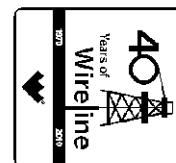




**Weatherford**

**COMPACT TRIPLE COMBO  
QUICKLOOK  
LOGS**

COMPANY **WEXPRO COMPANY**  
WELL **MUSSER 31**  
FIELD **POWDER WASH**  
PROVINCE/COUNTY **MOFFAT**  
COUNTRY/STATE **USA/COLORADO**  
LOCATION **SHL: 348' FNL & 607' FEL**



SEC **TWP** **RGE** **Other Services**  
**4** **11N** **97W**  
API Number **0508107468**  
Permit Number

Permanent Datum G.L., Elevation 6601 feet  
Log Measured From **KB**  
Drilling Measured From **KB**

Elevations: **feet**  
**KB** 6630.00  
**DF** 6630.00  
**GL** 6601.00

Date	07-DEC-2011	
Run Number	1	
Depth Driller	9095.00	feet
Depth Logger	6220.00	feet
First Reading	6217.00	feet
Last Reading	1537.00	feet
Casing Driller	1539.00	feet
Casing Logger	1537.00	feet
Bit Size	7.875	inches
Hole Fluid Type	WBM	
Density / Viscosity	10.40 lb/USg	15.00 CP
PH / Fluid Loss	9.00	8.00 ml/30Min
Sample Source	FLOWLINE	
Rm @ Measured Temp	4.26 @ 76.4	ohm-m
Rmf @ Measured Temp	3.41 @ 76.4	ohm-m
Rmc @ Measured Temp	5.11 @ 76.4	ohm-m
Source Rmf / Rmc	CALC	CALC
Rm @ BHT	2.27 @ 146.0	ohm-m
Time Since Circulation	4 HOURS	
Max Recorded Temp	146.00	deg F
Equipment Name	COMPACT	
Equipment / Base	13144	RK SPR
Recorded By	J.PAULSON	
Witnessed By	R.BUSH	J.LIU

**BOREHOLE RECORD**

Last Edited: 07-DEC-2011 12:50

Bit Size inches	Depth From feet	Depth To feet
7.875	1539.00	9095.00

**CASING RECORD**

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	9.625	0.00	1537.00	36.00

**REMARKS**

SOFTWARE VERSION 12.02.4401

TOOLS RUN: SHA, MCG, MDN, MPD, MIS-D, SKJ, MFE, MAI RUN IN COMBINATION.

HARDWARE: MPD: 8" PROFILE PLATE USED.  
MAI: TWO 1 INCH STANDOFFS USED.  
MFE: ONE 1 INCH STANDOFF USED.  
MDN: DUAL BOWSPRING USED.

2.65 G/CC DENSITY MATRIX USED TO CALCULATE POROSITY.

TIGHT PULLS, BOREHOLE SIZE AND RUGOSITY WILL AFFECT REPEATABILITY AND DATA QUALITY.

ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST.

TOTAL HOLE VOLUME FROM TD TO SURFACE CASING =1731 CUBIC FEET

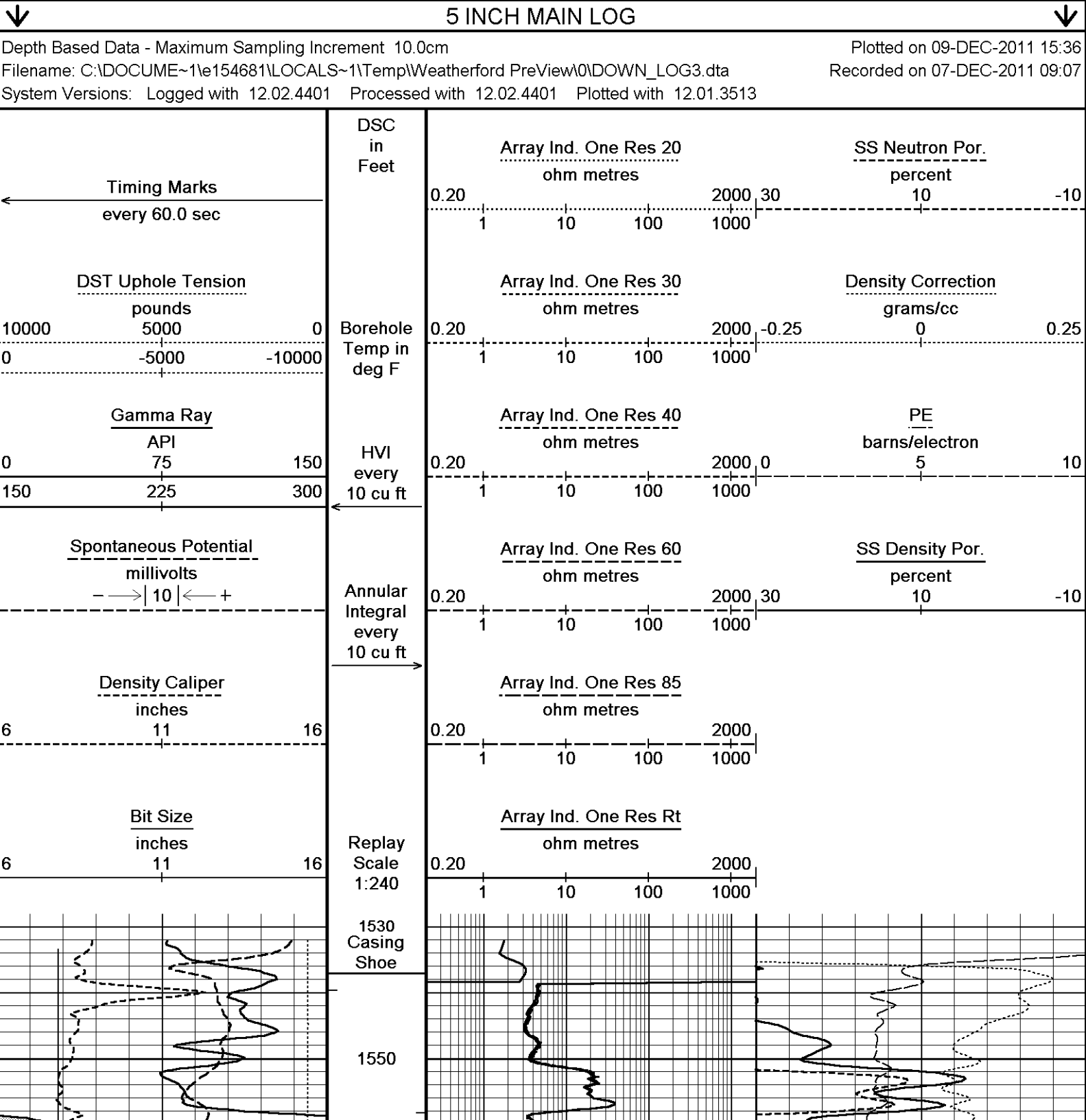
ANNUAL VOLUME WITH 4.5 INCH PRODUCTION CASING FROM TD TO SURFACE CASING = 1215 CUBIC FEET

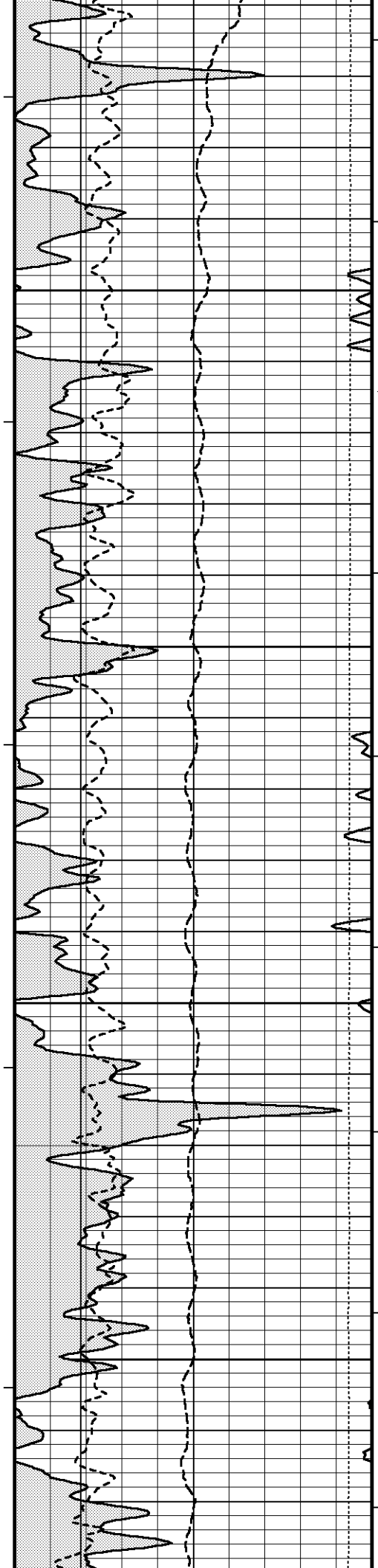
BRIDGED OFF AT 6220 AND LOGGED UP FROM THERE

SERVICE ORDER: #3526717  
OPERATOR: D. SMITH  
U. KIMBASSA

RIG: SST 88

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.





92°

1200

1600

1700

93°

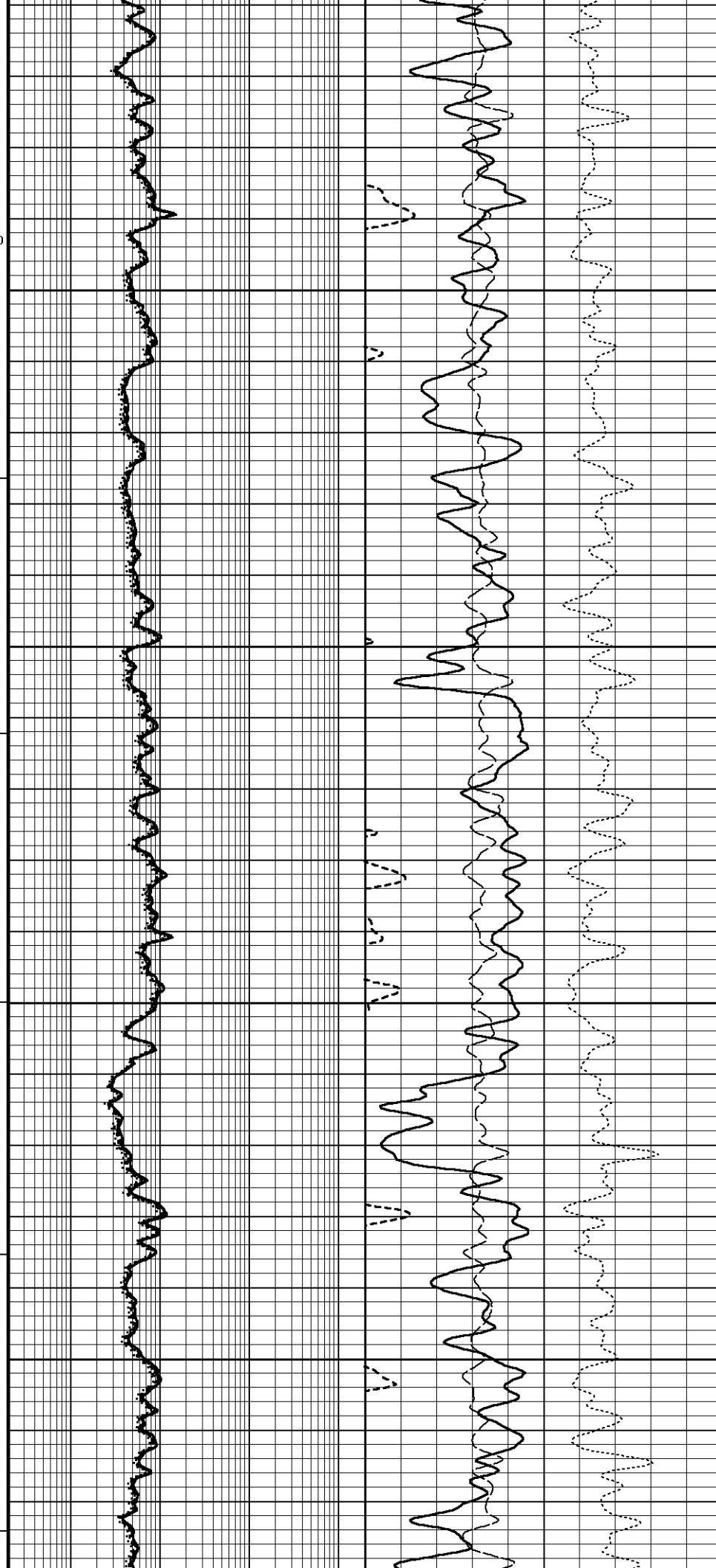
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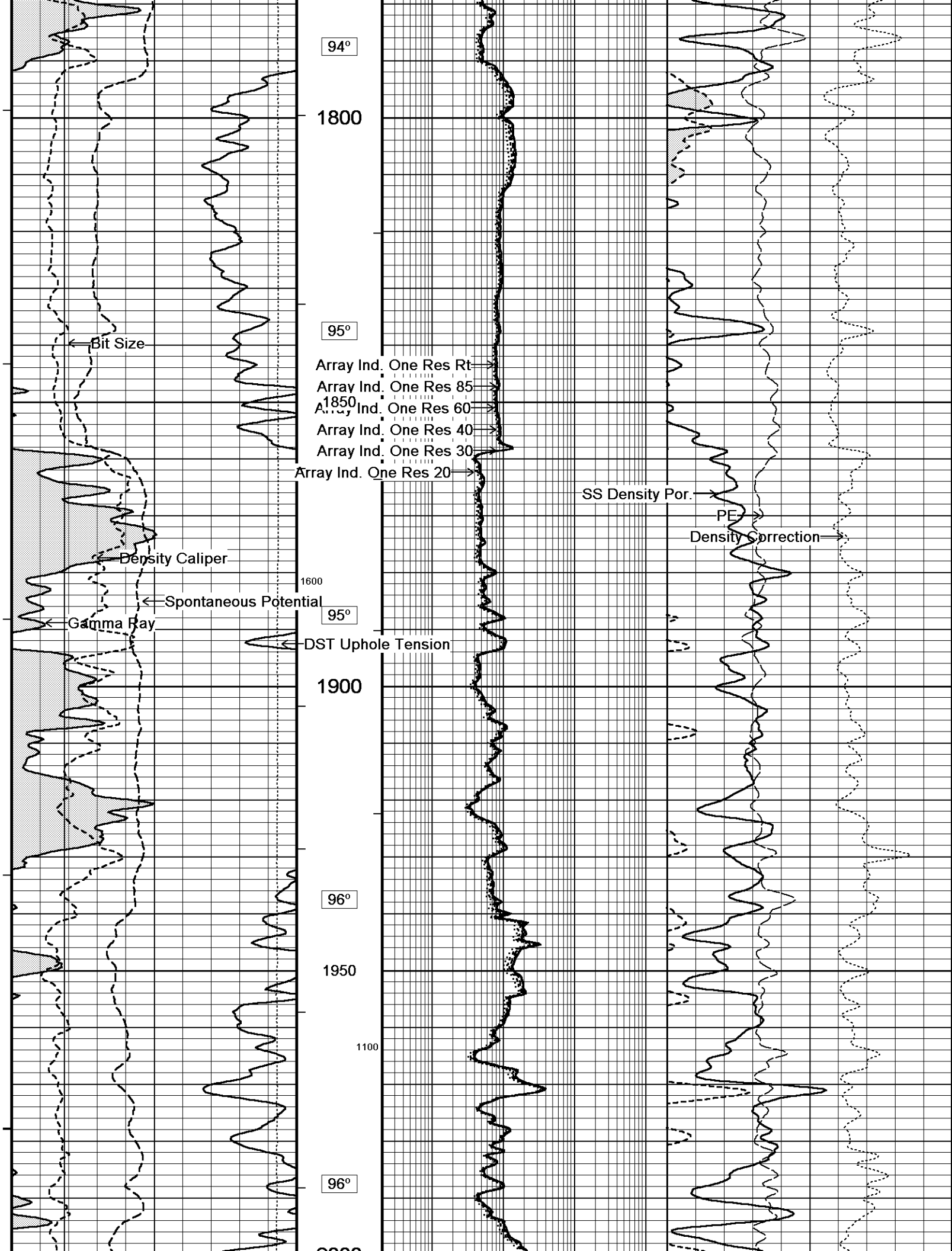
93°

