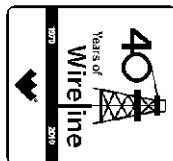




Weatherford

COMPACT PHOTO DENSITY COMPENSATED NEUTRON LOG



COMPANY	GRAND MESA		
WELL	ELLIS 1-23		
FIELD	WILDCAT		
PROVINCE/COUNTY	LOGAN		
COUNTRY/STATE	U.S.A./KANSAS		
LOCATION	1711' FSL & 2310' FSL		
SEC	TWP	RGE	Other Services
23	14S	32W	MAI/MFE
API Number	15-109-21001		MSS
Permit Number	MML		
Permanent Datum G.L., Elevation 2780 feet			Elevations:
Log Measured From K.B. @ 5 FEET above Permanent Datum			KB
Drilling Measured From K.B.			DF
Date	26-APR-2011	GL	
Run Number	ONE		
Depth Driller	4570.00	feet	
Depth Logger	4572.00	feet	
First Reading	4538.00	feet	
Last Reading	3500.00	feet	
Casing Driller	214.00	feet	
Casing Logger	212.00	feet	
Bit Size	7.880	inches	
Hole Fluid Type	CHEMICAL		
Density / Viscosity	9.50 lb/USg	59.00 CP	
PH / Fluid Loss	9.00	10.40 ml/30Min	
Sample Source	FLOWLINE		
Rm @ Measured Temp	0.70 @ 81.0	ohm-m	
Rmf @ Measured Temp	0.56 @ 81.0	ohm-m	
Rmc @ Measured Temp	0.84 @ 81.0	ohm-m	
Source Rmf / Rmc	CALC	CALC	
Rm @ BHT	0.50 @114.0	ohm-m	
Time Since Circulation	3 HOURS		
Max Recorded Temp	114.00	deg F	
Equipment Name	COMPACT		
Equipment / Base	13025	LB	
Recorded By	SHAWN NUTT		
Witnessed By	WES HANSEN		
S.O.#/JOB#	3529182	LB11-091	

BOREHOLE RECORD

Last Edited: 26-APR-2011 16:10

Bit Size inches	Depth From feet	Depth To feet
7.880	212.00	4572.00

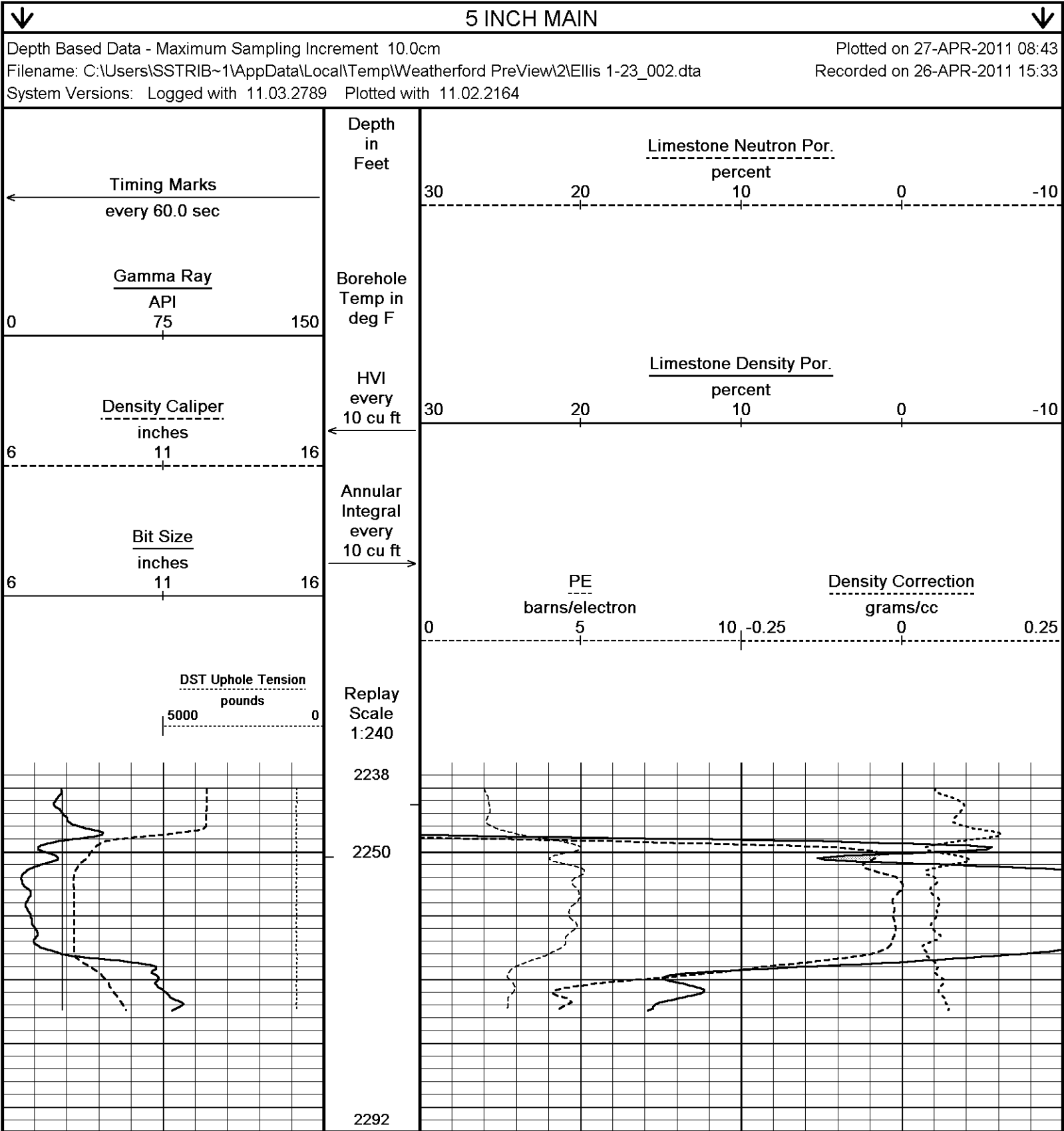
CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	212.00	24.00

REMARKS

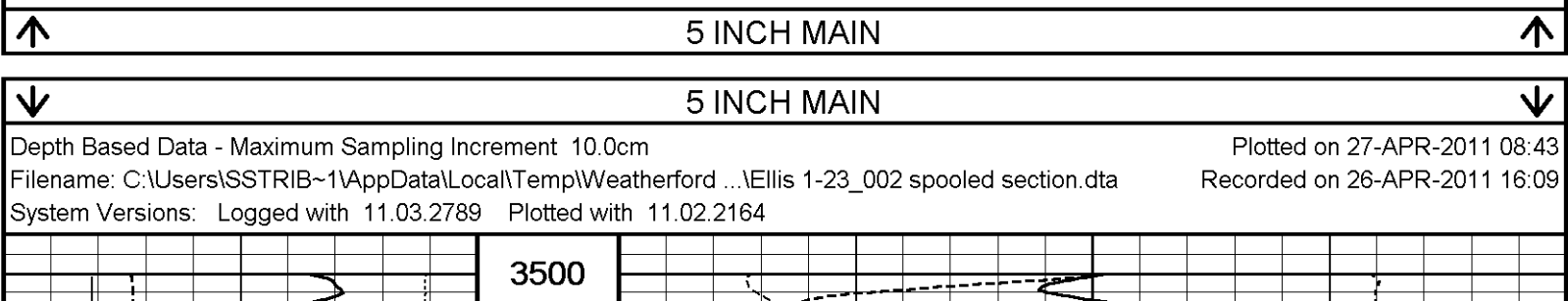
Tools Used: MPD, MCG, MDN, MFE, MAI, MML, MSS
Hardware: MPD: 8 inch profile plate used. MAI, MSS AND MFE: 0.5 Inch standoffs used. MDN: Dual Bowspring used.
2.71 G/CC Limestone density matrix used to calculate porosity.
Borehole rugosity, tight pulls, and washouts will affect data quality.
All intervals logged and scaled per customer's request.
Annular volume with 5.5 inch production casing = 253 cu. ft
Service order #3529182
Rig: Murfin #8
Engineer: Shawn Nutt
Operator(s): Ken Rinehart, Nick Adame

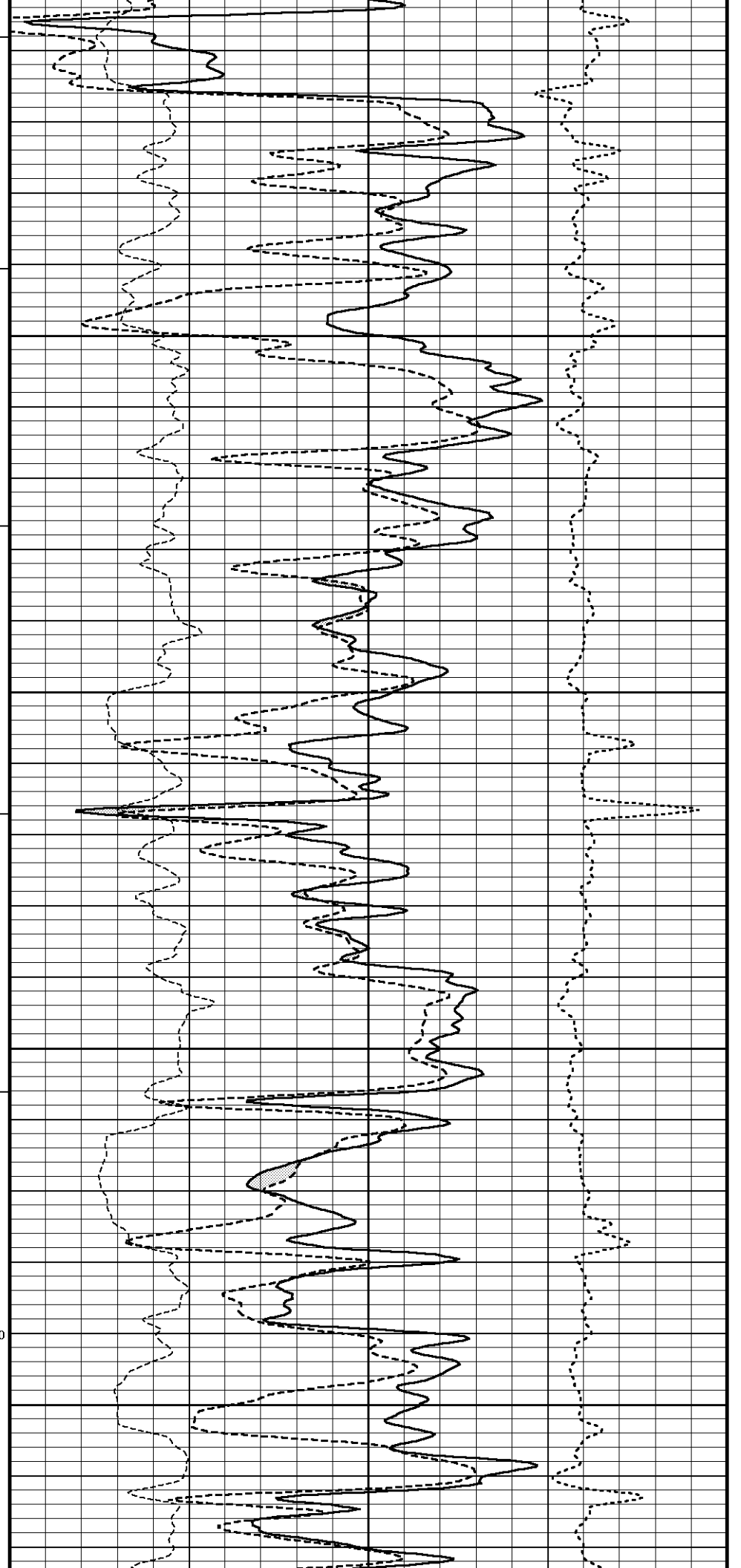
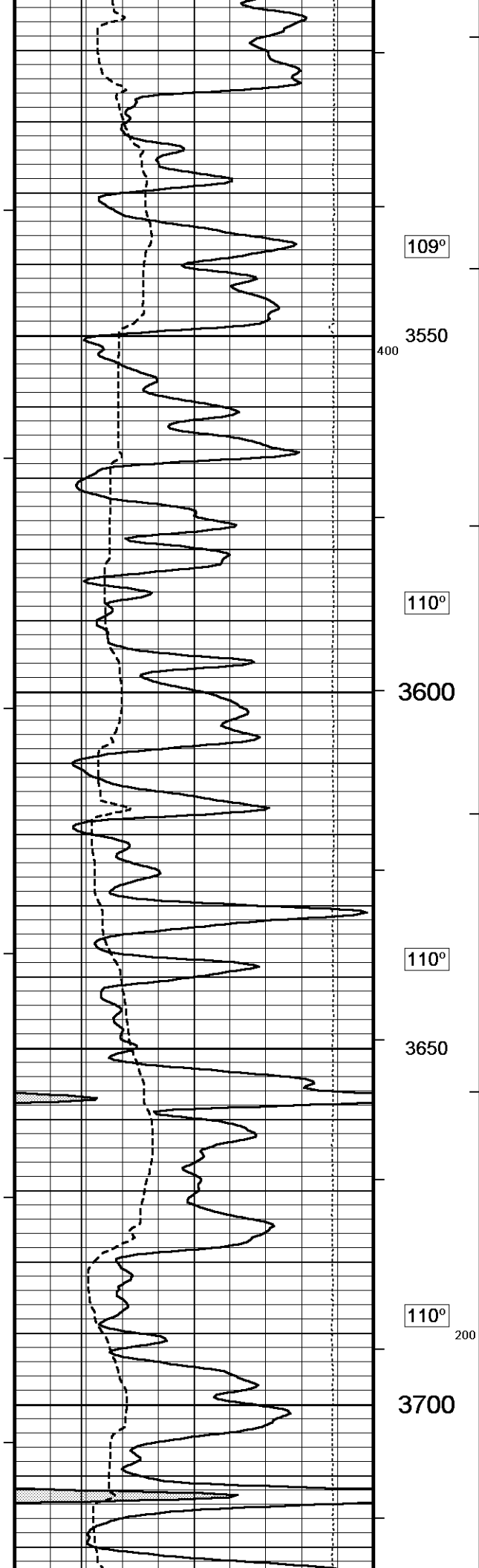
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs,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

