



Weatherford[®]

MICRORESISTIVITY LOG

COMPANY

SHAKESPEARE OIL COMPANY, INC.

WELL

FOSTER #1-17

FIELD

WILDCAT

PROVINCE/COUNTY

LOGAN

COUNTRY/STATE

U.S.A. / KANSAS

LOCATION

800' FNL & 2289' FEL

SEC

TWP

17

14S

32W

Other Services
MAI/MFE
MSS

MPD/MDN

API Number

15-109-21092

Permit Number

Permanent Datum GL, Elevation 2773 feet

Log Measured From KB

Drilling Measured From KB

Date

14-AUG-2012

Elevations:
KB 2783.00
DF 2781.00
GL 2773.00

Run Number

ONE

Depth Driller

4550.00 feet

Depth Logger

4543.00 feet

First Reading

4497.00 feet

Last Reading

3500.00 feet

Casing Driller

225.00 feet

Casing Logger

222.00 feet

Bit Size

7.875 inches

Hole Fluid Type

CHEMICAL

Density / Viscosity

9.20 lb/USg

57.00 CP
9.20 ml/30Min

PH / Fluid Loss

10.00

Sample Source

MUDPIT

Rm @ Measured Temp

0.63 @ 71.0 ohm-m

Rmf @ Measured Temp

0.50 @ 71.0 ohm-m

Rmc @ Measured Temp

0.76 @ 71.0 ohm-m

Source Rmf / Rmc

CALC

Rm @ BHT

0.41 @ 113.0 ohm-m

Time Since Circulation

5 HOURS

Max Recorded Temp

113.00 deg F

Equipment Name

COMPACT

Equipment / Base

13096 LIB

Recorded By

ADAM SILL

Witnessed By

TIM PRIEST

S.O. # / JOB #

3534515

LB12-213

BOREHOLE RECORD

Last Edited: 14-AUG-2012 06:53

Bit Size inches	Depth From feet	Depth To feet
7.875	225.00	4550.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	225.00	24.00

REMARKS

- SOFTWARE ISSUE: WLS 13.02.6600.
- 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.
- ANNULAR HOLE VOLUME WITH 5.5 INCH CASING: 260 CU. FT.
- SERVICE ORDER # 3534515.

- RIG: HD DRILLING #2.

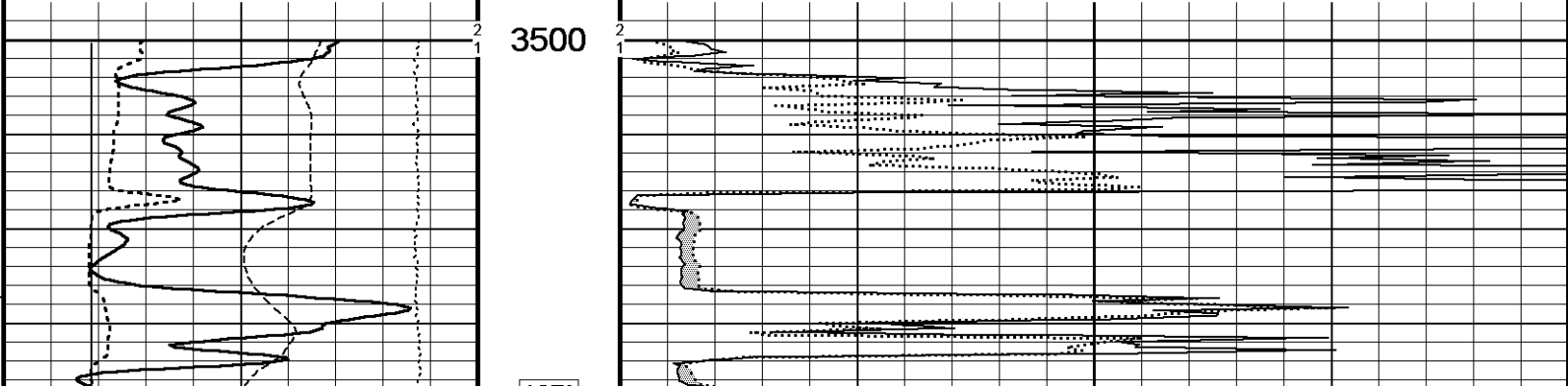
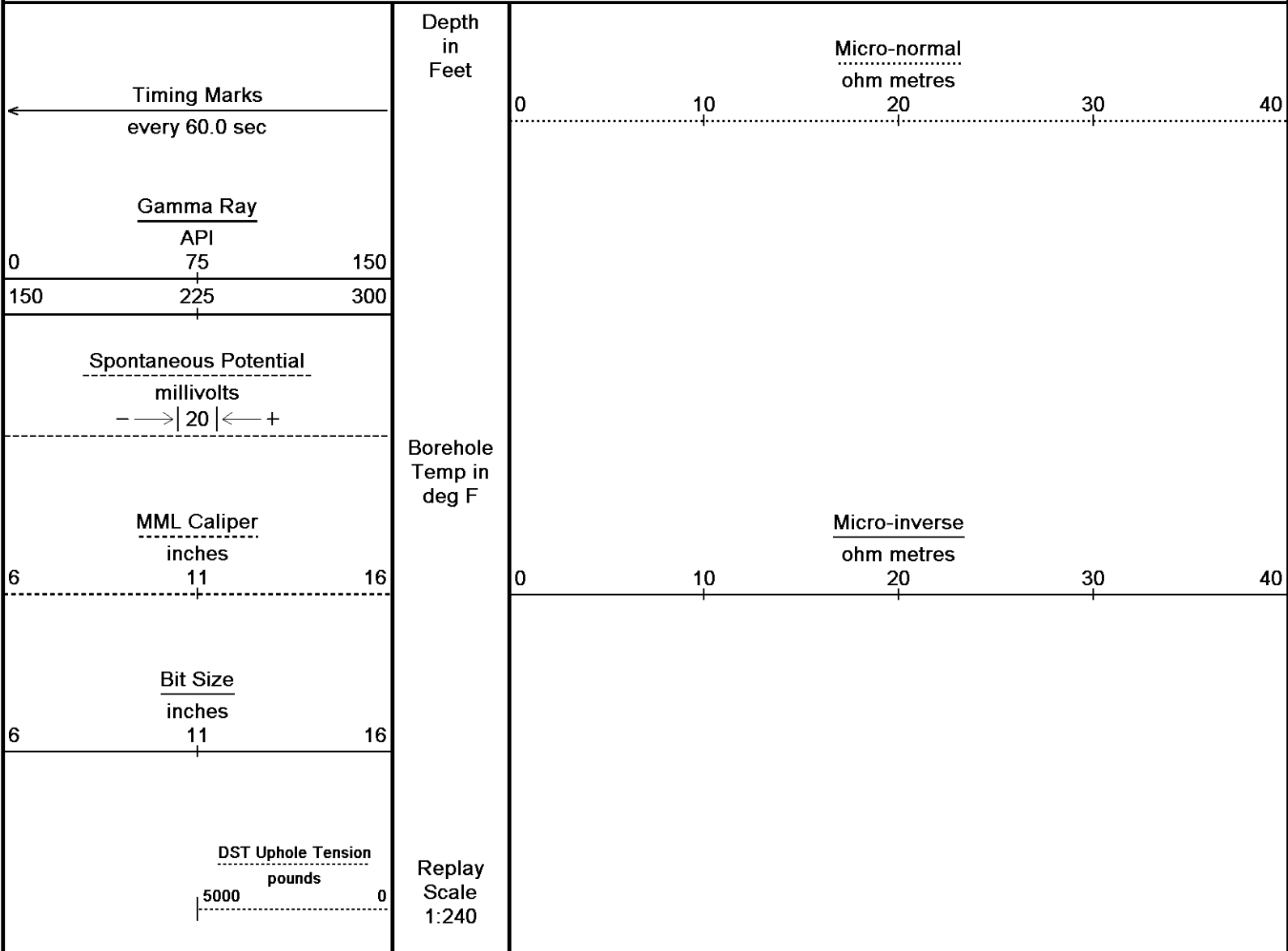
- ENGINEER: A. SILL.

