

**Weatherford****COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRORESISTIVITY LOG**

COMPANY	SHAKESPEARE OIL CO., INC.			
WELL	CARSON 2-25			
FIELD	PENCE EAST			
PROVINCE/COUNTY	SCOTT			
COUNTRY/STATE	U.S.A. / KANSAS			
LOCATION	1230' FSL & 435' FWL / NE NW SW SW			
SEC 25	TWP 16S	RGE 34W	Other Services	
Latitude				MAI/MFE
Longitude				
API Number	15-171-21022			
Permanent Datum GL, Elevation	3100 feet			Elevations:
Log Measured From	KB			KB 3112.00
Drilling Measured From	KB @ 12 FEET			DF 3110.00
				GL 3100.00
Date	13-FEB-2014			
Run Number	ONE			
Service Order	5872-79443934			
Depth Driller	4860.00			feet
Depth Logger	4862.00			feet
First Reading	4843.00			feet
Last Reading	3862.00			feet
Casing Driller	263.00			feet
Casing Logger	264.00			feet
Bit Size	7.875			inches
Hole Fluid Type	CHEMICAL			
Density / Viscosity	9.60 lb/USg			53.00 CP
PH / Fluid Loss	10.00			8.80 ml/30Min
Sample Source	FLOWLINE			
Rm @ Measured Temp	1.05 @ 63.0			ohm-m
Rmf @ Measured Temp	0.84 @ 63.0			ohm-m
Rmc @ Measured Temp	1.26 @ 63.0			ohm-m
Source Rmf / Rmc	CALC			CALC
Rm @ BHT	0.59 @ 112.0			ohm-m
Time Since Circulation	5 HRS			
Max Recorded Temp	112.00			deg F
Equipment / Base	13244			LIB
Recorded By	JOHN LAPPOINT			
Witnessed By	MARK HERNDON			DUANE COLE
JOB #	LB 14-46			

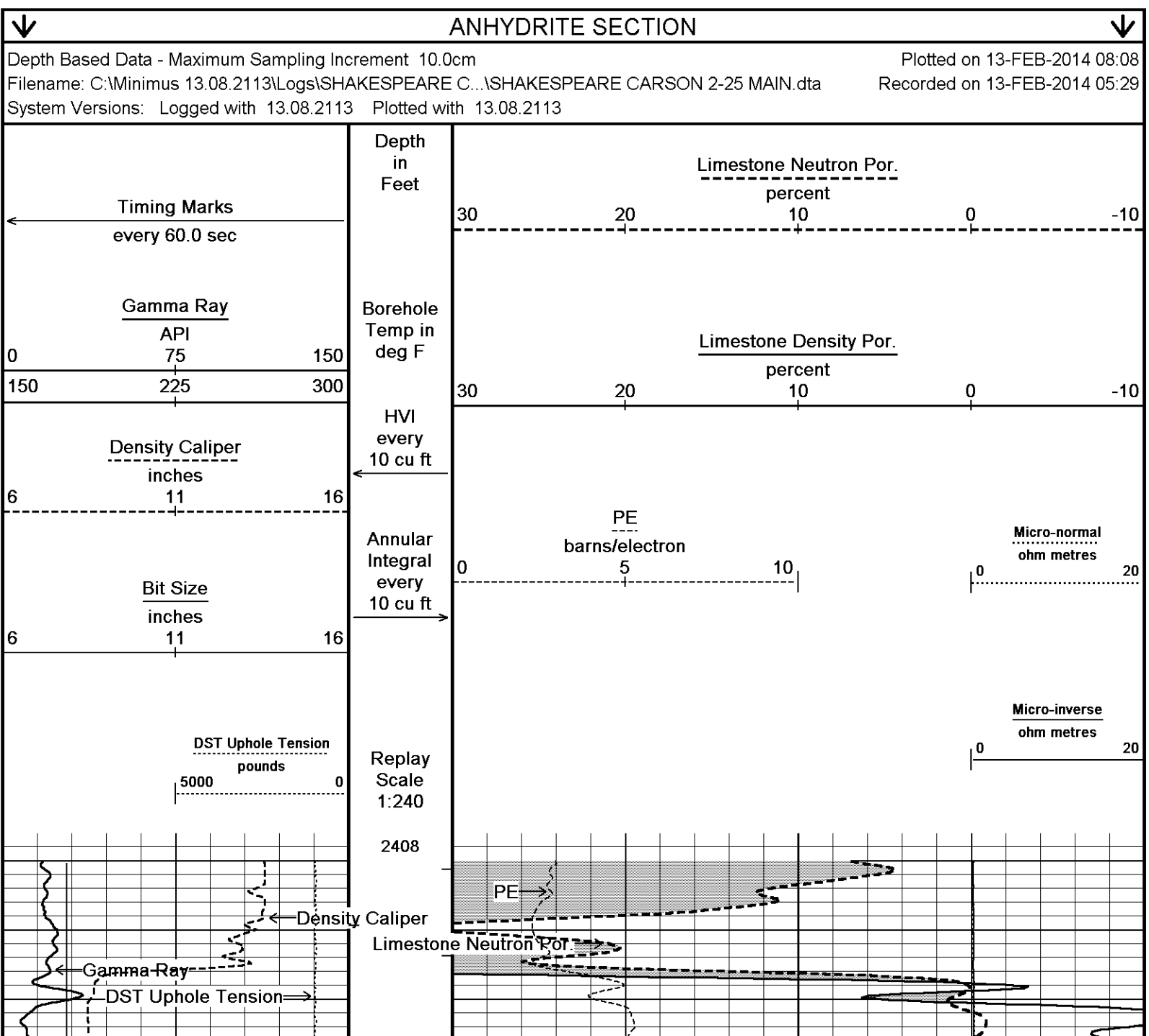
BOREHOLE RECORD					Last Edited: 13-FEB-2014 05:25
Bit Size inches		Depth From feet		Depth To feet	
7.875		264.00		4862.00	
CASING RECORD					
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft	
CASING	8.625	0.00	264.00	24.00	

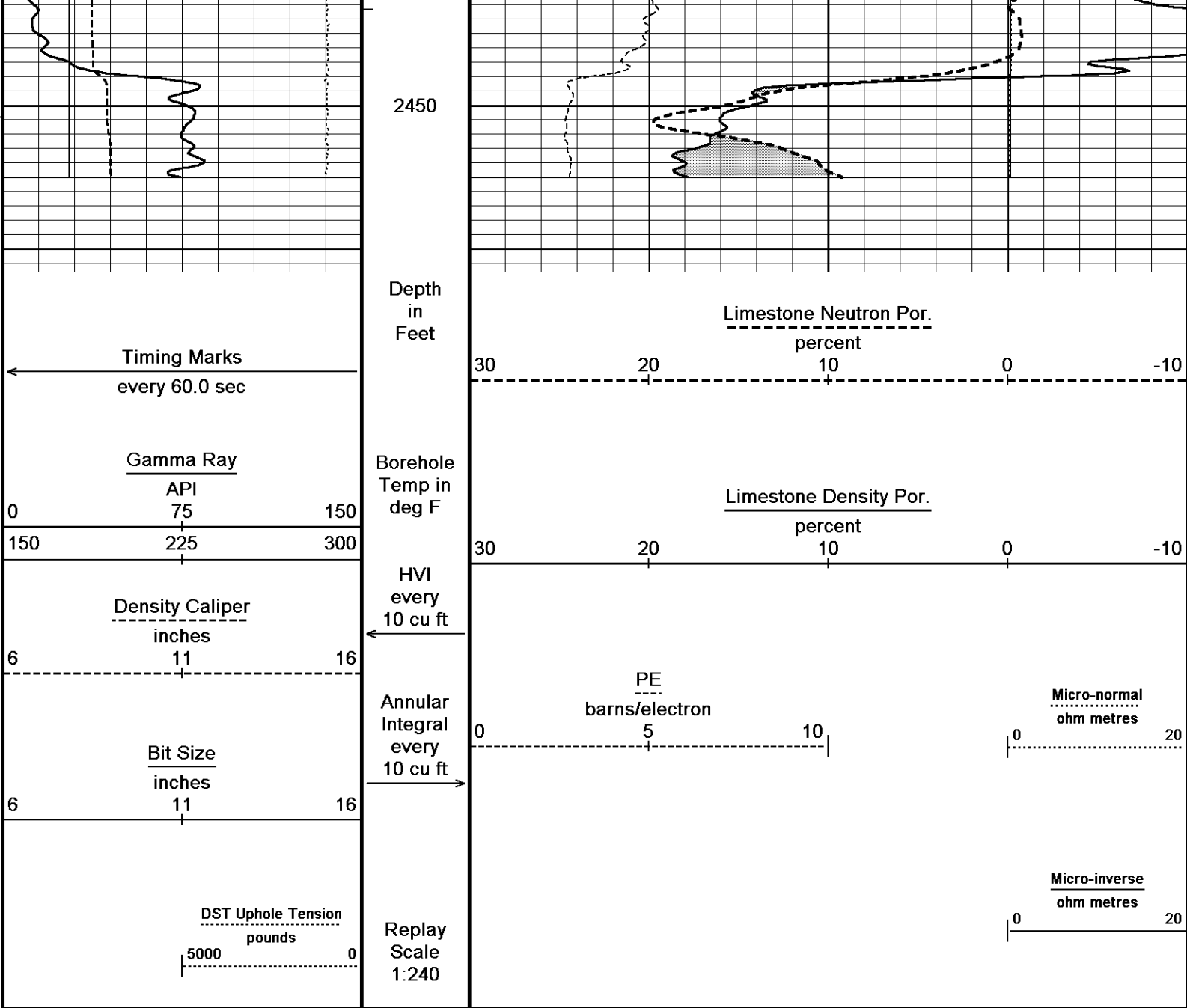
REMARKS
- SOFTWARE ISSUE: WLS 13.08.2113.
- RUN ONE: MCG, MML, MDN, MPD, MFE AND MAI RUN IN COMBINATION. - HARDWARE: DUAL BOWSPRING USED ON MDN. 0.5 INCH STANDOFF USED ON MFE. 0.5 INCH STANDOFF USED ON MAI.
- 2.71 G/CC LIMESTONE DENSITY MATRIX USED TO CALCULATE POROSITY.
- BOREHOLE RUGOSITY, TIGHT PULLS, AND WASHOUTS WILL AFFECT DATA QUALITY.
- ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST.
- TOTAL HOLE VOLUME FROM TD TO 3862 FEET: 302 CU.FT.
- ANNULAR HOLE VOLUME WITH 5.5 INCH PRODUCTION CASING FROM TD TO 3862 FEET: 150 CU.FT.
- RIG: SOUTHWIND DRILLING #70

RIG: SOUTHWIND DRILLING #10

- ENGINEER: D. COLE.
- JUNIOR FIELD ENGINEER: J. LAPOINT.
- OPERATORS: C. RAMIREZ AND K. PHILLIPS

In interpreting, communicating or providing information and/or making recommendations, either written or oral, as to logs or test or other data, type or amount of material, or Work or other service to be furnished, or manner of performance, or in predicting results to be obtained, the Contractor will give the Company the benefit of the Contractor's best judgment based on its experience and will perform all such Work in a good and workmanlike manner. Any interpretation of test or other data, and any recommendation or reservoir description based upon such interpretations, are opinions based upon inferences from measurements and empirical relationships and assumptions, which inferences and assumptions are not infallible, and with respect to which professional engineers and analysts may differ. ACCORDINGLY ANY INTERPRETATION OR RECOMMENDATION RESULTING FROM THE SERVICES WILL BE AT THE SOLE RISK OF THE COMPANY, AND THE CONTRACTOR CANNOT AND DOES NOT WARRANT THE ACCURACY, CORRECTNESS OR COMPLETENESS OF ANY SUCH INTERPRETATION OR RECOMMENDATION, WHICH INTERPRETATIONS AND RECOMMENDATIONS SHOULD NOT, THEREFORE, UNDER ANY CIRCUMSTANCES BE RELIED UPON AS THE SOLE OR MAIN BASIS FOR ANY DRILLING, COMPLETION, WELL TREATMENT, PRODUCTION OR FINANCIAL DECISION, OR ANY PROCEDURE INVOLVING ANY RISK TO THE SAFETY OF ANY DRILLING ACTIVITY, DRILLING RIG OR ITS CREW OR ANY OTHER INDIVIDUAL. THE COMPANY HAS FULL RESPONSIBILITY FOR ALL DECISIONS CONCERNING THE SERVICES.



