

**Weatherford**[®]**MICRORESISTIVITY LOG**

COMPANY			SHAKESPEARE OIL CO. INC		
WELL			CARSON 1-26		
FIELD			PENCE EAST		
PROVINCE/COUNTY			SCOTT		
COUNTRY/STATE			U.S.A. / KANSAS		
LOCATION			649' FNL & 1371' FEL SE NE NW NE		
SEC	TWP	RGE	Other Services		
26	16S	34W	MPD/MDN		
API Number		15-171-20969	MAI/MFE		
Permit Number			MSS		
Permanent Datum GL, Elevation 3114 feet					
Log Measured From KB					
Drilling Measured From KB AT 10 FEET					
Date	07-SEP-2013		Elevations:		
Run Number	ONE		KB 3124.00		
Service Order	3541037		DF 3122.00		
Depth Driller	4890.00		GL 3114.00		
Depth Logger	4889.00				
First Reading	4842.00				
Last Reading	3800.00				
Casing Driller	267.00				
Casing Logger	267.00				
Bit Size	7.875		feet		
Hole Fluid Type	CHEM		inches		
Density / Viscosity	9.10	lb/USg	60.00	CP	
PH / Fluid Loss	10.00		10.80	ml/30Min	
Sample Source	PIT				
Rm @ Measured Temp	0.30 @ 91.0		ohm-m		
Rmf @ Measured Temp	0.24 @ 91.0		ohm-m		
Rmc @ Measured Temp	0.36 @ 91.0		ohm-m		
Source Rmf / Rmc	CALC		CALC		
Rm @ BHT	0.24 @ 113.0		ohm-m		
Time Since Circulation	4 HRS				
Max Recorded Temp	113.00		deg F		
Equipment / Base	13244		KANSAS		
Recorded By	D. COLE				
Witnessed By	S. DAVIS				
IOB#	LB 13 - 251				

BOREHOLE RECORD

Last Edited: 07-SEP-2013 09:46

Bit Size inches	Depth From feet	Depth To feet
7.875	267.00	4890.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
CASING	8.625	0.00	267.00	24.00

REMARKS

- SOFTWARE ISSUE: WLS 13.05.9583
- TOOLS: MCG, MML, MDN, MPD, MFE, MSS, MAI
- HARDWARE:
 - MDN: DUAL BOWSPRING ECCENTRALIZER
 - MFE: 1 X 0.5 INCH STANDOFF
 - MSS: 2 X 0.5 INCH STANDOFF
 - MAI: 2 X 0.5 INCH STANDOFF
- 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 3800 FEET: 410 CU.FT.

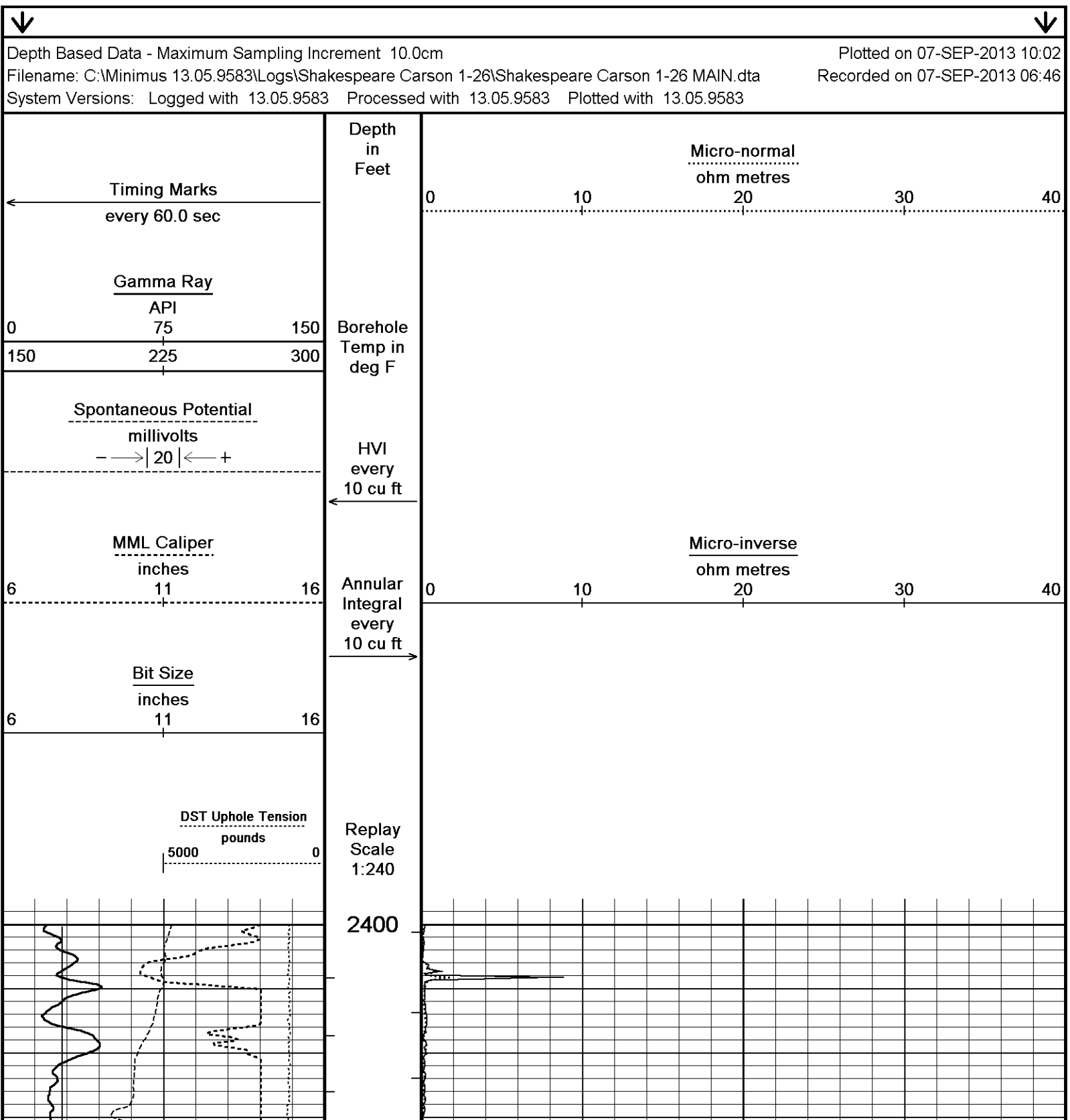
- ANNULAR HOLE VOLUME WITH 5.5 INCH PRODUCTION CASING FROM TD TO 3800 FEET: 230 CU.FT.

