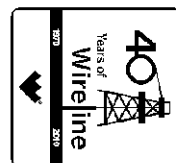




Weatherford

COMPACT PHOTO DENSITY COMPENSATED NEUTRON

COMPANY KNIGHTON OIL
WELL KACHELMAN # 3
FIELD ALBANO WEST
PROVINCE/COUNTY STAFFORD
COUNTRY/STATE KANSAS
LOCATION 970' FSL & 1030' FEL
30' SW NW SE SE



SEC TWP RGE
11 25S 14W
API Number 15-185-23661
Permit Number MSS

Other Services
MAI/MFE
MSS

MML

Permanent Datum G.L., Elevation 1959 feet
Log Measured From K.B. @ 6 FEET above Permanent Datum
Drilling Measured From K.B.

Elevations: feet
KB 1965.00
DF 1963.00
GL 1959.00

Date 18-FEB-2011

Run Number ONE

Depth Driller 4325.00

Depth Logger 4328.00

First Reading 4294.00

Last Reading 3000.00

Casing Driller 260.00

Casing Logger 260.00

Bit Size 7.875

Hole Fluid Type CHEMICAL

Density / Viscosity 9.00 lb/USg

PH / Fluid Loss 8.00

Sample Source FLOWLINE

Rm @ Measured Temp 0.40 @ 50.0

Rmf @ Measured Temp 0.32 @ 50.0

Rmc @ Measured Temp 0.48 @ 50.0

Source Rmf / Rmc CALC

Rm @ BHT 0.19 @ 105.0

Time Since Circulation 6 HOURS

Max Recorded Temp 105.00

Equipment Name COMPACT

Equipment / Base 13057

Recorded By R. HOFFMAN

Witnessed By DAVE MONTAGUE

S O / JOB # 3529081

LB11-034

BOREHOLE RECORD

Last Edited: 22-FEB-2011 19:38

Bit Size
inches

7.875

Depth From
feet

260.00

Depth To
feet

4328.00

CASING RECORD

Type

Size
inches

8.625

Depth From
feet

0.00

Shoe Depth
feet

260.00

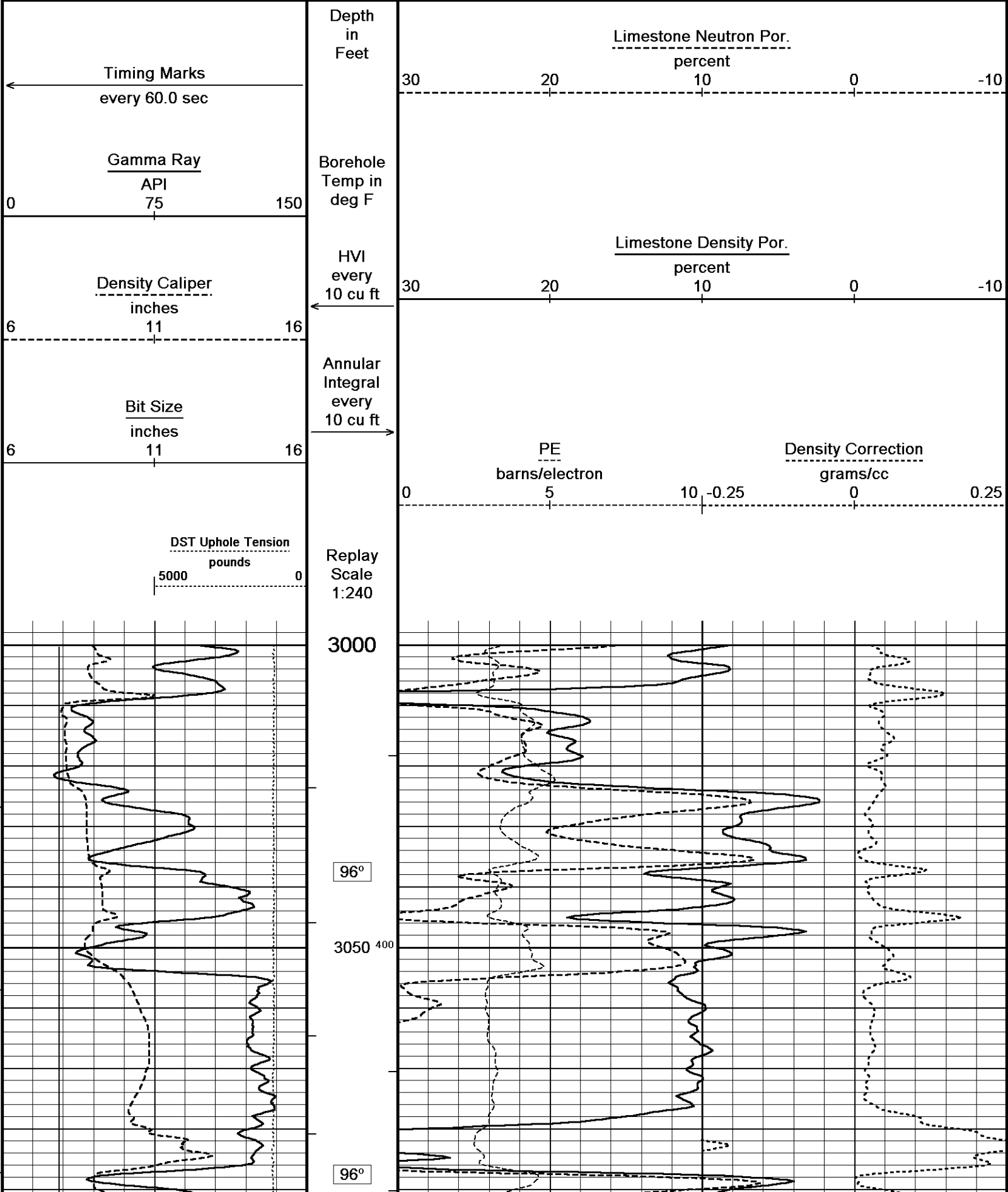
Weight
pounds/ft

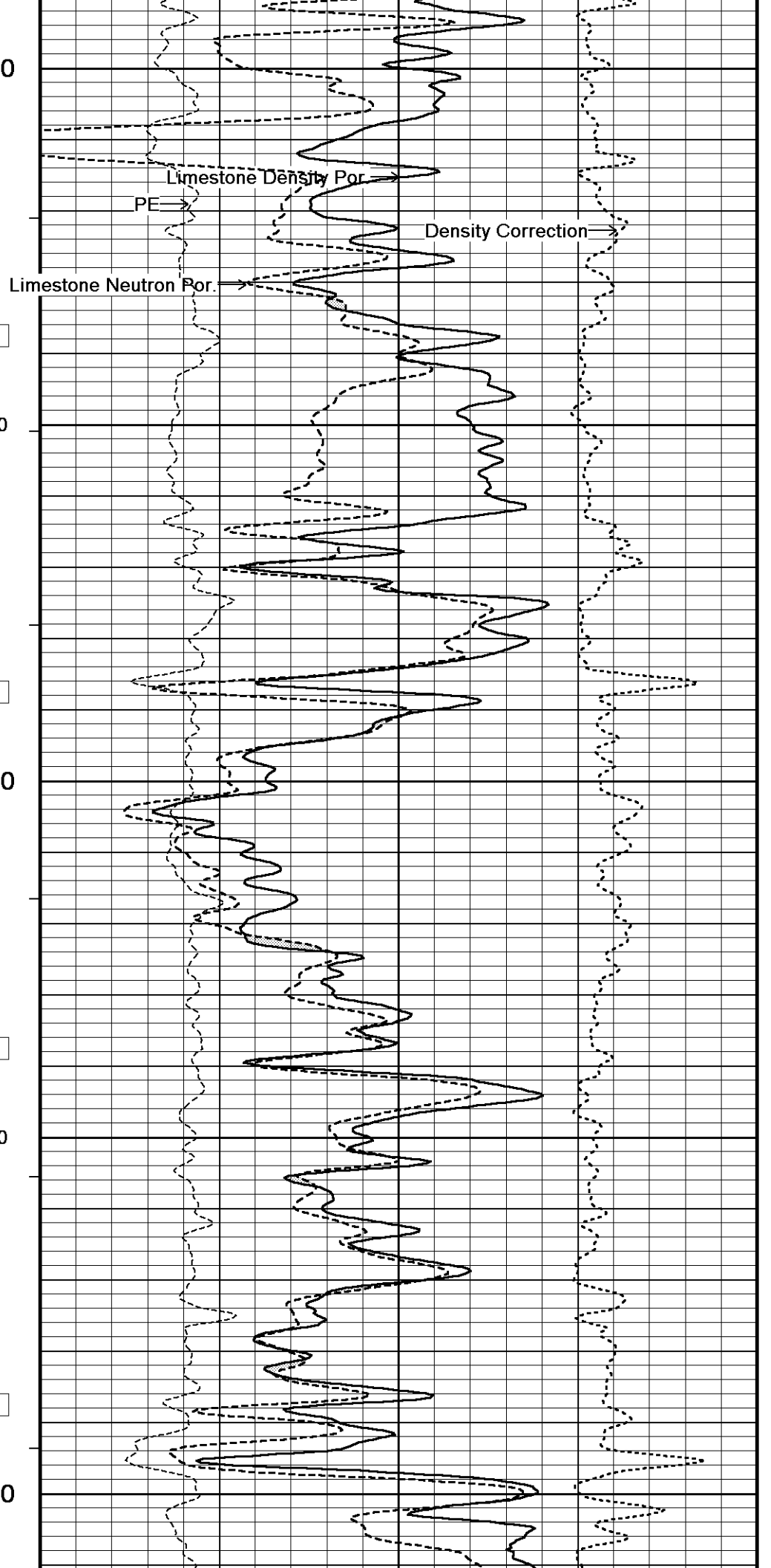
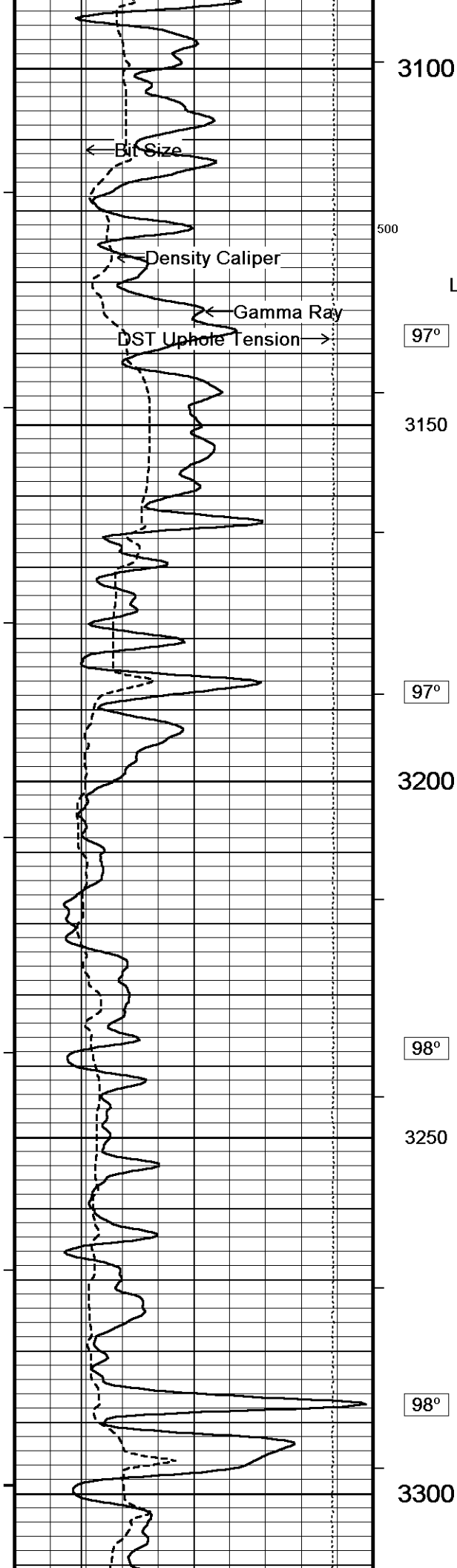
24.00