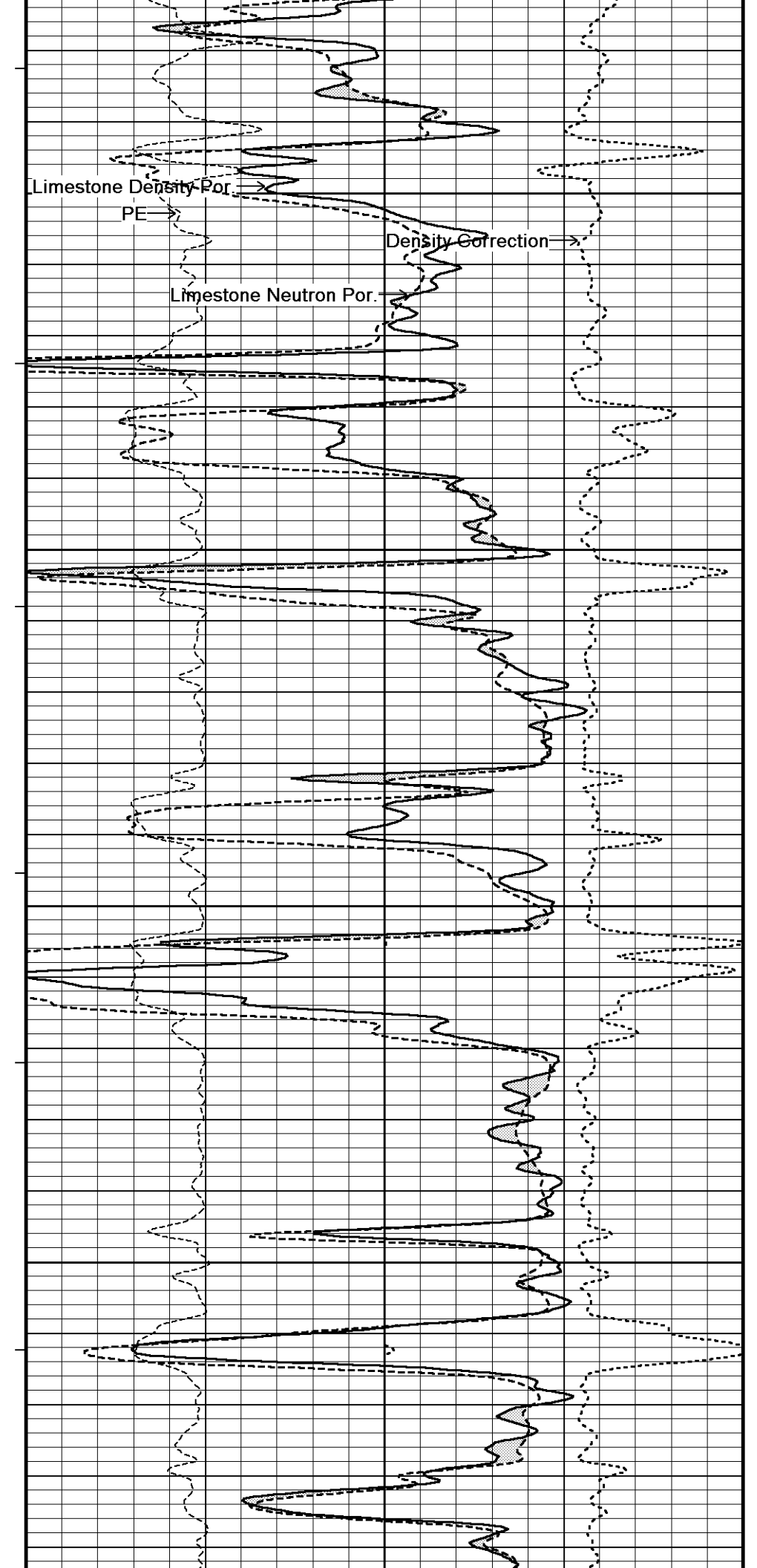
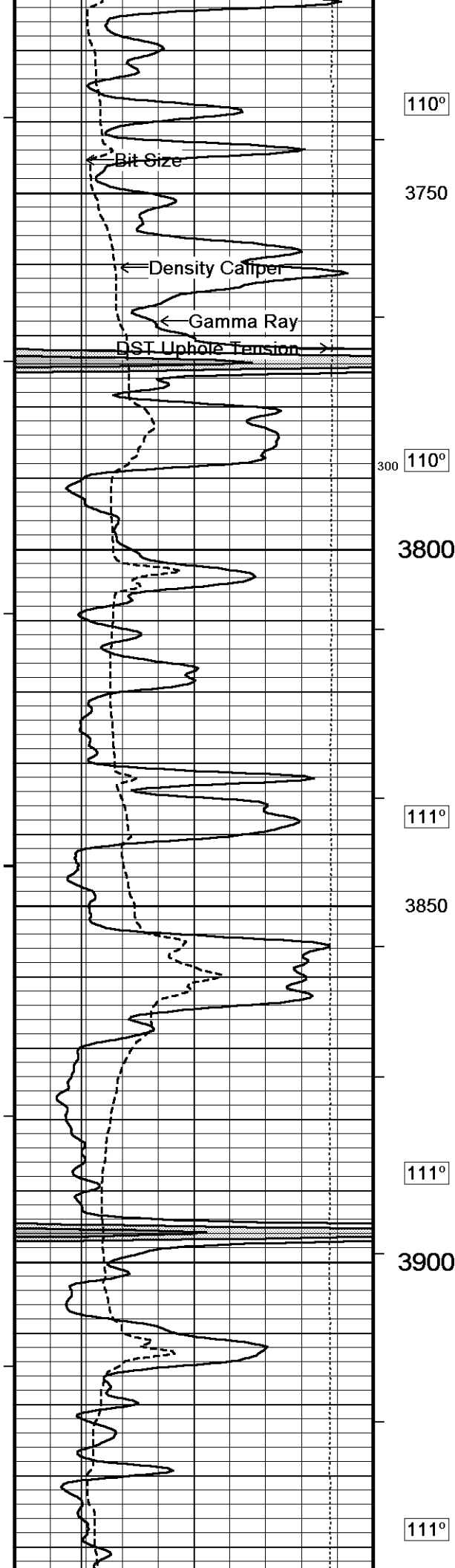


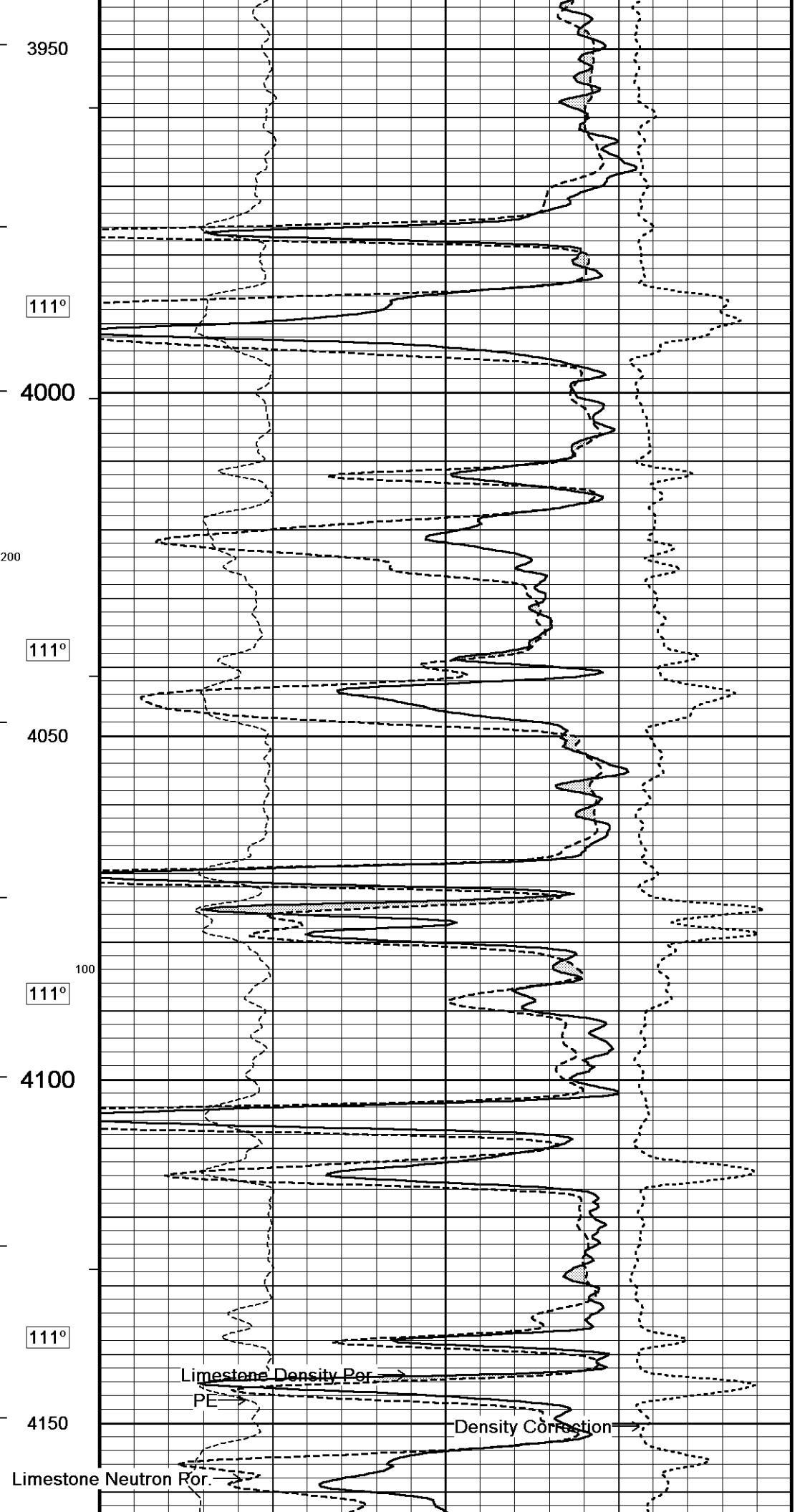
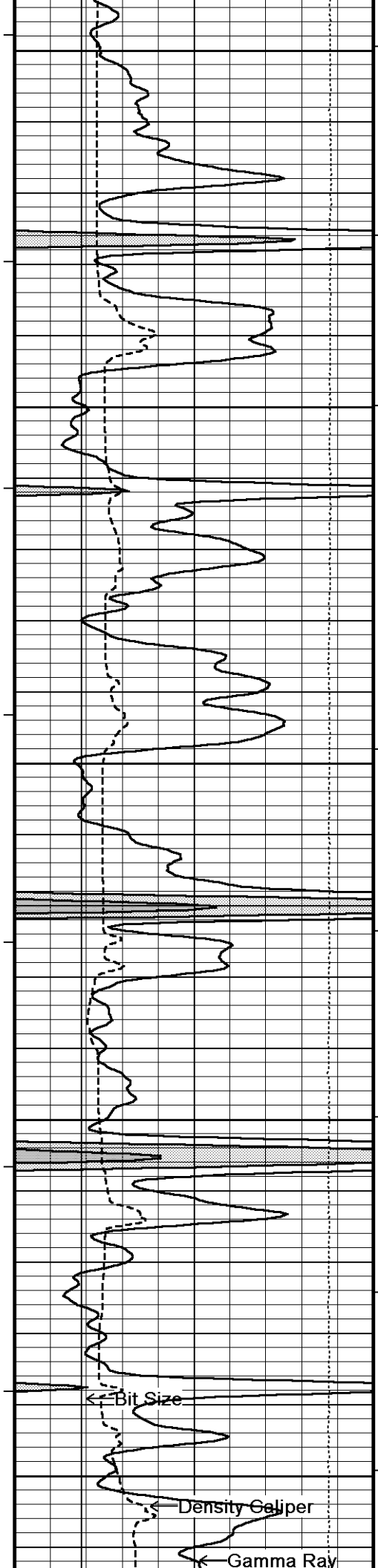
Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\Users\SSTRIB~1\AppData\Local\Temp\Weatherford PreView2\Ellis 1-23_002.dta
System Versions: Logged with 11.03.2789 Plotted with 11.02.2164