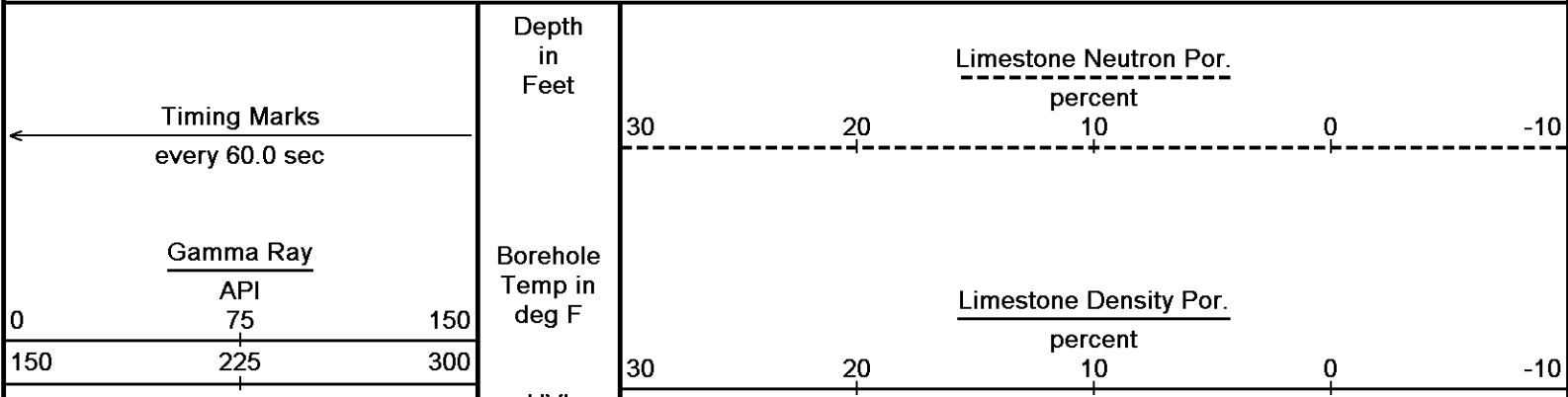


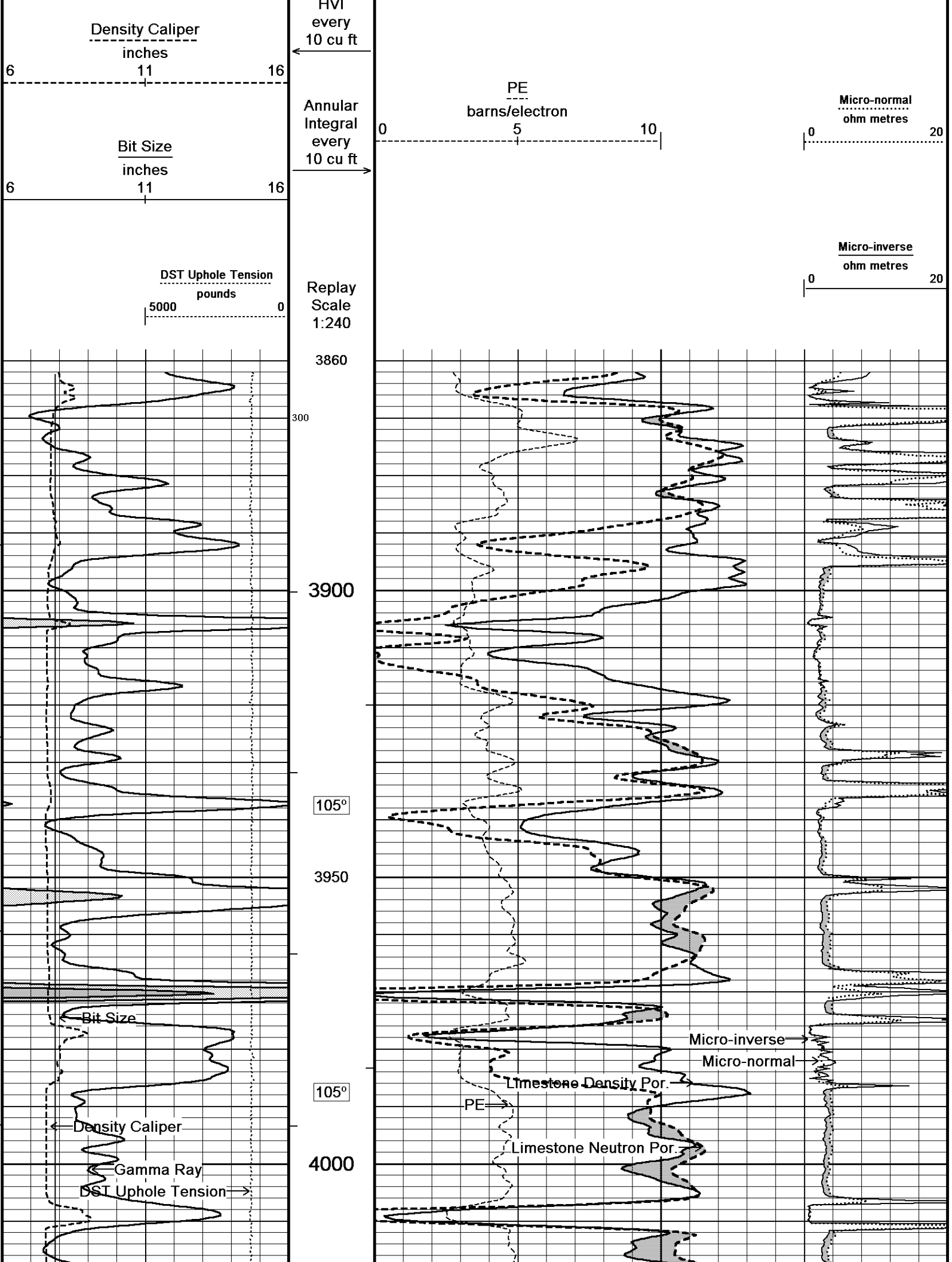
Depth Based Data - Maximum Sampling Increment 10.0cm	Plotted on 13-FEB-2014 08:08
Filename: C:\Minimus 13.08.2113\Logs\SHAKESPEARE C...\SHAKESPEARE CARSON 2-25 MAIN.dta	Recorded on 13-FEB-2014 05:29
System Versions: Logged with 13.08.2113 Plotted with 13.08.2113	

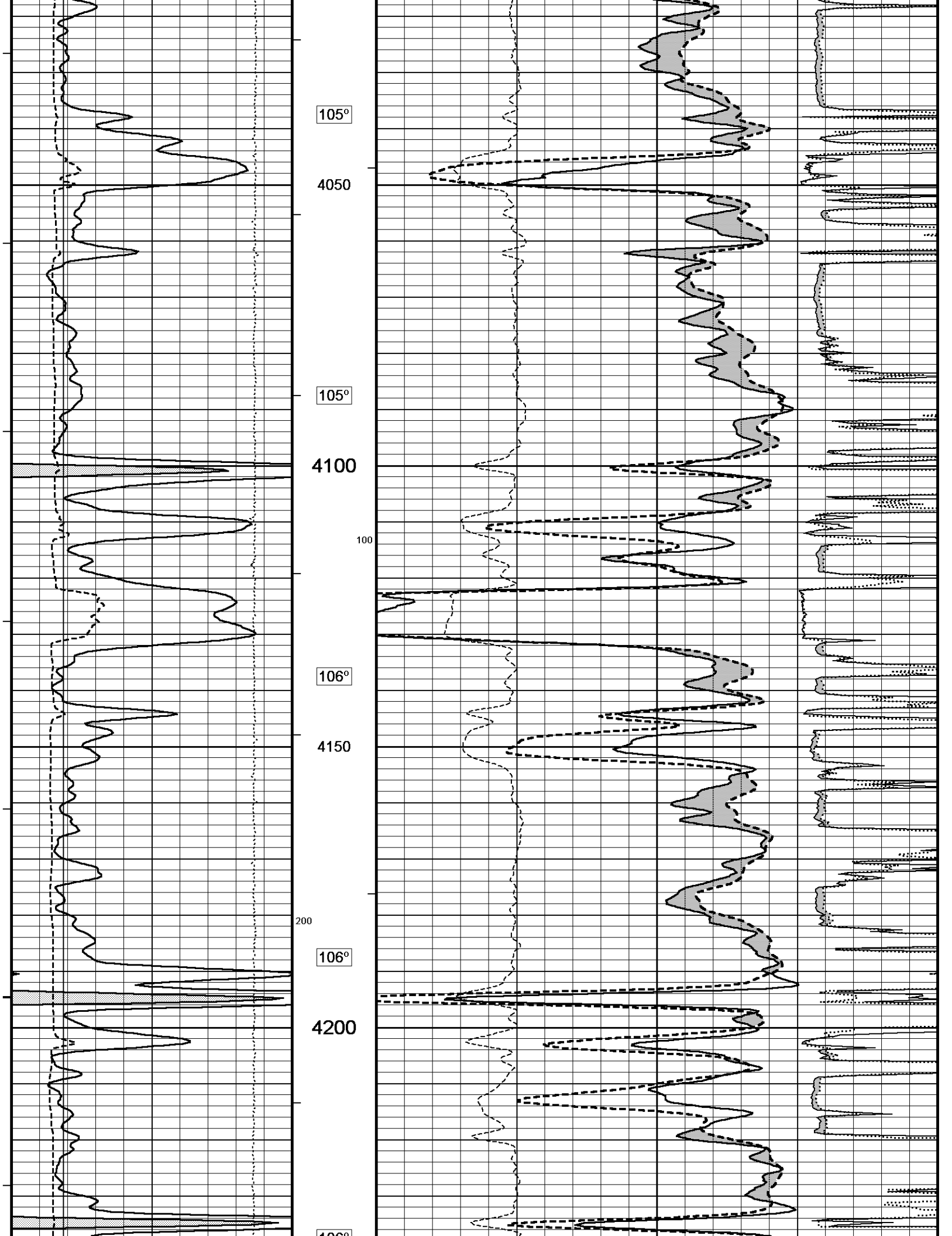
↑	ANHYDRITE SECTION	↑
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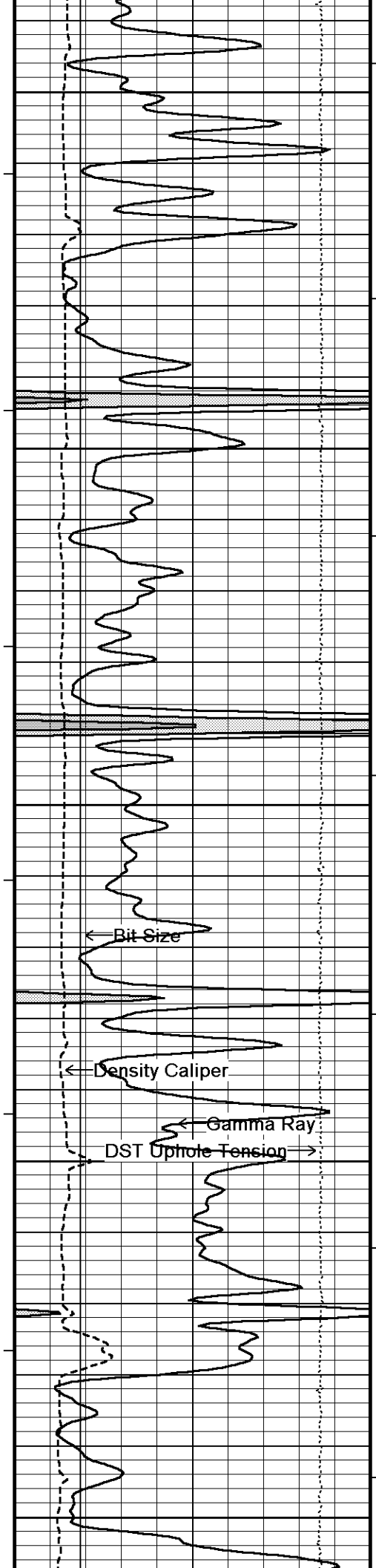
↓	5 INCH MAIN	↓
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Depth Based Data - Maximum Sampling Increment 10.0cm	Plotted on 13-FEB-2014 08:08
Filename: C:\Minimus 13.08.2113\Logs\SHAKESPEARE C...\SHAKESPEARE CARSON 2-25 MAIN.dta	Recorded on 13-FEB-2014 05:29
System Versions: Logged with 13.08.2113 Plotted with 13.08.2113	

