COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRORESISTIVITY LOG

Weatherford®

COMPANY	McELVAIN ENERGY, INC.
WELL	GUSTAFSON #11-6
FIELD	DUSSAULT
PROVINCE/COUNTY	GRAHAM
COUNTRY/STATE	U.S.A. / KANSAS
LOCATION	1914' FNL & 2357' FWL

SEC	TWP	RGE	Other Services
11	105	22W	MAI/MFE MSS

API Number 15-065-23996
Permit Number

Permanent Datum GL, Elevation 2324 feet
Log Measured From KB
Drilling Measured From KB

Elevations:	feet
KB	2334.00
DF	2332.00
GL	2324.00

Date	26-FEB-2014		
Run Number	ONE		
Service Order	4558-80590102		
Depth Driller	4065.00 feet		
Depth Logger	4063.00 feet		
First Reading	4031.00 feet		
Last Reading	307.00 feet		
Casing Driller	303.00 feet		
Casing Logger	307.00 feet		
Bit Size	7.875 inches		
Hole Fluid Type	CHEMICAL		
Density / Viscosity	9.20 lb/USg	55.00 CP	
PH / Fluid Loss	10.50	7.20 ml/30Min	
Sample Source	FLOWLINE		
Rm @ Measured Temp	1.28 @ 76.0 ohm-m		
Rmf @ Measured Temp	1.02 @ 76.0 ohm-m		
Rmc @ Measured Temp	1.54 @ 76.0 ohm-m		
Source Rmf / Rmc	CALC	CALC	
Rm @ BHT	0.90 @108.0 ohm-m		
Time Since Circulation	4 HOURS		
Max Recorded Temp	108.00 deg F		
Equipment / Base	13057	LIB	
Recorded By	ADAM SILL		JEFFREY RANDLE
Witnessed By	TOM FLOWERS		
JOB #	LB14-055		

BOREHOLE RECORD

Last Edited: 26-FEB-2014 10:31

Bit Size inches	Depth From feet	Depth To feet
7.875	303.00	4065.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	303.00	24.00

REMARKS

- SOFTWARE ISSUE: WLS 13.05.9583.
- RUN 1: MCG, MML, MDN, MPD, MFE, MSS, MAI RUN IN COMBINATION.
  - HARDWARE: DUAL ECCENTRALISER USED ON MDN
    0.5 INCH STANDOFF USED ON MFE.
    TWO 0.5 INCH STANDOFFS USED ON MSS.
    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 SURFACE CASING: 1571 CU. FT.
- ANNULAR HOLE VOLUME WITH 5.5 INCH PRODUCTION CASING FROM TD TO SURFACE CASING: 954 CU. FT.

- RIG: VAL #6

- ENGINEER: A. SILL, J. RANDLE.

- OPERATOR(S): J. DUNLAP.

5 INCH MAIN

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 10-APR-2014 15:12

Filename: C:\Users\mrigby\AppData\Local\Temp\Weatherford Pre...\McElvain Gustafson #11-6_003.dta — Recorded on 26-FEB-2014 12:38

System Versions: Logged with 13.05.9583 Plotted with 13.06.9284

Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150
150 225 300

Density Caliper
inches
6 11 16

Bit Size
inches
6 11 16

DST Uphole Tension
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

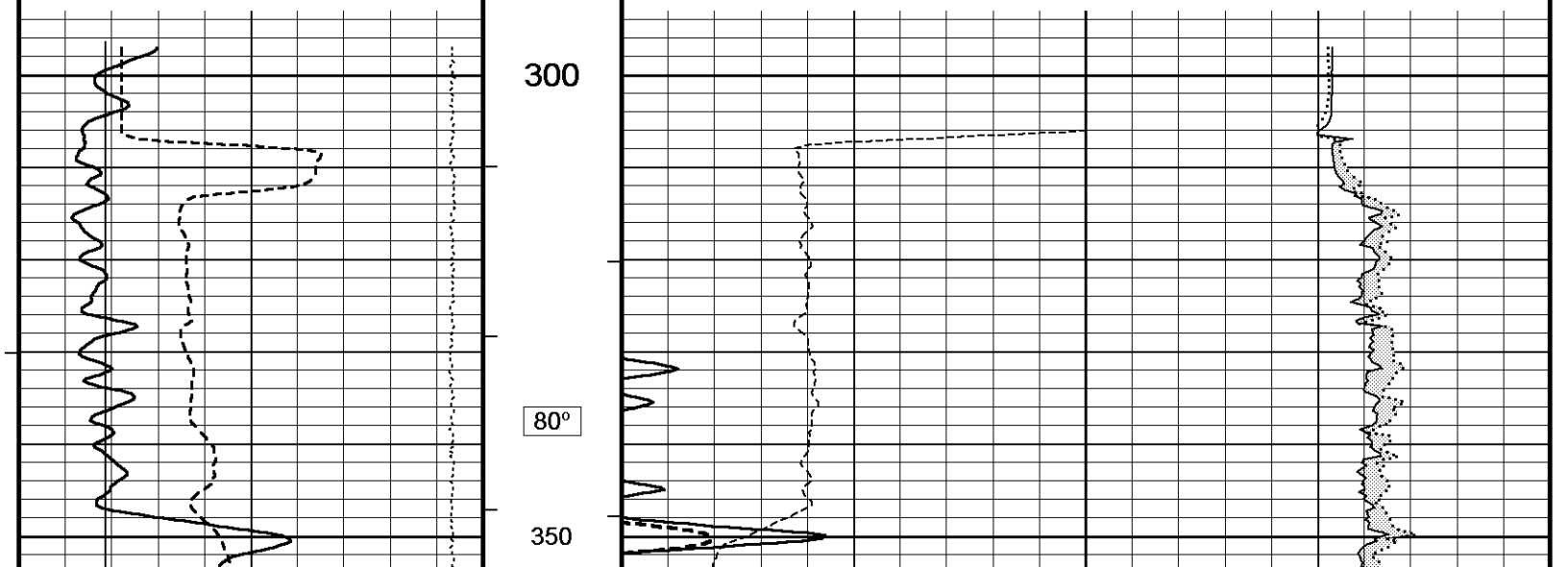
Limestone Neutron Por.
percent
30 20 10 0 -10

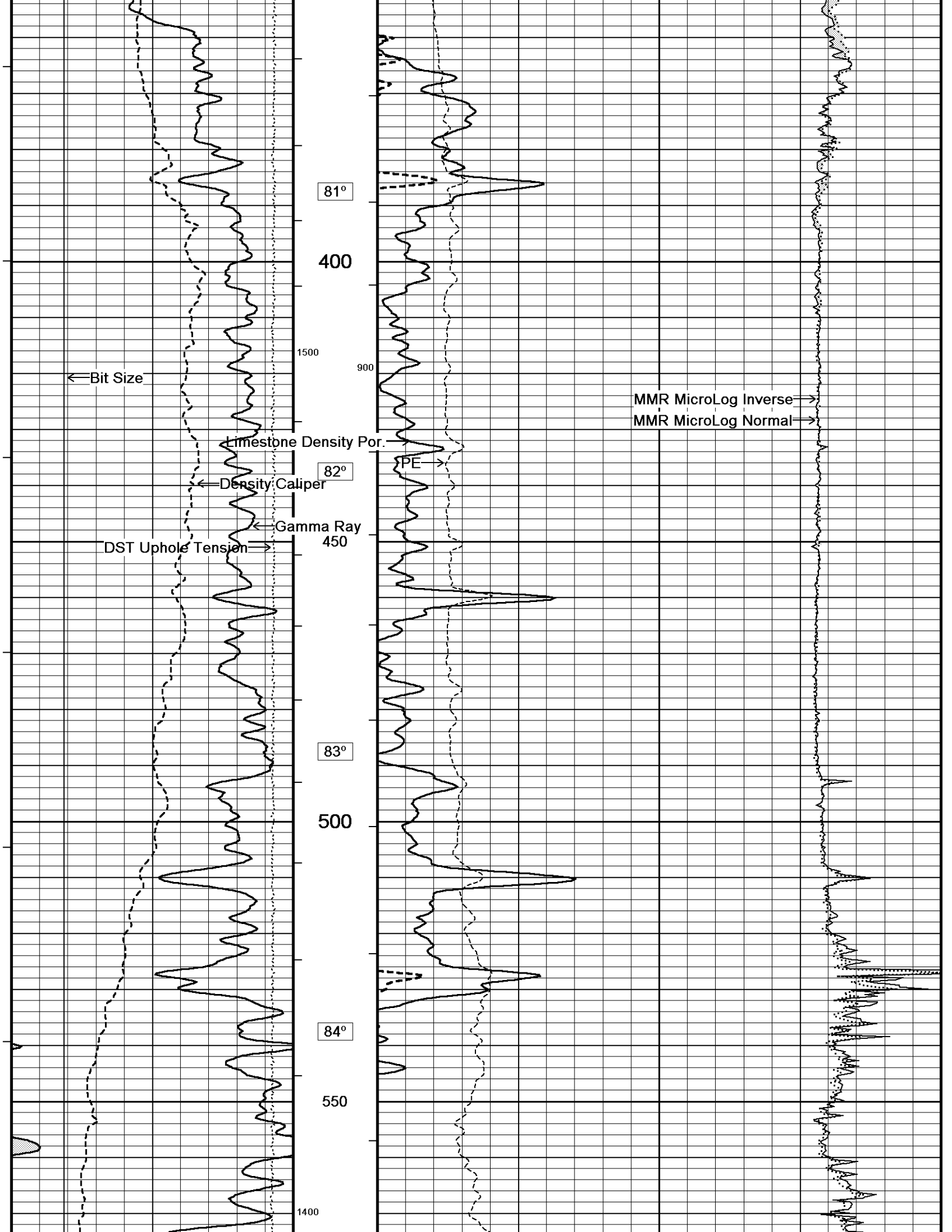
Limestone Density Por.
percent
30 20 10 0 -10

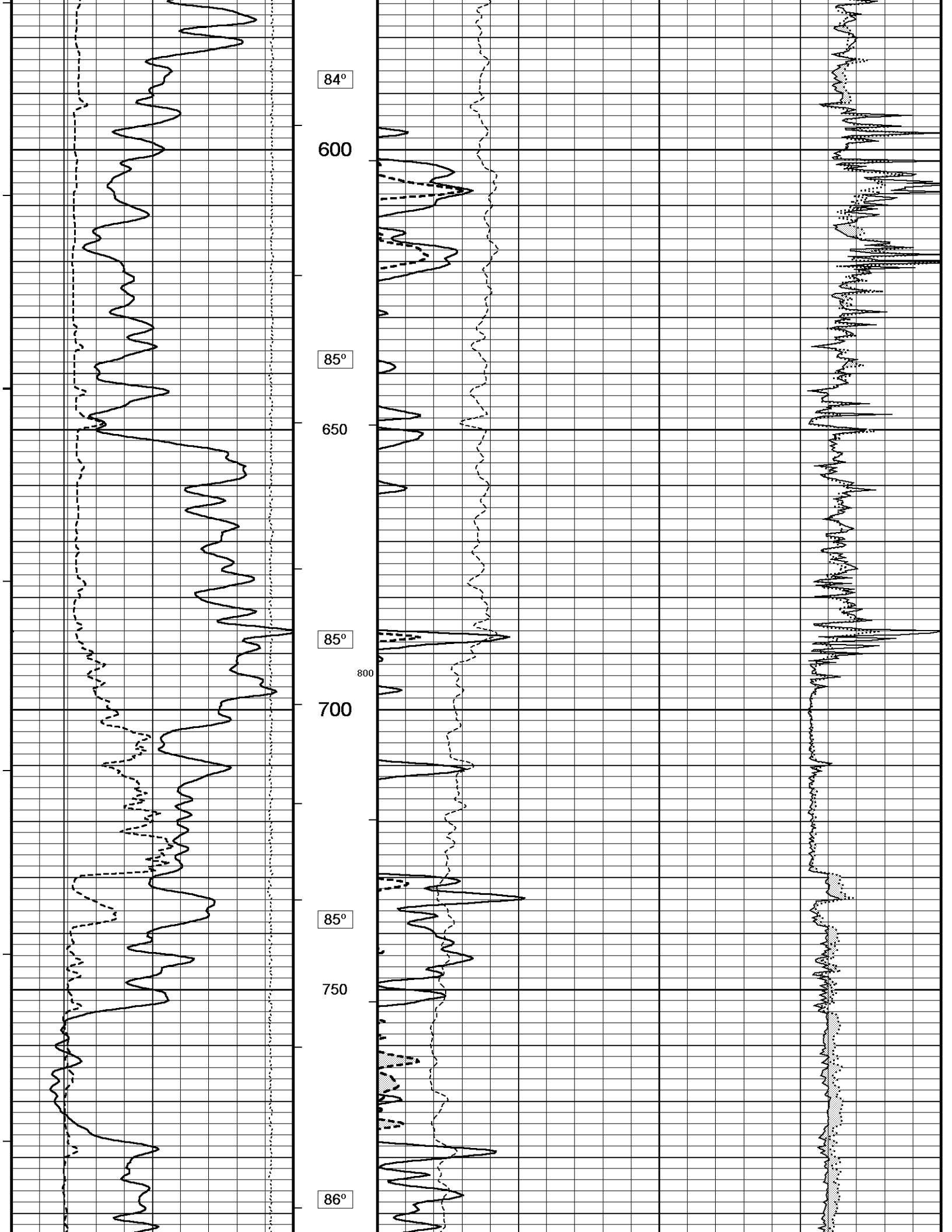
PE
barns/electron
0 5 10

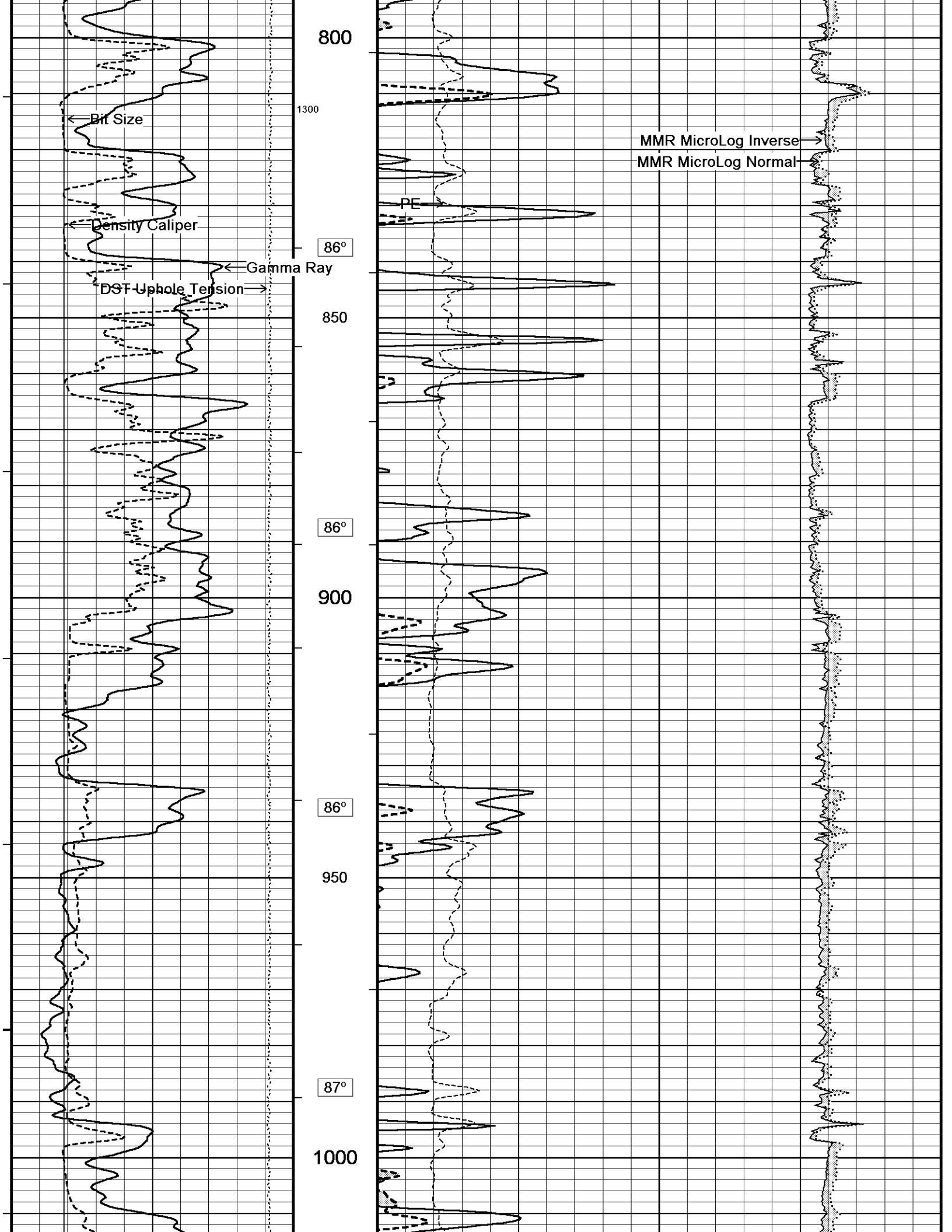
MMR MicroLog Normal
ohm metres
0 20

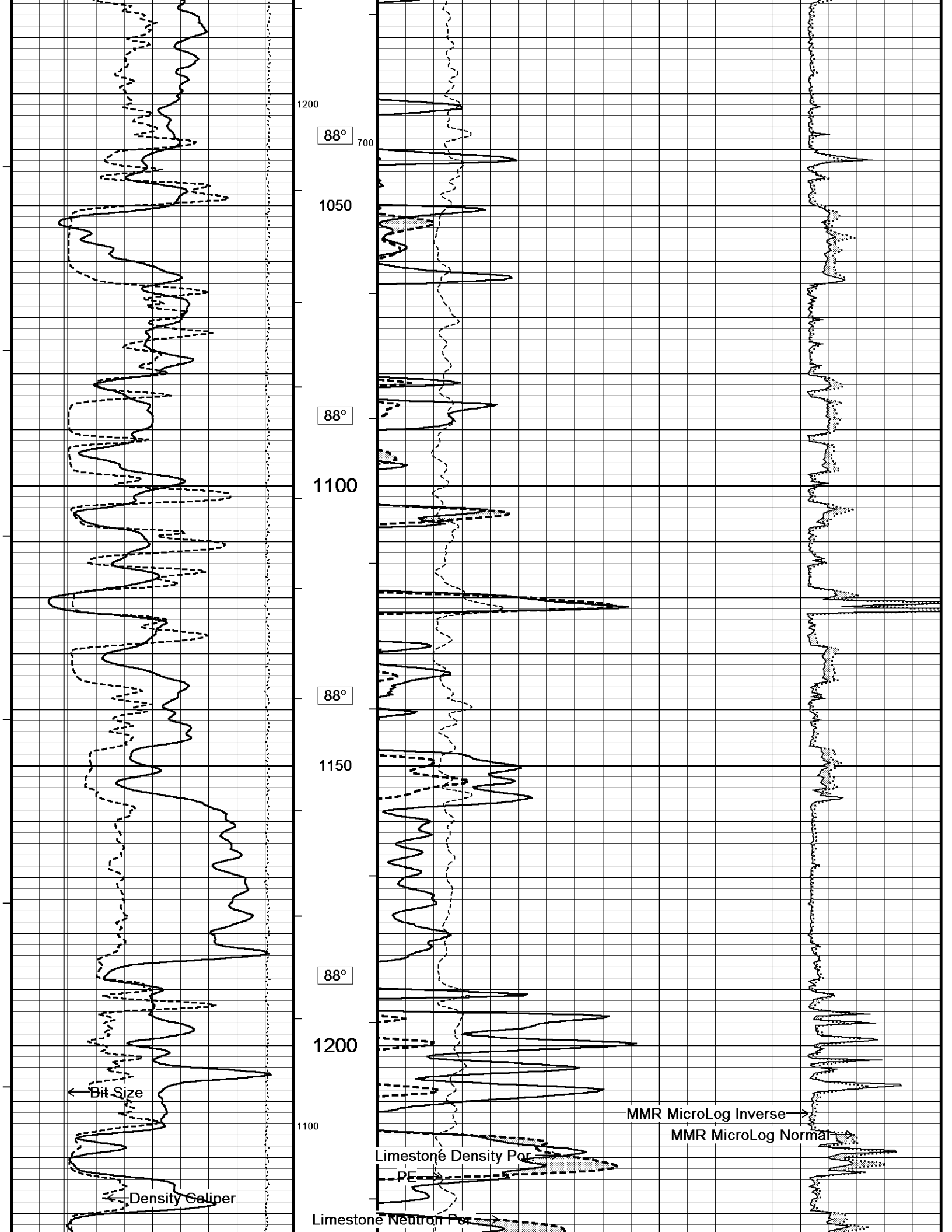
MMR MicroLog Inverse
ohm metres
0 20

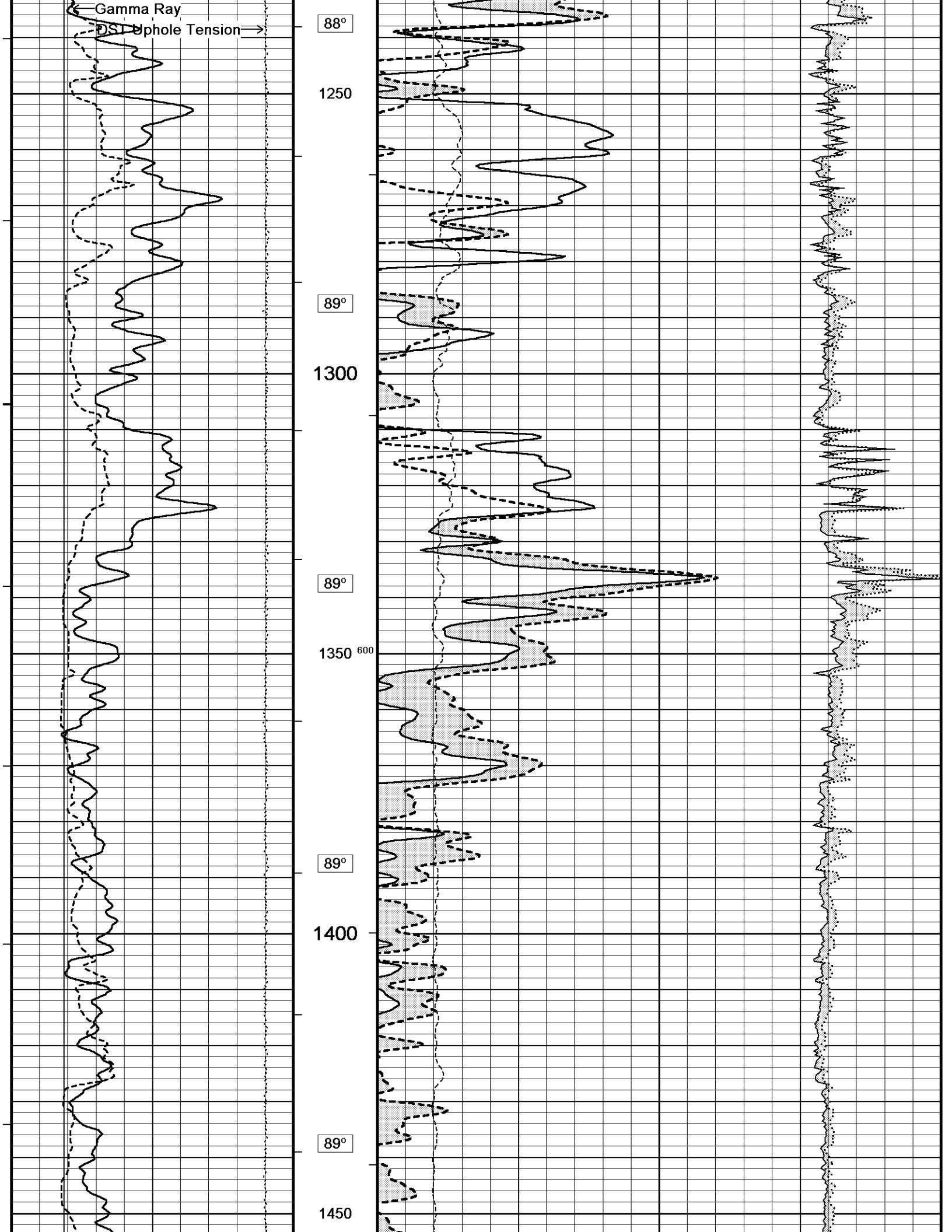


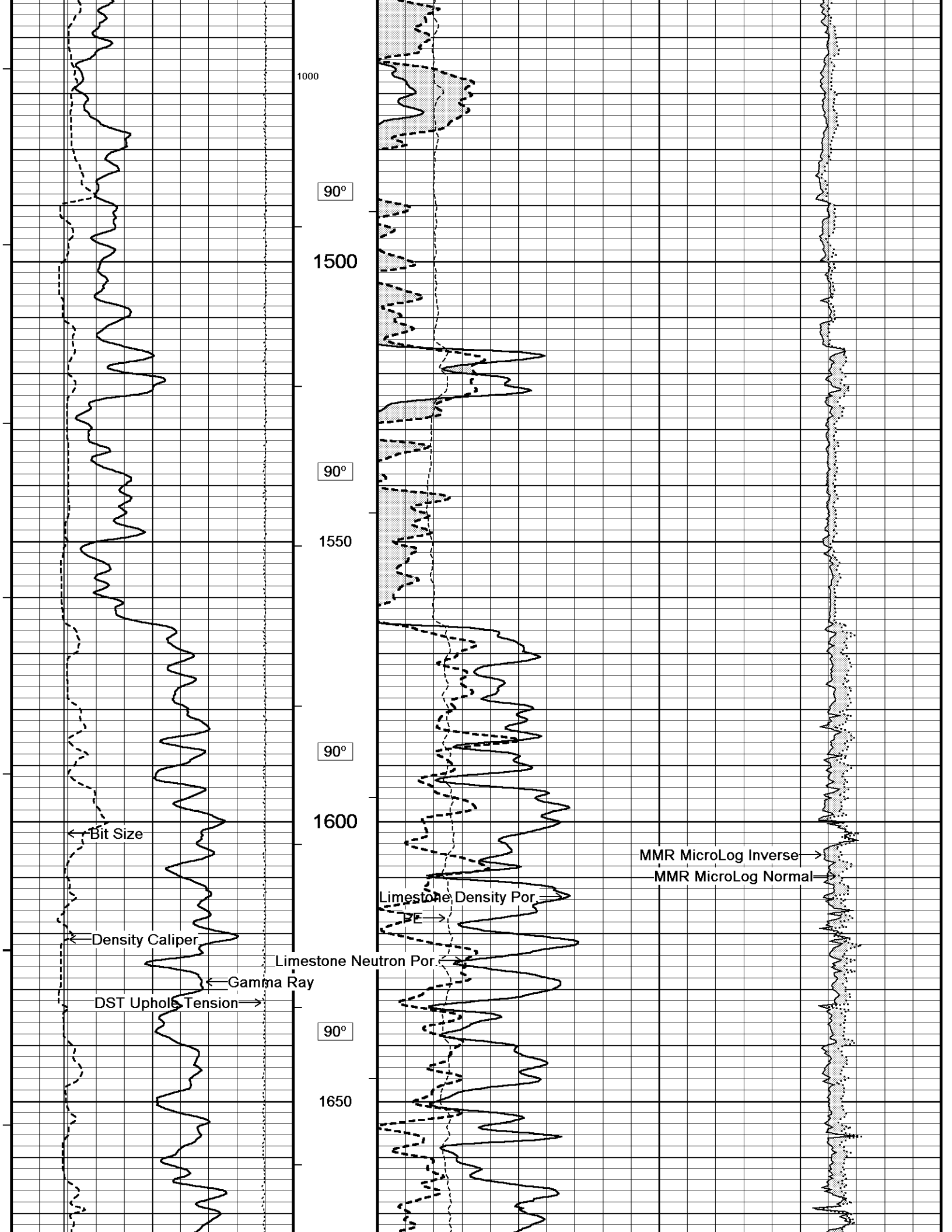

81°
400
1500
900
Bit Size
MMR MicroLog Inverse
MMR MicroLog Normal
Limestone Density Por.
PE
82°
Density Caliper
Gamma Ray
450
DST Uphole Tension
83°
500
84°
550
1400

