



**COMPACT DROP OFF
COMPACT QUAD COMBO
QUICKLOOK LOG**

COMPANY	MARATHON OIL COMPANY		
WELL	697-2C-27		
FIELD	GRAND VALLEY		
PROVINCE/COUNTY	GARFIELD		
COUNTRY/STATE	U.S.A. / COLORADO		
LOCATION	SHL: 433' FSL & 1911' FEL		
LSD	SEC	TWP	RGE
	2	6S	97W
Other Services			
API Number	05-045-16015		
Permit Number	05-045-16015		
Permanent Datum	G.L., Elevation 8468 feet		
Log Measured From	K.B. @ 24 FEET above Permanent Datum		
Drilling Measured From	K.B.		
Date	14-APR-2010		
Run Number	ONE		
Depth Driller	9616.00	feet	
Depth Logger	9578.00	feet	
First Reading	9555.00	feet	
Last Reading	2220.00	feet	
Casing Driller	2220.00	feet	
Casing Logger	2220.00	feet	
Bit Size	7.875	inches	
Hole Fluid Type	LSND		
Density / Viscosity	8.90 lb/USg	65.00	
PH / Fluid Loss	9.10	6.40 ml/30Min	
Sample Source	FLOWLINE		
Rm @ Measured Temp	1.78 @ 52.6	ohm-m	
Rmf @ Measured Temp	1.42 @ 52.6	ohm-m	
Rmc @ Measured Temp	2.14 @ 52.6	ohm-m	
Source Rmf / Rmc	CALC	CALC	
Rm @ BHT	0.673 @ 145.0	ohm-m	
Time Since Circulation	0.5 HOURS		
Max Recorded Temp	145.00	deg F	
Equipment Name	COMPACT		
Equipment / Base	13173	GDUCT	
Recorded By	R. BROWN		
Witnessed By	C. LERCH		
			Elevations: KB 8492.00 DF 8491.00 GL 8468.00

BOREHOLE RECORD Last Edited: 14-APR-2010 13:07

Bit Size inches	Depth From feet	Depth To feet
8.750	2220.00	8610.00
7.875	8610.00	9616.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	9.625	0.00	2220.00	36.00

REMARKS

TOOLS: COMPACT DROP OFF USED. (475) MCG, MDN, MSS, MPD, MFE, AND MAI RAN IN COMBINATION.

HARDWARE: MPD: 4 INCH PROFILE PLATE USED.
MSS: INLINE CENTRALIZERS USED.
MAI: INLINE CENTRALIZERS USED.

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.

8.75 IN HOLE FROM 8610 FEET TO SURFACE CASING.

WHILE DROPPING OFF TOOLSTRING WITH WIRELINE, TOOLS TAGGED UP ON AN OBSTRUCTION APPROXIMATELY 50 FEET SHALLOW FROM LANDING RING ON B.H.A. POSSIBLE CAUSE WAS A BRIDGE THAT WAS ECOUNTERED IN OPEN HOLE. IT WAS REQUESTED BY CUSTOMER TO RELEASE TOOLS AT THIS LOCATION AND LOG OUT FROM THIS DEPTH.

INDUCTION TOOL FAILURE OCCURRED AT A DEPTH OF 9554 FEET. NO VALID DATA WAS ACQUIRED FROM THIS DEPTH UPWARD.

INDUCTION TOOL FAILURE OCCURRED AT A DEPTH OF 3354 FEET. NO VALID DATA WAS ACQUIRED FROM THIS DEPTH OF WARD. NO INDUCTION CURVES PRESENTED ON LOGS.

TOTAL HOLE VOLUME FROM TD TO SURFACE CASING = 3200 CU.FT.

ANNULAR VOLUME WITH 4.5 INCH PRODUCTION CASING FROM TD SURFACE CASING = 2400 CU.FT.

ENGINEER(S): R. BROWN, D. KUNTZ

OPERATOR(S): R. SYERS

SERVICE ORDER: # 3521449

RIG: H_P # 324

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.

2.5 INCH MAIN LOG

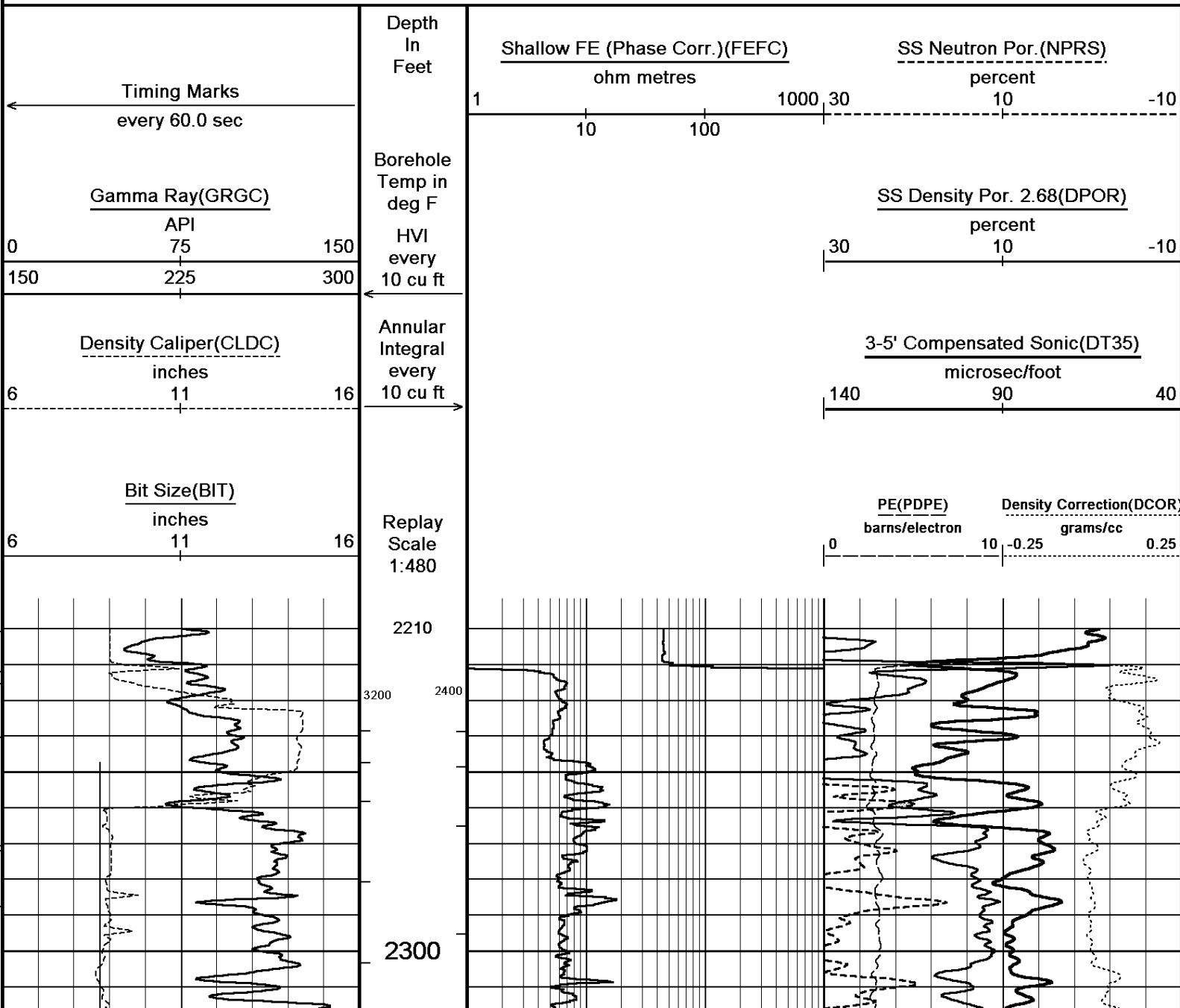
Depth Based Data - Maximum Sampling Increment 10.0cm

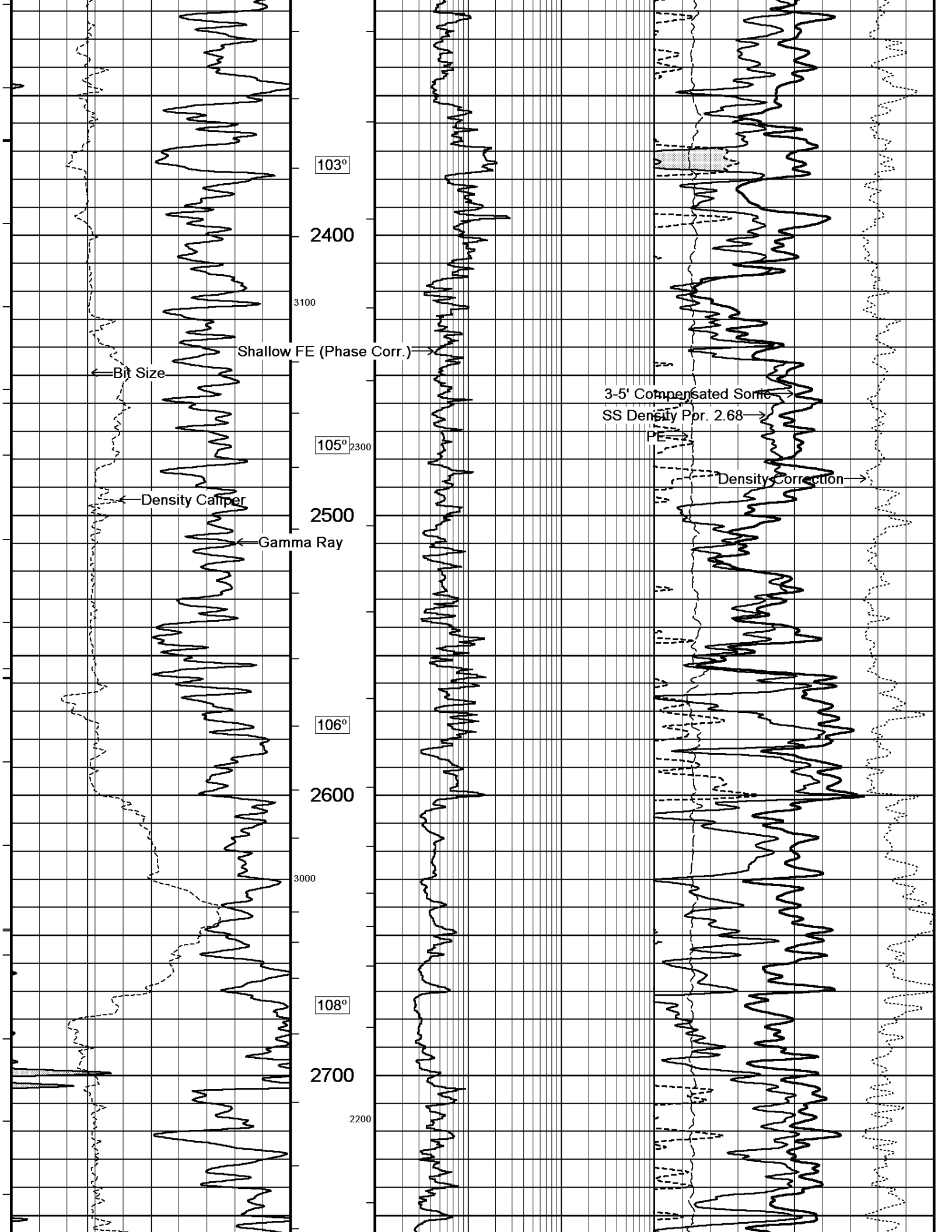
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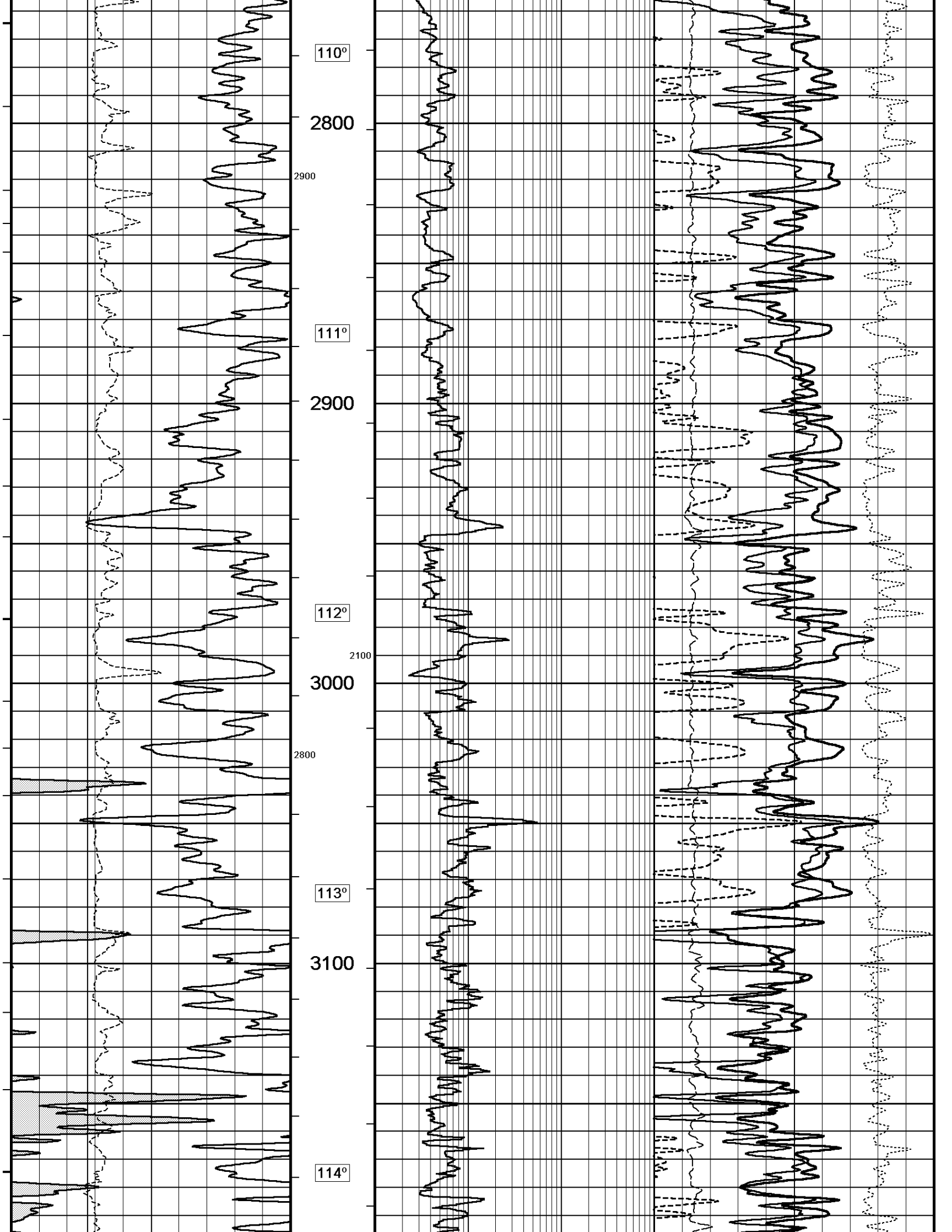
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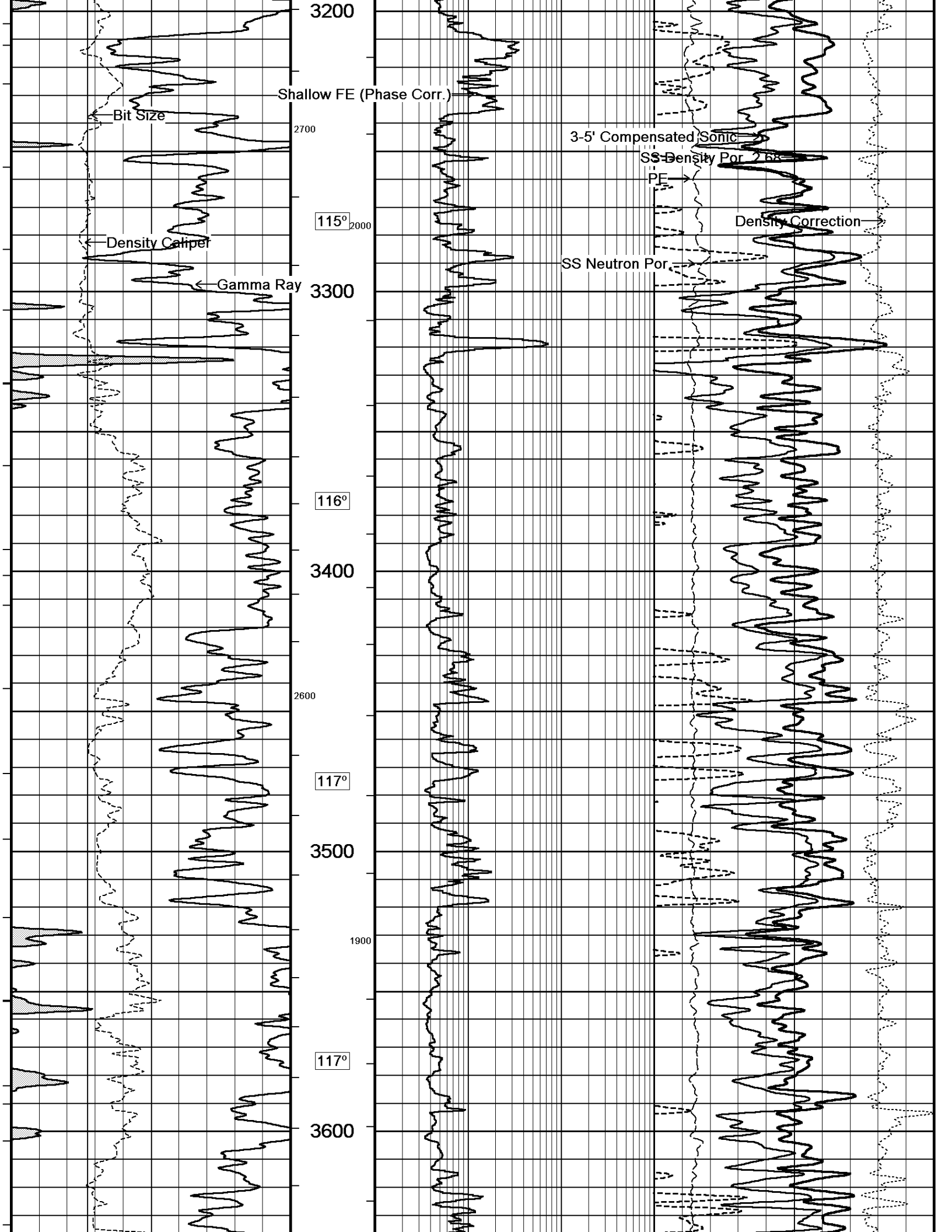
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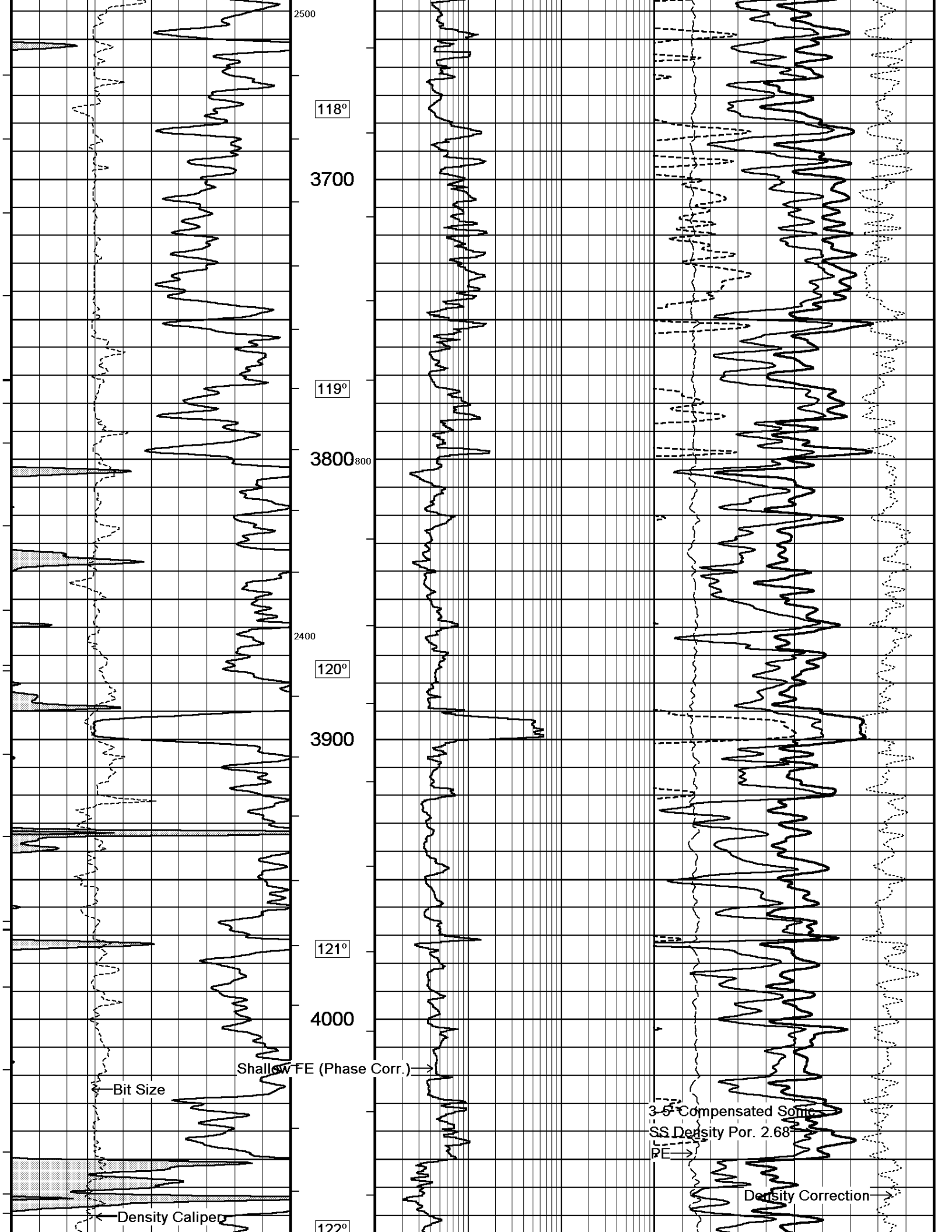
System Versions: Logged with 10.07.0791 Processed with 10.07.0791 Plotted with 10.07.0791

