



Weatherford

**COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRORESISTIVITY LOG**

COMPANY				GRAND MESA OPERATING COMPANY			
WELL				E & E #2-34			
FIELD				WILDCAT			
PROVINCE/COUNTY				LOGAN			
COUNTRY/STATE				U.S.A. / KANSAS			
LOCATION				2078' FSL & 1667' FWL			
SEC	TWP	RGE	Other Services				
34	13S	32W	MAI/MFE				
API Number		15-109-21177					
Permit Number							
Permanent Datum GL, Elevation 2906 feet							
Log Measured From KB				Elevations: KB 2917.00			
Drilling Measured From KB				DF 2916.00			
				GL 2906.00			
Date	25-MAY-2013						
Run Number	ONE						
Service Order	3537751						
Depth Driller	4640.00			feet			
Depth Logger	4640.00			feet			
First Reading	4621.00			feet			
Last Reading	3600.00			feet			
Casing Driller	230.00			feet			
Casing Logger	225.00			feet			
Bit Size	7.875			inches			
Hole Fluid Type	CHEMICAL						
Density / Viscosity	9.50 lb/USg		57.00 CP				
PH / Fluid Loss	9.00		9.60 ml/30Min				
Sample Source	FLOWLINE						
Rm @ Measured Temp	0.58 @ 99.0			ohm-m			
Rmf @ Measured Temp	0.46 @ 99.0			ohm-m			
Rmc @ Measured Temp	0.70 @ 99.0			ohm-m			
Source Rmf / Rmc	CALC	CALC	CALC				
Rm @ BHT	0.49 @ 117.0		ohm-m				
Time Since Circulation	4 HOURS						
Max Recorded Temp	117.00		deg F				
Equipment / Base	13096	LIB					
Recorded By	ADAM SILL						
Witnessed By	STEVE CARL						
JOB #	LB13-148						

BOREHOLE RECORD			Last Edited: 25-MAY-2013 03:56	
Bit Size inches	Depth From feet		Depth To feet	
7.875	230.00		4640.00	
CASING RECORD				
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	230.00	24.00

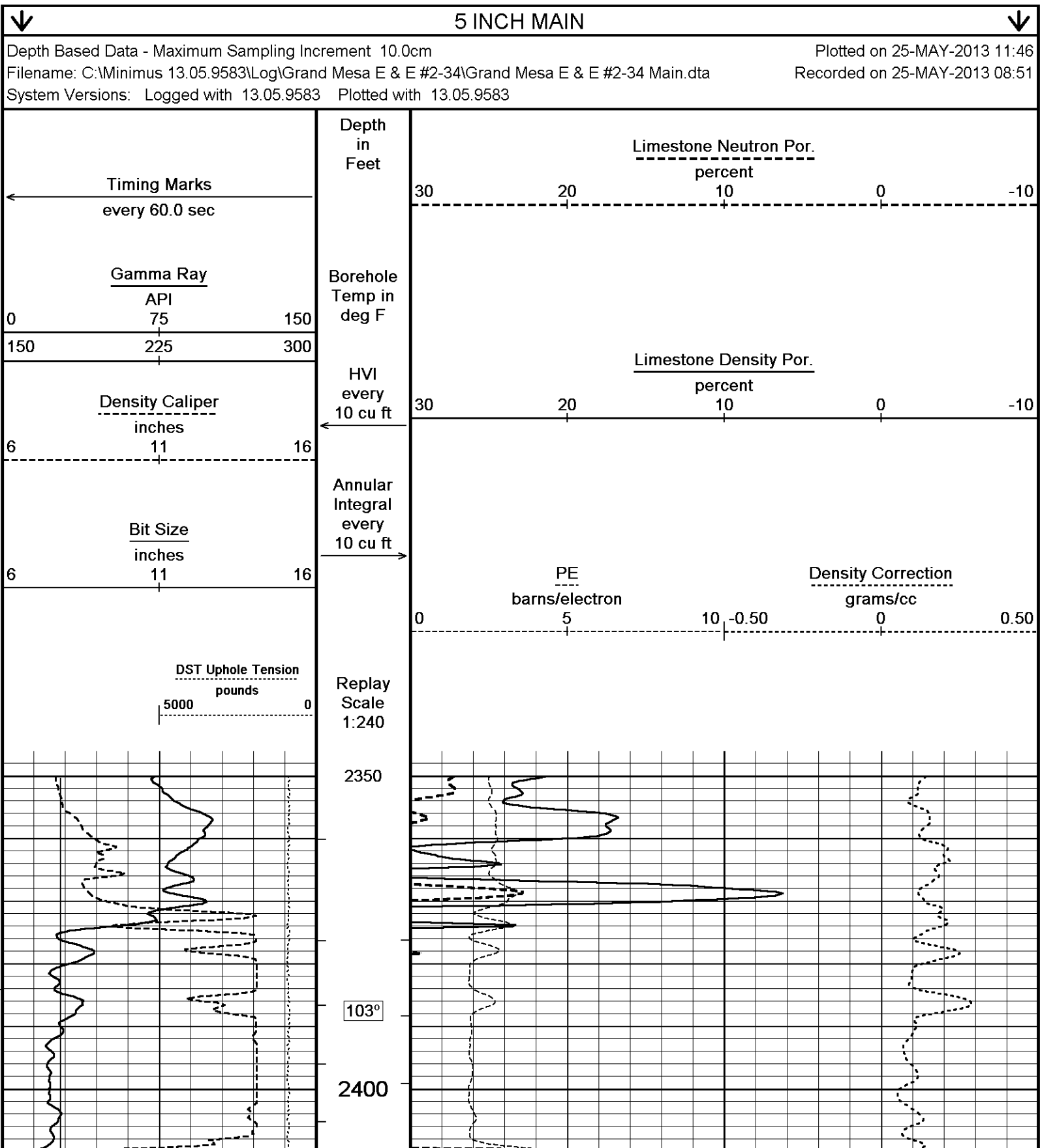
REMARKS
- SOFTWARE ISSUE: WLS 13.05.9583.
- MCG, MML, MDN, MPD, MFE, MAI RUN IN COMBINATION. - HARDWARE: DUAL BOWSPRING USED ON MDN. 0.5 INCH STANDOFF USED ON MFE. 0.5 INCH STANDOFF USED ON MAI.
- 2.71 G/CC LIMESTONE DENSITY MATRIX USED TO CALCULATE POROSITY.
- BOREHOLE RUGOSITY, TIGHT PULLS, AND WASHOUTS WILL AFFECT DATA QUALITY.
- ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST.
- TOTAL HOLE VOLUME FROM TD TO SURFACE CASING: 1902 CU. FT.
- ANNULAR HOLE VOLUME WITH 5.5 INCH CASING FROM TD TO 3600 FEET: 195 CU. FT.
- RIG: H-2 DRILLING #2

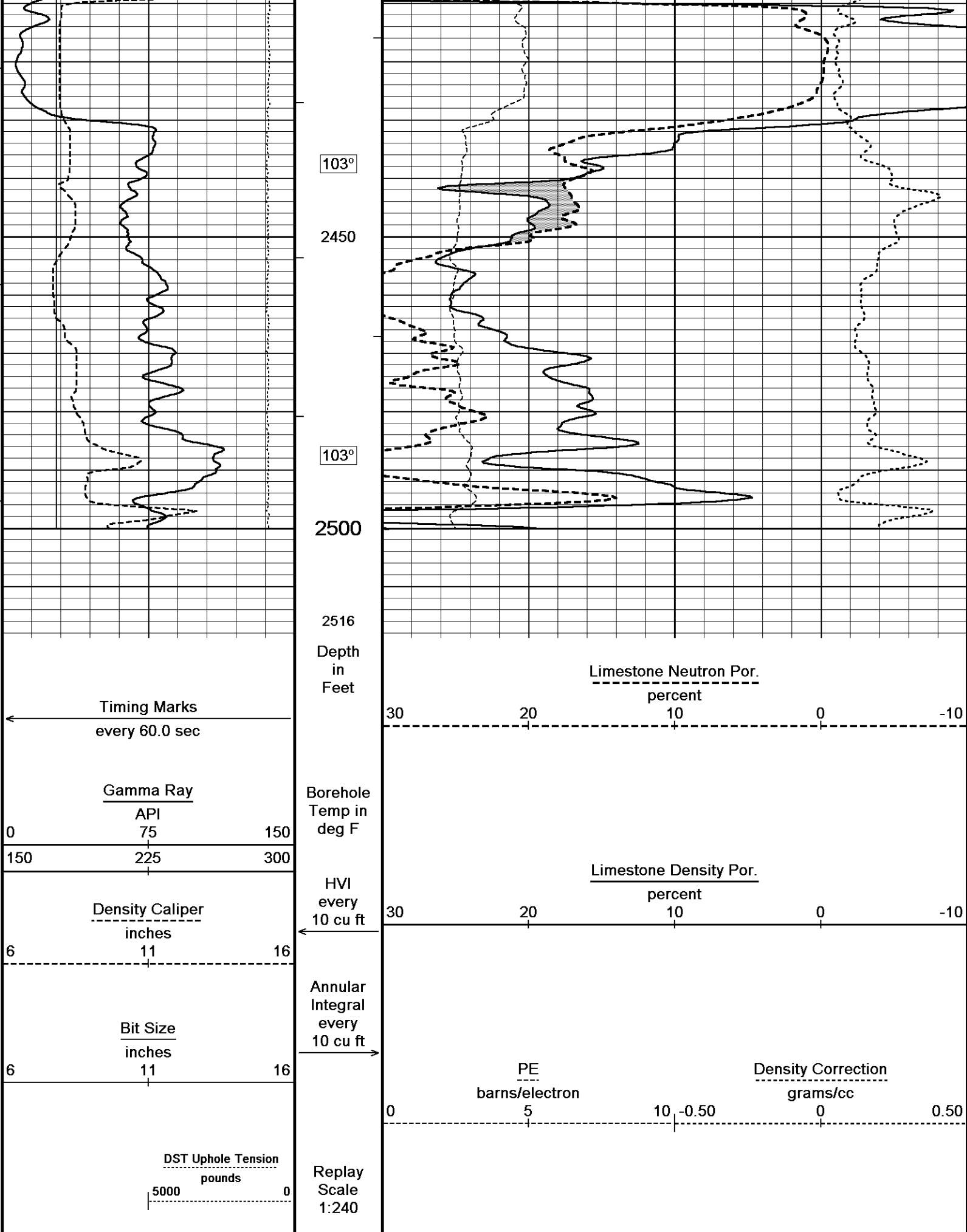
RIOT #2 DRILLING #2.

- ENGINEER: A. SILL.

- OPERATOR(S): 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.





