



Weatherford[®]

MICRORESISTIVITY LOG

COMPANY				GRAND MESA OPERATING COMPANY			
WELL				WEBER #1-14			
FIELD				WILDCAT			
PROVINCE/COUNTY				GOVE			
COUNTRY/STATE				U.S.A. / KANSAS			
LOCATION				1306' FSL & 1170' FWL			
SEC	TWP	RGE	Other Services				
14	13S	31W	MPD/MDN				
API Number		15-063-22141		MAI/MFE			
Permit Number							
Permanent Datum G.L., Elevation 2881 feet						Elevations:	
Log Measured From KB						KB 2892.00	
Drilling Measured From K.B. @ 11 FEET						DF 2890.00	
						GL 2881.00	
Date	08-OCT-2013						
Run Number	ONE						
Service Order	3539908						
Depth Driller	4680.00					feet	
Depth Logger	4669.00					feet	
First Reading	4636.00					feet	
Last Reading	3669.00					feet	
Casing Driller	227.00					feet	
Casing Logger	223.00					feet	
Bit Size	7.875					inches	
Hole Fluid Type	CHEMICAL						
Density / Viscosity	9.30 lb/USg					52.00 CP	
PH / Fluid Loss	10.50					6.40 ml/30Min	
Sample Source	FLOWLINE						
Rm @ Measured Temp	1.30 @ 72.0					ohm-m	
Rmf @ Measured Temp	1.04 @ 72.0					ohm-m	
Rmc @ Measured Temp	1.56 @ 72.0					ohm-m	
Source Rmf / Rmc	CALC					CALC	
Rm @ BHT	0.79 @119.0					ohm-m	
Time Since Circulation	3 HOURS						
Max Recorded Temp	119.00					deg F	
Equipment / Base	13057					LIB	
Recorded By	ROB HOFFMAN						
Witnessed By	KENT MATSON						
JOB #	LB13-285						

BOREHOLE RECORD

Last Edited: 08-OCT-2013 13:08

Bit Size inches	Depth From feet	Depth To feet
7.875	227.00	4680.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	227.00	24.00

REMARKS

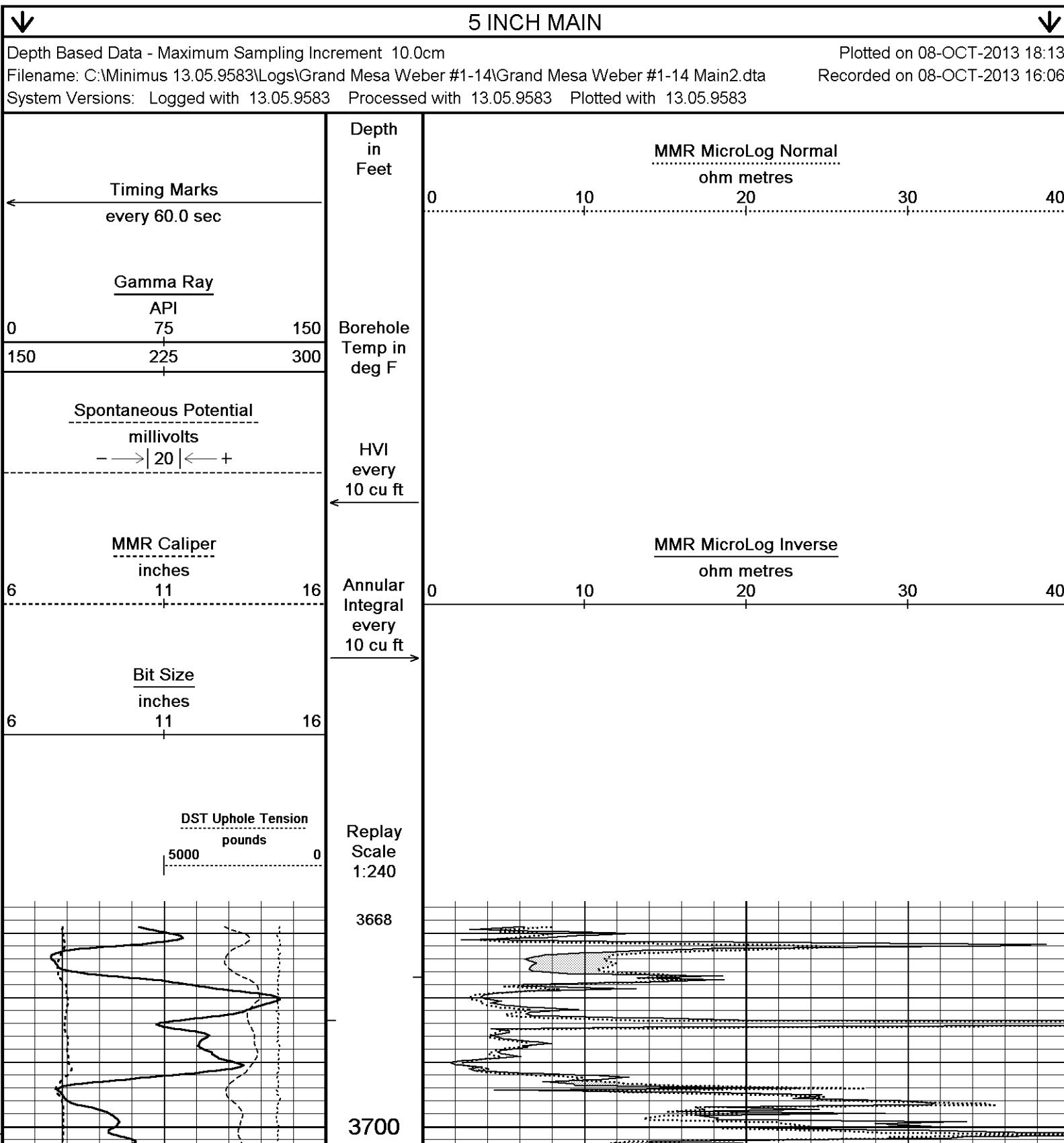
- SOFTWARE ISSUE: 13.05.9583
- MCG, MML, MDN, MPD, MFE AND MAI RAN IN COMBINATION
- HARDWARE: DUAL BOWSPRING USED ON MDN
0.5 INCH STANDOFF USED ON MFE AND MAI.
- 2.71 G/CC LIMESTONE DENSITY MATRIX USED TO CALCULATE POROSITY
- BOREHOLE RUGOSITY, TIGHT PULLS, AND WASHOUTS WILL EFFECT DATA QUALITY
- ALL INTERVALS LOGGED AND SCALED PER CUSTOMRES REQUEST
- TOTAL HOLE VOLUME FROM TD TO SURFACE CASING: 992 CU.FT.
- ANNULAR HOLE VOLUME WITH 5.5 INCH PRODUCTION CASING FROM TD TO 3669FT: 496 CU.FT.
- RIG: DUKE DRILLING RIG #10

