



Weatherford[®]

**COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRORESISTIVITY LOG**

COMANCHE RESOURCES COMPANY

SAVOLT # 30-1

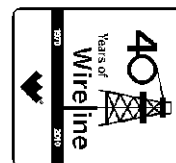
WILDCAT

SCOTT

U.S.A. / KANSAS

3200' FSL & 400' FEL

NW SE SE NE



SEC 30	TWP 19S	RGE 34W	Other Services MSS	
API Number 15-171-20876		MAI/MFE		
Permit Number				
Permanent Datum G.L., Elevation 3131 feet				
Log Measured From KB				
Drilling Measured From K.B.				
Date	11-MAY-2012	Elevations: KB 3141.00 DF 3139.00 GL 3131.00		
Run Number	ONE			
Depth Driller	5020.00	feet		
Depth Logger	5015.00	feet		
First Reading	4981.00	feet		
Last Reading	3900.00	feet		
Casing Driller	367.00	feet		
Casing Logger	359.00	feet		
Bit Size	7.875	inches		
Hole Fluid Type	CHEMICAL			
Density / Viscosity	8.90 lb/USg	65.00 CP		
PH / Fluid Loss	12.00	4.40 ml/30Min		
Sample Source	FLOWLINE			
Rm @ Measured Temp	0.78 @ 70.0	ohm-m		
Rmf @ Measured Temp	0.62 @ 70.0	ohm-m		
Rmc @ Measured Temp	0.94 @ 70.0	ohm-m		
Source Rmf / Rmc	CALC	CALC		
Rm @ BHT	0.48 @118.0	ohm-m		
Time Since Circulation	5 HOURS			
Max Recorded Temp	118.00	deg F		
Equipment Name	COMPACT			
Equipment / Base	13096	LIB		
Recorded By	A. GIAMBALVO			
Witnessed By	JIM SPELLMAN		TROY FOWLER	
S.O. / JOB #	3534538		LB12-120	

BOREHOLE RECORD

Last Edited: 11-MAY-2012 03:45

Bit Size inches	Depth From feet	Depth To feet
7.875	359.00	5015.00

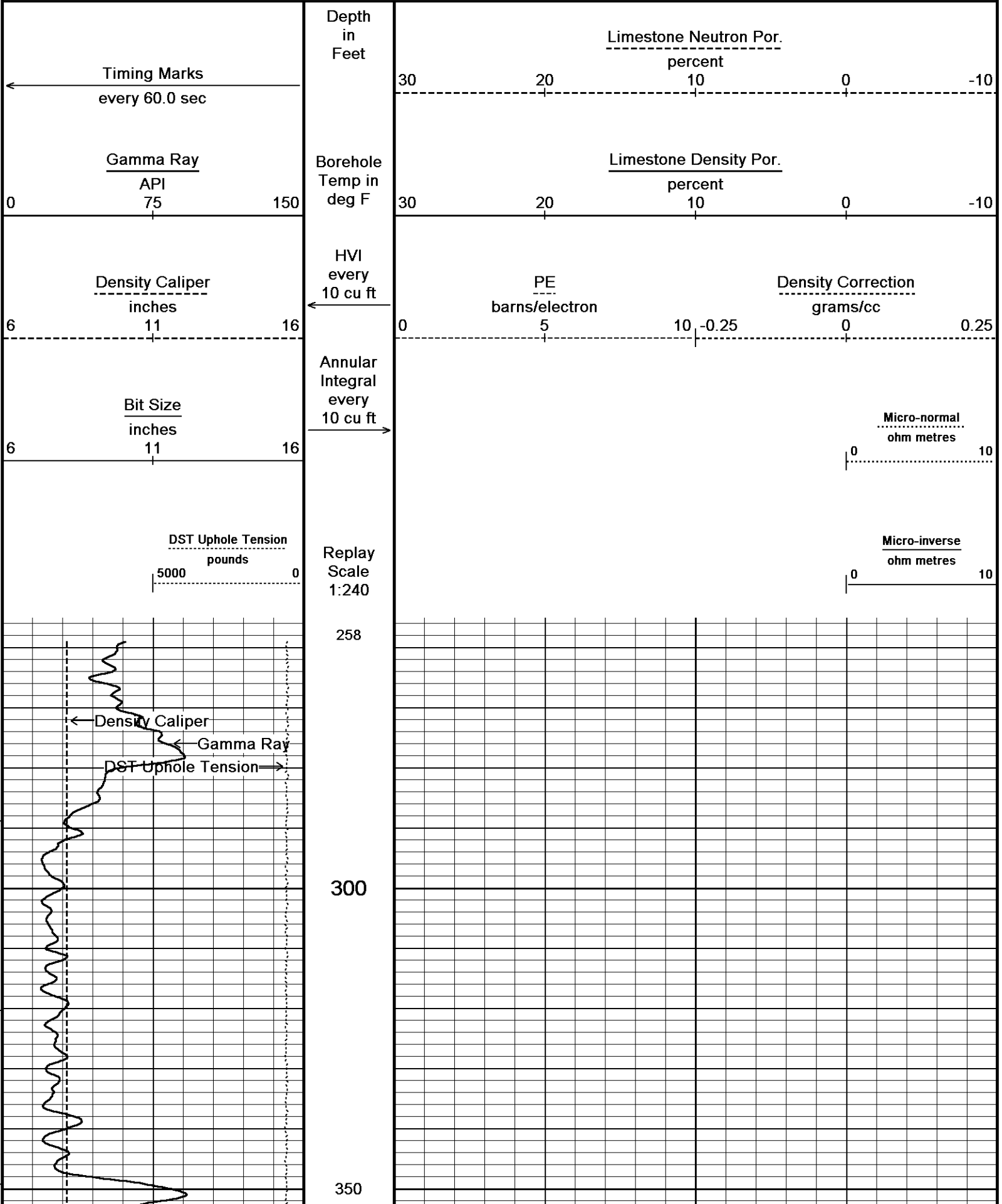
CASING RECORD

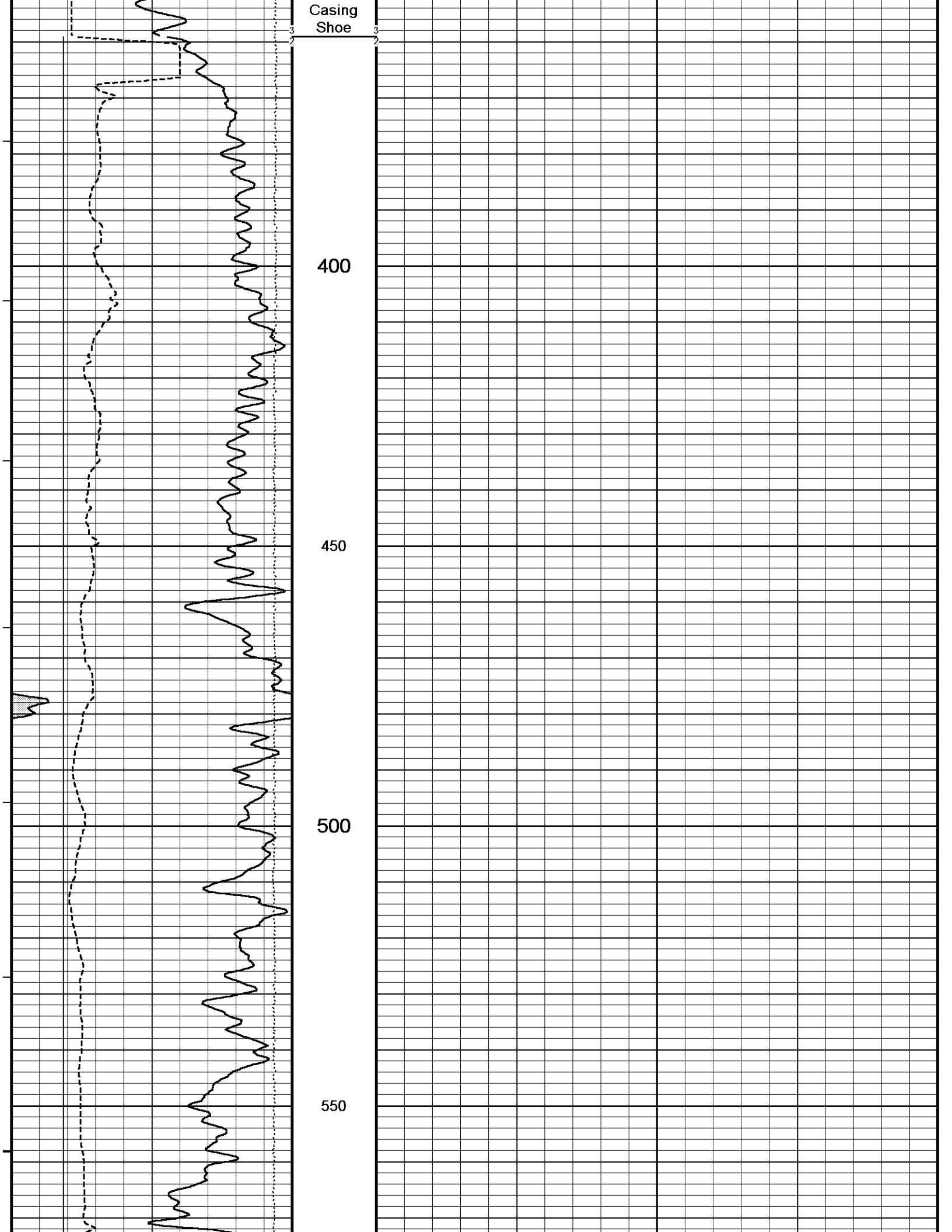
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	10.00	359.00	24.00

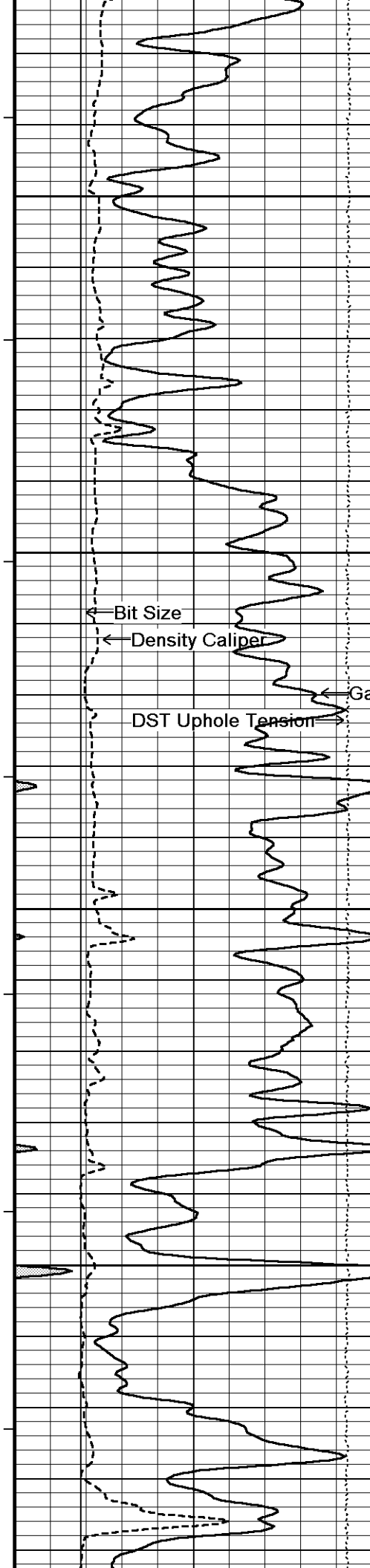
REMARKS

Tools Used: MPD, MCG, MDN, MFE, MAI, MSS, MML.
Hardware: MPD: 8 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.
All intervals logged and scaled per customer's request.
Annular volume with 5.5 inch production casing = 200 cu. ft.
Service order #3534538
Rig: Murfin Drilling Rig #2
Engineer: A. Giambalvo
Operator(s): N. Adame

All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions in our price schedule.







600

650

700

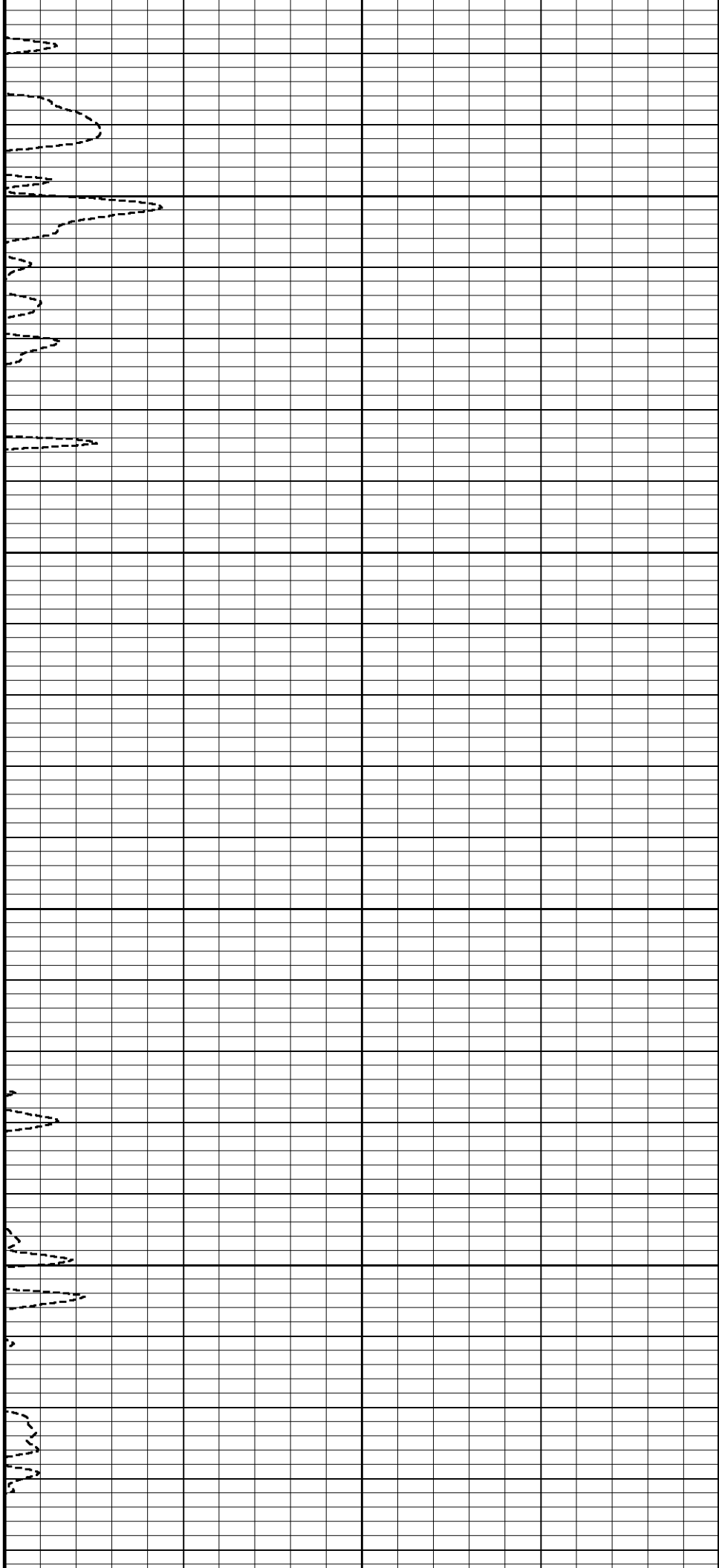
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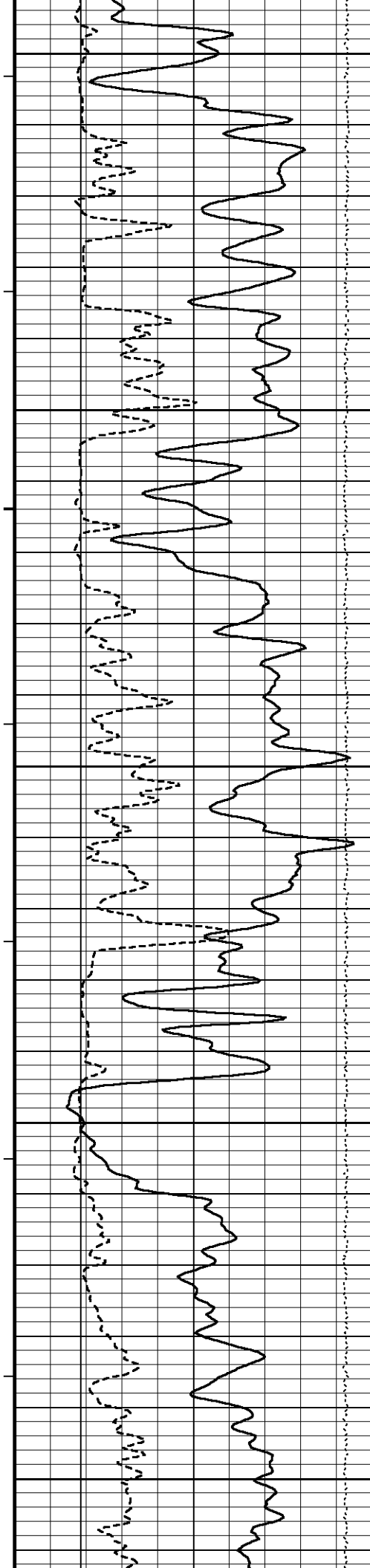
Bit Size

Density Caliper

DST Uphole Tension

Gamma Ray





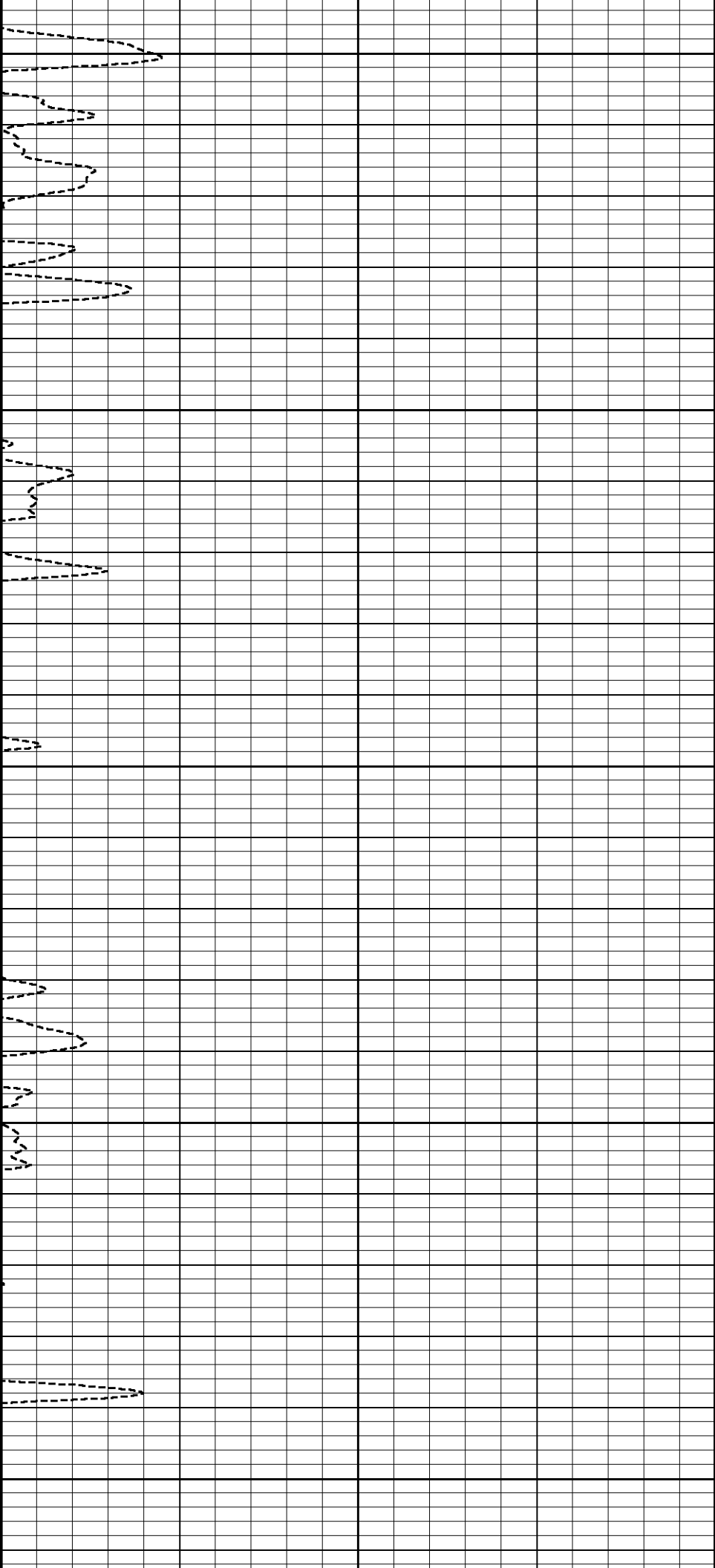
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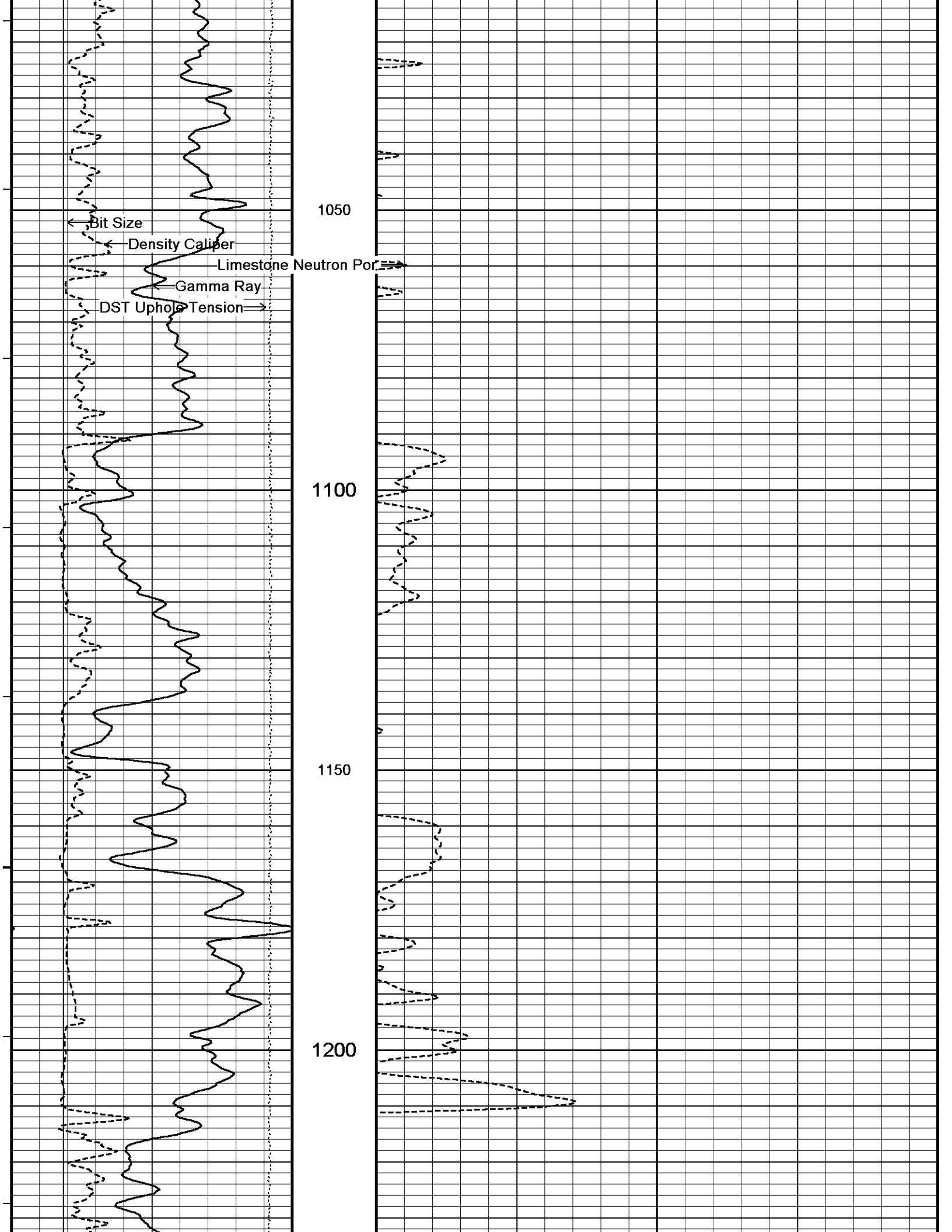
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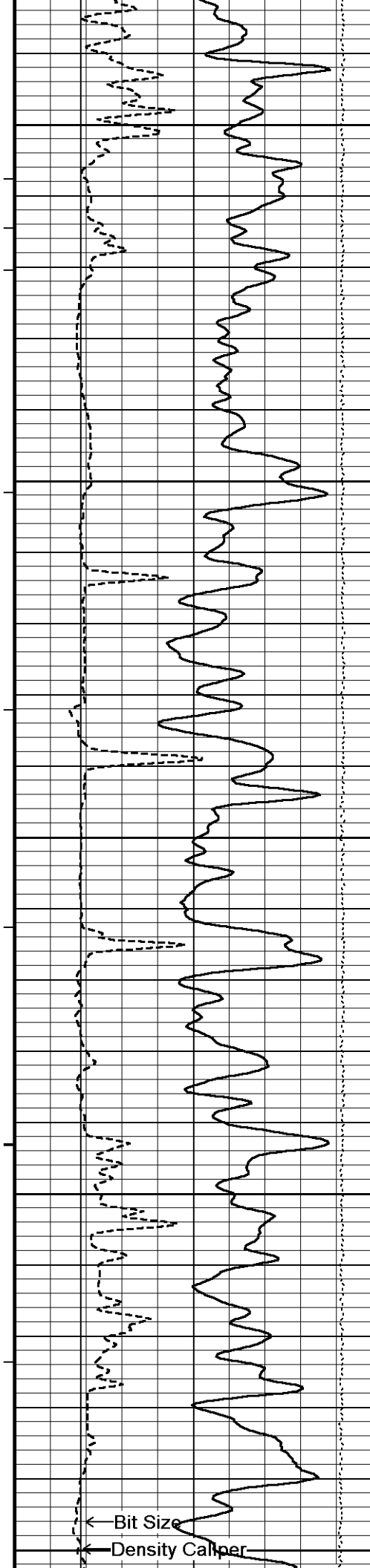
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950

