



Weatherford

MICRORESISTIVITY LOG

COMPANY				GRAND MESA OPERATING COMPANY			
WELL				E & E #2-34			
FIELD				WILDCAT			
PROVINCE/COUNTY				LOGAN			
COUNTRY/STATE				U.S.A. / KANSAS			
LOCATION				2078' FSL & 1667' FWL			
SEC	TWP	RGE	Other Services		MAI/MFE		
34	13S	32W	MPD/MDN				
API Number		15-109-21177					
Permit Number							
Permanent Datum GL, Elevation 2906 feet					Elevations: KB 2917.00 DF 2916.00 GL 2906.00		
Log Measured From KB							
Drilling Measured From KB							
Date	25-MAY-2013						
Run Number	ONE						
Service Order	3537751						
Depth Driller	4640.00			feet			
Depth Logger	4640.00			feet			
First Reading	4607.00			feet			
Last Reading	3600.00			feet			
Casing Driller	230.00			feet			
Casing Logger	225.00			feet			
Bit Size	7.875			inches			
Hole Fluid Type	CHEMICAL						
Density / Viscosity	9.50 lb/USg		57.00 CP				
PH / Fluid Loss	9.00		9.60 ml/30Min				
Sample Source	FLOWLINE						
Rm @ Measured Temp	0.58 @ 99.0		ohm-m				
Rmf @ Measured Temp	0.46 @ 99.0		ohm-m				
Rmc @ Measured Temp	0.70 @ 99.0		ohm-m				
Source Rmf / Rmc	CALC	CALC					
Rm @ BHT	0.49 @117.0		ohm-m				
Time Since Circulation	4 HOURS						
Max Recorded Temp	117.00		deg F				
Equipment / Base	13096		LIB				
Recorded By	ADAM SILL						
Witnessed By	STEVE CARL						
JOB #	LB13-148						

BOREHOLE RECORD

Last Edited: 25-MAY-2013 03:56

Bit Size inches	Depth From feet	Depth To feet
7.875	230.00	4640.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	230.00	24.00

REMARKS

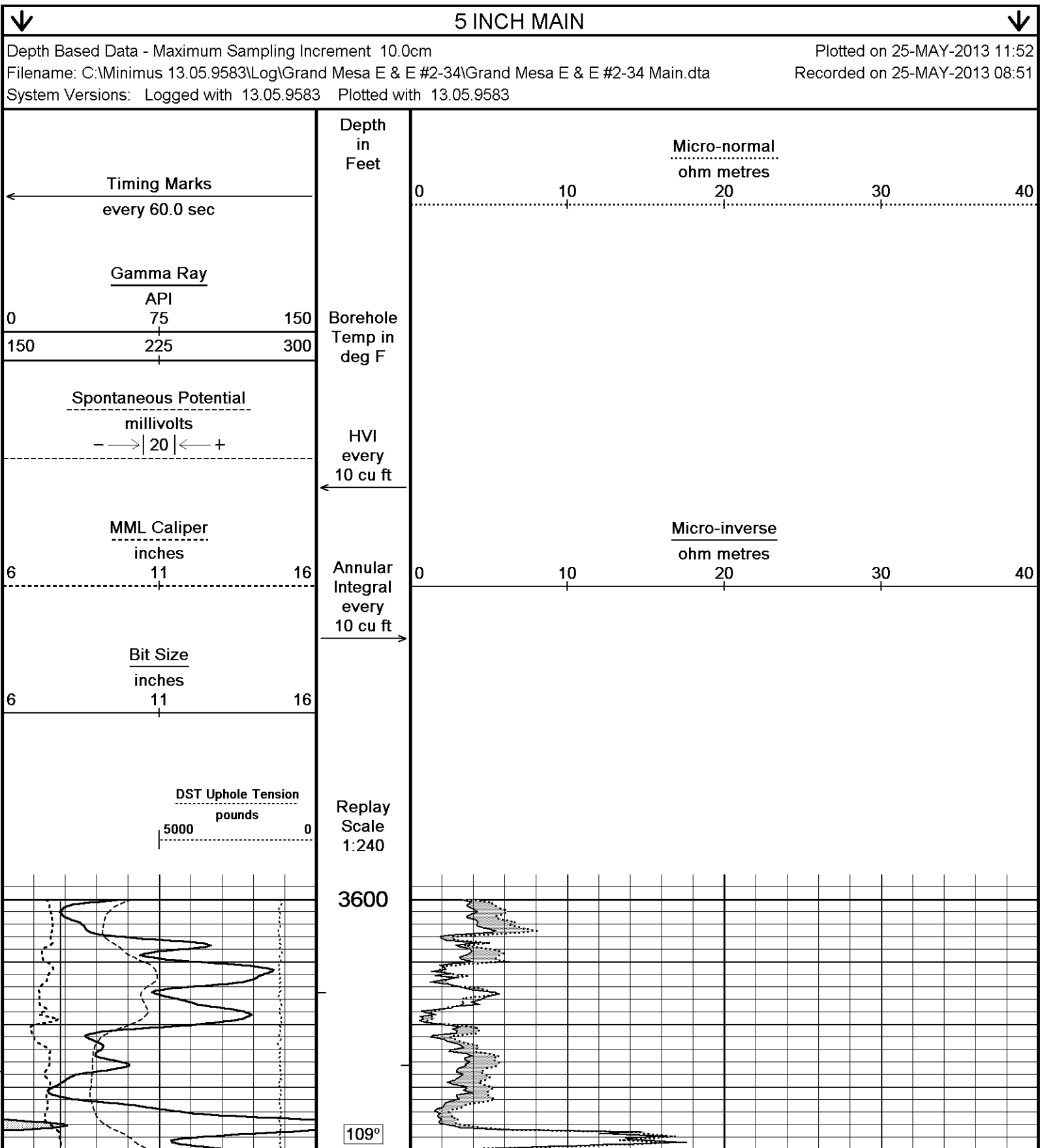
- SOFTWARE ISSUE: WLS 13.05.9583.
- MCG, MML, MDN, MPD, MFE, MAI RUN IN COMBINATION.
 - HARDWARE: DUAL BOWSPRING USED ON MDN.
 - 0.5 INCH STANDOFF USED ON MFE.
 - 0.5 INCH STANDOFF USED ON MAI.
- 2.71 G/CC LIMESTONE DENSITY MATRIX USED TO CALCULATE POROSITY.
- BOREHOLE RUGOSITY, TIGHT PULLS, AND WASHOUTS WILL AFFECT DATA QUALITY.
- ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST.
- TOTAL HOLE VOLUME FROM TD TO SURFACE CASING: 1902 CU. FT.
- ANNULAR HOLE VOLUME WITH 5.5 INCH CASING FROM TD TO 3600 FEET: 195 CU. FT.
- RIG: H-2 DRILLING #2