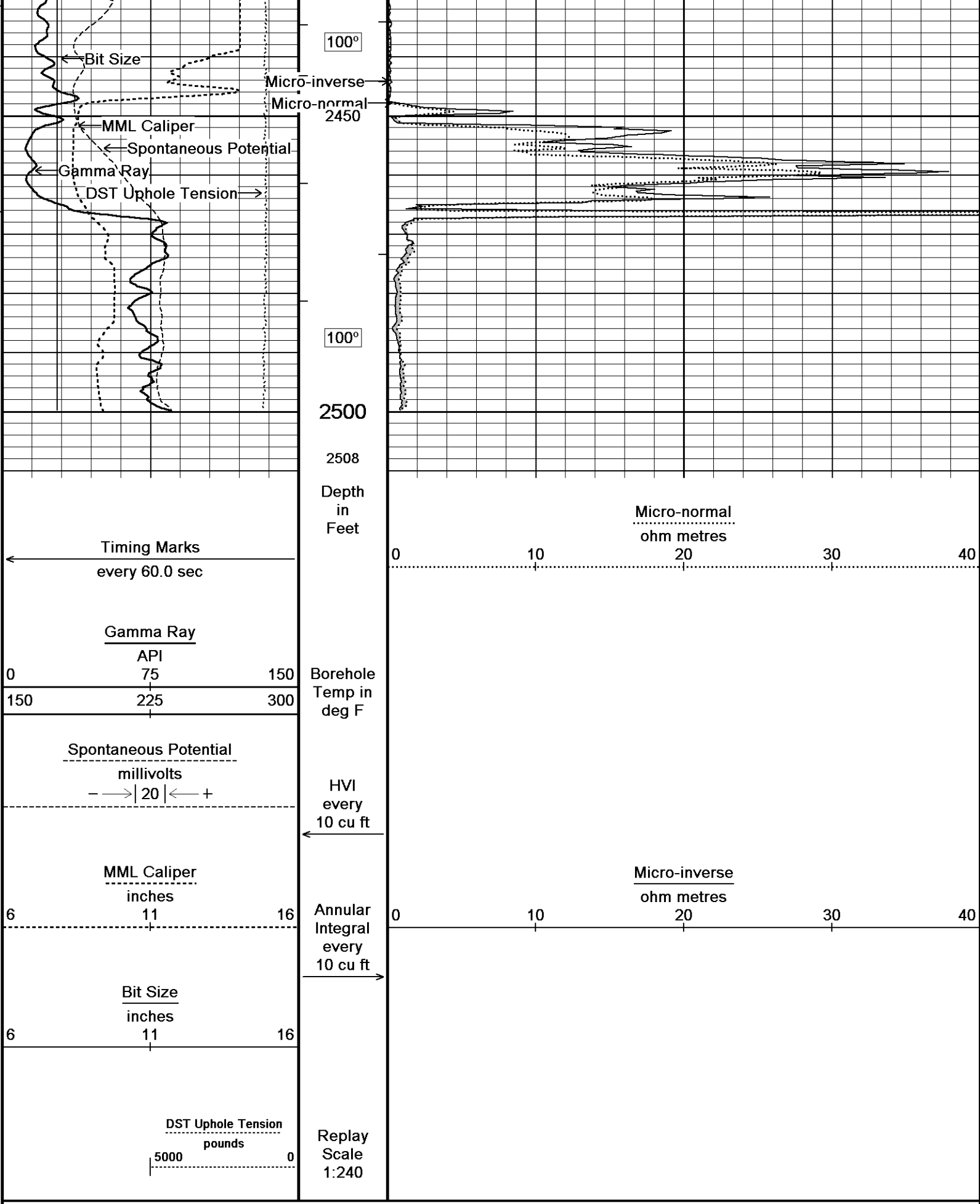
- RIG: HD #2

- ENGINEER: D. COLE

- OPERATOR: C. RAMIREZ

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.





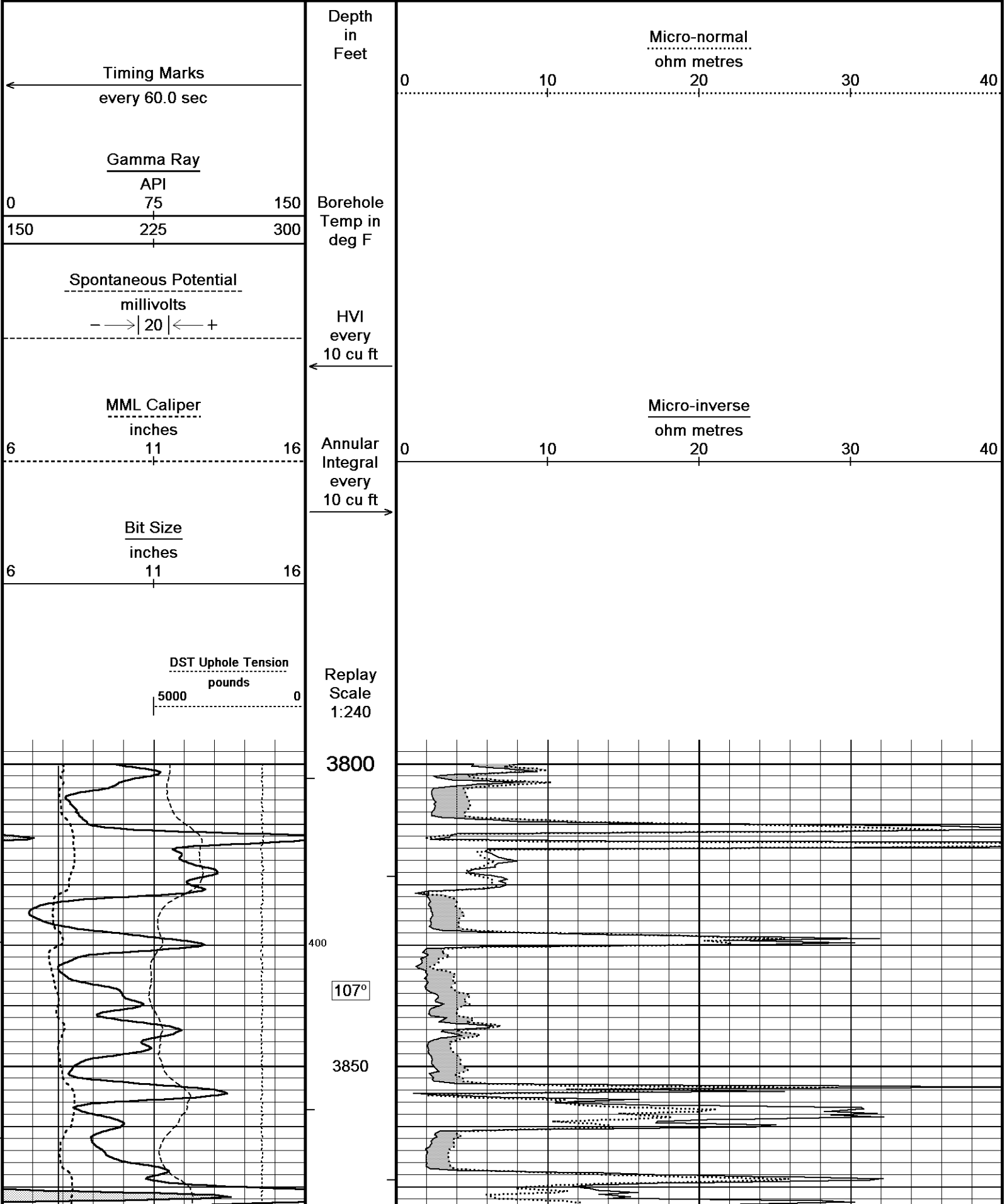
Depth Based Data - Maximum Sampling Increment 10.0cm