↑

5 INCH MAIN

↑

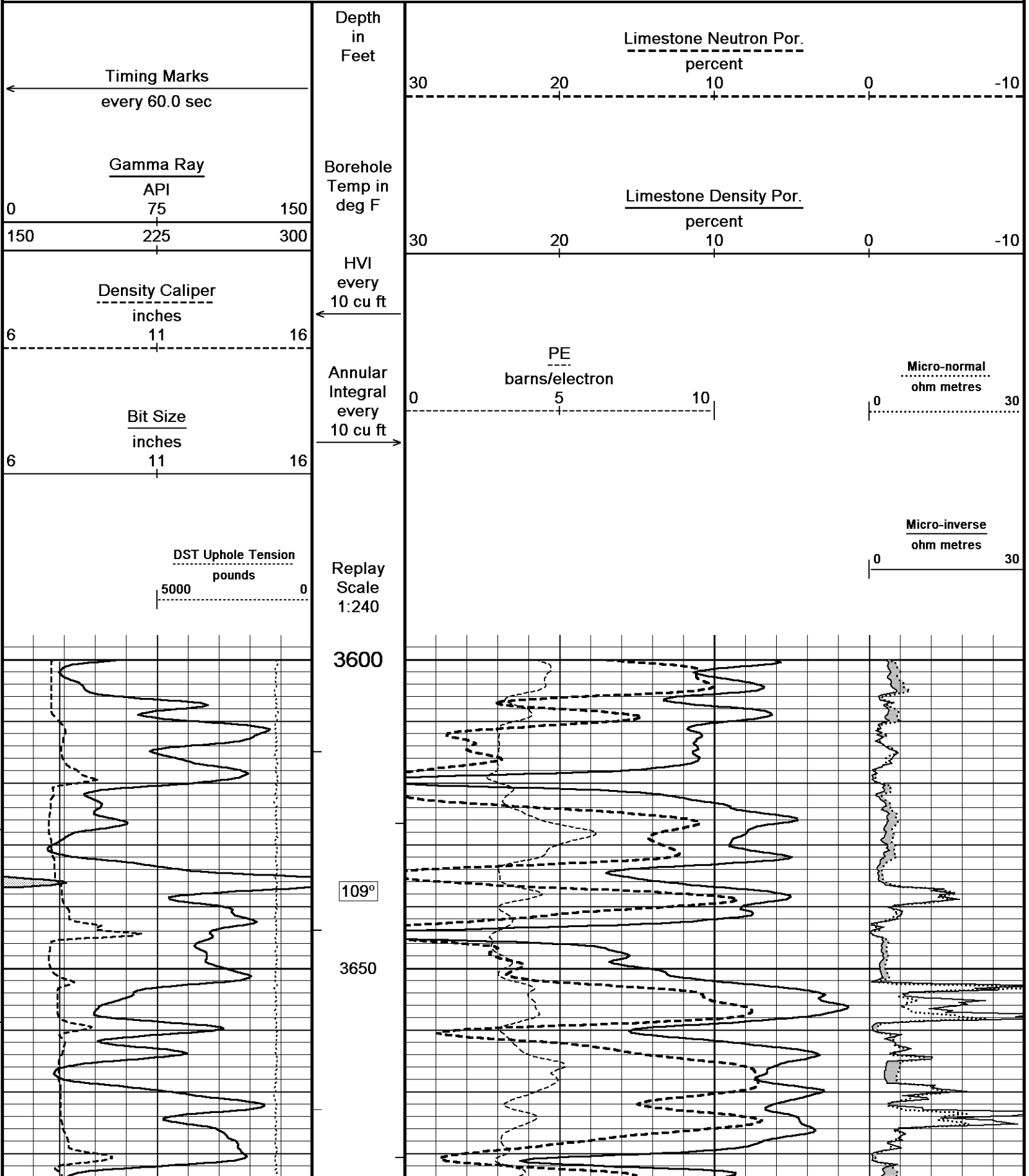
↓

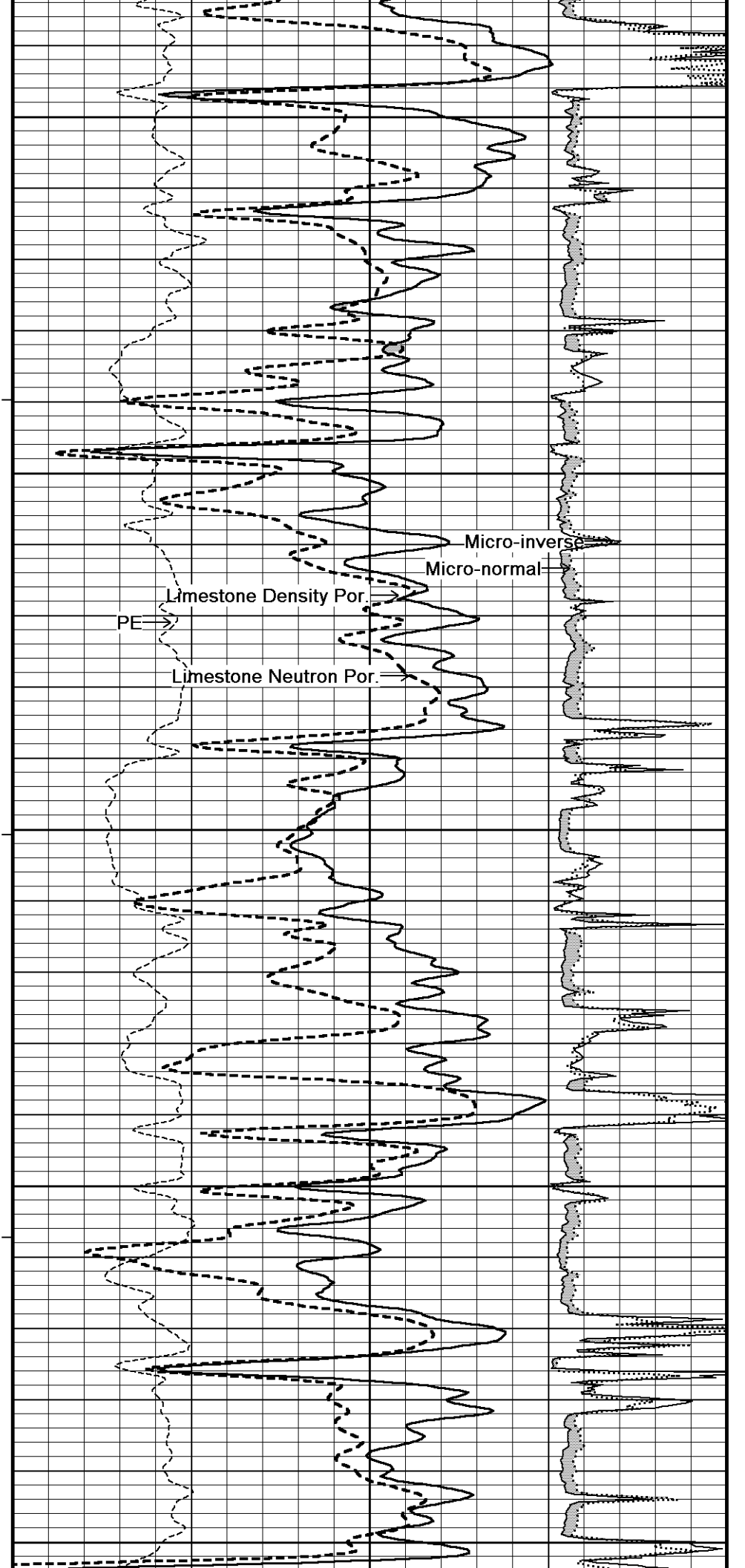
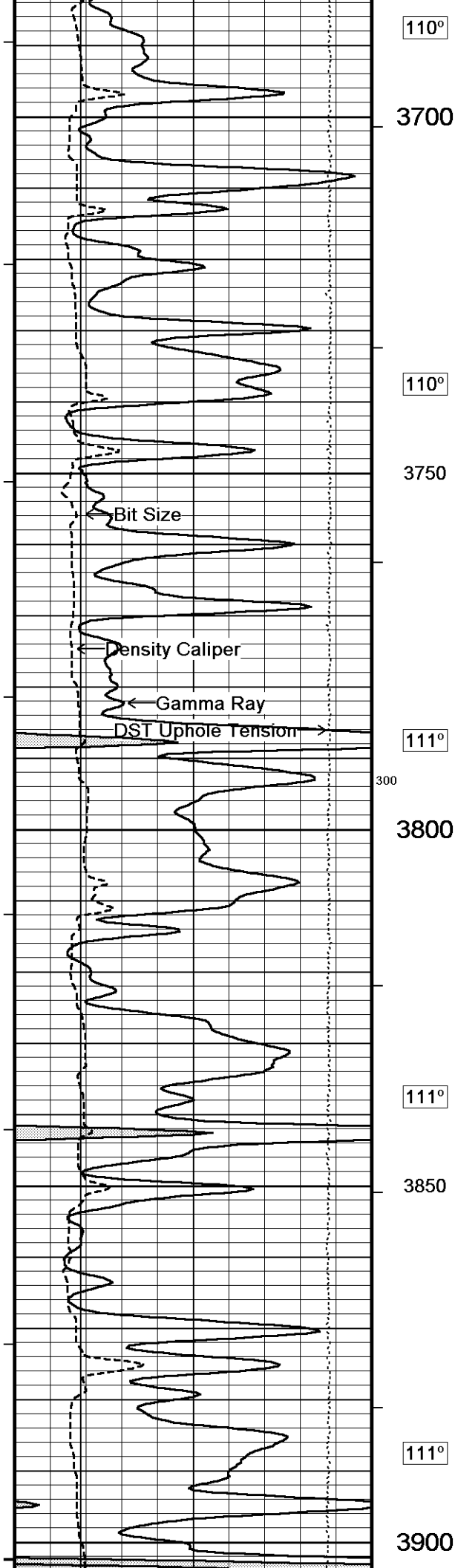
5 INCH MAIN

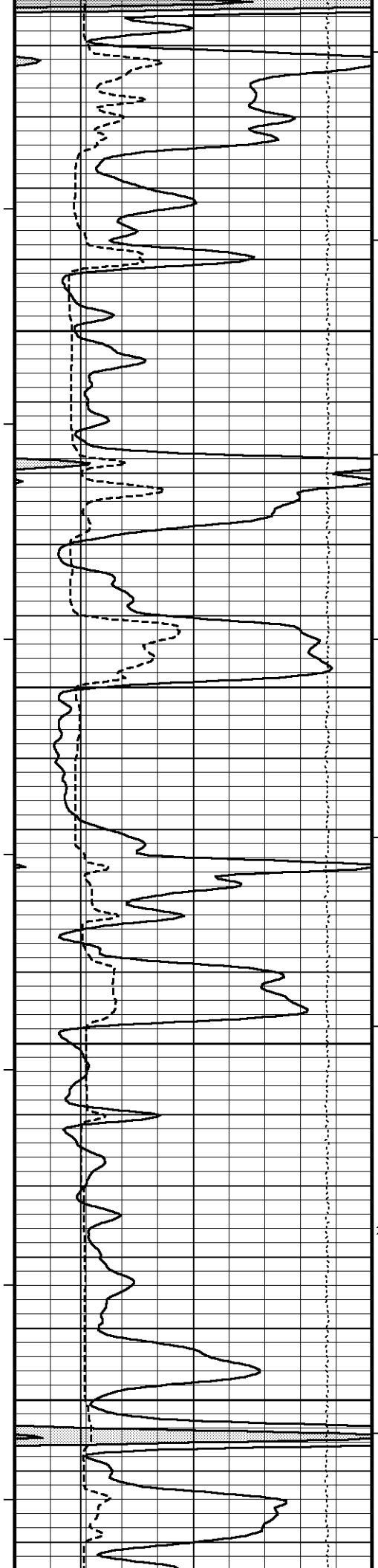
↓

Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\Minimus 13.05.9583\Log\Grand Mesa E & E #2-34\Grand Mesa E & E #2-34 Main.dta
System Versions: Logged with 13.05.9583 Plotted with 13.05.9583

