



Weatherford
LOG

MICRORESISTIVITY LOG

COMPANY										SHAKESPEARE OIL COMPANY									
WELL										JANZEN #2-26									
FIELD										WILDCAT									
PROVINCE/COUNTY										SCOTT									
COUNTRY/STATE										U.S.A. / KANSAS									
LOCATION										2305' FSL & 1900' FWL									
										SW/4									
SEC	TWP		RGE		Other Services					MAI/MFE									
26	16S		34W		MPD/MDN														
API Number					15-171-20929					MSS									
Permit Number																			
Permanent Datum GL, Elevation 3115 feet															Elevations: KB 3125.00 DF 3124.00 GL 3115.00				
Log Measured From KB																			
Drilling Measured From KB																			
Date					14-MAR-2013														
Run Number					ONE														
Service Order					3539874														
Depth Driller					4897.00					feet									
Depth Logger					4896.00					feet									
First Reading					4850.00					feet									
Last Reading					3850.00					feet									
Casing Driller					264.00					feet									
Casing Logger					263.00					inches									
Bit Size					7.875														
Hole Fluid Type					CHEMICAL					lb/USg									
Density / Viscosity					9.00 lb/USg					57.00 CP									
PH / Fluid Loss					10.50					10.50									
Sample Source					MUDPIT														
Rm @ Measured Temp					0.51 @ 86.0					ohm-m									
Rmf @ Measured Temp					0.41 @ 86.0					ohm-m									
Rmc @ Measured Temp					0.61 @ 86.0					ohm-m									
Source Rmf / Rmc					CALC					CALC									
Rm @ BHT					0.41 @107.0					ohm-m									
Time Since Circulation					5 HOURS														
Max Recorded Temp					107.00					deg F									
Equipment / Base					13057					LIB									
Recorded By					ADAM SILL														
Witnessed By					TIM PRIEST														
IOB #					LB13-067														

BOREHOLE RECORD

Last Edited: 14-MAR-2013 13:20

Bit Size inches	Depth From feet	Depth To feet
7.875	264.00	4897.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	264.00	24.00