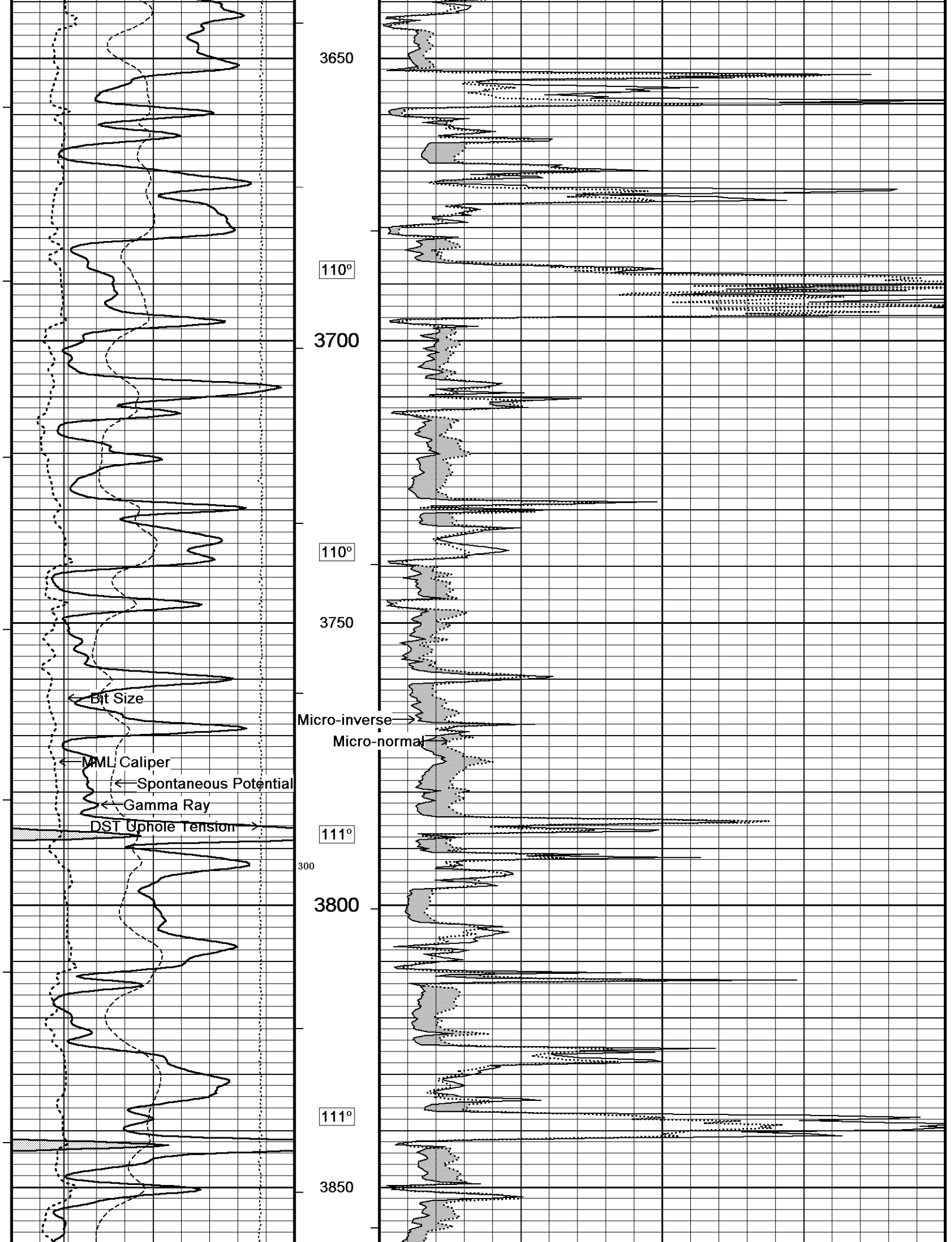
RIOT #2 DRILLING #2:

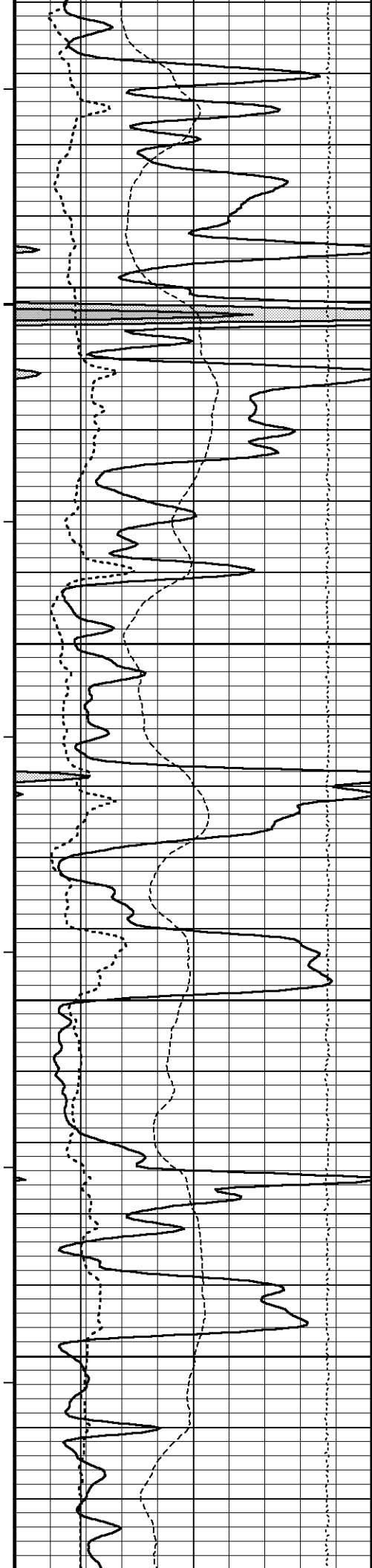
- ENGINEER: A. SILL.

- OPERATOR(S): N. ADAME.

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.







