

**Weatherford****MICRO-RESISTIVITY
LOG**

COMPANY				MCCOY PETROLEUM COP.			
WELL				HILL A 4-23			
FIELD				ALFORD			
PROVINCE/COUNTY				KIOWA			
COUNTRY/STATE				U.S.A. / KANSAS			
LOCATION				1980' FSL & 660' FWL			
SEC	TWP	RGE	Other Services				
23	30S	19W	MDN/MPD				
API Number		15-097-21761		MAI/MFE			
Permit Number							
Permanent Datum GL, Elevation 2228 feet				Elevations:			
Log Measured From KB				KB 2239.00			
Drilling Measured From KB				DF 2237.00			
				GL 2228.00			
Date	25-JUN-2013						
Run Number	ONE						
Service Order	3540246						
Depth Driller	5200.00			feet			
Depth Logger	5186.00			feet			
First Reading	5152.00			feet			
Last Reading	3900.00			feet			
Casing Driller	610.00			feet			
Casing Logger	608.00			feet			
Bit Size	7.875			inches			
Hole Fluid Type	CHEM						
Density / Viscosity	9.00 lb/USg		68.00 CP				
PH / Fluid Loss	10.50		12.80 ml/30Min				
Sample Source	PIT						
Rm @ Measured Temp	0.30 @ 89.0			ohm-m			
Rmf @ Measured Temp	0.24 @ 89.0			ohm-m			
Rmc @ Measured Temp	0.36 @ 89.0			ohm-m			
Source Rmf / Rmc	CALC		CALC				
Rm @ BHT	0.24 @ 107.0		ohm-m				
Time Since Circulation	5 HRS						
Max Recorded Temp	107.00			deg F			
Equipment / Base	13226		LB				
Recorded By	D. COLE						
Witnessed By	D. WILLIAMS						
JOB#	LB 13						

BOREHOLE RECORD

Last Edited: 24-JUN-2013 22:45

Bit Size inches	Depth From feet	Depth To feet
7.875	610.00	5200.00

CASING RECORD

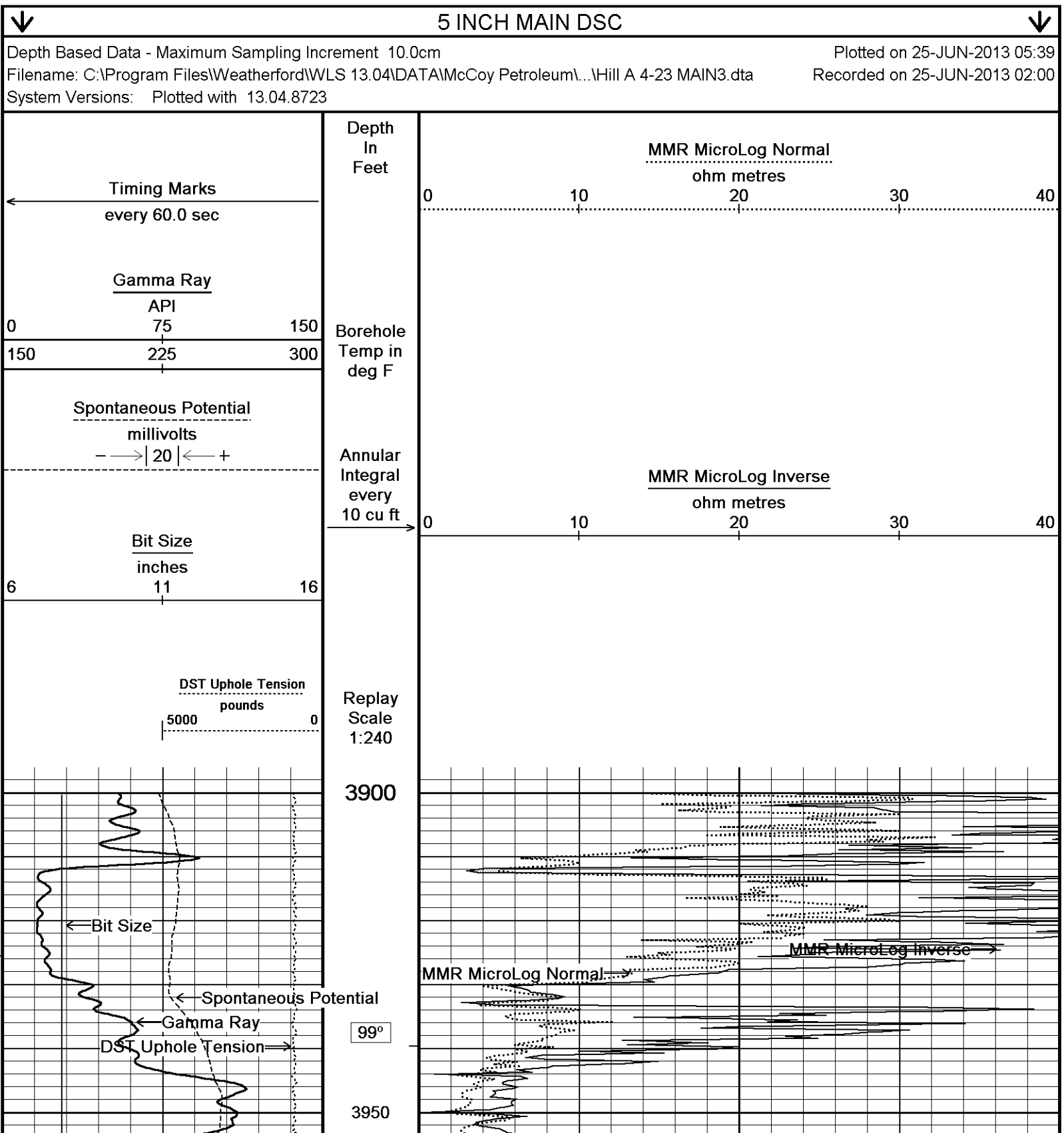
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	610.00	24.00

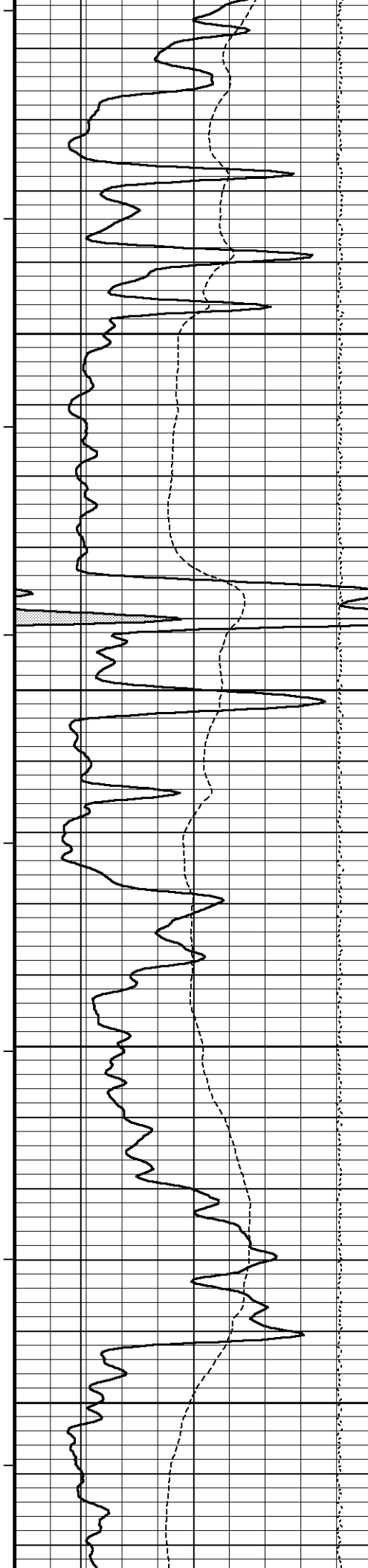
REMARKS

- SOFTWARE ISSUE: WLS 13.04.8492.
- MCG, MML, MDN, MPD, MFE, MAI RAN IN COMBINATION.
 - HARDWARE: DUAL BOWSPRING USED ON MDN.
 - 0.5 INCH STANDOFF USED ON MFE.
 - 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: 2330 CU. FT.
- ANNULAR HOLE VOLUME WITH 4.5 INCH PRODUCTION CASING FROM TD TO 3900 FEET: 300 CU. FT.
- SERVICE ORDER # 3540246

SERVICE ORDER # 0010210
- RIG: STERLING #2.
- ENGINEER: D. COLE
- OPERATOR(S): S. WORLEY

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.





