

DUAL SPACED NEUTRON
SPECTRAL DENSITY
LOG

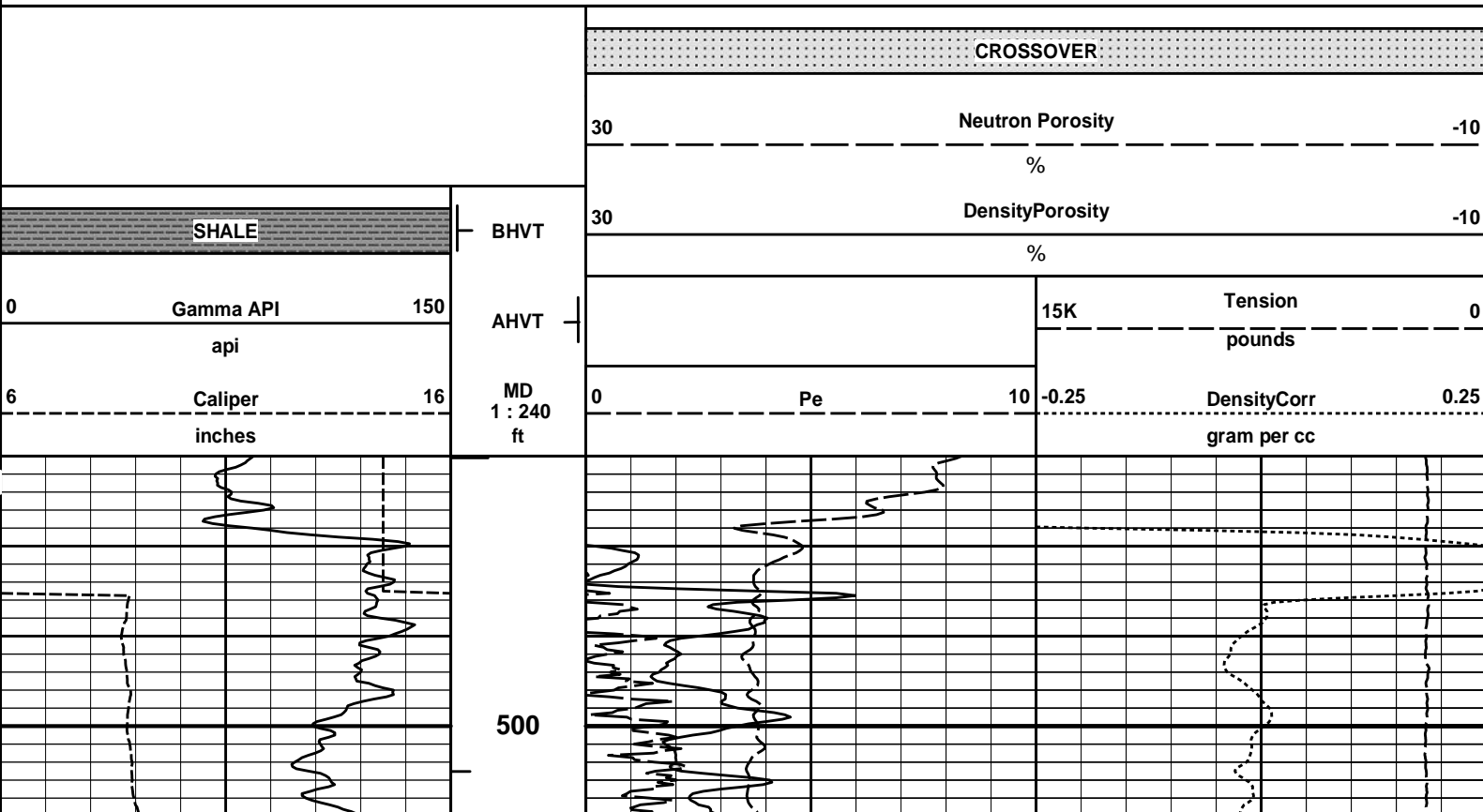
COMPANY	VAL ENERGY	
WELL	CHRISTINA 1-2	
FIELD/BLOCK	WILDCAT	
COUNTY	CROWLEY	STATE COLORADO
API No.	05-025-06021-00-00	Other Services: DSNT/SDLT MICROLOG BSAT ACRT MRIL
Location	(SHL) 1550' FNL & 1010' FEL SE NE	
Sect. 2	Twp. 20S	Rge. 56W

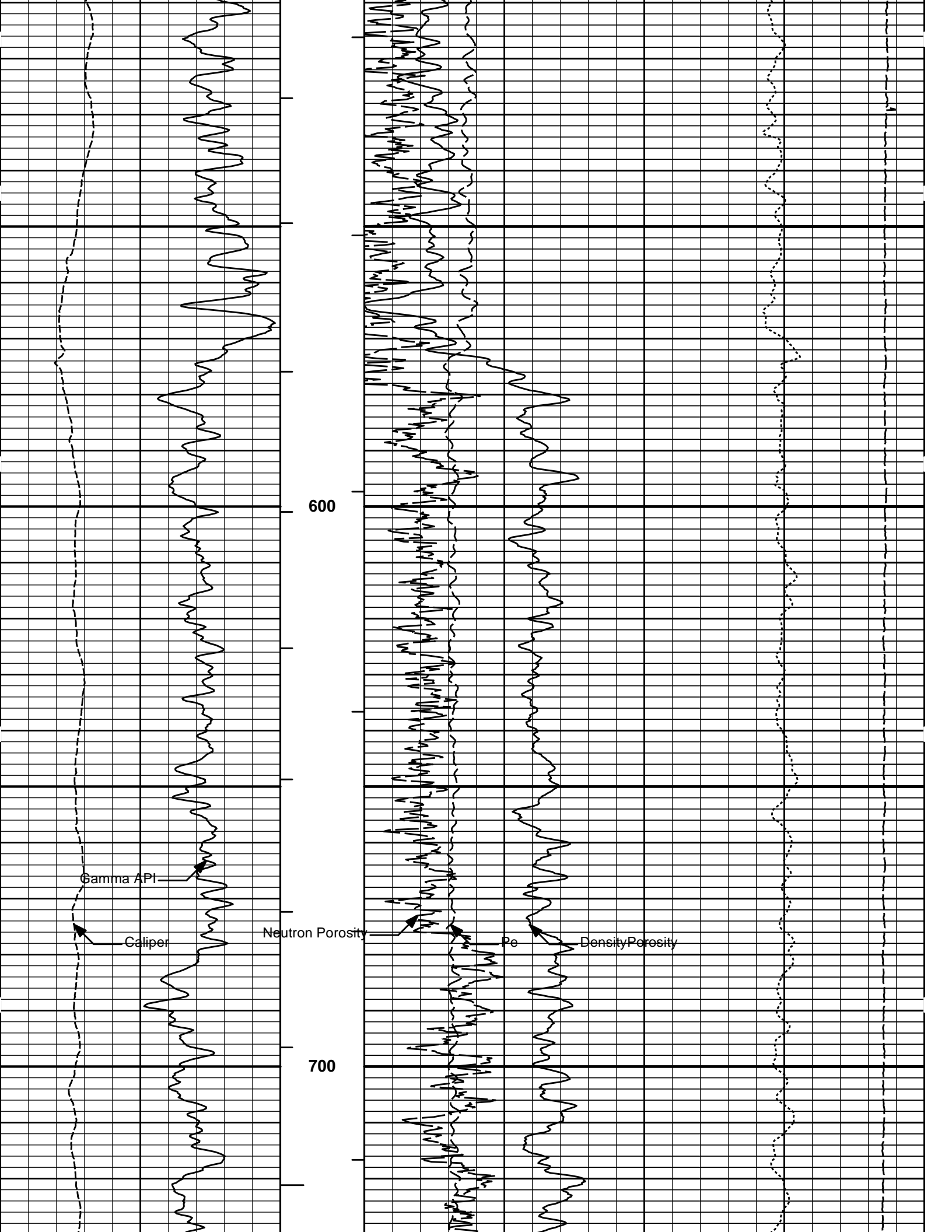
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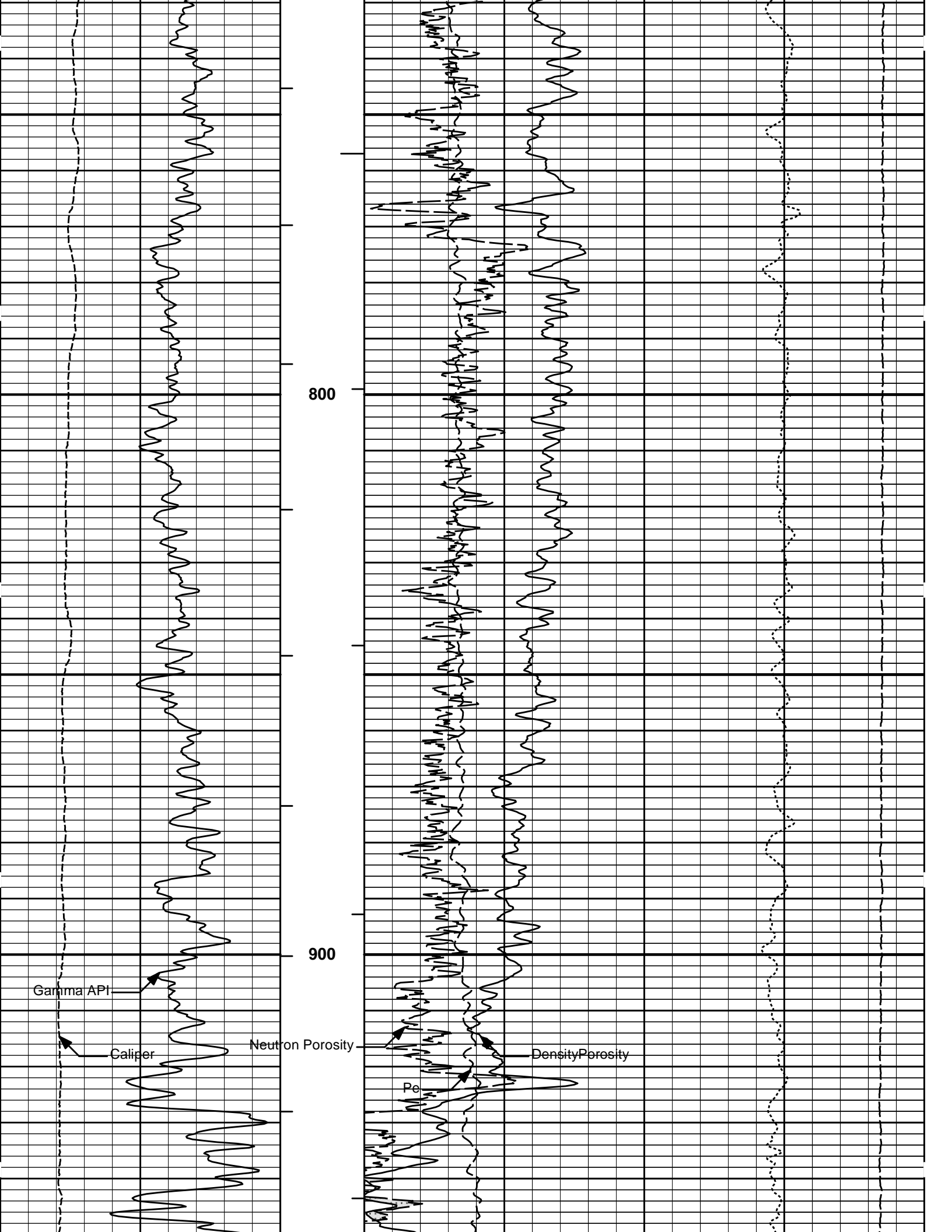
Service Ticket No.: 901842046						API Serial No.: 05-025-06021-00-00						PGM Version: WL INSITE R4.4.3 (Build 6)					
CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE						RESISTIVITY SCALE CHANGES											
Date	Sample No.					Type Log	Depth	Scale Up Hole		Scale Down Hole							
Depth-Driller																	
Type Fluid in Hole																	
Density	Viscosity																
Ph	Fluid Loss																
Source of Sample						RESISTIVITY EQUIPMENT DATA											
Rm @ Meas. Temp		@		@		Run No.	Tool Type & No.	Pad Type	Tool Pos.	Other							
Rmf @ Meas. Temp.		@		@		ONE	ACRT	N/A	CENT	N/A							
Rmc @ Meas. Temp.		@		@			10929776										
Source Rmf	Rmc																
Rm @ BHT		@		@													
Rmf @ BHT		@		@													
Rmc @ BHT		@		@													
EQUIPMENT DATA																	
GAMMA				ACOUSTIC				DENSITY				NEUTRON					
Run No.	ONE		Run No.	ONE		Run No.	ONE		Run No.	ONE							
Serial No.	10748374		Serial No.	10747684		Serial No.	10673803		Serial No.	10735145							
Model No.	GTET		Model No.	BSAT		Model No.	SDLT		Model No.	DSNT							
Diameter	3.625"		No. of Cent.	2		Diameter	5.3"		Diameter	3.625"							
Detector Model No.	T-102		Spacing	0.5'		Log Type	GAM-GAM		Log Type	NEU-NEU							
Type	T-102					Source Type	CS-137		Source Type	AM241BE							
Length	8"		LSA [Y/N]			Serial No.	5073GW		Serial No.	DSN-436							
Distance to Source	N/A		FWDA [Y/N]			Strength	1.5 CI		Strength	15.0 CI							

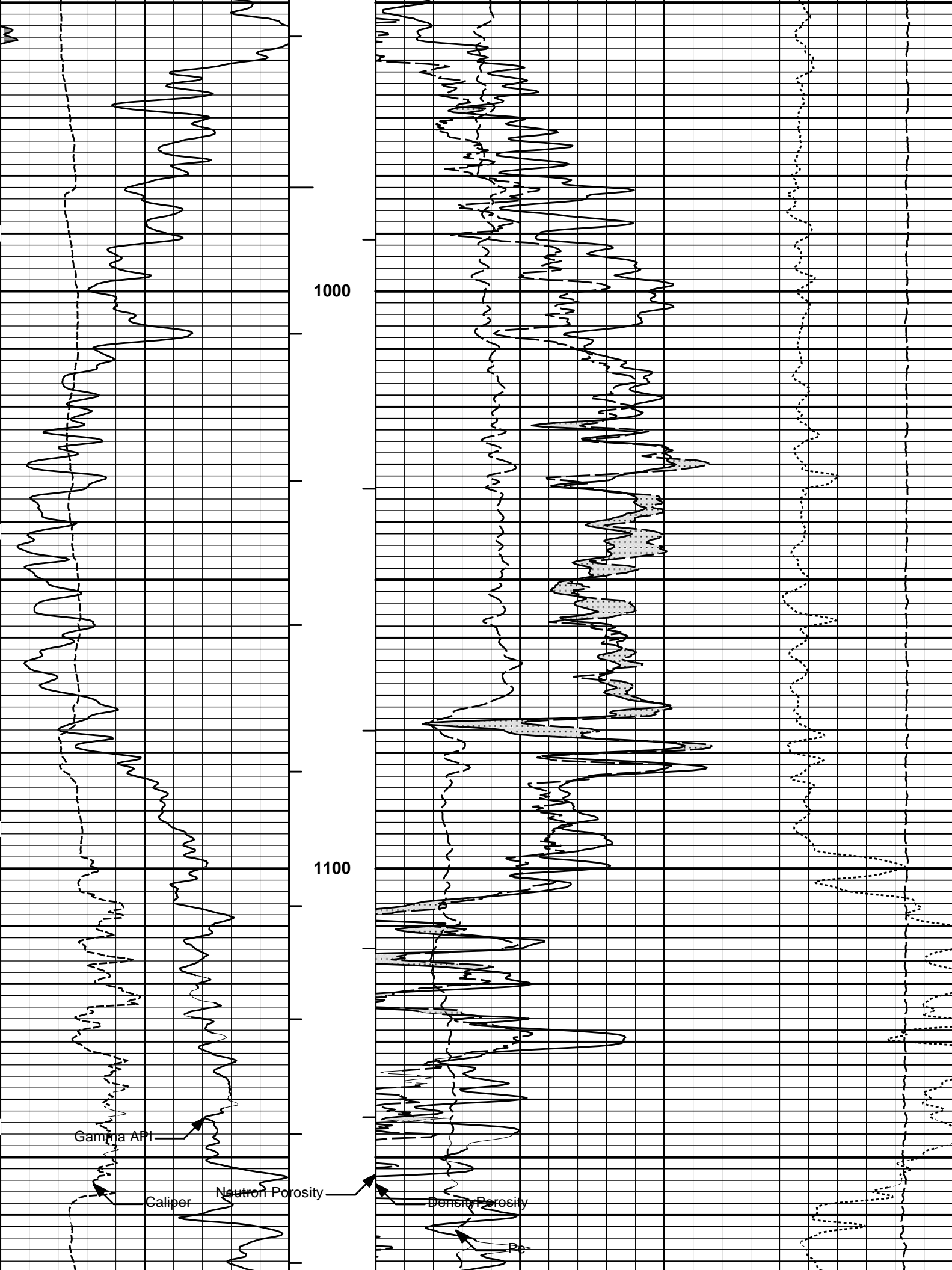
LOGGING DATA

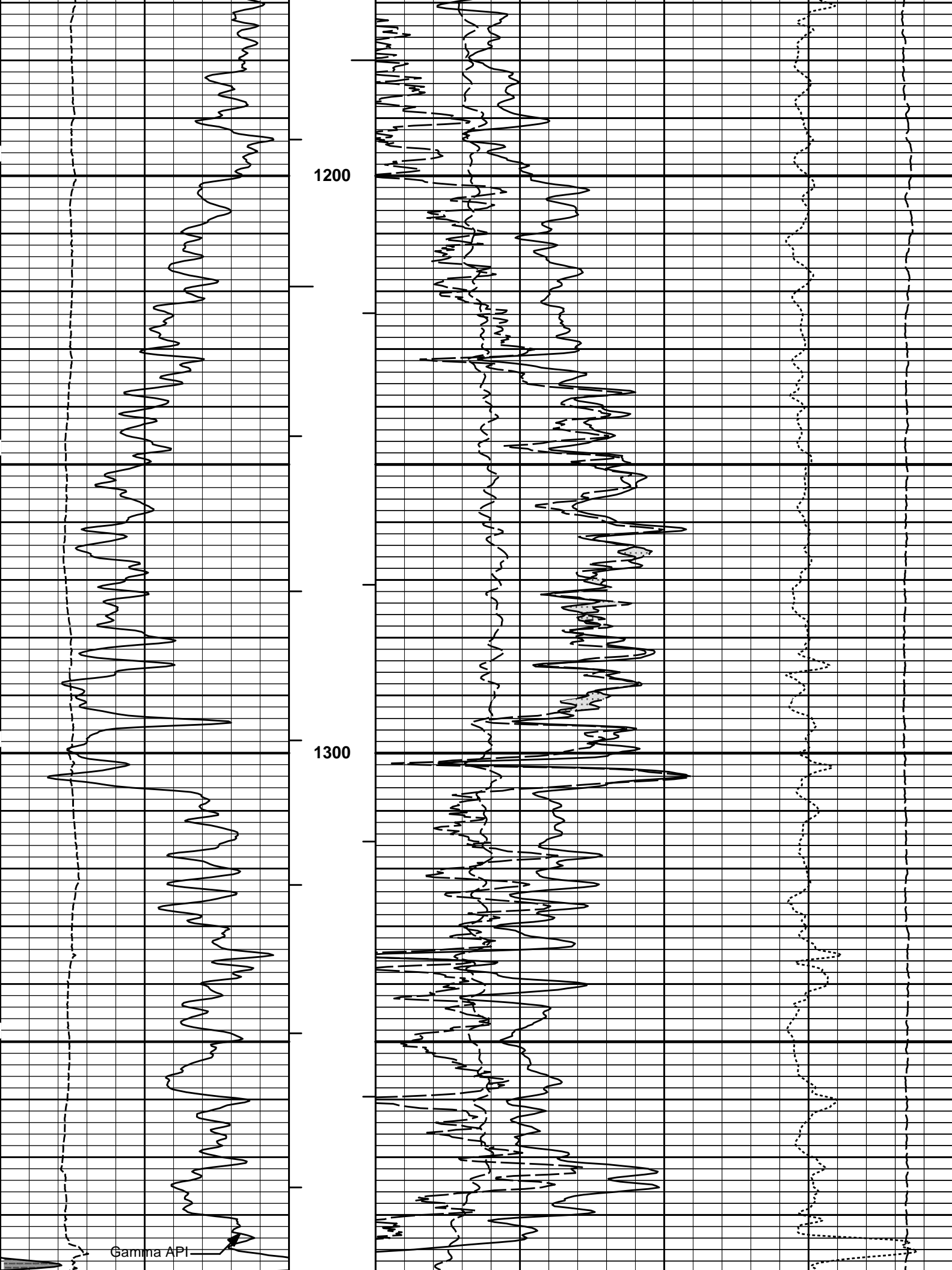
GENERAL				GAMMA		ACOUSTIC			DENSITY			NEUTRON		
Run	Depth		Speed	Scale		Scale		Matrix	Scale		Matrix	Scale		Matrix
No.	From	To	ft/min	L	R	L	R		L	R		L	R	
ONE	TD	CSG	REC	0	150	30	-10	47.6 us/ft	30	-10	2.71 gr/cc	30	-10	LIME
DIRECTIONAL INFORMATION														
Maximum Deviation @								KOP @						
Remarks: ANNULAR HOLE VOLUME CALCULATED FOR 5.5 INCH CASING														
CHLORIDES REPORTED AT 240 ppm														
HALLIBURTON DOES NOT GUARANTEE THE ACCURACY OF ANY INTERPRETATION OF THE LOG DATA, CONVERSION OF LOG DATA TO PHYSICAL ROCK PARAMETERS OR RECOMMENDATIONS WHICH MAY BE GIVEN BY HALLIBURTON PERSONNEL OR WHICH APPEAR ON THE LOG OR IN ANY OTHER FORM. ANY USER OF SUCH DATA, INTERPRETATIONS, CONVERSIONS, OR RECOMMENDATIONS AGREES THAT HALLIBURTON IS NOT RESPONSIBLE EXCEPT WHERE DUE TO GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, FOR ANY LOSS, DAMAGES, OR EXPENSES RESULTING FROM THE USE THEREOF.														
HALLIBURTON														

