



**Weatherford**

**COMPACT PHOTO DENSITY  
COMPENSATED NEUTRON  
MICRORESISTIVITY LOG**

**M & M EXPLORATION, INC.**

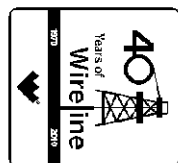
**Z-BAR # 20-14**

**AETNA GAS AREA**

**BARBER**

**U.S.A. / KANSAS**

**910' FSL & 1480' FWL, SW/4**



COMPANY  
WELL  
FIELD  
PROVINCE/COUNTY  
COUNTRY/STATE  
LOCATION

SEC 20 TWP 34S RGE 14W Other Services  
MAI/MFE

API Number 15-007-23702  
Permit Number

Permanent Datum G.L., Elevation 1538 feet  
Log Measured From KB  
Drilling Measured From K.B. @ 12 FEET

Elevations: feet  
KB 1550.00  
DF 1548.00  
GL 1538.00

Date 03-AUG-2011

Run Number ONE

Depth Driller 4950.00 feet

Depth Logger 4946.00 feet

First Reading 4923.00 feet

Last Reading 3.00 feet

Casing Driller 905.00 feet

Casing Logger 905.00 feet

Bit Size 7.875 inches

Hole Fluid Type CHEMICAL

Density / Viscosity 9.20 lb/USg 50.00 CP

PH / Fluid Loss 10.00 7.90 ml/30Min

Sample Source FLOWLINE

Rm @ Measured Temp 0.43 @ 78.0 ohm-m

Rmf @ Measured Temp 0.34 @ 78.0 ohm-m

Rmc @ Measured Temp 0.52 @ 78.0 ohm-m

Source Rmf / Rmc CALC CALC

Rm @ BHT 0.28 @ 123.0 ohm-m

Time Since Circulation 5 HOURS

Max Recorded Temp 123.00 deg F

Equipment Name COMPACT

Equipment / Base 13057 LIB

Recorded By A. GIAMBALVO

Witnessed By BETH BROCK

S.O. / JOB # 353114

LB11-186

**BOREHOLE RECORD**

Last Edited: 04-AUG-2011 09:31

| Bit Size<br>inches | Depth From<br>feet | Depth To<br>feet |
|--------------------|--------------------|------------------|
| 7.875              | 905.00             | 4946.00          |

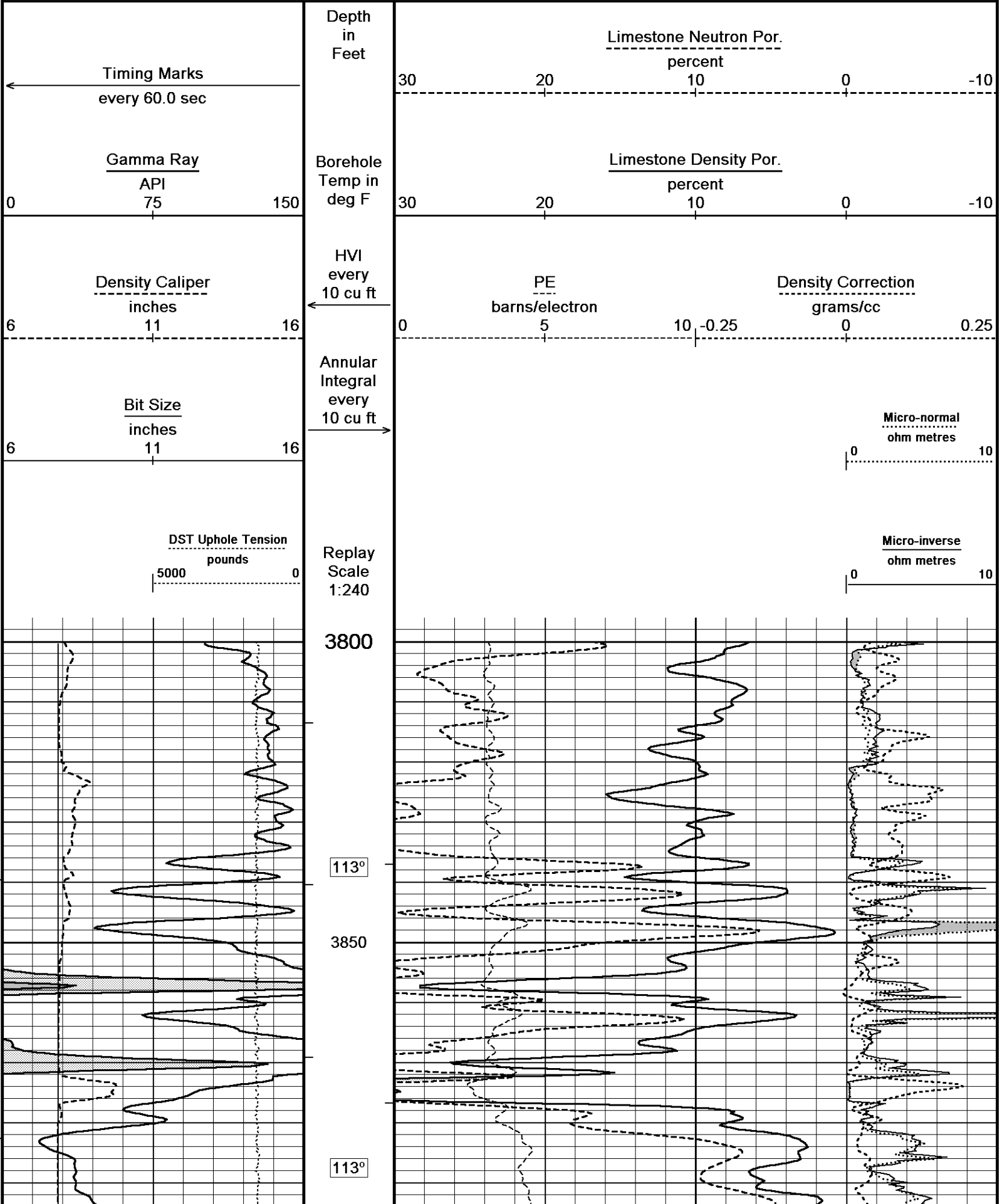
**CASING RECORD**

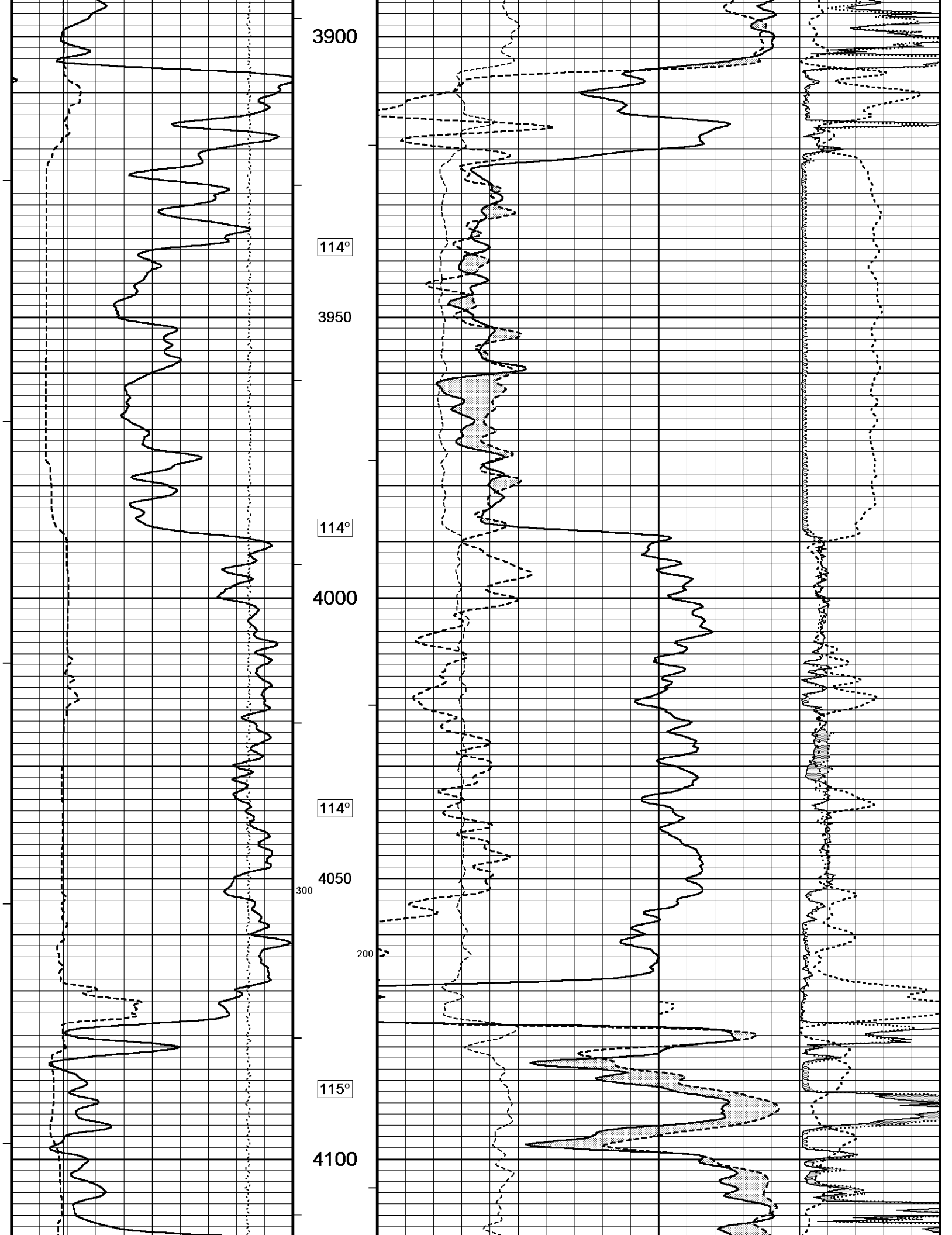
| Type    | Size<br>inches | Depth From<br>feet | Shoe Depth<br>feet | Weight<br>pounds/ft |
|---------|----------------|--------------------|--------------------|---------------------|
| SURFACE | 8.625          | 0.00               | 905.00             | 24.00               |