Plotted on 25-MAY-2013 11:46
Recorded on 25-MAY-2013 08:51







111°

3950

112°

4000

112°

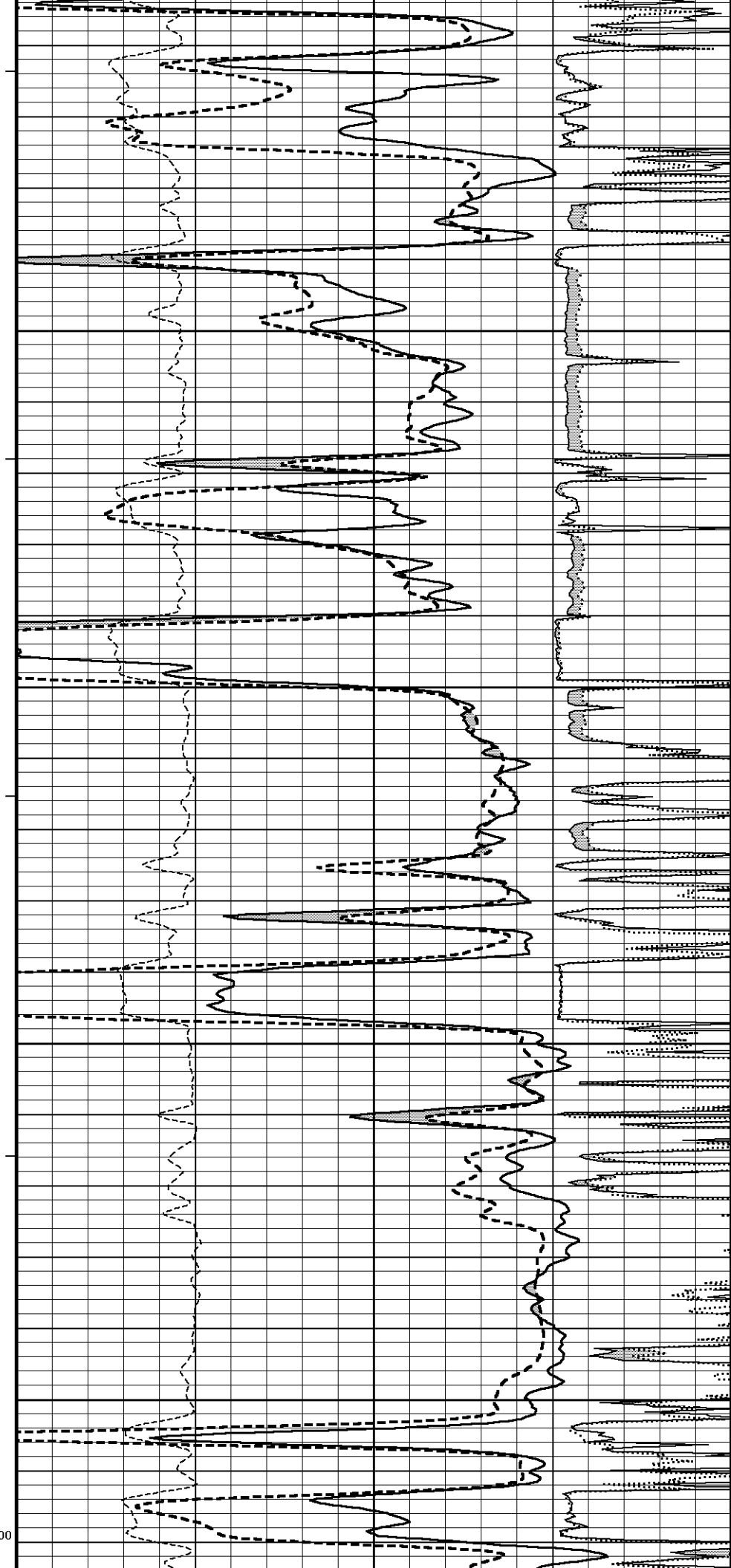
4050

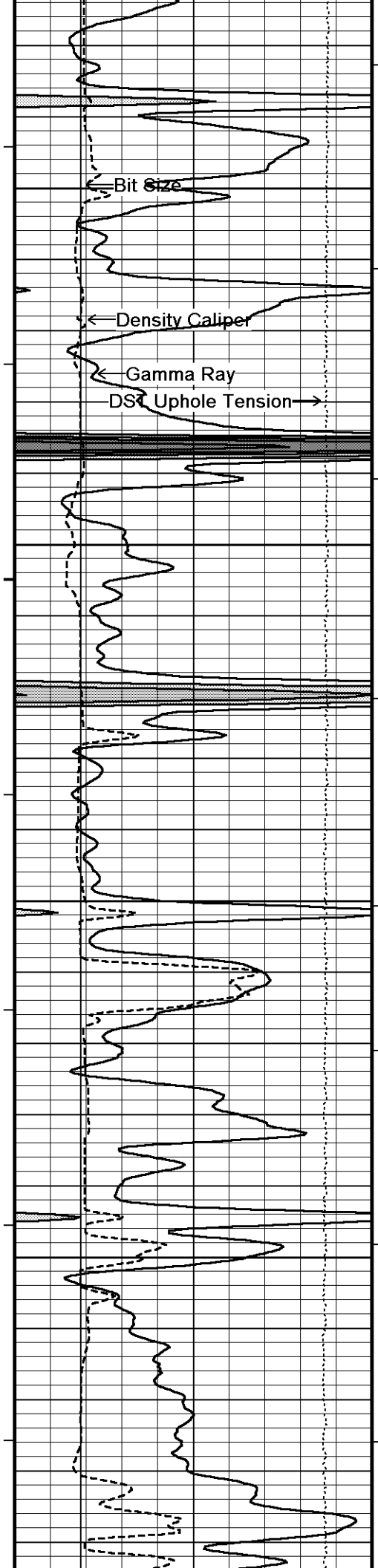
200

112°

4100

100





113°

4150

113°

4200

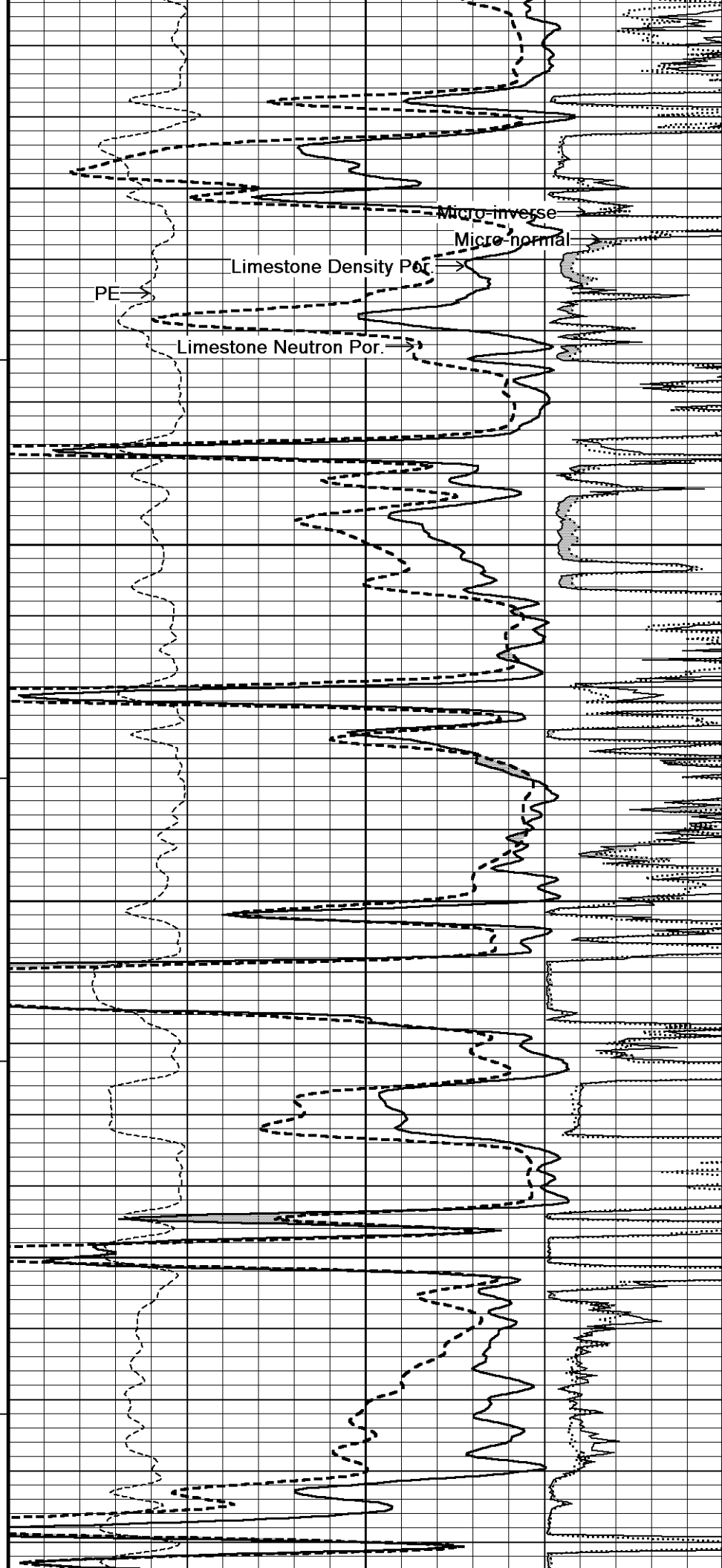
113°

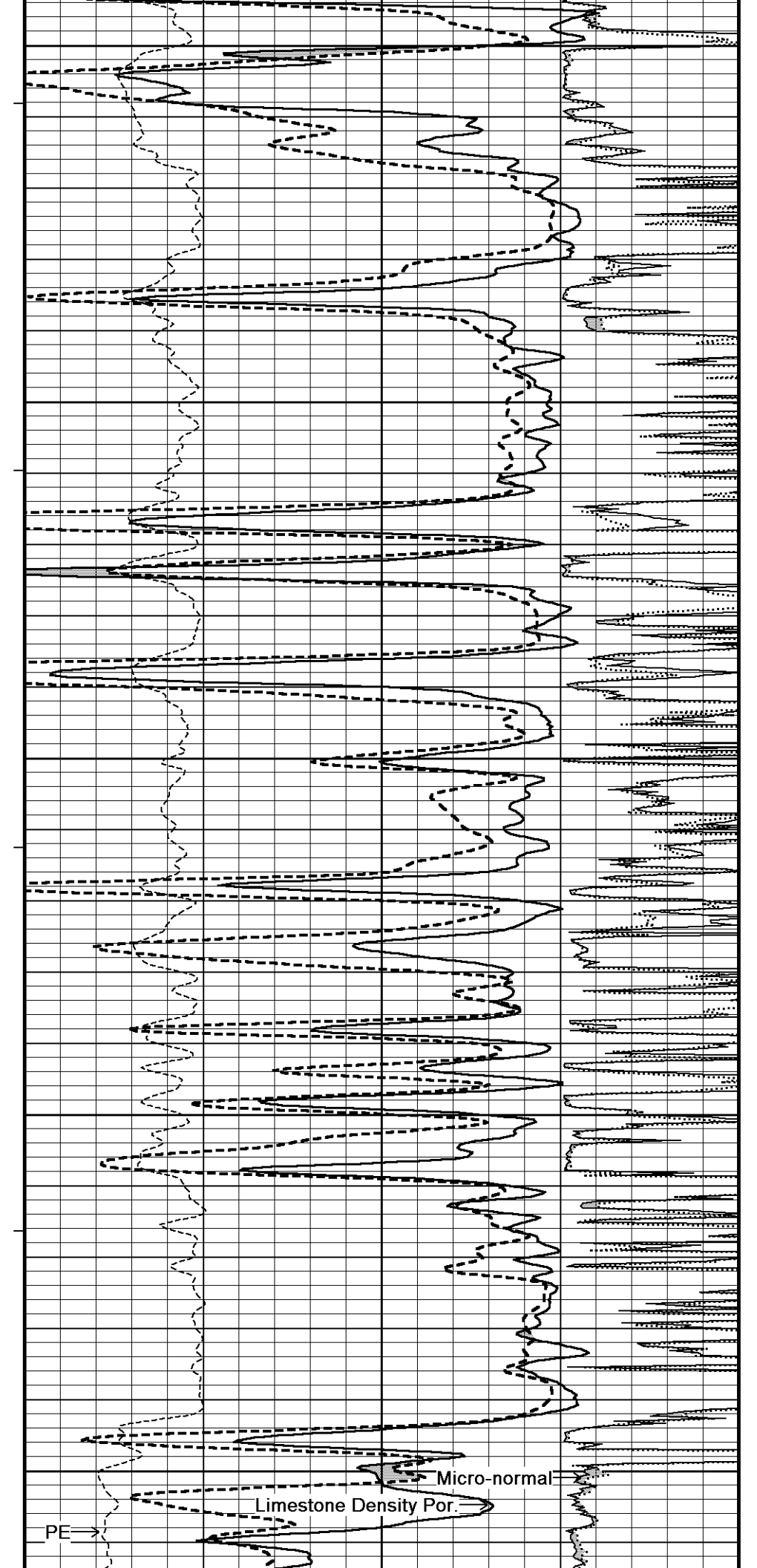
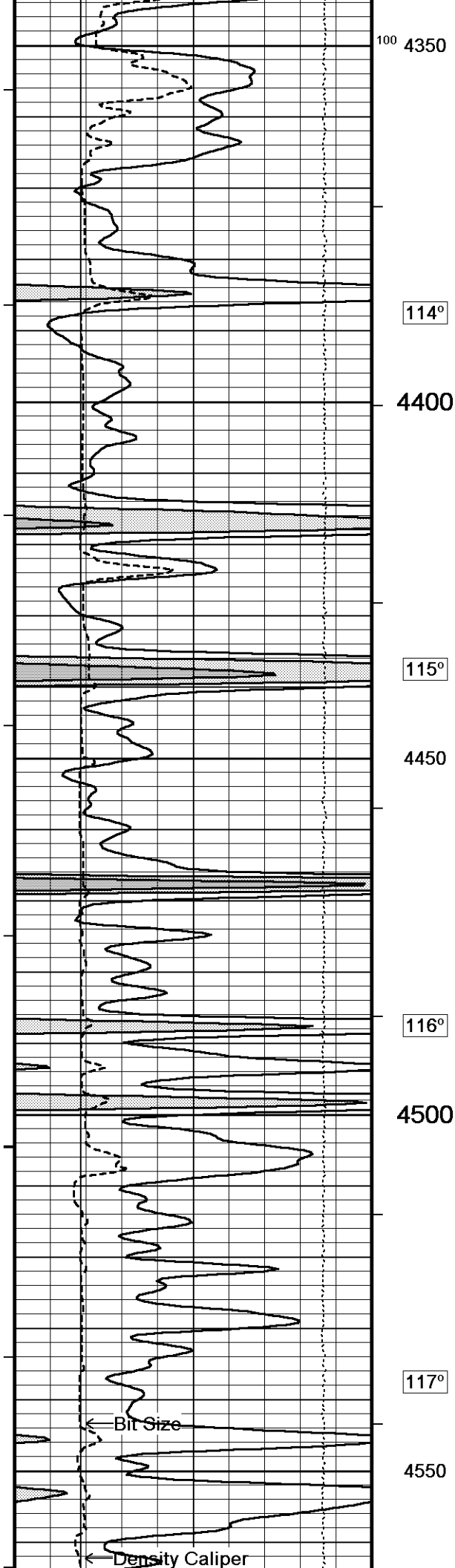
4250

