



Weatherford

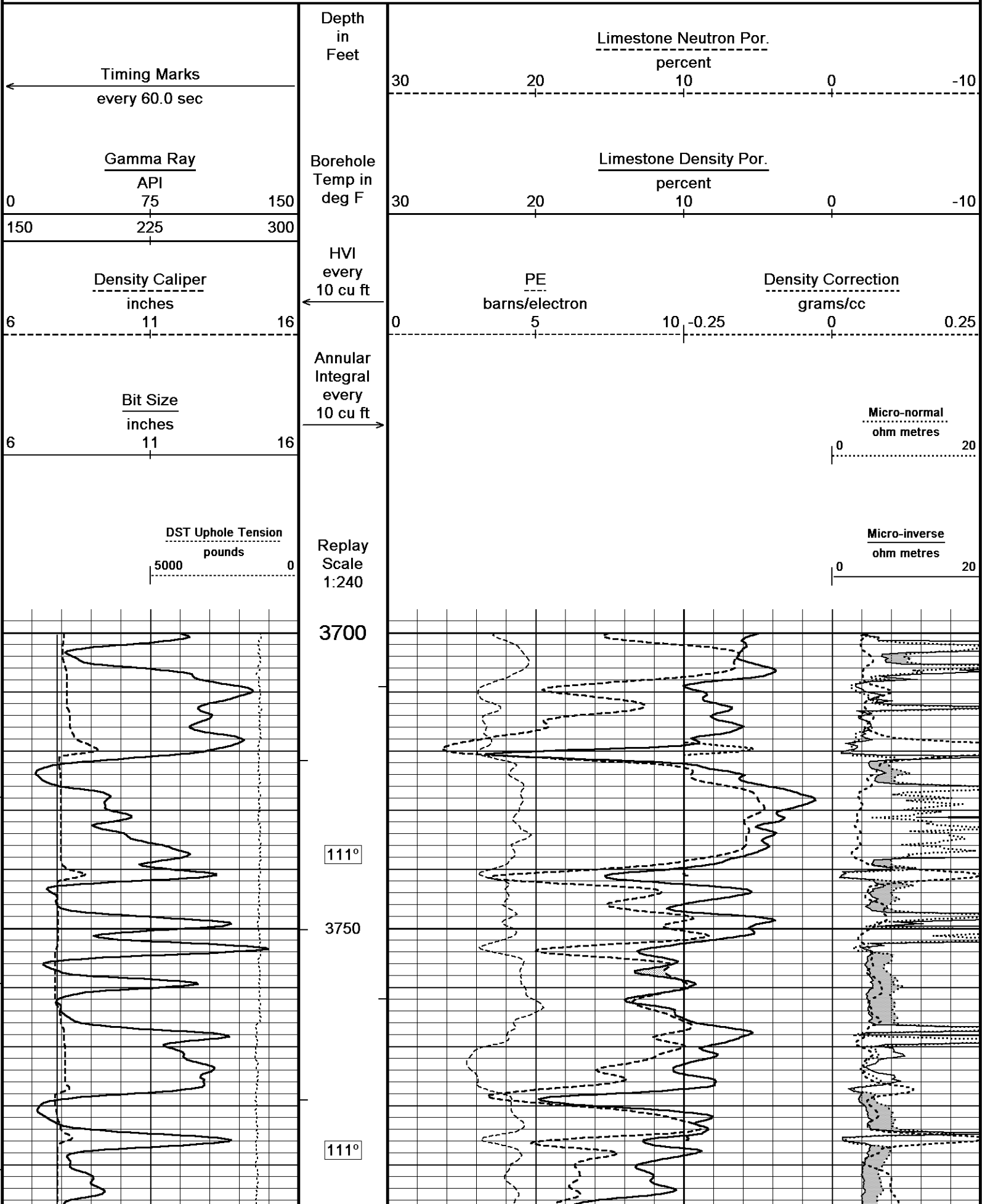
**COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRORESISTIVITY LOG**

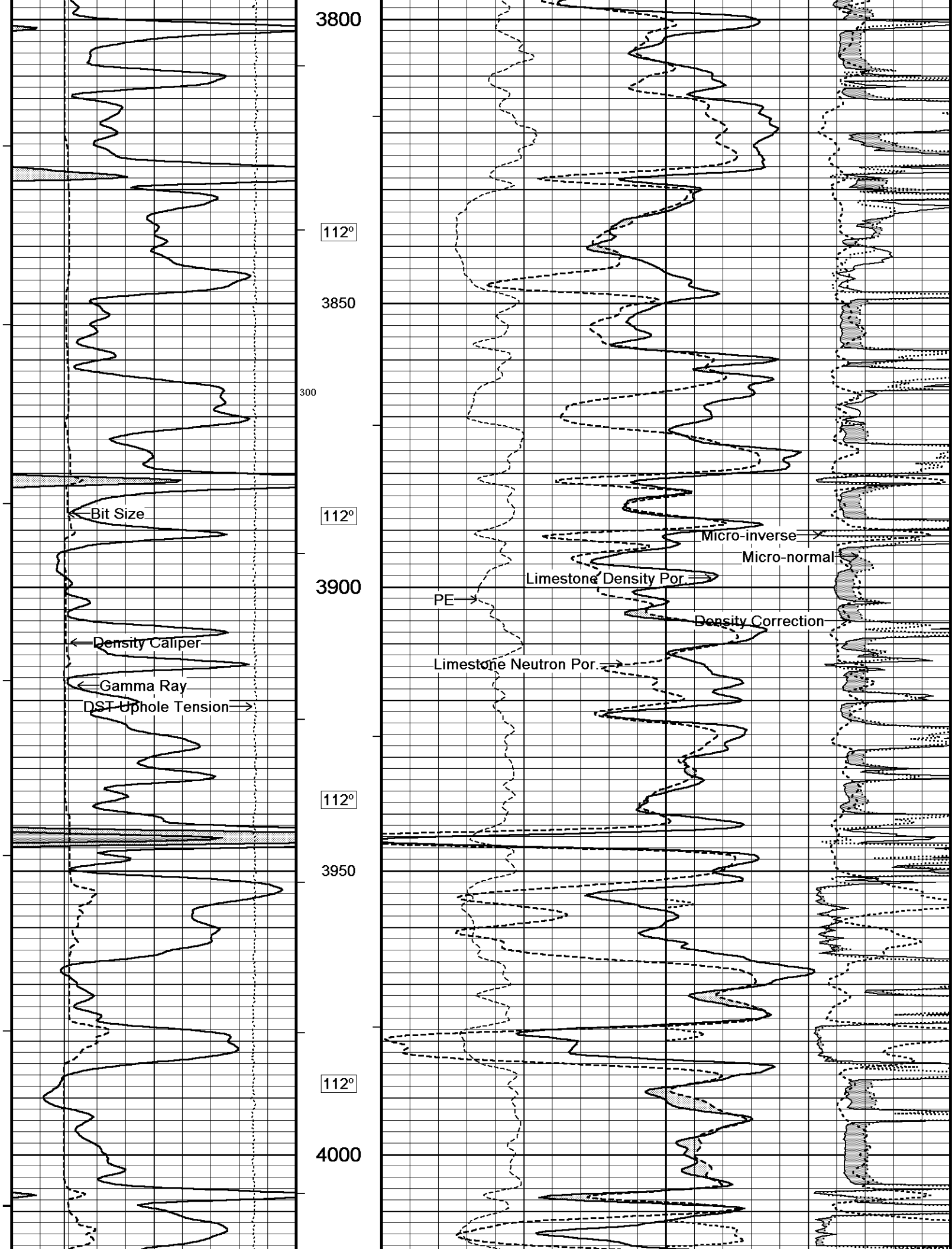
COMPANY				GRAND MESA OPERATING COMPANY			
WELL				CAMPBELL 1-33			
FIELD				WILDCAT			
PROVINCE/COUNTY				GOVE			
COUNTRY/STATE				U.S.A. / KANSAS			
LOCATION				1300' FSL & 558' FEL NW NE SE SE			
SEC	TWP	RGE	Other Services				
33	13S	31W	MA/IME				
API Number		15-063-22046					
Permit Number							
Permanent Datum G.L., Elevation 2919 feet							
Log Measured From KB				Elevations: KB 2924.00 DF 2923.00 GL 2919.00			
Drilling Measured From K.B.							
Date	16-OCT-2012						
Run Number	ONE						
Depth Driller	4716.00			feet			
Depth Logger	4713.00			feet			
First Reading	4693.00			feet			
Last Reading	3700.00			feet			
Casing Driller	222.00			feet			
Casing Logger	221.00			feet			
Bit Size	7.875			inches			
Hole Fluid Type	CHEMICAL						
Density / Viscosity	9.30 lb/USg		59.00 CP				
PH / Fluid Loss	10.00		8.80 ml/30Min				
Sample Source	FLOWLINE						
Rm @ Measured Temp	0.80 @ 99.0			ohm-m			
Rmf @ Measured Temp	0.64 @ 99.0			ohm-m			
Rmc @ Measured Temp	0.96 @ 99.0			ohm-m			
Source Rmf / Rmc	CALC	CALC					
Rm @ BHT	0.68 @ 117.0			ohm-m			
Time Since Circulation	4 HOURS						
Max Recorded Temp	117.00			deg F			
Equipment Name	COMPACT						
Equipment / Base	13096	LIB					
Recorded By	LYNN SCOTT						
Witnessed By	KENT MATSON						
S.O. / JOB#	3537892			LB12-276			

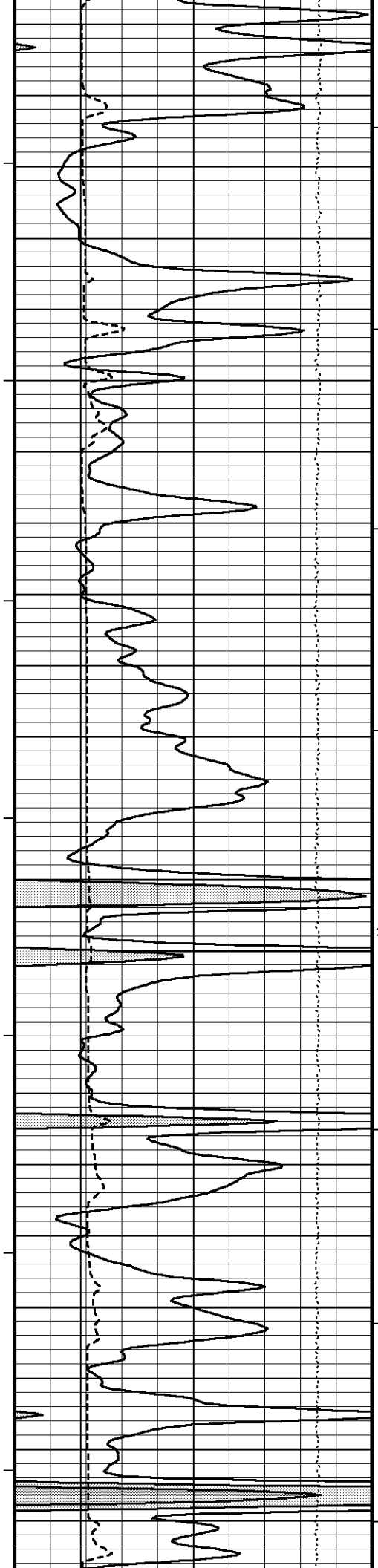
BOREHOLE RECORD			Last Edited: 16-OCT-2012 14:06	
Bit Size inches	Depth From feet		Depth To feet	
7.875	221.00		4713.00	
CASING RECORD				
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	221.00	24.00

REMARKS
Tools Ran: MCG, MML, MDN, MPD, MFE, MAI RAN IN COMBINATION. 2.71 G/CC Limestone Density porosity 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= 1900 cubic feet Annular hole volume with 5.5 Inch casing= 192 cubic feet Service order: 3537892 Rig: Murfin #24 Engineer: L. Scott Operator(s): J. LaPoint, B. Johnson

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.