111°

3900

111°

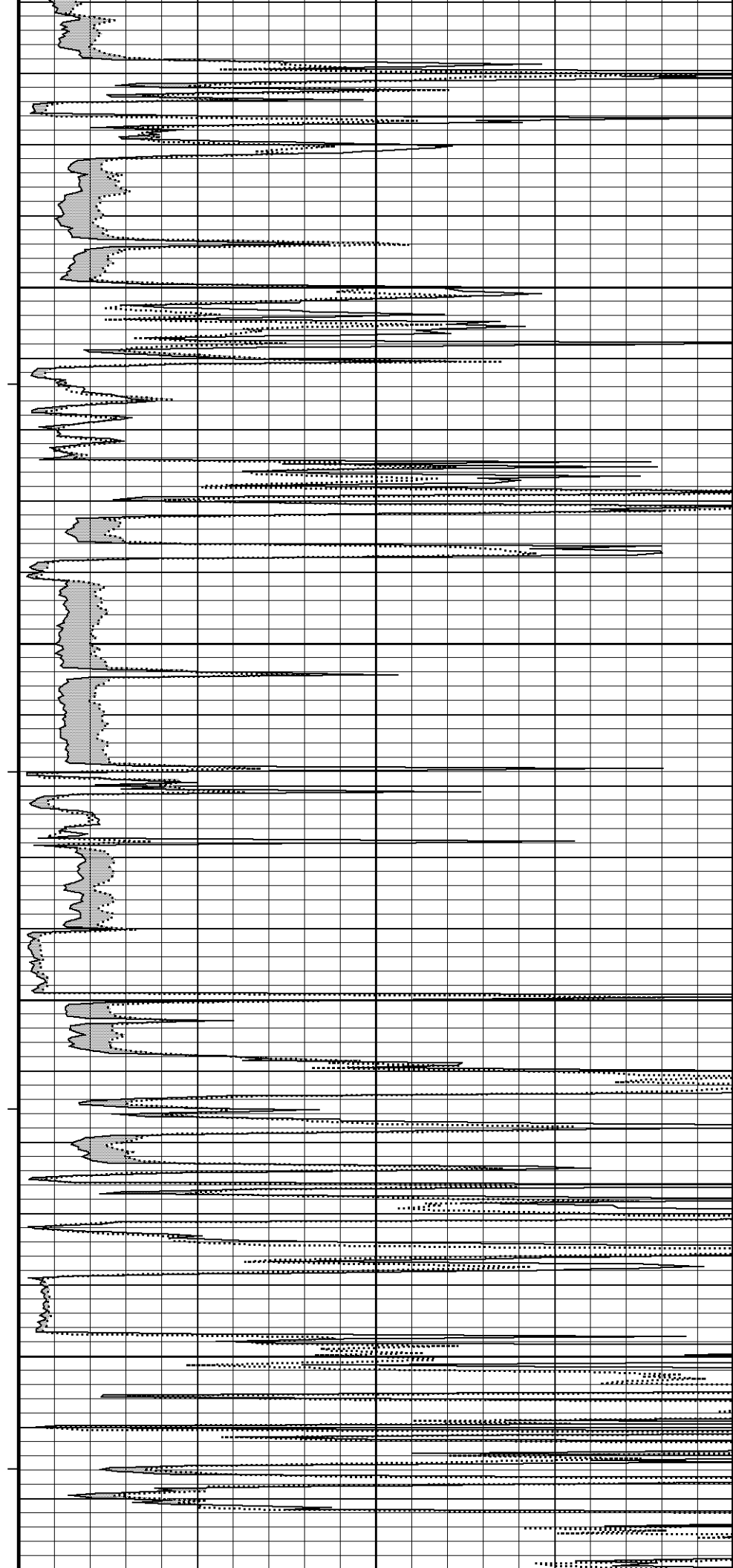
3950

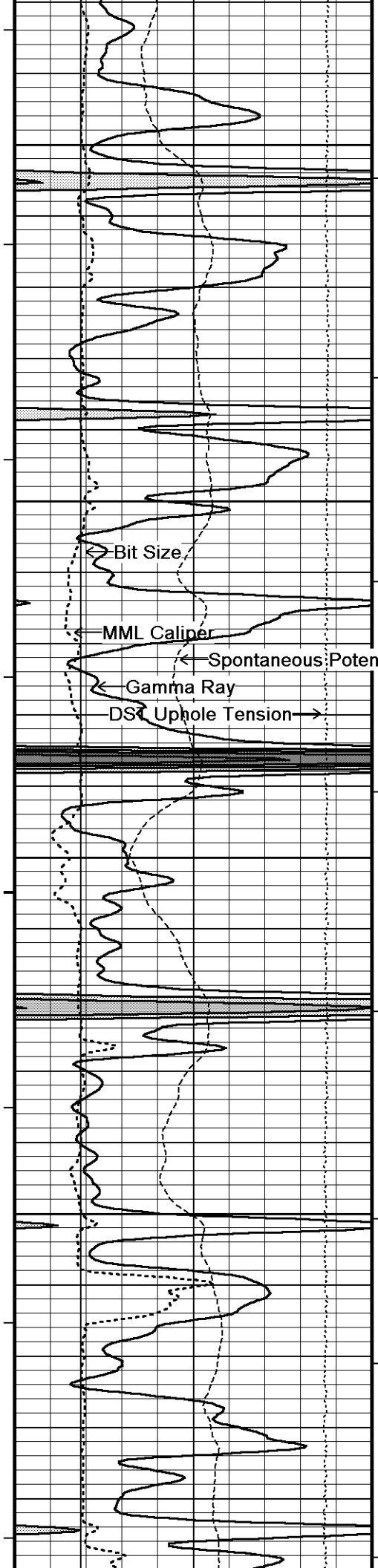
112°

4000

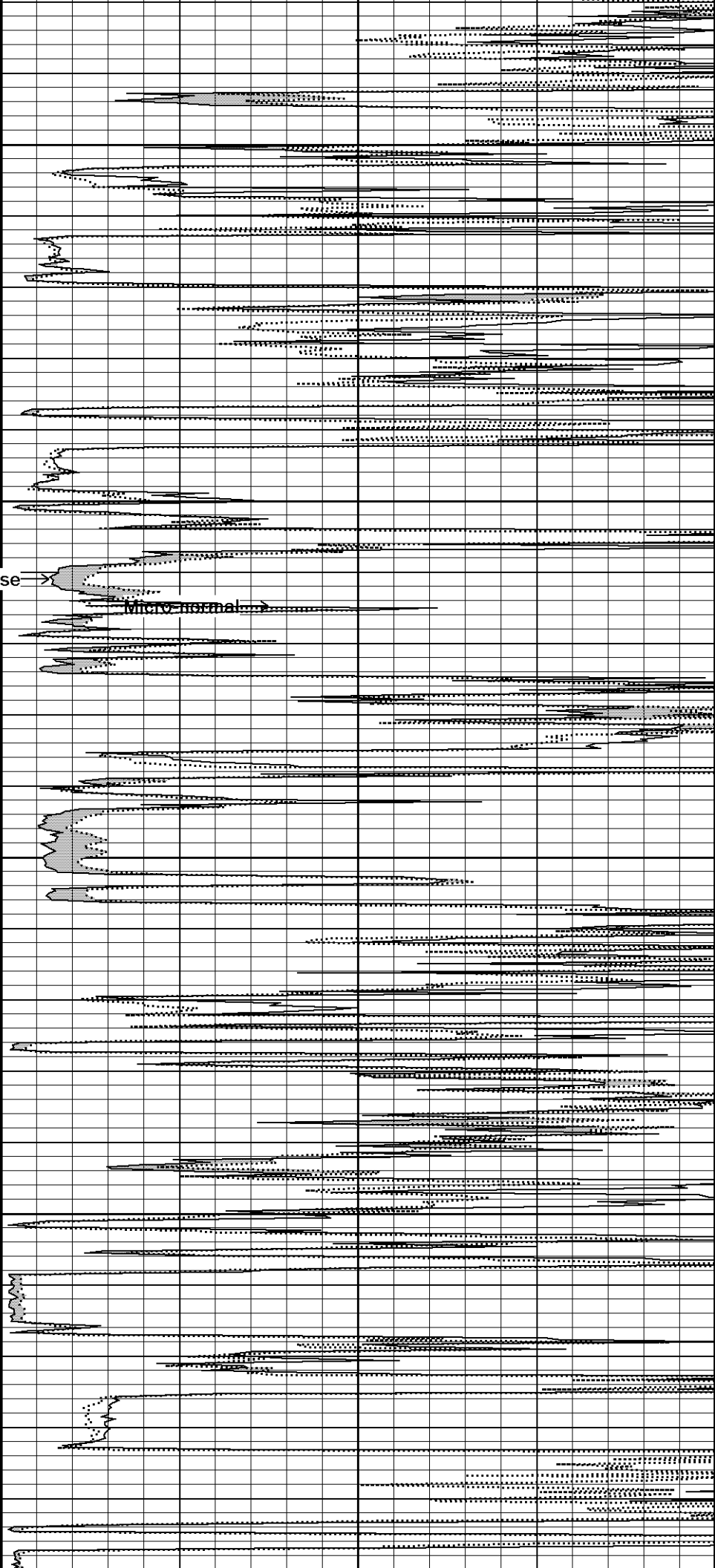
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