



Weatherford[®]

**COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRORESISTIVITY LOG**

COMPANY GRAND MESA OPERATING COMPANY

WELL HESS-SMITH #1-22

FIELD WILDCAT

PROVINCE/COUNTY LOGAN

COUNTRY/STATE U.S.A. / KANSAS

LOCATION 2414' FNL & 1864' FWL

SEC 22 TWP 12S RGE 32W Other Services MAI/MFE

API Number 15-109-21178

Permit Number

Permanent Datum GL, Elevation 3027 feet

Log Measured From KB Elevations: KB 3037.00

Drilling Measured From KB DF 3036.00

Date 17-MAY-2013 GL 3027.00

Run Number ONE

Service Order 3537746

Depth Driller 4735.00 feet

Depth Logger 4734.00 feet

First Reading 4715.00 feet

Last Reading 3734.00 feet

Casing Driller 225.00 feet

Casing Logger 224.00 feet

Bit Size 7.875 inches

Hole Fluid Type CHEMICAL

Density / Viscosity 9.10 lb/USg 57.00 CP

PH / Fluid Loss 10.00 8.00 ml/30Min

Sample Source MUDDPIT

Rm @ Measured Temp 1.64 @ 99.0 ohm-m

Rmf @ Measured Temp 1.31 @ 99.0 ohm-m

Rmc @ Measured Temp 1.97 @ 99.0 ohm-m

Source Rmf / Rmc CALC CALC

Rm @ BHT 1.40 @ 116.0 ohm-m

Time Since Circulation 5 HOURS

Max Recorded Temp 116.00 deg F

Equipment / Base 13096 LIB

Recorded By ADAM SILL

Witnessed By KENT MATSON

JOB # LB13-139

BOREHOLE RECORD

Last Edited: 17-MAY-2013 17:16

Bit Size inches	Depth From feet	Depth To feet
7.875	225.00	4735.00

CASING RECORD

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

REMARKS

- SOFTWARE ISSUE: WLS 13.05.9583.
- MCG, MML, MDN, MPD, MFE, MAI RUN IN COMBINATION.
 - HARDWARE: DUAL BOWSPRING USED ON MDN.
 - 0.5 INCH STANDOFF USED ON MFE.
 - 0.5 INCH STANDOFF USED ON MAI.
- 2.71 G/CC LIMESTONE DENSITY MATRIX USED TO CALCULATE POROSITY.
- BOREHOLE RUGOSITY, TIGHT PULLS, AND WASHOUTS WILL AFFECT DATA QUALITY.
- ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST.
- TOTAL HOLE VOLUME FROM TD TO SURFACE CASING: 1730 CU. FT.
- ANNULAR HOLE VOLUME WITH 5.5 INCH CASING FROM TD TO 3734 FEET: 183 CU. FT.
- RIG: VAL #4

- ENGINEER: A. SILL.

- OPERATOR(S): N. ADAME.

**** WHILE RUNNING IN HOLE BRIDGED OFF AT 2560 FEET, CAME UP AND WENT BACK DOWN AND WENT RIGHT THROUGH IT. ****

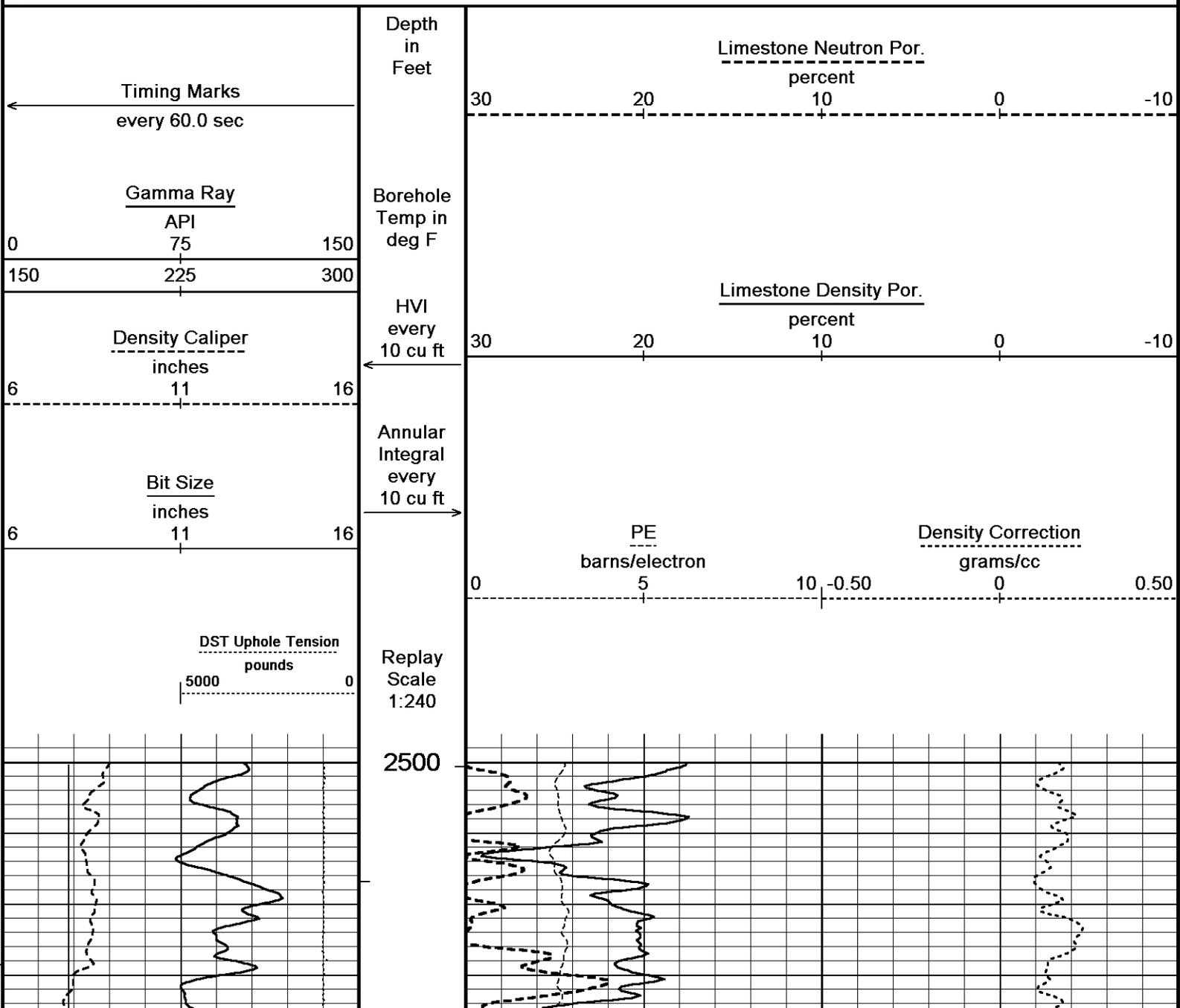
**** PULLED TIGHT AT 4709 FEET ON THE REPEAT PASS. CLOSED CALIPERS AND PULLED INTO IT 1000 POUNDS OVER. DROPPED DOWN A LITTLE BIT AND PULLED BACK UP AND PULLED THROUGH. REOPENED CALIPERS AND CONTINUED LOGGING. ****