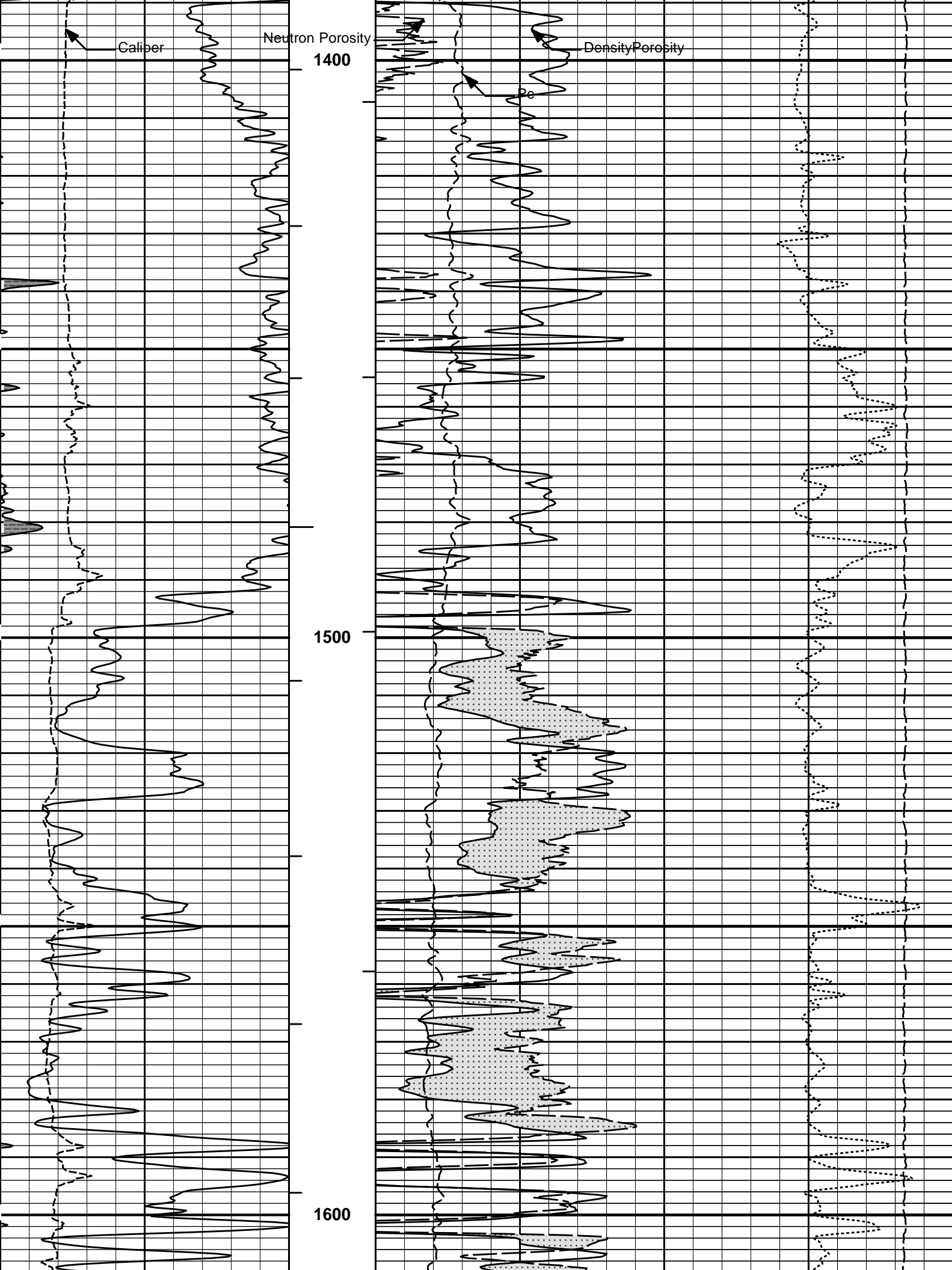


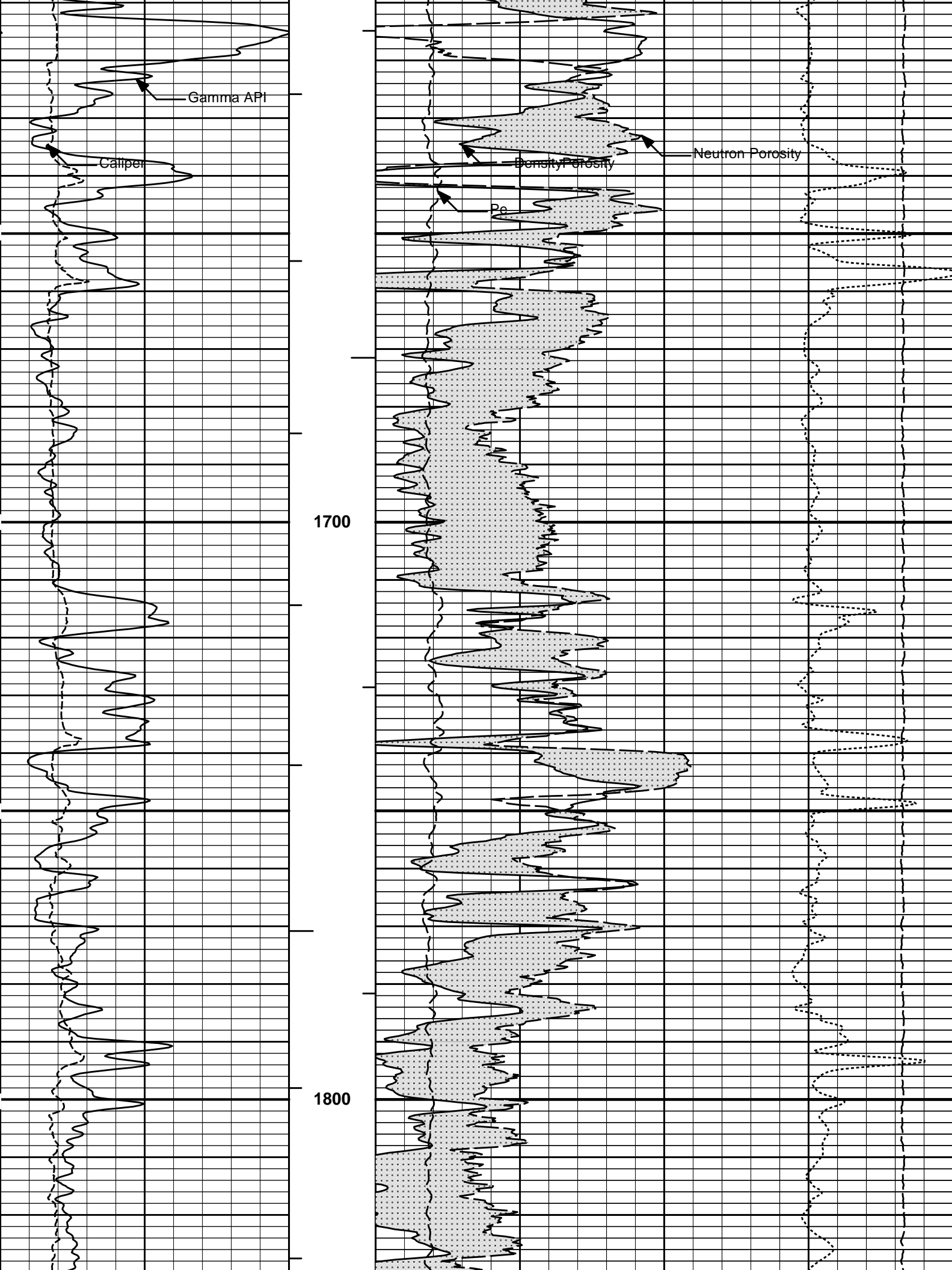


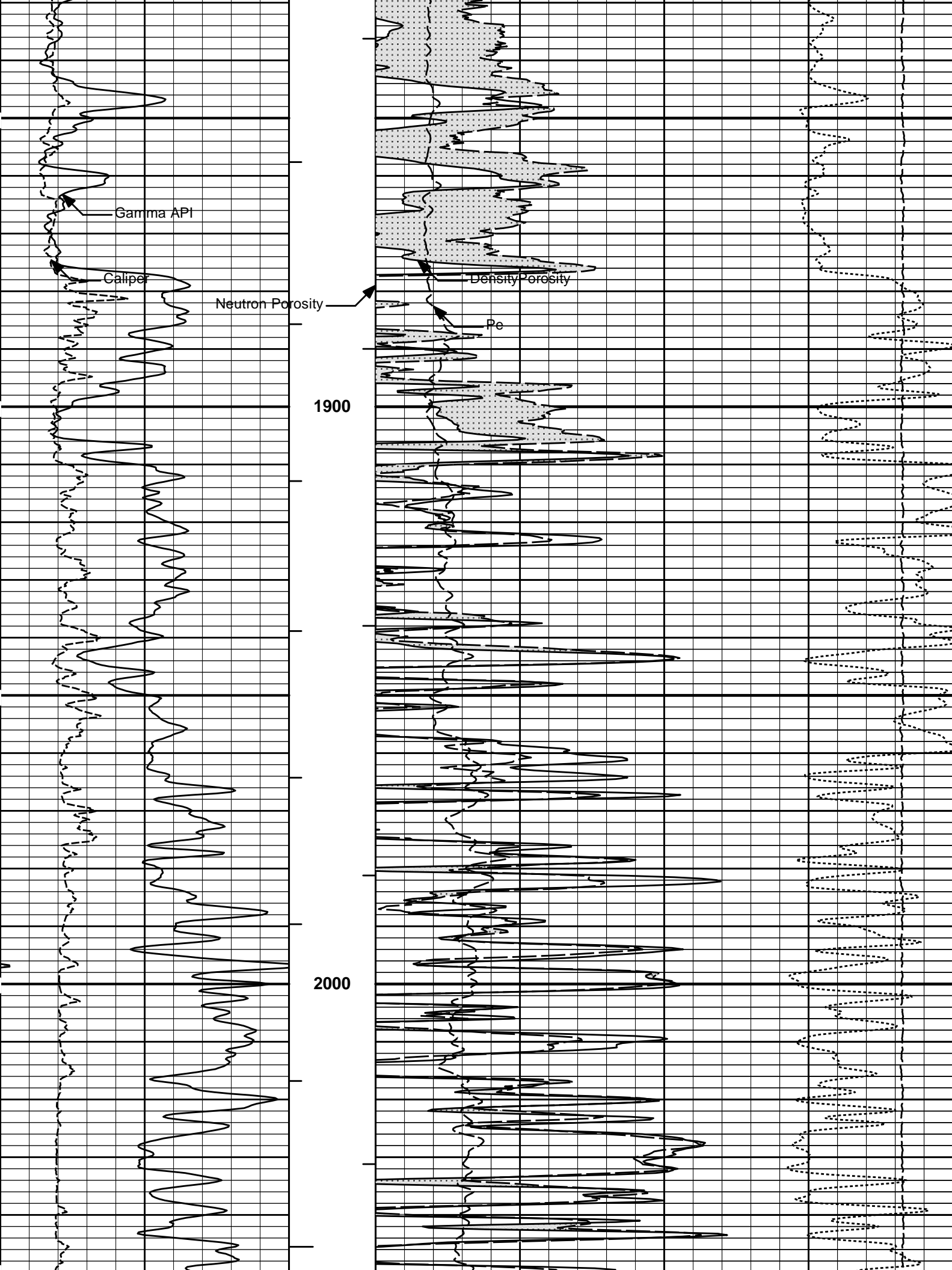


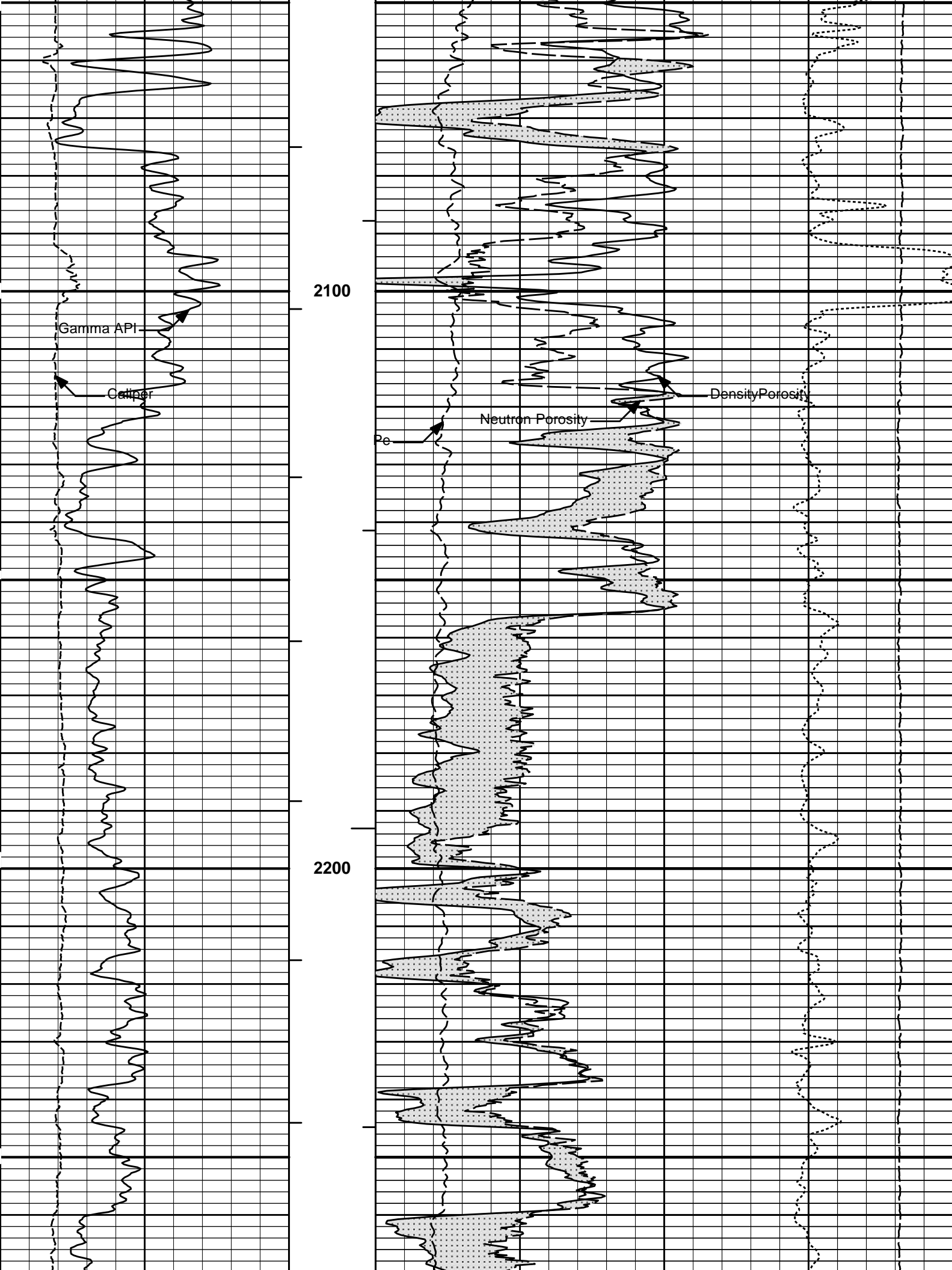


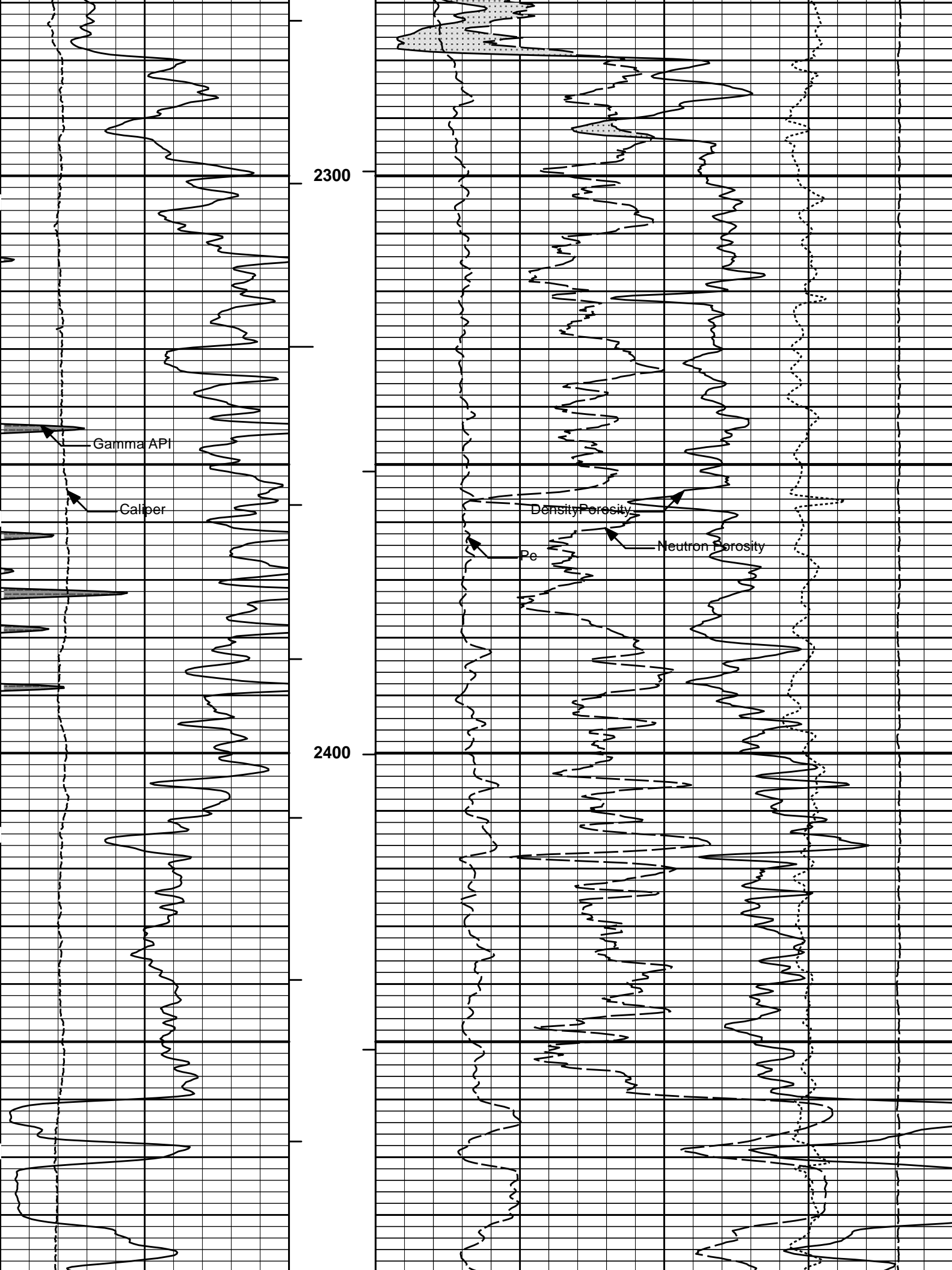


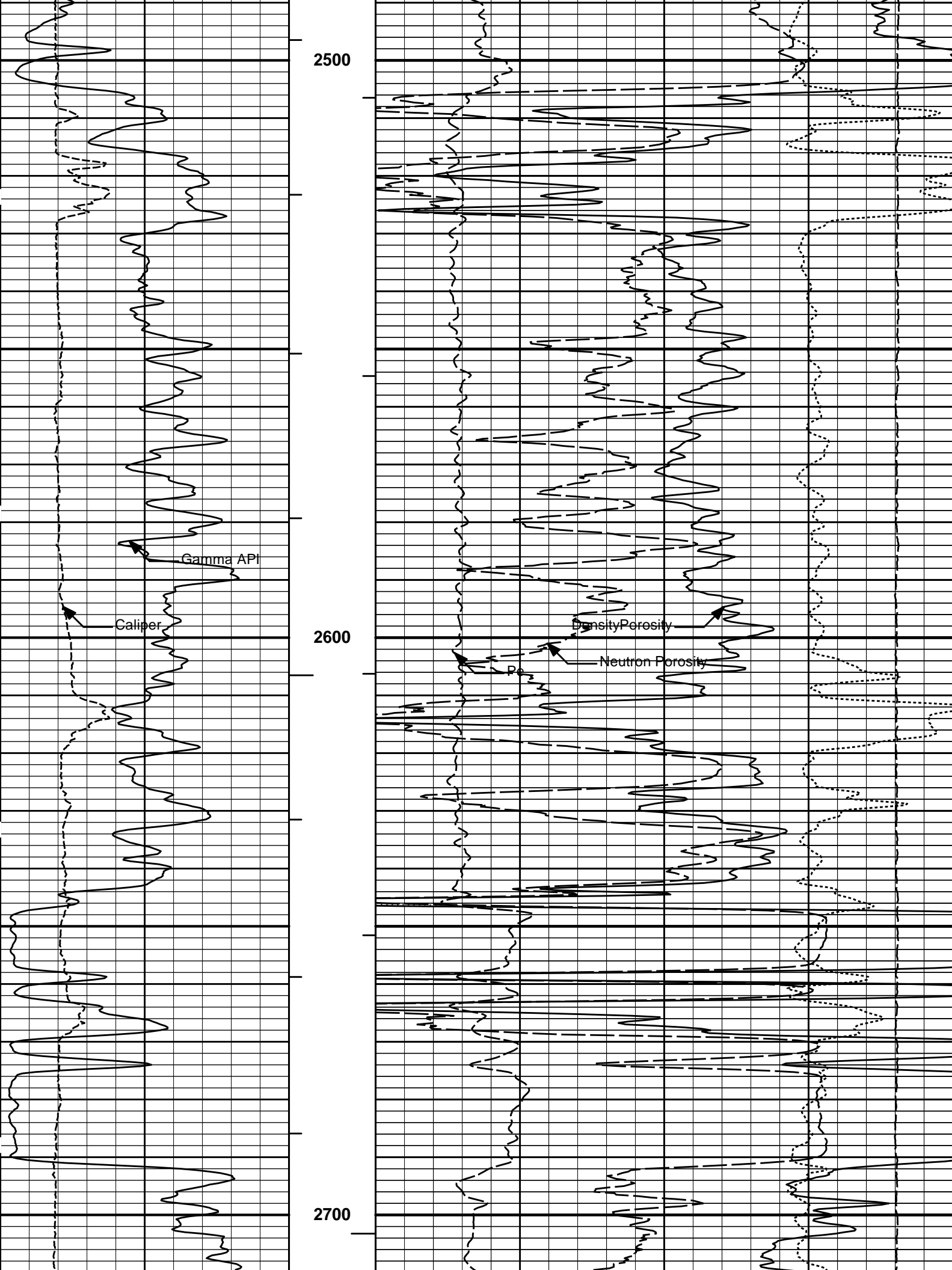


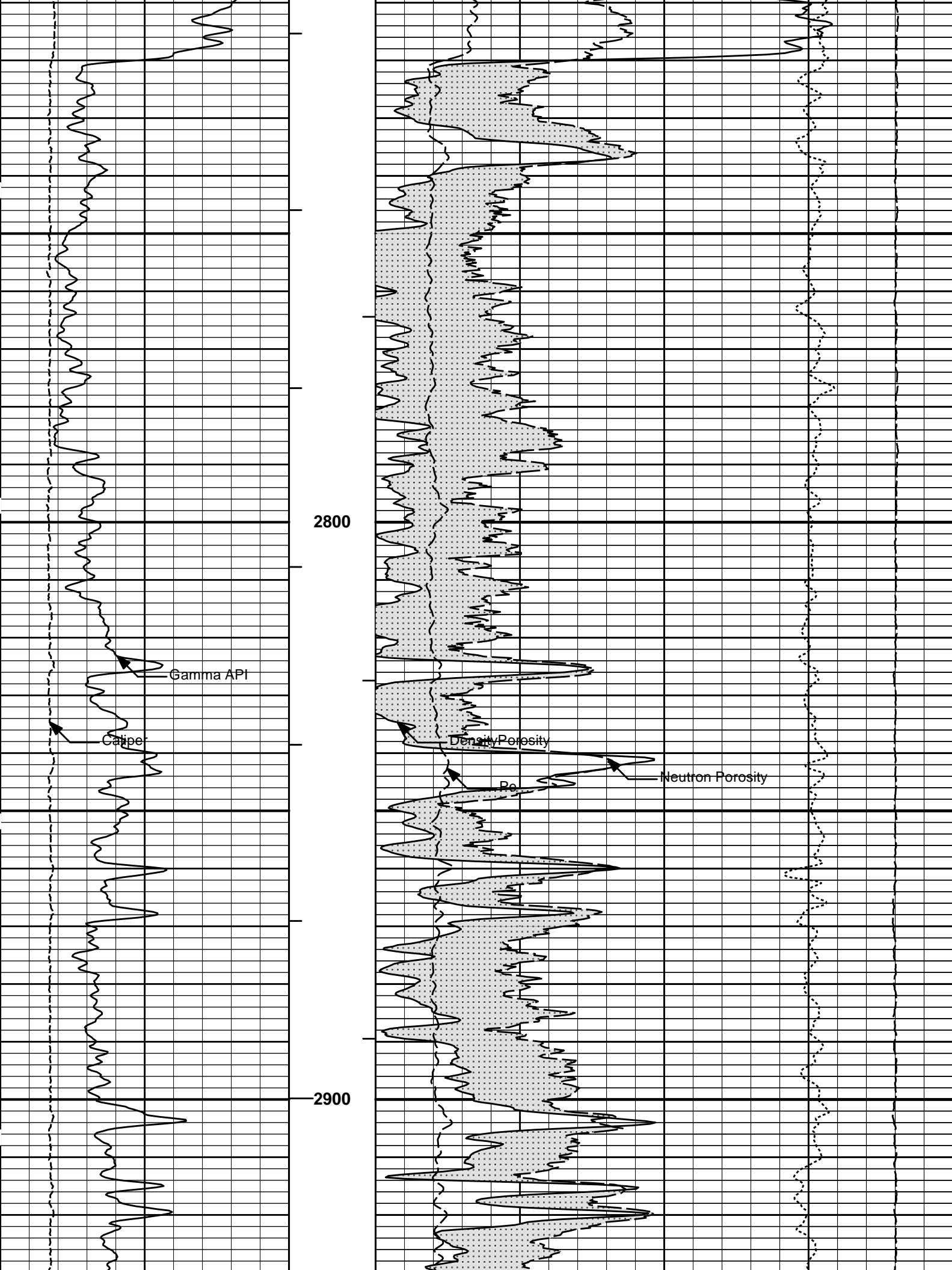


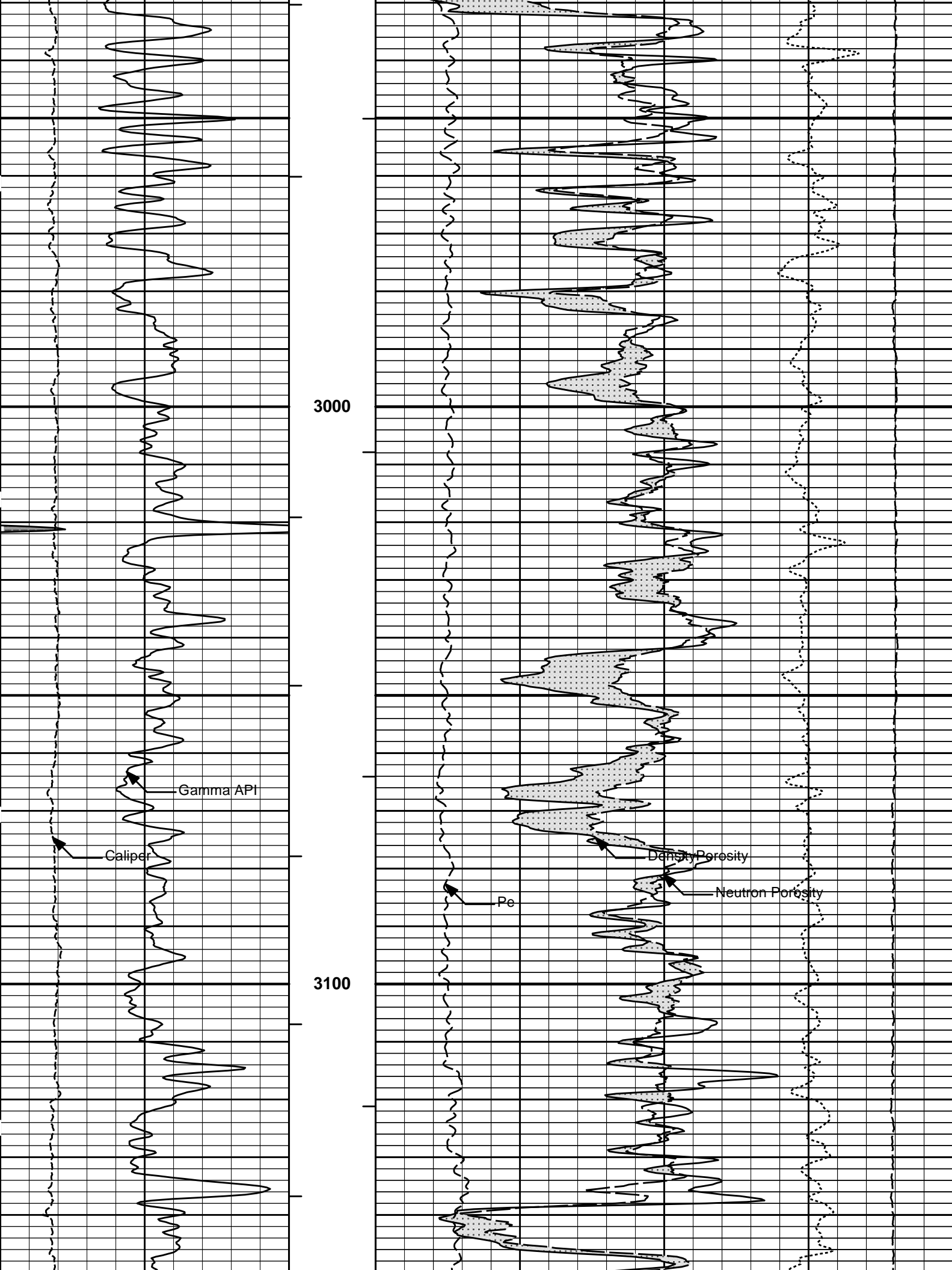


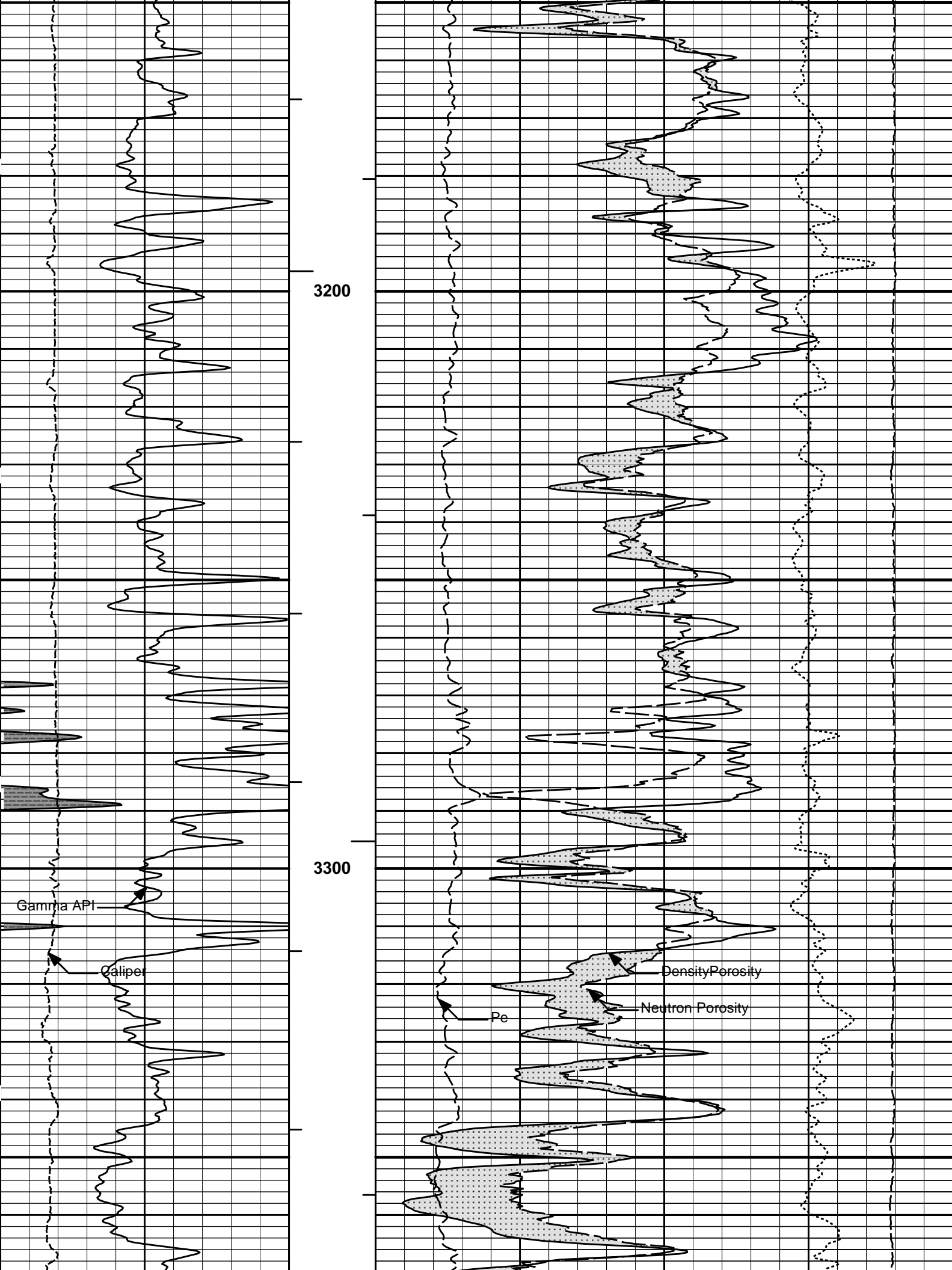


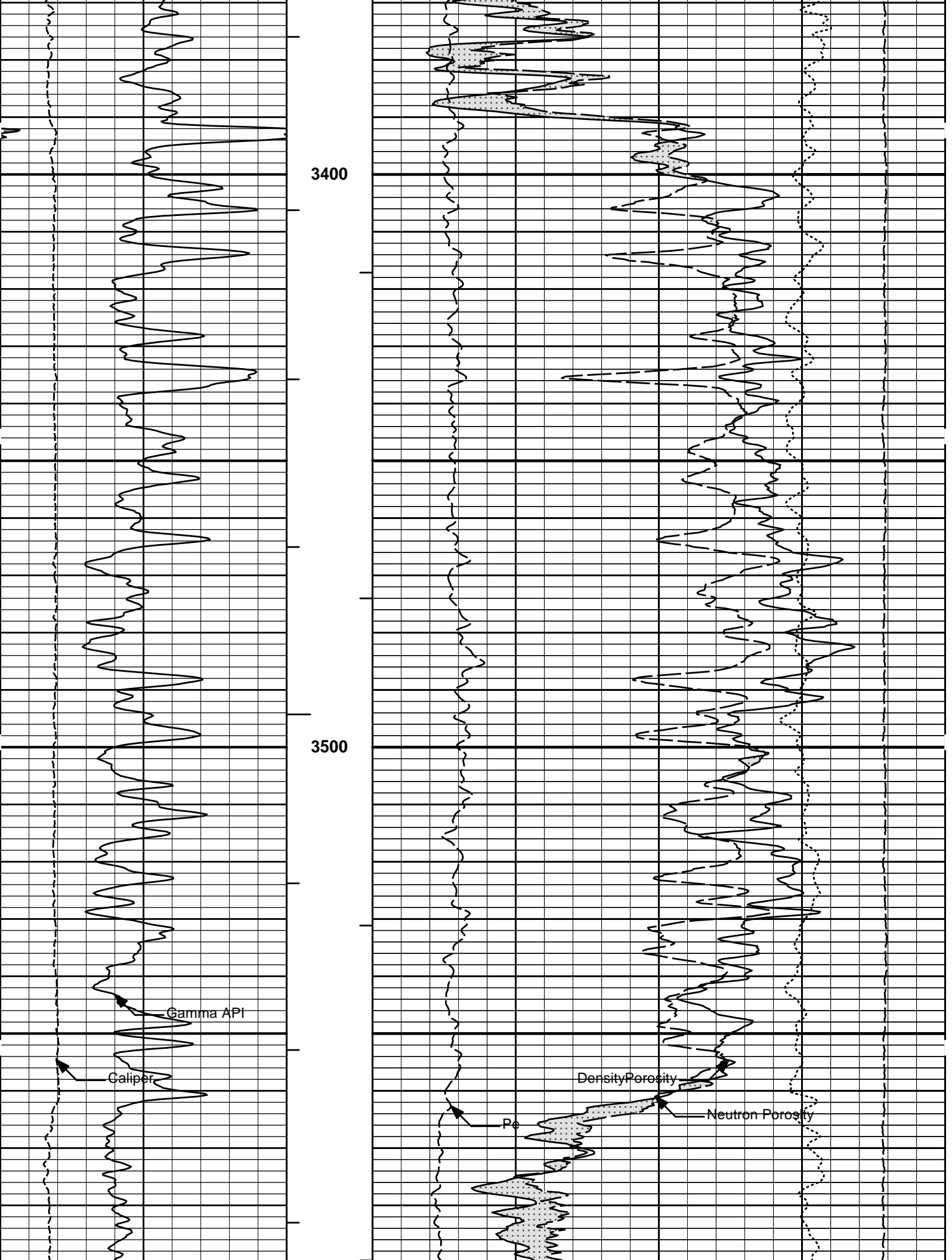