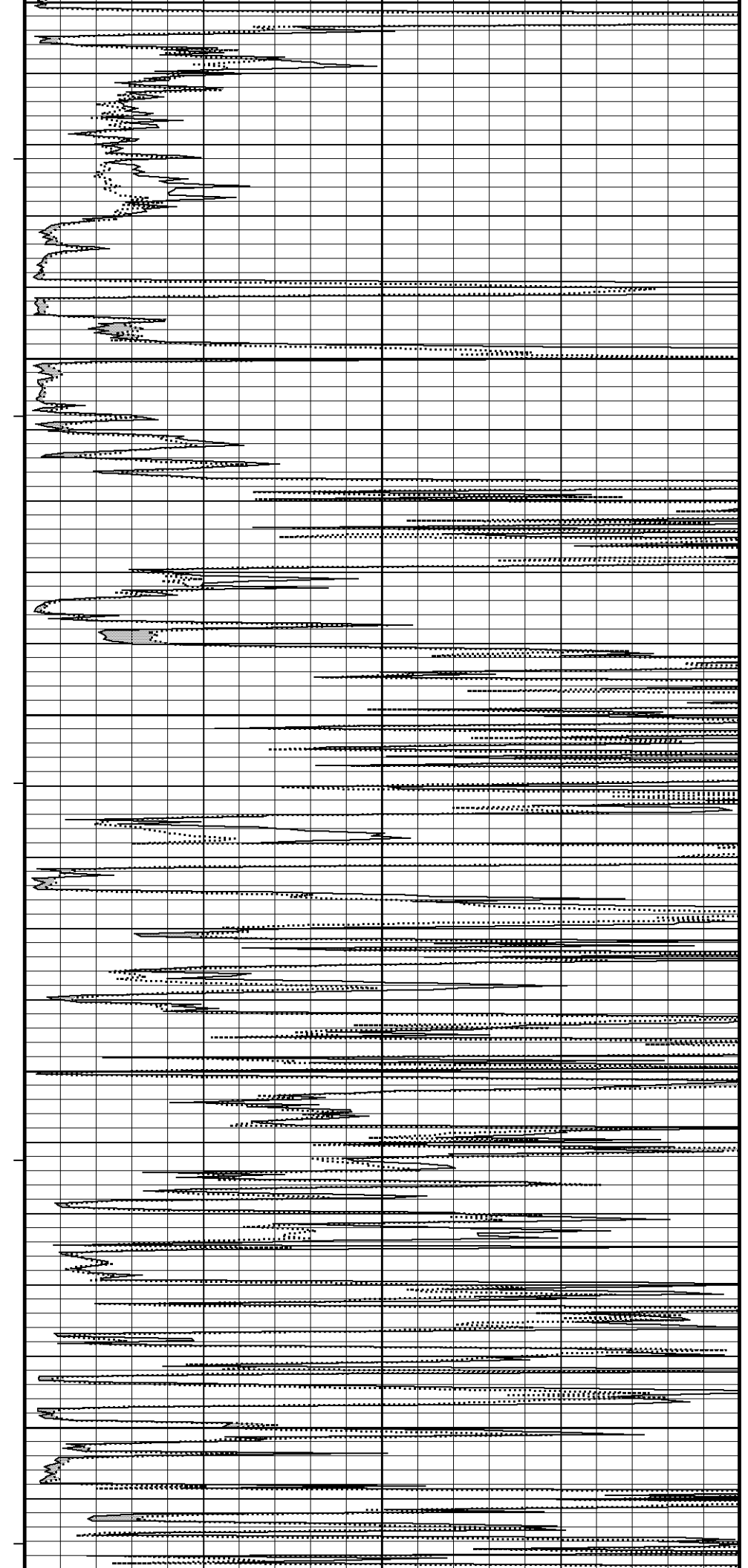
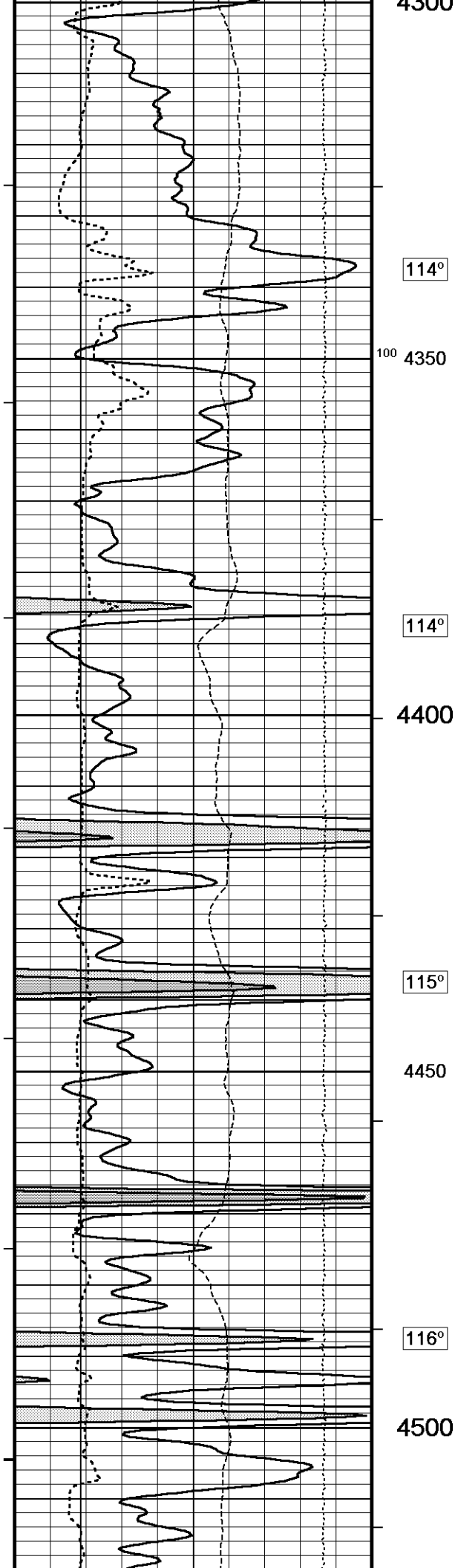
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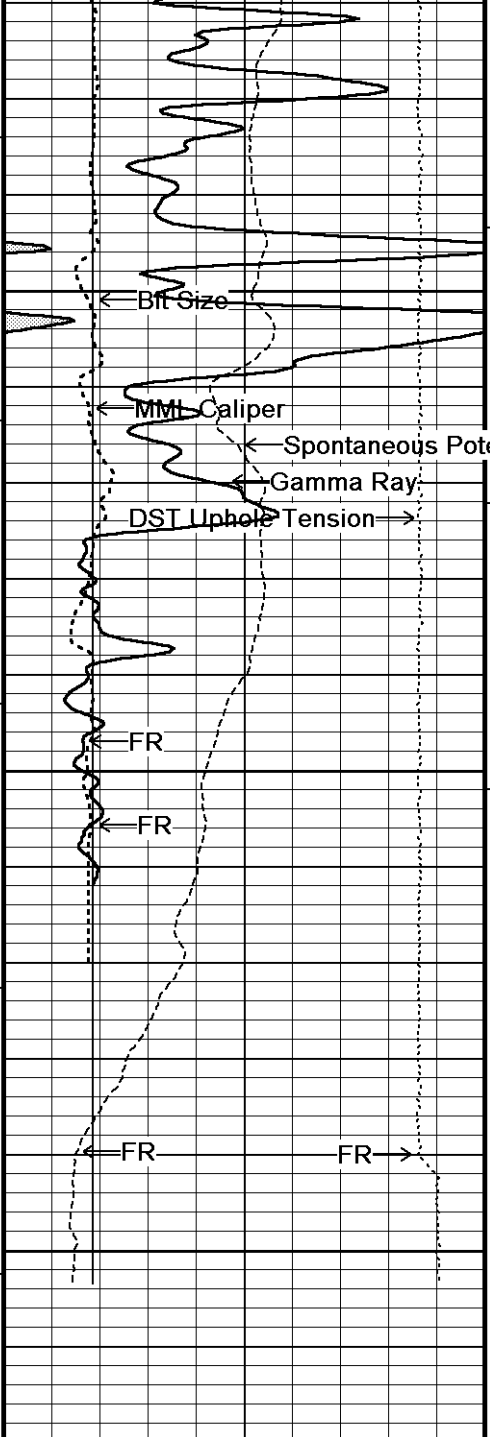