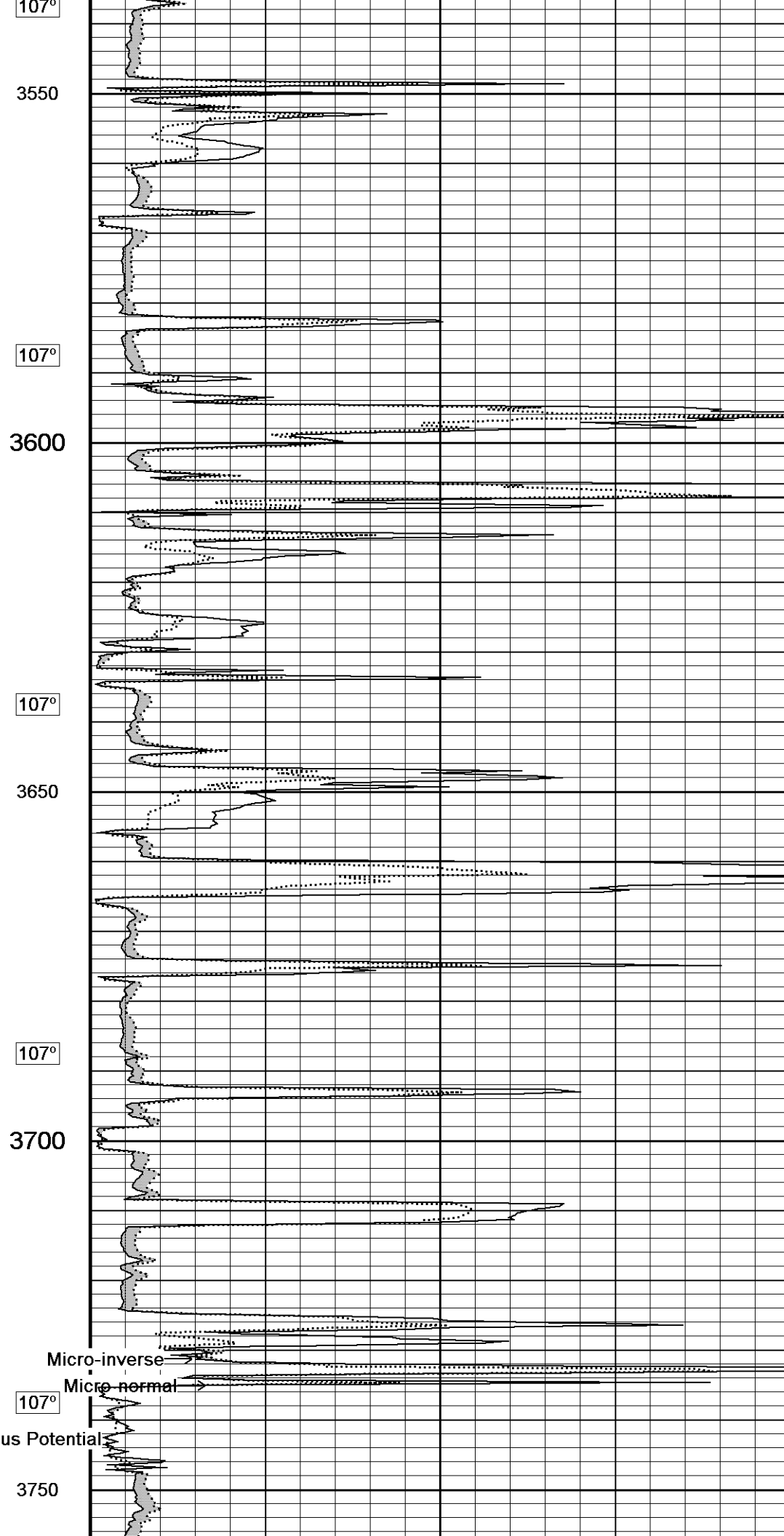
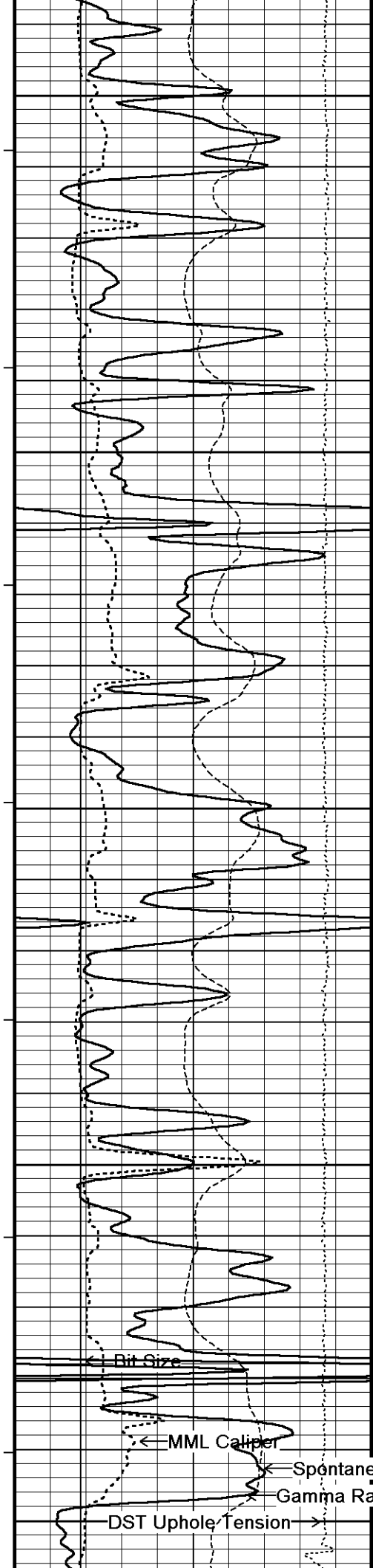
- OPERATOR(S): M. STEGMAN.

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.

5 INCH MAIN

Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 14-AUG-2012 12:30
Filename: C:\Minimus 13.02.6600\Data\Shakespeare Foster #1-17\Shakespeare Foster #1-17_004.dta Recorded on 14-AUG-2012 09:51
System Versions: Processed with 13.02.6600 Plotted with 13.02.6600





