



Weatherford[®]

**COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRORESISTIVITY LOG**

COMPANY **SHAKESPEARE OIL CO., INC**
WELL **TEETER #2-11**
FIELD **STRATFORD**
PROVINCE/COUNTY **LOGAN**
COUNTRY/STATE **U.S.A. / KANSAS**
LOCATION **514' FSL & 1494' FEL**

SEC **11** TWP **13S** RGE **32W** Other Services **MAI/MFE**
API Number **15-109-21219**
Permit Number

Permanent Datum GL, Elevation 2993 feet
Log Measured From **KB** Elevations: **KB 2995.00**
Drilling Measured From **KB** **DF 2993.00**
GL 2983.00

Date	08-DEC-2013
Run Number	ONE
Service Order	3547626
Depth Driller	4700.00 feet
Depth Logger	4698.00 feet
First Reading	4678.78 feet
Last Reading	3698.00 feet
Casing Driller	227.00 feet
Casing Logger	222.00 feet
Bit Size	7.875 inches
Hole Fluid Type	CHEMICAL
Density / Viscosity	9.40 lb/USg 55.00 CP
PH / Fluid Loss	10.00 7.20 ml/30Min
Sample Source	FLOWLINE
Rm @ Measured Temp	1.73 @ 89.3 ohm-m
Rmf @ Measured Temp	1.38 @ 89.3 ohm-m
Rmc @ Measured Temp	2.08 @ 89.3 ohm-m
Source Rmf / Rmc	CALC CALC
Rm @ BHT	1.34 @ 116.0 ohm-m
Time Since Circulation	3 HOURS
Max Recorded Temp	116.00 deg F
Equipment / Base	13096 LIB
Recorded By	DEREK CARTER
Witnessed By	TIM PRIEST
JOB#	LB13-346
	ROB HOFFMAN

BOREHOLE RECORD

Last Edited: 08-DEC-2013 15:52

Bit Size inches	Depth From feet	Depth To feet
7.875	227.00	4700.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	227.00	24.00

REMARKS

- SOFTWARE ISSUE: WLS 13.05.9583
- TOOL STRING: MCG, MML, MDN, MPD, MFE, MSS, MAI RUN IN COMBINATION
- HARDWARE:
MDN: DUAL BOWSPRING ECCENTRALIZER
MFE: 1 X 0.5 INCH STANDOFF
MAI: 2 X 0.5 INCH STANDOFF
- 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
- SERVICE ORDER # 3547626
- RIG: H D DRILLING #2

- ENGINEER: DEREK CARTER

- OPERATORS: KEN RINEHART, DAVID CANADAY

- WHILE LOGGING THE REPEAT SECTION HIT TIGHT SPOT AT 4432'-4436'; INITIAL PULL TO 2850 POUNDS; PULLED TO 3200 POUNDS AND TOOLS CAME FREE

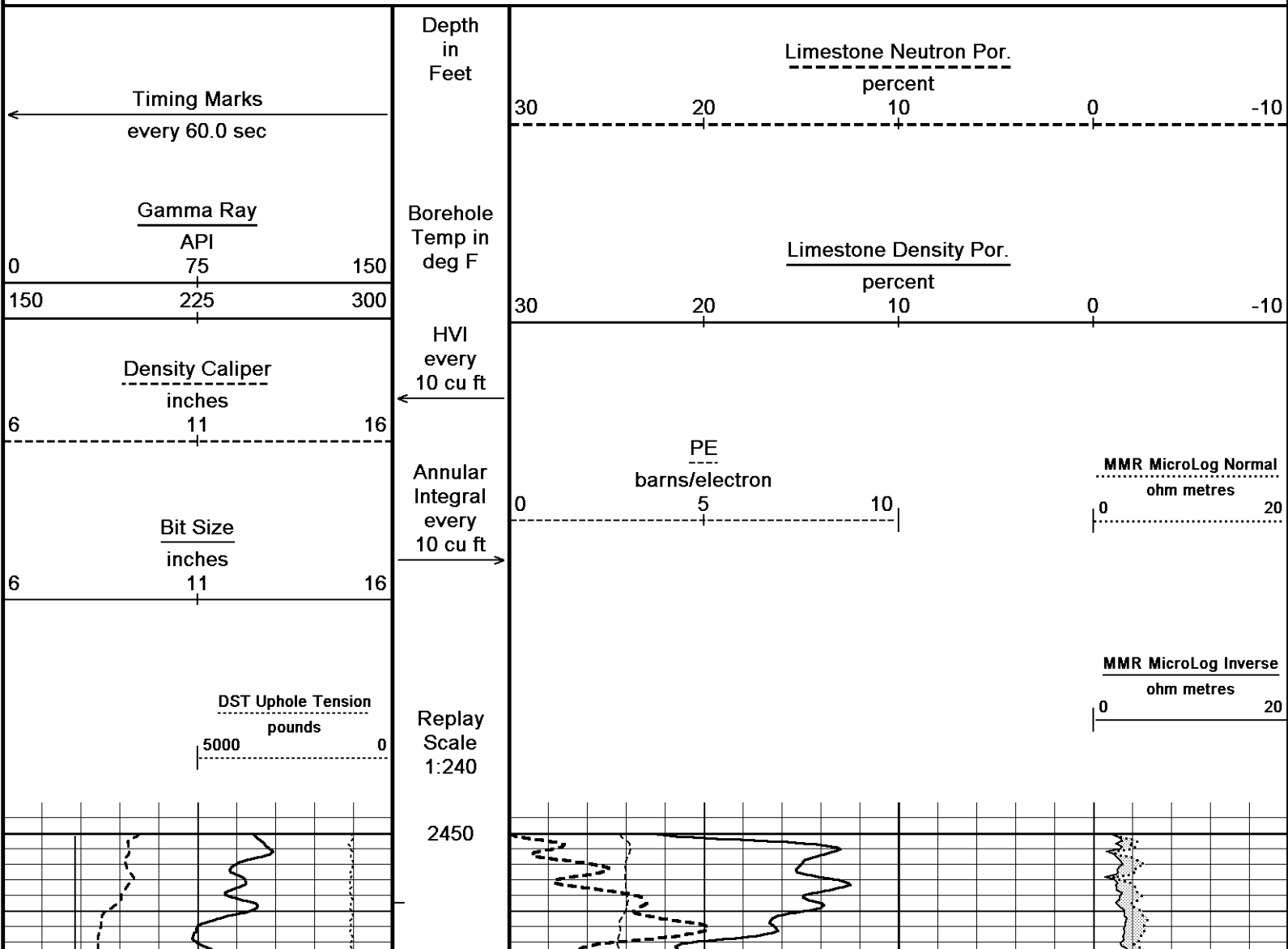
- WHILE LOGGING THE MAIN SECTION HIT TIGHT SPOT AT 4432'-4436'; INITIAL PULL TO 2700 POUNDS; PULLED TO 3000 POUNDS AND TOOLS CAME FREE

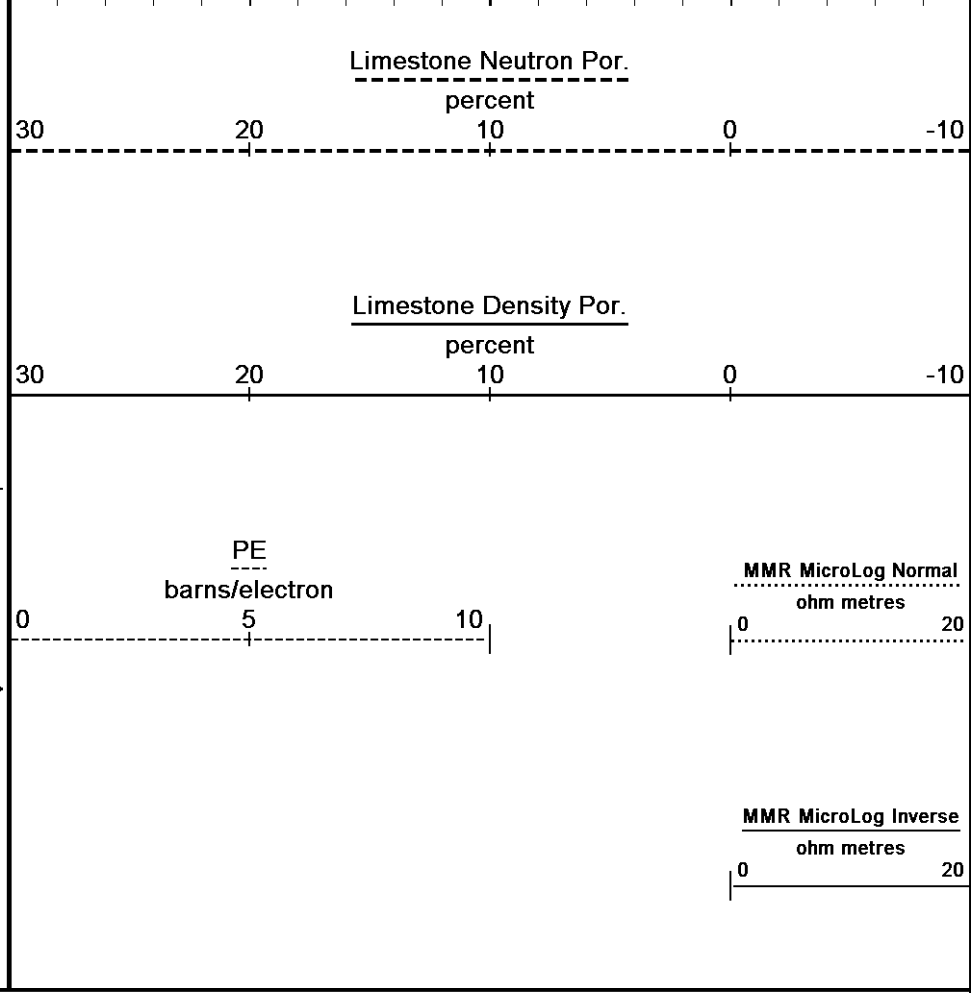
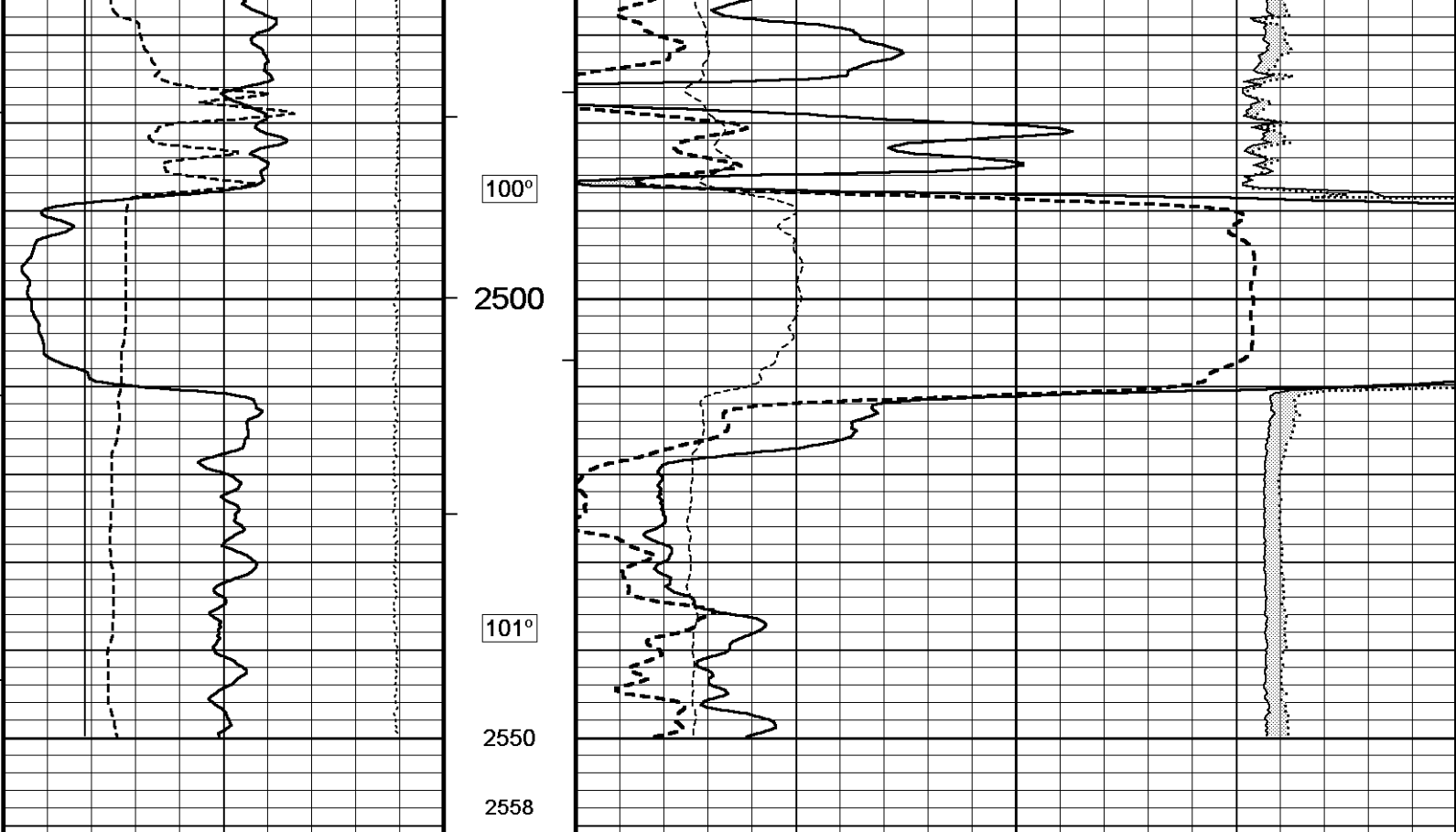
- AFTER TOOLS CAME FREE ON MAIN PASS THE DENSITY CALIPER BECAME NOTICEABLY UNDERGAUGED; UPON PULLING THE TOOLS OUT OF THE HOLE IT WAS DISCOVERED THAT THE DENSITY CALIPER ARM HAD BEEN BENT, POSSIBLY DUE TO A 'YO-YO' EFFECT WHEN THE TOOLS CAME FREE; ADDITIONALLY, IT WAS DISCOVERED THAT THE MICROLOG PAD HAD APPROXIMATELY A 0.5 INCH INCISION AND HAD LEAKED A LARGE AMOUNT OF OIL; AS A RESULT THE DENSITY CALIPER MEASUREMENT (INCLUDING HOLE VOLUME AND ANNULAR VOLUME) IS INVALID AND THE MICROLOG MEASUREMENTS ARE QUESTIONABLE; DON WILLIAMS OF SHAKESPEARE WAS CONTACTED AND IT WAS DETERMINED THAT THE DATA WAS ADEQUATE FOR THE ZONES OF INTEREST AND NO FURTHER RUNS WOULD BE MADE

