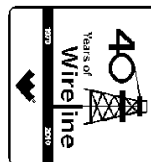




# Weatherford

## COMPACT TRIPLE COMBO QUICKLOOK LOG

COMPANY **BILL BARRETT CORPORATION**  
WELL **KAUFMAN 23A-24-692**  
FIELD **MAMM CREEK**  
PROVINCE/COUNTY **GARFIELD**  
COUNTRY/STATE **U.S.A. / COLORADO**  
LOCATION **SHL: 1769' FSL & 2420' FEL**  
**BHL: 1469' FSL & 1970' FWL**



SEC **24** TWP **6S** RGE **92W** Other Services  
API Number **05-045-19651**  
Permit Number

Permanent Datum Ground Level, Elevation 5843 feet  
Log Measured From KB  
Drilling Measured From KB @ 23 FT.

Elevations:  
KB 5866.00  
DF  
GL 5843.00

Date	15-AUG-2011	
Run Number	ONE	
Depth Driller	7657.00	feet
Depth Logger	7658.00	feet
First Reading	7655.00	
Last Reading	810.00	
Casing Driller	835.00	feet
Casing Logger	839.00	feet
Bit Size	7.875	inches
Hole Fluid Type	LSND	
Density / Viscosity	10.50 lb/USg	55.00 CP
PH / Fluid Loss	9.80	4.20 ml/30Min
Sample Source	FLOW LINE	
Rm @ Measured Temp	1.92 @104.6	ohm-m
Rmf @ Measured Temp	1.46 @104.6	ohm-m
Rmc @ Measured Temp	2.69 @104.6	ohm-m
Source Rmf / Rmc	CALC	CALC
Rm @ BHT	1.07 @191.0	ohm-m
Time Since Circulation	5 HOURS	
Max Recorded Temp	191.00	deg F
Equipment Name	COMPACT	
Equipment / Base	13045	GD JCT
Recorded By	N. TAYLOR	
Witnessed By	C. CROW	

### BOREHOLE RECORD

Last Edited: 15-AUG-2011 14:23

Bit Size inches	Depth From feet	Depth To feet
8.750	835.00	5689.00
7.875	5689.00	7657.00

### CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	9.625	0.00	835.00	36.00

### REMARKS

LOGGING SOFTWARE USED: 11.03.4044

TOOLS: SHA, MCG, MDN, MPD, SKJ, MFE AND MAI RAN IN COMBINATION.

HARDWARE: MPD: 8 INCH PROFILE PLATE USED.  
TWO 0.5 INCH STANDOFFS USED ON INDUCTION.  
DUAL BOWSPRING USED ON NEUTRON.

2.68 G/CC DENSITY MATRIX USED TO CALCULATE POROSITY.

ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST.

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

3 REPEAT SECTIONS PULLED FOR NEUTRON/DENSITY. SECOND OVERLAY SHOWN FOR SECTION BETWEEN 7460-7490'.

CALIPER CHECK IN CASING PRESENTED, REFERENCE I.D. = 8.95" (9 5/8", 36 LB/FT CASING).

8.75 INCH BIT CHANGE AT 5689 FT.

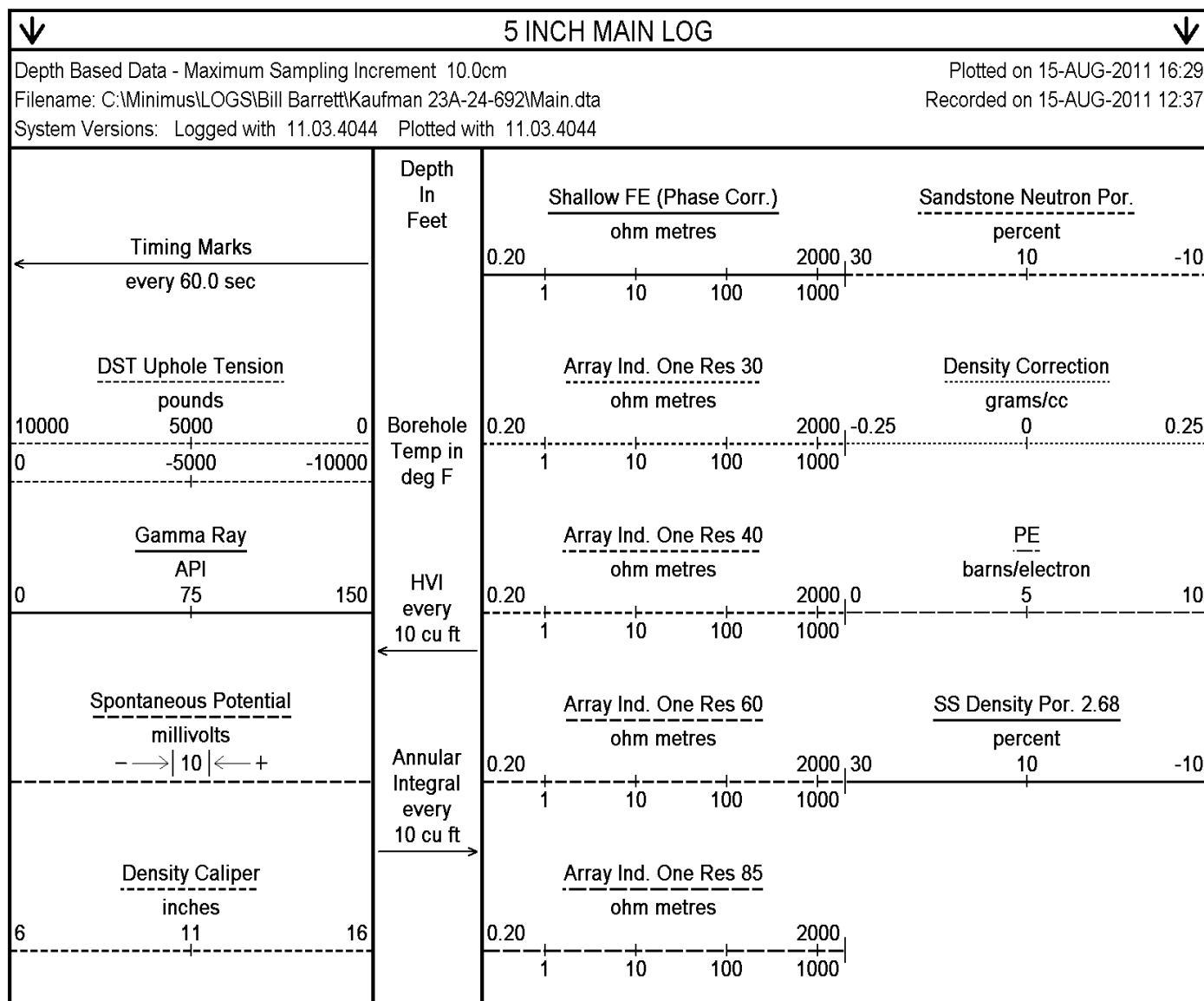
TOTAL HOLE VOLUME FROM TD TO SURFACE CASING = 2820 CU.FT.

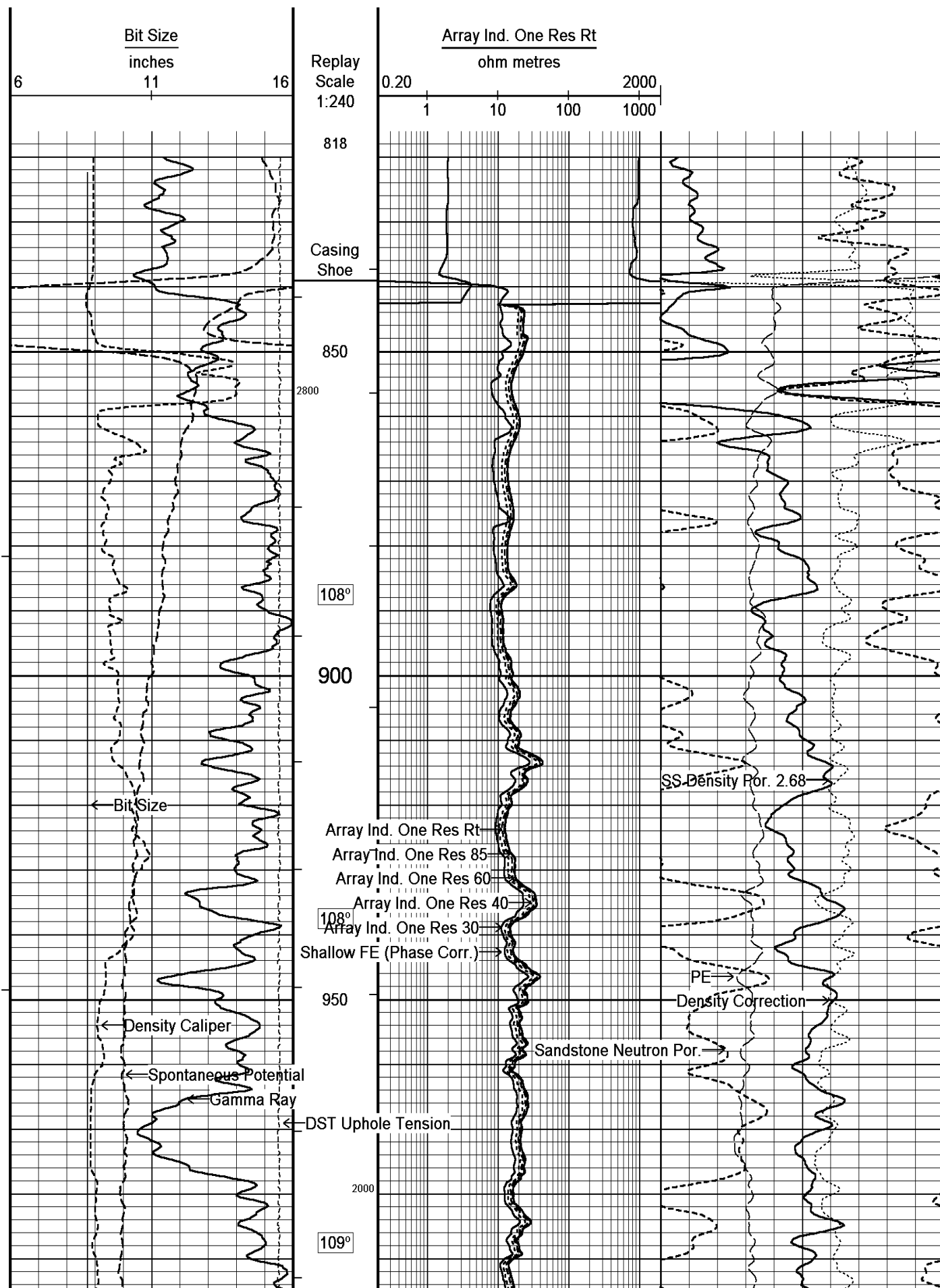
ANNULAR VOLUME WITH 4.5 INCH PRODUCTION CASING = 2060 CU.FT.

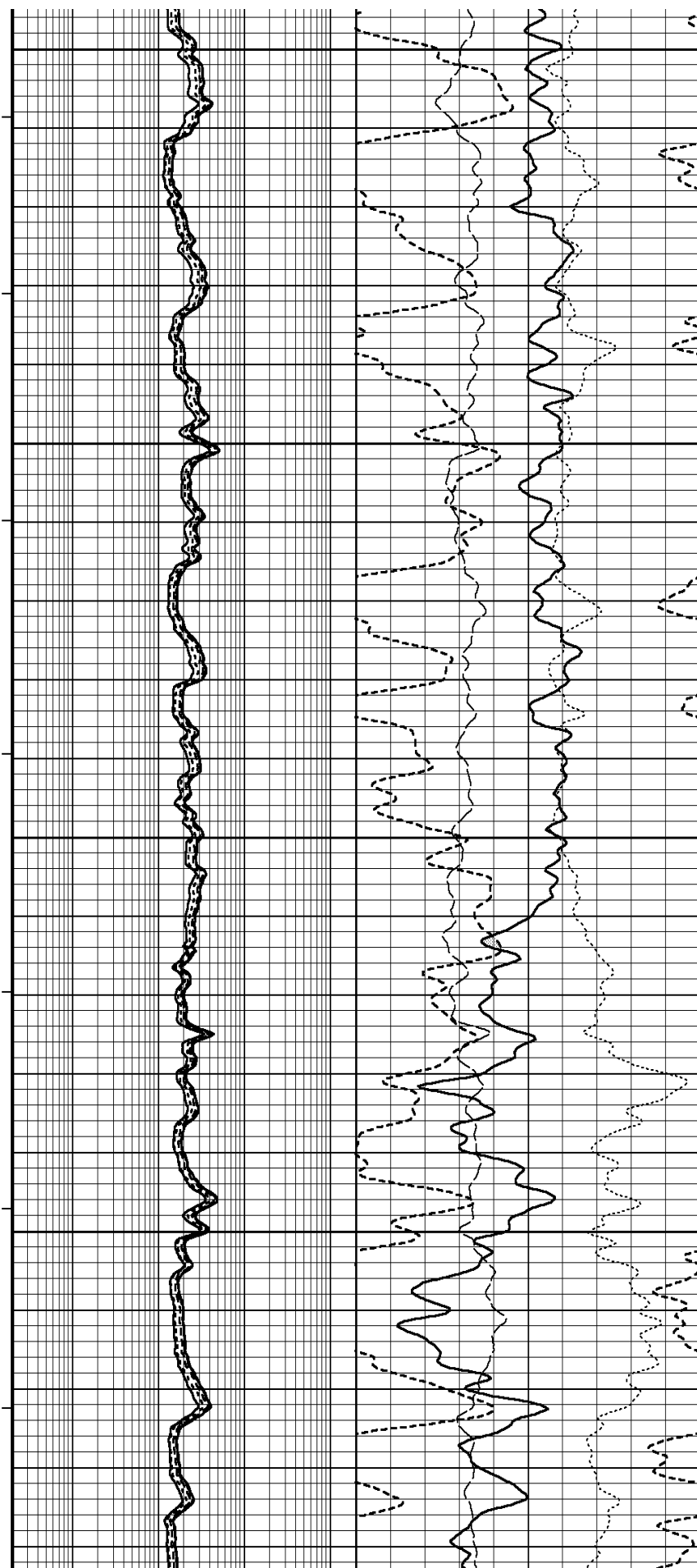
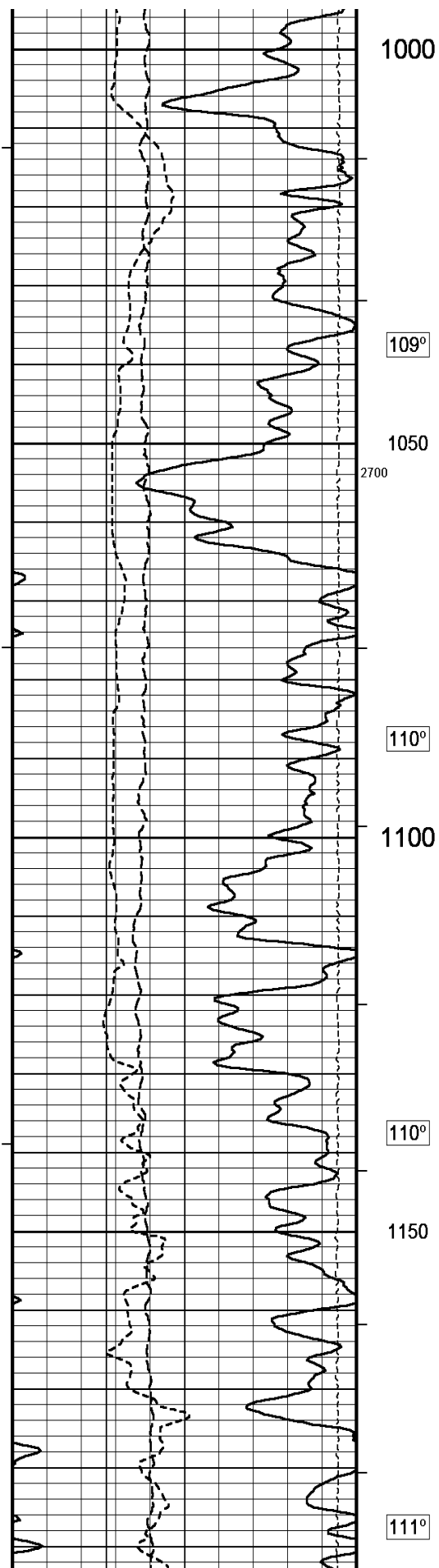
SERVICE ORDER: # 3524886

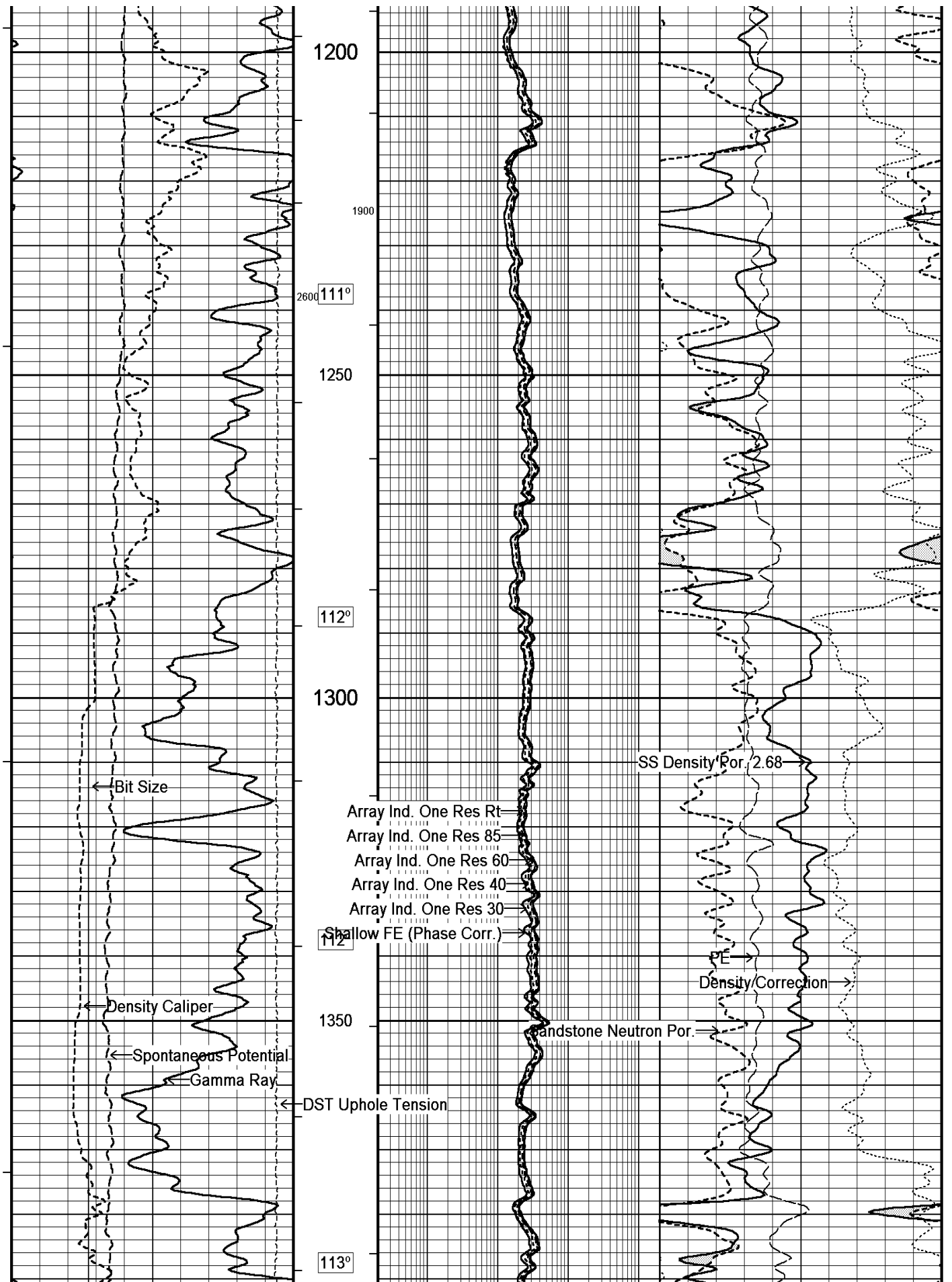
RIG: PATTERSON #307

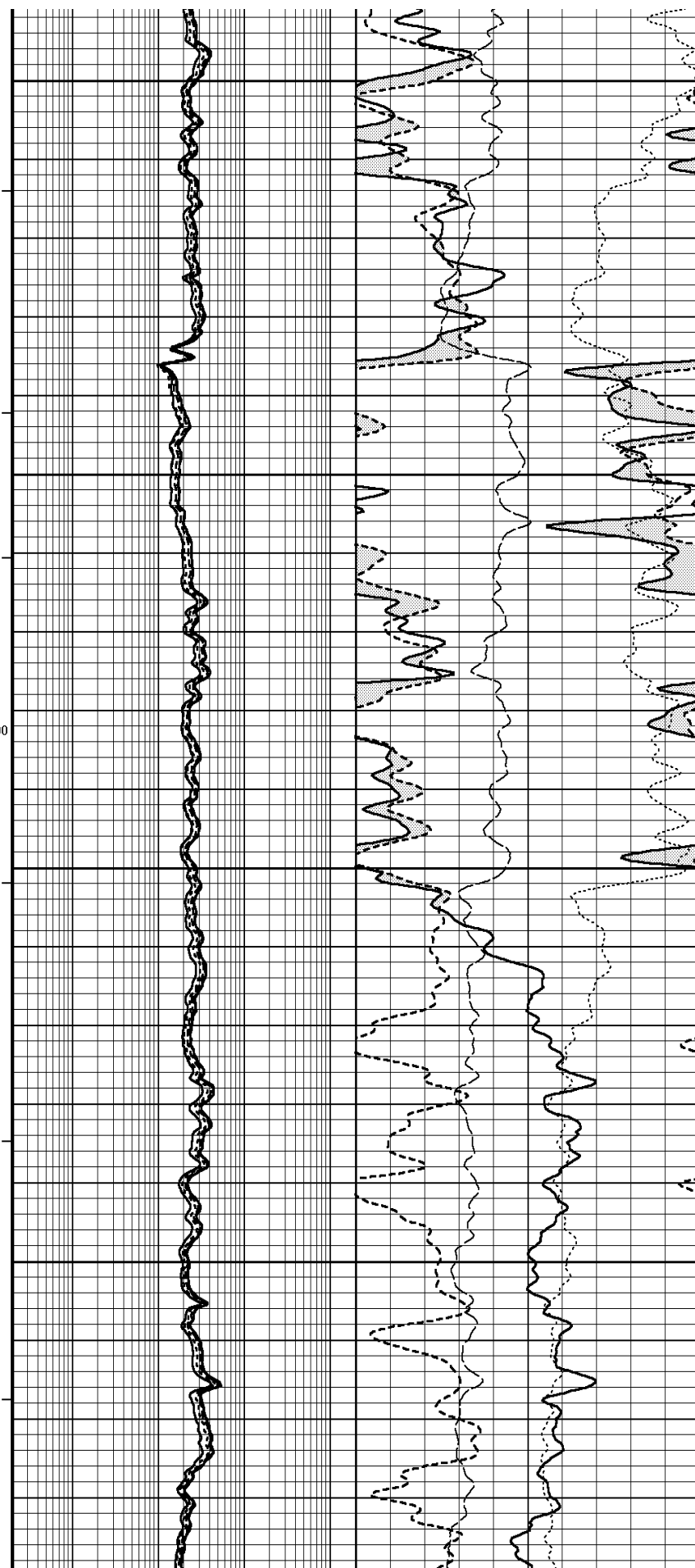
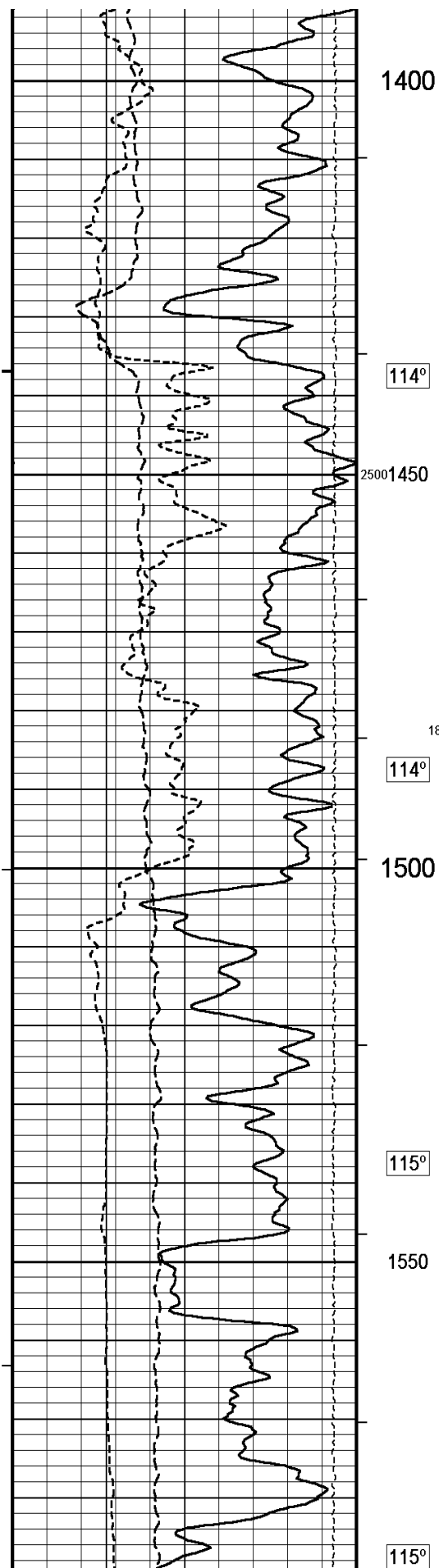
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs, 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.

