



**Weatherford**  
180

**MICRORESISTIVITY LOG**

COMPANY **McCoy Petroleum Corp**  
WELL **Schmidt 'A' #7-29**

FIELD

PROVINCE/COUNTY **Haskell**

COUNTRY/STATE **U.S.A. / Kansas**

LOCATION **1140' FSL & 1980' FWL**

**[FINAL PRINT]**

SEC **TWP** **RGE** **Other Services**  
29 30S 31W MPD/MDN  
API Number MAI/MFE  
Permit Number 15-081-21987 MCG

Permanent Datum G.L., Elevation 2843 feet

Log Measured From KB

Drilling Measured From KB

Elevations: feet  
KB 2856.00  
DF 2858.00  
GL 2843.00

Date 24-JUN-2012

Run Number One

Depth Driller 4805.00 feet

Depth Logger 4806.00 feet

First Reading 4806.00 feet

Last Reading 3800.00 feet

Casing Driller 1822.00 feet

Casing Logger 1822.00 feet

Bit Size 7.875 inches

Hole Fluid Type Chemical

Density / Viscosity 8.95 g/cc 52.00 CP

PH / Fluid Loss 10.50

Sample Source Flowline

Rm @ Measured Temp 1.18 @ 97.2 ohm-m

Rmf @ Measured Temp 0.94 @ 97.2 ohm-m

Rmc @ Measured Temp 1.40 @ 97.2 ohm-m

Source Rmf / Rmc Calc

Rm @ BHT 0.99 @ 116.0 ohm-m

Time Since Circulation 4 Hrs

Max Recorded Temp 116.00 deg F

Equipment Name Compact

Equipment / Base 13057 Libera

Recorded By Roger Burns

Witnessed By Jerry Smith

Field Ticket 3529325

**BOREHOLE RECORD**

Last Edited: 24-JUN-2012 11:26

Bit Size  
inches

Depth From  
feet

Depth To  
feet

7.875

1822.00

4806.00

**CASING RECORD**

Type

Size  
inches

Depth From  
feet

Shoe Depth  
feet

Weight  
pounds/ft

8.625

0.00

1822.00

0.00

**REMARKS**

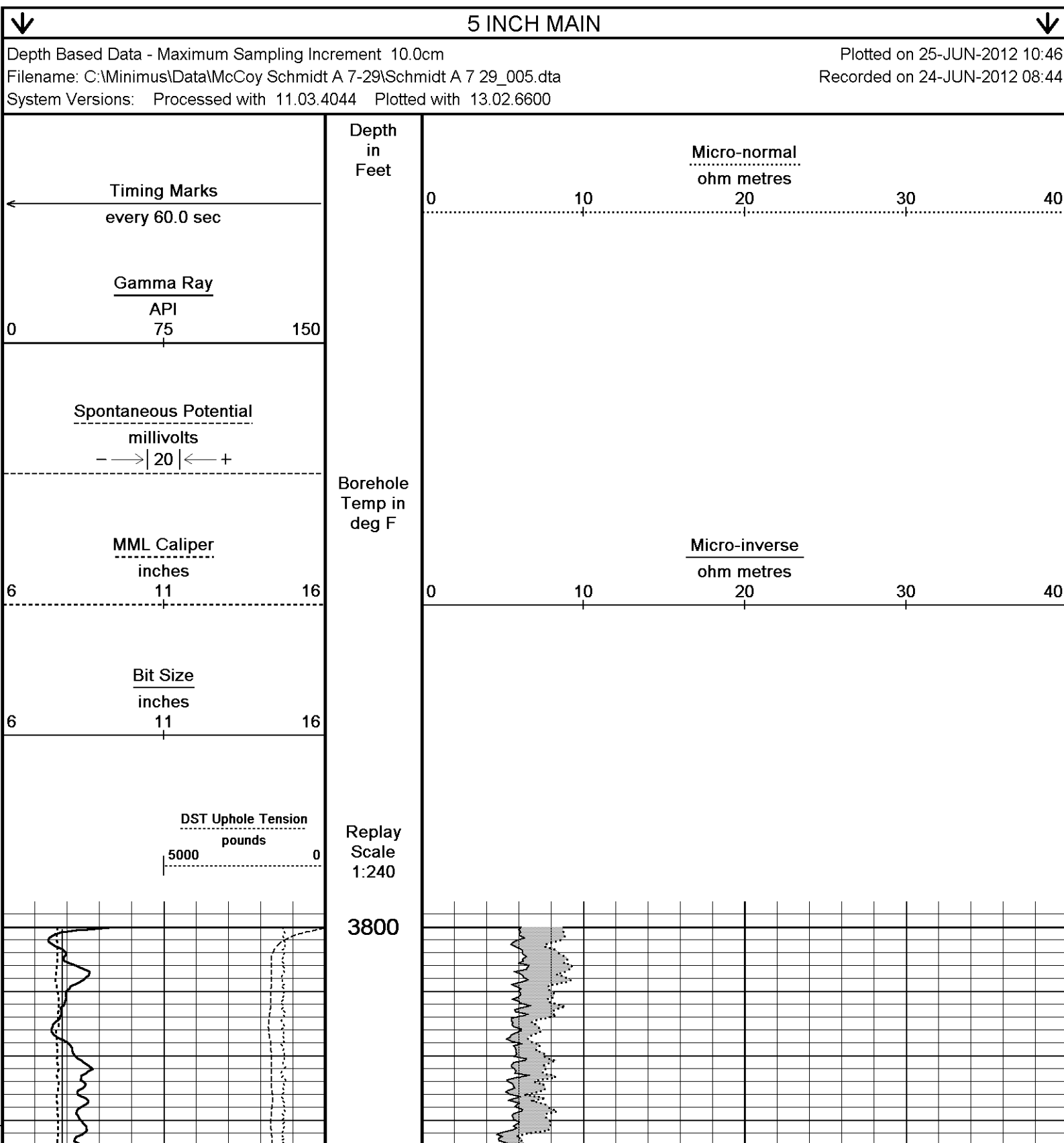
- SOFTWARE ISSUE: WLS 11.03.4044.
- MCG, MML, MDN, MPD, MFE, MAI RAN IN COMBINATION.
  - HARDWARE: DUAL BOWSPRING USED ON MDN.
  - 0.5 INCH STANDOFF USED ON MAI.
  - 0.5 INCH STANDOFF USED ON MFE.
- 2.71 G/CC LIMESTONE DENSITY MATRIX USED TO CALCULATE POROSITY.
- BOREHOLE RUGOSITY, TIGHT PULLS, AND WASHOUTS WILL AFFECT DATA QUALITY.
- ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST.
- TOTAL HOLE VOLUME:1310 CU.FT.
- ANNULAR HOLE VOLUME WITH 4.5 INCH CASING: 950 CU. FT.
- SERVICE ORDER # 3529325

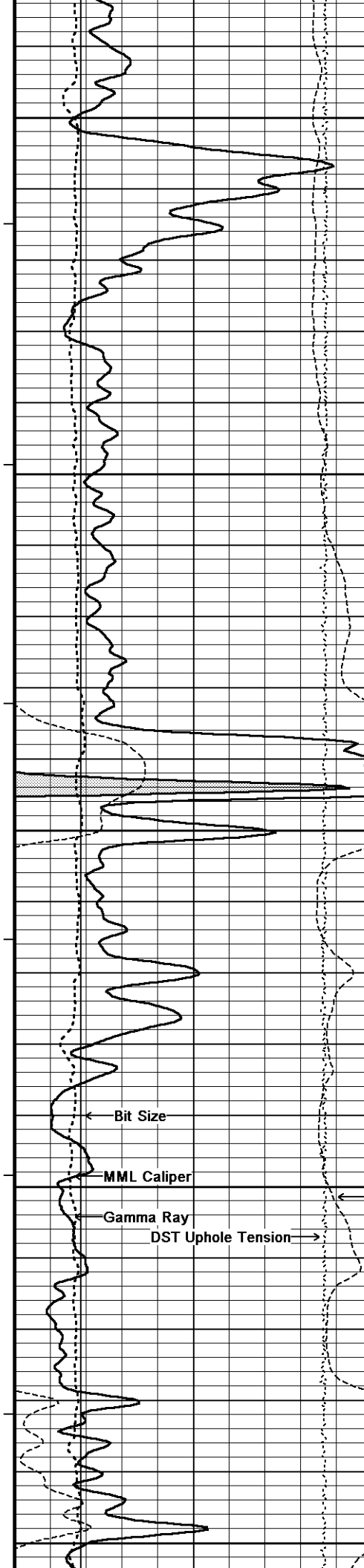
- RIG: Sterling #1

- ENGINEER: R. BURNS.

