



Weatherford

**COMPACT PHOTO DENSITY
COMPENSATED NEUTRON
MICRORESISTIVITY LOG**

COMPANY

O'BRIEN ENERGY RESOURCES CORP.

WELL

KEYSTONE #2-4

FIELD

ANGELL SE

PROVINCE/COUNTY

MEADE

COUNTRY/STATE

U.S.A. / KANSAS

LOCATION

500' FSL & 716' FWL

SEC 4

TWP 33S RGE 29W

Other Services
MAI/MFE

Latitude

Longitude

API Number

15-119-21397

Permanent Datum GL, Elevation 2585 feet

Log Measured From KB

Drilling Measured From KB @ 12 FEET

Date

10-NOV-2016

Run Number

ONE

Service Order

4558-166021107

Depth Driller

6350.00 feet

Depth Logger

6352.00 feet

First Reading

6333.00 feet

Last Reading

4000.00 feet

Casing Driller

1495.00 feet

Casing Logger

1494.00 feet

Bit Size

7.875 inches

Hole Fluid Type

WBM

Density / Viscosity

9.40 lb/USg 48.00 CP

PH / Fluid Loss

9.50 4.80 ml/30Min

Sample Source

FLOWLINE

Rm @ Measured Temp

1.18 @ 75.0 ohm-m

Rmf @ Measured Temp

0.94 @ 75.0 ohm-m

Rmc @ Measured Temp

1.42 @ 75.0 ohm-m

Source Rmf / Rmc

CALC CALC

Rm @ BHT

0.71 @124.0 ohm-m

Time Since Circulation

5 HOURS

Max Recorded Temp

124.00 deg F

Equipment / Base

13096 OKC

Recorded By

ADAM SILL

Witnessed By

ROGER PEARSON

PETE DEBENHAM

BOREHOLE RECORD

Last Edited: 10-NOV-2016 22:35

Bit Size
inches

7.875

Depth From
feet

1495.00

Depth To
feet

6350.00

CASING RECORD

Type

Size
inches

8.625

Depth From
feet

0.00

Shoe Depth
feet

1495.00

Weight
pounds/ft

24.00

REMARKS

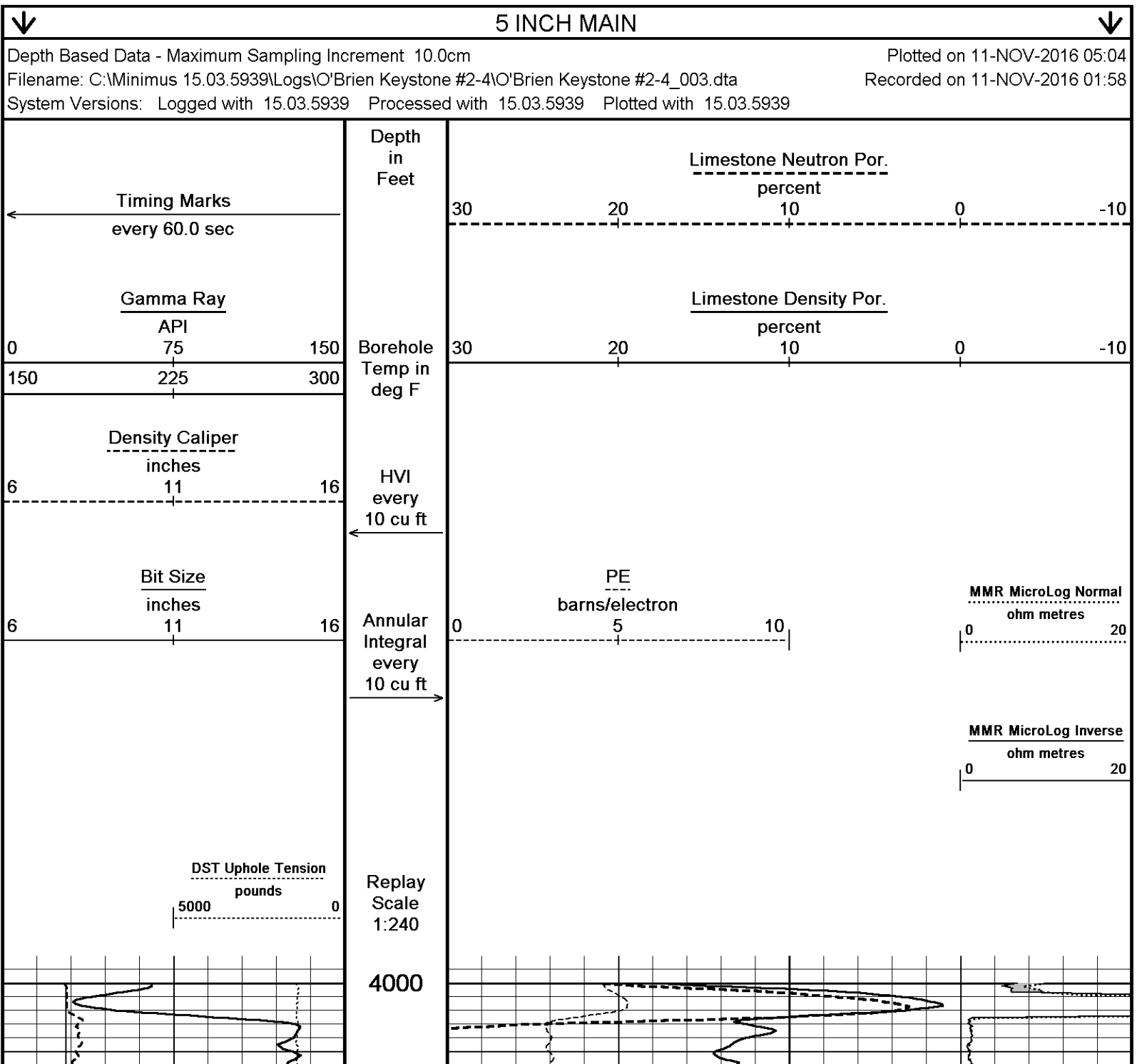
- SOFTWARE ISSUE: WLS 15.03.5939.
- RUN ONE: MCG, MML, MDN, MPD, MFE, MAI RUN IN COMBINATION.
 - HARDWARE: DUAL BOWSPRING USED ON MDN.
 - 0.5 INCH STANDOFF USED ON MFE.
 - 0.5 INCH STANDOFF USED ON MAI.
- 2.71 G/CC LIMESTONE DENSITY MATRIX USED TO CALCULATE POROSITY.
- BOREHOLE RUGOSITY, TIGHT PULLS, AND WASHOUTS WILL AFFECT DATA QUALITY.
- ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST.
- TOTAL HOLE VOLUME FROM TD TO SURFACE CASING: 1848 CU.FT.
- ANNULAR HOLE VOLUME WITH 4.5 INCH PRODUCTION CASING FROM TD TO 4000 FEET: 547 CU.FT.
- RIG: DUKE #1

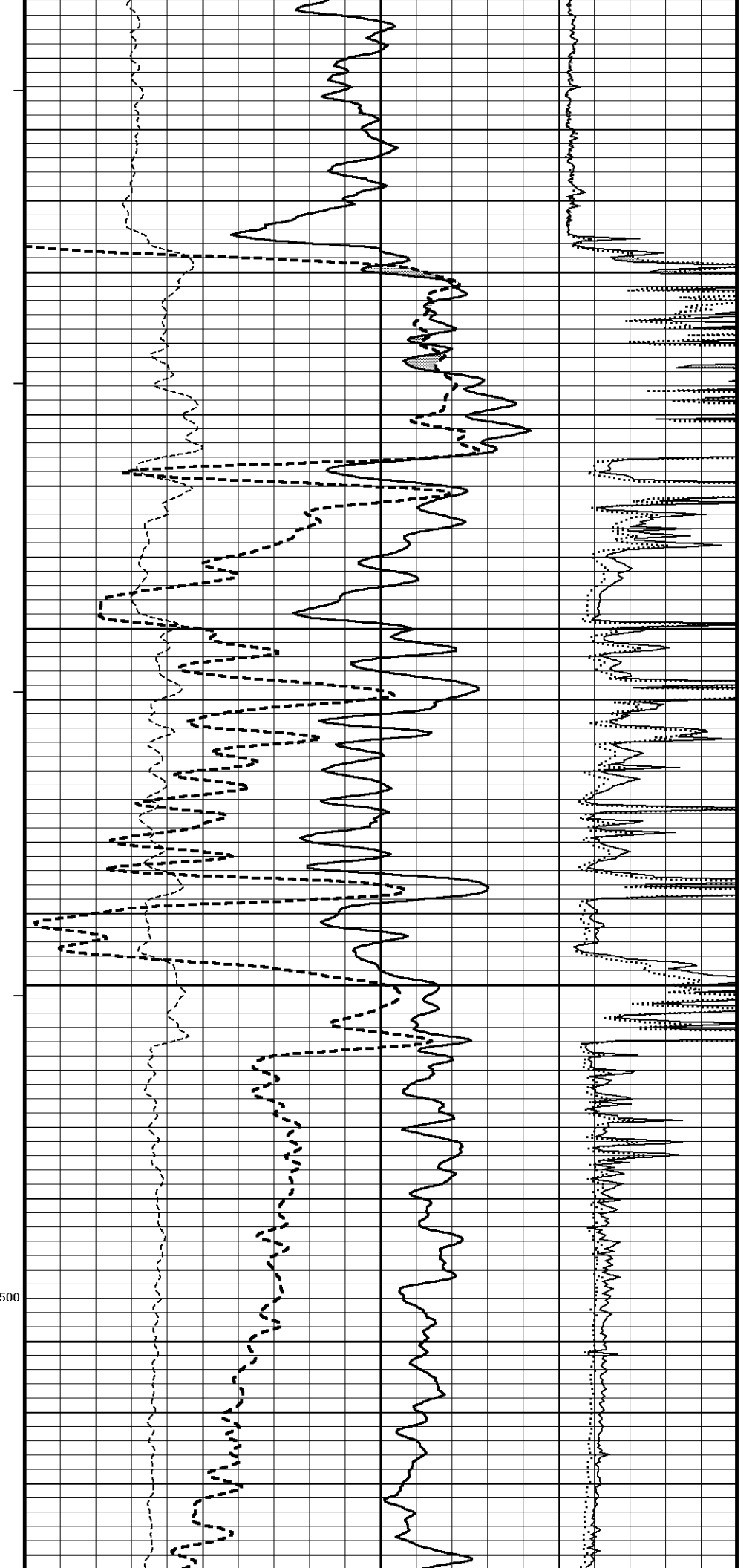
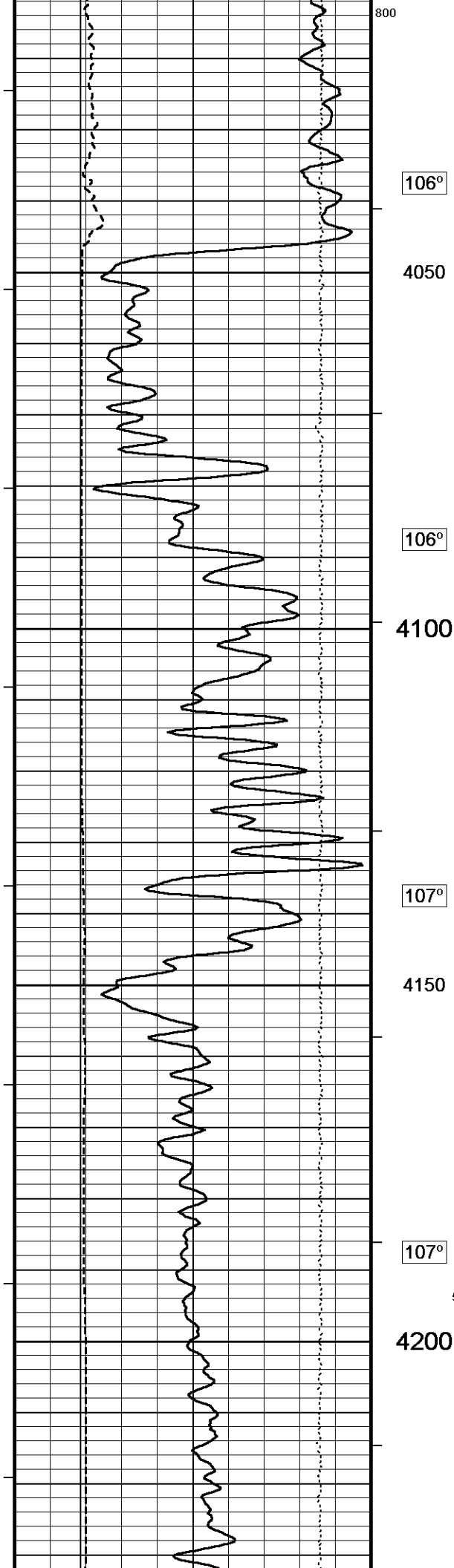
CRIS: DORE #7:

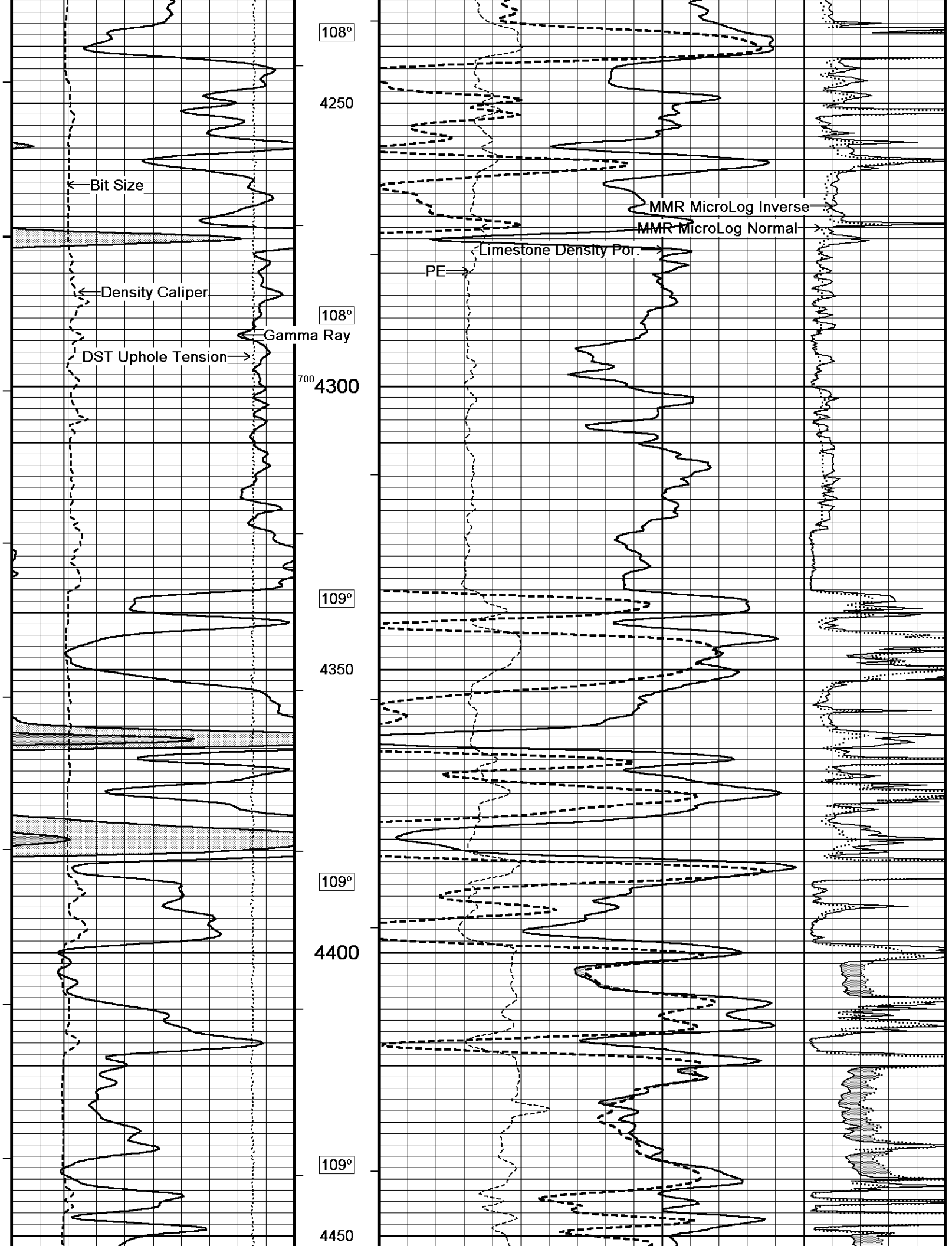
- ENGINEER: A. SILL.

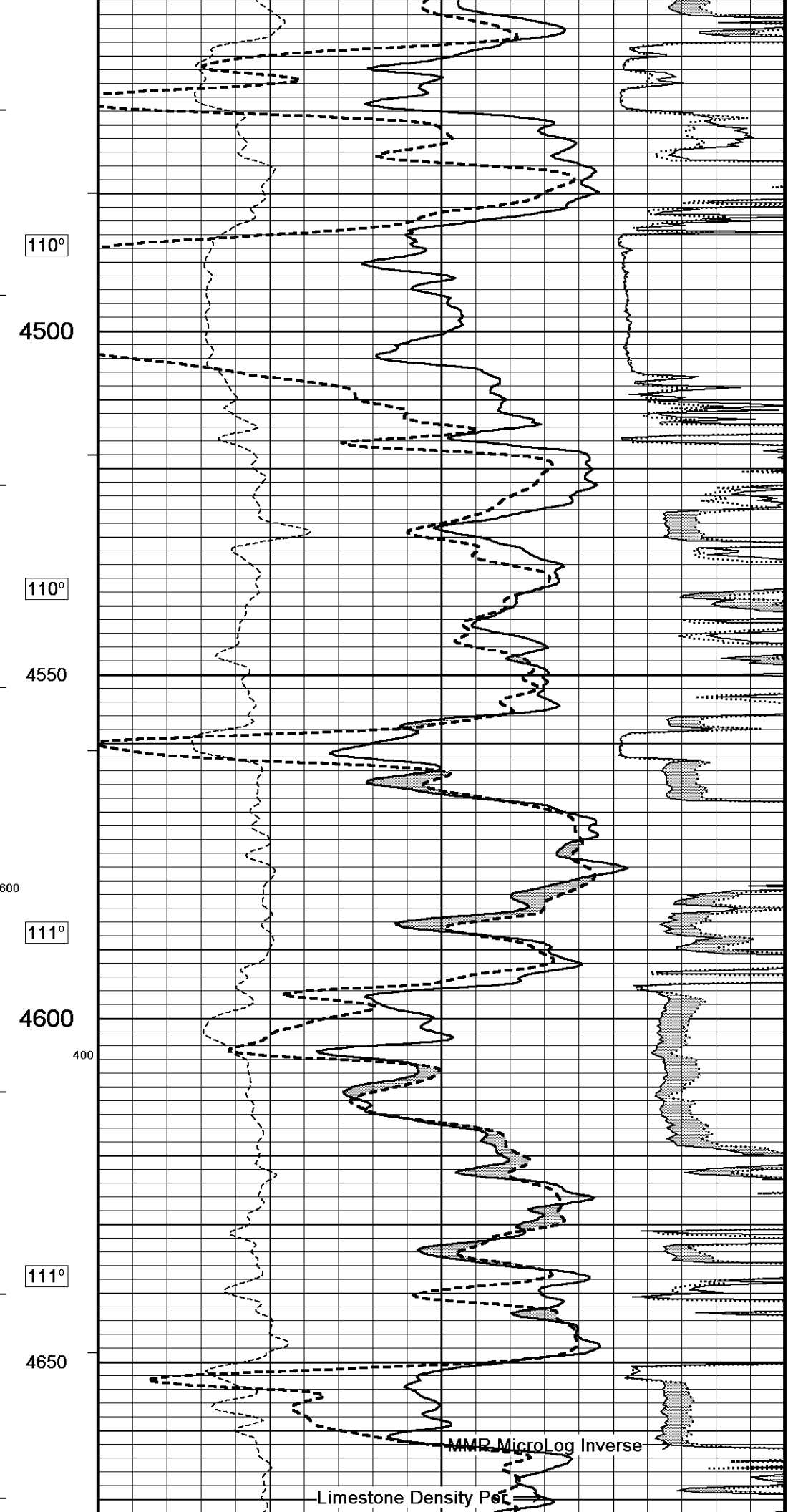
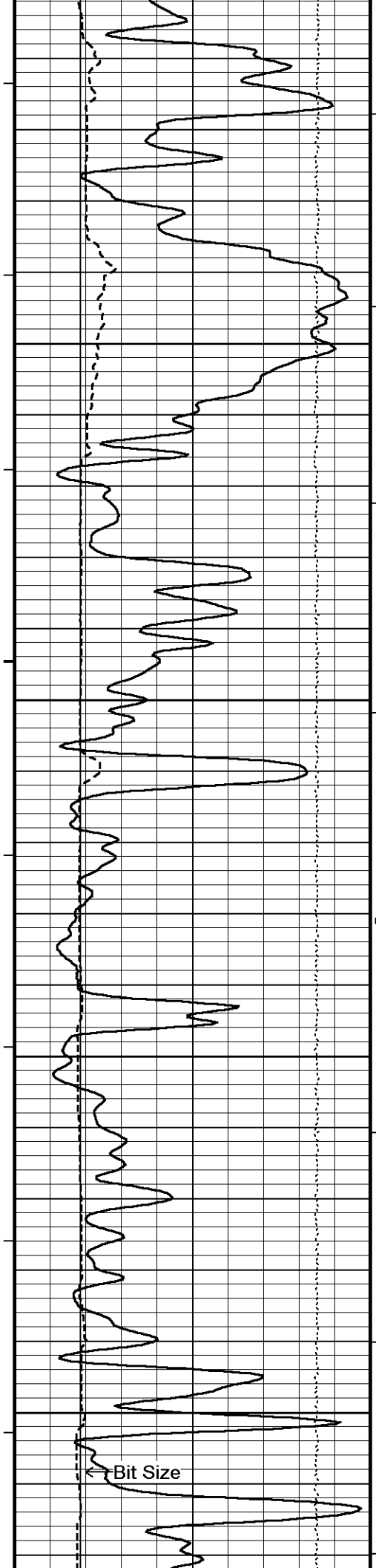
- OPERATOR: B. TOVAR.

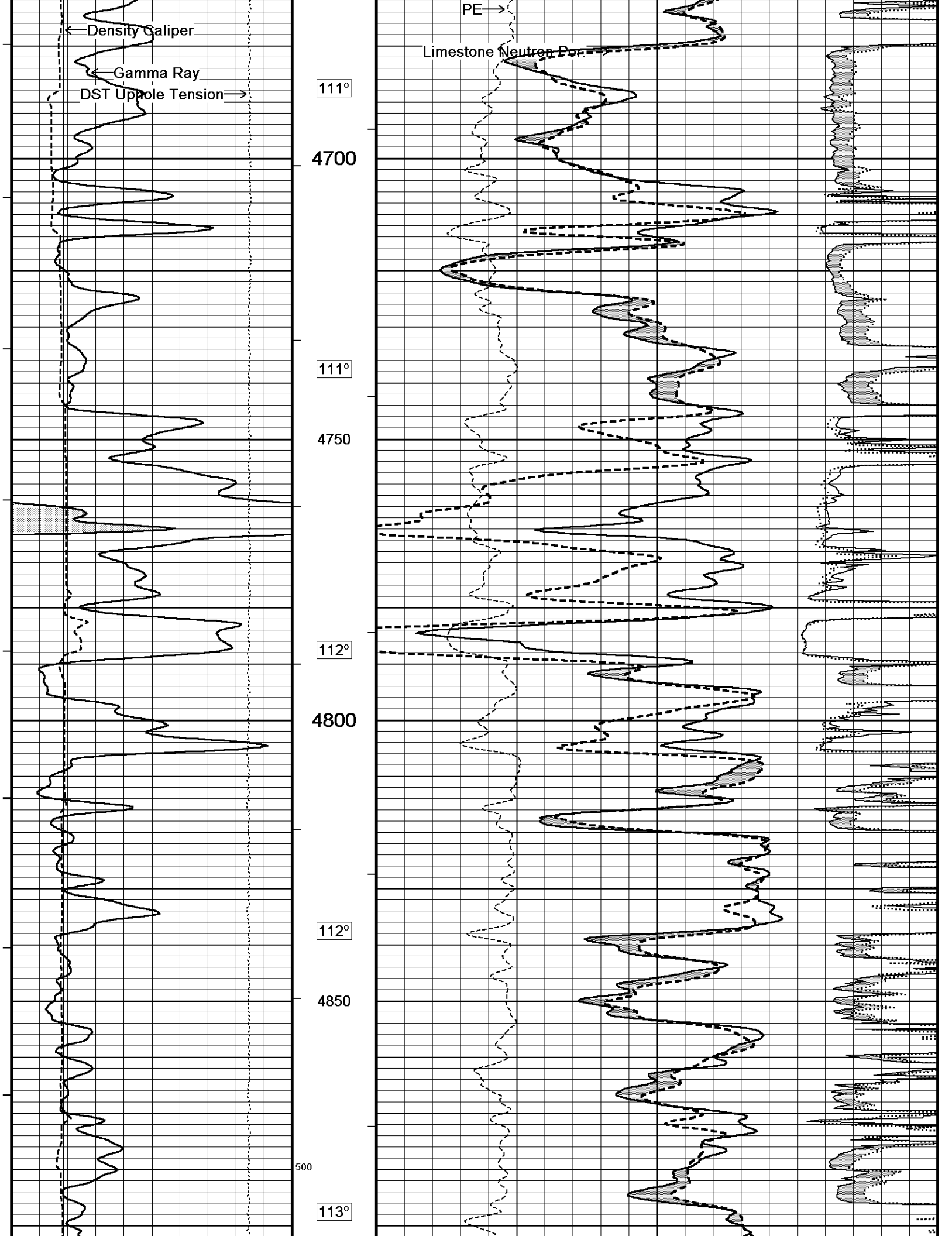
In interpreting, communicating or providing information and/or making recommendations, either written or oral, as to logs or test or other data, type or amount of material, or Work or other service to be furnished, or manner of performance, or in predicting results to be obtained, the Contractor will 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.

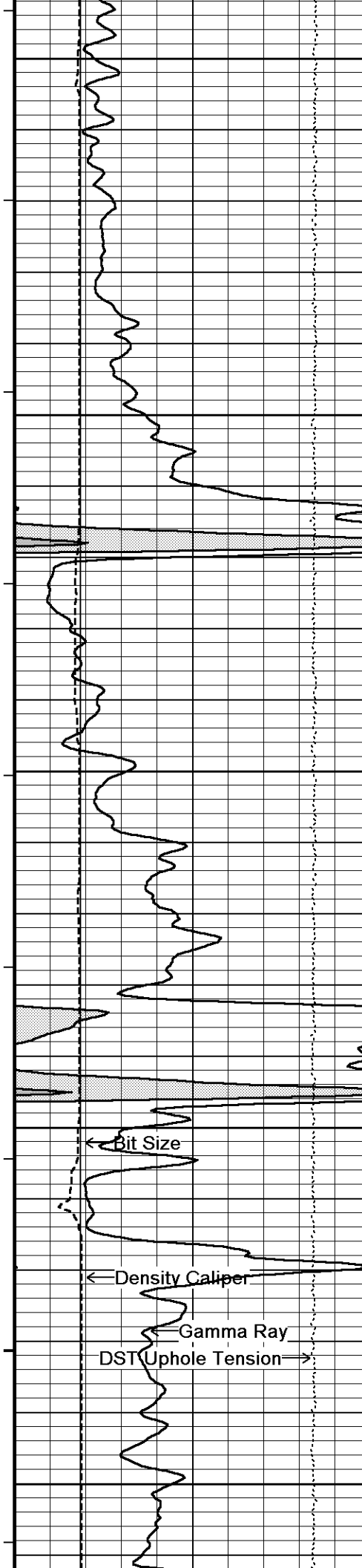












4900

113°

4950

113°

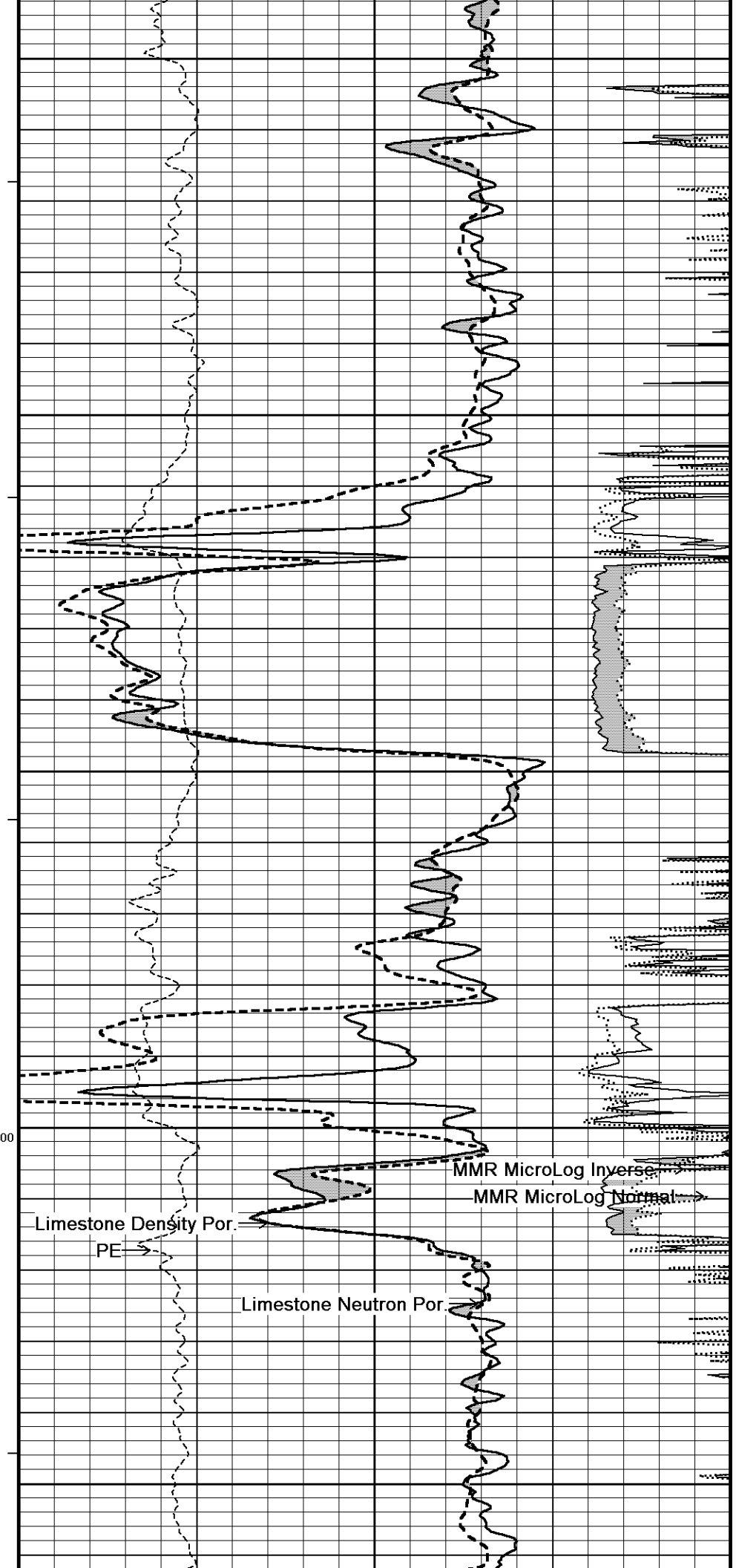
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114°

5050

114°

5100



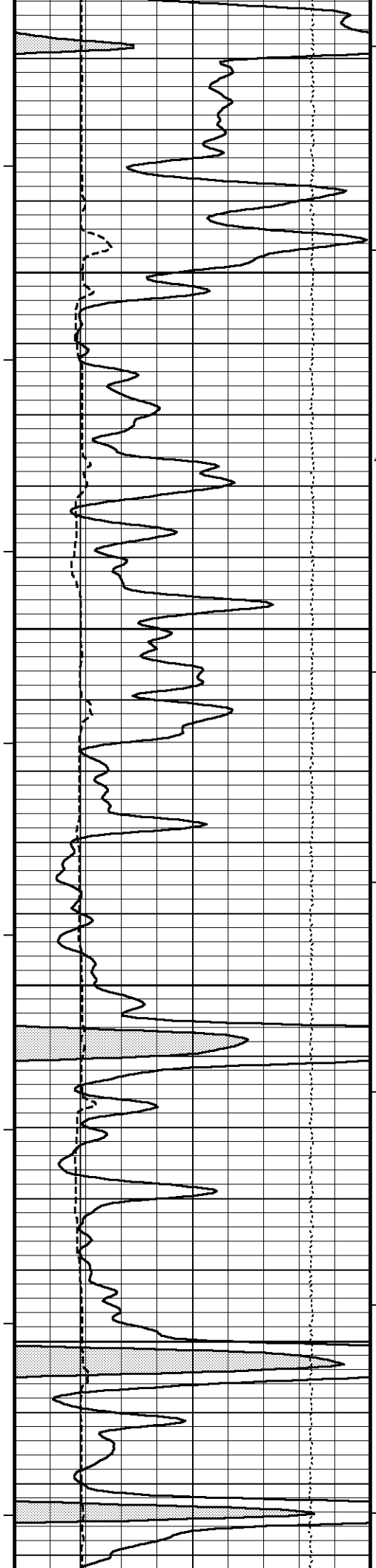
Limestone Density Por.

PE

Limestone Neutron Por.