Plotted on 27-APR-2011 08:43
Recorded on 26-APR-2011 15:33

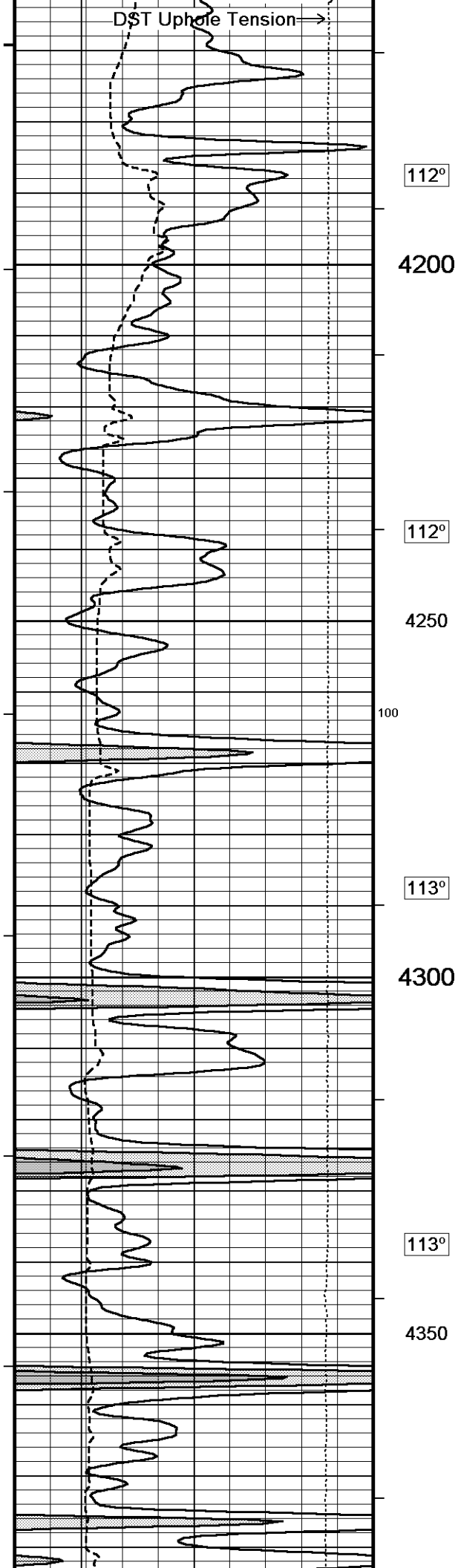








DST Uphole Tension →



112°

4200

112°

4250

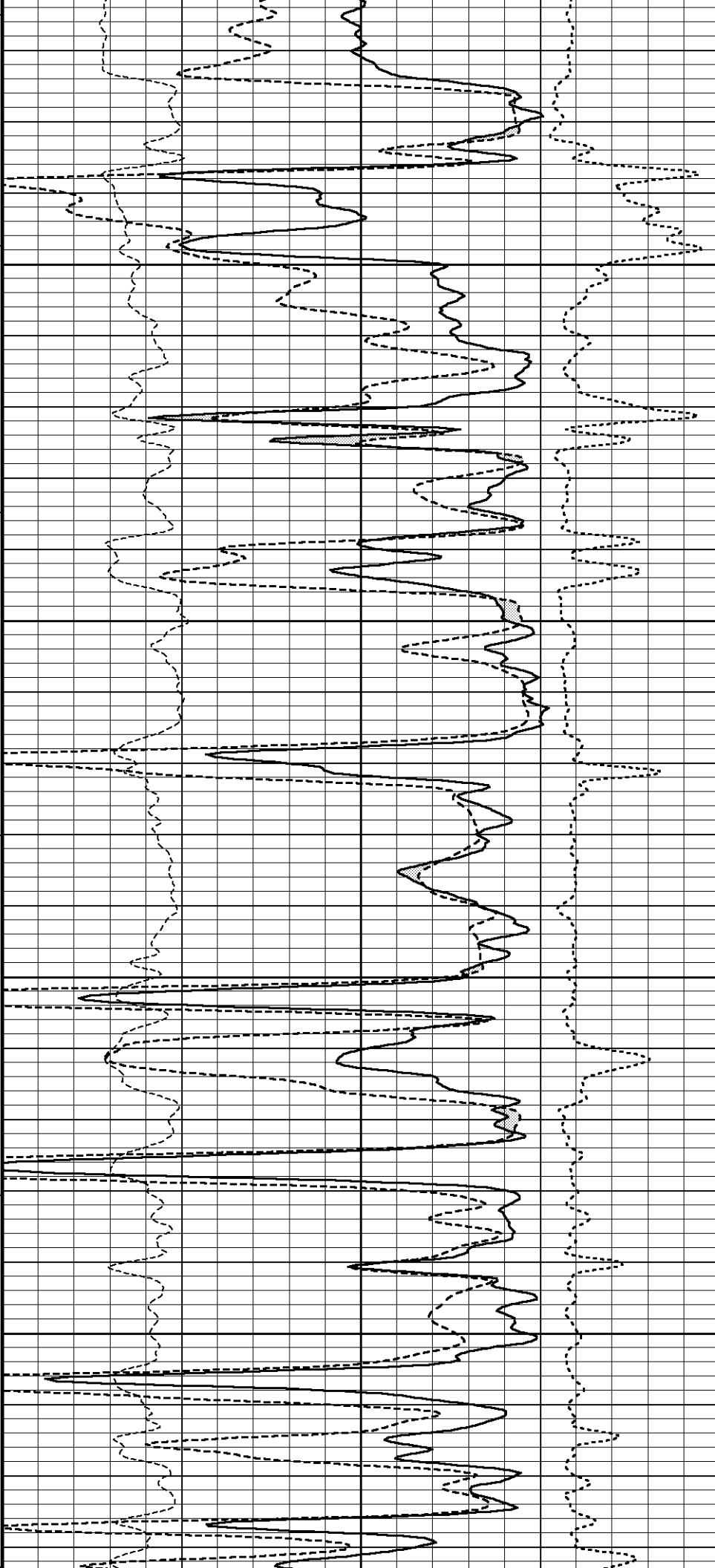
100

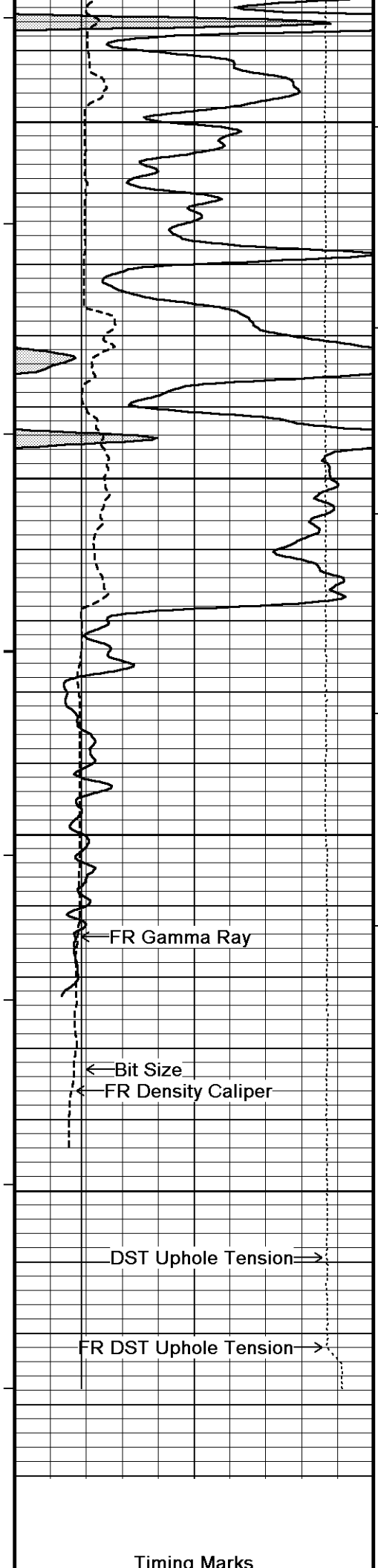
113°

4300

113°

4350





114°

4400

115°

4450

115°

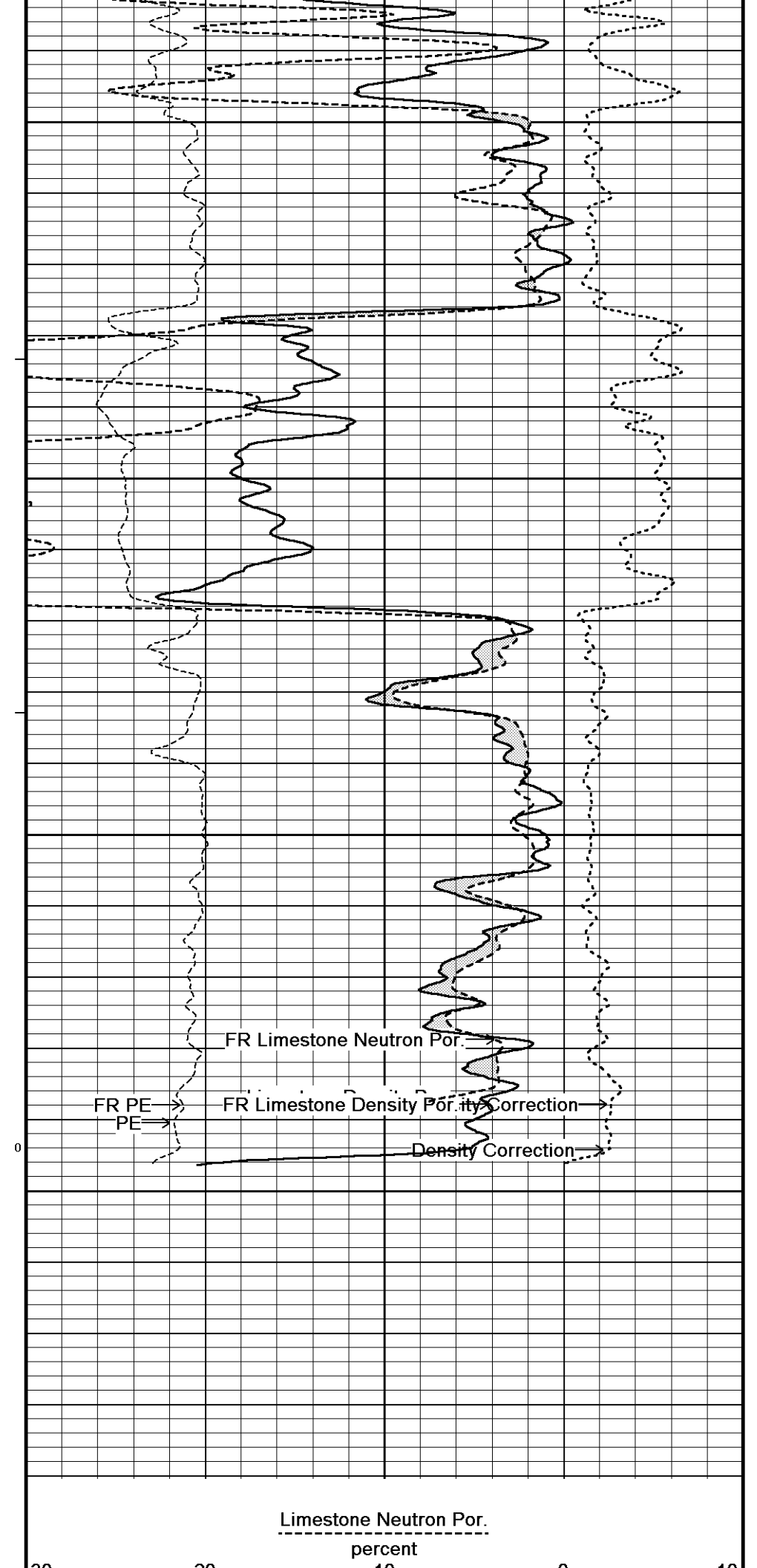
4500

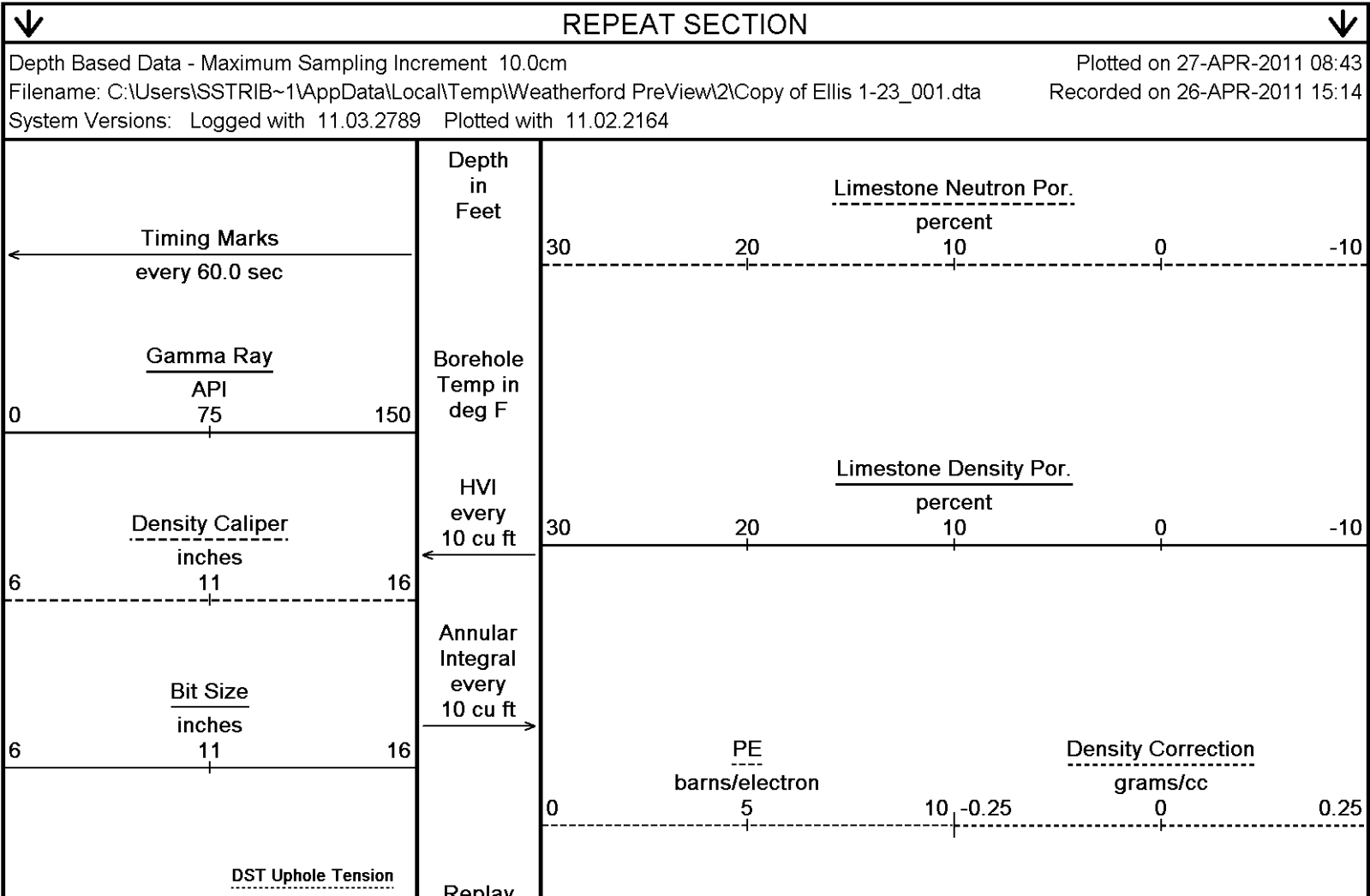
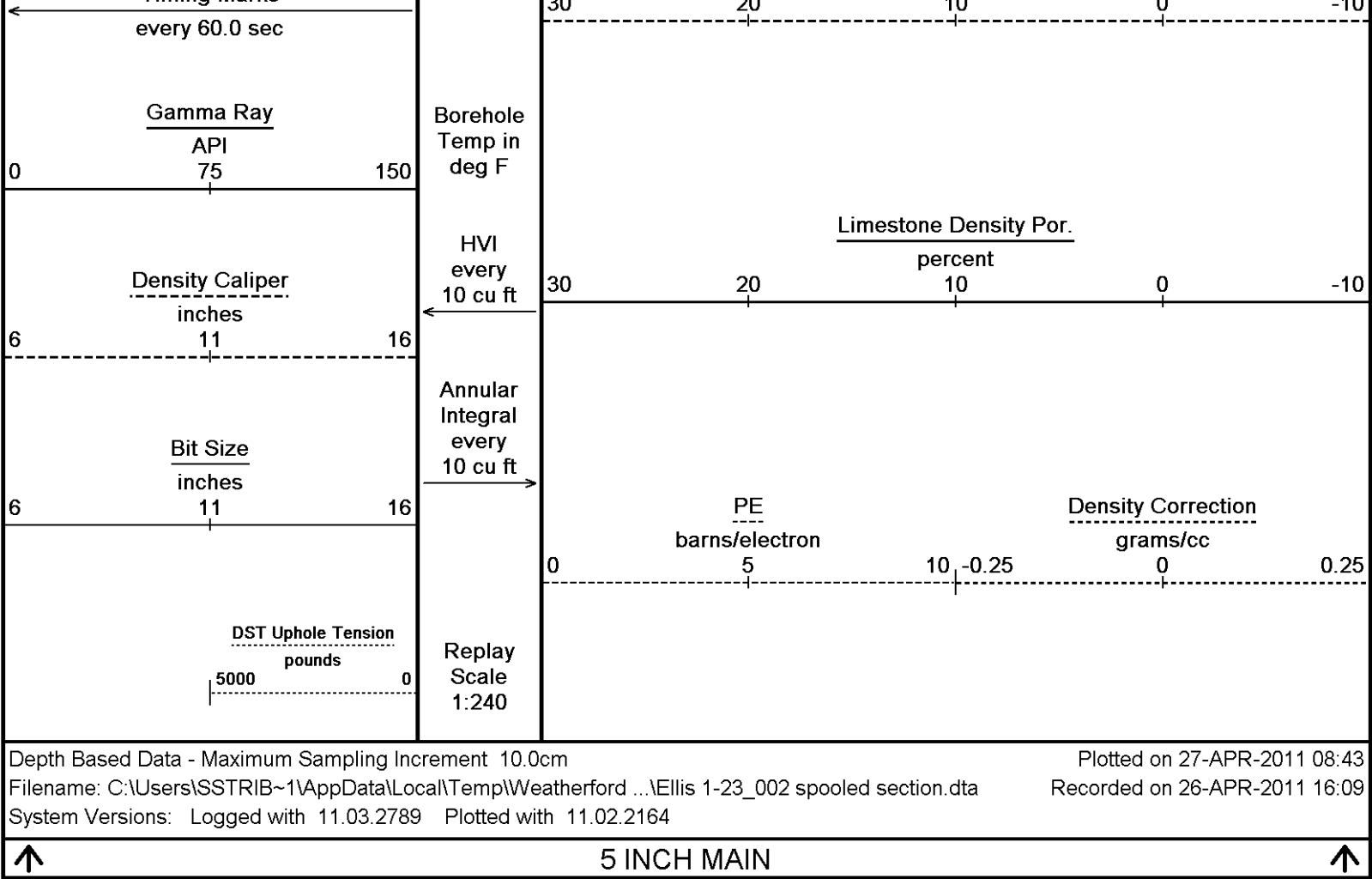
0