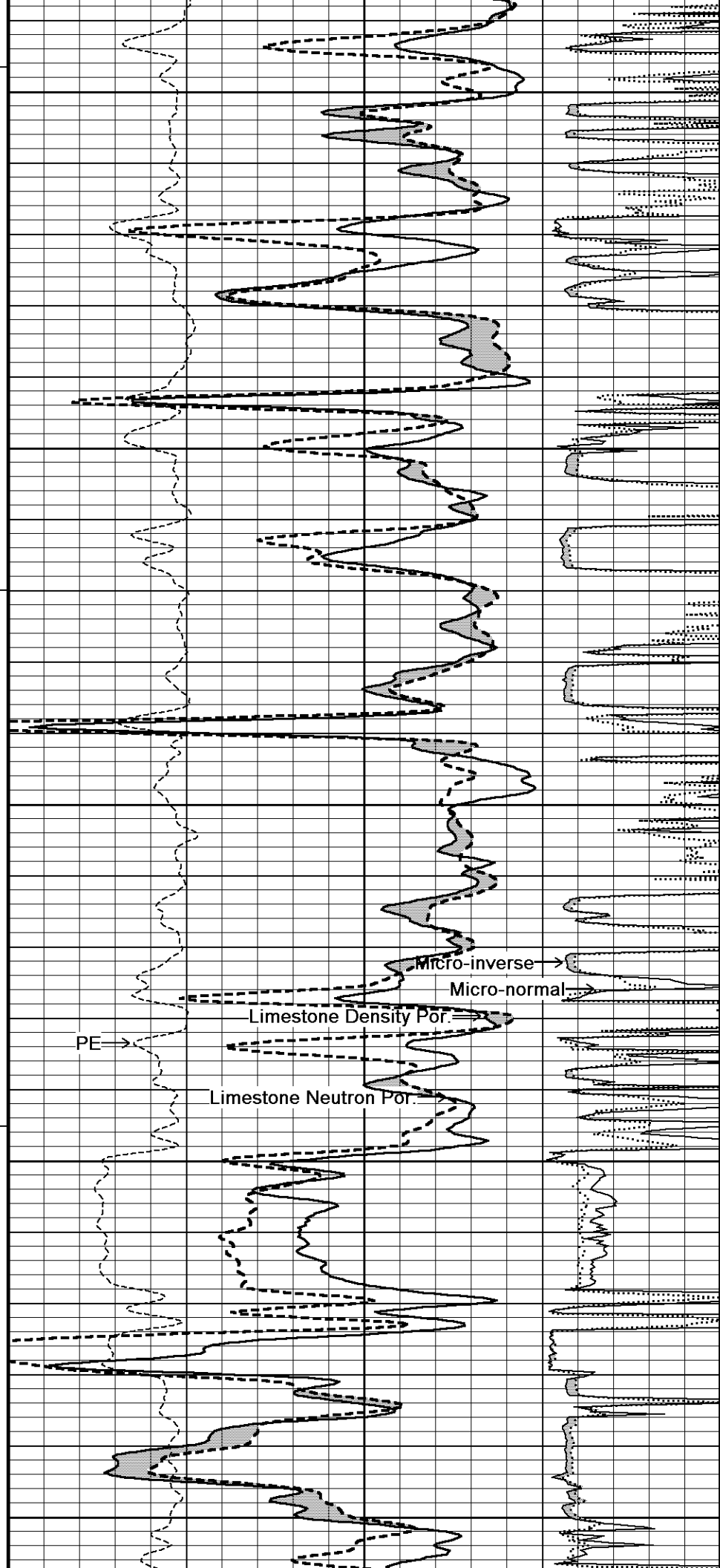




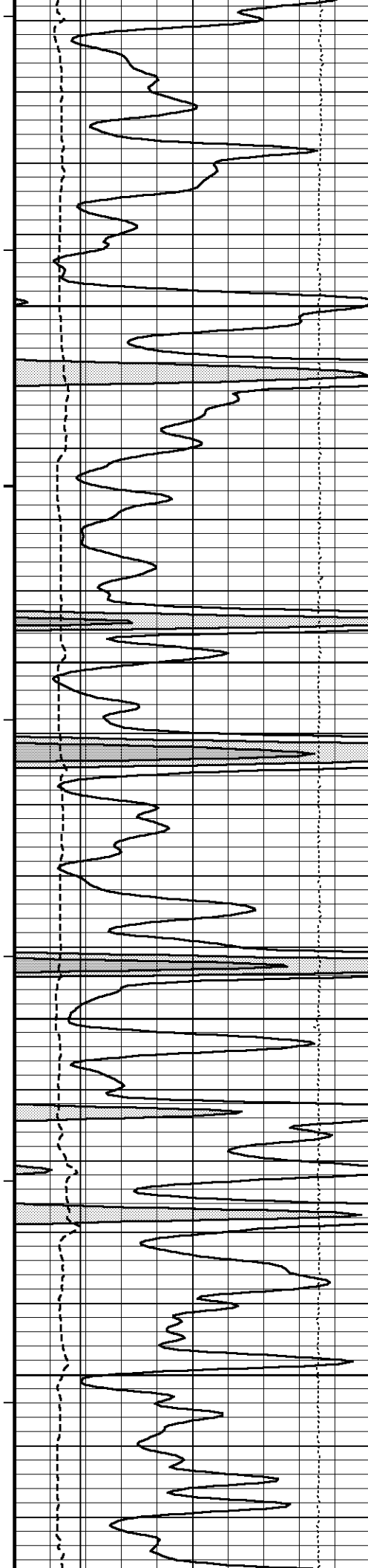




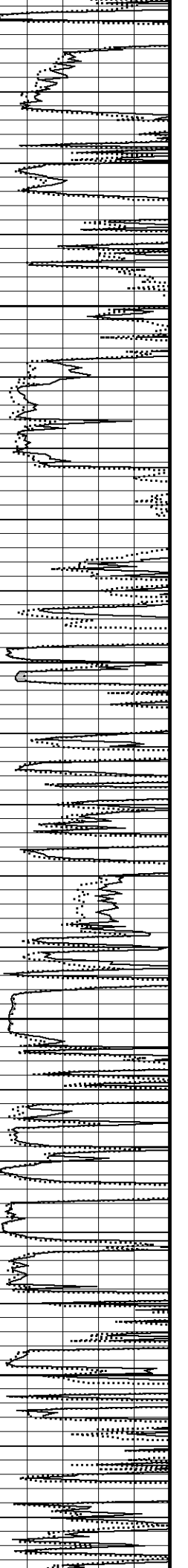
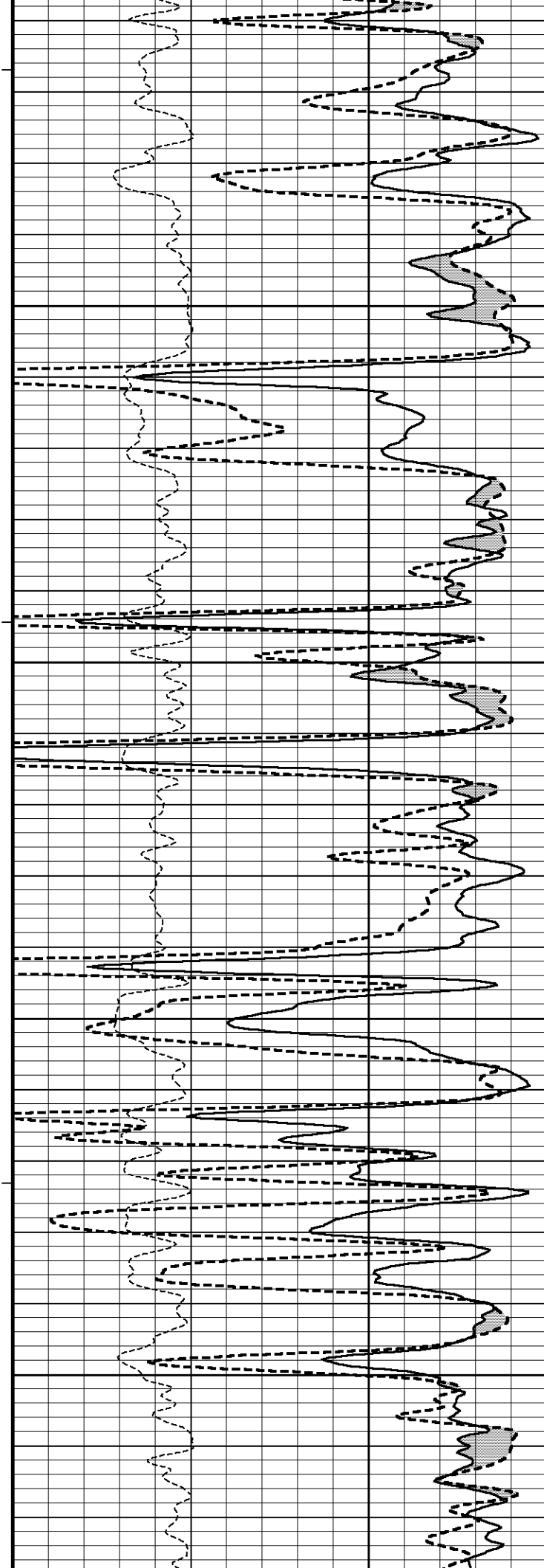
106°
4250
107°
4300
107°
4350
108°
4400
108°
4450

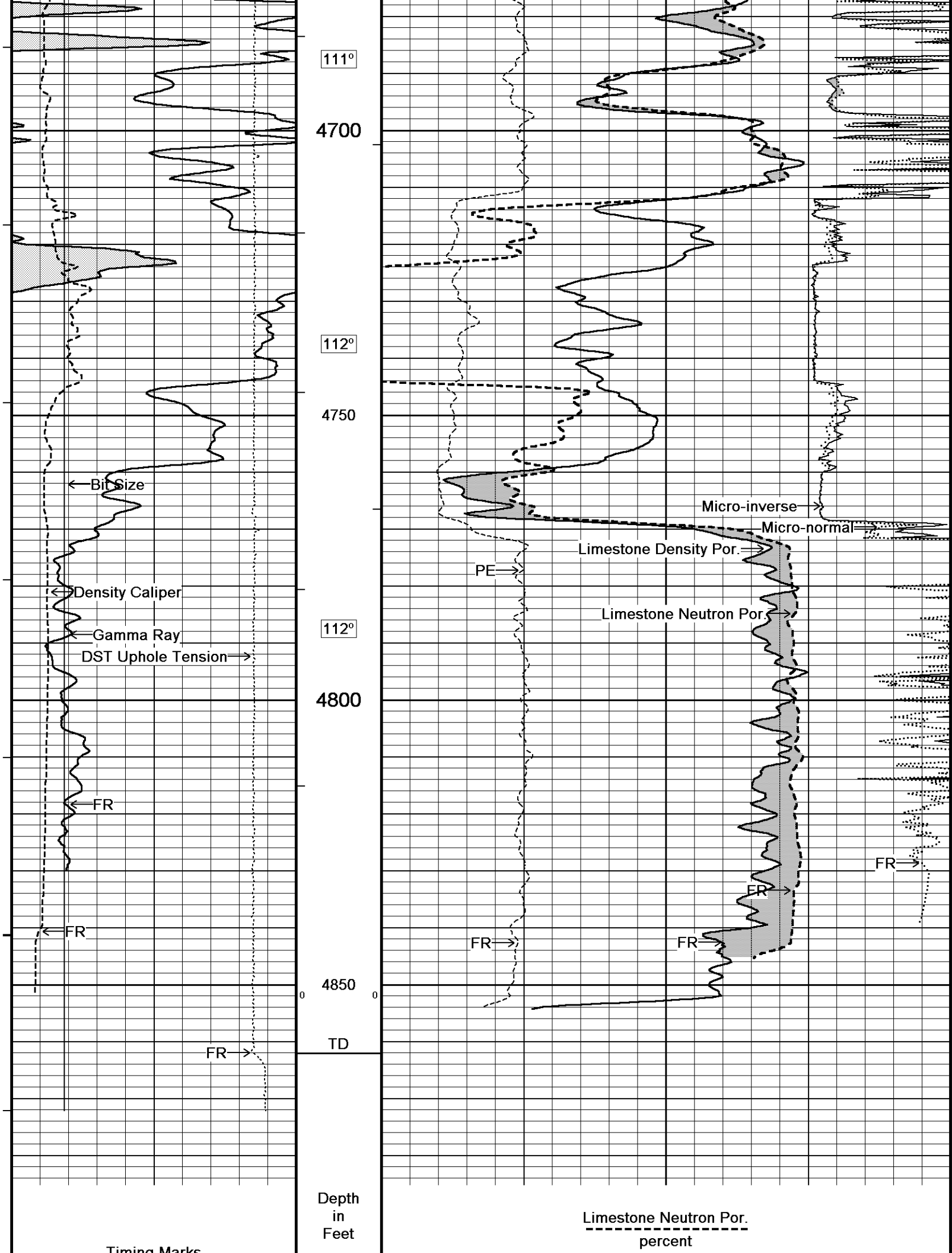


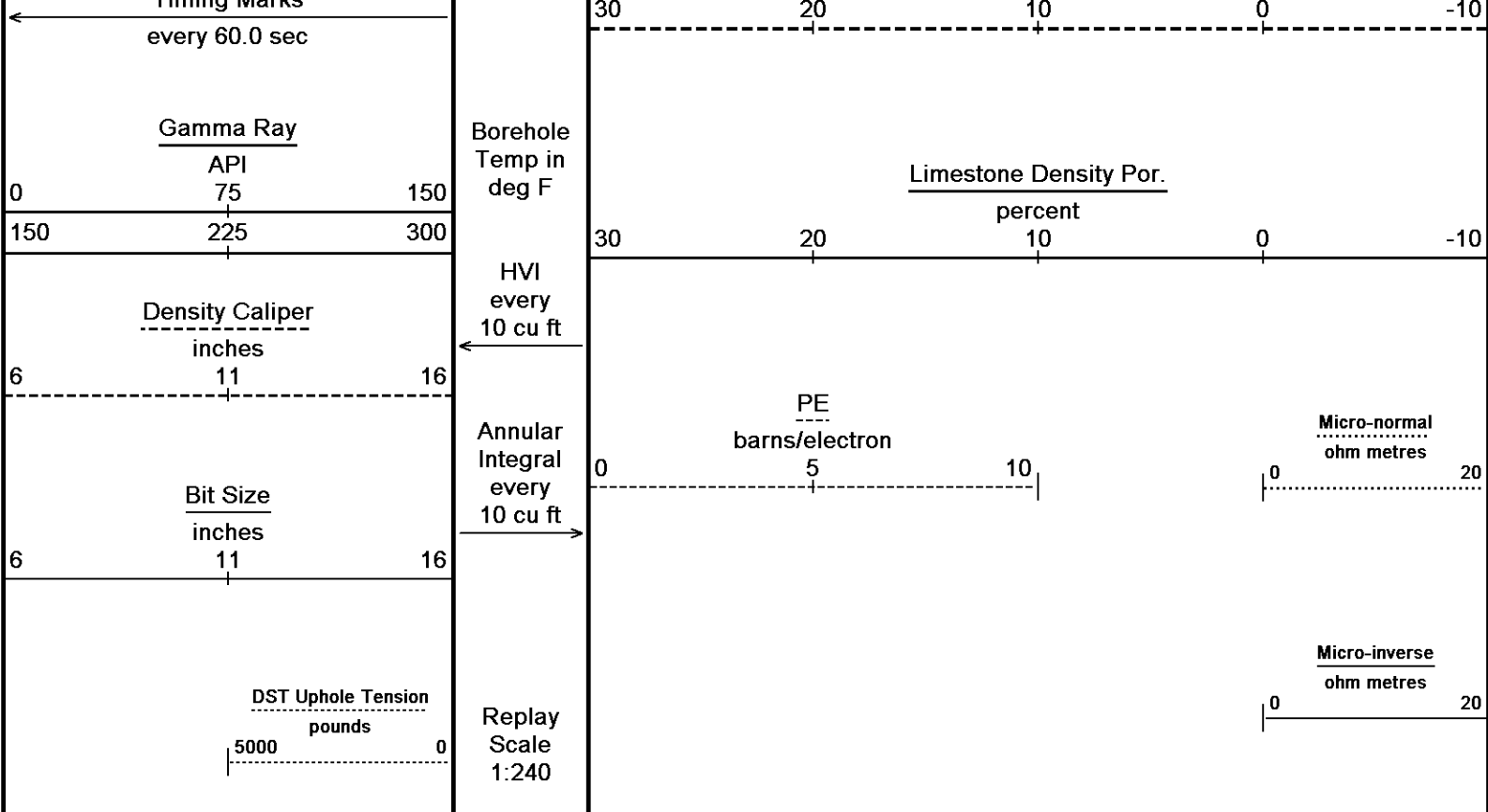
PE →
Limestone Density Por. →
Limestone Neutron Por. →
Micro-inverse →
Micro-normal →