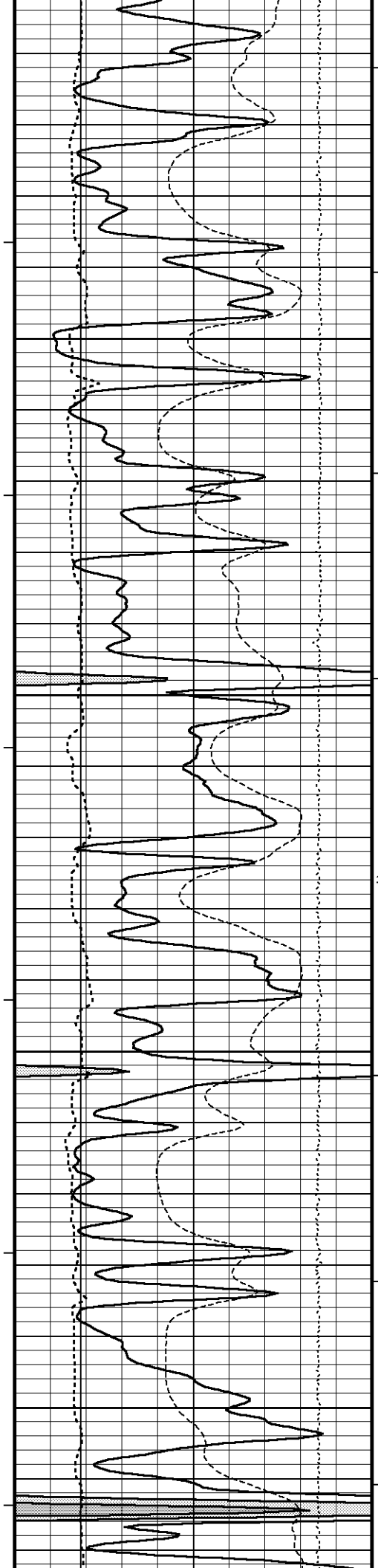
- ENGINEER: R. HOFFMAN

- OPERATOR: K. RINEHART

****CUSTOMER SAID THE RIG HAD SOME DEPTH ISSUES AND THOUGHT OUR DEPTH WAS GOOD****

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.