4550

4588

Depth in Feet





5000 pounds 0

Replay
Scale
1:240

4268

4300

112°

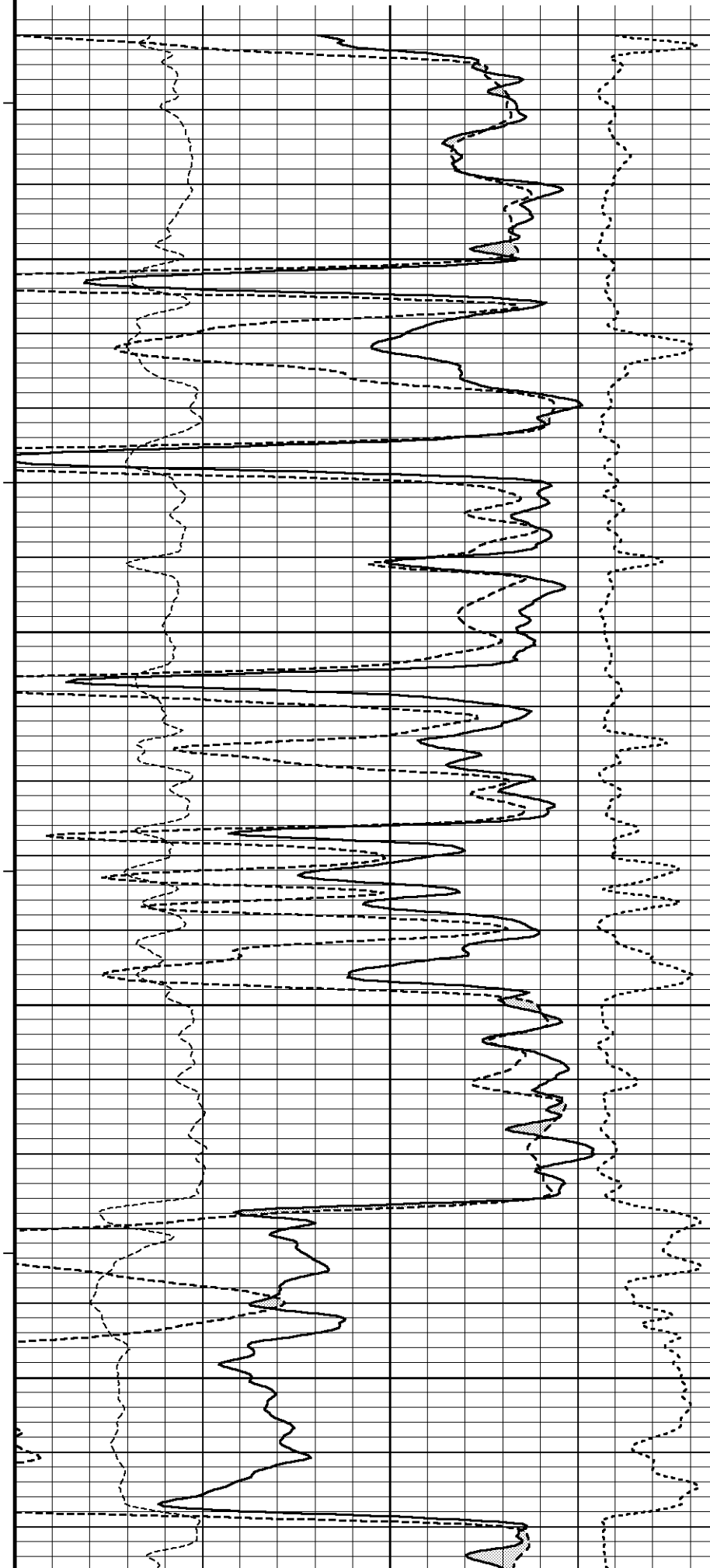
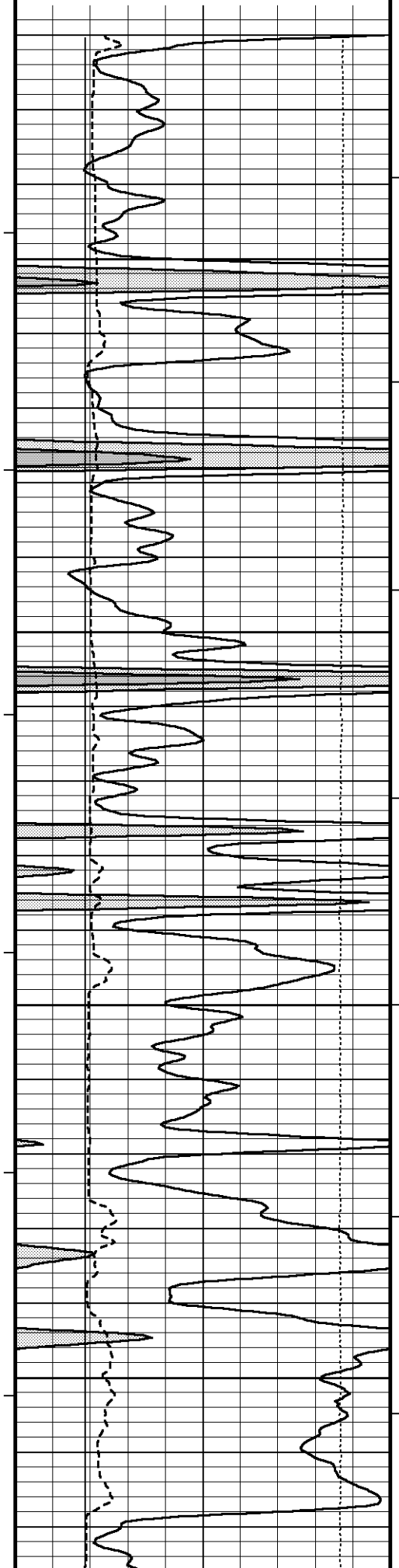
4350