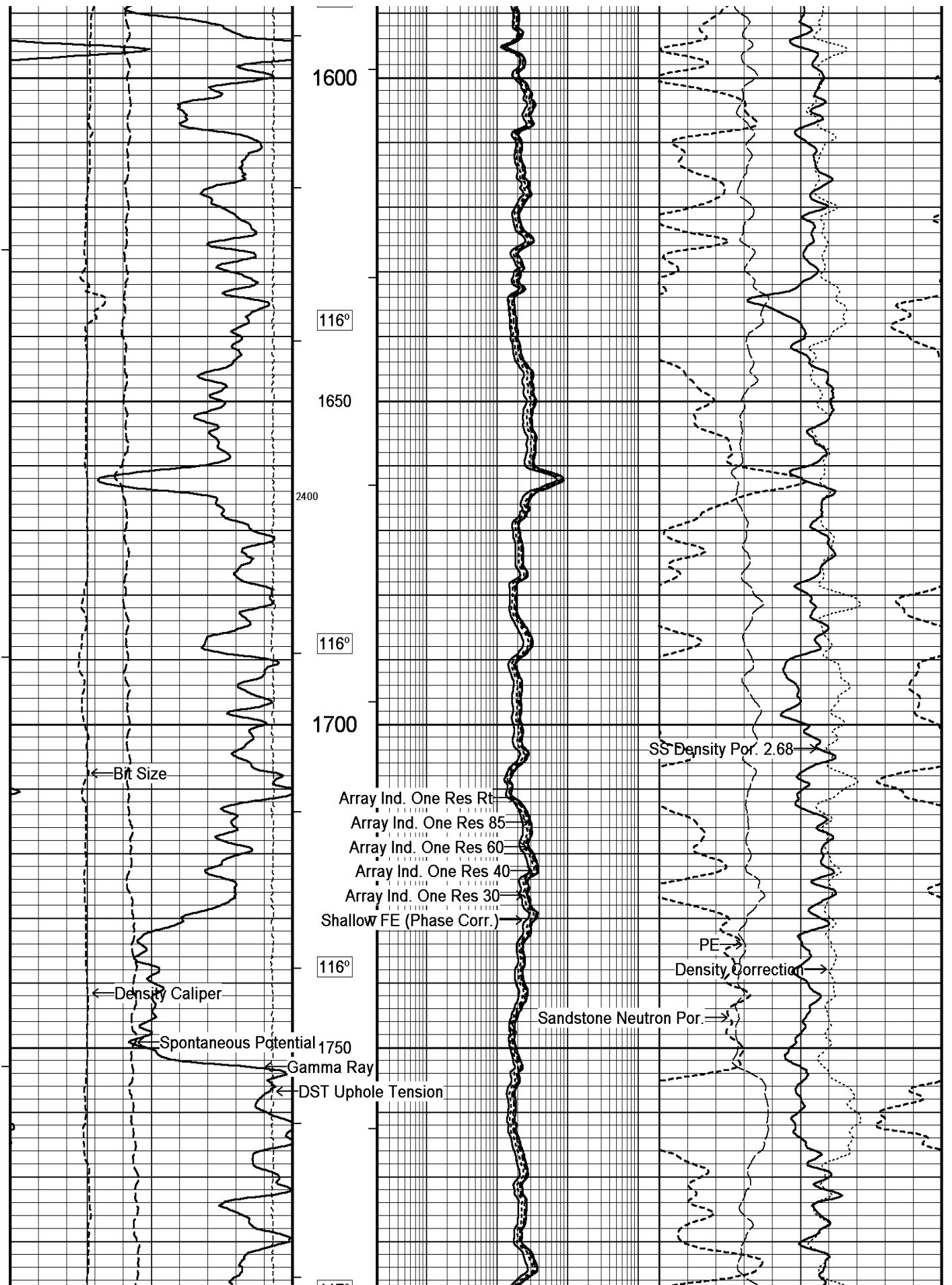


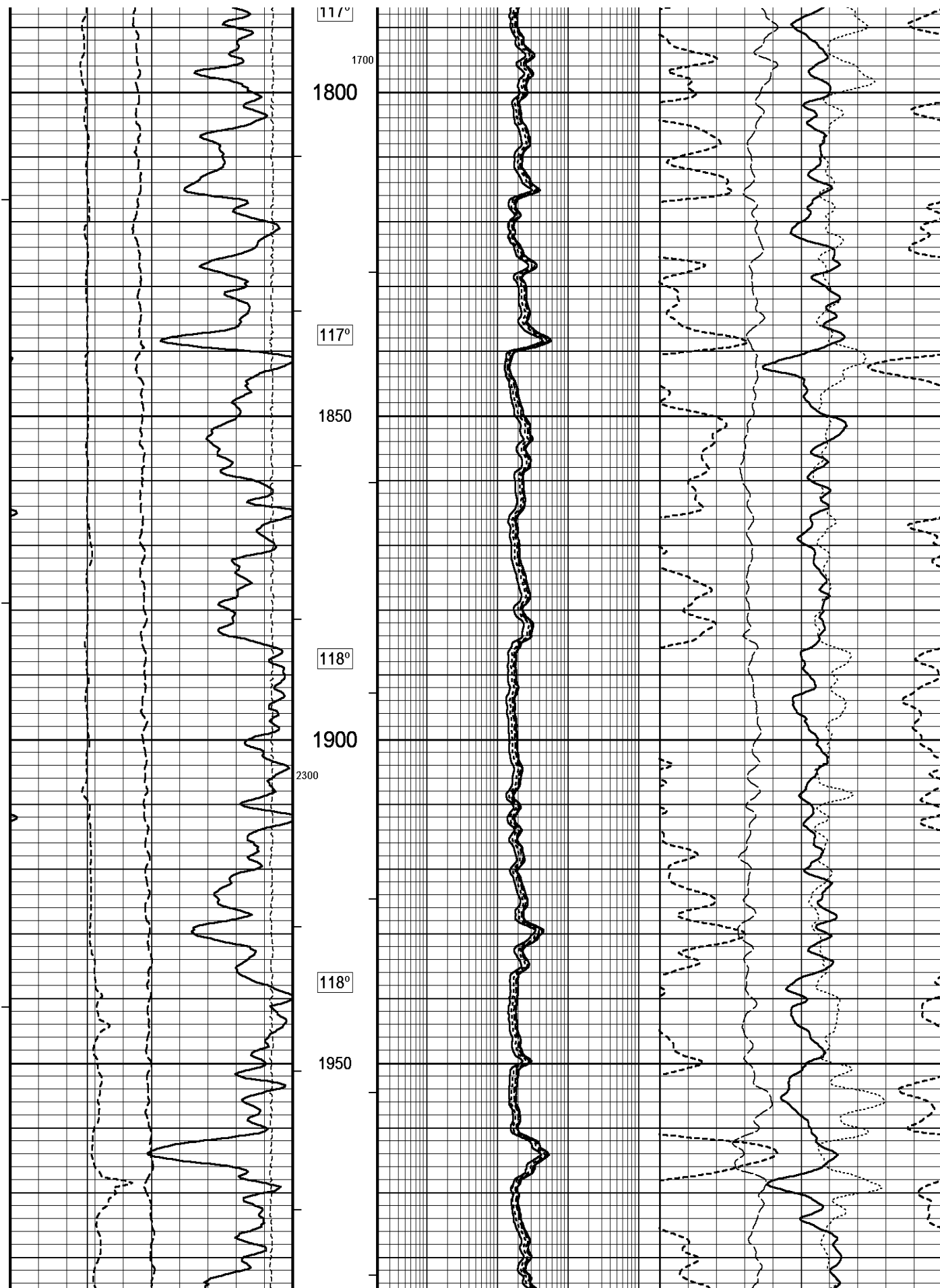




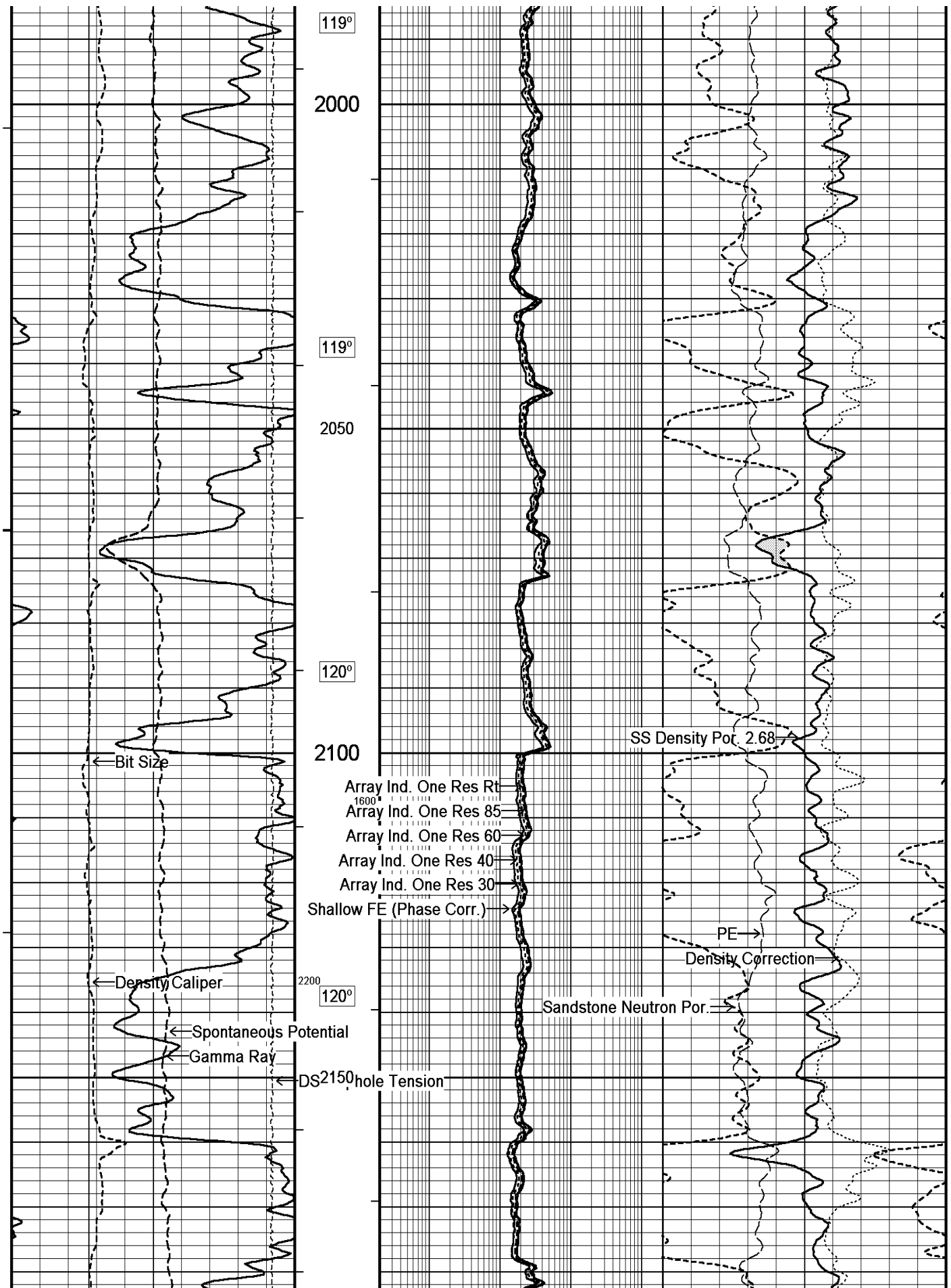


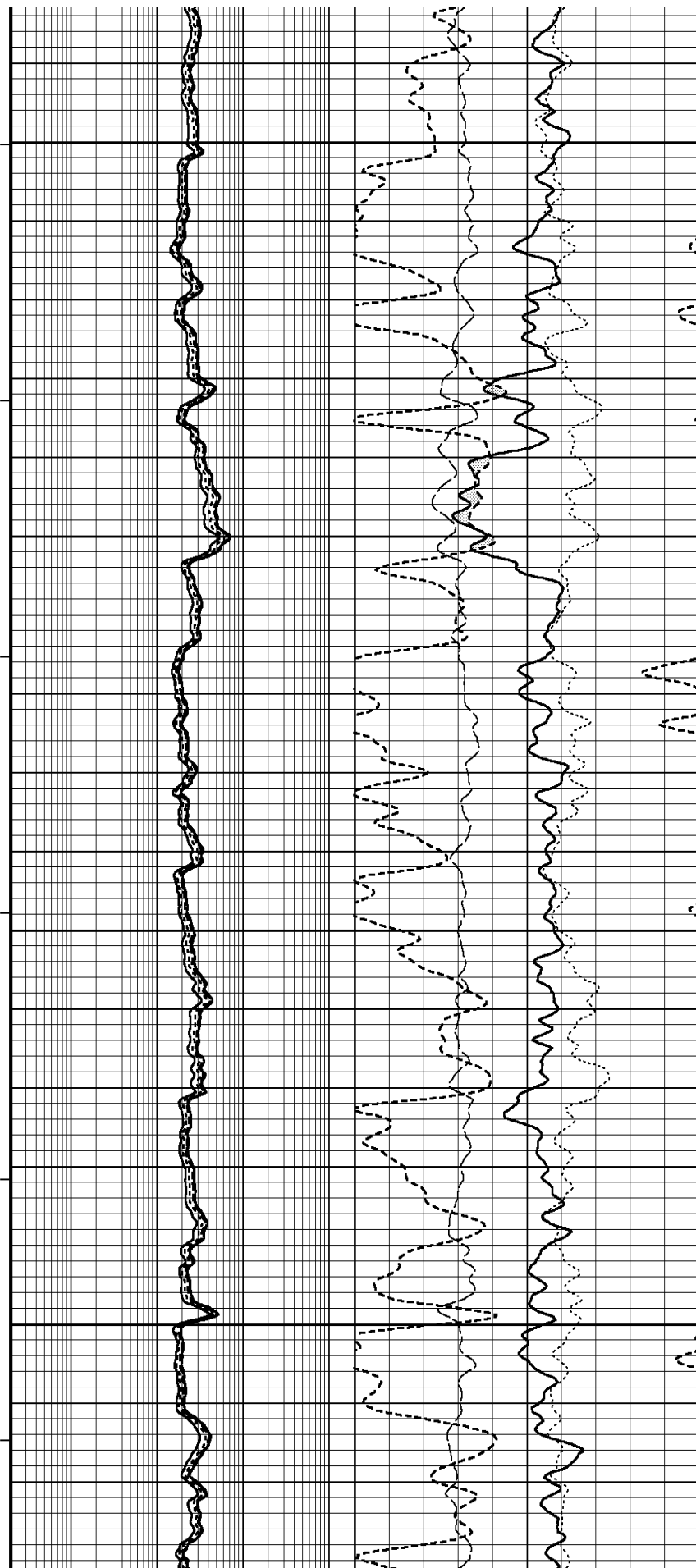
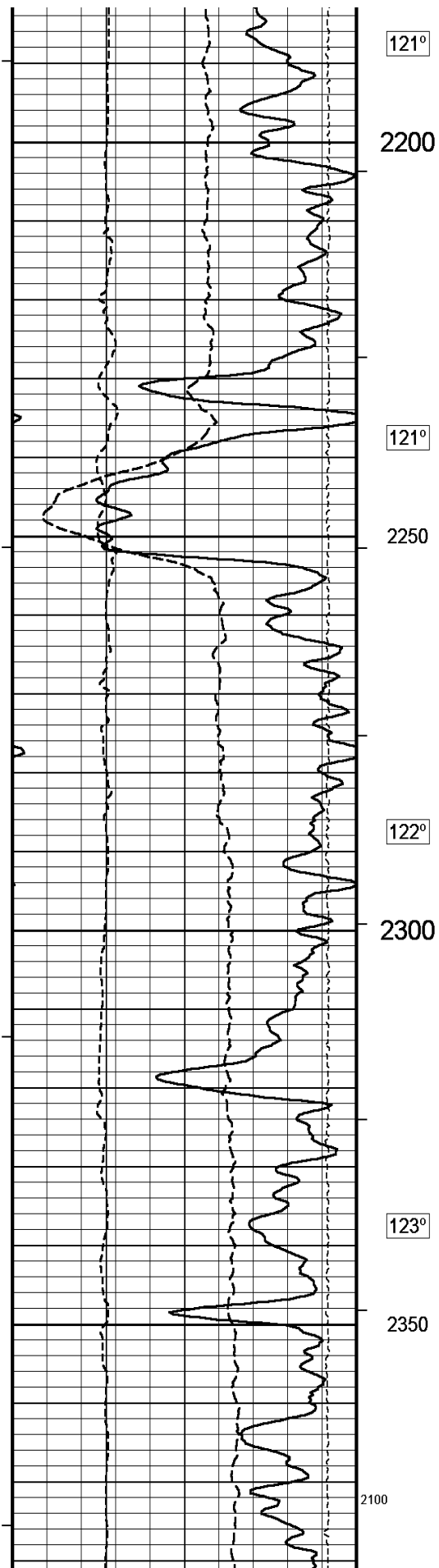