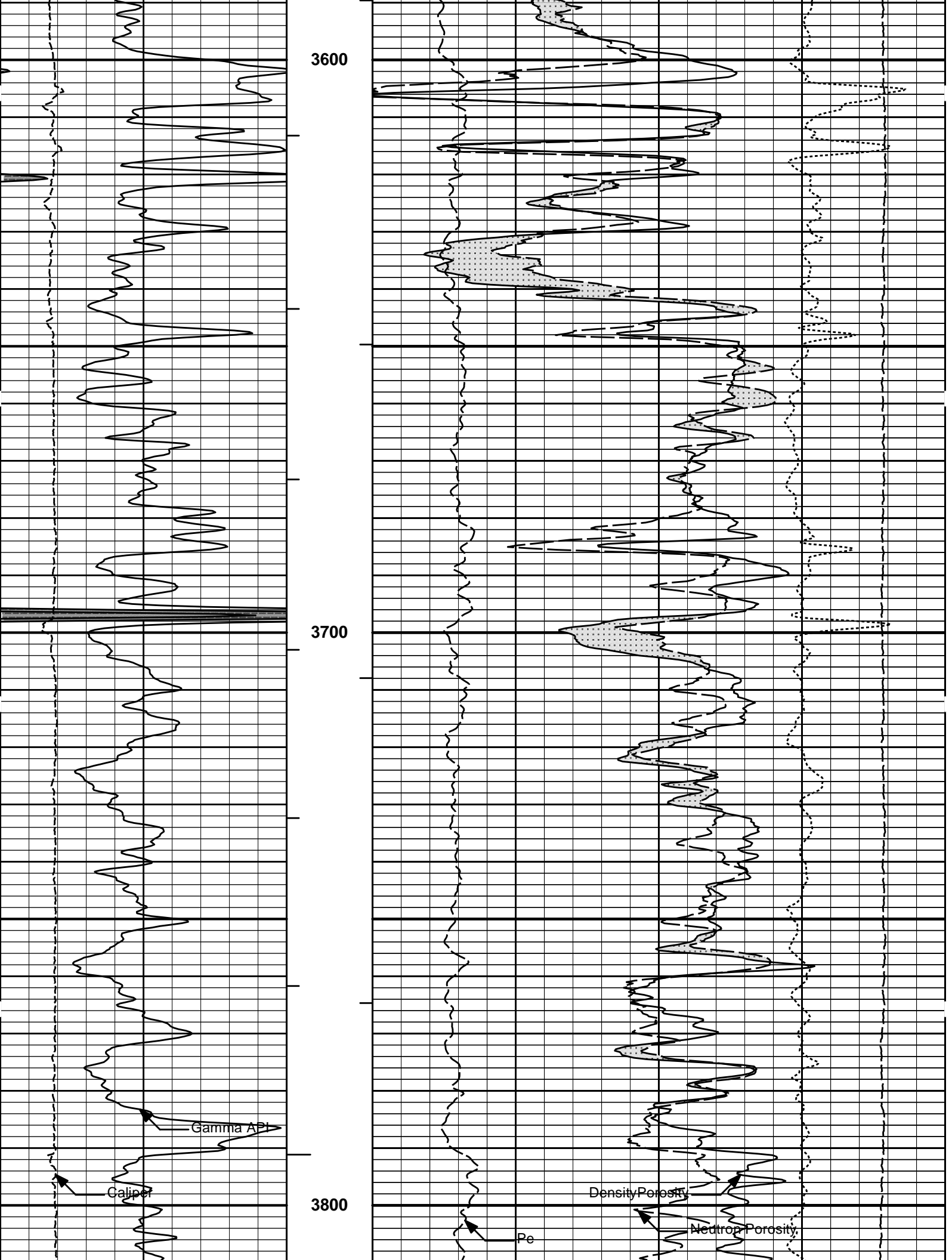


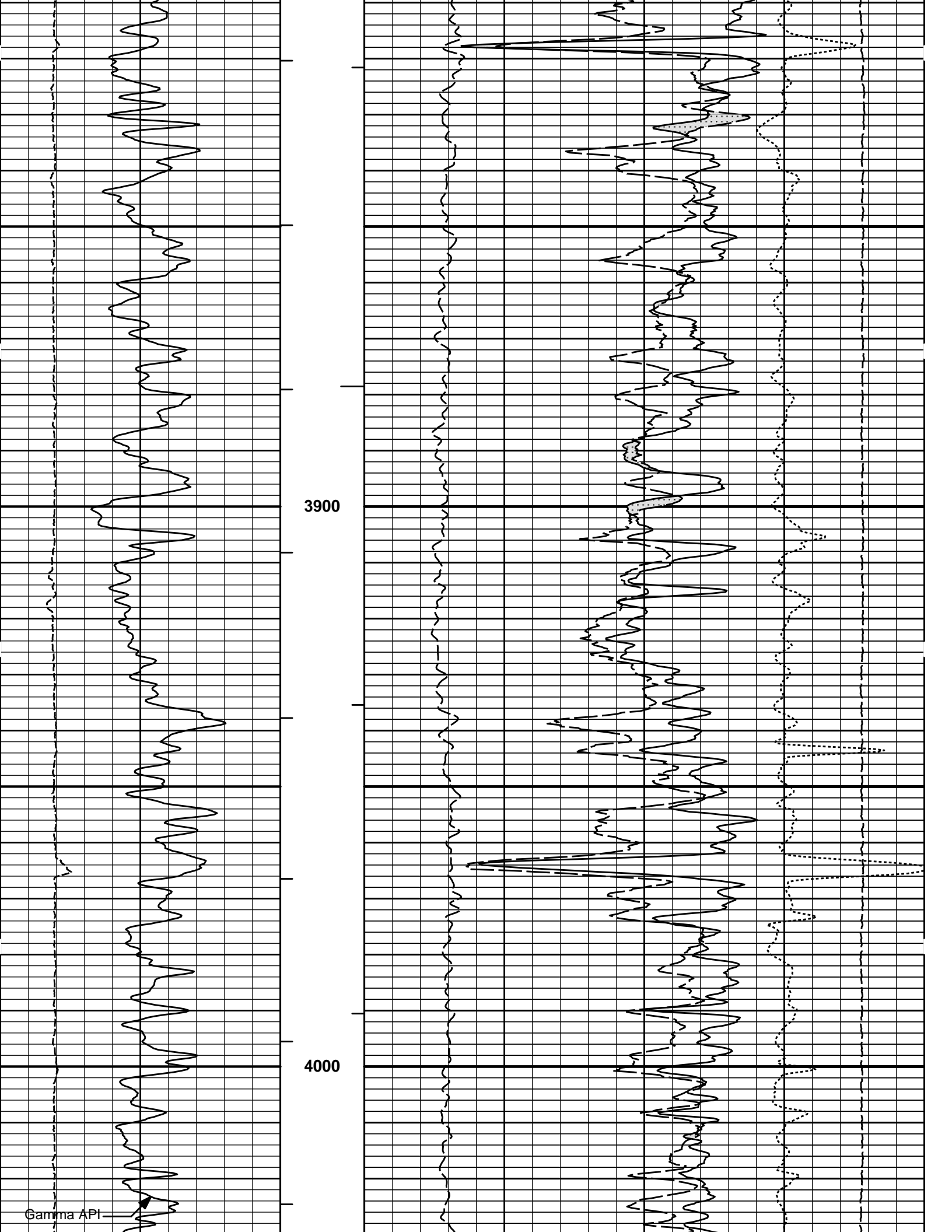


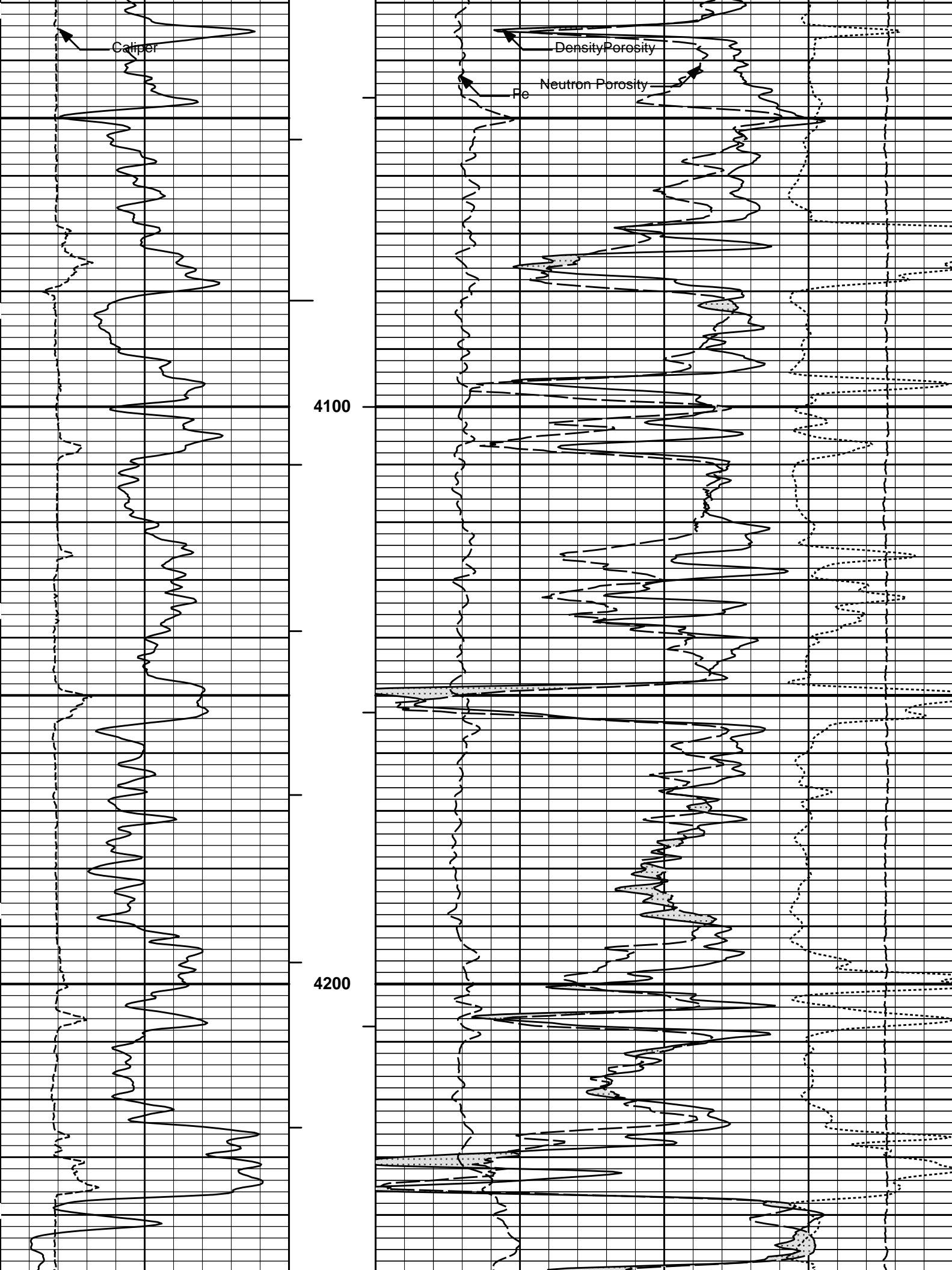


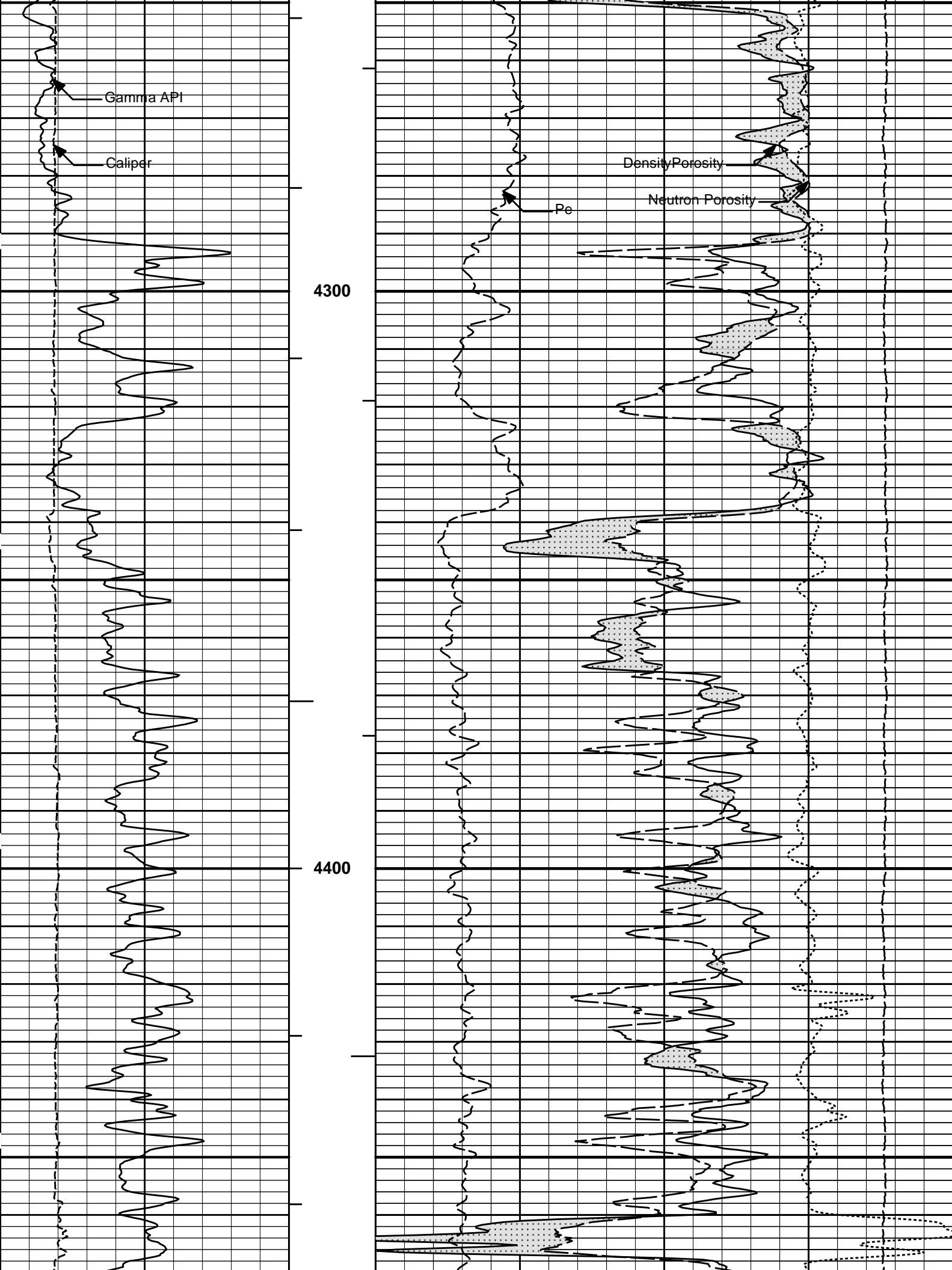


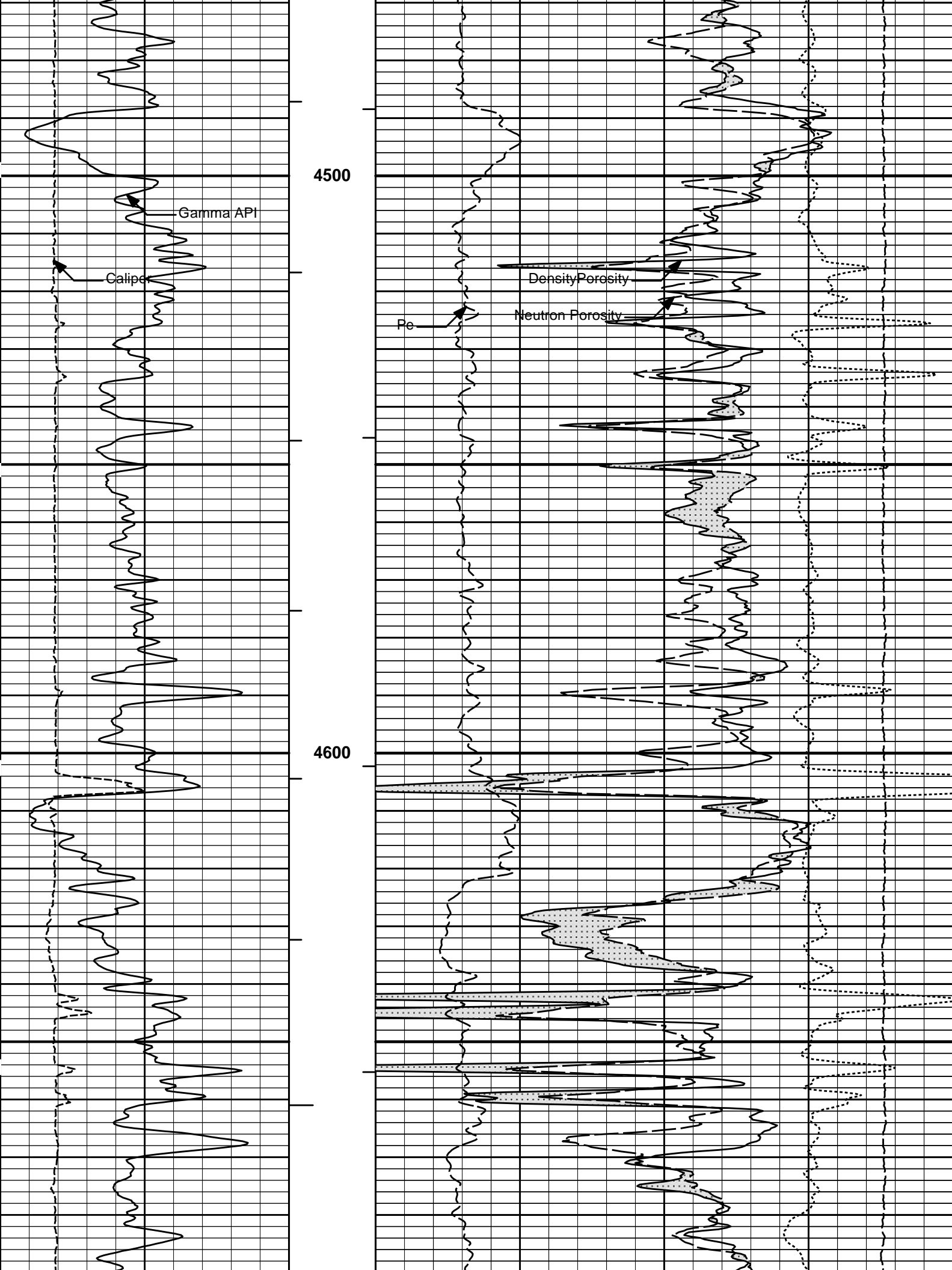


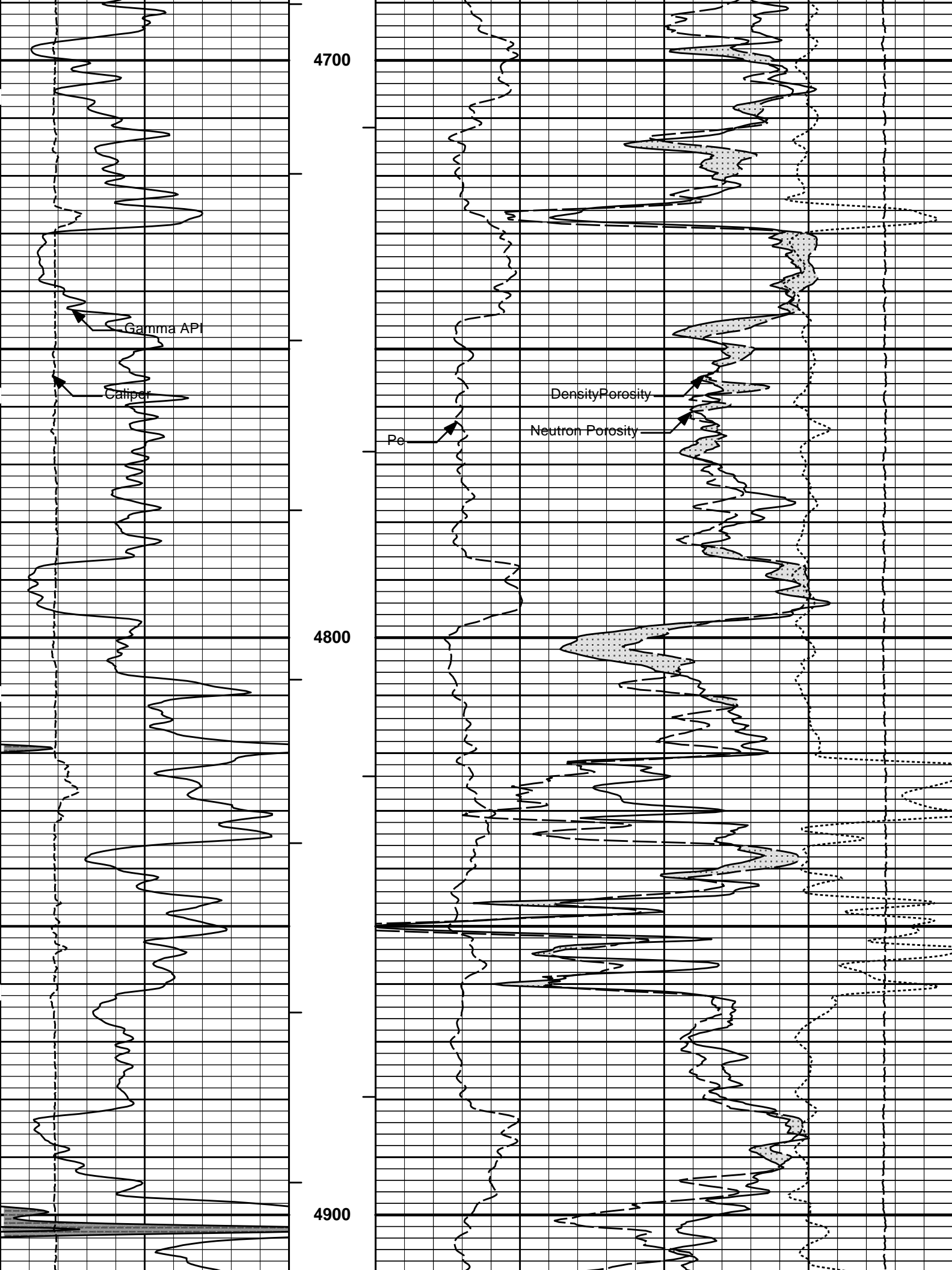


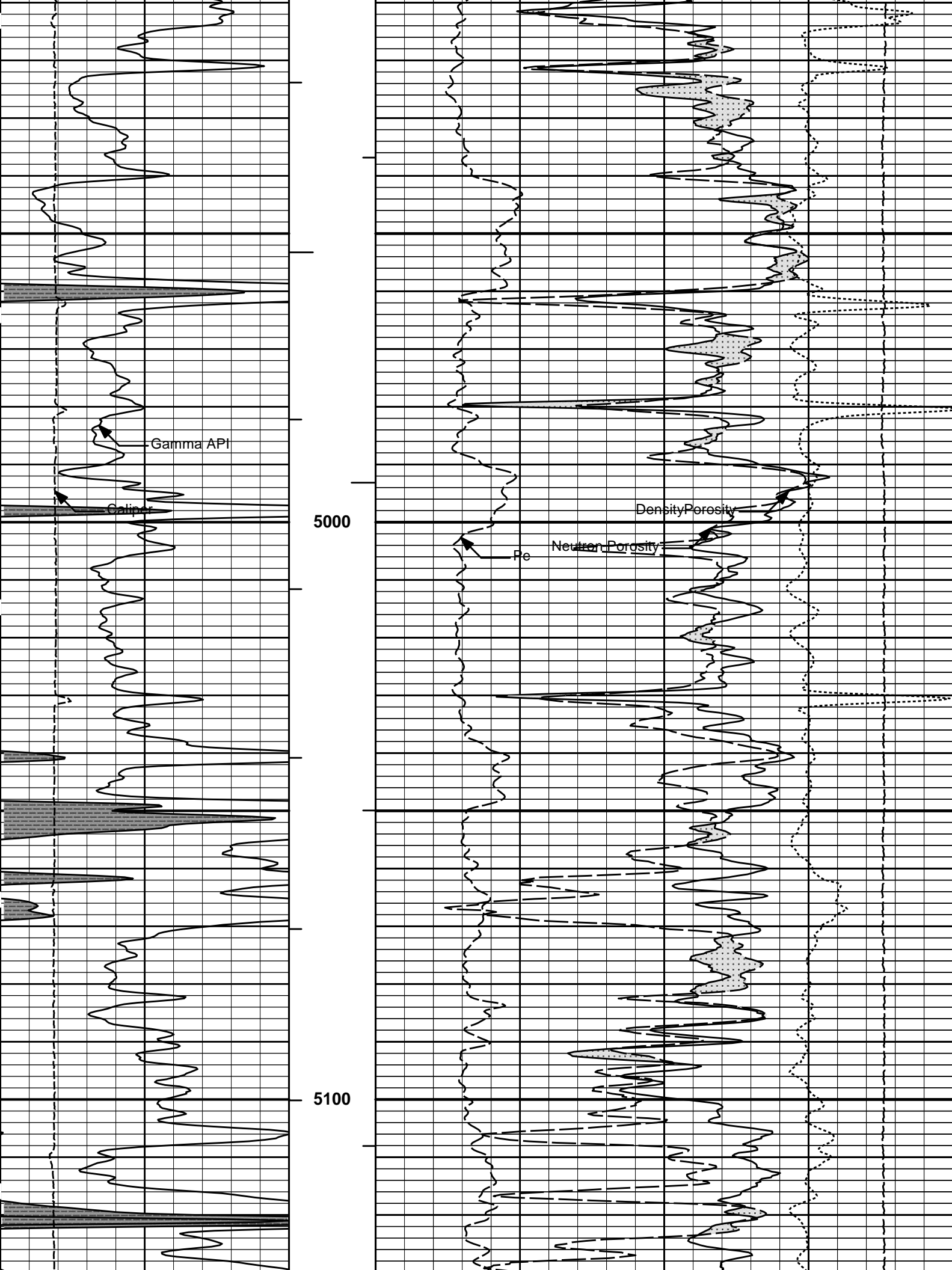


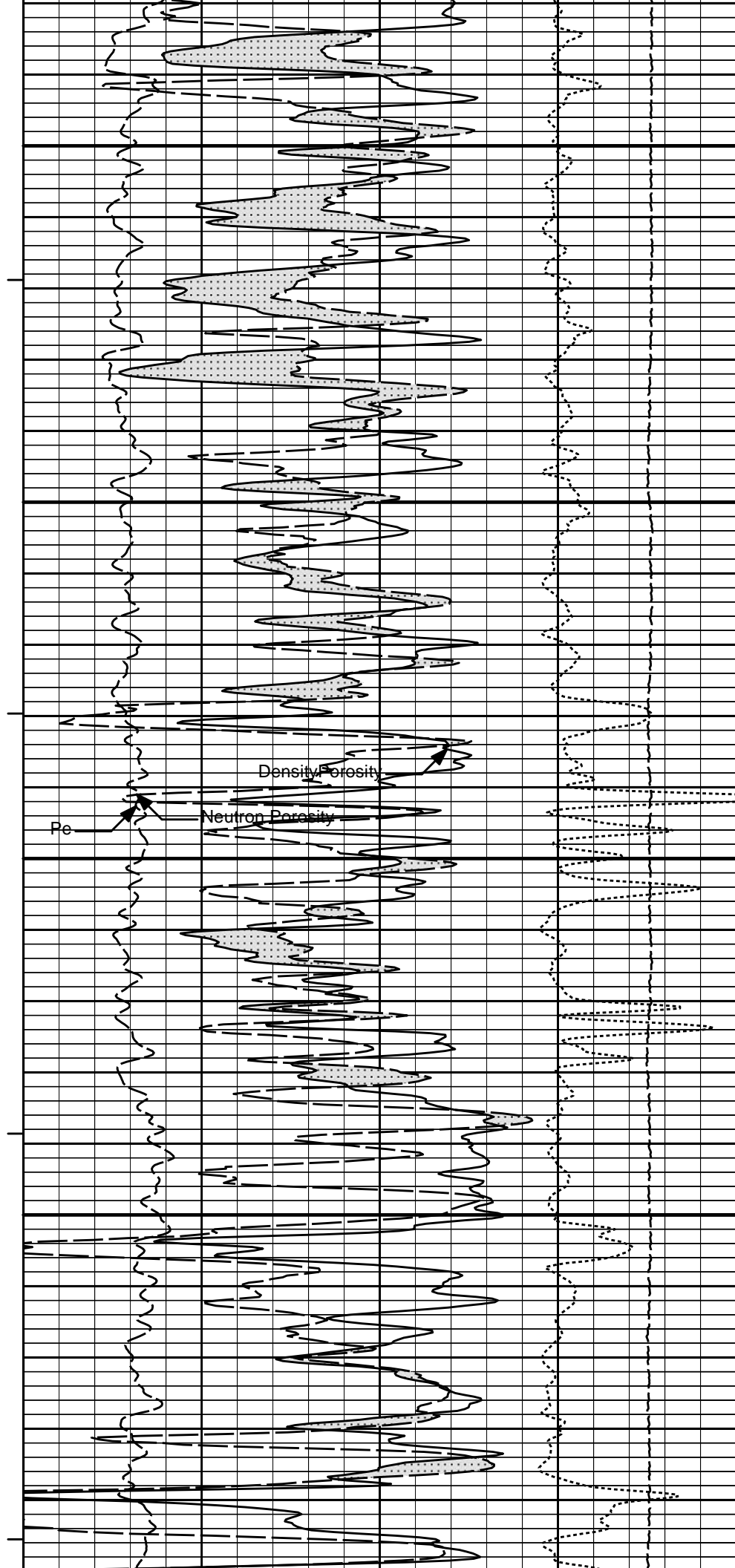
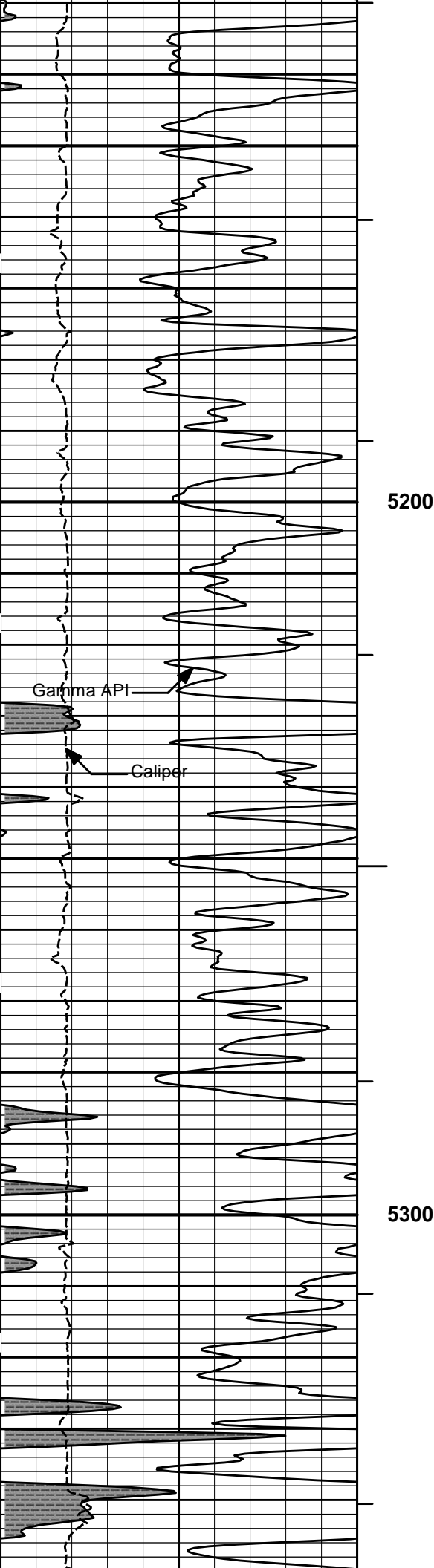


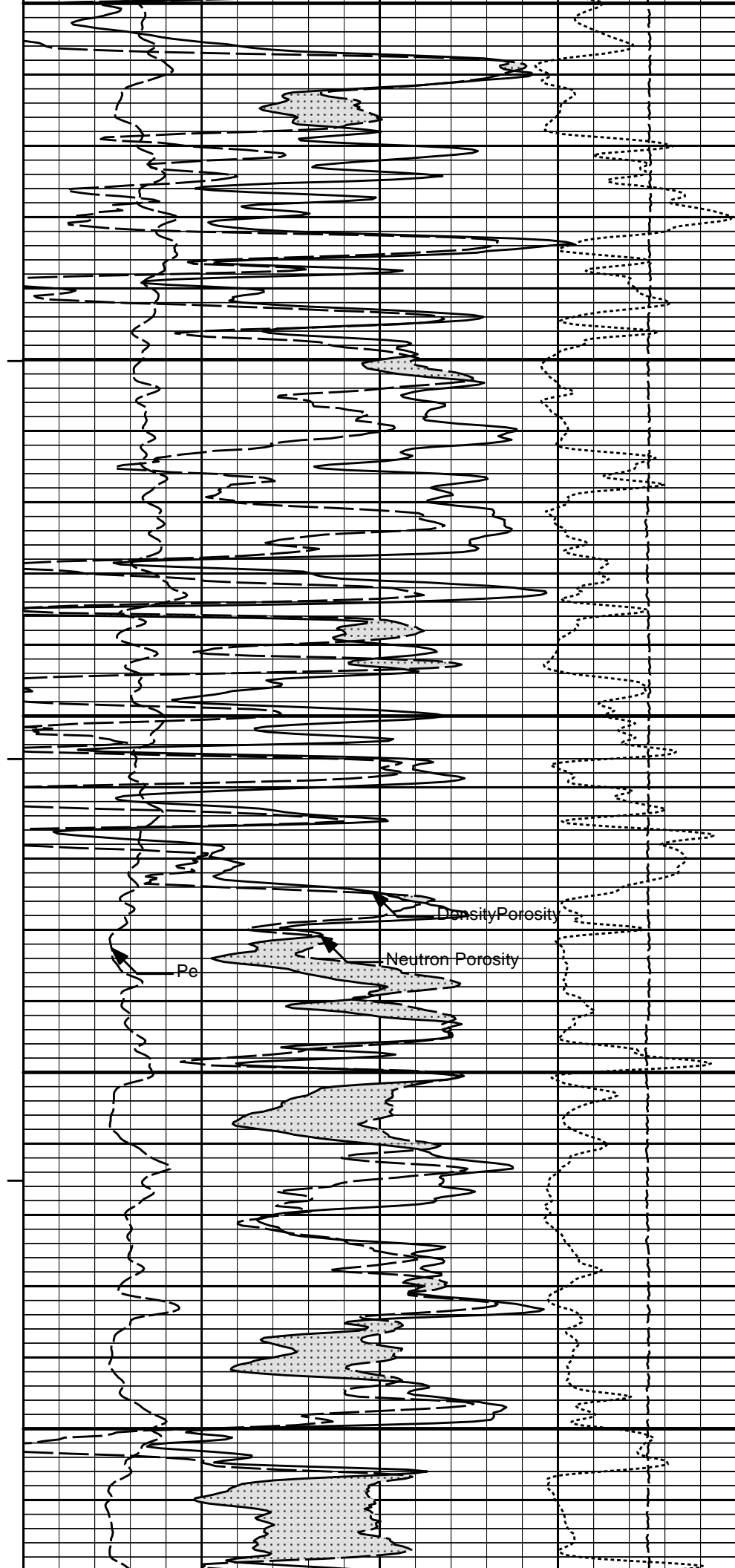
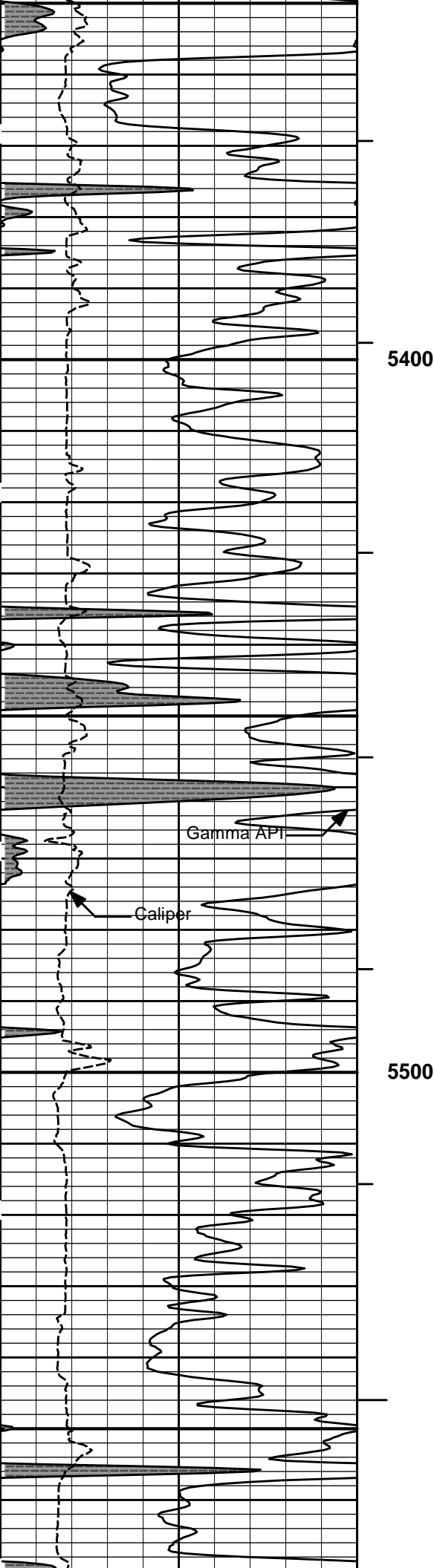