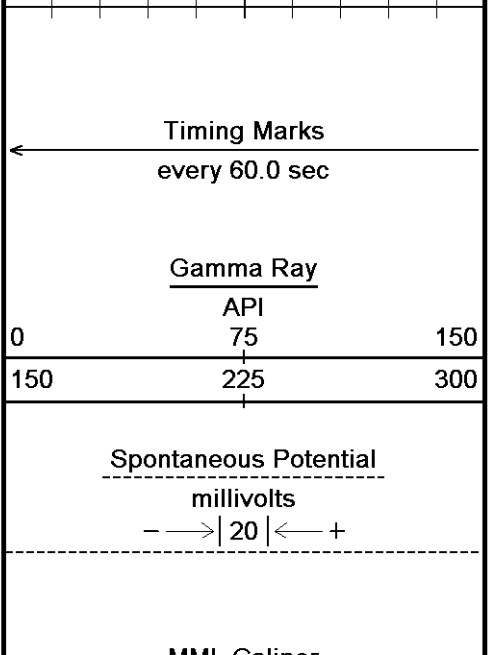
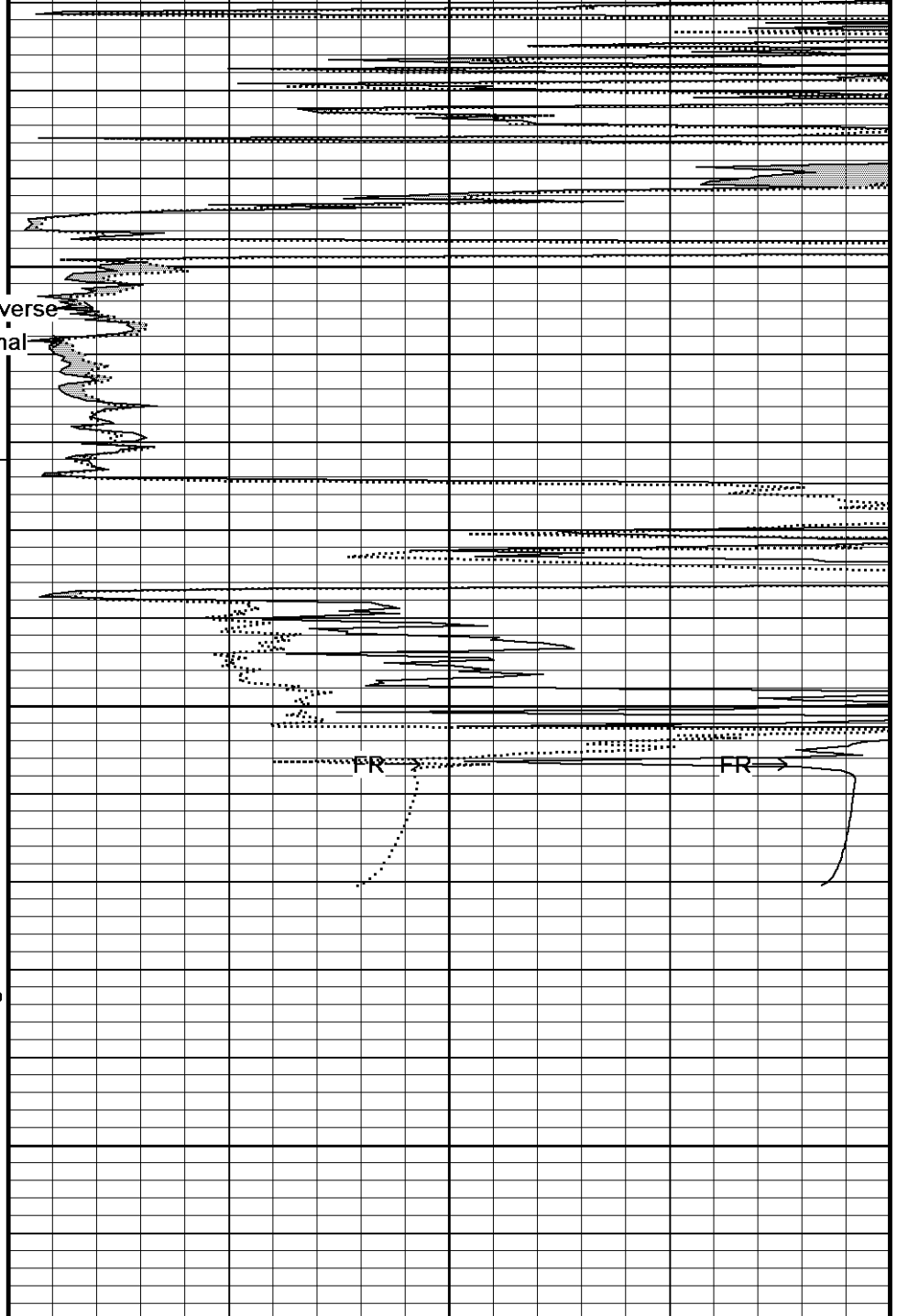
112°
4100
100
113°
4150
Micro-inverse
Micro-normal
113°
4200
113°
4250
113°
4300







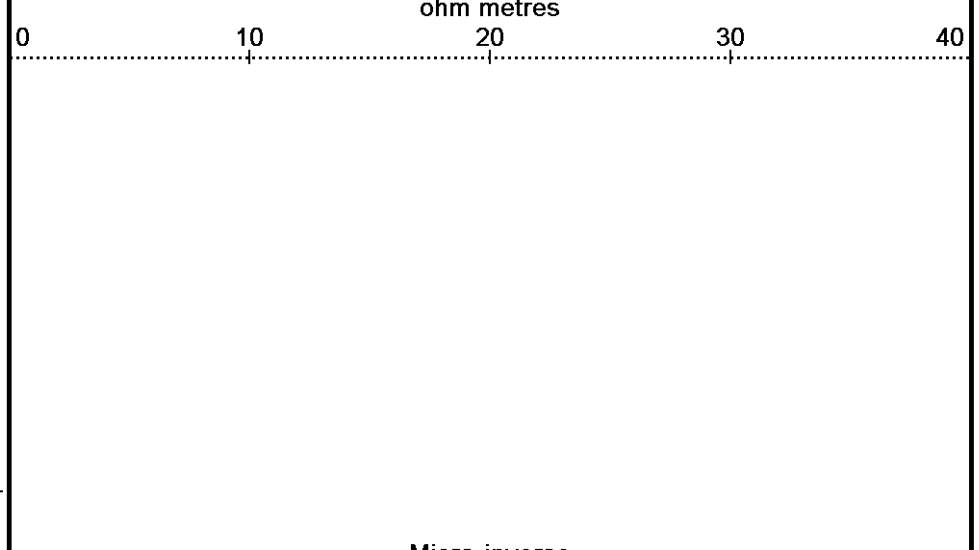
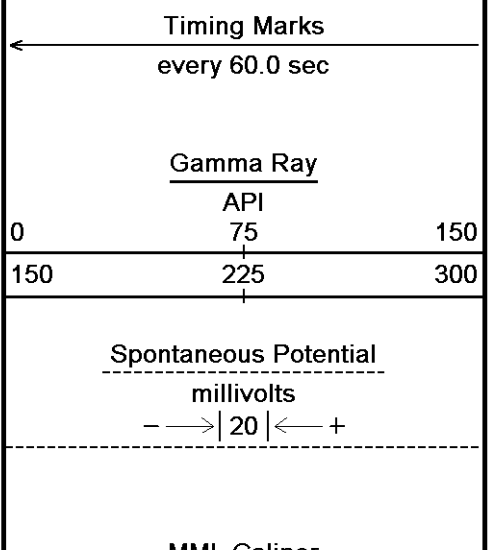
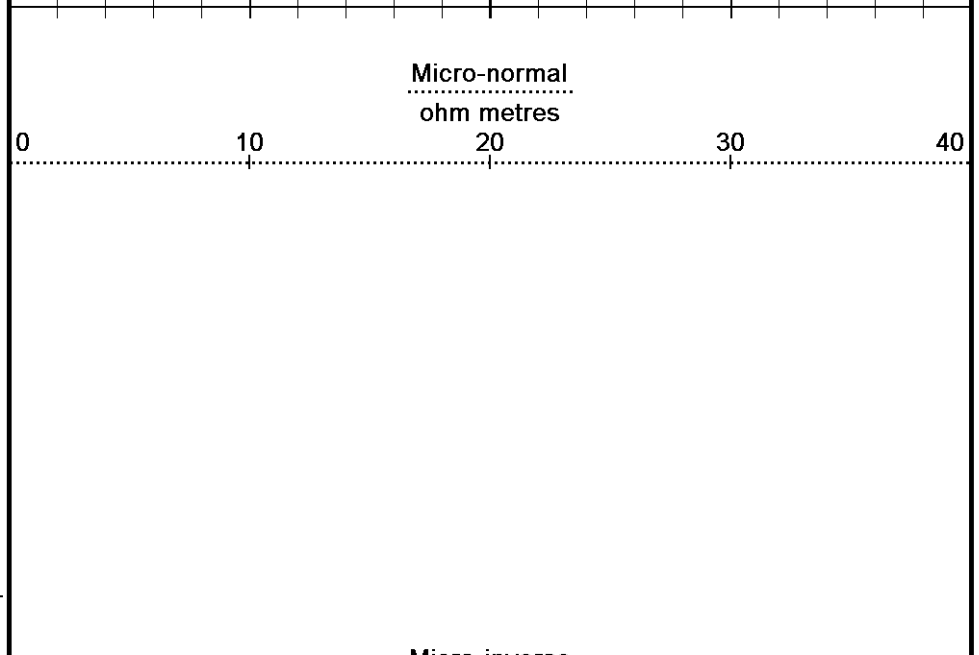
117°
4550
Micro-inverse
Micro-normal
116°
4600
0
4650
4668