109°
4500
100
109°
4550
110°
4600
110°
4650







Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 13-FEB-2014 08:08

Filename: C:\Minimus 13.08.2113\Logs\SHAKESPEARE C...\SHAKESPEARE CARSON 2-25 MAIN.dta

Recorded on 13-FEB-2014 05:29

System Versions: Logged with 13.08.2113 Plotted with 13.08.2113

↑

5 INCH MAIN

↑

↓

REPEAT SECTION

↓

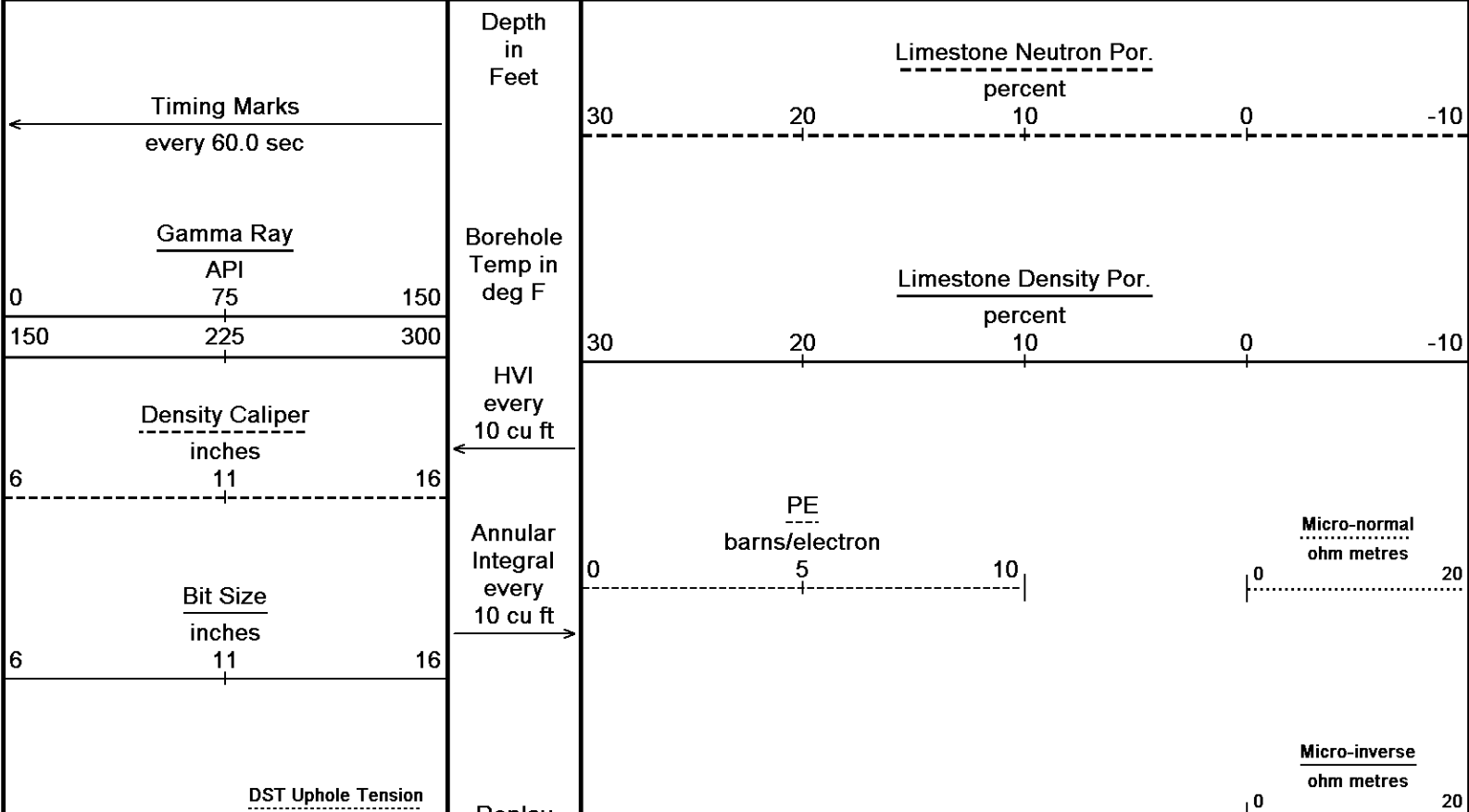
Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 13-FEB-2014 08:08

Filename: C:\Minimus 13.08.2113\Logs\SHAKESPEAR...\SHAKESPEARE CARSON 2-25 REPEAT.dta

Recorded on 13-FEB-2014 05:09

System Versions: Logged with 13.08.2113 Processed with 13.08.2113 Plotted with 13.08.2113



5000 pounds 0

Replay
Scale
1:240

4660

4700

111°

4750

← Bit Size

← Density Caliper

← Gamma Ray

DST Uphole Tension →

FR

← FR

FR →

4800

4850

TD

PE →

Limestone Density Por. →

Limestone Neutron Por. →

Micro-inverse →

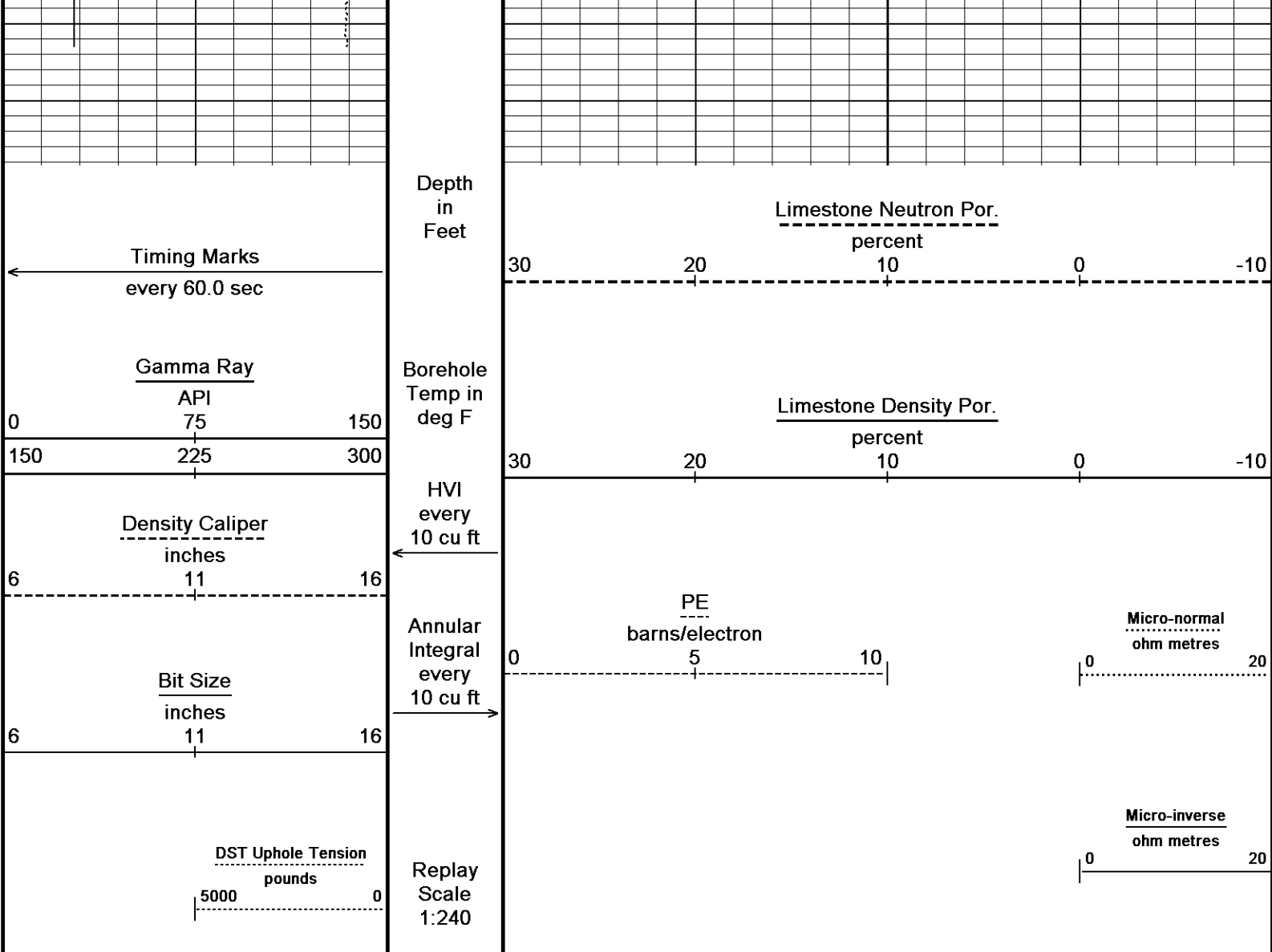
Micro-normal →

FR

FR →

FR →

FR →



Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 13-FEB-2014 08:08

Filename: C:\Minimus 13.08.2113\Logs\SHAKESPEARE...SHAKESPEARE CARSON 2-25 REPEAT.dta

Recorded on 13-FEB-2014 05:09

System Versions: Logged with 13.08.2113 Processed with 13.08.2113 Plotted with 13.08.2113

↑

REPEAT SECTION

↑

↓

5 INCH MAIN

↓

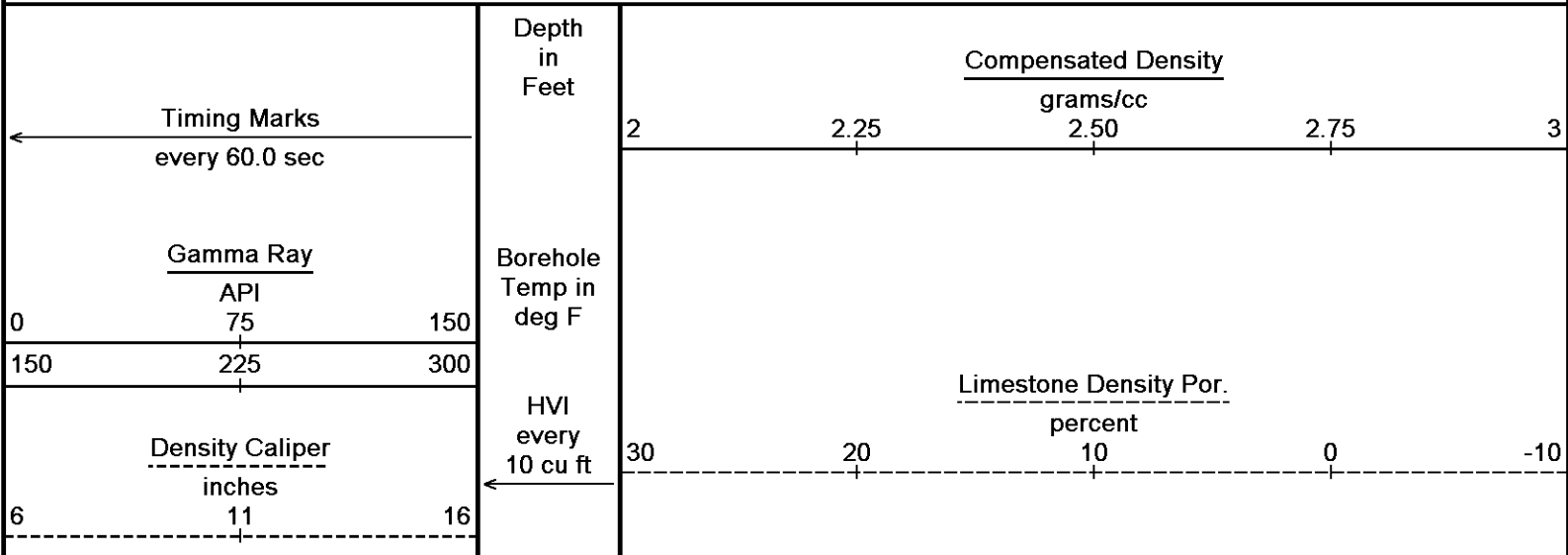
Depth Based Data - Maximum Sampling Increment 10.0cm