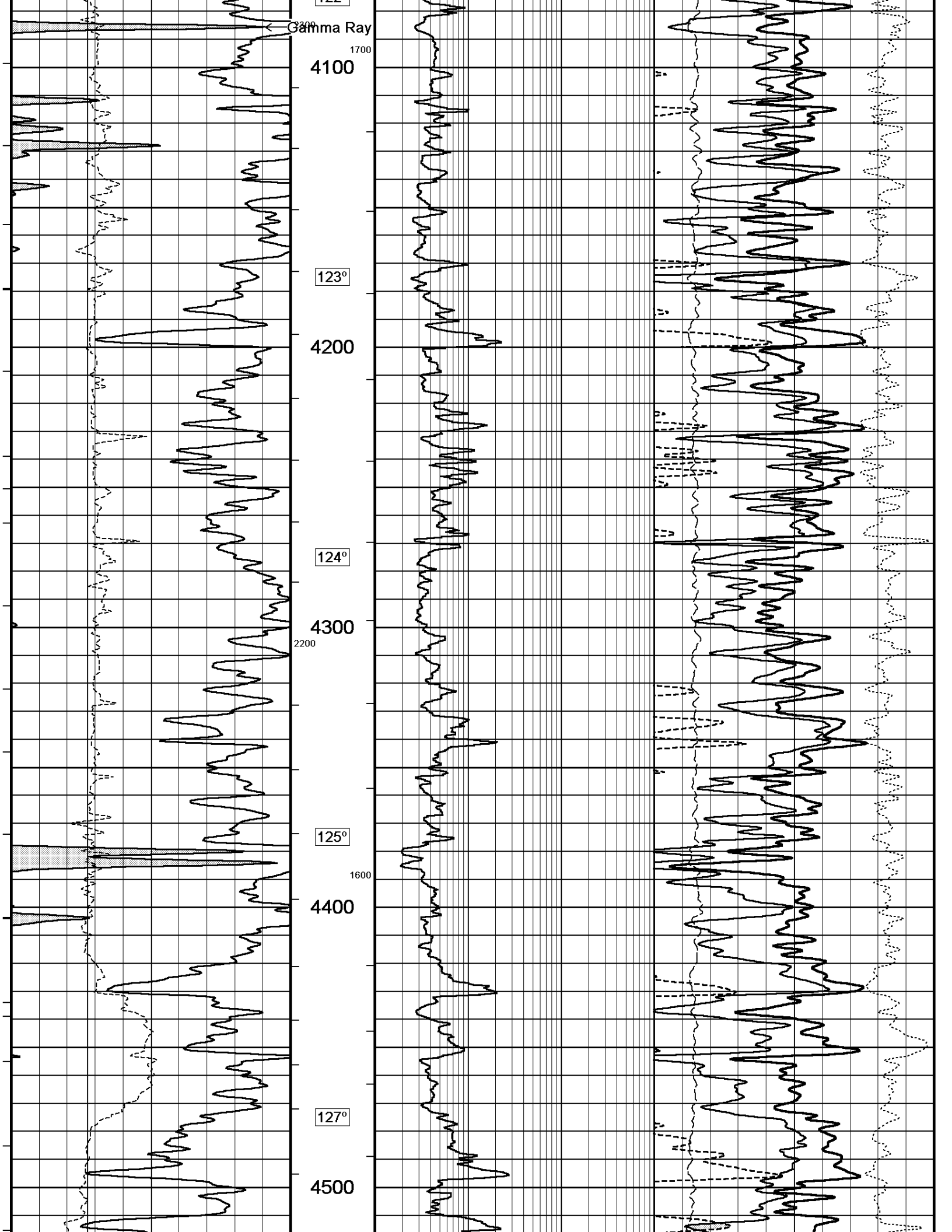


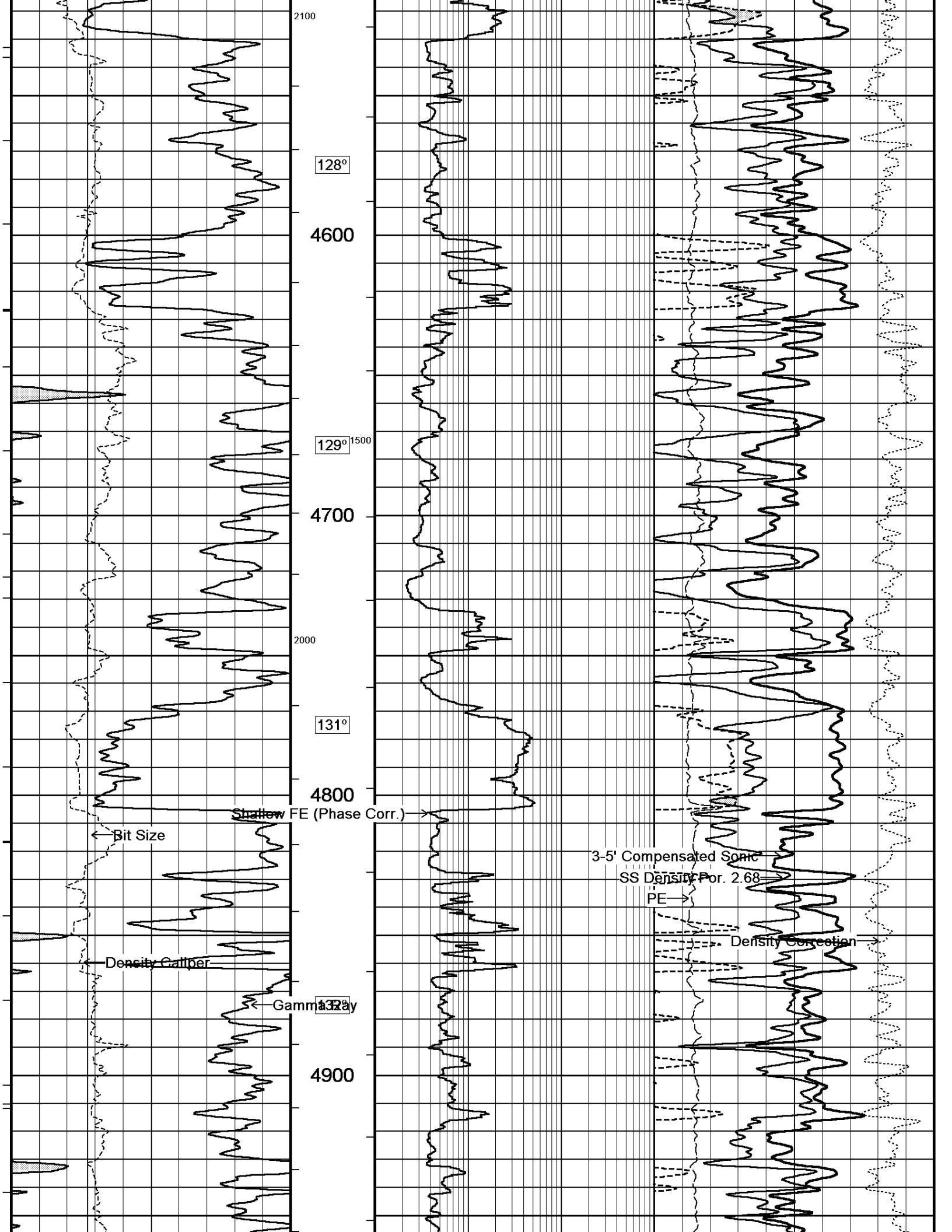


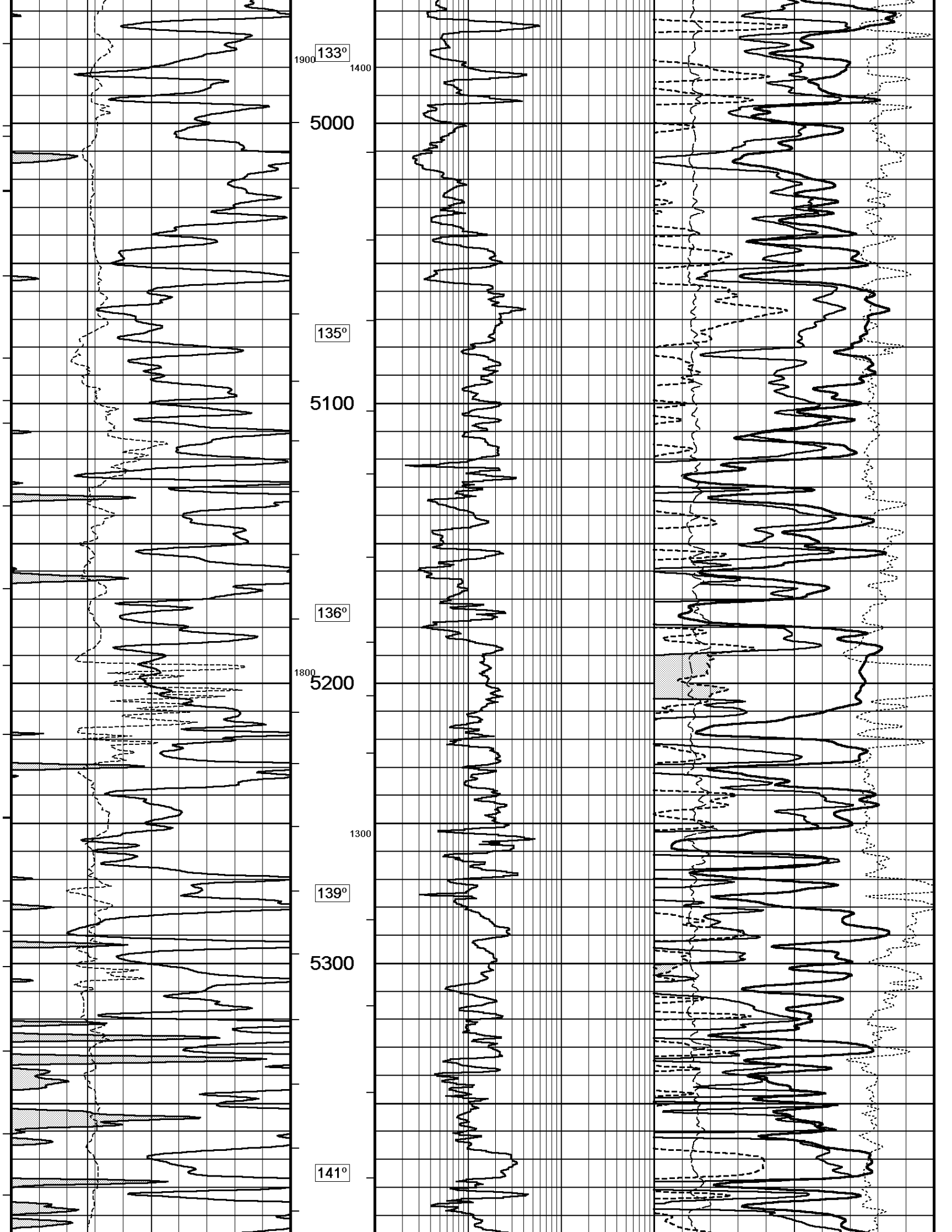


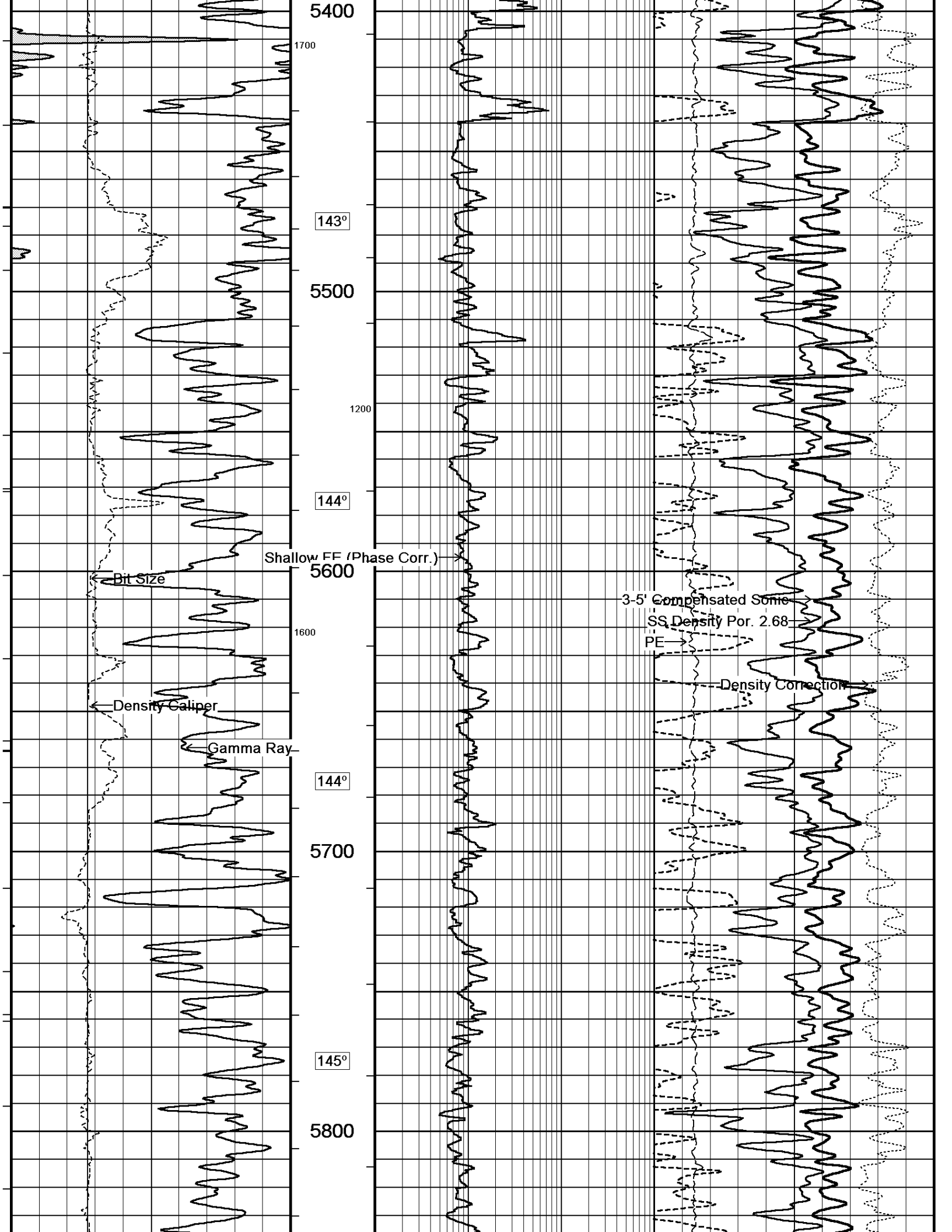


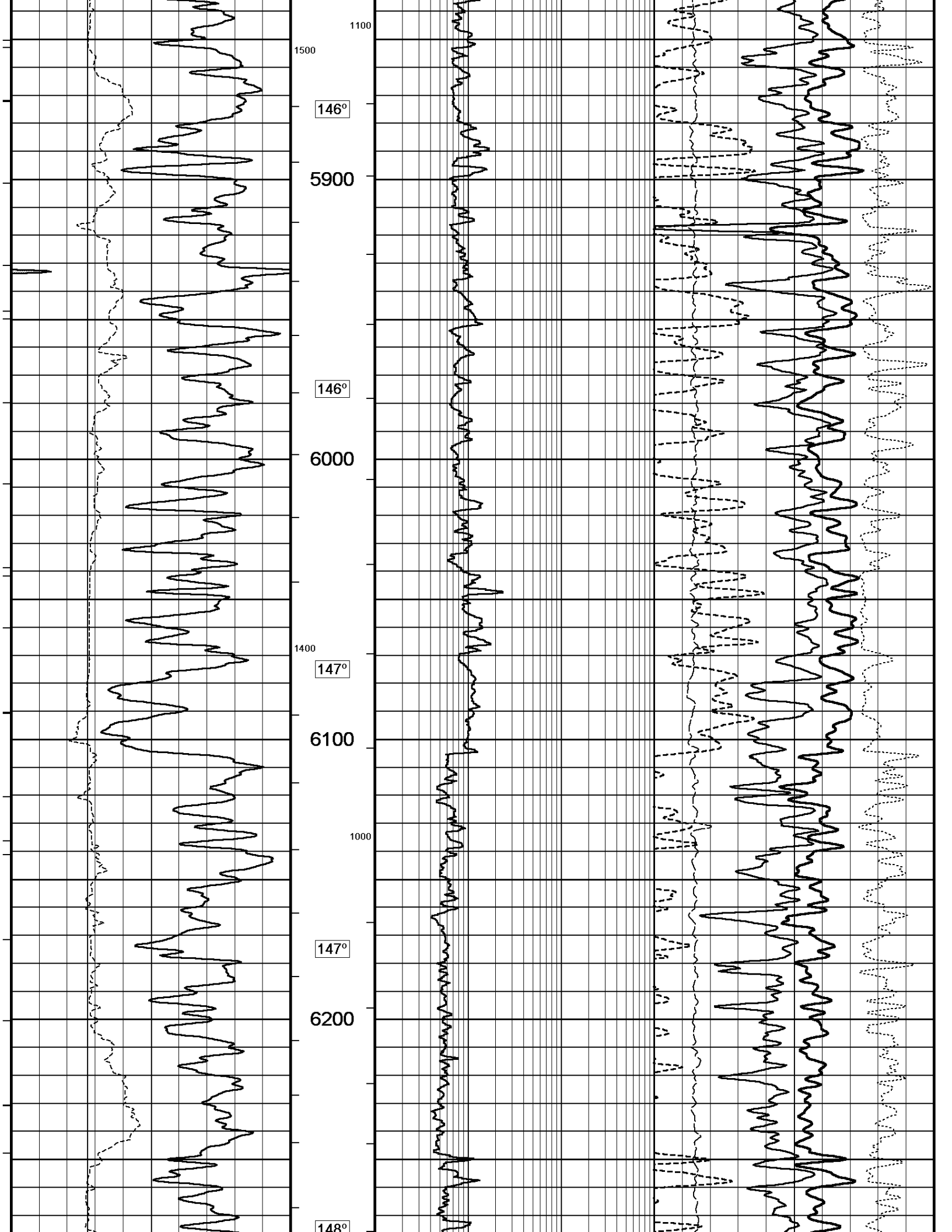


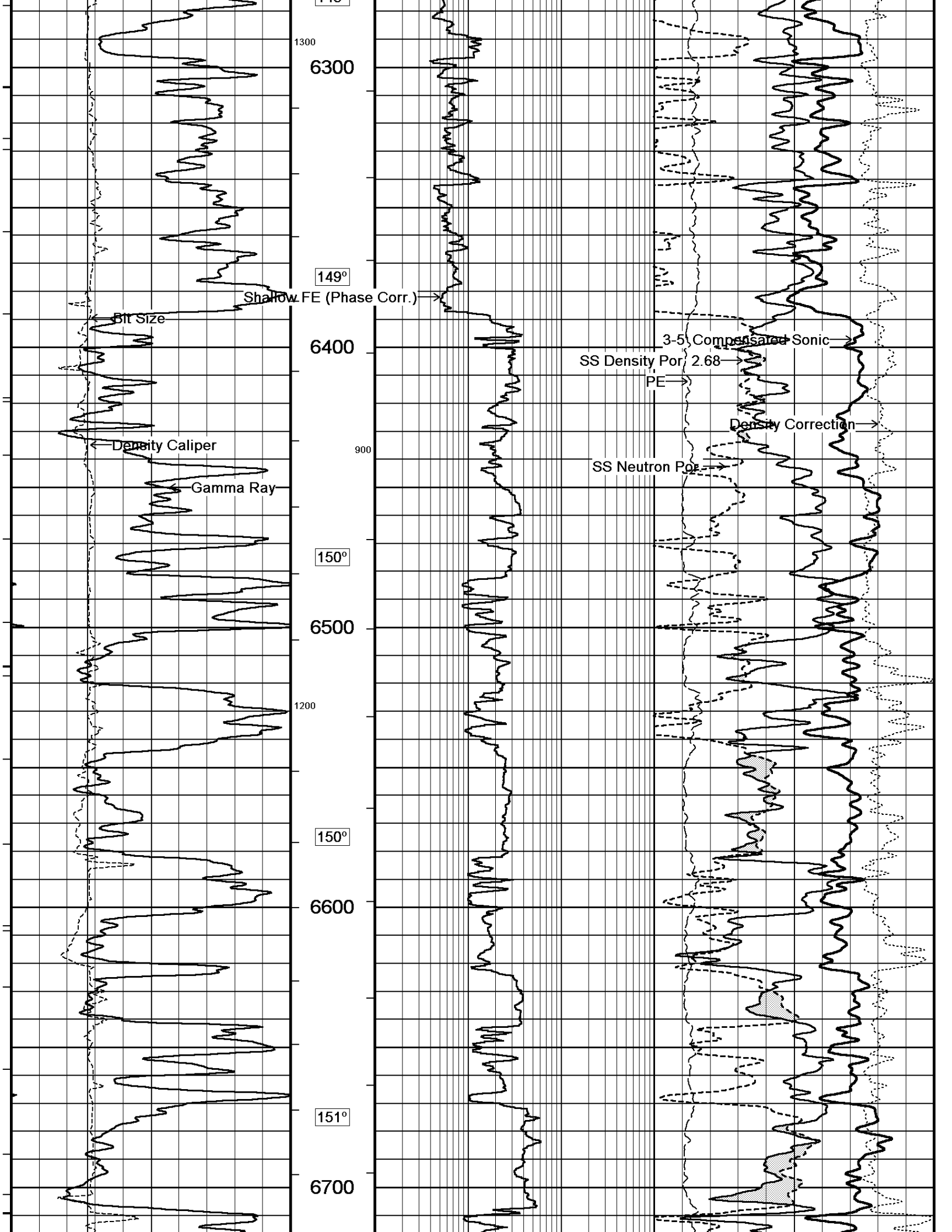


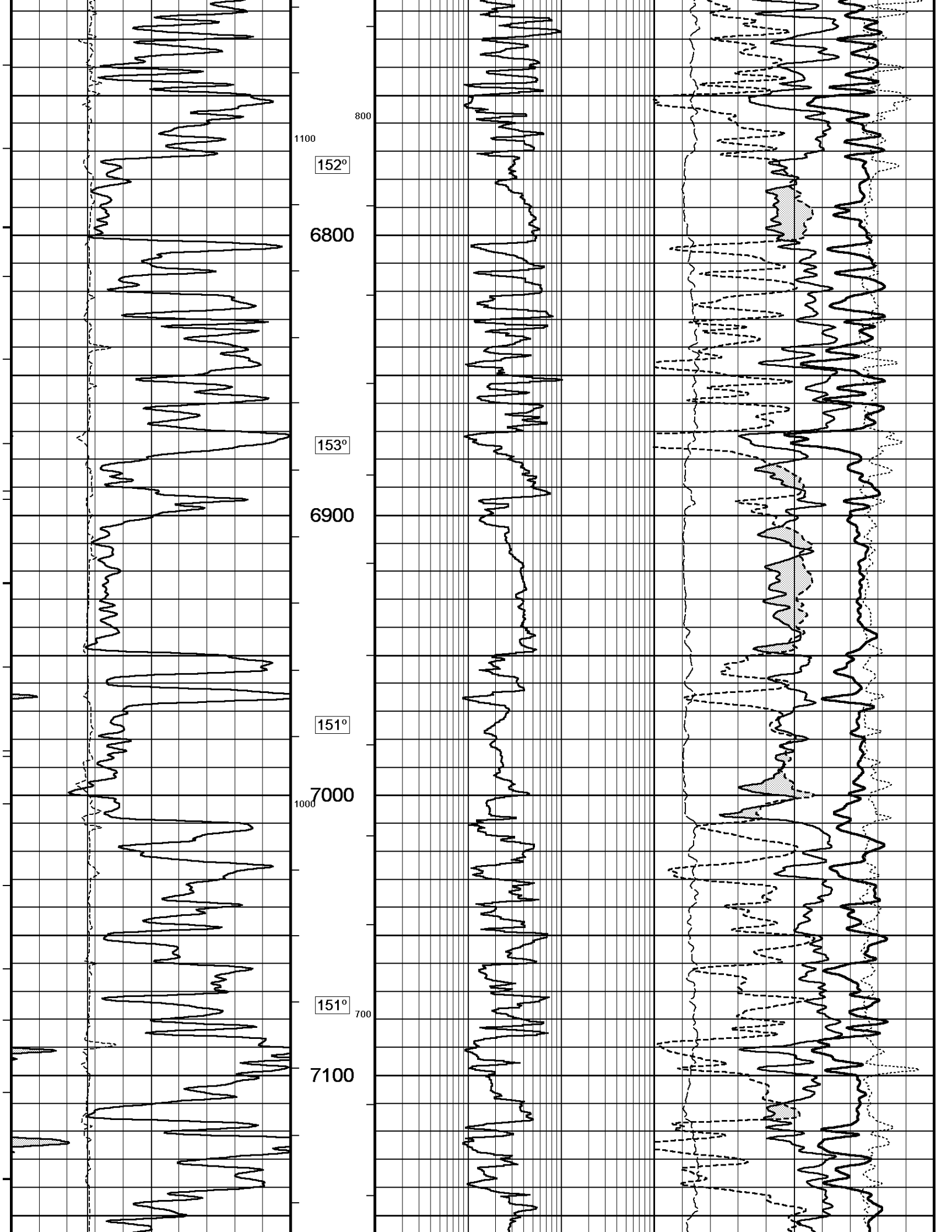


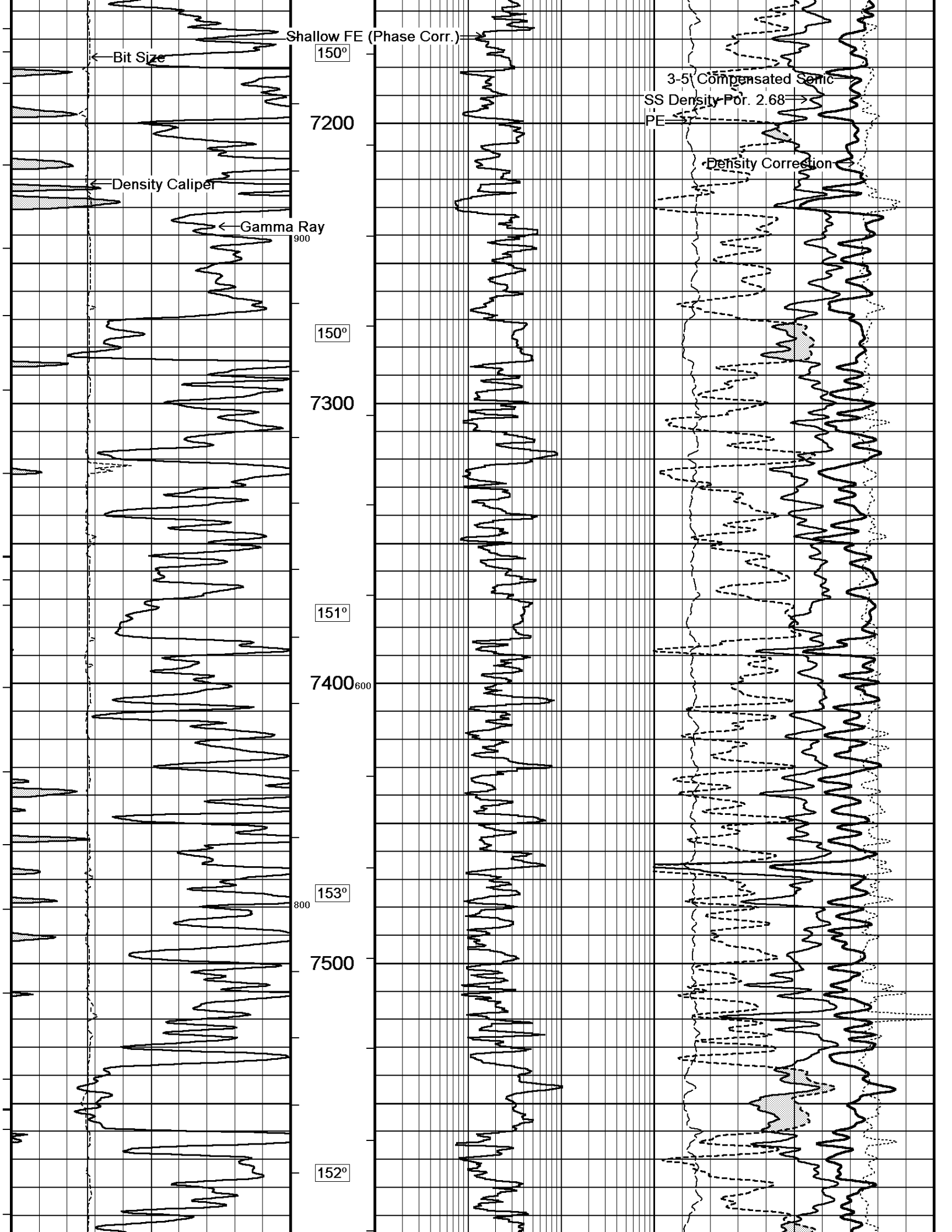












Shallow FE (Phase Corr.)

