

MICRO RESISTIVITY LOG

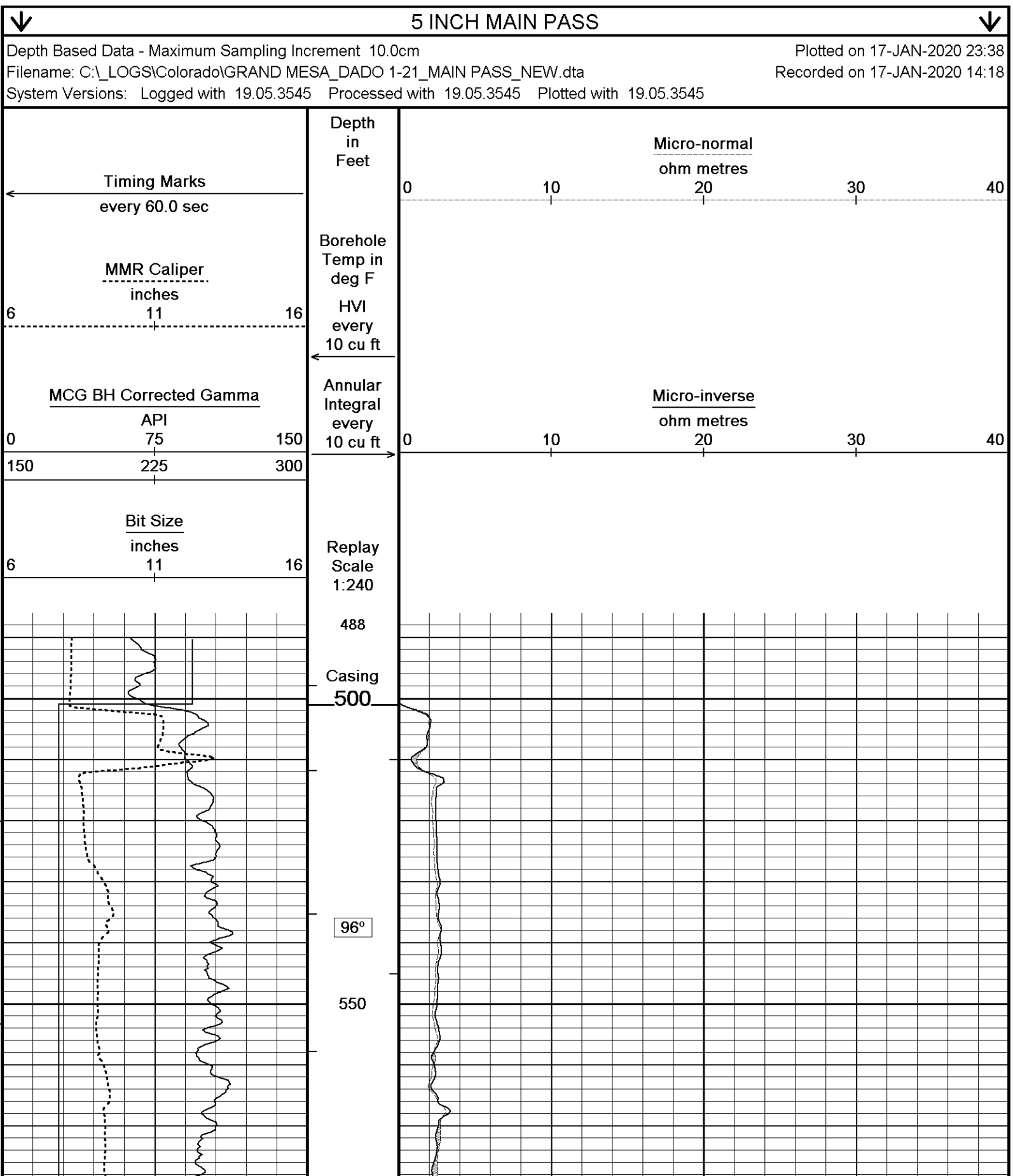
MICRO RESISTIVITY LOG									
COMPANY			GRAND MESA OPERATING COMPANY						
WELL			DADO 1-21						
FIELD			GUTRU						
COUNTY			LINCOLN						
STATE			COLORADO						
LOCATION			1872' FNL & 614' FEL SEC. 21 TWP 7S-55W						
SEC 21	TWP 7S	RGE	Other Services				MPD/MDN		
Latitude		39.42739	MAI/MFE						
Longitude		-103.55015	MSS						
API Number		05-073-06772							
Permanent Datum GL, Elevation 5484 feet								Elevations:	
Log Measured From KB, 19.00 feet above Permanent Datum								KB	5503.00
Drilling Measured From KB								DF	5502.00
								GL	5484.00
Date	17-JAN-2020								
Run Number	ONE								
Service Order	---								
Depth Driller	8655.00						feet		
Depth Logger	8660.00						feet		
First Reading	8640.00						feet		
Last Reading	501.00						feet		
Casing Driller	503.00						feet		
Casing Logger	501.00						feet		
Bit Size	7.875						inches		
Hole Fluid Type	WBM								
Density / Viscosity	9.30	lb/USg	64.00	sec/qt					
PH / Fluid Loss	10.50		7.20	ml/30Min					
Sample Source	FLOWLINE								
Rm @ Measured Temp	0.36 @ 52.0						ohm-m		
Rmf @ Measured Temp	0.27 @ 52.0						ohm-m		
Rmc @ Measured Temp	0.45 @ 52.0						ohm-m		
Source Rmf / Rmc	CALC		CALC						
Rm @ BHT	0.098 @207.0						ohm-m		
Time Since Circulation	19 HOURS								
Max Recorded Temp	207.00						deg F		
Equipment / Base	11008						---		
Recorded By	MICHAEL RATHS						ALEJANDRO DELA GARZA		
Witnessed By	GARET DINKEL								

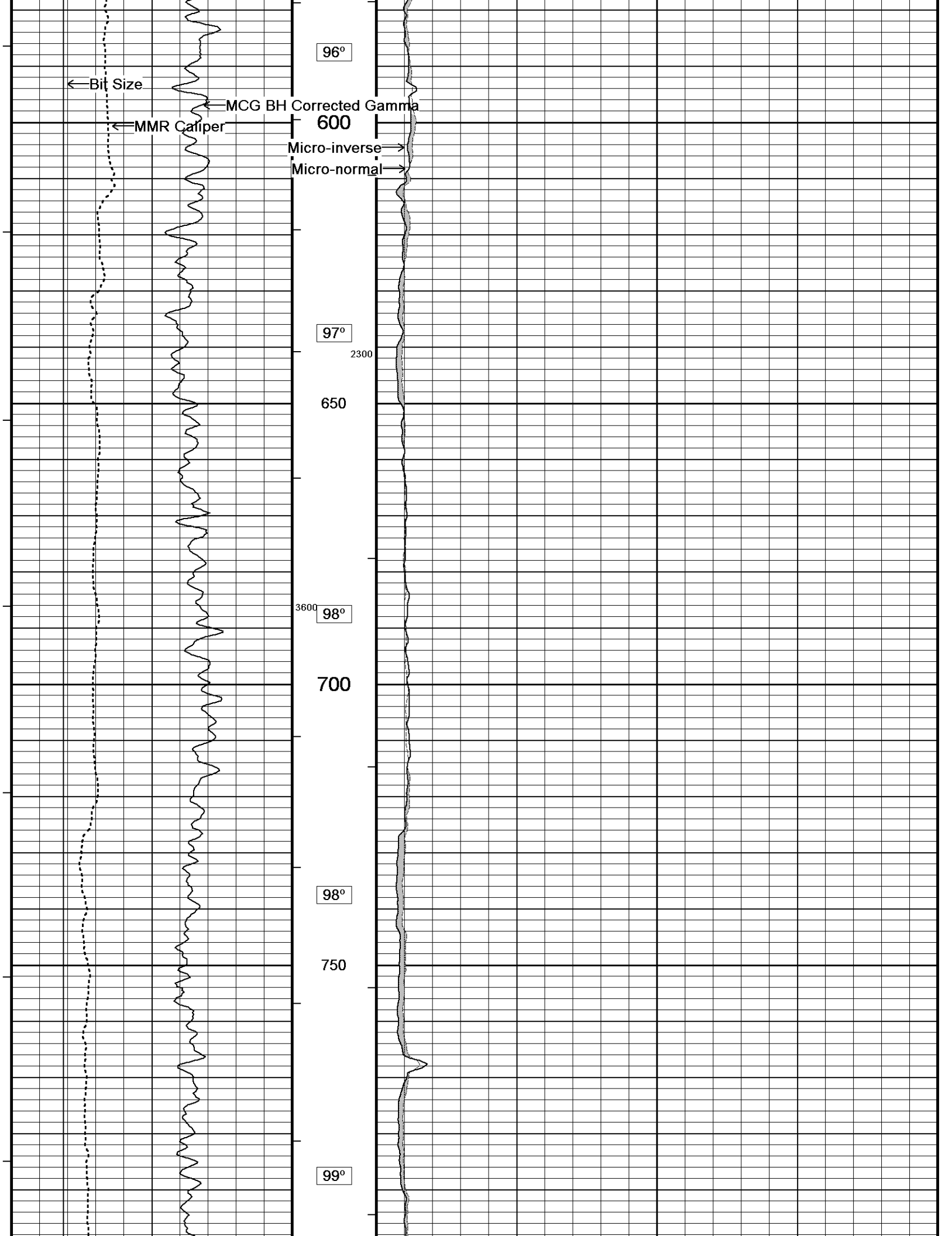
BOREHOLE RECORD			Last Edited: 17-JAN-2020 23:29	
Bit Size inches	Depth From feet	Depth To feet		
12.250	0.00	501.00		
7.875	501.00	8660.00		
CASING RECORD				
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	501.00	24.00

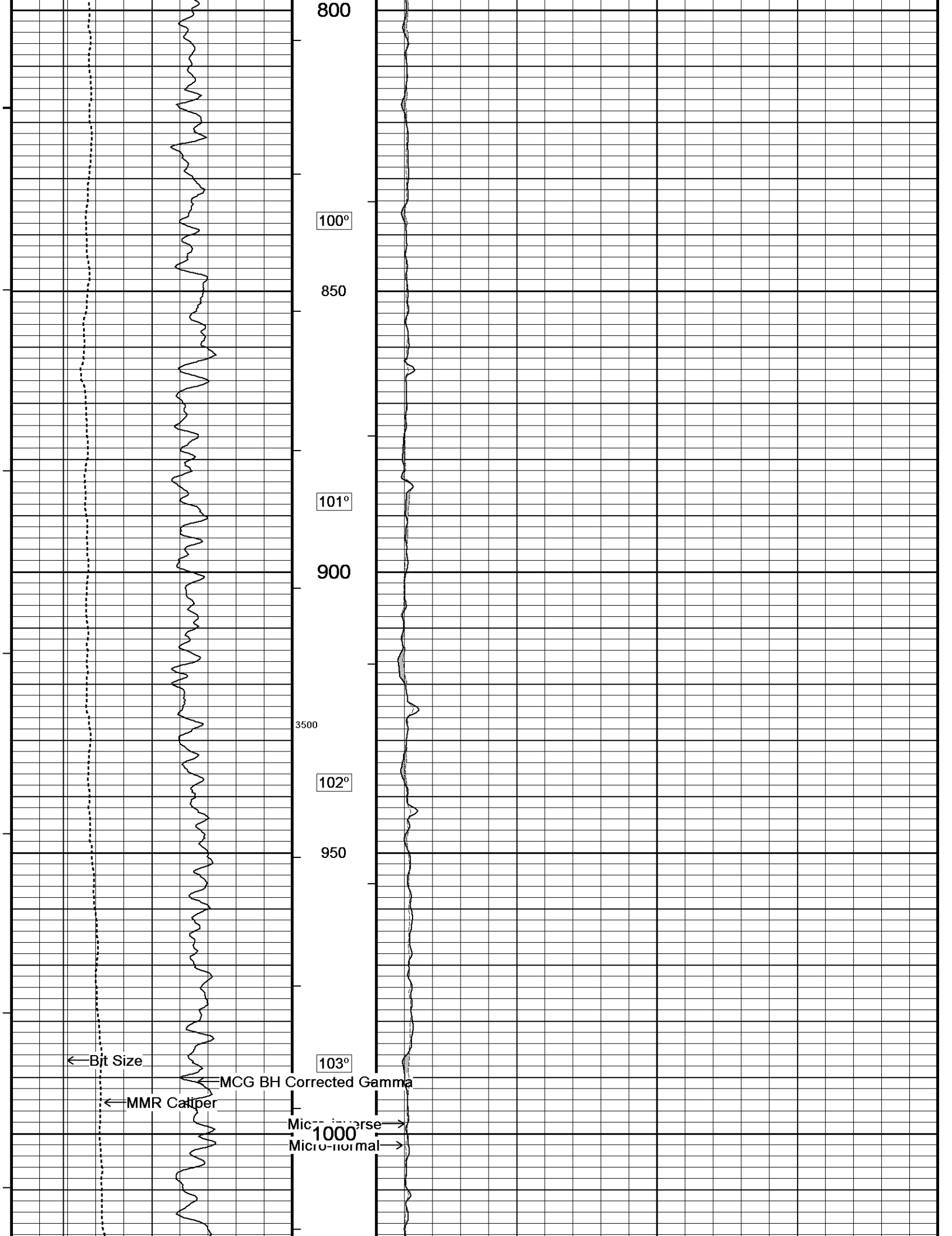
REMARKS
Tools ran as per tool diagram Density presented on a 2.71 g/cc matrix Neutron presented on a limestone matrix Annular volume calculated on FCD of 5.5" Logs correlated with Bob 1-22 which was logged 3-Jul-2018
YOUR CREW TODAY: Kevin Scheller - Kindell Burket
THANK YOU FOR CHOOSING WIRELINE LOGGING SOLUTIONS MIDLAND, TX (432) 897-1528.

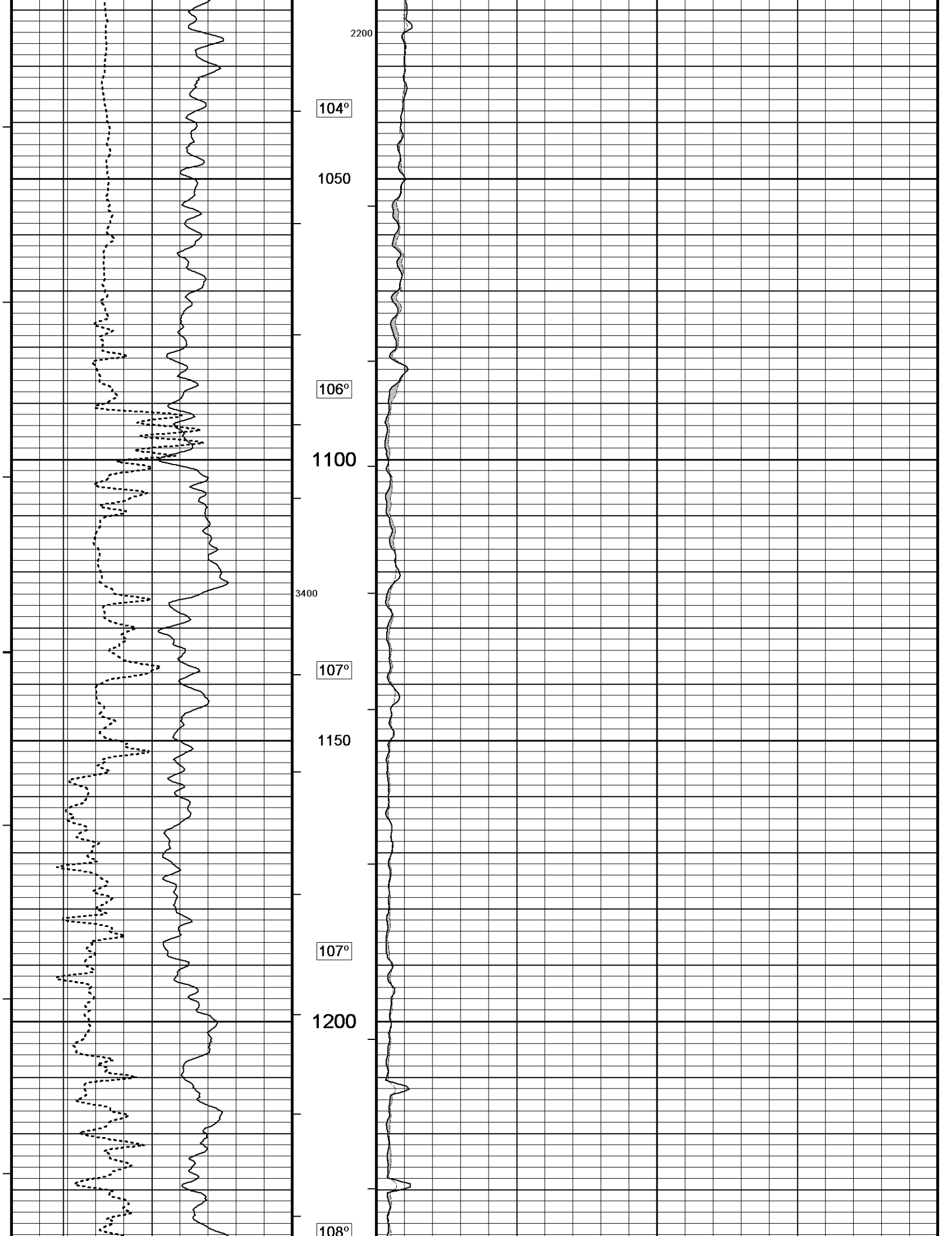
In interpreting, communicating or providing information and/or making recommendations, either written or oral, as to logs or test or other data, type or amount of material, or Work or other service to be furnished, or manner of performance, or in predicting results to be obtained, the Contractor will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

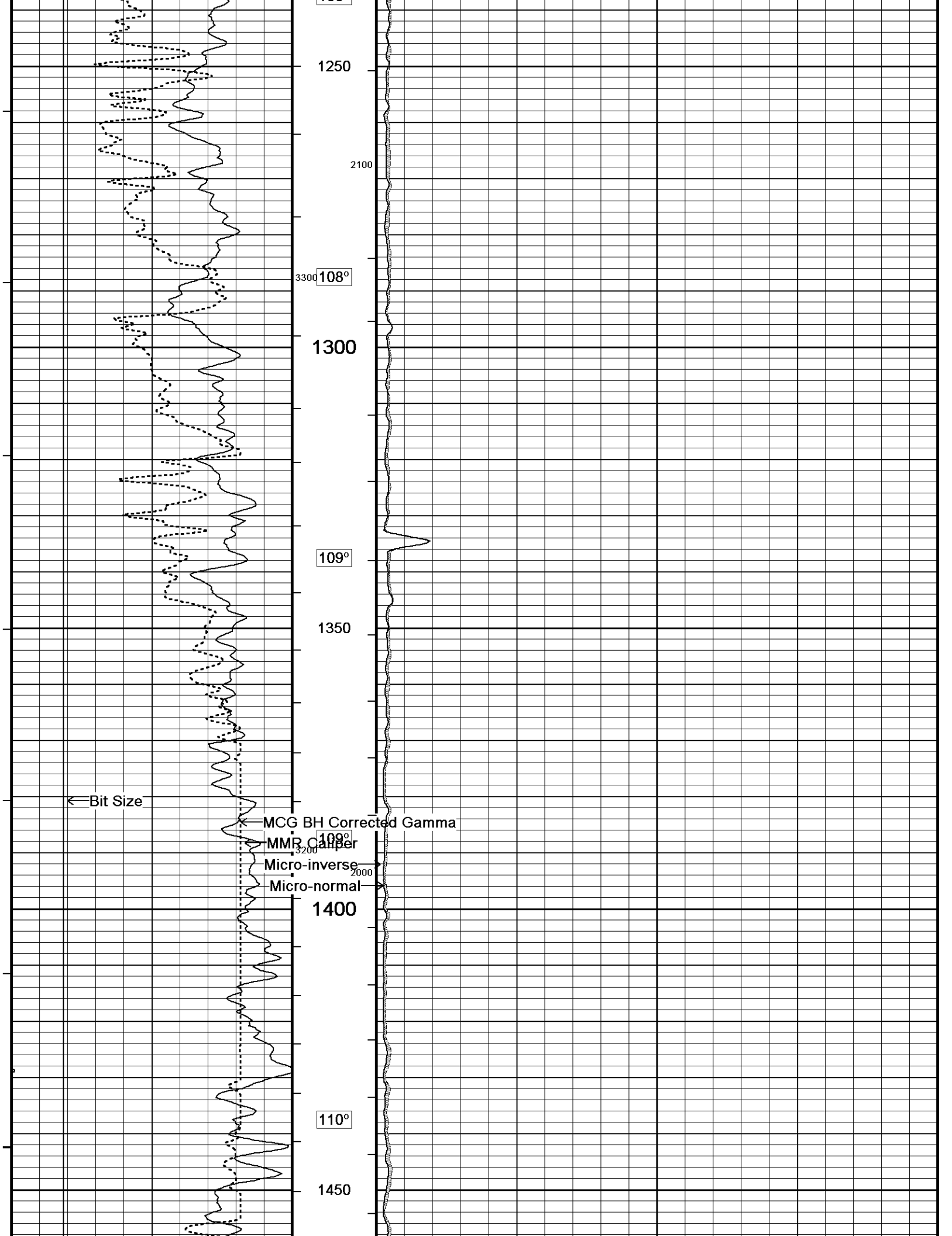
INTERPRETATION OR RECOMMENDATION FROM THE SERVICES WILL BE AT THE SOLE RISK OF THE COMPANY, AND THE CONTRACTOR CANNOT AND DOES NOT WARRANT THE ACCURACY, CORRECTNESS OR COMPLETENESS OF ANY SUCH INTERPRETATION OR RECOMMENDATION, WHICH INTERPRETATIONS AND RECOMMENDATIONS SHOULD NOT, THEREFORE, UNDER ANY 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.