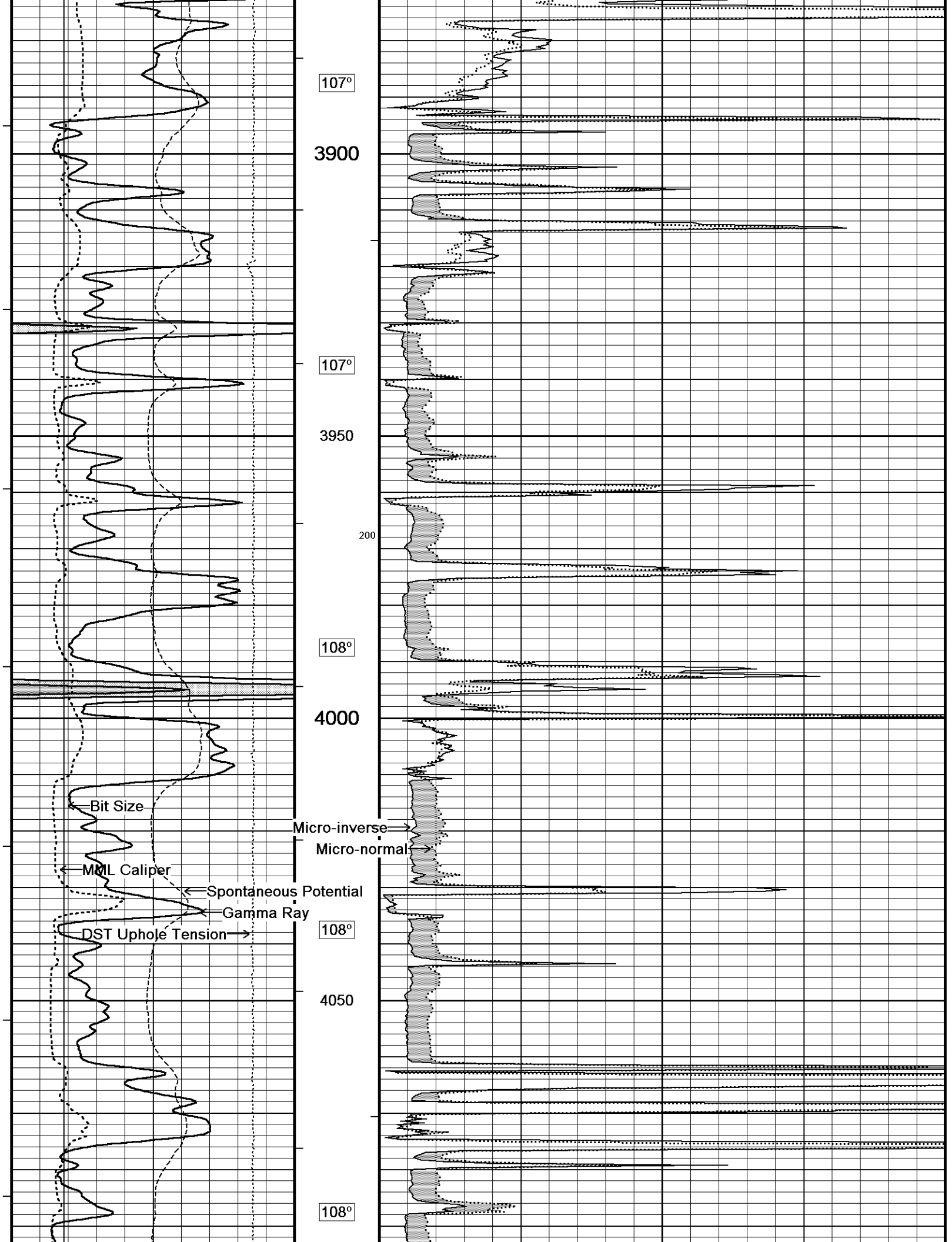
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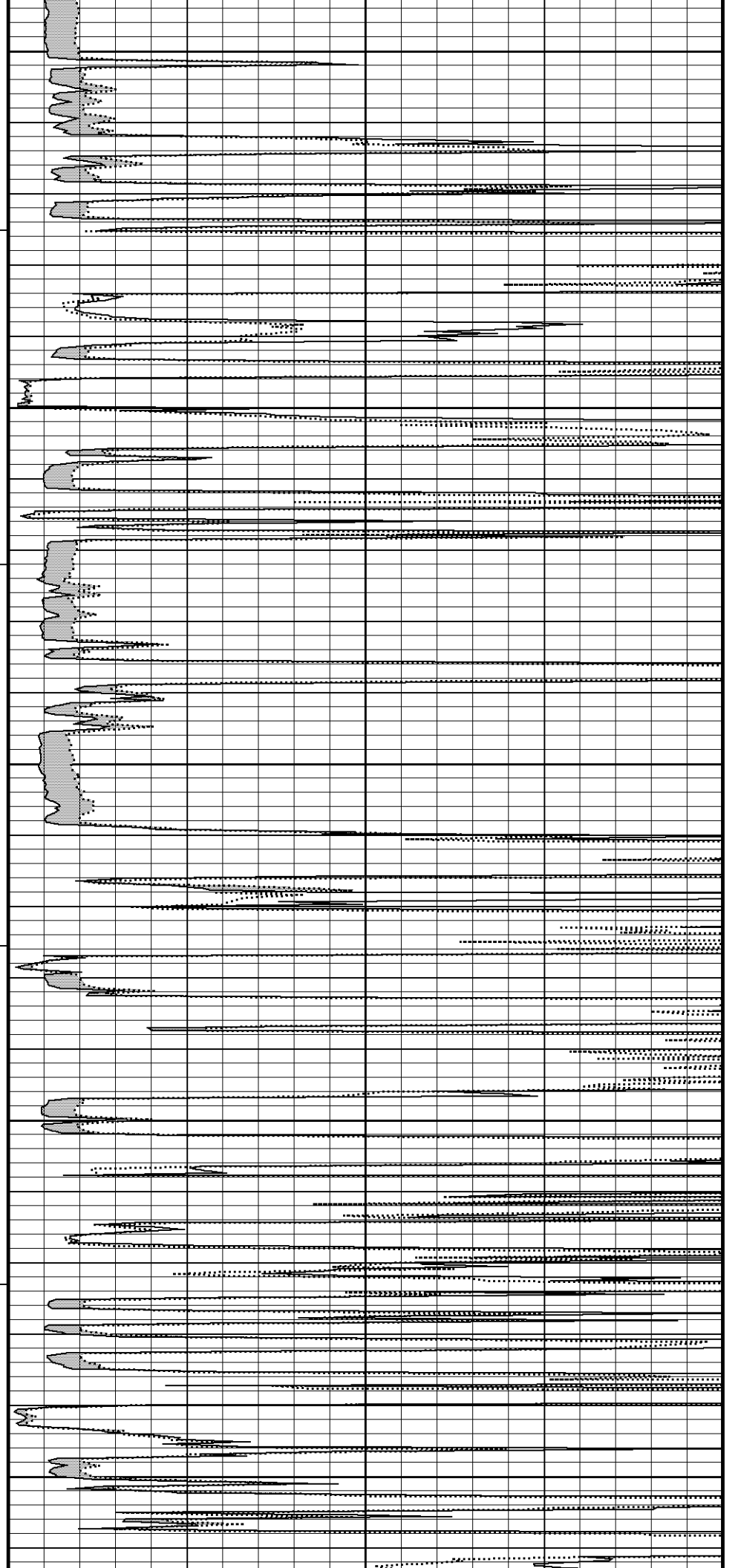
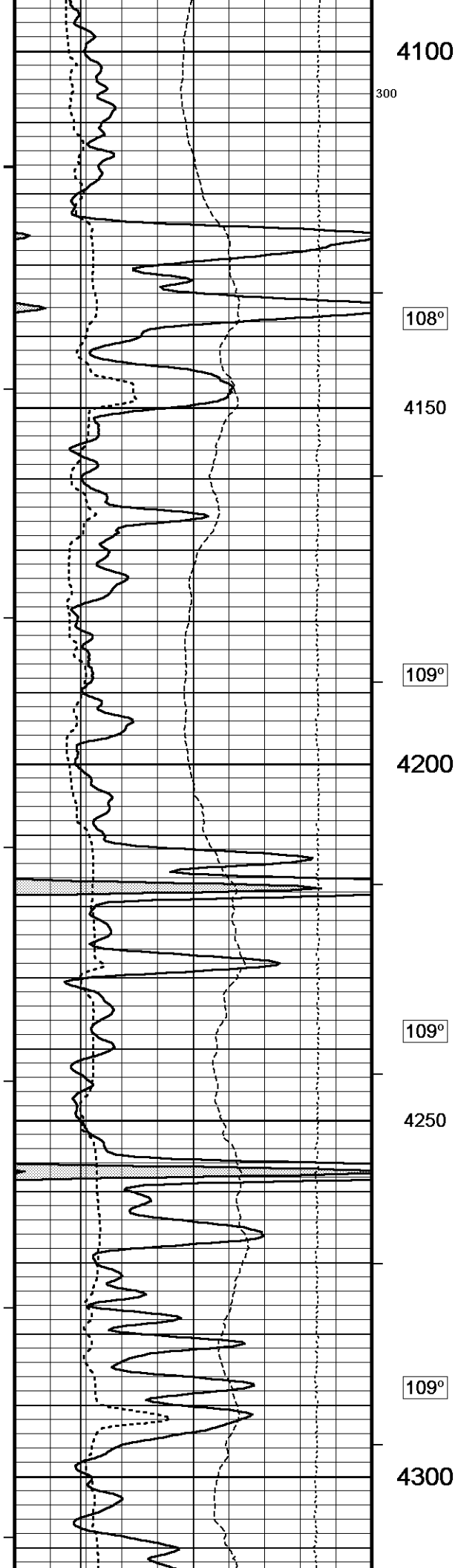
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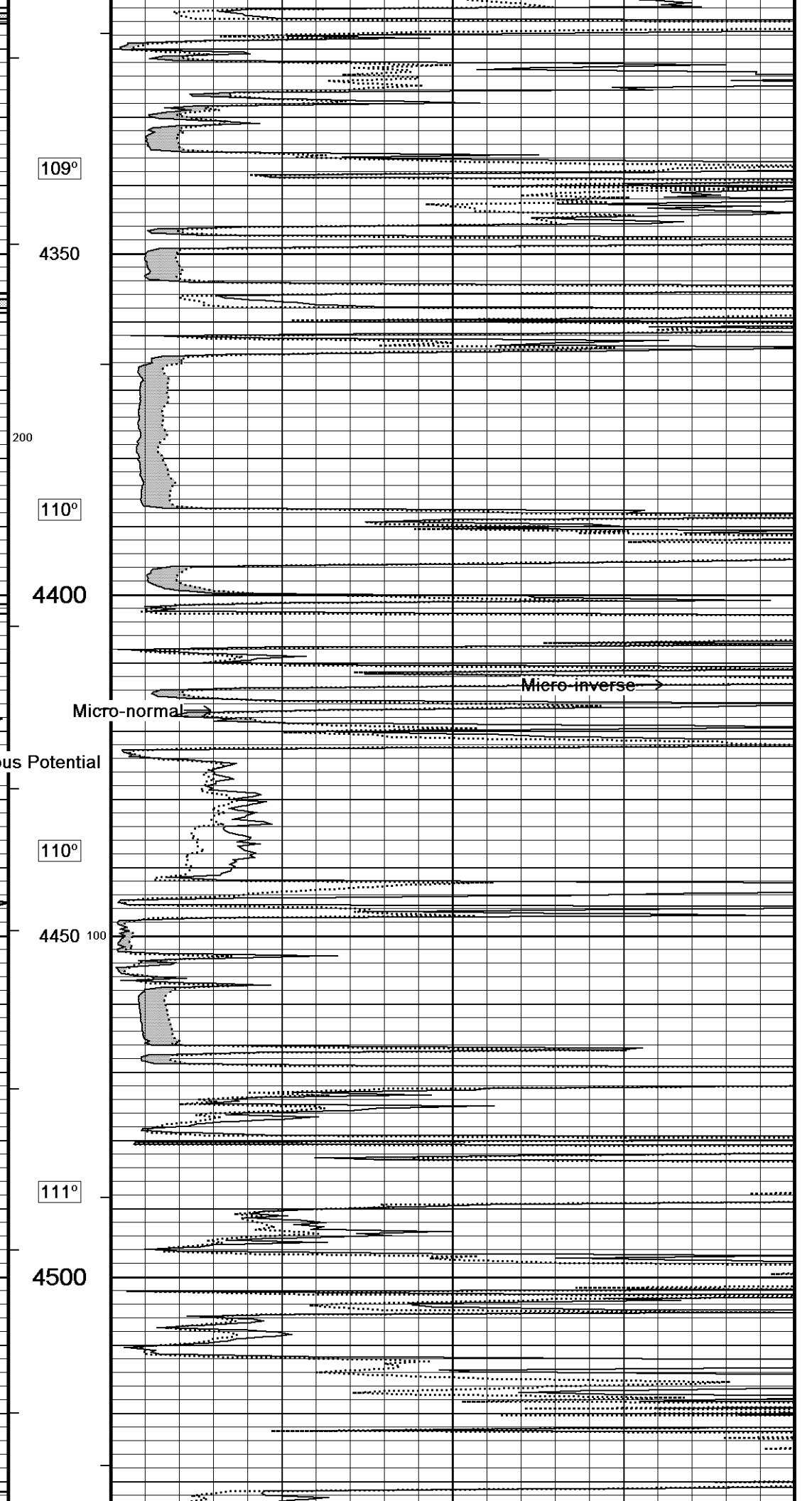