- OPERATOR: B. REEVES

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.





110°

3850

110°

3900

110°

3950

111°

4000

111°

4050

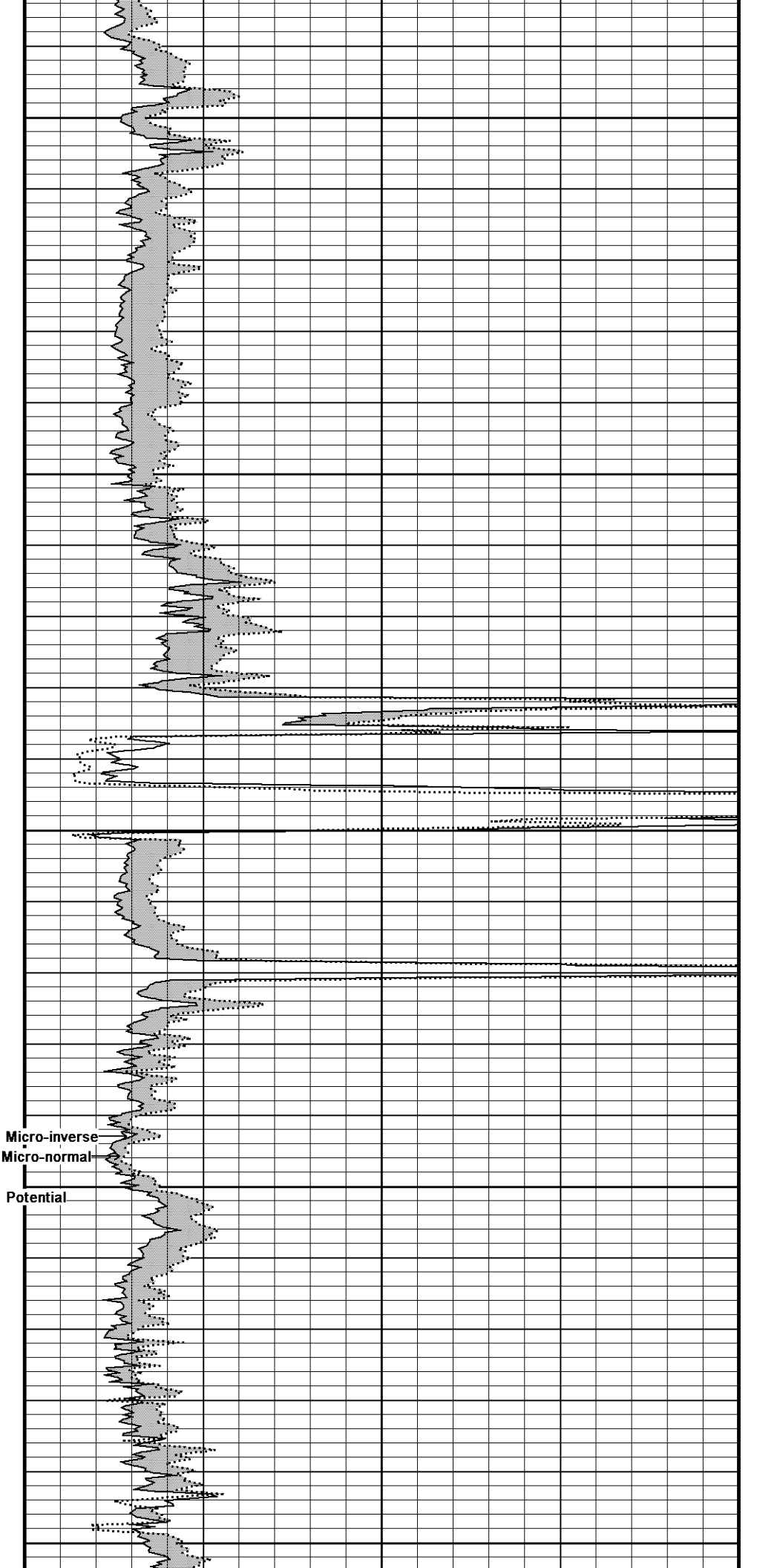
Bit Size

MML Caliper

Gamma Ray

