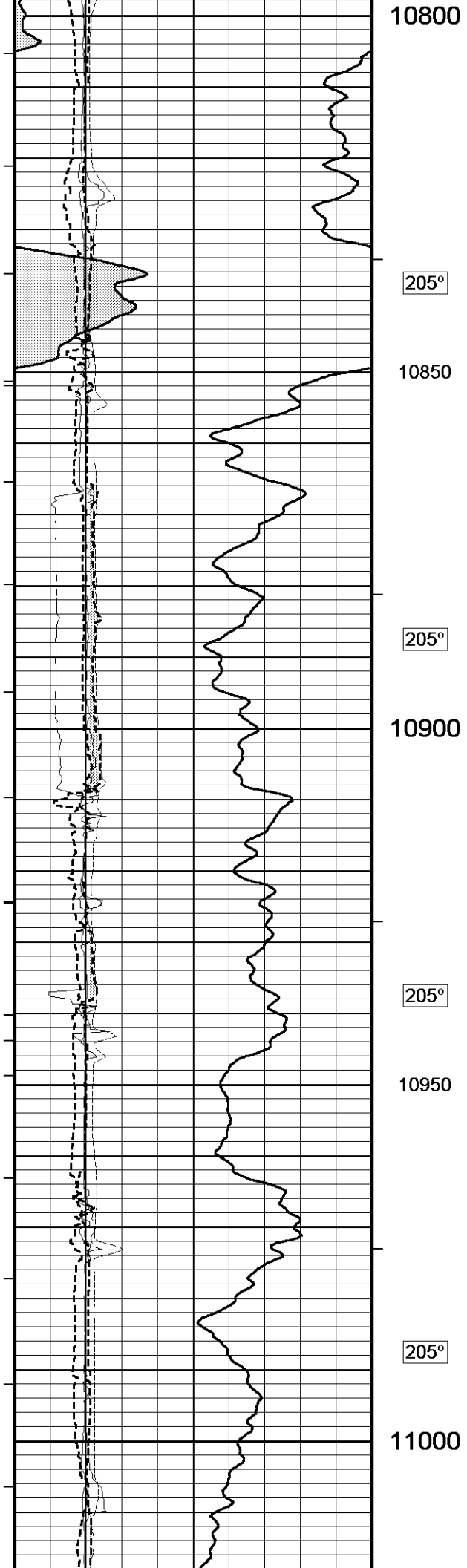












10800

205°

10850

205°

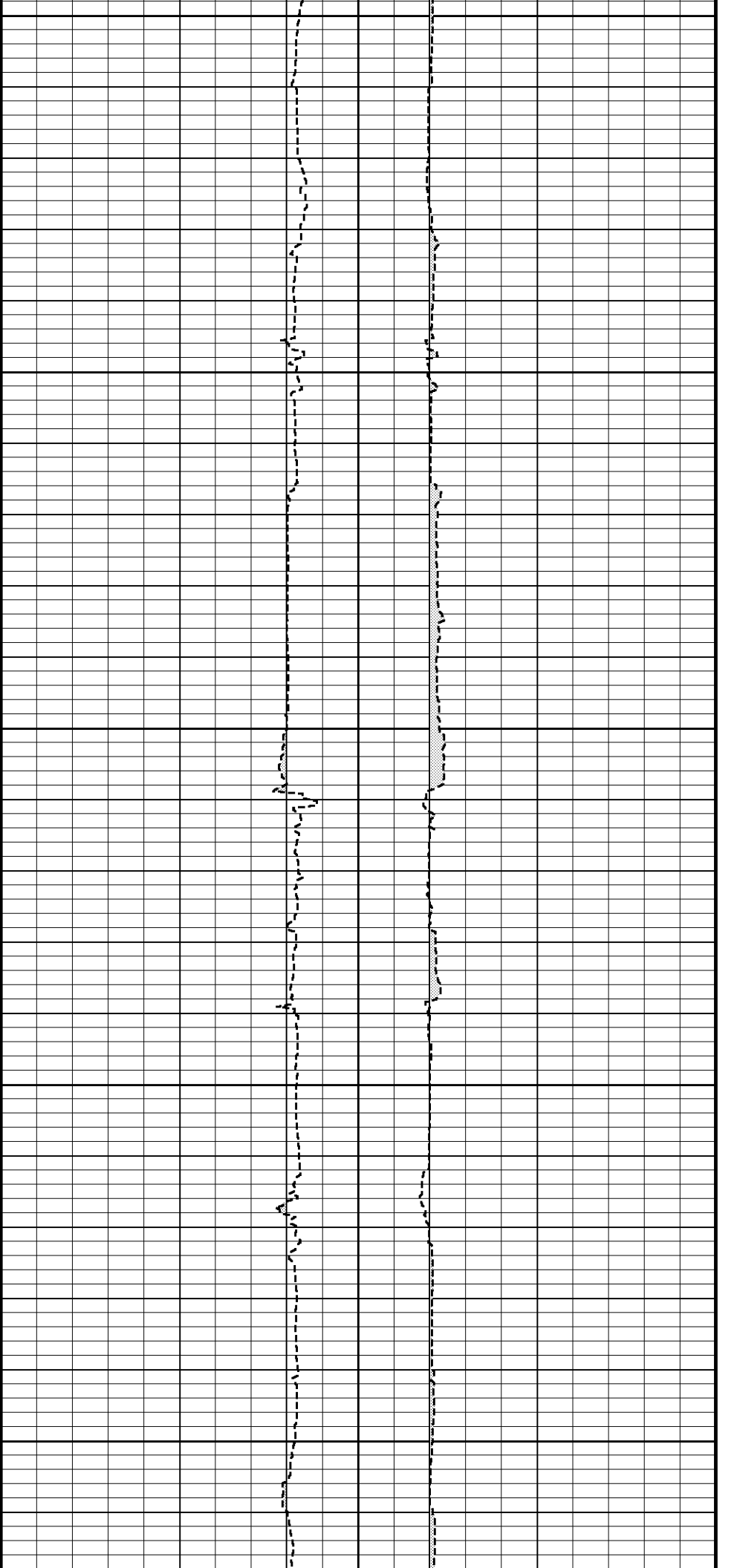
10900

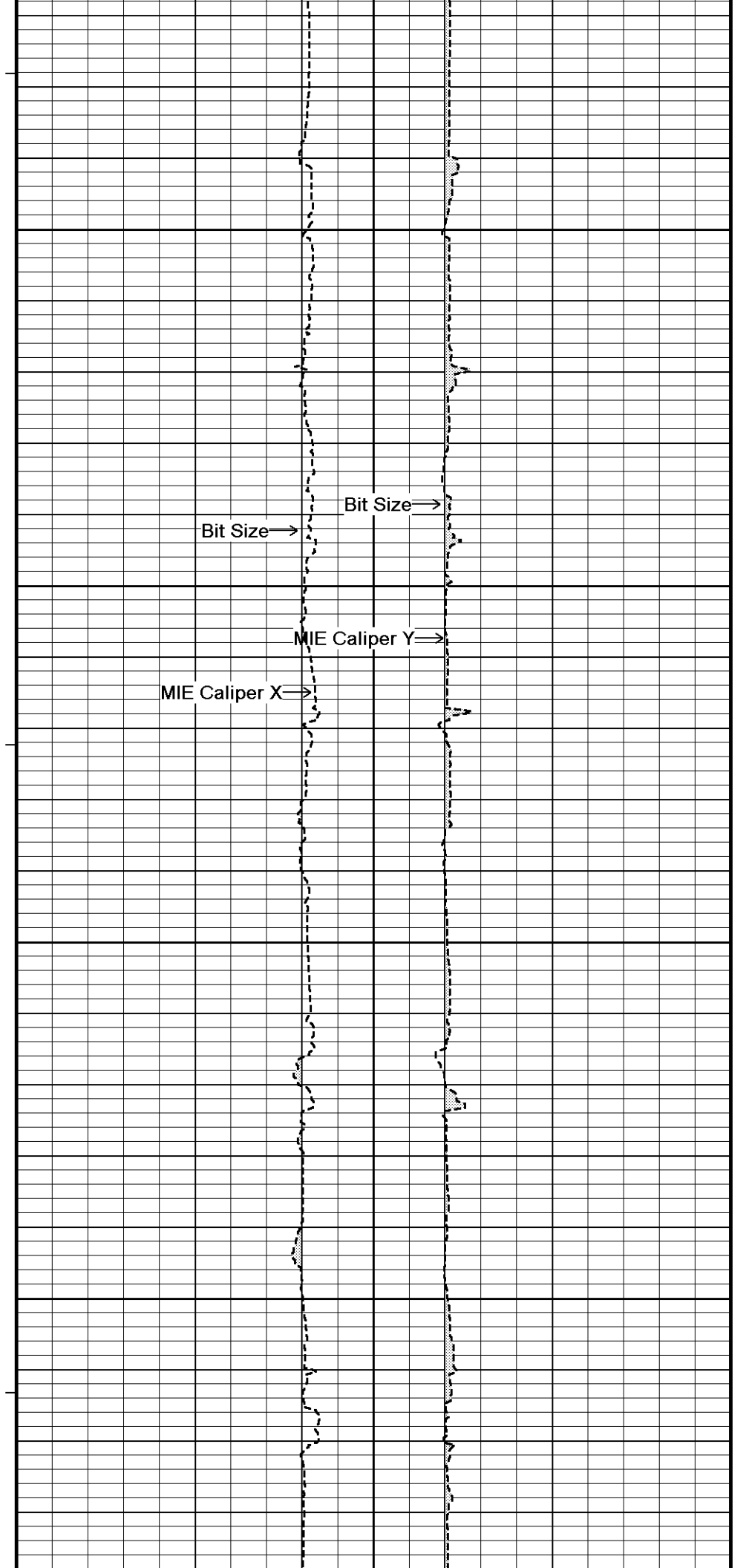
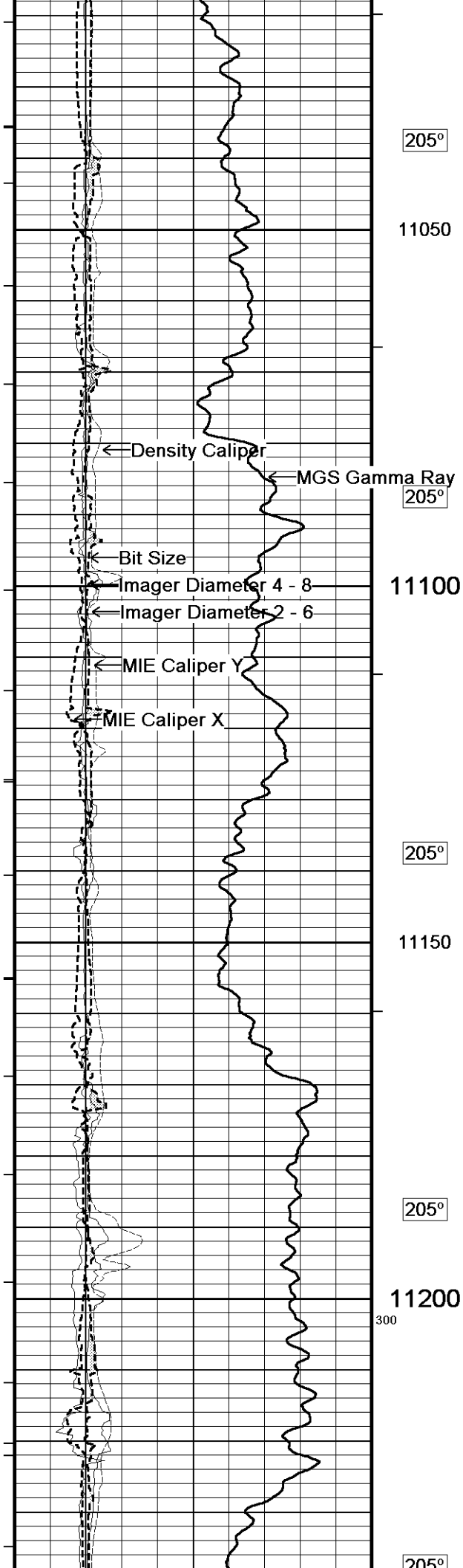
205°