MMR MicroLog Inverse

MMR MicroLog Normal



114°

5150

400

114°

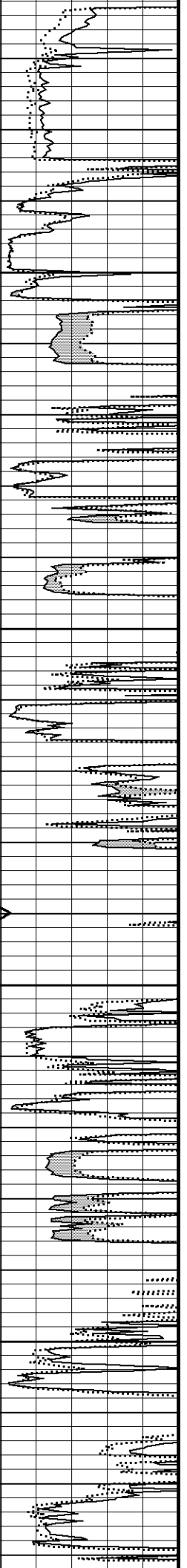
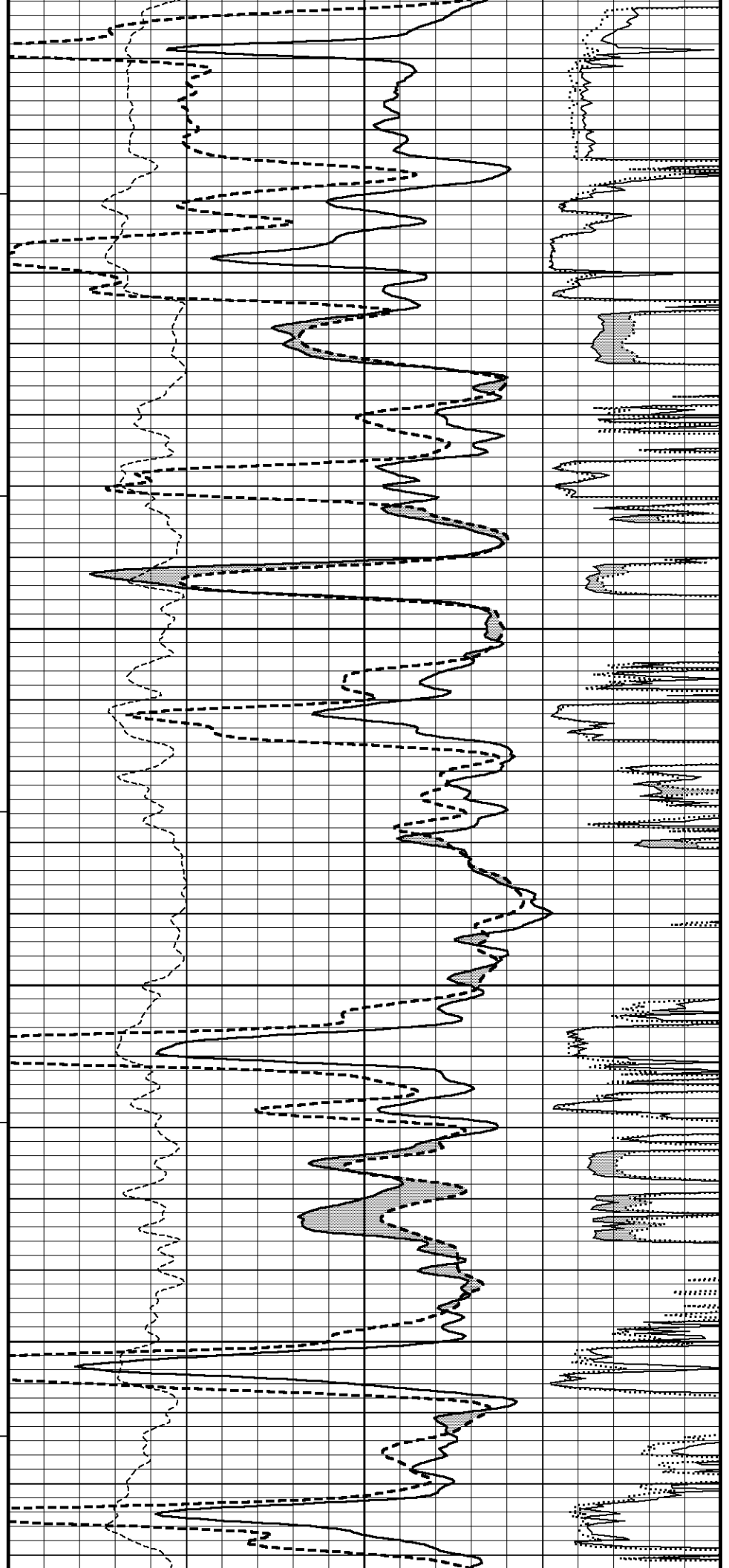
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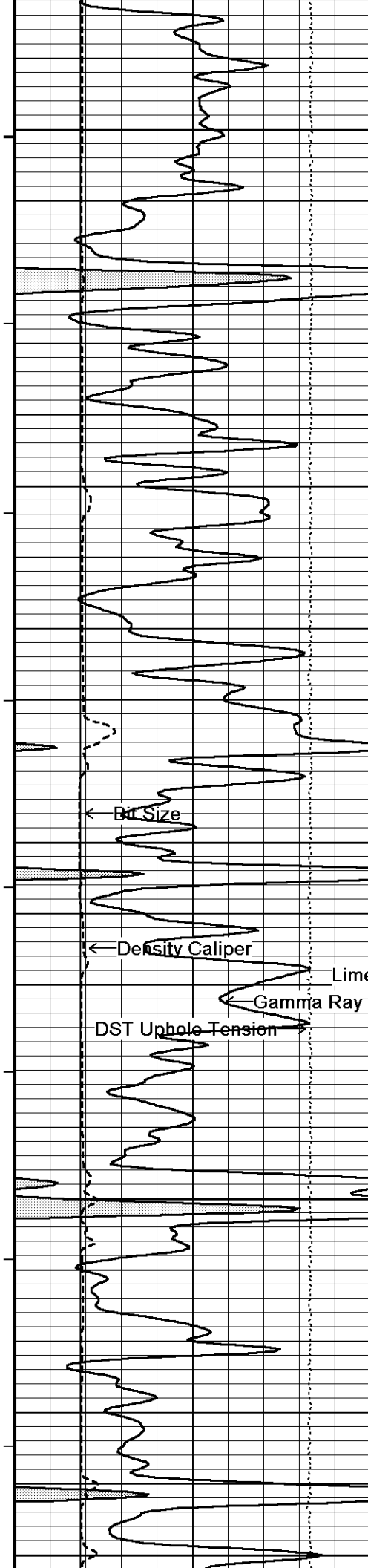
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5250

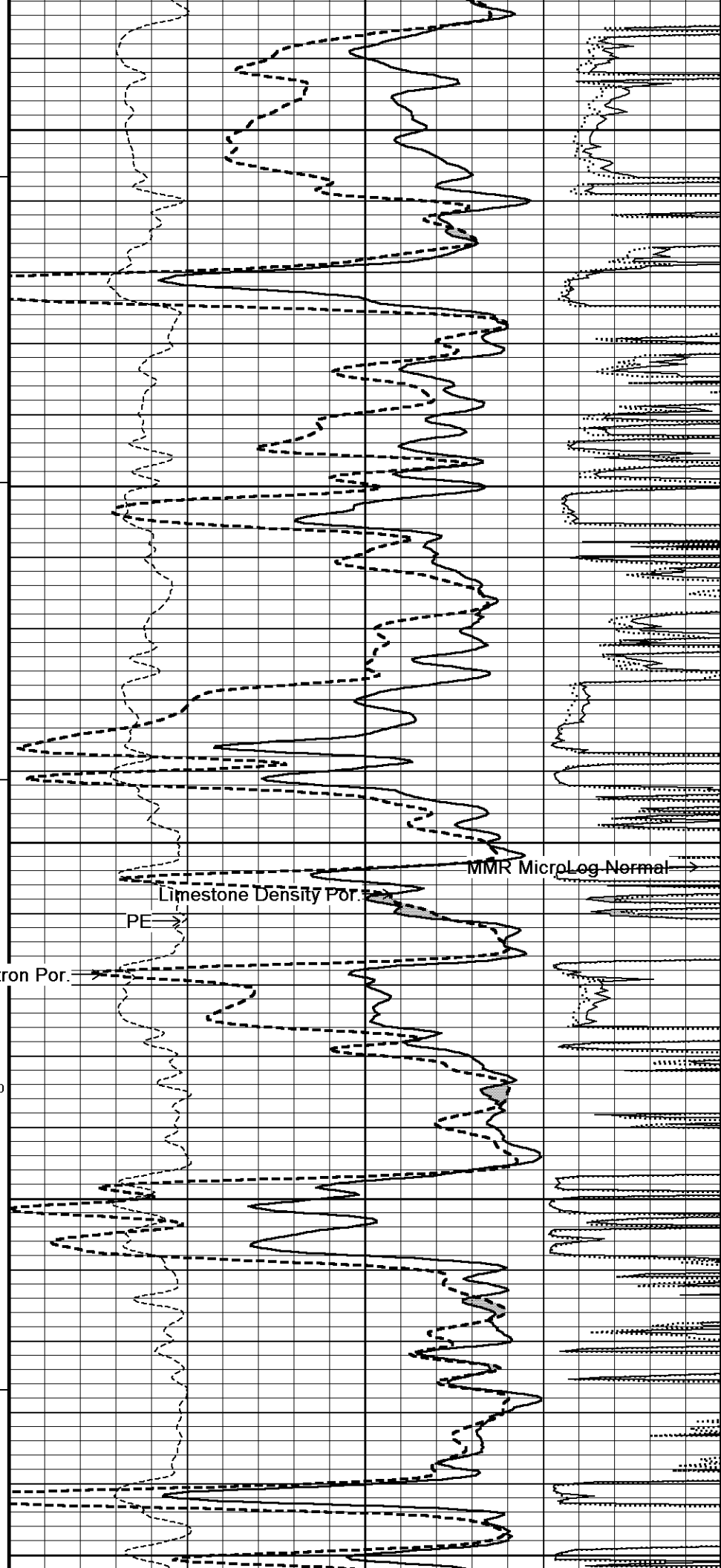
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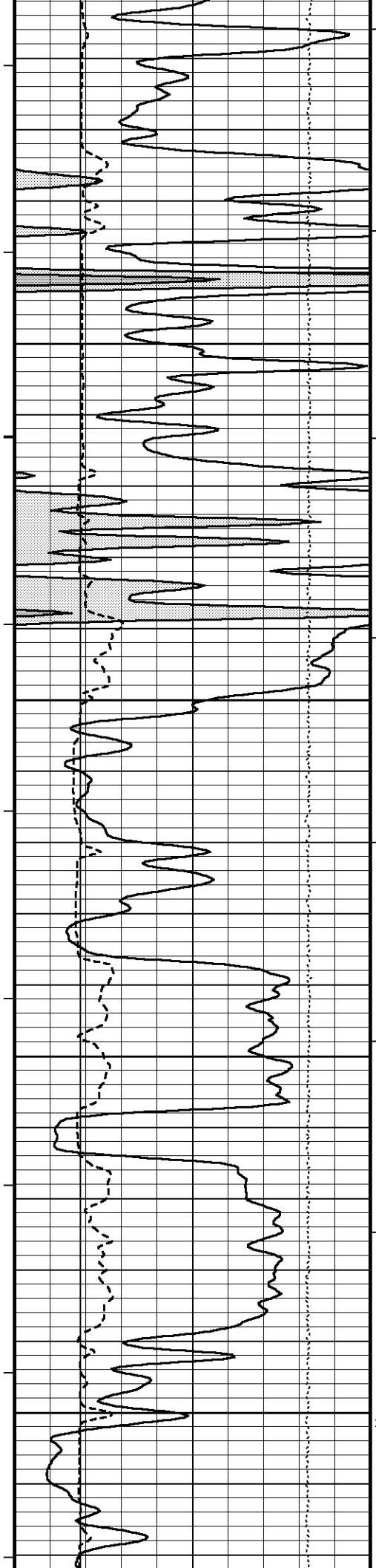
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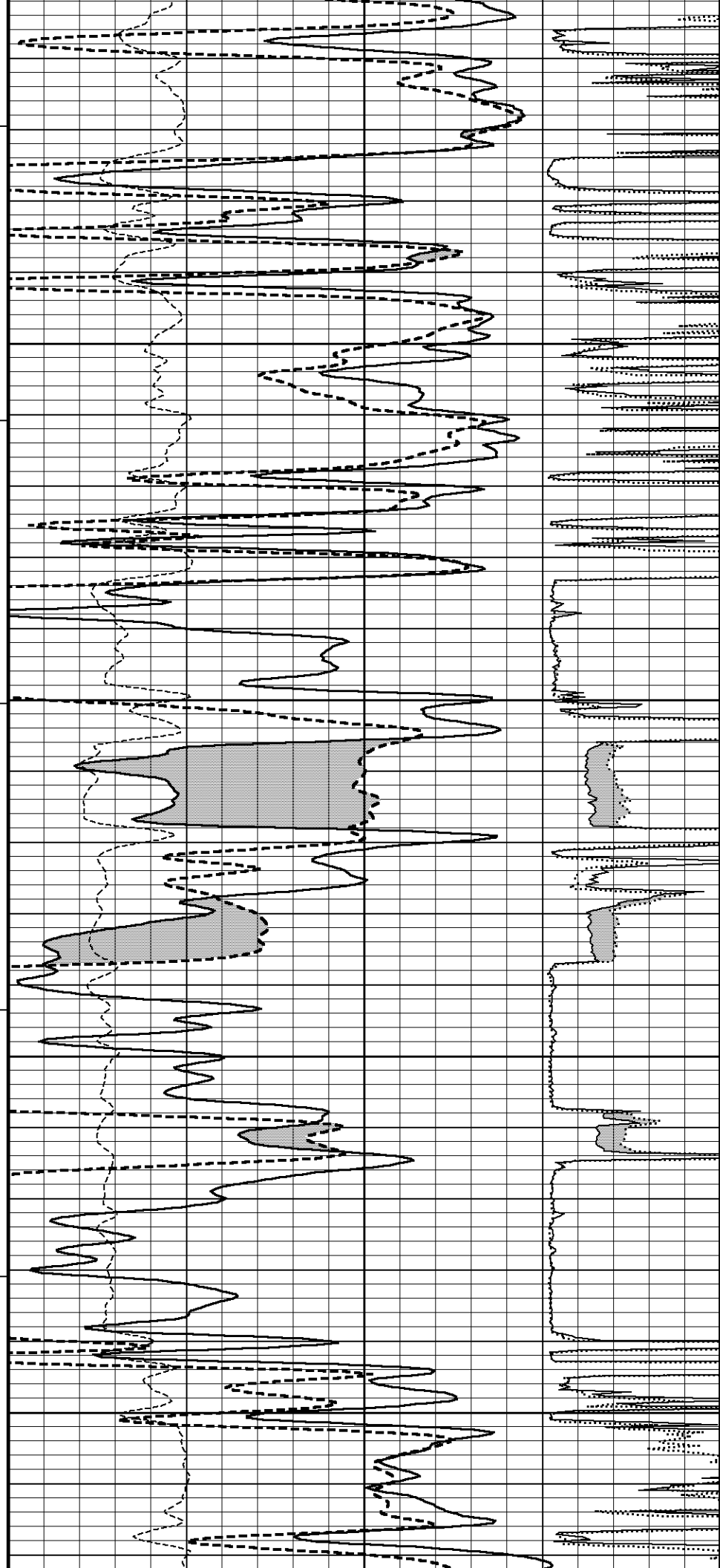


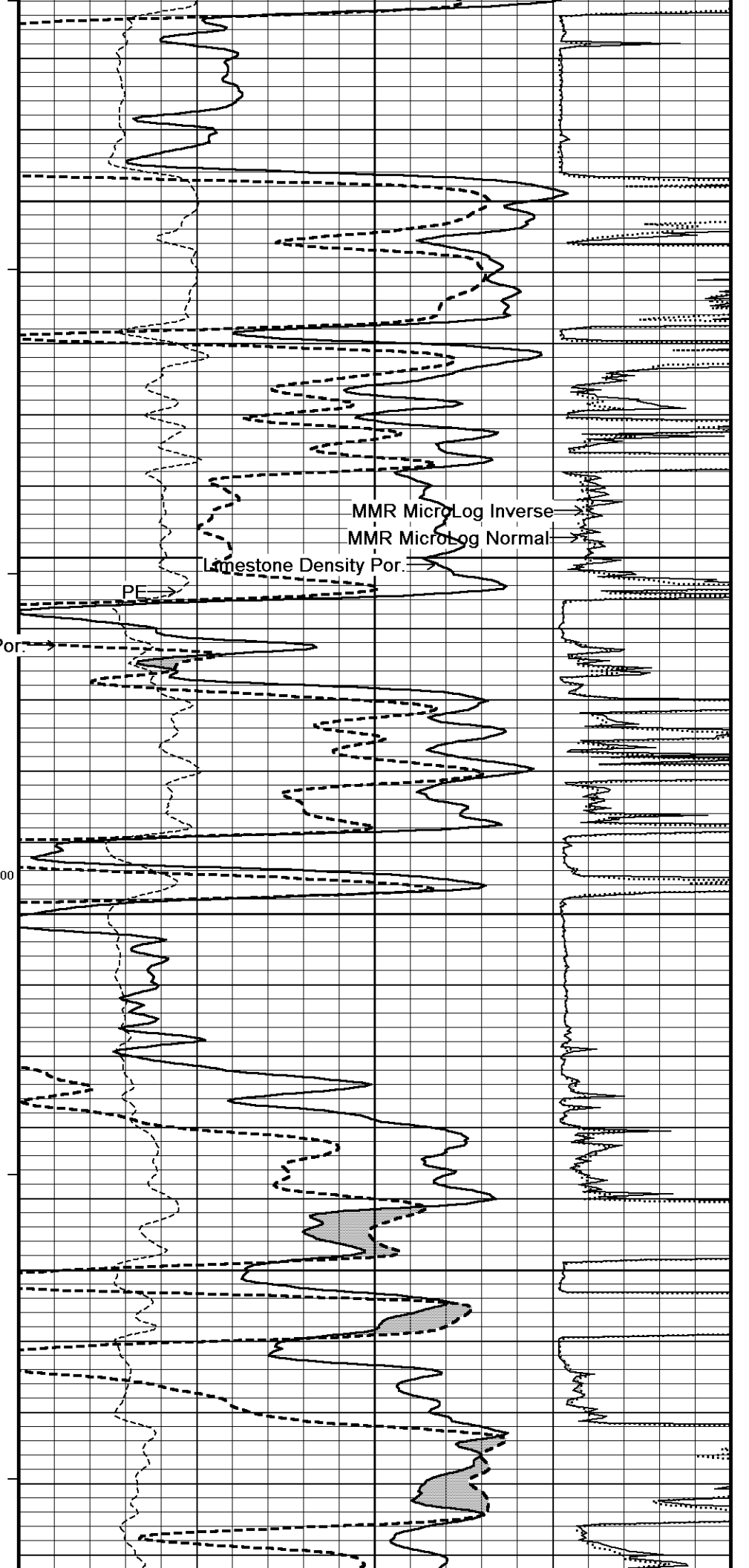
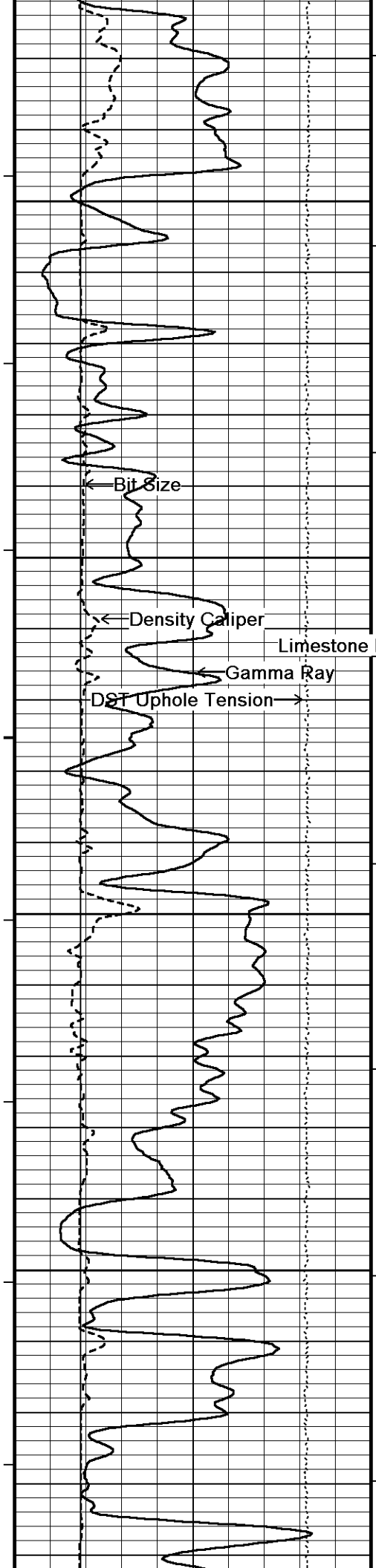
116°
5350
116°
5400
117°
5450
117°
5500
117°
5550

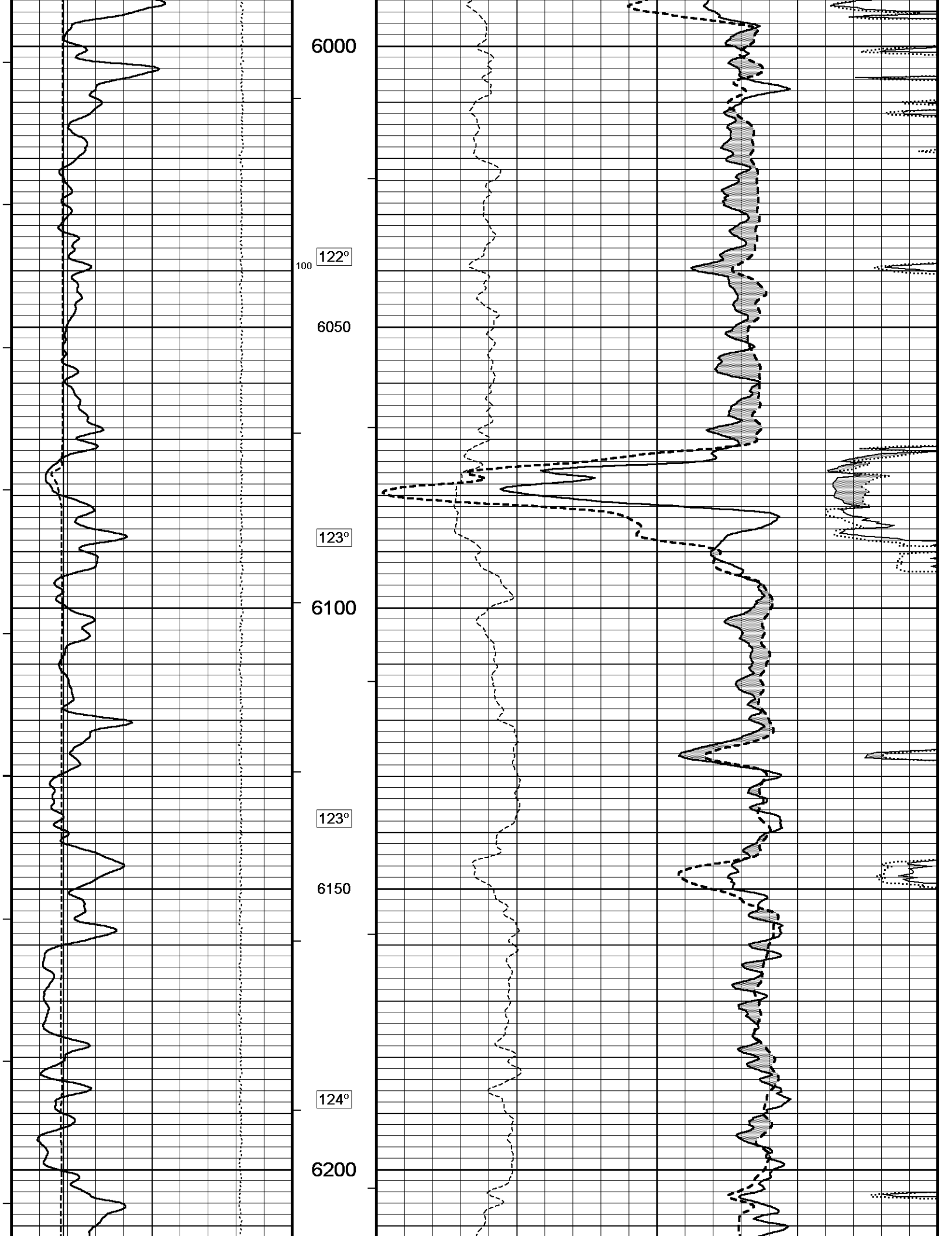


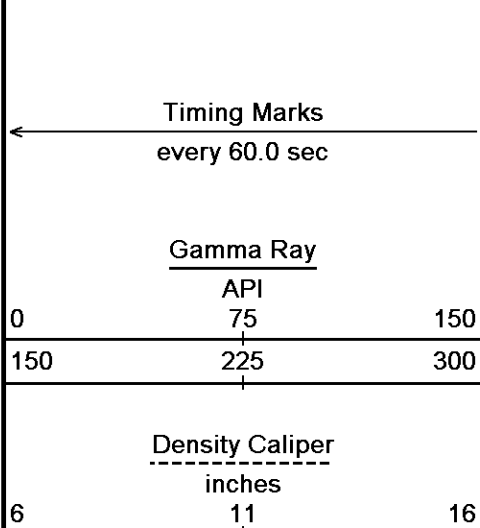
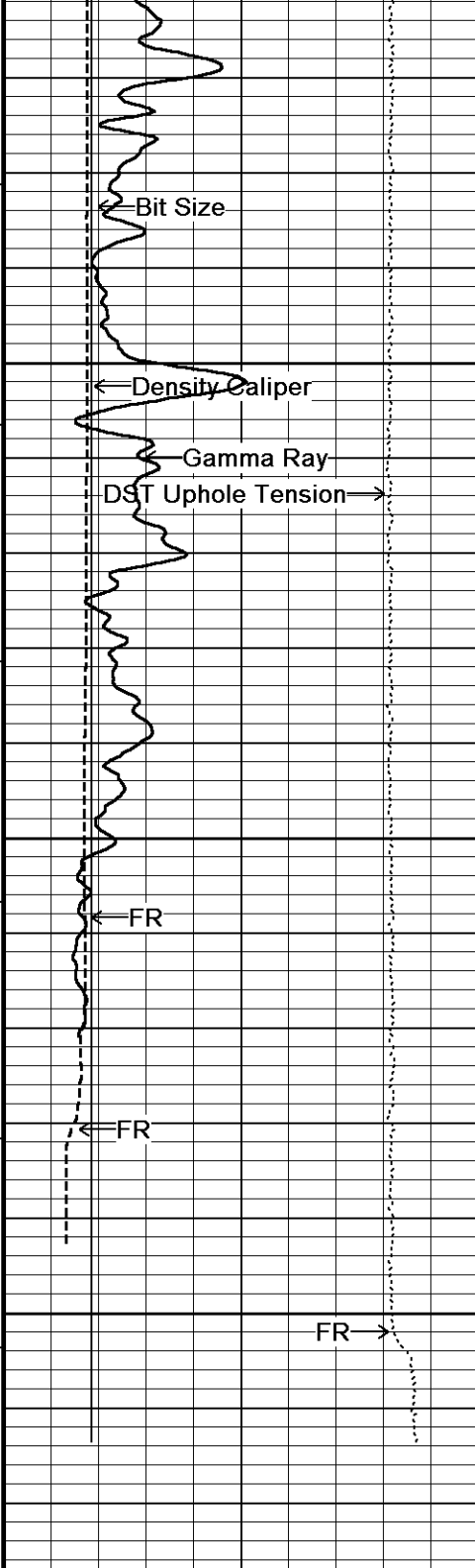


118°
5600
118°
5650
118°
5700
119°
5750
200









124°

6250

124°

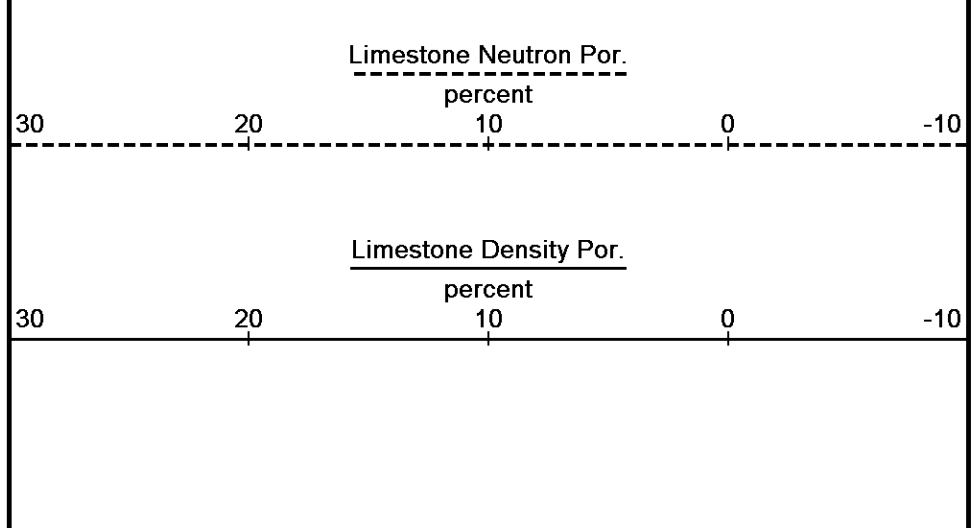
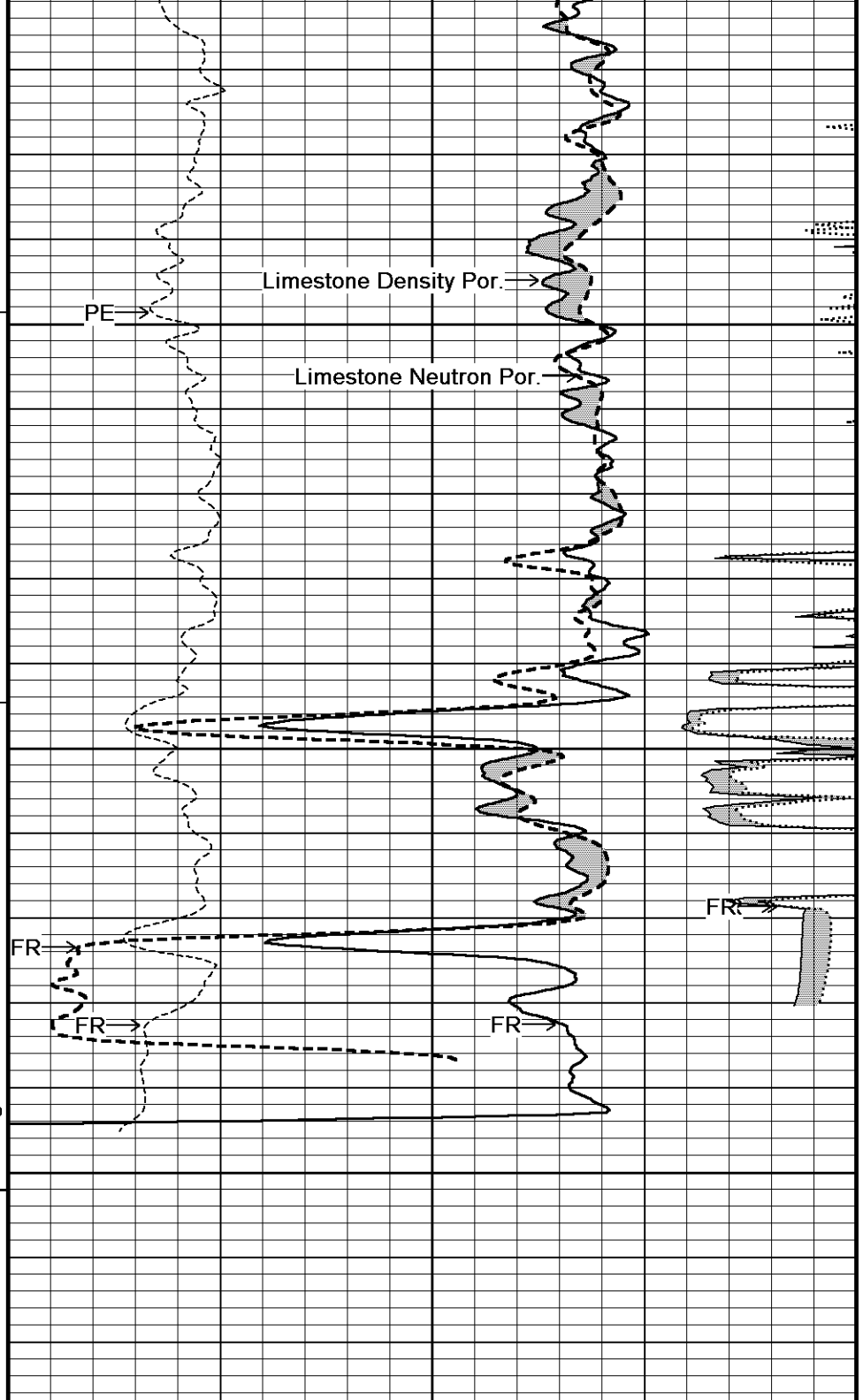
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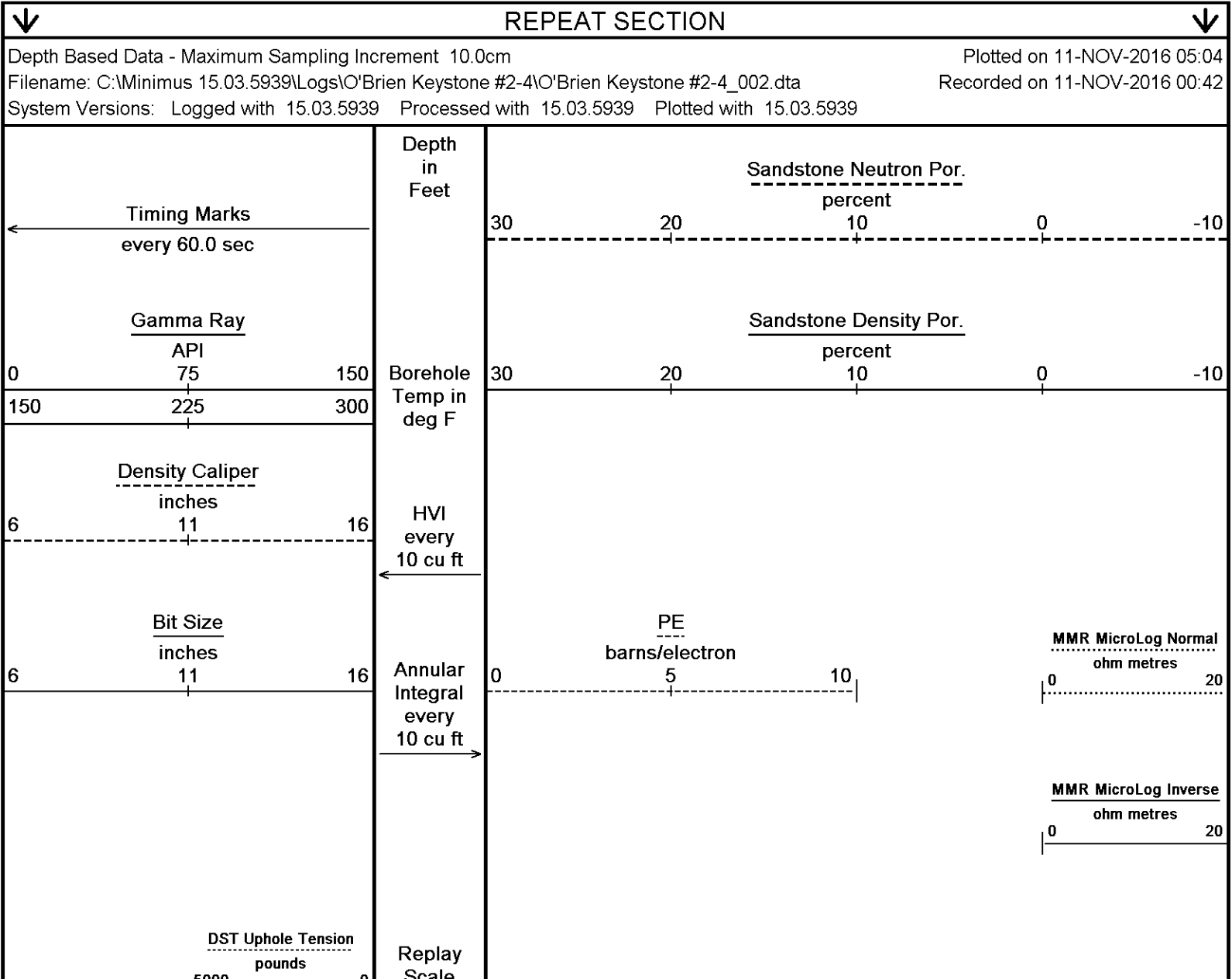
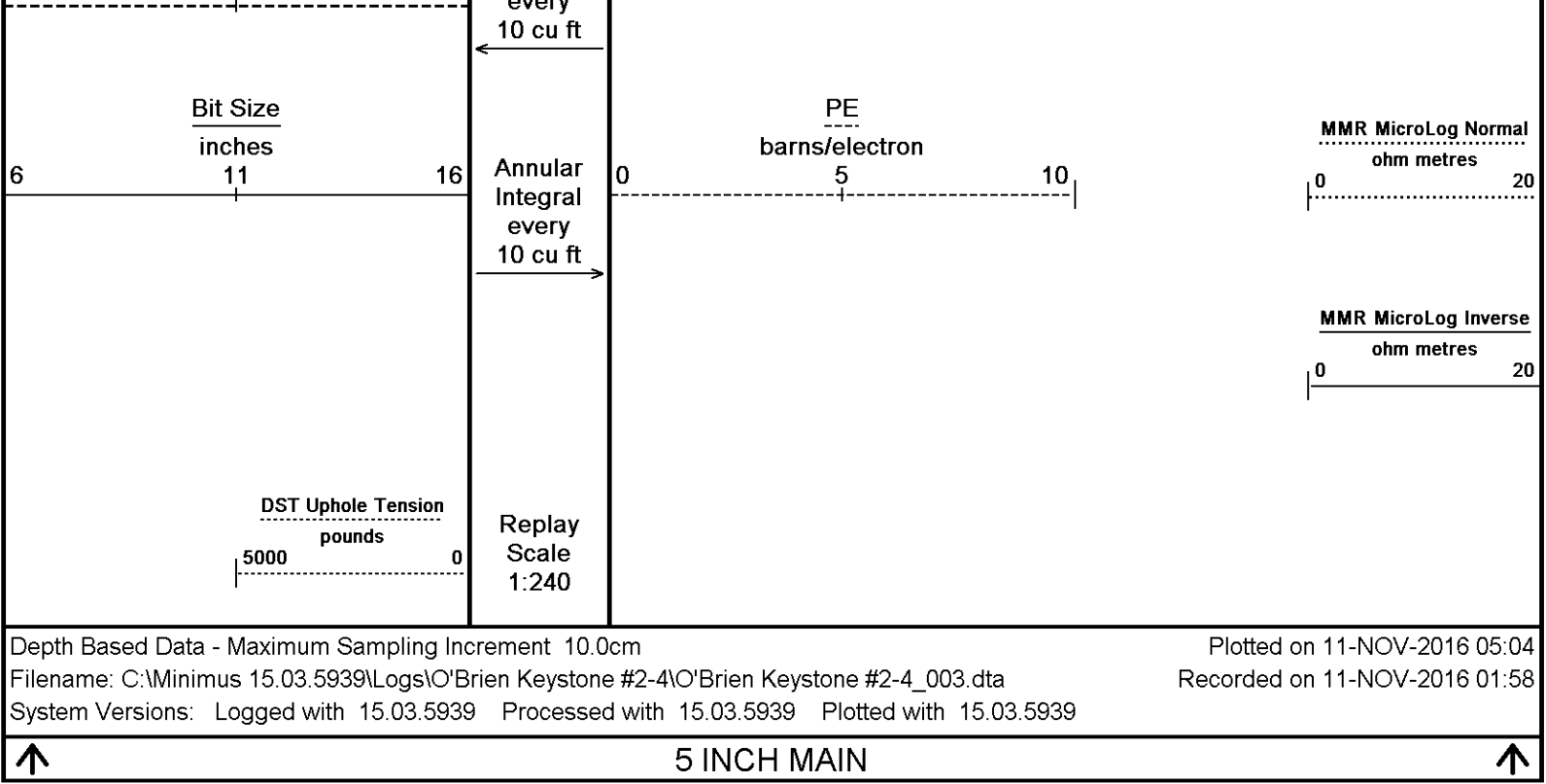
6350