DST Uphole Tension

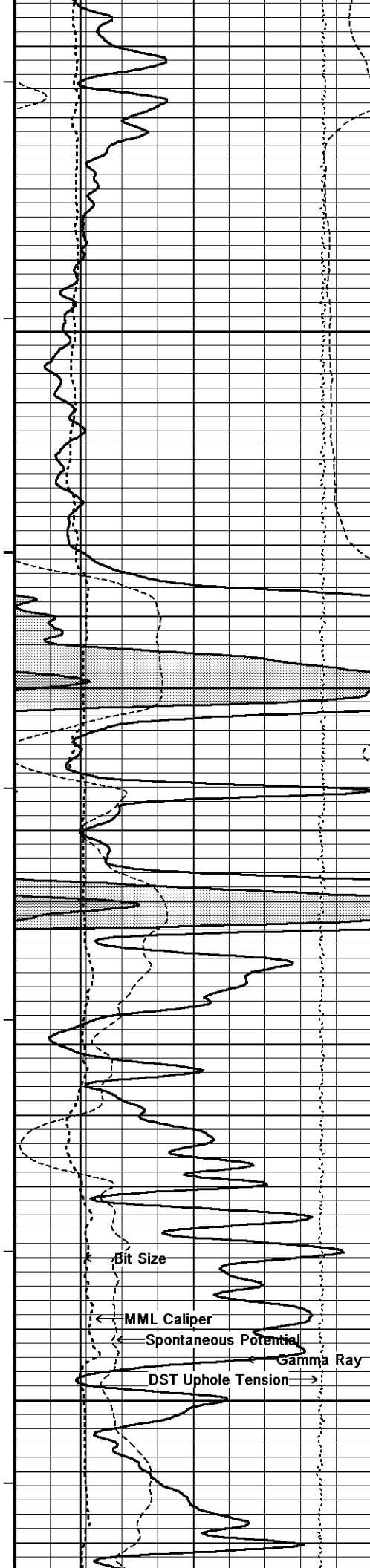
Spontaneous Potential



Micro-inverse

Micro-normal

Potential



111°

4100

111°

4150

112°

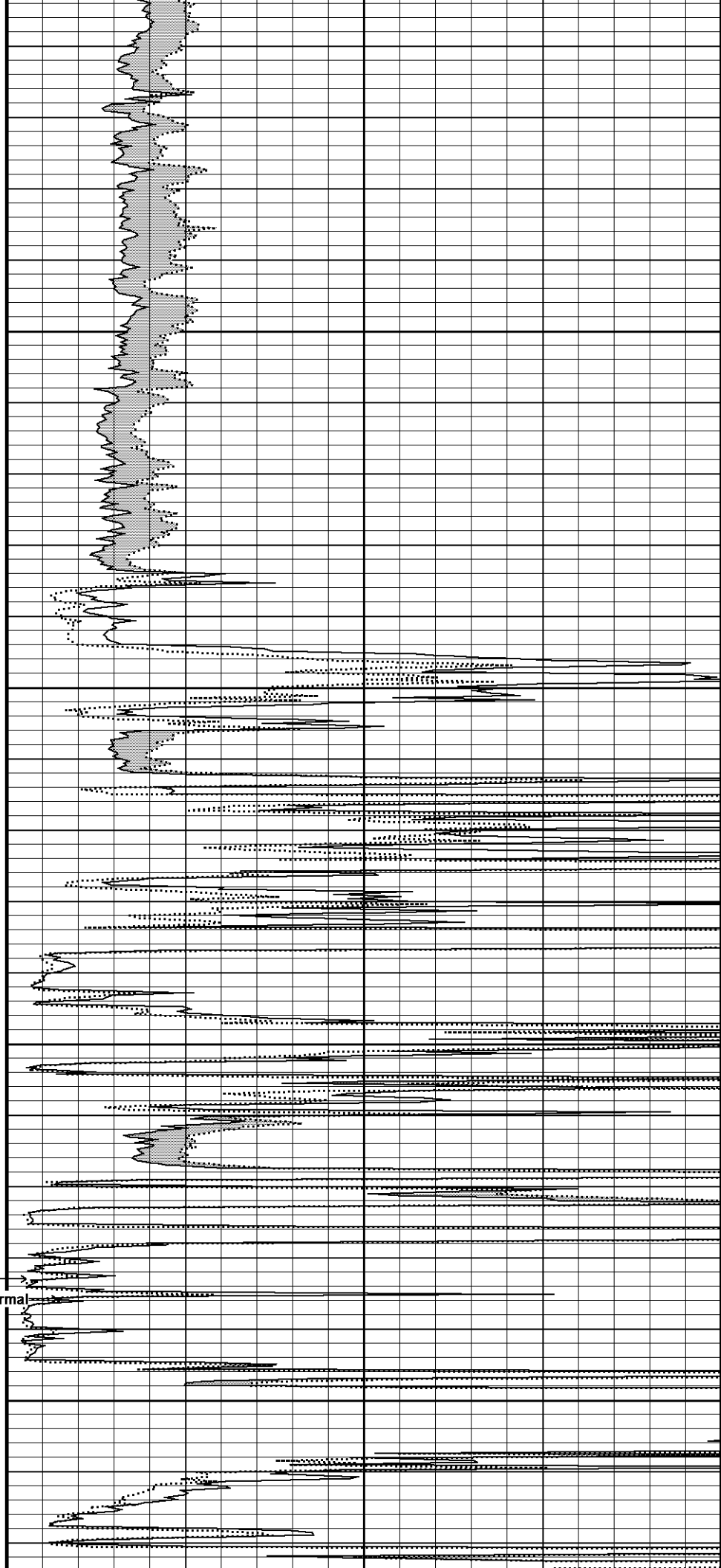
4200

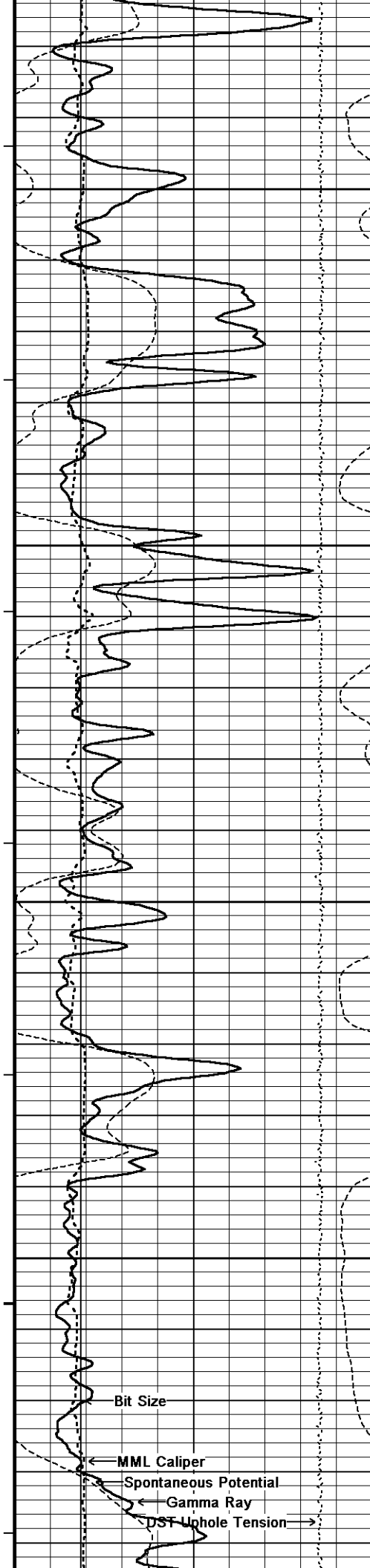