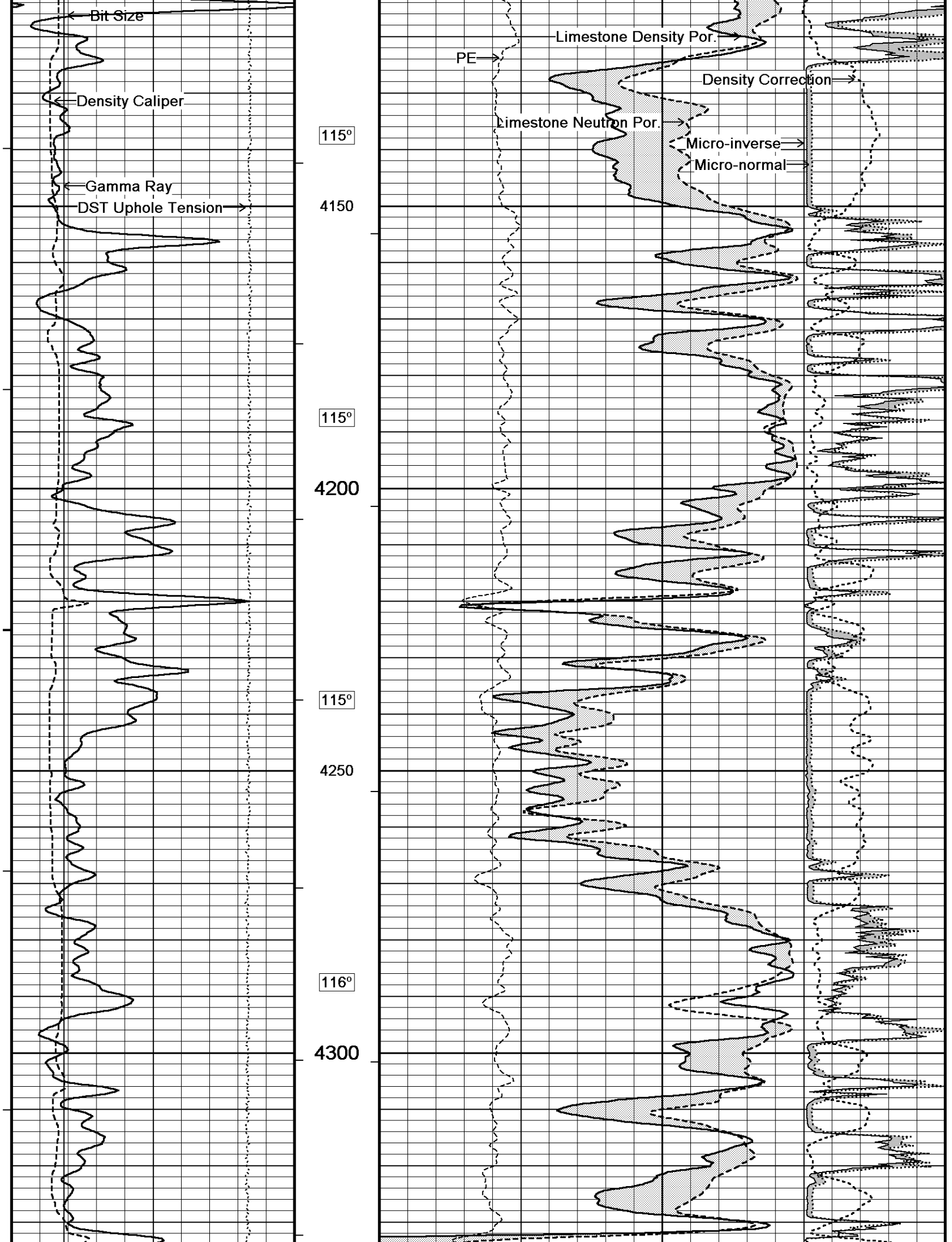
**REMARKS**

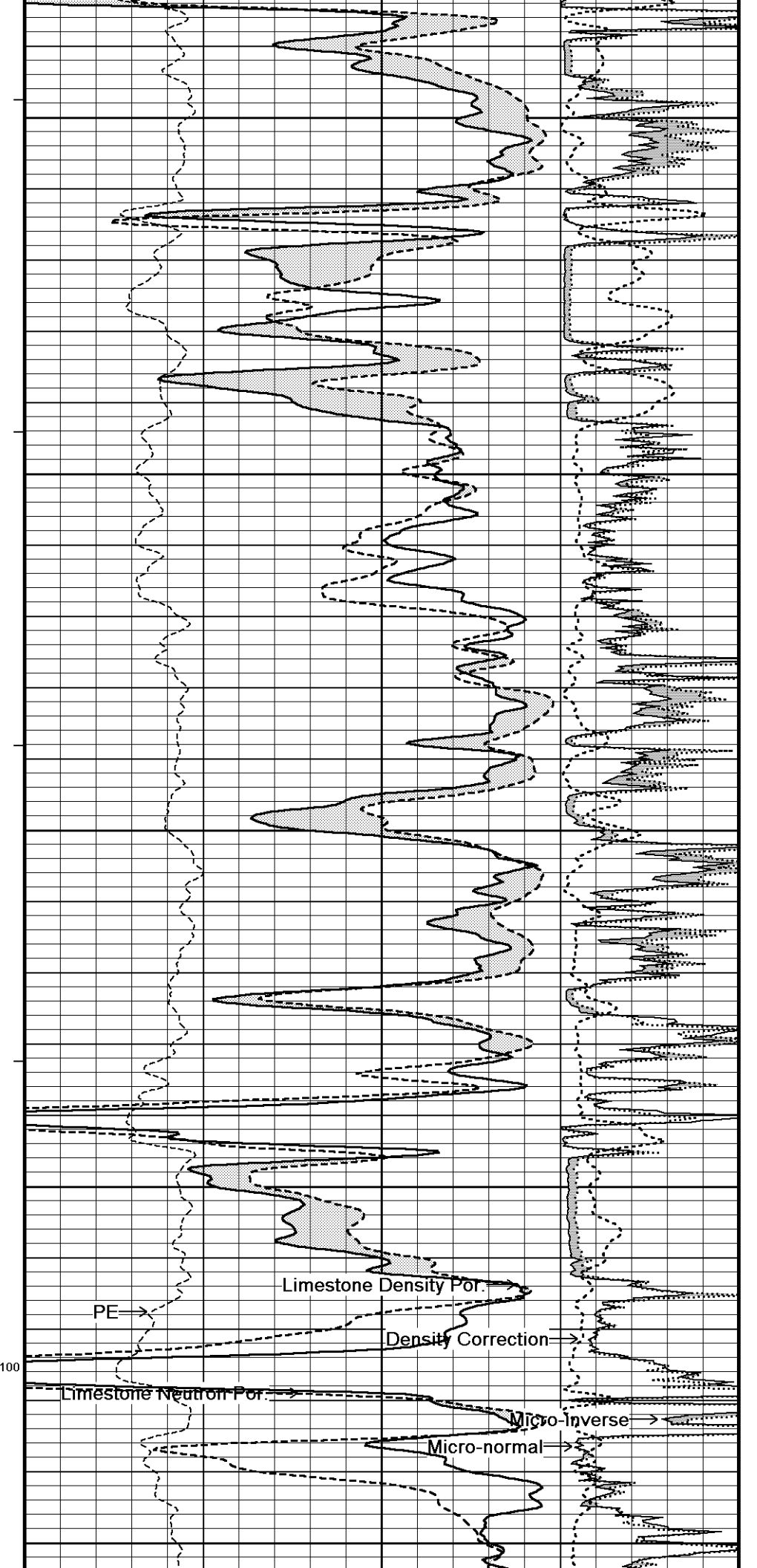
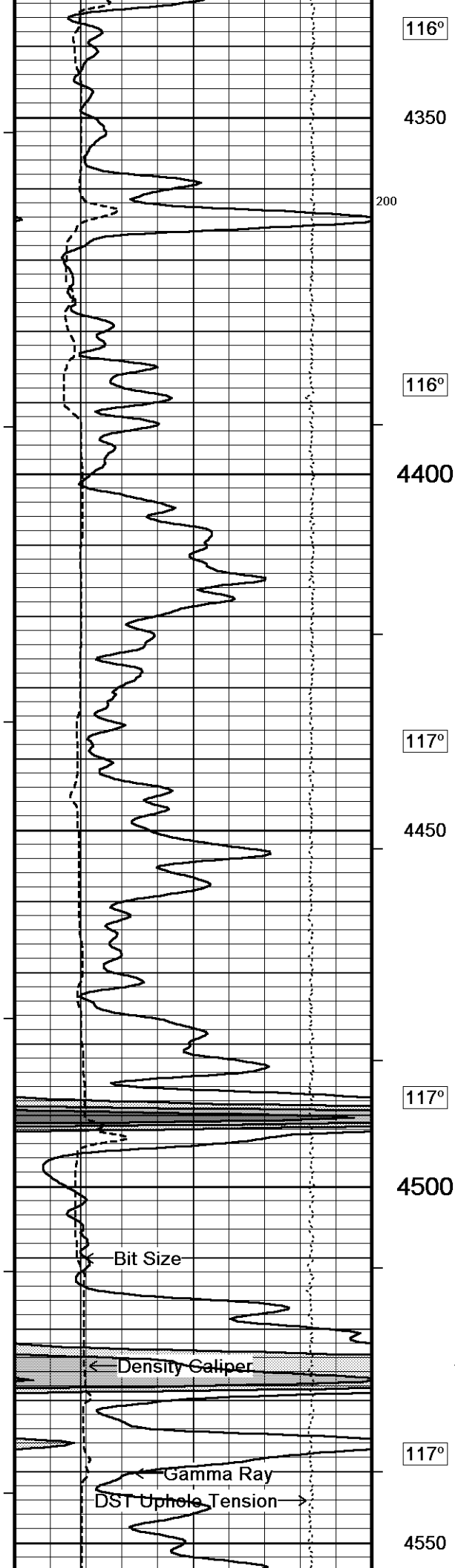
Tools Ran: MCG, MML, MDN, MPD, SKJ, MFE, MAI.  
Hardware Used: MDN Dual Eccentralizer used. MPD 8 inch profile plate used. MFE and MAI 0.5 inch standoffs used.  
2.71 g/cc Limestone Density Matrix used to calculate porosity.  
All intervals logged and scaled per customer's request.  
MML caliper closed during repeat section from 4692 to 4702.  
MPD caliper closed during repeat section from 4702 to 4713.  
Annular volume with 4.5 inch production casing from TD to 3850 = cu. ft.  
Service order #353114  
Rig: Southwind Drilling #70  
Engineer: A. Giambalvo, W. Stambaugh  
Operator(s): B. Reeves, N. Adame

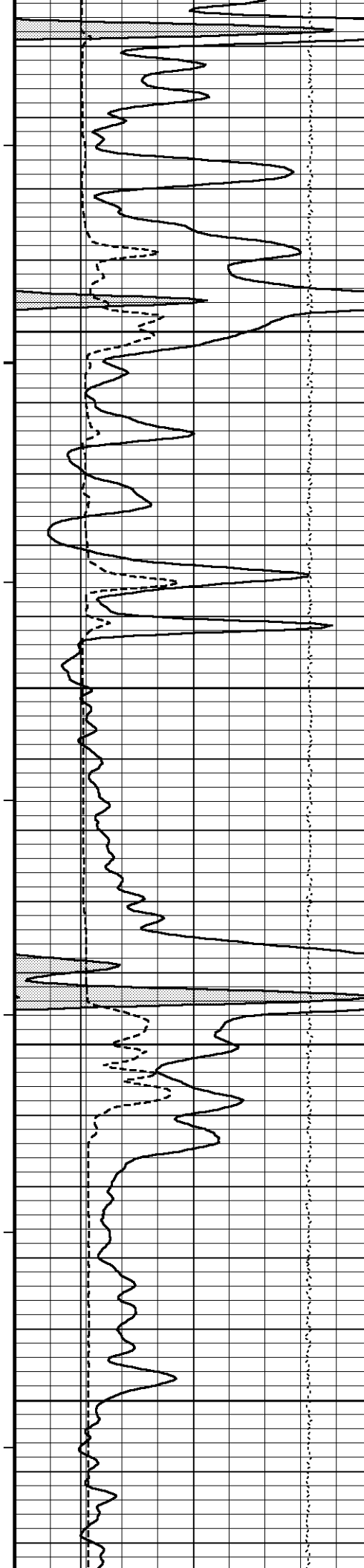
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs, 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.



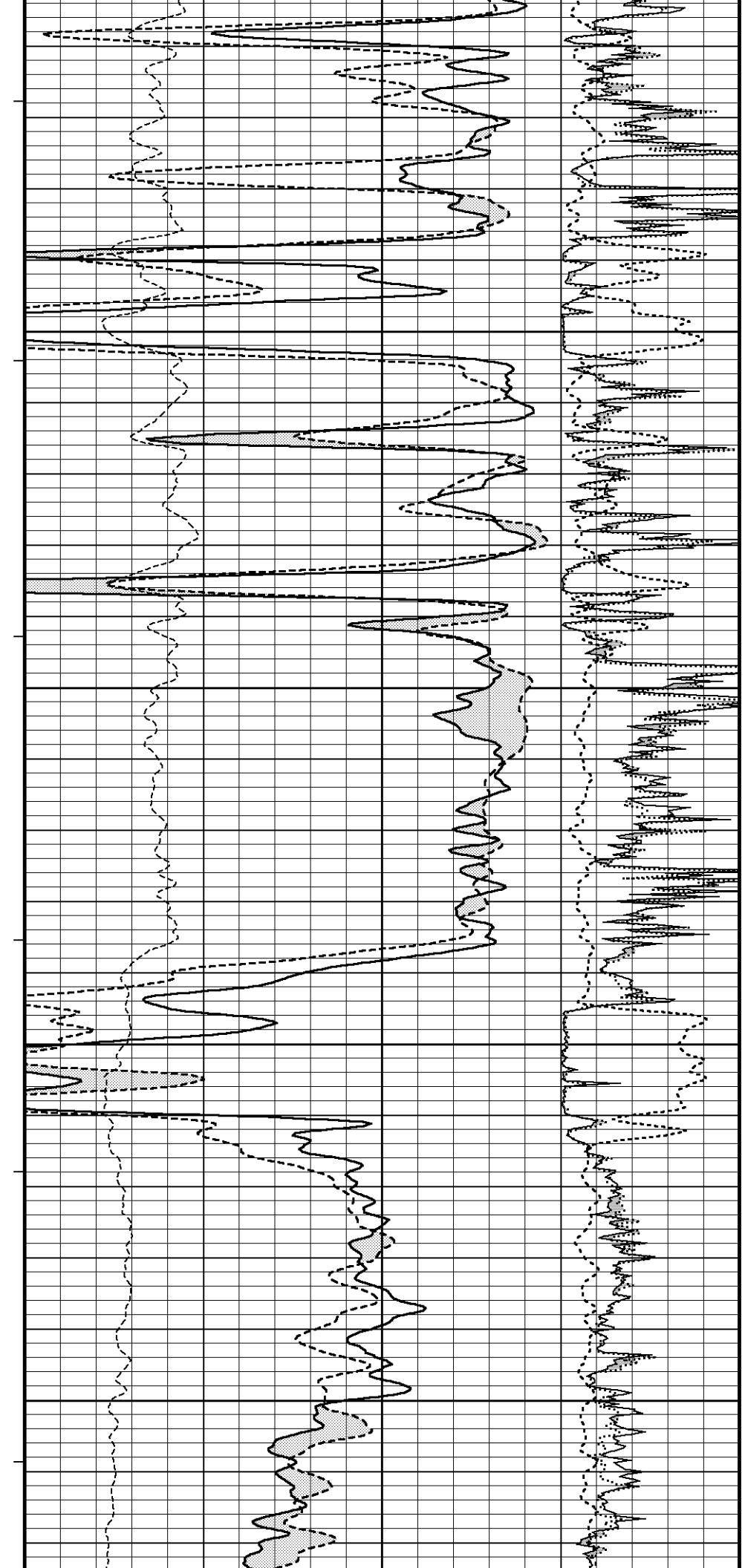


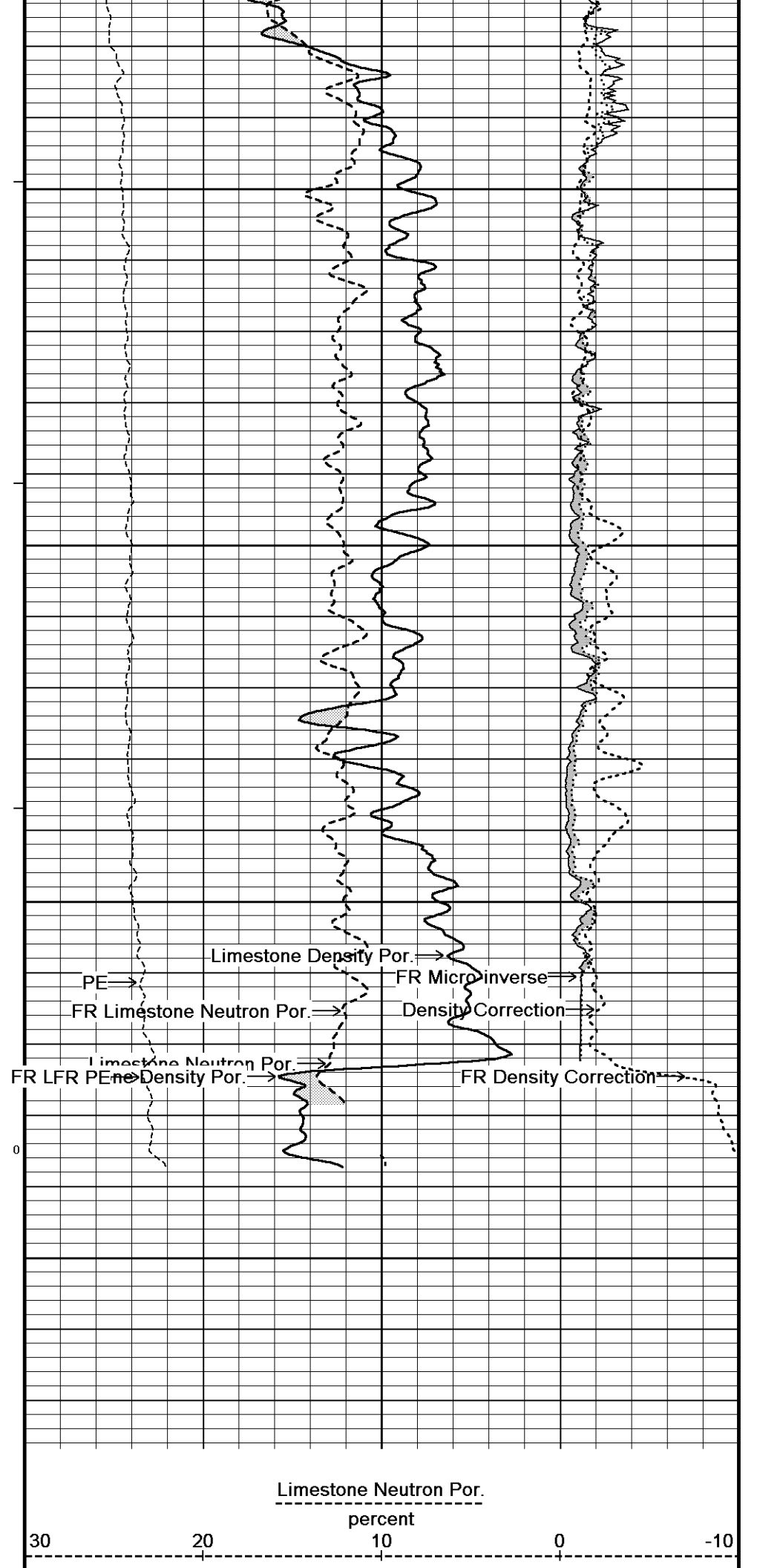
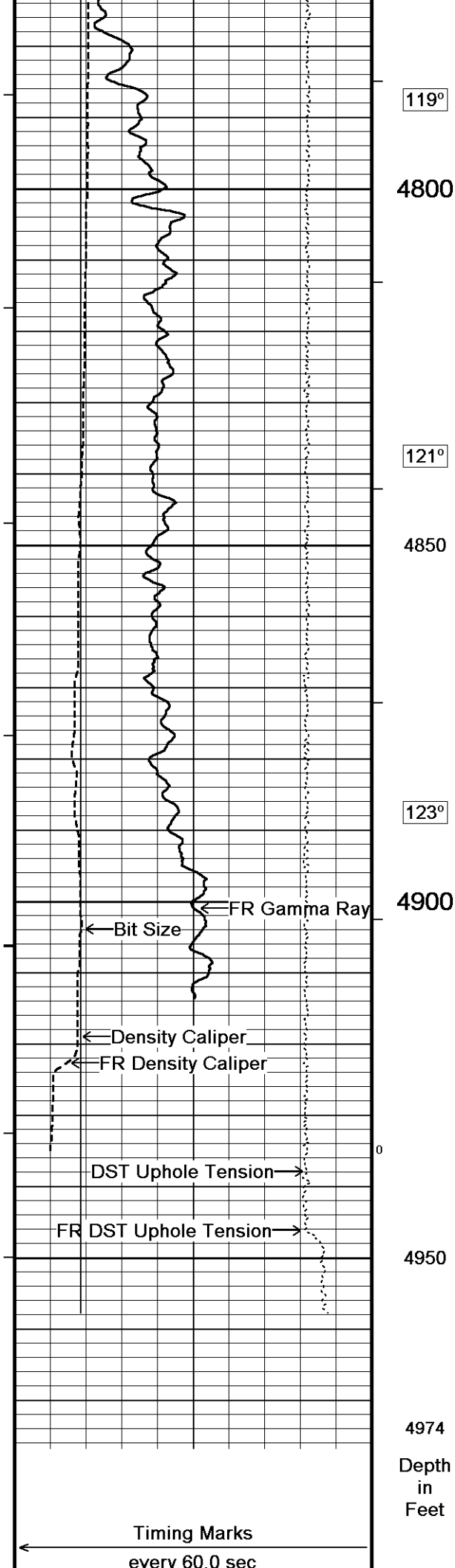