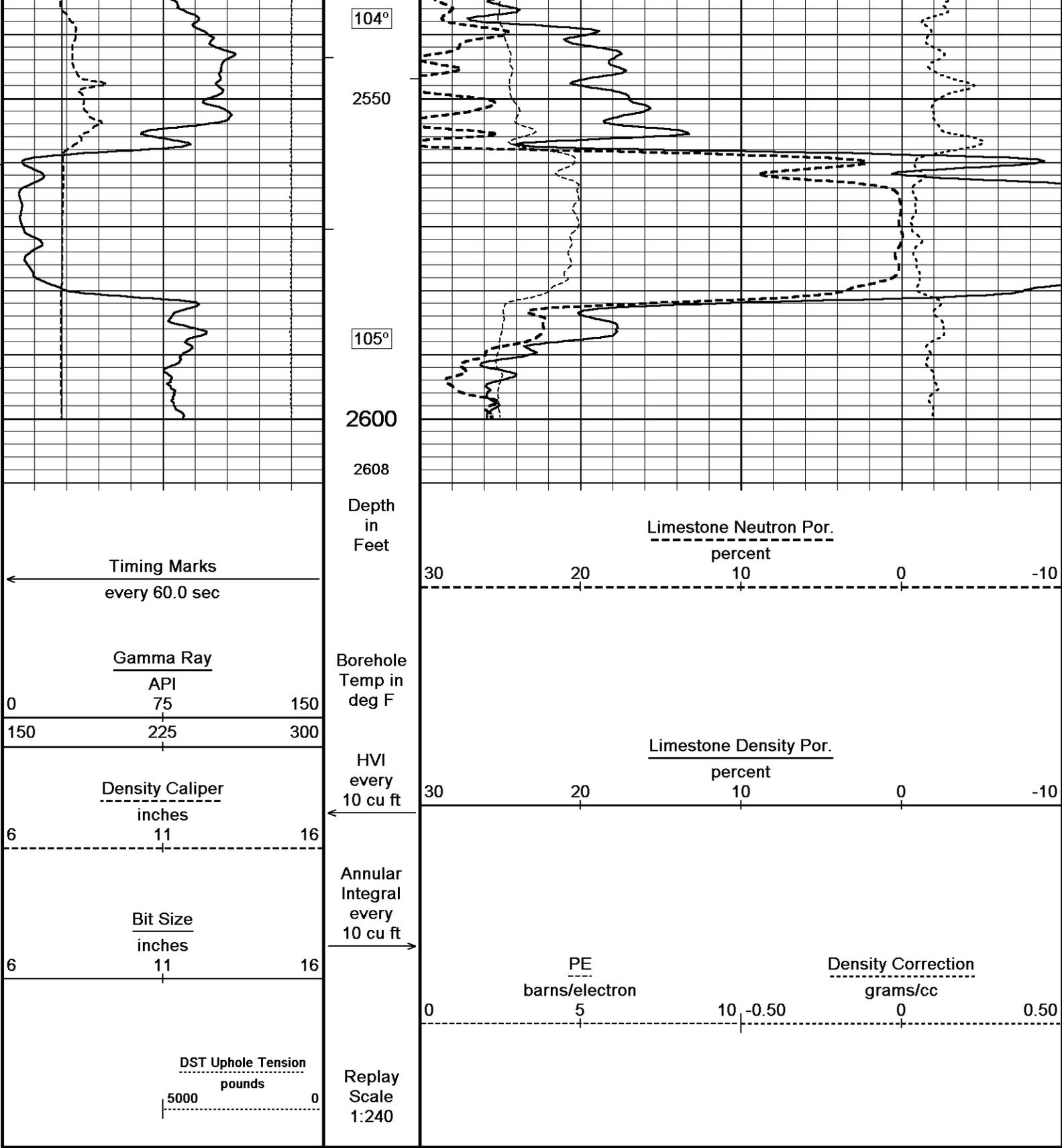
**** AFTER PULLING TIGHT INSTRUCTED TO JUST LOG OUT OF THE HOLE AND NOT ATTEMPT TO DROP BACK DOWN TO LOG THE MAIN PASS. ****

All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions in our price schedule.

5 INCH MAIN

Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 04-JUN-2013 16:07
Filename: C:\Minimus 13.05.9583\Data\Grand Mesa Hess S...\Grand Mesa Hess-Smith #1-22 Main.dta Recorded on 17-MAY-2013 19:48
System Versions: Logged with 13.05.9583 Processed with 13.05.9583 Plotted with 13.05.9583





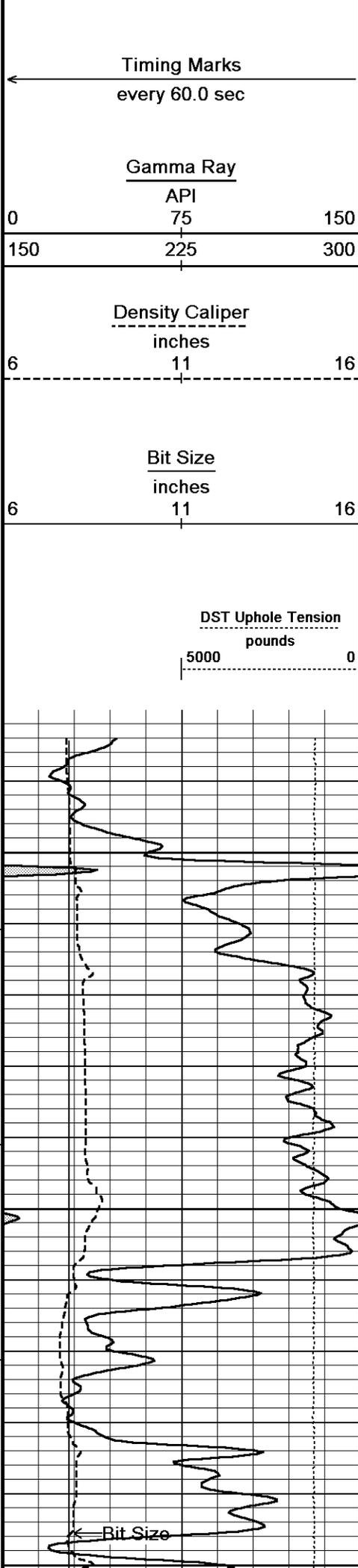
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↓ **Depth** ↓