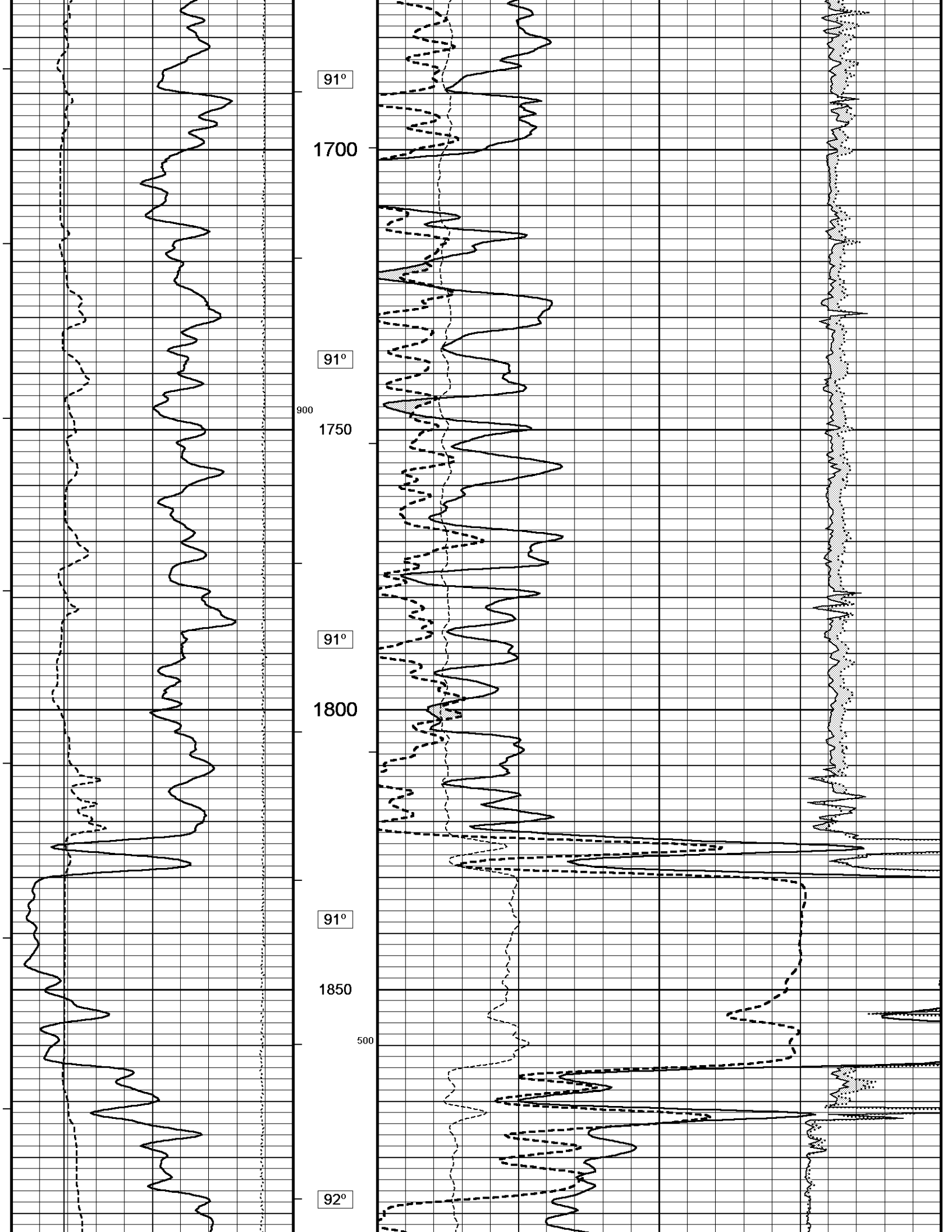

84°
600
85°
650
85°
800
700
85°
750
86°

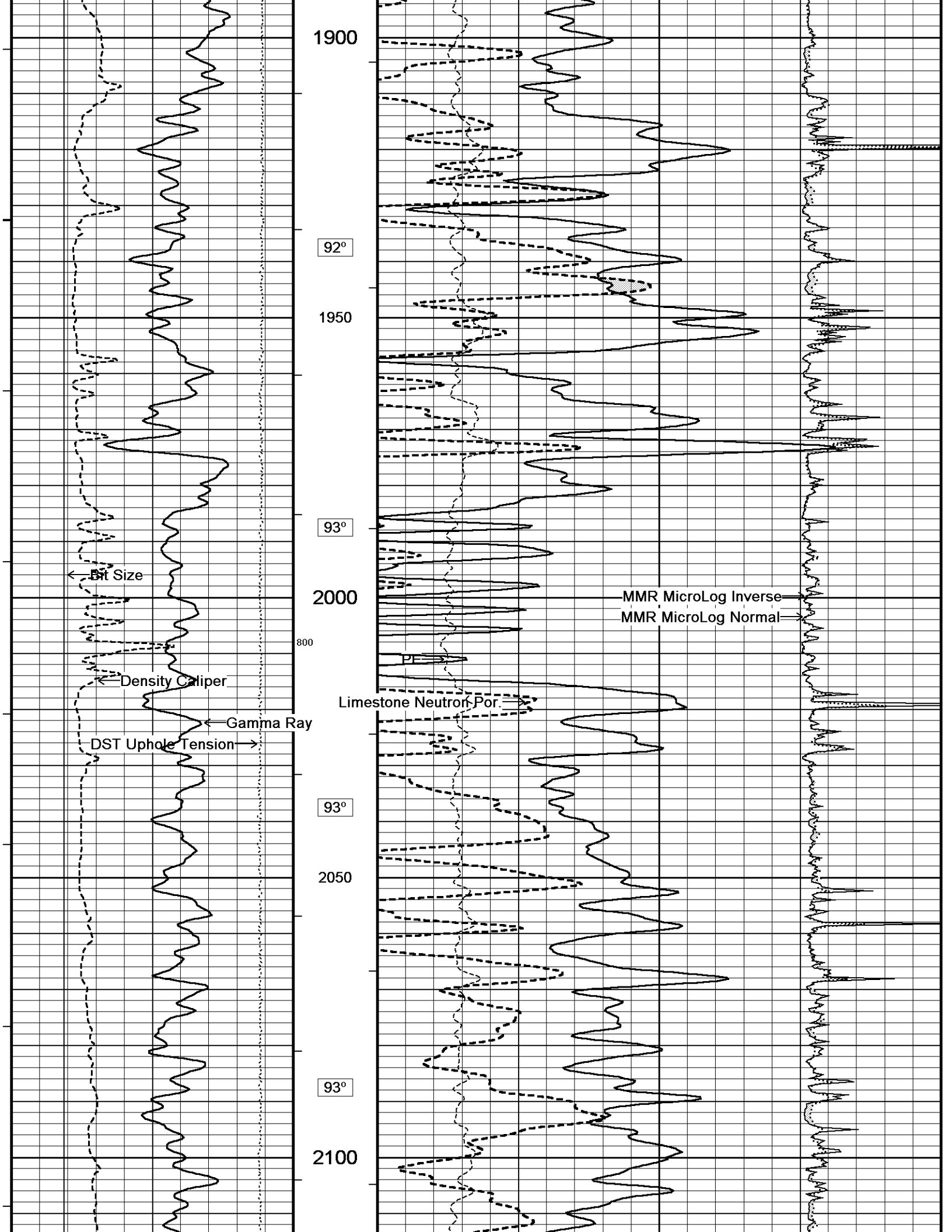

800
1300
Bit Size
MMR MicroLog Inverse
MMR MicroLog Normal
PE
Density Caliper
86°
Gamma Ray
DST Uphole Tension
850
86°
900
86°
950
87°
1000

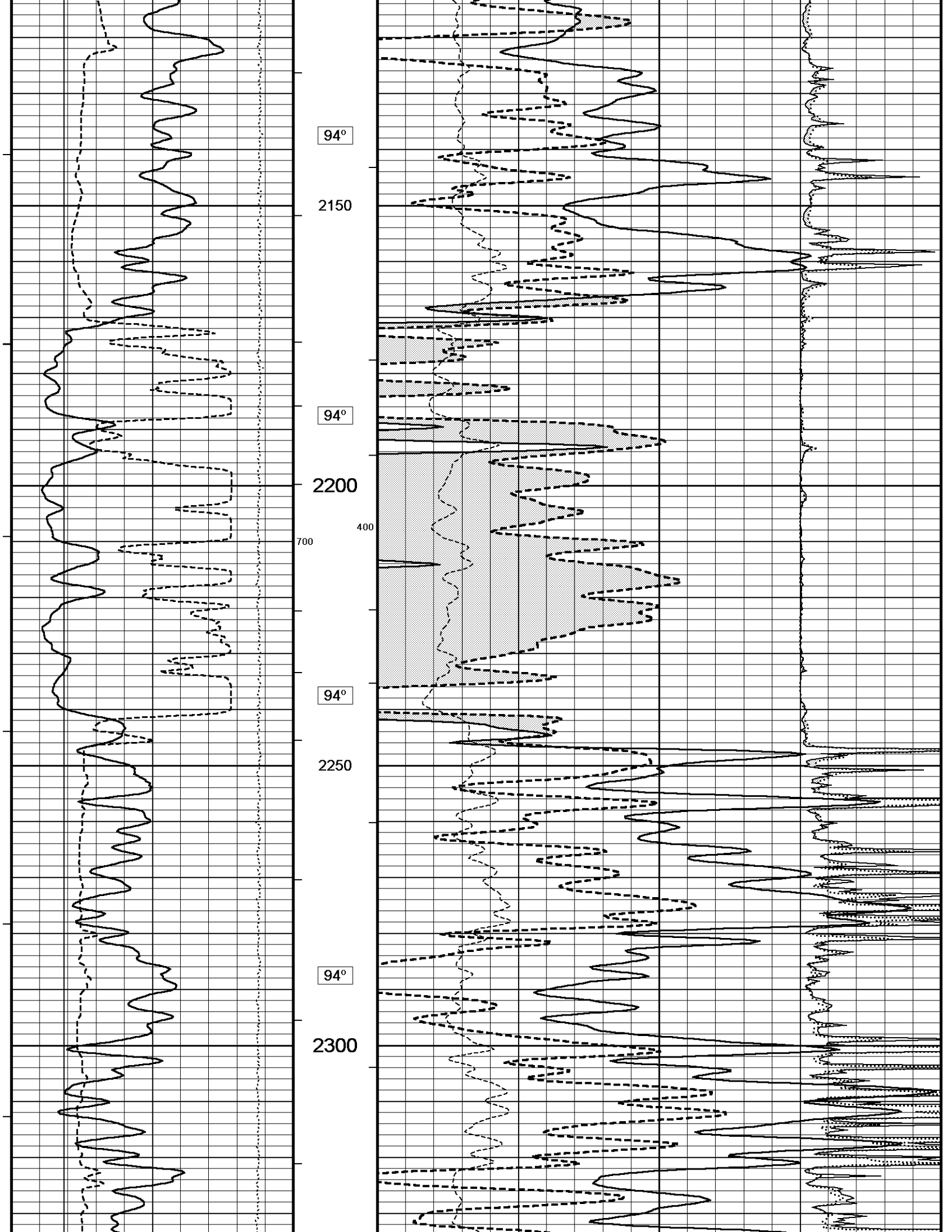

1200
88°
700
1050
88°
1100
88°
1150
88°
1200
1100
Bit Size
Density Caliper
MMR MicroLog Inverse
MMR MicroLog Normal
Limestone Density Por
PE
Limestone Neutron Por

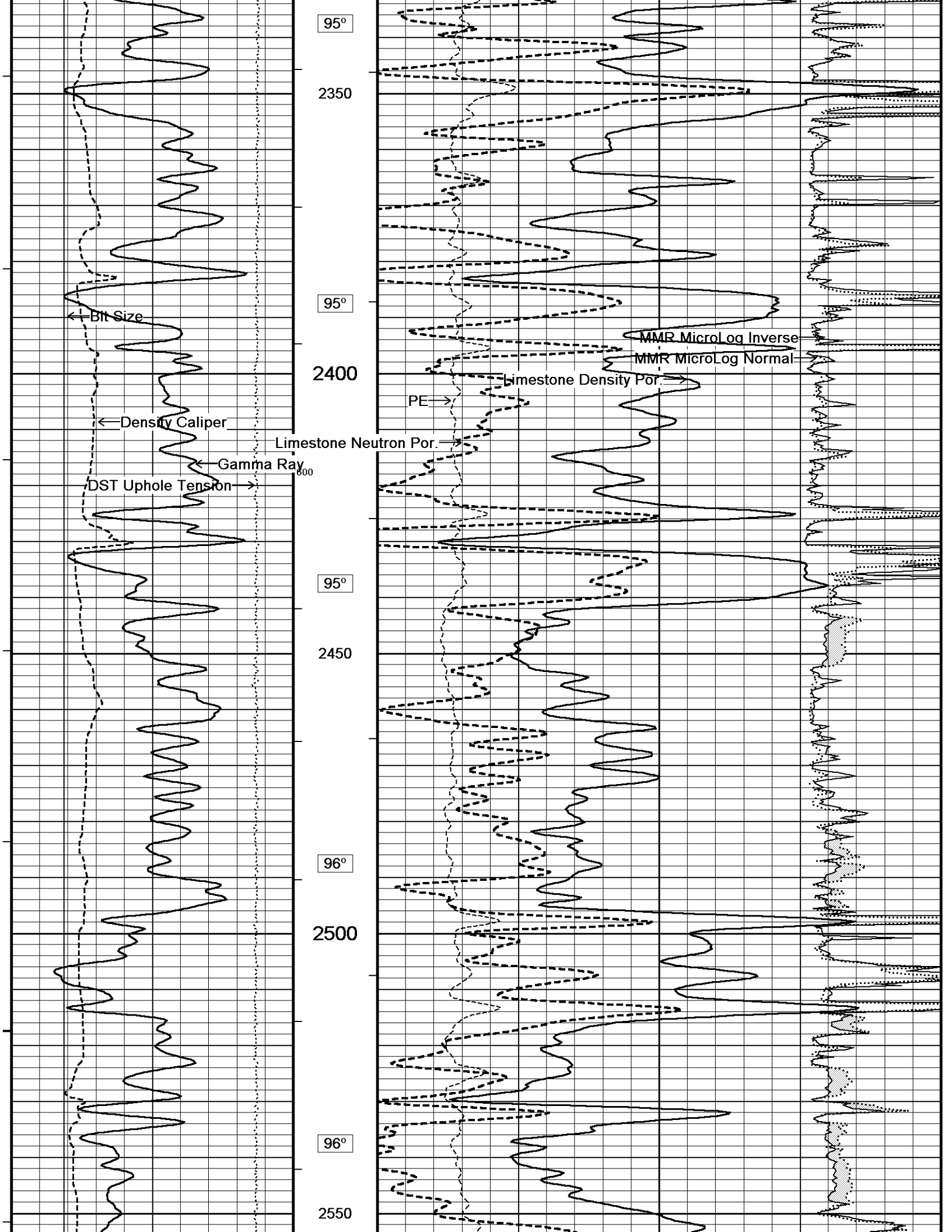

Gamma Ray
DST Uphole Tension
88°
1250
89°
1300
89°
1350
600
89°
1400
89°
1450

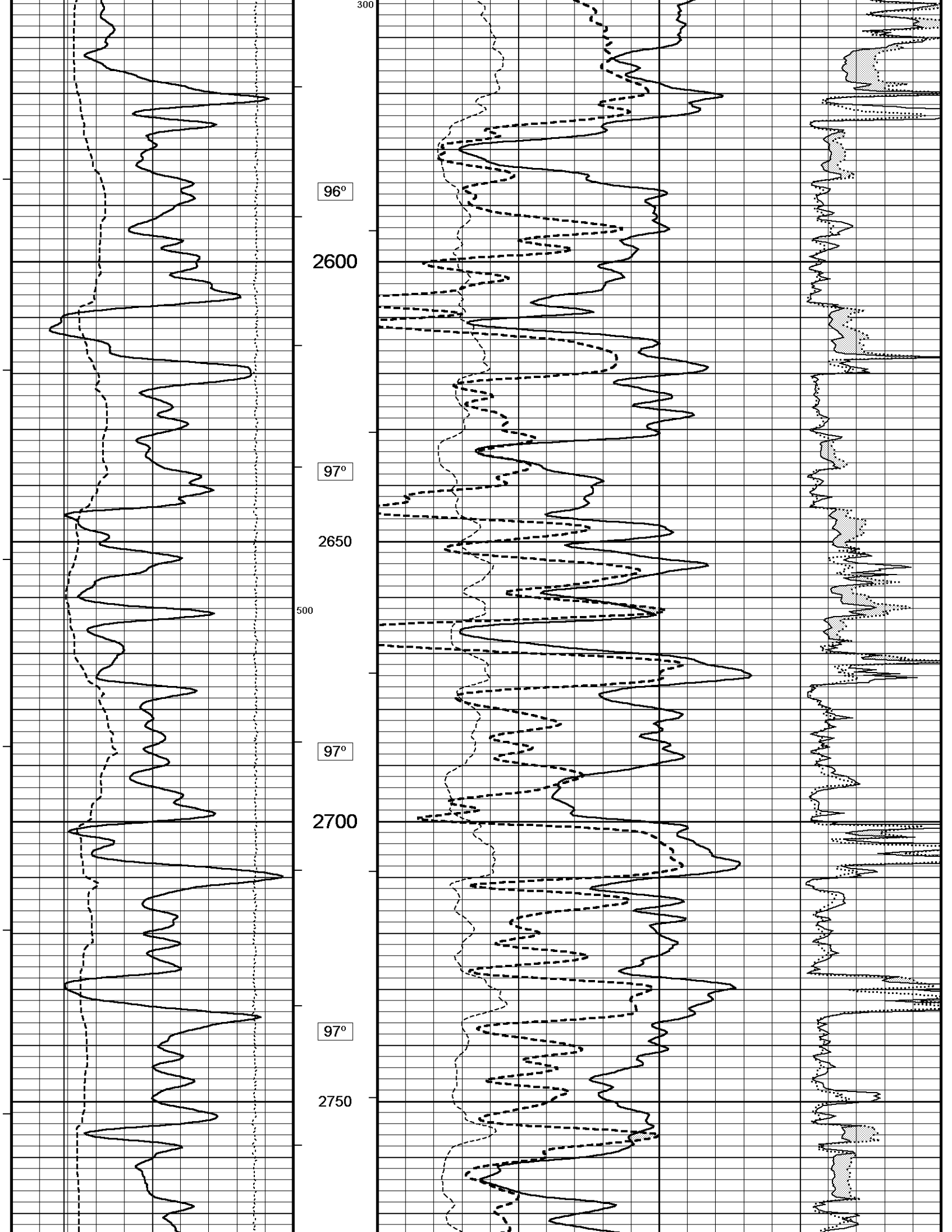

1000
90°
1500
90°
1550
90°
1600
Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
Limestone Neutron Por
90°
1650
MMR MicroLog Inverse
MMR MicroLog Normal
Limestone Density Por
PE

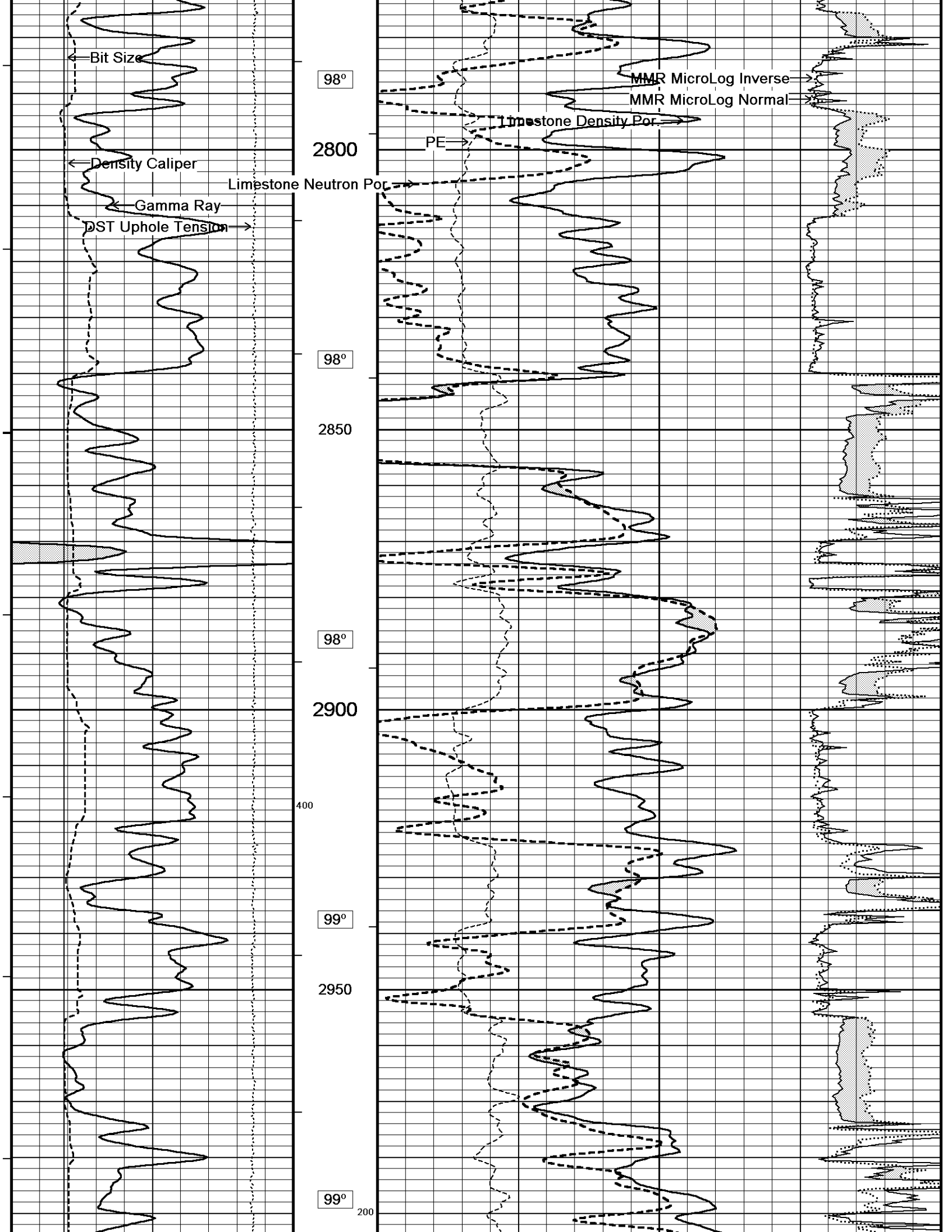

91°
1700
91°
900
1750
91°
1800
91°
1850
500
92°

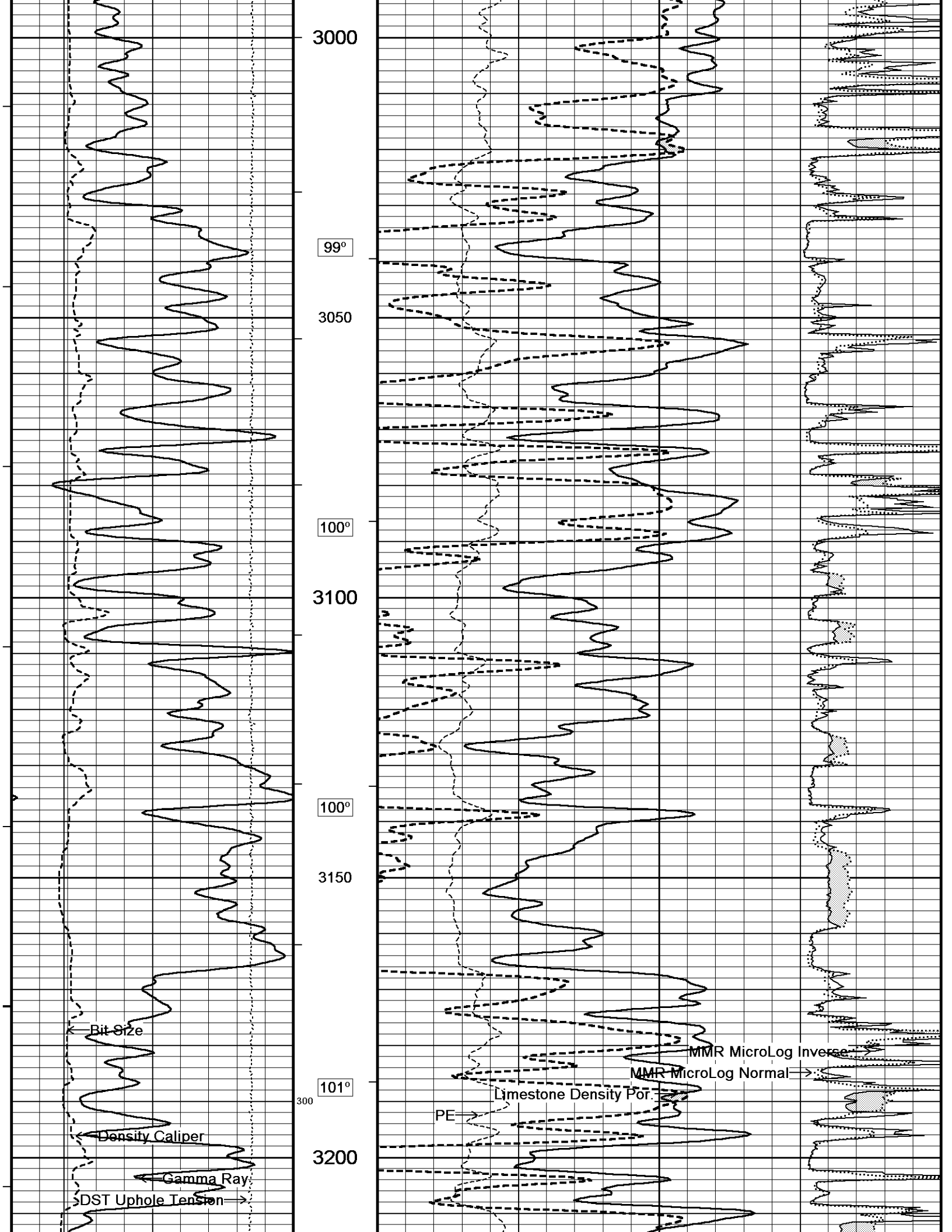

1900
92°
1950
93°
Bit Size
2000
MMR MicroLog Inverse
MMR MicroLog Normal
800
PE
Density Caliper
Limestone Neutron Por.
Gamma Ray
DST Uphole Tension
93°
2050
93°
2100