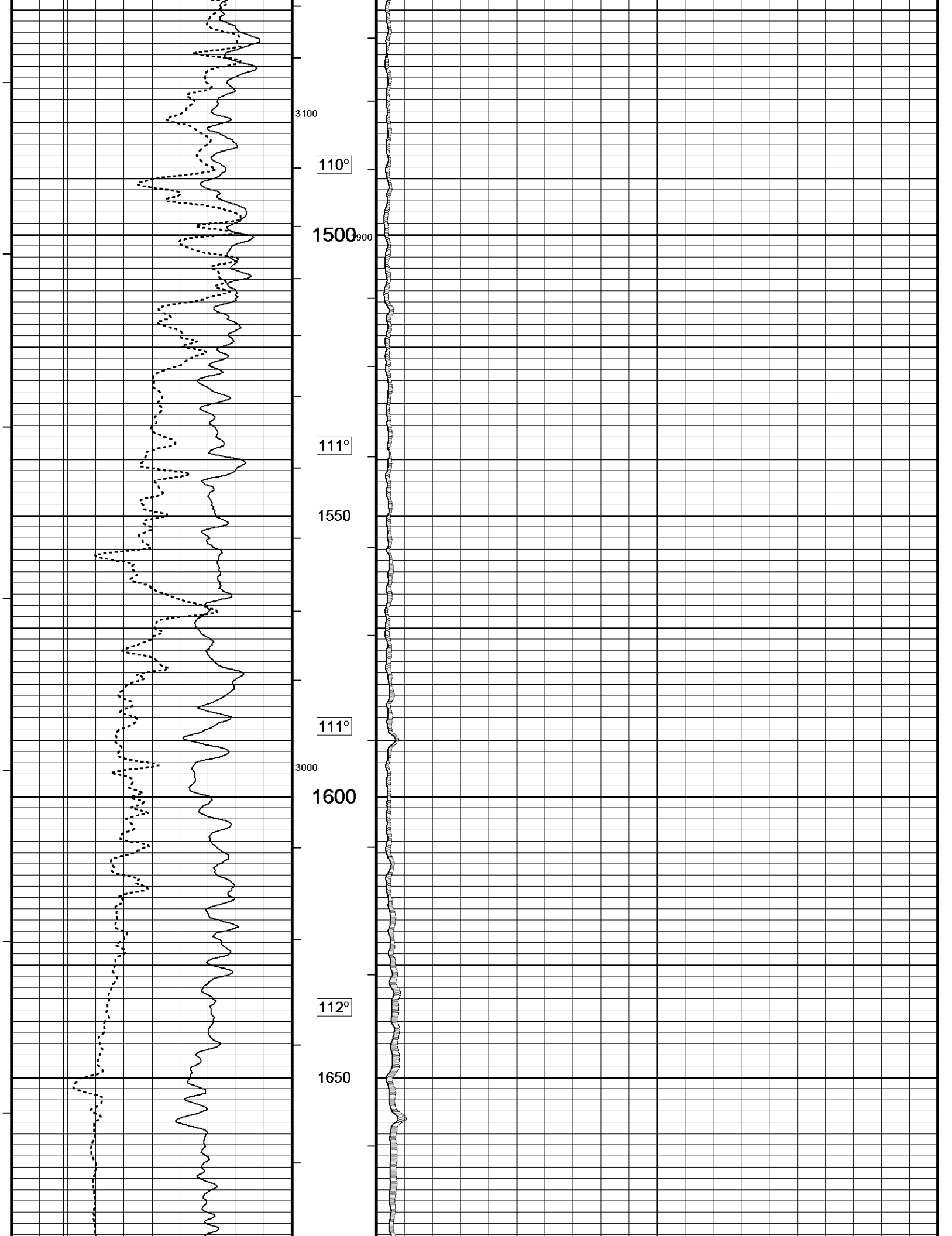


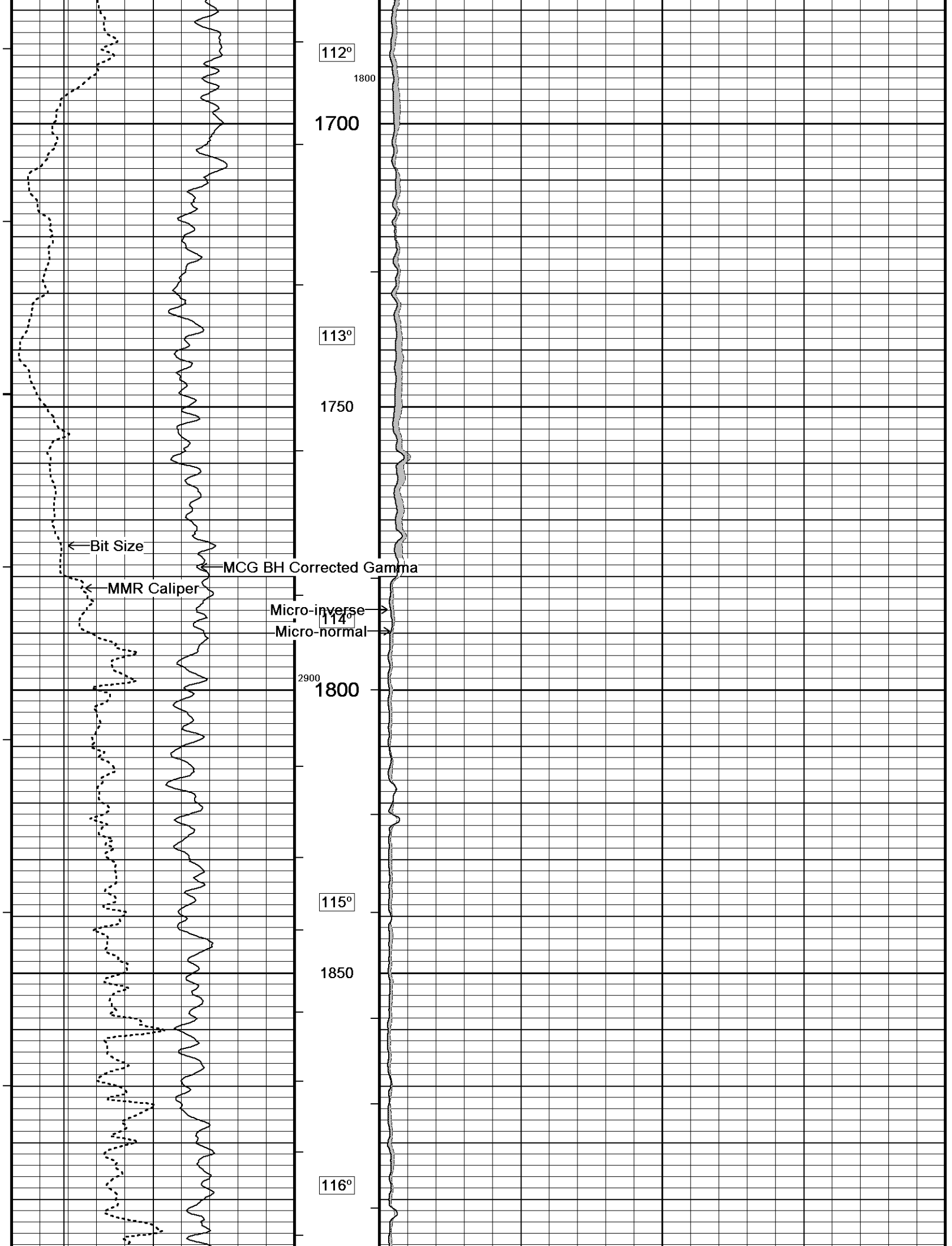


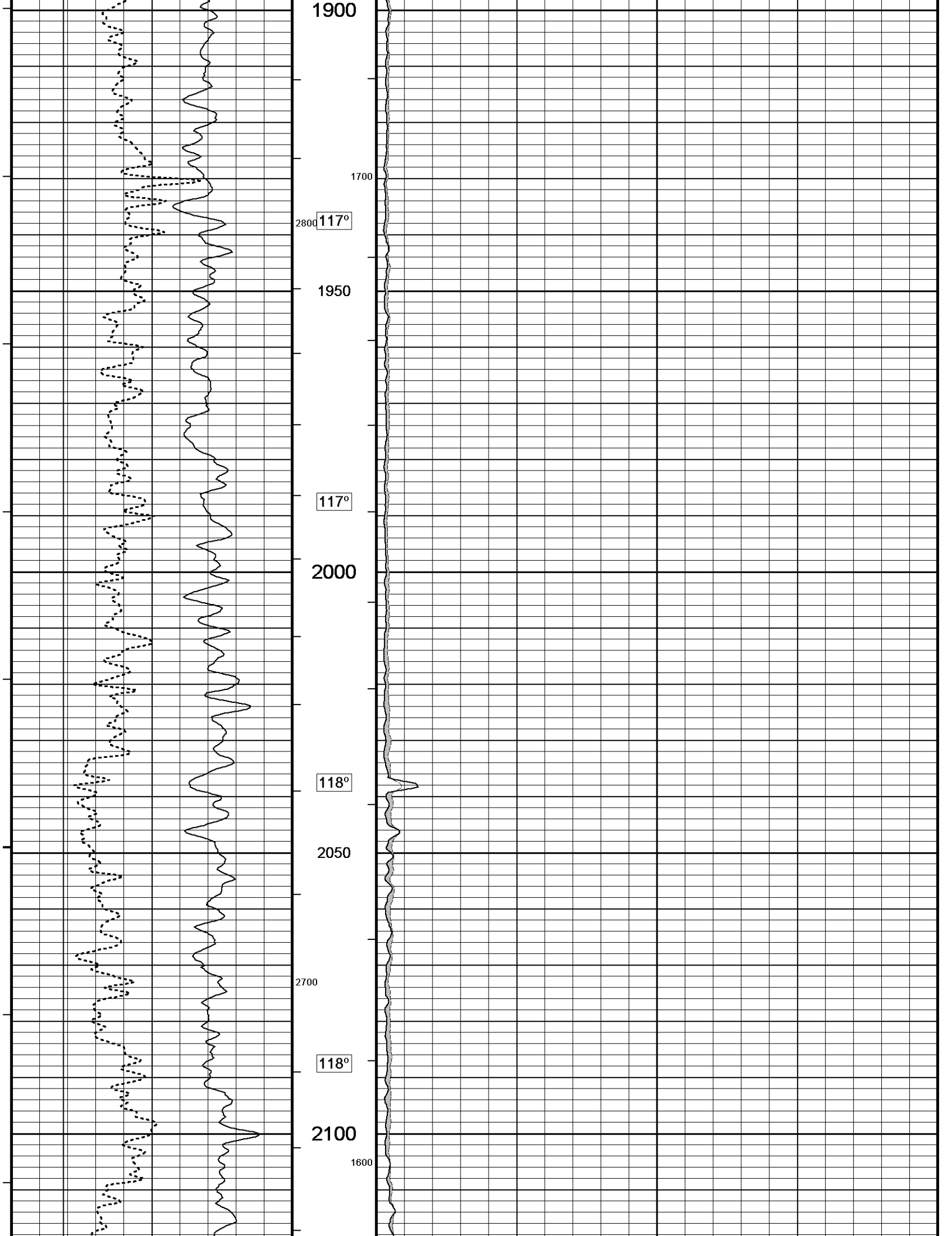


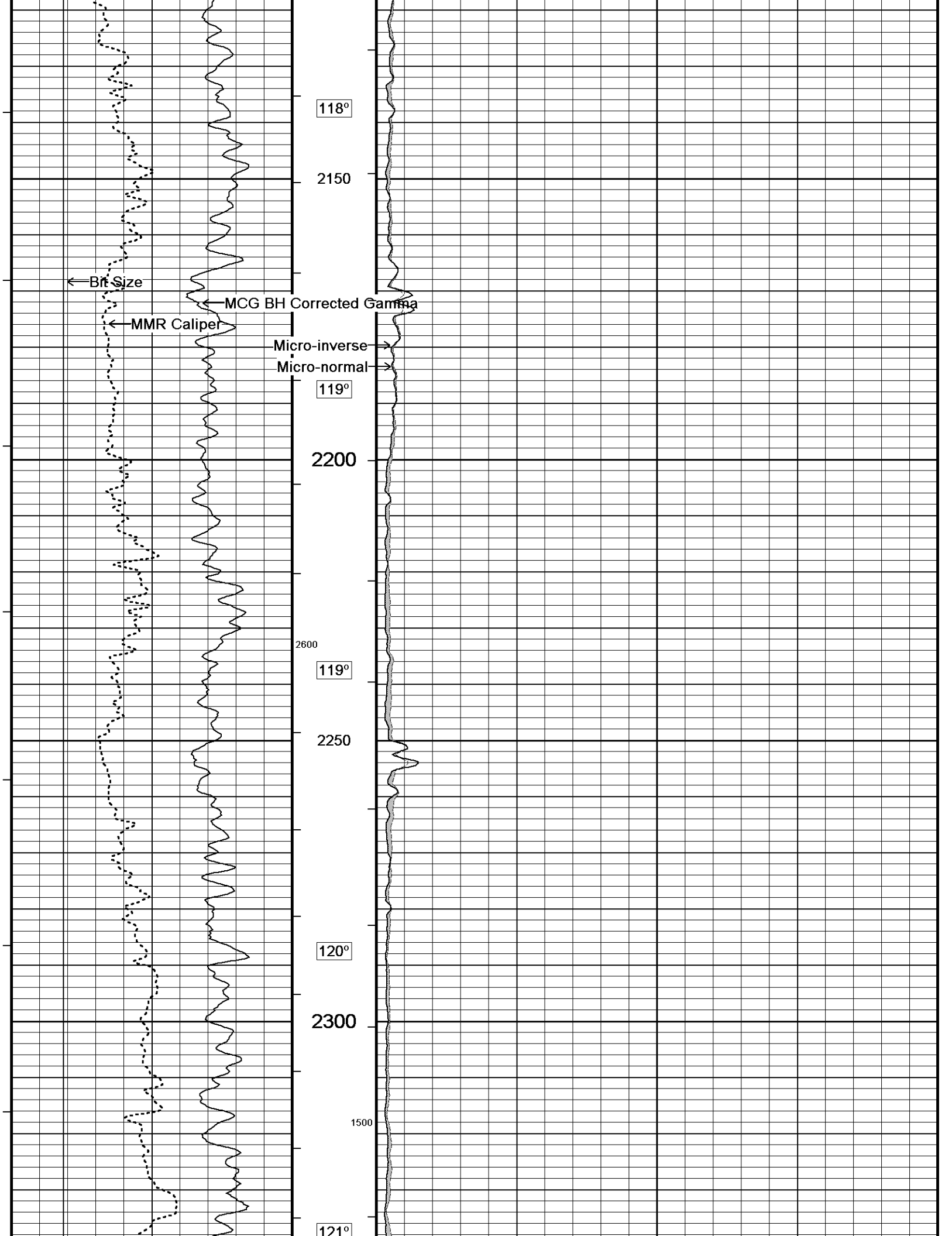


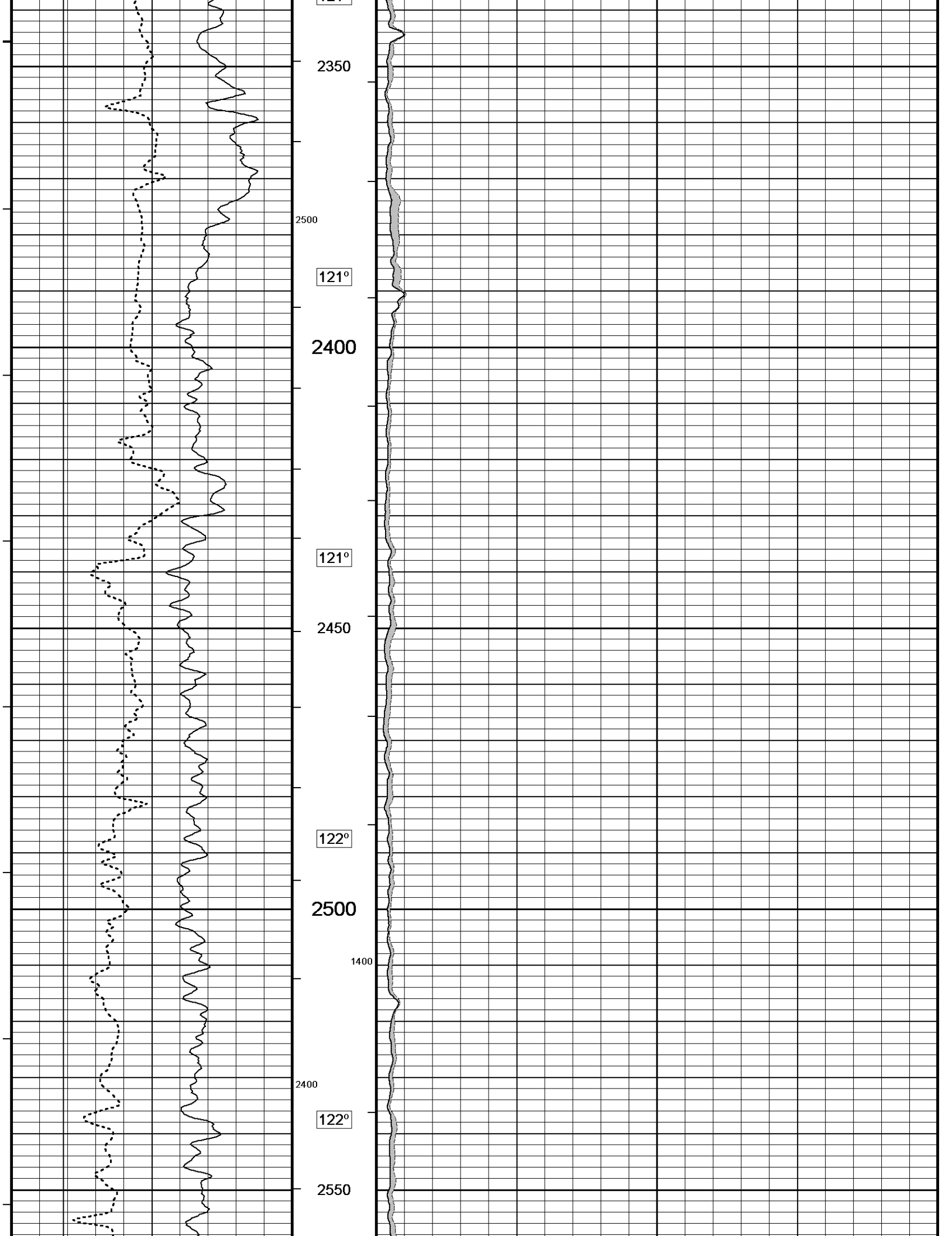


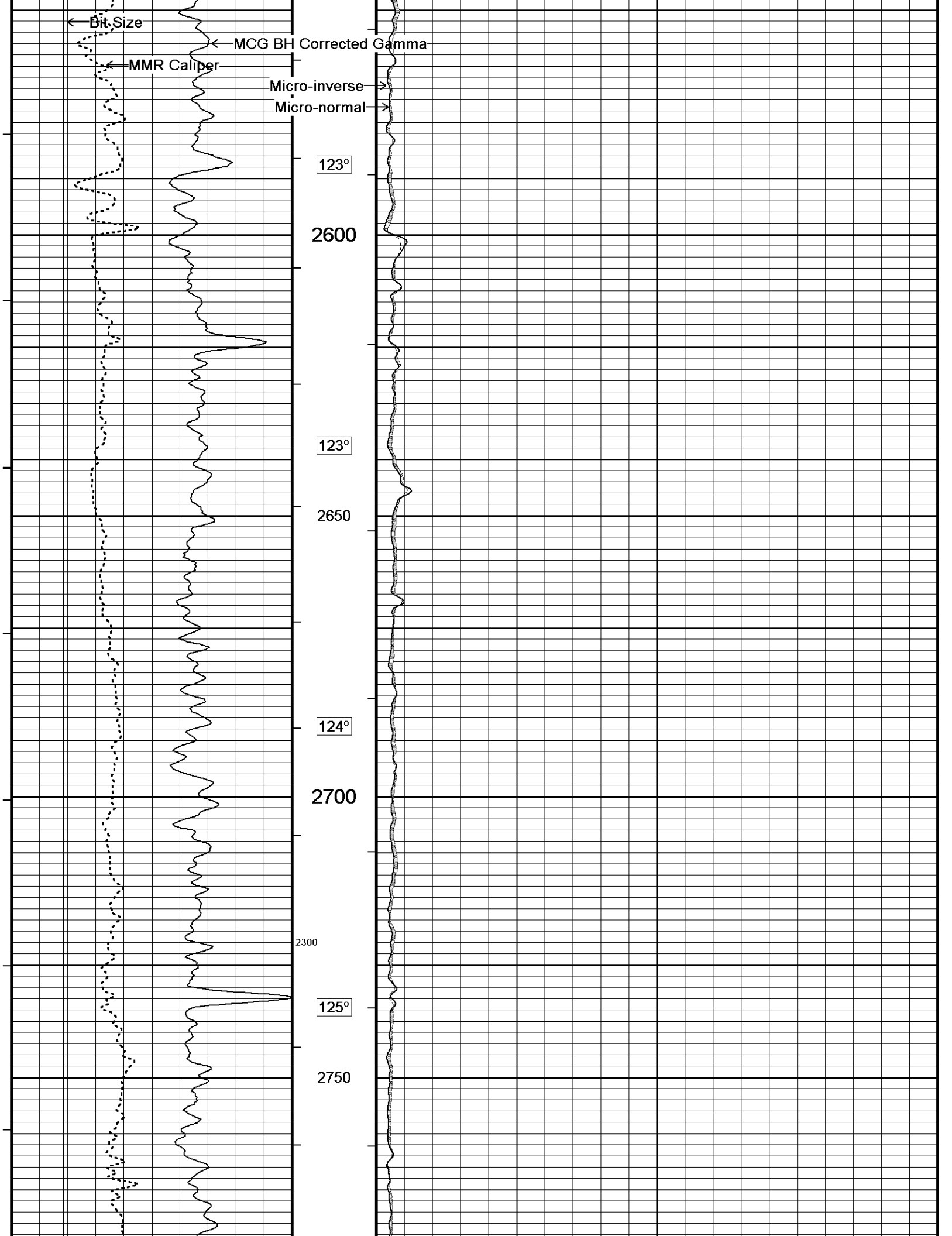


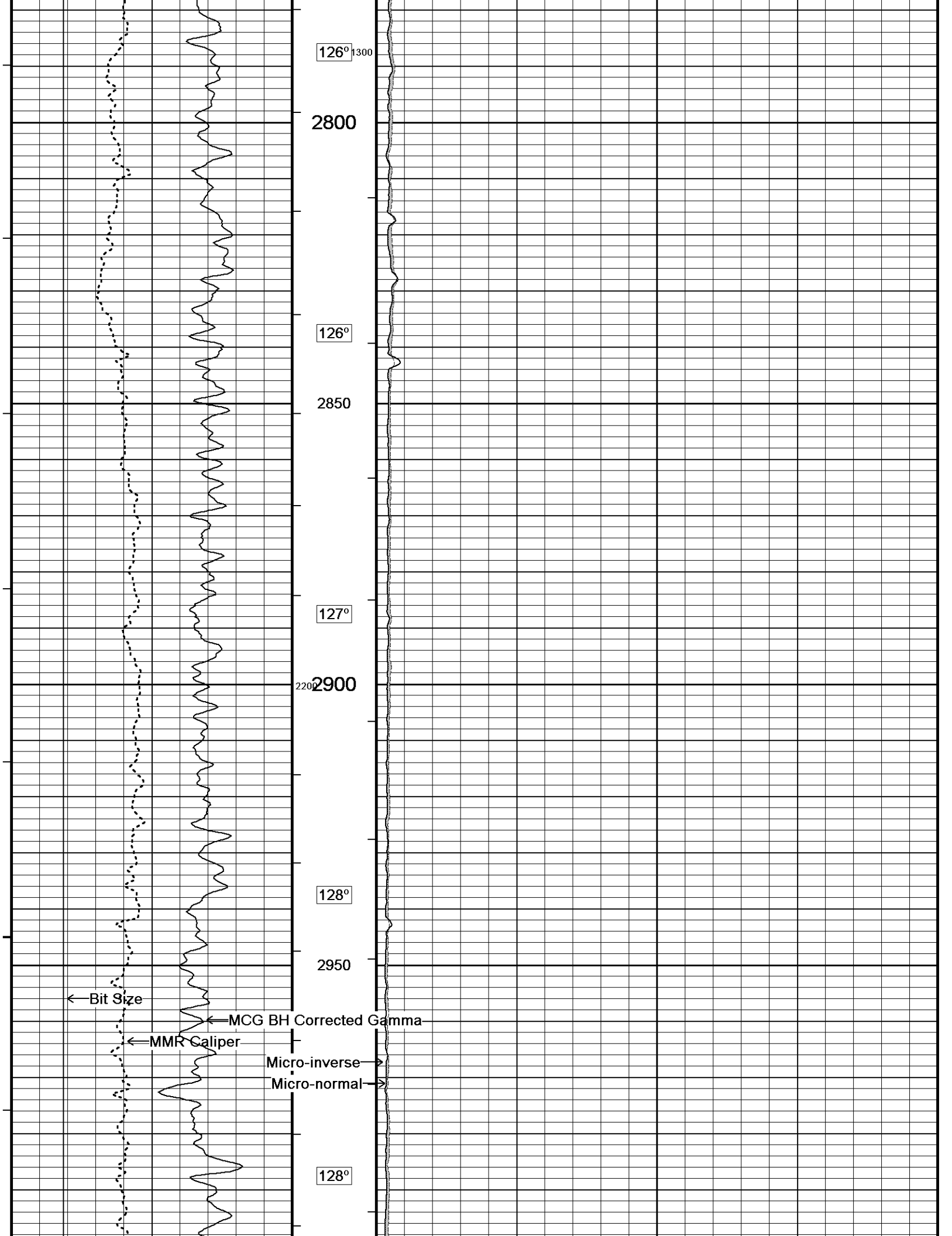