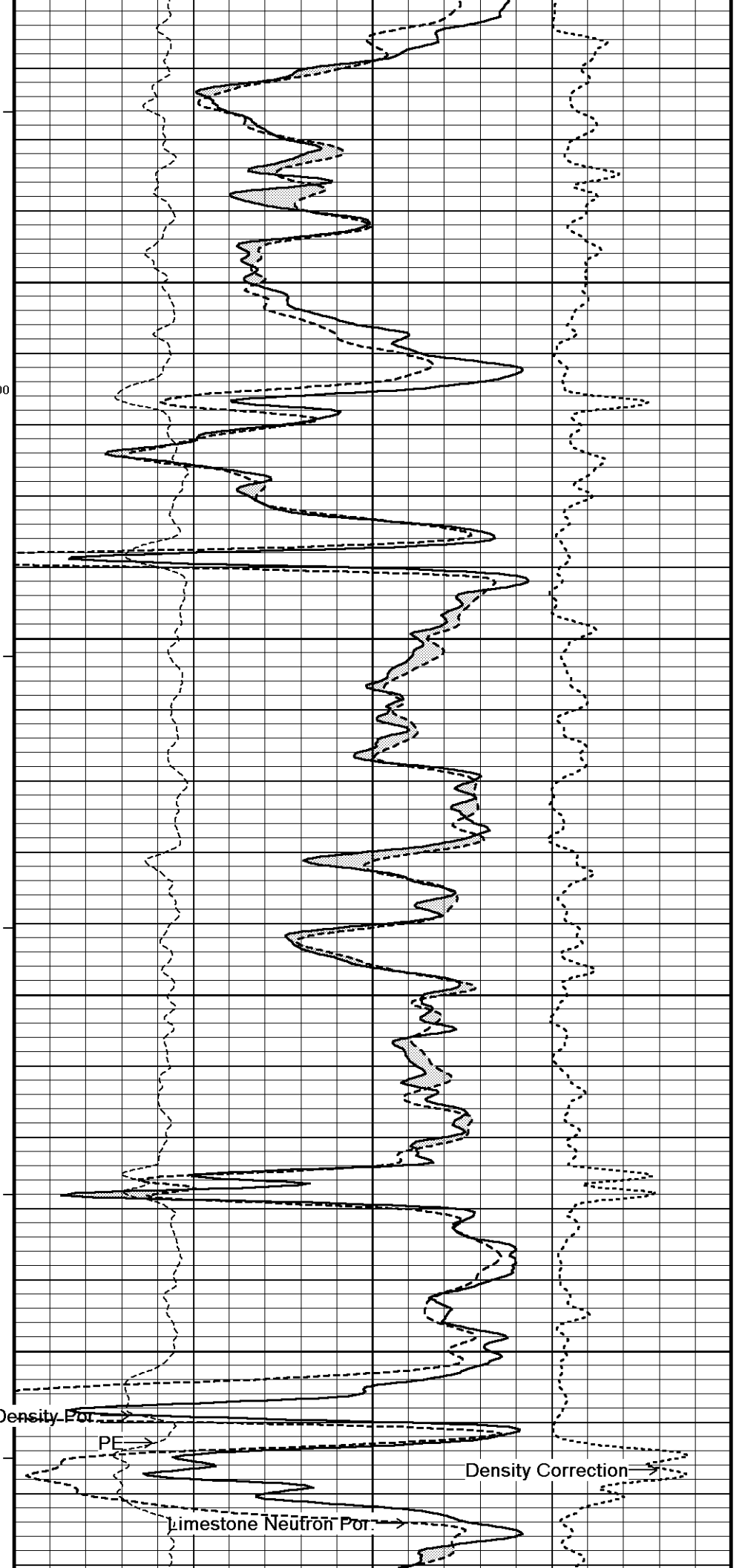
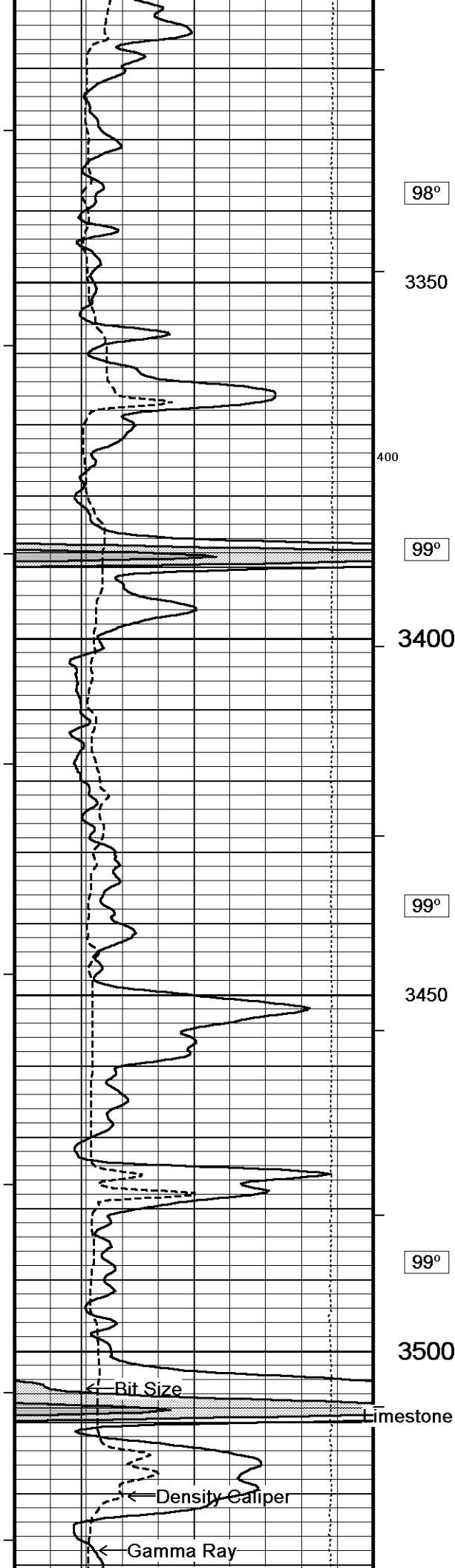
REMARKS

Tools Used: MPD, MCG, MDN, MFE, MAI, MSS, MML
Hardware: MPD: 4 inch profile plate used. MAI, MFE, MSS: 0.5 Inch standoffs used. MDN: Dual Bowspring used.
2.71 G/CC Limestone density matrix used to calculate porosity.
Sonic porosity calculated using 47.5 usec/ft Limestone scale.
Borehole rugosity, tight pulls, and washouts will affect data quality.
Puled tight at 4160 on repeat pass and 3714 on main pass.
All intervals logged and scaled per customer's request.
Annular volume with 5.5 inch production casing = 418 cu. ft.
Service order #3529081
Rig: Southwind Drilling #4
Engineer: R. Hoffman, A. Sill
Operator(s): B. Reeves

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.