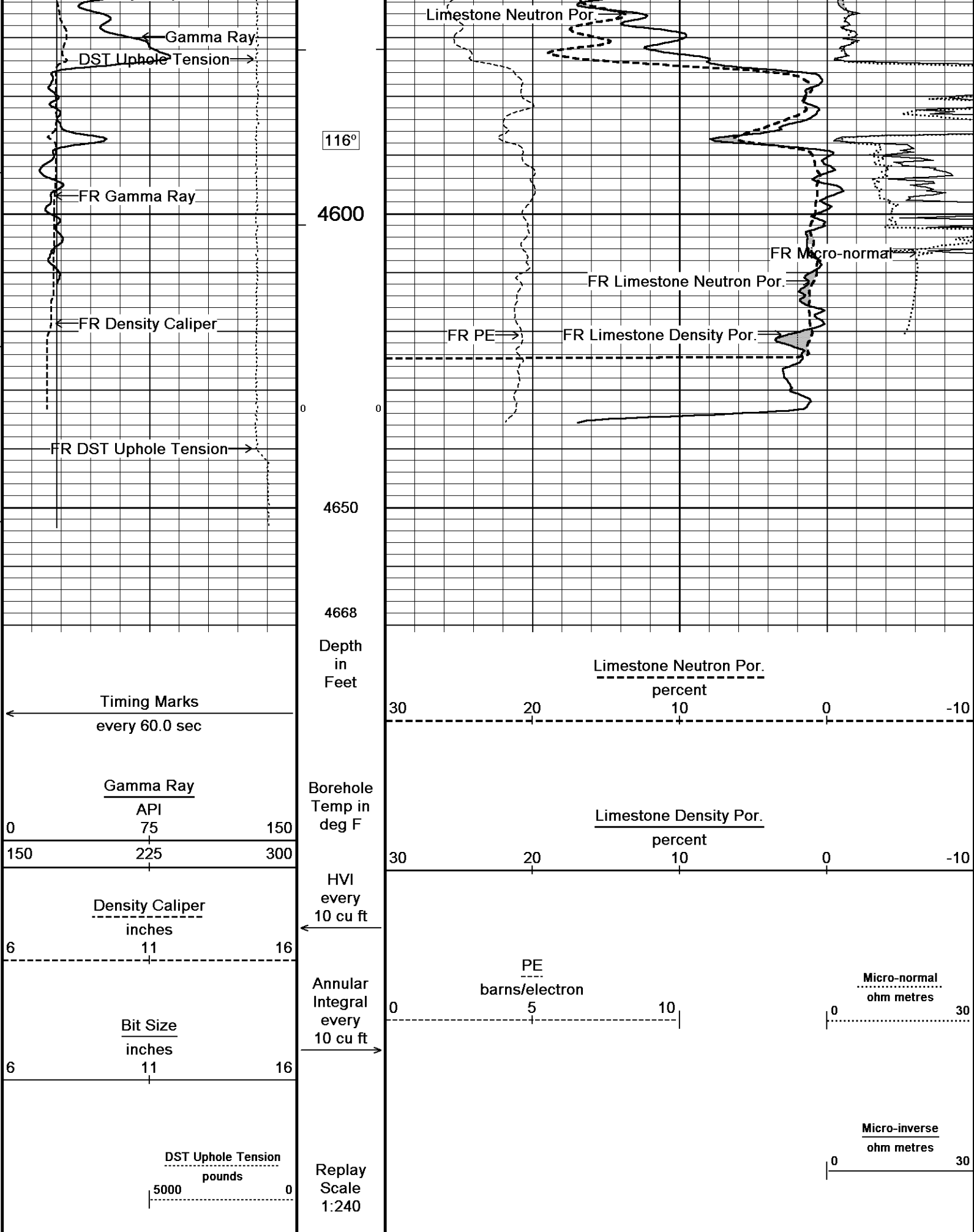
113°

4300

114°







↓

REPEAT SECTION

↓

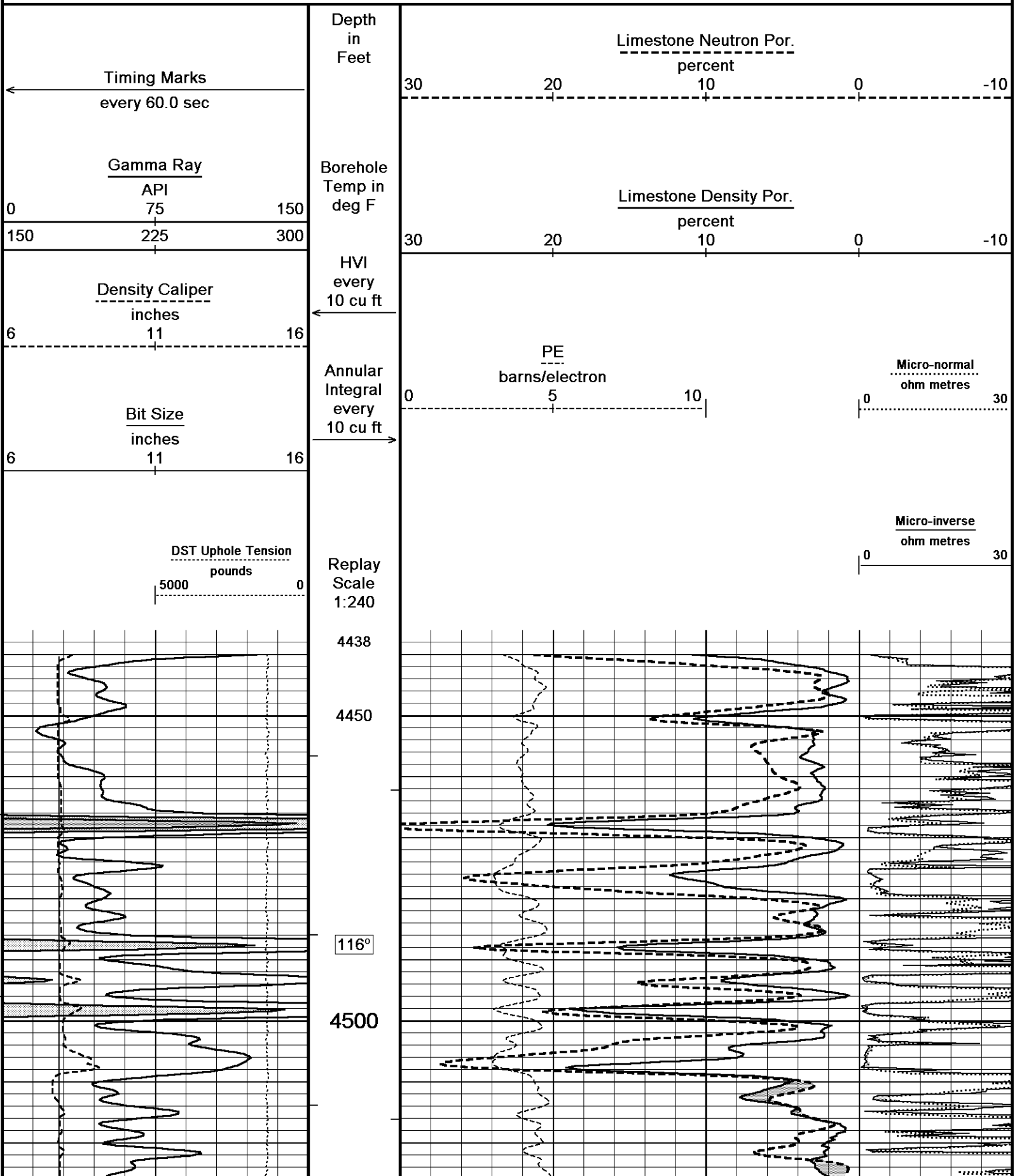
Depth Based Data - Maximum Sampling Increment 10.0cm

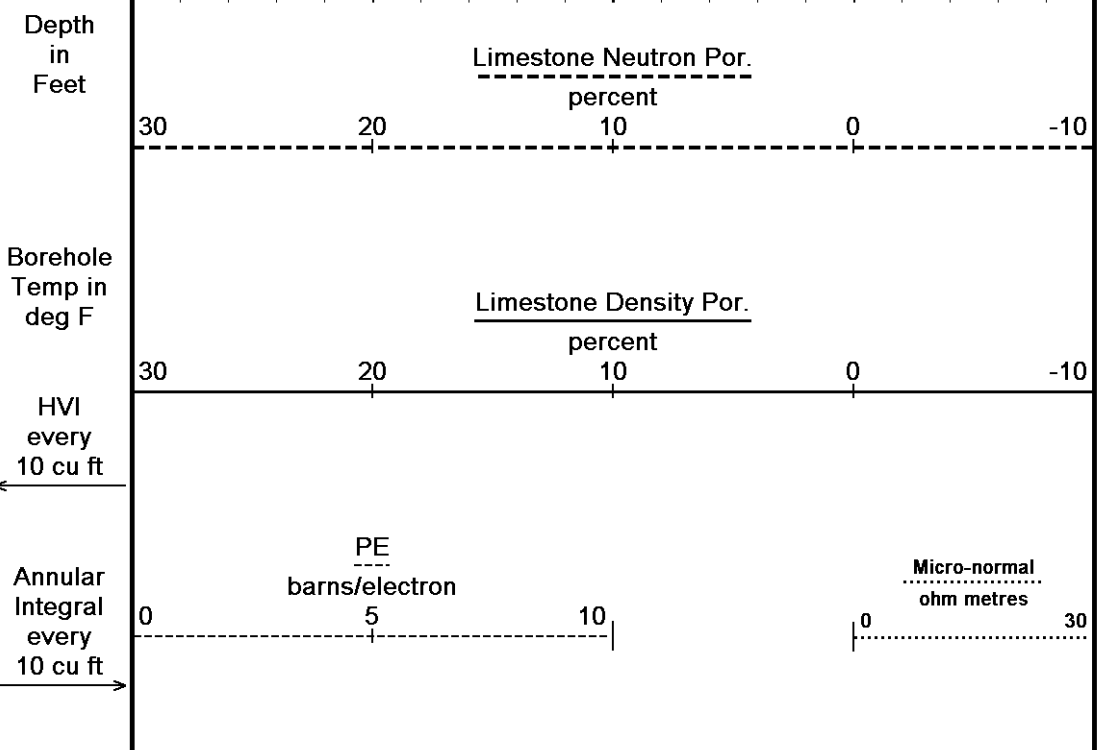
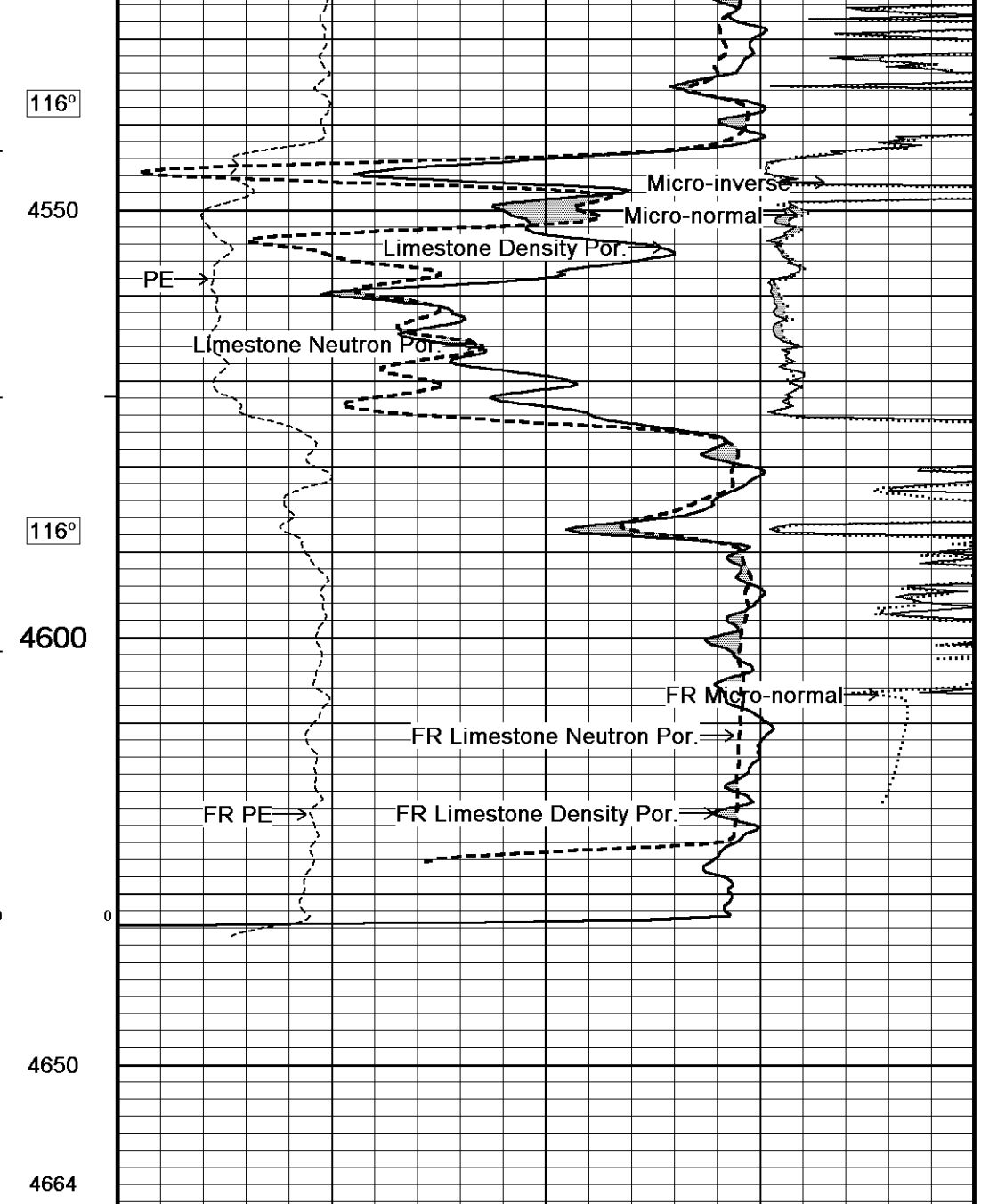
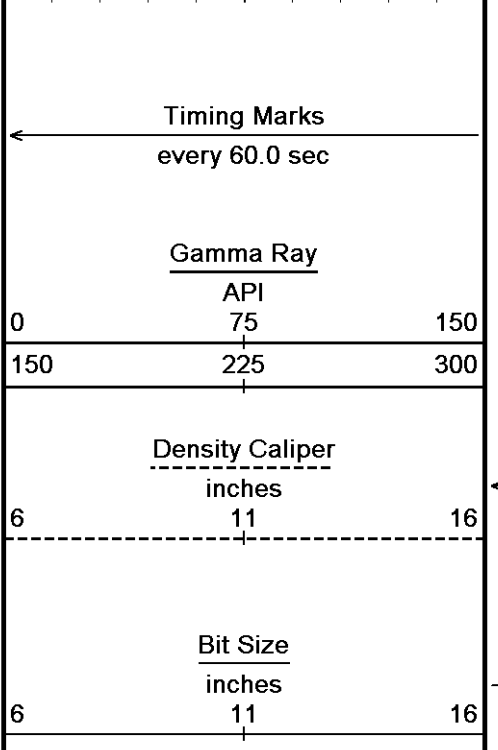
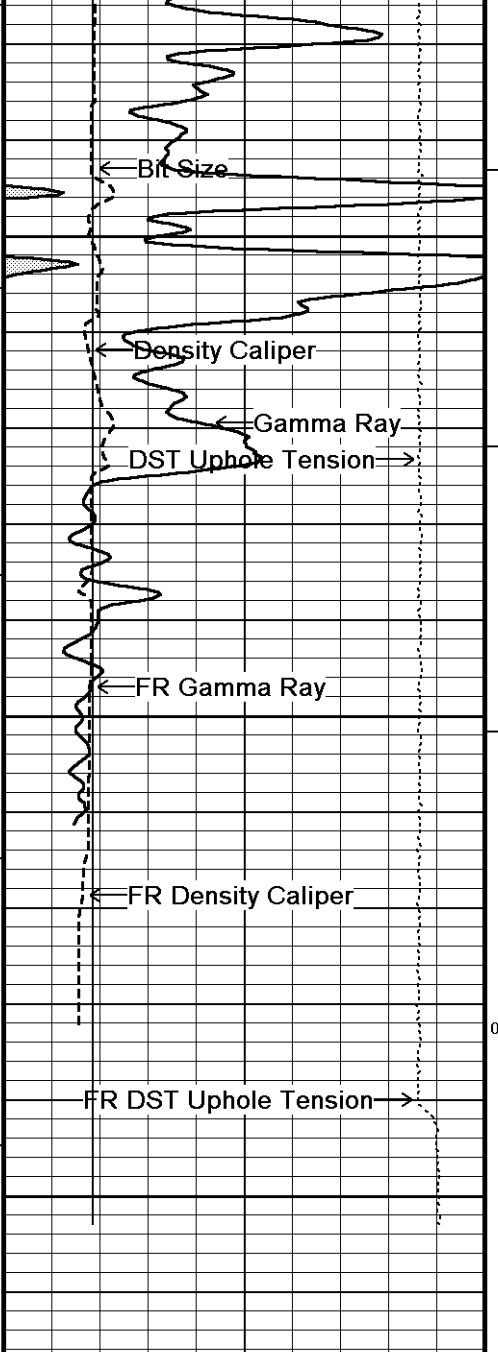
Plotted on 25-MAY-2013 11:46

Filename: C:\Minimus 13.05.9583\Log\Grand Mesa E & E #2-34\Grand Mesa E & E #2-34_001.dta