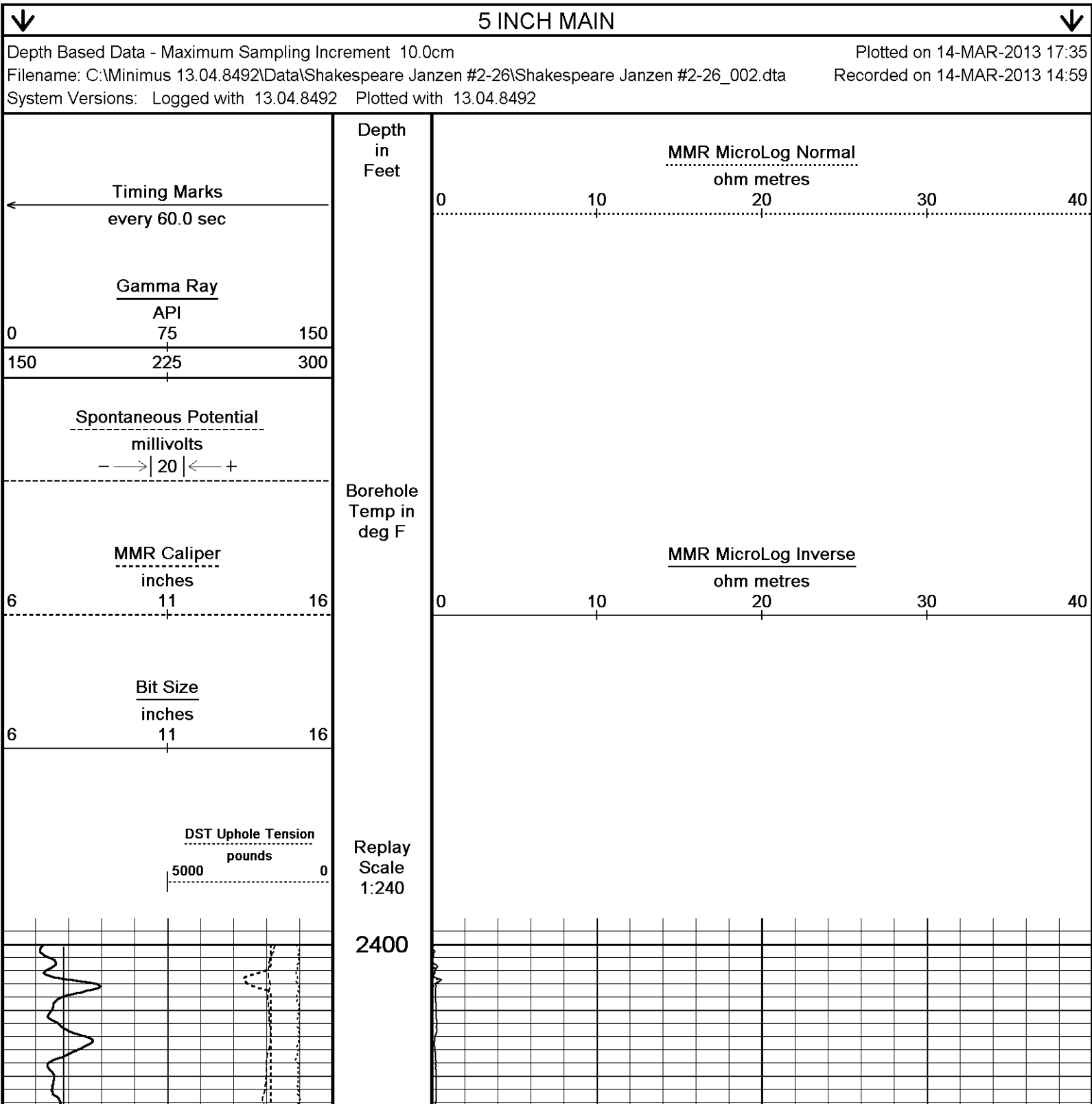
REMARKS

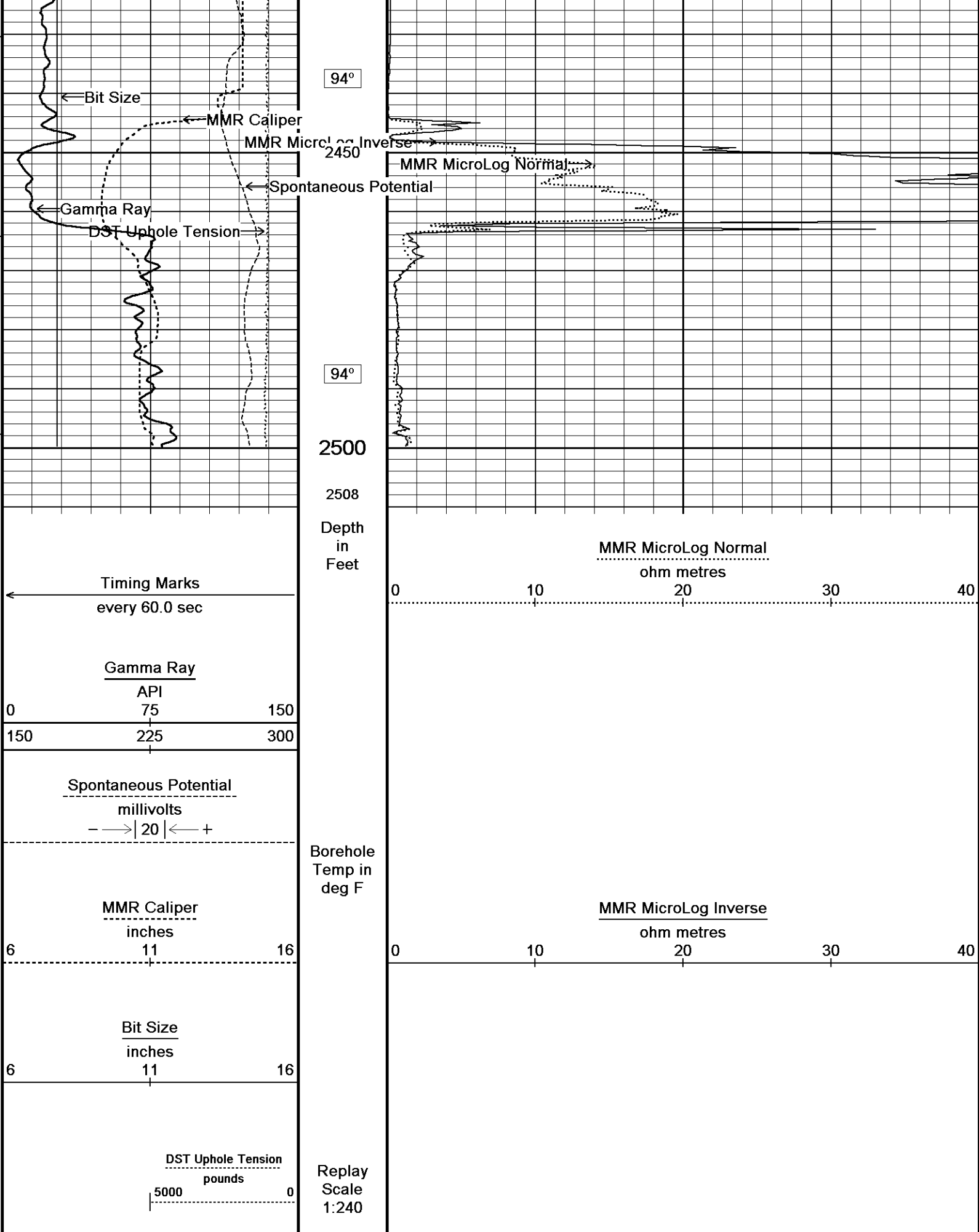
- SOFTWARE ISSUE: WLS 13.04.8492.
- MCG, MML, MDN, MPD, MFE, MSS, MAI RAN IN COMBINATION.
 - HARDWARE: DUAL BOWSPRING USED ON MDN.
 - 0.5 INCH STANDOFF USED ON MFE.
 - TWO 0.5 INCH STANDOFFS USED ON MSS.
 - 0.5 INCH STANDOFF USED ON MAI.
- 2.71 G/CC LIMESTONE DENSITY MATRIX USED TO CALCULATE POROSITY.
- 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: 2376 CU. FT.
- ANNULAR HOLE VOLUME WITH 5.5 INCH PRODUCTION CASING FROM TD TO 3850 FEET: 224 CU. FT.

- SERVICE ORDER # 3539874.
- RIG: H-D #2.
- ENGINEER: A. SILL.
- OPERATOR(S): N. ADAME.

**** SOFTWARE ISSUE CHANGED FLUID LOSS TO MATCH PH. FLUID LOSS SHOULD BE 7.6 ML/30MIN. ****

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.





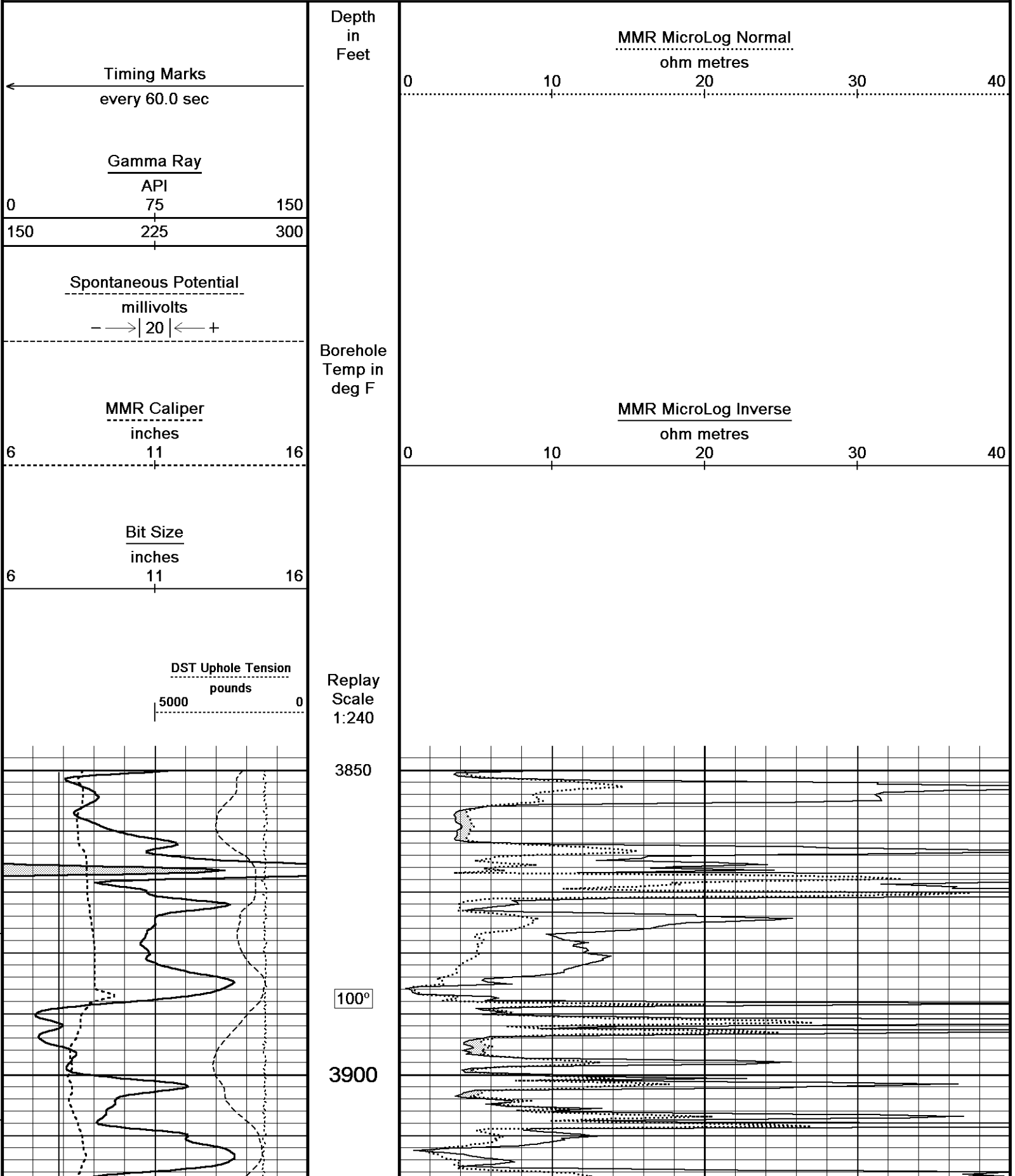
Depth Based Data - Maximum Sampling Increment 10.0cm