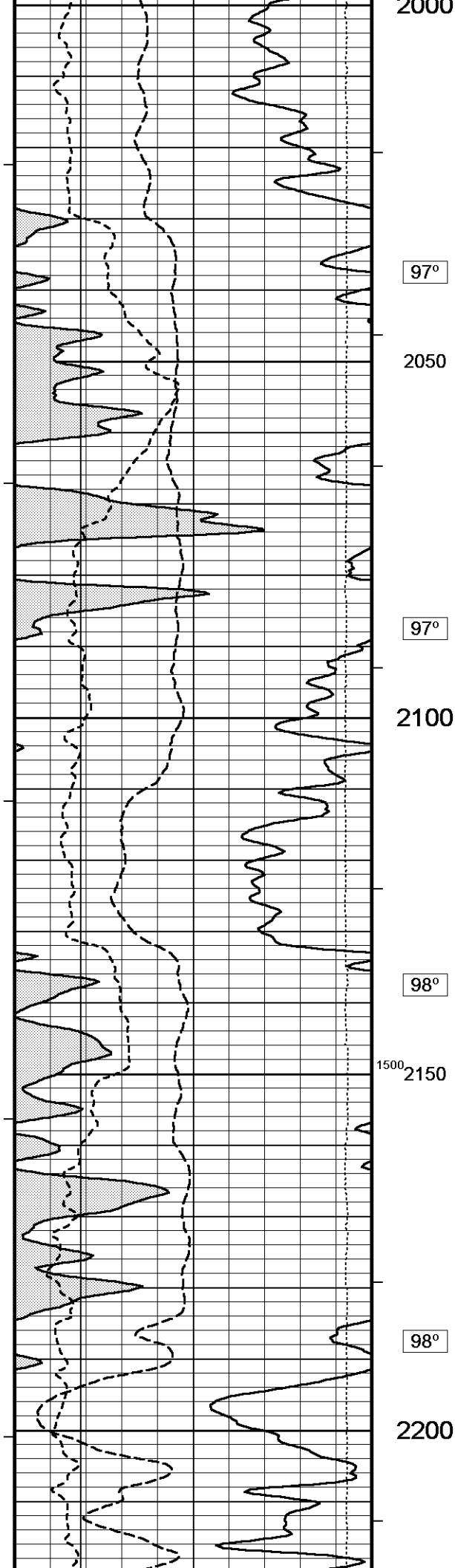
1700

94°

1750







2000

97°

2050

97°

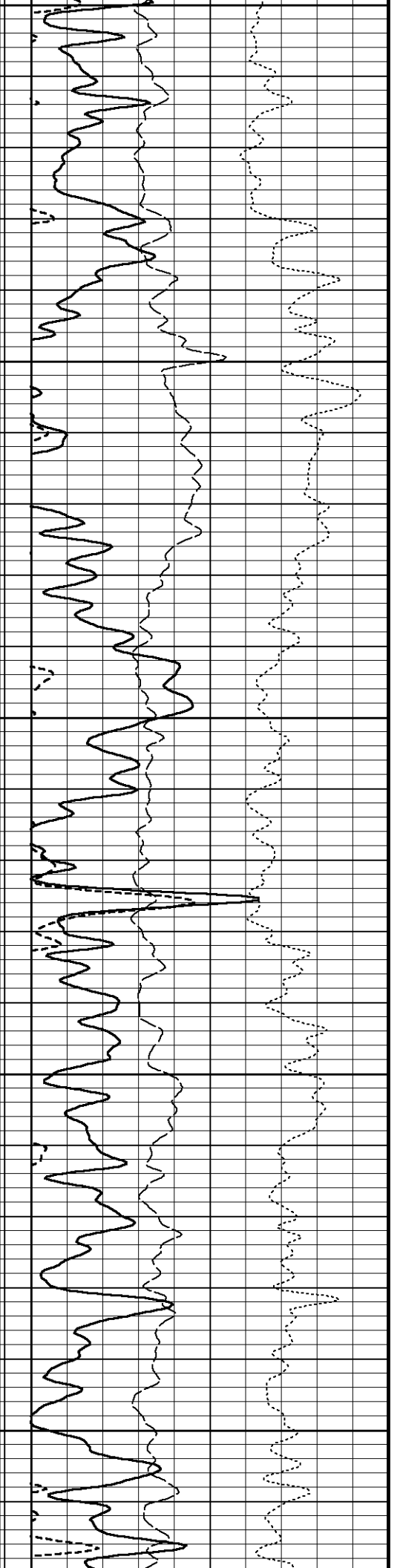
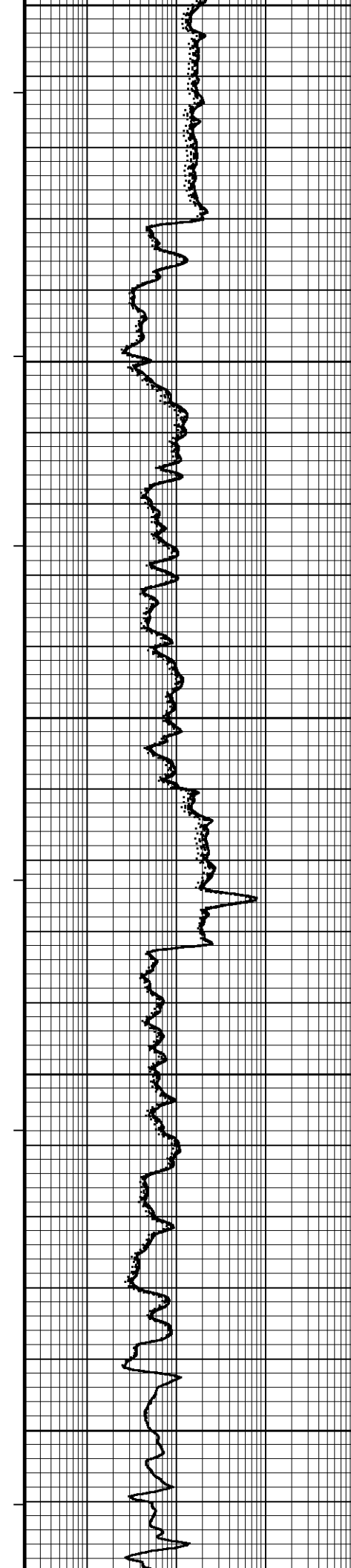
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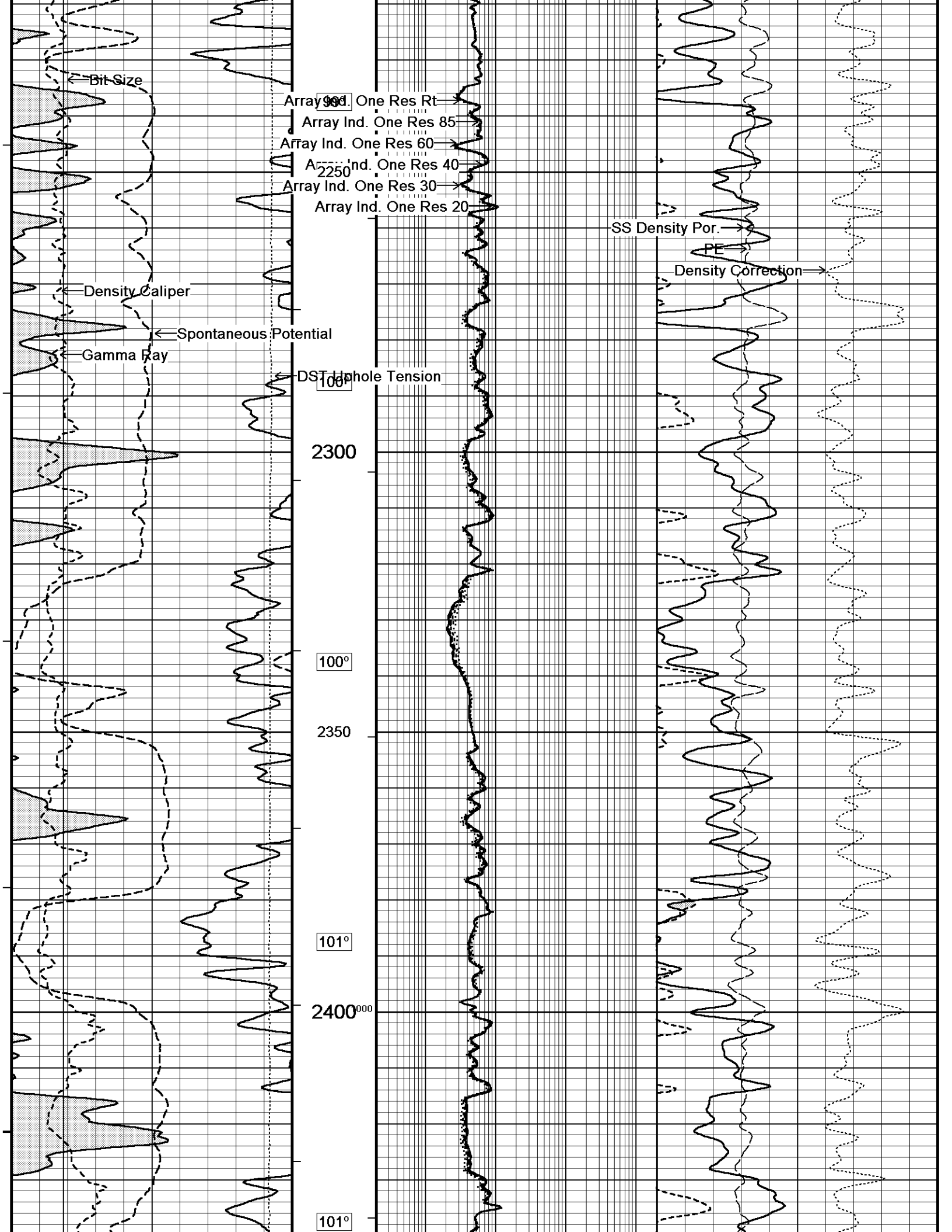
98°