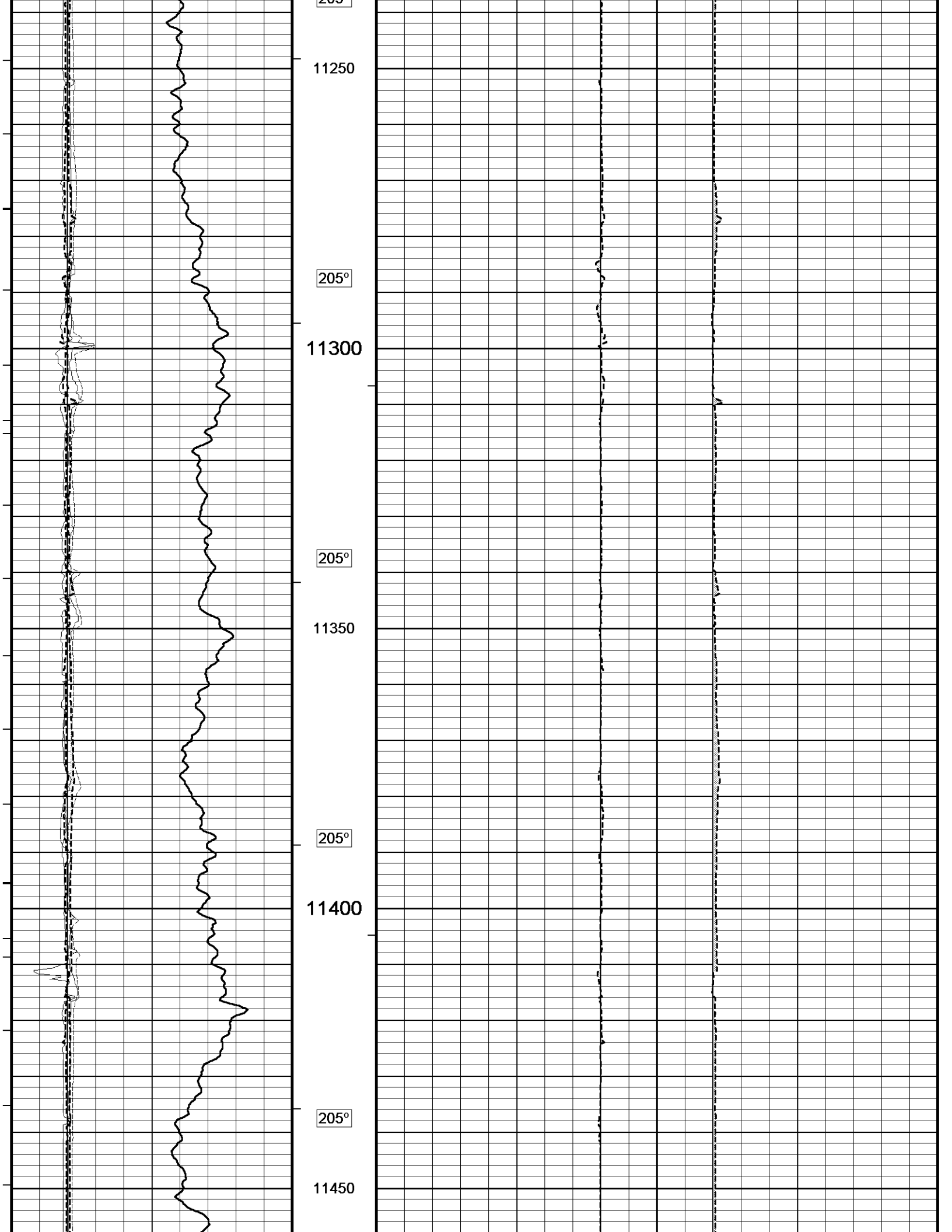
10950

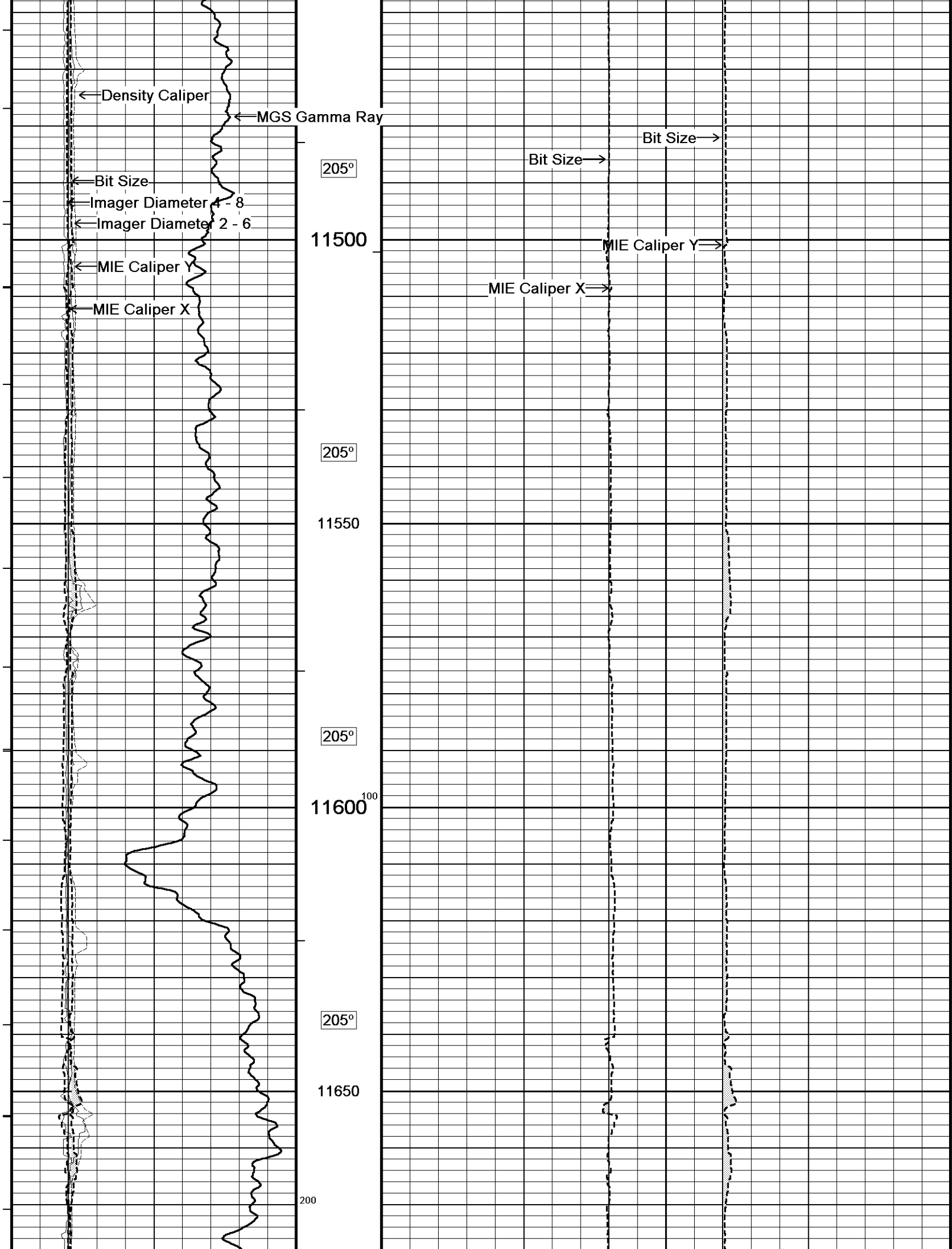