150°

← Bit Size

7200

← Density Caliper

3-5 Compensated Semic

SS Density Por. 2.68

PE

Density Correction

← Gamma Ray

900

150°

7300

151°

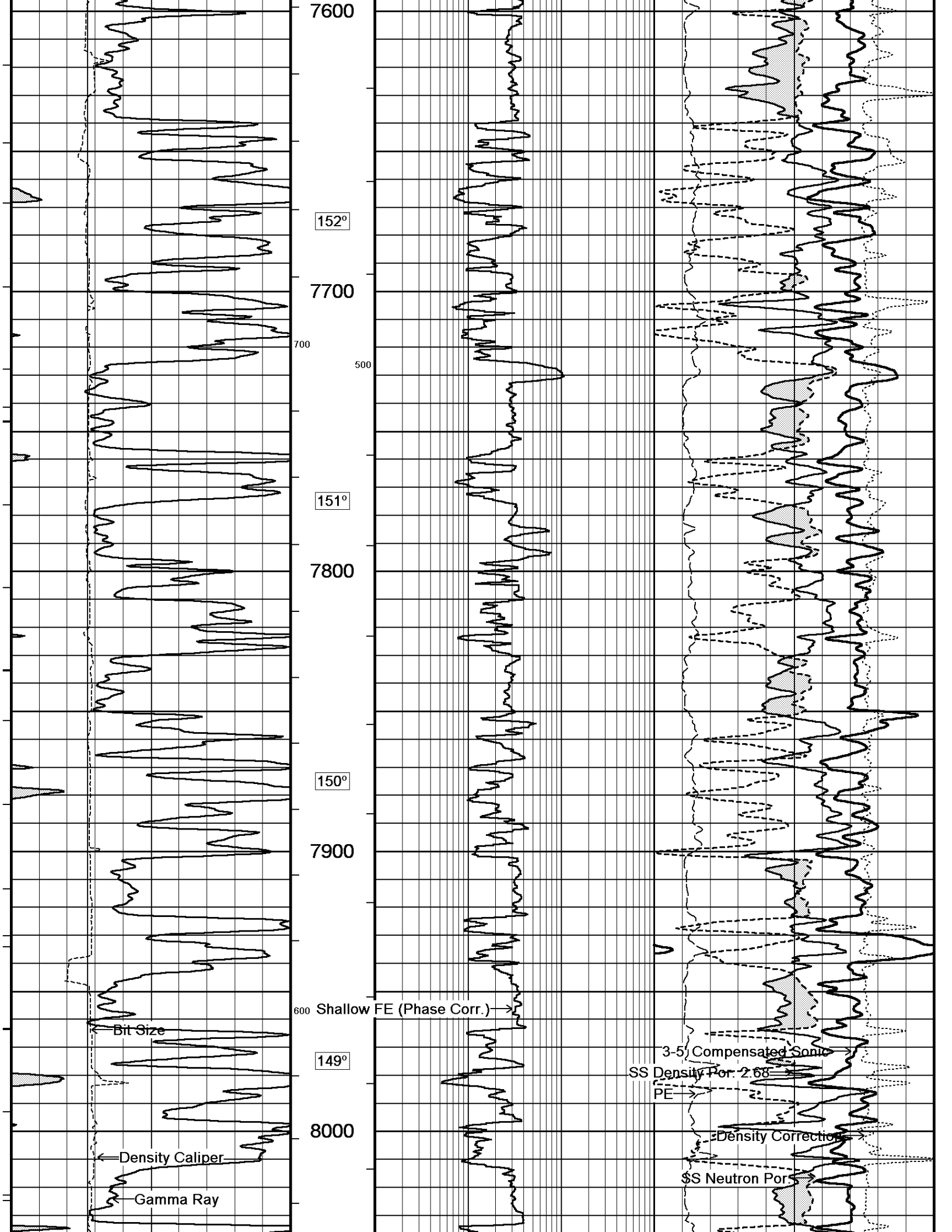
7400₆₀₀

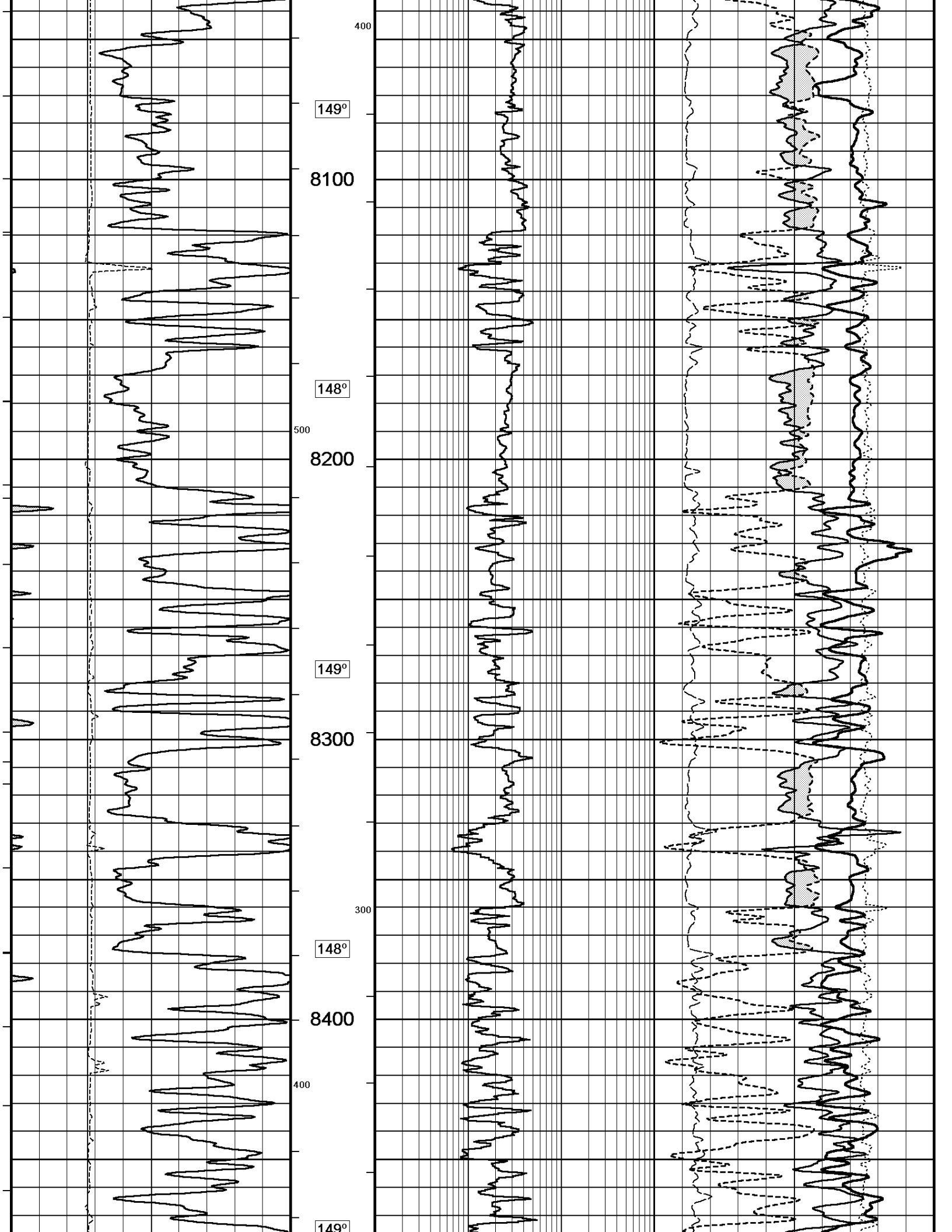
153°

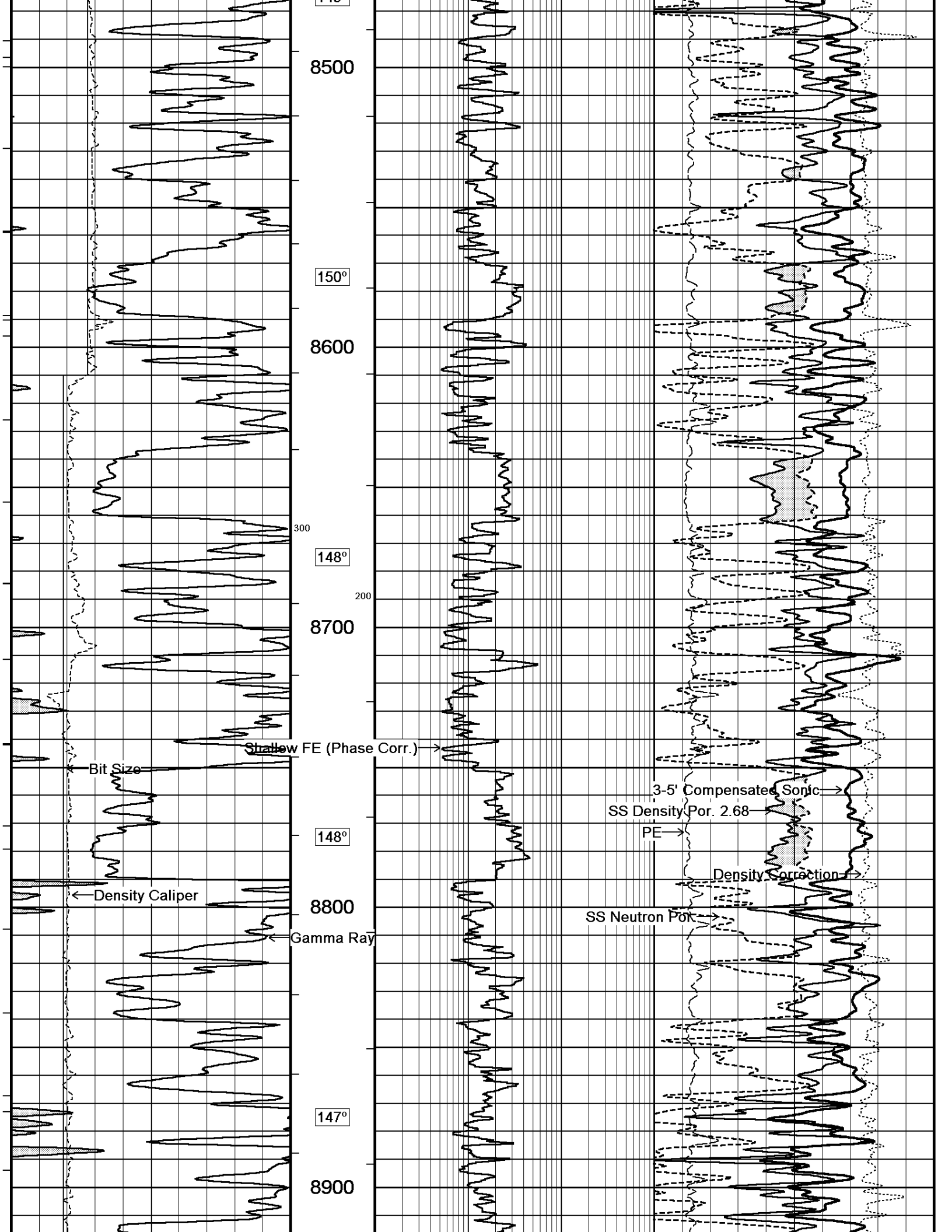
800

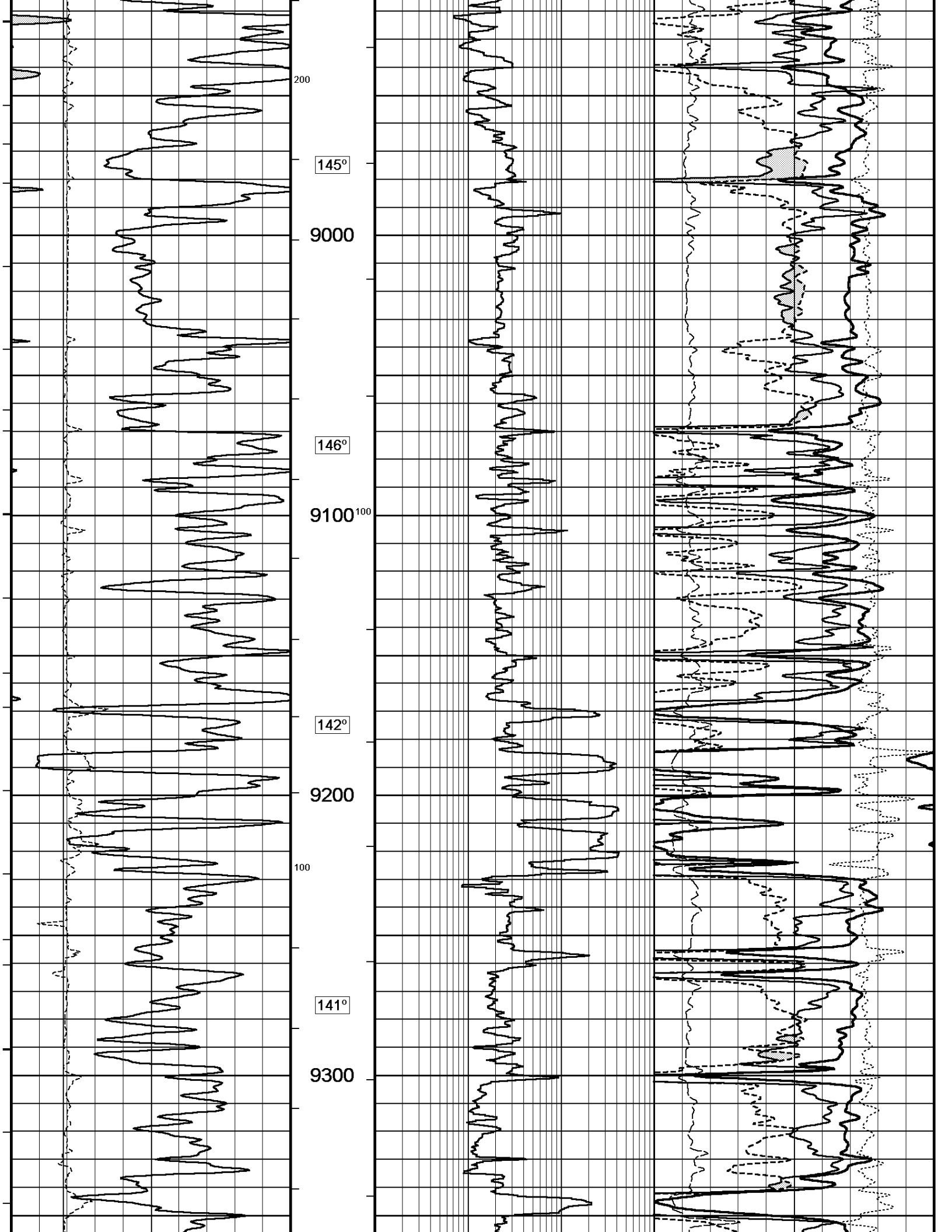
7500

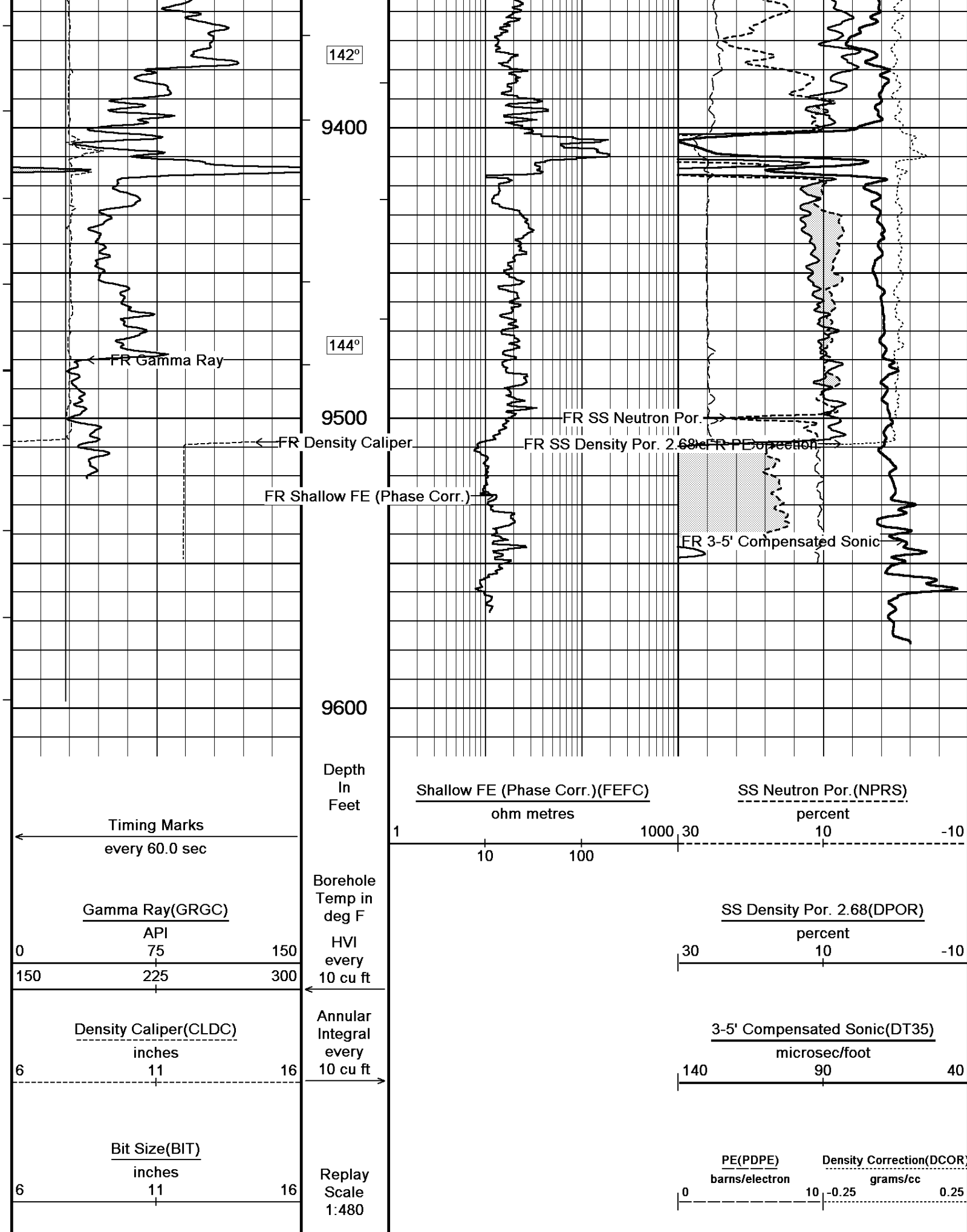
152°





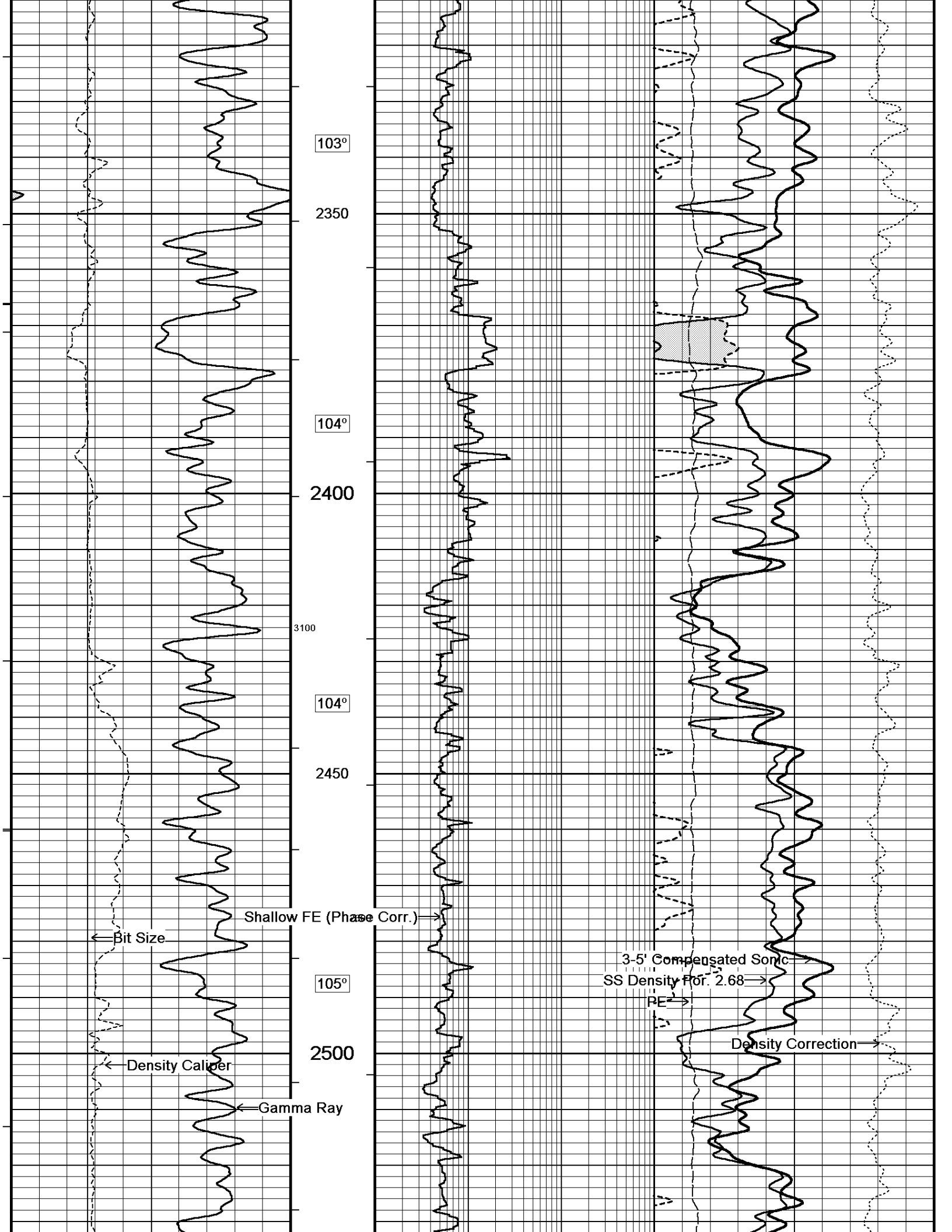


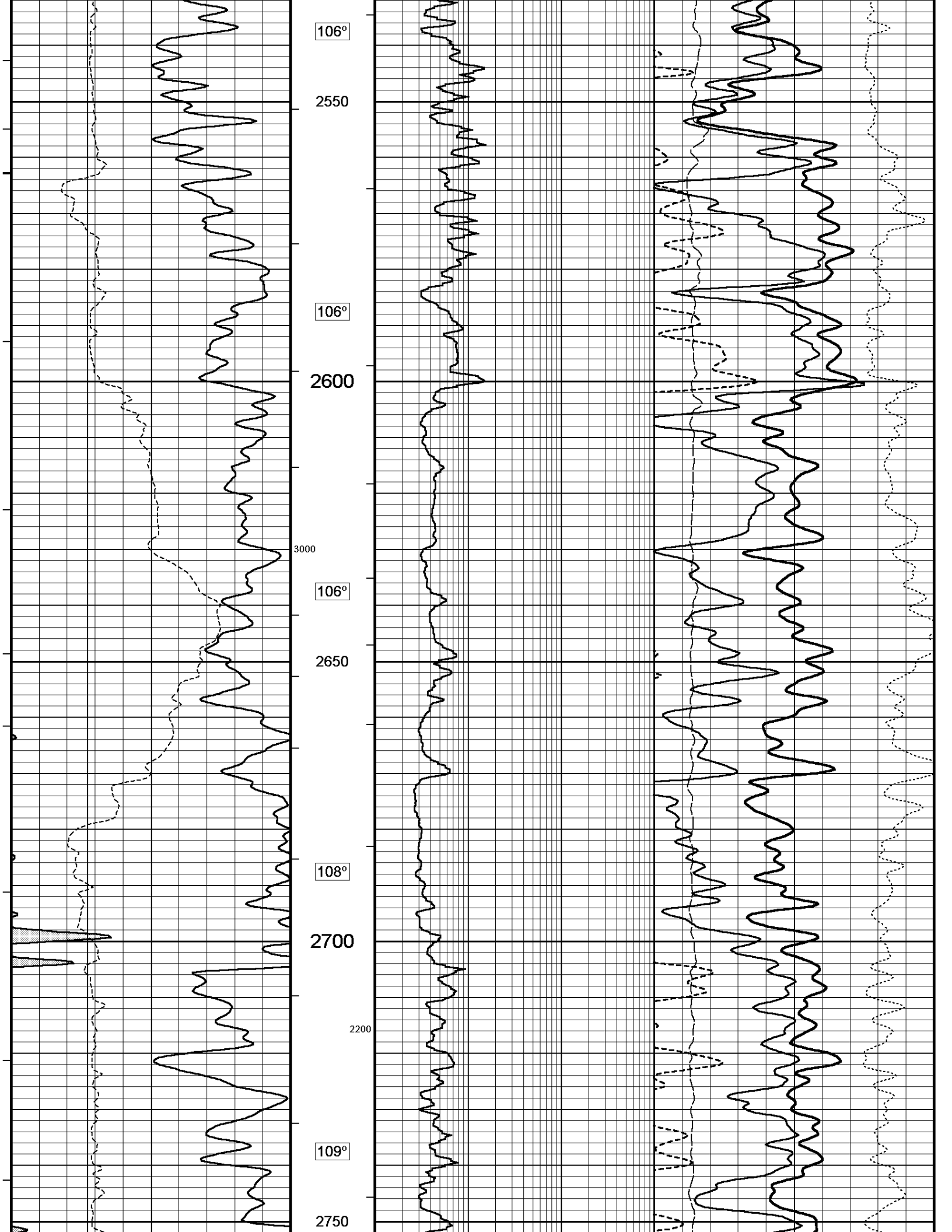


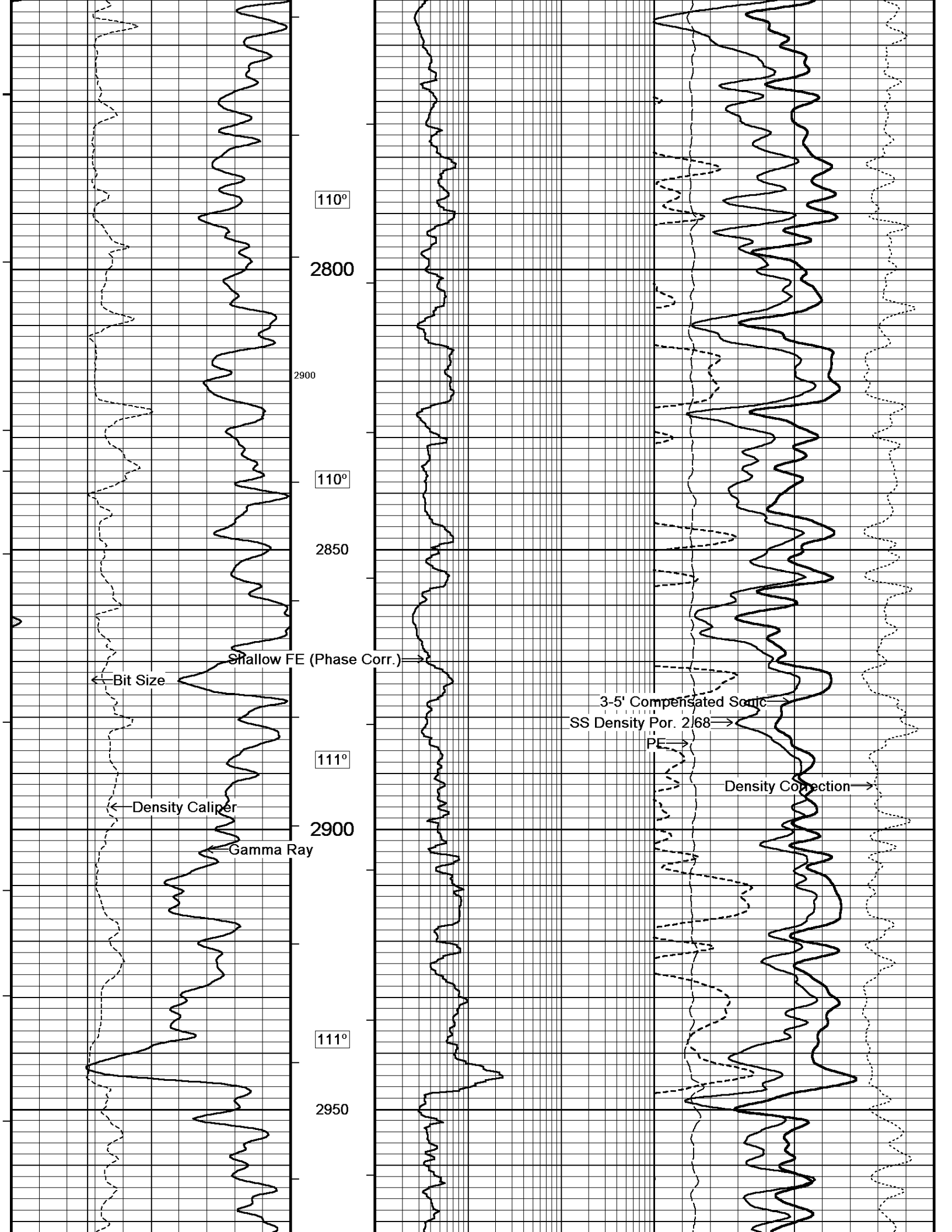


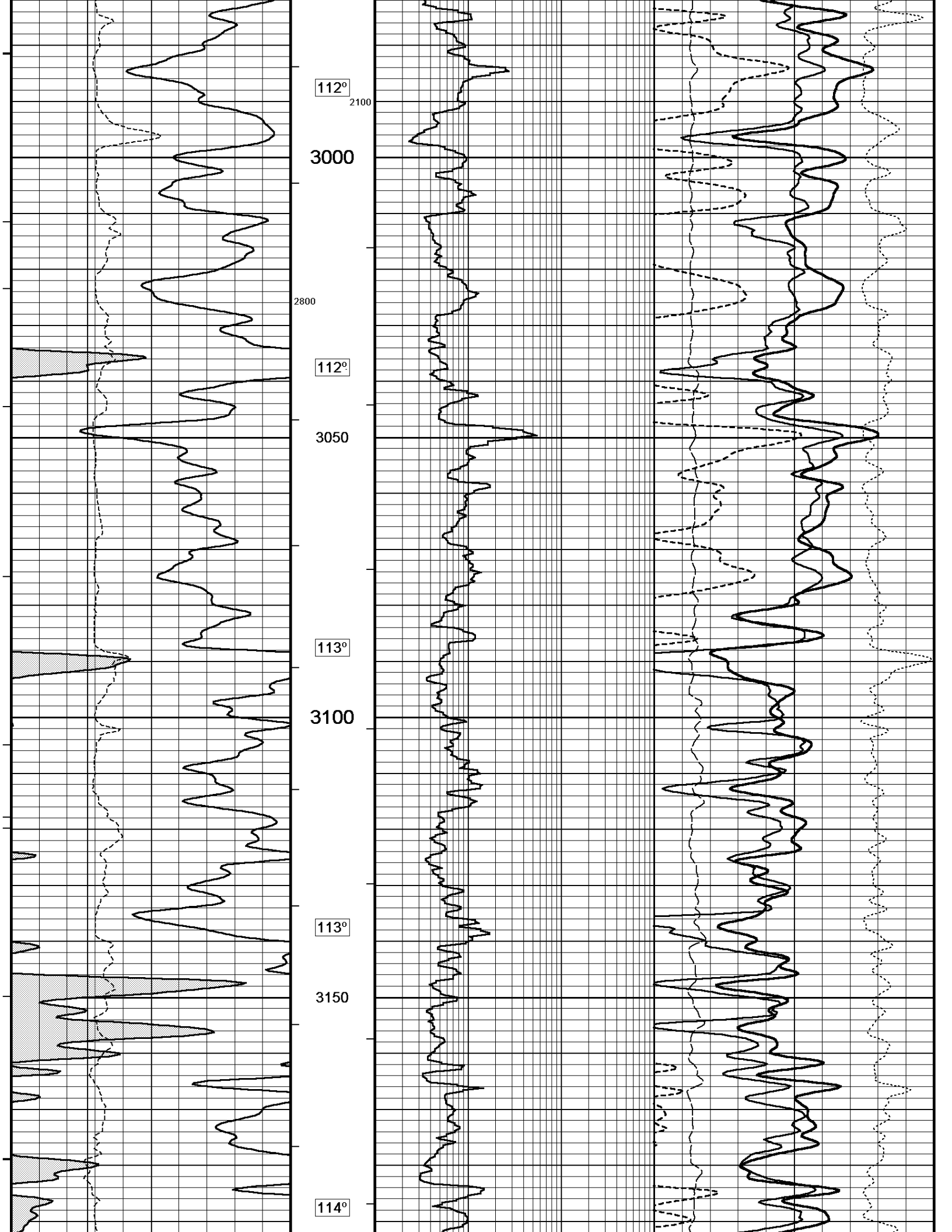
Timing Marks every 60.0 sec		
Gamma Ray(GRGC)		
0	API 75	150
150	225	300
Density Caliper(CLDC)		
6	inches 11	16
Bit Size(BIT)		
6	inches 11	16

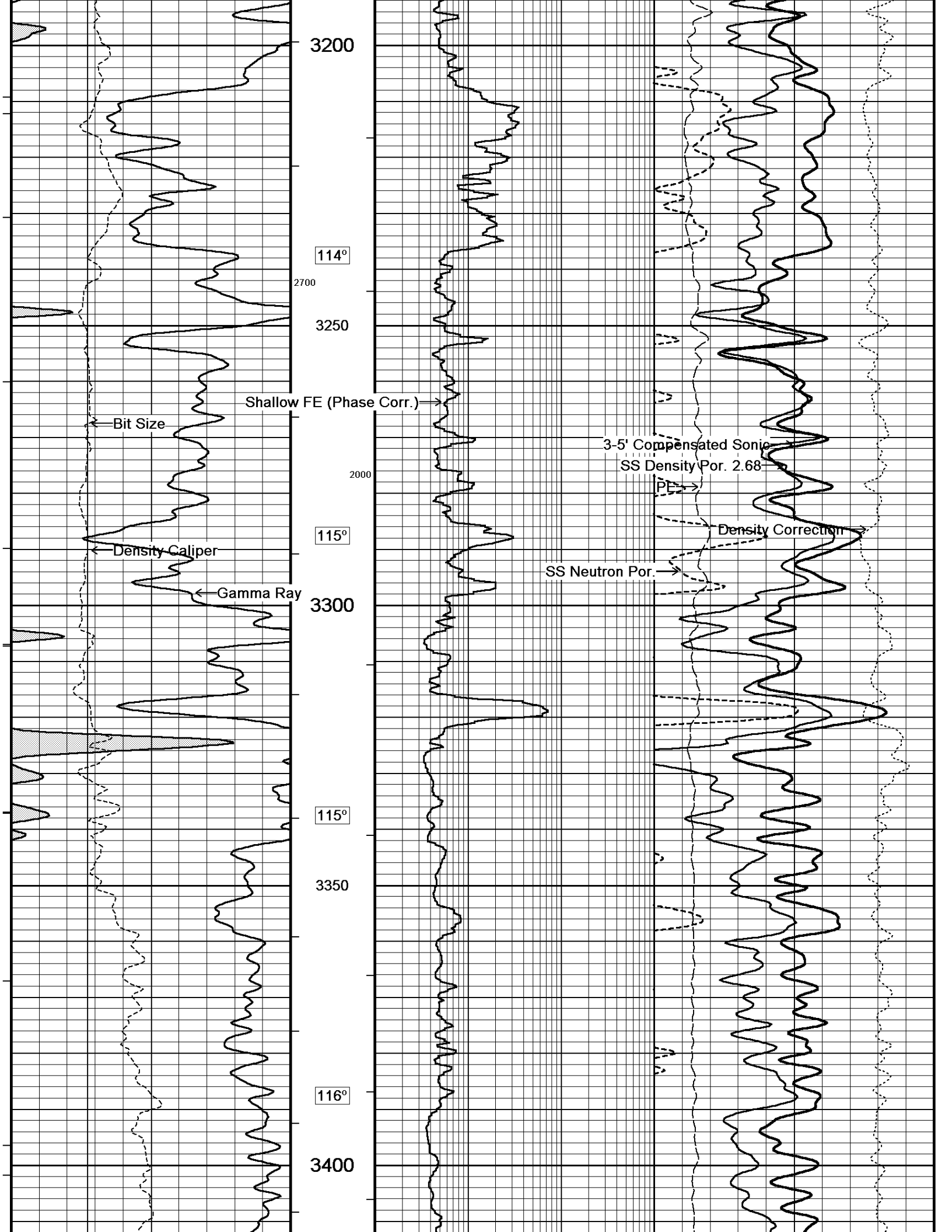
Depth In Feet	Shallow FE (Phase Corr.)(FEFC) ohm metres	SS Neutron Por.(NPRS) percent
	1 10 100 1000 30	30 10 -10
Borehole Temp in deg F		SS Density Por. 2.68(DPOR) percent
HVI every 10 cu ft		30 10 -10
Annular Integral every 10 cu ft		3-5' Compensated Sonic(DT35) microsec/foot
		140 90 40
Replay Scale 1:480		PE(PDPE) barns/electron Density Correction(DCOR) grams/cc
		0 10 -0.25 0.25