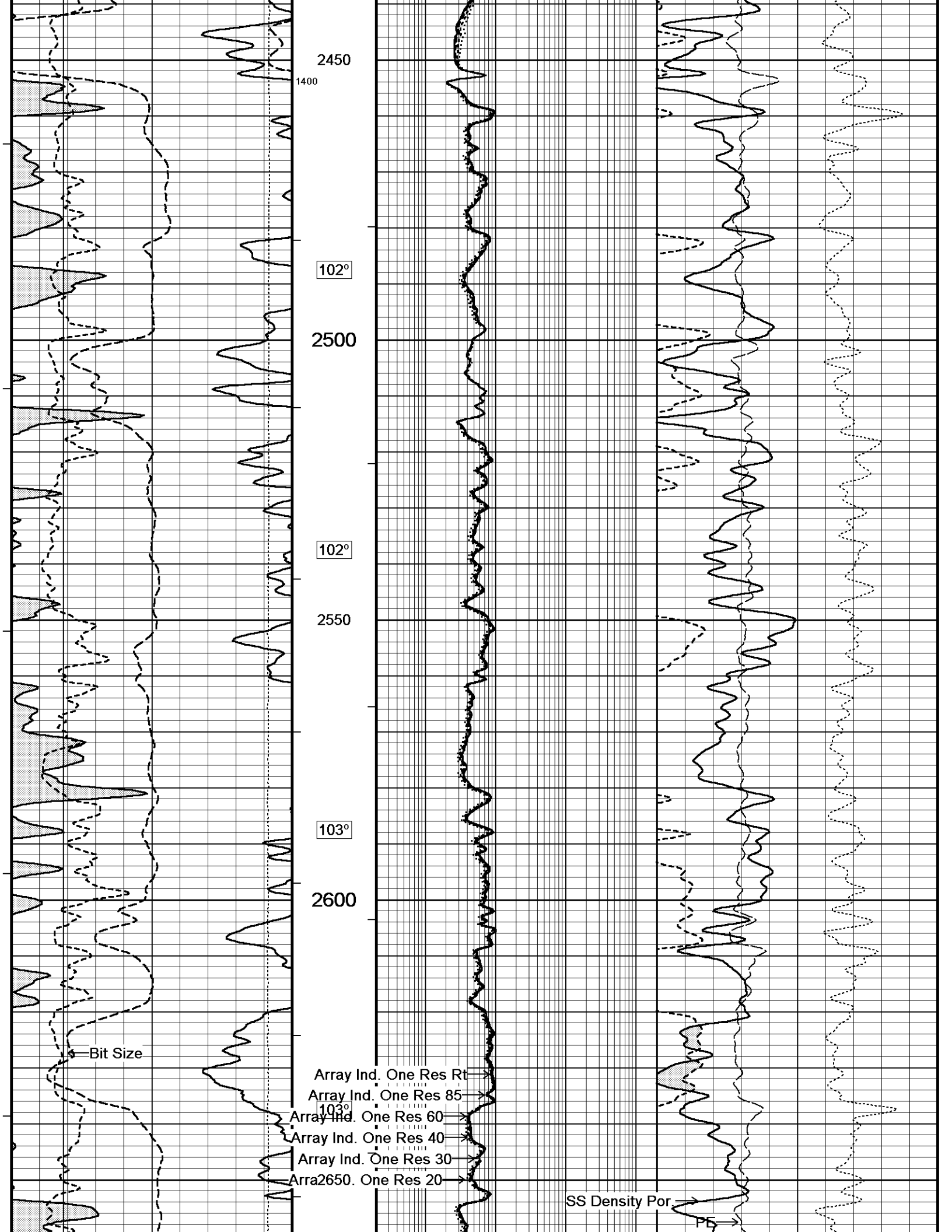
1500  
2150

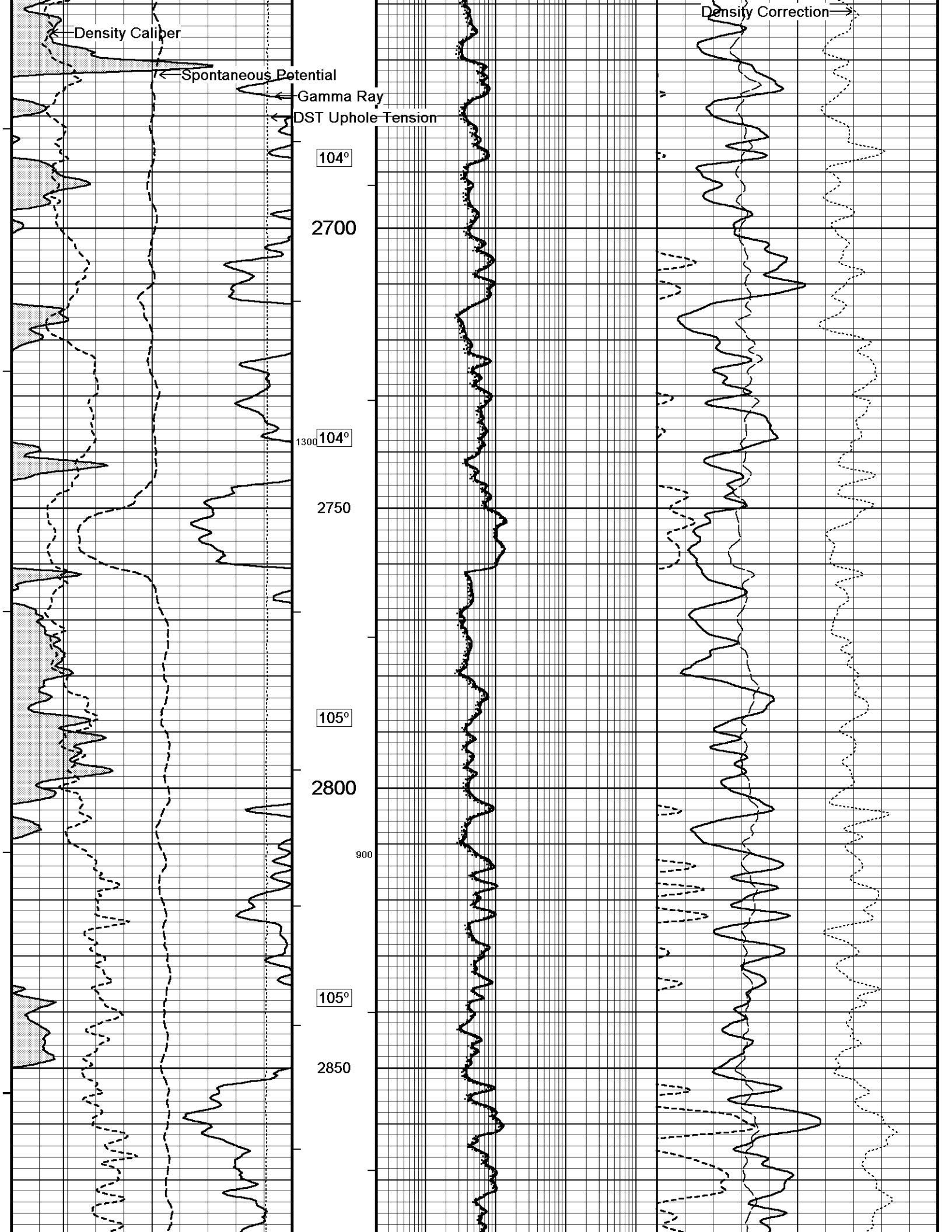
98°

2200

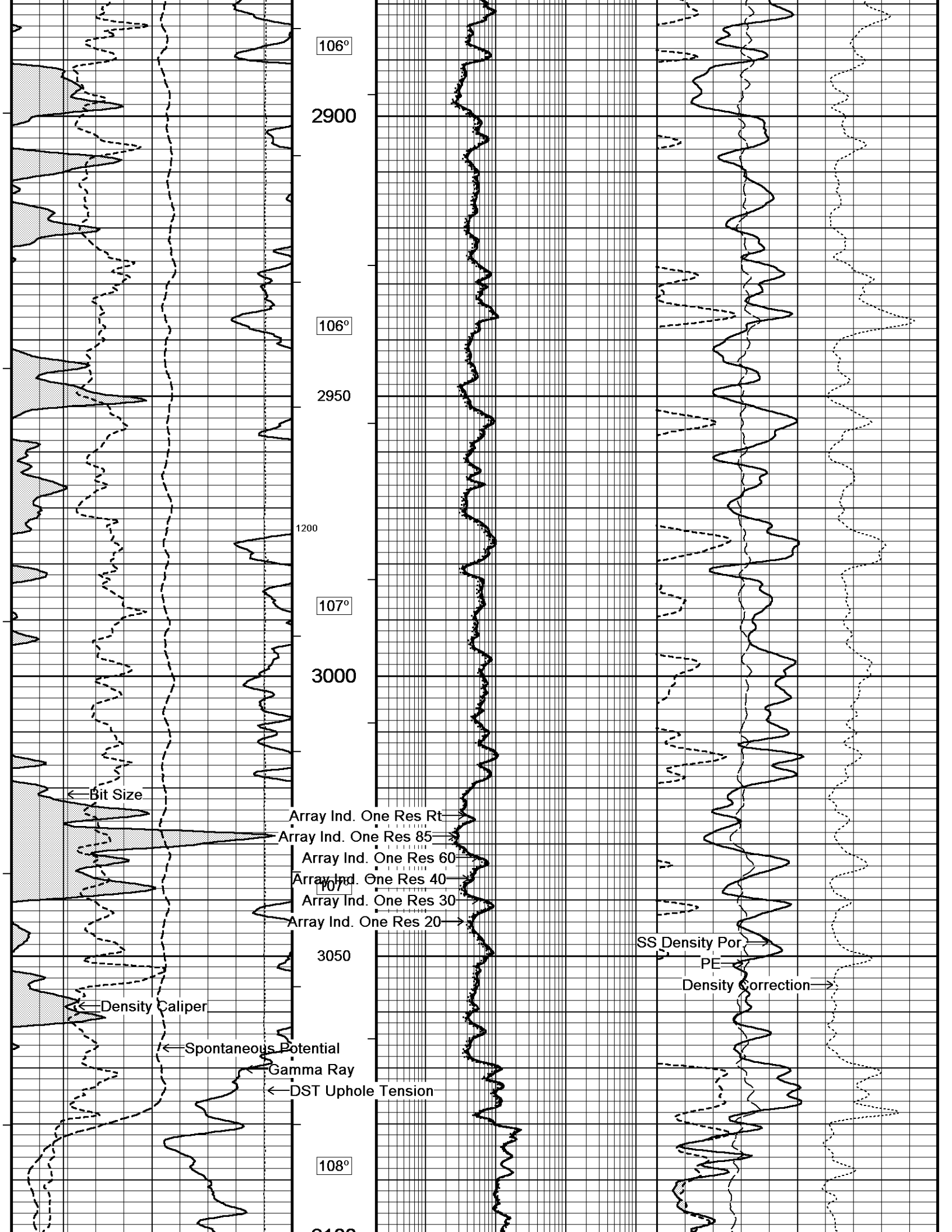


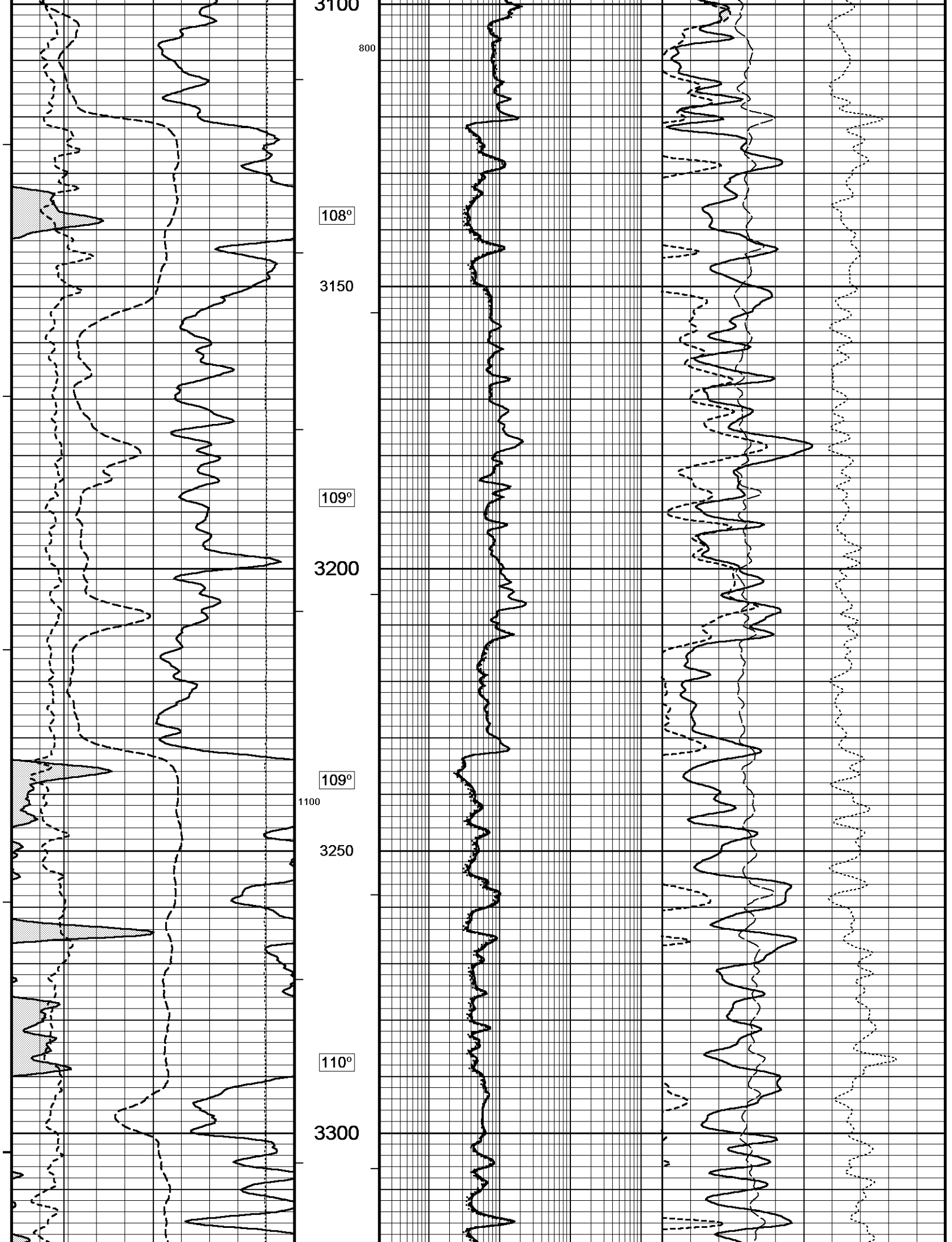


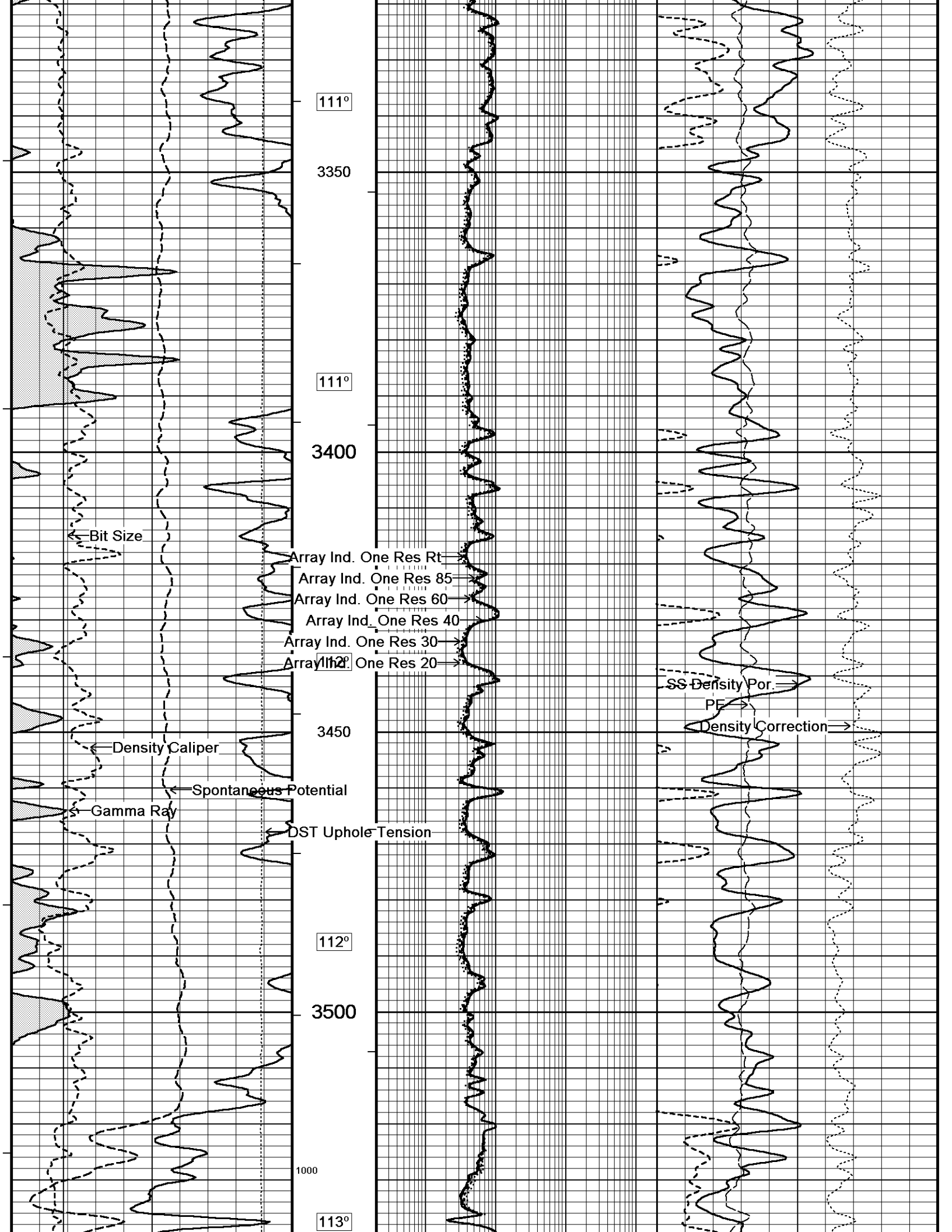


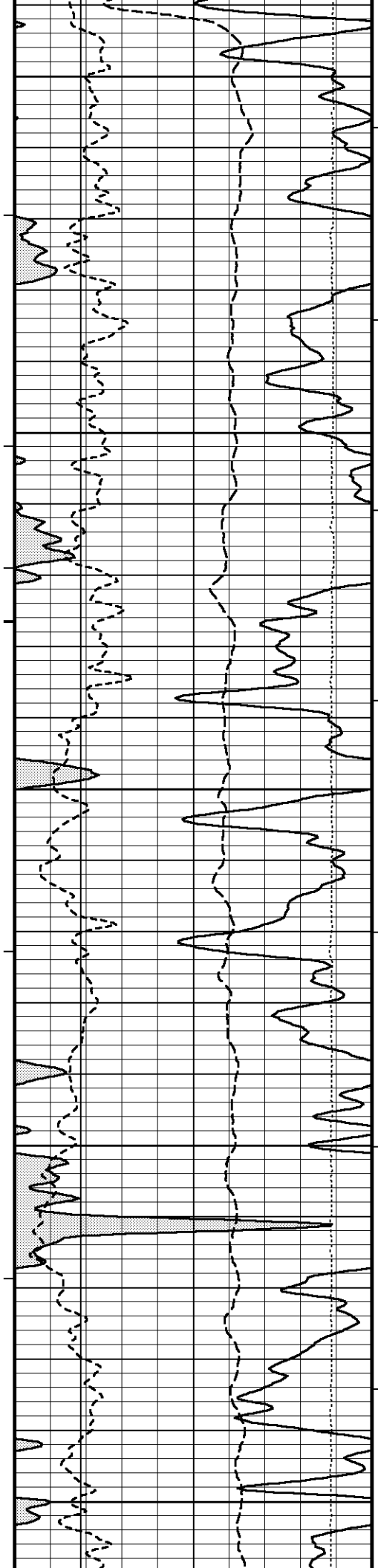