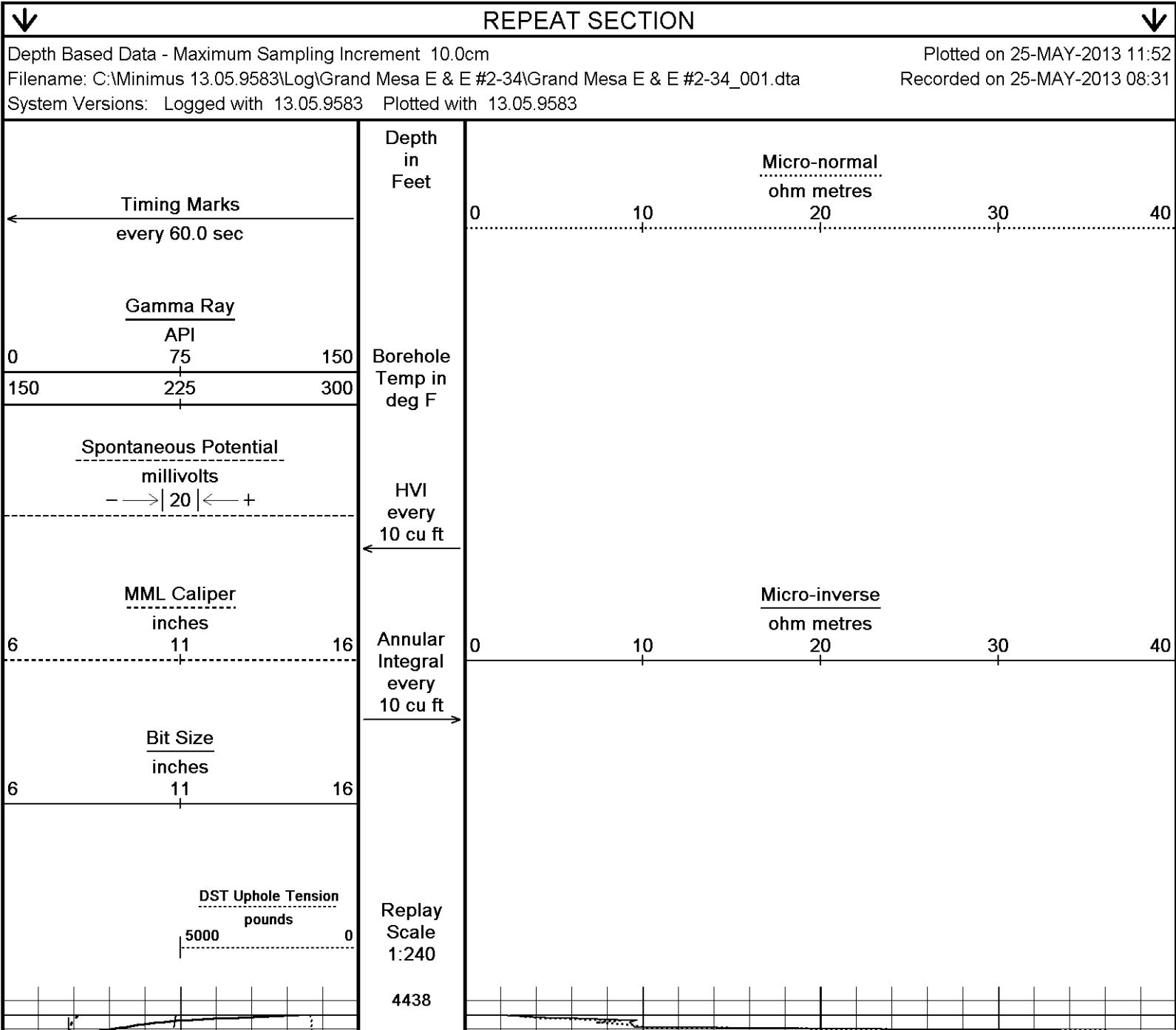
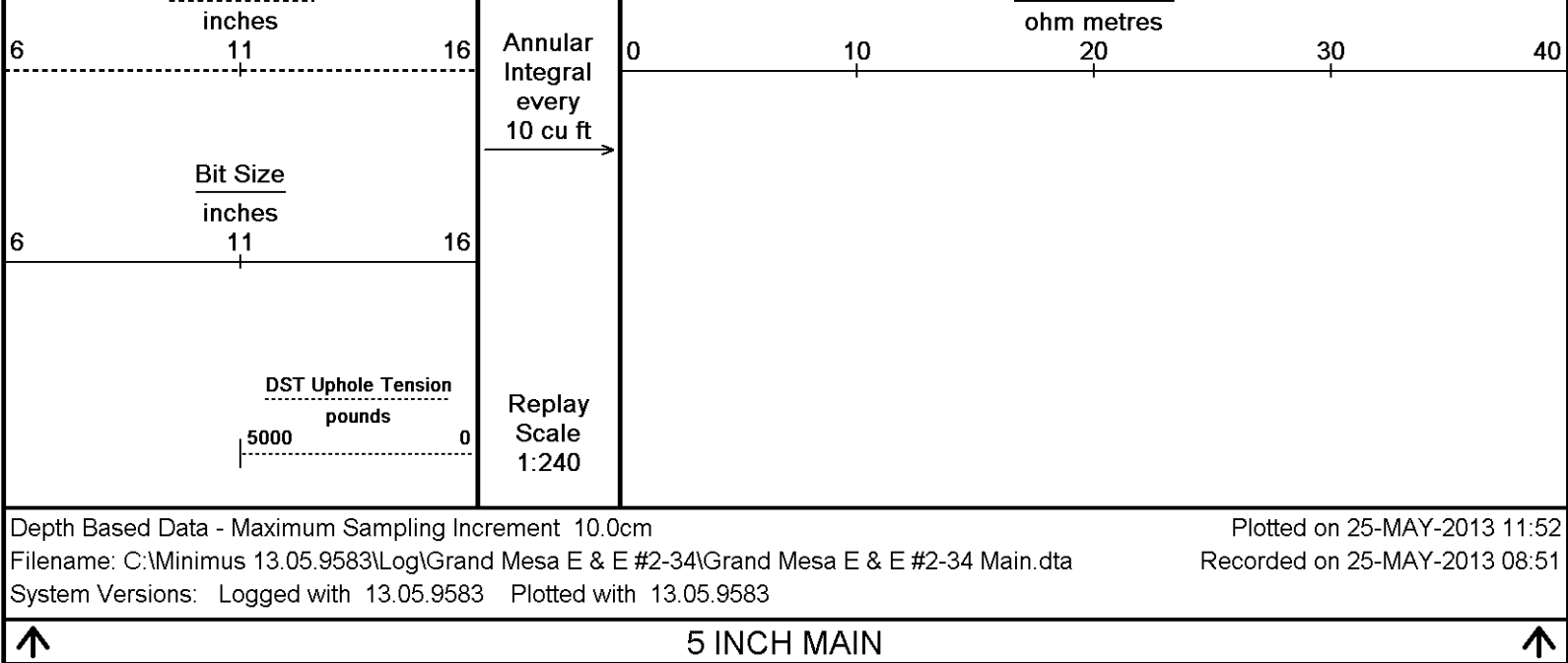