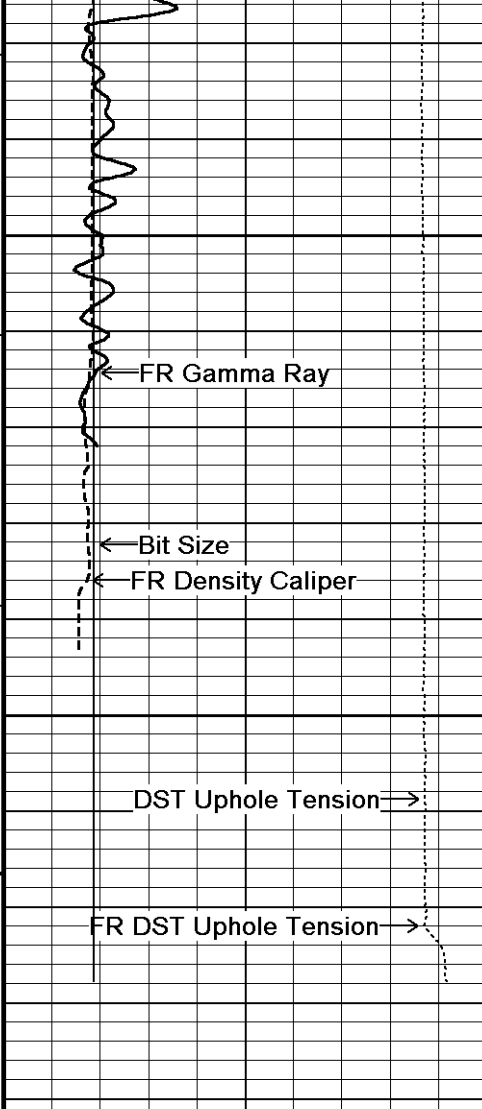
113°

4400

113°

4450





114°

4500

0

4550

4590

Depth
in
Feet

Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150

Density Caliper
inches
6 11 16

Bit Size
inches
6 11 16

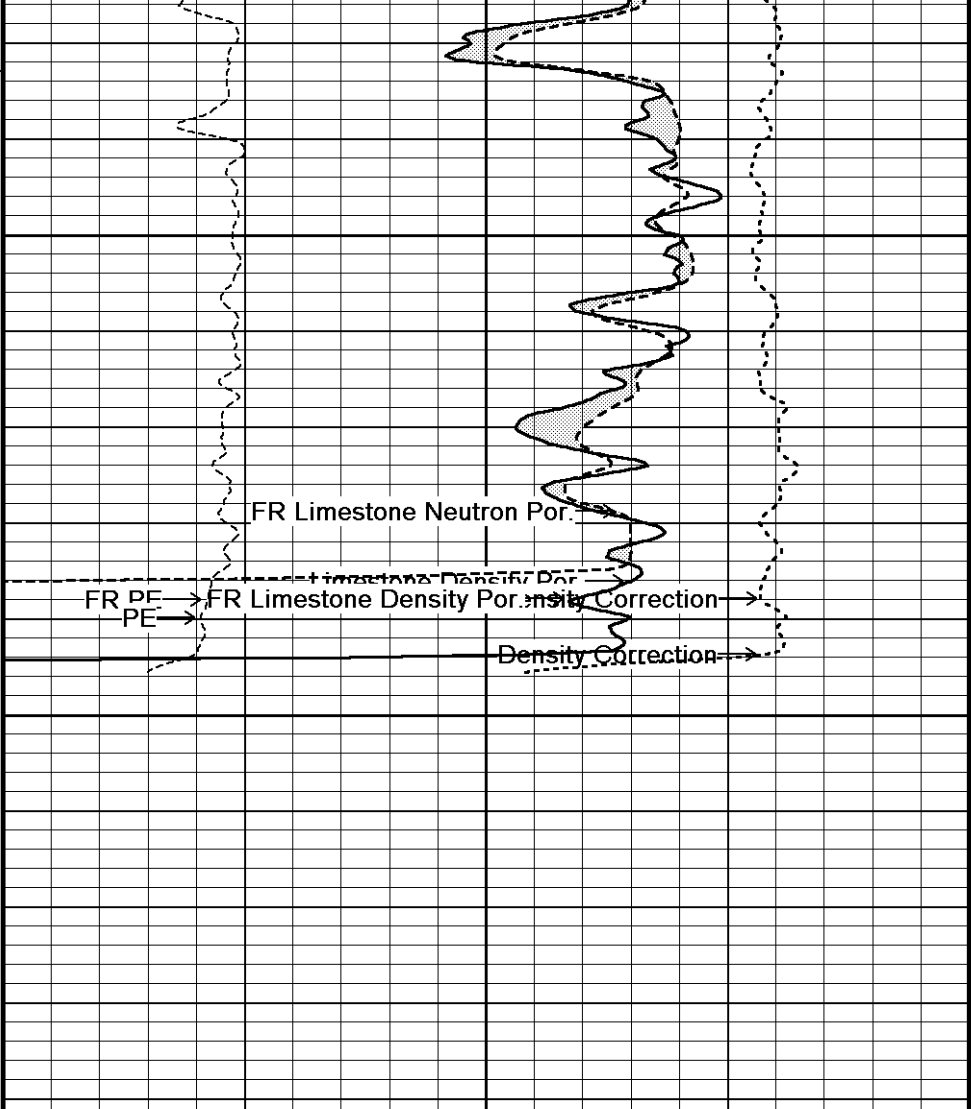
DST Uphole Tension
pounds
5000 0

Borehole
Temp in
deg F

HVI
every
10 cu ft

Annular
Integral
every
10 cu ft

Replay
Scale
1:240



Limestone Neutron Por.
percent
30 20 10 0 -10

Limestone Density Por.
percent
30 20 10 0 -10

PE
barns/electron
0 5 10

Density Correction
grams/cc
-0.25 0 0.25

↑

REPEAT SECTION

↑

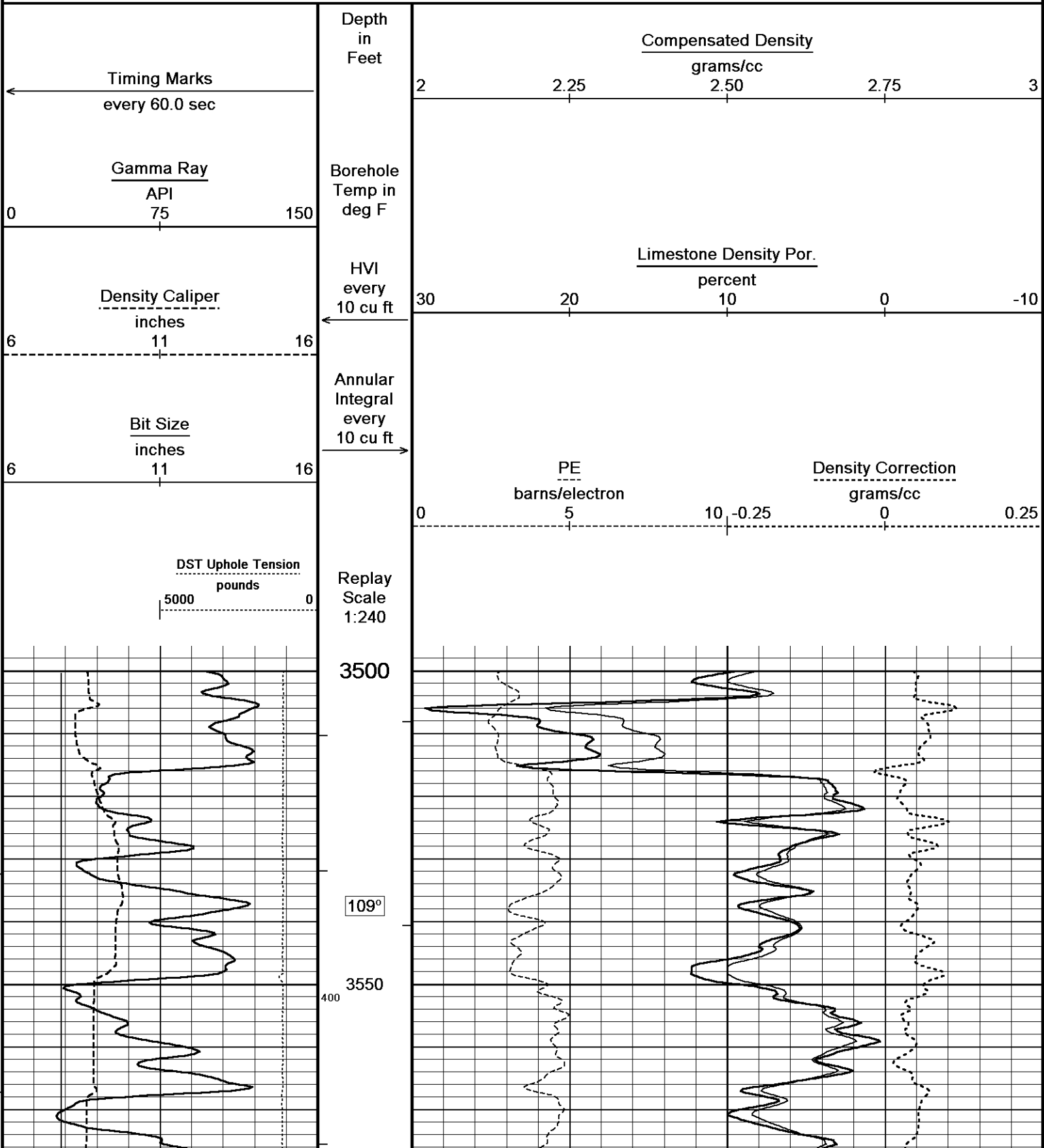
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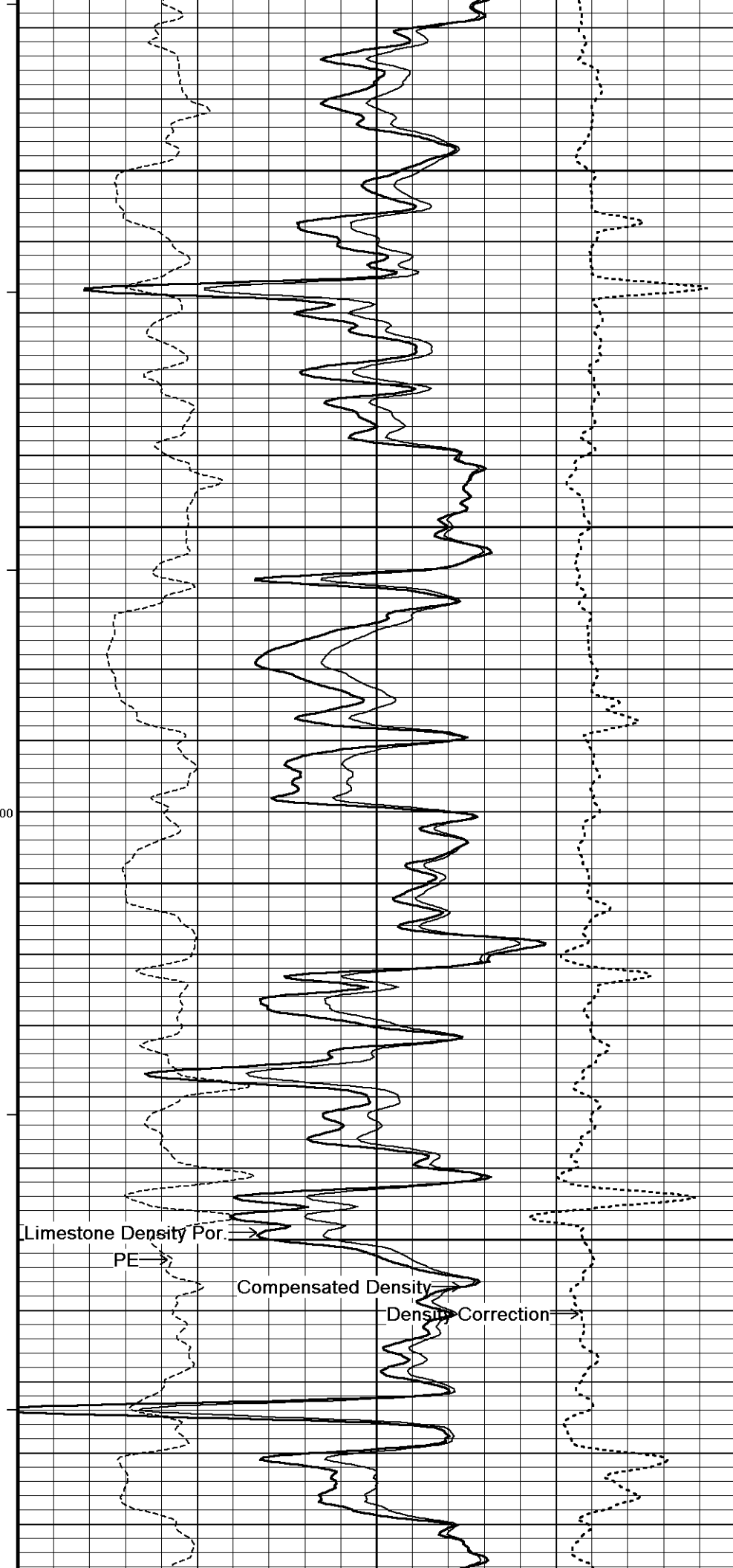
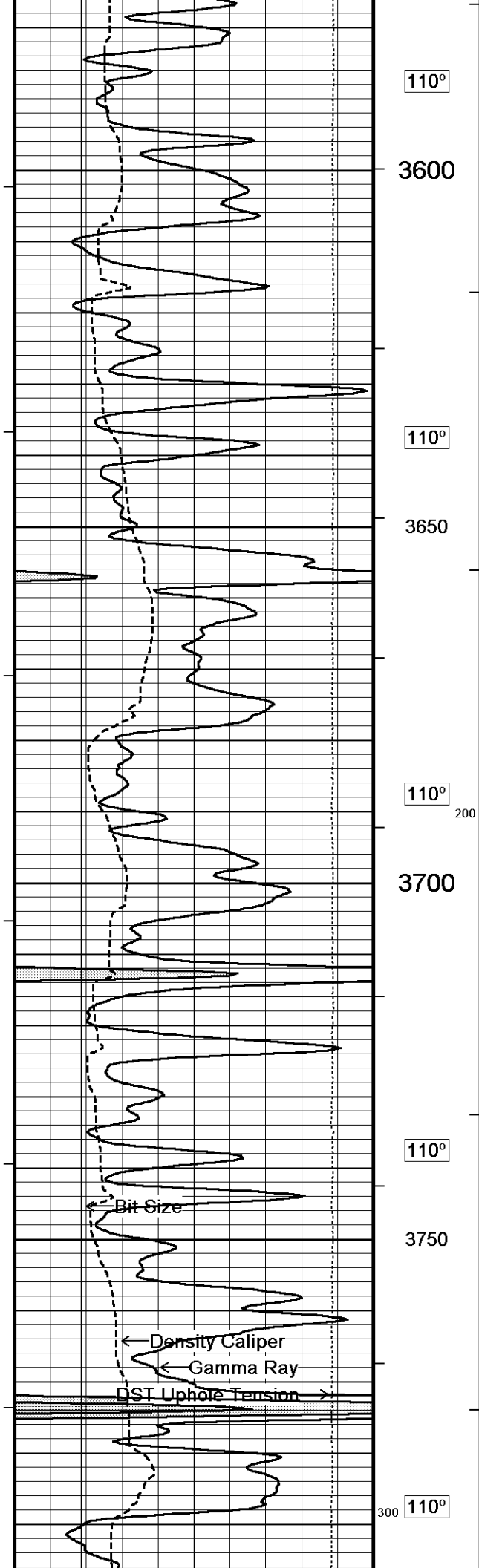
5 INCH MAIN

