

HALLIBURTON

SPECTRAL DENSITY DUAL SPACED NEUTRON MICROLOG

EOG RESOURCES										COMPANY		EOG RESOURCES			
LAURA 21#1										WELL		LAURA 21#1			
WILD CAT										FIELD		WILD CAT			
STEVENS										COUNTY		STEVENS			
KANSAS										STATE		KANSAS			
API No. 15-189-22757										Sect. 21		Twp. 32 S		Rge. 37 W	
Location 780 FSL & 910 FEL															
Other Services: MICROLOG ACRT BSAT															
Permanent Datum										GL		Elev. 3139.0 ft		Elev.: K.B. 3151.0 ft	
Log measured from										KB		12.0 ft above perm. Datum		D.F. 3150.0 ft	
Drilling measured from										KB				G.L. 3139.0 ft	
Date										11-Nov-10					
Run No.										ONE					
Depth - Driller										6650.00 ft					
Depth - Logger										6651.0 ft					
Bottom - Logged Interval										6607.00 ft					
Top - Logged Interval										1713.00 ft					
Casing - Driller										8.625 in @ 1714.0 ft				@	
Casing - Logger										1713.0 ft					
Bit Size										7.875 in				@	
Type Fluid in Hole										WATER BASE MUD					
Density										9.0 ppG		52.00 s/qt			
PH										9.00 pH		8.4 cpm			
Source of Sample										FLOWLINE					
Rm @ Meas. Temperature										1.240 ohmm @ 75.00 degF				@	
Rmf @ Meas. Temperature										1.05 ohmm @ 75.00 degF				@	
Rmc @ Meas. Temperature										1.550 ohmm @ 75.00 degF				@	
Source Rmf										CALCULATED		CALCULATED			
Rm @ BHT										0.65 ohmm @ 150.0 degF				@	
Time Since Circulation										4.0 hr					
Time on Bottom										11-Nov-10 12:46					
Max. Rec. Temperature										150.0 degF @ 6651.0 ft				@	
Equipment										10549592		PV OK			
Recorded By										J.COTHREN		EDSON DA ROSA			
Witnessed By										SCOTT MUELLER					

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Service Ticket No.: 7763501						API Serial No.: 15-189-22757						PGM Version: WL INSITE R3.2.1 (Build 7)											
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		MICROLOG		SLIM		ADJ		N/A			
Rmc @ Meas. Temp.				@				@															
Source Rmf		Rmc																					
Rm @ BHT				@				@															
Rmf @ BHT				@				@															
Rmc @ BHT				@				@															
EQUIPMENT DATA																							
GAMMA						ACOUSTIC						DENSITY						NEUTRON					
Run No.		ONE				Run No.						Run No.		ONE				Run No.		ONE			
Serial No.		11013113				Serial No.						Serial No.		I87M06P72				Serial No.		11020487			
Model No.		GTET				Model No.						Model No.		SDLT-I				Model No.		DSNT-I			
Diameter		3.625"				No. of Cent.						Diameter		4.5"				Diameter		3.625"			
Detector Model No.		GTET				Spacing						Log Type		GAM-GAM				Log Type		NEU-NEU			
Type		SCINT										Source Type		Cs137				Source Type		Am241Be			
Length		8"				LSA [Y/N]						Serial No.		20791B				Serial No.		DSN-382			
Distance to Source		10'				FWDA [Y/N]						Strength		1.5 Ci				Strength		15 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	2.71	30	-10	LIME

DIRECTIONAL INFORMATION

Maximum Deviation	@	KOP	@
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Remarks: ANNULAR HOLE VOLUME CALCULATED FOR 4.5 AND 5.5 INCH PRODUCTION CASING.

ACRT/SDL/DSN/MICROLOG/GAMMA ALL RUN IN COMBINATION.

CHLORIDES REPORTED AT 1200 ppm. LCM REPORTED AT 10 lb/bbl.

THANK YOU FOR CHOOSING HALIBURTON ENERGY SERVICES, PAULS VALLEY, OKLAHOMA

YOUR CREW: R. EATON, J. WOODS.

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 HALIBURTON PERSONNEL OR WHICH APPEAR ON THE LOG OR IN ANY OTHER FORM. ANY USER OF SUCH DATA, INTERPRETATIONS, CONVERSIONS, OR RECOMMENDATIONS AGREES THAT HALIBURTON IS NOT RESPONSIBLE EXCEPT WHERE DUE TO GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, FOR ANY LOSS, DAMAGES, OR EXPENSES RESULTING FROM THE USE THEREOF.