3550 700

114°

3600

114°

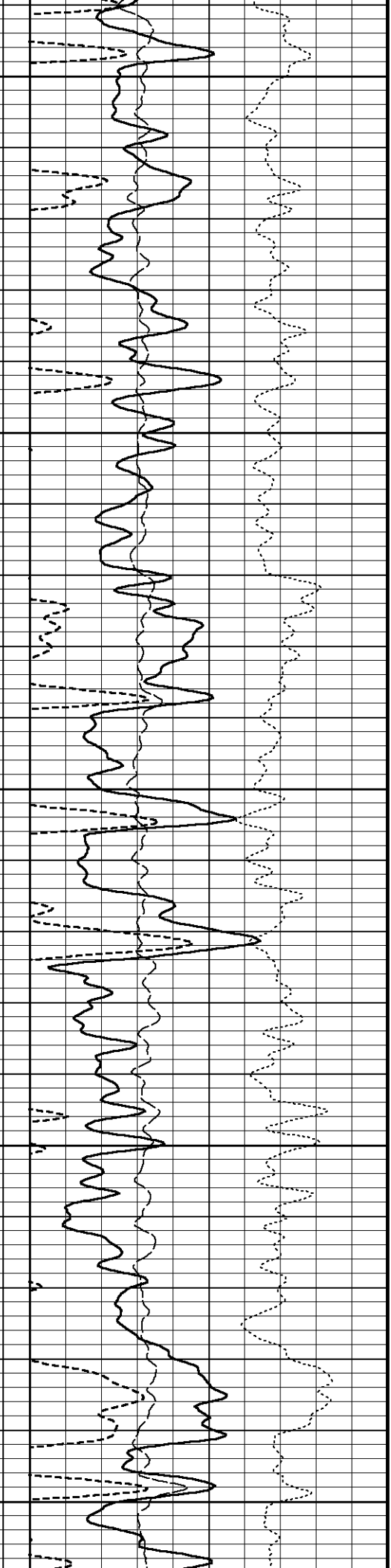
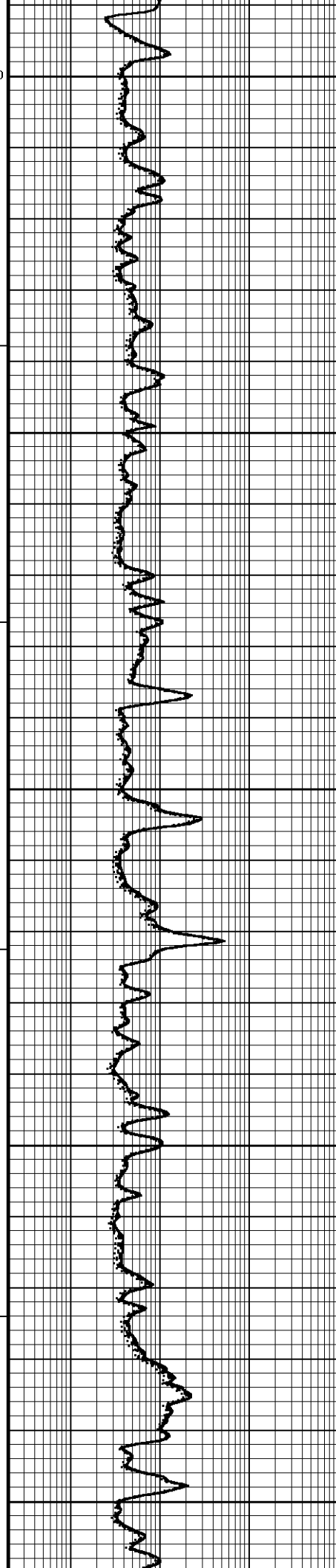
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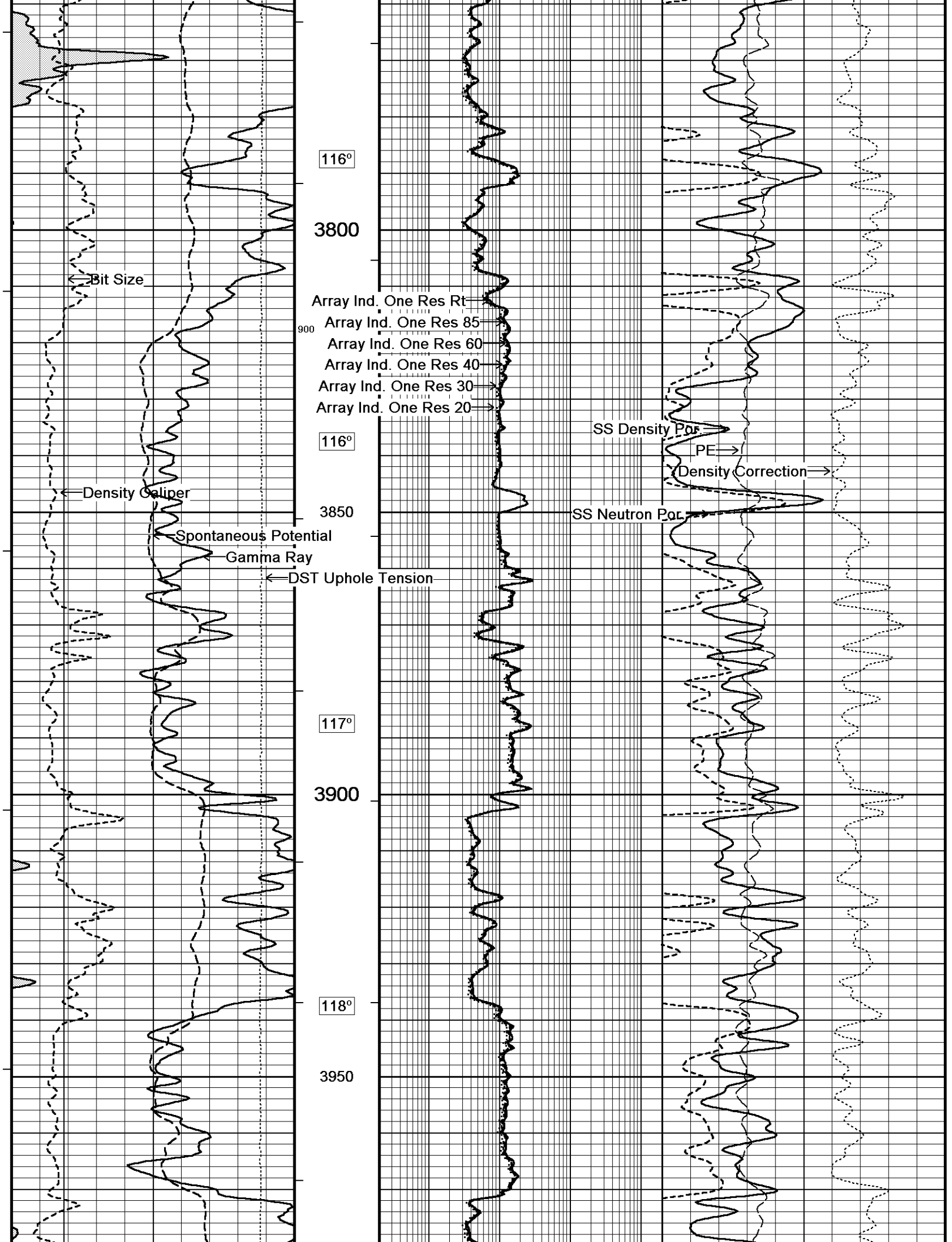
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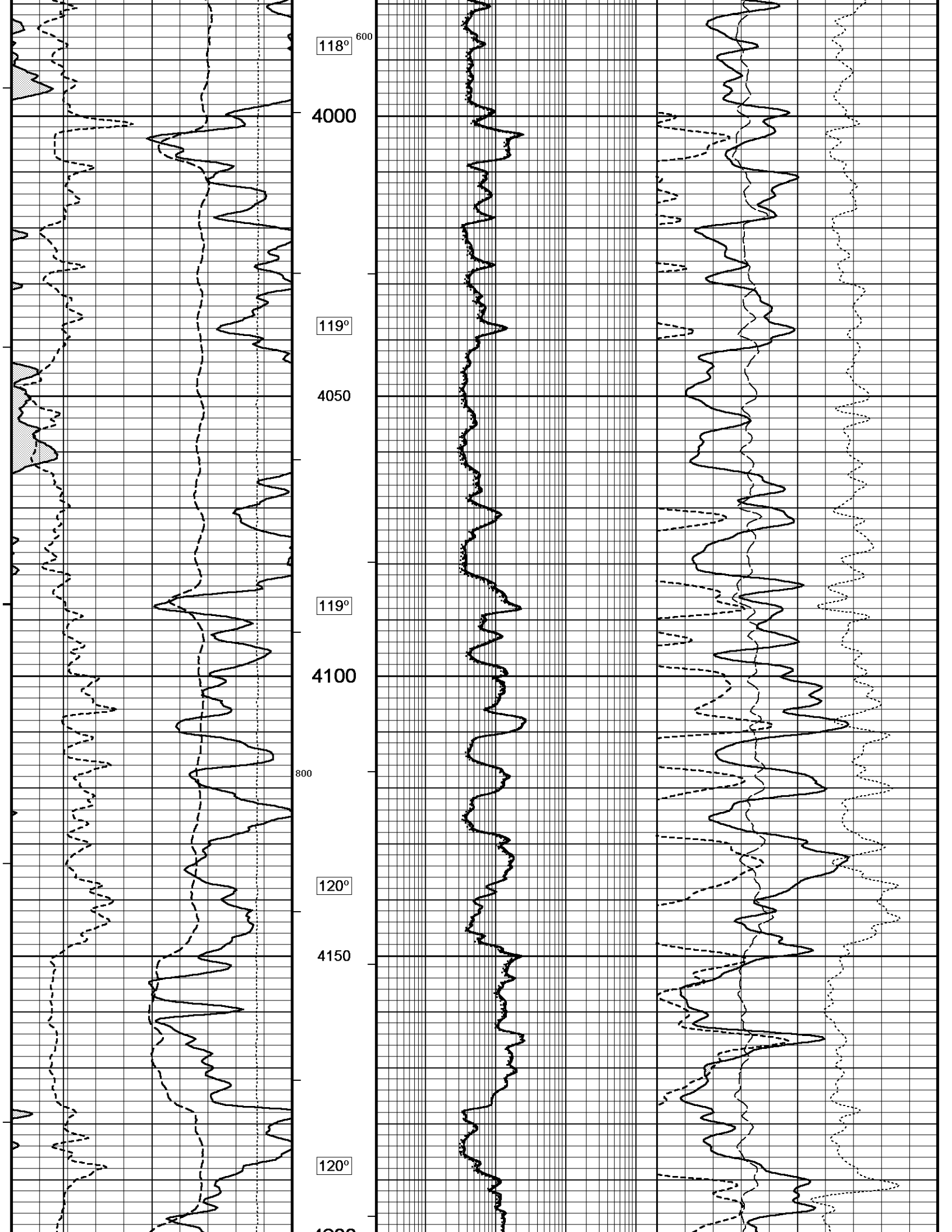