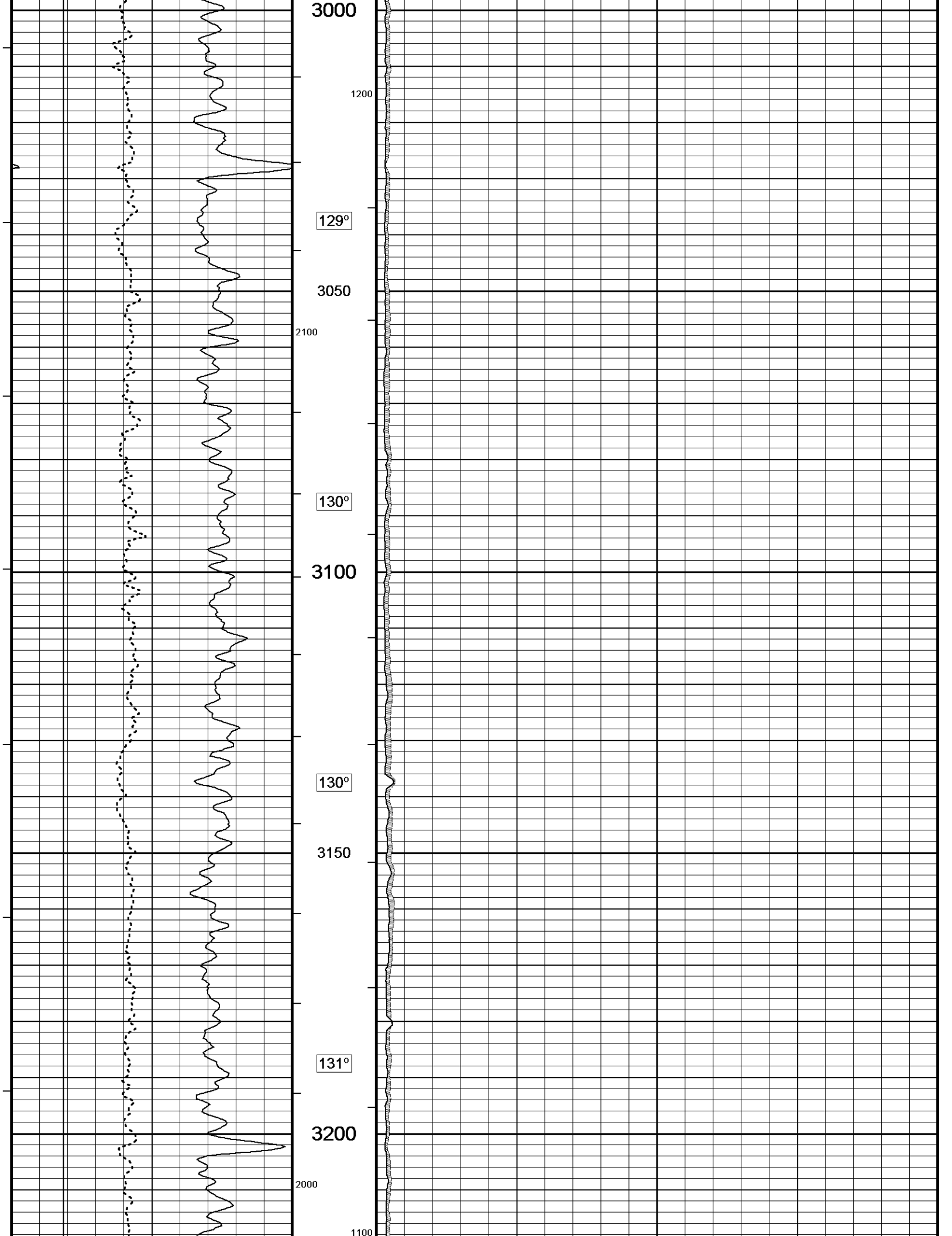


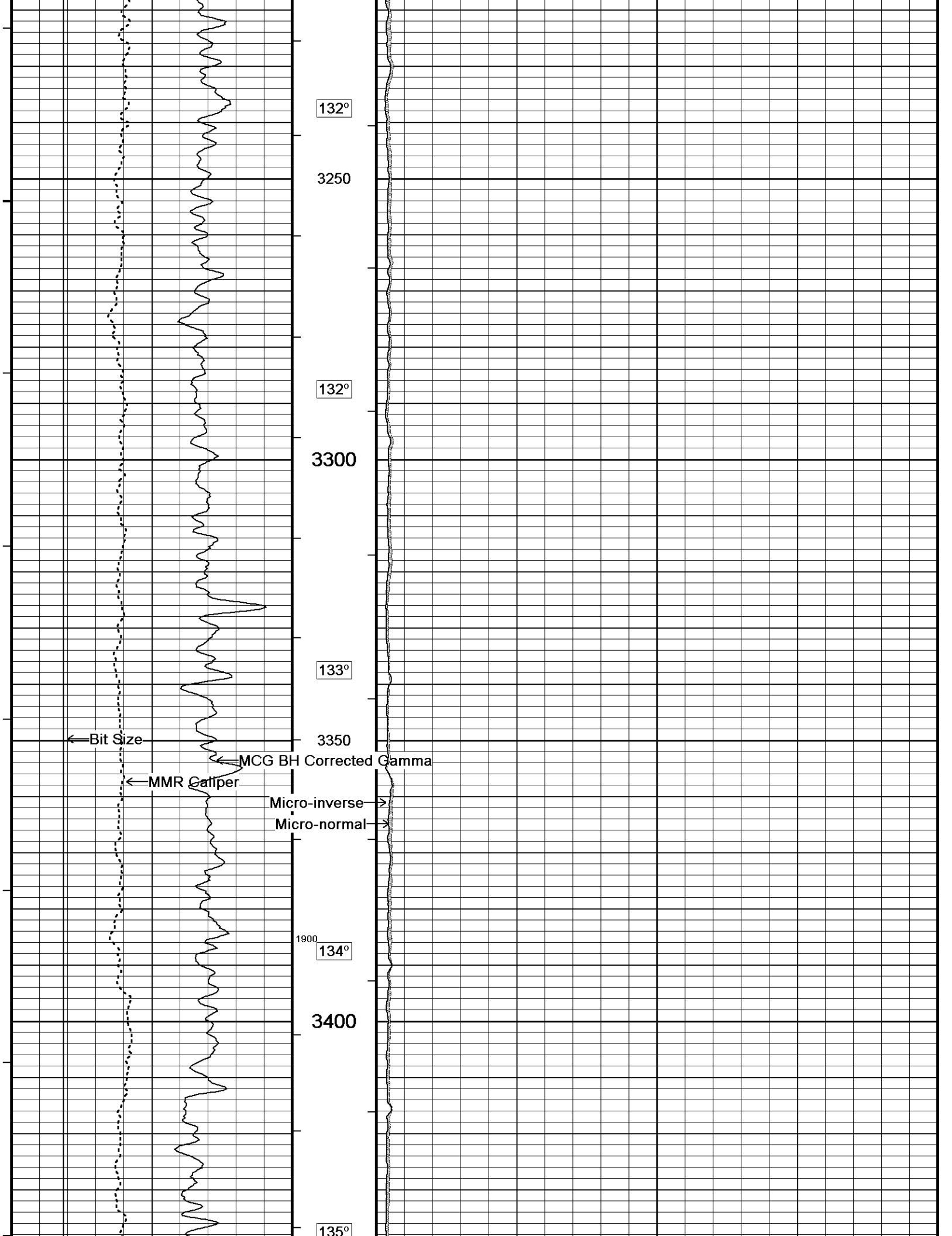


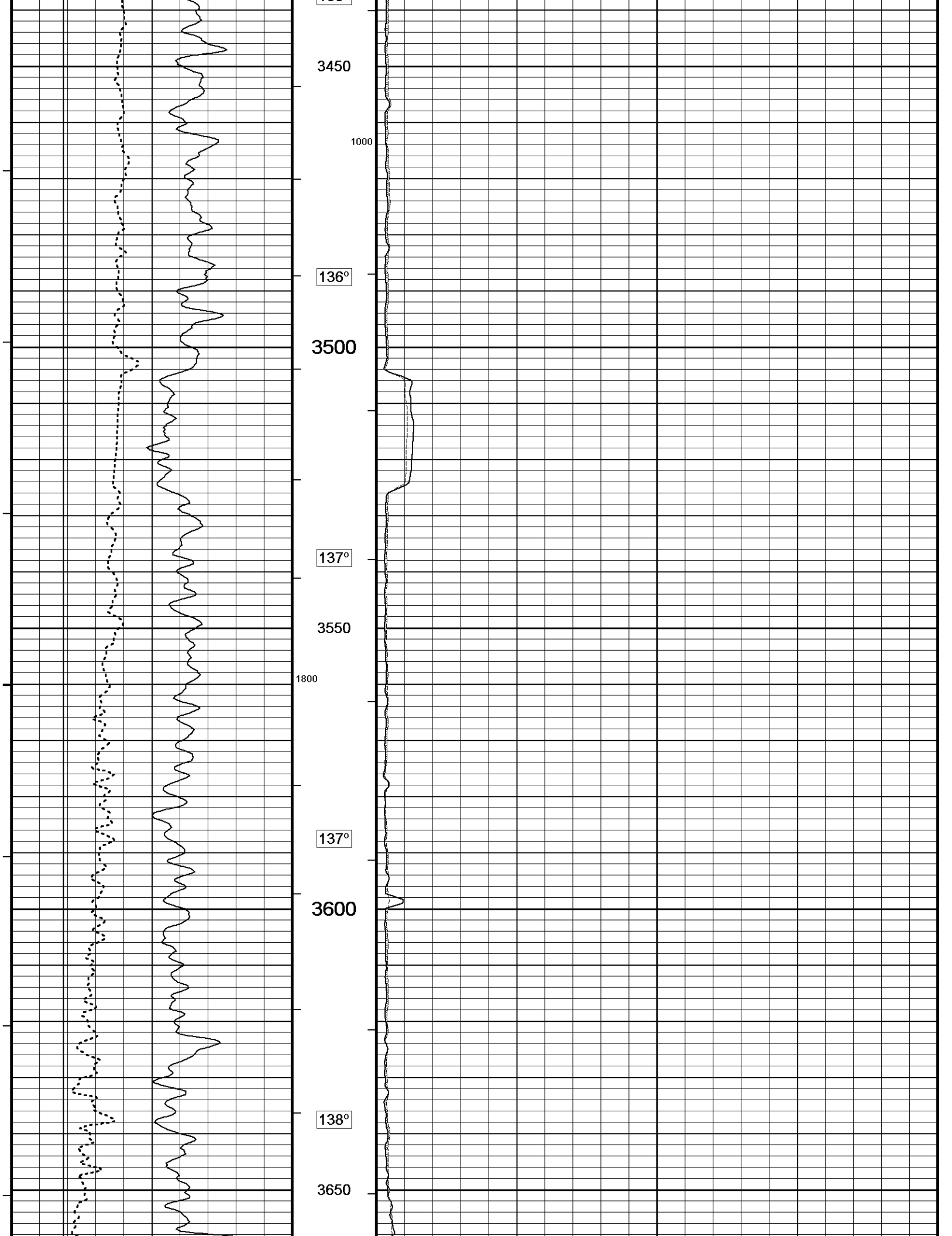


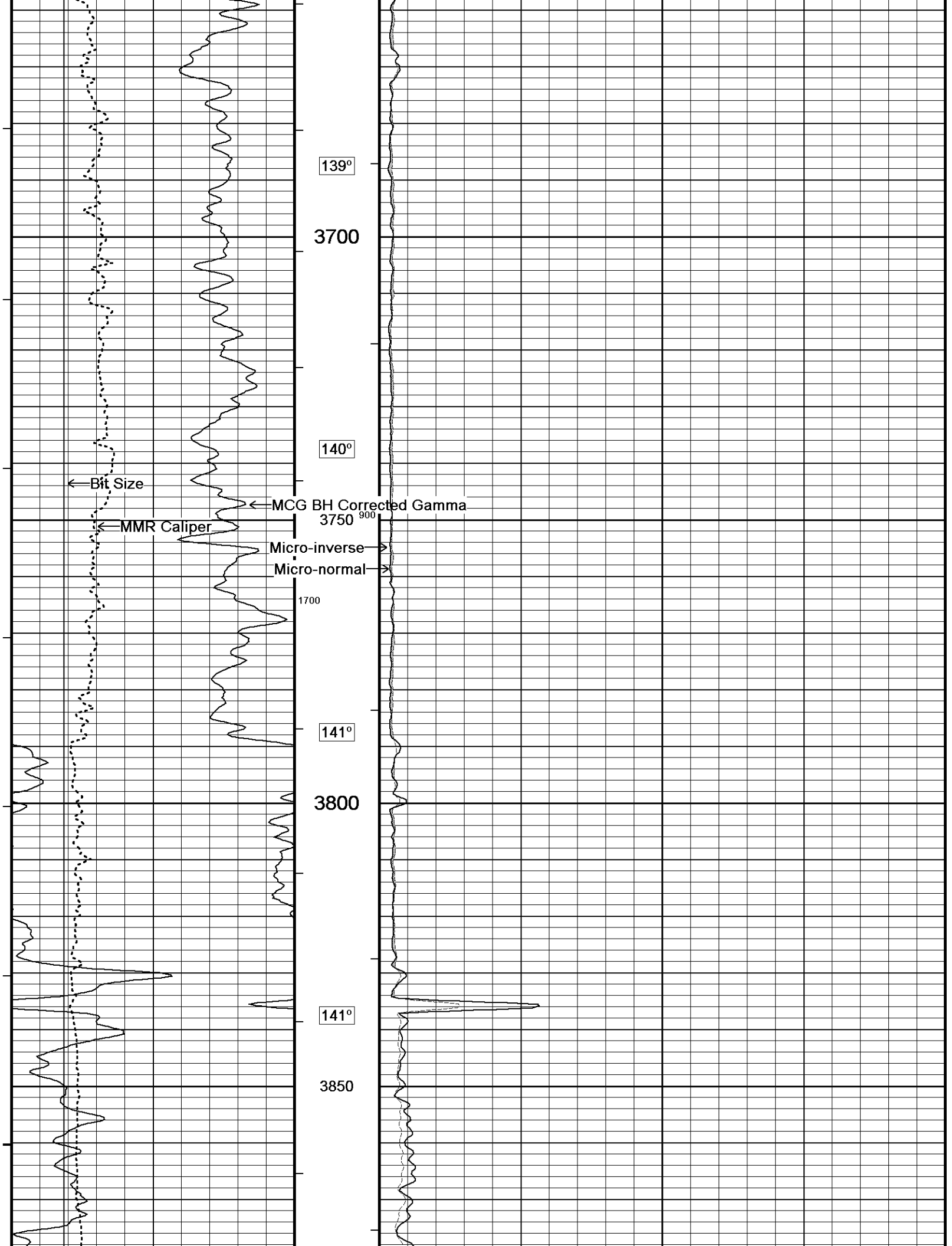


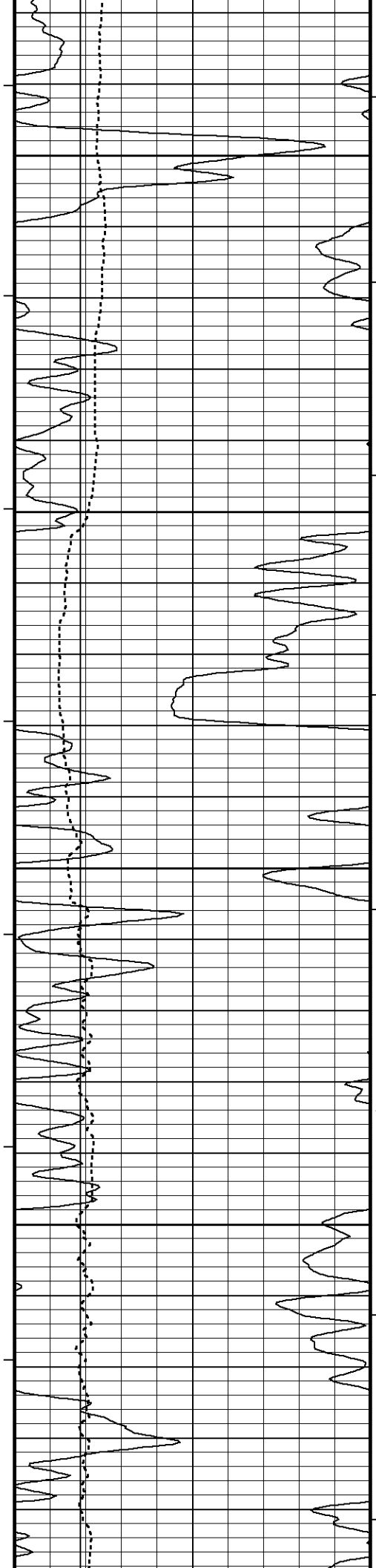




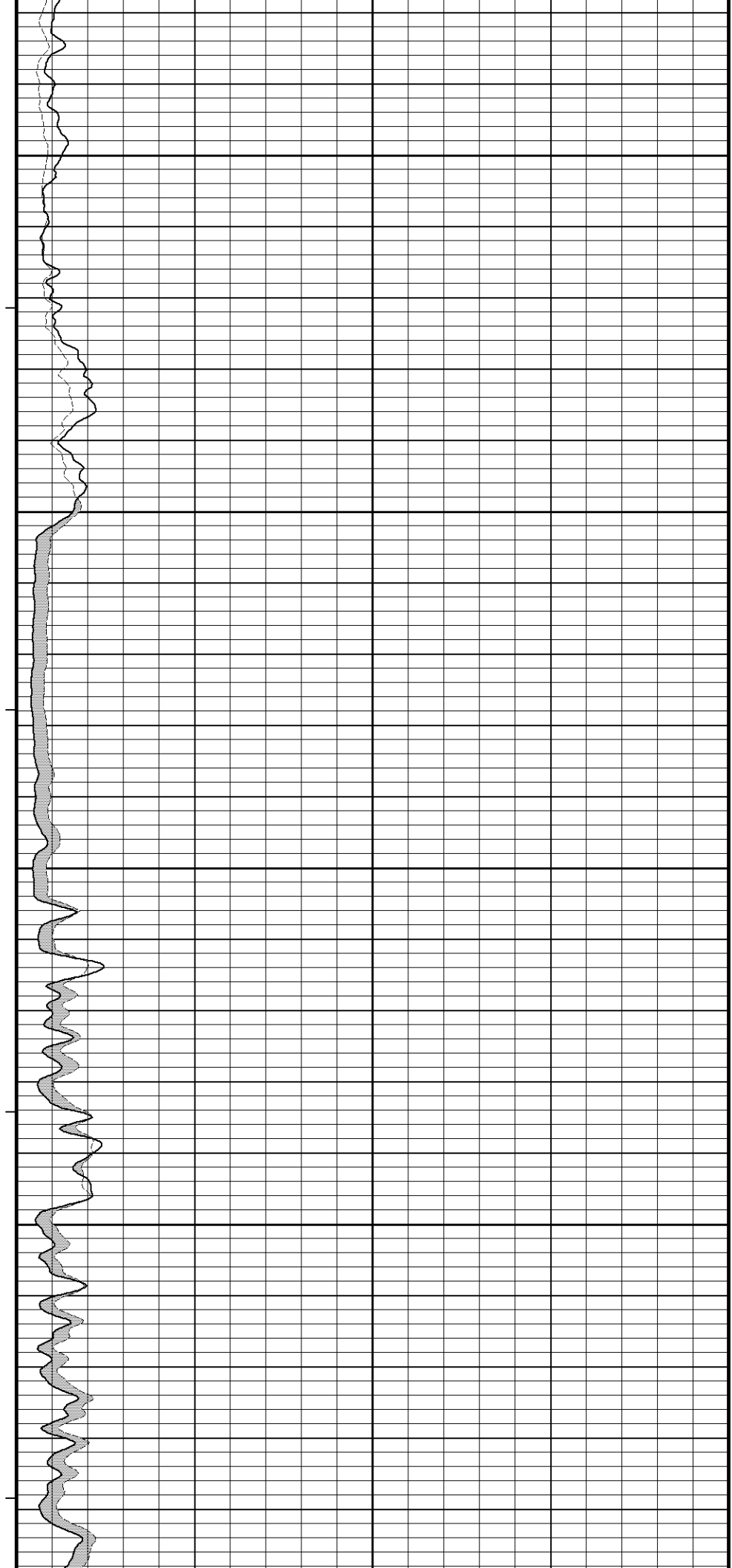


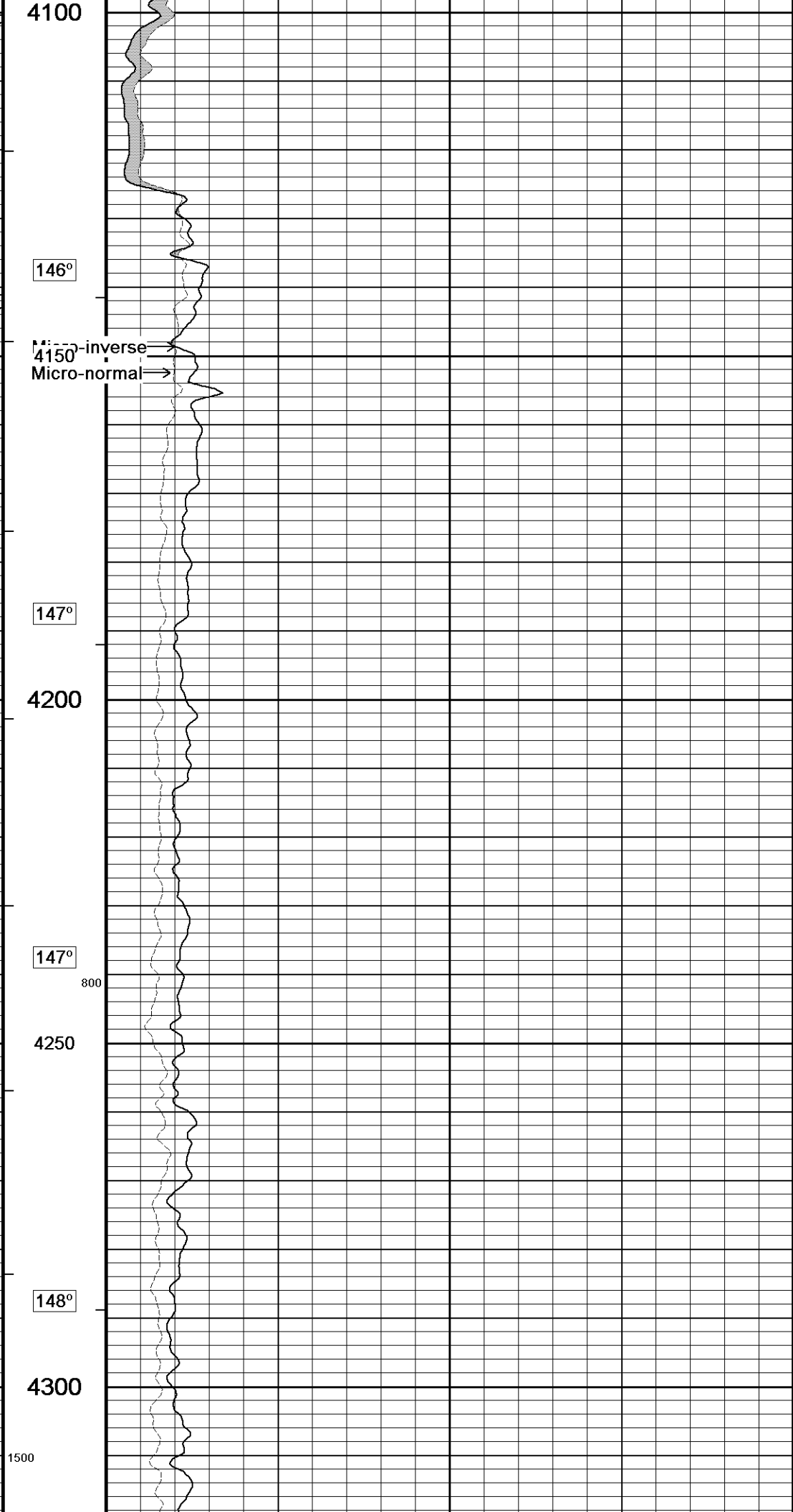
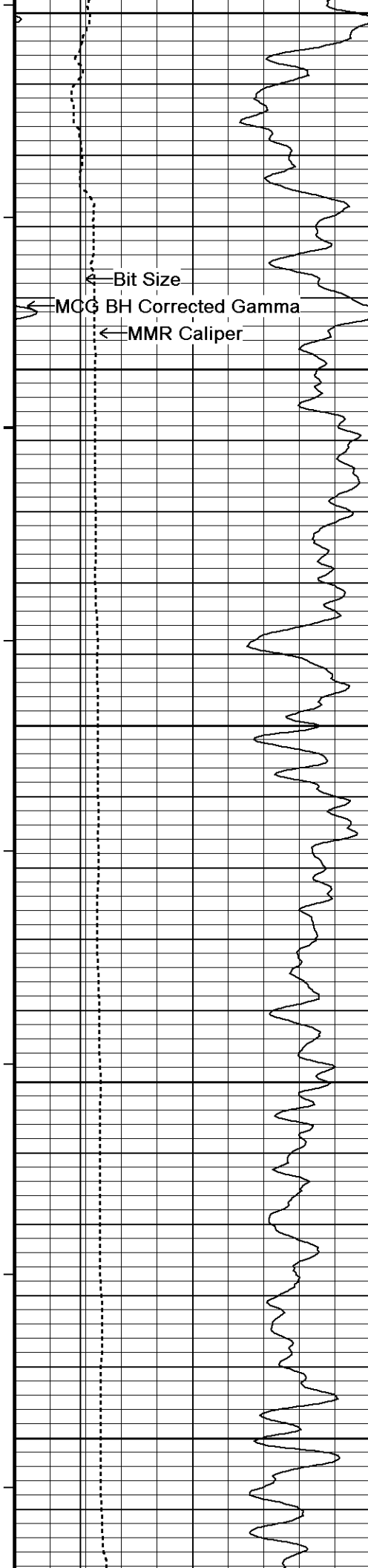