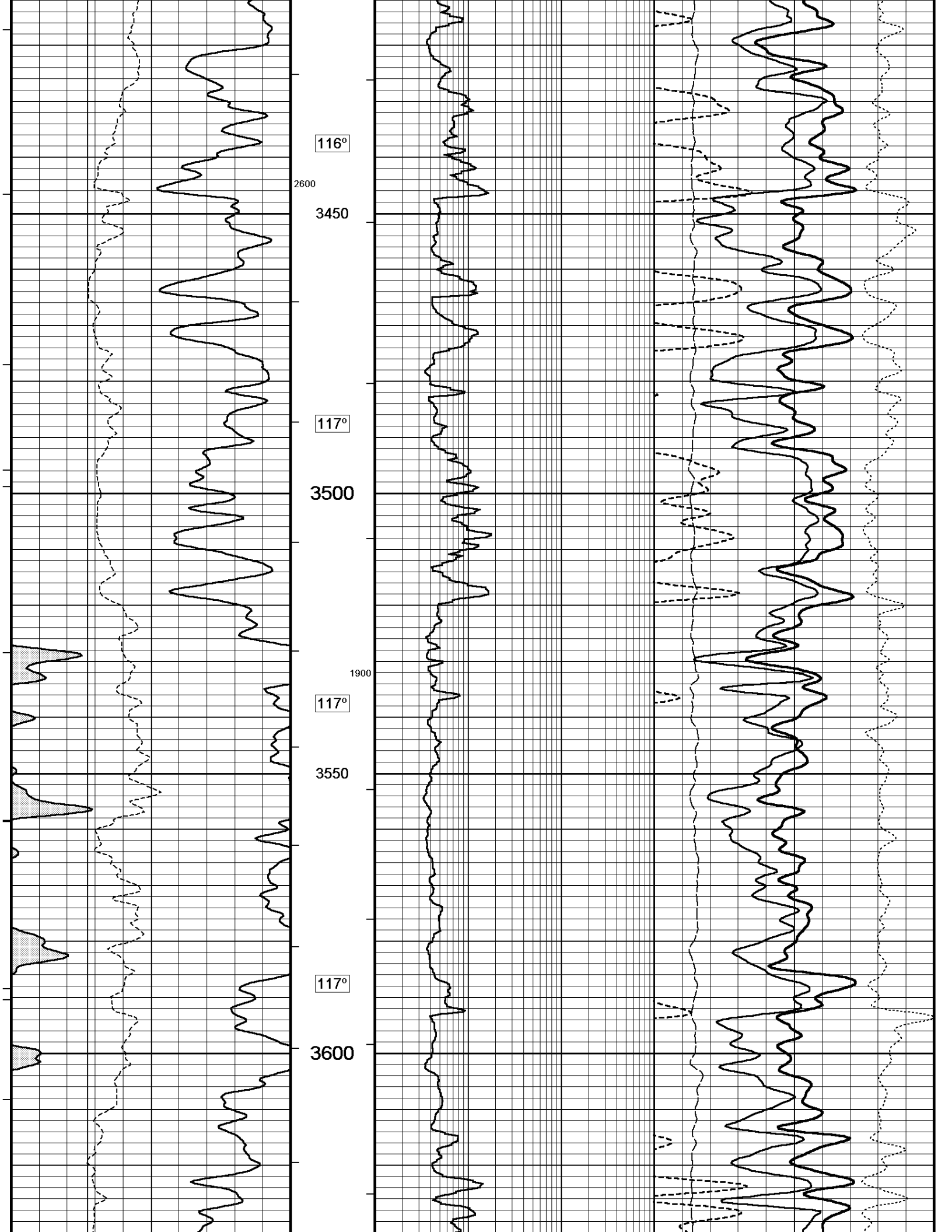


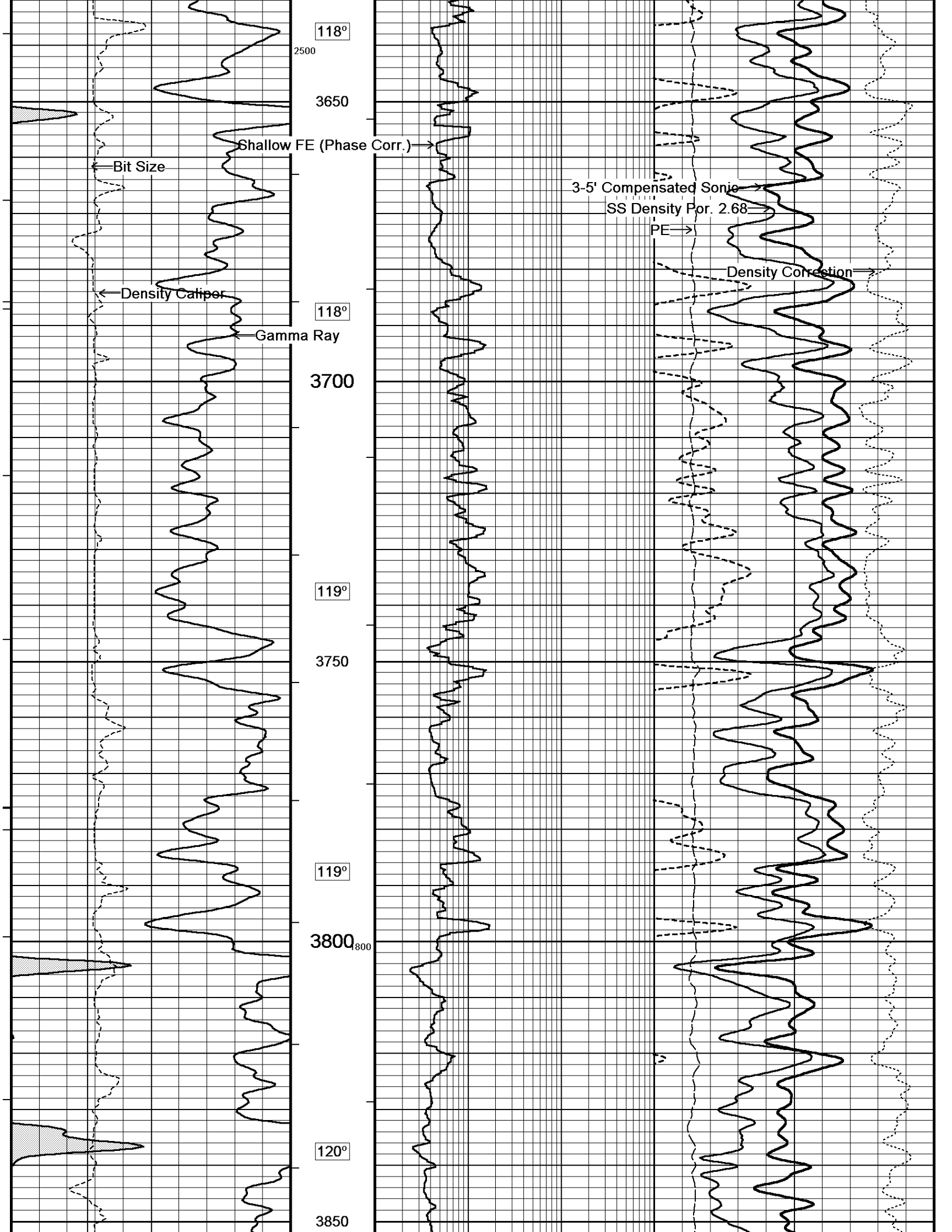


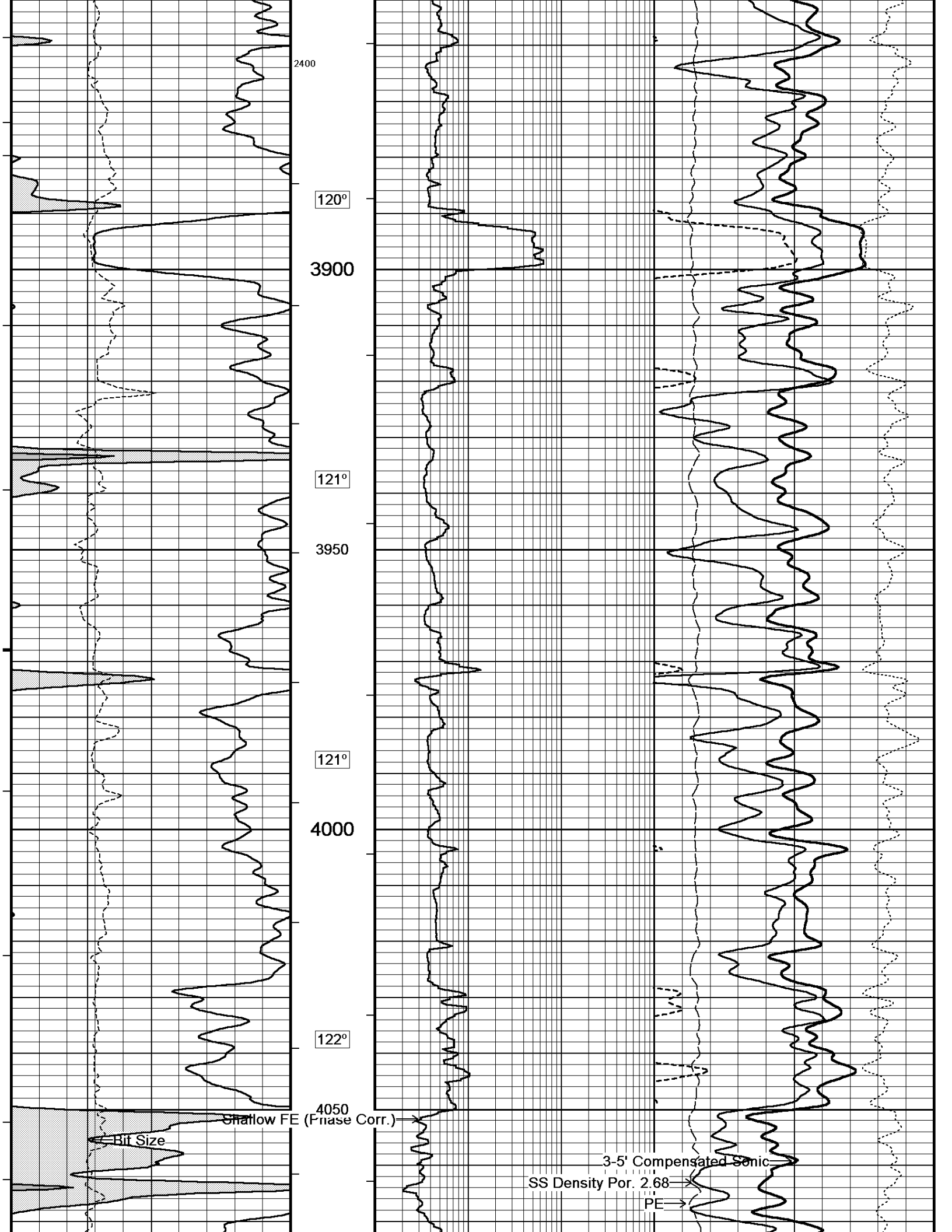


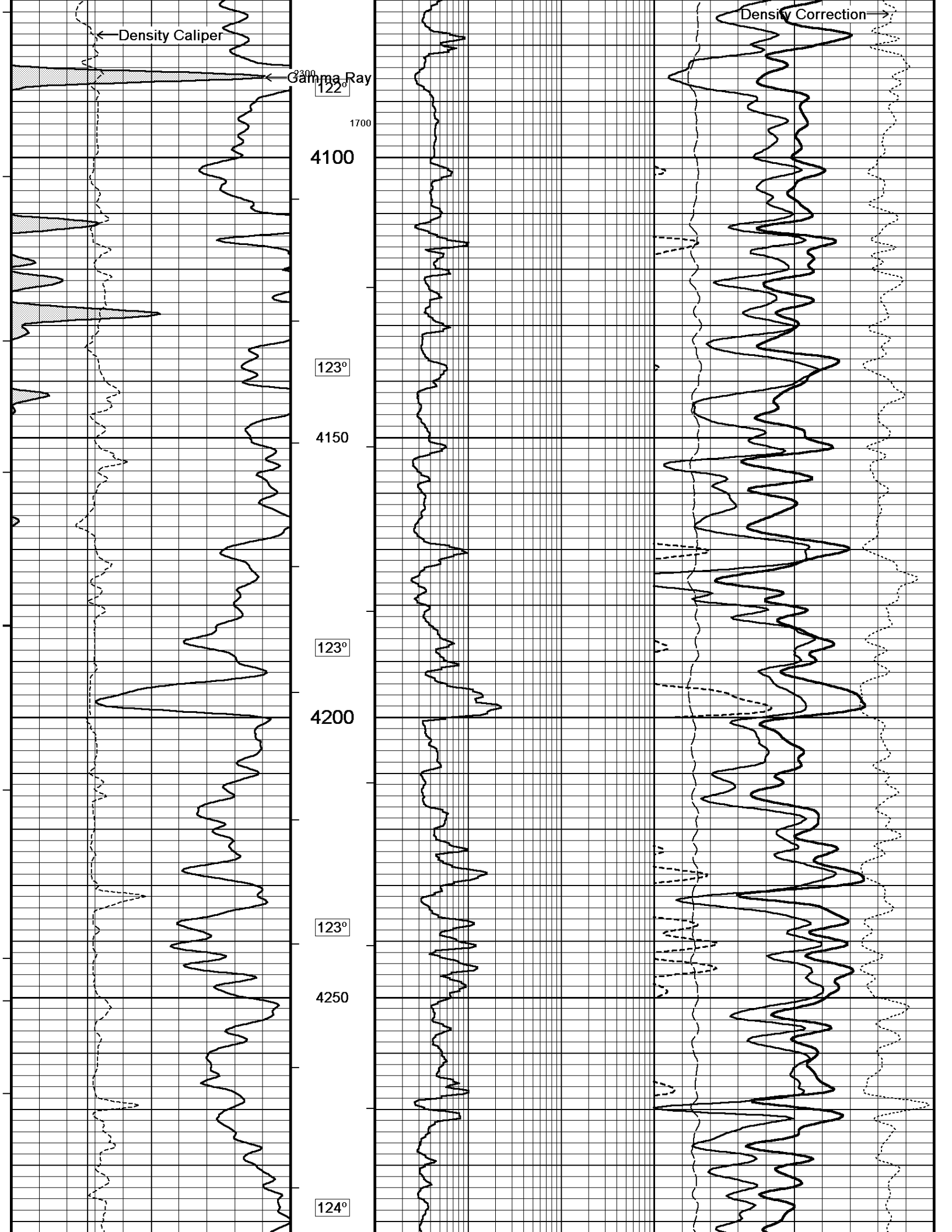


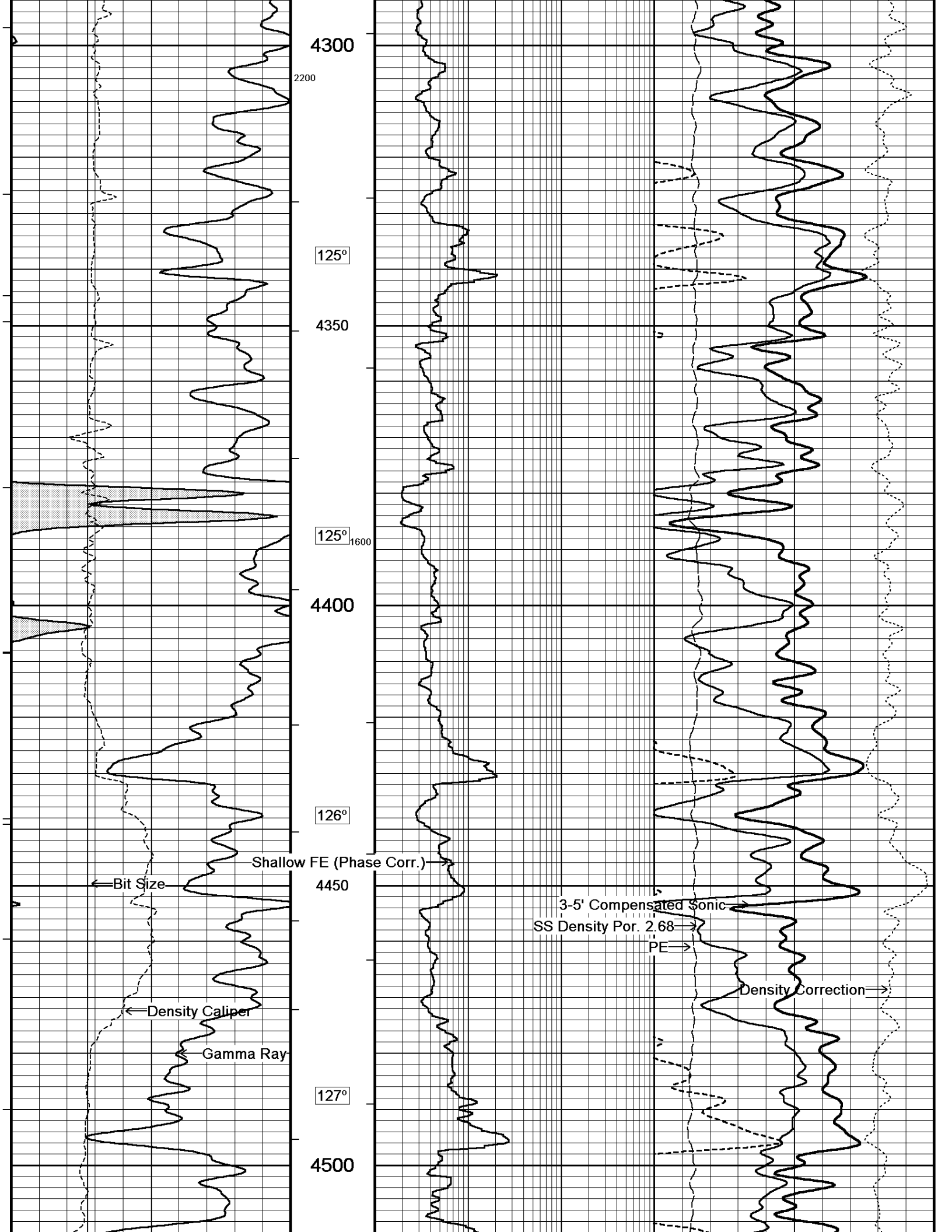


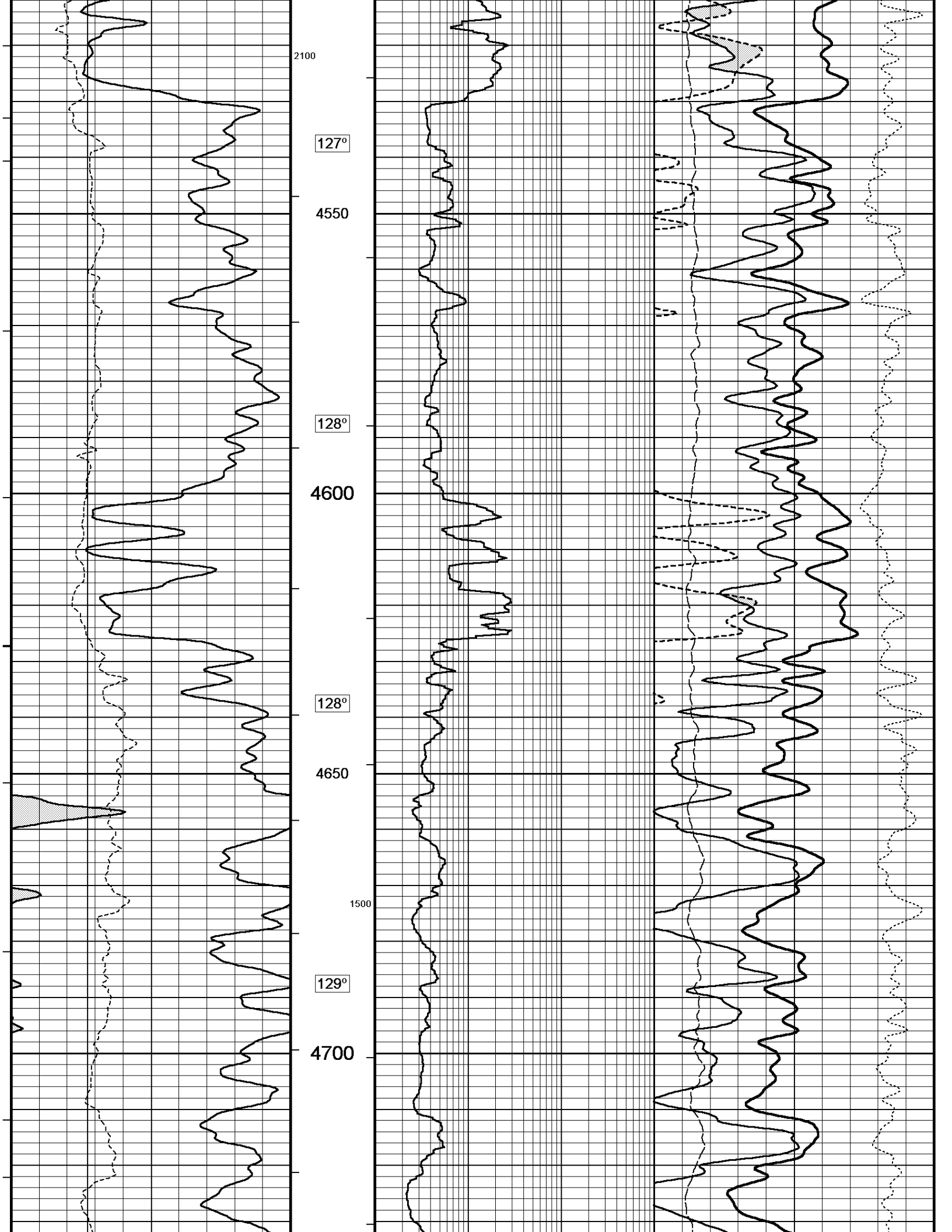


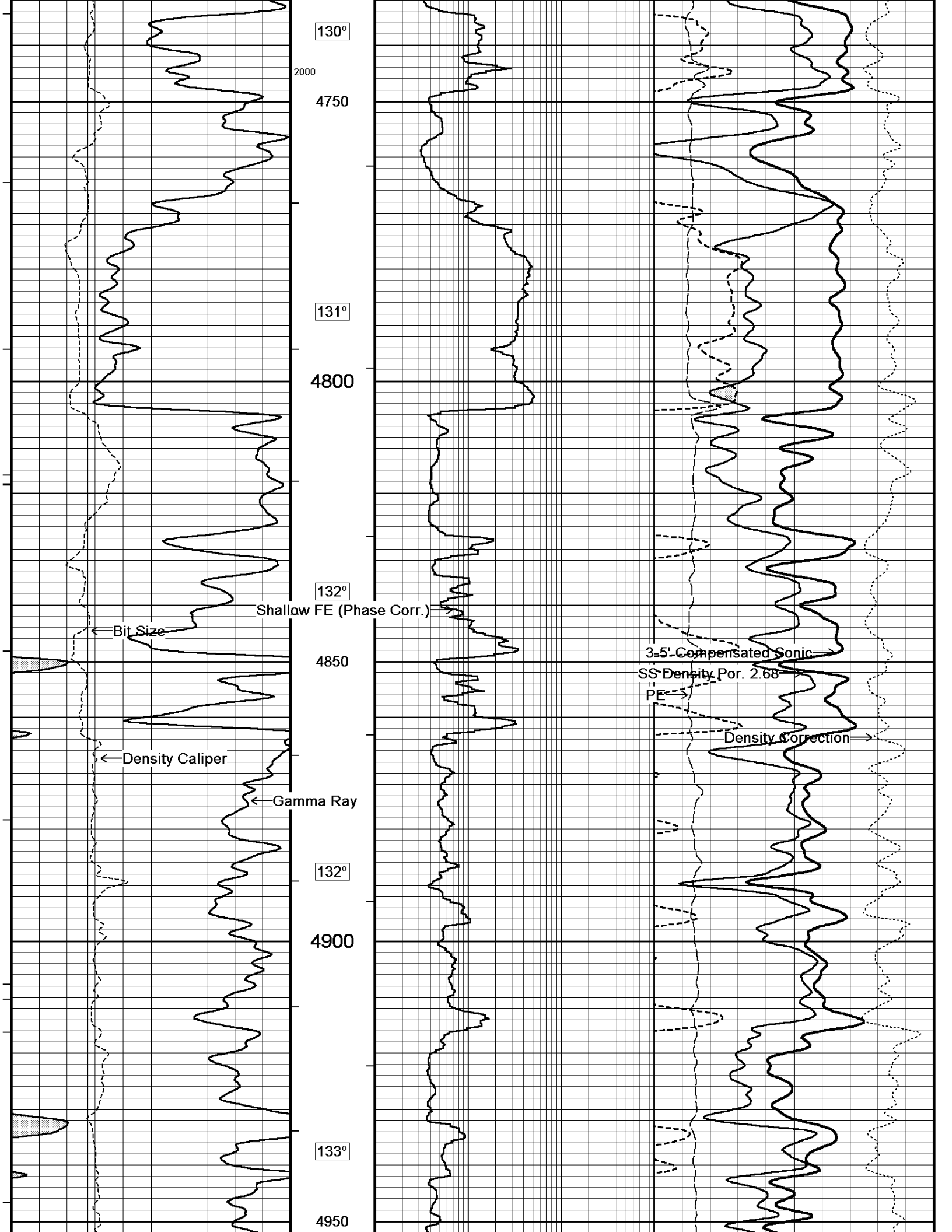












130°

2000

4750

131°

4800

132°

Shallow FE (Phase Corr.)