205°

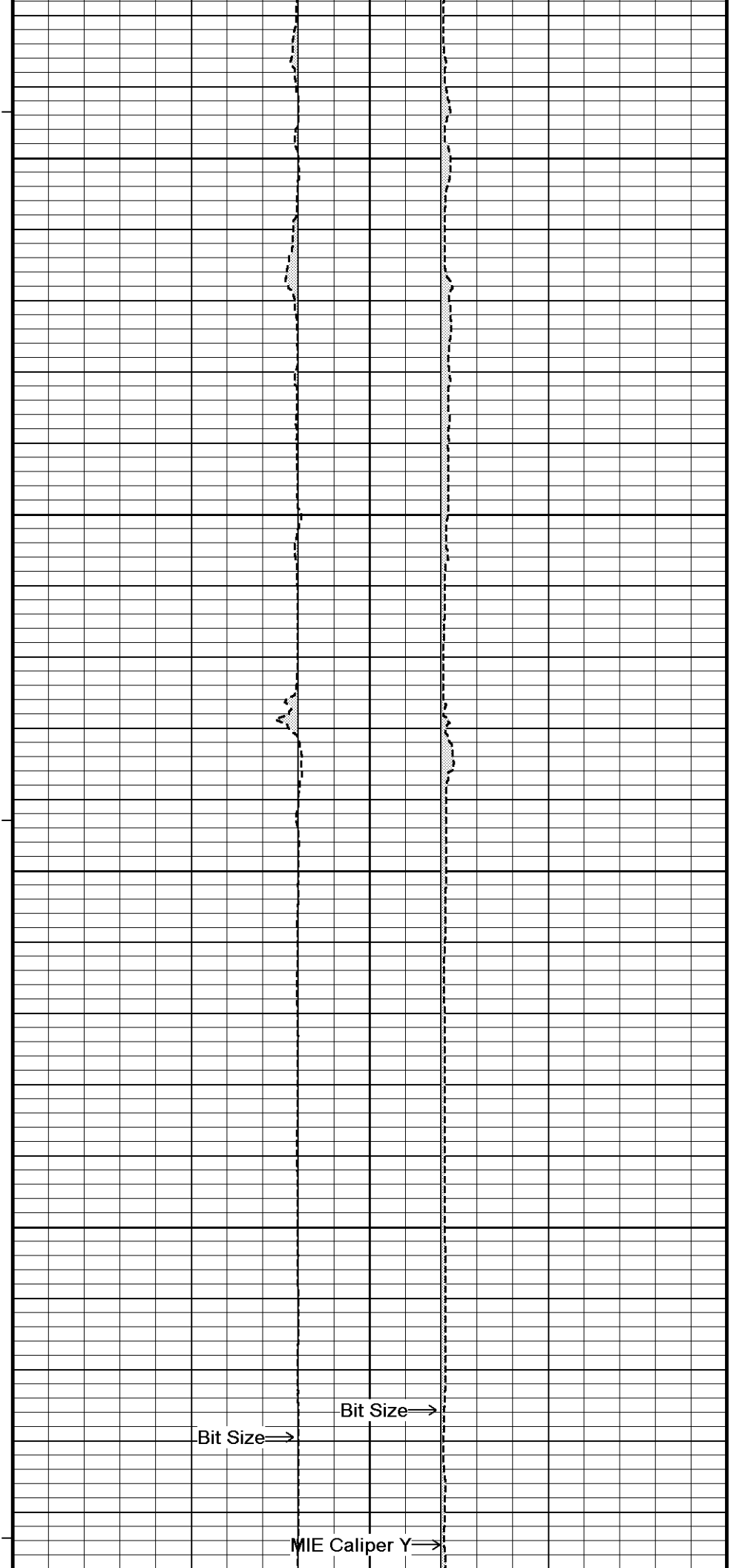
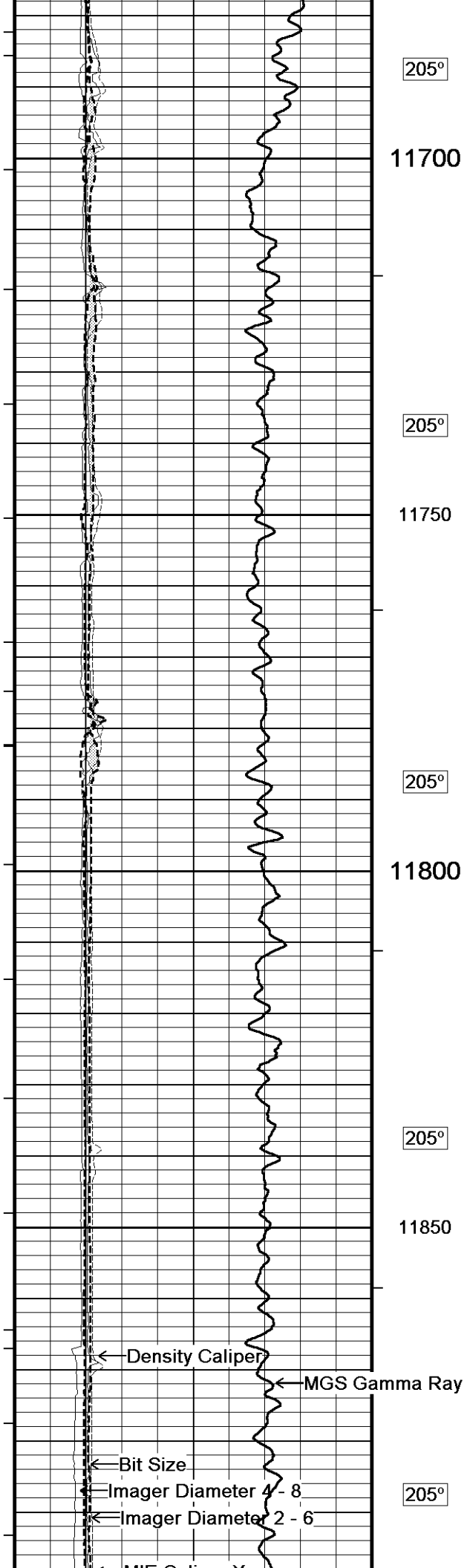
11000

