



Weatherford

**PHOTO DENSITY
COMPENSATED NEUTRON
LOGS**

| | | | | | | | |
|---|--------------|--------------|----------------|-------------------------------|-------------|--|--|
| COMPANY | | | | EAST CHEYENNE GAS STORAGE LLC | | | |
| WELL | | | | ECGS No 6-18 WPD011-2 | | | |
| FIELD | | | | PEETZ WEST | | | |
| PROVINCE/COUNTY | | | | LOGAN | | | |
| COUNTRY/STATE | | | | US/COLORADO | | | |
| LOCATION | | | | NESE 2372' FSL AND 1539' FEL | | | |
| SEC | TWP | RGE | Other Services | | | | |
| 6 | 11N | 52W | MAI | | | | |
| API Number | | 05-075-09406 | | CMI | | | |
| Permit Number | | | | | | | |
| Permanent Datum GL, Elevation 4550 feet | | | | | Elevations: | | |
| Log Measured From KB | | | | | KB 4564.00 | | |
| Drilling Measured From KB | | | | | DF 4563.00 | | |
| | | | | | GL 4550.00 | | |
| Date | 12-OCT-2012 | | | | | | |
| Run Number | ONE | | | | | | |
| Depth Driller | 5260.00 | | | | feet | | |
| Depth Logger | 5264.00 | | | | feet | | |
| First Reading | 5210.00 | | | | feet | | |
| Last Reading | 4200.00 | | | | feet | | |
| Casing Driller | 1215.00 | | | | feet | | |
| Casing Logger | 1214.00 | | | | feet | | |
| Bit Size | 8.750 | | | | inches | | |
| Hole Fluid Type | WBM | | | | | | |
| Density / Viscosity | 9.80 | | lb/USg | 38.00 | CP | | |
| PH / Fluid Loss | 9.00 | | | 7.40 | ml/30Min | | |
| Sample Source | FLOWLINE | | | | | | |
| Rm @ Measured Temp | 3.75 @ 80.0 | | | | ohm-m | | |
| Rmf @ Measured Temp | 3.0 @ 80.0 | | | | ohm-m | | |
| Rmc @ Measured Temp | 4.50 @ 80.0 | | | | ohm-m | | |
| Source Rmf / Rmc | CALC | | | CALC | | | |
| Rm @ BHT | 2.115 @144.0 | | | ohm-m | | | |
| Time Since Circulation | 4 HOURS | | | | | | |
| Max Recorded Temp | 144.00 | | | deg F | | | |
| Equipment Name | COMPACT | | | | | | |
| Equipment / Base | 13144 | | | RK SPR | | | |
| Recorded By | J. LIU | | | | T.BENICH | | |
| Witnessed By | A. ASHBY | | | | L. CARRASCO | | |

| BOREHOLE RECORD | | | Last Edited: 12-OCT-2012 07:18 | |
|--------------------|--------------------|--------------------|--------------------------------|---------------------|
| Bit Size inches | Depth From feet | | Depth To feet | |
| 8.750 | 1214.00 | | 5260.00 | |
| CASING RECORD | | | | |
| Type | Size inches | Depth From feet | Shoe Depth feet | Weight pounds/ft |
| SURFACE | 9.625 | 0.00 | 1214.00 | 36.00 |

| REMARKS | |
|---|--|
| SOFTWARE VERSION 13.03.7779 TOOLS RUN: SHA, MCG, MDN, MPD, MIS-A, SKJ, MIS-E, SKJ, SHA, MIM, MIE, SKJ, MFE, MAI RUN IN COMBINATION. | |
| HARDWARE: MPD: 8" PROFILE PLATE USED. MAI: TWO 1 INCH STANDOFFS USED. MDN: DUAL BOWSPRING USED. MIM: ONE NONMETALIC CENTRALIZING BASKET USED. MIE: ONE 1 INCH STANDOFF USED | |
| 2.65 G/CC DENSITY MATRIX USED TO CALCULATE POROSITY FROM TD TO BOTTOM OF FORT HAYES FORMATION(5264FT TO 4700FT). | |
| 2.71 G/CC DENSITY MATRIX USED TO CALCULATE POROSITY IN FORT HAYES FORMATION (4700 FT TO 4200 FT). | |
| TIGHT PULLS, BOREHOLE SIZE AND RUGOSITY WILL AFFECT REPEATABILITY AND DATA QUALITY. | |
| ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST. | |

LAT/ LONG: 40.95546 N / 103.21529 W

TOTAL HOLE VOLUME FROM TD TO SURFACE CASING =1770 CUBIC FEET

ANNULAR VOLUME WITH 7 INCH PRODUCTION CASING FROM TD TO SURFACE CASING = 700 CUBIC FEET

TOTAL VOLUME FROM TD TO 4200 FT = 410 CUBIC FEET

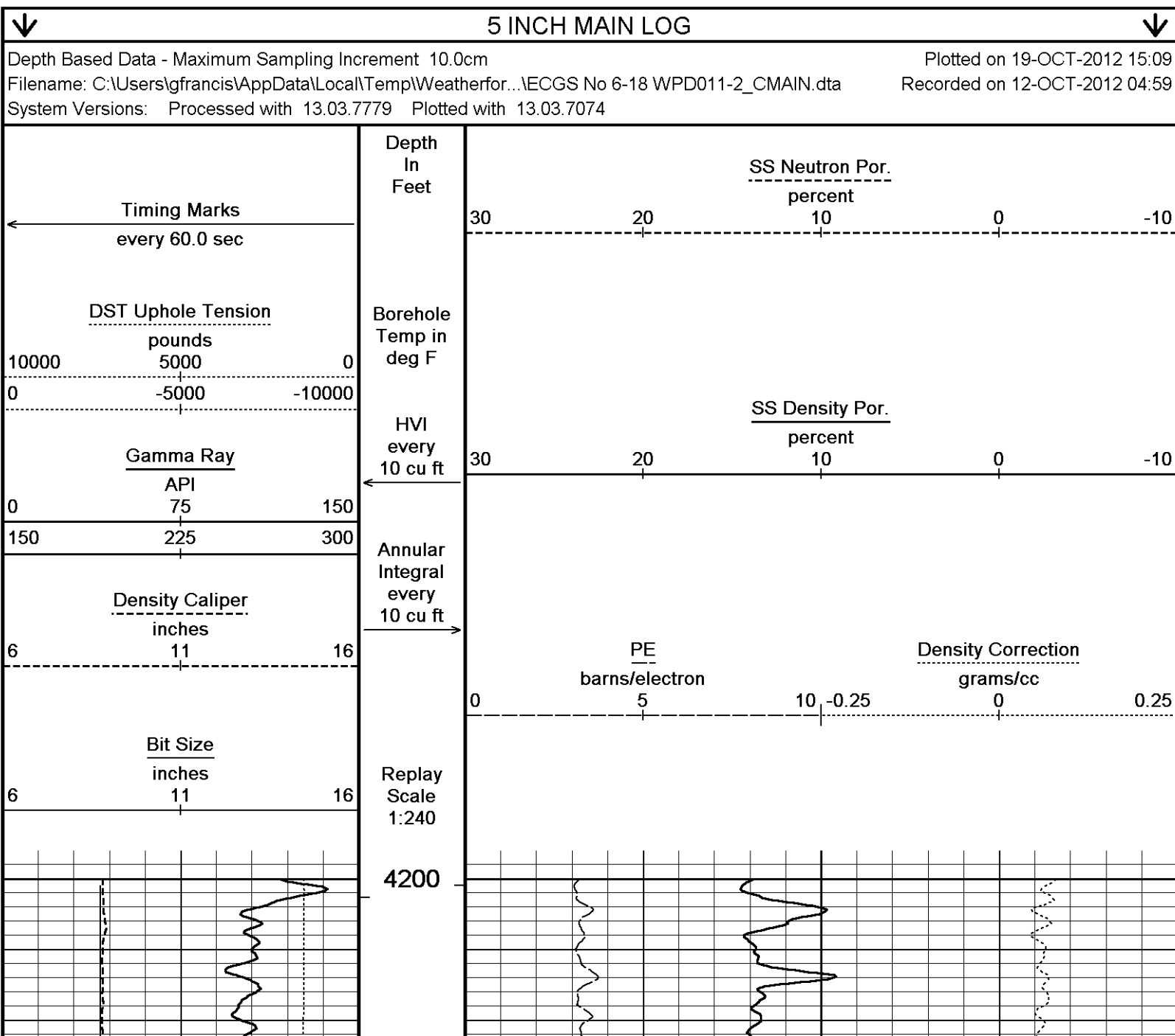
ANNULAR VOLUME WITH 7 INCH PRODUCTION CASING FROM TD TO 4200 FT = 140 CUBIC FEET

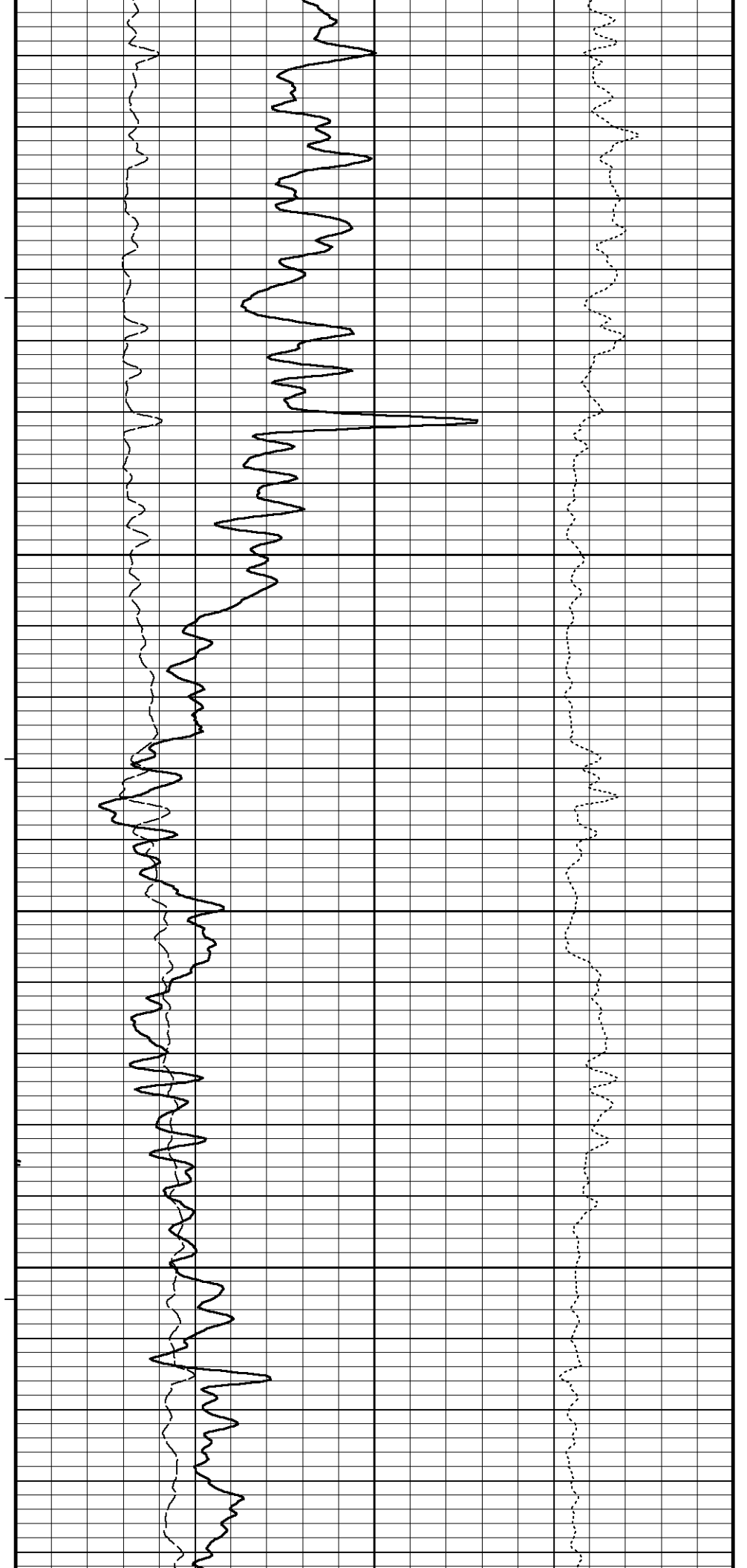
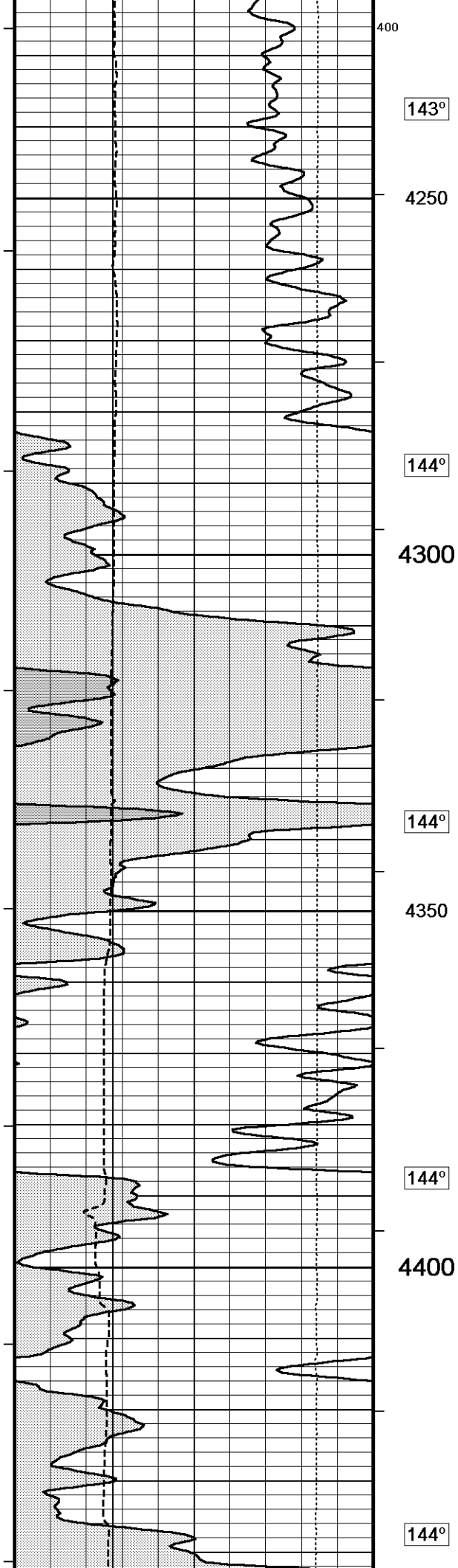
SERVICE ORDER: 3531931