Micro-inverse

Micro-normal

112°

4250





112°

4300

113°

4350

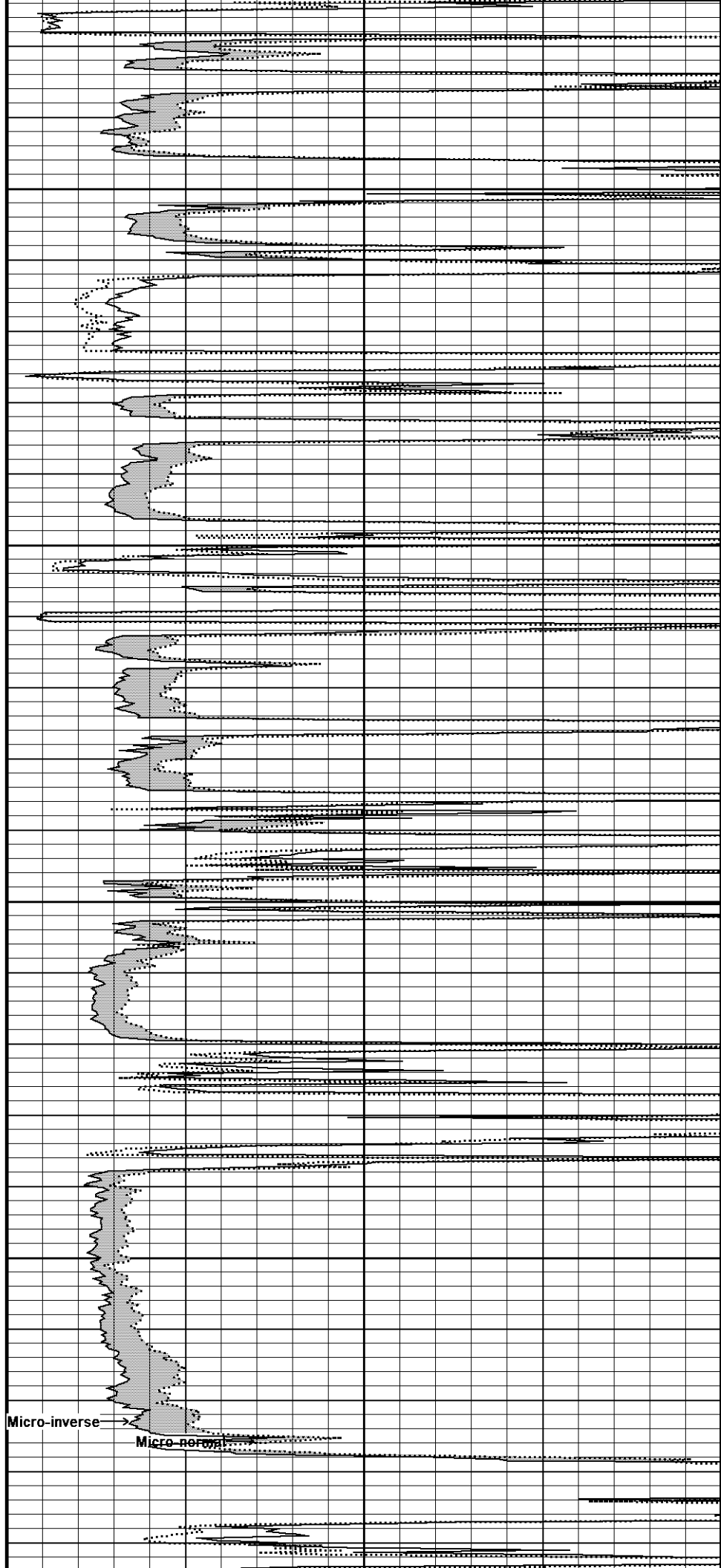
113°

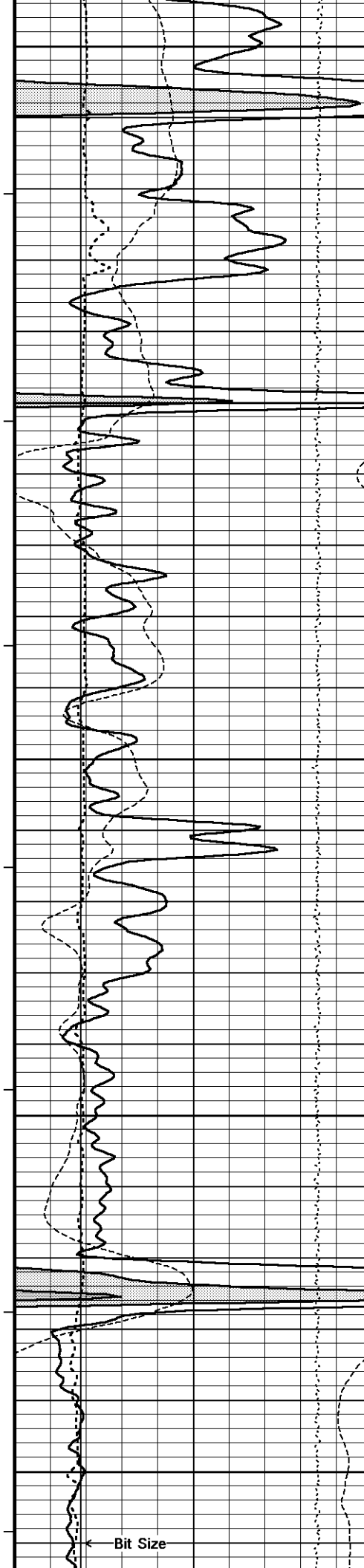
4400

113°

4450

114°





4500

114°

4550

115°

4600