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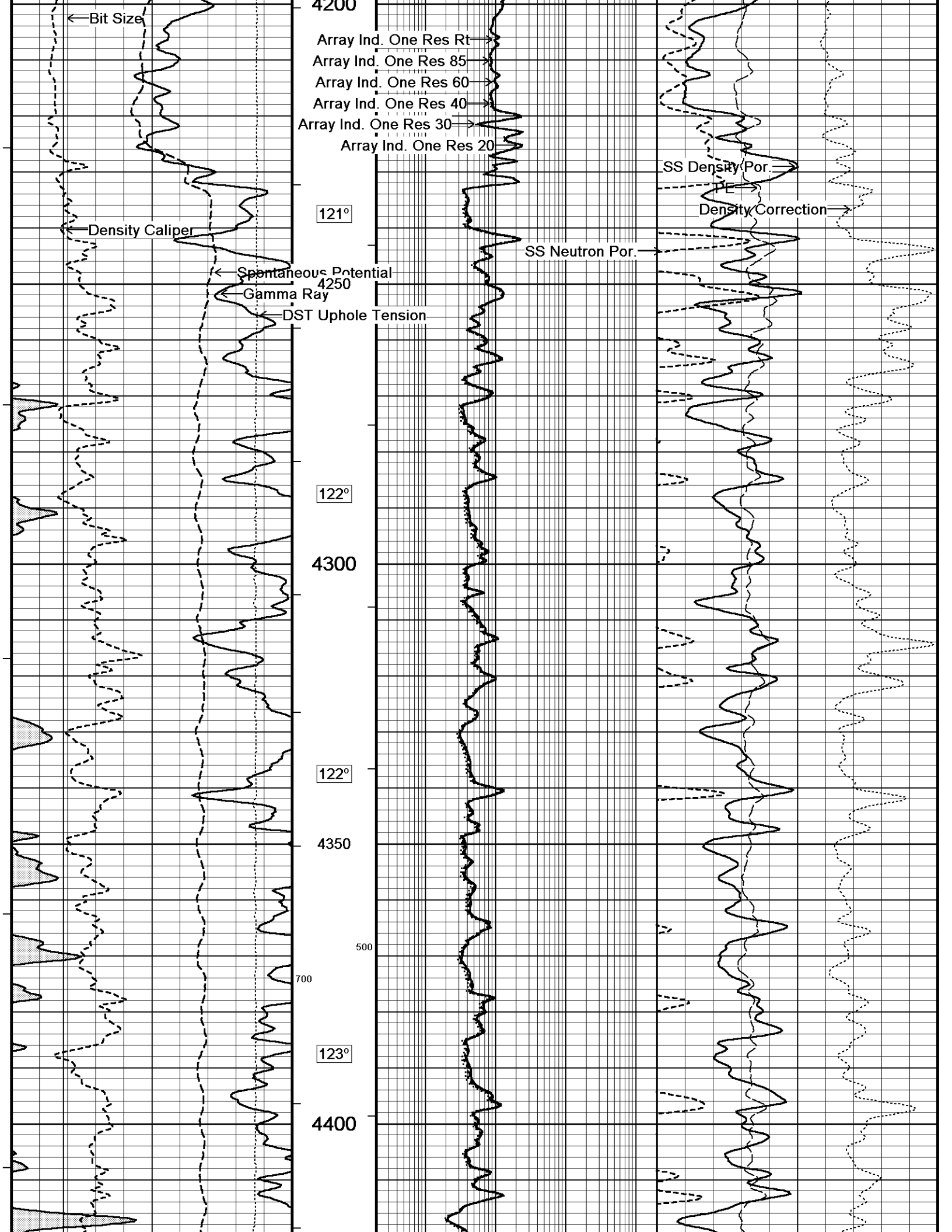
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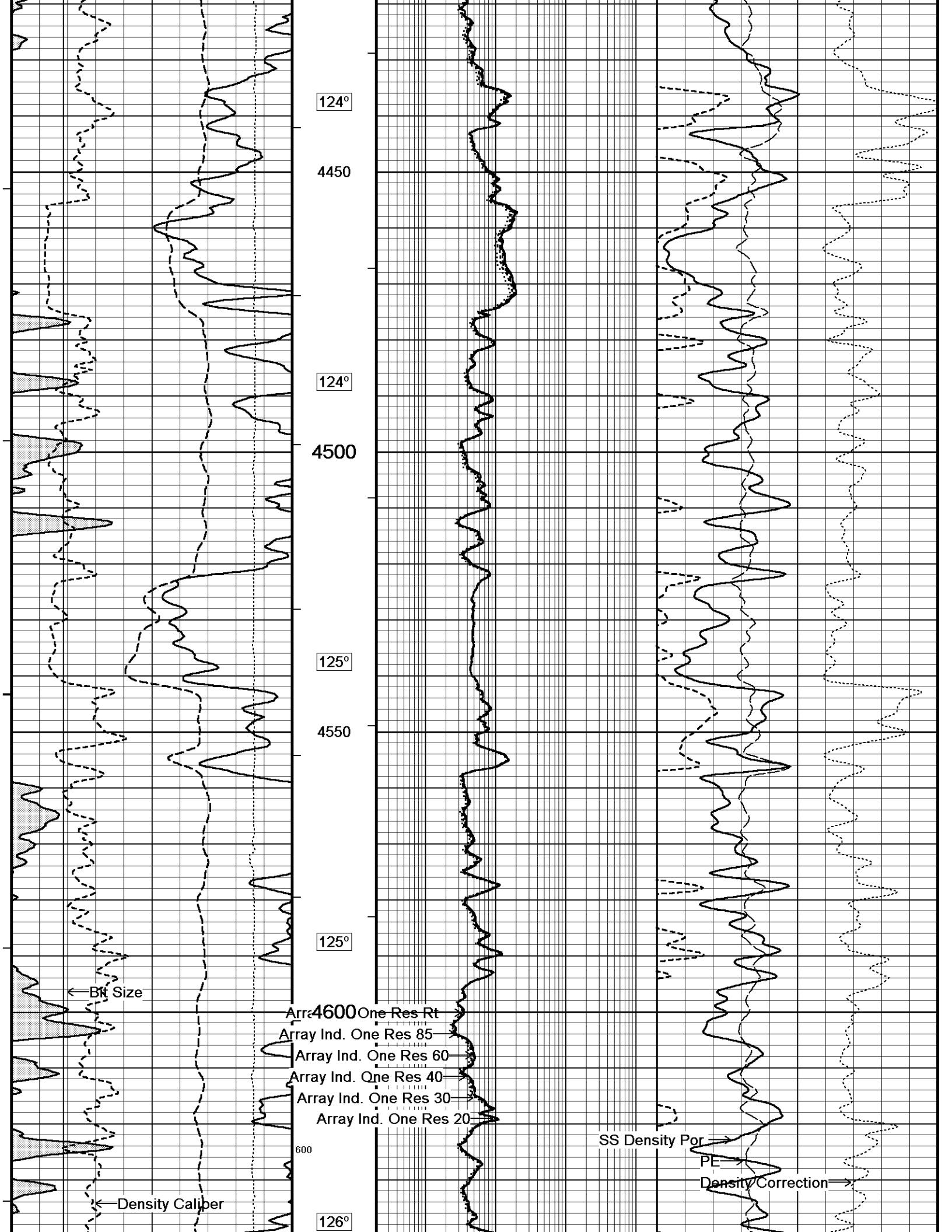
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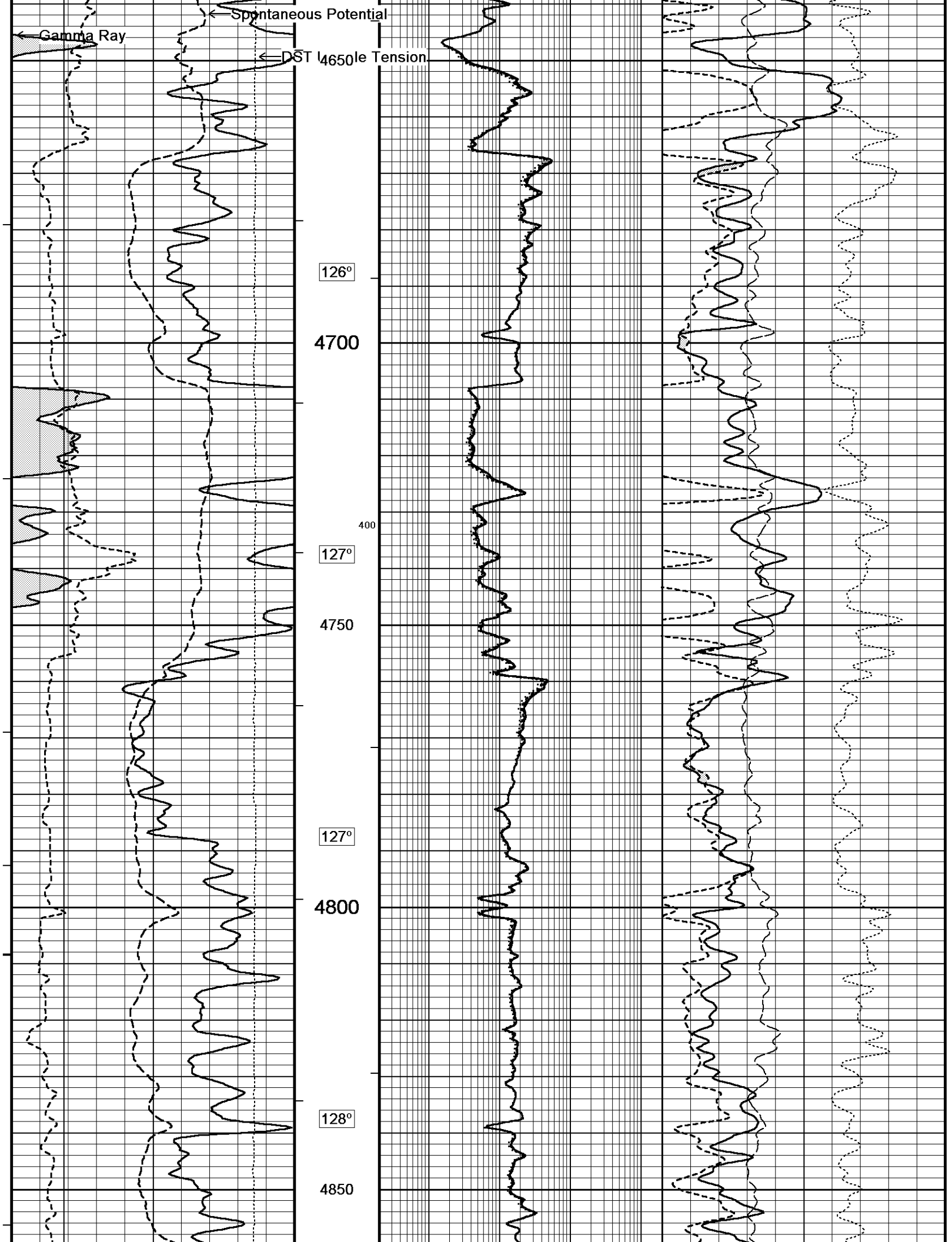