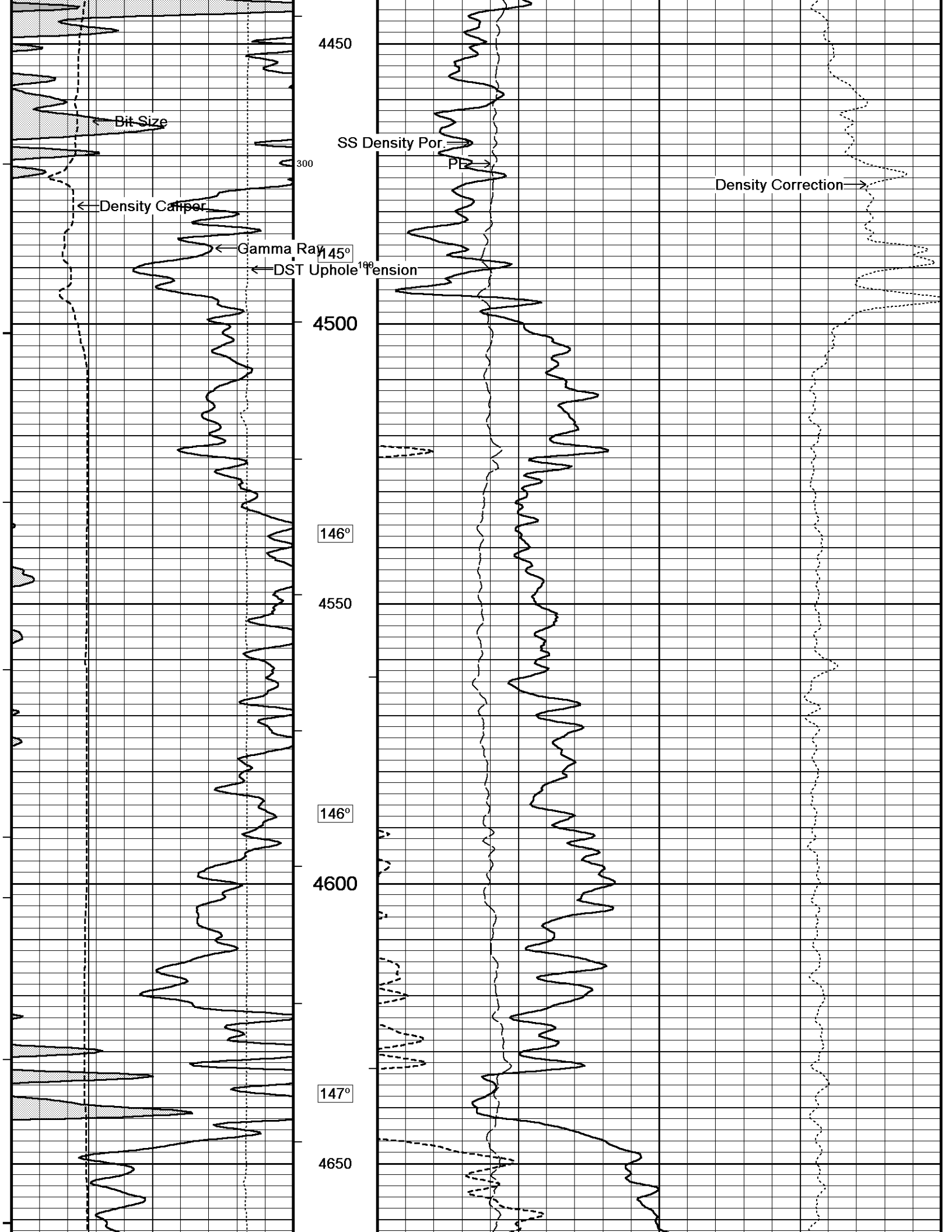
OPERATOR: D. SMITH
J. BAASSIRI

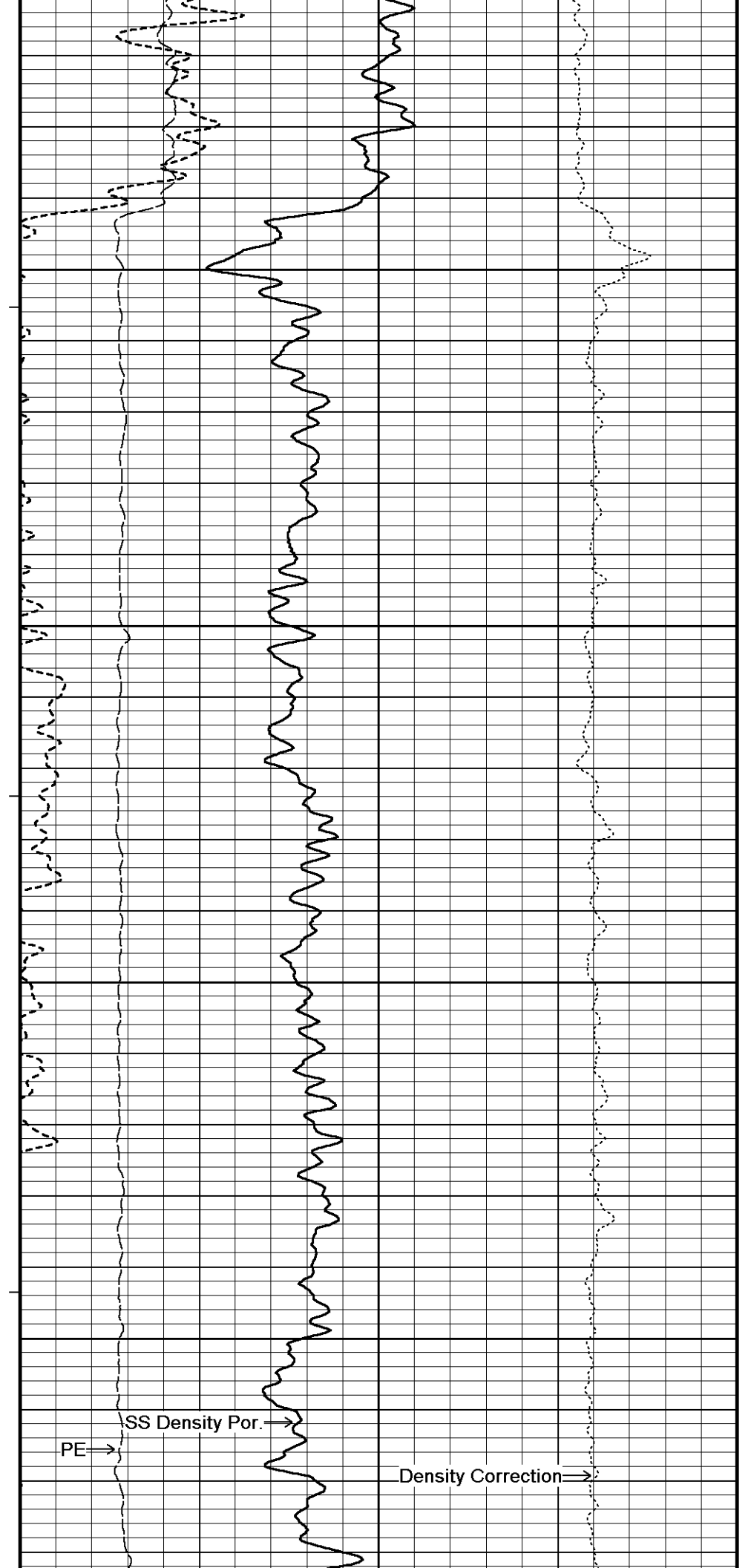
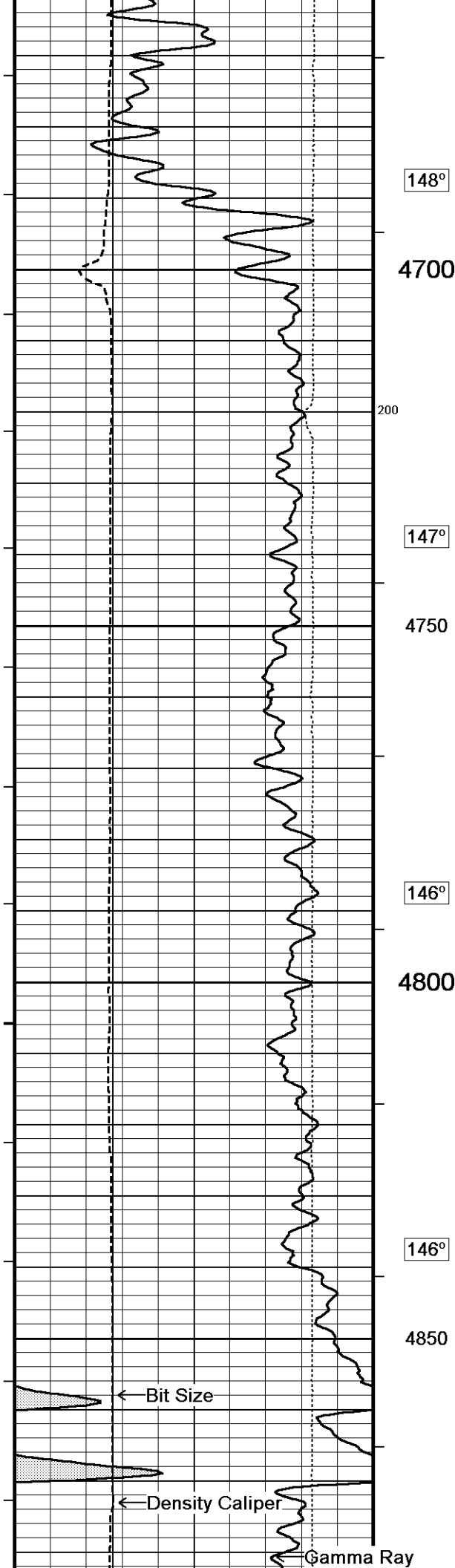
RIG: CADE 22

