



**Weatherford**

**COMPACT PHOTO DENSITY  
COMPENSATED NEUTRON  
LOG**

COMPANY

SANDRIDGE EXPL. & PRODUCTION LLC.

WELL

LUKE SWD #1-10

FIELD

SIX MOONS FIELD AREA

PROVINCE/COUNTY

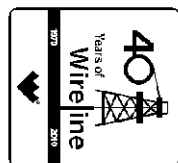
COMANCHE

COUNTRY/STATE

U.S.A. / KANSAS

LOCATION

1600' FSL & 203' FWL SW/4



SEC

10

TWP

31S

RGE

20W

Other Services

MAI/MFE

MSS

MML

Permit Number

Permanent Datum G.L., Elevation 2026 feet

Log Measured From KB

Drilling Measured From K.B.

Date

24-JAN-2012

Run Number

ONE

Depth Driller

6160.00

Depth Logger

6149.00

First Reading

6115.00

Last Reading

901.00

Casing Driller

906.00

Casing Logger

901.00

Bit Size

9.875

Hole Fluid Type

CHEMICAL

Density / Viscosity

8.90 lb/USg

PH / Fluid Loss

10.00

Sample Source

FLOWLINE

Rm @ Measured Temp

0.62 @ 78.0

Rmf @ Measured Temp

0.50 @ 78.0

Rmc @ Measured Temp

0.74 @ 78.0

Source Rmf / Rmc

CALC

Rm @ BHT

0.38 @127.0

Time Since Circulation

6 HOURS

Max Recorded Temp

127.00

Equipment Name

COMPACT

Equipment / Base

13057

Recorded By

L. SCOTT

LIB

KATHY GENTRY

3534598

LB12-014

**BOREHOLE RECORD**

Last Edited: 24-JAN-2012 08:26

Bit Size  
inches

9.875

Depth From  
feet

901.00

Depth To  
feet

6149.00

**CASING RECORD**

Type

Size  
inches

10.750

Depth From  
feet

0.00

Shoe Depth  
feet

901.00

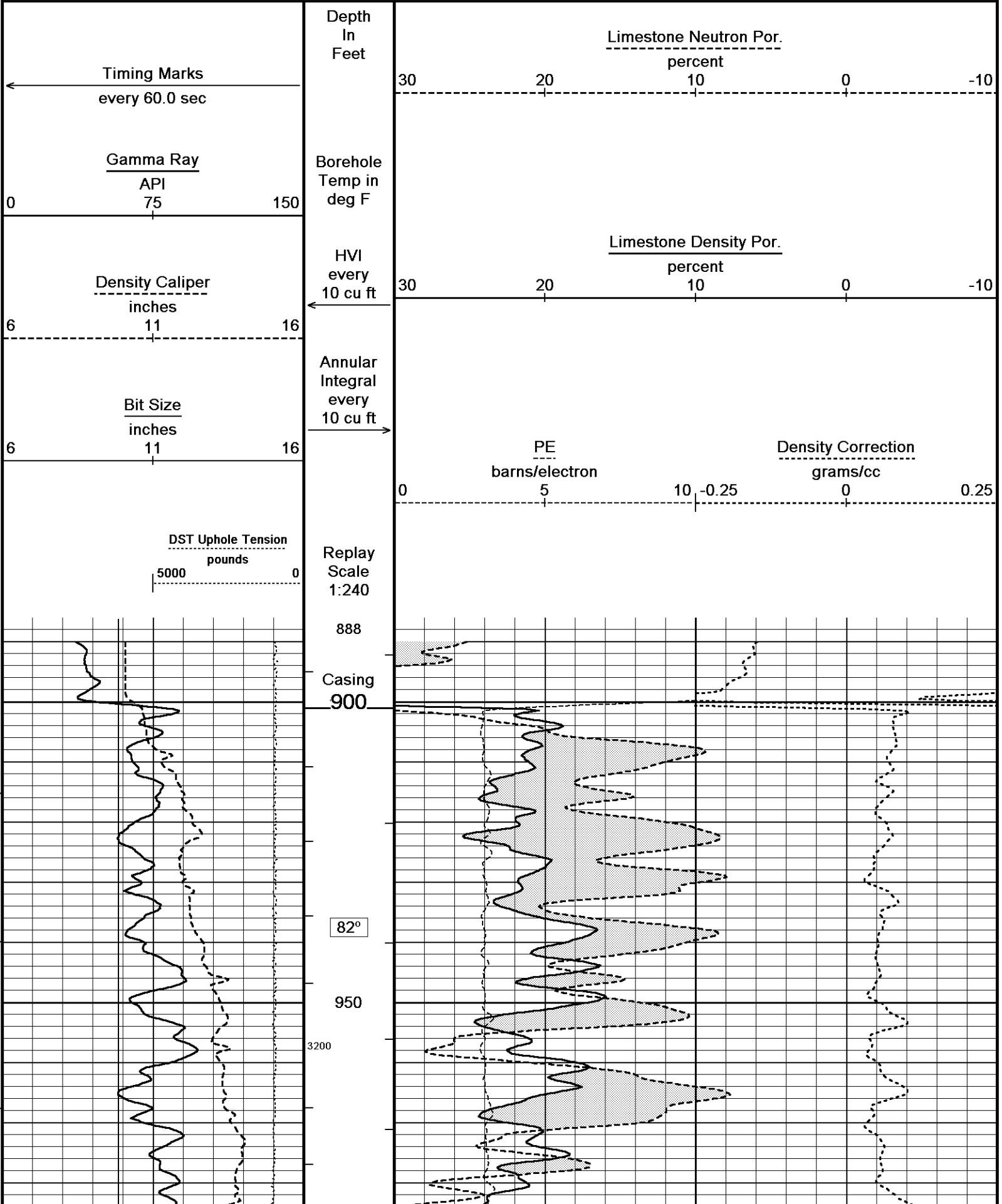
Weight  
pounds/ft

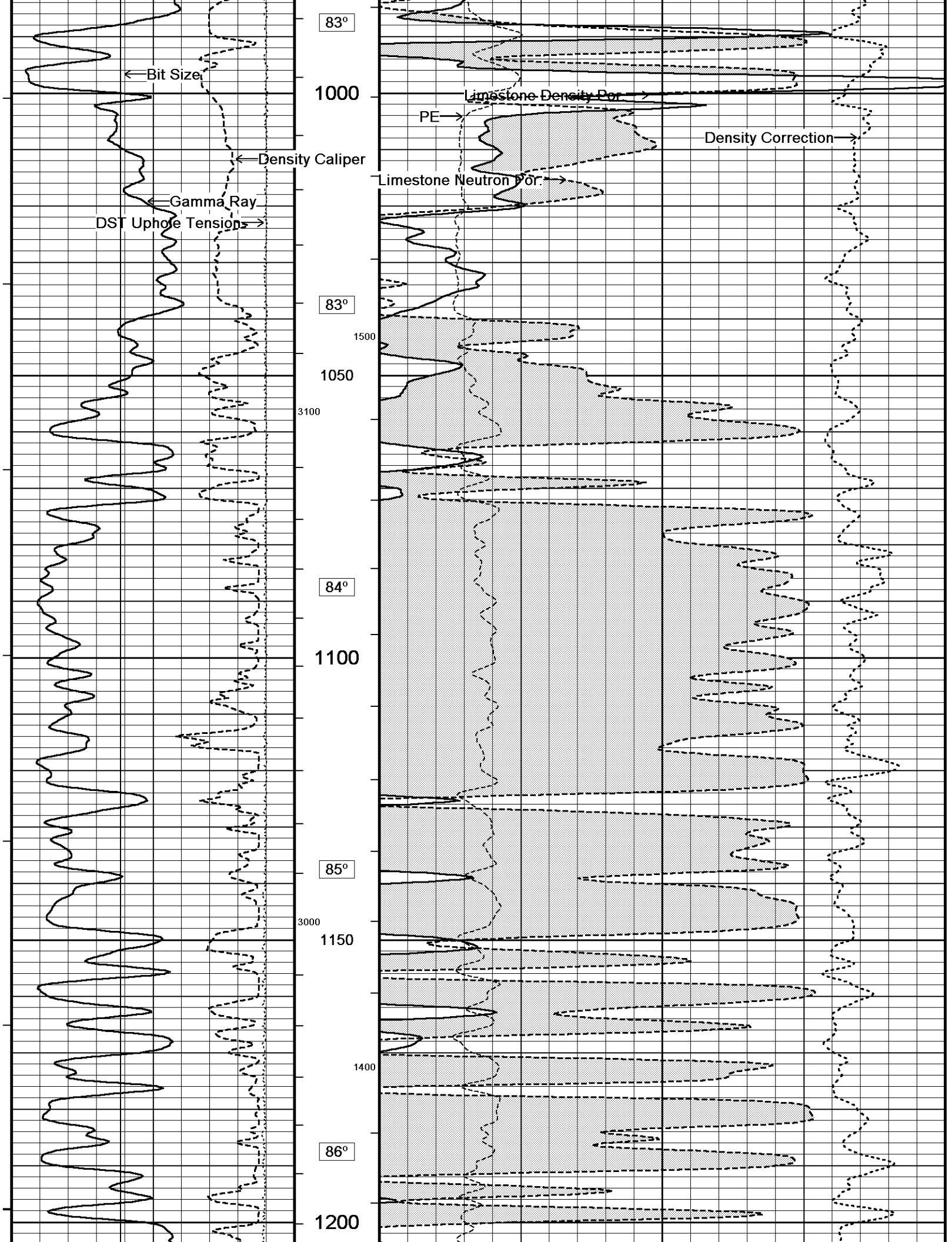
32.75

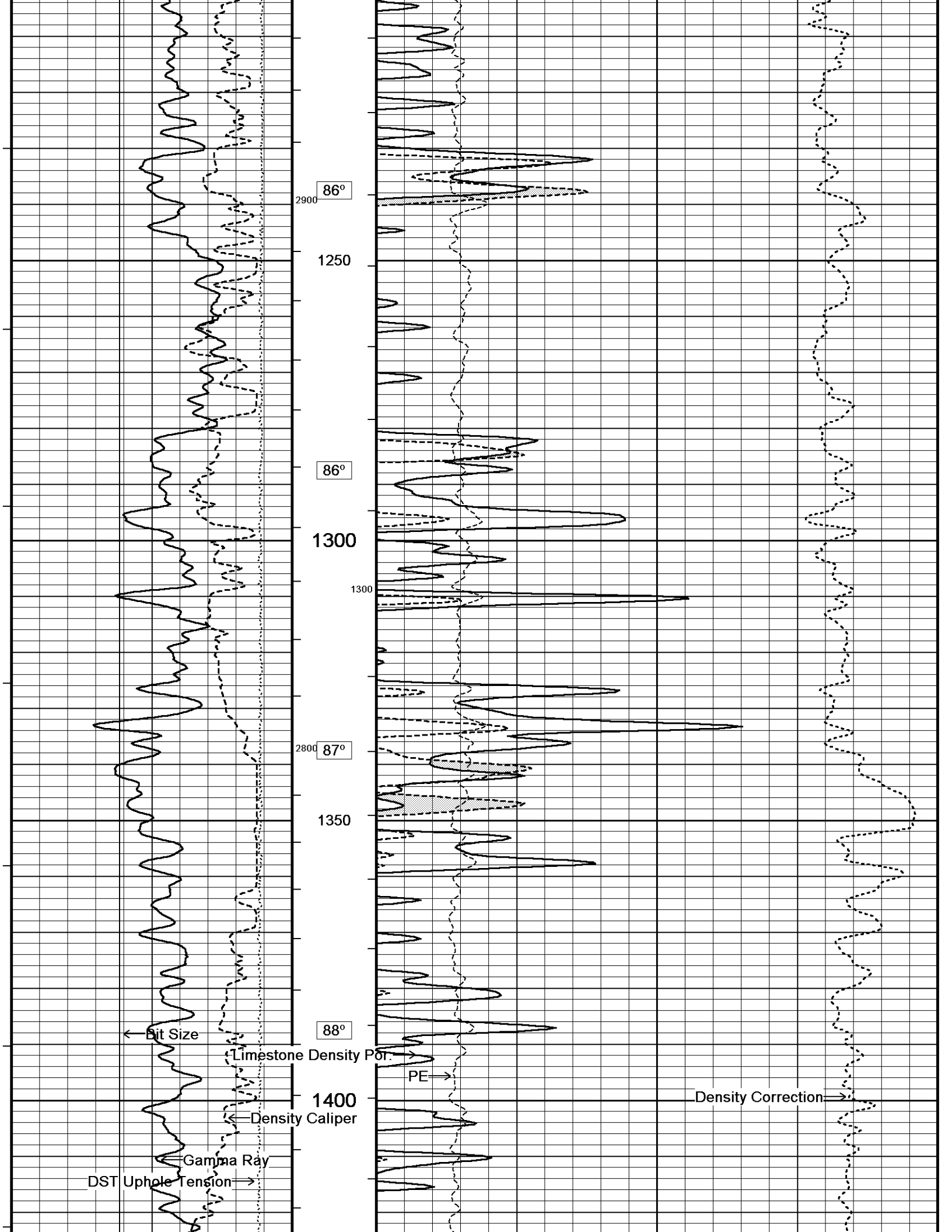
**REMARKS**

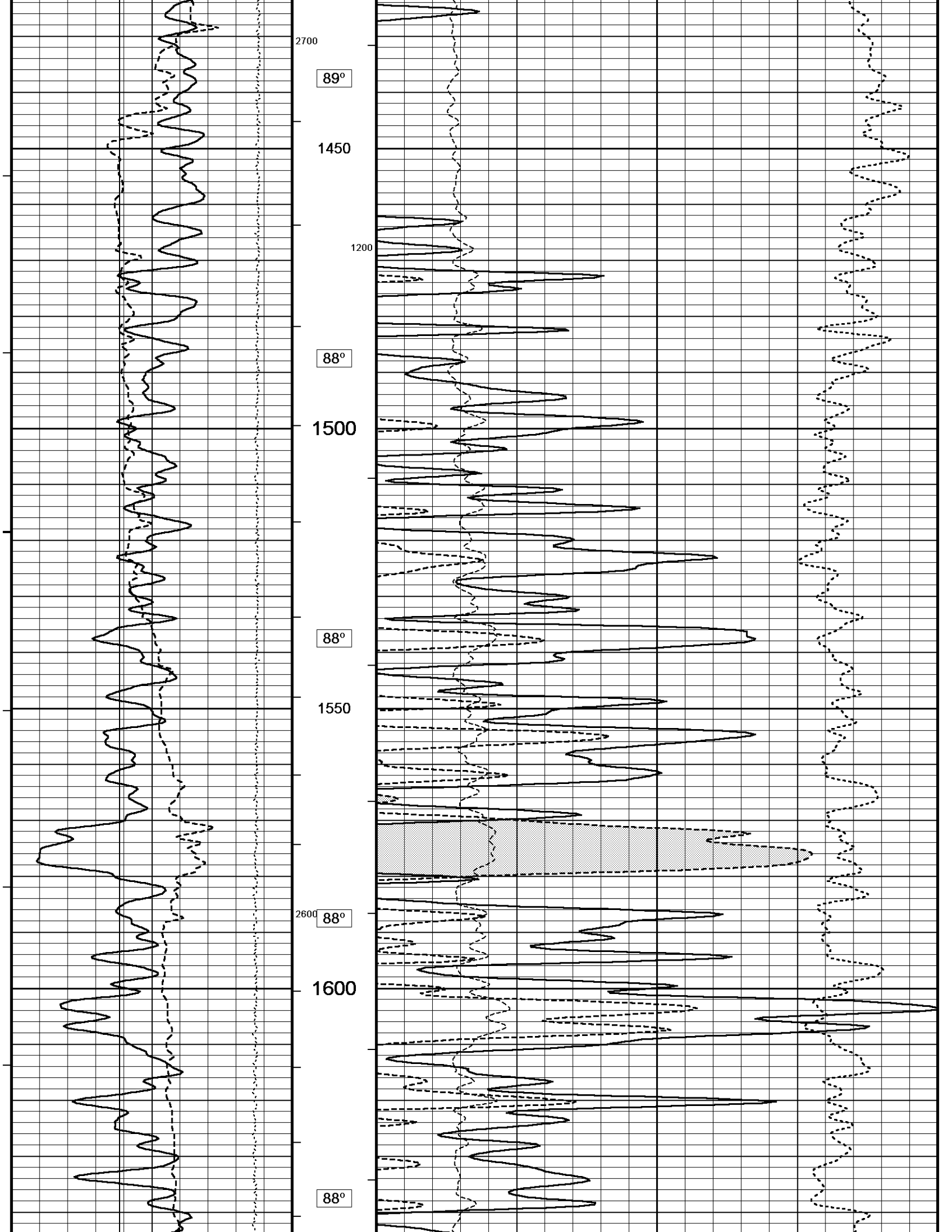
Tools Ran: MCG, MML, MDN, MPD, SKJ, MFE, MSS, MAI.  
Hardware Used: MDN Dual Eccentralizer used. MPD 8 inch profile plate used. MFE, MSS and MAI 0.5 inch standoffs used.  
2.71 g/cc Limestone Density Matrix used to calculate porosity.  
Sonic porosity calculated using a Limestone scale (47.5 usec/ft).  
All intervals logged and scaled per customer's request.  
Annular volume with 7.625 inch production casing = 1587 cu. ft.  
Total hole volume from TD to Surface Casing=3247 cu. ft.  
Service order: #3534598  
Rig: Tomcat #3  
Engineer: L. Scott  
Operator(s): K. Rinehart

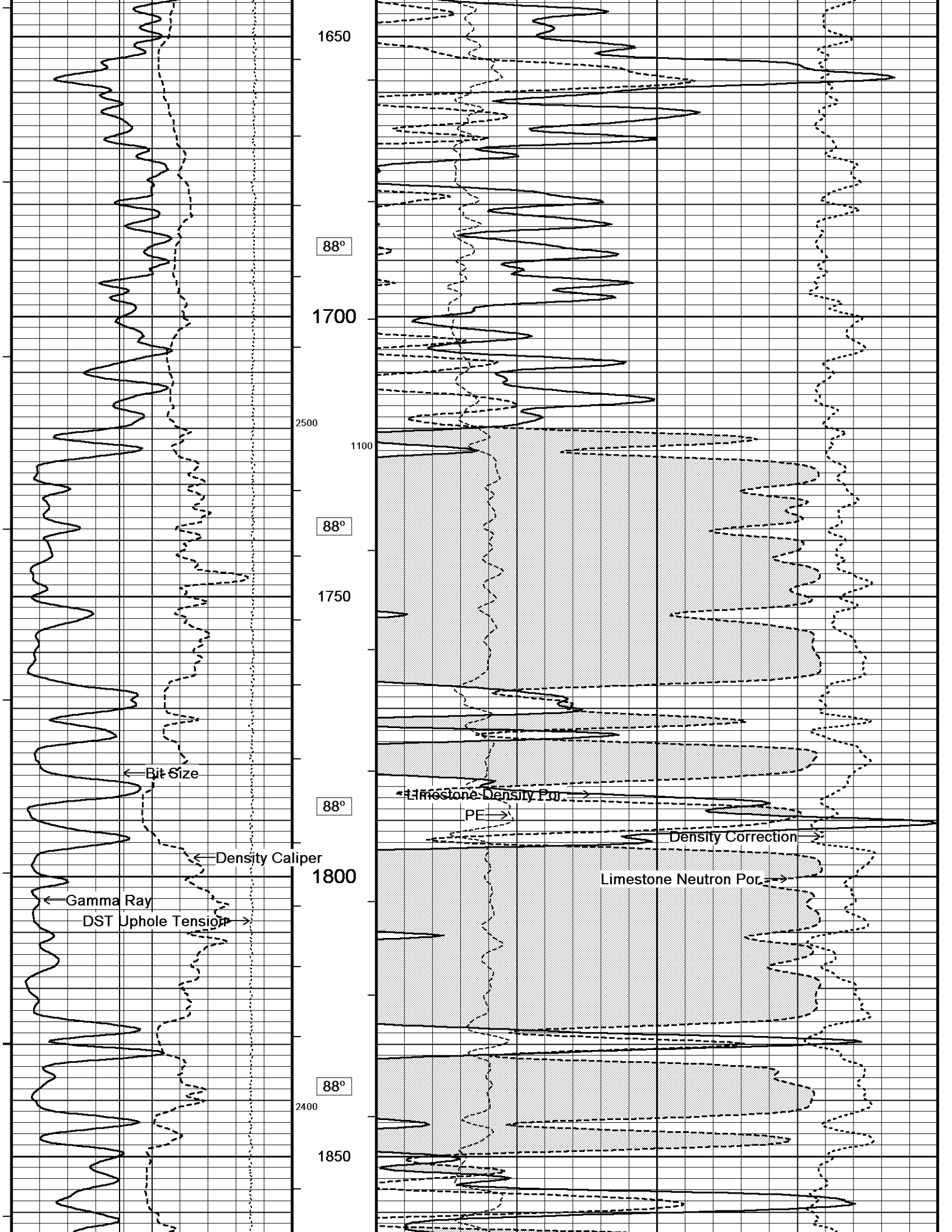
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs,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

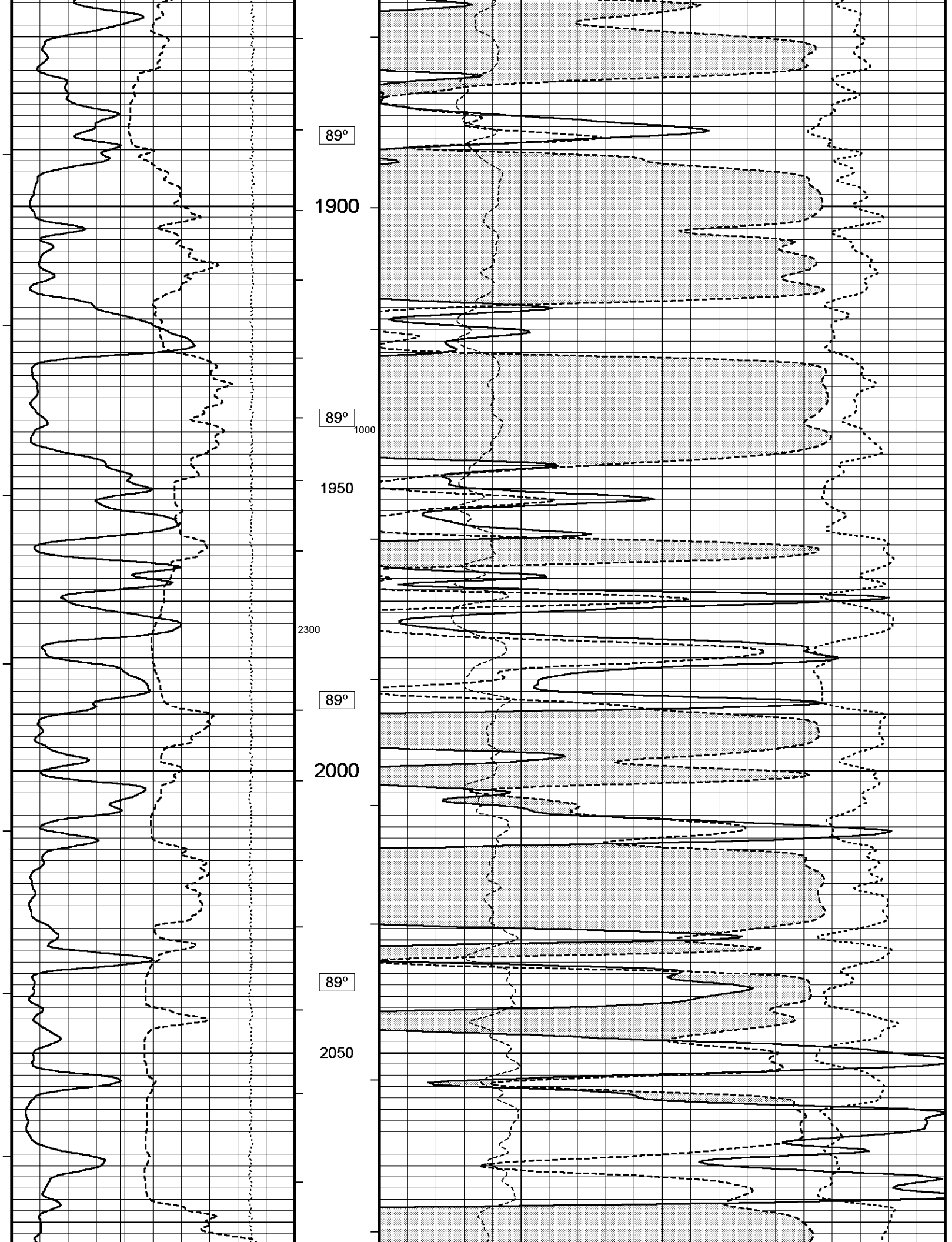


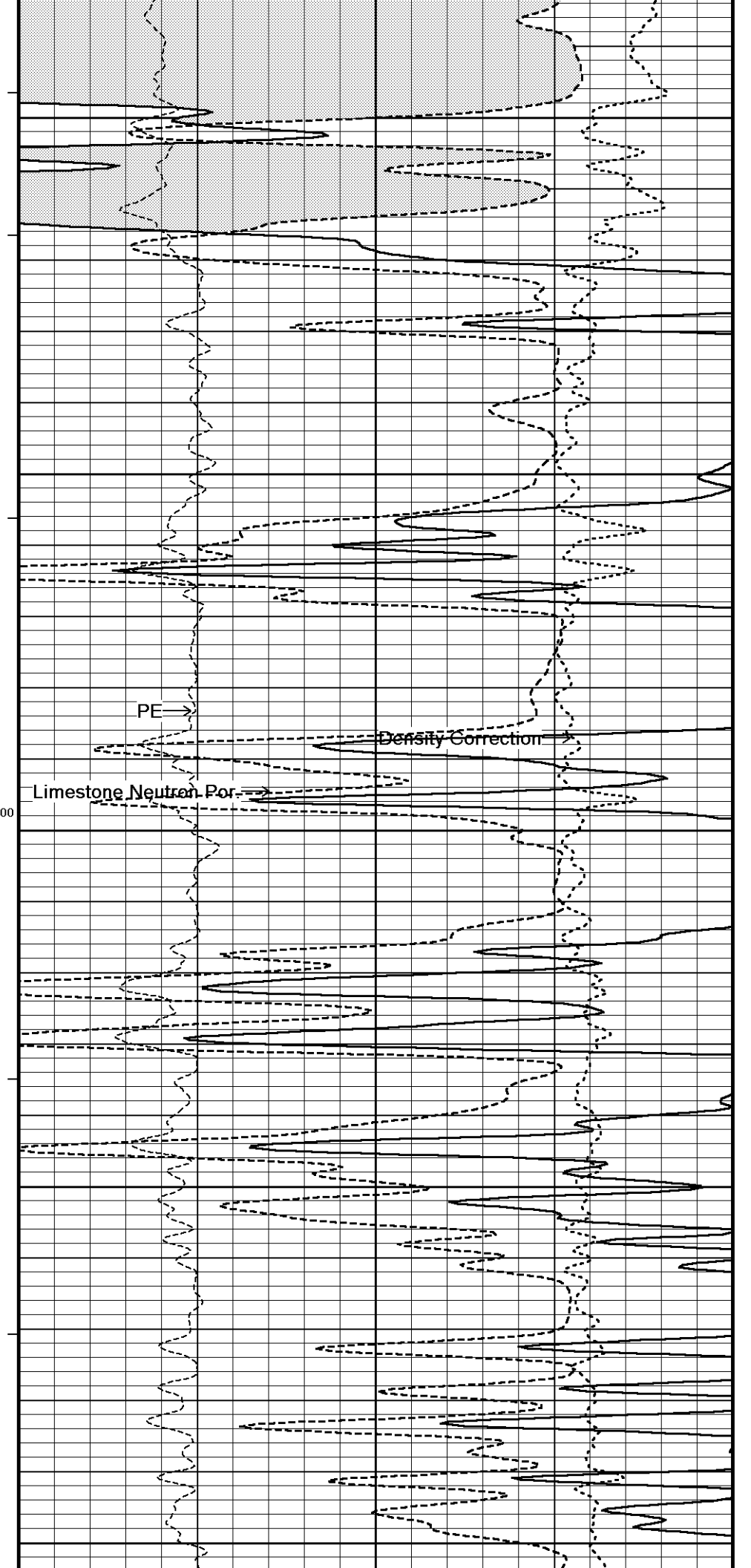
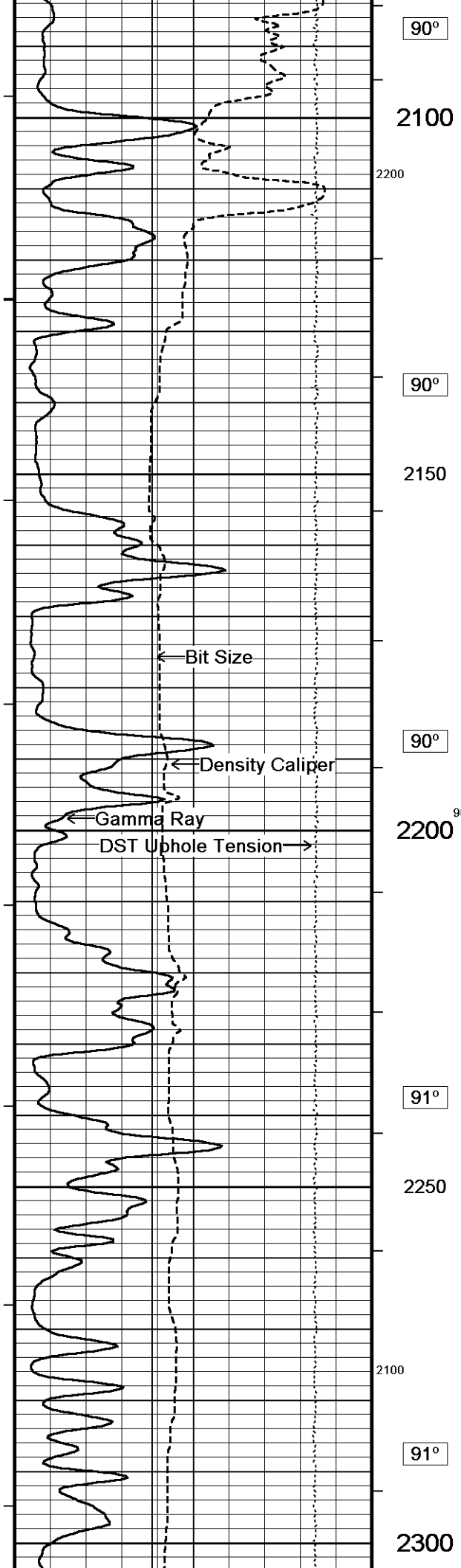


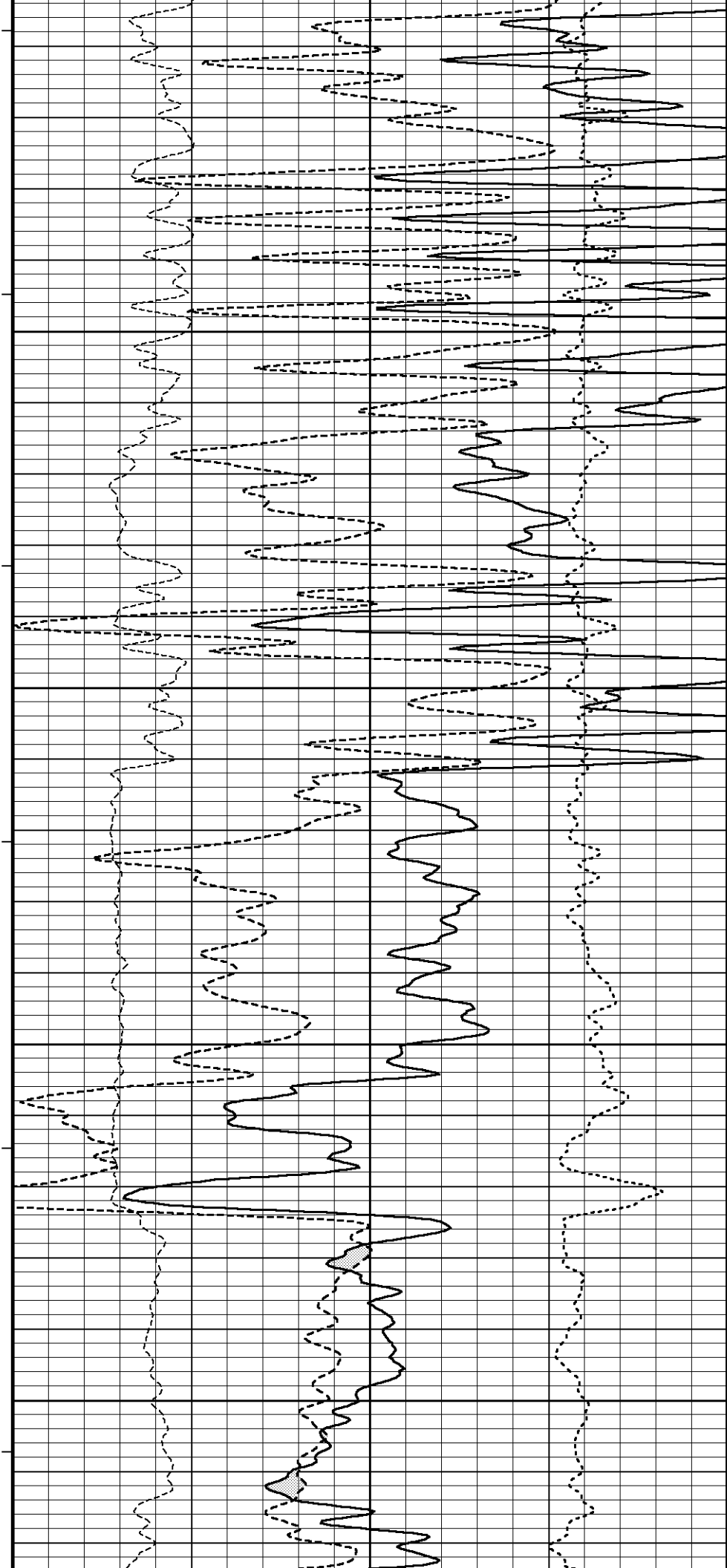
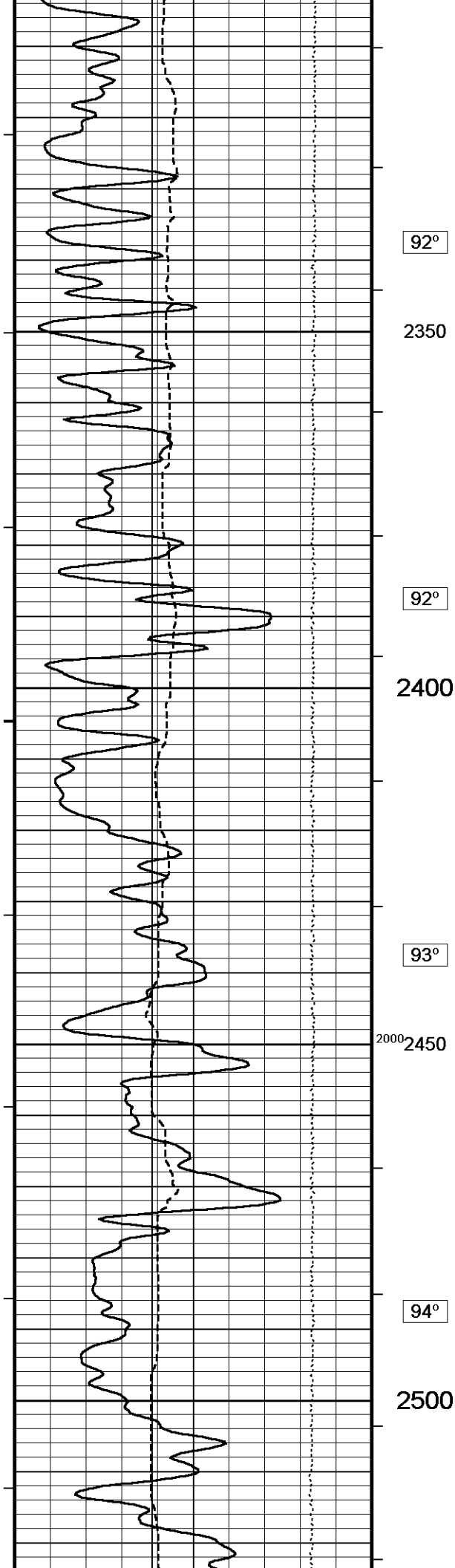