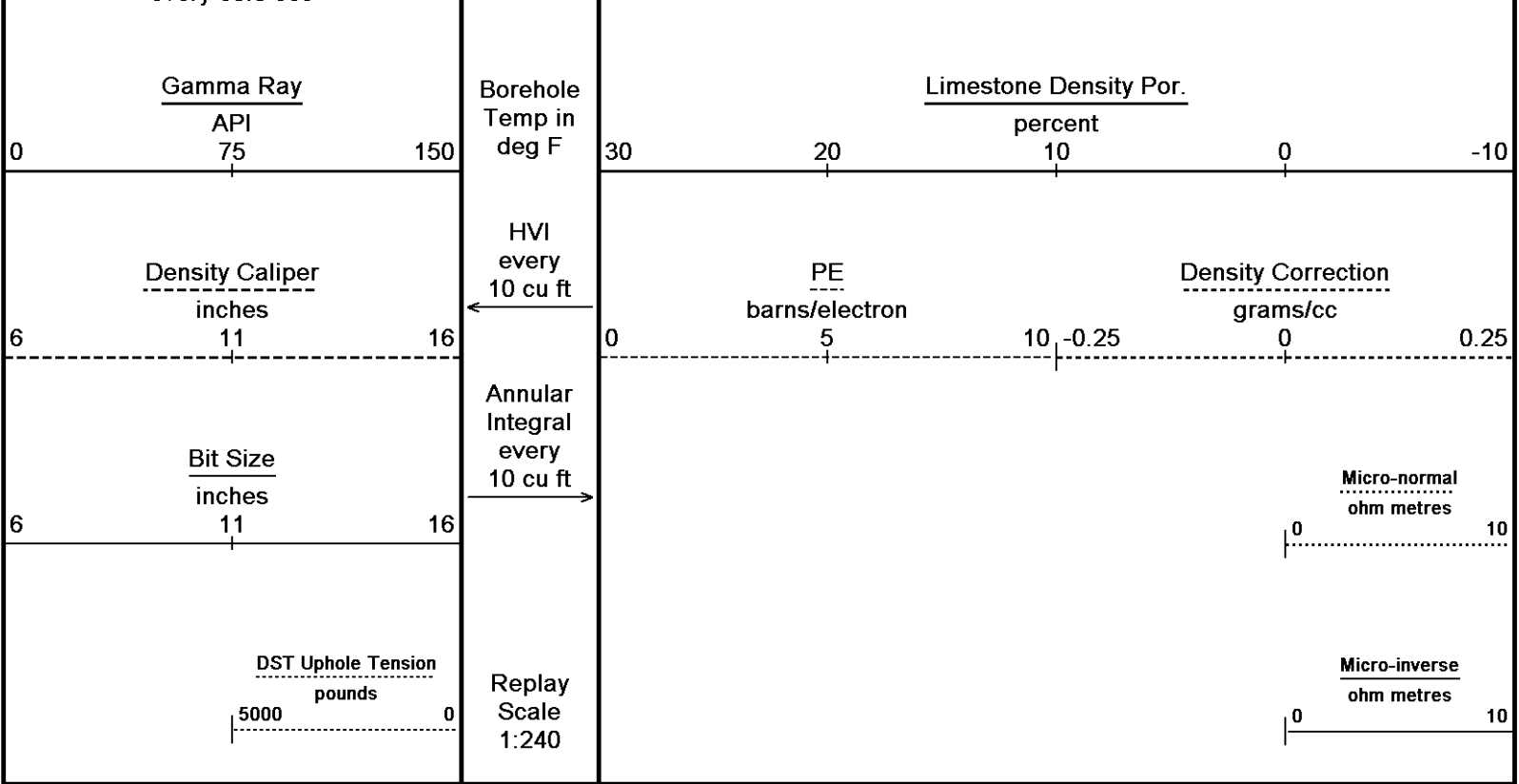




118°  
4600  
118°  
100 4650  
118°  
4700  
119°  
4750







Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 04-AUG-2011 10:12

Filename: C:\Minimus 11.02.3186\Data\M&M Z-Bar #20-14\M&M Z-Bar #20-14\_003 spooled section.dta

Recorded on 04-AUG-2011 09:57

System Versions: Logged with 11.03.4044 Plotted with 11.03.4044

↑

5 INCH MAIN PASS

↑

↓

5 INCH REPEAT PASS

↓

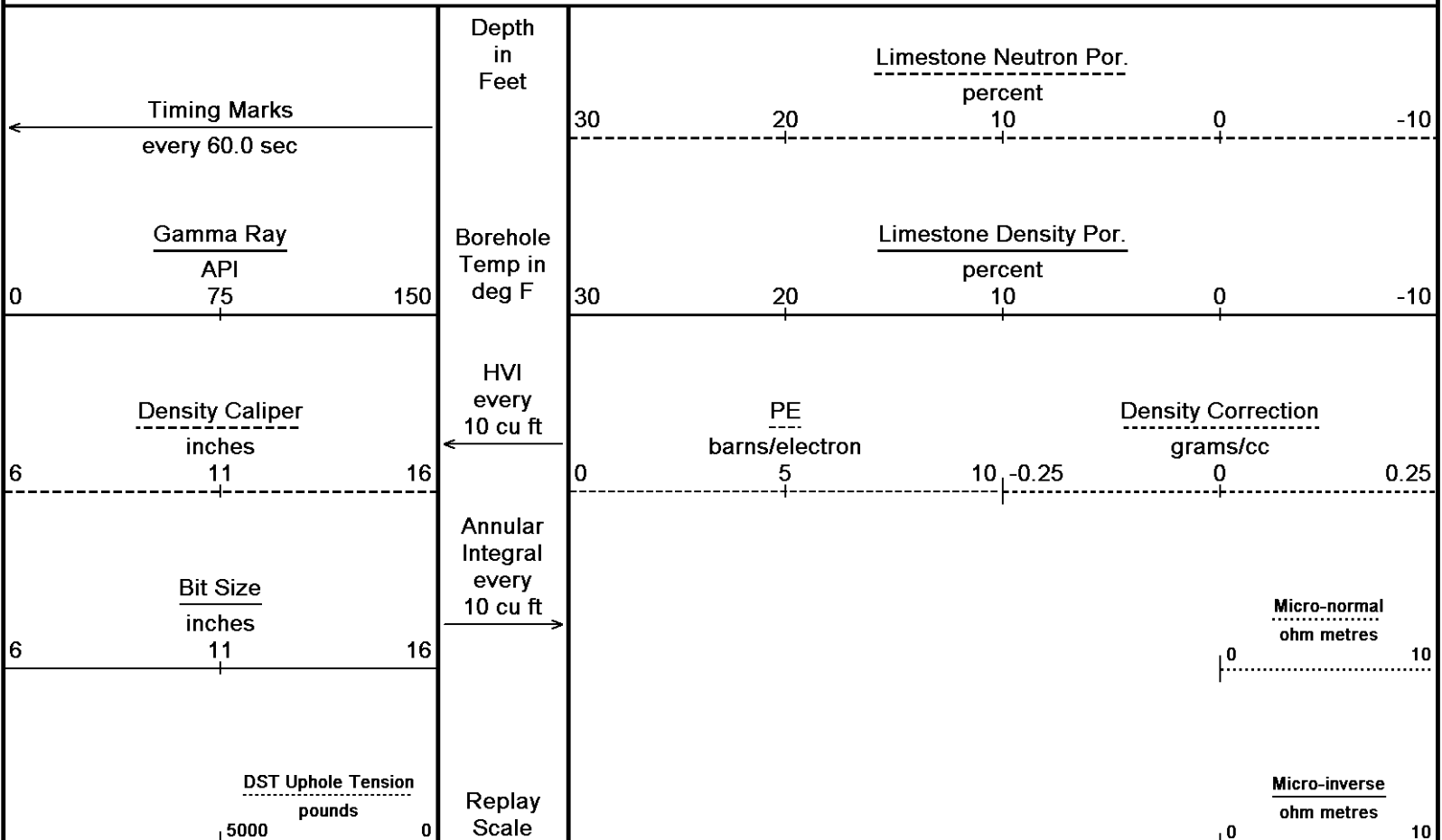
Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 04-AUG-2011 10:12

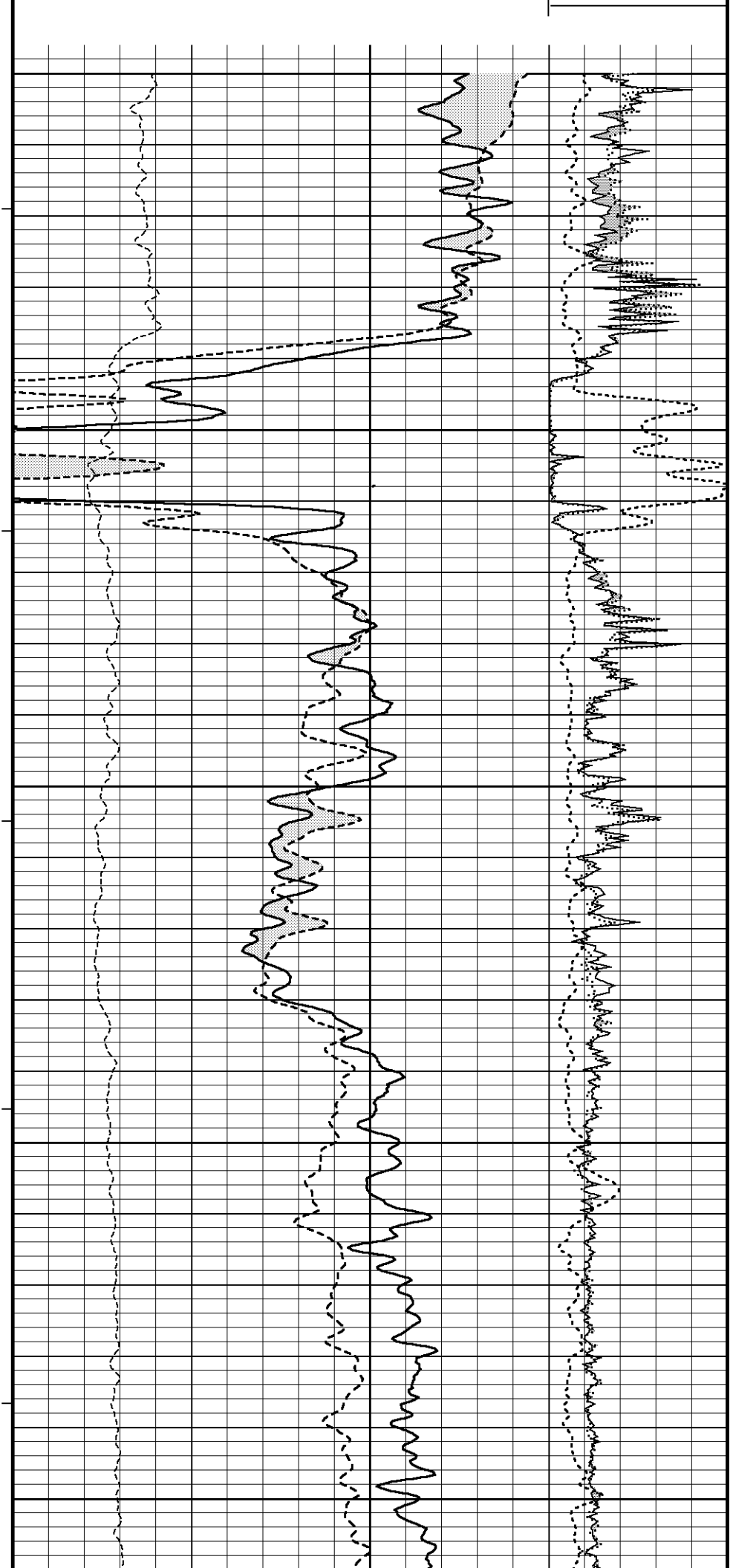
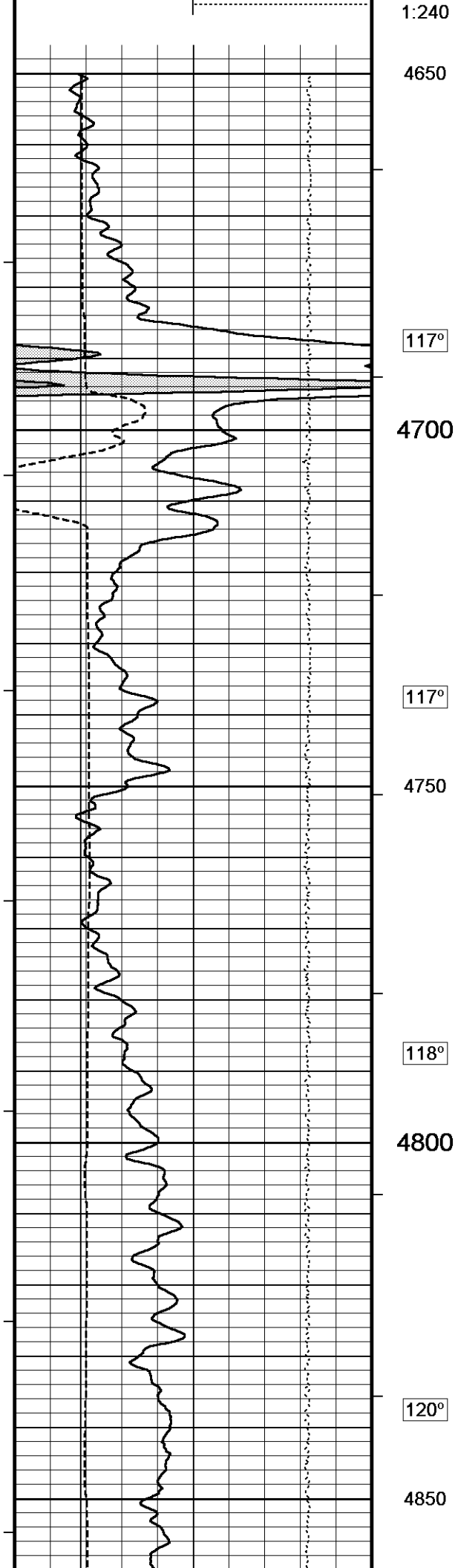
Filename: C:\Minimus 11.02.3186\Data\M&M Z-Bar #20-14\M&M Z-Bar #20-14\_002.dta