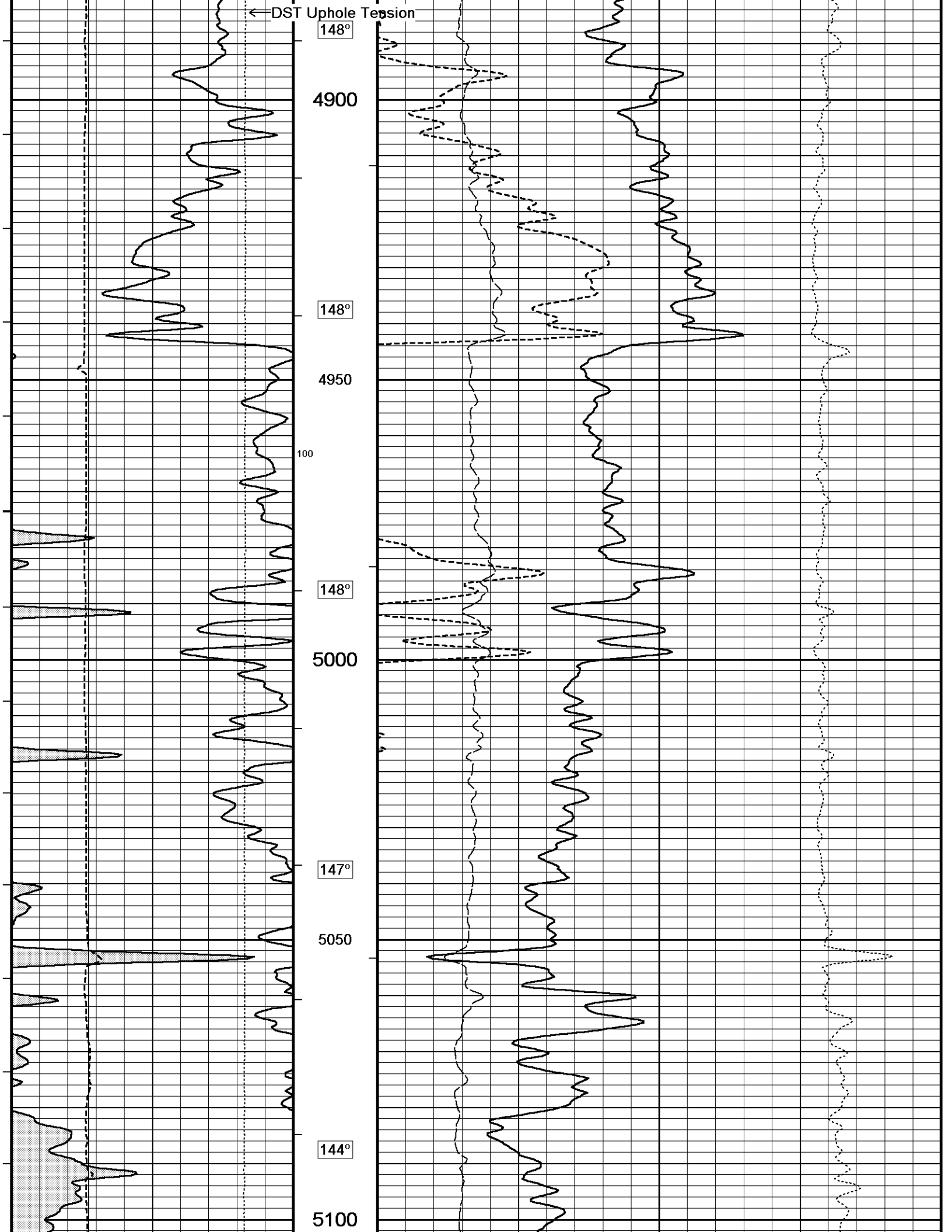
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs,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

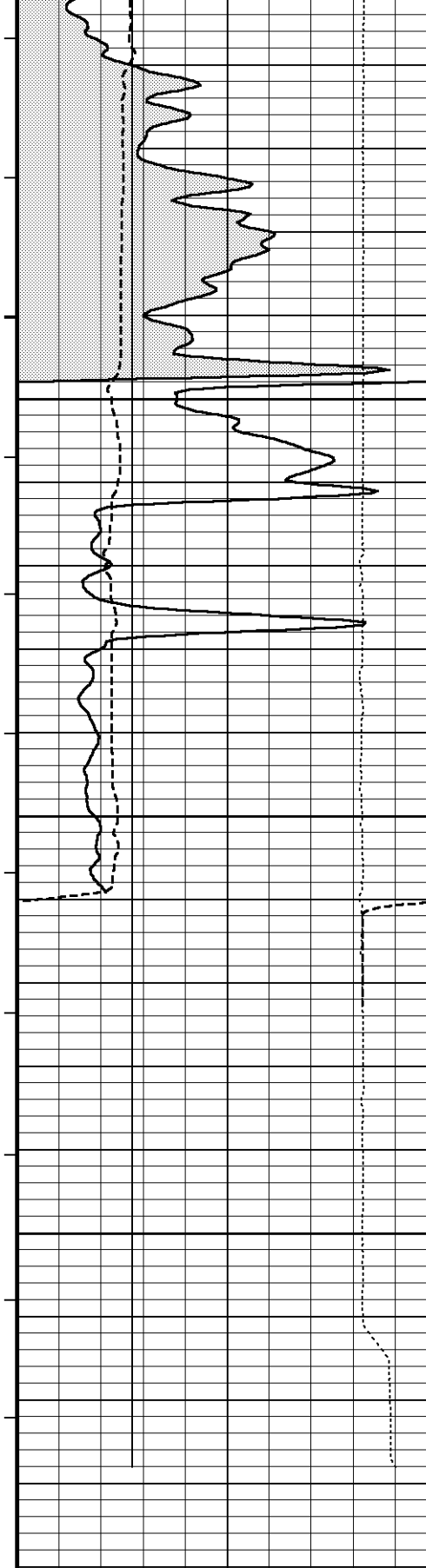












138°

5150

144°

5200

0

0

5250

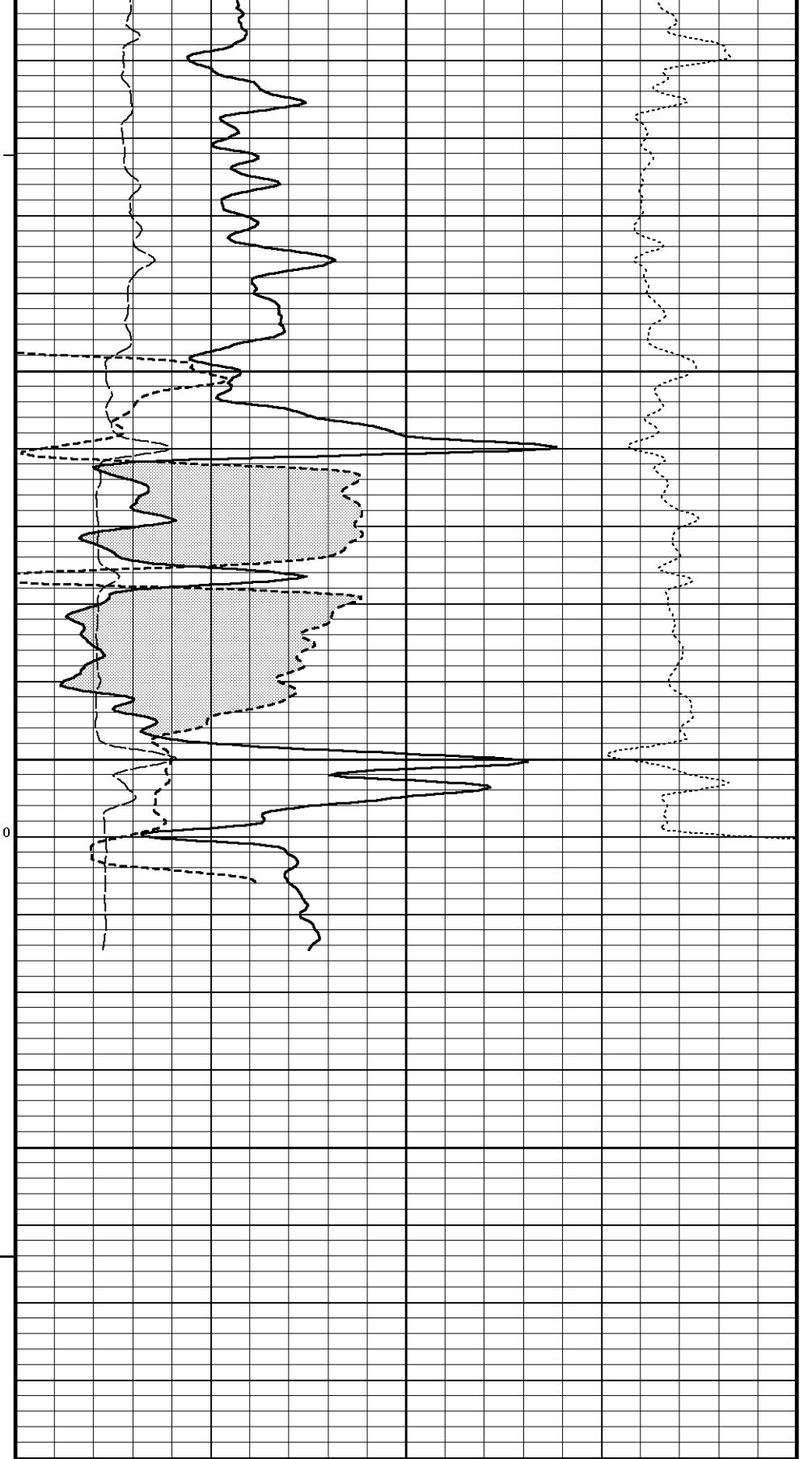
TD

Depth
In
Feet

Timing Marks
every 60.0 sec

DST Uphole Tension
pounds

Borehole
Temp in



SS Neutron Por.
percent

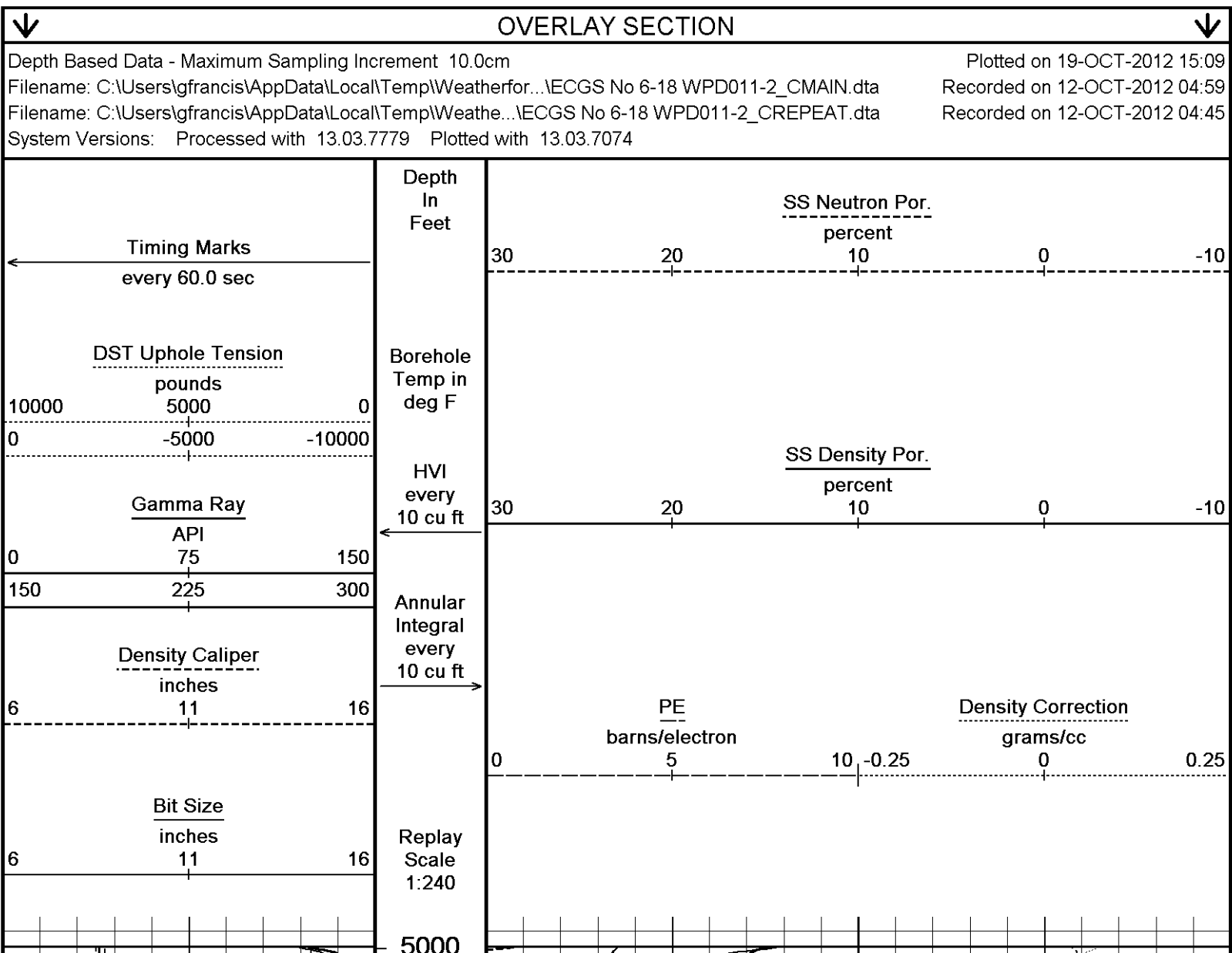
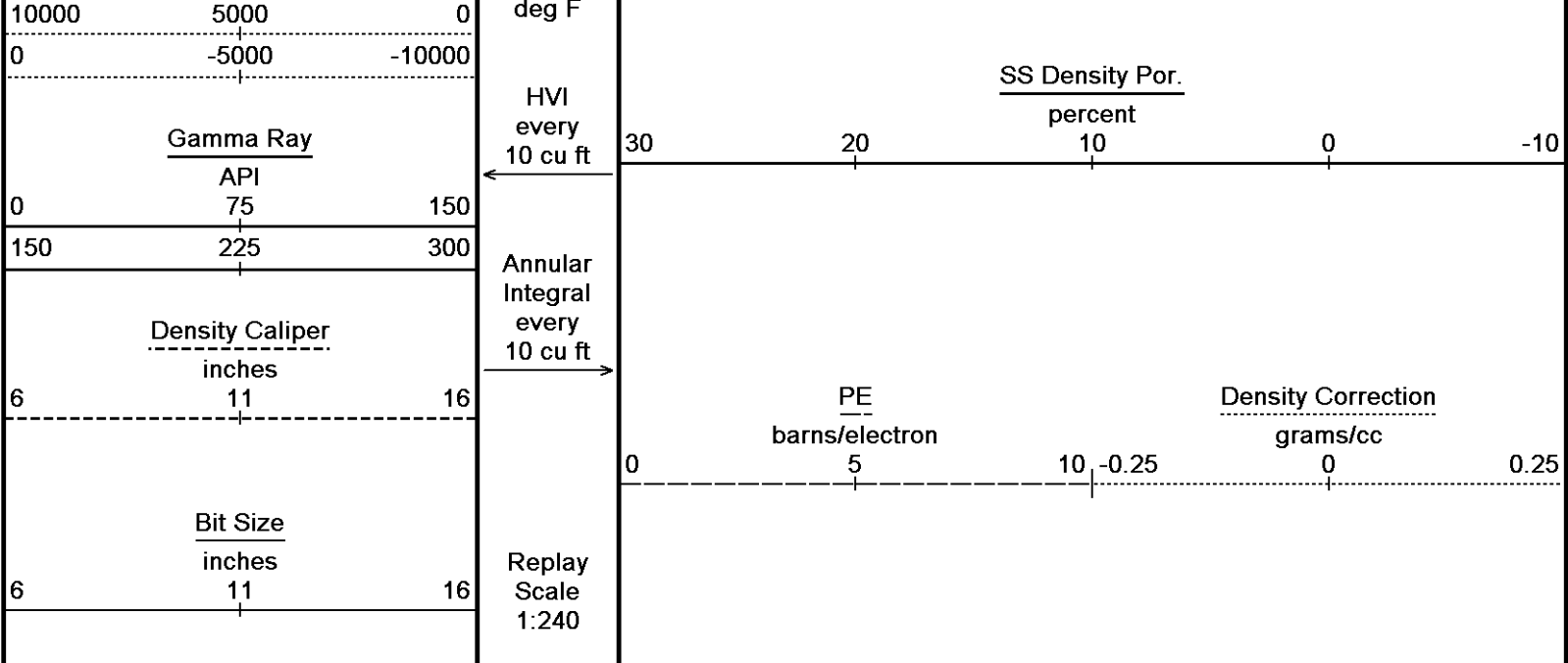
30