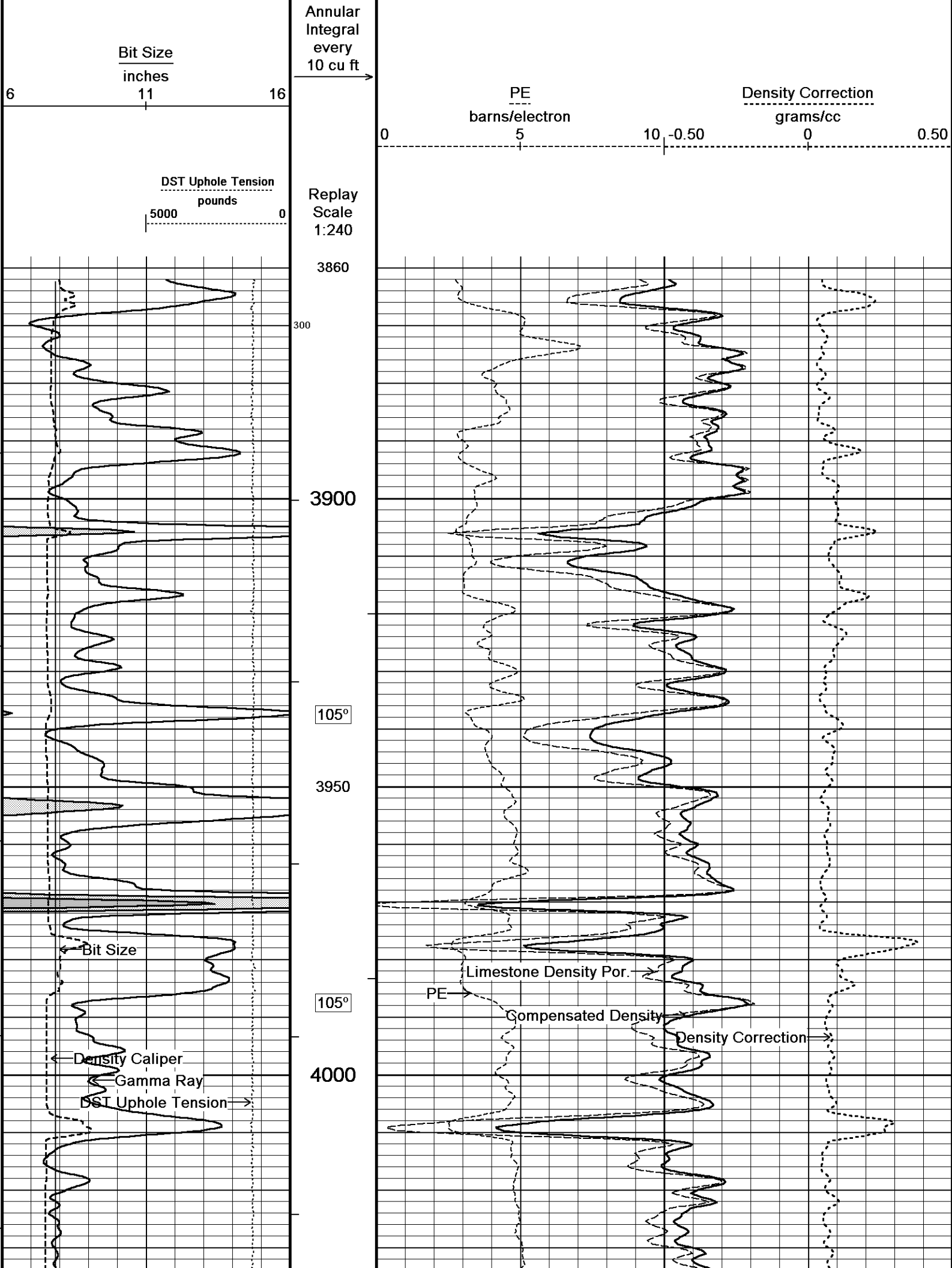
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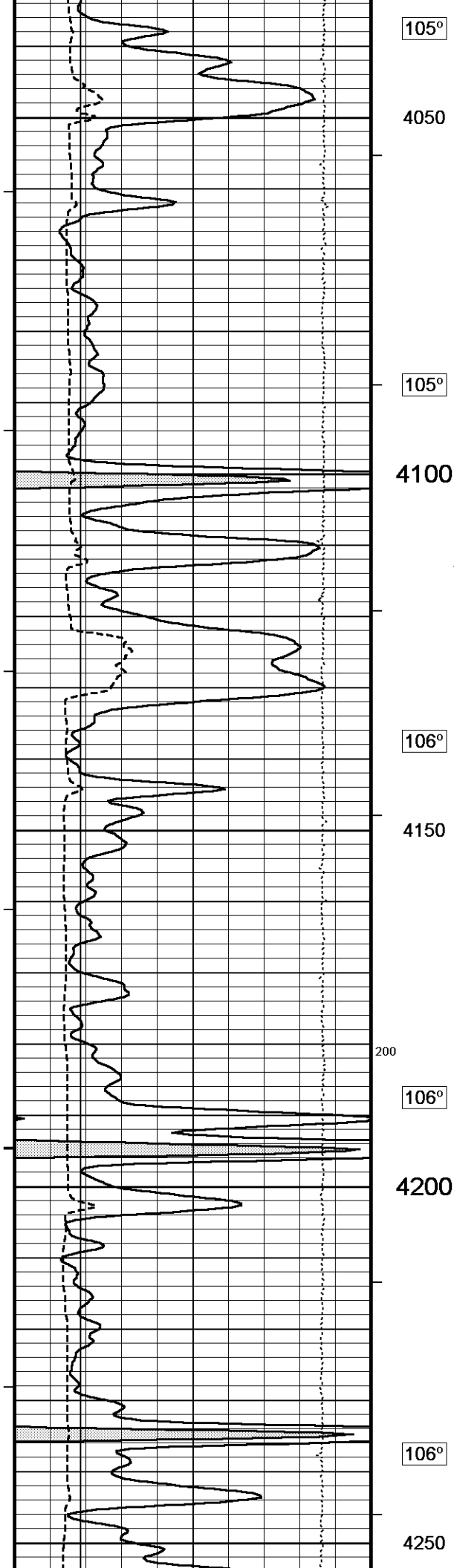
Filename: C:\Minimus 13.08.2113\Logs\SHAKESPEARE C...SHAKESPEARE CARSON 2-25 MAIN.dta

Recorded on 13-FEB-2014 05:29

System Versions: Logged with 13.08.2113 Plotted with 13.08.2113







105°

4050

105°

4100

100

106°

4150

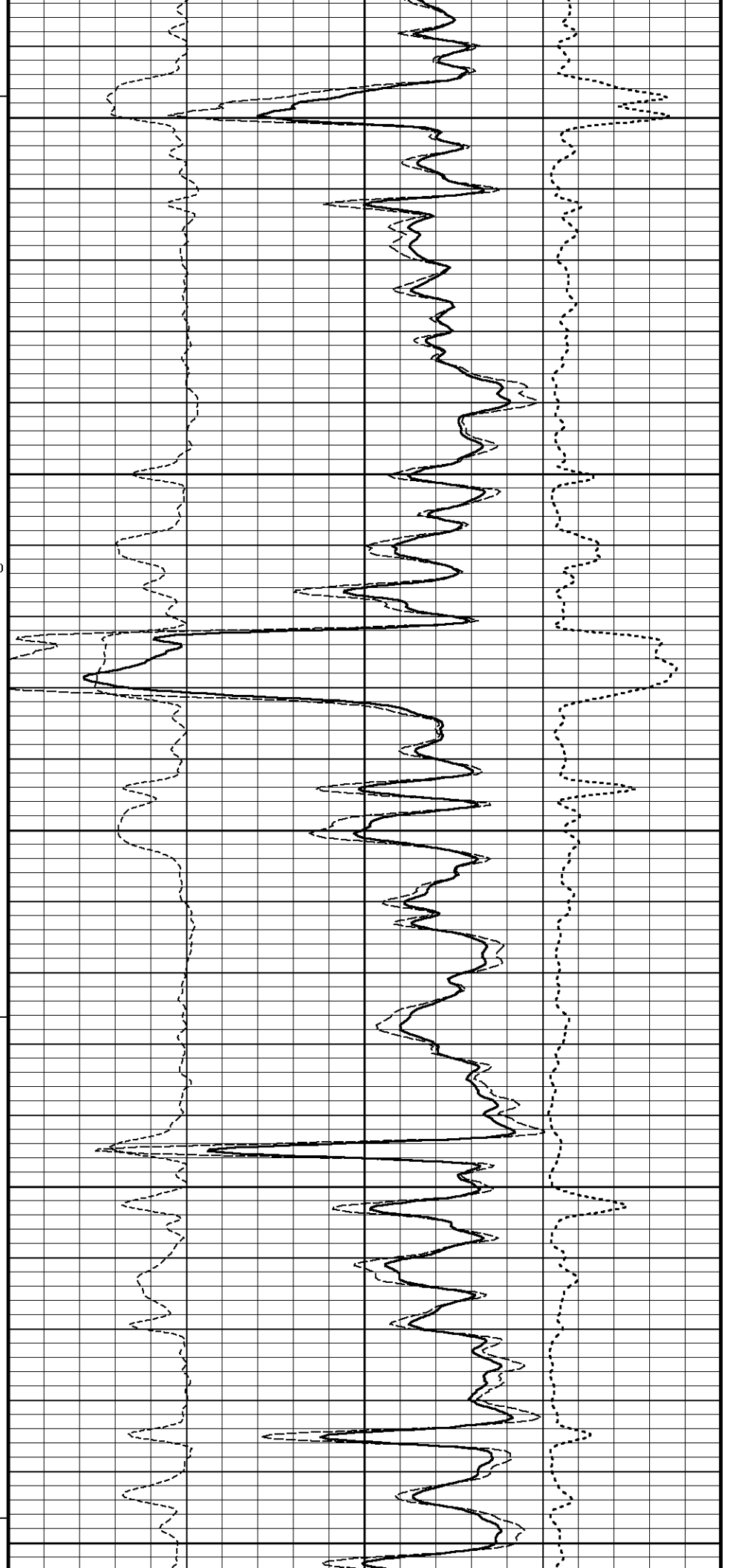
200

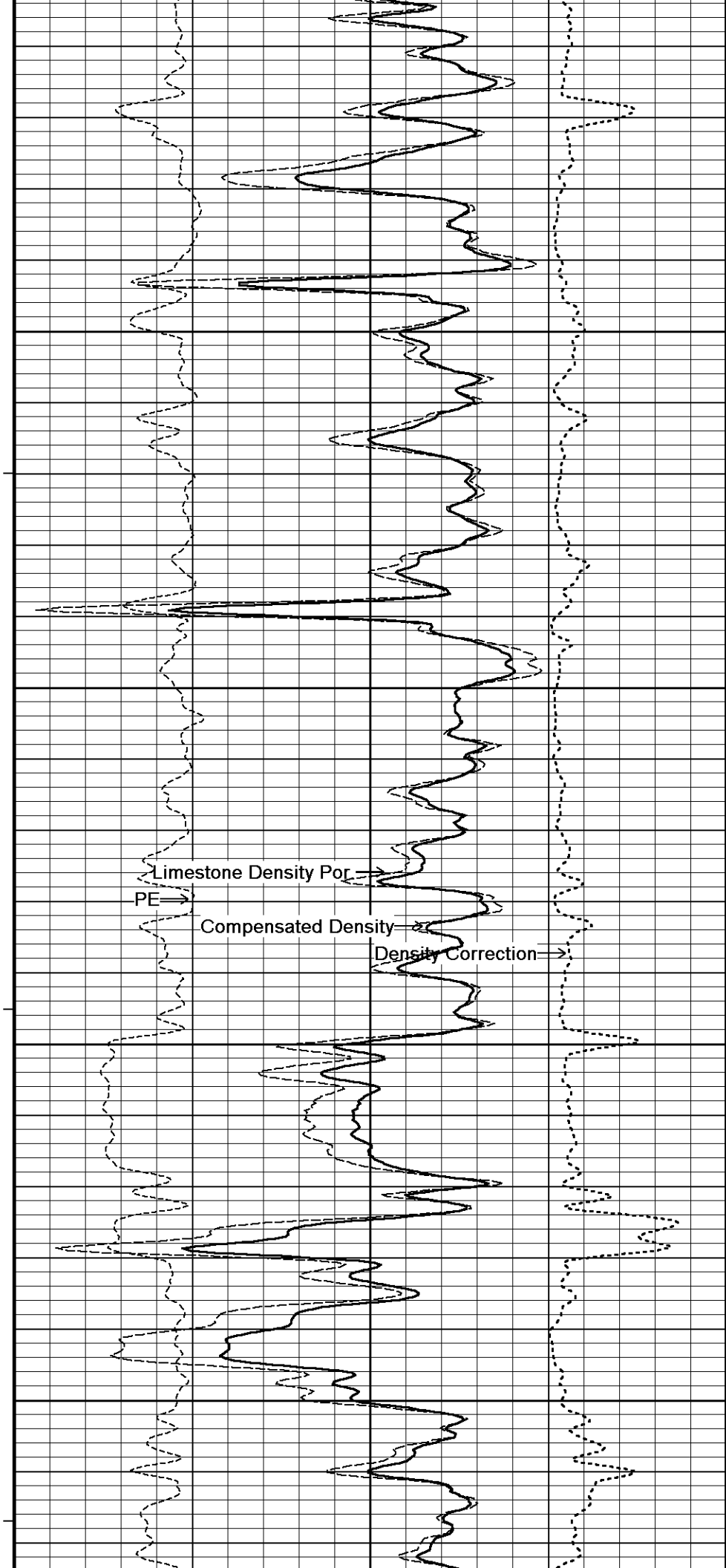
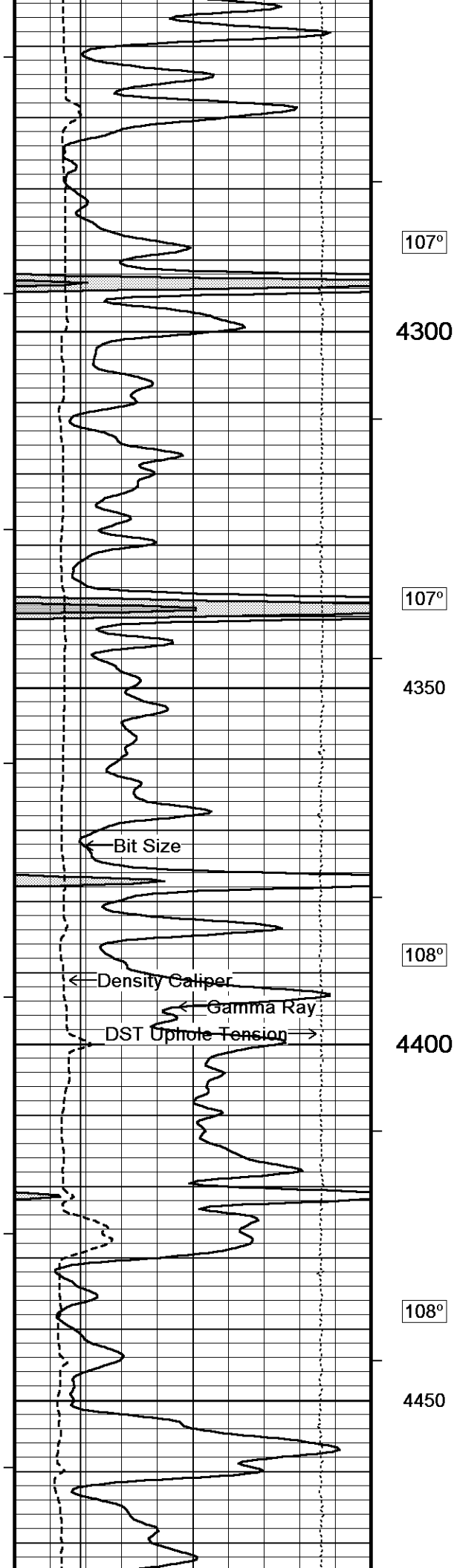
106°