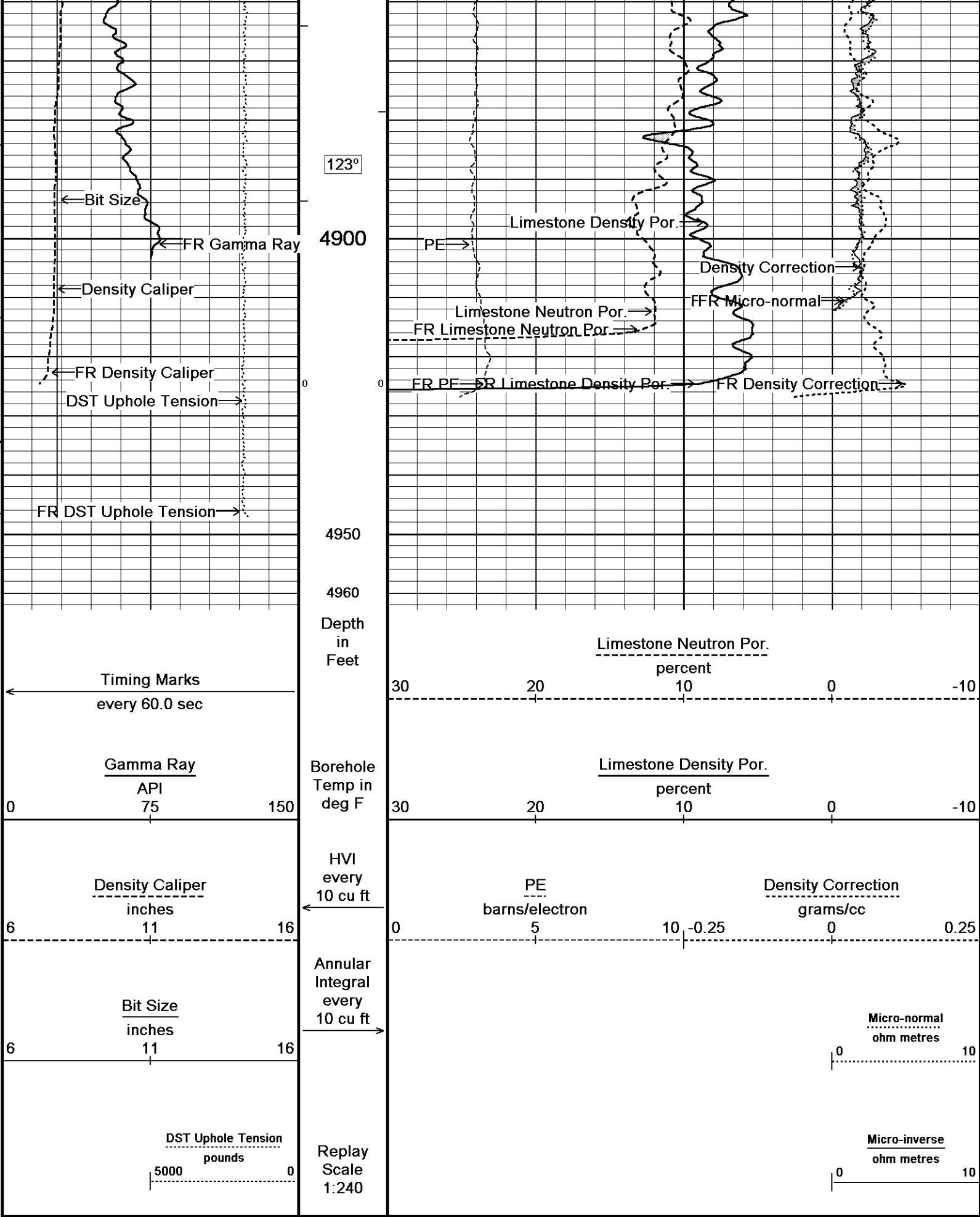
Recorded on 04-AUG-2011 08:54

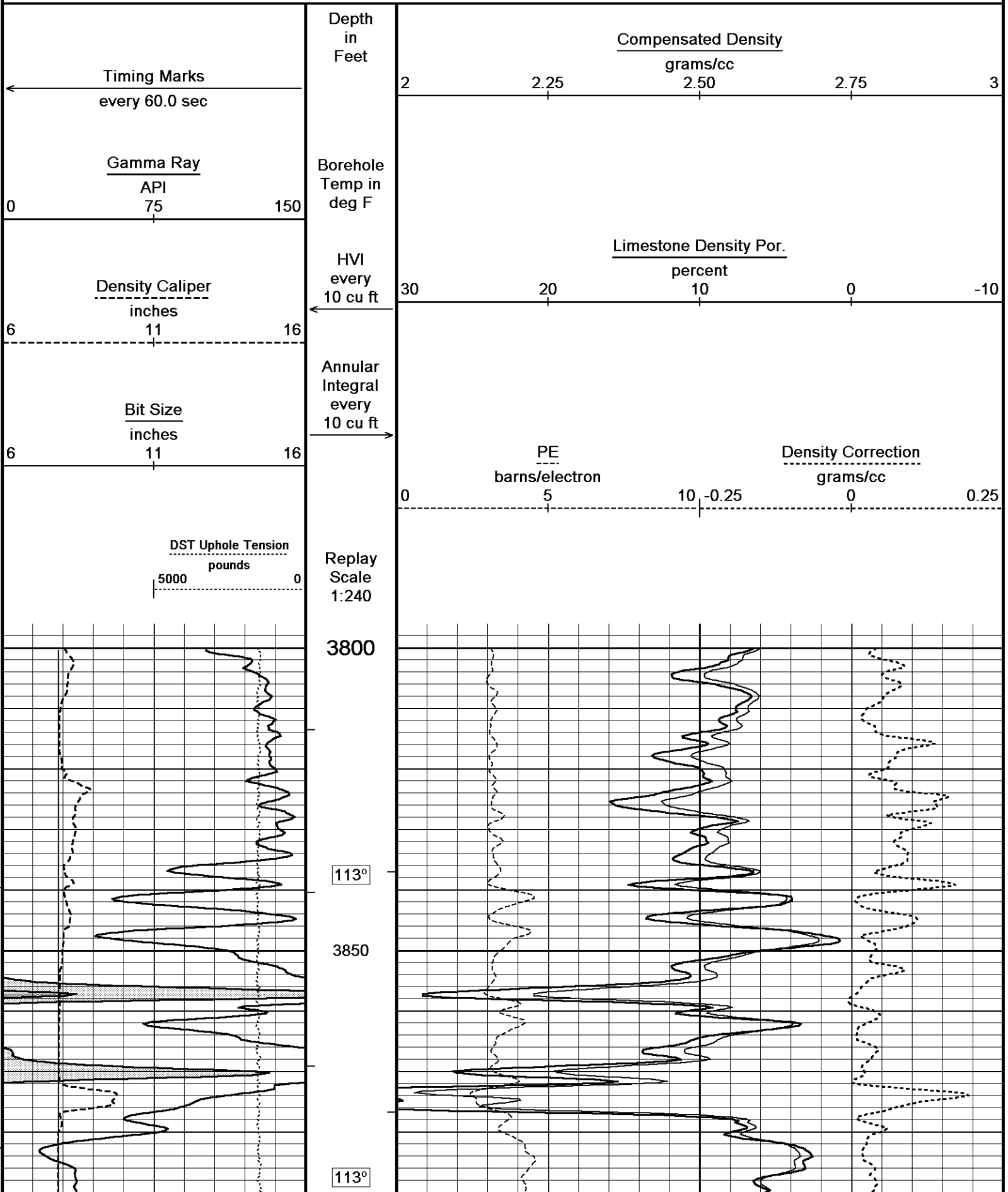
System Versions: Logged with 11.03.4044 Plotted with 11.03.4044