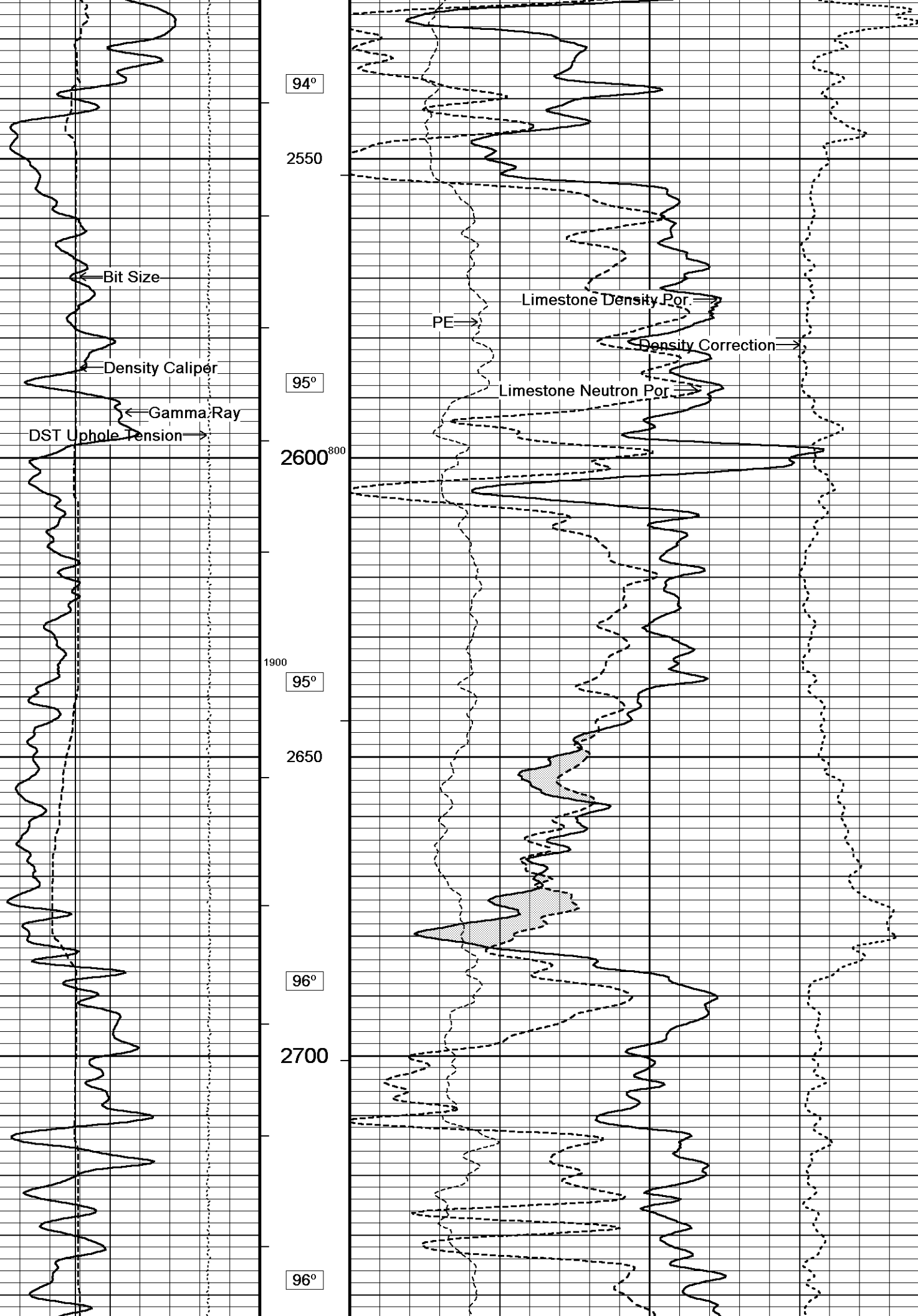


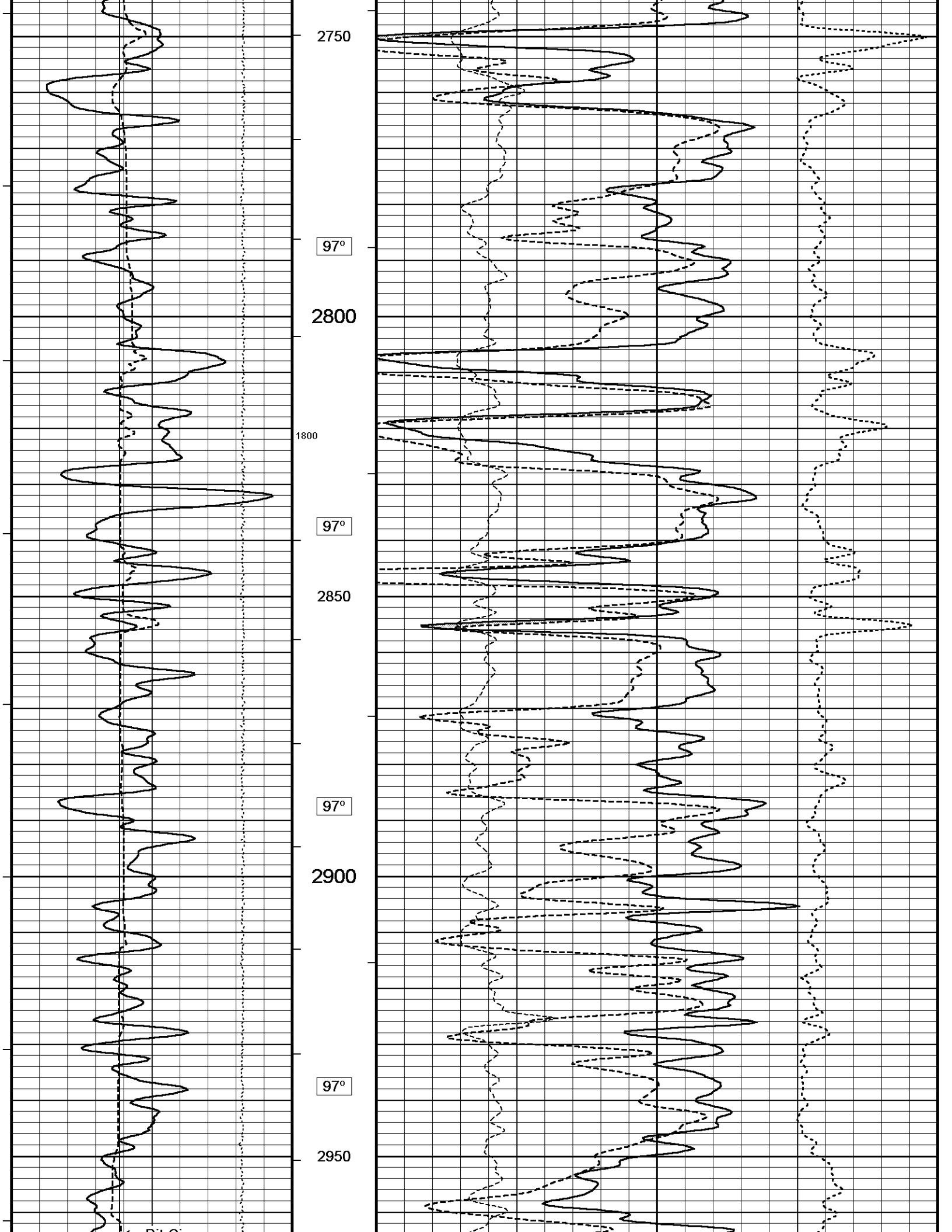


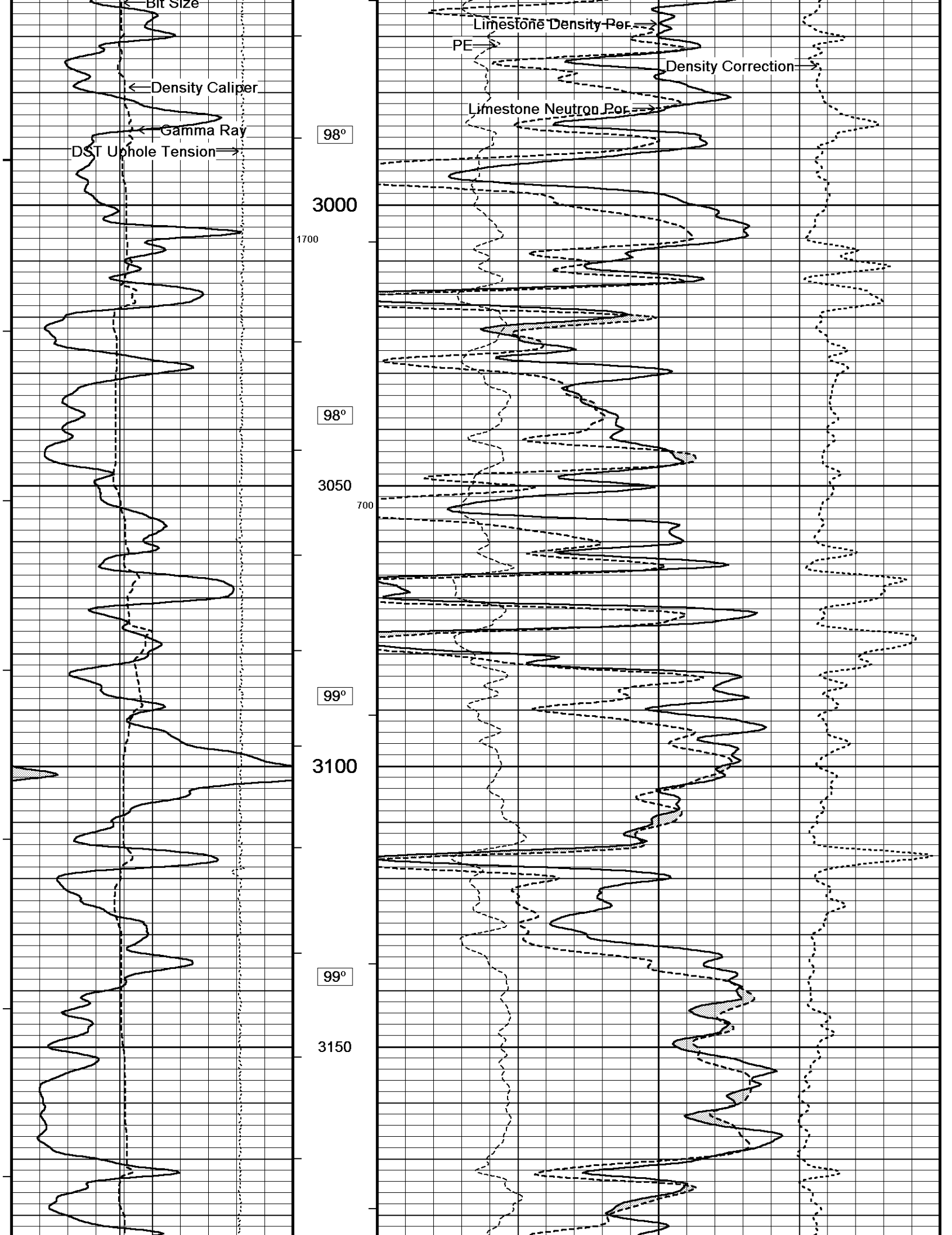


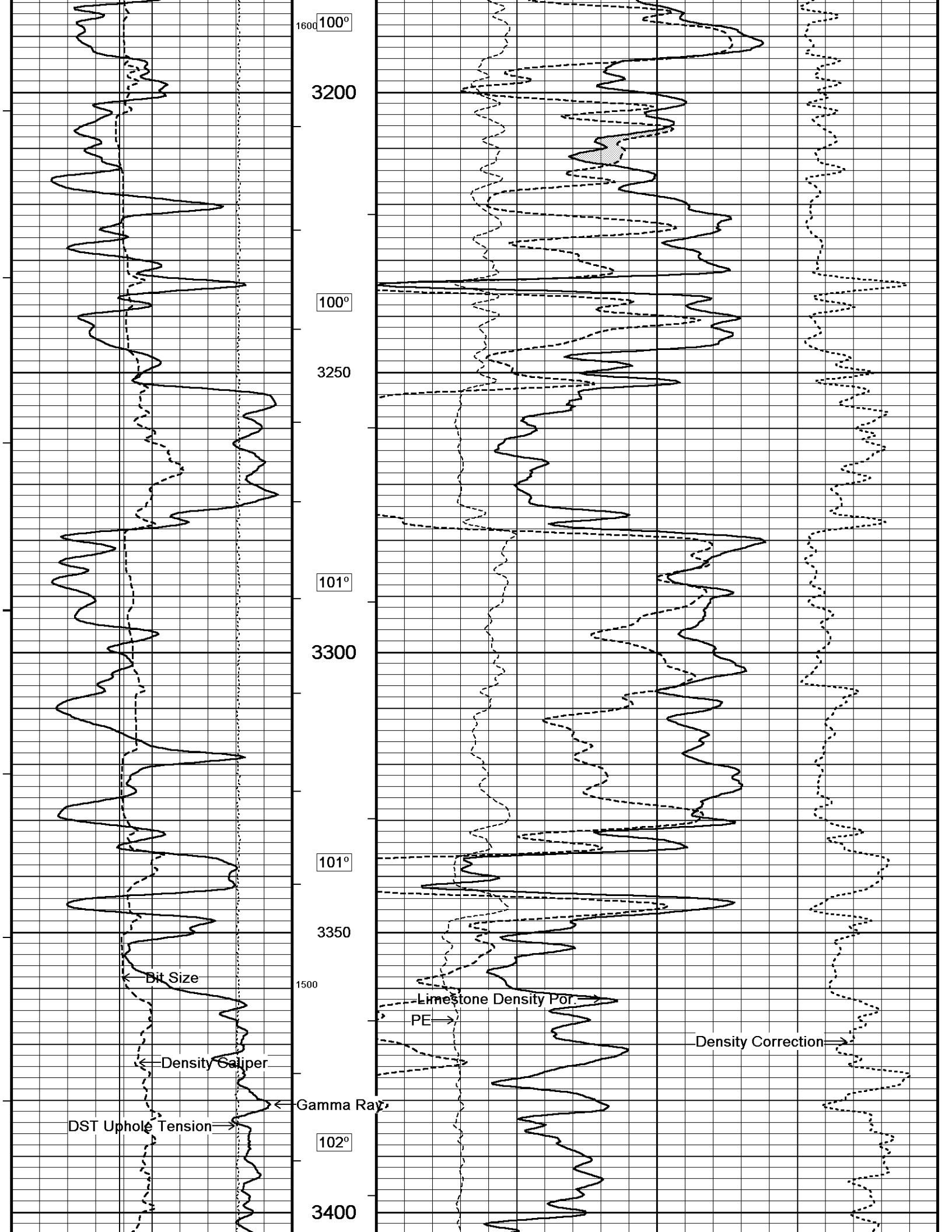


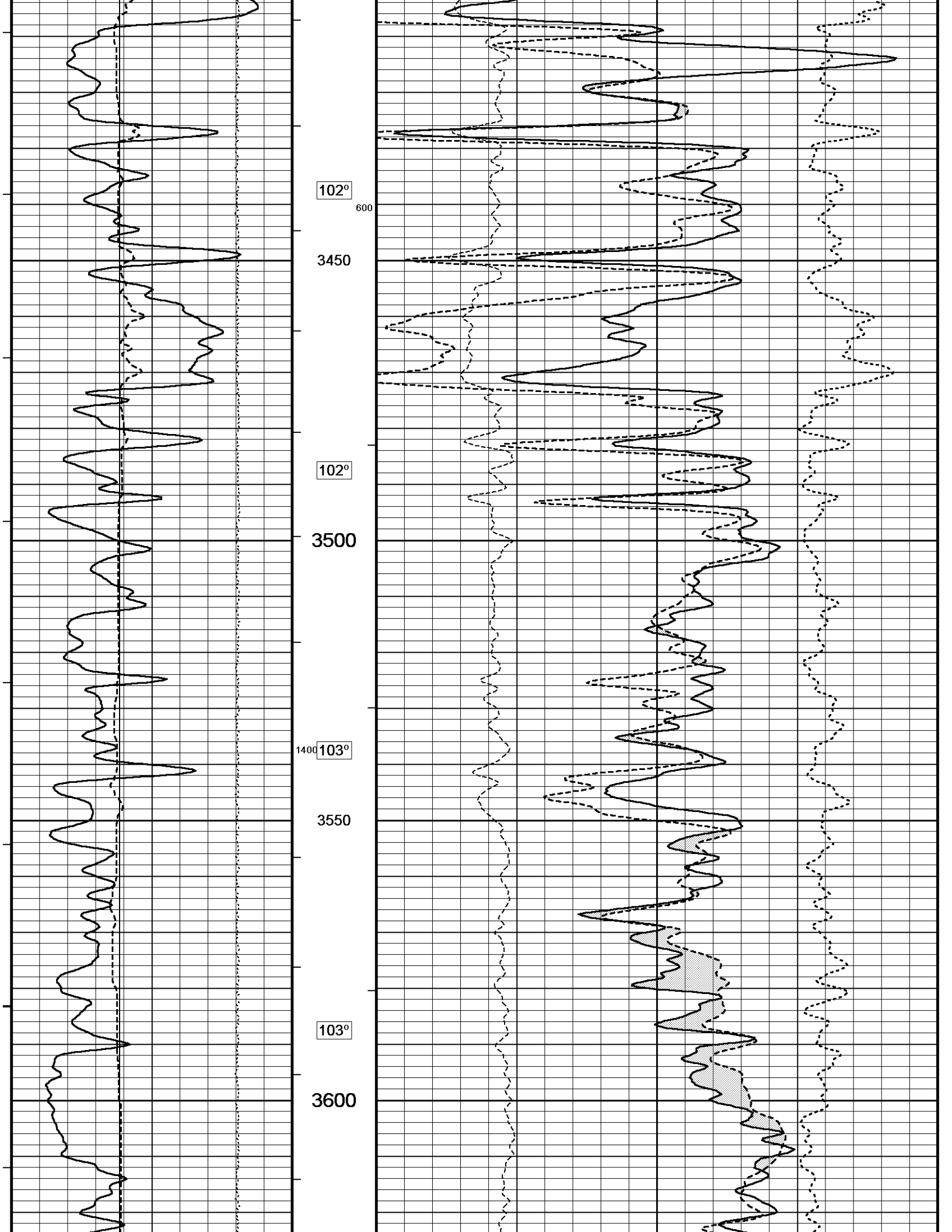


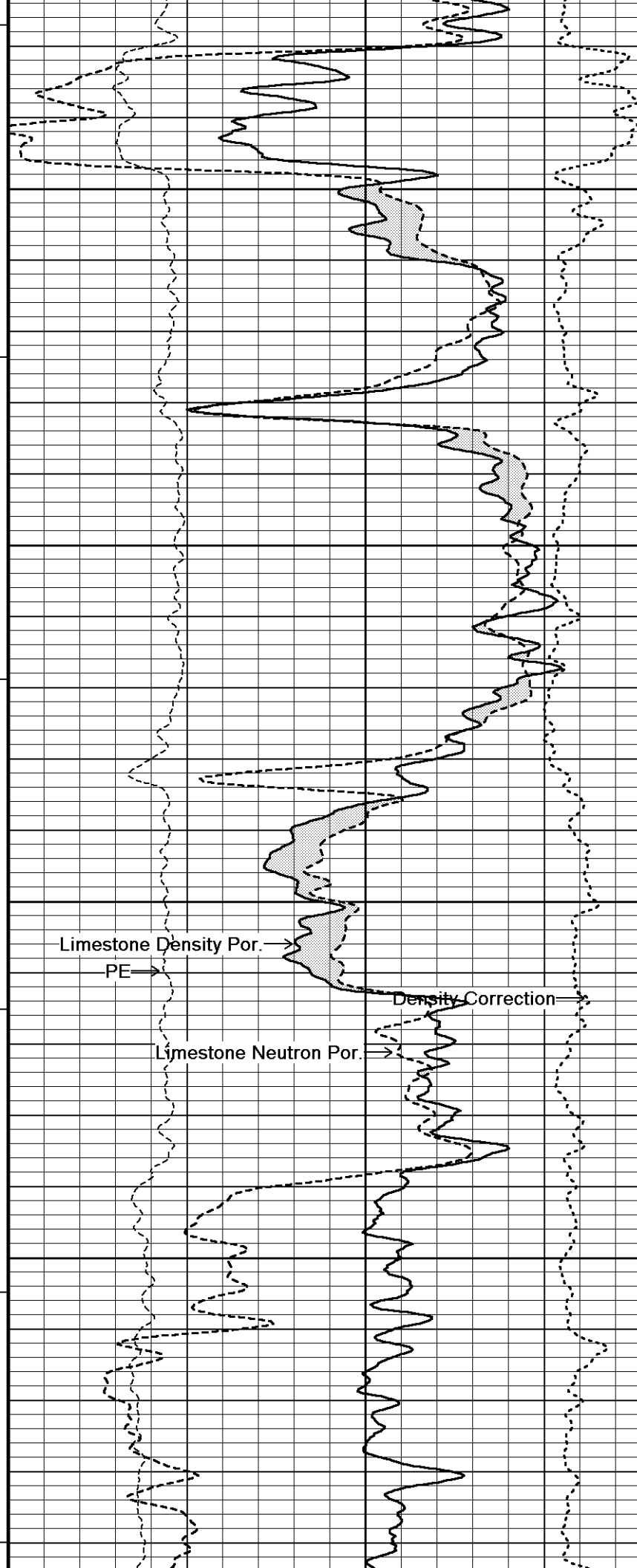
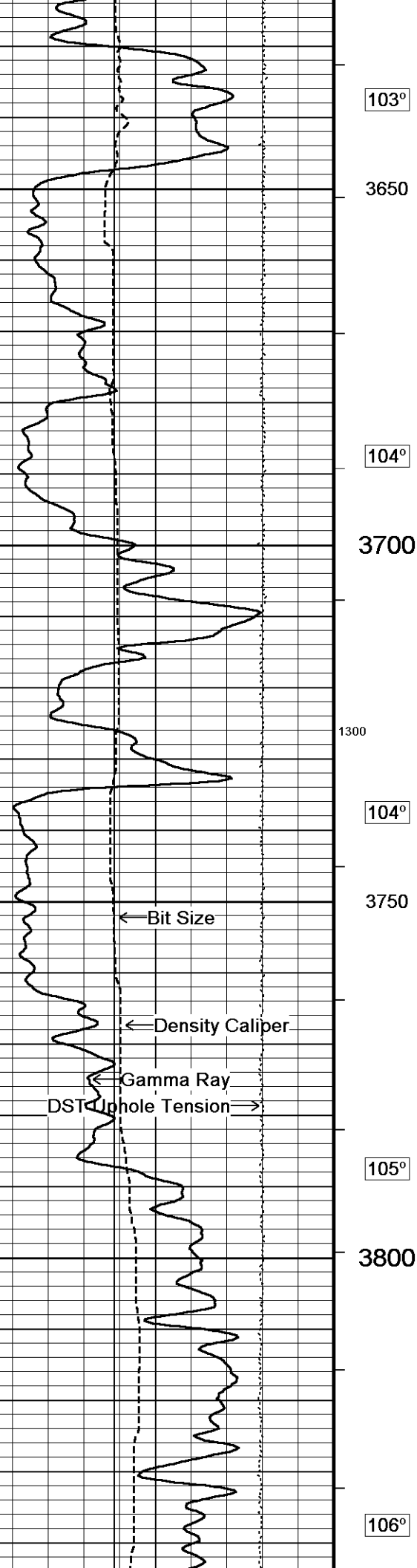


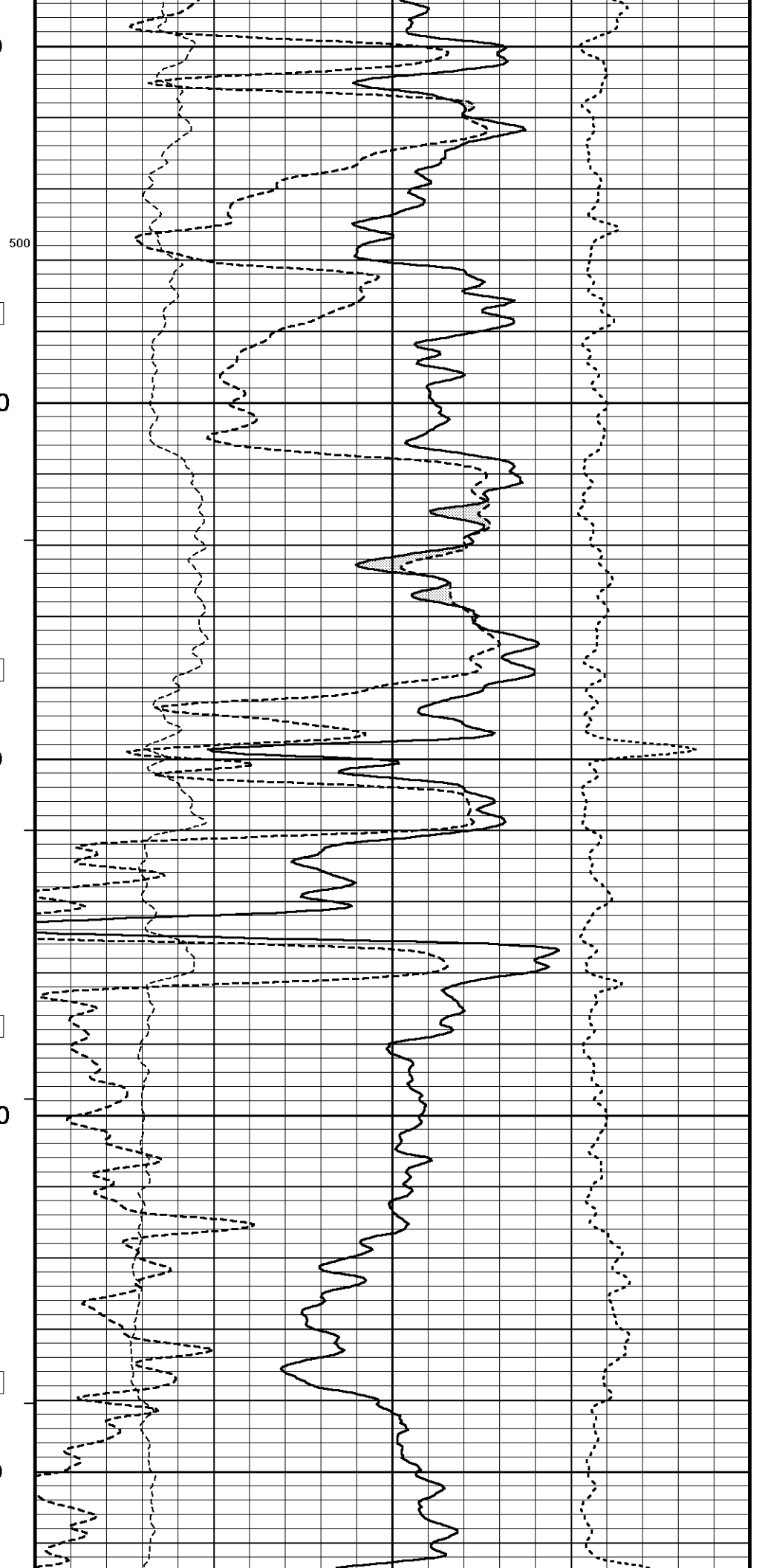
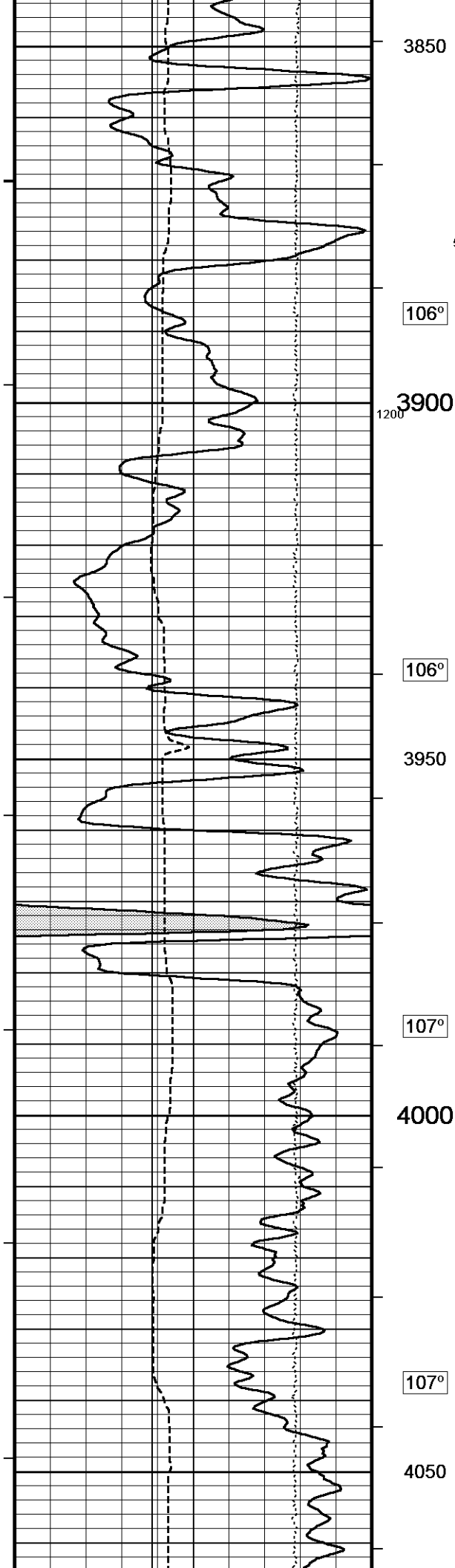


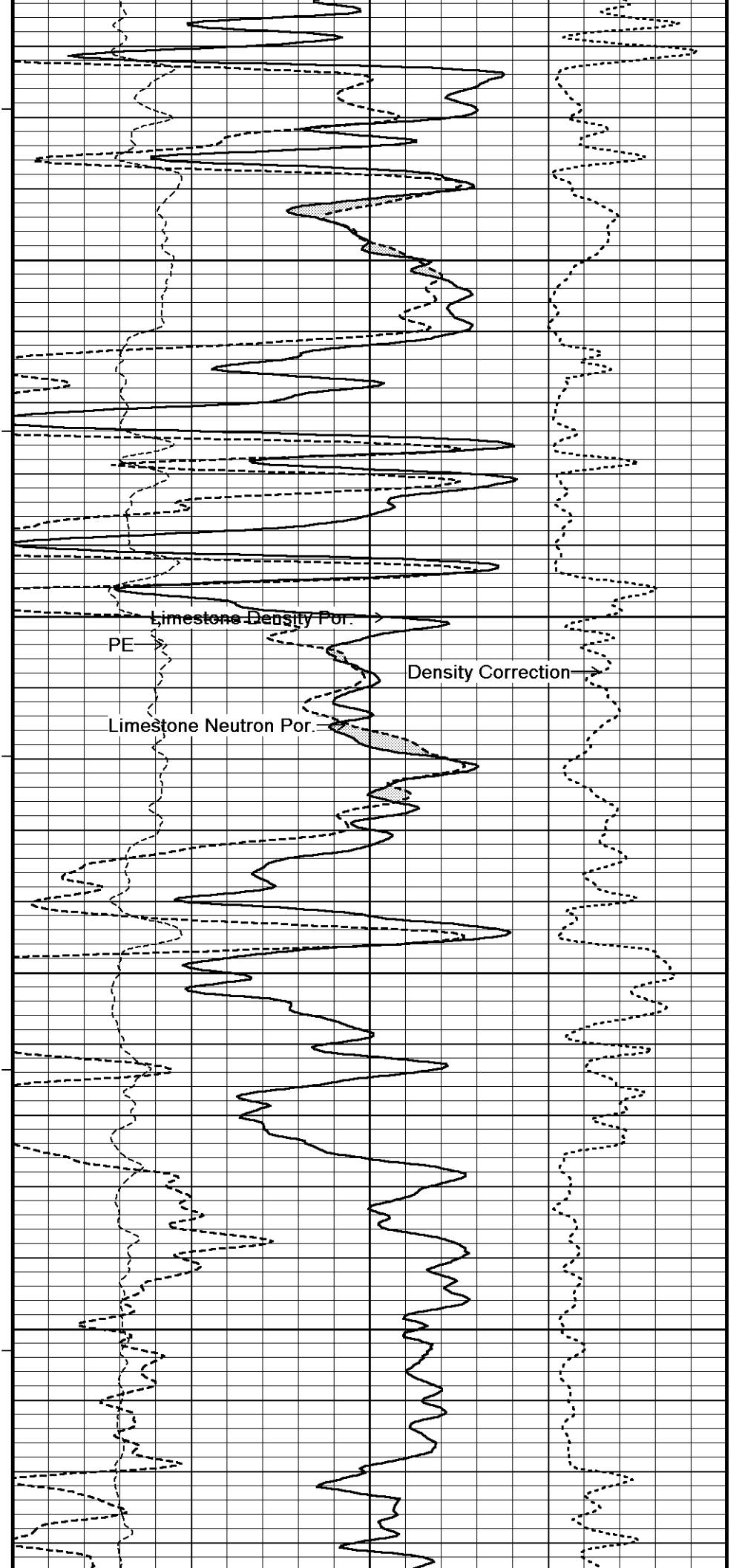
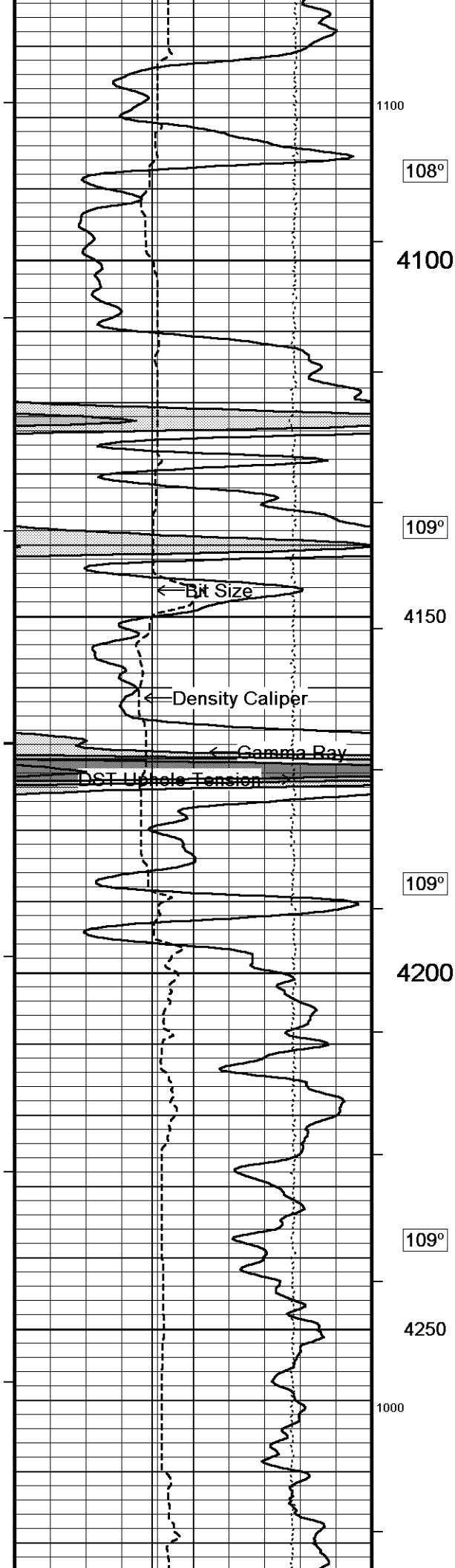