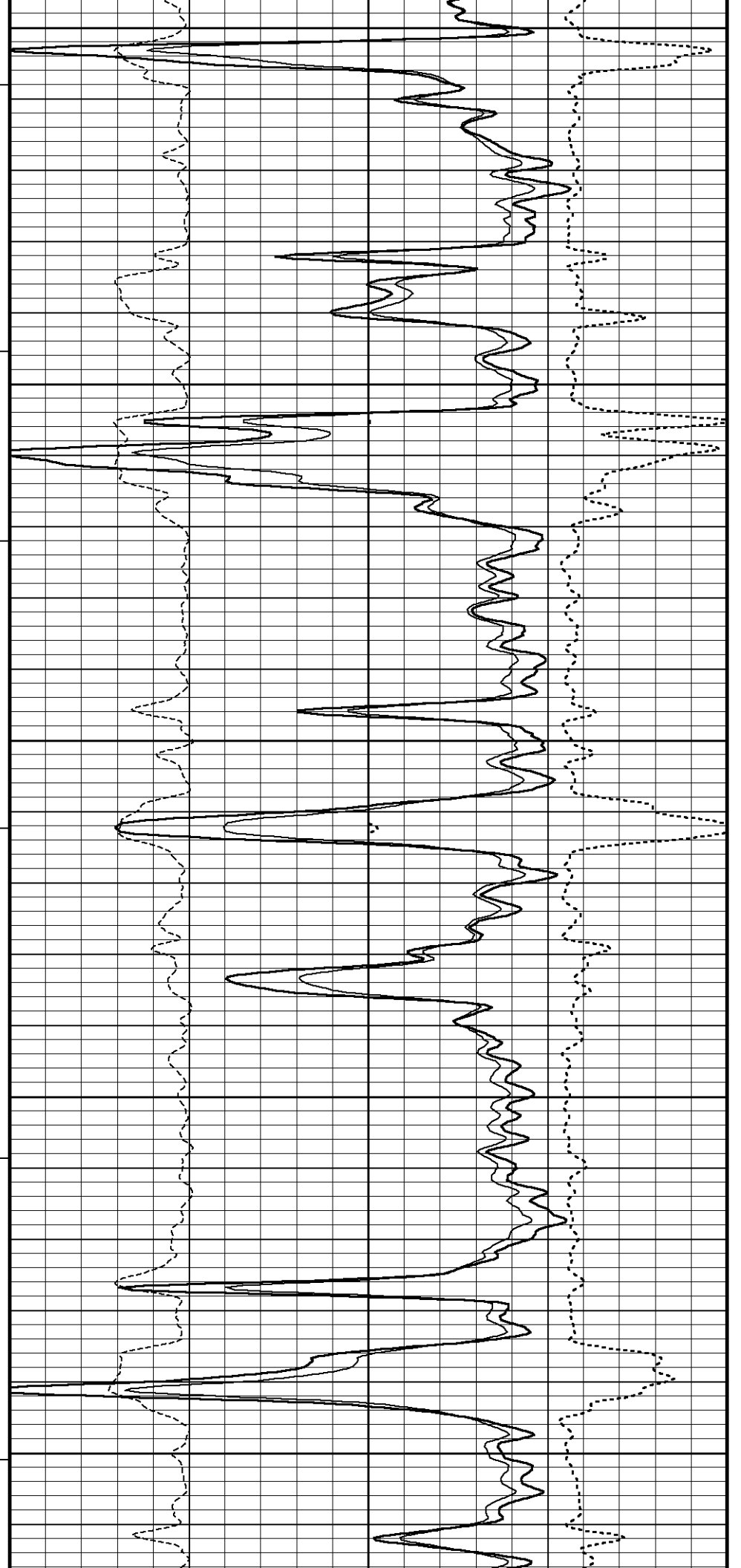
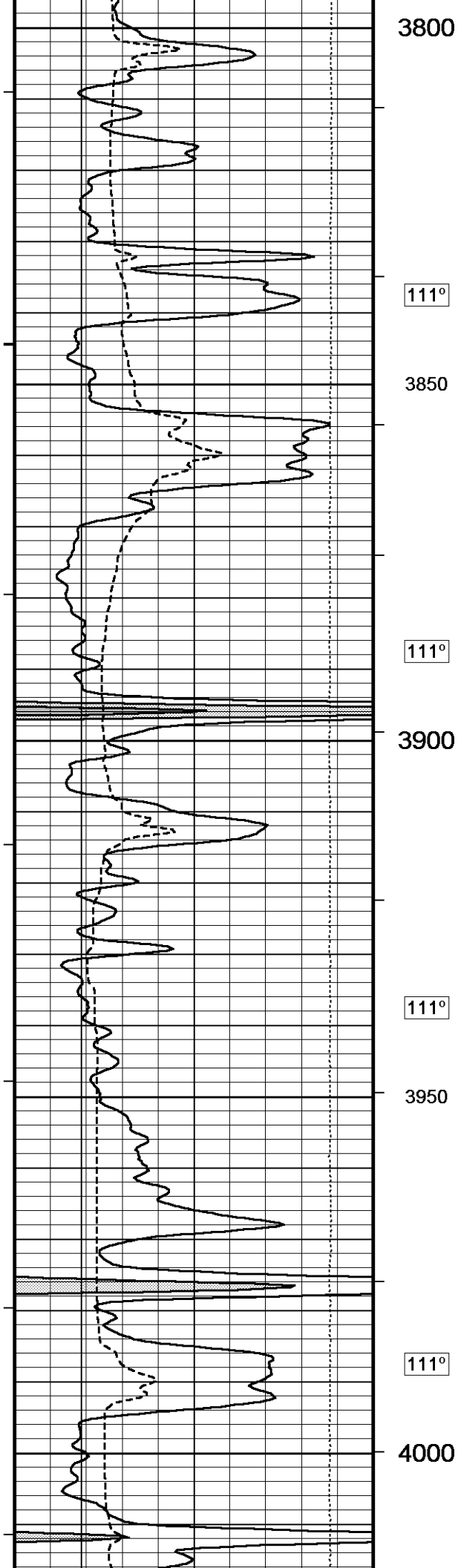
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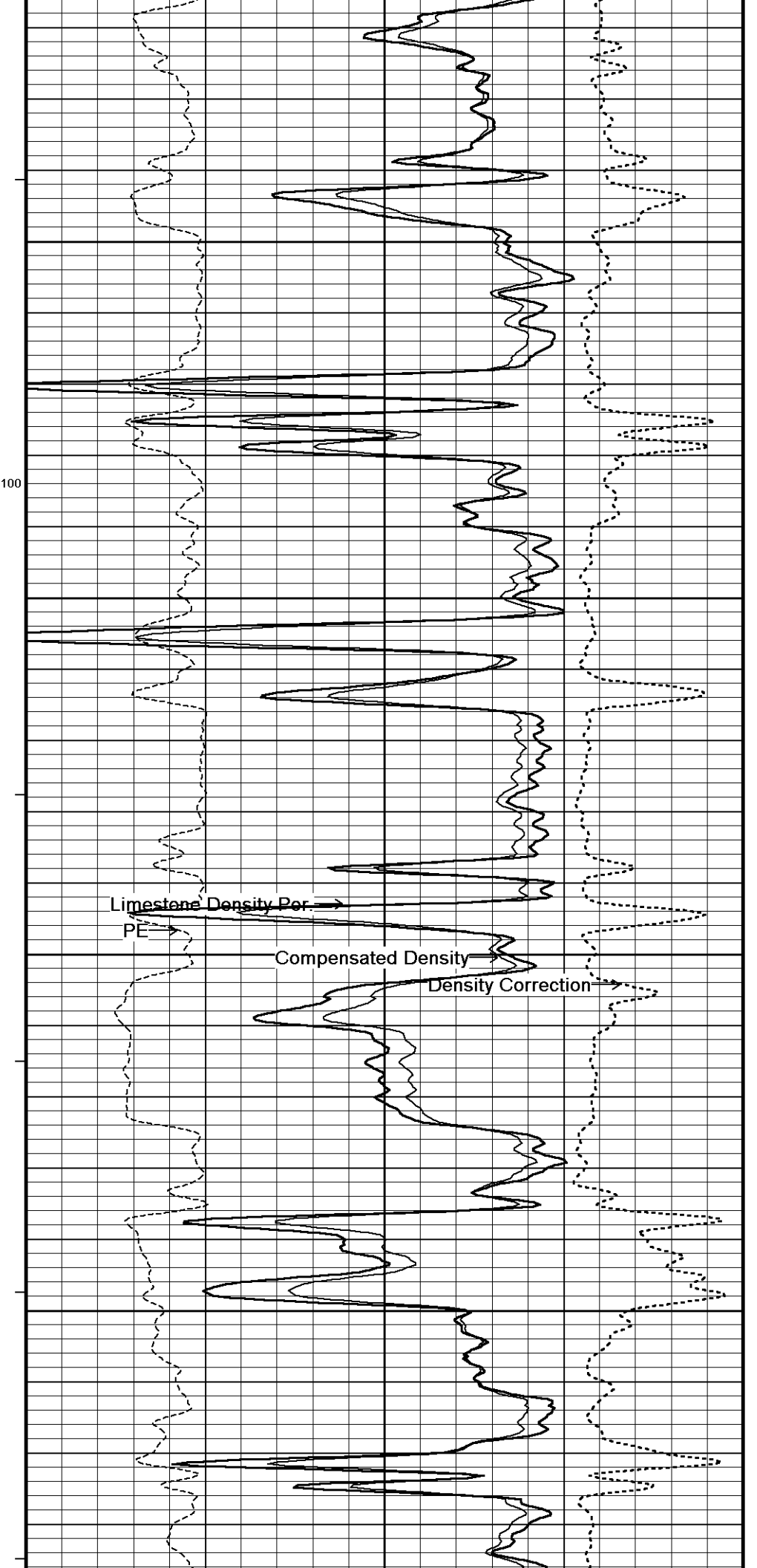
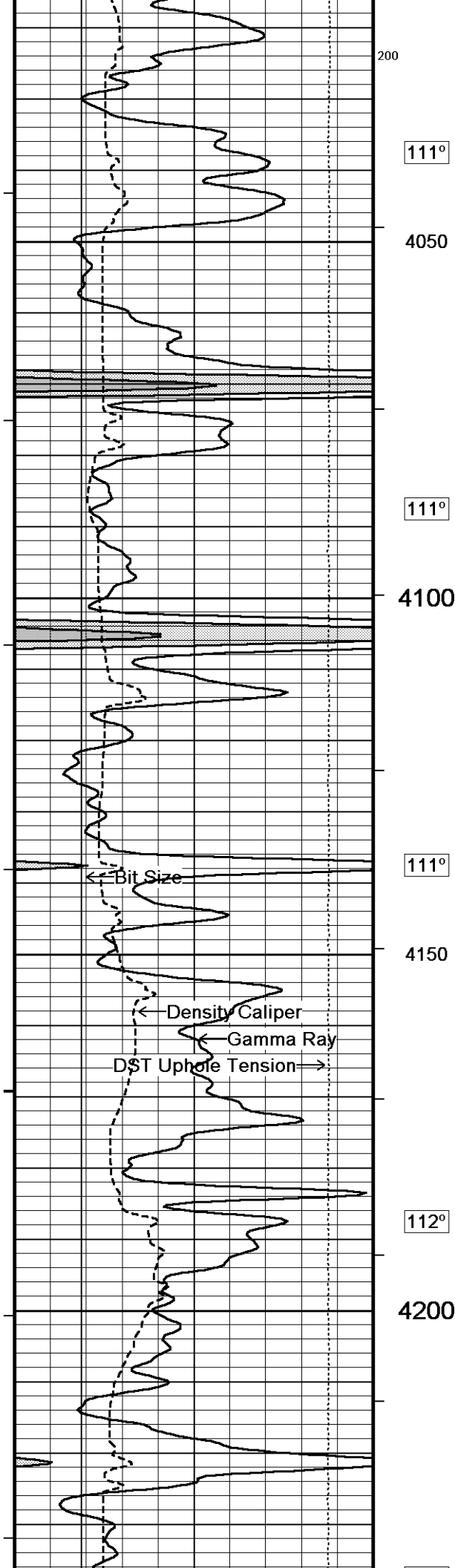
Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\Users\SSTRIB~1\AppData\Local\Temp\Weatherford ... \Ellis 1-23_002 spooled section.dta
System Versions: Logged with 11.03.2789 Plotted with 11.02.2164

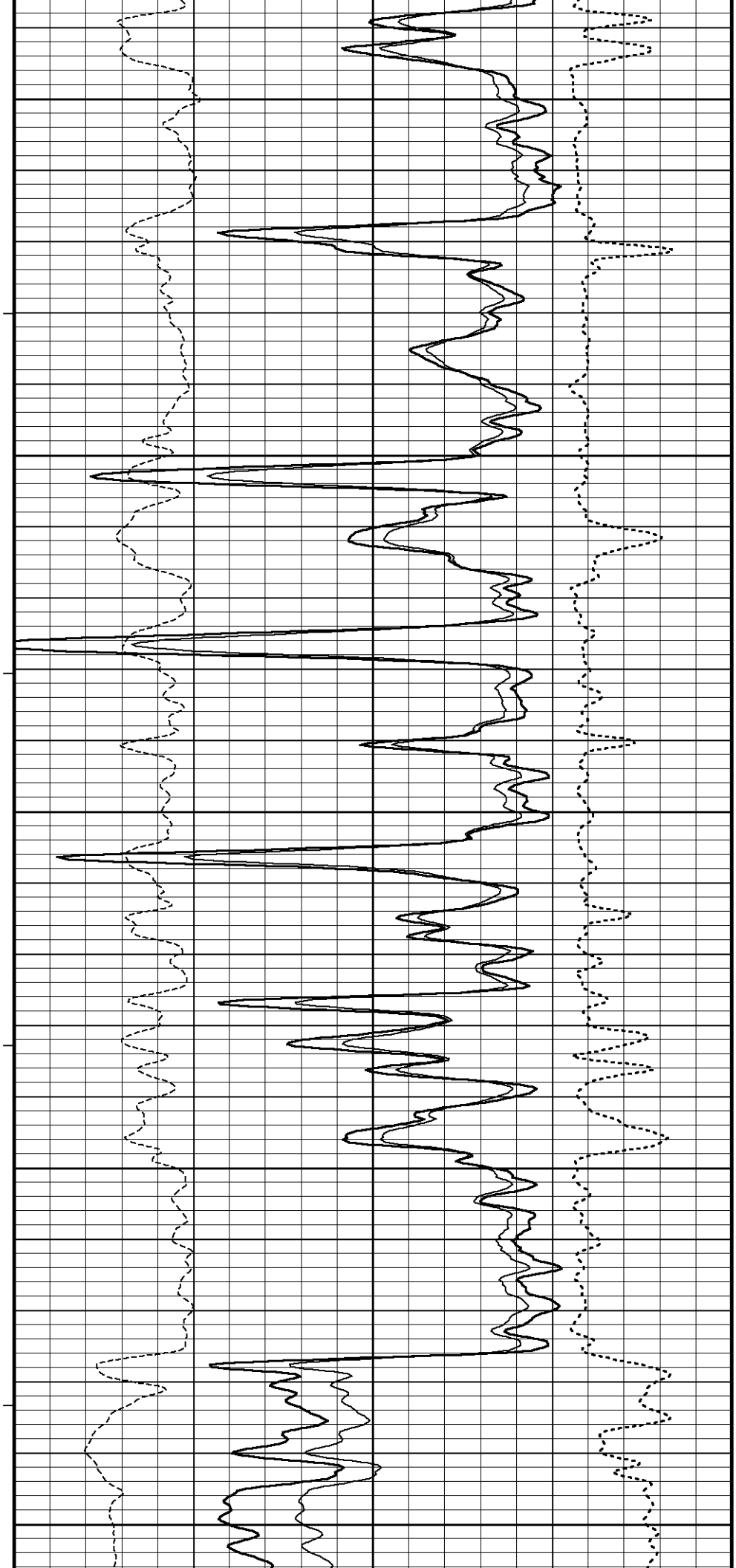
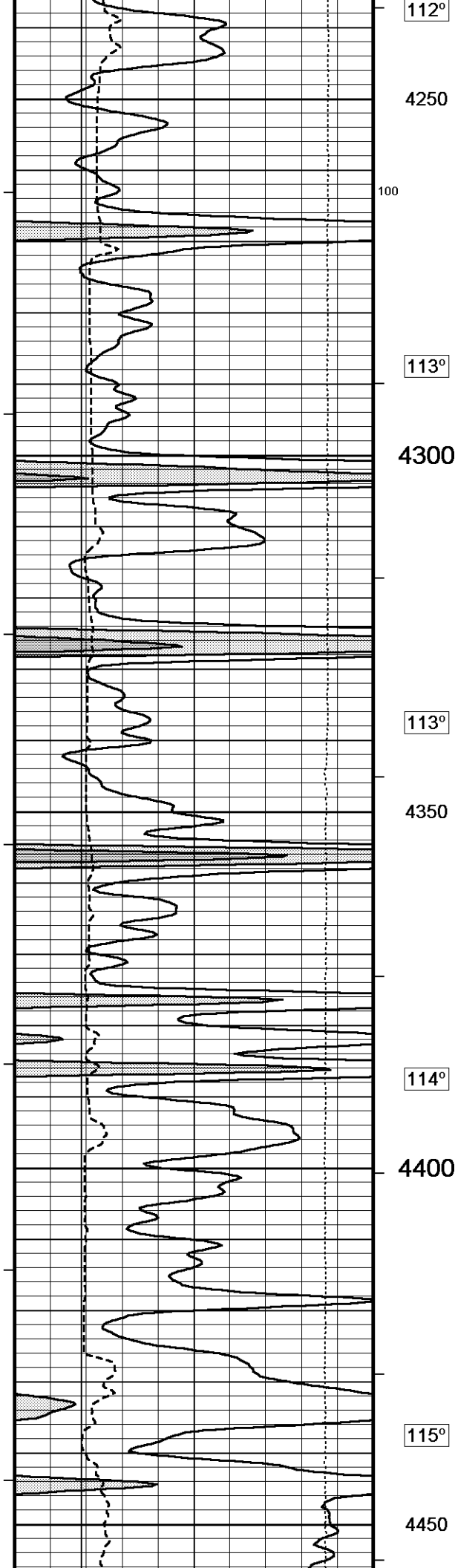
Plotted on 27-APR-2011 08:43
Recorded on 26-APR-2011 16:09