Depth
in
Feet

Borehole
Temp in
deg F

HVI
every





Scale
1:240

5600

117°

5650

117°

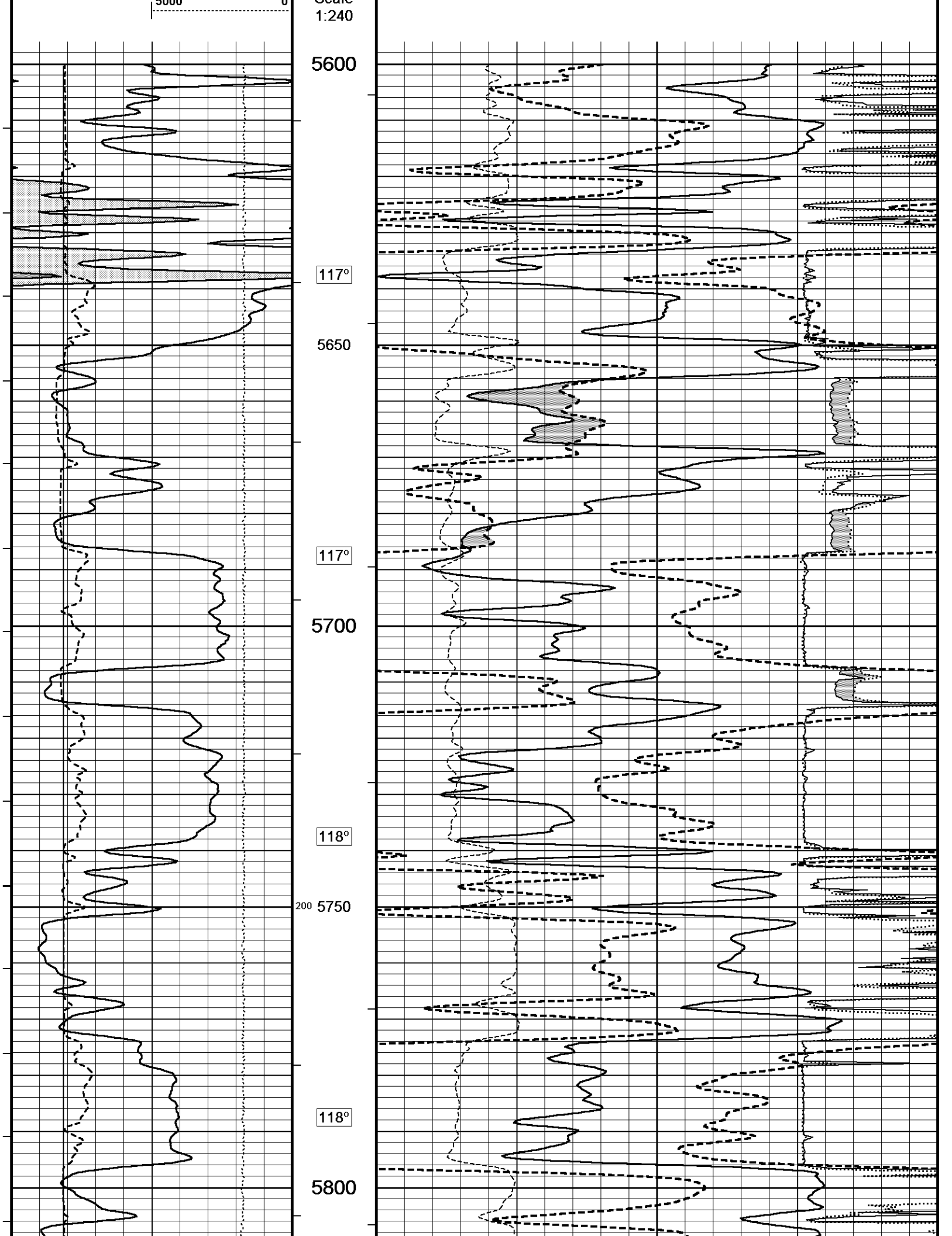
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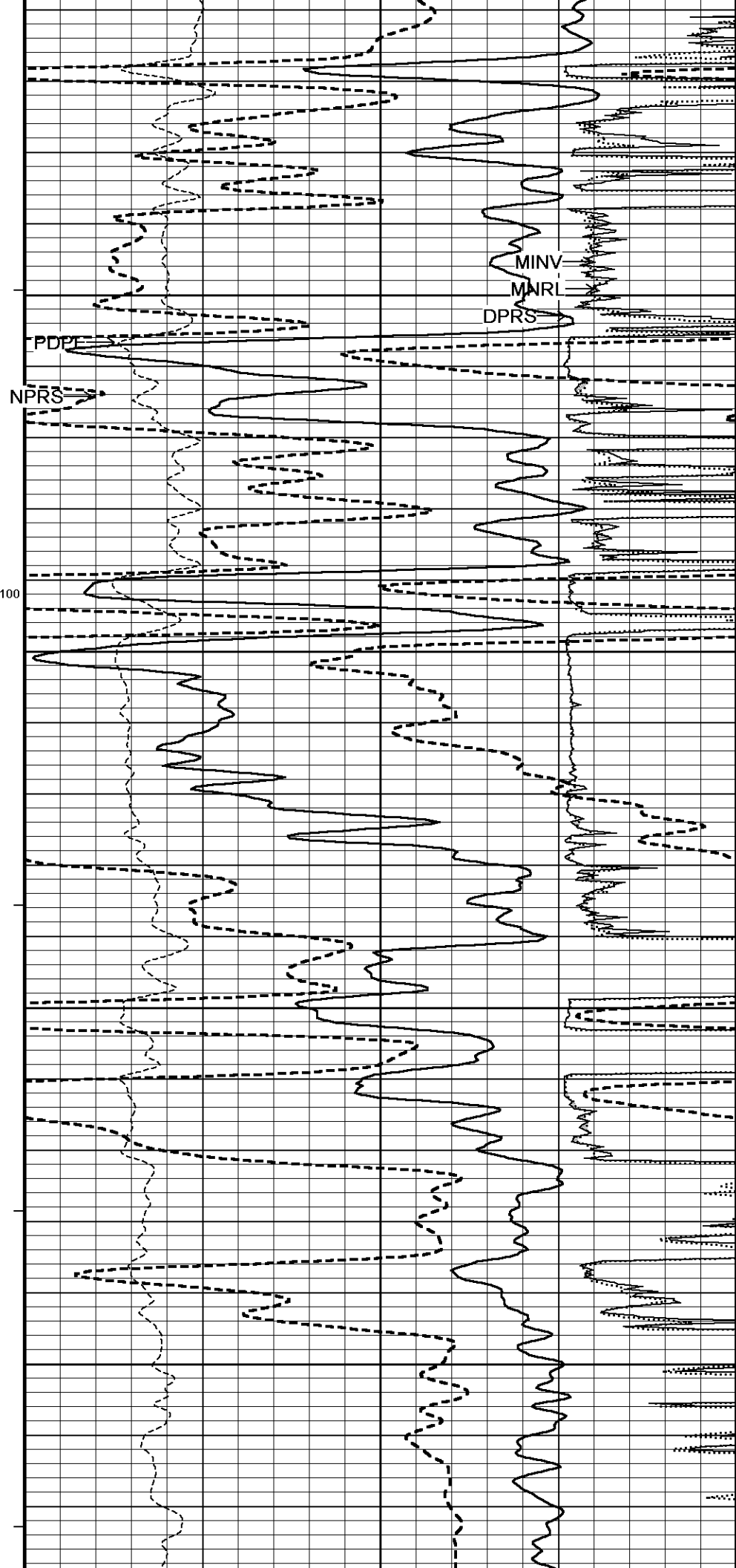
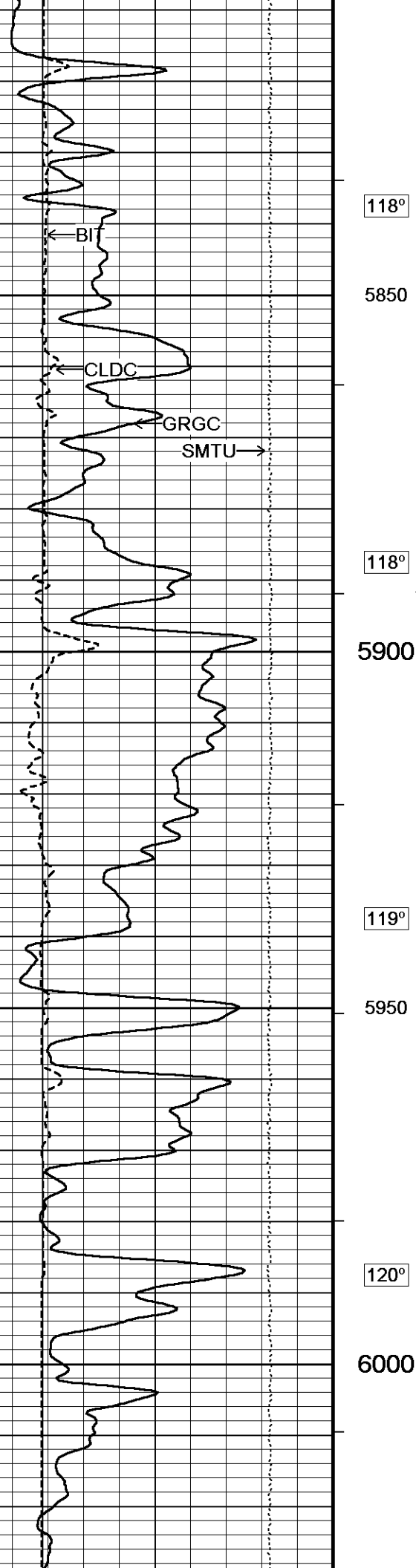
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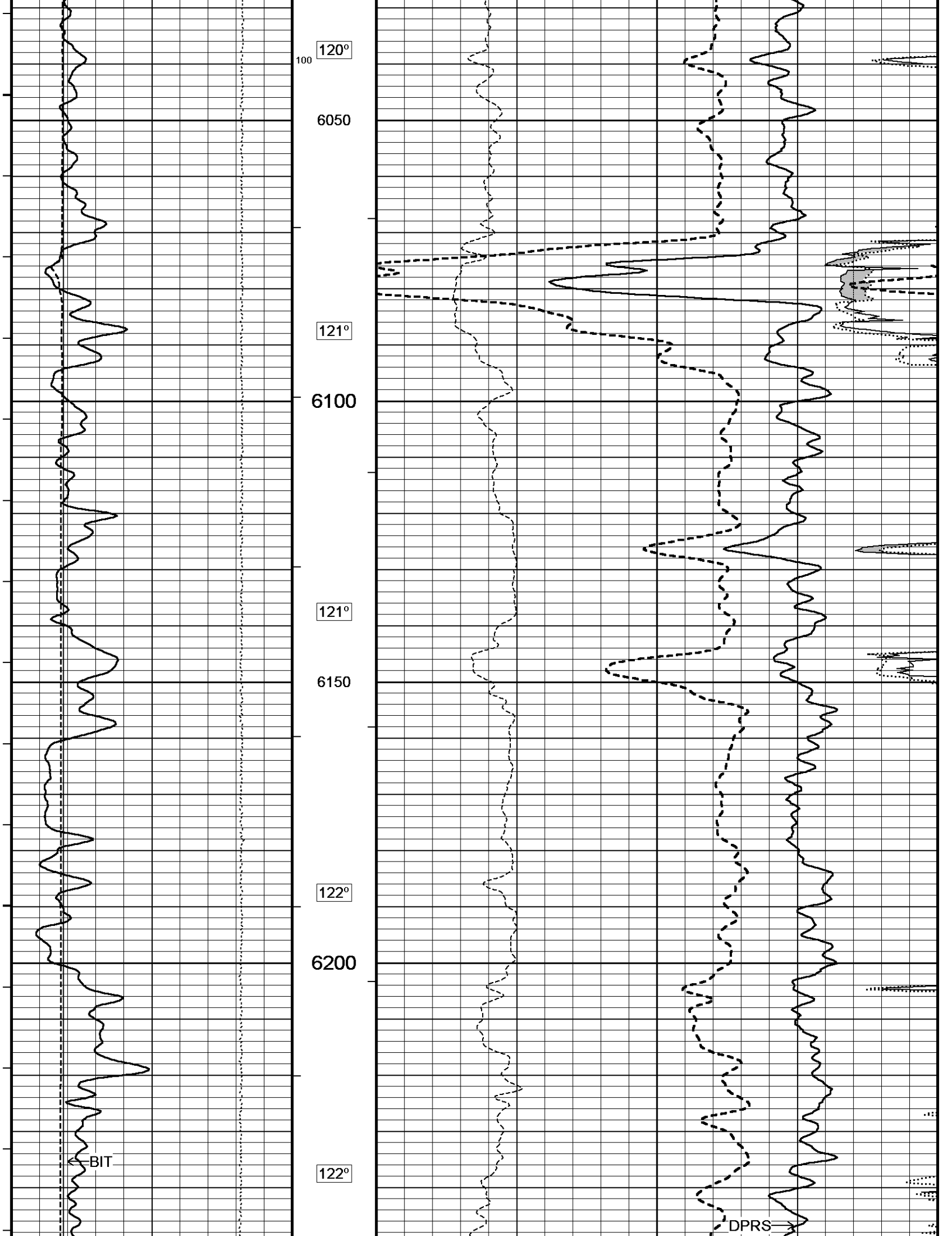
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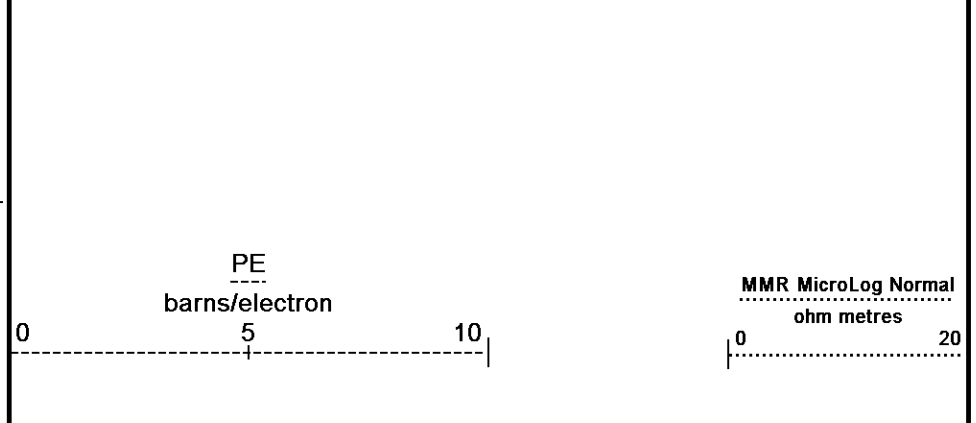
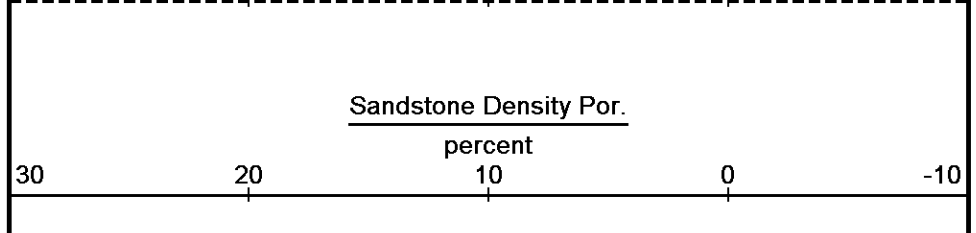
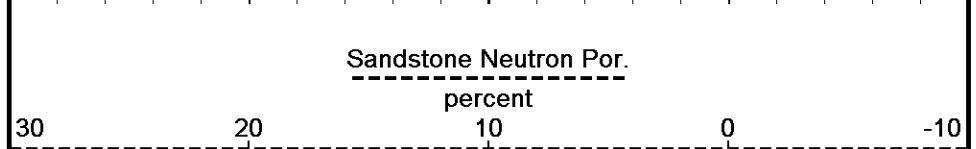
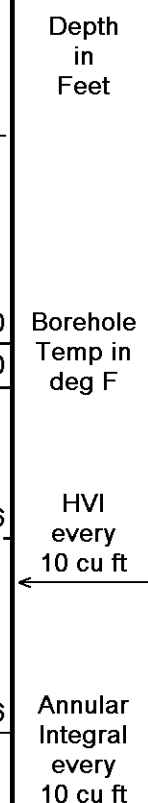
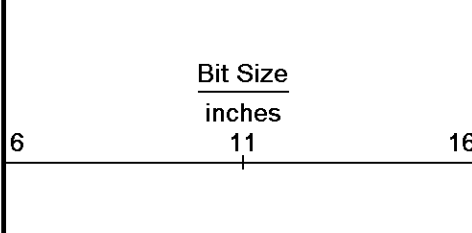
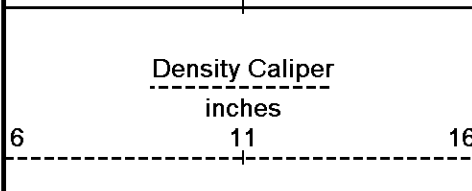
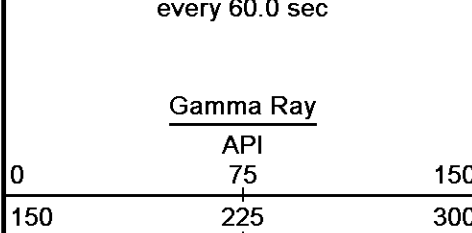
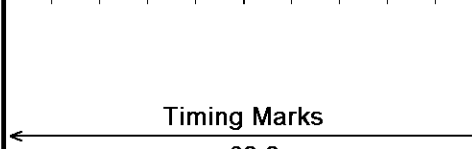
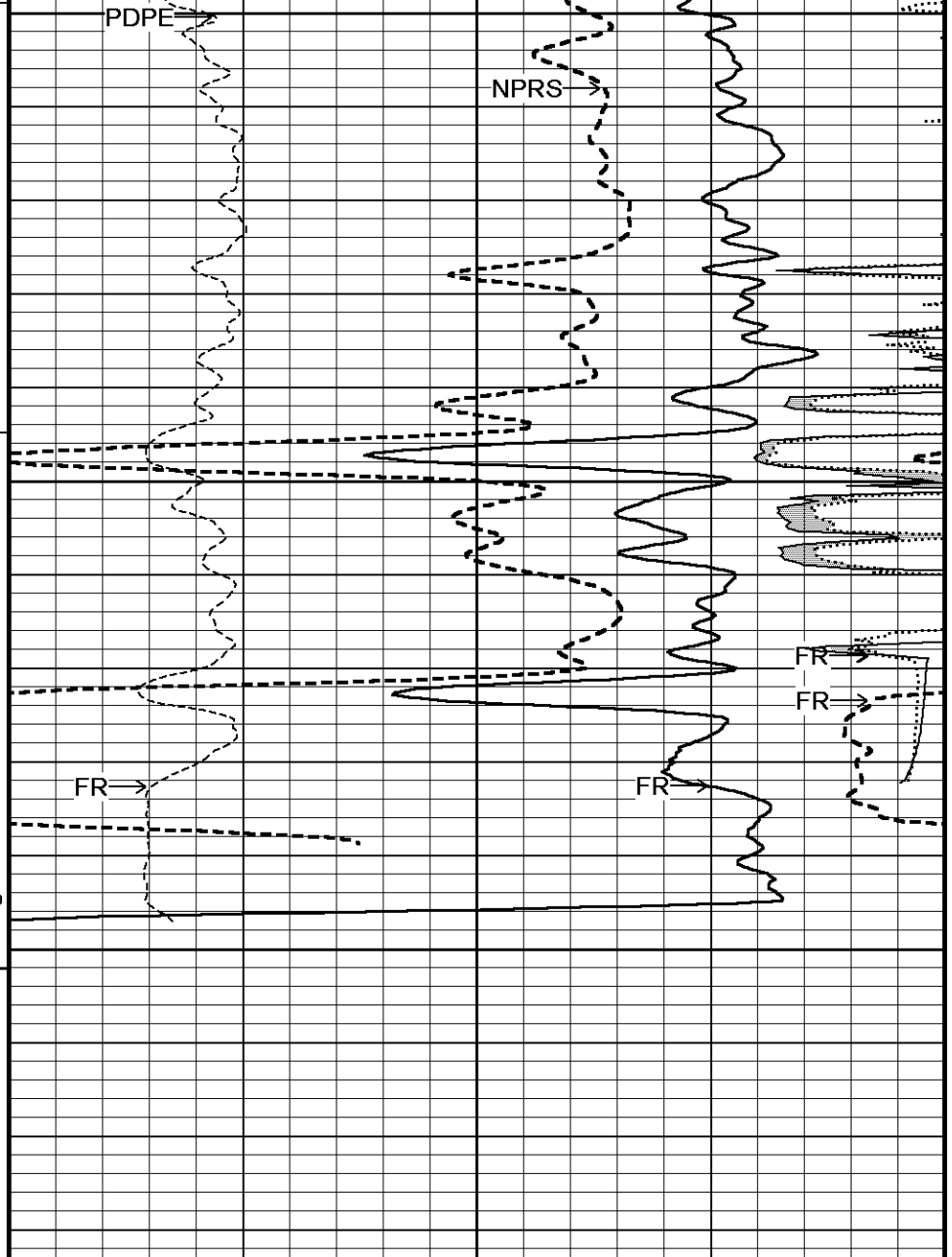
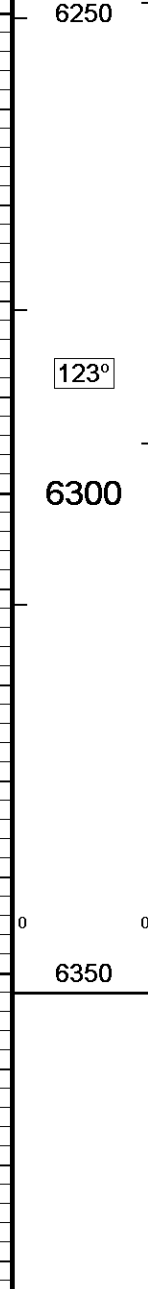
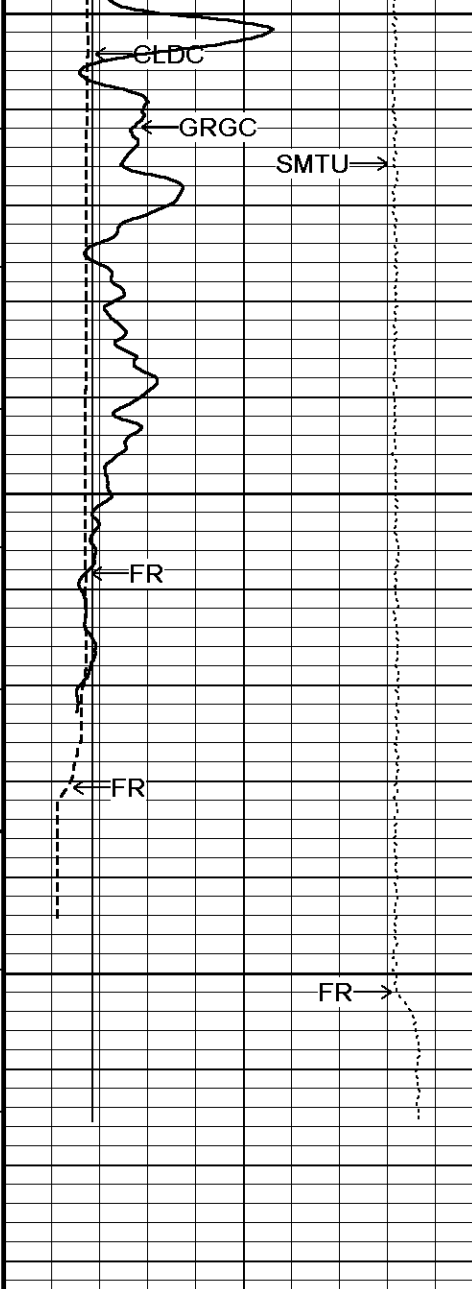
118°

5800









DST Uphole Tension
pounds

50000

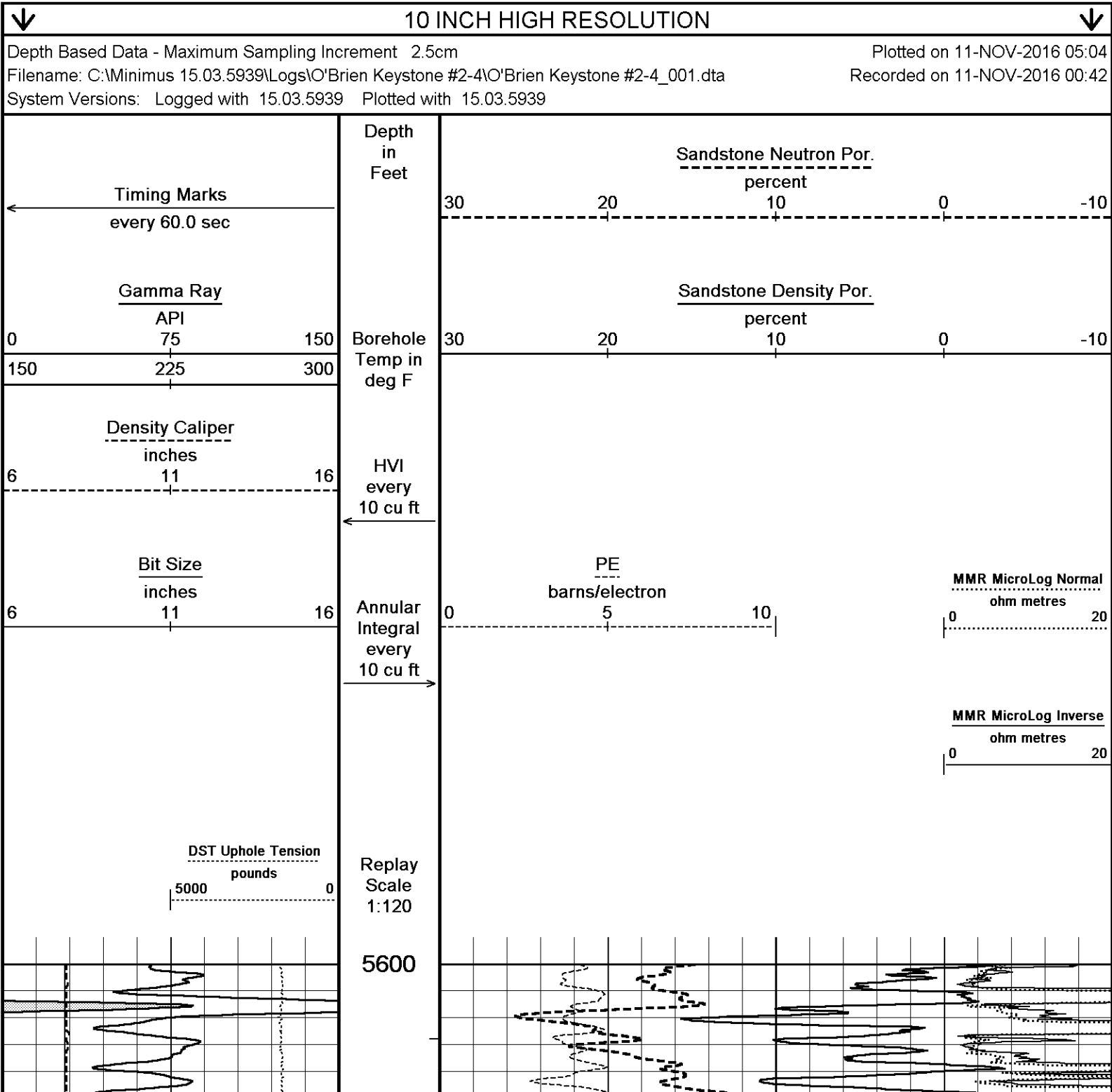
Replay
Scale
1:240

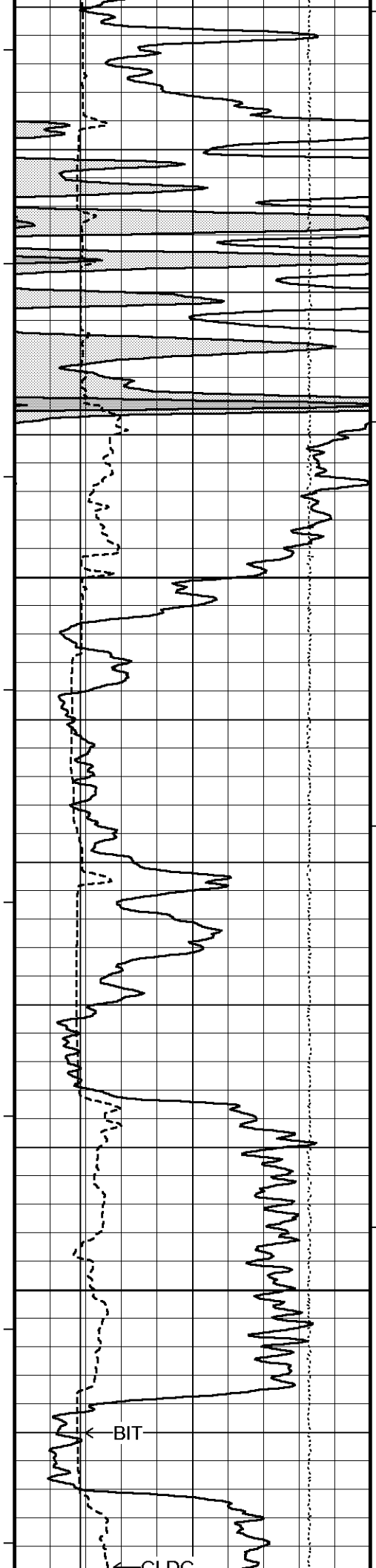
MMR MicroLog Inverse
ohm metres

020

Depth Based Data - Maximum Sampling Increment 10.0cmPlotted on 11-NOV-2016 05:04
Filename: C:\Minimus 15.03.5939\Logs\O'Brien Keystone #2-4\O'Brien Keystone #2-4_002.dtaRecorded on 11-NOV-2016 00:42
System Versions: Logged with 15.03.5939 Processed with 15.03.5939 Plotted with 15.03.5939