1000







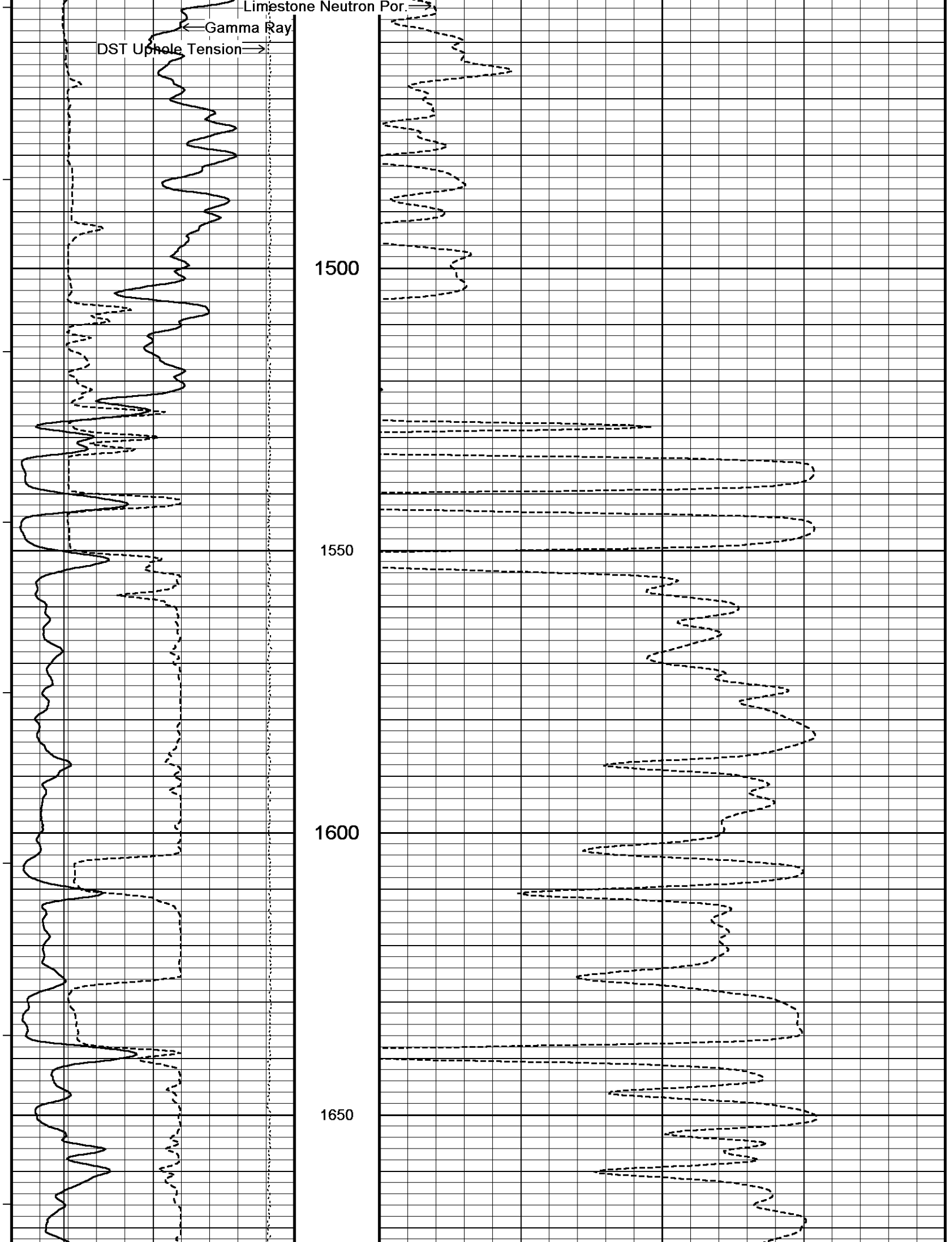
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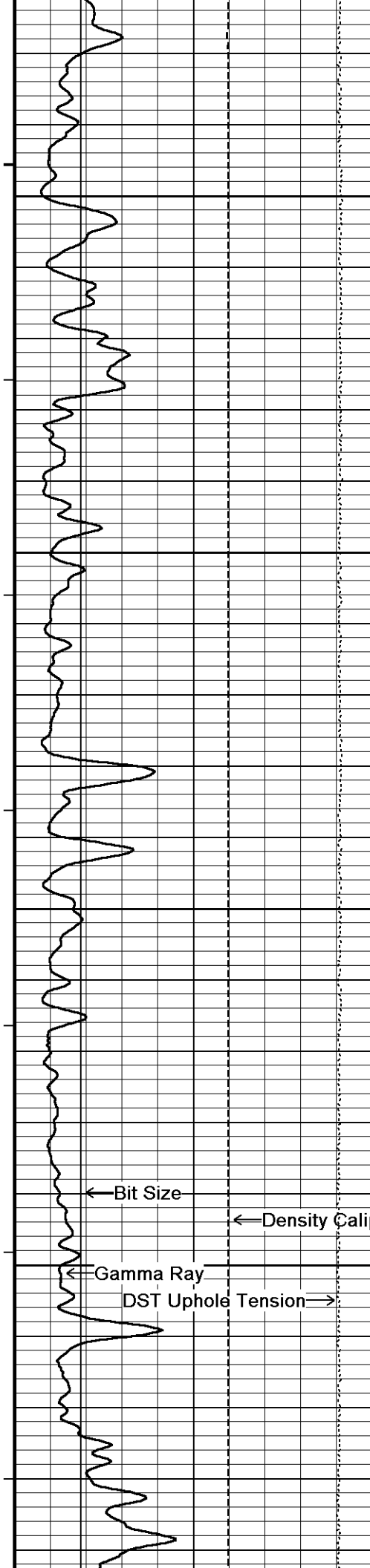
1300

1350

1400

1450





1700

1750

1800

1850

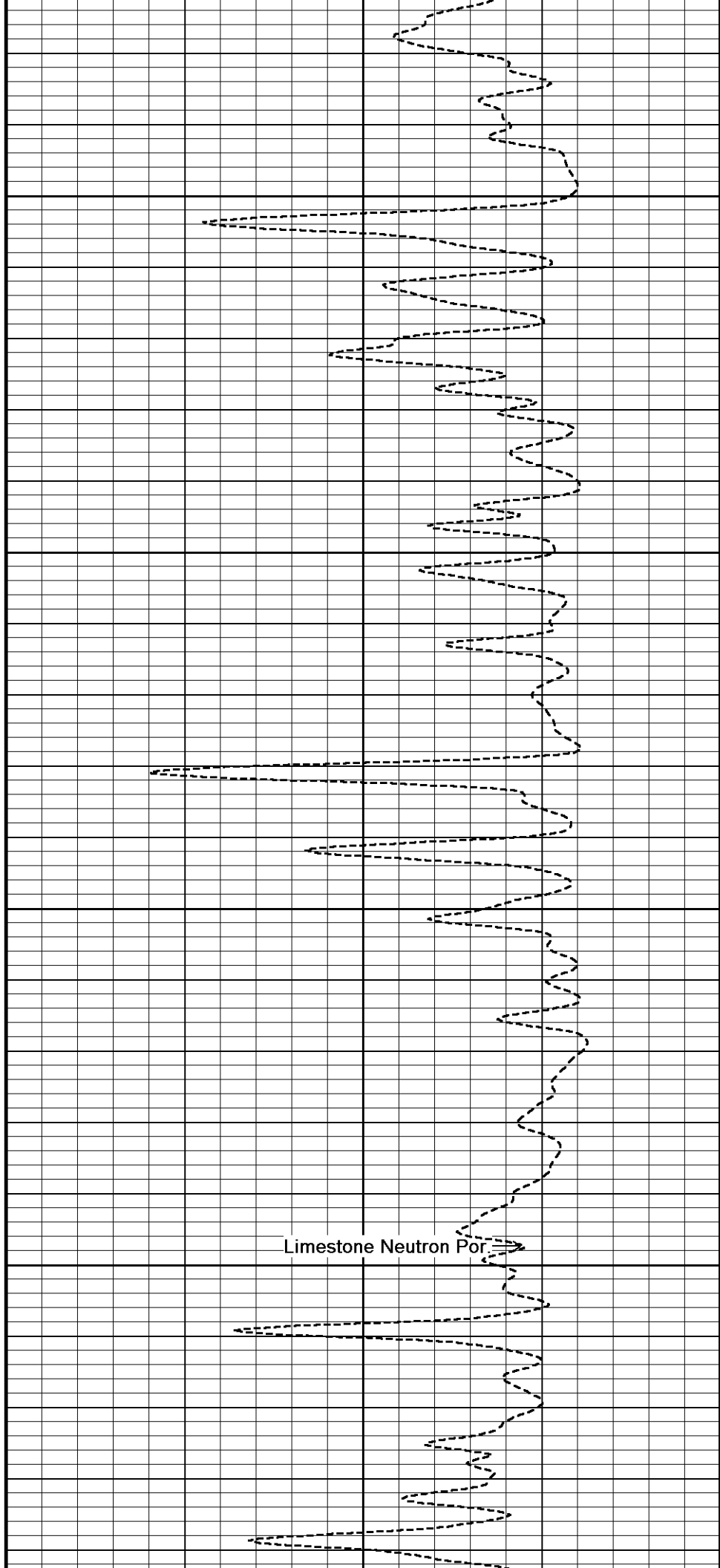
← Bit Size

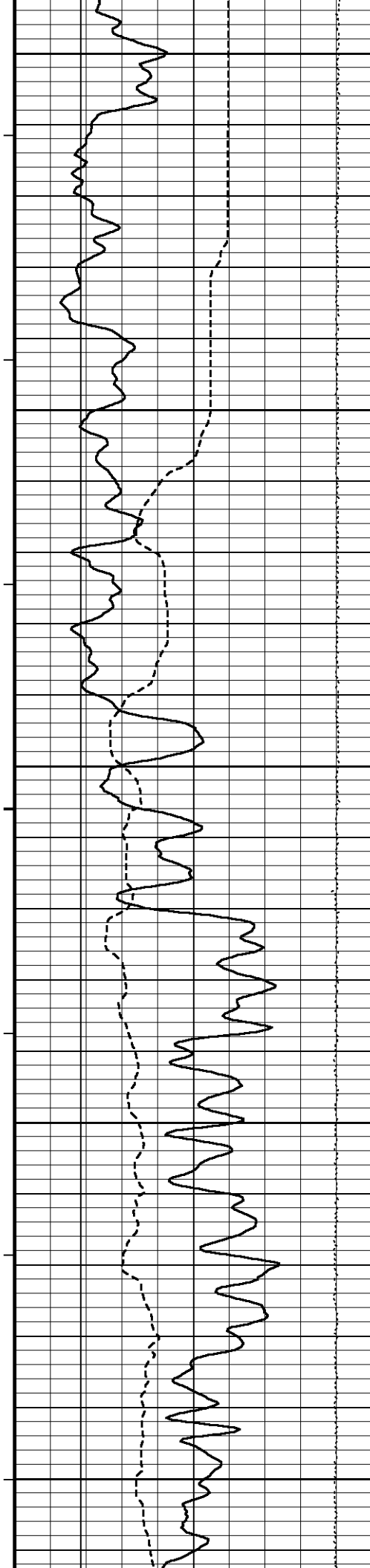
← Density Caliper

← Gamma Ray

DST Uphole Tension →

Limestone Neutron Por.





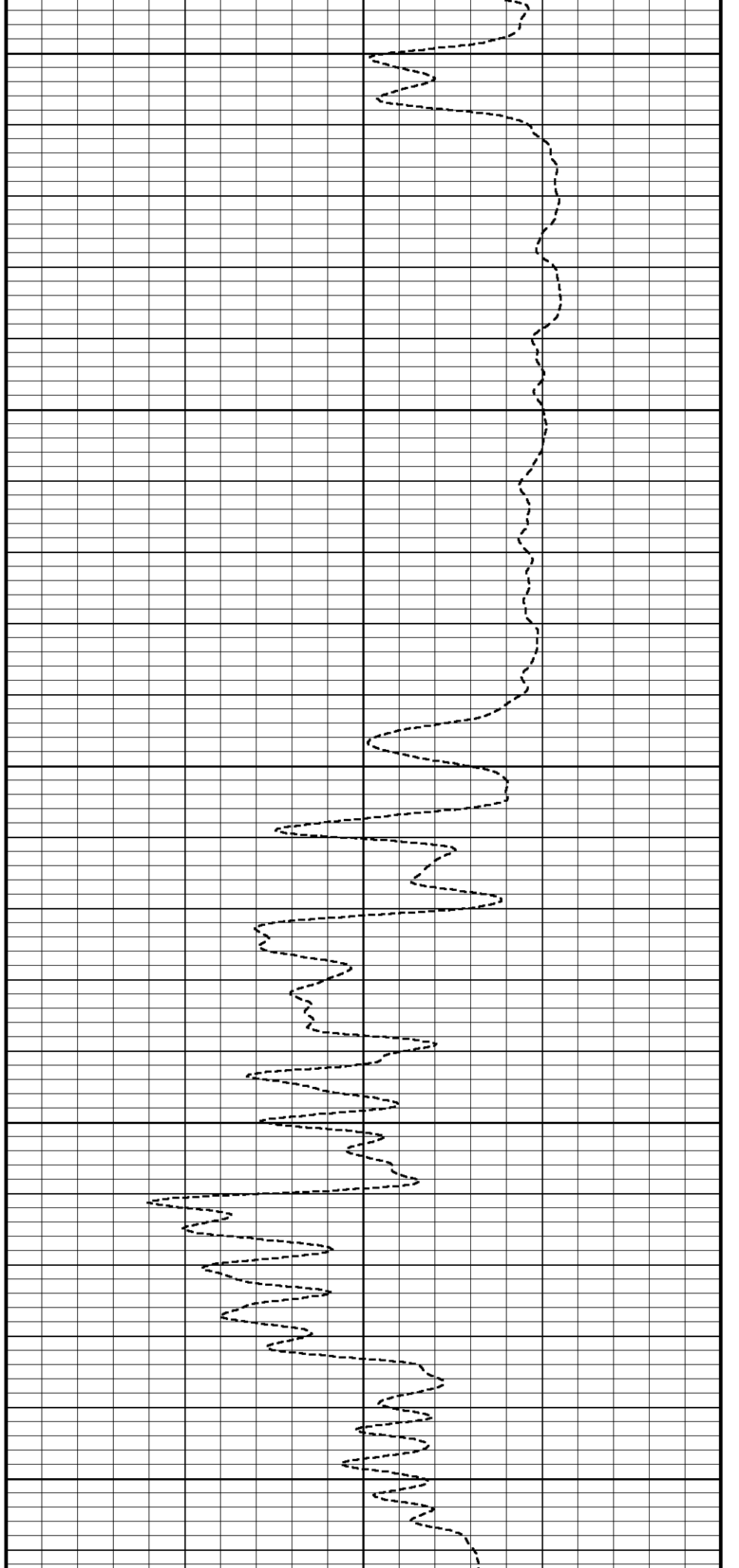
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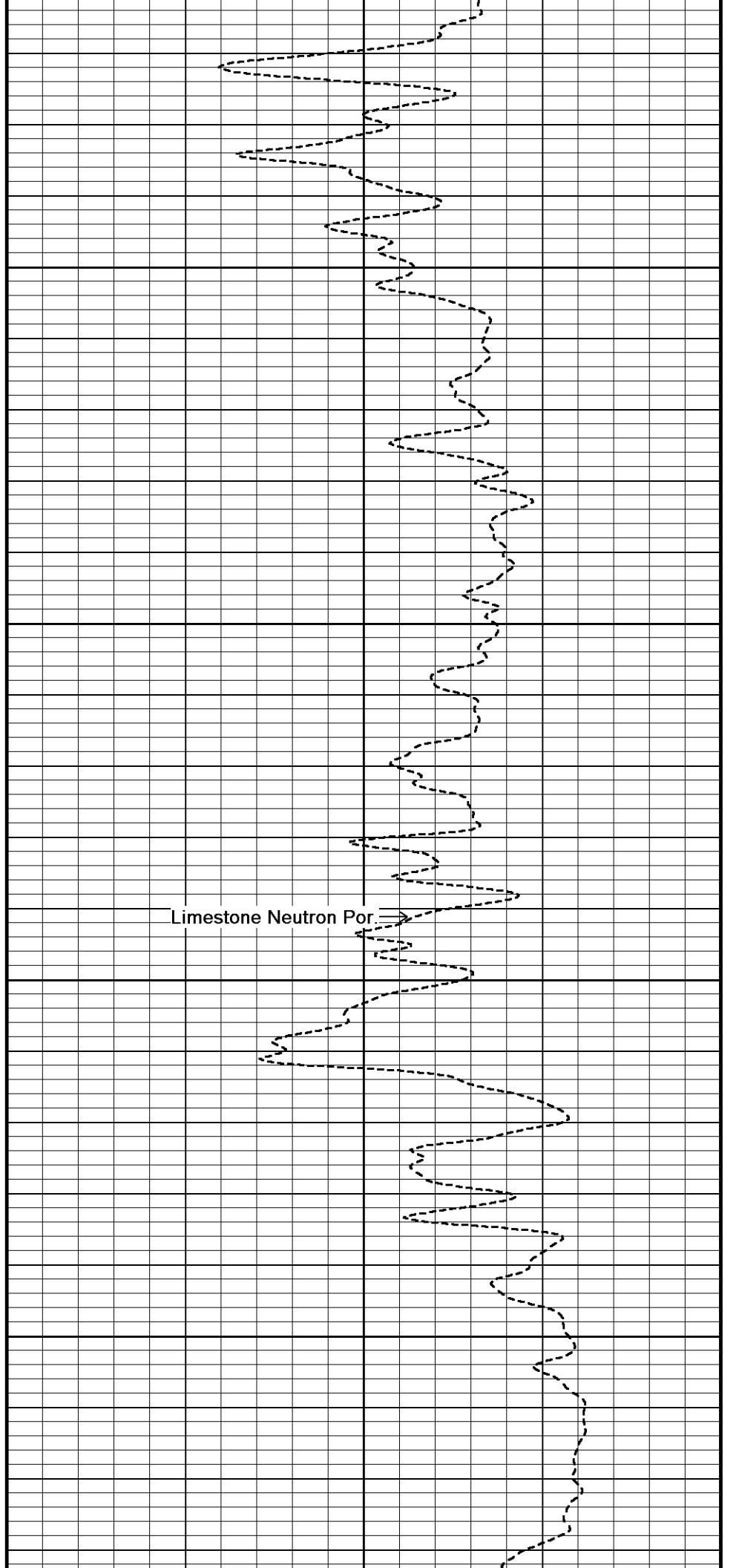
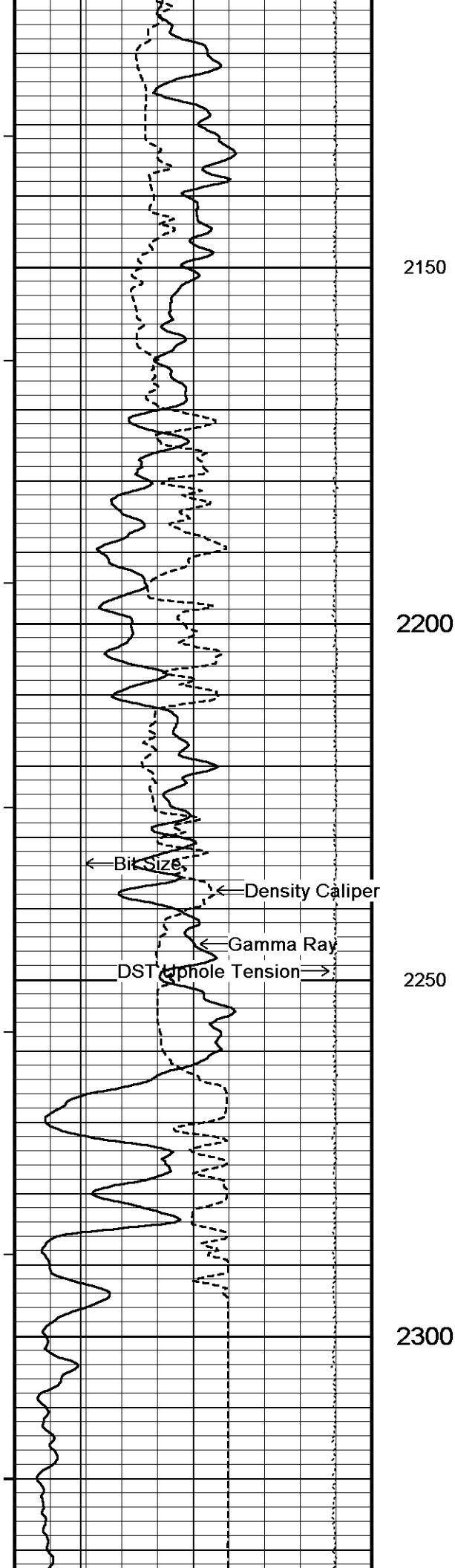
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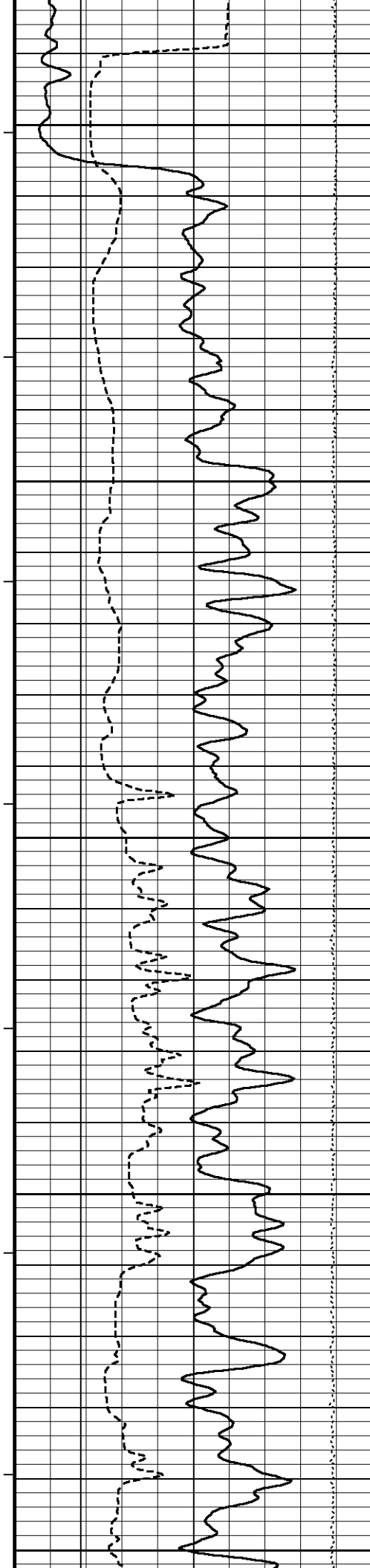
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2050