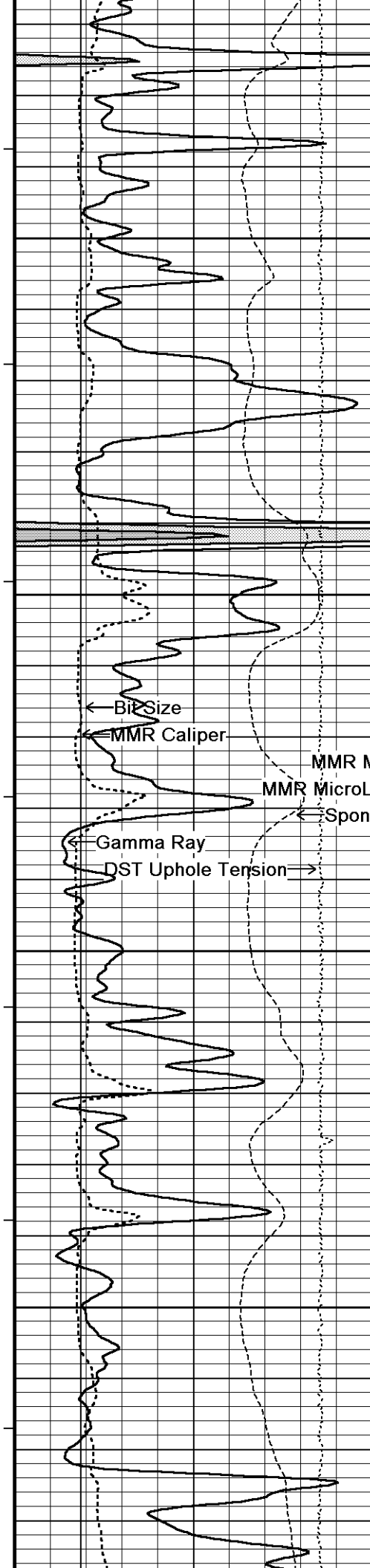
Plotted on 14-MAR-2013 17:35

Filename: C:\Minimus 13.04.8492\Data\Shakespeare Janzen #2-26\Shakespeare Janzen #2-26_002.dta