↑REPEAT SECTION↑



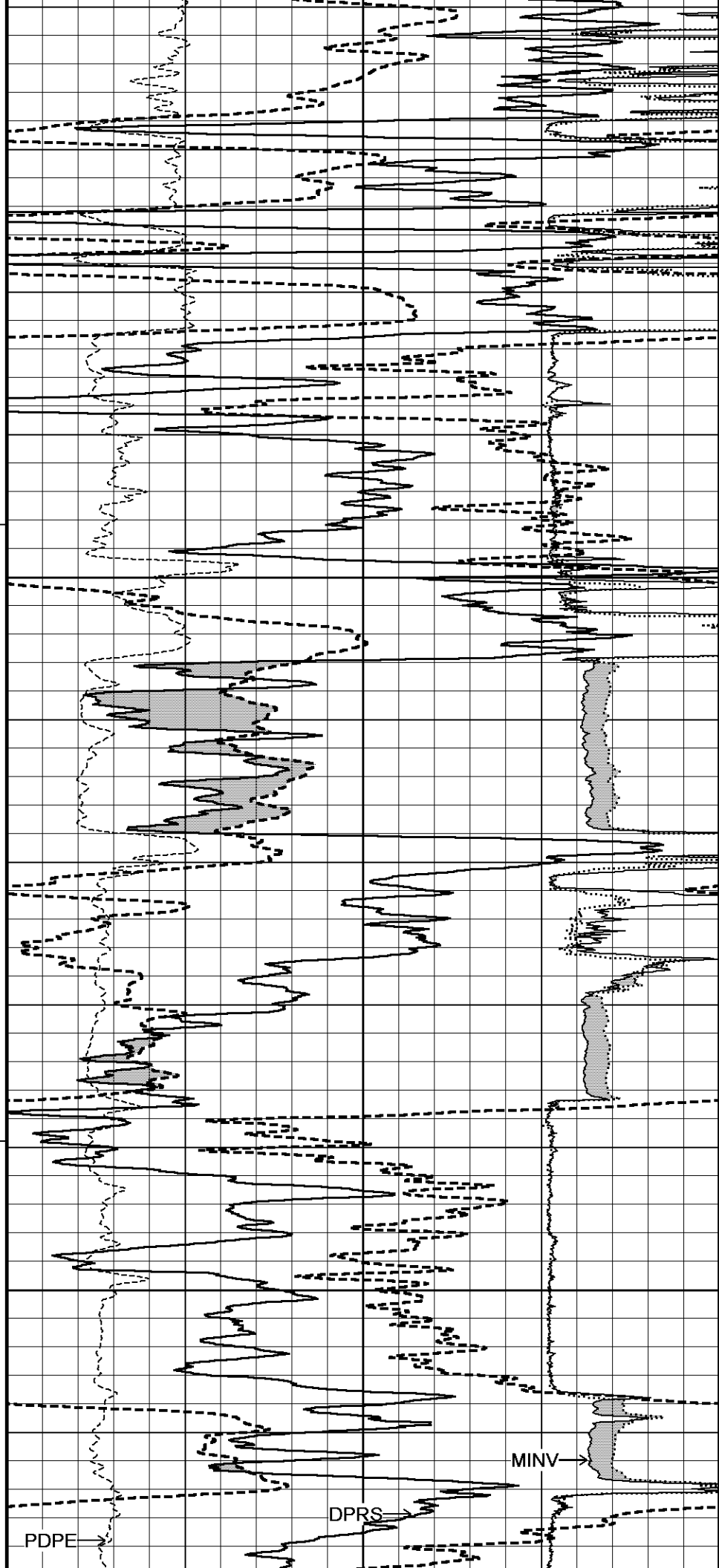


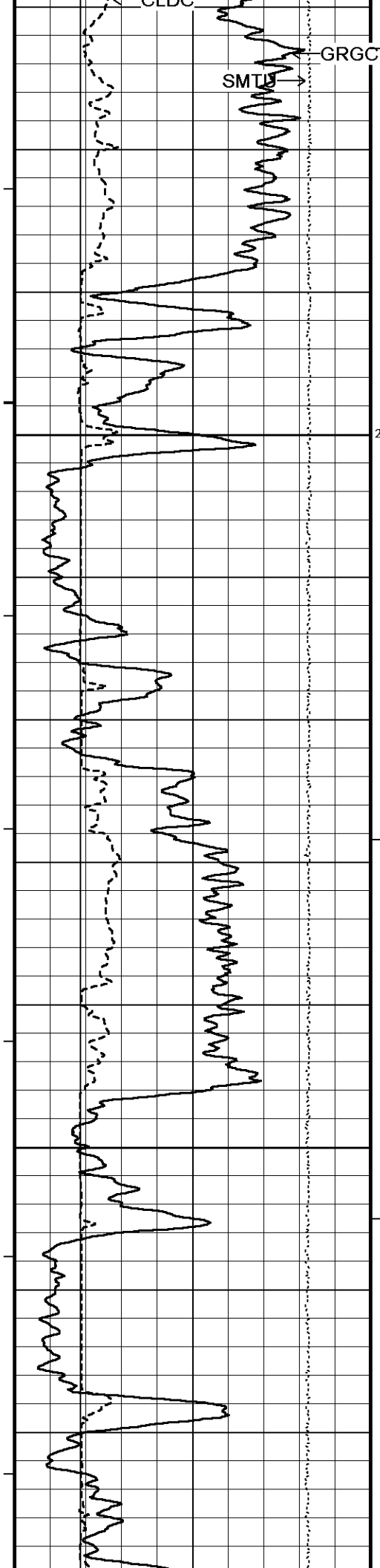
117°

5650

117°

5700



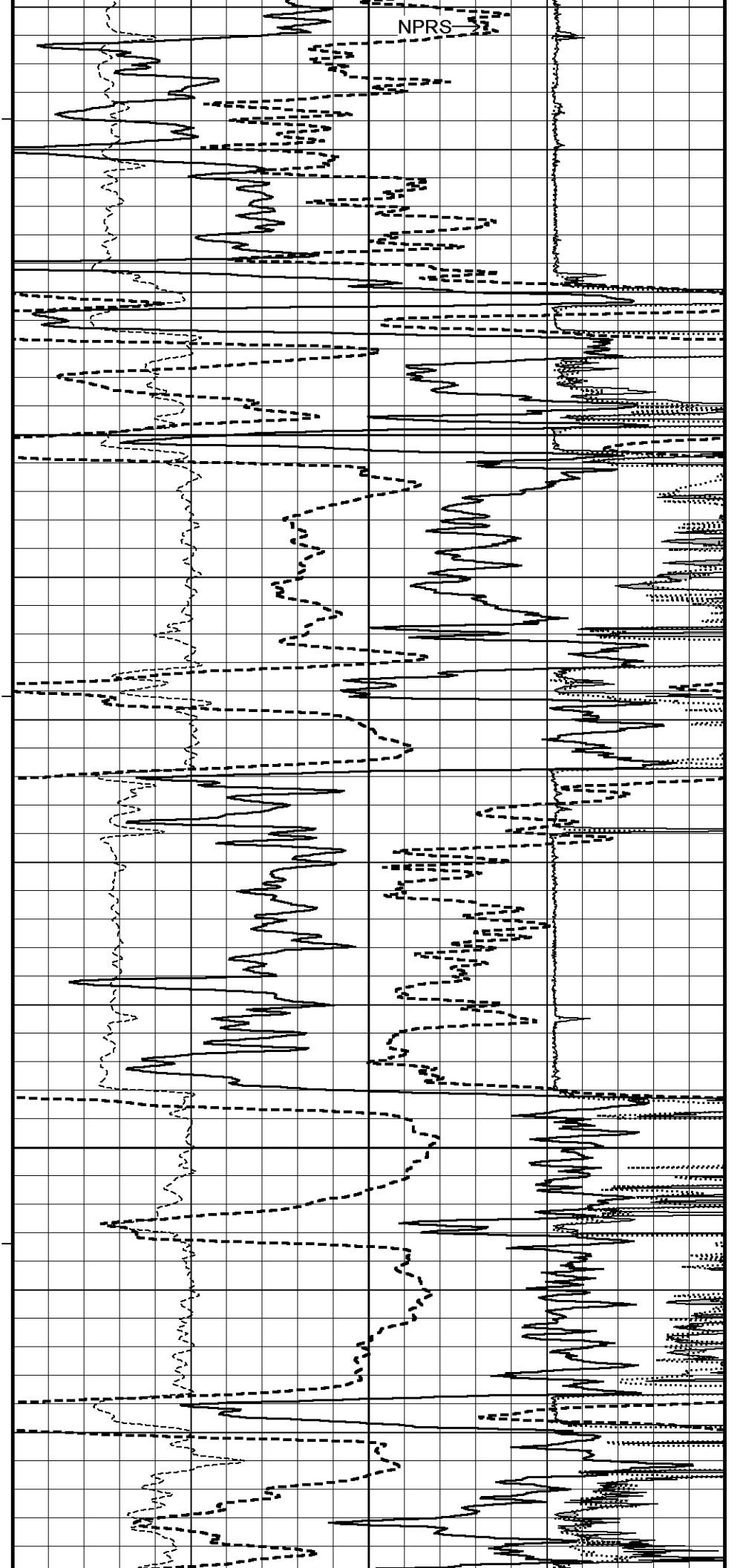


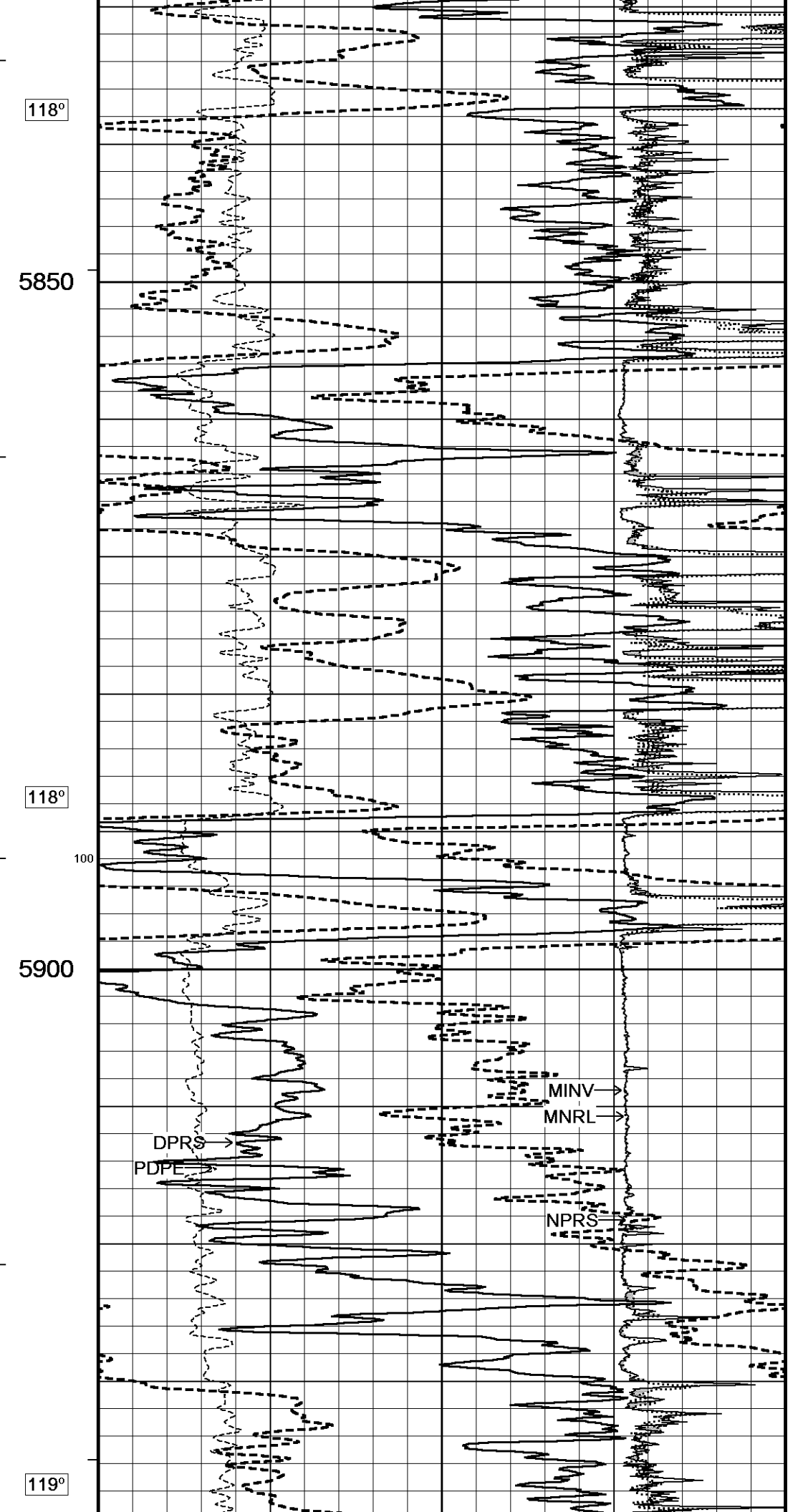
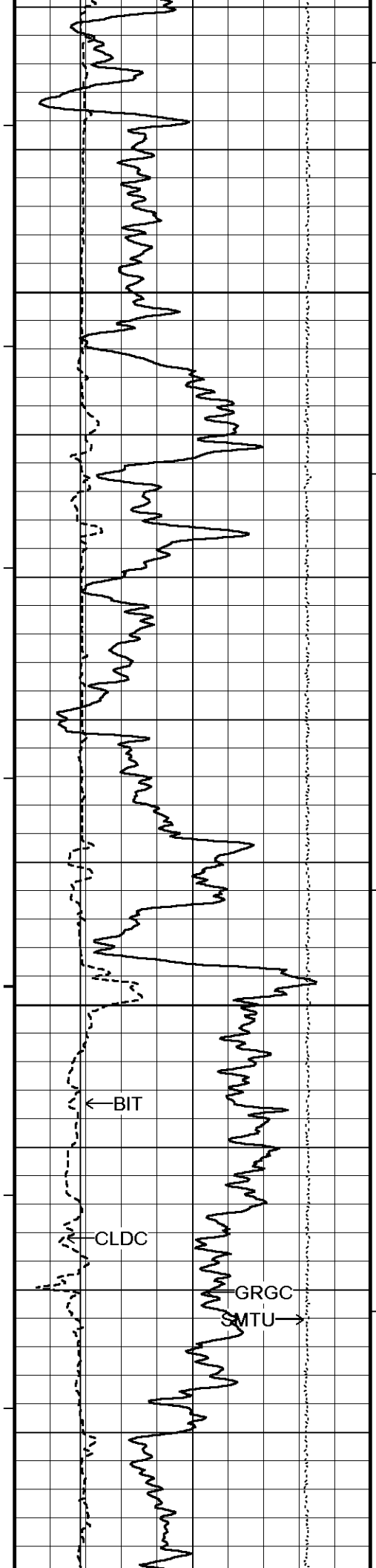
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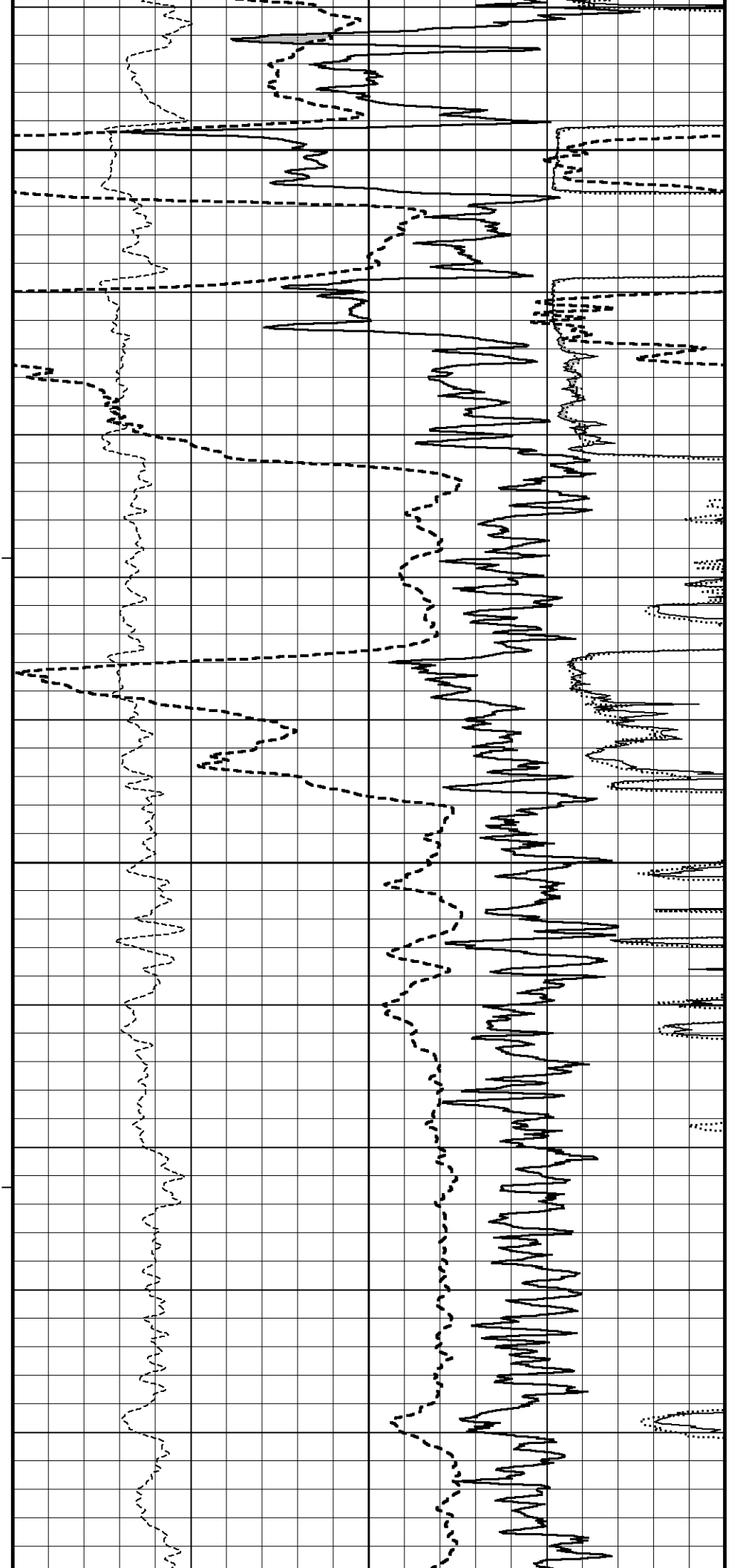
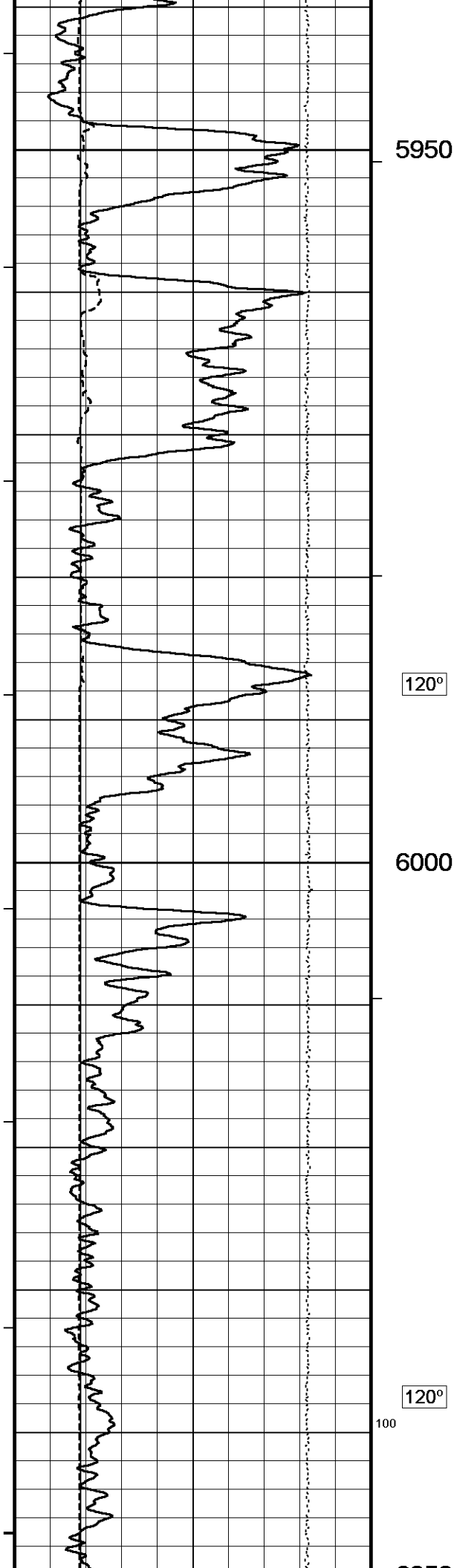
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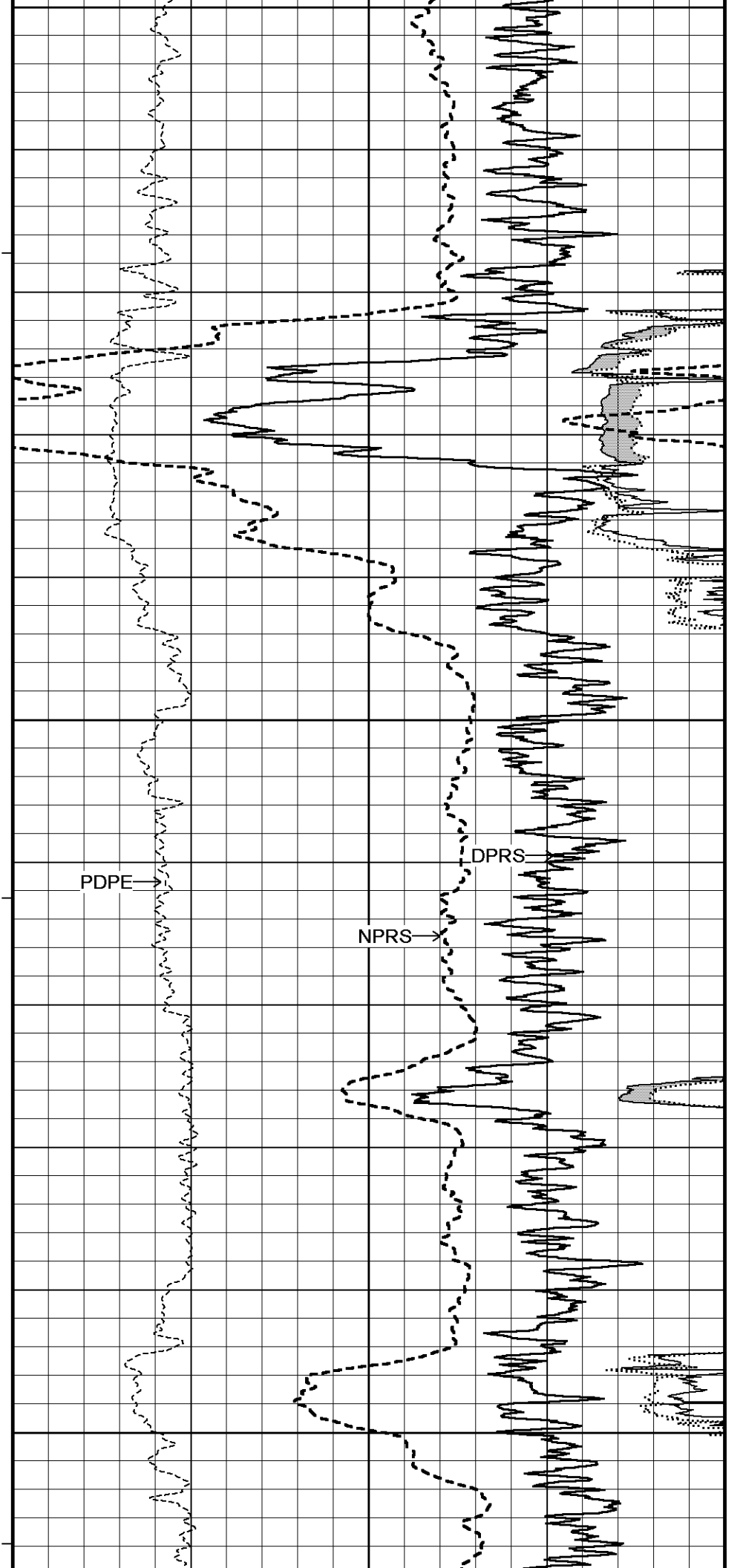
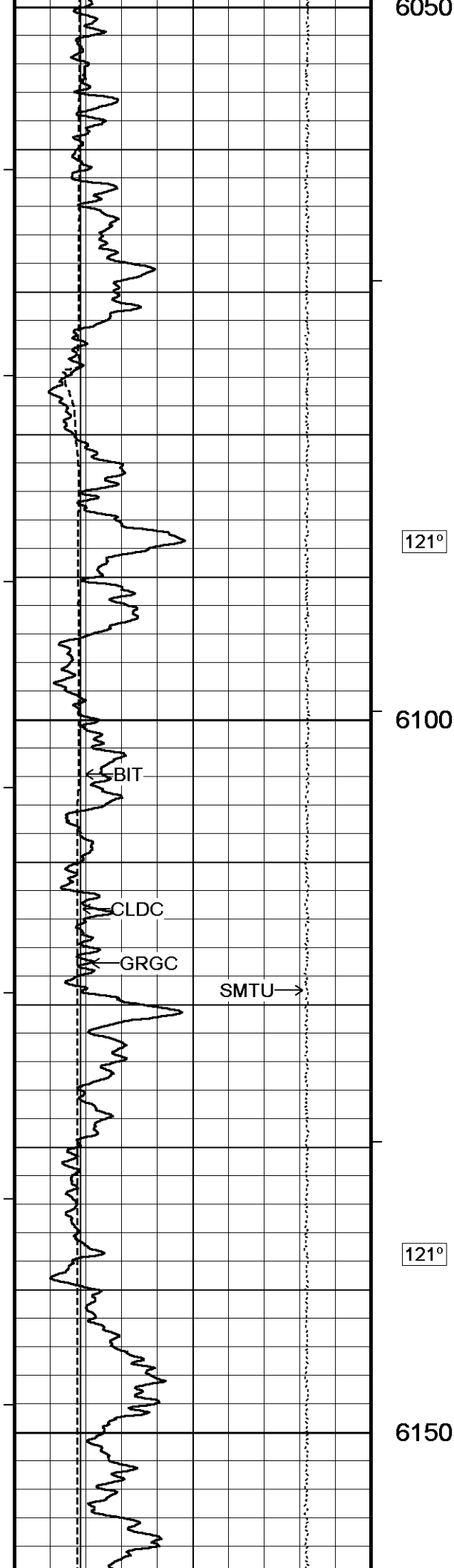
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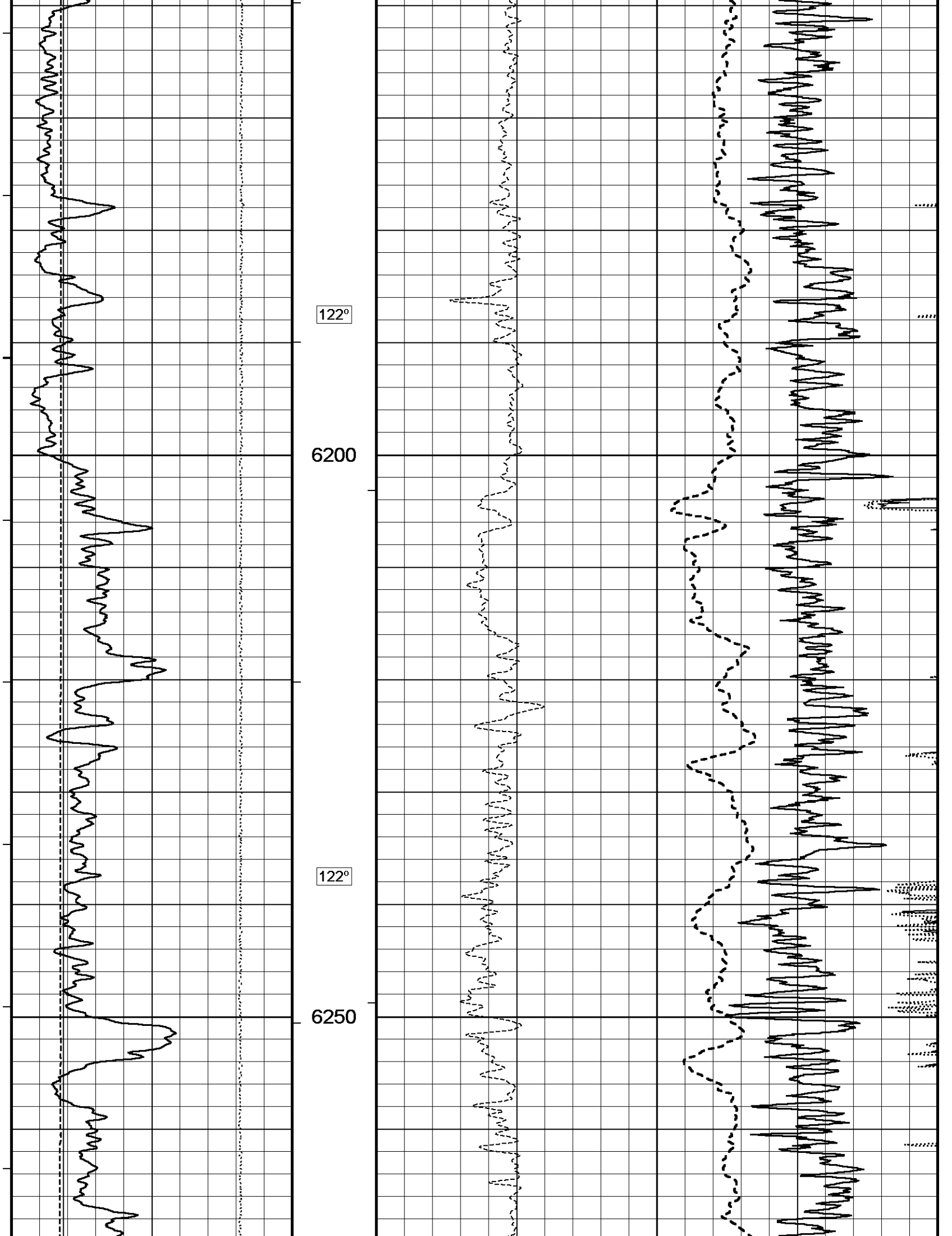
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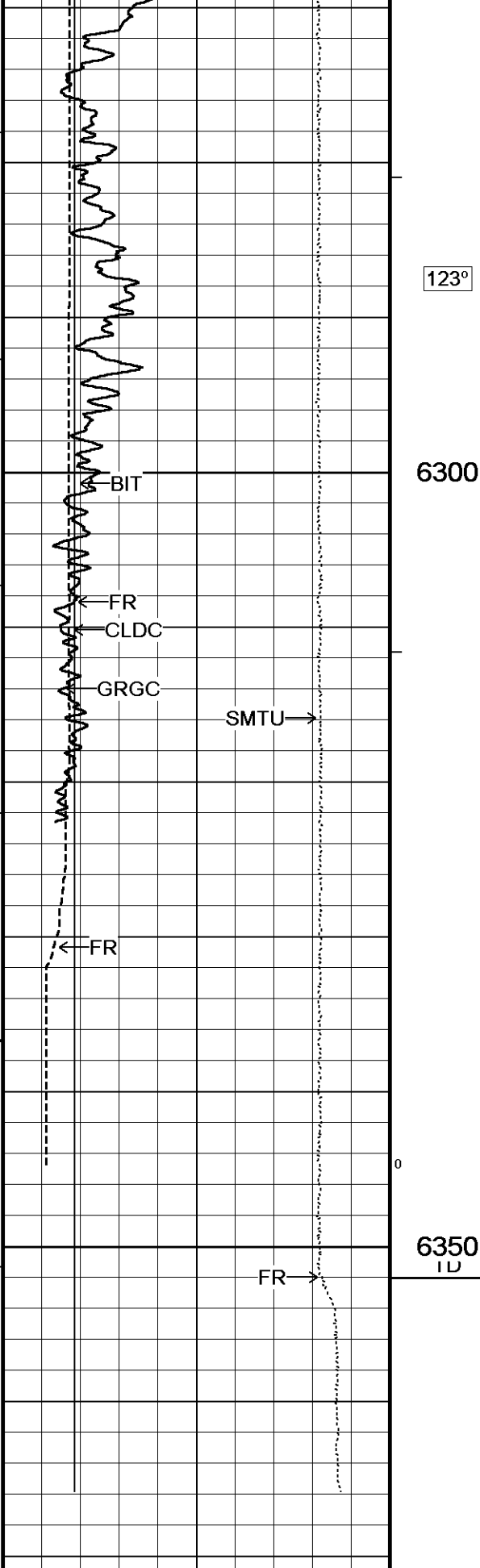












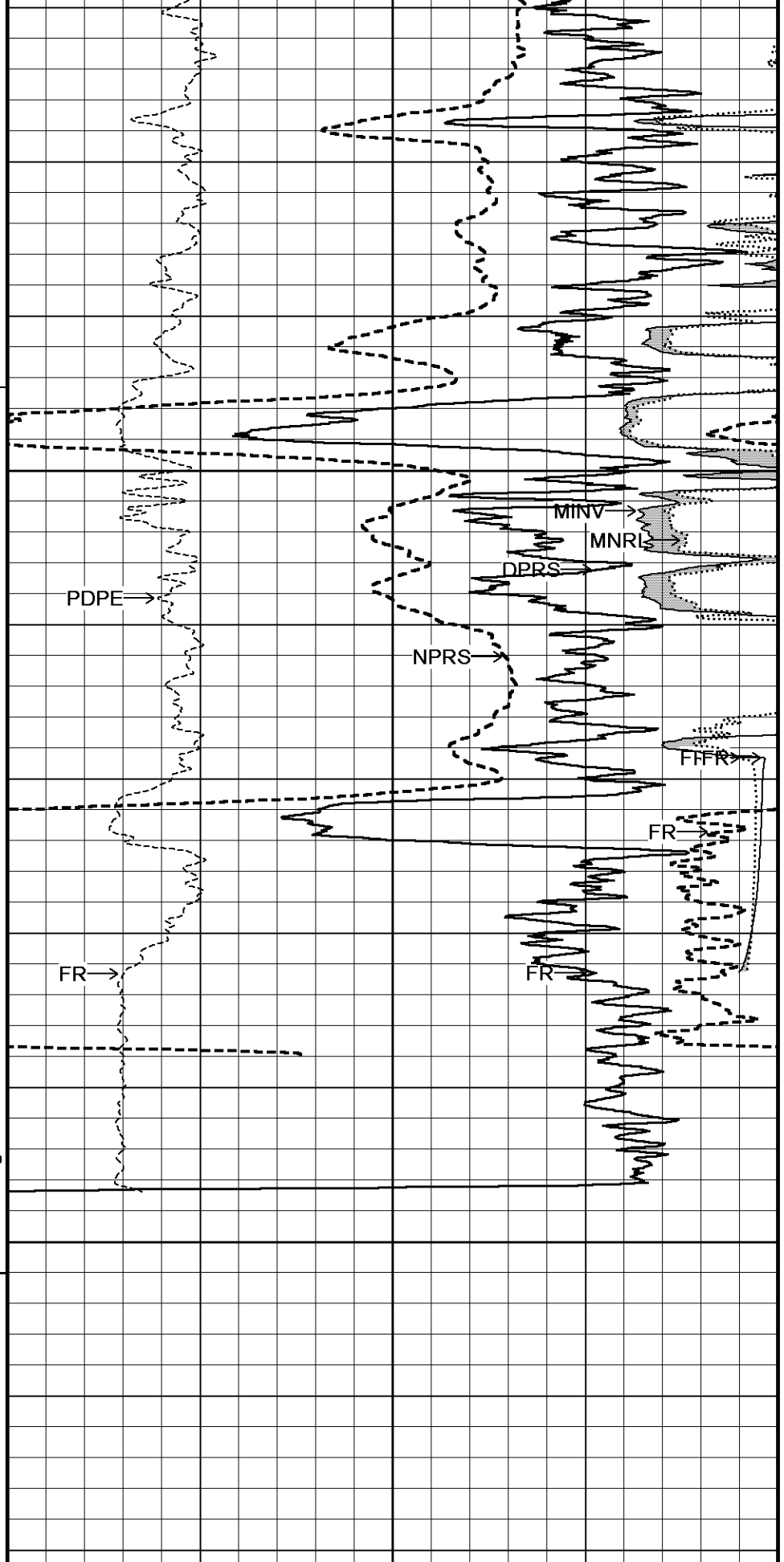
123°

6300

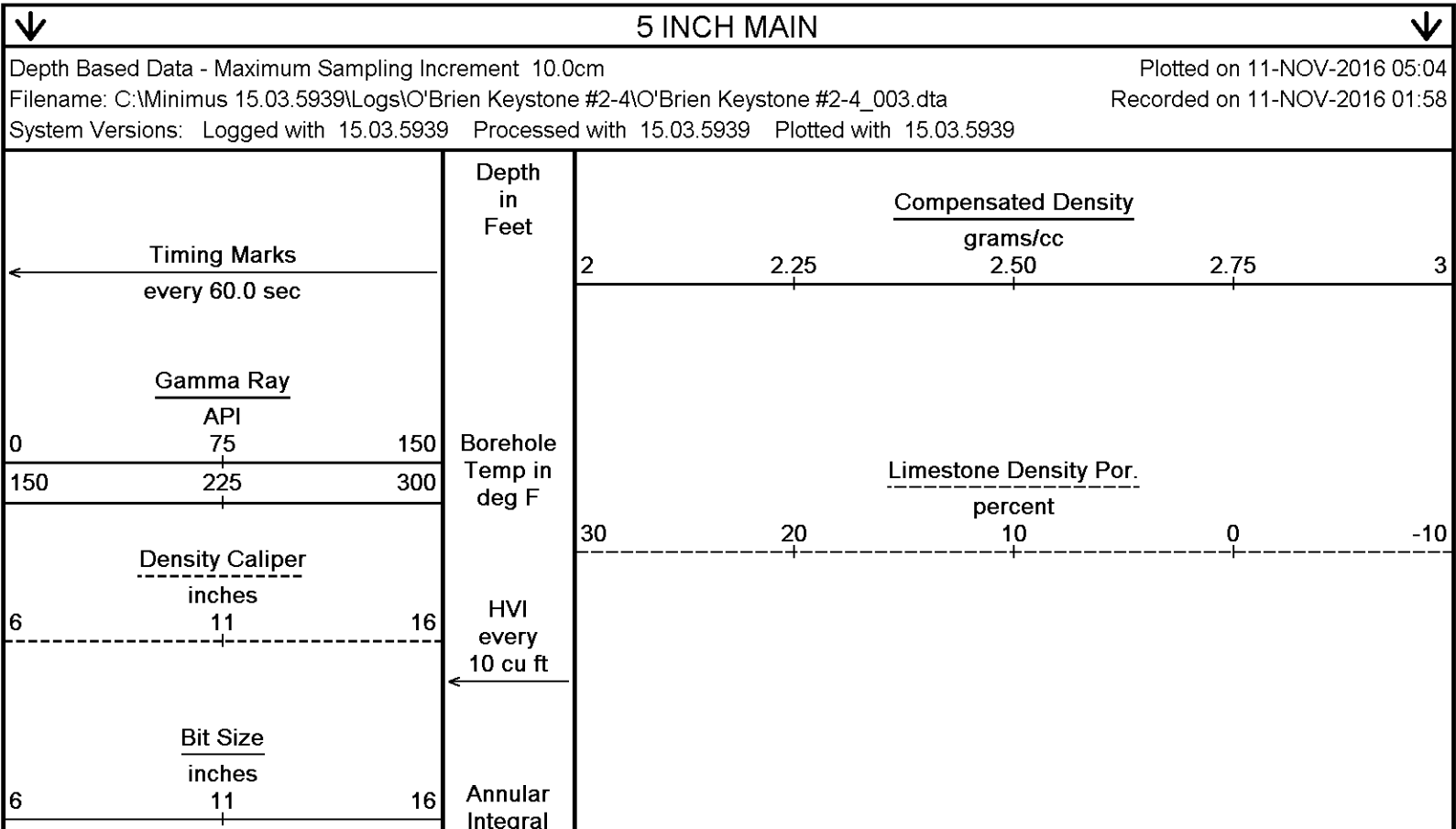
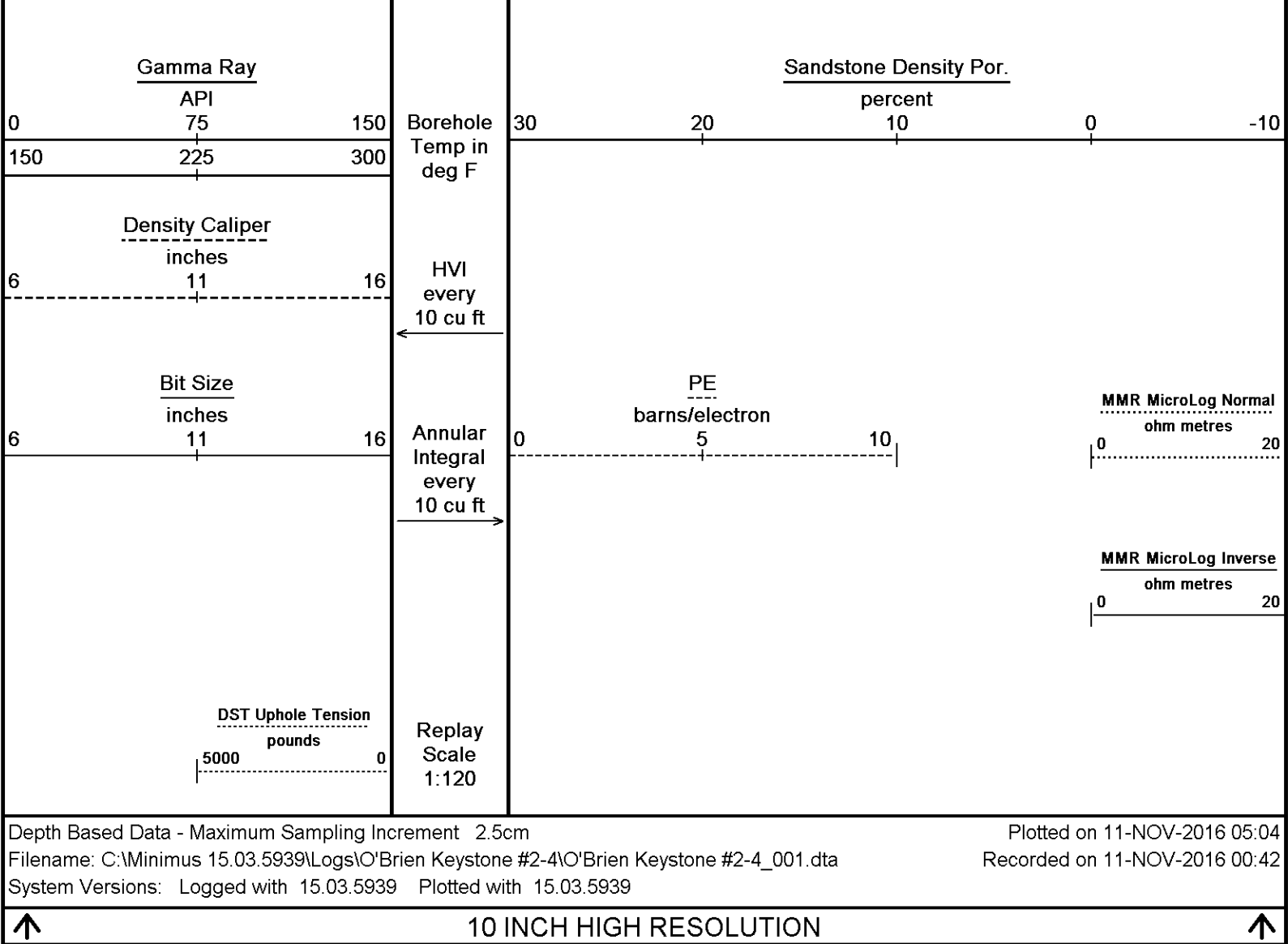
6350
ID