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

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 09-DEC-2013 00:31
Filename: E:\Shakespeare Teeter #2-11\Shakespeare Teeter #2-11 Main.dta
Recorded on 08-DEC-2013 19:59
System Versions: Logged with 13.05.9583 Processed with 13.05.9583 Plotted with 13.05.9583





Depth Based Data - Maximum Sampling Increment 10.0cm
 Filename: E:\Shakespeare Teeter #2-11\Shakespeare Teeter #2-11 Main.dta
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5 INCH MAIN

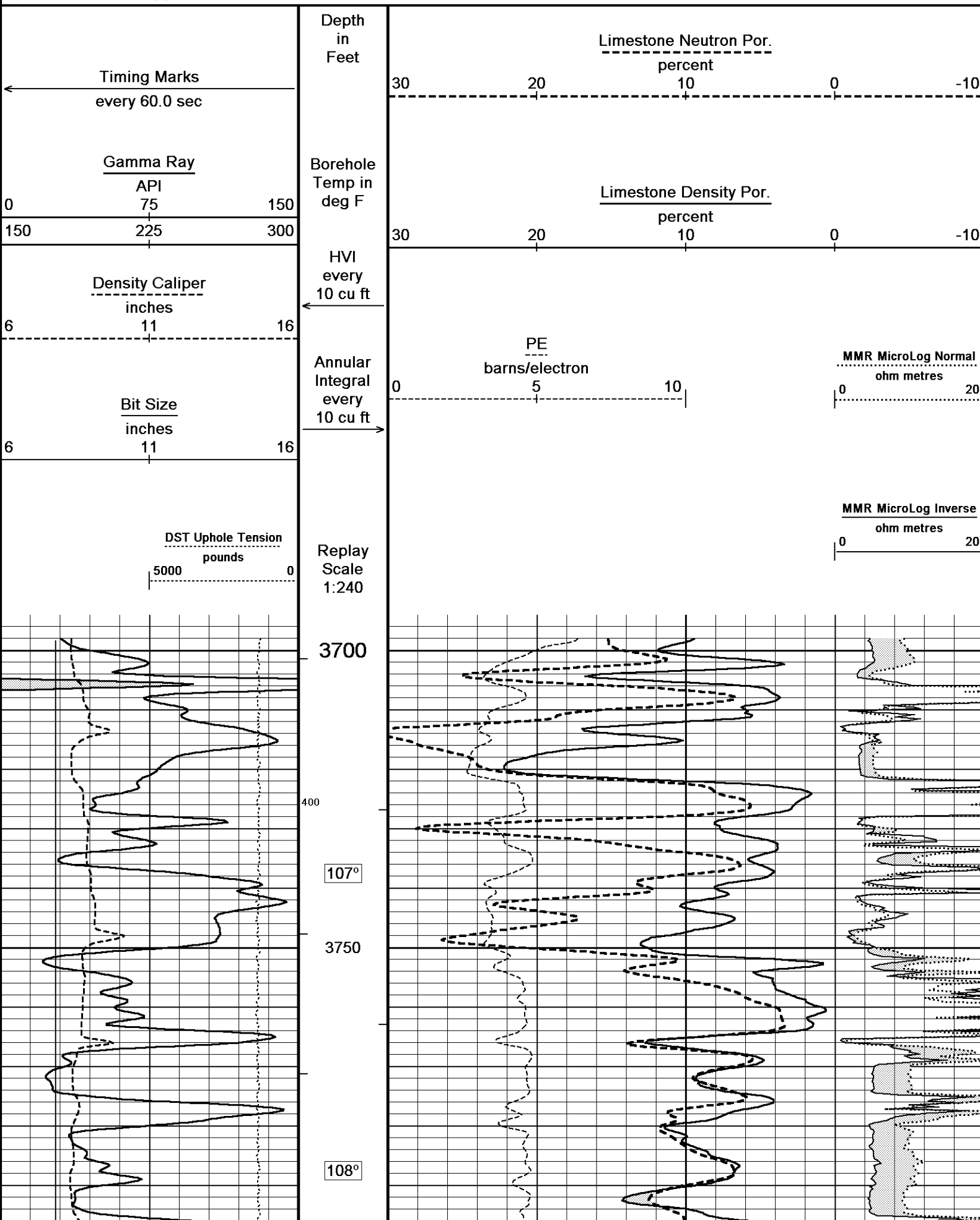
Depth Based Data - Maximum Sampling Increment 10.0cm