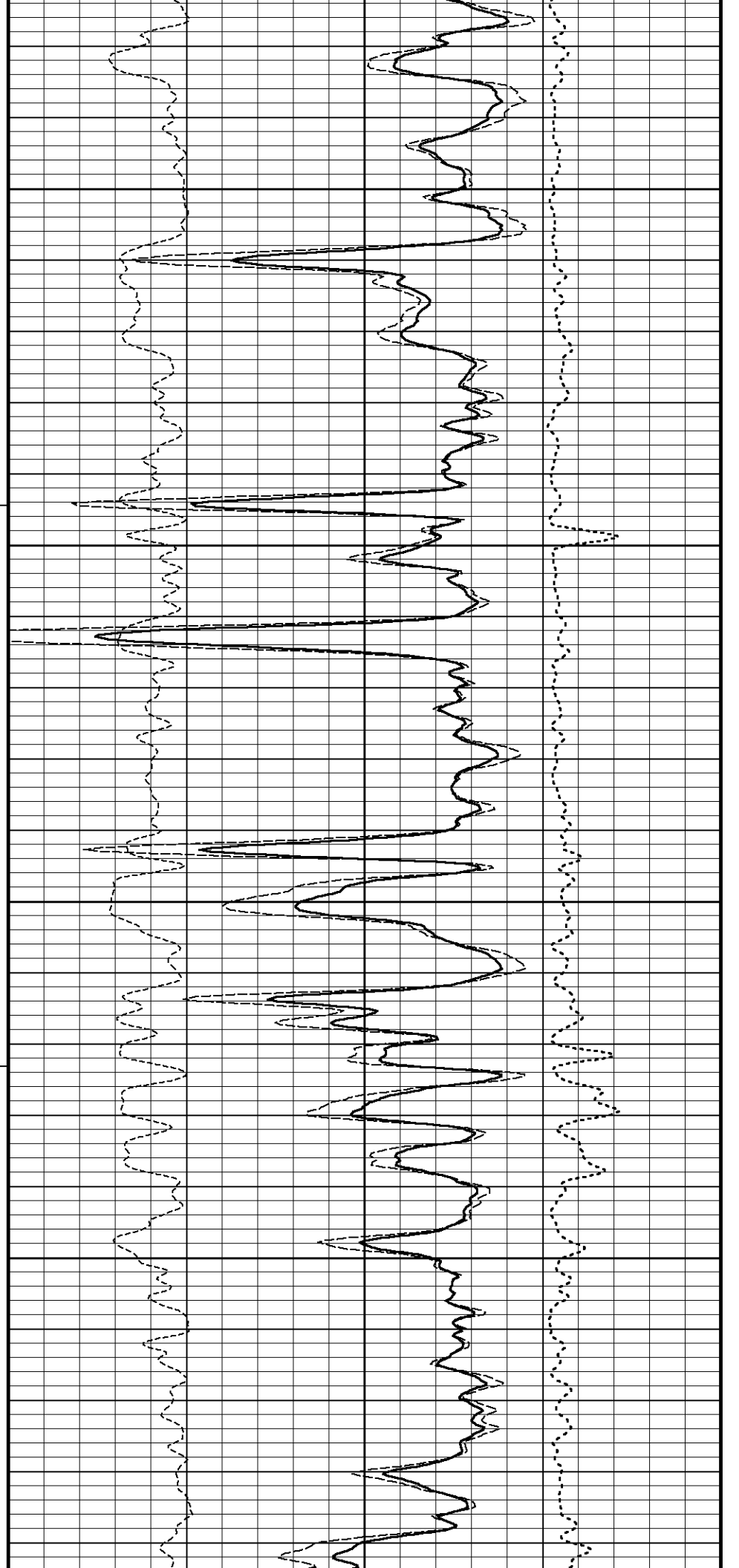
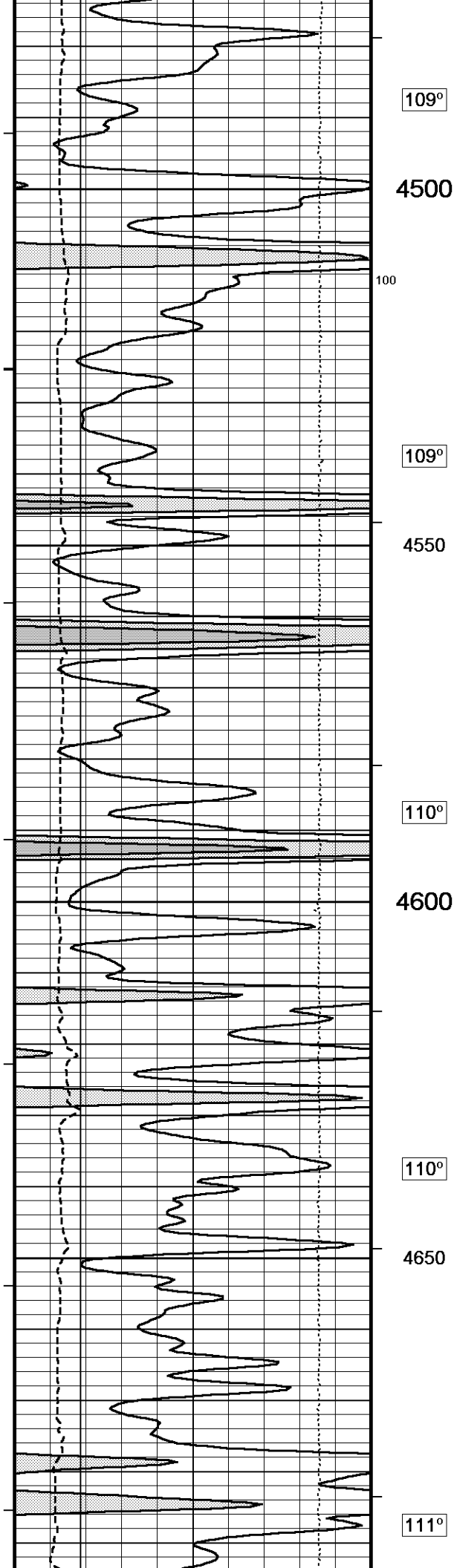
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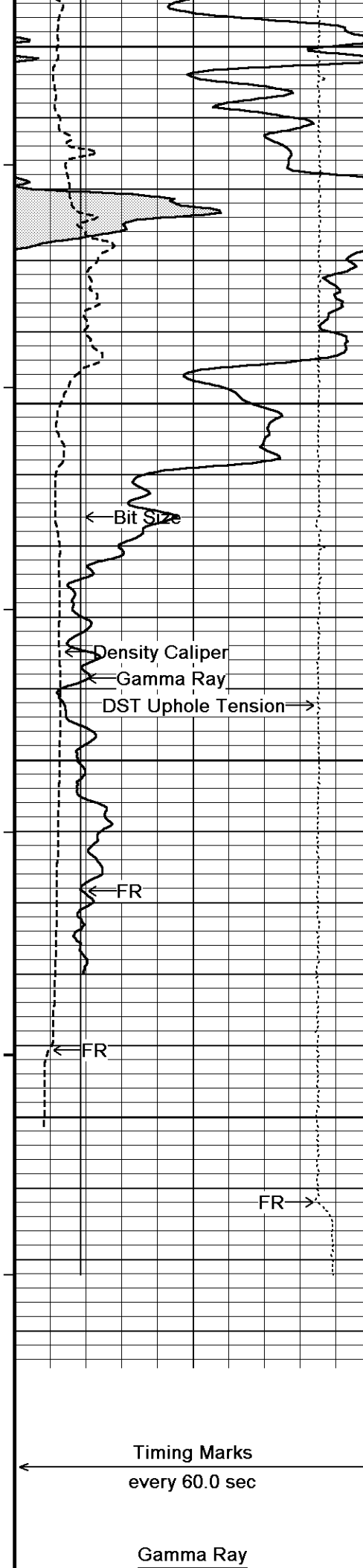
106°