107°

3550

107°

3600

107°

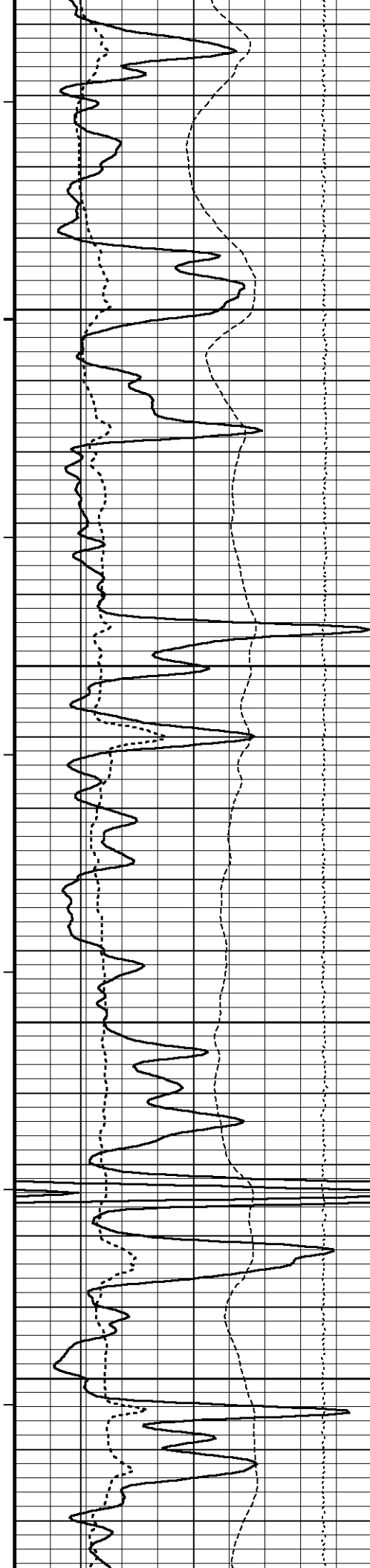
3650

107°

3700

107°

3750



108°

3800

108°

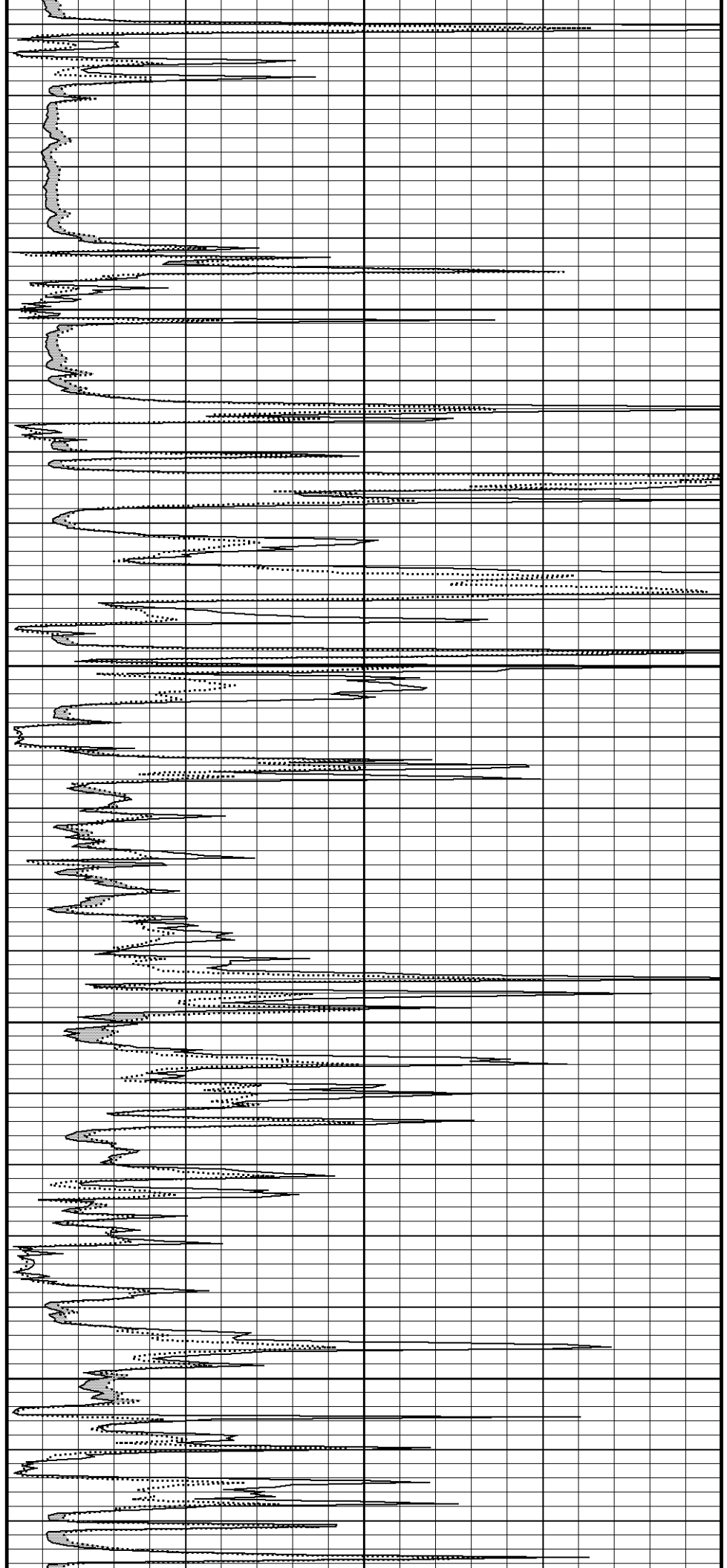
3850

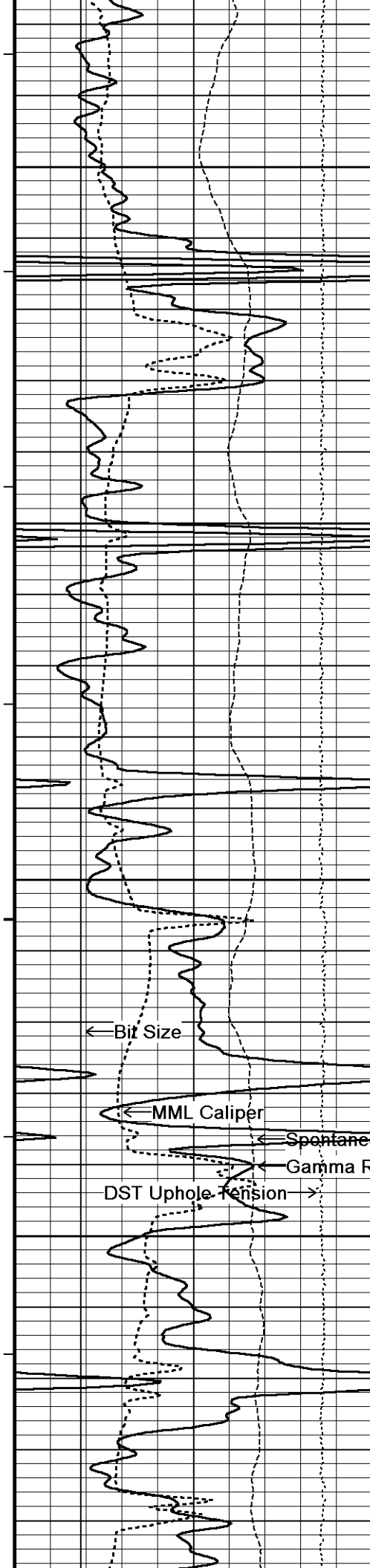
108°

3900

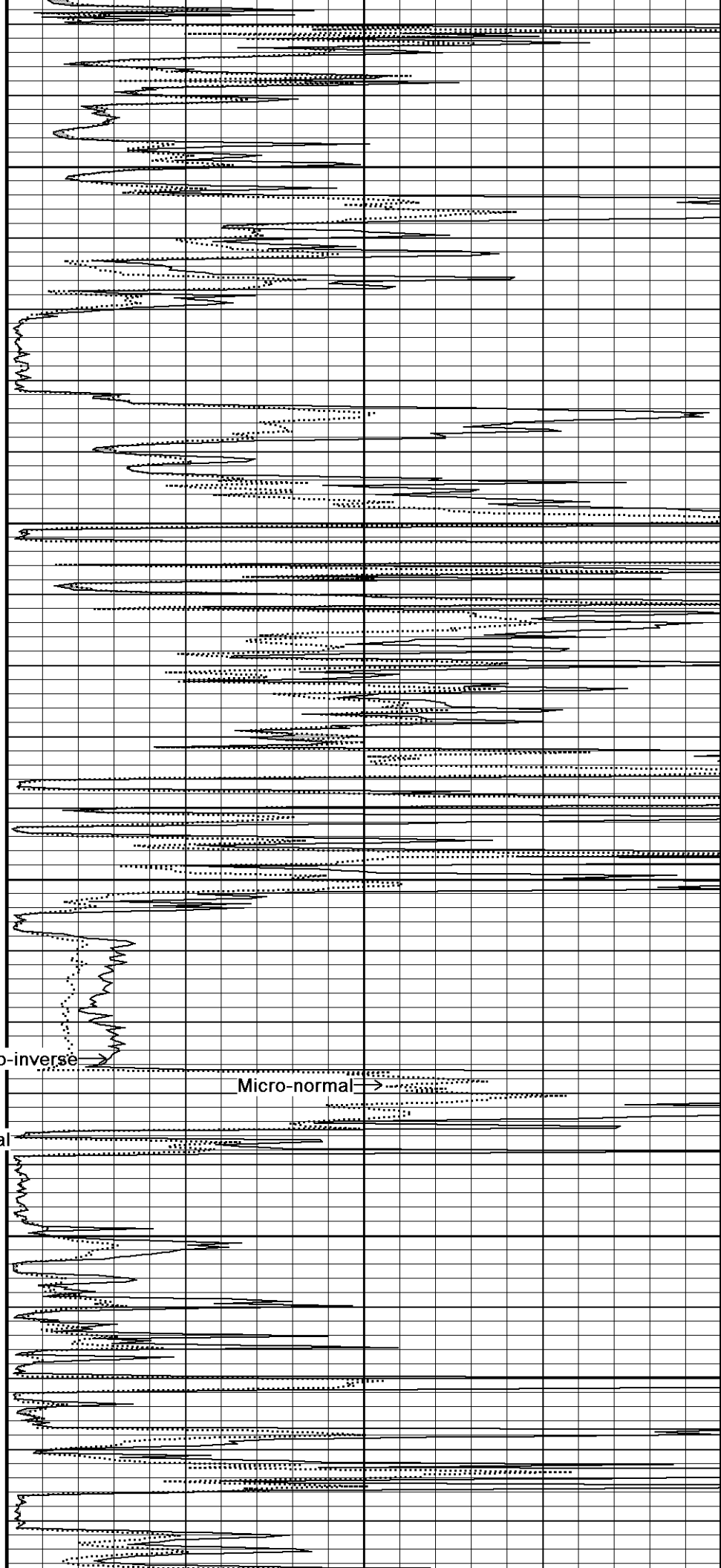
109°

3950



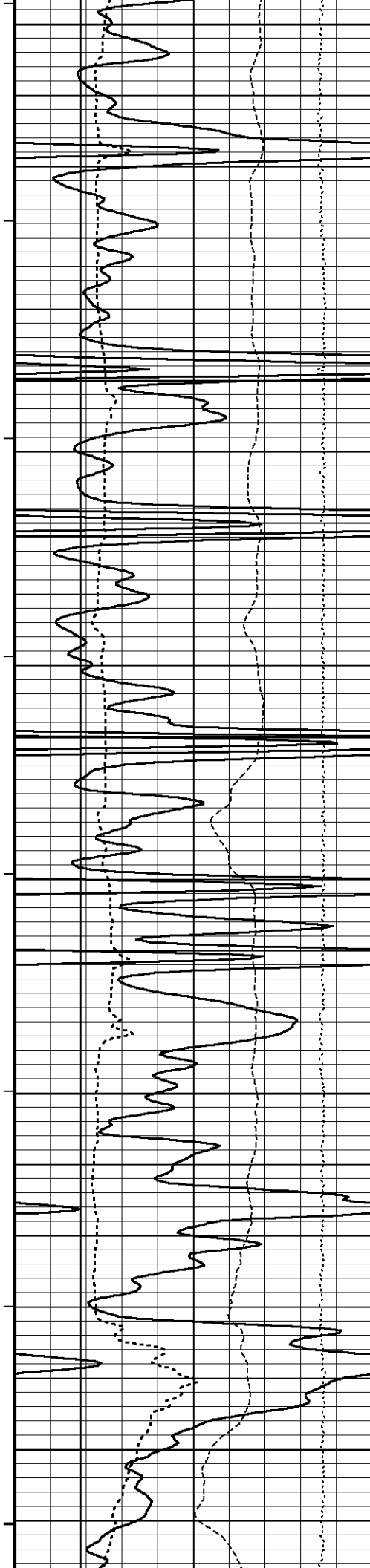


109°
4000
109°
4050
110°
4100
110°
4150
111°



← Bit Size
← MML Caliper
← Spontaneous Potential
← Gamma Ray
DST Uphole tension →