99°

4000

99°

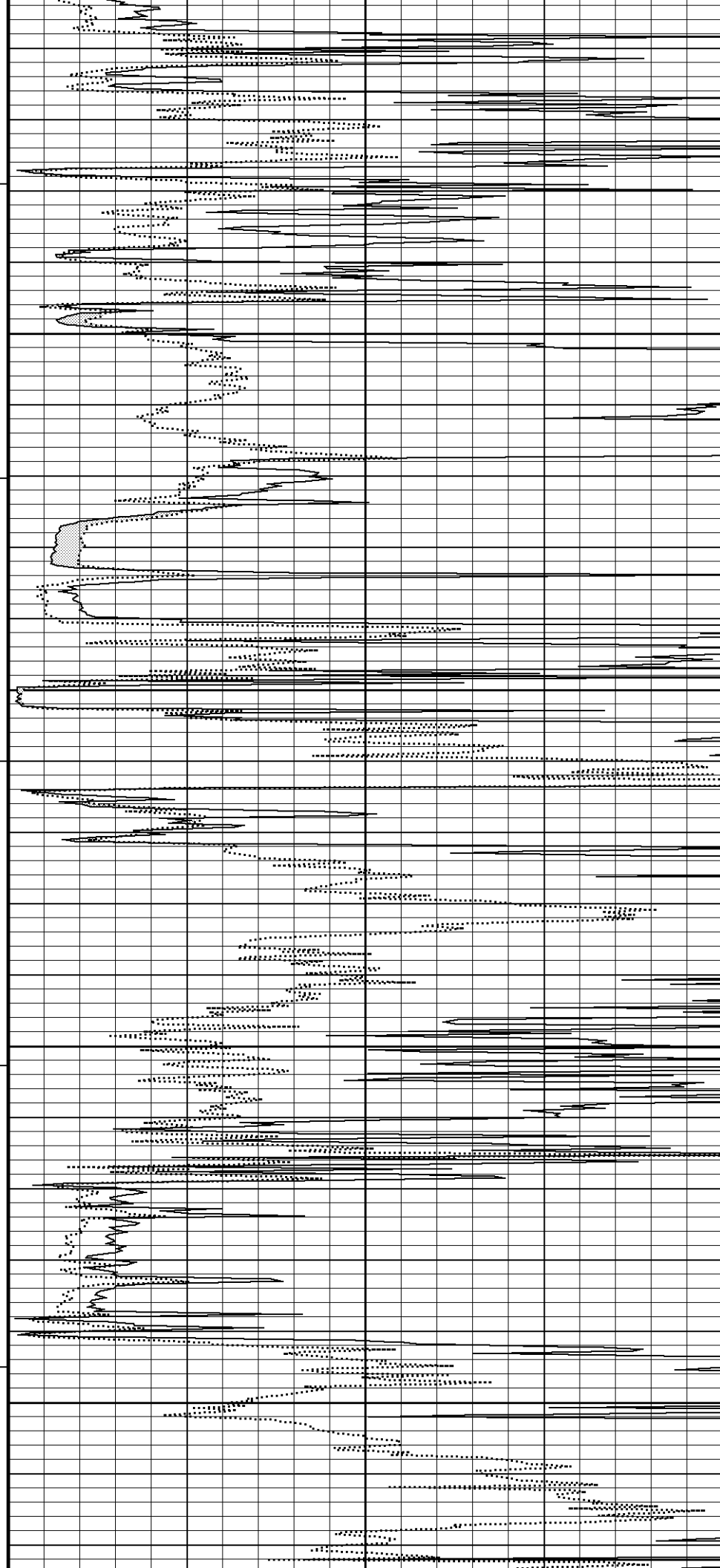
4050

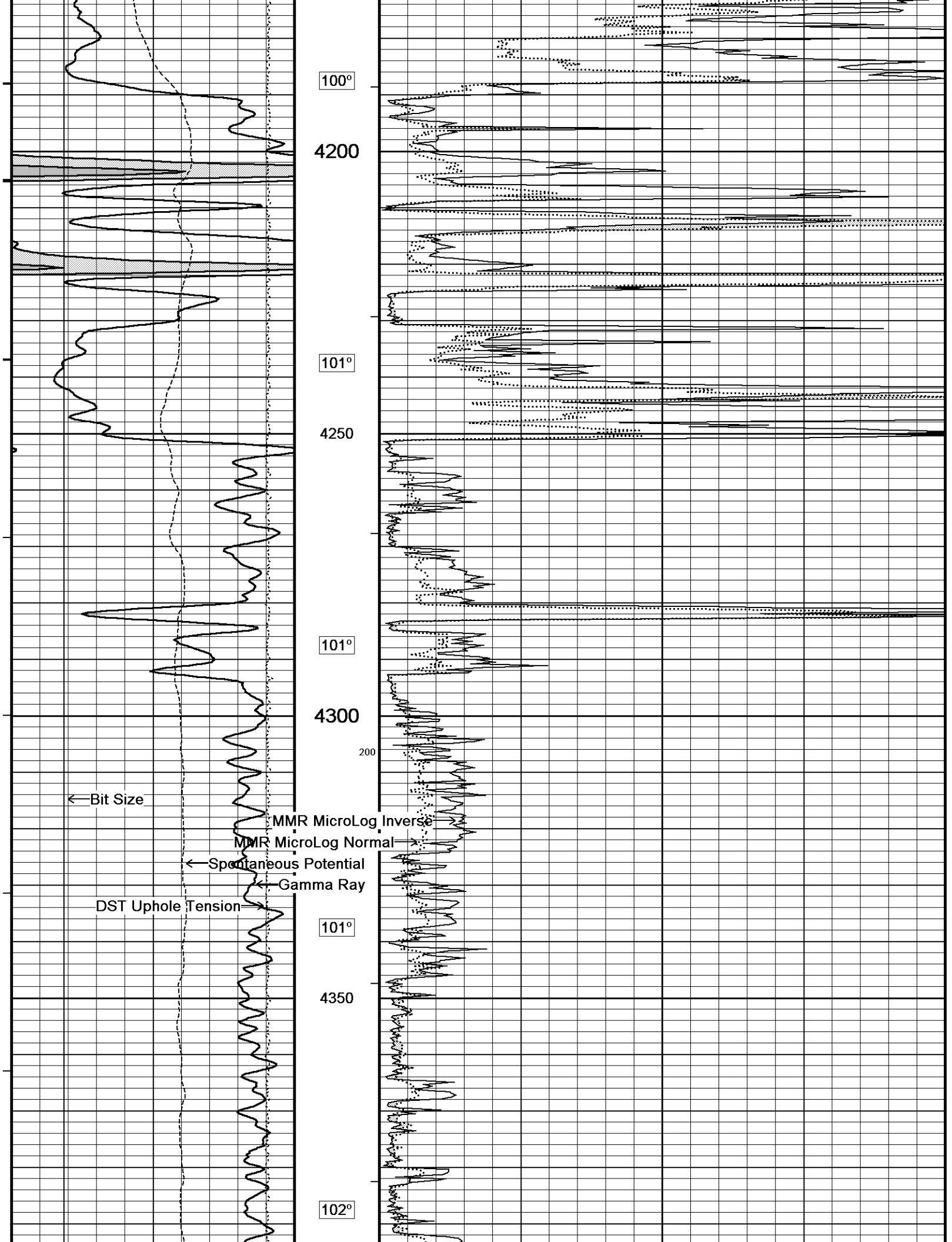
100°

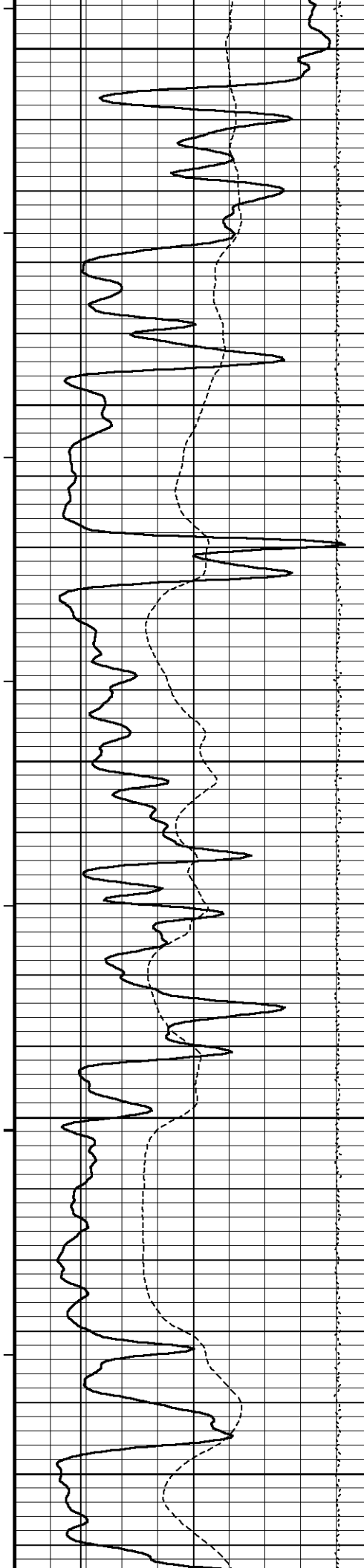
4100

100°

4150







4400

102°