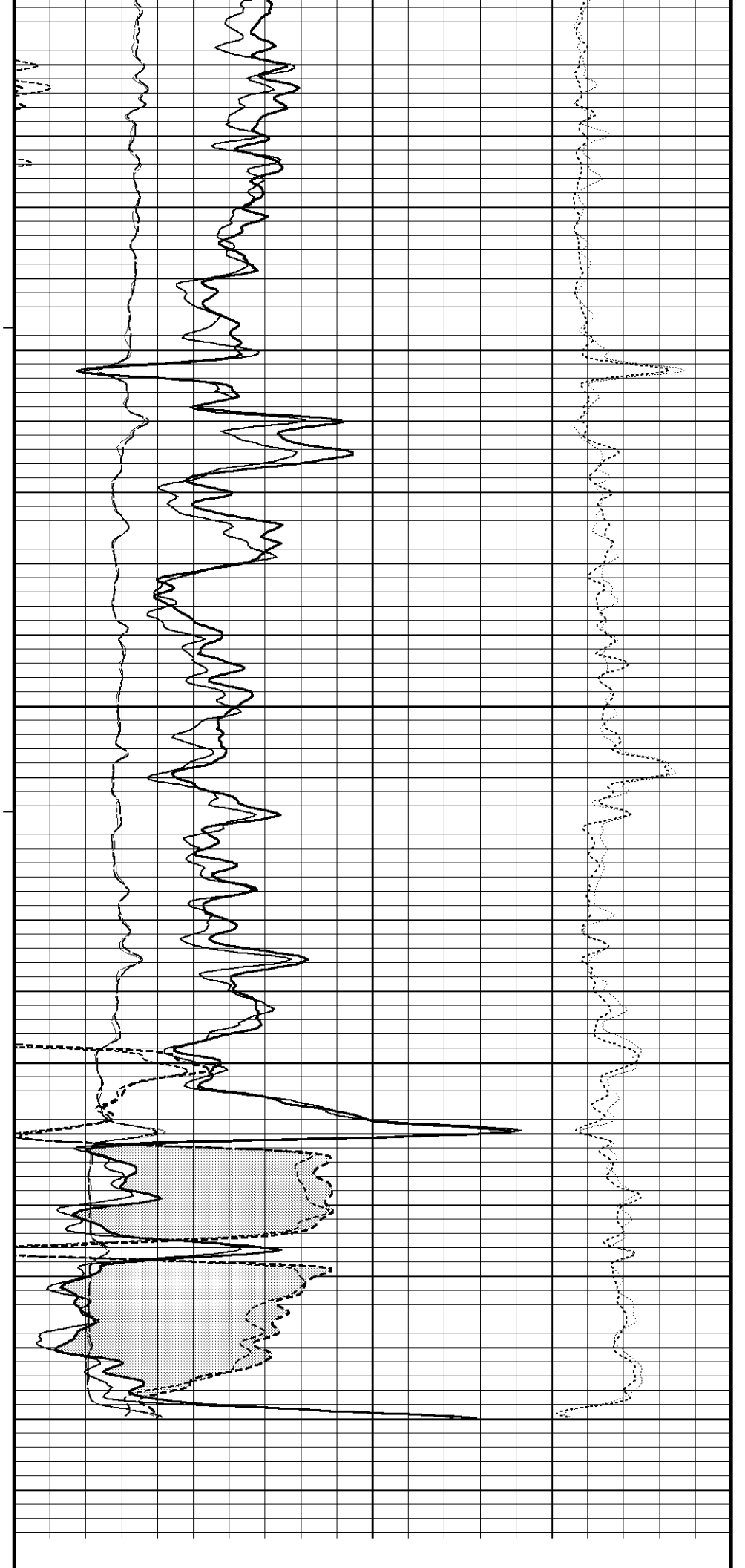
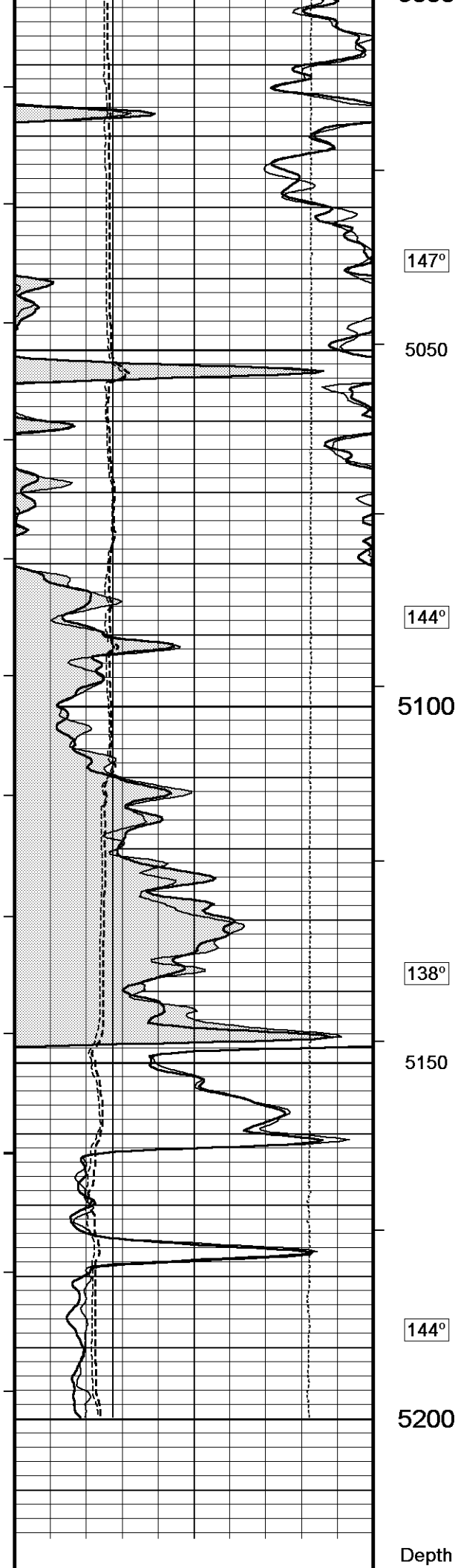
20

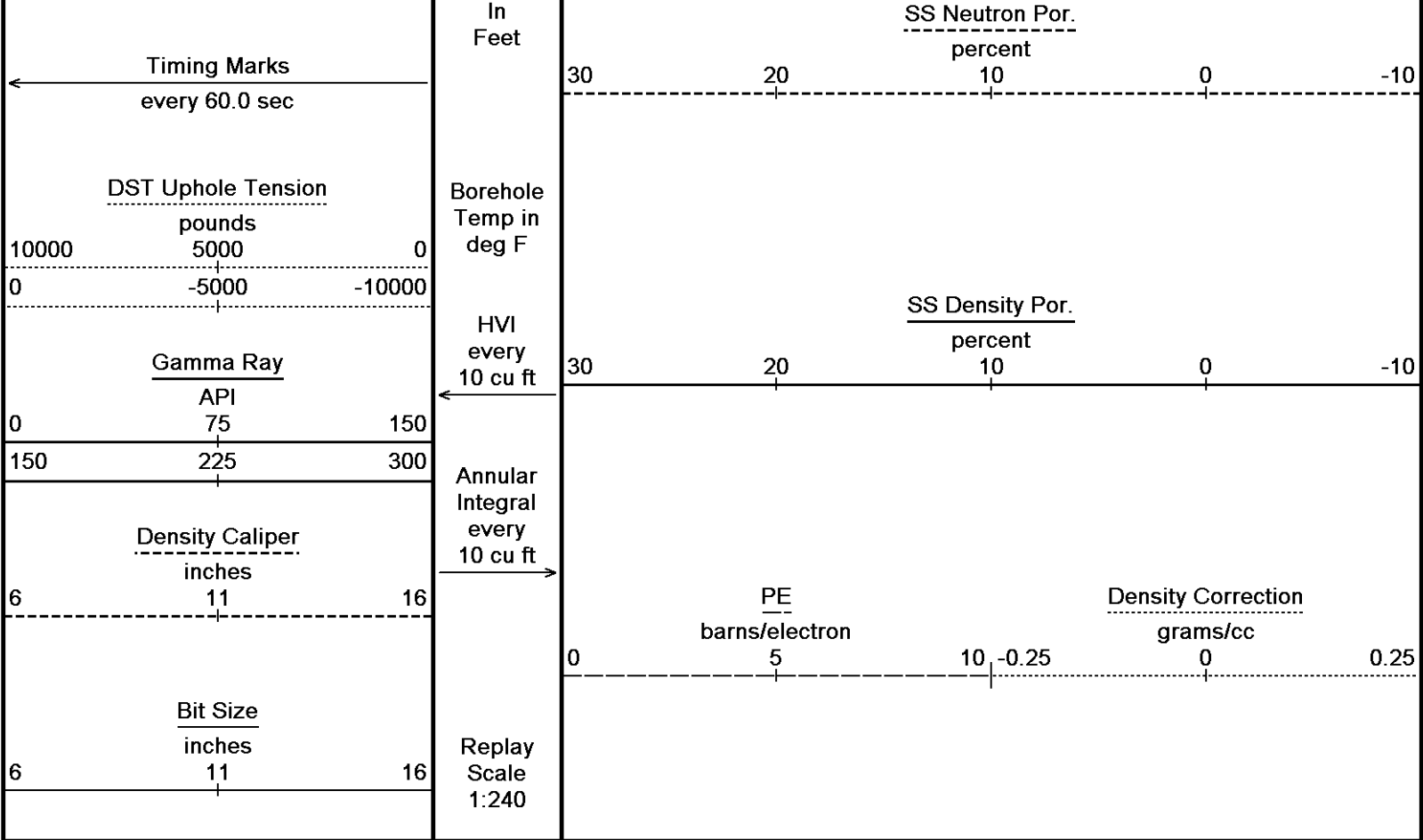
10

0

-10







Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 19-OCT-2012 15:09

Filename: C:\Users\gfrancis\AppData\Local\Temp\Weatherfor...\IECGS No 6-18 WPD011-2_CMAIN.dta

Recorded on 12-OCT-2012 04:59

Filename: C:\Users\gfrancis\AppData\Local\Temp\Weathe...\IECGS No 6-18 WPD011-2_CREPEAT.dta