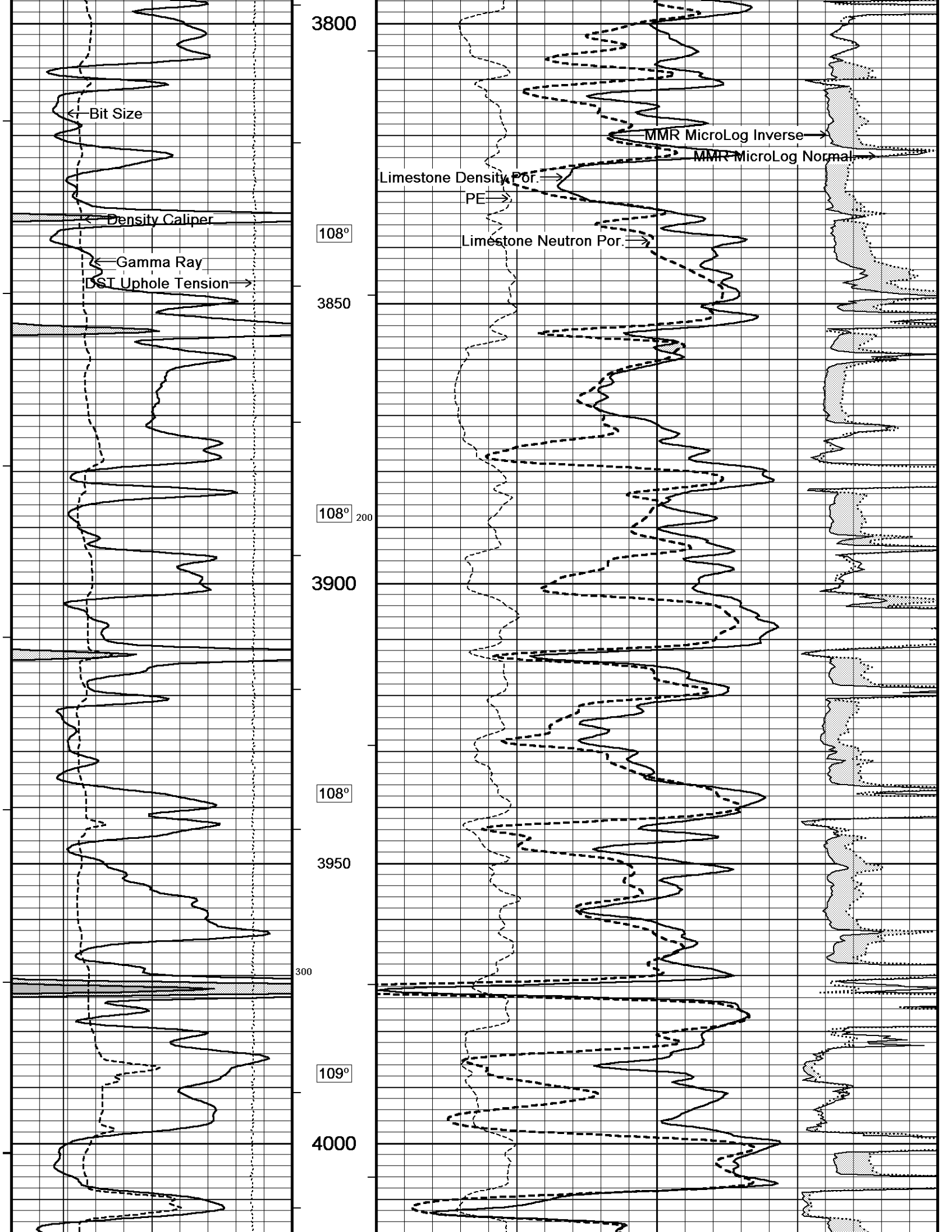
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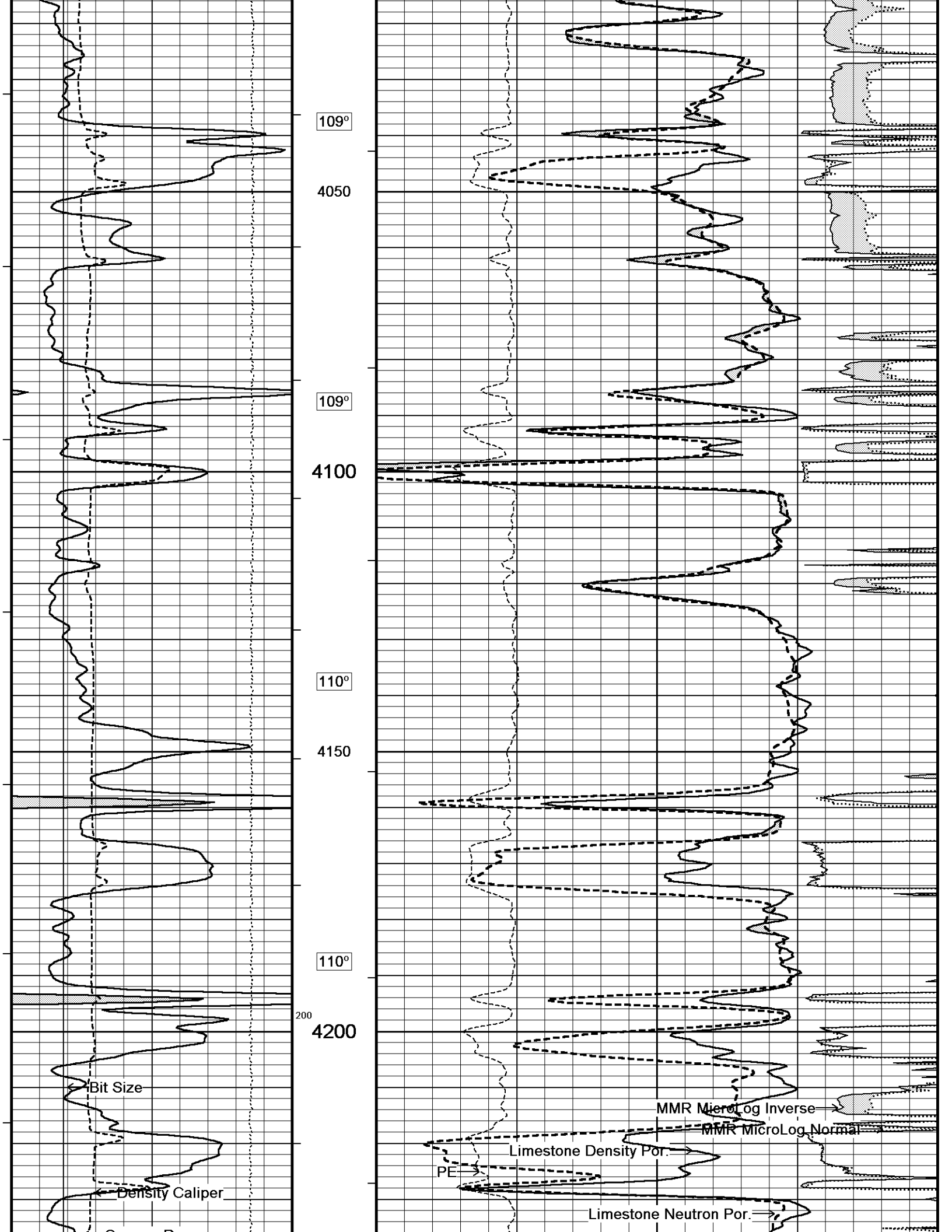
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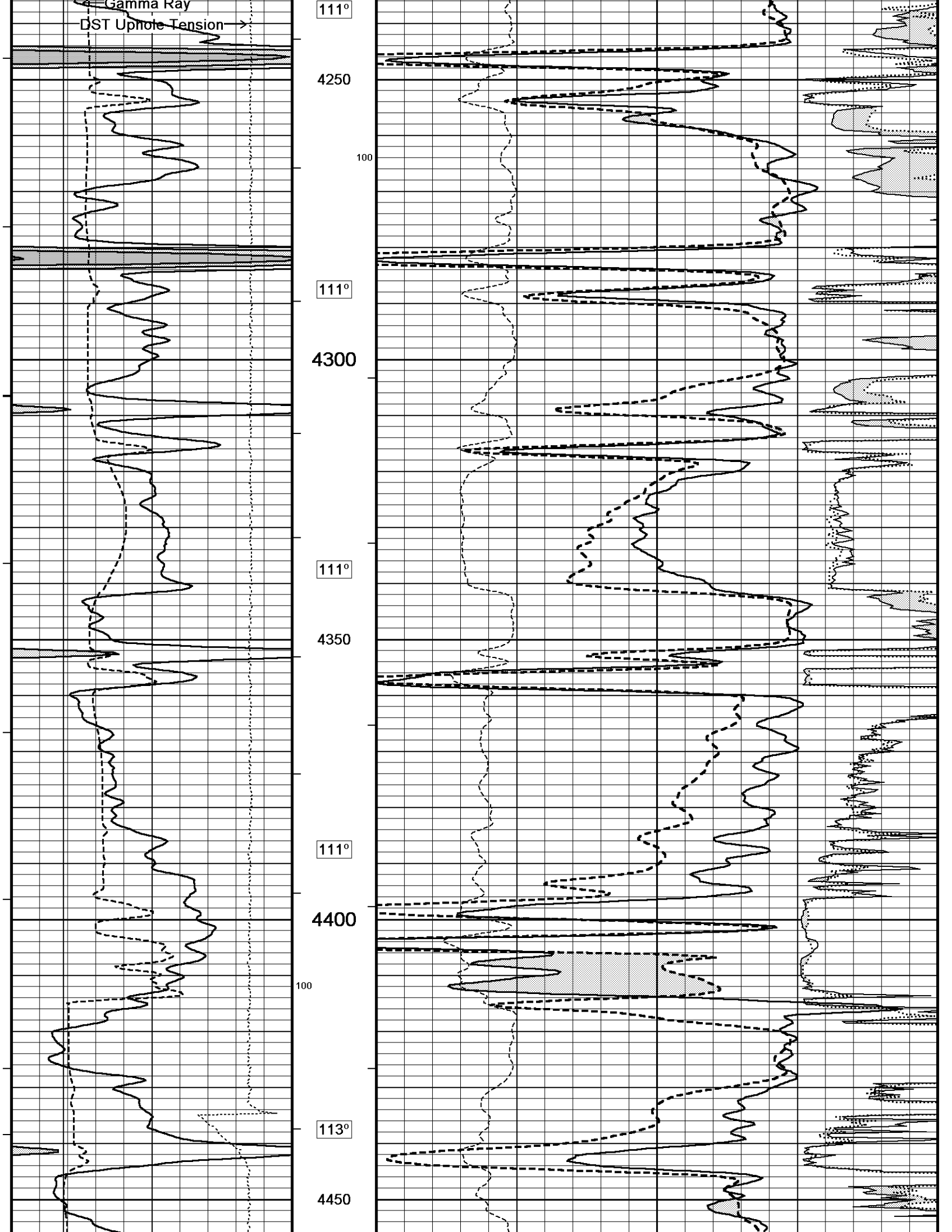
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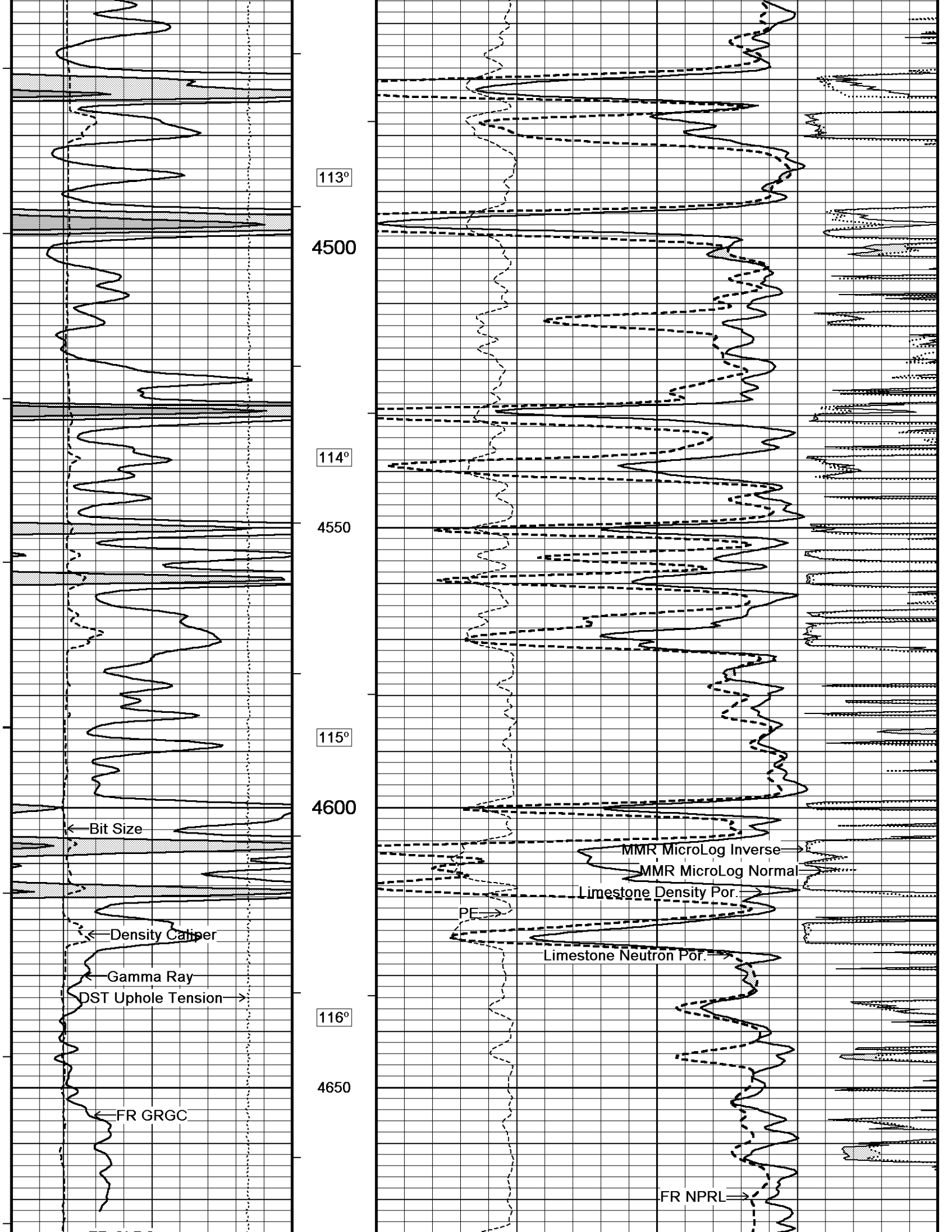
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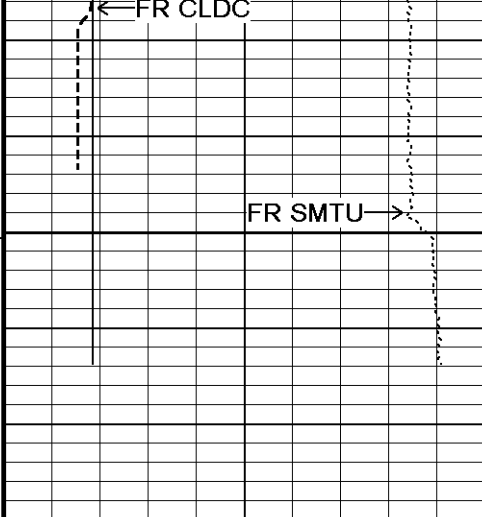












4700

4728

Depth in Feet

Timing Marks every 60.0 sec

Gamma Ray API
 0 75 150
 150 225 300

Borehole Temp in deg F

Density Caliper inches
 6 11 16

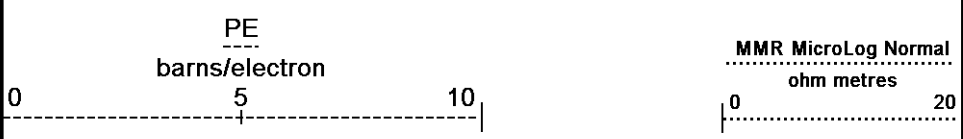
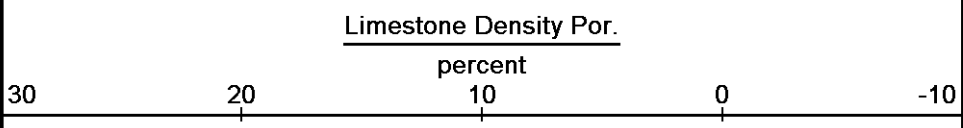
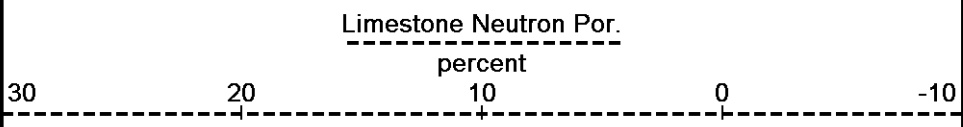
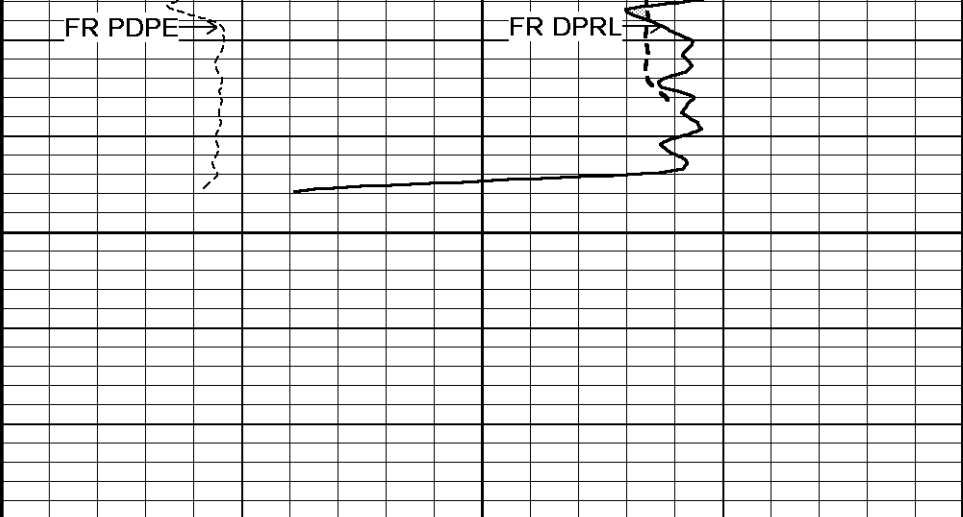
HVI every 10 cu ft

Bit Size inches
 6 11 16

Annular Integral every 10 cu ft

DST Uphole Tension pounds
 5000 0

Replay Scale 1:240

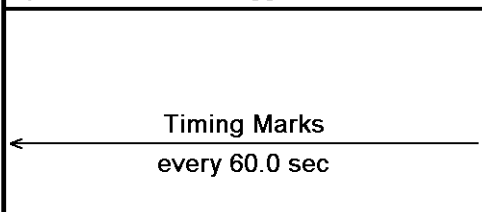


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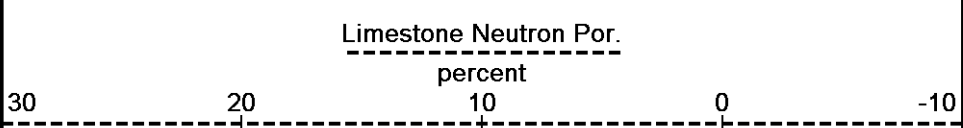
5 INCH MAIN