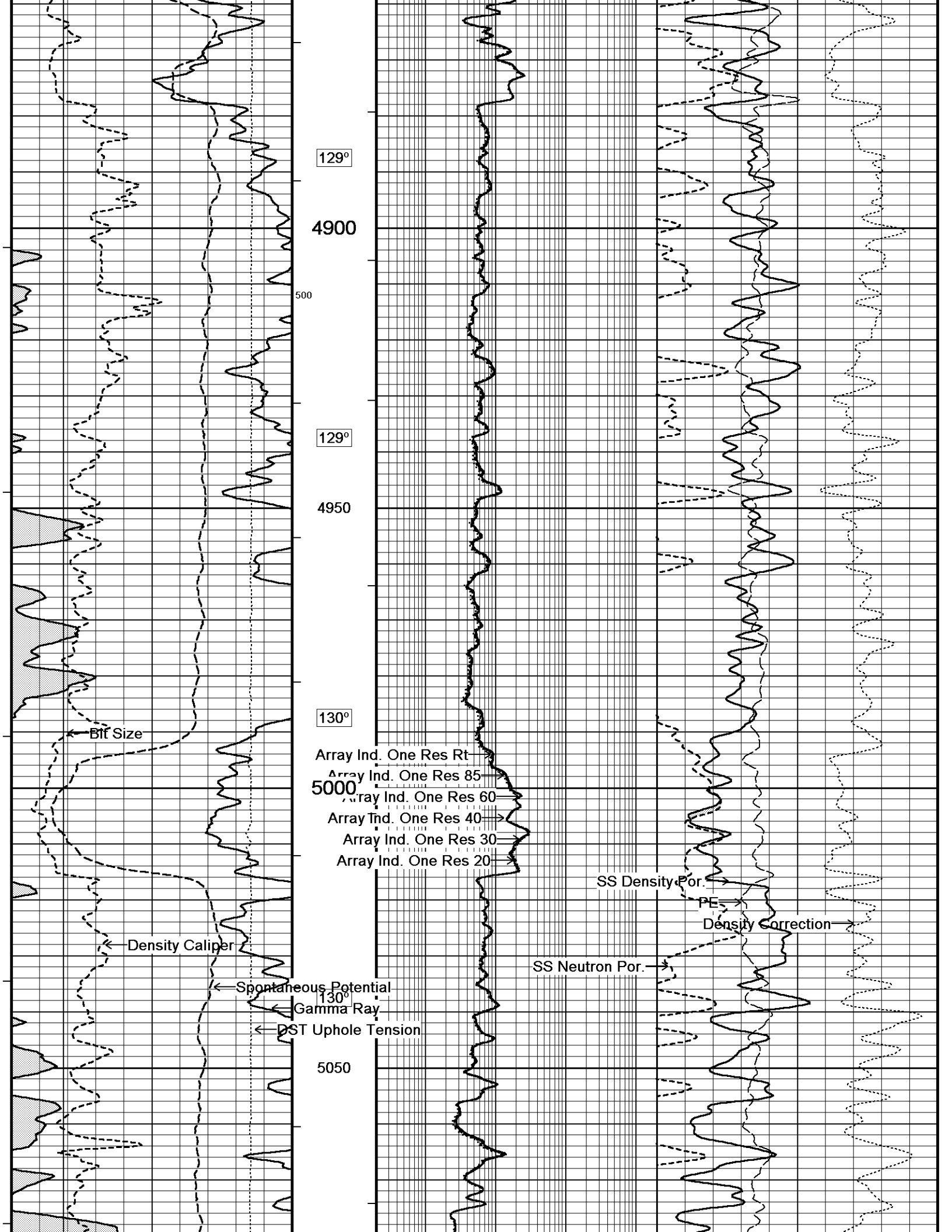


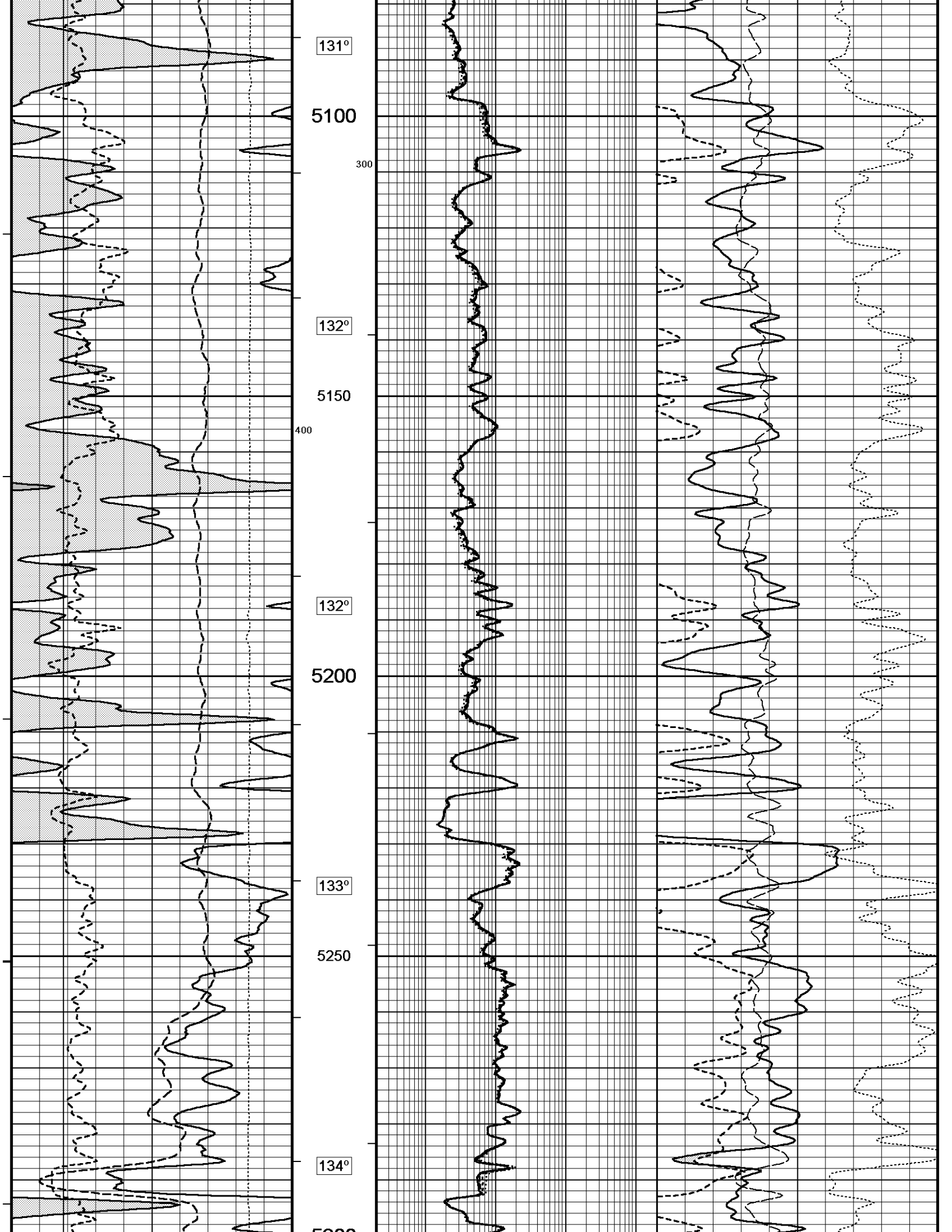


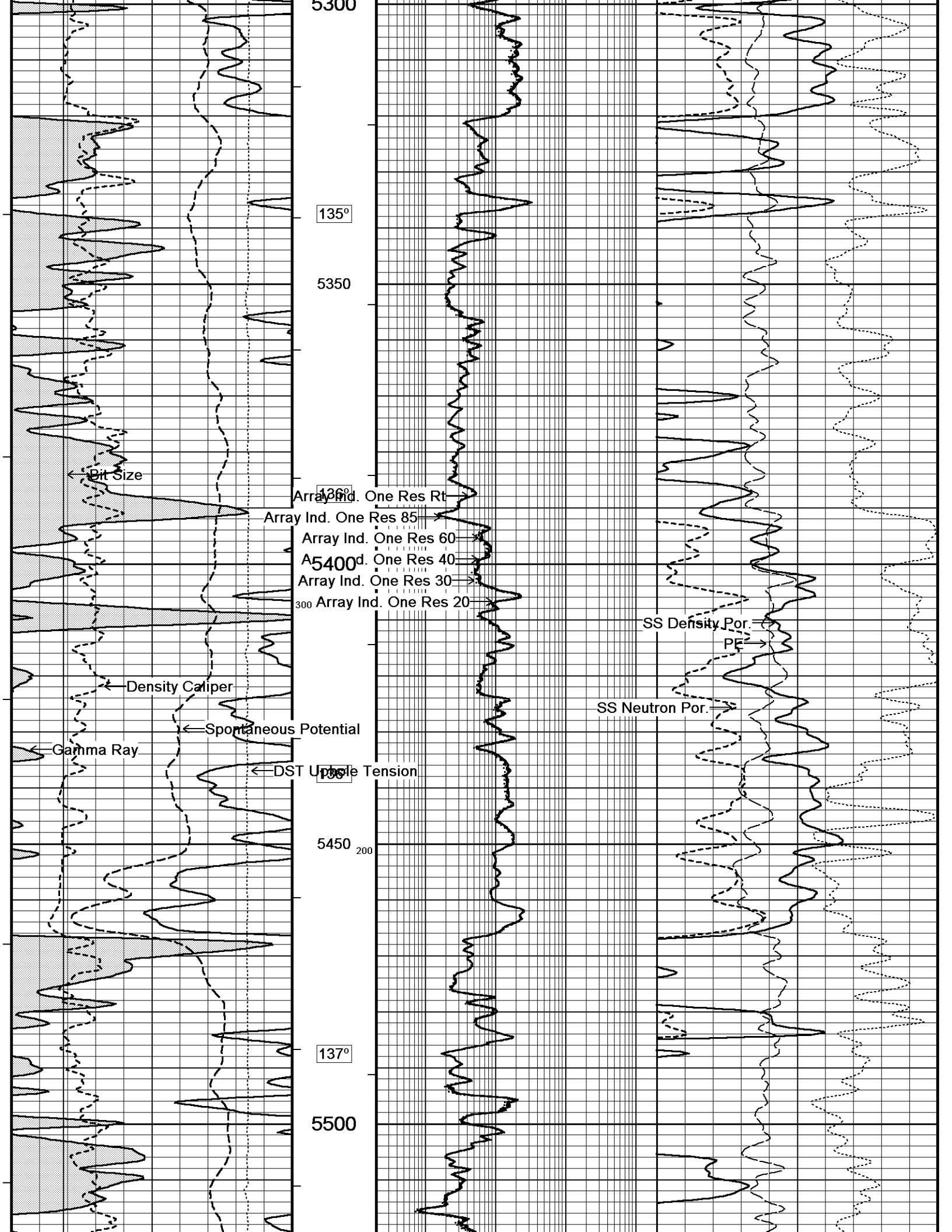


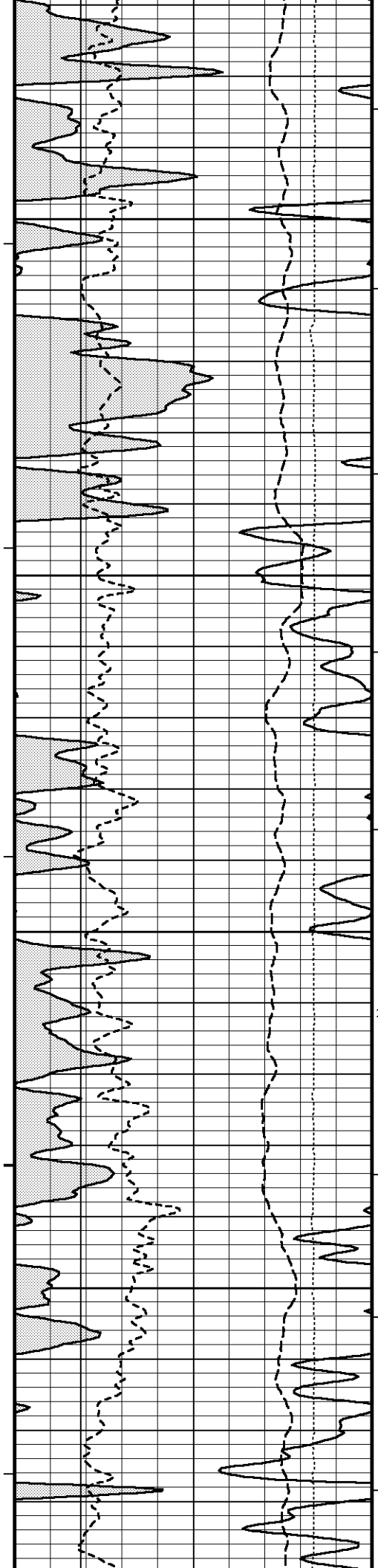