112°

4050

112°

4100

112°

200

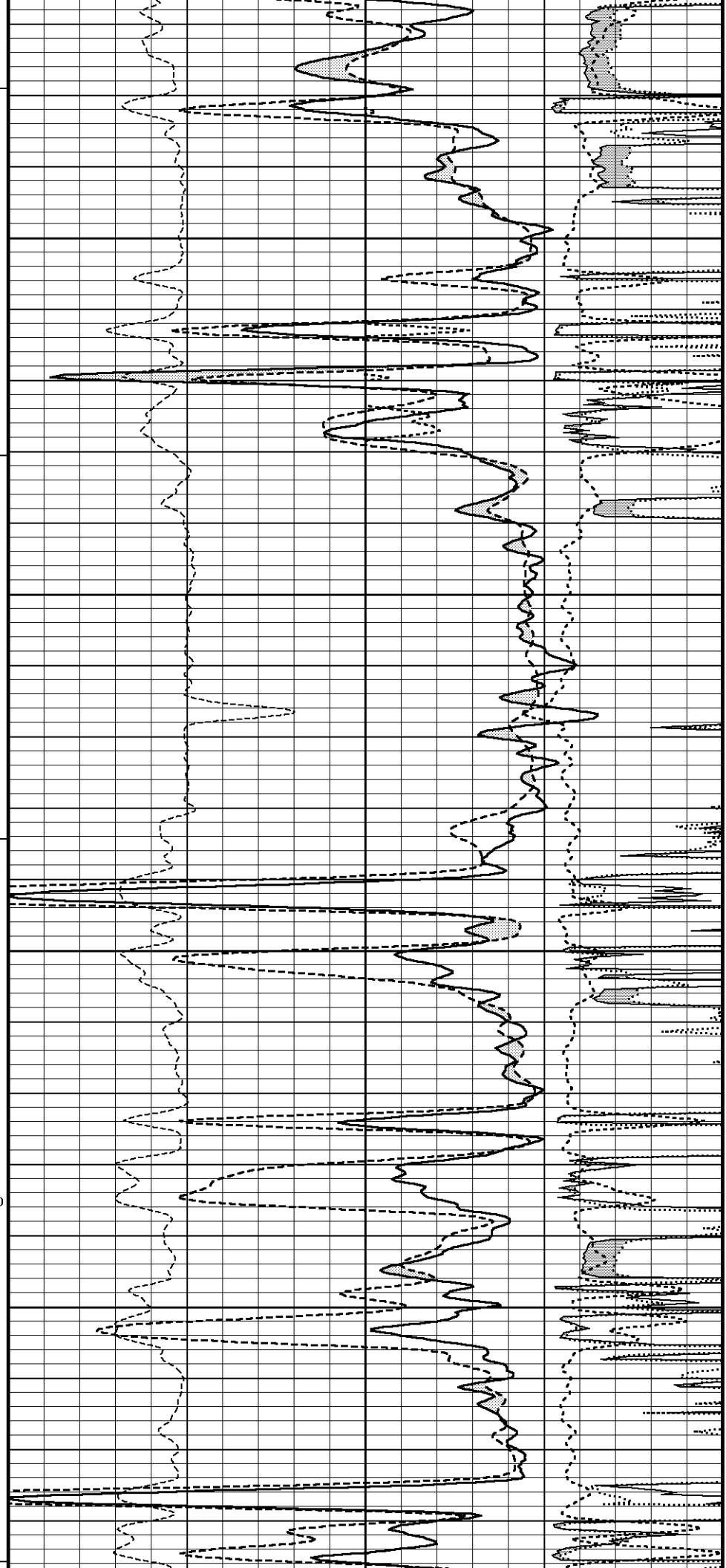
4150

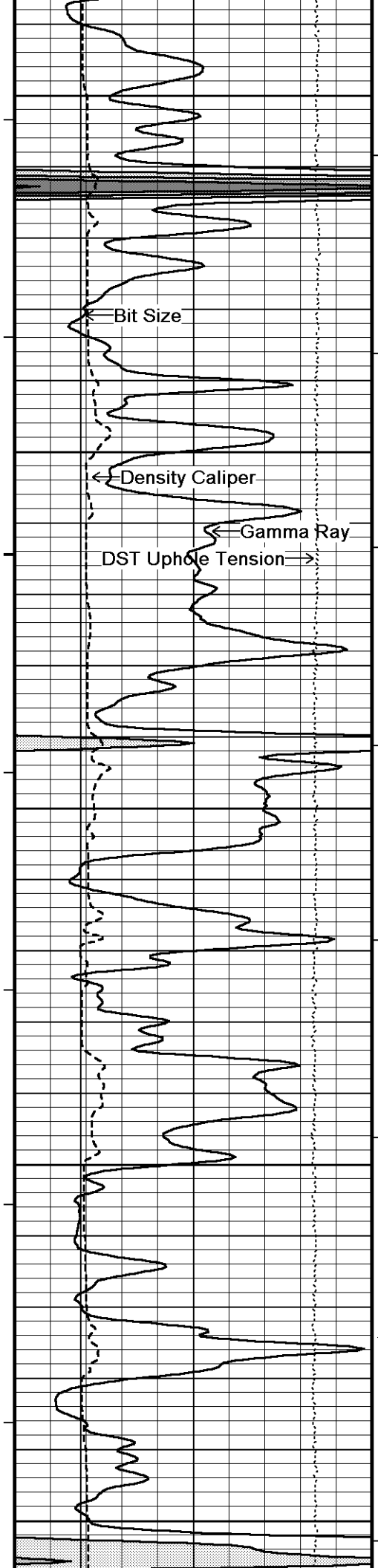
113°

100

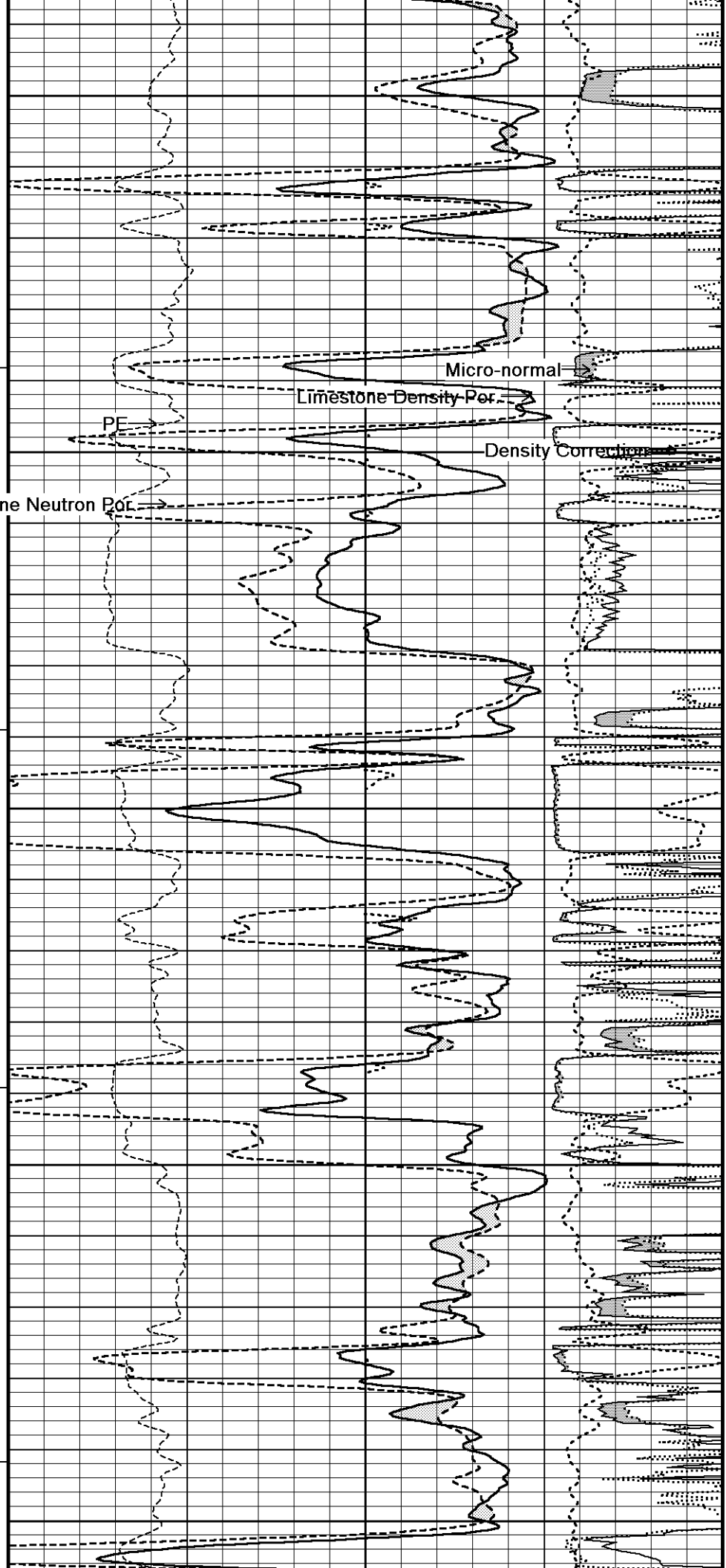
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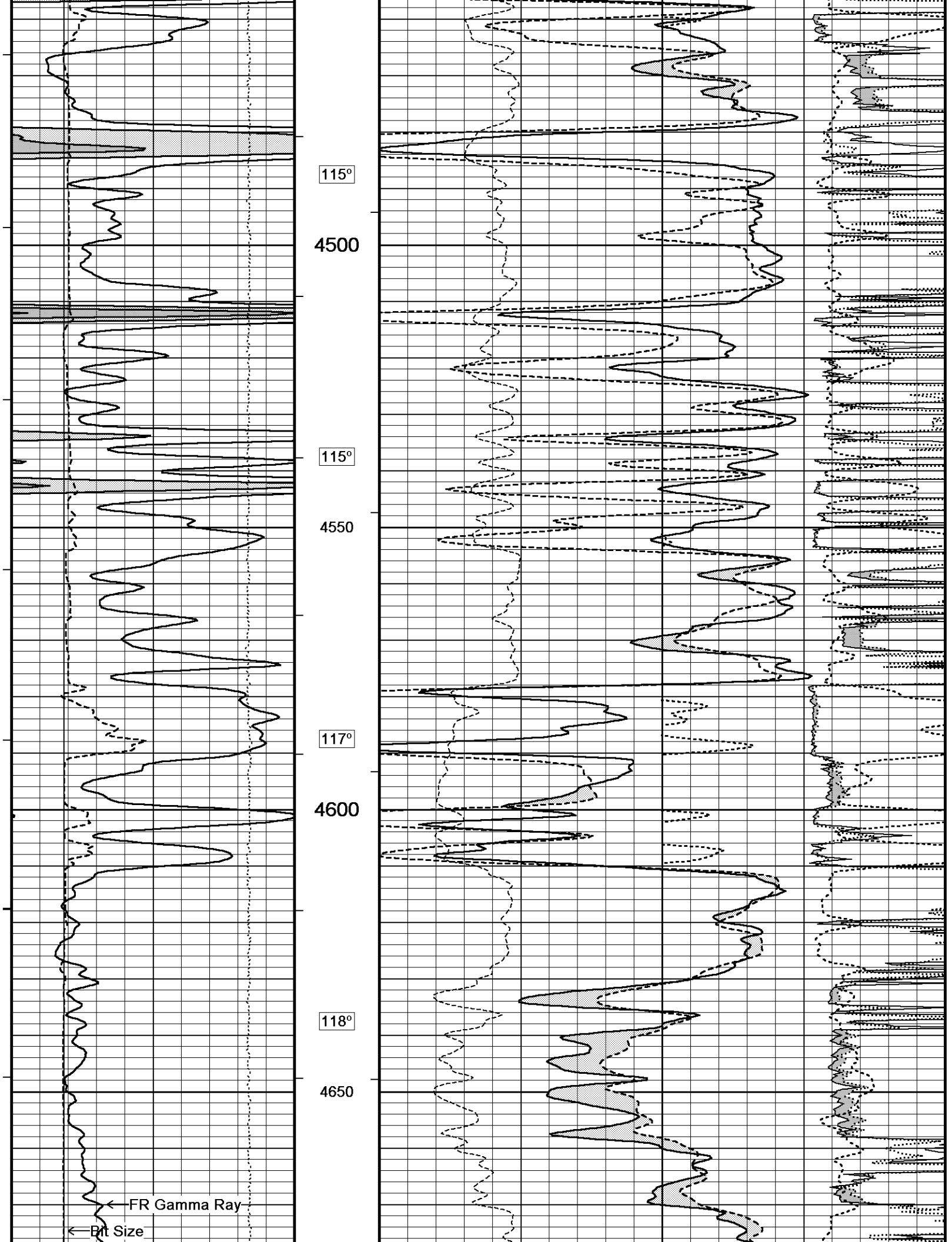
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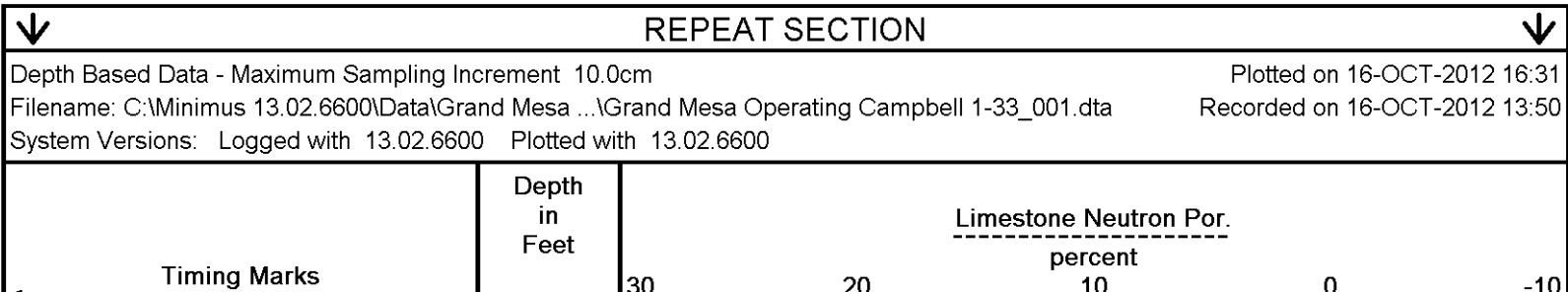
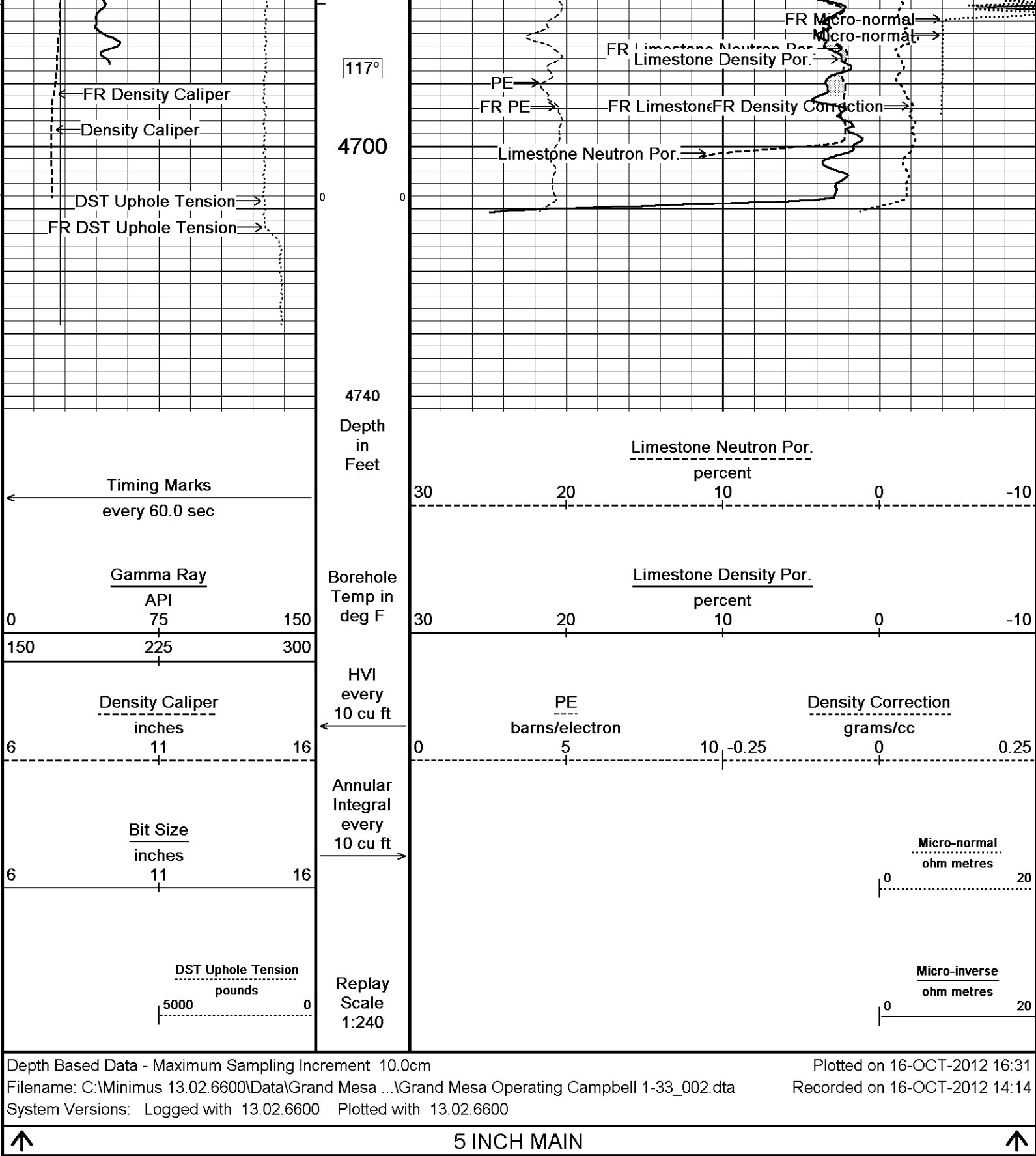