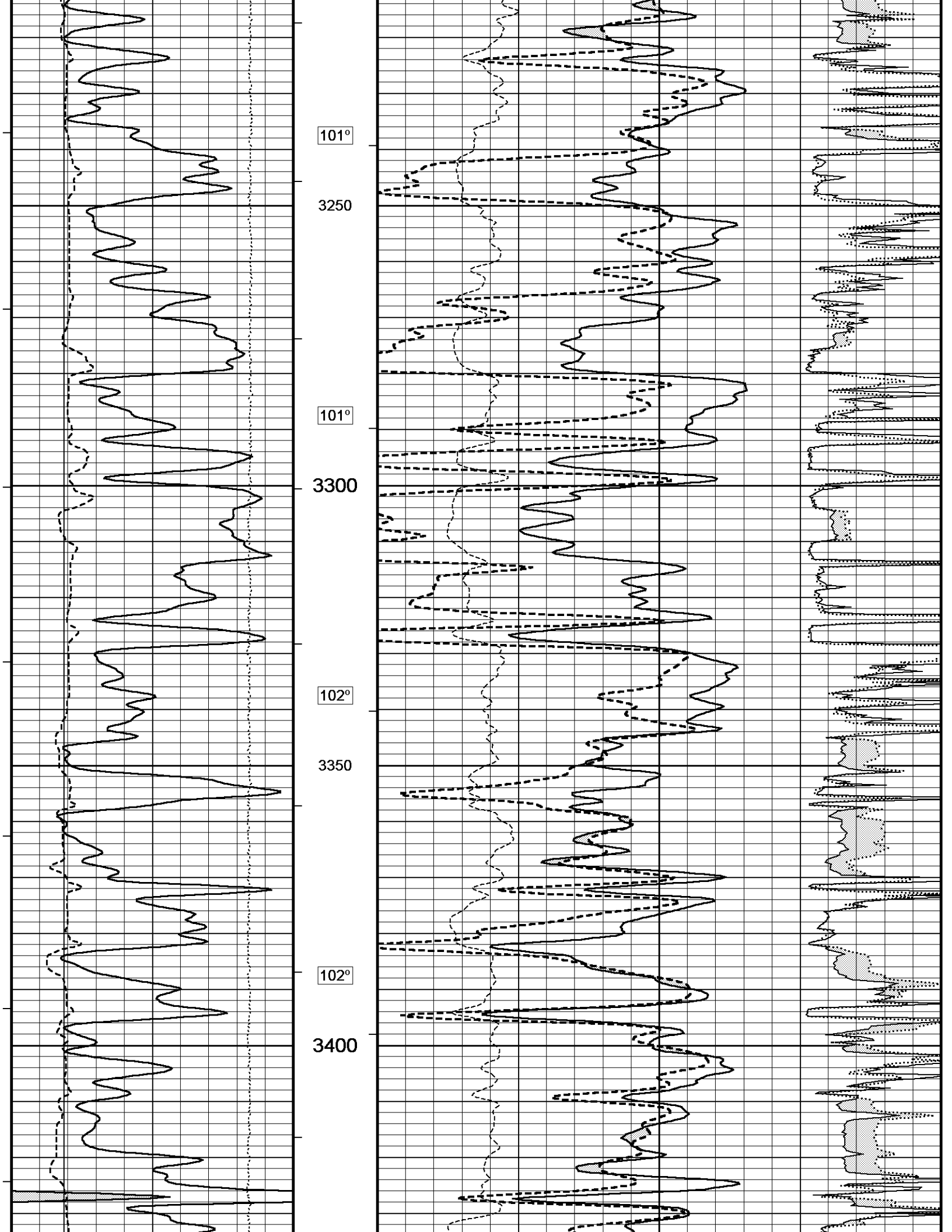

94°
2150
94°
2200
400
700
94°
2250
94°
2300

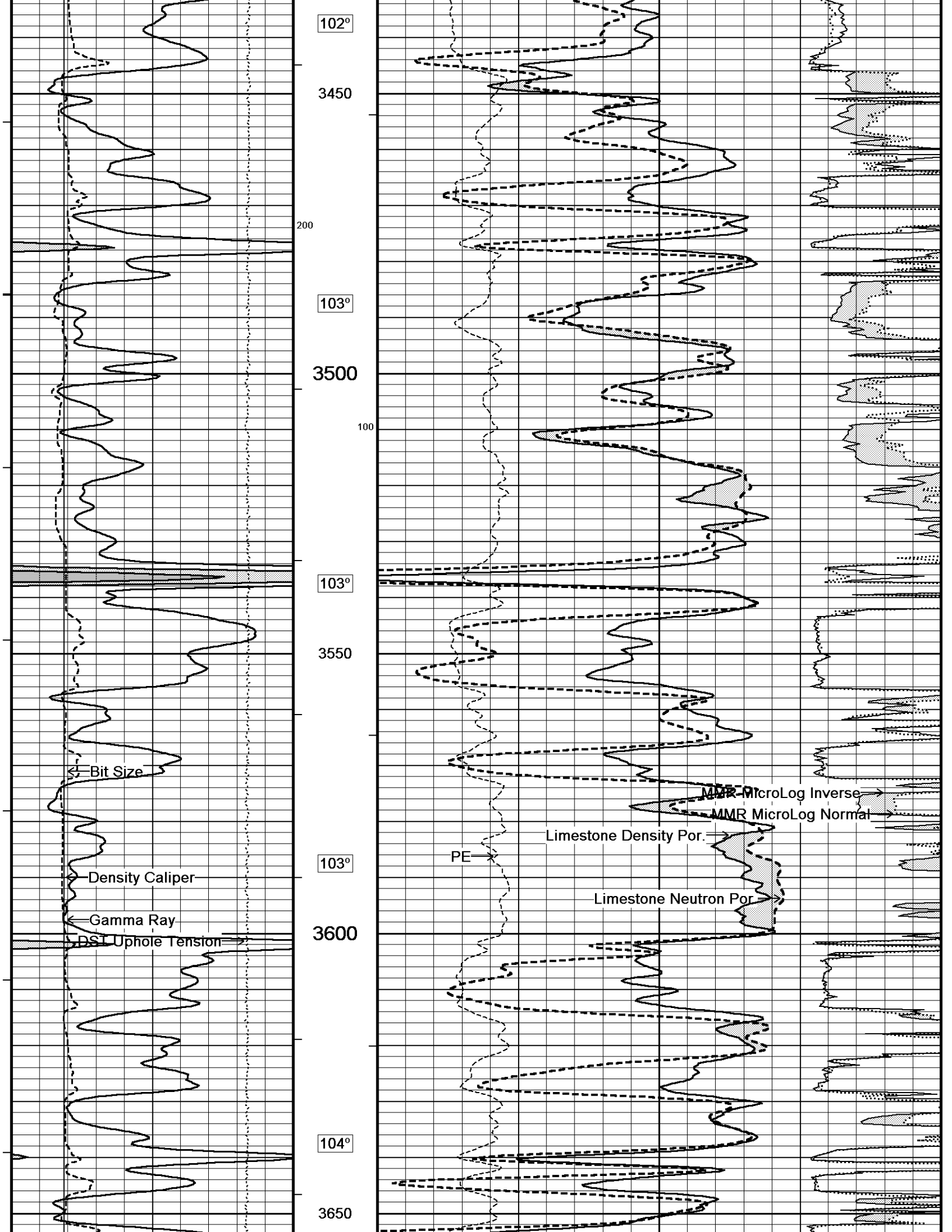

95°
2350
95°
Bit Size
MMR MicroLog Inverse
MMR MicroLog Normal
2400
Limestone Density Por.
PE
Density Caliper
Limestone Neutron Por.
Gamma Ray
600
DST Uphole Tension
95°
2450
96°
2500
96°
2550

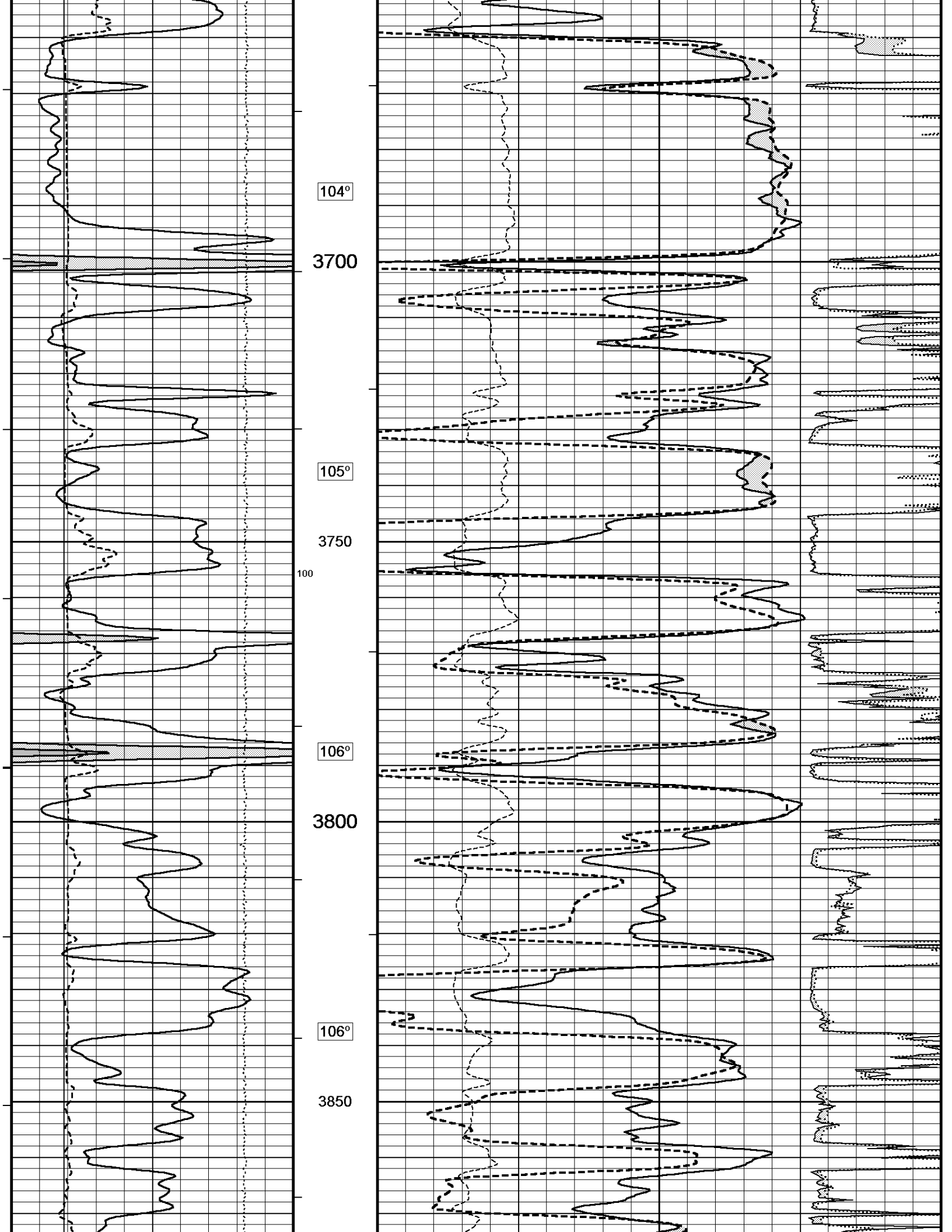

300
96°
2600
97°
2650
500
97°
2700
97°
2750

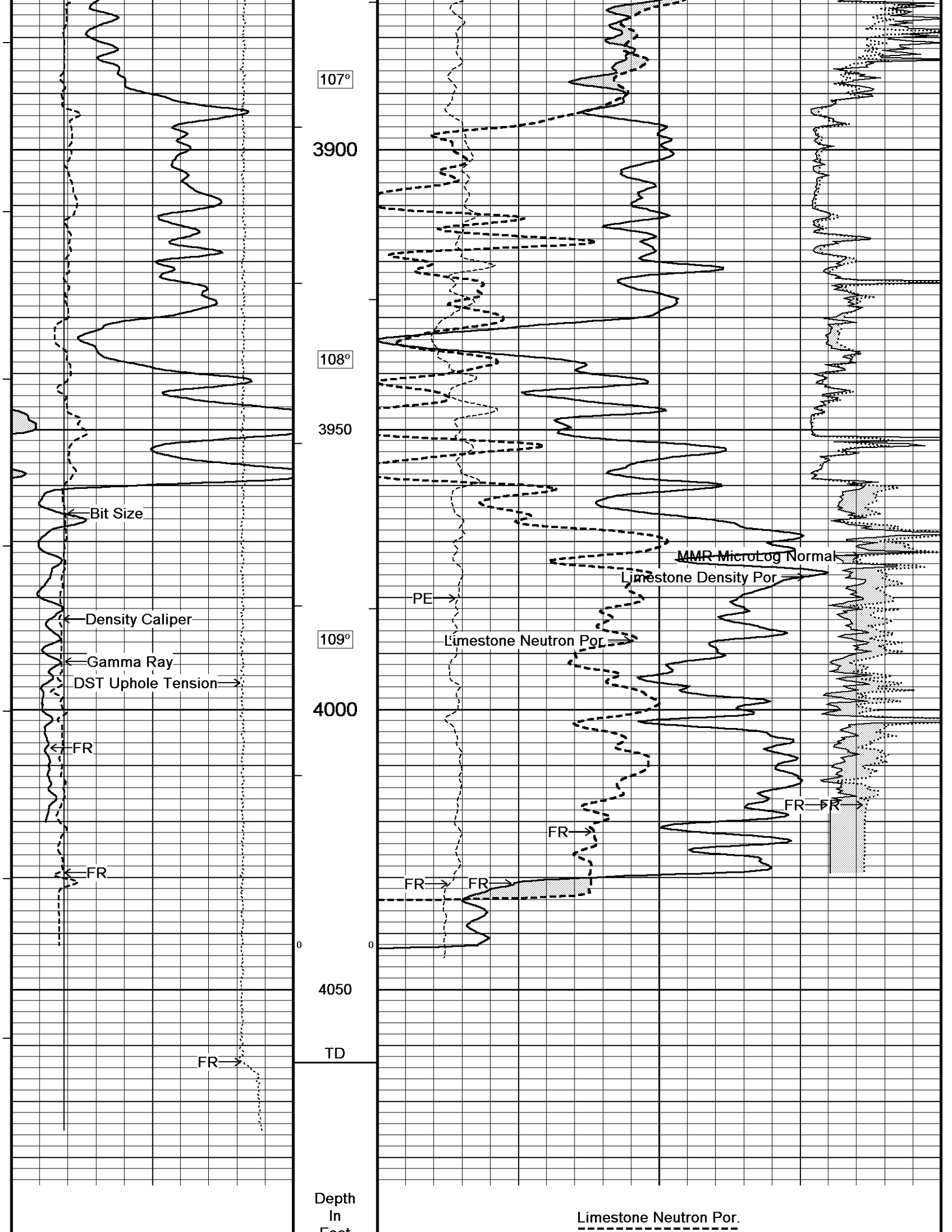

Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
98°
2800
98°
2850
98°
2900
400
99°
2950
99°
200
MMR MicroLog Inverse
MMR MicroLog Normal
Limestone Density Por
PE
Limestone Neutron Por

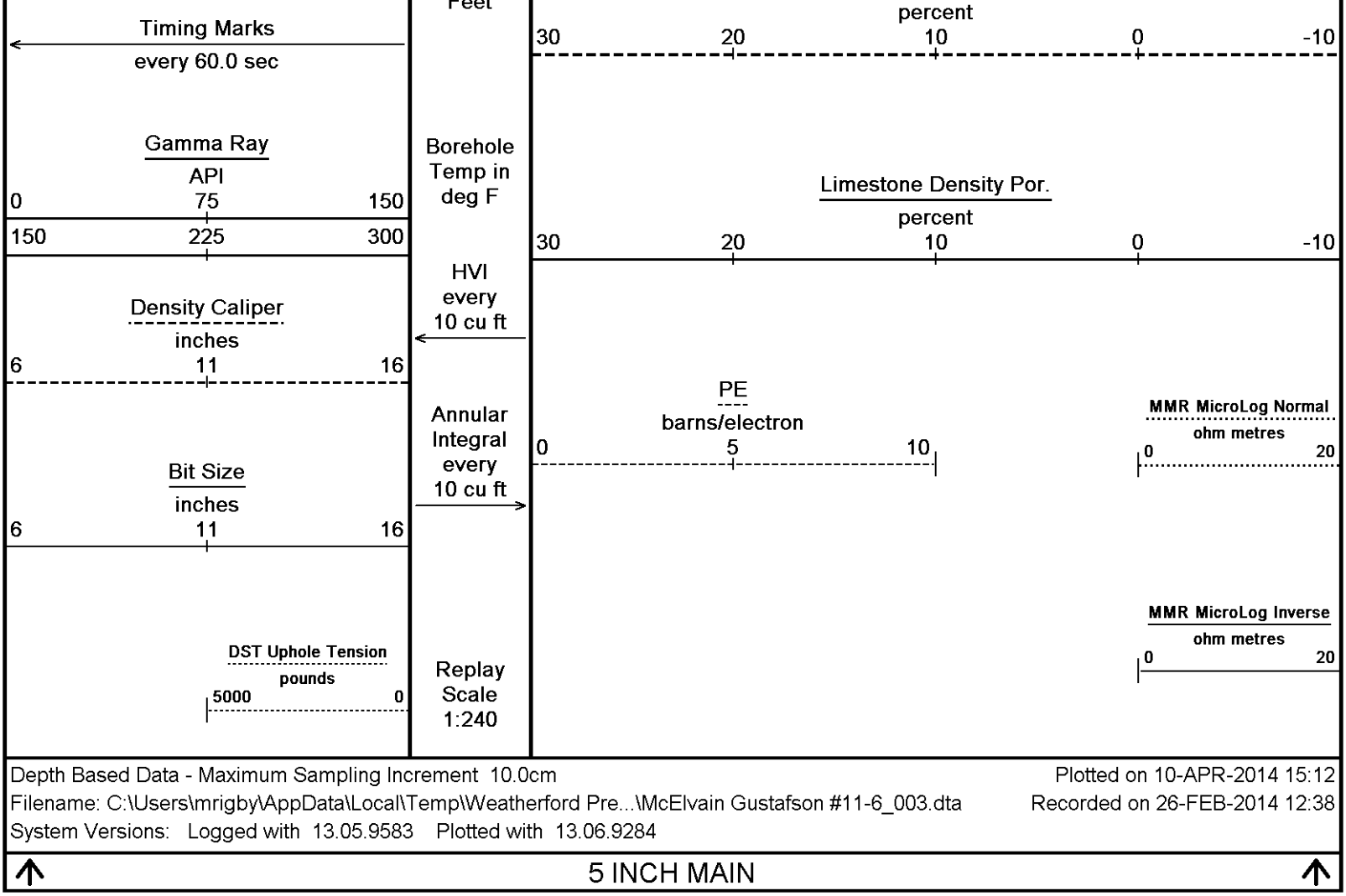

3000
99°
3050
100°
3100
100°
3150
101°
300
3200
Bit Size
Density Caliper
Gamma Ray
SDST Uphole Tension
MMR MicroLog Inverse
MMR MicroLog Normal
Limestone Density Por.
PE

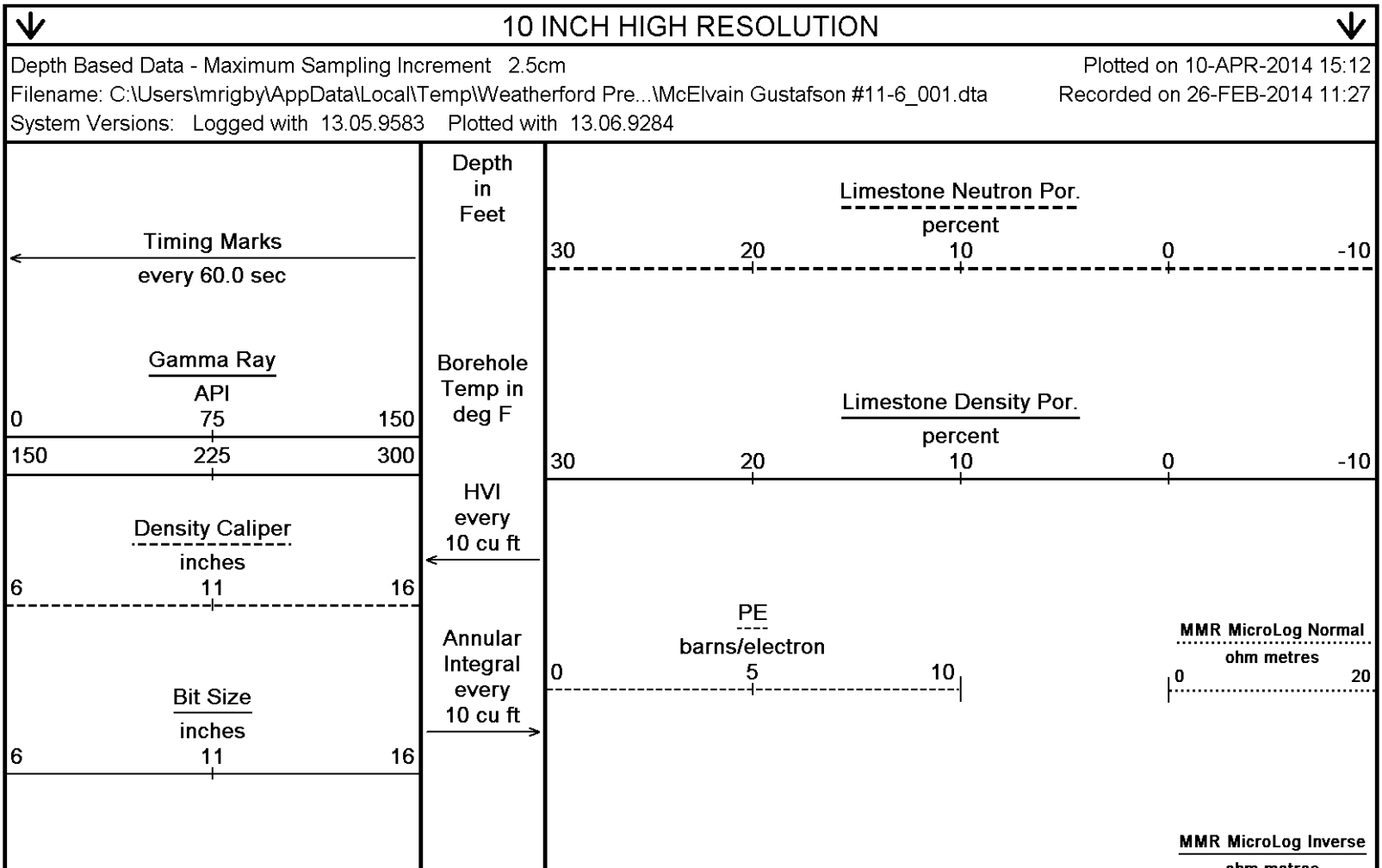

101°
3250
101°
3300
102°
3350
102°
3400

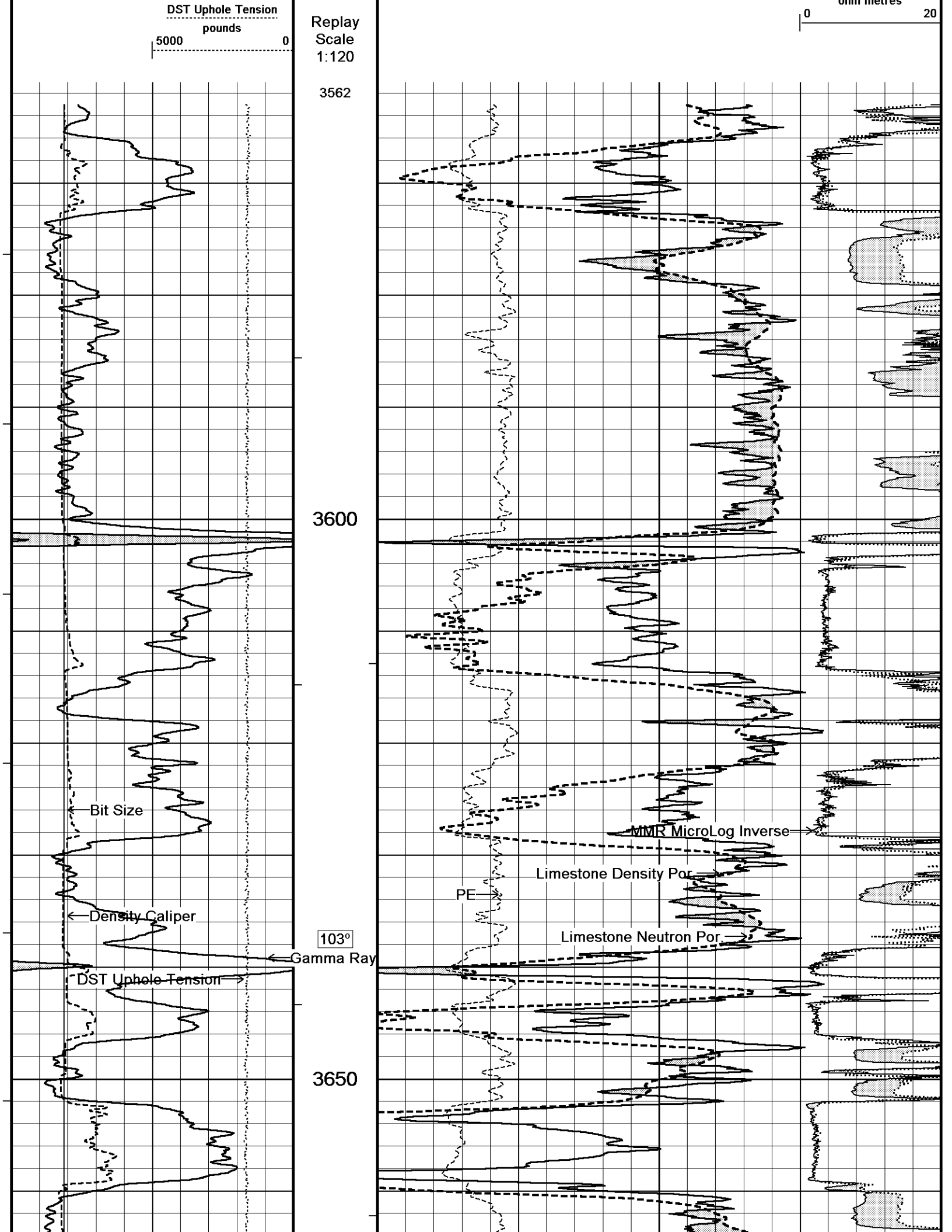

102°
3450
200
103°
3500
100
103°
3550
Bit Size
MMR MicroLog Inverse
MMR MicroLog Normal
Limestone Density Por.
PE
103°
Density Caliper
Limestone Neutron Por.
Gamma Ray
DST Uphole Tension
3600
104°
3650

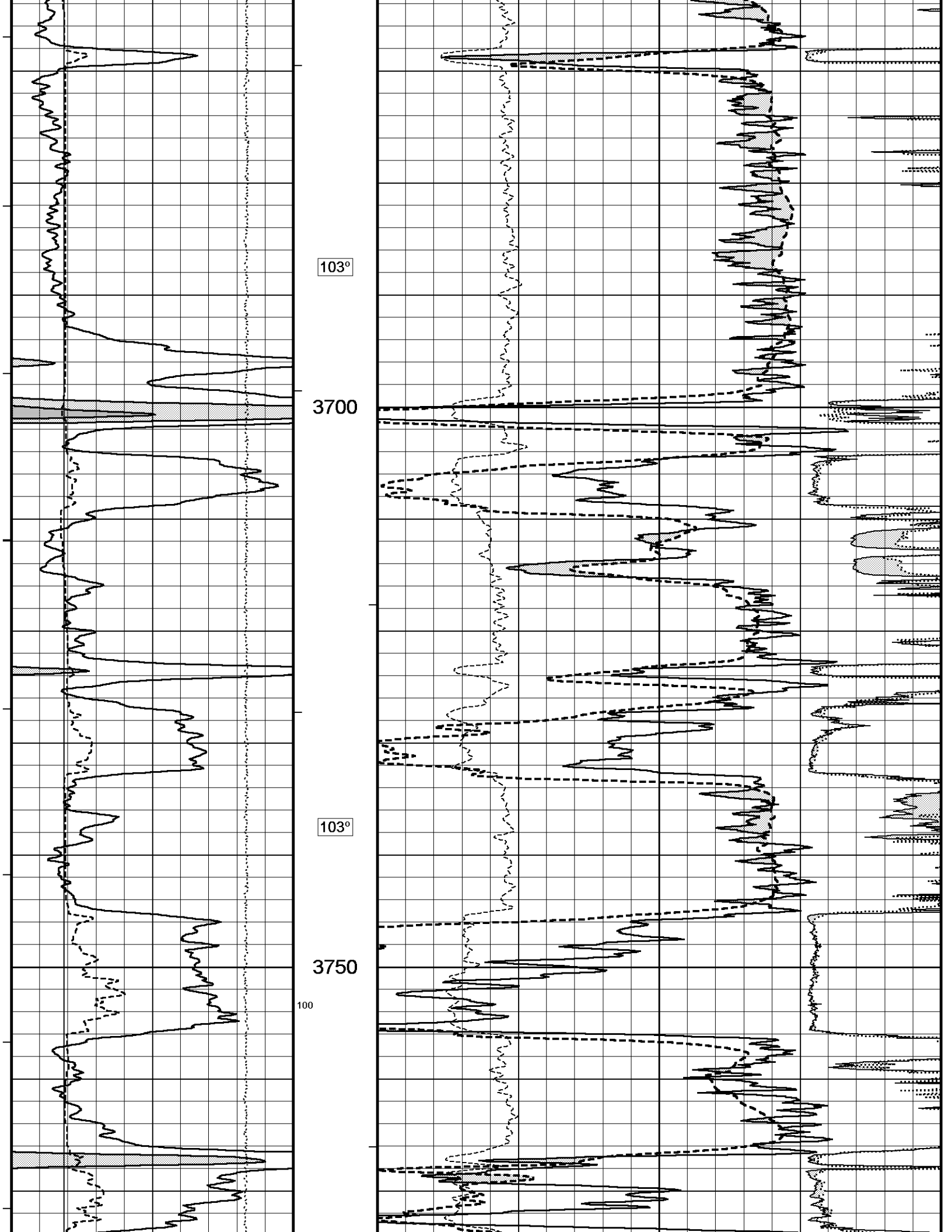

104°
3700
105°
3750
100
106°
3800
106°
3850

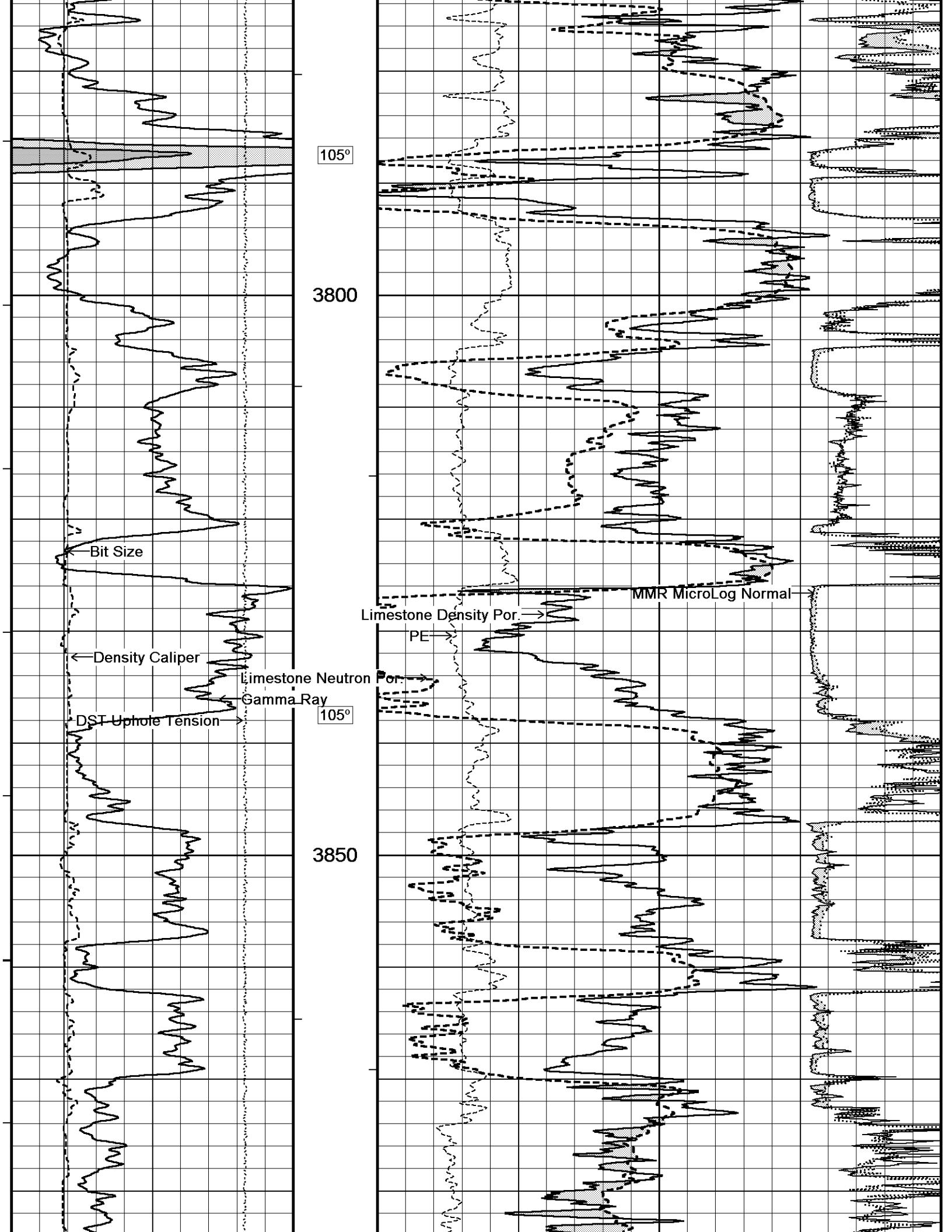

107°
3900
108°
3950
109°
4000
4050
TD
Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
FR
FR
FR
MMR MicroLog Normal
Limestone Density Por
PE
Limestone Neutron Por
FR
FR
FR
FR
FR
0
0
Depth
In
Feet
Limestone Neutron Por.