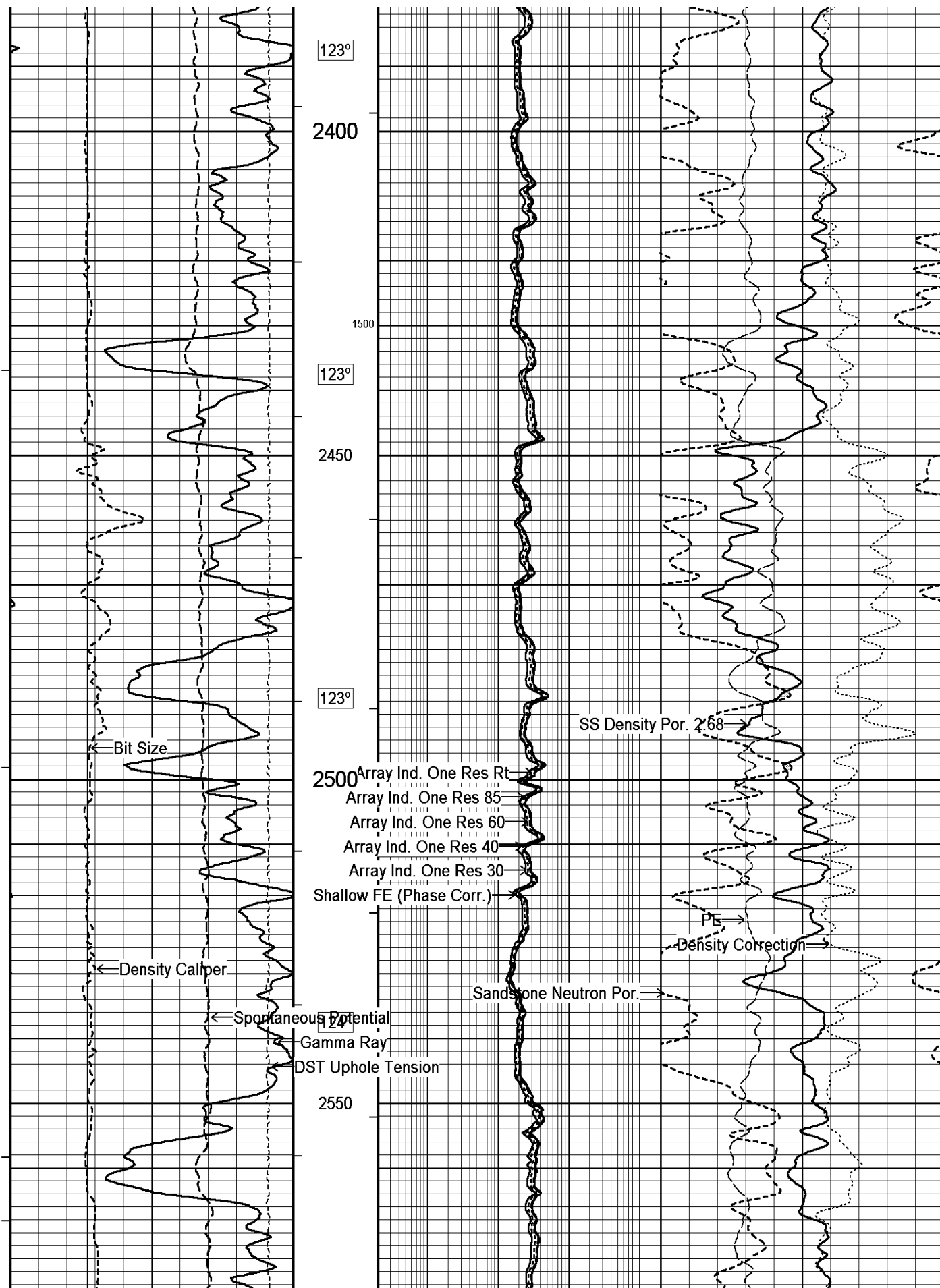




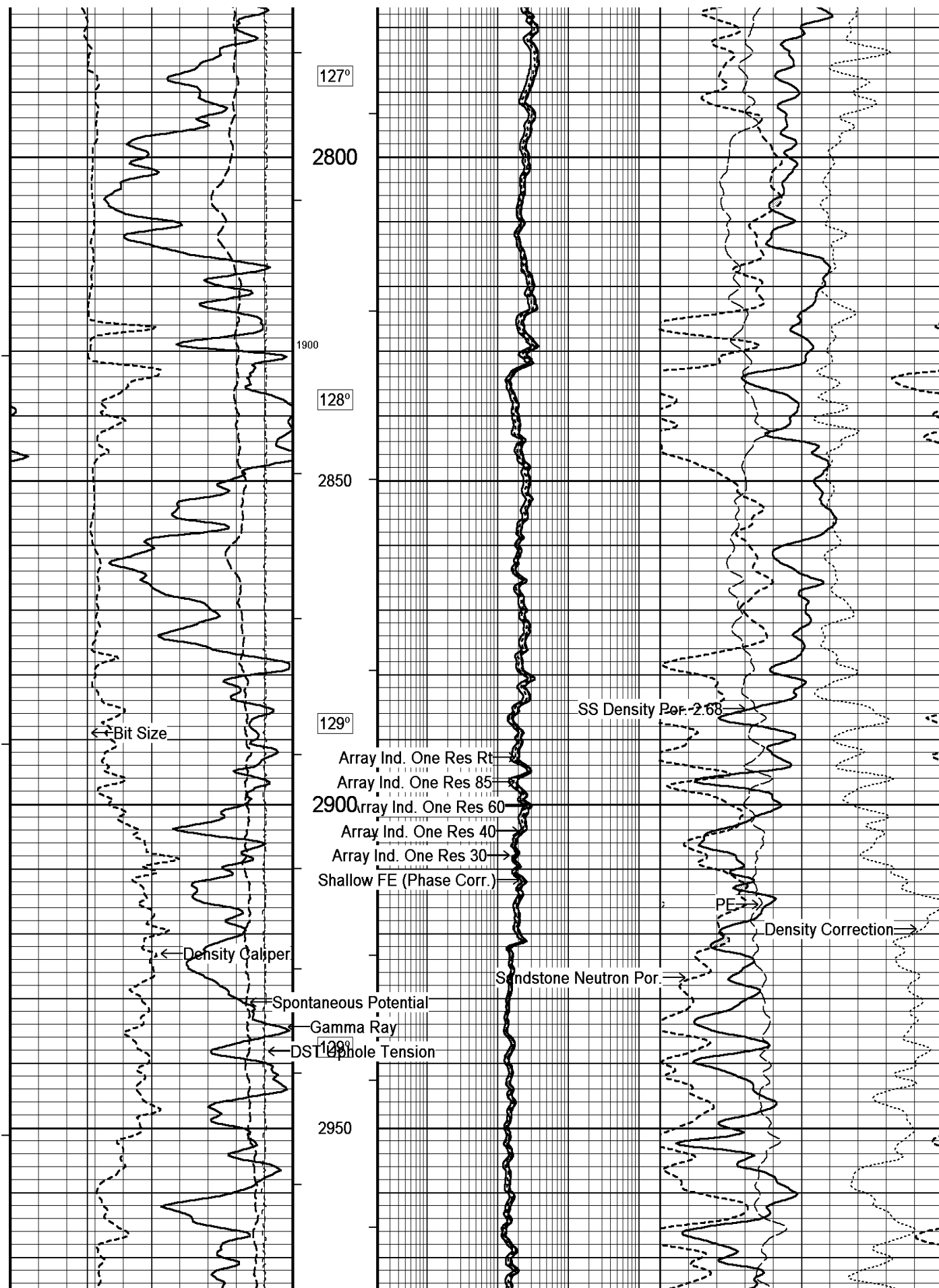


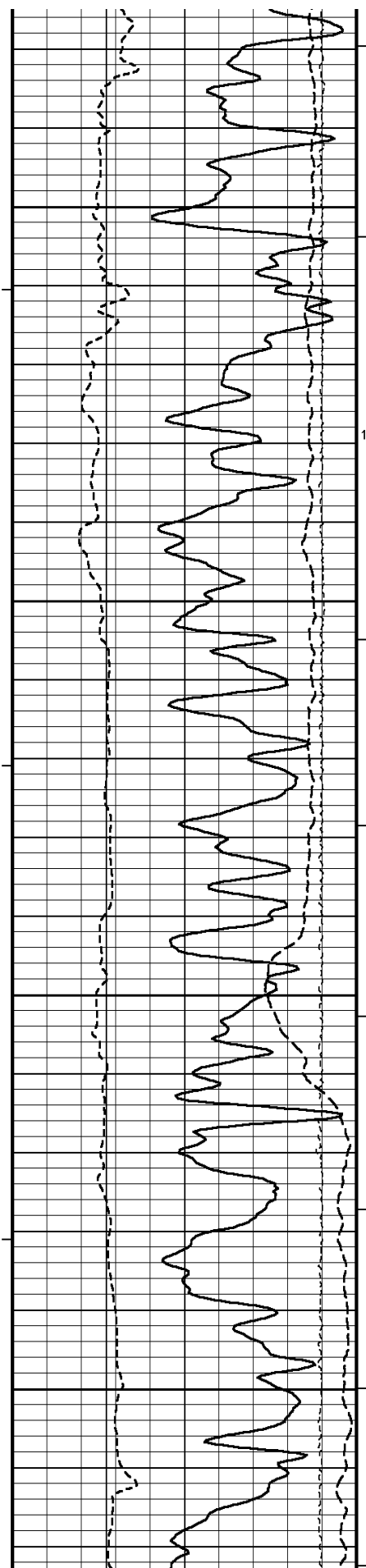












130°

1300

3000

1800

131°

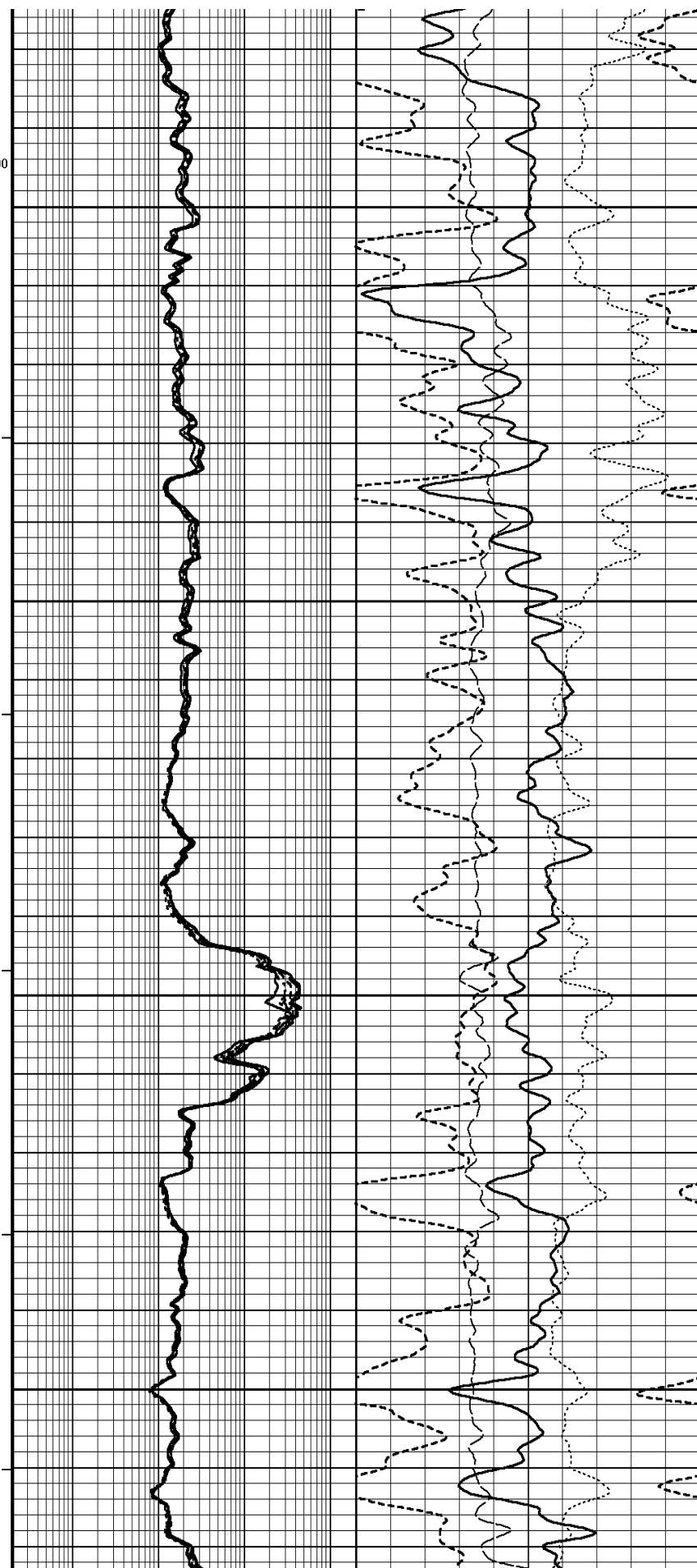
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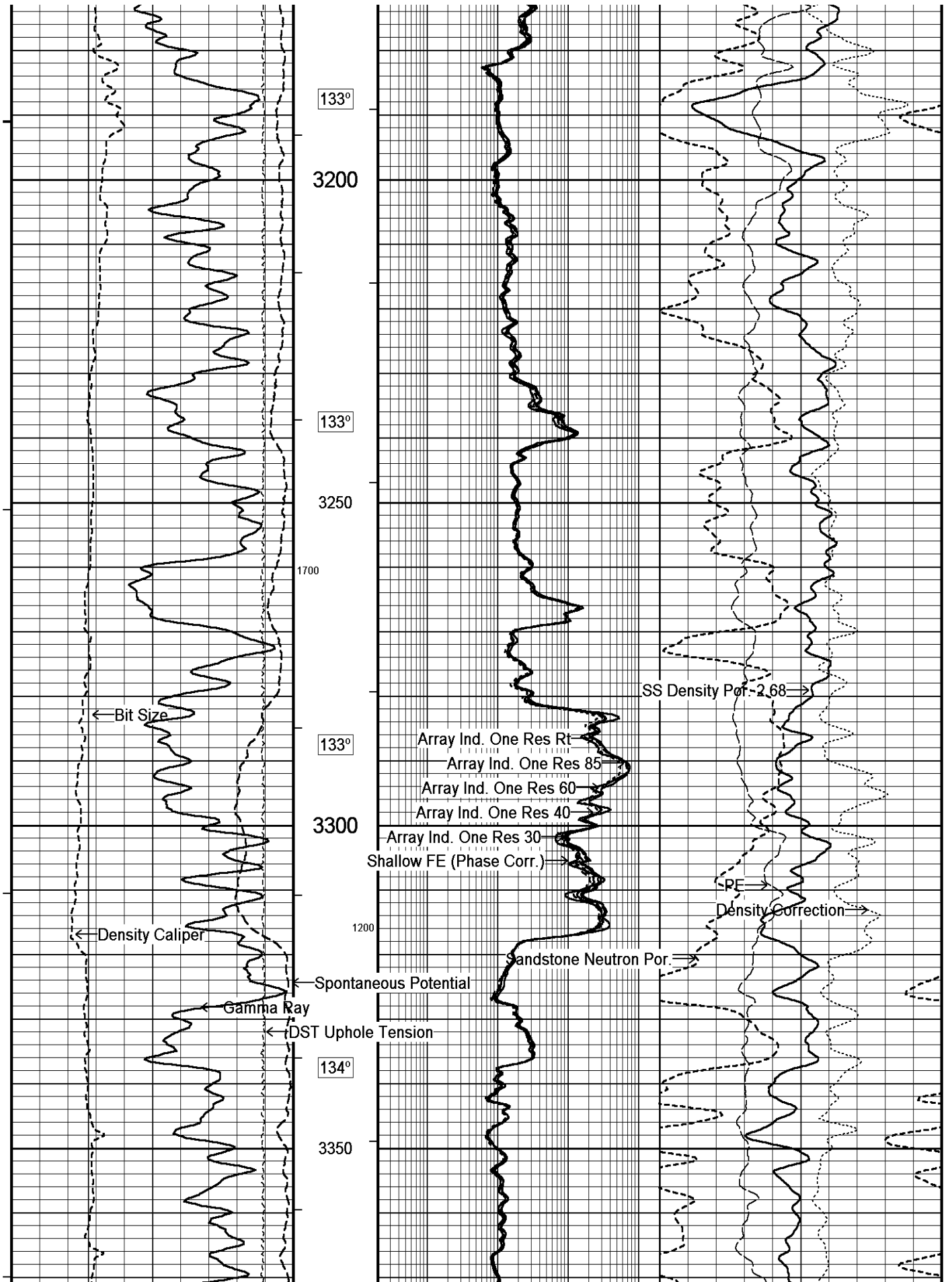
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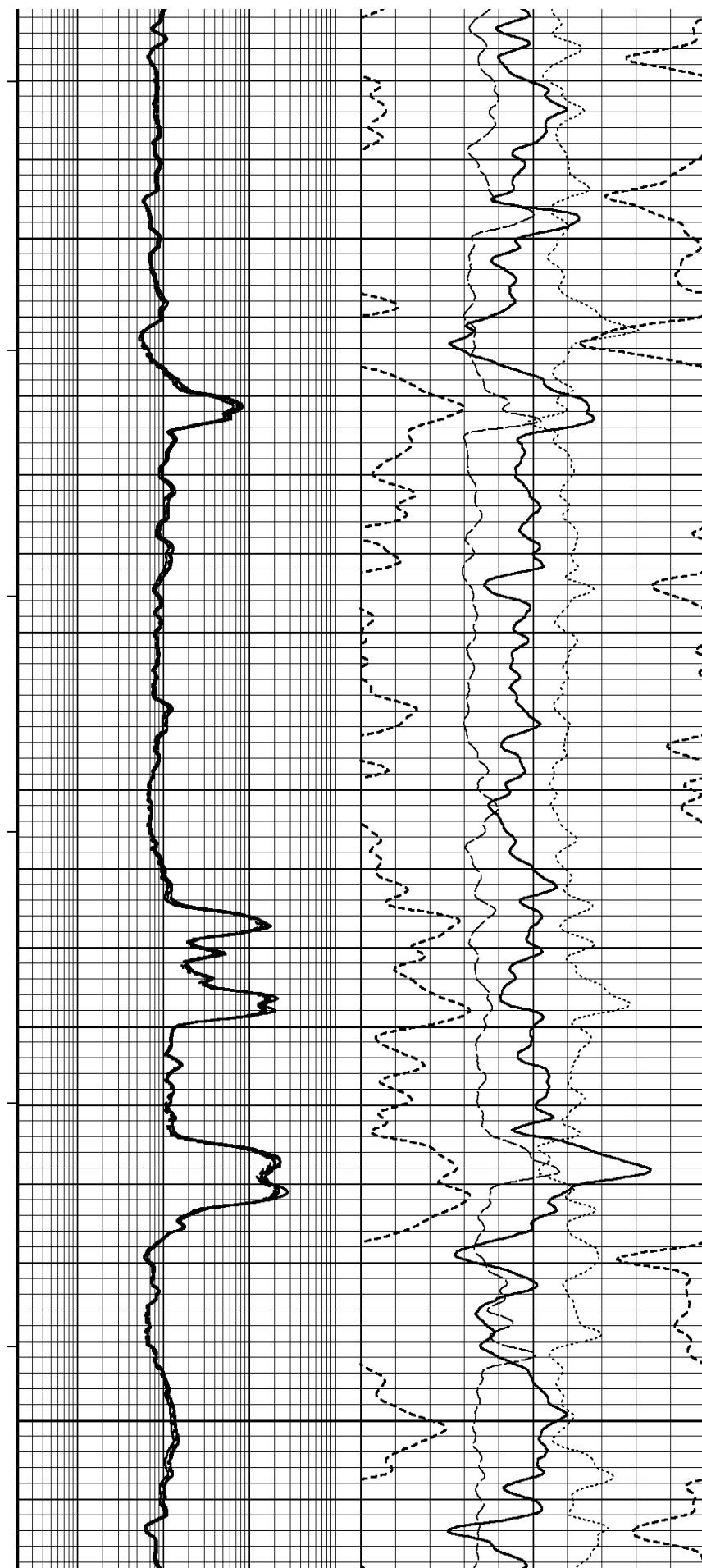
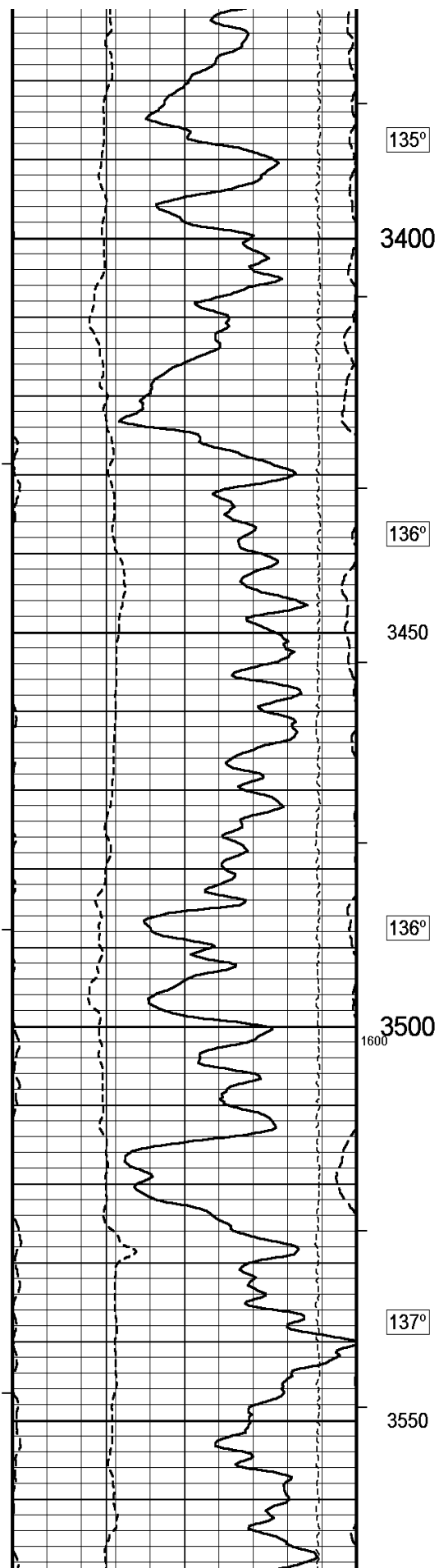
3100