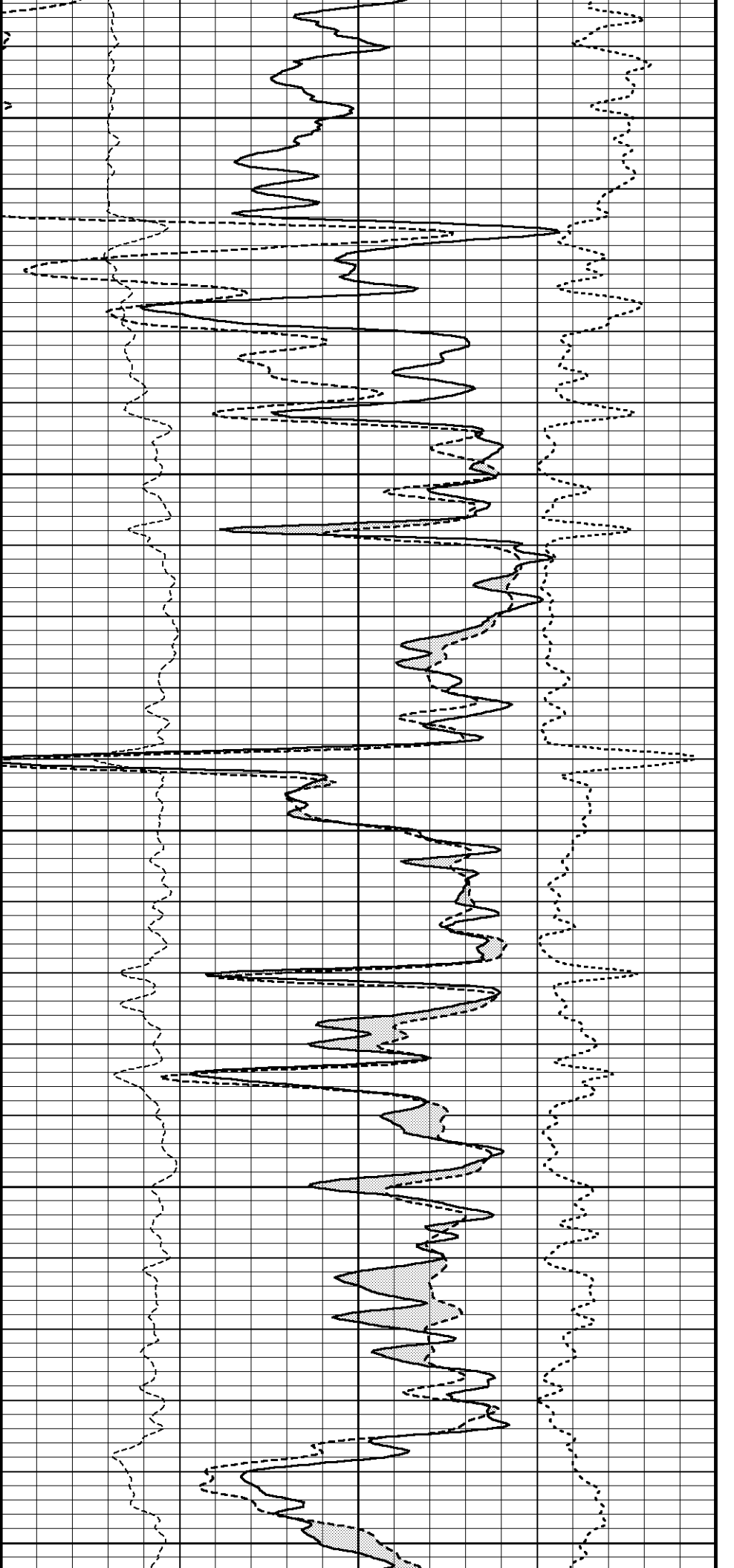
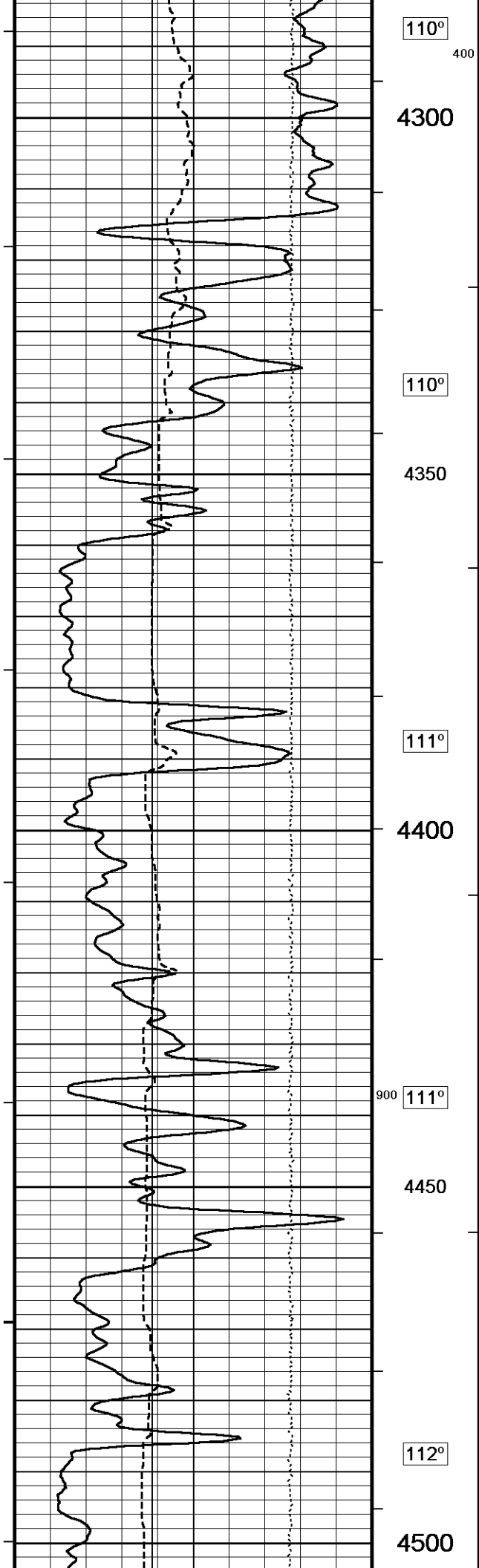


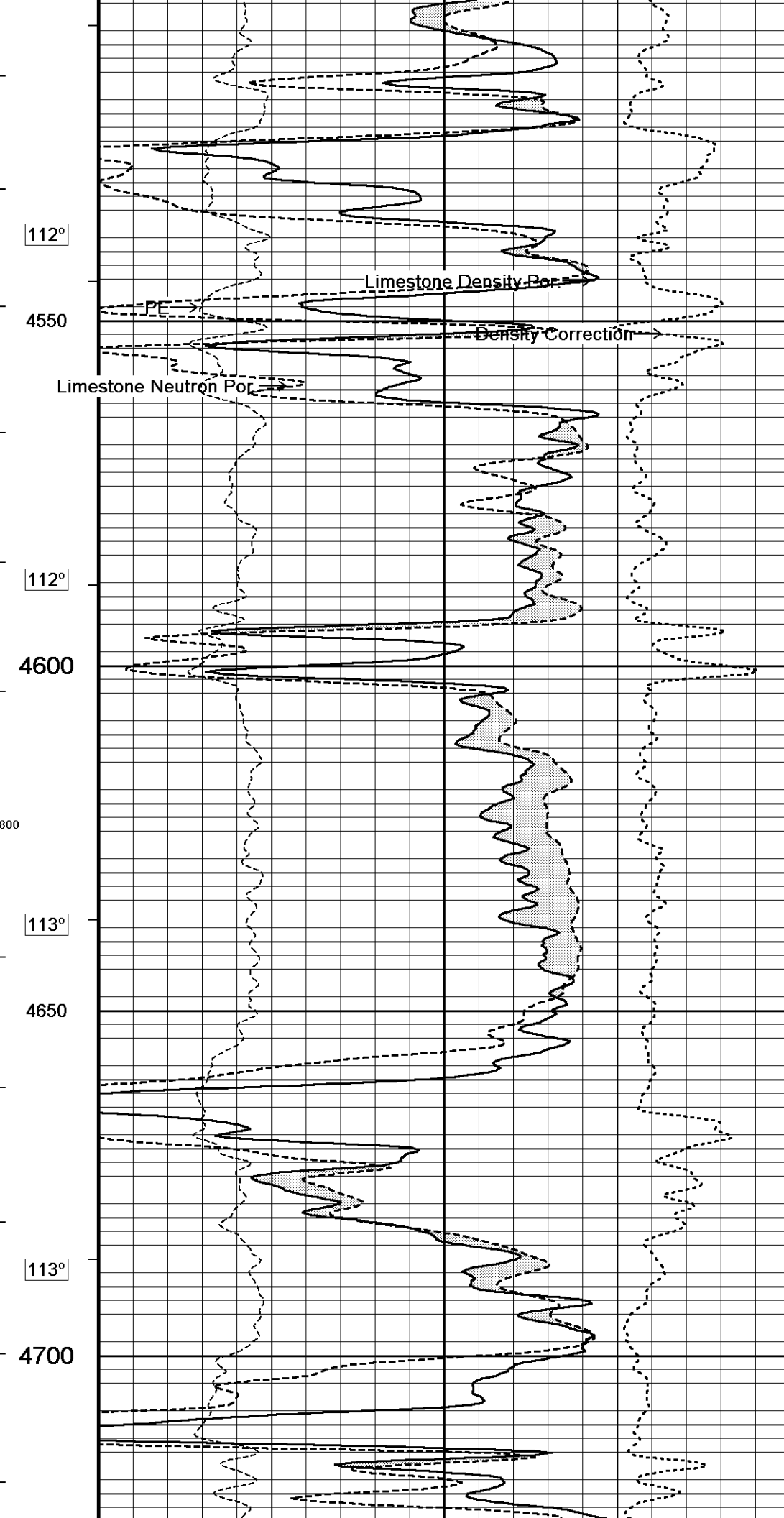
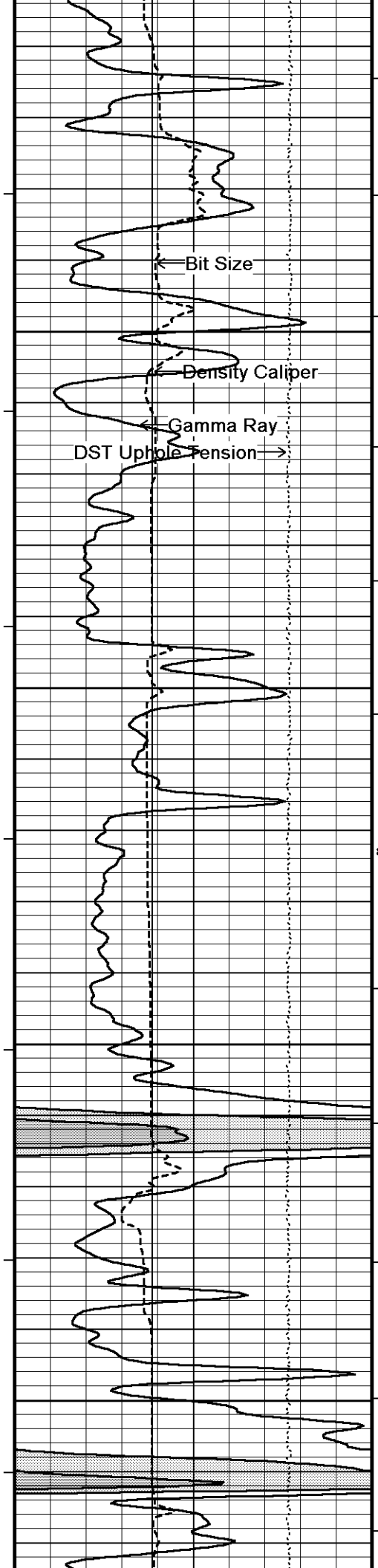


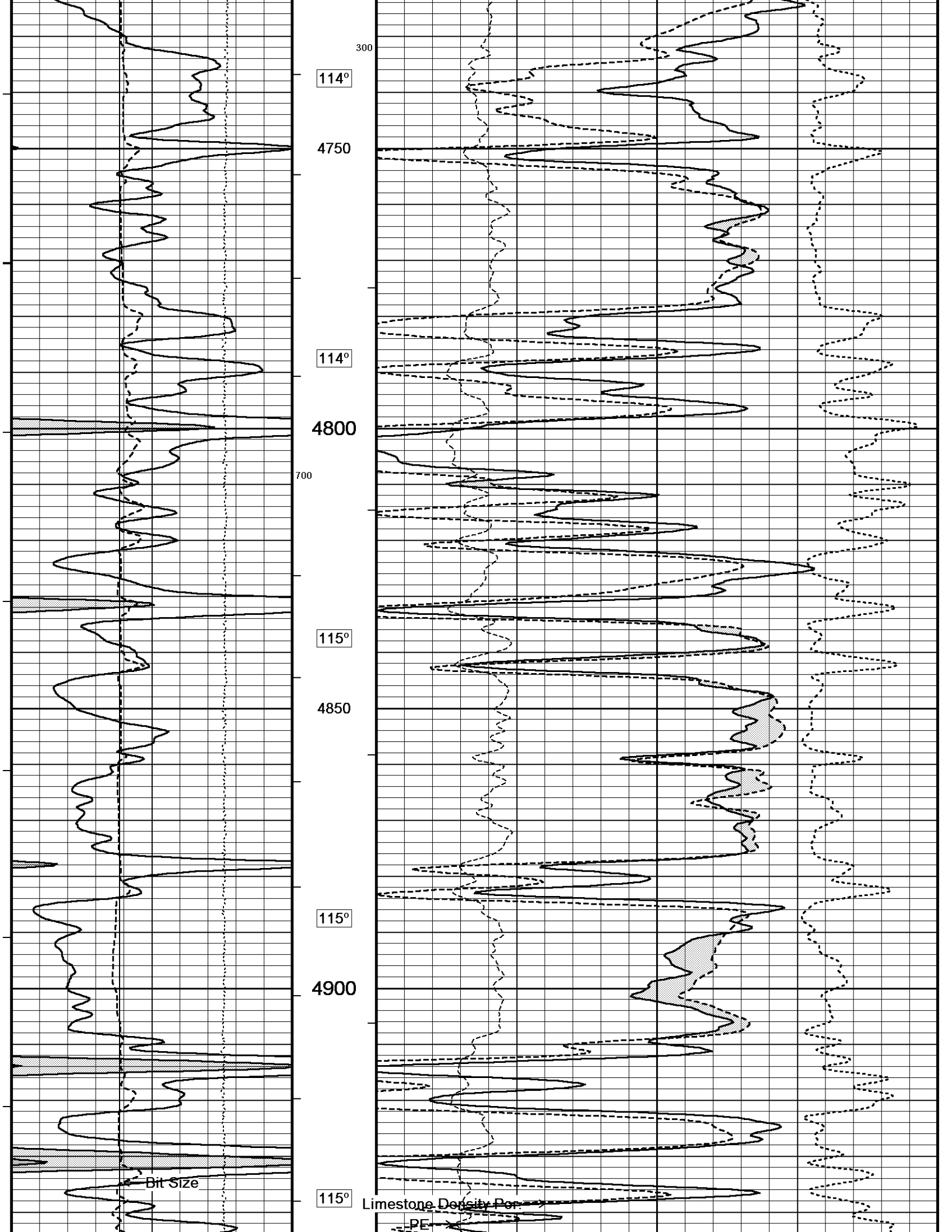


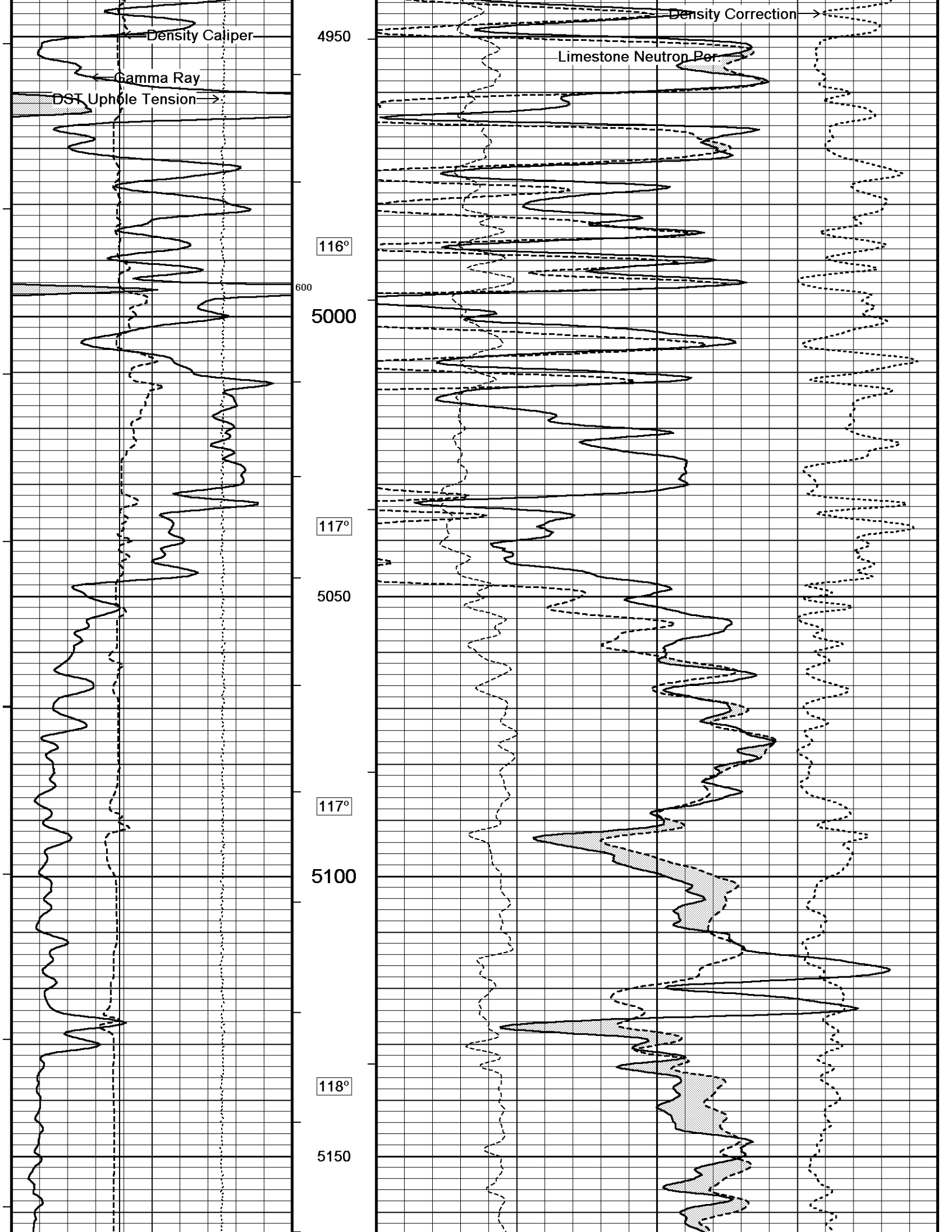


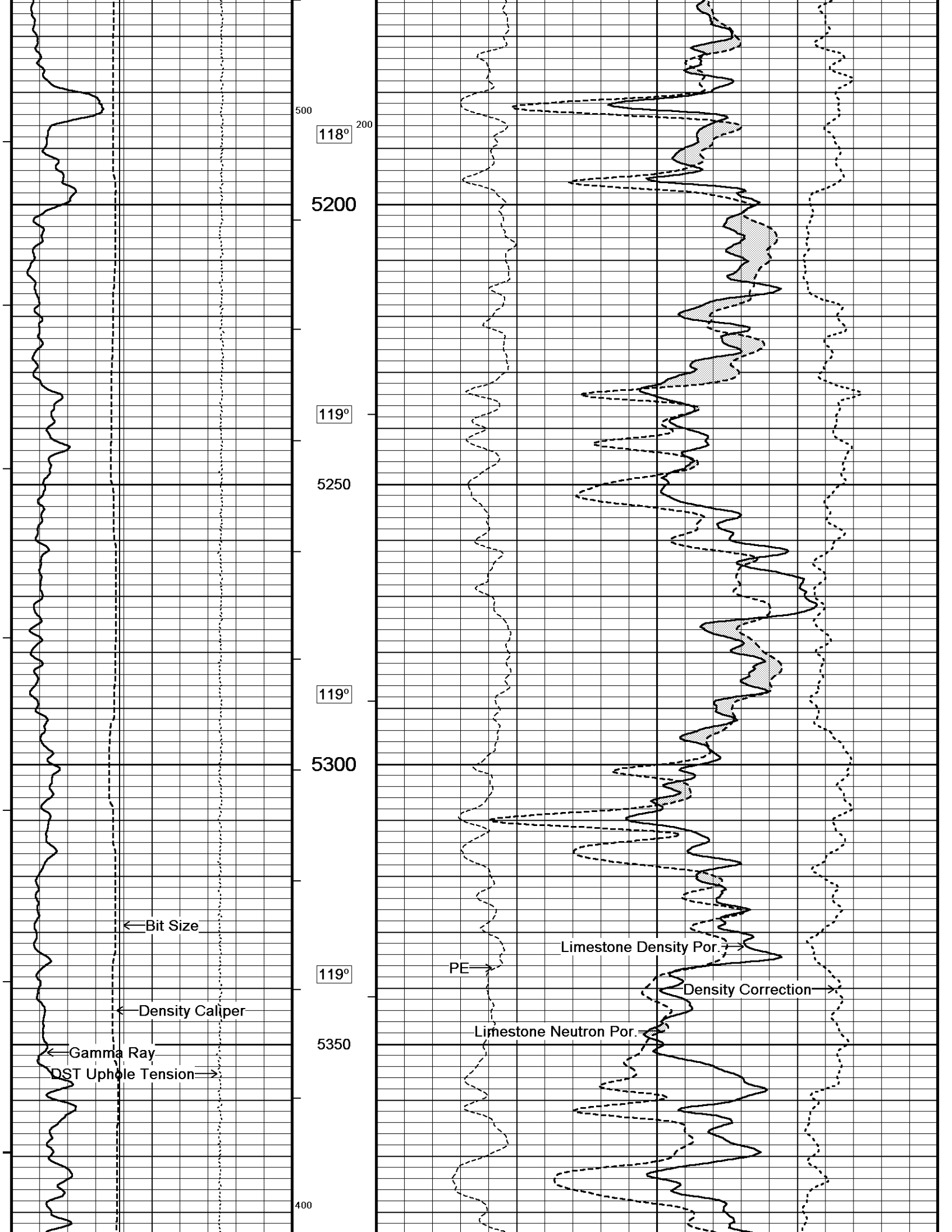


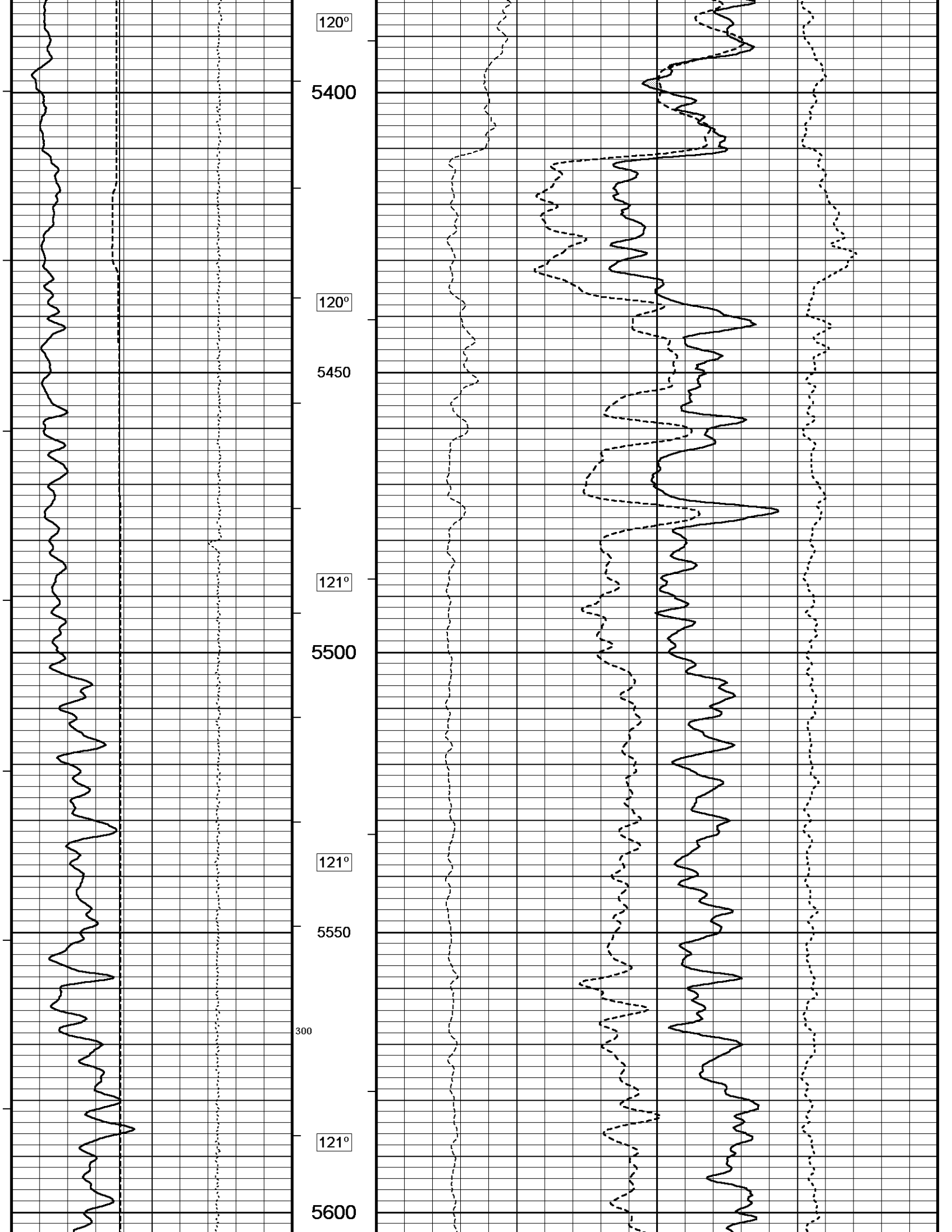


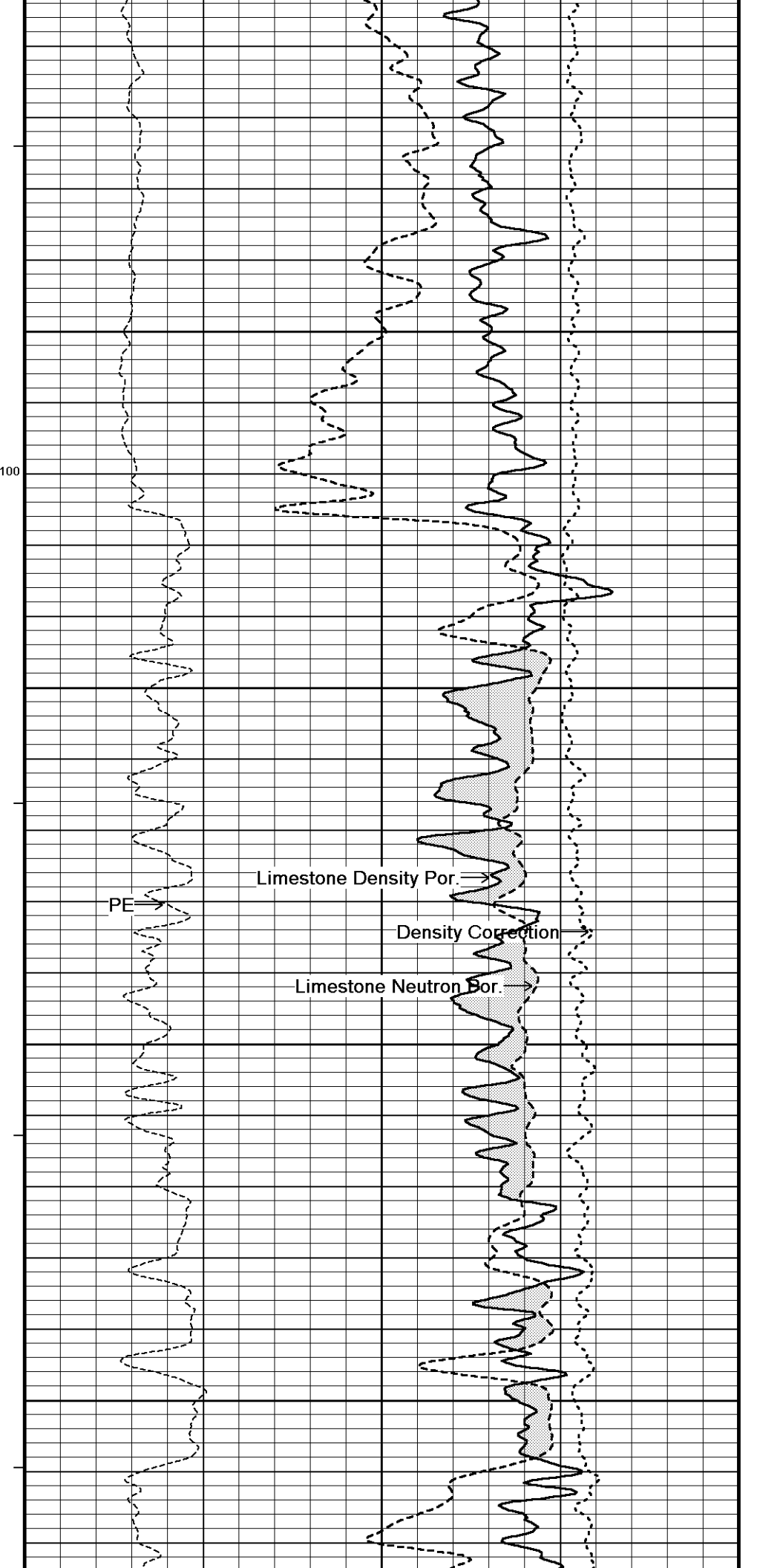
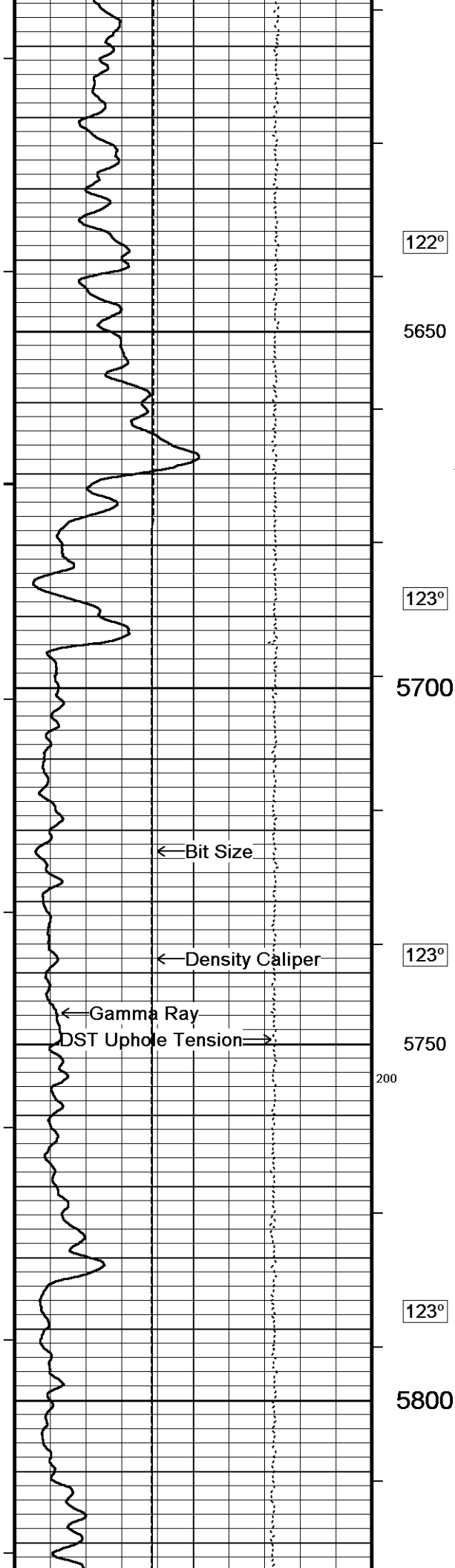