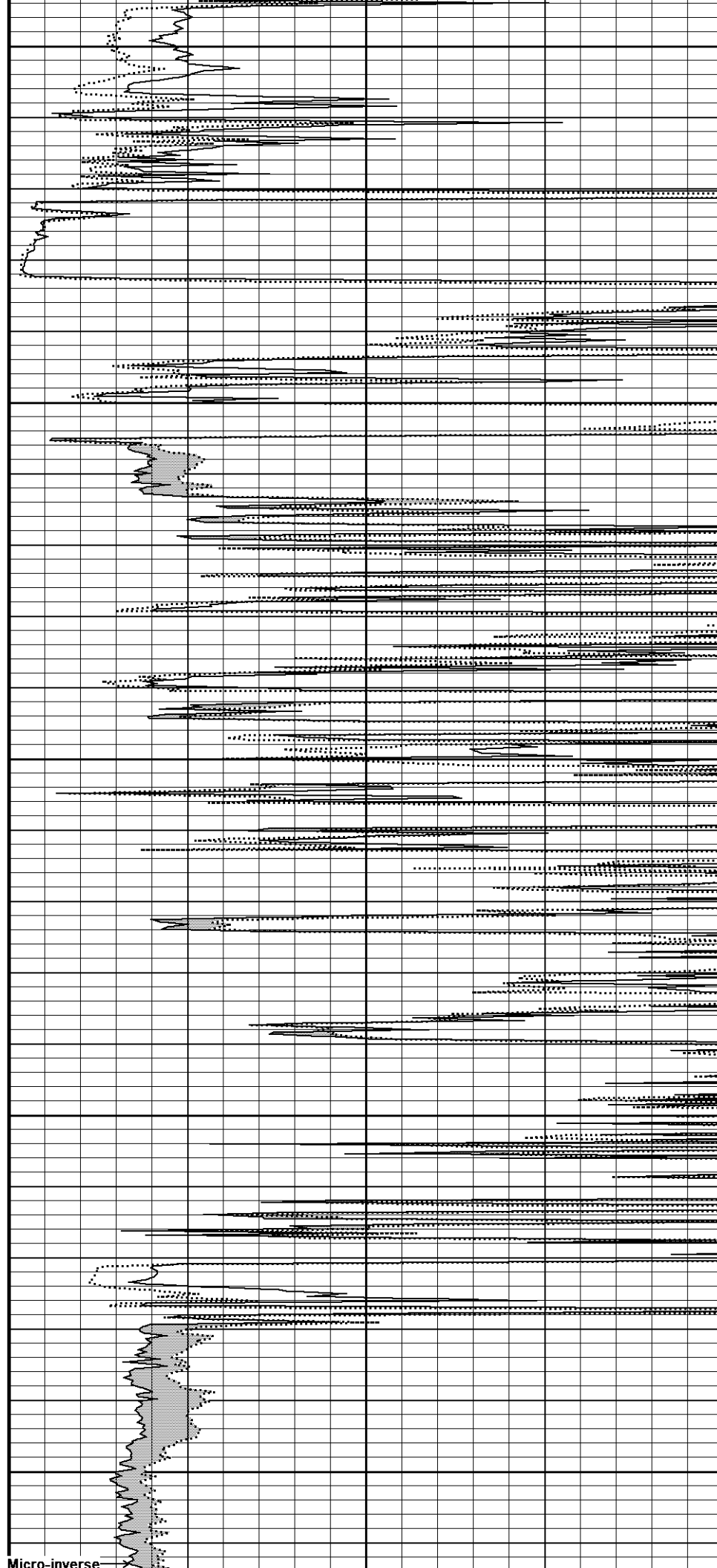
115°

4650

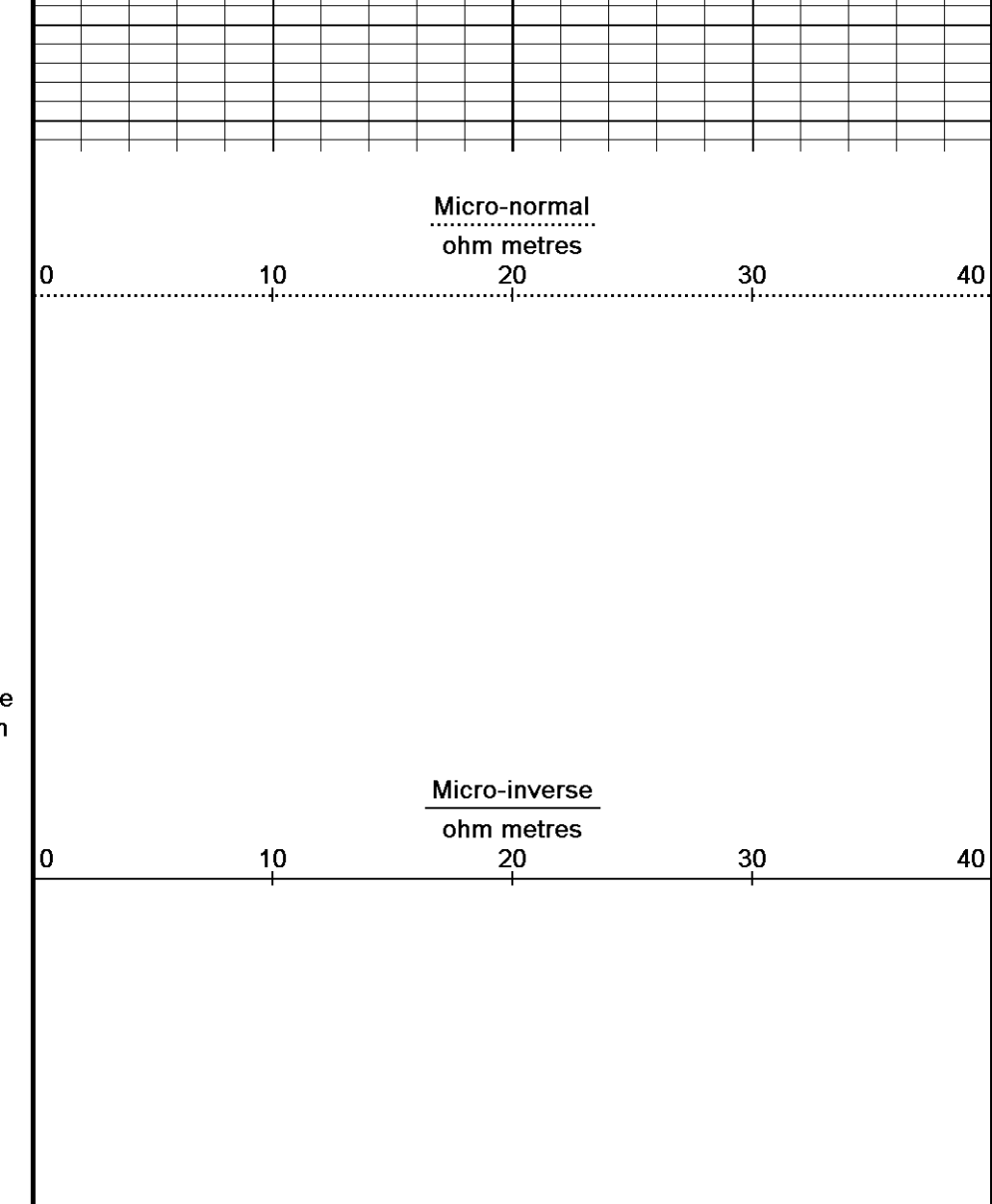
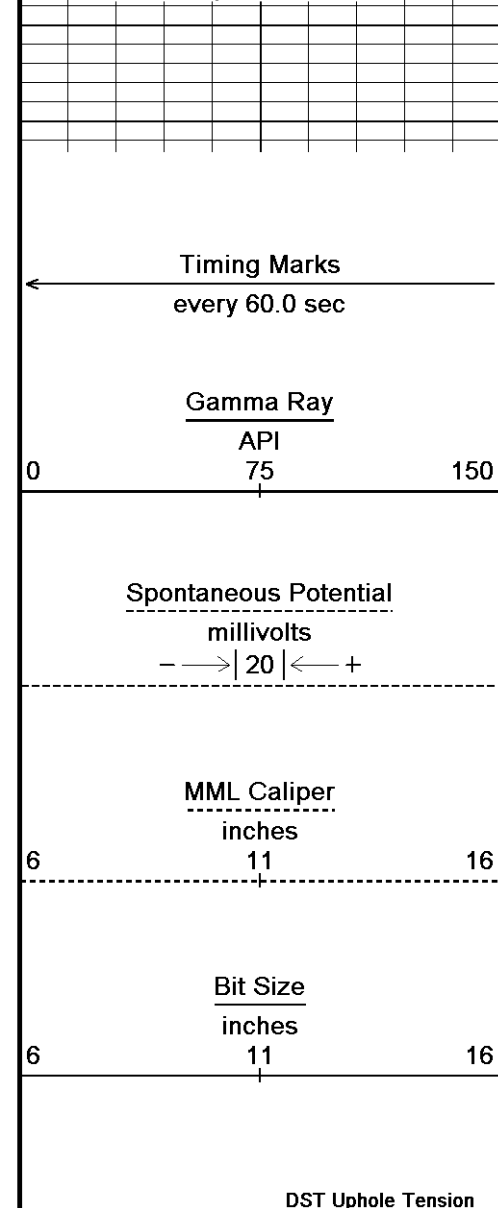
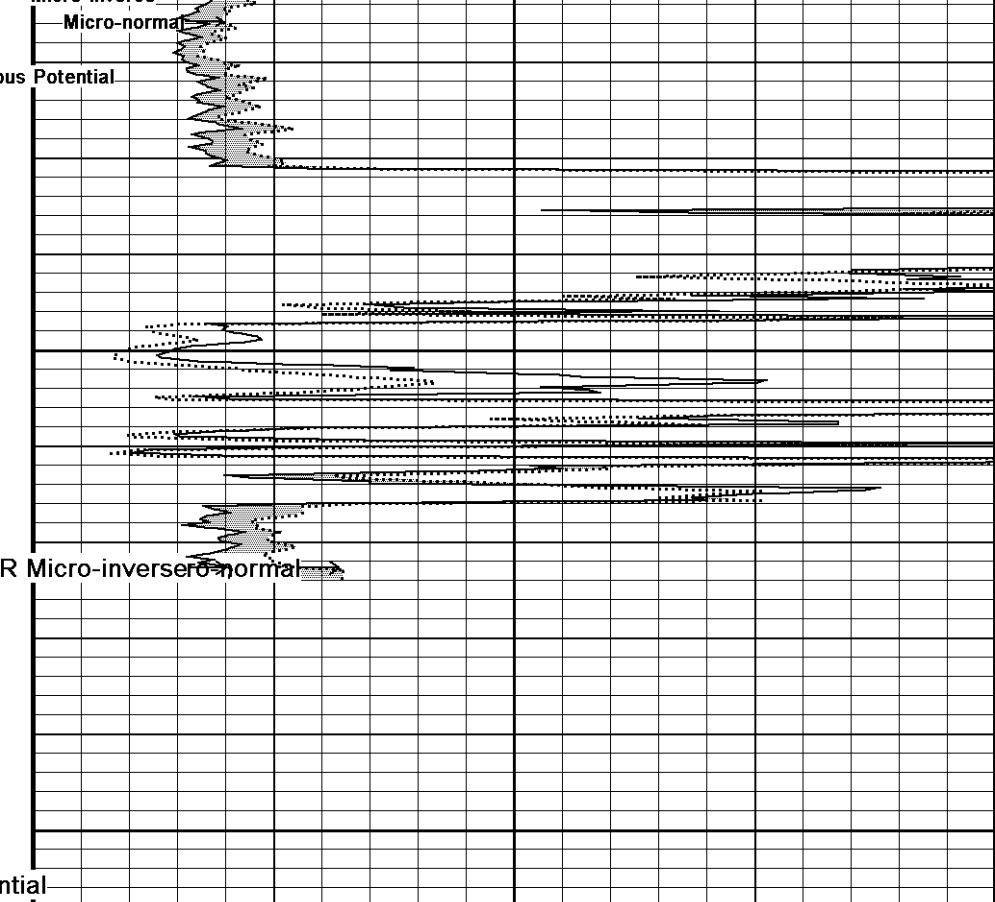
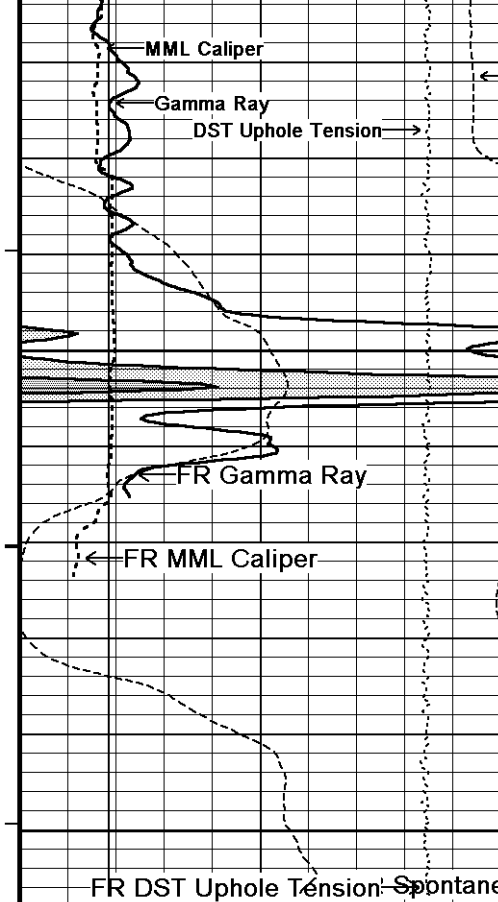
115°