4250









4700

112°

4750

112°

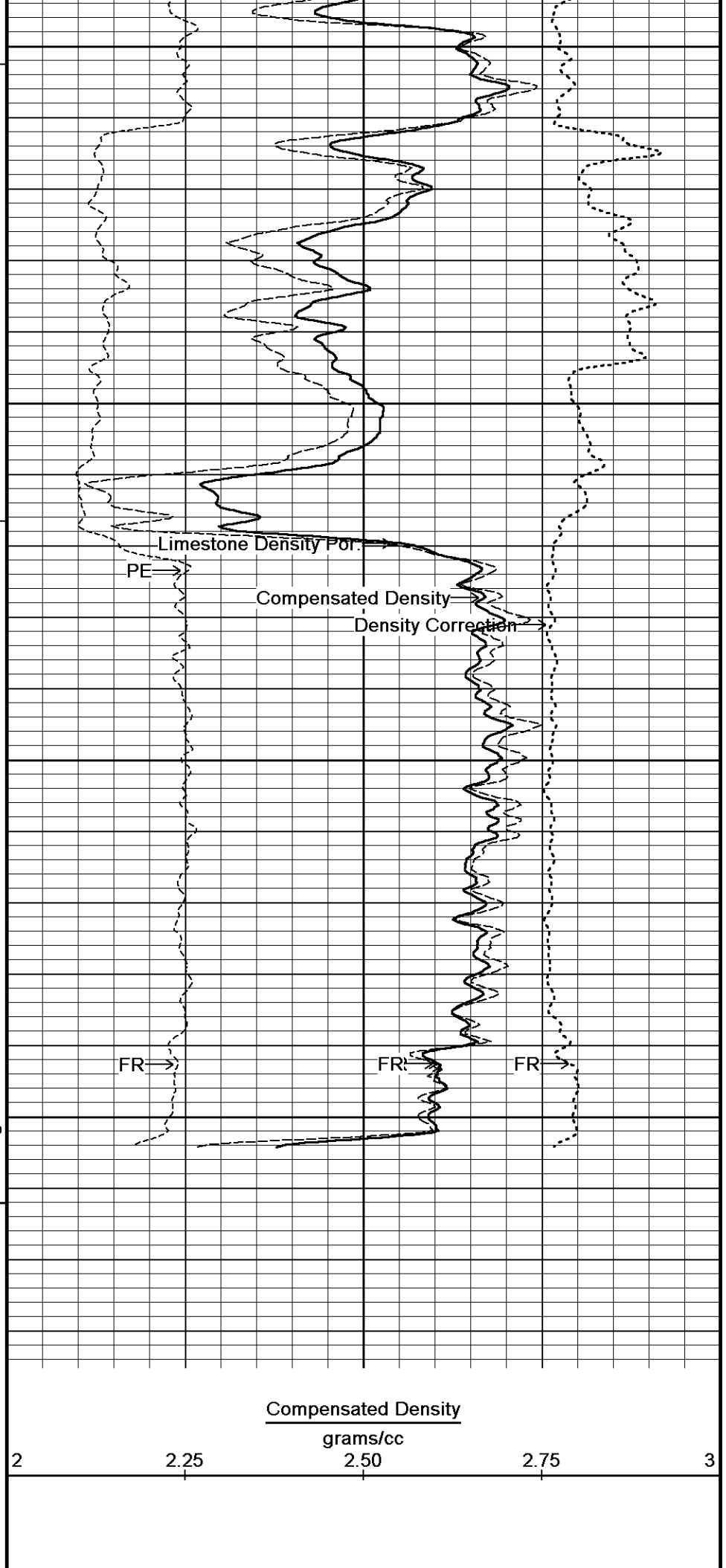
4800

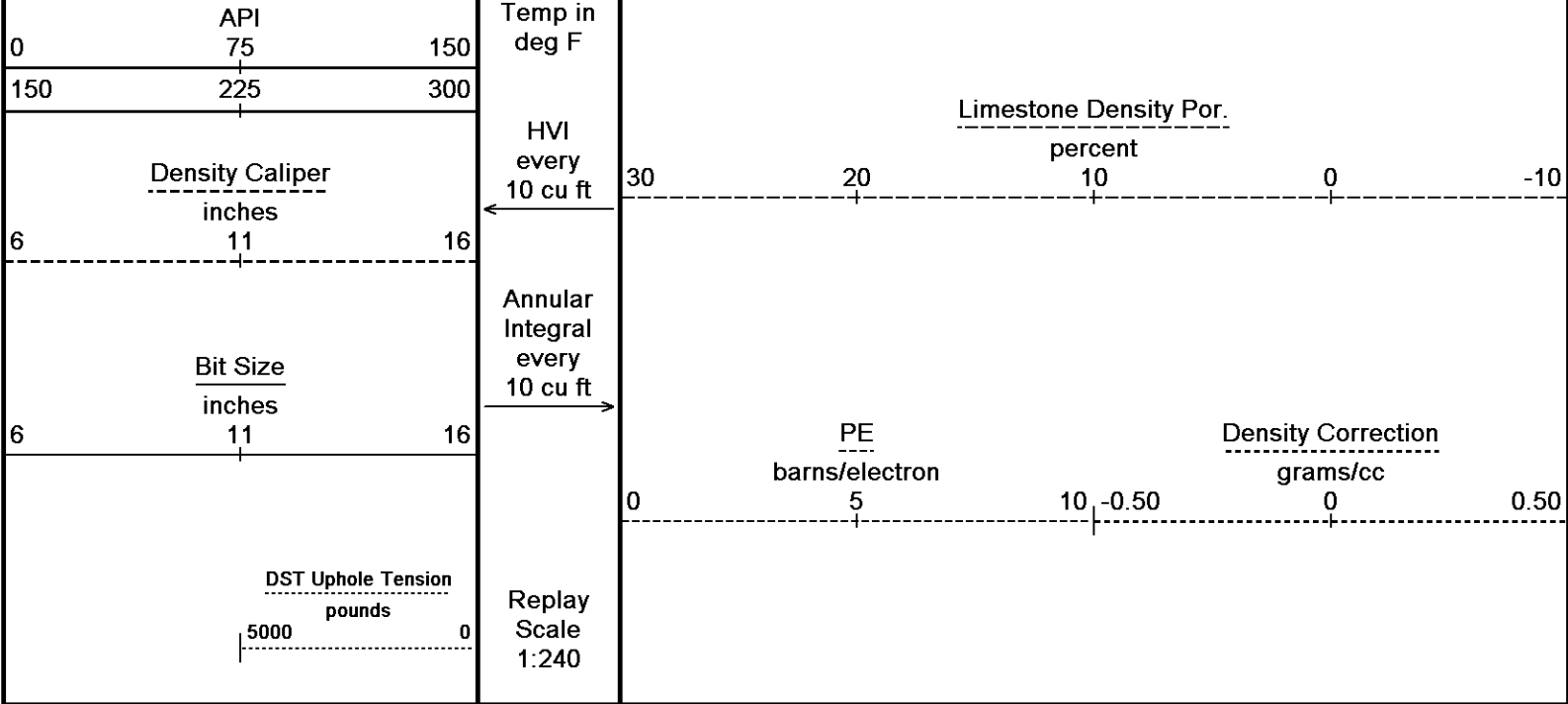
4850

TD

Depth in Feet

Borehole



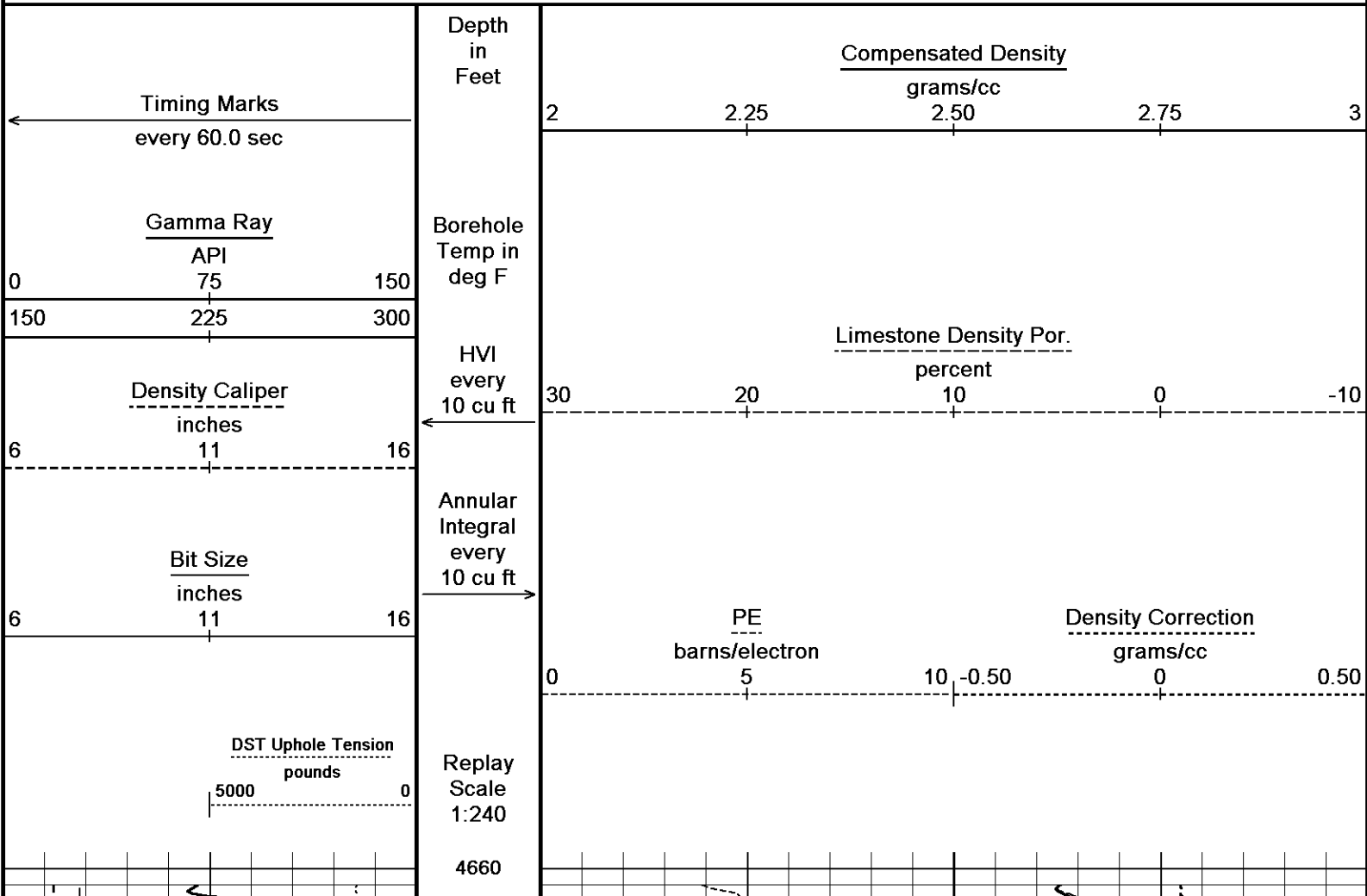


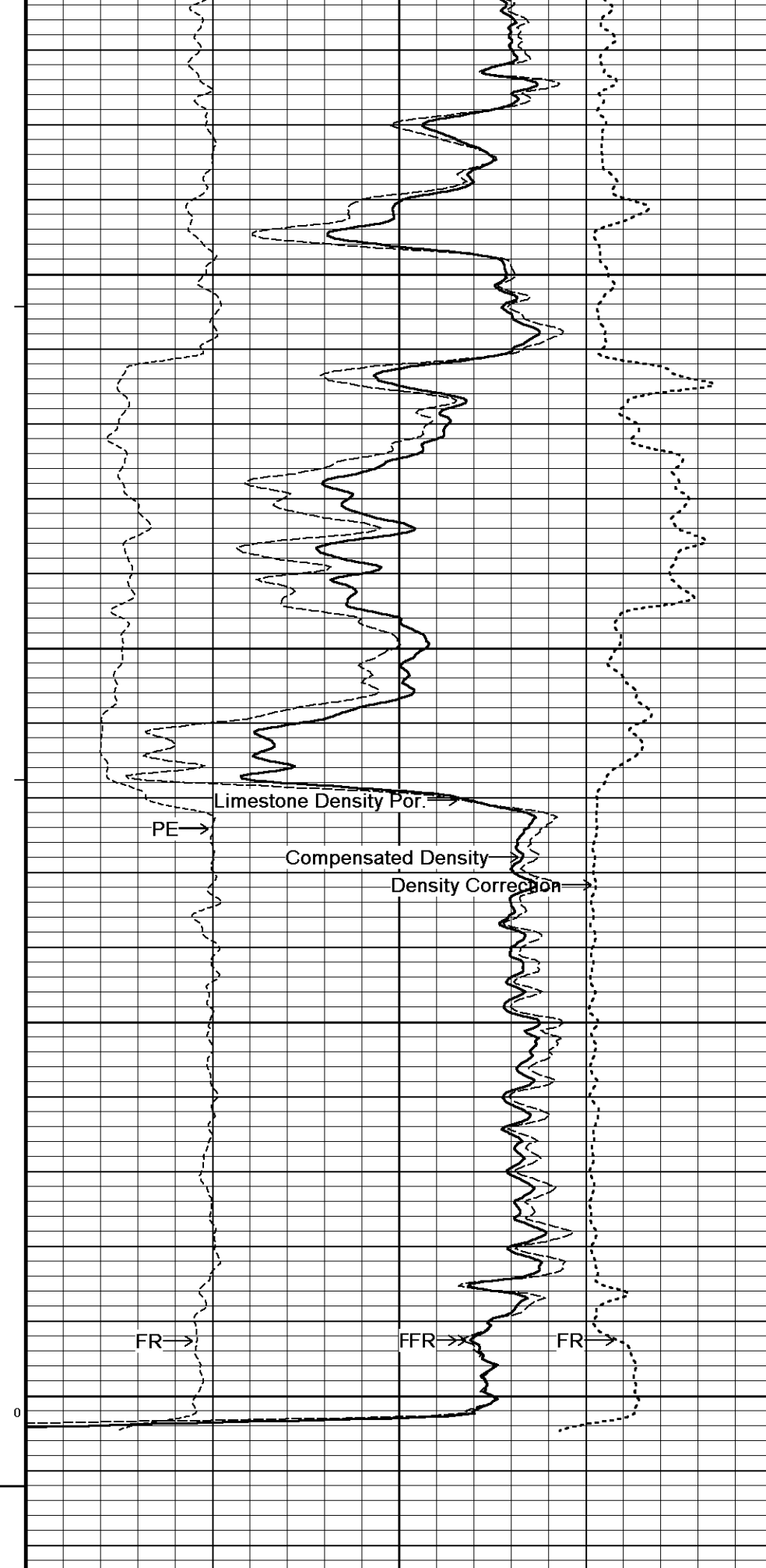
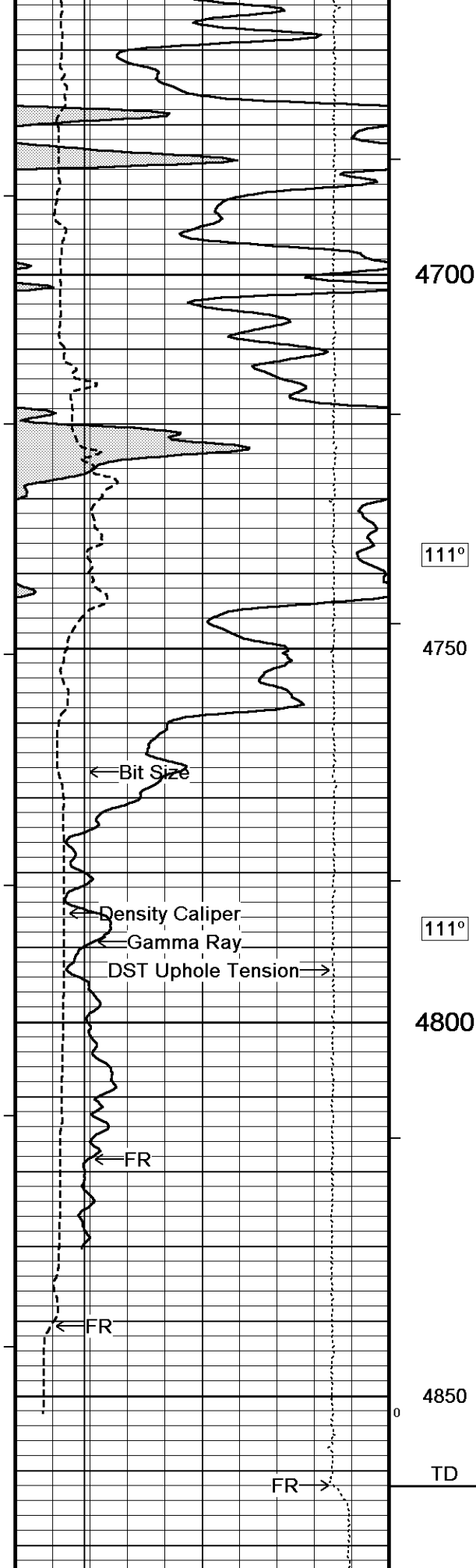
Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 13-FEB-2014 08:08
Filename: C:\Minimus 13.08.2113\Logs\SHAKESPEARE C...\SHAKESPEARE CARSON 2-25 MAIN.dta Recorded on 13-FEB-2014 05:29
System Versions: Logged with 13.08.2113 Plotted with 13.08.2113