Micro-inverse
Micro-normal →



4200

111°

4250

112°

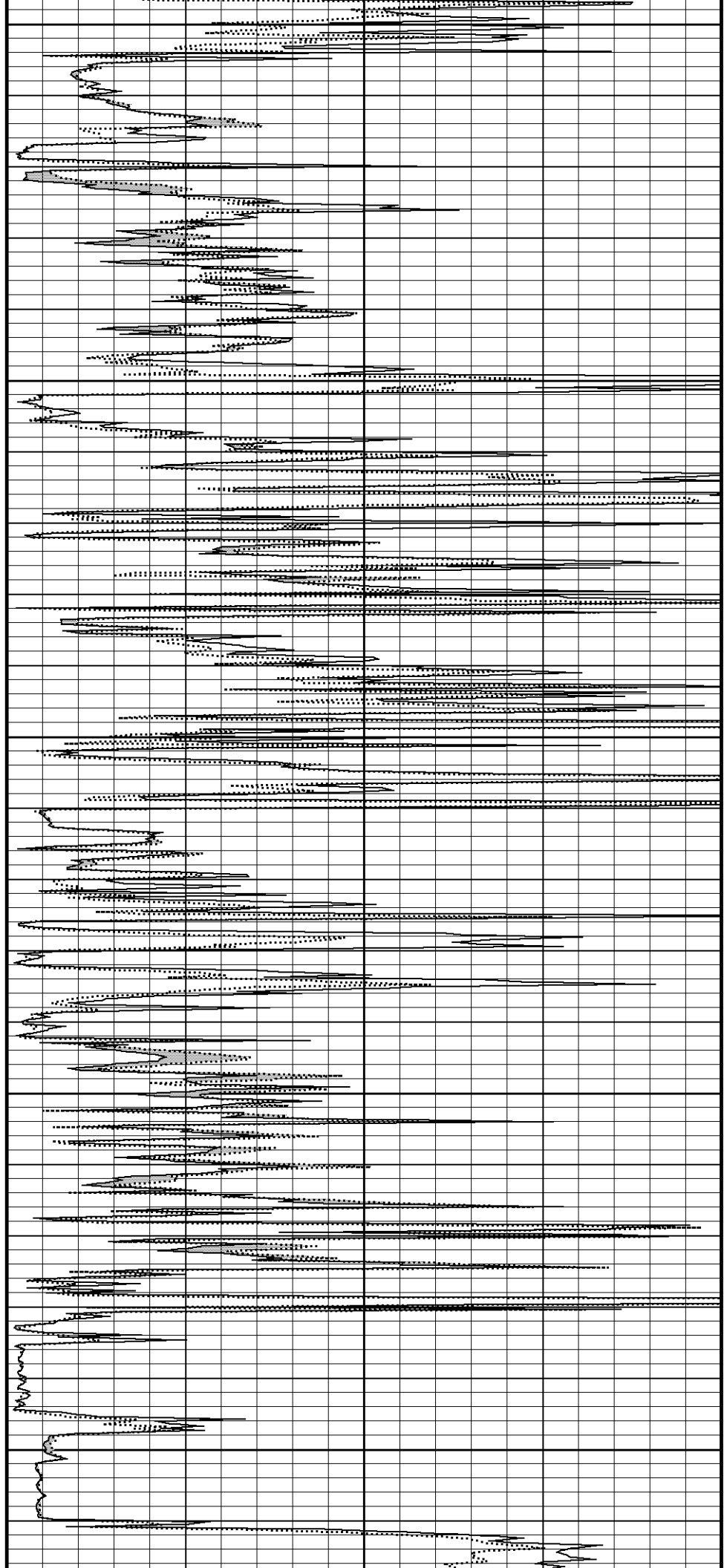
4300

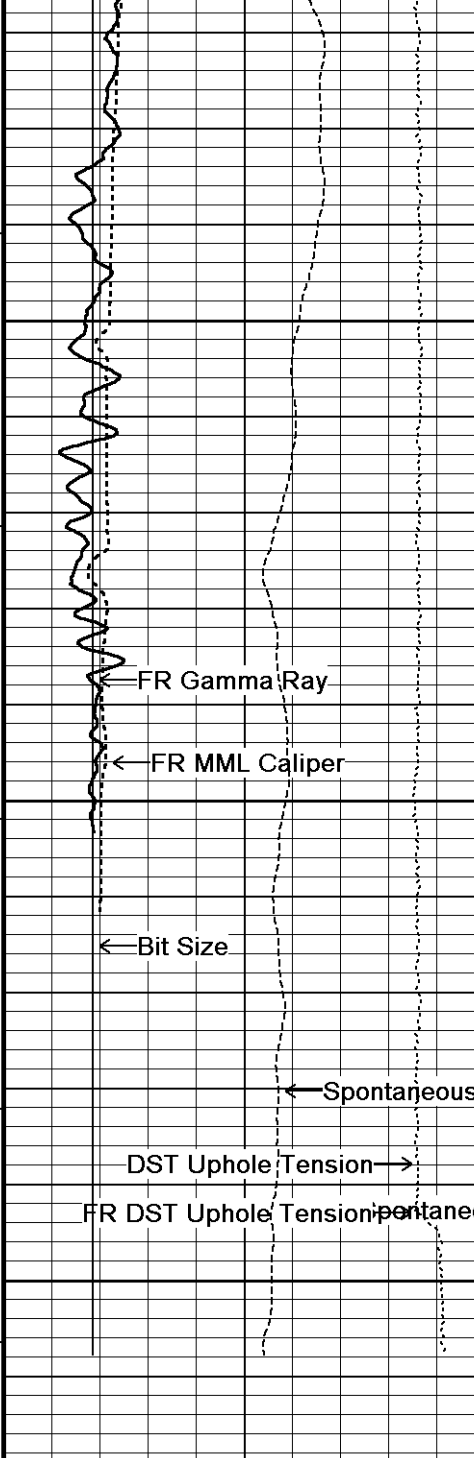
112°

4350

113°

4400





113°

4450

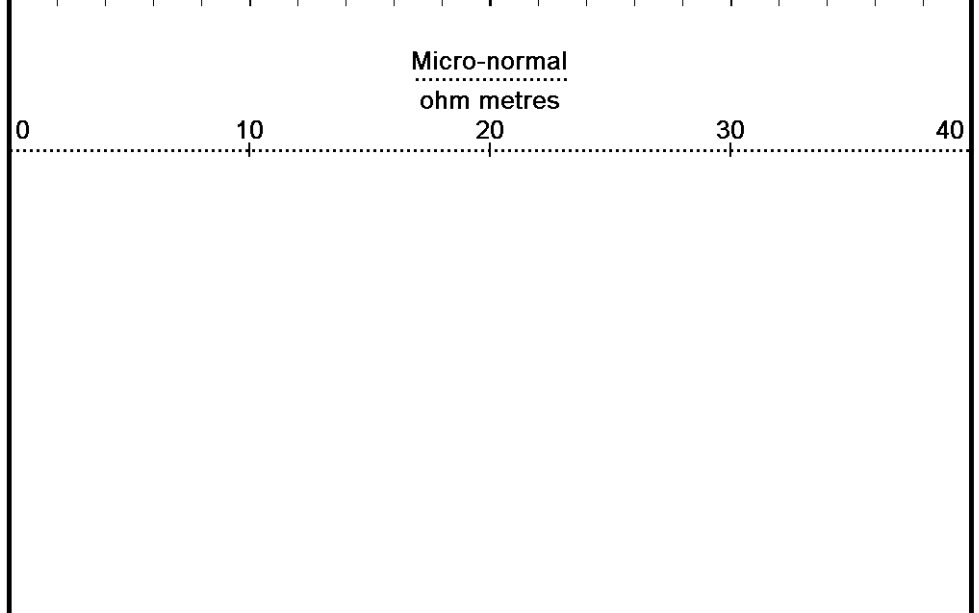
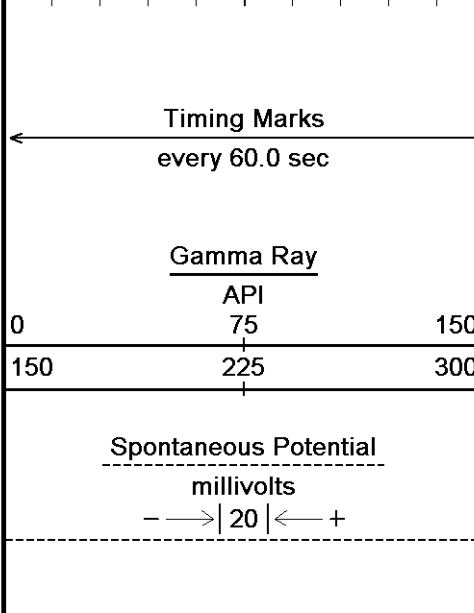
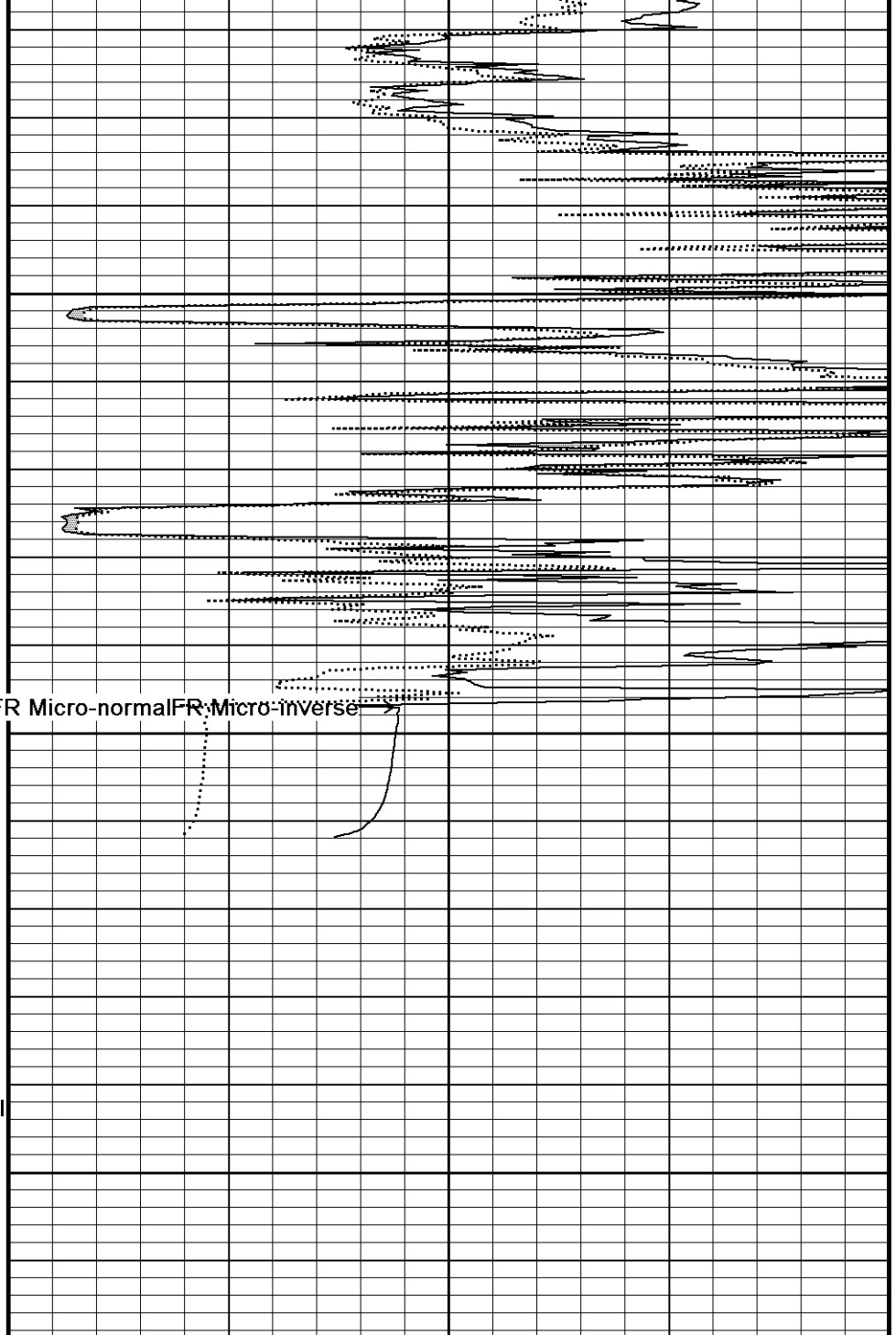
112°

4500