DST Uphole Tension →

99°

3550

99°

3600

300

99°

3650

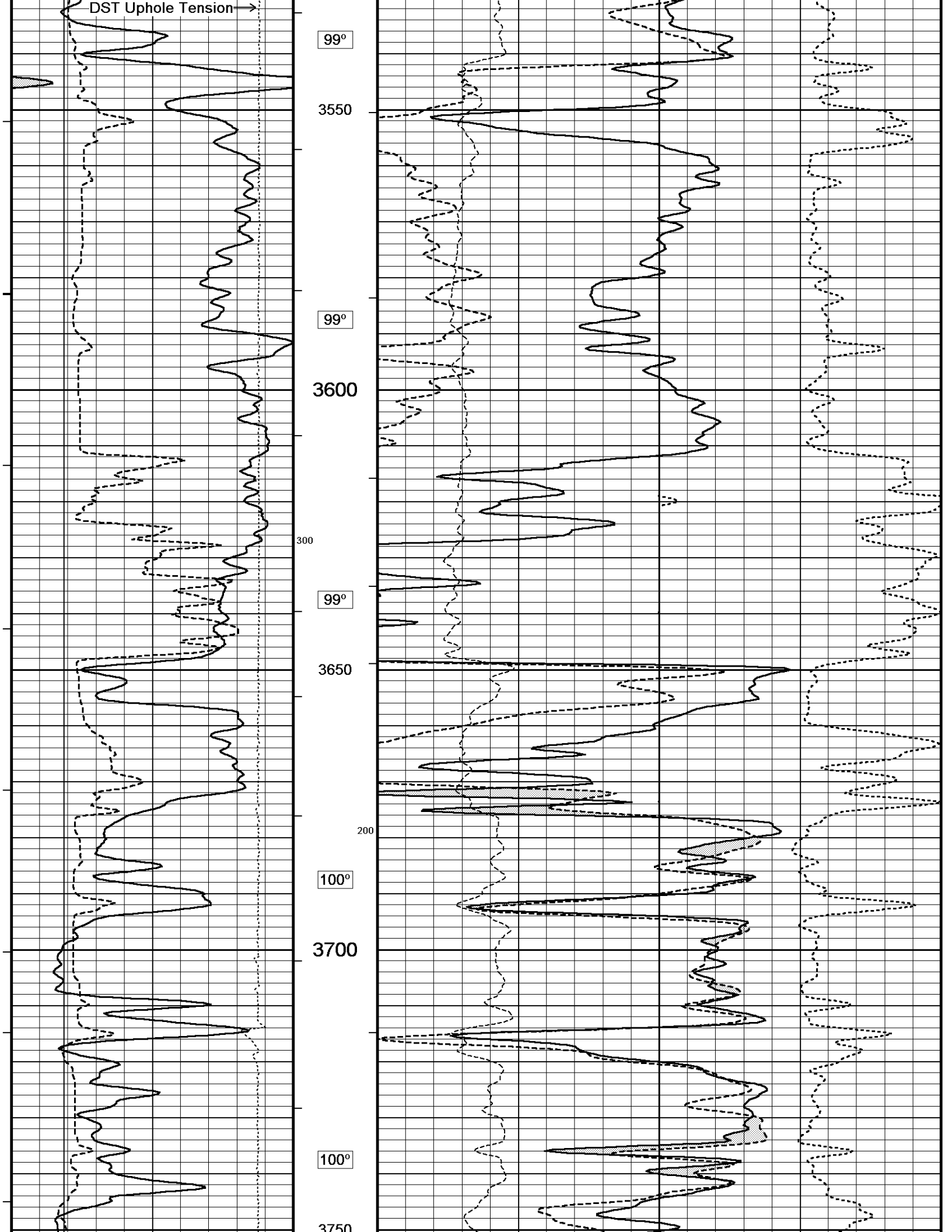
200

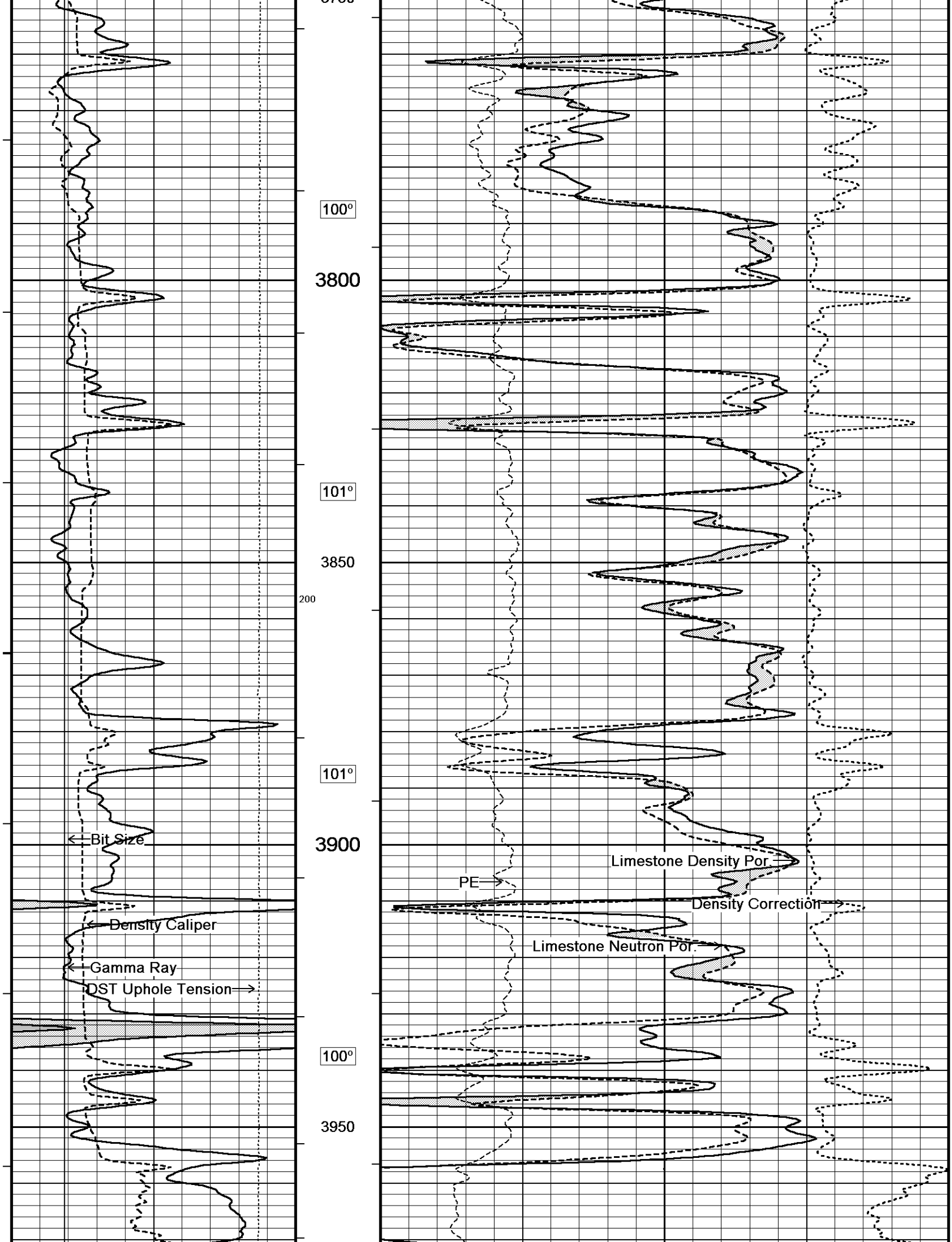
100°

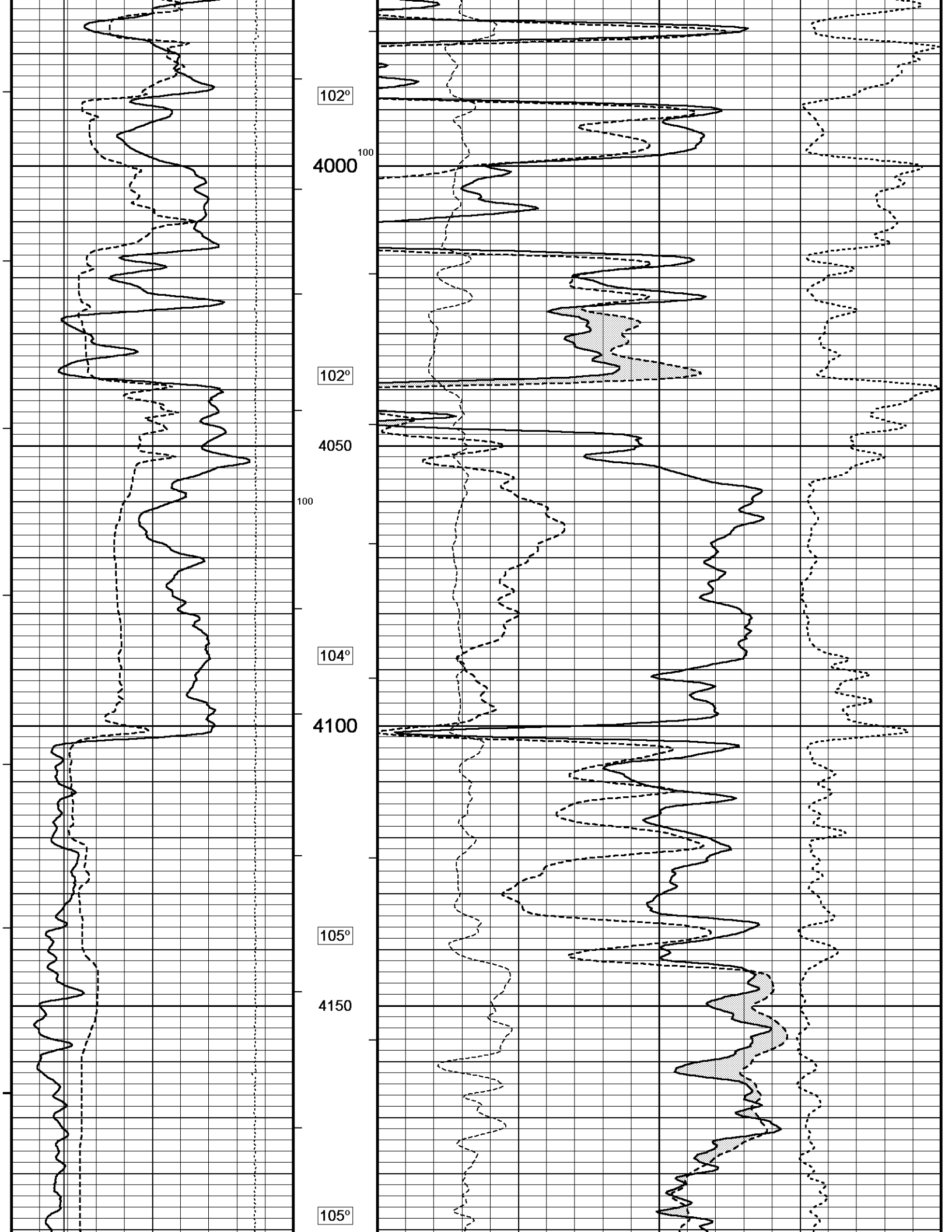
3700

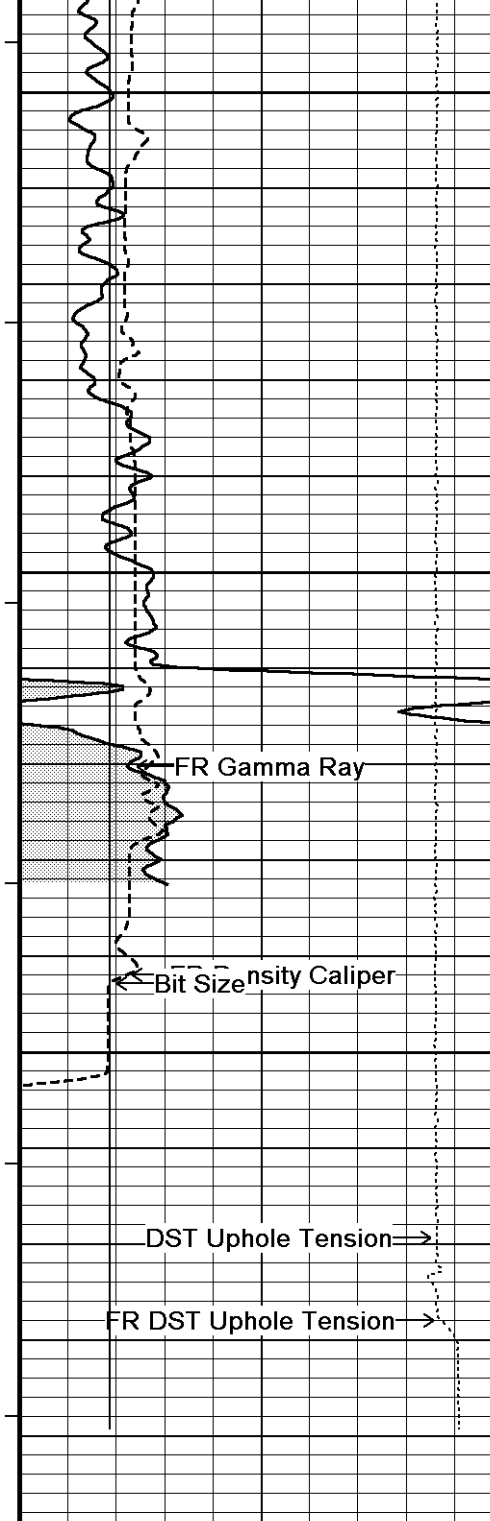
100°

3750









4200

105°

4250

4300

4348
Depth
in
Feet

Timing Marks
every 60.0 sec

Gamma Ray
API
75

Density Caliper
inches

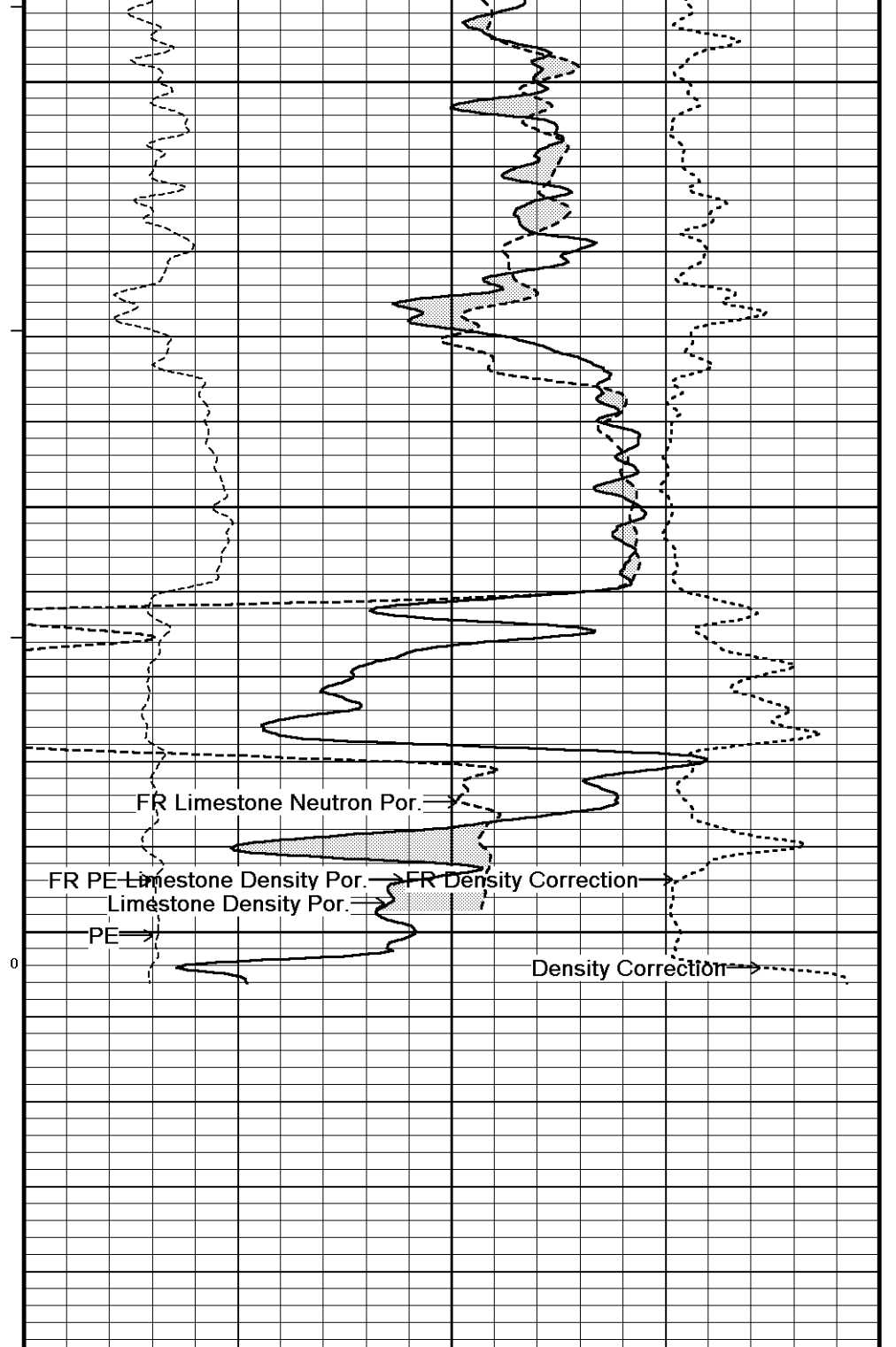
0 150

6 11 16

Borehole
Temp in
deg F

HVI
every
10 cu ft

Annular



FR Limestone Neutron Por.

FR PE Limestone Density Por.
Limestone Density Por.

FR Density Correction

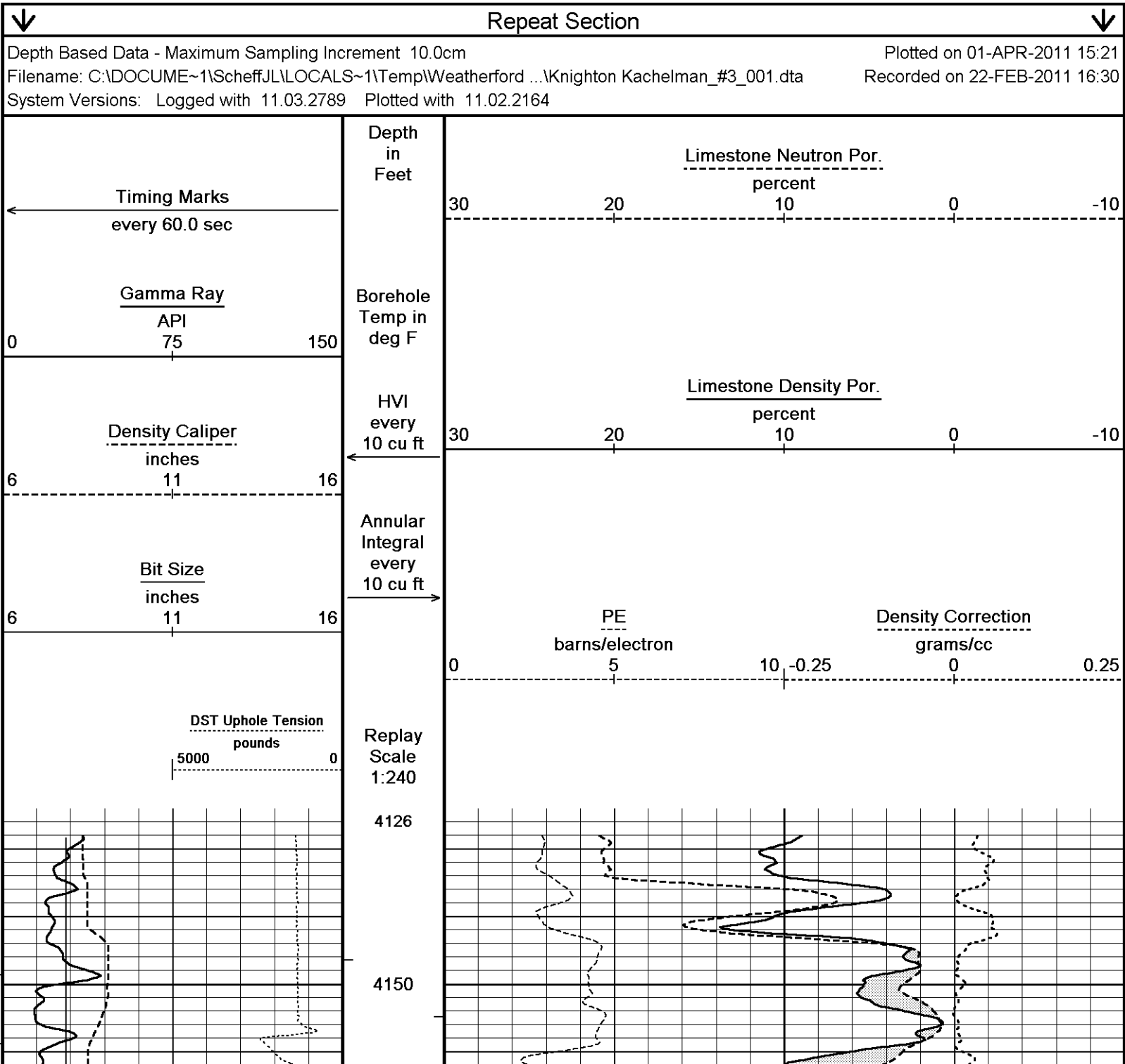
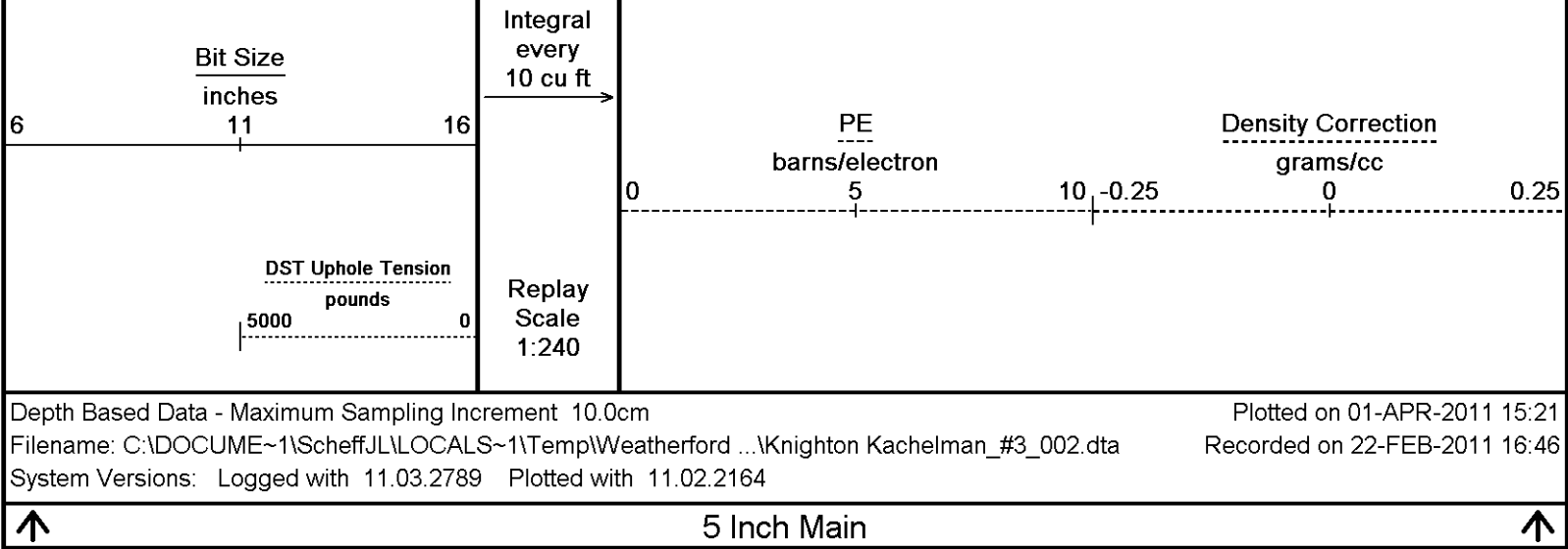
Density Correction