Recorded on 14-MAR-2013 14:59

System Versions: Logged with 13.04.8492 Plotted with 13.04.8492





101°

3950

101°

4000

MMR MicroLog Inverse

MMR MicroLog Normal

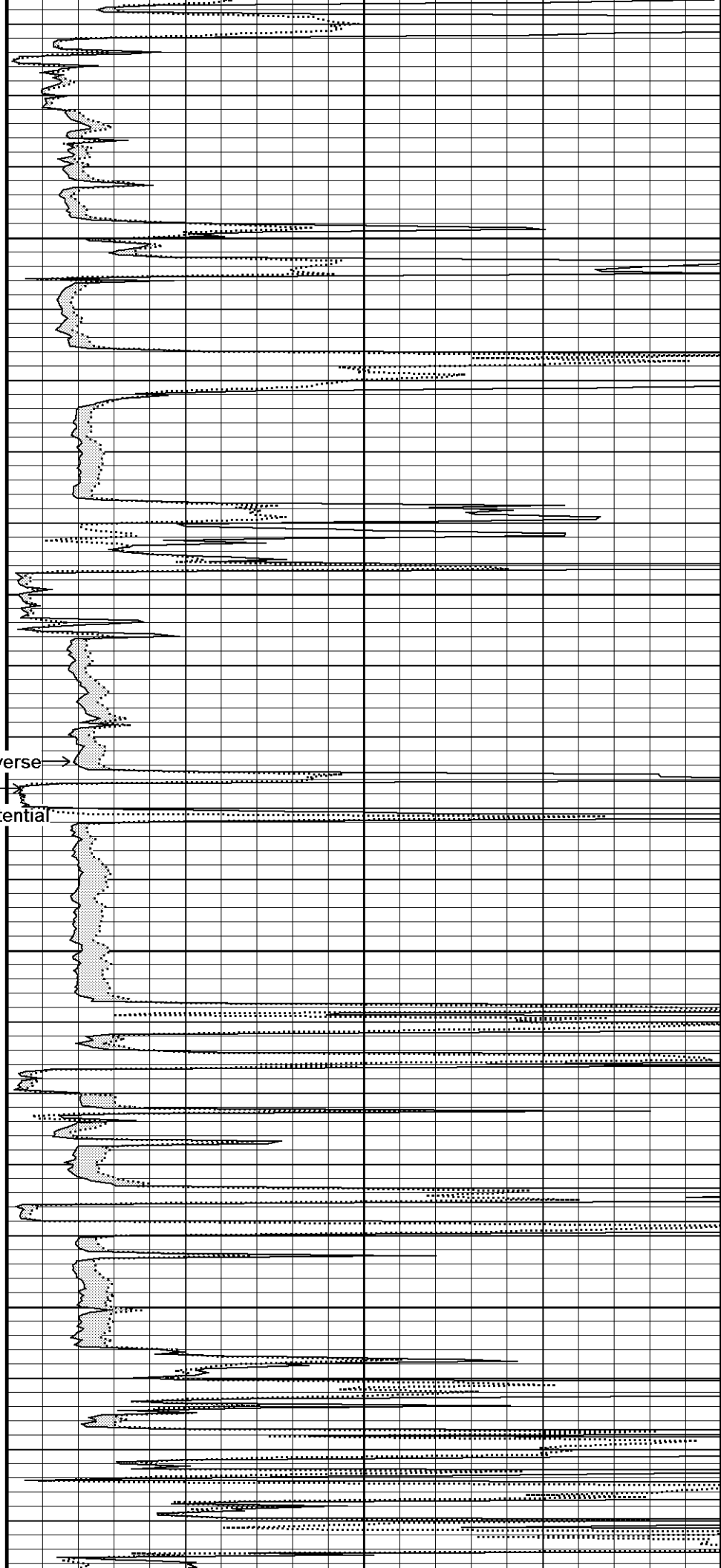
Spontaneous Potential

101°

4050

101°

4100





102°

4150

102°

4200

102°

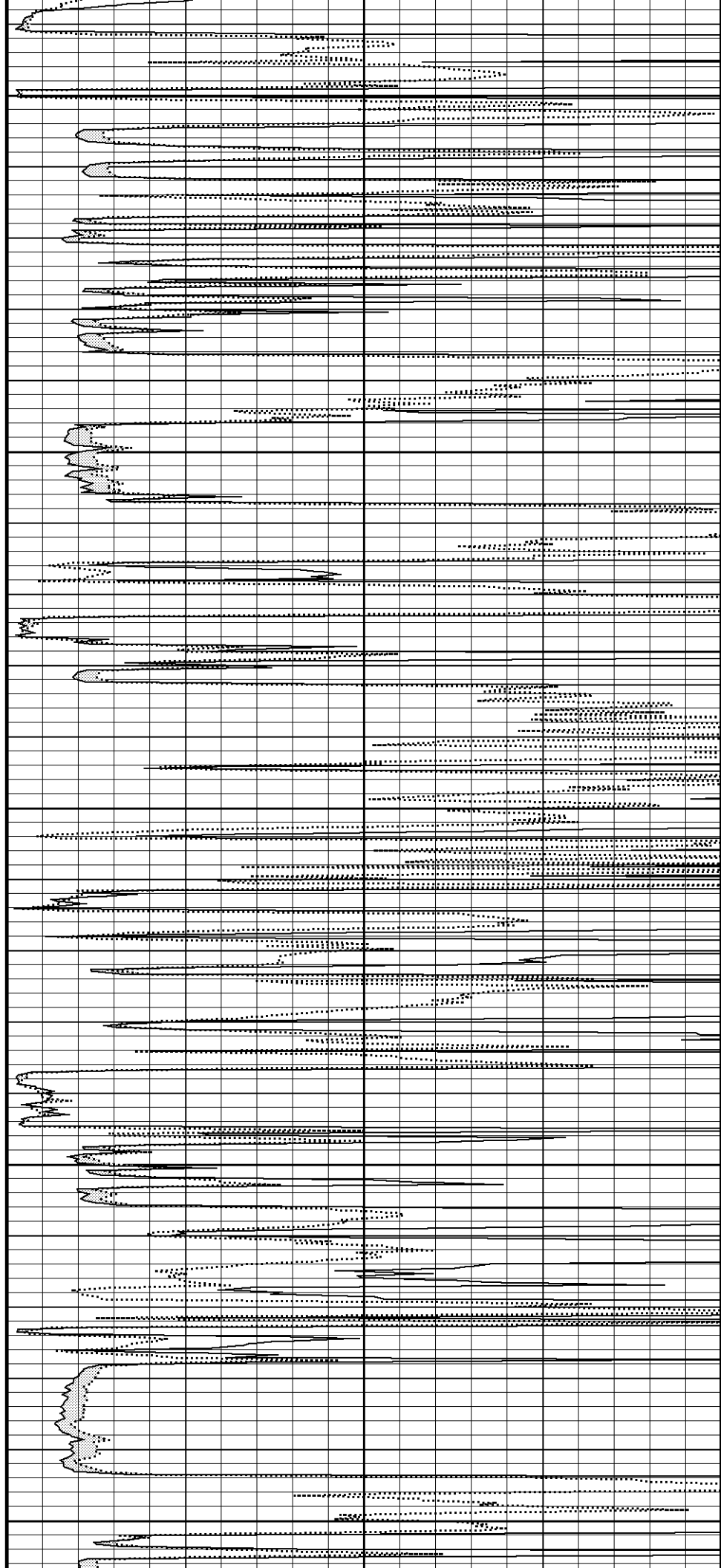
4250

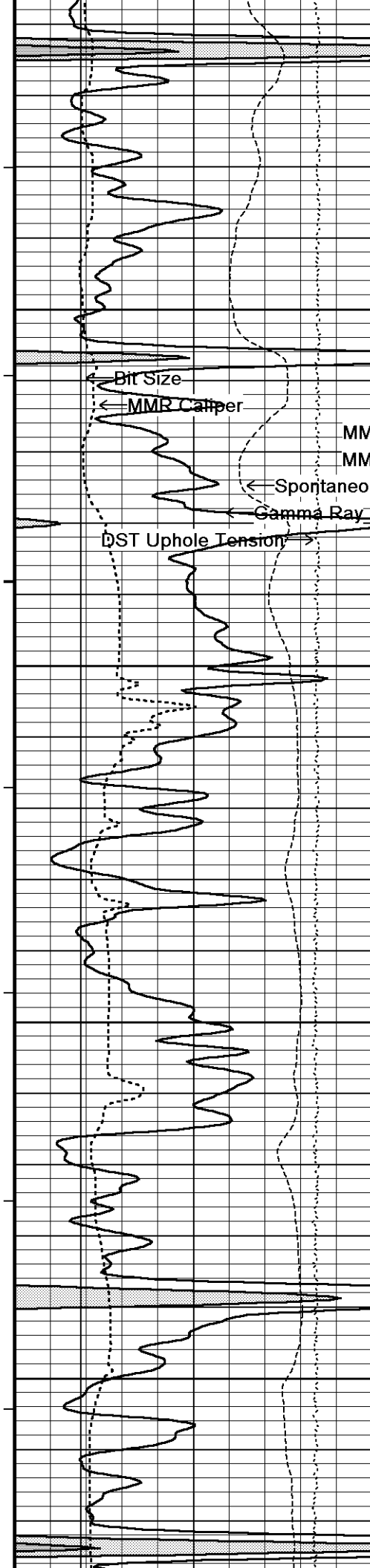
102°

4300

103°

4350