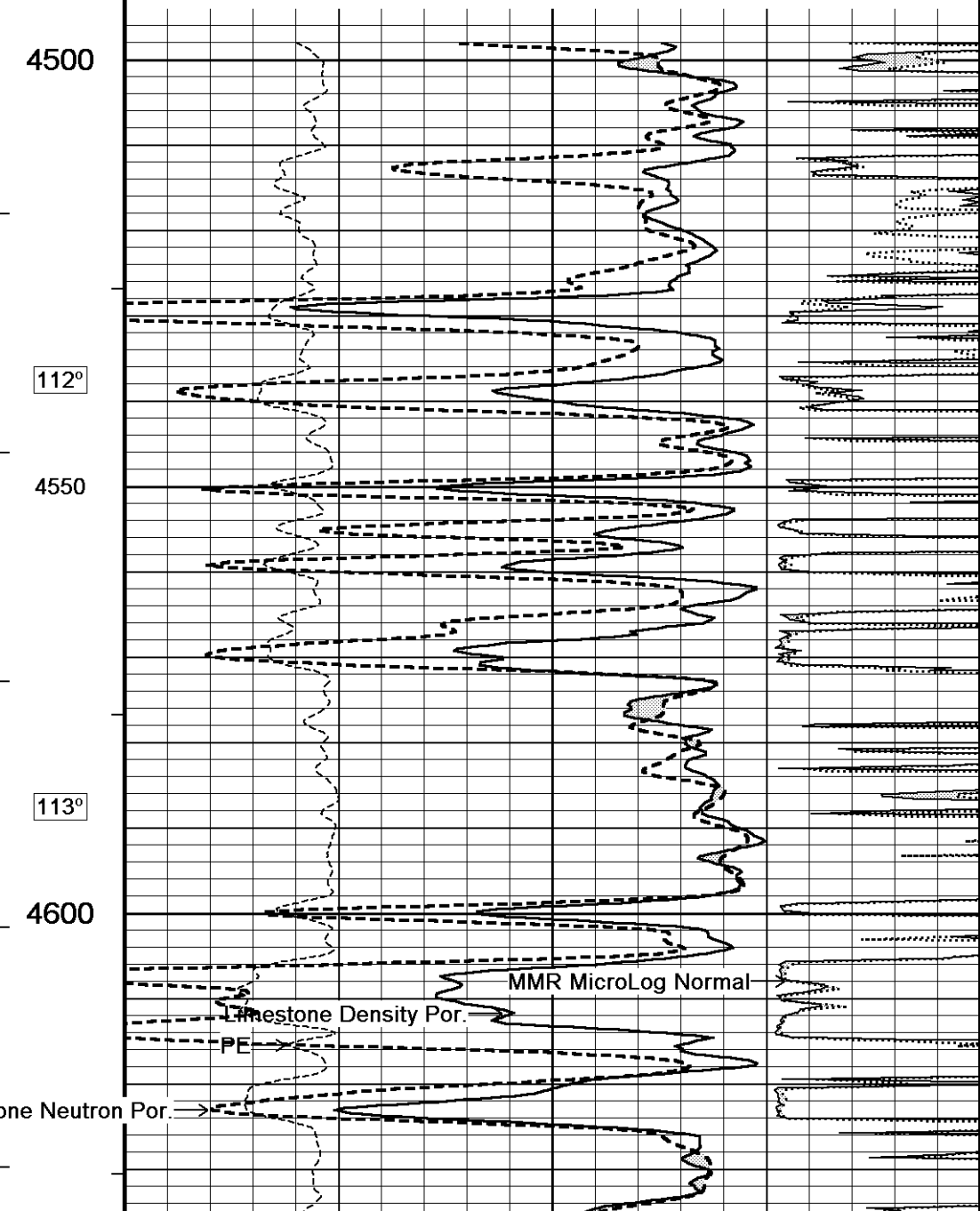
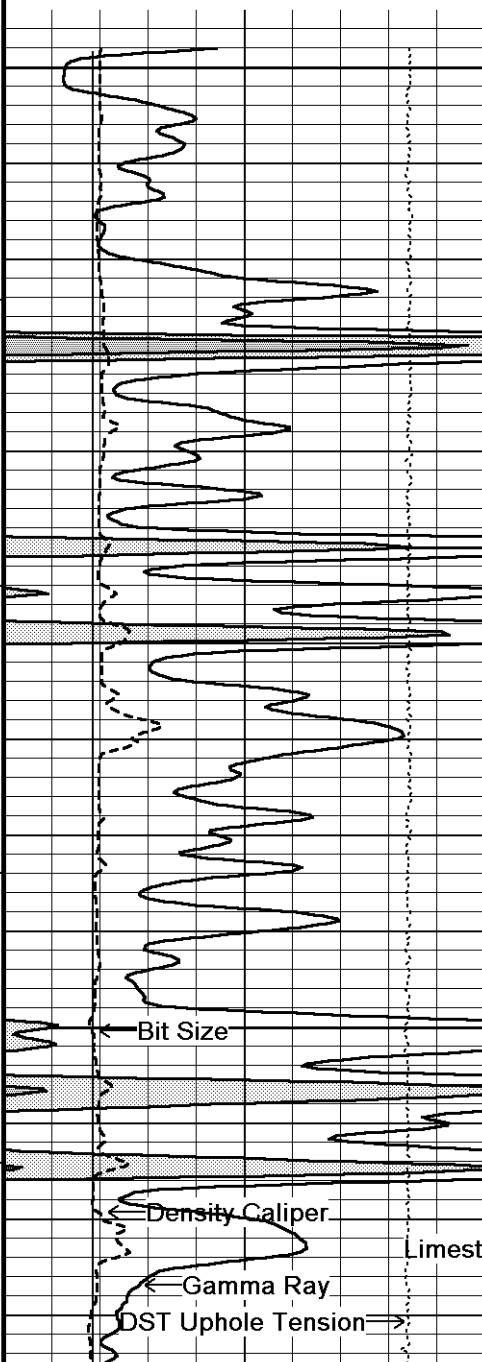
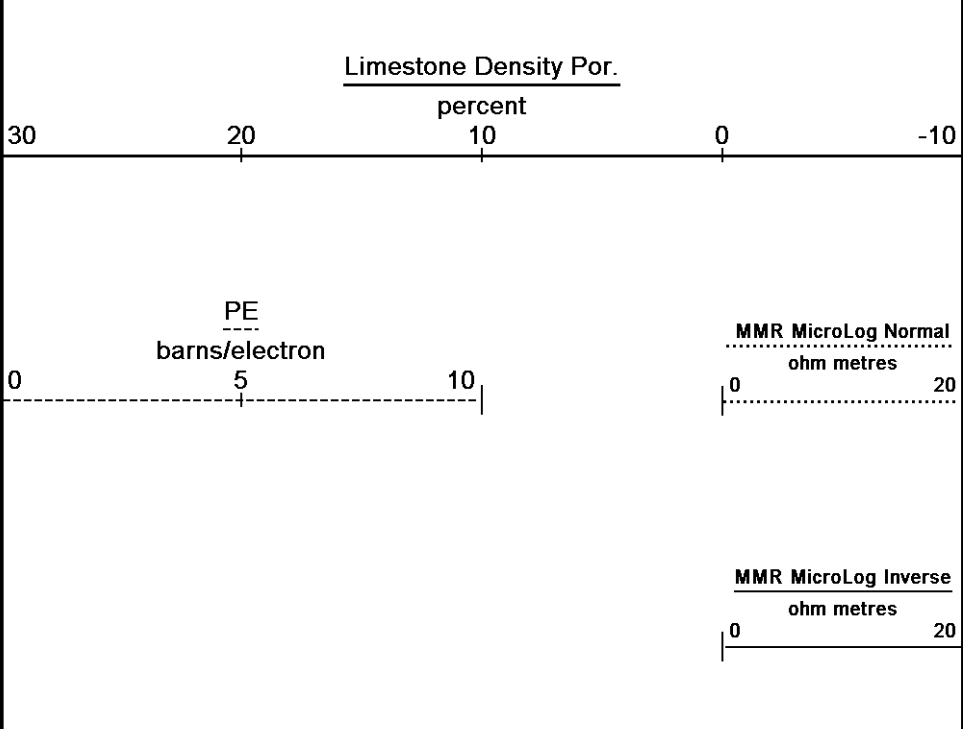
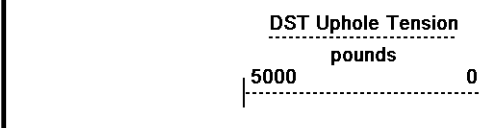
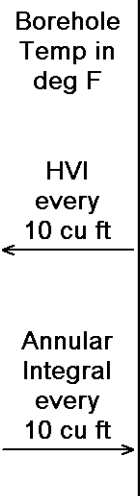
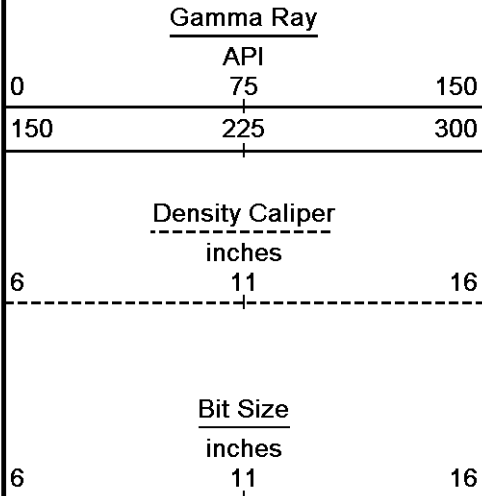
REPEAT SECTION

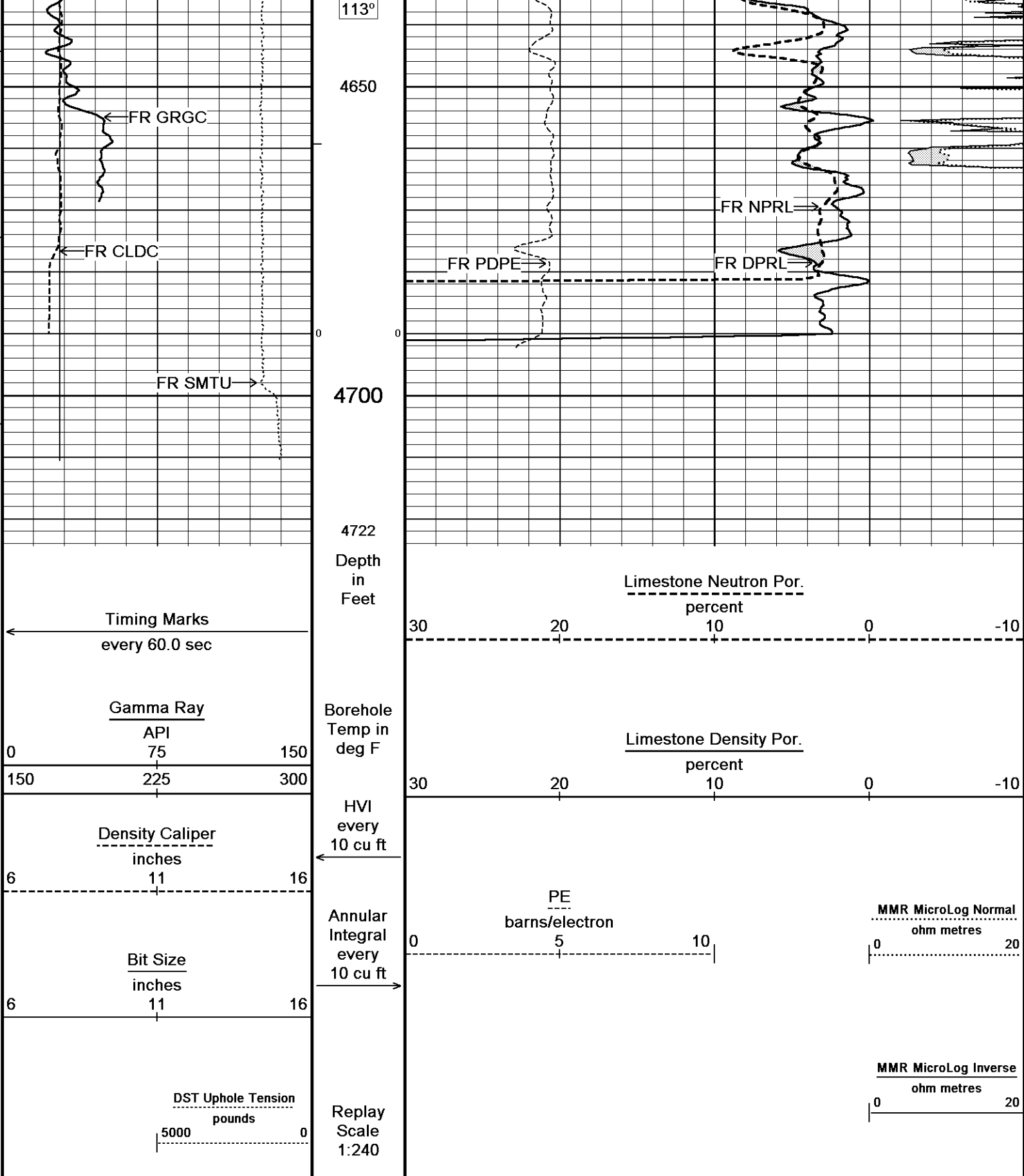
Depth Based Data - Maximum Sampling Increment 10.0cm
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Depth in Feet