← Bit Size

4850

3.5' Compensated Sonic →

SS Density Por. 2.68 →

PE →

Density Correction →

← Density Caliper

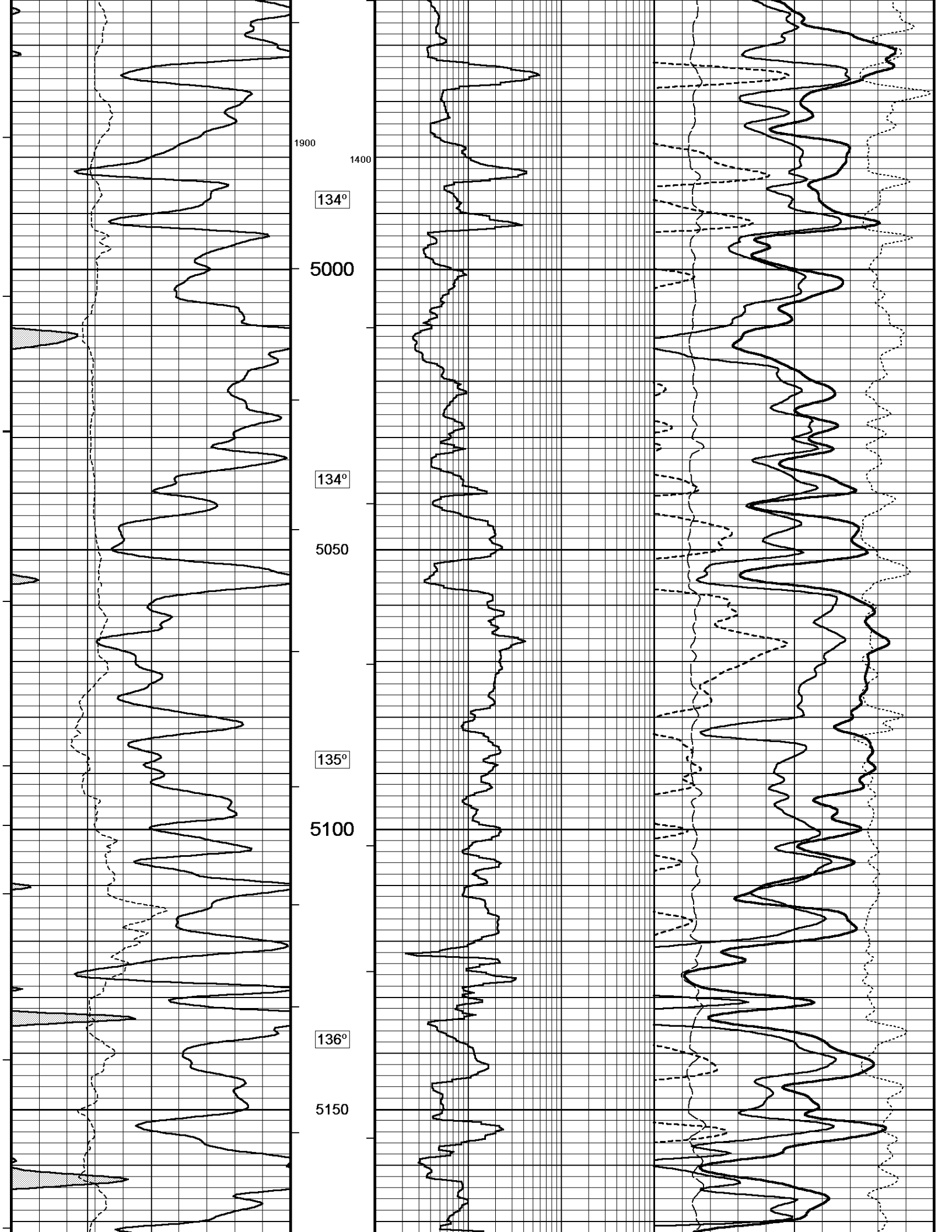
← Gamma Ray

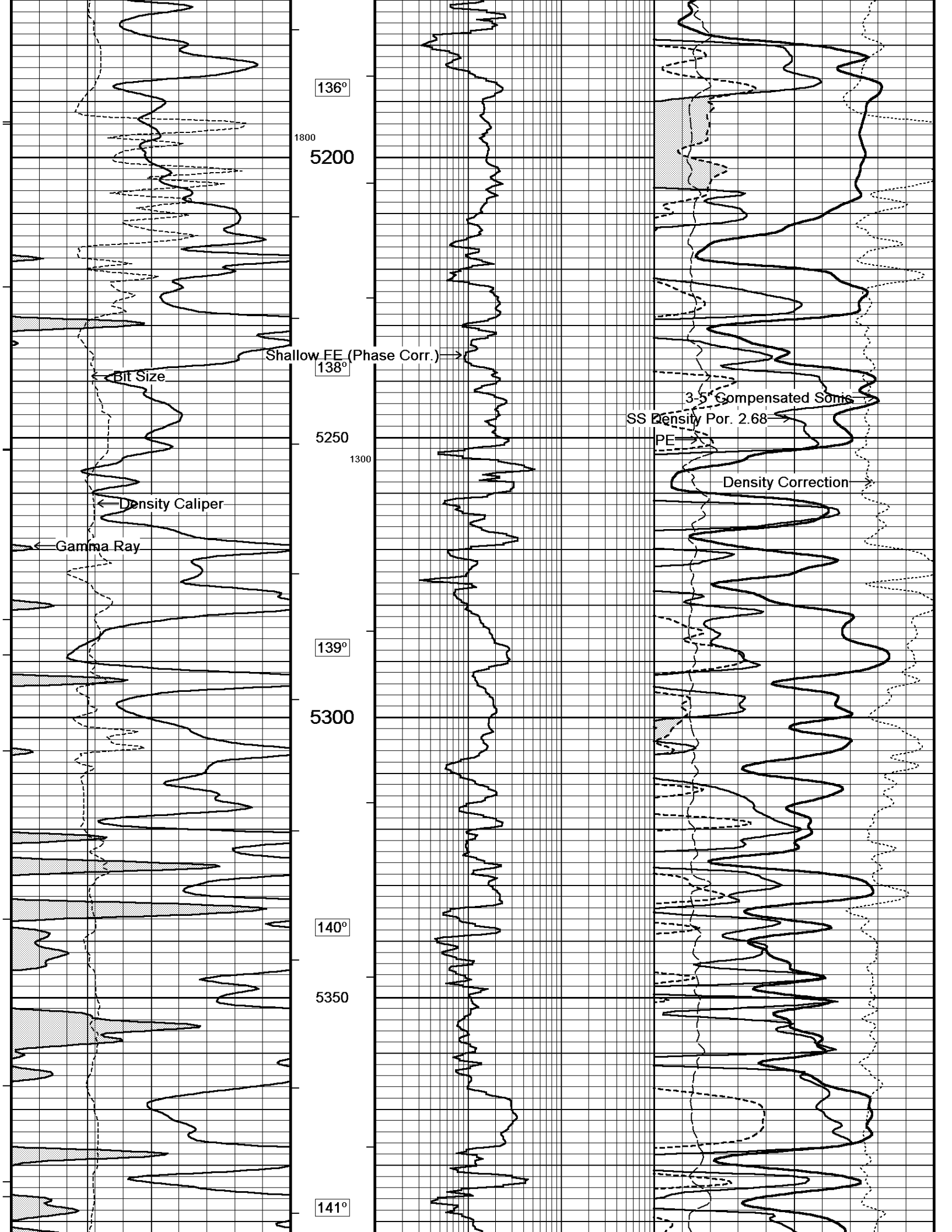
132°

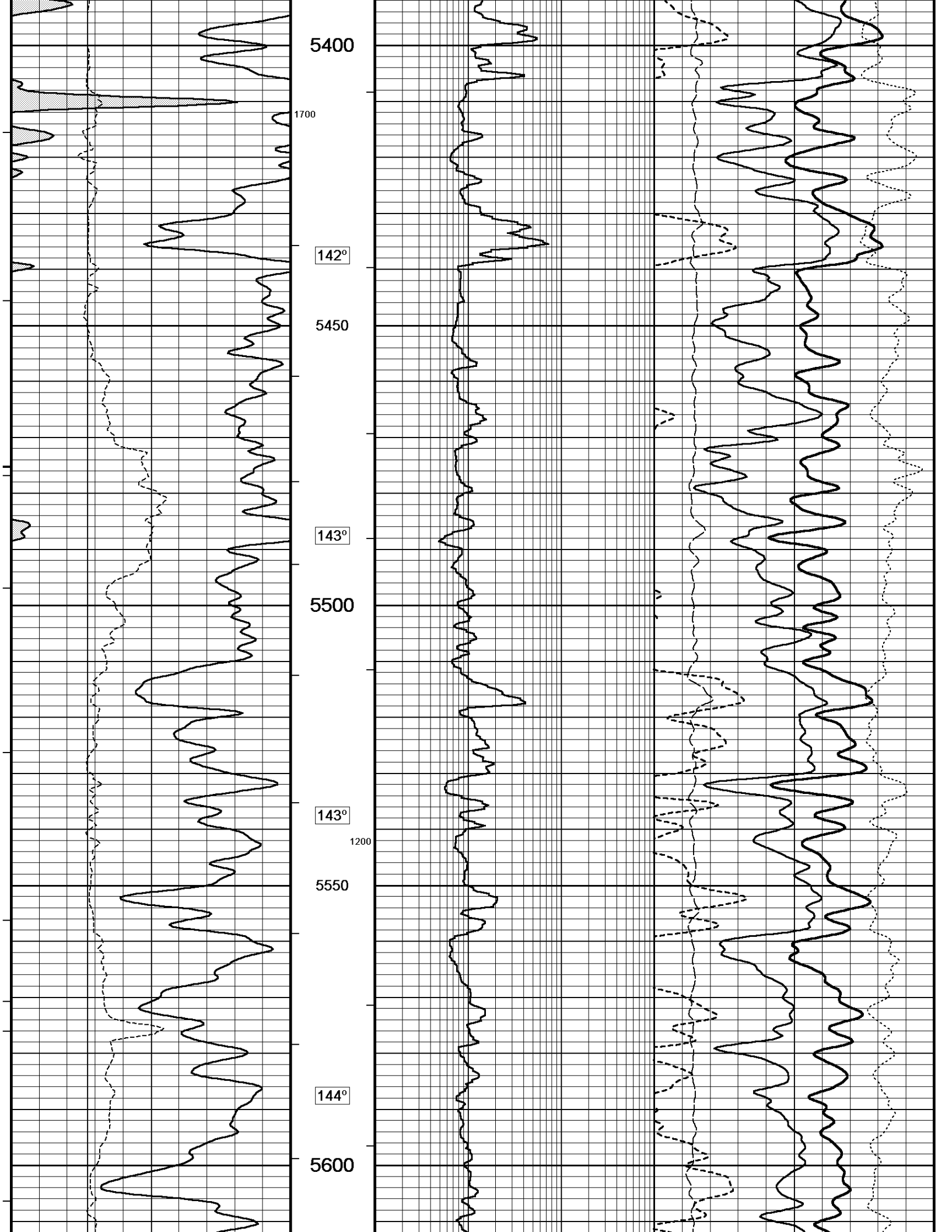
4900

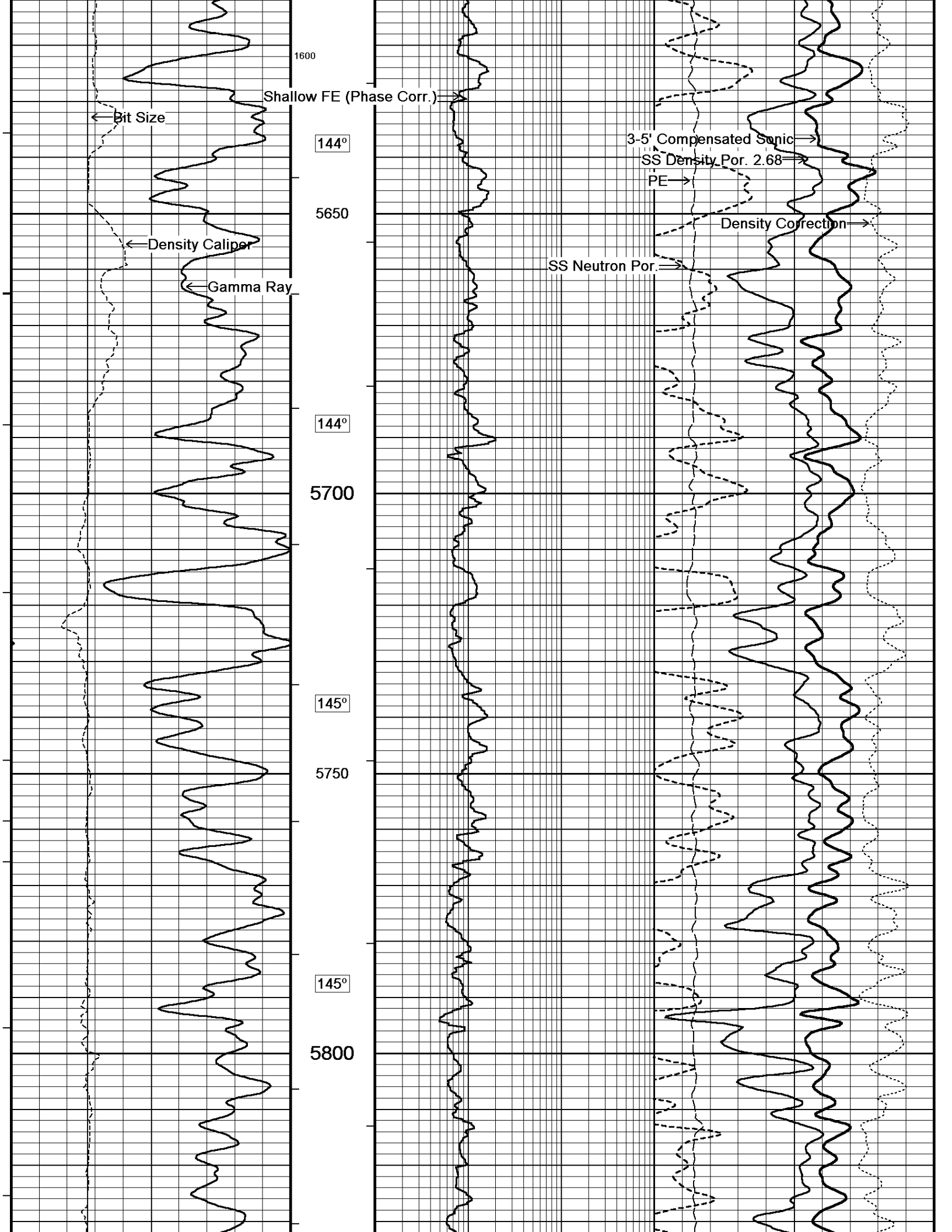
133°

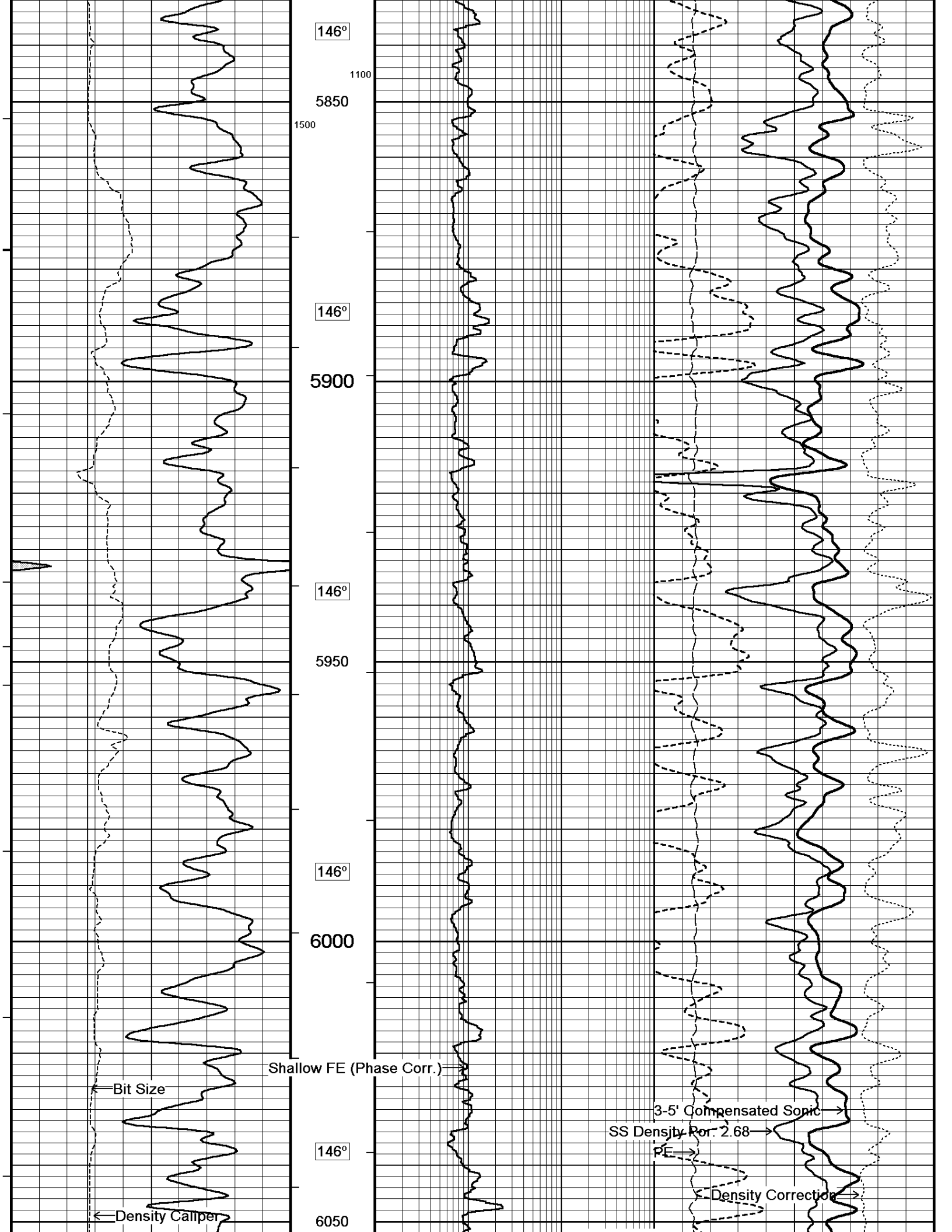
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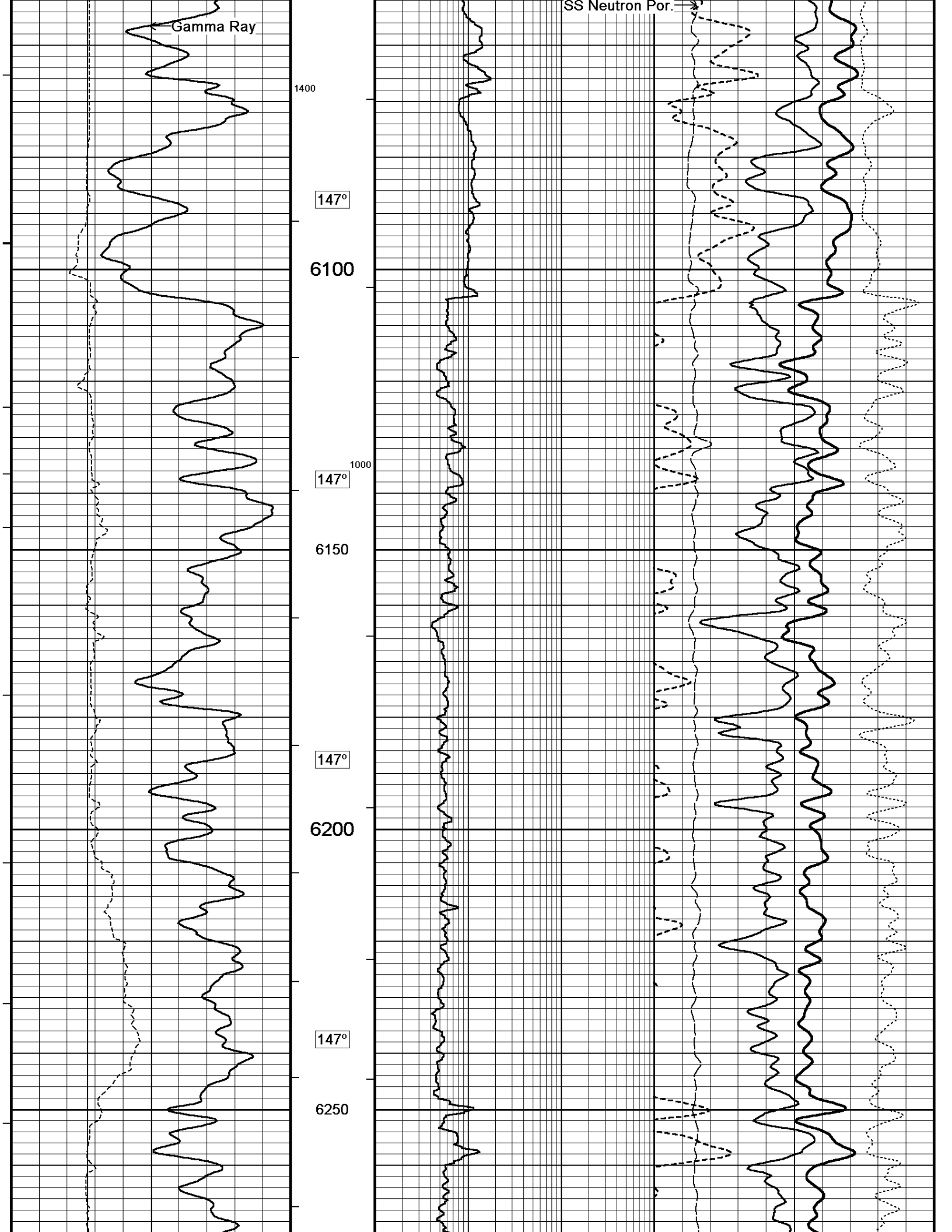