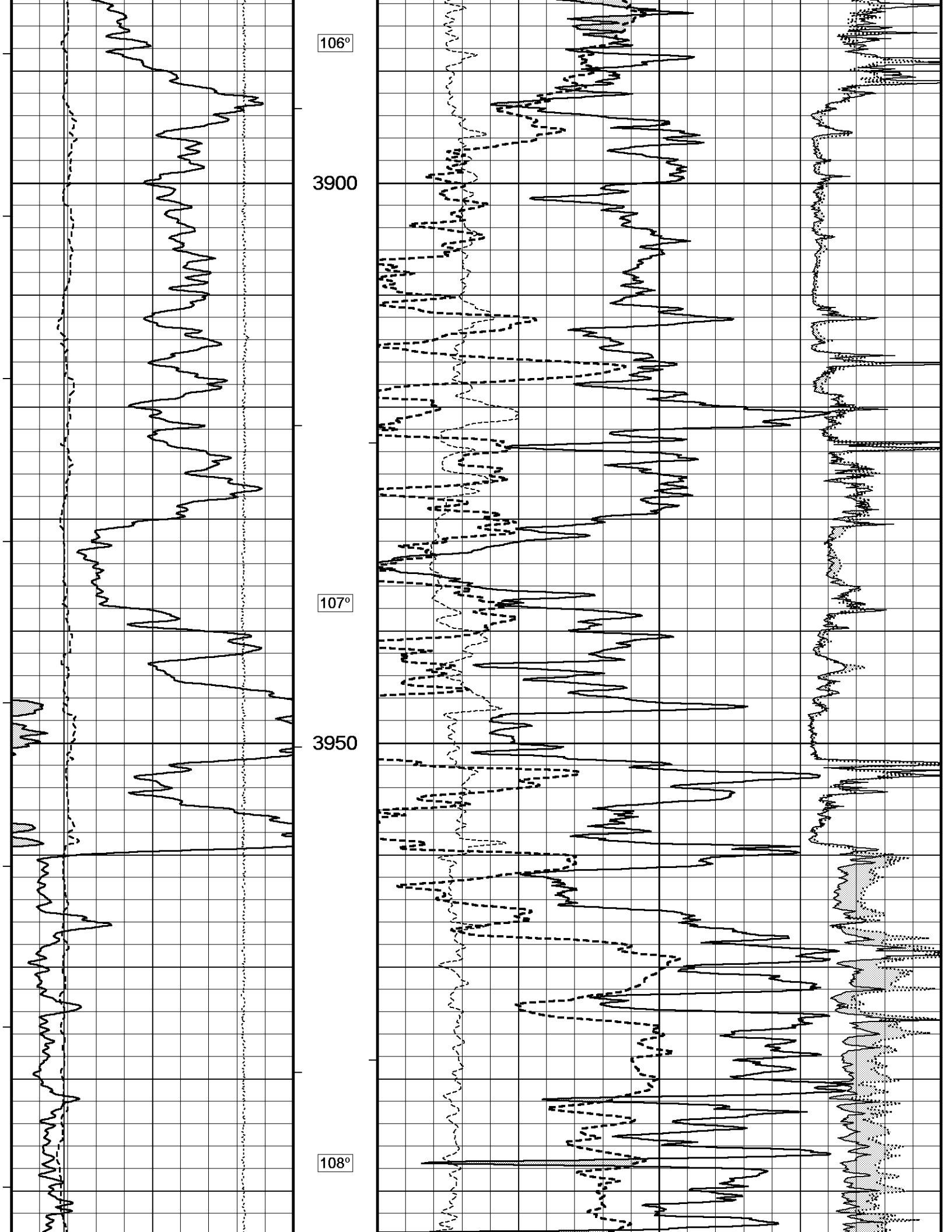

Feet
percent
30 20 10 0 -10
Timing Marks
every 60.0 sec
Gamma Ray
API
0 75 150
150 225 300
Borehole Temp in deg F
Limestone Density Por.
percent
30 20 10 0 -10
HVI every 10 cu ft
Density Caliper
inches
6 11 16
PE
barns/electron
0 5 10
MMR MicroLog Normal
ohm metres
0 20
Annular Integral every 10 cu ft
Bit Size
inches
6 11 16
MMR MicroLog Inverse
ohm metres
0 20
DST Uphole Tension
pounds
5000 0
Replay Scale 1:240
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 10-APR-2014 15:12
Filename: C:\Users\mrigby\AppData\Local\Temp\Weatherford Pre...\McElvain Gustafson #11-6_003.dta
Recorded on 26-FEB-2014 12:38
System Versions: Logged with 13.05.9583 Plotted with 13.06.9284
5 INCH MAIN

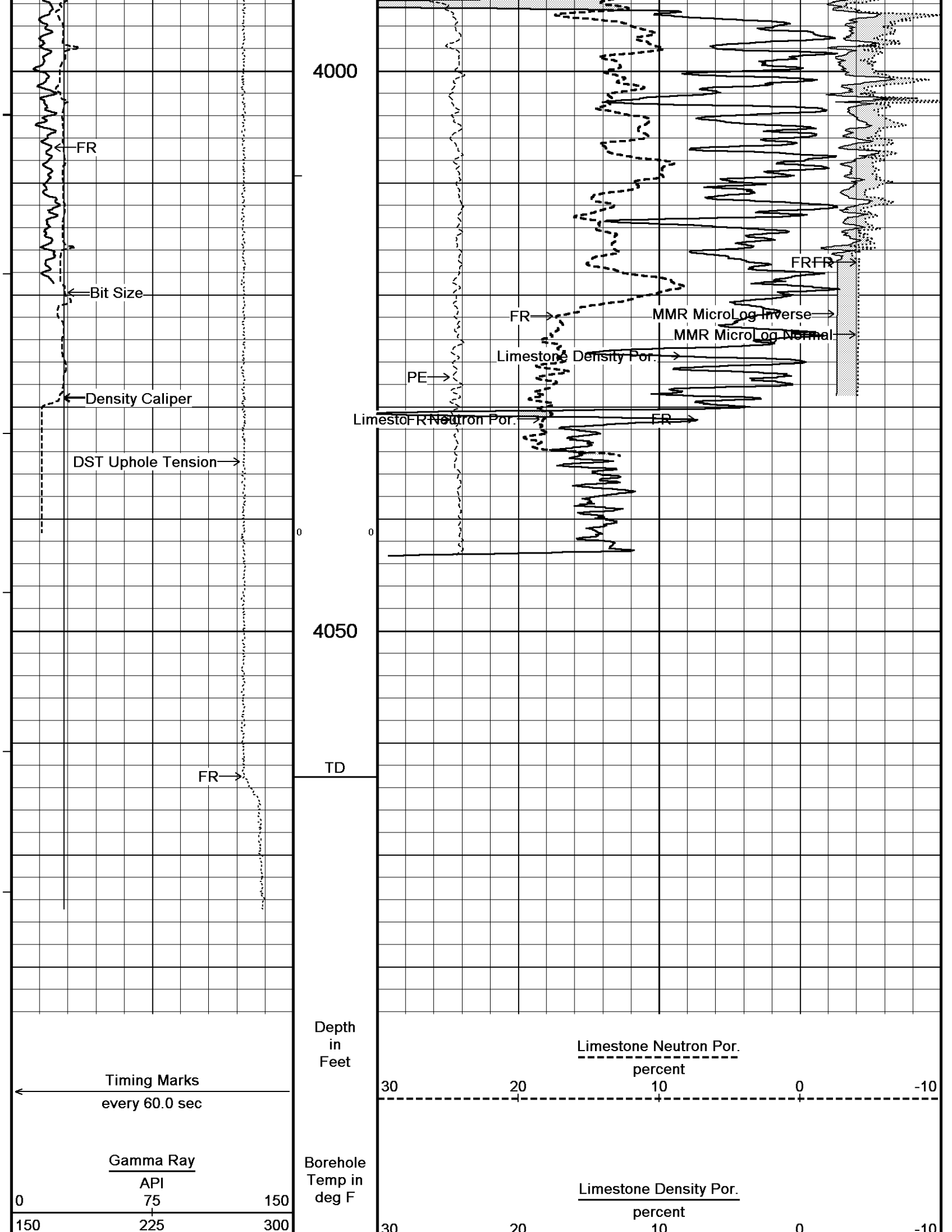

10 INCH HIGH RESOLUTION
Depth Based Data - Maximum Sampling Increment 2.5cm
Plotted on 10-APR-2014 15:12
Filename: C:\Users\mrigby\AppData\Local\Temp\Weatherford Pre...\McElvain Gustafson #11-6_001.dta
Recorded on 26-FEB-2014 11:27
System Versions: Logged with 13.05.9583 Plotted with 13.06.9284
Depth in Feet
Limestone Neutron Por.
percent
30 20 10 0 -10
Timing Marks
every 60.0 sec
Gamma Ray
API
0 75 150
150 225 300
Borehole Temp in deg F
Limestone Density Por.
percent
30 20 10 0 -10
HVI every 10 cu ft
Density Caliper
inches
6 11 16
PE
barns/electron
0 5 10
MMR MicroLog Normal
ohm metres
0 20
Annular Integral every 10 cu ft
Bit Size
inches
6 11 16
MMR MicroLog Inverse

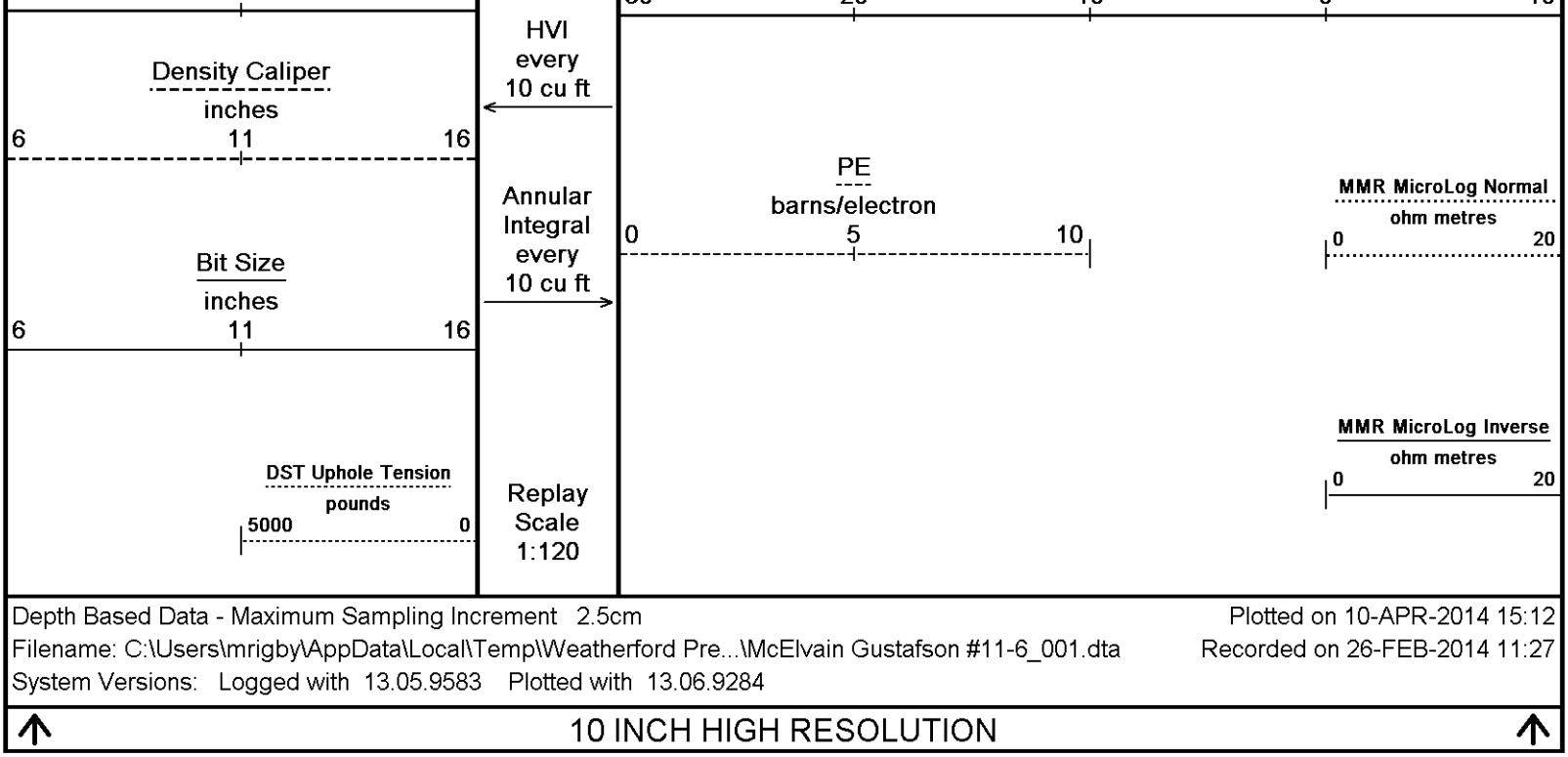

DST Uphole Tension
pounds
5000
0
Replay
Scale
1:120
3562
3600
3650
ohm metres
0
20
Bit Size
Density Caliper
103°
Gamma Ray
DST Uphole Tension
MMR MicroLog Inverse
Limestone Density Por
PE
Limestone Neutron Por


103°
3700
103°
3750
100


105°
3800
Bit Size
MMR MicroLog Normal
Limestone Density Por.
PE
Density Caliper
Limestone Neutron Por.
Gamma Ray
105°
DST Uphole Tension
3850


106°
3900
107°
3950
108°


4000
FR
Bit Size
Density Caliper
DST Uphole Tension
FR
0
0
FR
FR
MMR MicroLog Inverse
MMR MicroLog Normal
Limestone Density Por.
PE
Limesto FR Neutron Por.
FR
4050
TD
Timing Marks
every 60.0 sec
Depth
in
Feet
Limestone Neutron Por.
percent
30
20
10
0
-10
Gamma Ray
API
0
75
150
Borehole
Temp in
deg F
Limestone Density Por.
percent
150
225
300
30
20
10
0
-10

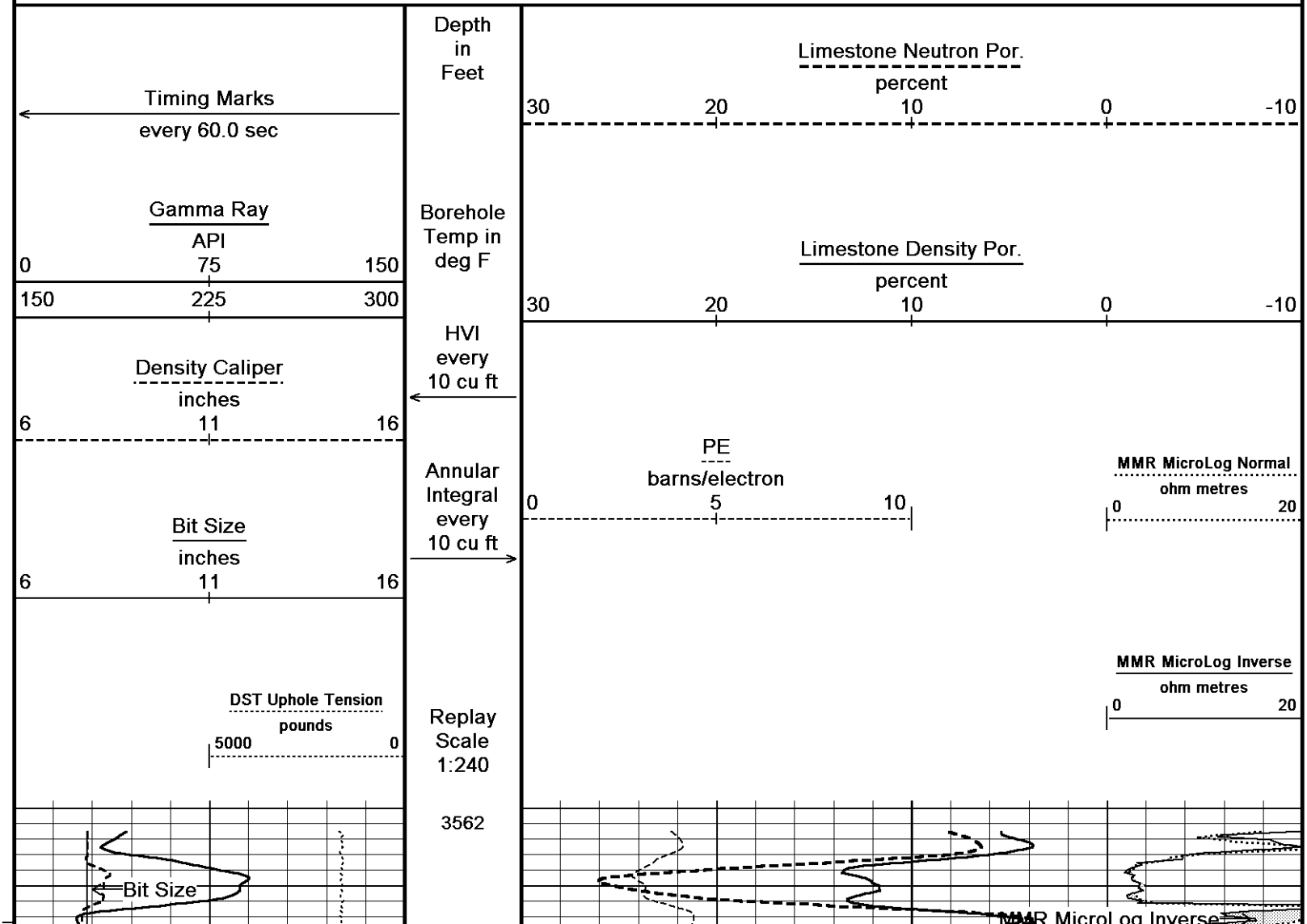


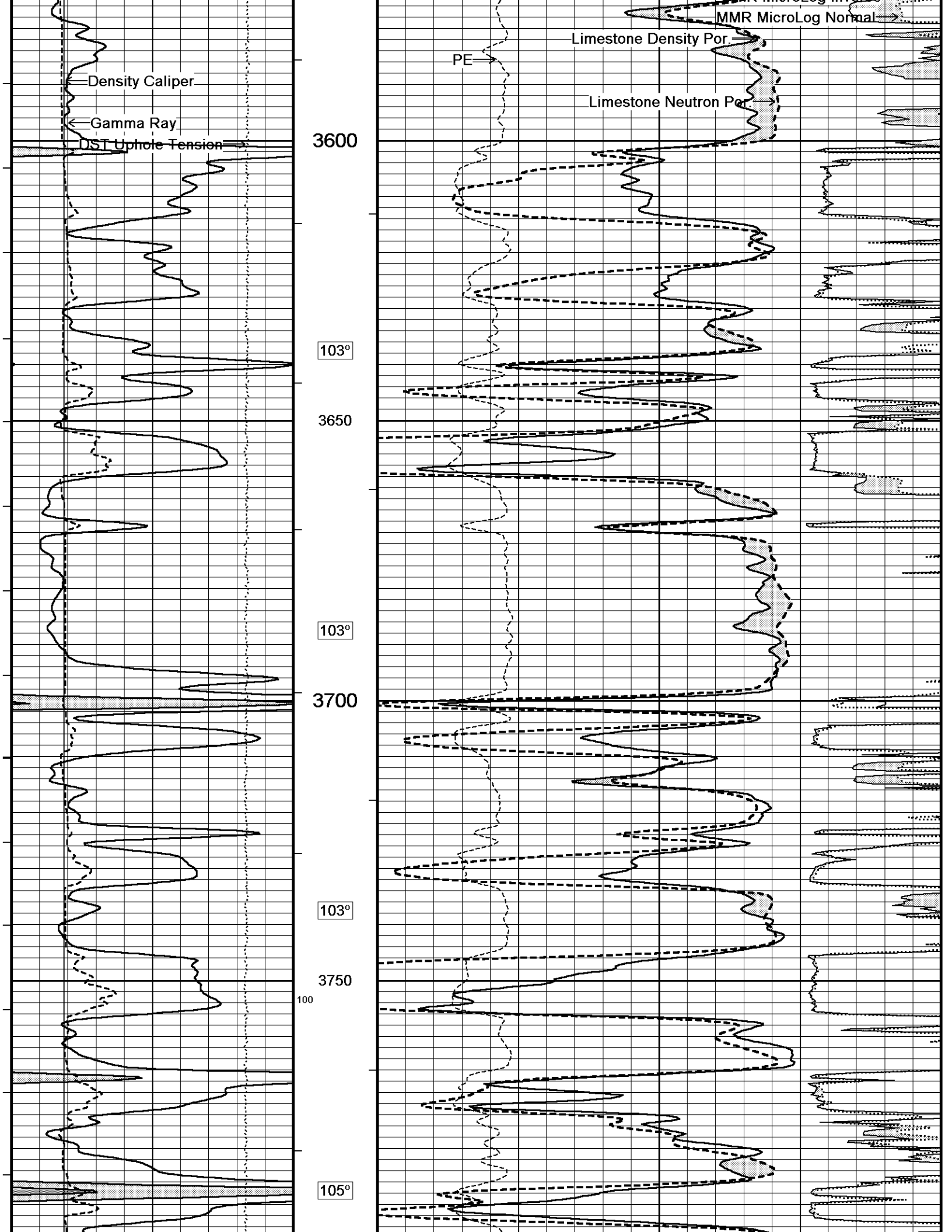
Depth Based Data - Maximum Sampling Increment 2.5cm — Plotted on 10-APR-2014 15:12
Filename: C:\Users\mrigby\AppData\Local\Temp\Weatherford Pre...\McElvain Gustafson #11-6_001.dta — Recorded on 26-FEB-2014 11:27
System Versions: Logged with 13.05.9583 Plotted with 13.06.9284

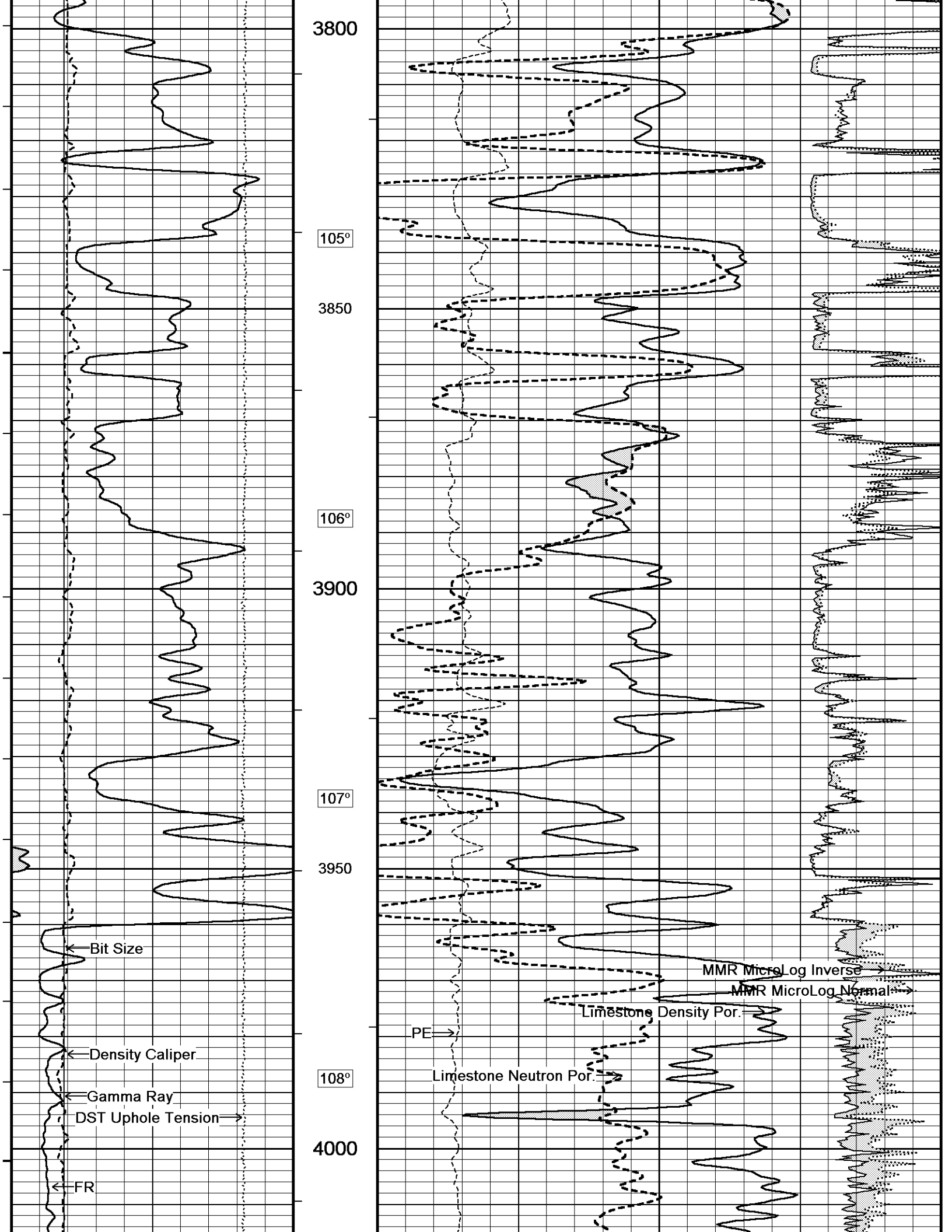
10 INCH HIGH RESOLUTION

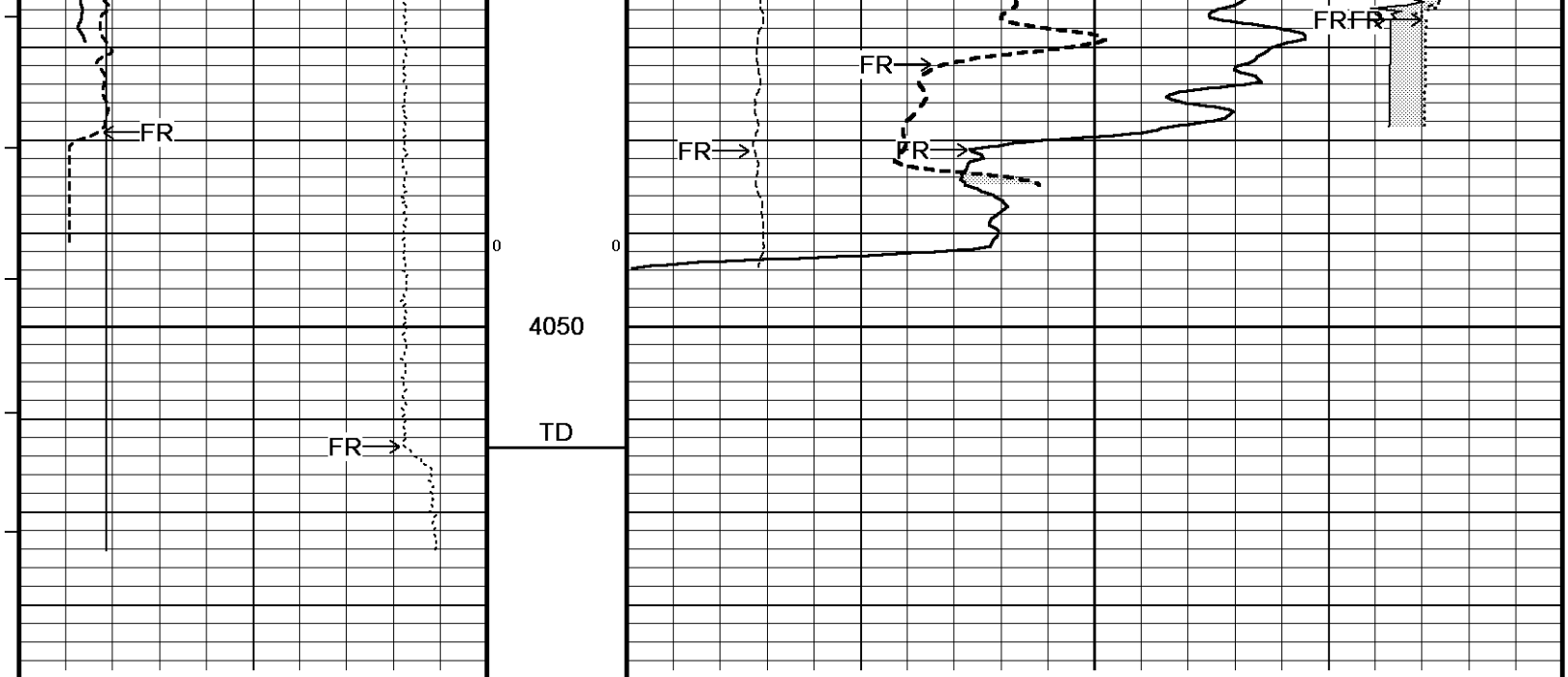
REPEAT SECTION

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 10-APR-2014 15:12
Filename: C:\Users\mrigby\AppData\Local\Temp\Weatherford Pre...\McElvain Gustafson #11-6_002.dta — Recorded on 26-FEB-2014 11:27
System Versions: Logged with 13.05.9583 Processed with 13.05.9583 Plotted with 13.06.9284