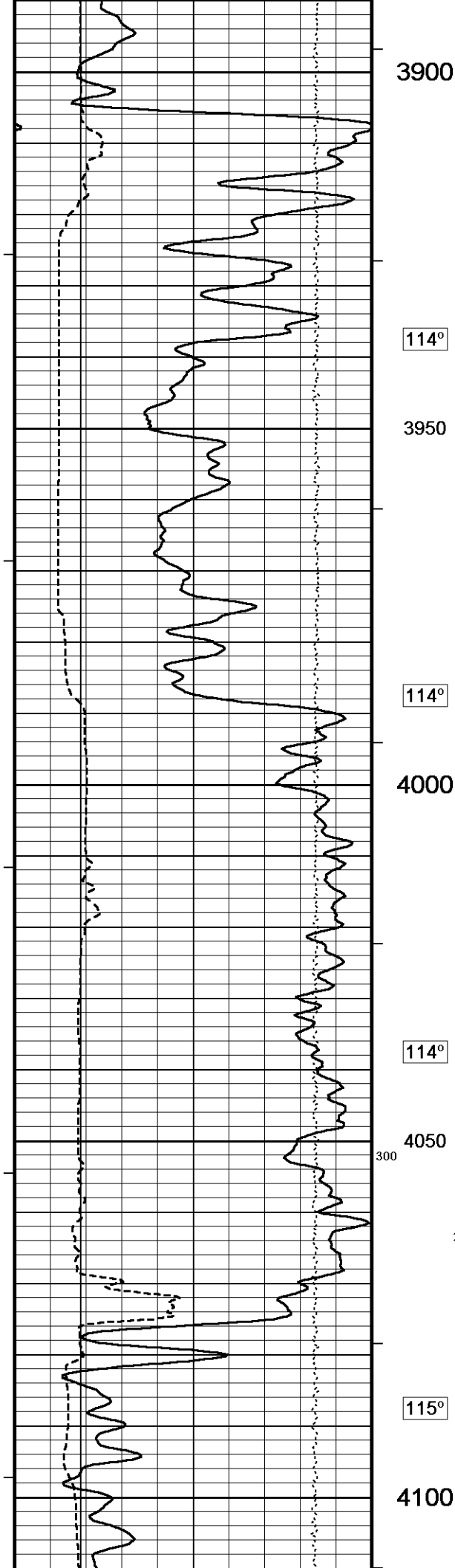










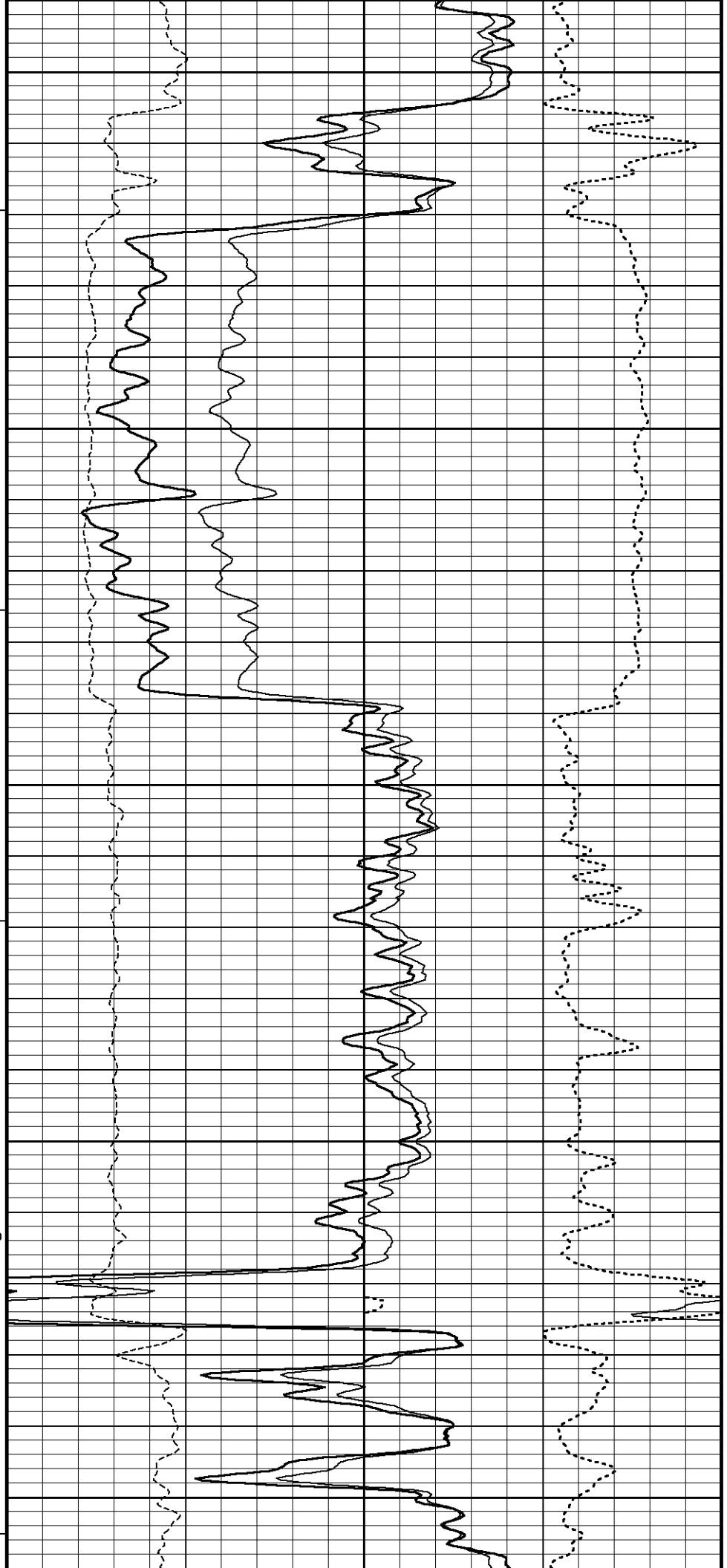


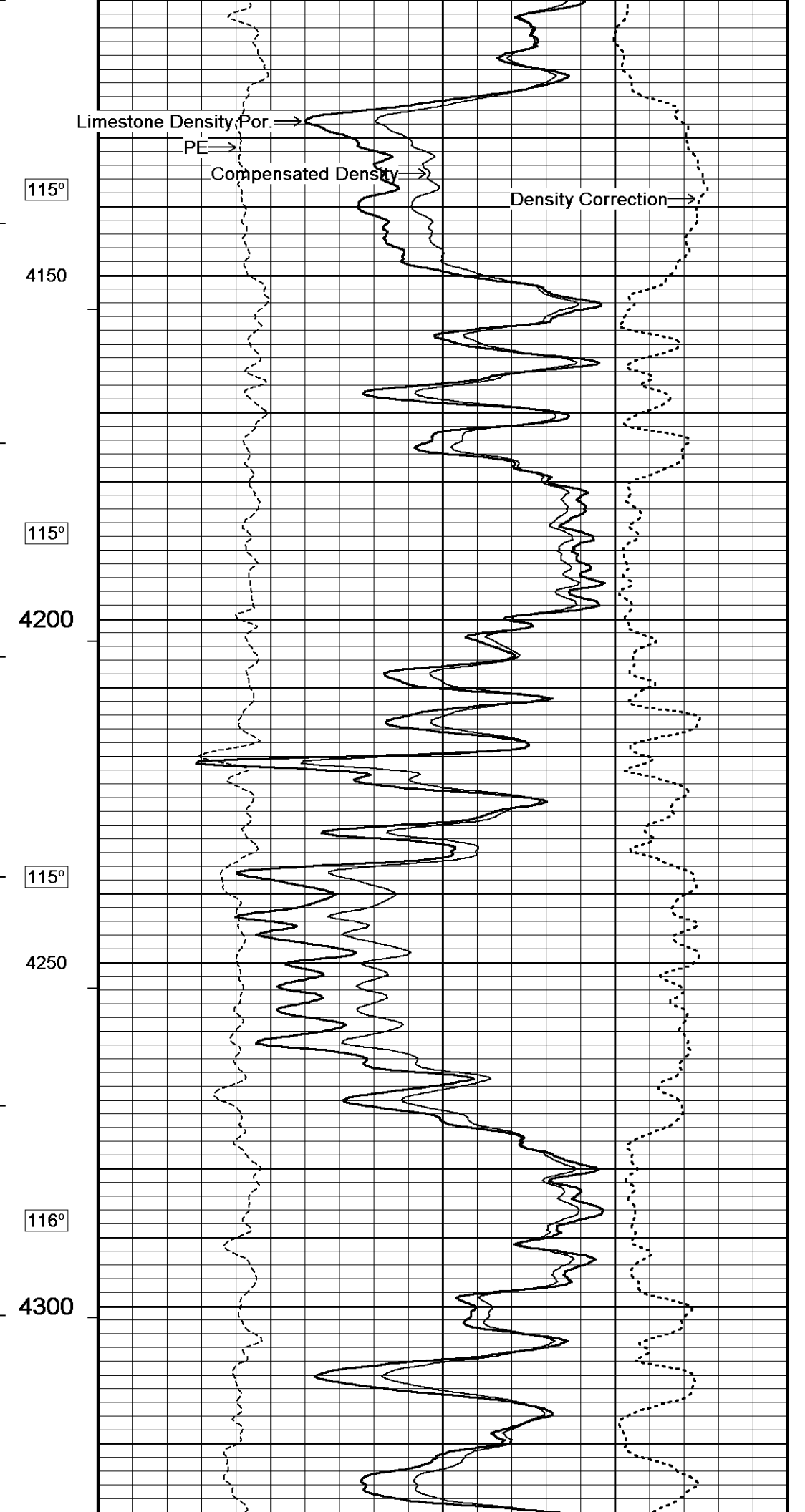
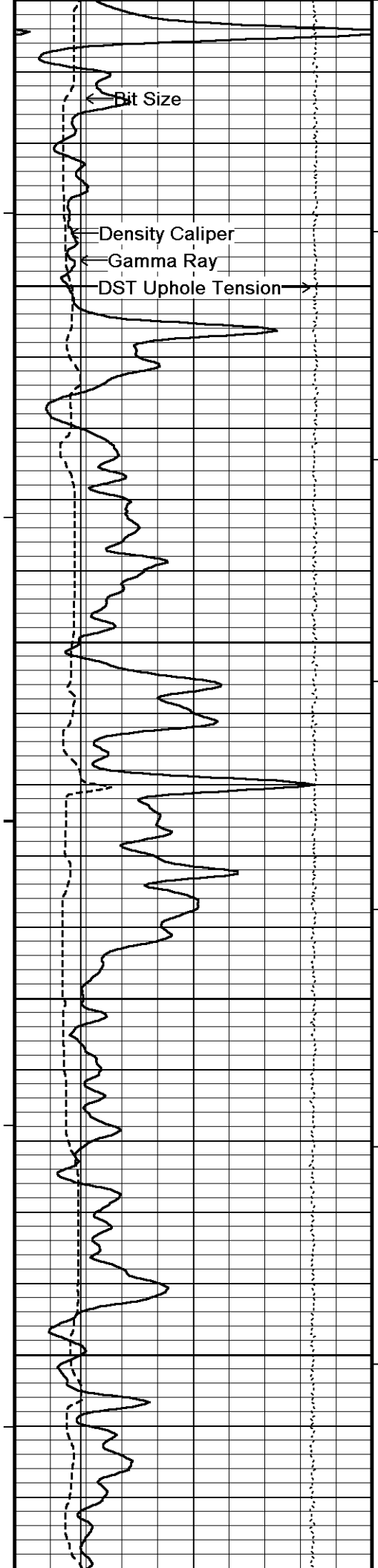
114°

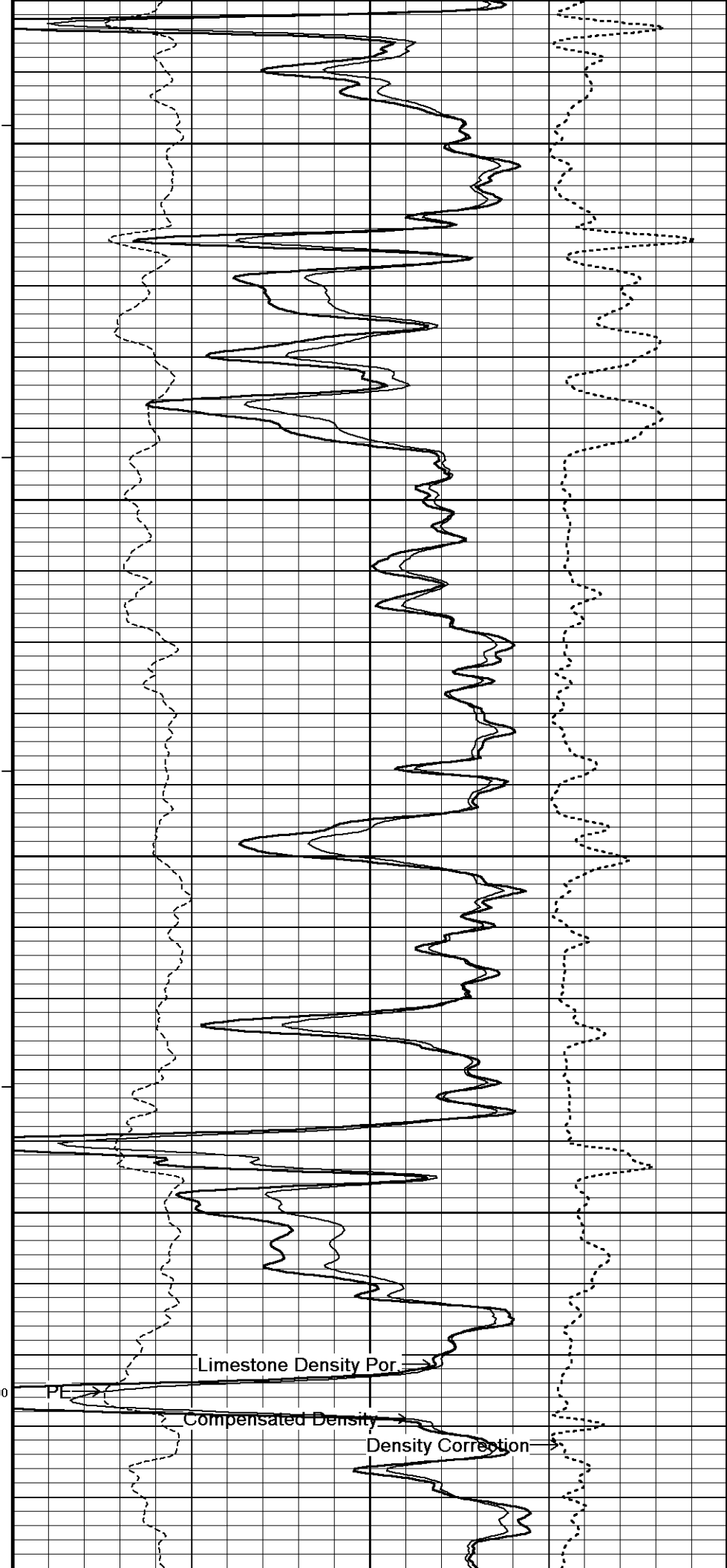
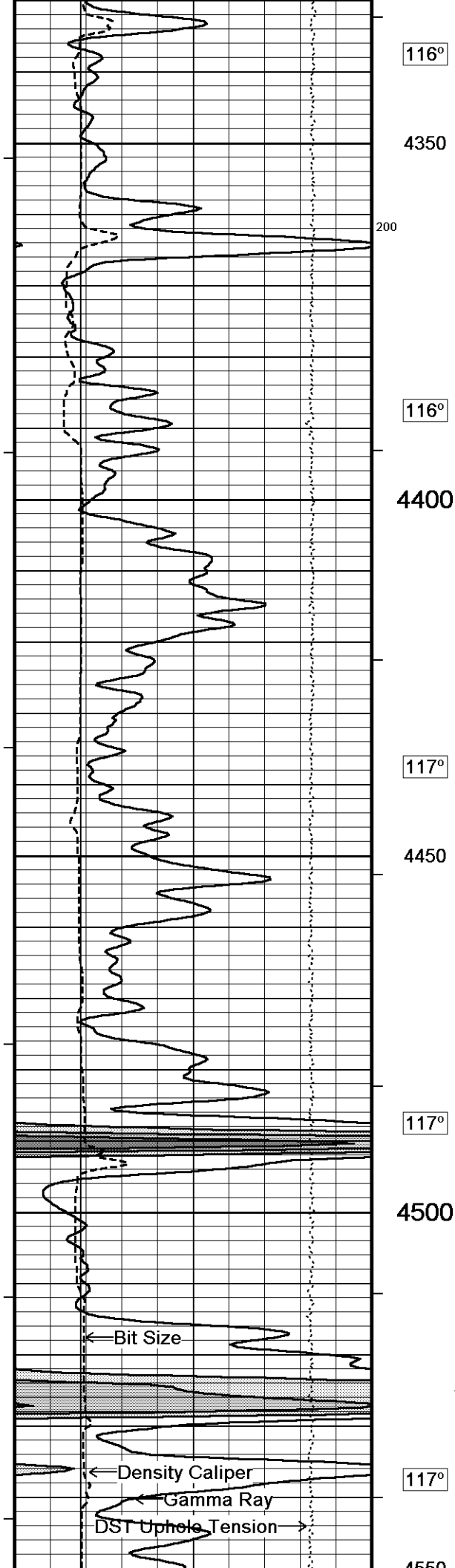
114°