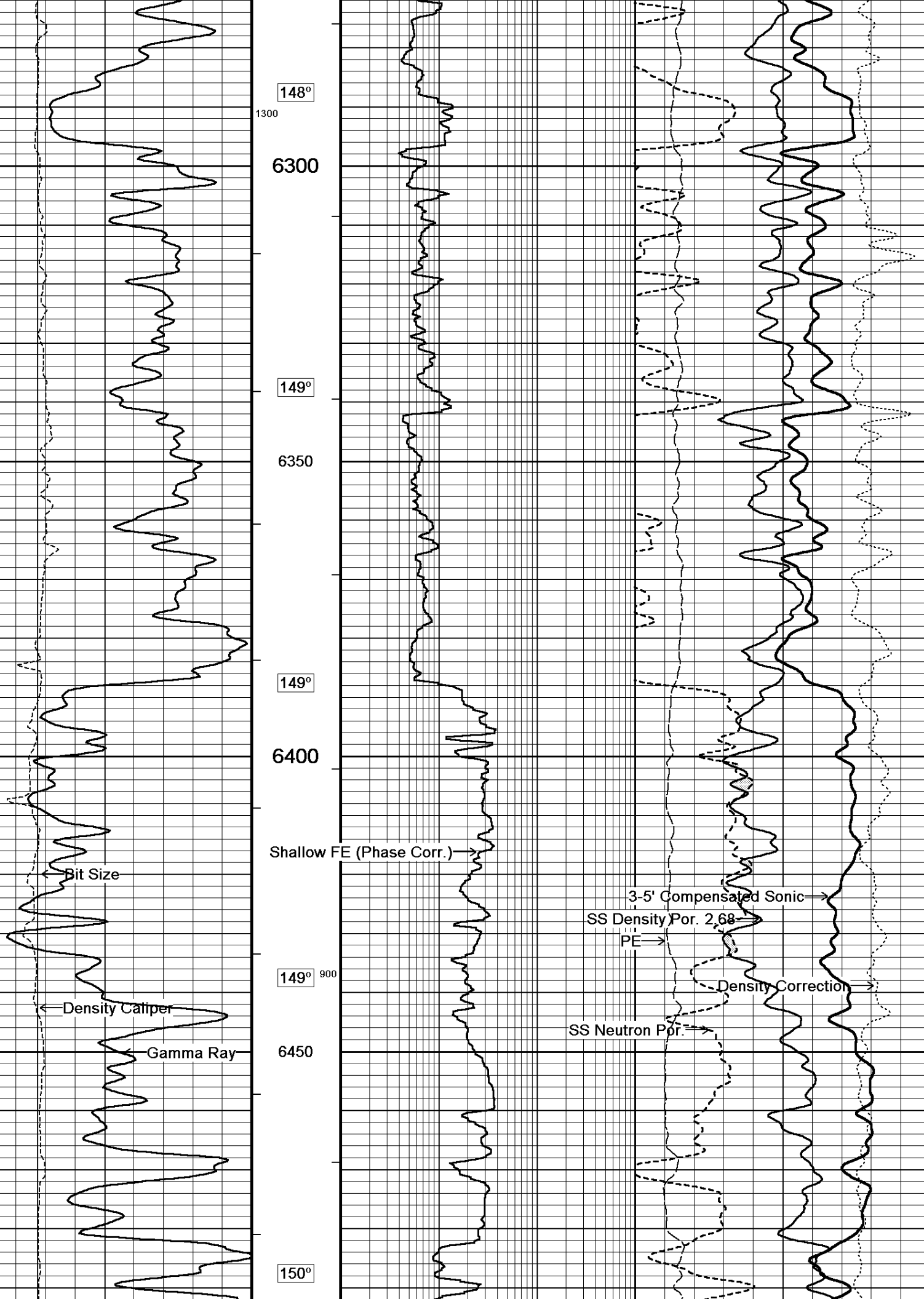


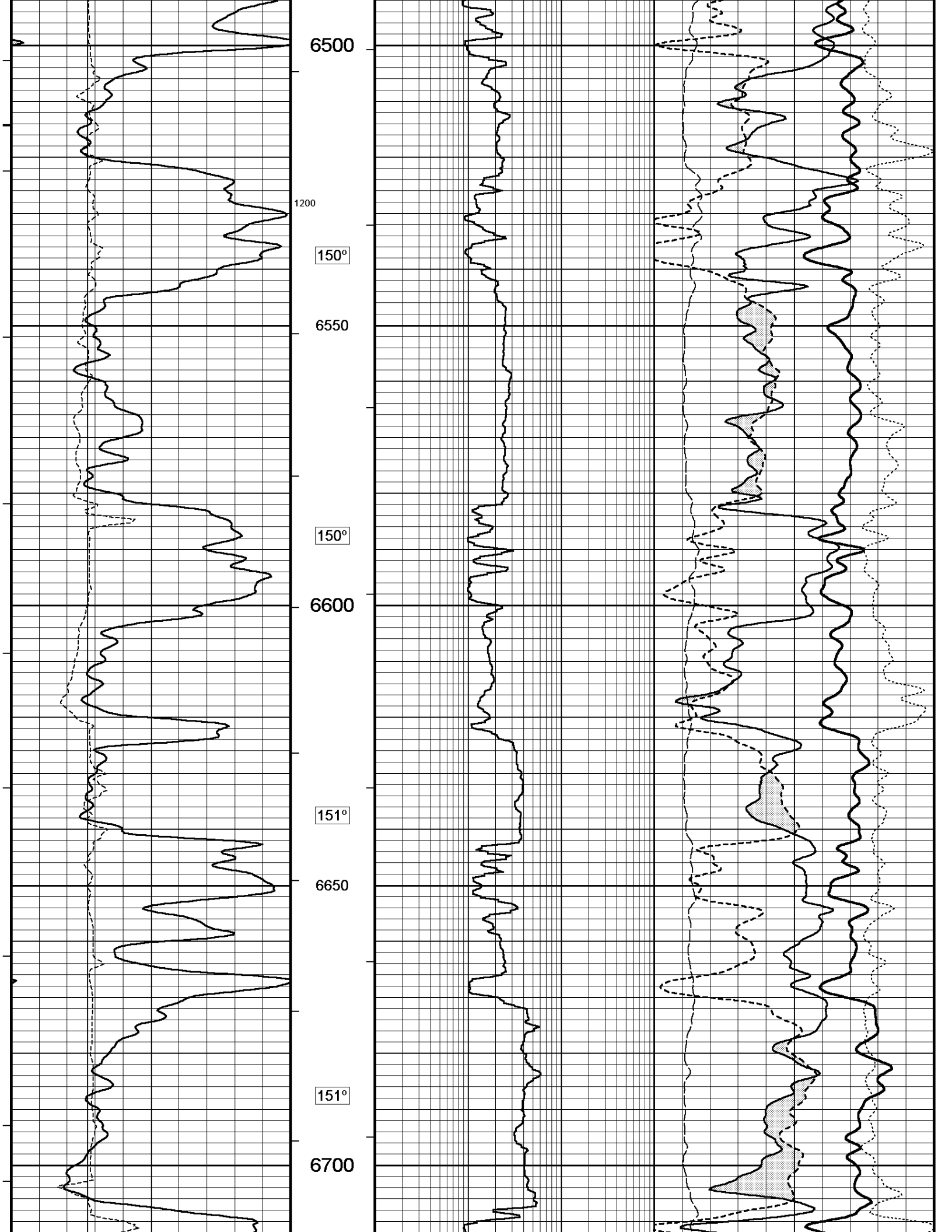


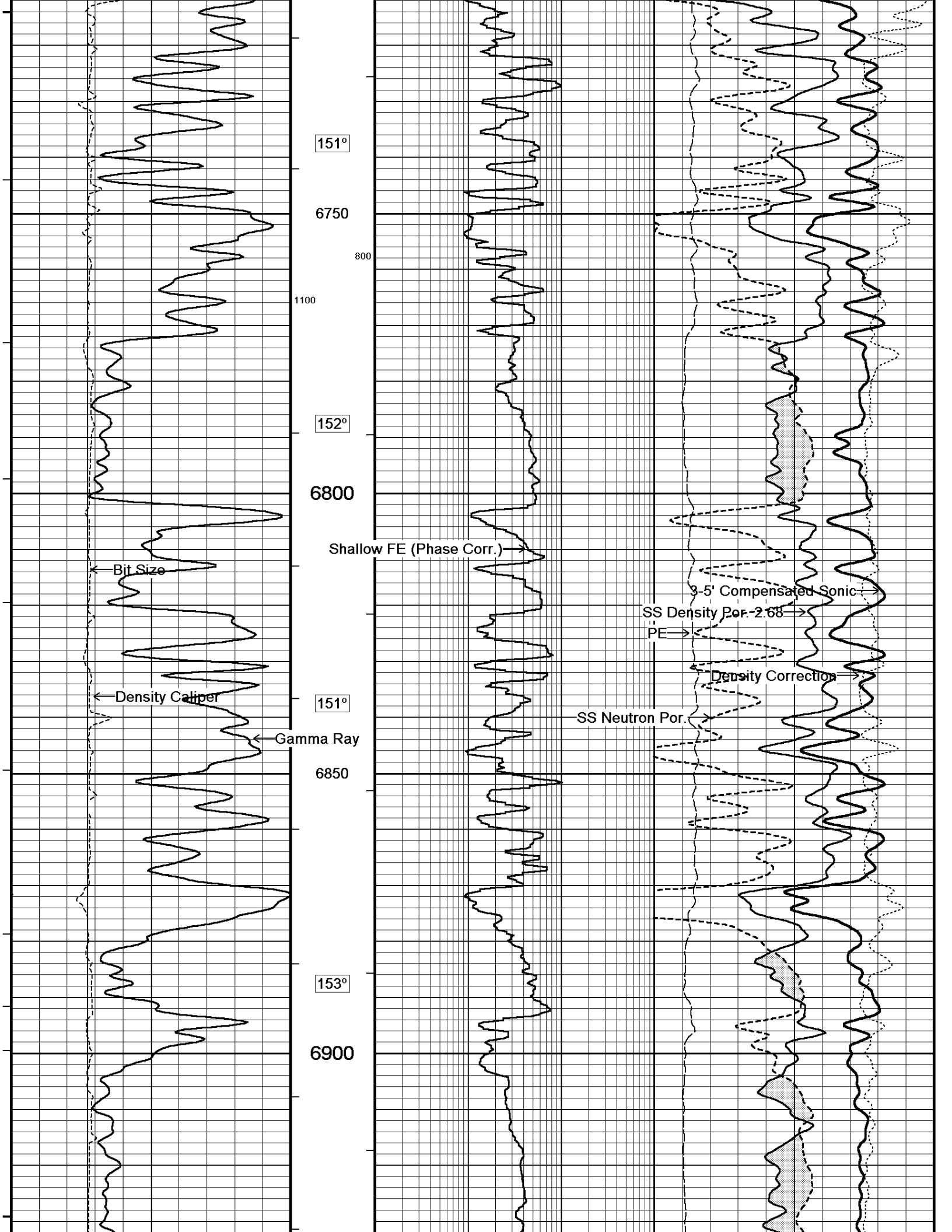


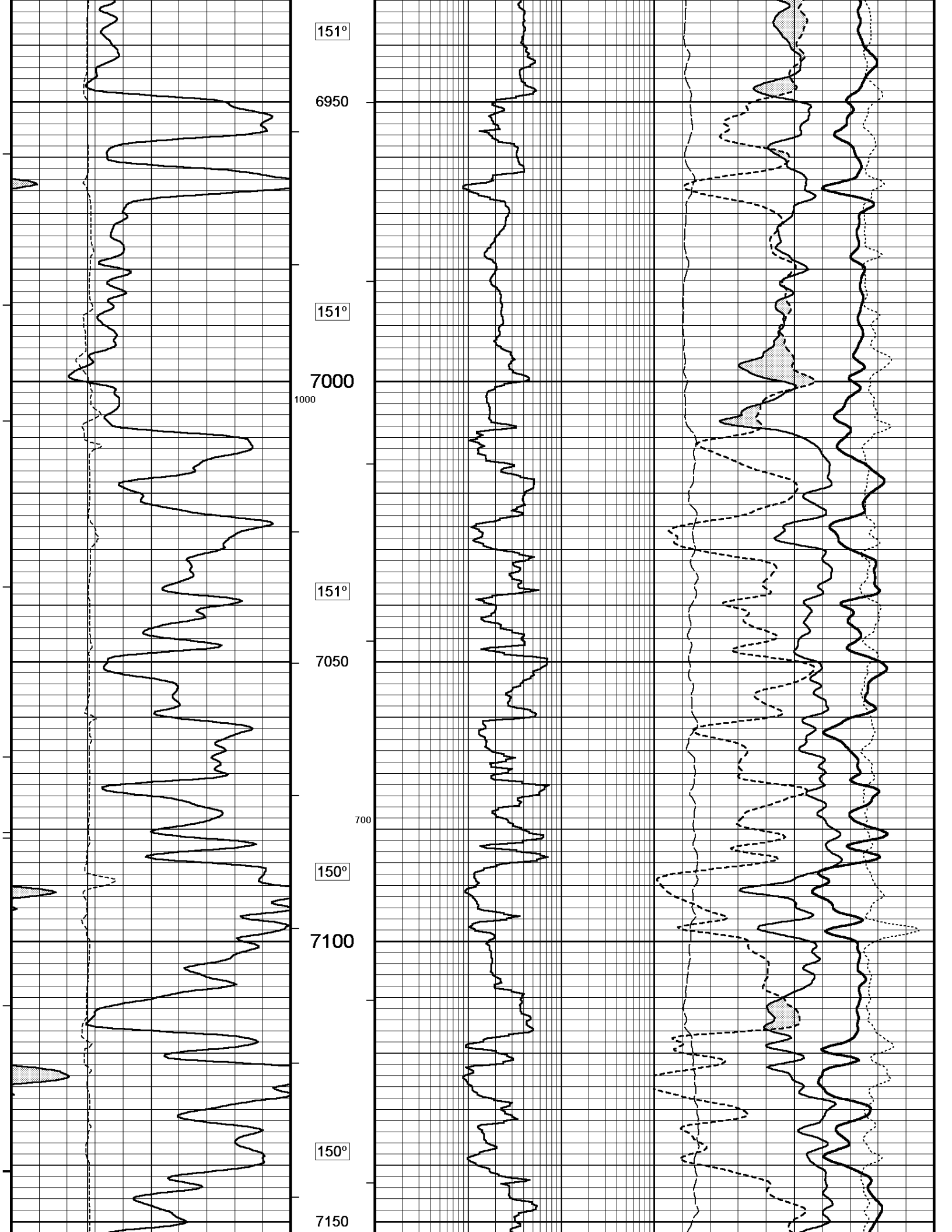


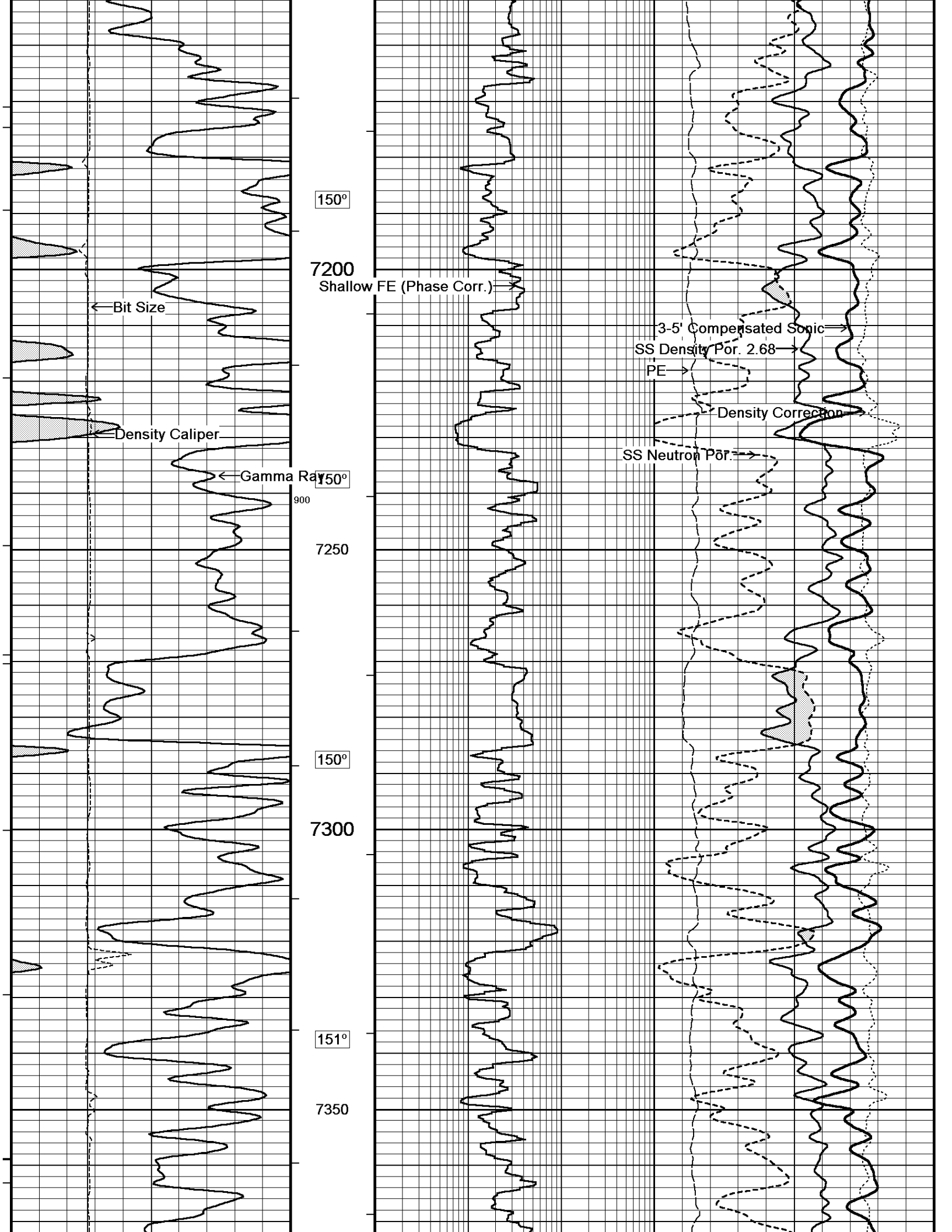


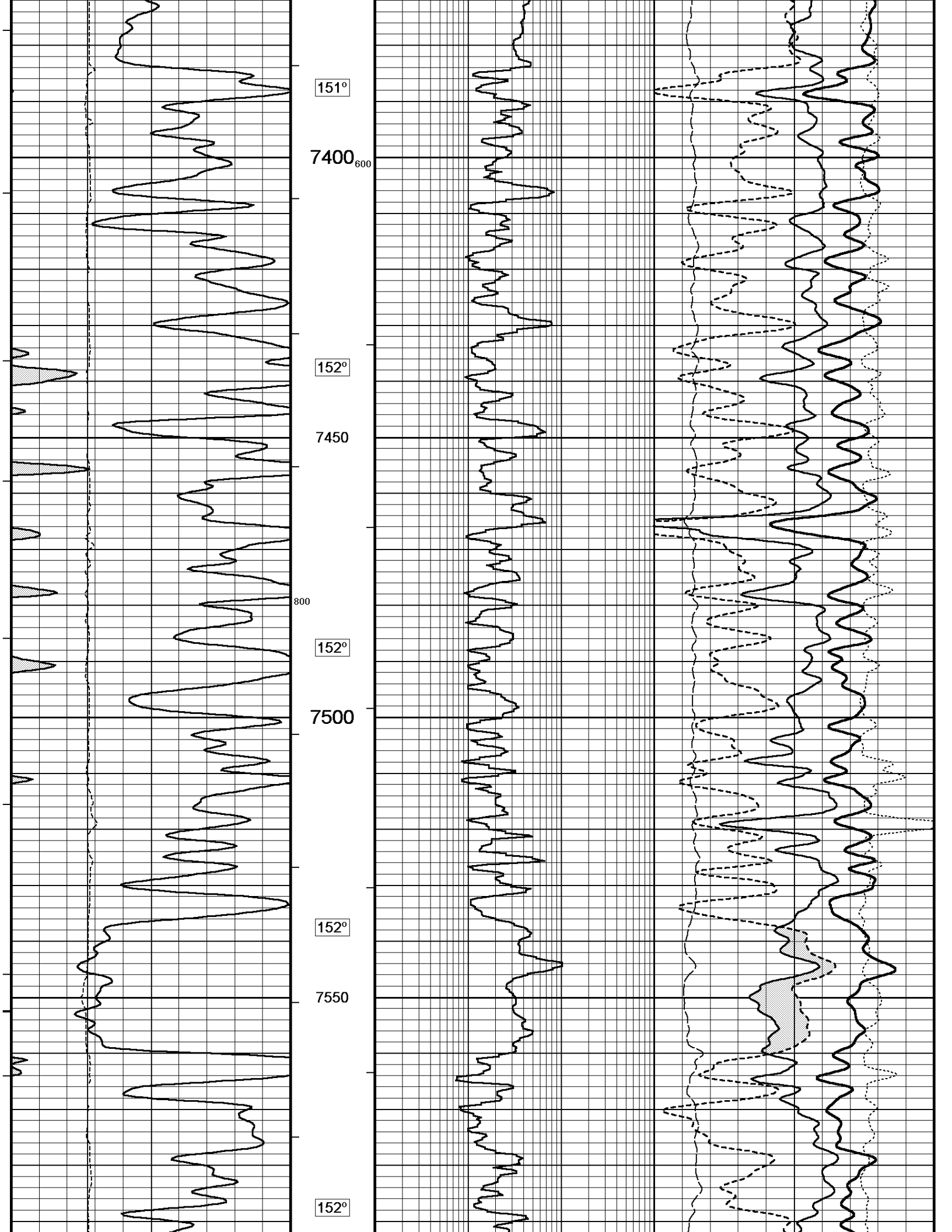


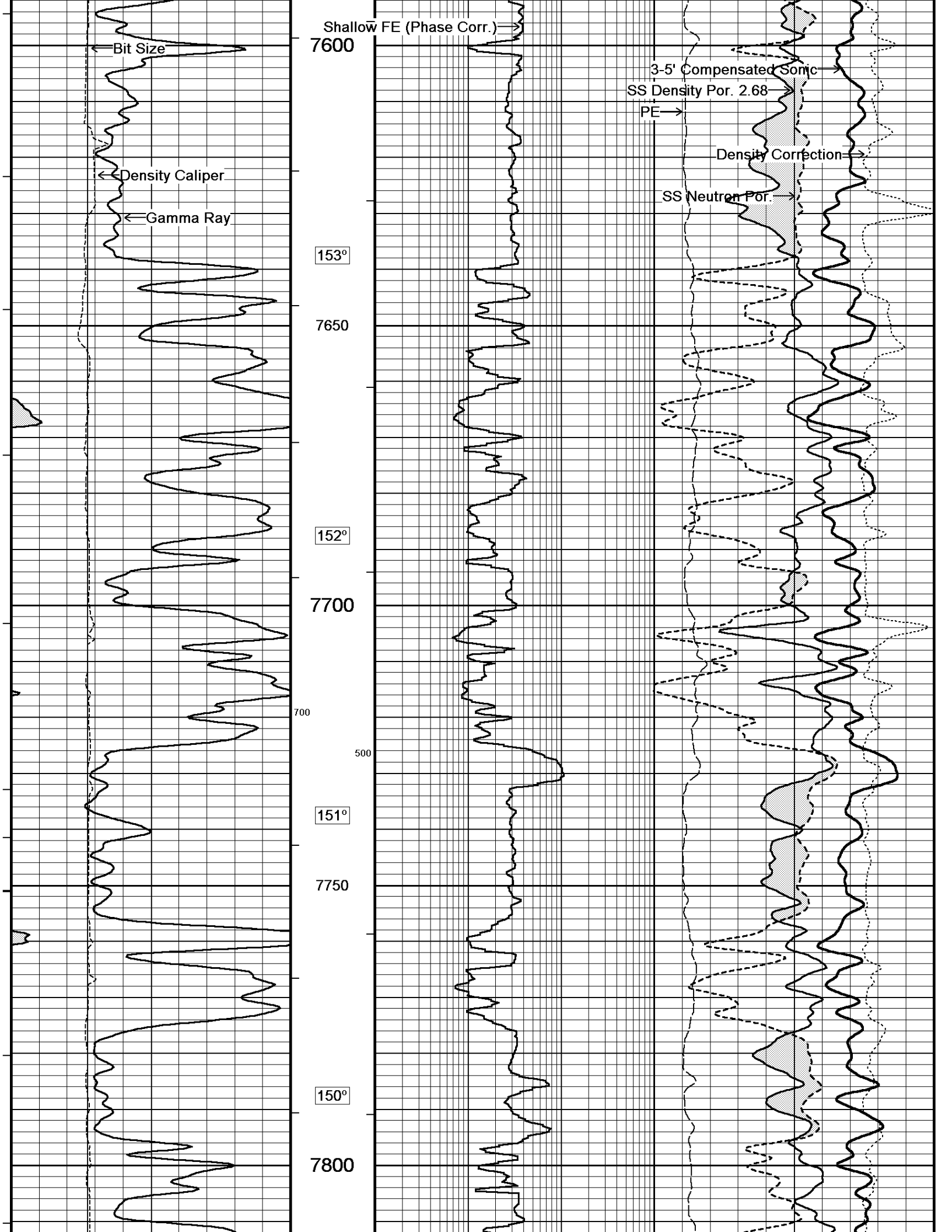


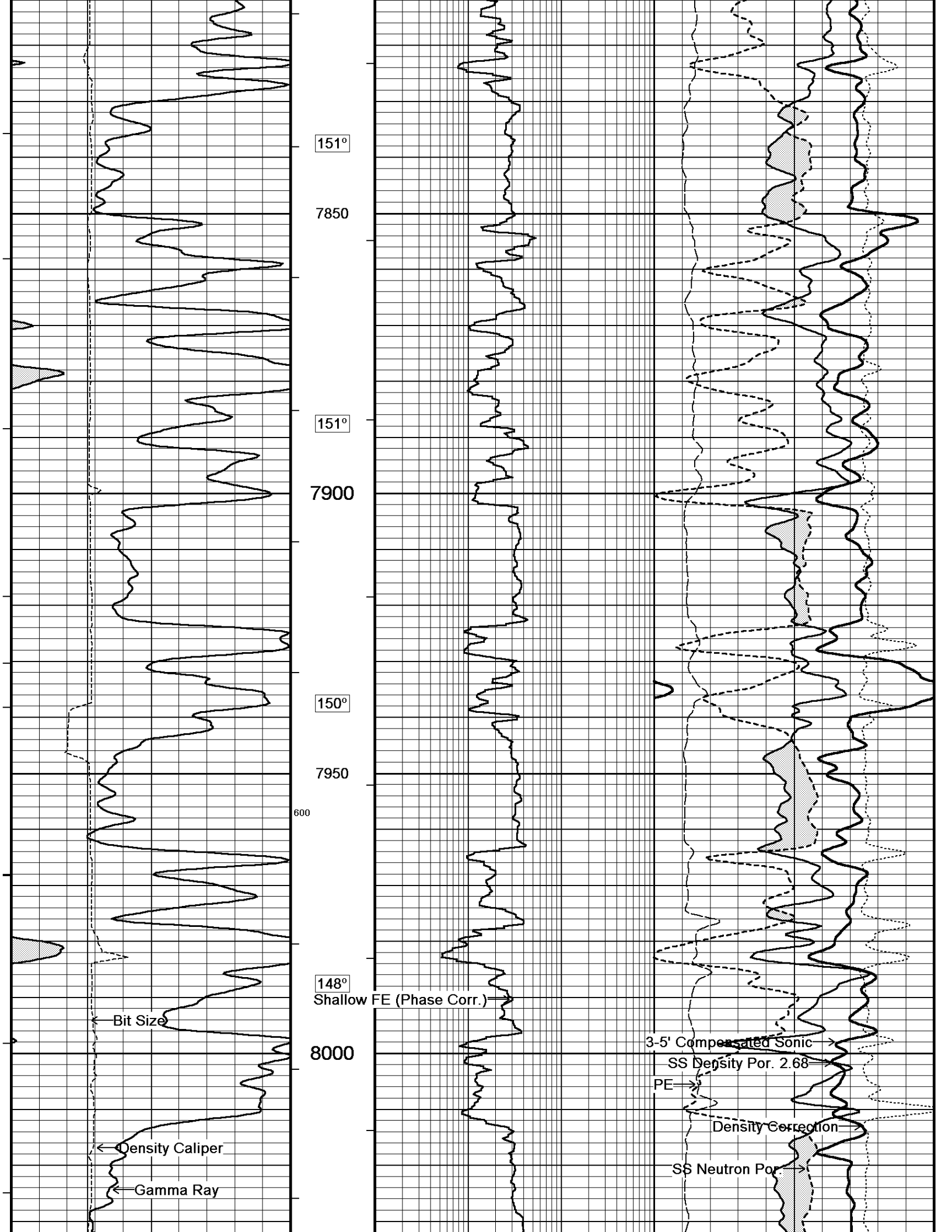


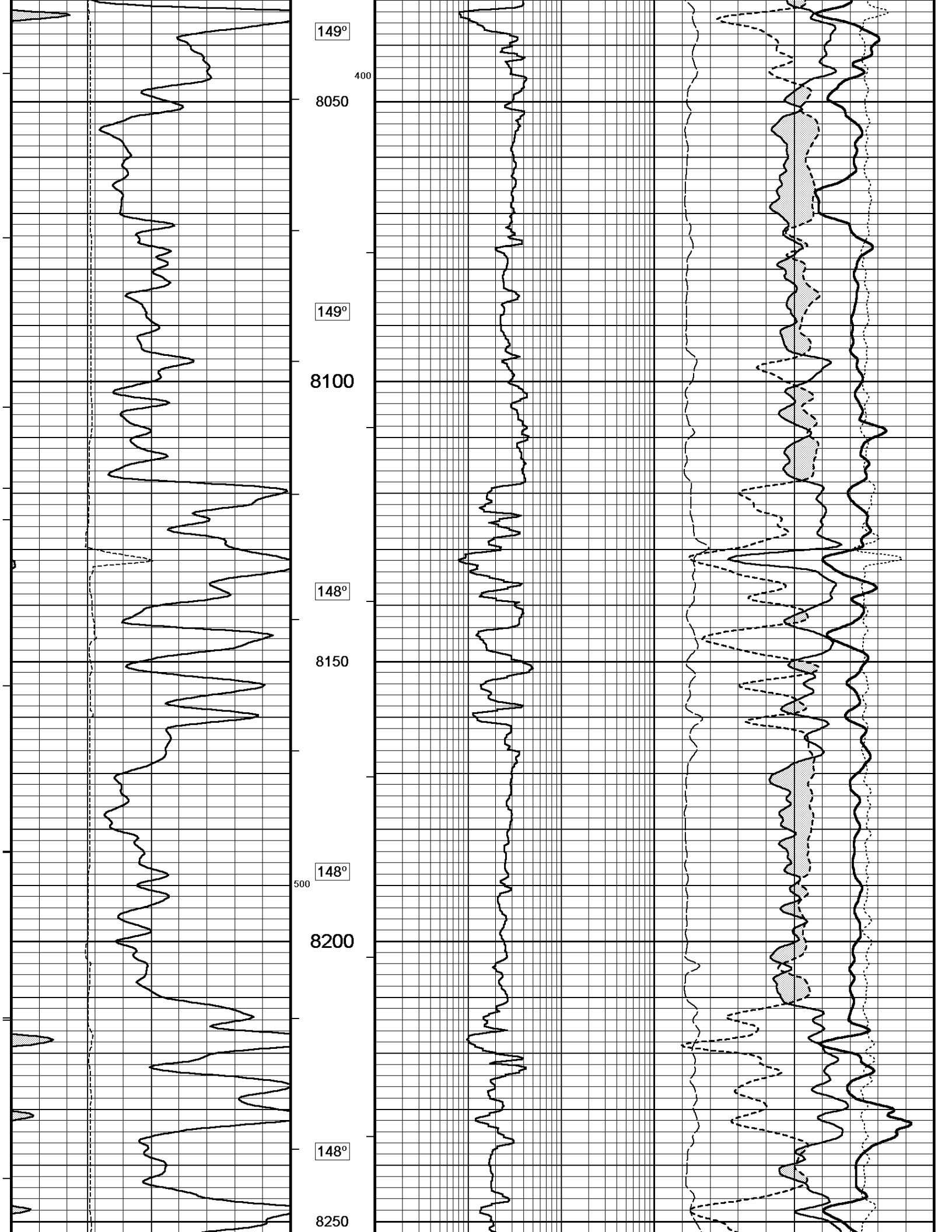


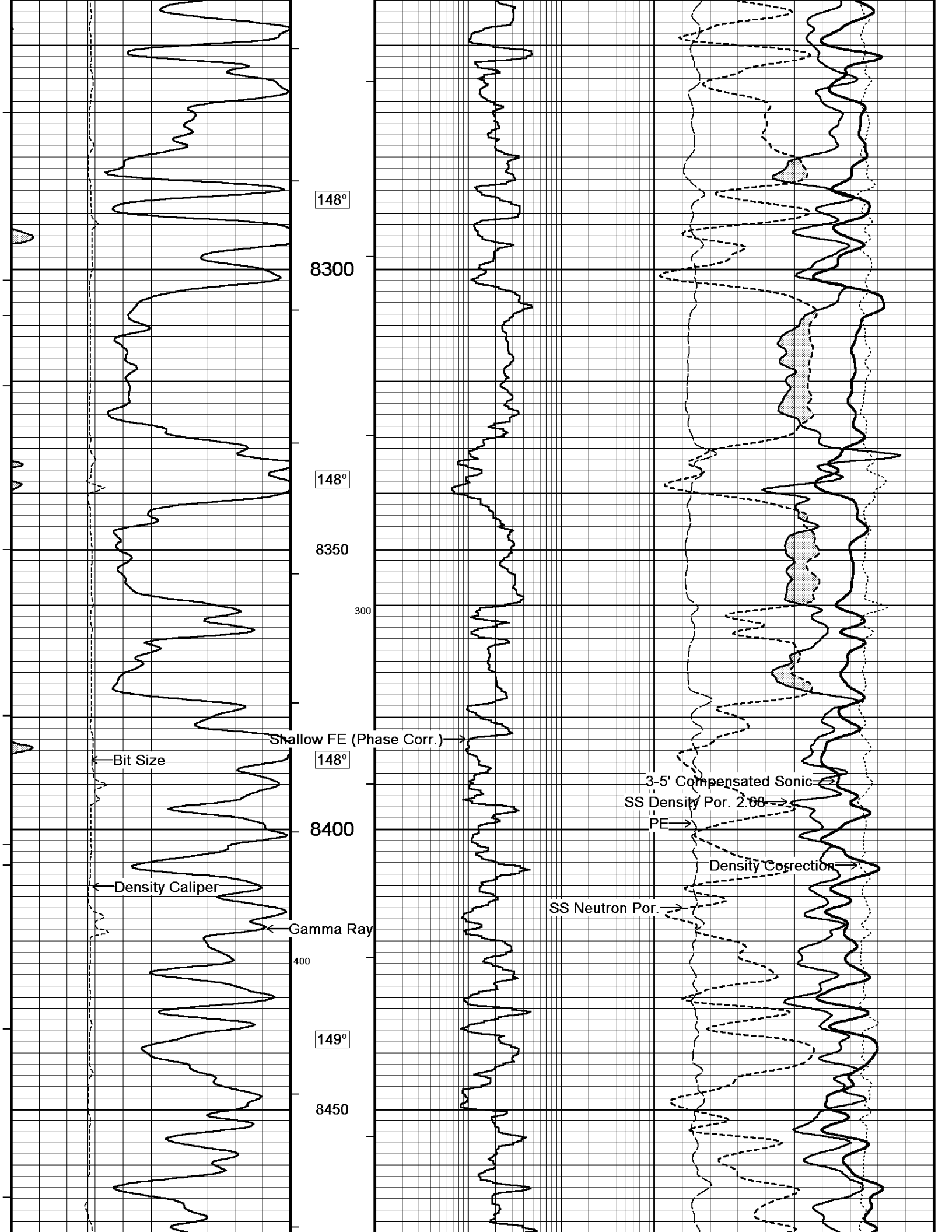


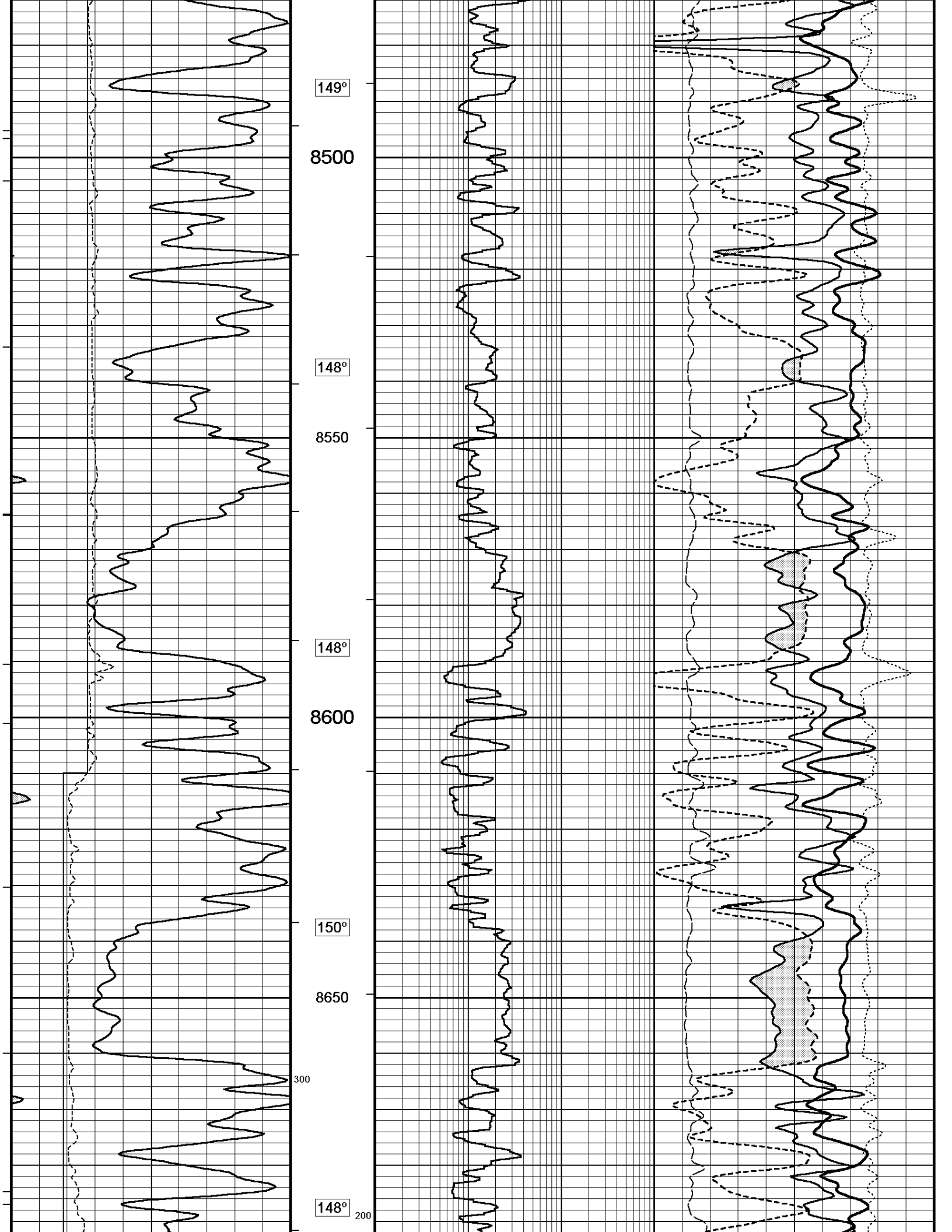


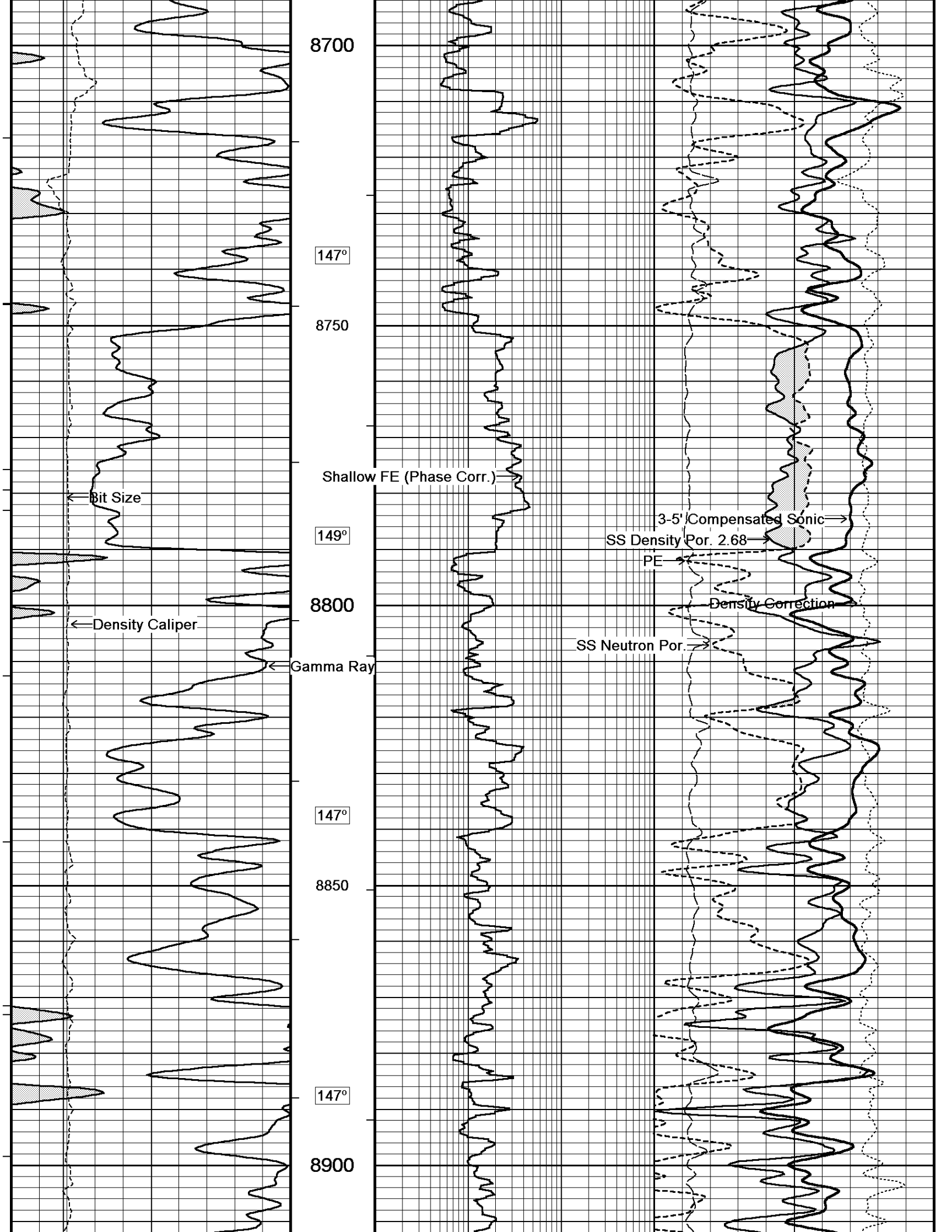


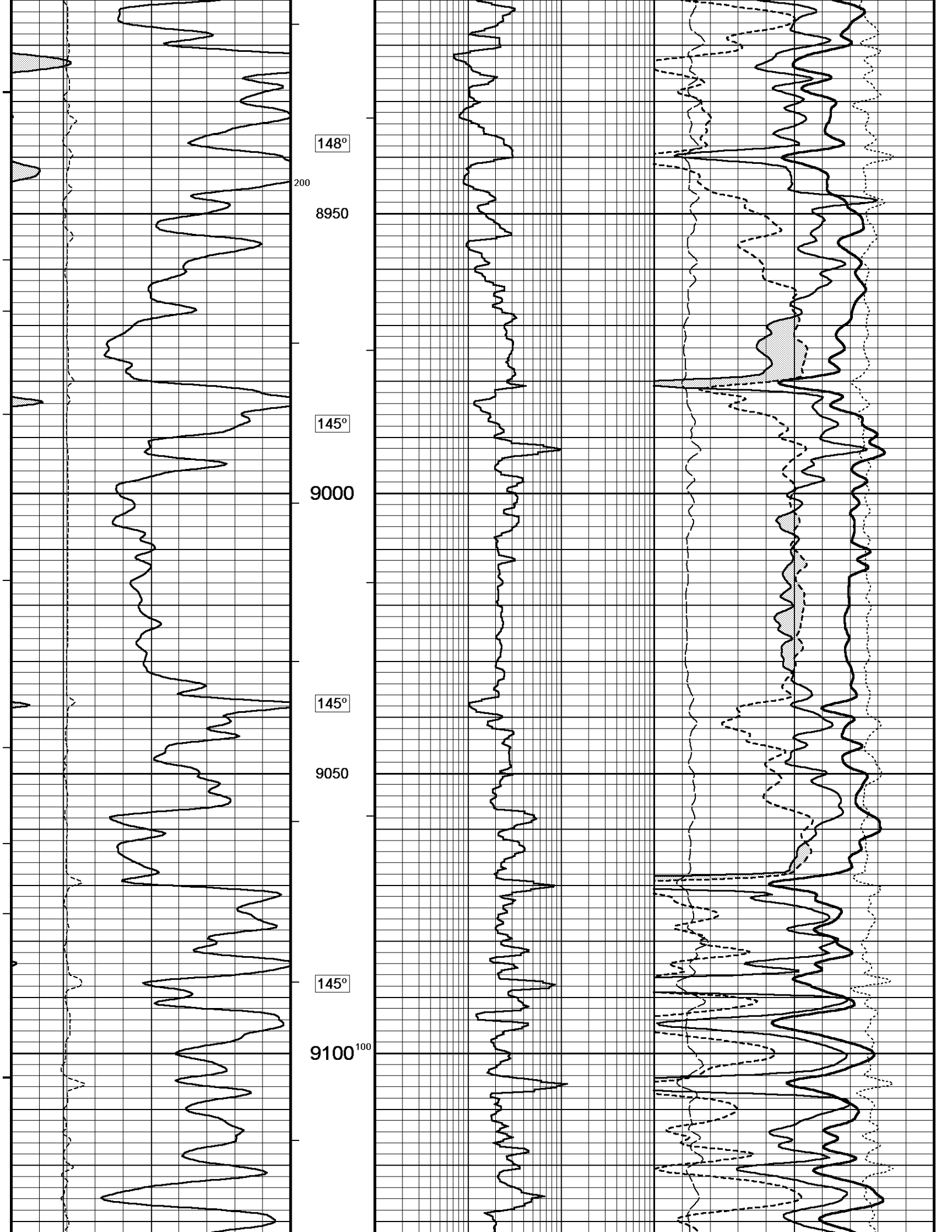


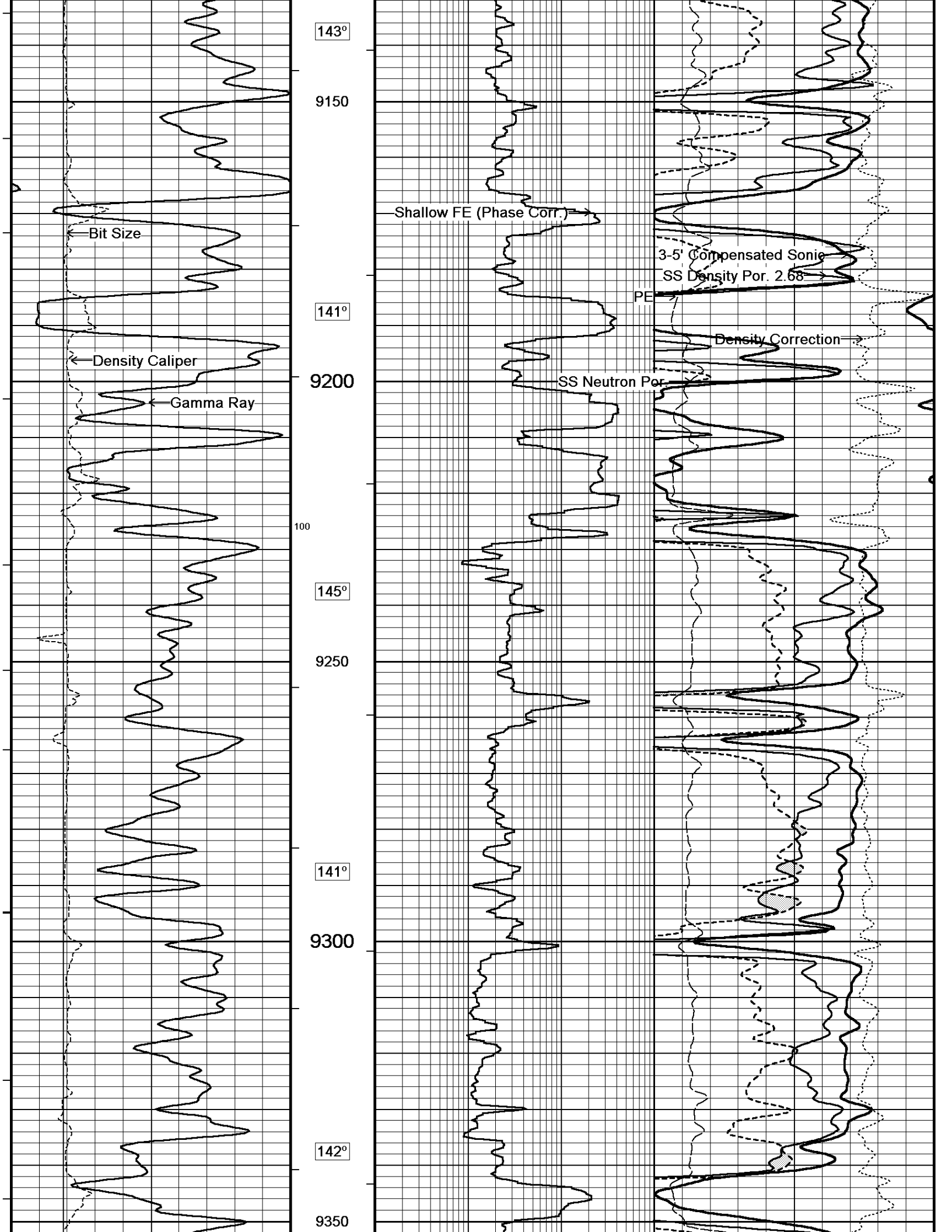


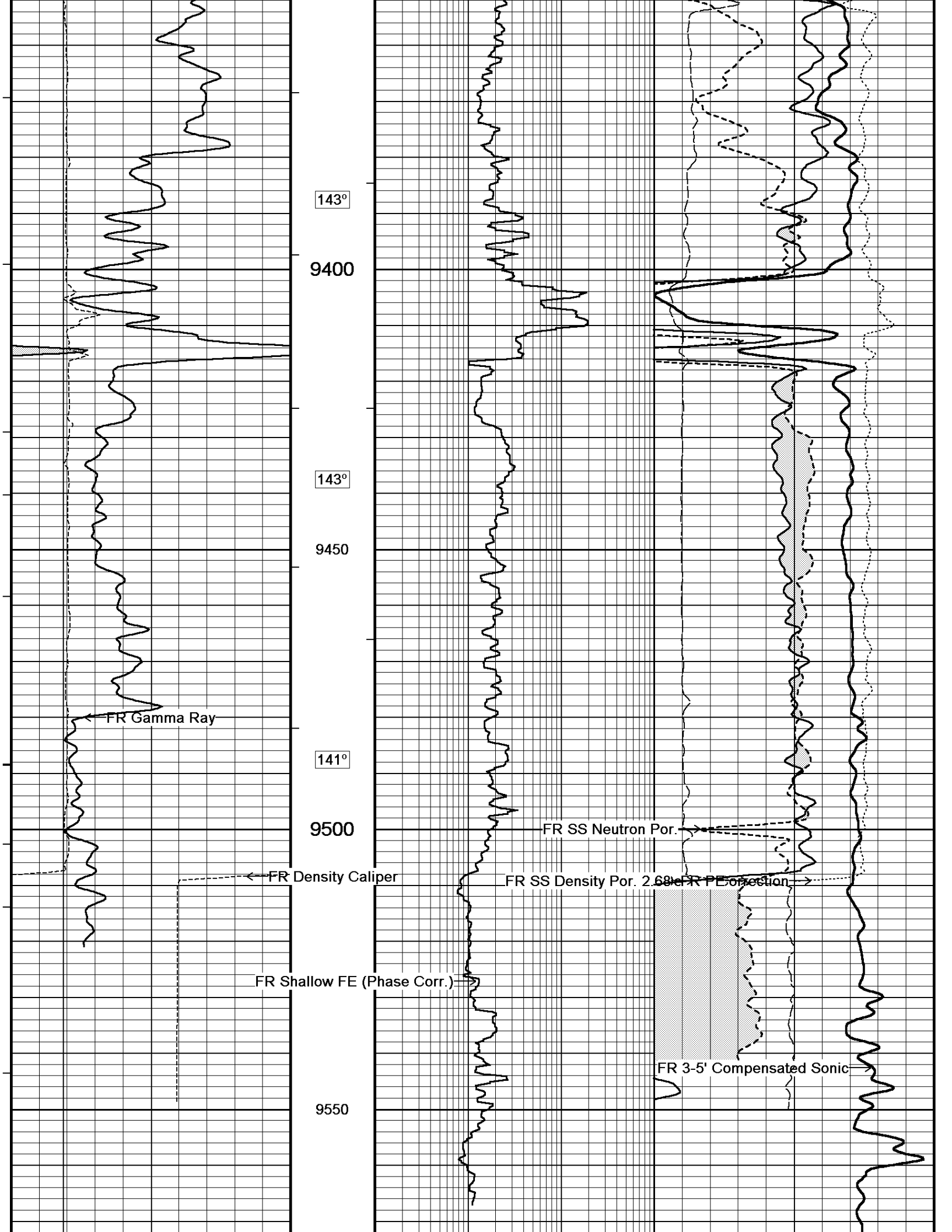


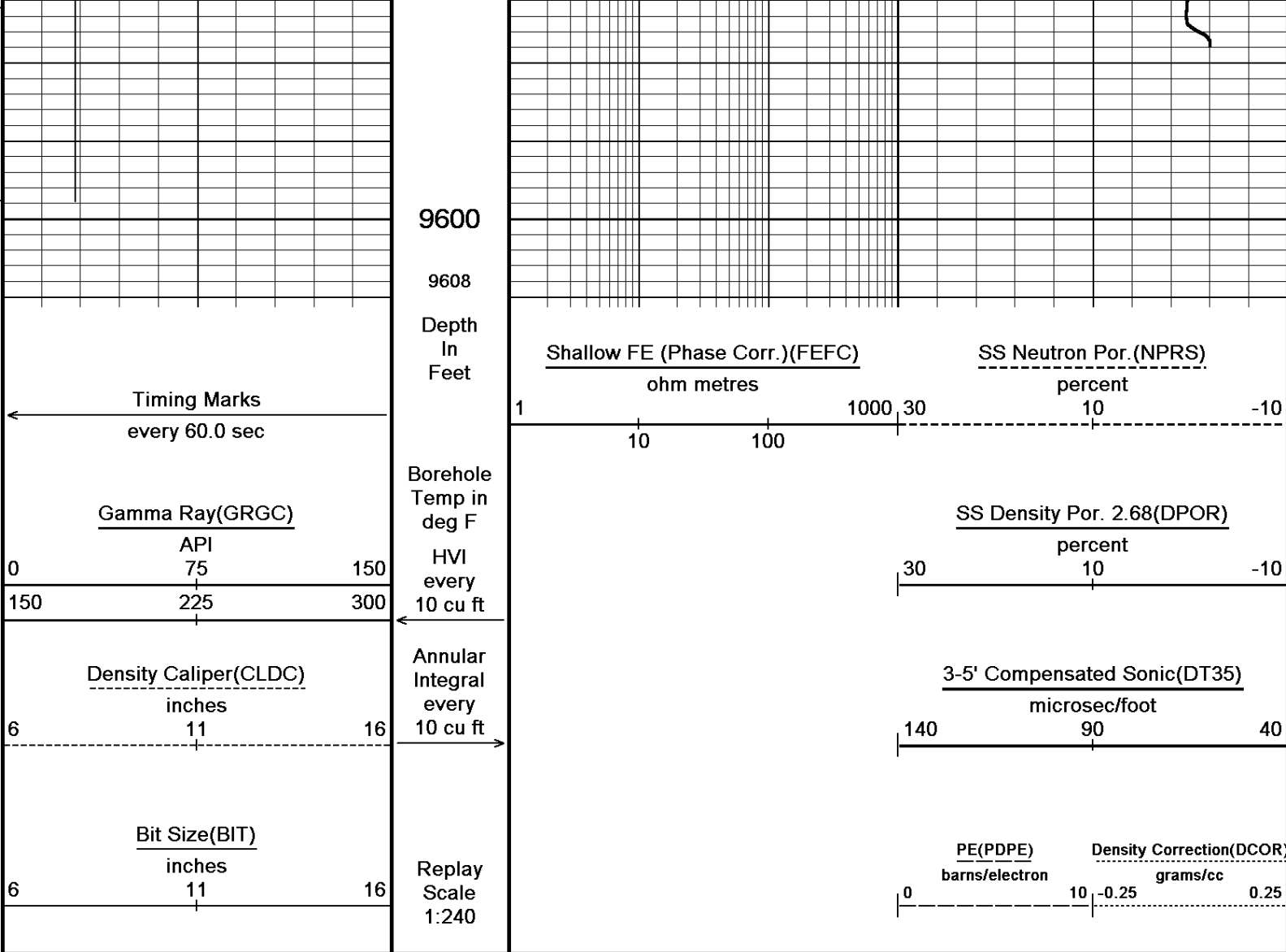












Depth Based Data - Maximum Sampling Increment 10.0cm
 Plotted on 15-APR-2010 07:46
 Filename: C:\LOGS\GJ10-080\DEPTH.dta
 Recorded on 15-APR-2010 01:48
 System Versions: Logged with 10.07.0791 Processed with 10.07.0791 Plotted with 10.07.0791

↑ 5 INCH MAIN LOG ↑

BEFORE SURVEY CALIBRATION		
		C:\LOGS\GJ10-080\DEPTH.dta
General Constants All 000		Last Edited on 15-APR-2010,01:46
General Parameters		
Mud Resistivity	1.780	ohm-metres
Mud Resistivity Temperature	52.600	degrees F
Water Level	0.000	feet
Density/Neutron Processing	Wet Hole	
Hole/Annular Volume and Differential Caliper Parameters		
HVOL Caliper 1	Density Caliper	
HVOL Caliper 2	None	
Annular Volume Diameter	4.500	inches
Caliper for Differential Caliper	None	
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 000

Reading No	Measured	Calibrated (lbs)
1	15010.63	0.00
2	15820.39	350.00

High Resolution Temperature Calibration MCG 246

Field Calibration on 14-APR-2010,03:01

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

High Resolution Temperature Constants MCG 246

Last Edited on 05-APR-2010,02:58

Pre-filter Length 11

SP Calibration MCG 246

Field Calibration on 11-APR-2010,05:05

	Measured	Calibrated (mV)
Reference 1	101.9	100.0
Reference 2	-97.6	-100.0

Gamma Calibration MCG 246

Field Calibration on 14-APR-2010,03:12

	Measured	Calibrated (API)
Background	92	63
Calibrator (Gross)	1430	975
Calibrator (Net)	1338	912

Gamma Constants MCG 246

Last Edited on 14-APR-2010,11:27

Gamma Calibrator Number	GRC-072	
Mud Density	1.00	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl	0.00	kppm

Neutron Calibration MDN 160

Base Calibration on 18-MAR-2010,13:20

Field Check on 14-APR-2010 02:47

Base Calibration	Measured		Calibrated (cps)	
	Near	Far	Near	Far
Ratio	2944	90	3714	110
	32.540		33.764	
Field Calibrator at Base			Calibrated (cps)	
			1470	2212
Ratio			0.665	
Field Check			Calibrated (cps)	
			1430	2162
Ratio			0.661	

Neutron Constants MDN 160

Last Edited on 14-APR-2010,11:32

Neutron Source Id	734	
Neutron Jig Number	5922	
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	MCG External Temperature	
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 178

Base Calibration on 18-MAR-2010 11:18

Field Check on 14-APR-2010 02:50

Base Calibration

	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	970.5	126.8