132°

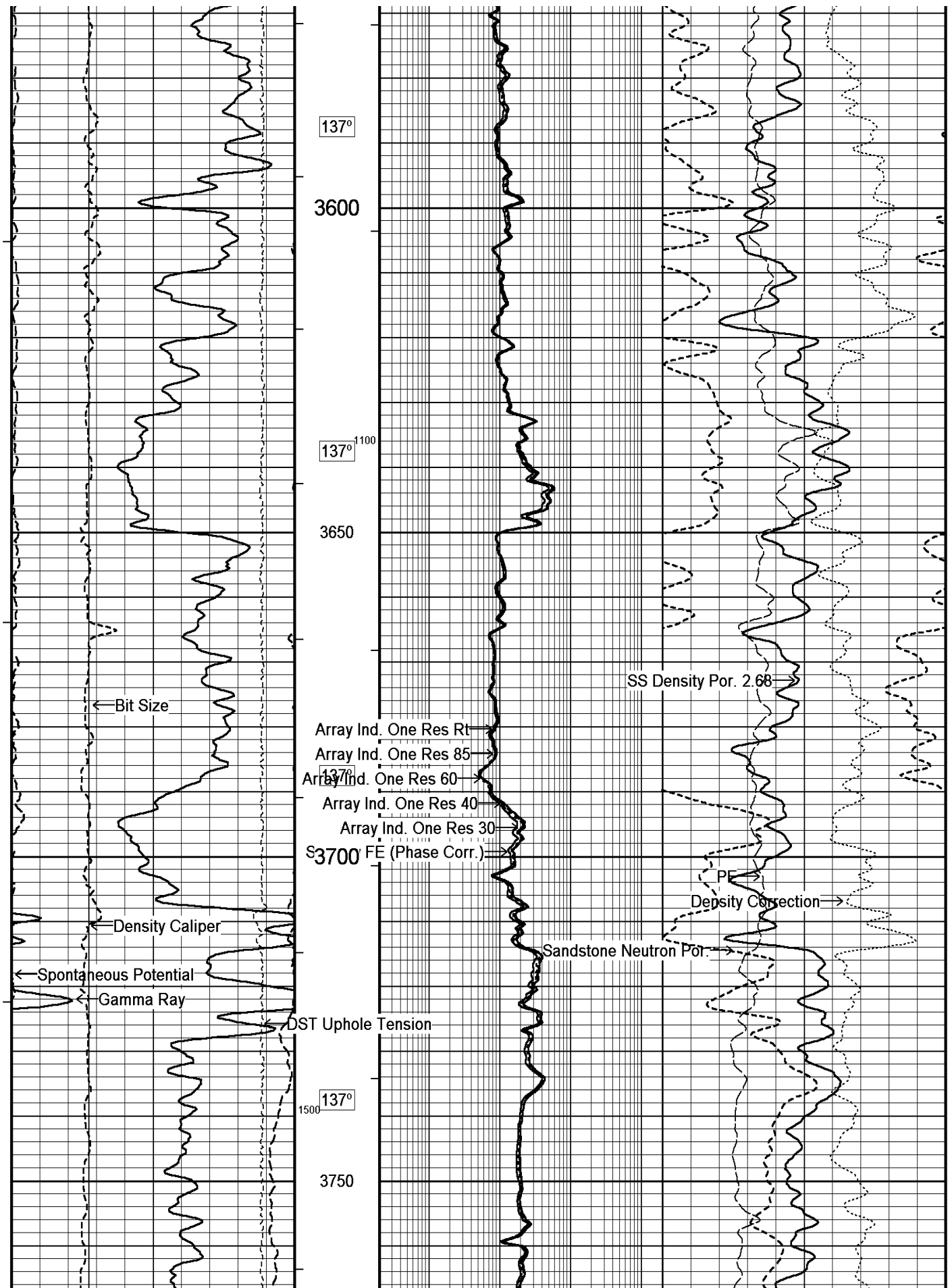
3150













138°

3800

139°

3850

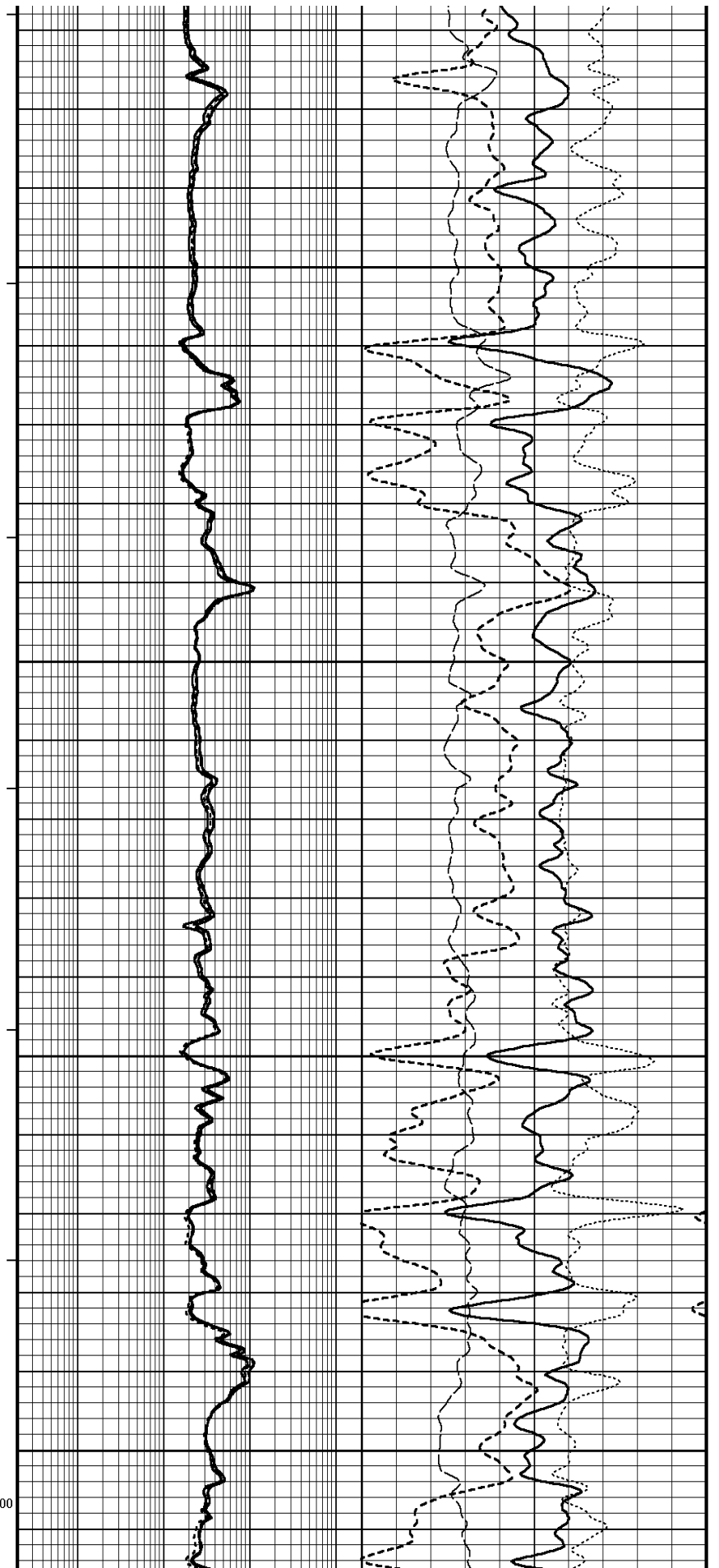
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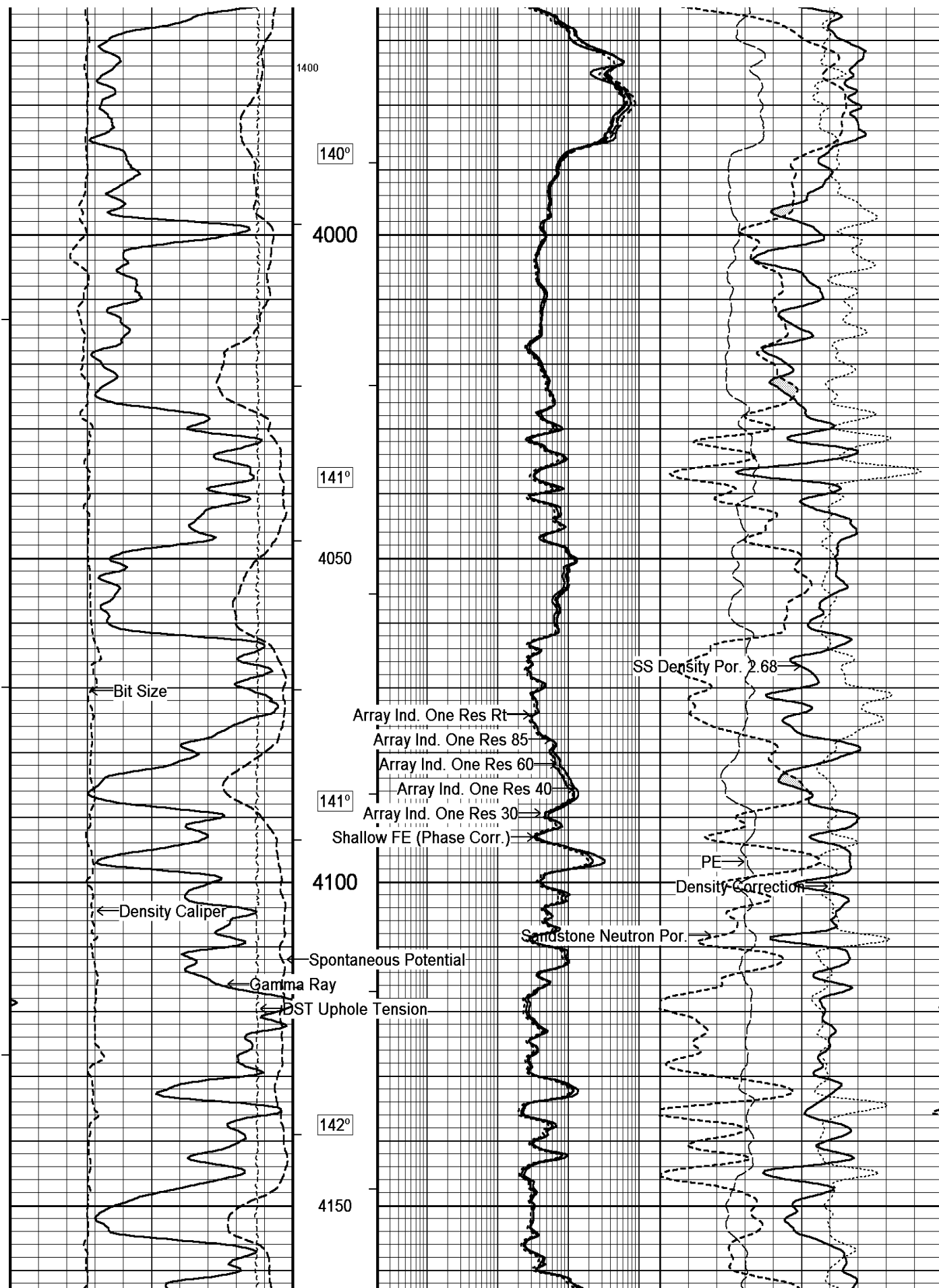
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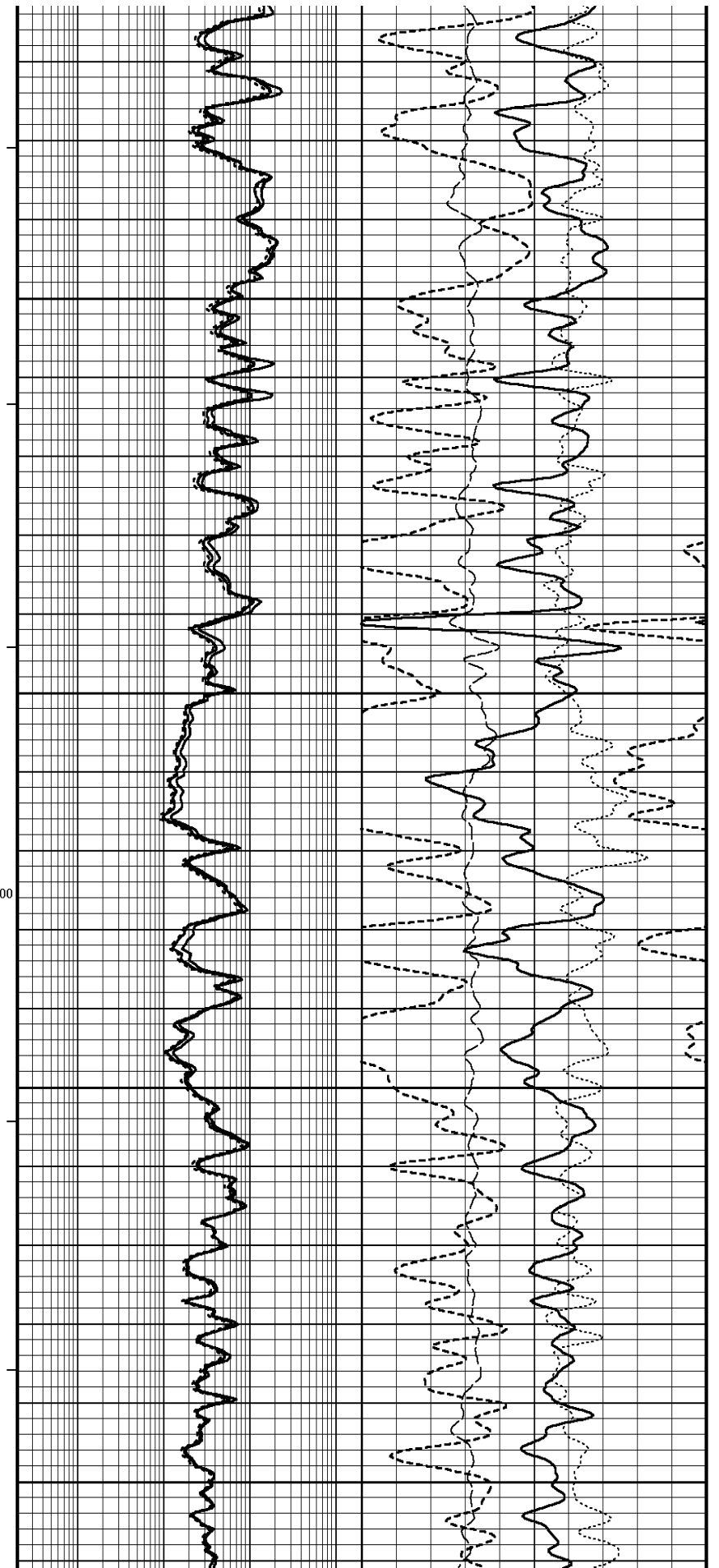
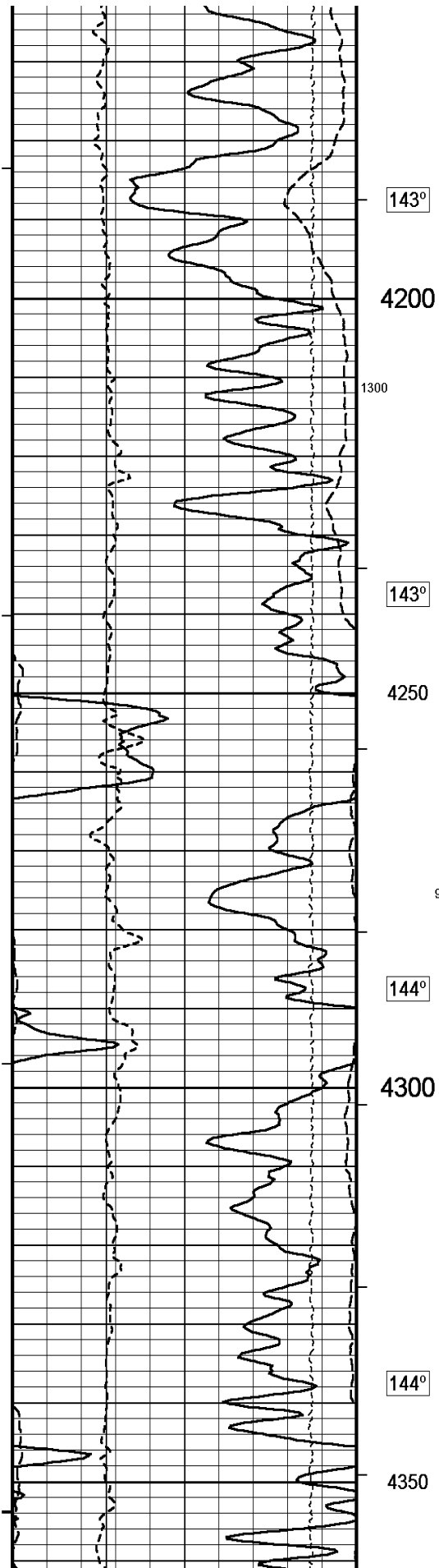
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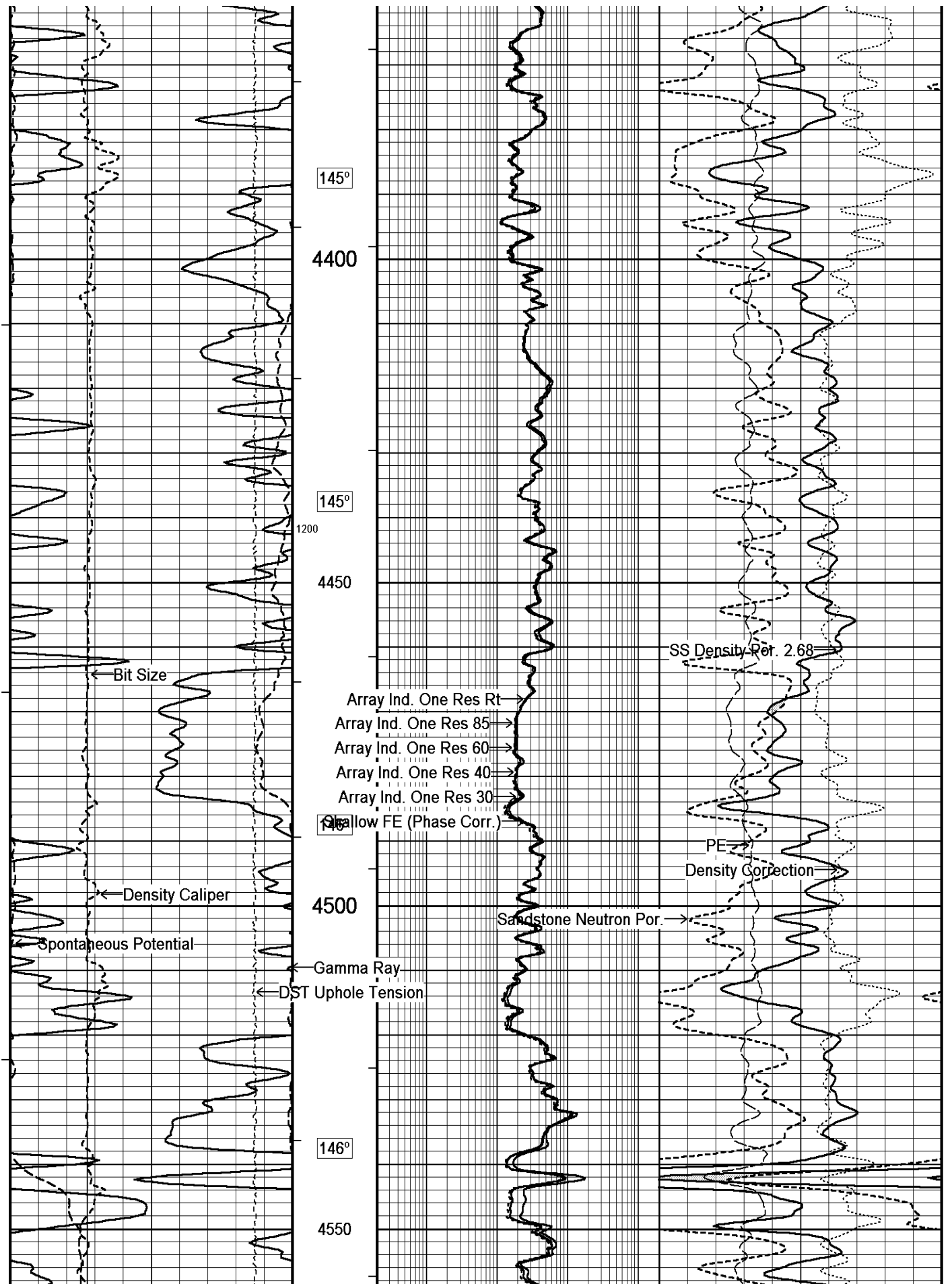
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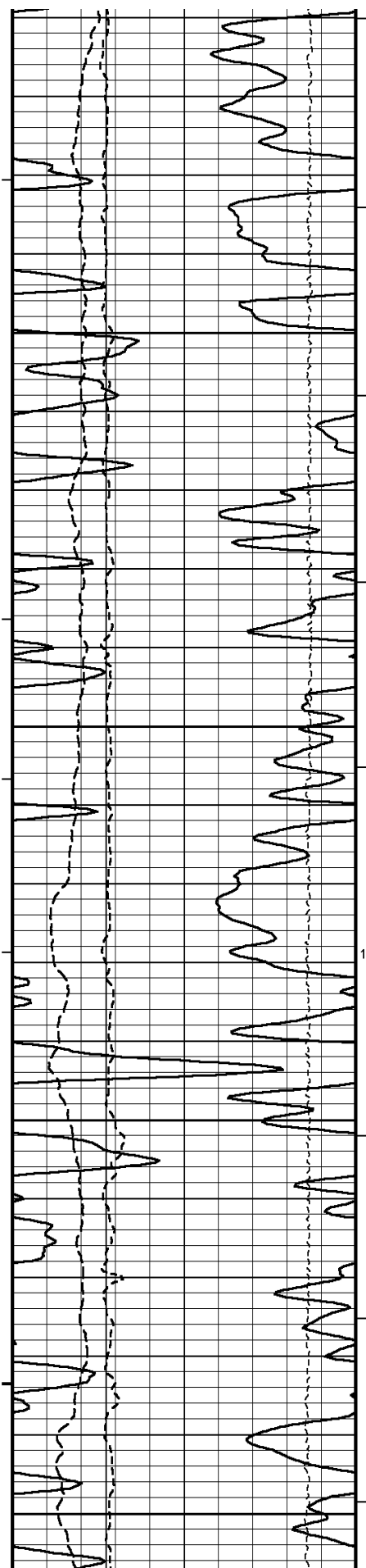
1000











147°

800

4600

148°

4650

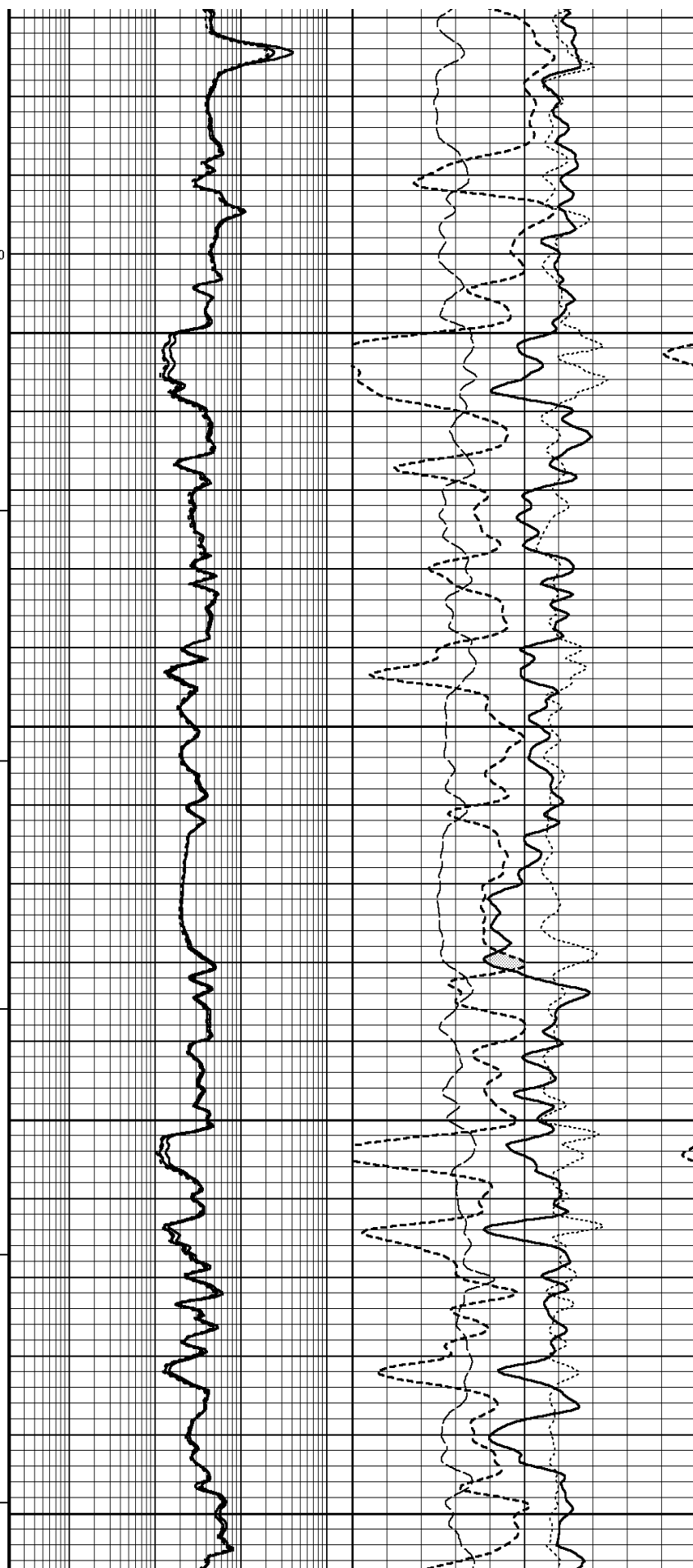
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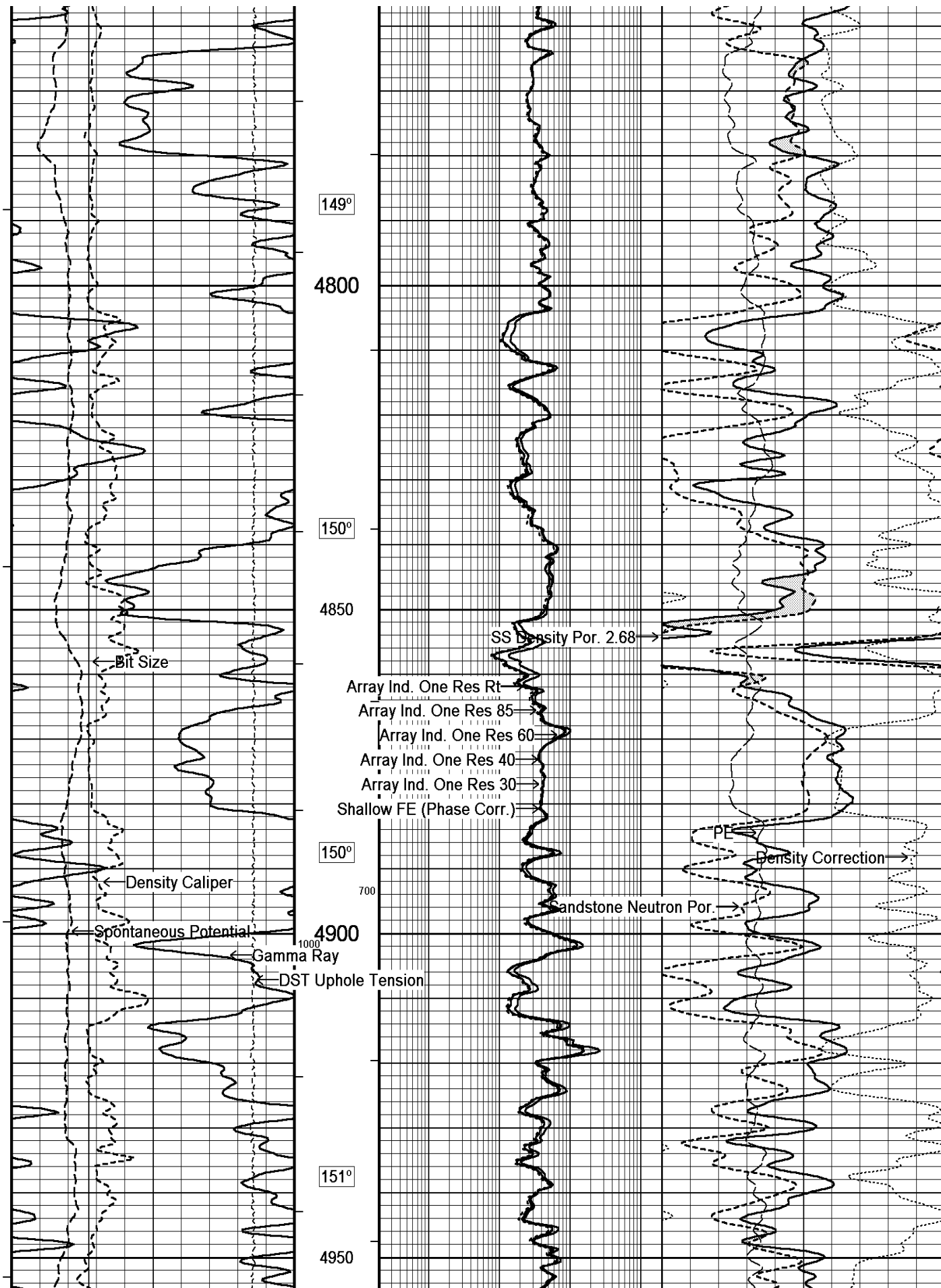
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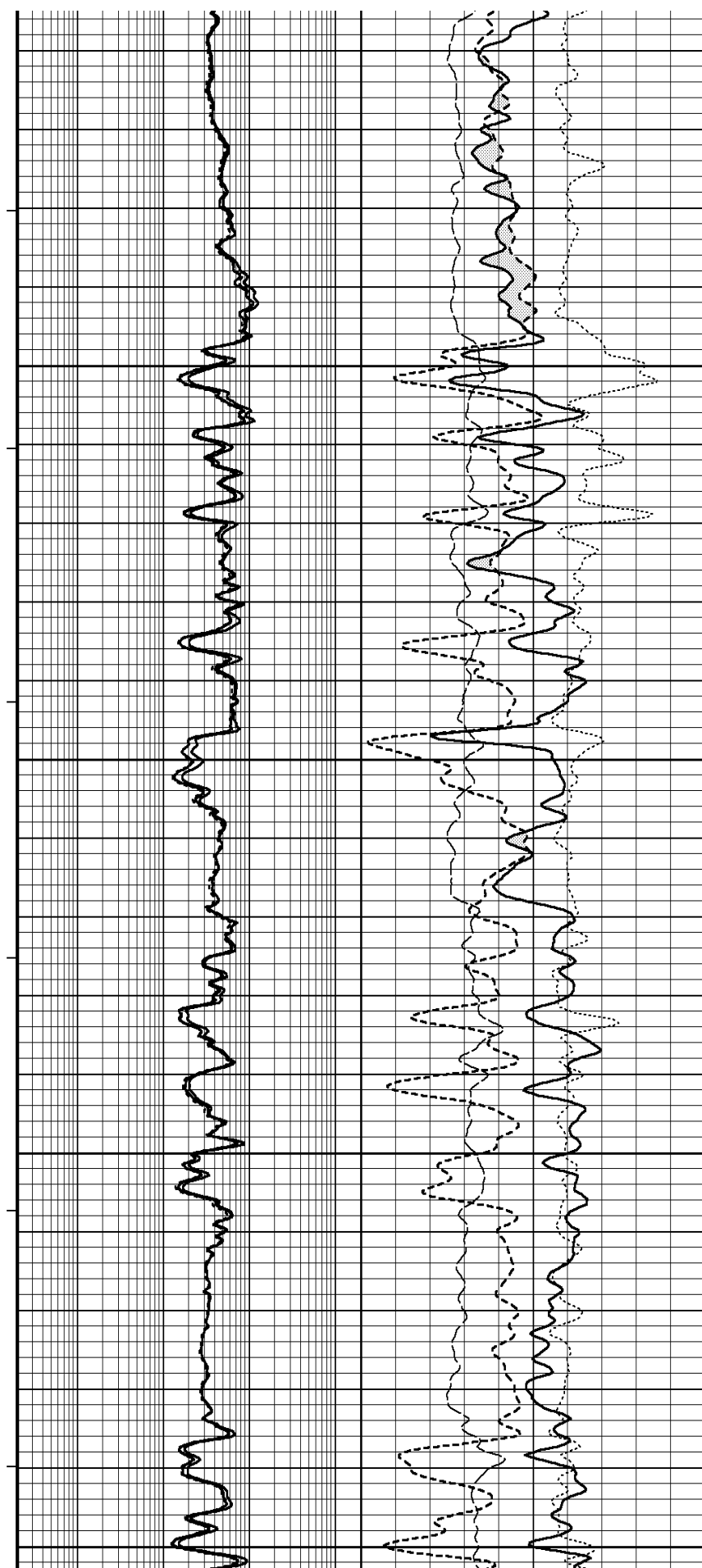
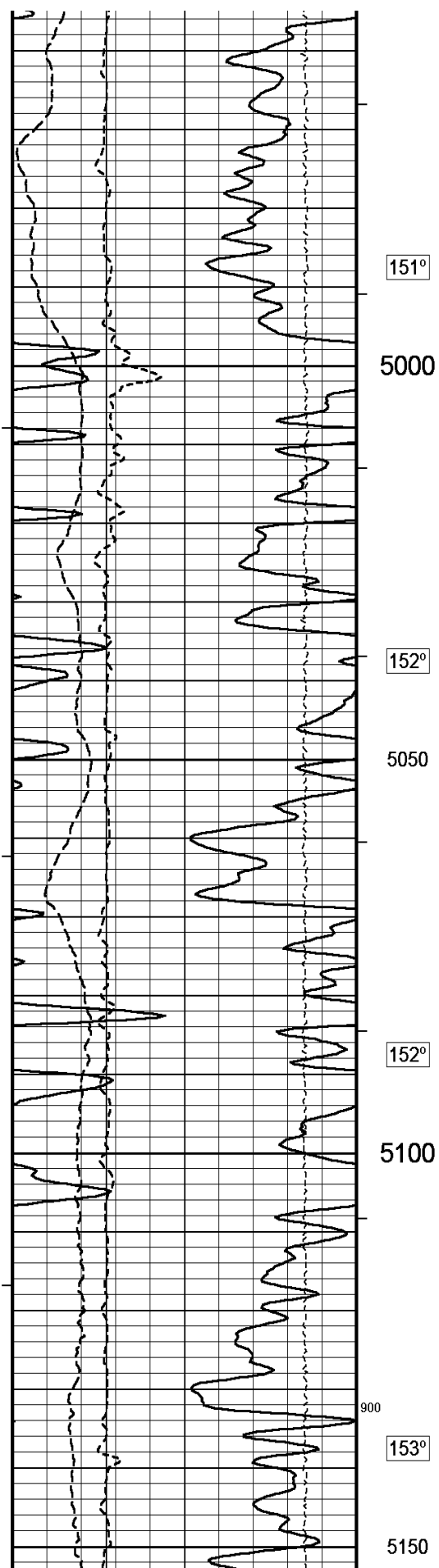
4700