2100







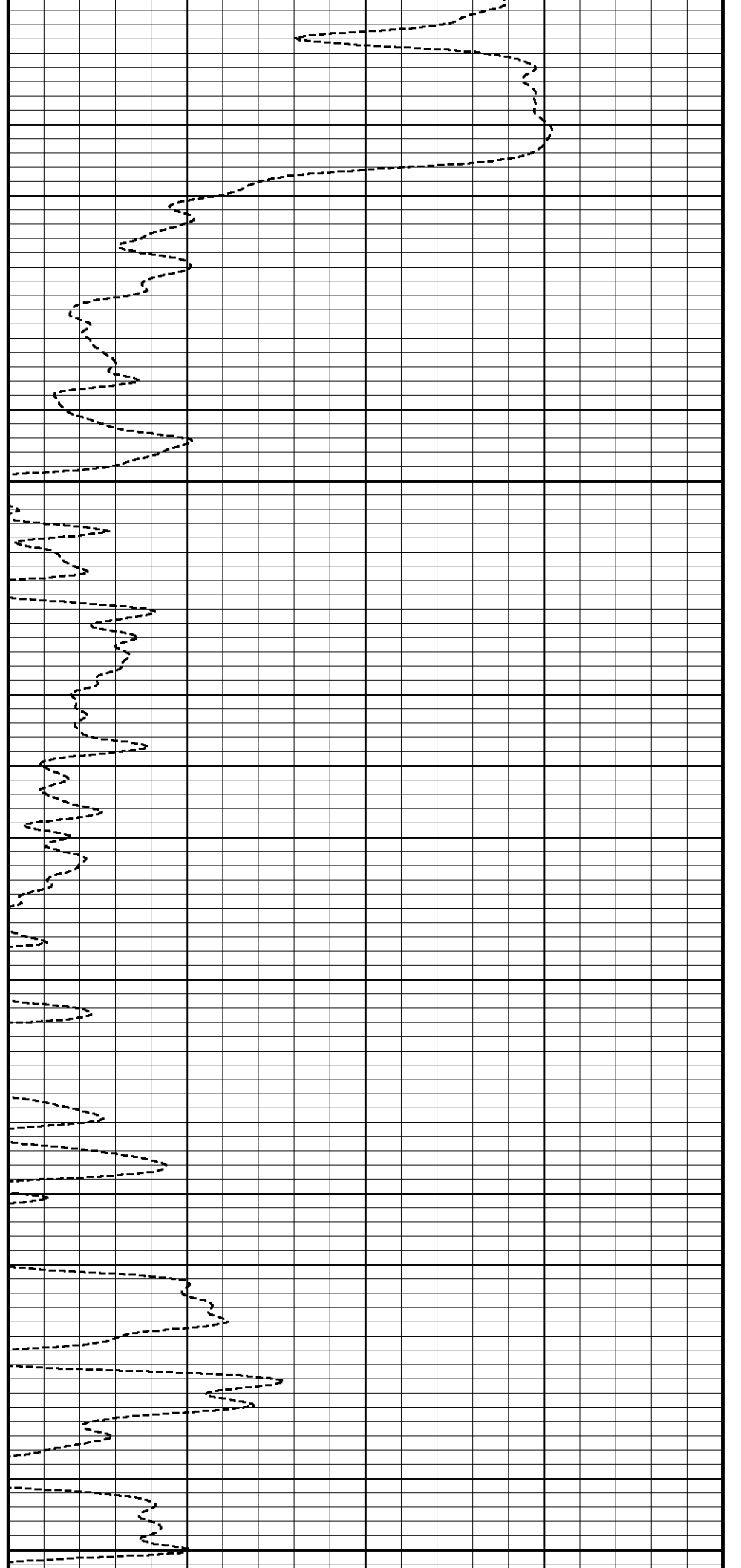
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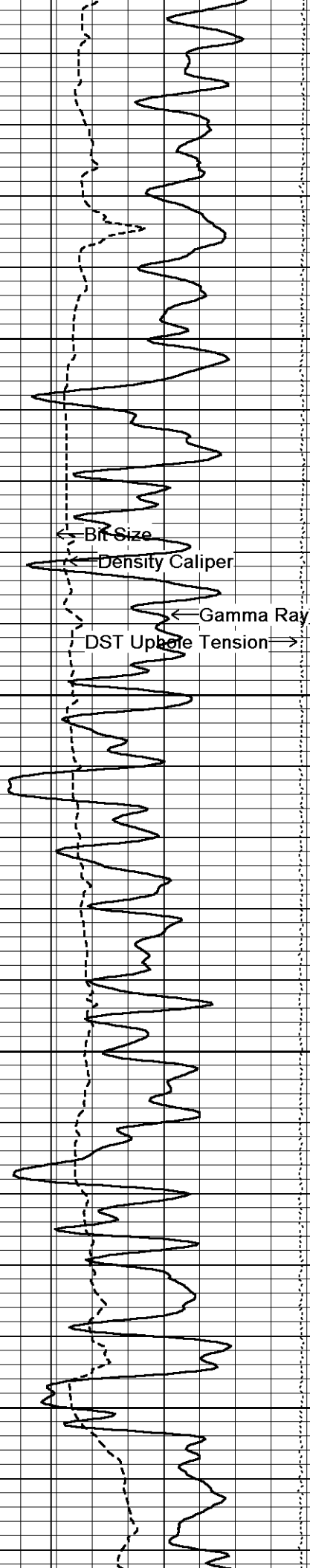
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2450

2500

2550





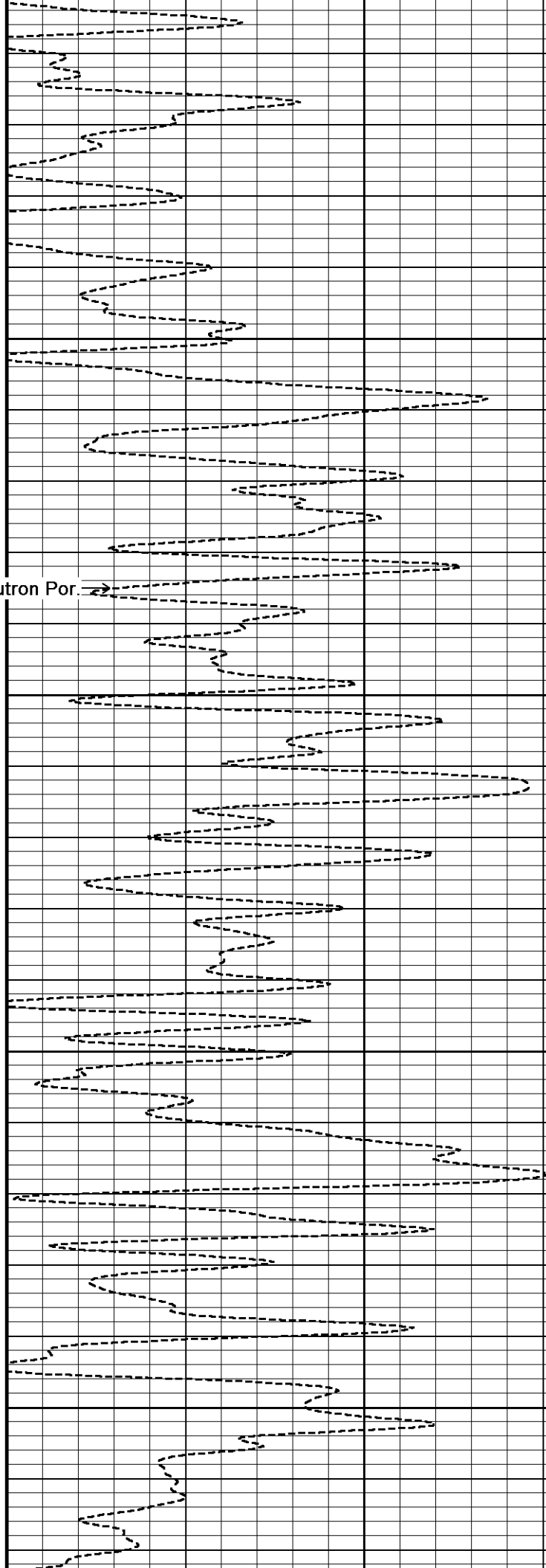
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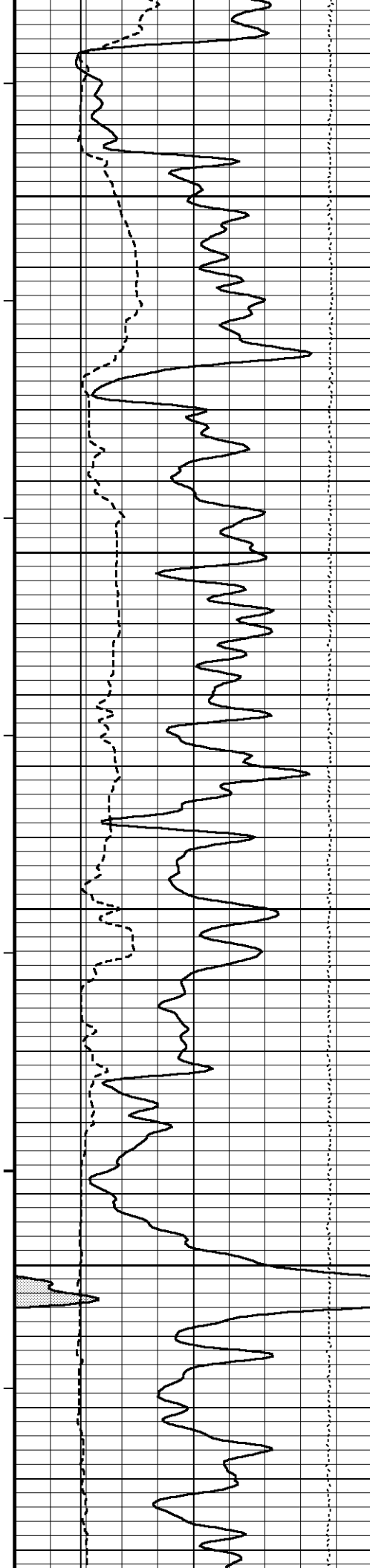
Limestone Neutron Por.

2650

2700

2750



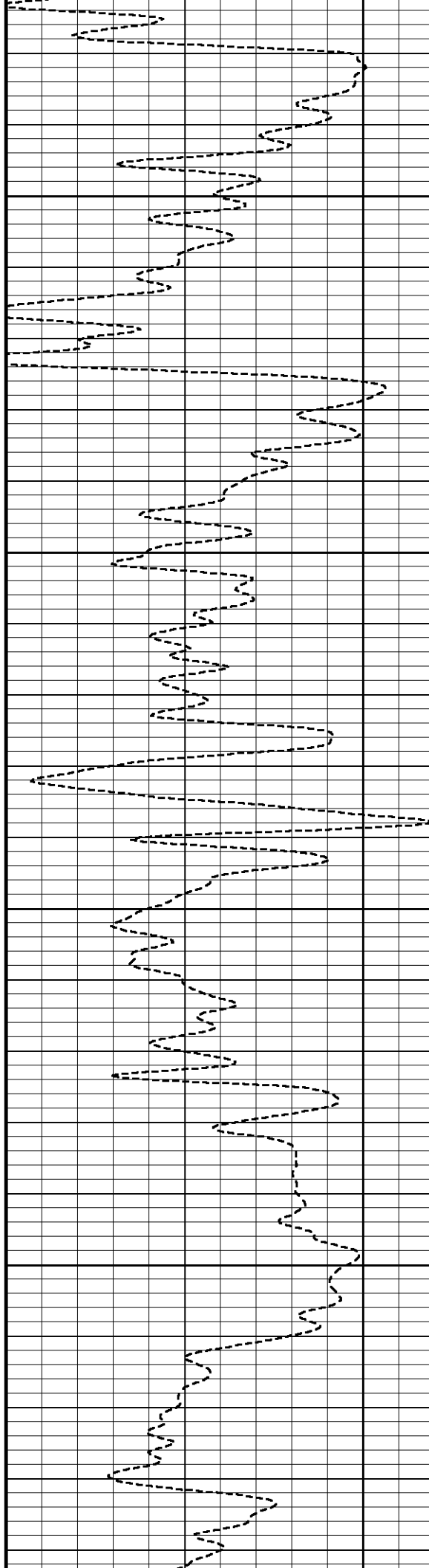


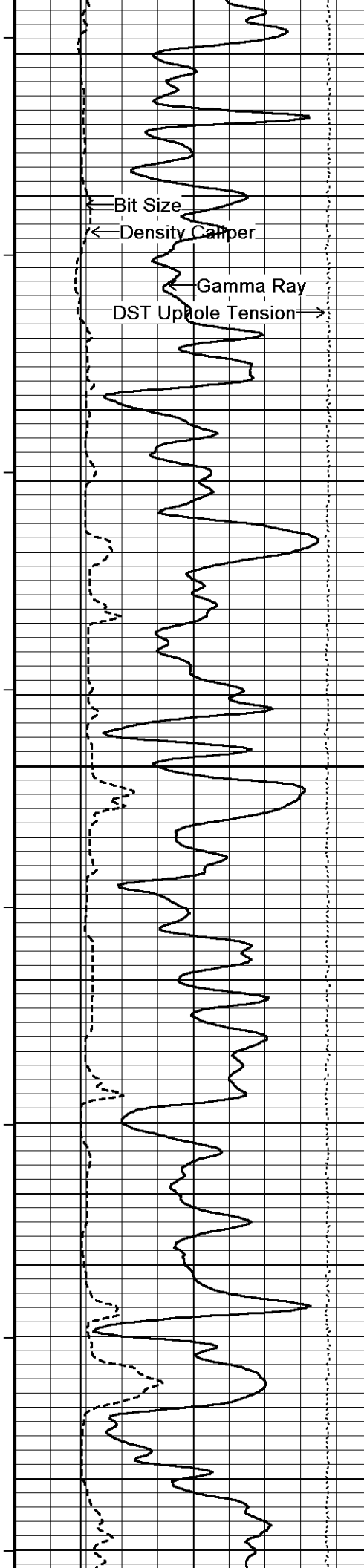
2800

2850

2900

2950





3000

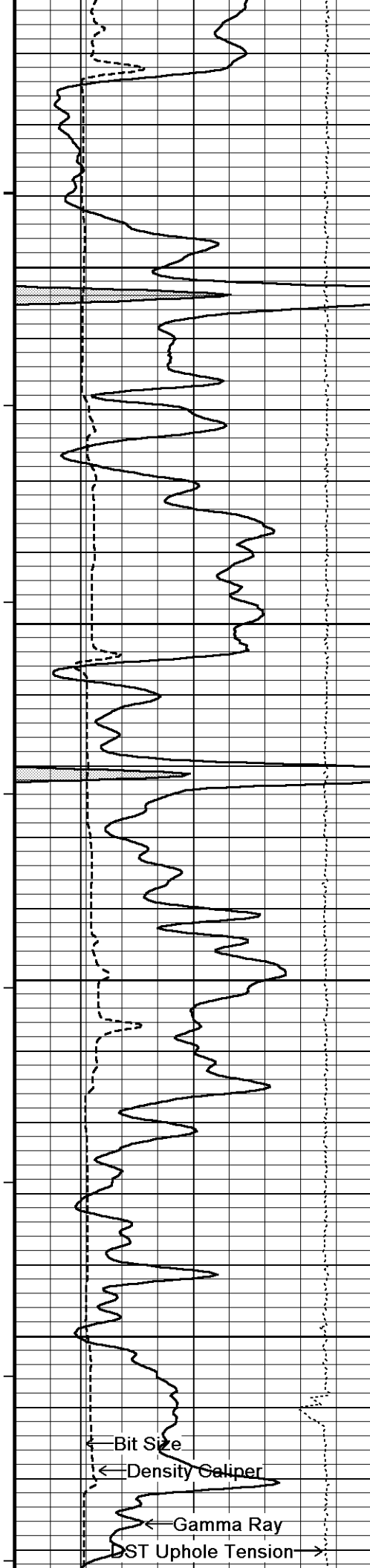
Limestone Neutron Por.

3050

3100

3150

3200



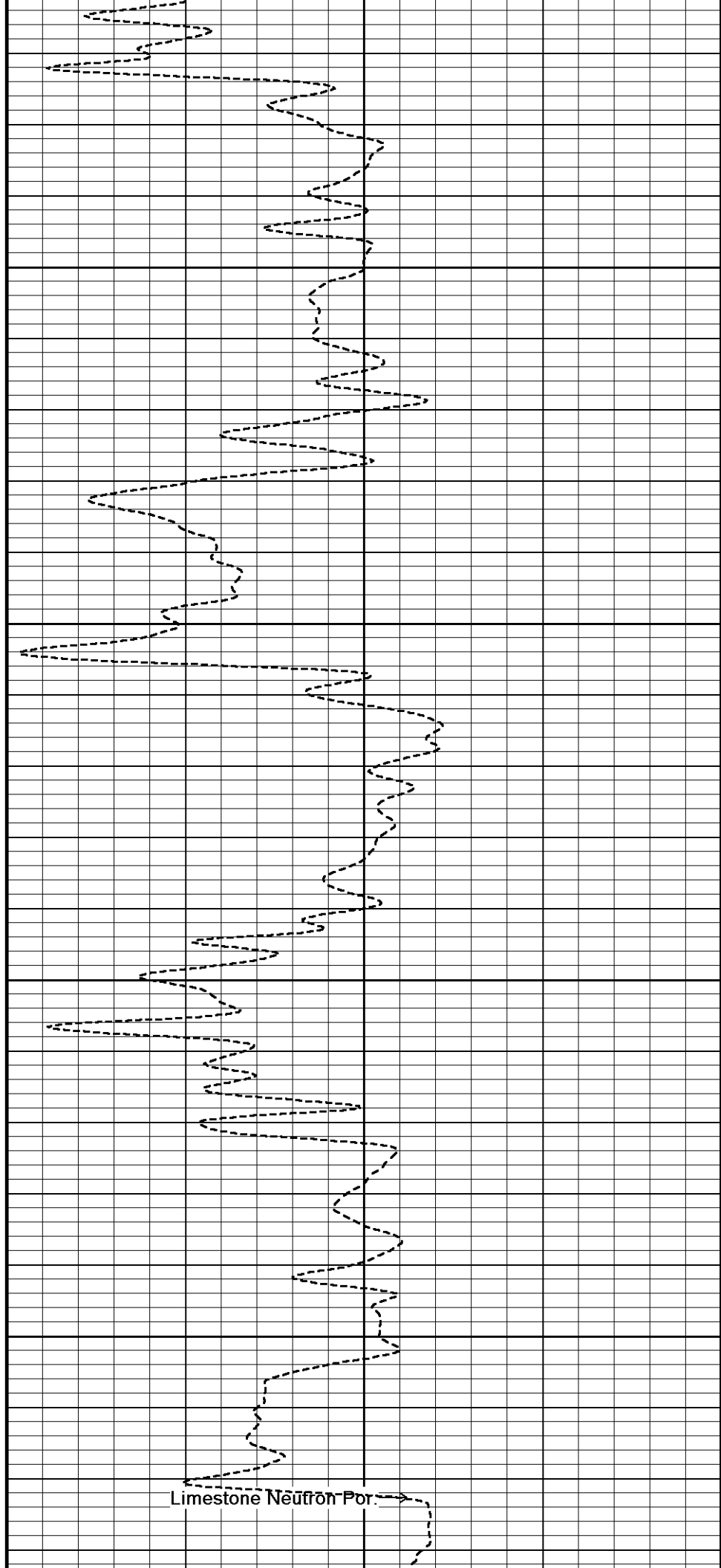
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3300