MMR MicroLog Normal
Limestone Density Por
PE
Density Caliper
Limestone Neutron Por
Gamma Ray
DST Uphole Tension
3600
103°
3650
103°
3700
103°
3750
100
105°


3800
105°
3850
106°
3900
107°
3950
108°
4000
Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
FR
PE
Limestone Neutron Por.
Limestone Density Por.
MMR MicroLog Inverse
MMR MicroLog Normal



Depth in Feet

Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150
150 225 300

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

MMR MicroLog Normal
ohm metres
0 20

MMR MicroLog Inverse
ohm metres
0 20

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 10-APR-2014 15:12
Filename: C:\Users\mrigby\AppData\Local\Temp\Weatherford Pre...\McElvain Gustafson #11-6_002.dta
Recorded on 26-FEB-2014 11:27
System Versions: Logged with 13.05.9583 Processed with 13.05.9583 Plotted with 13.06.9284

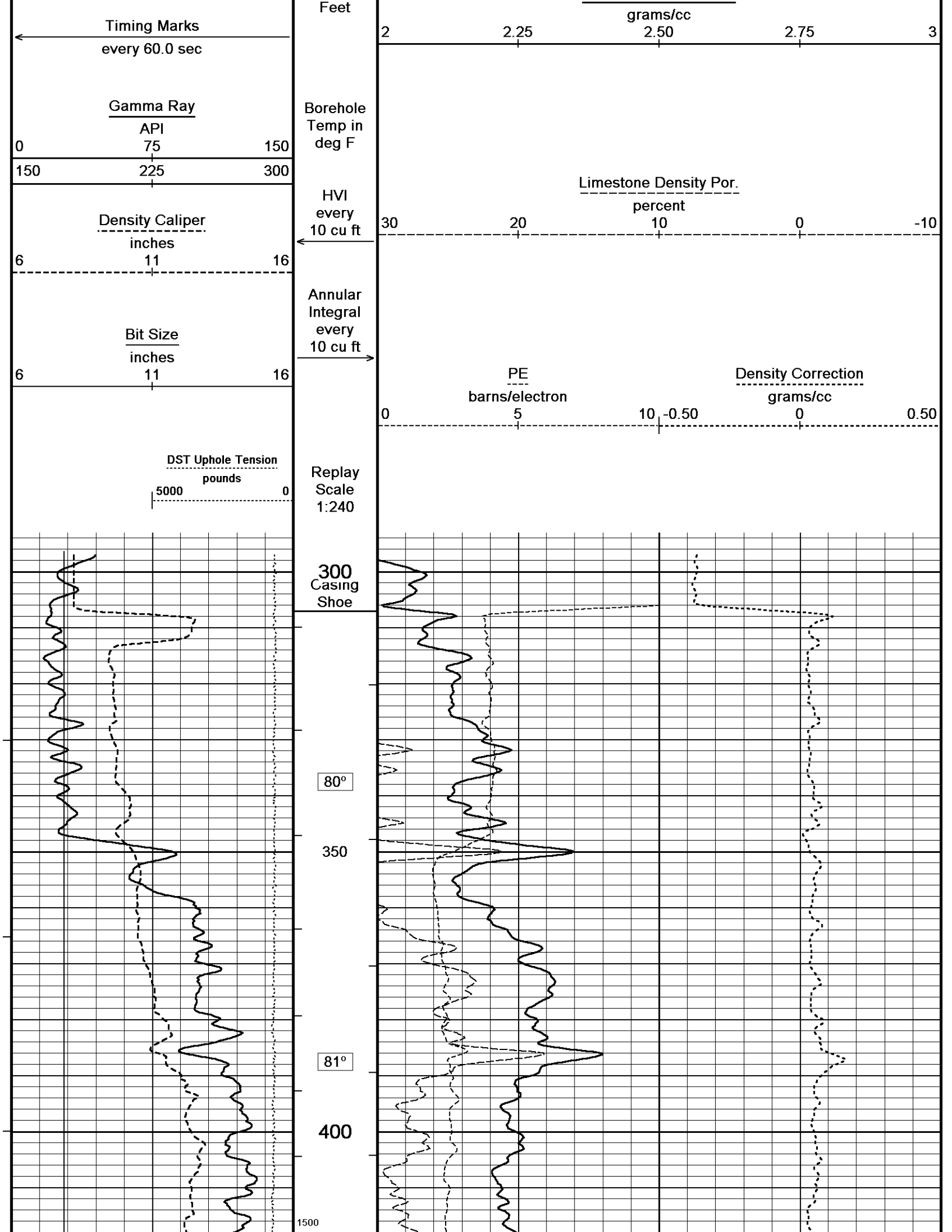
REPEAT SECTION

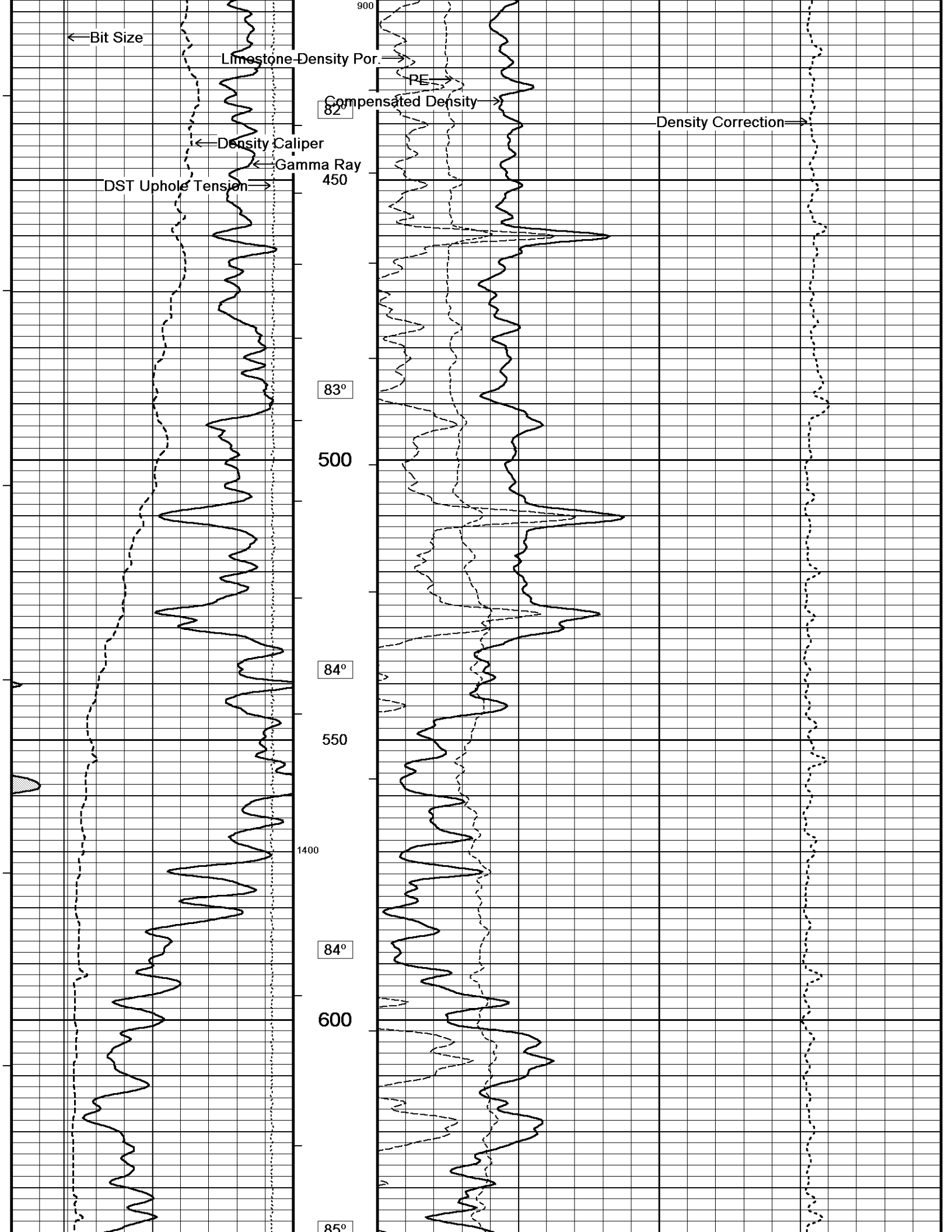
5 INCH MAIN

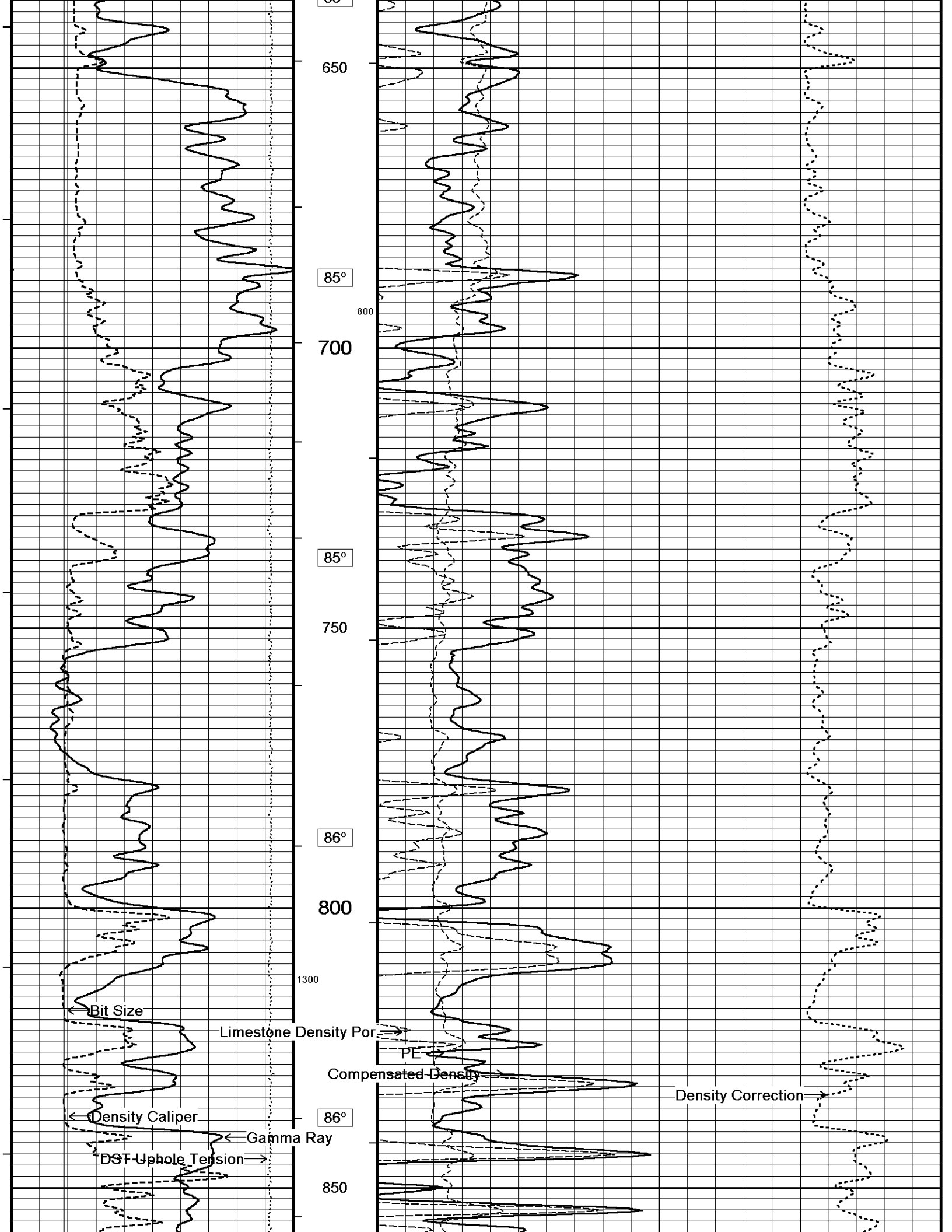
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 10-APR-2014 15:12
Filename: C:\Users\mrigby\AppData\Local\Temp\Weatherford Pre...\McElvain Gustafson #11-6_003.dta
Recorded on 26-FEB-2014 12:38
System Versions: Logged with 13.05.9583 Plotted with 13.06.9284

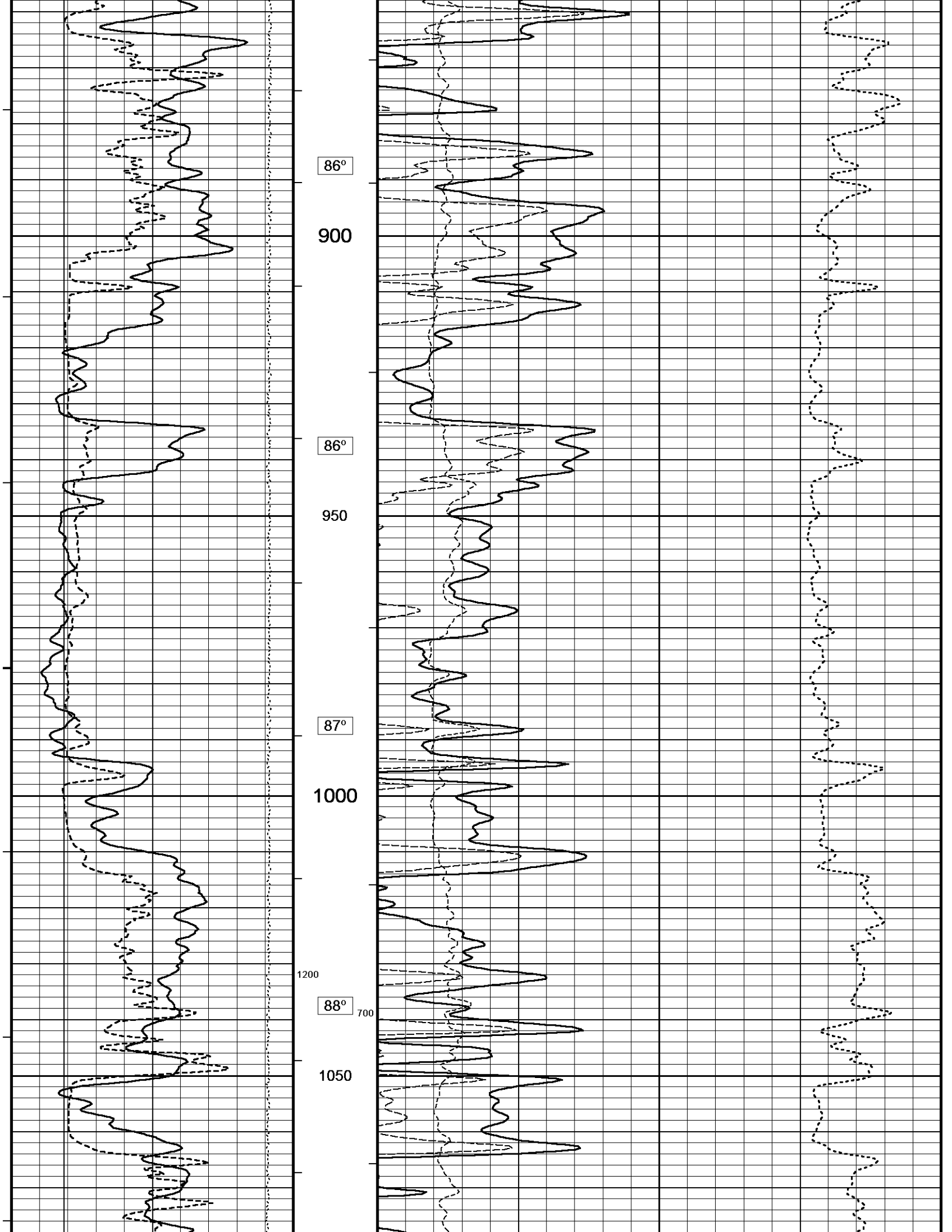
Depth In

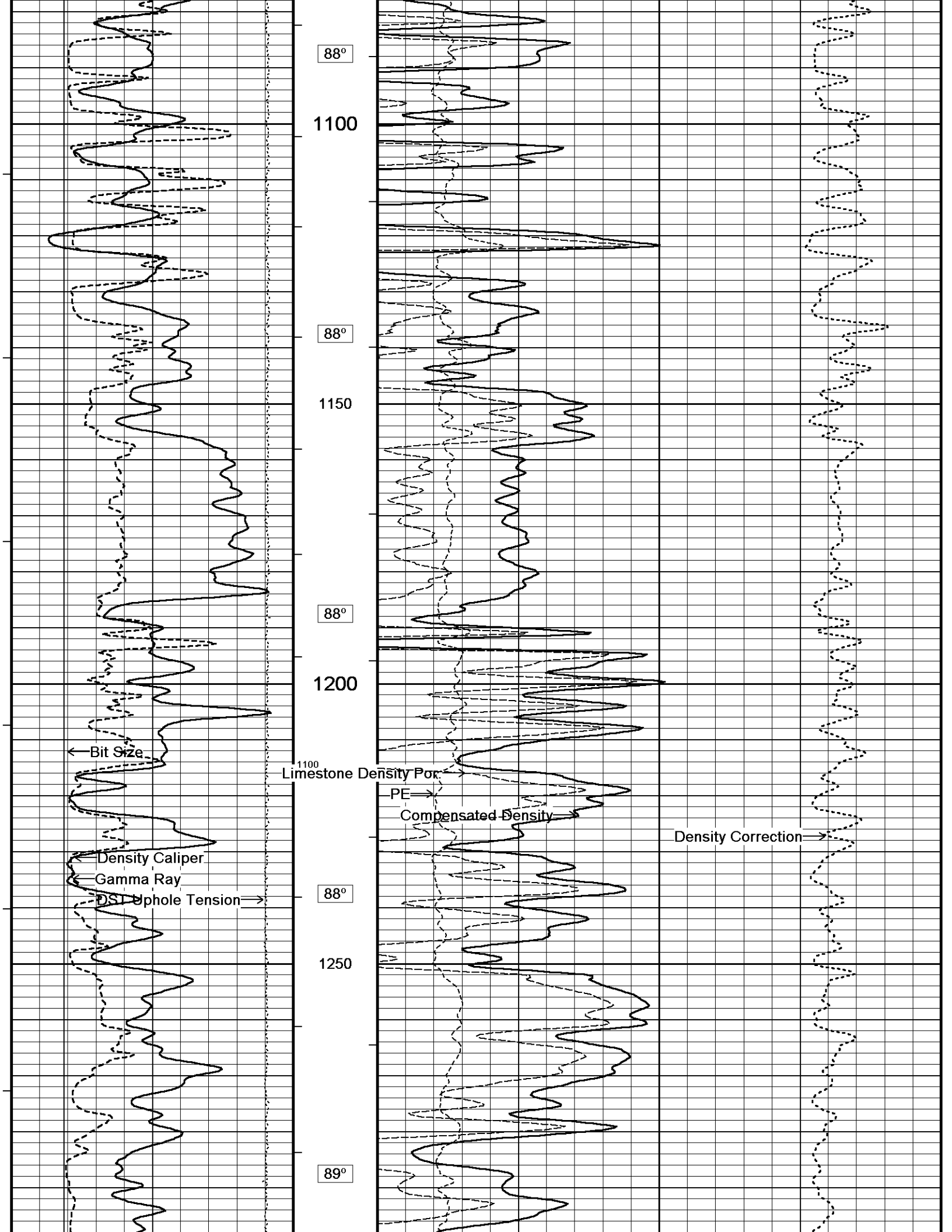
Compensated Density

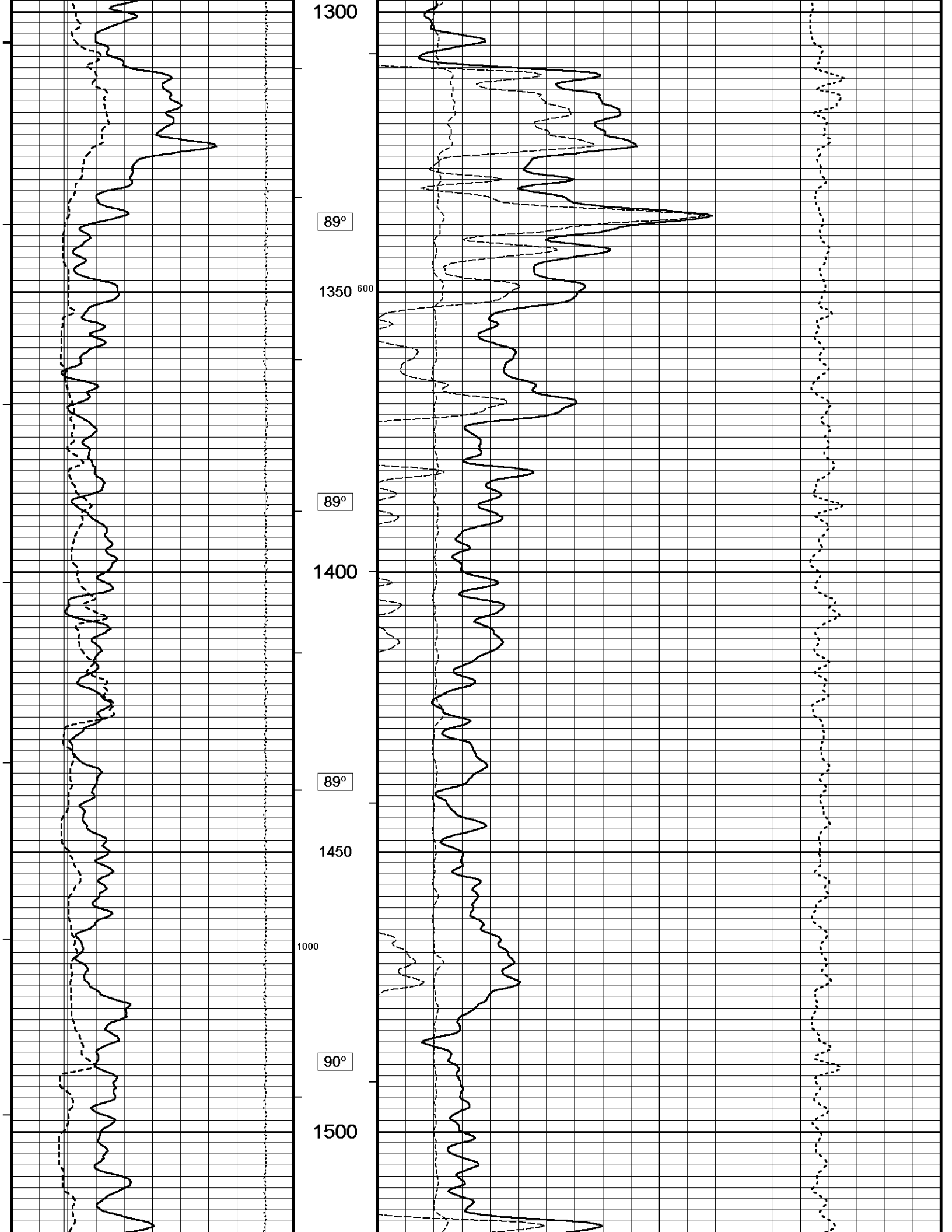

Feet
Timing Marks
every 60.0 sec
grams/cc
2
2.25
2.50
2.75
3
Gamma Ray
API
0
75
150
Borehole Temp in deg F
150
225
300
Limestone Density Por.
percent
30
20
10
0
-10
HVI every 10 cu ft
Density Caliper
inches
6
11
16
Annular Integral every 10 cu ft
Bit Size
inches
6
11
16
PE
barns/electron
0
5
10
Density Correction
grams/cc
-0.50
0
0.50
DST Uphole Tension
pounds
5000
0
Replay Scale 1:240
300
Casing Shoe
80°
350
81°
400
1500

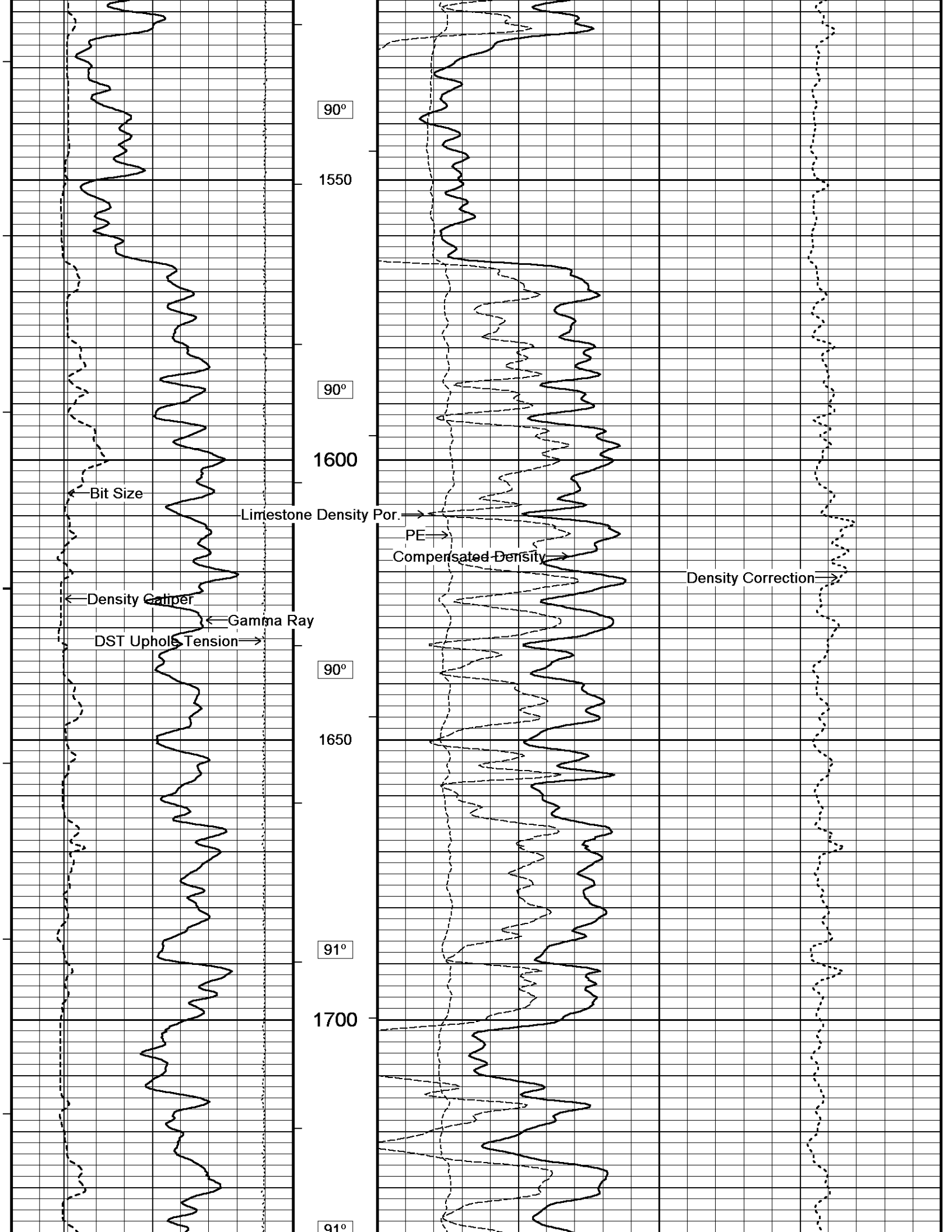

Bit Size
Limestone Density Por.
PE
Compensated Density
Density Correction
Density Caliper
Gamma Ray
DST Uphole Tension
900
82°
450
83°
500
84°
550
1400
84°
600
85°