114°

3750

114°

3800

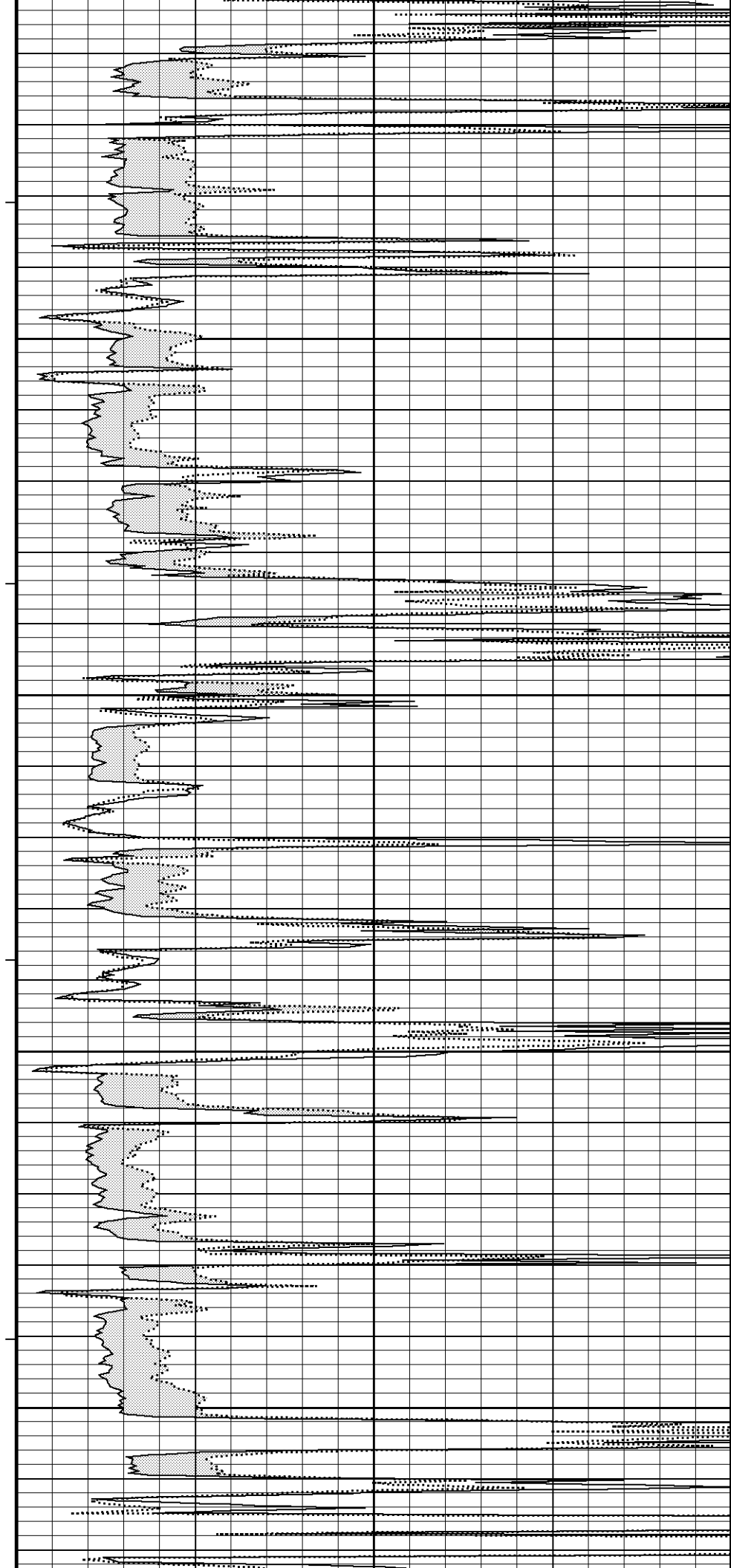
300

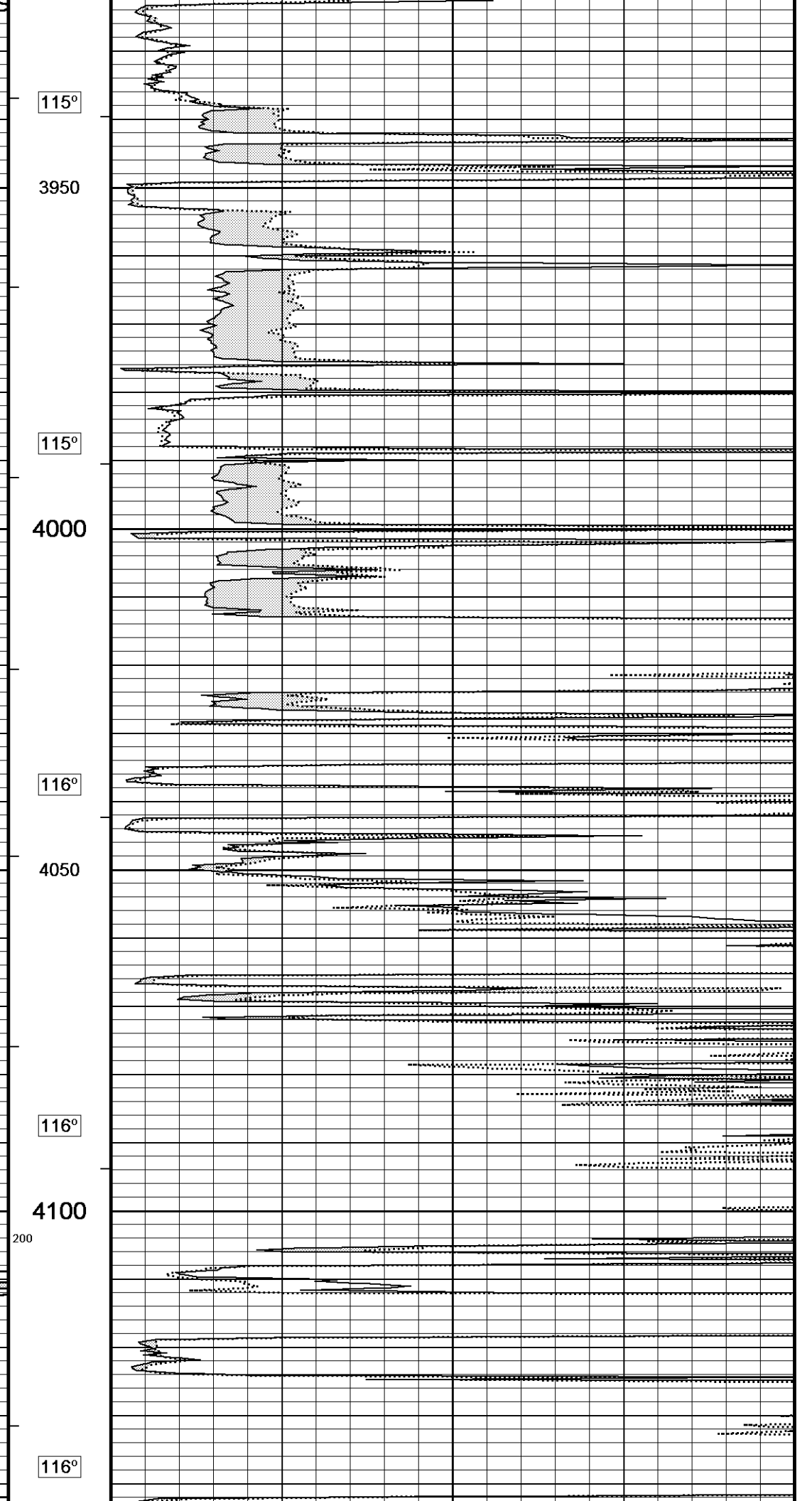
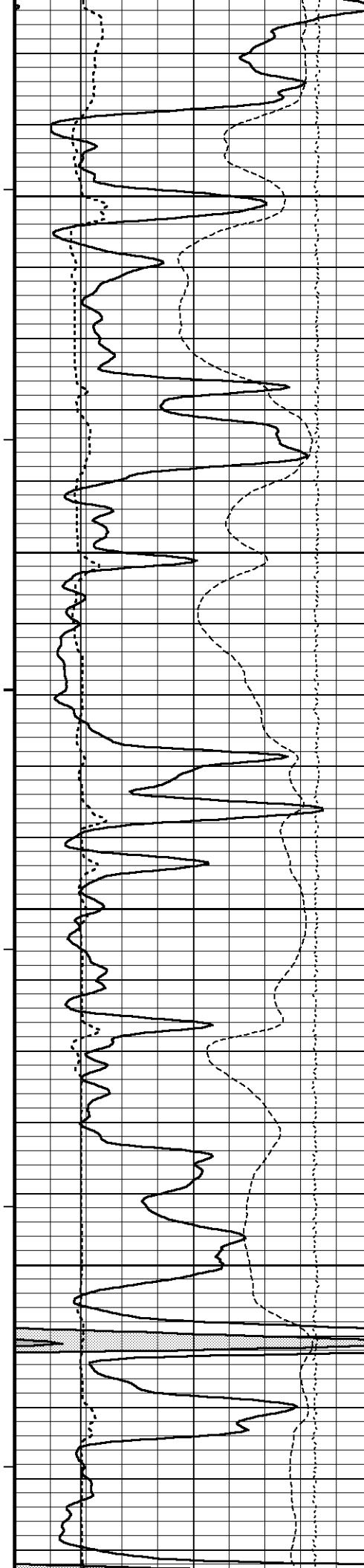