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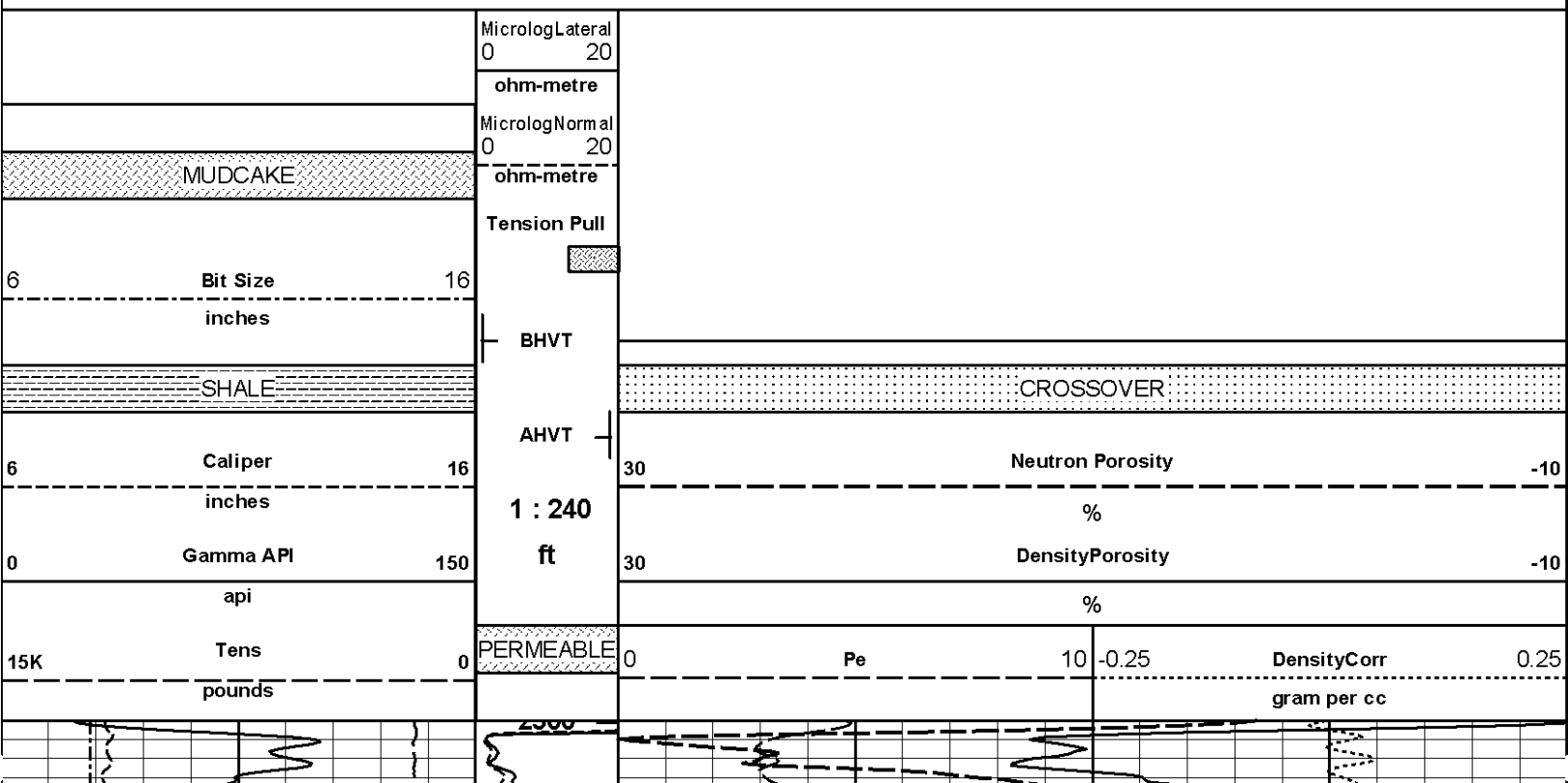
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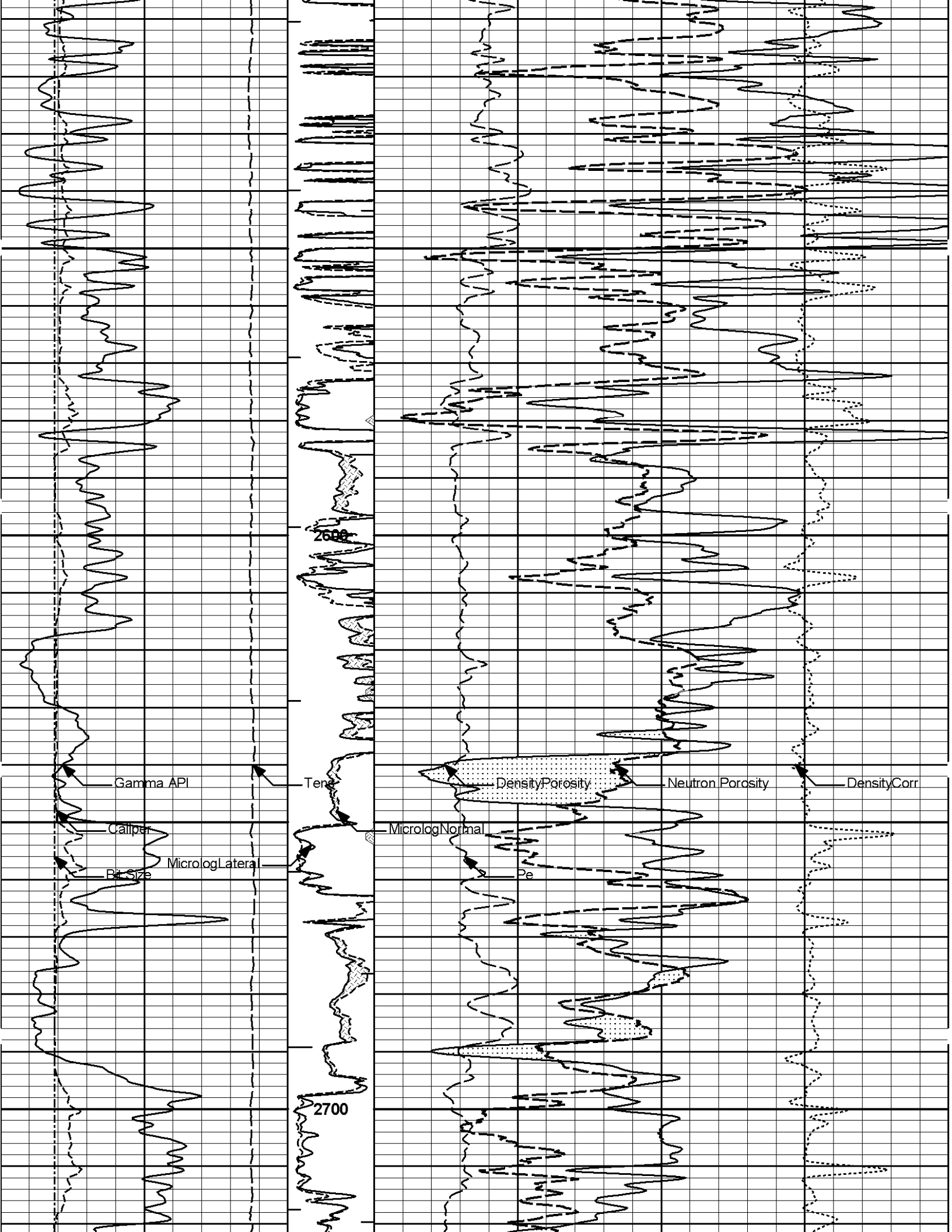
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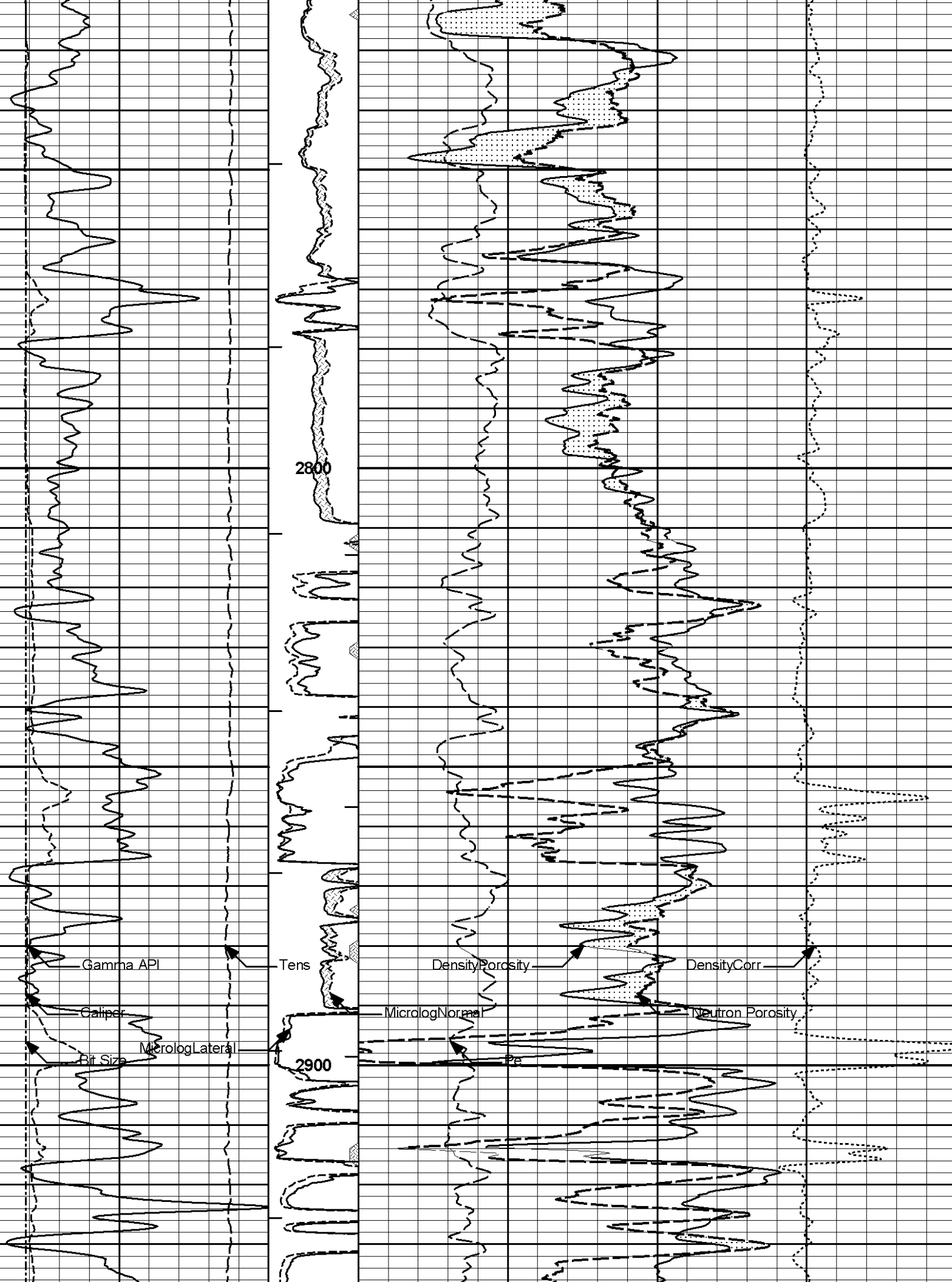
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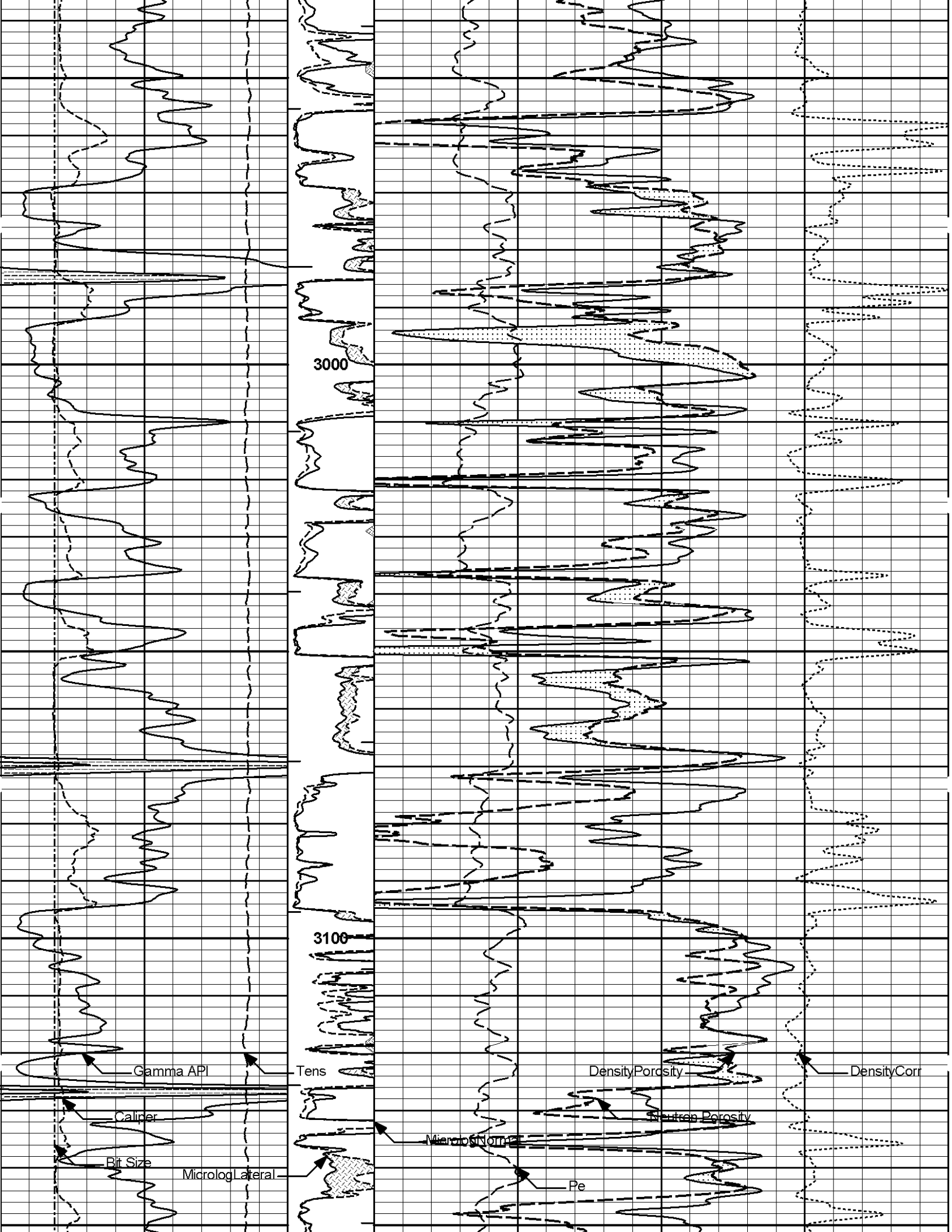
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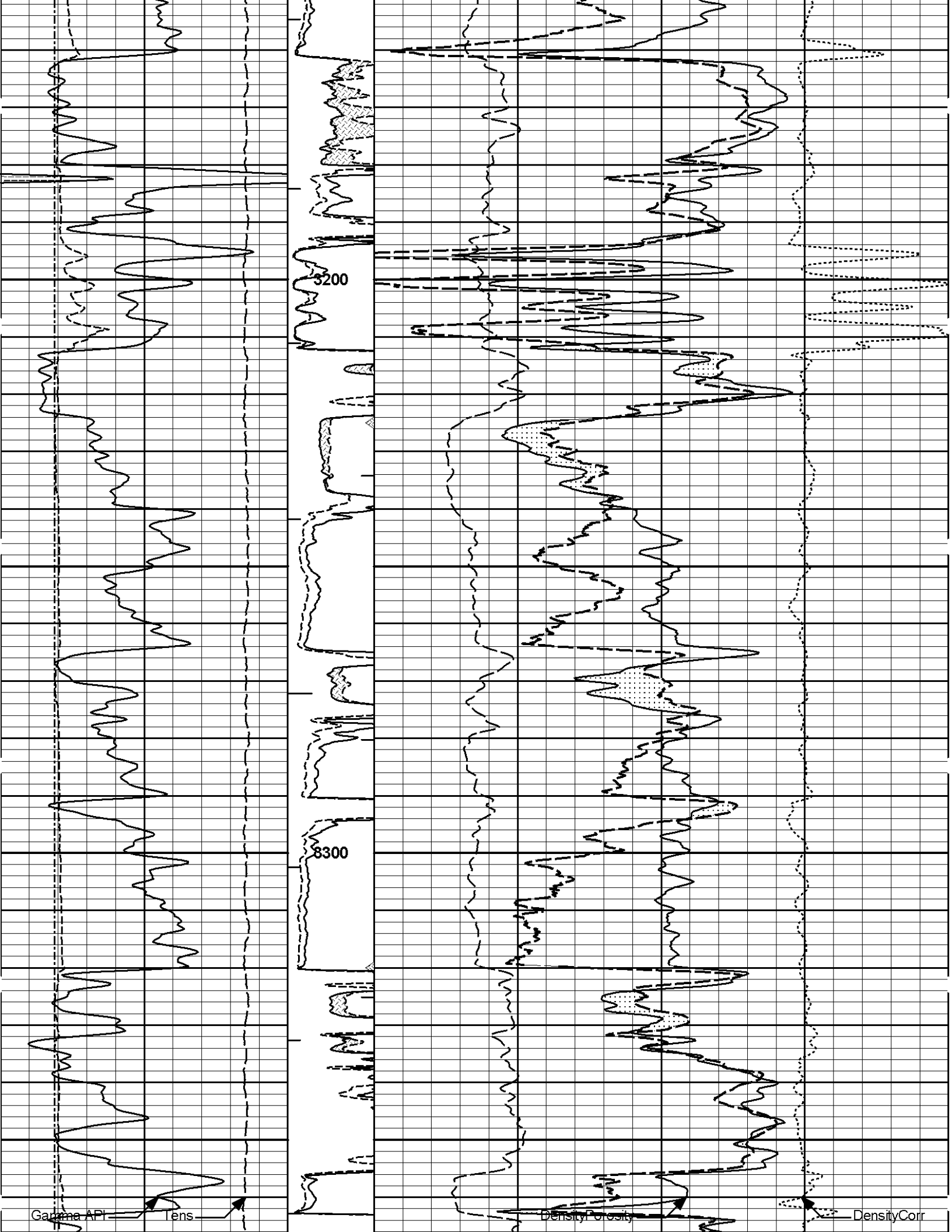
5 INCH MAIN LOG