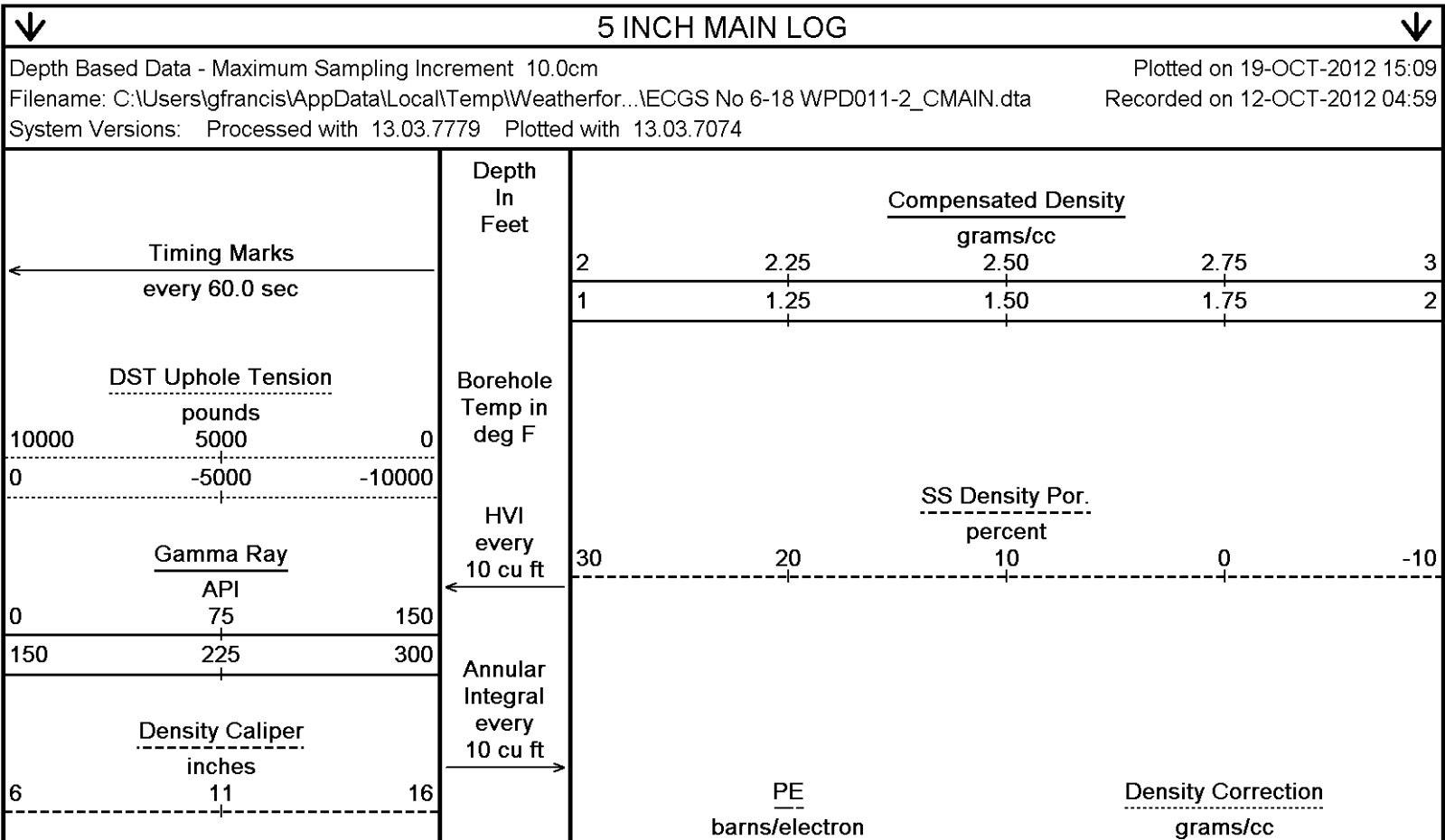
Recorded on 12-OCT-2012 04:45

System Versions: Processed with 13.03.7779 Plotted with 13.03.7074

↑

OVERLAY SECTION

↑



Bit Size
inches
11

Replay
Scale
1:240

4200

400

141°

4250

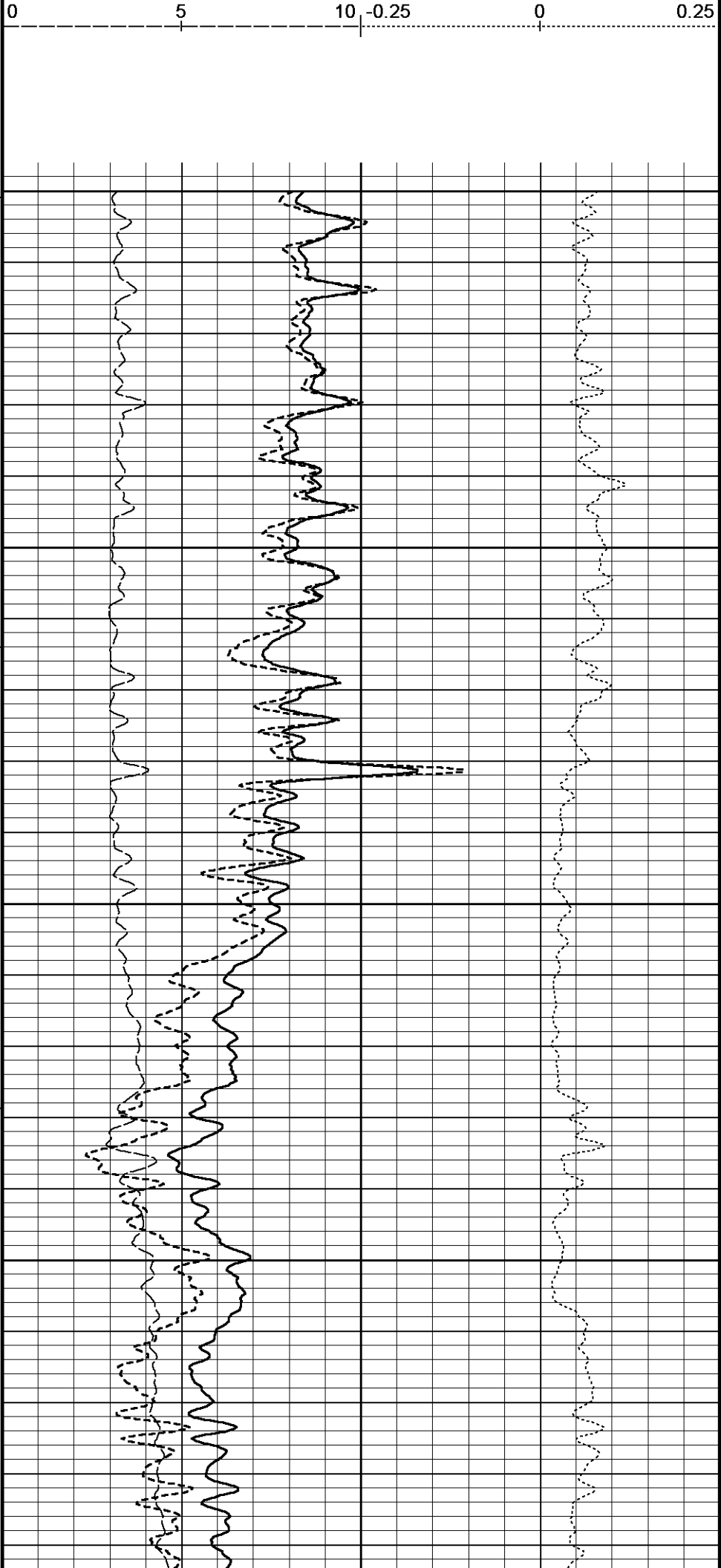
141°

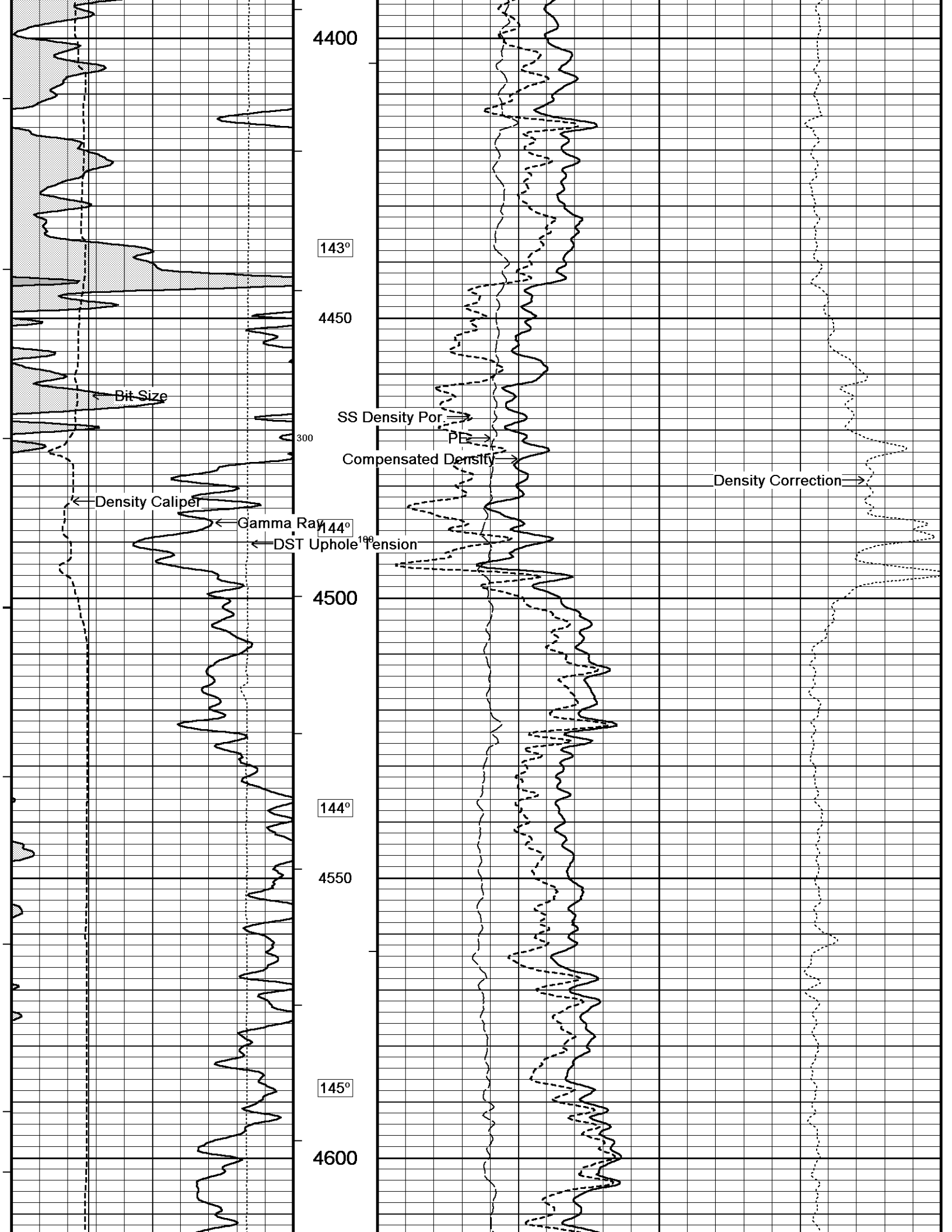
4300

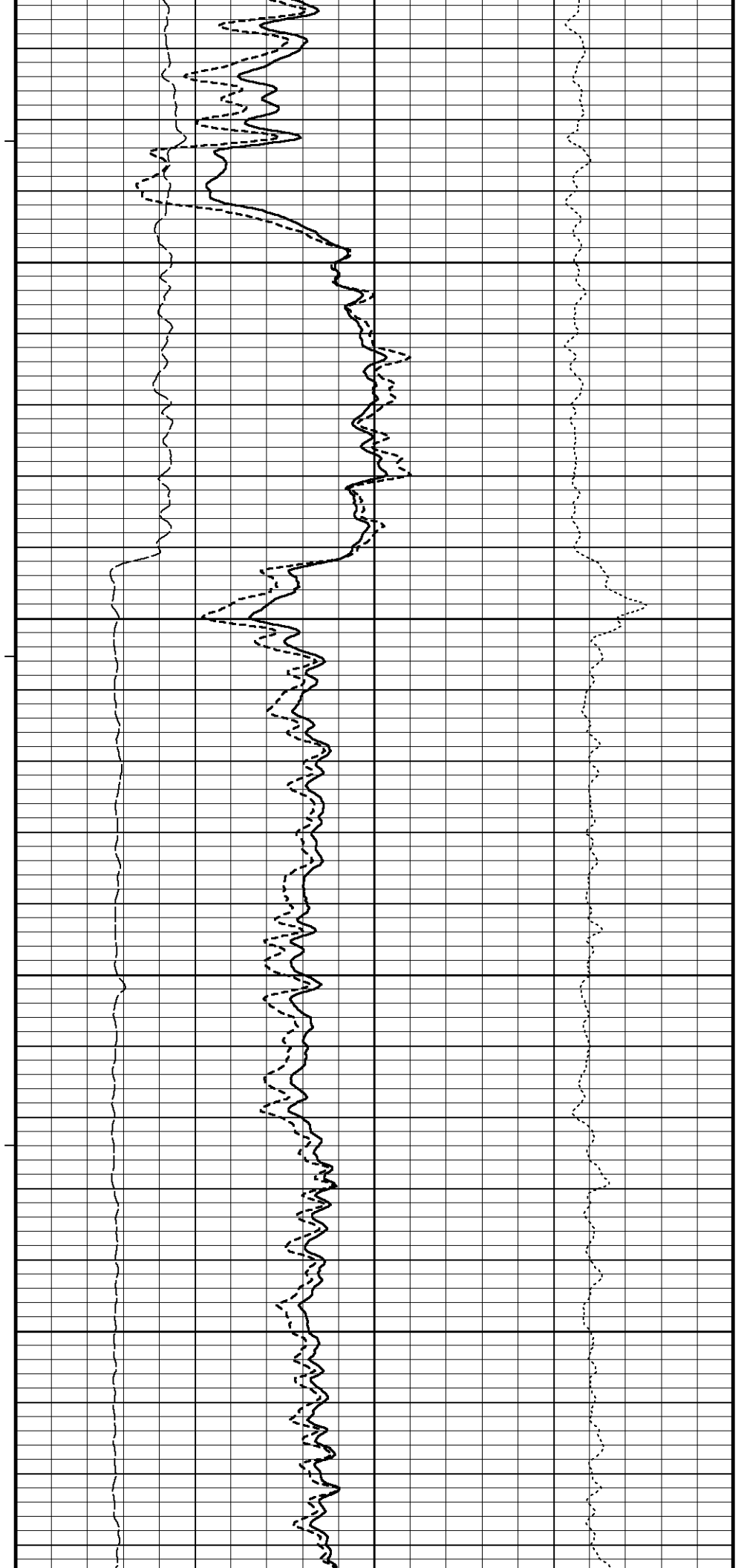