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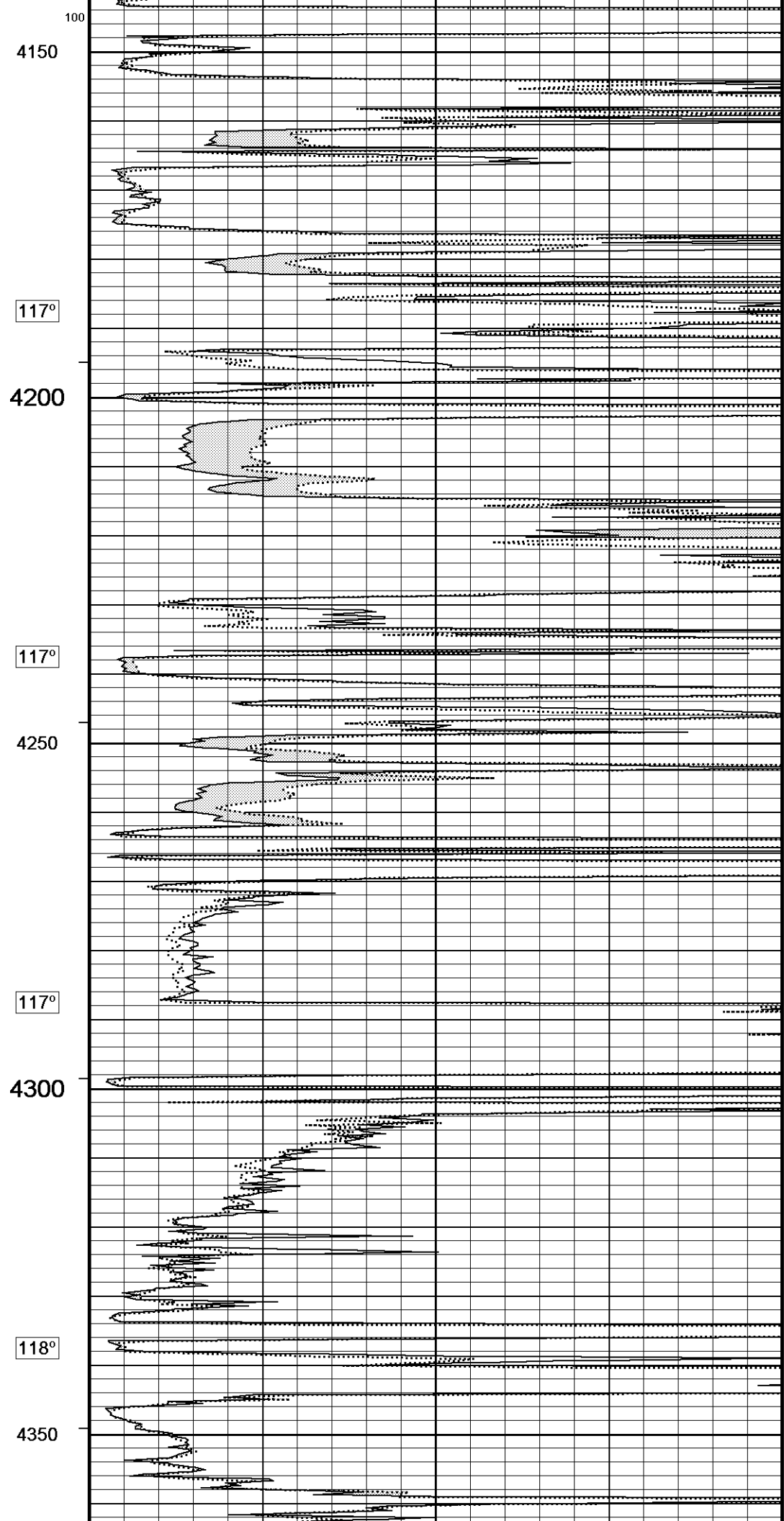
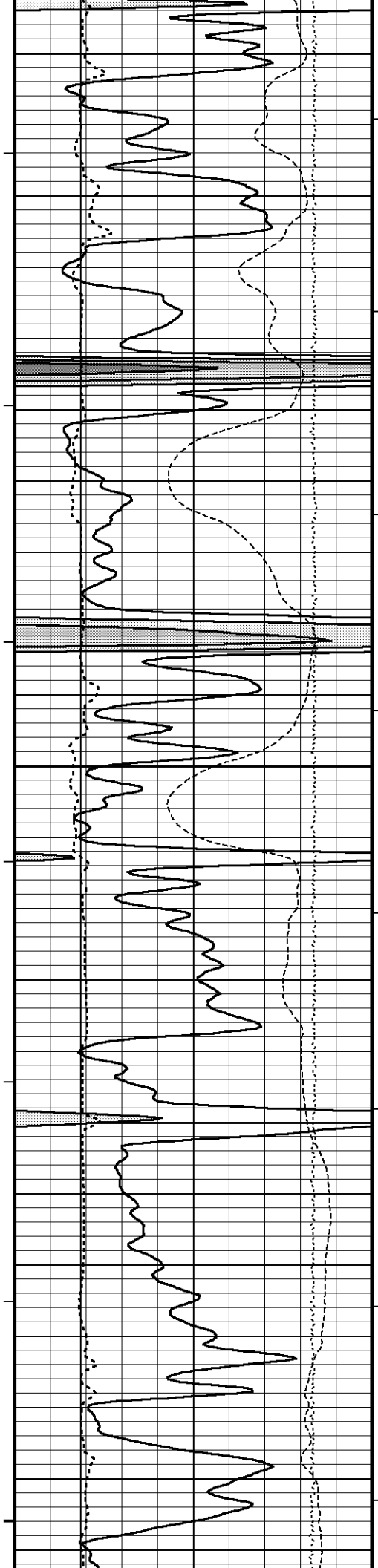
3850