Depth
in
Feet

Borehole
Temp in
deg F

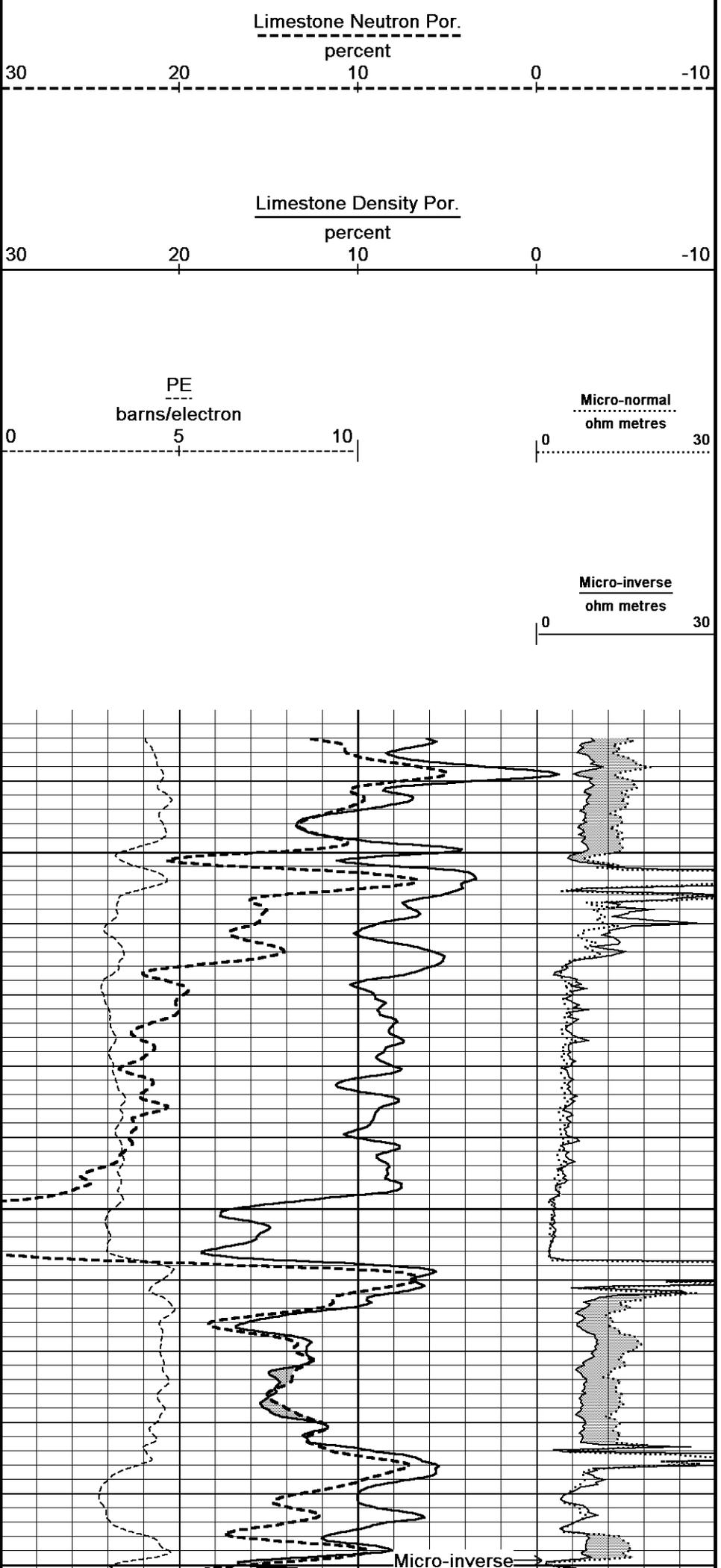
HVI
every
10 cu ft

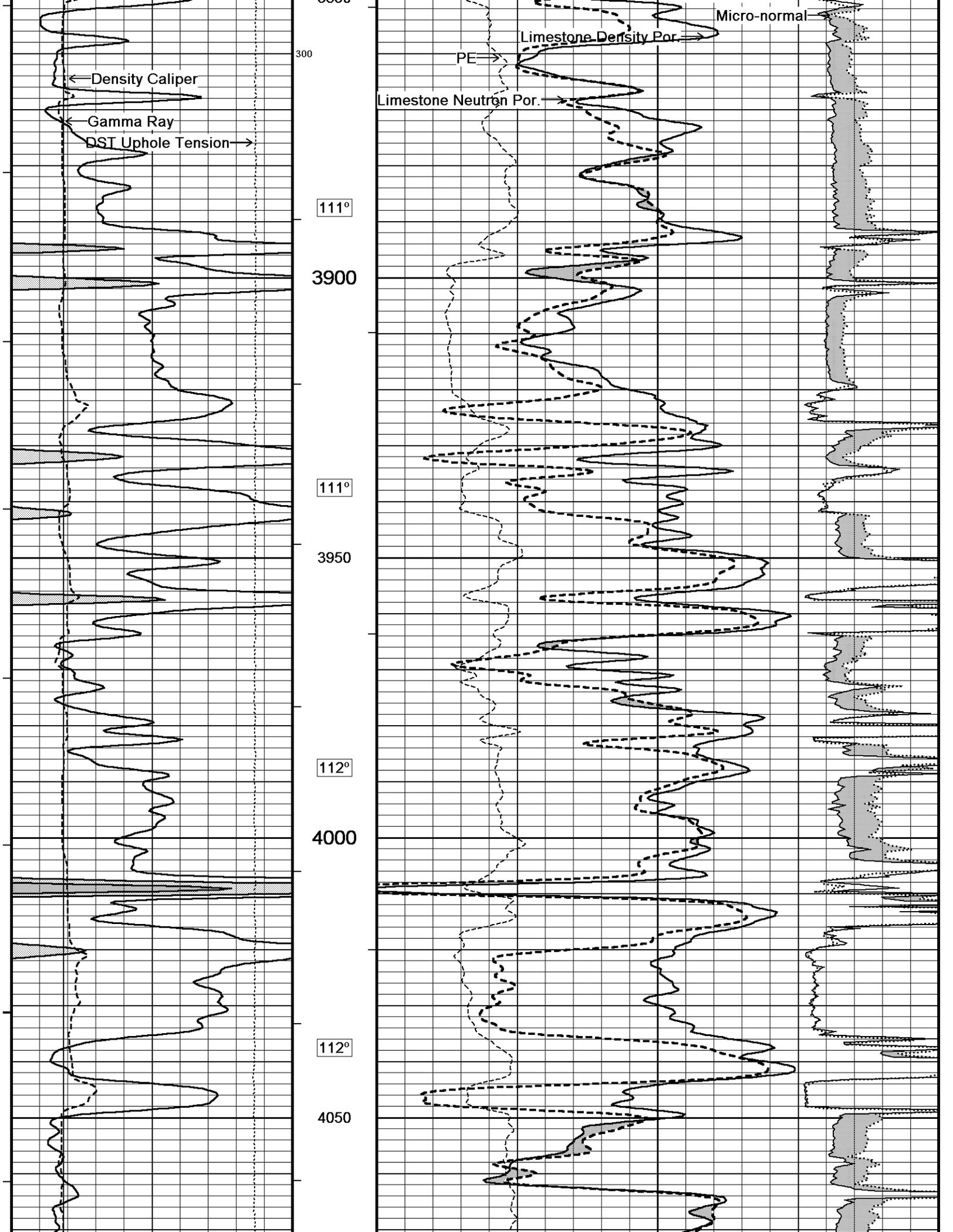
Annular
Integral
every
10 cu ft

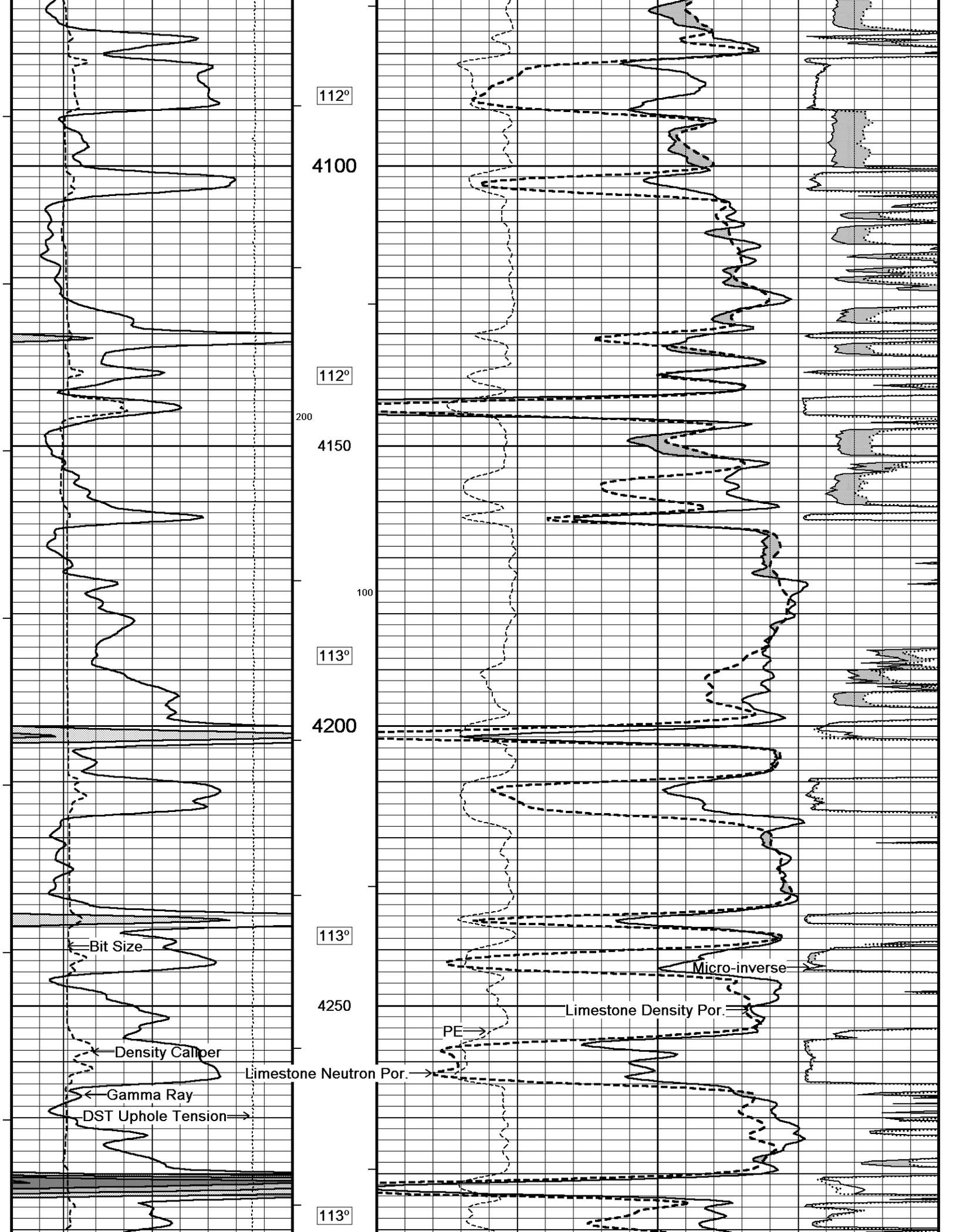
Replay
Scale
1:240

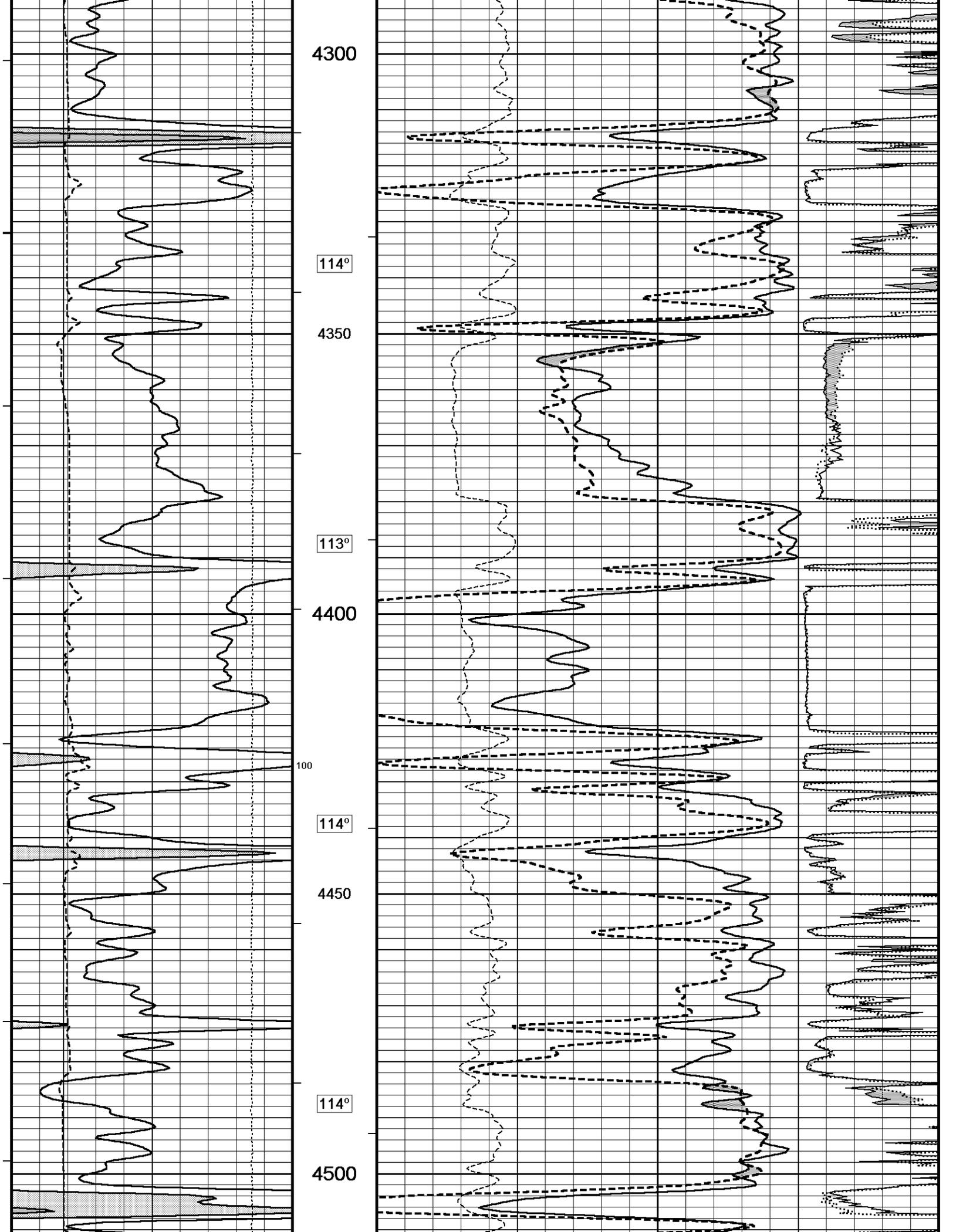
111°

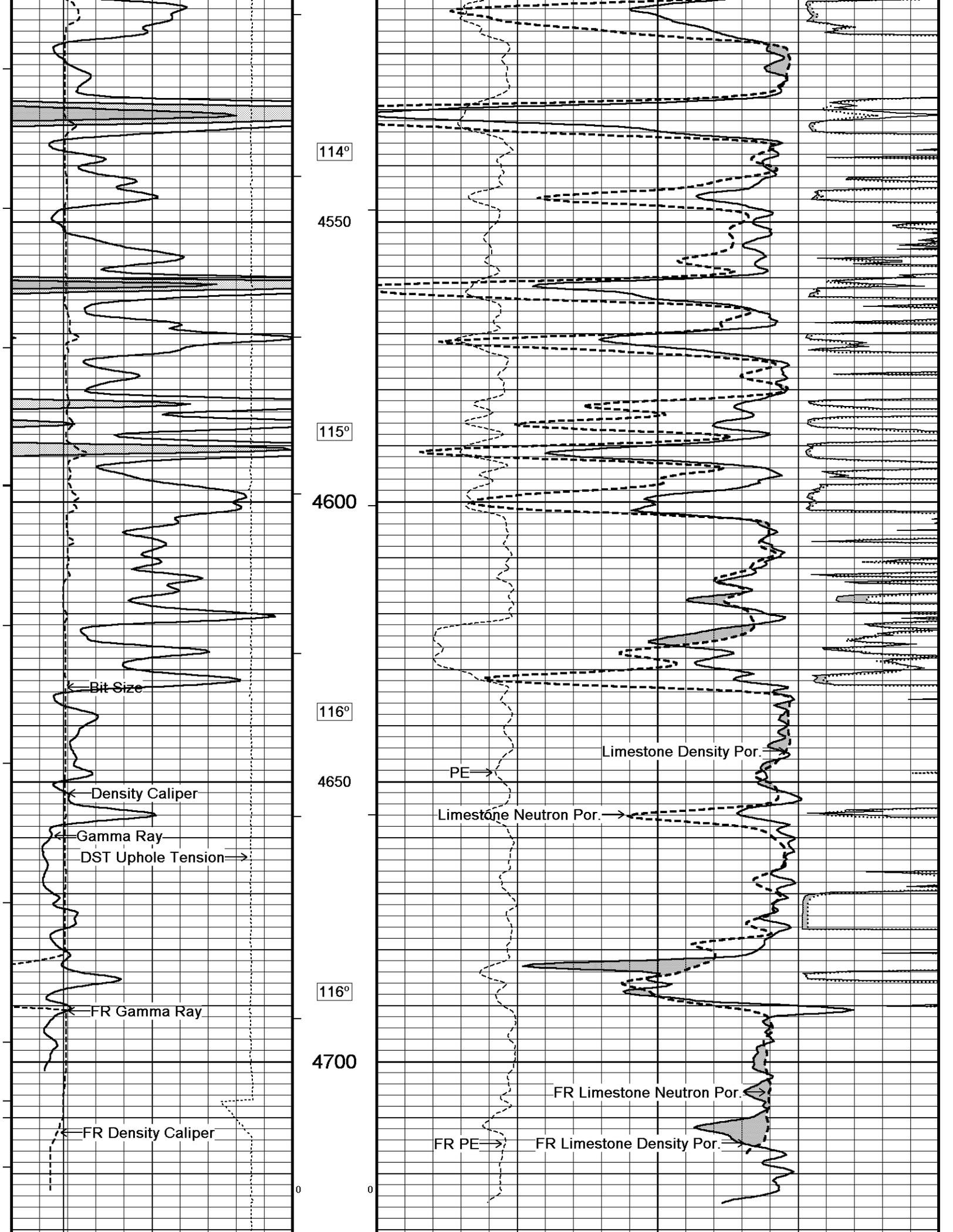
111°











FR DST Uphole Tension →

4750

Depth in Feet

Timing Marks every 60.0 sec