4700

Bit Size



Micro-inverse



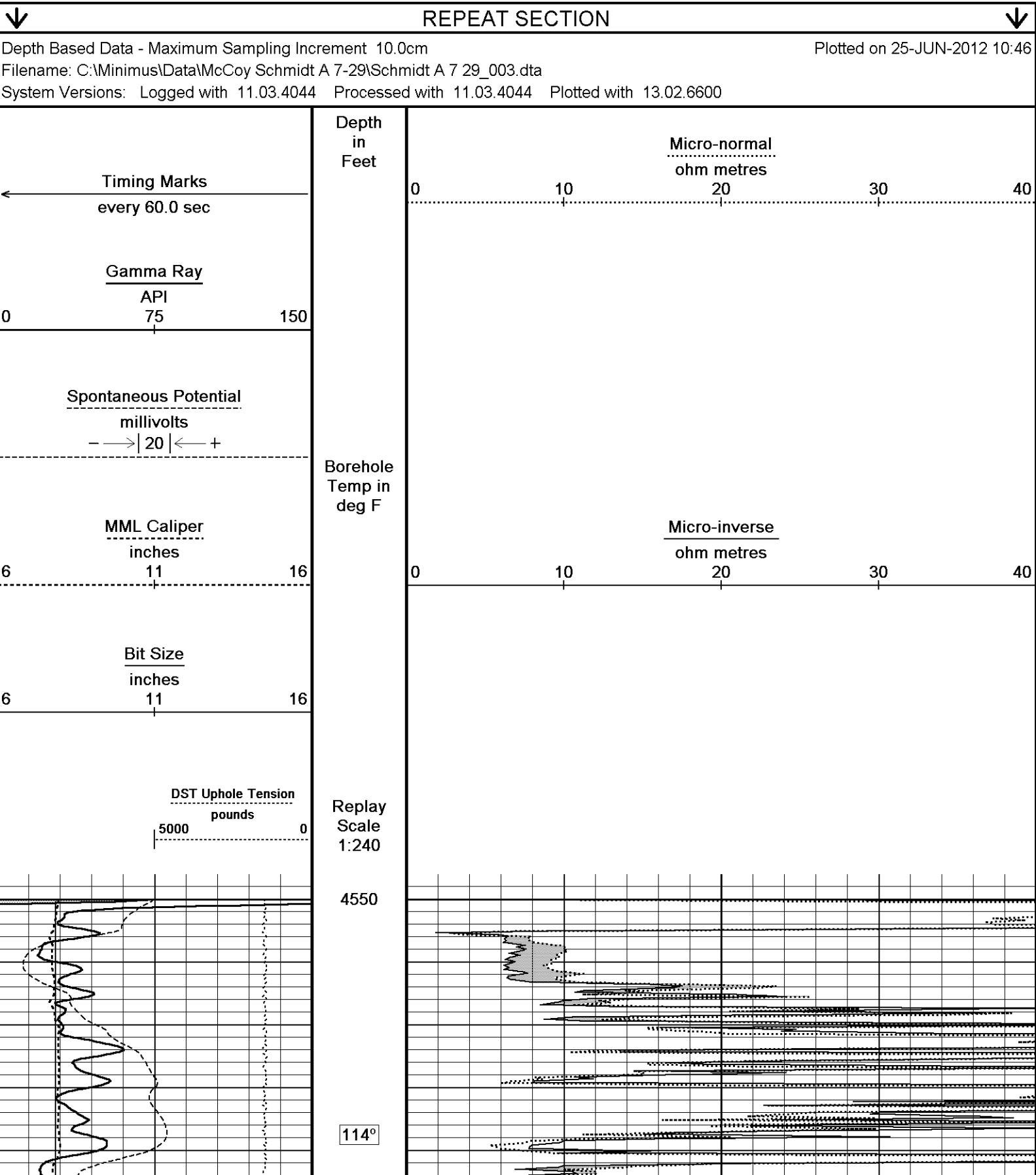
Replay Scale 1:240

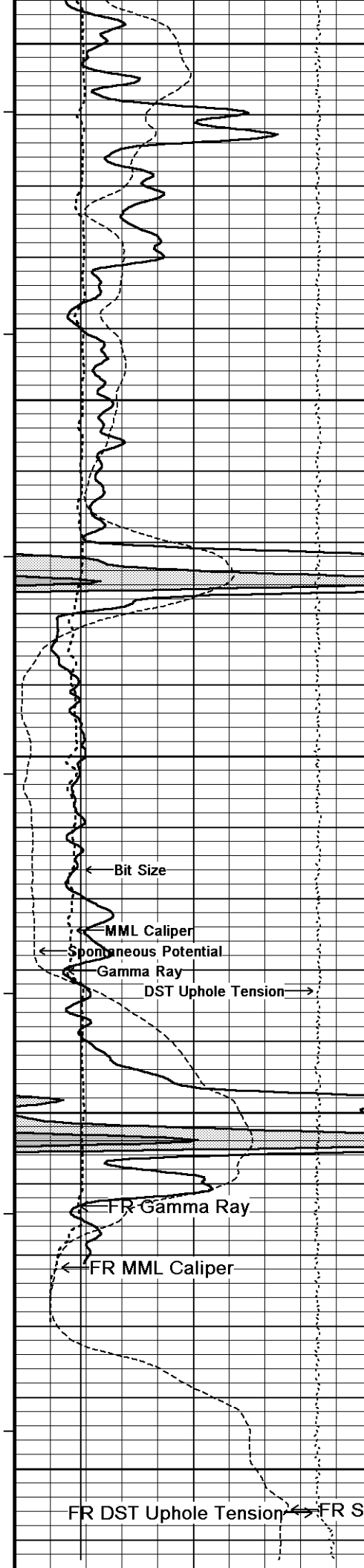
5000 pounds

Depth Based Data - Maximum Sampling Increment 10.0cm  
Filename: C:\Minimus\Data\McCoy Schmidt A 7-29\Schmidt A 7 29\_005.dta  
System Versions: Processed with 11.03.4044 Plotted with 13.02.6600

Plotted on 25-JUN-2012 10:46  
Recorded on 24-JUN-2012 08:44

↑5 INCH MAIN↑





4600

114°

4650

114°

4700

Micro-inverse

Micro-normal

114°

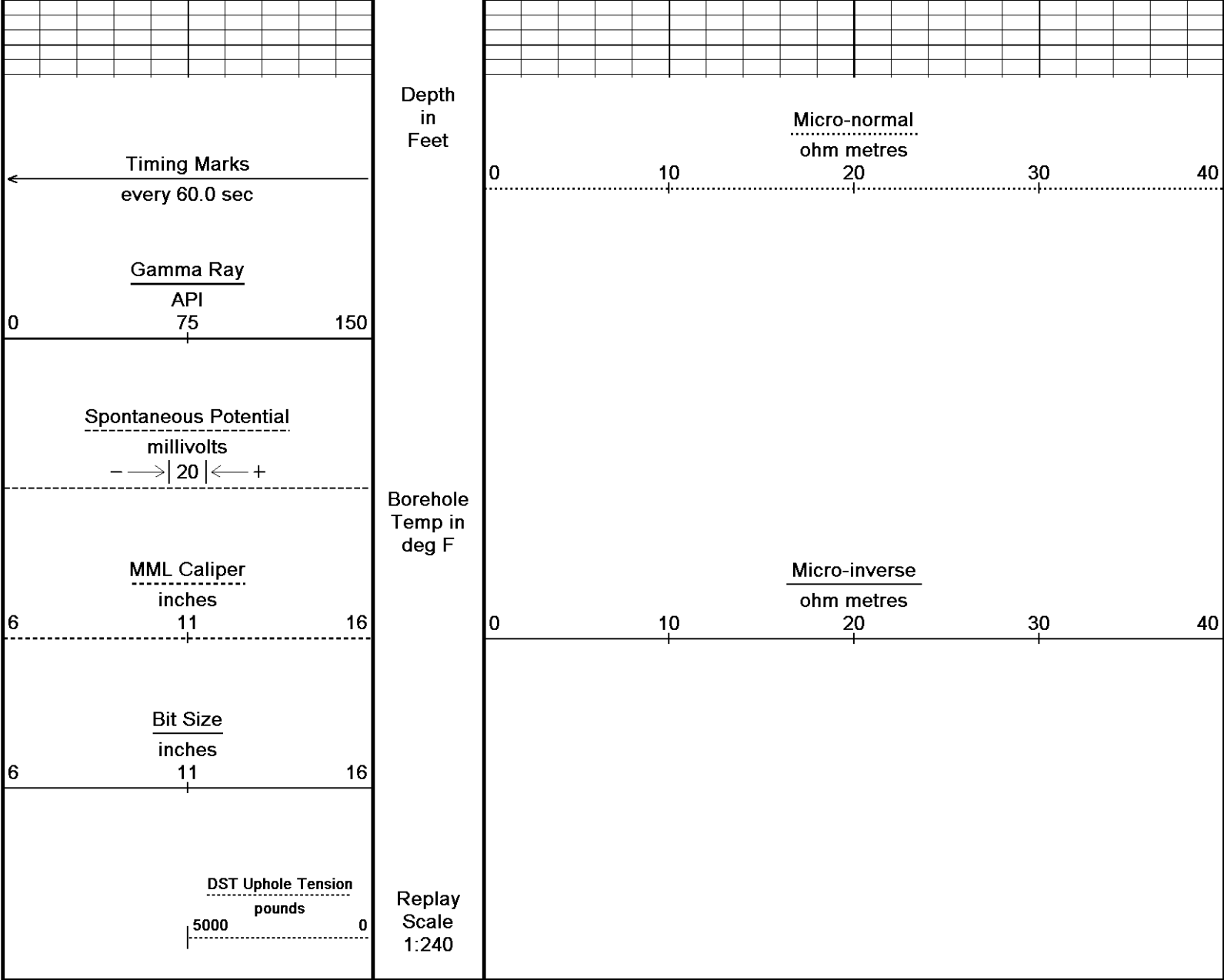
4750

FRFR Micro-normal

4800

FR DST Uphole Tension

FR Spontaneous Potential



Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 25-JUN-2012 10:46

Filename: C:\Minimus\Data\McCoy Schmidt A 7-29\Schmidt A 7 29\_003.dta

System Versions: Logged with 11.03.4044 Processed with 11.03.4044 Plotted with 13.02.6600