4450

102°

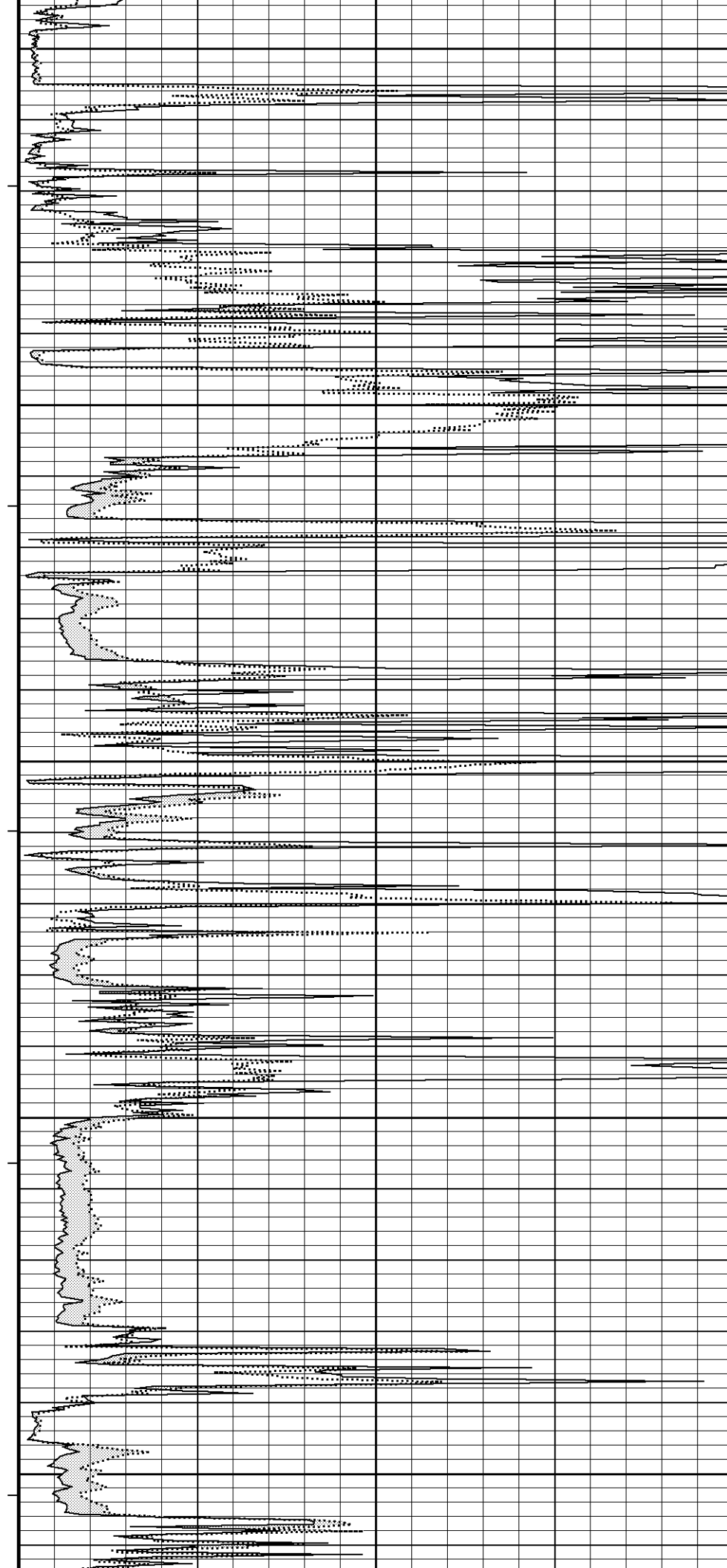
4500

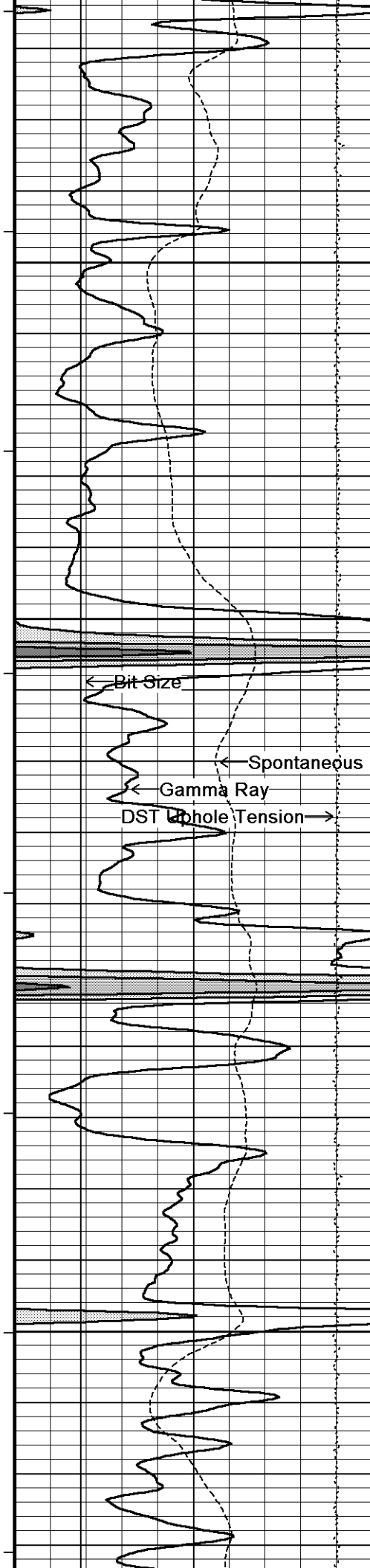
103°

4550

103°

4600





103°

4650

103°

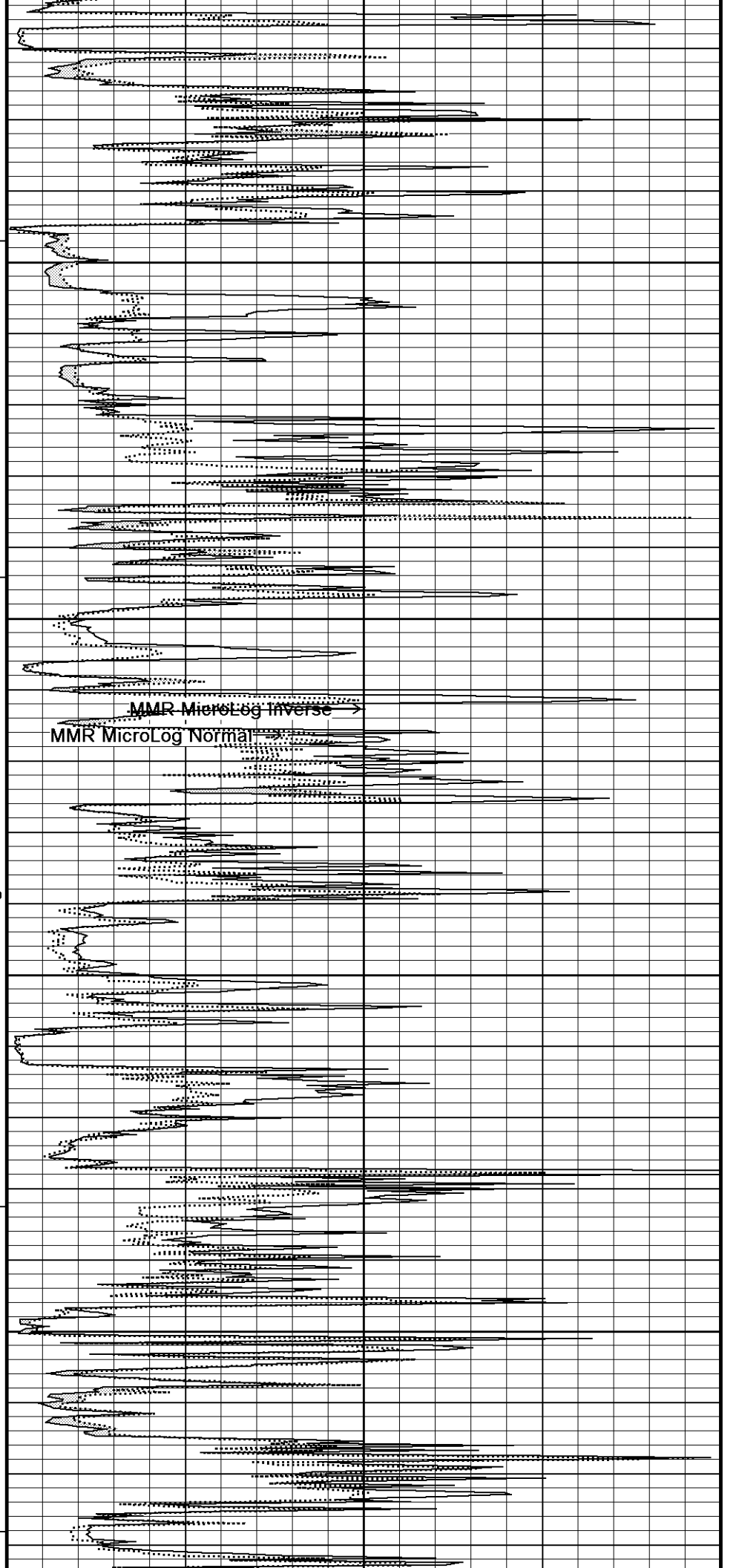
4700