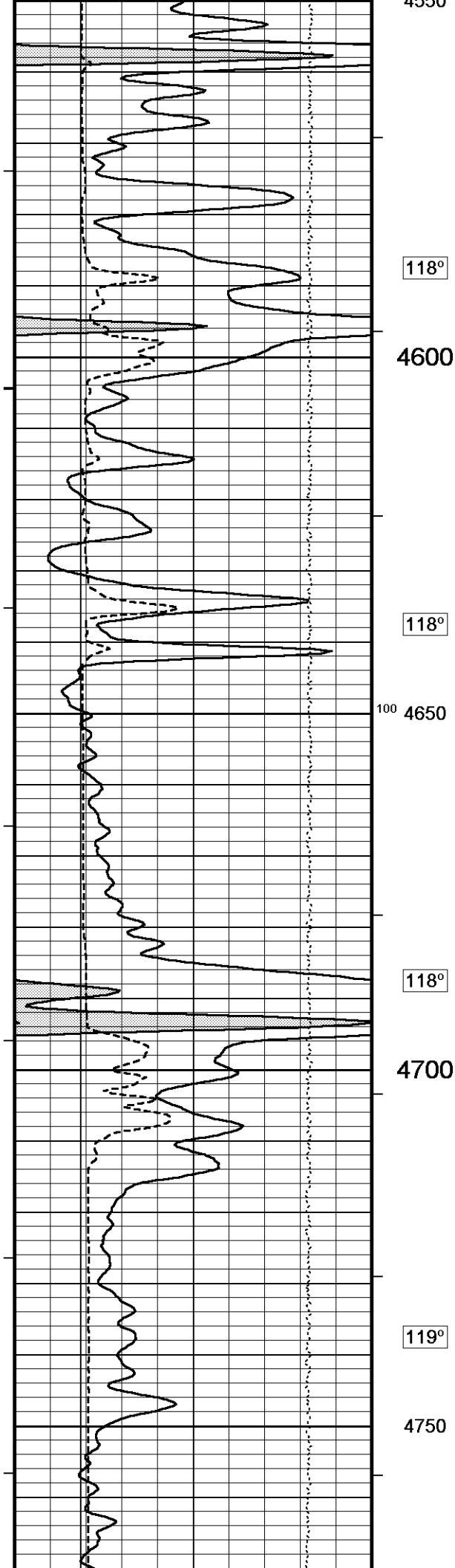
114°

115°









118°

4600

118°

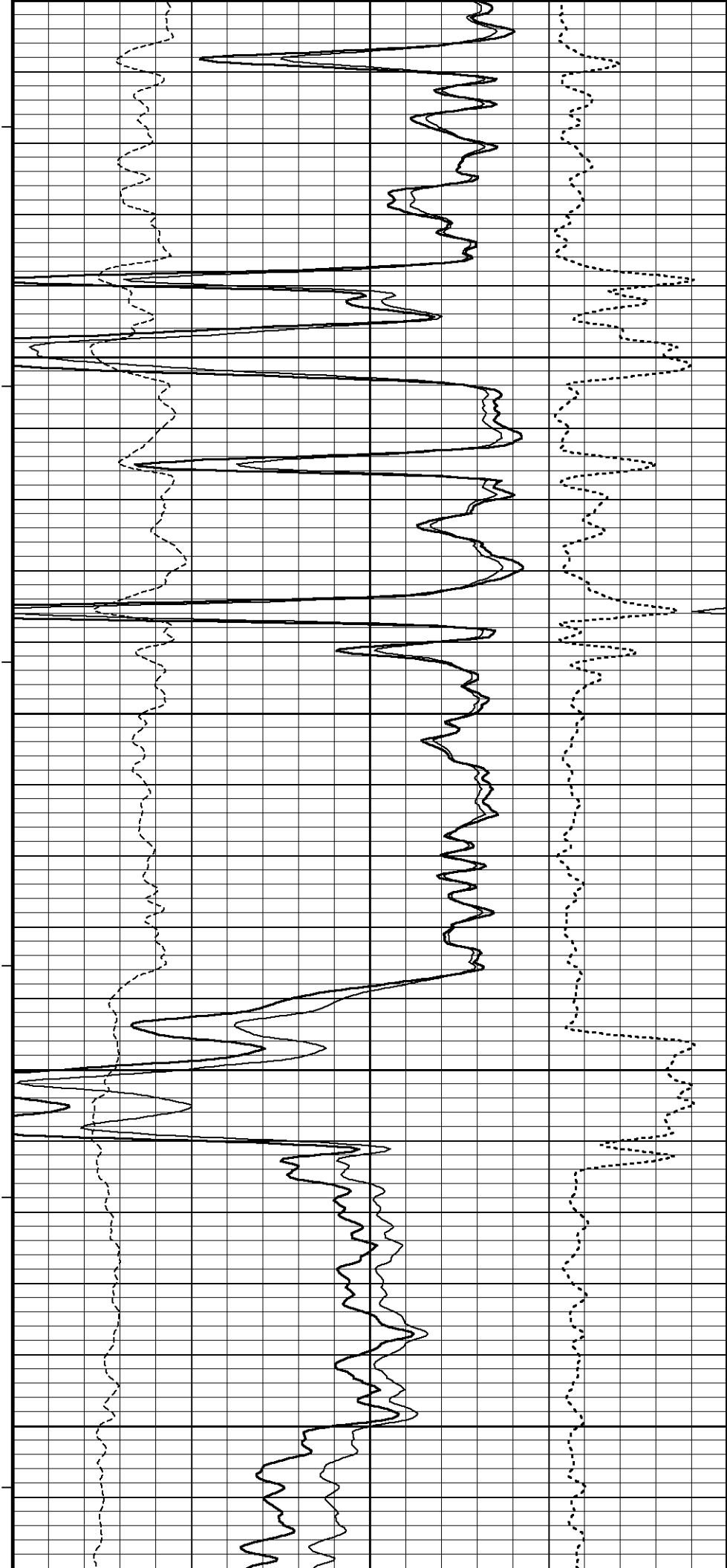
100 4650

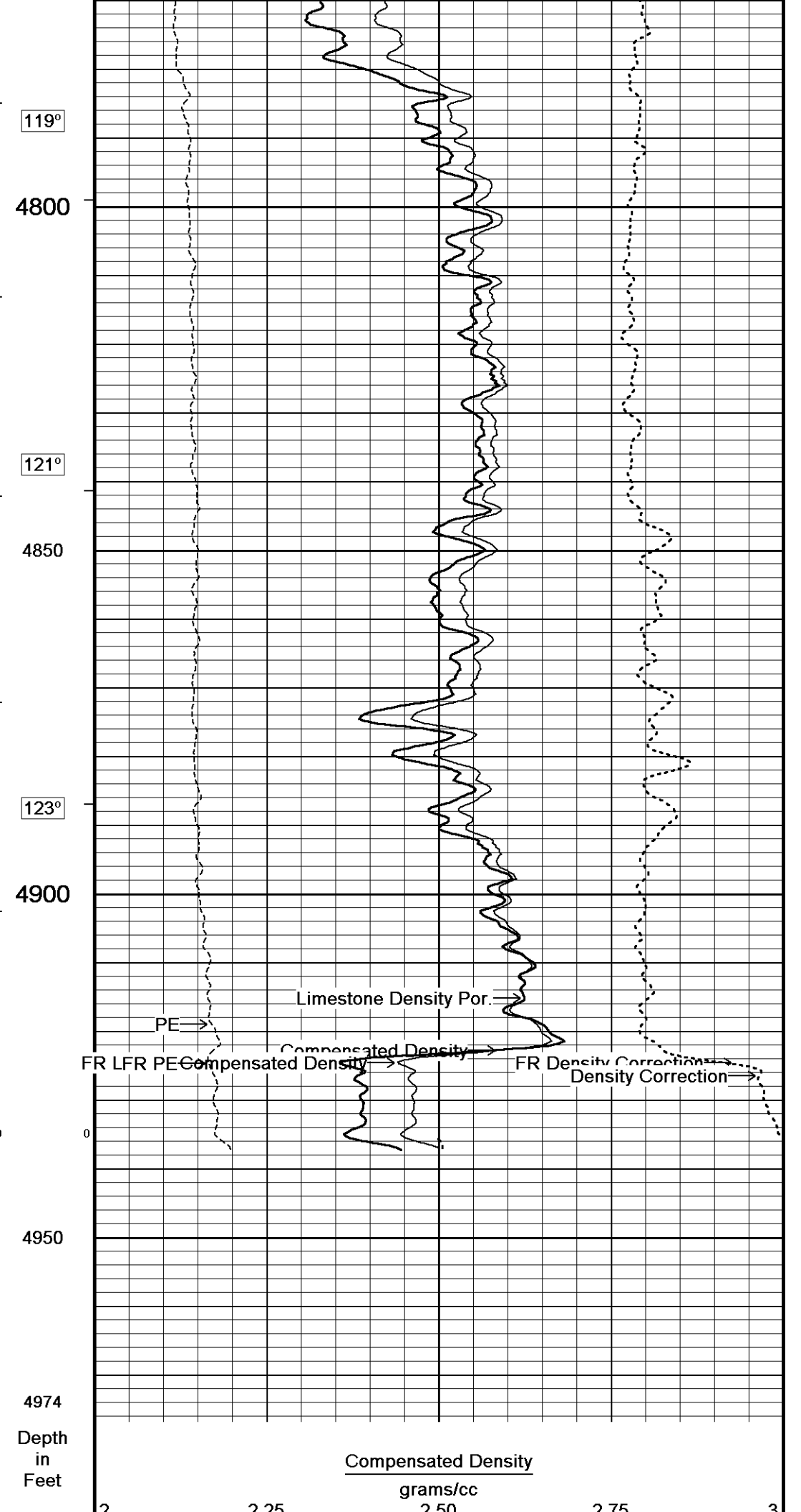
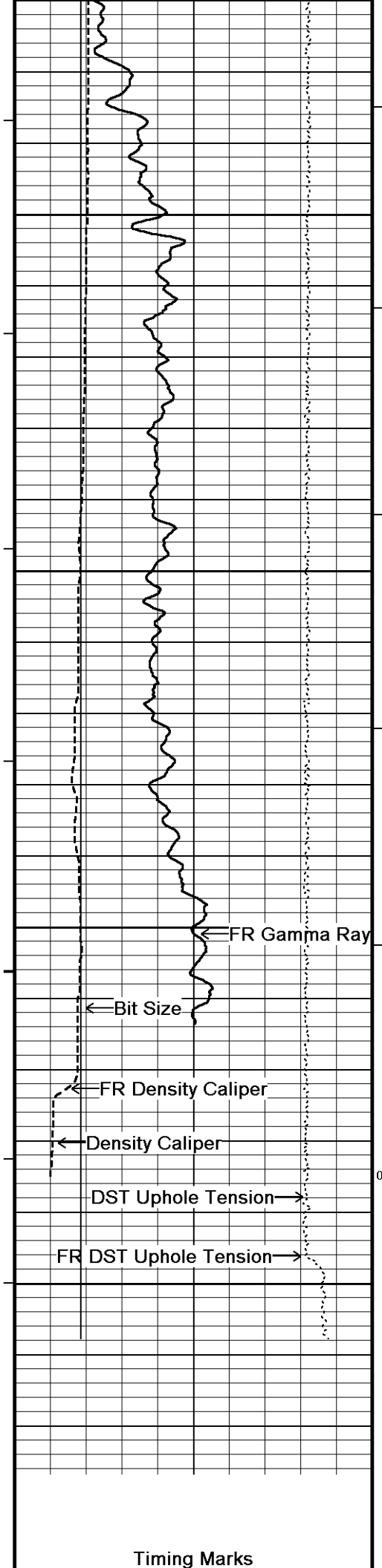
118°

4700

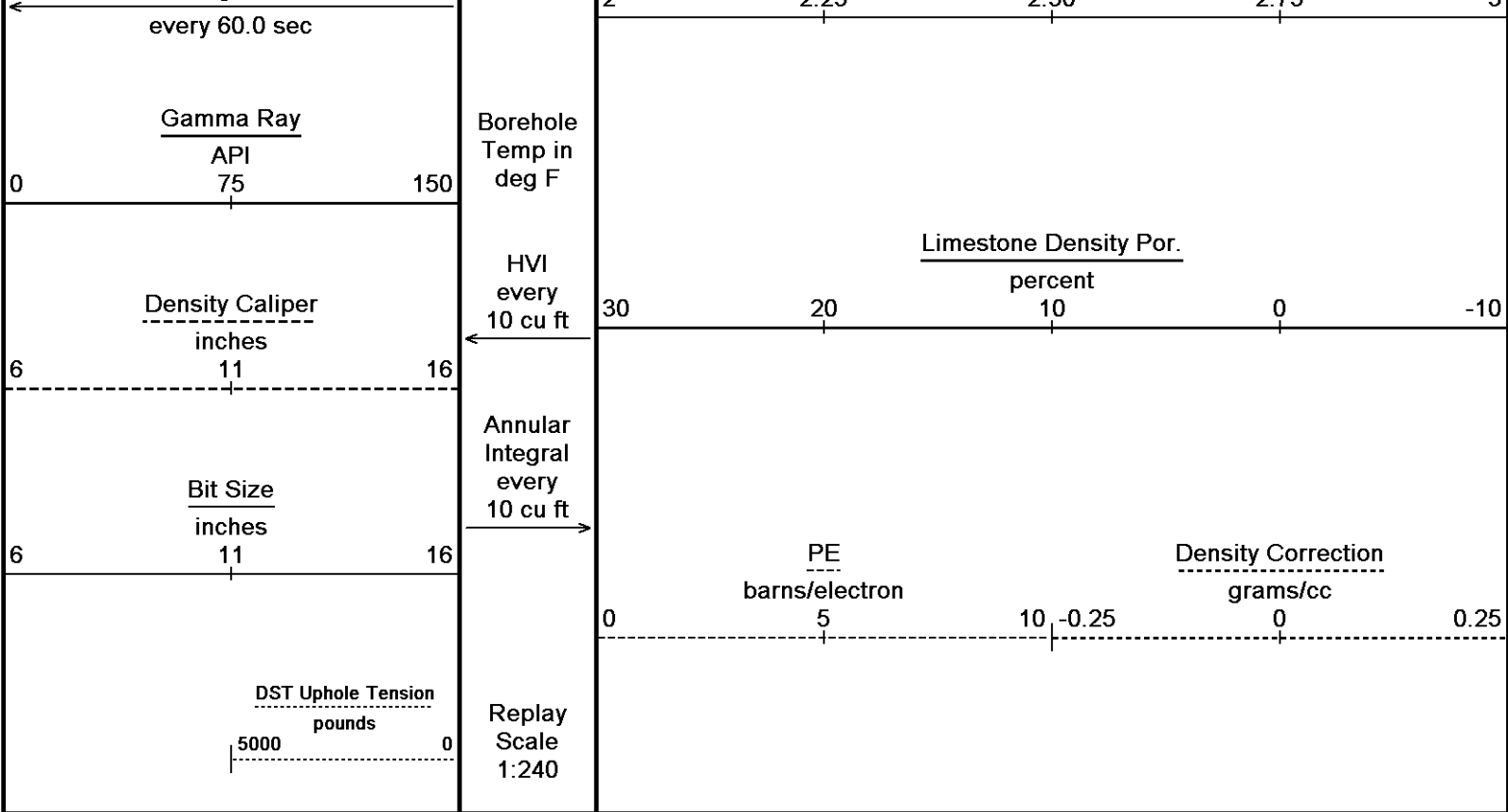
119°

4750









Depth Based Data - Maximum Sampling Increment 10.0cmPlotted on 04-AUG-2011 10:12

Filename: C:\Minimus 11.02.3186\Data\M&M Z-Bar #20-14\M&M Z-Bar #20-14\_003 spooled section.dtaRecorded on 04-AUG-2011 09:57