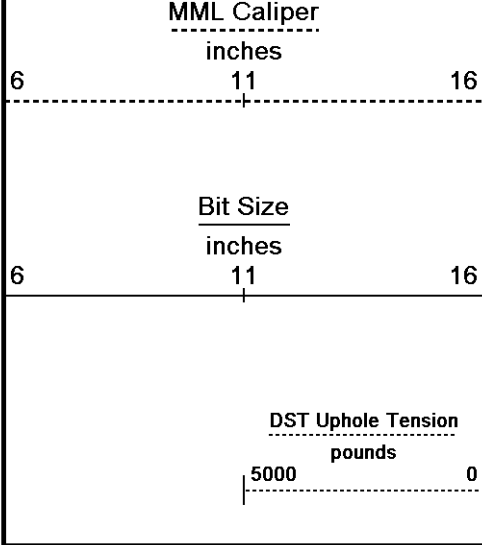
4550

4568

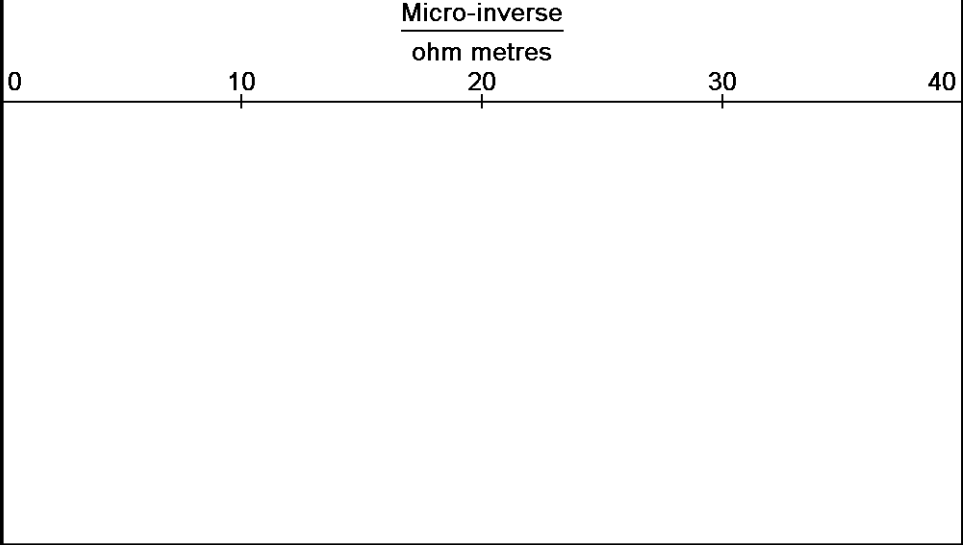
Depth in Feet



Borehole Temp in deg F



Replay
Scale
1:240

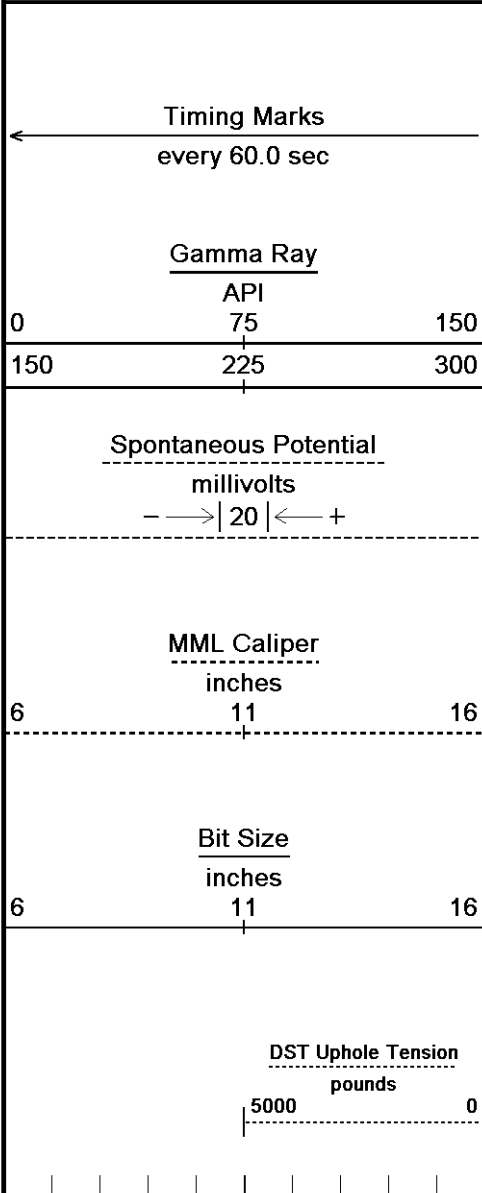


Depth Based Data - Maximum Sampling Increment 10.0cm
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↑ 5 INCH MAIN ↑