Recorded on 25-MAY-2013 08:31

System Versions: Logged with 13.05.9583 Plotted with 13.05.9583





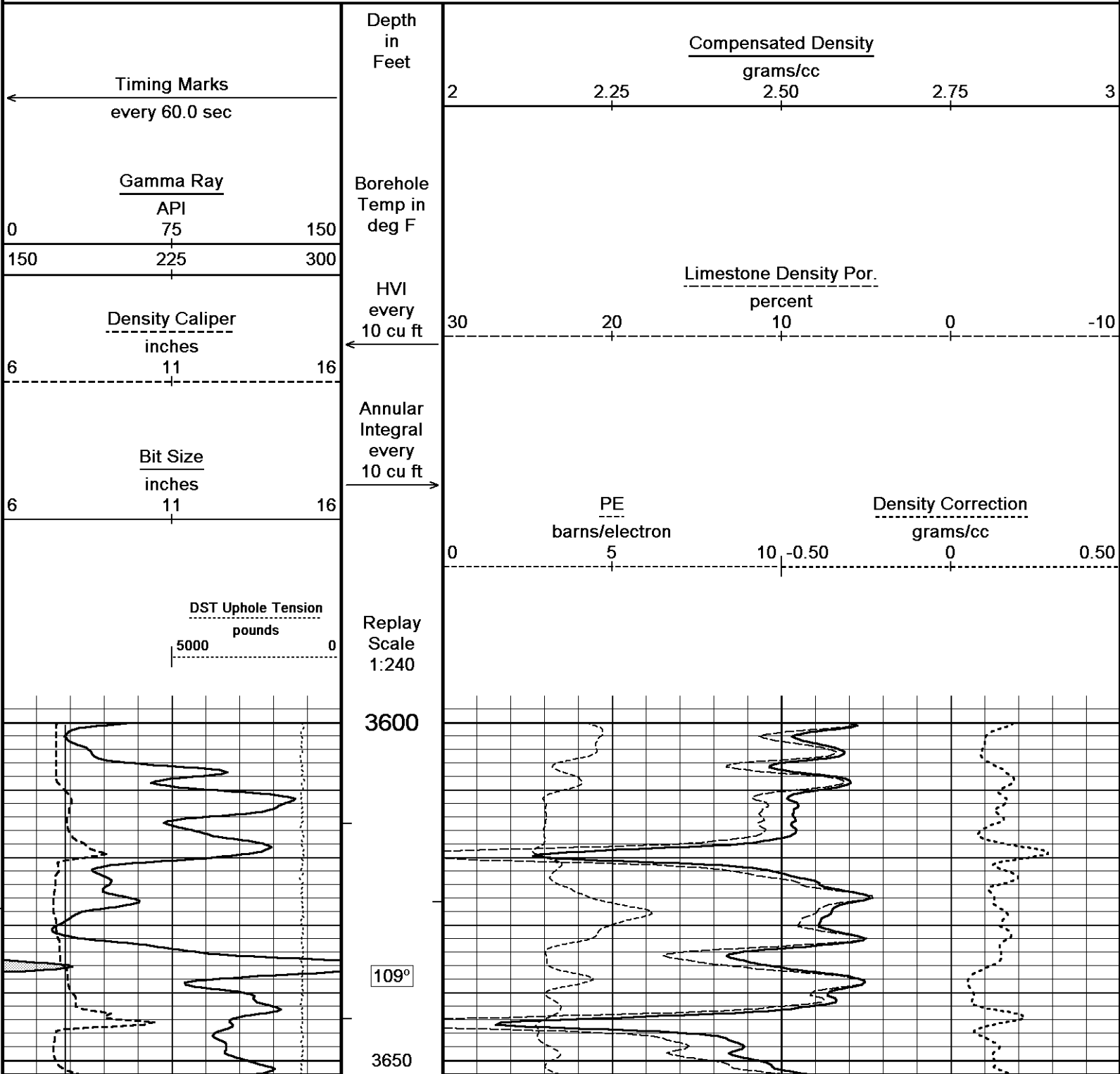
<u>DST Uphole Tension</u> pounds 5000 0	Replay Scale 1:240	<u>Micro-inverse</u> ohm metres 0 30
--	--------------------------	---

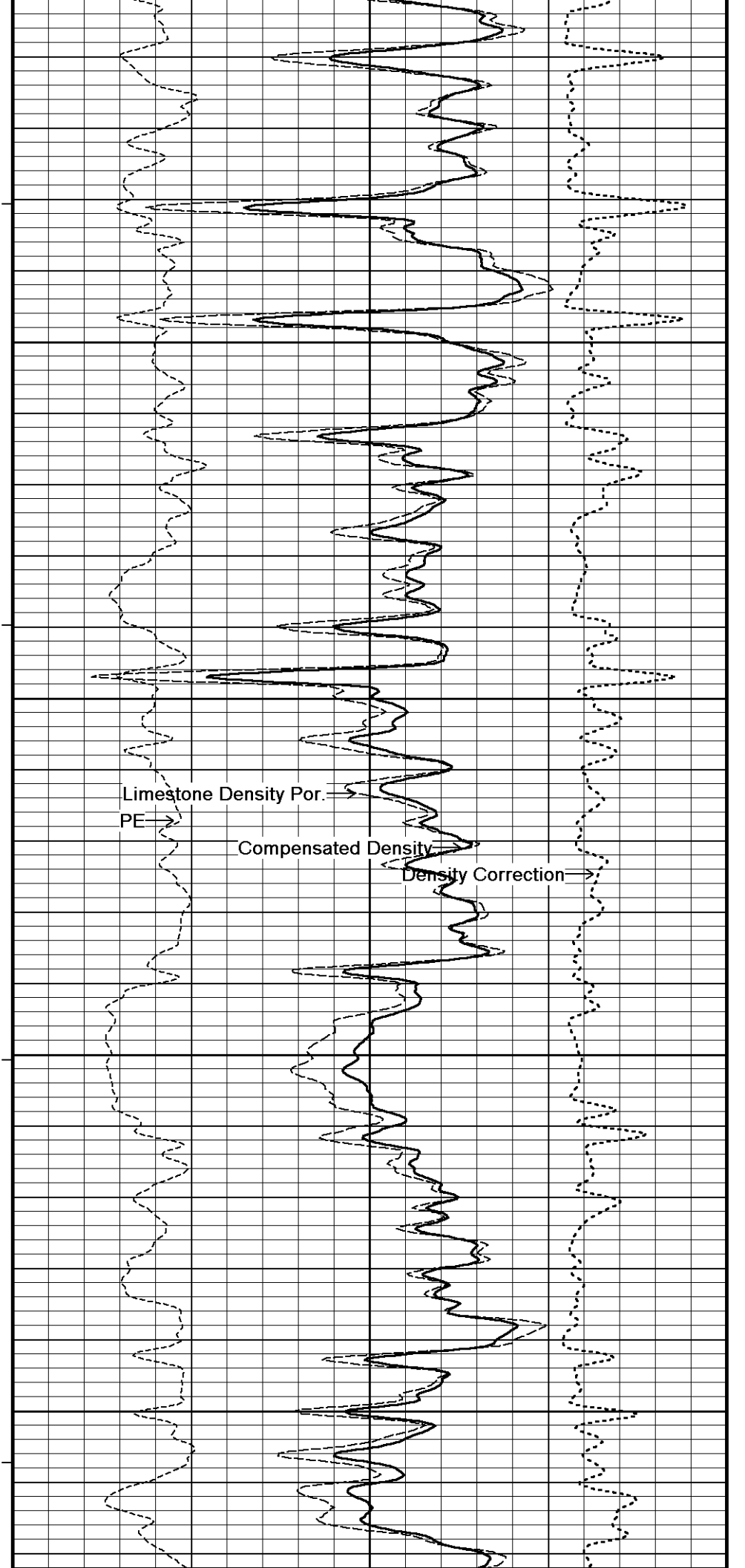
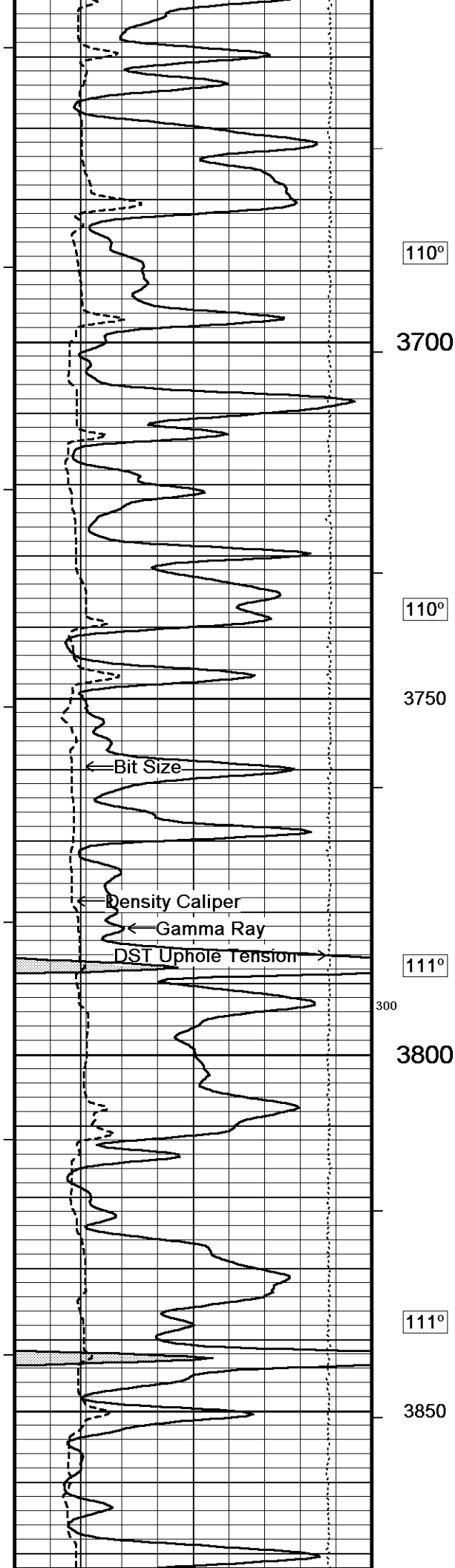
Depth Based Data - Maximum Sampling Increment 10.0cm
 Filename: C:\Minimus 13.05.9583\Log\Grand Mesa E & E #2-34\Grand Mesa E & E #2-34_001.dta
 System Versions: Logged with 13.05.9583 Plotted with 13.05.9583

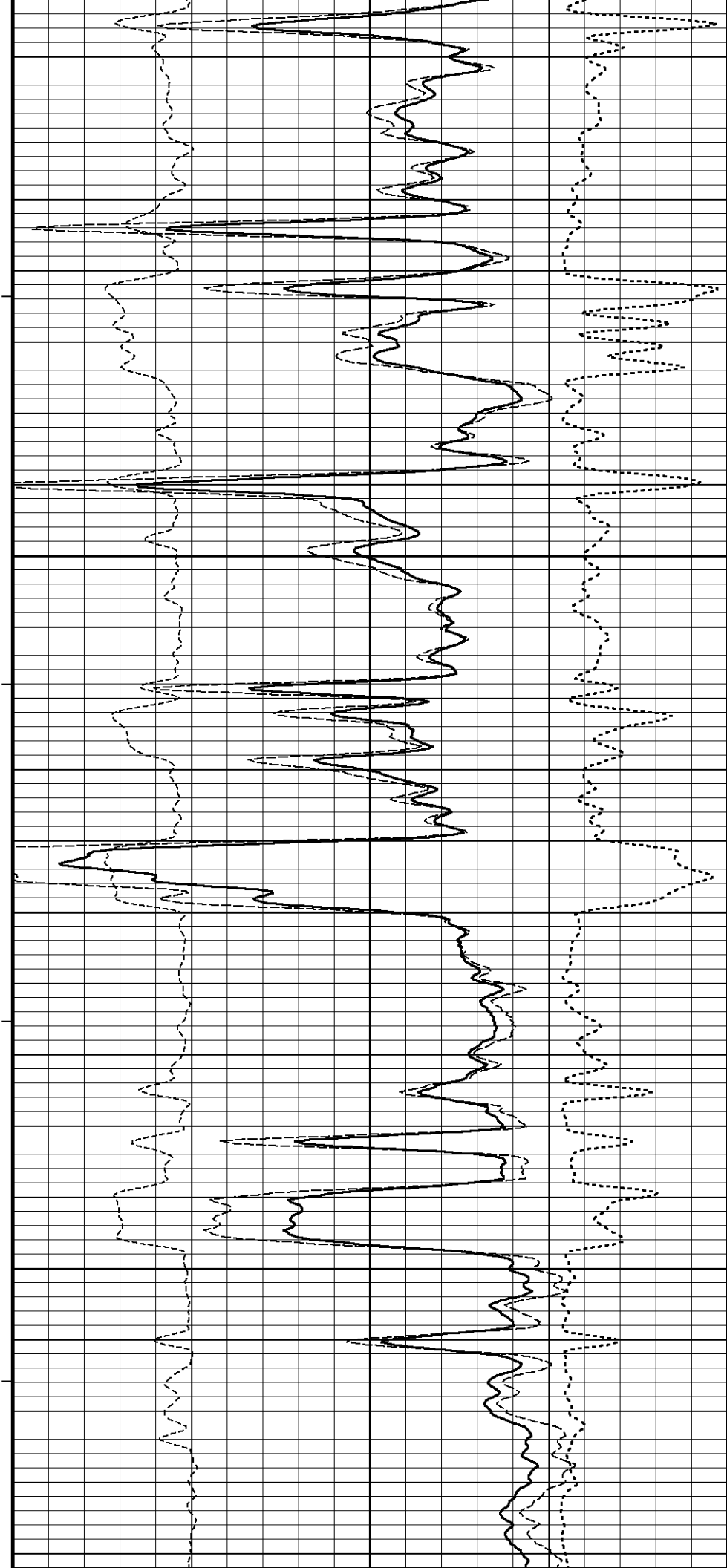
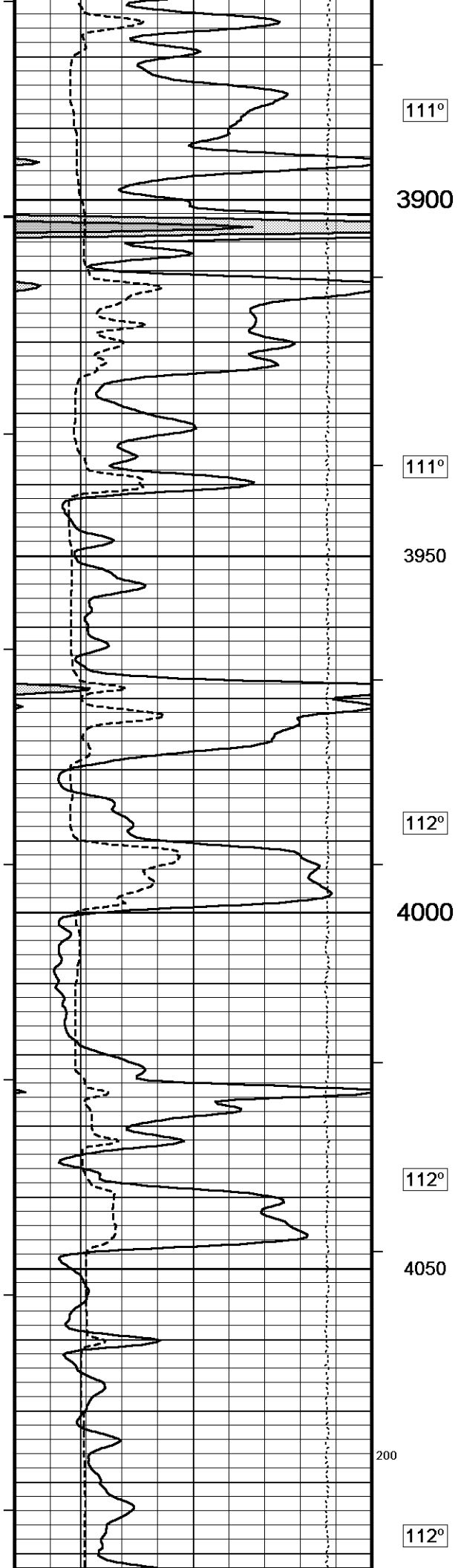
Plotted on 25-MAY-2013 11:46
 Recorded on 25-MAY-2013 08:31