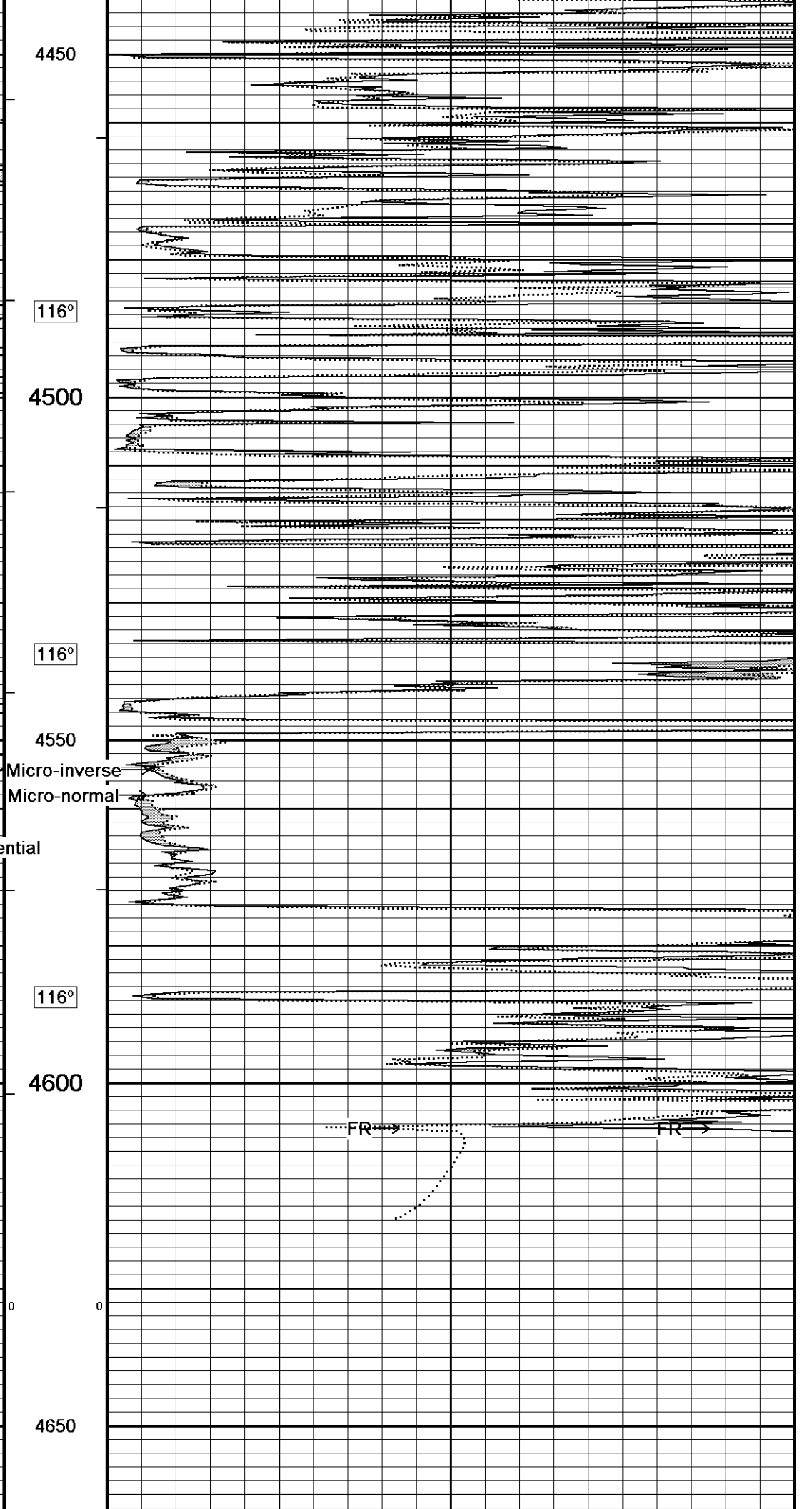
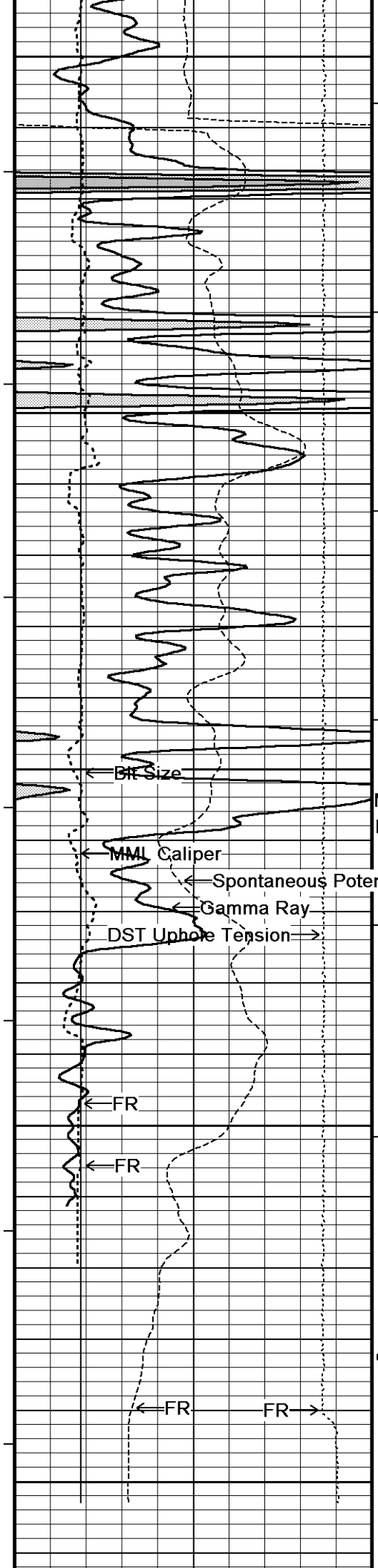
Depth
in
Feet