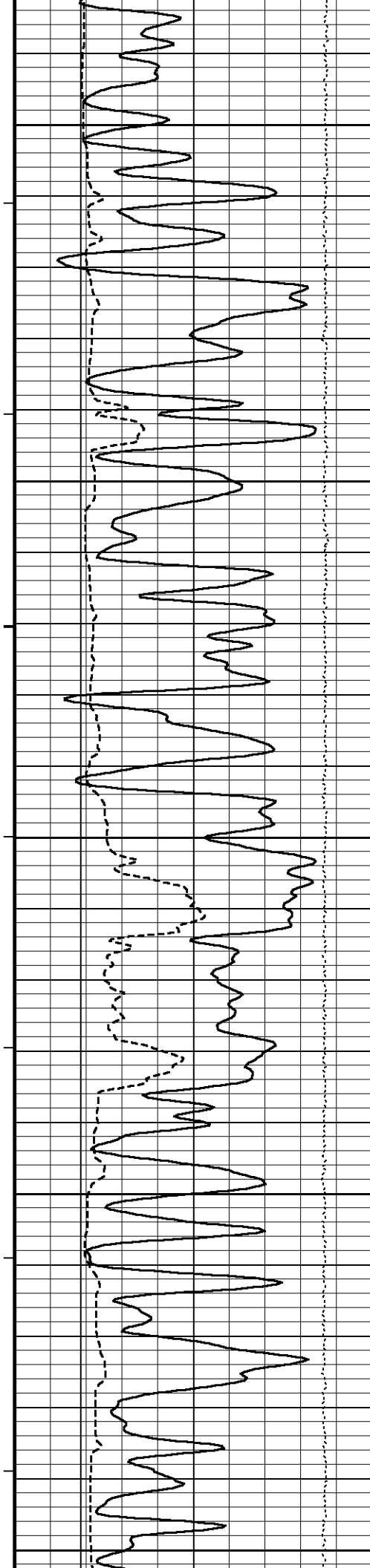
3350

3400

← Bit Size
← Density Caliper
← Gamma Ray
DST Uphole Tension →



Limestone Neutron Por. →



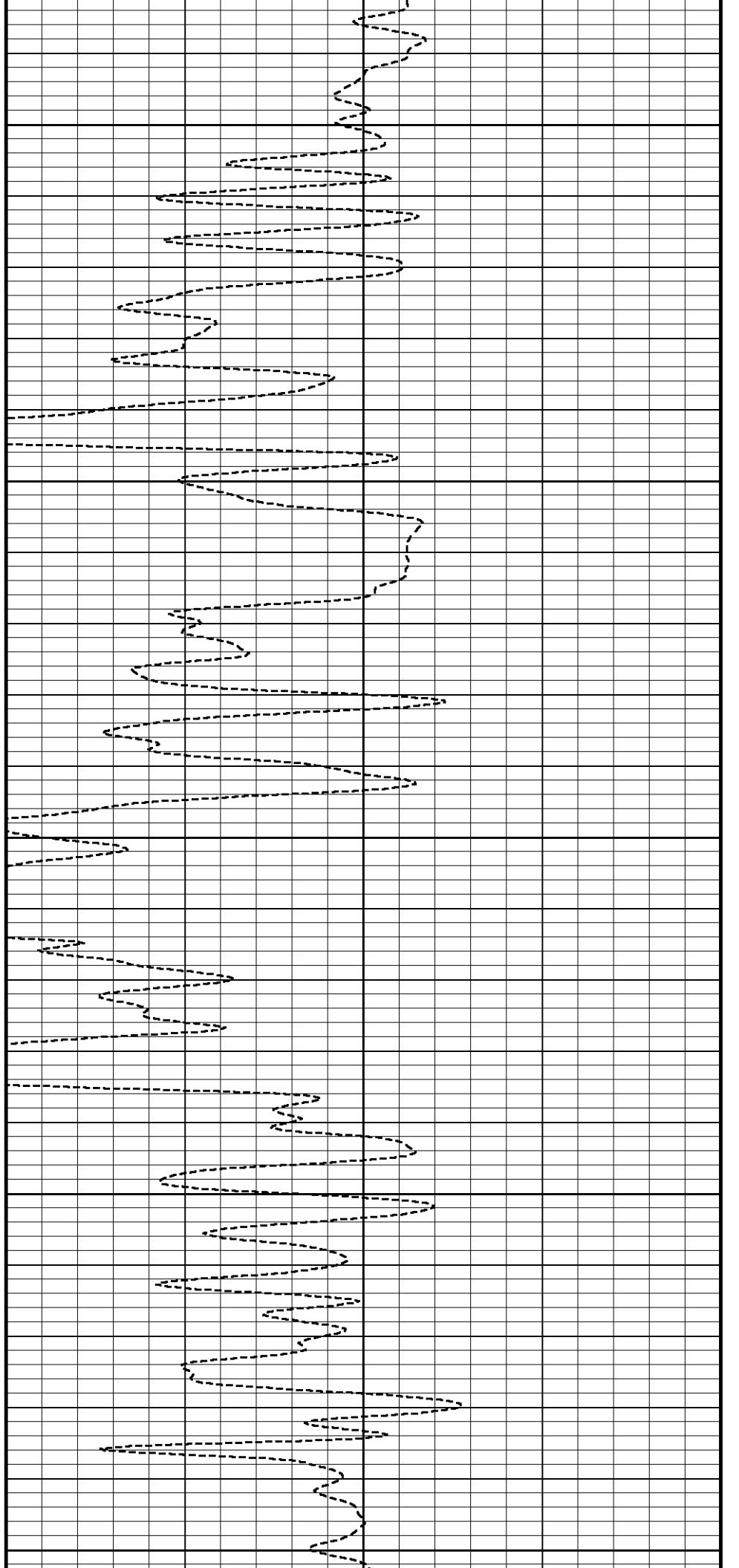
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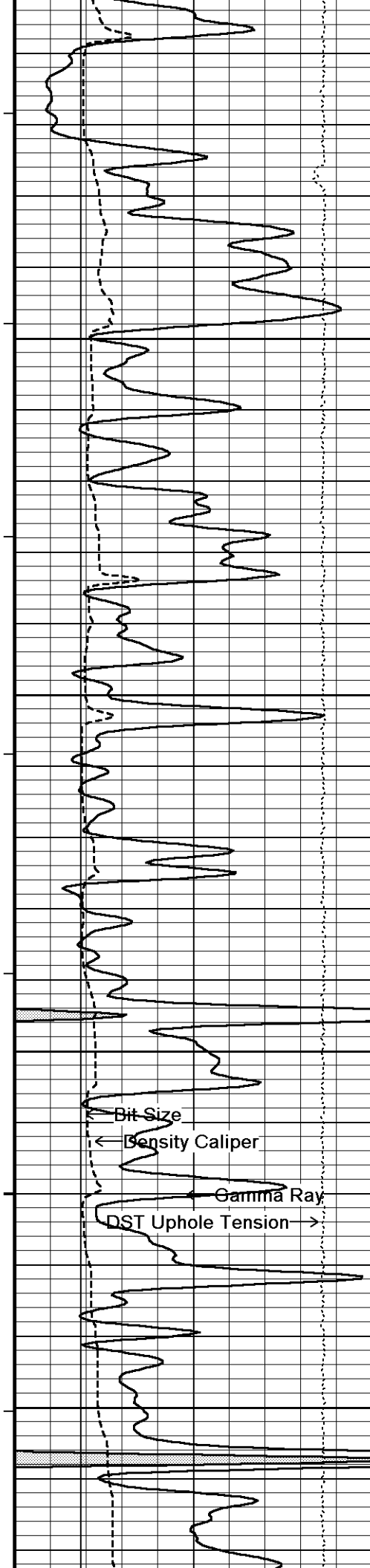
3500

3550

3600

3650





3700

3750

3800

3850

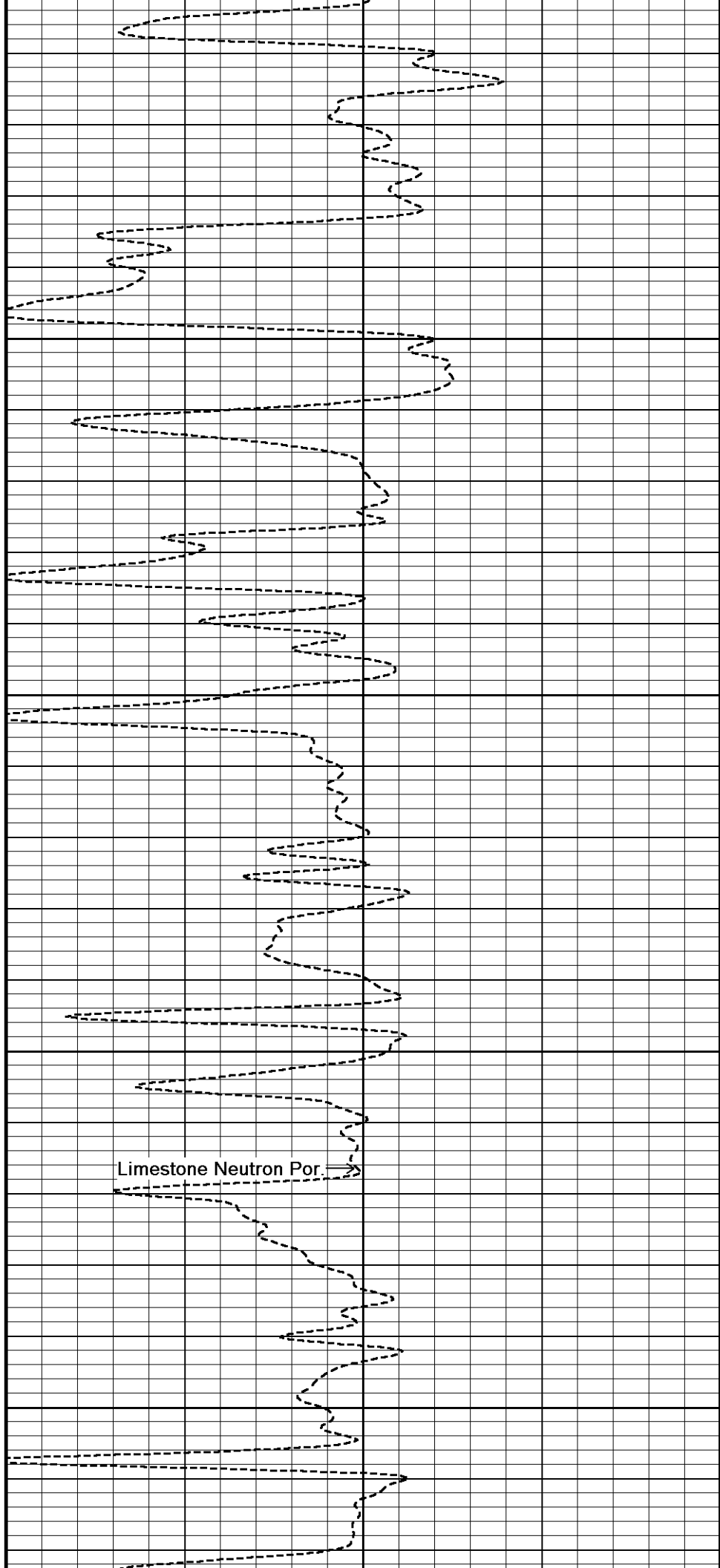
Bit Size

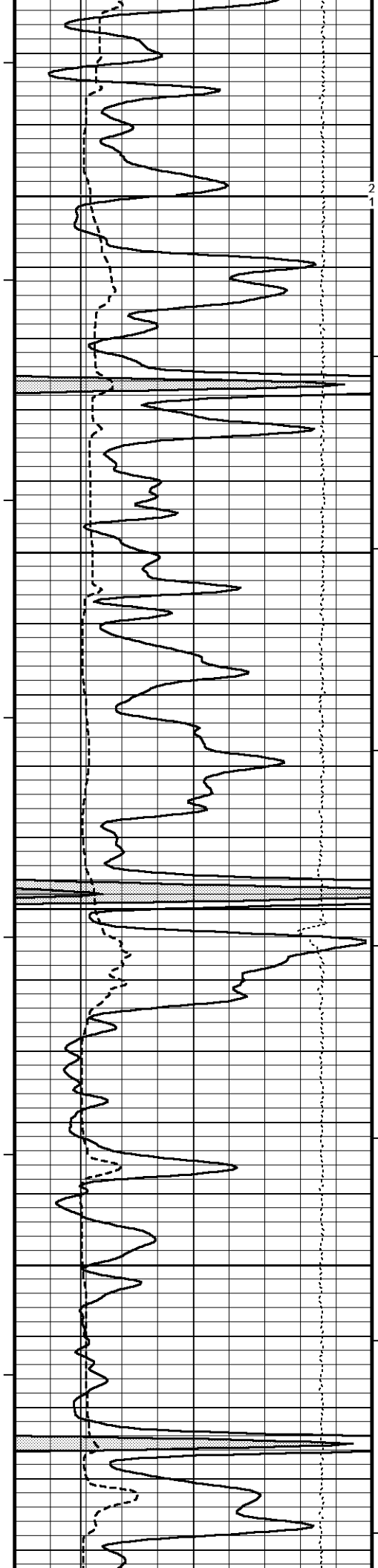
Density Caliper

Gamma Ray

DST Uphole Tension

Limestone Neutron Por.





3900

109°

3950

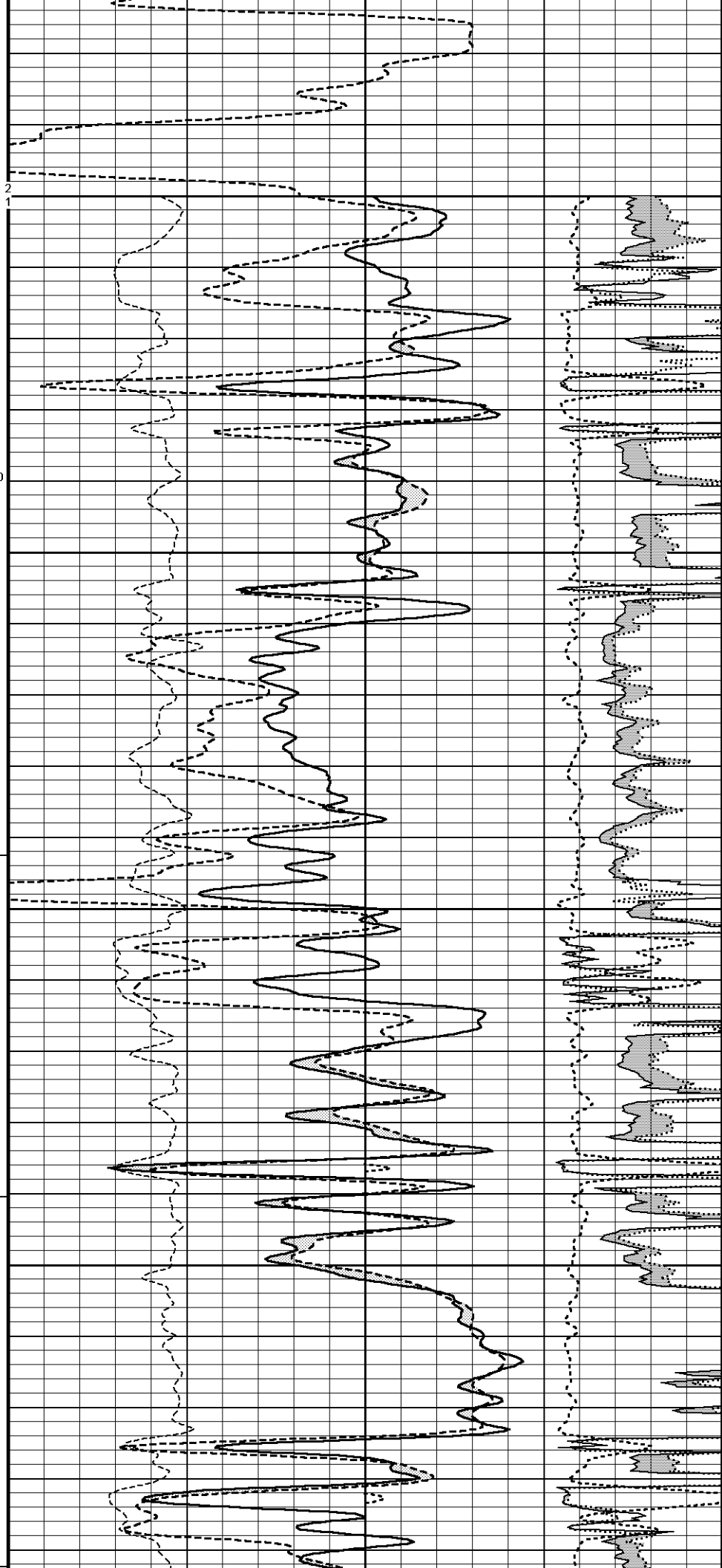
109°

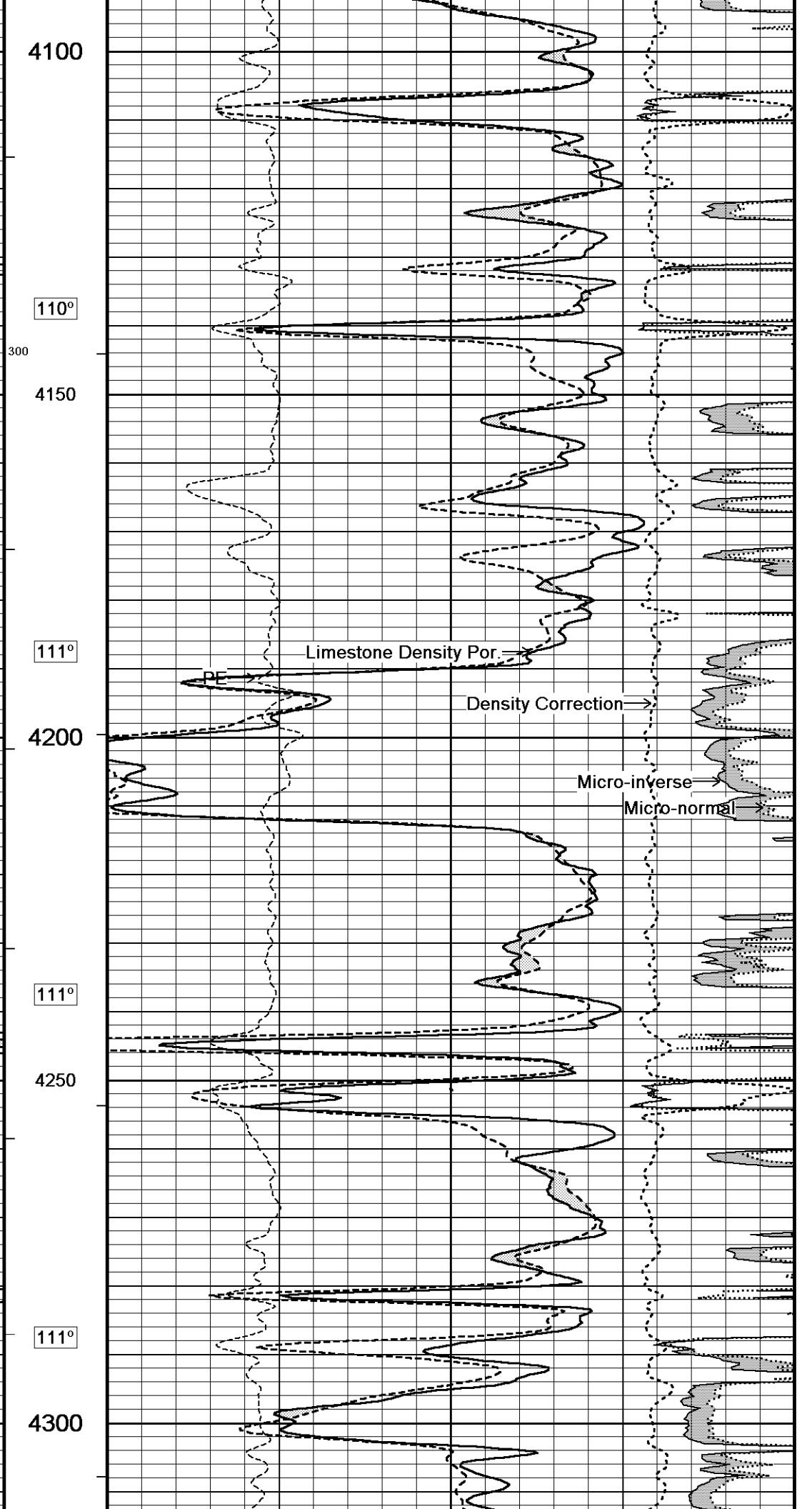
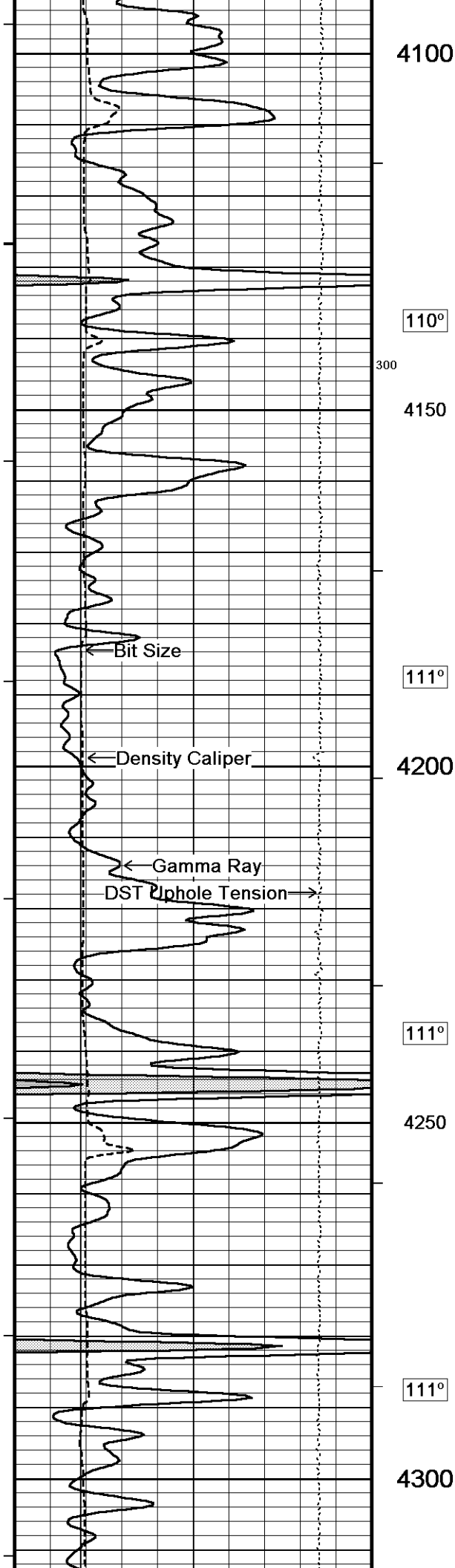
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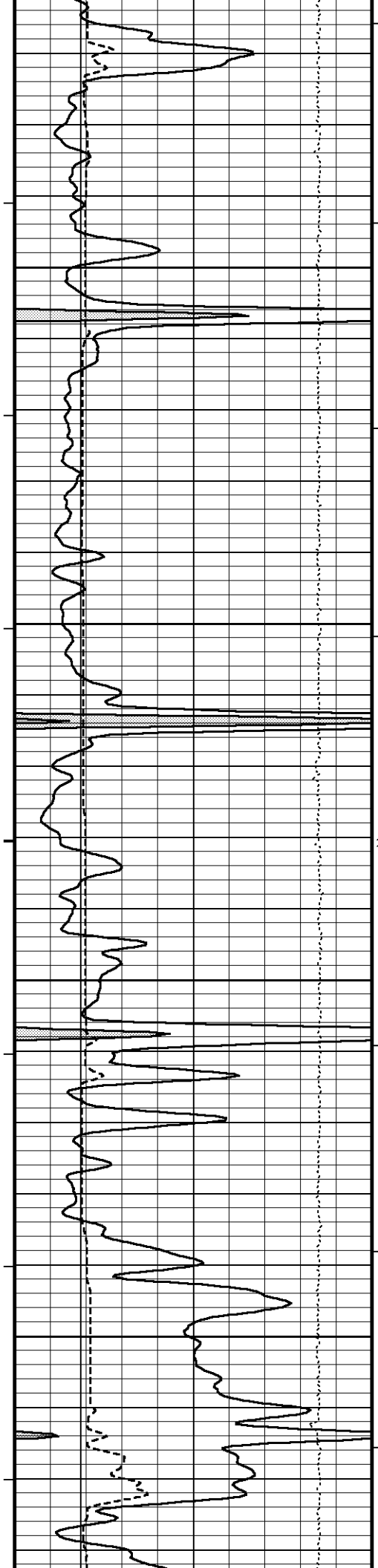
110°