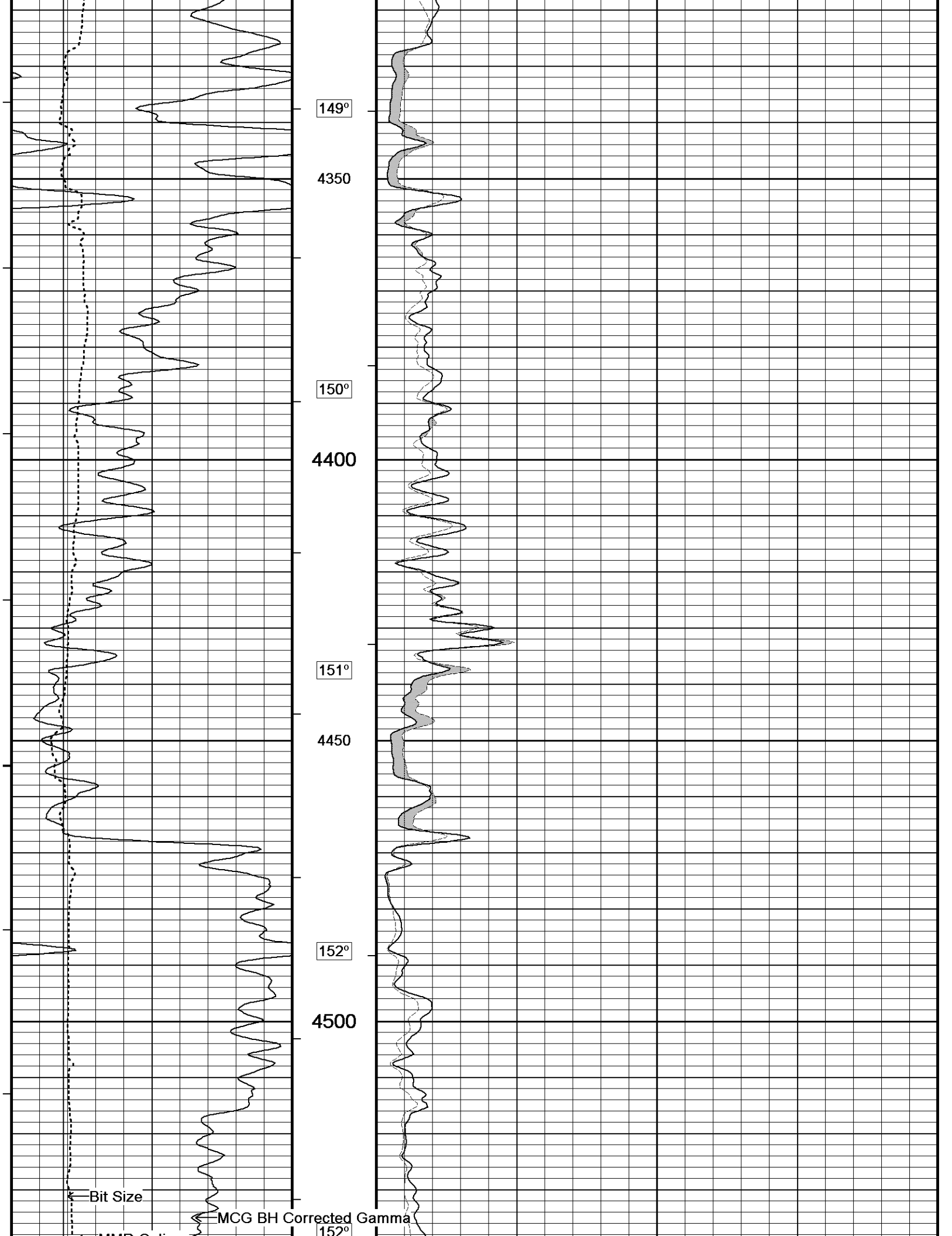


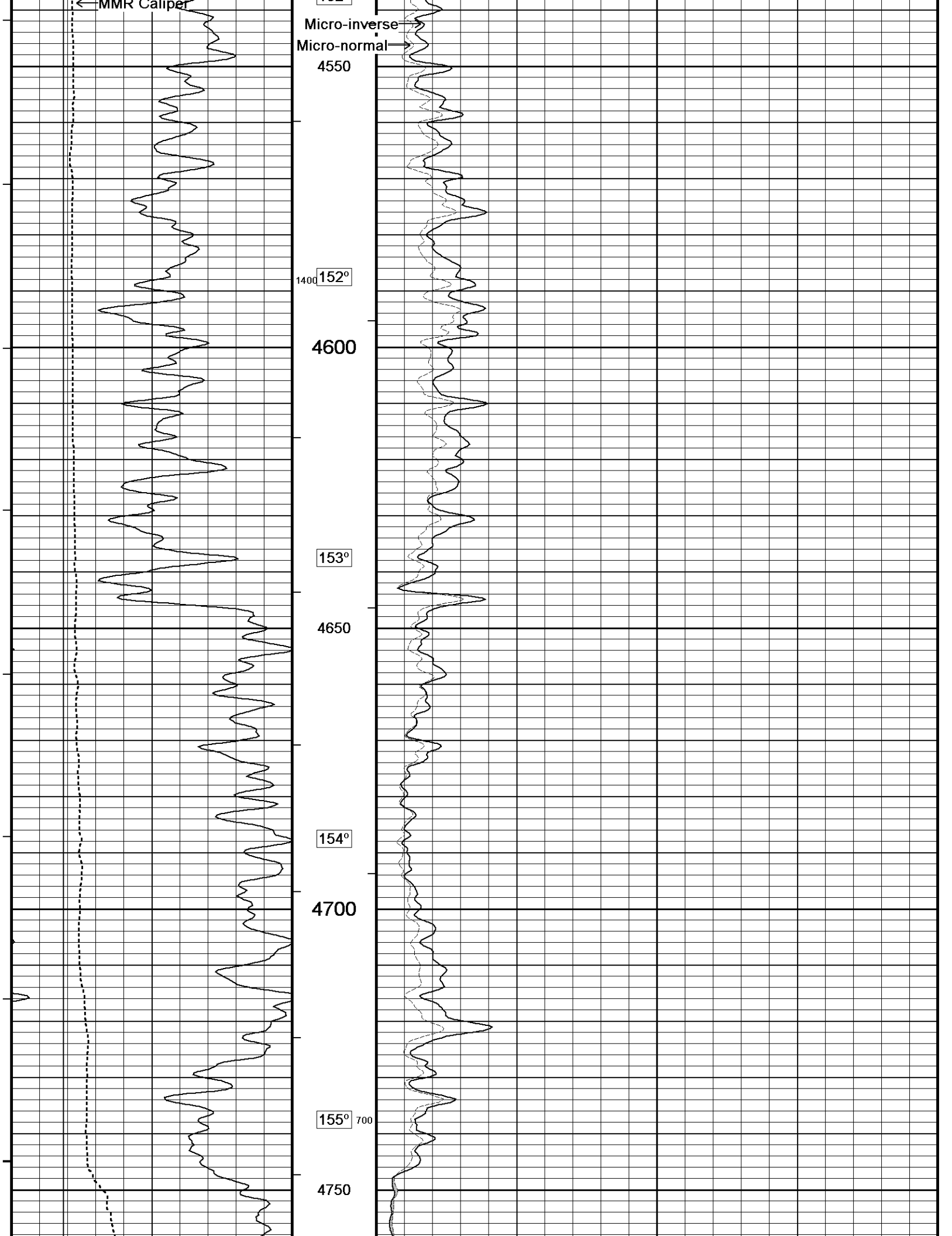


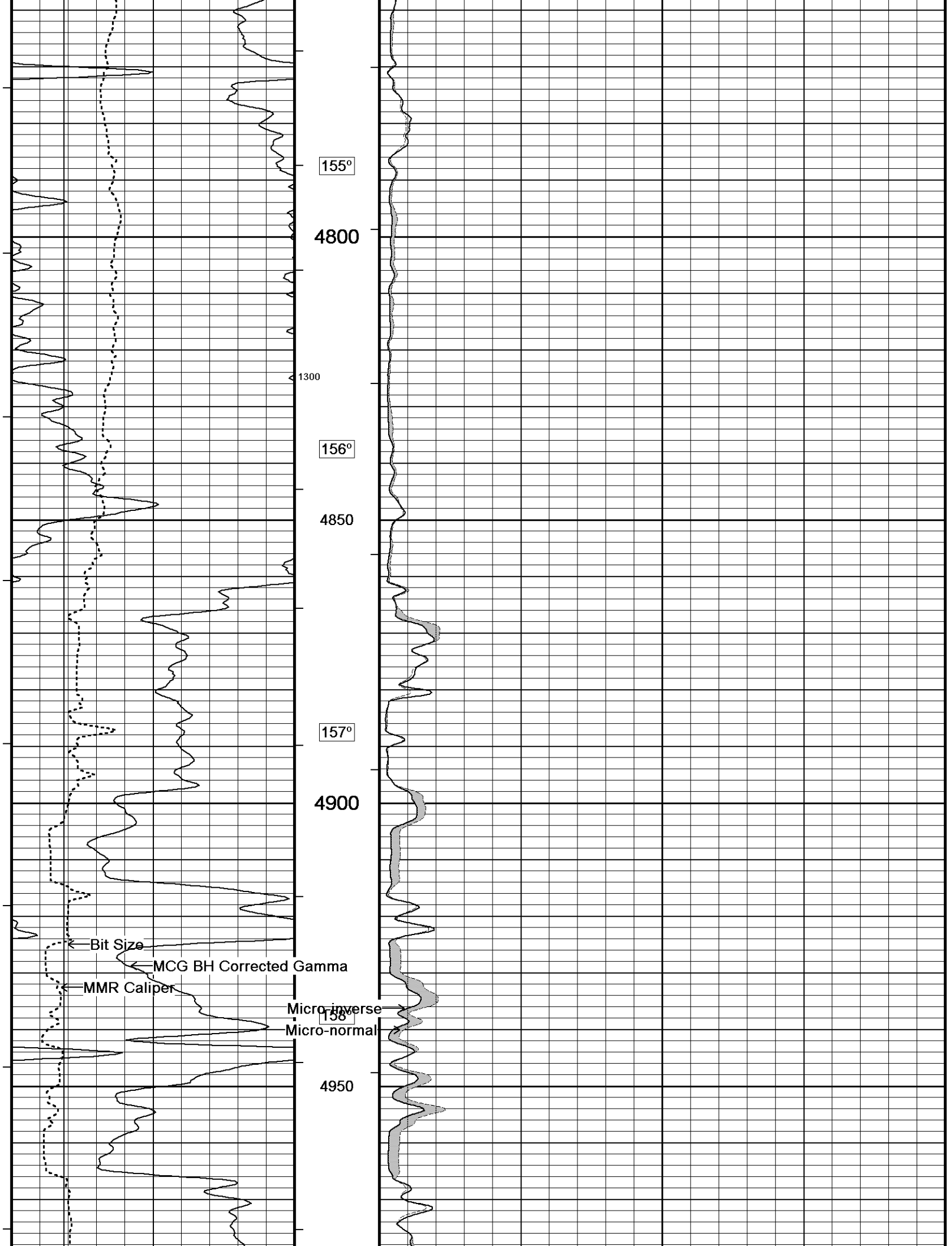
142°
3900
143°
3950
144°
4000
1600
144°
4050
145°

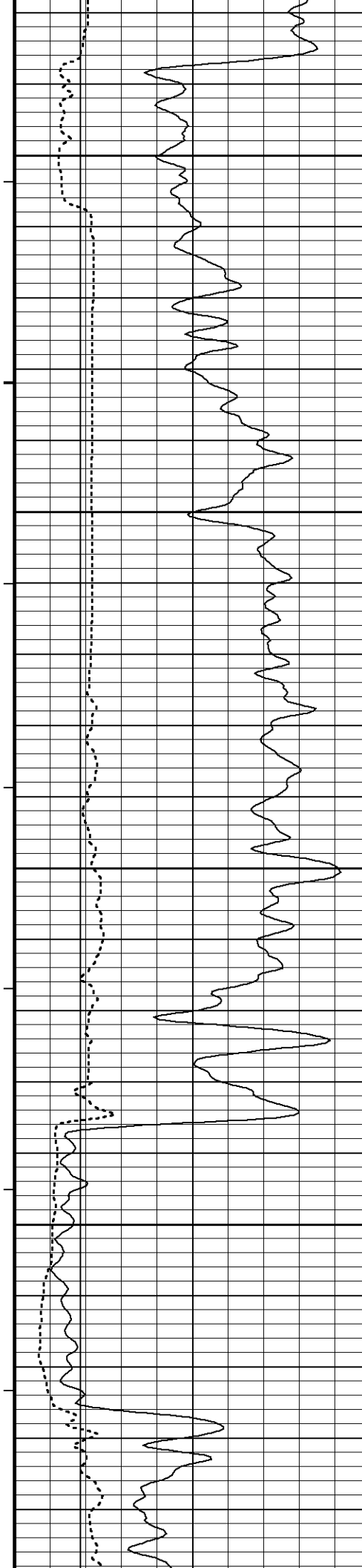




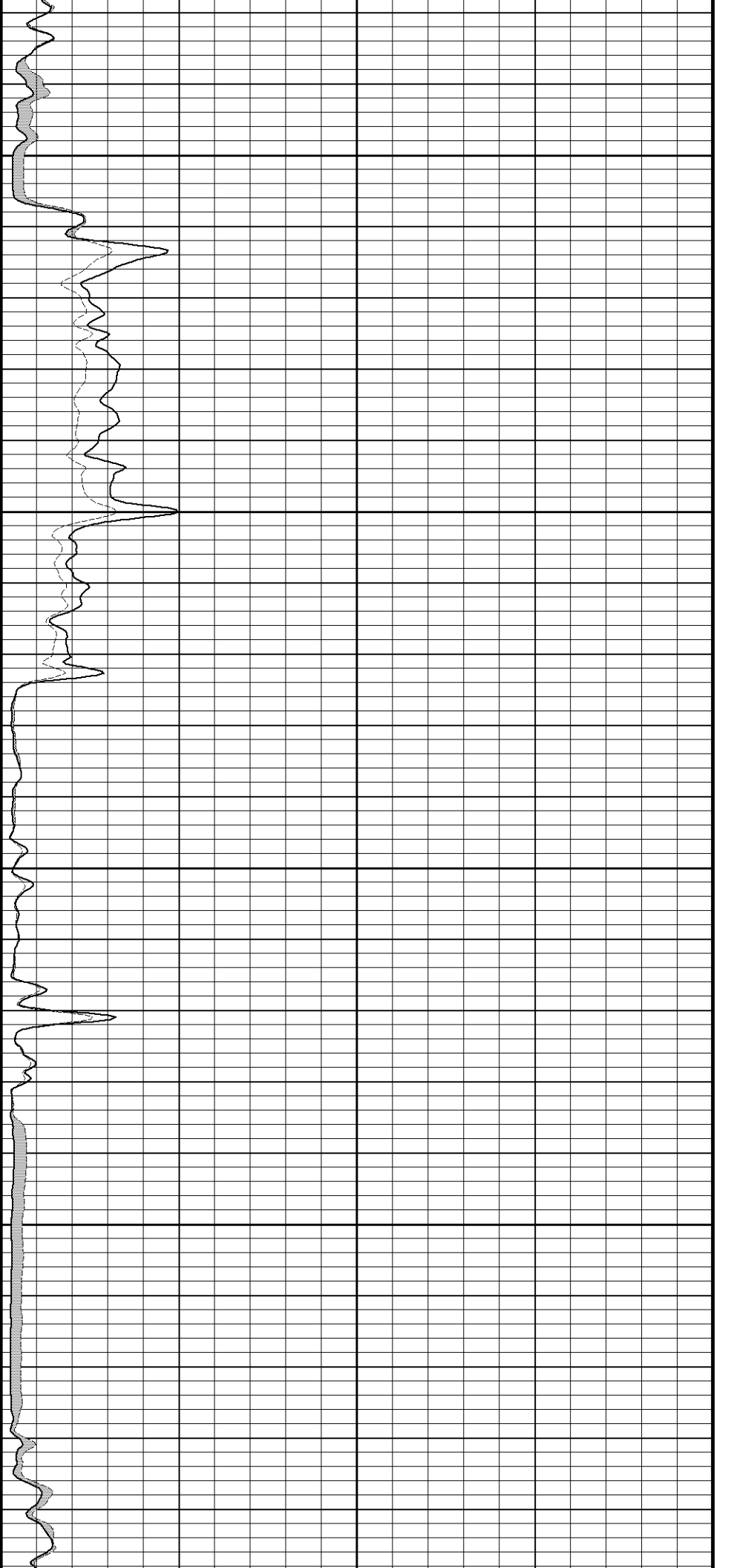


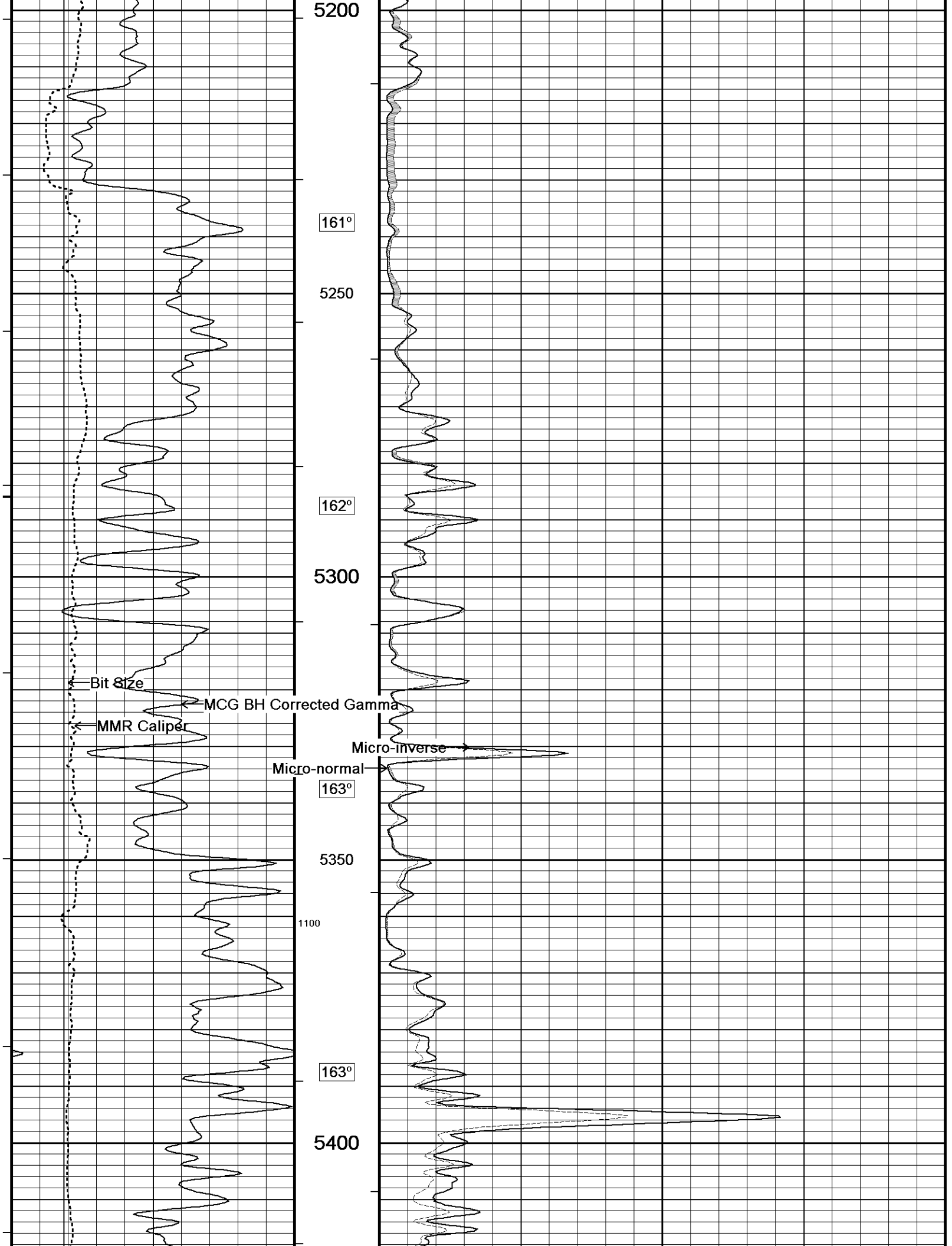


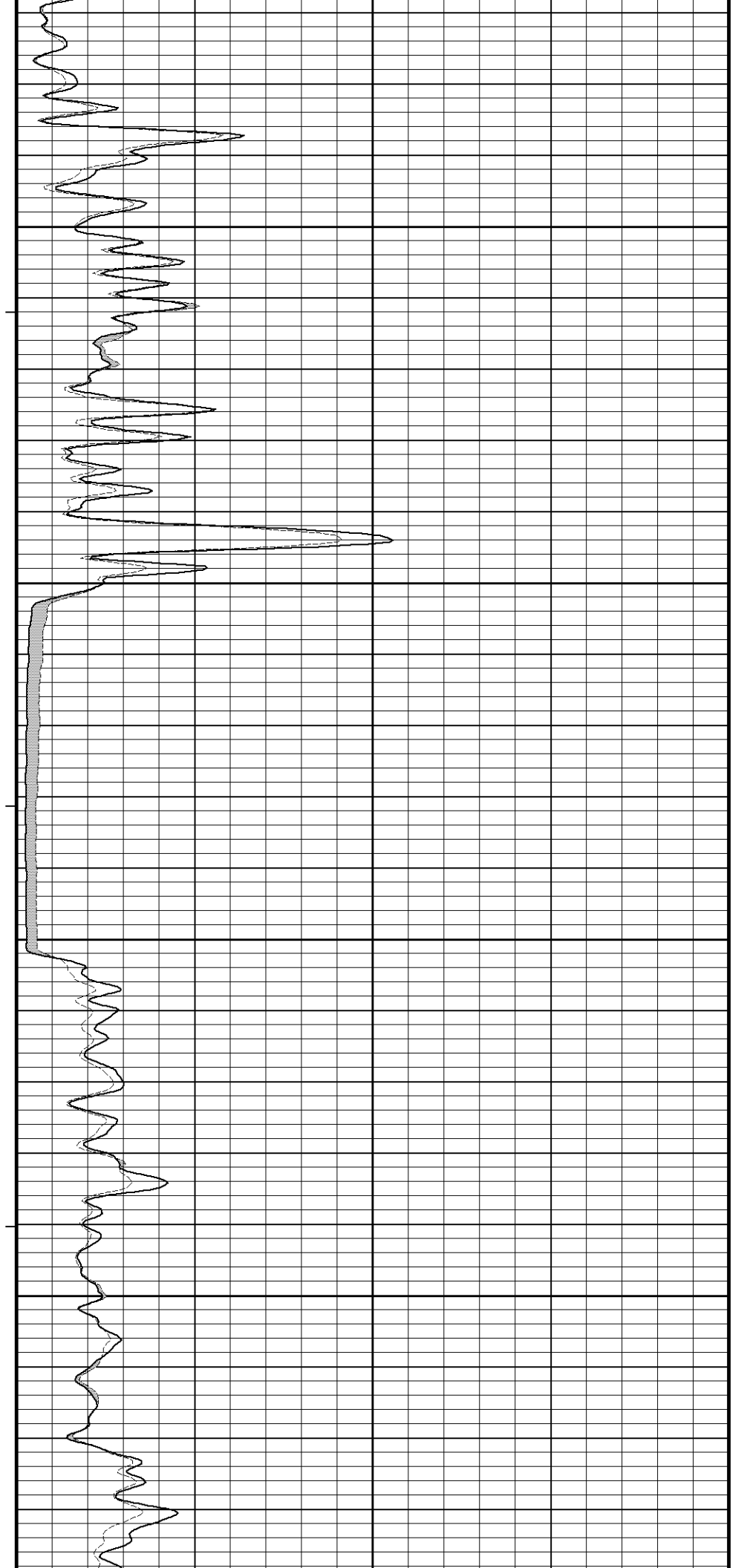
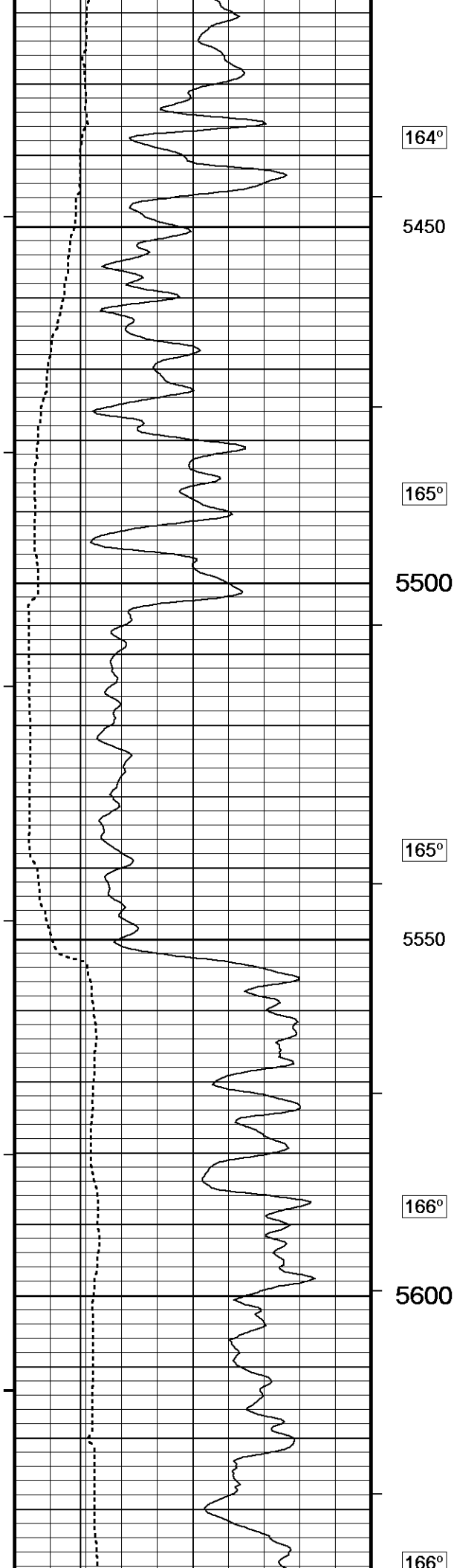