149°

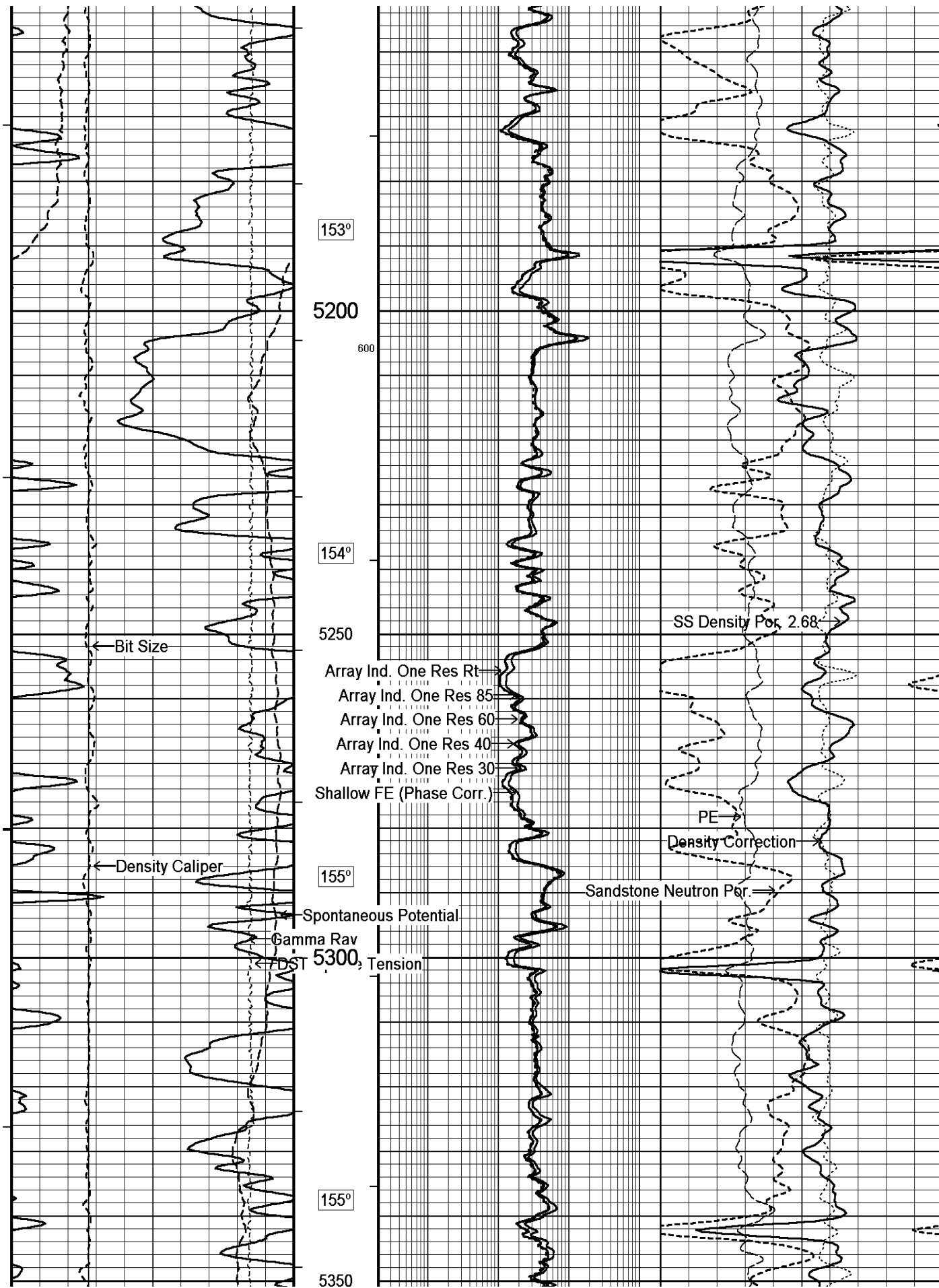
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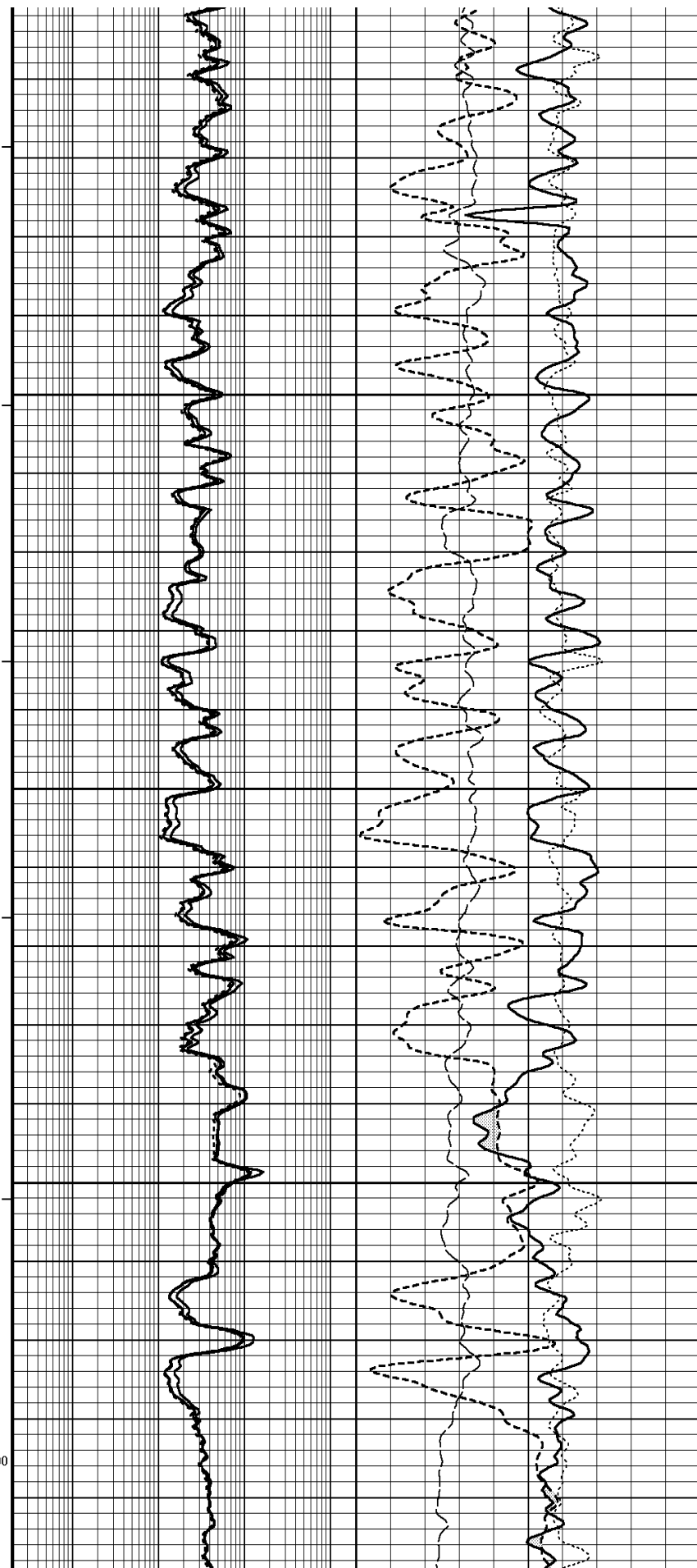
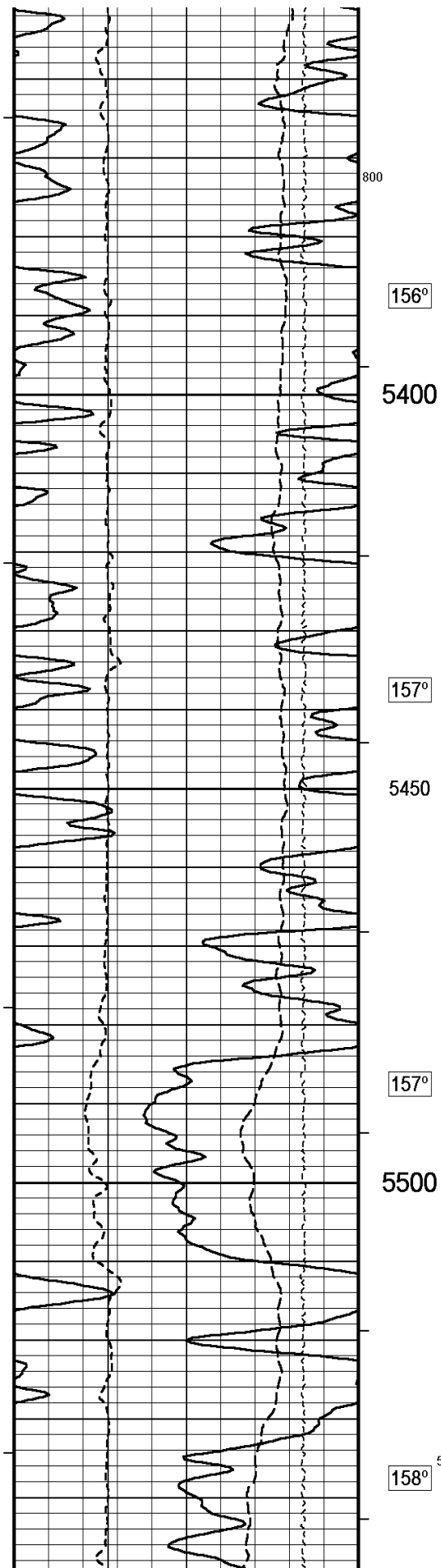


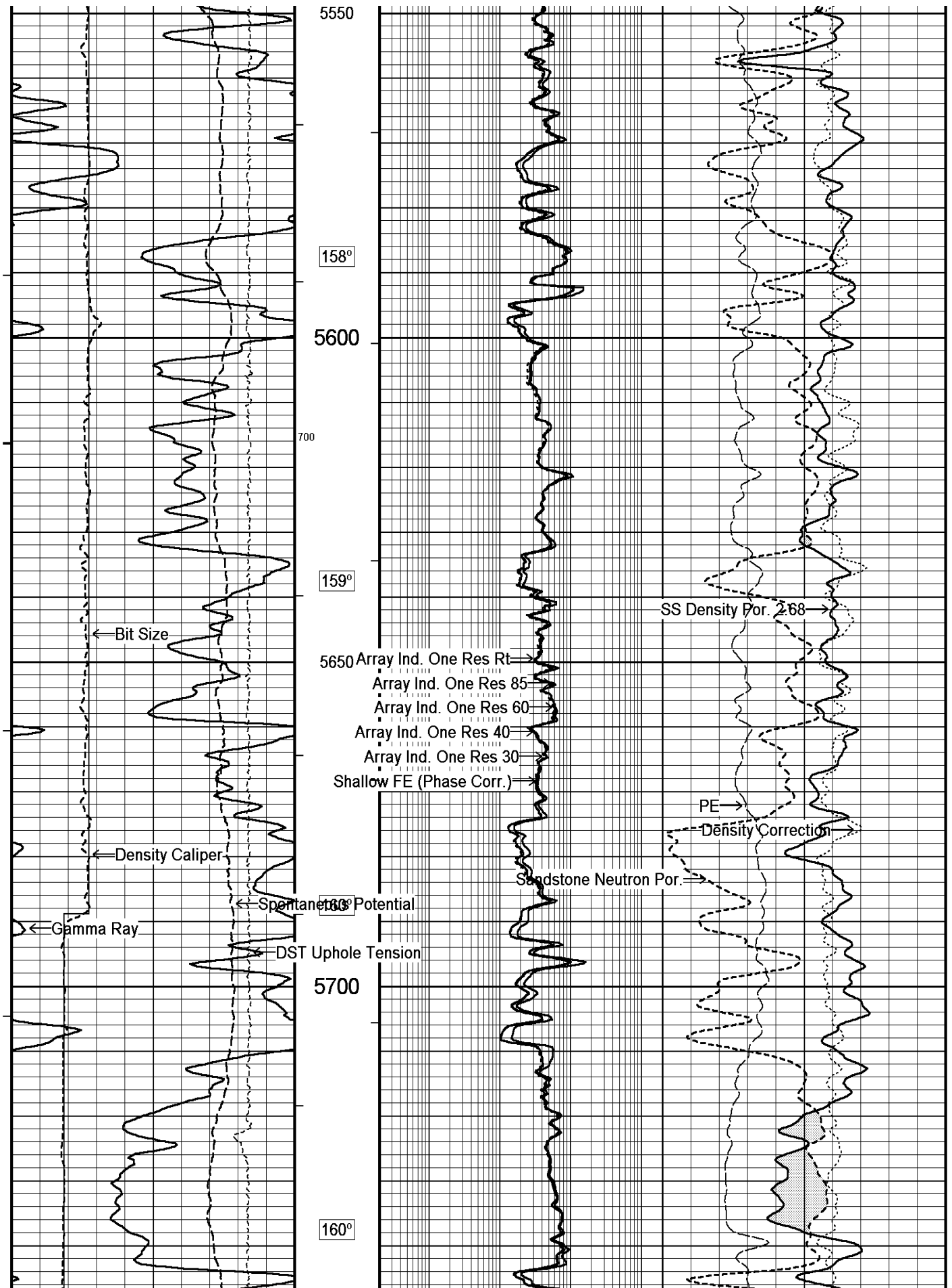


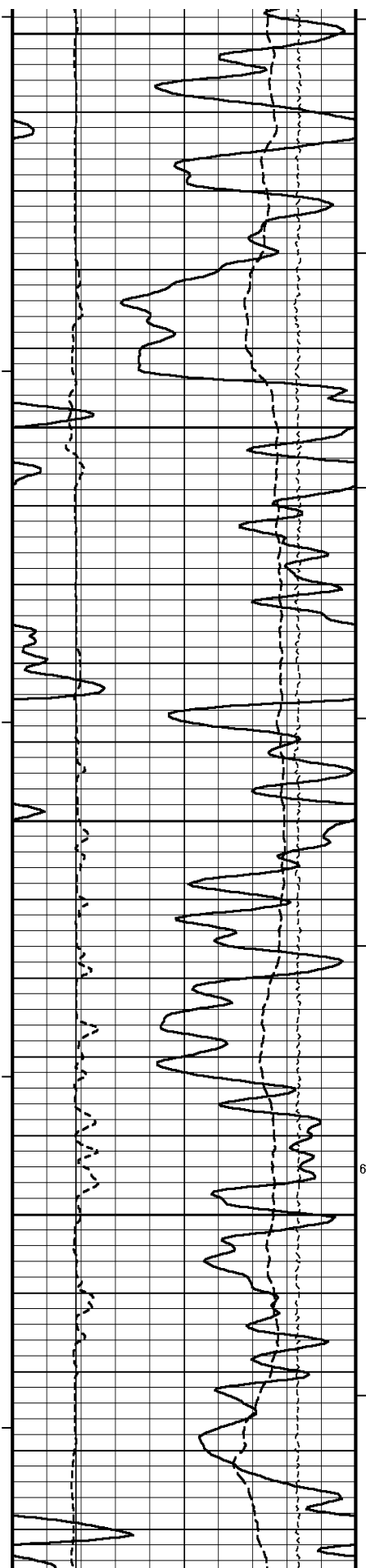












5750

161°

5800

162°

5850

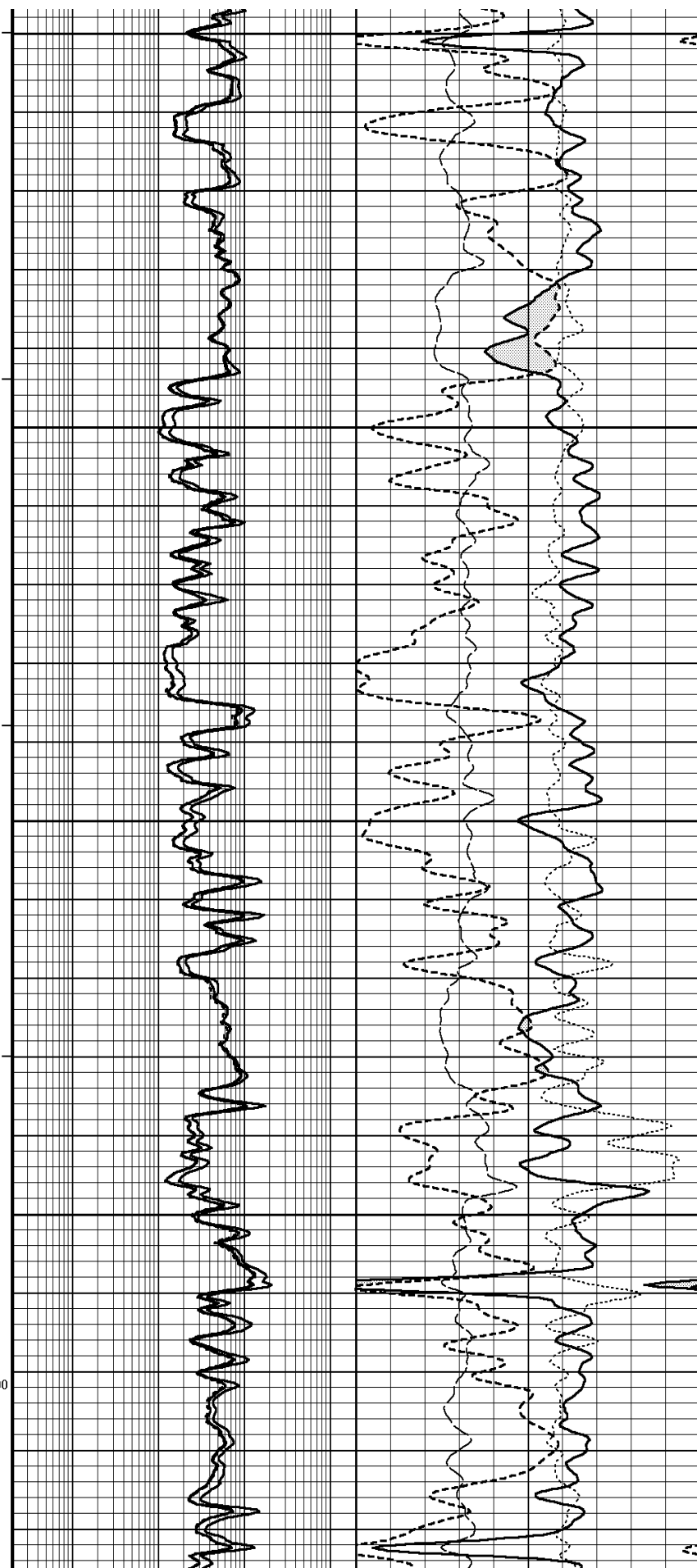
163°

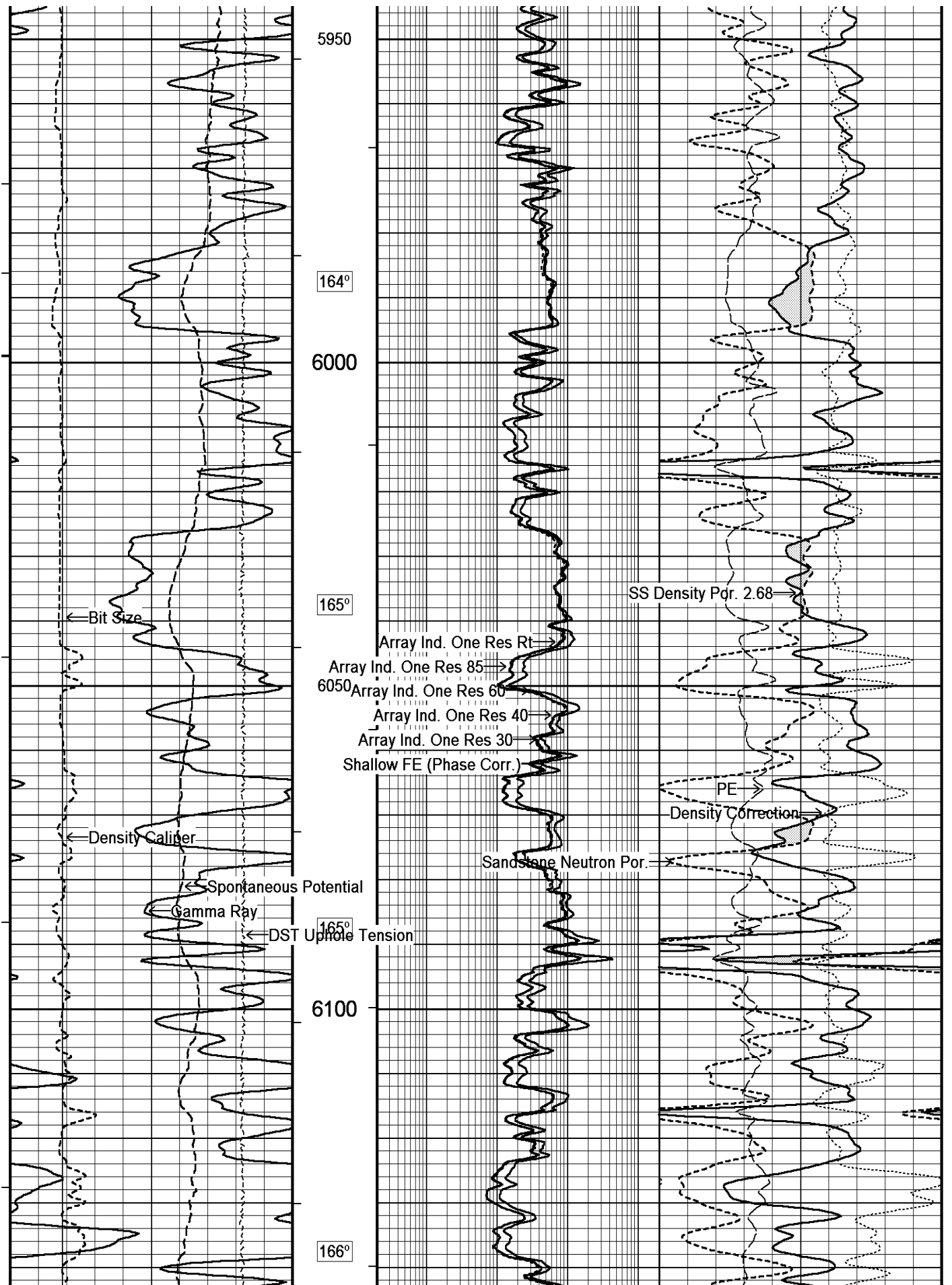
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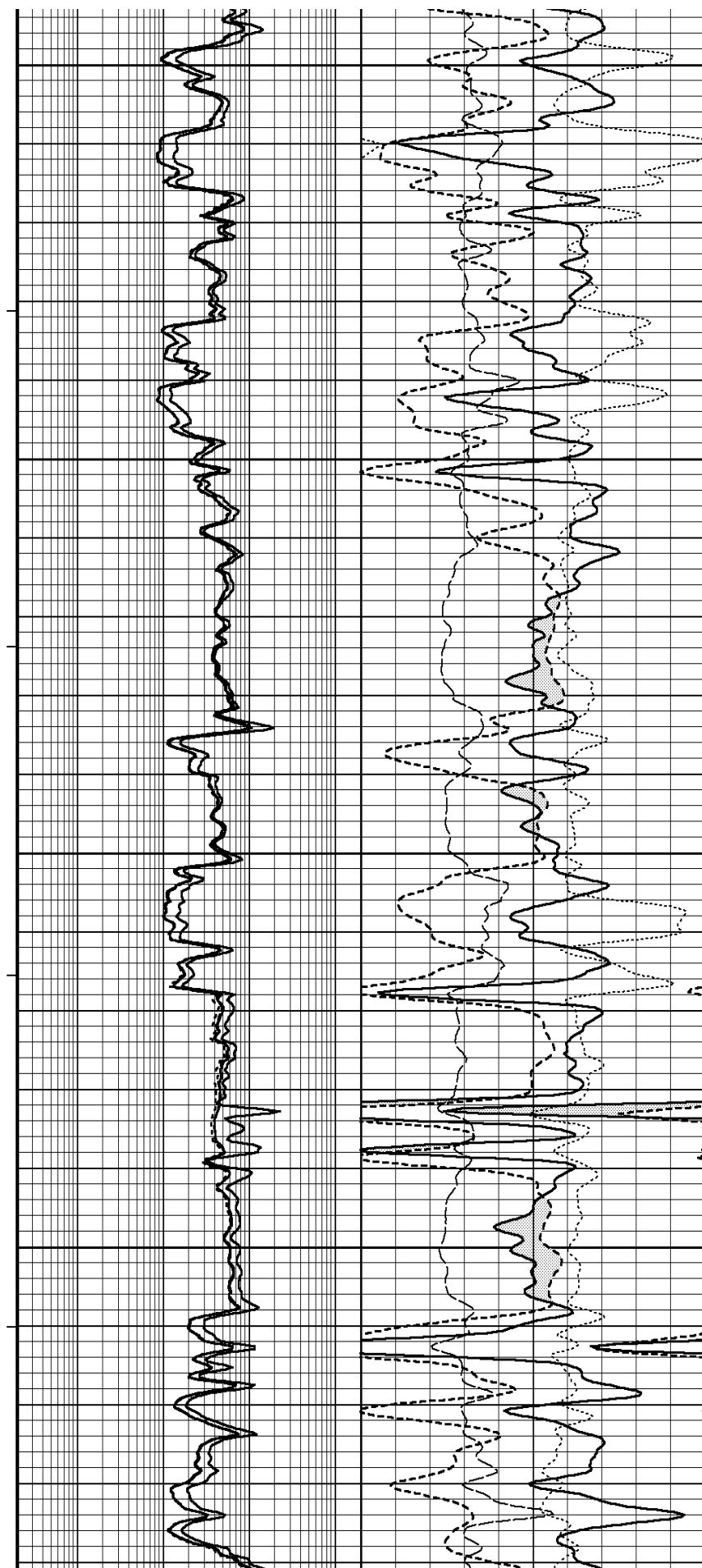
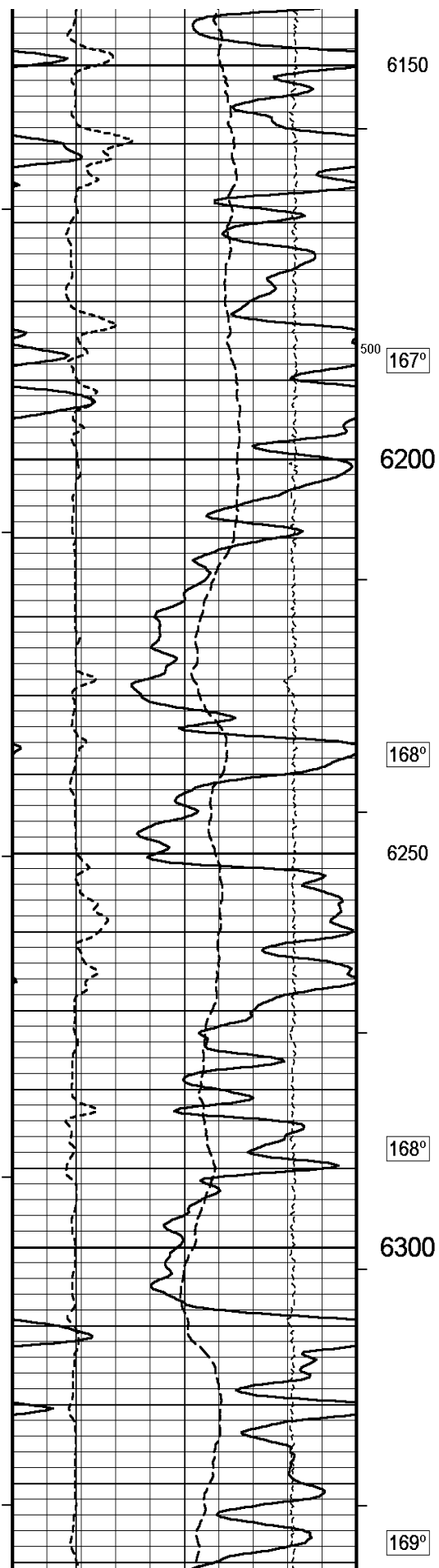
5900