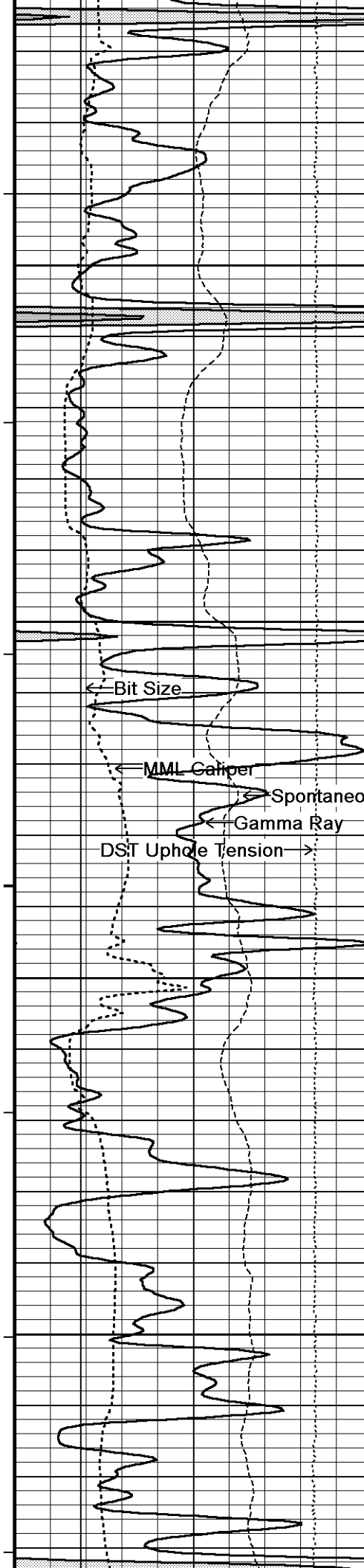
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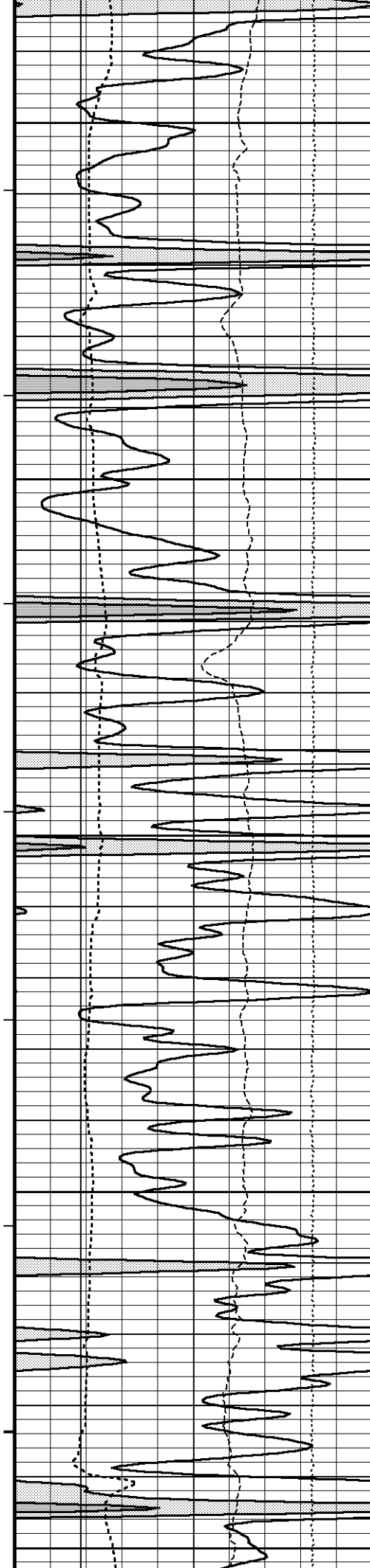
System Versions: Logged with 13.05.9583 Processed with 13.05.9583 Plotted with 13.05.9583