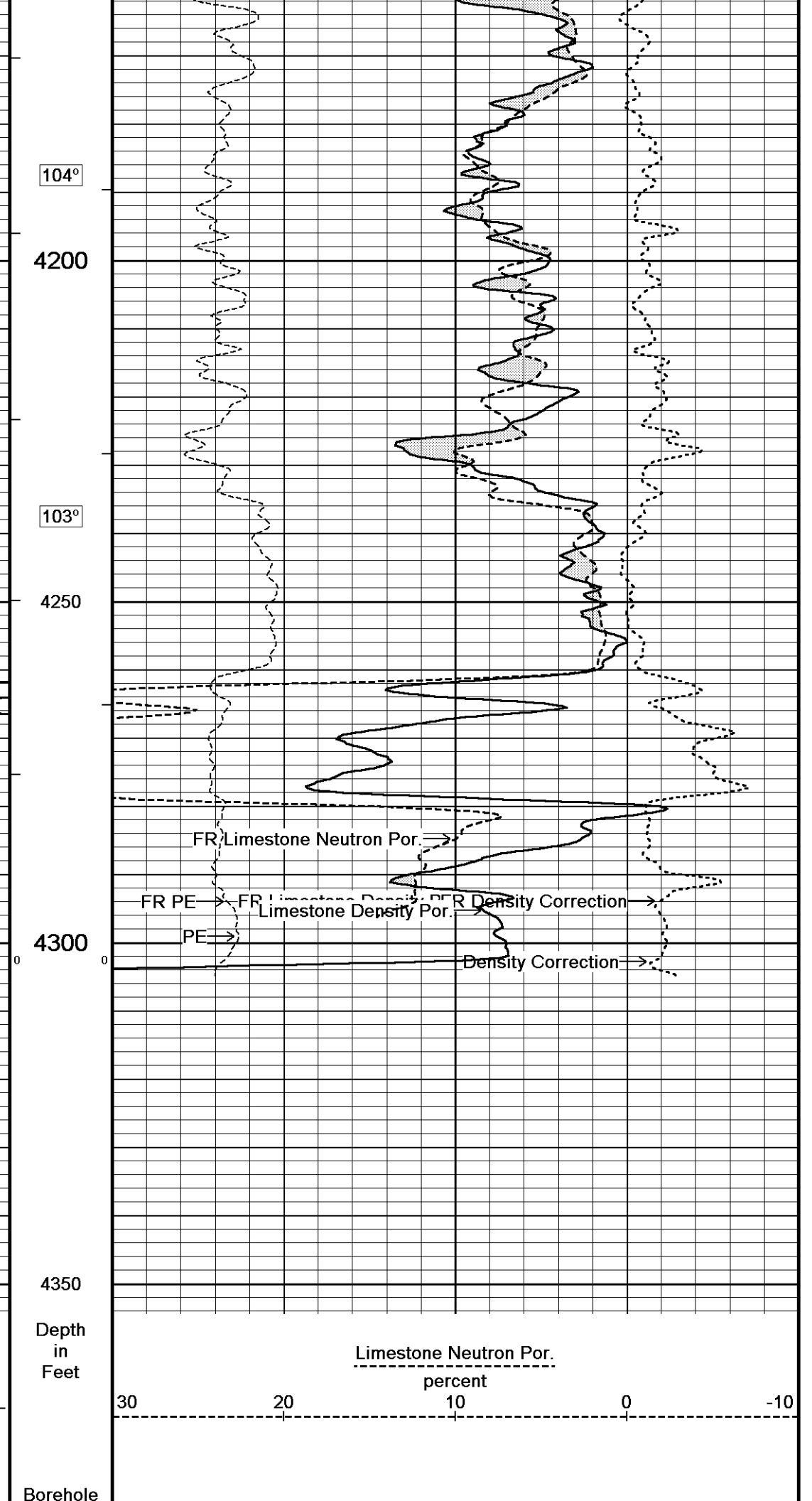
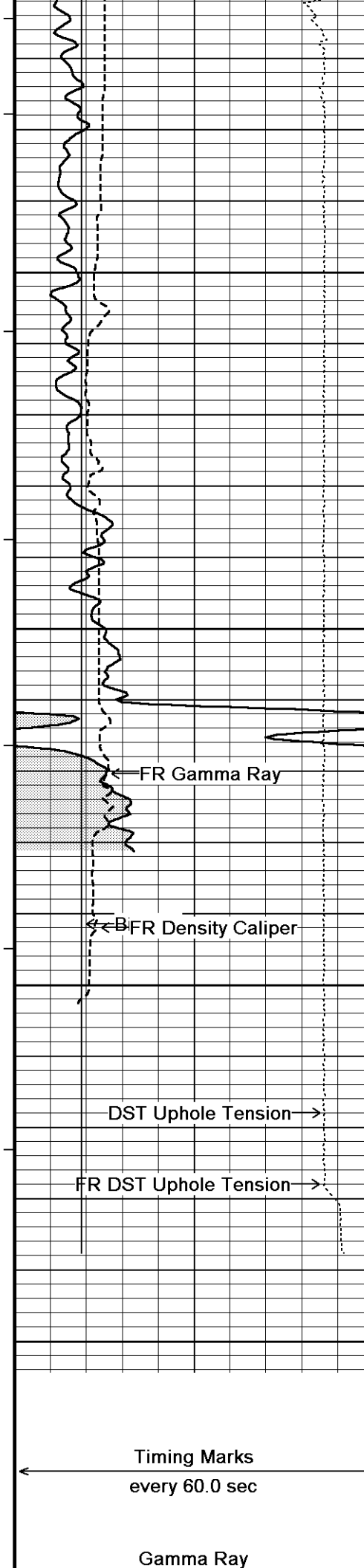
Limestone Neutron Por.
percent