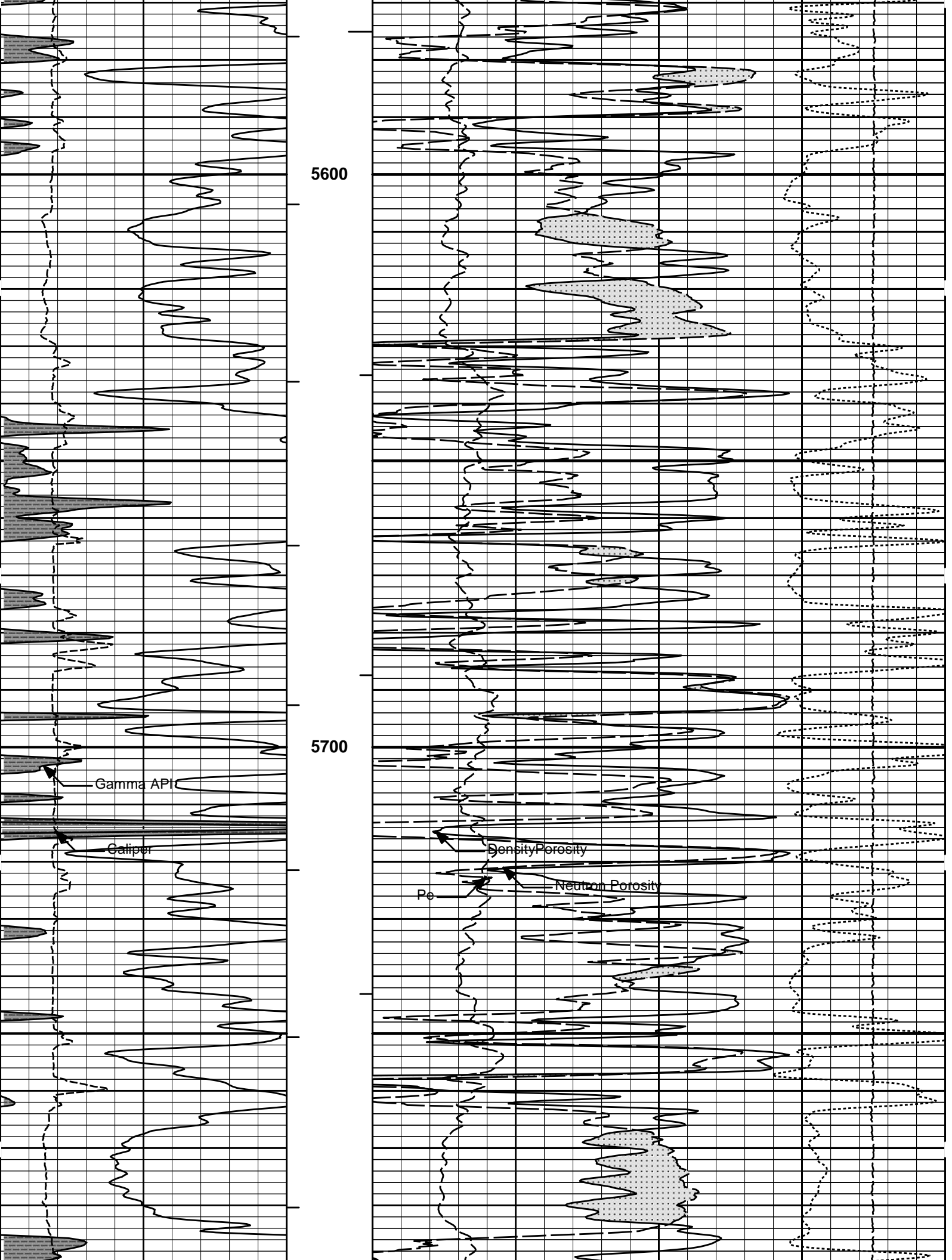


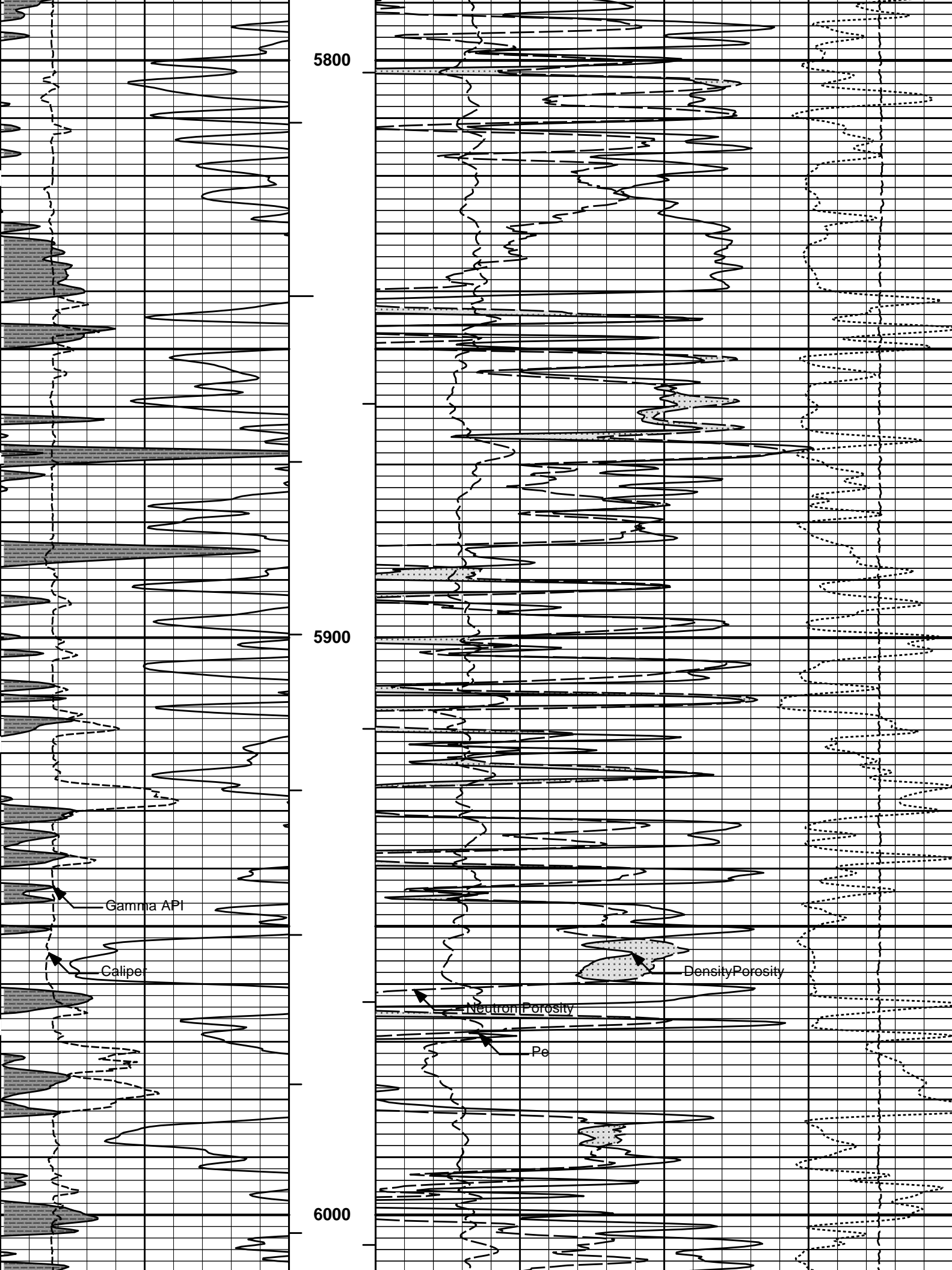


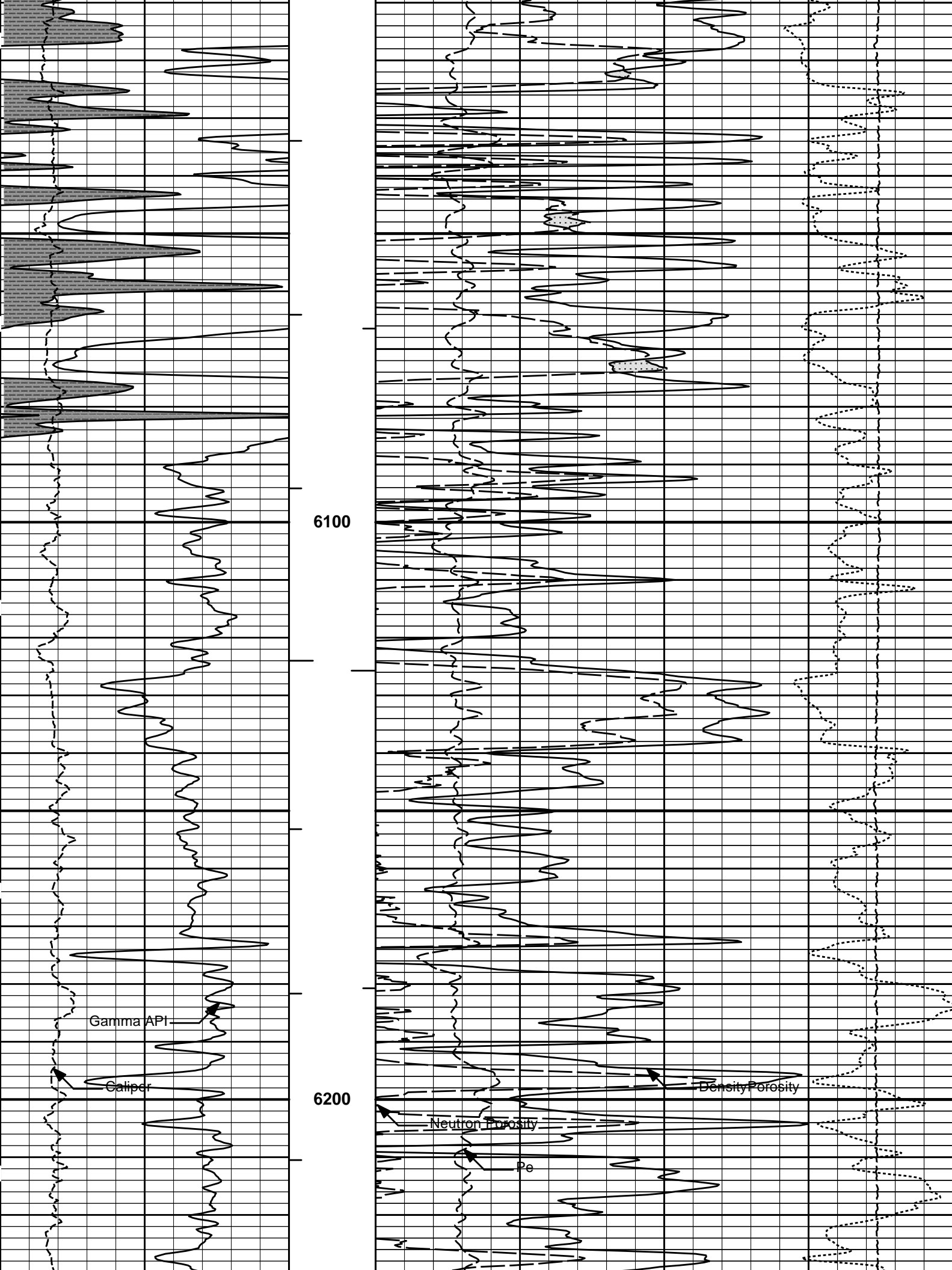


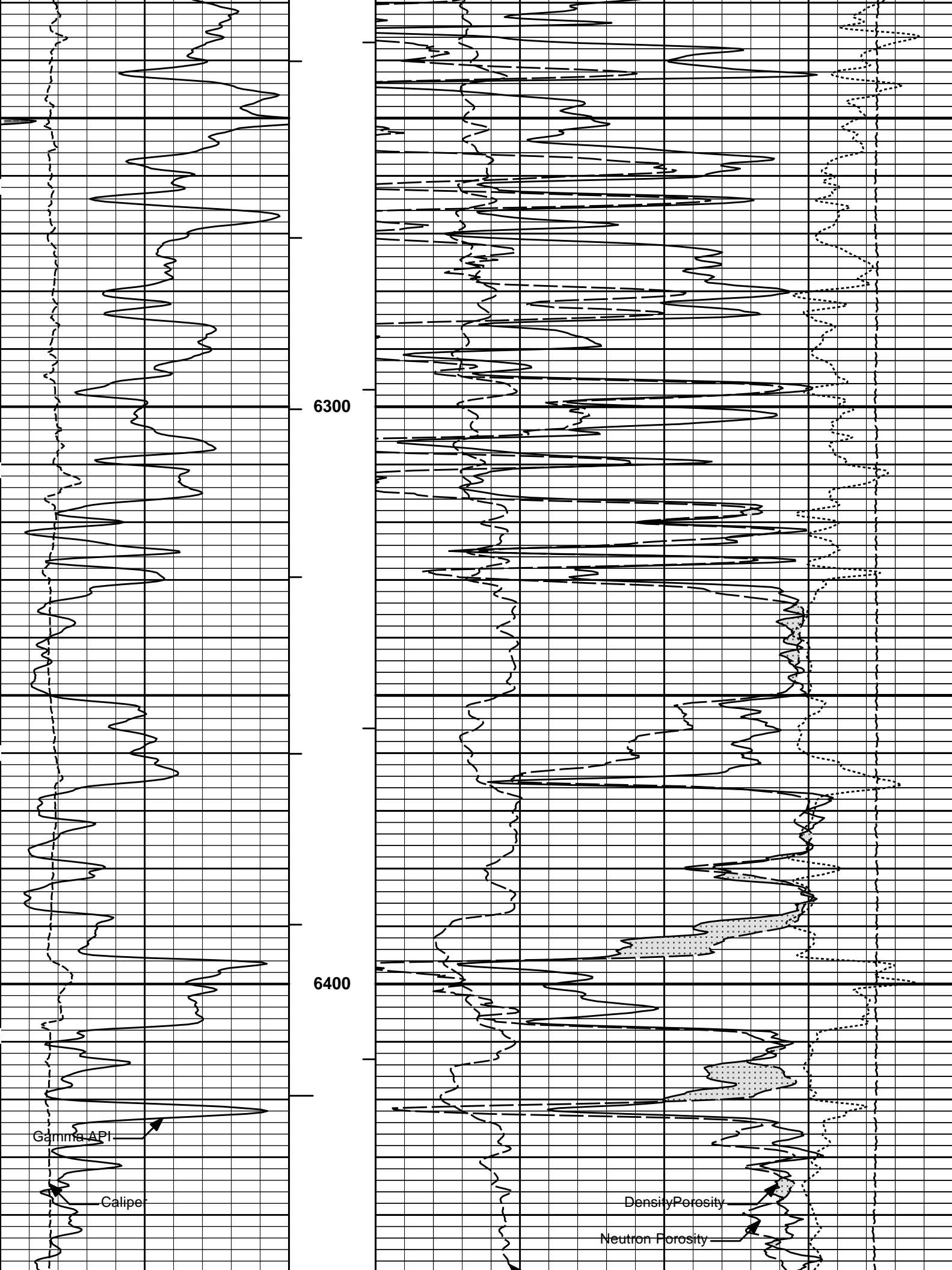


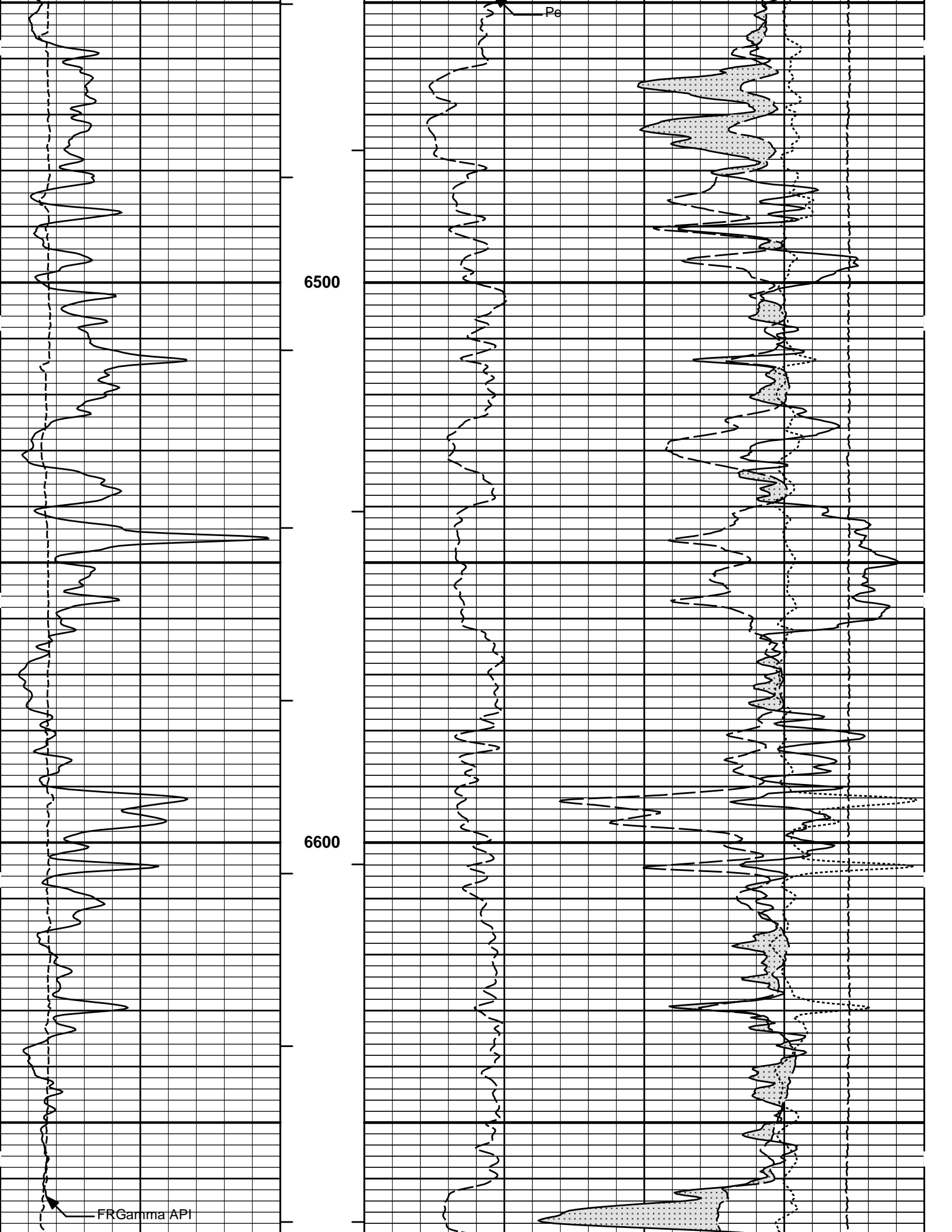


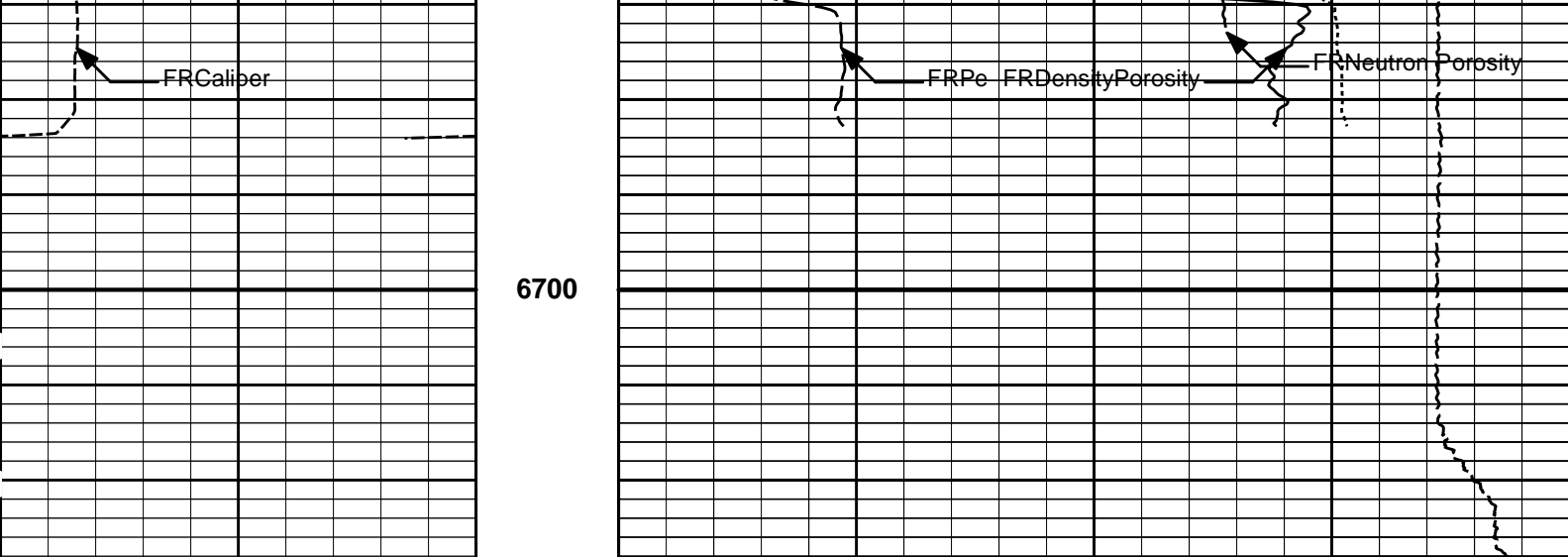












6	Caliper	16	MD 1 : 240 ft	0	Pe	10	-0.25	DensityCorr	0.25
	inches							gram per cc	
0	Gamma API	150	AHVT				15K	Tension	0
	api							pounds	
SHALE			BHVT	30	DensityPorosity				-10
					%				
				30	Neutron Porosity				-10
					%				
					CROSSOVER				

HALLIBURTON

Plot Time: 30-Nov-14 16:45:33
Plot Range: 470 ft to 6728.25 ft
Data: CHRISTINA_1-2Well Based\MAIN\
Plot File: \\POROSITY\Poro_IQ_5_MAIN_LIB

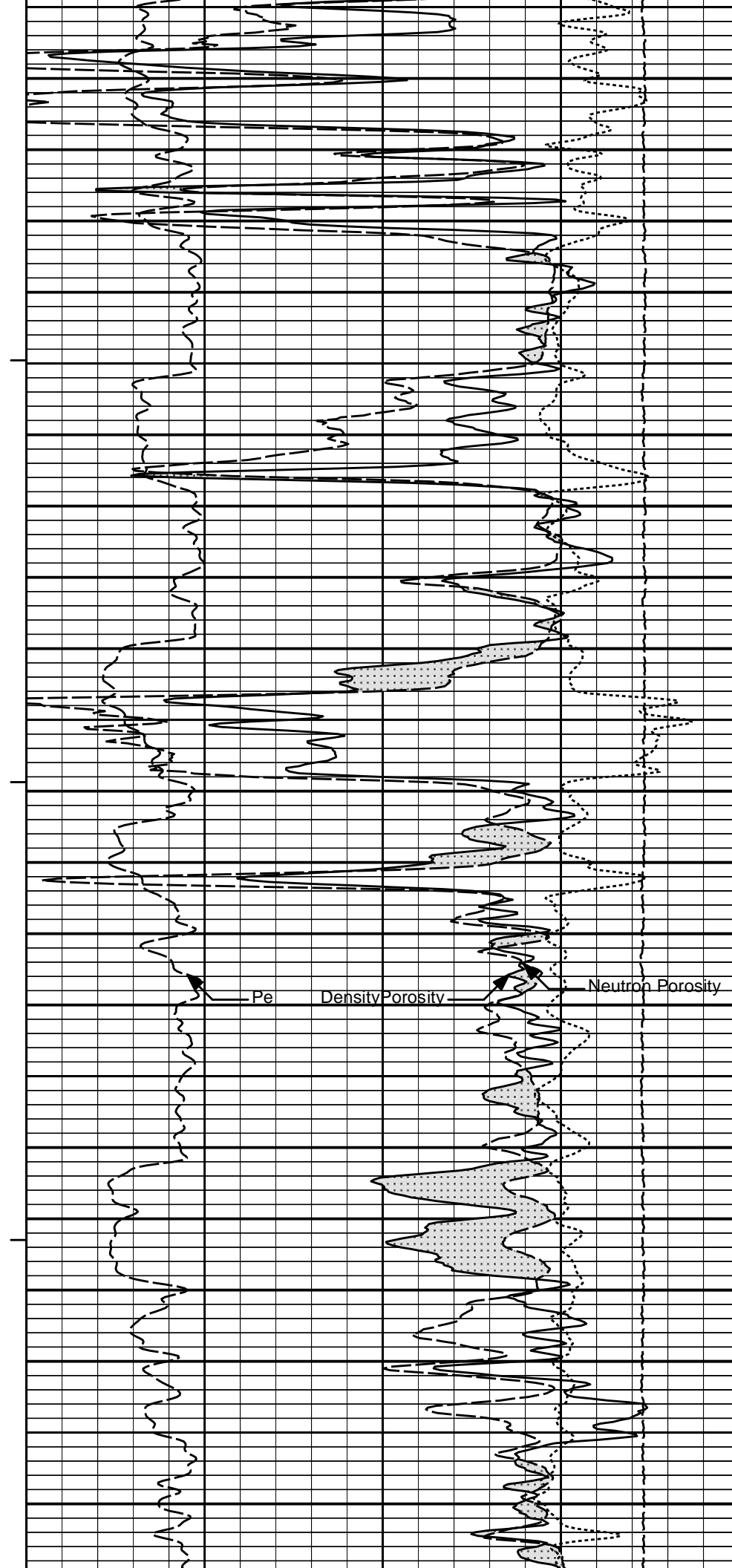
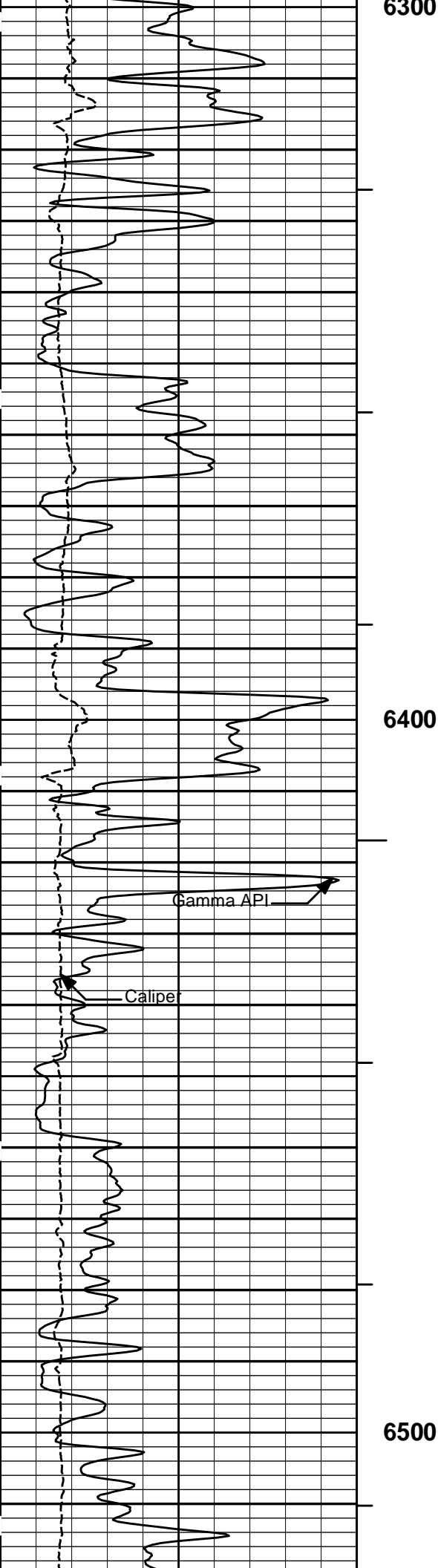
5 INCH MAIN LOG

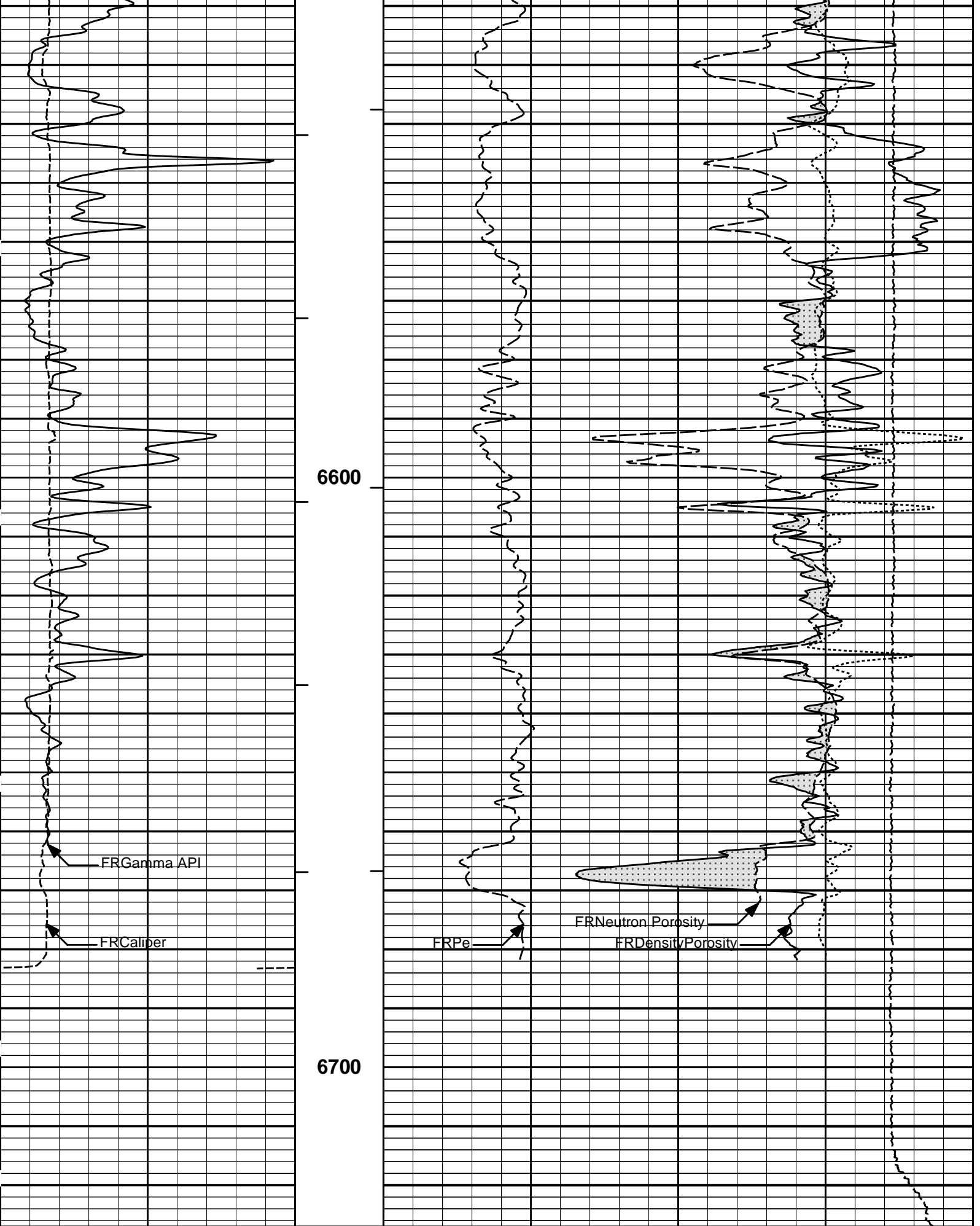
HALLIBURTON

Plot Time: 30-Nov-14 16:45:33
Plot Range: 6298 ft to 6727 ft
Data: CHRISTINA_1-2Well Based\REPEAT\
Plot File: \\POROSITY\Poro_IQ_5_REP_LIB

REPEAT SECTION

					CROSSOVER				
				30	Neutron Porosity			-10	
					%				
	SHALE		BHVT	30	DensityPorosity			-10	
					%				
0	Gamma API	150	AHVT			15K	Tension	0	
	api						pounds		
6	Caliper	16	MD	0	Pe	10	-0.25	DensityCorr	0.25
	inches		1 : 240					gram per cc	





6	Caliper	16	MD	0	Pe	10	-0.25	DensityCorr	0.25
	inches		1 : 240 ft					gram per cc	

0	Gamma API	150	AHVT		15K	Tension	0
	api					pounds	
	SHALE		BHVT	30	DensityPorosity		-10
					%		
				30	Neutron Porosity		-10
					%		
					CROSSOVER		

HALLIBURTON

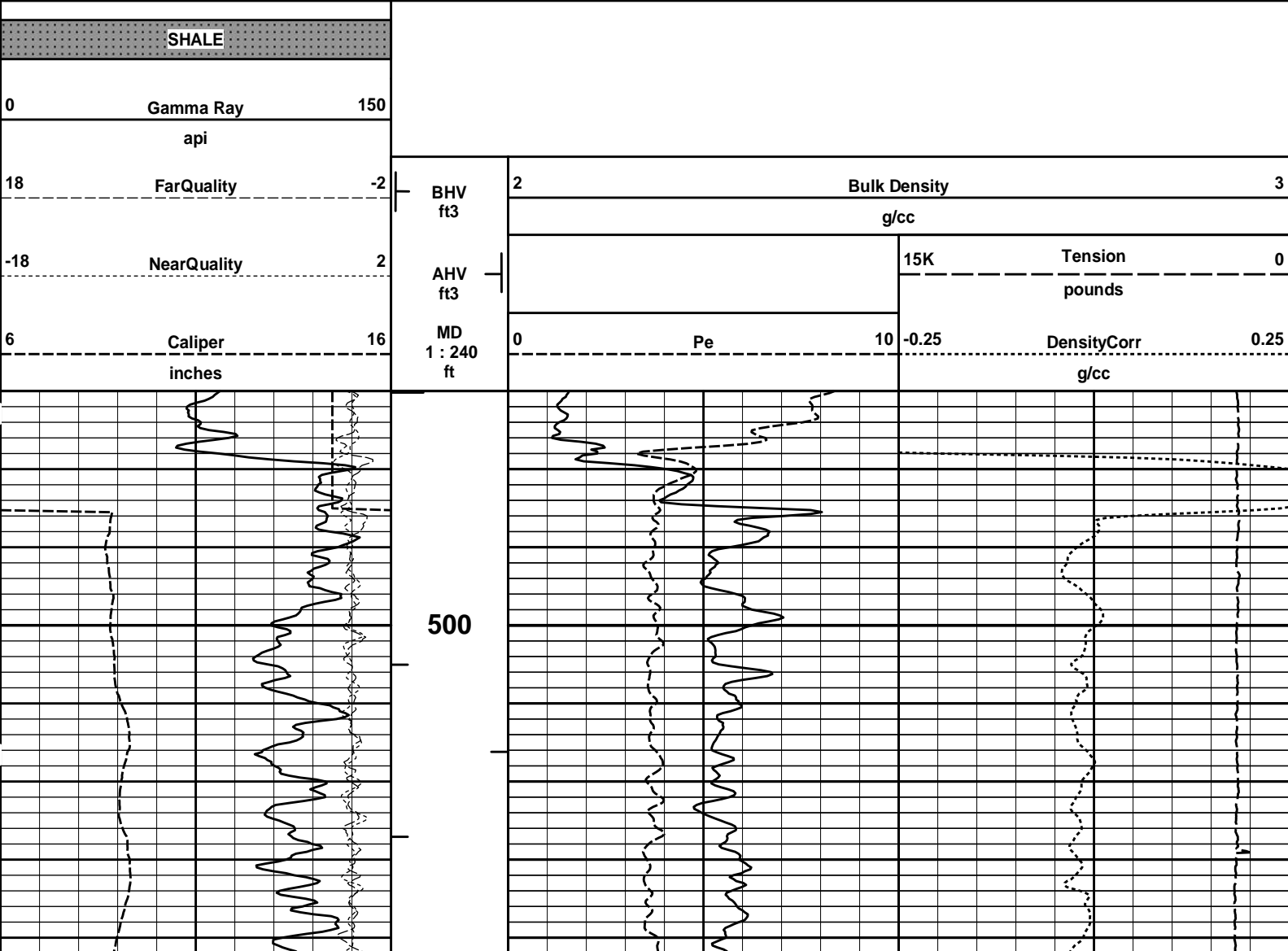
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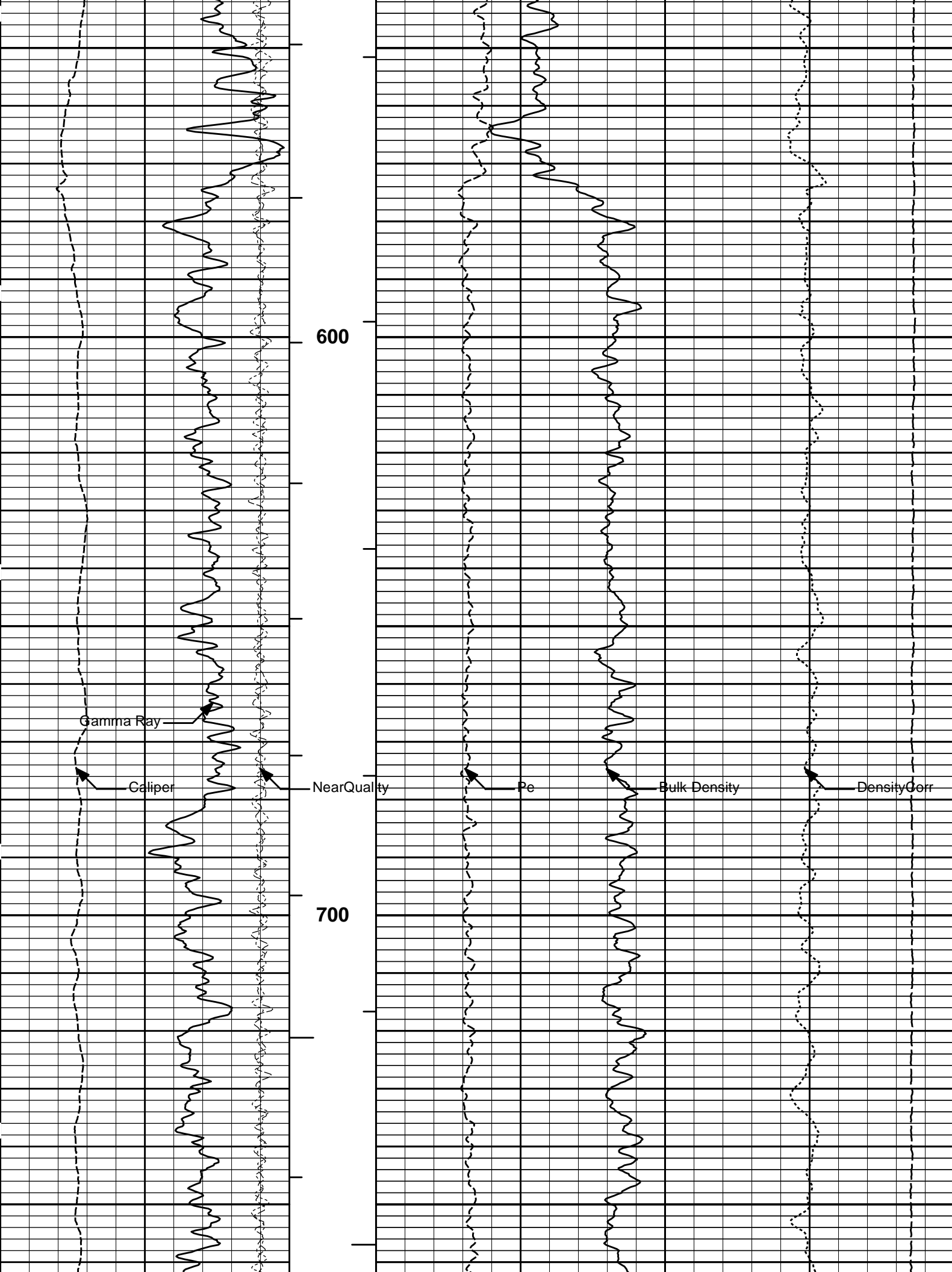
REPEAT SECTION