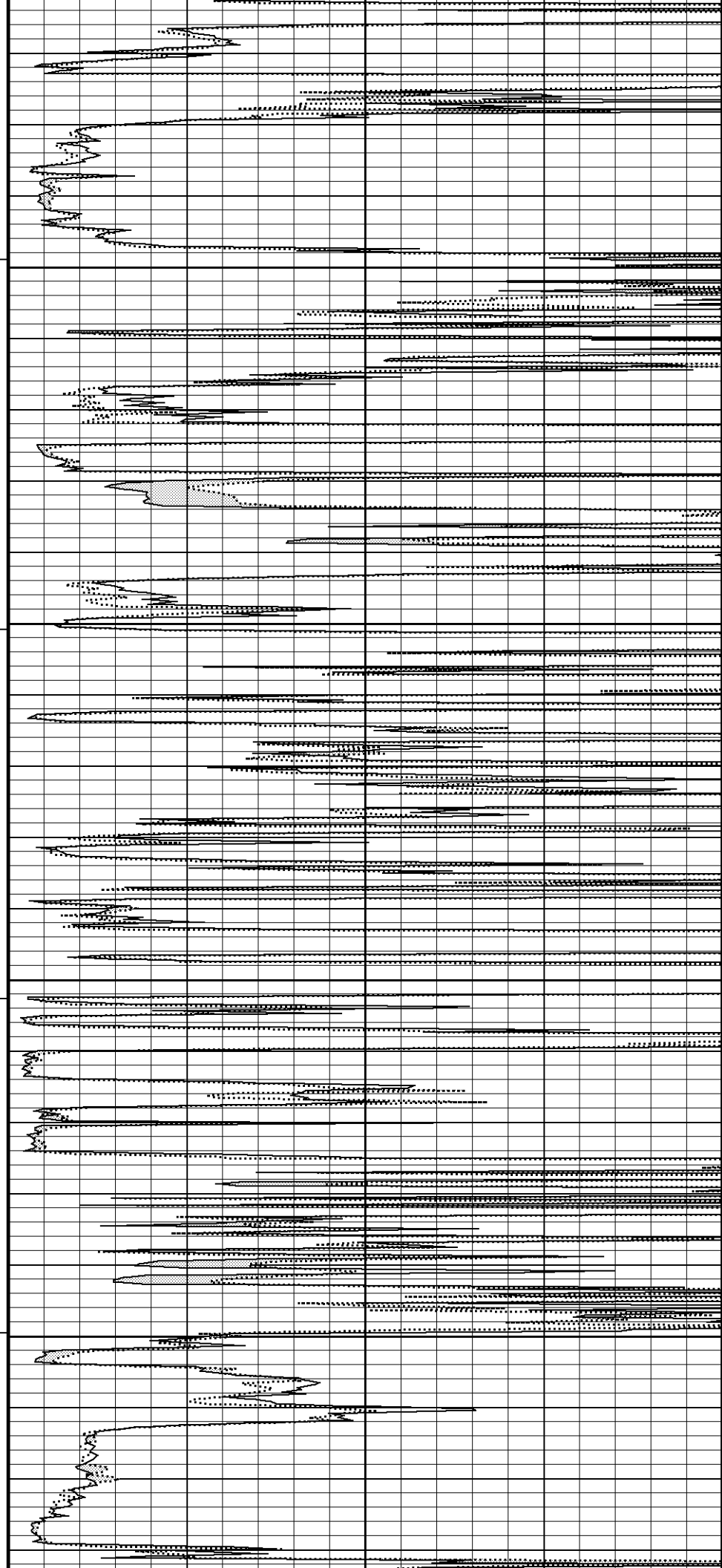
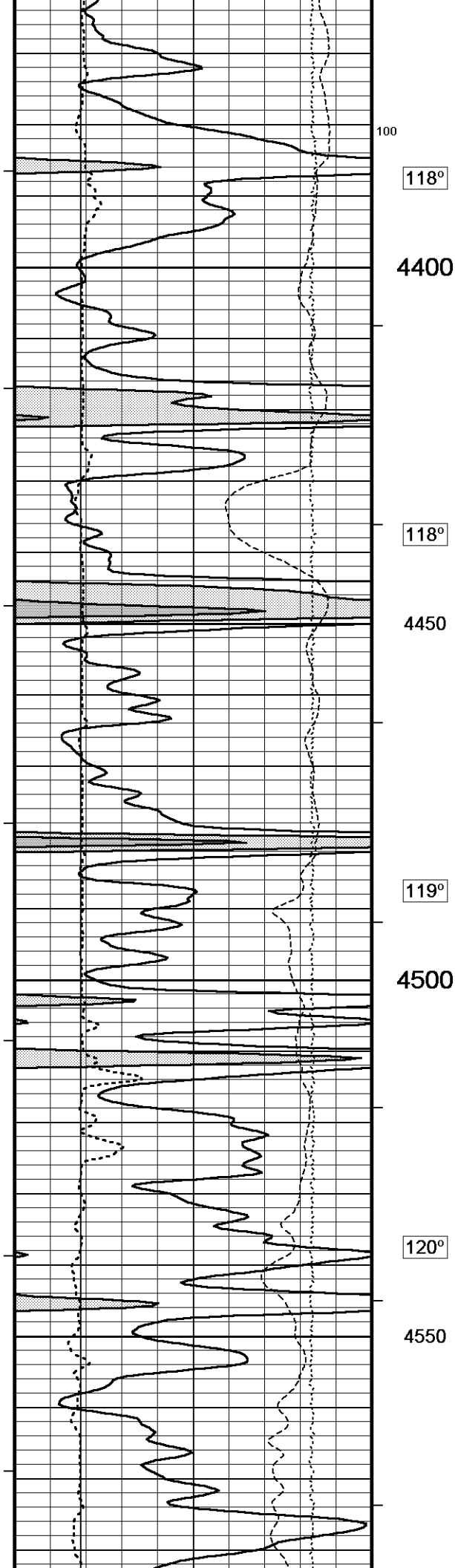
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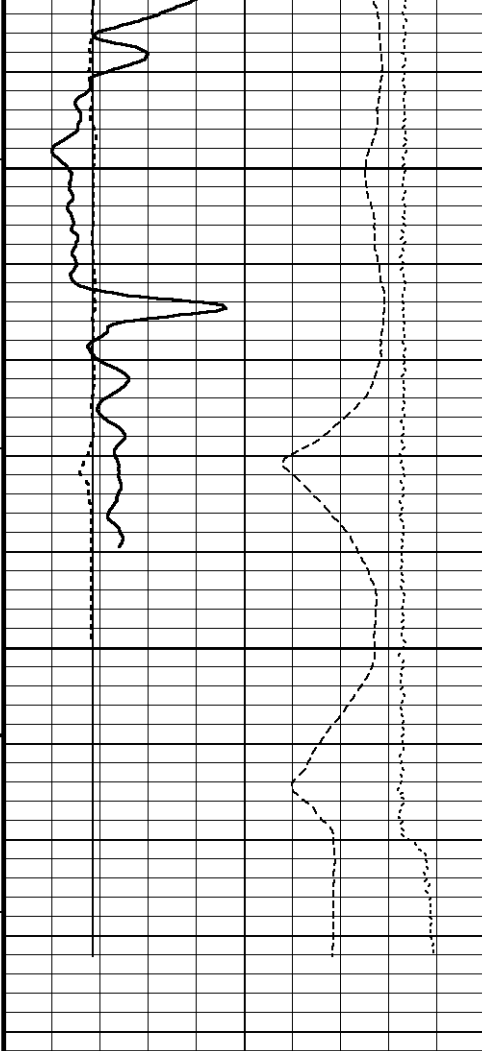
3900