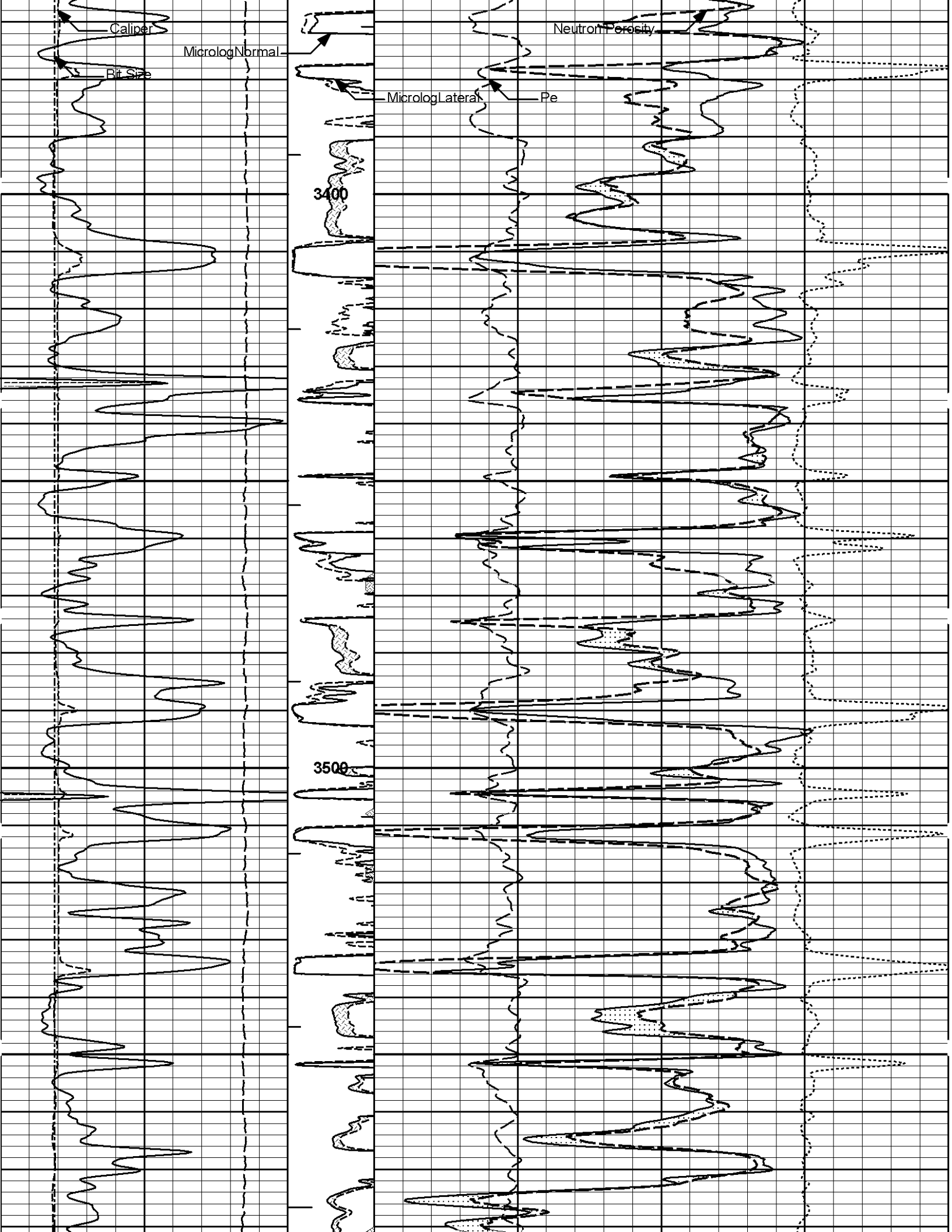


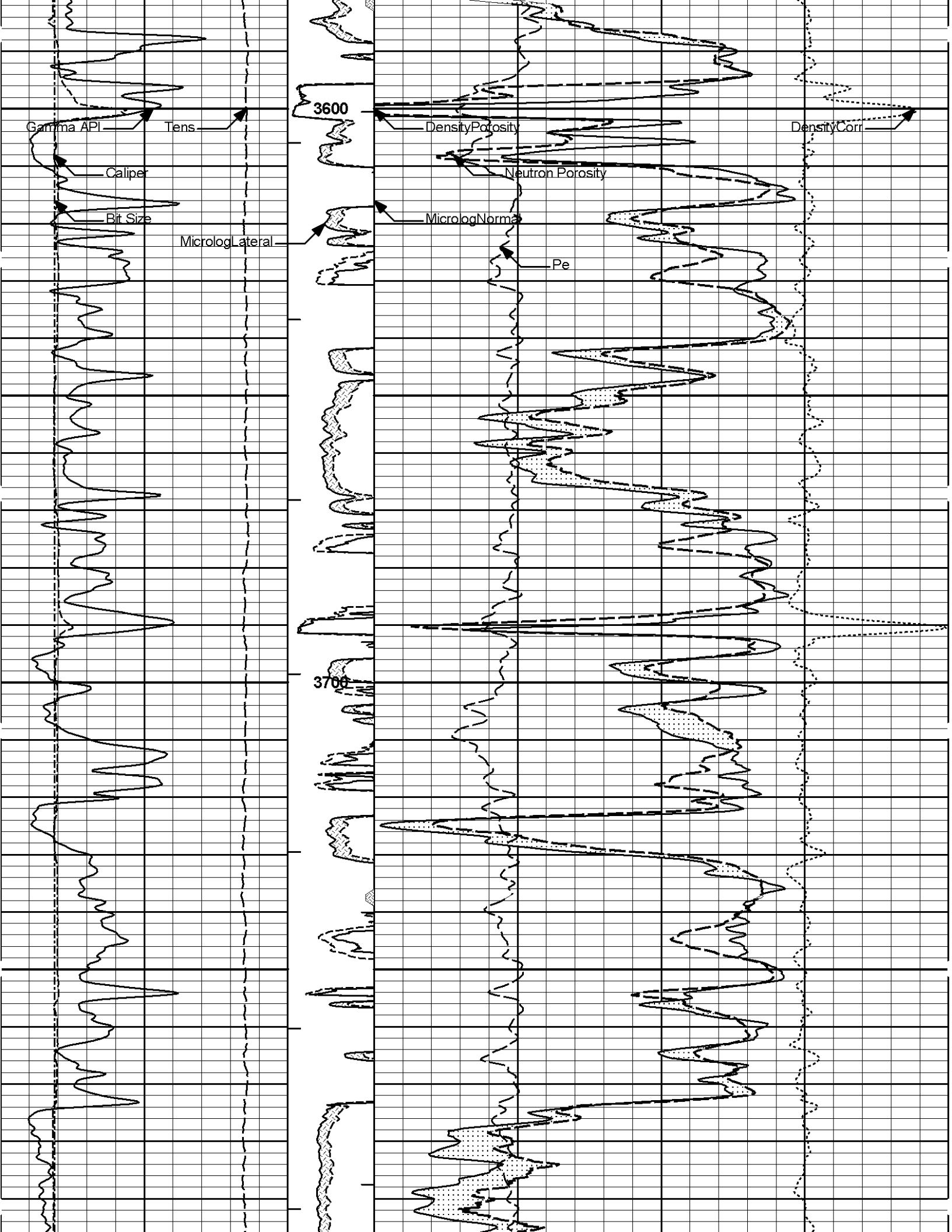


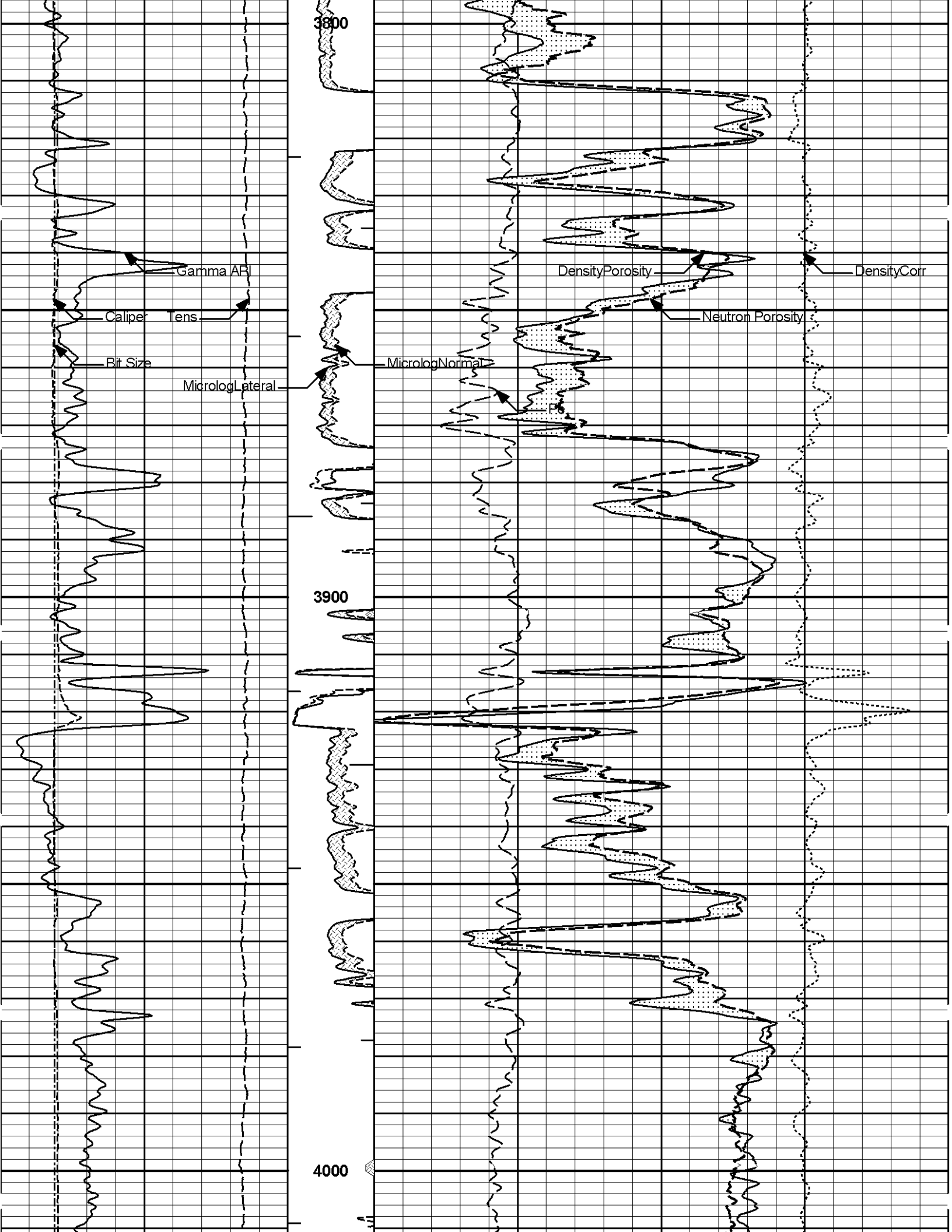


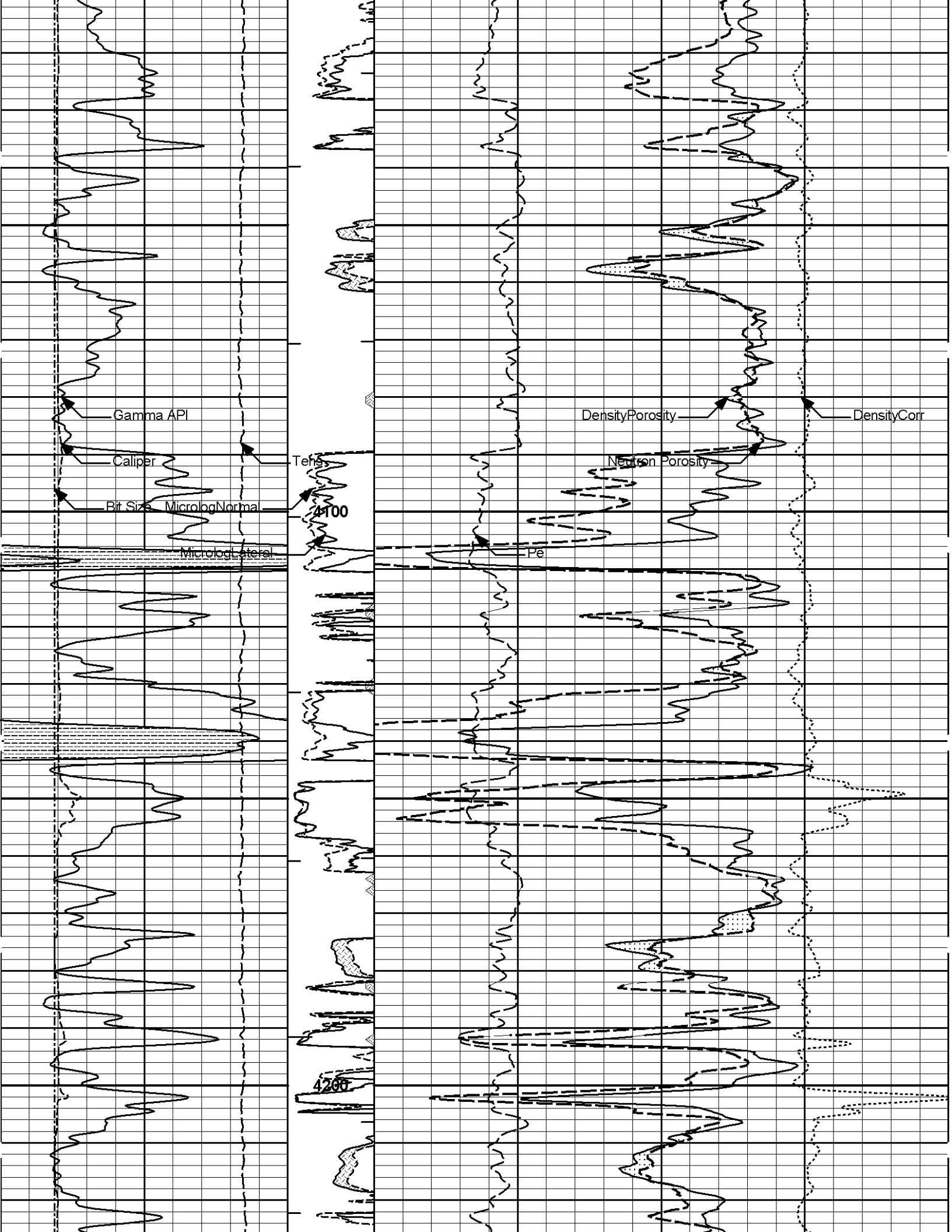