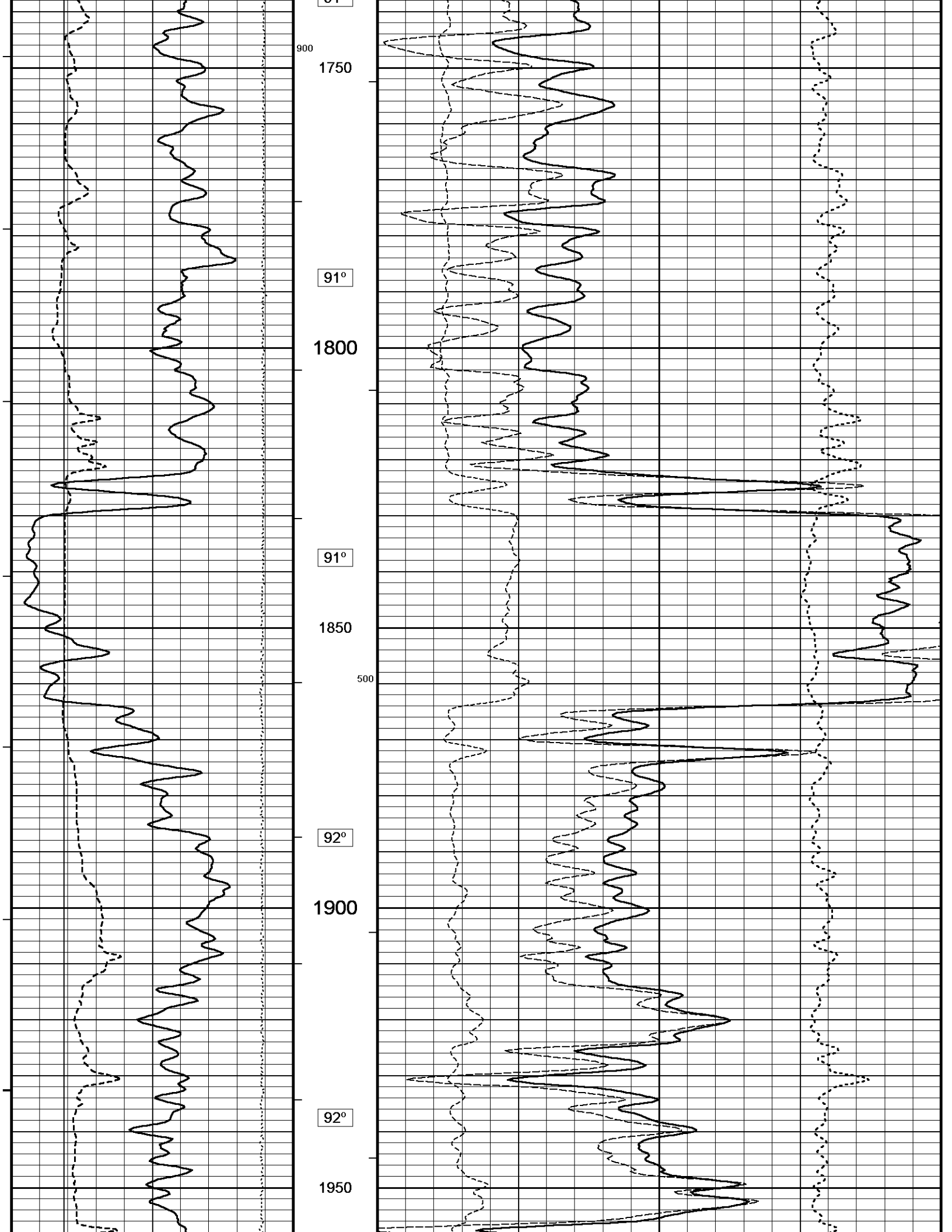

650
85°
800
700
85°
750
86°
800
1300
Bit Size
Limestone Density Por
PE
Compensated Density
Density Correction
Density Caliper
86°
Gamma Ray
DST Uphole Tension
850

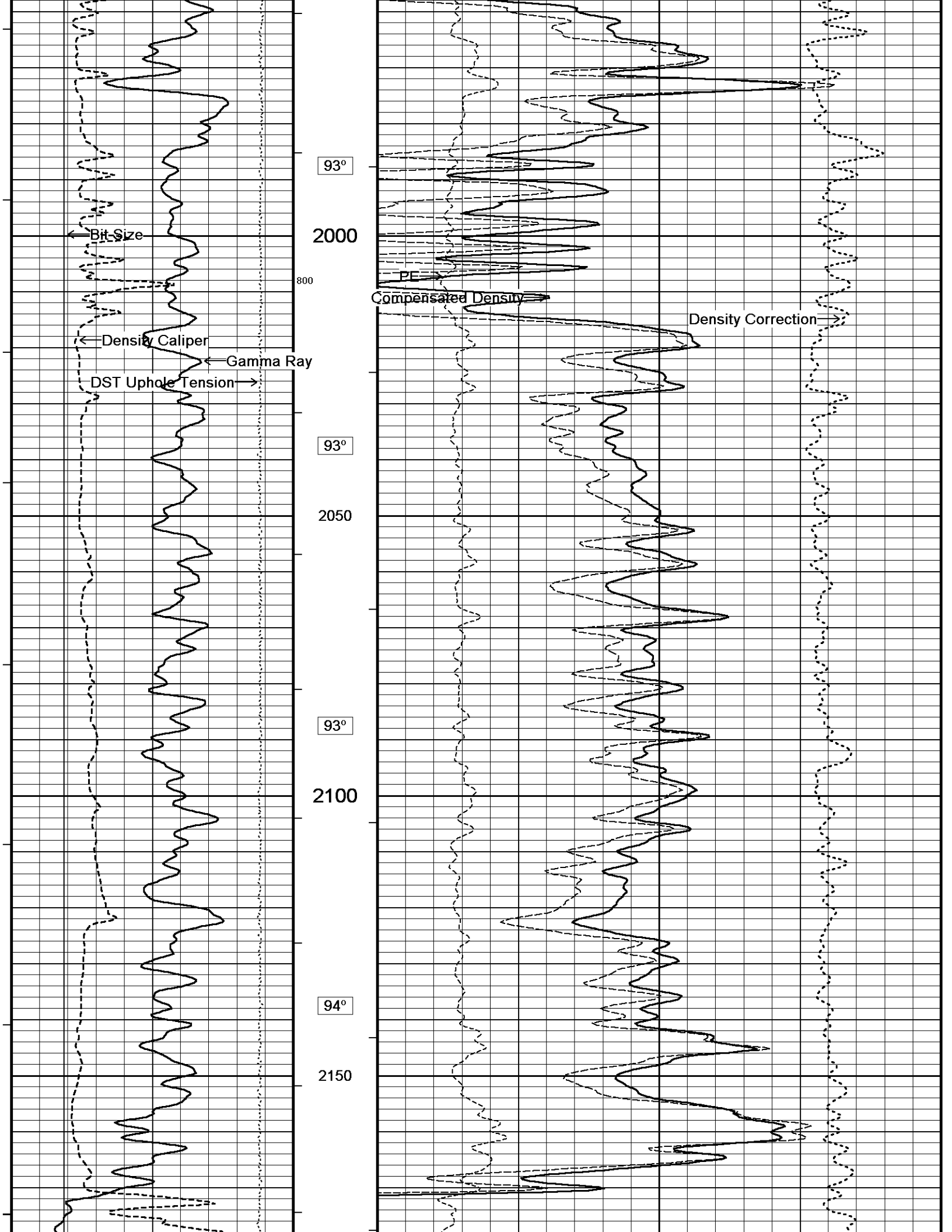

86°
900
86°
950
87°
1000
1200
88°
700
1050

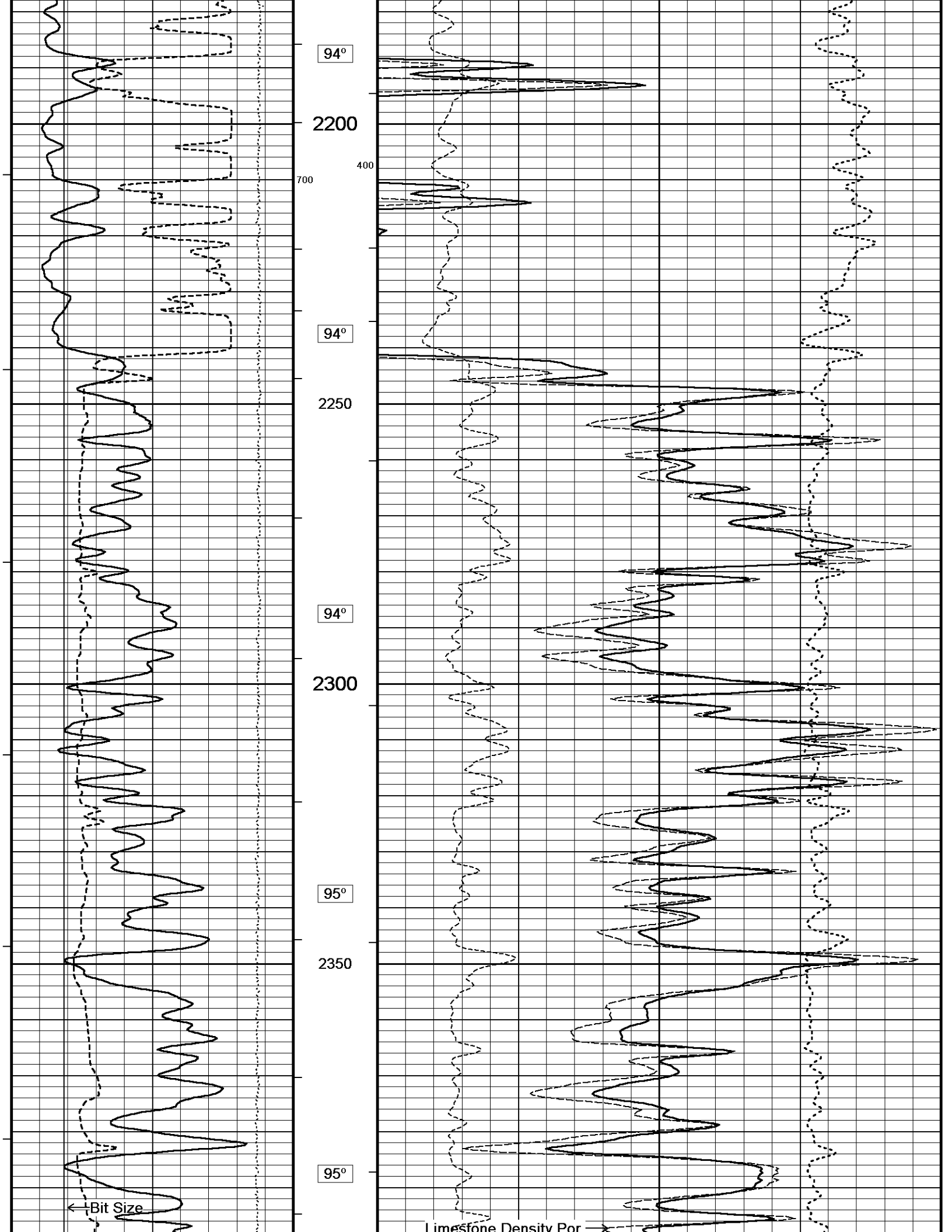

88°
1100
88°
1150
88°
1200
88°
1250
89°
Bit Size
1100
Limestone Density Por.
PE
Compensated Density
Density Correction
Density Caliper
Gamma Ray
DST Uphole Tension

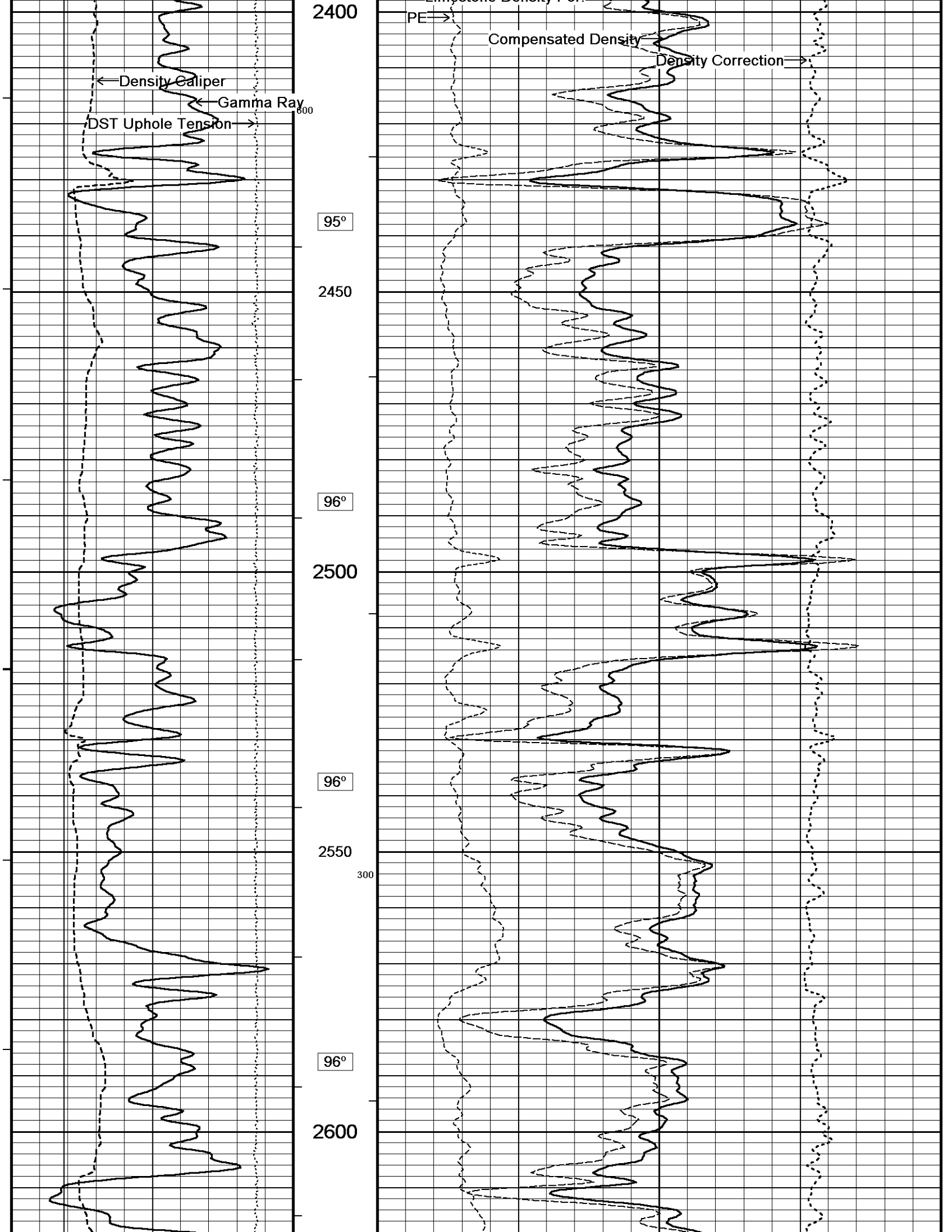

1300
89°
1350
600
89°
1400
89°
1450
1000
90°
1500

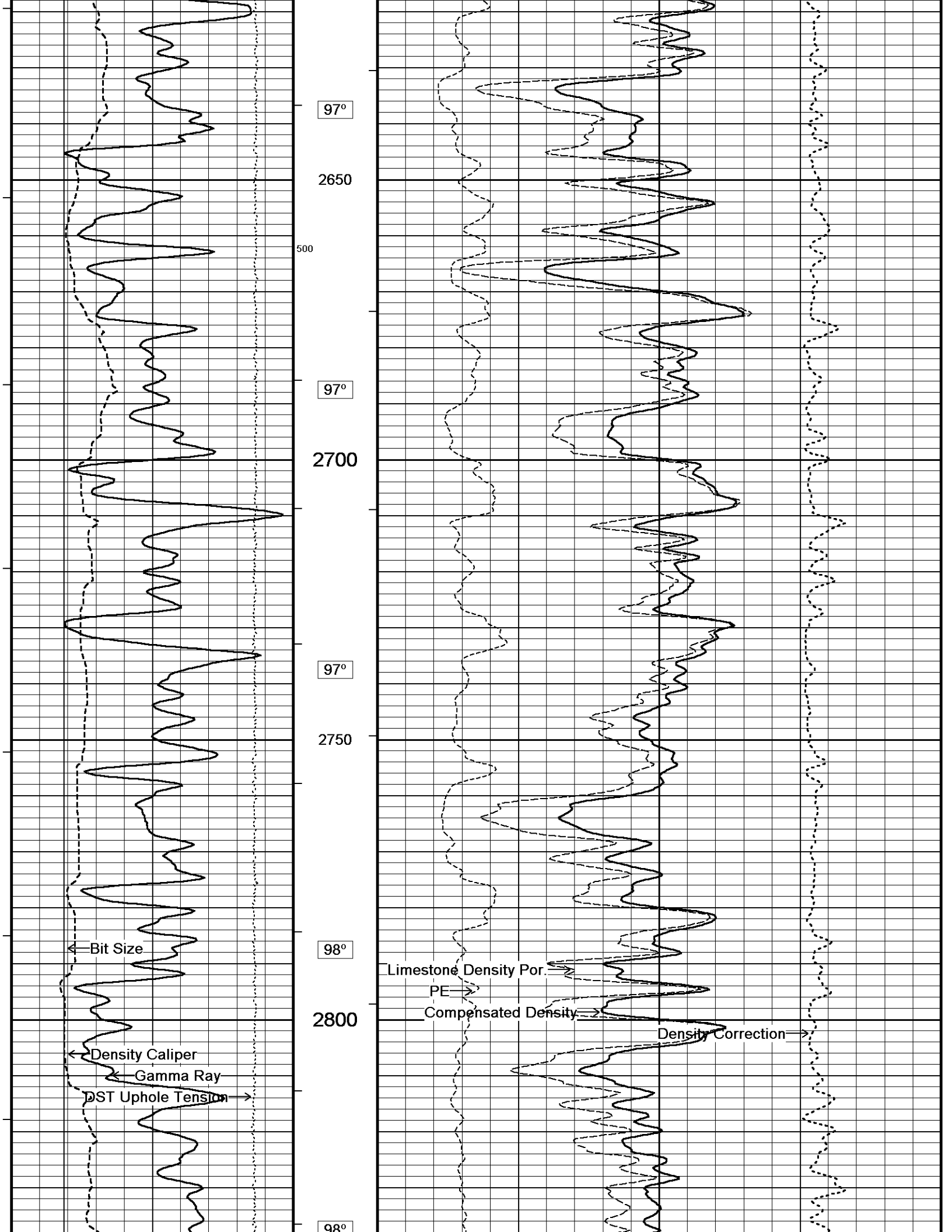

90°
1550
90°
1600
Bit Size
Limestone Density Por.
PE
Compensated Density
Density Correction
Density Caliper
Gamma Ray
DST Uphole Tension
90°
1650
91°
1700
91°

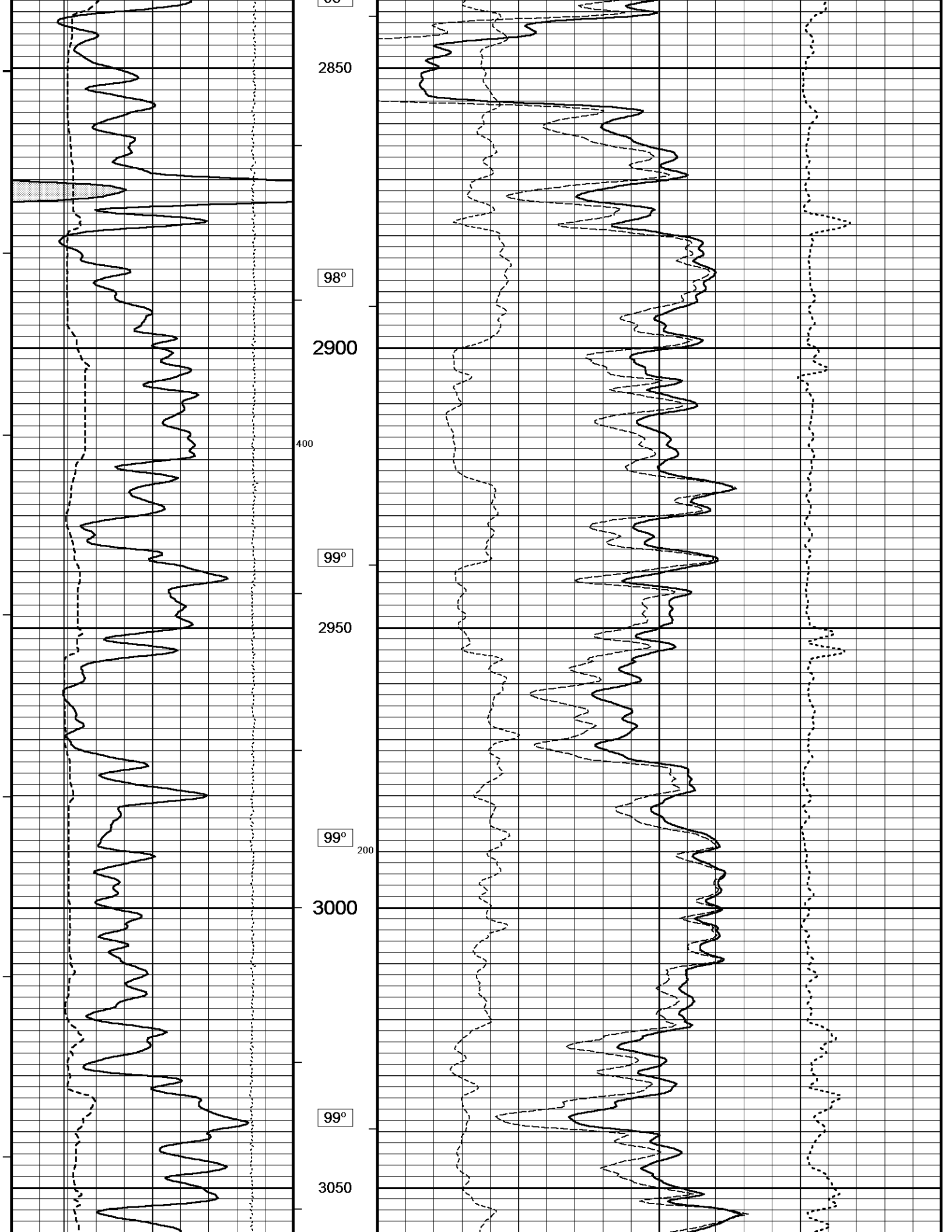

900
1750
91°
1800
91°
1850
500
92°
1900
92°
1950

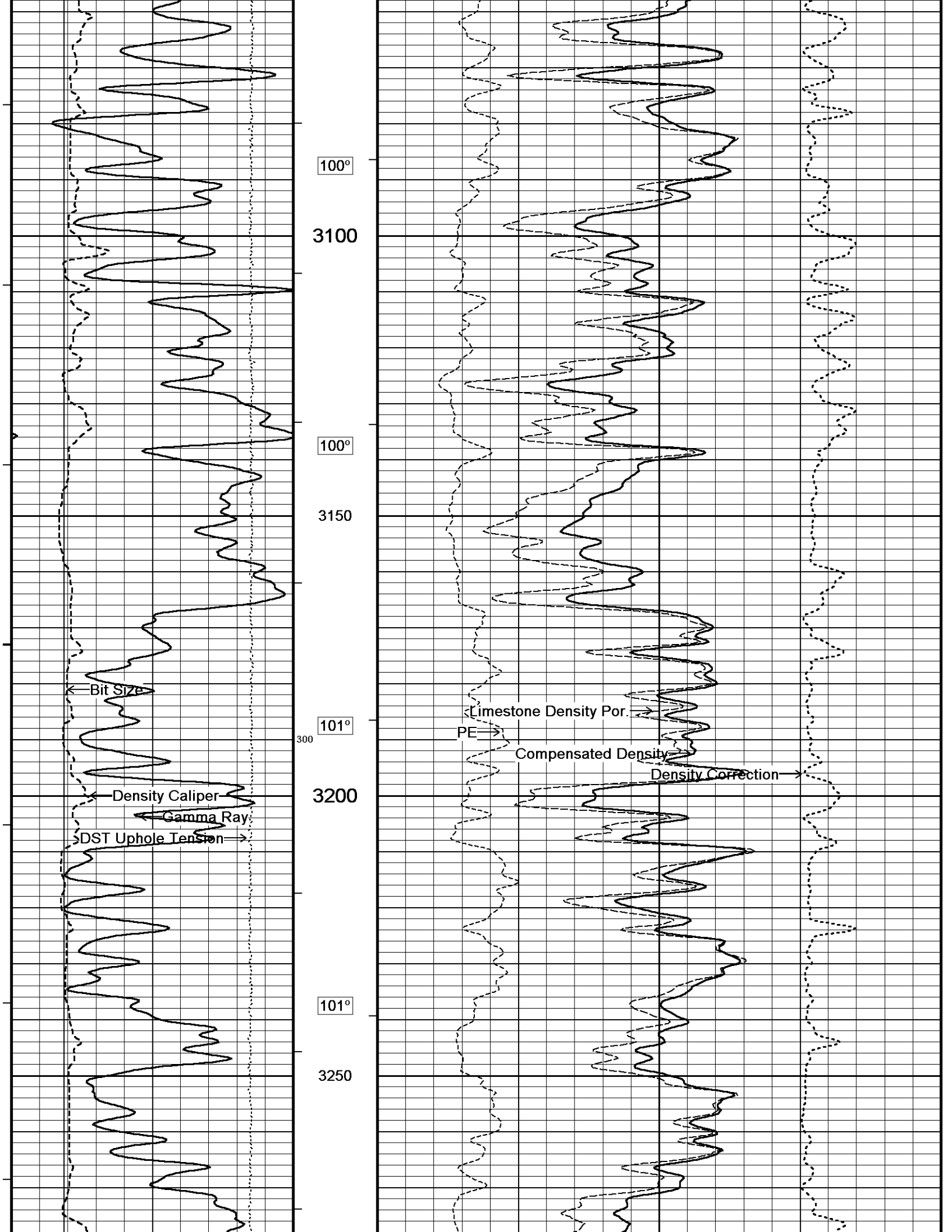

93°
2000
Bit Size
800
PE
Compensated Density
Density Correction
Density Caliper
Gamma Ray
DST Uphole Tension
93°
2050
93°
2100
94°
2150