System Versions: Logged with 11.03.4044Plotted with 11.03.4044

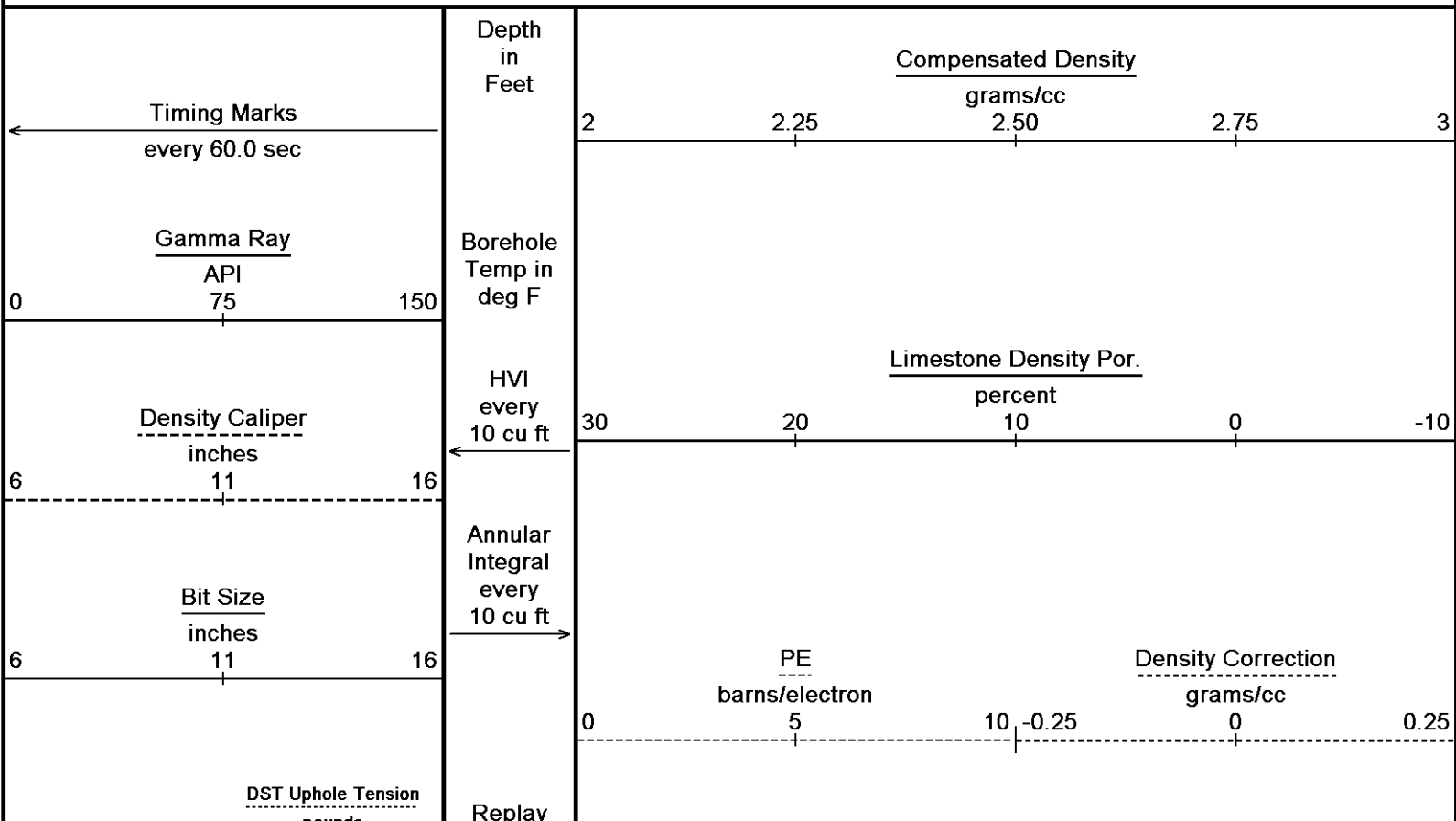
↑5 INCH MAIN PASS↑

↓5 INCH REPEAT PASS↓

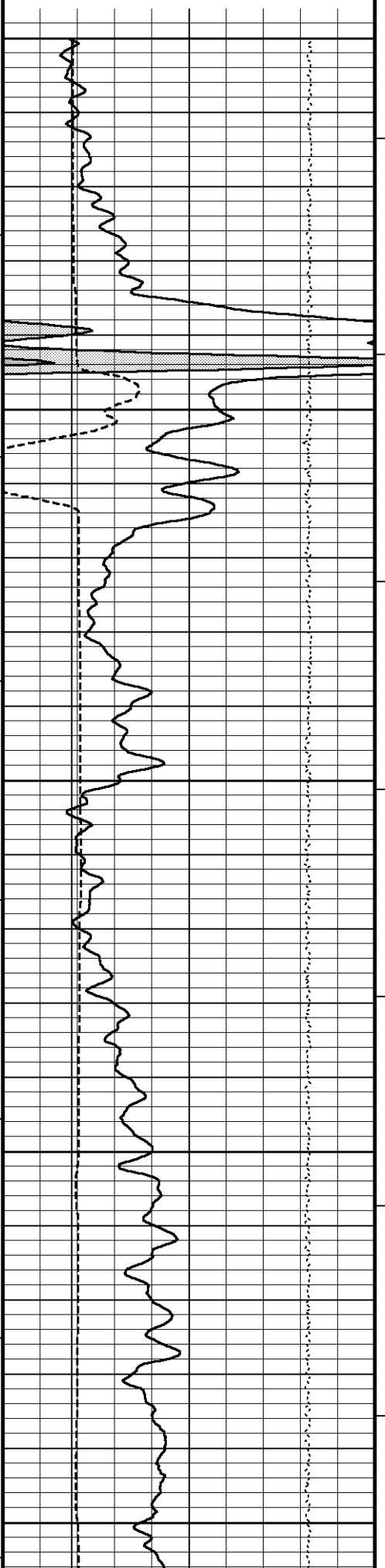
Depth Based Data - Maximum Sampling Increment 10.0cmPlotted on 04-AUG-2011 10:12

Filename: C:\Minimus 11.02.3186\Data\M&M Z-Bar #20-14\M&M Z-Bar #20-14\_002.dtaRecorded on 04-AUG-2011 08:54

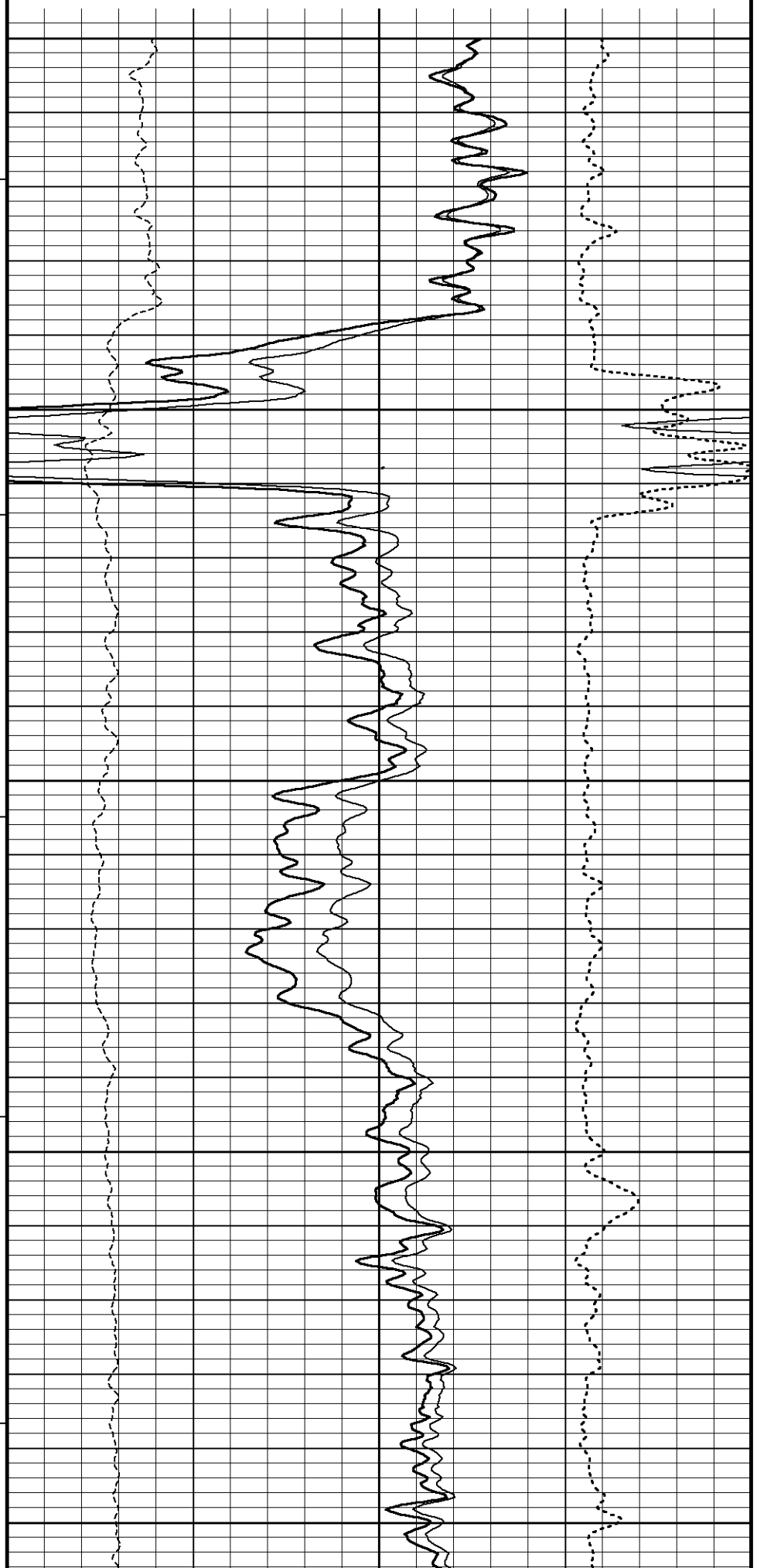
System Versions: Logged with 11.03.4044Plotted with 11.03.4044

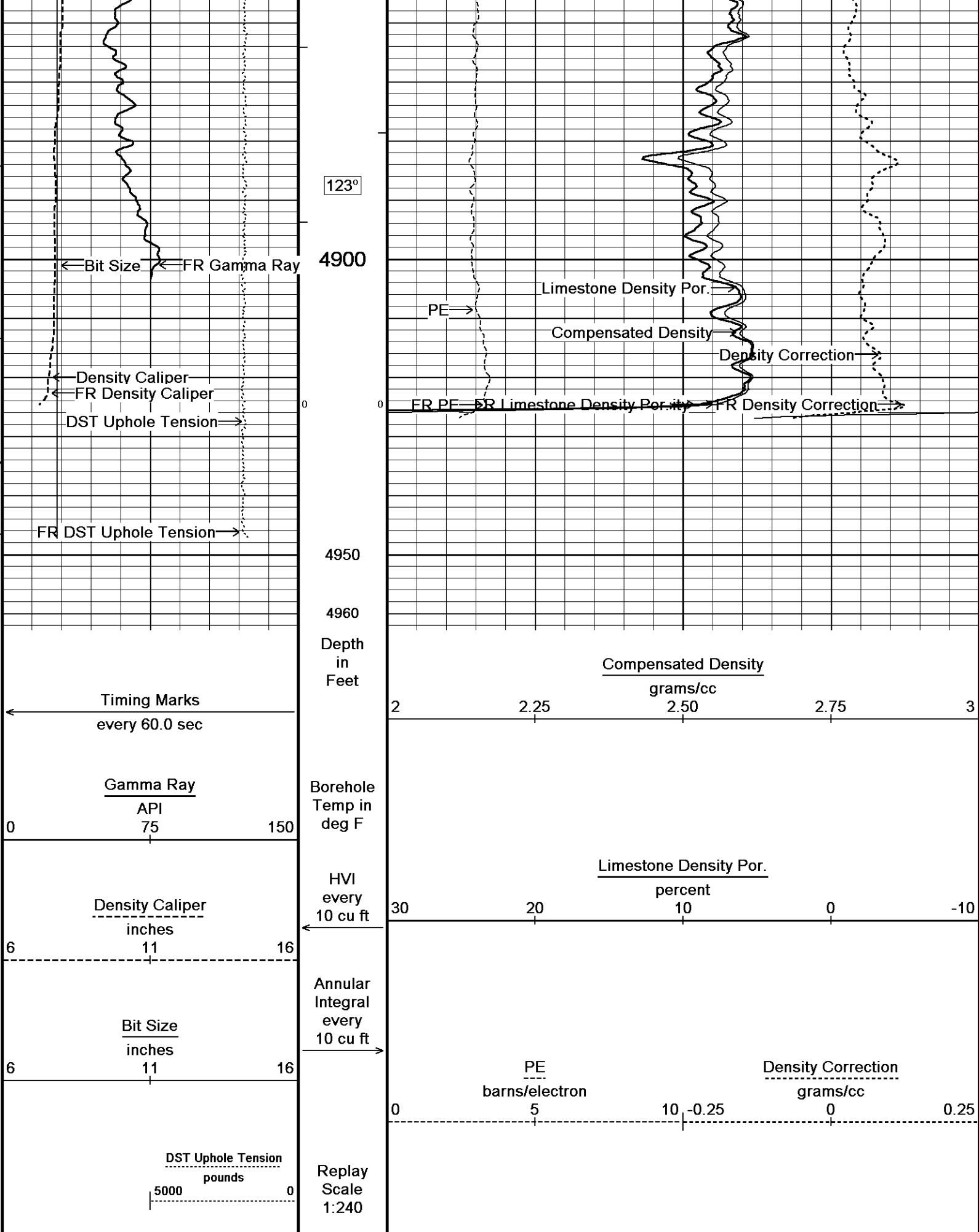


5000 pounds  
Scale  
1:240



4650  
117°  
4700  
117°  
4750  
118°  
4800  
120°  
4850





| BEFORE SURVEY CALIBRATION                                                            |                       |                   |                                                                           |            |
|--------------------------------------------------------------------------------------|-----------------------|-------------------|---------------------------------------------------------------------------|------------|
| C:\Minimus 11.02.3186\Data\M&M Z-Bar #20-14\M&M Z-Bar #20-14_003 spooled section.dta |                       |                   |                                                                           |            |
| General Constants All 000                                                            |                       |                   | Last Edited on 03-AUG-2011,22:47                                          |            |
| General Parameters                                                                   |                       |                   |                                                                           |            |
| Mud Resistivity                                                                      | 0.430                 | ohm-metres        |                                                                           |            |
| Mud Resistivity Temperature                                                          | 78.000                | 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                                                              | 4.500                 | inches            |                                                                           |            |
| Caliper for Differential Caliper                                                     | Density Caliper       |                   |                                                                           |            |
| Rwa Parameters                                                                       |                       |                   |                                                                           |            |
| Porosity used                                                                        | Base Density Porosity |                   |                                                                           |            |
| Resistivity used                                                                     | Array Ind. One Res Rt |                   |                                                                           |            |
| RWA Constant A                                                                       | 0.610                 |                   |                                                                           |            |
| RWA Constant M                                                                       | 2.150                 |                   |                                                                           |            |
| Down-hole Tension Calibration All 000                                                |                       |                   | Field Calibration on 30-JUN-2010                                          |            |
| Reading No                                                                           | Measured              | Calibrated (lbs)  |                                                                           |            |
| 1                                                                                    | 14112.01              | 10.00             |                                                                           |            |
| 2                                                                                    | 15164.79              | 427.00            |                                                                           |            |
| Gamma Calibration MCG-B 34                                                           |                       |                   | Field Calibration on 02-AUG-2011 15:04                                    |            |
|                                                                                      | Measured              | Calibrated (API)  |                                                                           |            |
| Background                                                                           | 75                    | 52                |                                                                           |            |
| Calibrator (Gross)                                                                   | 1127                  | 777               |                                                                           |            |
| Calibrator (Net)                                                                     | 1052                  | 725               |                                                                           |            |
| Gamma Constants MCG-B 34                                                             |                       |                   | Last Edited on 03-AUG-2011,22:32                                          |            |
| 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              |                                                                           |            |
| SP Calibration MCG-B 34                                                              |                       |                   | Field Calibration on 03-AUG-2011,09:32                                    |            |
|                                                                                      | Measured              | Calibrated (mV)   |                                                                           |            |
| Reference 1                                                                          | 103.5                 | 100.0             |                                                                           |            |
| Reference 2                                                                          | -96.9                 | -100.0            |                                                                           |            |
| High Resolution Temperature Calibration MCG-B 34                                     |                       |                   | Field Calibration on 03-AUG-2011,22:33                                    |            |
|                                                                                      | Measured              | Calibrated(Deg F) |                                                                           |            |
| Lower                                                                                | 50.00                 | 50.00             |                                                                           |            |
| Upper                                                                                | 75.00                 | 75.00             |                                                                           |            |
| High Resolution Temperature Constants MCG-B 34                                       |                       |                   | Last Edited on                                                            |            |
| Pre-filter Length                                                                    | 11                    |                   |                                                                           |            |
| Micro Normal and Micro Inverse Calibration MML-A 4                                   |                       |                   | Base Calibration on 03-AUG-2011 09:42<br>Field Check on 03-AUG-2011 09:46 |            |
| Base Calibration                                                                     |                       |                   |                                                                           |            |
|                                                                                      |                       | Measured          | Calibrated (ohm-m)                                                        |            |
| Channel                                                                              | Resistor 1            | Resistor 2        | Resistor 1                                                                | Resistor 2 |
| Micro Normal                                                                         | 12.2                  | 60.2              | 2.6                                                                       | 12.8       |
| Micro Inverse                                                                        | 15.7                  | 78.4              | 1.7                                                                       | 8.4        |
| Channel                                                                              | Base Check (ohm-m)    |                   | Field Check (ohm-m)                                                       |            |