120°

4600

120°

4650

0

4690

Depth
in
Feet

Timing Marks
every 60.0 sec

Gamma Ray

API

75

0 150

225

150 300

Borehole
Temp in
deg F

Spontaneous Potential

millivolts

- —> | 20 | <- +

HVI
every
10 cu ft

MMR Caliper

inches

6 11 16

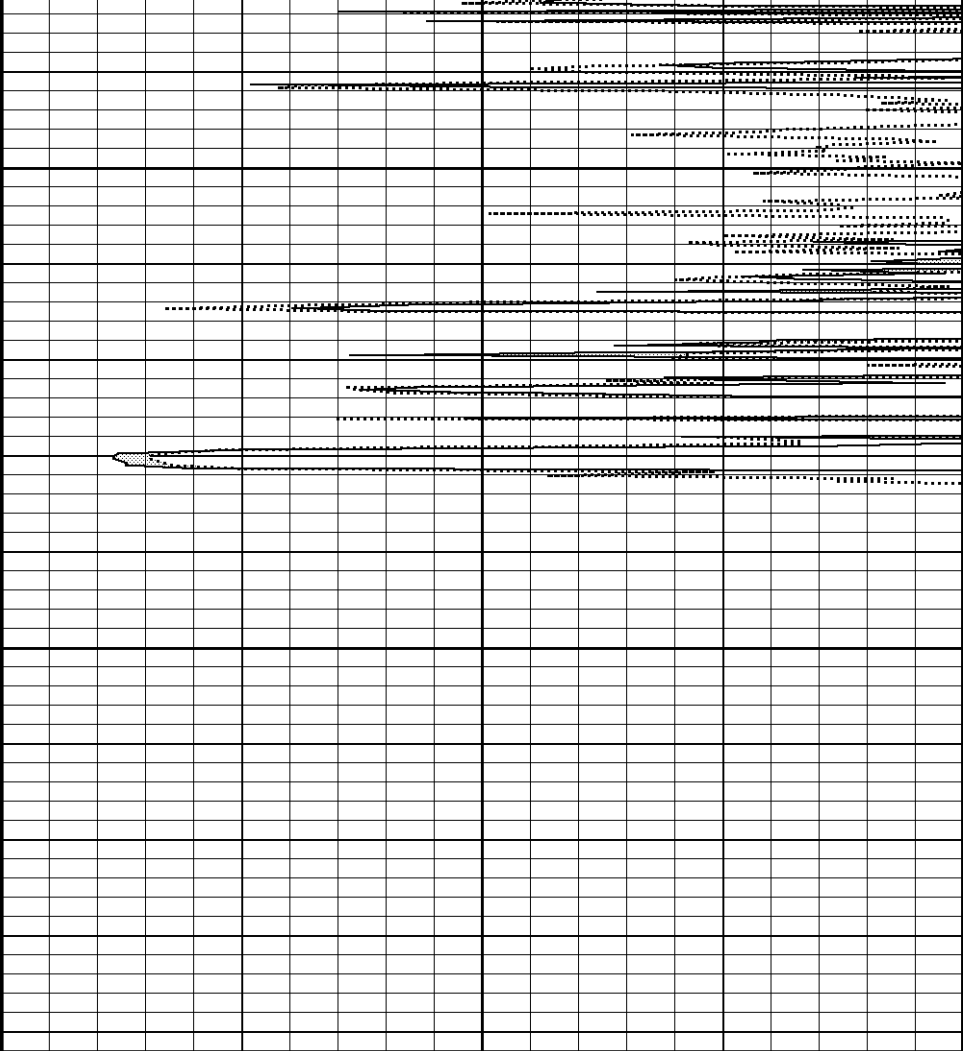
Annular
Integral
every
10 cu ft

Bit Size

inches

6 11 16

DST Uphole Tension



MMR MicroLog Normal

ohm metres

0 10 20 30 40

MMR MicroLog Inverse

ohm metres

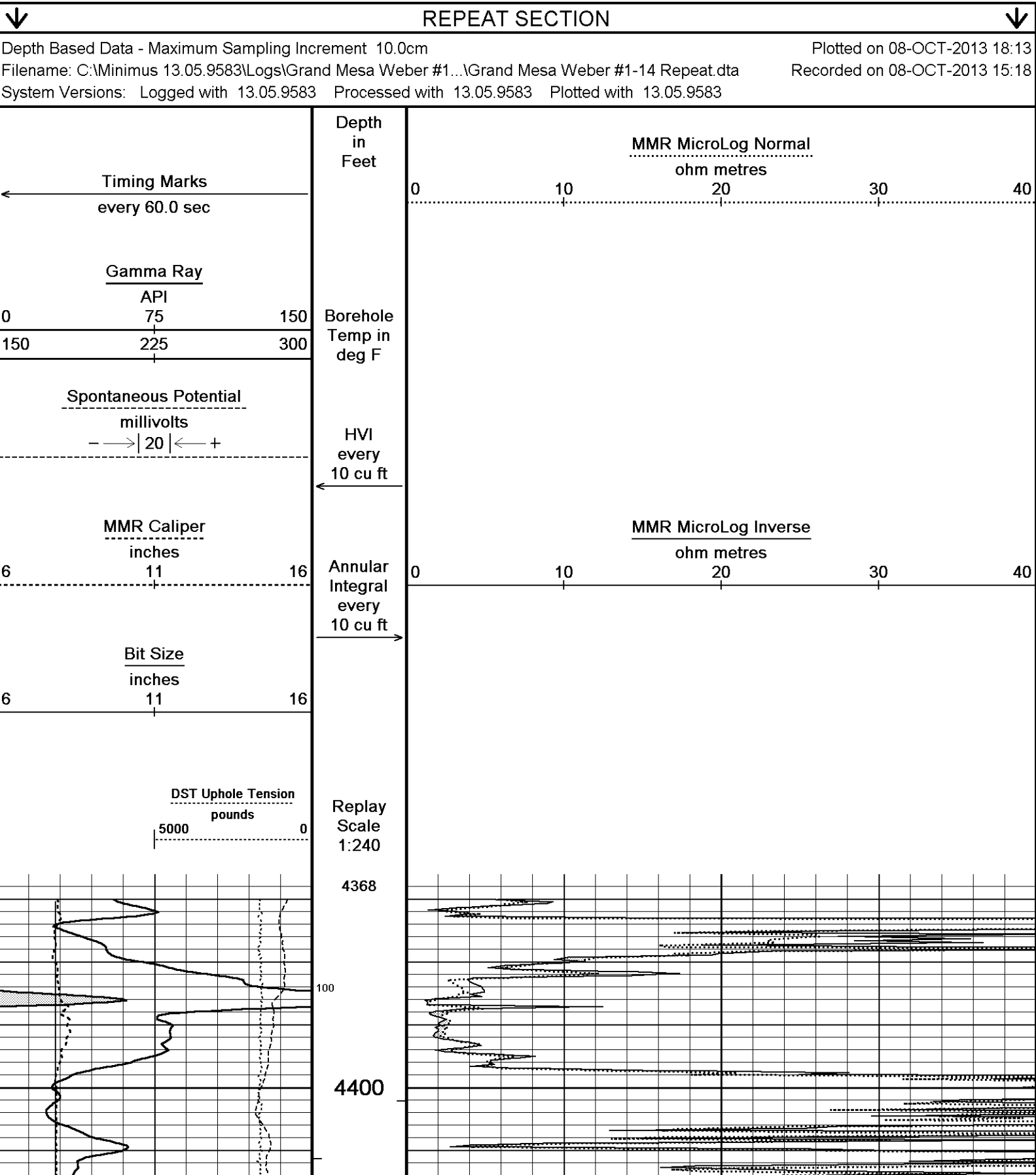
0 10 20 30 40

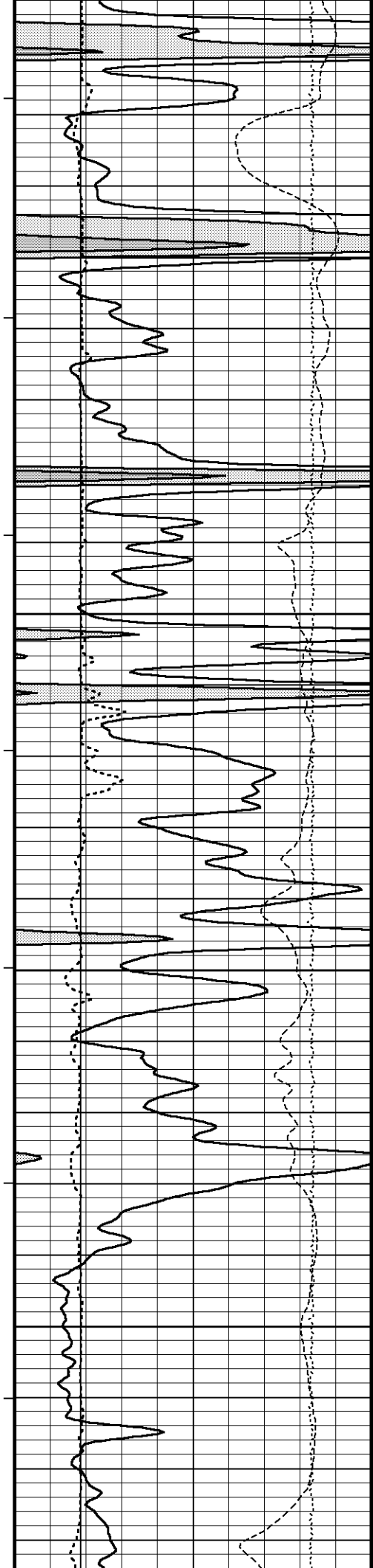
5000 pounds0

Replay Scale 1:240

Depth Based Data - Maximum Sampling Increment 10.0cmPlotted on 08-OCT-2013 18:13
Filename: C:\Minimus 13.05.9583\Logs\Grand Mesa Weber #1-14\Grand Mesa Weber #1-14 Main2.dtaRecorded on 08-OCT-2013 16:06
System Versions: Logged with 13.05.9583 Processed with 13.05.9583 Plotted with 13.05.9583