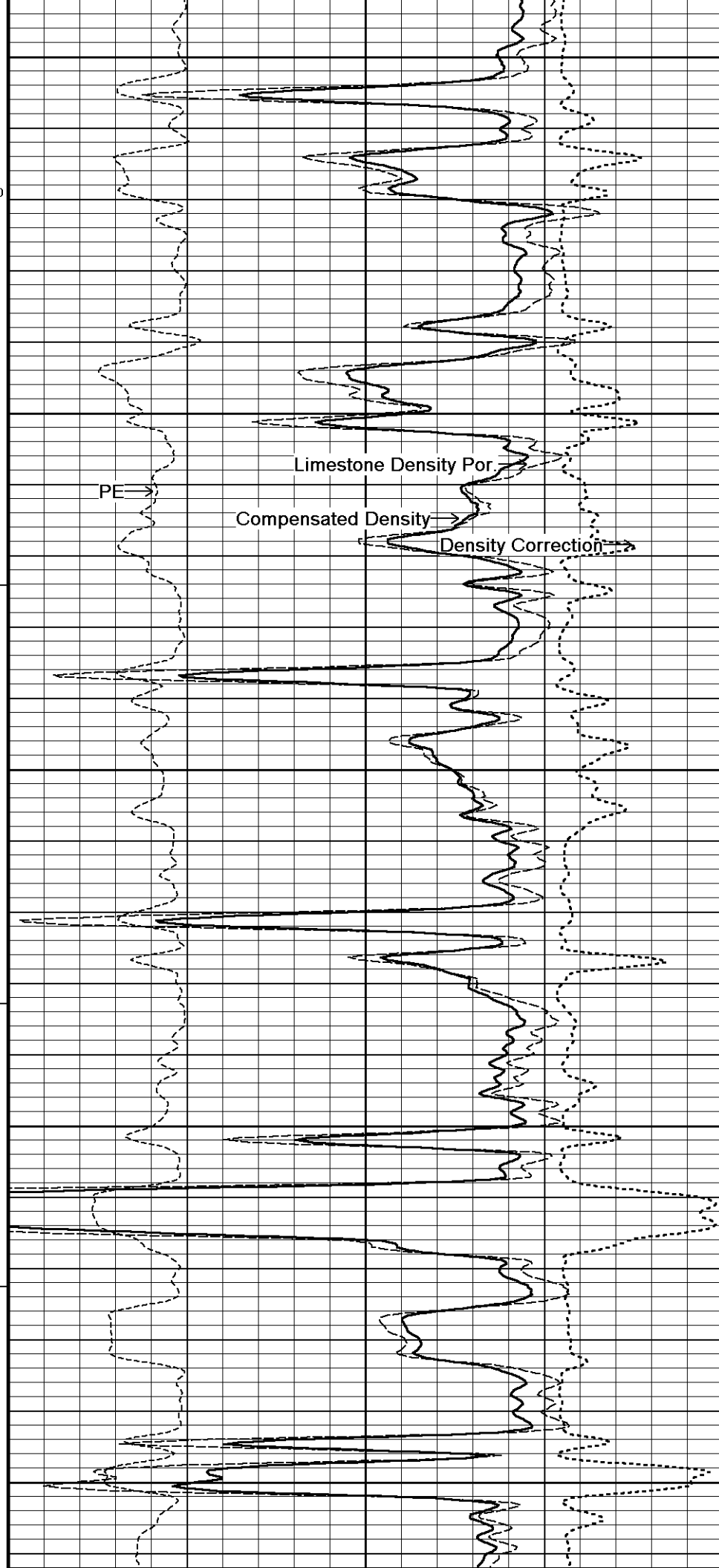
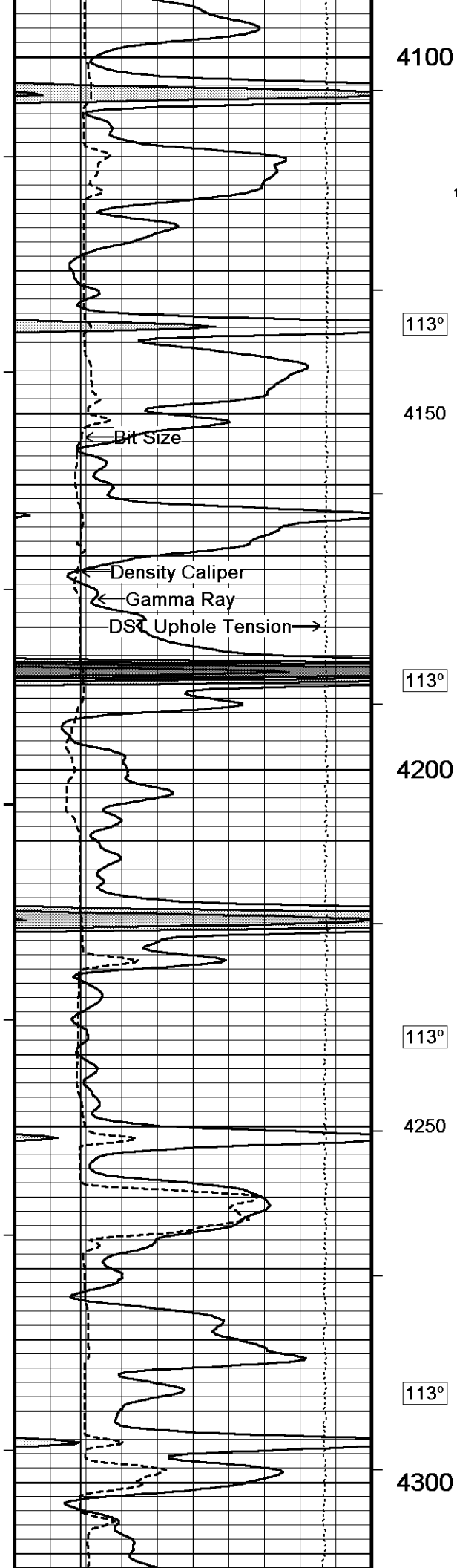
↑
REPEAT SECTION
↑

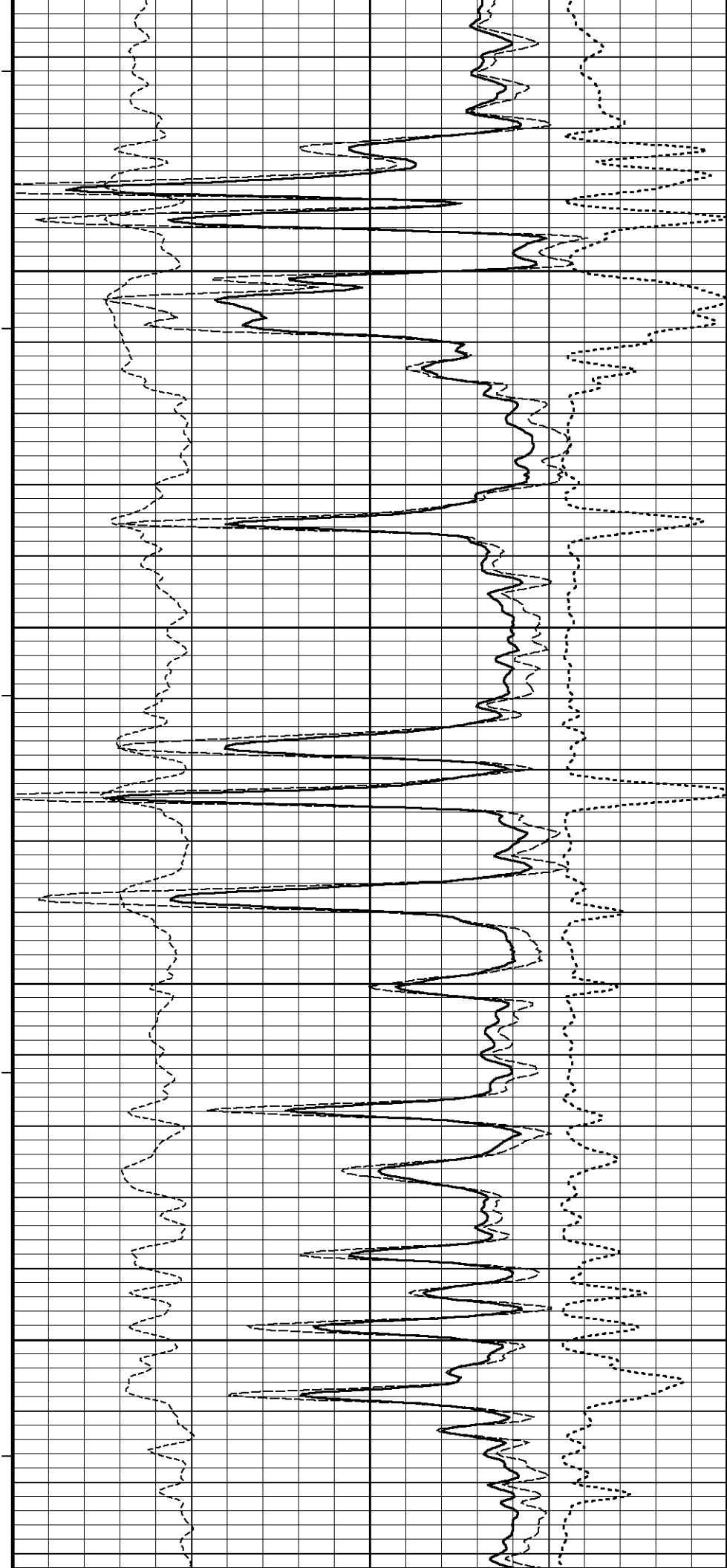
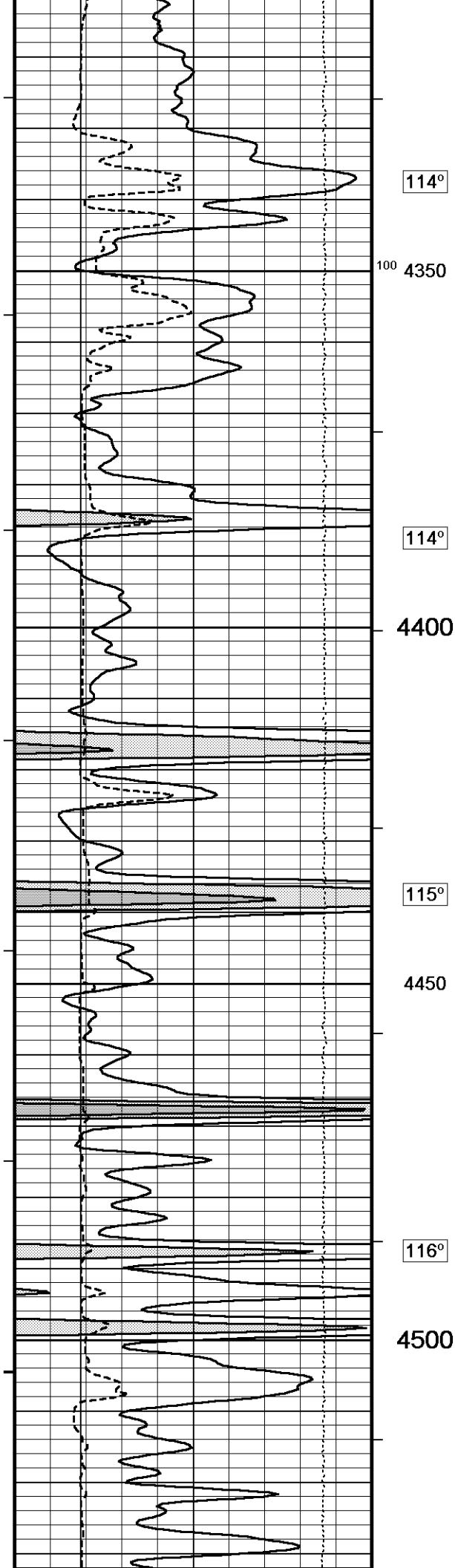
<u>5 INCH MAIN</u>
Depth Based Data - Maximum Sampling Increment 10.0cm Filename: C:\Minimus 13.05.9583\Log\Grand Mesa E & E #2-34\Grand Mesa E & E #2-34 Main.dta System Versions: Logged with 13.05.9583 Plotted with 13.05.9583
Plotted on 25-MAY-2013 11:46 Recorded on 25-MAY-2013 08:51