113°
4250
114°
4300
114°
4350
114°
4400
100
115°
4450







every 60.0 sec

Gamma Ray

API

75

225

Density Caliper

inches

11

Bit Size

inches

11

DST Uphole Tension

pounds

5000

0

Borehole
Temp in
deg F

HVI
every
10 cu ft

Annular
Integral
every
10 cu ft

Replay
Scale
1:240

4400

100

113°

4450

114°

4500

Limestone Density Por.

percent

30

20

10

0

-10

PE

barns/electron

0

5

10

-0.25

Density Correction

grams/cc

0

0.25

Micro-normal

ohm metres

0

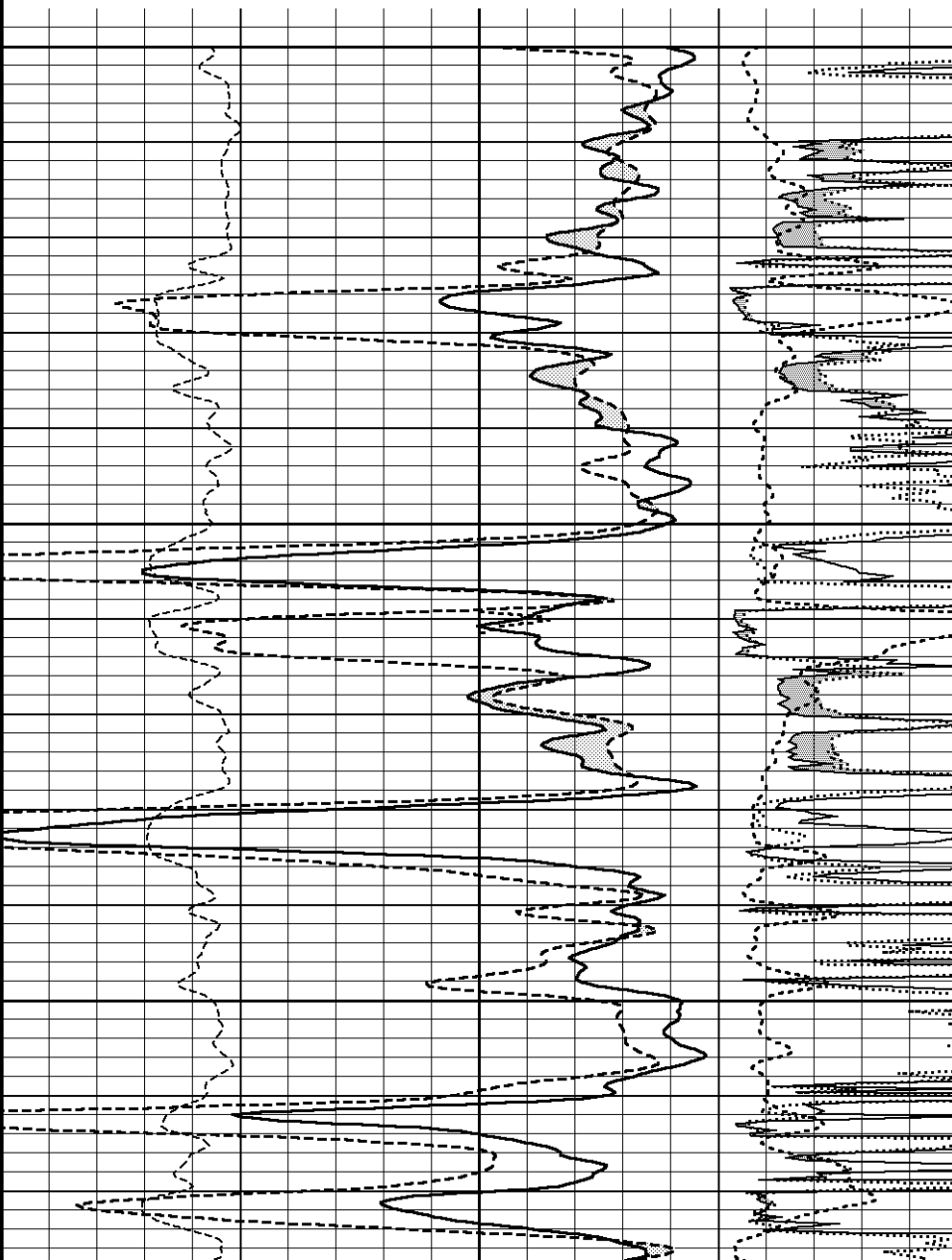
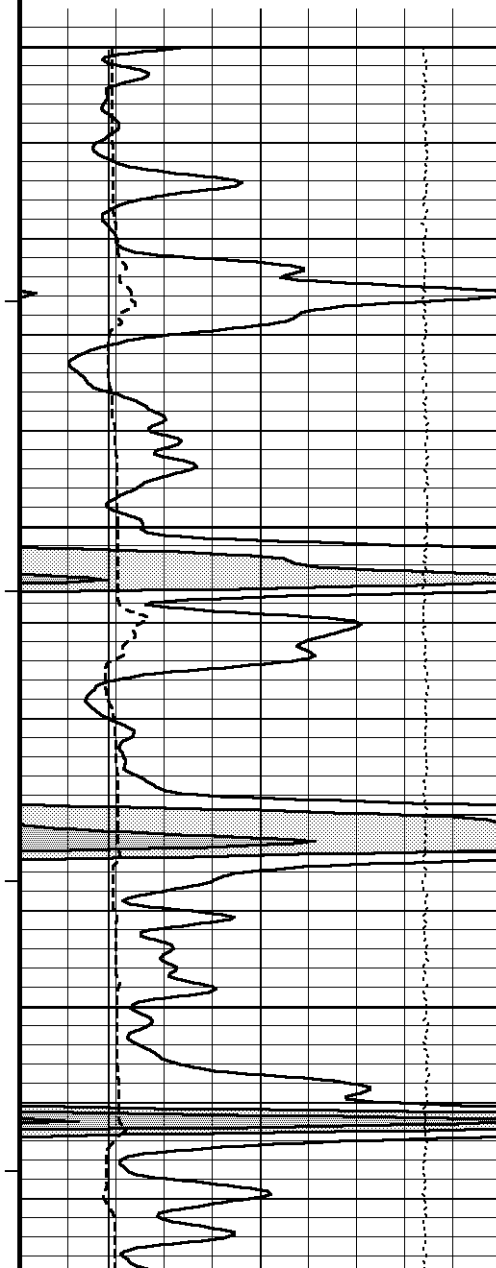
20

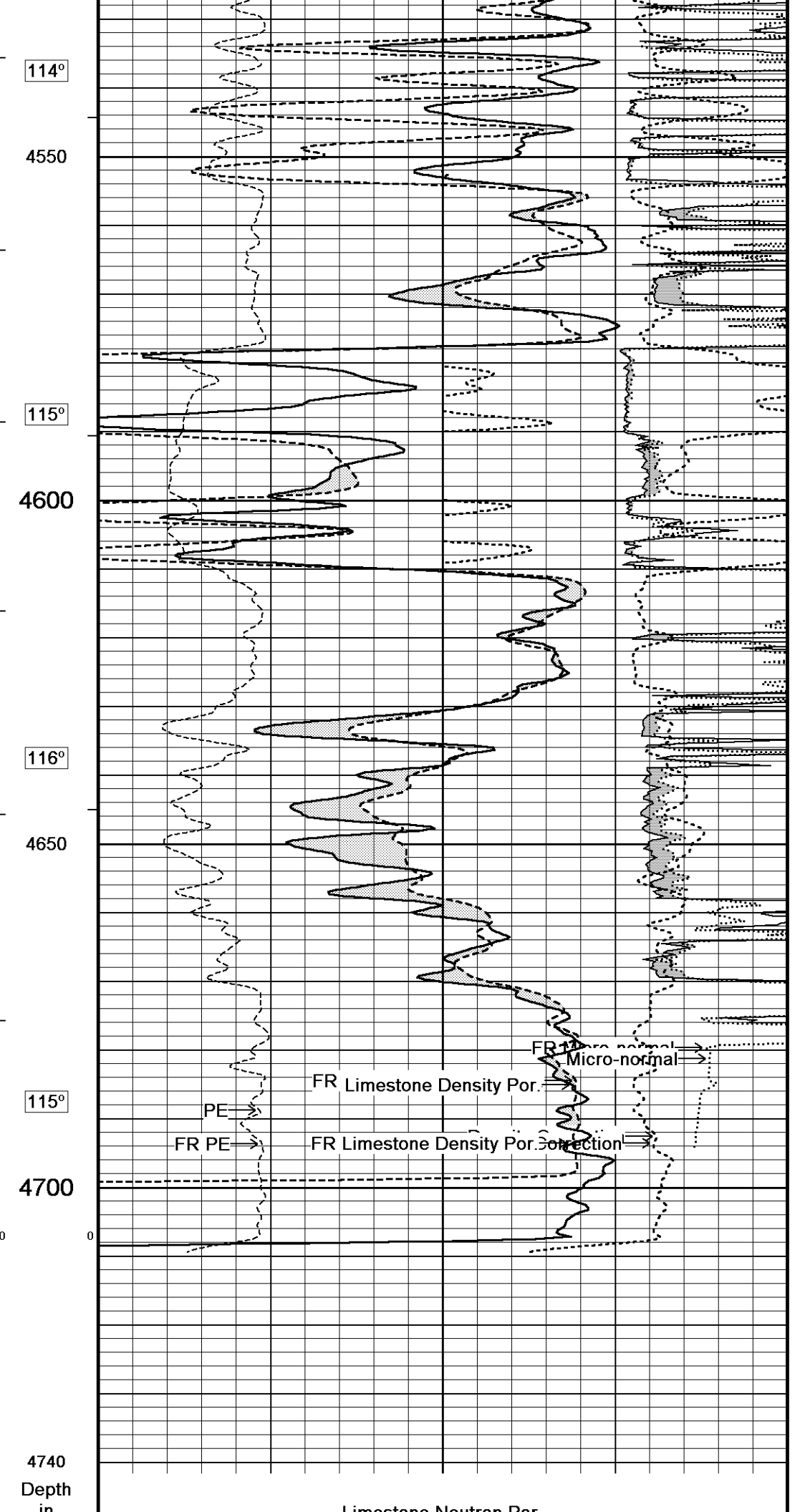
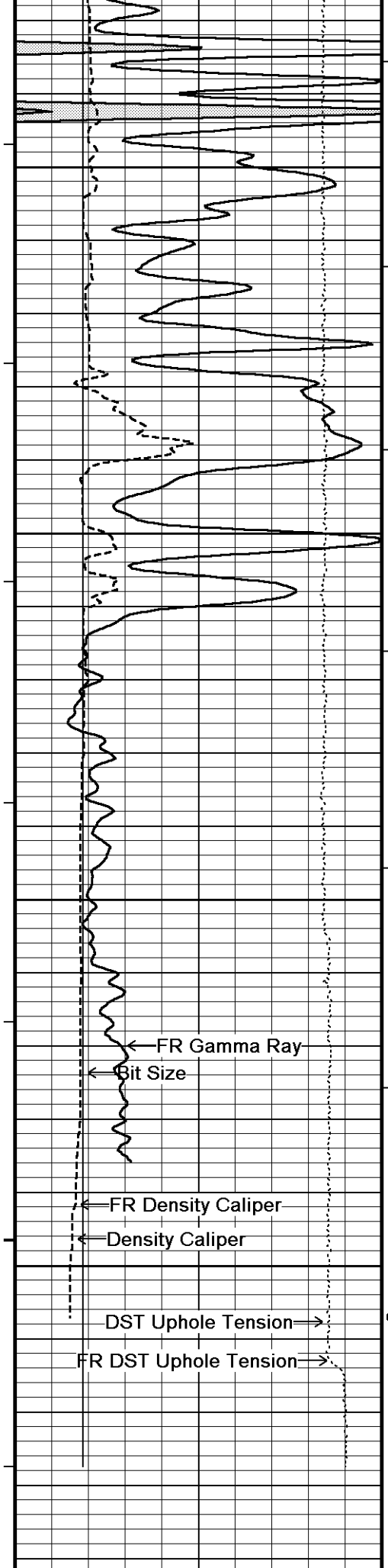
Micro-inverse