4050

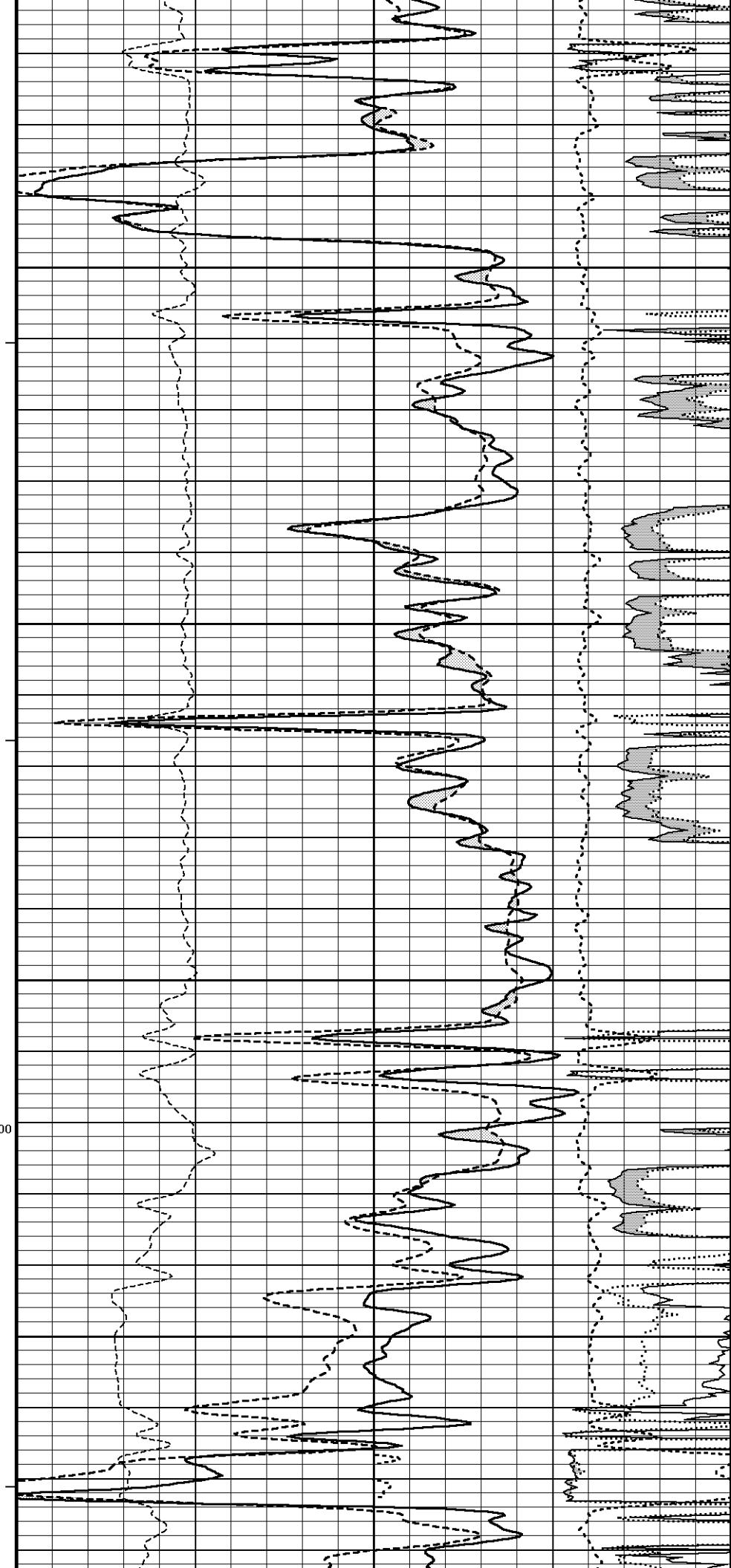
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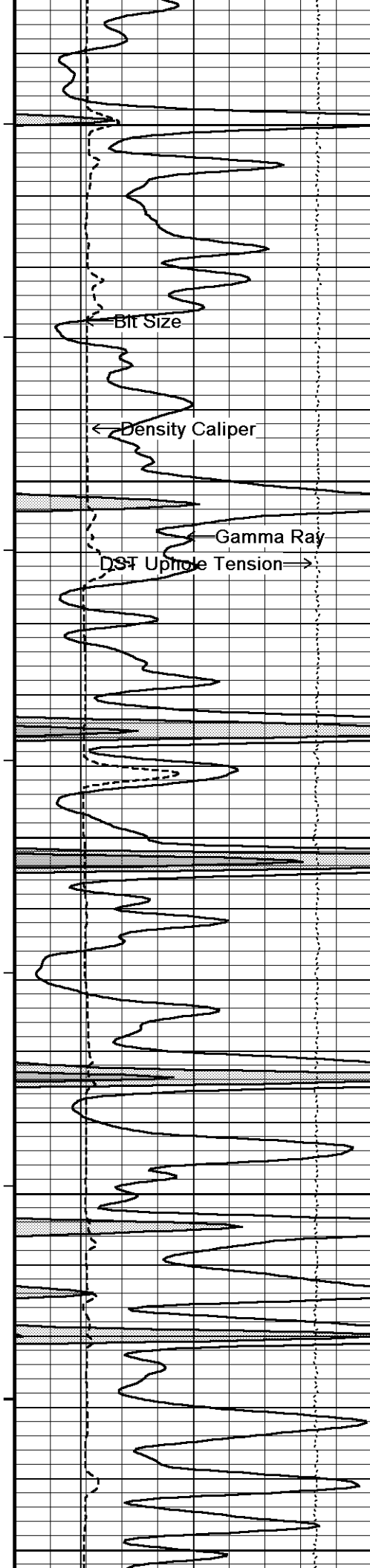






111°
4350
112°
4400
200
112°
4450
100
112°
4500





113°

4550

113°

4600

114°

4650

114°

4700

100

115°

4750

Bit Size

Density Caliper

Gamma Ray

DST Up-hole Tension

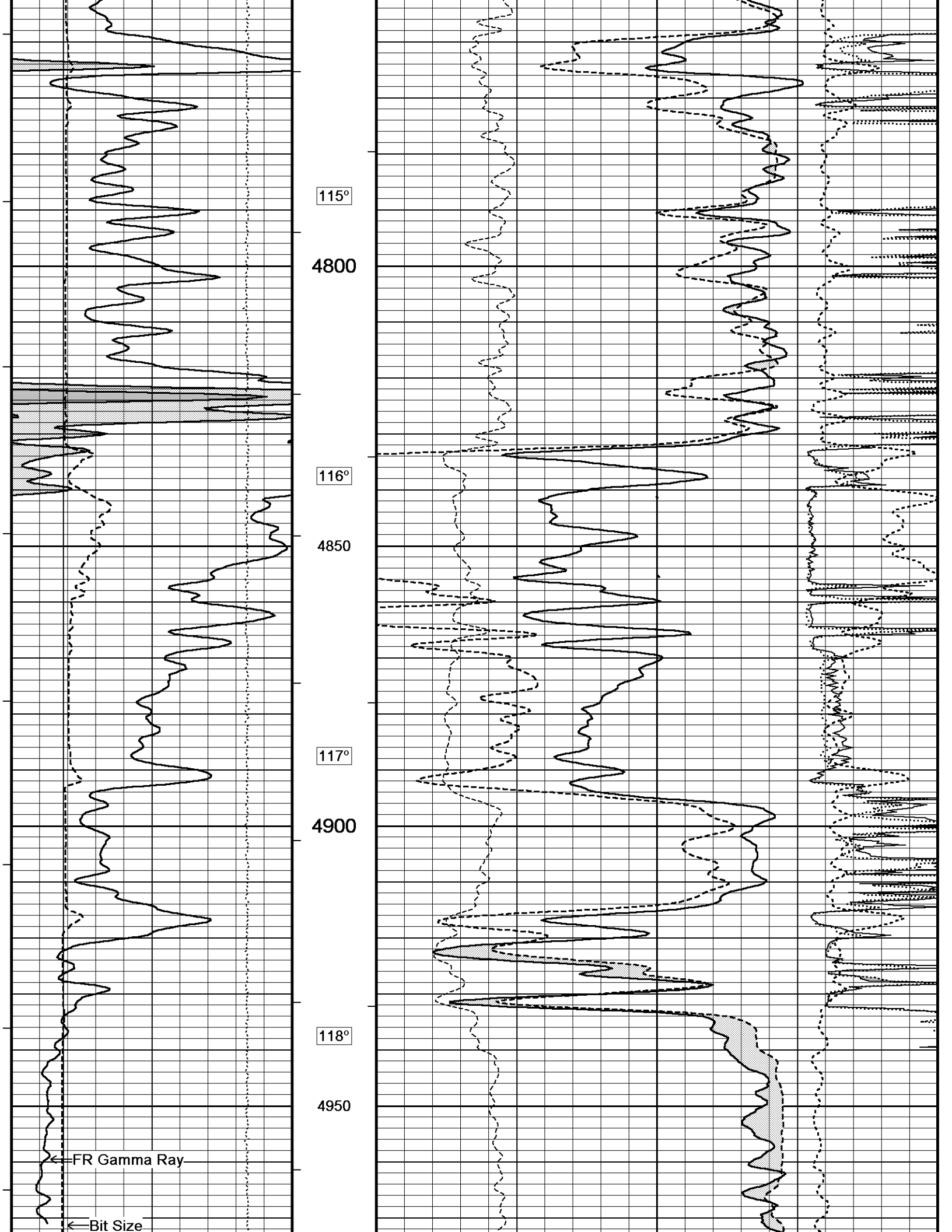
PE

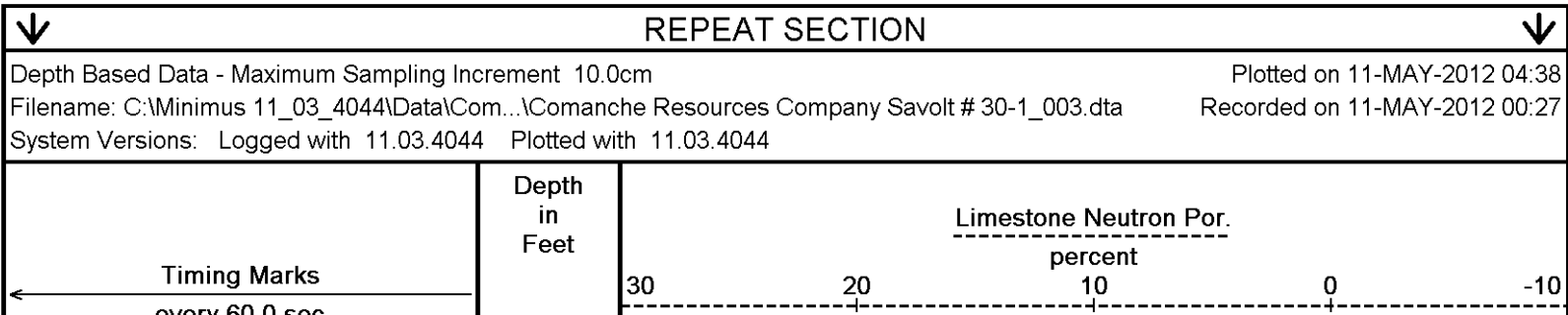
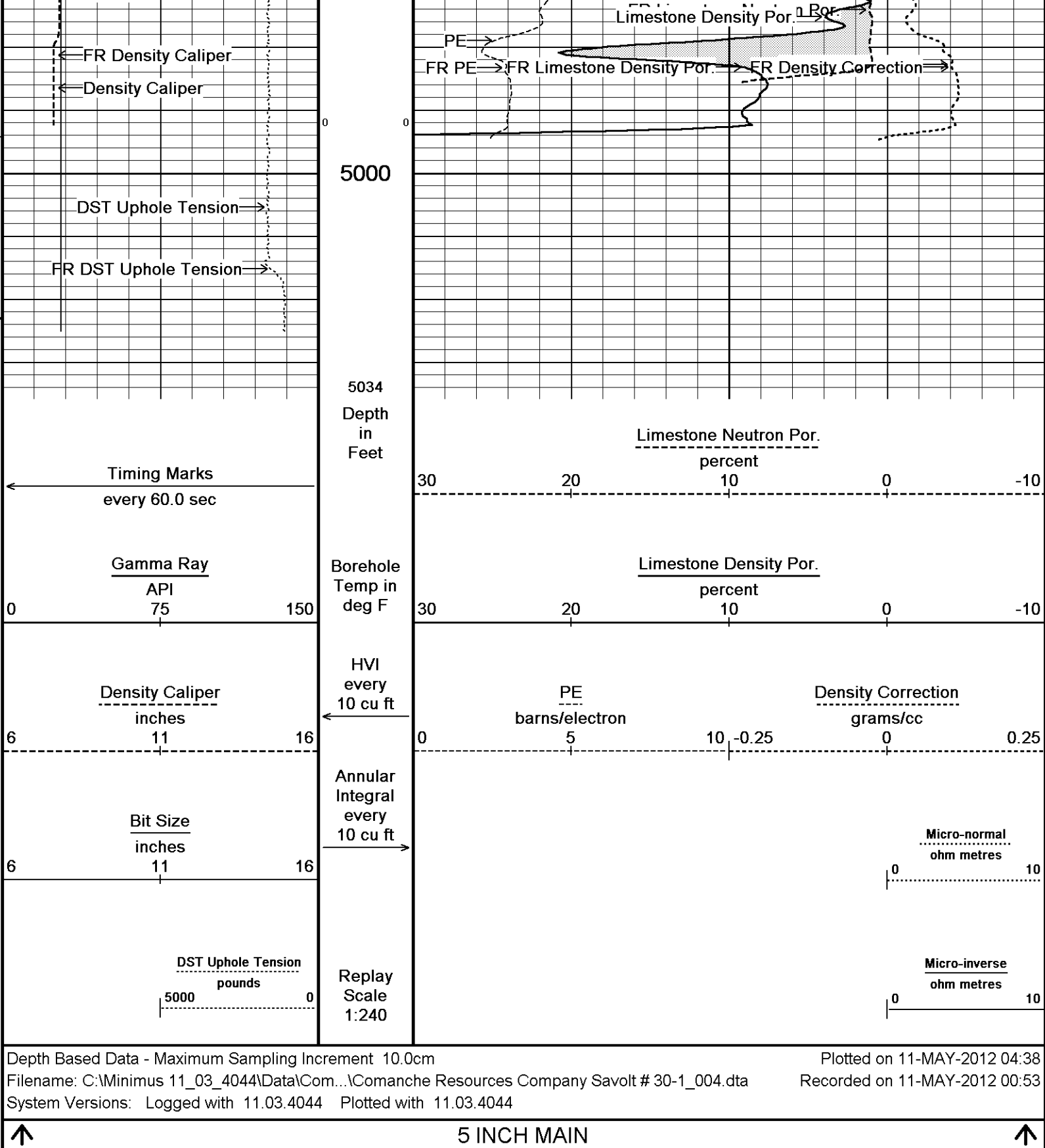
Limestone Density Por.

Limestone Neutron Por.

Density Correction

Micro-normal





every 00.0 sec

Gamma Ray

API

75

0

150

Density Caliper

inches

11

6

16

Bit Size

inches

11

6

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

4700

100

114°

4750

115°

4800

Limestone Density Por.

percent

30

20

10

0

-10

PE

barns/electron

5

0

10 -0.25

Density Correction

grams/cc

0

0.25

Micro-normal

ohm metres

0

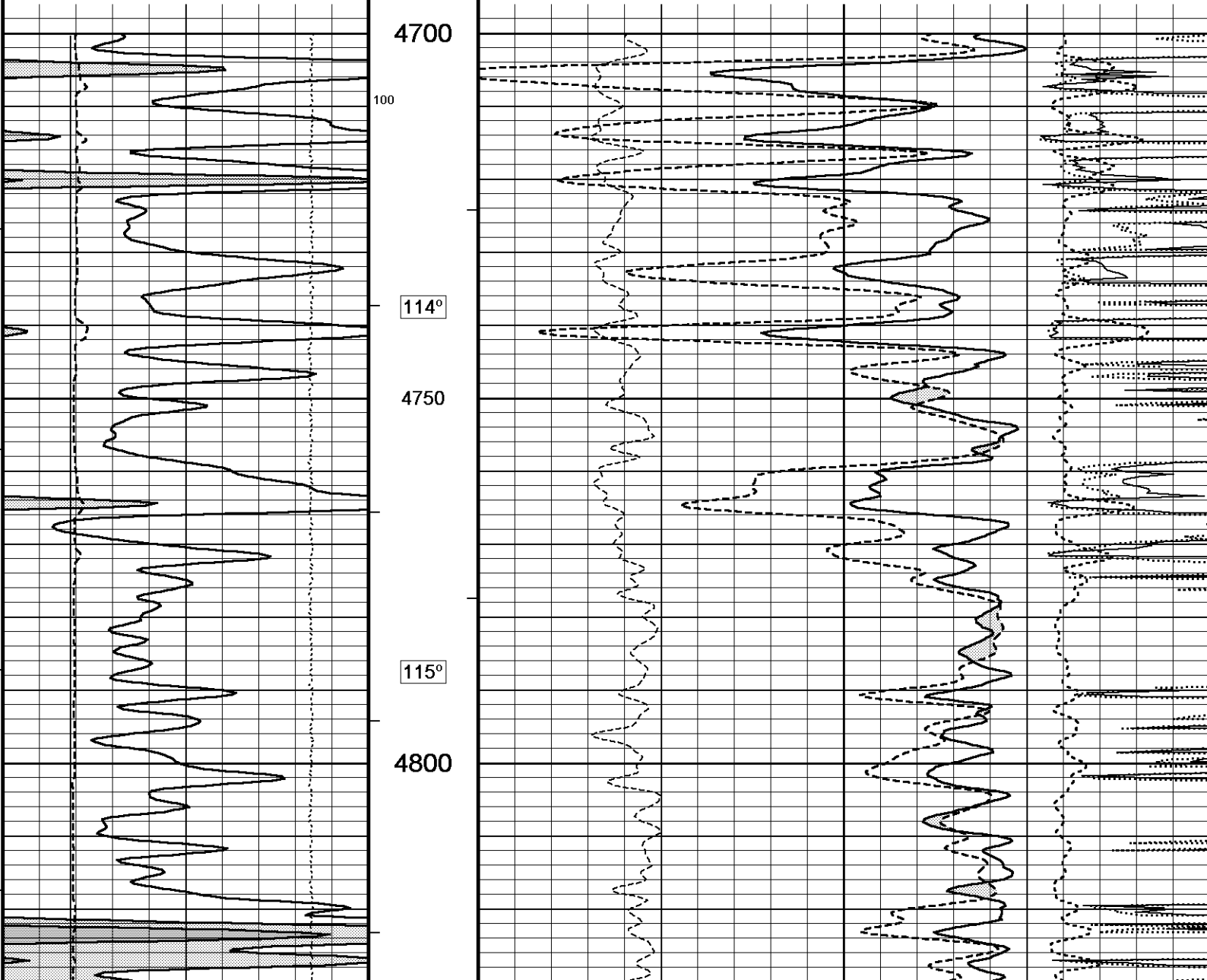
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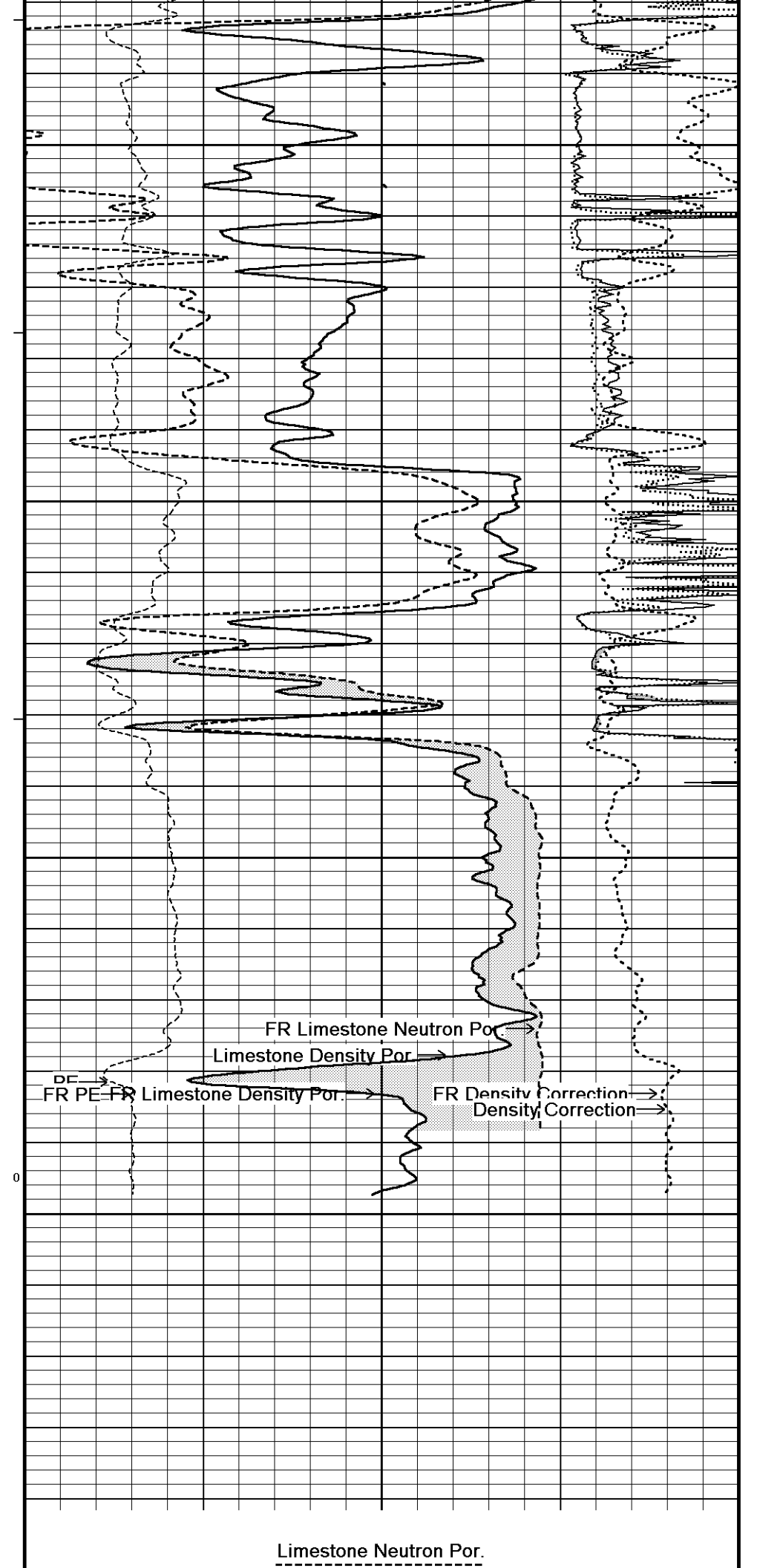
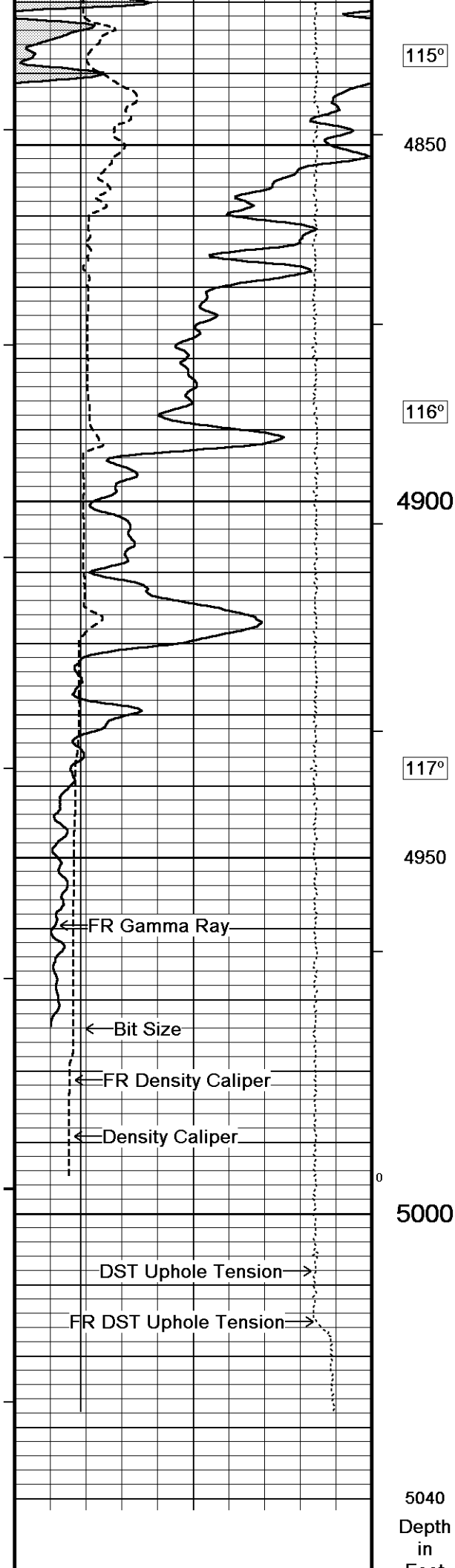
Micro-inverse