↑5 INCH MAIN↑





117°

4450

117°

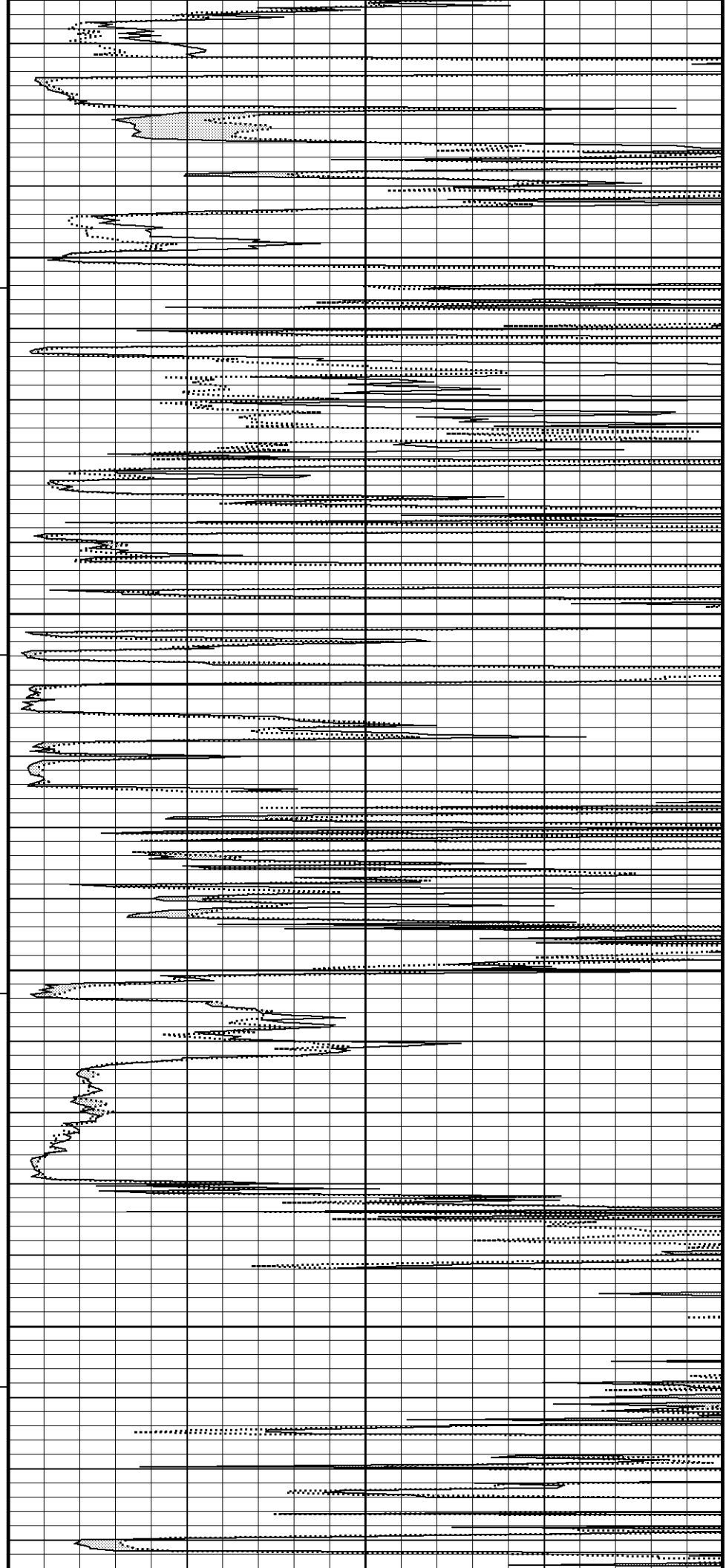
4500

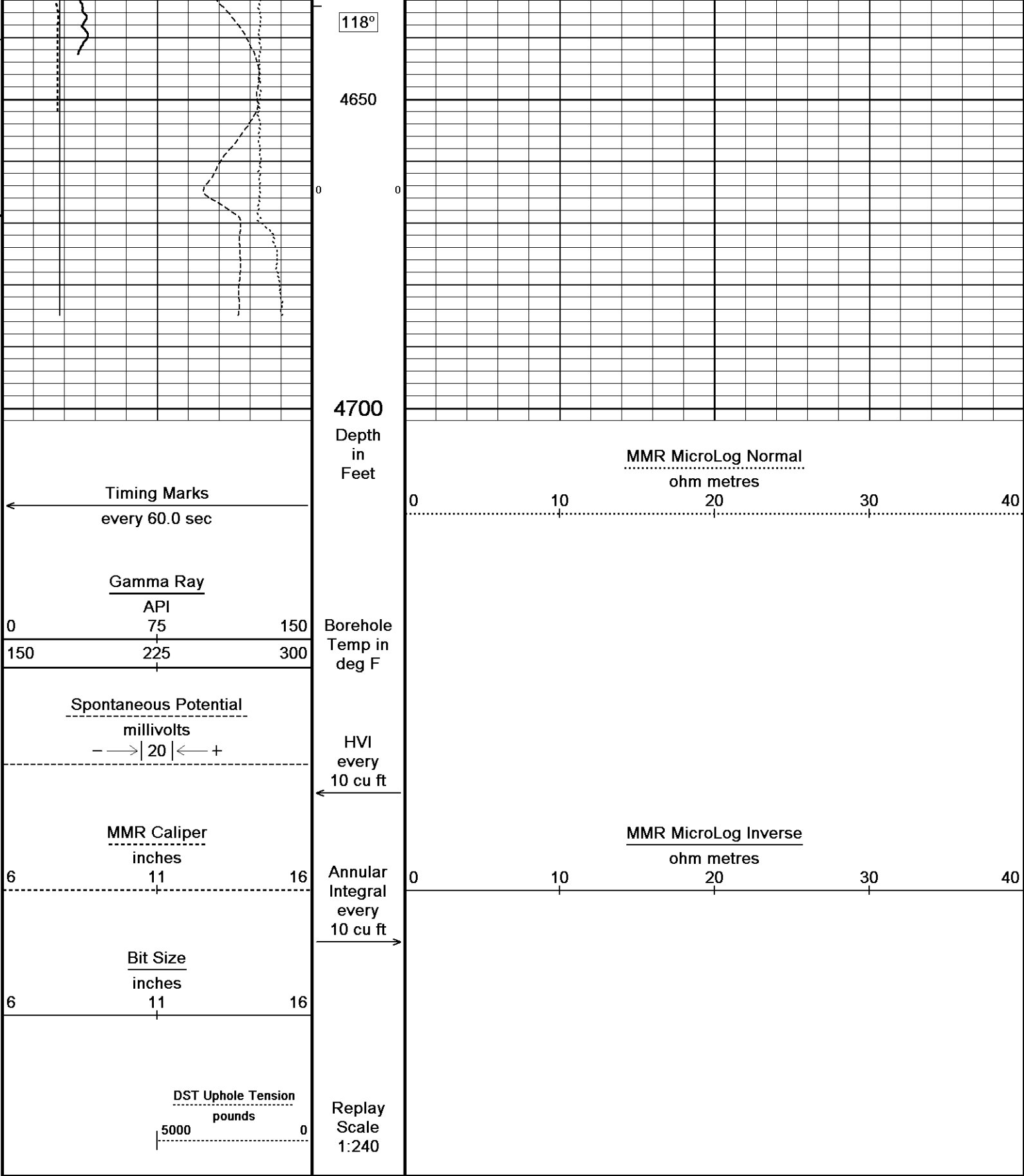
118°

4550

119°

4600





Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 08-OCT-2013 18:13
Filename: C:\Minimus 13.05.9583\Logs\Grand Mesa Weber #1...\Grand Mesa Weber #1-14 Repeat.dta Recorded on 08-OCT-2013 15:18
System Versions: Logged with 13.05.9583 Processed with 13.05.9583 Plotted with 13.05.9583