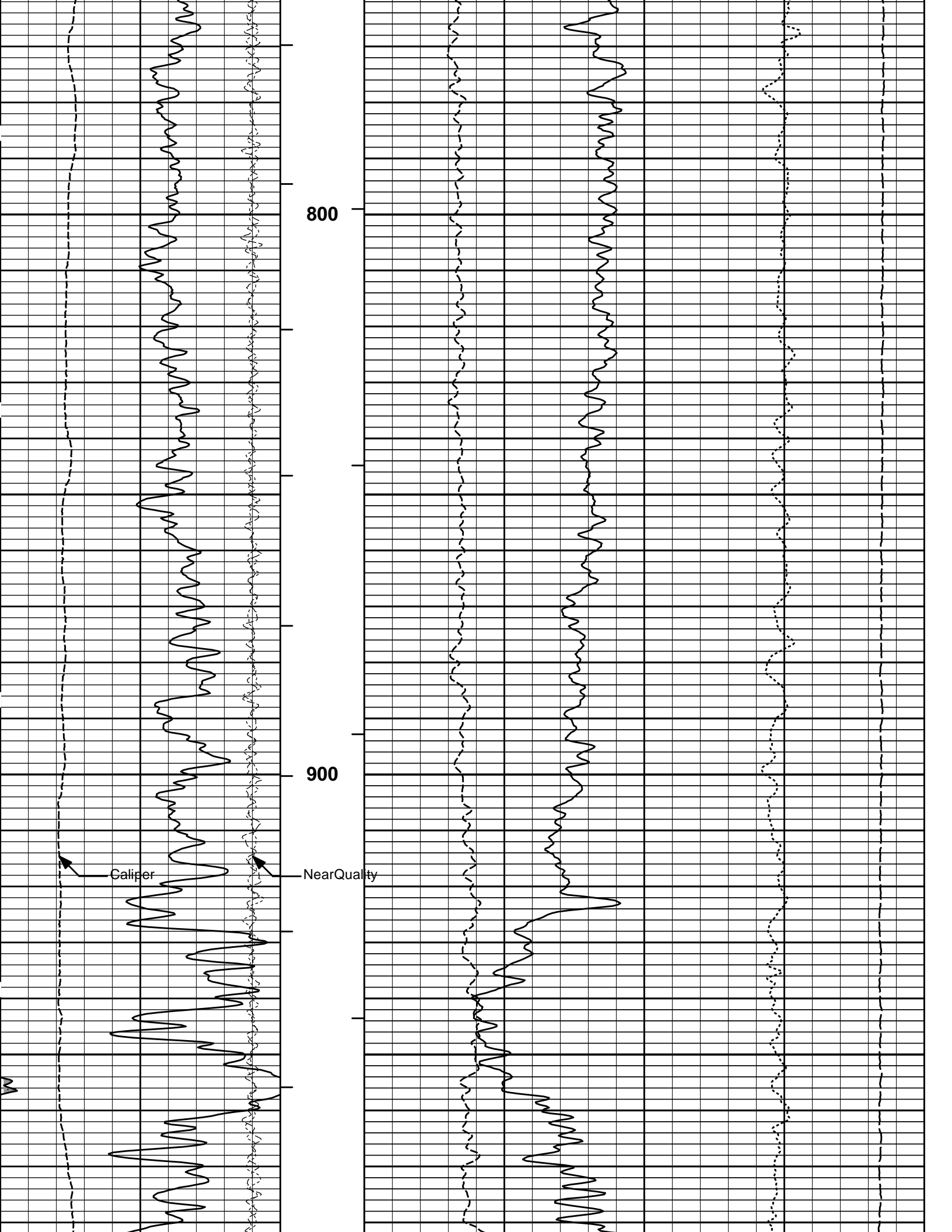
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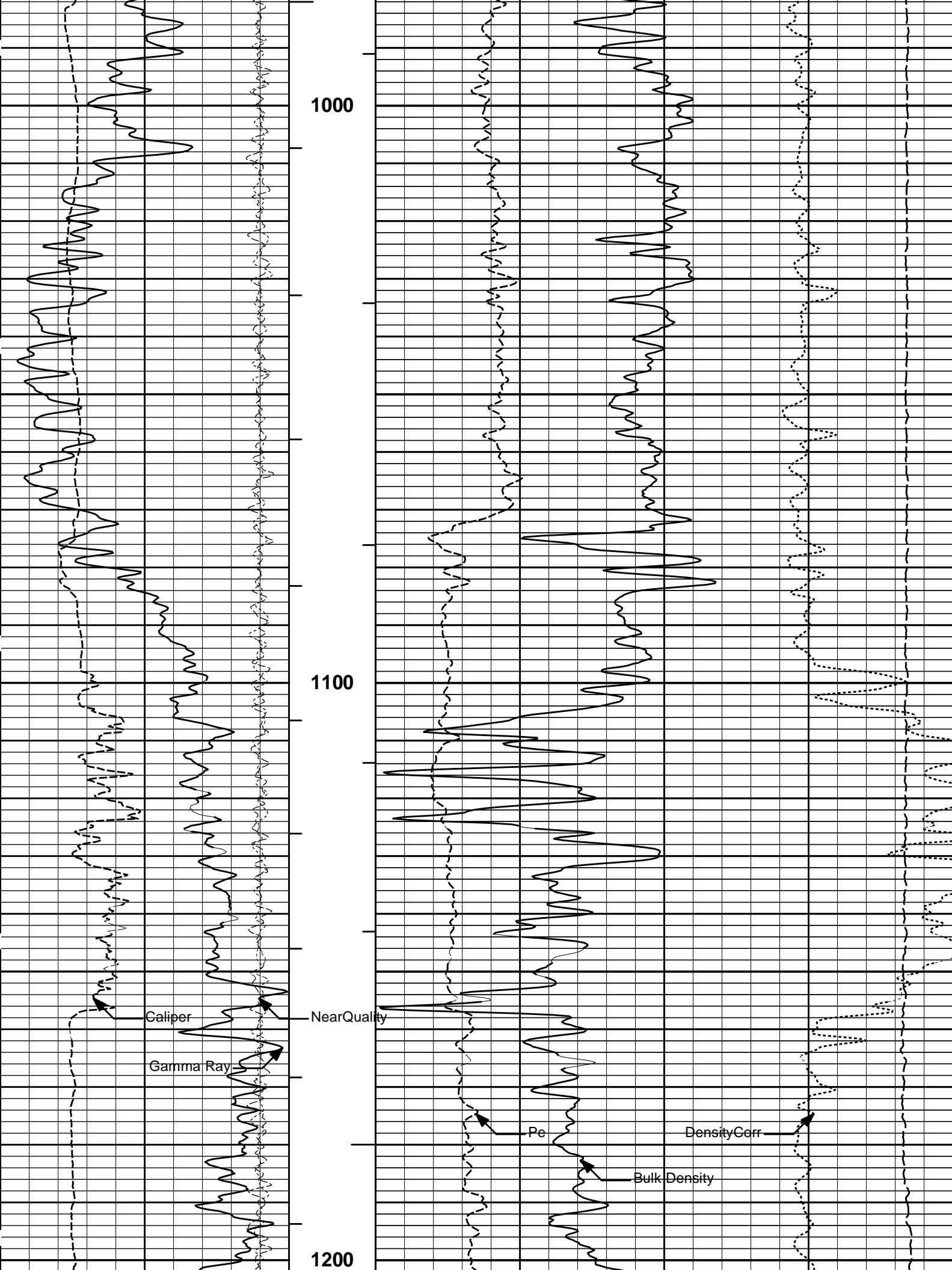
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Data: CHRISTINA_1-2\Well Based\MAIN\
Plot File: \\LOCAL-CHRISTINA_1-2\Well Based\POROSITY\BULKD_5_MAIN_LIB