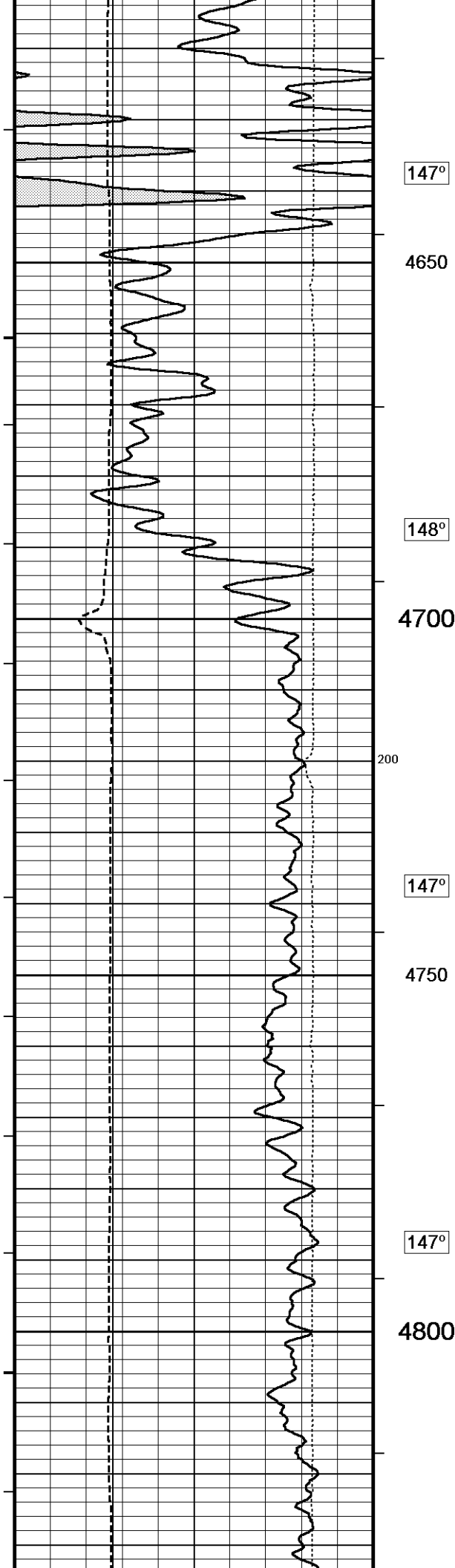
142°

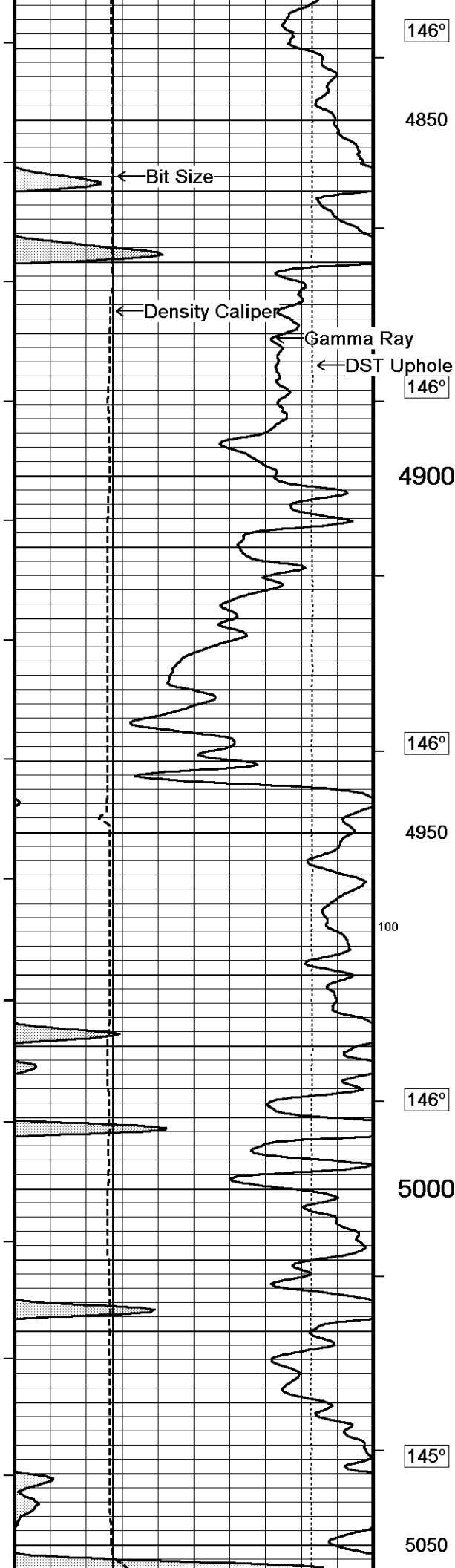
4350

142°









146°

4850

← Bit Size

← Density Caliper

Gamma Ray

← DST Uphole Tension

146°

4900

146°

4950

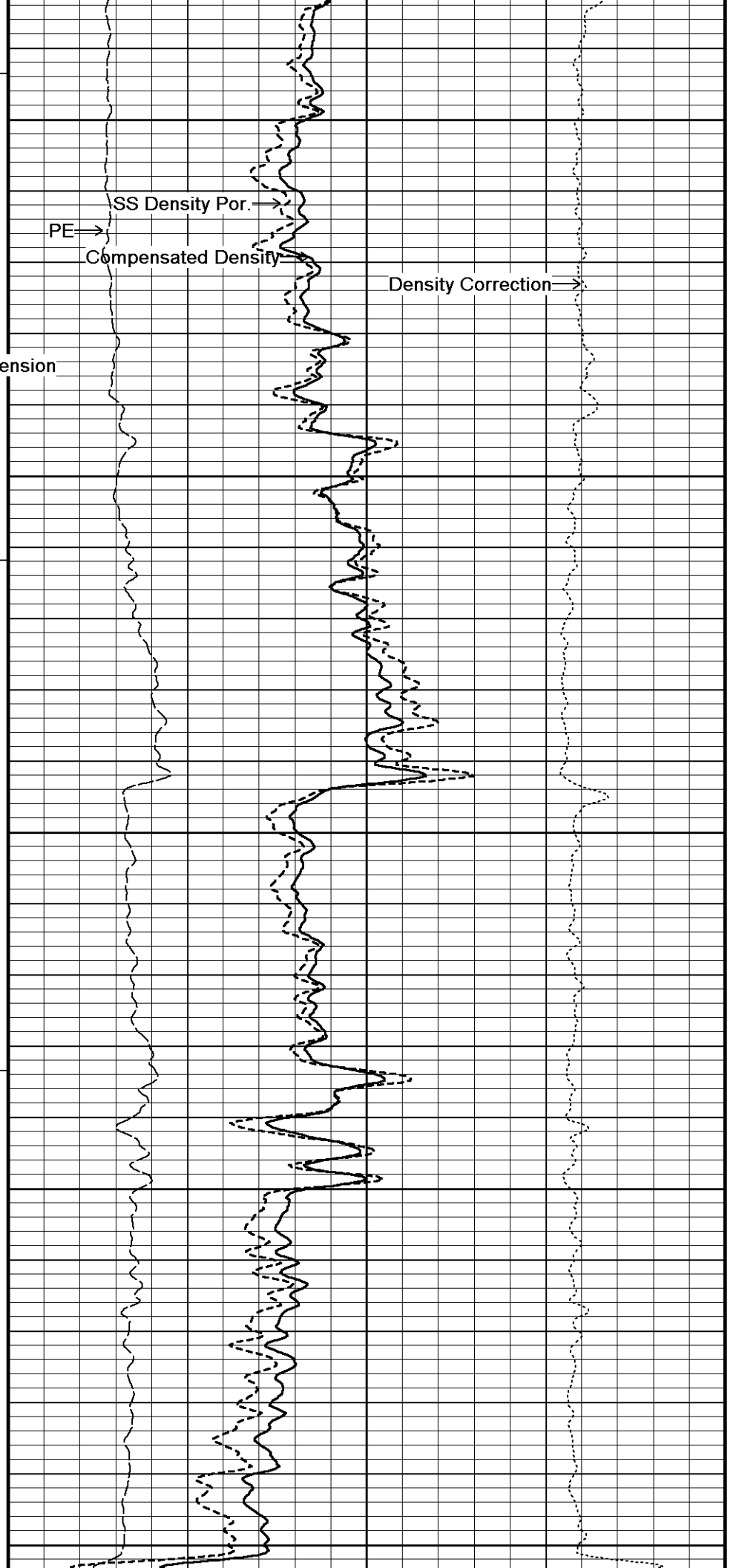
100

146°

5000

145°

5050

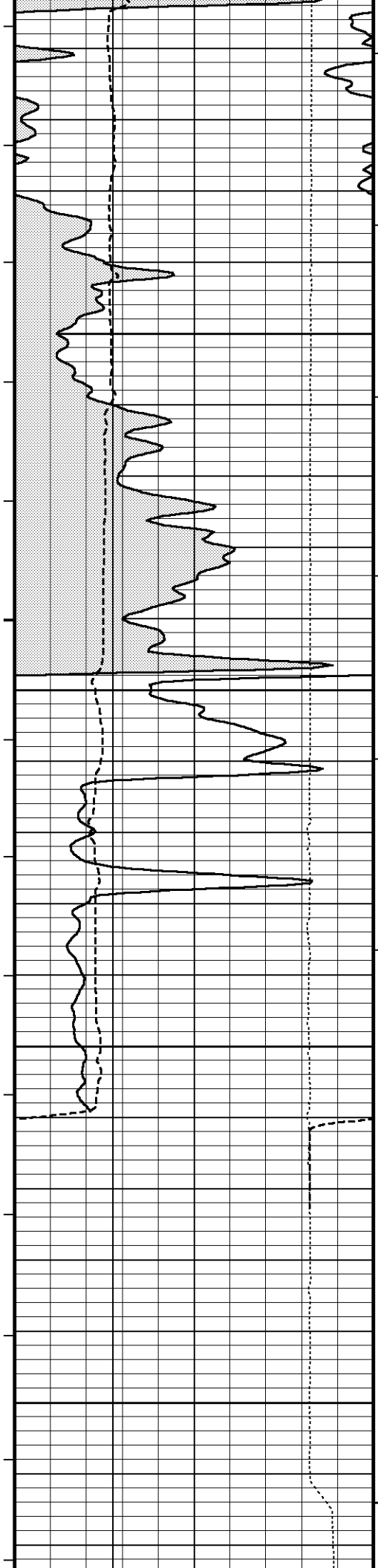


SS Density Por.