↓ REPEAT SECTION ↓

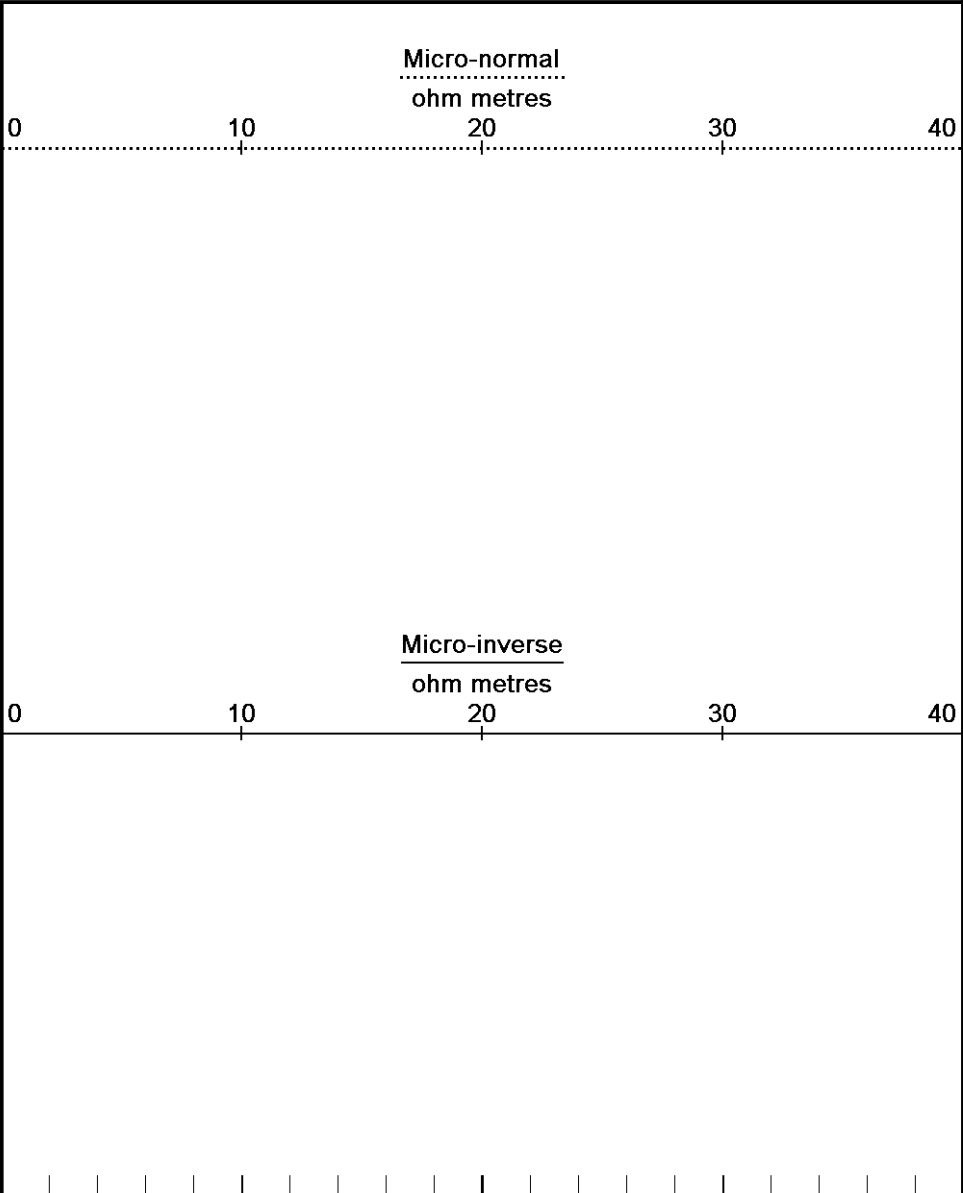
Depth Based Data - Maximum Sampling Increment 10.0cm
 Plotted on 14-AUG-2012 12:30
 Filename: C:\Minimus 13.02.6600\Data\Shakespeare Foster #1-17\Shakespeare Foster #1-17_002.dta
 Recorded on 14-AUG-2012 09:27
 System Versions: Logged with 13.02.6600 Processed with 13.02.6600 Plotted with 13.02.6600