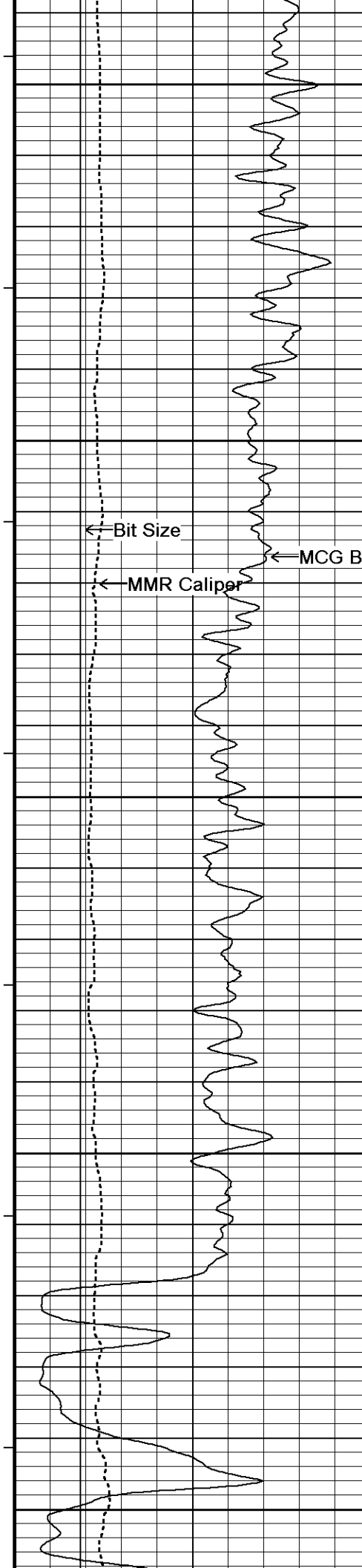


159°
5000
159°
5050
1200 159°
5100
160°
5150
600
161°

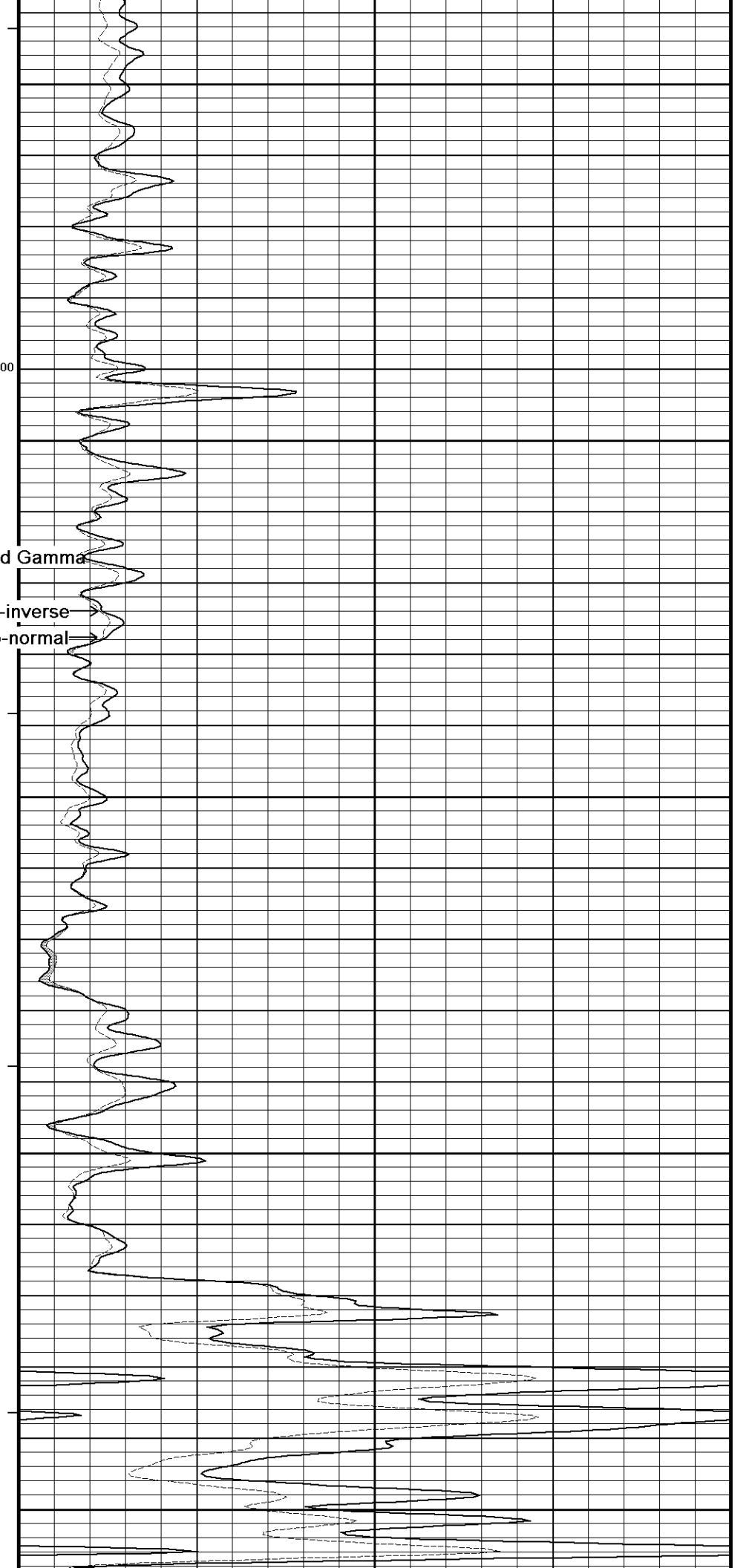








5650
1000
166°
500
5700
5750
5800
5850



← Bit Size

← MMR Caliper

← MCG BH Corrected Gamma

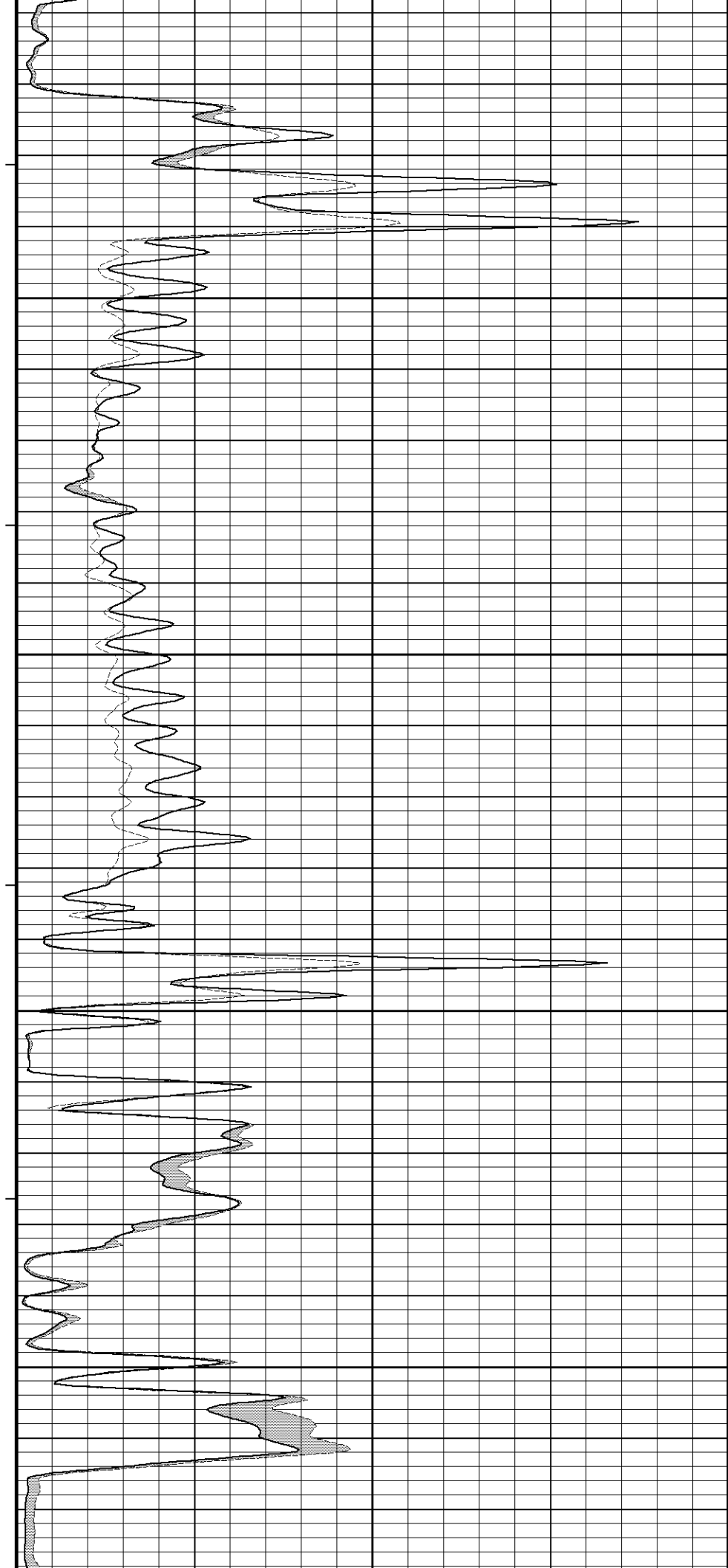
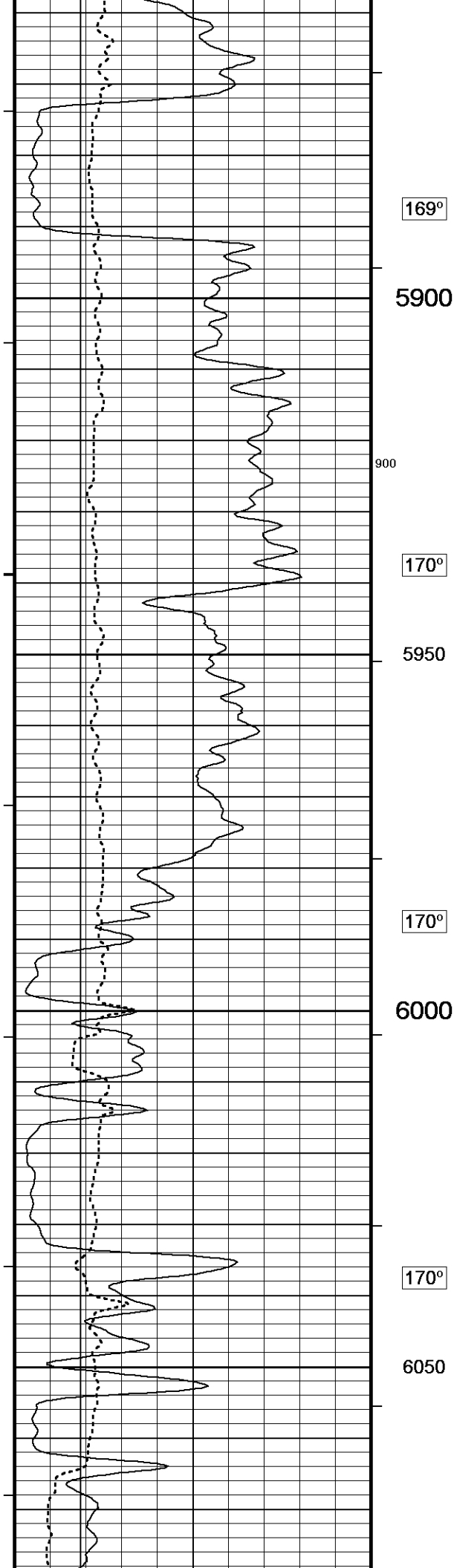
Micro-inverse →