↑

REPEAT SECTION

↑

| BEFORE SURVEY CALIBRATION                                   |                        |                                  |
|-------------------------------------------------------------|------------------------|----------------------------------|
| C:\Minimus\Data\McCoy Schmidt A 7-29\Schmidt A 7 29_005.dta |                        |                                  |
| General Constants All 000                                   |                        | Last Edited on 24-JUN-2012,10:50 |
| General Parameters                                          |                        |                                  |
| Mud Resistivity                                             | 1.180                  | ohm-metres                       |
| Mud Resistivity Temperature                                 | 97.200                 | 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                                     | 4.500                  | inches                           |
| Caliper for Differential Caliper                            | Density Caliper        |                                  |
| Rwa Parameters                                              |                        |                                  |
| Porosity used                                               | Limestone Density Por. |                                  |
| Resistivity used                                            | Array Ind. One Res Pt  |                                  |

|                                                     |                                             |                       |                                                                                 |
|-----------------------------------------------------|---------------------------------------------|-----------------------|---------------------------------------------------------------------------------|
| Resistivity used                                    | Array Ind. One Res Rt                       | 0.610                 |                                                                                 |
| RWA Constant A                                      |                                             | 2.150                 |                                                                                 |
| RWA Constant M                                      |                                             |                       |                                                                                 |
| Down-hole Tension Calibration SMS 0                 |                                             |                       | Field Calibration on 21-JUN-2012 06:37                                          |
| Reading No                                          | Measured                                    |                       | 0                                                                               |
| 1                                                   | 13740.45                                    |                       | 0.00                                                                            |
| 2                                                   | 13781.97                                    |                       | 403.40                                                                          |
| Gamma Calibration MCG-C 84                          |                                             |                       | Field Calibration on 19-JUN-2012 09:17                                          |
|                                                     | Measured                                    | Calibrated (API)      |                                                                                 |
| Background                                          | 70                                          | 47                    |                                                                                 |
| Calibrator (Gross)                                  | 1142                                        | 772                   |                                                                                 |
| Calibrator (Net)                                    | 1072                                        | 725                   |                                                                                 |
| Gamma Constants MCG-C 84                            |                                             |                       | Last Edited on 24-JUN-2012,07:58                                                |
| Gamma Calibrator Number                             | GR38                                        |                       |                                                                                 |
| Mud Density                                         | 1.07                                        | gm/cc                 |                                                                                 |
| Caliper Source for Processing                       | Density Caliper                             |                       |                                                                                 |
| Tool Position                                       | Eccentred                                   |                       |                                                                                 |
| Concentration of KCl                                | 0.00                                        | kppm                  |                                                                                 |
| SP Calibration MCG-C 84                             |                                             |                       | Field Calibration on 28-MAY-2012,07:31                                          |
|                                                     | Measured                                    | Calibrated (mV)       |                                                                                 |
| Reference 1                                         | 103.5                                       | 100.0                 |                                                                                 |
| Reference 2                                         | -96.9                                       | -100.0                |                                                                                 |
| High Resolution Temperature Calibration MCG-C 84    |                                             |                       | Field Calibration on 28-MAY-2012,07:32                                          |
|                                                     | Measured                                    | Calibrated(Deg F)     |                                                                                 |
| Lower                                               | 50.00                                       | 50.00                 |                                                                                 |
| Upper                                               | 75.00                                       | 75.00                 |                                                                                 |
| High Resolution Temperature Constants MCG-C 84      |                                             |                       | Last Edited on                                                                  |
| Pre-filter Length                                   | 11                                          |                       |                                                                                 |
| Caliper Calibration MML-A 16                        |                                             |                       | Base Calibration on 19-JUN-2012 08:49<br>Field Calibration on 19-JUN-2012 08:50 |
| Base Calibration                                    |                                             |                       |                                                                                 |
| Reading No                                          | Measured                                    | Calibrator Size (in)  |                                                                                 |
| 1                                                   | 14508                                       | 5.98                  |                                                                                 |
| 2                                                   | 17799                                       | 7.97                  |                                                                                 |
| 3                                                   | 21144                                       | 9.86                  |                                                                                 |
| 4                                                   | 25027                                       | 11.92                 |                                                                                 |
| 5                                                   | 0                                           | 0.00                  |                                                                                 |
| 6                                                   | N/A                                         | N/A                   |                                                                                 |
| Field Calibration                                   |                                             |                       |                                                                                 |
|                                                     | Measured Caliper (in)                       | Actual Caliper (in)   |                                                                                 |
|                                                     | 6.01                                        | 5.98                  |                                                                                 |
| Micro Normal and Micro Inverse Calibration MML-A 16 |                                             |                       | Base Calibration on 19-JUN-2012 08:56<br>Field Check on 19-JUN-2012 08:58       |
| Base Calibration                                    |                                             |                       |                                                                                 |
|                                                     | Measured                                    | Calibrated (ohm-m)    |                                                                                 |
| Channel                                             | Resistor 1 Resistor 2                       | Resistor 1 Resistor 2 |                                                                                 |
| Micro Normal                                        | 12.2 60.2                                   | 5.0 25.0              |                                                                                 |
| Micro Inverse                                       | 15.6 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 16   |                                             |                       | Last Edited on 24-JUN-2012,06:45                                                |
| 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                |                                                                                 |

## Base Calibration

|       | Measured |     | Calibrated (cps) |     |
|-------|----------|-----|------------------|-----|
|       | Near     | Far | Near             | Far |
|       | 3164     | 98  | 3714             | 110 |
| Ratio | 32.187   |     | 33.764           |     |

## Field Calibrator at Base

|       | Calibrated (cps) |
|-------|------------------|
|       | 1615             |
| Ratio | 0.697            |

## Field Check

|       | Calibrated (cps) |
|-------|------------------|
|       | 1643             |
| Ratio | 0.694            |

## Neutron Constants MDN-A.B 65

Last Edited on 24-JUN-2012,07:58

|                                 |                 |           |
|---------------------------------|-----------------|-----------|
| Neutron Source Id               | PN-521          |           |
| Neutron Jig Number              | 5824NE          |           |
| Epithermal Neutron              | No              |           |
| Caliper Source for Processing   | Density Caliper |           |
| Stand-off                       | 0.00            | inches    |
| Mud Density                     | 1.07            | gm/cc     |
| Limestone Sigma                 | 7.10            | cu        |
| Sandstone Sigma                 | 4.26            | cu        |
| Dolomite Sigma                  | 4.70            | cu        |
| Formation Pressure Source       | Constant Value  |           |
| Formation Pressure              | 0.00            | kpsi      |
| Temperature Source              | Constant Value  |           |
| Temperature                     | 68.00           | degrees F |
| Mud Salinity                    | 0.00            | kppm      |
| Salinity Correction             | 0               |           |
| Formation Fluid Salinity Source | Constant Value  |           |
| Formation Fluid Salinity        | 0.00            | kppm      |
| Barite Mud Correction           | Not Applied     |           |

## FE Calibration MFE-A.A 55

Base Calibration on 19-JUN-2012 09:07

Field Check on 19-JUN-2012 09:11

## Base Calibration

|             | Measured | Calibrated (ohm-m) |
|-------------|----------|--------------------|
| Reference 1 | 0.0      | 0.0                |
| Reference 2 | 952.0    | 126.8              |
| Base Check  |          | 281.3              |
| Field Check |          | 281.4              |

## FE Constants MFE-A.A 55

Last Edited on 24-JUN-2012,06:46

|                                  |                          |        |
|----------------------------------|--------------------------|--------|
| Running Mode                     | No Sleeve                |        |
| MFE K Factor                     | 0.1268                   |        |
| Caliper Source for FE correction | Density Caliper          |        |
| Caliper Value for FE correction  | N/A                      | inches |
| Rm Source for FE correction      | Temperature Corr         |        |
| Temp. for Rm Corr.               | MCG External Temperature |        |
| Stand-off                        | 0.5                      | inches |

## Induction Calibration MAI-A.A 45

Base Calibration on 12-JAN-2012,13:34

Field Check on 19-JUN-2012 10:18

## Base Calibration

| Test Loop Calibration |  | Measured |       | Calibrated (mmho/m) |       |
|-----------------------|--|----------|-------|---------------------|-------|
| Channel               |  | Low      | High  | Low                 | High  |
| 1                     |  | 14.4     | 472.6 | 9.3                 | 966.2 |
| 2                     |  | 5.7      | 374.0 | 7.6                 | 821.4 |
| 3                     |  | 3.4      | 261.2 | 5.2                 | 566.0 |
| 4                     |  | 2.5      | 133.9 | 2.6                 | 279.2 |

Array Temperature 79.4 Deg F

| Channel | Base Check (mmho/m) |      | Field Check (mmho/m) |        |
|---------|---------------------|------|----------------------|--------|
|         | Low                 | High | Low                  | High   |
| 1       | 0.0                 | 0.0  | 10.2                 | 2051.0 |

|                   |     |     |      |        |
|-------------------|-----|-----|------|--------|
| 1                 | 0.0 | 0.0 | 18.3 | 3851.8 |
| 2                 | 0.0 | 0.0 | 31.6 | 3629.7 |
| 3                 | 0.0 | 0.0 | 28.6 | 3049.6 |
| 4                 | 0.0 | 0.0 | 18.3 | 2079.1 |
| Deep              | 0.0 | 0.0 | 16.0 | 1911.0 |
| Medium            | 0.0 | 0.0 | 42.5 | 4061.0 |
| Shallow           | 0.0 | 0.0 | 49.5 | 5483.9 |
| Array Temperature |     | 0.0 | 80.9 | Deg F  |