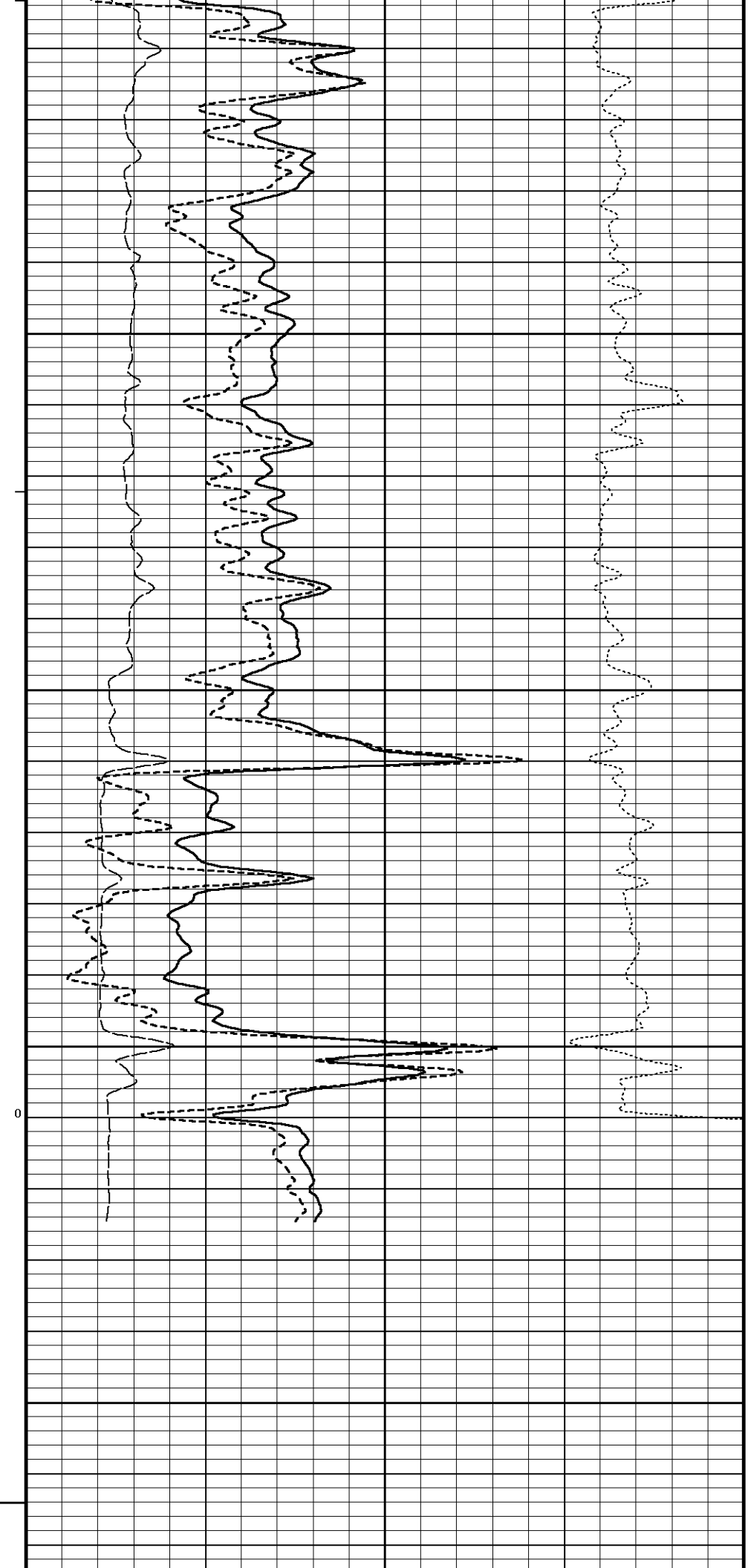
PE

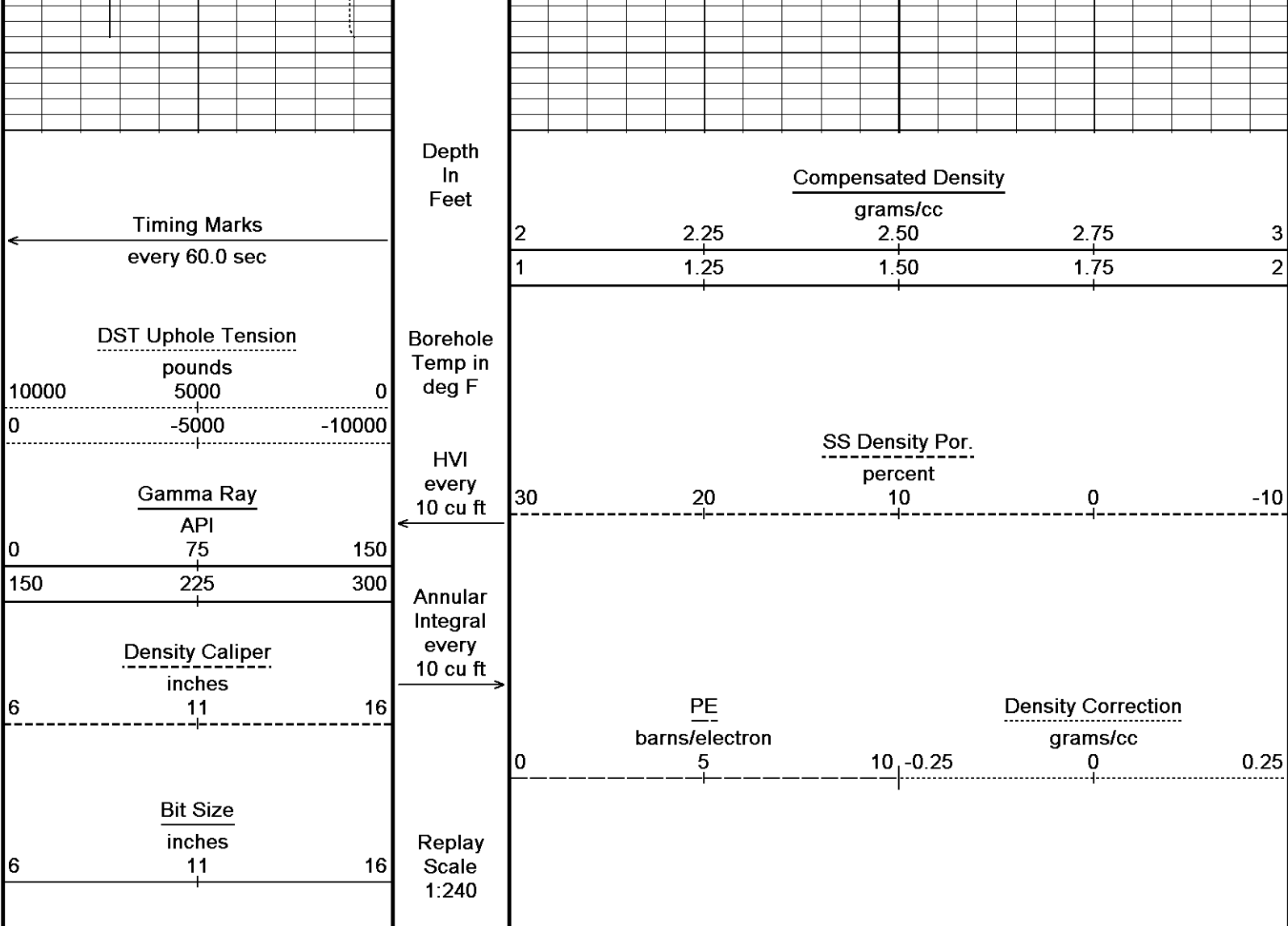
Compensated Density

Density Correction



143°
5100
141°
5150
149°
5200
0
149°
5250
TD





Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 19-OCT-2012 15:09
 Filename: C:\Users\gfrancis\AppData\Local\Temp\Weatherfor...\IECGS No 6-18 WPD011-2_CMAIN.dta Recorded on 12-OCT-2012 04:59
 System Versions: Processed with 13.03.7779 Plotted with 13.03.7074

↑ 5 INCH MAIN LOG ↑

BEFORE SURVEY CALIBRATION
 C:\Users\gfrancis\AppData\Local\Temp\Weatherford PreView\0\IECGS No 6-18 WPD011-2_CMAIN.dta

Down-hole Tension Calibration All 000

Field Calibration on 24-OCT-2010 03:34

| Reading No | Measured | |
|------------|----------|--------|
| 1 | 15659.85 | 0.00 |
| 2 | 15734.68 | 370.00 |

General Constants All 000

Last Edited on 12-OCT-2012,04:36

| | | |
|---|-----------------|------------|
| General Parameters | | |
| Mud Resistivity | 3.750 | ohm-metres |
| Mud Resistivity Temperature | 80.000 | 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 | 7.000 | 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 12-OCT-2012 03:42 |
| Reading No | Measured | Calibrated (lbs) | |
| 1 | 15453.02 | 0.00 | |
| 2 | 16669.25 | 532.00 | |
| Gamma Calibration MCG-D.K 483 | | | Field Calibration on 10-OCT-2012 11:48 |
| | Measured | Calibrated (API) | |
| Background | 71 | 48 | |
| Calibrator (Gross) | 839 | 567 | |
| Calibrator (Net) | 767 | 519 | |
| Gamma Constants MCG-D.K 483 | | | Last Edited on 05-OCT-2012,14:10 |
| Gamma Calibrator Number | GRCC119 | | |
| Mud Density | 1.00 | gm/cc | |
| Caliper Source for Processing | Density Caliper | | |
| Tool Position | Eccentred | | |
| Concentration of KCl | 0.00 | kppm | |
| SP Calibration MCG-D.K 483 | | | Field Calibration on 23-SEP-2012,10:15 |
| | Measured | Calibrated (mV) | |
| Reference 1 | 100.0 | 100.0 | |
| Reference 2 | -100.0 | -100.0 | |
| High Resolution Temperature Calibration MCG-D.K 483 | | | Field Calibration on 30-SEP-2012,04:09 |
| | Measured | Calibrated(Deg F) | |
| Lower | 50.00 | 50.00 | |
| Upper | 75.00 | 75.00 | |
| High Resolution Temperature Constants MCG-D.K 483 | | | Last Edited on 02-OCT-2012,09:19 |
| Pre-filter Length | 11 | | |
| Neutron Calibration MDN-B.J 372 | | | Base Calibration on 09-OCT-2012 10:28 Field Check on 10-OCT-2012 11:57 |
| Base Calibration | | | |
| | Measured | Calibrated (cps) | |
| | Near Far | Near Far | |
| | 2898 88 | 3714 110 | |
| Ratio | 32.889 | 33.764 | |
| Field Calibrator at Base | | | |
| | | Calibrated (cps) | |
| | | 2351 3475 | |
| Ratio | | 0.677 | |
| Field Check | | | |
| | | Calibrated (cps) | |
| Ratio | | | |
| Neutron Constants MDN-B.J 372 | | | Last Edited on 12-OCT-2012,01:28 |
| Neutron Source Id | P31115B | | |
| Neutron Jig Number | NJ5299 | | |
| Epithermal Neutron | No | | |
| Caliper Source for Processing | Density Caliper | | |
| Stand-off | 0.00 | inches | |
| Mud Density | 1.00 | gm/cc | |
| Limestone Sigma | 7.10 | cu | |
| Sandstone Sigma | 7.00 | cu | |
| Dolomite Sigma | 4.70 | cu | |
| Formation Pressure Source | None | | |
| Formation Pressure | N/A | kpsi | |
| Temperature Source | MCG External Temperature | | |
| Temperature | N/A | degrees F | |
| Mud Salinity | 0.00 | kppm | |

| | | | | |
|--|------------------------|-----------------|----------------------|---|
| Salinity Correction | Not Applied | | | ppm |
| Formation Fluid Salinity Source | None | | | |
| Formation Fluid Salinity | N/A | | | kppm |
| Barite Mud Correction | Not Applied | | | |
| Navigation Constants MIE-A.J 244 | | | | Last Edited on 12-OCT-2012,01:34 |
| Magnetic Declination | 7.96 | degrees | East | |
| Accelerometer Parameters MIE-A.J 244 | | | | |
| Date Of Last Accelerometer Calibration | 11-OCT-2012,10:31 | | | |
| | X Accelerometer | Y Accelerometer | Z Accelerometer | |
| Slope | -1.102009 | -1.105650 | -1.102611 | |
| Offset | -0.007164 | 0.006376 | -0.004580 | |
| Accelerometer Constants MIE-A.J 244 | | | | Last Edited on 16-FEB-2012,08:51 |
| Accelerometer Calibrator Number | 000 | | | |
| Accelerometer Temperature Characterisation | | | | |
| X Accelerometer | | | | |
| Serial Number | 1016 | | | |
| Calibration Date | 12-Apr-2011 | | | |
| | B0 | B1 | B2 | B3 |
| Bias(g) | 0.00000e+000 | 1.93698e-005 | -7.60293e-010 | 6.54727e-011 |
| | SF0 | SF1 | SF2 | SF3 |
| Scale Factor(mA/g) | 3.00000e+000 | 2.59257e-004 | 6.13375e-007 | -3.90888e-010 |
| Y Accelerometer | | | | |
| Serial Number | 973 | | | |
| Calibration Date | 19-Jan-2011 | | | |
| | B0 | B1 | B2 | B3 |
| Bias(g) | 0.00000e+000 | 1.95276e-005 | -1.88058e-008 | 2.74122e-010 |
| | SF0 | SF1 | SF2 | SF3 |
| Scale Factor(mA/g) | 3.00000e+000 | 2.75268e-004 | 3.53140e-007 | 7.52116e-010 |
| Z Accelerometer | | | | |
| Serial Number | 1032 | | | |
| Calibration Date | 18-Apr-2011 | | | |
| | B0 | B1 | B2 | B3 |
| Bias(g) | 0.00000e+000 | -1.14960e-005 | 3.94288e-009 | 8.97135e-011 |
| | SF0 | SF1 | SF2 | SF3 |
| Scale Factor(mA/g) | 3.00000e+000 | 2.88058e-004 | 2.44833e-007 | 8.38007e-010 |
| Imager Pad Check MIE-A.J 244 | | | | Field Check on |
| Pad 1 | Pad Not Tested | Pad 5 | Pad Not Tested | |
| Pad 2 | Pad Not Tested | Pad 6 | Pad Not Tested | |
| Pad 3 | Pad Not Tested | Pad 7 | Pad Not Tested | |
| Pad 4 | Pad Not Tested | Pad 8 | Pad Not Tested | |
| Compact Micro Imager Constants MIE-A.J 244 | | | | Last Edited on 11-OCT-2012,10:00 |
| Sonde Configuration | Imager Mode | | | |
| Arm-Pad Kit | Normal Pads (12.25 in) | | | |
| Arm-Pad Kit Serial Number | | | | |
| Centre Pad 1 Rotational Offset | 0.00 | degrees | | |
| Image/Borehole Ovality Reference | Azimuth of Pad 1 | | | |
| Non Active Buttons | Omit | | | |
| Search Angle | 0.00 | degrees | | |
| Correlation Interval | 3.28 | feet | | |
| Correlation Step | 1.64 | feet | | |
| Current Offset | 0.0000 | mAmp | | |
| Squasher Start | N/A | mAmp | | |
| Image Processing | Enabled | | | |
| Caliper Calibration MIE-A.J 244 | | | | Base Calibration on 11-OCT-2012 10:08 Field Calibration on 11-OCT-2012 10:27 |
| Base Calibration | | | | |
| Reading No | Pads 1-5 Meas. | Pads 3-7 Meas. | Calibrator Size (in) | |
| 1 | 26777 | 25896 | 5.97 | |
| 2 | 26873 | 26467 | 7.96 | |