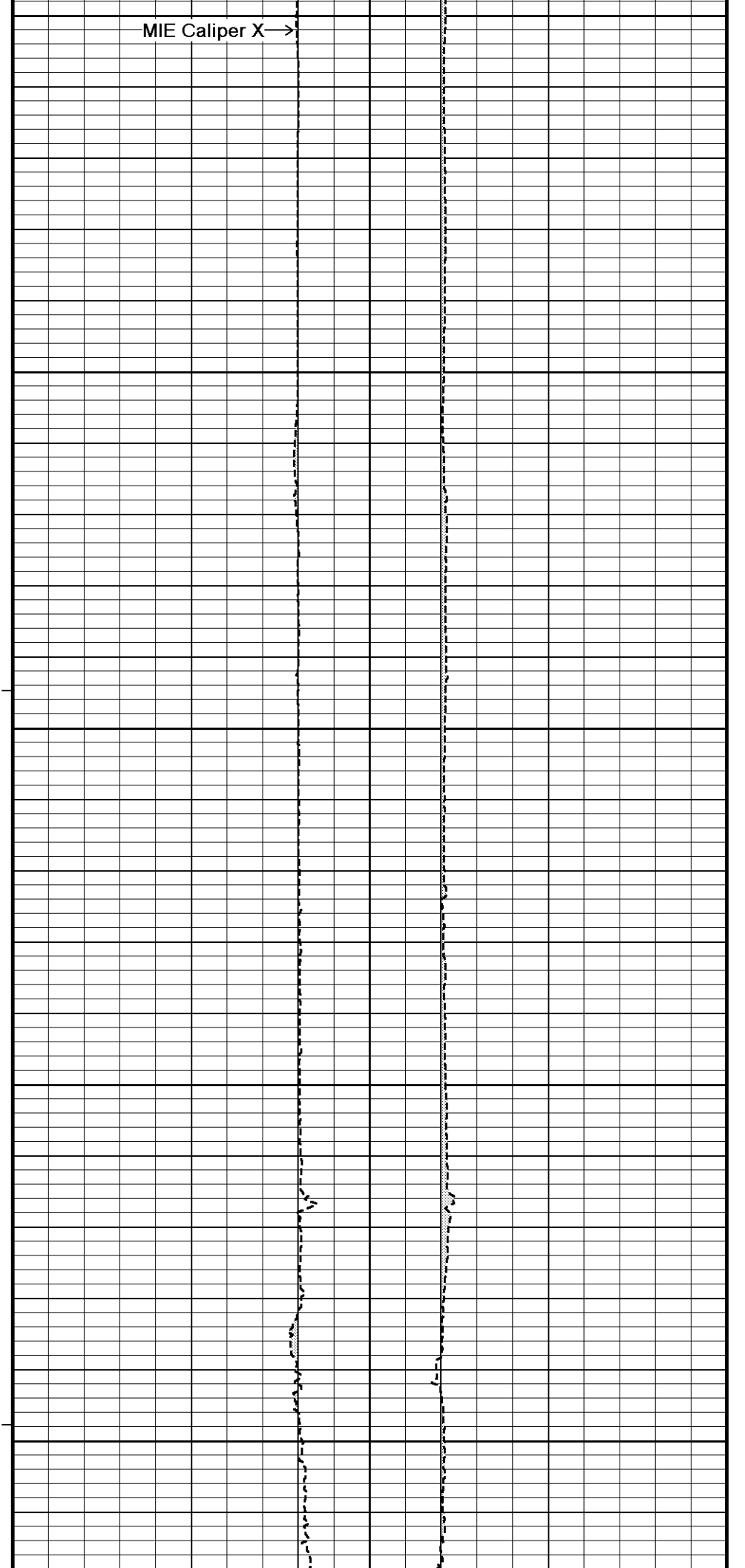
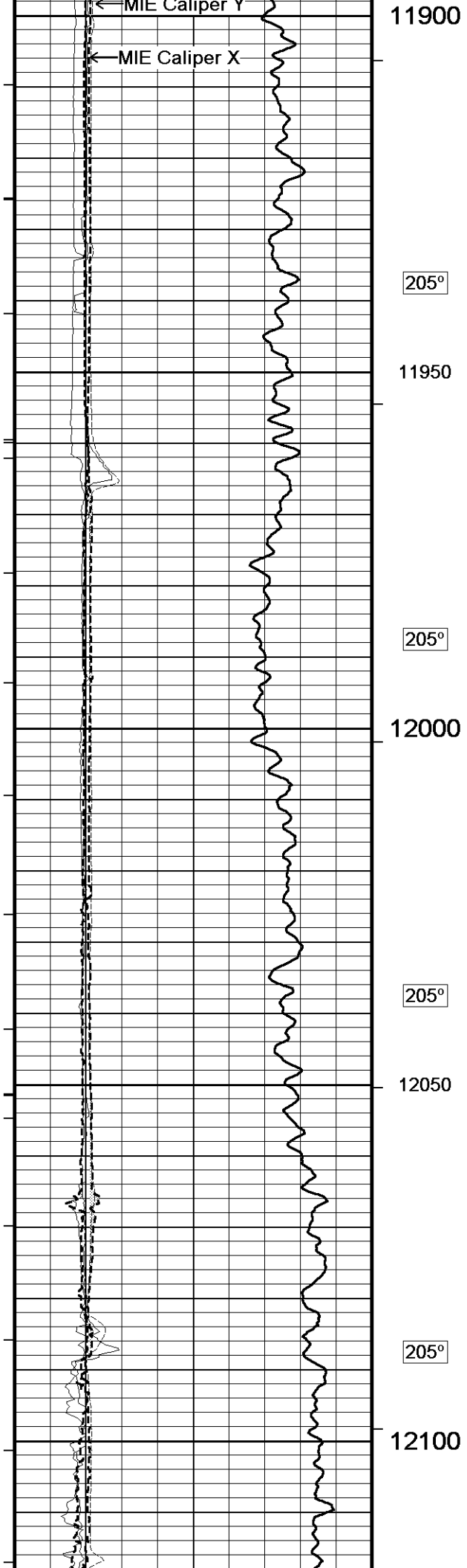