104°

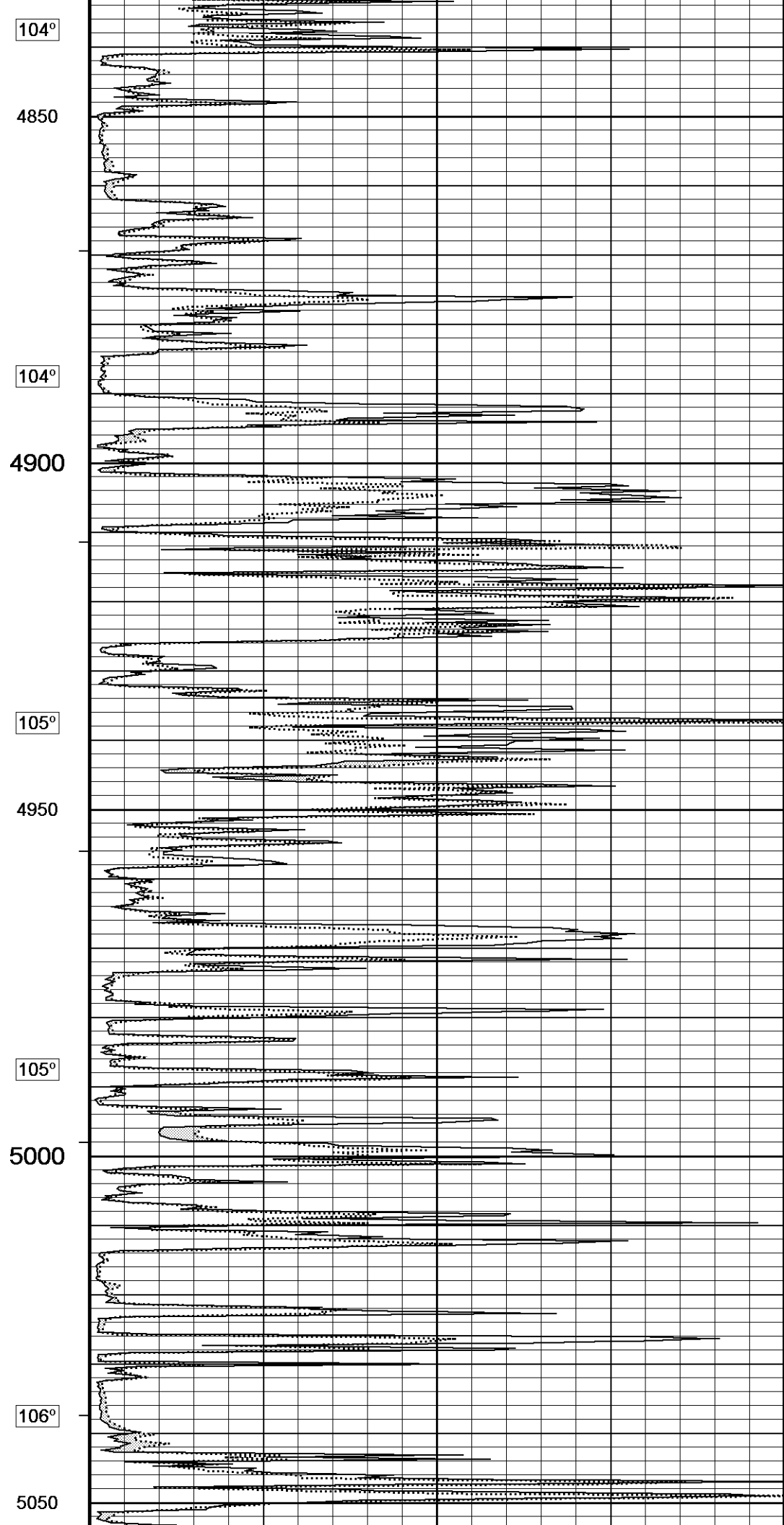
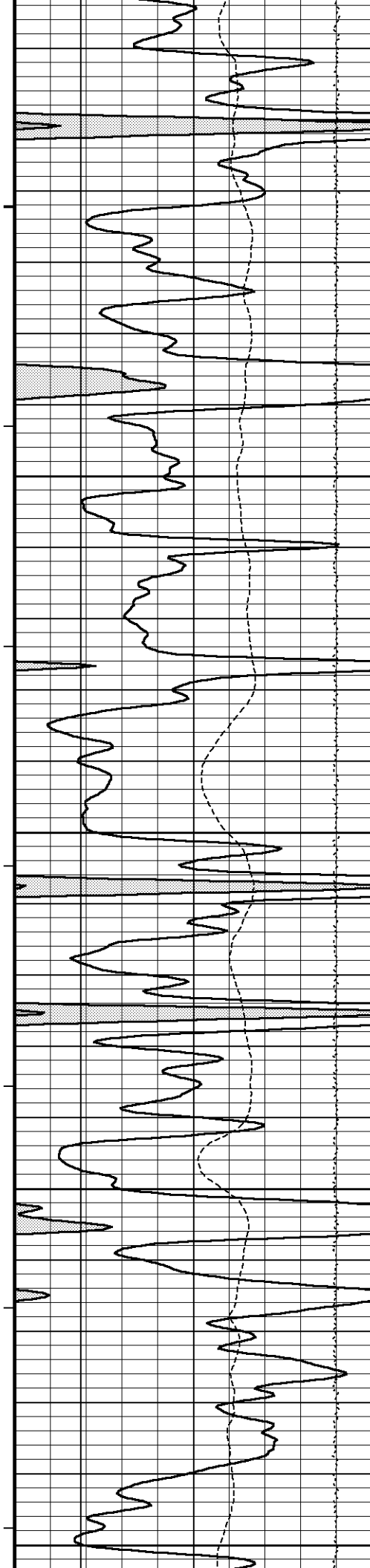
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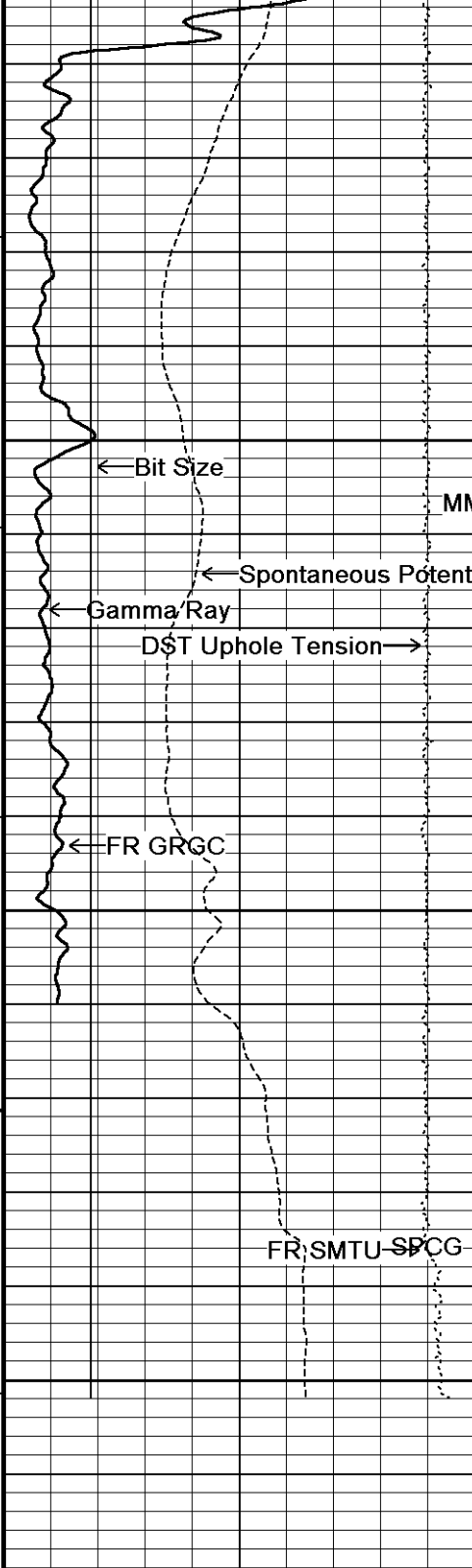
104°