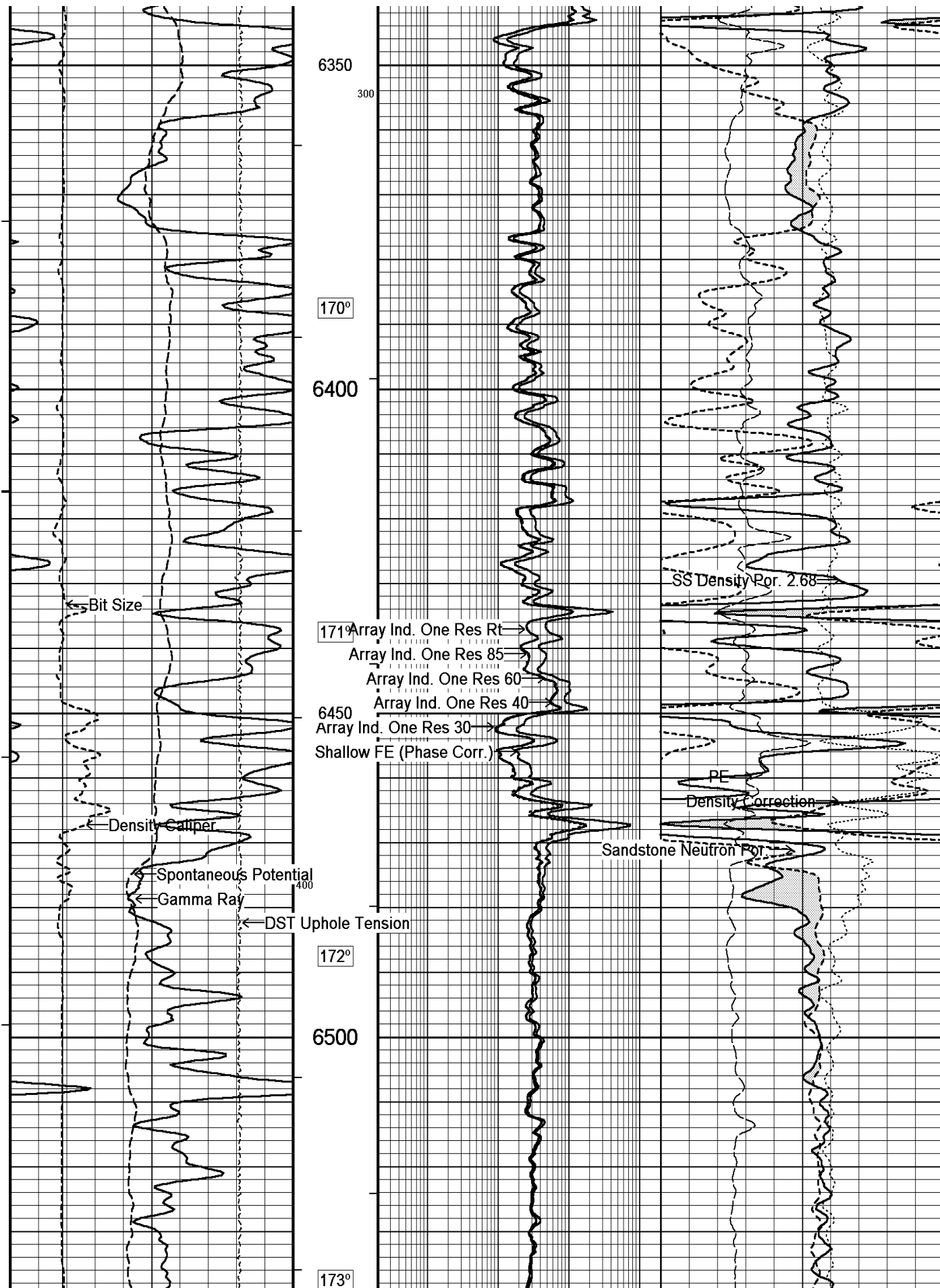
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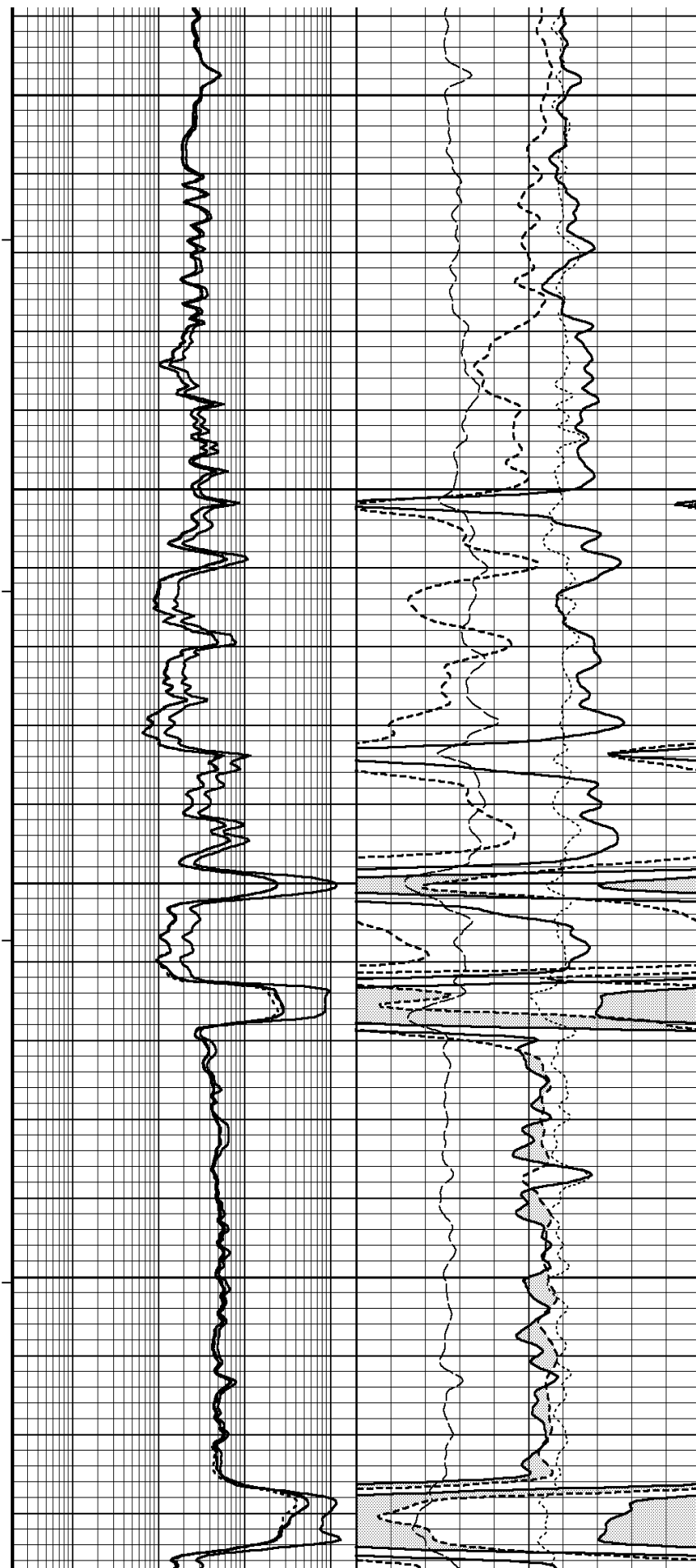
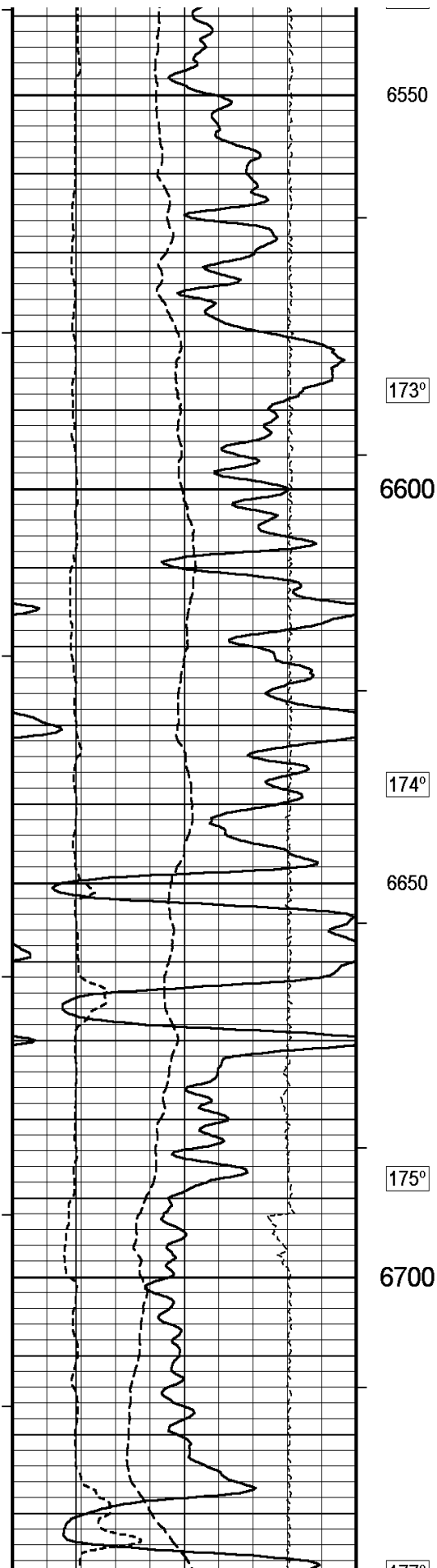
163°



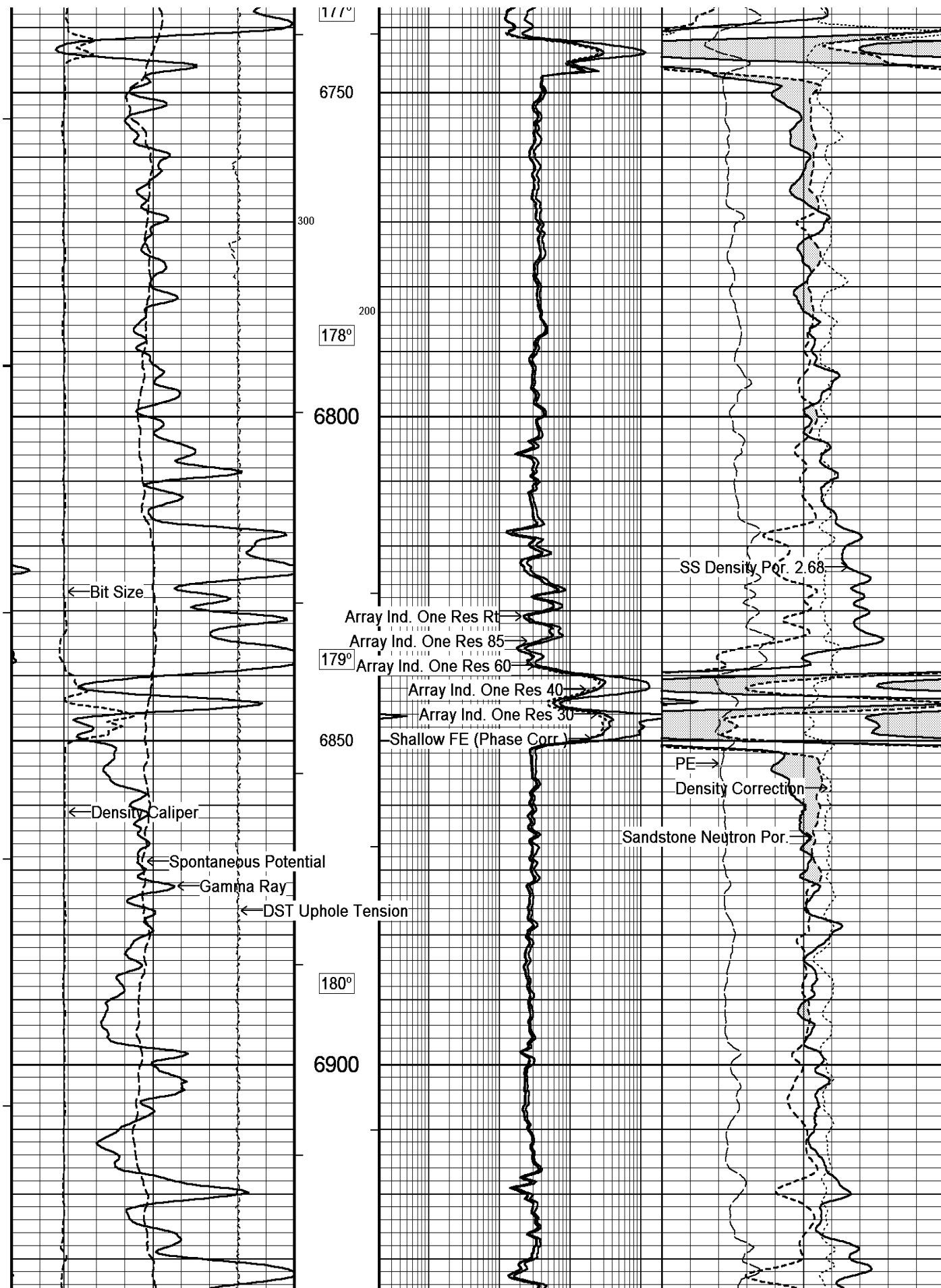


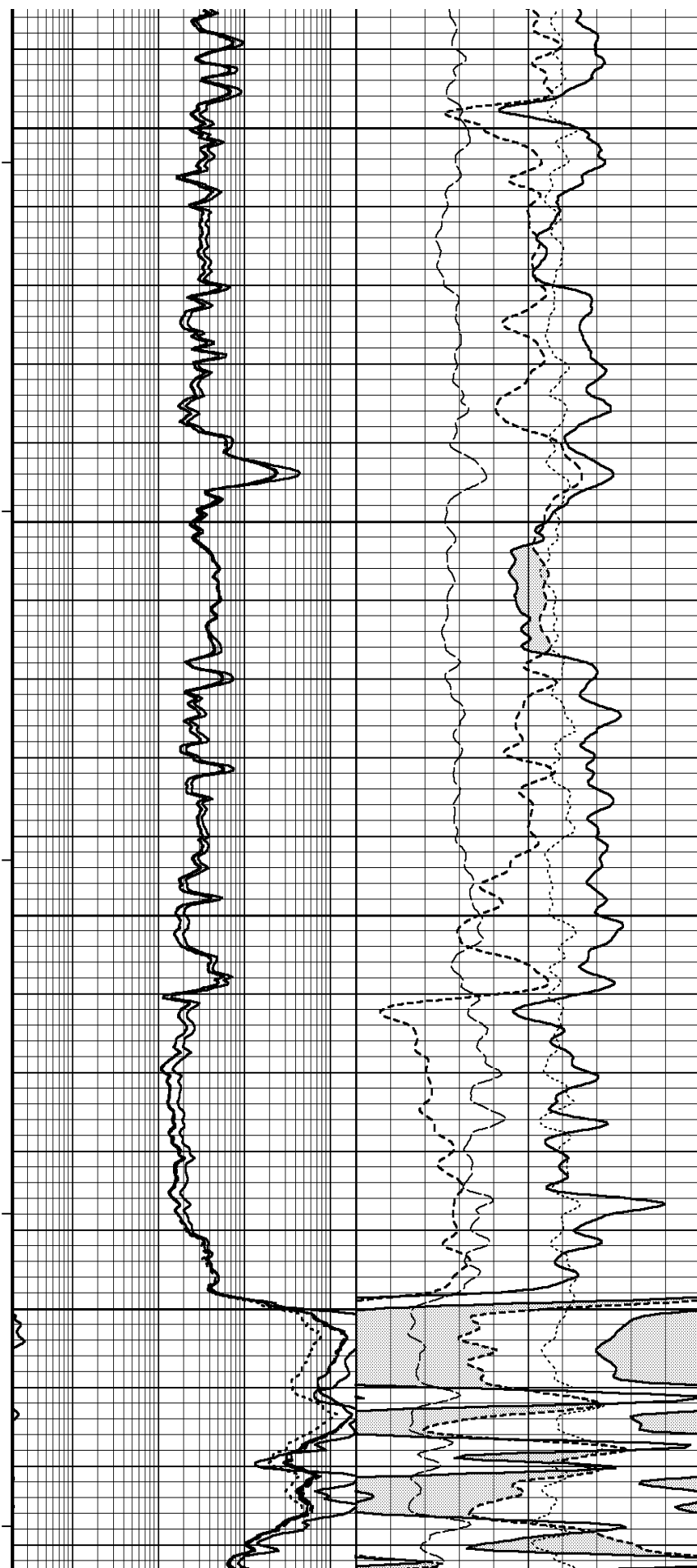
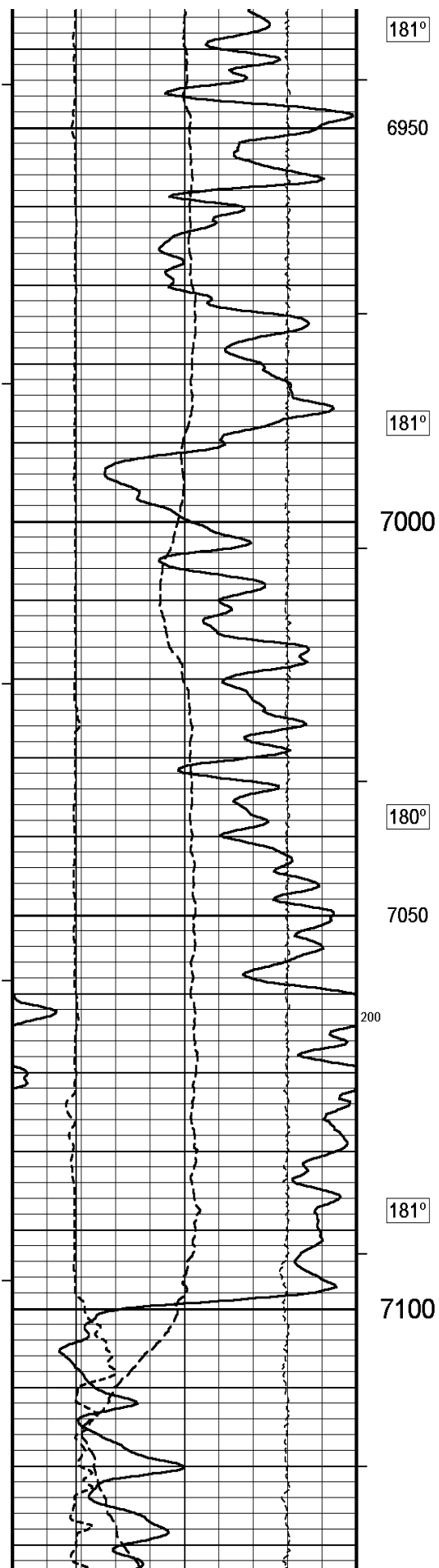


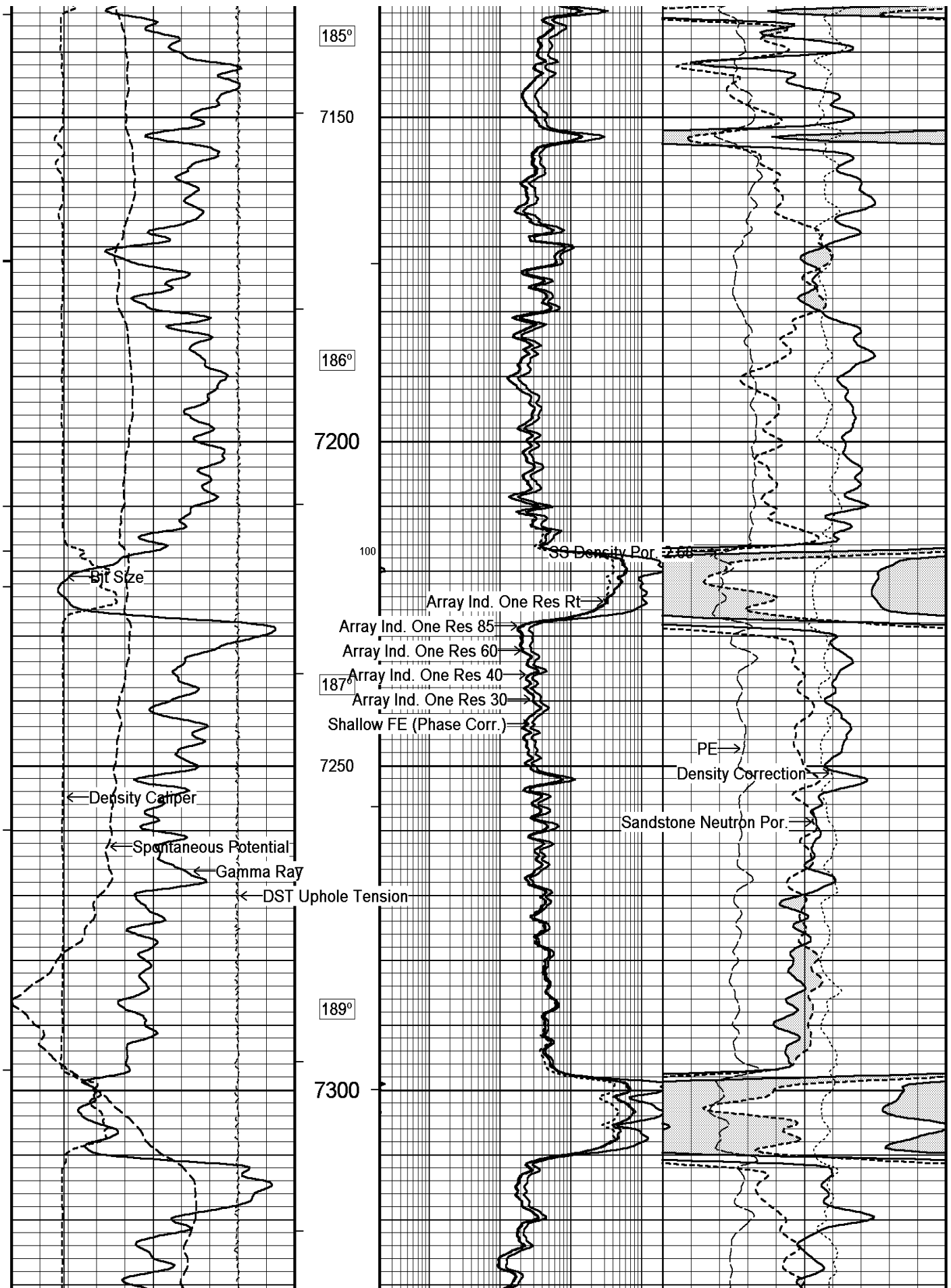


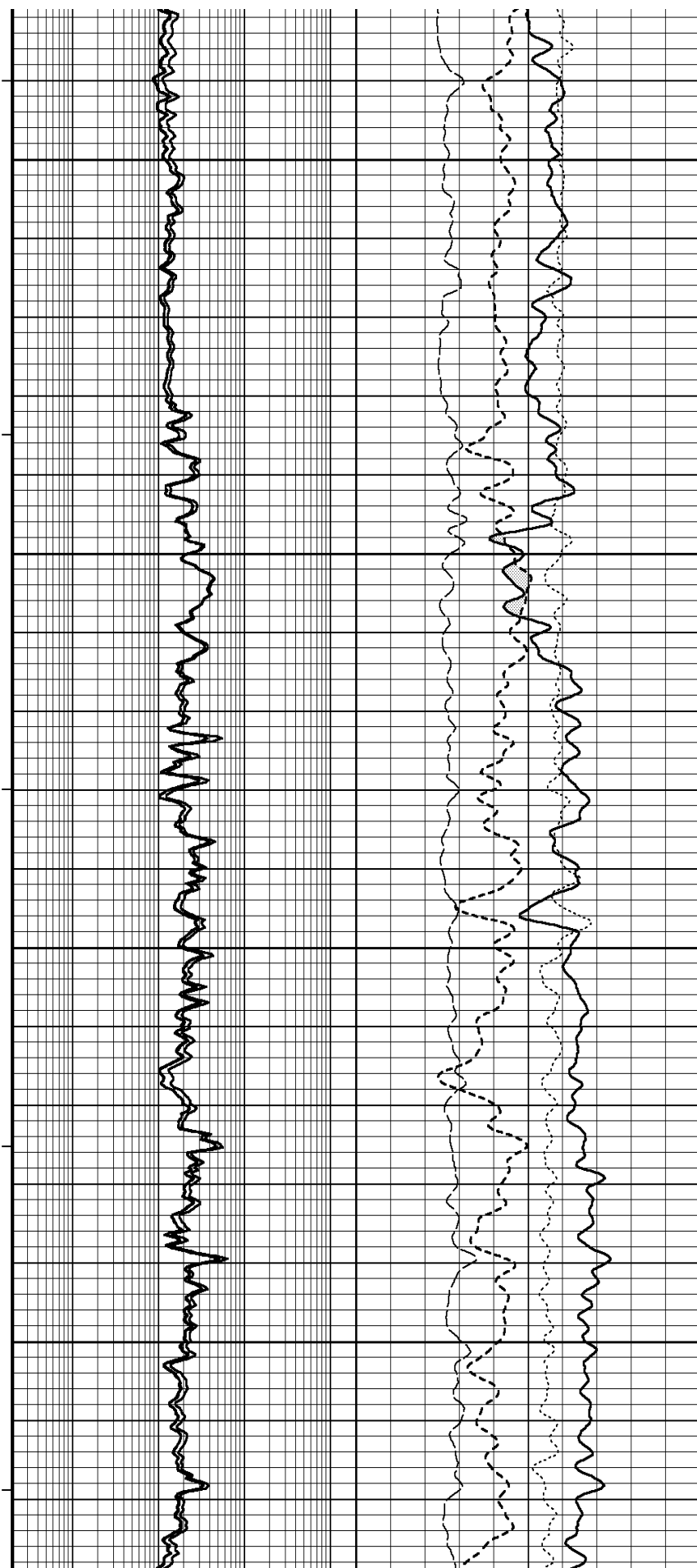
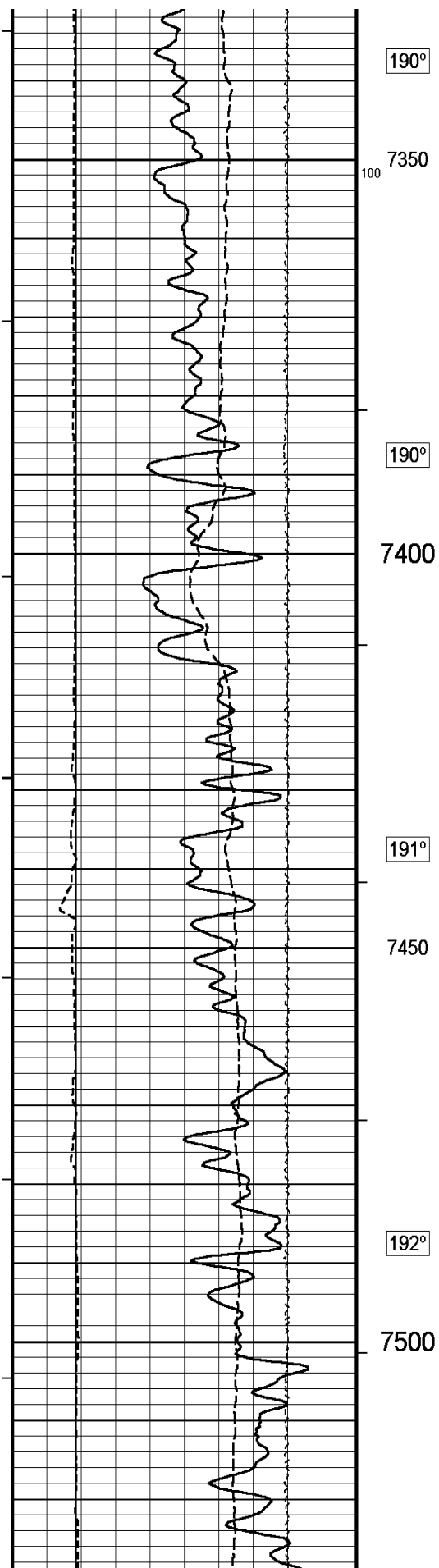