Gamma Ray

API

75

225

Borehole Temp in deg F

Limestone Neutron Por. percent

30 20 10 0 -10

Limestone Density Por. percent

30 20 10 0 -10

HVI every 10 cu ft

Density Caliper inches

11

Annular Integral every 10 cu ft

PE

barns/electron

5

10

Micro-normal ohm metres

0 30

Bit Size inches

11

Replay Scale 1:240

DST Uphole Tension pounds

5000

Micro-inverse ohm metres

0 30

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Depth in Feet

Timing Marks every 60.0 sec

Gamma Ray

API

75

225

Borehole Temp in deg F

Compensated Density grams/cc

2 2.25 2.50 2.75 3

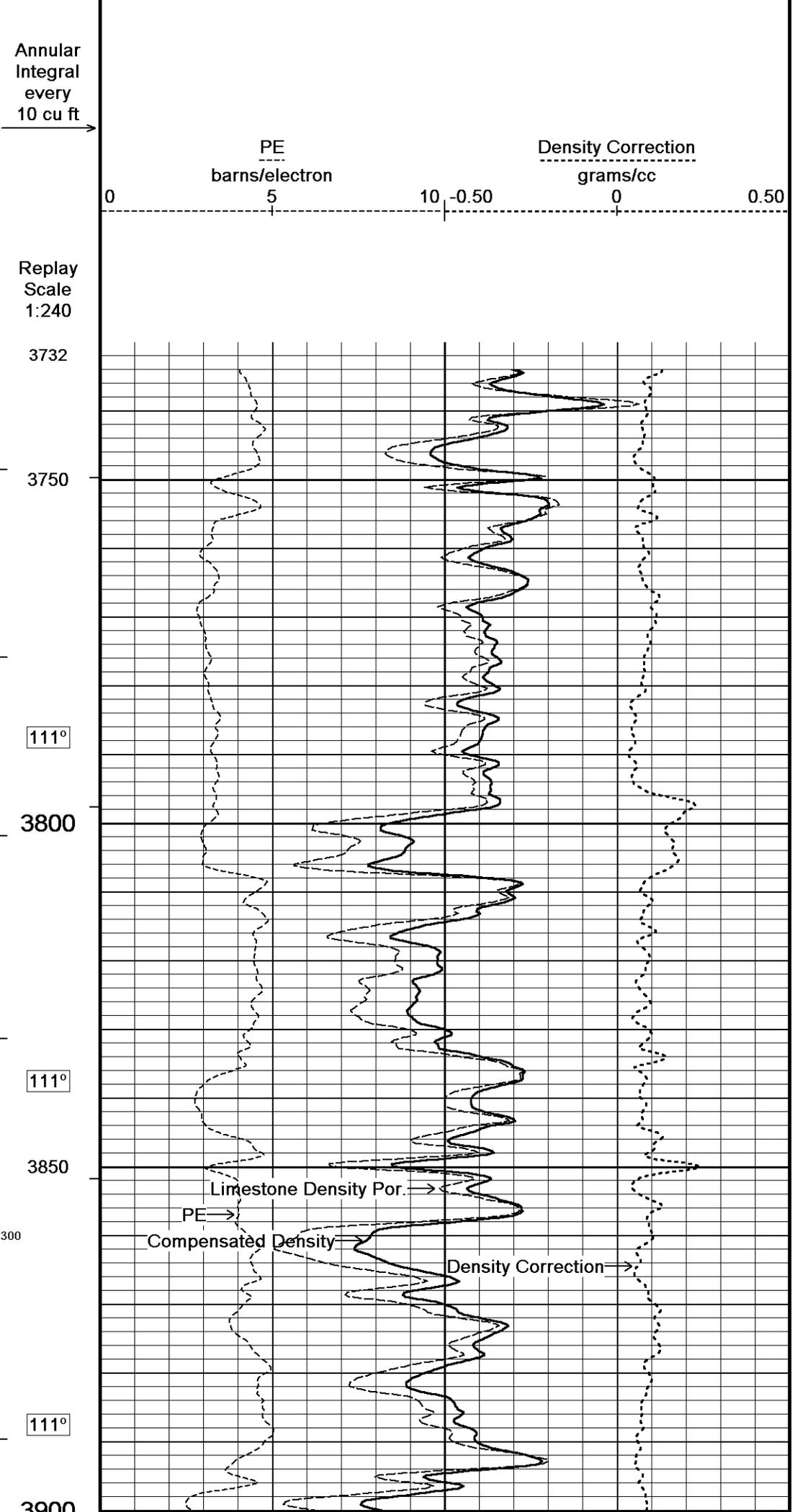
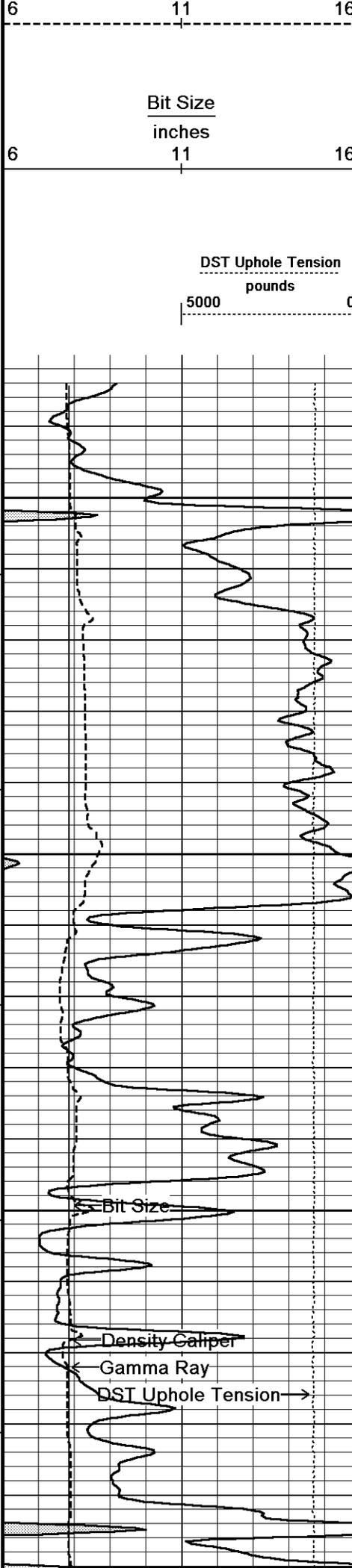
Limestone Density Por. percent

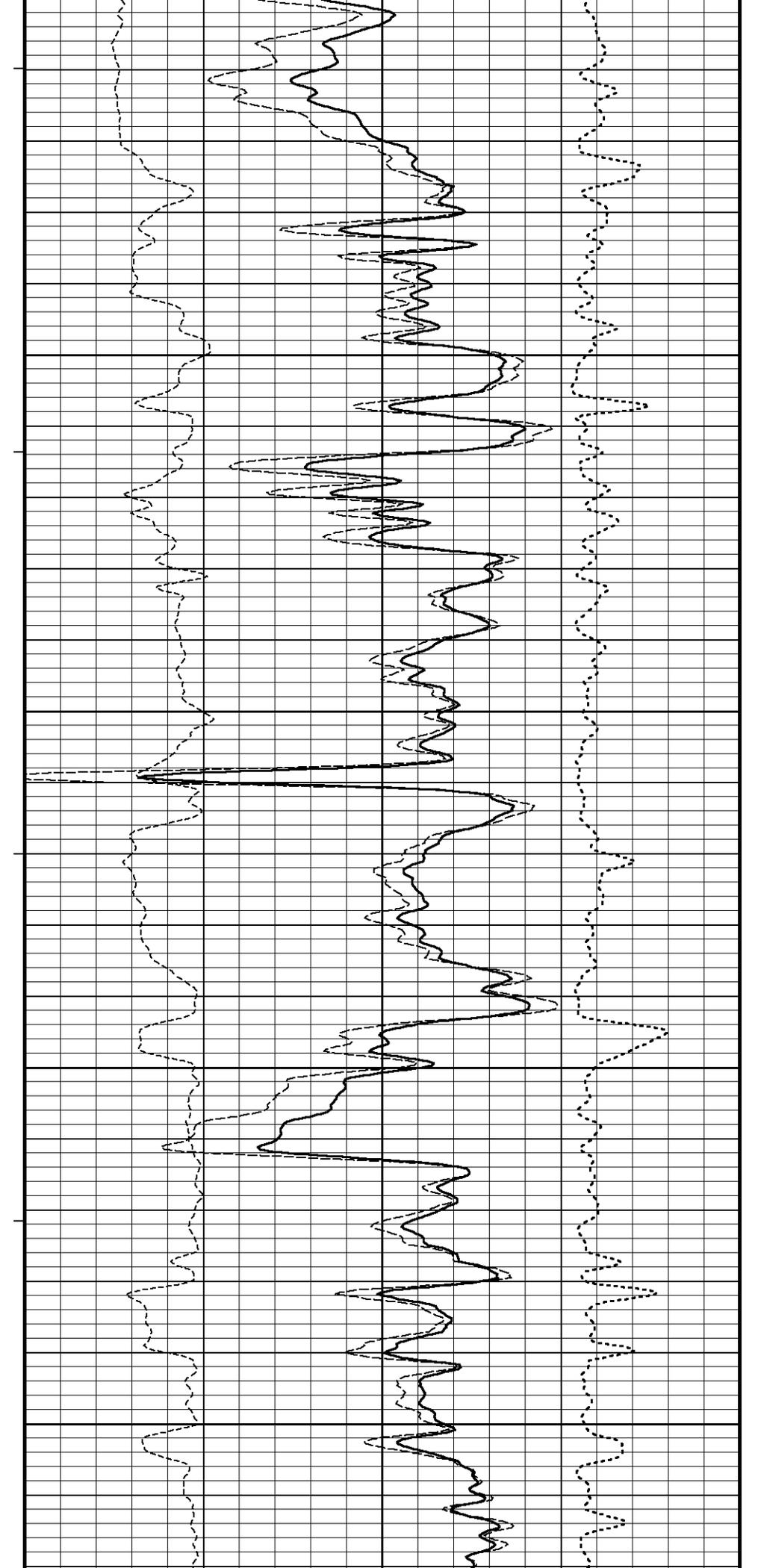
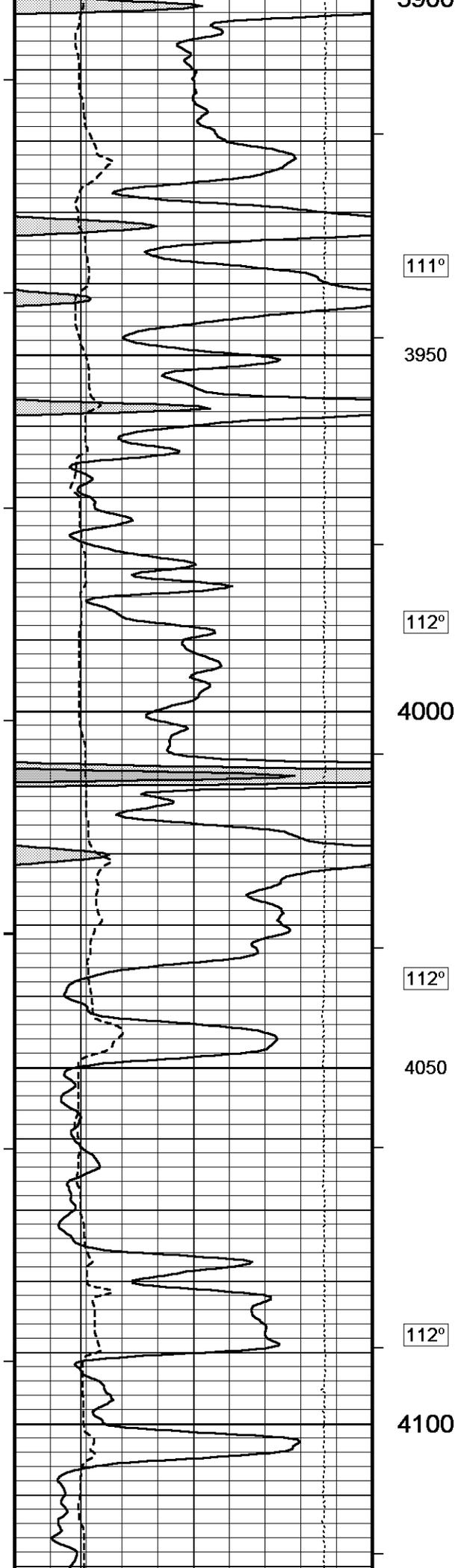
30 20 10 0 -10