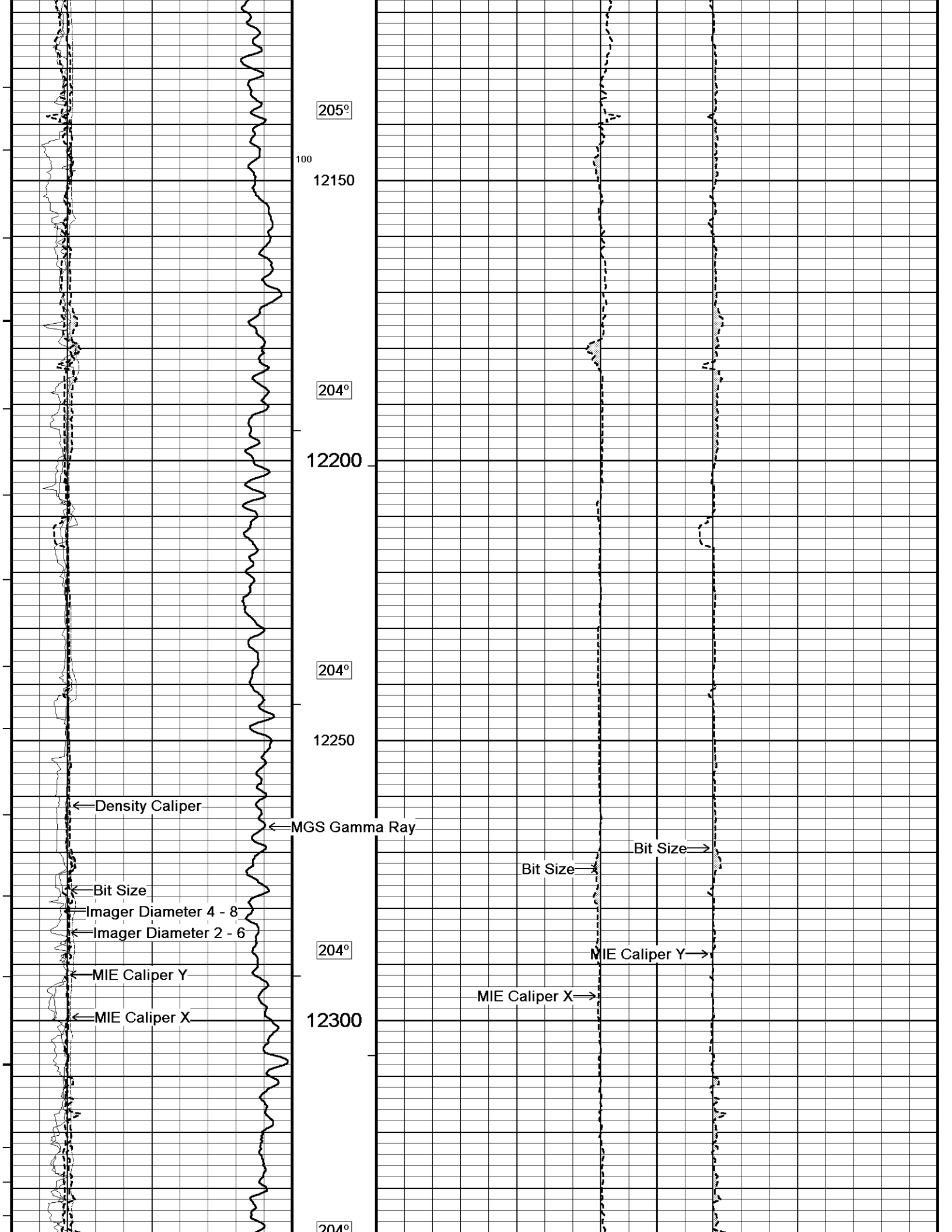


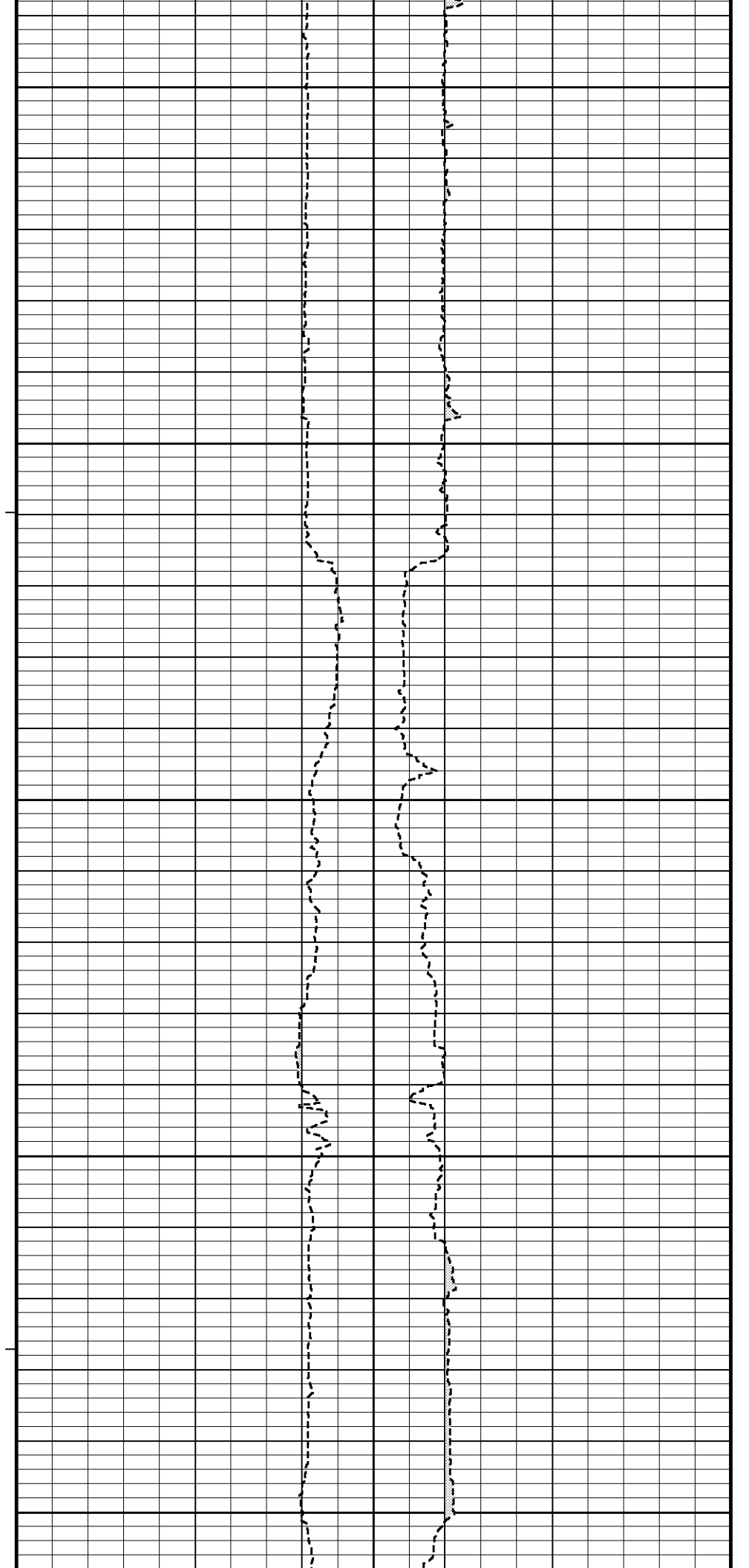
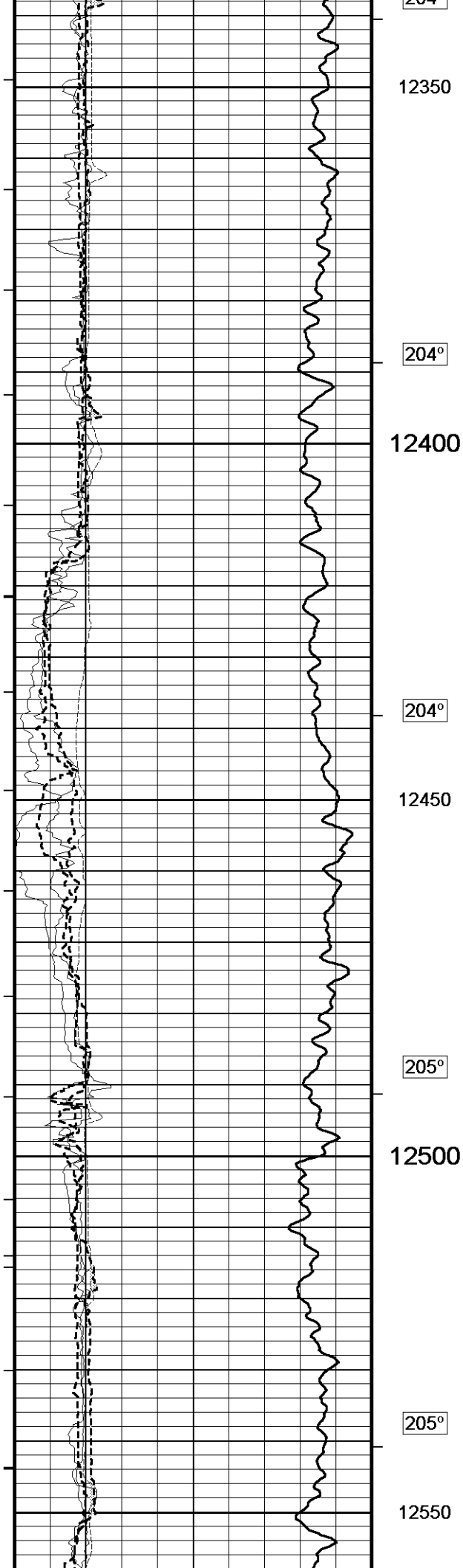