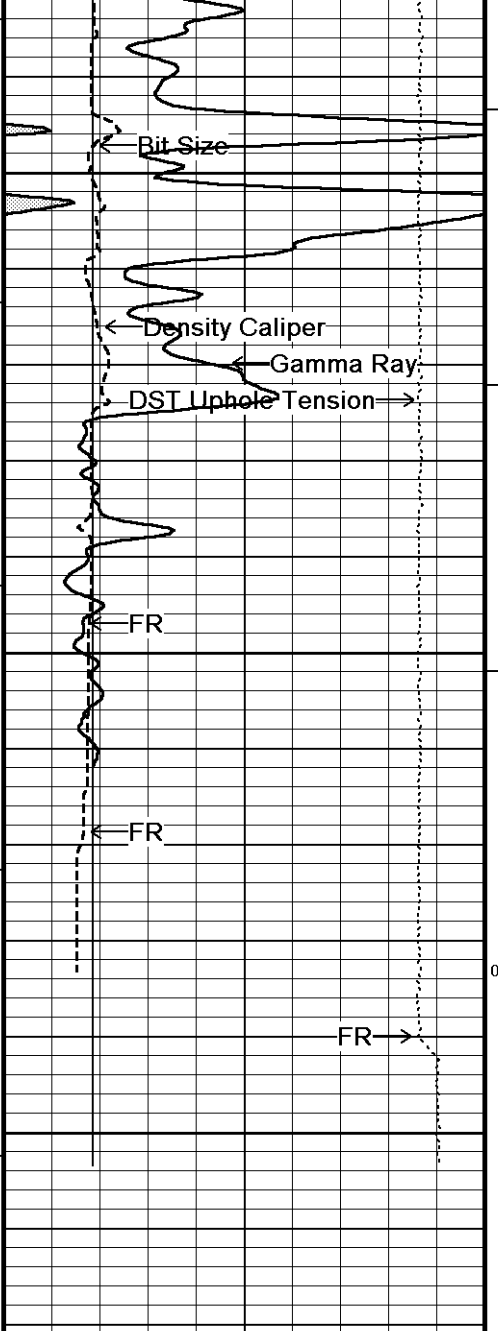












117°

4550

116°

4600

0

4650

4668

Depth
in
Feet

Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150
150 225 300

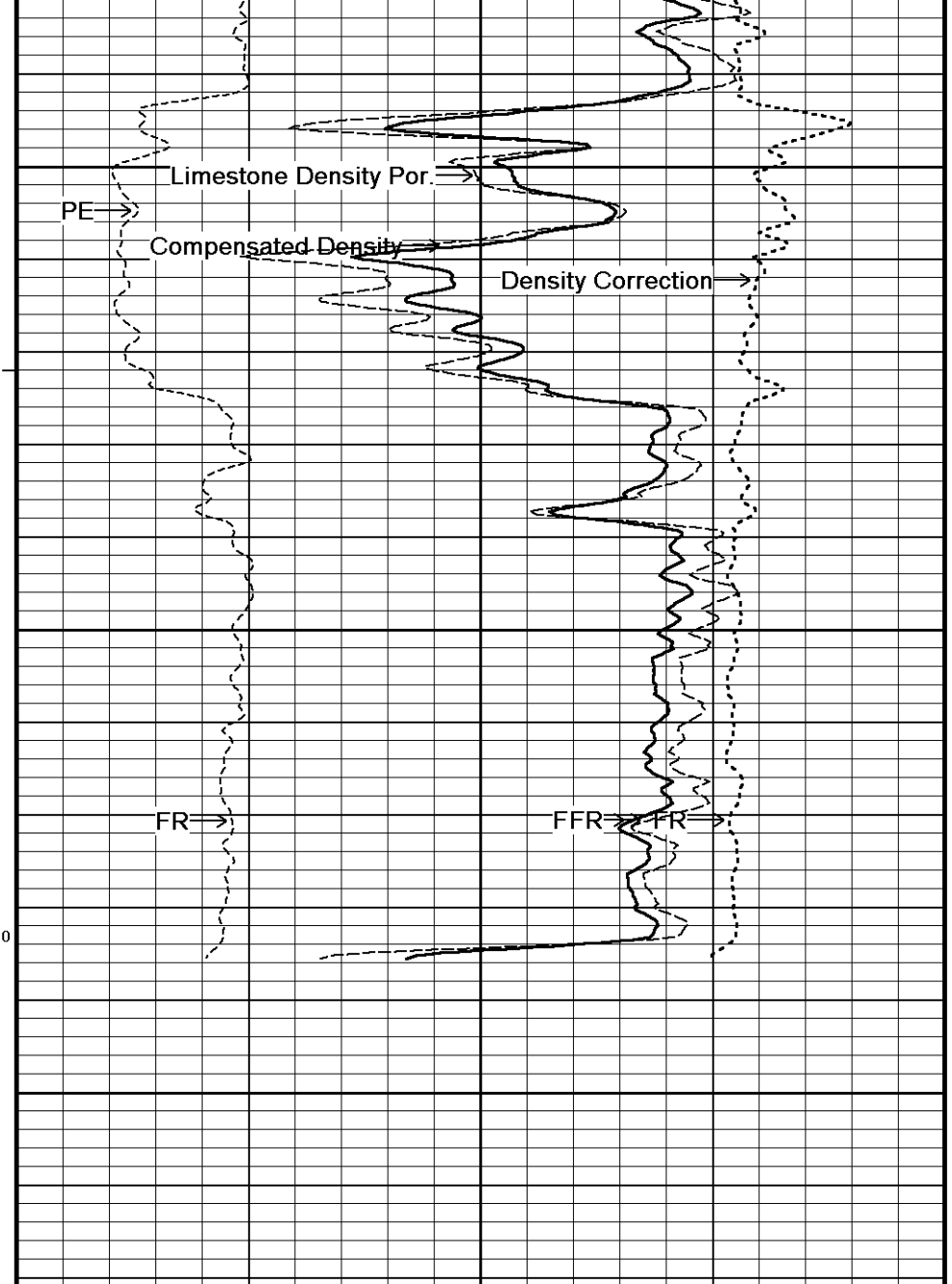
Density Caliper
inches
6 11 16

Bit Size
inches
6 11 16

Borehole
Temp in
deg F

HVI
every
10 cu ft

Annular
Integral
every
10 cu ft



Compensated Density
grams/cc

2 2.25 2.50 2.75 3

Limestone Density Por.
percent

30 20 10 0 -10

PE
barns/electron

Density Correction
grams/cc

0 5 10 0.50 0 0.50

DST Uphole Tension
pounds

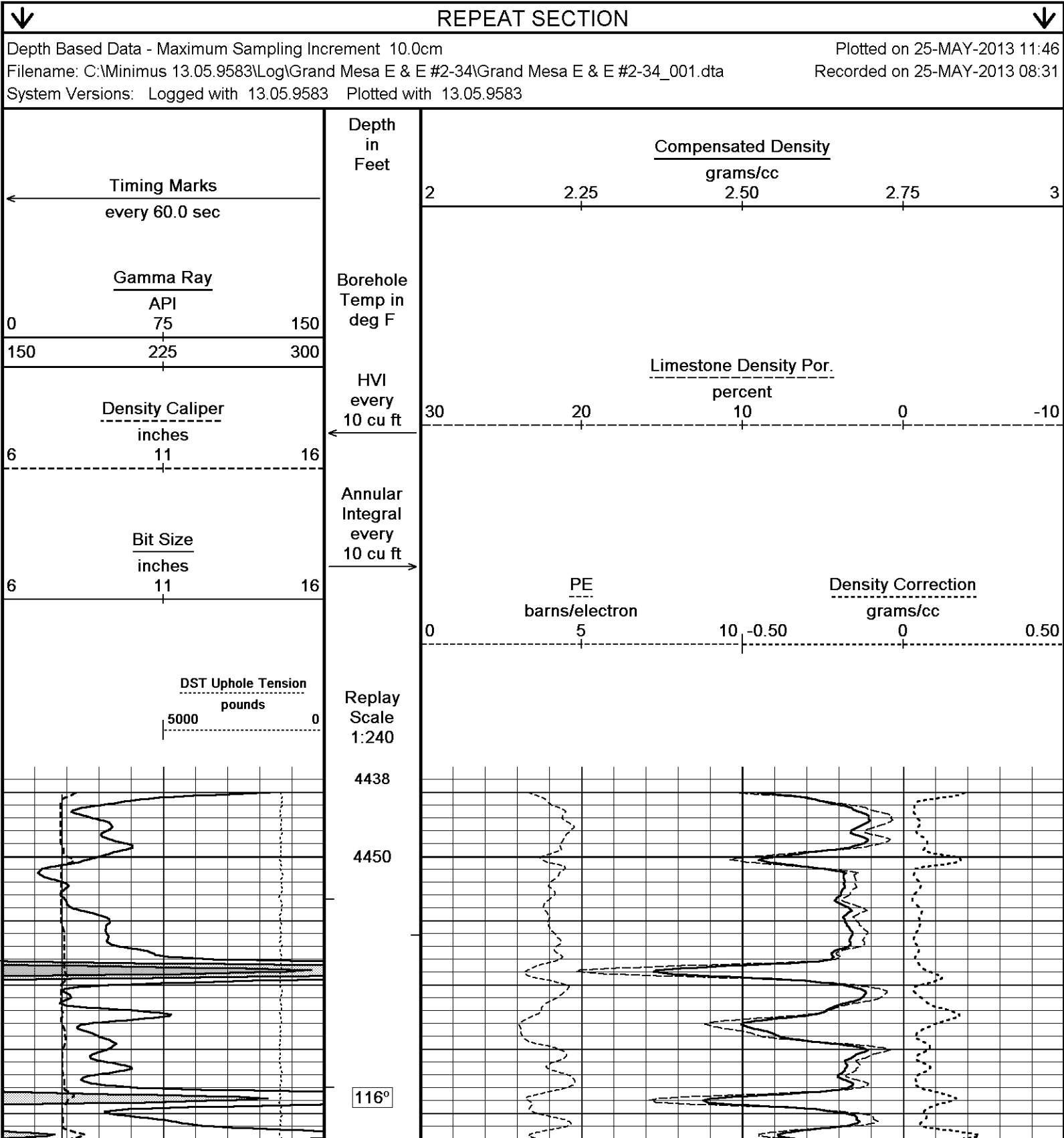
50000

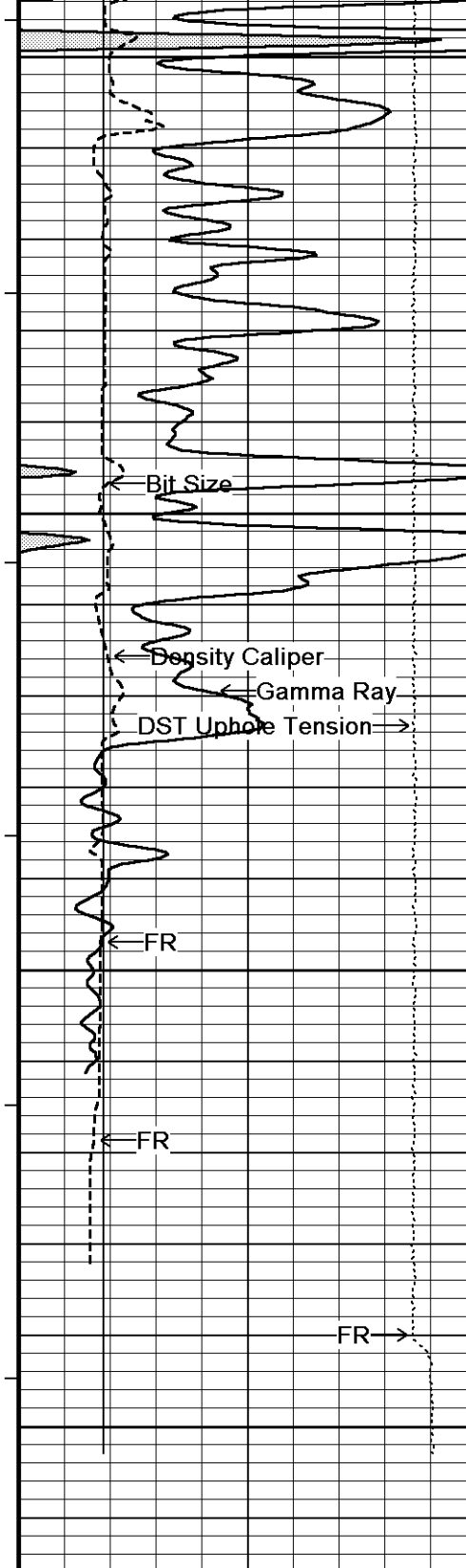
Replay
Scale
1:240

0510-0.5000.50

Depth Based Data - Maximum Sampling Increment 10.0cmPlotted on 25-MAY-2013 11:46
Filename: C:\Minimus 13.05.9583\Log\Grand Mesa E & E #2-34\Grand Mesa E & E #2-34 Main.dtaRecorded on 25-MAY-2013 08:51
System Versions: Logged with 13.05.9583 Plotted with 13.05.9583