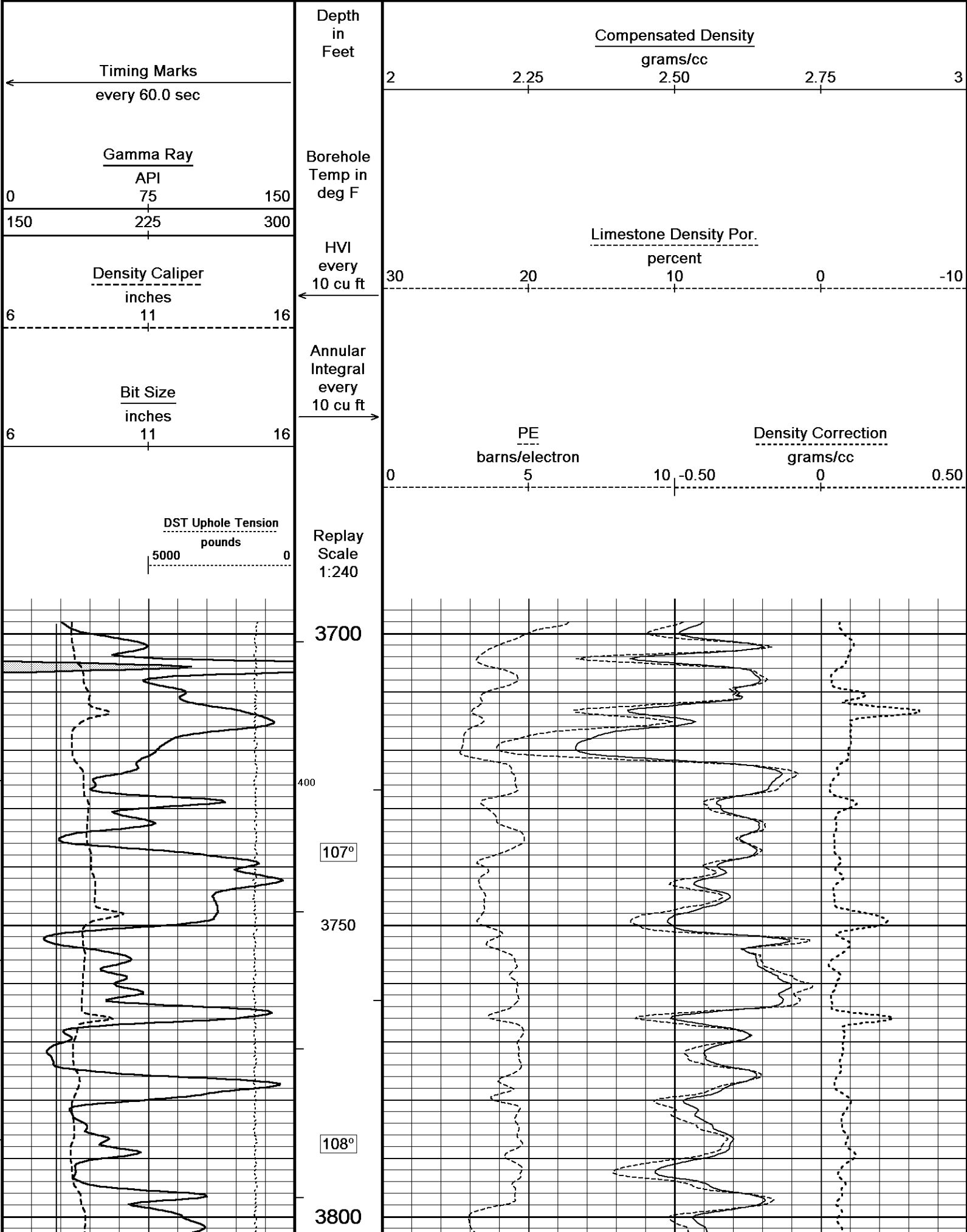


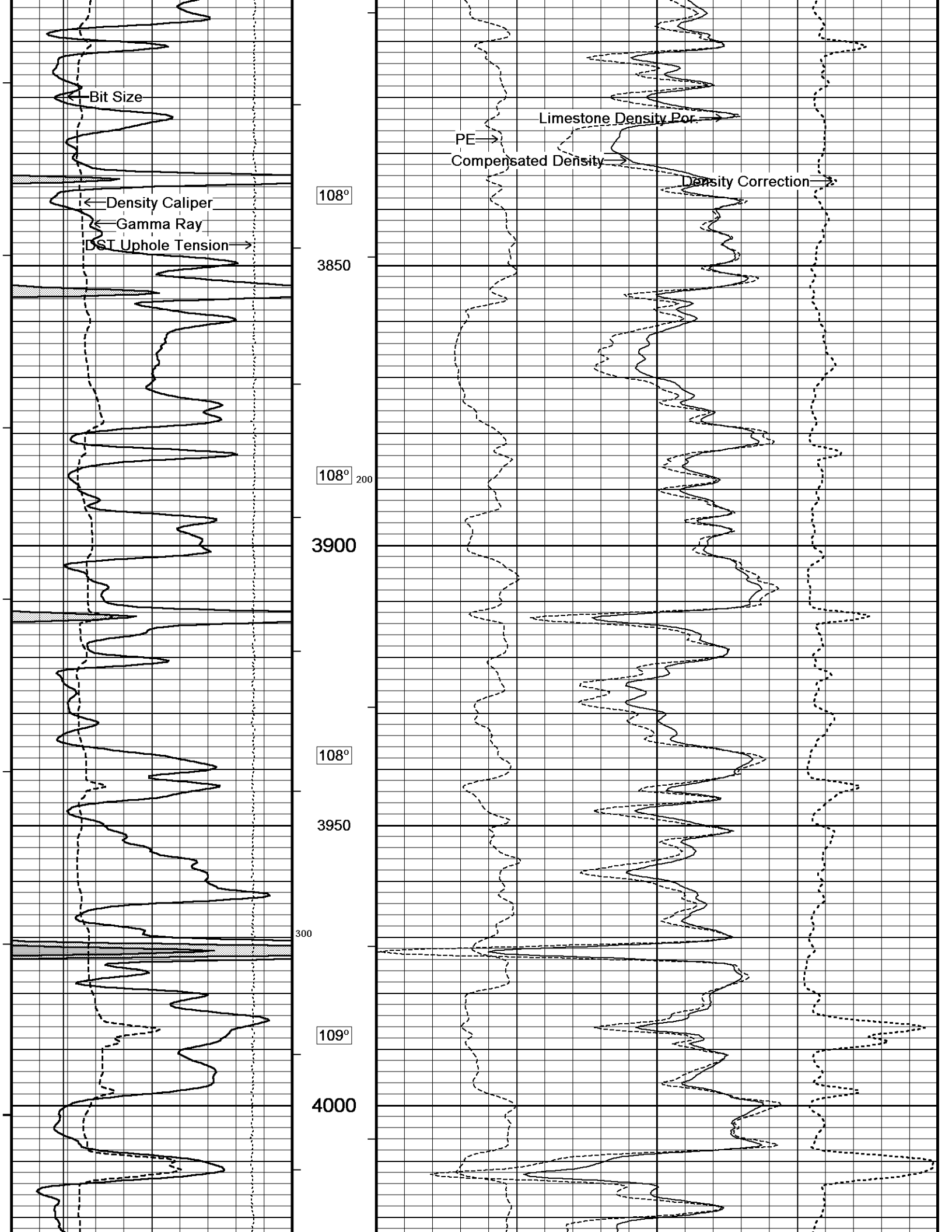
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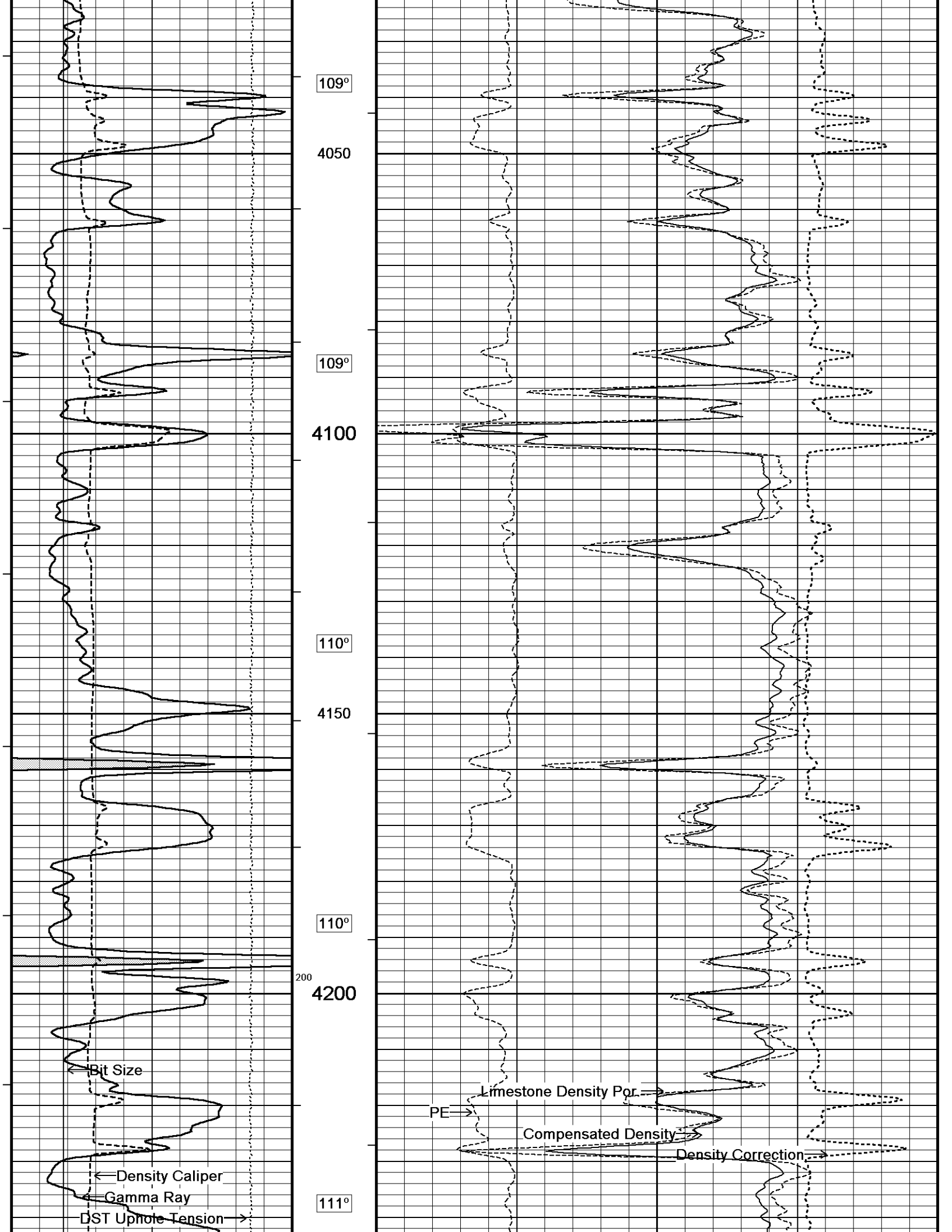
↑ REPEAT SECTION ↑