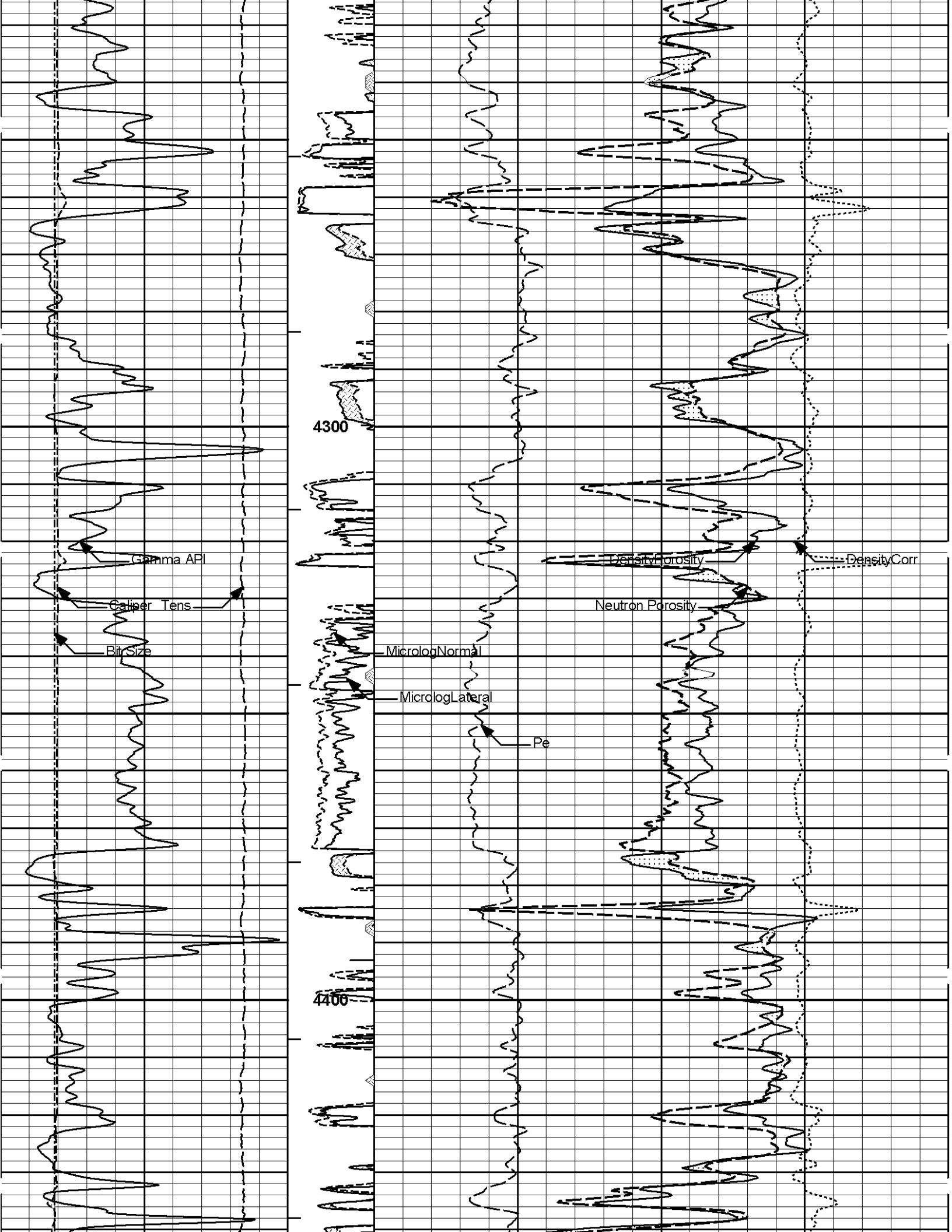


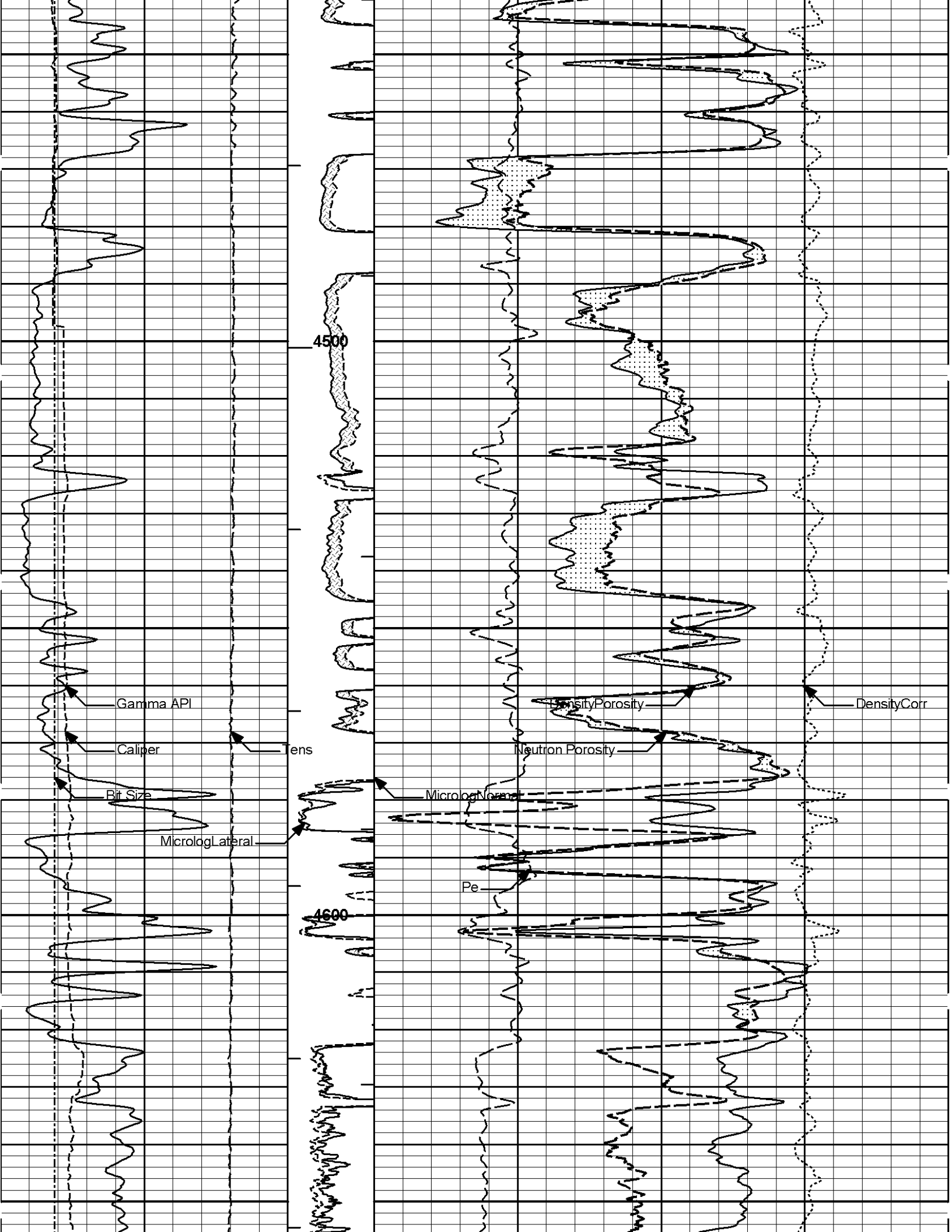


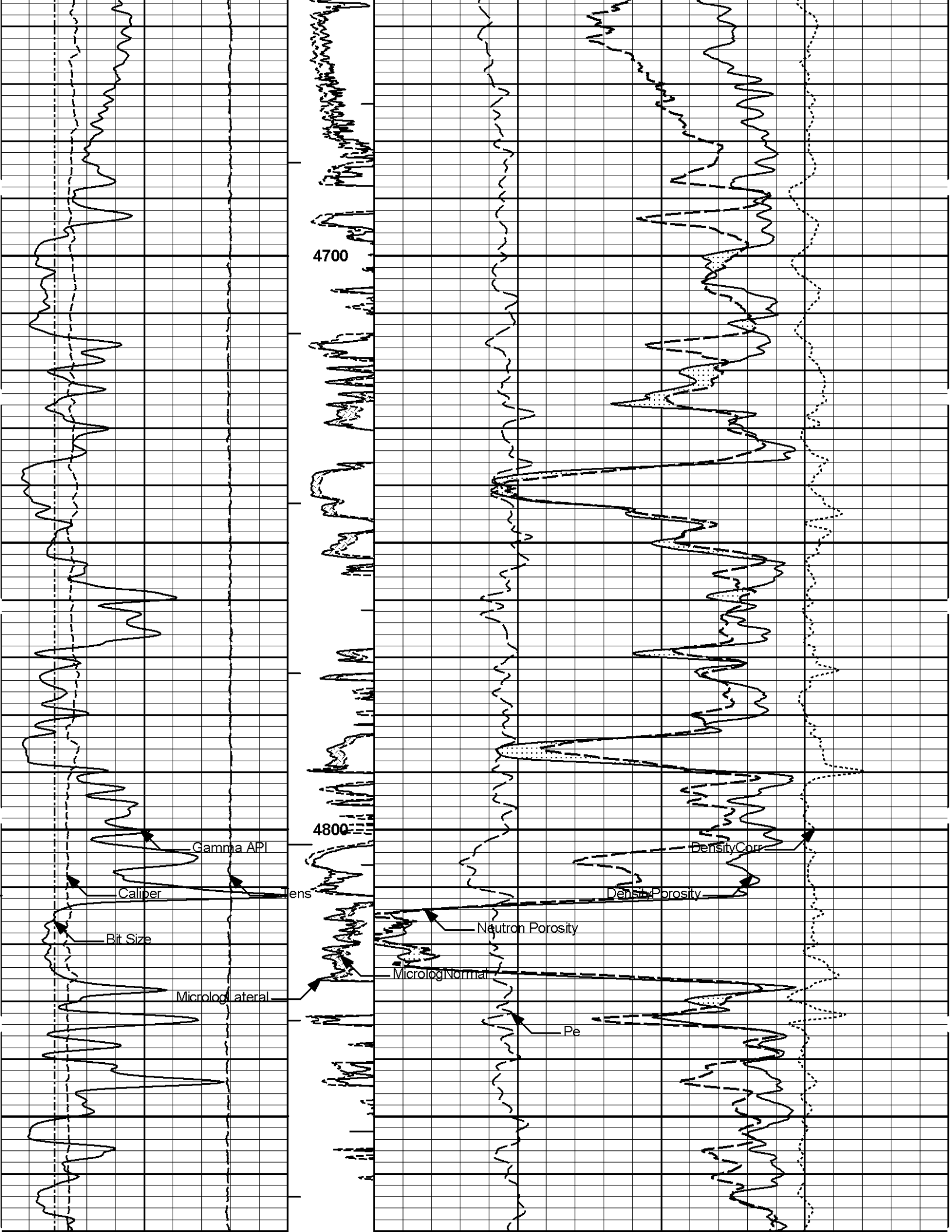


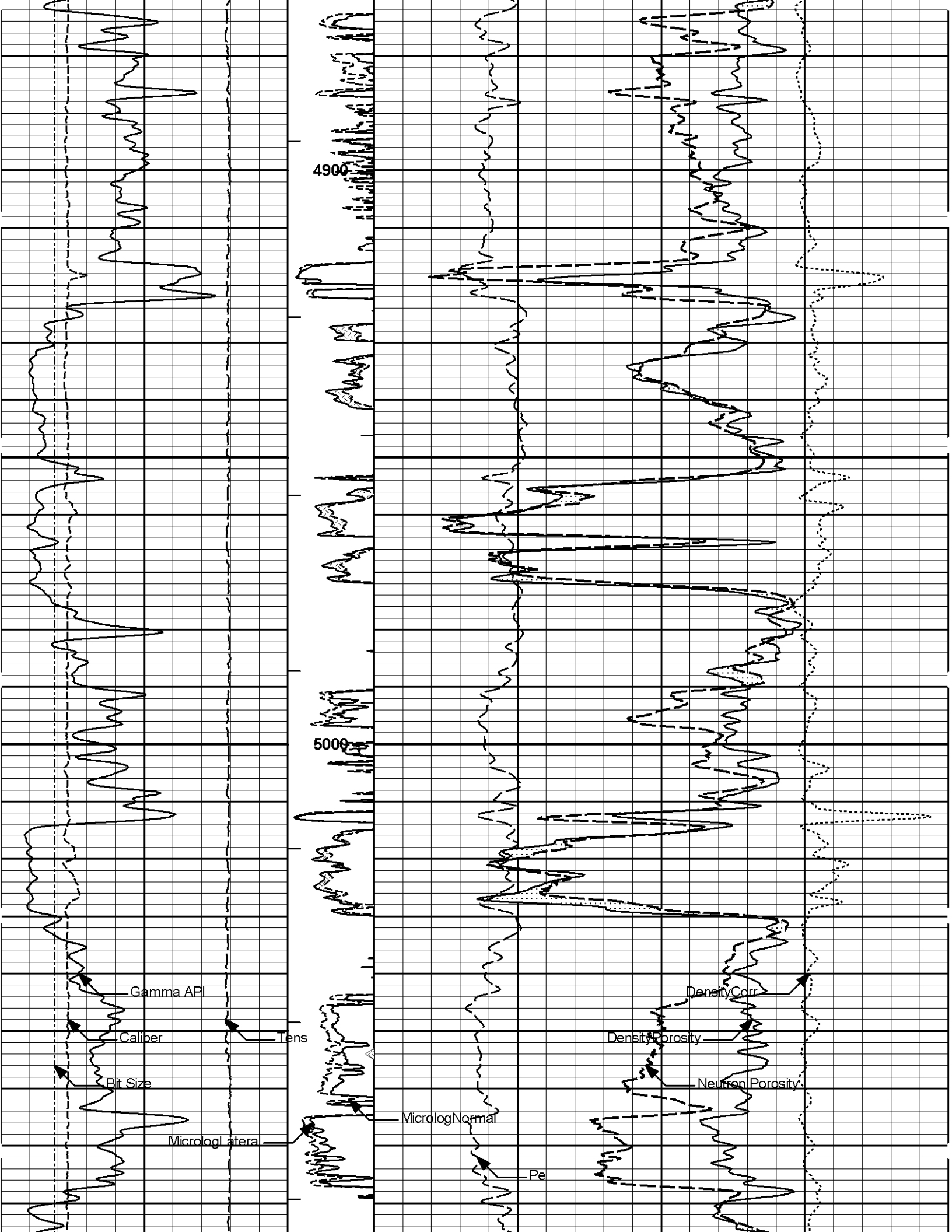


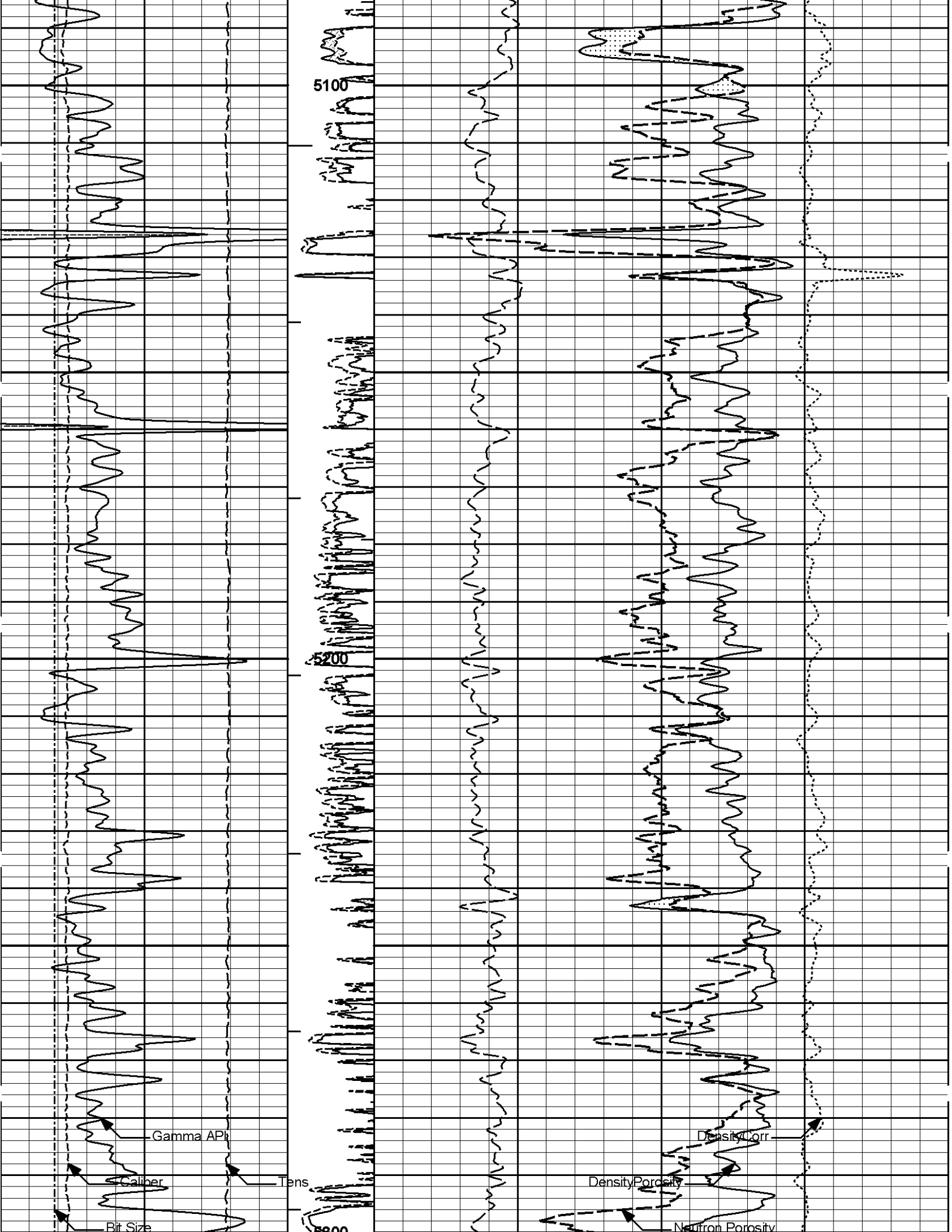