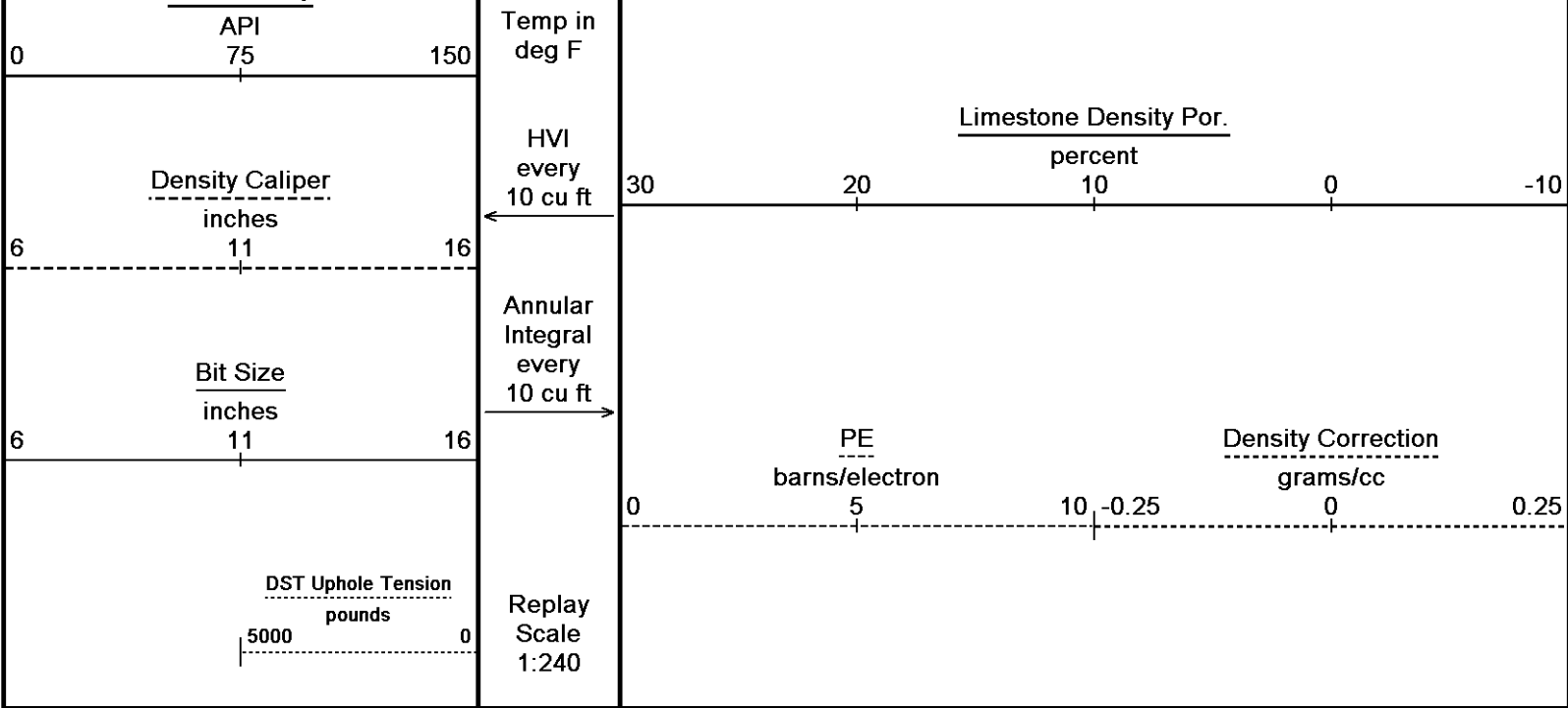
30 20 10 0 -10

Limestone Density Por.
percent

30 20 10 0 -10





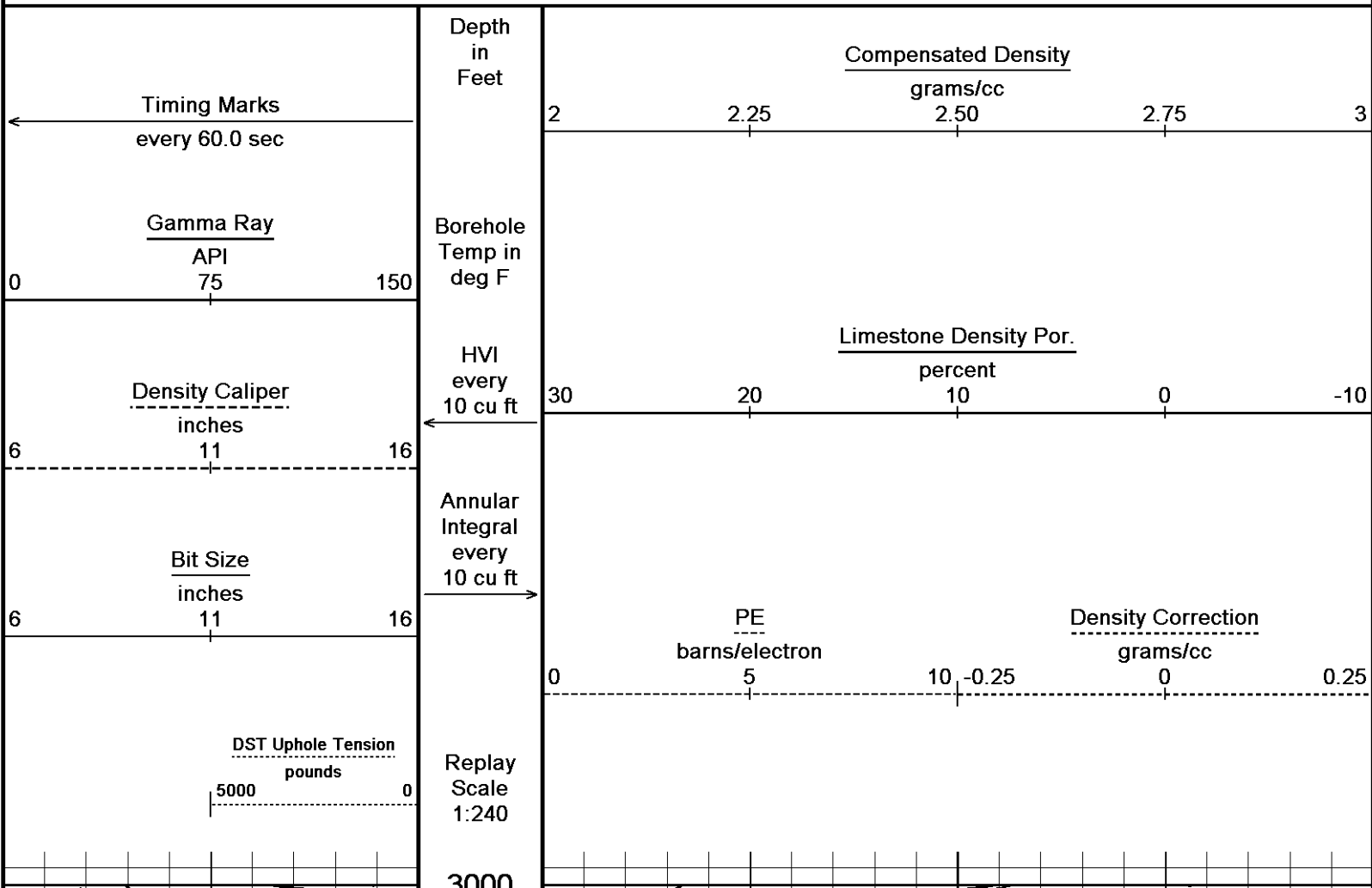


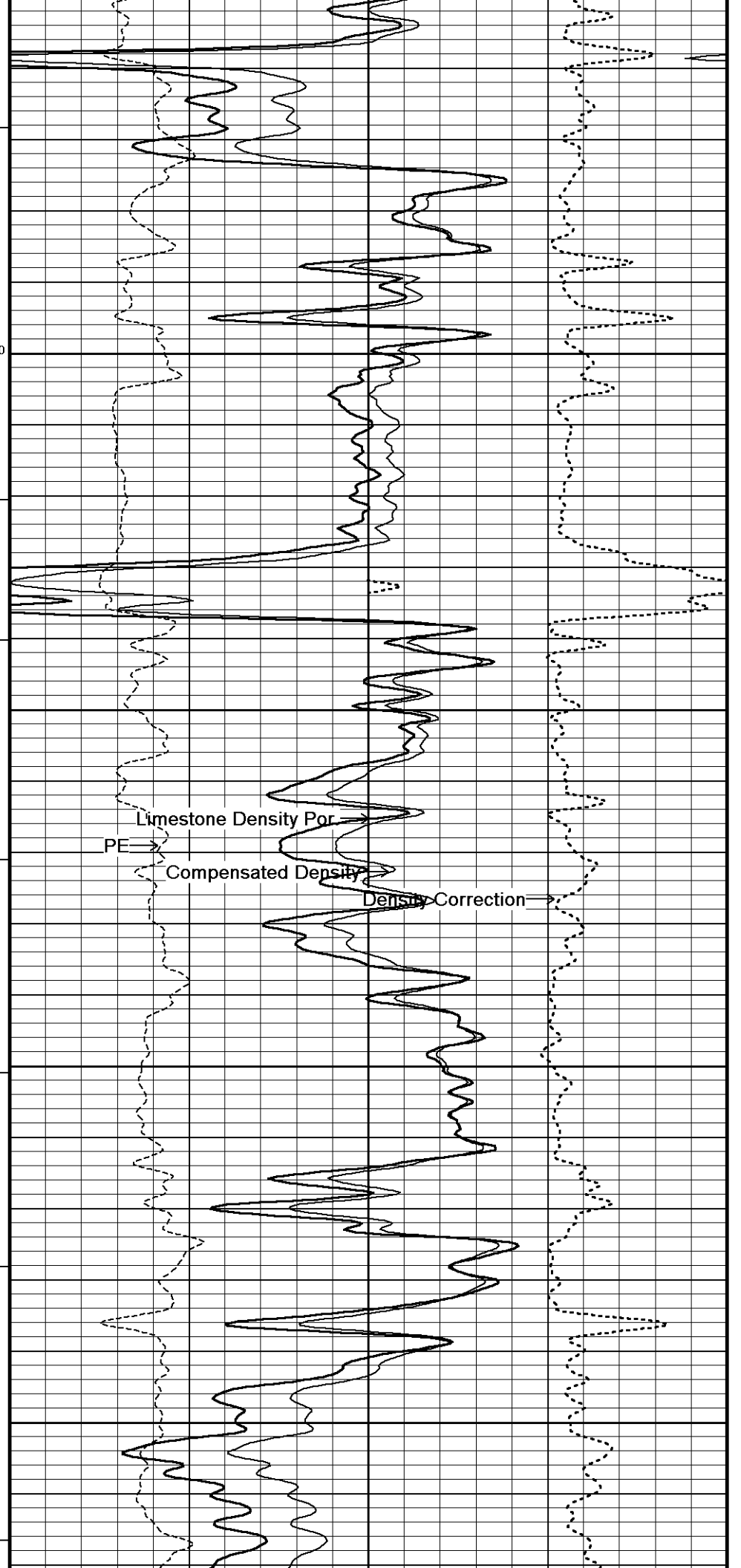
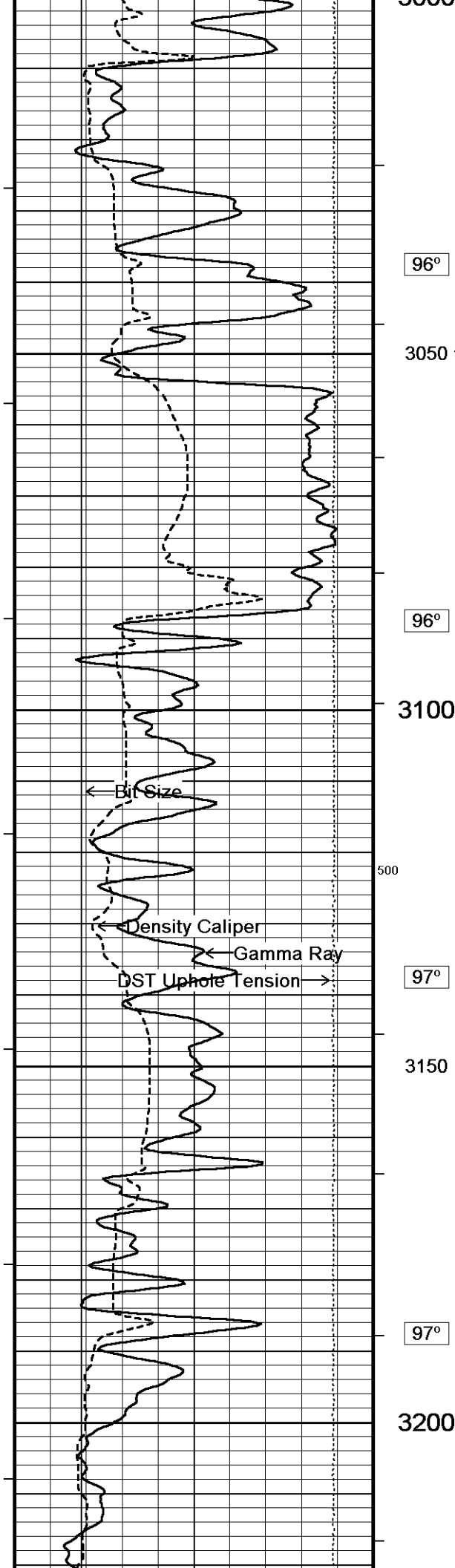
Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 01-APR-2011 15:21
Filename: C:\DOCUME~1\ScheffJL\LOCALS~1\Temp\Weatherford ...Knighton Kachelman_#3_001.dta Recorded on 22-FEB-2011 16:30
System Versions: Logged with 11.03.2789 Plotted with 11.02.2164

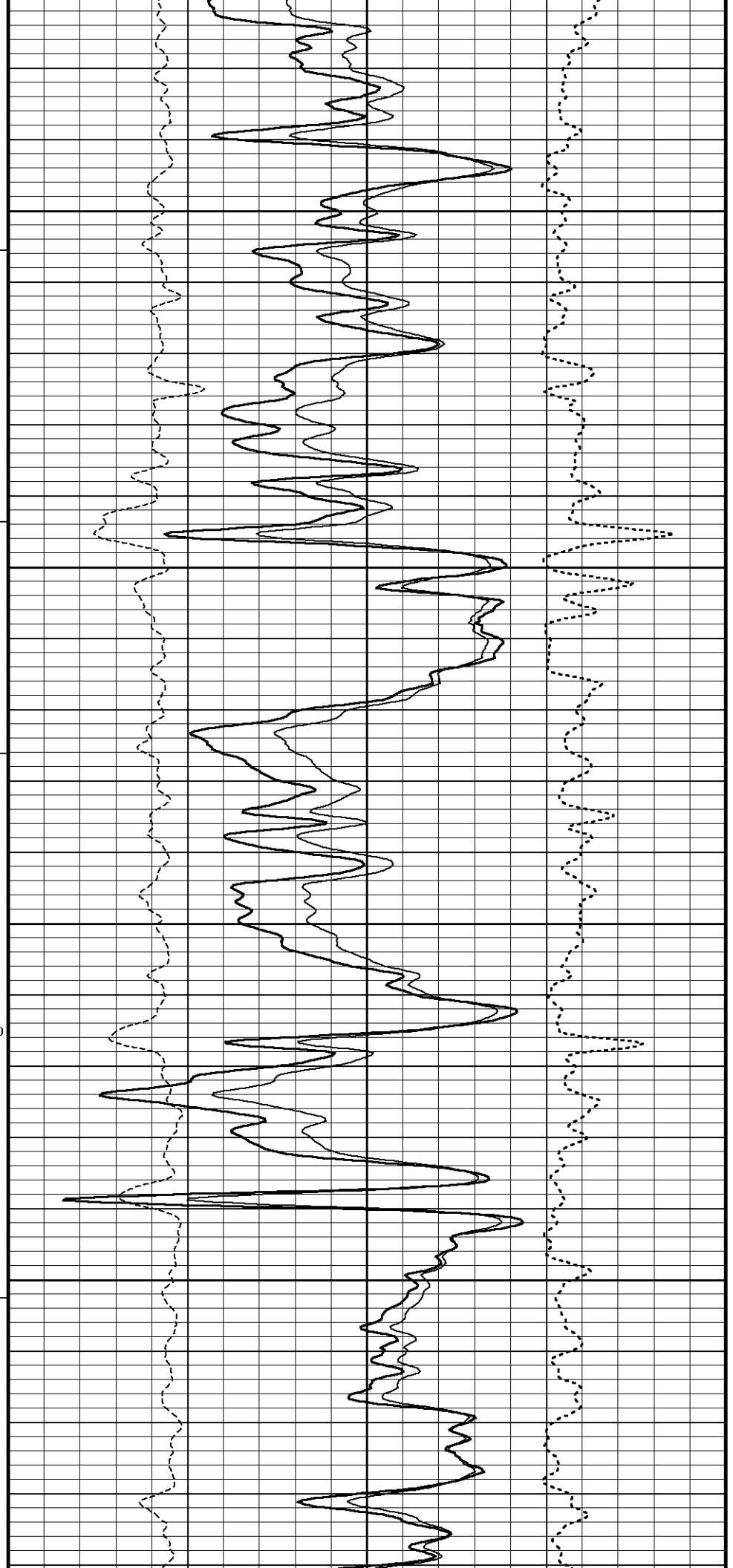
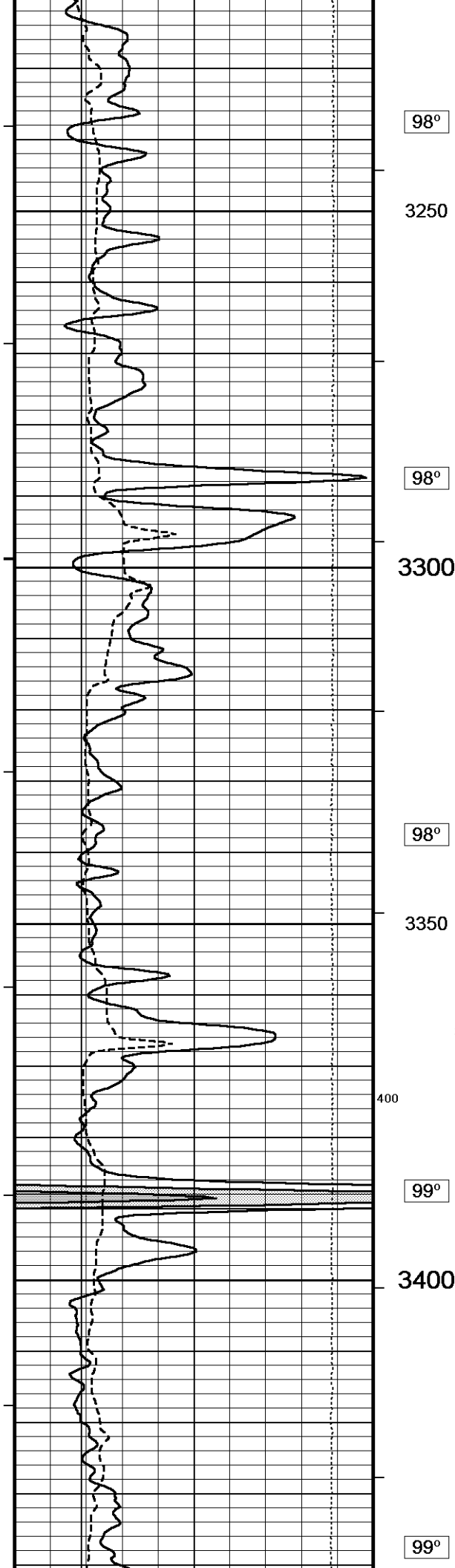
↑ Repeat Section ↑