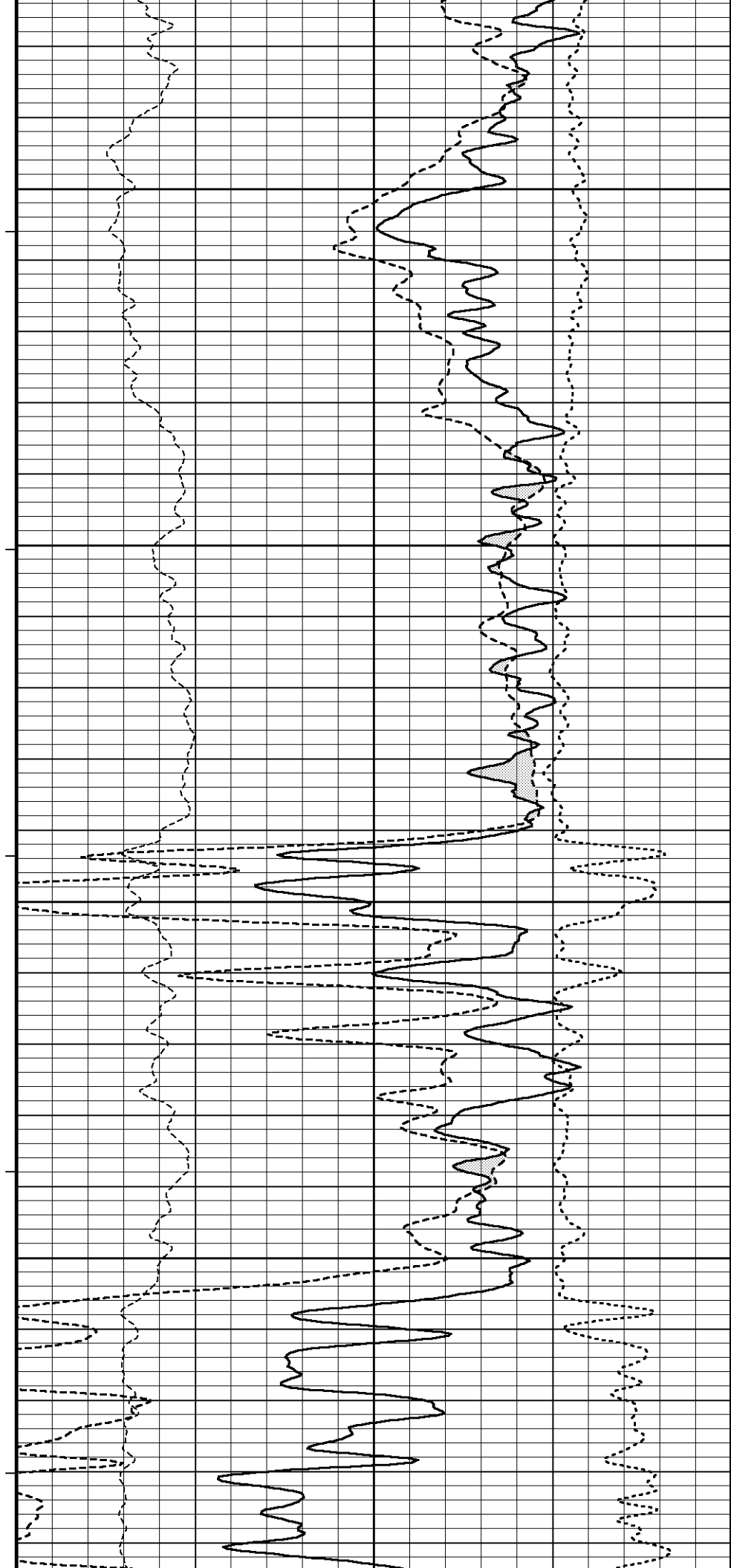
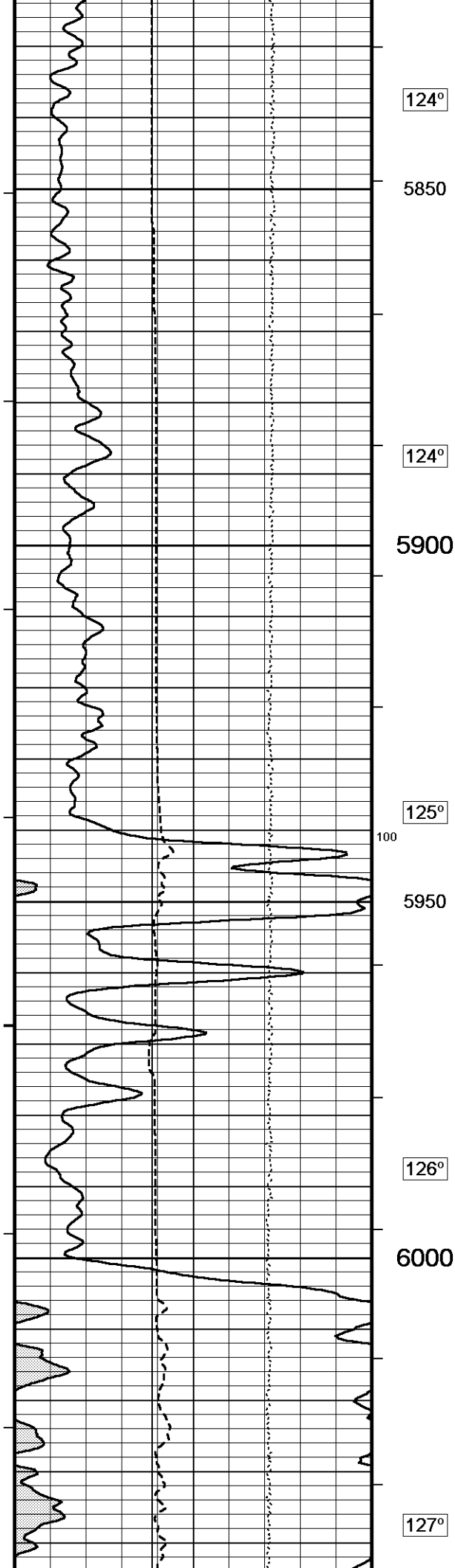


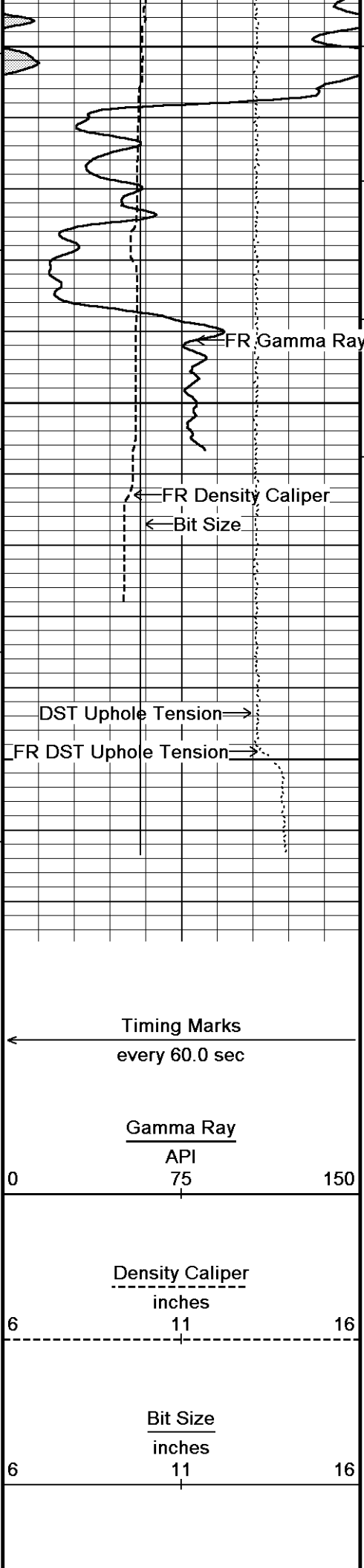












6050

127°

6100

0

6150

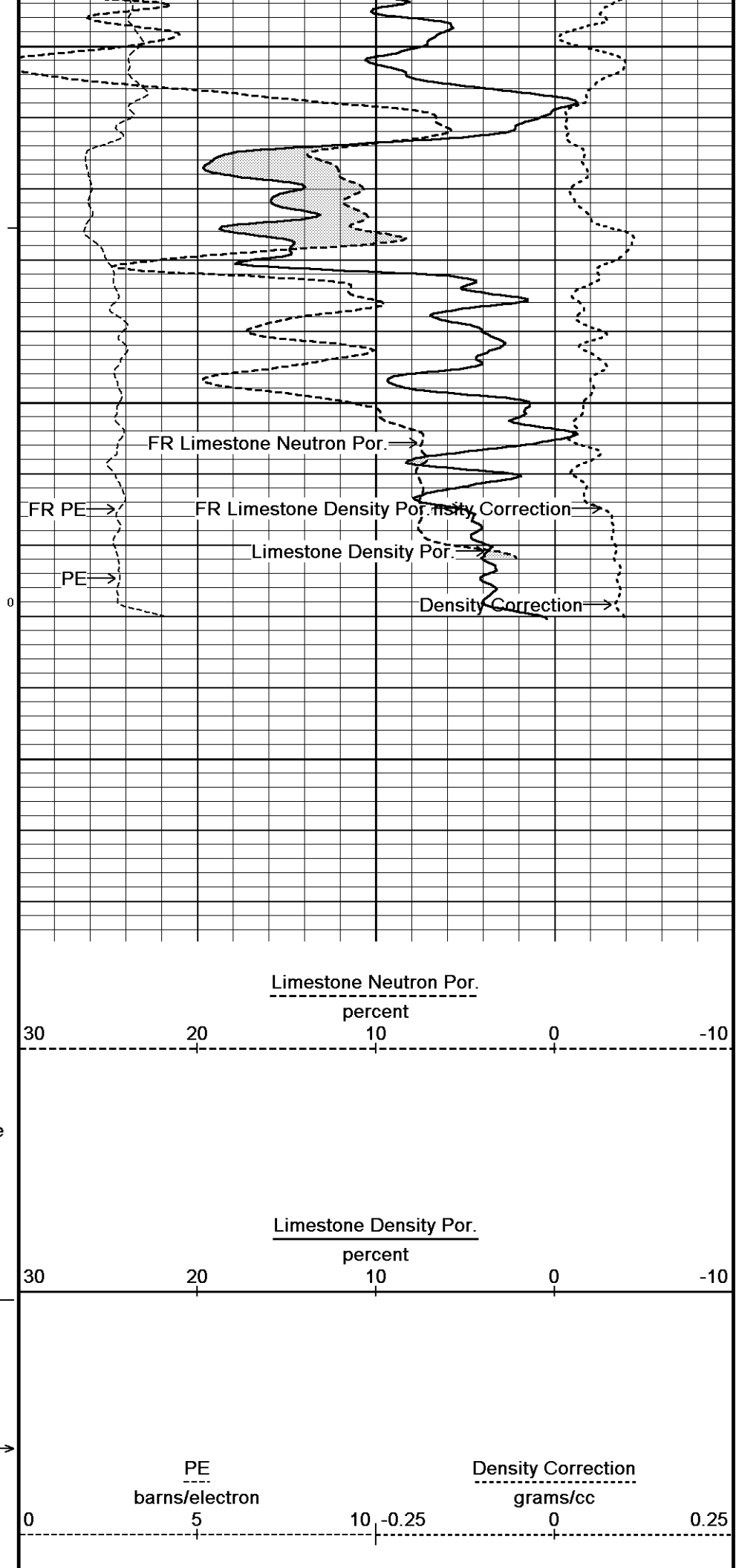
6174

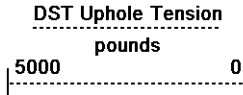
Depth In Feet

Borehole Temp in deg F

HVI every 10 cu ft

Annular Integral every 10 cu ft





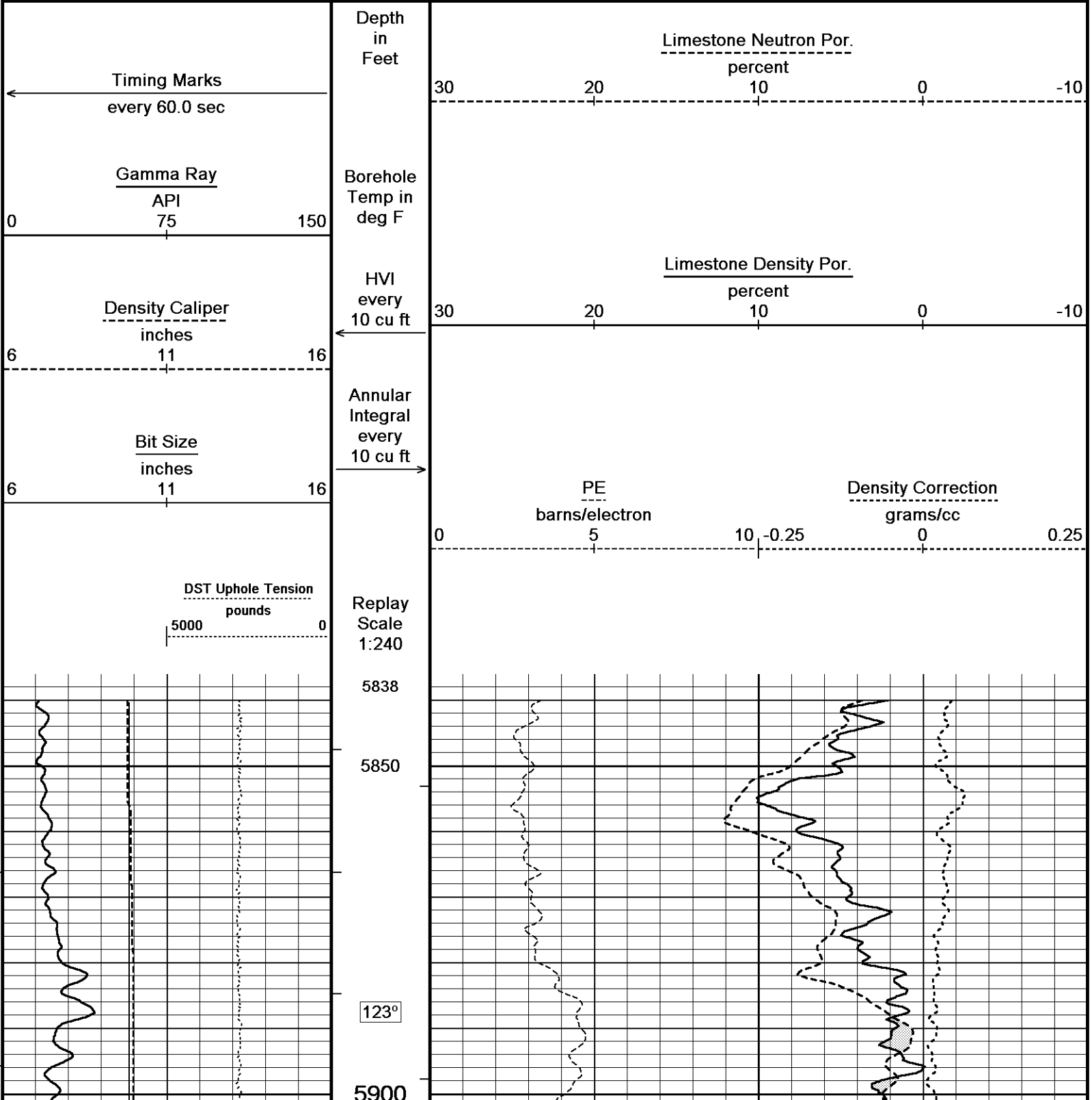
Replay  
Scale  
1:240

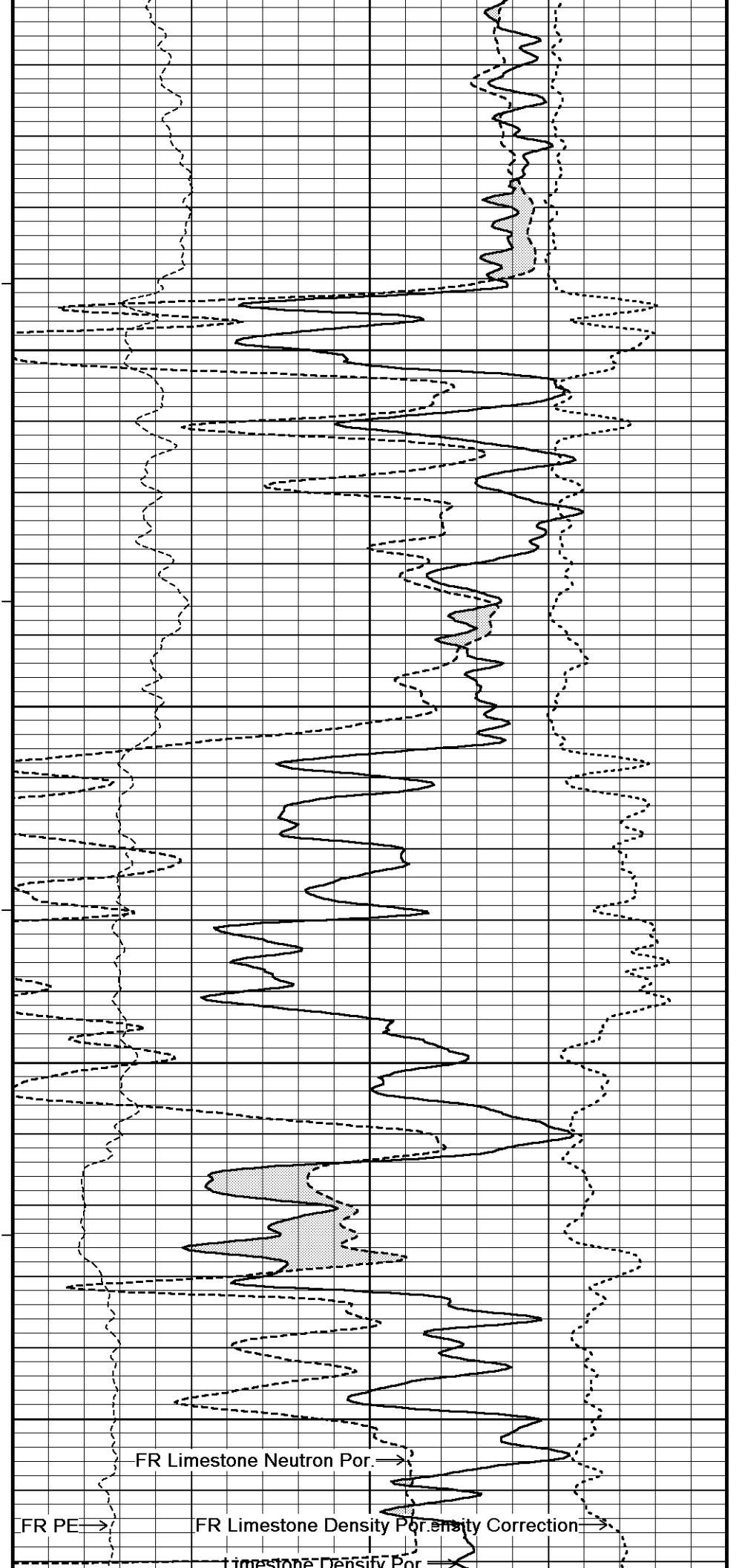
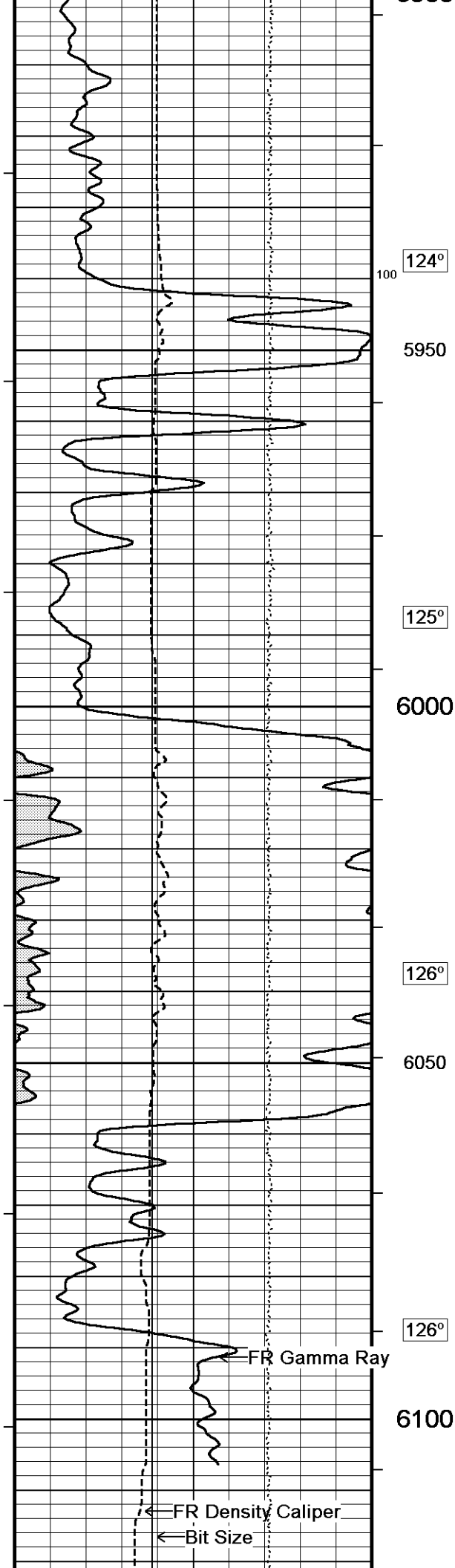
Depth Based Data - Maximum Sampling Increment 10.0cm  
Plotted on 24-JAN-2012 11:57  
Filename: C:\Minimus 11.03.4044\Data\Sandridge Luke SWD 1-10\Sandridge Luke SWD 1-10\_002.dta  
Recorded on 24-JAN-2012 08:07  
System Versions: Logged with 11.03.4044 Plotted with 11.03.4044

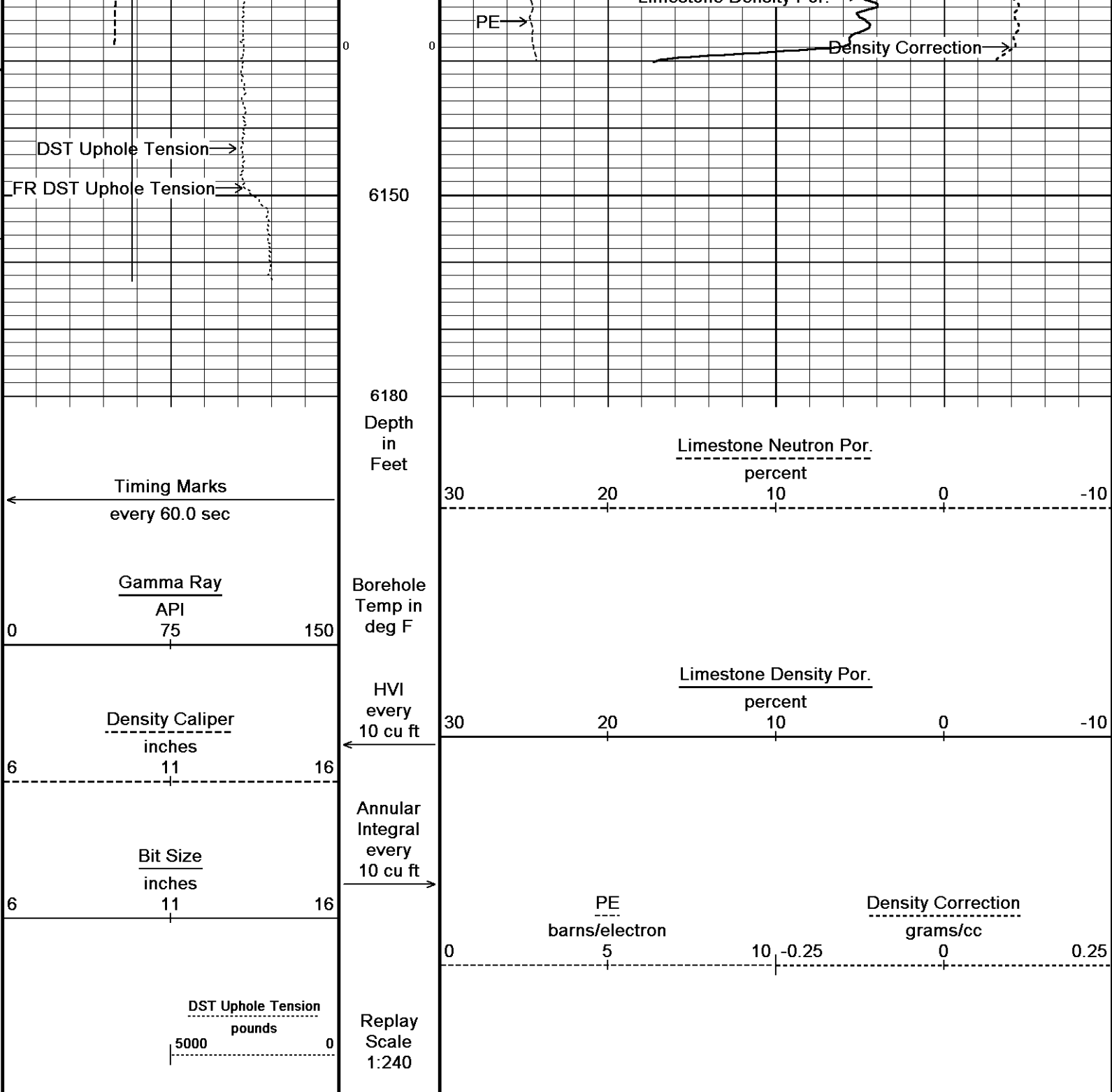
↑ 5 INCH MAIN PASS ↑

↓ 5 INCH REPEAT PASS ↓

Depth Based Data - Maximum Sampling Increment 10.0cm  
Plotted on 24-JAN-2012 11:57  
Filename: C:\Minimus 11.03.4044\Data\Sandridge Luke SWD 1-10\Sandridge Luke SWD 1-10\_001.dta  
Recorded on 24-JAN-2012 07:46  
System Versions: Logged with 11.03.4044 Plotted with 11.03.4044



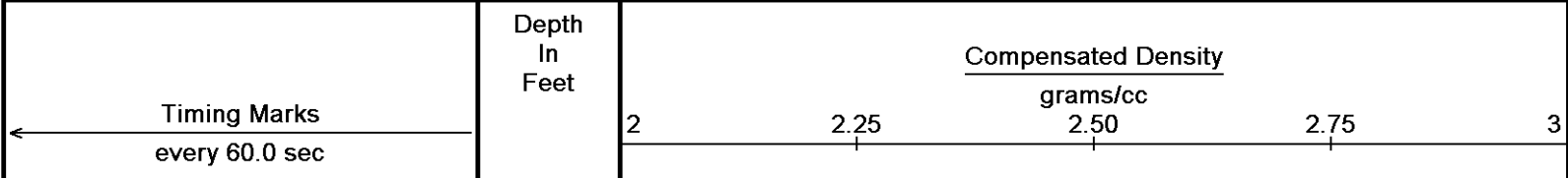


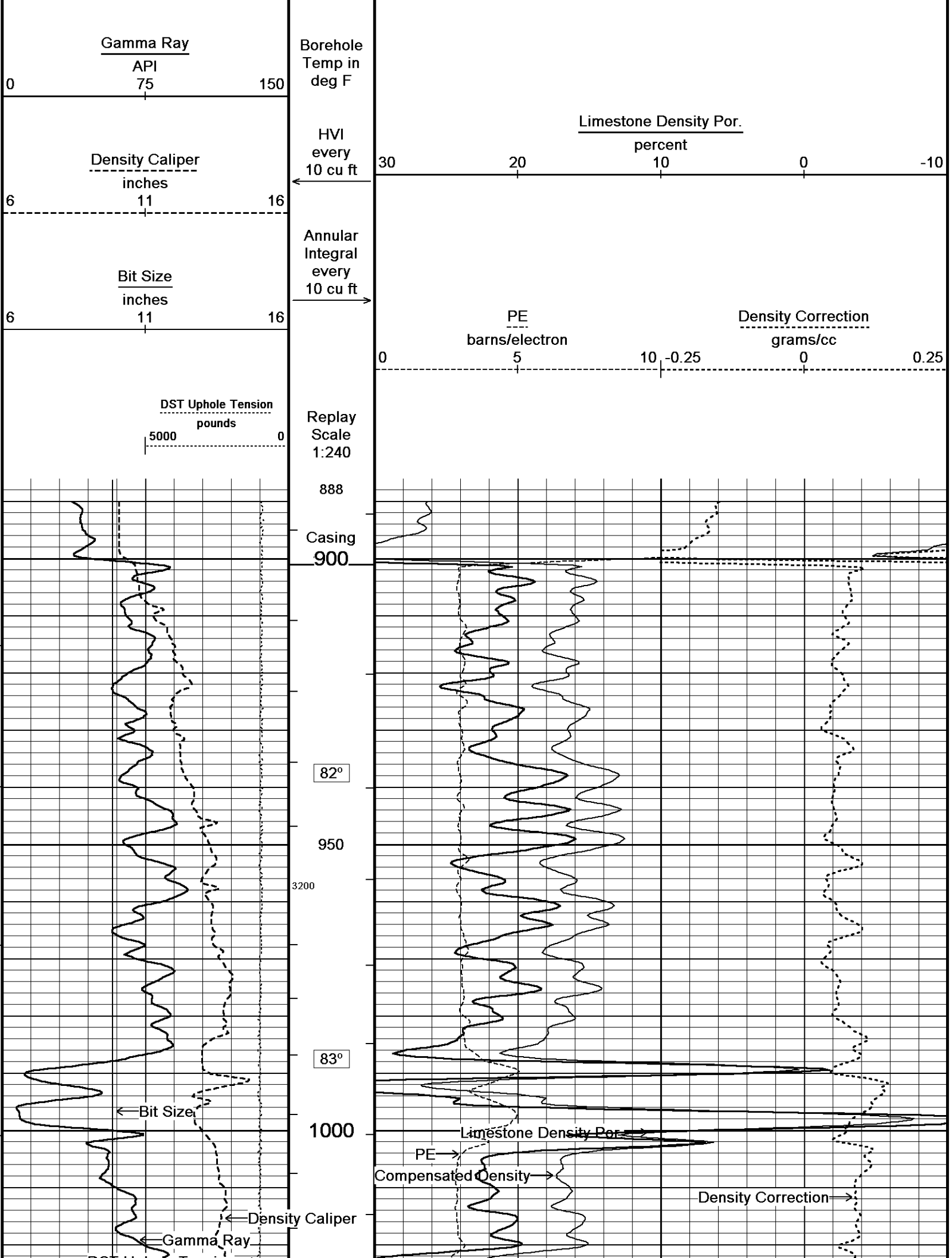


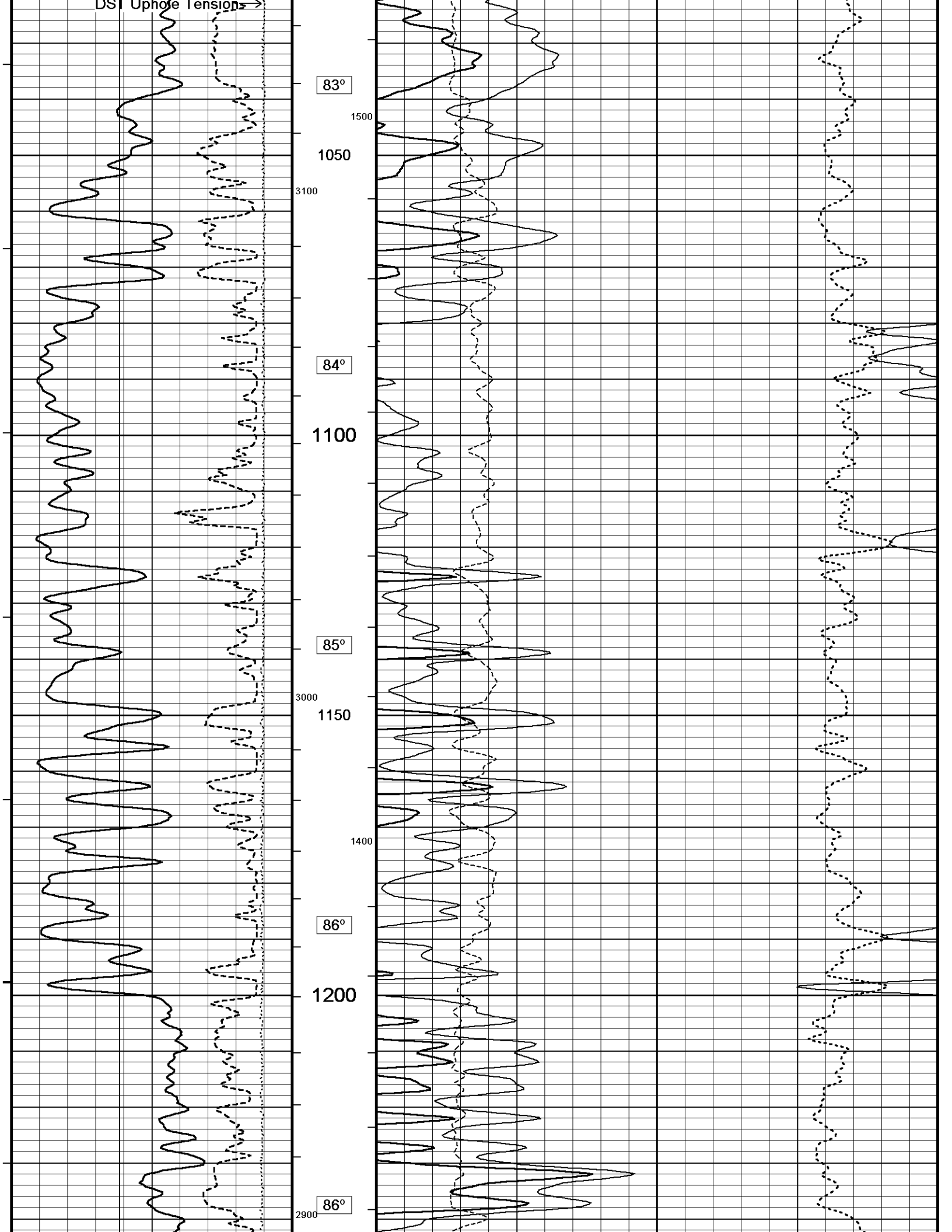
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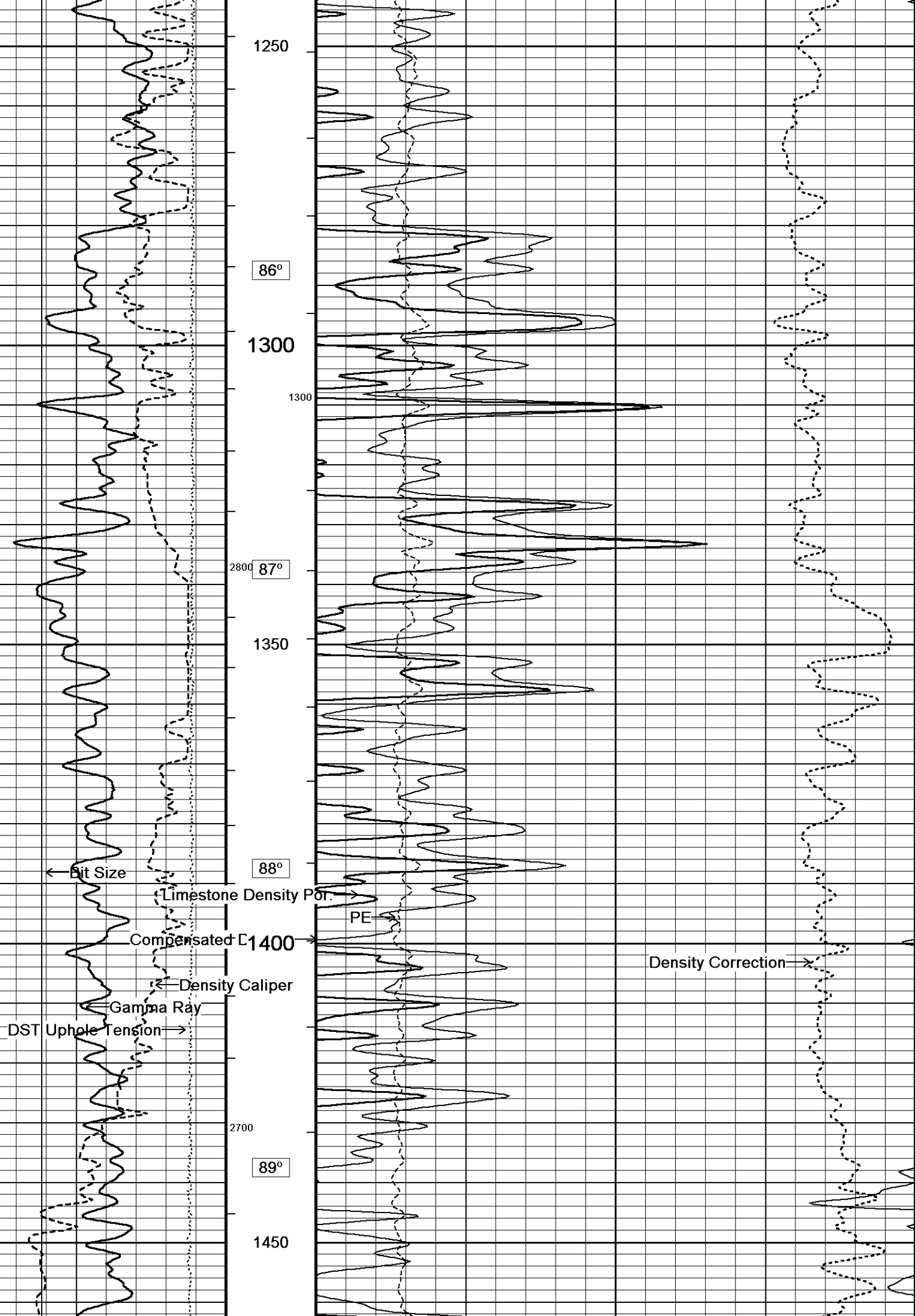
5 INCH REPEAT PASS