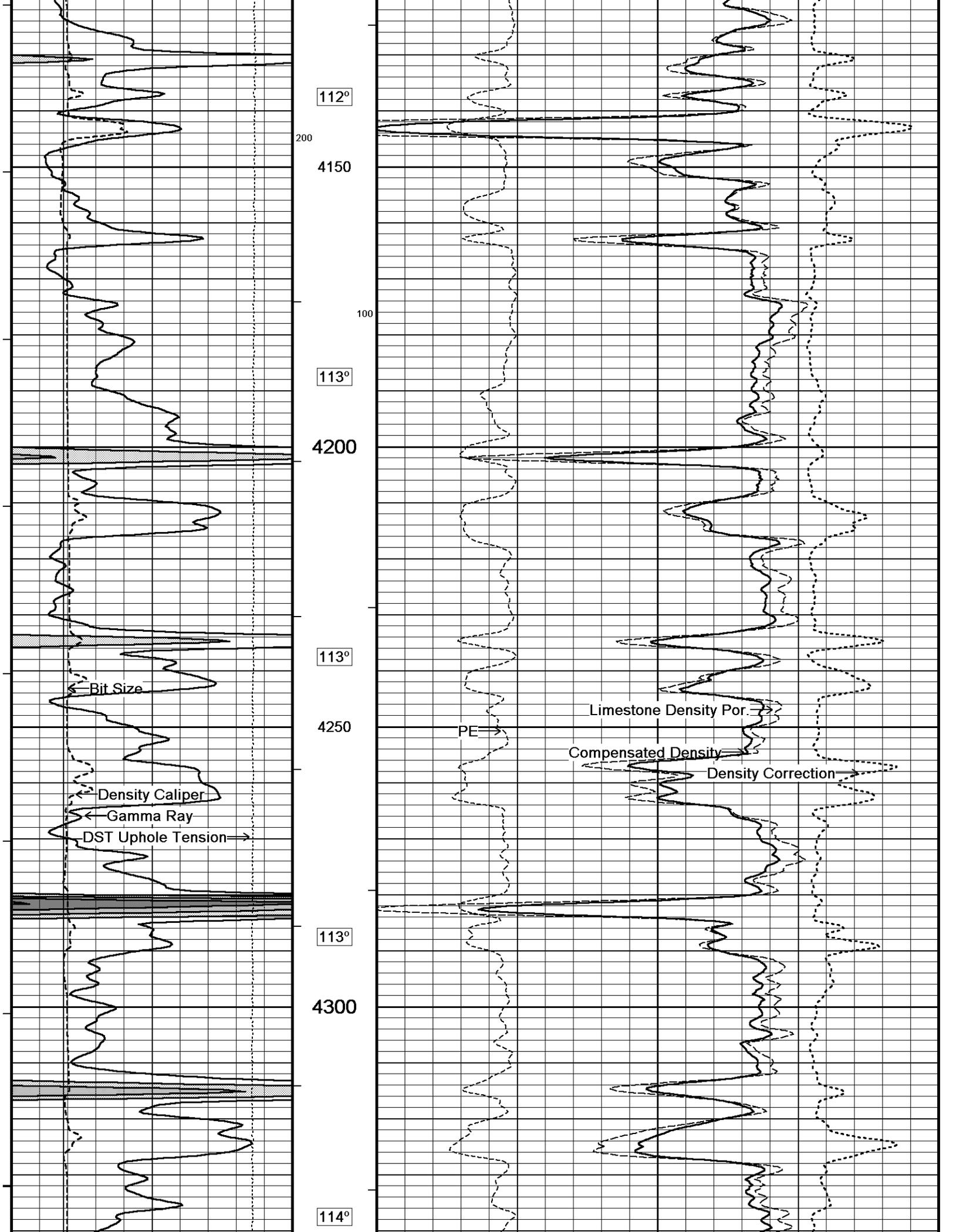
HVI every 10 cu ft

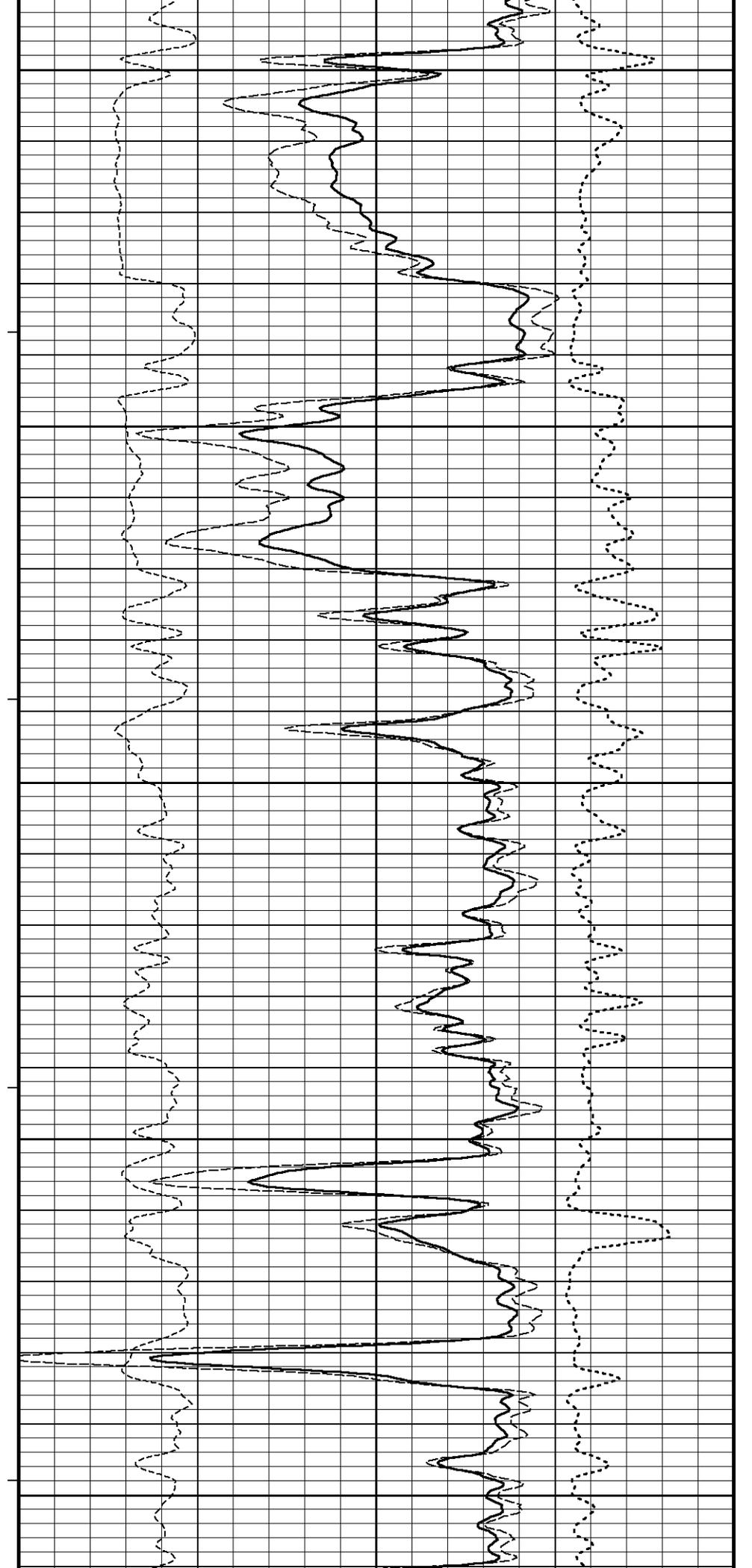
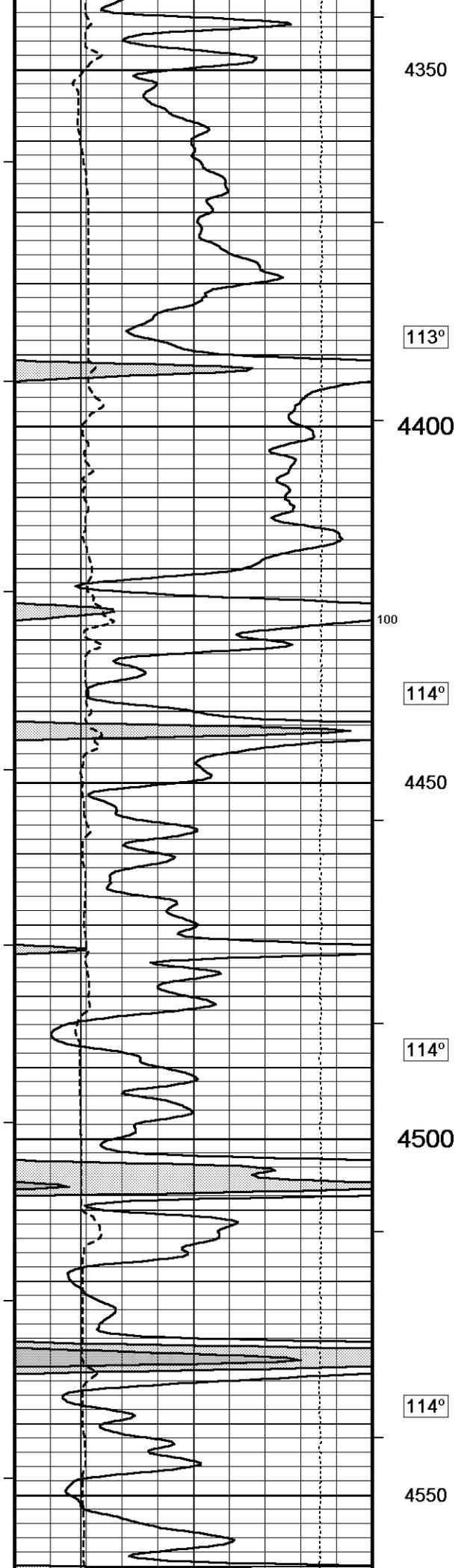
Density Caliper inches