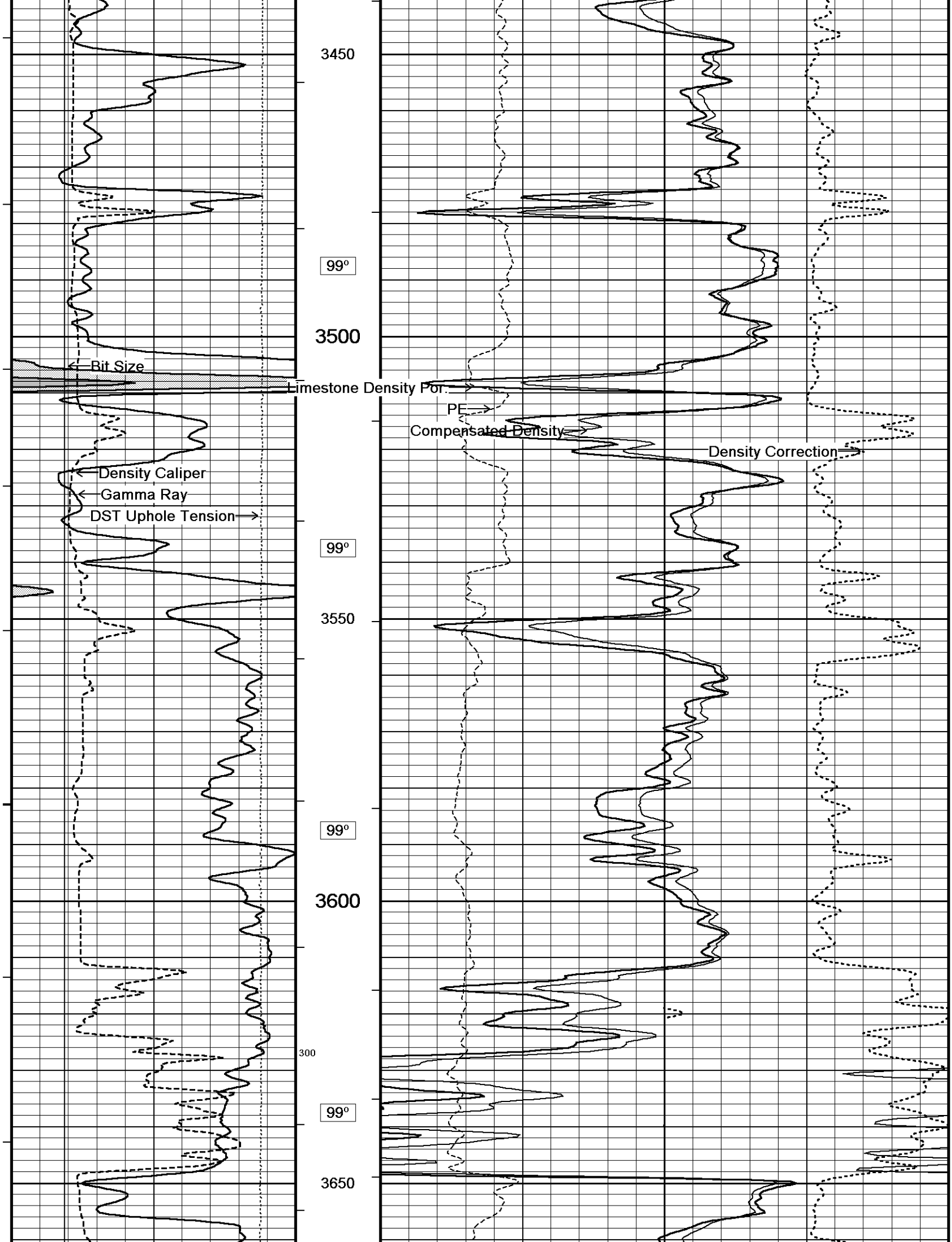
↓ 5 Inch Main ↓

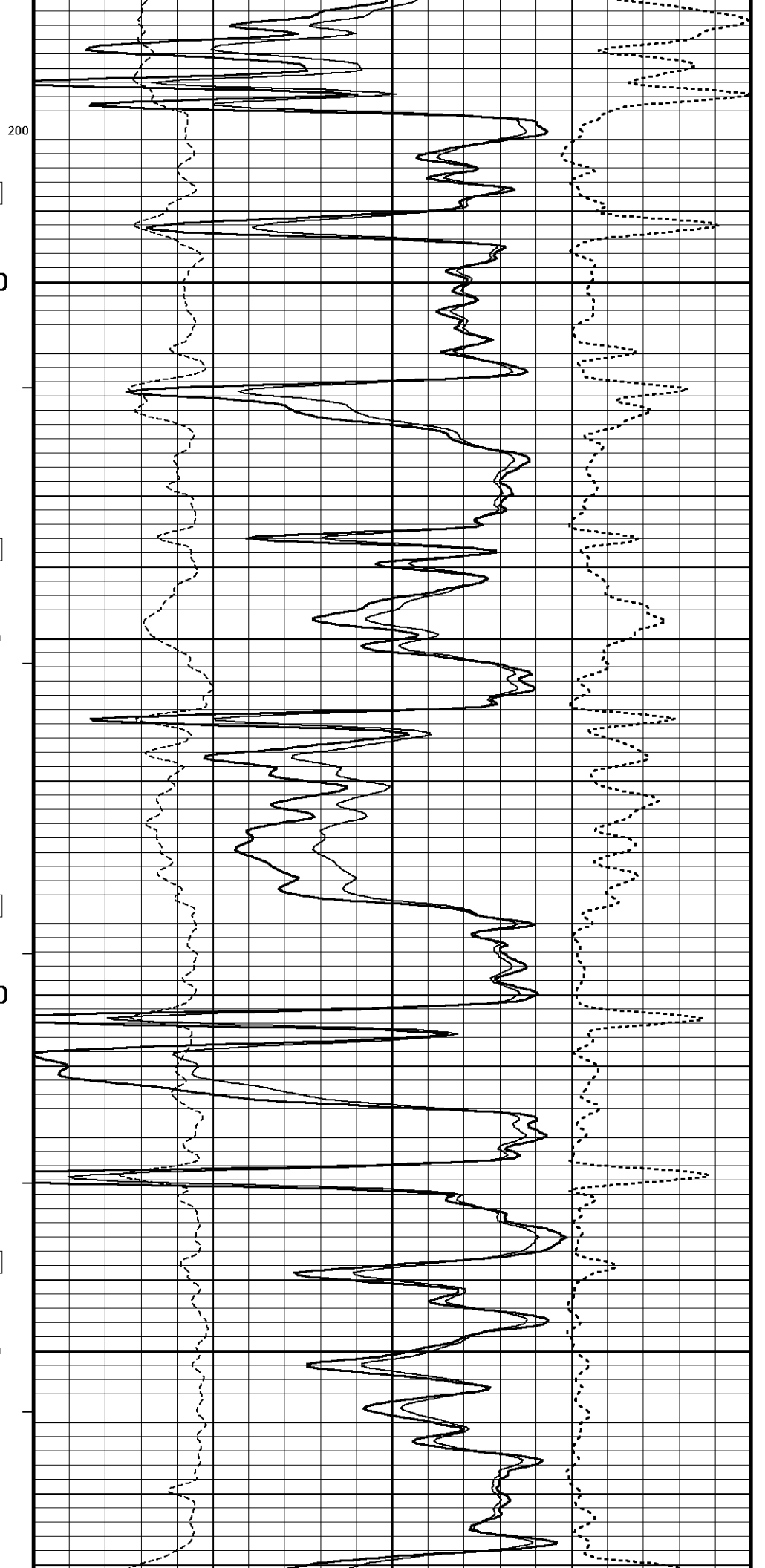
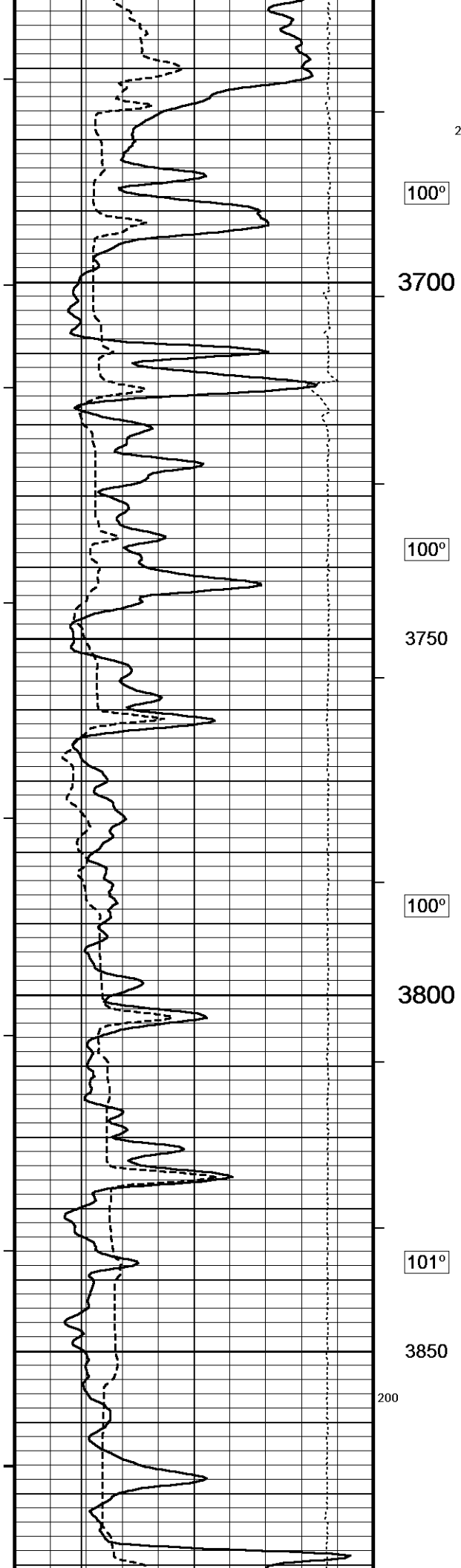
Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 01-APR-2011 15:21
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System Versions: Logged with 11.03.2789 Plotted with 11.02.2164