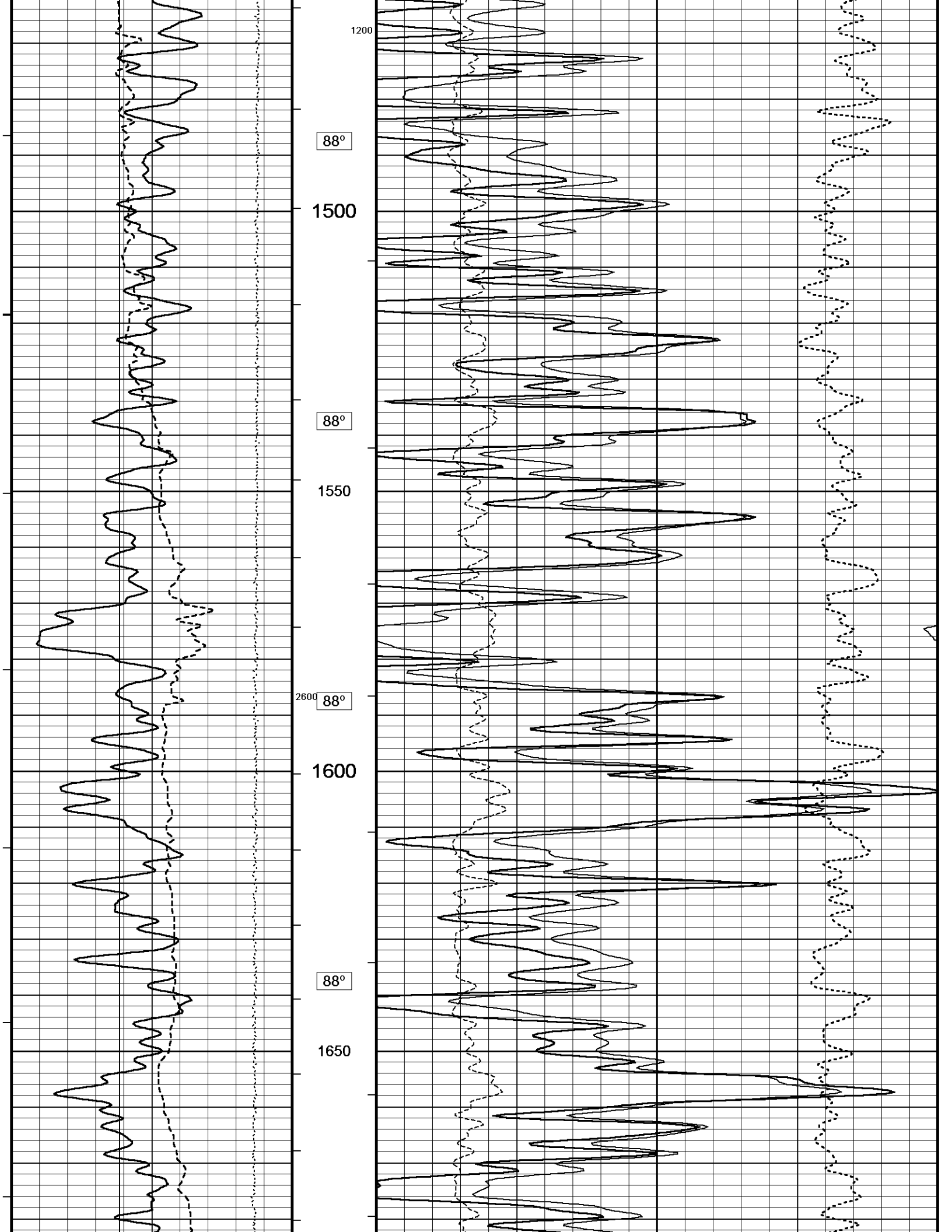
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System Versions: Logged with 11.03.4044 Plotted with 11.03.4044

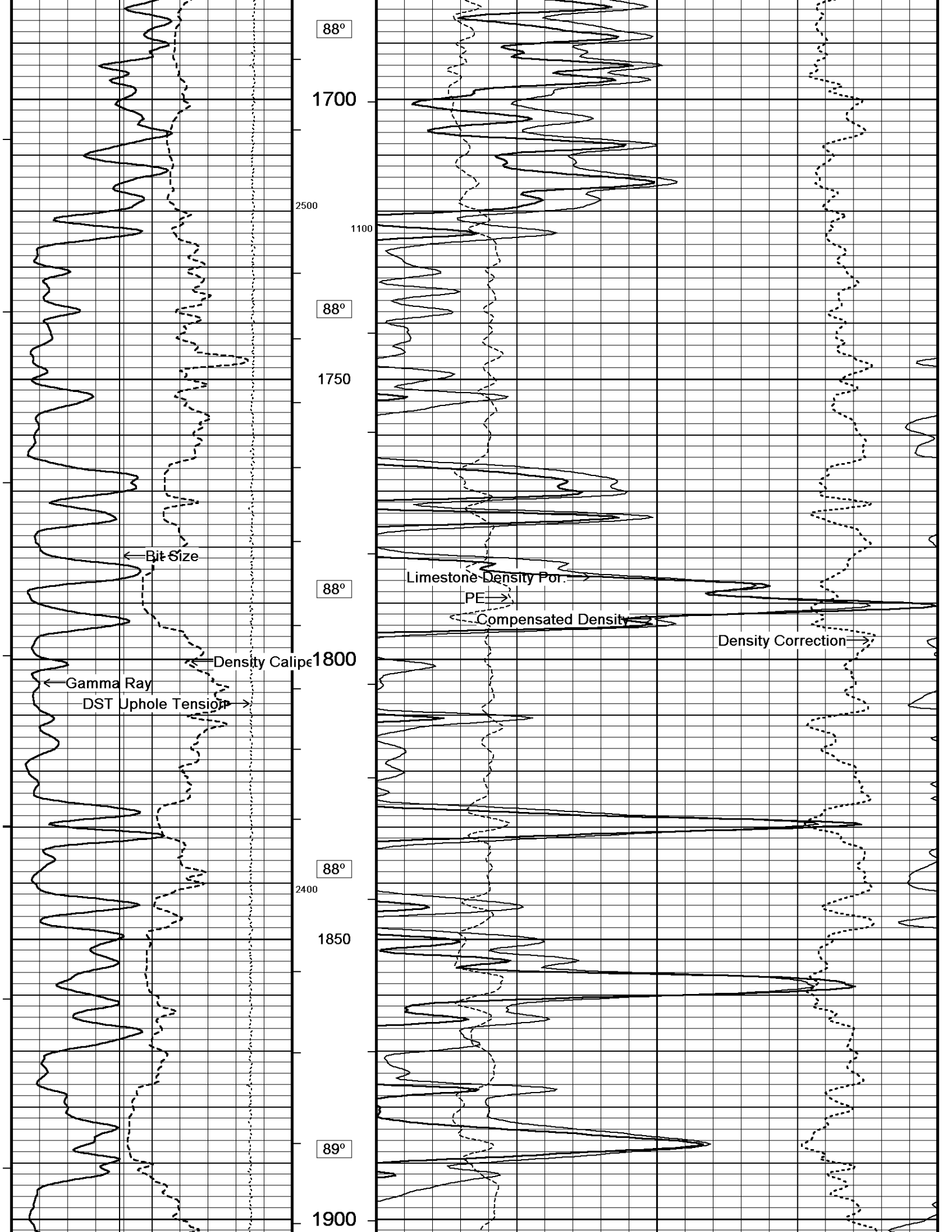


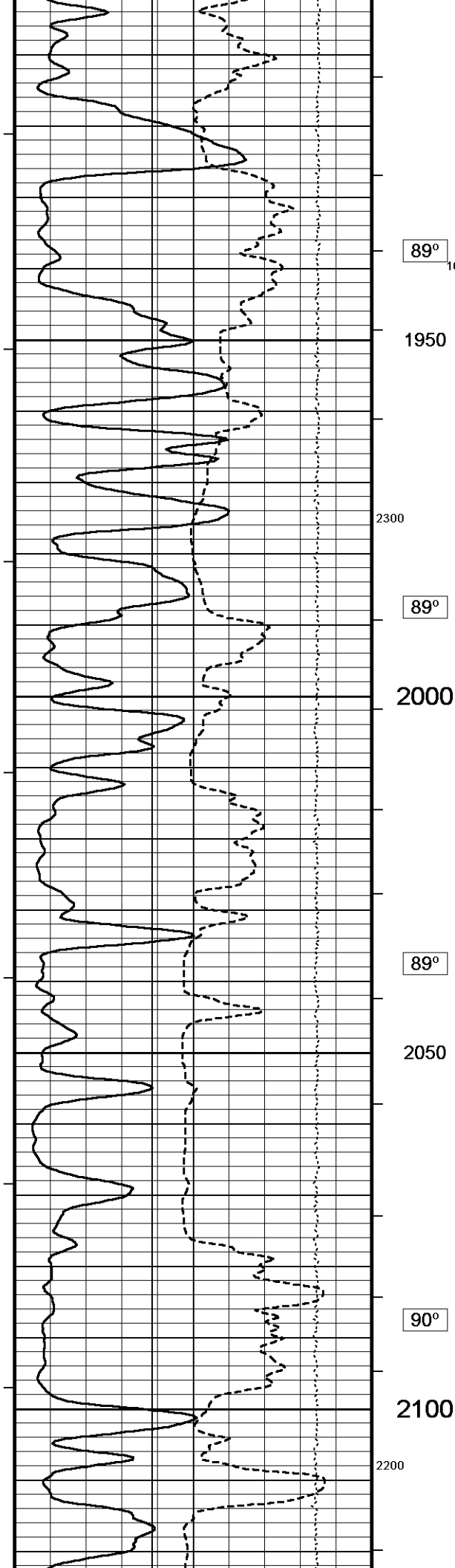












89°  
1000

1950

2300

89°

2000

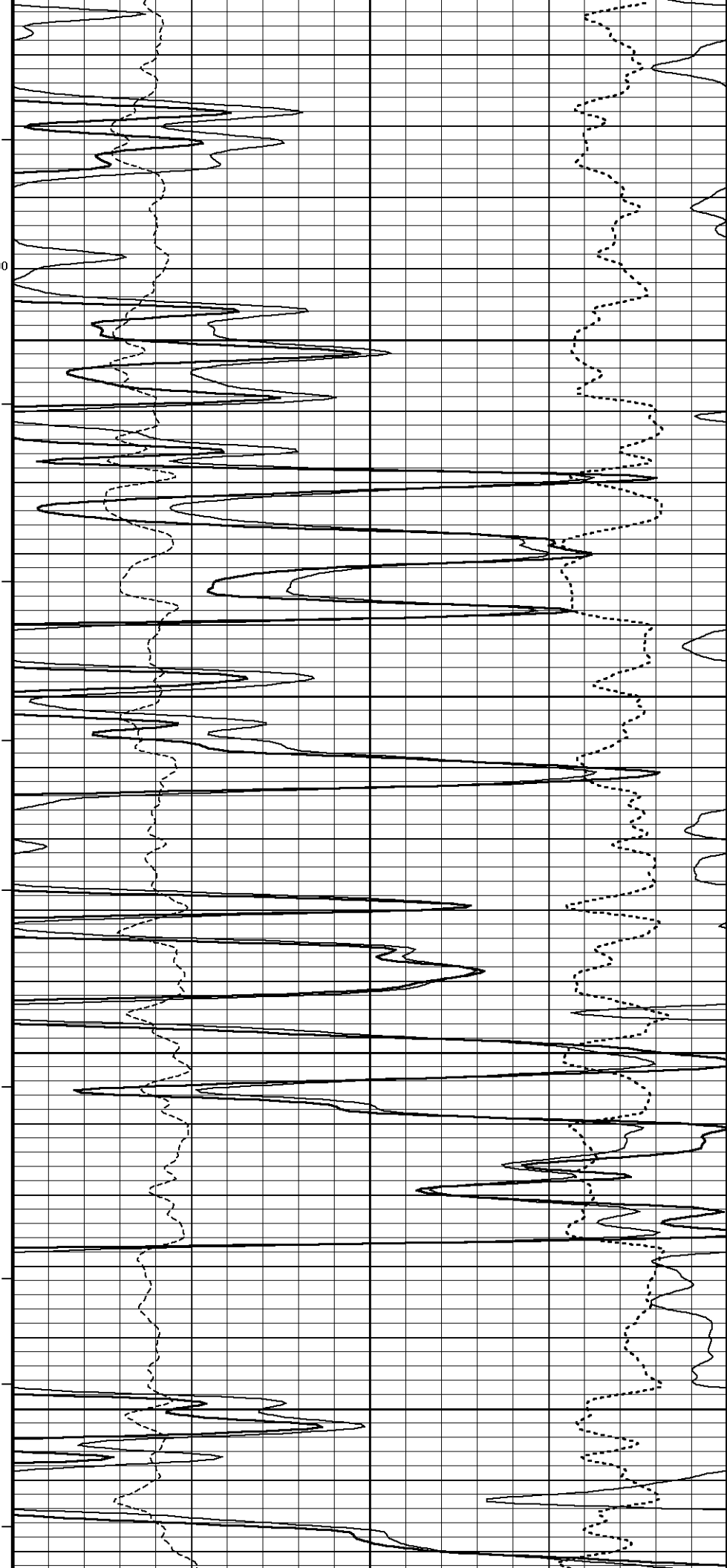
89°

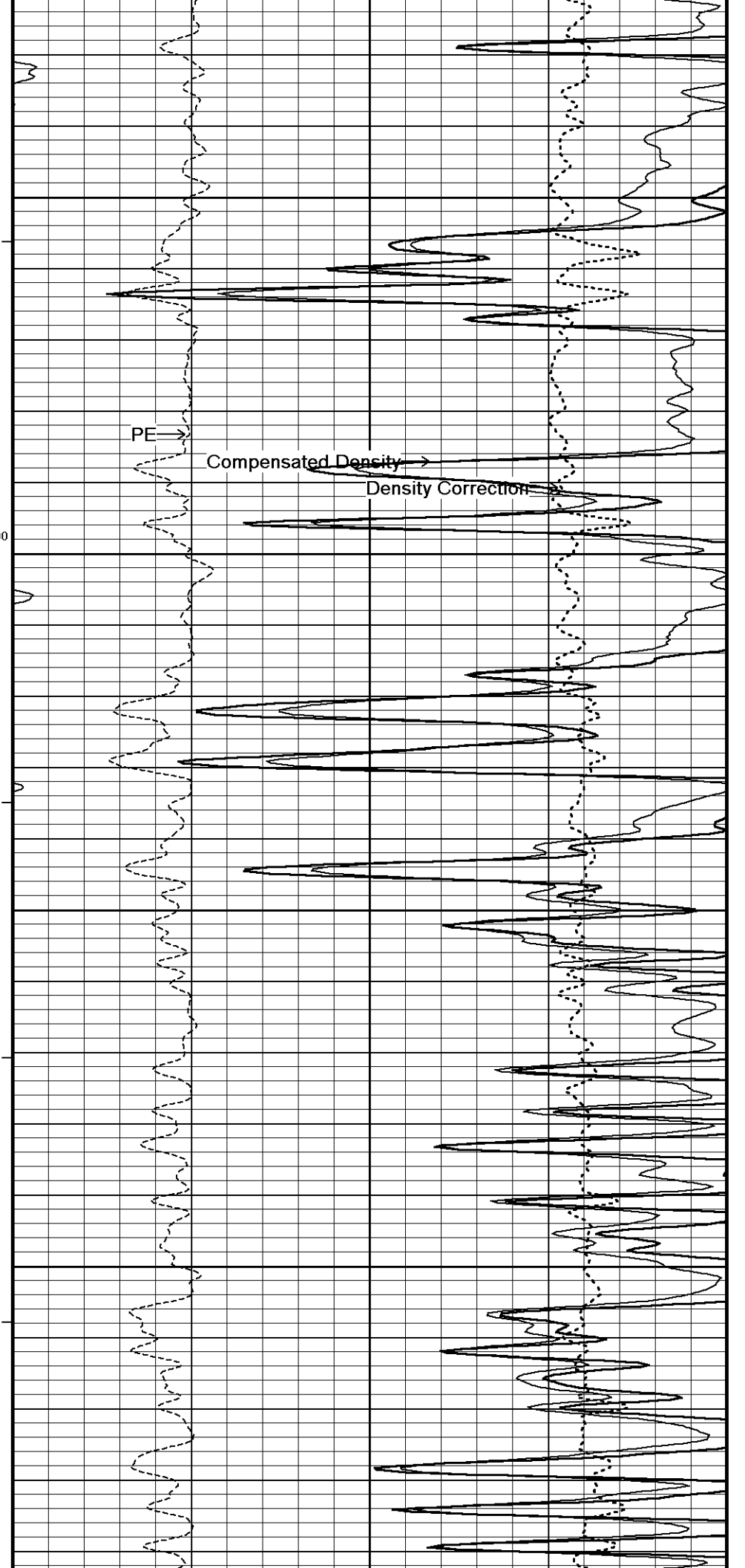
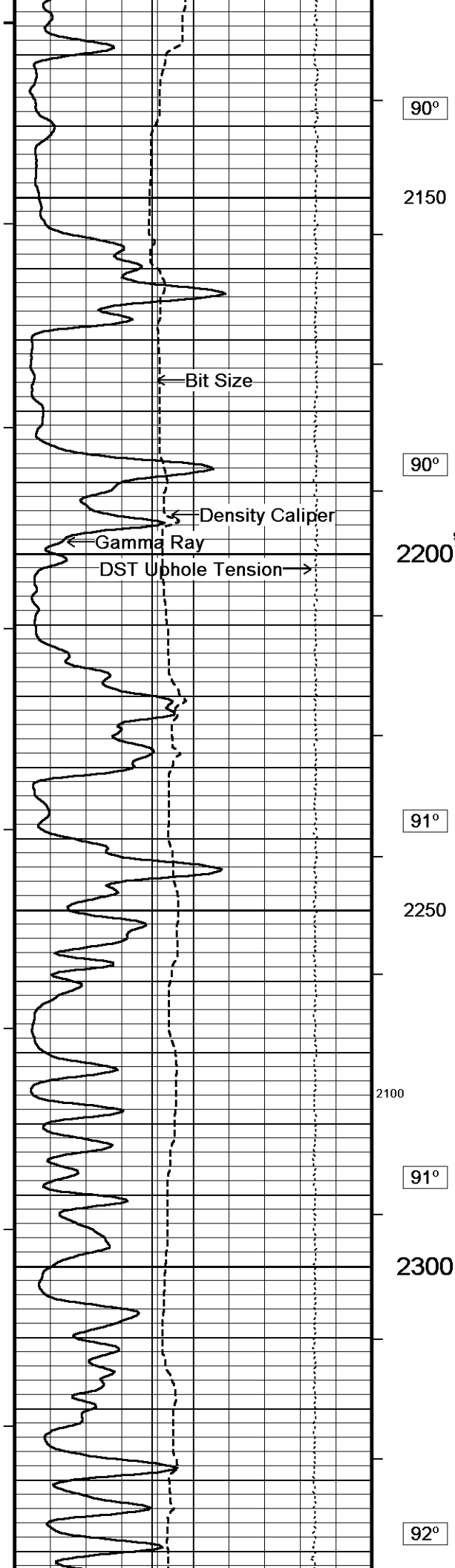
2050

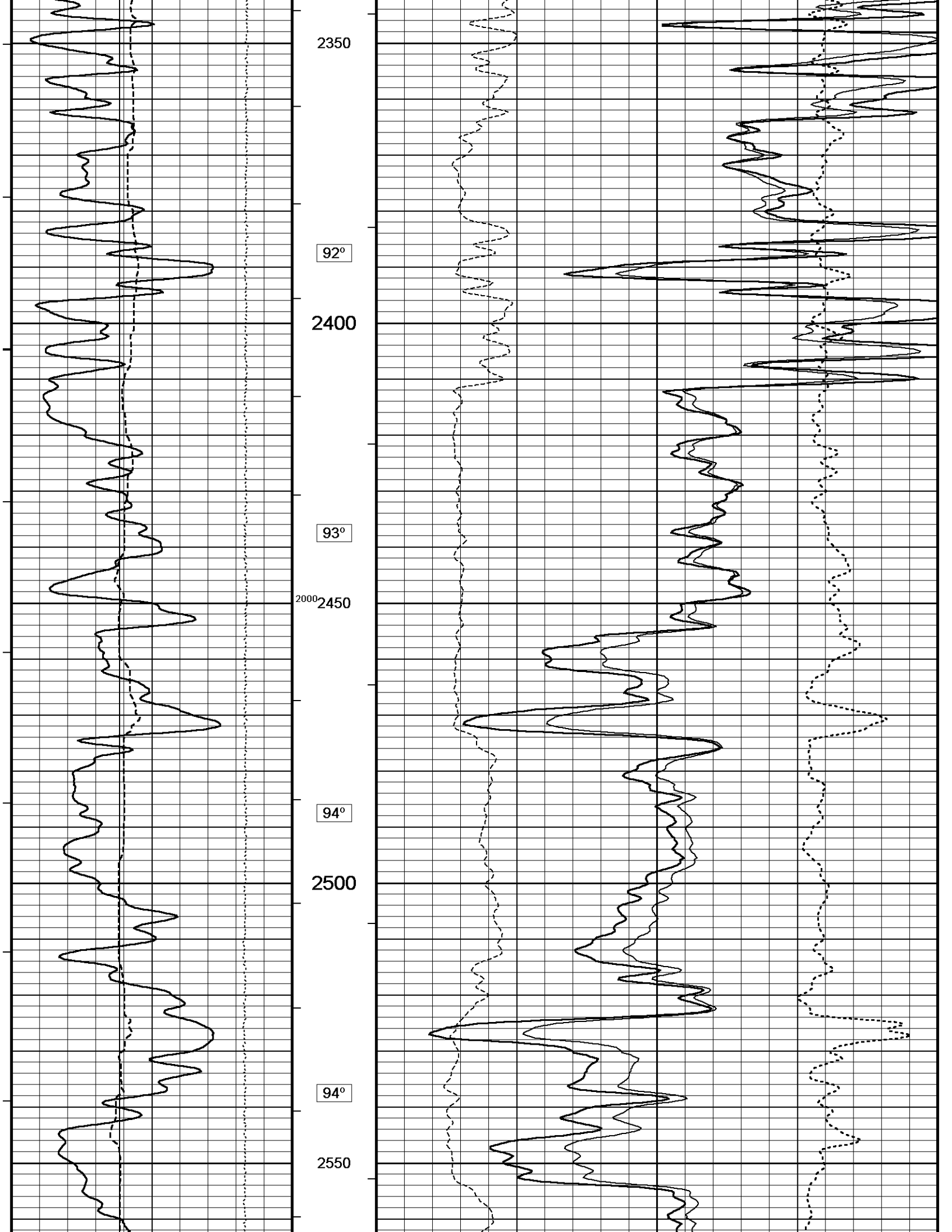
90°

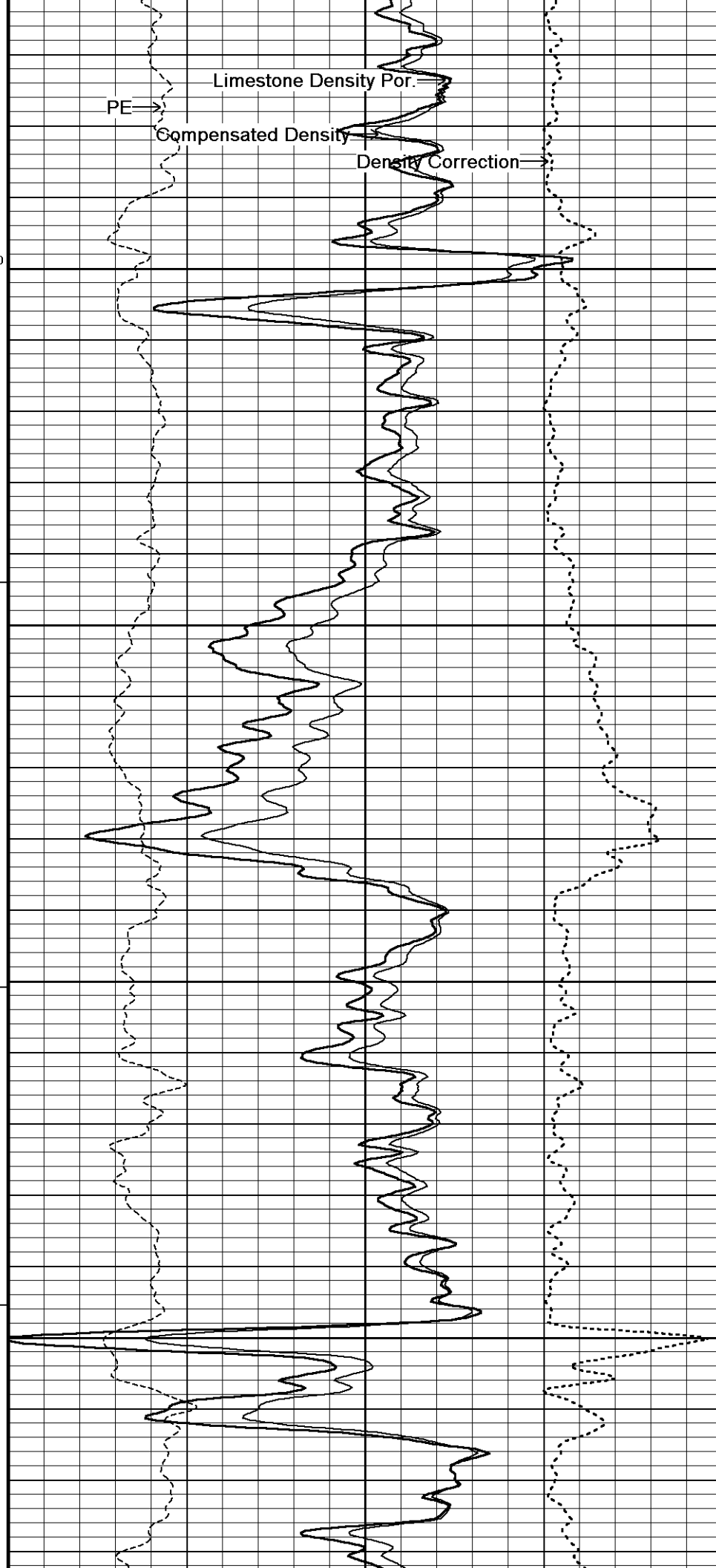
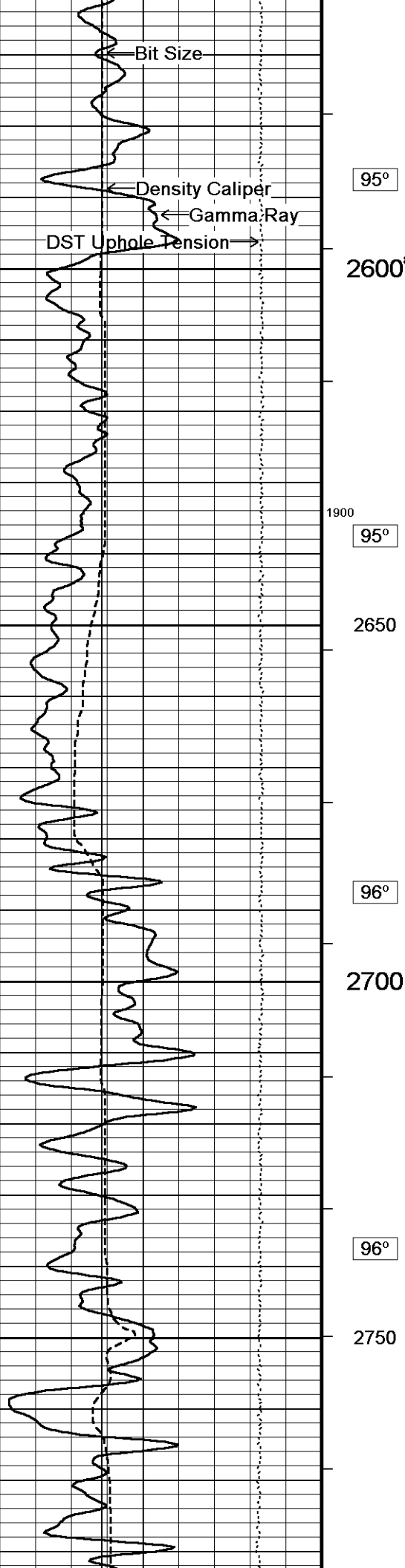
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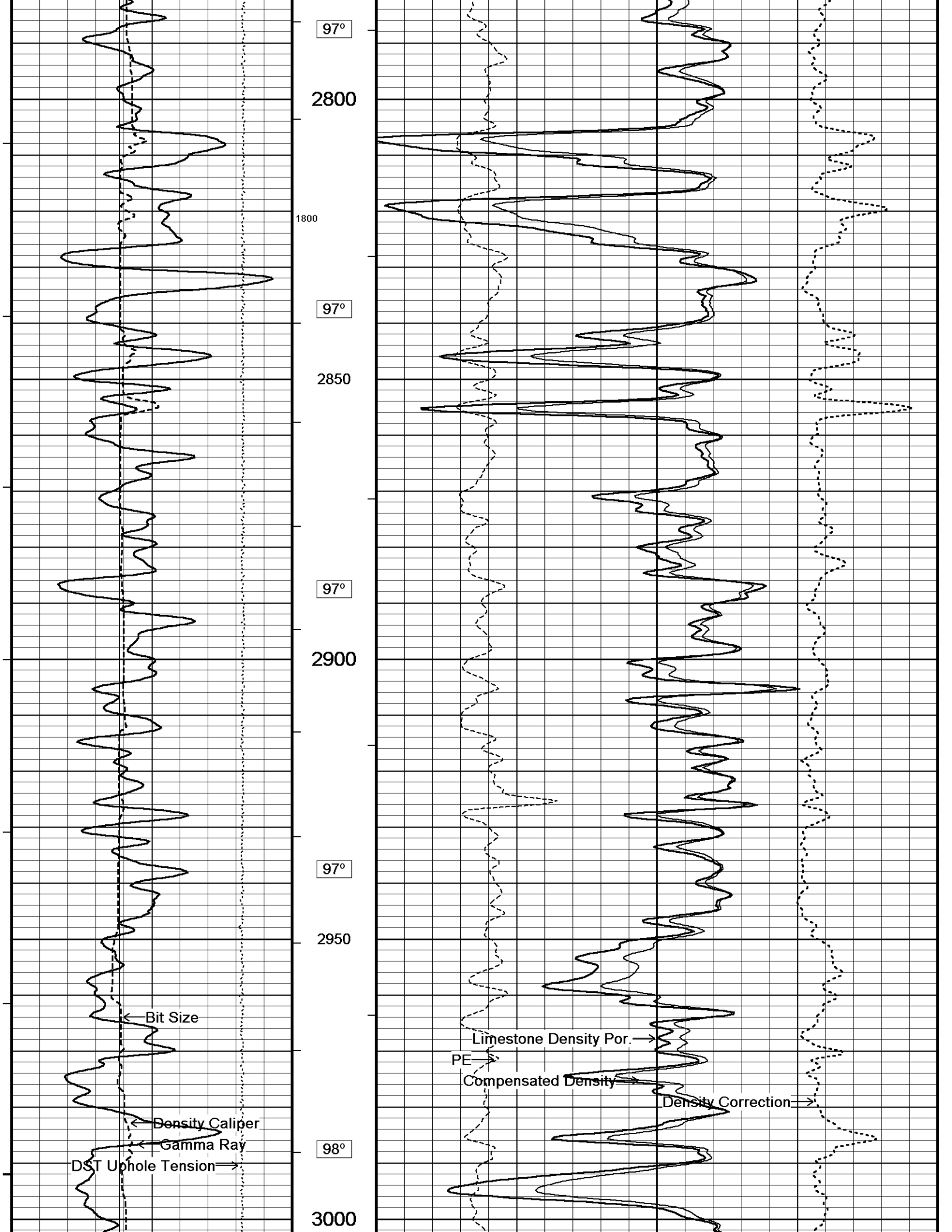
2200