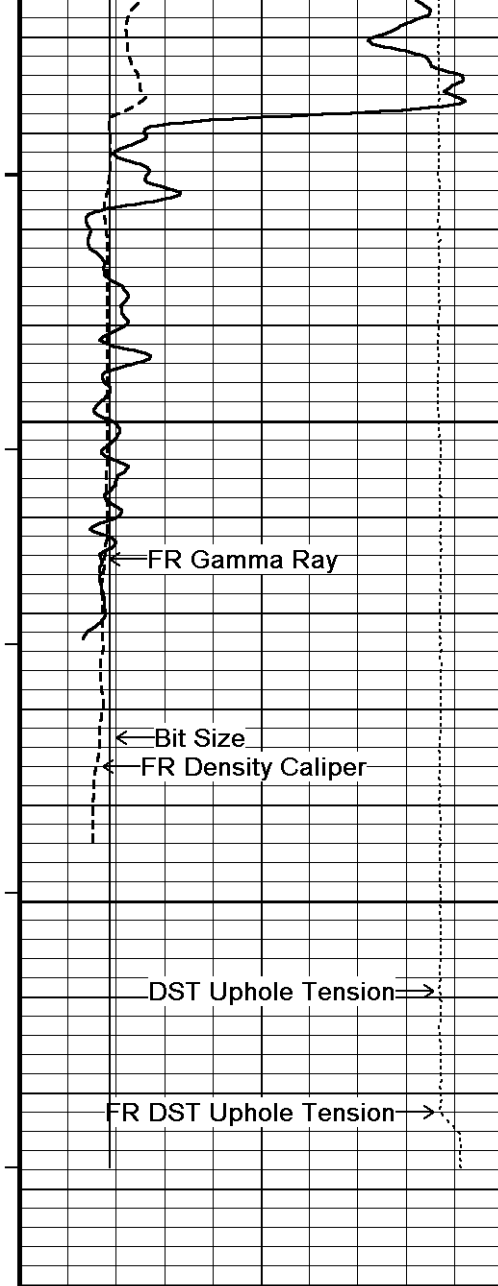












115°

4500

0

4550

4588

Depth
in
Feet

Timing Marks
every 60.0 sec

Gamma Ray
API

0 75 150

Density Caliper
inches

6 11 16

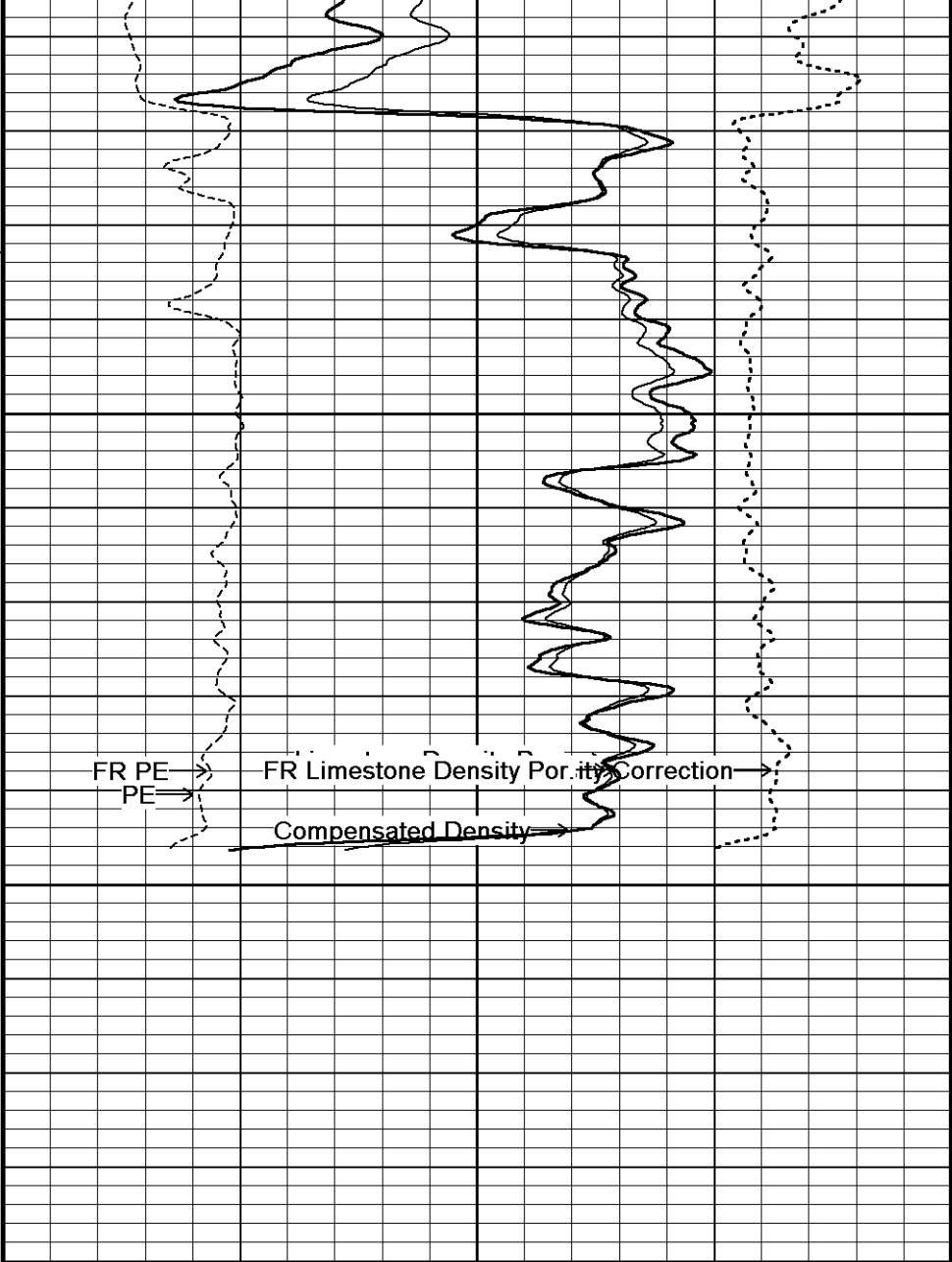
Bit Size
inches

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

0 5 10

Density Correction
grams/cc

-0.25 0 0.25

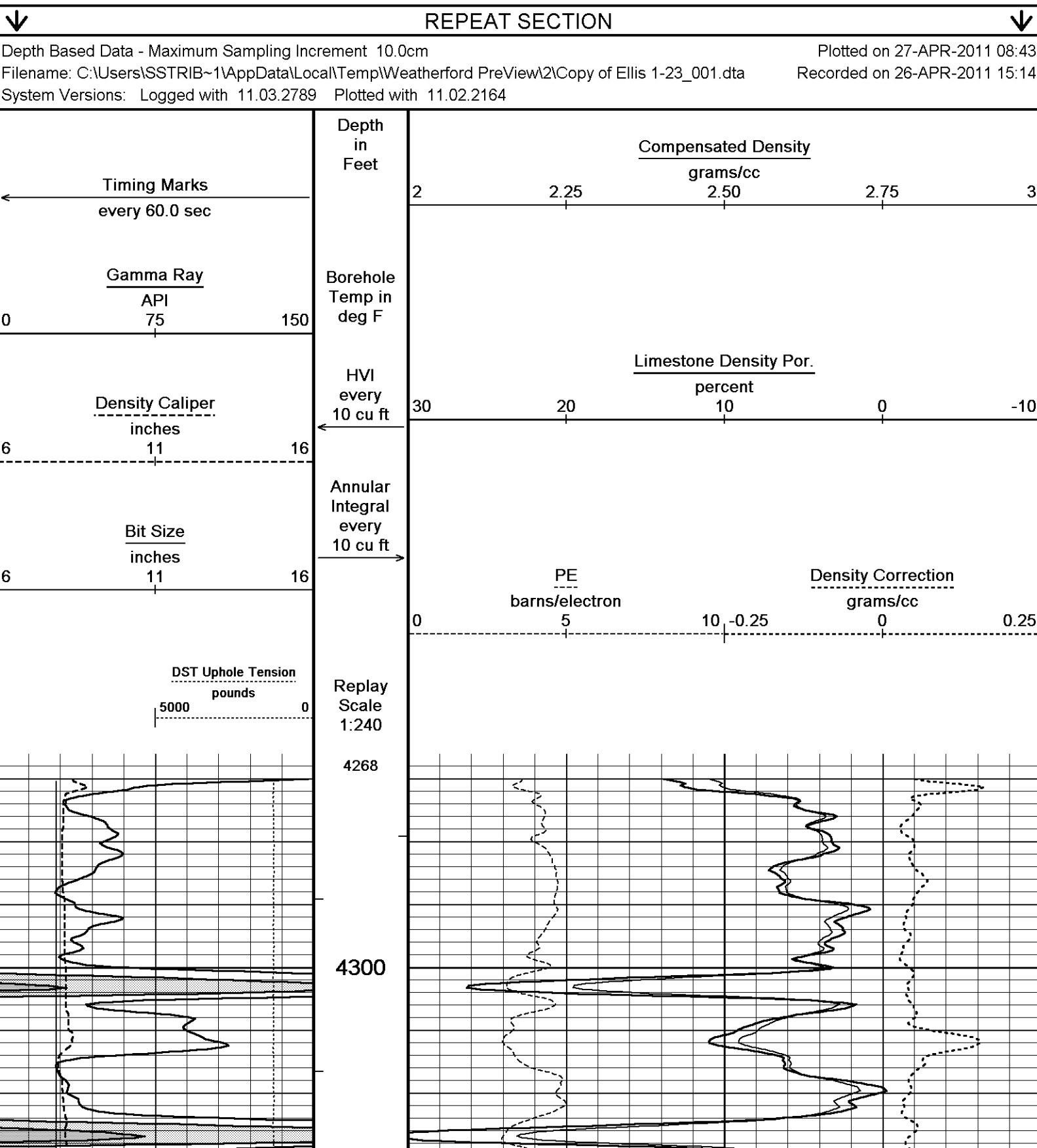
DST Uphole Tension
pounds

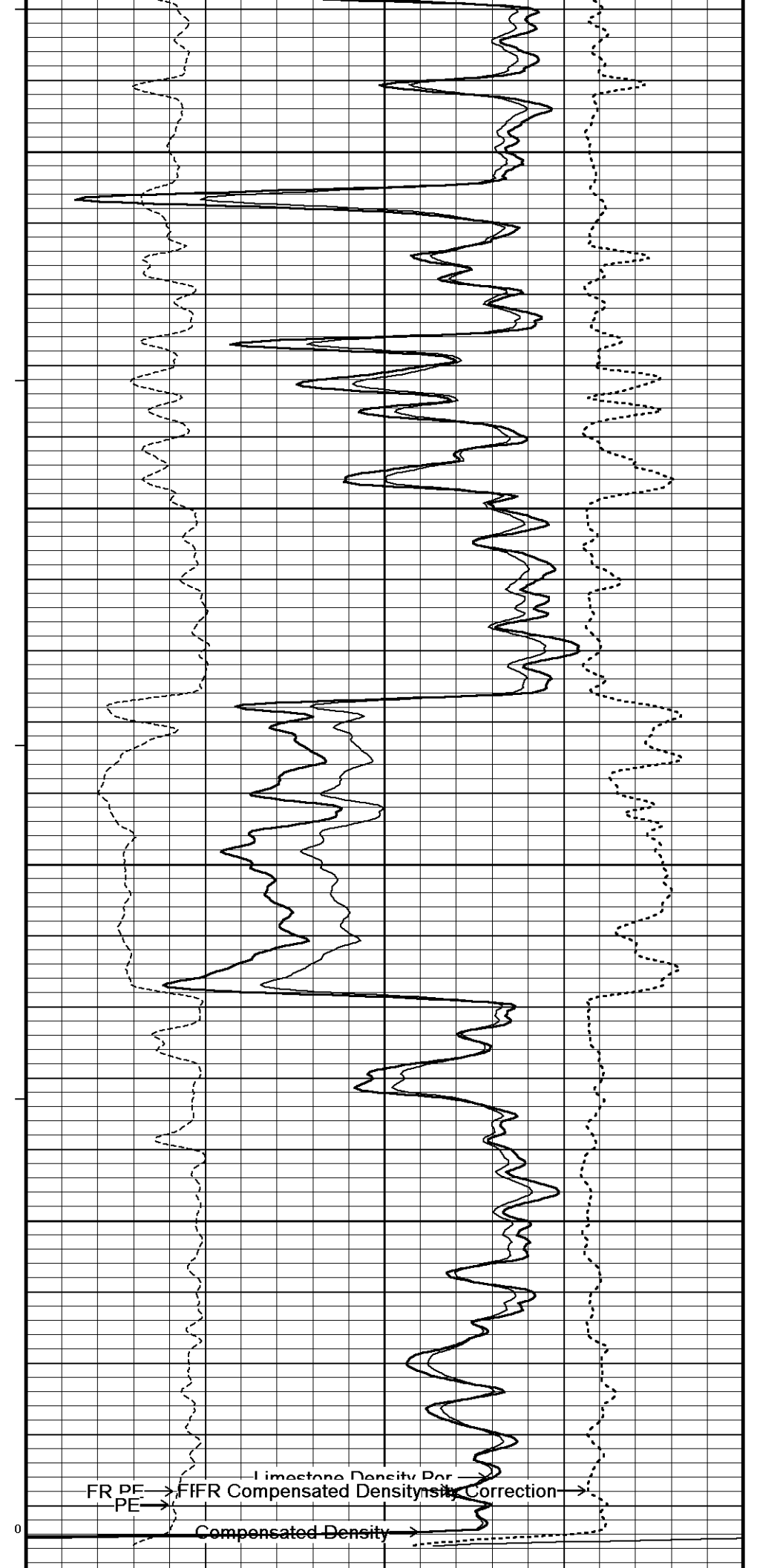
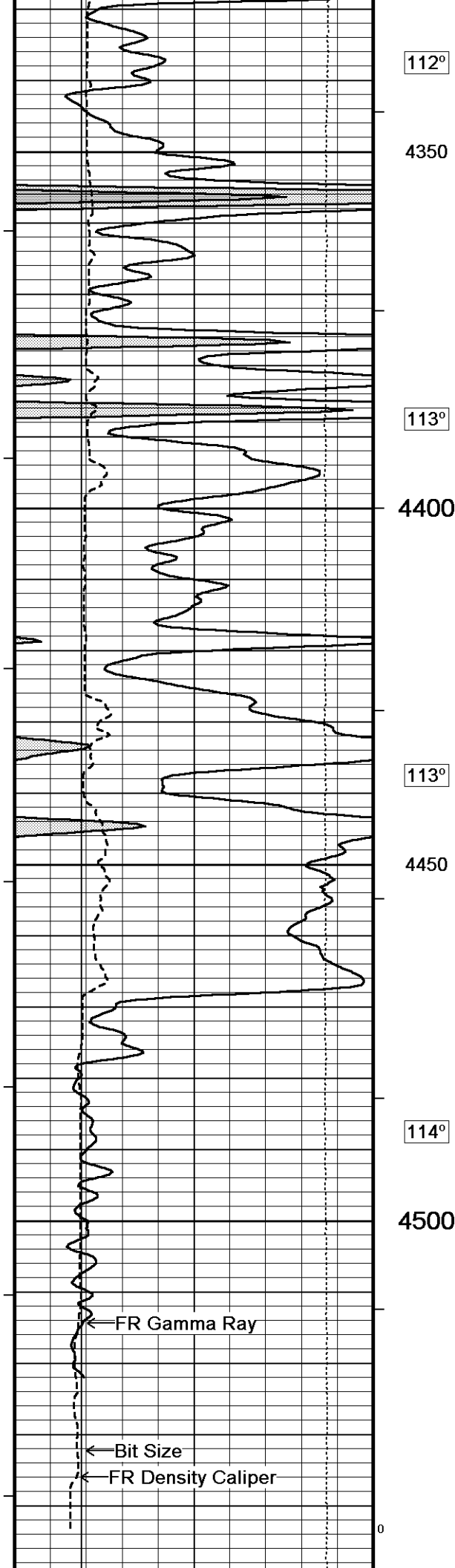
50000