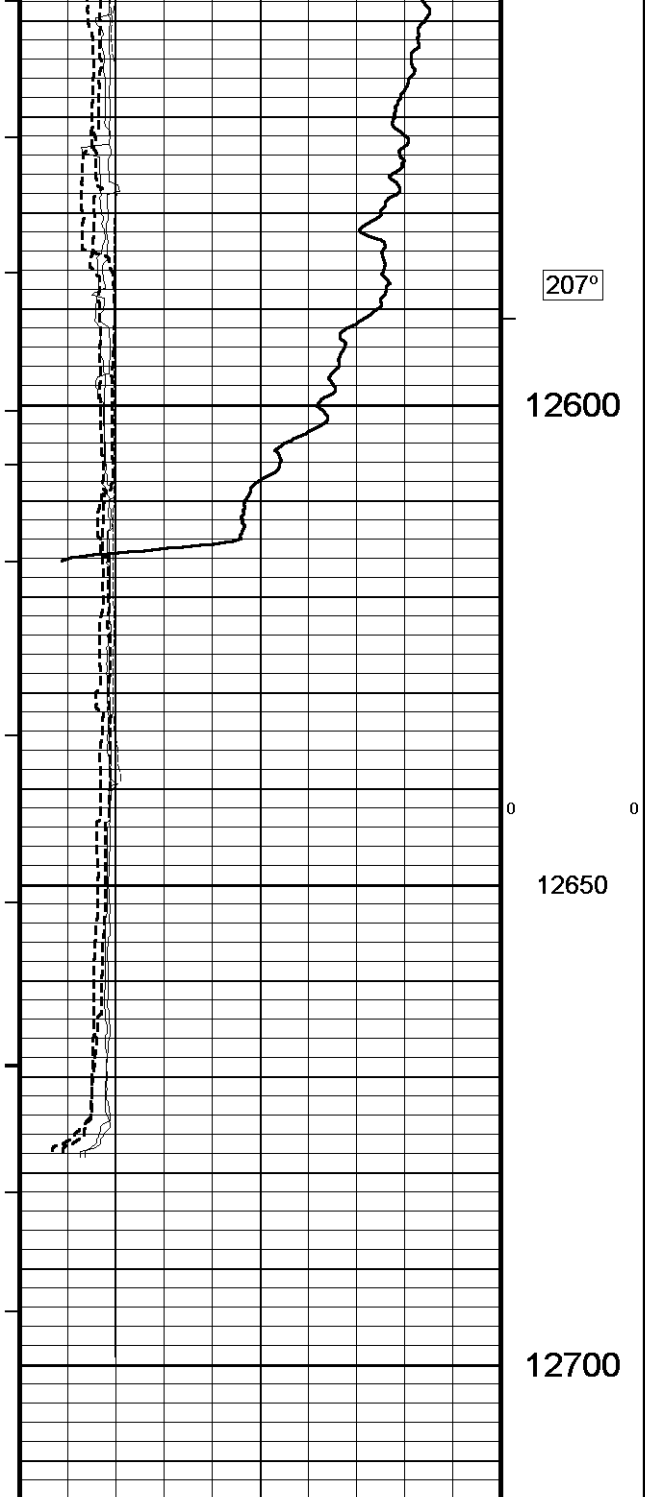












207°

12600

0

12650

12700

Depth
In
Feet

Timing Marks
every 60.0 sec

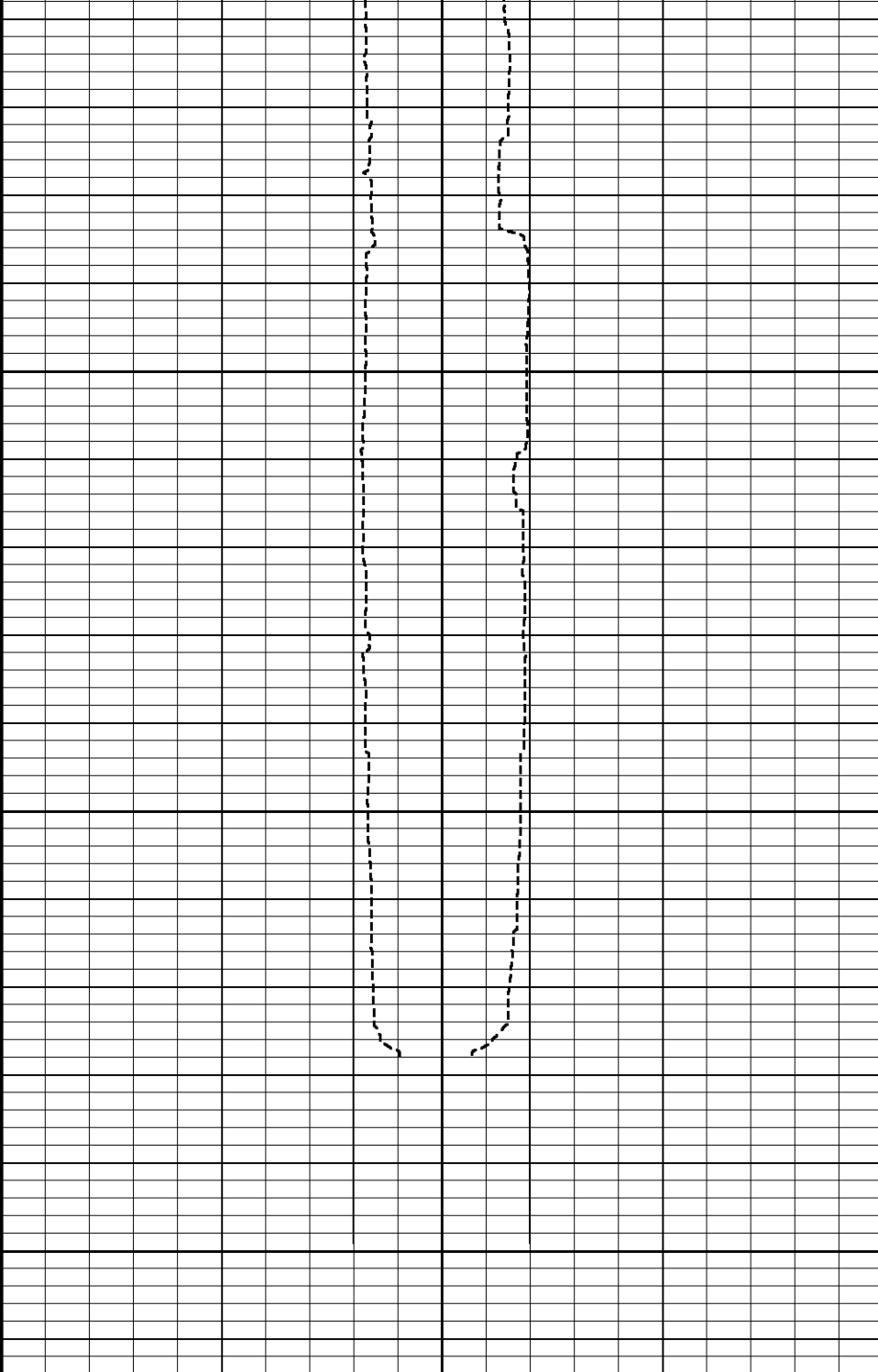