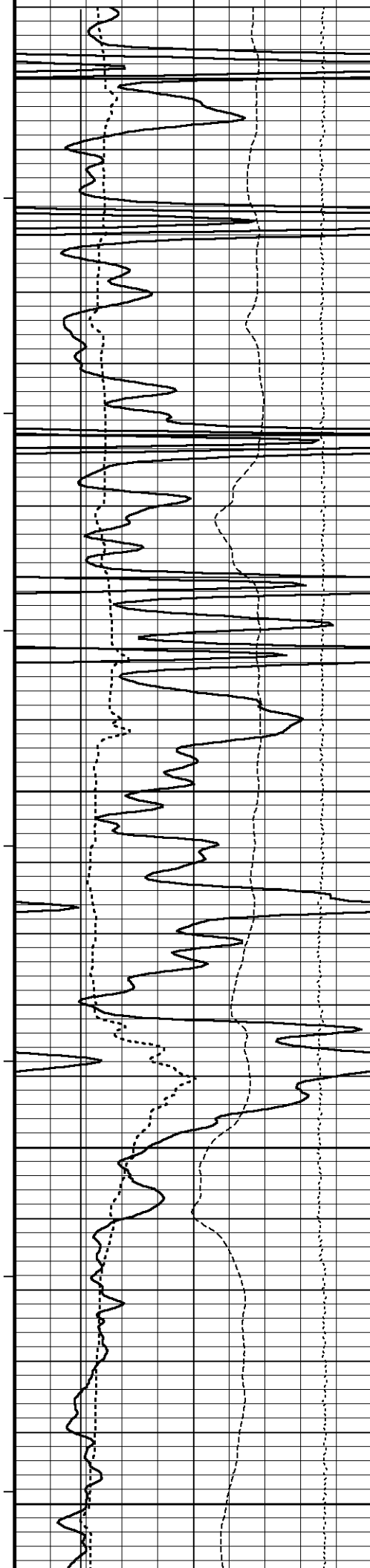
Depth
in
Feet

Borehole
Temp in
deg F

Replay
Scale
1:240



4238



4250

111°

4300

112°

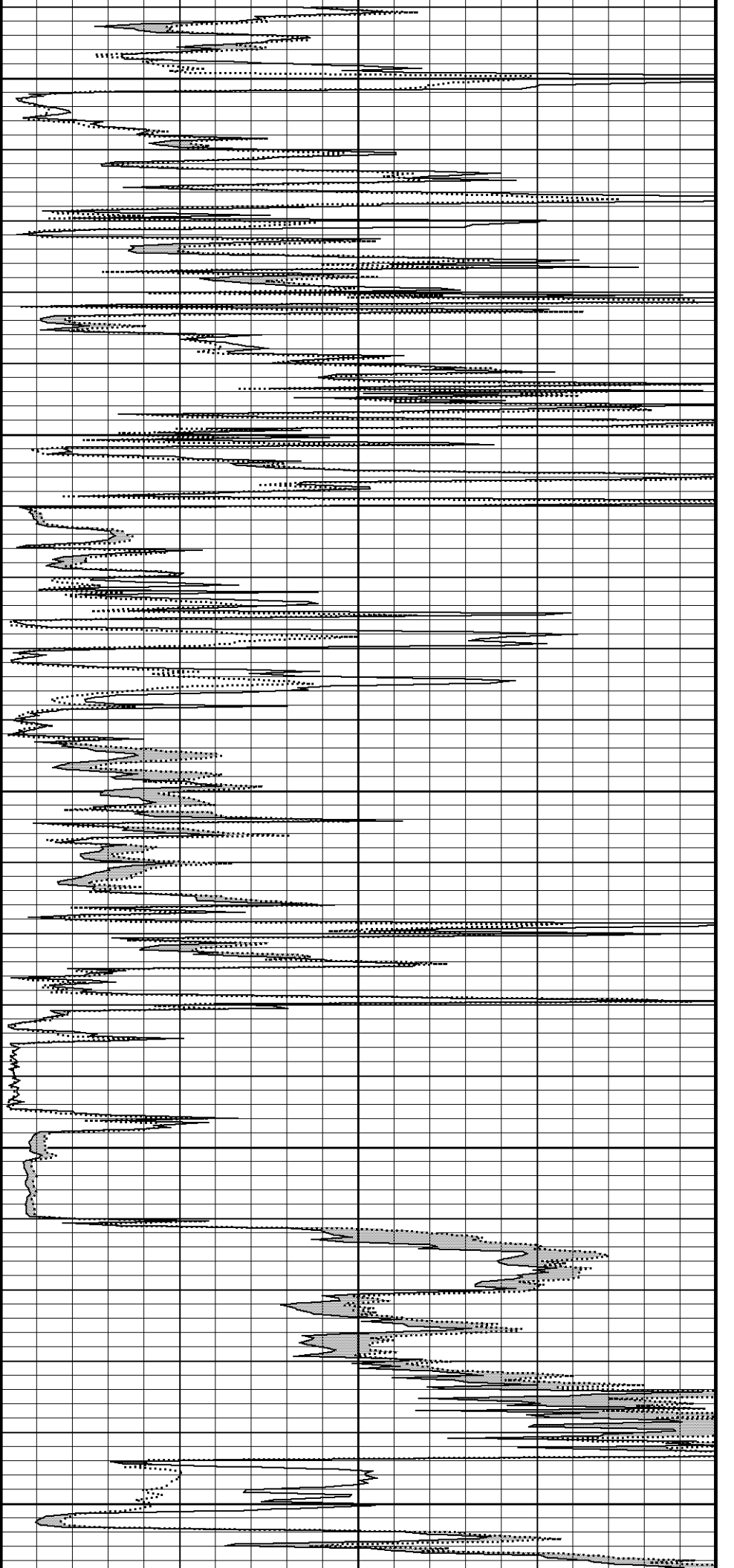
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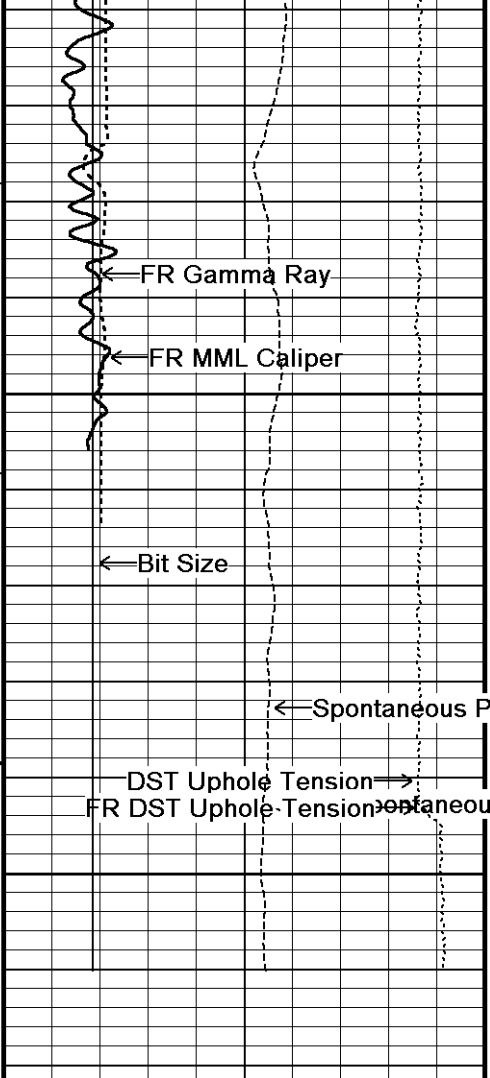
112°

4400

111°

4450





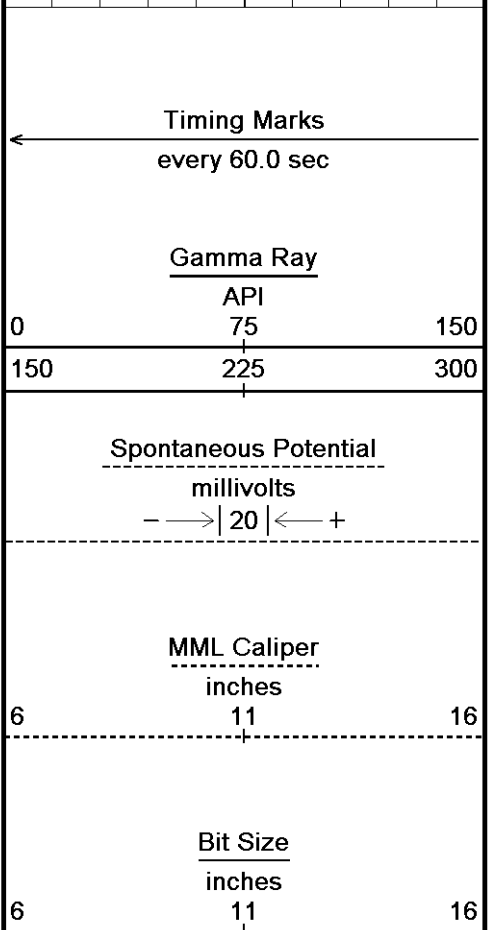
110°

4500

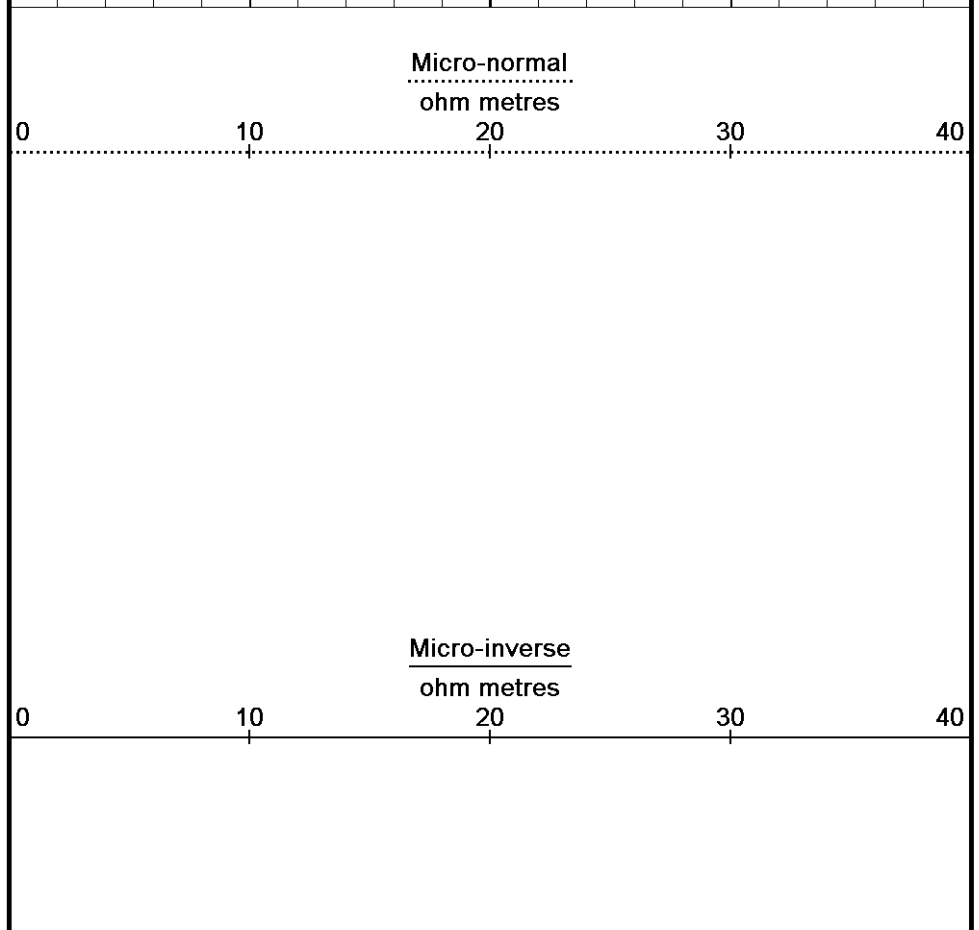
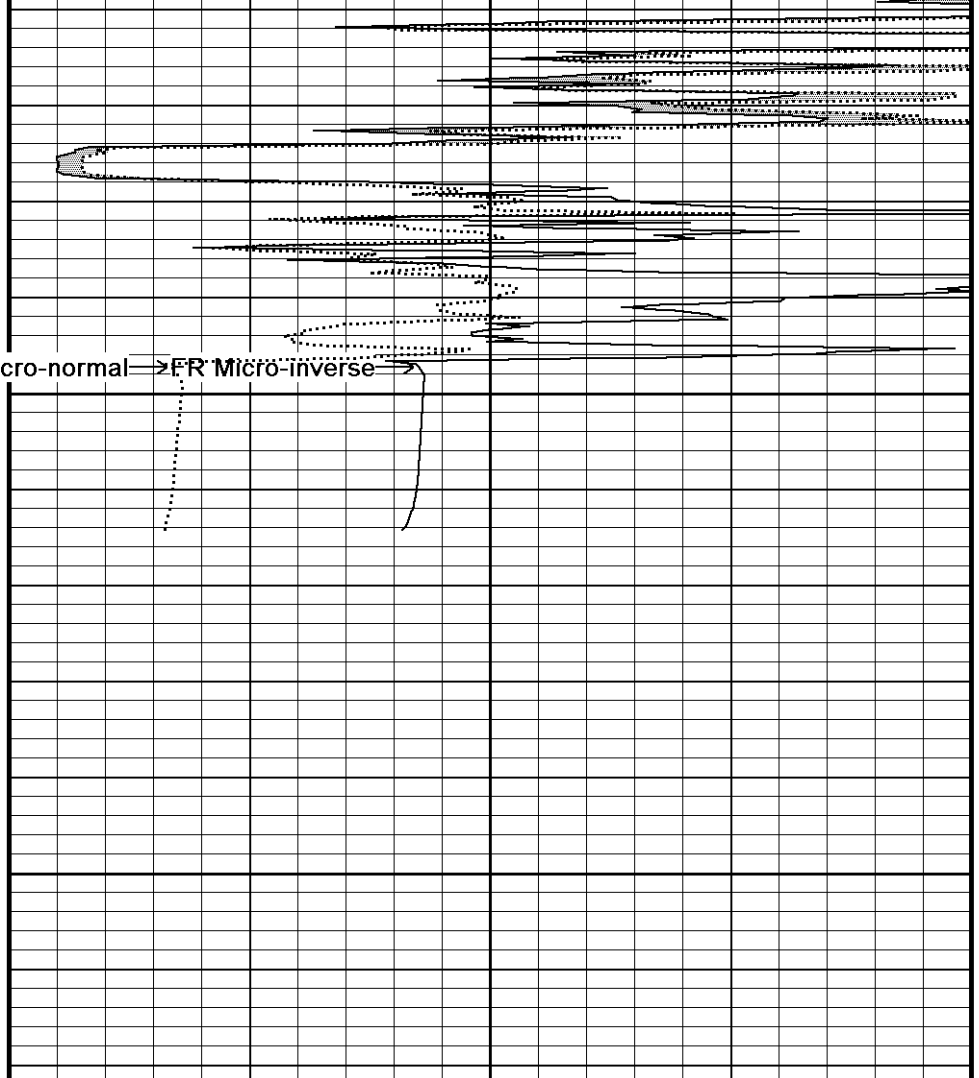
4550