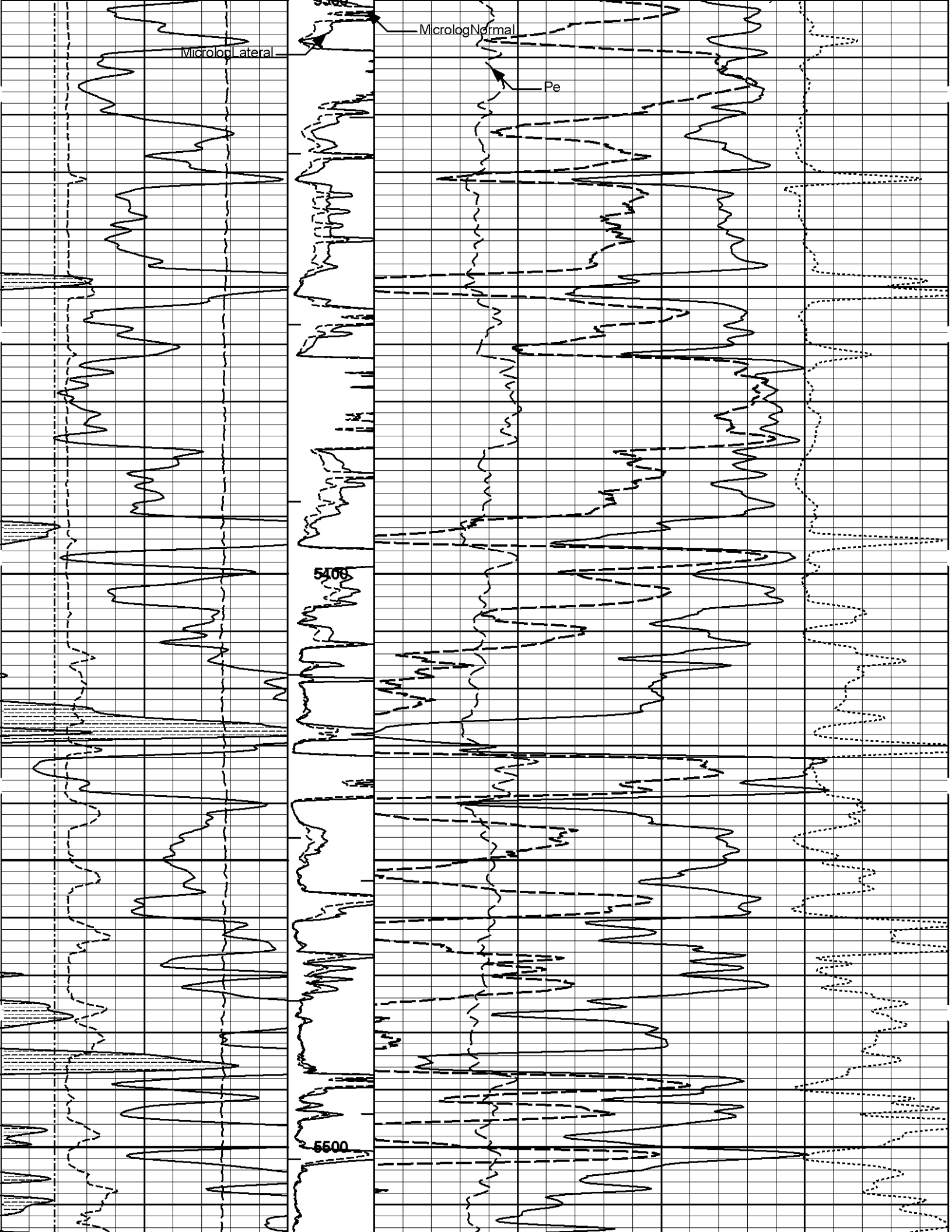


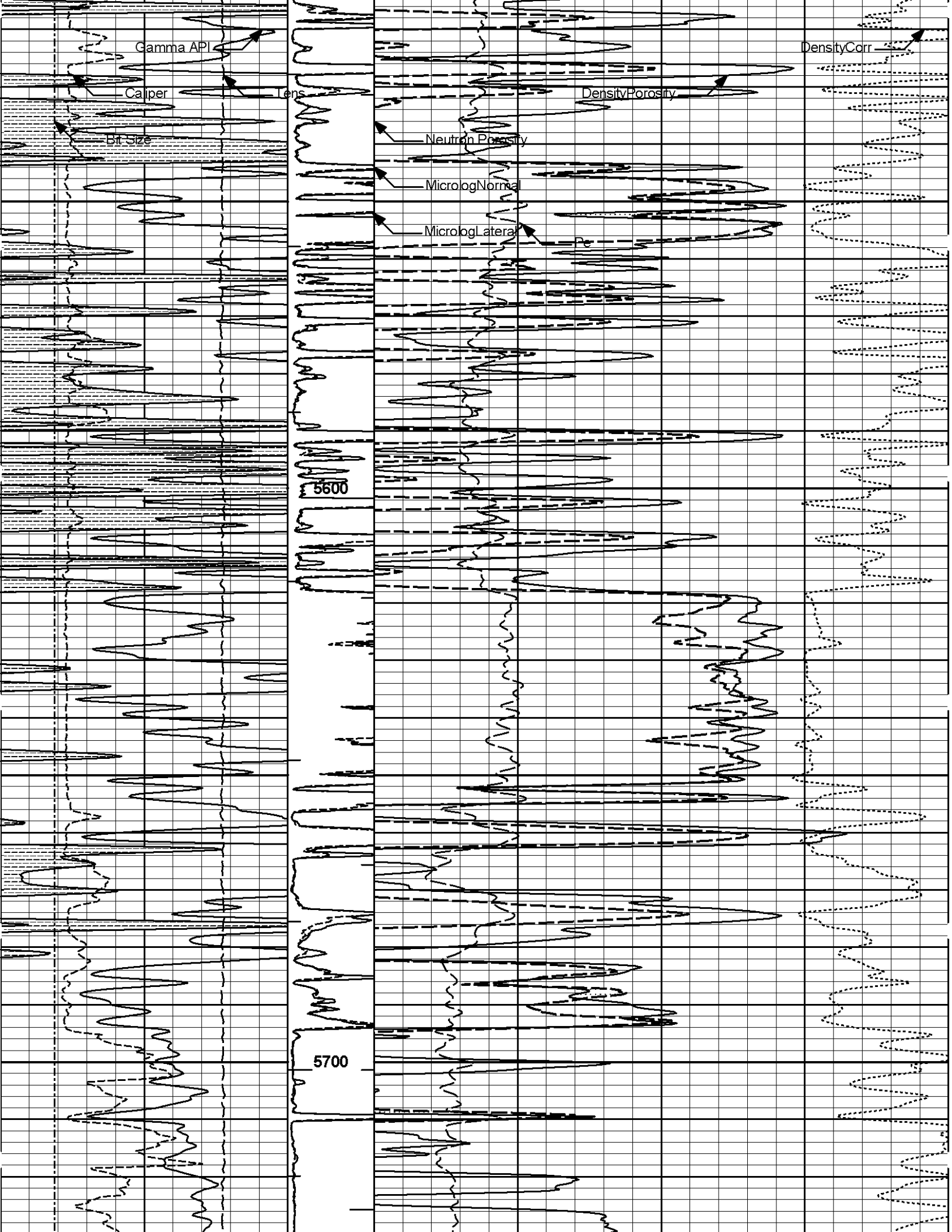


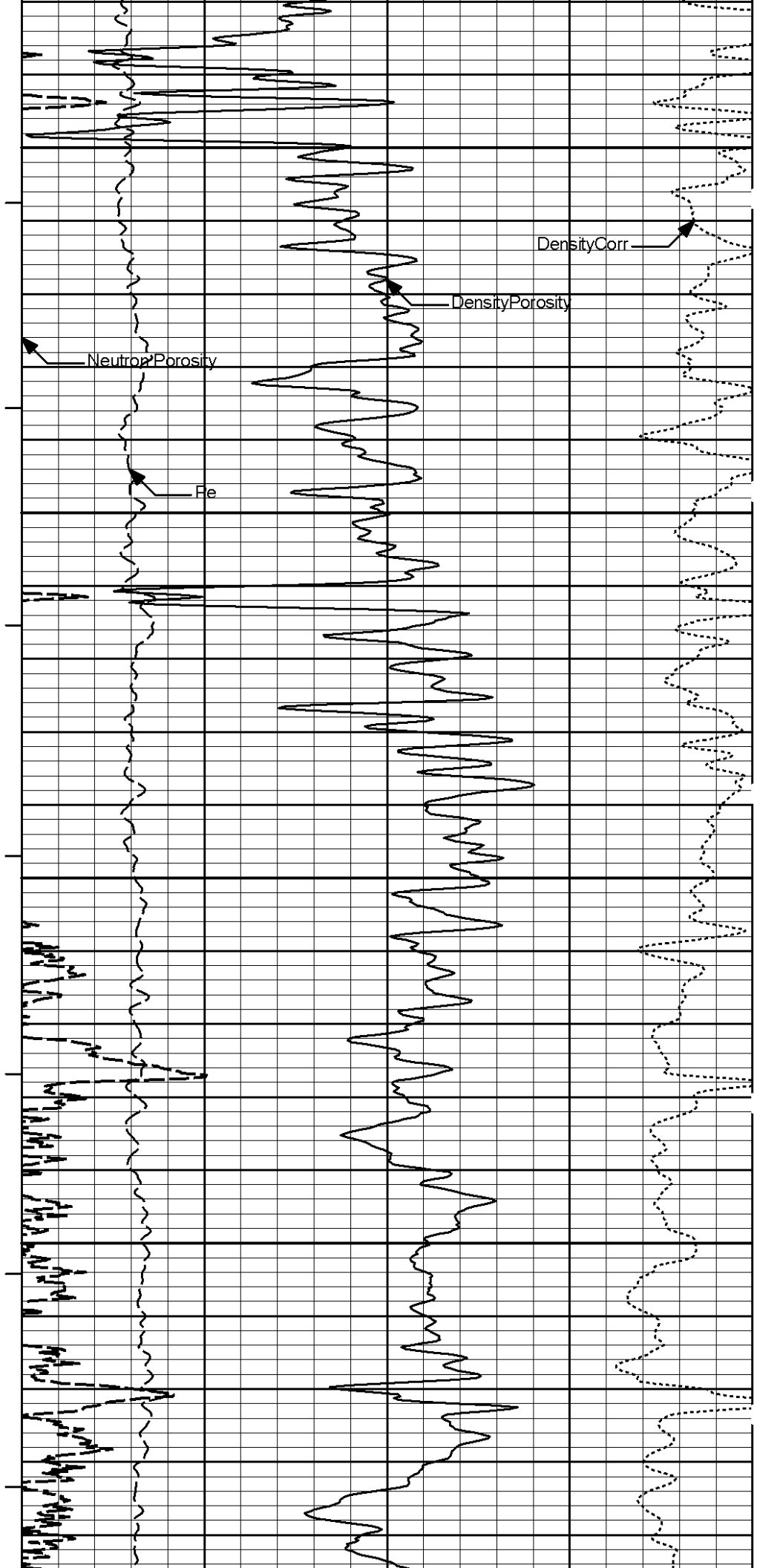
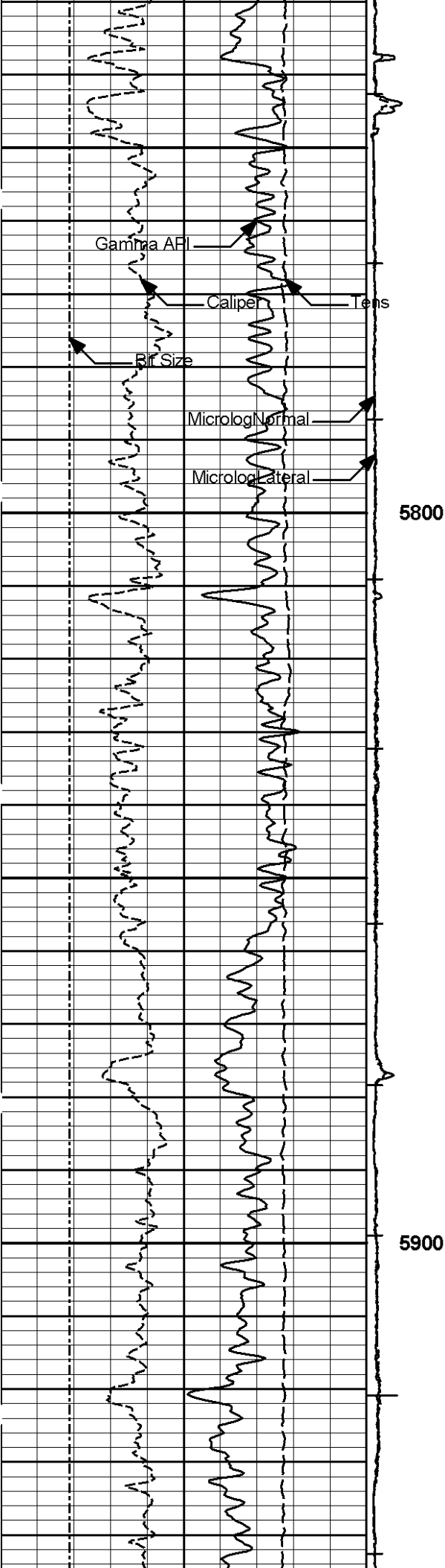