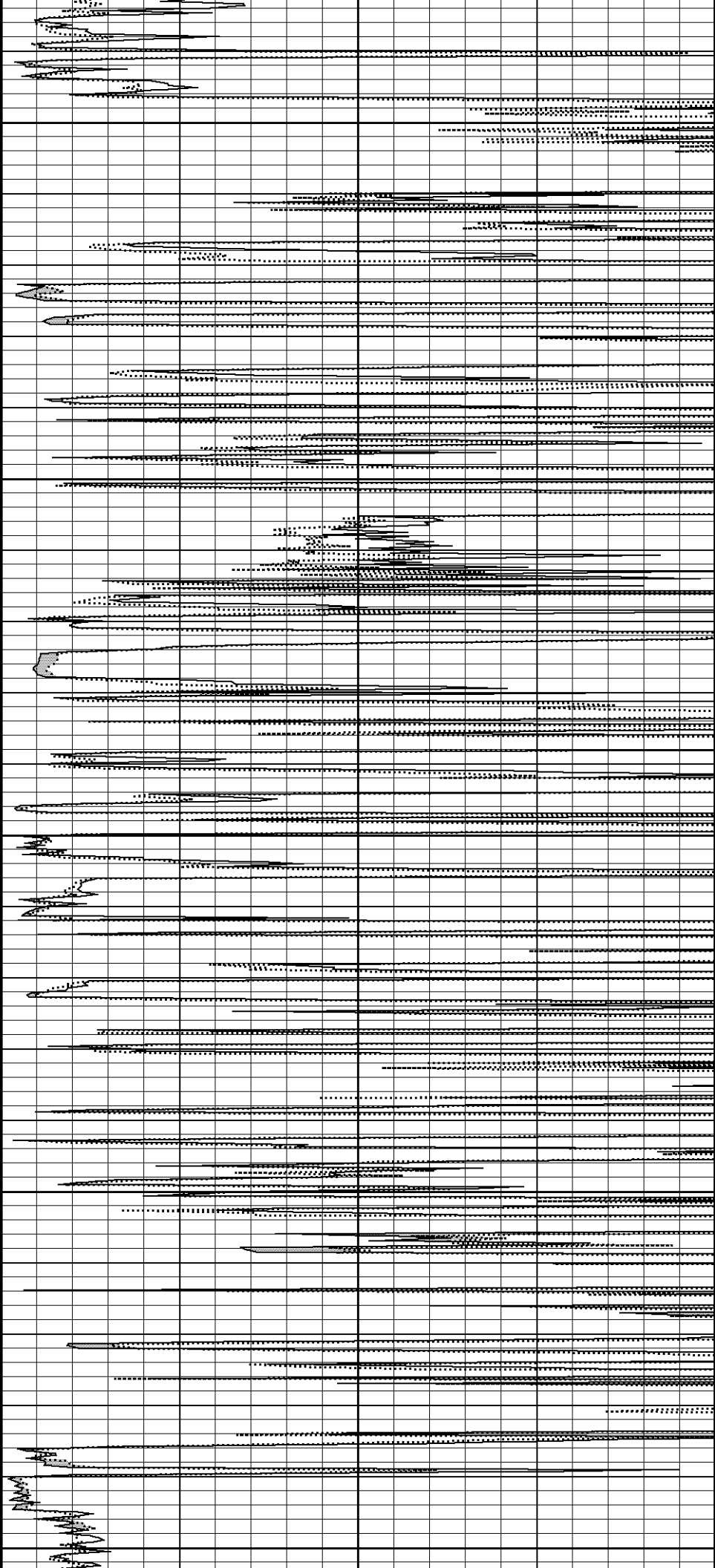


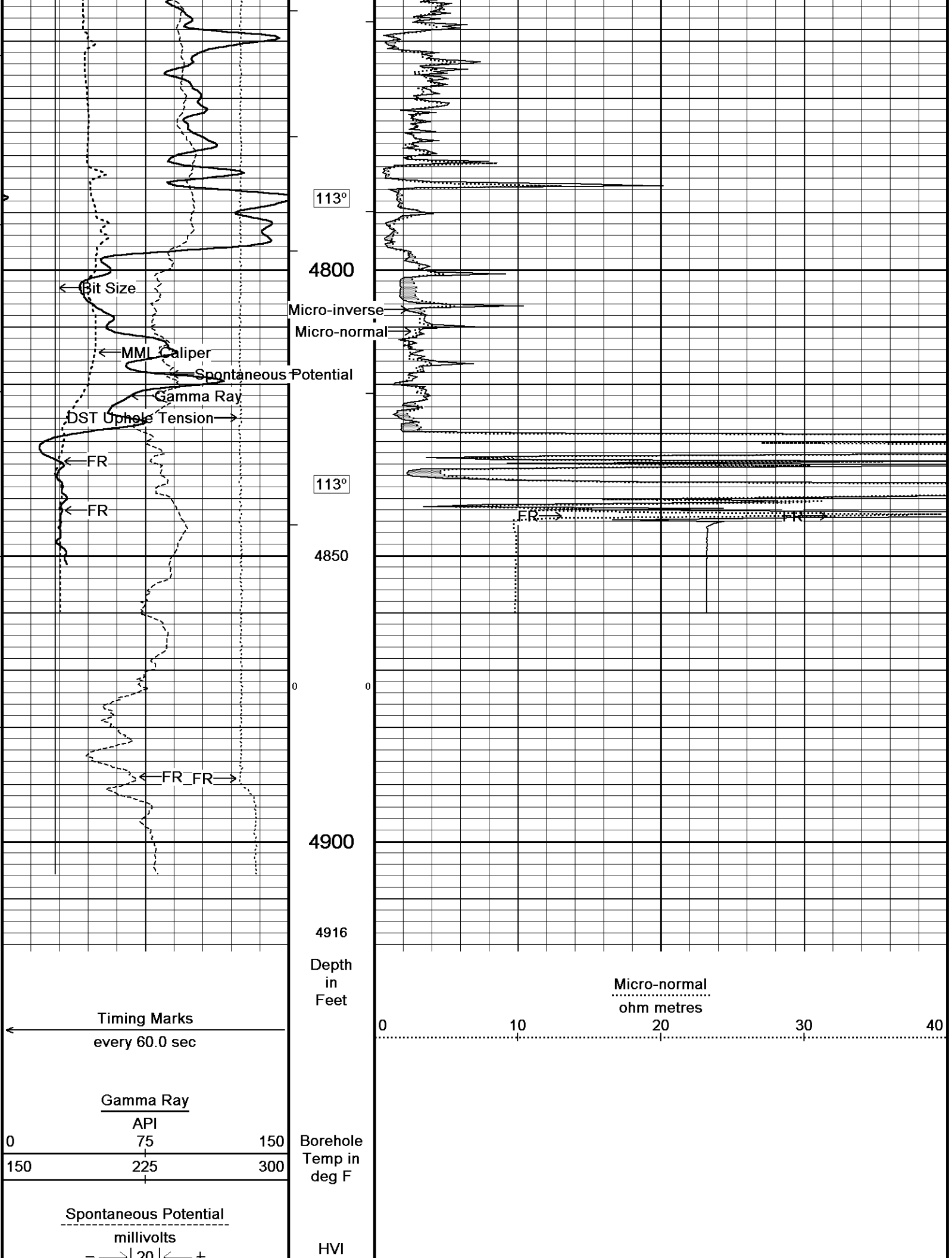