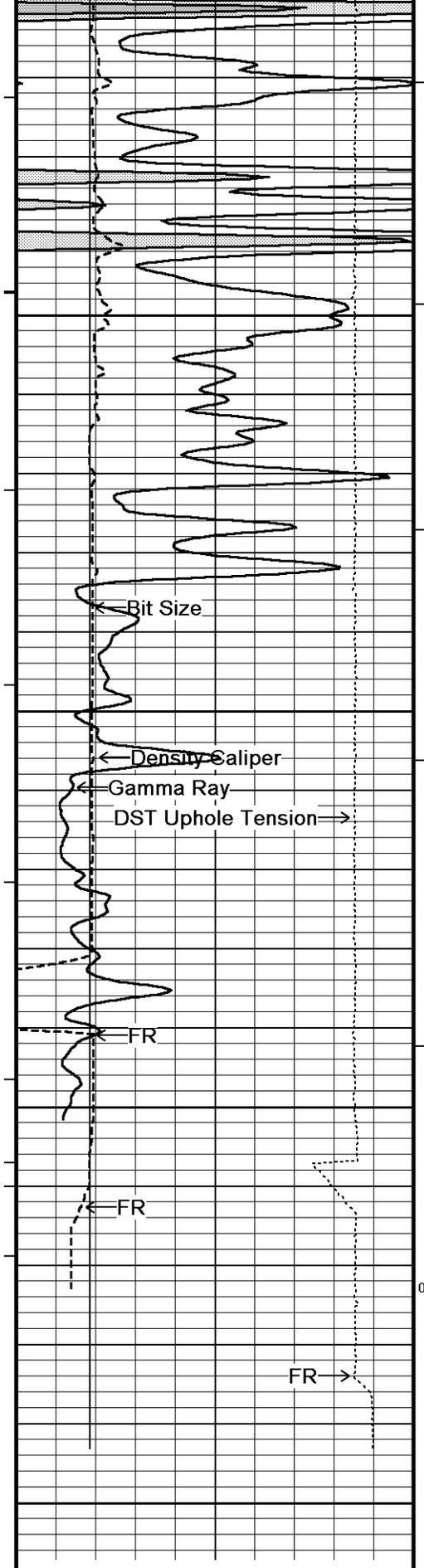
11











115°

4600

116°

4650

116°

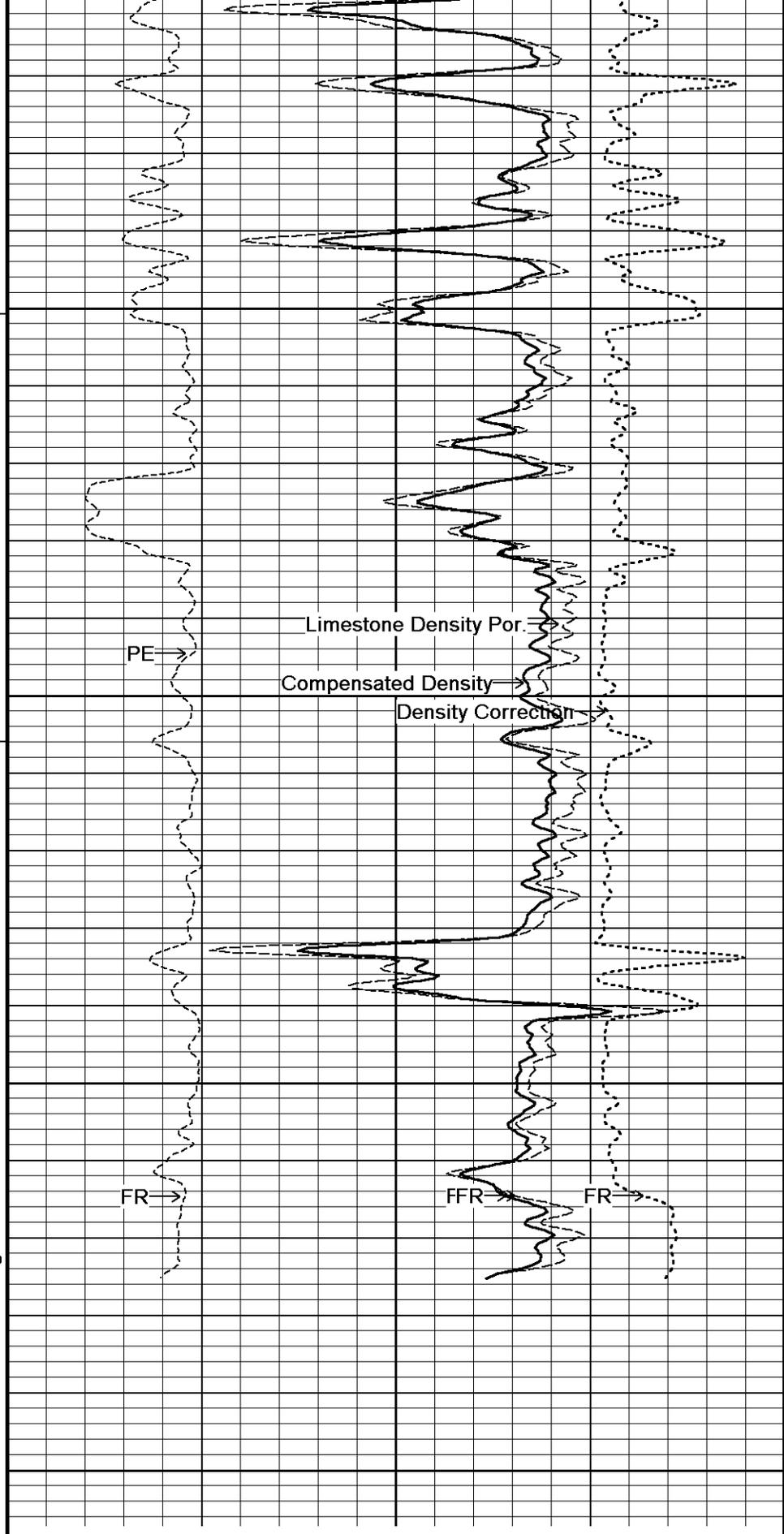
4700

0

4750

Depth
in
Feet

Timing Marks
every 60.0 sec



Limestone Density Por.