Base Check		280.6
Field Check		280.6

FE Constants MFE 178

Last Edited on 15-APR-2010,01:45

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 221

Last Edited on 14-APR-2010,11:32

Maximum Boundary Contrast	60.00	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	Full Waveform
Hole Type	Open Hole

Sonde Parameters

	Measured	Calibrated
Offset	0.0000	0.0000
Free Pipe	0.0000	0.0000
Peak Amplitude Source		0

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	3 foot			
Start Time (micro-sec)	End Time (micro-sec)	Discriminator (mV)	Depth (ft)	
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	0.00	0.00
0.00	0.00	0.00	0.00	0.00

Full Waveform Parameters

Use 3' Waveform to derive TR	Yes
Use 4' Waveform to derive TR	Yes
Use 5' Waveform to derive TR	Yes
Use 6' Waveform to derive TR	Yes
3' Waveform Discriminator Level	0.30 mV
4' Waveform Discriminator Level	0.30 mV
5' Waveform Discriminator Level	0.15 mV
6' Waveform Discriminator Level	0.15 mV
3' Waveform Filter	None
4' Waveform Filter	None
5' Waveform Filter	None

6' Waveform Filter	None	
Semblance Level	0.50	
Semblance Window Width	120.00	micro-sec
Sonic 1 Despiker	30.48	micro-sec/ft
Sonic 2 Despiker	30.48	micro-sec/ft

High Resolution Temperature Calibration MAI 301		Field Calibration on 14-APR-2010,03:10	
	Measured	Calibrated(Deg F)	
Lower	10.00	10.00	
Upper	100.00	100.00	

High Resolution Temperature Constants MAI 301		Last Edited on 12-FEB-2010,10:50	
Pre-filter Length	11		

Induction Calibration MAI 301		Base Calibration on Field Check on 14-APR-2010 03:00			
Base Calibration					
Test Loop Calibration		Measured		Calibrated (mmho/m)	
Channel	Low	High	Low	High	
1	17.5	487.4	9.3	966.2	
2	5.9	392.1	7.6	821.4	
3	3.8	259.5	5.2	566.0	
4	2.0	137.2	2.6	279.2	
Array Temperature		71.1	Deg F		
Channel		Base Check (mmho/m)		Field Check (mmho/m)	
		Low	High	Low	High
1		0.0	0.0	10.8	3734.3
2		0.0	0.0	29.8	3446.7
3		0.0	0.0	27.9	3060.4
4		0.0	0.0	19.0	2021.4
Deep		0.0	0.0	16.3	2016.9
Medium		0.0	0.0	41.6	4072.2
Shallow		0.0	0.0	45.4	5046.3
Array Temperature		0.0		45.5	Deg F

Induction Constants MAI 301		Last Edited on 15-APR-2010,01:46			
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			
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 253

Base Calibration on 18-MAR-2010 16:18
Field Calibration on 14-APR-2010,03:12

Base Calibration		
Reading No	Measured	Calibrator Size (in)
1	17200	4.00
2	25615	5.96
3	33136	7.98
4	41472	9.86
5	50577	11.88
6	N/A	N/A

Field Calibration		
	Measured Caliper (in)	Actual Caliper (in)
	5.96	5.96

Photo Density Calibration MPD 253

Base Calibration on 18-MAR-2010 16:02
Field Check on 14-APR-2010 02:42

Density Calibration					
Base Calibration		Measured		Calibrated (sdu)	
		Near	Far	Near	Far
Reference 1	47573	16677	53115	19186	
Reference 2	22983	2577	25020	2536	

Field Check at Base	1355.9	1331.0
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Field Check	1360.7	1340.6
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PE Calibration					
Base Calibration		Measured		Calibrated	