4800



MMR MicroLog Inverse
MMR MicroLog Normal





107°

5100

106°

5150

0

5200

5218

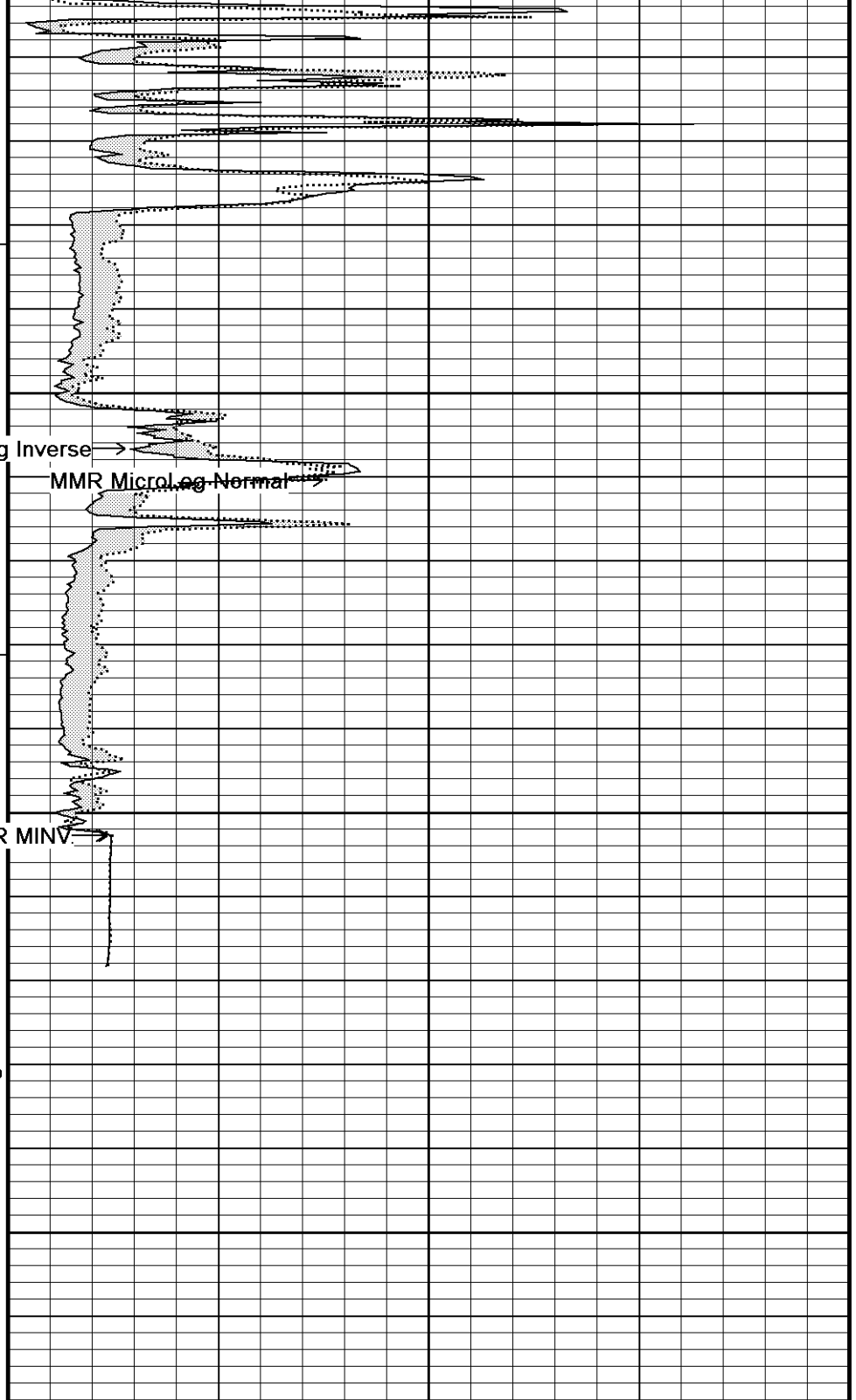
Depth
In
Feet

Timing Marks
every 60.0 sec

Gamma Ray			
API			
0	75	150	
150	225	300	

Spontaneous Potential
millivolts

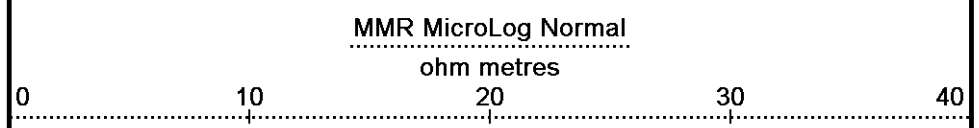
Borehole
Temp in
deg F



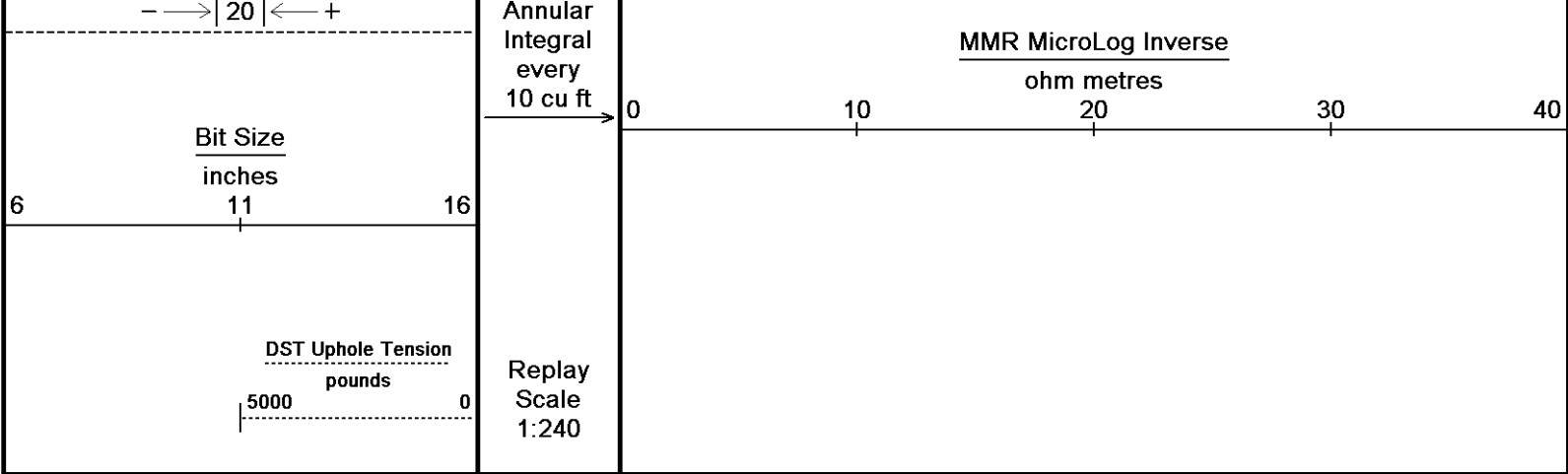
MMR MicroLog Inverse