103°

4400

103°

4450

103°

4500

104°

4550

MMR MicroLog Inverse

MMR MicroLog Normal

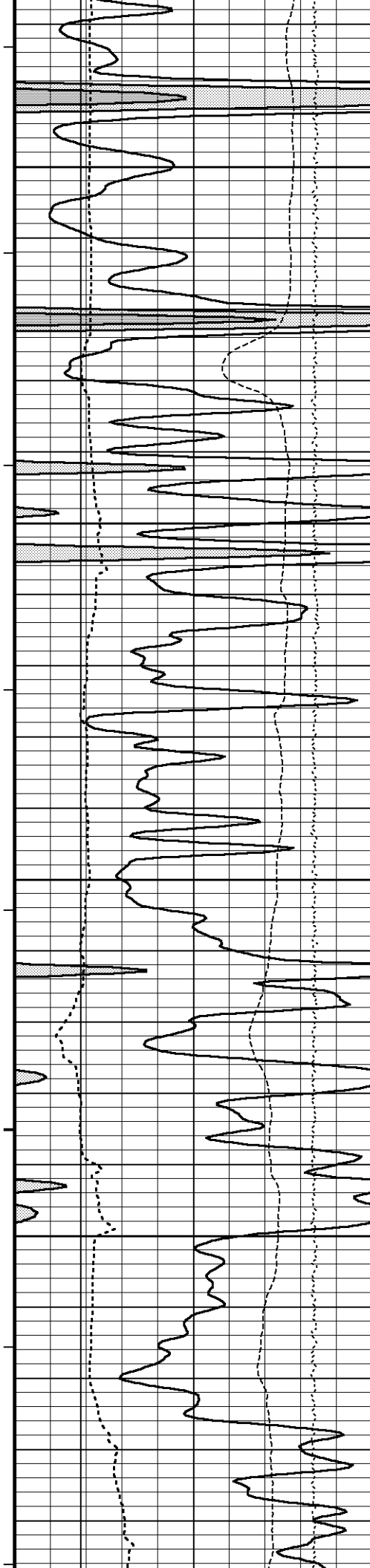
Spontaneous Potential

Gamma Ray

DST Uphole Tension

Bit Size

MMR Caliper



105°

4600

106°

4650

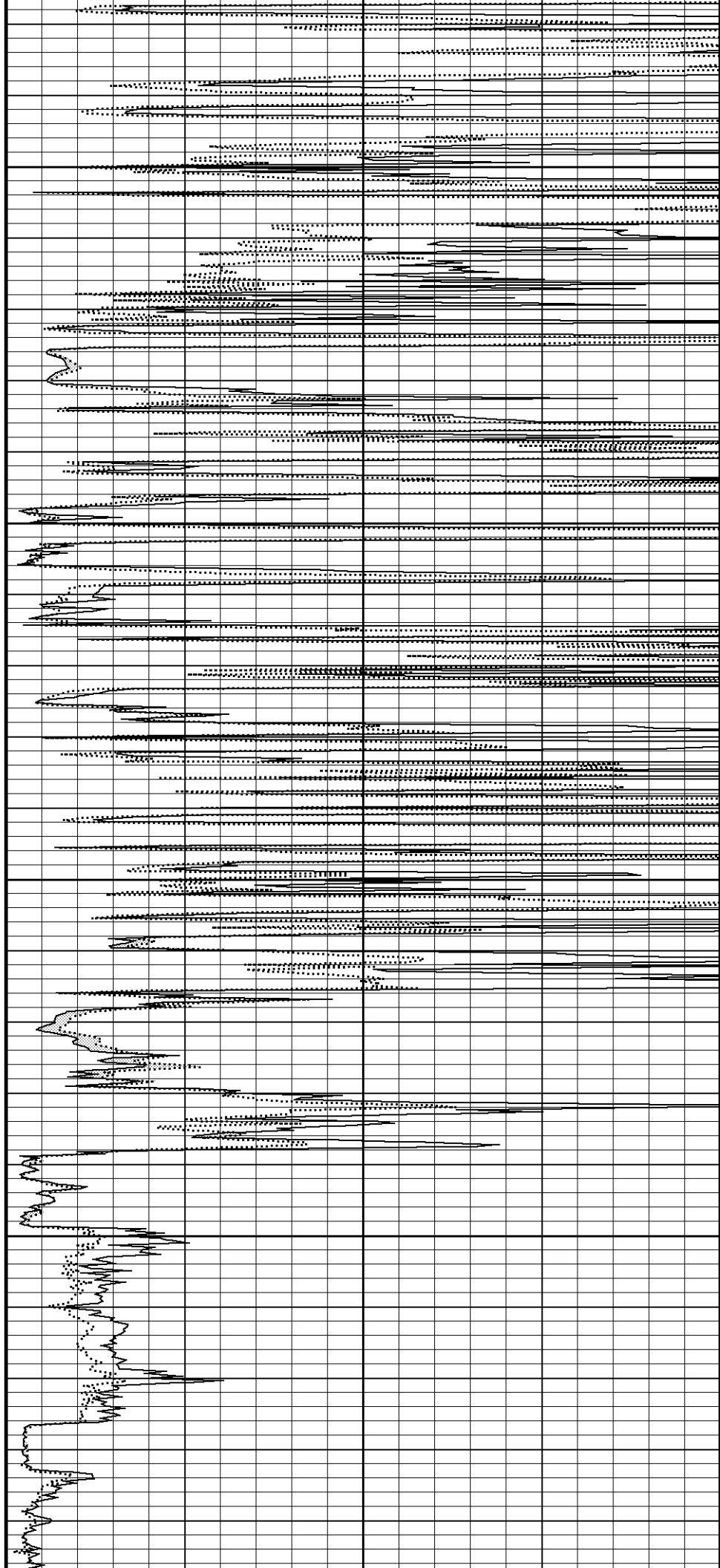
107°

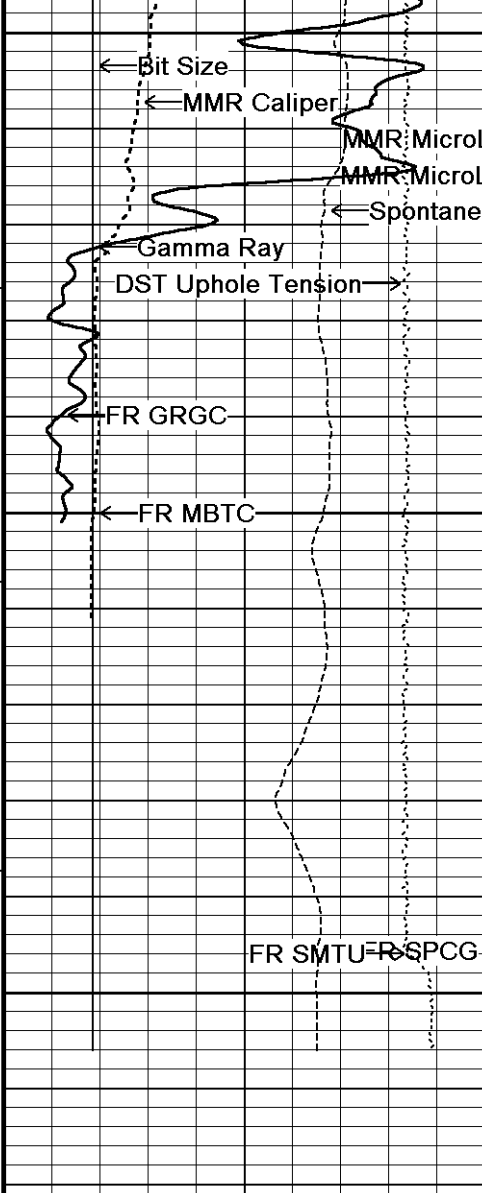
4700

107°

4750

107°





4800

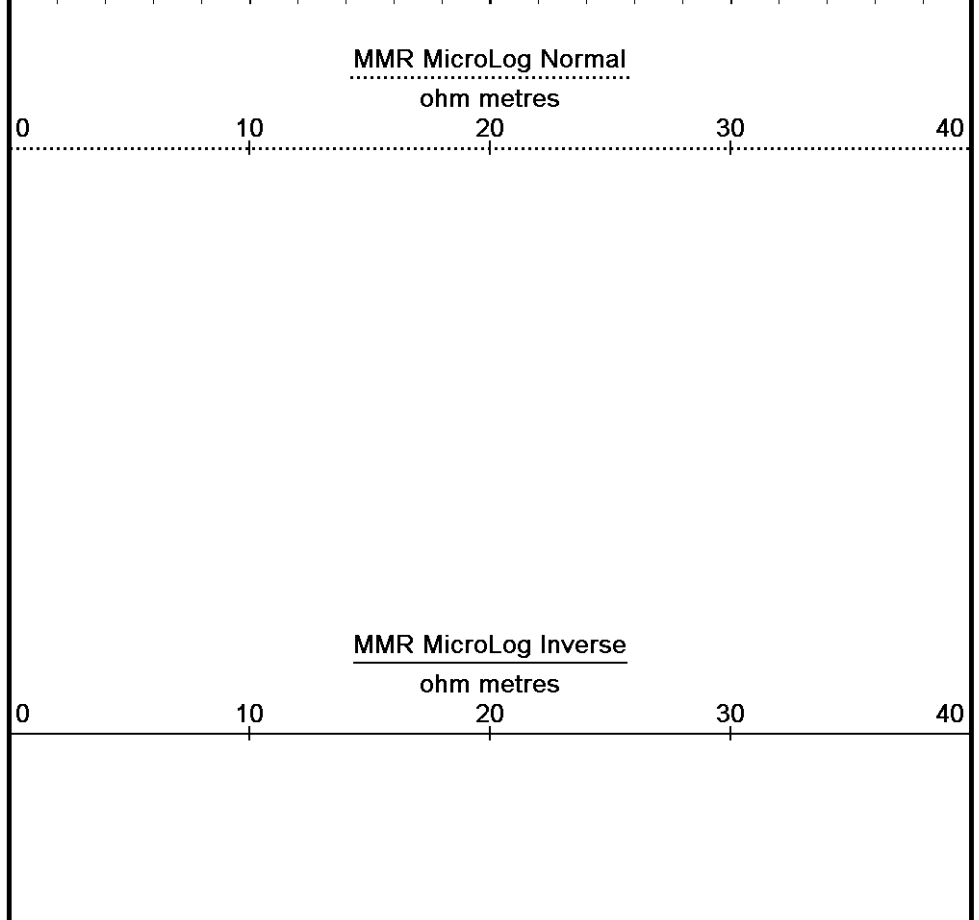