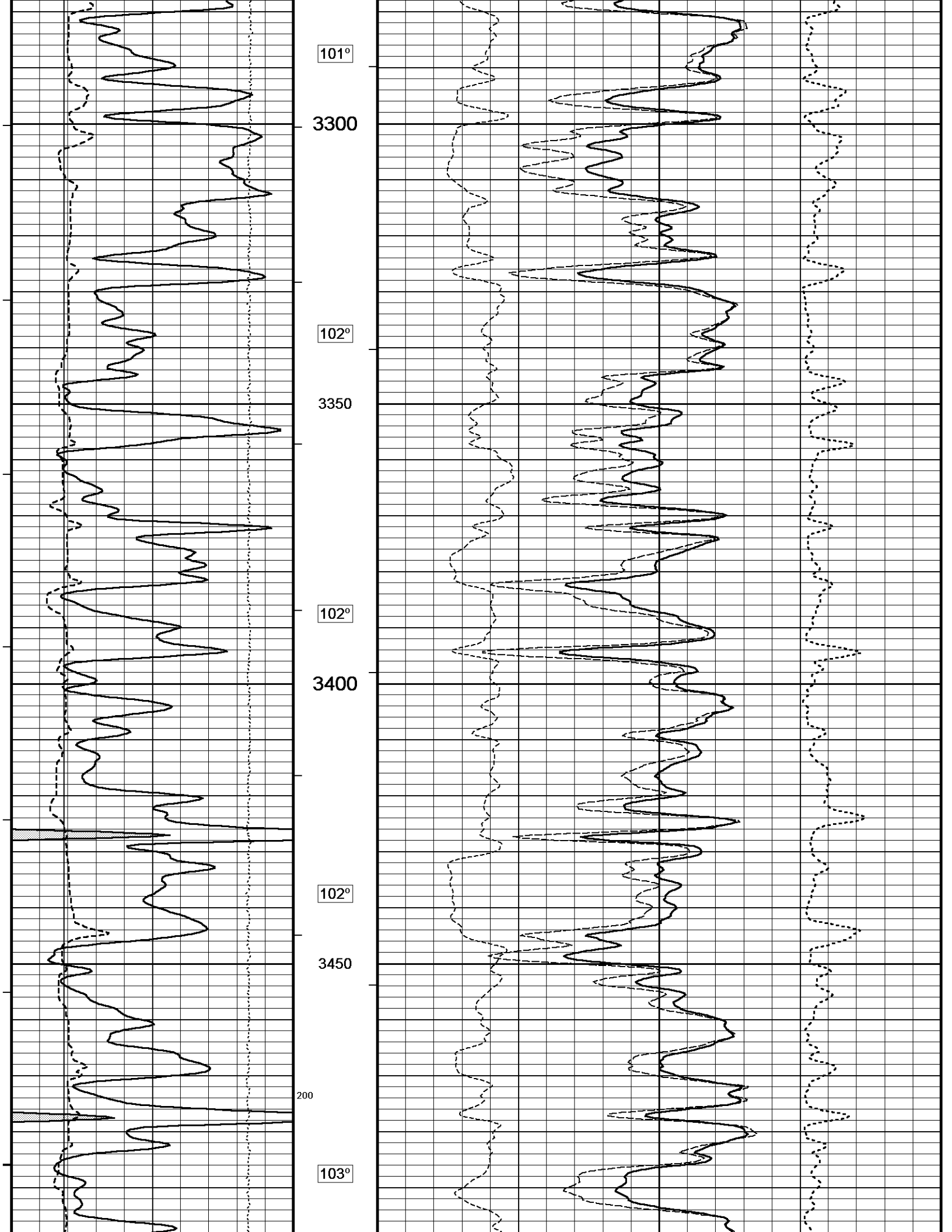

94°
2200
700
400
94°
2250
94°
2300
95°
2350
95°
Bit Size
Limestone Density Por

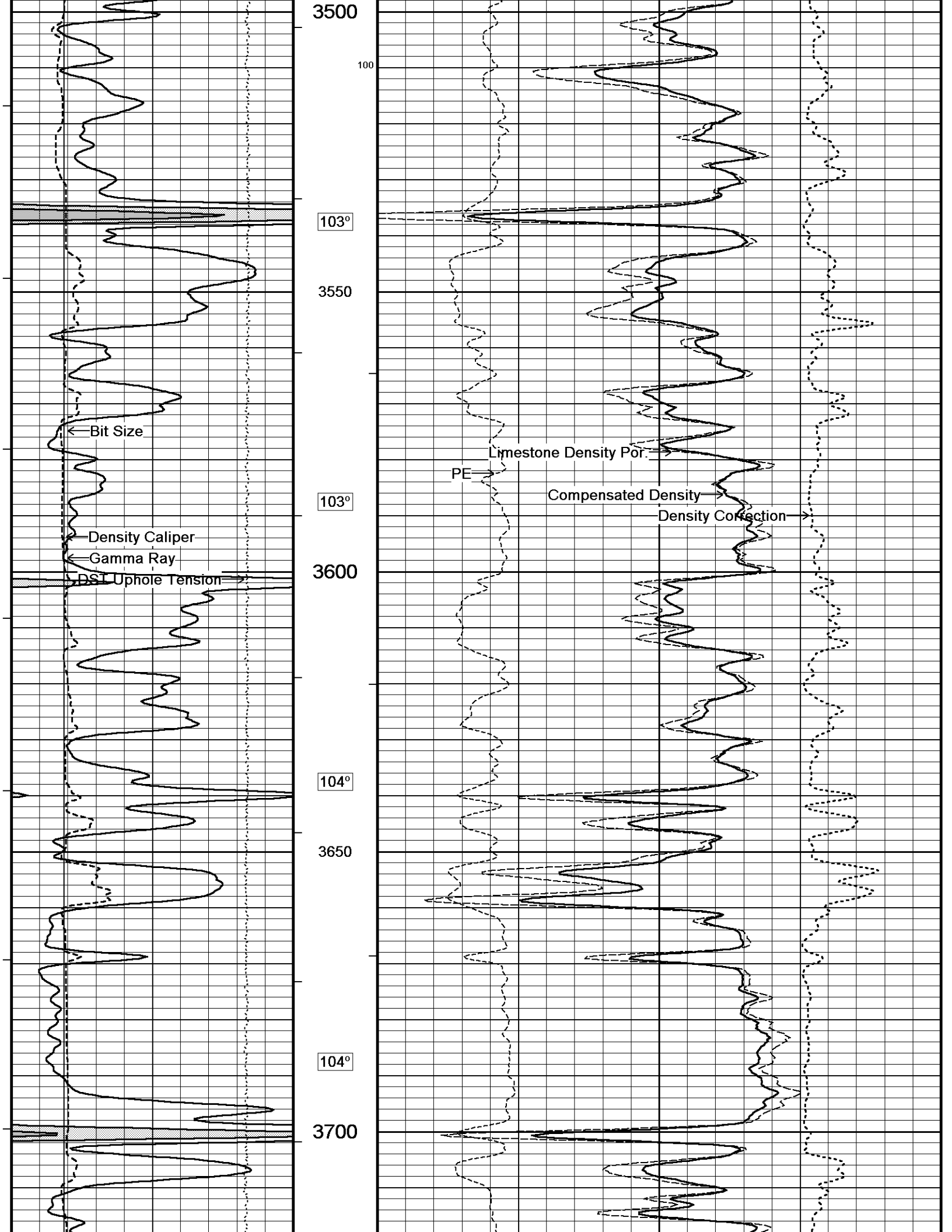

Limestone Density Por.
PE
Compensated Density
Density Correction
Density Caliper
Gamma Ray
DST Uphole Tension
600
300
2400
95°
2450
96°
2500
96°
2550
96°
2600

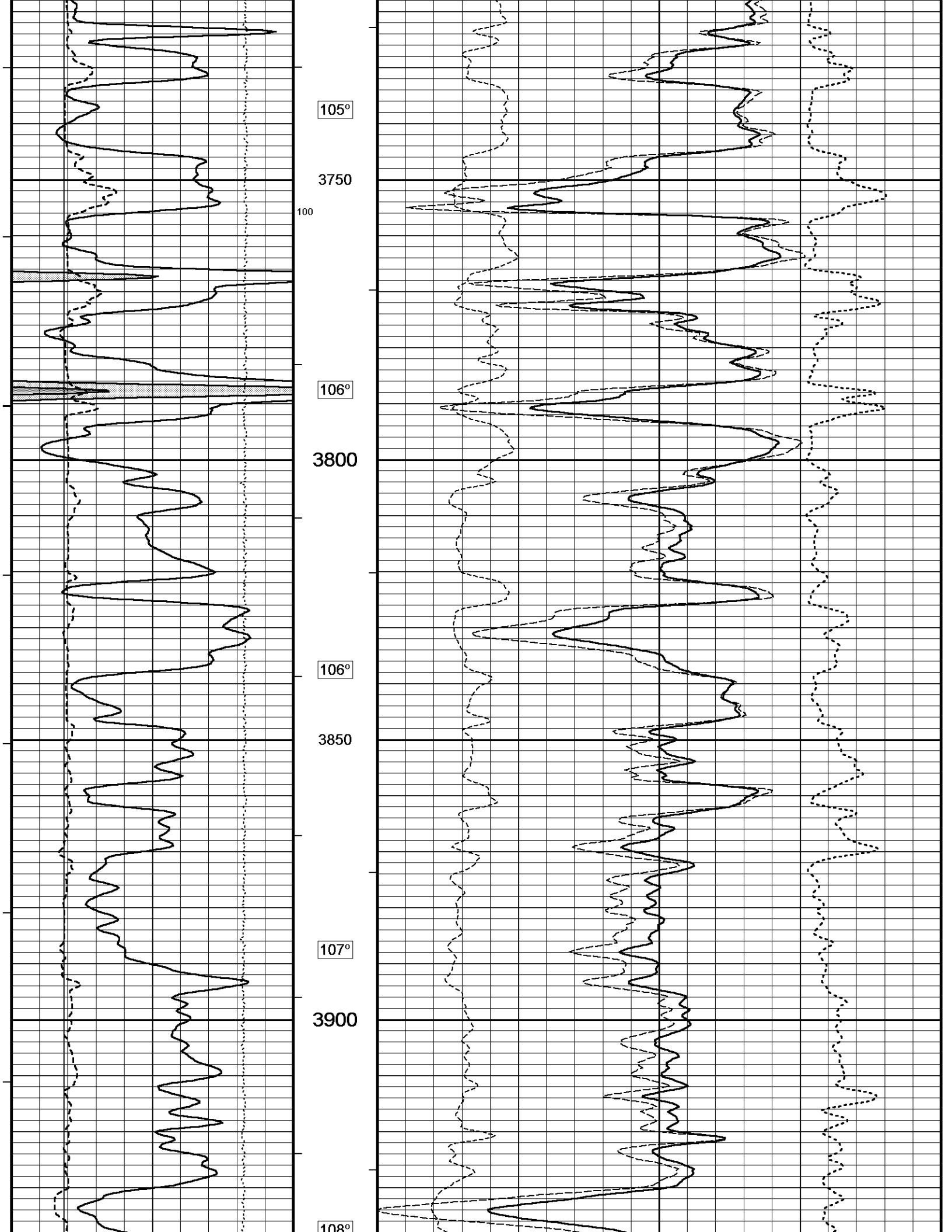

97°
2650
500
97°
2700
97°
2750
98°
2800
98°
Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
Limestone Density Por.
PE
Compensated Density
Density Correction

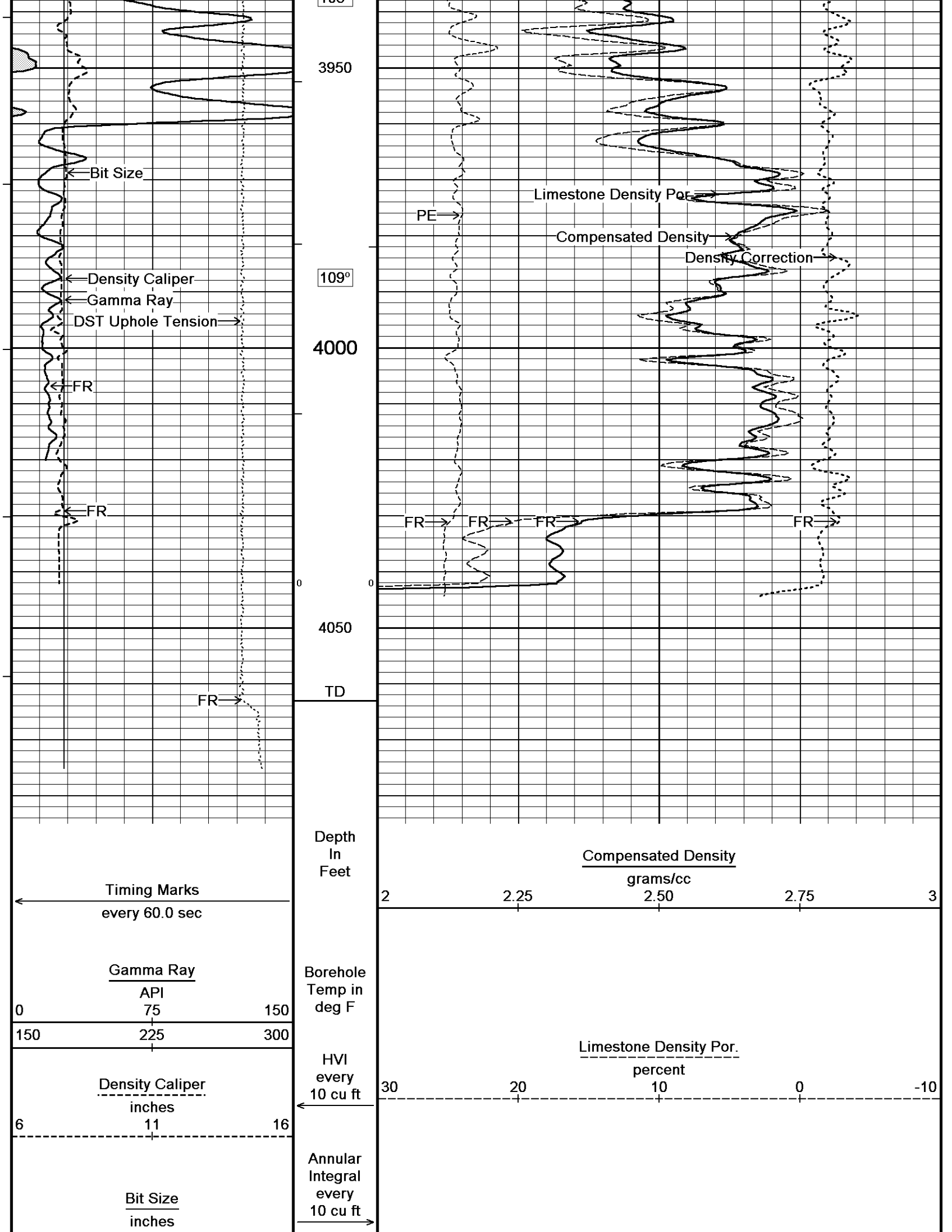

2850
98°
2900
400
99°
2950
99°
200
3000
99°
3050


100°
3100
100°
3150
Bit Size
Limestone Density Por.
101°
PE
300
Compensated Density
Density Correction
3200
Density Caliper
Gamma Ray
DST Uphole Tension
101°
3250


101°
3300
102°
3350
102°
3400
102°
3450
200
103°


3500
100
103°
3550
Bit Size
Limestone Density Por.
PE
Compensated Density
103°
Density Correction
Density Caliper
Gamma Ray
3600
DST Uphole Tension
104°
3650
104°
3700


105°
3750
100
106°
3800
106°
3850
107°
3900
108°


3950
Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
FR
FR
FR
PE
Limestone Density Por
Compensated Density
Density Correction
FR
FR
FR
FR
109°
4000
0
0
4050
TD
Depth
In
Feet
Timing Marks
every 60.0 sec
Gamma Ray
API
0
75
150
150
225
300
Density Caliper
inches
6
11
16
Bit Size
inches
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

6 11 16

DST Uphole Tension
pounds
5000 0

Replay
Scale
1:240

PE
barns/electron
0 5 10

Density Correction
grams/cc
-0.50 0 0.50

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 10-APR-2014 15:12
Filename: C:\Users\mrigby\AppData\Local\Temp\Weatherford Pre...\McElvain Gustafson #11-6_003.dta
Recorded on 26-FEB-2014 12:38
System Versions: Logged with 13.05.9583 Plotted with 13.06.9284

5 INCH MAIN

10 INCH HIGH RESOLUTION

Depth Based Data - Maximum Sampling Increment 2.5cm
Plotted on 10-APR-2014 15:12
Filename: C:\Users\mrigby\AppData\Local\Temp\Weatherford Pre...\McElvain Gustafson #11-6_001.dta
Recorded on 26-FEB-2014 11:27
System Versions: Logged with 13.05.9583 Plotted with 13.06.9284

Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150
150 225 300

Density Caliper
inches
6 11 16

Bit Size
inches
6 11 16

Depth
in
Feet

Borehole
Temp in
deg F

HVI
every
10 cu ft

Annular
Integral
every
10 cu ft

Vectar Processed Density
grams/cc
2 2.25 2.50 2.75 3

Limestone Density Por.
percent
30 20 10 0 -10

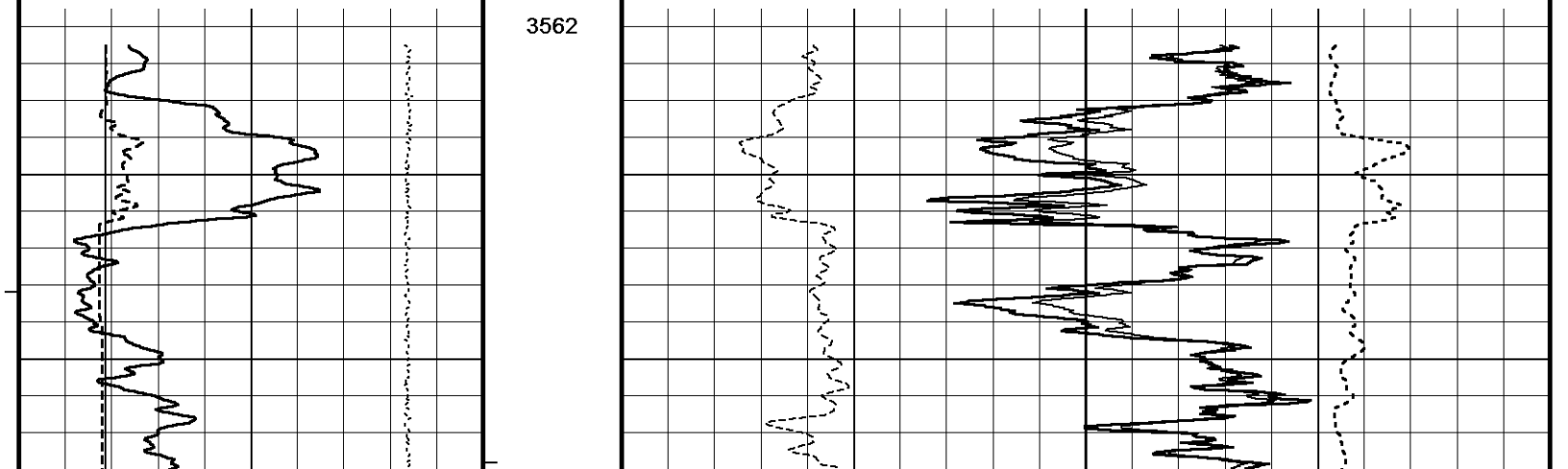
PE
barns/electron
0 5 10

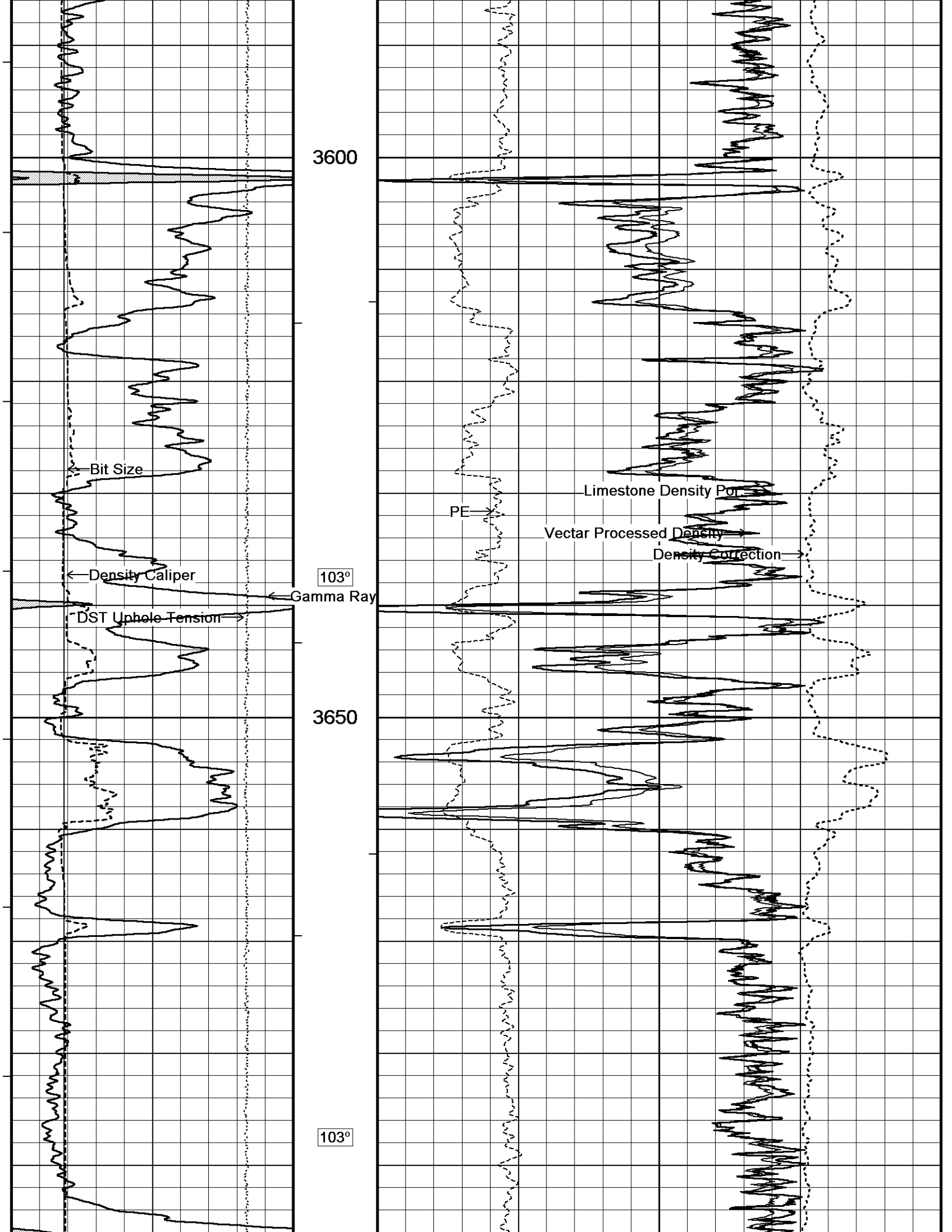
Density Correction
grams/cc
-0.50 0 0.50