ohm metres

0

20





114°

4550

115°

4600

116°

4650

115°

4700

4740

Depth
in

FR Limestone Density Por.

FR Limestone Density Por. correction

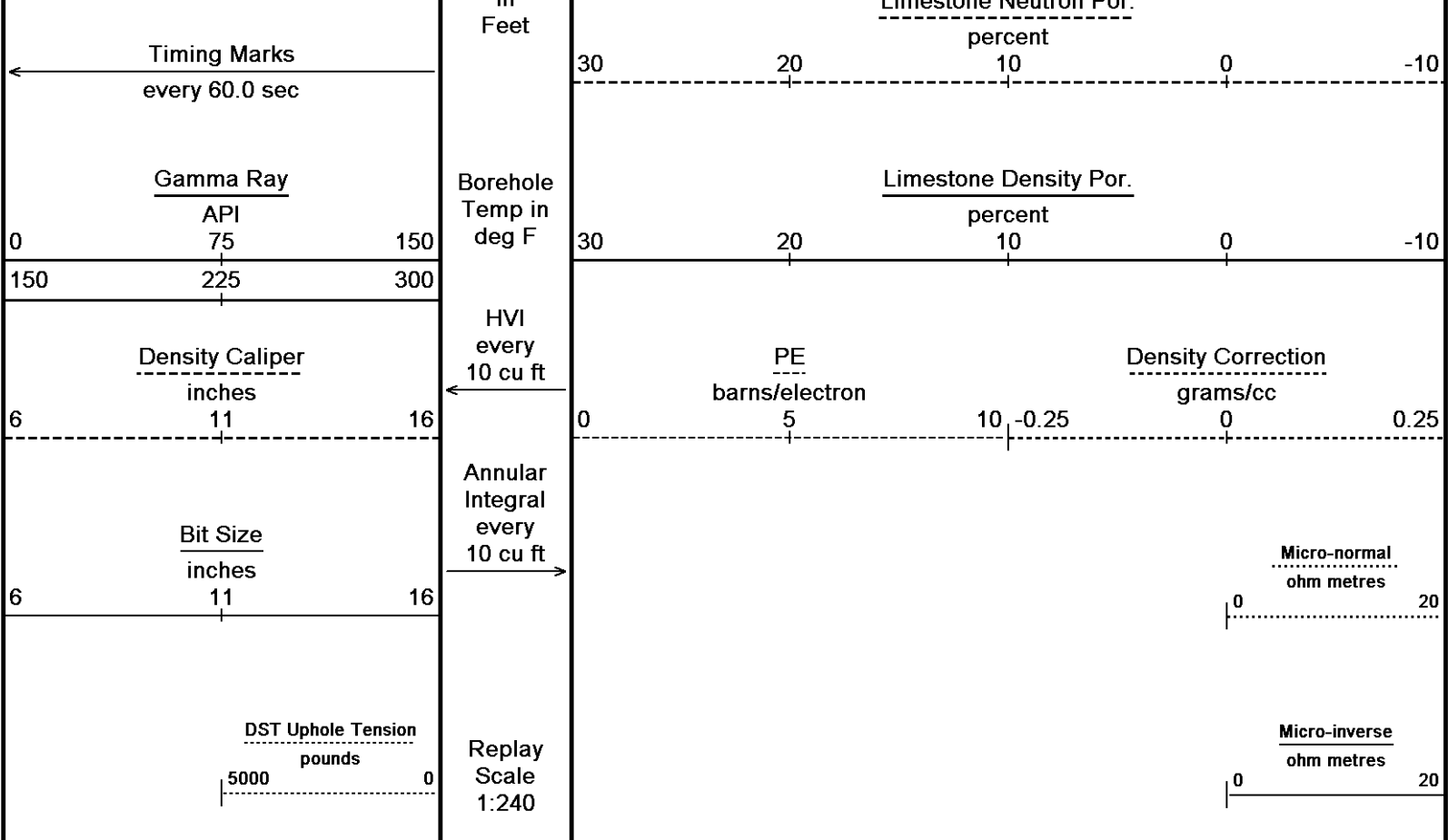
FR Micro-normal

Micro-normal

PE

FR PE

Limestone Neutron Por.

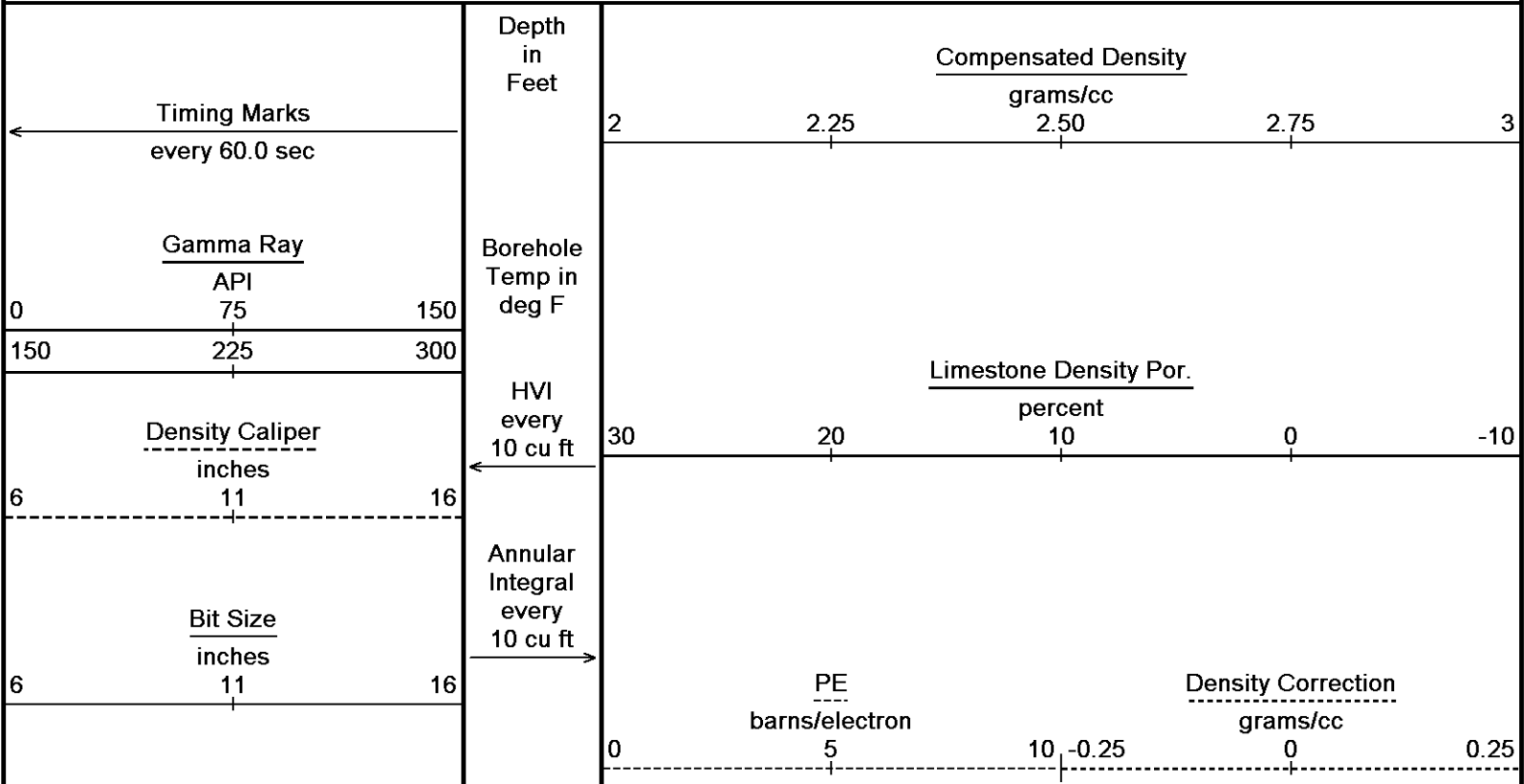


Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 16-OCT-2012 16:31
 Filename: C:\Minimus 13.02.6600\Data\Grand Mesa ...\Grand Mesa Operating Campbell 1-33_001.dta Recorded on 16-OCT-2012 13:50
 System Versions: Logged with 13.02.6600 Plotted with 13.02.6600

↑ REPEAT SECTION ↑

↓ 5 INCH MAIN ↓

Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 16-OCT-2012 16:31
 Filename: C:\Minimus 13.02.6600\Data\Grand Mesa ...\Grand Mesa Operating Campbell 1-33_002.dta Recorded on 16-OCT-2012 14:14
 System Versions: Logged with 13.02.6600 Plotted with 13.02.6600