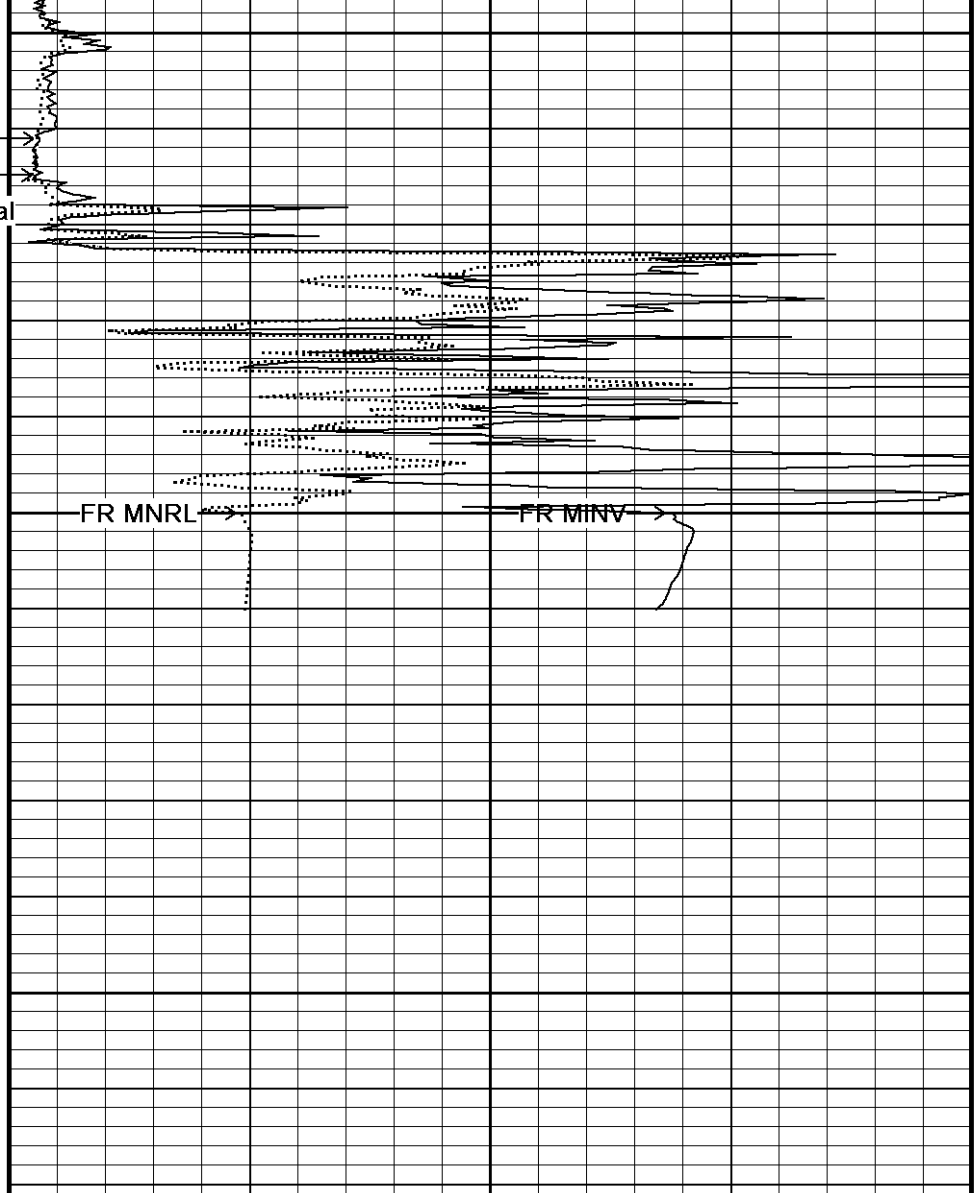
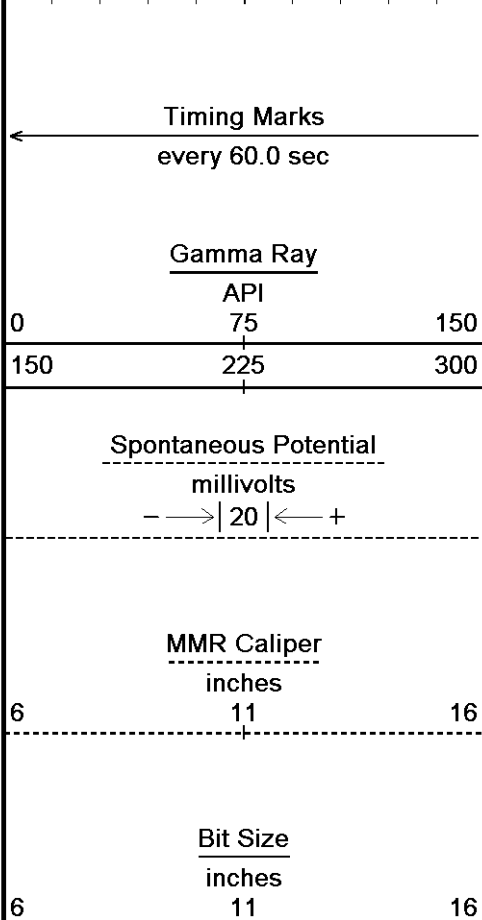
107°

4850

4900

4918

Depth
in
Feet



Borehole
Temp in
deg F

DST Uphole Tension
pounds
50000

Replay
Scale
1:240

Depth Based Data - Maximum Sampling Increment 10.0cmPlotted on 14-MAR-2013 17:35

Filename: C:\Minimus 13.04.8492\Data\Shakespeare Janzen #2-26\Shakespeare Janzen #2-26_002.dtaRecorded on 14-MAR-2013 14:59