MMR MicroLog Normal

IFR MINV



MMR MicroLog Normal
ohm metres

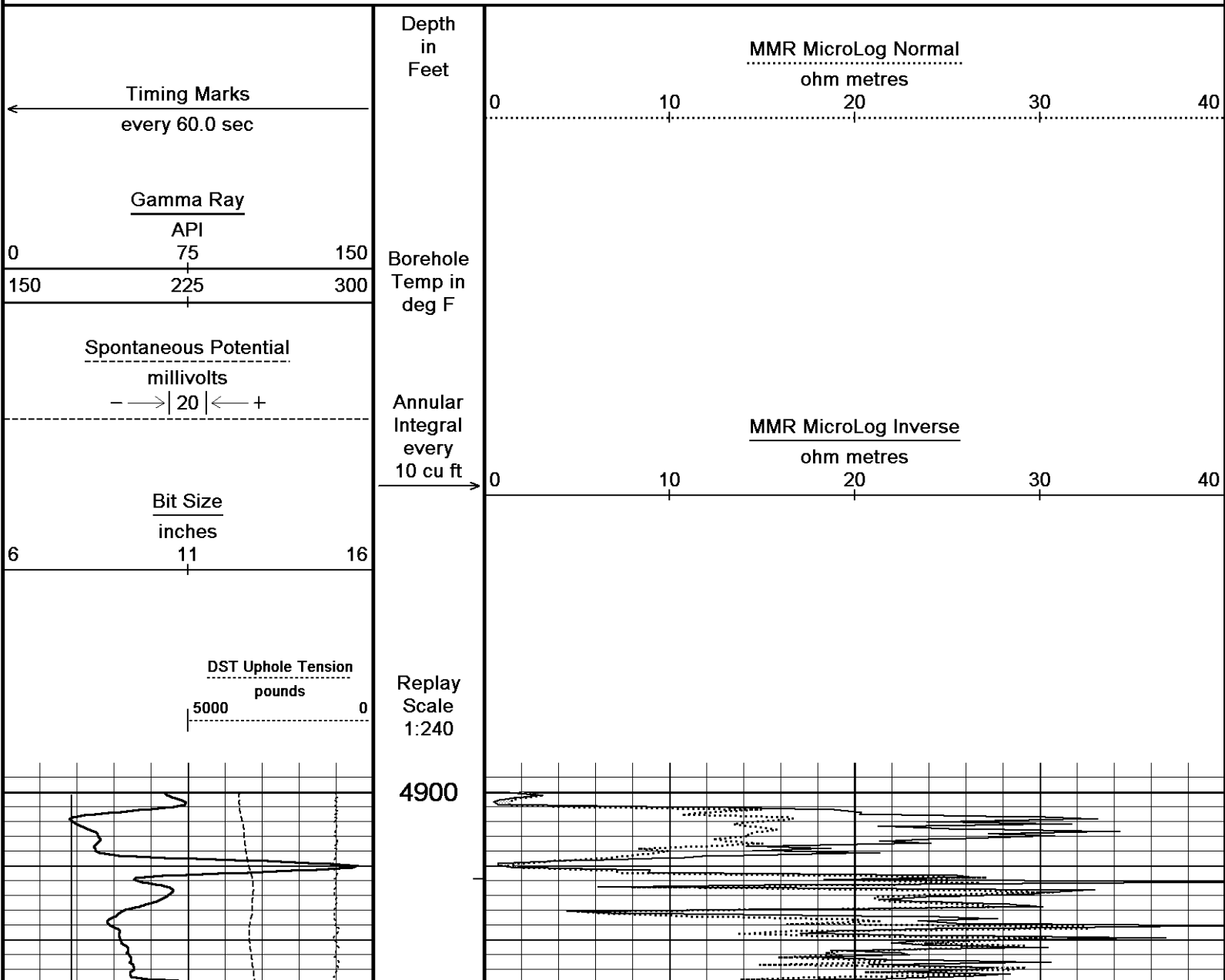


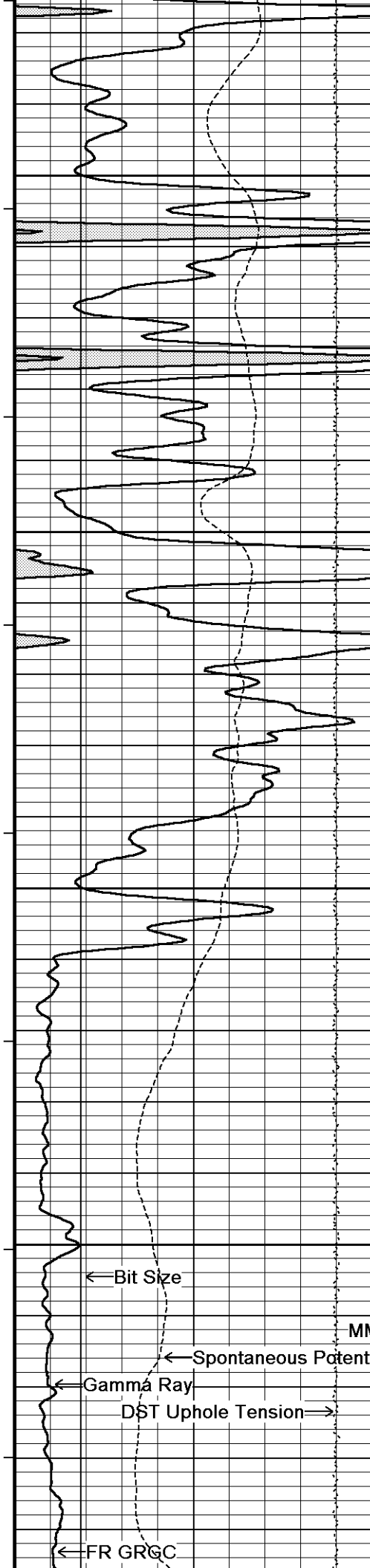
Depth Based Data - Maximum Sampling Increment 10.0cm	Plotted on 25-JUN-2013 05:39
Filename: C:\Program Files\Weatherford\WLS 13.04\DATA\McCoy Petroleum\...\Hill A 4-23 MAIN3.dta	Recorded on 25-JUN-2013 02:00
System Versions: Plotted with 13.04.8723	