↑5 INCH MAIN↑





4500

116°

4550

116°

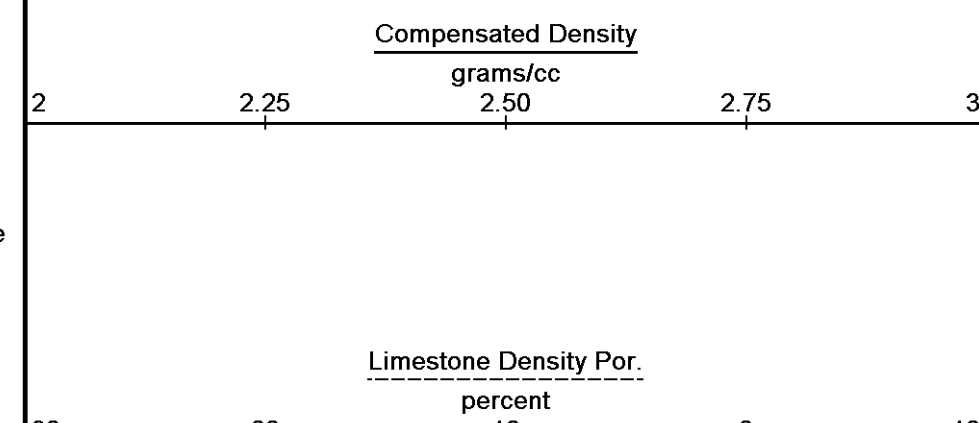
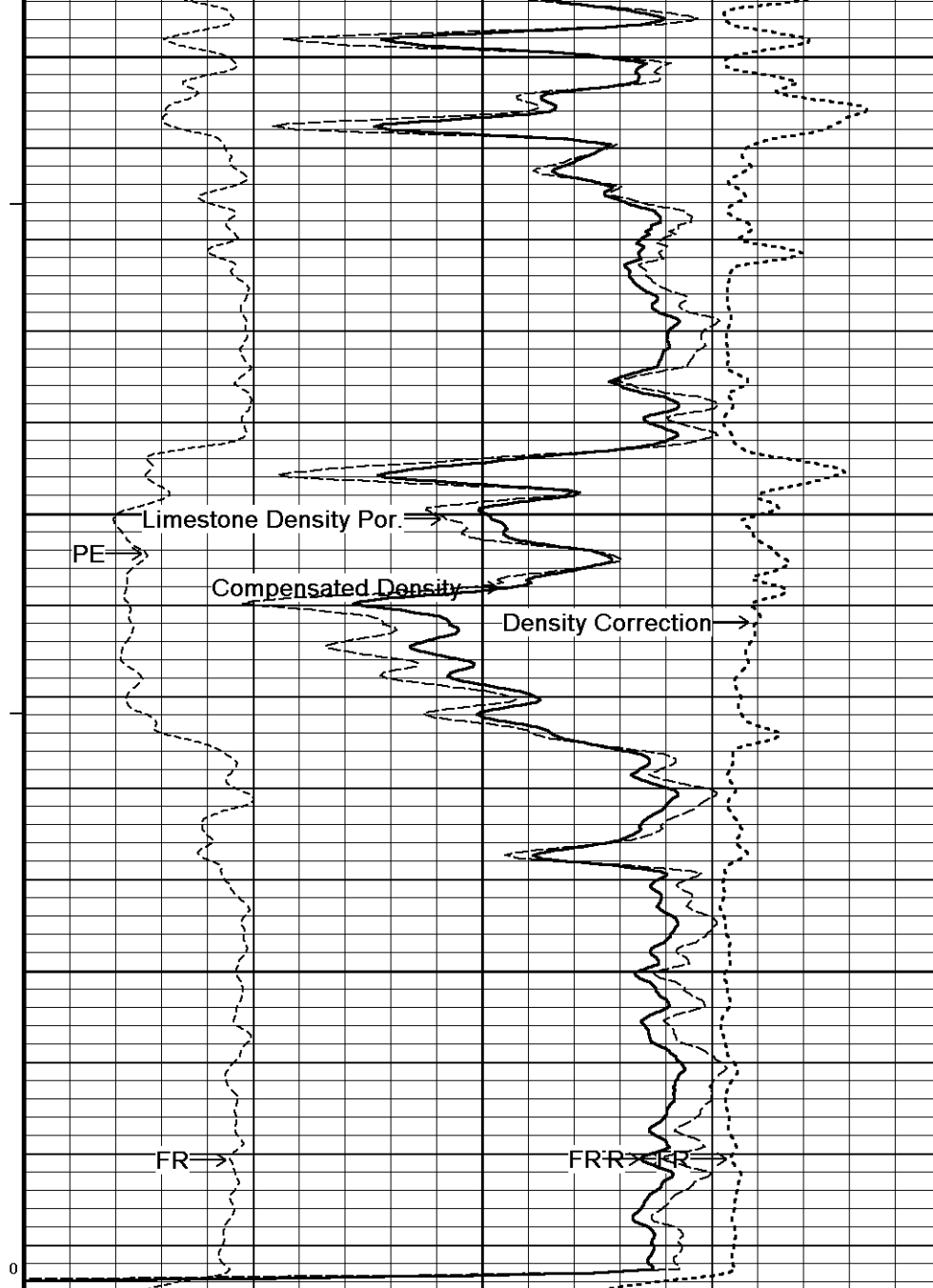
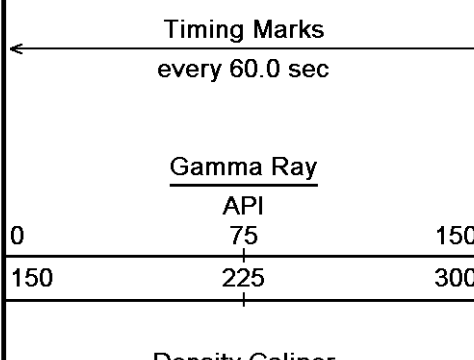
4600

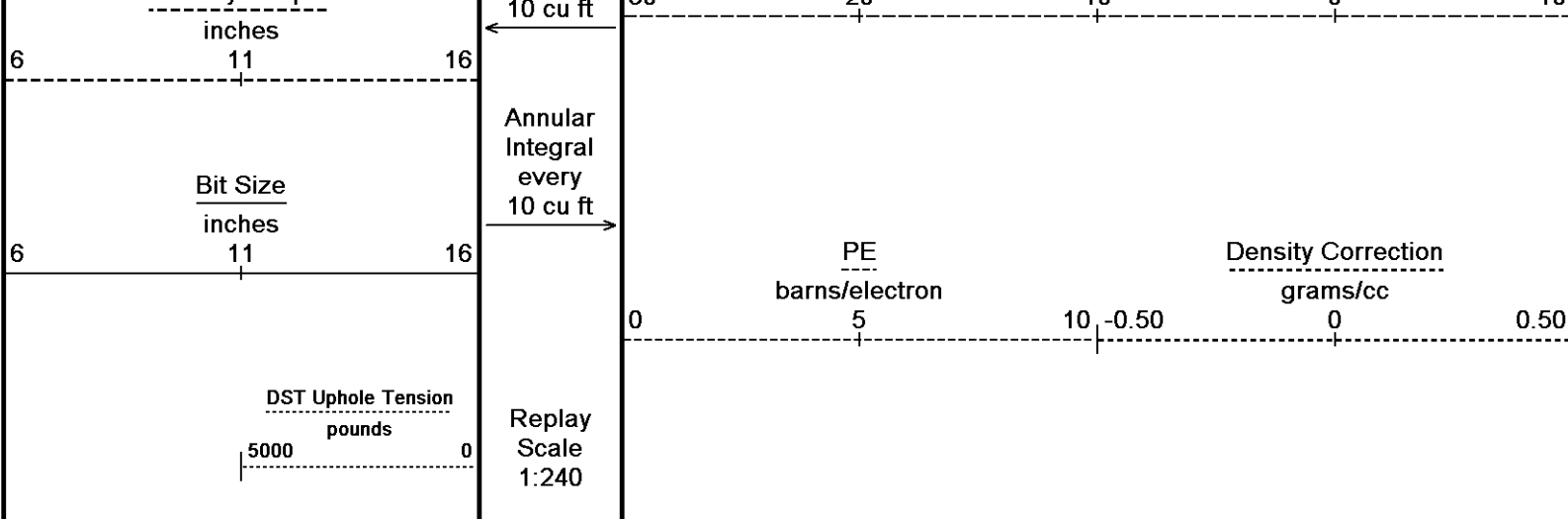
0

4650

4664

Depth in Feet





Depth Based Data - Maximum Sampling Increment 10.0cm
 Plotted on 25-MAY-2013 11:46
 Filename: C:\Minimus 13.05.9583\Log\Grand Mesa E & E #2-34\Grand Mesa E & E #2-34_001.dta
 Recorded on 25-MAY-2013 08:31
 System Versions: Logged with 13.05.9583 Plotted with 13.05.9583

↑ REPEAT SECTION ↑

BEFORE SURVEY CALIBRATION

C:\Minimus 13.05.9583\Log\Grand Mesa E & E #2-34\Grand Mesa E & E #2-34_001.dta

General Constants All 000 Last Edited on 25-MAY-2013,04:12

General Parameters		
Mud Resistivity	0.580	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 22-MAY-2013 08:38
	Measured	Calibrated (API)	
Background	68	45	
Calibrator (Gross)	1154	770	
Calibrator (Net)	1086	725	

Gamma Constants MCG-D.K 469			Last Edited on 25-MAY-2013,04:06
Gamma Calibrator Number	GRC38		
Mud Density	1.14	gm/cc	
Caliper Source for Processing	Density Caliper		
Tool Position	Eccentred		
Concentration of KCl		kppm	
K Mud Type	Chloride		
K Mud Concentration	0.00	%	

High Resolution Temperature Calibration MCG-D.K 469			Field Calibration on 22-MAY-2013,08:31
	Measured	Calibrated(Deg F)	
Lower	50.00	50.00	
Upper	100.00	100.00	

Caliper Calibration MPD-B 64

Base Calibration on 21-MAY-2013 17:34
Field Calibration on 21-MAY-2013 17:35

Reading No	Measured	Calibrator Size (in)
1	14464	3.99
2	23406	5.98
3	32206	7.97
4	40368	9.86
5	50018	11.92
6	N/A	N/A

Measured Caliper (in)	Actual Caliper (in)
5.96	5.98

Base Calibration on 21-MAY-2013 17:55
Field Check on 21-MAY-2013 18:03

Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	60105	33685	59556	30836
Reference 2	25286	2917	24941	2541

Field Check	1169.9	1356.9
-------------	--------	--------

Base Calibration	WS	WH	Measured Ratio	Calibrated Ratio
Background	210	1037		
Reference 1	22619	59903	0.381	0.371
Reference 2	6846	25146	0.275	0.272

Field Check	210.8	1039.1
-------------	-------	--------

Last Edited on 25-MAY-2013,04:03

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	1.14	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	

[illegible]

DOWNHOLE EQUIPMENT

C:\Minimus 13.05.9583\Log\Grand Mesa E & E #2-34\Grand Mesa E & E #2-34_001.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

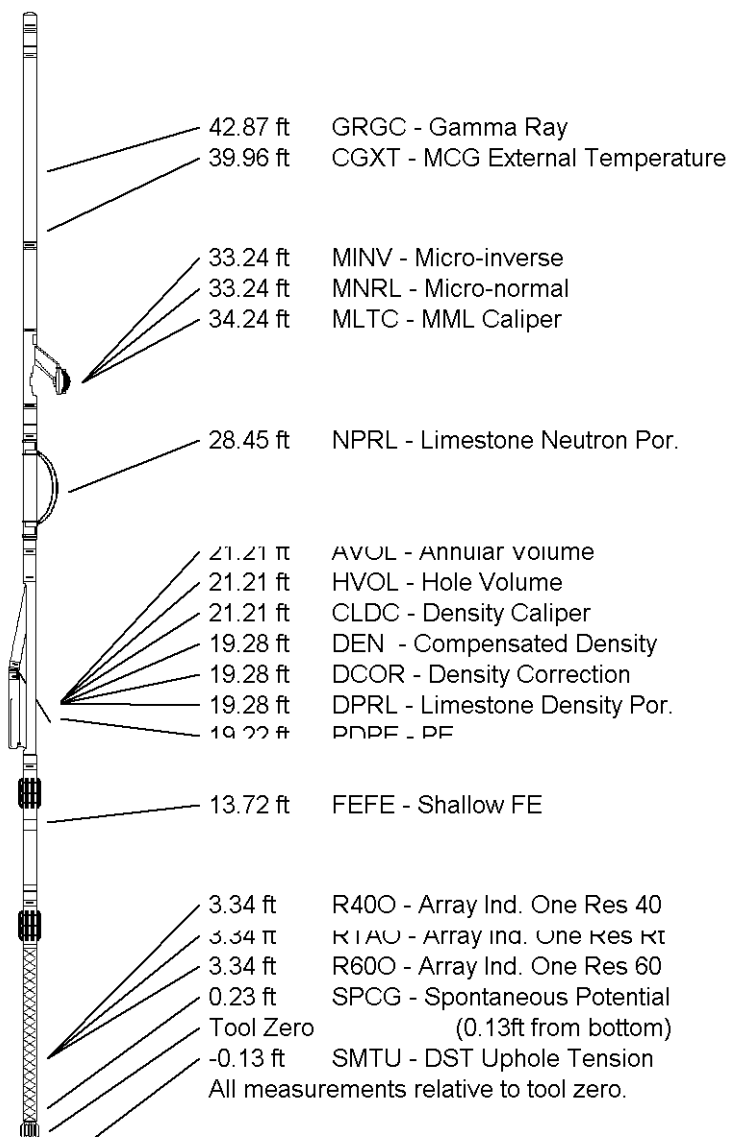
Compact Neutron
MDN-A.B 66 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

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	E & E #2-34
FIELD	WILDCAT
PROVINCE/COUNTY	LOGAN
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	2917.00	feet	First Reading	4621.00	feet
Elevation Drill Floor	2916.00	feet	Depth Driller	4640.00	feet
Elevation Ground Level	2906.00	feet	Depth Logger	4640.00	feet



Weatherford®

COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRORESISTIVITY LOG