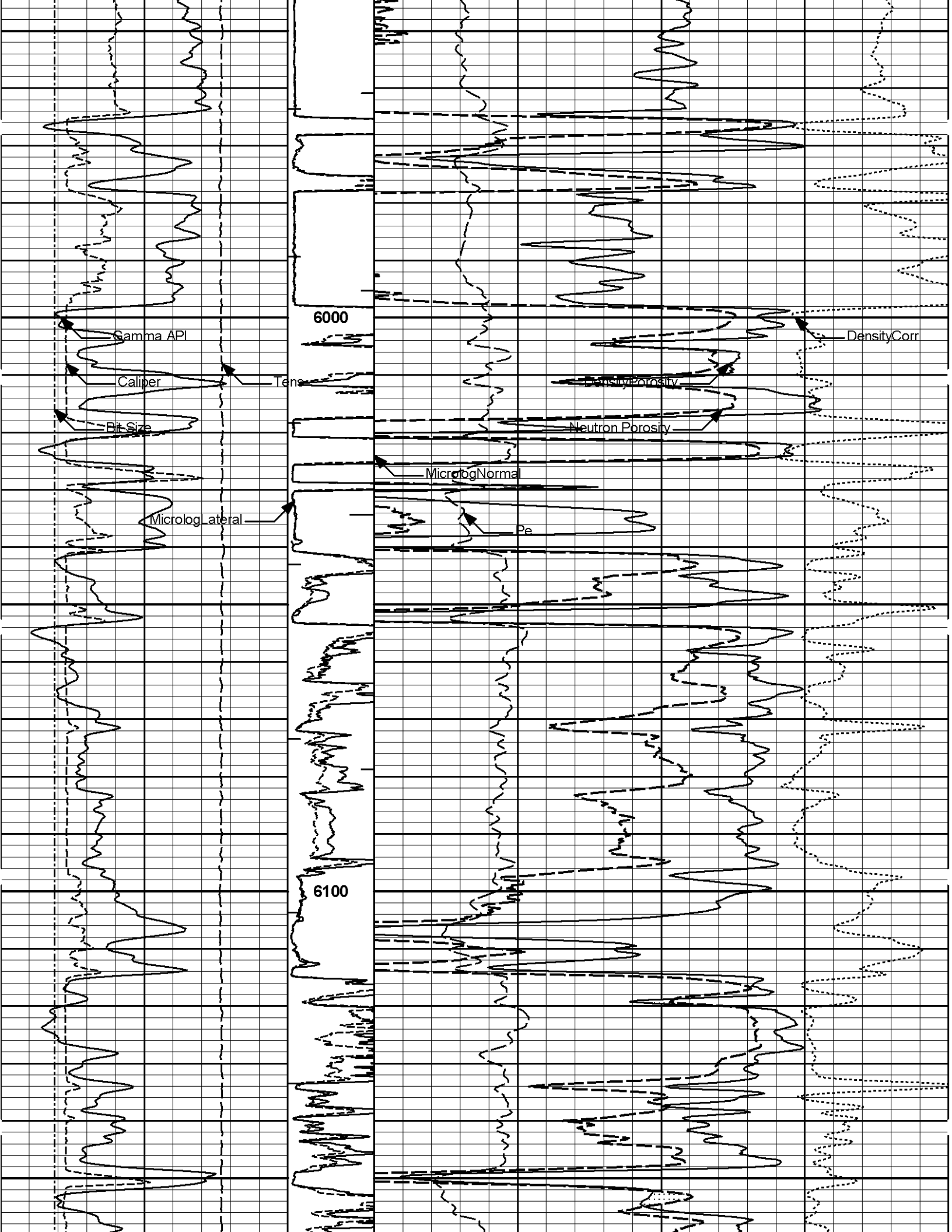


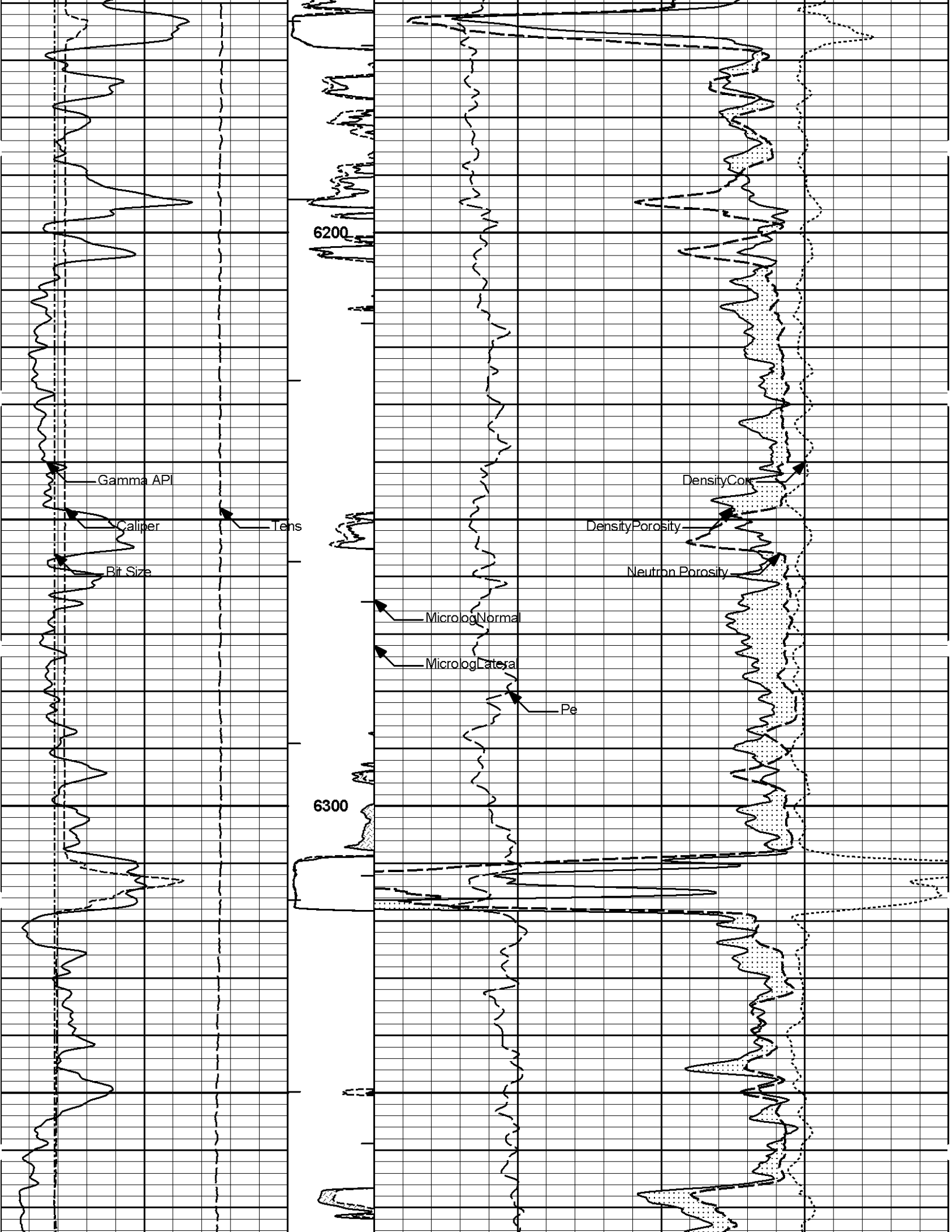


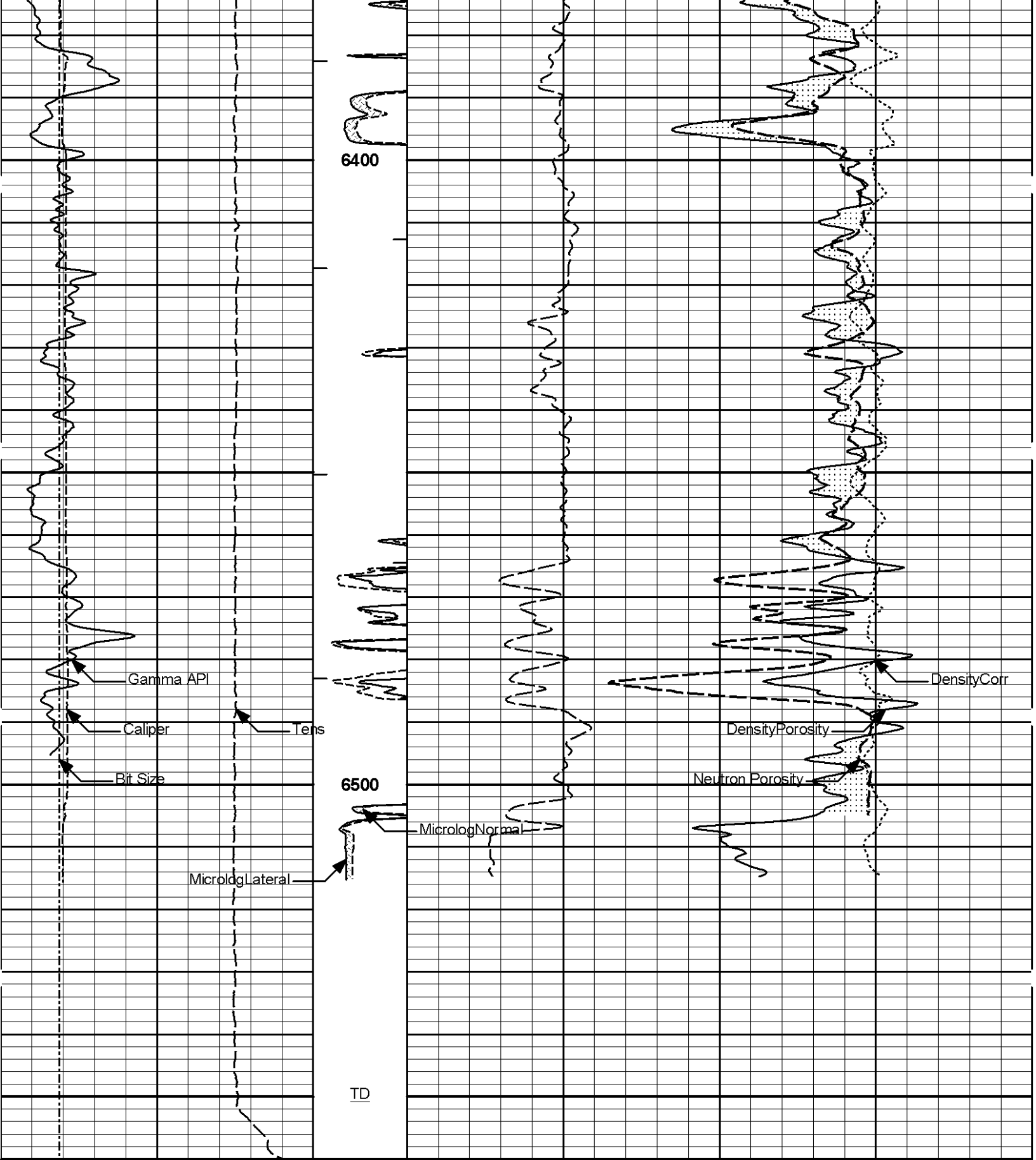












15K	Tens	0		0	Pe	10	-0.25	DensityCorr	0.25	
pounds			PERMEABLE				gram per cc			
0	Gamma API	150	1 : 240 ft	30	DensityPorosity					-10
api				%						
6	Caliper	16		30	Neutron Porosity					-10
inches				%						

SHALE		AHVT	CROSSOVER	
6 Bit Size 16 inches		BHVT		
		Tension Pull		
MUDCAKE		MicrologNormal 0 20		
		ohm-metre		
		MicrologLateral 0 20		
		ohm-metre		