|                                                  |                                             |                                                                                 |
|--------------------------------------------------|---------------------------------------------|---------------------------------------------------------------------------------|
| Channel                                          | Base Check (ohm-m)                          | Field Check (ohm-m)                                                             |
| Micro Normal                                     | 32.1                                        | 32.1                                                                            |
| Micro Inverse                                    | 16.3                                        | 16.3                                                                            |
| Micro Normal and Micro Inverse Constants MML-A 4 |                                             | Last Edited on 03-AUG-2011,09:33                                                |
| Pad Type                                         | 8-12 in Soft Rubber Inflatable 006-9011-159 |                                                                                 |
| Micro Normal K Factor                            | 0.5110                                      |                                                                                 |
| Micro Inverse K Factor                           | 0.3380                                      |                                                                                 |
| Standoff Offset                                  | N/A                                         | inches                                                                          |
| Caliper Calibration MML-A 4                      |                                             | Base Calibration on 03-AUG-2011 09:53<br>Field Calibration on 03-AUG-2011 09:56 |
| Base Calibration                                 |                                             |                                                                                 |
| Reading No                                       | Measured                                    | Calibrator Size (in)                                                            |
| 1                                                | 15121                                       | 5.98                                                                            |
| 2                                                | 18479                                       | 7.97                                                                            |
| 3                                                | 21774                                       | 9.86                                                                            |
| 4                                                | 25719                                       | 11.92                                                                           |
| 5                                                | 0                                           | 0.00                                                                            |
| 6                                                | N/A                                         | N/A                                                                             |
| Field Calibration                                |                                             |                                                                                 |
|                                                  | Measured Caliper (in)                       | Actual Caliper (in)                                                             |
|                                                  | 6.02                                        | 5.98                                                                            |
| Neutron Calibration MDN-A.B 65                   |                                             | Base Calibration on 02-AUG-2011 18:50<br>Field Check on 02-AUG-2011 19:10       |
| Base Calibration                                 |                                             |                                                                                 |
|                                                  | Measured                                    | Calibrated (cps)                                                                |
|                                                  | Near Far                                    | Near Far                                                                        |
|                                                  | 3295 104                                    | 3714 110                                                                        |
| Ratio                                            | 31.664                                      | 33.764                                                                          |
| Field Calibrator at Base                         |                                             | Calibrated (cps)                                                                |
|                                                  |                                             | 1576 2237                                                                       |
| Ratio                                            |                                             | 0.704                                                                           |
| Field Check                                      |                                             | Calibrated (cps)                                                                |
|                                                  |                                             | 1574 2253                                                                       |
| Ratio                                            |                                             | 0.699                                                                           |
| Neutron Constants MDN-A.B 65                     |                                             | Last Edited on 03-AUG-2011,22:34                                                |
| Neutron Source Id                                | 757                                         |                                                                                 |
| Neutron Jig Number                               | 5824NE                                      |                                                                                 |
| Epithermal Neutron                               | No                                          |                                                                                 |
| Caliper Source for Processing                    | Density Caliper                             |                                                                                 |
| Stand-off                                        | 0.50                                        | inches                                                                          |
| Mud Density                                      | 1.00                                        | 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                                                                            |
| 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 03-AUG-2011 10:09<br>Field Check on 03-AUG-2011 10:18       |
| Base Calibration                                 |                                             |                                                                                 |
|                                                  | Measured                                    | Calibrated (ohm-m)                                                              |
| Reference 1                                      | 0.0                                         | 0.0                                                                             |
| Reference 2                                      | 952.6                                       | 126.8                                                                           |
| Base Check                                       |                                             | 281.5                                                                           |
| Field Check                                      |                                             | 281.5                                                                           |

|                                  |                          |        |
|----------------------------------|--------------------------|--------|
| 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 03-AUG-2011,10:43

Field Check on 03-AUG-2011 11:36

## Base Calibration

## Test Loop Calibration

## Measured

## Calibrated (mmho/m)

| Channel | Low  | High  | Low | High  |
|---------|------|-------|-----|-------|
| 1       | 17.3 | 474.2 | 9.3 | 966.2 |
| 2       | 6.3  | 388.4 | 7.6 | 821.4 |
| 3       | 3.3  | 259.4 | 5.2 | 566.0 |
| 4       | 1.9  | 133.0 | 2.6 | 279.2 |

|                   |      |       |
|-------------------|------|-------|
| Array Temperature | 76.8 | Deg F |
|-------------------|------|-------|

| Channel | Base Check (mmho/m) |      | Field Check (mmho/m) |        |
|---------|---------------------|------|----------------------|--------|
|         | Low                 | High | Low                  | High   |
| 1       | 0.0                 | 0.0  | 14.7                 | 3859.8 |
| 2       | 0.0                 | 0.0  | 30.1                 | 3498.2 |
| 3       | 0.0                 | 0.0  | 29.4                 | 3069.4 |
| 4       | 0.0                 | 0.0  | 19.9                 | 2085.0 |
| Deep    | 0.0                 | 0.0  | 18.8                 | 2051.5 |
| Medium  | 0.0                 | 0.0  | 42.5                 | 4021.4 |
| Shallow | 0.0                 | 0.0  | 43.8                 | 5096.4 |

|                   |     |       |       |
|-------------------|-----|-------|-------|
| Array Temperature | 0.0 | 100.9 | Deg F |
|-------------------|-----|-------|-------|

## Induction Constants MAI-A.A 45

Last Edited on 03-AUG-2011,22:48

|                                   |                          |            |
|-----------------------------------|--------------------------|------------|
| 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 Rt  | 0.00 |
| Source for Rxo | 0.00 |

|                                                    |          |                   |                                        |
|----------------------------------------------------|----------|-------------------|----------------------------------------|
| High Resolution Temperature Calibration MAI-A.A 45 |          |                   | Field Calibration on 04-AUG-2011,07:54 |
|                                                    | 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 |
| Pre-filter Length                                | 11 |                |

|                                    |       |                                                                           |                  |
|------------------------------------|-------|---------------------------------------------------------------------------|------------------|
| Photo Density Calibration MPD-B 31 |       | Base Calibration on 02-AUG-2011 16:24<br>Field Check on 02-AUG-2011 16:30 |                  |
| Density Calibration                |       |                                                                           |                  |
| Base Calibration                   |       | Measured                                                                  | Calibrated (sdu) |
|                                    | Near  | Far                                                                       | Near Far         |
| Reference 1                        | 48081 | 24805                                                                     | 59556 30836      |
| Reference 2                        | 19867 | 2025                                                                      | 24941 2541       |
| Field Check at Base                |       |                                                                           |                  |
|                                    | 707.3 | 871.8                                                                     |                  |
| Field Check                        |       |                                                                           |                  |
|                                    | 706.1 | 874.7                                                                     |                  |
| PE Calibration                     |       |                                                                           |                  |
| Base Calibration                   |       | Measured                                                                  | Calibrated       |
|                                    | WS    | WH                                                                        | Ratio            |
| Background                         | 131   | 626                                                                       |                  |
| Reference 1                        | 19081 | 47953                                                                     | 0.400 0.371      |
| Reference 2                        | 5693  | 19772                                                                     | 0.291 0.272      |
| Field Check at Base                |       |                                                                           |                  |
|                                    | 131.3 | 626.1                                                                     |                  |
| Field Check                        |       |                                                                           |                  |
|                                    | 128.5 | 617.5                                                                     |                  |

|                               |  |                                  |       |
|-------------------------------|--|----------------------------------|-------|
| Density Constants MPD-B 31    |  | Last Edited on 03-AUG-2011,22:35 |       |
| 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                   |  | 1.10                             | 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                             |       |

|                              |          |                                                                                 |  |
|------------------------------|----------|---------------------------------------------------------------------------------|--|
| Caliper Calibration MPD-B 31 |          | Base Calibration on 02-AUG-2011 15:38<br>Field Calibration on 02-AUG-2011 15:48 |  |
| Base Calibration             |          |                                                                                 |  |
| Reading No                   | Measured | Calibrator Size (in)                                                            |  |
| 1                            | 16208    | 3.99                                                                            |  |
| 2                            | 24815    | 5.98                                                                            |  |
| 3                            | 33539    | 7.97                                                                            |  |

|   |       |       |
|---|-------|-------|
| 4 | 41984 | 9.86  |
| 5 | 51072 | 11.92 |
| 6 | N/A   | N/A   |

Field Calibration

|                       |                     |
|-----------------------|---------------------|
| Measured Caliper (in) | Actual Caliper (in) |
| 5.95                  | 5.98                |

Down-hole Tension Calibration SMS 0

Field Calibration on 05-JUN-2011 04:37

|            |          |                  |
|------------|----------|------------------|
| Reading No | Measured | Calibrated (lbs) |
| 1          | 13499.89 | 0.00             |
| 2          | 14983.70 | 496.00           |

DOWNHOLE EQUIPMENT

C:\Minimus 11.02.3186\Data\M&M Z-Bar #20-14\M&M Z-Bar #20-14\_003 spooled section.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-B 34 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Compact Micro-log  
MML-A 4 LG: 7.97 ft WT: 81.6 lb OD: 2.24 in

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

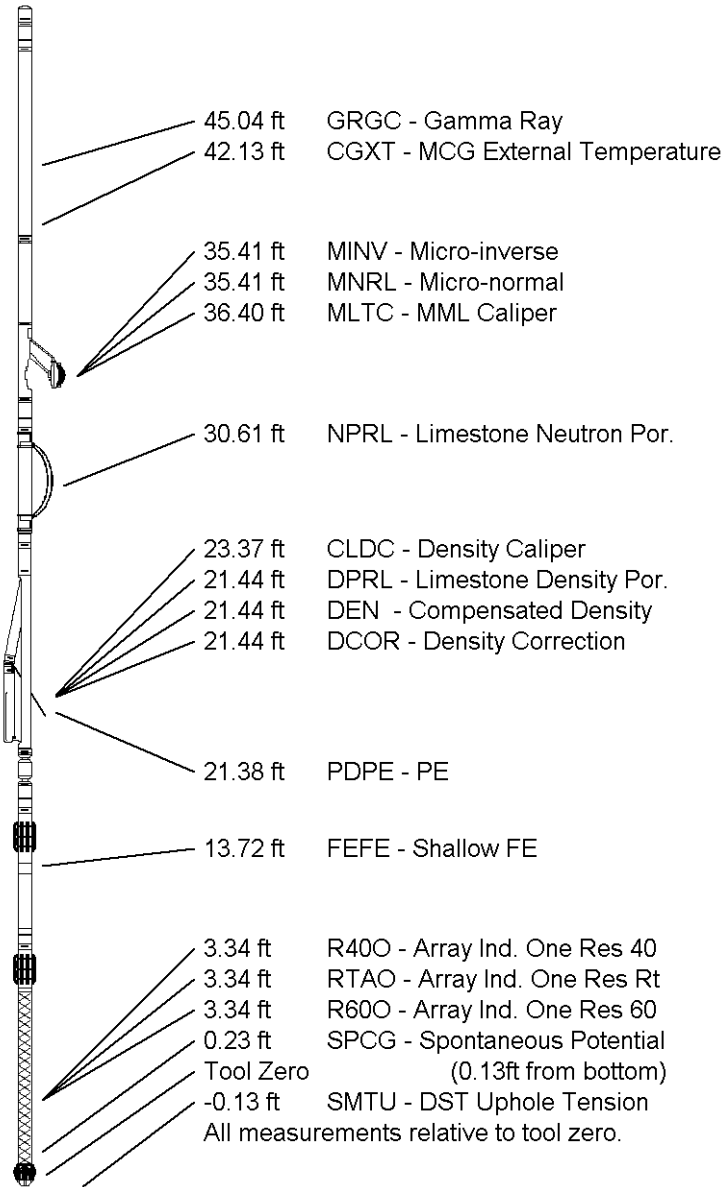
Compact Density/Caliper  
MPD-B 31 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

SKJ-D.A Compact Knuckle Joint  
SKJ-D.A 37 LG: 2.17 ft WT: 24.3 lb OD: 2.24 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: 51.90 ft Weight: 423.3 lb



|                 |                         |
|-----------------|-------------------------|
| COMPANY         | M & M EXPLORATION, INC. |
| WELL            | Z-BAR # 20-14           |
| FIELD           | AETNA GAS AREA          |
| PROVINCE/COUNTY | BARBER                  |
| COUNTRY/STATE   | U.S.A. / KANSAS         |

|                         |         |      |               |         |      |
|-------------------------|---------|------|---------------|---------|------|
| Elevation/Kelly Bushing | 1550.00 | feet | First Reading | 4922.00 | feet |
|-------------------------|---------|------|---------------|---------|------|



|                         |         |      |               |         |      |
|-------------------------|---------|------|---------------|---------|------|
| Elevation Kelly Bushing | 1530.00 | feet | First Reading | 4923.00 | feet |
| Elevation Drill Floor   | 1548.00 | feet | Depth Driller | 4950.00 | feet |
| Elevation Ground Level  | 1538.00 | feet | Depth Logger  | 4946.00 | feet |



**Weatherford®**

COMPACT PHOTO DENSITY  
COMPENSATED NEUTRON  
MICRORESISTIVITY LOG