## Induction Constants MAI-A.A 45

Last Edited on 24-JUN-2012,07:59

|                                                  |                          |                  |             |
|--------------------------------------------------|--------------------------|------------------|-------------|
| Induction Model                                  |                          | RtAP-WBM         |             |
| Caliper for Borehole Corr.                       |                          | Density Caliper  |             |
| Hole Size for Borehole Correction                |                          | N/A              | inches      |
| Tool Centred                                     |                          | No               |             |
| Stand-off Type                                   |                          | Fins             |             |
| Stand-off                                        |                          | 0.50             | inches      |
| Number of Fins on Stand-off                      |                          | 8.0000           |             |
| Stand-off Fin Angle                              |                          | 45.00            | degrees     |
| Stand-off Fin Width                              |                          | 0.5000           | inches      |
| Borehole Corr. Rm Source                         |                          | Temperature Corr |             |
| Temp. for Rm Corr.                               | MCG External Temperature |                  |             |
| Squasher Start                                   |                          | 0.0020           | mhos/metre  |
| Squasher Offset                                  |                          | N/A              | mhos/metre  |
| Borehole Normalisation                           |                          |                  |             |
| DRM1                                             | 0.0000                   | DRC1             | 0.0000      |
| DRM2                                             | 0.0000                   | DRC2             | 0.0000      |
| MRM1                                             | 0.0000                   | MRC1             | 0.0000      |
| MRM2                                             | 0.0000                   | MRC2             | 0.0000      |
| SRM1                                             | 0.0000                   | SRC1             | 0.0000      |
| SRM2                                             | 0.0000                   | SRC2             | 0.0000      |
| Calibration Site Corrections                     |                          |                  |             |
| Channel 1                                        |                          | 0.00             | mmhos/metre |
| Channel 2                                        |                          | 0.00             | mmhos/metre |
| Channel 3                                        |                          | 0.00             | mmhos/metre |
| Channel 4                                        |                          | 0.00             | mmhos/metre |
| Apparent Porosity and Water Saturation Constants |                          |                  |             |
| Archie Constant (A)                              |                          | 1.00             |             |
| Cementation Exponent (M)                         |                          | 2.00             |             |
| Saturation Exponent (N)                          |                          | 2.00             |             |
| Saturation of Water for Apor                     |                          | 100.00           | percent     |
| Resistivity of Water for Apor and Sw             |                          | 0.05             | ohm-m       |
| Resistivity of Mud Filtrate for Sw               |                          | 0.00             | ohm-m       |
| Source for Rt                                    |                          | 0.00             |             |
| Source for Rxo                                   |                          | 0.00             |             |

## High Resolution Temperature Calibration MAI-A.A 45

Field Calibration on 12-JAN-2012,13:36

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

## High Resolution Temperature Constants MAI-A.A 45

Last Edited on 12-JAN-2012,11:13

|                   |    |
|-------------------|----|
| Pre-filter Length | 11 |
|-------------------|----|

## Caliper Calibration MPD-B 31

Base Calibration on 17-JUN-2012 20:26  
Field Calibration on 17-JUN-2012 20:27

|                  |          |                      |
|------------------|----------|----------------------|
| Base Calibration |          |                      |
| Reading No       | Measured | Calibrator Size (in) |
| 1                | 17360    | 3.99                 |
| 2                | 25891    | 5.98                 |
| 3                | 34800    | 7.97                 |
| 4                | 43168    | 9.86                 |
| 5                | 52528    | 11.92                |
| 6                | N/A      | N/A                  |

Field Calibration

Measured Caliper (in)  
6.00

Actual Caliper (in)  
5.98

# Photo Density Calibration MPD-B 31

Base Calibration on 17-JUN-2012 20:49  
Field Check on 17-JUN-2012 21:02

## Density Calibration Base Calibration

|             | Measured |       | Calibrated (sdu) |       |
|-------------|----------|-------|------------------|-------|
|             | Near     | Far   | Near             | Far   |
| Reference 1 | 48464    | 24458 | 59556            | 30836 |
| Reference 2 | 19785    | 1991  | 24941            | 2541  |

## Field Check at Base

695.5 853.6

## Field Check

696.0 855.6

## PE Calibration

### Base Calibration

|             | WS    | Measured<br>WH | Ratio | Calibrated<br>Ratio |
|-------------|-------|----------------|-------|---------------------|
| Background  | 128   | 610            |       |                     |
| Reference 1 | 19401 | 48326          | 0.404 | 0.371               |
| Reference 2 | 5740  | 19688          | 0.294 | 0.272               |

## Field Check at Base

128.0 610.0

## Field Check

128.1 605.4

# Density Constants MPD-B 31

Last Edited on 24-JUN-2012,07:58

Density Source Id 254  
Nylon Calibrator Number DNCE695  
Aluminium Calibrator Number DACD698  
Density Shoe Profile 8 inch  
Caliper Source for Processing Density Caliper  
PE Correction to Density Not Applied  
Mud Density 1.07 gm/cc  
Mud Density Z/A Multiplier 1.11  
Mud Filtrate Density 1.00 gm/cc  
Dry Hole Mud Filtrate Density 1.00 gm/cc  
DNCT 0.00 gm/cc  
CRCT 0.00 gm/cc  
Density Z/A Correction Hybrid

Matrix Density (gm/cc) Depth (ft)  
2.71 0.00  
0.00 0.00  
0.00 0.00  
0.00 0.00  
0.00 0.00  
0.00 0.00  
0.00 0.00  
0.00 0.00

## DOWNHOLE EQUIPMENT

C:\Minimus\Data\McCoy Schmidt A 7-29\Schmidt A 7 29\_005.dta

Compact Comms Gamma  
MCG-C 84 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in



42.87 ft GRGC - Gamma Ray  
39.96 ft CGXT - MCG External Temperature

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

33.24 ft MINV - Micro-inverse  
33.24 ft MNRL - Micro-normal  
34.24 ft MLTC - MML Caliper

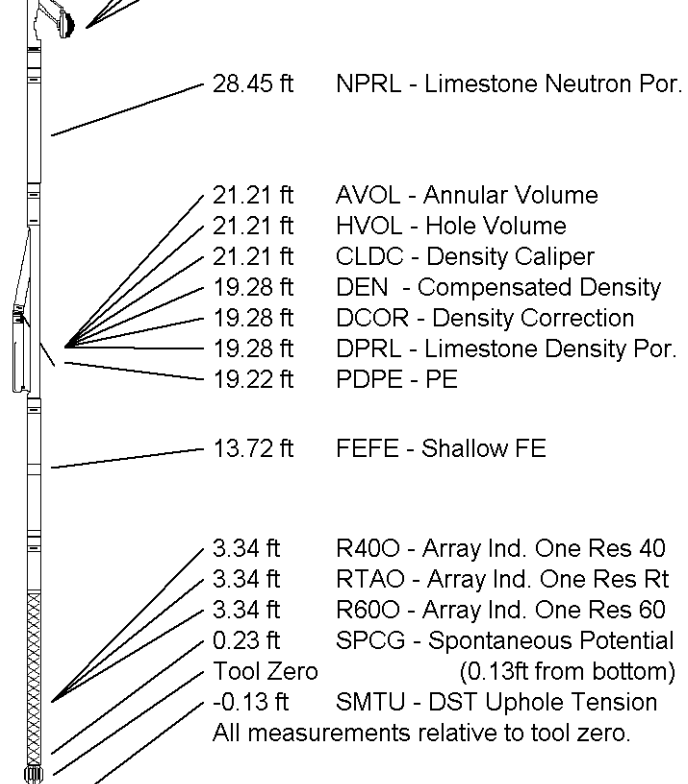
Compact Neutron  
MDN-A.B 65 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

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

Compact Focussed Electric  
MFE-A.A 55 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: 48.16 ft Weight: 383.6 lb



COMPANY McCoy Petroleum Corp

WELL Schmidt 'A' #7-29

FIELD

PROVINCE/COUNTY Haskell

COUNTRY/STATE U.S.A. / Kansas

|                         |         |      |
|-------------------------|---------|------|
| Elevation Kelly Bushing | 2856.00 | feet |
| Elevation Drill Floor   | 2858.00 | feet |
| Elevation Ground Level  | 2843.00 | feet |

|               |         |      |
|---------------|---------|------|
| First Reading | 4806.00 | feet |
| Depth Driller | 4805.00 | feet |
| Depth Logger  | 4806.00 | feet |



**Weatherford®**

MICRORESISTIVITY LOG