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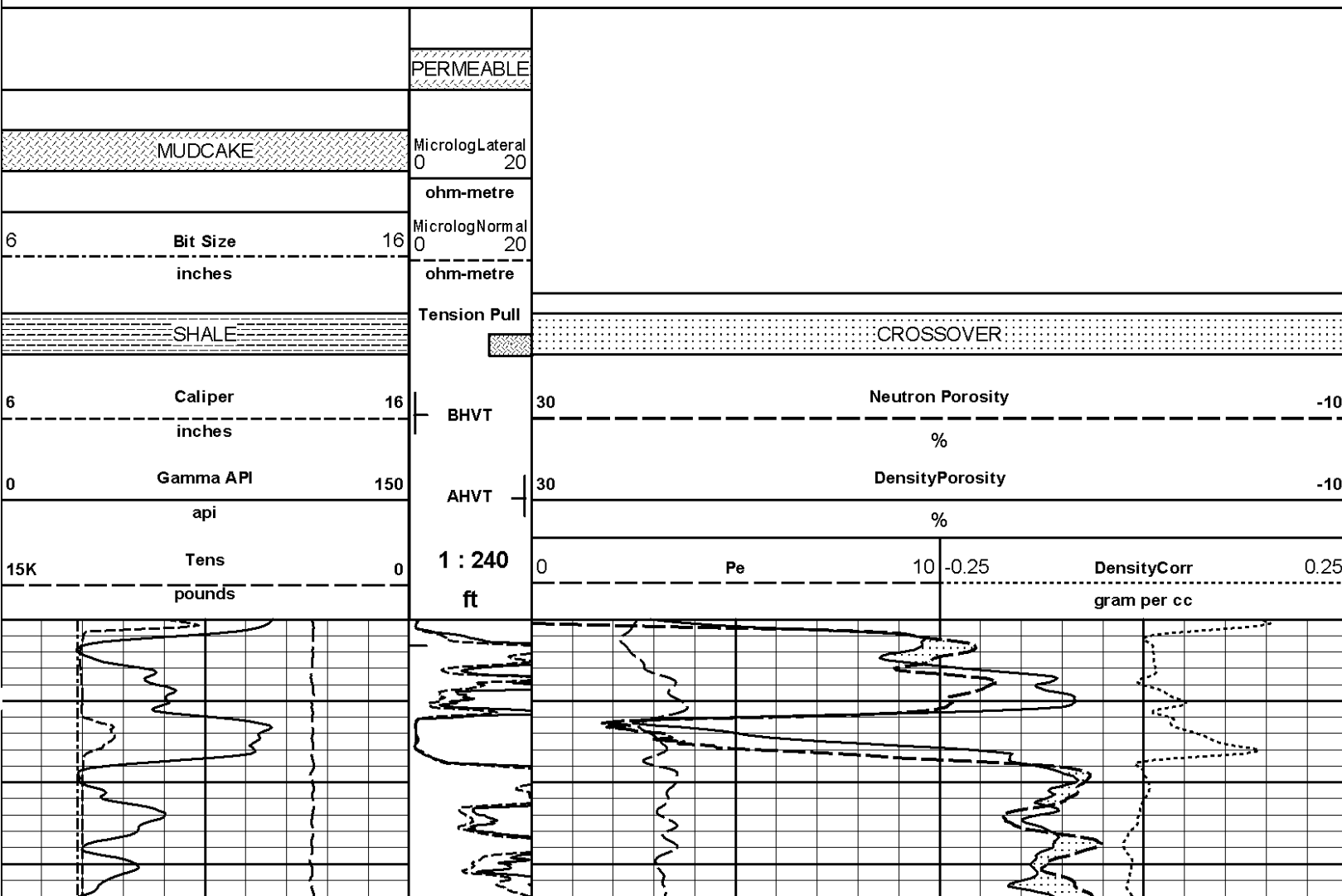
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Plot Range: 2500 ft to 6560 ft
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Plot File: \\(not saved)\EOG_POROML_5_MAIN_IQ

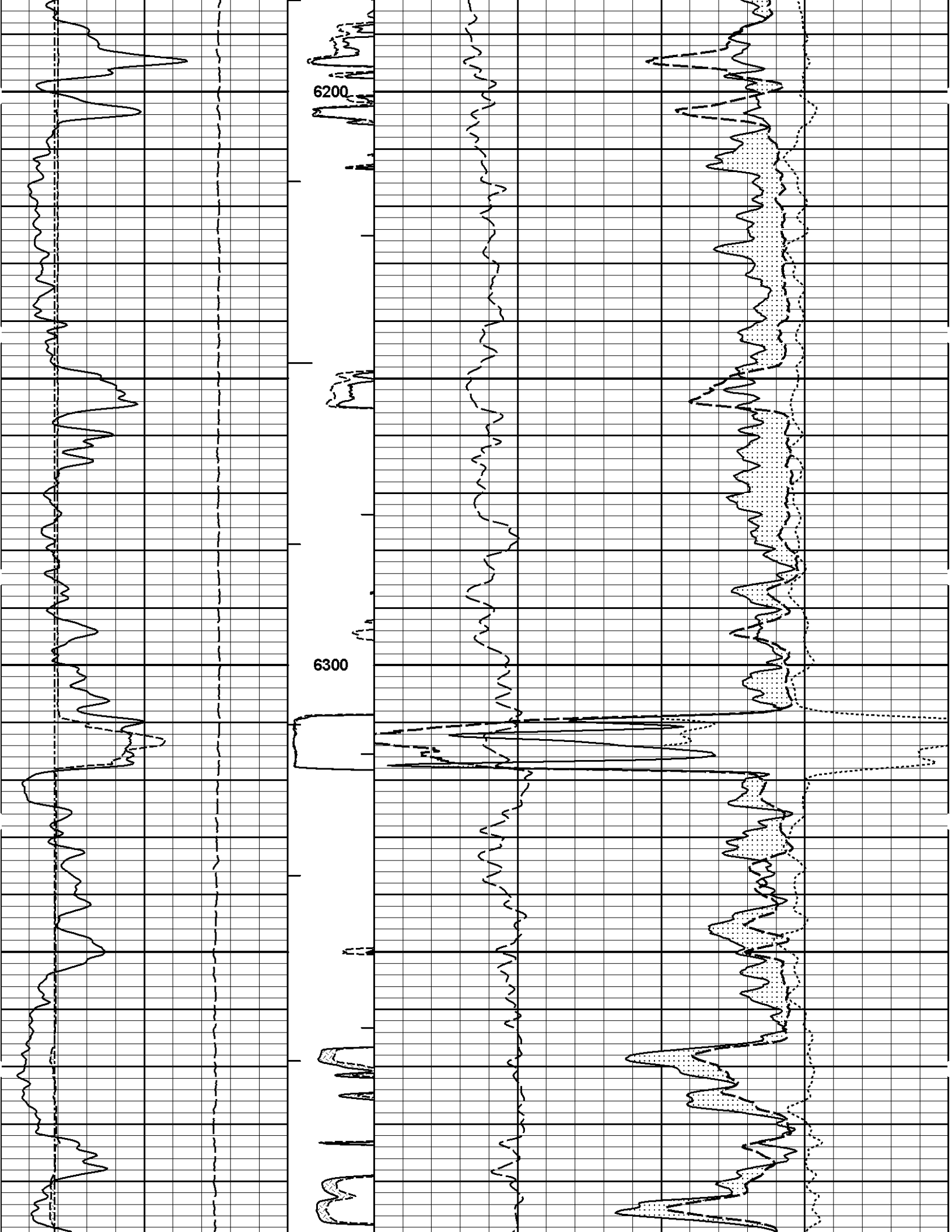
5 INCH MAIN LOG

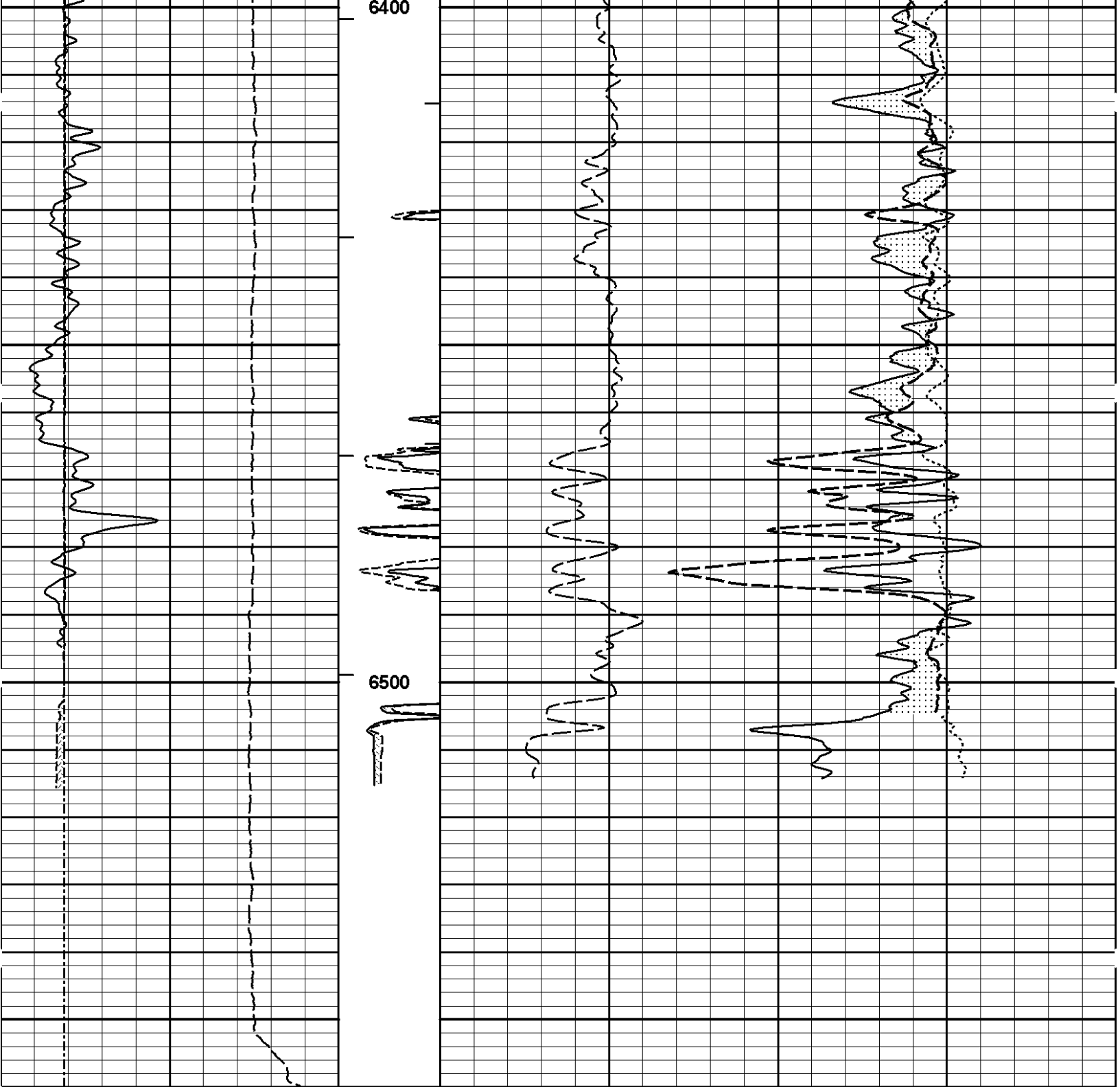
HALLIBURTON

Plot Time: 11-Nov-10 17:28:53
Plot Range: 6150 ft to 6560 ft
Data: LAURA_21-1\Well Based\DAQ-0001-003\
Plot File: \\(not saved)\EOG_POROML_5_REPEAT_IQ

5 INCH REPEAT







15K	Tens	0	1 : 240	0	Pe	10	-0.25	DensityCorr	0.25
pounds			ft				gram per cc		
0	Gamma API	150		DensityPorosity					
api			AHVT	30	%				
6	Caliper	16	BHVT	30	Neutron Porosity				
inches				%					
SHALE			Tension Pull	CROSSOVER					
6	Bit Size	16	MicrologNormal						
inches			ohm-metre						
			MicrologLateral						

MUDCAKE		0	20	ohm-metre	
		PERMEABLE			
HALLIBURTON Plot Time: 11-Nov-10 17:28:57 Plot Range: 6150 ft to 6560 ft Data: LAURA_21-1\Well Based\DAQ-0001-003\ Plot File: \\(not saved)\EOG_POROML_5_REPEAT_IQ					
5 INCH REPEAT					
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	9.000	ppg
	SHARED	WAGT	Weighting Agent	Natural	
	SHARED	BSAL	Borehole salinity	1200.00	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	4.500	in
	SHARED	ST	Surface Temperature	75.0	degF
	SHARED	TD	Total Well Depth	6551.00	ft
	SHARED	BHT	Bottom Hole Temperature	200.0	degF
	SHARED	SVTM	Navigation and Survey Master Tool	NONE	
	SHARED	AZTM	High Res Z Accelerometer Master Tool	GTET	
	SHARED	TEMM	Temperature Master Tool	NONE	
	SHARED	BHSM	Borehole Size 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	
	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	Centered	
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	
SDLT	DNOK	Process Density?	Yes	
SDLT	DNOK	Process Density EVR?	No	
SDLT	CB	Logging Calibration Blocks?	No	
SDLT	SPVT	SDLT Pad Temperature Valid?	Yes	
SDLT	DTWN	Disable temperature warning	No	
SDLT	DMA	Formation Density Matrix	2.710	g/cc
SDLT	DFL	Formation Density Fluid	1.000	g/cc
SDLT	CLOK	Process Caliper Outputs?	Yes	
SDLT	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	RTOK	Process ACRt?	Yes	
ACRt	MNSO	Minimum Tool Standoff	1.50	in
ACRt	TCS1	Temperature Correction Source	FP Lwr & FP Up	
ACRt	TPOS	Tool Position	Free Hanging	
ACRt	RMOP	Rmud Source	Mud Cell	
ACRt	RMIN	Minimum Resistivity for MAP	0.20	ohmm
ACRt	RMIN	Maximum Resistivity for MAP	200.00	ohmm
ACRt	THQY	Threshold Quality	0.50	
BOTTOM				
Data: LAURA_21-1\0001 QUAD_RED\IDLE			Date: 11-Nov-10 13:25:32	

HALLIBURTON					
CALIBRATION REPORT					
NATURAL GAMMA RAY TOOL SHOP CALIBRATION					
Tool Name:		GTET - 11013113	Reference Calibration Date:		12-Oct-10 18:20:18
Engineer:		J. BROWNAWELL	Calibration Date:		18-Oct-10 03:28:13
Software Version:		WL INSITE R3.2.1 (Build 7)	Calibration Version:		1
Calibrator Source S/N: 150					
Calibrator API Reference:225.00 api					
Equivalent Calibrator API Reference:228.9 api					
Measurement		Measured	Calibrated	Units	
Background		24.9	26.1	api	

Background + Calibrator	239.7	251.1	api
Calibrator	226.2	225.0	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION			
Tool Name:	GTET - 11013113	Reference Calibration Date:	18-Oct-10 03:28:13
Engineer:	J.COTHREN	Calibration Date:	11-Nov-10 10:43:05
Software Version:	WL INSITE R3.2.1 (Build 7)	Calibration Version:	1