↑	5 INCH MAIN DSC	↑
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↓	REPEAT SECTION	↓
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Depth Based Data - Maximum Sampling Increment 10.0cm	Plotted on 25-JUN-2013 05:39
Filename: C:\Program Files\Weatherford\WLS 13.04\DATA\McCoy Petroleum\...\Hill A 4-23 REPEAT2.dta	Recorded on 25-JUN-2013 01:37
System Versions: Logged with 13.04.8723 Processed with 13.04.8723 Plotted with 13.04.8723	





104°

4950

105°

5000

105°

5050

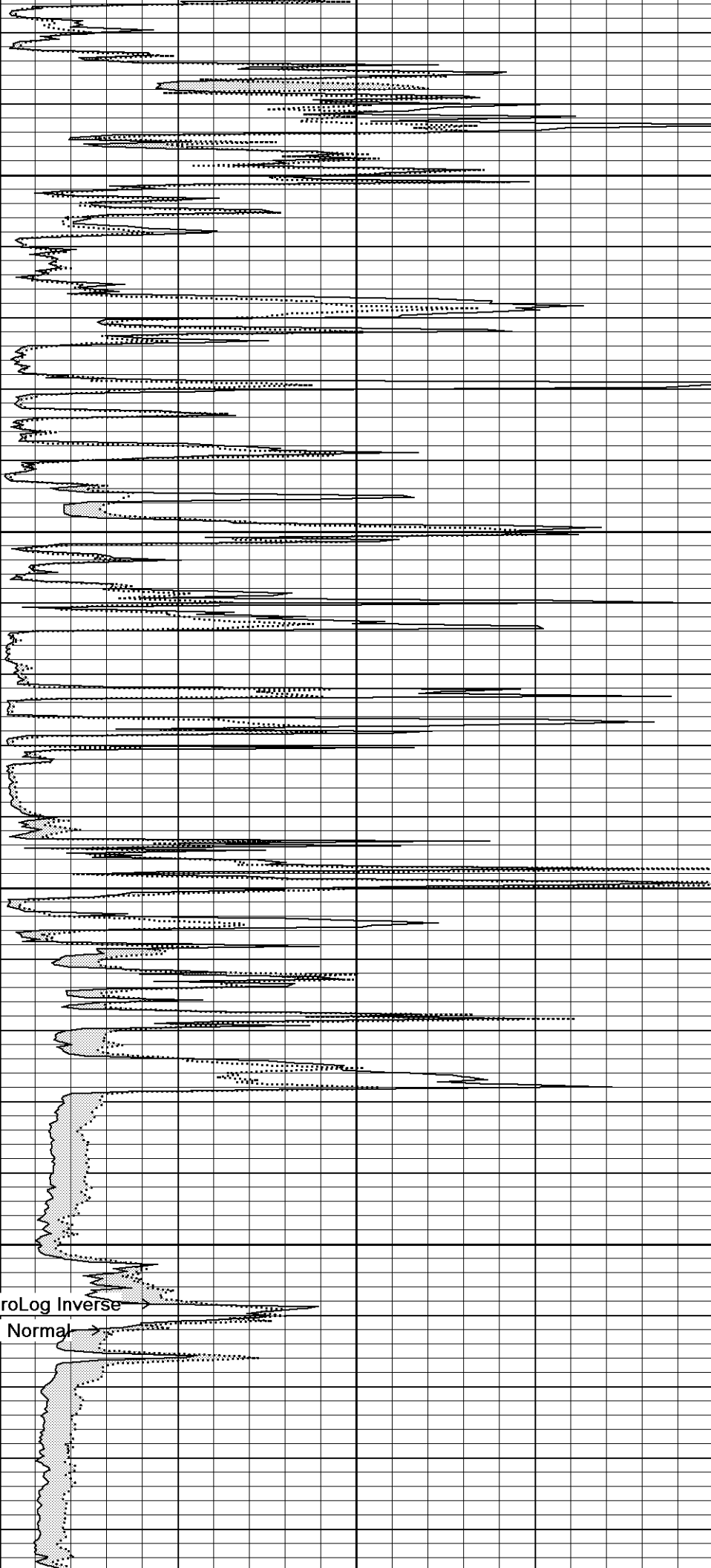
106°

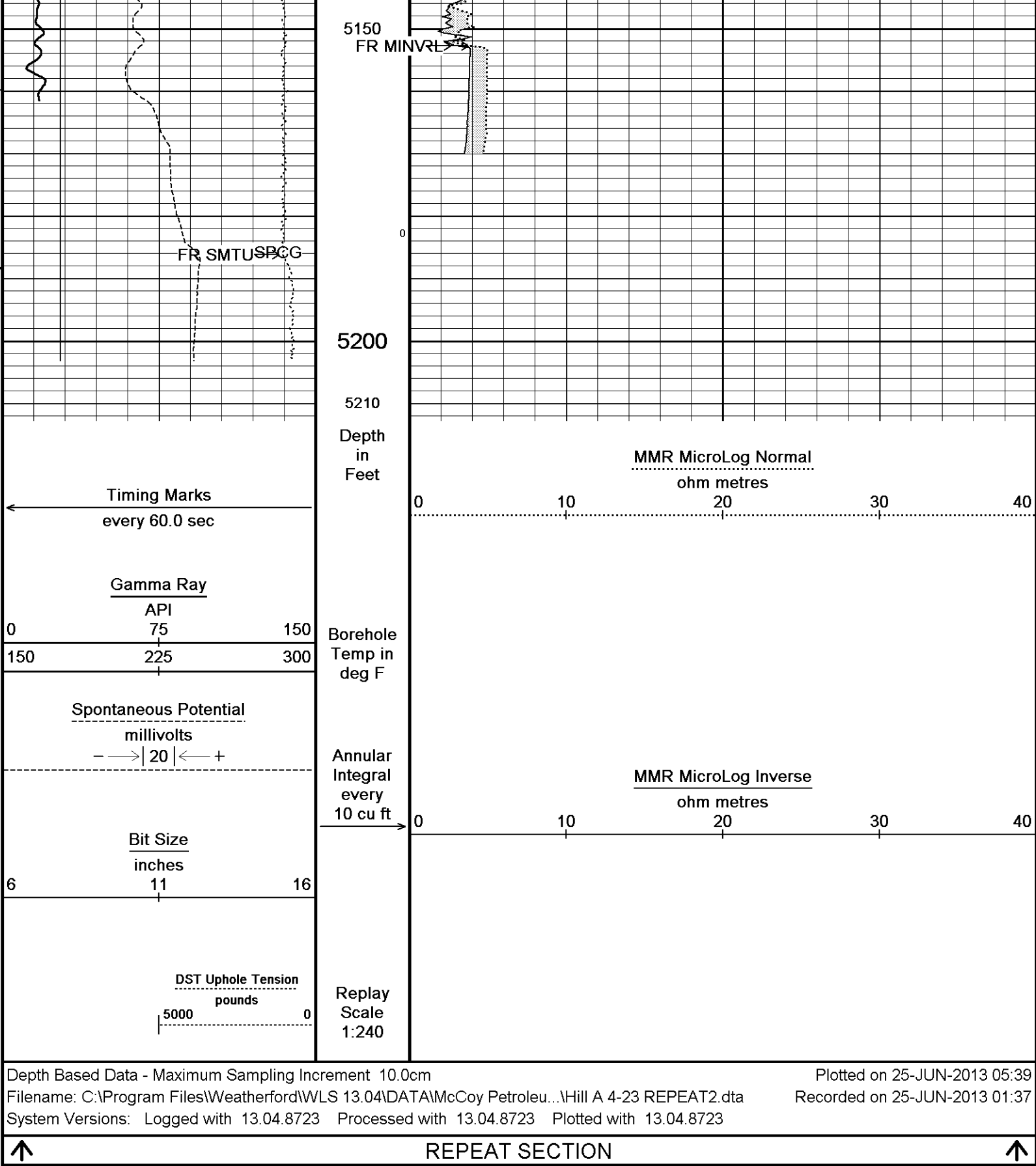
5100

106°

MMR MicroLog Inverse

MMR MicroLog Normal





BEFORE SURVEY CALIBRATION		
C:\Program Files\Weatherford\WLS 13.04\DATA\McCoy Petroleum\Hill A #4-23\Hill A 4-23 MAIN.dta		
General Constants All 000		Last Edited on 25-JUN-2013,00:54
General Parameters		
Mud Resistivity	0.300	ohm-metres
Mud Resistivity Temperature	89.000	degrees F
Water Level	0.000	feet

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		4.500	inches
Caliper for Differential Caliper		Density Caliper	
Rwa Parameters			
Porosity used		Limestone Density Por.	
Resistivity used		Array Ind. One Res Rt	
RWA Constant A		0.610	
RWA Constant M		2.150	
High Resolution Temperature Calibration MCG-D.K 430			Field Calibration on 23-JUN-2013,10:32
	Measured	Calibrated(Deg F)	
Lower	50.00	50.00	
Upper	100.00	100.00	
High Resolution Temperature Constants MCG-D.K 430			Last Edited on 23-JUN-2013,10:32
Pre-filter Length		11	
Gamma Calibration MCG-D.K 430			Field Calibration on 25-JUN-2013,00:54
	Measured	Calibrated (API)	
Background	38	25	
Calibrator (Gross)	1928	1286	
Calibrator (Net)	1890	1261	
Gamma Constants MCG-D.K 430			Last Edited on 24-JUN-2013,22:36
Gamma Calibrator Number		26	
Mud Density		1.08	gm/cc
Caliper Source for Processing		Density Caliper	
Tool Position		Eccentred	
Concentration of KCl		0.00	kppm
Micro Normal and Micro Inverse Calibration MML-A 7			Base Calibration on 23-JUN-2013,10:32 Field Check on 25-JUN-2013 00:32