Compensated Density

Density Correction

Compensated Density
grams/cc

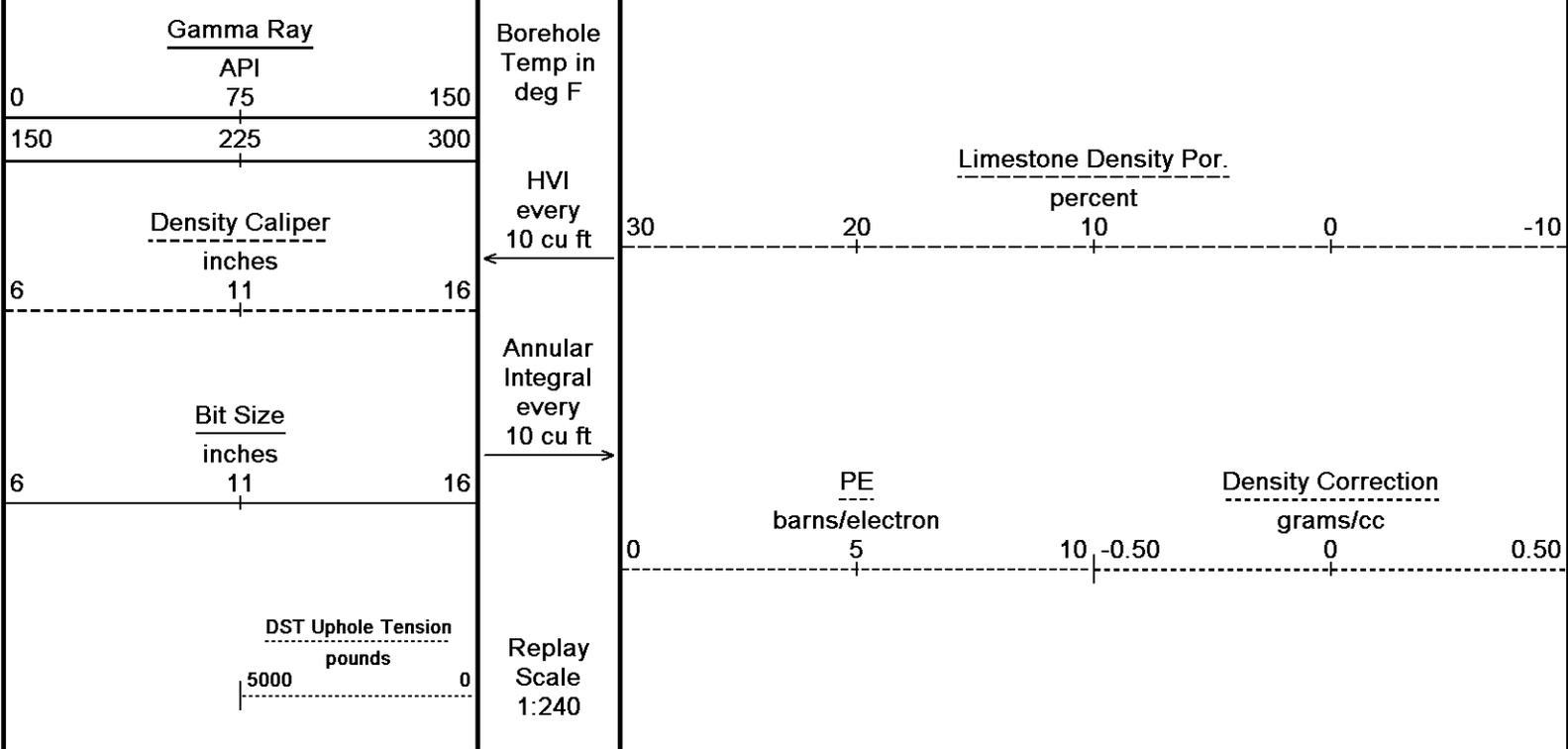
2

2.25

2.50

2.75

3



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

BEFORE SURVEY CALIBRATION
 C:\Minimus 13.05.9583\Data\Grand Mesa Hess Smith #1-22\Grand Mesa Hess-Smith #1-22.dta

General Constants All 000 Last Edited on 17-MAY-2013,17:26

General Parameters
 Mud Resistivity 1.640 ohm-metres
 Mud Resistivity Temperature 99.000 degrees F
 Water Level 0.000 feet
 Borehole Fluid Processing Wet Hole

Hole/Annular Volume and Differential Caliper Parameters
 HVOL Method Single Caliper
 HVOL Caliper 1 Density Caliper
 HVOL Caliper 2 N/A
 Annular Volume Diameter 5.500 inches
 Caliper for Differential Caliper Density Caliper

Rwa Parameters
 Porosity used Base Density Porosity
 Resistivity used Array Ind. Four Res Rt
 RWA Constant A 0.610
 RWA Constant M 2.150
 SW/APOR Tool Source 0.000

Gamma Calibration MCG-D.K 469 Field Calibration on 17-MAY-2013 10:01

	Measured	Calibrated (API)
Background	68	47
Calibrator (Gross)	1128	772
Calibrator (Net)	1060	725

Gamma Constants MCG-D.K 469 Last Edited on 17-MAY-2013,17:25

Gamma Calibrator Number GRC38
 Mud Density 1.09 gm/cc
 Caliper Source for Processing Density Caliper
 Tool Position Eccentred

Concentration of KCl			
K Mud Type	Chloride		kppm
K Mud Concentration	0.00		%

High Resolution Temperature Calibration MCG-D.K 469

Field Calibration on 07-MAY-2013,09:42

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

High Resolution Temperature Constants MCG-D.K 469

Last Edited on 07-MAY-2013,09:42

Pre-filter Length 11

Caliper Calibration MPD-B 64

Base Calibration on 19-APR-2013 14:25

Field Calibration on 17-MAY-2013 09:31

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	13997	3.99
2	22559	5.98
3	31072	7.97
4	39474	9.86
5	48864	11.92
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
6.10	5.98

Photo Density Calibration MPD-B 64

Base Calibration on 19-APR-2013 15:00

Field Check on 17-MAY-2013 09:50

Density Calibration

Base Calibration		Measured	Calibrated (sdu)	
		Near	Far	
Reference 1	59471	32992	59556	30836
Reference 2	24990	2903	24941	2541

Field Check at Base

1171.7 1360.0

Field Check

1172.6 1352.3

PE Calibration

Base Calibration		Measured	Calibrated	
		WS	WH	Ratio
Background	212	1041		
Reference 1	22289	59266	0.379	0.371
Reference 2	6735	24851	0.274	0.272

Field Check at Base

212.2 1041.5

Field Check

212.9 1043.7

Density Constants MPD-B 64

Last Edited on 17-MAY-2013,17:25

Density Source Id	18235B	
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	1.09	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 (m)	

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
0.00	0.00
0.00	0.00

DOWNHOLE EQUIPMENT

C:\Minimus 13.05.9583\Data\Grand Mesa Hess Smith #1-22\Grand Mesa Hess-Smith #1-22.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-D.K 469 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Compact Micro-log
 MML-A 3 LG: 7.97 ft WT: 81.6 lb OD: 2.24 in

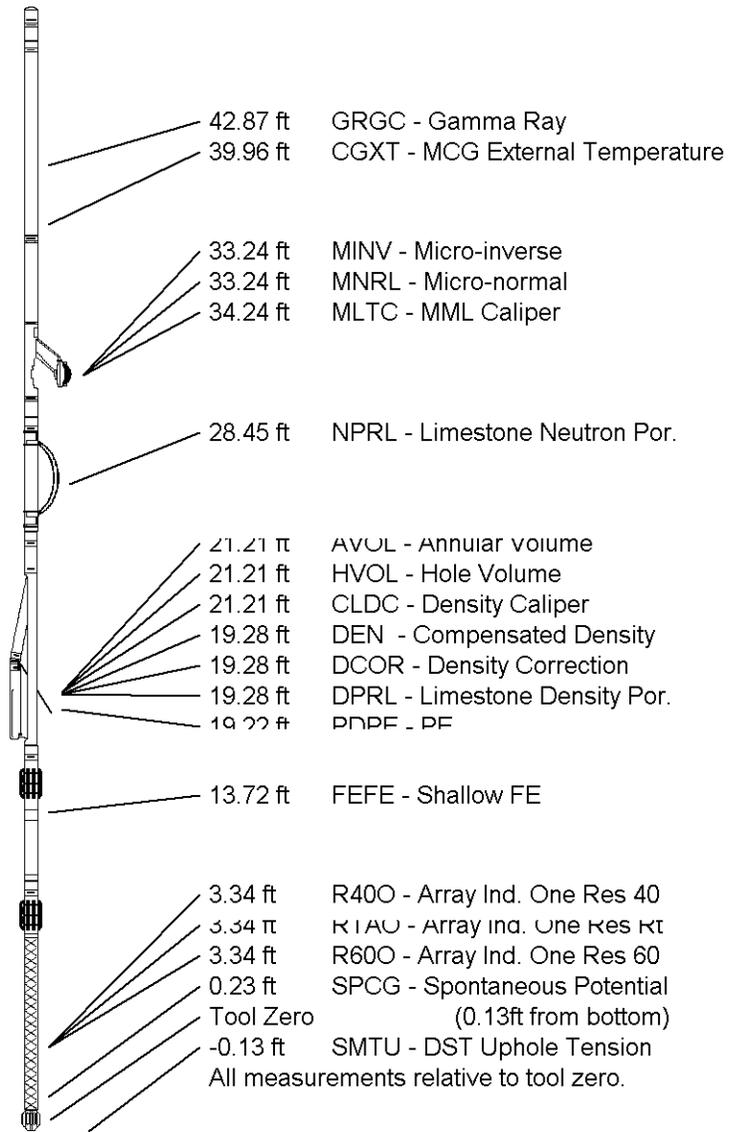
Compact Neutron
 MDN-A.B 66 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper
 MPD-B 64 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

Compact Focussed Electric
 MFE-B.J 353 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

Compact Induction
 MAI-A.A 167 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 49.73 ft Weight: 399.0 lb



COMPANY	GRAND MESA OPERATING COMPANY
WELL	HESS-SMITH #1-22
FIELD	WILDCAT
PROVINCE/COUNTY	LOGAN
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	3037.00	feet	First Reading	4715.00	feet
Elevation Drill Floor	3036.00	feet	Depth Driller	4735.00	feet
Elevation Ground Level	3027.00	feet	Depth Logger	4734.00	feet



COMPACT PHOTO DENSITY