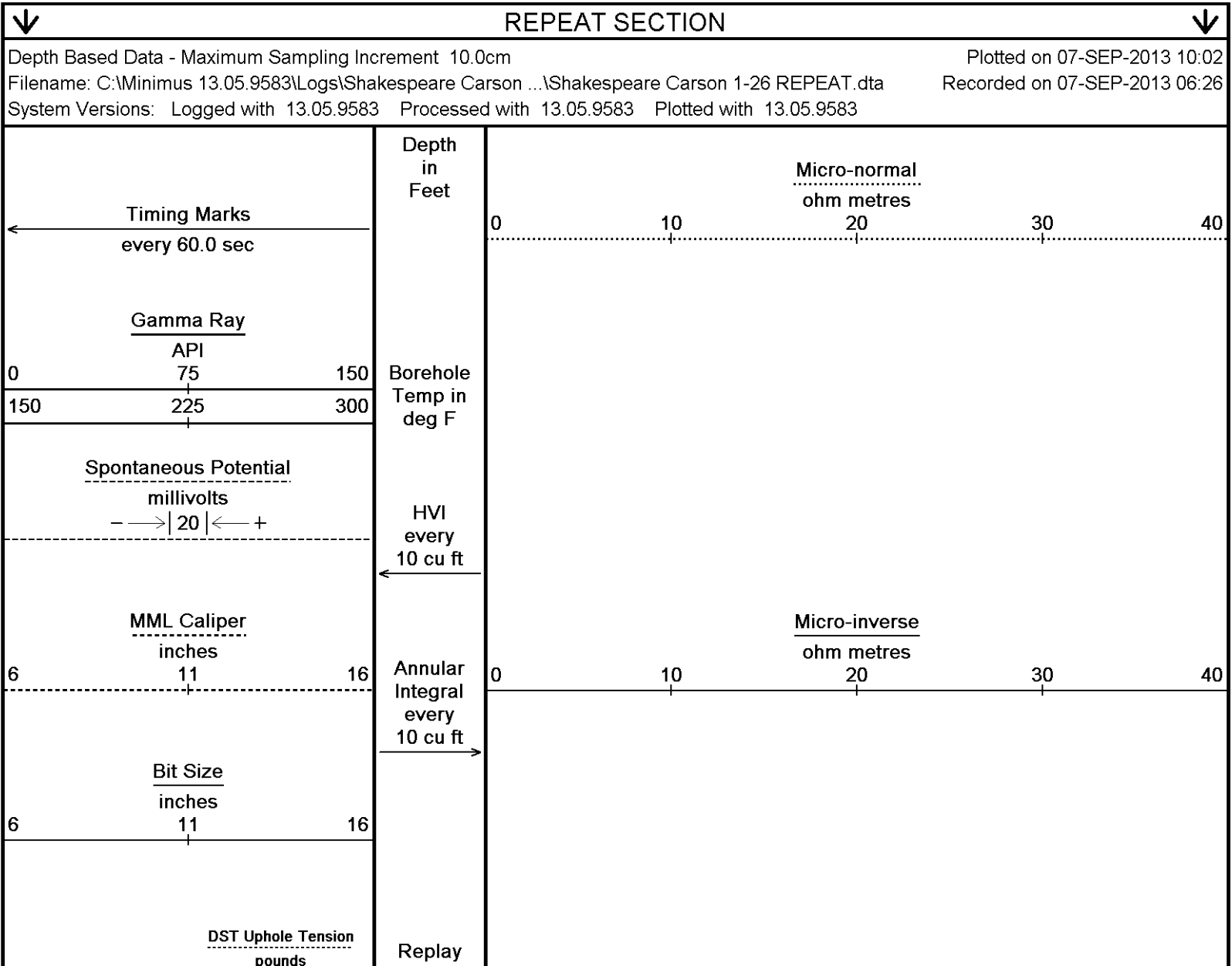
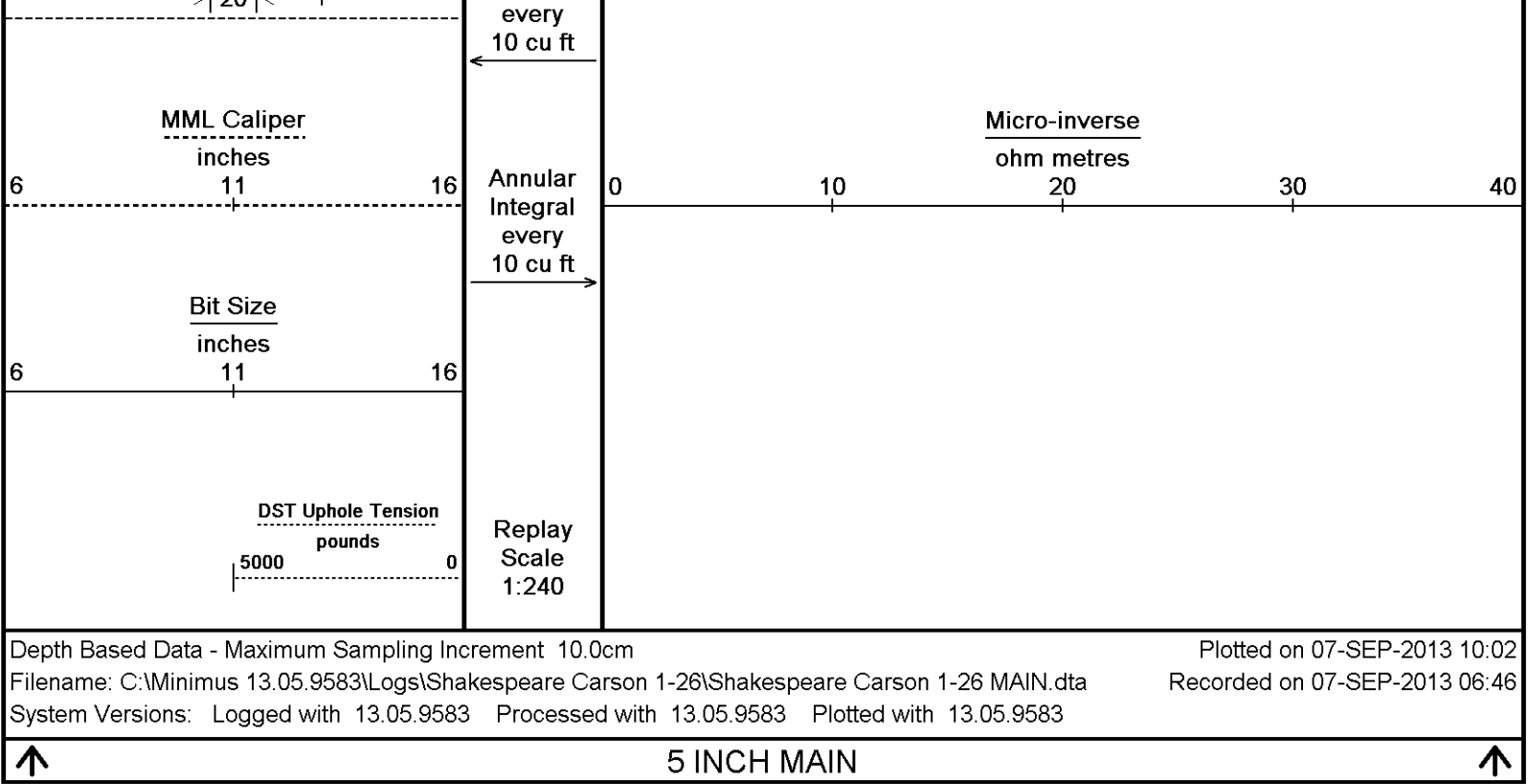