DST Uphole Tension
pounds
5000 0

Replay
Scale
1:240

3700

111°

3750

111°

3800

112°

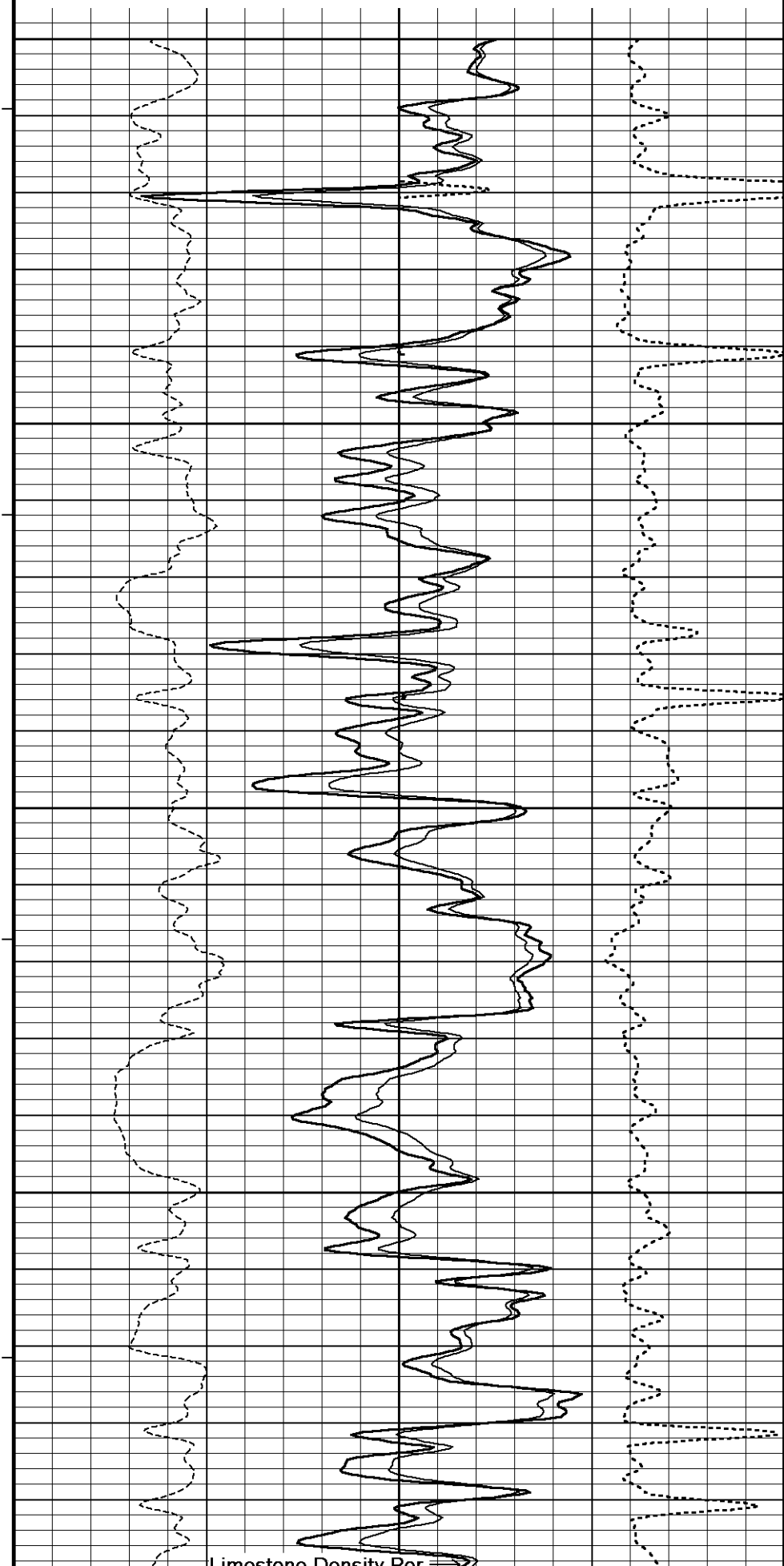
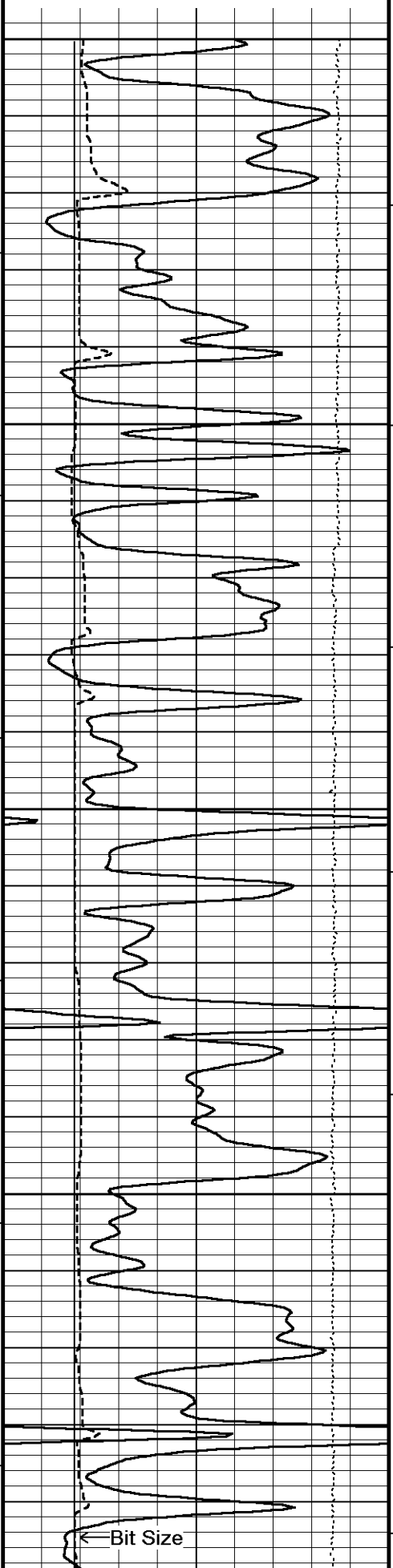
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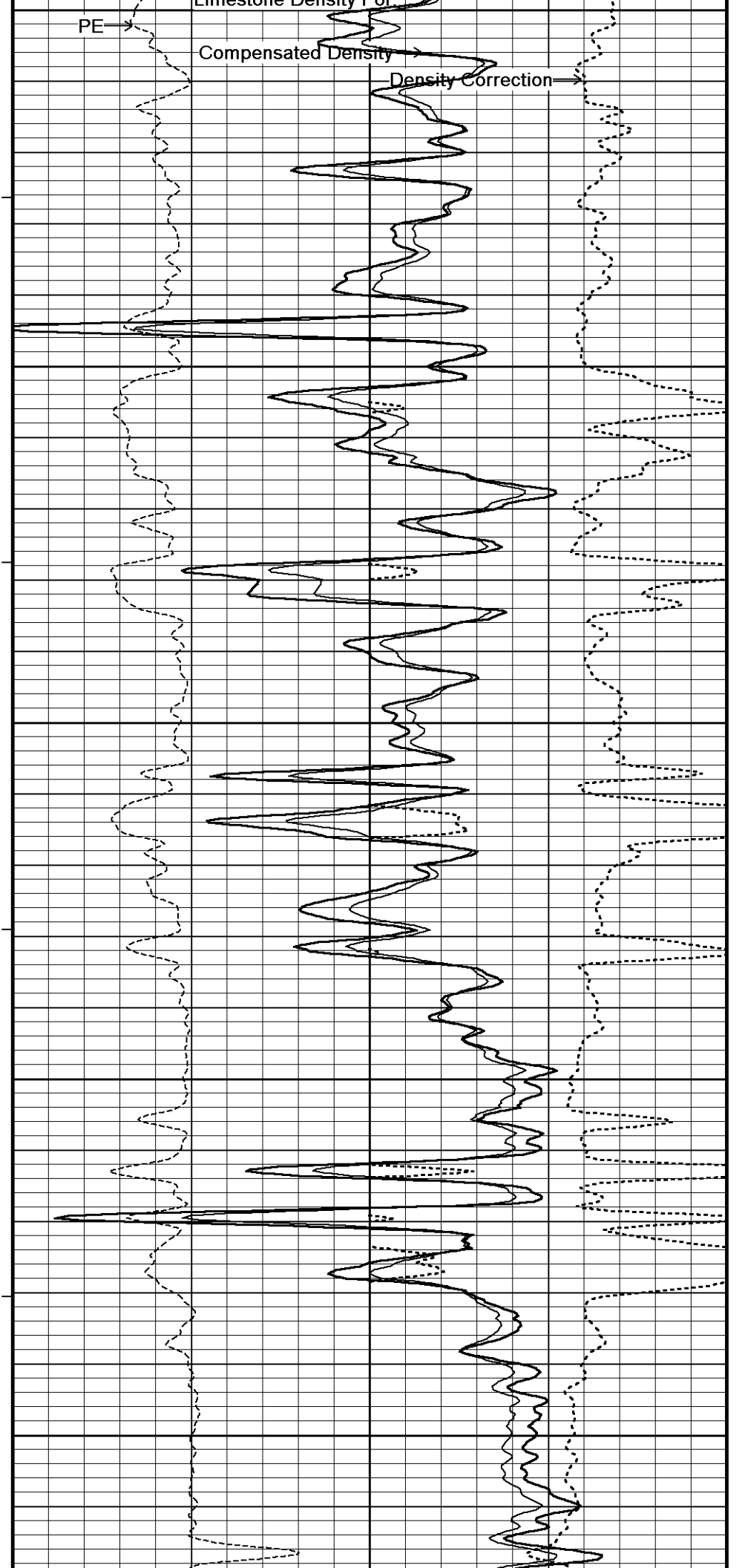
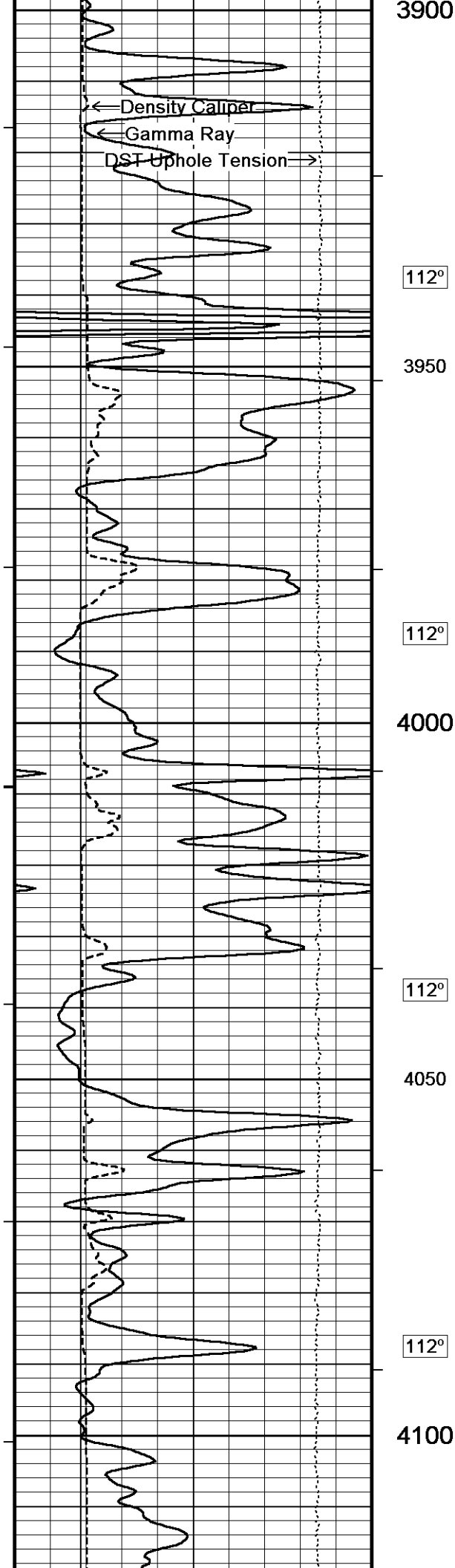
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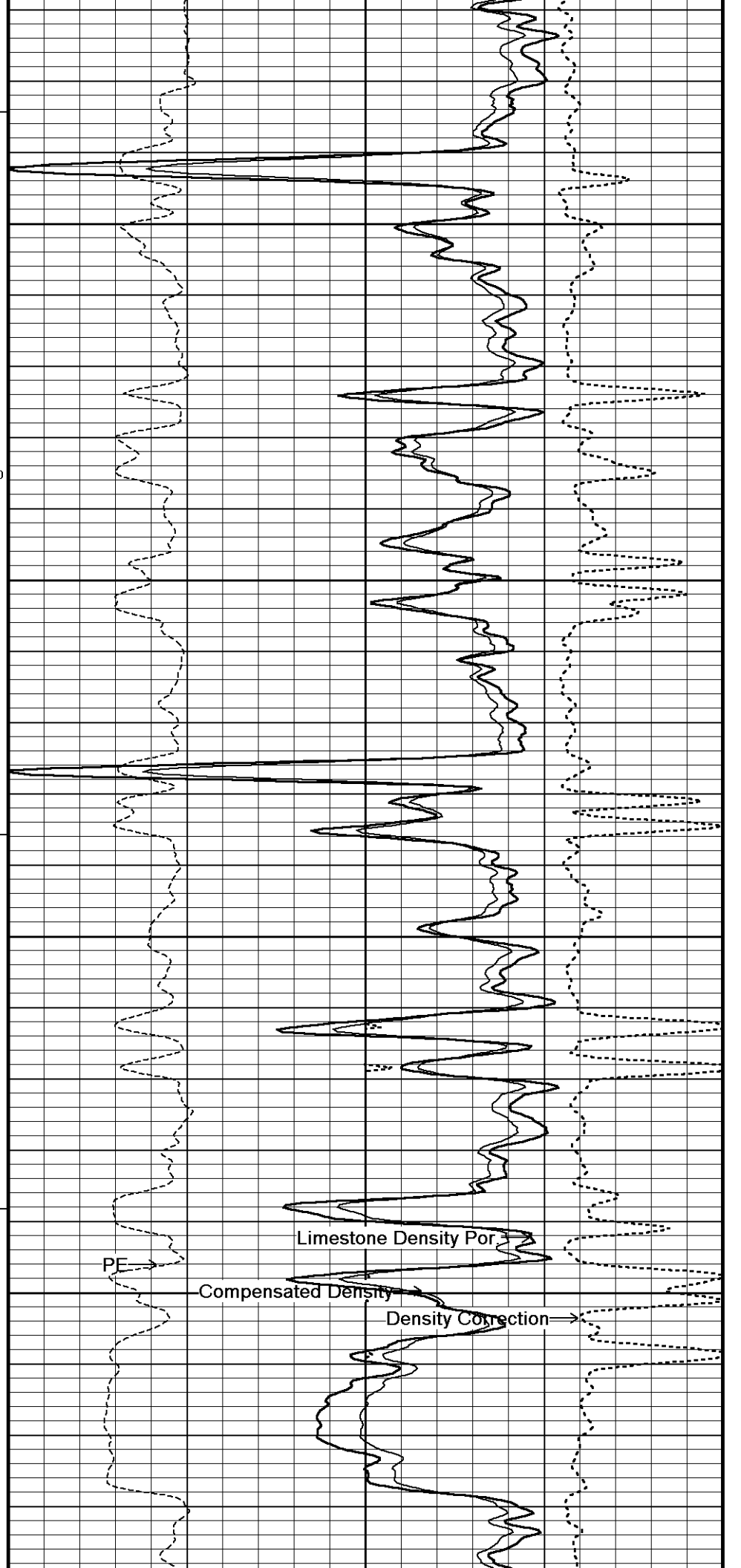
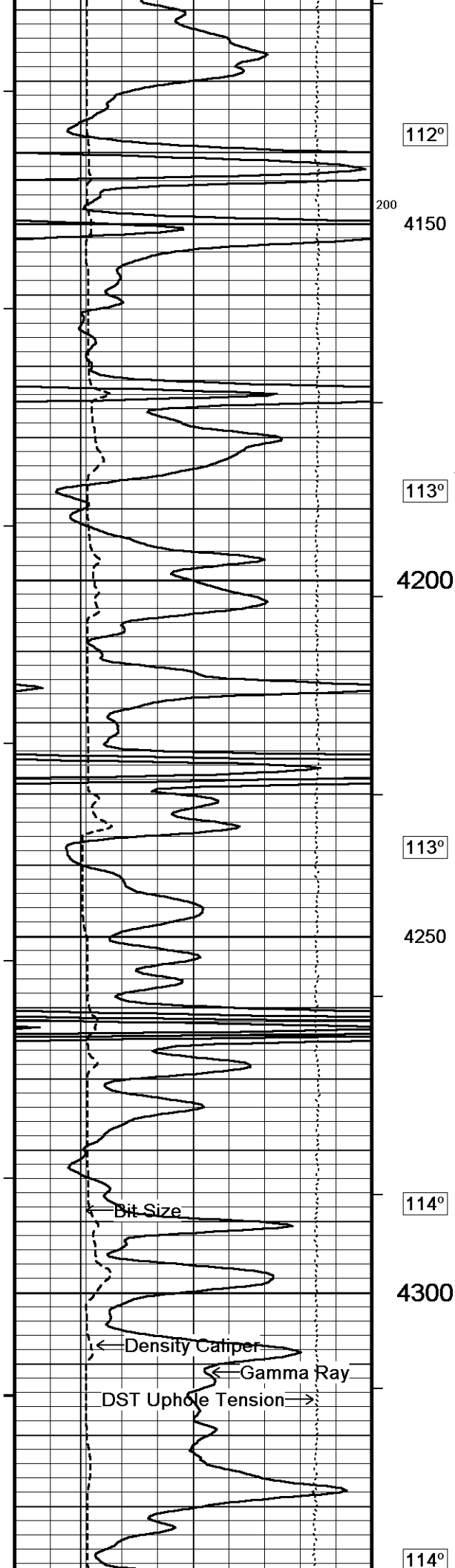
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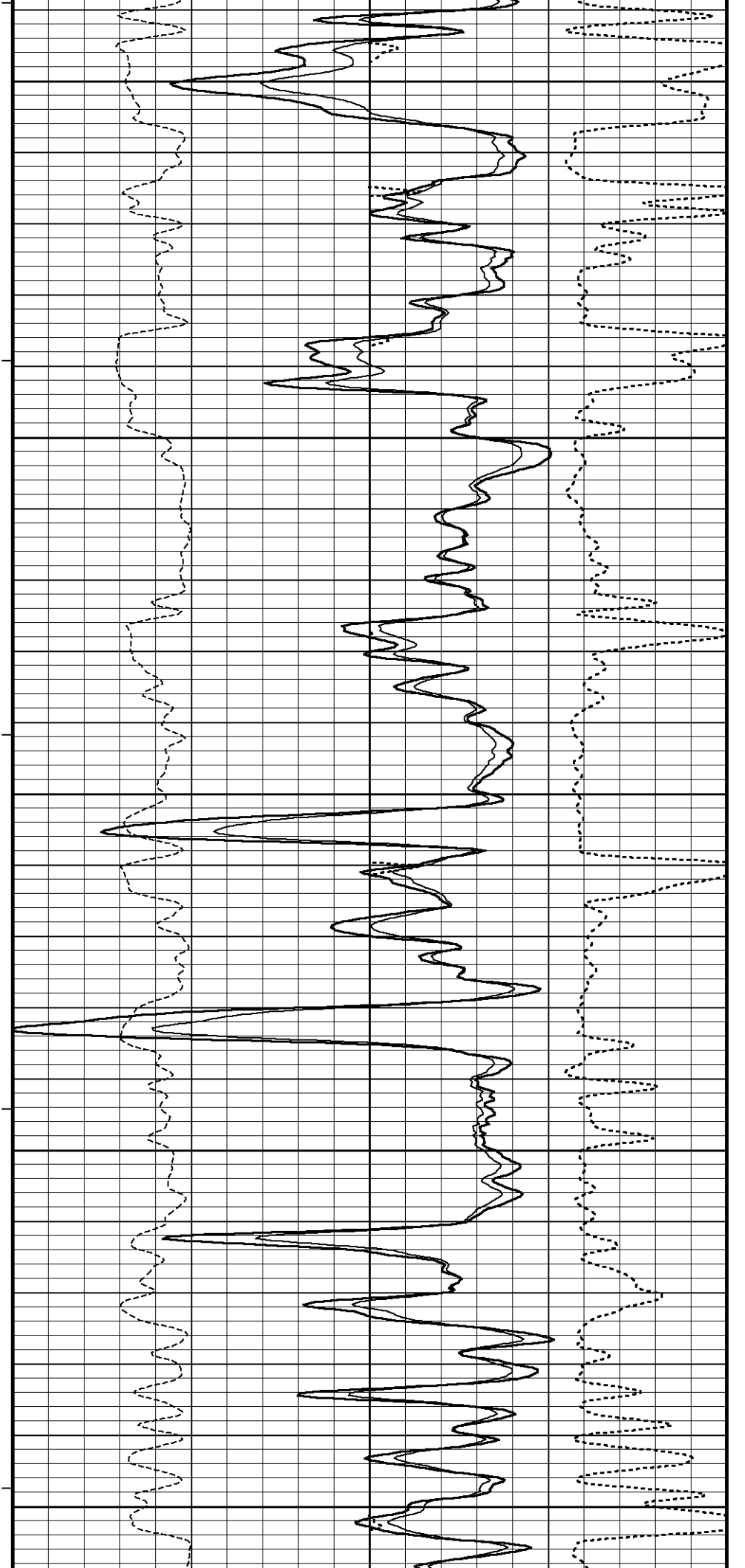
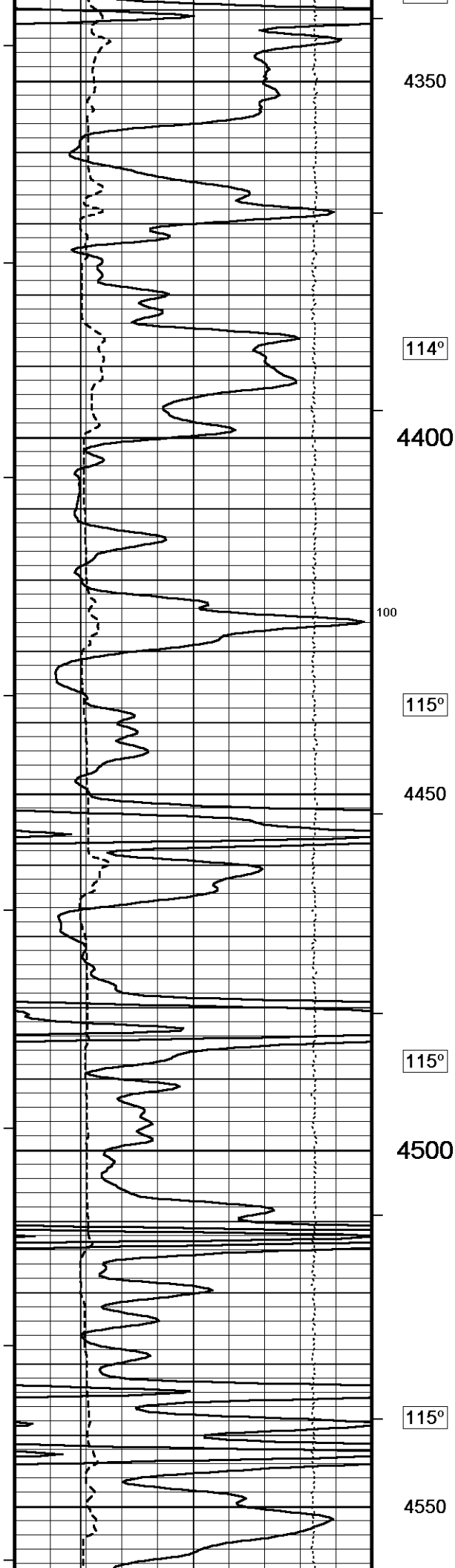
← Bit Size