MIE Caliper X
inches

4 9 14

MIE Caliper Y
inches

4 9 14

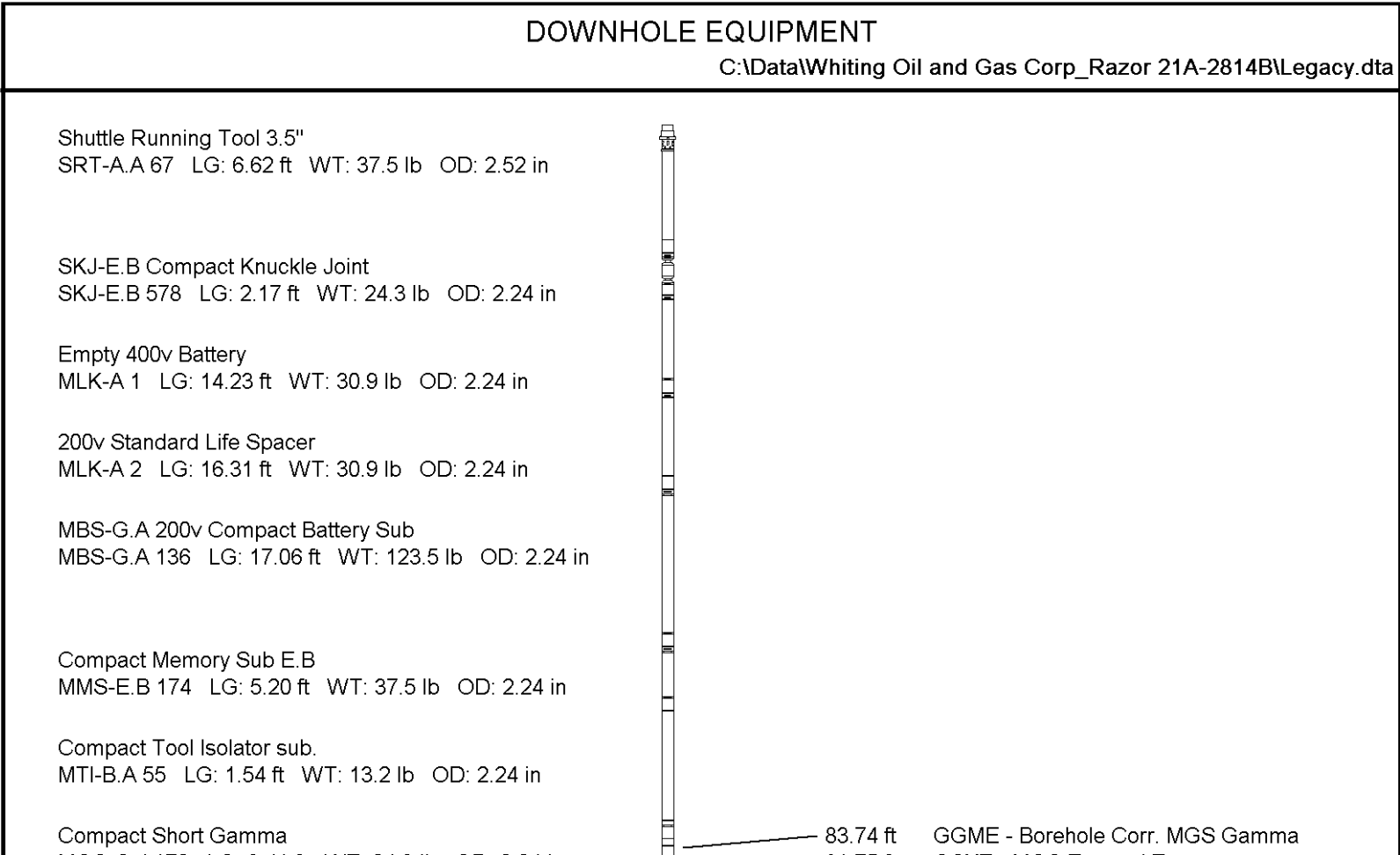
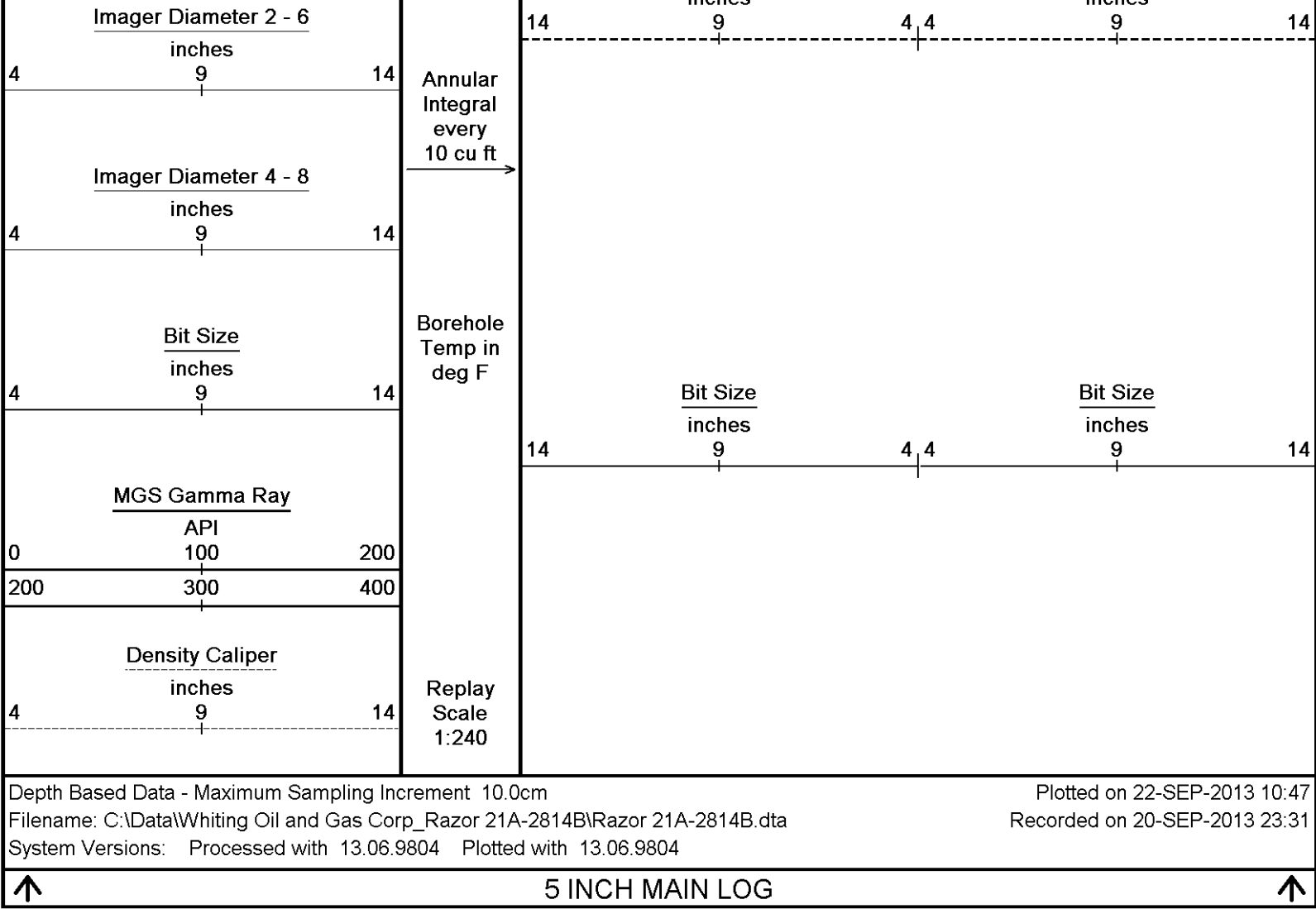
HVI
every
10 cu ft