111°
4550
112°
4600
100
112°
4650
113°
4700
113°
4750







5000 0

Scale
1:240

4600

100

112°

4650

112°

4700

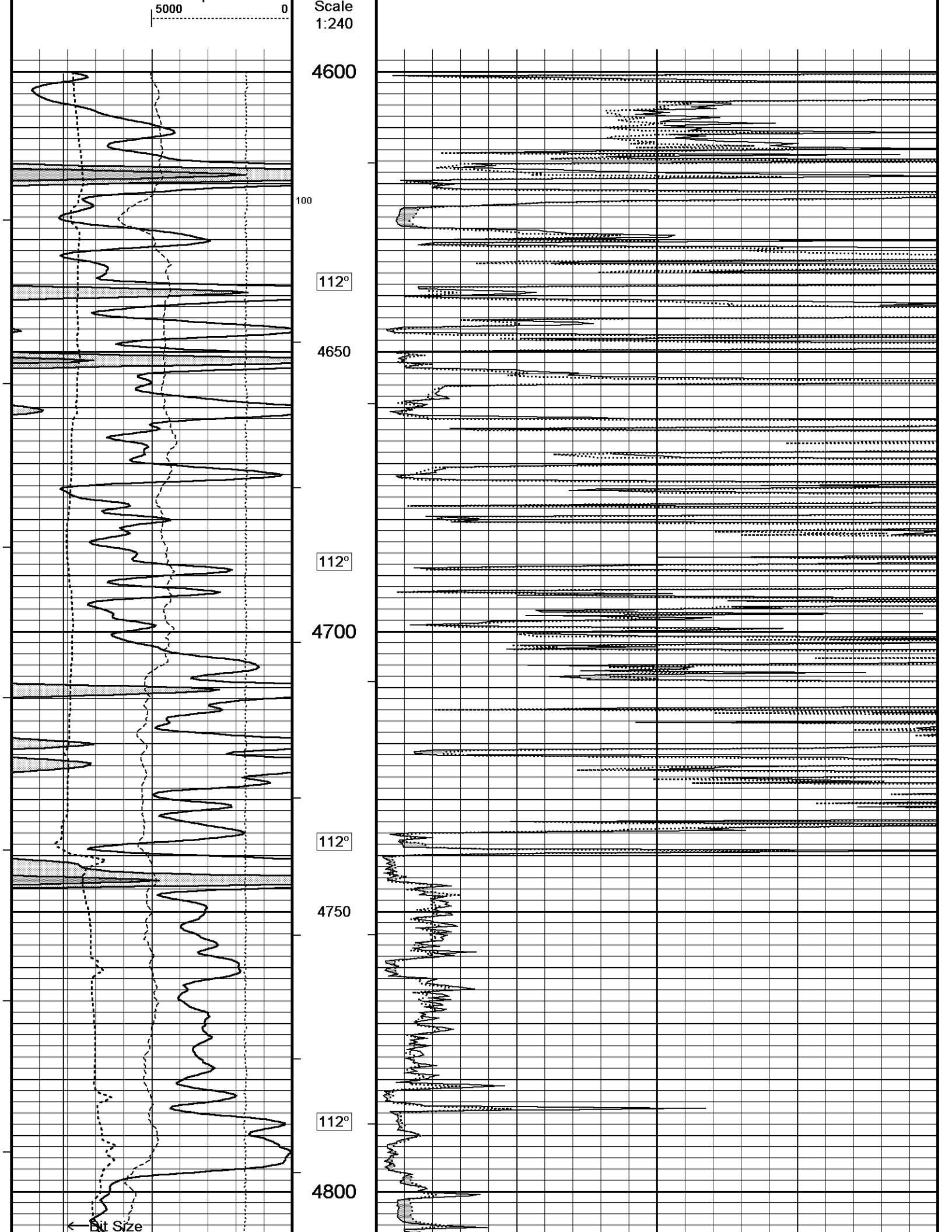
112°

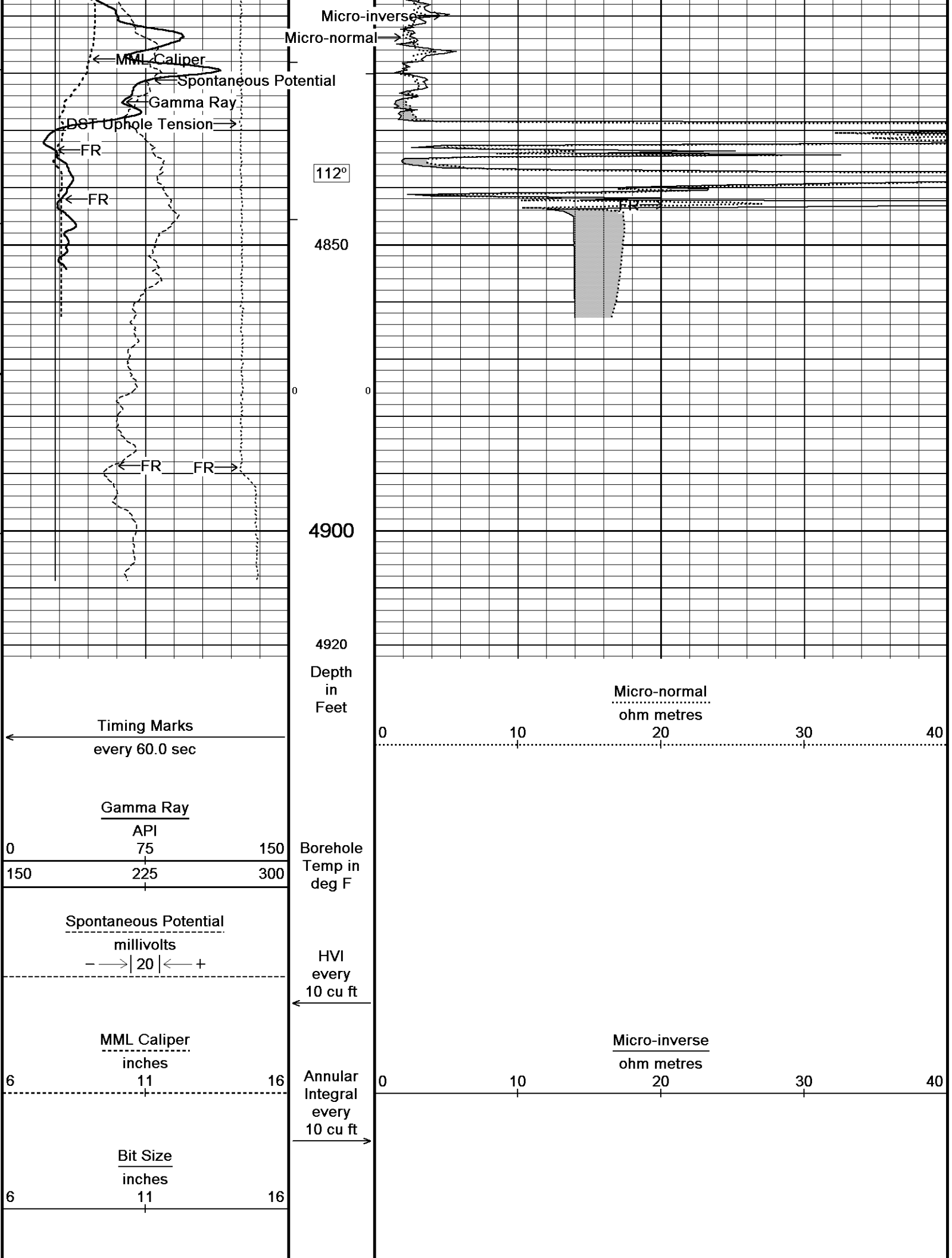
4750

112°

4800

Bit Size





DST Uphole Tension
pounds
5000 0

Replay
Scale
1:240

Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 07-SEP-2013 10:02

Filename: C:\Minimus 13.05.9583\Logs\Shakespeare Carson ...\Shakespeare Carson 1-26 REPEAT.dta