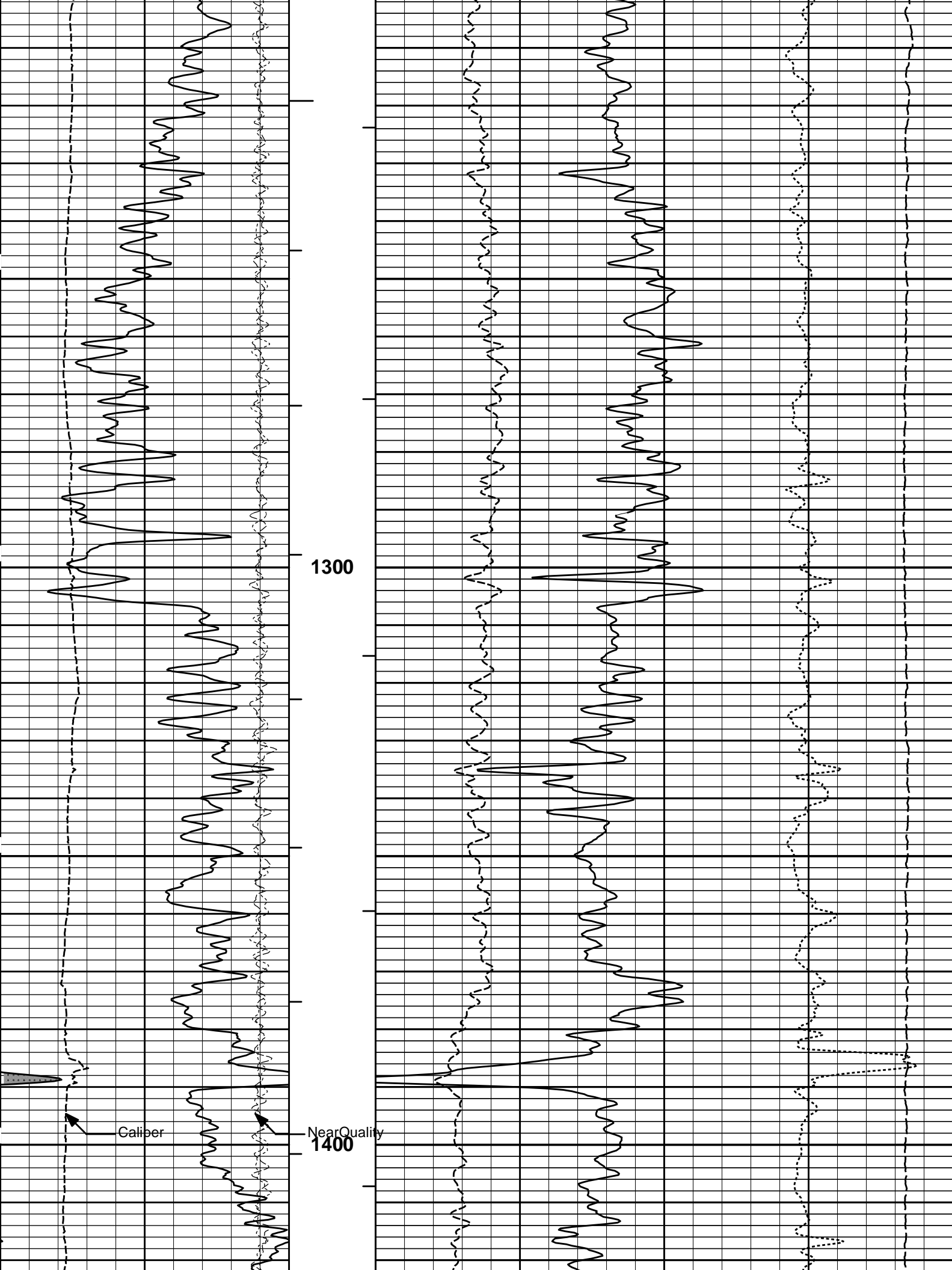
5 INCH MAIN LOG

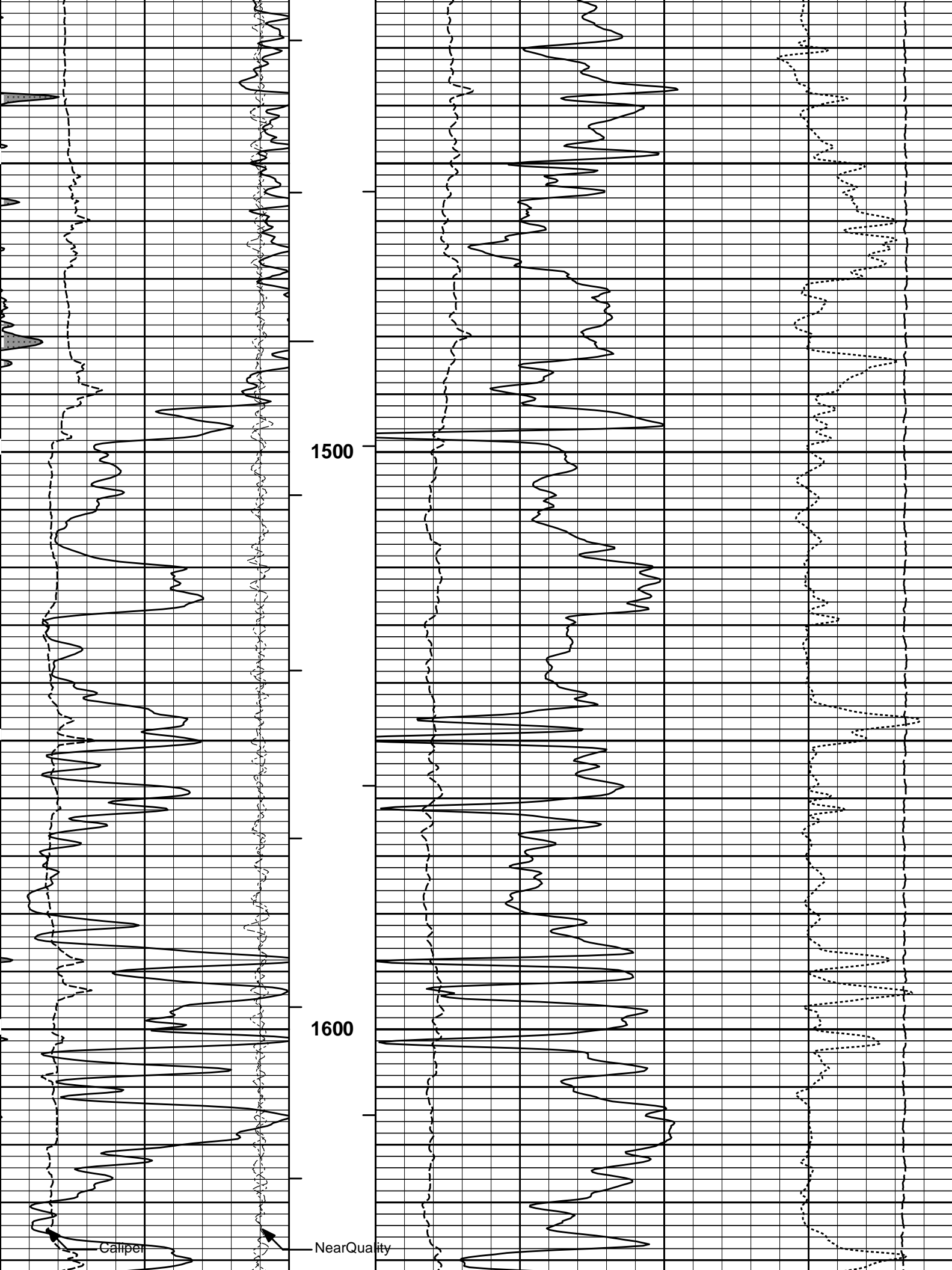


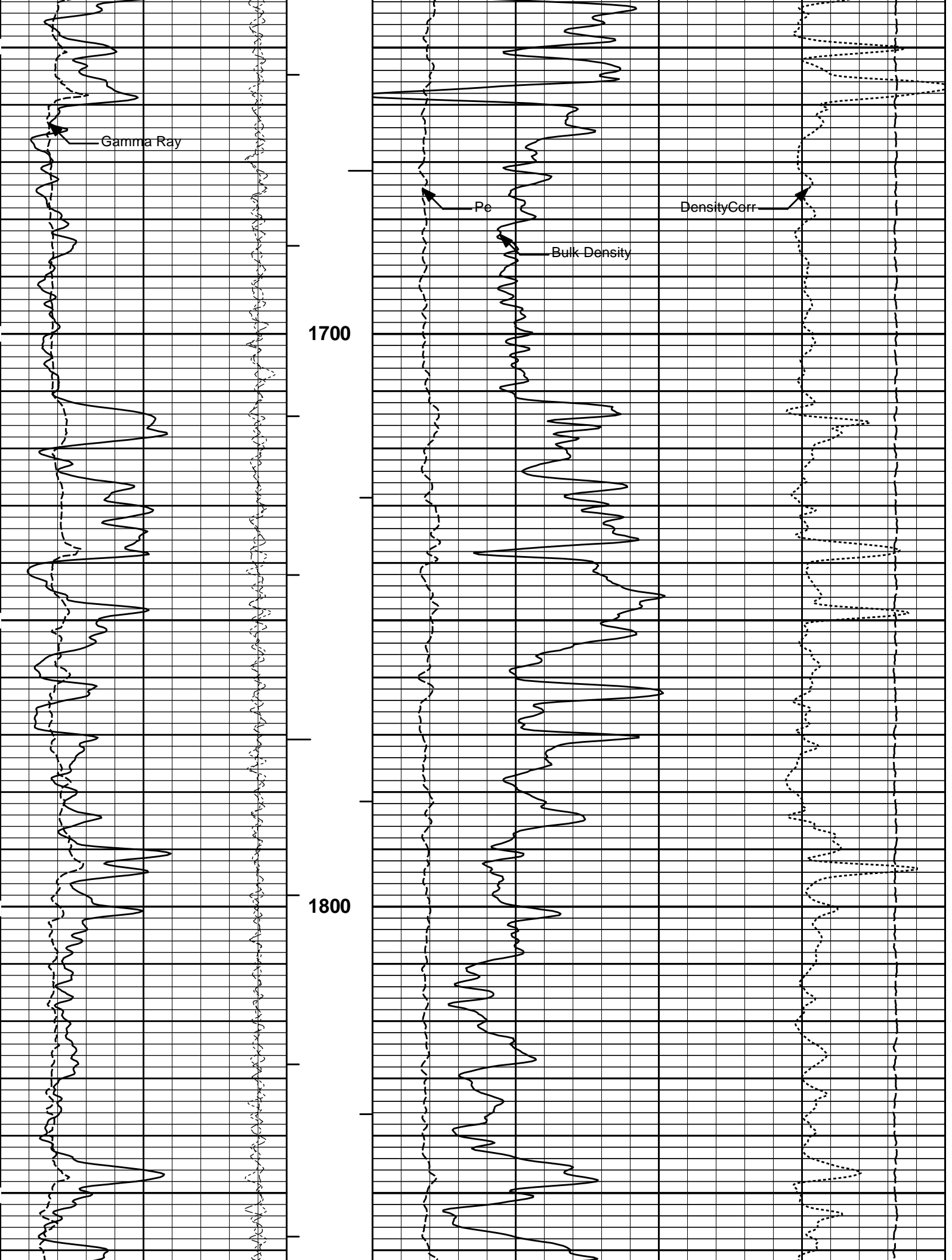


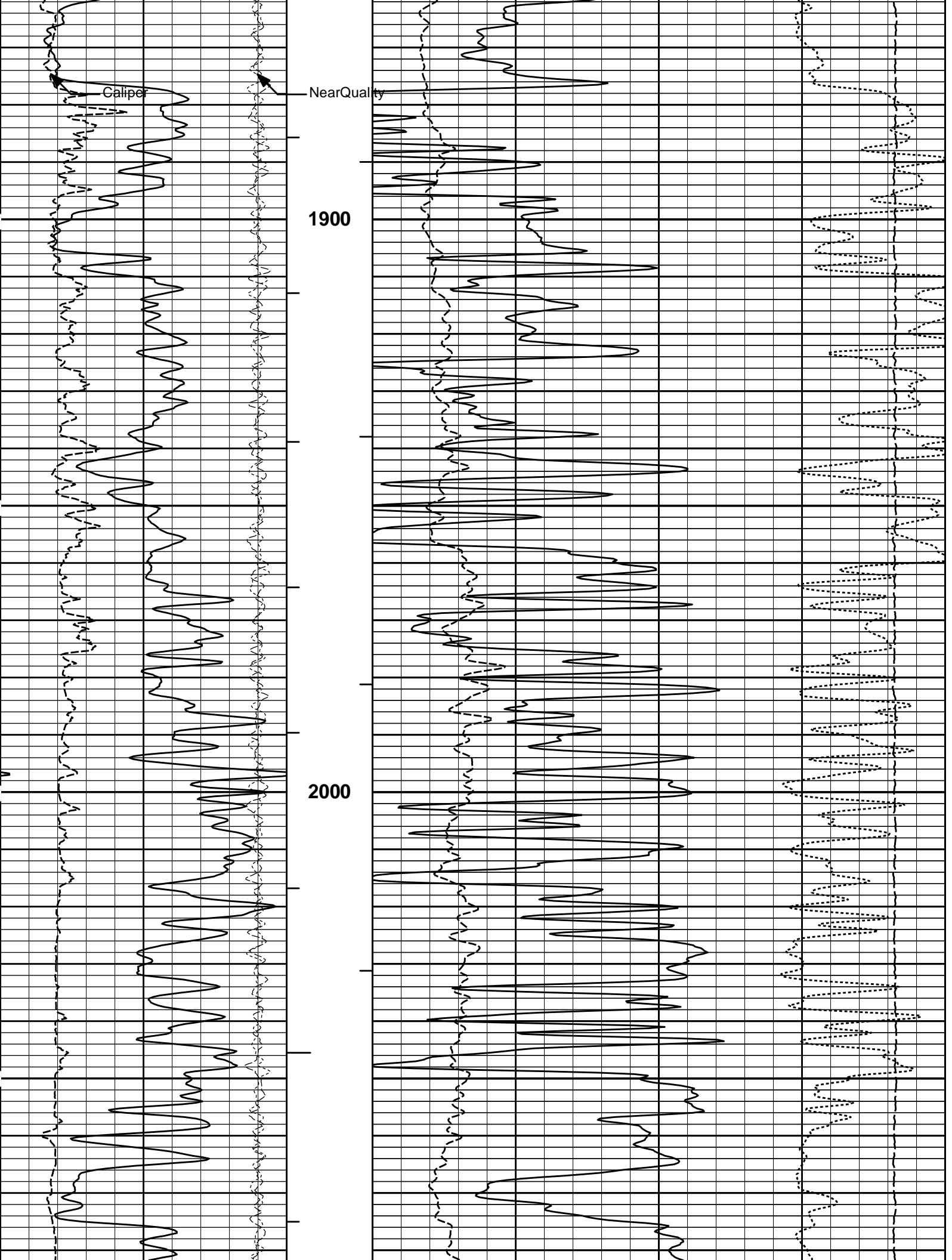


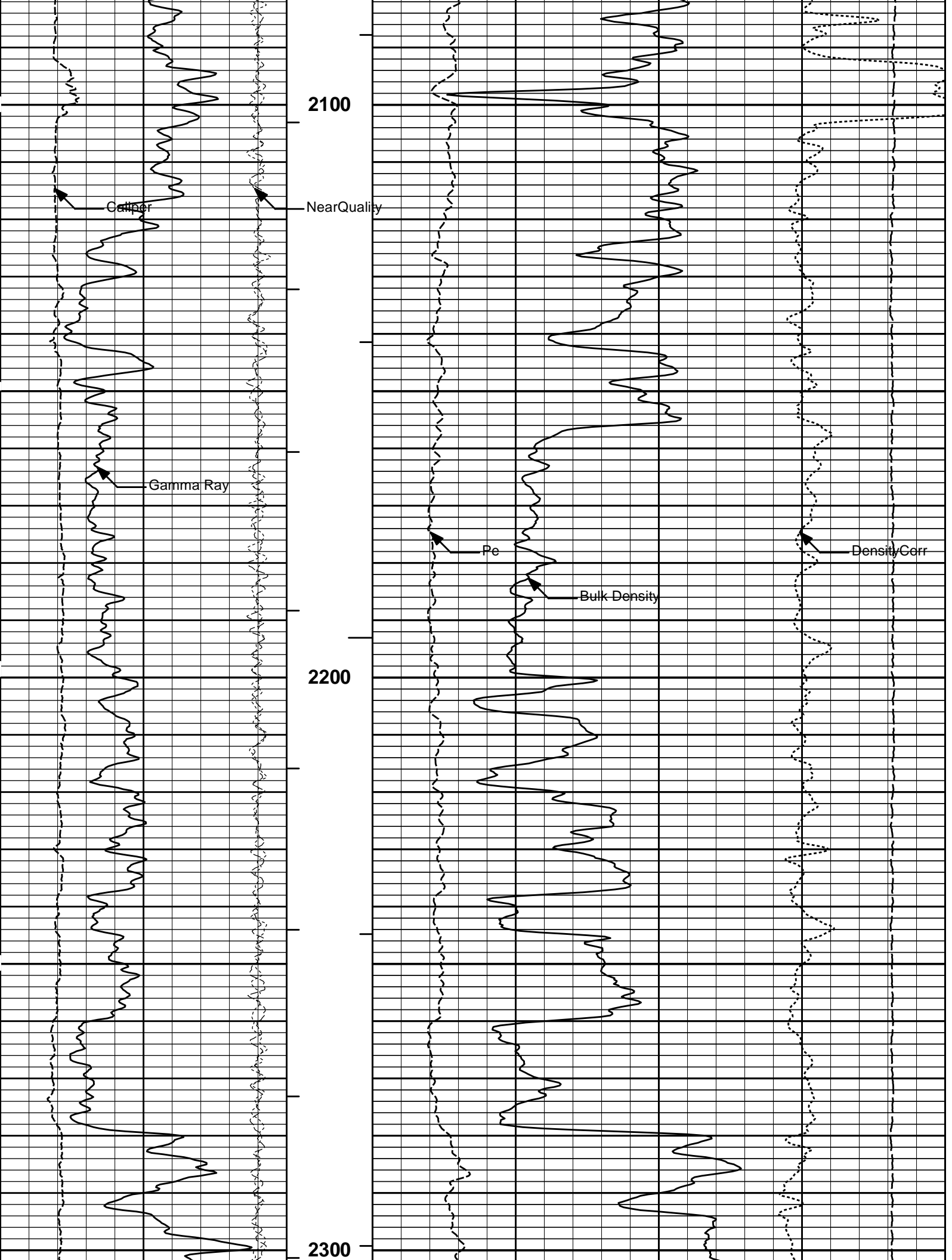


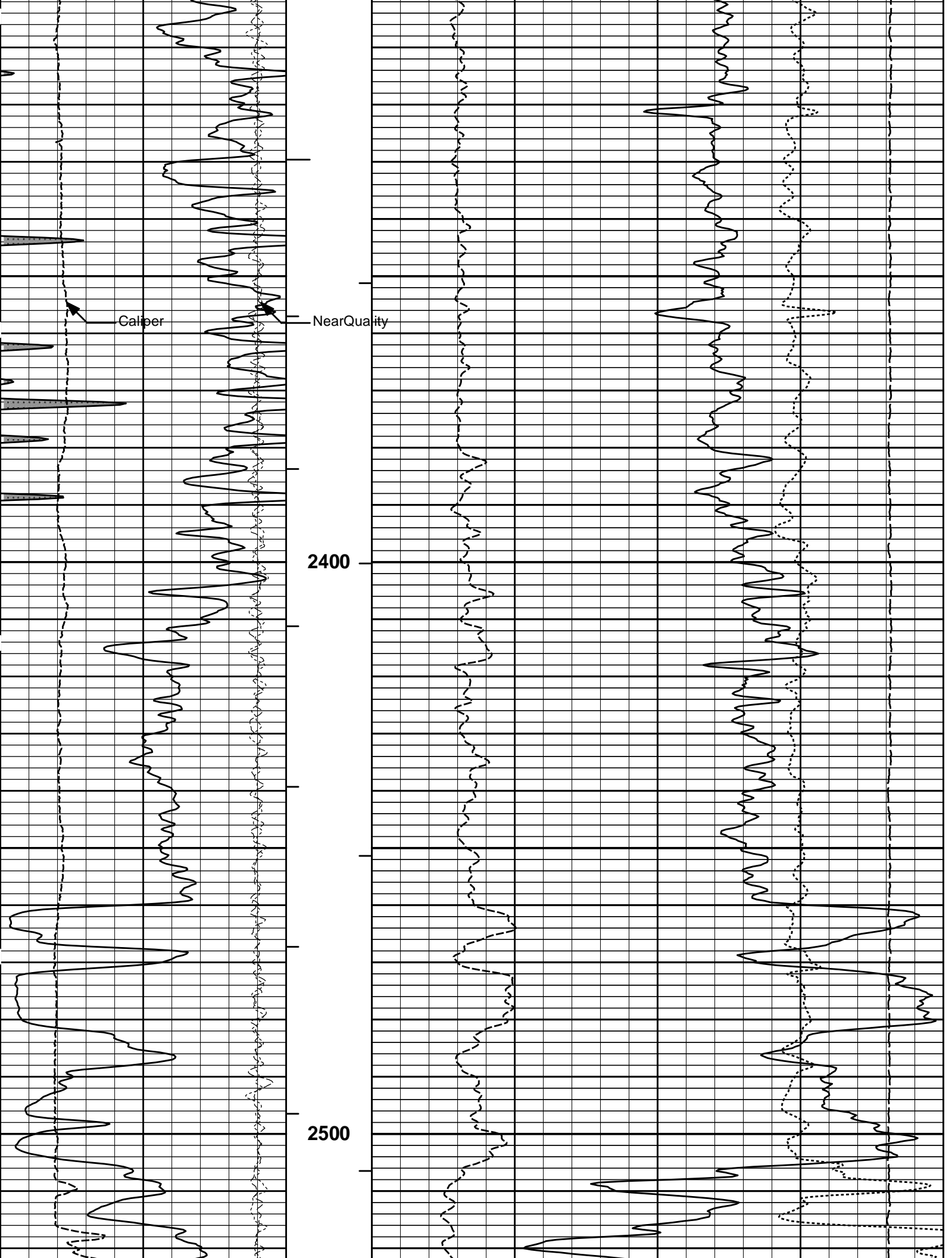


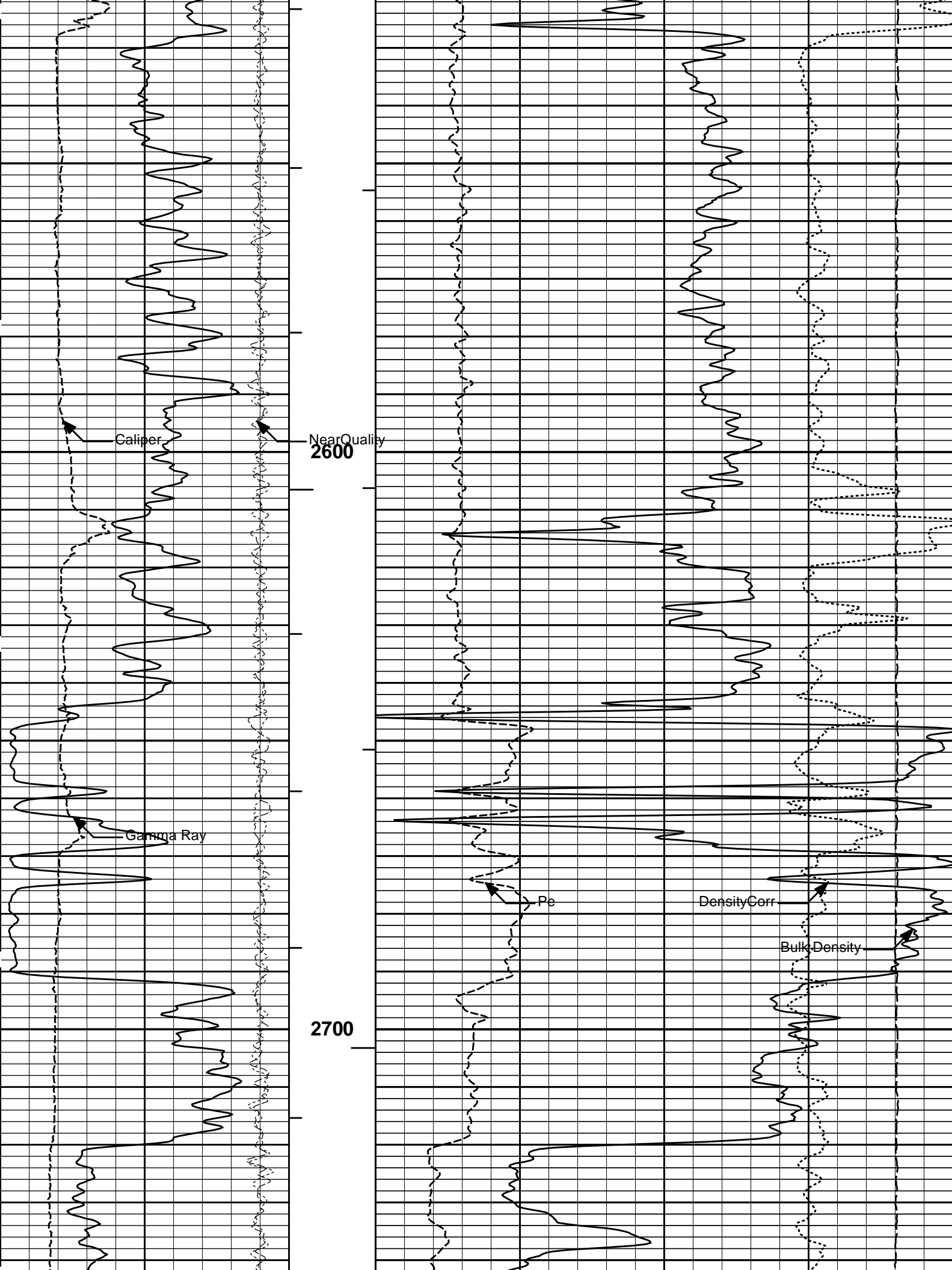


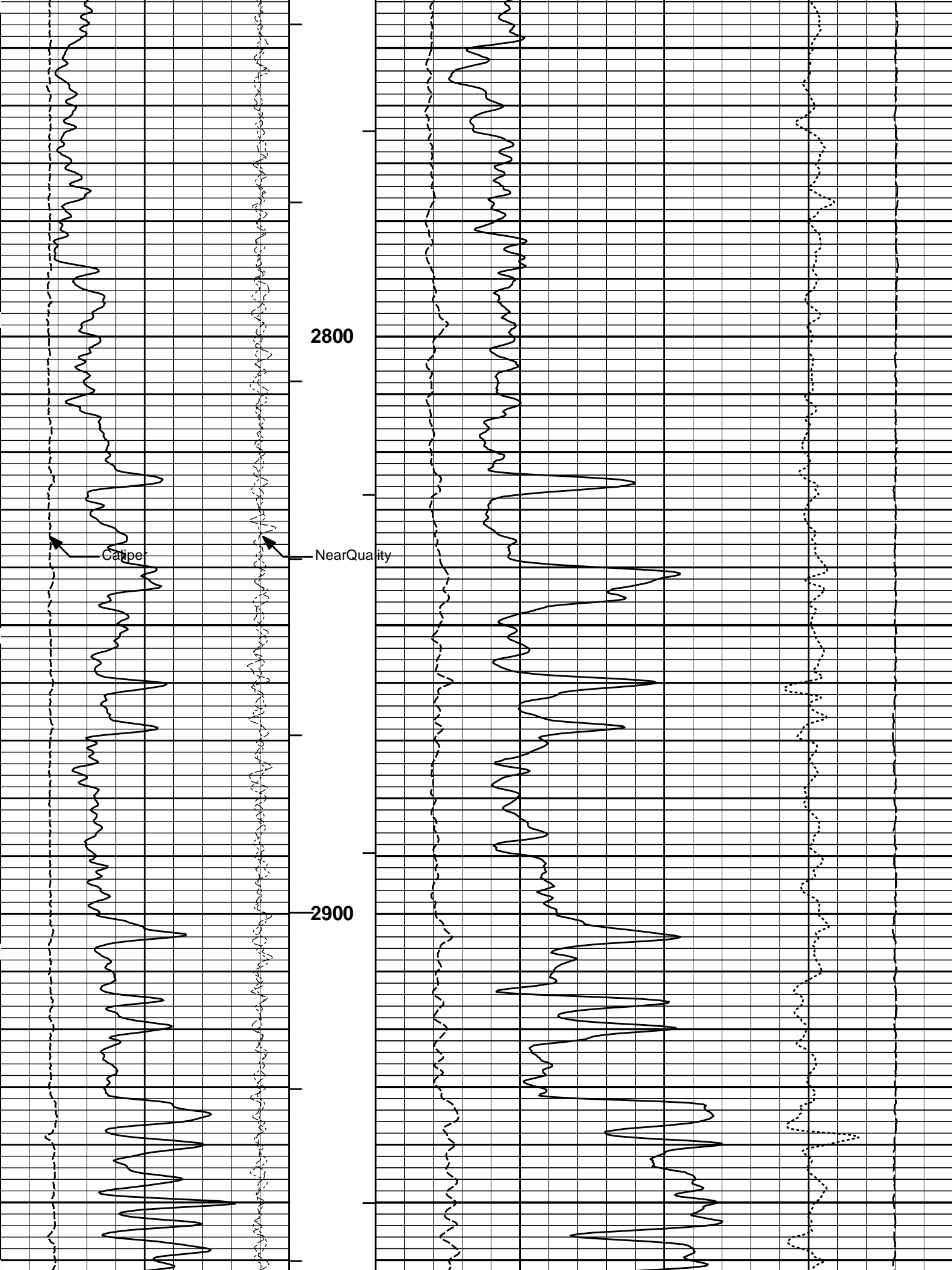


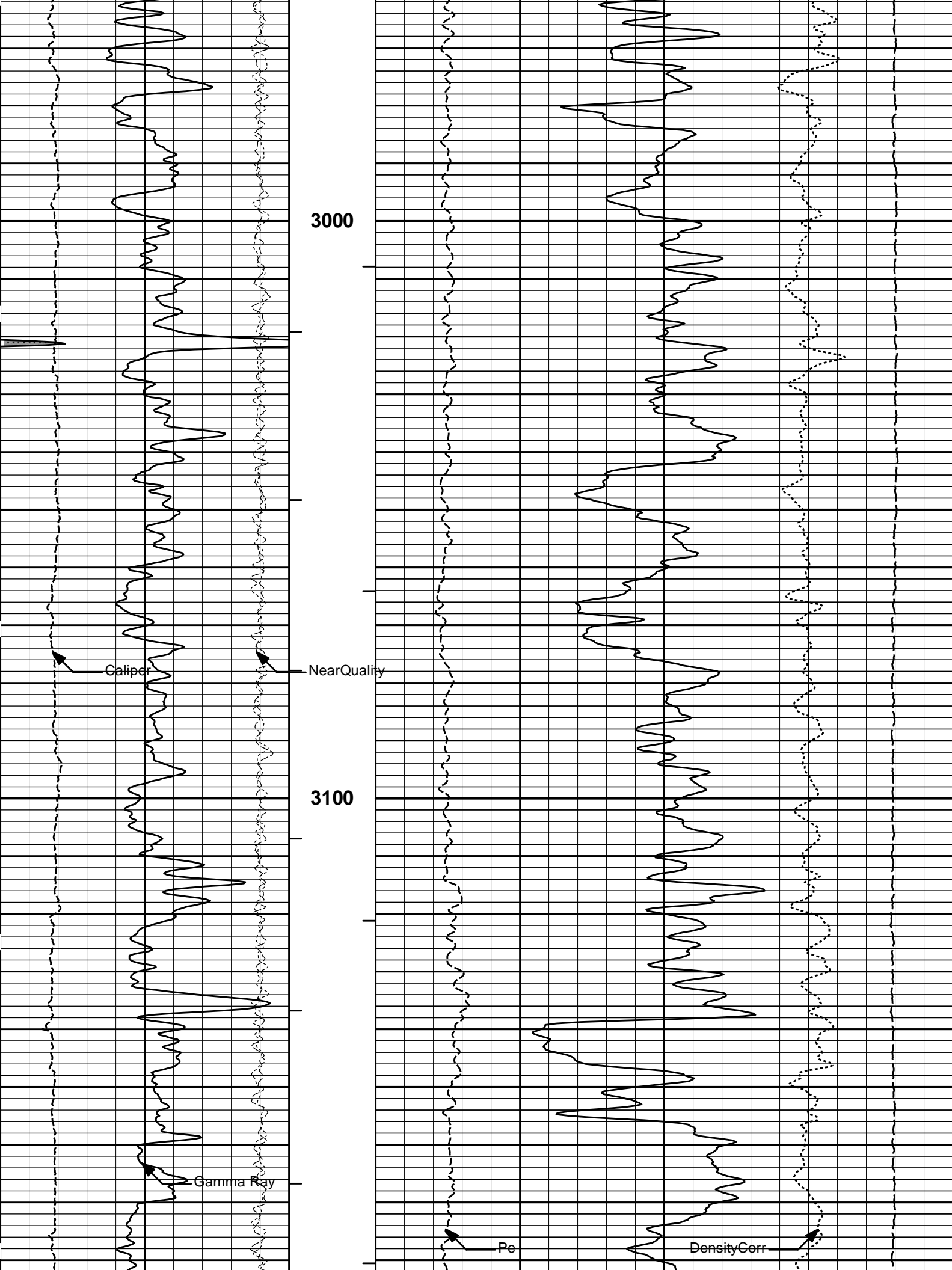


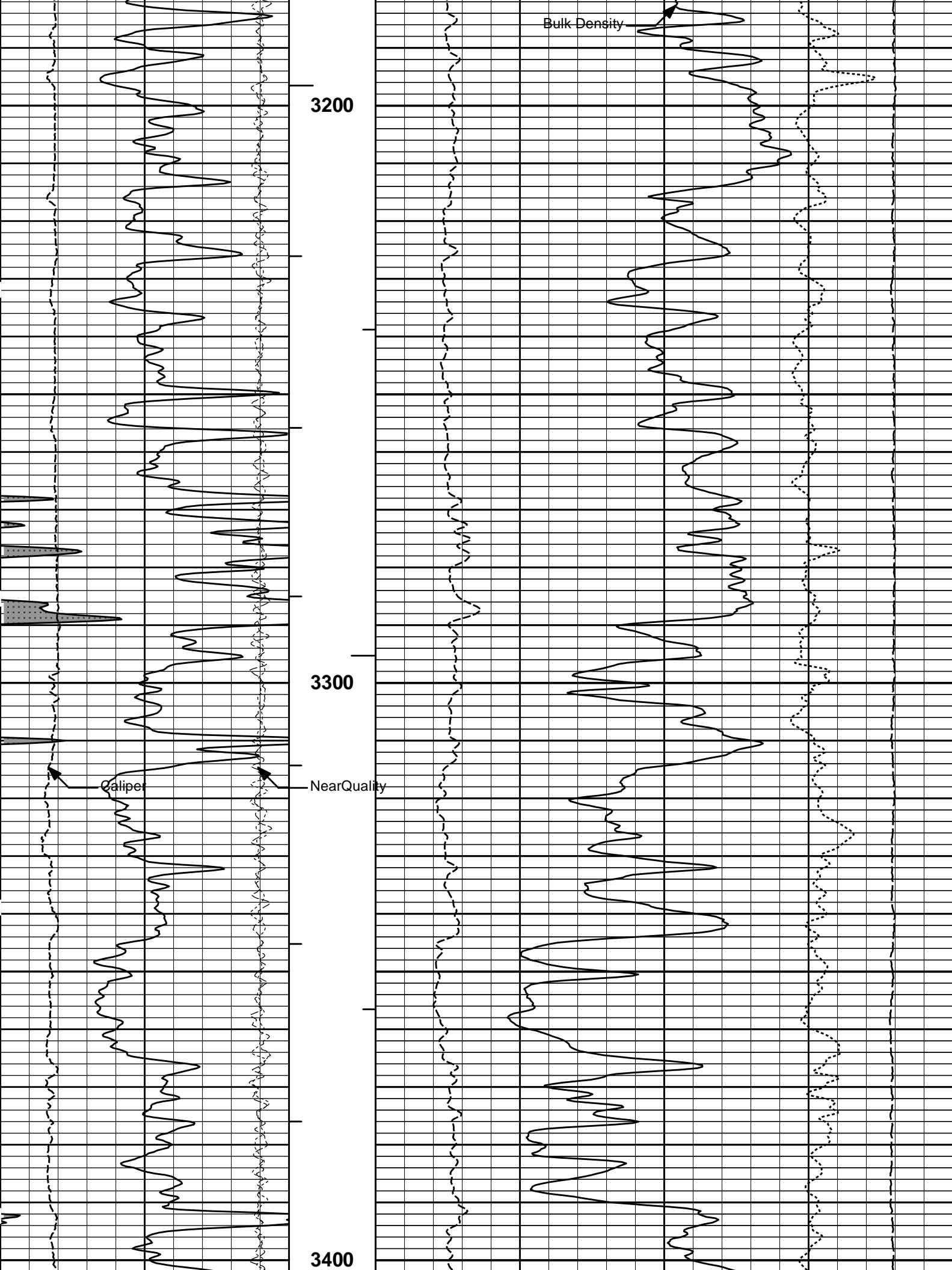


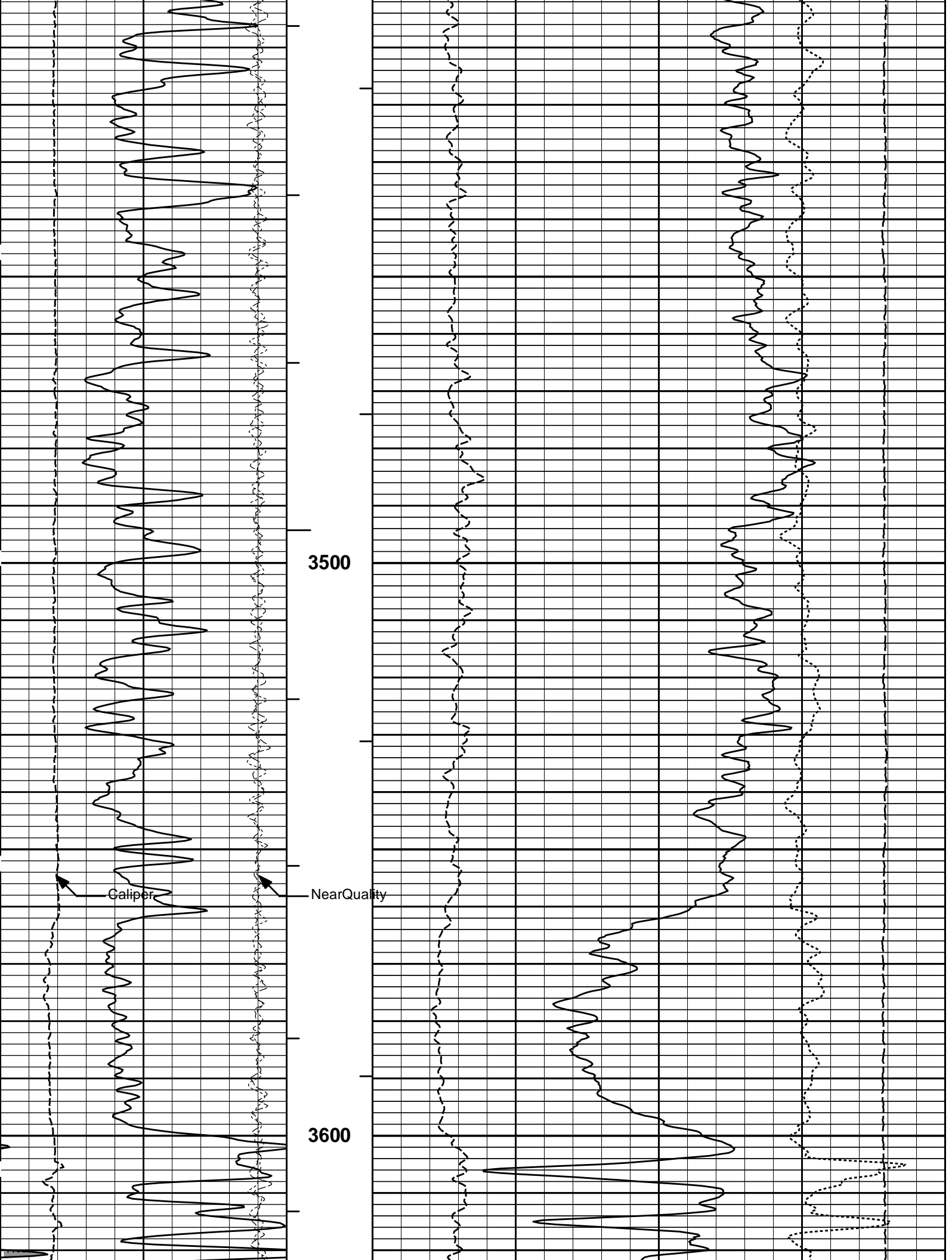


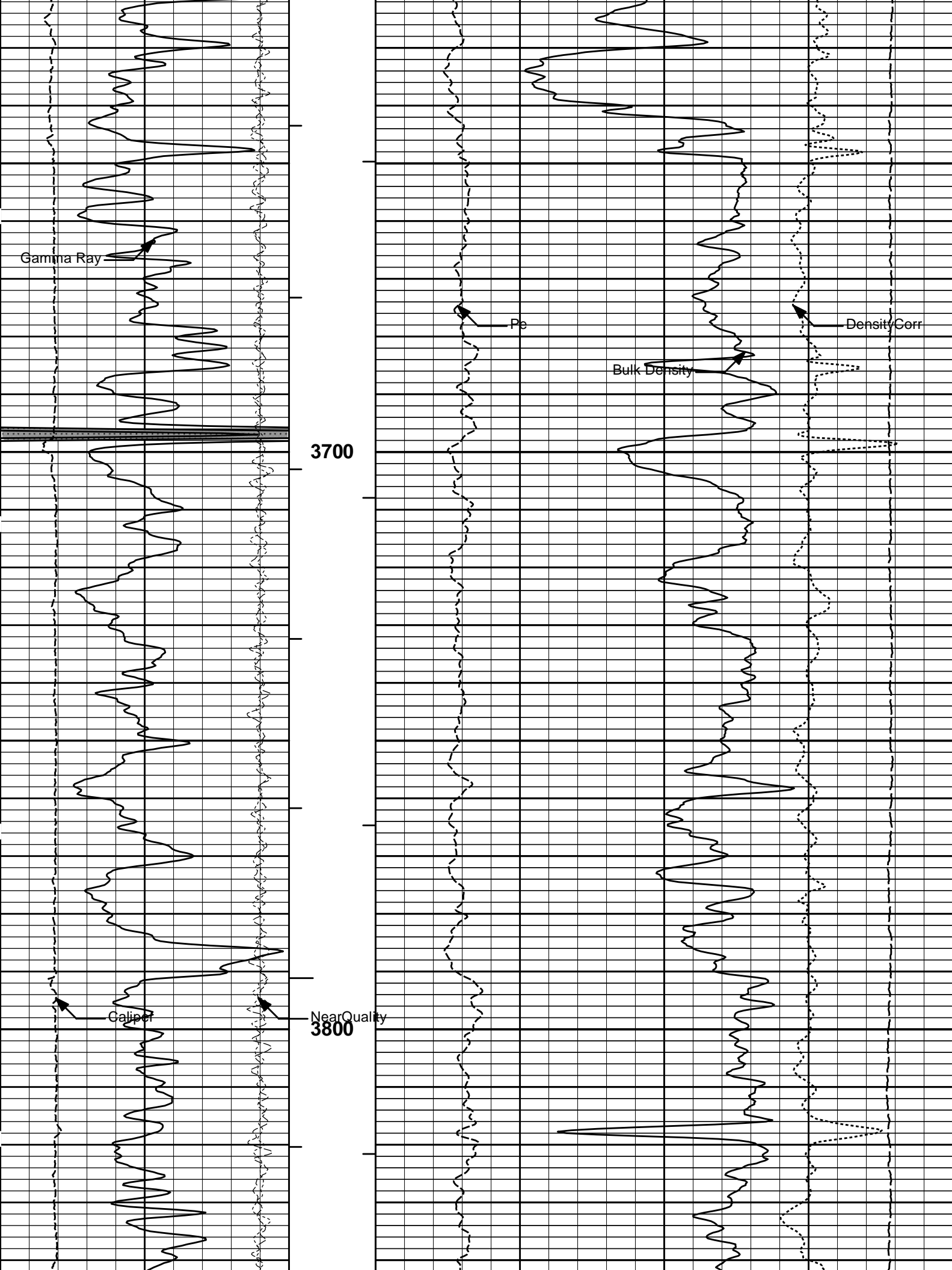


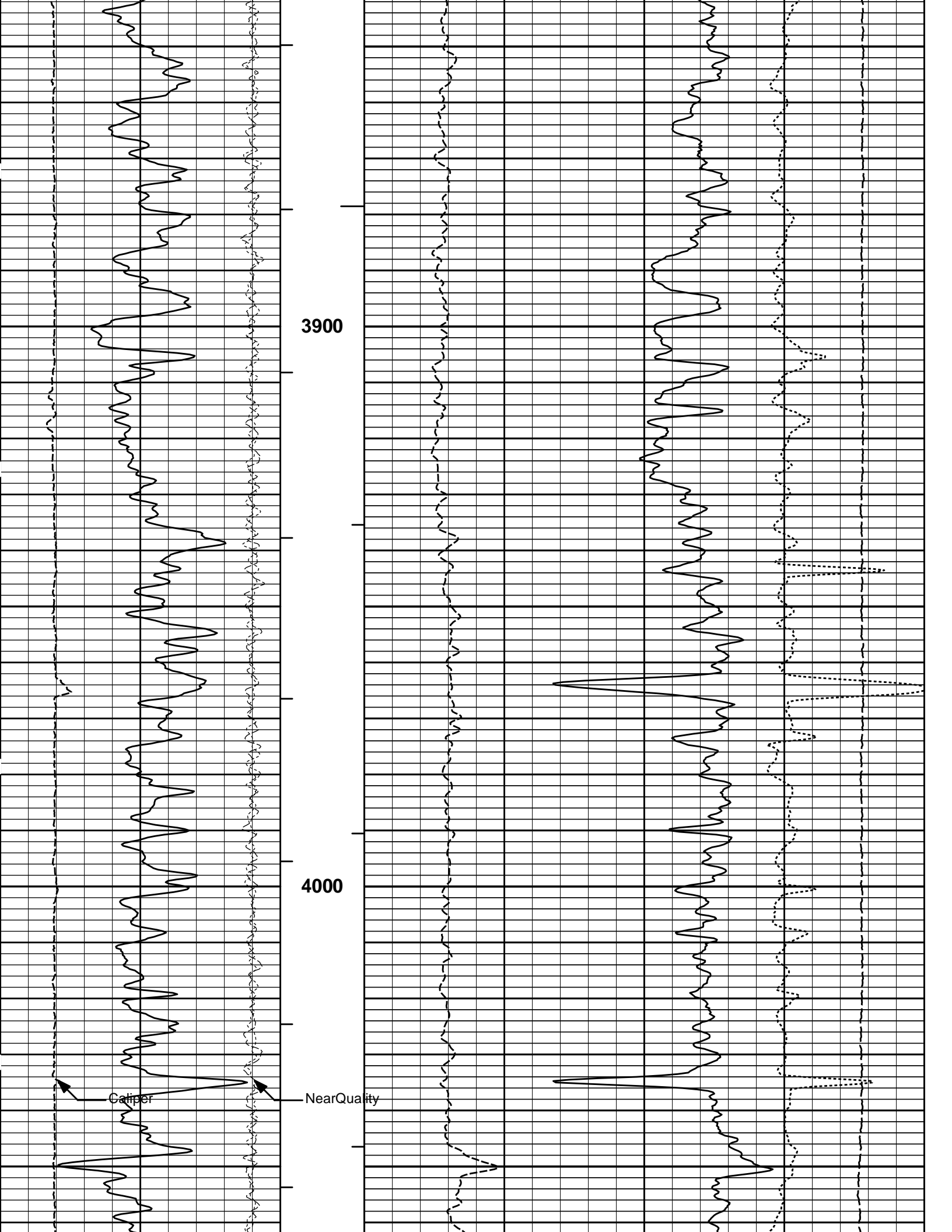


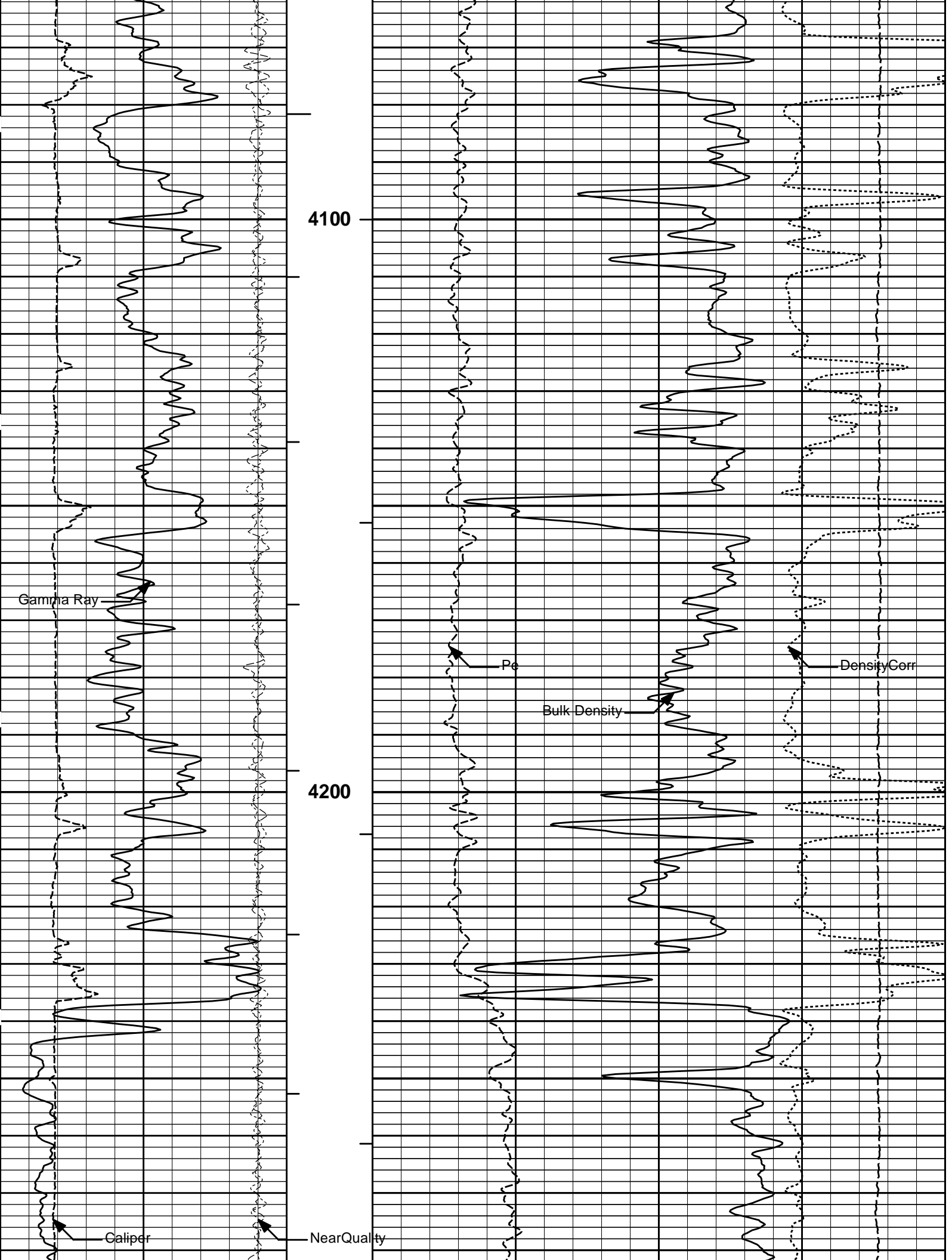


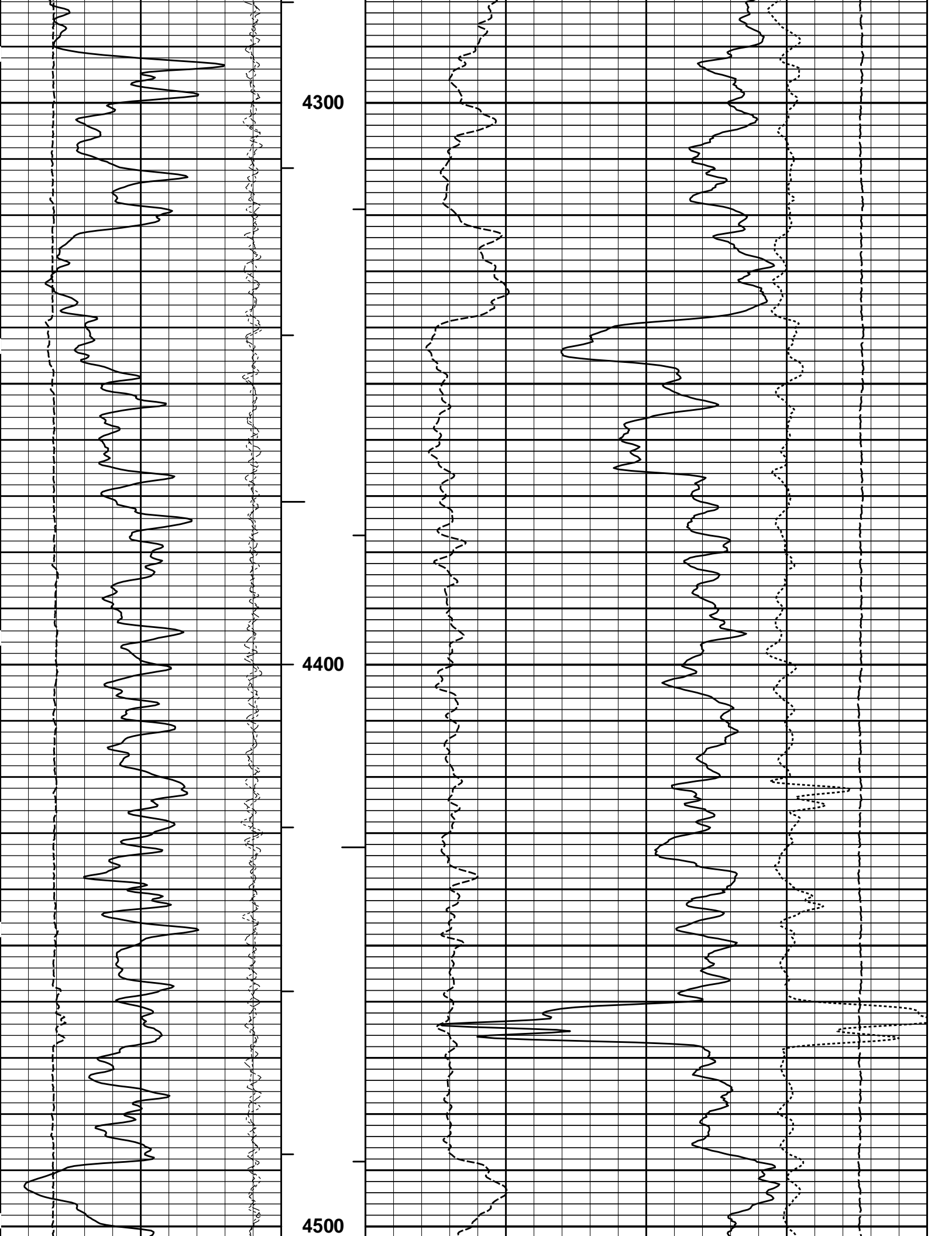


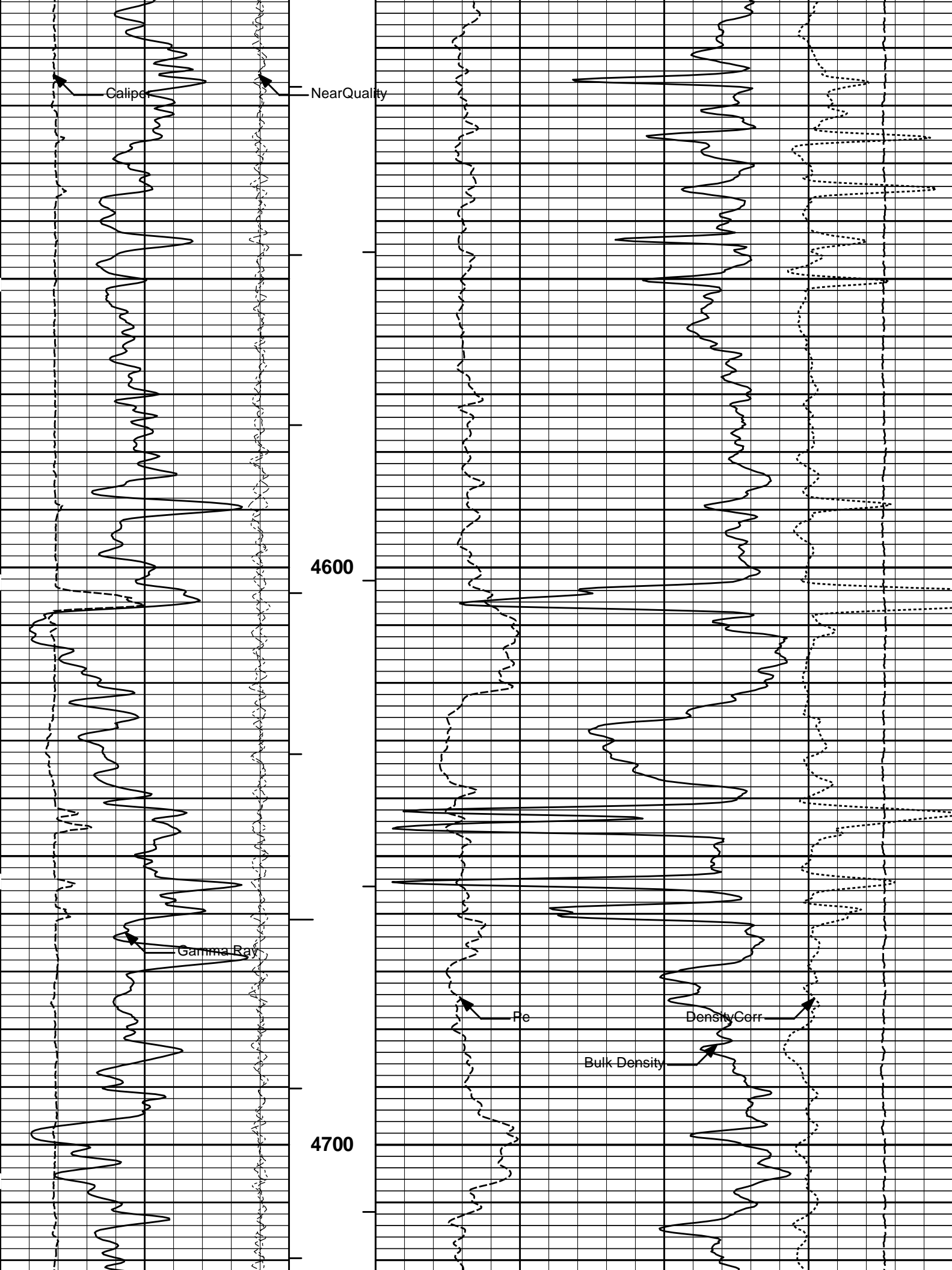


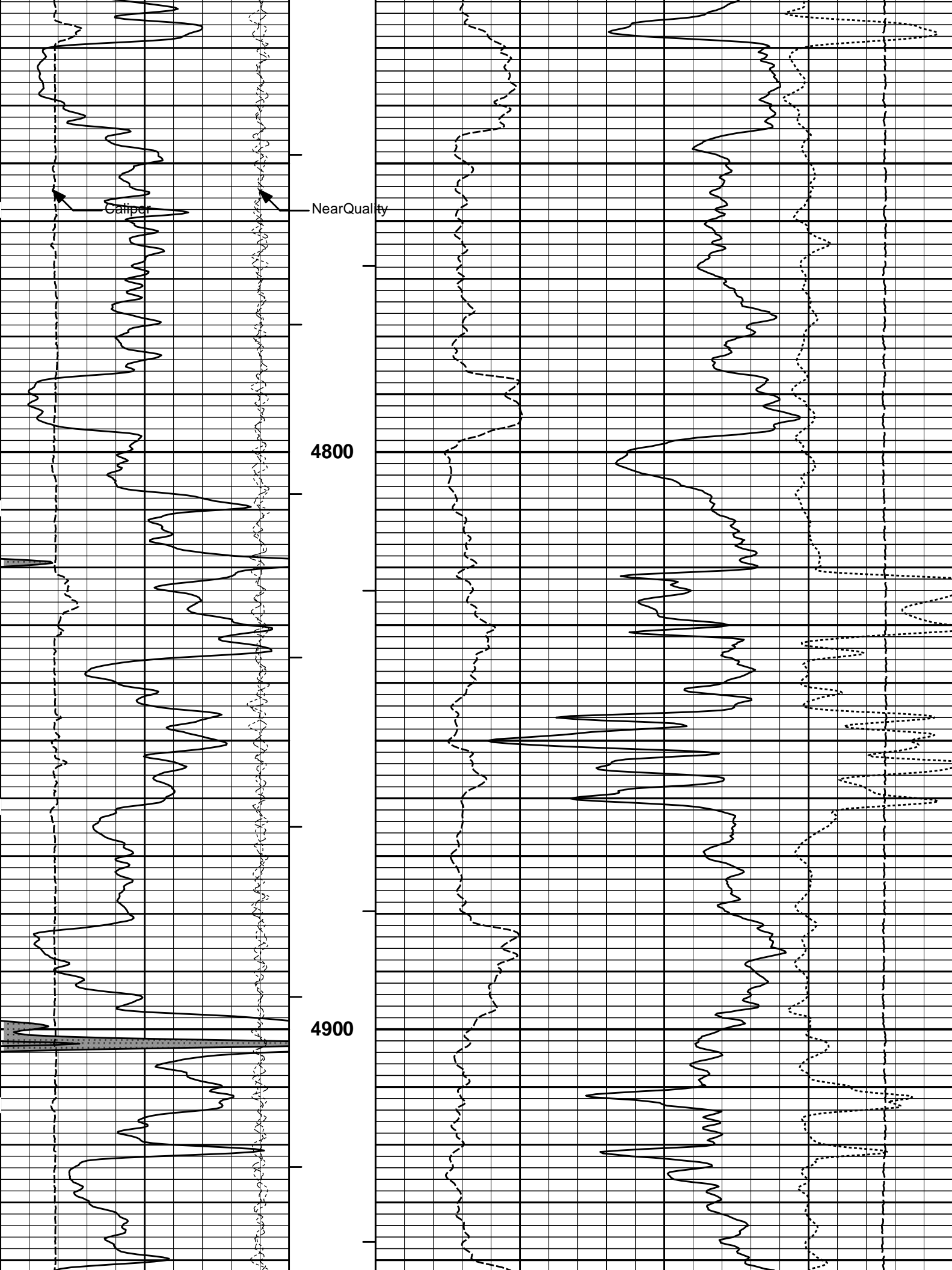


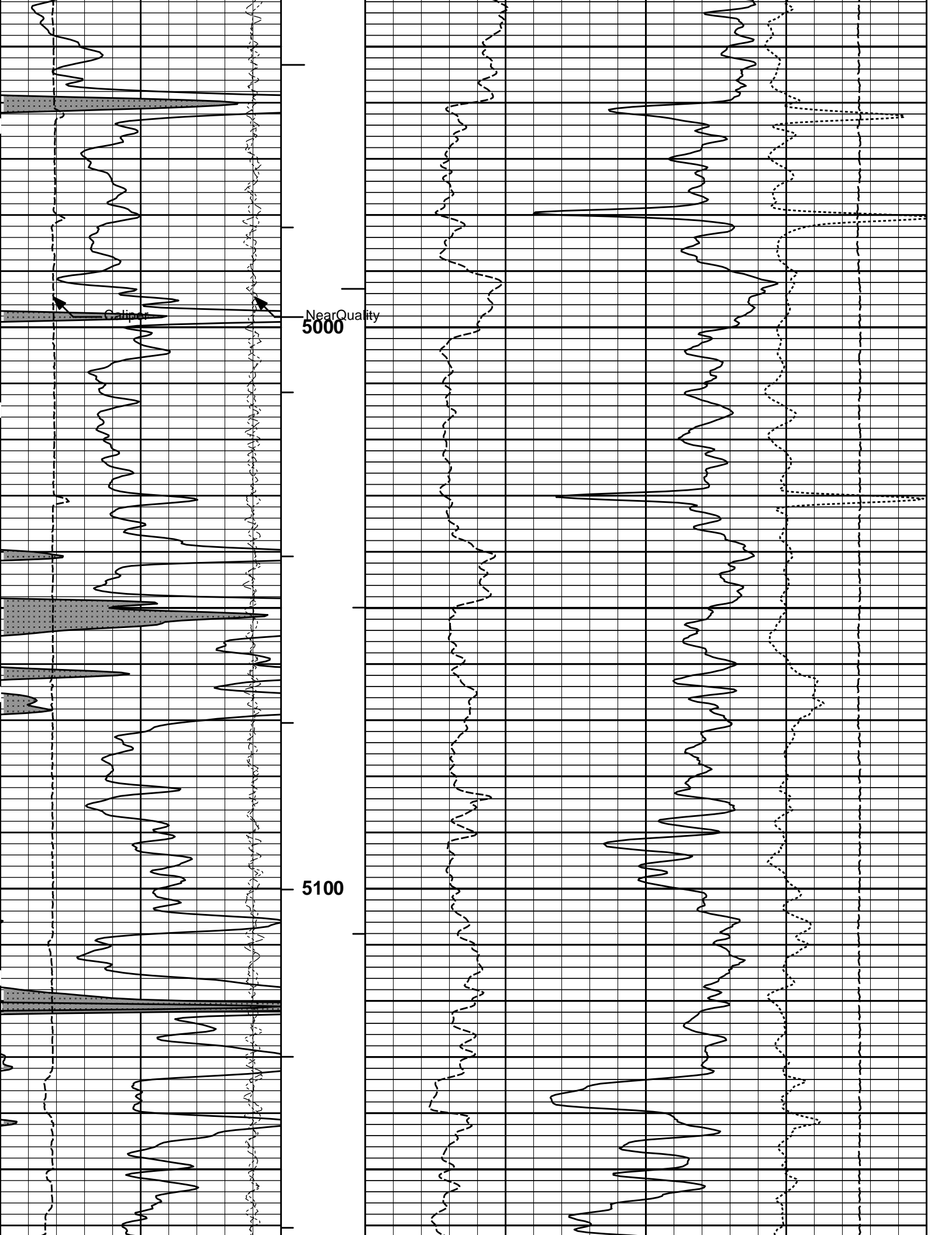


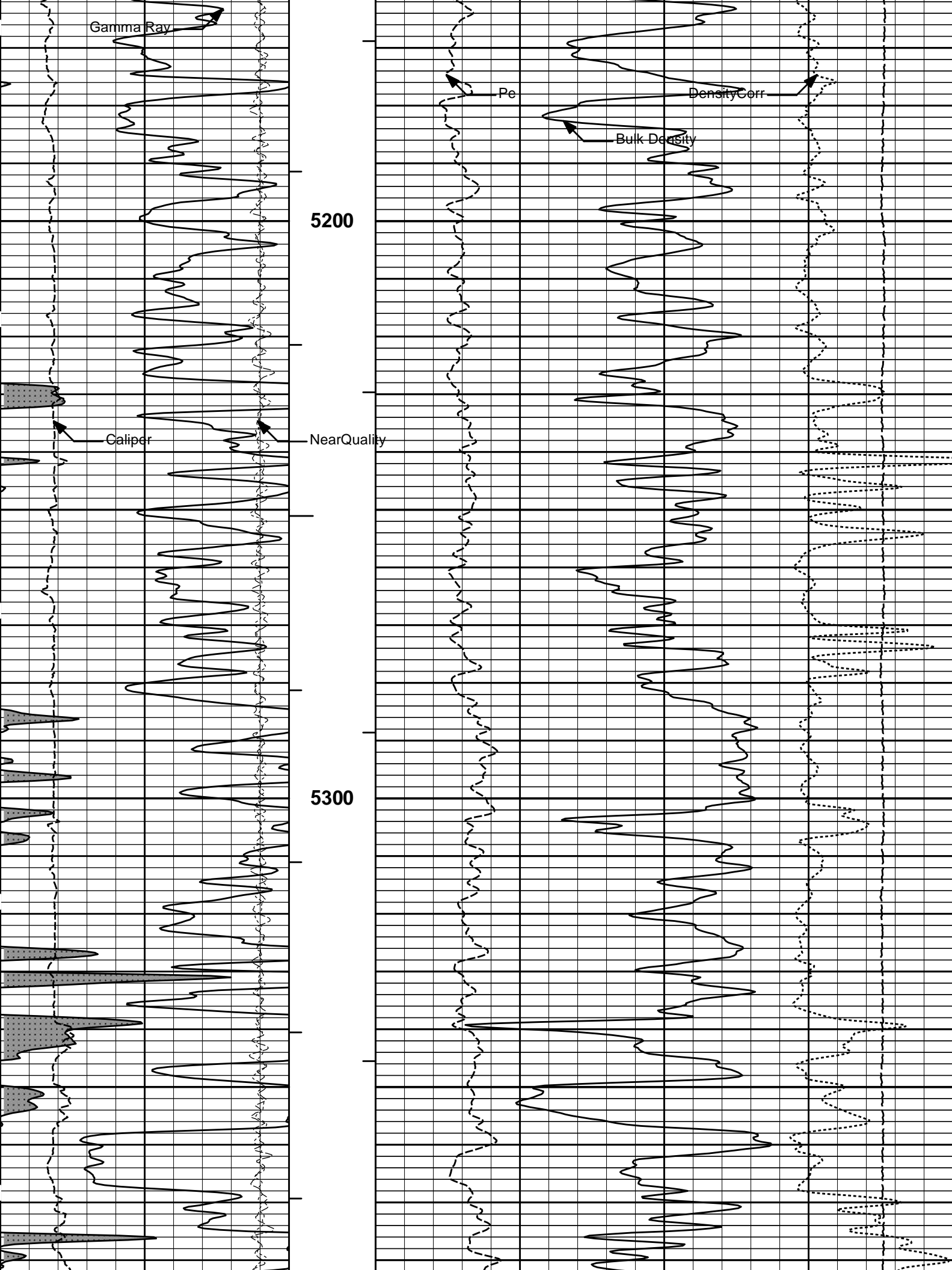