System Versions: Logged with 13.04.8492Plotted with 13.04.8492

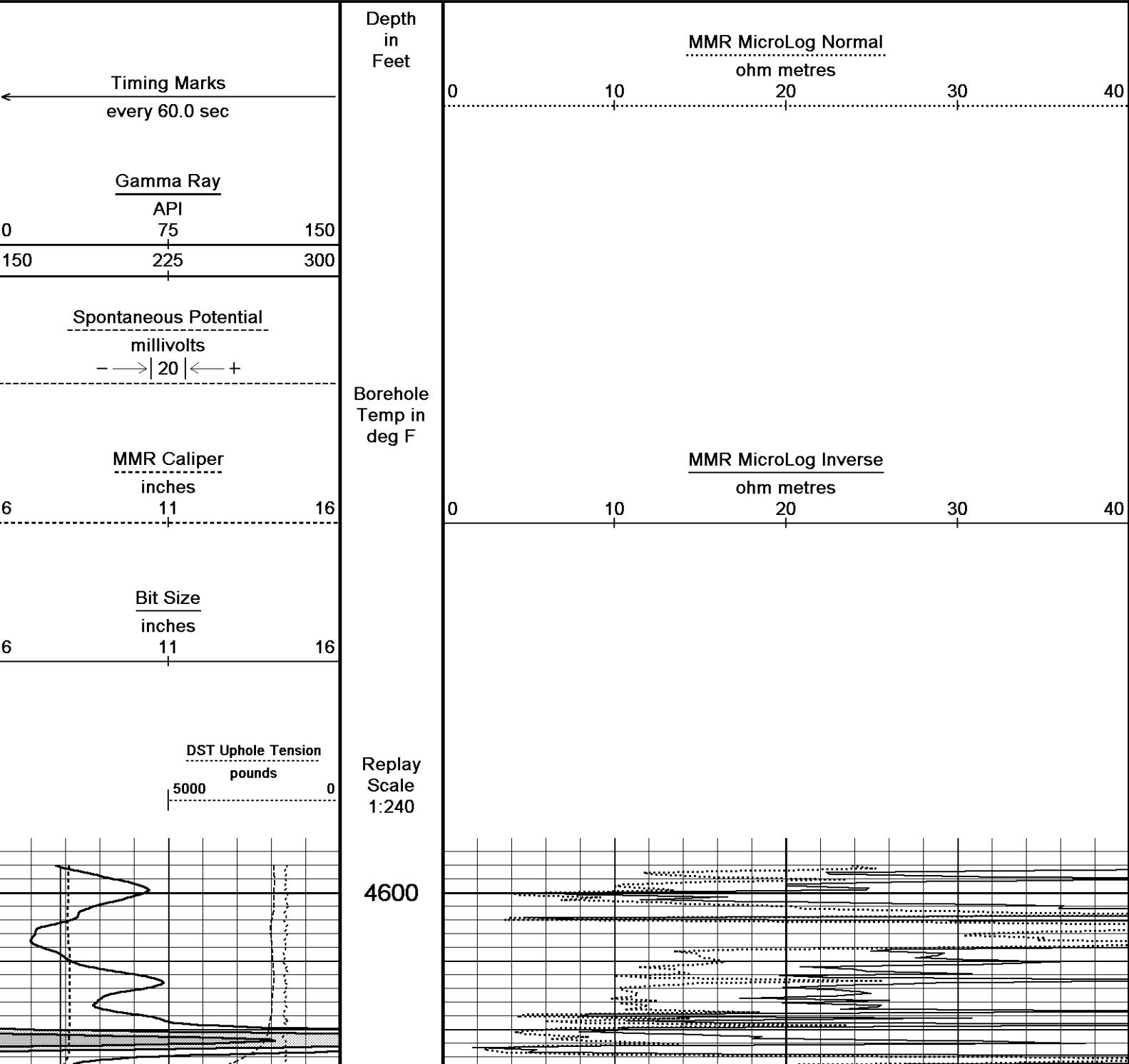
5 INCH MAIN

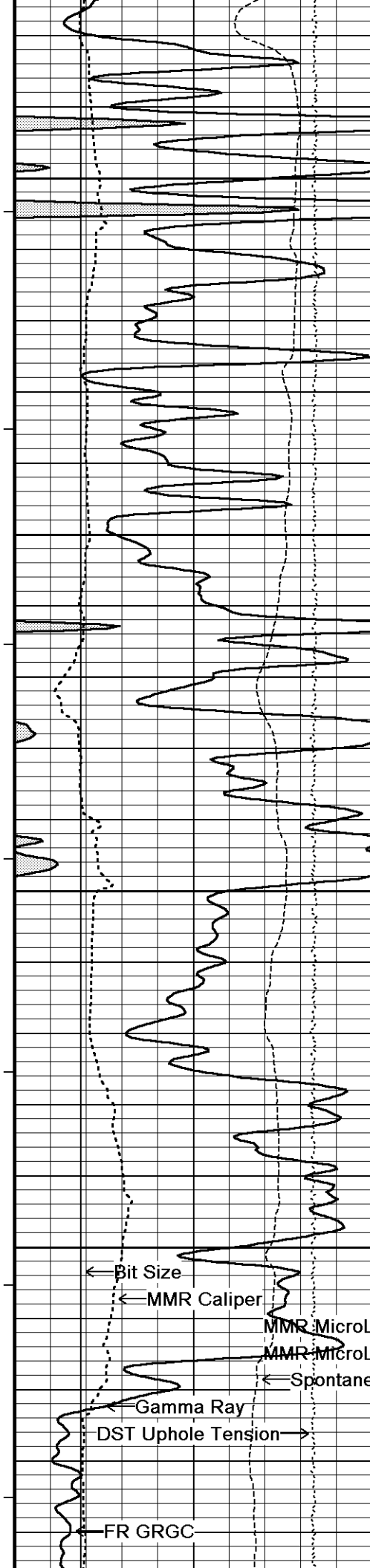
REPEAT SECTION

Depth Based Data - Maximum Sampling Increment 10.0cmPlotted on 14-MAR-2013 17:35

Filename: C:\Minimus 13.04.8492\Data\Shakespeare Janzen #2-26\Shakespeare Janzen #2-26_001.dtaRecorded on 14-MAR-2013 14:37