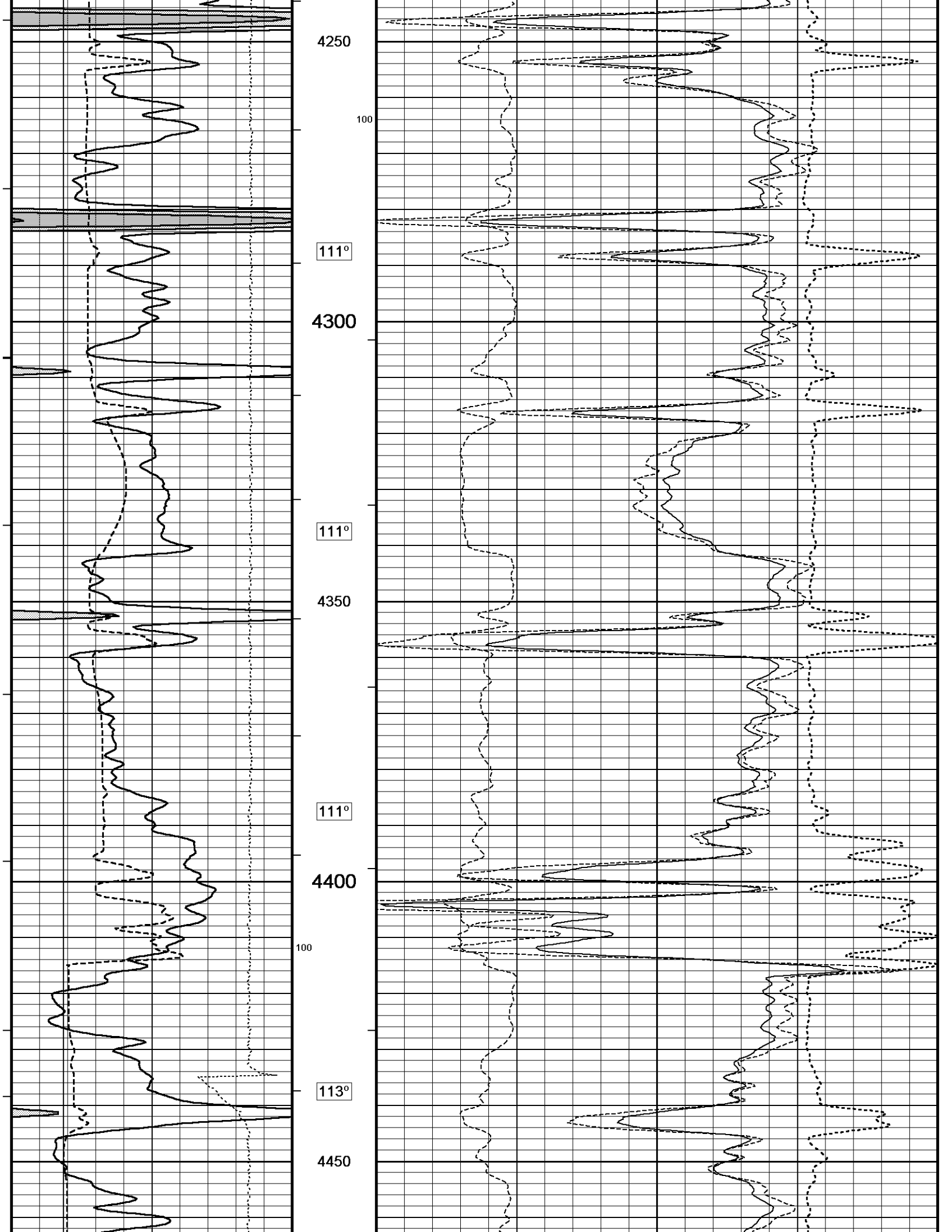
↓ 5 INCH MAIN ↓

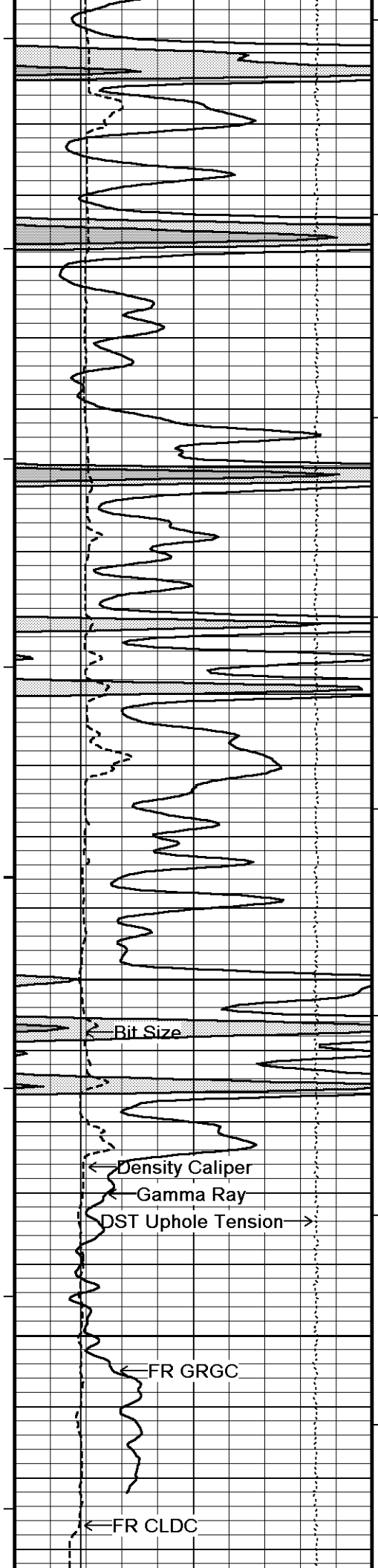
Depth Based Data - Maximum Sampling Increment 10.0cm
 Plotted on 09-DEC-2013 00:31