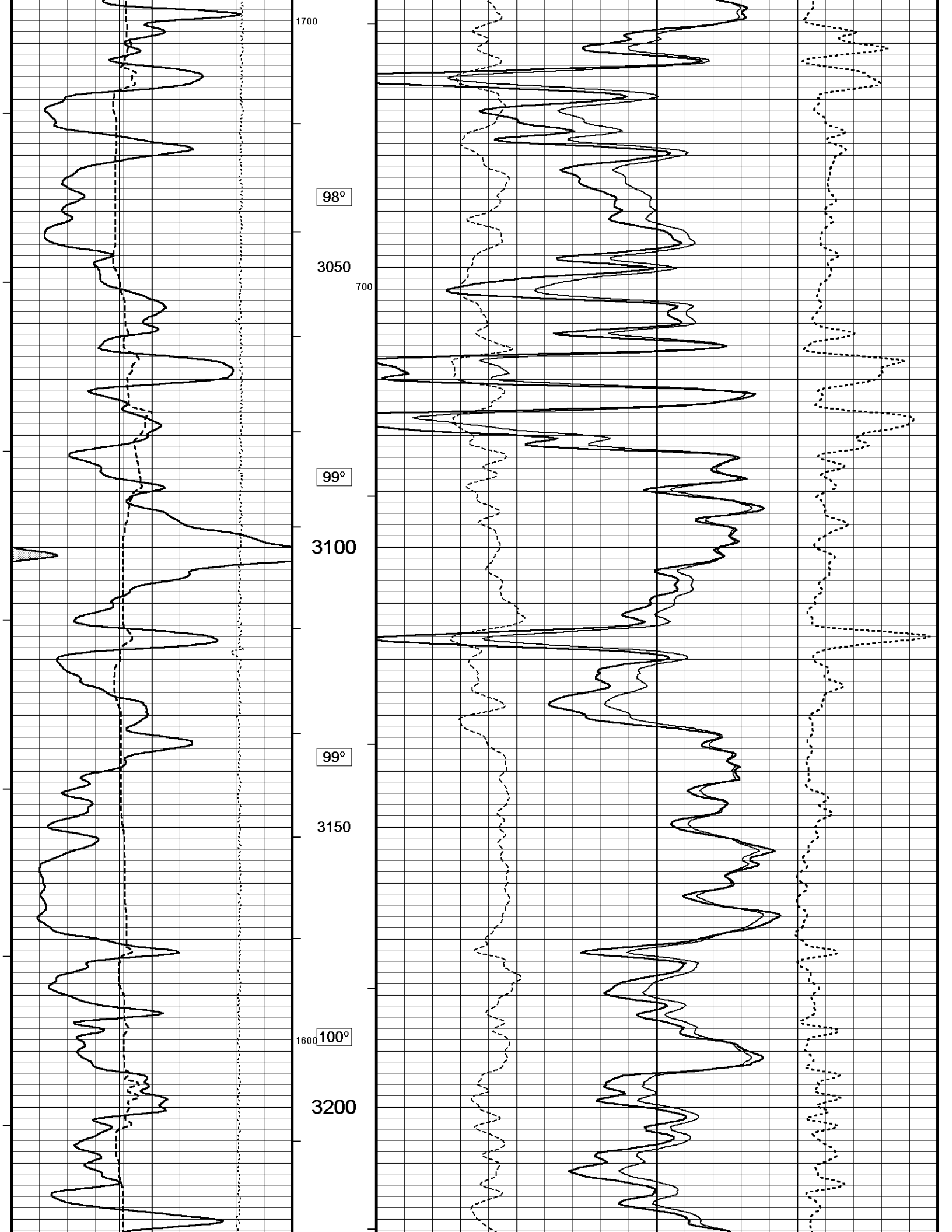


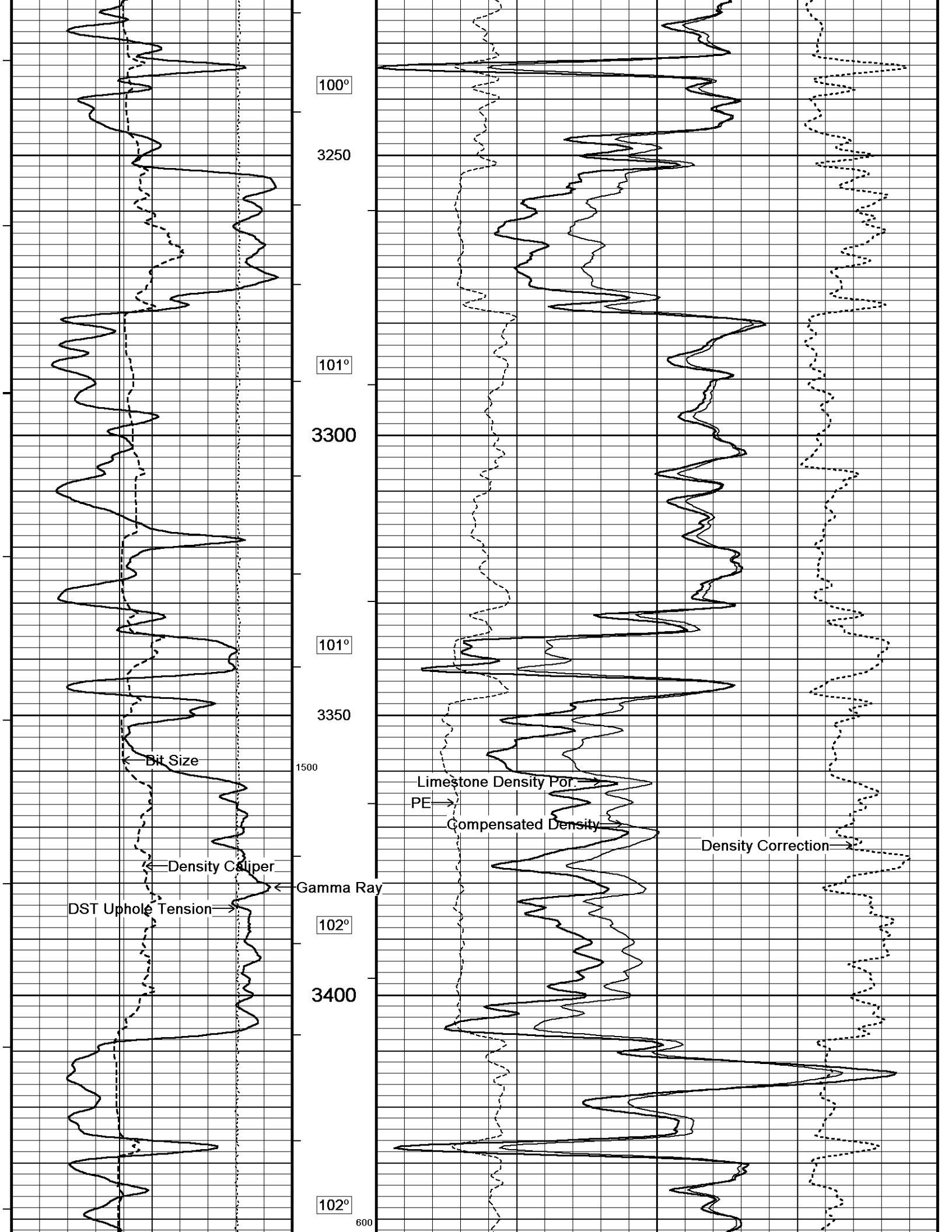


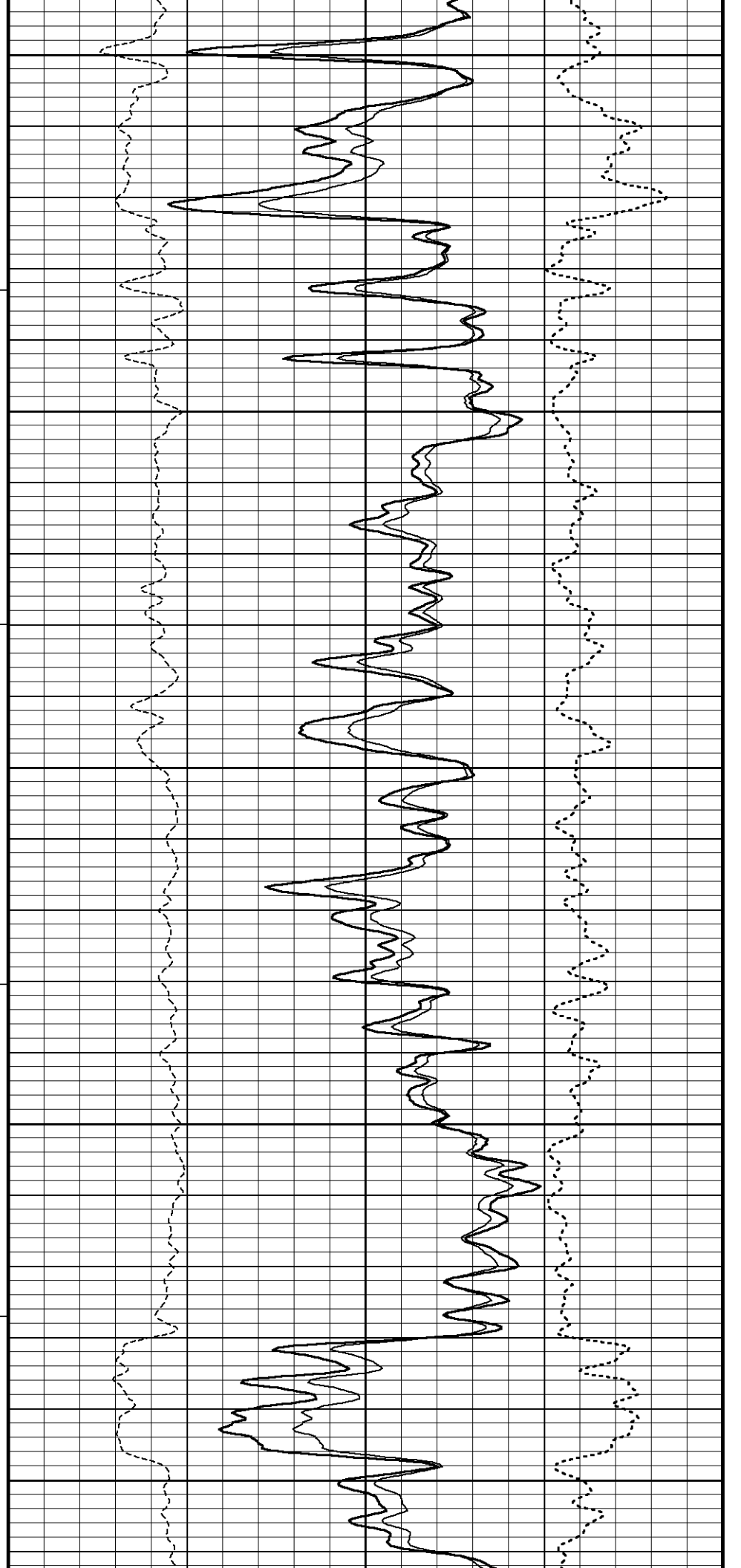
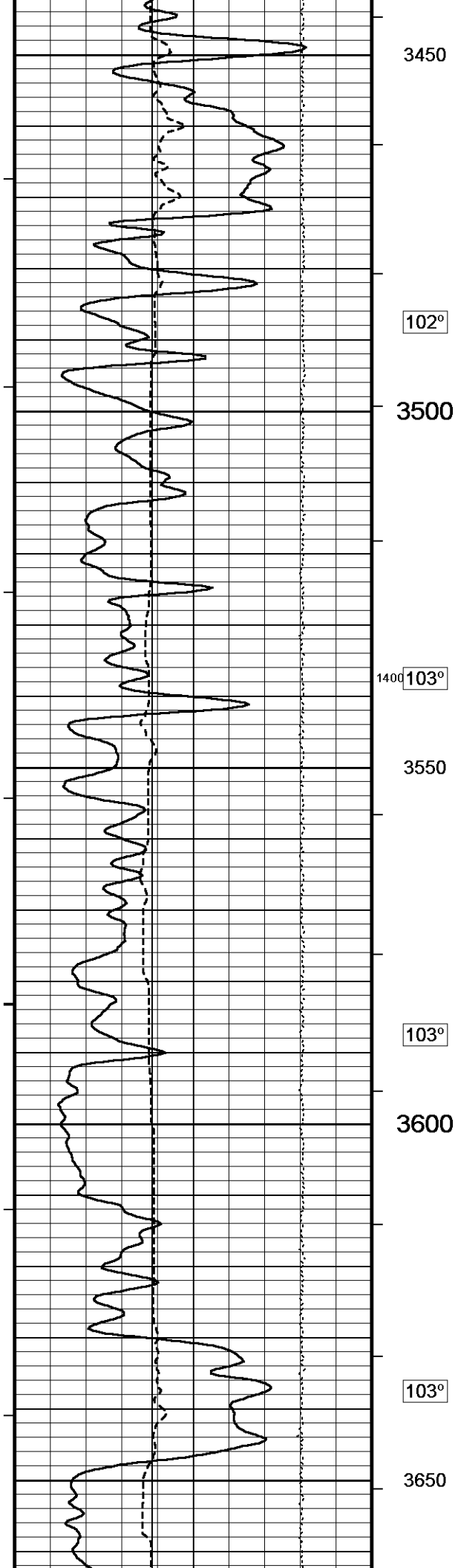


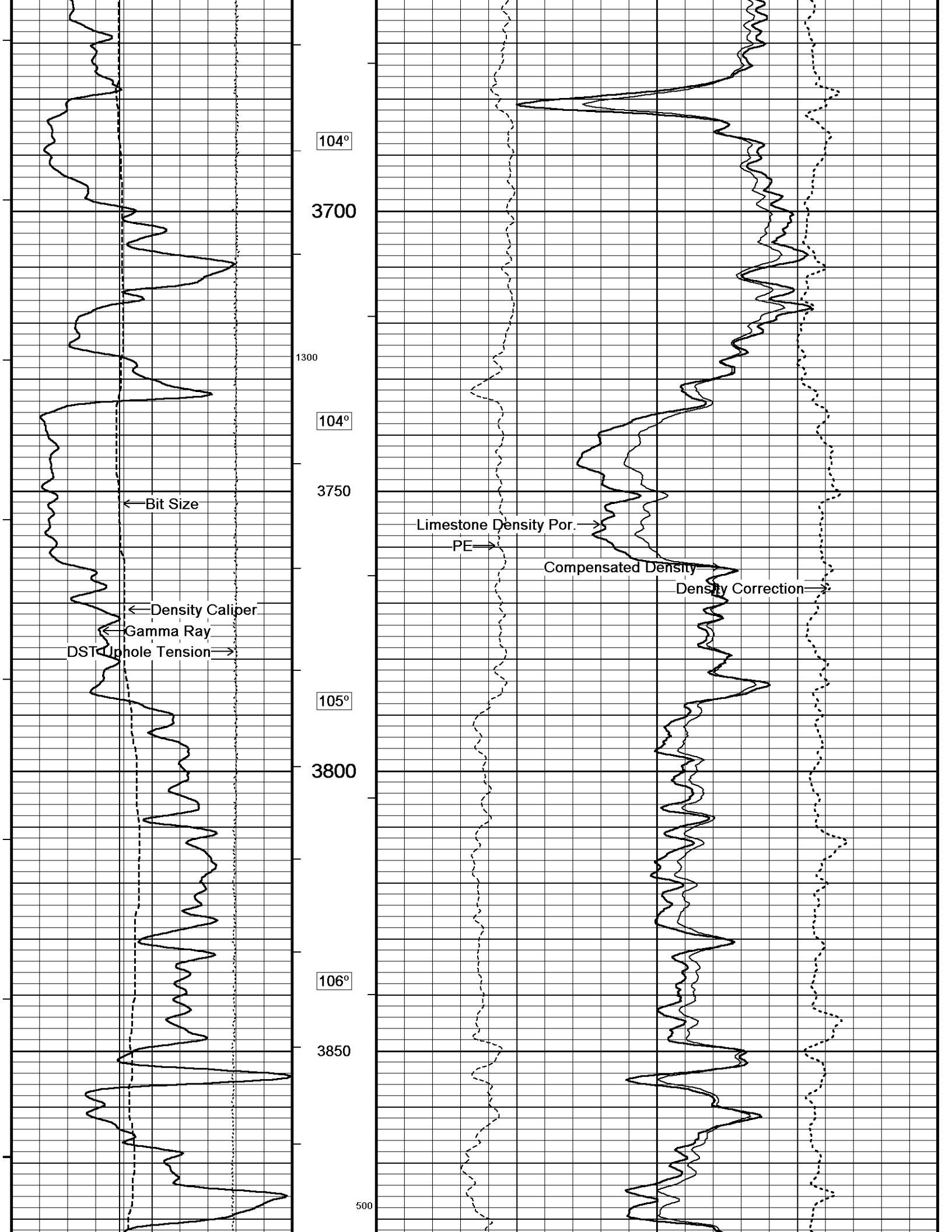


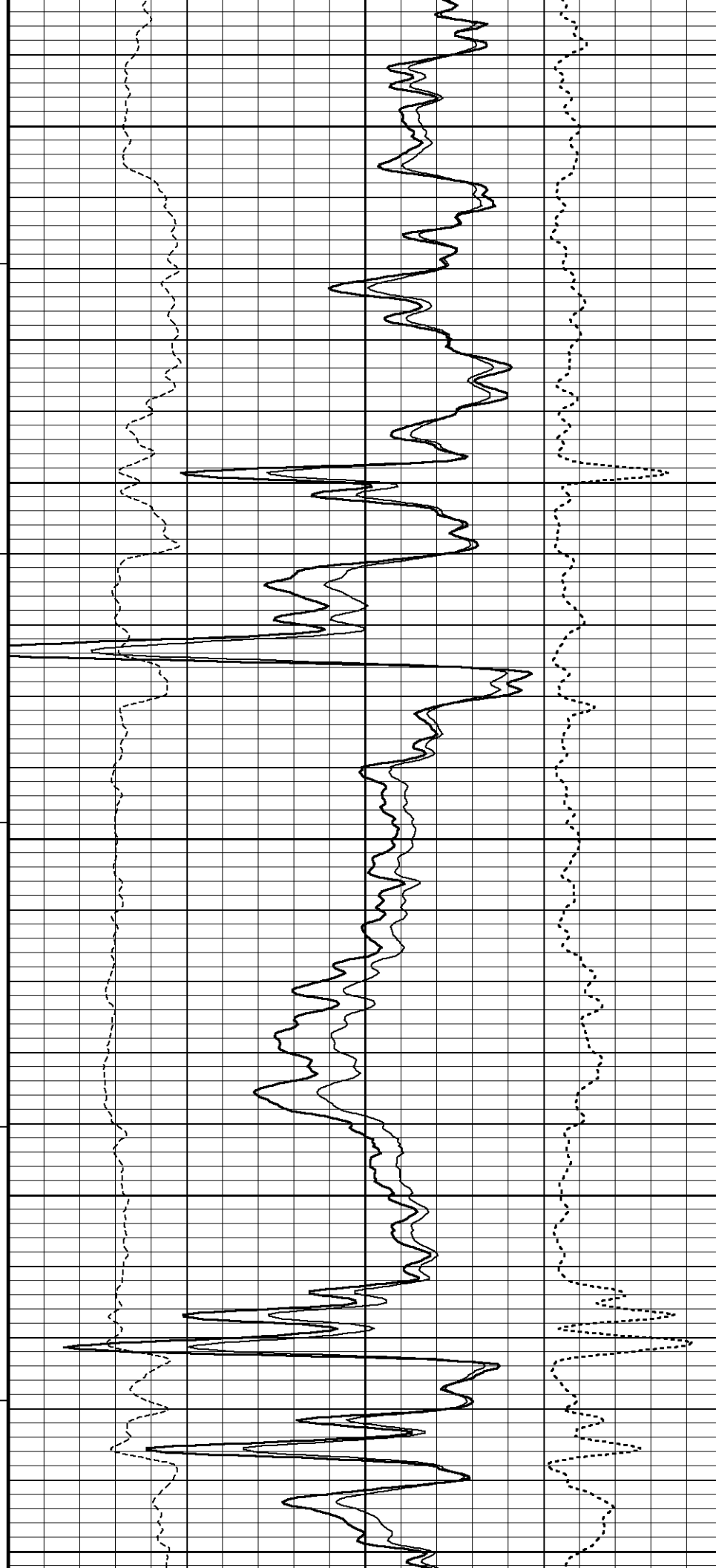
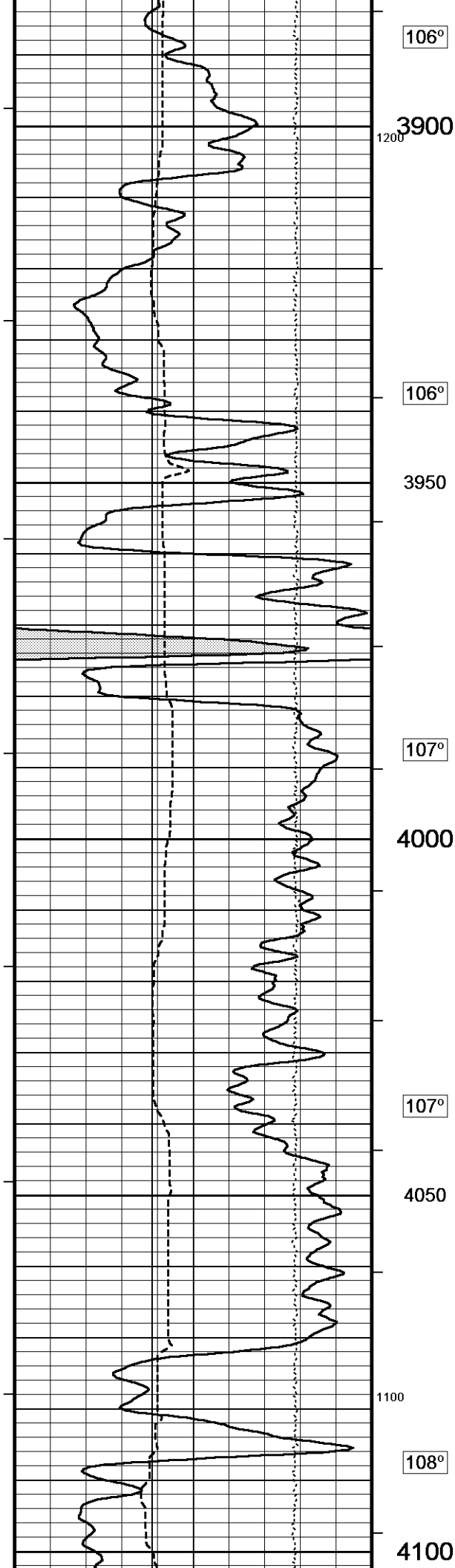