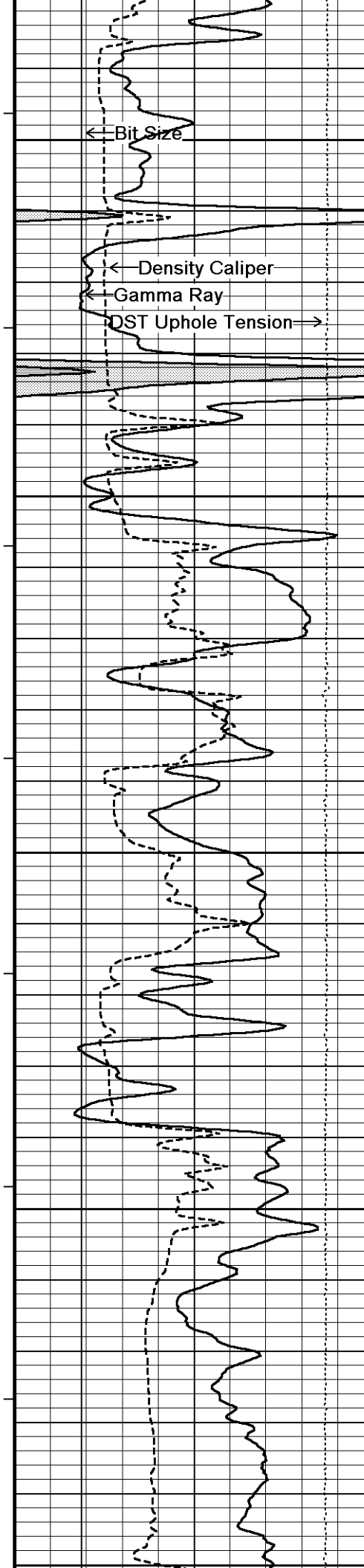




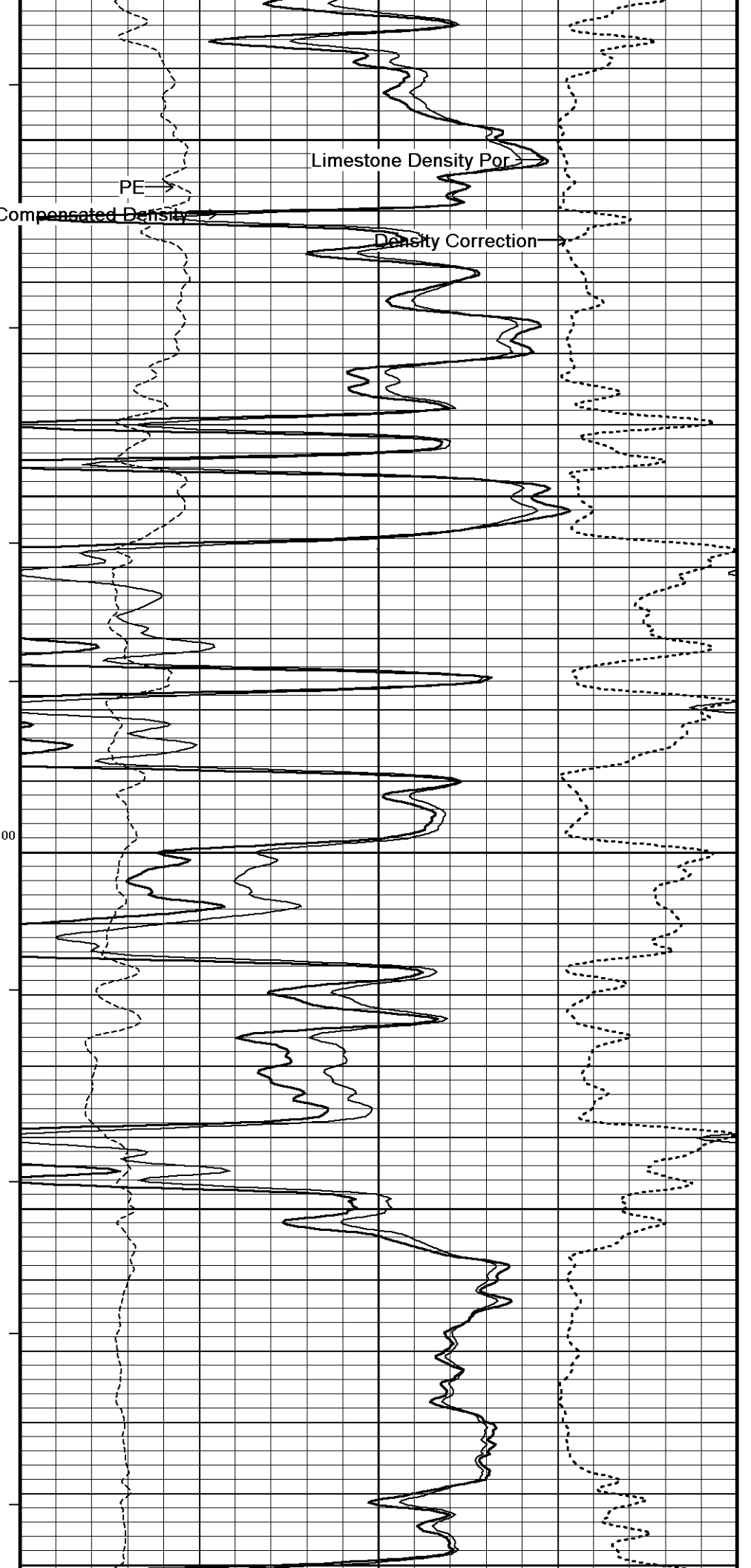


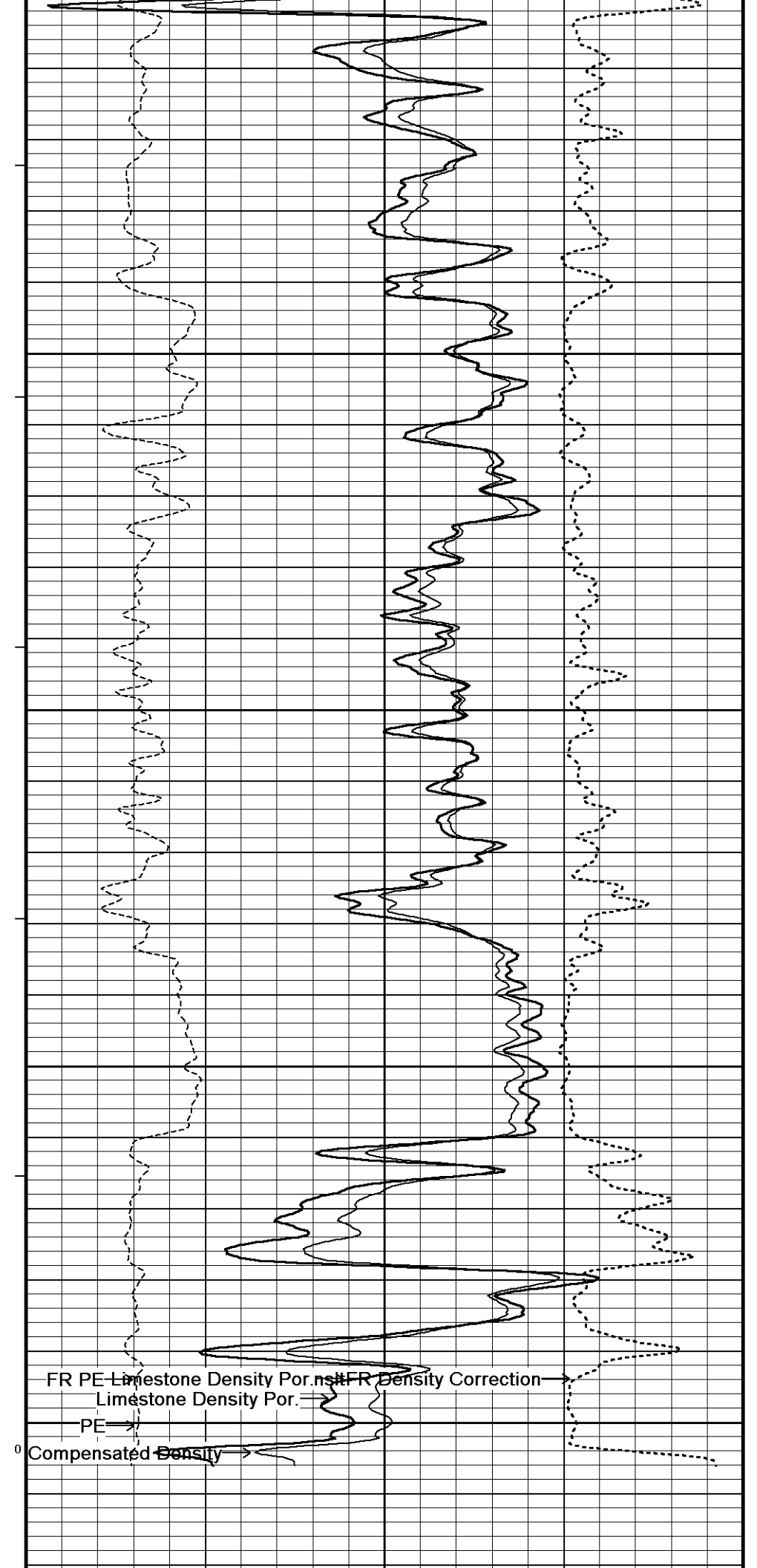
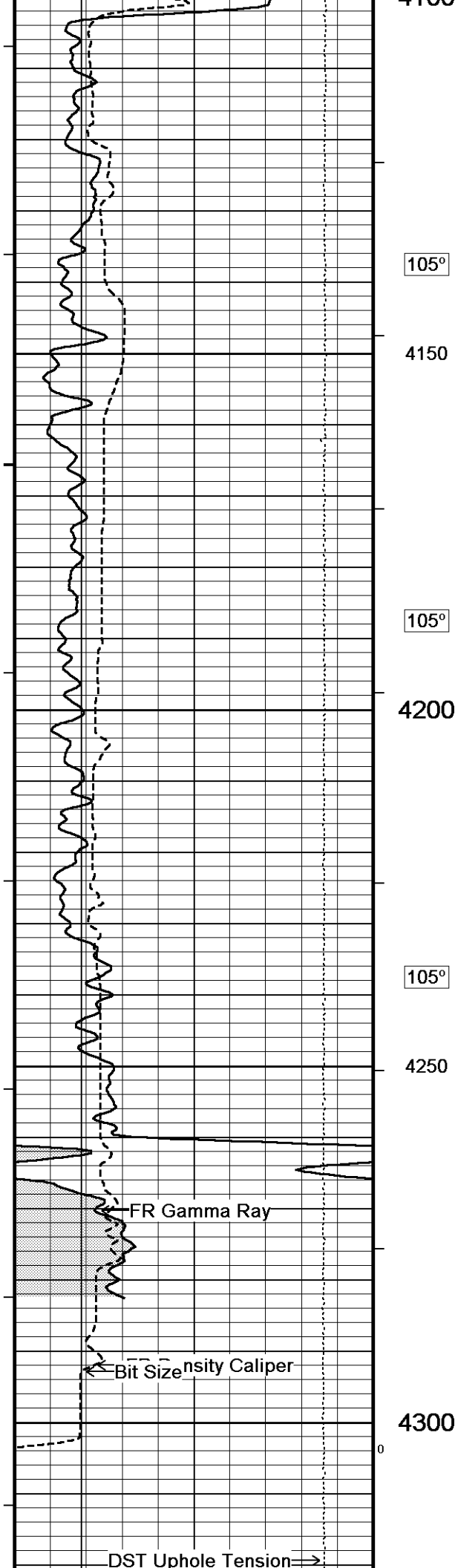


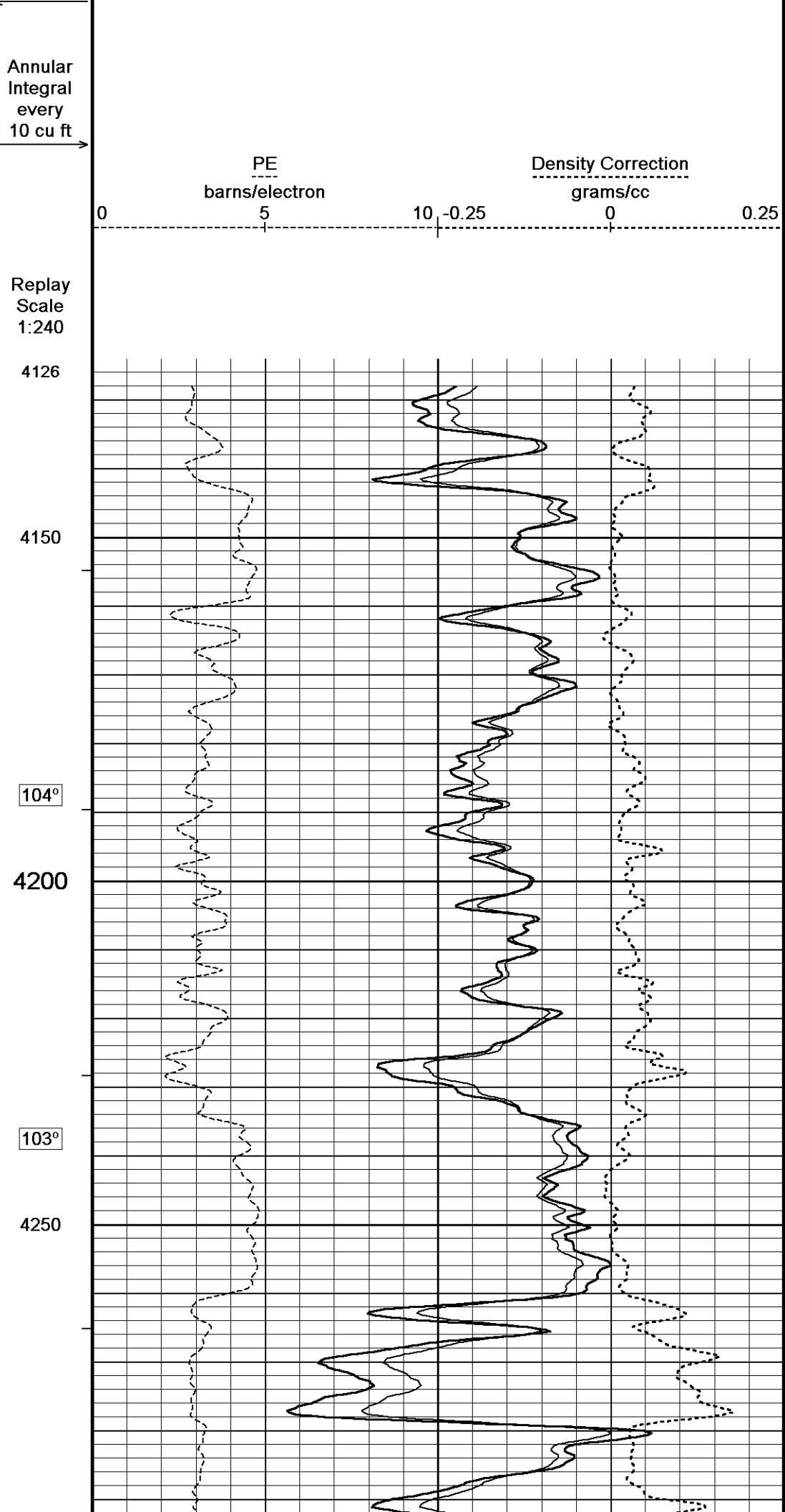
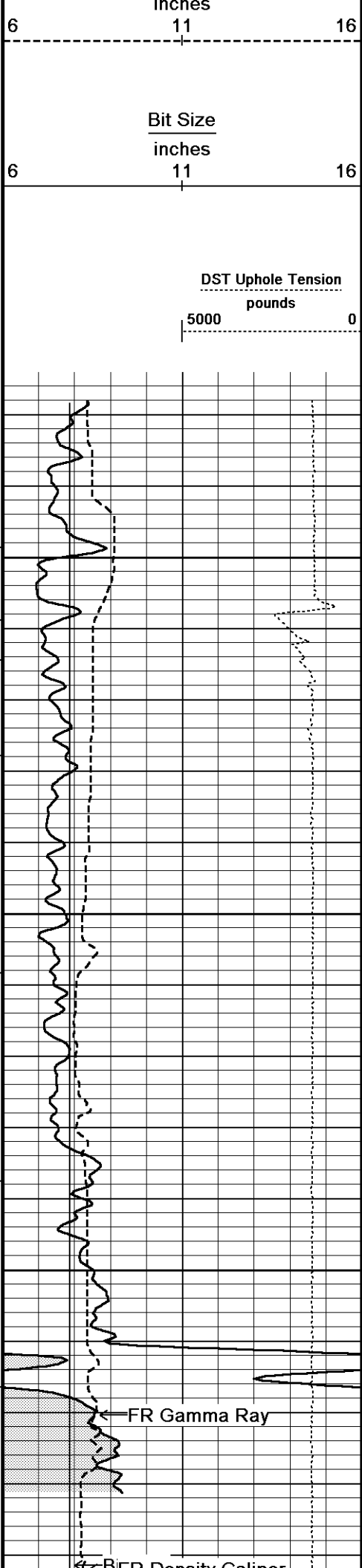