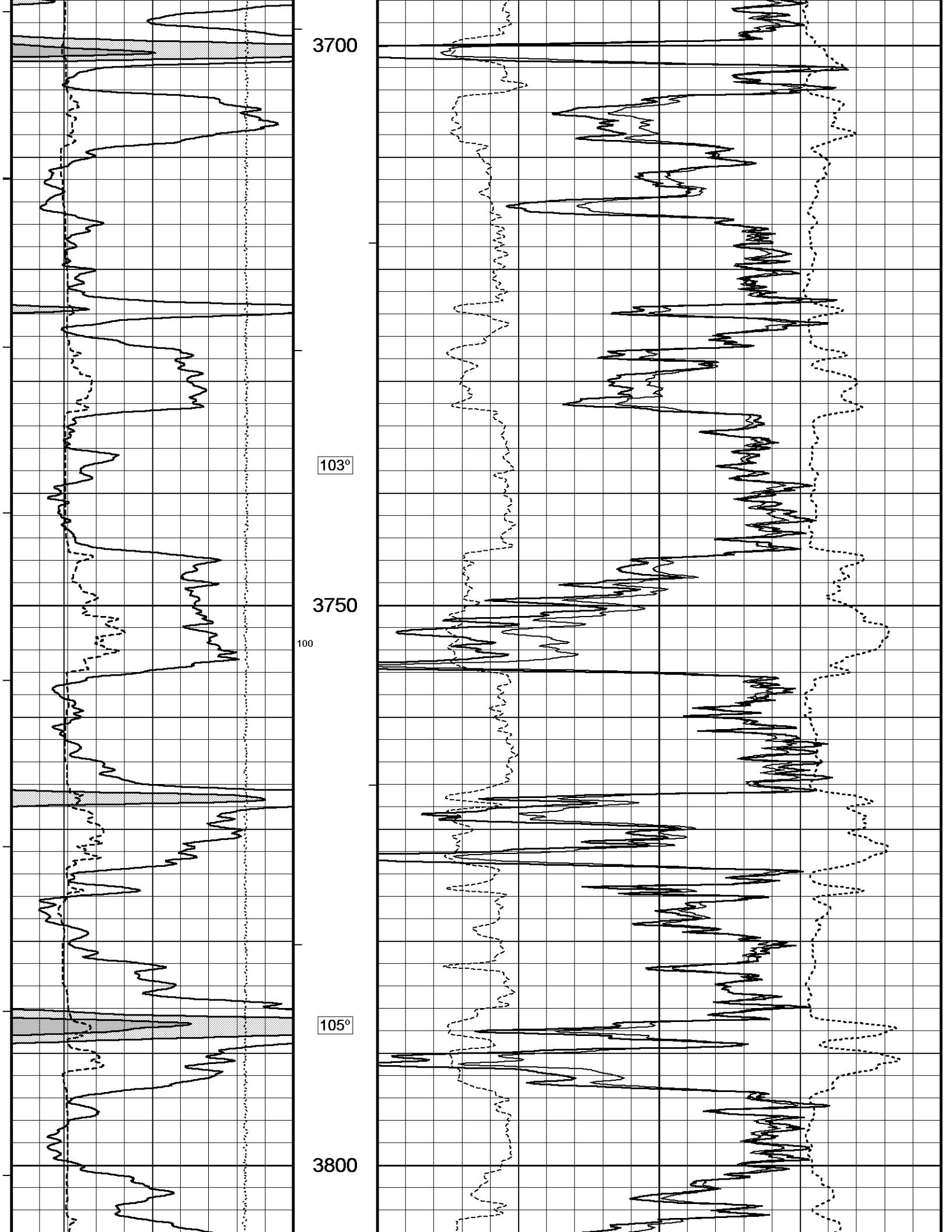
DST Uphole Tension
pounds
5000 0

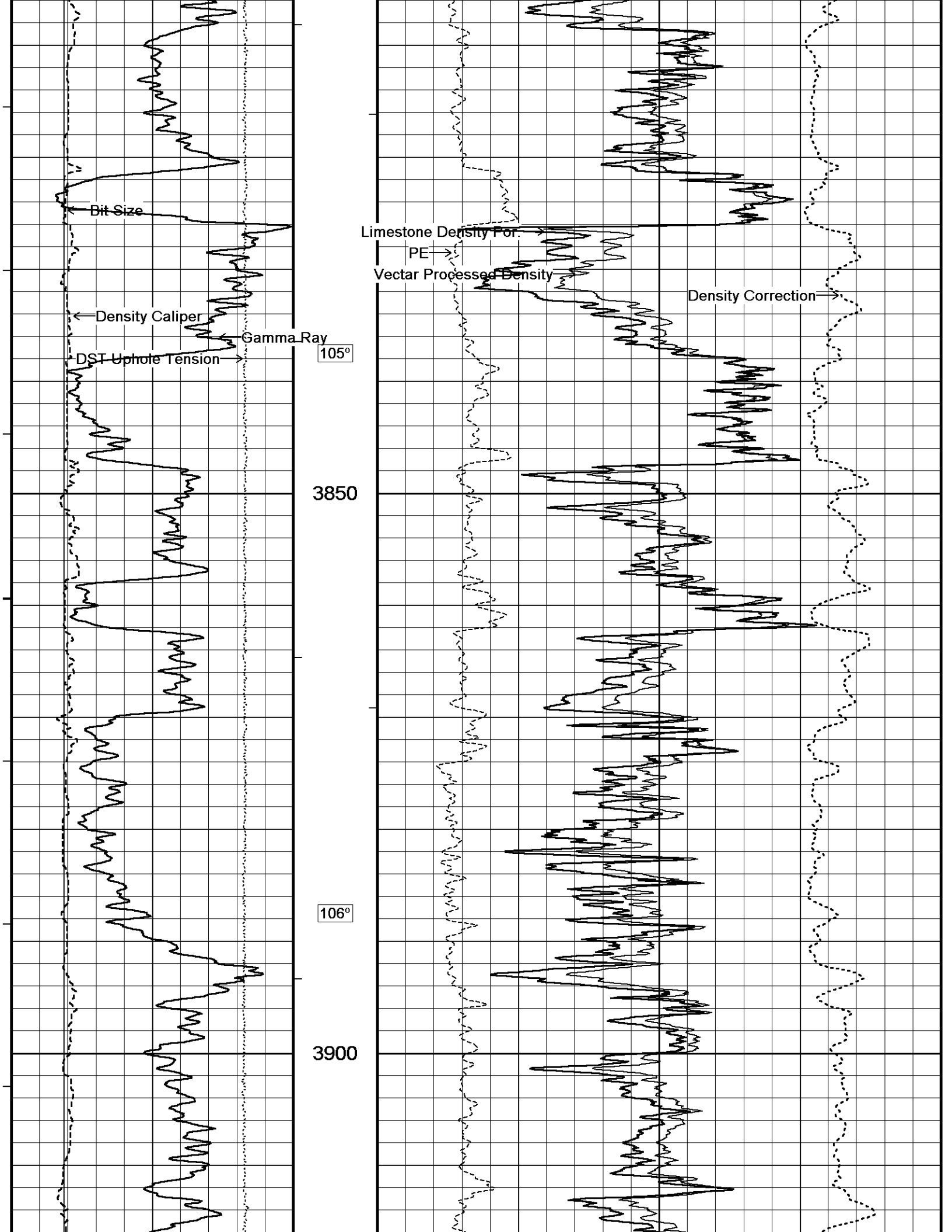
Replay
Scale
1:120

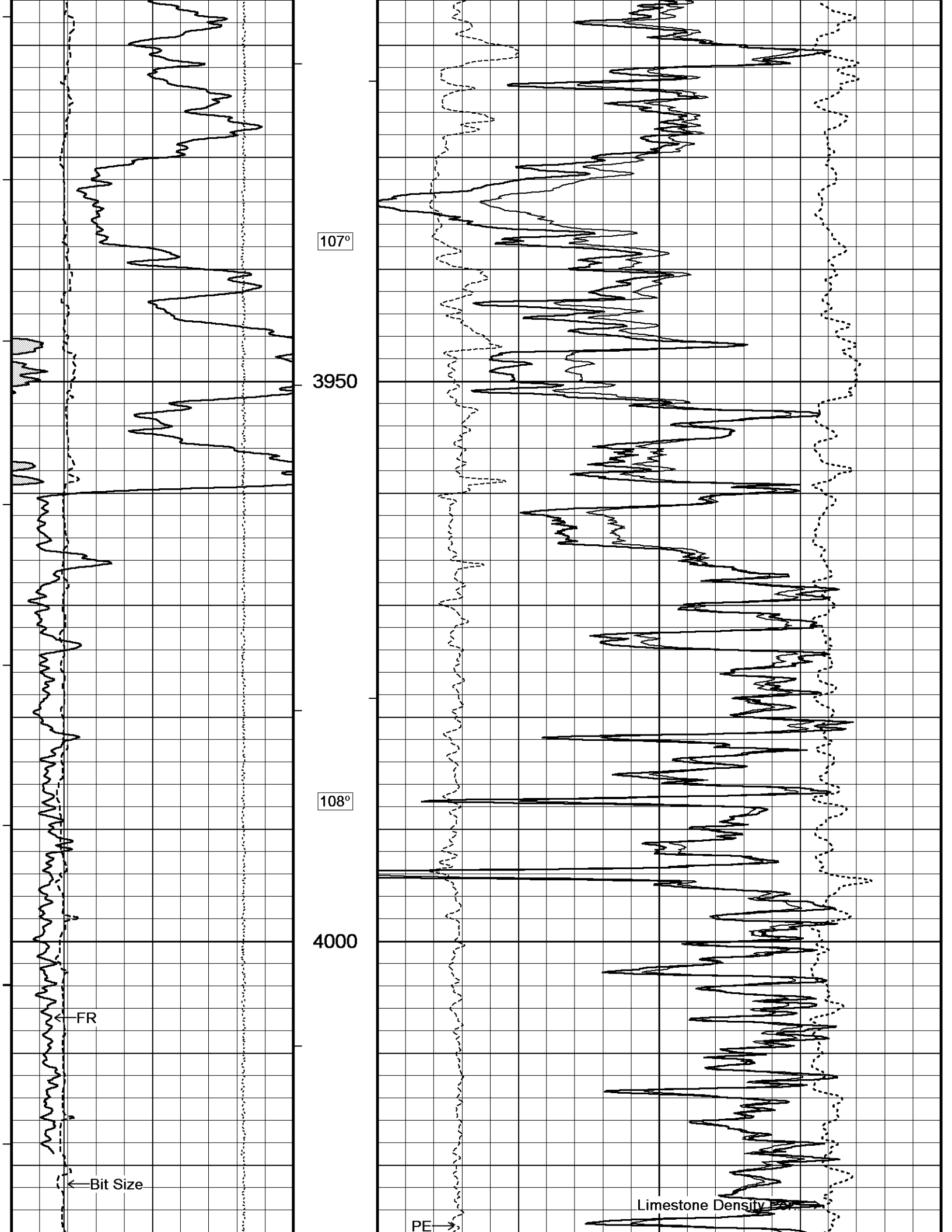
3562

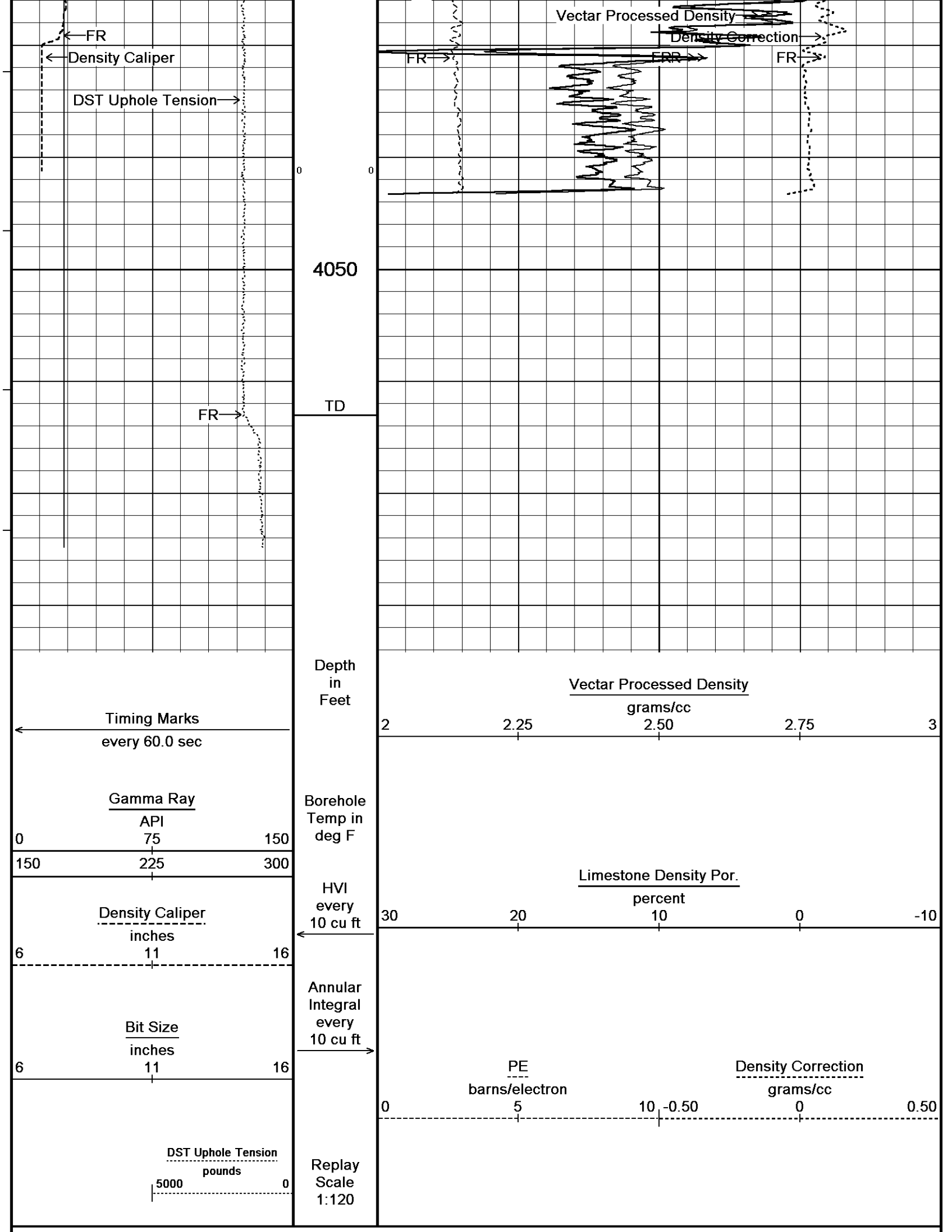



3600
Bit Size
Limestone Density Por
PE
Vectar Processed Density
Density Correction
Density Caliper
103°
Gamma Ray
DST Uphole Tension
3650
103°


3700
103°
3750
100
105°
3800


Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
105°
3850
106°
3900
Limestone Density Por
PE
Vectar Processed Density
Density Correction


107°
3950
108°
4000
FR
Bit Size
PE
Limestone Density Por.


FR
Density Caliper
DST Uphole Tension
FR
0
0
4050
TD
Vectar Processed Density
Density Correction
FR
FR
FR
Depth
in
Feet
Timing Marks
every 60.0 sec
Vectar Processed Density
grams/cc
2
2.25
2.50
2.75
3
Gamma Ray
API
0
75
150
150
225
300
Borehole
Temp in
deg F
HVI
every
10 cu ft
Limestone Density Por.
percent
30
20
10
0
-10
Density Caliper
inches
6
11
16
Annular
Integral
every
10 cu ft
Bit Size
inches
6
11
16
PE
barns/electron
0
5
10
Density Correction
grams/cc
-0.50
0
0.50
DST Uphole Tension
pounds
5000
0
Replay
Scale
1:120

Depth Based Data - Maximum Sampling Increment 2.5cm — Plotted on 10-APR-2014 15:12
Filename: C:\Users\mrigby\AppData\Local\Temp\Weatherford Pre...\McElvain Gustafson #11-6_001.dta — Recorded on 26-FEB-2014 11:27
System Versions: Logged with 13.05.9583 Plotted with 13.06.9284

10 INCH HIGH RESOLUTION

REPEAT SECTION

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 10-APR-2014 15:12
Filename: C:\Users\mrigby\AppData\Local\Temp\Weatherford Pre...\McElvain Gustafson #11-6_002.dta — Recorded on 26-FEB-2014 11:27
System Versions: Logged with 13.05.9583 Processed with 13.05.9583 Plotted with 13.06.9284

Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150
150 225 300

Density Caliper
inches
6 11 16

Bit Size
inches
6 11 16

DST Uphole Tension
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

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
-0.50 0 0.50

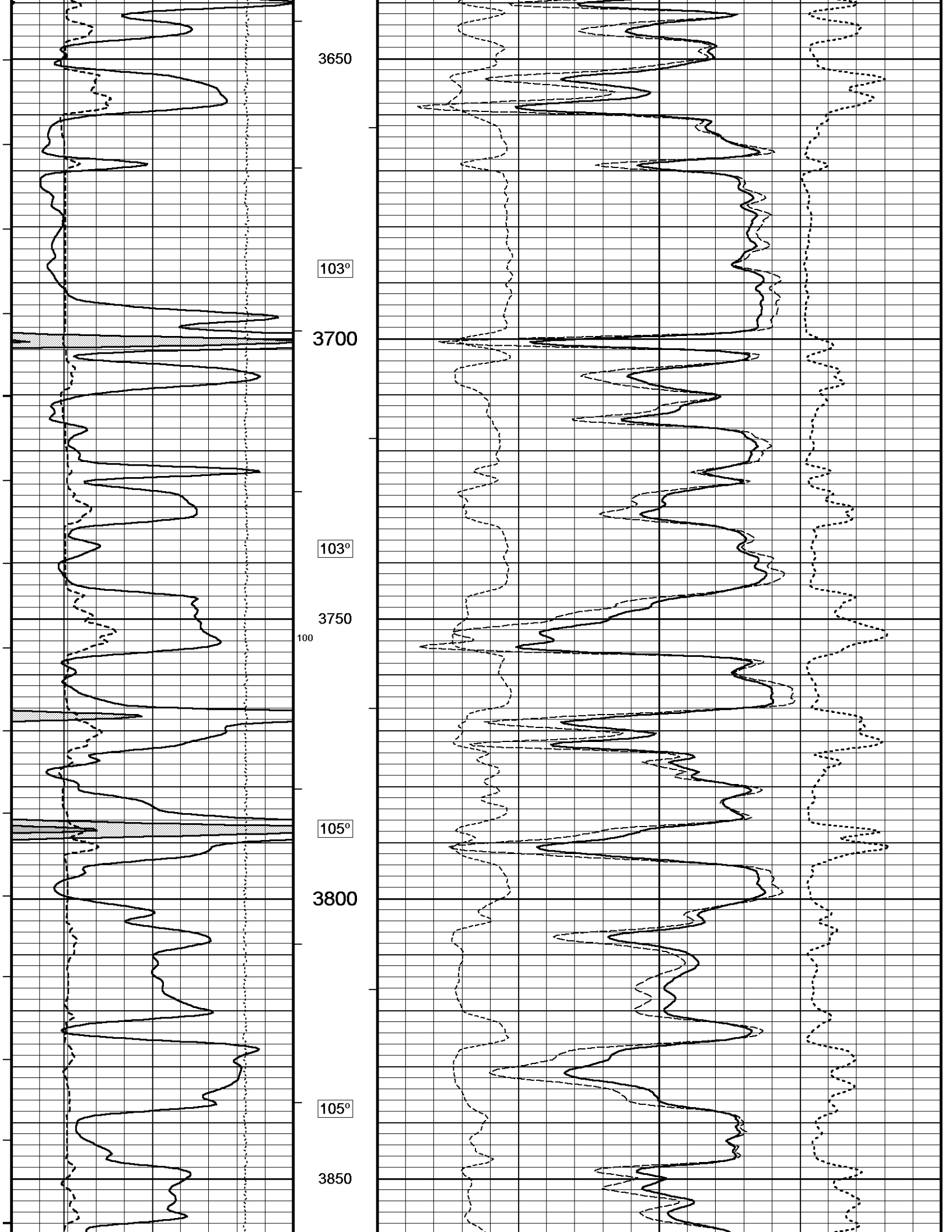
3562

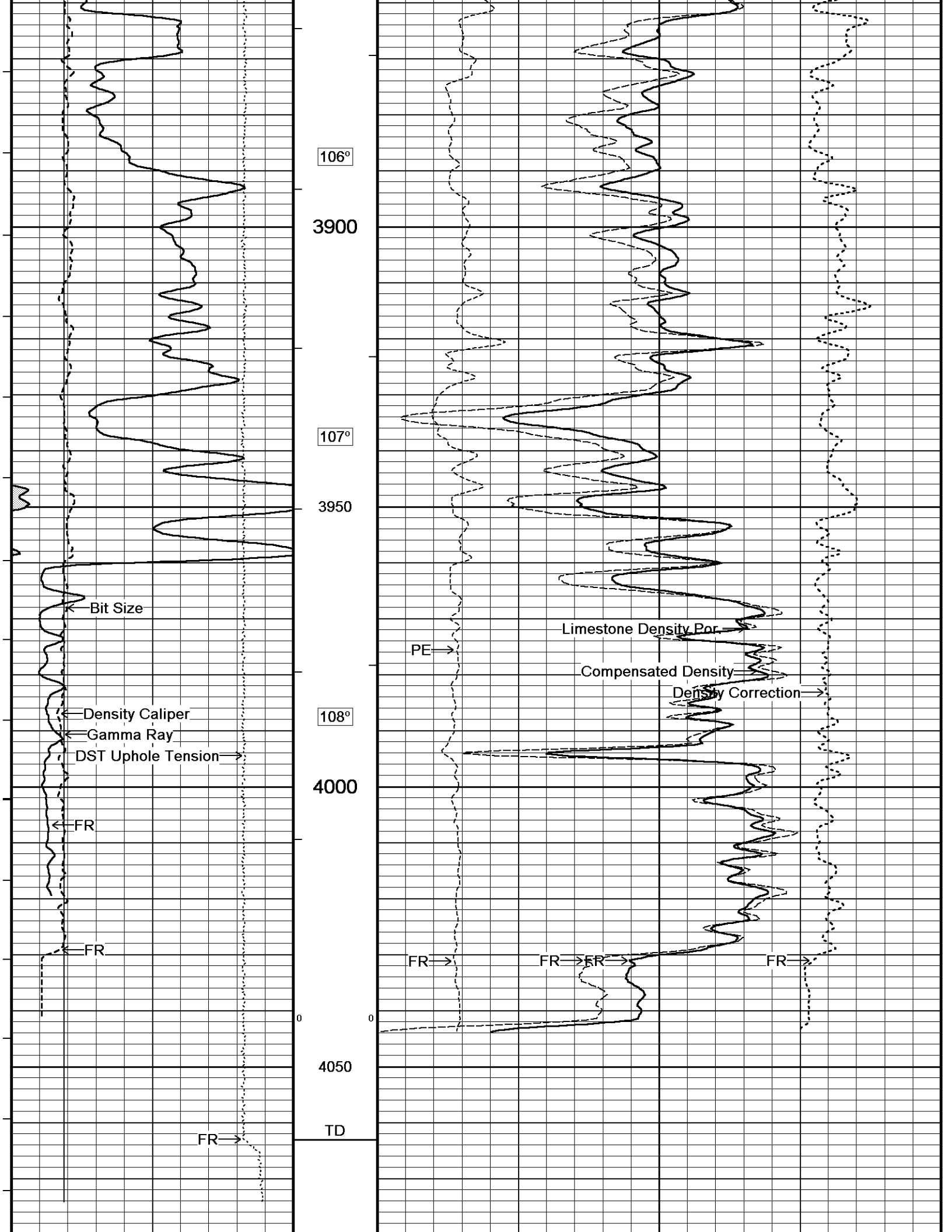
Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension

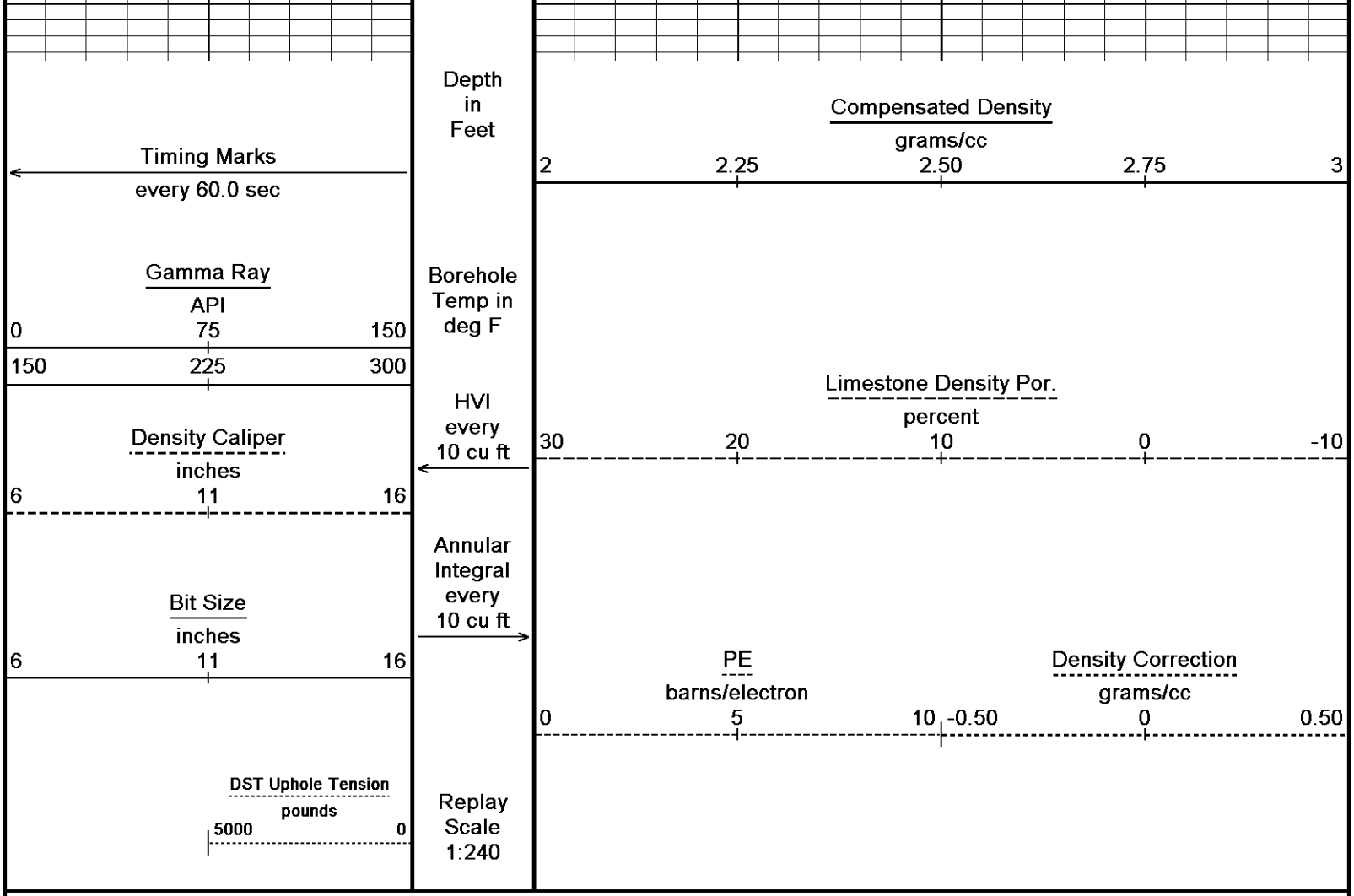
3600

Limestone Density Por.
PE
Compensated Density
Density Correction

103°


3650
103°
3700
103°
3750
100
105°
3800
105°
3850


106°
3900
107°
3950
108°
4000
4050
TD
Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
FR
FR
FR
PE
Limestone Density Por.
Compensated Density
Density Correction
FR
FR
FR
FR
0
0



Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 10-APR-2014 15:12

Filename: C:\Users\mrigby\AppData\Local\Temp\Weatherford Pre...\McElvain Gustafson #11-6_002.dta — Recorded on 26-FEB-2014 11:27

System Versions: Logged with 13.05.9583 Processed with 13.05.9583 Plotted with 13.06.9284

REPEAT SECTION

BEFORE SURVEY CALIBRATION

C:\Users\mrigby\AppData\Local\Temp\Weatherford PreView\0\McElvain Gustafson #11-6_002.dta

General Constants All 000

Last Edited on 26-FEB-2014,10:56

General Parameters		
Mud Resistivity	1.280	ohm-metres
Mud Resistivity Temperature	76.000	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 19-JAN-2014 09:34

Reading No	Measured	Calibrated (lbs)

1	15482.72	0.00
2	16610.36	408.00

High Resolution Temperature Calibration MCG-C 84

Field Calibration on 21-AUG-2013,11:52

	Measured	Calibrated(Deg F)
Lower	11.00	11.00
Upper	111.00	111.00

High Resolution Temperature Constants MCG-C 84

Last Edited on 21-AUG-2013,11:52

Pre-filter Length	11

SP Calibration MCG-C 84

Field Calibration on 21-AUG-2013 12:25

	Measured	Calibrated (mV)
Reference 1	105.4	100.7
Reference 2	-96.3	-100.8

Gamma Calibration MCG-C 84

Field Calibration on 26-FEB-2014 02:09

	Measured	Calibrated (API)
Background	66	44
Calibrator (Gross)	1141	769
Calibrator (Net)	1076	725

Gamma Constants MCG-C 84

Last Edited on 26-FEB-2014,10:33

Gamma Calibrator Number	GRC38	
Mud Density	1.10	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl		kppm
K Mud Type	Chloride	
K Mud Concentration	0.00	%

Micro Laterolog Calibration MMR-A 11

Base Calibration on 31-DEC-1999 00:00
Field Check on 31-DEC-1999 00:00

Base Calibration

Measured		Calibrated (ohm-m)	
Ref 1	Ref 2	Ref 1	Ref 2
0.0	0.0	0.0	0.0

Base Check (ohm-m)	Field Check (ohm-m)
0.0	0.0

Micro Laterolog Constants MMR-A 11

Last Edited on

Pad Type	6 in Solid Nylon B23059	
Micro Laterolog K Factor	0.0128	
Standoff Offset	0.0000	inches
Mudcake Thickness Correction Constants		
Mud Cake Source	Constant Value	
Mud Cake Thickness	0.4000	inches
Mud Cake Thickness Caliper		
Mud Cake Resistivity	0.1500	ohm-m
Mud Cake Resistivity Temp.	68.00	Deg F
Mud Cake Resistivity Source	Constant Value	
Temp. Source Rmc Correc.	MCG External Temperature	

Caliper Calibration MMR-A 11

Base Calibration on 20-JAN-2014 14:07
Field Calibration on 26-FEB-2014 01:47

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	14089	5.98
2	17229	7.97
3	20490	9.86
4	24430	11.92
5	0	0.00
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)

	8.06	7.97

Micro Normal and Micro Inverse Calibration MMR-A 11

Base Calibration on 20-JAN-2014 13:46
Field Check on 26-FEB-2014 01:43

Base Calibration

Channel	Measured Resistor 1	Measured Resistor 2	Calibrated (ohm-m) Resistor 1	Calibrated (ohm-m) Resistor 2
Micro Normal	12.2	59.7	5.0	25.0
Micro Inverse	15.5	77.5	5.0	25.0

Channel	Base Check (ohm-m)	Field Check (ohm-m)
Micro Normal	76.5	76.5
Micro Inverse	58.7	58.7

Micro Normal and Micro Inverse Constants MMR-A 11

Last Edited on 18-APR-2013,13:52

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	0.0000	inches

Neutron Calibration MDN-A.B 65

Base Calibration on 20-JAN-2014 15:06
Field Check on 26-FEB-2014 02:00

Base Calibration

	Measured Near	Measured Far	Calibrated (cps) Near	Calibrated (cps) Far
	2981	92	3714	110
Ratio	32.404		33.764	

Field Calibrator at Base

	Calibrated (cps)	
	1702	2459
Ratio	0.692	

Field Check

	Calibrated (cps)	
	1723	2472
Ratio	0.697	

Neutron Constants MDN-A.B 65

Last Edited on 26-FEB-2014,10:33

Neutron Source Id	PN-521	
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	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-B.J 352

Base Calibration on 17-JAN-2014 13:04
Field Check on 26-FEB-2014 01:42

Base Calibration

	Measured	Calibrated (ohm-m)
Reference 1	9.9	1.3
Reference 2	962.7	126.8
Base Check		281.7
Field Check		282.0

FE Constants MFE-B.J 352

Last Edited on 26-FEB-2014,10:32

Running Mode	No Sleeve	
MFE K Factor	0.1268	

MPLR Factor	0.1208	
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 26-FEB-2014,10:32

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 45

Field Calibration on 29-OCT-2013,14:20

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

High Resolution Temperature Constants MAI-A.A 45

Last Edited on 29-OCT-2013,14:20

Pre-filter Length	11

Induction Calibration MAI-A.A 45

Base Calibration on 21-MAY-2013,16:47
Field Check on 26-FEB-2014 01:34

Base Calibration

Test Loop Calibration	Measured		Calibrated (mmho/m)	
Channel	Low	High	Low	High
1	14.4	472.6	9.3	966.2
2	5.7	374.0	7.6	821.4
3	3.4	261.2	5.2	566.0
4	2.5	133.9	2.6	279.2

Array Temperature	0.0	Deg F

Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1			18.2	3849.6
2			31.6	3627.9
3			28.6	3048.4
4			18.3	2078.6
Deep			16.0	1910.8
Medium			42.5	4059.1
Shallow			49.5	5480.5

Array Temperature	56.6	Deg F

Induction Constants MAI-A.A 45

Last Edited on 26-FEB-2014,10:32

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	

Photo Density Calibration MPD-B 31

Base Calibration on 20-JAN-2014 16:43
Field Check on 26-FEB-2014 01:41

Density Calibration

Base Calibration	Measured	Calibrated (sdu)

	Near	Far	Near	Far
Reference 1	43628	22294	59556	30836
Reference 2	17956	1856	24941	2541

Field Check at Base

665.1	818.8

Field Check

664.5	823.8

PE Calibration

Base Calibration

	WS	Measured WH	Ratio	Calibrated Ratio
Background	124	593		
Reference 1	17926	43516	0.415	0.371
Reference 2	5248	17873	0.297	0.272

Field Check at Base

123.9	593.3

Field Check

123.3	588.1

Density Constants MPD-B 31

Last Edited on 26-FEB-2014,10:32

Density Source Id	254	
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	1.10	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	

Caliper Calibration MPD-B 31

Base Calibration on 24-FEB-2014 03:42
Field Calibration on 26-FEB-2014 01:36

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	18272	3.99
2	26496	5.98
3	35155	7.97
4	43472	9.86
5	52816	11.92
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
7.94	7.97

DOWNHOLE EQUIPMENT

C:\Users\mrigby\AppData\Local\Temp\Weatherford PreView\0\McElvain Gustafson #11-6_002.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-C 84 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Compact Micro-Resistivity
MMR-A 11 LG: 8.59 ft WT: 81.6 lb OD: 4.88 in

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

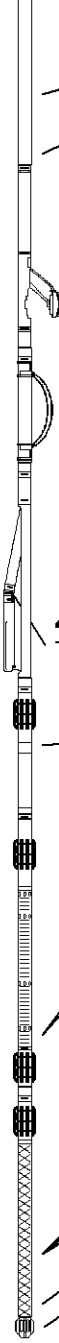
Compact Density/Caliper
MPD-B 31 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

Compact Focussed Electric
MFE-B.J 352 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 45 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 62.88 ft Weight: 471.8 lb



56.02 ft	GRGC - Gamma Ray
53.11 ft	CGXT - MCG External Temperature
45.76 ft	MBTC - MMR Caliper
45.76 ft	MINV - MMR MicroLog Inverse
45.76 ft	MNRL - MMR MicroLog Normal
40.97 ft	NPRL - Limestone Neutron Por.
33.73 ft	AVOL - Annular Volume
33.73 ft	HVOL - Hole Volume
33.73 ft	CLDC - Density Caliper
31.80 ft	DPRL - Limestone Density Por.
31.80 ft	DEN - Compensated Density
31.80 ft	DCOR - Density Correction
31.74 ft	PDPE - PE
26.24 ft	FEFE - Shallow FE
12.96 ft	DT35 - 3-5' Compensated Sonic
12.96 ft	SPRL - Wyllie Lime. Sonic Por.
3.34 ft	R40O - Array Ind. One Res 40
3.34 ft	RTAO - Array Ind. One Res Rt
3.34 ft	R60O - Array Ind. One Res 60
0.23 ft	SPCG - Spontaneous Potential
Tool Zero	(0.13ft from bottom)
-0.13 ft	SMTU - DST Uphole Tension

All measurements relative to tool zero.

COMPANY	McELVAIN ENERGY, INC.
WELL	GUSTAFSON #11-6
FIELD	DUSSAULT
PROVINCE/COUNTY	GRAHAM
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	2334.00	feet	First Reading	4031.00	feet
Elevation Drill Floor	2332.00	feet	Depth Driller	4065.00	feet
Elevation Ground Level	2324.00	feet	Depth Logger	4063.00	feet

Weatherford®

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