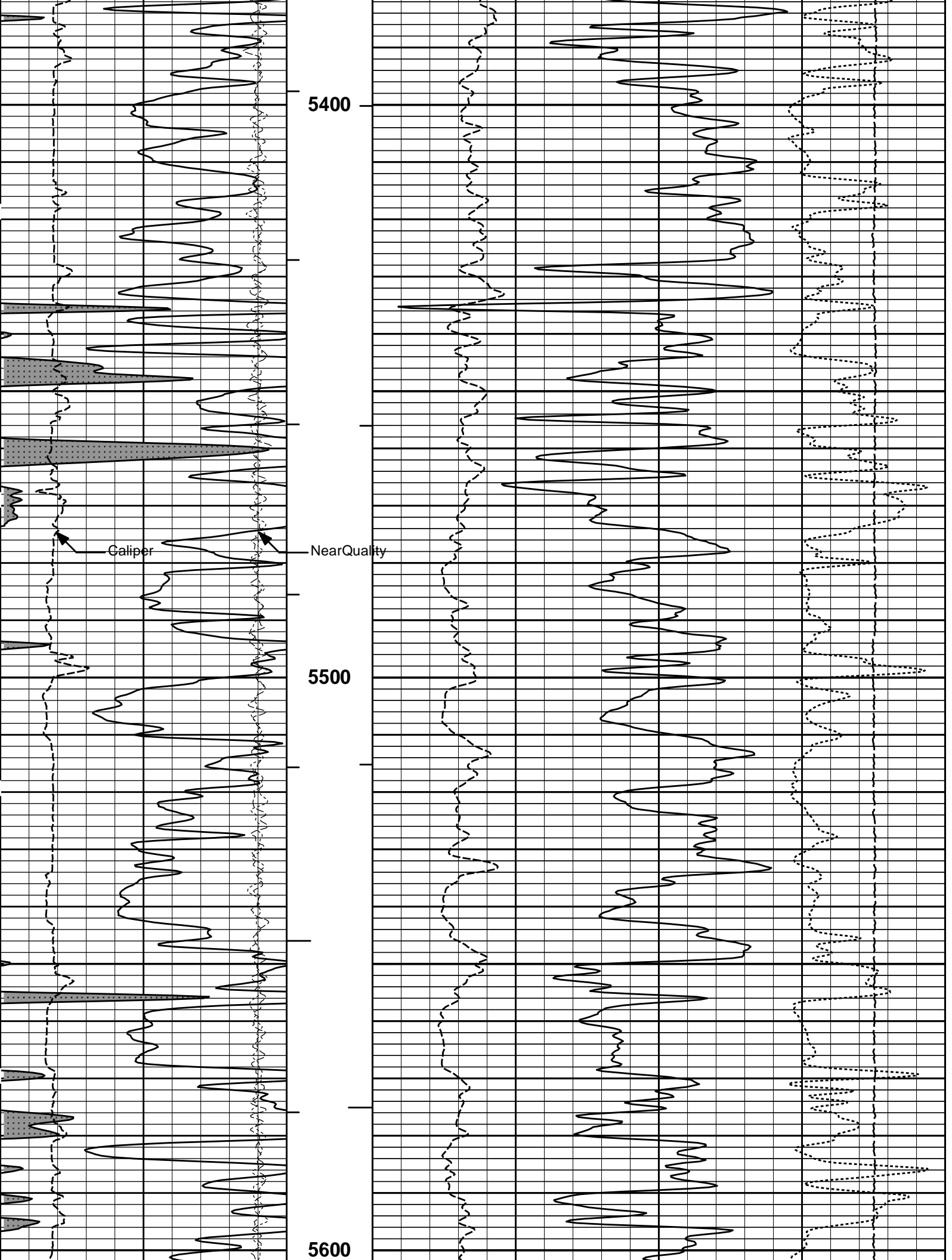


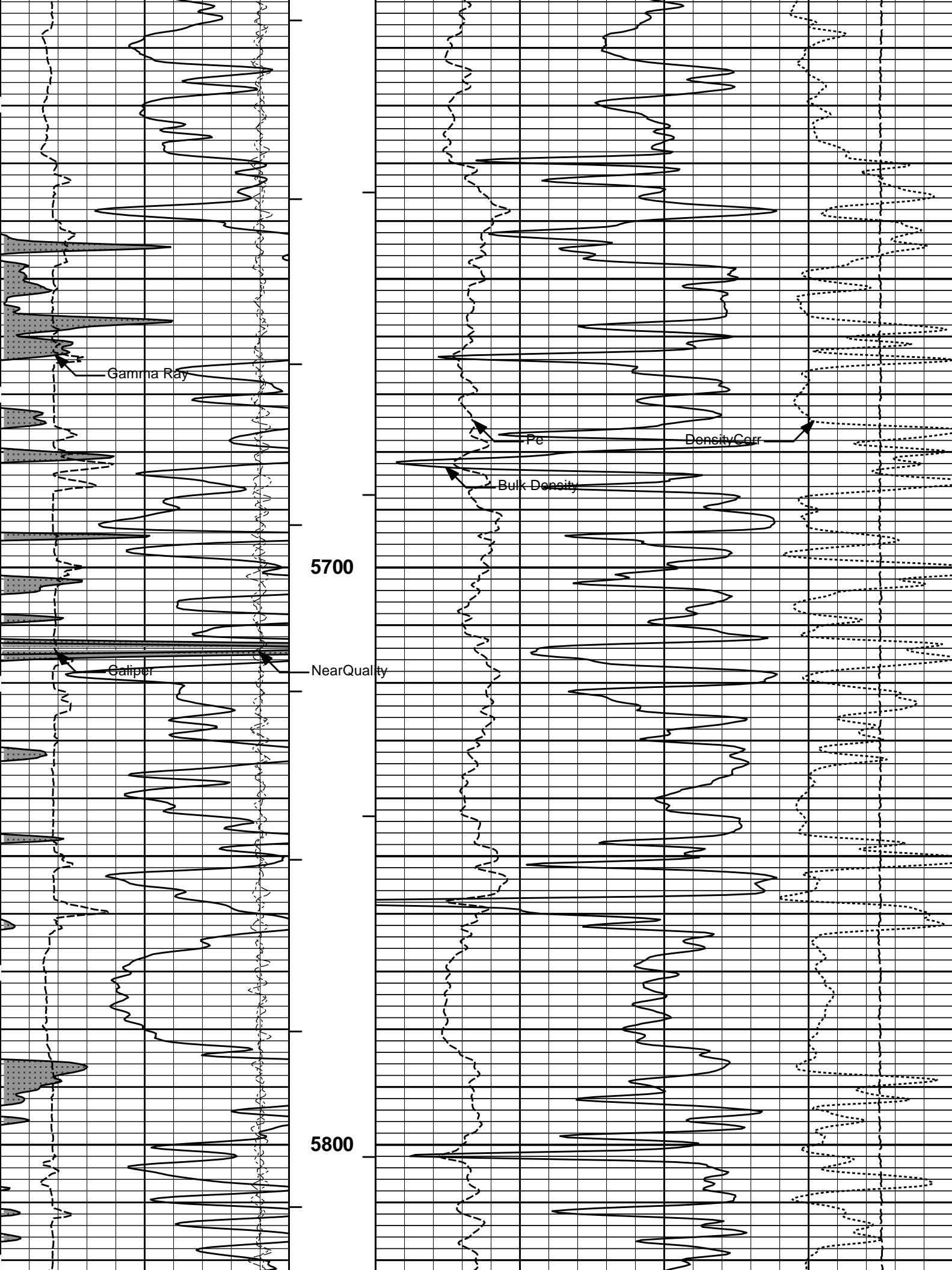


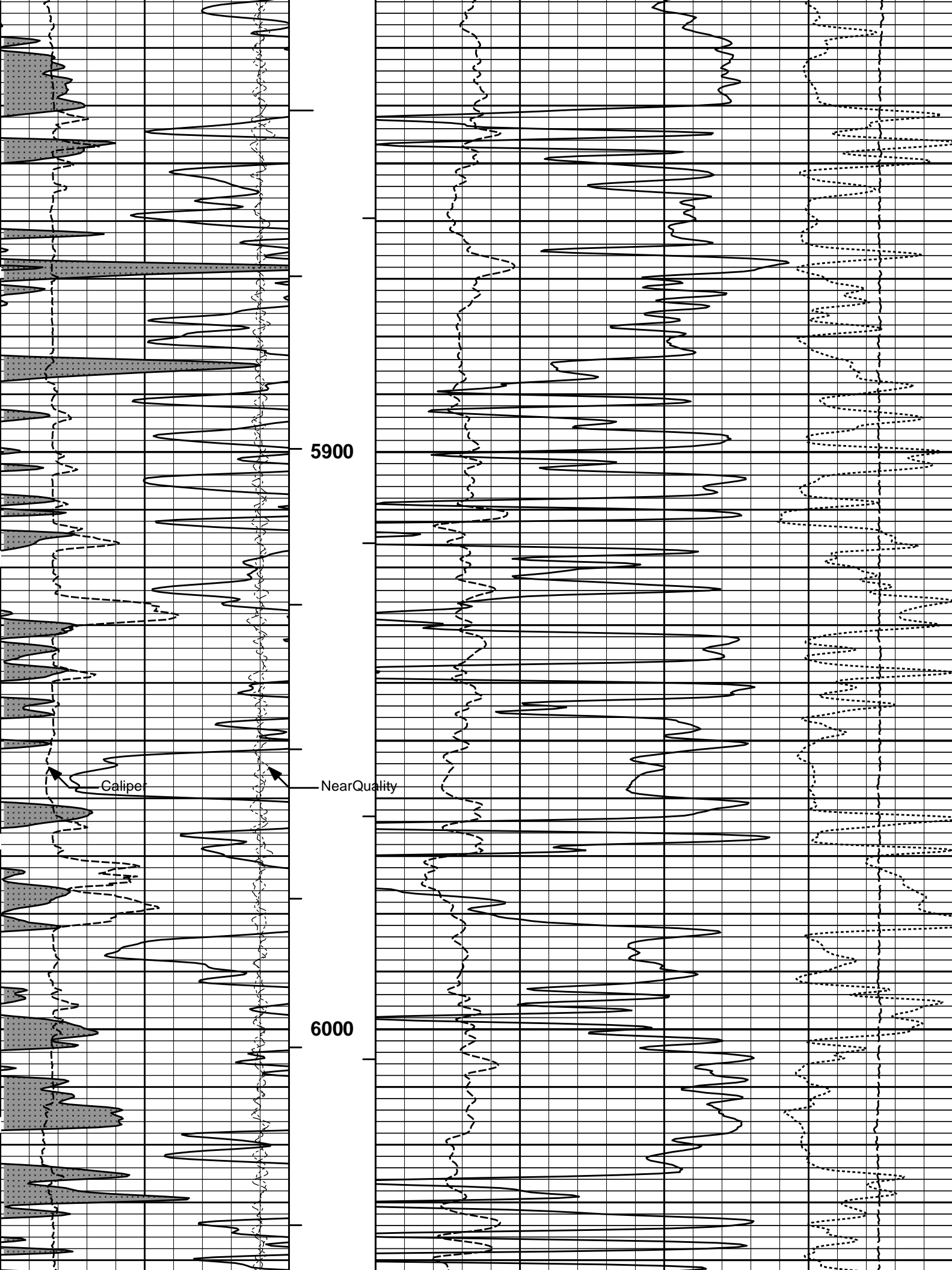


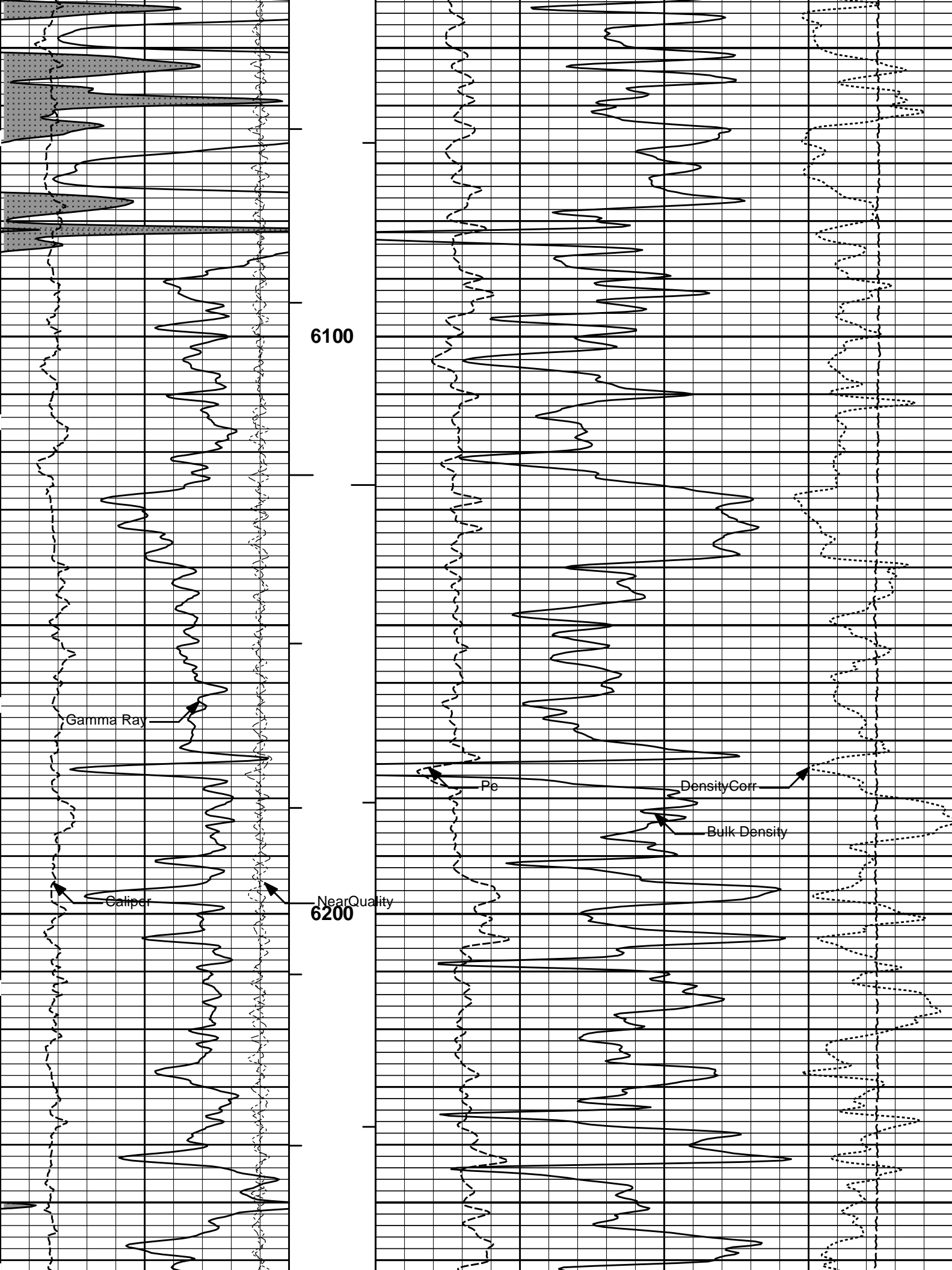


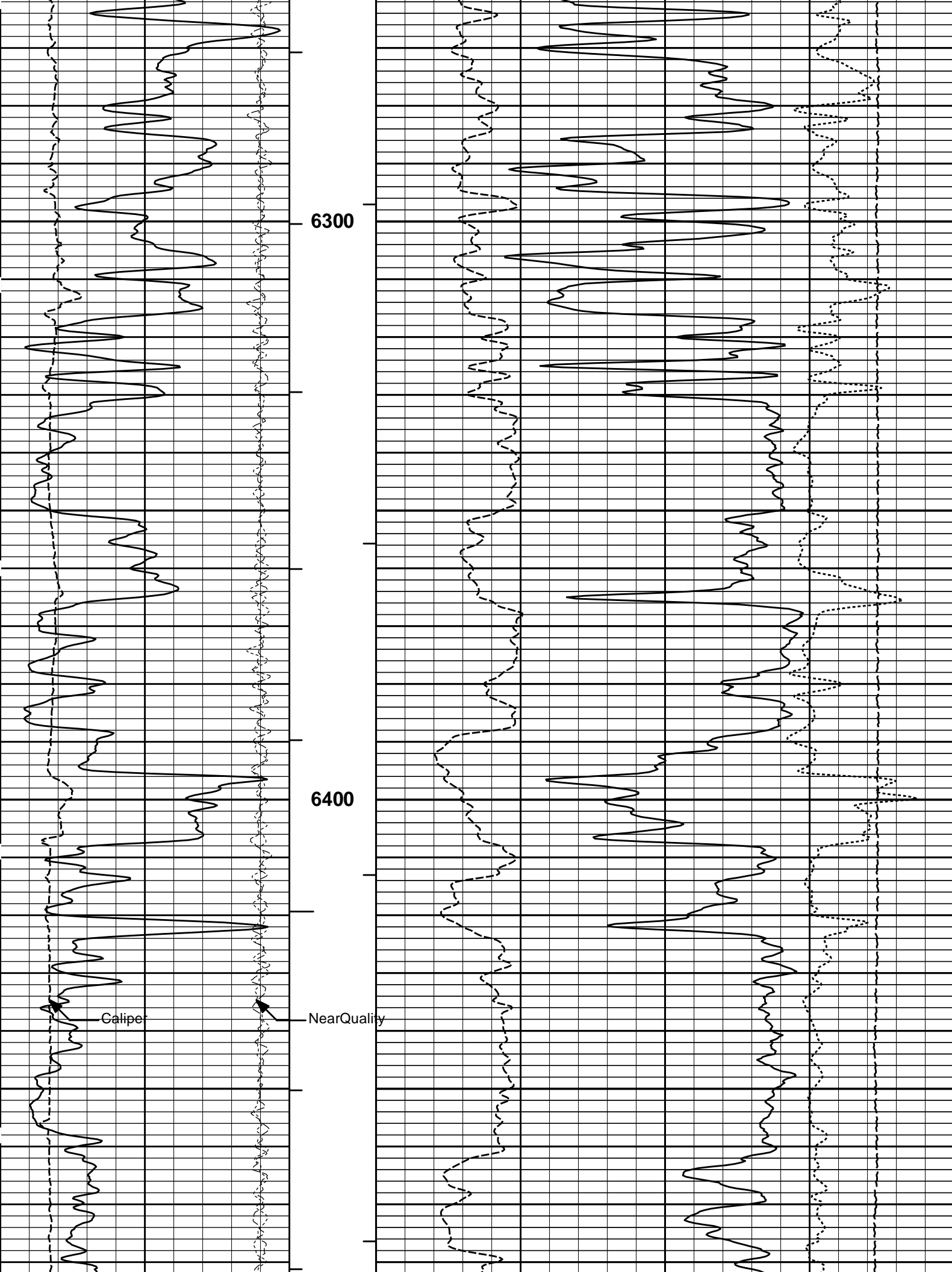


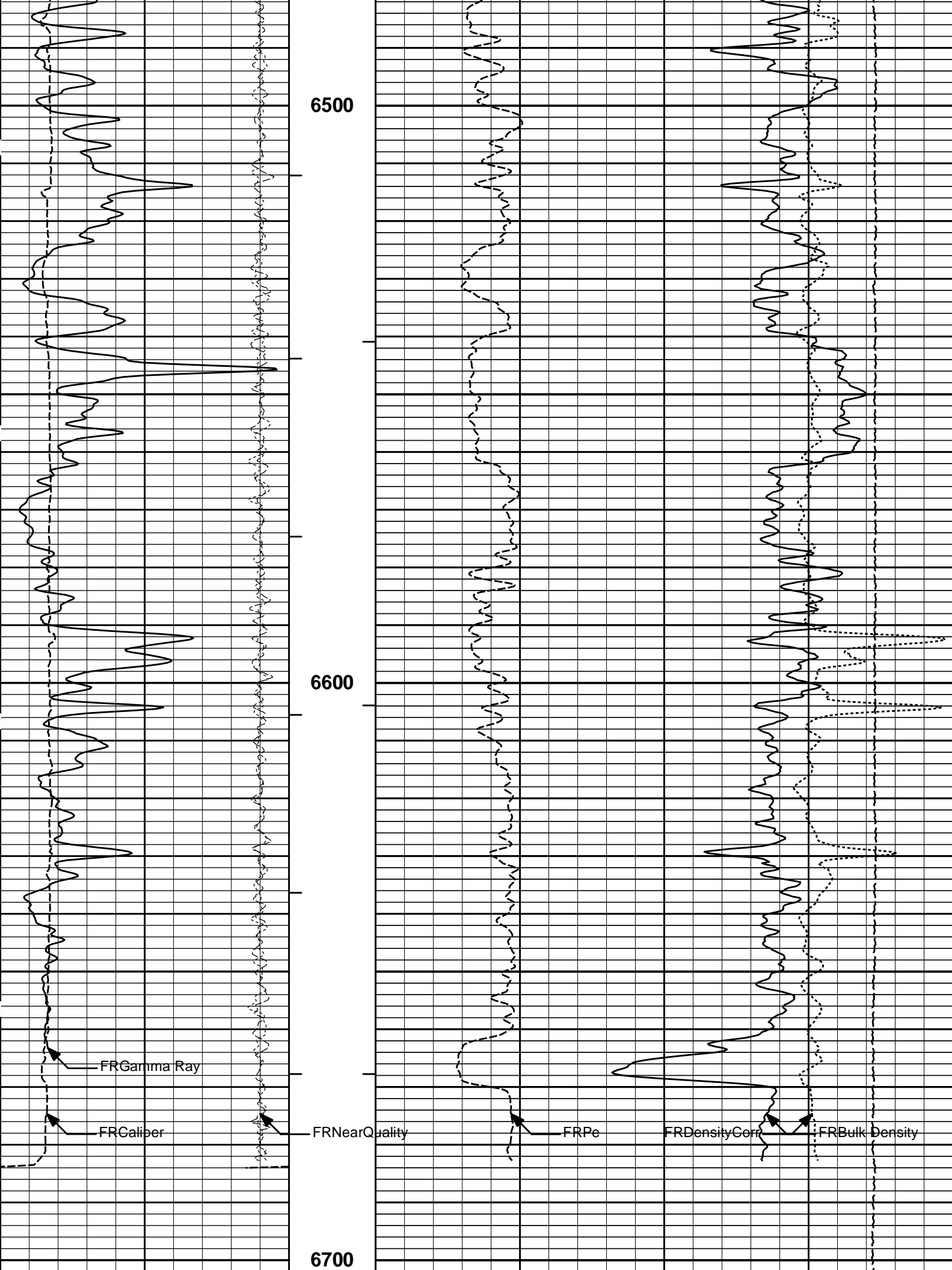


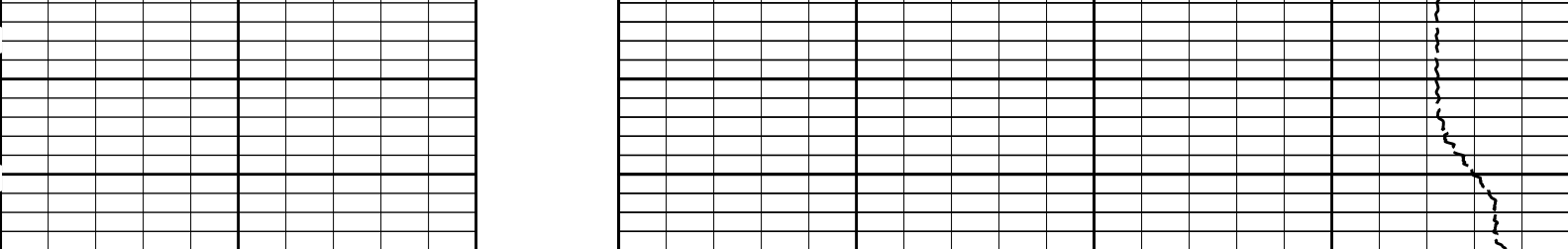












6	Caliper	16	MD 1 : 240 ft	0	Pe	10	-0.25	DensityCorr	0.25	
	inches									
-18	NearQuality	2	AHV ft3	15K	Tension	0				
18	FarQuality	-2	BHV ft3	Bulk Density						3
				g/cc						
0	Gamma Ray	150								
	api									
	SHALE									

HALLIBURTON

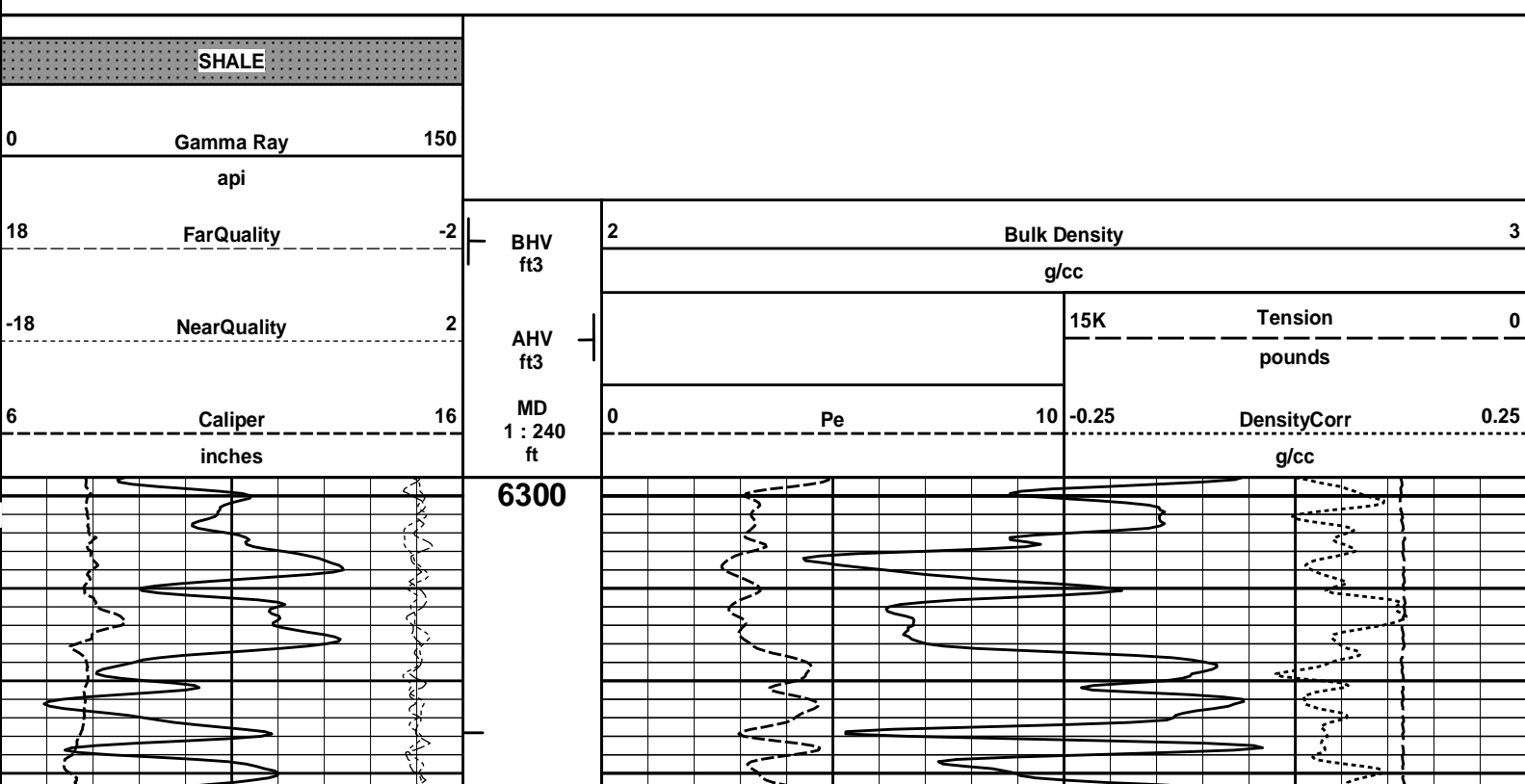
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Plot Range: 470 ft to 6728.25 ft
Data: CHRISTINA_1-2\Well Based\MAIN\
Plot File: \\LOCAL-CHRISTINA_1-2\Well Based\POROSITYBULKD_5_MAIN_LIB