Depth
in
Feet

Timing Marks
every 60.0 sec



Sandstone Neutron Por.
percent
30 20 10 0 -10



every
10 cu ft
→

DST Uphole Tension
pounds
5000 0

Replay
Scale
1:240

4000

800

106°

4050

106°

4100

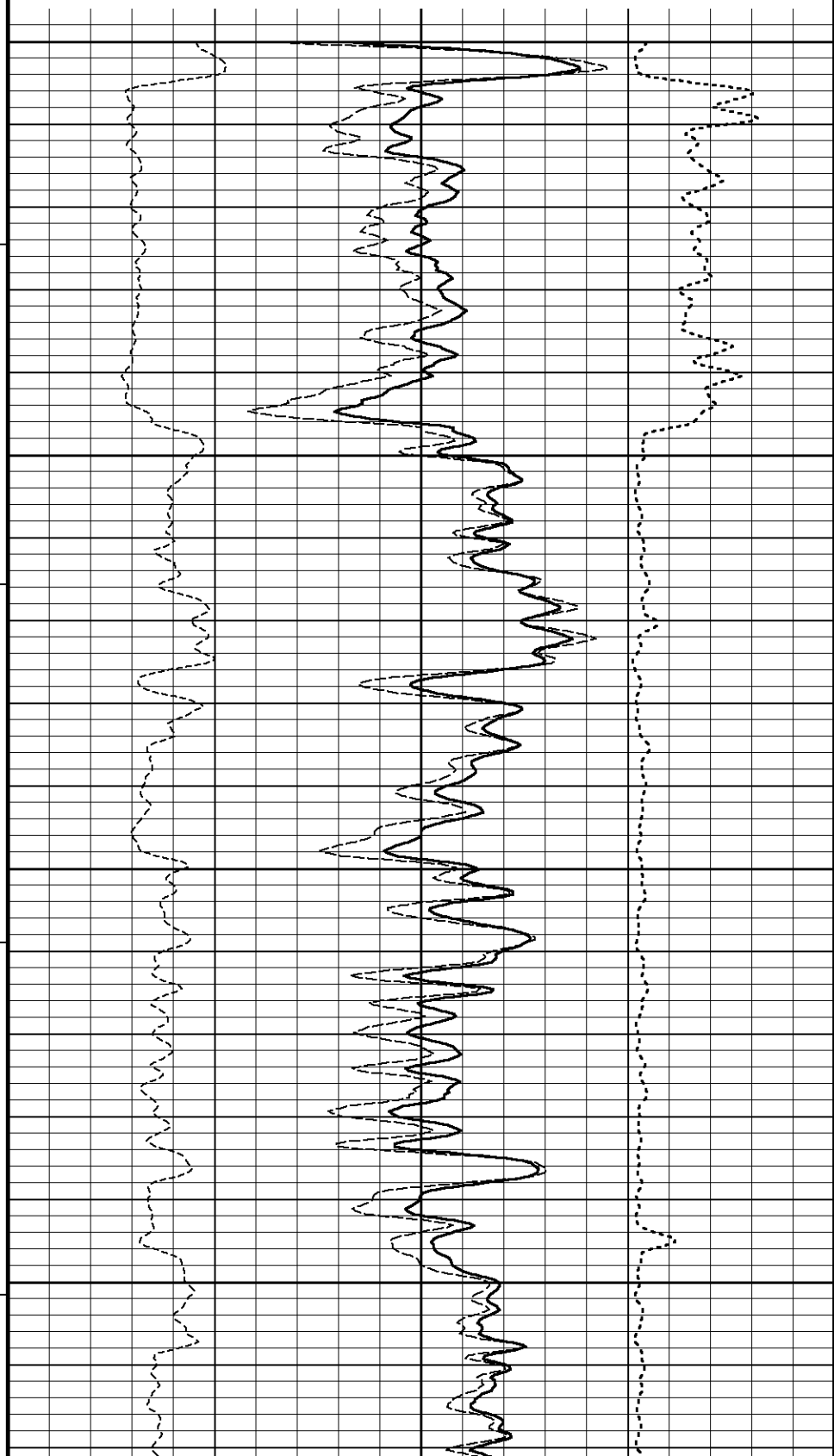
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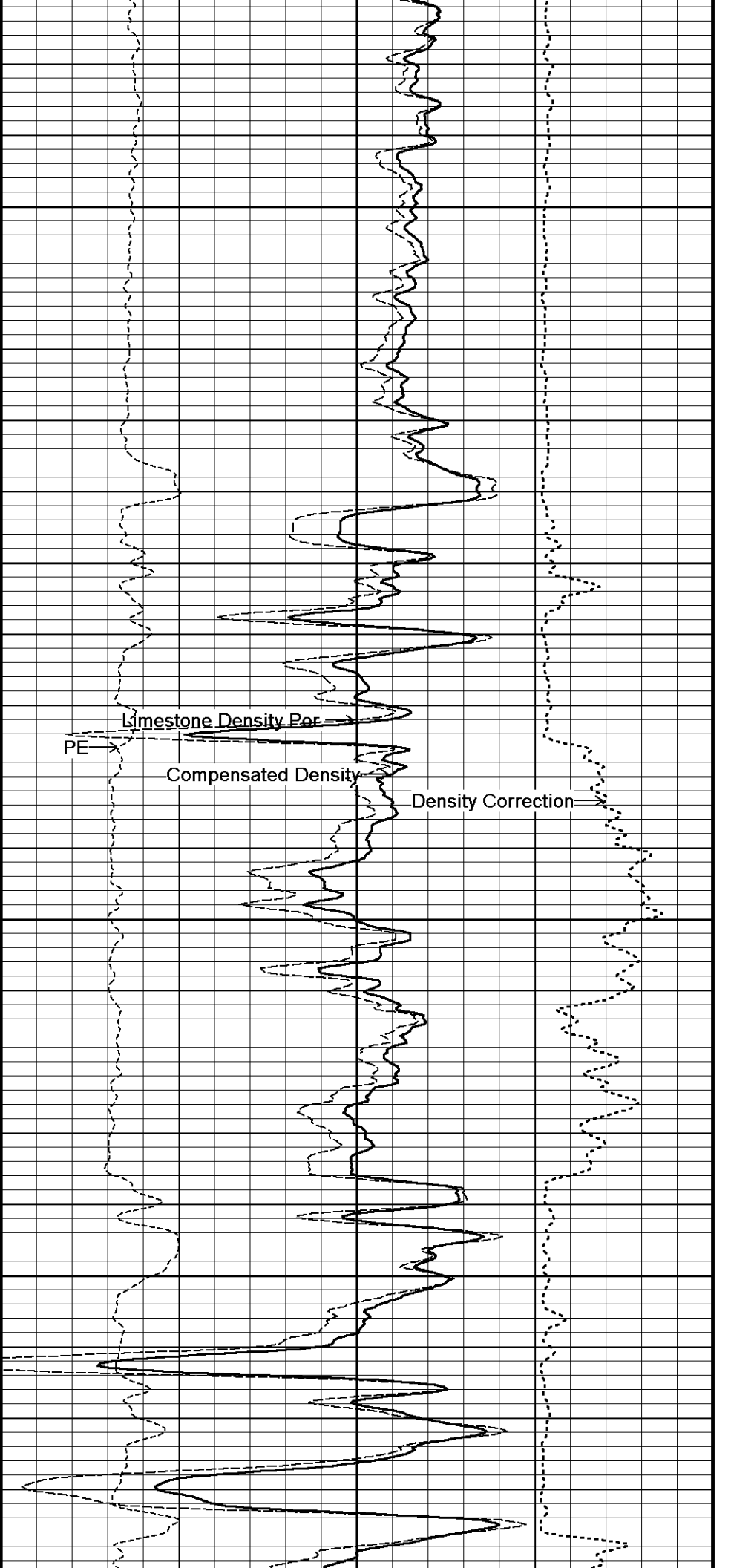
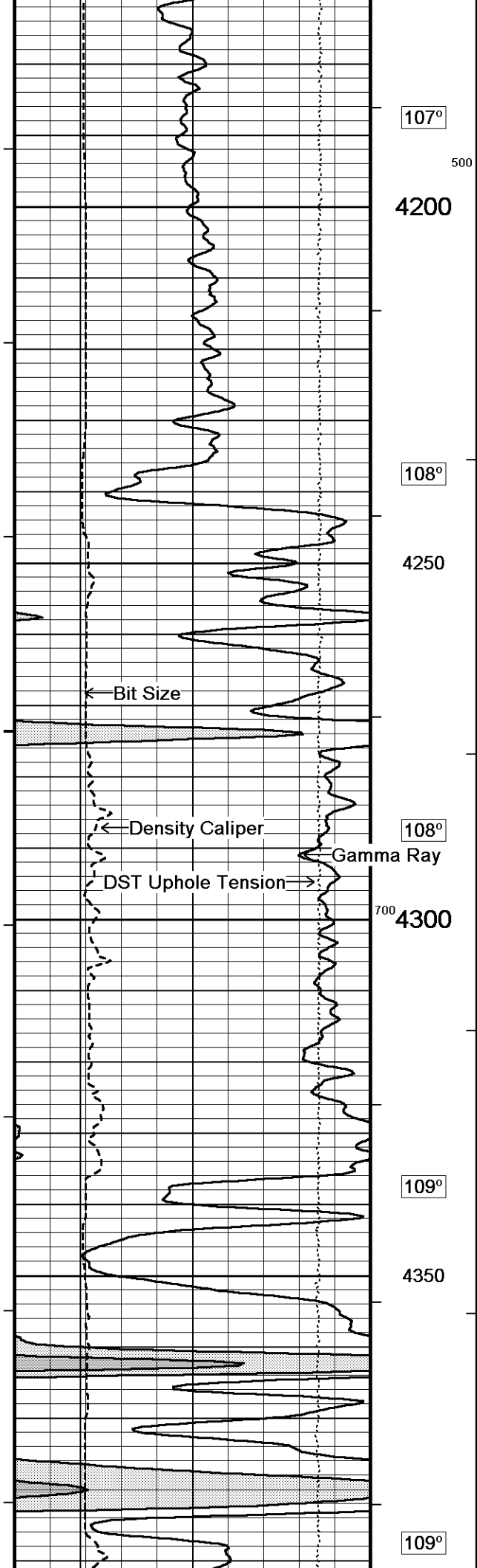
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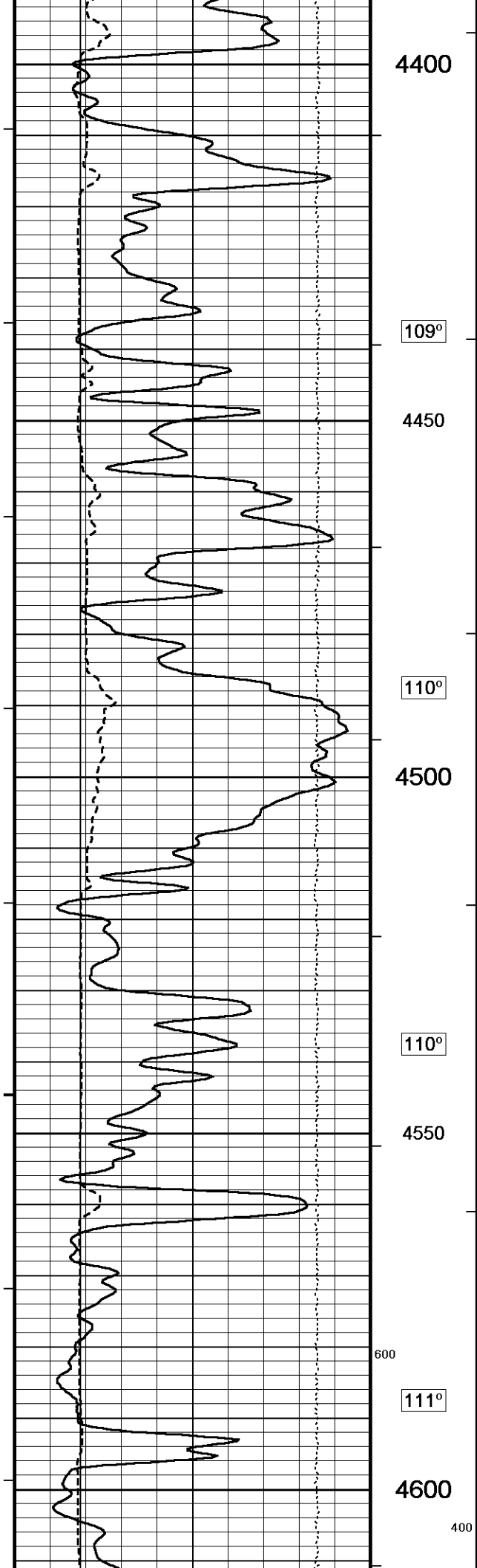
PE
barns/electron
0 5 10

Density Correction
grams/cc
-0.50 0 0.50

0 5 10 -0.50 0 0.50





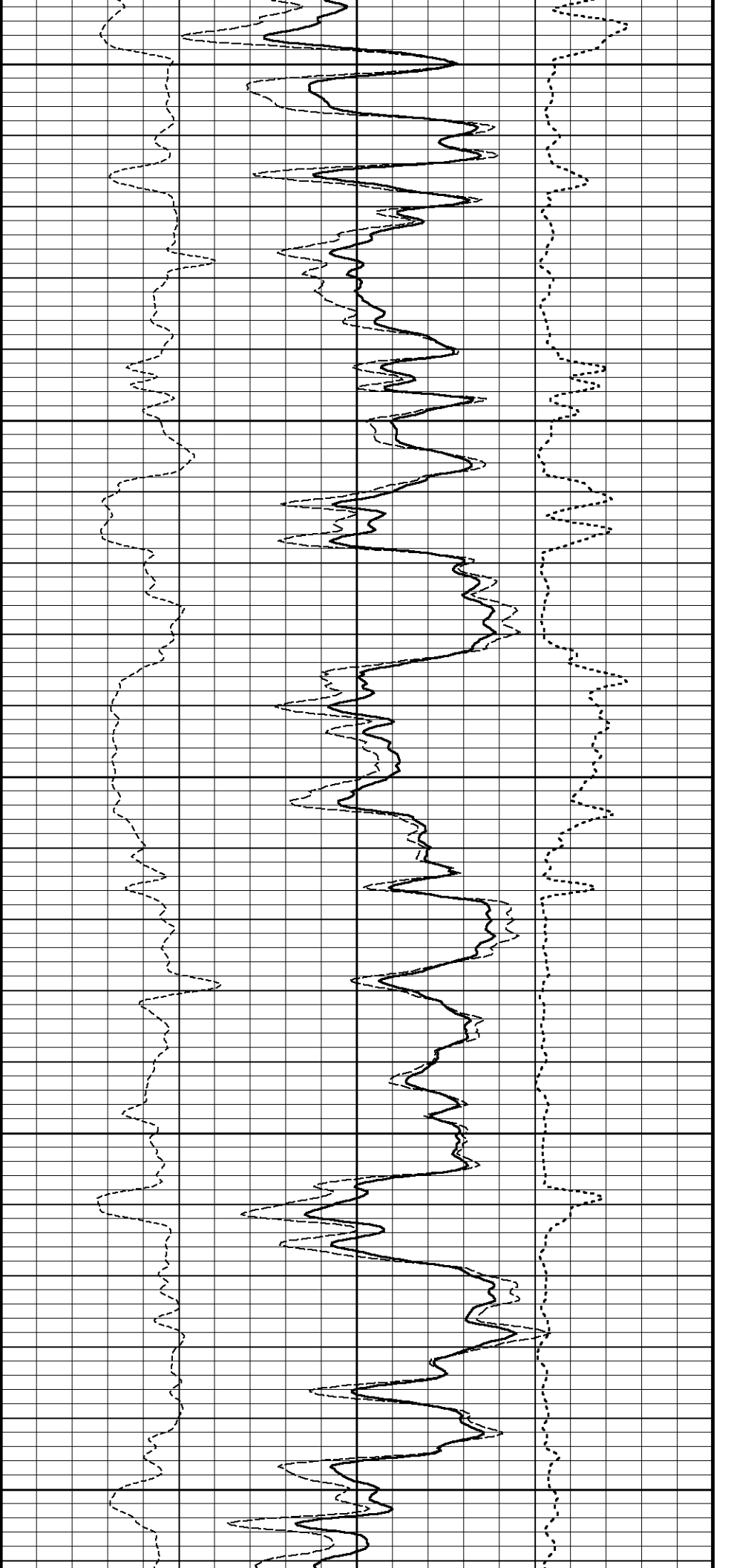


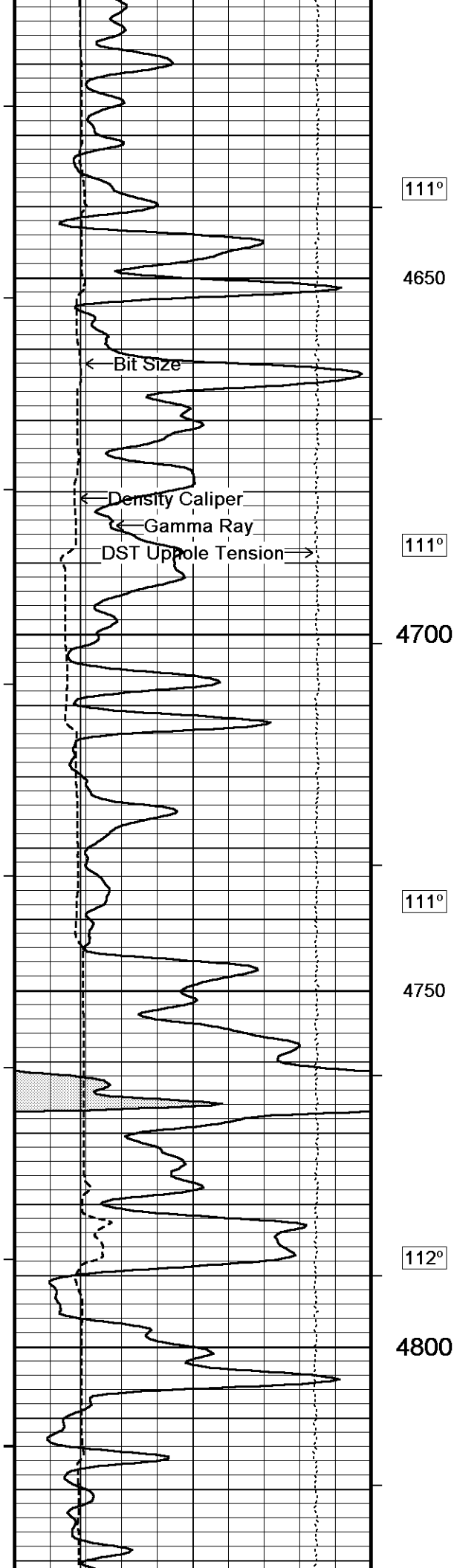
109°

110°

110°

111°





111°

4650

111°

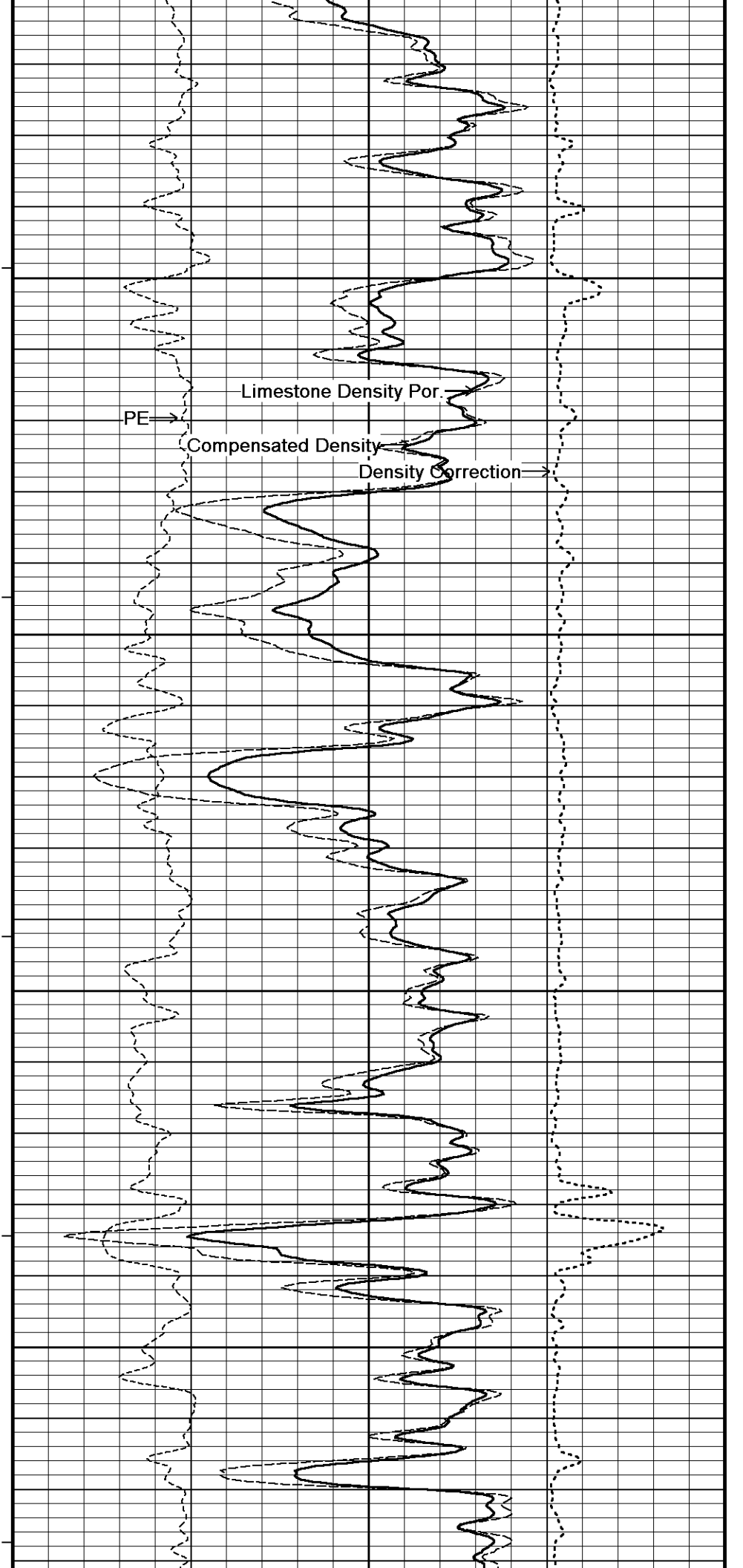
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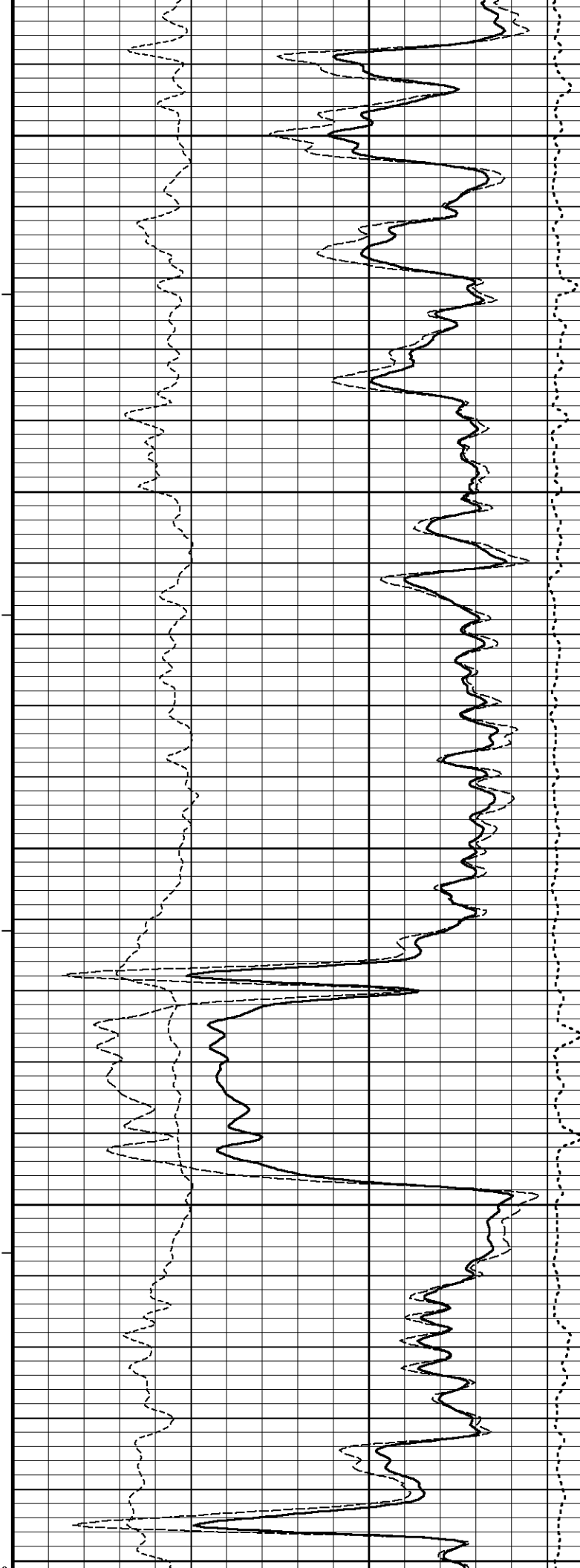
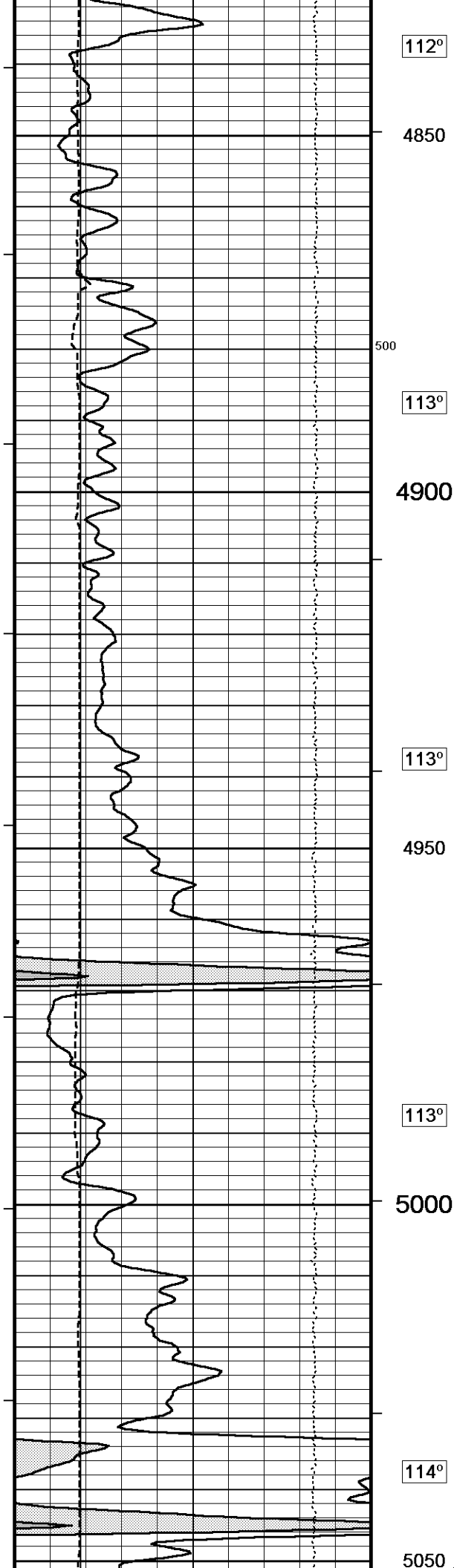
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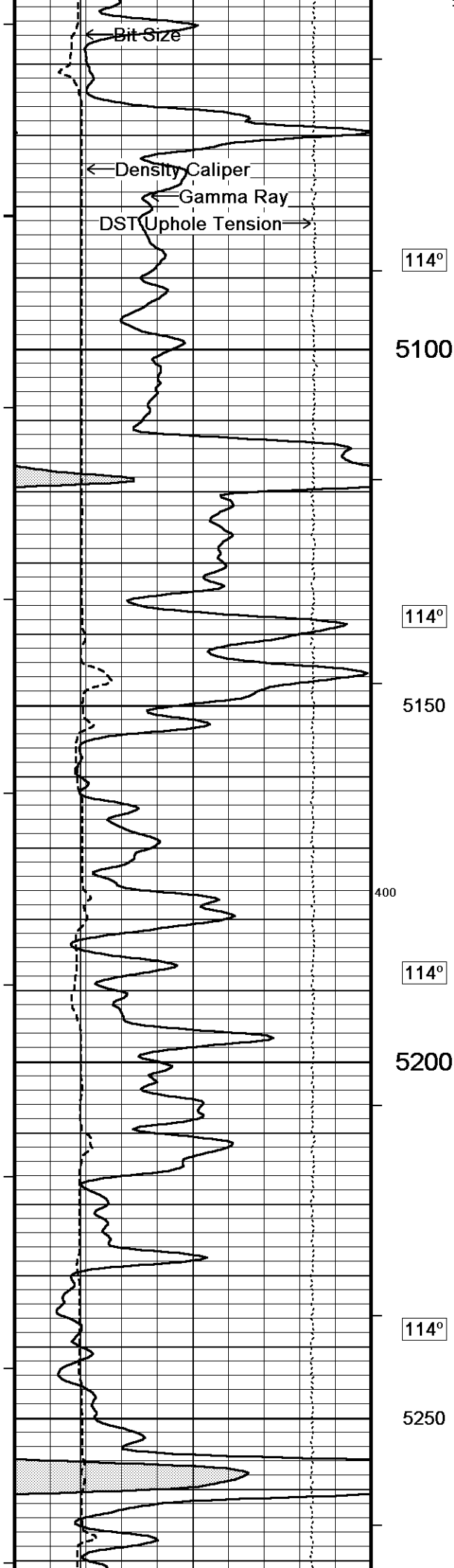
4750