113°

4500

114°

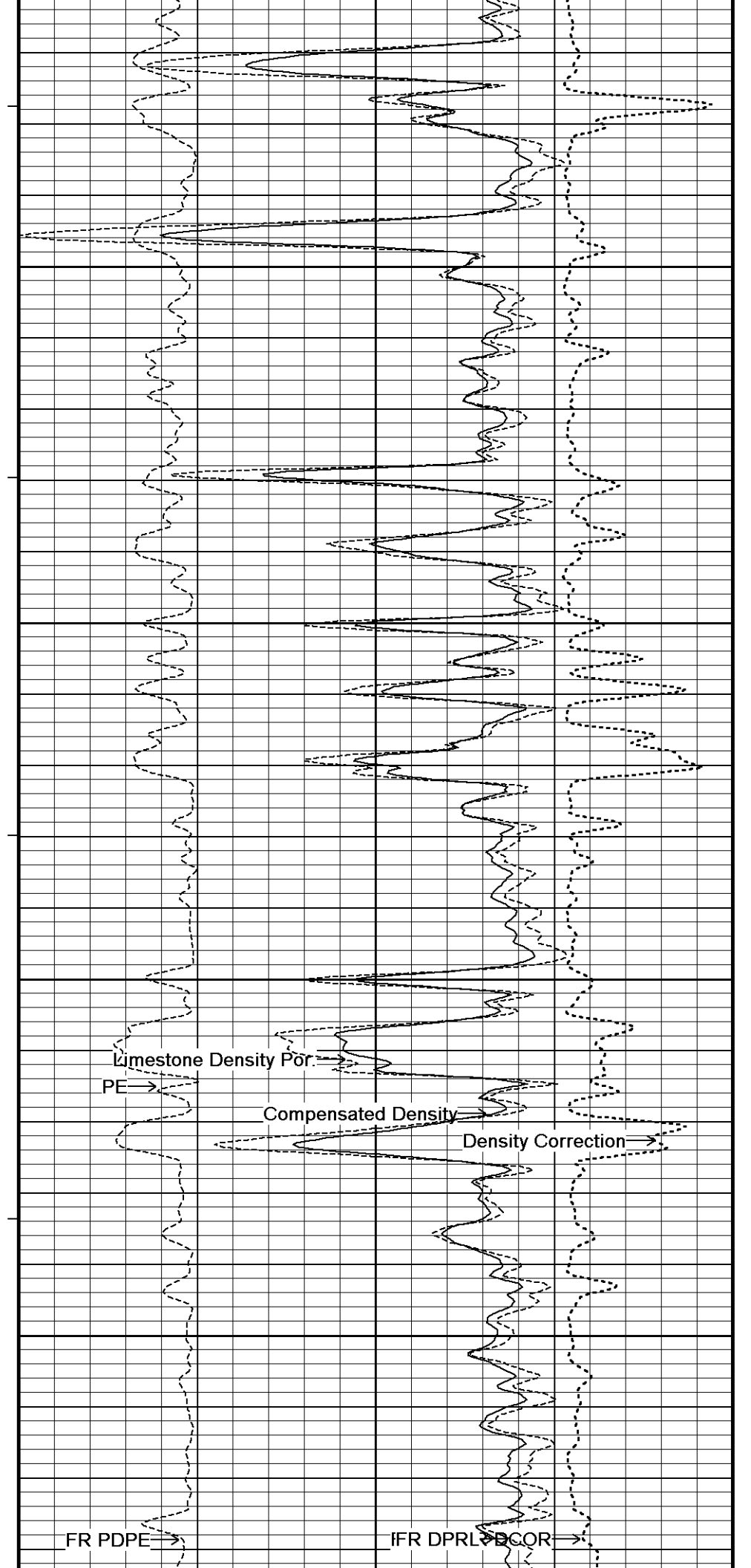
4550

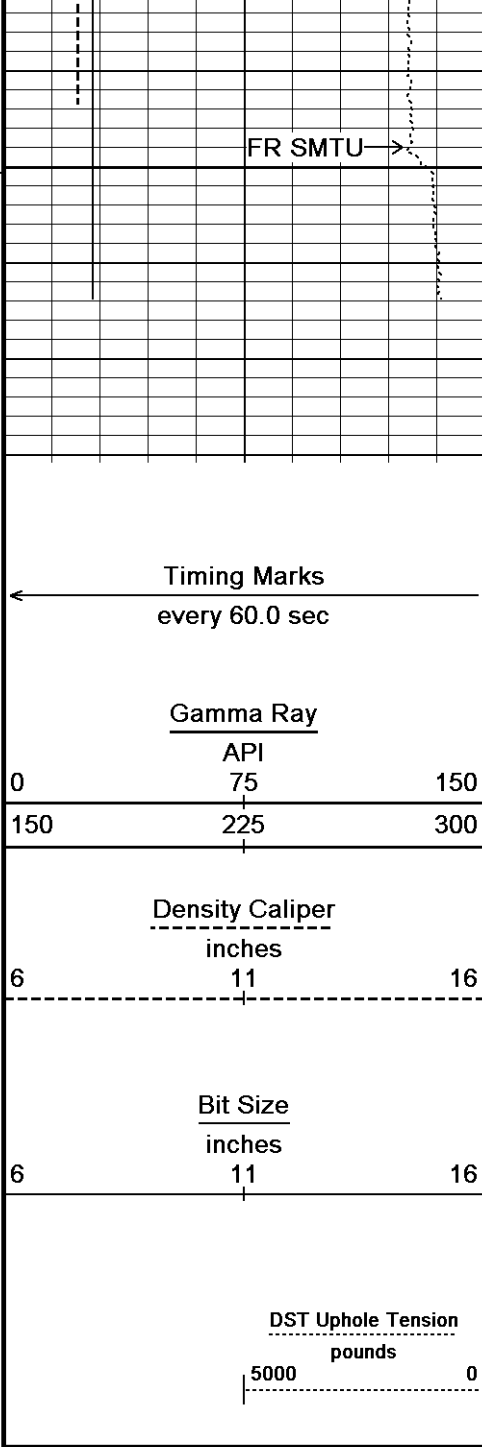
115°

4600

116°

4650





4700

4728

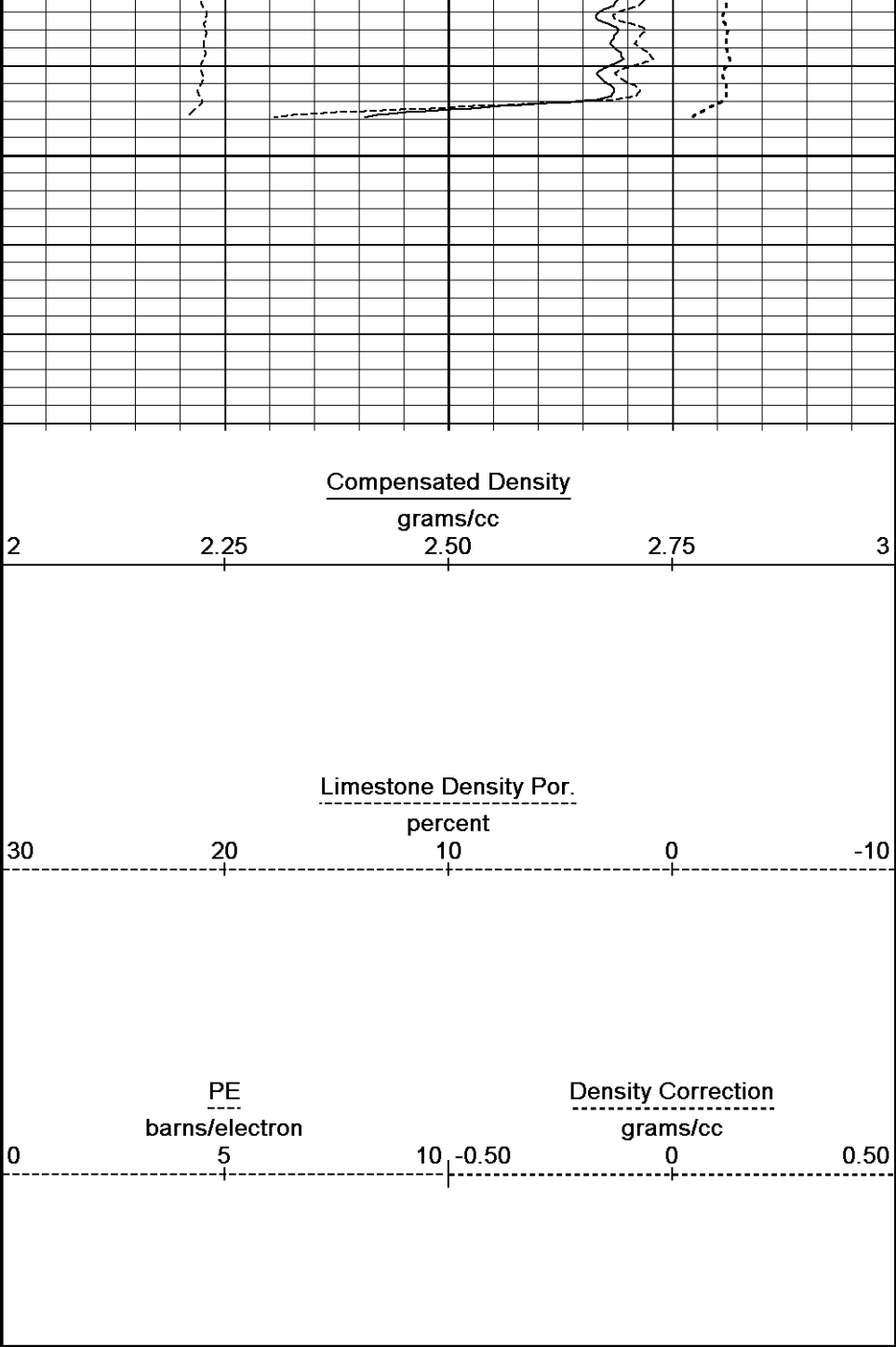
Depth in Feet

Borehole Temp in deg F

HVI every 10 cu ft

Annular Integral every 10 cu ft

Replay Scale 1:240

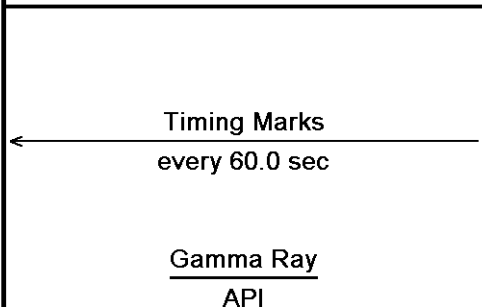


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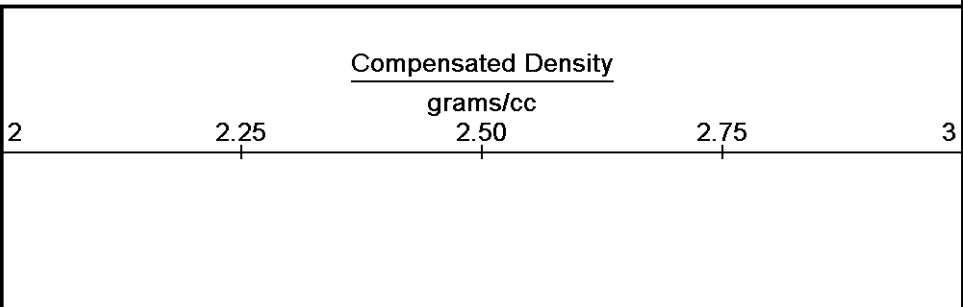
↓ REPEAT SECTION ↓

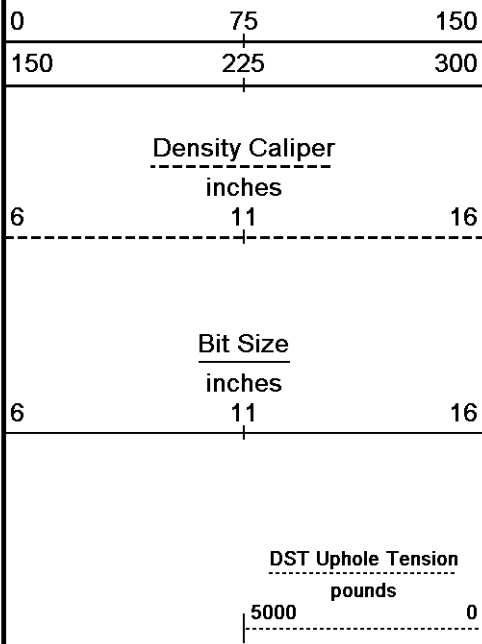
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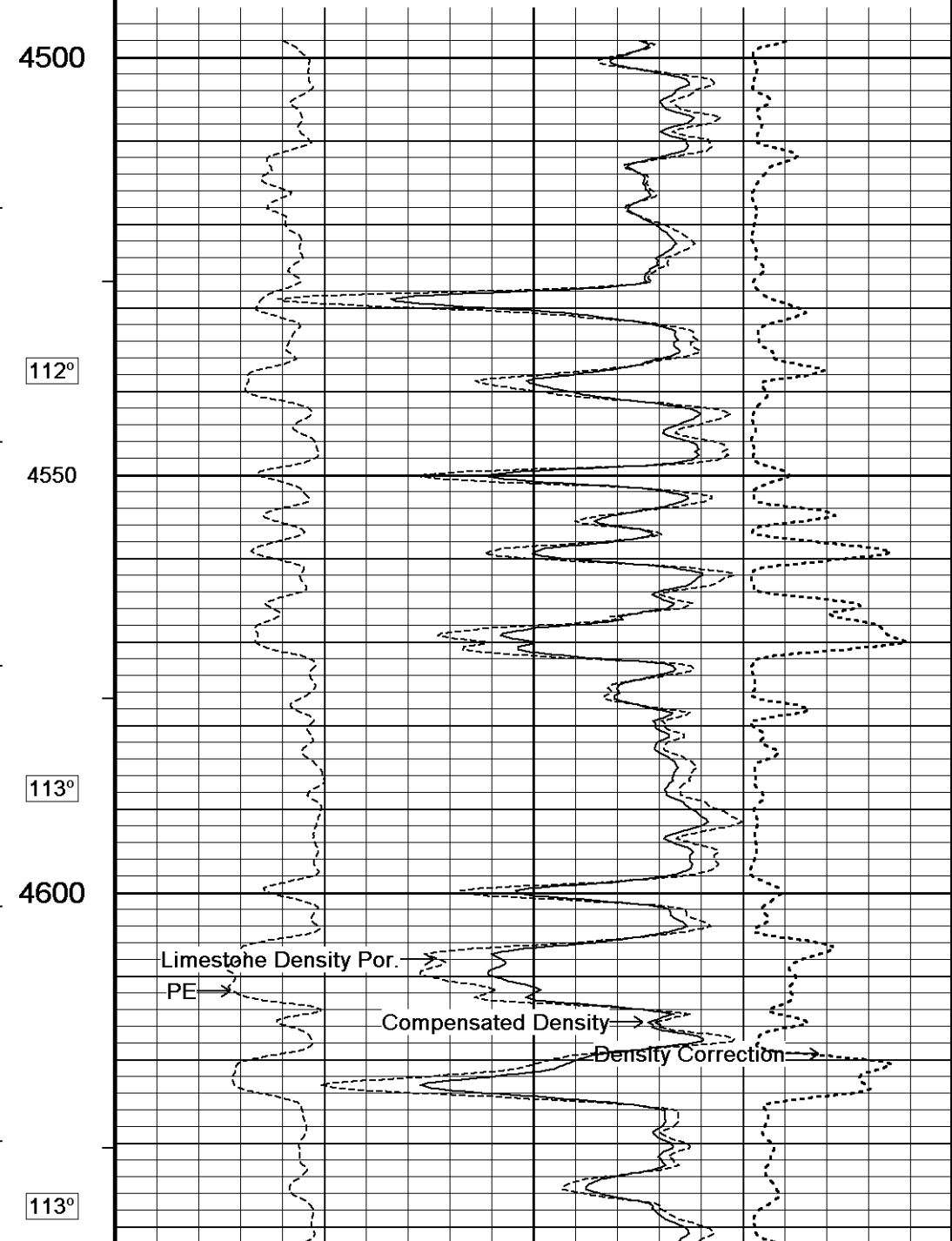
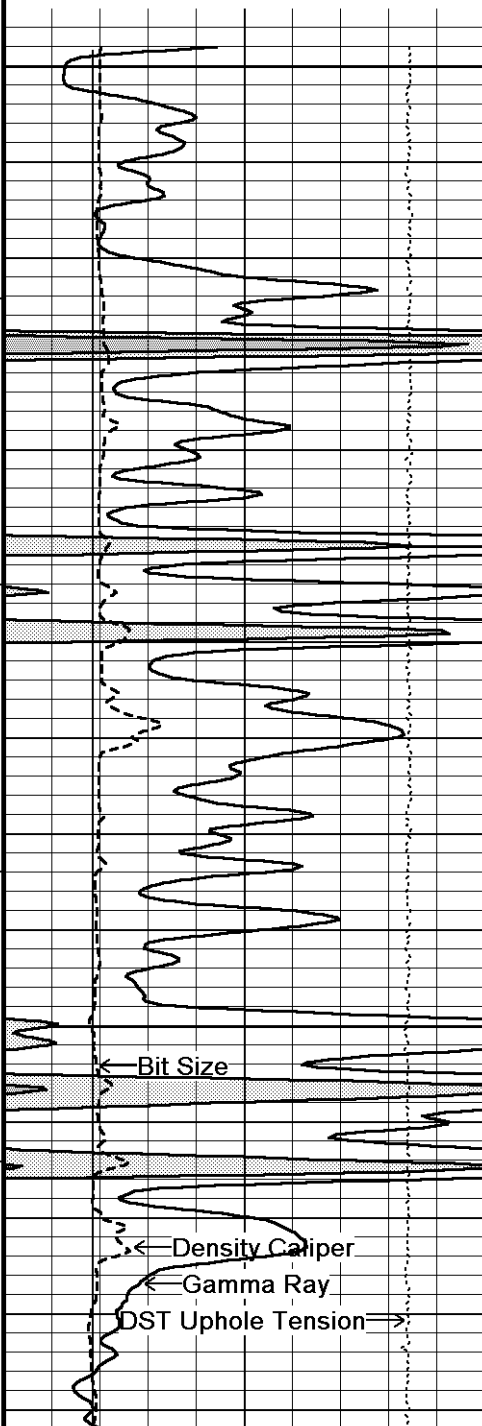
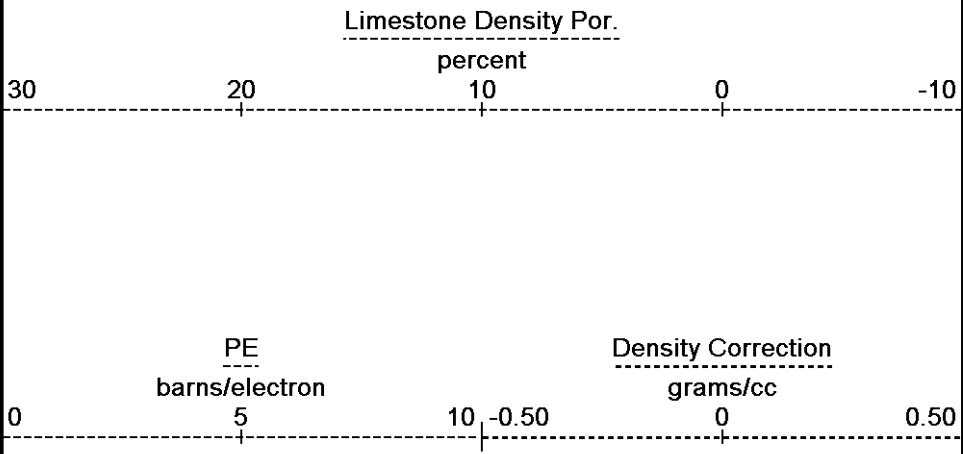
Depth in Feet