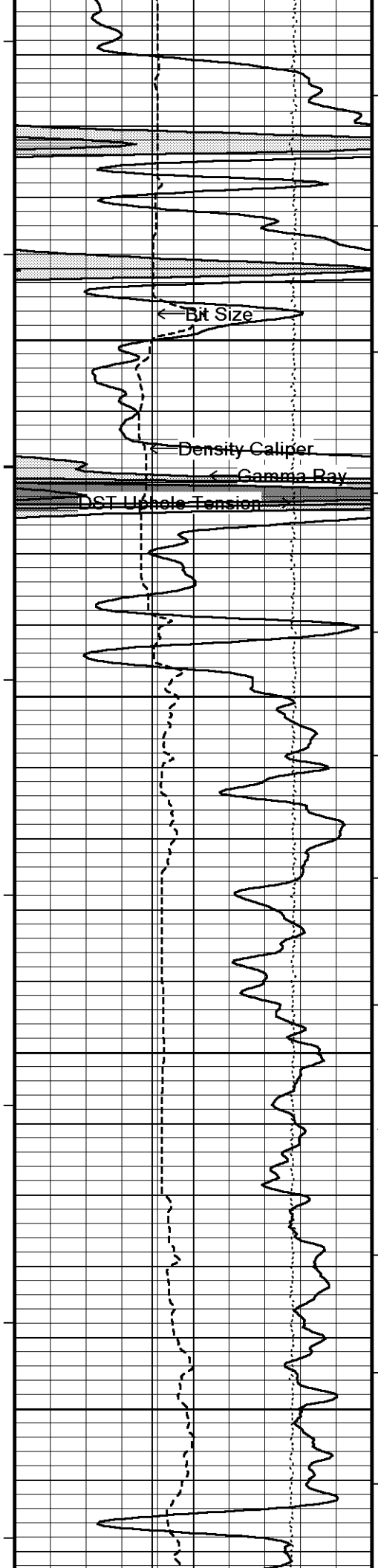












109°

4150

109°

4200

109°

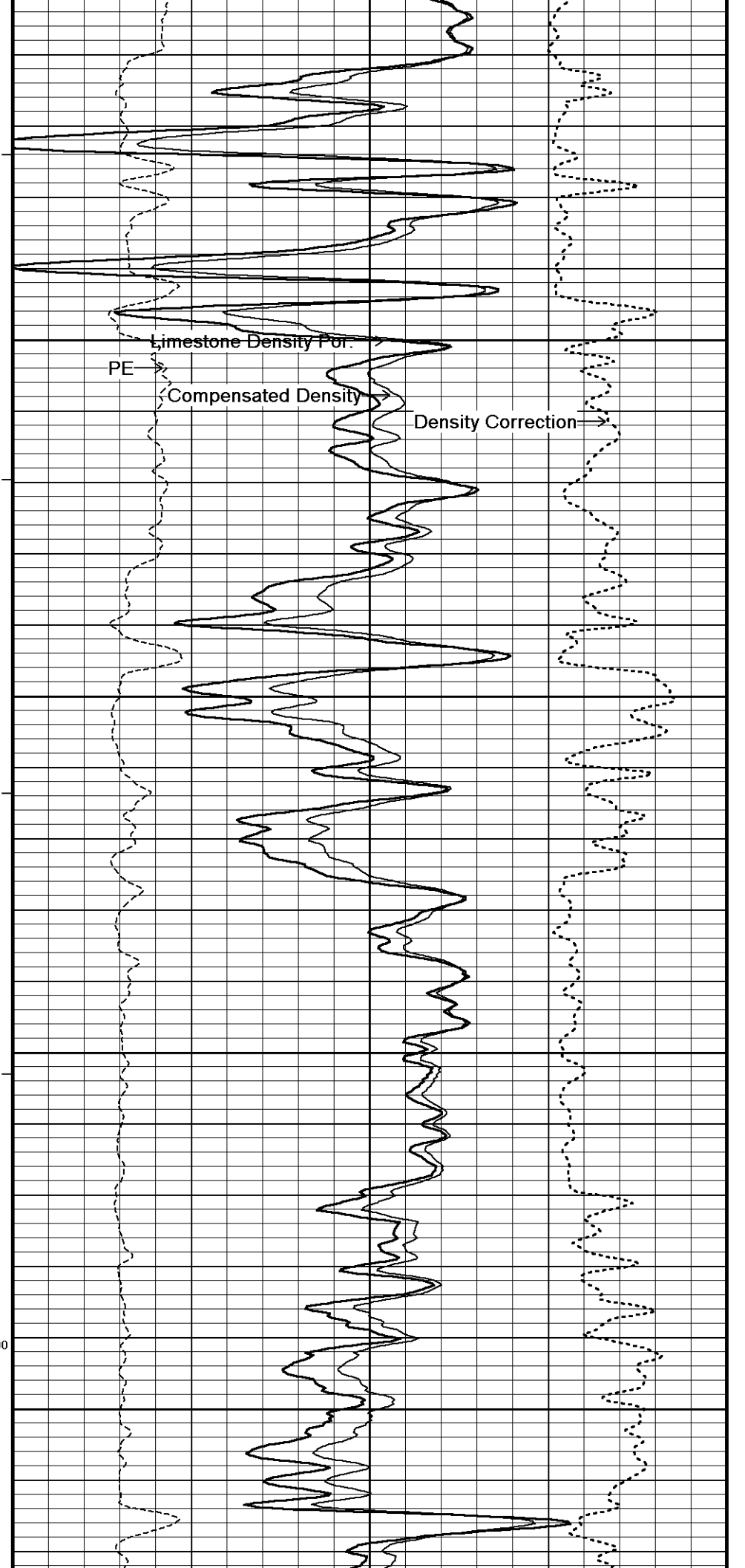
4250

1000

110°

400

4300

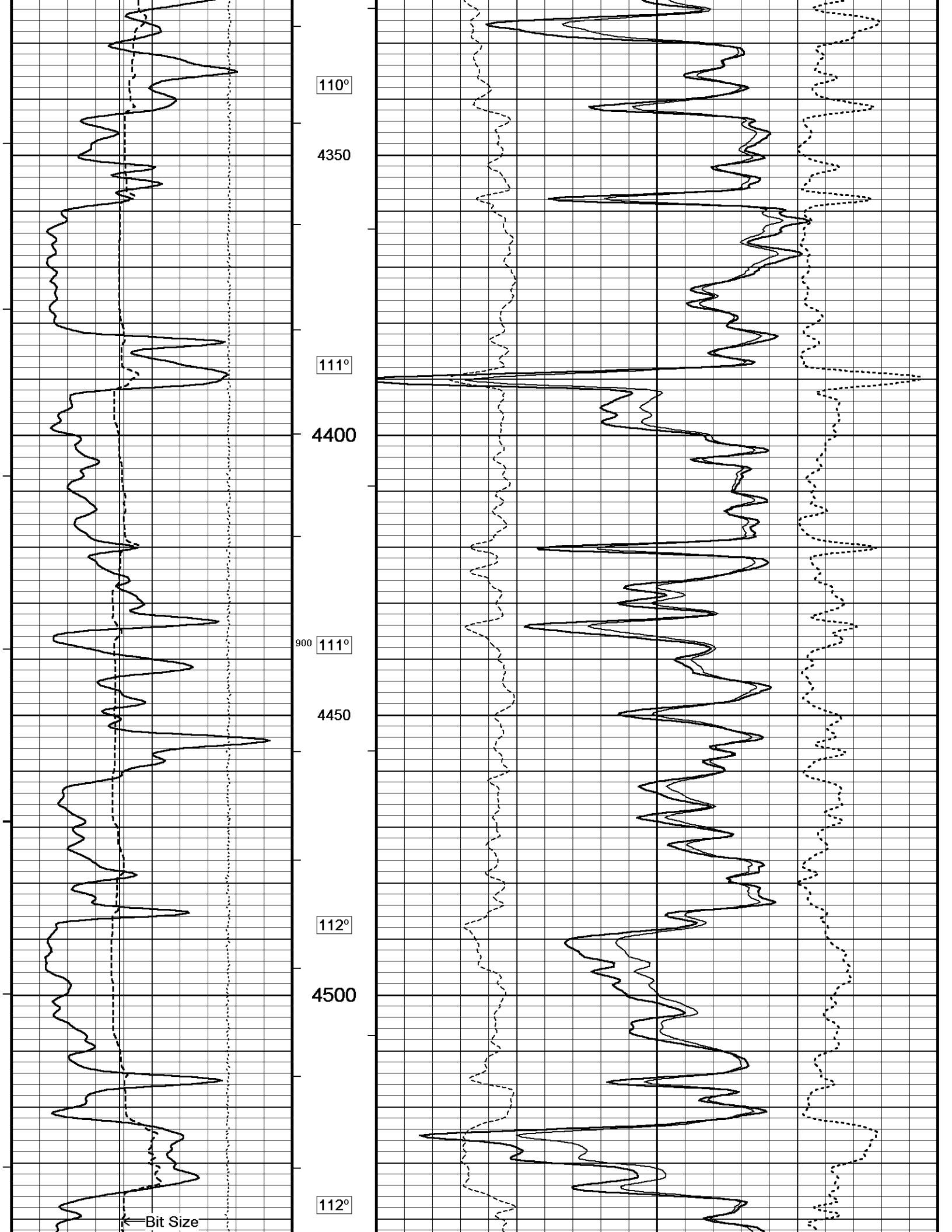


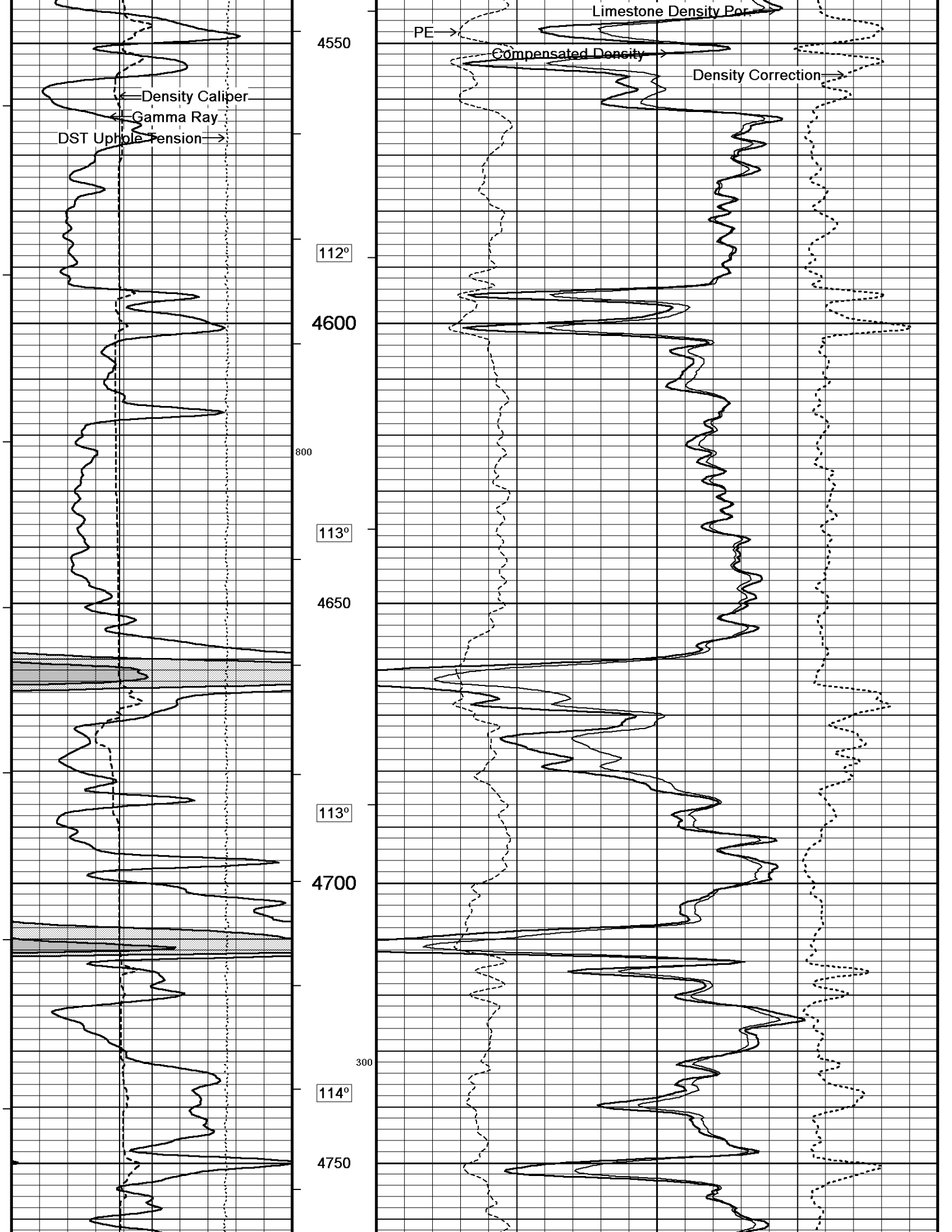
Limestone Density Por

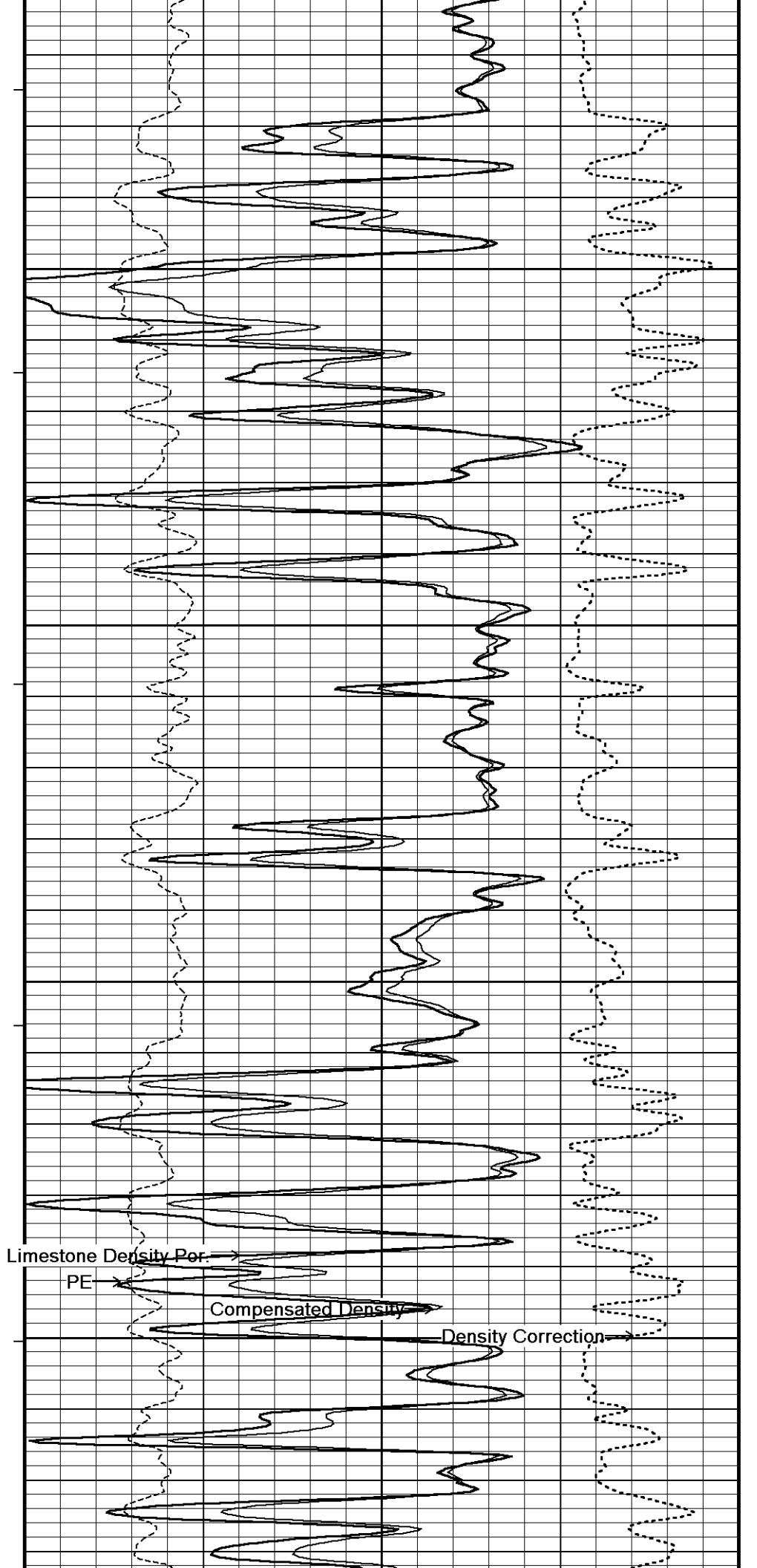
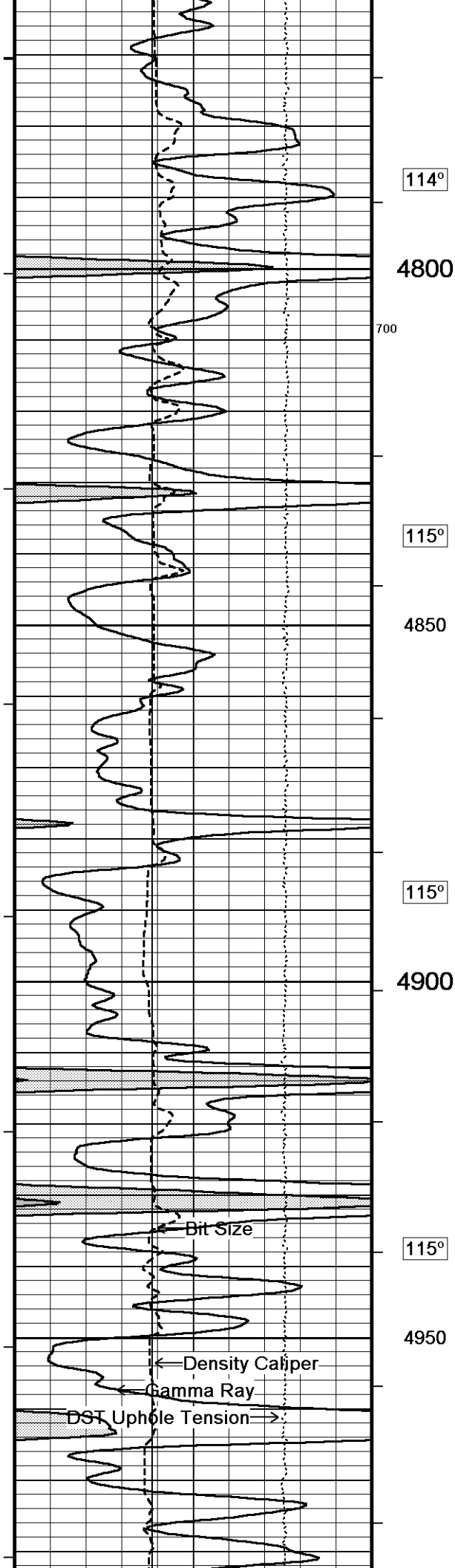
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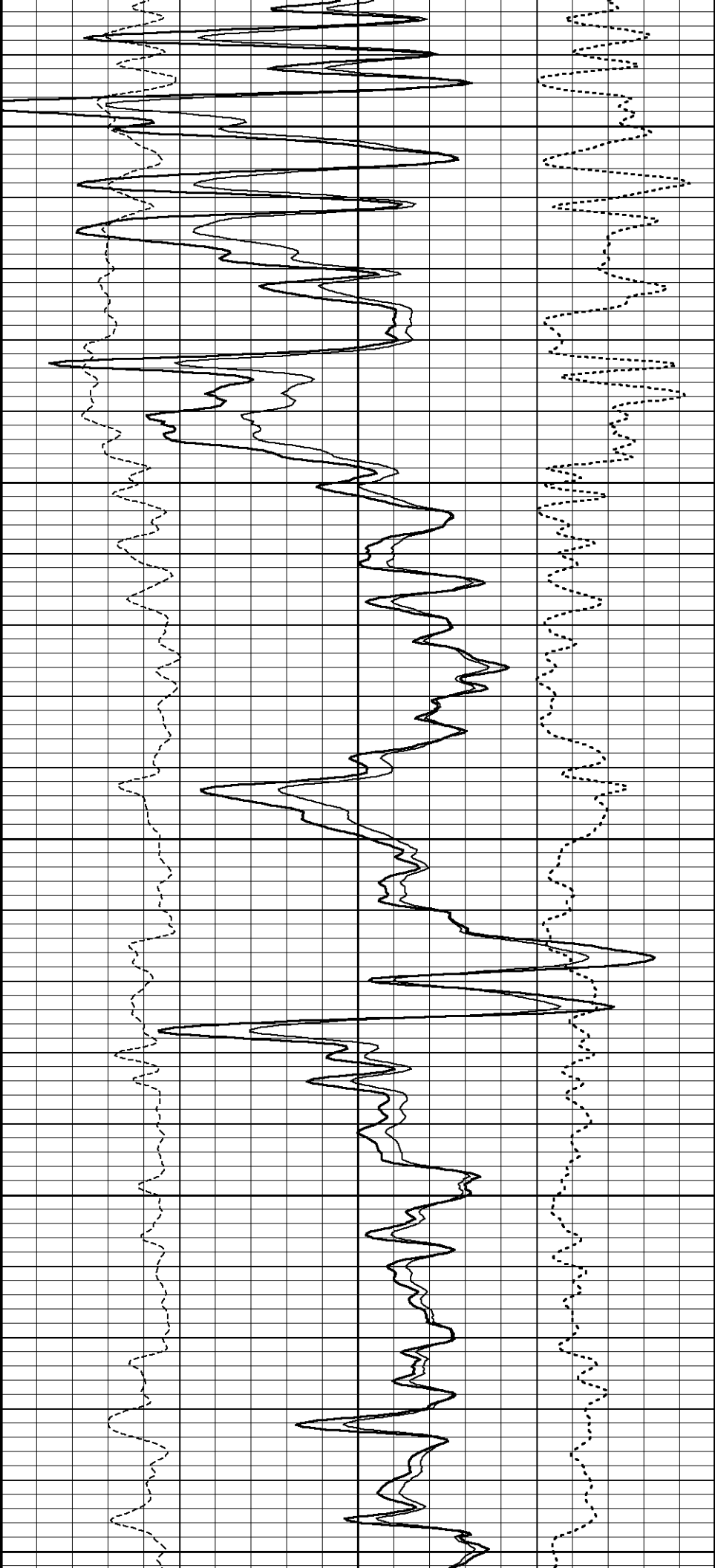
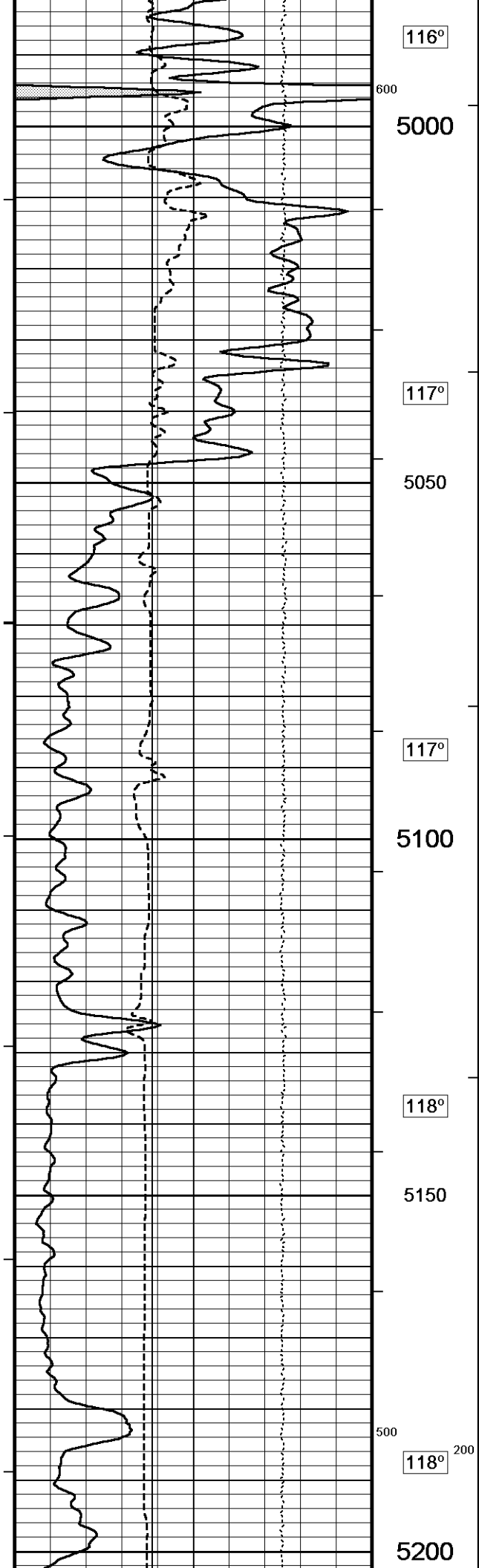
Compensated Density

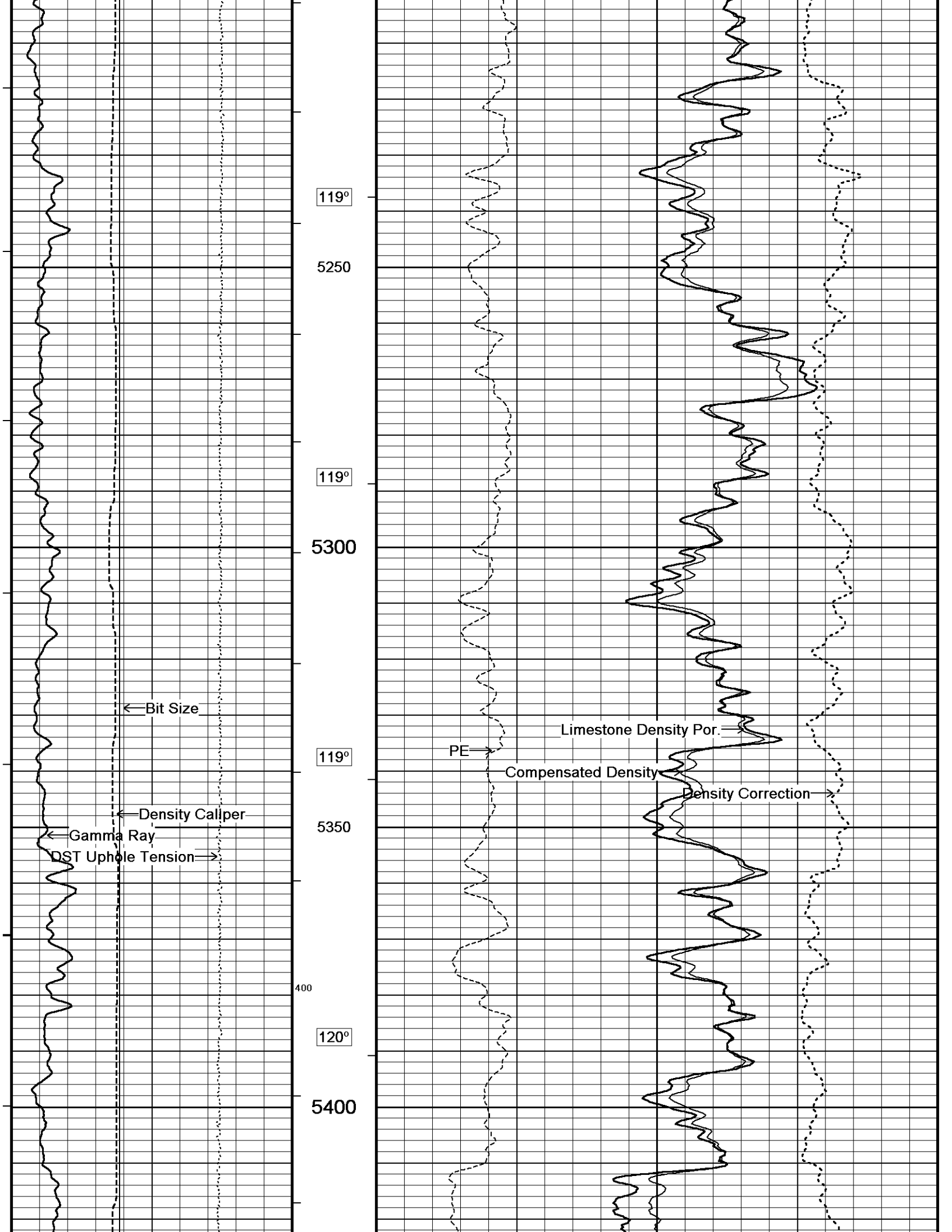
Density Correction

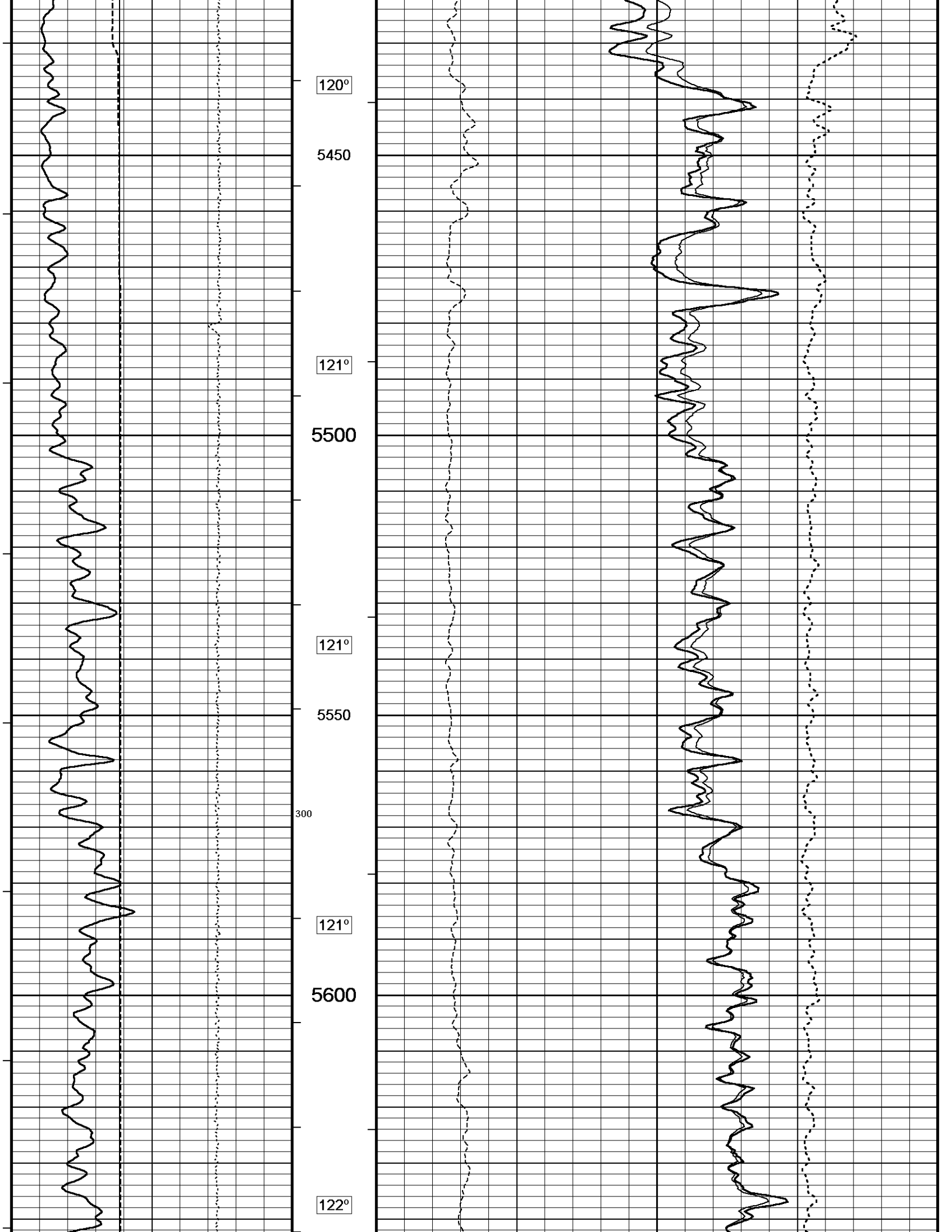


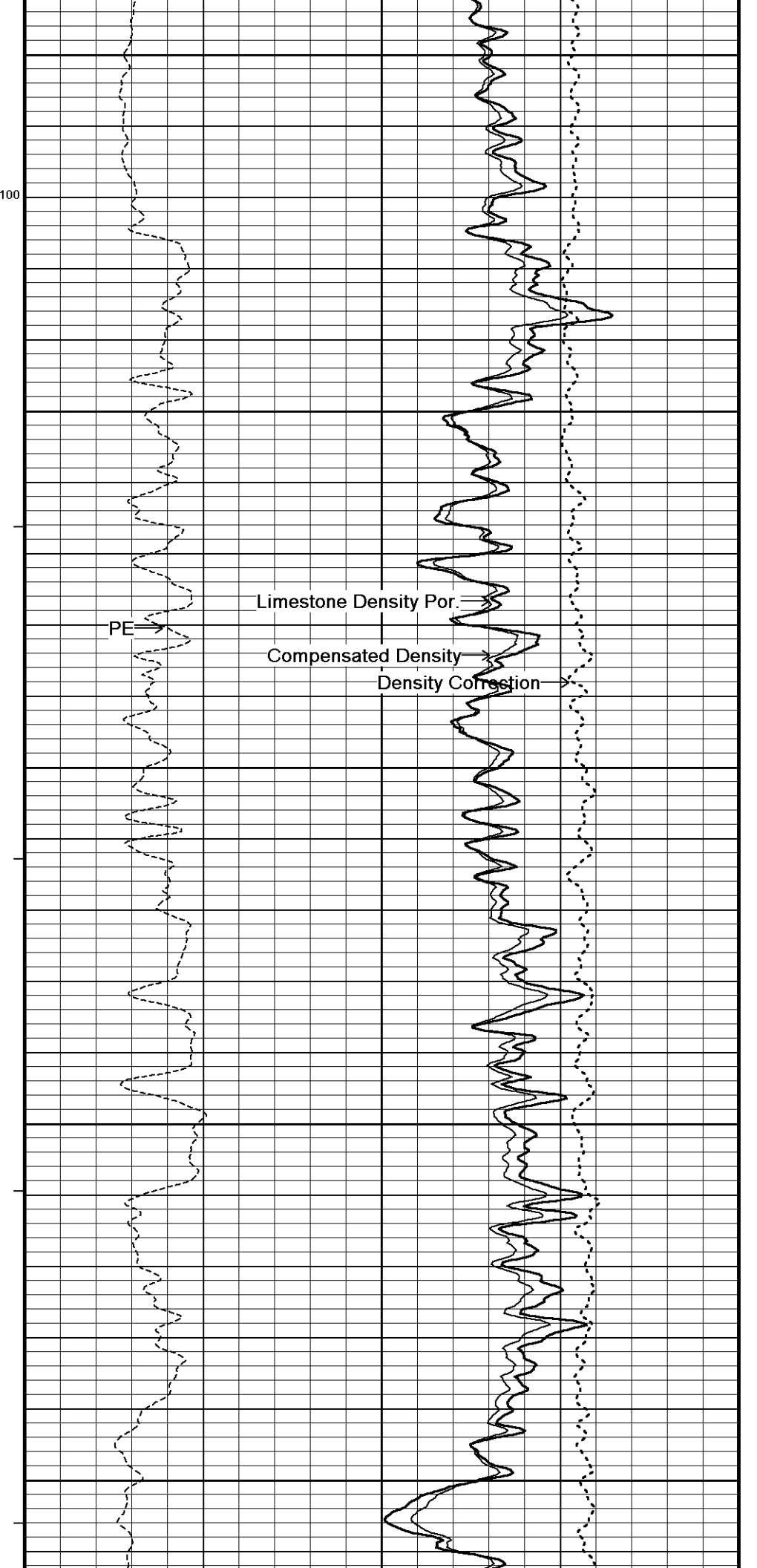
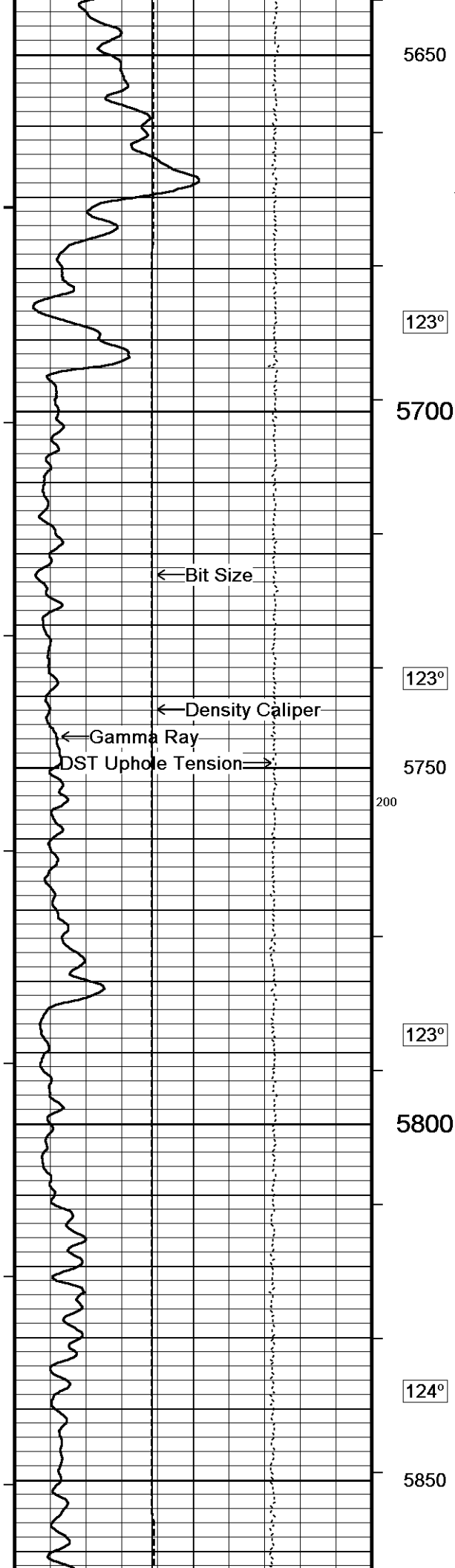


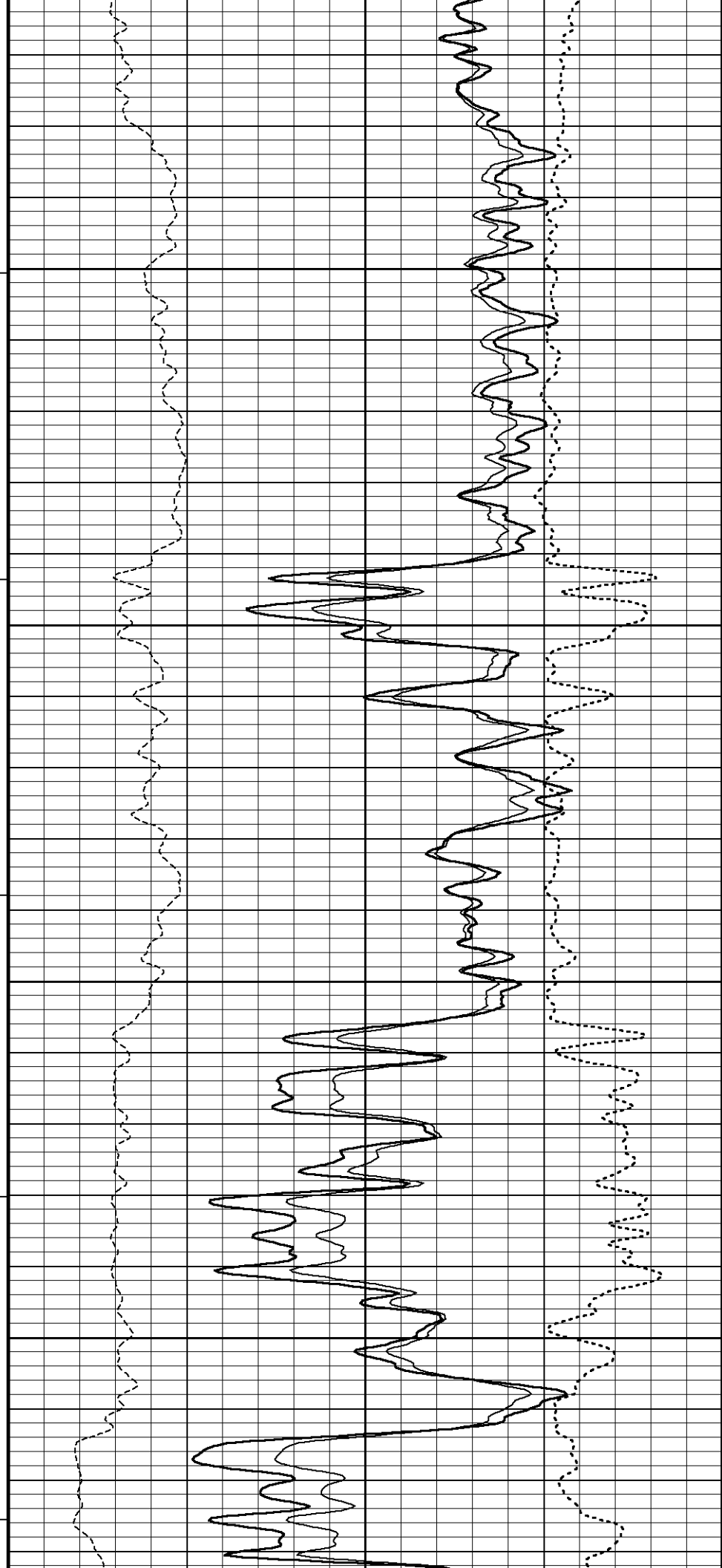
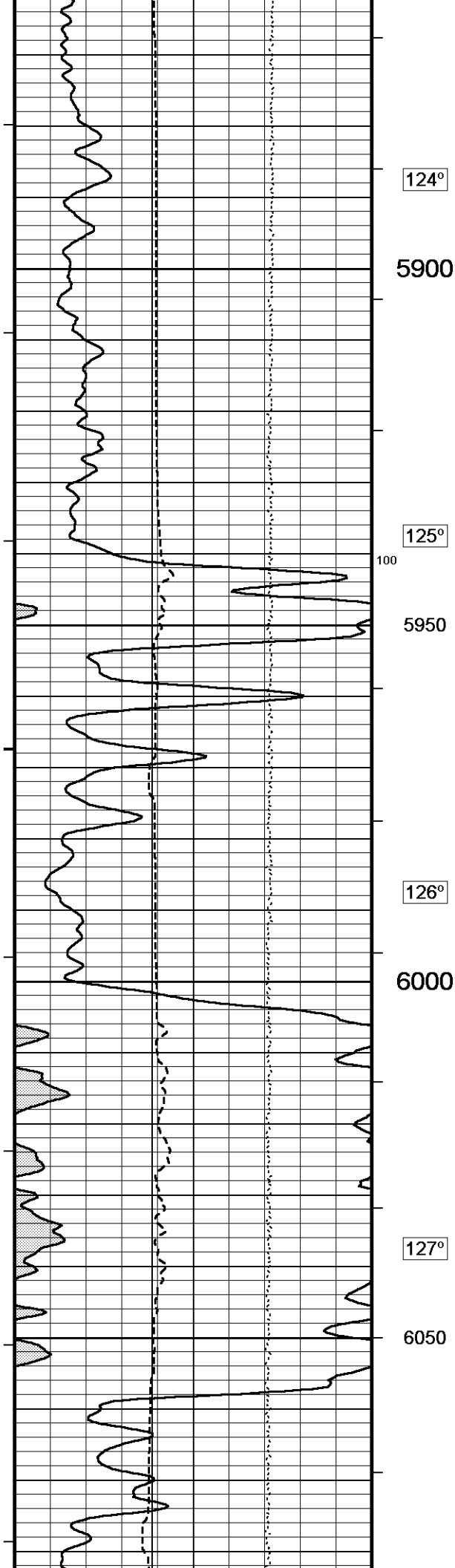