System Versions: Logged with 13.04.8492Plotted with 13.04.8492





104°

4650

105°

4700

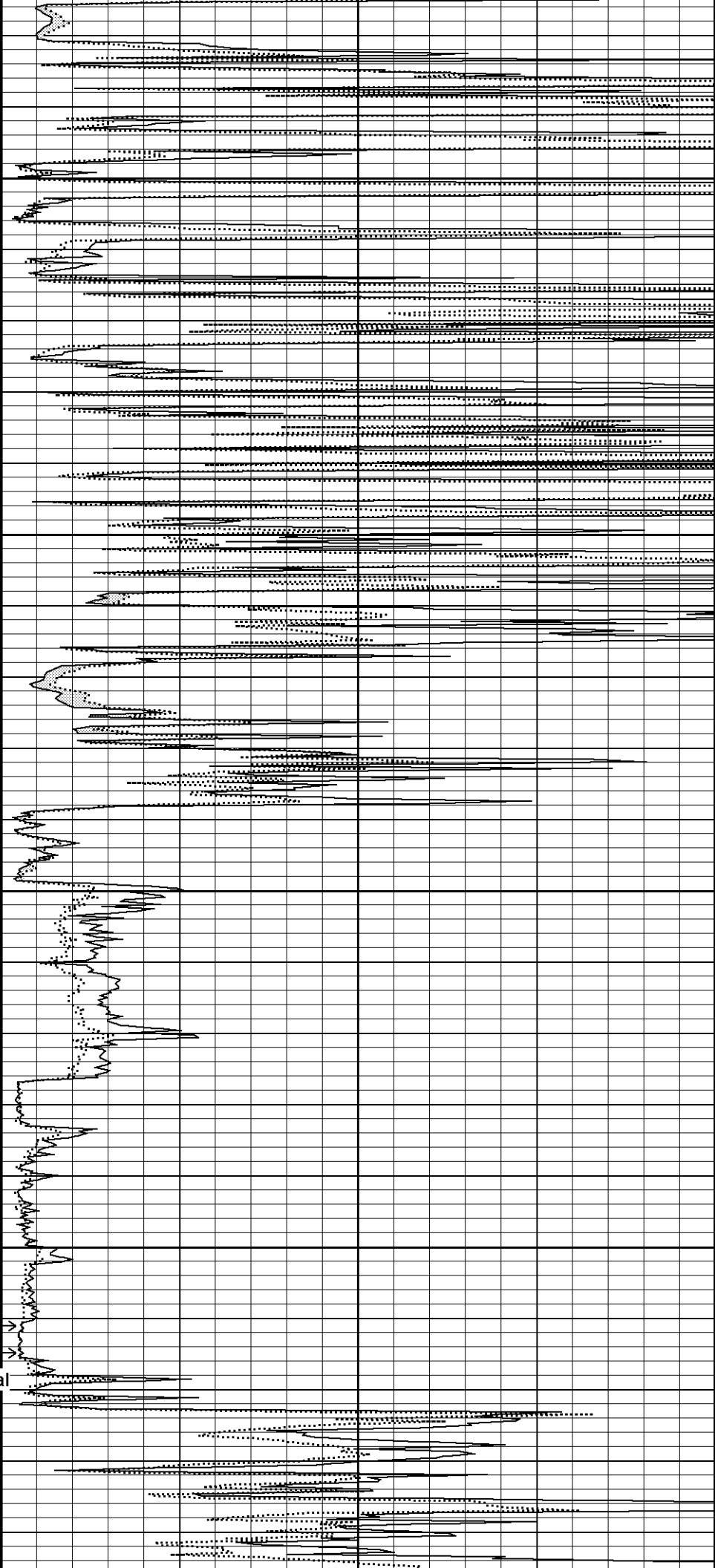
106°

4750

106°

4800

106°



MMR MicroLog Inverse

MMR MicroLog Normal

Spontaneous Potential

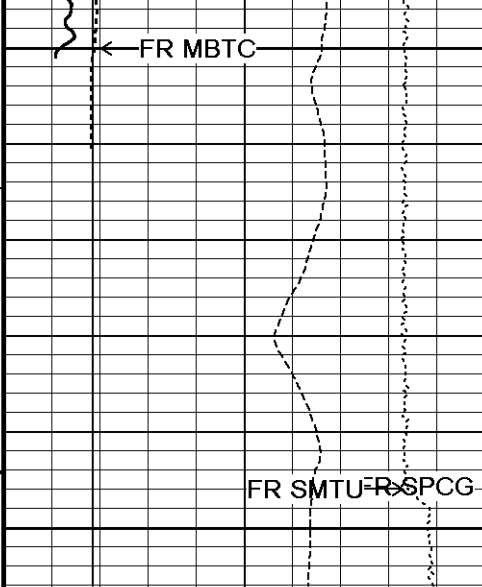
Bit Size

MMR Caliper

Gamma Ray

DST Uphole Tension

FR GRGC



4850

4900

4916

Depth
in
FeetTiming Marks
every 60.0 sec

Gamma Ray

API

75

0 150

225

150 300

Spontaneous Potential

millivolts

- —> | 20 | <— +

MMR Caliper

inches

6 11 16

Bit Size

inches

6 11 16

DST Uphole Tension

pounds

5000 0

Replay
Scale
1:240

FR MNRL

FR MINV

MMR MicroLog Normal
ohm metres

0 10 20 30 40

MMR MicroLog Inverse

ohm metres

0 10 20 30 40

Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 14-MAR-2013 17:35

Filename: C:\Minimus 13.04.8492\Data\Shakespeare Janzen #2-26\Shakespeare Janzen #2-26_001.dta

Recorded on 14-MAR-2013 14:37

System Versions: Logged with 13.04.8492 Plotted with 13.04.8492



REPEAT SECTION



BEFORE SURVEY CALIBRATION

General Constants All 000

Last Edited on 14-MAR-2013,13:50

General Parameters

Mud Resistivity	0.510	ohm-metres
Mud Resistivity Temperature	86.000	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	Deep Induction
RWA Constant A	1.000
RWA Constant M	2.000

Gamma Calibration MCG-D.K 469

Field Calibration on 08-MAR-2013 17:05

	Measured	Calibrated (API)
Background	74	49
Calibrator (Gross)	1167	774
Calibrator (Net)	1093	725

Gamma Constants MCG-D.K 469

Last Edited on 14-MAR-2013,13:49

Gamma Calibrator Number	GR38	
Mud Density	1.08	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl	0.00	kppm

High Resolution Temperature Calibration MCG-D.K 469

Field Calibration on 07-NOV-2012,10:25

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

High Resolution Temperature Constants MCG-D.K 469

Last Edited on 16-FEB-2013,15:17

Pre-filter Length	11
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Caliper Calibration MMR-A 11

Base Calibration on 08-MAR-2013 17:30

Field Calibration on 08-MAR-2013 17:31

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	13647	5.98
2	16765	7.97
3	19976	9.86
4	23885	11.92
5	0	0.00
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
5.99	5.98

Micro Normal and Micro Inverse Calibration MMR-A 11

Base Calibration on 08-MAR-2013 17:36

Field Check on 08-MAR-2013 17:37

Base Calibration

		Measured	Calibrated (ohm-m)
Channel	Resistor 1	Resistor 2	Resistor 1 Resistor 2
Micro Normal	12.4	60.0	5.0 25.0
Micro Inverse	15.5	77.5	5.0 25.0

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

76.3
58.7

76.3
58.7

Micro Normal and Micro Inverse Constants MMR-A 11

Last Edited on 05-NOV-2012,13:54

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

DOWNHOLE EQUIPMENT

C:\Minimus 13.04.8492\Data\Shakespeare Janzen #2-26\Shakespeare Janzen #2-26_001.dta

Compact Comms Gamma
MCG-D.K 469 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

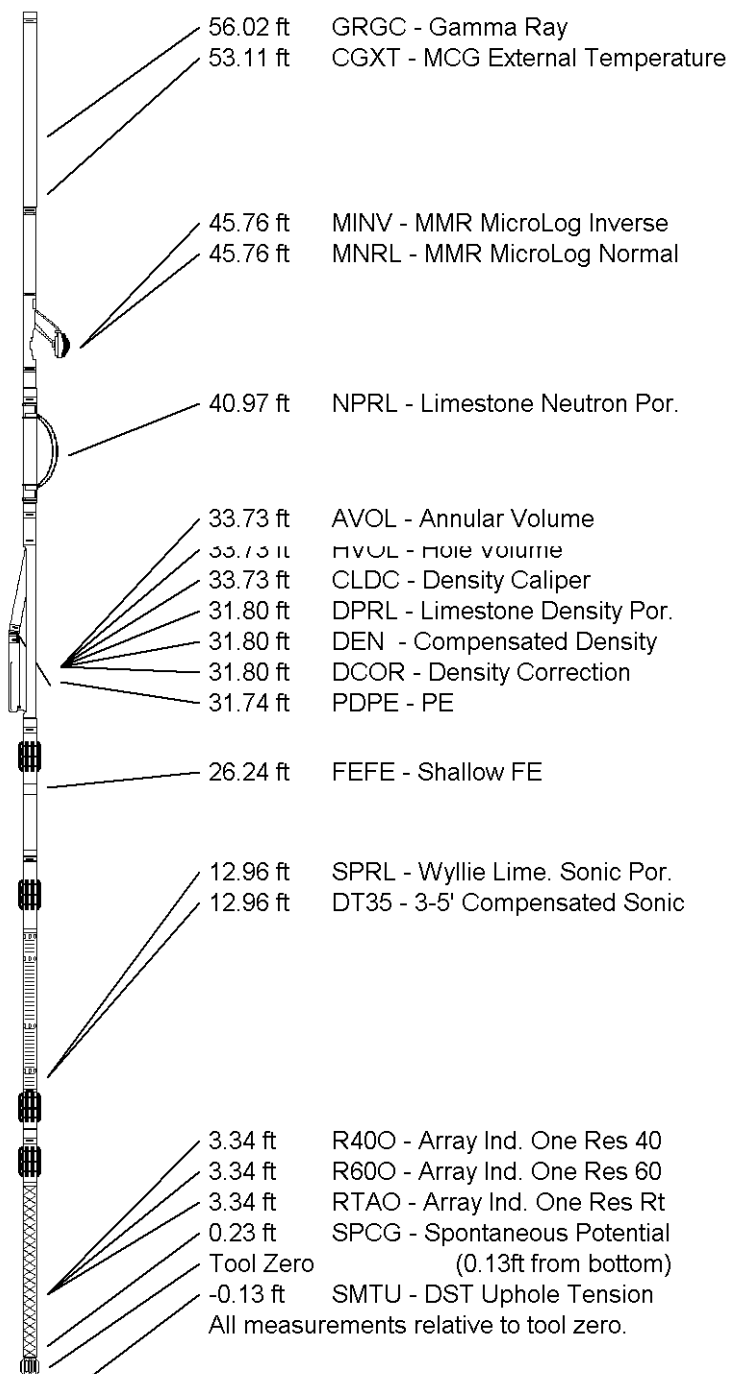
Compact Density/Caliper
MPD-B 31 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

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

Compact Sonic
MSS-C.K 330 LG: 12.52 ft WT: 72.8 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: 61.30 ft Weight: 456.4 lb



COMPANY

SHAKESPEARE OIL COMPANY

WELL

JANZEN #2-26

FIELD

WILDCAT

PROVINCE/COUNTY

SCOTT

COUNTRY/STATE U.S.A. / KANSAS

Elevation Kelly Bushing	3125.00	feet	First Reading	4850.00	feet
Elevation Drill Floor	3124.00	feet	Depth Driller	4897.00	feet
Elevation Ground Level	3115.00	feet	Depth Logger	4896.00	feet



Weatherford®

MICRORESISTIVITY LOG