112°

4800







114°

5100

114°

5150

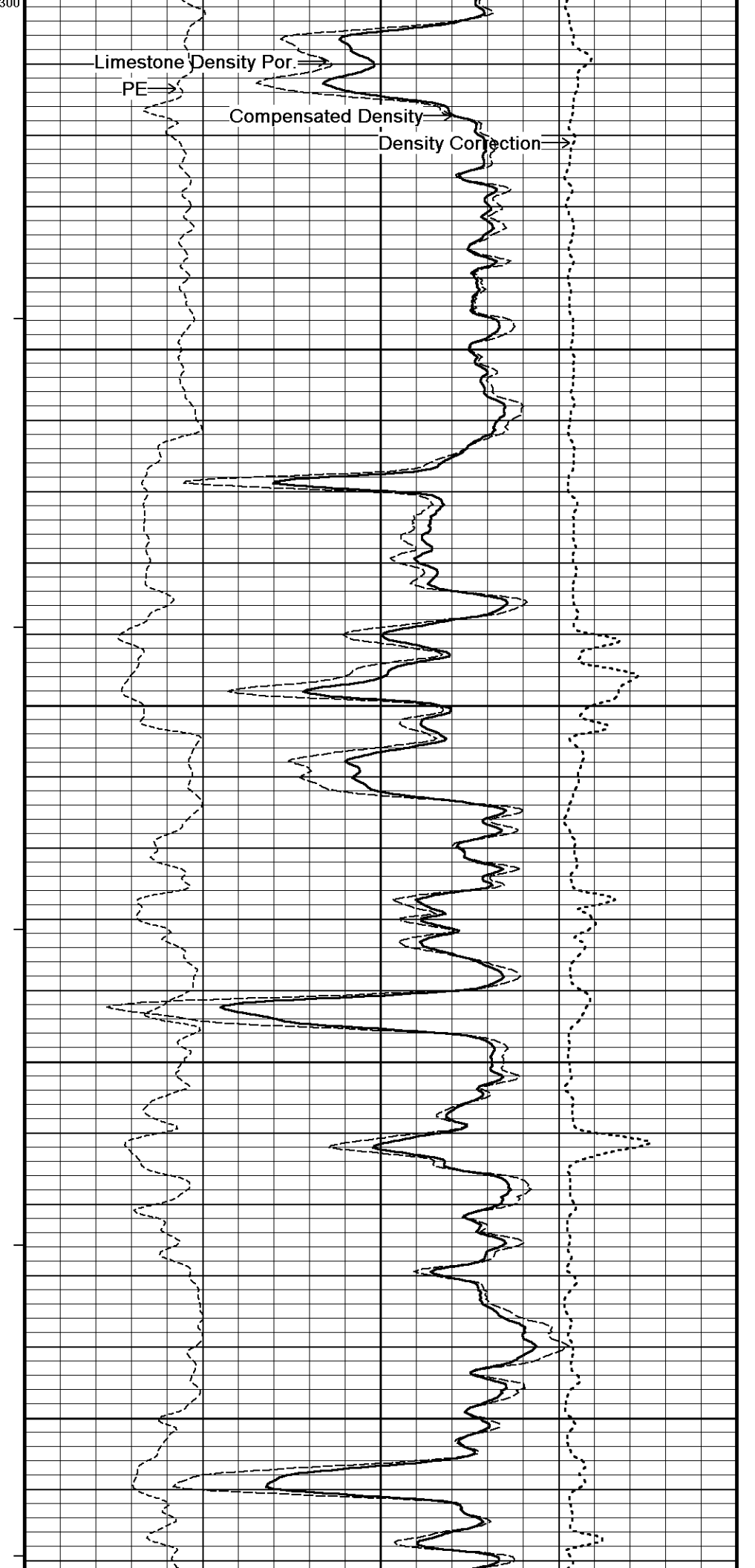
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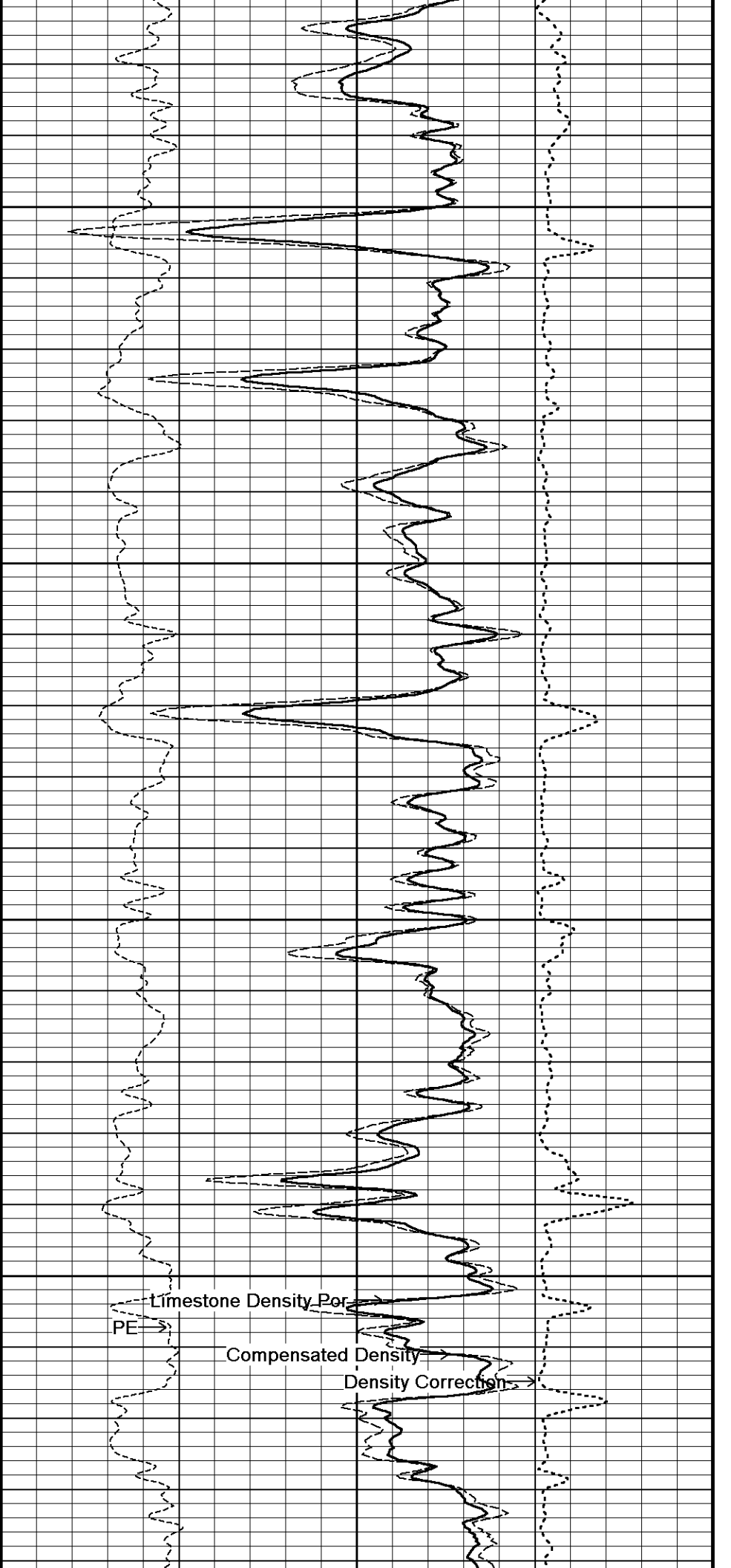
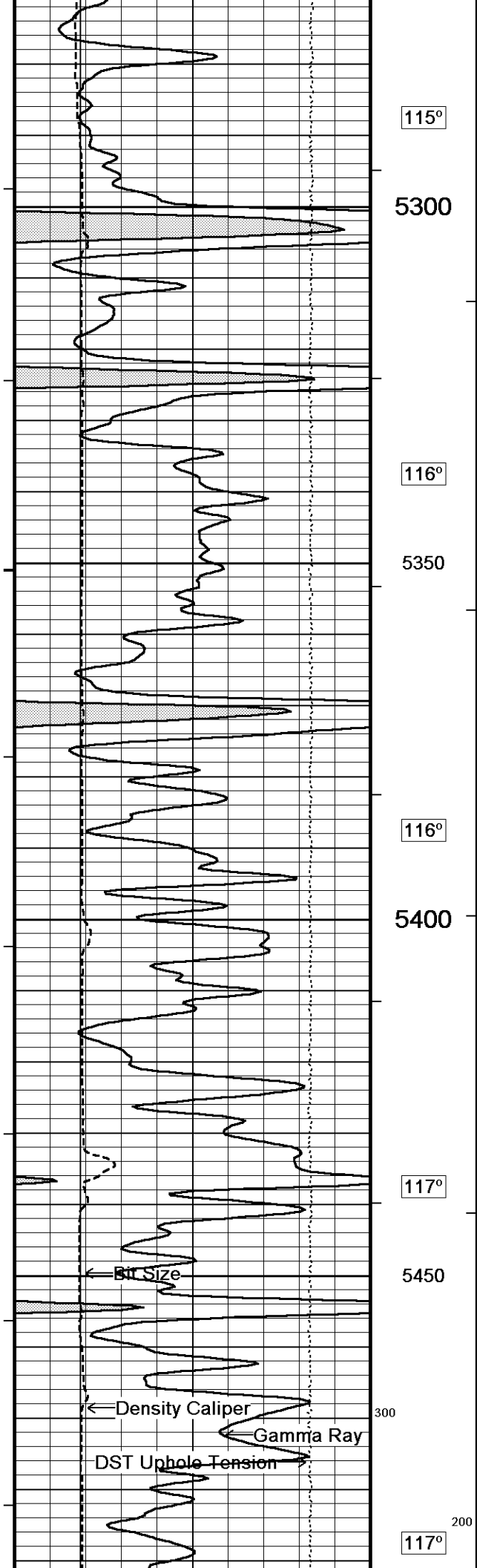
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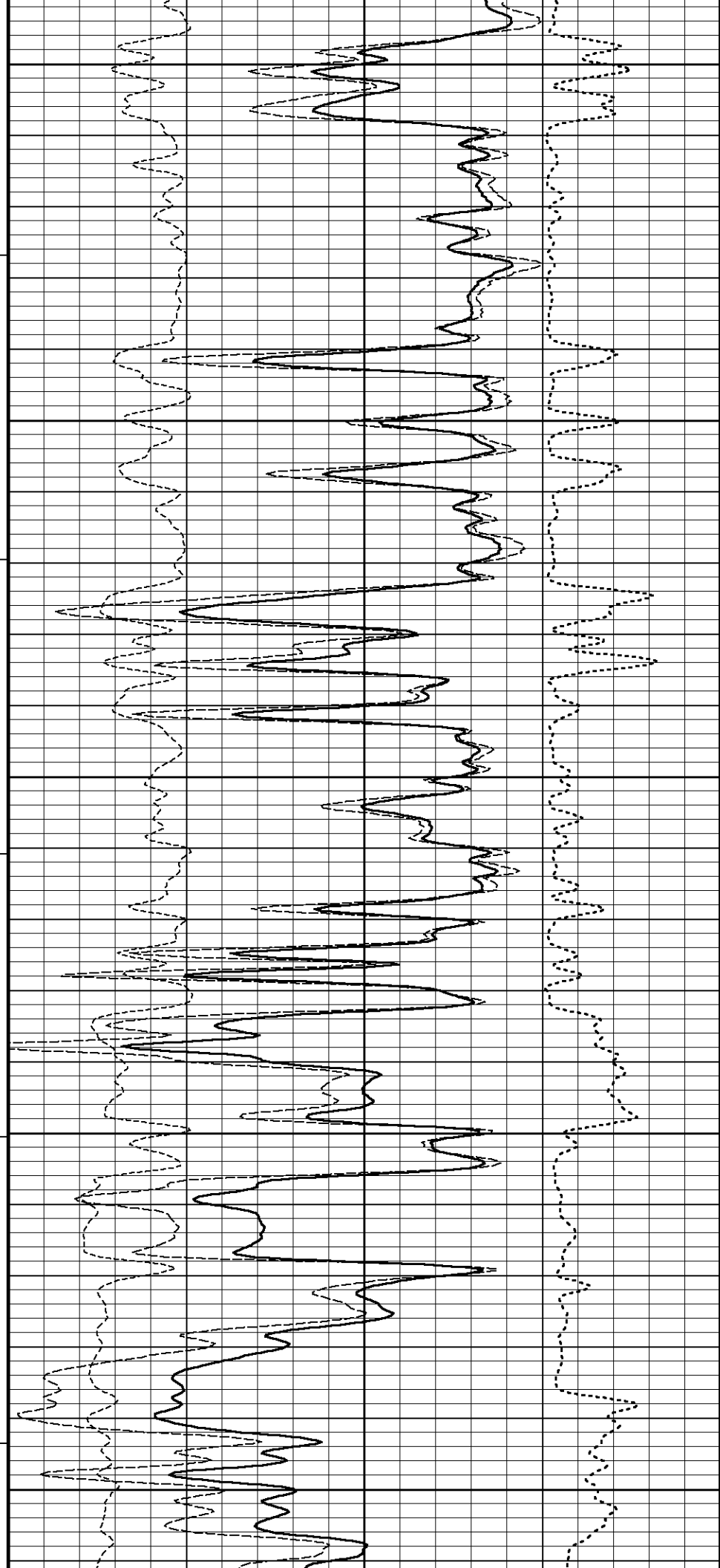
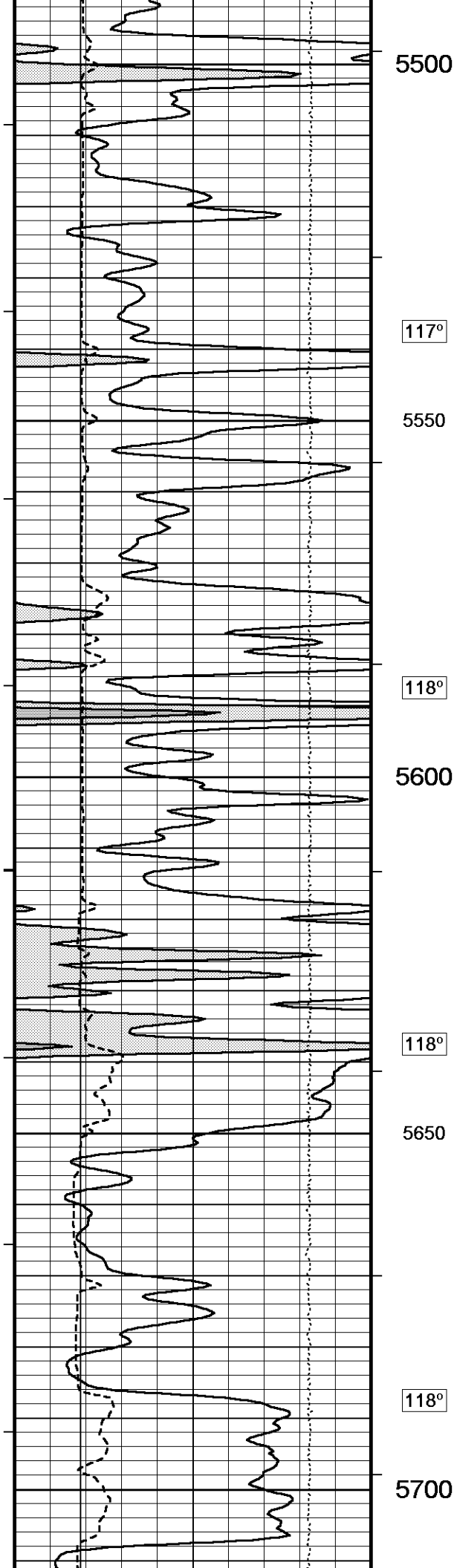
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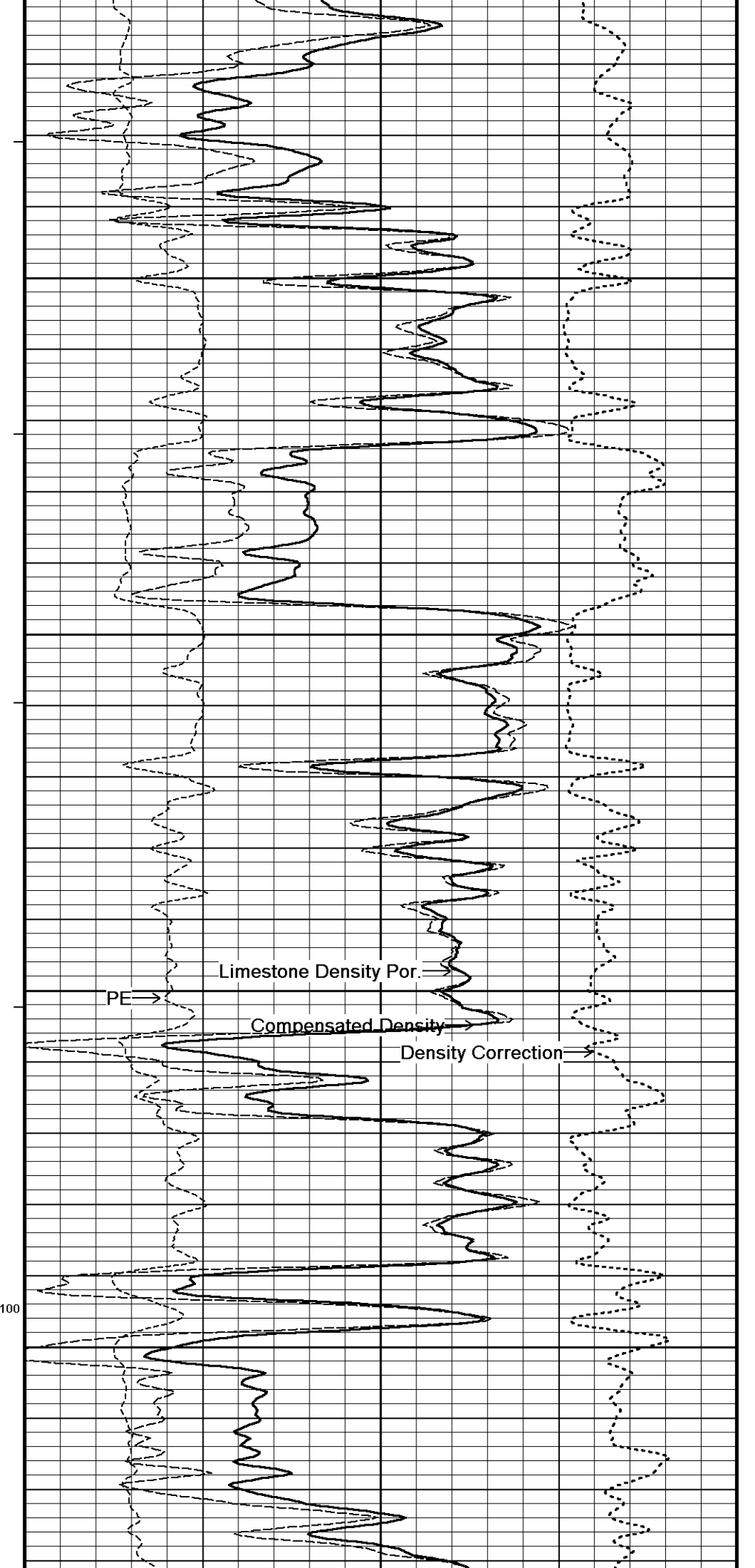
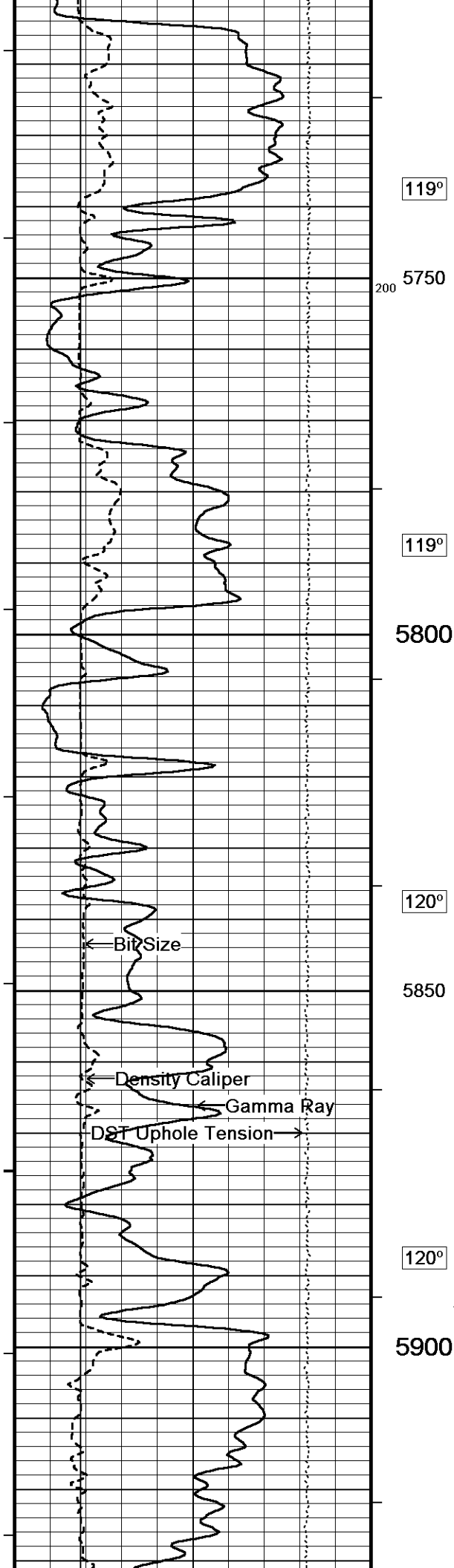
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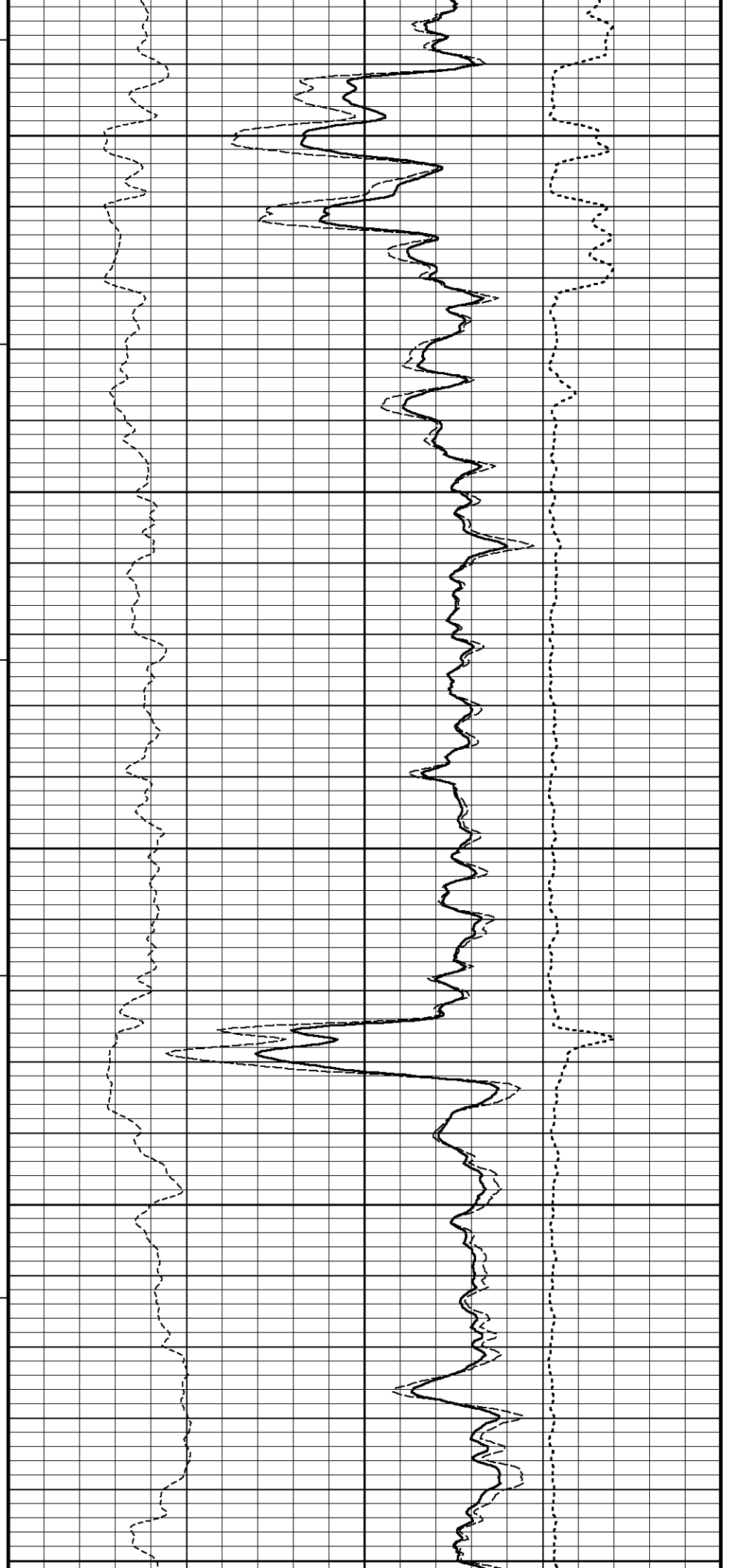
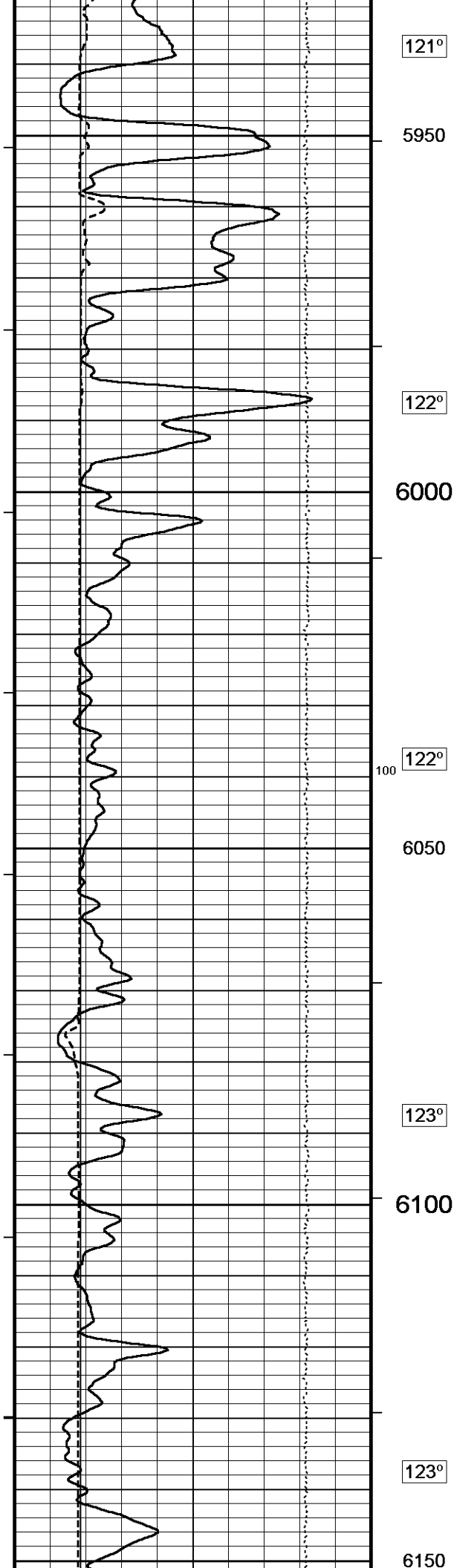
5250

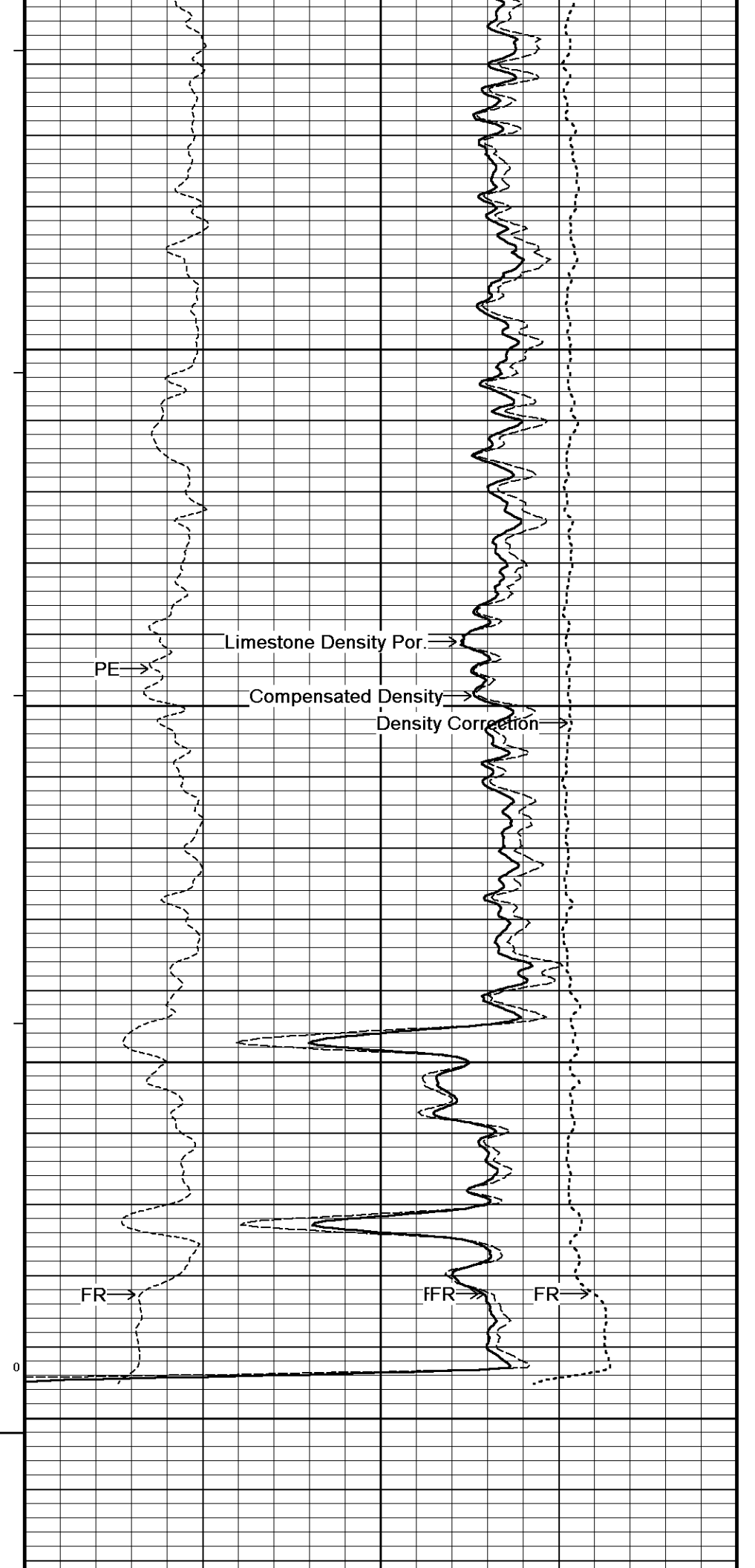
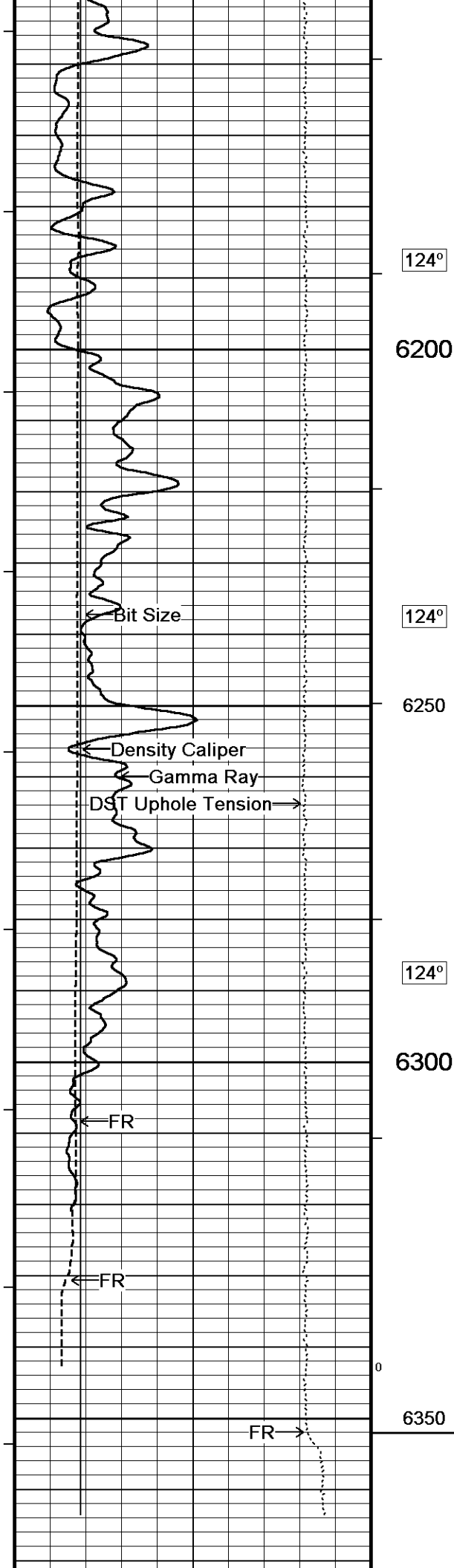


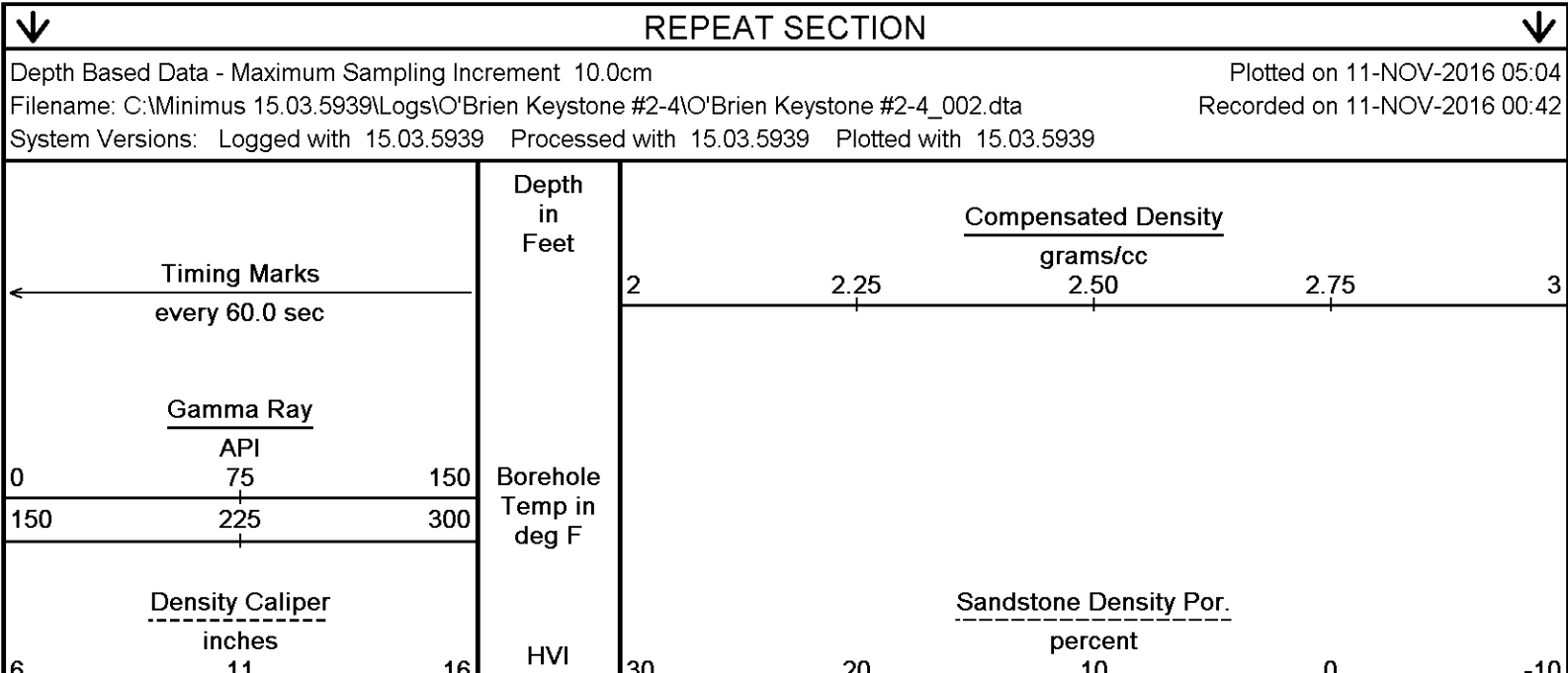
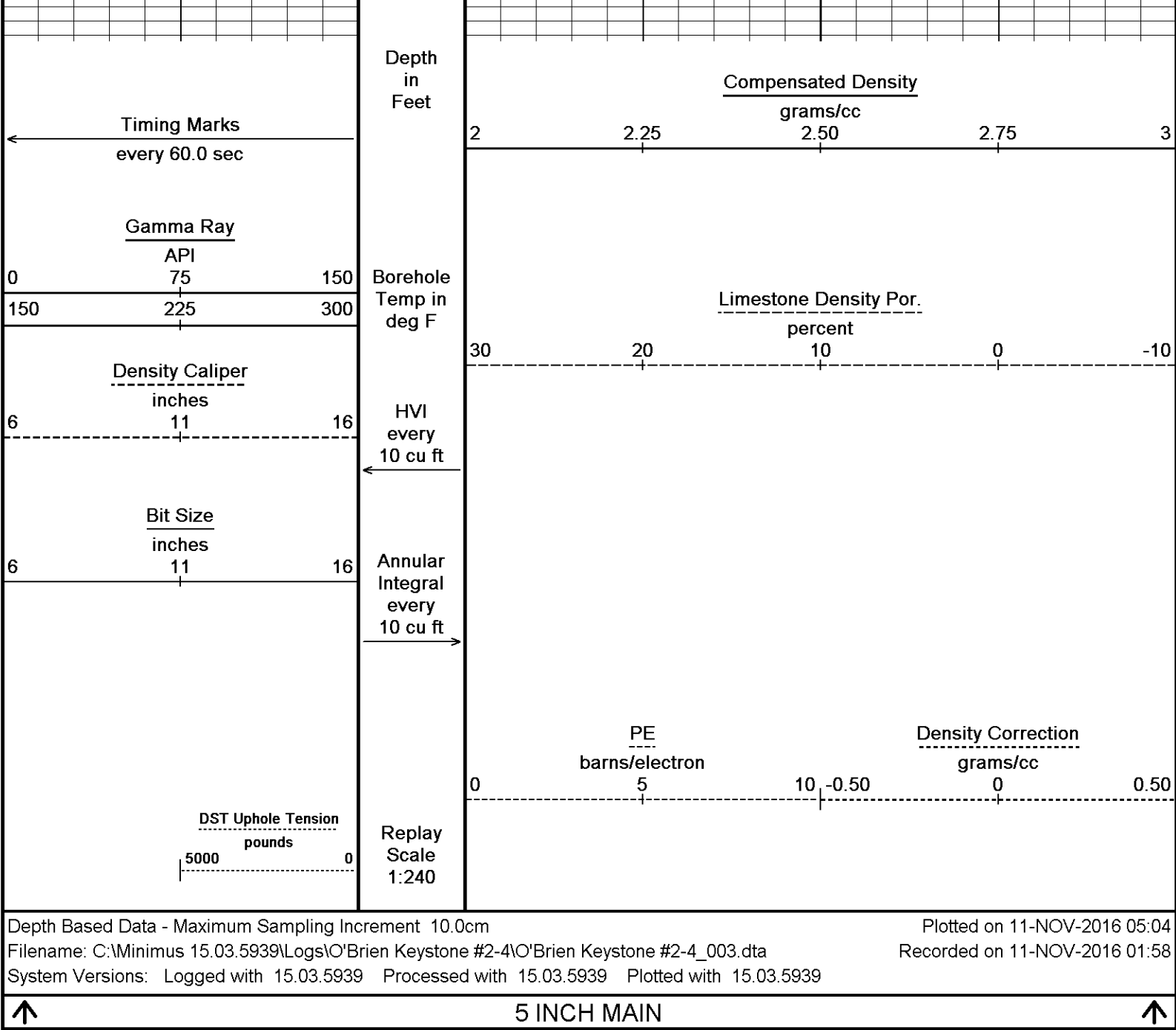