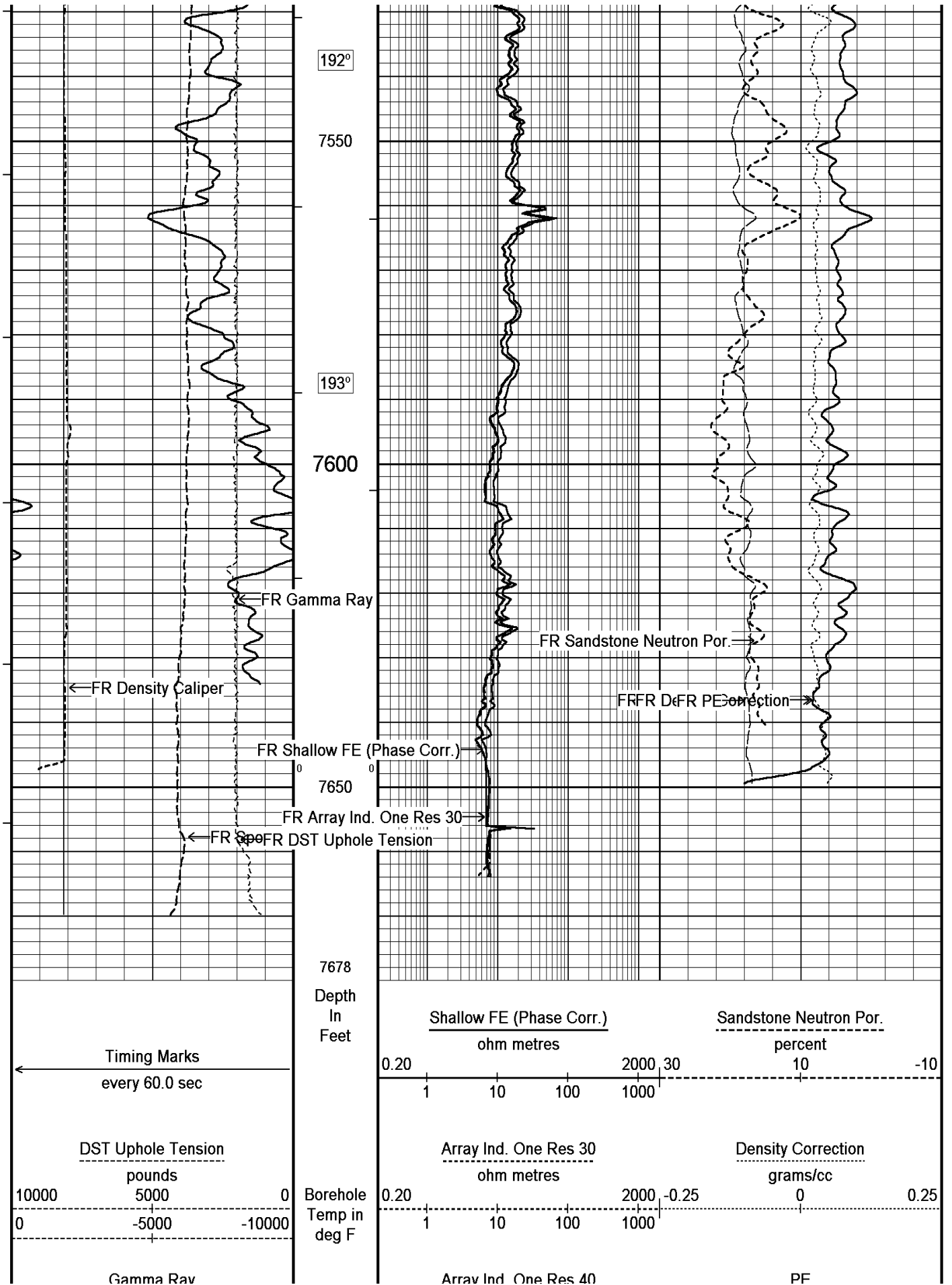


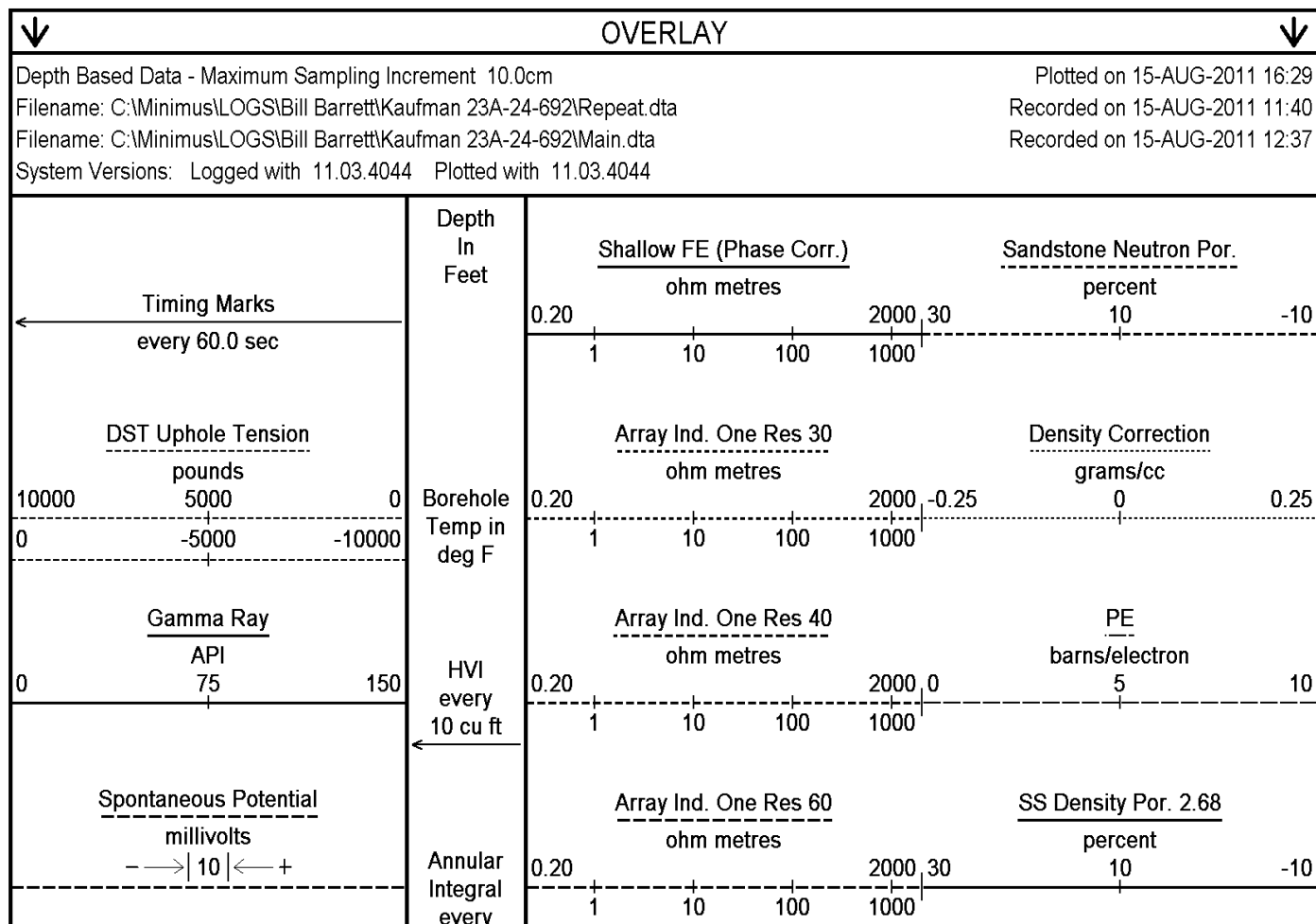
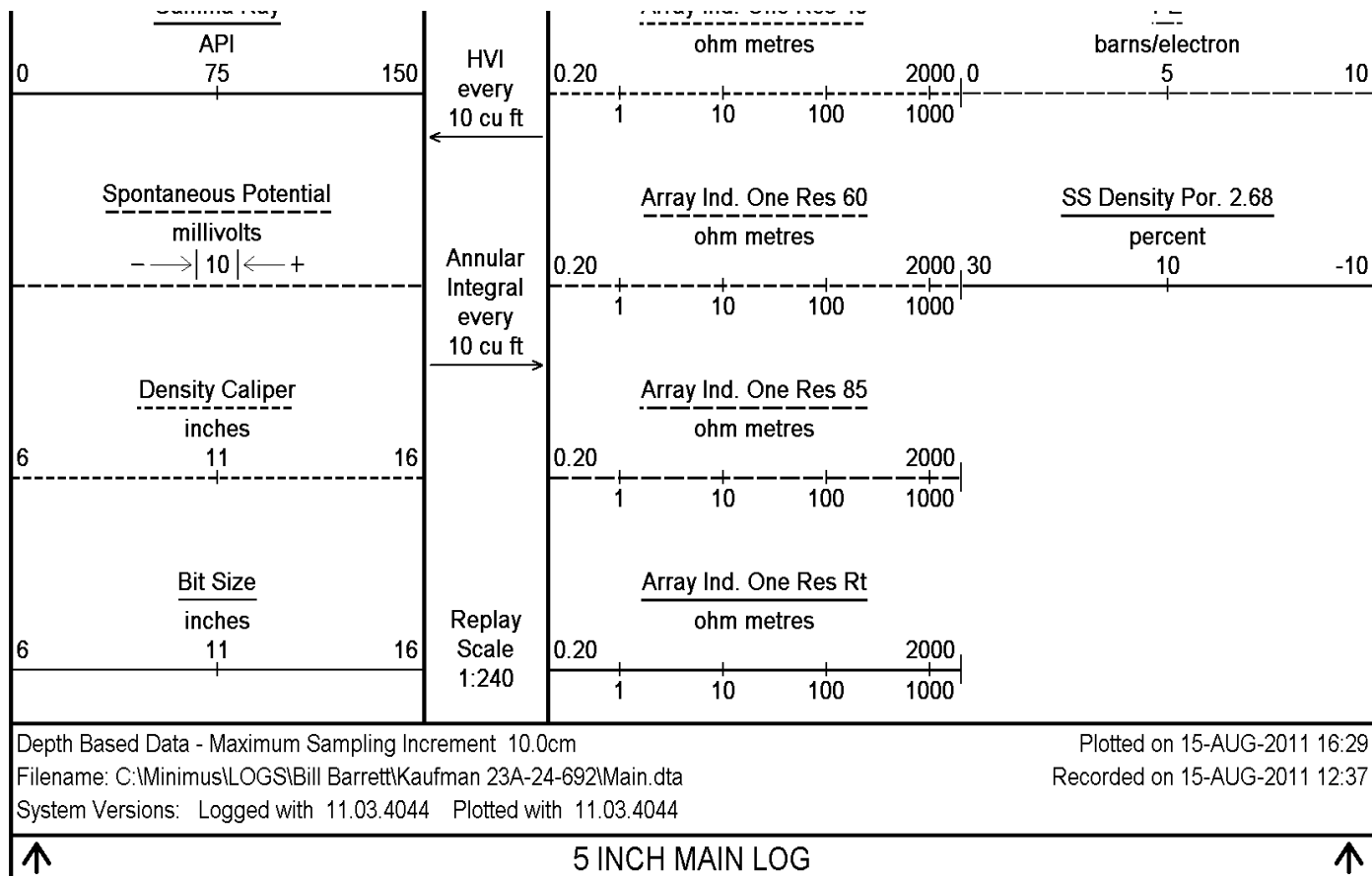