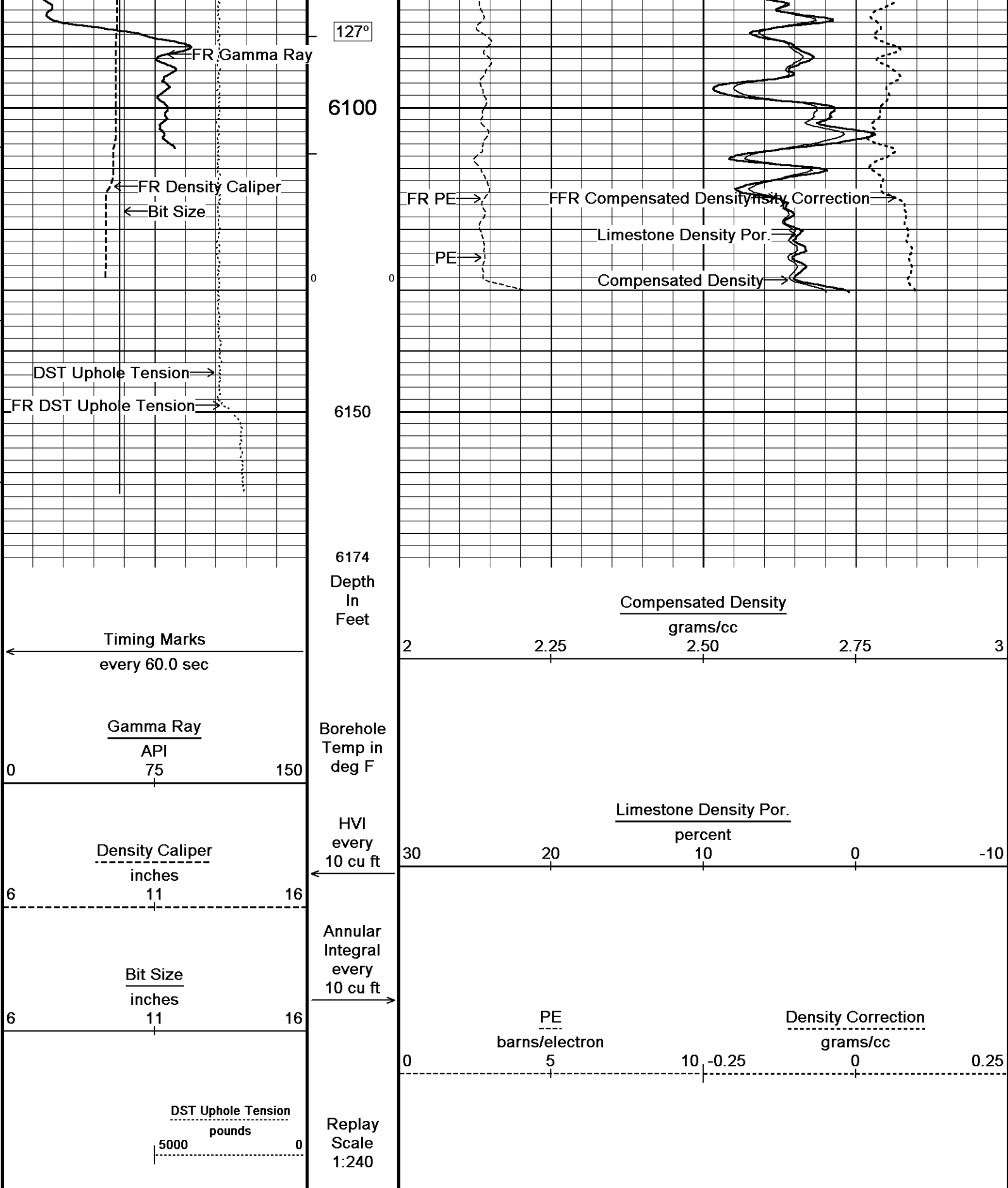


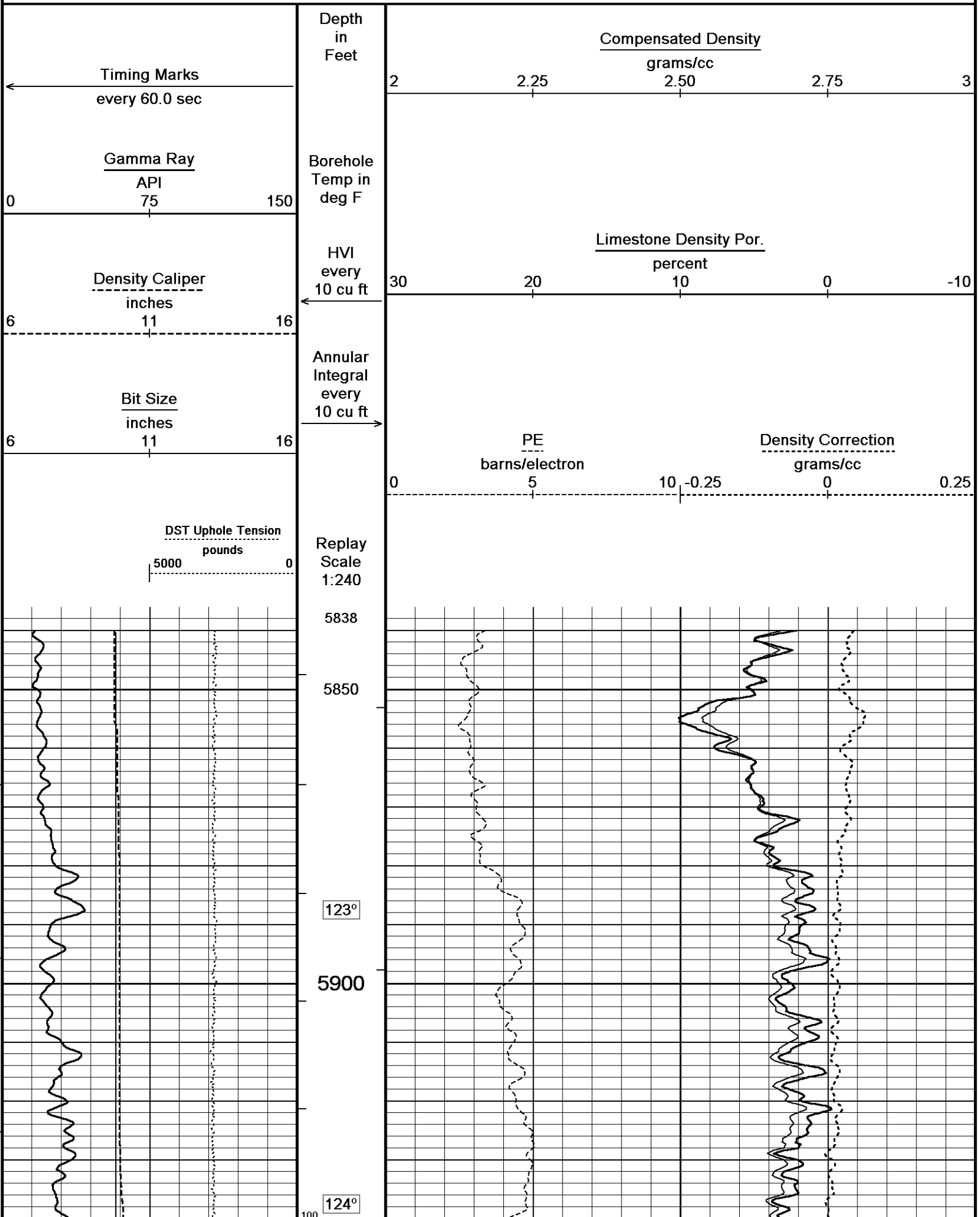


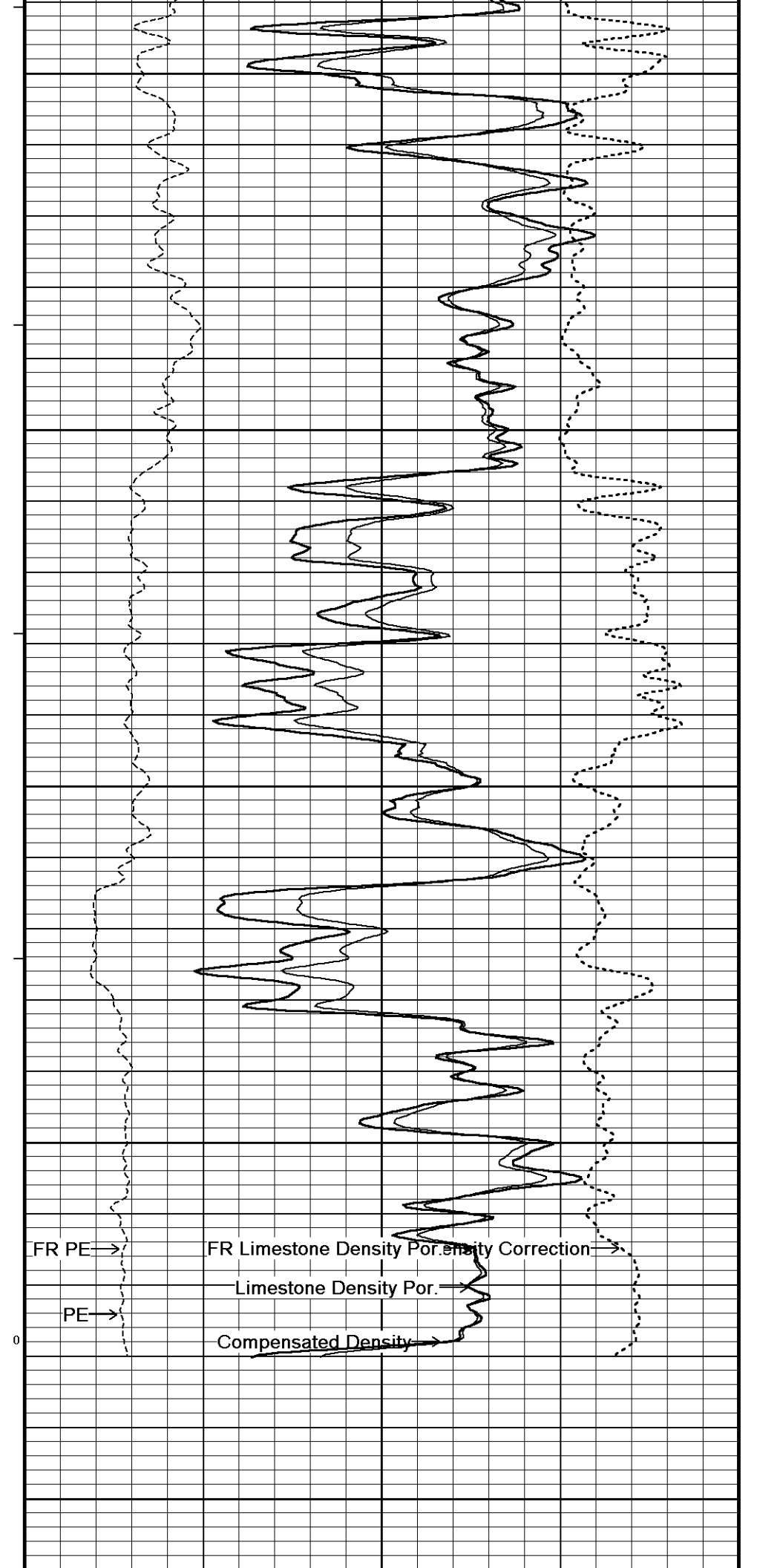
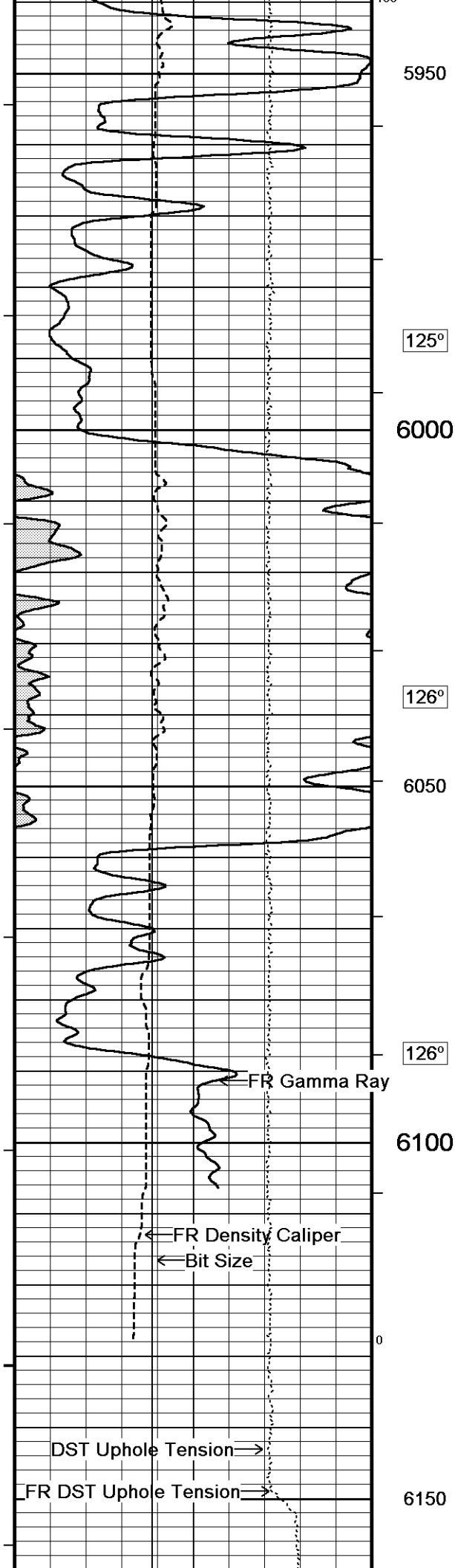


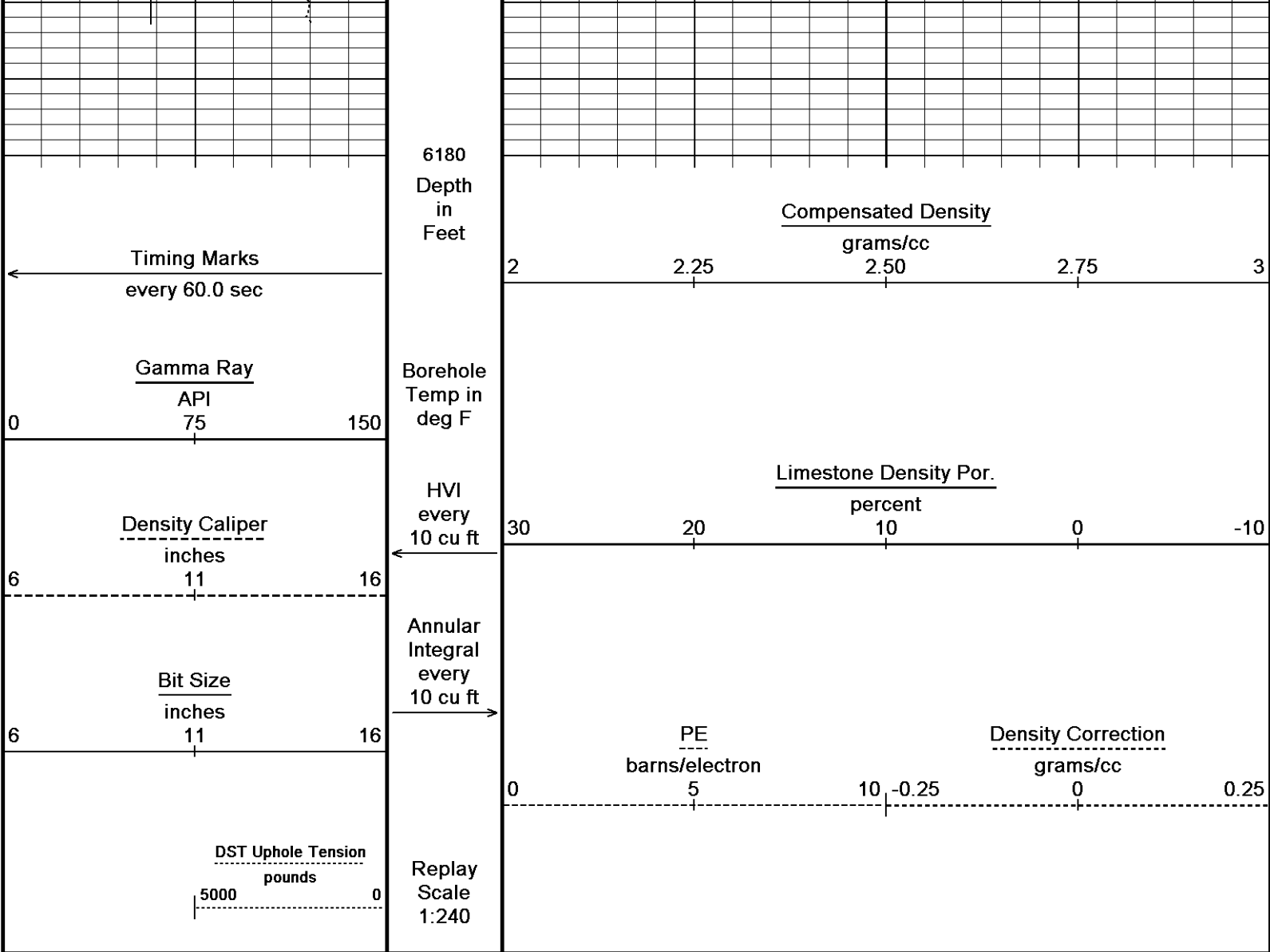












Depth Based Data - Maximum Sampling Increment 10.0cm  
Filename: C:\Minimus 11.03.4044\Data\Sandridge Luke SWD 1-10\Sandridge Luke SWD 1-10\_001.dta  
System Versions: Logged with 11.03.4044 Plotted with 11.03.4044

5 INCH REPEAT PASS

BEFORE SURVEY CALIBRATION  
C:\Minimus 11.03.4044\Data\Sandridge Luke SWD 1-10\Sandridge Luke SWD 1-10.dta

General Constants All 000  
Last Edited on 23-JAN-2012,23:30

|                                                         |                       |            |
|---------------------------------------------------------|-----------------------|------------|
| General Parameters                                      |                       |            |
| Mud Resistivity                                         | 0.620                 | 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                                 | 7.625                 | 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 SMS 0                 |                                             |                       | Field Calibration on 24-DEC-2011 19:14                                          |  |
| Reading No                                          | Measured                                    | Calibrated (lbs)      |                                                                                 |  |
| 1                                                   | 13180.10                                    | 0.00                  |                                                                                 |  |
| 2                                                   | 14049.87                                    | 408.00                |                                                                                 |  |
| Gamma Calibration MCG-D.K 442                       |                                             |                       | Field Calibration on 23-JAN-2012 09:39                                          |  |
|                                                     | Measured                                    | Calibrated (API)      |                                                                                 |  |
| Background                                          | 74                                          | 50                    |                                                                                 |  |
| Calibrator (Gross)                                  | 1145                                        | 775                   |                                                                                 |  |
| Calibrator (Net)                                    | 1071                                        | 725                   |                                                                                 |  |
| Gamma Constants MCG-D.K 442                         |                                             |                       | Last Edited on 23-JAN-2012,23:14                                                |  |
| Gamma Calibrator Number                             | grc38                                       |                       |                                                                                 |  |
| Mud Density                                         | 1.07                                        | gm/cc                 |                                                                                 |  |
| Caliper Source for Processing                       | Density Caliper                             |                       |                                                                                 |  |
| Tool Position                                       | Eccentred                                   |                       |                                                                                 |  |
| Concentration of KCl                                | 0.00                                        | kppm                  |                                                                                 |  |
| SP Calibration MCG-D.K 442                          |                                             |                       | Field Calibration on 23-SEP-2011 14:10                                          |  |
|                                                     | Measured                                    | Calibrated (mV)       |                                                                                 |  |
| Reference 1                                         | 100.3                                       | 100.0                 |                                                                                 |  |
| Reference 2                                         | -98.9                                       | -100.0                |                                                                                 |  |
| High Resolution Temperature Calibration MCG-D.K 442 |                                             |                       | Field Calibration on 02-DEC-2011,12:34                                          |  |
|                                                     | Measured                                    | Calibrated(Deg F)     |                                                                                 |  |
| Lower                                               | 50.00                                       | 50.00                 |                                                                                 |  |
| Upper                                               | 75.00                                       | 75.00                 |                                                                                 |  |
| High Resolution Temperature Constants MCG-D.K 442   |                                             |                       | Last Edited on 25-SEP-2011,21:25                                                |  |
| Pre-filter Length                                   | 11                                          |                       |                                                                                 |  |
| Caliper Calibration MML-A 4                         |                                             |                       | Base Calibration on 13-JAN-2012 10:16<br>Field Calibration on 23-JAN-2012 09:35 |  |
| Base Calibration                                    |                                             |                       |                                                                                 |  |
| Reading No                                          | Measured                                    | Calibrator Size (in)  |                                                                                 |  |
| 1                                                   | 15074                                       | 5.96                  |                                                                                 |  |
| 2                                                   | 18576                                       | 7.98                  |                                                                                 |  |
| 3                                                   | 22042                                       | 9.95                  |                                                                                 |  |
| 4                                                   | 25863                                       | 11.91                 |                                                                                 |  |
| 5                                                   | 0                                           | 0.00                  |                                                                                 |  |
| 6                                                   | N/A                                         | N/A                   |                                                                                 |  |
| Field Calibration                                   |                                             |                       |                                                                                 |  |
|                                                     | Measured Caliper (in)                       | Actual Caliper (in)   |                                                                                 |  |
|                                                     | 6.00                                        | 5.98                  |                                                                                 |  |
| Micro Normal and Micro Inverse Calibration MML-A 4  |                                             |                       | Base Calibration on 13-JAN-2012 10:09<br>Field Check on 23-JAN-2012 09:33       |  |
| 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)   |                                                                                 |  |
| Micro Normal                                        | 32.1                                        | 32.1                  |                                                                                 |  |
| Micro Inverse                                       | 16.3                                        | 16.3                  |                                                                                 |  |
| Micro Normal and Micro Inverse Constants MML-A 4    |                                             |                       | Last Edited on 23-JAN-2012,09:33                                                |  |
| 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                |                                                                                 |  |
| Neutron Calibration MDN-A.B 65                      |                                             |                       | Base Calibration on 13-JAN-2012 14:05<br>Field Check on 23-JAN-2012 09:44       |  |
| Base Calibration                                    |                                             |                       |                                                                                 |  |

|                          |  |          |     |                  |      |
|--------------------------|--|----------|-----|------------------|------|
|                          |  | Measured |     | Calibrated (cps) |      |
|                          |  | Near     | Far | Near             | Far  |
|                          |  | 3037     | 95  | 3714             | 110  |
| Ratio                    |  | 31.990   |     | 33.764           |      |
| Field Calibrator at Base |  |          |     |                  |      |
|                          |  |          |     | Calibrated (cps) |      |
|                          |  |          |     | 1687             | 2411 |
| Ratio                    |  |          |     | 0.700            |      |
| Field Check              |  |          |     |                  |      |
|                          |  |          |     | Calibrated (cps) |      |
|                          |  |          |     | 1680             | 2424 |
| Ratio                    |  |          |     | 0.693            |      |

|                                 |  |                |                                  |  |
|---------------------------------|--|----------------|----------------------------------|--|
| Neutron Constants MDN-A.B 65    |  |                | Last Edited on 23-JAN-2012,23:15 |  |
| Neutron Source Id               |  | 14035B         |                                  |  |
| Neutron Jig Number              |  | 5824NE         |                                  |  |
| Epithermal Neutron              |  | No             |                                  |  |
| Caliper Source for Processing   |  | Bit Size       |                                  |  |
| Stand-off                       |  | 0.00           | 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 13-JAN-2012 10:22<br>Field Check on 23-JAN-2012 09:25 |  |
| Base Calibration          |          |                    |                                                                           |  |
|                           | Measured | Calibrated (ohm-m) |                                                                           |  |
| Reference 1               | 0.0      | 0.0                |                                                                           |  |
| Reference 2               | 954.5    | 126.8              |                                                                           |  |
| Base Check                |          | 280.7              |                                                                           |  |
| Field Check               |          | 280.7              |                                                                           |  |

|                                  |  |                          |                                  |  |
|----------------------------------|--|--------------------------|----------------------------------|--|
| FE Constants MFE-A.A 55          |  |                          | Last Edited on 23-JAN-2012,23:15 |  |
| 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                           |  |

|                             |  |                        |                                  |  |
|-----------------------------|--|------------------------|----------------------------------|--|
| Sonic Constants MSS-C.K 330 |  |                        | Last Edited on 23-JAN-2012,23:15 |  |
| Maximum Boundary Contrast   |  | 100.00                 | micro-sec/ft                     |  |
| Fluid Transit Time          |  | 189.00                 | micro-sec/ft                     |  |
| Limestone Transit Time      |  | 47.50                  | micro-sec/ft                     |  |
| Sandstone Transit Time      |  | 55.50                  | micro-sec/ft                     |  |
| Dolomite Transit Time       |  | 43.50                  | micro-sec/ft                     |  |
| Sonic used for Porosities   |  | 3-5' Compensated Sonic |                                  |  |
| Correction for Sonde Skew   |  | Applied                |                                  |  |
| Cycle Stretch Algorithm     |  | Applied                |                                  |  |
| MN3FT                       |  | N/A                    | micro-sec                        |  |
| MX3FT                       |  | N/A                    | micro-sec                        |  |
| Hunt-Raymer Constant        |  | 83.13                  | micro-sec/ft                     |  |
| Sonde Mode                  |  | Compensated            |                                  |  |
| Hole Type                   |  | Open Hole              |                                  |  |
| Sonde Parameters            |  |                        |                                  |  |

## Sonic 1 Parameters

|                       |          |            |
|-----------------------|----------|------------|
|                       | Measured | Calibrated |
| Offset                | N/A      | 0.0000     |
| Free Pipe             | N/A      | N/A        |
| Peak Amplitude Source | N/A      |            |

| Waveform | Start Time (micro-sec) | Width (micro-sec) | Pre Gain | Start Gain | Discriminator (mV) |
|----------|------------------------|-------------------|----------|------------|--------------------|
| 3'       | N/A                    | N/A               | N/A      | N/A        | N/A                |
| 4'       | N/A                    | N/A               | N/A      | N/A        | N/A                |
| 5'       | N/A                    | N/A               | N/A      | N/A        | N/A                |
| 6'       | N/A                    | N/A               | N/A      | N/A        | N/A                |

## Processed Fixed Gate Parameters

| Waveform Used For Processing | N/A                  |                    |     |  |
|------------------------------|----------------------|--------------------|-----|--|
| Start Time (micro-sec)       | End Time (micro-sec) | Discriminator (mV) | N/A |  |
| N/A                          | N/A                  | N/A                |     |  |
| N/A                          | N/A                  | N/A                | N/A |  |
| N/A                          | N/A                  | N/A                | N/A |  |
| N/A                          | N/A                  | N/A                | N/A |  |
| N/A                          | N/A                  | N/A                | N/A |  |

## Full Waveform Parameters

|                                 |     |           |
|---------------------------------|-----|-----------|
| Use 3' Waveform to derive TR    | N/A |           |
| Use 4' Waveform to derive TR    | N/A |           |
| Use 5' Waveform to derive TR    | N/A |           |
| Use 6' Waveform to derive TR    | N/A |           |
| 3' Waveform Discriminator Level | N/A | mV        |
| 4' Waveform Discriminator Level | N/A | mV        |
| 5' Waveform Discriminator Level | N/A | mV        |
| 6' Waveform Discriminator Level | N/A | mV        |
| 3' Waveform Filter              | N/A |           |
| 4' Waveform Filter              | N/A |           |
| 5' Waveform Filter              | N/A |           |
| 6' Waveform Filter              | N/A |           |
| Semblance Level                 | N/A |           |
| Semblance Window Width          | N/A | micro-sec |
| Sonic 1 Despiker                | N/A | N/A       |
| Sonic 2 Despiker                | N/A | N/A       |

## 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 |
|-------------------|----|

## Induction Calibration MAI-A.A 45

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

Field Check on 23-JAN-2012 09:24

## 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  | 18.4                 | 3850.7 |
| 2       | 0.0                 | 0.0  | 31.7                 | 3628.7 |
| 3       | 0.0                 | 0.0  | 28.7                 | 3048.9 |
| 4       | 0.0                 | 0.0  | 18.3                 | 2078.8 |

|      |     |     |      |        |
|------|-----|-----|------|--------|
| Deep | 0.0 | 0.0 | 16.1 | 1910.9 |
|------|-----|-----|------|--------|

|        |     |     |      |        |
|--------|-----|-----|------|--------|
| Medium | 0.0 | 0.0 | 42.5 | 4059.9 |
|--------|-----|-----|------|--------|

|         |     |     |      |        |
|---------|-----|-----|------|--------|
| Shallow | 0.0 | 0.0 | 10.0 | 5100.1 |
|---------|-----|-----|------|--------|

|                   |     |     |      |        |
|-------------------|-----|-----|------|--------|
| Shallow           | 0.0 | 0.0 | 49.6 | 5482.1 |
| Array Temperature | 0.0 |     | 65.4 | Deg F  |

## Induction Constants MAI-A.A 45

Last Edited on 23-JAN-2012,23:15

|                                   |                          |                  |            |
|-----------------------------------|--------------------------|------------------|------------|
| 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   |         |

## Caliper Calibration MPD-B 64

Base Calibration on 11-JAN-2012 10:46

Field Calibration on 23-JAN-2012 09:32

### Base Calibration

| Reading No | Measured | Calibrator Size (in) |
|------------|----------|----------------------|
| 1          | 13180    | 3.99                 |
| 2          | 21746    | 5.98                 |
| 3          | 30134    | 7.97                 |
| 4          | 38626    | 9.86                 |
| 5          | 47865    | 11.92                |
| 6          | N/A      | N/A                  |

### Field Calibration

| Measured Caliper (in) | Actual Caliper (in) |
|-----------------------|---------------------|
| 5.88                  | 5.98                |

## Photo Density Calibration MPD-B 64

Base Calibration on 11-JAN-2012 10:31

Field Check on 23-JAN-2012 09:30

### Density Calibration

| Base Calibration | Measured |       | Calibrated (sdu) |       |
|------------------|----------|-------|------------------|-------|
|                  | Near     | Far   | Near             | Far   |
| Reference 1      | 47708    | 24994 | 59556            | 30836 |
| Reference 2      | 19764    | 2539  | 24941            | 2541  |

### Field Check at Base

|        |        |
|--------|--------|
| 1198.7 | 1394.5 |
|--------|--------|

### Field Check

|        |        |
|--------|--------|
| 1207.4 | 1393.6 |
|--------|--------|

# PE Calibration

## Base Calibration

|             | WS    | Measured<br>WH | Ratio | Calibrated<br>Ratio |
|-------------|-------|----------------|-------|---------------------|
| Background  | 220   | 1074           |       |                     |
| Reference 1 | 17955 | 47527          | 0.382 | 0.371               |
| Reference 2 | 5321  | 19632          | 0.275 | 0.272               |

## Field Check at Base

220.5 1073.8

## Field Check

219.5 1078.9

## Density Constants MPD-B 64

Last Edited on 23-JAN-2012,23:15

|                               |                 |
|-------------------------------|-----------------|
| 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 11.03.4044\Data\Sandridge Luke SWD 1-10\Sandridge Luke SWD 1-10.dta

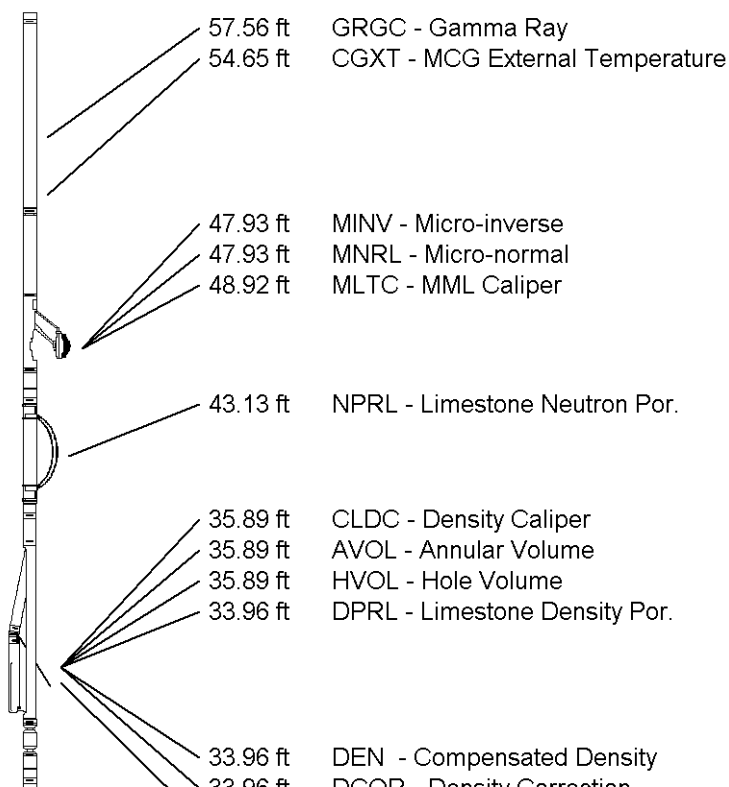
Compact Comms Gamma  
MCG-D.K 442 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

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 64 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

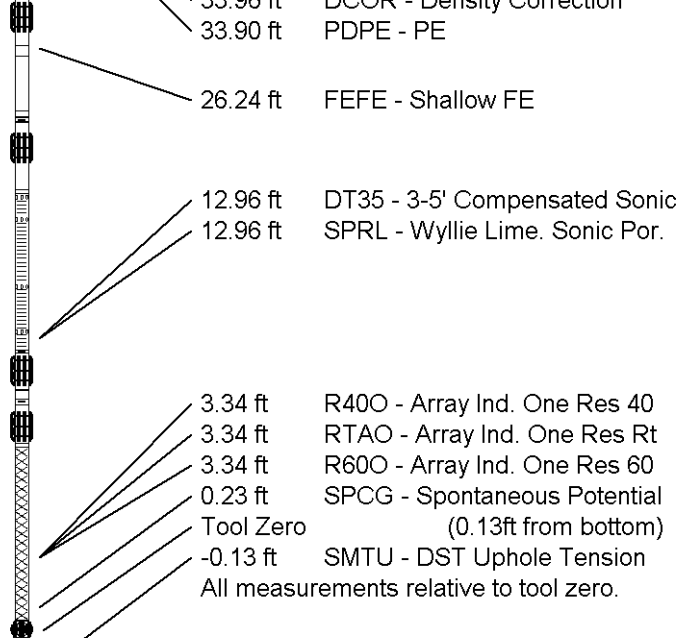


Compact Focussed Electric  
MFE-A.A 55 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

Compact Sonic  
MSS-C.K 330 LG: 12.52 ft WT: 72.8 lb OD: 2.24 in

Compact Induction  
MAI-A.A 45 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 62.84 ft Weight: 480.6 lb



|                 |                                   |
|-----------------|-----------------------------------|
| COMPANY         | SANDRIDGE EXPL. & PRODUCTION LLC. |
| WELL            | LUKE SWD #1-10                    |
| FIELD           | SIX MOONS FIELD AREA              |
| PROVINCE/COUNTY | COMANCHE                          |
| COUNTRY/STATE   | U.S.A. / KANSAS                   |

|                         |         |      |               |         |      |
|-------------------------|---------|------|---------------|---------|------|
| Elevation Kelly Bushing | 2038.00 | feet | First Reading | 6115.00 | feet |
| Elevation Drill Floor   | 2036.00 | feet | Depth Driller | 6160.00 | feet |
| Elevation Ground Level  | 2026.00 | feet | Depth Logger  | 6149.00 | feet |



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