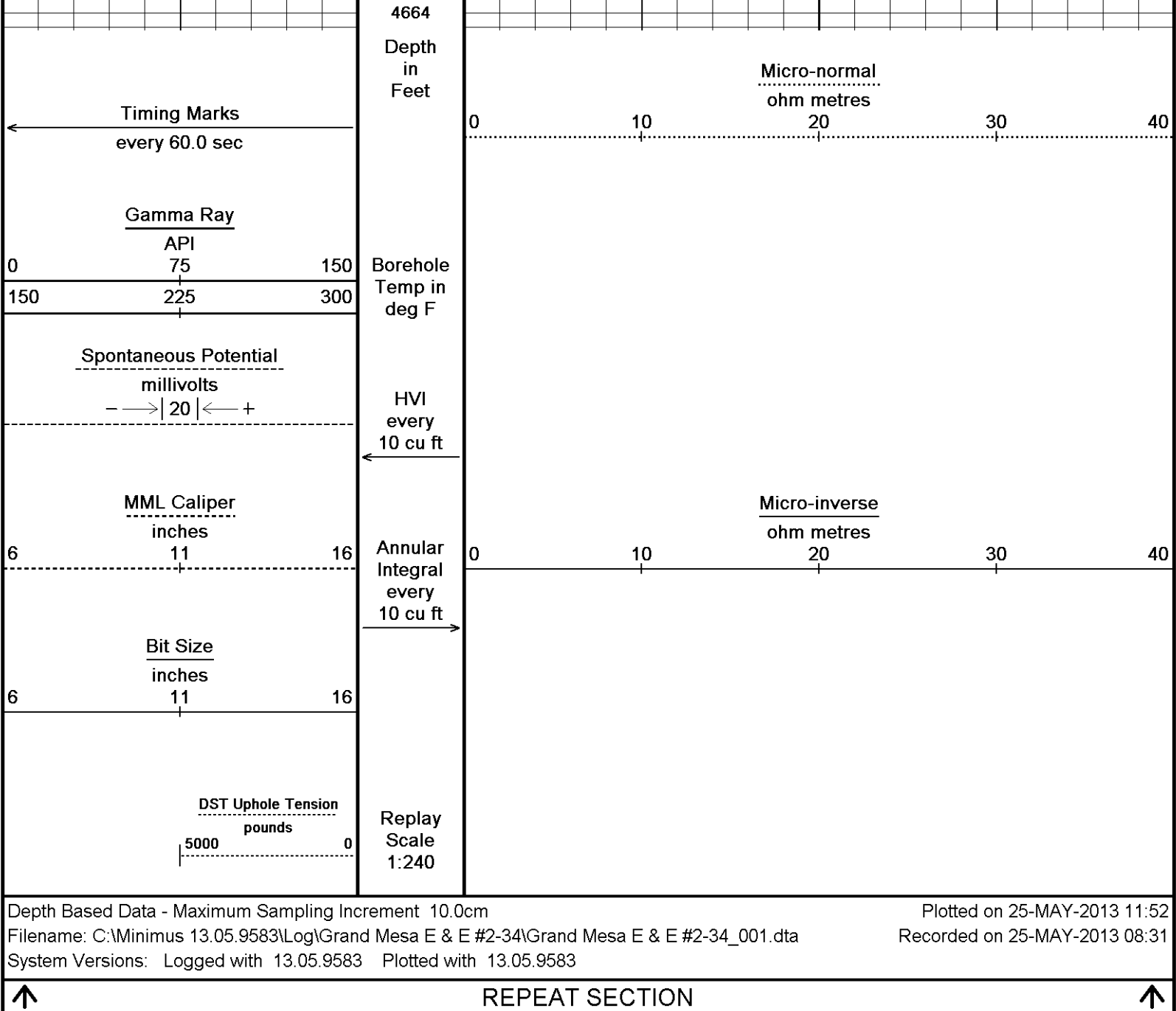
Borehole
Temp in
deg F

HVI
every
10 cu ft









BEFORE SURVEY CALIBRATION			
C:\Minimus 13.05.9583\Log\Grand Mesa E & E #2-34\Grand Mesa E & E #2-34_001.dta			
General Constants All 000			Last Edited on 25-MAY-2013,04:12
General Parameters			
Mud Resistivity	0.580	ohm-metres	
Mud Resistivity Temperature	99.000	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	Base Density Porosity		
Resistivity used	Array Ind. Four Res Rt		
RWA Constant A	0.610		
RWA Constant M	2.150		

RWVA Constant M		2.150	
SW/APOR Tool Source		0.000	
Gamma Calibration MCG-D.K 469			Field Calibration on 22-MAY-2013 08:38
	Measured	Calibrated (API)	
Background	68	45	
Calibrator (Gross)	1154	770	
Calibrator (Net)	1086	725	
Gamma Constants MCG-D.K 469			Last Edited on 25-MAY-2013,04:06
Gamma Calibrator Number	GRC38		
Mud Density	1.14	gm/cc	
Caliper Source for Processing	Density Caliper		
Tool Position	Eccentred		
Concentration of KCl		kppm	
K Mud Type	Chloride		
K Mud Concentration	0.00	%	
High Resolution Temperature Calibration MCG-D.K 469			Field Calibration on 22-MAY-2013,08:31
	Measured	Calibrated(Deg F)	
Lower	50.00	50.00	
Upper	100.00	100.00	
High Resolution Temperature Constants MCG-D.K 469			Last Edited on 22-MAY-2013,08:31
Pre-filter Length	11		
Caliper Calibration MML-A 3			Base Calibration on 22-MAY-2013 09:04 Field Calibration on 22-MAY-2013 09:05
Base Calibration			
Reading No	Measured	Calibrator Size (in)	
1	14831	5.98	
2	18037	7.97	
3	21199	9.86	
4	25264	11.92	
5	0	0.00	
6	N/A	N/A	
Field Calibration			
	Measured Caliper (in)	Actual Caliper (in)	
	5.97	5.98	
Micro Normal and Micro Inverse Calibration MML-A 3			Base Calibration on 22-MAY-2013 08:49 Field Check on 22-MAY-2013 08:53
Base Calibration			
	Measured	Calibrated (ohm-m)	
Channel	Resistor 1 Resistor 2	Resistor 1 Resistor 2	
Micro Normal	12.1 60.1	5.0 25.0	
Micro Inverse	15.7 78.4	5.0 25.0	
Channel	Base Check (ohm-m)	Field Check (ohm-m)	
Micro Normal	62.9	62.9	
Micro Inverse	48.2	48.2	
Micro Normal and Micro Inverse Constants MML-A 3			Last Edited on 25-MAY-2013,04:05
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 64			Base Calibration on 21-MAY-2013 17:34 Field Calibration on 21-MAY-2013 17:35
Base Calibration			
Reading No	Measured	Calibrator Size (in)	
1	14464	3.99	
2	23406	5.98	
3	32206	7.97	
4	40368	9.86	
5	50018	11.92	
6	N/A	N/A	

Measured Caliper (in)
5.96Actual Caliper (in)
5.98

DOWNHOLE EQUIPMENT

C:\Minimus 13.05.9583\Log\Grand Mesa E & E #2-34\Grand Mesa E & E #2-34_001.dta

3/8" Triple Cone Cable Head (MCB C A)

MCB-C.A 5 LG: 1.58 ft WT: 15.4 lb OD: 2.24 in

Compact Comms Gamma

MCG-D.K 469 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Compact Micro-log

MML-A 3 LG: 7.97 ft WT: 81.6 lb OD: 2.24 in

Compact Neutron

MDN-A.B 66 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper

MPD-B 64 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

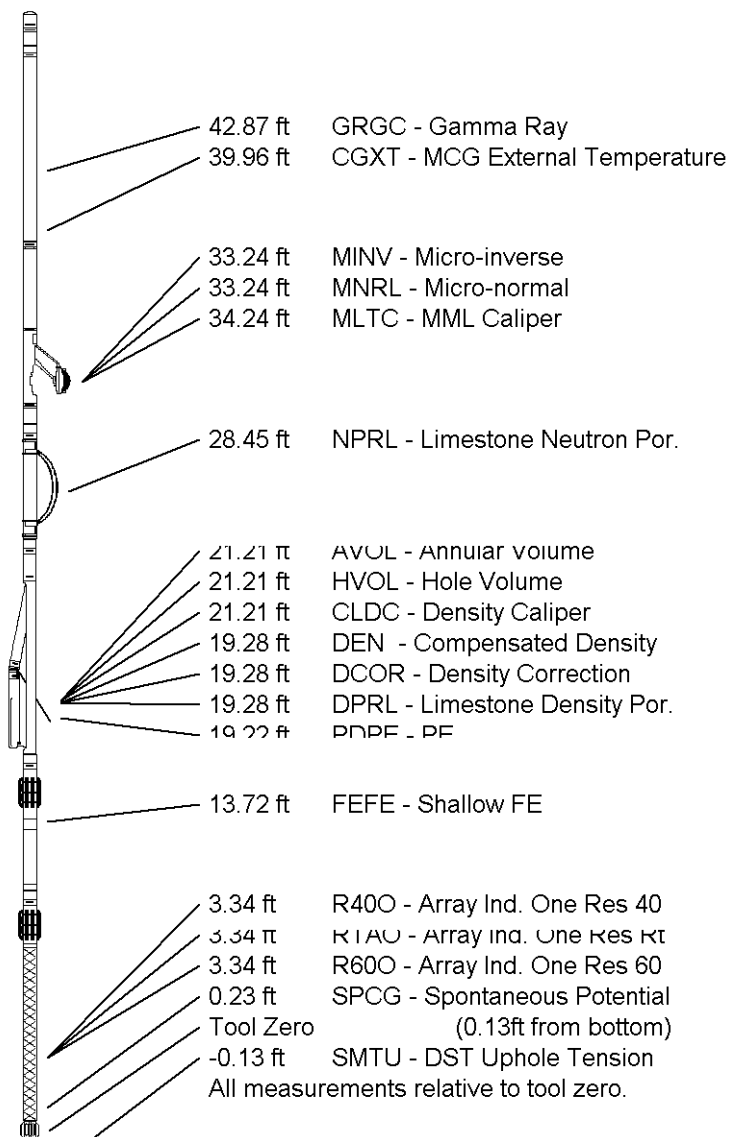
Compact Focussed Electric

MFE-B.J 353 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

Compact Induction

MAI-A.A 167 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 49.73 ft Weight: 399.0 lb



COMPANY

GRAND MESA OPERATING COMPANY

WELL

E & E #2-34

FIELD

WILDCAT

PROVINCE/COUNTY

LOGAN

COUNTRY/STATE

U.S.A. / KANSAS

Elevation Kelly Bushing	2917.00	feet
Elevation Drill Floor	2916.00	feet
Elevation Ground Level	2906.00	feet

First Reading	4607.00	feet
Depth Driller	4640.00	feet
Depth Logger	4640.00	feet



MICRORESISTIVITY LOG

Weatherford®