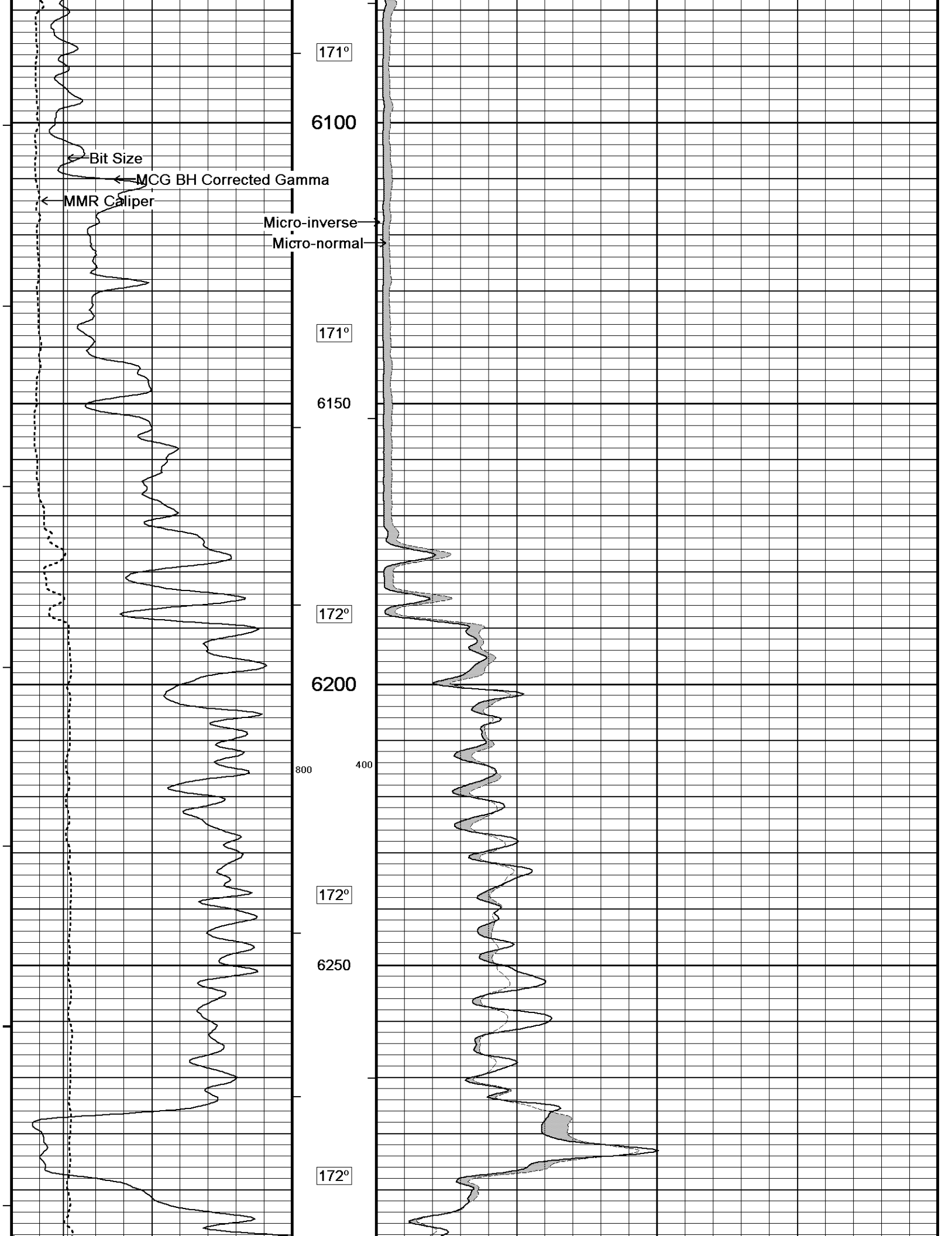
Micro-normal →

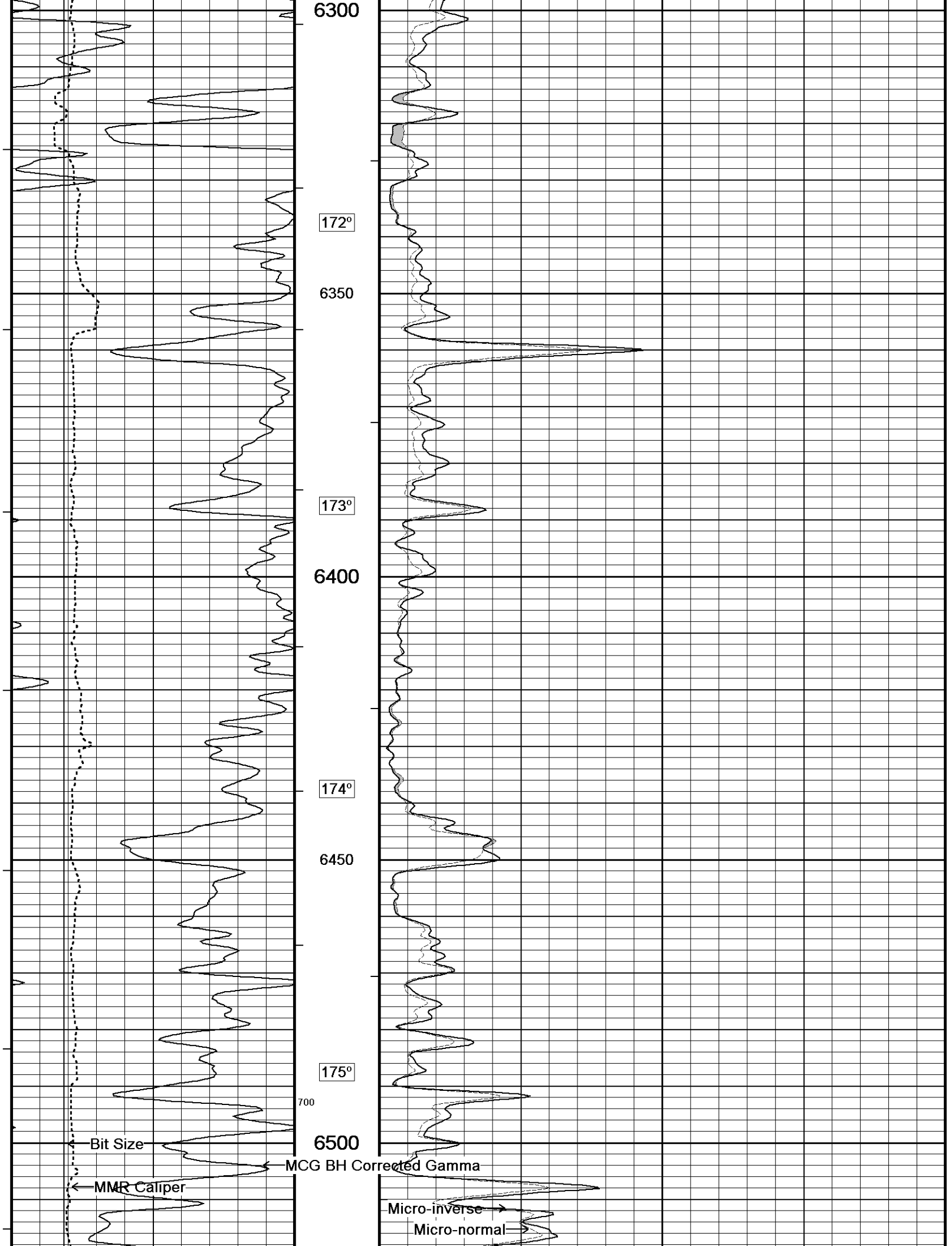
167°

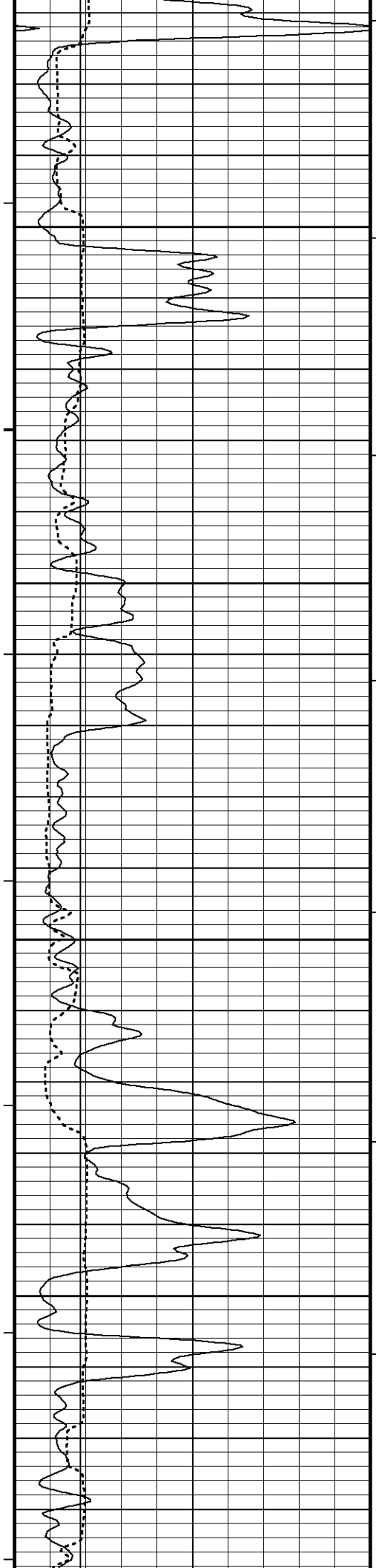
168°

169°









176°

6550

176°

6600

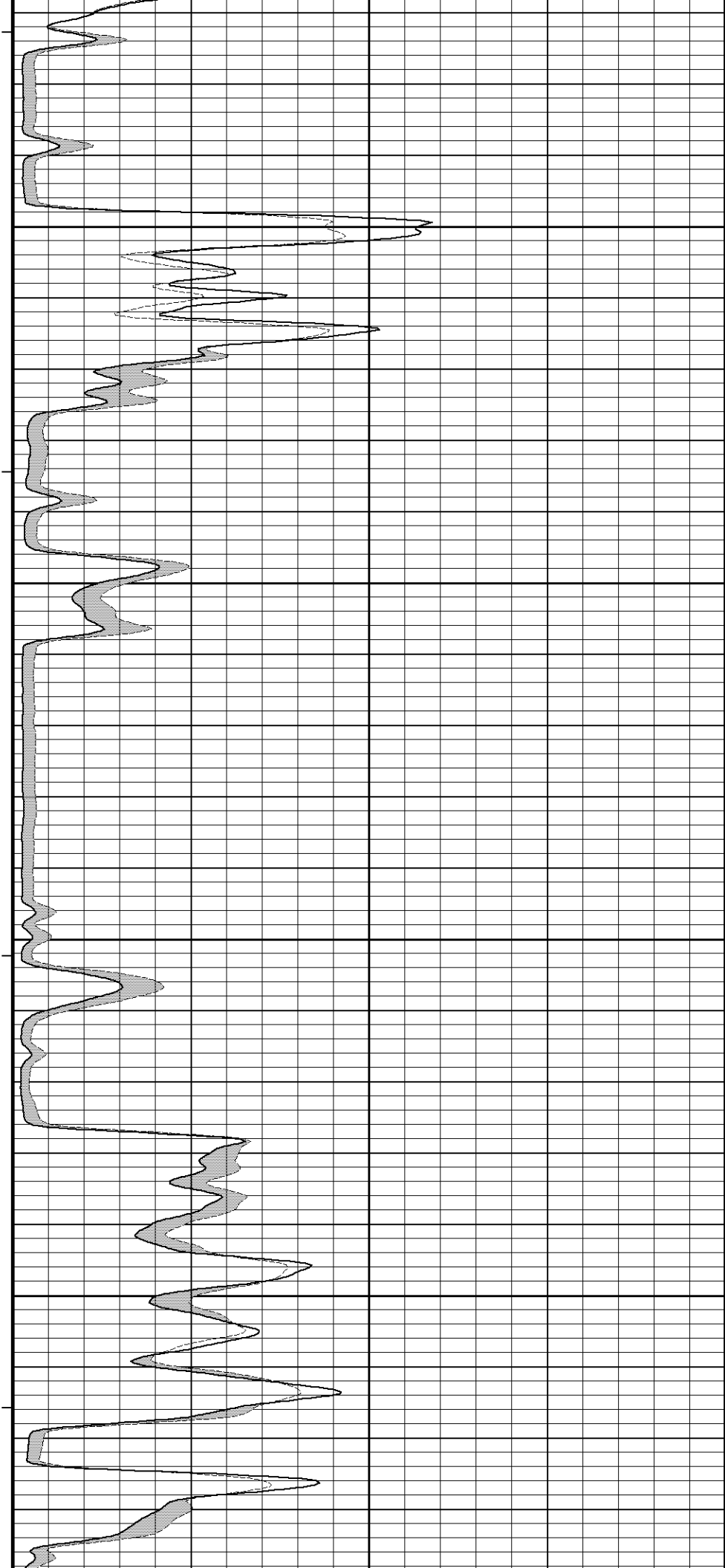
177°

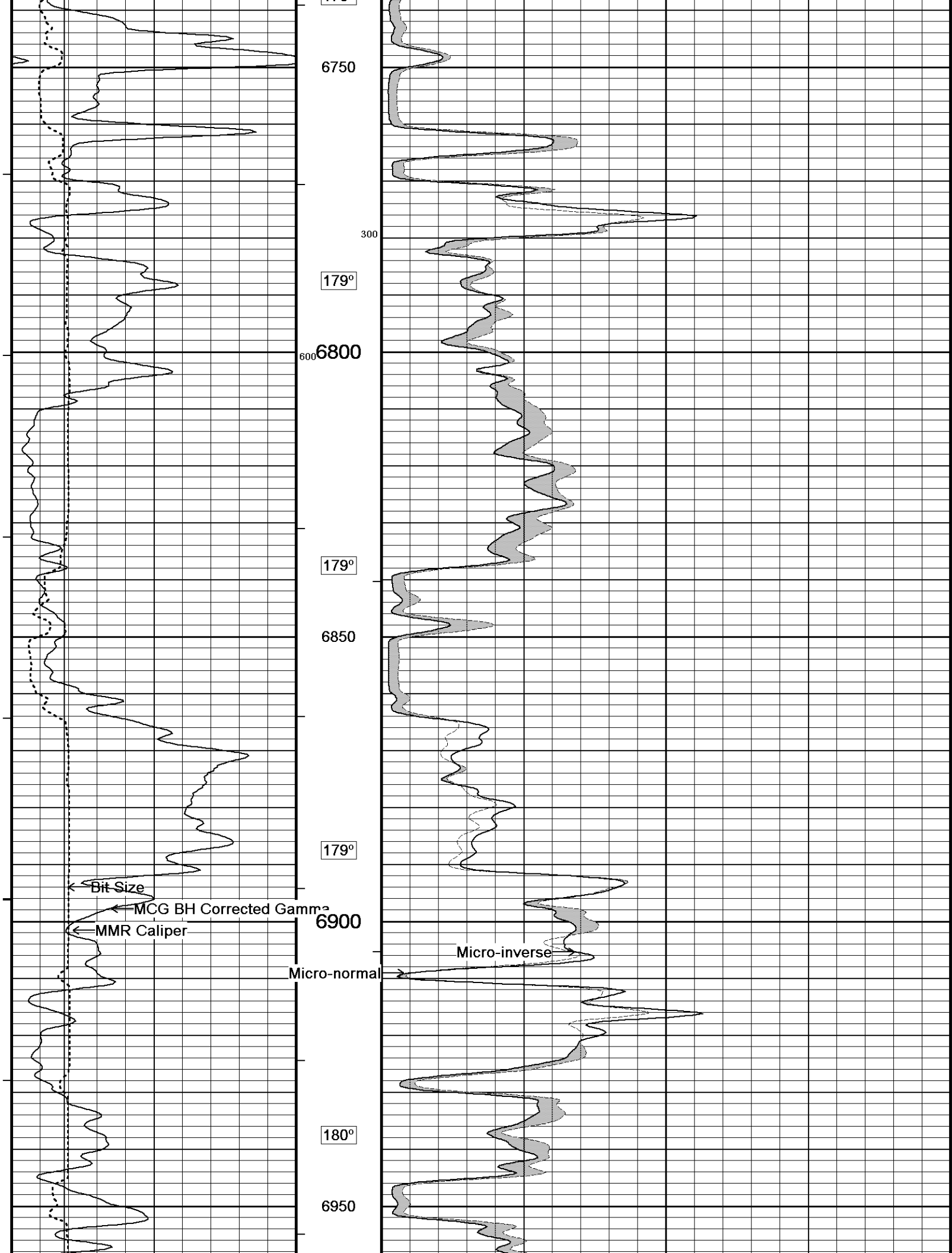
6650

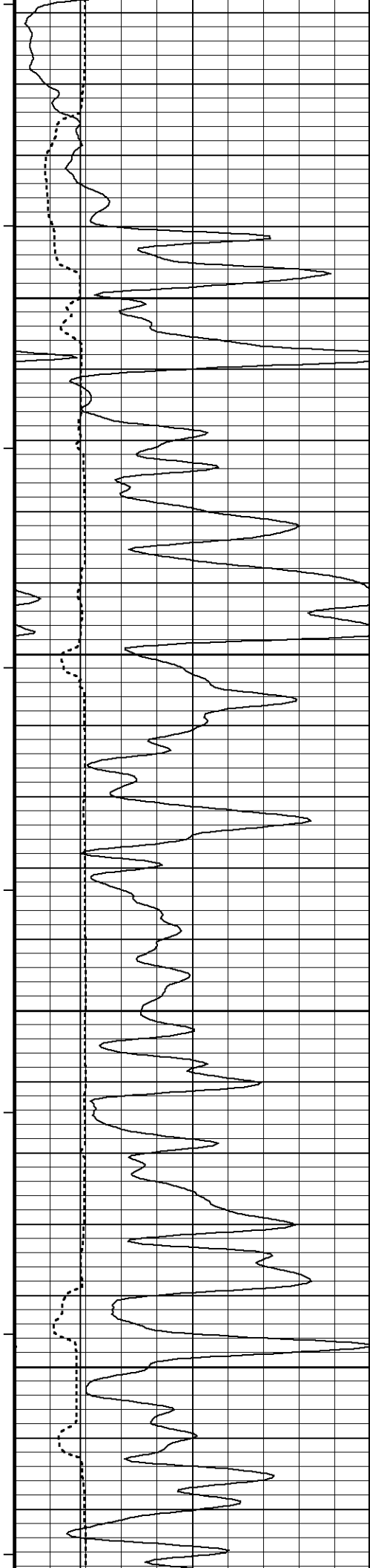
177°

6700

178°







180°

7000

180°

7050

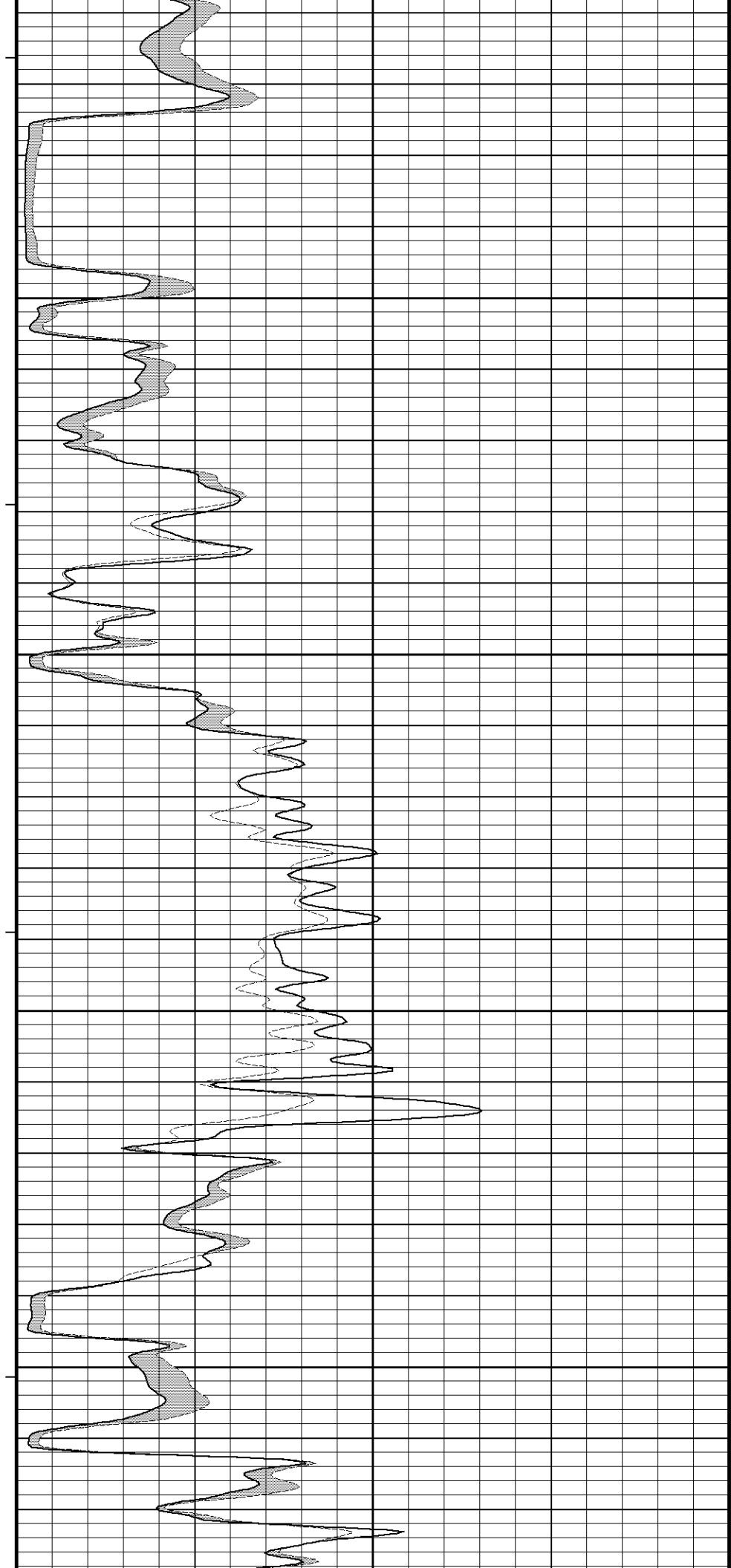
181°

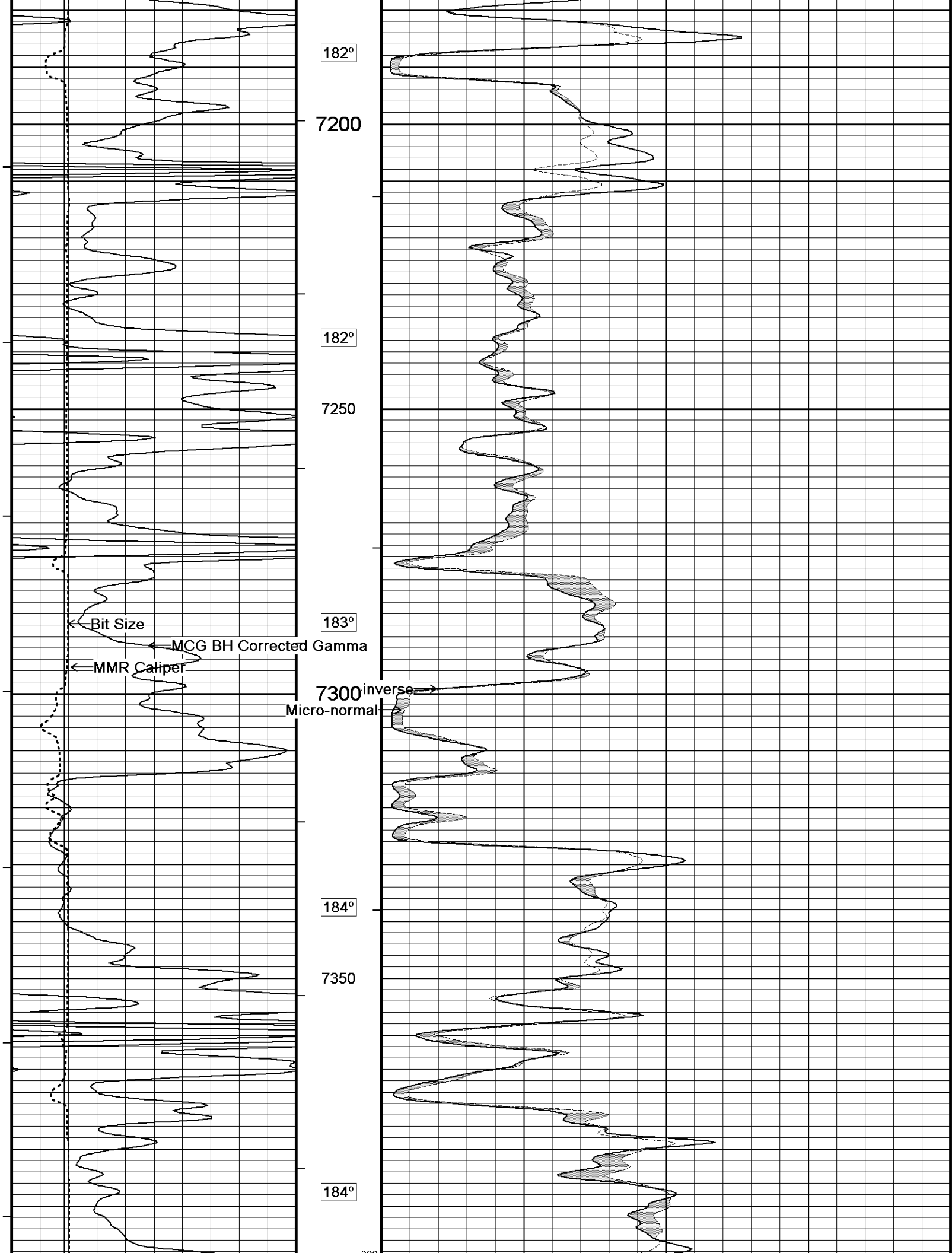
7100

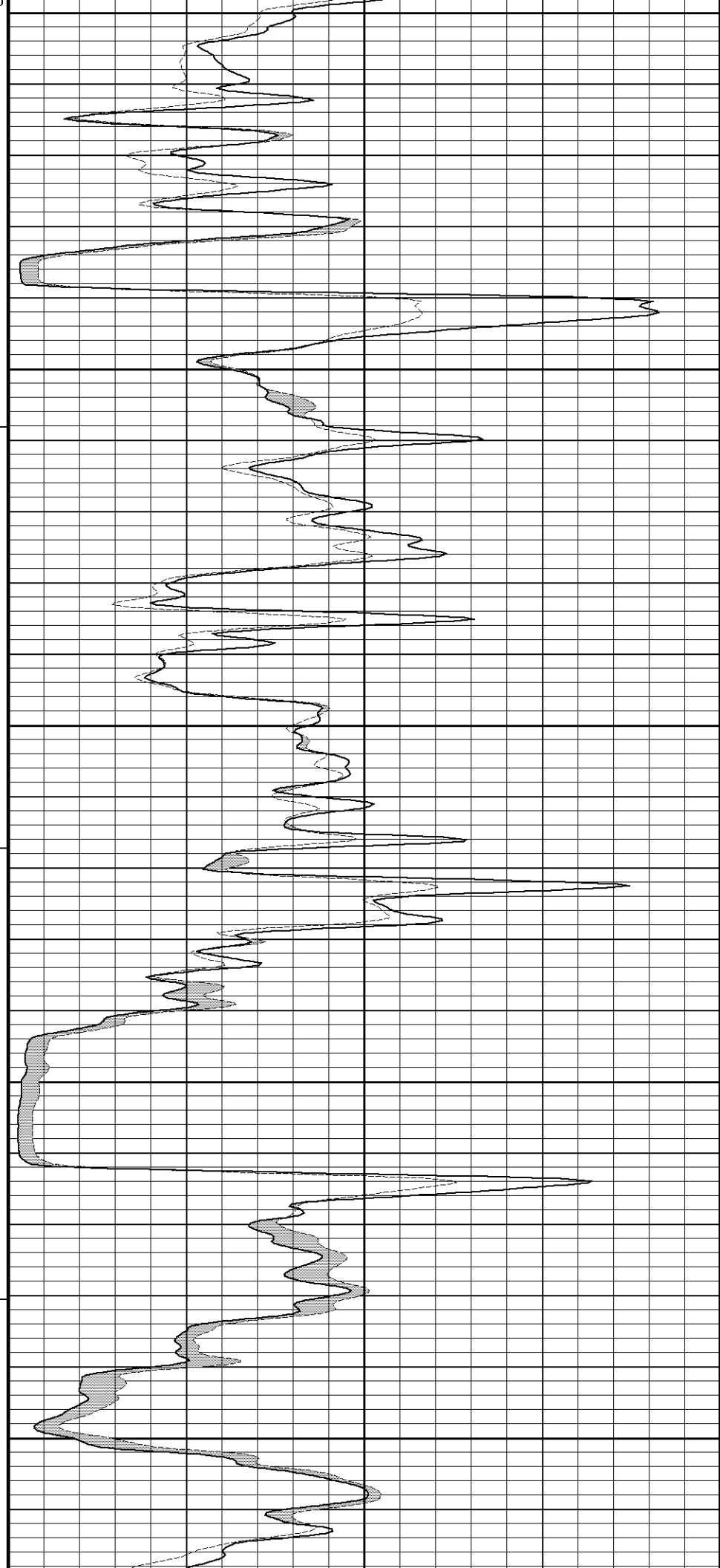
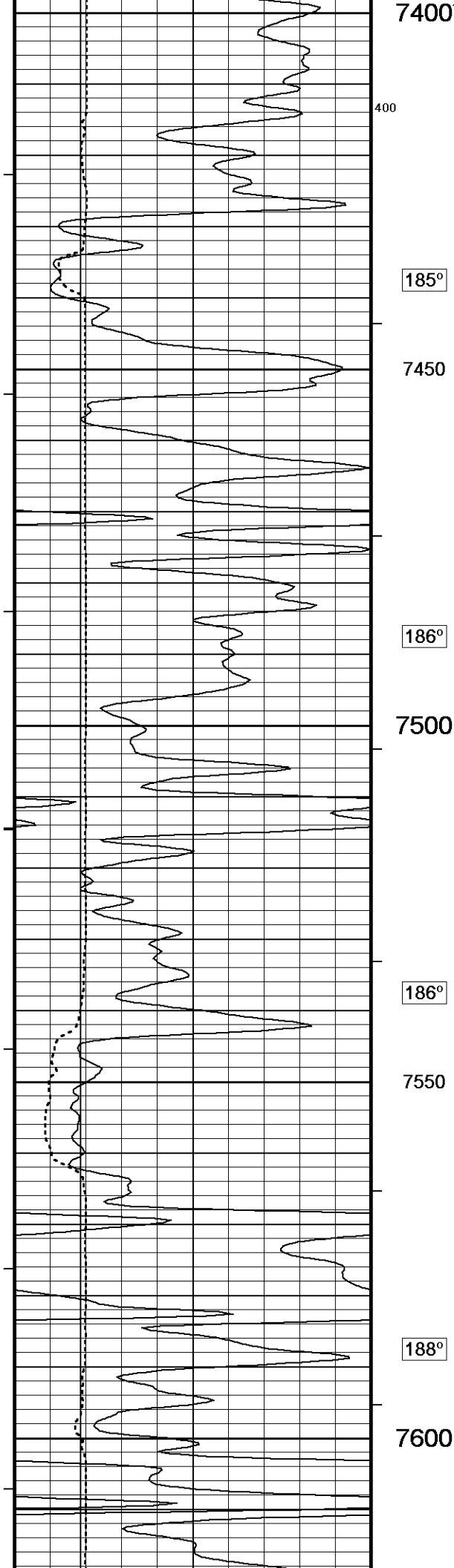
500