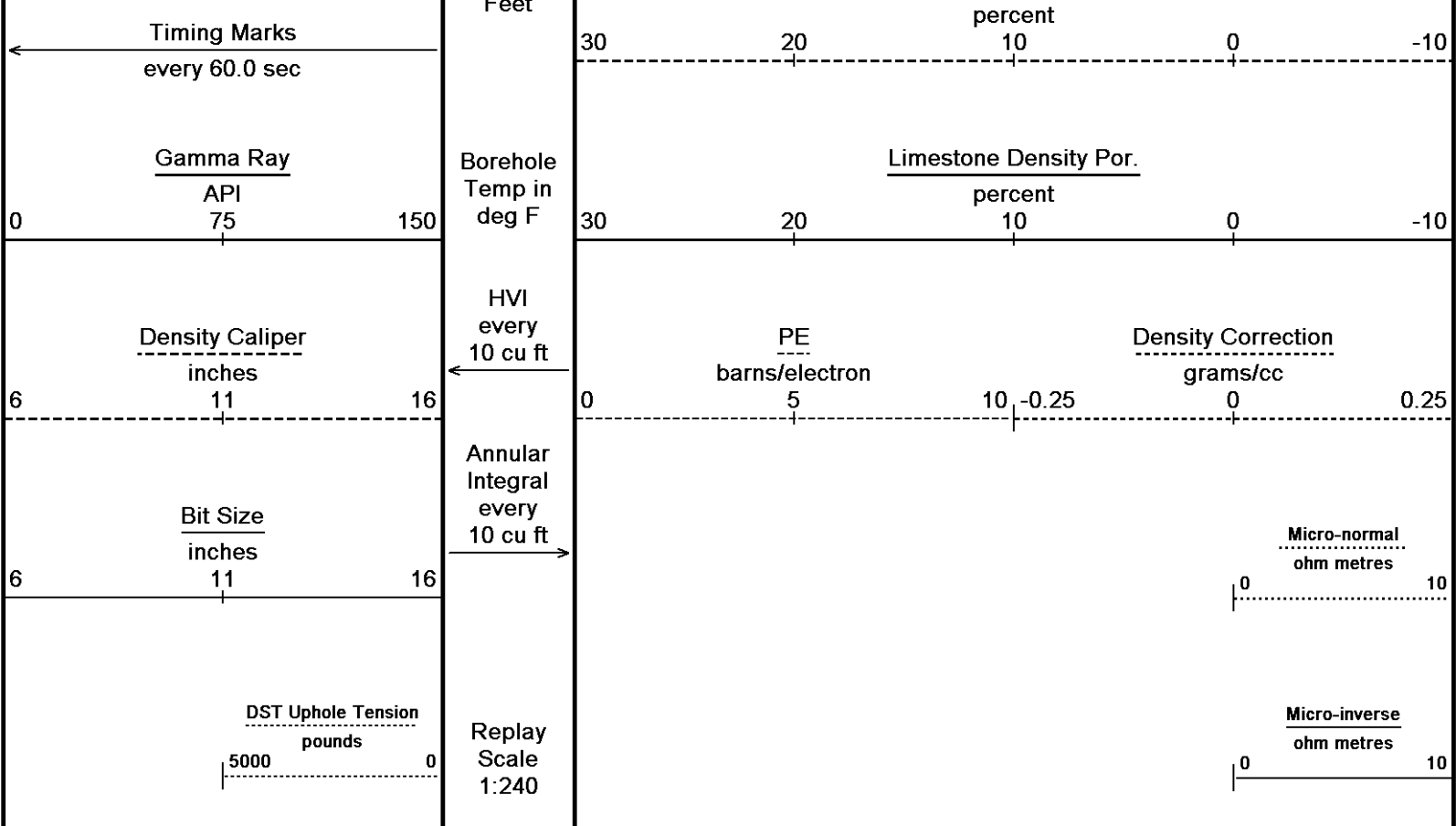
ohm metres

0

10







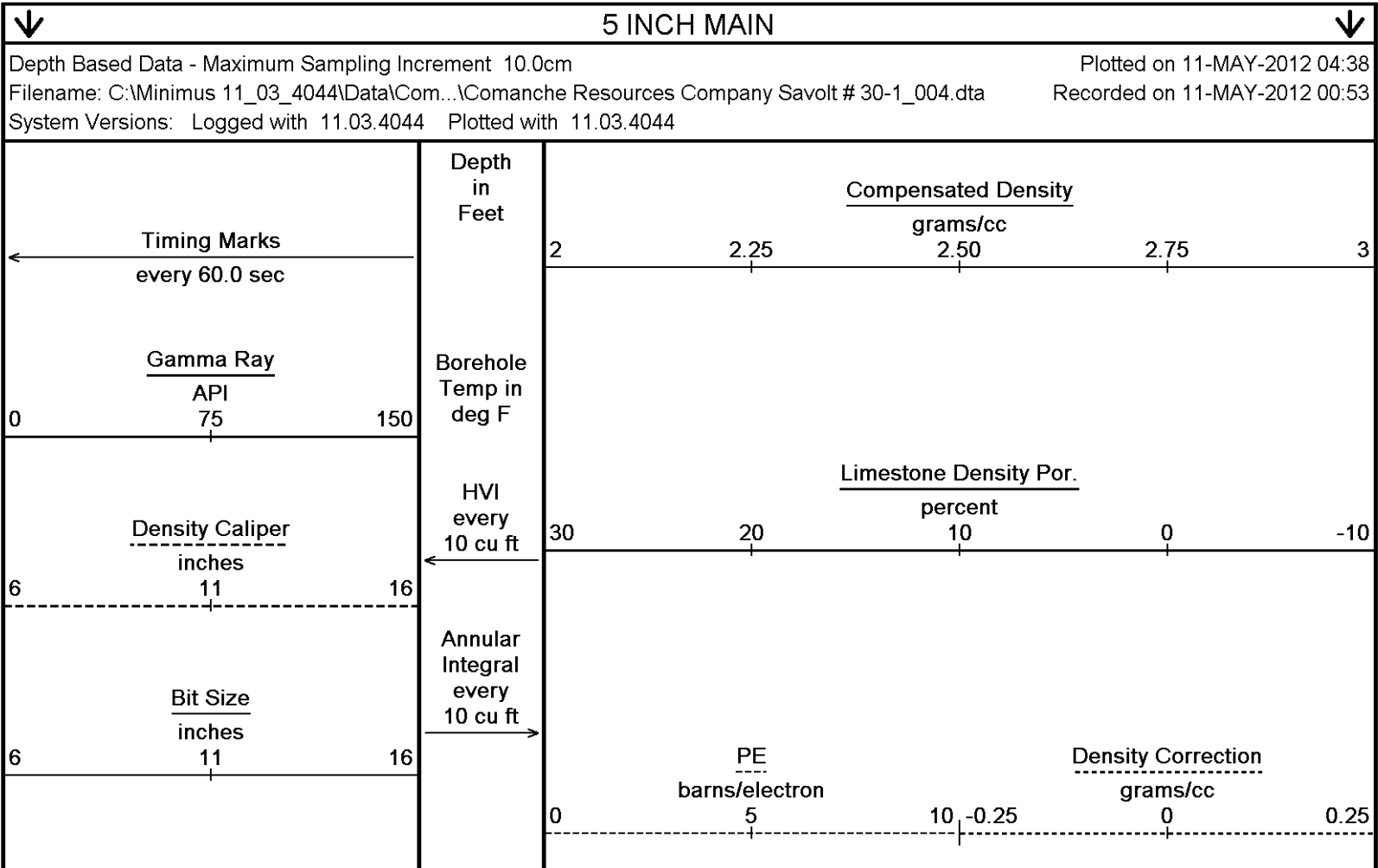
Depth Based Data - Maximum Sampling Increment 10.0cm
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 System Versions: Logged with 11.03.4044 Plotted with 11.03.4044

Plotted on 11-MAY-2012 04:38
 Recorded on 11-MAY-2012 00:27

↑

REPEAT SECTION

↑



DST Uphole Tension
pounds
5000 0

Replay
Scale
1:240

3900

109° 200

3950

109°

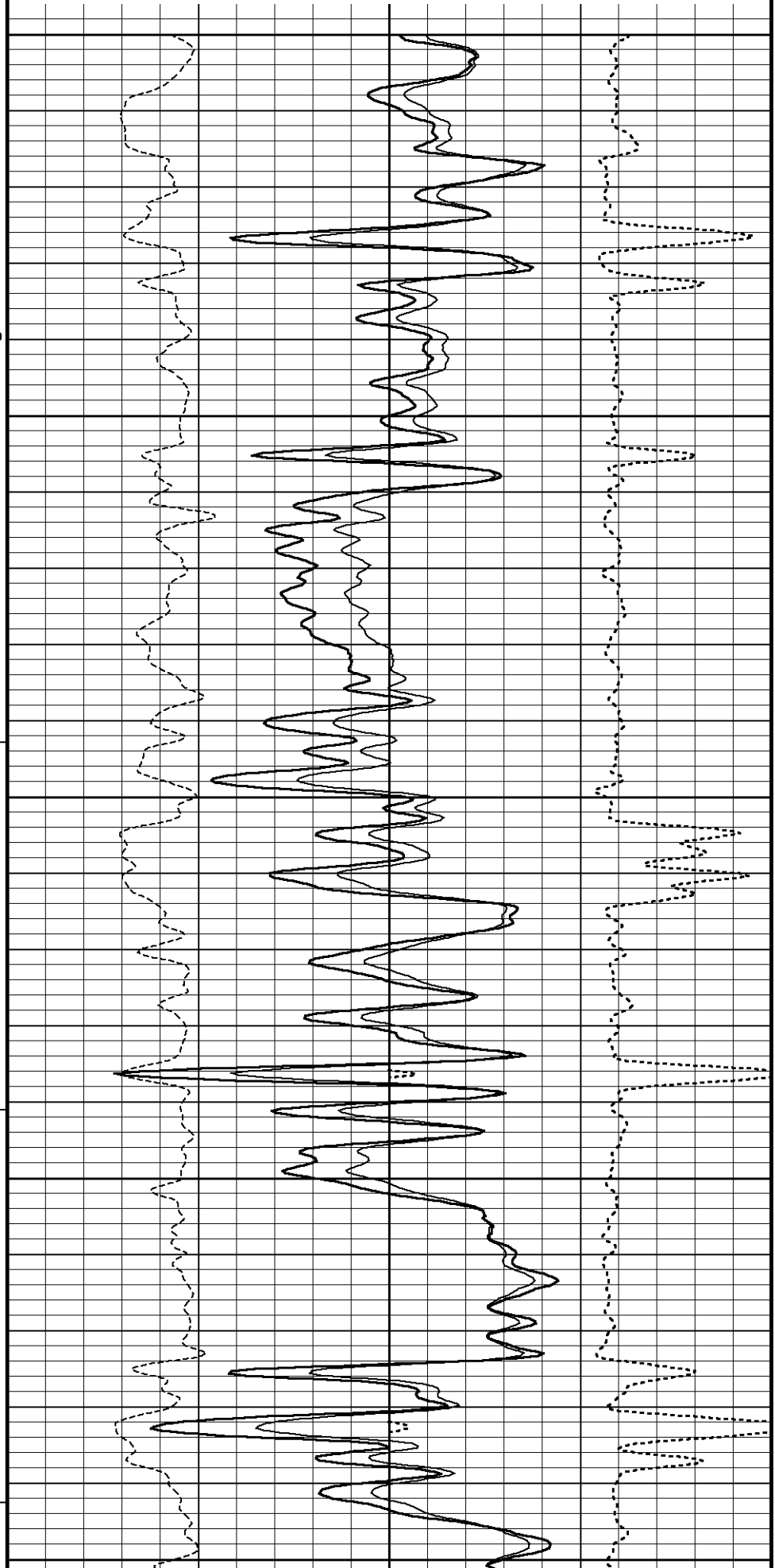
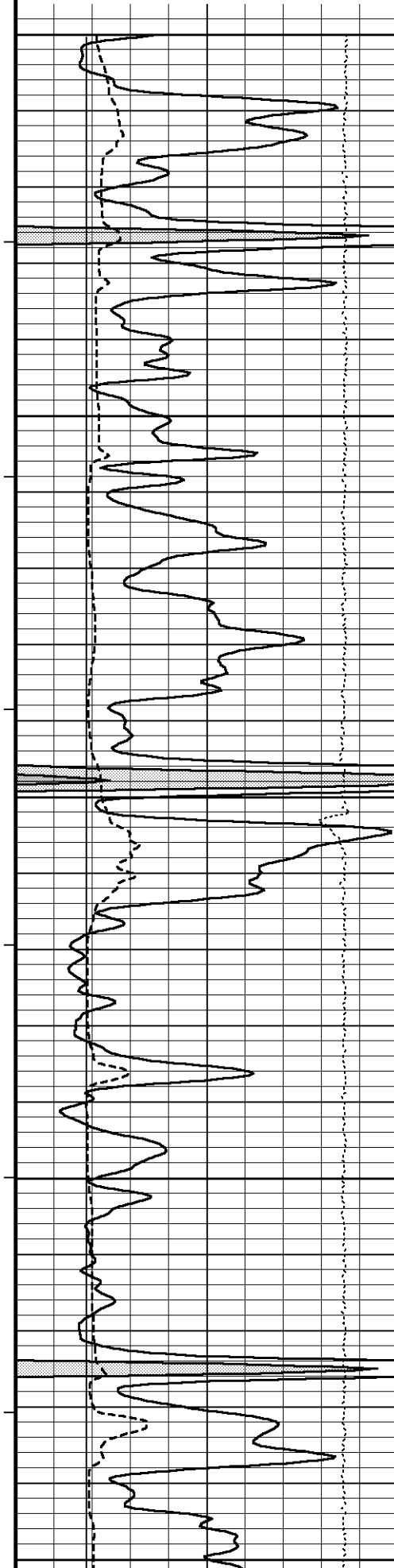
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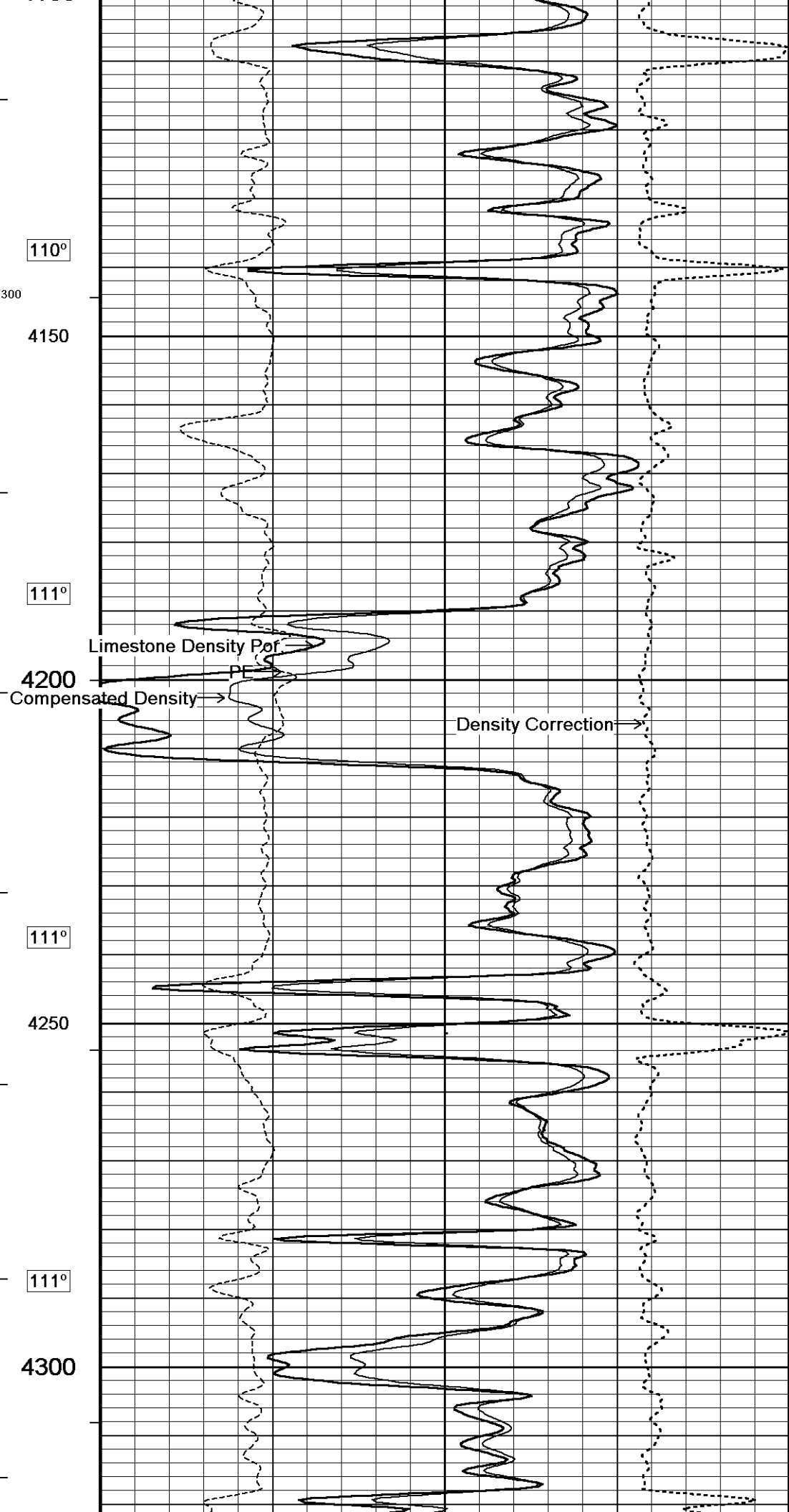
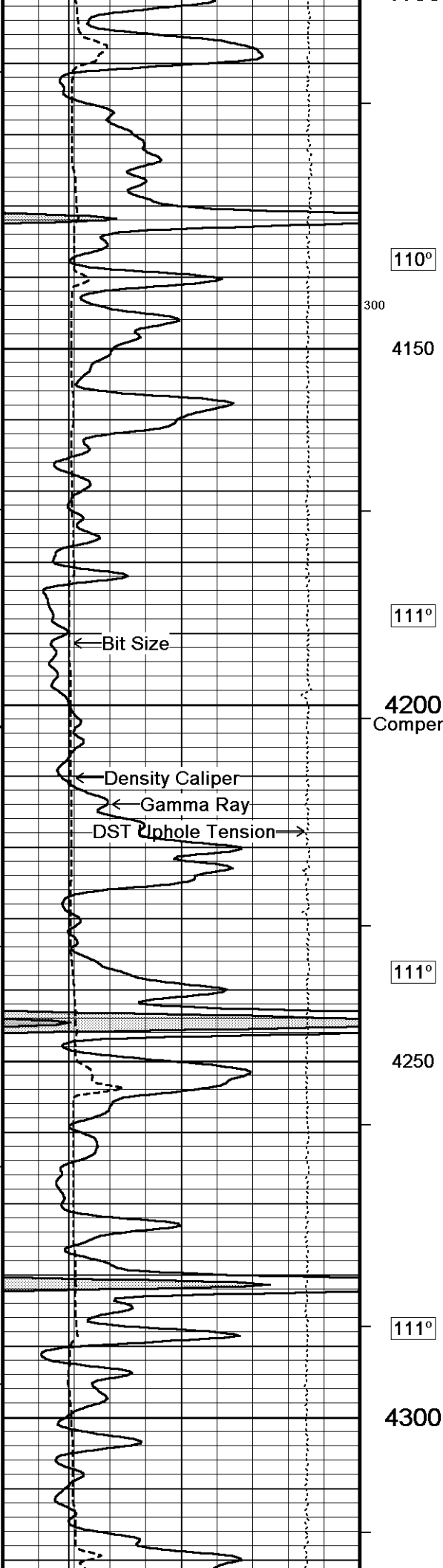
110°