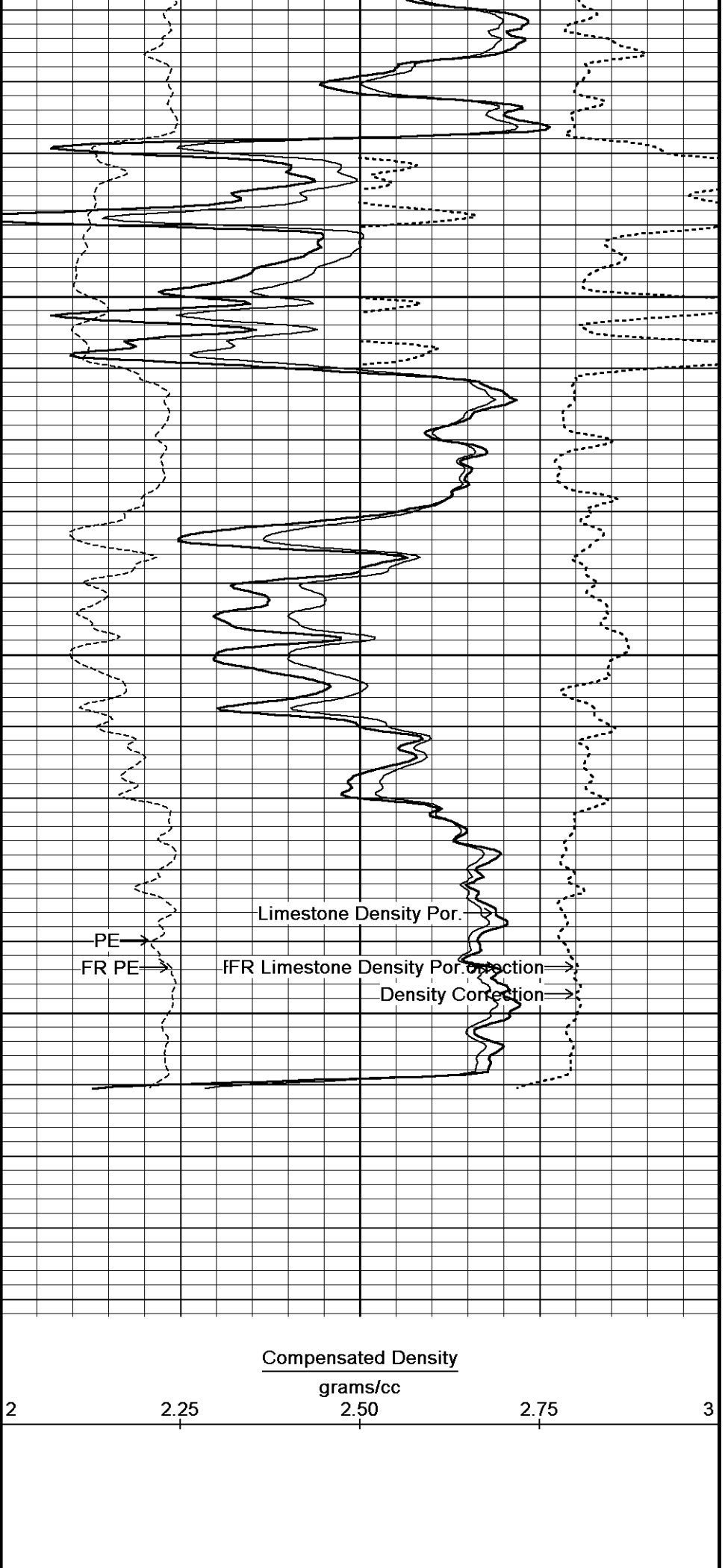
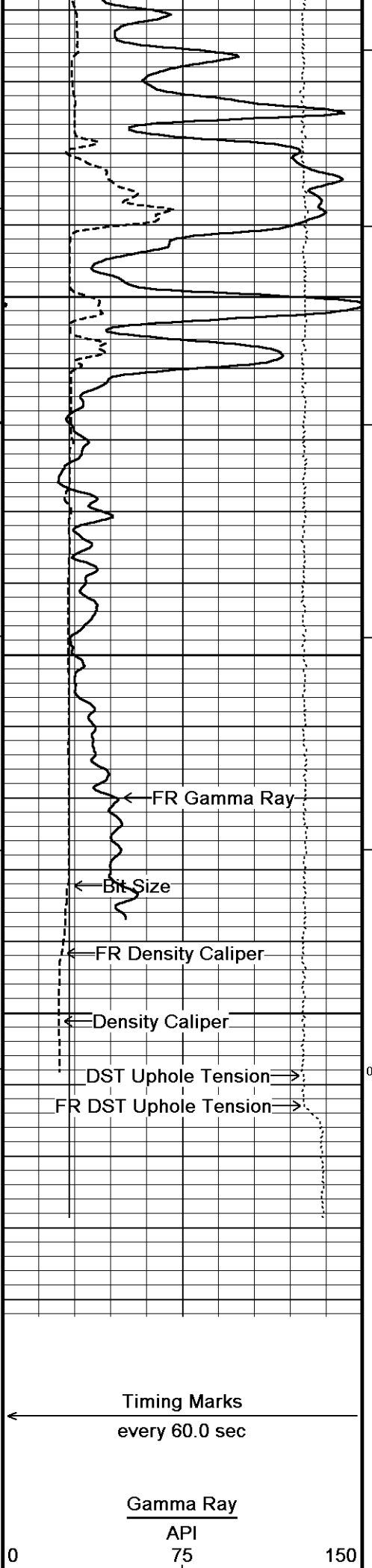
→ Limestone Density Por