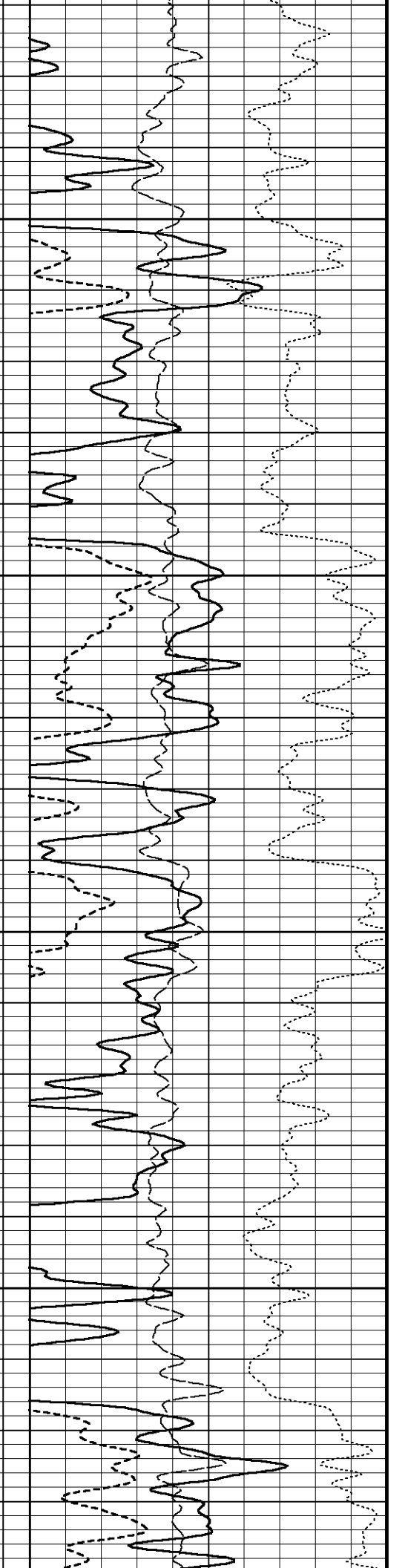
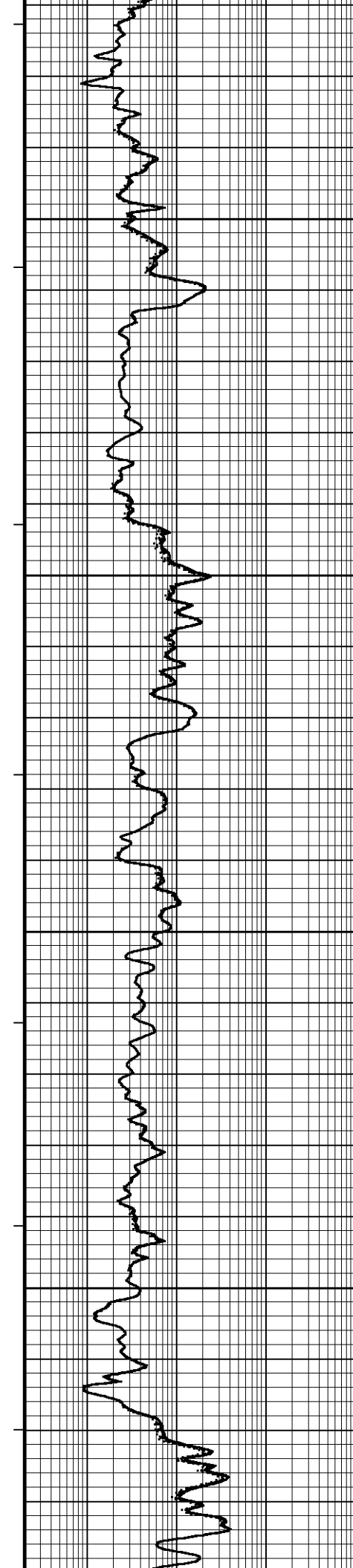


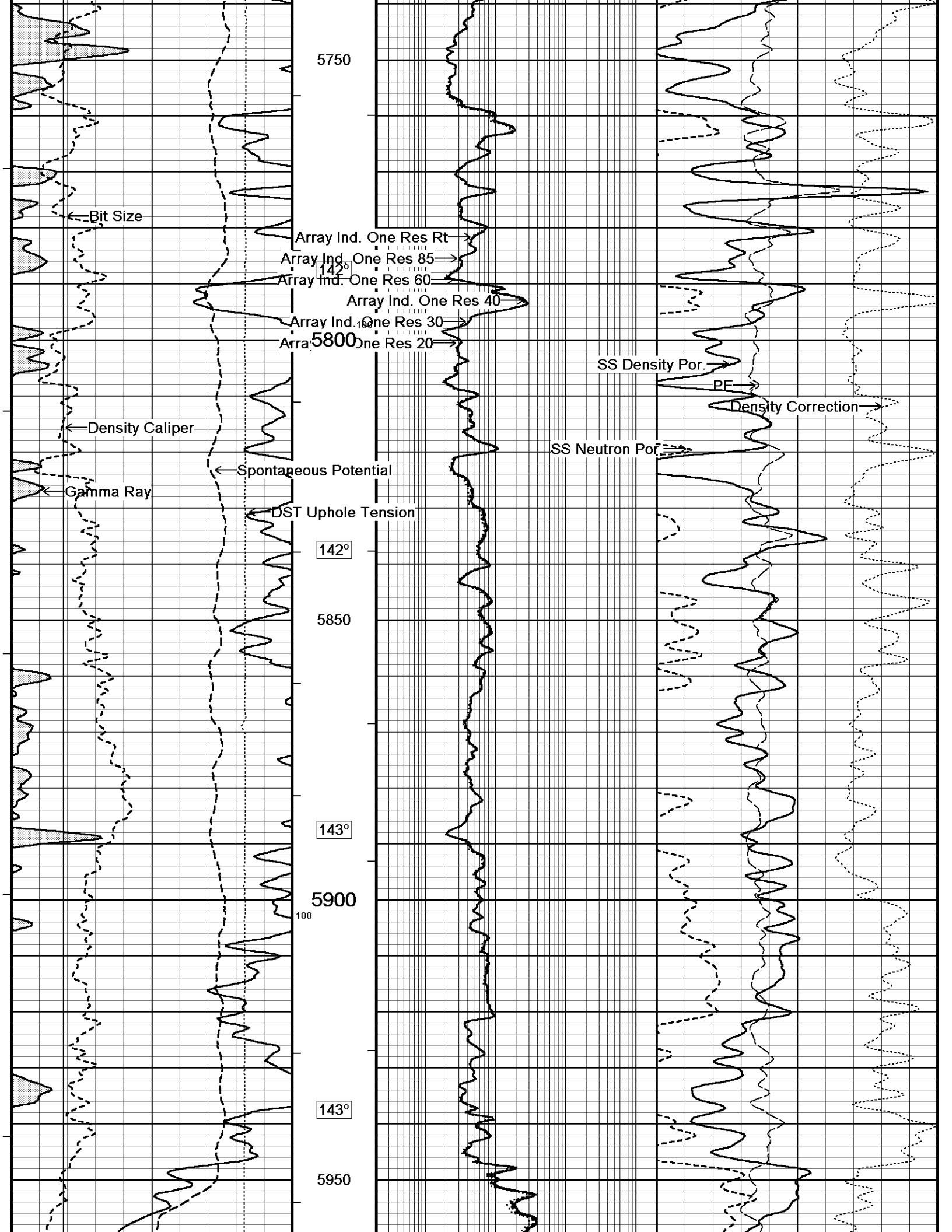


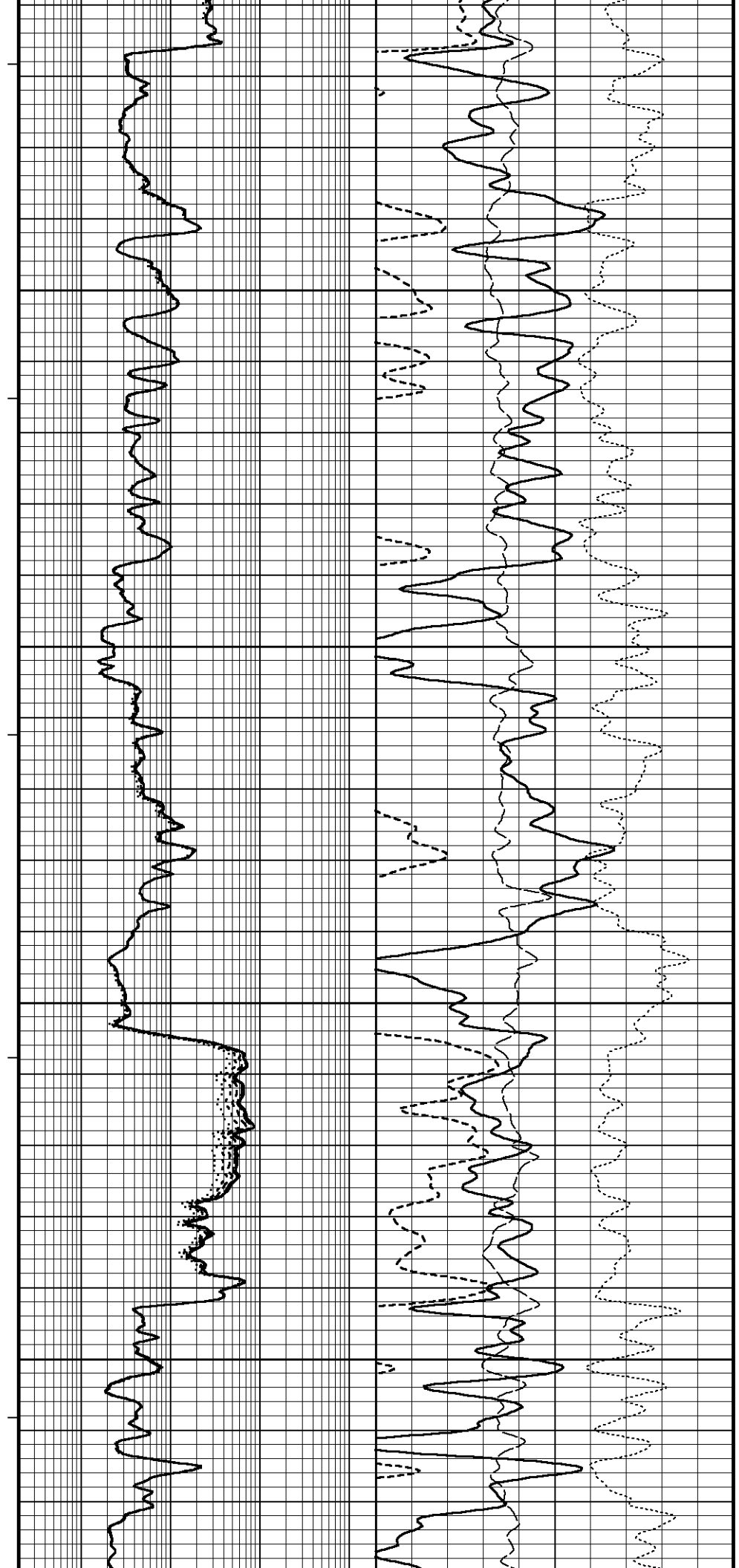
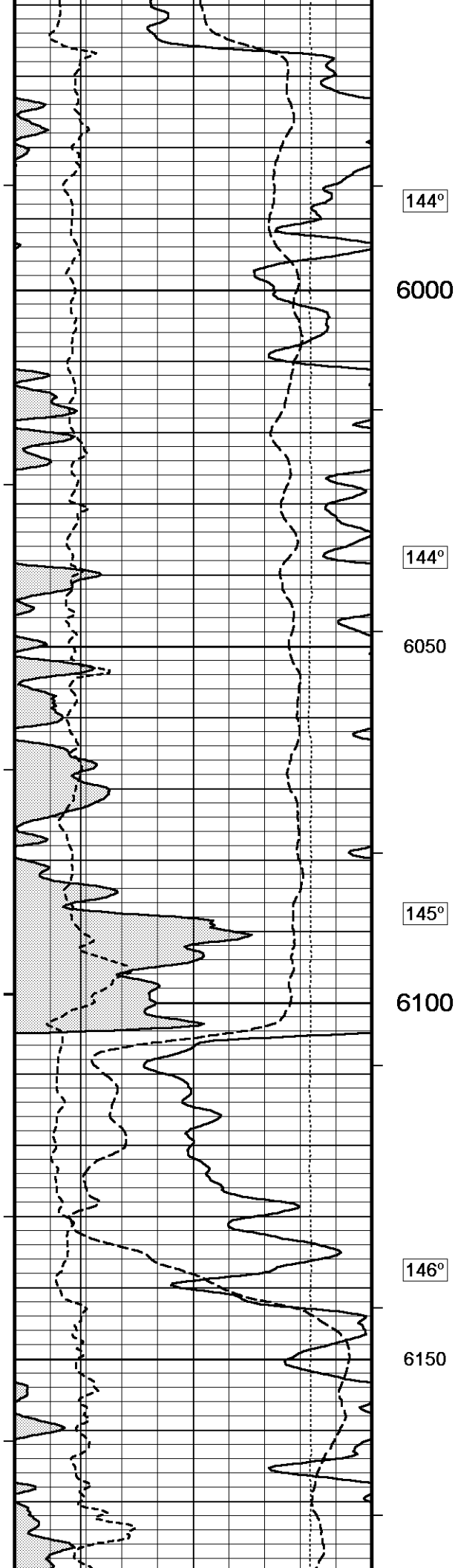