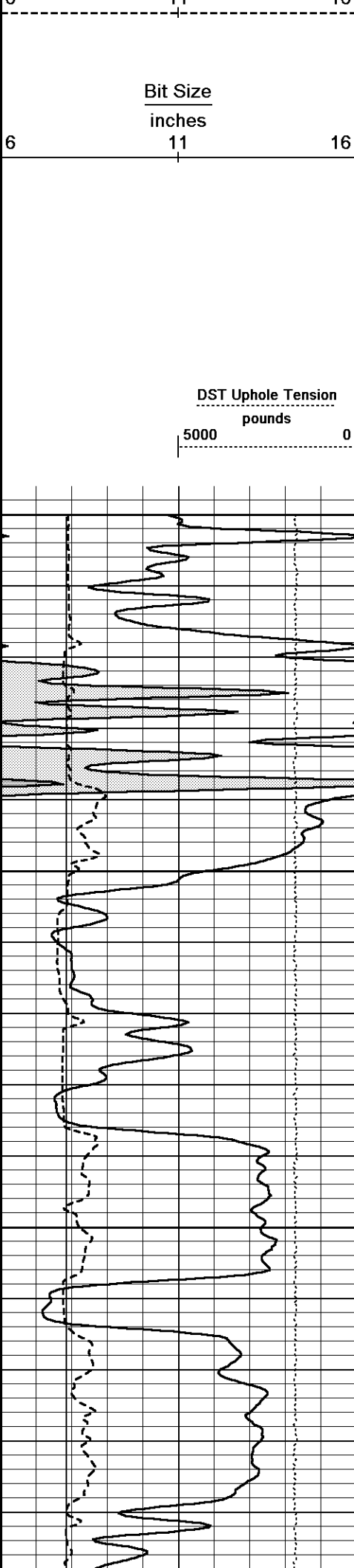












every
10 cu ft

Annular
Integral
every
10 cu ft

Replay
Scale
1:240

5600

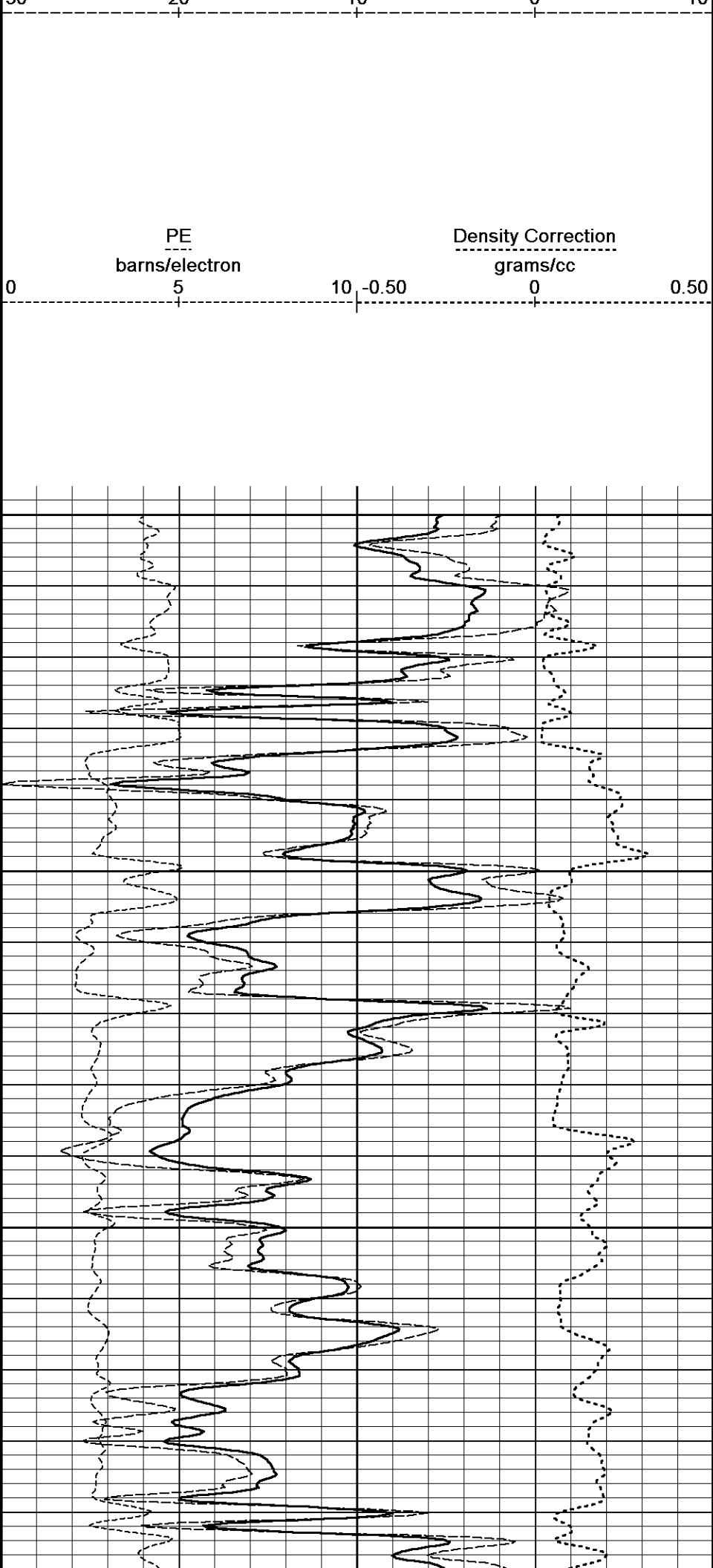
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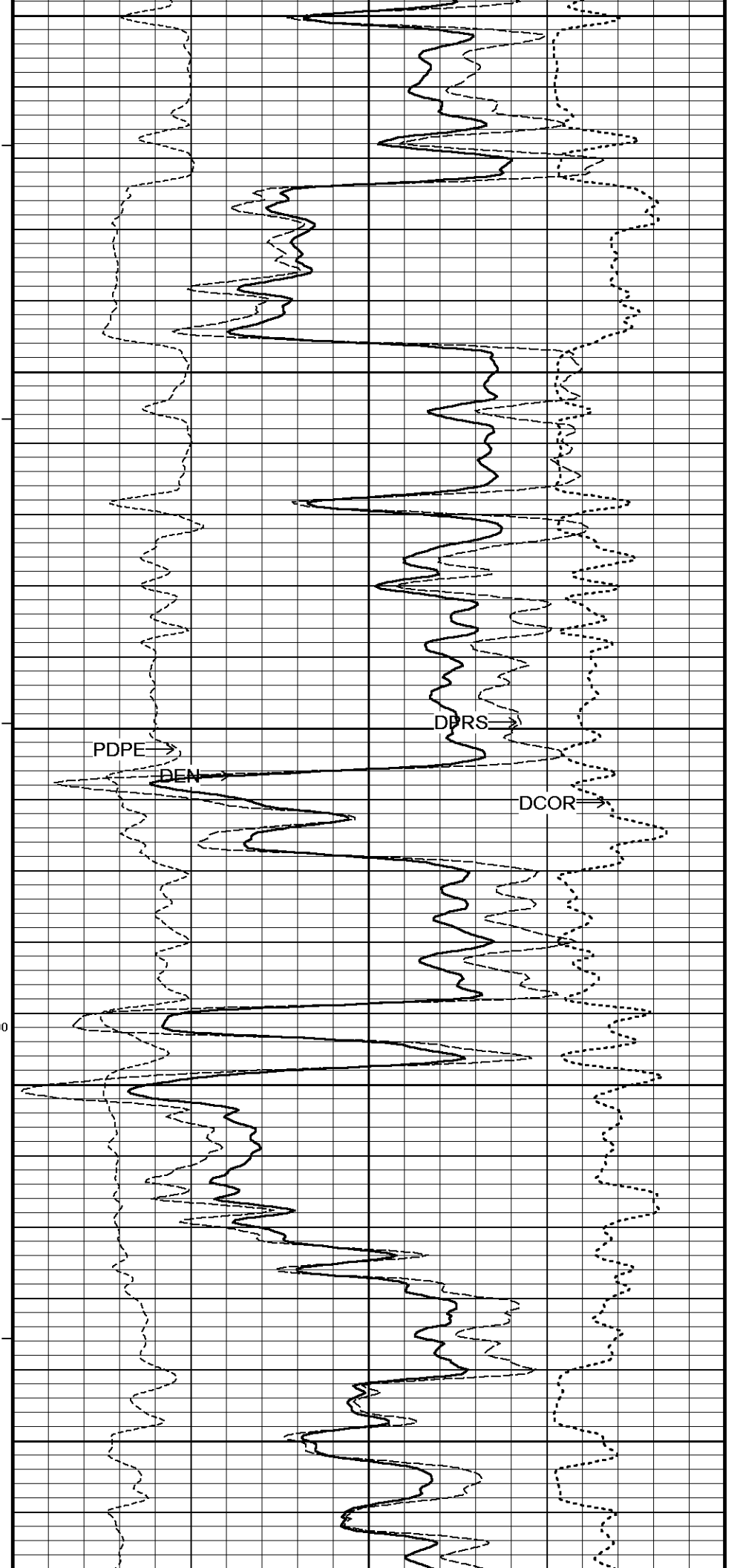
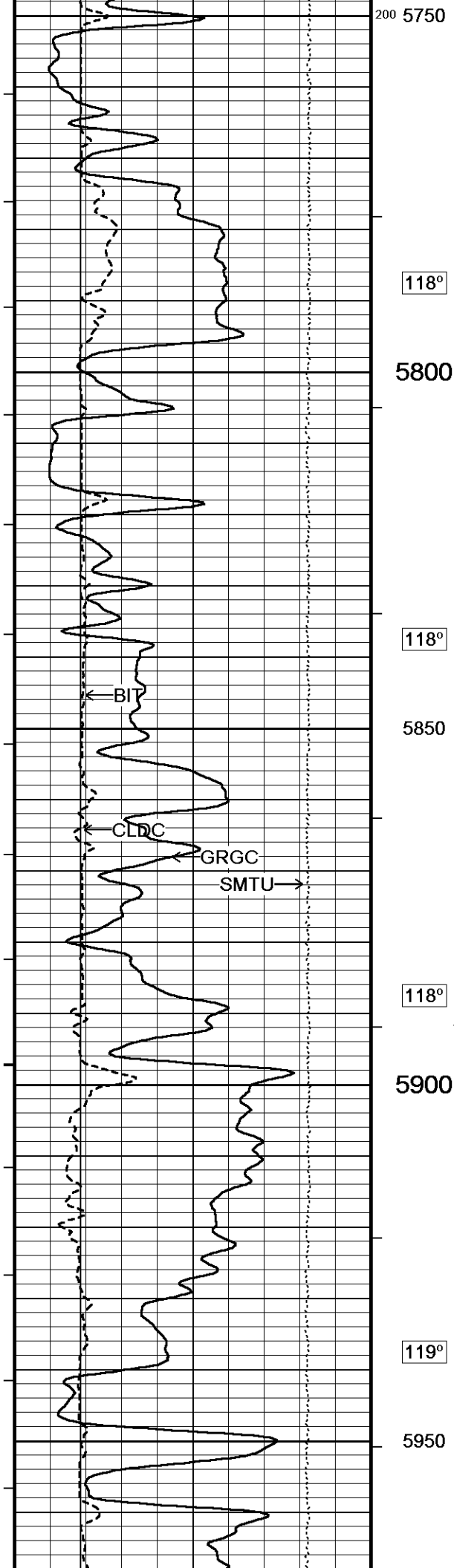
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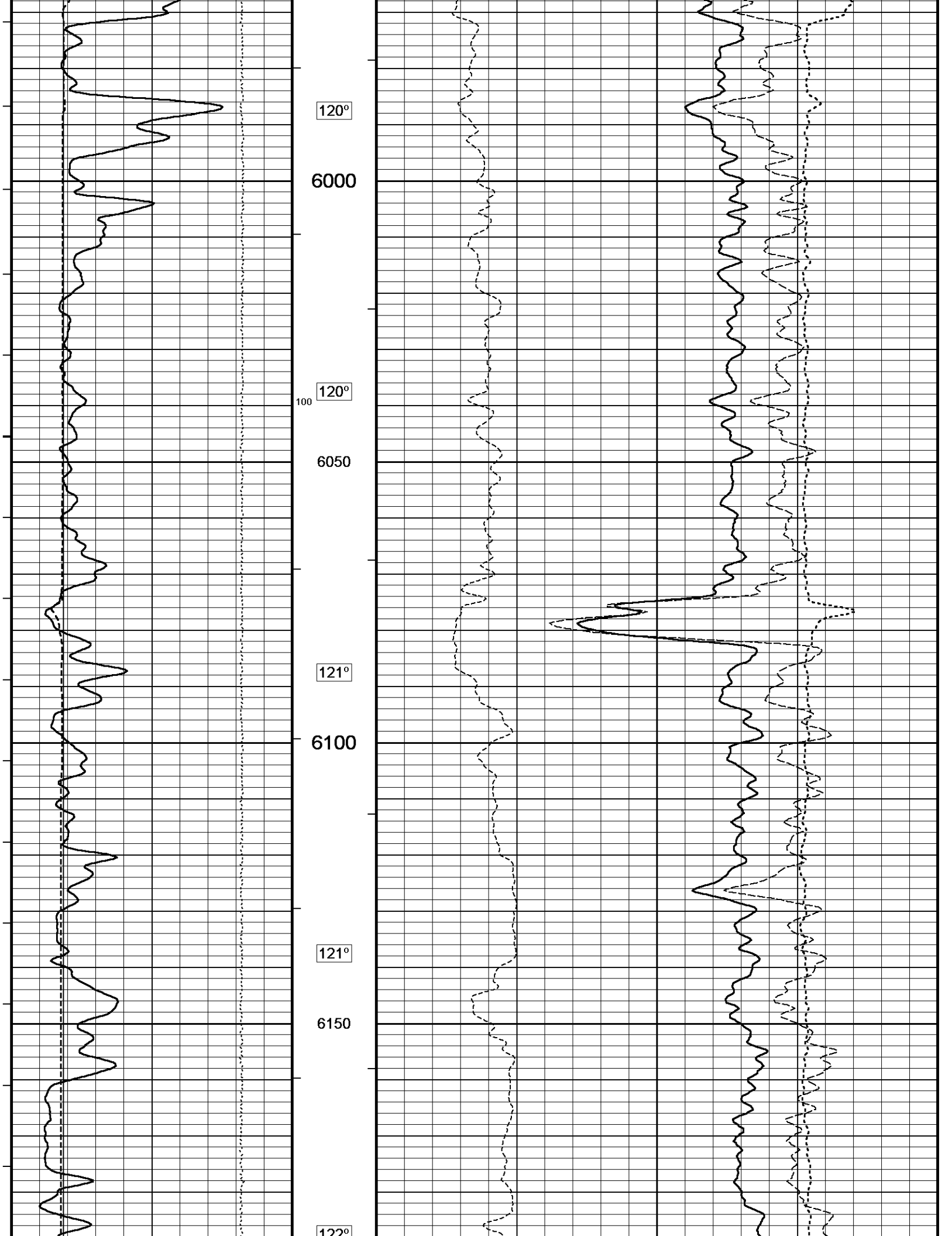
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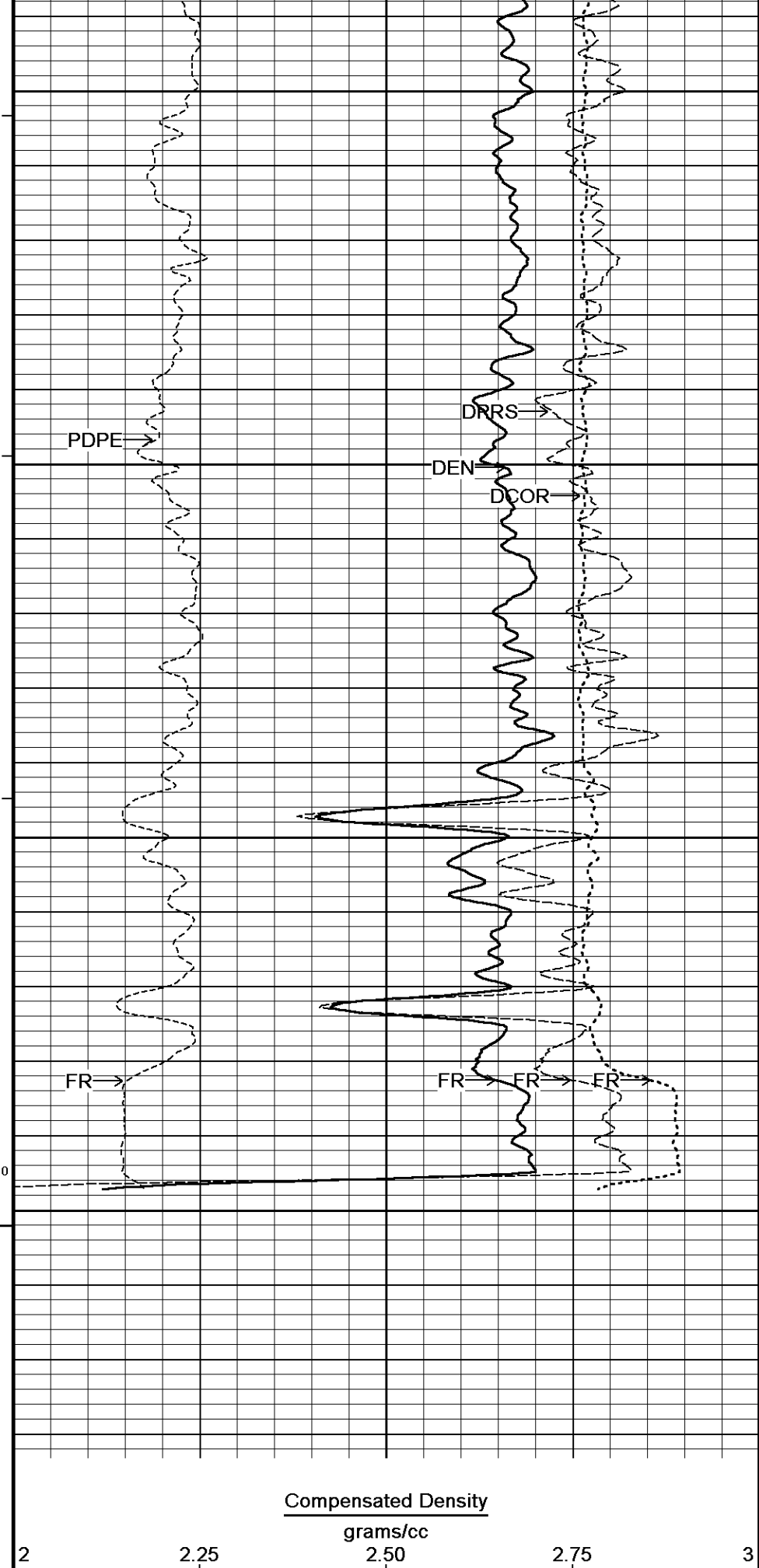
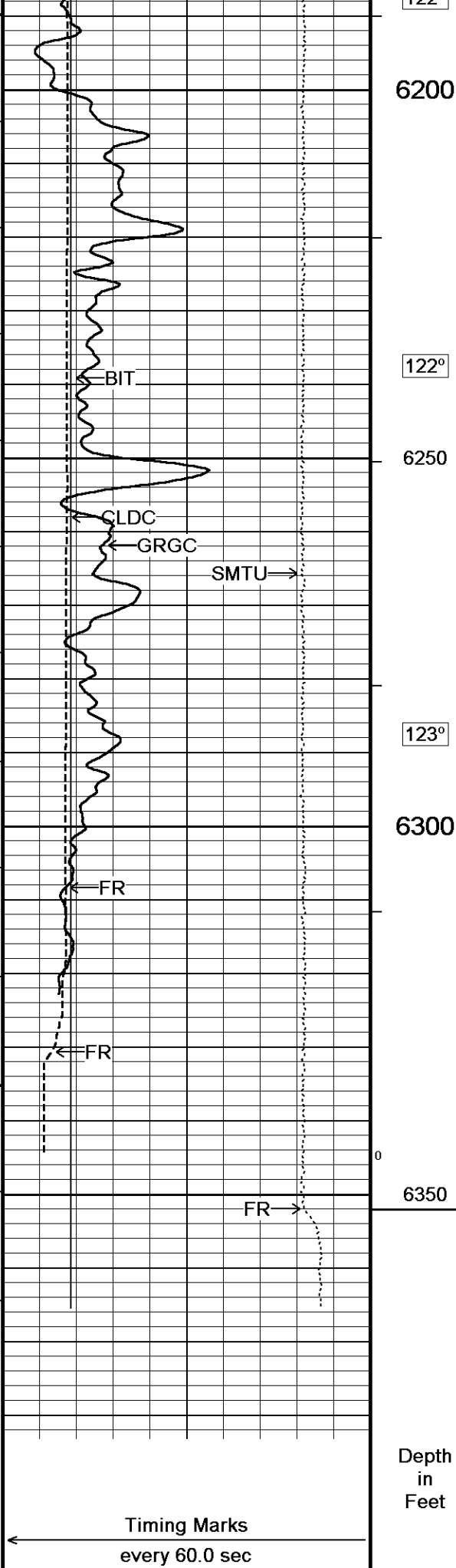
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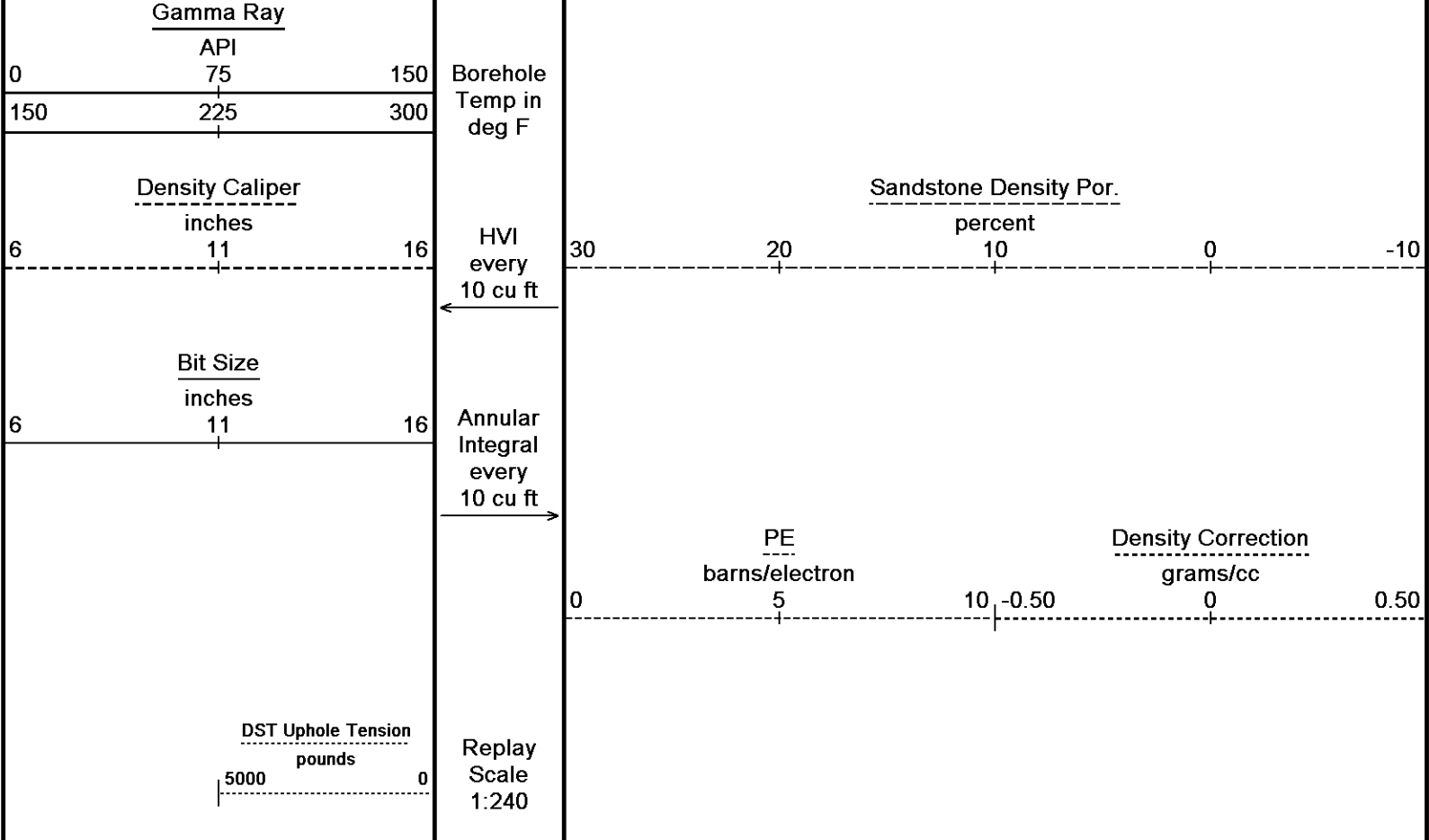
118°











Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 11-NOV-2016 05:04

Filename: C:\Minimus 15.03.5939\Logs\O'Brien Keystone #2-4\O'Brien Keystone #2-4_002.dta

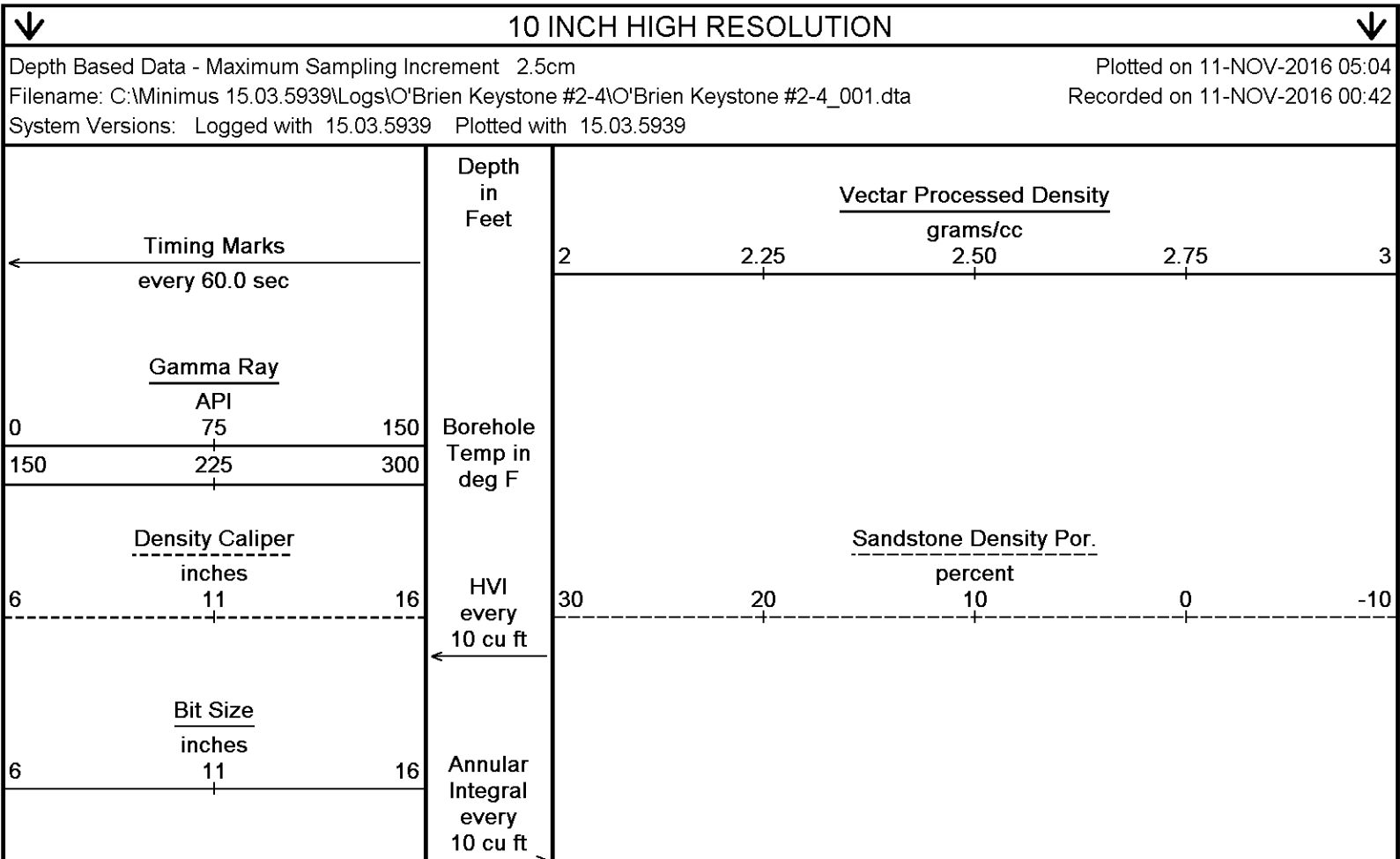
Recorded on 11-NOV-2016 00:42

System Versions: Logged with 15.03.5939 Processed with 15.03.5939 Plotted with 15.03.5939

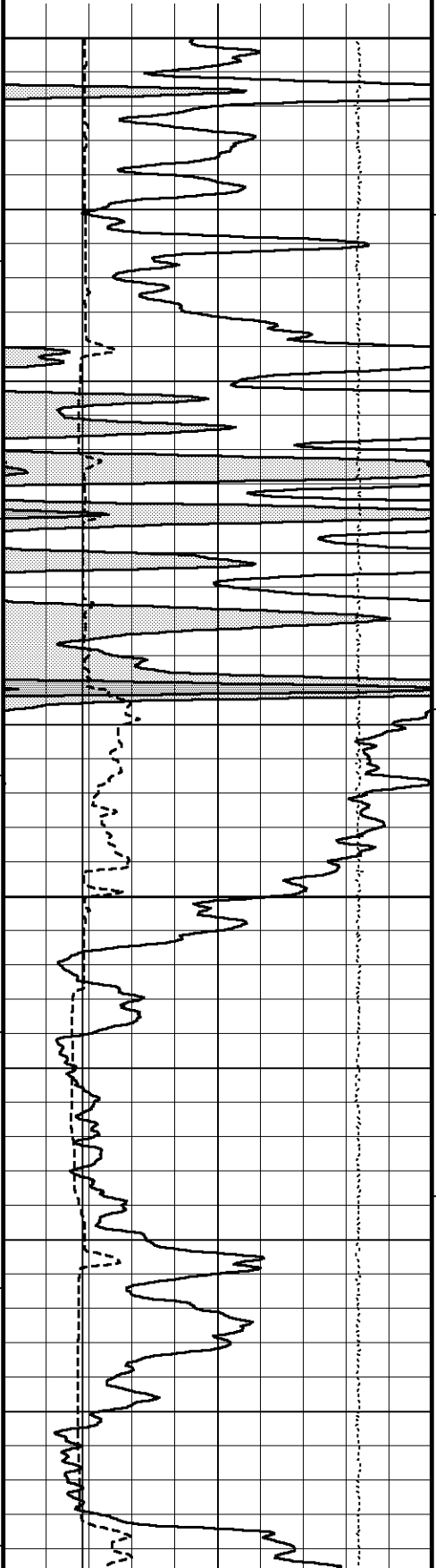
↑

REPEAT SECTION

↑



DST Uphole Tension
pounds
5000 0



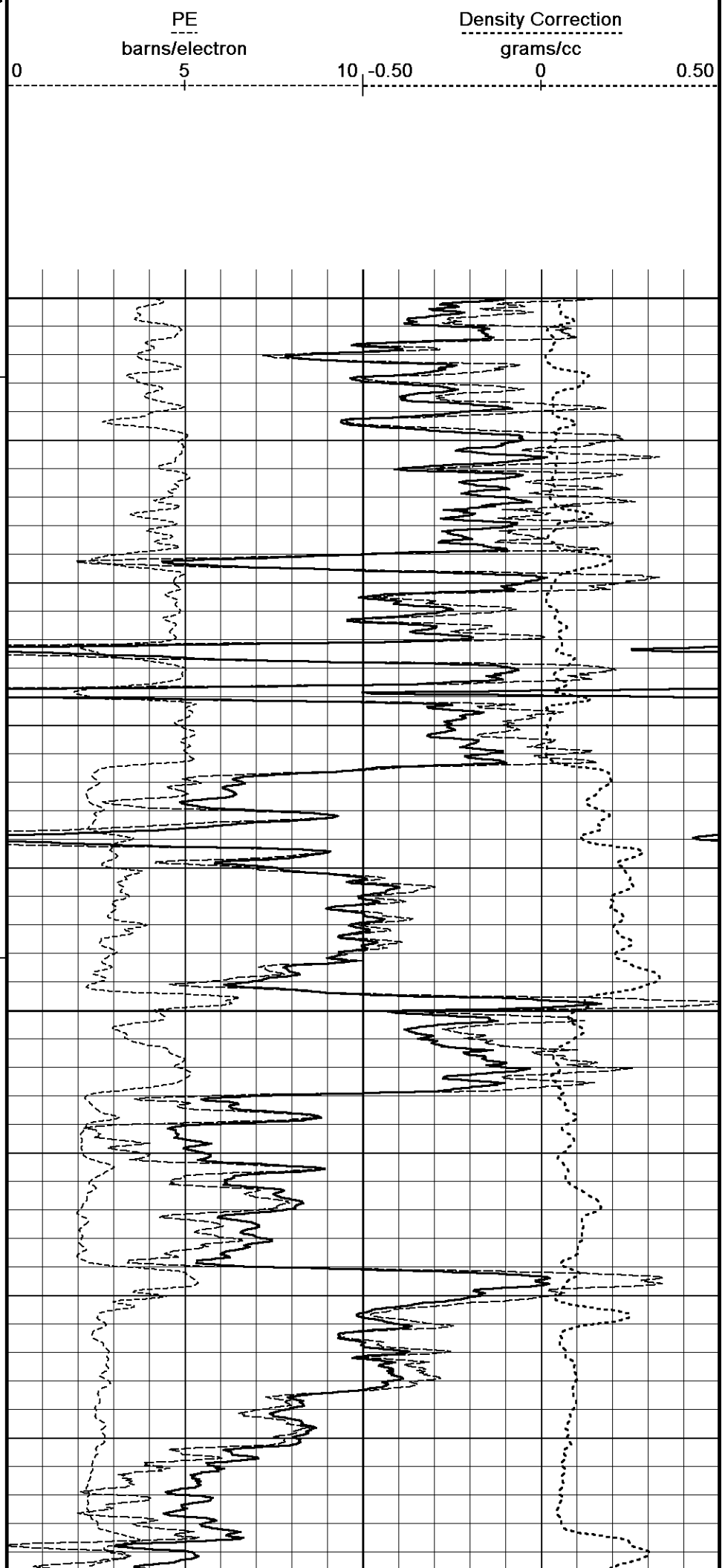
Replay
Scale
1:120

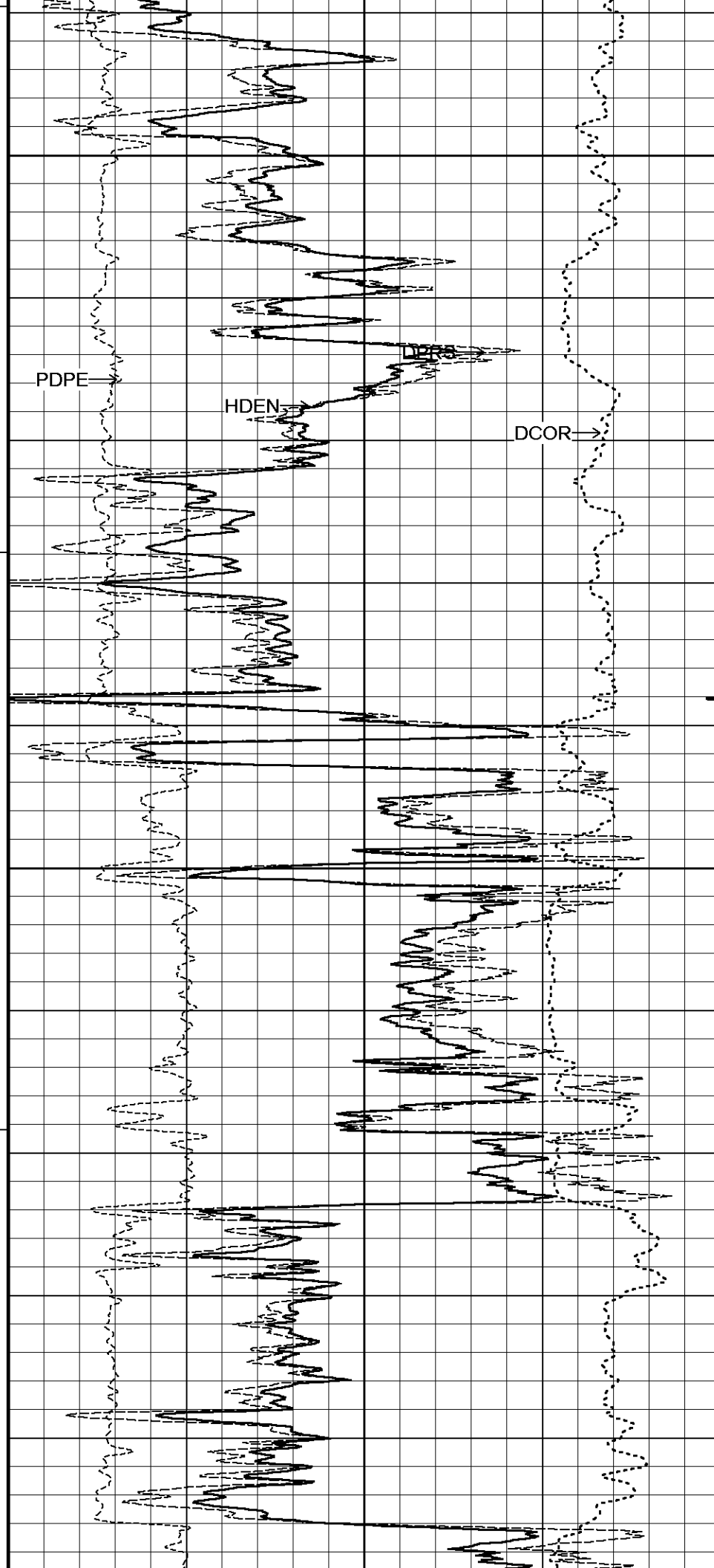
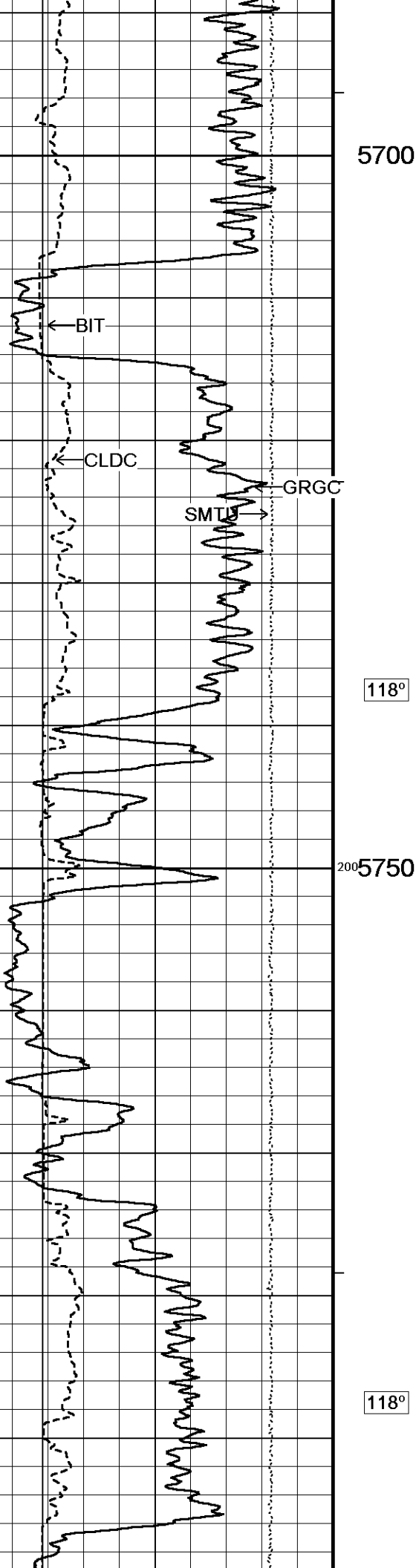
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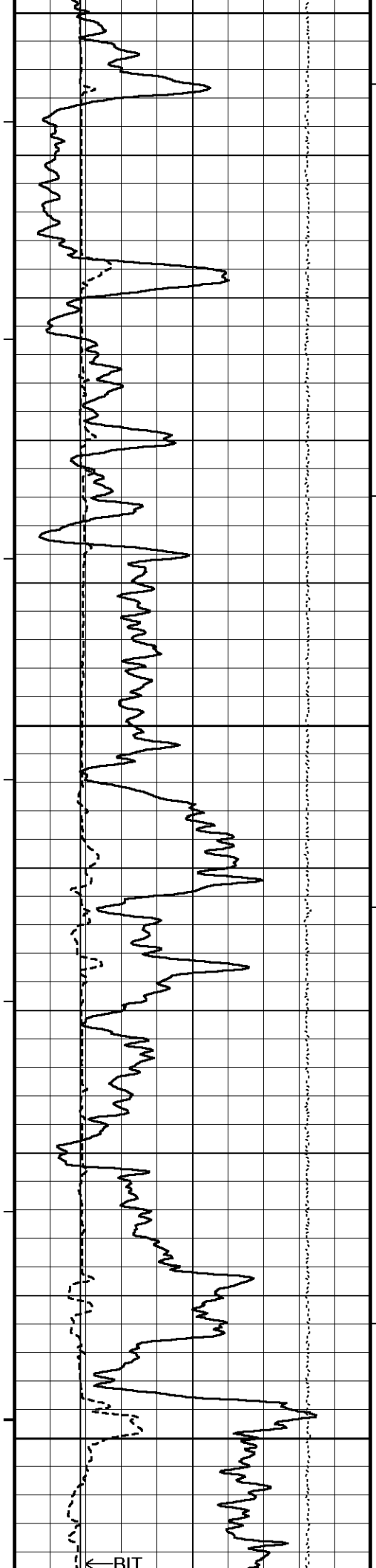
117°