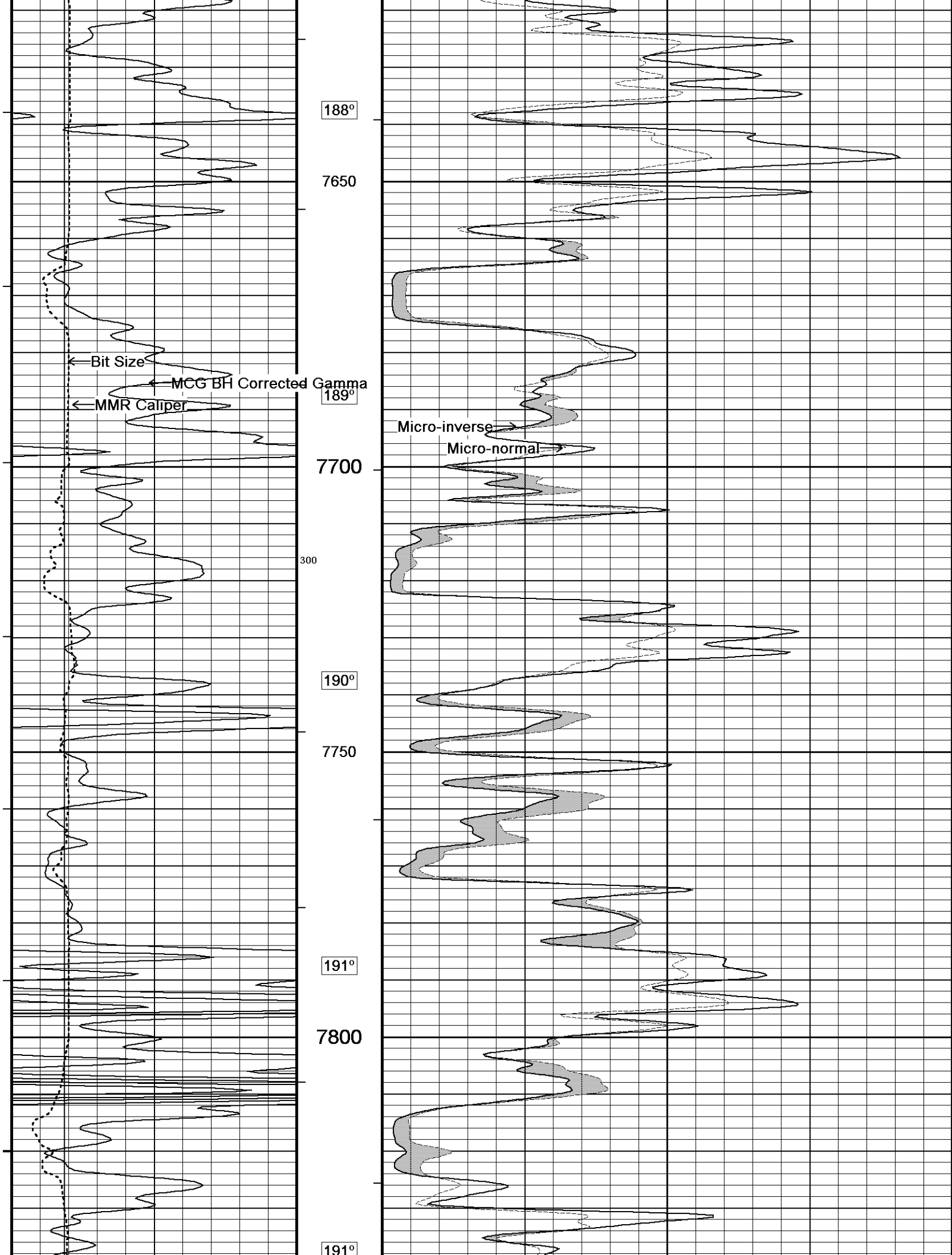
181°

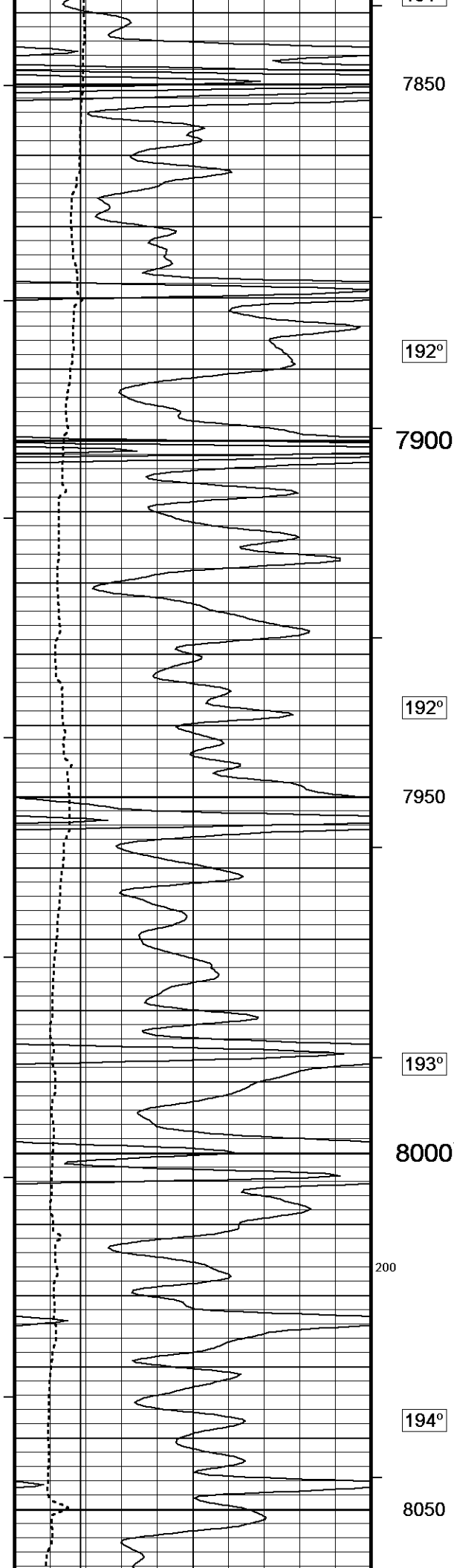
7150











7850

192°

7900

192°

7950

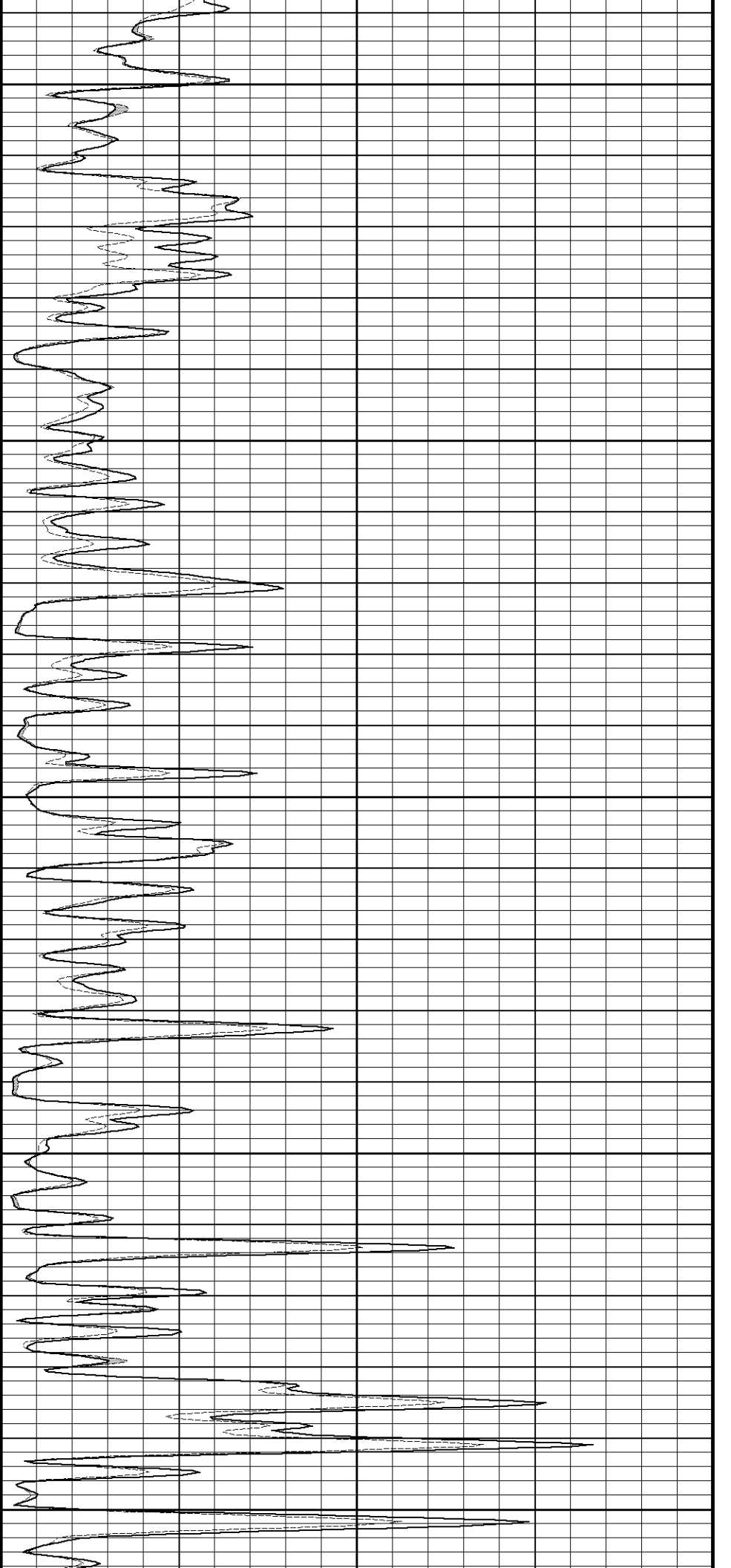
193°

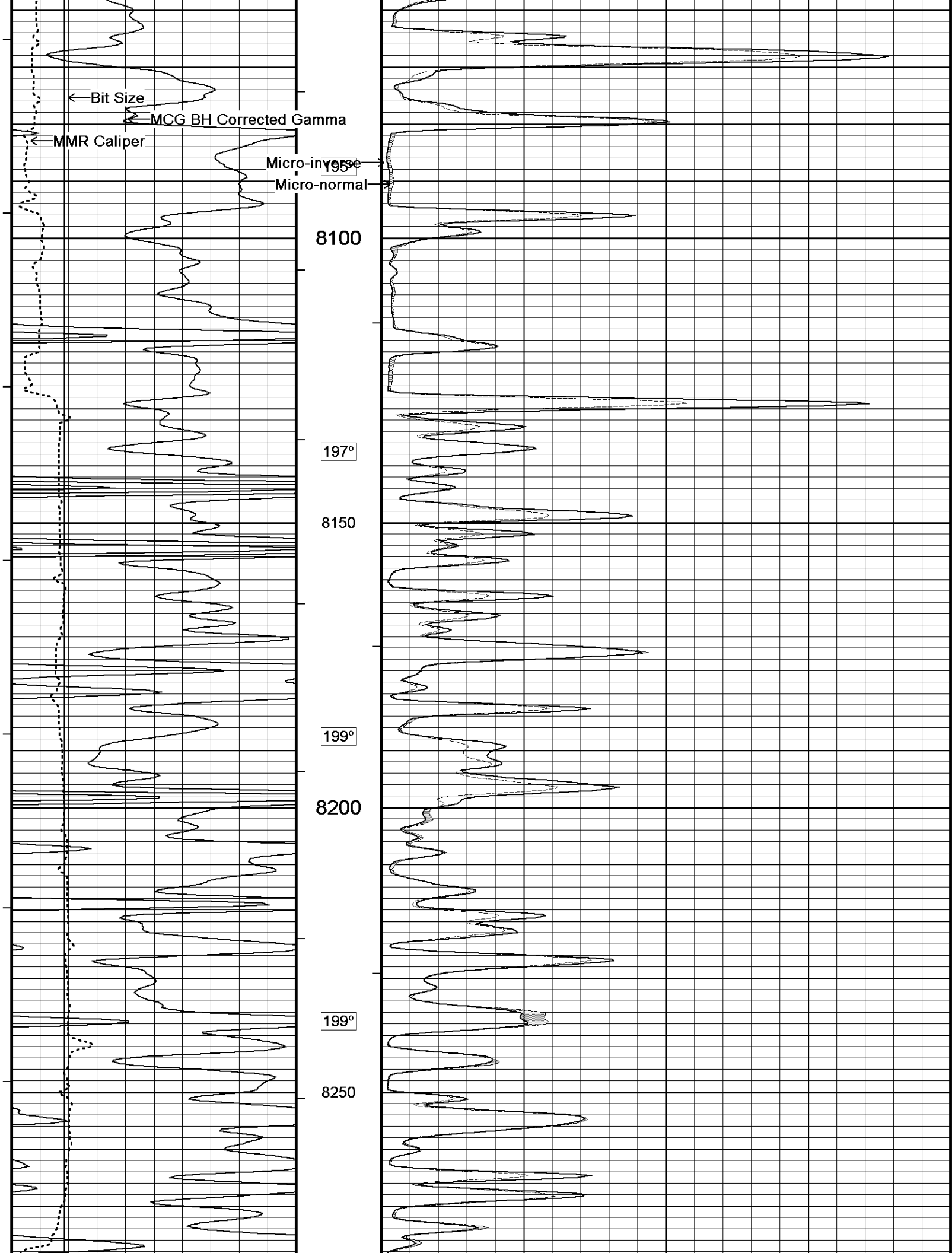
8000¹⁰⁰

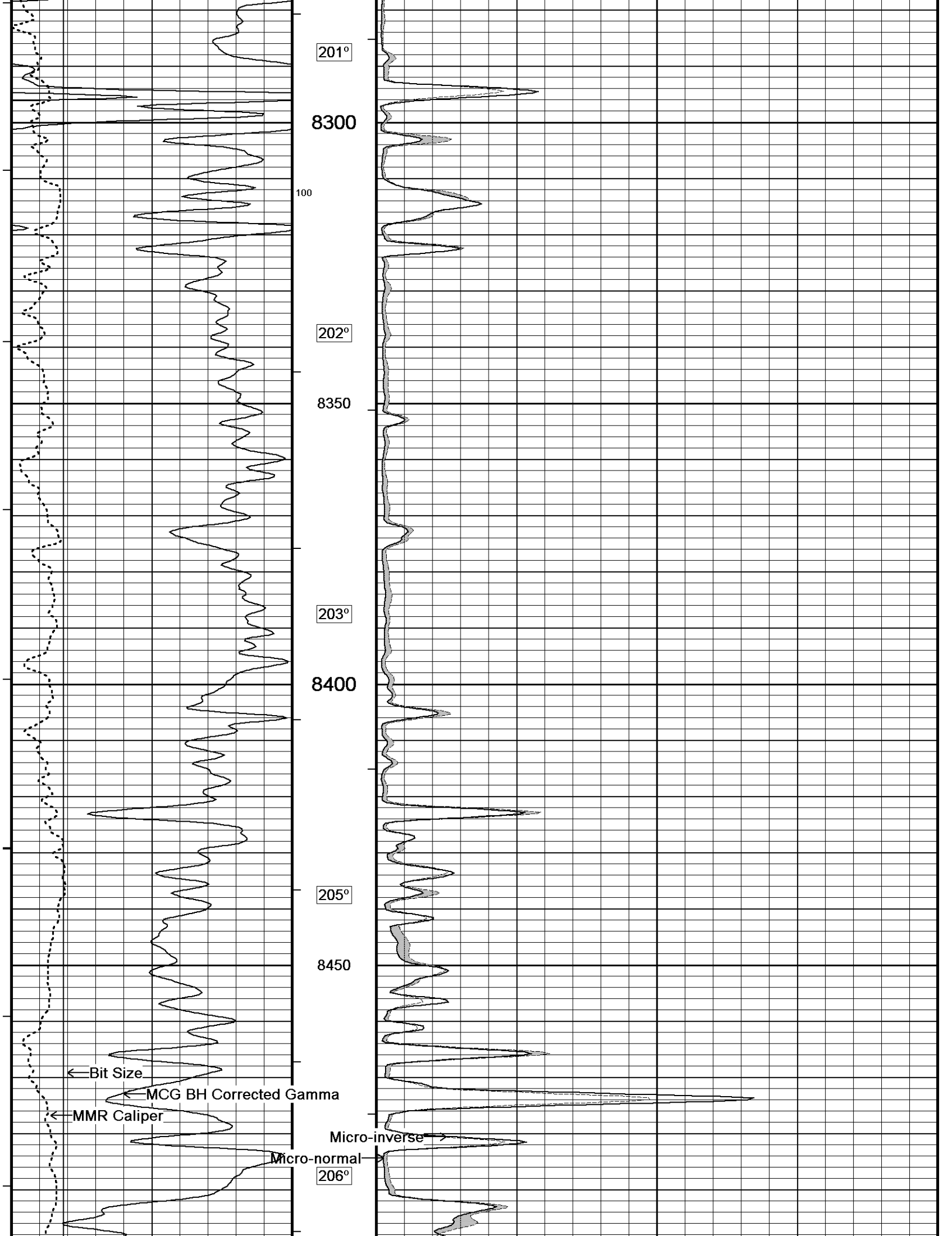
200

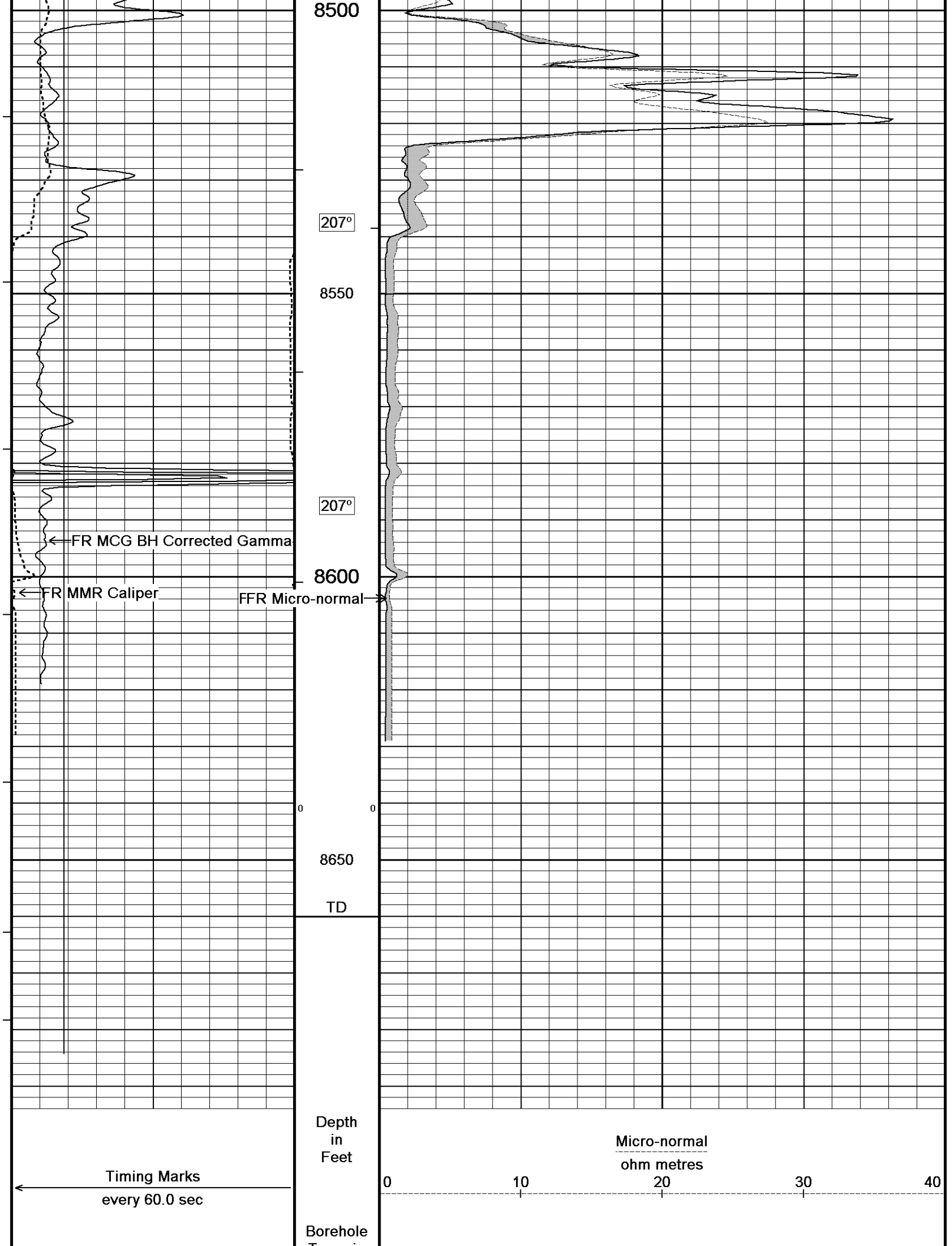
194°

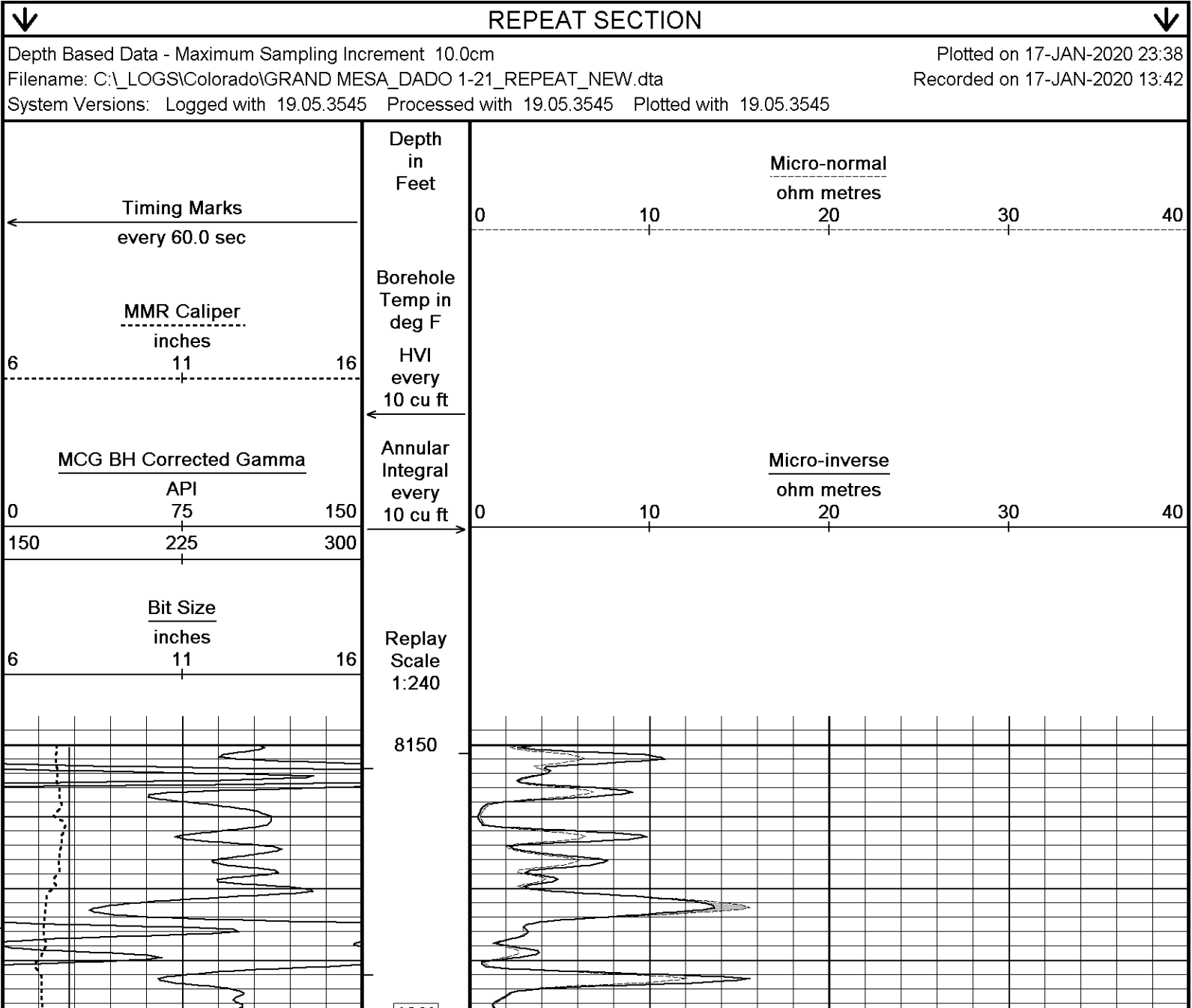
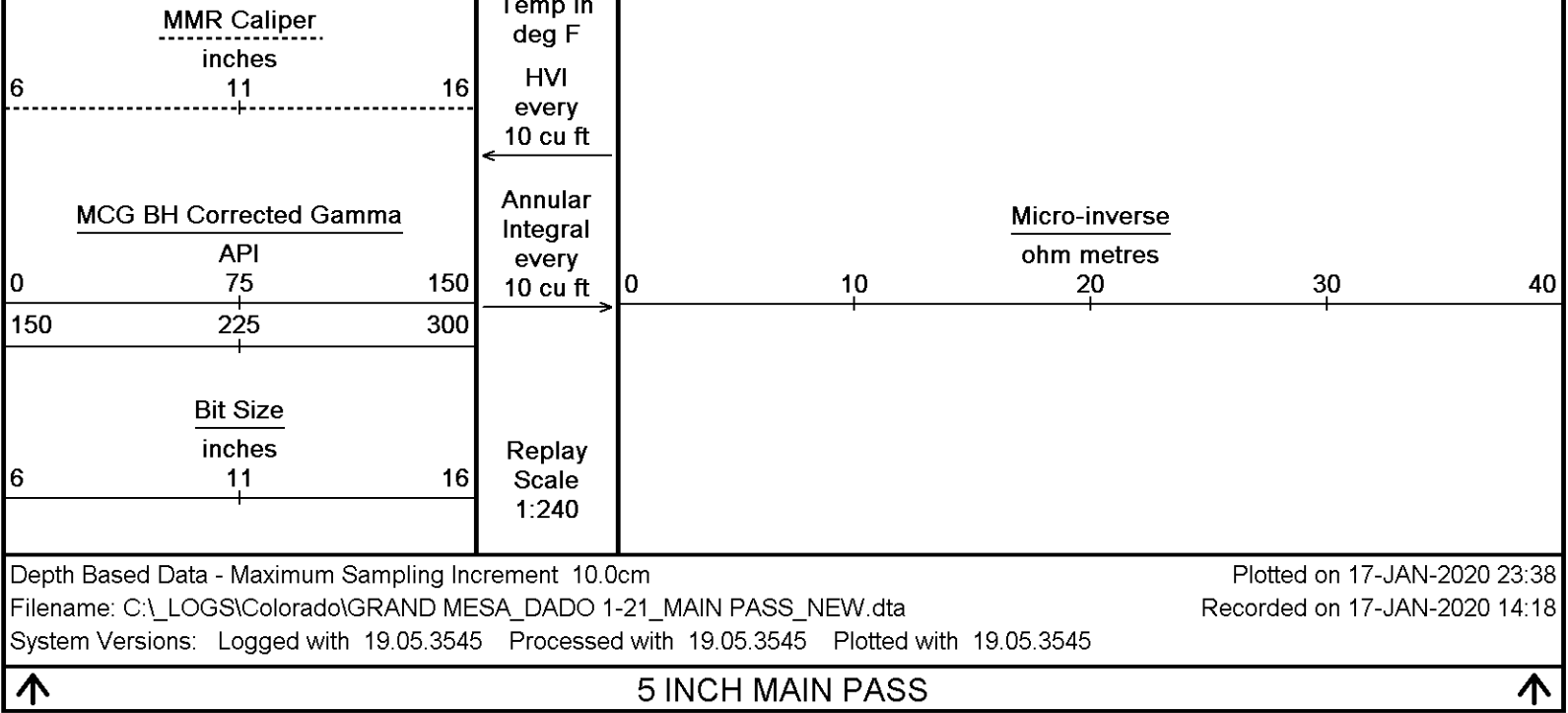
8050