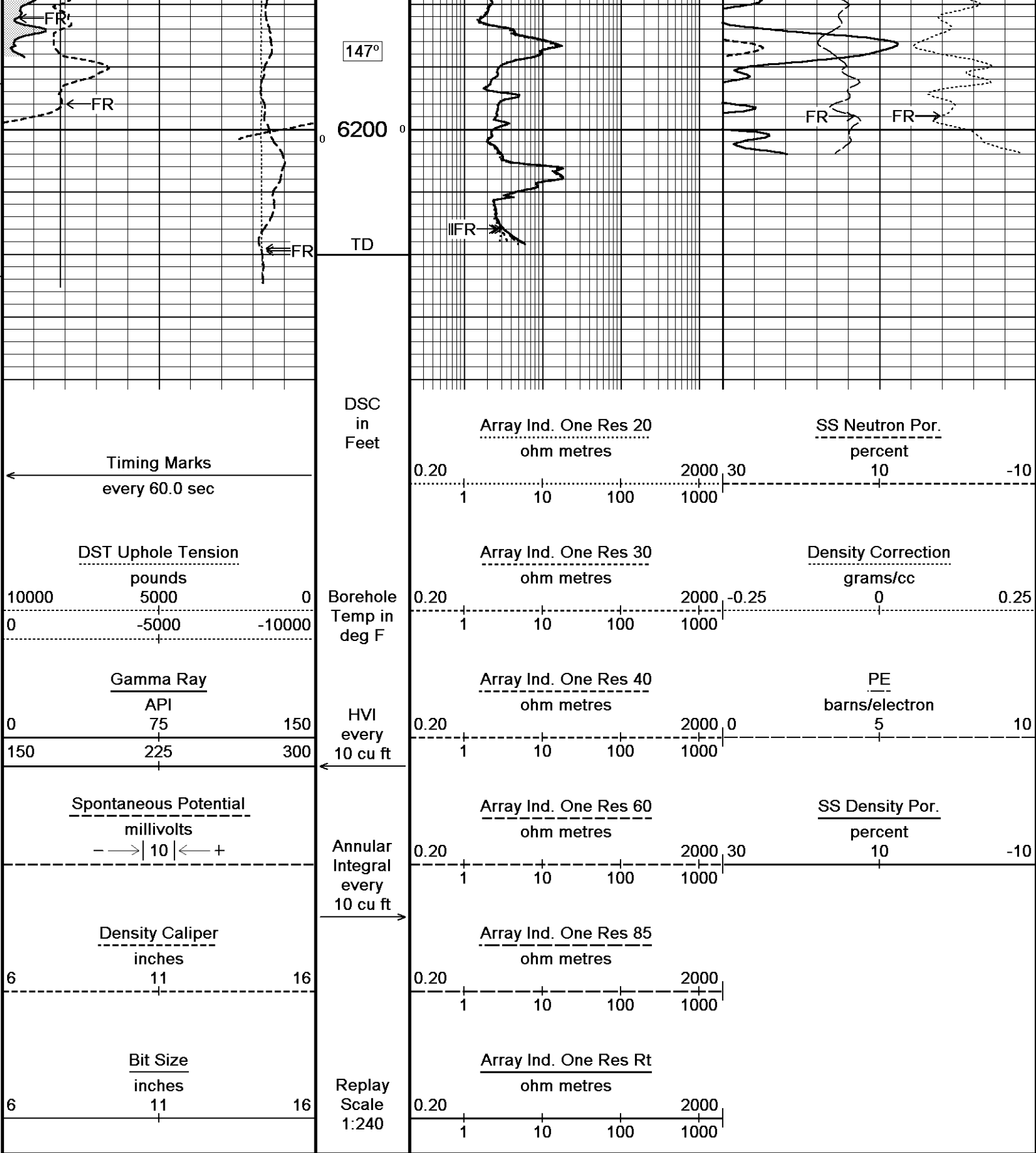


138°  
5550  
139°  
5600  
140°  
5650  
200  
140°  
5700  
141°









Depth Based Data - Maximum Sampling Increment 10.0cm  
Filename: C:\DOCUME~1\154681\LOCALS~1\Temp\Weatherford PreView\0\DOWN\_LOG3.dta  
System Versions: Logged with 12.02.4401 Processed with 12.02.4401 Plotted with 12.01.3513

↑ 5 INCH MAIN LOG ↑

BEFORE SURVEY CALIBRATION  
C:\DOCUME~1\154681\LOCALS~1\Temp\Weatherford PreView\0\DOWN\_LOG3.dta

General Constants All 000 Last Edited on 07-DEC-2011 05:31



General Parameters		
Mud Resistivity	4.260	ohm-metres
Mud Resistivity Temperature	76.400	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	4.500	inches
Caliper for Differential Caliper	Density 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	

Down-hole Tension Calibration All 000			Field Calibration on 24-OCT-2010 04:34
Reading No	Measured	Calibrated (lbs)	
1	15659.85	0.00	
2	15734.68	370.00	

Down-hole Tension Calibration SMS 0			Field Calibration on 07-DEC-2011 06:41
Reading No	Measured	Calibrated (lbs)	
1	17182.45	0.00	
2	17346.58	300.00	

High Resolution Temperature Calibration MCG-C 115			Field Calibration on 01-JUL-2011 11:21
	Measured	Calibrated(Deg F)	
Lower	50.00	50.00	
Upper	75.00	75.00	

High Resolution Temperature Constants MCG-C 115			Last Edited on
Pre-filter Length	11		

SP Calibration MCG-C 115			Field Calibration on 28-NOV-2011 15:19
	Measured	Calibrated (mV)	
Reference 1	103.4	100.2	
Reference 2	-97.4	-100.2	

Gamma Calibration MCG-C 115			Field Calibration on 06-DEC-2011 14:39
	Measured	Calibrated (API)	
Background	76	51	
Calibrator (Gross)	853	570	
Calibrator (Net)	777	519	

Gamma Constants MCG-C 115			Last Edited on 07-DEC-2011 07:03
Gamma Calibrator Number	GRCC-119		
Mud Density	1.00	gm/cc	
Caliper Source for Processing	Density Caliper		
Tool Position	Eccentred		
Concentration of KCl	0.00	kppm	

Neutron Calibration MDN-B.J 372			Base Calibration on 07-NOV-2011 14:49
Base Calibration			Field Check on 06-DEC-2011 14:55
	Measured	Calibrated (cps)	
	Near Far	Near Far	
	2901 89	3714 110	
Ratio	32.694	33.764	
Field Calibrator at Base			
		Calibrated (cps)	
		2354 3415	
Ratio		0.689	

Field Check	Calibrated (cps)	
	2315	3427
Ratio	0.676	

Neutron Constants MDN-B.J 372			Last Edited on 07-DEC-2011 07:03		
Neutron Source Id	P31115B				
Neutron Jig Number	NJ5299				
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	7.00	cu			
Dolomite Sigma	4.70	cu			
Formation Pressure Source	None				
Formation Pressure	N/A	kpsi			
Temperature Source	None				
Temperature	N/A	degrees F			
Mud Salinity	0.00	kppm			
Formation Fluid Salinity Source	None				
Formation Fluid Salinity	N/A	kppm			
Barite Mud Correction	Not Applied				

FE Calibration MFE-A.A 102		Base Calibration on 07-NOV-2011 11:17 Field Check on 06-DEC-2011 14:45	
Base Calibration			
	Measured	Calibrated (ohm-m)	
Reference 1	0.0	0.0	
Reference 2	978.7	126.8	
Base Check		280.0	
Field Check		280.0	

FE Constants MFE-A.A 102			Last Edited on 07-DEC-2011 05:29		
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		1.0		inches	

High Resolution Temperature Calibration MAI-B.A 268			Field Calibration on 10-OCT-2011 15:43
	Measured	Calibrated(Deg F)	
Lower	50.00	50.00	
Upper	75.00	75.00	

High Resolution Temperature Constants MAI-B.A 268		Last Edited on
Pre-filter Length	11	

Induction Calibration MAI-B.A 268				Base Calibration on 07-NOV-2011 13:33	
				Field Check on 06-DEC-2011 14:33	
Base Calibration					
Test Loop Calibration		Measured		Calibrated (mmho/m)	
Channel	Low	High		Low	High
1	17.2	459.3		9.3	966.2
2	6.5	375.4		7.6	821.4
3	3.7	255.1		5.2	566.0
4	2.2	131.8		2.6	279.2
Array Temperature		74.3	Deg F		
Channel		Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High		Low	High
1	0.0	0.0		10.8	3926.0
2	0.0	0.0		28.5	3565.8
3	0.0	0.0		27.7	3080.5

4	0.0	0.0	18.7	2084.4	
Deep	0.0	0.0	17.0	2012.9	
Medium	0.0	0.0	40.9	4058.0	
Shallow	0.0	0.0	42.2	5266.3	
Array Temperature		0.0	47.9	Deg F	

Induction Constants MAI-B.A 268				Last Edited on 07-DEC-2011 06:55	
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		1.00		inches	
Number of Fins on Stand-off		6.0000			
Stand-off Fin Angle		60.00		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			

Caliper Calibration MPD-B 104			Base Calibration on 06-DEC-2011 11:01 Field Calibration on 06-DEC-2011 11:05		
Base Calibration					
Reading No	Measured	Calibrator Size (in)			
1	11778	3.99			
2	20380	5.97			
3	29068	7.96			
4	37241	9.86			
5	46400	11.92			
6	N/A	N/A			
Field Calibration					
	Measured Caliper (in)	Actual Caliper (in)			
	7.95	7.96			

Photo Density Calibration MPD-B 104				Base Calibration on 06-DEC-2011 10:30	
				Field Check on 06-DEC-2011 10:42	
Density Calibration					
Base Calibration		Measured		Calibrated (sdu)	
	Near	Far	Near	Far	
Reference 1	36975	12896	52994	19128	
Reference 2	17425	2405	25185	2558	
Field Check at Base					

1270.5 1474.5

## Field Check

1271.6 1479.2

## PE Calibration

### Base Calibration

	WS	Measured WH	Ratio	Calibrated Ratio
Background	236	1146		
Reference 1	12925	36819	0.356	0.309
Reference 2	5134	17296	0.303	0.274

### Field Check at Base

235.8 1145.9

### Field Check

238.5 1148.4

## Density Constants MPD-B 104

Last Edited on 07-DEC-2011 05:30

Density Source Id	P15771B
Nylon Calibrator Number	DNC -D 527
Aluminium Calibrator Number	DAC-D 527
Density Shoe Profile	8 inch
Caliper Source for Processing	Density Caliper
PE Correction to Density	Not Applied
Mud Density	1.25 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)
2.68	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

## DOWNHOLE EQUIPMENT

C:\DOCUME~1\154681\LOCALS~1\Temp\Weatherford PreView\0\DOWN\_LOG3.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

### SHA-F Compact Swivel Head Adaptor

SHA-F 67 LG: 2.74 ft WT: 26.5 lb OD: 2.24 in

### Compact Comms Gamma

MCG-C 115 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

### Compact Neutron

MDN-B.J 372 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

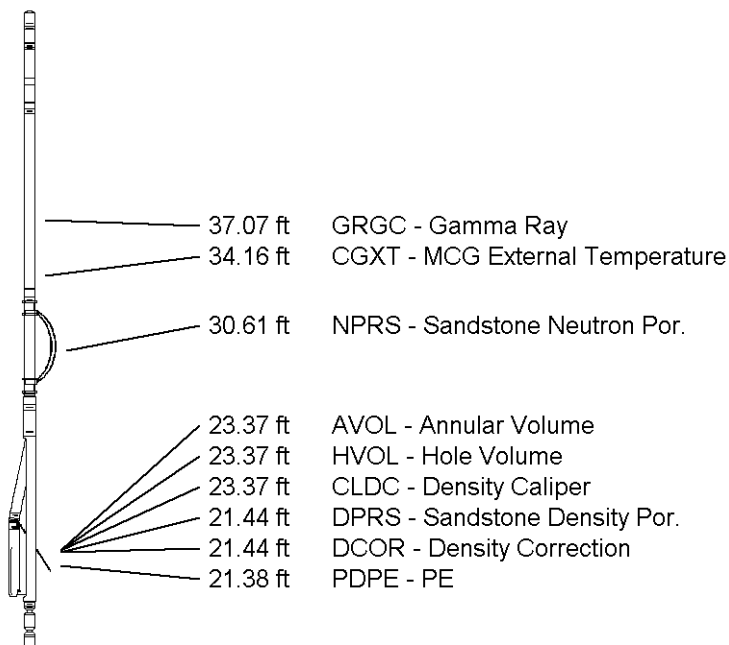
### Compact Density/Caliper

MPD-B 104 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

### SKJ-D Compact Knuckle Joint

SKJ-D 34 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

### Compact Focussed Electric



MFE-A.A 102 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

Compact Induction

MAI-B.A 268 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 46.67 ft Weight: 368.2 lb



3.34 ft R200 - Array Ind. One Res 20  
3.34 ft R400 - Array Ind. One Res 40  
3.34 ft R300 - Array Ind. One Res 30  
3.34 ft RTAO - Array Ind. One Res Rt  
3.34 ft R850 - Array Ind. One Res 85  
3.34 ft R600 - 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 WEXPRO COMPANY  
WELL MUSSER 31  
FIELD POWDER WASH  
PROVINCE/COUNTY MOFFAT  
COUNTRY/STATE USA/COLORADO

Elevation Kelly Bushing	6630.00	feet	First Reading	6217.00	feet
Elevation Drill Floor	6630.00	feet	Depth Driller	9095.00	feet
Elevation Ground Level	6601.00	feet	Depth Logger	6220.00	feet



**Weatherford®**

COMPACT TRIPLE COMBO  
QUICKLOOK  
LOGS