Borehole Ovality
to True North
every 50.0 feet

MIE Caliper X
inches

MIE Caliper Y
inches



MGS-C.J 170 LG: 3.41 ft WT: 24.3 lb OD: 2.24 in

Compact Collar Locator
MCL-B.J 64 LG: 3.17 ft WT: 26.5 lb OD: 2.24 in

SKJ-E.A Compact Knuckle Joint
SKJ-E.A 348 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

SHA-J.B Compact Swivel Head Adaptor
SHA-J.B 635 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

MIS-D.B Compact Inline Bowspring sub
MIS-D.B 768 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

Compact Neutron
MDN-B.A 214 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper
MPD-D.A 498 LG: 9.59 ft WT: 90.4 lb OD: 2.24 in

MIS-D.B Compact Inline Bowspring sub
MIS-D.B 770 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

SHA-J.B Compact Swivel Head Adaptor
SHA-J.B 579 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

SKJ-E.B Compact Knuckle Joint
SKJ-E.B 657 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

MIS-A.A Compact Inline Bowspring sub
MIS-A.A 23 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

Compact MMI Memory Section
MIM-B.A 263 LG: 4.65 ft WT: 26.5 lb OD: 2.24 in

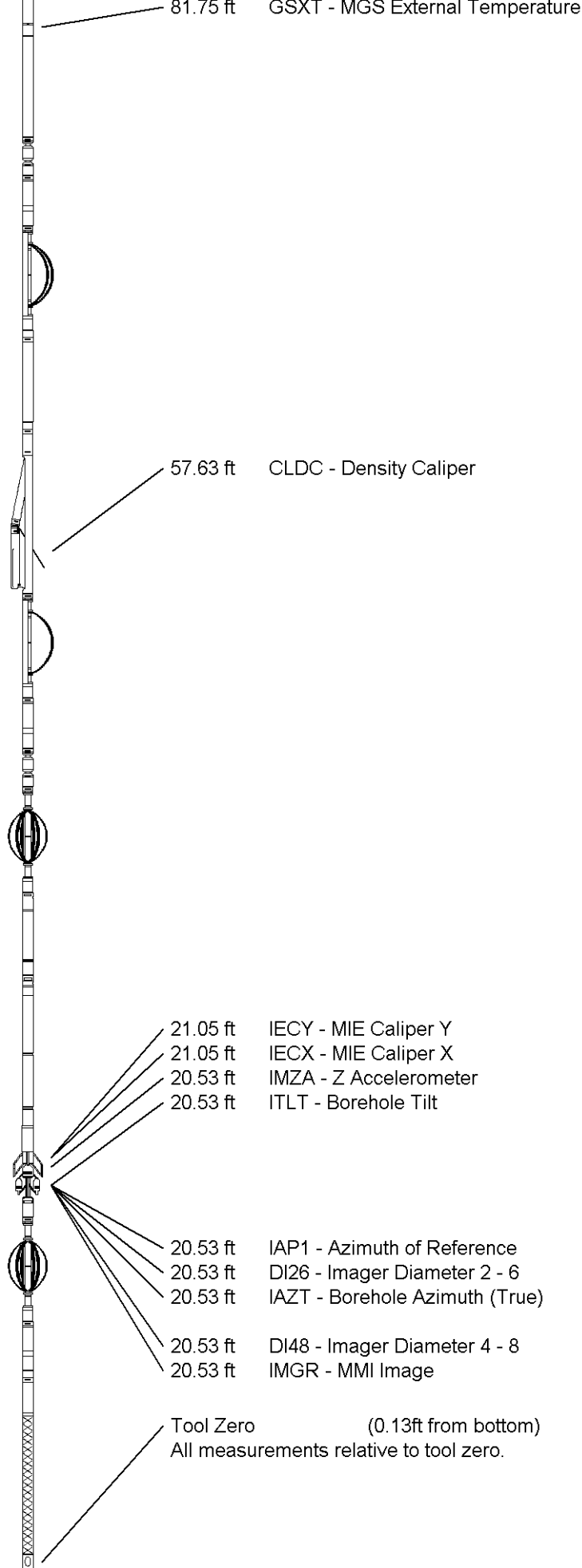
Compact MMI Electrode Section
MIE-B.A 263 LG: 13.96 ft WT: 99.2 lb OD: 4.09 in

MIS-A.A Compact Inline Bowspring sub
MIS-A.A 276 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

SHA-J.B Compact Swivel Head Adaptor
SHA-J.B 634 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

Compact Induction
MAI-C.A 494 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 147.78 ft Weight: 910.5 lb



WELL	RAZOR 21A-2814B
FIELD	WILDCAT
PROVINCE/COUNTY	WELD
COUNTRY/STATE	U.S.A. / COLORADO

Elevation Kelly Bushing	4850.30	feet	First Reading	12678.00	feet
Elevation Drill Floor	4849.30	feet	Depth Driller	12721.00	feet
Elevation Ground Level	4833.00	feet	Depth Logger	12721.00	feet



Weatherford®

CML MESSENGER SHUTTLE
CALIPER LOG