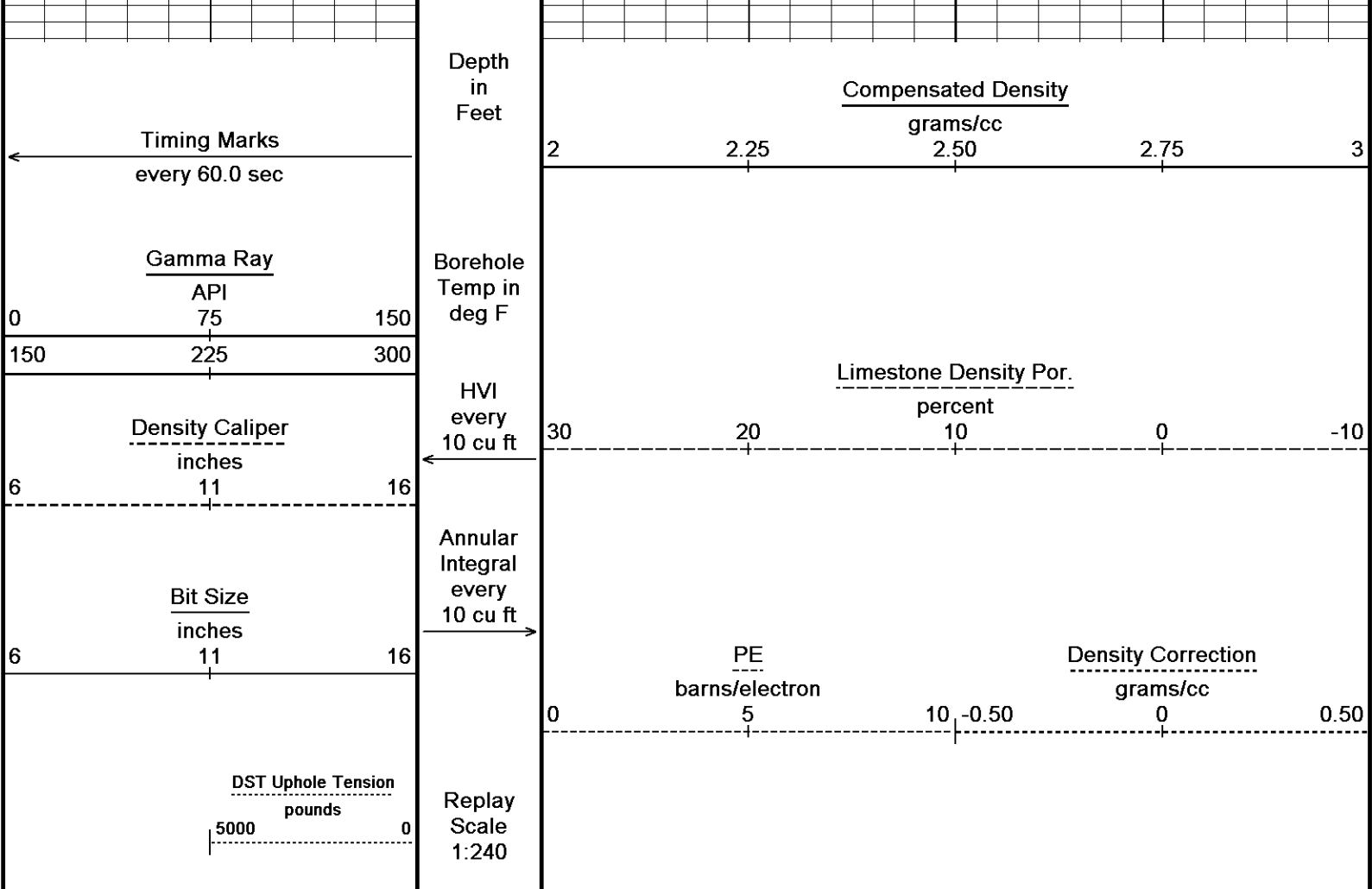
↑ 5 INCH MAIN ↑

↓ REPEAT SECTION ↓

Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 13-FEB-2014 08:08
Filename: C:\Minimus 13.08.2113\Logs\SHAKESPEAR...\SHAKESPEARE CARSON 2-25 REPEAT.dta Recorded on 13-FEB-2014 05:09
System Versions: Logged with 13.08.2113 Processed with 13.08.2113 Plotted with 13.08.2113







Depth Based Data - Maximum Sampling Increment 10.0cm
 Filename: C:\Minimus 13.08.2113\Logs\SHAKESPEARE CARSON 2-25 REPEAT.dta
 System Versions: Logged with 13.08.2113 Processed with 13.08.2113 Plotted with 13.08.2113

Plotted on 13-FEB-2014 08:08
 Recorded on 13-FEB-2014 05:09

↑

REPEAT SECTION

↑

BEFORE SURVEY CALIBRATION		
C:\Minimus 13.08.2113\Logs\SHAKESPEARE CARSON 2-25\SHAKESPEARE CARSON 2-25 REPEAT.dta		
General Constants All 000		Last Edited on 13-FEB-2014,03:17
General Parameters		
Mud Resistivity	0.800	ohm-metres
Mud Resistivity Temperature	60.000	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	MMR Caliper	
Rwa Parameters		
Porosity used	Base Density Porosity	
Resistivity used	Array Ind. One Res Rt	
RWA Constant A	0.610	
RWA Constant M	2.150	
SW/APOR Tool Source	0.000	
Down-hole Tension Calibration SMS 0		
		Field Calibration on 13-FEB-2014 04:26
Reading No	Measured	Calibrated (lbs)
1	14763.00	0.00

Gamma Calibration MCG-D.K 443

Field Calibration on 01-FEB-2014 16:05

	Measured	Calibrated (API)
Background	72	48
Calibrator (Gross)	1170	773
Calibrator (Net)	1098	725

Gamma Constants MCG-D.K 443

Last Edited on 12-FEB-2014,16:29

Gamma Calibrator Number	GRC038	
Mud Density	1.14	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Centred	
Concentration of KCl		kppm
K Mud Type	Chloride	
K Mud Concentration	0.00	%

SP Calibration MCG-D.K 443

Field Calibration on 21-JAN-2014 16:12

	Measured	Calibrated (mV)
Reference 1	100.2	98.8
Reference 2	-97.4	-99.0

High Resolution Temperature Calibration MCG-D.K 443

Field Calibration on 21-JAN-2014,16:09

	Measured	Calibrated(Deg F)
Lower	50.00	50.00
Upper	75.00	75.00

High Resolution Temperature Constants MCG-D.K 443

Last Edited on 23-JAN-2014,17:11

Pre-filter Length	11
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Caliper Calibration MMR-C.A 248

Base Calibration on 23-JAN-2014 16:52

Field Calibration on 01-FEB-2014 15:48

Base Calibration		
Reading No	Measured	Calibrator Size (in)
1	13431	5.98
2	16626	7.97
3	19813	9.86
4	23733	11.92
5	0	0.00
6	N/A	N/A
Field Calibration		
	Measured Caliper (in)	Actual Caliper (in)
	7.97	7.97

Micro Normal and Micro Inverse Calibration MMR-C.A 248

Base Calibration on 23-JAN-2014 17:07

Field Check on 01-FEB-2014 15:50

Base Calibration				
		Measured	Calibrated (ohm-m)	
Channel	Resistor 1	Resistor 2	Resistor 1	Resistor 2
Micro Normal	10.2	49.9	5.1	25.6
Micro Inverse	9.9	49.5	3.4	16.9
Field Calibration				
Channel	Base Check (ohm-m)		Field Check (ohm-m)	
Micro Normal	93.6		93.6	
Micro Inverse	62.2		62.2	

Micro Normal and Micro Inverse Constants MMR-C.A 248

Last Edited on 23-JAN-2014,17:04

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	0.0000 inches

Neutron Calibration MDN-B.J 387

Base Calibration on 21-JAN-2014 13:56

Field Check on 01-FEB-2014 16:09

Base Calibration				
	Measured		Calibrated (cps)	
	Near	Far	Near	Far

Ratio	2848	86	3714	110
	32.942		33.764	
Field Calibrator at Base			Calibrated (cps)	
			1737	2564
Ratio			0.677	
Field Check			Calibrated (cps)	
			1749	2569
Ratio			0.678	

Neutron Constants MDN-B.J 387			Last Edited on 12-FEB-2014,16:28		
Neutron Source Id	P58125B				
Neutron Jig Number	5824NE				
Epithermal Neutron					
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	None				
Formation Pressure	N/A	kpsi			
Temperature Source	Constant Value				
Temperature	68.00	degrees F			
Mud Salinity	0.00	kppm			
Salinity Correction	Not Applied				
Formation Fluid Salinity Source	None				
Formation Fluid Salinity	N/A	kppm			
Barite Mud Correction	Not Applied				

FE Calibration MFE-A.A 55			Base Calibration on 21-JAN-2014 15:20 Field Check on 01-FEB-2014 15:36	
Base Calibration				
	Measured	Calibrated (ohm-m)		
Reference 1	0.0	0.0		
Reference 2	951.8	126.8		
Base Check			281.4	
Field Check			281.4	

FE Constants MFE-A.A 55			Last Edited on 12-FEB-2014,16:26	
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

Induction Calibration MAI-A.A 5				Base Calibration on 21-JAN-2014,09:50	
				Field Check on 01-FEB-2014 15:35	
Base Calibration					
Test Loop Calibration		Measured		Calibrated (mmho/m)	
Channel	Low	High		Low	High
1	16.3	470.8		9.3	966.2
2	5.6	376.1		7.6	821.4
3	2.6	266.1		5.2	566.0
4	1.6	130.0		2.6	279.2
Array Temperature		71.1	Deg F		
Channel	Base Check (mmho/m)		Field Check (mmho/m)		
	Low	High	Low	High	
1			14.3	3863.2	
2			31.7	3591.9	
3			29.8	2972.7	
4			20.8	2127.2	
Deep			18.4	1913.3	

Medium	43.1	3862.9	
Shallow	47.1	5373.9	
Array Temperature		57.9	Deg F

Induction Constants MAI-A.A 5

Last Edited on 12-FEB-2014,16:25

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	

High Resolution Temperature Calibration MAI-A.A 5

Field Calibration on 21-JAN-2014,15:43

	Measured	Calibrated(Deg F)
Lower	50.00	50.00
Upper	75.00	75.00

High Resolution Temperature Constants MAI-A.A 5

Last Edited on 21-JAN-2014,15:42

Pre-filter Length	11
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Photo Density Calibration MPD-B 64

Base Calibration on 21-JAN-2014 13:19
Field Check on 01-FEB-2014 15:45

Density Calibration				
Base Calibration		Measured	Calibrated (sdu)	
	Near	Far	Near	Far
Background	1151	1332		
Reference 1	54413	28212	59556	30836
Reference 2	21794	2569	24941	2541
Field Check at Base				
	1151.0	1331.7		
Field Check				
	1154.9	1339.2		
PE Calibration				
Base Calibration		Measured	Calibrated	

	WS	WH	Ratio	Ratio
Background	207	1021		
Reference 1	20693	54218	0.385	0.371
Reference 2	5952	21660	0.278	0.272

Field Check at Base
206.5 1020.6

Field Check
207.6 1025.5

Density Constants MPD-B 64

Last Edited on 12-FEB-2014,16:27

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

Caliper Calibration MPD-B 64

Base Calibration on 21-JAN-2014 12:58
Field Calibration on 13-FEB-2014,07:47

Base Calibration Reading No	Measured	Calibrator Size (in)
1	16591	3.99
2	25434	5.98
3	34292	7.97
4	42640	9.86
5	51901	11.92
6	N/A	N/A

Field Calibration	Measured Caliper (in)	Actual Caliper (in)
	7.99	7.97

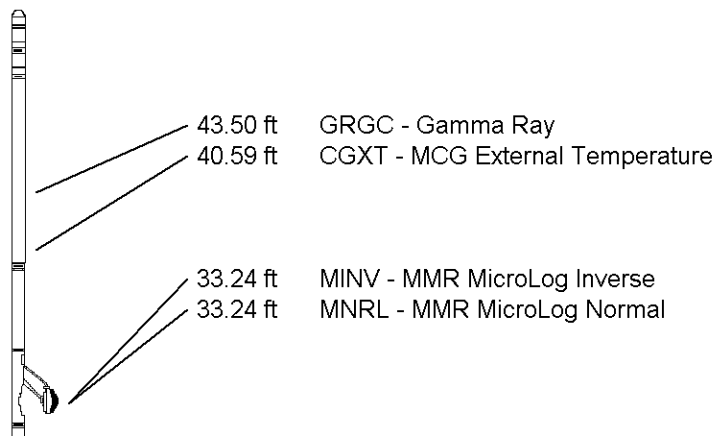
DOWNHOLE EQUIPMENT

C:\Minimus 13.08.2113\Logs\SHAKESPEARE CARSON 2-25\SHAKESPEARE CARSON 2-25 REPEAT.dta

CBH-C, Cablehead, 11 pin
CBH-C 0 LG: 2.40 ft WT: 24.3 lb OD: 2.244 in

Compact Comms Gamma
MCG-D.K 443 LG: 8.70 ft WT: 63.9 lb OD: 2.244 in

Compact Micro-Resistivity
MMR-C.A 248 LG: 8.59 ft WT: 81.6 lb OD: 4.882 in



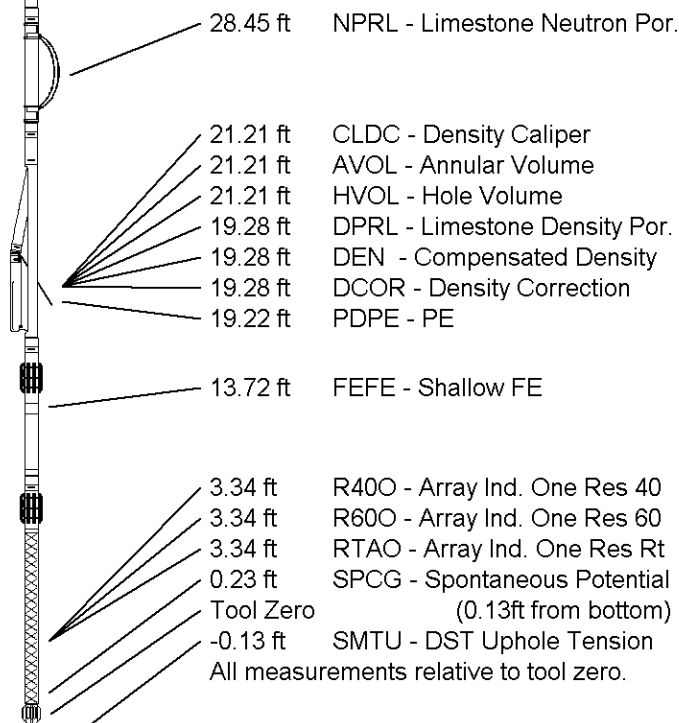
Compact Neutron
MDN-B.J 387 LG: 5.04 ft WT: 50.7 lb OD: 2.244 in

Compact Density/Caliper
MPD-B 64 LG: 9.59 ft WT: 90.4 lb OD: 2.449 in

Compact Focussed Electric
MFE-A.A 55 LG: 6.05 ft WT: 48.5 lb OD: 2.244 in

Compact Induction
MAI-A.A 5 LG: 10.81 ft WT: 48.5 lb OD: 2.244 in

Total Length: 51.18 ft Weight: 407.9 lb



COMPANY	SHAKESPEARE OIL CO., INC.
WELL	CARSON 2-25
FIELD	PENCE EAST
PROVINCE/COUNTY	SCOTT
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	3112.00	feet	First Reading	4843.00	feet
Elevation Drill Floor	3110.00	feet	Depth Driller	4860.00	feet
Elevation Ground Level	3100.00	feet	Depth Logger	4862.00	feet



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COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRORESISTIVITY LOG