Recorded on 07-SEP-2013 06:26

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\Shakespeare Carson 1-26\Shakespeare Carson 1-26 REPEAT.dta

General Constants All 000

Last Edited on 07-SEP-2013,05:52

General Parameters

Mud Resistivity	0.300	ohm-metres
Mud Resistivity Temperature	91.000	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	MML Caliper	

Rwa Parameters

Porosity used	Crossplot Porosity
Resistivity used	Array Ind. One Res Rt
RWA Constant A	1.000
RWA Constant M	2.000
SW/APOR Tool Source	0.000

Gamma Calibration MCG-D.K 443

Field Calibration on 28-AUG-2013 04:17

	Measured	Calibrated (API)
Background	53	36
Calibrator (Gross)	1112	761
Calibrator (Net)	1059	725

Gamma Constants MCG-D.K 443

Last Edited on 07-SEP-2013,05:52

Gamma Calibrator Number	GRC38	
Mud Density	1.09	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 443

Field Calibration on 28-AUG-2013,04:08

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

High Resolution Temperature Constants MCG-D.K 443

Last Edited on 28-AUG-2013,04:08

Pre-filter Length	11
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Caliper Calibration MML-A 16

Base Calibration on 16-AUG-2013 09:13

Field Calibration on 28-AUG-2013 04:07

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	13832	5.98
2	16950	7.97
3	20199	9.86
4	24116	11.82

4	24116	11.92
5	0	0.00
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
7.98	7.97

Micro Normal and Micro Inverse Calibration MML-A 16

Base Calibration on 16-AUG-2013 09:25

Field Check on 28-AUG-2013 03:58

Base Calibration

Channel	Measured		Calibrated (ohm-m)	
	Resistor 1	Resistor 2	Resistor 1	Resistor 2
Micro Normal	12.2	60.2	5.0	25.0
Micro Inverse	15.6	78.3	5.0	25.0

Channel	Base Check (ohm-m)	Field Check (ohm-m)
Micro Normal	62.9	62.9
Micro Inverse	48.3	48.3

Micro Normal and Micro Inverse Constants MML-A 16

Last Edited on 29-AUG-2013,16:43

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 59

Base Calibration on 23-AUG-2013 11:17

Field Calibration on 06-SEP-2013,15:20

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	16284	3.99
2	23984	5.98
3	31584	7.97
4	39888	9.86
5	49152	11.92
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
7.93	7.77

DOWNHOLE EQUIPMENT

C:\Minimus 13.05.9583\Logs\Shakespeare Carson 1-26\Shakespeare Carson 1-26 REPEAT.dta

CBH-C, Cablehead, 11 pin

CBH-C 0 LG: 2.40 ft WT: 24.3 lb OD: 2.24 in

Compact Comms Gamma

MCG-D.K 443 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Compact Micro-log

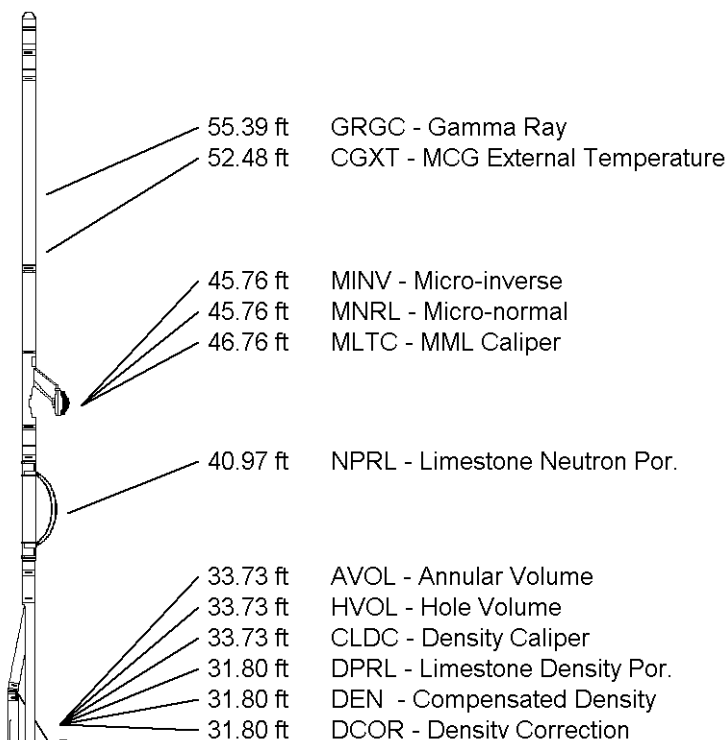
MML-A 16 LG: 7.97 ft WT: 81.6 lb OD: 2.24 in

Compact Neutron

MDN-B.J 387 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper

MPD-B 59 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

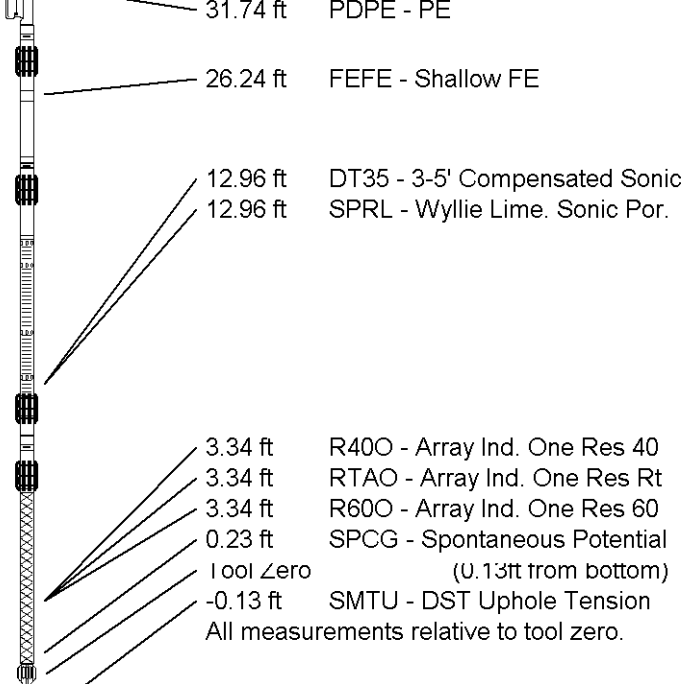


Compact Focussed Electric
MFE-A.A 55 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

Compact Sonic
MSS-A.A 126 LG: 12.52 ft WT: 72.8 lb OD: 2.24 in

Compact Induction
MAI-A.A 178 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 63.07 ft Weight: 480.6 lb



COMPANY SHAKESPEARE OIL CO. INC
WELL CARSON 1-26
FIELD PENCE EAST
PROVINCE/COUNTY SCOTT
COUNTRY/STATE U.S.A. / KANSAS

Elevation Kelly Bushing	3124.00	feet	First Reading	4842.00	feet
Elevation Drill Floor	3122.00	feet	Depth Driller	4890.00	feet
Elevation Ground Level	3114.00	feet	Depth Logger	4889.00	feet



Weatherford®

MICRORESISTIVITY LOG