5650

117°







5800

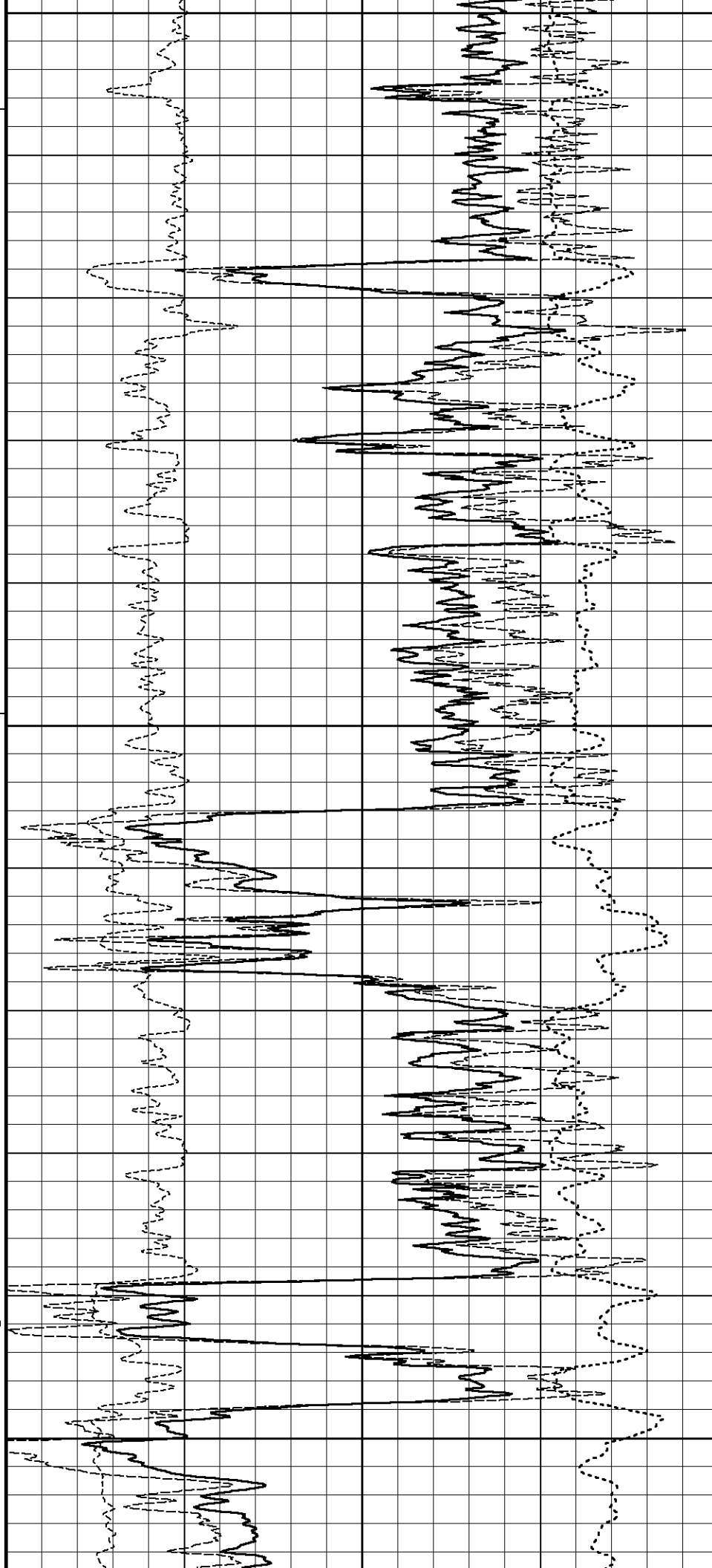
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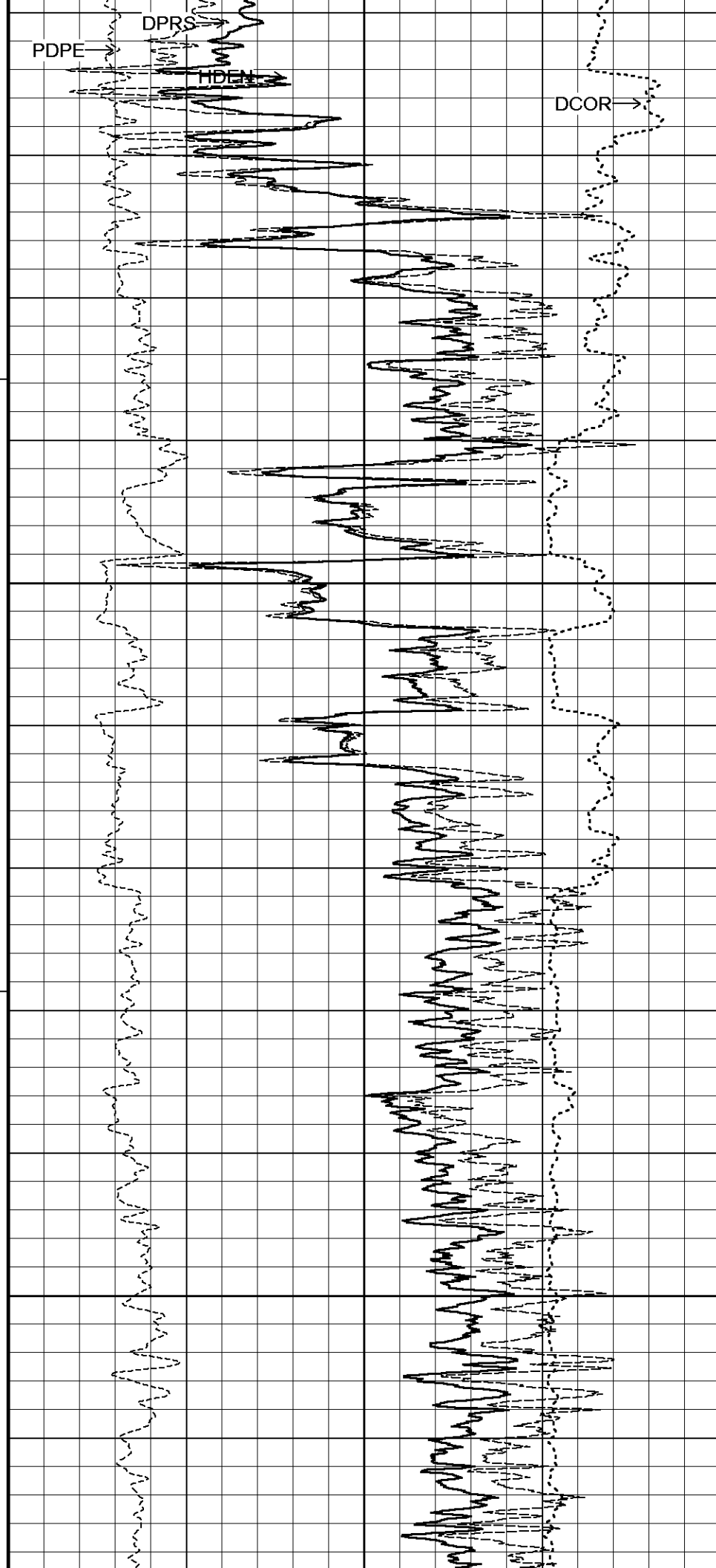
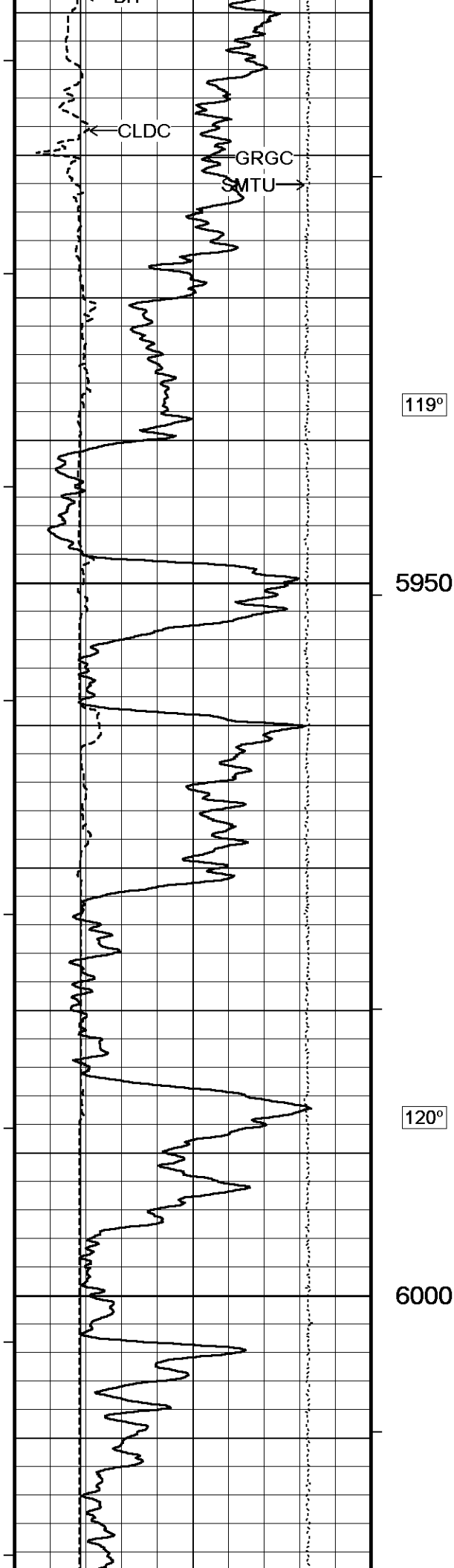
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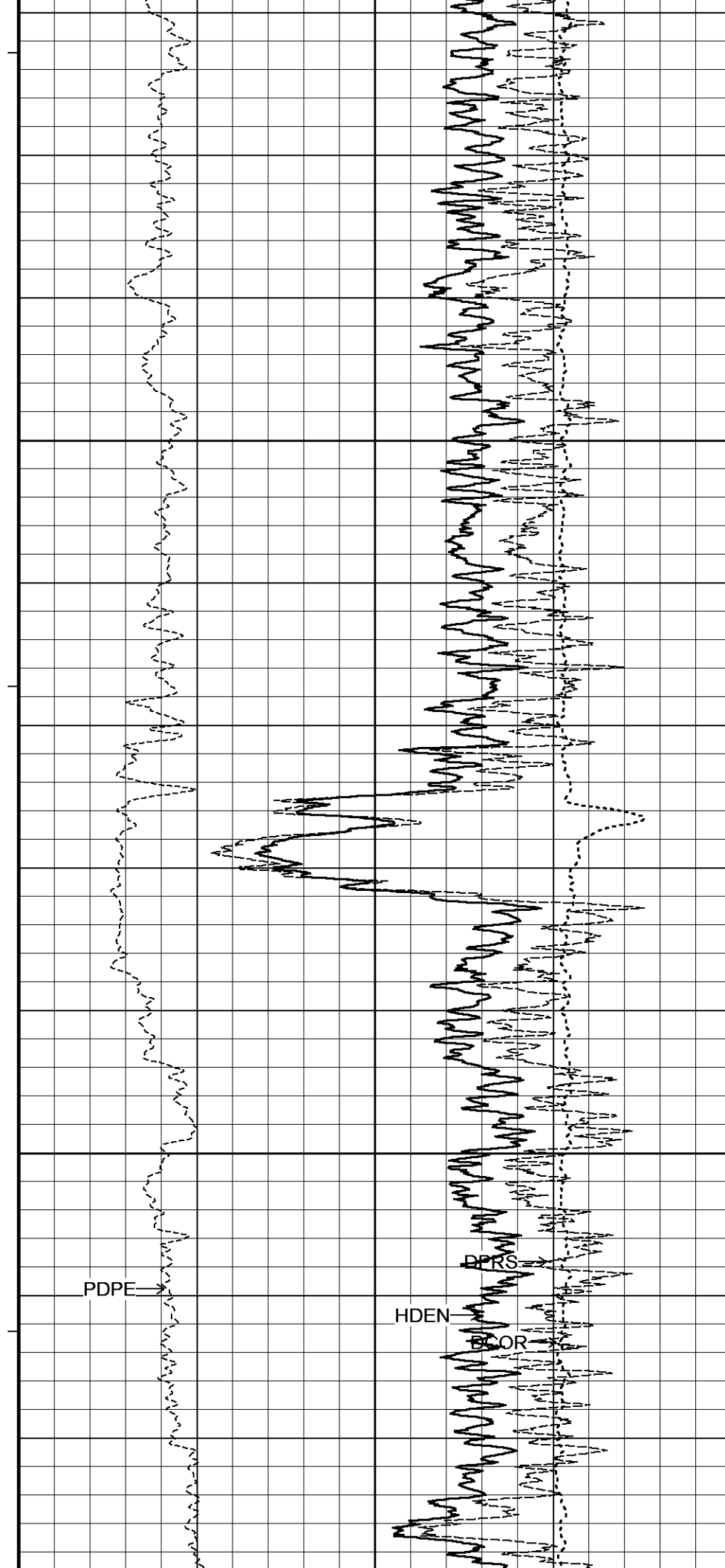
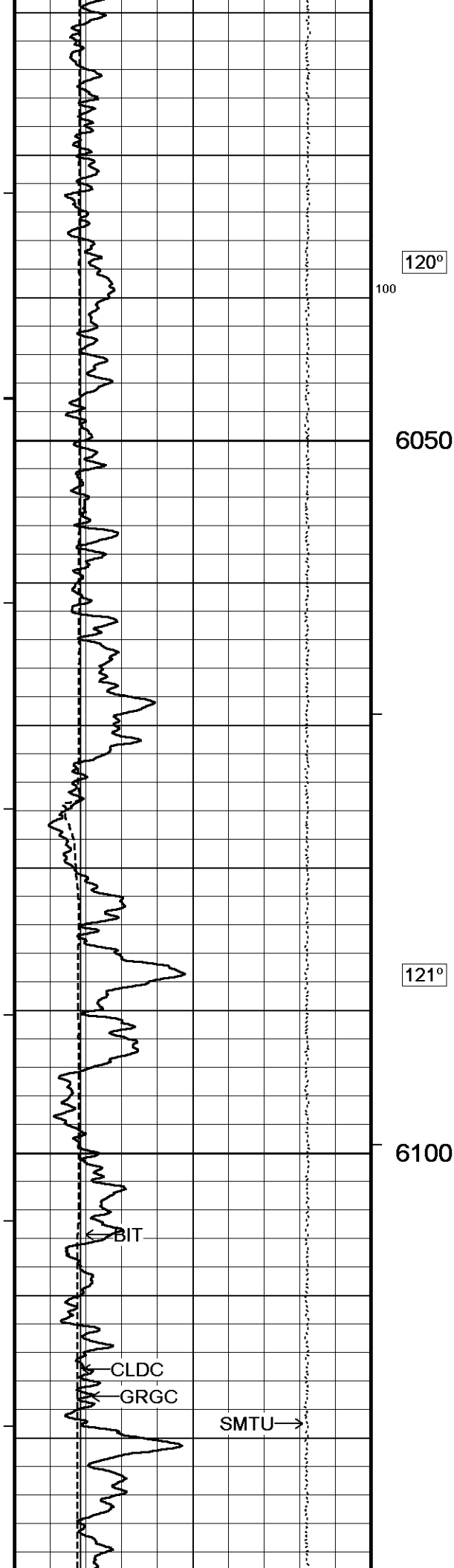
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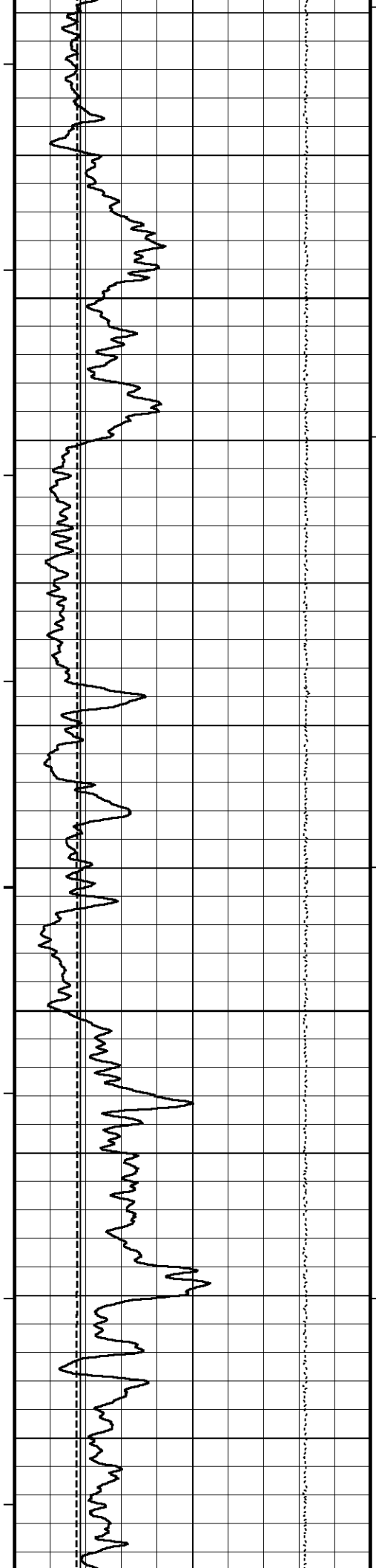
100

5900









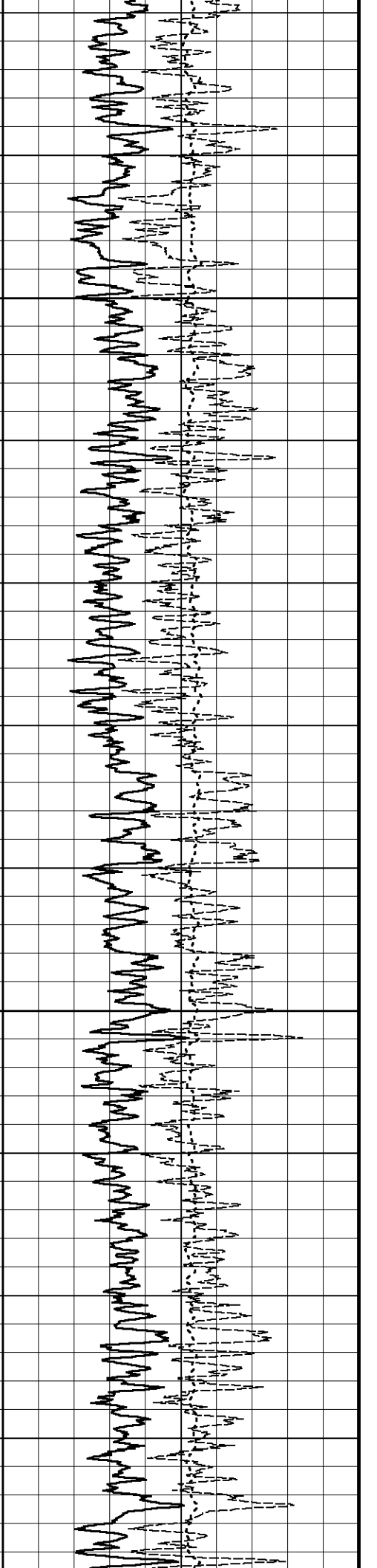
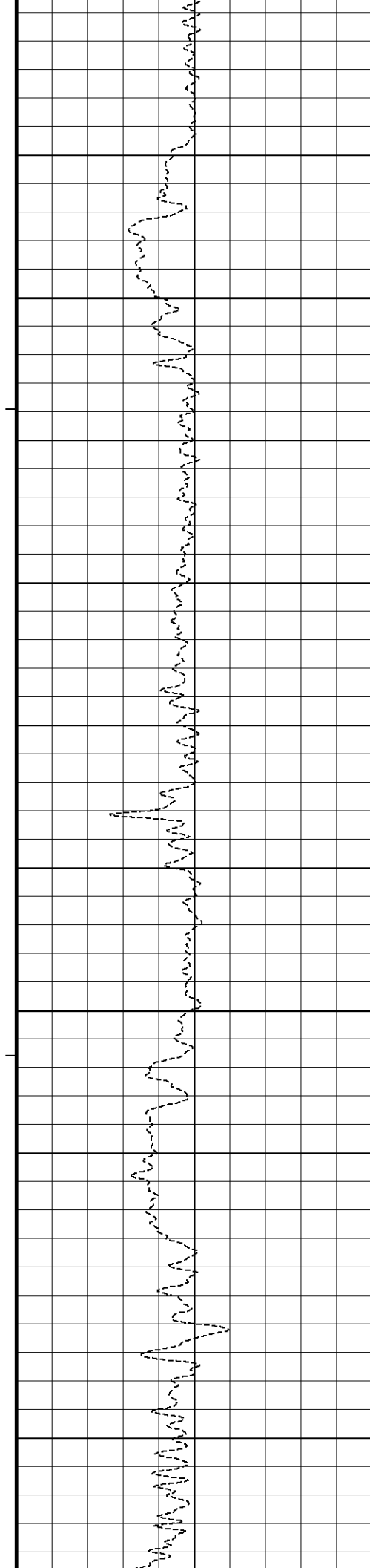
121°

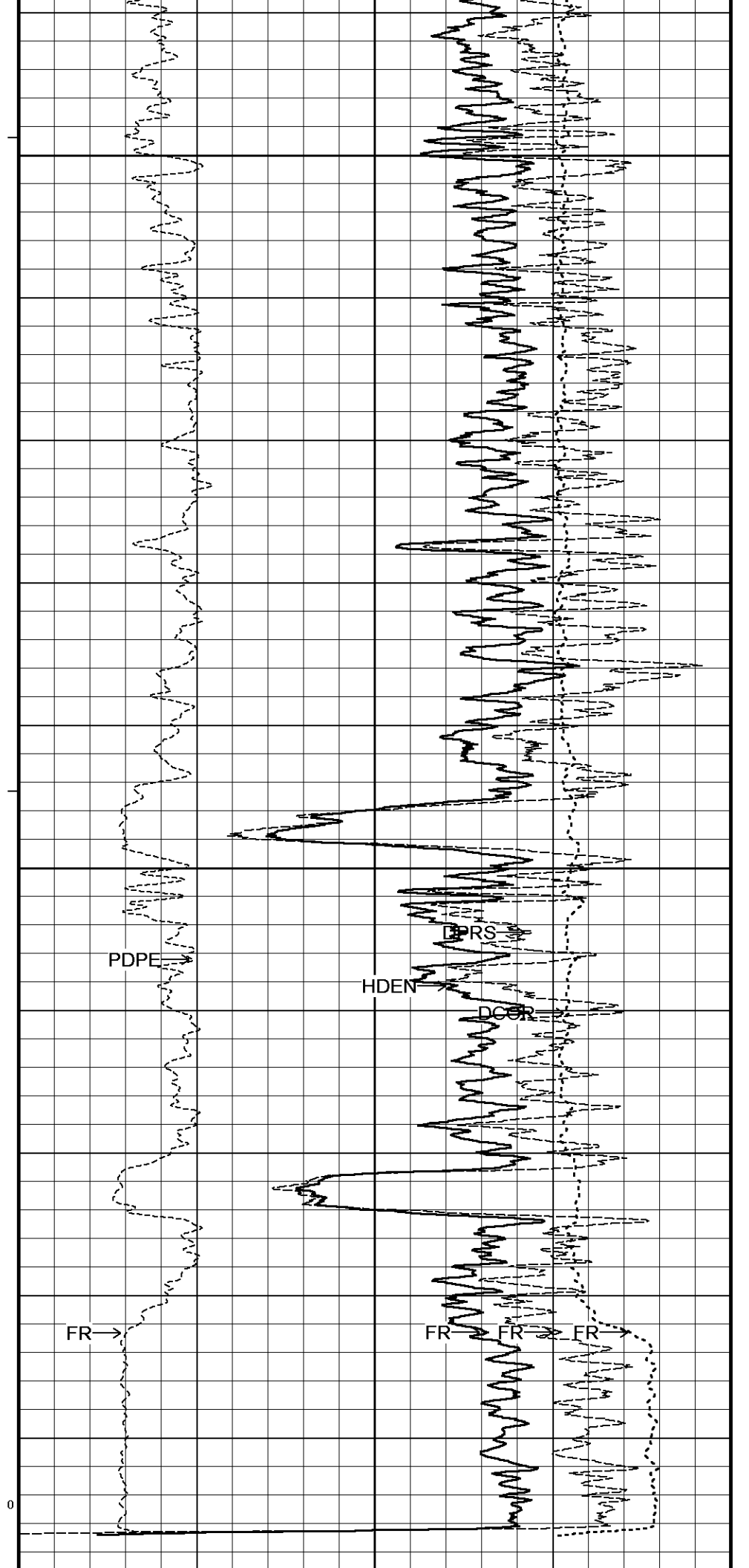
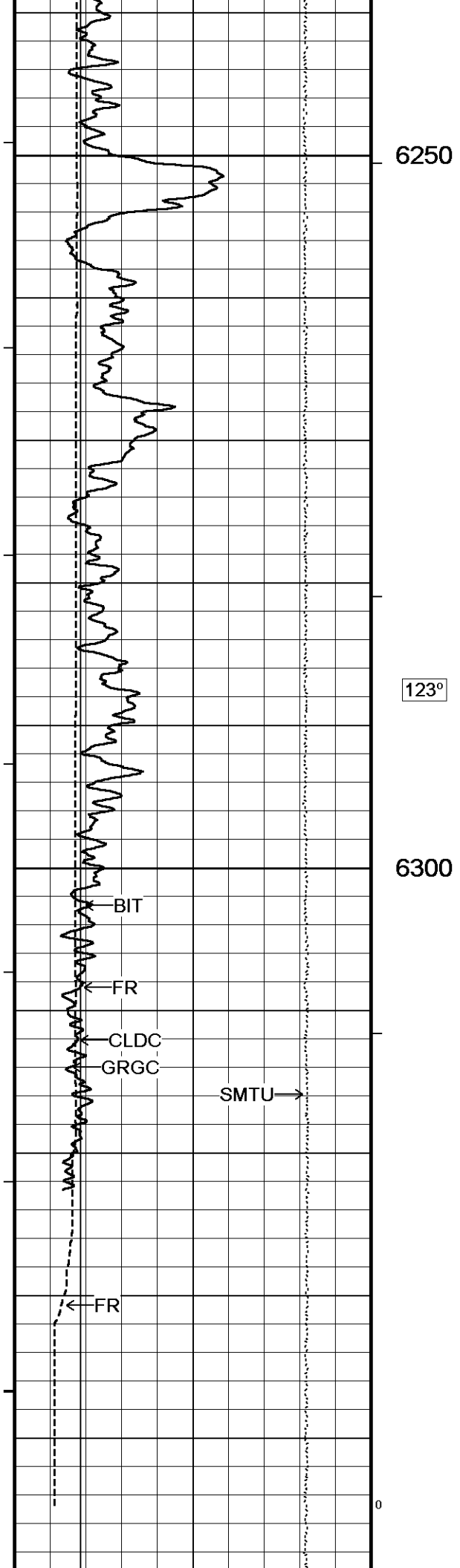
6150

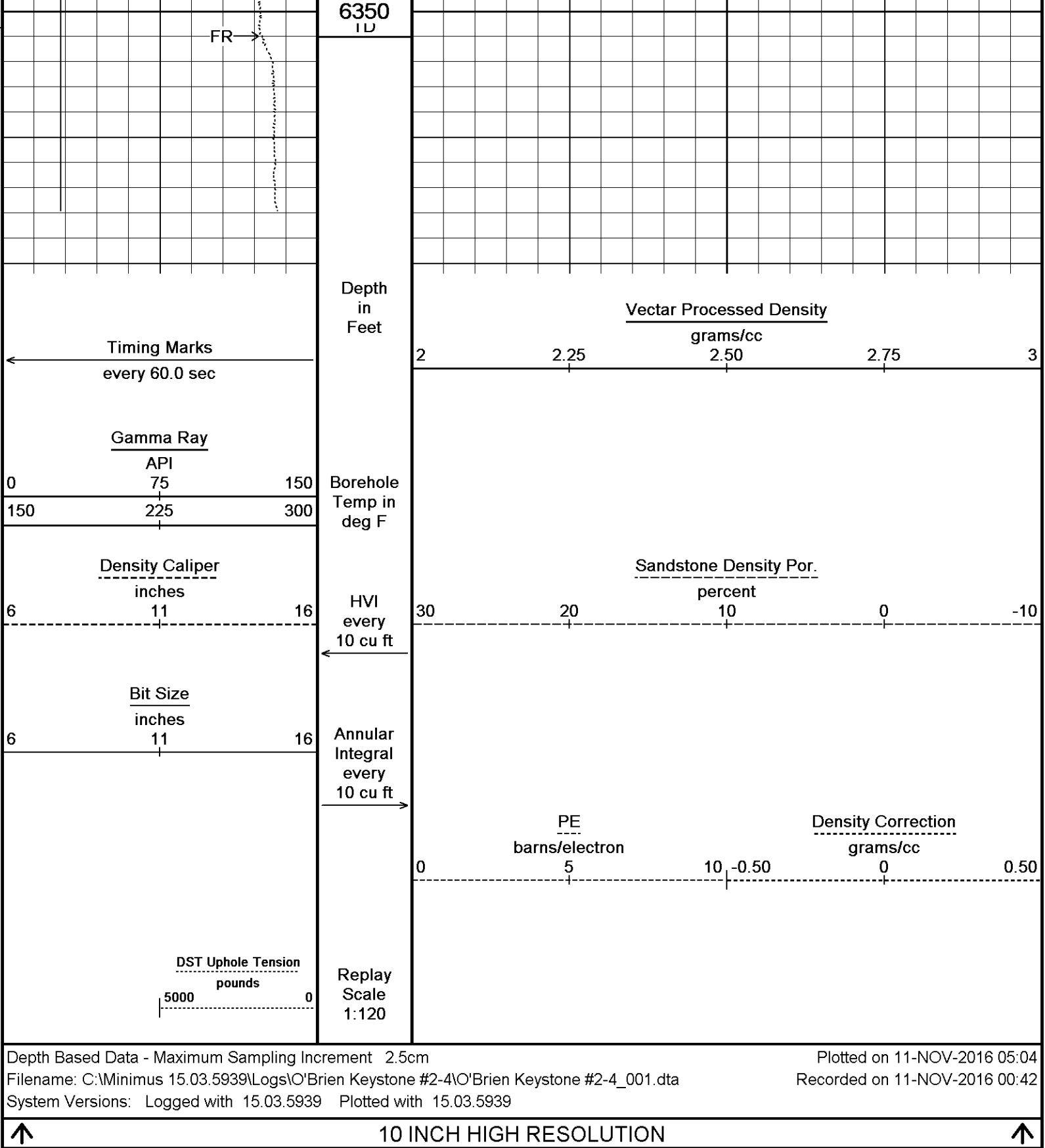
122°

6200

122°







BEFORE SURVEY CALIBRATION		
C:\Minimus 15.03.5939\Logs\O'Brien Keystone #2-4\O'Brien Keystone #2-4_002.dta		
General Constants All 000		Last Edited on 11-NOV-2016,00:03
General Parameters		
Mud Resistivity	1.180	ohm-metres
Mud Resistivity Temperature	75.000	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	4.500	inches
Caliper for Differential Caliper	None	

Rwa Parameters	
Porosity used	Limestone Density Por.
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 24-JUL-2016 15:20
Reading No	Measured	Calibrated (lbs)	
1	15235.81	0.00	
2	16026.61	481.00	

Gamma Calibration MCG-C 123			Field Calibration on 08-NOV-2016 22:41
	Measured	Calibrated (API)	
Background	73	51	
Calibrator (Gross)	728	507	
Calibrator (Net)	656	456	

Gamma Calibration Tolerances MCG-C 123		
Ratio	1.438	1.40 1.475 1.55 Counts/API

Gamma Constants MCG-C 123			Last Edited on 10-NOV-2016,22:37
Gamma Calibrator Number	MCGGRCC141		
GRC-M Calibrator Jig in Use?	NO		
Inactive Background Jig in Use?	NO		
Mud Density	1.13	gm/cc	
Caliper Source for Processing	Density Caliper		
Tool Position	Eccentred		
Potassium Equivalence	Chloride		
K Mud Concentration	0.00	%	

High Resolution Temperature Calibration MCG-C 123			Field Calibration on 31-OCT-2015,17:05
	Measured	Calibrated(Deg F)	
Lower	50.00	50.00	
Upper	100.00	100.00	

High Resolution Temperature Constants MCG-C 123			Last Edited on 22-SEP-2015,11:43
Pre-filter Length	11		

SP Calibration MCG-C 123			Field Calibration on 14-JUL-2016 12:06
	Measured	Calibrated (mV)	
Reference 1	101.2	100.6	
Reference 2	-99.1	-99.9	

Micro Normal and Micro Inverse Calibration MMR-C.A 247

Base Calibration on 28-AUG-2016 19:13

Field Check on 08-NOV-2016 22:26

Base Calibration

Channel	Measured		Calibrated (ohm-m)	
	Resistor 1	Resistor 2	Resistor 1	Resistor 2
Micro Normal	10.2	49.9	5.1	25.6
Micro Inverse	10.0	49.5	3.4	16.9

Channel	Base Check (ohm-m)	Field Check (ohm-m)
Micro Normal	93.6	93.6
Micro Inverse	62.2	62.2

Micro Normal & Micro Inverse Calibration Tolerance MMR-C.A 247			
	-5% 10.0 +5%		-5% 50.0 +5%

Micro Normal Res. 1	10.2	-5% 10.0 +5%	ohm	Micro Normal Res. 2	49.9	-5% 50.0 +5%	ohm
Micro Inverse Res. 1	10.0	-5% 10.0 +5%	ohm	Micro Inverse Res. 2	49.5	-5% 50.0 +5%	ohm
Micro Normal Base Check	93.6	-2% 93.19 +2%	ohm-m				
Micro Inverse Base Check	62.2	-2% 62.11 +2%	ohm-m				
Micro Normal Field Check	93.6	-2% 93.6 +2%	ohm-m				
Micro Inverse Field Check	62.2	-2% 62.2 +2%	ohm-m				

Micro Normal and Micro Inverse Constants MMR-C.A 247

Last Edited on 26-JUN-2016,15:44

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	

Caliper Calibration MMR-C.A 247

Base Calibration on 28-AUG-2016 19:08
Field Calibration on 08-NOV-2016 22:25

Base Calibration		
Reading No	Measured	Calibrator Size (in)
1	14869	5.98
2	18207	7.97
3	21411	9.86
4	25389	11.92
5	0	0.00
6	N/A	N/A
Field Calibration		
	Measured Caliper (in)	Actual Caliper (in)
	8.04	7.97

Caliper Calibration Tolerances MMR-C.A 247

Short Arm Field Cal.	8.04	7.77 7.97 8.17	in
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Micro-Resistivity Caliper Constants MMR-C.A 247

Last Edited on

Sonde Configuration	Resistivity Mode
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Neutron Calibration MDN-A.B 66

Base Calibration on 22-MAY-2016,18:15
Field Check on 08-NOV-2016 22:46

Base Calibration		
	Measured	Calibrated (cps)
	Near Far	Near Far
	3116 97	3714 110
Ratio	32.277	33.764
Field Calibrator at Base		
		Calibrated (cps)
		2061 3028
Ratio		0.681
Field Check		
		Calibrated (cps)
		2161 3088
Ratio		0.700

Neutron Calibration Tolerances MDN-A.B 66

Ratio	32.277	-5% 33 +5%
Base Check	0.681	0.65 0.7 0.75
Field Check	0.700	0.661 0.681 0.701

Neutron Constants MDN-A.B 66

Last Edited on 10-NOV-2016,22:36

Neutron Source Id	P0204NN
Neutron Jig Number	NJ5736
Air Hole Processing	Legacy
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 28-AUG-2016 18:58

Field Check on 08-NOV-2016 22:14

Base Calibration

	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	963.3	126.8
Base Check		281.3
Field Check		281.6

FE Calibration Tolerances MFE-B.J 352

Reference 2	963.3		ohm
Base Check	281.3		ohm-m
Field Check	281.6		ohm-m

FE Constants MFE-B.J 352

Last Edited on 10-NOV-2016,22:36

Running Mode	No Sleeve	
MFE K Factor	0.1268	
Borehole Correction Constants		
Sonde Position	0.5	inches
Hole Size Source	Density Caliper	
Hole Size Constant Value	N/A	inches
Rm Source	Global Value: Temperature Corrected	
Temp. for Rm Corr.	MCG External Temperature	

Induction Calibration MAI-A.A 111

Base Calibration on 05-AUG-2014,09:34

Field Check on 08-NOV-2016 22:13

Base Calibration

Test Loop Calibration	Measured		Calibrated (mmho/m)	
Channel	Low	High	Low	High
1	17.6	473.6	9.3	966.2
2	6.4	385.9	7.6	821.4
3	3.2	264.0	5.2	566.0
4	2.1	135.5	2.6	279.2
Array Temperature	23.0		Deg F	

Test Loop Calibration Verified 22-MAY-2016,17:59

Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1	12.1	3873.0	10.7	3868.1
2	29.8	3528.1	28.6	3523.9
3	29.1	3021.3	28.1	3017.8
4	19.1	2058.5	18.5	2056.2
Deep	17.7	1962.1	17.1	1959.8
Medium	43.1	3976.4	41.8	3971.7
Shallow	44.4	5232.7	42.6	5226.4

Array Temperature 65.8 62.1 Deg F

Induction Calibration Tolerances MAI-A.A 111							
Low Conductivity 1	17.6		mmho/m	High Conductivity 1	473.6		mmho/m
Low Conductivity 2	6.4		mmho/m	High Conductivity 2	385.9		mmho/m
Low Conductivity 3	3.2		mmho/m	High Conductivity 3	264.0		mmho/m
Low Conductivity 4	2.1		mmho/m	High Conductivity 4	135.5		mmho/m
Background Vx 1	0.0		mmho/m	Phase Check Loop 1	0.0		%
Background Vx 2	0.0		mmho/m	Phase Check Loop 2	0.0		%
Background Vx 3	0.0		mmho/m	Phase Check Loop 3	0.0		%
Background Vx 4	0.0		mmho/m	Phase Check Loop 4	0.0		%

Induction Constants MAI-A.A 111				Last Edited on 10-NOV-2016,22:36			
Induction Model		RtAP-WBM					
Borehole Correction Constants							
Tool Centred		No					
Hole Size Source		Density Caliper					
Hole Size Constant Value		N/A					inches
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
Rm Source		Global Value: Temperature Corrected					
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
Symmetrised Receiver Gains							
Receiver 1		1.00					
Receiver 2		1.00					
Receiver 3		1.00					
Receiver 4		1.00					
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 111				Field Calibration on 24-NOV-2014,10:23			
	Measured	Calibrated(Deg F)					
Lower	10.00	10.00					
Upper	100.00	100.00					

Pre-filter Length

11

Photo Density Calibration MPD-B 104

Base Calibration on 28-AUG-2016 20:24
Field Check on 08-NOV-2016 22:23

Density Calibration

Base Calibration

	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Background	1145	1339		
Reference 1	49665	24007	59556	30836
Reference 2	20032	2442	24941	2541

Field Check at Base

1144.9 1338.6

Field Check

1139.6 1323.0

PE Calibration

Base Calibration

	Measured		Calibrated	
	WS	WH	Ratio	Ratio
Background	211	1021		
Reference 1	20773	49486	0.424	0.371
Reference 2	5807	19899	0.296	0.272

Field Check at Base

211.3 1021.2

Field Check

207.9 1017.4

Photo Density Calibration Tolerances MPD-B 104

Near Density Ratio	2.57	
PE Calibration	0.119	

Far Density Ratio	20.54	
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Near Den. Field Check	1139.6	
PE WS Field Check	207.9	

Far Den. Field Check	1323.0	
PE WH Field Check	1017.4	

Density Constants MPD-B 104

Last Edited on 10-NOV-2016,22:36

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	1.13	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 (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 104

Base Calibration on 28-AUG-2016 19:51
Field Calibration on 08-NOV-2016 22:17

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	13646	3.99

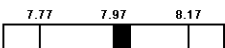
2	22688	5.98
3	31297	7.97
4	39521	9.86
5	48608	11.92
6	N/A	N/A

Field Calibration

Measured Caliper (in)
8.01

Actual Caliper (in)
7.97

Caliper Calibration Tolerances MPD-B 104

Short Arm Field Cal. 8.01  in

DOWNHOLE EQUIPMENT

C:\Minimus 15.03.5939\Logs\O'Brien Keystone #2-4\O'Brien Keystone #2-4_002.dta

Cablehead, 11 pin
CBH-CA 176 LG: 2.40 ft WT: 24.3 lb OD: 2.244 in

Compact Comms Gamma
MCG-C 123 LG: 8.70 ft WT: 63.9 lb OD: 2.244 in

Compact Micro-Resistivity
MMR-C.A 247 LG: 8.59 ft WT: 81.6 lb OD: 4.882 in

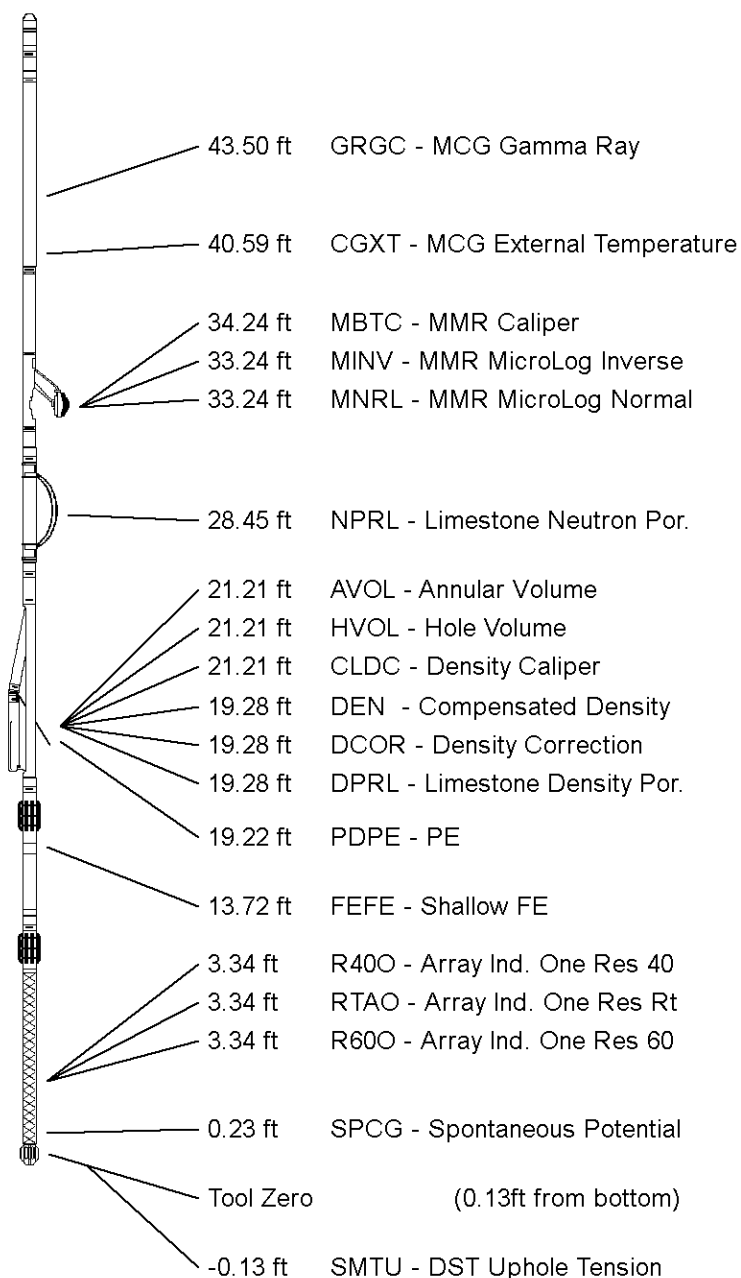
Compact Neutron
MDN-A.B 66 LG: 5.04 ft WT: 50.7 lb OD: 2.244 in

Compact Density/Caliper
MPD-B 104 LG: 9.59 ft WT: 90.4 lb OD: 2.449 in

Compact Focussed Electric
MFE-B.J 352 LG: 6.05 ft WT: 48.5 lb OD: 2.244 in

Compact Induction
MAI-A.A 111 LG: 10.81 ft WT: 48.5 lb OD: 2.244 in

Total Length: 51.18 ft Weight: 407.9 lb



All measurements relative to tool zero.

COMPANY
WELL
FIELD

O'BRIEN ENERGY RESOURCES CORP.
KEYSTONE #2-4
ANGELL SE

FIELD			ANGELLE OL		
PROVINCE/COUNTY			MEADE		
COUNTRY/STATE			U.S.A. / KANSAS		
Elevation Kelly Bushing	2597.00	feet	First Reading	6333.00	feet
Elevation Drill Floor	2595.00	feet	Depth Driller	6350.00	feet
Elevation Ground Level	2585.00	feet	Depth Logger	6352.00	feet
			COMPACT PHOTO DENSITY COMPENSATED NEUTRON MICRORESISTIVITY LOG		