| | | | | | |
|---|--|--|---|---------------------------------------|----------------------------------|
| 2 | 30873 | 30407 | 7.90 | | |
| 3 | 45055 | 46131 | 9.87 | | |
| 4 | 50842 | 56738 | 11.92 | | |
| 5 | 0 | 0 | 0.00 | | |
| Reading No | Pad 2 Meas. | Pad 4 Meas. | Pad 6 Meas. | Pad 8 Meas. | Calibrator Size (in) |
| 1 | 24919 | 26114 | 24194 | 25099 | 5.97 |
| 2 | 34321 | 34565 | 32478 | 34129 | 7.96 |
| 3 | 41481 | 44009 | 41829 | 41403 | 9.87 |
| 4 | 47591 | 57263 | 54975 | 47514 | 11.92 |
| 5 | 0 | 0 | 0 | 0 | 0.00 |
| Field Calibration | | | | | |
| | Measured Pads 1-5 Caliper(in) 7.87 | Measured Pads 3-7 Caliper(in) 7.93 | Actual Caliper(in) 7.96 | | |
| | Measured Pad 2 Caliper(in) 3.93 | Measured Pad 4 Caliper(in) 4.02 | Measured Pad 6 Caliper(in) 4.01 | Measured Pad 8 Caliper(in) 3.93 | Actual Caliper(in) 7.96 |
| Caliper Constants MIE-A.J 244 | | | | | |
| Caliper Difference for BRKT | | | 0.120 | inches | Last Edited on 11-OCT-2012,09:58 |
| Magnetometer Parameters MIE-A.J 244 | | | | | |
| Date Of Last Magnetometer Calibration | | 12-OCT-2012,01:37 | | | |
| | X Magnetometer | Y Magnetometer | Z Magnetometer | | |
| Slope | -1.000000 | -1.000925 | -0.993497 | | |
| Offset | 0.008903 | -0.008749 | 0.009457 | | |
| Magnetometer Constants MIE-A.J 244 | | | | | |
| Magnetometer Calibrator Number | | | | | Last Edited on |
| 000 | | | | | |
| FE Calibration MFE-A.A 76 | | | | | |
| Base Calibration | | | Base Calibration on 08-OCT-2012 10:03 Field Check on 10-OCT-2012 12:57 | | |
| | Measured | Calibrated (ohm-m) | | | |
| Reference 1 | 0.0 | 0.0 | | | |
| Reference 2 | 965.4 | 126.8 | | | |
| Base Check | | 279.7 | | | |
| Field Check | | 279.9 | | | |
| FE Constants MFE-A.A 76 | | | | | |
| Running Mode | | | | | No Sleeve |
| MFE K Factor | | | | | 0.1268 |
| Caliper Source for FE correction | | | | | Density Caliper |
| Caliper Value for FE correction | | | | | N/A |
| Rm Source for FE correction | | | | | Temperature Corr |
| Temp. for Rm Corr. | | | | | MCG External Temperature |
| Stand-off | | | | | 1.0 |
| inches | | | | | |
| High Resolution Temperature Calibration MAI-B.A 248 | | | | | |
| Measured | | | | | Calibrated(Deg C) |
| Lower | 10.00 | | | | 10.00 |
| Upper | 100.00 | | | | 100.00 |
| High Resolution Temperature Constants MAI-B.A 248 | | | | | |
| Pre-filter Length | | | | | 11 |
| Induction Calibration MAI-B.A 248 | | | | | |
| Base Calibration | | | Base Calibration on 04-DEC-2010,07:57 Field Check on 10-OCT-2012 11:18 | | |
| Test Loop Calibration | | Measured | Calibrated (mmho/m) | | |
| Channel | Low | High | Low | High | |
| 1 | 16.8 | 468.4 | 9.3 | 966.2 | |
| 2 | 5.9 | 377.9 | 7.6 | 821.4 | |
| 3 | 3.4 | 262.7 | 5.2 | 566.0 | |

| | | | | | |
|-------------------|---------------------|--------|----------------------|--------|-------|
| 4 | 1.4 | 135.2 | 2.6 | 279.2 | |
| Array Temperature | | 23.8 | Deg F | | |
| Channel | Base Check (mmho/m) | | Field Check (mmho/m) | | |
| | Low | High | Low | High | |
| 1 | 13.6 | 3891.2 | 13.7 | 3892.5 | |
| 2 | 30.9 | 3583.5 | 31.0 | 3583.8 | |
| 3 | 28.6 | 3026.5 | 28.6 | 3026.4 | |
| 4 | 20.3 | 2044.8 | 20.3 | 2044.9 | |
| Deep | 17.4 | 1910.3 | 17.4 | 1910.2 | |
| Medium | 41.3 | 4021.3 | 41.3 | 4021.0 | |
| Shallow | 46.4 | 5394.9 | 46.5 | 5395.5 | |
| Array Temperature | | 63.5 | | 65.5 | Deg F |

| | | | | | |
|--|--------|--------------------------|--|----------------------------------|--|
| Induction Constants MAI-B.A 248 | | | | Last Edited on 12-OCT-2012,10:14 | |
| 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 | | 1.00 | | inches | |
| Number of Fins on Stand-off | | 6.0000 | | | |
| Stand-off Fin Angle | | 60.00 | | 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-C.J 378 | | | Base Calibration on 08-OCT-2012 11:28 Field Calibration on 10-OCT-2012 11:35 | | |
| Base Calibration | | | | | |
| Reading No | | Measured | Calibrator Size (in) | | |
| 1 | | 14064 | 3.99 | | |
| 2 | | 22752 | 5.97 | | |
| 3 | | 31206 | 7.96 | | |
| 4 | | 39310 | 9.87 | | |
| 5 | | 48416 | 11.92 | | |
| 6 | | N/A | N/A | | |
| Field Calibration | | | | | |
| | | Measured Caliper (in) | Actual Caliper (in) | | |
| | | 7.90 | 7.96 | | |

Density Calibration

Base Calibration

| | Measured | | Calibrated (sdu) | |
|-------------|----------|-------|------------------|-------|
| | Near | Far | Near | Far |
| Reference 1 | 39256 | 12407 | 52994 | 19128 |
| Reference 2 | 18793 | 2214 | 25185 | 2558 |

Field Check at Base

1202.8 1285.3

Field Check

1197.1 1283.5

PE Calibration

Base Calibration

| | WS | Measured | | Calibrated | |
|-------------|-------|----------|-------|------------|--|
| | | WH | Ratio | Ratio | |
| Background | 217 | 1077 | | | |
| Reference 1 | 13471 | 39095 | 0.349 | 0.309 | |
| Reference 2 | 5343 | 18659 | 0.292 | 0.274 | |

Field Check at Base

217.1 1076.8

Field Check

220.8 1070.2

Density Constants MPD-C.J 378

Last Edited on 12-OCT-2012,01:29

| | |
|-------------------------------|-----------------|
| Density Source Id | P15771B |
| Nylon Calibrator Number | DNC-D-527 |
| Aluminium Calibrator Number | DAC-D-527 |
| Density Shoe Profile | 8 inch |
| Caliper Source for Processing | Density Caliper |
| PE Correction to Density | Not Applied |
| Mud Density | 1.17 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) |
|------------------------|------------|
| 2.65 | |
| 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 | 0.00 |

DOWNHOLE EQUIPMENT

C:\Users\gfrancis\AppData\Local\Temp\Weatherford PreView\0\ECGS No 6-18 WPD011-2_CMAIN.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

SHA-H Compact Swivel Head Adaptor

SHA-H 142 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

Compact Comms Gamma

MCG-D.K 483 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in



70.14 ft GRGC - Gamma Ray

67.96 ft CCLG - Casing Collar Locator

67.23 ft CGXT - MCG External Temperature

Compact Neutron
MDN-B.J 372 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper
MPD-C.J 378 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

MIS-A.A Compact Inline Bowspring sub
MIS-A.A 70 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

SKJ-D.A Compact Knuckle Joint
SKJ-D.A 112 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

MIS-E.A Compact Inline Standoff sub
MIS-E.A 334 LG: 2.14 ft WT: 15.4 lb OD: 2.24 in

SKJ-D.A Compact Knuckle Joint
SKJ-D.A 143 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

SHA-J.B Compact Swivel Head Adaptor
SHA-J.B 574 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

Compact MMI Memory Section
MIM-A.J 244 LG: 4.65 ft WT: 26.5 lb OD: 2.24 in

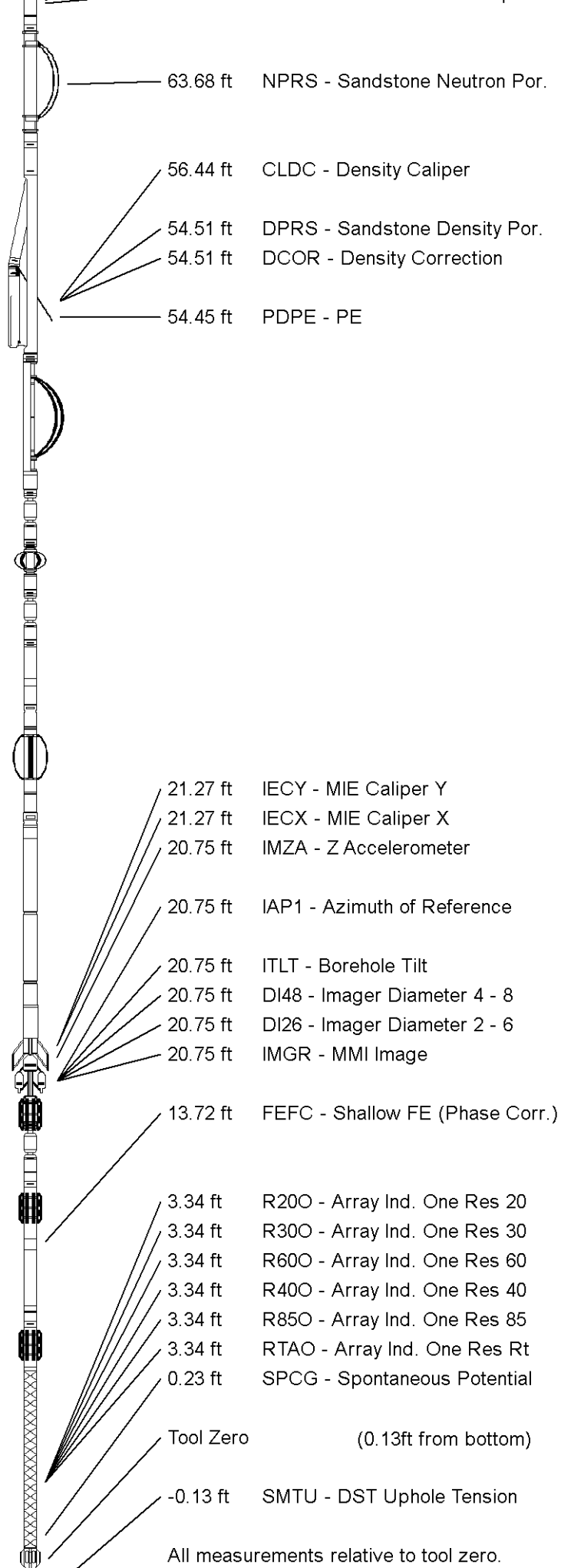
Compact MMI Electrode Section
MIE-A.J 244 LG: 13.96 ft WT: 99.2 lb OD: 4.09 in

SKJ-E.B Compact Knuckle Joint
SKJ-E.B 583 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

Compact Focussed Electric
MFE-A.A 76 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

Compact Induction
MAI-B.A 248 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 79.30 ft Weight: 608.5 lb



| | | | |
|-----------------|-------------------------------|--|--|
| COMPANY | EAST CHEYENNE GAS STORAGE LLC | | |
| WELL | ECGS No 6-18 WPD011-2 | | |
| FIELD | PEETZ WEST | | |
| PROVINCE/COUNTY | LOGAN | | |
| COUNTRY/STATE | USA/COLORADO | | |

| | | | | | |
|-------------------------|---------|------|---------------|---------|------|
| Elevation Kelly Bushing | 4564.00 | feet | First Reading | 5210.00 | feet |
| Elevation Drill Floor | 4563.00 | feet | Depth Driller | 5260.00 | feet |
| Elevation Ground Level | 4550.00 | feet | Depth Logger | 5264.00 | feet |



Weatherford[®]

PHOTO DENSITY
COMPENSATED NEUTRON
LOGS