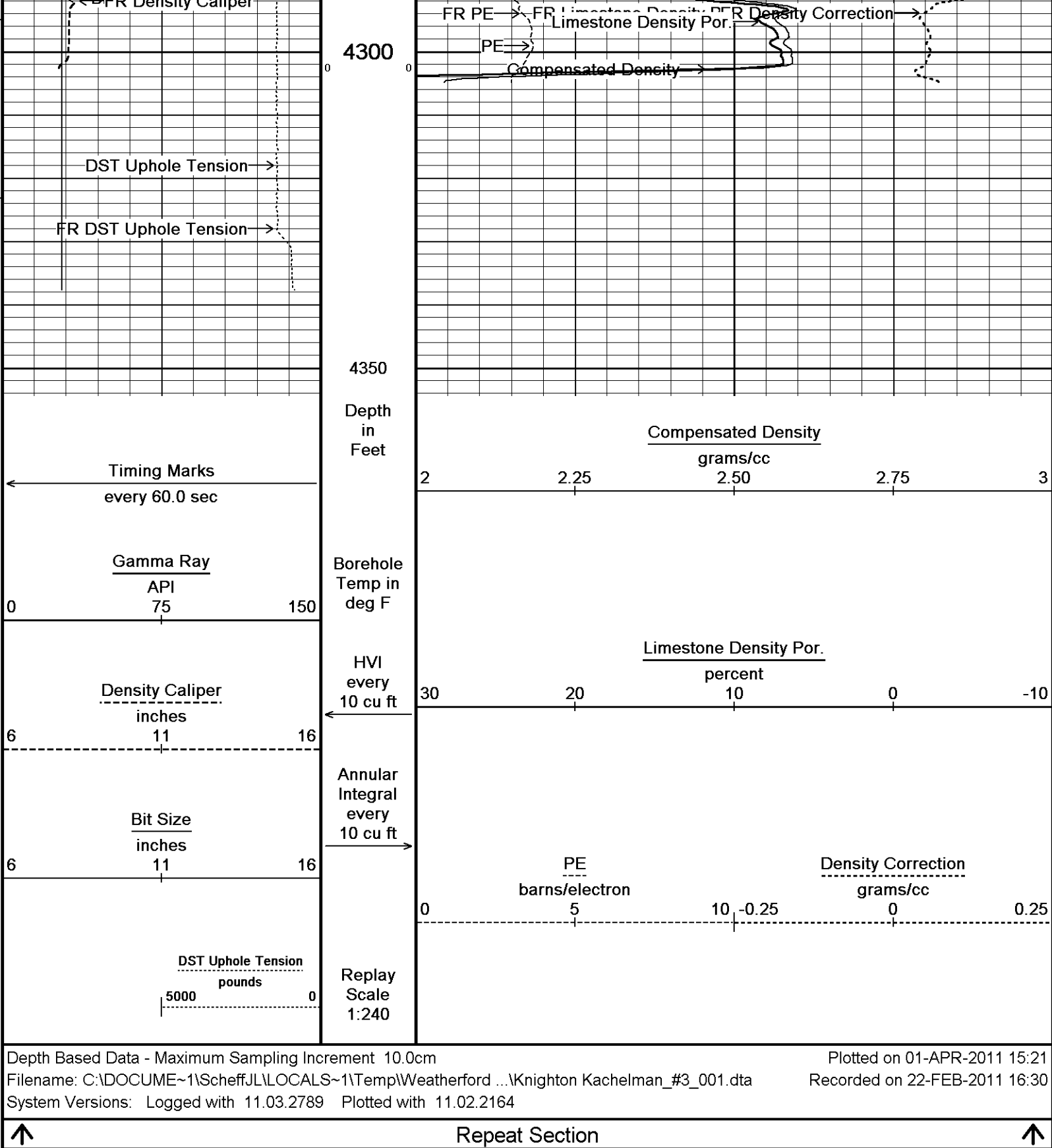


101°
3900
100°
3950
102°
4000
102°
4050
104°
4100









Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 01-APR-2011 15:21
Filename: C:\DOCUME~1\ScheffJL\LOCALS~1\Temp\Weatherford ... \Knighton Kachelman_#3_001.dta Recorded on 22-FEB-2011 16:30
System Versions: Logged with 11.03.2789 Plotted with 11.02.2164

BEFORE SURVEY CALIBRATION		
C:\DOCUME~1\ScheffJL\LOCALS~1\Temp\Weatherford PreView\0\Knighton Kachelman_#3.dta		
General Constants All 000		Last Edited on 22-FEB-2011,12:46
General Parameters		
Mud Resistivity	0.400	ohm-metres
Mud Resistivity Temperature	50.000	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	4.500	inches			
Caliper for Differential Caliper	None				
Rwa Parameters					
Porosity used	Base Density Porosity				
Resistivity used	Array Ind. One Res Rt				
RWA Constant A	1.000				
RWA Constant M	2.000				
High Resolution Temperature Calibration MCG-B 34			Field Calibration on 19-OCT-2009,11:45		
	Measured	Calibrated(Deg F)			
Lower	50.00	50.00			
Upper	75.00	75.00			
High Resolution Temperature Constants MCG-B 34			Last Edited on		
Pre-filter Length	11				
SP Calibration MCG-B 34			Field Calibration on 9-NOV-2009,18:07		
	Measured	Calibrated (mV)			
Reference 1	107.7	100.0			
Reference 2	-93.8	-100.0			
Gamma Calibration MCG-B 34			Field Calibration on 08-DEC-2010 12:47		
	Measured	Calibrated (API)			
Background	69	50			
Calibrator (Gross)	1071	775			
Calibrator (Net)	1002	725			
Gamma Constants MCG-B 34			Last Edited on 19-FEB-2011,08:41		
Gamma Calibrator Number	grc38				
Mud Density	1.08	gm/cc			
Caliper Source for Processing	Density Caliper				
Tool Position	Eccentred				
Concentration of KCl	0.00	kppm			
Caliper Calibration MML-A 9			Base Calibration on 17-JAN-2011 13:36		
			Field Calibration on 17-FEB-2011 21:10		
Base Calibration					
Reading No	Measured	Calibrator Size (in)			
1	14751	5.96			
2	18323	7.98			
3	21735	9.95			
4	25522	11.91			
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 9			Base Calibration on 17-JAN-2011 13:45		
			Field Check on 17-FEB-2011 21:09		
Base Calibration					
Channel	Resistor 1	Measured		Calibrated (ohm-m)	
		Resistor 2	Resistor 1	Resistor 2	
Micro Normal	12.1	59.8	2.6	12.8	
Micro Inverse	15.6	78.1	1.7	8.4	
Channel	Base Check (ohm-m)		Field Check (ohm-m)		
Micro Normal	32.4		32.4		
Micro Inverse	16.4		16.4		
Micro Normal and Micro Inverse Constants MML-A 9			Last Edited on 17-FEB-2011,21:07		

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	
Neutron Calibration MDN-A.B 65			Base Calibration on 17-JAN-2011 15:12 Field Check on 17-FEB-2011 21:16	
Base Calibration				
		Measured	Calibrated (cps)	
	Near	Far	Near	Far
	3079	97	3714	110
Ratio	31.797		33.764	
Field Calibrator at Base				
			Calibrated (cps)	
			1654	2338
Ratio	0.708			
Field Check				
			Calibrated (cps)	
			1651	2354
Ratio	0.701			
Neutron Constants MDN-A.B 65			Last Edited on 22-FEB-2011,12:46	
Neutron Source Id 757				
Neutron Jig Number 5824NE				
Epithermal Neutron No				
Caliper Source for Processing		Density Caliper		
Stand-off		0.00	inches	
Mud Density		1.08	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	MCG External Temperature			
Temperature		N/A	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 55			Base Calibration on 17-JAN-2011 13:58 Field Check on 17-FEB-2011 20:55	
Base Calibration				
		Measured	Calibrated (ohm-m)	
Reference 1		0.0	0.0	
Reference 2		954.8	126.8	
Base Check			281.8	
Field Check			281.5	
FE Constants MFE-A.A 55			Last Edited on 17-FEB-2011,20:54	
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 127			Last Edited on 18-FEB-2011,00:23	
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)	N/A	
N/A	N/A	N/A		
N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	

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 178			Field Calibration on 28-MAR-2010,00:50
	Measured	Calibrated(Deg F)	
Lower	1.00	33.80	
Upper	11.00	51.80	

High Resolution Temperature Constants MAI-A.A 178		Last Edited on
Pre-filter Length	11	

Induction Calibration MAI-A.A 178	Base Calibration on 17-JAN-2011,15:37
	Field Check on 17-FEB-2011 20:54

Base Calibration					
Test Loop Calibration		Measured		Calibrated (mmho/m)	
Channel	Low	High	Low	High	
1	17.6	484.7	9.3	966.2	
2	6.2	391.4	7.6	821.4	
3	4.0	264.5	5.2	566.0	
4	2.3	135.1	2.6	279.2	
Array Temperature	77.0		Deg F		

Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High

	Low	High	Low	High
1	0.0	0.0	11.8	3762.3
2	0.0	0.0	29.5	3466.1
3	0.0	0.0	27.1	3014.6
4	0.0	0.0	18.6	2063.7
Deep	0.0	0.0	15.7	1995.6
Medium	0.0	0.0	40.1	3956.7
Shallow	0.0	0.0	45.4	5080.2
Array Temperature		0.0	65.7	Deg F

Induction Constants MAI-A.A 178

Last Edited on 19-FEB-2011,09:29

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 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 17-JAN-2011 16:10

Field Calibration on 17-FEB-2011 21:07

Base Calibration		
Reading No	Measured	Calibrator Size (in)
1	14192	4.01
2	22208	5.96
3	30608	7.98
4	39216	9.95
5	48142	11.91
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
6.39	5.98

Photo Density Calibration MPD-B 64

Base Calibration on 17-FEB-2011 08:46

Field Check on 17-FEB-2011 21:05

Density Calibration			
Base Calibration		Measured	Calibrated (sdu)
	Near	Far	Near Far
Reference 1	50033	26441	59556 30836

Reference 2 20539 2561 24941 2541

Field Check at Base

1112.6 1367.3

Field Check

1107.7 1367.2

PE Calibration

Base Calibration

Measured

Calibrated

WS

WH

Ratio

Ratio

Background

200

995

Reference 1

18927

49861

0.383

0.371

Reference 2

5504

20415

0.273

0.272

Field Check at Base

200.4

995.2

Field Check

200.1

990.1

Density Constants MPD-B 64

Last Edited on 19-FEB-2011,09:30

Density Source Id

254

Nylon Calibrator Number

DNCE695

Aluminium Calibrator Number

DACD698

Density Shoe Profile

4 inch

Caliper Source for Processing

Density Caliper

PE Correction to Density

Not Applied

Mud Density

1.08

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

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DOWNHOLE EQUIPMENT

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Compact Comms Gamma

MCG-B 34 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

57.56 ft

GRGC - Gamma Ray

54.65 ft

CGXT - MCG External Temperature

Compact Micro-log

MML-A 9 LG: 7.97 ft WT: 81.6 lb OD: 2.24 in

47.93 ft

MINV - Micro-inverse

47.93 ft

MNRL - Micro-normal

48.92 ft

MLTC - MML Caliper

Compact Neutron

MDN-A.B 65 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

43.13 ft

NPRL - Limestone Neutron Por.

Compact Density/Caliper

MPD-B 64 LG: 9.59 ft WT: 90.4 lb OD: 2.24 in

35.89 ft

CLDC - Density Caliper

33.96 ft

DPRL - Limestone Density Por.

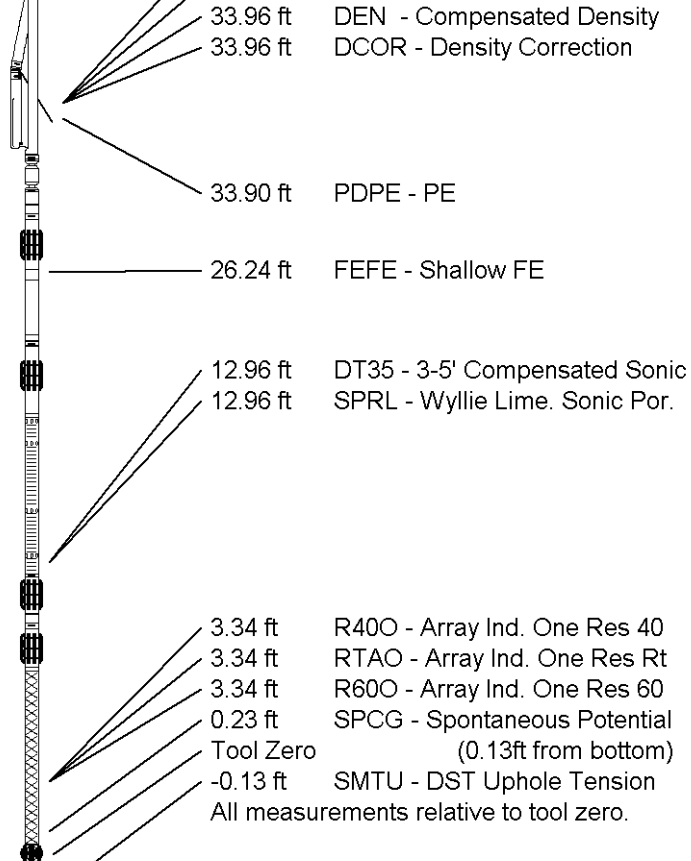
SKJ-D.A Compact Knuckle Joint
 SKJ-D.A 37 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

Compact Focussed Electric
 MFE-A.A 55 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

Compact Sonic
 MSS-A.A 127 LG: 12.52 ft WT: 72.8 lb OD: 2.24 in

Compact Induction
 MAI-A.A 178 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 62.84 ft Weight: 480.6 lb



COMPANY KNIGHTON OIL
 WELL KACHELMAN # 3
 FIELD ALBANO WEST
 PROVINCE/COUNTY STAFFORD
 COUNTRY/STATE KANSAS

Elevation Kelly Bushing	1965.00	feet	First Reading	4294.00	feet
Elevation Drill Floor	1963.00	feet	Depth Driller	4325.00	feet
Elevation Ground Level	1959.00	feet	Depth Logger	4328.00	feet



Weatherford®

COMPACT PHOTO DENSITY
 COMPENSATED NEUTRON