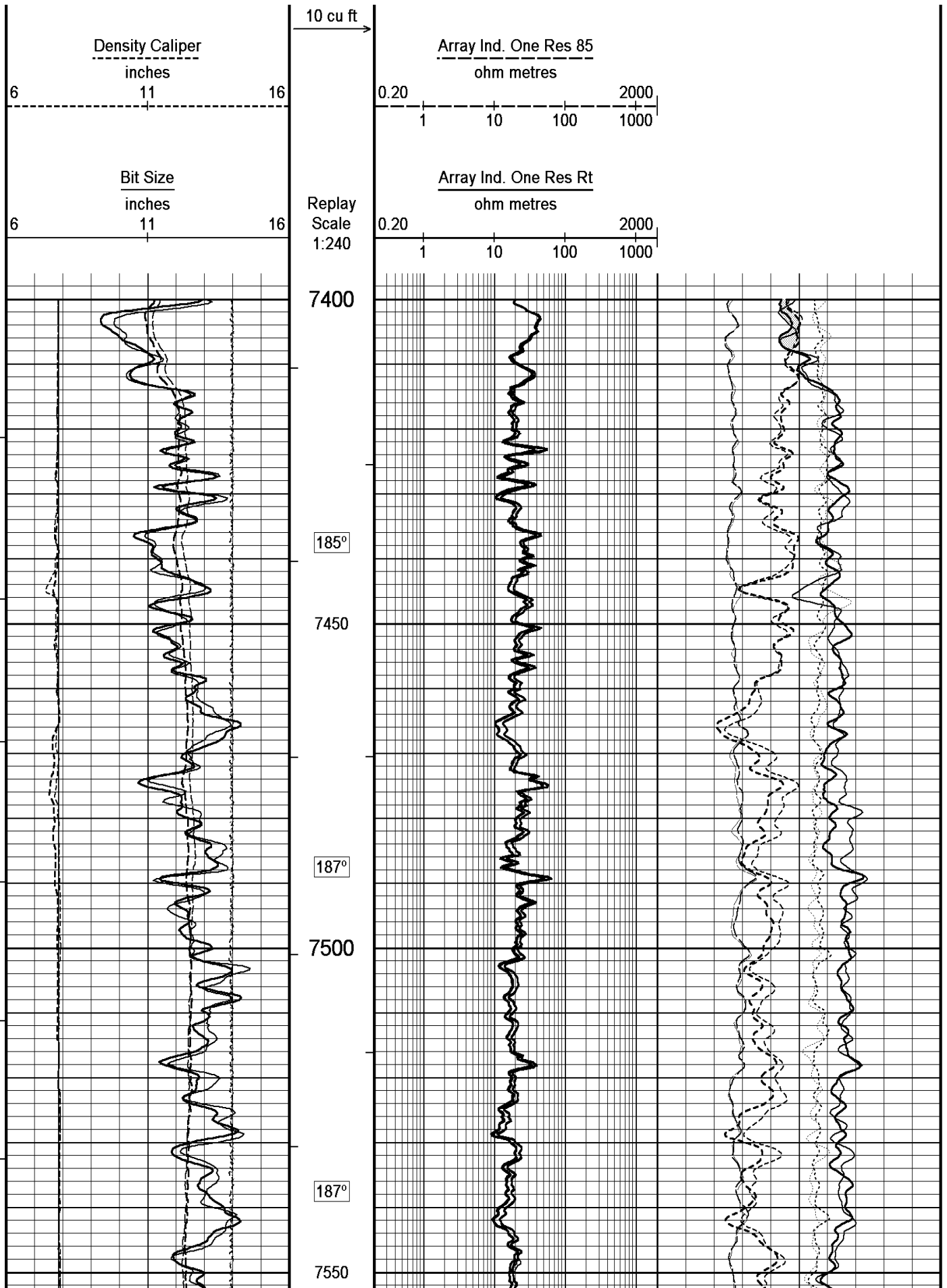


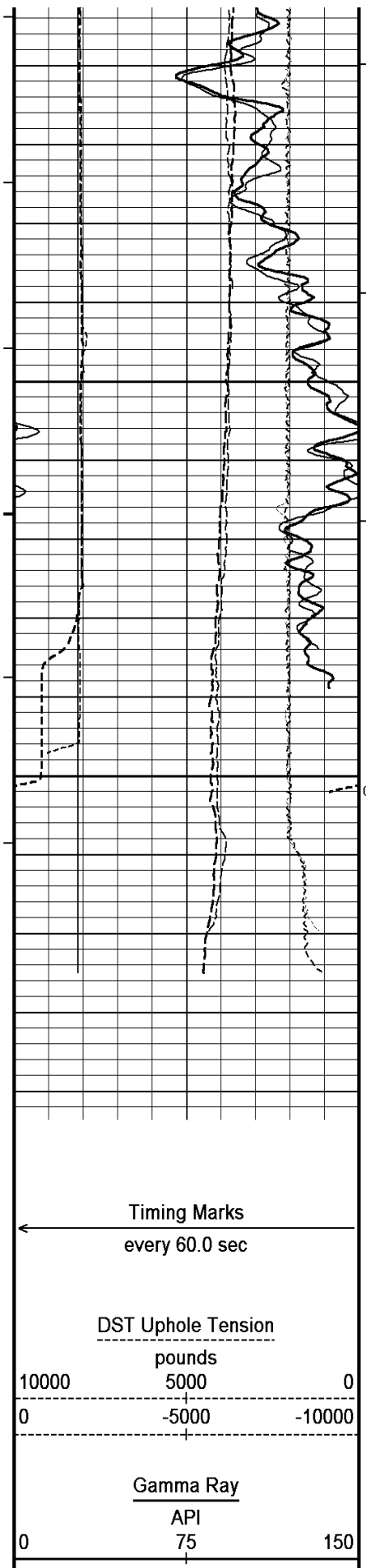












189°

7600

189°

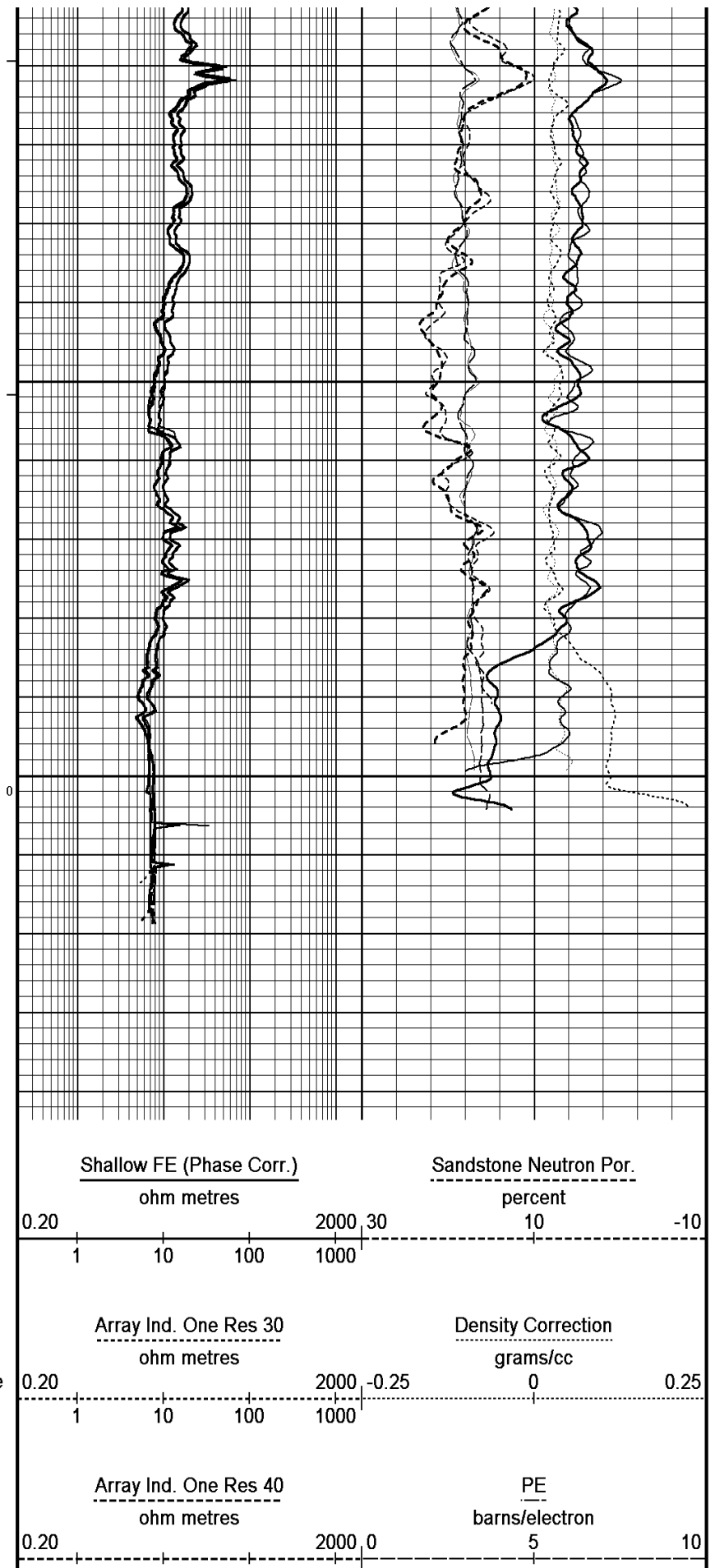
7650

7692

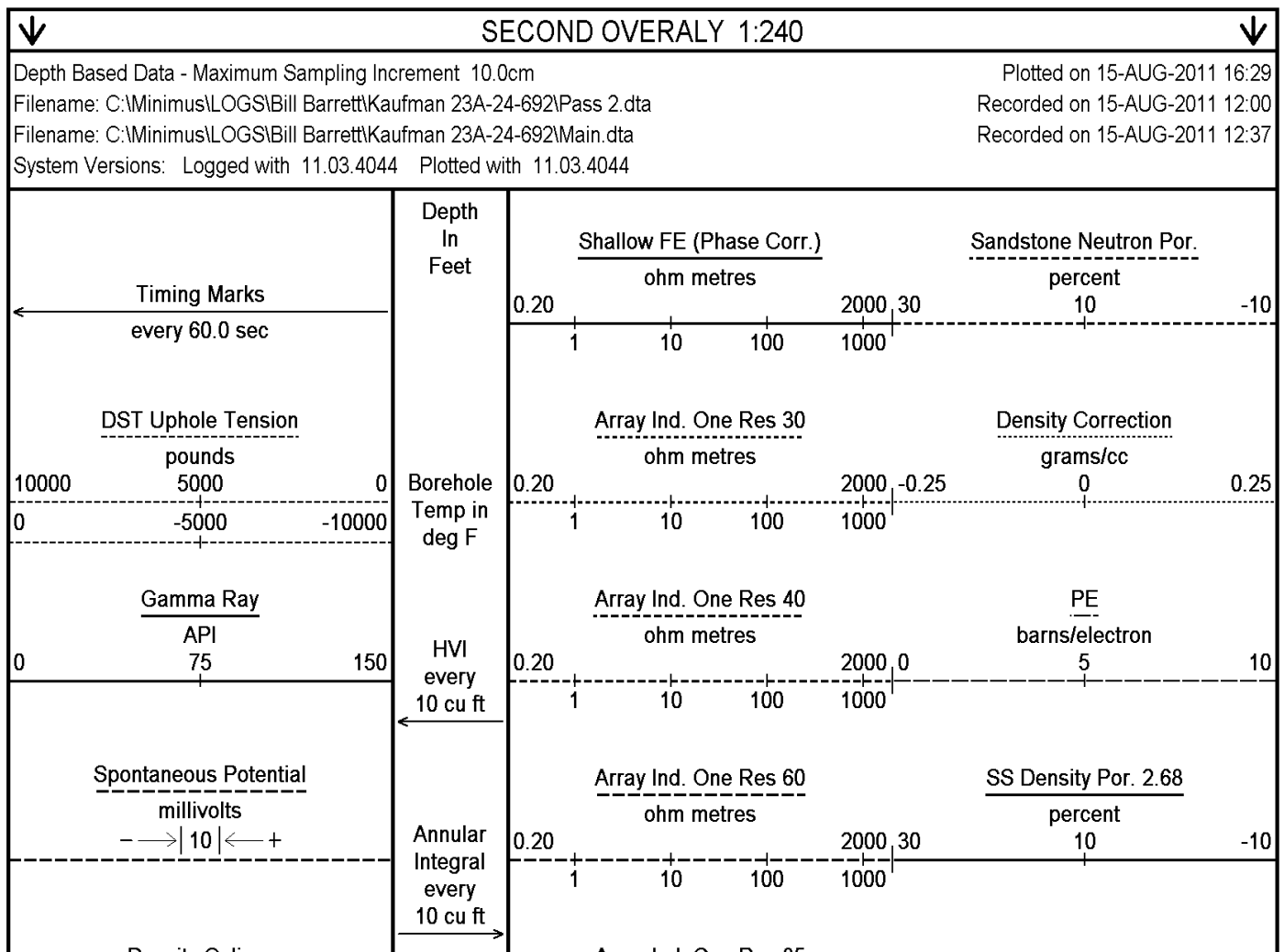
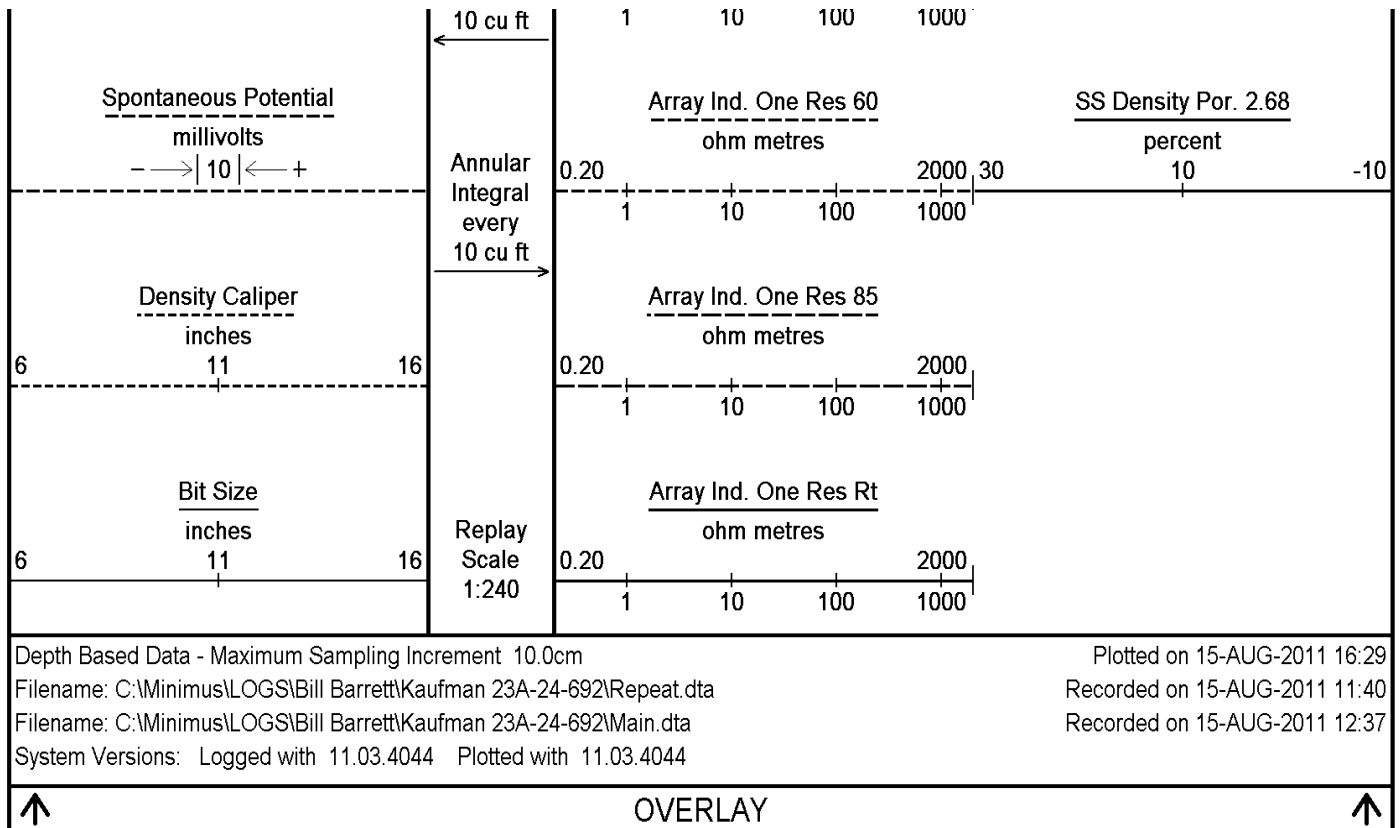
Depth  
In  
Feet

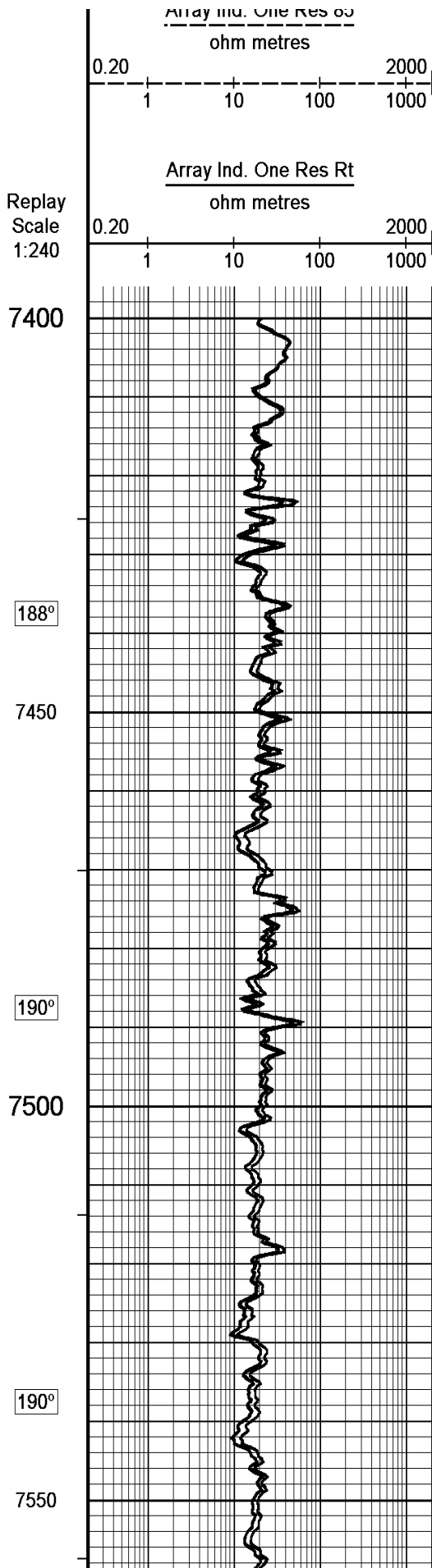
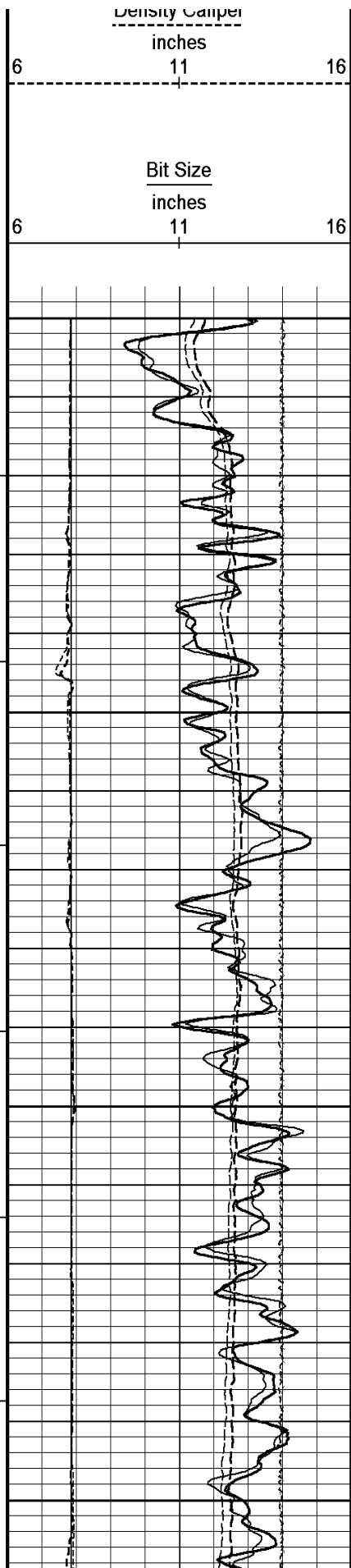
Borehole  
Temp in  
deg F

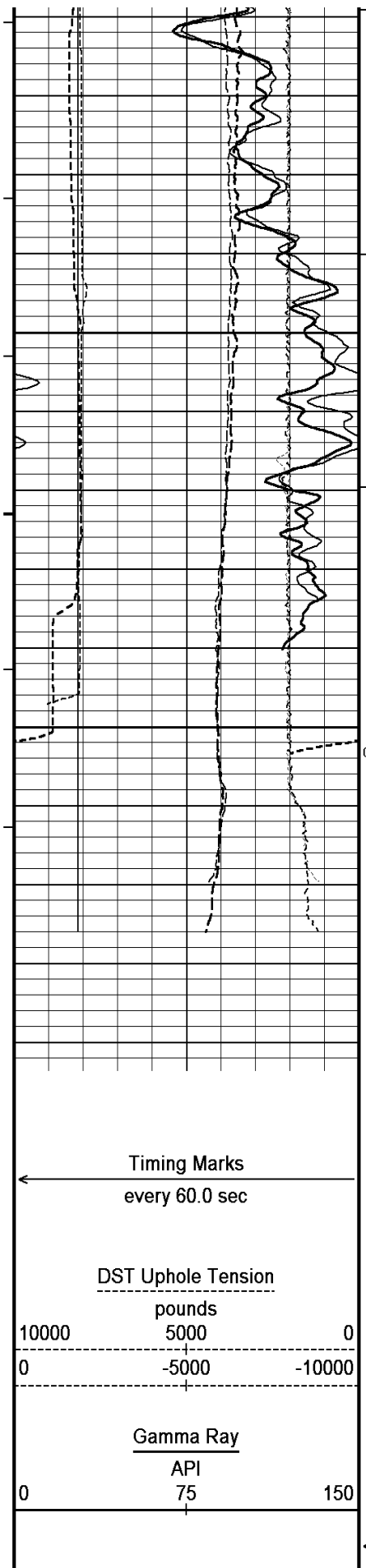
HVI  
every











191°

7600

190°

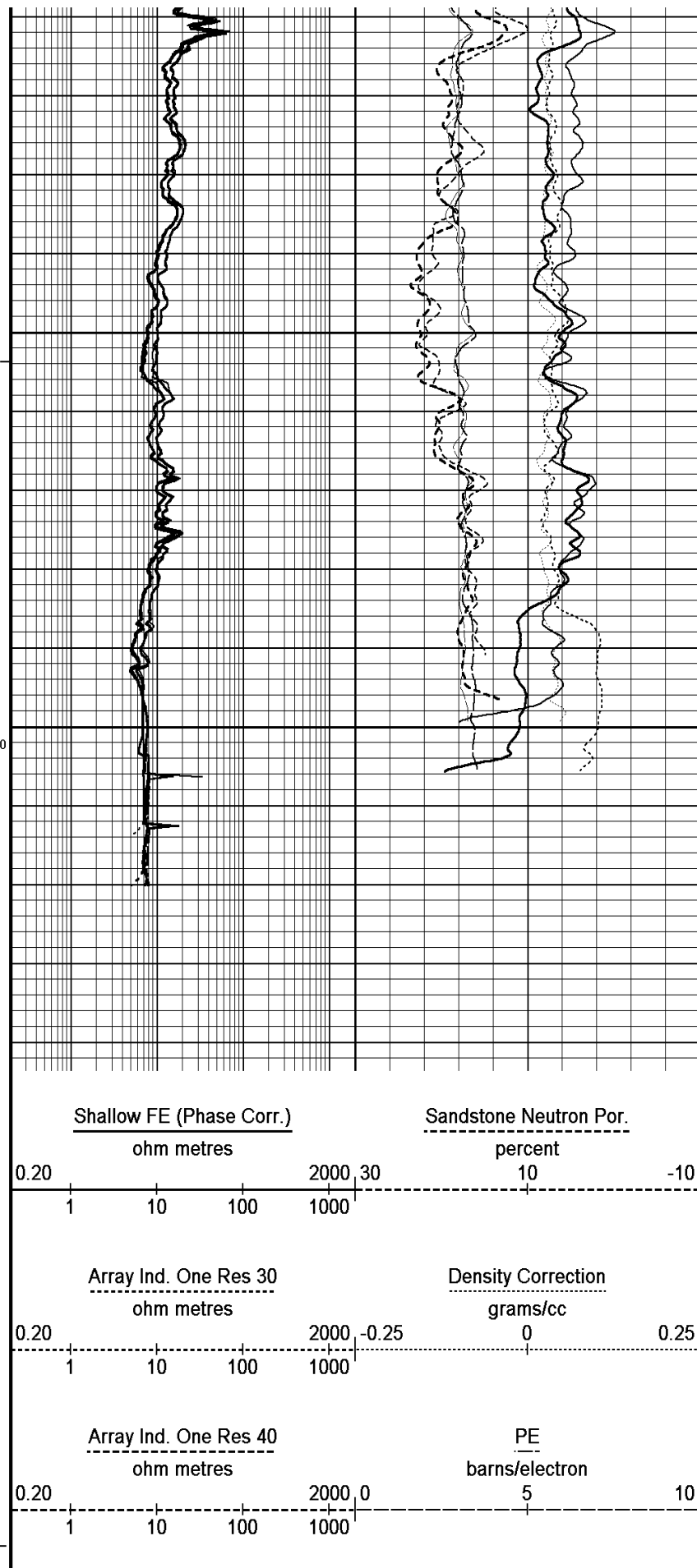
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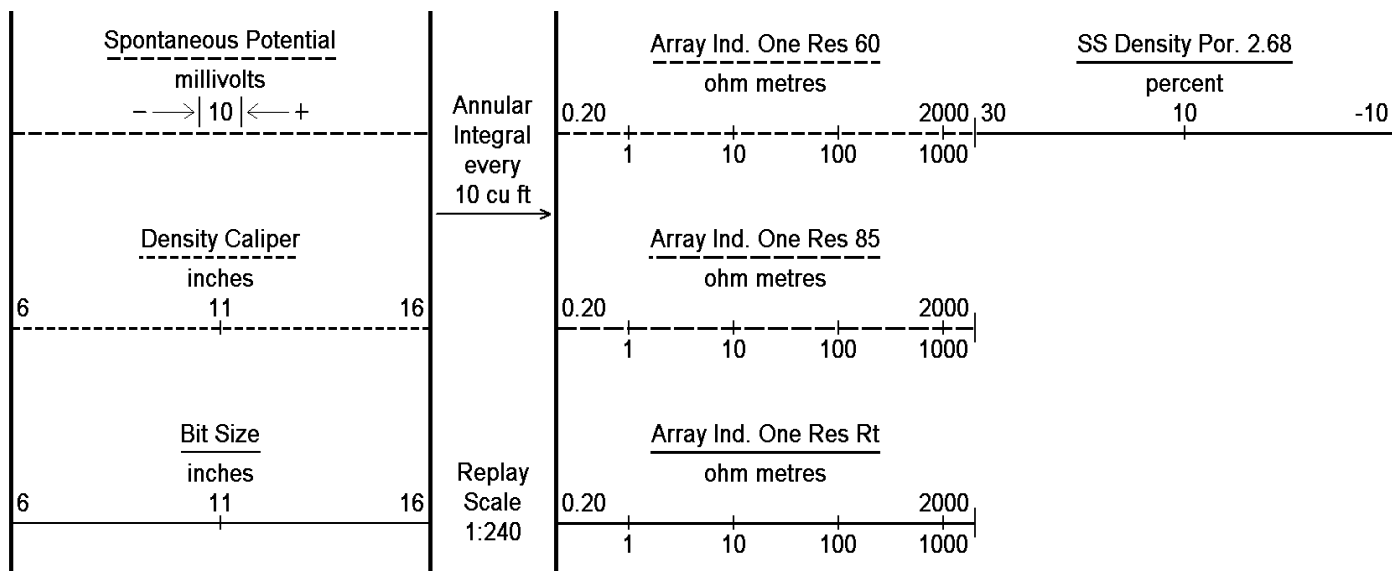
7692

Depth  
In  
Feet

Borehole  
Temp in  
deg F

HVI  
every  
10 cu ft





Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 15-AUG-2011 16:29

Filename: C:\Minimus\LOGS\Bill Barrett\Kaufman 23A-24-692\Pass 2.dta

Recorded on 15-AUG-2011 12:00

Filename: C:\Minimus\LOGS\Bill Barrett\Kaufman 23A-24-692\Main.dta

Recorded on 15-AUG-2011 12:37

System Versions: Logged with 11.03.4044 Plotted with 11.03.4044

↑ SECOND OVERLAY 1:240 ↑

## BEFORE SURVEY CALIBRATION

C:\Minimus\LOGS\Bill Barrett\Kaufman 23A-24-692\Mainpass.dta

General Constants All 000

Last Edited on 15-AUG-2011,07:54

### General Parameters

Mud Resistivity	1.920	ohm-metres
Mud Resistivity Temperature	105.000	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	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 SMS 0

Field Calibration on 14-AUG-2011 03:16

Reading No	Measured	Calibrated (lbs)
1	15857.49	0.00
2	17685.32	370.00

High Resolution Temperature Calibration MCG-D.A 342

Field Calibration on 10-AUG-2011,16:23

	Measured	Calibrated(Deg F)
Lower	10.00	10.00
Upper	100.00	100.00

High Resolution Temperature Constants MCG-D.A 342

Last Edited on 8-DEC-2009,15:54

Pre-filter Length		11	
SP Calibration MCG-D.A 342		Field Calibration on 15-AUG-2011,07:54	
	Measured	Calibrated (mV)	
Reference 1	103.8	100.2	
Reference 2	-96.9	-100.2	
Gamma Calibration MCG-D.A 342		Field Calibration on 15-AUG-2011 07:34	
	Measured	Calibrated (API)	
Background	114	78	
Calibrator (Gross)	887	605	
Calibrator (Net)	773	527	
Gamma Constants MCG-D.A 342		Last Edited on 15-AUG-2011,07:40	
Gamma Calibrator Number	GRC-174		
Mud Density	1.26	gm/cc	
Caliper Source for Processing	Density Caliper		
Tool Position	Eccentred		
Concentration of KCl	0.00	kppm	
Neutron Calibration MDN-B.A 306		Base Calibration on 27-JUL-2011 14:35 Field Check on 15-AUG-2011 07:39	
Base Calibration			
	Measured	Calibrated (cps)	
	Near Far	Near Far	
	2928 91	3714 110	
Ratio	32.301	33.764	
Field Calibrator at Base		Calibrated (cps)	
		2367 3463	
Ratio		0.684	
Field Check		Calibrated (cps)	
		2325 3425	
Ratio		0.679	
Neutron Constants MDN-B.A 306		Last Edited on 15-AUG-2011,15:57	
Neutron Source Id	P44384B		
Neutron Jig Number	6584		
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-B.A 179		Base Calibration on 27-JUL-2011 10:15 Field Check on 15-AUG-2011 07:49	
Base Calibration			
	Measured	Calibrated (ohm-m)	
Reference 1	0.0	0.0	
Reference 2	961.8	126.8	

Base Check				280.8
Field Check				280.9
FE Constants MFE-B.A 179				Last Edited on 15-AUG-2011,16:06
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
High Resolution Temperature Calibration MAI-A.A 191				Field Calibration on 10-AUG-2011,16:32
	Measured	Calibrated(Deg F)		
Lower	50.00	50.00		
Upper	75.00	75.00		
High Resolution Temperature Constants MAI-A.A 191				Last Edited on
Pre-filter Length	11			
Induction Calibration MAI-A.A 191				Base Calibration on 15-AUG-2011,07:55 Field Check on
Base Calibration				
Test Loop Calibration		Measured		Calibrated (mmho/m)
Channel	Low	High	Low	High
1	15.8	467.8	9.3	966.2
2	6.2	382.6	7.6	821.4
3	3.9	257.9	5.2	566.0
4	2.1	136.5	2.6	279.2
Array Temperature		88.9	Deg F	
Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0
Deep	0.0	0.0	0.0	0.0
Medium	0.0	0.0	0.0	0.0
Shallow	0.0	0.0	0.0	0.0
Array Temperature		0.0	0.0	Deg F
Induction Constants MAI-A.A 191				Last Edited on 15-AUG-2011,16:10
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	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 Normalization				

Core Data Normalization

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-C.A 298

Base Calibration on 27-JUL-2011 17:24  
Field Calibration on 15-AUG-2011,07:47

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	17472	3.98
2	25918	5.96
3	33840	7.96
4	42032	9.86
5	51216	11.88
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
7.93	7.96

Photo Density Calibration MPD-C.A 298

Base Calibration on 27-JUL-2011 16:45  
Field Check on 15-AUG-2011 07:46

Density Calibration

Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	51332	17613	53237	19445
Reference 2	23909	2623	25135	2545

Field Check at Base

1239.4	1383.1
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Field Check

1237.7	1377.1
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PE Calibration

Base Calibration	Measured		Calibrated
	WS	WH	Ratio
Background	223	1107	
Reference 1	17873	51144	0.353
Reference 2	6778	23765	0.289

Field Check at Base

223.0	1106.8
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Field Check

223.0	1106.8
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## Density Constants MPD-C.A 298

Last Edited on 15-AUG-2011,07:41

Density Source Id	P44263B	
Nylon Calibrator Number	532	
Aluminium Calibrator Number	532	
Density Shoe Profile	8 inch	
Caliper Source for Processing	Density Caliper	
PE Correction to Density	Not Applied	
Mud Density	1.26	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	
0.00	0.00	

## AFTER SURVEY CALIBRATION

C:\Minimus\LOGS\Bill Barrett\Kaufman 23A-24-692\Mainpass.dta

## Gamma Check MCG-D.A 342

Field Calibration on 15-AUG-2011 07:34  
After Survey Check on 15-AUG-2011 15:57

	Before (API)	After (API)
Background	78	84
Calibrator (Gross)	605	611
Calibrator (Net)	527	527

## Neutron Check MDN-B.A 306

Before Survey Check on 15-AUG-2011 07:39  
After Survey Check on 15-AUG-2011 16:01

Near (cps)		Far (cps)	
Before	After	Before	After
2325	2321	3425	3419
Ratio			
Before	After		
0.679	0.679		

## FE Check MFE-B.A 179

Before Survey Check 15-AUG-2011 07:49  
After Survey Check on 15-AUG-2011 16:09

Before (ohm-m)	After (ohm-m)
280.9	280.4

## Induction Check MAI-A.A 191

Before Survey Check on  
After Survey Check on 15-AUG-2011 16:14

Channel	Before Survey (mmho/m)		After Survey (mmho/m)	
	Low	High	Low	High
1	0.0	0.0	16.8	3865.2
2	0.0	0.0	30.2	3513.4
3	0.0	0.0	27.9	3063.8
4	0.0	0.0	18.7	2019.9
Deep	0.0	0.0	16.8	1982.6
Medium	0.0	0.0	40.7	4080.0
Shallow	0.0	0.0	45.7	5206.1



Array Temperature		0.0		87.0	
Photo Density Check MPD-C.A 298				Before Survey Check on 15-AUG-2011 07:46	
				After Survey Check on 15-AUG-2011 16:06	
Density Check					
		Near		Far	
	Before	After		Before	After
	1237.7	1237.1		1377.1	1376.9
PE Check					
		Before		After	
WS		223.9		225.2	
WH		1106.7		1107.9	

DOWNHOLE EQUIPMENT		C:\Minimus\LOGS\Bill Barrett\Kaufman 23A-24-692\Mainpass.dta	
3/8" Triple Cone Cable Head (MCB C A) MCB-C.A 95 LG: 1.58 ft WT: 15.4 lb OD: 2.24 in			
SHA-J.A Compact Swivel Head Adaptor SHA-J.A 213 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in			
Compact Comms Gamma MCG-D.A 342 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in		37.07 ft GRGC - Gamma Ray 34.16 ft CGXT - MCG External Temperature	
Compact Neutron MDN-B.A 306 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in		30.61 ft NPRS - Sandstone Neutron Por.	
Compact Density/Caliper MPD-C.A 298 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in		23.37 ft AVOL - Annular Volume 23.37 ft HVOL - Hole Volume 23.37 ft CLDC - Density Caliper 21.44 ft DPOR - Base Density Porosity 21.44 ft DCOR - Density Correction 21.38 ft PDPE - PE	
SKJ-D.A Compact Knuckle Joint SKJ-D.A 115 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in			
Compact Focussed Electric MFE-B.A 179 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in		13.72 ft FEFC - Shallow FE (Phase Corr.)	
Compact Induction MAI-A.A 191 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in			
Total Length: 46.23 ft Weight: 363.8 lb		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 R1 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	BILL BARRETT CORPORATION
WELL	KAUFMAN 23A-24-692
FIELD	MAMM CREEK
PROVINCE/COUNTY	GARFIELD
COUNTRY/STATE	USA / COLORADO

COUNTRY/STATE U.S.A. / COLORADO

Elevation Kelly Bushing	5866.00	feet	First Reading	7655.00	
Elevation Drill Floor		feet	Depth Driller	7657.00	feet
Elevation Ground Level	5843.00	feet	Depth Logger	7658.00	feet



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