↑ REPEAT SECTION ↑

BEFORE SURVEY CALIBRATION
C:\Minimus 13.05.9583\Logs\Grand Mesa Weber #1-14\Grand Mesa Weber #1-14 Main2.dta

General Constants All 000

Last Edited on 08-OCT-2013,13:19

General Parameters

Mud Resistivity	1.300	ohm-metres
Mud Resistivity Temperature	72.000	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	Deep Induction	
RWA Constant A	0.610	
RWA Constant M	2.150	
SW/APOR Tool Source	0.000	

High Resolution Temperature Calibration MCG-D.K 442

Field Calibration on 09-AUG-2013,09:35

	Measured	Calibrated(Deg F)
Lower	50.00	50.00
Upper	75.00	75.00

High Resolution Temperature Constants MCG-D.K 442

Last Edited on 09-AUG-2013,09:35

Pre-filter Length	11
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Gamma Calibration MCG-D.K 442

Field Calibration on 08-OCT-2013 08:43

	Measured	Calibrated (API)
Background	68	46
Calibrator (Gross)	1139	771
Calibrator (Net)	1071	725

Gamma Constants MCG-D.K 442

Last Edited on 08-OCT-2013,13:18

Gamma Calibrator Number	GRC38	
Mud Density	1.12	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl		kppm
K Mud Type	Chloride	
K Mud Concentration	0.00	%

Caliper Calibration MMR-A 11

Base Calibration on 01-OCT-2013 09:07

Field Calibration on 08-OCT-2013 08:27

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	14311	5.98
2	17410	7.97
3	20706	9.86
4	24667	11.92
5	0	0.00
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
5.90	5.98

Micro Normal and Micro Inverse Calibration MMR-A 11

Base Calibration on 01-OCT-2013 08:58

Field Check on 08-OCT-2013 08:29

Base Calibration

		Measured	Calibrated (ohm-m)	
Channel	Resistor 1	Resistor 2	Resistor 1	Resistor 2
Micro Normal	12.1	58.8	5.0	25.0
Micro Inverse	15.4	76.4	5.0	25.0

Channel	Base Check (ohm-m)	Field Check (ohm-m)
Micro Normal	77.8	77.8
Micro Inverse	59.6	59.6

Micro Normal and Micro Inverse Constants MMR-A 11

Last Edited on 18-APR-2013,13:52

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	0.0000	inches	

Caliper Calibration MPD-B 31

Base Calibration on 12-SEP-2013 14:44
Field Calibration on 08-OCT-2013 08:37

Base Calibration		
Reading No	Measured	Calibrator Size (in)
1	17985	3.99
2	27104	5.98
3	35456	7.97
4	43696	9.86
5	52880	11.92
6	N/A	N/A

Field Calibration		
Measured Caliper (in)	Actual Caliper (in)	
5.87	5.98	

DOWNHOLE EQUIPMENT

C:\Minimus 13.05.9583\Logs\Grand Mesa Weber #1-14\Grand Mesa Weber #1-14 Main2.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 442 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Compact Micro-Resistivity
MMR-A 11 LG: 8.59 ft WT: 81.6 lb OD: 4.88 in

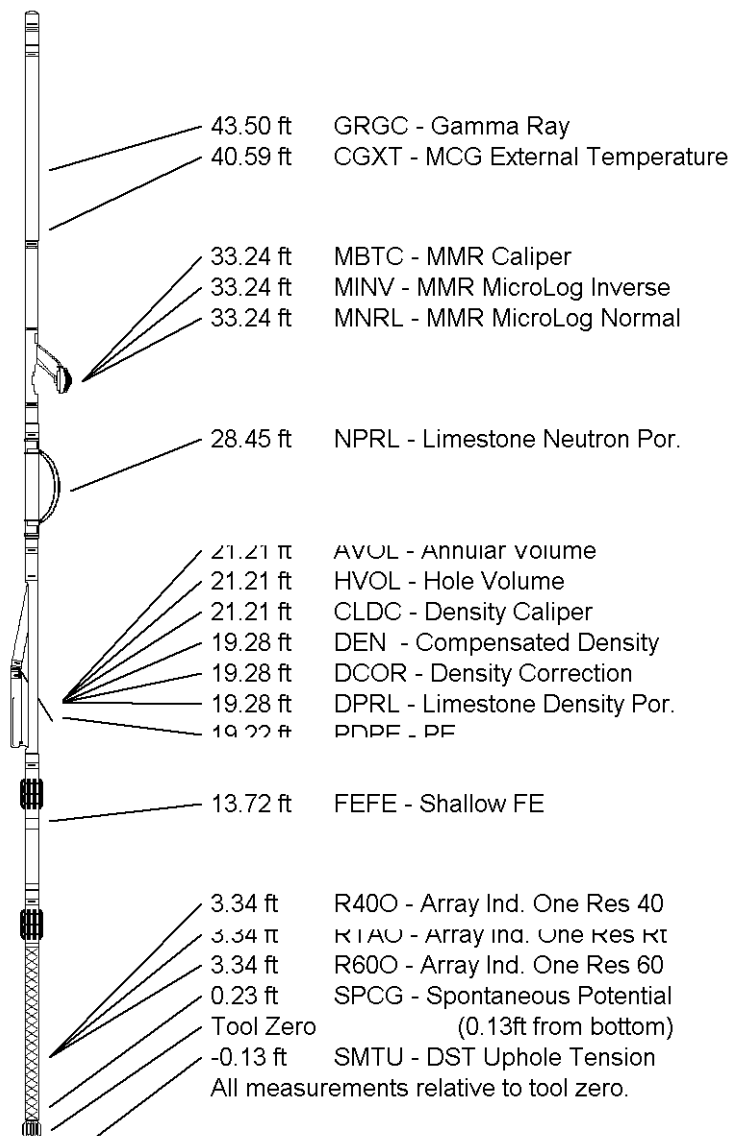
Compact Neutron
MDN-A.B 65 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper
MPD-B 31 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

Compact Focussed Electric
MFE-B.J 352 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

Compact Induction
MAI-A.A 45 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 50.36 ft Weight: 399.0 lb



COMPANY	GRAND MESA OPERATING COMPANY		
WELL	WEBER #1-14		
FIELD	WILDCAT		
PROVINCE/COUNTY	GOVE		
COUNTRY/STATE	U.S.A. / KANSAS		

Elevation Kelly Bushing	2892.00	feet	First Reading	4636.00	feet
Elevation Drill Floor	2890.00	feet	Depth Driller	4680.00	feet
Elevation Ground Level	2881.00	feet	Depth Logger	4669.00	feet


Weatherford[®]

MICRORESISTIVITY LOG