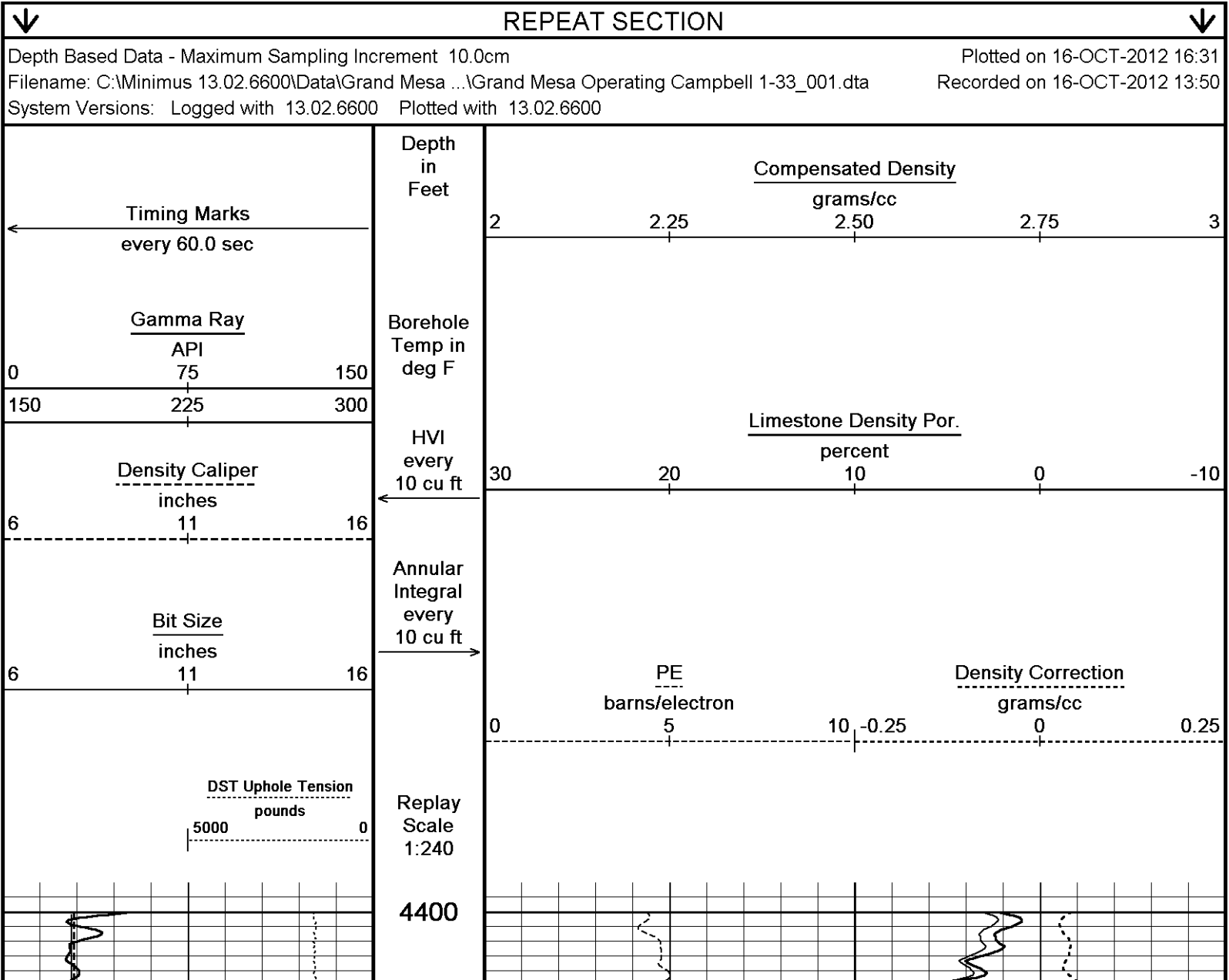
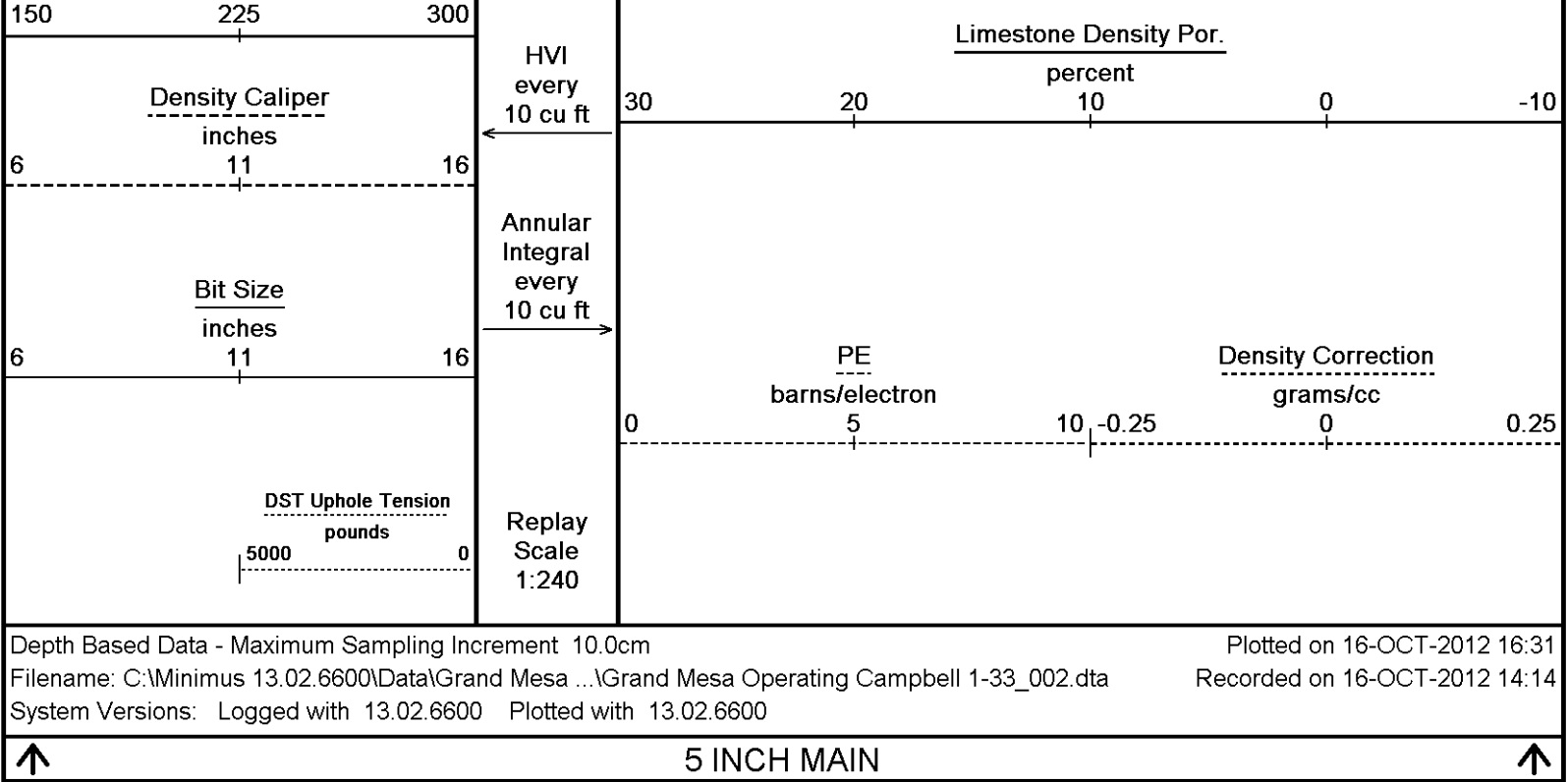