	WS	WH	Ratio	Ratio	
Background	245	1193			
Reference 1	16262	47353	0.347	0.320	
Reference 2	6380	22806	0.284	0.272	

Field Check at Base	245.3	1193.0
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Field Check	246.7	1197.2
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Density Constants MPD 253

Last Edited on 14-APR-2010,03:03

Density Source Id	238	
Nylon Calibrator Number	507	
Aluminium Calibrator Number	507	
Density Shoe Profile	4 inch	
Caliper Source for Processing	Density Caliper	
PE Correction to Density	Not Applied	
Mud Density	1.07	gm/cc
Mud Density Z/A Correction	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:\LOGS\GJ10-080\DEPTH.dta

Drop-off Running Tool (DRT A A)
DRT 104 Length: 2.25 ft Weight: 66.1 lb

MBS-A 400v Compact Battery Sub
MBS 1 Length: 7.84 ft Weight: 57.3 lb

Compact Gamma
MCG 246 Length: 8.70 ft Weight: 63.9 lb

Compact Memory Sub A.C
MMS 30 Length: 3.12 ft Weight: 30.9 lb

SKJ-D.A Compact Knuckle Joint
SKJ 203 Length: 2.17 ft Weight: 24.3 lb

SHA-J.A Compact Swivel Head Adaptor
SHA 314 Length: 2.30 ft Weight: 22.0 lb

MIS-D.A Compact Inline Bowspring sub
MIS 315 Length: 5.70 ft Weight: 33.1 lb

Compact Neutron
MDN 160 Length: 5.04 ft Weight: 50.7 lb

Compact Density/Caliper
MPD 253 Length: 9.59 ft Weight: 90.4 lb

MIS-D.A Compact Inline Bowspring sub
MIS 442 Length: 5.70 ft Weight: 33.1 lb

SHA-J.A Compact Swivel Head Adaptor
SHA 316 Length: 2.30 ft Weight: 22.0 lb

SKJ-D.A Compact Knuckle Joint
SKJ 154 Length: 2.17 ft Weight: 24.3 lb

MIS-B Compact Inline Standoff sub
MIS 280 Length: 2.14 ft Weight: 15.4 lb

Compact Focussed Electric
MFE 178 Length: 6.03 ft Weight: 48.5 lb

MIS-B Compact Inline Standoff sub
MIS 363 Length: 2.14 ft Weight: 15.4 lb

Compact Sonic
MSS 221 Length: 12.52 ft Weight: 72.8 lb

MIS-E.A Compact Inline Standoff sub
MIS 182 Length: 2.14 ft Weight: 15.4 lb

Compact Induction
MAI 301 Length: 10.81 ft Weight: 48.5 lb

Total Length: 92.64 ft Weight: 734.1 lb



77.26 ft GRGC - Gamma Ray
74.36 ft CGXT - MCG External Temperature

57.52 ft NPRS - Sandstone Neutron Por.

49.05 ft AVOL - Annular Volume
49.05 ft HVOL - Hole Volume
49.05 ft CLDC - Density Caliper
48.35 ft DPOR - Base Density Porosity
48.35 ft DEN - Compensated Density
48.35 ft DCOR - Density Correction
48.29 ft PDPE - PE

30.49 ft FEFC - Shallow FE (Phase Corr.)

18.59 ft TR21 - 3' Transit Time
19.09 ft TR11 - 4' Transit Time
15.09 ft DT35 - 3-5' Compensated Sonic
18.09 ft TR12 - 6' Transit Time
17.59 ft TR22 - 5' Transit Time

3.34 ft R600 - Array Ind. One Res 60
3.34 ft R400 - Array Ind. One Res 40
3.34 ft R300 - Array Ind. One Res 30
3.34 ft R850 - Array Ind. One Res 85



COMPANY MARATHON OIL COMPANY
 WELL 697-2C-27
 FIELD GRAND VALLEY
 PROVINCE/COUNTY GARFIELD
 COUNTRY/STATE U.S.A. / COLORADO

Elevation Kelly Bushing	8492.00	feet	First Reading	9555.00	feet
Elevation Drill Floor	8491.00	feet	Depth Driller	9616.00	feet
Elevation Ground Level	8468.00	feet	Depth Logger	9578.00	feet



Weatherford[®]

COMPACT DROP OFF
 COMPACT QUAD COMBO
 QUICKLOOK LOG