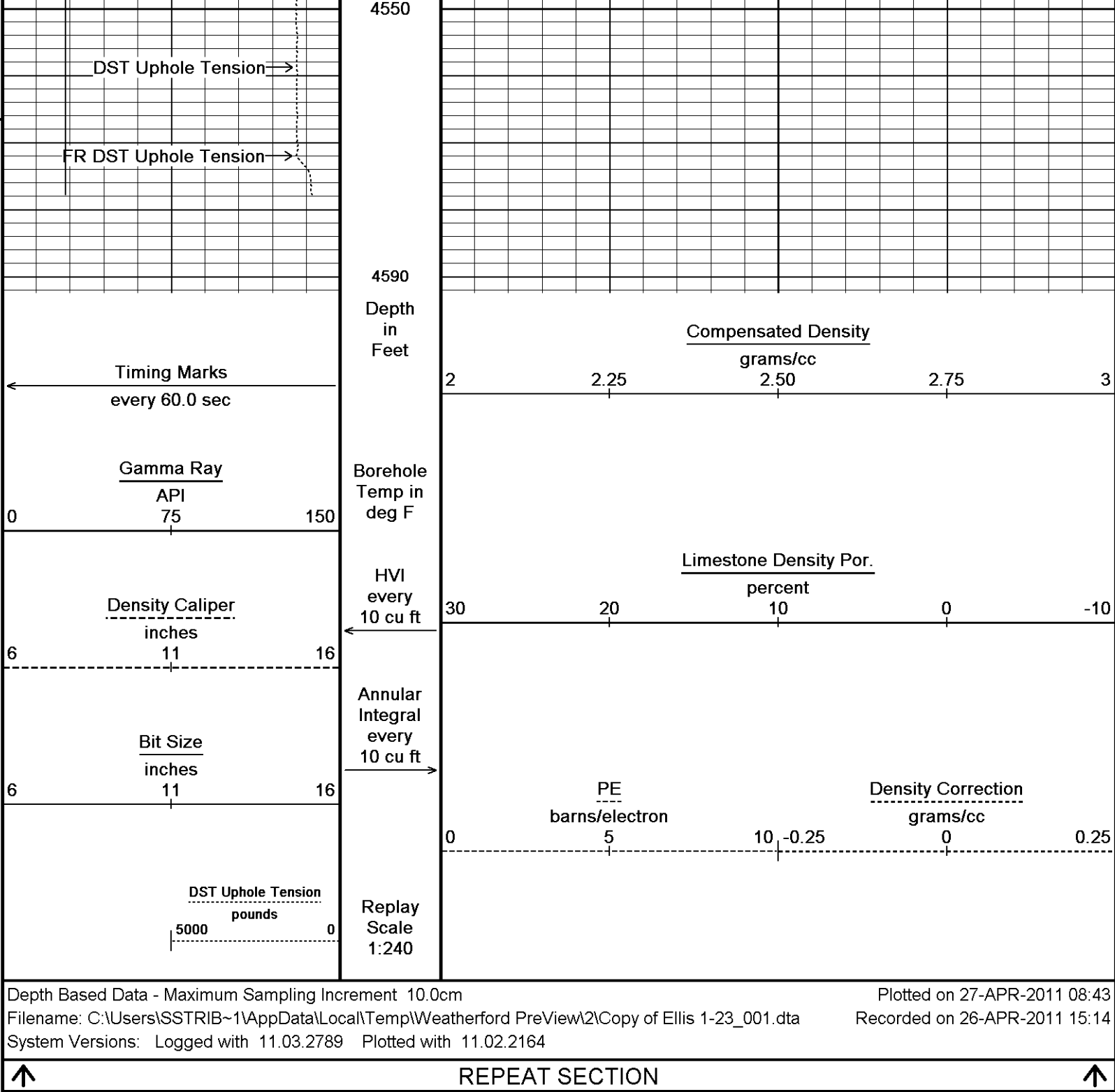
Replay
Scale
1:240

Depth Based Data - Maximum Sampling Increment 10.0cmPlotted on 27-APR-2011 08:43
Filename: C:\Users\SSTRIB~1\AppData\Local\Temp\Weatherford ...\Ellis 1-23_002 spooled section.dtaRecorded on 26-APR-2011 16:09
System Versions: Logged with 11.03.2789 Plotted with 11.02.2164

↑5 INCH MAIN↑







BEFORE SURVEY CALIBRATION		
C:\Users\SSTRIB~1\AppData\Local\Temp\Weatherford PreView2\Cop of Ellis 1-23_001.dta		
General Constants All 000		Last Edited on 26-APR-2011,14:20
General Parameters		
Mud Resistivity	0.700	ohm-metres
Mud Resistivity Temperature	81.000	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		Base Density Porosity	
Porosity used		Array Ind. One Res Rt	
Resistivity used		1.000	
RWA Constant A		2.000	
RWA Constant M			
Down-hole Tension Calibration All 000			
			Field Calibration on 30-JUN-2010
Reading No	Measured	Calibrated (lbs)	
1	14112.01	10.00	
2	15164.79	427.00	
Down-hole Tension Calibration SMS 0			
			Field Calibration on 30-JUN-2010
Reading No	Measured	Calibrated (lbs)	
1	14112.01	10.00	
2	15164.79	427.00	
High Resolution Temperature Calibration MCG-C 139			
			Field Calibration on 03-SEP-2010,11:23
	Measured	Calibrated(Deg F)	
Lower	50.00	50.00	
Upper	75.00	75.00	
High Resolution Temperature Constants MCG-C 139			
			Last Edited on
Pre-filter Length	11		
SP Calibration MCG-C 139			
			Field Calibration on 04-MAR-2011 06:37
	Measured	Calibrated (mV)	
Reference 1	103.7	100.0	
Reference 2	-96.9	-100.0	
Gamma Calibration MCG-C 139			
			Field Calibration on 25-APR-2011 20:54
	Measured	Calibrated (API)	
Background	92	61	
Calibrator (Gross)	1187	786	
Calibrator (Net)	1095	725	
Gamma Constants MCG-C 139			
			Last Edited on 26-APR-2011,14:21
Gamma Calibrator Number	grc38		
Mud Density	1.14	gm/cc	
Caliper Source for Processing	Density Caliper		
Tool Position	Eccentred		
Concentration of KCl	0.00	kppm	
Micro Normal and Micro Inverse Calibration MML-A 16			
			Base Calibration on 11-MAR-2011 11:10 Field Check on 25-APR-2011 20:38
Base Calibration			
Channel	Resistor 1	Measured Resistor 2	Calibrated (ohm-m) Resistor 1 Resistor 2
Micro Normal	12.2	60.2	2.6 12.8
Micro Inverse	15.6	78.3	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 16			
			Last Edited on 11-APR-2011,09:08
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		
Caliper Calibration MML-A 16			
			Base Calibration on 11-MAR-2011 11:20 Field Calibration on 25-APR-2011 20:37
Base Calibration			
Reading No	Measured	Calibrator Size (in)	
1	13875	5.98	

2	17350	7.97
3	20581	9.86
4	24656	11.92
5	0	0.00
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
6.03	5.98

Neutron Calibration MDN-A.B 66

Base Calibration on 11-MAR-2011 13:54
Field Check on 25-APR-2011 20:50

Base Calibration

	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	3091	97	3714	110
Ratio	31.957		33.764	

Field Calibrator at Base

	Calibrated (cps)
	1660 2371
Ratio	0.700

Field Check

	Calibrated (cps)
	1673 2396
Ratio	0.698

Neutron Constants MDN-A.B 66

Last Edited on 26-APR-2011,14:21

Neutron Source Id	P58125B
Neutron Jig Number	5824NE
Epithermal Neutron	No
Caliper Source for Processing	Density Caliper
Stand-off	0.00 inches
Mud Density	1.14 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 52

Base Calibration on 11-MAR-2011 10:55
Field Check on 25-APR-2011 20:34

Base Calibration

	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	965.7	126.8

Base Check 279.9

Field Check 279.9

FE Constants MFE-A.A 52

Last Edited on 26-APR-2011,02:53

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-A.A 126

Last Edited on 11-APR-2011,08:33

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

	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)	Depth (ft)
N/A	N/A	N/A	0.00
N/A	N/A	N/A	0.00
N/A	N/A	N/A	0.00
N/A	N/A	N/A	0.00
N/A	N/A	N/A	0.00

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 167

Field Calibration on 17-JAN-2011,18:32

	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

Pre-filter Length	11
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Induction Calibration MAI-A.A 167

Base Calibration on 11-MAR-2011,09:58
Field Check on 25-APR-2011 20:33

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	12.0	3842.1	
2	0.0	0.0	29.3	3480.2	
3	0.0	0.0	28.9	3055.9	
4	0.0	0.0	19.7	2083.5	
Deep	0.0	0.0	18.4	2050.7	
Medium	0.0	0.0	42.1	3995.2	
Shallow	0.0	0.0	42.5	5059.1	
Array Temperature		0.0	57.8	Deg F	

Induction Constants MAI-A.A 167				Last Edited on 24-APR-2011,22:39	
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 35			Base Calibration on 11-MAR-2011 11:34		
			Field Calibration on 25-APR-2011 20:40		
Base Calibration					
Reading No		Measured	Calibrator Size (in)		
1		17936	3.99		
2		28079	5.98		
3		38384	7.97		
4		48048	9.86		
5		59047	11.92		
6		N/A	N/A		
Field Calibration					
		Measured Caliper (in)	Actual Caliper (in)		
		6.02	5.98		

Photo Density Calibration MPD-B 35	Base Calibration on 11-MAR-2011 11:54				
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Density Calibration

Base Calibration

	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	57876	27553	59556	30836
Reference 2	23524	2615	24941	2541

Field Check at Base

1175.2 1398.5

Field Check

1171.2 1390.3

PE Calibration

Base Calibration

	WS	Measured		Calibrated	
		WH	Ratio	Ratio	
Background	211	1039			
Reference 1	21426	57673	0.375	0.371	
Reference 2	6234	23377	0.270	0.272	

Field Check at Base

211.2 1039.0

Field Check

210.1 1035.0

Density Constants MPD-B 35

Last Edited on 26-APR-2011,14:21

Density Source Id	p50557b	
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	
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	0.00	

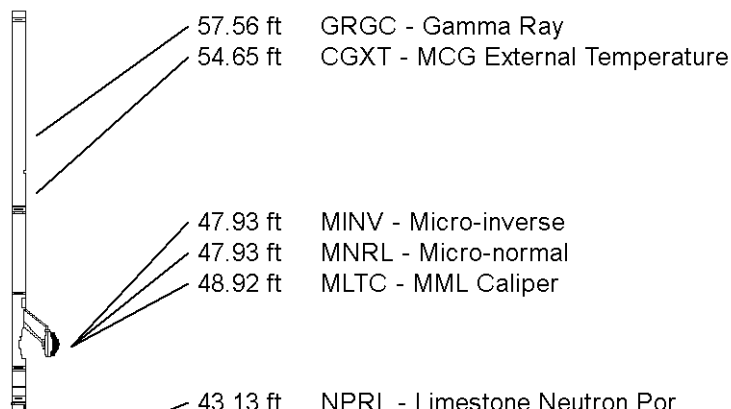
DOWNHOLE EQUIPMENT

C:\Users\SSTRIB~1\AppData\Local\Temp\Weatherford PreView\2\Copy of Ellis 1-23_001.dta

Compact Comms Gamma
MCG-C 139 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 35 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

SKJ-D.A Compact Knuckle Joint

SKJ-D.A 36 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

Compact Focussed Electric

MFE-A.A 52 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

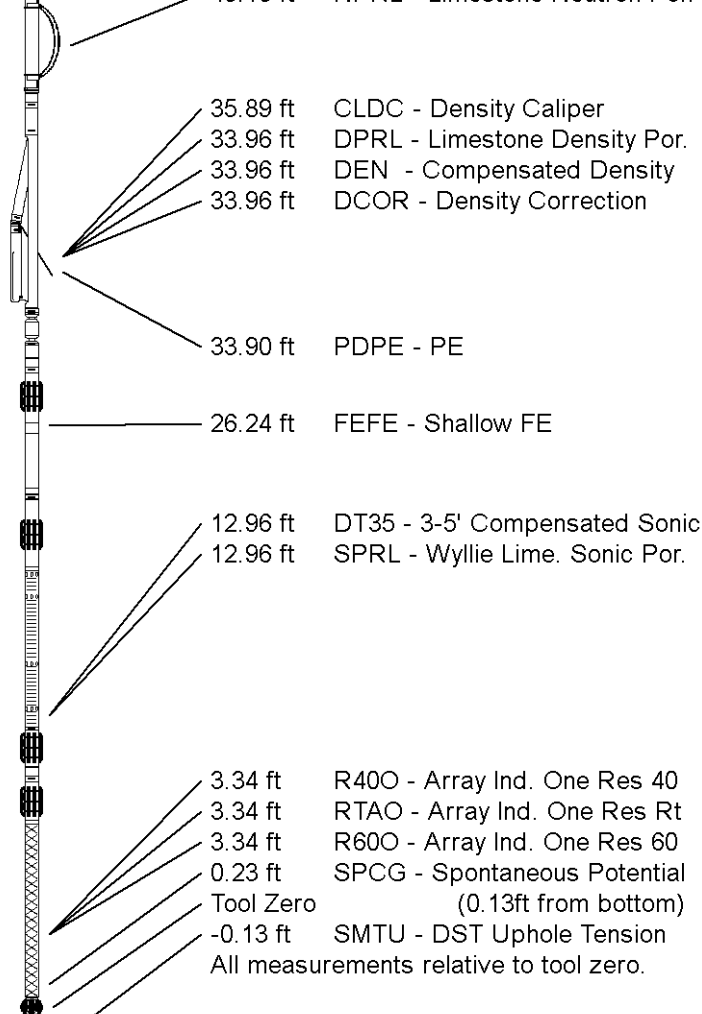
Compact Sonic

MSS-A.A 126 LG: 12.52 ft WT: 72.8 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: 62.84 ft Weight: 480.6 lb



COMPANY GRAND MESA
WELL ELLIS 1-23
FIELD WILDCAT
PROVINCE/COUNTY LOGAN
COUNTRY/STATE U.S.A./KANSAS

Elevation Kelly Bushing	2785.00	feet	First Reading	4538.00	feet
Elevation Drill Floor	2784.00	feet	Depth Driller	4570.00	feet
Elevation Ground Level	2780.00	feet	Depth Logger	4572.00	feet



Weatherford®

COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
LOG