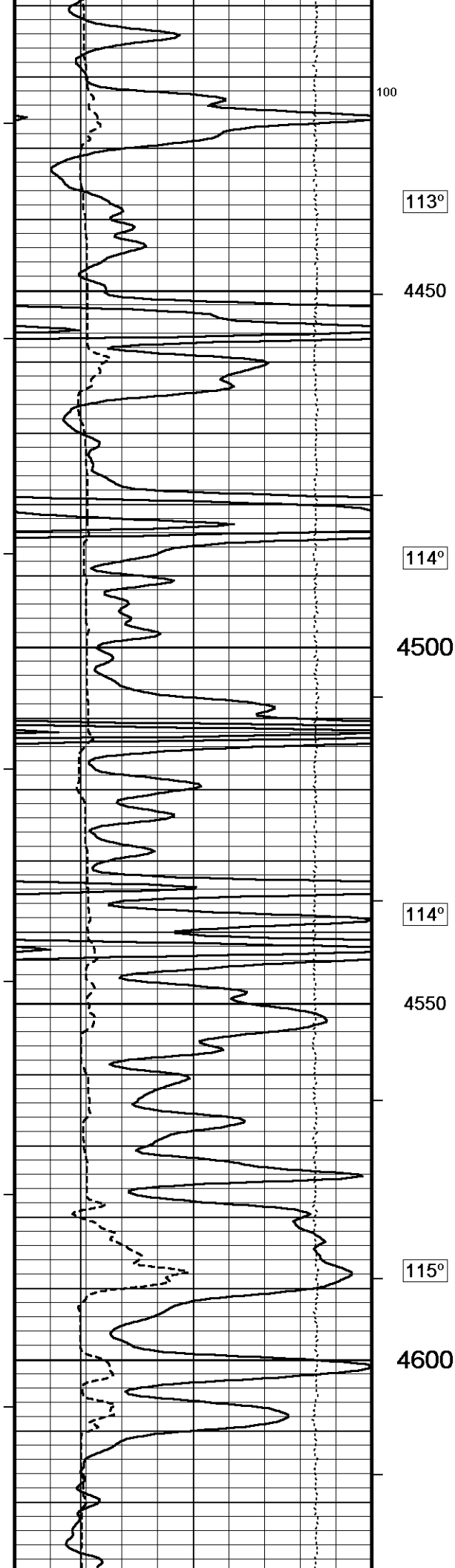












113°

4450

114°

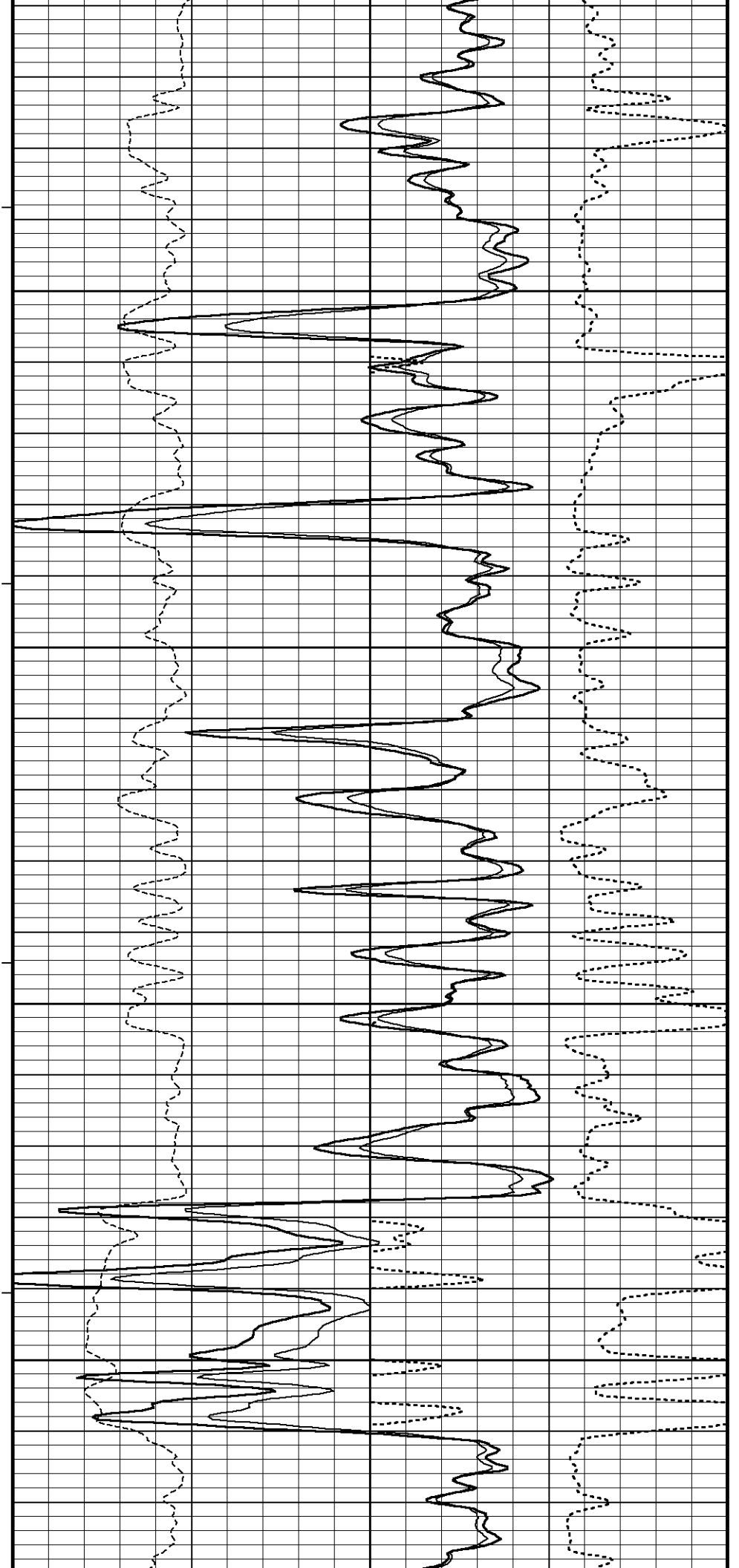
4500

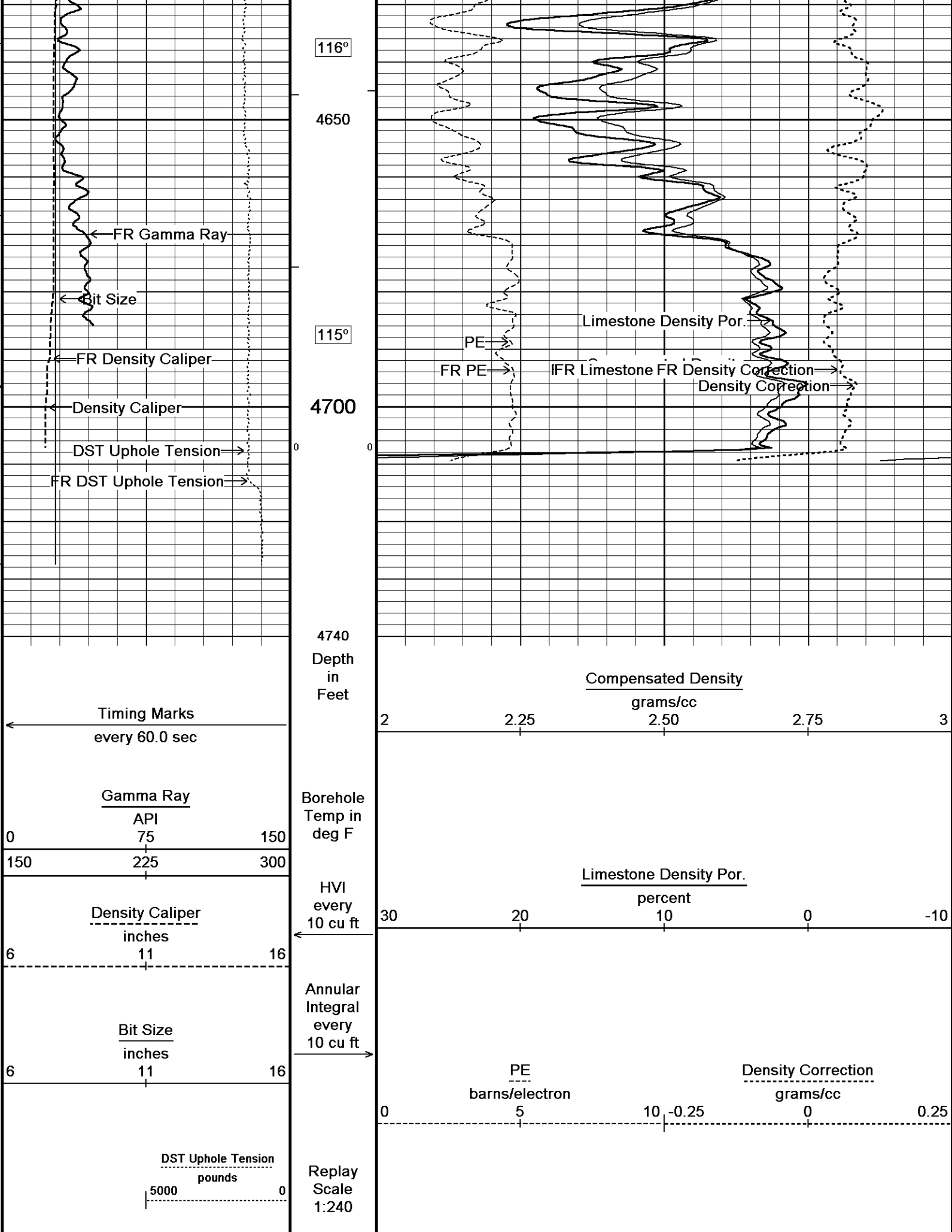
114°

4550

115°

4600





↑ REPEAT SECTION ↑

BEFORE SURVEY CALIBRATION
 C:\Minimus 13.02.6600\Data\Grand Mesa Operating Campbell 1-33\Grand Mesa Operating Campbell 1-33_001.dta

General Constants All 000			Last Edited on 16-OCT-2012,10:30		
General Parameters					
Mud Resistivity	0.800		ohm-metres		
Mud Resistivity Temperature	99.000		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	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				

Down-hole Tension Calibration SMS 0		Field Calibration on 10-SEP-2012 04:28	
Reading No	Measured	Calibrated (lbs)	
1	15456.86	0.00	
2	16071.78	384.00	

Gamma Calibration MCG-D.K 442		Field Calibration on 14-OCT-2012 02:07	
	Measured	Calibrated (API)	
Background	69	46	
Calibrator (Gross)	1152	771	
Calibrator (Net)	1083	725	

Gamma Constants MCG-D.K 442		Last Edited on 14-OCT-2012,08:31	
Gamma Calibrator Number	GRC38		
Mud Density	1.12	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 17-JUL-2012 16:34	
	Measured	Calibrated (mV)	
Reference 1	100.2	100.0	
Reference 2	-99.9	-100.0	

High Resolution Temperature Calibration MCG-D.K 442		Field Calibration on 17-JUL-2012,16:35	
	Measured	Calibrated(Deg F)	
Lower	50.00	50.00	
Upper	100.00	100.00	

High Resolution Temperature Constants MCG-D.K 442		Last Edited on	
Pre-filter Length	11		

Caliper Calibration MML-A 16			Base Calibration on 30-SEP-2012 19:38
			Field Calibration on 14-OCT-2012 02:01
Base Calibration			
Reading No	Measured	Calibrator Size (in)	
1	13888	5.98	
2	16946	7.97	
3	20169	9.86	

4	23996	11.92
5	0	0.00
6	N/A	N/A
Field Calibration		
	Measured Caliper (in)	Actual Caliper (in)
	6.03	5.98
Micro Normal and Micro Inverse Calibration MML-A 16		Base Calibration on 30-SEP-2012 19:42 Field Check on 14-OCT-2012 02:02
Base Calibration		
	Measured	Calibrated (ohm-m)
Channel	Resistor 1 Resistor 2	Resistor 1 Resistor 2
Micro Normal	12.2 60.2	5.0 25.0
Micro Inverse	15.6 78.4	5.0 25.0
Channel	Base Check (ohm-m)	Field Check (ohm-m)
Micro Normal	62.9	62.9
Micro Inverse	48.2	48.2
Micro Normal and Micro Inverse Constants MML-A 16		Last Edited on 16-OCT-2012,10:30
Pad Type	8-12 in Soft Rubber Inflatable 006-9011-159	
Micro Normal K Factor	1.0000	
Micro Inverse K Factor	1.0000	
Standoff Offset	N/A	inches
Neutron Calibration MDN-A.B 66		Base Calibration on 10-OCT-2012 14:12 Field Check on 14-OCT-2012 02:13
Base Calibration		
	Measured	Calibrated (cps)
	Near Far	Near Far
	3058 95	3714 110
Ratio	32.033	33.764
Field Calibrator at Base		Calibrated (cps)
		1673 2395
Ratio		0.698
Field Check		Calibrated (cps)
		1678 2400
Ratio		0.699
Neutron Constants MDN-A.B 66		Last Edited on 16-OCT-2012,10:30
Neutron Source Id	P0204NN	
Neutron Jig Number	5824NE	
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	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
Salinity Correction	Not Applied	
Formation Fluid Salinity Source	Constant Value	
Formation Fluid Salinity	0.00	kppm
Barite Mud Correction	Not Applied	
FE Calibration MFE-B.J 353		Base Calibration on 01-OCT-2012 09:16 Field Check on 14-OCT-2012 01:52
Base Calibration		
	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	965.2	126.8
Base Check		280.7

Field Check		280.9			
FE Constants MFE-B.J 353		Last Edited on 16-OCT-2012,10:29			
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			
High Resolution Temperature Calibration MAI-A.A 167		Field Calibration on 17-JUL-2012,13:53			
	Measured	Calibrated(Deg F)			
Lower	1.00	33.80			
Upper	11.00	51.80			
High Resolution Temperature Constants MAI-A.A 167		Last Edited on 17-JUL-2012,13:49			
Pre-filter Length	11				
Induction Calibration MAI-A.A 167		Base Calibration on 17-JUL-2012,13:55 Field Check on 14-OCT-2012 01:51			
Base Calibration					
Test Loop Calibration		Measured		Calibrated (mmho/m)	
Channel	Low	High	Low	High	
1	17.3	474.2	9.3	966.2	
2	6.3	388.4	7.6	821.4	
3	3.3	259.4	5.2	566.0	
4	1.9	133.0	2.6	279.2	
Array Temperature		76.8	Deg F		
Channel		Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High	
1	0.0	0.0	12.3	3841.0	
2	0.0	0.0	29.3	3478.5	
3	0.0	0.0	28.9	3054.3	
4	0.0	0.0	19.7	2082.6	
Deep	0.0	0.0	18.5	2049.7	
Medium	0.0	0.0	42.1	3992.9	
Shallow	0.0	0.0	42.5	5056.6	
Array Temperature		0.0	64.3	Deg F	
Induction Constants MAI-A.A 167		Last Edited on 16-OCT-2012,10:29			
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 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 10-OCT-2012 12:35

Field Calibration on 14-OCT-2012 01:53

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	12128	3.99
2	20753	5.98
3	29254	7.97
4	37705	9.86
5	46896	11.92
6	N/A	N/A

Field Calibration

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

Photo Density Calibration MPD-B 64

Base Calibration on 10-OCT-2012 12:54

Field Check on 14-OCT-2012 02:00

Density Calibration

Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	58951	32645	59556	30836
Reference 2	24760	2893	24941	2541

Field Check at Base

1181.6	1375.1
--------	--------

Field Check

1187.9	1371.9
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PE Calibration

Base Calibration	WS	Measured		Calibrated Ratio
		WH	Ratio	
Background	215	1053		
Reference 1	22216	58751	0.381	0.371
Reference 2	6718	24623	0.276	0.272

Field Check at Base

215.0	1052.6
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Field Check

215.0	1059.8
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Density Constants MPD-B 64

Last Edited on 14-OCT-2012,08:30

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	1.12	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)
2.87
0.00
0.00
0.00
0.00
0.00
0.00
0.00
0.00

Depth (ft)
0.00
0.00
0.00
0.00
0.00
0.00
0.00
0.00
0.00

DOWNHOLE EQUIPMENT

C:\Minimus 13.02.6600\Data\Grand Mesa Operating Campbell 1-33\Grand Mesa Operating Campbell 1-33_001.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 16 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: 48.16 ft Weight: 383.6 lb

GRGC - Gamma Ray
CGXT - MCG External Temperature

MINV - Micro-inverse
MNRL - Micro-normal
MLTC - MML Caliper

NPRL - Limestone Neutron Por.

AVOL - Annular Volume
HVOL - Hole Volume
CLDC - Density Caliper
DEN - Compensated Density
DCOR - Density Correction
DPRL - Limestone Density Por.
PDPE - PE

FEFE - Shallow FE

R400 - Array Ind. One Res 40
RTAO - Array Ind. One Res Rt
R600 - Array Ind. One Res 60
SPCG - Spontaneous Potential
Tool Zero (0.13ft from bottom)
SMTU - DST Uphole Tension

All measurements relative to tool zero.

COMPANY	GRAND MESA OPERATING COMPANY				
WELL	CAMPBELL 1-33				
FIELD	WILDCAT				
PROVINCE/COUNTY	GOVE				
COUNTRY/STATE	U.S.A. / KANSAS				
Elevation Kelly Bushing	2924.00	feet	First Reading	4693.00	feet
Elevation Drill Floor	2923.00	feet	Depth Driller	4716.00	feet
Elevation Ground Level	2919.00	feet	Depth Logger	4713.00	feet