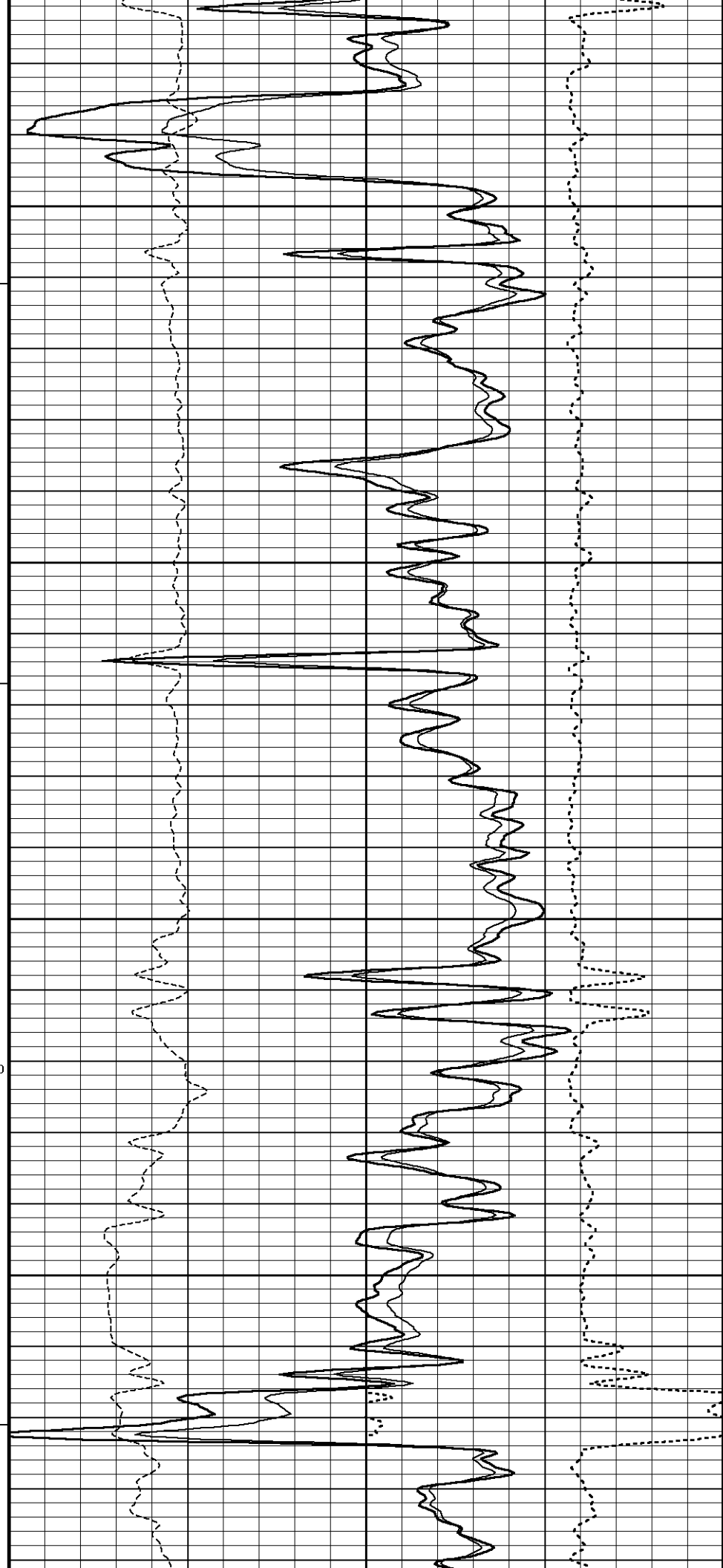
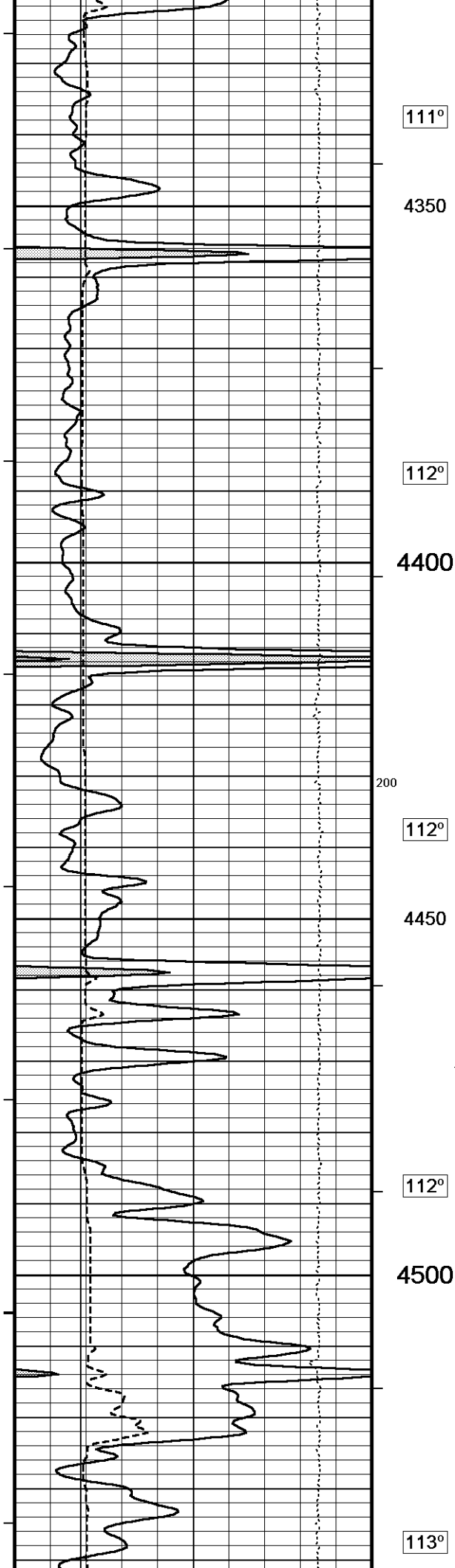
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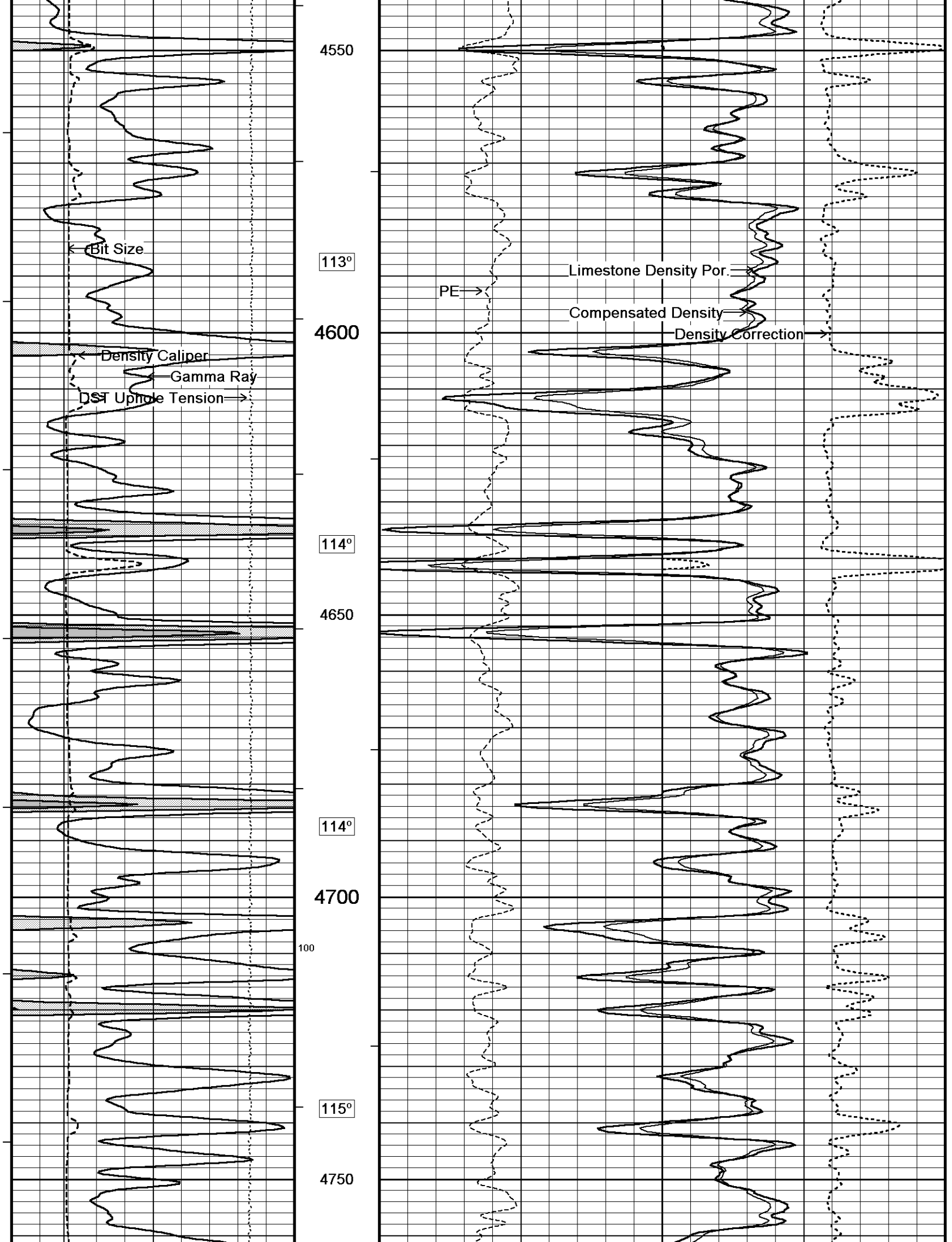
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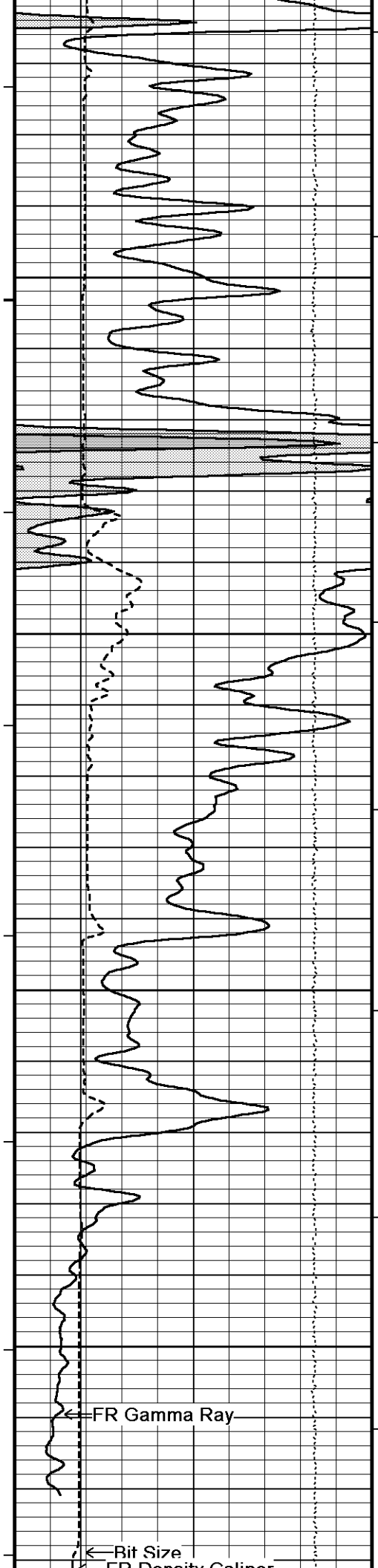
4100