Base Calibration			
Channel	Resistor 1	Measured Resistor 2	Calibrated (ohm-m) Resistor 1 Resistor 2
Micro Normal	12.1	59.7	5.0 25.0
Micro Inverse	15.6	77.9	5.0 25.0
Channel	Base Check (ohm-m)		Field Check (ohm-m)
Micro Normal	63.4		63.4
Micro Inverse	48.5		48.5
Micro Normal and Micro Inverse Constants MML-A 7			Last Edited on 25-JUN-2013,00:31
Pad Type		8-12 in Soft Rubber Inflatable 006-9011-159	
Micro Normal K Factor		1.0000	
Micro Inverse K Factor		1.0000	
Standoff Offset		N/A	inches
Caliper Calibration MPD-B 164			Base Calibration on 23-JUN-2013,10:35 Field Calibration on 25-JUN-2013 00:51
Base Calibration			
Reading No	Measured		Calibrator Size (in)
1	15136		3.98
2	23712		5.96
3	32304		7.99
4	40465		9.84
5	49712		11.92
6	N/A		N/A
Field Calibration			
	Measured Caliper (in)		Actual Caliper (in)
	8.50		8.10

DOWNHOLE EQUIPMENT

C:\Program Files\Weatherford\WLS 13.04\DATA\McCoy Petroleum\Hill A #4-23\Hill A 4-23 MAIN.dta

CBH-C, Cablehead, 11 pin
CBH-C 0 LG: 2.40 ft WT: 24.3 lb OD: 2.24 in

SHA-J.A Compact Swivel Head Adaptor
SHA-J.A 431 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

Compact Comms Gamma
MCG-D.K 430 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Compact Micro-log
MML-A 7 LG: 7.97 ft WT: 81.6 lb OD: 2.24 in

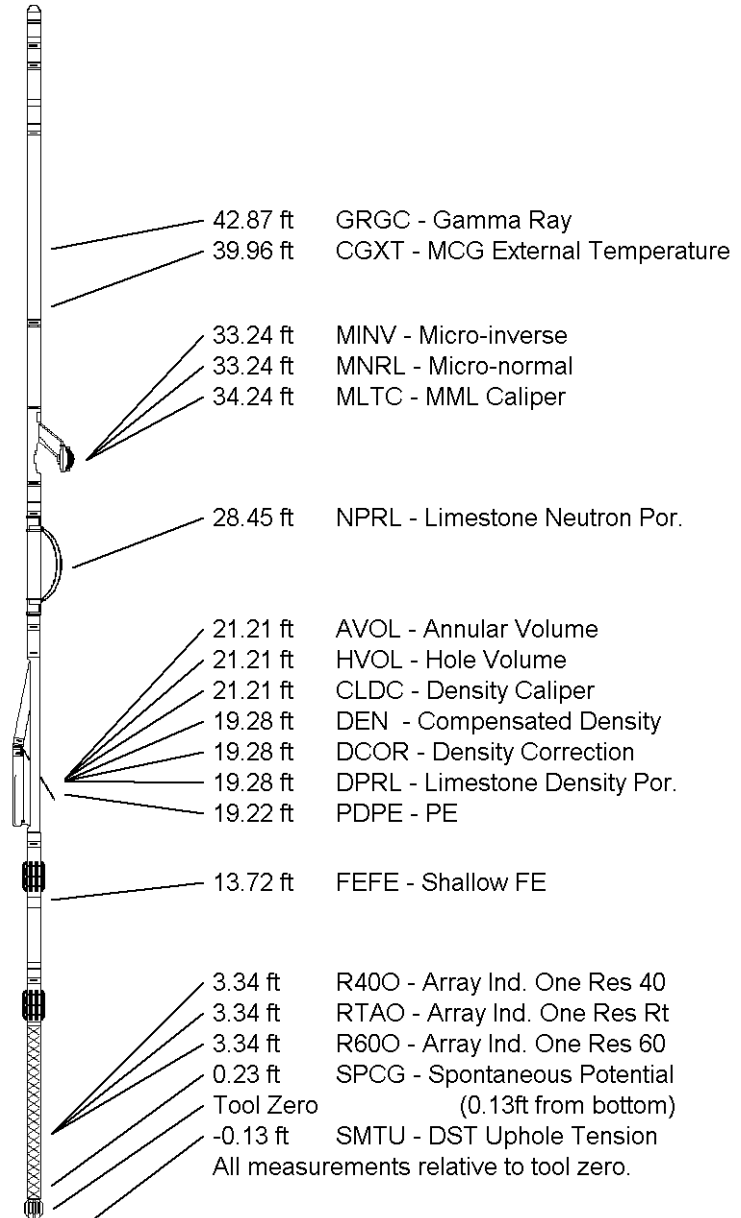
Compact Neutron
MDN-A.B 64 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper
MPD-B 164 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

Compact Focussed Electric
MFE-A.A 5 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

Compact Induction
MAI-A.A 166 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 52.85 ft Weight: 429.9 lb



COMPANY	MCCOY PETROLEUM COP.
WELL	HILL A 4-23
FIELD	ALFORD
PROVINCE/COUNTY	KIOWA
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	2239.00	feet	First Reading	5152.00	feet
Elevation Drill Floor	2237.00	feet	Depth Driller	5200.00	feet
Elevation Ground Level	2228.00	feet	Depth Logger	5186.00	feet



MICRO-RESISTIVITY

LOG

Weatherford®