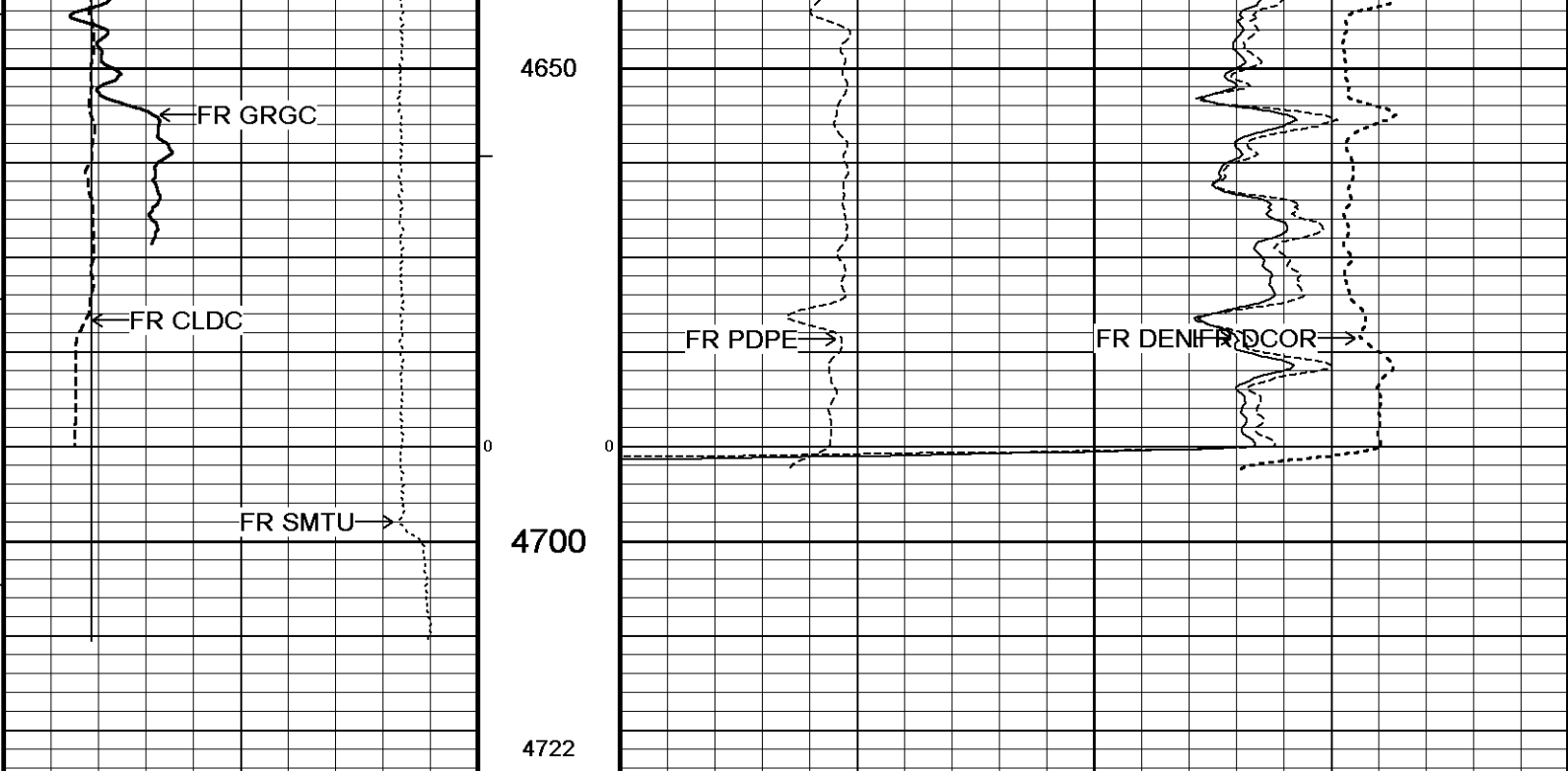
Borehole Temp in





deg F
 HVI
 every
 10 cu ft
 Annular
 Integral
 every
 10 cu ft
 Replay
 Scale
 1:240





Timing Marks every 60.0 sec		
<u>Gamma Ray</u>		
API		
0	75	150
150	225	300
<u>Density Caliper</u>		
inches		
6	11	16
<u>Bit Size</u>		
inches		
6	11	16
<u>DST Uphole Tension</u>		
pounds		
5000		0

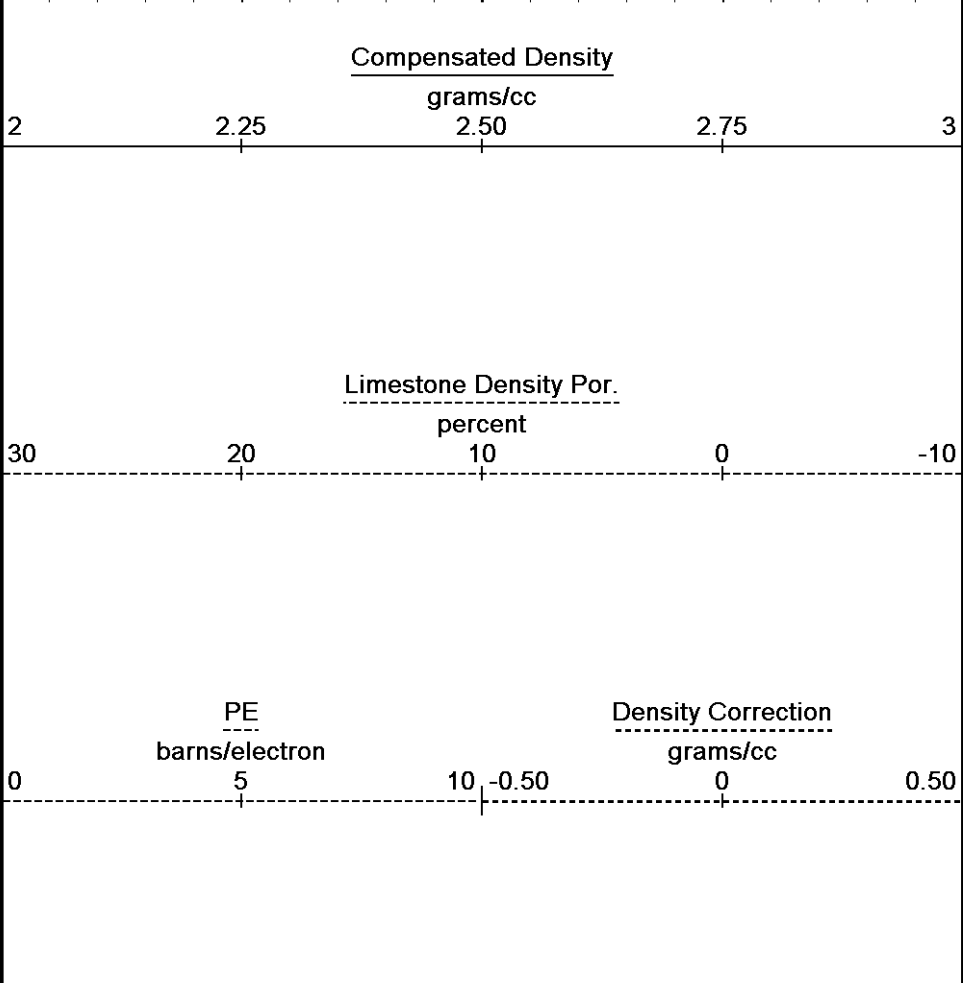
Depth in Feet

Borehole Temp in deg F

HVI every 10 cu ft

Annular Integral every 10 cu ft

Replay Scale 1:240



Depth Based Data - Maximum Sampling Increment 10.0cm

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Plotted on 09-DEC-2013 00:31

Recorded on 08-DEC-2013 19:18

↑ REPEAT SECTION ↑

BEFORE SURVEY CALIBRATION

E:\Shakespeare Teeter #2-11\Shakespeare Teeter #2-11 Main.dta

General Constants All 000

Last Edited on 08-DEC-2013,15:56

General Parameters		
Mud Resistivity	1.730	ohm-metres
Mud Resistivity Temperature	89.300	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	None	

Rwa Parameters		
Porosity used	Crossplot Porosity	
Resistivity used	Array Ind. One Res Rt	
RWA Constant A	1.000	
RWA Constant M	2.000	
SW/APOR Tool Source	0.000	

Gamma Calibration MCG-B 39

Field Calibration on 08-DEC-2013 11:44

	Measured	Calibrated (API)
Background	60	40
Calibrator (Gross)	1135	765
Calibrator (Net)	1075	725

Gamma Constants MCG-B 39

Last Edited on 08-DEC-2013,15:55

Gamma Calibrator Number	GRC38	
Mud Density	1.13	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-B 39

Field Calibration on 08-DEC-2013,11:39

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

High Resolution Temperature Constants MCG-B 39

Last Edited on 08-DEC-2013,11:39

Pre-filter Length	11
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Photo Density Calibration MPD-C.A 216

Base Calibration on 04-NOV-2013,14:26

Field Check on 08-DEC-2013 11:17

Density Calibration				
Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	53102	19935	52888	19096
Reference 2	25779	2814	25270	2567

Field Check at Base	1121.7	1316.5
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Field Check	1118.0	1314.3
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PE Calibration				
Base Calibration	Measured			Calibrated
	WS	WH	Ratio	Ratio
Background	205	1001		
Reference 1	18282	52929	0.348	0.309
Reference 2	7413	25647	0.292	0.273

Field Check at Base	204.5	1000.7
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Density Constants MPD-C.A 216

Last Edited on 08-DEC-2013,15:54

Density Source Id	18235B	
Nylon Calibrator Number	DNCE528	
Aluminium Calibrator Number	DACD528	
Density Shoe Profile	8 inch	
Caliper Source for Processing	Density Caliper	
PE Correction to Density	Not Applied	
Mud Density	1.13	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 (m)	
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	

Caliper Calibration MPD-C.A 216

Base Calibration on 03-NOV-2013 23:03

Field Calibration on 08-DEC-2013 11:18

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	16494	4.01
2	26560	5.96
3	36690	7.98
4	46752	9.95
5	57360	11.91
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
8.00	7.97

DOWNHOLE EQUIPMENT

E:\Shakespeare Teeter #2-11\Shakespeare Teeter #2-11 Main.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-B 39 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Compact Micro-log

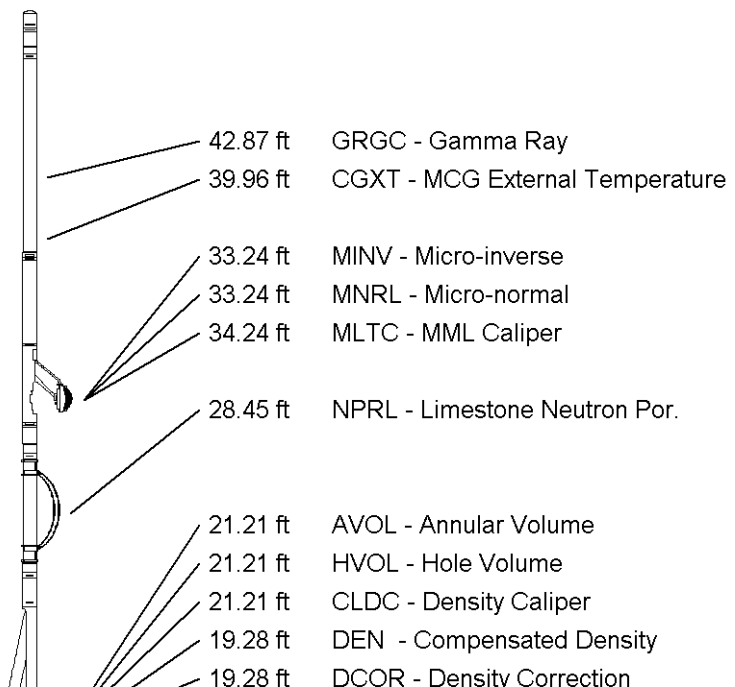
MML-A 3 LG: 7.97 ft WT: 81.6 lb OD: 2.24 in

Compact Neutron

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

Compact Density/Caliper

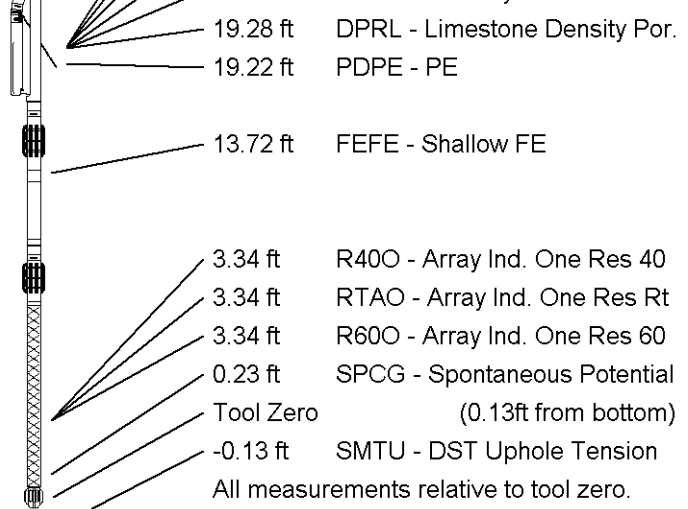
MPD-C.A 216 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in



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 SHAKESPEARE OIL CO., INC
 WELL TEETER #2-11
 FIELD STRATFORD
 PROVINCE/COUNTY LOGAN
 COUNTRY/STATE U.S.A. / KANSAS

Elevation Kelly Bushing	2995.00	feet	First Reading	4678.78	feet
Elevation Drill Floor	2993.00	feet	Depth Driller	4700.00	feet
Elevation Ground Level	2983.00	feet	Depth Logger	4698.00	feet



Weatherford[®]

COMPACT PHOTO DENSITY
 COMPENSATED NEUTRON
 MICRORESISTIVITY LOG