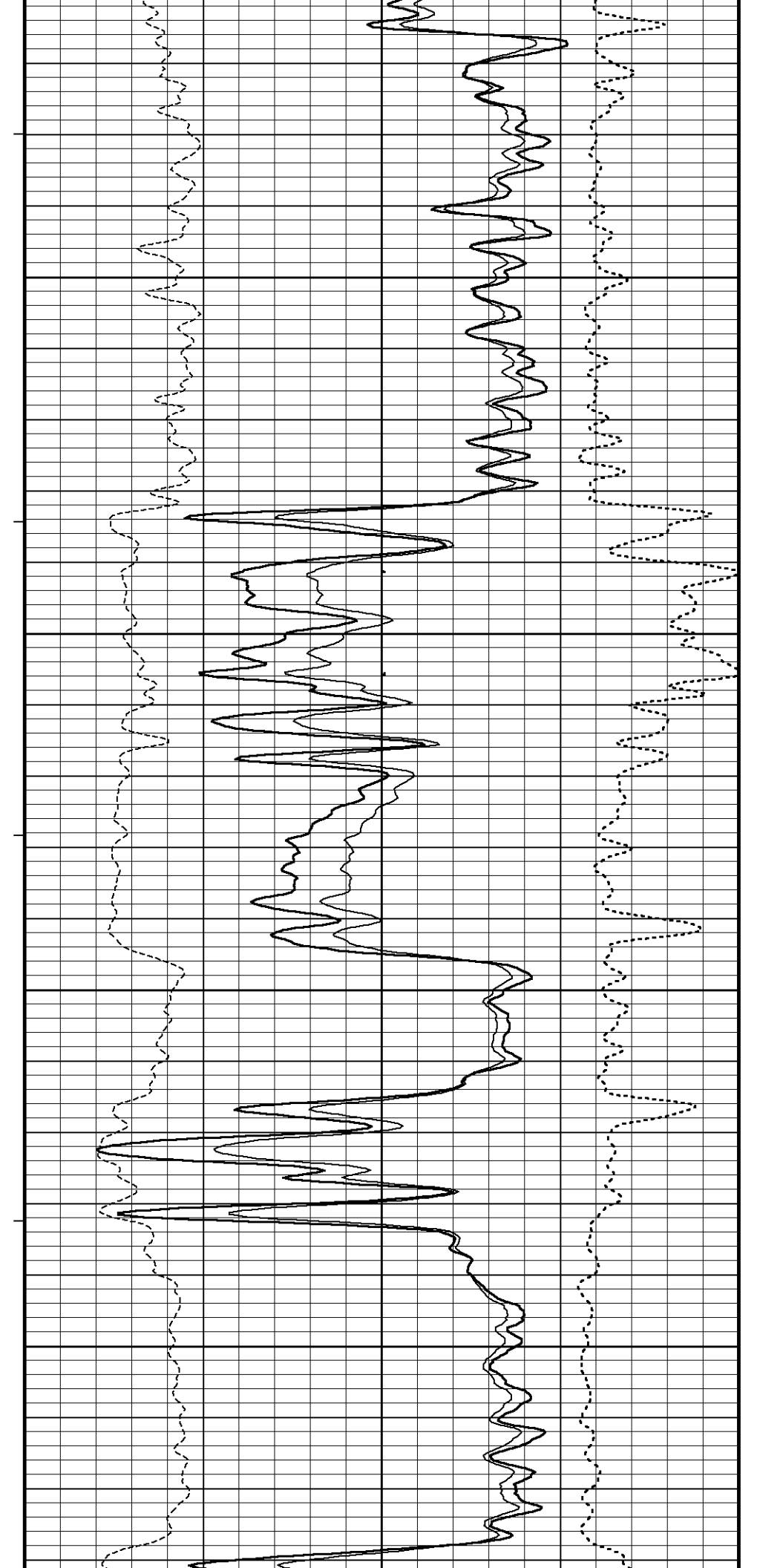


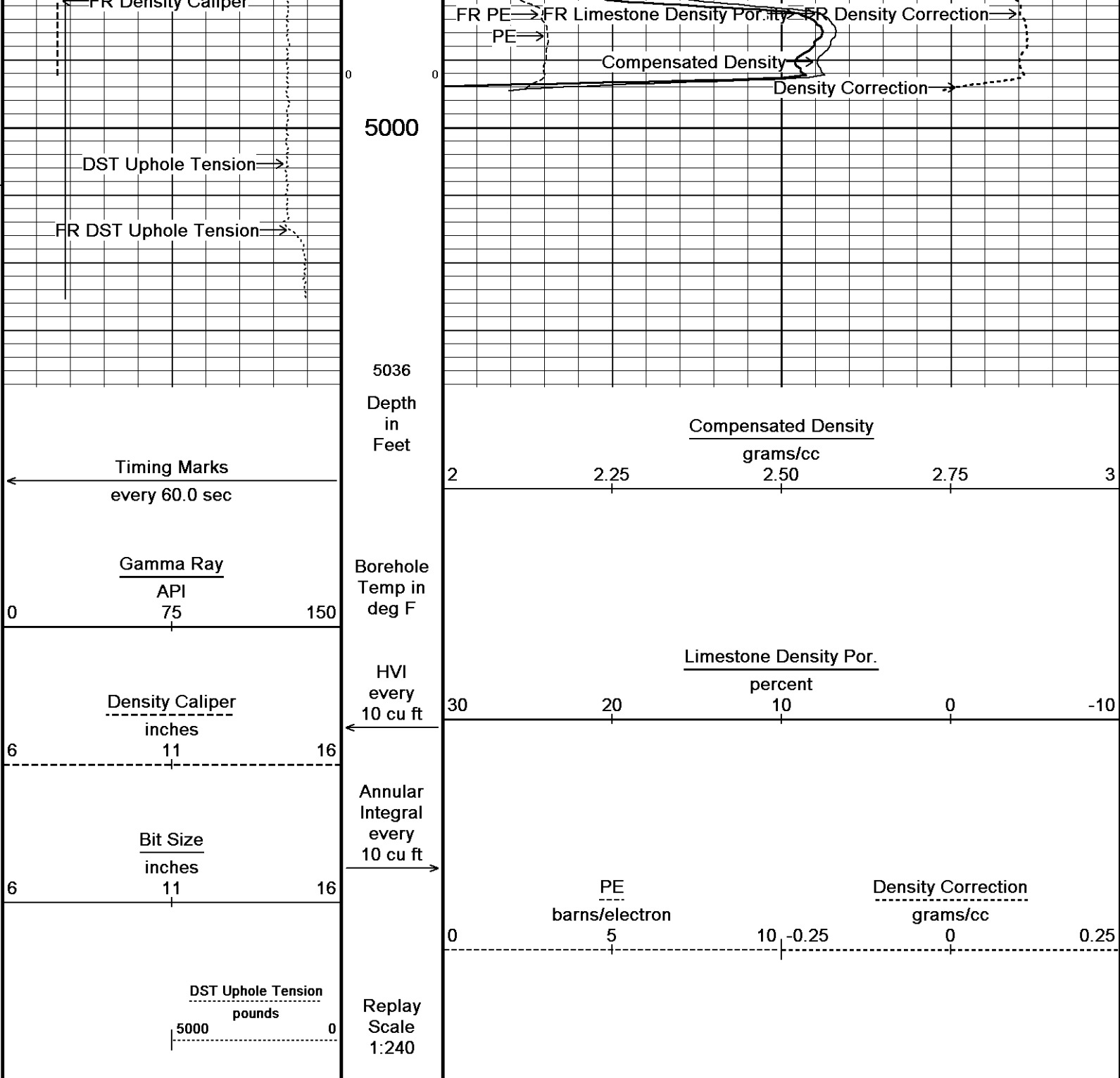






115°
4800
116°
4850
117°
4900
118°
4950





5 INCH MAIN

REPEAT SECTION

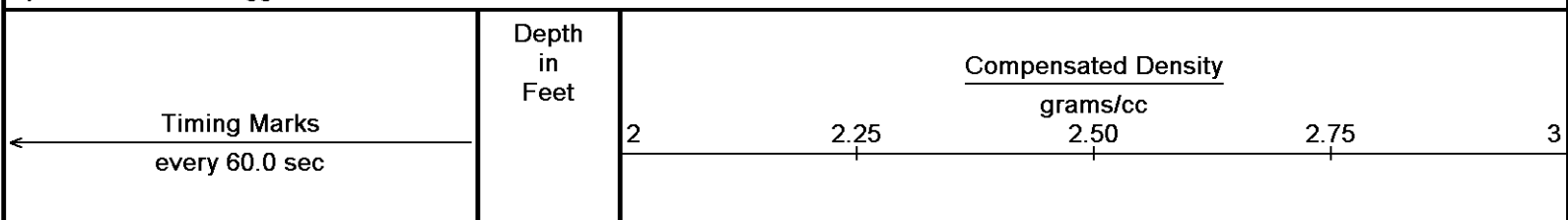
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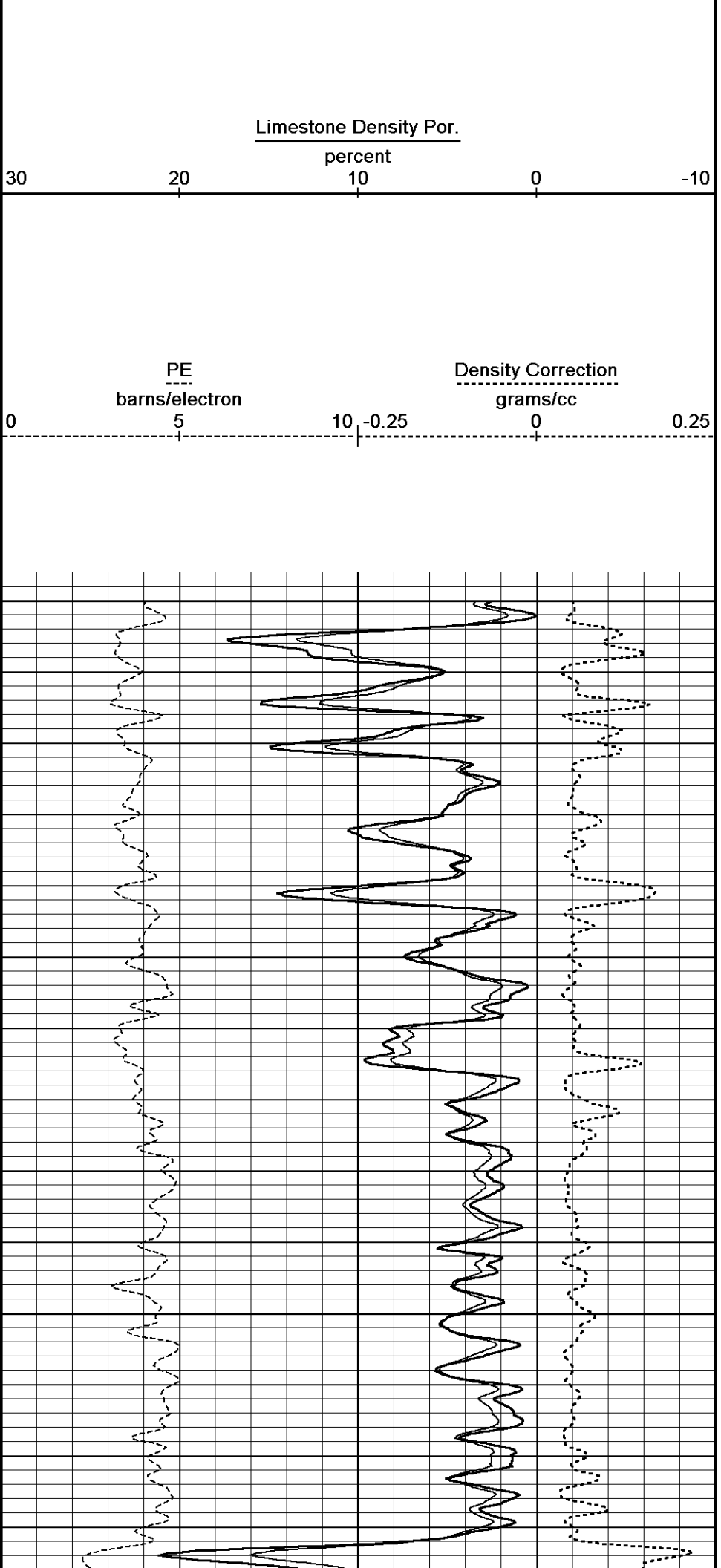
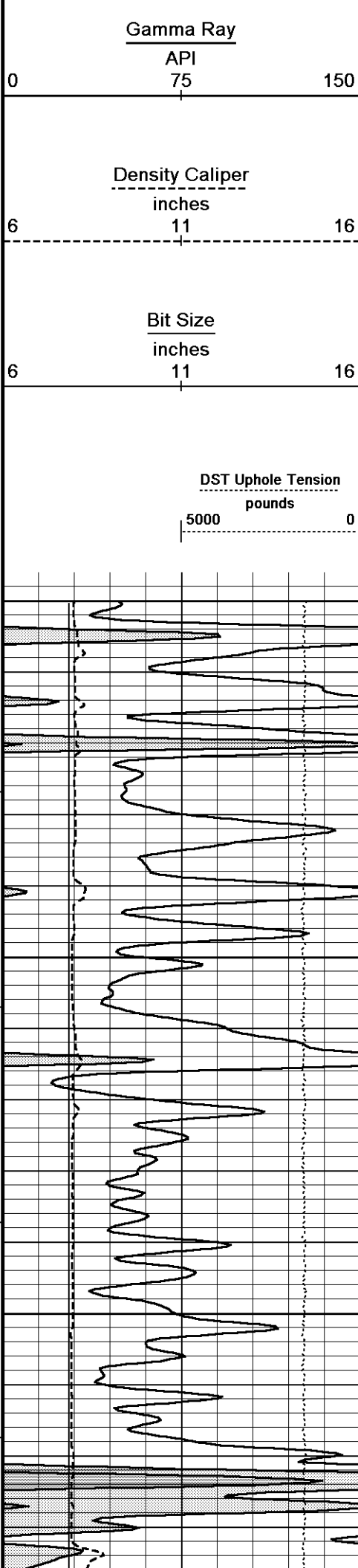
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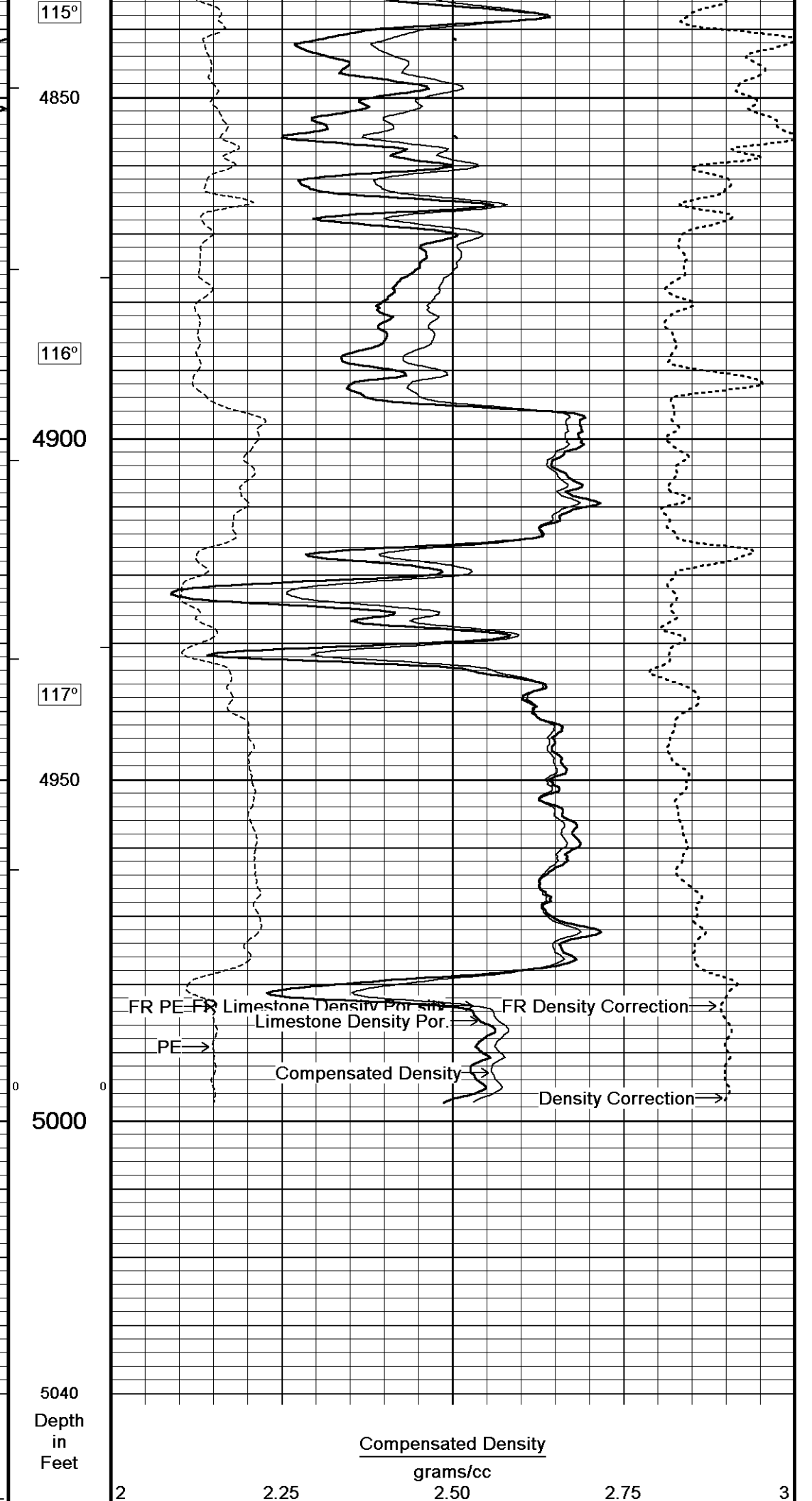
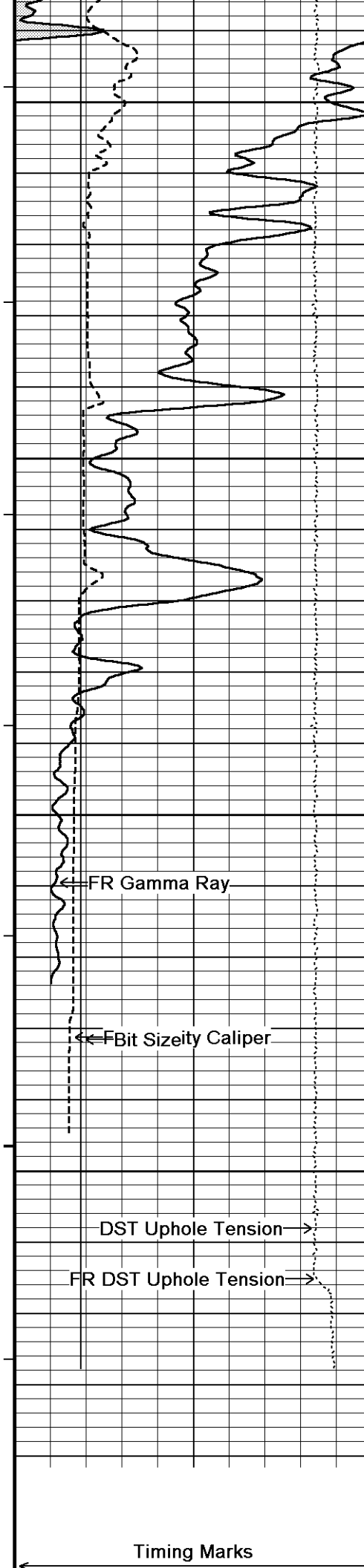
System Versions: Logged with 11.03.4044 Plotted with 11.03.4044

Plotted on 11-MAY-2012 04:38

Recorded on 11-MAY-2012 00:27







every 60.0 sec

Gamma Ray

API

75

0

150

Borehole
Temp in
deg F

HVI
every
10 cu ft

Limestone Density Por.

percent

30

20

10

0

-10

Density Caliper
inches

11

6

16

Bit Size
inches

11

6

16

Annular
Integral
every
10 cu ft

PE

barns/electron

Density Correction
grams/cc

0

5

10

-0.25

0

0.25

DST Uphole Tension
pounds

5000

0

Replay
Scale
1:240

Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 11-MAY-2012 04:38

Filename: C:\Minimus 11_03_4044\Data\Com...\Comanche Resources Company Savolt # 30-1_003.dta

Recorded on 11-MAY-2012 00:27

System Versions: Logged with 11.03.4044 Plotted with 11.03.4044



REPEAT SECTION



BEFORE SURVEY CALIBRATION

C:\Minimus 11_03_4044\Data\Comanche Resources Company Savolt # 30-1\Comanche Resources Company Savolt # 30-1_004.dta

General Constants All 000

Last Edited on 10-MAY-2012,23:08

General Parameters

Mud Resistivity	0.780	ohm-metres
Mud Resistivity Temperature	70.000	degrees F
Water Level	0.000	feet
Density/Neutron Processing	Wet Hole	

Hole/Annular Volume and Differential Caliper Parameters

HVOL Method	Single Caliper	
HVOL Caliper 1	Density Caliper	
HVOL Caliper 2	N/A	
Annular Volume Diameter	5.500	inches
Caliper for Differential Caliper	Density Caliper	

Rwa Parameters

Porosity used	Limestone Density Por.
Resistivity used	Array Ind. One Res Rt
RWA Constant A	1.000
RWA Constant M	2.000

Down-hole Tension Calibration SMS 0

Field Calibration on 09-MAY-2012 17:14

Reading No	Measured	Calibrated (lbs)
1	12472.43	0.00
2	13803.95	582.00

Gamma Calibration MCG-B 39

Field Calibration on 02-APR-2012 14:02

	Measured	Calibrated (API)
Background	74	49
Calibrator (Gross)	752	505
Calibrator (Net)	678	456

Calibrator (Net)			078	436
Gamma Constants MCG-B 39			Last Edited on 10-MAY-2012,23:08	
Gamma Calibrator Number	GRC141			
Mud Density	1.07	gm/cc		
Caliper Source for Processing	Density Caliper			
Tool Position	Eccentred			
Concentration of KCl	0.00	kppm		
SP Calibration MCG-B 39			Field Calibration on 02-APR-2012,14:02	
	Measured	Calibrated (mV)		
Reference 1	100.0	100.0		
Reference 2	-100.0	-100.0		
High Resolution Temperature Calibration MCG-B 39			Field Calibration on 02-APR-2012,14:03	
	Measured	Calibrated(Deg F)		
Lower	50.00	50.00		
Upper	100.00	100.00		
High Resolution Temperature Constants MCG-B 39			Last Edited on	
Pre-filter Length	11			
Caliper Calibration MML-A 4			Base Calibration on 0C3170021008, Field Calibration on 0C4060524000	
Base Calibration				
Reading No	Measured	Calibrator Size (in)		
1	15017	5.98		
2	18447	7.97		
3	21786	9.86		
4	25801	11.92		
5	0	0.00		
6	N/A	N/A		
Field Calibration				
	Measured Caliper (in)	Actual Caliper (in)		
	6.08	5.98		
Micro Normal and Micro Inverse Calibration MML-A 4			Base Calibration on 0C3170023008, Field Check on 0C4060525000	
Base Calibration				
Channel	Resistor 1	Measured Resistor 2	Calibrated (ohm-m) Resistor 1	Resistor 2
Micro Normal	12.2	60.2	5.0	25.0
Micro Inverse	15.7	78.3	5.0	25.0
Channel	Base Check (ohm-m)		Field Check (ohm-m)	
Micro Normal	62.9		62.9	
Micro Inverse	48.3		48.3	
Micro Normal and Micro Inverse Constants MML-A 4			Last Edited on 10-MAY-2012,23:09	
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	N/A		inches	
Neutron Calibration MDN-B.J 387			Base Calibration on 09-MAY-2012,12:48 Field Check on 09-MAY-2012,12:53	
Base Calibration				
	Measured	Calibrated (cps)		
	Near Far	Near Far		
	2956 91	3714 110		
Ratio	32.635	33.764		
Field Calibrator at Base			Calibrated (cps)	
			2214	3169
Ratio			0.699	
Field Check			Calibrated (cps)	
			2175	3193

Neutron Constants MDN-B.J 387

Last Edited on 10-MAY-2012,23:13

Neutron Source Id	P0204NN	
Neutron Jig Number	NEDC117	
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	Constant Value	
Formation Pressure	0.00	kpsi
Temperature Source	Constant Value	
Temperature	68.00	degrees F
Mud Salinity	0.00	kppm
Formation Fluid Salinity Source	Constant Value	
Formation Fluid Salinity	0.00	kppm
Barite Mud Correction	Not Applied	

FE Calibration MFE-B.J 352

Base Calibration on 0C31B0831004

Field Check on 0C4060523000

Base Calibration		
	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	963.7	126.8
Base Check		281.5
Field Check		281.5

FE Constants MFE-B.J 352

Last Edited on 10-MAY-2012,23:19

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-C.K 330

Last Edited on 09-MAY-2012,12:47

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	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

Induction Calibration MAI-A.A 178

Base Calibration on 0C31B0B06000,
Field Check on 0C4060521000

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
1	0.0	0.0	12.3	3762.6
2	0.0	0.0	29.6	3466.9
3	0.0	0.0	27.3	3014.1
4	0.0	0.0	18.8	2064.7
Deep	0.0	0.0	15.9	1995.3
Medium	0.0	0.0	40.3	3955.3
Shallow	0.0	0.0	45.3	5081.7

Array Temperature 0.0 72.7 Deg F

Induction Constants MAI-A.A 178

Last Edited on 10-MAY-2012,23:20

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
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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 178

Field Calibration on 0C4030110004,

	Measured	Calibrated(Deg F)
Lower	32.00	32.00
Upper	68.00	68.00

High Resolution Temperature Constants MAI-A.A 178

Last Edited on 0C4060522000,

Pre-filter Length	11
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Caliper Calibration MPD-B 35

Base Calibration on 0C31C0A2C008

Field Calibration on 0C4060527000

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	20688	3.99
2	30944	5.98
3	41312	7.97
4	50976	9.86
5	61184	11.92
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
5.99	5.98

Photo Density Calibration MPD-B 35

Base Calibration on 0C31C0B00008

Field Check on 0C406052B000

Density Calibration

Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	62298	31871	59556	30836
Reference 2	26887	2863	24941	2541

Field Check at Base

1142.9	1359.1
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Field Check

1145.7	1361.2
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PE Calibration

Base Calibration		Measured		Calibrated
	WS	WH	Ratio	Ratio
Background	204	1008		
Reference 1	23049	62096	0.374	0.371
Reference 2	7079	26739	0.267	0.272

Field Check at Base

204.4	1008.1
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Field Check

Density Constants MPD-B 35

Last Edited on 10-MAY-2012,23:15

[illegible]

DOWNHOLE EQUIPMENT

C:\Minimus 11_03_4044\Data\Comanche Resources Company Savolt # 30-1\Comanche Resources Company Savolt # 30-1_004.dta

MCB-A.A 11B Tension Cablehead
MCB-A.A 161 LG: 2.40 ft WT: 19.8 lb OD: 2.24 in

MCB-A.A 11B Tension Cablehead
MCB-A.A 161 LG: 2.40 ft WT: 19.8 lb OD: 2.24 in

Compact Comms Gamma
MCG-B 39 LG: 8.70 ft WT: 63.9 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 4 LG: 7.97 ft WT: 81.6 lb OD: 2.24 in

Compact Micro-log
MML-A 4 LG: 7.97 ft WT: 81.6 lb OD: 2.24 in

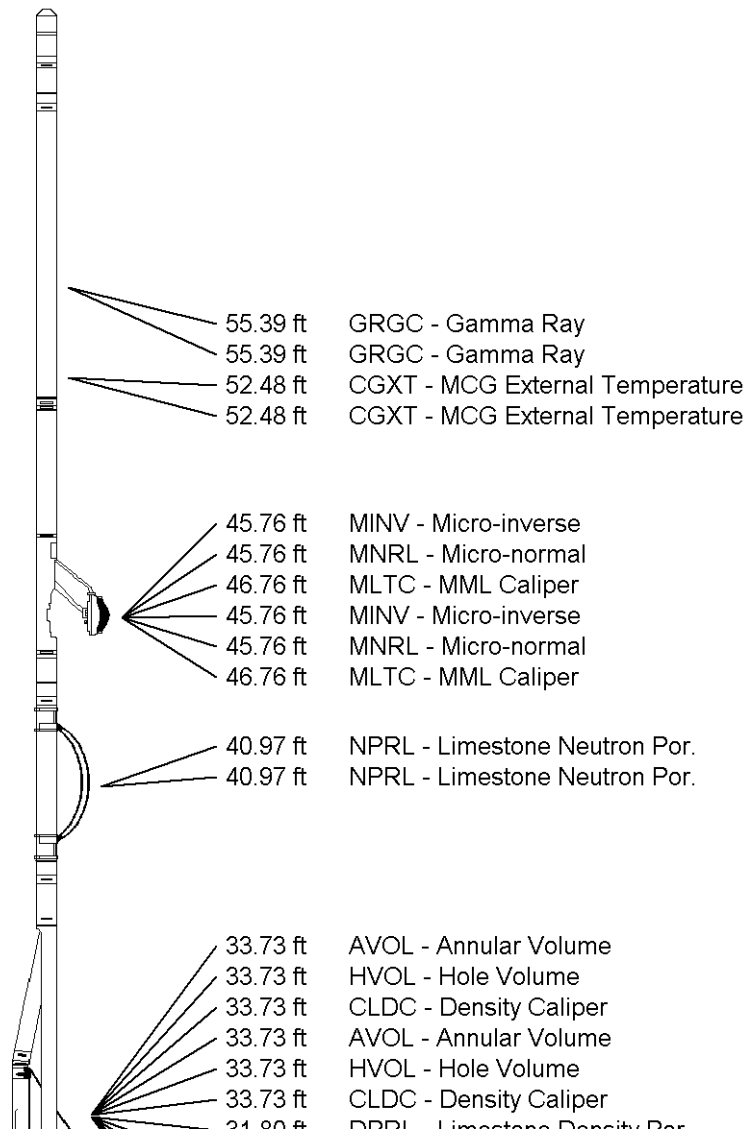
Compact Neutron
MDN-B.J 387 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Neutron
MDN-B.J 387 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper
MPD-B 35 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

Compact Density/Caliper
MPD-B 35 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 Focussed Electric

MFE-B.J 352 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

Compact Sonic

MSS-C.K 330 LG: 12.52 ft WT: 72.8 lb OD: 2.24 in

Compact Sonic

MSS-C.K 330 LG: 12.52 ft WT: 72.8 lb OD: 2.24 in

Compact Induction

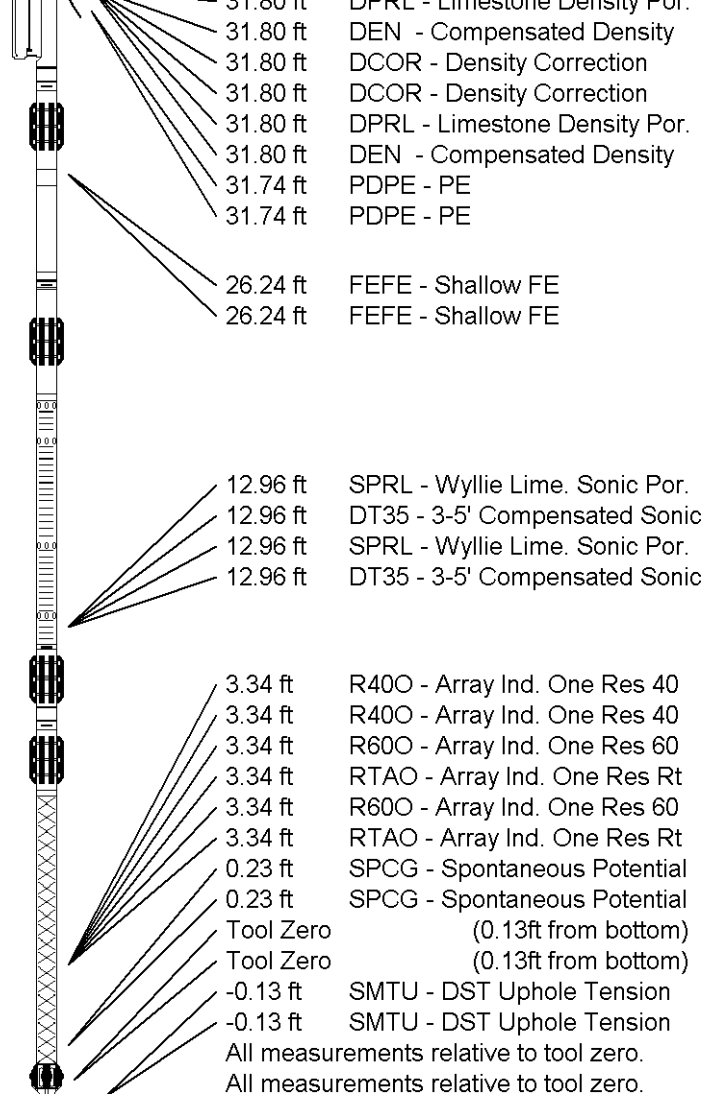
MAI-A.A 178 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Compact Induction

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

Total Length: 63.07 ft Weight: 476.2 lb

Total Length: 63.07 ft Weight: 476.2 lb



COMPANY

COMANCHE RESOURCES COMPANY

WELL

SAVOLT # 30-1

FIELD

WILDCAT

PROVINCE/COUNTY

SCOTT

COUNTRY/STATE

U.S.A. / KANSAS

Elevation Kelly Bushing	3141.00	feet
Elevation Drill Floor	3139.00	feet
Elevation Ground Level	3131.00	feet

First Reading	4981.00	feet
Depth Driller	5020.00	feet
Depth Logger	5015.00	feet



Weatherford®

COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRORESISTIVITY LOG