4570

Depth
in
Feet



Borehole
Temp in
deg F



DST Uphole Tension
pounds
5000 0

Replay
Scale
1:240

Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 14-AUG-2012 12:30
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REPEAT SECTION



BEFORE SURVEY CALIBRATION

C:\Minimus 13.02.6600\Data\Shakespeare Foster #1-17\Shakespeare Foster #1-17_004.dta

General Constants All 000

Last Edited on 14-AUG-2012,12:08

General Parameters

Mud Resistivity	0.630	ohm-metres
Mud Resistivity Temperature	71.000	degrees F
Water Level	0.000	feet
Density/Neutron 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

Gamma Calibration MCG-D.K 442

Field Calibration on 13-AUG-2012 09:24

	Measured	Calibrated (API)
Background	69	46
Calibrator (Gross)	1150	771
Calibrator (Net)	1081	725

Gamma Constants MCG-D.K 442

Last Edited on 14-AUG-2012,06:56

Gamma Calibrator Number	GRC38	
Mud Density	1.10	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl	0.00	kppm

High Resolution Temperature Calibration MCG-D.K 442

Field Calibration on 17-JUL-2012,16:35

	Measured	Calibrated(Deg F)
Lower	50.00	50.00
Upper	100.00	100.00

High Resolution Temperature Constants MCG-D.K 442

Last Edited on

Pre-filter Length	11
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Caliper Calibration MML-A 4

Base Calibration on 24-JUL-2012 08:53
Field Calibration on 13-AUG-2012 09:01

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	15504	5.98
2	18771	7.97
3	22124	9.86
4	25894	11.92
5	0	0.00
6	N/A	N/A

Field Calibration

Measured Caliper (in)
5.88

Actual Caliper (in)
5.98

Micro Normal and Micro Inverse Calibration MML-A 4

Base Calibration on 24-JUL-2012 08:59
Field Check on 13-AUG-2012 09:03

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	15.7	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	

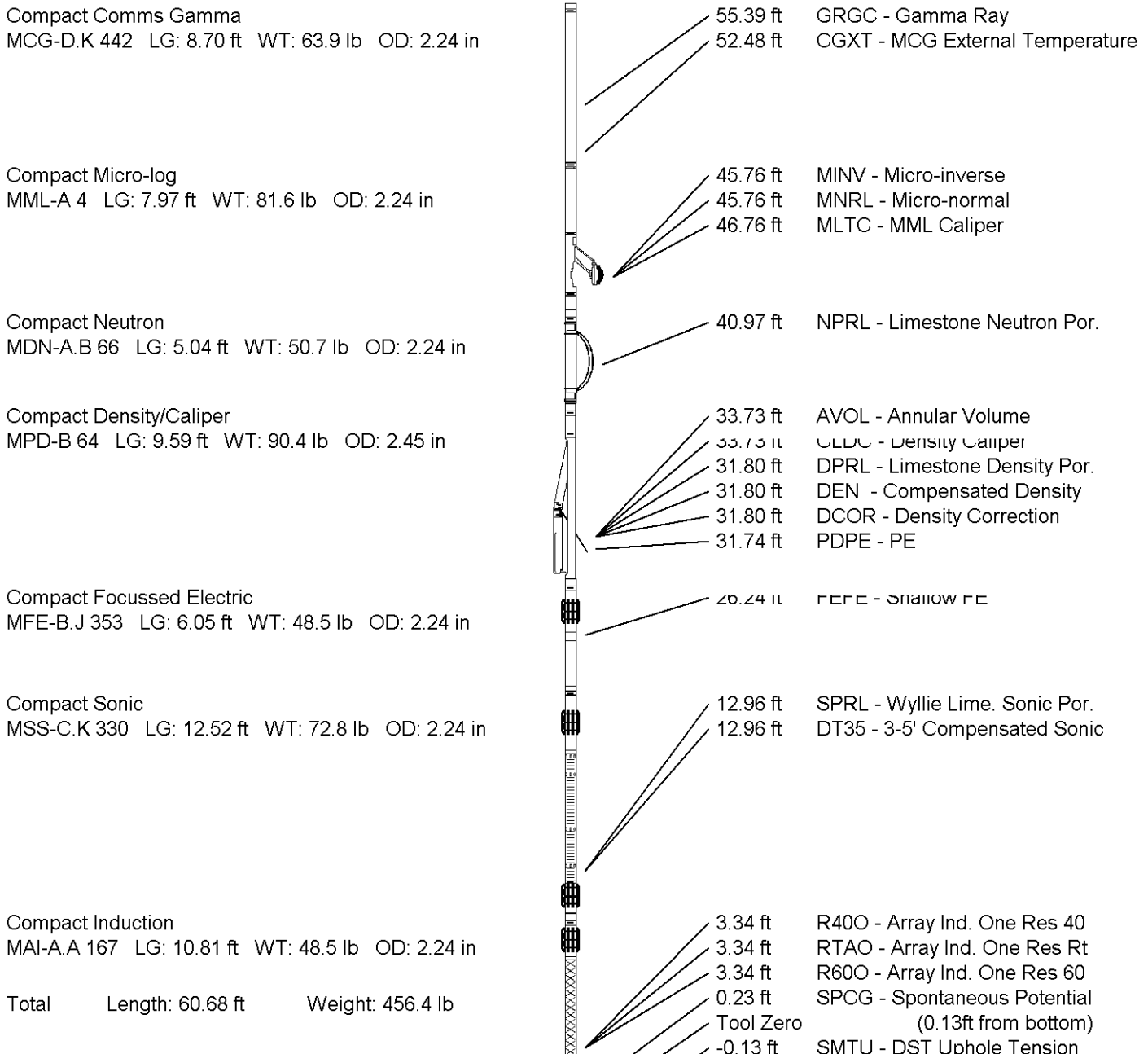
Micro Normal and Micro Inverse Constants MML-A 4

Last Edited on 14-AUG-2012,06:56

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	

DOWNHOLE EQUIPMENT

C:\Minimus 13.02.6600\Data\Shakespeare Foster #1-17\Shakespeare Foster #1-17_004.dta





All measurements relative to tool zero.

COMPANY SHAKESPEARE OIL COMPANY, INC.
 WELL FOSTER #1-17
 FIELD WILDCAT
 PROVINCE/COUNTY LOGAN
 COUNTRY/STATE U.S.A. / KANSAS

Elevation Kelly Bushing	2783.00	feet	First Reading	4497.00	feet
Elevation Drill Floor	2781.00	feet	Depth Driller	4550.00	feet
Elevation Ground Level	2773.00	feet	Depth Logger	4543.00	feet



Weatherford[®]

MICRORESISTIVITY LOG