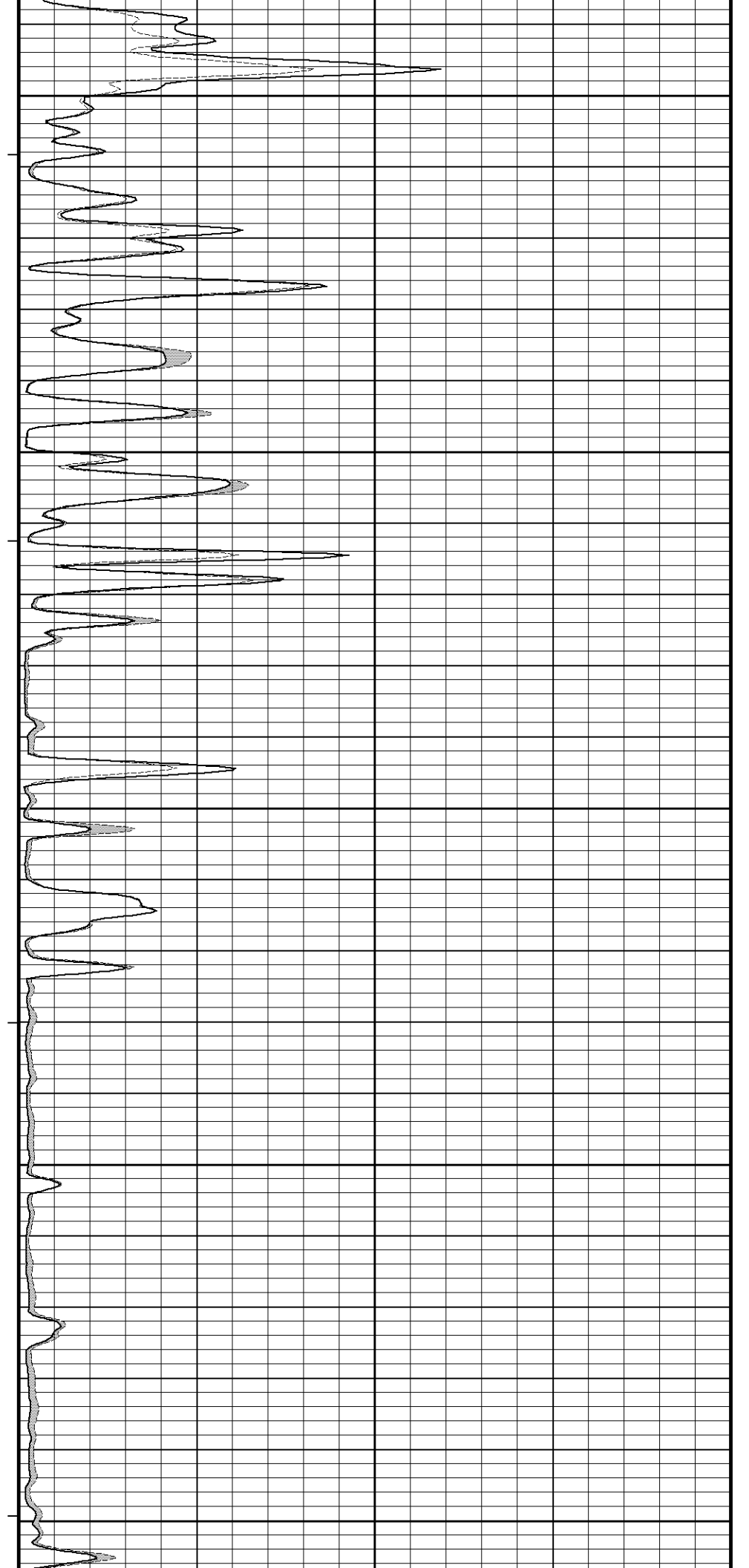
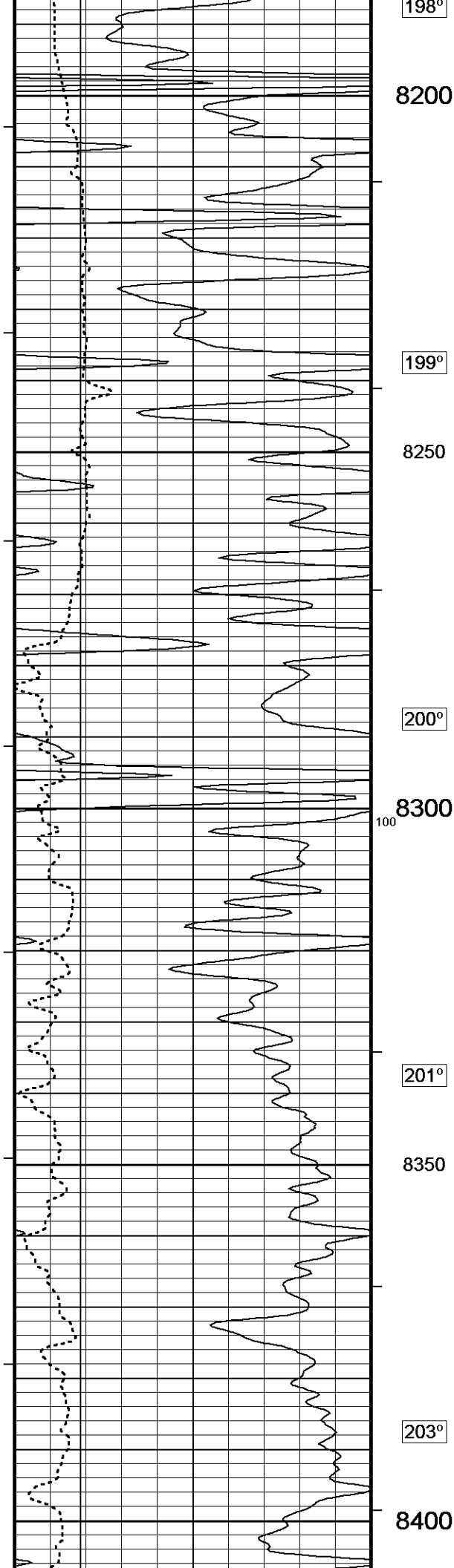


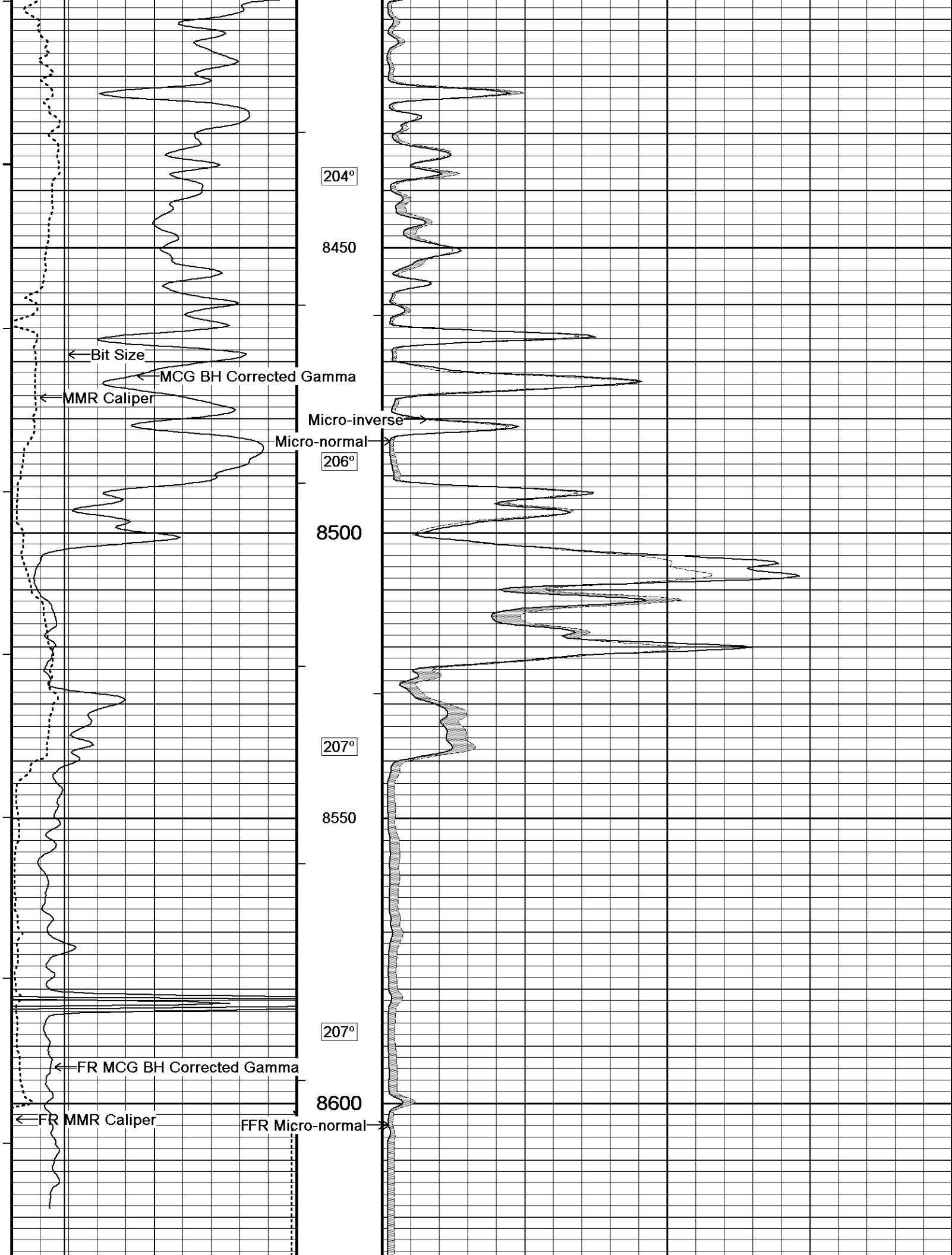


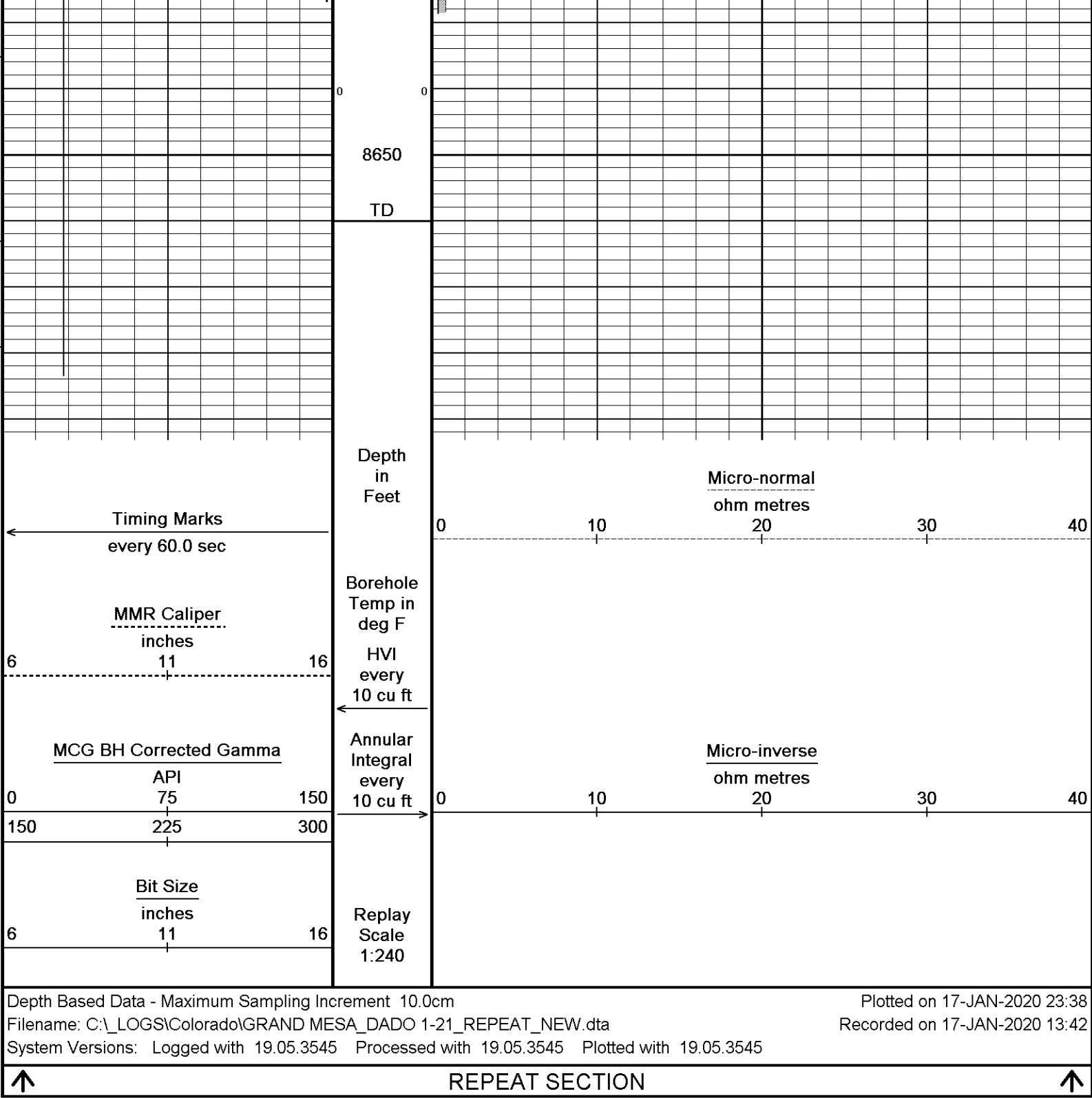












BEFORE SURVEY CALIBRATION		
C:_LOGS\Colorado\GRAND MESA_DADO 1-21_MAIN PASS_NEW.dta		
General Constants All 000		Last Edited on 17-JAN-2020,20:55
General Parameters		
Mud Resistivity	0.780	ohm-metres
Mud Resistivity Temperature	97.000	degrees F
Water Level	0.000	feet
Borehole Fluid Processing	Wet Hole	
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. One Res Rt
RWA Constant A 0.620
RWA Constant M 2.150
SW/APOR Tool Source 0.000

Gamma Calibration MCG-E.A 533

Field Calibration on 16-JAN-2020 11:29

	Measured	Calibrated (API)
Background	43	28
Calibrator (Gross)	864	561
Calibrator (Net)	821	533

Gamma Calibration Tolerances MCG-E.A 533

Ratio 1.541  Counts/API

Gamma Constants MCG-E.A 533

Last Edited on 17-JAN-2020,10:40

Gamma Calibrator Number	MCGGRCC118	
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-E.A 533

Field Calibration on 17-JAN-2020,10:39

	Measured	Calibrated(Deg F)
Lower	0.00	0.00
Upper	100.00	100.00

High Resolution Temperature Constants MCG-E.A 533

Last Edited on 17-JAN-2020,10:39

Pre-filter Length 11



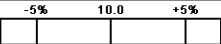
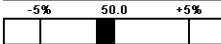
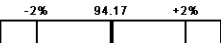
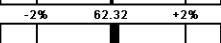
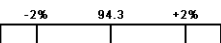
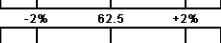
Micro Normal and Micro Inverse Calibration MMR-C.A 230

Base Calibration on 17-JAN-2020,10:38

Field Check on 17-JAN-2020 11:22

	Resistor 1 (ohm)	Resistor 2 (ohm)
	10.0	50.0
Base Calibration		
	Measured	Calibrated (ohm-m)
Micro Normal	9.9 49.4	5.1100 25.5500
Micro Inverse	10.0 49.4	3.3800 16.9000
Channel	Base Check (ohm-m)	Field Check (ohm-m)
Micro Normal	94.3	94.3
Micro Inverse	62.5	62.5

Micro Normal & Micro Inverse Calibration Tolerance MMR-C.A 230

Micro Normal Res. 1	9.9		ohm	Micro Normal Res. 2	49.4		ohm
Micro Inverse Res. 1	10.0		ohm	Micro Inverse Res. 2	49.4		ohm
Micro Normal Base Check	94.3		ohm-m				
Micro Inverse Base Check	62.5		ohm-m				
Micro Normal Field Check	94.3		ohm-m				
Micro Inverse Field Check	62.5		ohm-m				

Micro Normal and Micro Inverse Constants MMR-C.A 230

Last Edited on 17-JAN-2020,10:37

Pad Type 8-12 in Soft Rubber Inflatable 006-9011-159
Micro Normal K Factor 0.5110
Micro Inverse K Factor 0.3380

Micro Inverse RT Factor: 0.0000 inches

Caliper Calibration MMR-C.A 230

Base Calibration on 17-JAN-2020,13:30
Field Calibration on 17-JAN-2020,13:30

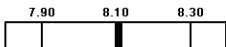
Base Calibration

Reading No	Measured	Calibrator Size (in)
1	13946	5.98
2	17303	7.97
3	20607	9.86
4	24616	11.92
5	0	0.00
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
8.12	8.10

Caliper Calibration Tolerances MMR-C.A 230

Short Arm Field Cal. 8.12  in

Caliper Calibration MPD-D.A 474

Base Calibration on 16-JAN-2020 13:19

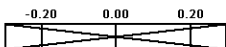
Base Calibration

Reading No	Measured	Calibrator Size (in)
1	15179	3.99
2	23769	5.97
3	32584	7.97
4	40649	9.86
5	50001	11.92
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
-----------------------	---------------------

Caliper Calibration Tolerances MPD-D.A 474

Short Arm Field Cal. 0.00  in

DOWNHOLE EQUIPMENT

C:\LOGS\Colorado\GRAND MESA_DADO 1-21_MAIN PASS_NEW.dta

Cablehead, 11 pin

CBH-CA 172 LG: 2.40 ft WT: 24.3 lb OD: 2.244 in

11C-11B Compact Tool Adaptor

MTA-K.A 335 LG: 1.53 ft WT: 13.2 lb OD: 2.240 in

Compact Comms Gamma

MCG-E.A 533 LG: 8.70 ft WT: 63.9 lb OD: 2.244 in

Compact Micro-Resistivity

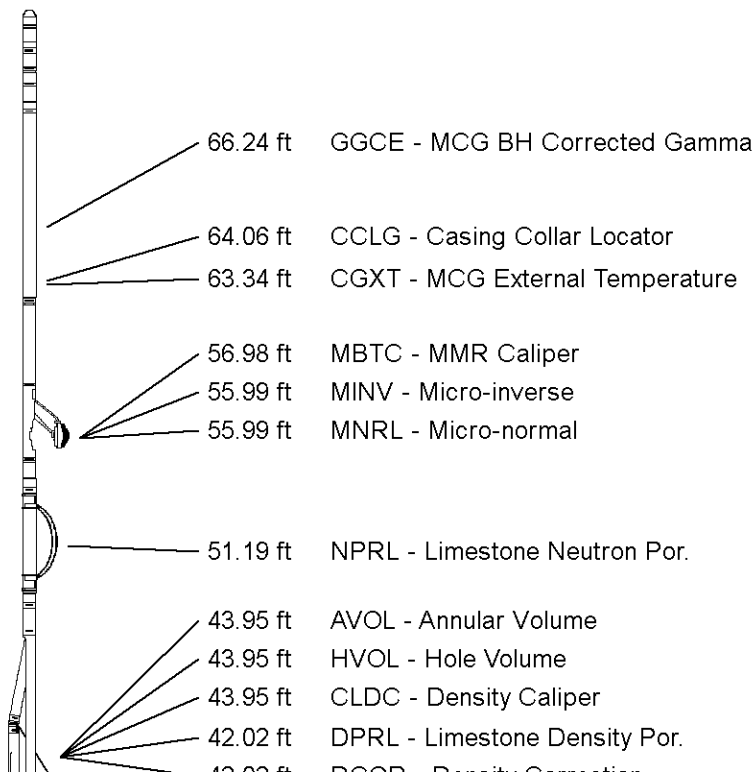
MMR-C.A 230 LG: 8.59 ft WT: 81.6 lb OD: 4.882 in

Compact Neutron

MDN-C.A 399 LG: 5.04 ft WT: 50.7 lb OD: 2.244 in

Compact Density/Caliper

MPD-D.A 474 LG: 9.59 ft WT: 90.4 lb OD: 2.449 in



Compact Vee Arm Caliper
MVC-A.A 146 LG: 8.06 ft WT: 61.7 lb OD: 2.244 in

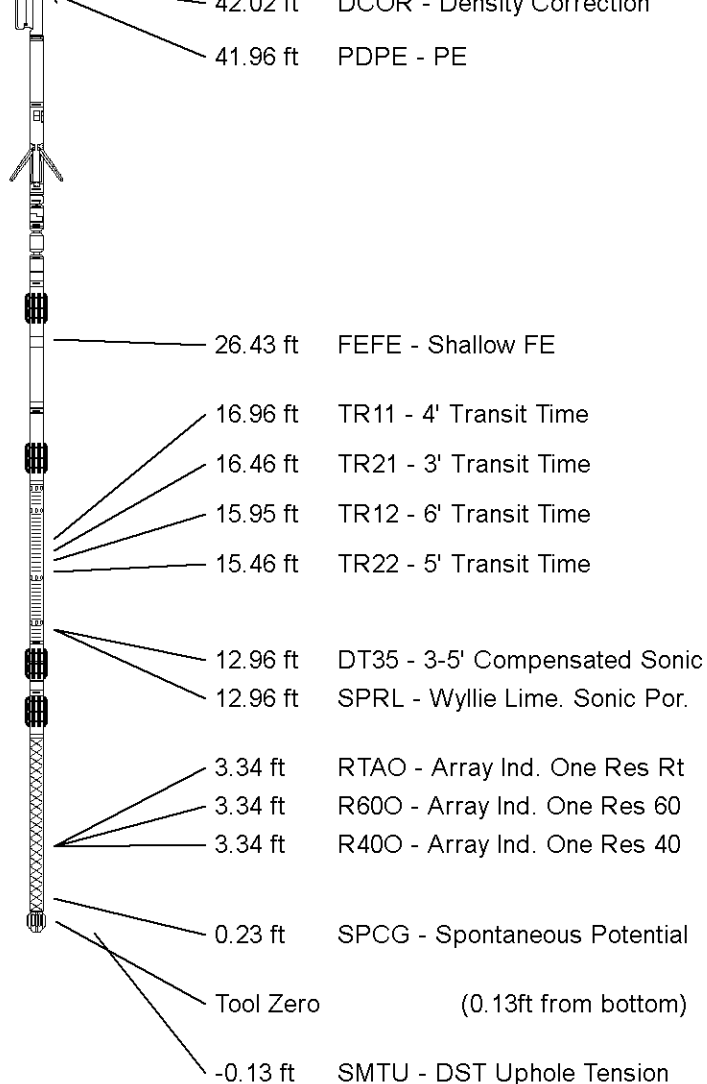
Compact Knuckle Joint
SKJ-E.B 659 LG: 2.17 ft WT: 24.3 lb OD: 2.244 in

Compact Focussed Electric
MFE-C.A 399 LG: 6.05 ft WT: 48.5 lb OD: 2.244 in

Compact Sonic
MSS-D.A 398 LG: 12.52 ft WT: 72.8 lb OD: 2.244 in

Compact Induction
MAI-C.A 517 LG: 10.81 ft WT: 48.5 lb OD: 2.244 in

Total Length: 75.45 ft Weight: 579.8 lb



All measurements relative to tool zero.

COMPANY	GRAND MESA OPERATING COMPANY
WELL	DADO 1-21
FIELD	GUTRU
PROVINCE/COUNTY	LINCOLN
COUNTRY/STATE	COLORADO

Elevation Kelly Bushing	5503	feet	First Reading	8640.00	feet
Elevation Drill Floor	5502	feet	Depth Driller	8655.00	feet
Elevation Ground Level	5484	feet	Depth Logger	8660.00	feet

MICRO RESISTIVITY LOG