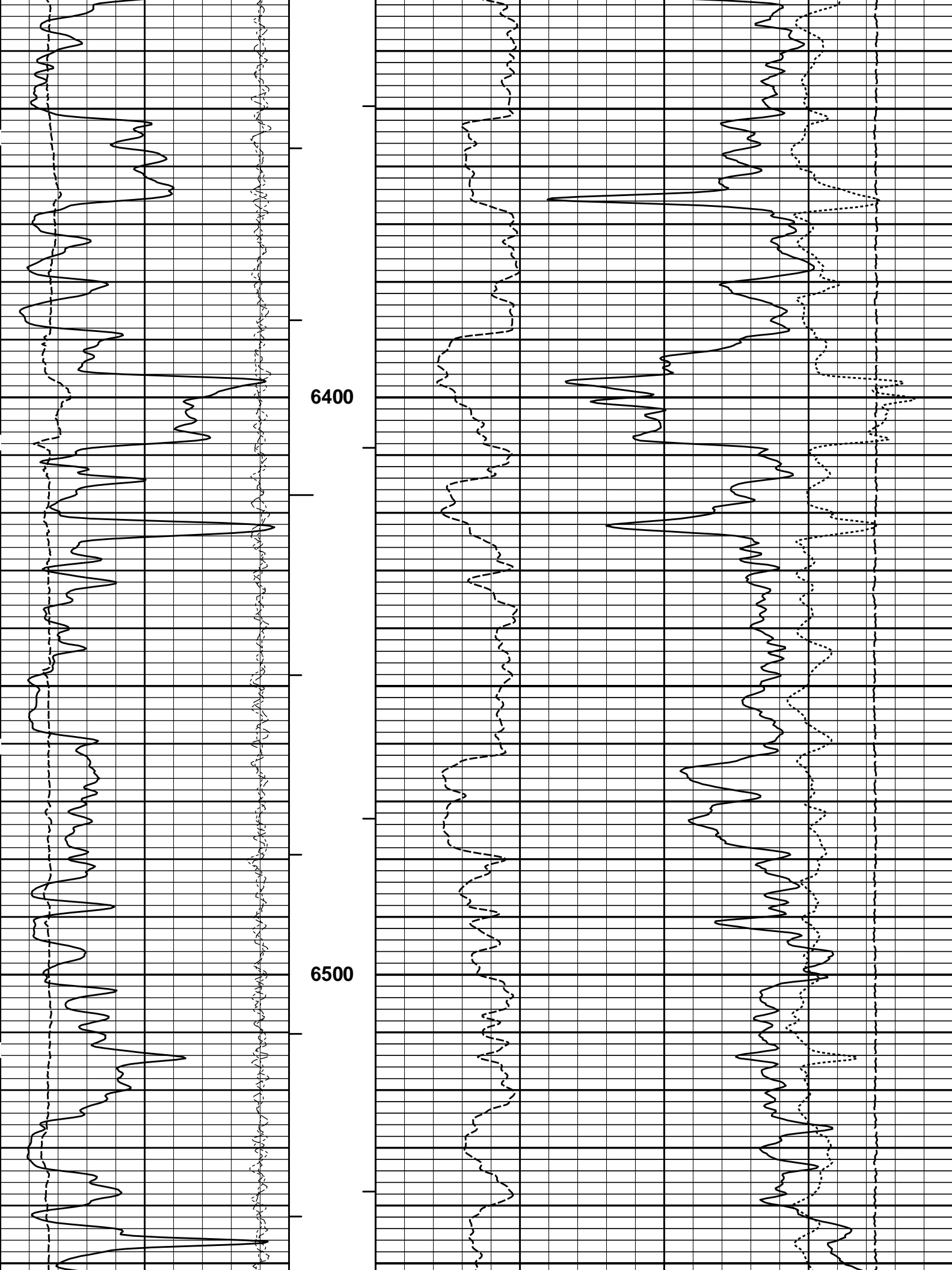
5 INCH MAIN LOG

HALLIBURTON

Plot Time: 30-Nov-14 16:45:39
Plot Range: 6298 ft to 6727 ft
Data: CHRISTINA_1-2\Well Based\REPEAT\
Plot File: \\LOCAL-CHRISTINA_1-2\Well Based\POROSITYBULKD_5_REP_LIB

REPEAT SECTION





HALLIBURTON

Plot Time: 30-Nov-14 16:45:40

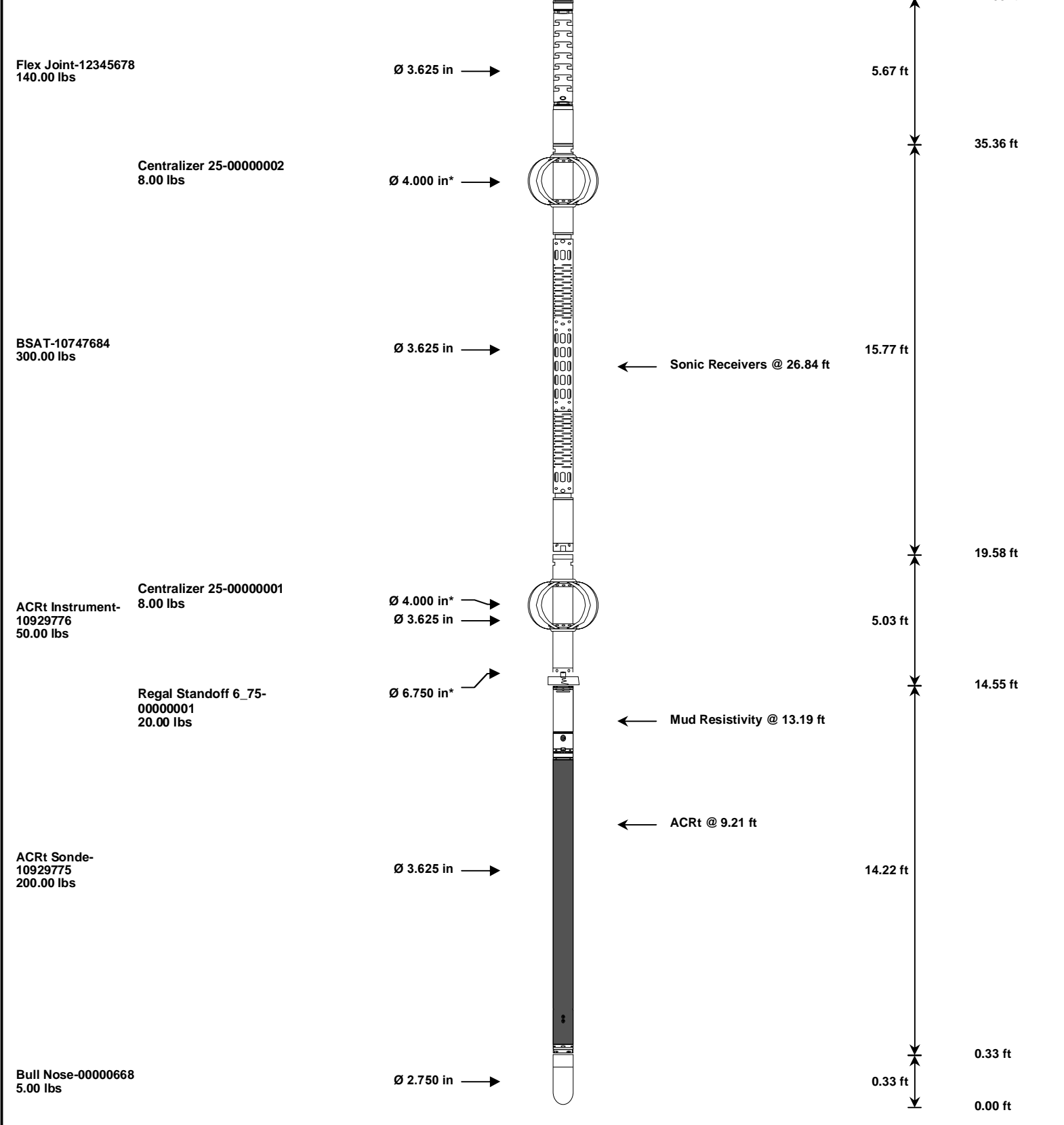
Plot Range: 6298 ft to 6727 ft

Data: CHRISTINA_1-2\Well Based\REPEAT\

Plot File: \\-LOCAL-CHRISTINA_1-2\Well Based\POROSITY\BULKD_5_REP_LIB

REPEAT SECTION**HALLIBURTON****TOOL STRING DIAGRAM REPORT**

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
						80.04 ft
RWCH-12156658 135.00 lbs		Ø 3.625 in →		Load Cell @ 76.35 ft BH Temperature @ 75.79 ft	6.25 ft	
						73.79 ft
SP Sub-12345678 60.00 lbs		Ø 3.625 in →		SP @ 72.01 ft	3.74 ft	
						70.05 ft
GTET-10748374 165.00 lbs		Ø 3.625 in →		GammaRay @ 63.99 ft	8.52 ft	
						61.53 ft
DSNT-10735145 174.00 lbs	DSN Decentralizer- 10735145 6.60 lbs	Ø 5.000 in* → Ø 3.625 in →		DSN Far @ 54.59 ft DSN Near @ 53.84 ft	9.69 ft	
						51.84 ft
SDLT-10673803 360.00 lbs	SDLT Pad-10673790 65.00 lbs Microlog Pad-10673803 8.00 lbs	Ø 4.500 in → Ø 4.750 in* → Ø 4.750 in* →		Microlog @ 44.03 ft SDL Caliper @ 43.84 ft SDL @ 43.83 ft	10.81 ft	
						41.03 ft



Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max.Log. Speed (fpm)
RWCH	Releasable Wireline Cable Head	12156658	135.00	6.25	73.79	300.00
SP	SP Sub	12345678	60.00	3.74	70.05	300.00
GTET	Gamma Telemetry Tool	10748374	165.00	8.52	61.53	60.00
DSNT	Dual Spaced Neutron	10735145	174.00	9.69	51.84	60.00
DCNT	DSN Decentralizer	10735145	6.60	5.13	* 55.17	300.00
SDLT	Spectral Density Tool	10673803	360.00	10.81	41.03	60.00
SDLP	Density Insite Pad	10673790	65.00	2.55	* 43.24	60.00
MICP	Microlog Pad	10673803	8.00	1.00	* 43.53	60.00
FLEX	Flex Joint	12345678	140.00	5.67	35.36	300.00
BSAT	Borehole Sonic Array Tool	10747684	300.00	15.77	19.58	60.00
OBCEN	Centralizer - 25 in. Overbody	00000002	8.00	2.08	* 32.89	300.00
ACRt	Array Compensated True Resistivity Instrument Section	10929776	50.00	5.03	14.55	120.00

OBCEN	Centralizer - 25 in. Overbody	00000001	8.00	2.08	*	16.57	300.00
ACRt	Array Compensated True Resistivity Sonde Section	10929775	200.00	14.22		0.33	120.00
RSOF	Regal Standoff 6.75in	00000001	20.00	0.52	*	14.53	300.00
BLNS	Bull Nose	00000668	5.00	0.33		0.00	300.00
Total			1,704.60	80.04			
* Not included in Total Length and Length Accumulation.							
Data: CHRISTINA_1-2\0001 SP-GTET-DSNT-SDLT-FLEX-BSAT-ACRT-BNIDLE						Date: 30-Nov-14 11:53:32	

HALLIBURTON

PARAMETERS REPORT

Depth (ft)	Tool Name	Mnemonic	Description	Value	Units
TOP					
	SHARED	BS	Bit Size	7.875	in
	SHARED	UBS	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	MDBS	Mud Base	Water	
	SHARED	MDWT	Borehole Fluid Weight	9.200	ppg
	SHARED	WAGT	Weighting Agent	Natural	
	SHARED	BSAL	Borehole salinity	0.00	ppm
	SHARED	FSAL	Formation Salinity NaCl	0.00	ppm
	SHARED	KPCT	Percent K in Mud by Weight?	0.00	%
	SHARED	RMUD	Mud Resistivity	2.000	ohmm
	SHARED	TRM	Temperature of Mud	75.0	degF
	SHARED	CSD	Logging Interval is Cased?	No	
	SHARED	ICOD	AHV Casing OD	5.500	in
	SHARED	ST	Surface Temperature	75.0	degF
	SHARED	TD	Total Well Depth	6725.00	ft
	SHARED	BHT	Bottom Hole Temperature	140.0	degF
	SHARED	SVTM	Navigation and Survey Master Tool	NONE	
	SHARED	AZTM	High Res Z Accelerometer Master Tool	GTET	
	SHARED	TEMM	Temperature Master Tool	NONE	
	Rwa / CrossPlot	XPOK	Process Crossplot?	Yes	
	Rwa / CrossPlot	FCHO	Select Source of F	Automatic	
	Rwa / CrossPlot	AFAC	Archie A factor	0.6200	
	Rwa / CrossPlot	MFAC	Archie M factor	2.1500	
	Rwa / CrossPlot	RMFR	Rmf Reference	0.10	ohmm
	Rwa / CrossPlot	TMFR	Rmf Ref Temp	75.00	degF
	Rwa / CrossPlot	RWA	Resistivity of Formation Water	0.05	ohmm
	Rwa / CrossPlot	ADP	Use Air Porosity to calculate CrossplotPhi	No	
	Rwa / CrossPlot	BHSM	Borehole Size Source Tool	SDLT	
	GTET	GROK	Process Gamma Ray?	Yes	
	GTET	GRSO	Gamma Tool Standoff	0.000	in
	GTET	GEOK	Process Gamma Ray EVR?	No	
	GTET	TPOS	Tool Position for Gamma Ray Tools.	Eccentered	
	GTET	BHSM	Borehole Size Source Tool	SDLT	
	DSNT	DNOK	Process DSN?	Yes	
	DSNT	DEOK	Process DSN EVR?	No	

DSNT	NLIT	Neutron Lithology	Limestone	
DSNT	DNSO	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.250	in
DSNT	DNTP	Temperature Correction Type	None	
DSNT	DPRS	DSN Pressure Correction Type	None	
DSNT	SHCO	View More Correction Options	No	
DSNT	UTVD	Use TVD for Gradient Corrections?	No	
DSNT	LHWT	Logging Horizontal Water Tank?	No	
DSNT	BHSM	Borehole Size Source Tool	SDLT	
SDLT	CLOK	Process Caliper Outputs?	Yes	
SDLT Pad	DNOK	Process Density?	Yes	
SDLT Pad	DNOK	Process Density EVR?	No	
SDLT Pad	CB	Logging Calibration Blocks?	No	
SDLT Pad	SPVT	SDLT Pad Temperature Valid?	Yes	
SDLT Pad	DTWN	Disable temperature warning	No	
SDLT Pad	DMA	Formation Density Matrix	2.710	g/cc
SDLT Pad	DFL	Formation Density Fluid	1.000	g/cc
SDLT Pad	BHSM	Borehole Size Source Tool	SDLT	
Microlog Pad	MLOK	Process MicroLog Outputs?	Yes	
BSAT	MBOK	Compute BCAS Results?	Yes	
BSAT	FLLO	Frequency Filter Low Pass Value?	5000	Hz
BSAT	FLHI	Frequency Filter High Pass Value?	27000	Hz
BSAT	DTFL	Delta -T Fluid	189.00	uspf
BSAT	DTMT	Delta -T Matrix Type	User define	
BSAT	DTMA	Delta -T Matrix	47.60	uspf
BSAT	DTSH	Delta -T Shale	100.00	uspf
BSAT	SPEQ	Acoustic Porosity Equation	Wylie	
ACRt Sonde	RTOK	Process ACRt?	Yes	
ACRt Sonde	MNSO	Minimum Tool Standoff	1.50	in
ACRt Sonde	TCS1	Temperature Correction Source	FP Lwr & FP Up	
ACRt Sonde	TPOS	Tool Position	Free Hanging	
ACRt Sonde	RMOP	Rmud Source	Mud Cell	
ACRt Sonde	RMIN	Minimum Resistivity for MAP	0.20	ohmm
ACRt Sonde	RMIN	Maximum Resistivity for MAP	200.00	ohmm
ACRt Sonde	THQY	Threshold Quality	0.50	
ACRt Sonde	MRFX	Fixed mud resistivity	2000	ohmm
ACRt Sonde	BHSM	Borehole Size Source Tool	SDLT	
ACRt Sonde	MBFL	Apply Corkscrew Effect?	No	
ACRt Sonde	HRFL	High-Resistivity Version (Tar Sand Only)?	No	
BOTTOM				
Data: CHRISTINA_1-2\0001 SP-GTET-DSNT-SDLT-FLEX-BSAT-ACRT-BNIDLE			Date: 30-Nov-14 12:10:00	

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name:	GTET - 10748374	Reference Calibration Date:	01-Oct-14 15:40:42
Engineer:	SHELDON INGERSOLL	Calibration Date:	18-Nov-14 16:59:40
Software Version:	WL INSITE R4.4.3 (Build 6)	Calibration Version:	1

Calibrator Source S/N: TB-185

Calibrator API Reference:228.00 api

Equivalent Calibrator API Reference:232.0 api

Measurement	Measured	Calibrated	Units
Background	38.0	36.9	api
Background + Calibrator	276.9	268.9	api
Calibrator	238.9	232.0	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION			
Tool Name:	GTET - 10748374	Reference Calibration Date:	18-Nov-14 16:59:40
Engineer:	JORGE ORLANDO PEREZ	Calibration Date:	26-Nov-14 11:38:50
Software Version:	WL INSITE R4.4.3 (Build 6)	Calibration Version:	1
Calibrator Source S/N: TB-185			
Calibrator API Reference:228.00 api			
Equivalent Calibrator API Reference:232.0 api			
Field Verification	Shop	Field	Units
Background	36.9	75.0	api
Background + Calibrator	268.9	299.8	api
Calibrator	232.0	224.8	api
Shop	Field	Difference	Tolerance
232.0	224.8	7.2	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION				
Tool Name:	DSNT - 10735145	Reference Calibration Date:	01-Oct-14 11:50:18	
Engineer:	SHELDON INGERSOLL	Calibration Date:	04-Nov-14 13:38:37	
Software Version:	WL INSITE R4.2.0 (Build 2)	Calibration Version:	1	
Logging Source S/N: DSN-436				
Tank Serial Number: LIBERAL				
Reference value assigned to Tank: 51.680				
Snow Block S/N: 668				
Calibration Tank Water Temperature: 80 degF				
Min. Tool Housing Outside Diameter: 3.625 in				
CALIBRATION CONSTANTS				
Measurement	Prev. Value	New Value	Control Limit On New Value	
Gain:	0.941	0.942	0.900 - 1.100	
WATER TANK SUMMARY (Horizontal Water Tank)				
Measurement	Current Reading (Previous Coef.)	Calibrated (New Coef.)	Change	Control Limit On Change
Porosity (decp):	0.2109	0.2110	0.0001	+/- 0.0020
Calibrated Ratio:	9.72	9.73	0.004	+/- 0.050
VERIFIER				
Measurement	Value	Control Limit		
Snow-Block Porosity (decp):	0.0580	0.02000 - 0.09000		
PASS/FAIL SUMMARY				
Background Check:		Passed		
Gain-Range Check:		Passed		
Snow-Block Check:		Passed		

DUAL SPACED NEUTRON FIELD CALIBRATION			
Tool Name:	DSNT - 10735145	Reference Calibration Date:	04-Nov-14 13:38:37

Engineer:	JORGE ORLANDO PEREZ	Calibration Date:	26-Nov-14 11:34:41
Software Version:	WL INSITE R4.4.3 (Build 6)	Calibration Version:	1
Logging Source S/N: DSN-436 Snow Block S/N: 668			
NEUTRON FIELD-CHECK SUMMARY			
	Shop	Field	Difference
			Control Limit On Change
Snow-Block Porosity (decp):	0.0580	0.0588	0.0009 +/- 0.0150
PASS/FAIL SUMMARY			
Block Change Check:		Passed	
Snow Block Stat Check:		Passed	
Temperature Check:		Passed	

DENSITY CALIPER SHOP CALIBRATION			
Tool Name:	SDLT - 10673803	Reference Calibration Date:	02-Oct-14 11:07:53
Engineer:	JORGE ORLANDO PEREZ	Calibration Date:	17-Nov-14 10:23:04
Software Version:	WL INSITE R4.4.3 (Build 6)	Calibration Version:	1
Host Tool Name:	DSNT - 10735145		

CALIBRATION COEFFICIENTS				
Measurement	Previous Value	New Value	Control Limit On New Value	
Pad Offset	-3759.98	-3053.35	-7000.00 - -1000.00	
Pad Gain	0.0004072	0.0003748	0.000200 - 0.000600	
Arm Offset	-4259.56	-4973.87	-5000.00 - 3000.00	
Arm Gain	0.0005085	0.0005142	0.000300 - 0.000700	
Arm Power	-0.000004394	-0.000004974	-0.000010000 - 0.000010000	
The ring diameter is computed from: DIAMETER = PAD EXTENSION + ARM EXTENSION + TOOL DIAMETER				
Tool Diameter: 4.50 in				
CALIBRATION RINGS				
Measurement	Current Reading (Previous Coeff.)	Calibrated (New Coeff.)	Change	Control Limit On New Value
PAD EXTENSION:				
Small Ring (in)	1.89	2.00	0.11	+/- 0.20
Medium Ring (in)	3.79	3.75	-0.04	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.55	6.50	-0.05	+/- 0.20
Medium Ring (in)	8.27	8.25	-0.02	+/- 0.20
Large Ring (in)	15.04	15.00	-0.04	+/- 0.20
PASS/FAIL SUMMARY				
Calibration-Coefficients Range Check:			Passed	
Ring-Measurement Check:			Passed	
PASS/FAIL SUMMARY				
Calibration-Coefficients Range Check:			Passed	

SDLT CALIPER FIELD CALIBRATION			
Tool Name:	SDLT - 10673803	Reference Calibration Date:	17-Nov-14 10:23:04
Engineer:	JORGE ORLANDO PEREZ	Calibration Date:	26-Nov-14 11:26:50
Software Version:	WL INSITE R4.4.3 (Build 6)	Calibration Version:	1

MEASURED CALIPER VALUES			
			Control Limit On

Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.78	0.03	+/- 0.10
Ring Diameter	8.25	8.31	0.06	+/- 0.15
PASS/FAIL SUMMARY				
Pad Extension Check:			Passed	
Diameter Check:			Passed	

SPECTRAL DENSITY SHOP CALIBRATION				
Tool Name:	SDLT Pad - 10673790		Reference Calibration Date:	02-Oct-14 10:26:40
Engineer:	JORGE ORLANDO PEREZ		Calibration Date:	17-Nov-14 09:56:30
Software Version:	WL INSITE R4.4.3 (Build 6)		Calibration Version:	1

Logging Source S/N: 5073 GW				
Aluminum Block S/N: LIBERAL		Density: 2.598g/cc	Pe: 3.170	
Magnesium Block S/N: LIBERAL		Density: 1.684g/cc	Pe: 2.598	

DENSITY CALIBRATION SUMMARY				
Measurement	Previous Value	New Value	Control Limit	
Near Bar Gain	1.0310	1.0099	0.90 - 1.10	
Near Dens Gain	1.0322	0.9929	0.90 - 1.10	
Near Peak Gain	1.0206	0.9653	0.90 - 1.10	
Near Lith Gain	1.0059	0.9399	0.90 - 1.10	
Far Bar Gain	1.0132	1.0085	0.90 - 1.10	
Far Dens Gain	0.9996	0.9968	0.90 - 1.10	
Far Peak Gain	0.9915	0.9916	0.90 - 1.10	
Far Lith Gain	0.9591	0.9589	0.90 - 1.10	
Near Bar Offset	-0.0070	0.1832	NONE	
Near Dens Offset	-0.0197	0.3253	NONE	
Near Peak Offset	0.0939	0.5566	NONE	
Near Lith Offset	0.2026	0.7560	NONE	
Far Bar Offset	0.0858	0.1233	NONE	
Far Dens Offset	0.1723	0.1928	NONE	
Far Peak Offset	0.1900	0.1869	NONE	
Far Lith Offset	0.3520	0.3588	NONE	
Near Bar Background	837.89	834.89	700 - 1450	
Near Dens Background	275.17	271.91	230 - 480	
Near Peak Background	121.12	120.33	100 - 210	
Near Lith Background	147.54	148.59	125 - 260	
Far Bar Background	561.95	556.58	450 - 900	
Far Dens Background	219.86	220.17	175 - 345	
Far Peak Background	87.67	87.16	70 - 140	
Far Lith Background	91.17	91.07	75 - 145	

CALIBRATION BLOCK SUMMARY				
Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.683	1.684	0.001	+/- 0.015
Pe	2.580	2.552	-0.028	+/- 0.150
ALUMINUM				
Density (g/cc)	2.589	2.598	0.009	+/- 0.01500

TOOL SUMMARY

Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	0.0001	+/- 0.0110	-0.0009	+/- 0.0140
Magnesium Block	-0.0005	+/- 0.0110	-0.0016	+/- 0.0140
Aluminum Block	-0.0002	+/- 0.0110	0.0004	+/- 0.0140
Resolution	8.64	6.00 - 11.50	8.92	6.00 - 11.50
Internal Verifier(B+D+P+L)	1376	1200 - 2700	955	800 - 1700

PASS/FAIL SUMMARY

Background Quality Check:	Passed
Background Range Check:	Passed
Background Resolution Check:	Passed
Background Verification Check:	Passed
Magnesium Quality Check:	Passed
Aluminum Quality Check:	Passed
Gains Check:	Passed
Changes in Calibration Blocks:	Passed

SPECTRAL DENSITY FIELD CHECK

Tool Name:	SDLT Pad - 10673790	Reference Calibration Date:	17-Nov-14 09:56:30
Engineer:	SHELDON INGERSOLL	Calibration Date:	26-Nov-14 11:11:21
Software Version:	WL INSITE R4.4.3 (Build 6)	Calibration Version:	1

Pad Temperature: 68.2 degF

DENSITY FIELD CALIBRATION SUMMARY

Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1375.724	1374.000	-1.724	14.988
Far (B+D+P+L) cps	954.977	955.704	0.727	16.654
Near Resolution	8.64	8.62	-0.020	0.50
Far Resolution	8.92	9.12	0.200	1.00

PASS/FAIL SUMMARY

Bkg Quality Check:	Passed
Bkg Resolution Check:	Passed
Bkg Verification Check:	Passed

CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-10748374						
Gamma Ray Calibrator	232.0	224.8	-----	7.2	+/- 9.00	api
DSNT-10735145						
Snow-Block Porosity	0.0580	0.0588	-----	-0.0008	+/- 0.0150	decp
SDLT-10673803						
Pad Extension	3.75	3.78	-----	-0.03	+/-0.10	in
Ring Diameter	8.25	8.31	-----	-0.06	+/-0.15	in
SDLT Pad-10673790						
Near(B+D+P+L)	1375.724	1374.000	-----	1.724	+/-14.988	cps

Far(B+D+P+L)		954.977	955.704	-----	-0.727	+/-16.654	cps
Data: CHRISTINA 1-2\0001 SP-GTET-DSNT-SDLT-FLEX-BSAT-ACRT-BMIDLE					Date: 30-Nov-14 11:56:42		
HALLIBURTON							
INPUTS, DELAYS AND FILTERS TABLE							
Mnemonic		Input Description	Delay (ft)	Filter Type	Filter Length (ft)		
Depth Panel							
TENS	Tension		0.00	NO			
Rwa / CrossPlot							
TPUL	Tension Pull		80.04	NO			
BS	Bit Size		80.04	NO			
HDIA	Measured Hole Diameter		0.00	NO			
RWCH							
DHTN	DownholeTension		0.00	BLK	0.000		
SP Sub							
PLTC	Plot Control Mask		72.01	NO			
SP	Spontaneous Potential		72.01	BLK	1.250		
SPR	Raw Spontaneous Potential		72.01	NO			
SPO	Spontaneous Potential Offset		72.01	NO			
GTET							
TPUL	Tension Pull		63.99	NO			
GR	Natural Gamma Ray API		63.99	TRI	1.750		
GRU	Unfiltered Natural Gamma Ray API		63.99	NO			
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution		63.99	W	1.416 , 0.750		
HDIA	Measured Hole Diameter		0.00	NO			
ACCZ	Accelerometer Z		0.00	BLK	0.083		
DEVI	Inclination		0.00	NO			
DSNT							
TPUL	Tension Pull		53.74	NO			
RNDS	Near Detector Telemetry Counts		53.84	BLK	1.417		
RFDS	Far Detector Telemetry Counts		54.59	TRI	0.583		
DNTT	DSN Tool Temperature		53.84	NO			
DSNS	DSN Tool Status		53.74	NO			
ERND	Near Detector Telemetry Counts EVR		53.84	BLK	0.000		
ERFD	Far Detector Telemetry Counts EVR		54.59	BLK	0.000		
ENTM	DSN Tool Temperature EVR		53.84	NO			
HDIA	Measured Hole Diameter		0.00	NO			
SDLT							
TPUL	Tension Pull		43.84	NO			
PCAL	Pad Caliper		43.84	TRI	0.250		
ACAL	Arm Caliper		43.84	TRI	0.250		
BSAT							
TPUL	Tension Pull		26.84	NO			
STAT	Status		26.84	NO			
DLYT	Delay Time		26.84	NO			
SI	Sample Interval		26.84	NO			
TXRX	Raw Telemetry 10 Receivers		26.84	NO			
EDMC	Tool Face Count		26.84	NO			

TRMC	Tool Frame Count	26.84	NO	
GMOD	Gain processing mode	19.58	NO	
ACRt Sonde				
TPUL	Tension Pull	2.73	NO	
F1R1	ACRT 12KHz - 80in R value	8.98	BLK	0.000
F1X1	ACRT 12KHz - 80in X value	8.98	BLK	0.000
F1R2	ACRT 12KHz - 50in R value	6.48	BLK	0.000
F1X2	ACRT 12KHz - 50in X value	6.48	BLK	0.000
F1R3	ACRT 12KHz - 29in R value	4.98	BLK	0.000
F1X3	ACRT 12KHz - 29in X value	4.98	BLK	0.000
F1R4	ACRT 12KHz - 17in R value	3.98	BLK	0.000
F1X4	ACRT 12KHz - 17in X value	3.98	BLK	0.000
F1R5	ACRT 12KHz - 10in R value	3.48	BLK	0.000
F1X5	ACRT 12KHz - 10in X value	3.48	BLK	0.000
F1R6	ACRT 12KHz - 6in R value	3.23	BLK	0.000
F1X6	ACRT 12KHz - 6in X value	3.23	BLK	0.000
F2R1	ACRT 36KHz - 80in R value	8.98	BLK	0.000
F2X1	ACRT 36KHz - 80in X value	8.98	BLK	0.000
F2R2	ACRT 36KHz - 50in R value	6.48	BLK	0.000
F2X2	ACRT 36KHz - 50in X value	6.48	BLK	0.000
F2R3	ACRT 36KHz - 29in R value	4.98	BLK	0.000
F2X3	ACRT 36KHz - 29in X value	4.98	BLK	0.000
F2R4	ACRT 36KHz - 17in R value	3.98	BLK	0.000
F2X4	ACRT 36KHz - 17in X value	3.98	BLK	0.000
F2R5	ACRT 36KHz - 10in R value	3.48	BLK	0.000
F2X5	ACRT 36KHz - 10in X value	3.48	BLK	0.000
F2R6	ACRT 36KHz - 6in R value	3.23	BLK	0.000
F2X6	ACRT 36KHz - 6in X value	3.23	BLK	0.000
F3R1	ACRT 72KHz - 80in R value	8.98	BLK	0.000
F3X1	ACRT 72KHz - 80in X value	8.98	BLK	0.000
F3R2	ACRT 72KHz - 50in R value	6.48	BLK	0.000
F3X2	ACRT 72KHz - 50in X value	6.48	BLK	0.000
F3R3	ACRT 72KHz - 29in R value	4.98	BLK	0.000
F3X3	ACRT 72KHz - 29in X value	4.98	BLK	0.000
F3R4	ACRT 72KHz - 17in R value	3.98	BLK	0.000
F3X4	ACRT 72KHz - 17in X value	3.98	BLK	0.000
F3R5	ACRT 72KHz - 10in R value	3.48	BLK	0.000
F3X5	ACRT 72KHz - 10in X value	3.48	BLK	0.000
F3R6	ACRT 72KHz - 6in R value	3.23	BLK	0.000
F3X6	ACRT 72KHz - 6in X value	3.23	BLK	0.000
RMUD	Mud Resistivity	12.52	BLK	0.000
F1RT	Transmitter Reference 12 KHz Real Signal	2.73	BLK	0.000
F1XT	Transmitter Reference 12 KHz Imaginary Signal	2.73	BLK	0.000
F2RT	Transmitter Reference 36 KHz Real Signal	2.73	BLK	0.000
F2XT	Transmitter Reference 36 KHz Imaginary Signal	2.73	BLK	0.000
F3RT	Transmitter Reference 72 KHz Real Signal	2.73	BLK	0.000
F3XT	Transmitter Reference 72 KHz Imaginary Signal	2.73	BLK	0.000
TFPU	Upper Feedpipe Temperature Calculated	2.73	BLK	0.000
TFPL	Lower Feedpipe Temperature Calculated	2.73	BLK	0.000
ITMP	Instrument Temperature	2.73	BLK	0.000
TCVA	Temperature Correction Values Loop Off	2.73	NO	
TIDV	Instrument Temperature Derivative	2.73	NO	
TUDV	Upper Temperature Derivative	2.73	NO	
TLDV	Lower Temperature Derivative	2.73	NO	
TBRD	Receiver Board Temperature	2.73	NO	

NRBD	Receiver Board Temperature	2.75	NO	
HDIA	Measured Hole Diameter	0.00	NO	
SDLT Pad				
TPUL	Tension Pull	43.83	NO	
NAB	Near Above	43.66	BLK	0.920
NHI	Near Cesium High	43.66	BLK	0.920
NLO	Near Cesium Low	43.66	BLK	0.920
NVA	Near Valley	43.66	BLK	0.920
NBA	Near Barite	43.66	BLK	0.920
NDE	Near Density	43.66	BLK	0.920
NPK	Near Peak	43.66	BLK	0.920
NLI	Near Lithology	43.66	BLK	0.920
NBAU	Near Barite Unfiltered	43.66	BLK	0.250
NLIU	Near Lithology Unfiltered	43.66	BLK	0.250
FAB	Far Above	44.01	BLK	0.250
FHI	Far Cesium High	44.01	BLK	0.250
FLO	Far Cesium Low	44.01	BLK	0.250
FVA	Far Valley	44.01	BLK	0.250
FBA	Far Barite	44.01	BLK	0.250
FDE	Far Density	44.01	BLK	0.250
FPK	Far Peak	44.01	BLK	0.250
FLI	Far Lithology	44.01	BLK	0.250
PTMP	Pad Temperature	43.84	BLK	0.920
NHV	Near Detector High Voltage	43.24	NO	
FHV	Far Detector High Voltage	43.24	NO	
ITMP	Instrument Temperature	43.24	NO	
DDHV	Detector High Voltage	43.24	NO	
HDIA	Measured Hole Diameter	0.00	NO	
Microlog Pad				
TPUL	Tension Pull	44.03	NO	
MINV	Microlog Lateral	44.03	BLK	0.750
MNOR	Microlog Normal	44.03	BLK	0.750
Data: CHRISTINA_1-2\0001 SP-GTET-DSNT-SDLT-FLEX-BSAT-ACRT-BN\IDLE			Date: 30-Nov-14 11:54:28	
COMPANY	VAL ENERGY			
WELL	CHRISTINA 1-2			
FIELD	WILDCAT			
COUNTY	CROWLEY	STATE	COLORADO	
HALLIBURTON		DUAL SPACED NEUTRON SPECTRAL DENSITY LOG		