Calibrator Source S/N: 150			
Calibrator API Reference:225.00 api			
Equivalent Calibrator API Reference:228.9 api			
Field Verification	Shop	Field	Units
Background	26.1	30.6	api
Background + Calibrator	251.1	251.5	api
Calibrator	225.0	220.9	api
Shop	Field	Difference	Tolerance
225.0	220.9	4.1	+/- 9.00

NATURAL GAMMA RAY TOOL POST CALIBRATION			
Tool Name:	GTET - 11013113	Reference Calibration Date:	11-Nov-10 10:43:05
Engineer:	J.COTHREN	Calibration Date:	11-Nov-10 15:51:02
Software Version:	WL INSITE R3.2.1 (Build 7)	Calibration Version:	1

Calibrator Source S/N: 150				
Calibrator API Reference:225.00 api				
Calibrator API Reference:228.9 api				
Post Verification		Field	Post	Units
Background		30.6	31.8	api
Background + Calibrator		251.5	254.3	api
Calibrator		220.9	222.5	api
Shop	Field	Post	Difference	Tolerance
225.0	220.9	222.5	-1.6	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION			
Tool Name:	DSNT - 11020487	Reference Calibration Date:	23-Aug-10 10:51:44
Engineer:	JEREMY.COTHREN	Calibration Date:	04-Nov-10 14:31:14
Software Version:	WL INSITE R3.2.1 (Build 7)	Calibration Version:	1

Logging Source S/N: DSN-382			
Tank Serial Number: PVOK			
Reference value assigned to Tank: 56.100			
Snow Block S/N: 592_PV			
Calibration Tank Water Temperature: 96 degF			
Min. Tool Housing Outside Diameter: 3.625 in			
CALIBRATION CONSTANTS			
Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	1.007	1.006	0.900 - 1.100
WATER TANK SUMMARY (Horizontal Water Tank)			
Measurement	Current Reading	Calibrated	Control Limit

Measurement	(Previous Coef.)	(New Coef.)	Change	On Change
Porosity (decp):	0.2361	0.2358	0.0003	+/- 0.0020
Calibrated Ratio:	10.57	10.56	0.011	+/- 0.050
VERIFIER				
Measurement	Value	Control Limit		
Snow-Block Porosity (decp):	0.0859	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 - 11020487	Reference Calibration Date:	04-Nov-10 14:31:14
Engineer:	J.COTHREN	Calibration Date:	11-Nov-10 10:55:09
Software Version:	WL INSITE R3.2.1 (Build 7)	Calibration Version:	1

Logging Source S/N: DSN-382				
Snow Block S/N: 592_PV				
NEUTRON FIELD-CHECK SUMMARY				
	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0859	0.0879	0.0020	+/- 0.0150
PASS/FAIL SUMMARY				
	Block Change Check:		Passed	
	Snow Block Stat Check:		Passed	
	Temperature Check:		Passed	

DUAL SPACED NEUTRON POST CALIBRATION			
Tool Name:	DSNT - 11020487	Reference Calibration Date:	11-Nov-10 10:55:09
Engineer:	J.COTHREN	Calibration Date:	11-Nov-10 15:57:30
Software Version:	WL INSITE R3.2.1 (Build 7)	Calibration Version:	1

Logging Source S/N: DSN-382				
Snow Block S/N: 592_PV				
NEUTRON POST-CHECK SUMMARY				
	Field Value	Post Value	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0879	0.0891	0.0012	+/- 0.0150
PASS/FAIL SUMMARY				
	Block Change Check:		Passed	
	Snow Block Stat Check:		Passed	
	Temperature Check:		Passed	

SPECTRAL DENSITY SHOP CALIBRATION			
Tool Name:	SDLT - I87M06P72	Reference Calibration Date:	23-Aug-10 12:14:01
Engineer:	JEREMY.COTHREN	Calibration Date:	04-Nov-10 11:52:55
Software Version:	WL INSITE R3.2.1 (Build 7)	Calibration Version:	1

Logging Source S/N: 20791B			
Aluminum Block S/N: 63074			
Density: 2.589g/cc			Pe: 3.140

DENSITY CALIBRATION SUMMARY

Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	0.9747	1.0488	0.90 - 1.10
Near Dens Gain	0.9799	1.0542	0.90 - 1.10
Near Peak Gain	0.9884	1.0757	0.90 - 1.10
Near Lith Gain	0.9636	1.0550	0.90 - 1.10
Far Bar Gain	0.9992	1.0053	0.90 - 1.10
Far Dens Gain	0.9868	0.9933	0.90 - 1.10
Far Peak Gain	0.9792	0.9898	0.90 - 1.10
Far Lith Gain	0.9565	0.9693	0.90 - 1.10
Near Bar Offset	0.3067	-0.4042	NONE
Near Dens Offset	0.2347	-0.4495	NONE
Near Peak Offset	0.1428	-0.6176	NONE
Near Lith Offset	0.3310	-0.4455	NONE
Far Bar Offset	0.0160	-0.0569	NONE
Far Dens Offset	0.1120	0.0397	NONE
Far Peak Offset	0.1297	0.0244	NONE
Far Lith Offset	0.2374	0.1316	NONE
Near Bar Background	950.19	935.14	700 - 1450
Near Dens Background	311.70	304.92	230 - 480
Near Peak Background	136.69	133.91	100 - 210
Near Lith Background	167.04	165.27	125 - 260
Far Bar Background	566.41	560.38	450 - 900
Far Dens Background	221.59	219.83	175 - 345
Far Peak Background	87.01	86.44	70 - 140
Far Lith Background	90.60	91.09	75 - 145

CALIBRATION BLOCK SUMMARY

Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.684	1.683	-0.001	+/- 0.015
Pe	2.640	2.547	-0.093	+/- 0.150
ALUMINUM				
Density (g/cc)	2.591	2.589	-0.002	+/- 0.01500
Pe	3.163	3.091	-0.072	+/- 0.150

TOOL SUMMARY

Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	-0.0027	+/- 0.0110	-0.0022	+/- 0.0140
Magnesium Block	-0.0008	+/- 0.0110	-0.0013	+/- 0.0140
Aluminum Block	0.0006	+/- 0.0110	-0.0014	+/- 0.0140
Resolution	9.42	6.00 - 11.50	9.85	6.00 - 11.50
Internal Verifier(B+D+P+L)	1539	1200 - 2700	958	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 - I87M06P72	Reference Calibration Date:	04-Nov-10 11:52:55
Engineer:	J.COTHREN	Calibration Date:	11-Nov-10 10:43:56
Software Version:	WL INSITE R3.2.1 (Build 7)	Calibration Version:	1

Pad Temperature: 50.0 degF

DENSITY FIELD CALIBRATION SUMMARY

Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1539.247	1540.238	0.991	15.796
Far (B+D+P+L) cps	957.744	959.293	1.549	16.671
Near Resolution	9.42	9.51	0.090	0.50
Far Resolution	9.85	10.23	0.380	1.00

PASS/FAIL SUMMARY

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

SPECTRAL DENSITY POST CHECK

Tool Name:	SDLT - I87M06P72	Reference Calibration Date:	11-Nov-10 10:43:56
Engineer:	J.COTHREN	Calibration Date:	11-Nov-10 15:51:19
Software Version:	WL INSITE R3.2.1 (Build 7)	Calibration Version:	1

Pad Temperature: 64.7 degF

DENSITY POST CALIBRATION SUMMARY

Measurement	Field	Post	Change	Control Limit +/-
Near (B+D+P+L) cps	1540.238	1553.520	13.282	15.796
Far (B+D+P+L) cps	959.293	959.779	0.486	16.671
Near Resolution	9.51	9.46	-0.050	0.50
Far Resolution	10.23	9.89	-0.340	1.00

PASS/FAIL SUMMARY

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

MICRO LOG SHOP CALIBRATION

Tool Name:	SDLT - I87M06P72	Reference Calibration Date:	29-Aug-10 18:09:23
Engineer:	J. BROWNAWELL	Calibration Date:	26-Sep-10 06:59:30
Software Version:	WL INSITE R3.0.6 (Build 4)	Calibration Version:	1

CALIBRATION COEFFICIENT SUMMARY

Measurement	Micro Log Normal	Micro Log Lateral
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	Measured	Calibrated	Measured	Calibrated	Units
Tool Zero	-0.08	-0.11	0.00	0.01	ohmm
Calibration Point #1	0.03	0.00	-0.01	0.00	ohmm
Calibration Point #2	19.91	20.00	19.92	20.00	ohmm
Internal Reference	19.83	19.92	19.92	19.99	ohmm
Measurement	Micro Log Normal Tool Value		Micro Log Lateral Tool Value		Units
Tool Zero	-0.51		0.56		V
Calibration Point #1	29.33		-3.70		V
Calibration Point #2	5324.90		6935.89		V
Internal Reference	5304.03		6933.03		V

MICRO LOG FIELD CHECK					
Tool Name:	SDLT - I87M06P72		Reference Calibration Date:	26-Sep-10 06:59:30	
Engineer:	J.COTHREN		Calibration Date:	11-Nov-10 10:55:53	
Software Version:	WL INSITE R3.2.1 (Build 7)		Calibration Version:	1	
Measurement	Micro Log Normal		Micro Log Lateral		Units
	Shop	Field	Shop	Field	
Tool Zero	-0.11	-0.11	0.01	0.01	ohmm
Internal Reference	19.92	19.85	19.99	19.92	ohmm
Summary					
Signal	Shop	Field	Difference	Tolerance	
Microlog Normal	19.92	19.85	0.07	+/- 0.80	
Microlog Lateral	19.99	19.92	0.07	+/- 0.80	

MICRO LOG POST CHECK					
Tool Name:	SDLT - I87M06P72		Reference Calibration Date:	11-Nov-10 10:55:53	
Engineer:	J.COTHREN		Calibration Date:	11-Nov-10 15:58:34	
Software Version:	WL INSITE R3.2.1 (Build 7)		Calibration Version:	1	
Measurement	Micro Log Normal		Micro Log Lateral		Units
	Field	Post	Field	Post	
Tool Zero	-0.11	-0.10	0.01	0.01	ohmm
Internal Reference	19.85	19.91	19.92	19.98	ohmm
Summary					
Signal	Field	Post	Difference	Tolerance	
Microlog Normal	19.85	19.91	0.06	+/- 0.80	
Microlog Lateral	19.92	19.98	0.06	+/- 0.80	

DENSITY CALIPER SHOP CALIBRATION					
Tool Name:	SDLT - I87M06P72		Reference Calibration Date:	29-Jun-10 13:03:18	
Engineer:	J. BROWNAWELL		Calibration Date:	29-Aug-10 18:00:58	
Software Version:	WL INSITE R3.0.6 (Build 4)		Calibration Version:	1	

CALIBRATION COEFFICIENTS			
Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-1853.01	-1978.66	-7000.00 - -1000.00
Pad Gain	0.0003804	0.0003853	0.000200 - 0.000600
Arm Offset	-1387.84	-1757.27	-5000.00 - 3000.00

Arm Gain	0.0004900	0.0004993	0.000300 - 0.000700
Arm Power	-0.000004600	-0.000004791	-0.000010 - 0.000010

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)	2.02	2.00	-0.02	+/- 0.20
Medium Ring (in)	3.75	3.75	0.00	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.68	6.50	-0.18	+/- 0.20
Medium Ring (in)	8.40	8.25	-0.15	+/- 0.20
Large Ring (in)	15.05	15.00	-0.05	+/- 0.20

PASS/FAIL SUMMARY

Calibration-Coefficients Range Check:	Passed
Ring-Measurement Check:	Passed

PASS/FAIL SUMMARY

Calibration-Coefficients Range Check:	Passed
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SDLT CALIPER FIELD CALIBRATION

Tool Name:	SDLT - I87M06P72	Reference Calibration Date:	29-Aug-10 18:00:58
Engineer:	J.COTHREN	Calibration Date:	11-Nov-10 10:48:29
Software Version:	WL INSITE R3.2.1 (Build 7)	Calibration Version:	1

MEASURED CALIPER VALUES

Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.71	-0.04	+/- 0.10
Ring Diameter	8.25	8.23	-0.02	+/- 0.15

PASS/FAIL SUMMARY

Pad Extension Check:	Passed
Diameter Check:	Passed

SDLT CALIPER POST CALIBRATION

Tool Name:	SDLT - I87M06P72	Reference Calibration Date:	11-Nov-10 10:48:29
Engineer:	J.COTHREN	Calibration Date:	11-Nov-10 15:54:44
Software Version:	WL INSITE R3.2.1 (Build 7)	Calibration Version:	1

MEASURED CALIPER VALUES

Measurement	Field	Post	Change	Control Limit On New Value
Pad Extension	3.71	3.75	0.04	+/- 0.10
Ring Diameter	8.23	8.13	-0.09	+/- 0.15

PASS/FAIL SUMMARY

Pad Extension Check:	Passed
Diameter Check:	Passed

CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-11013113						
Gamma Ray Calibrator	225.0	220.9	222.5	-1.6	+/- 9.00	api
DSNT-11020487						
Snow-Block Porosity	0.0859	0.0879	0.0891	-0.0012	+/- 0.0150	decP
SDLT-I87M06P72						
Near(B+D+P+L)	1539.247	1540.238	1553.520	-13.282	+/-15.796	cps
Far(B+D+P+L)	957.744	959.293	959.779	-0.486	+/-16.671	cps
MicroLog Normal	19.92	19.85	19.91	-0.06	+/-0.80	ohmm
MicroLog Lateral	19.99	19.92	19.98	-0.06	+/-0.80	ohmm
Pad Extension	3.75	3.71	3.75	-0.04	+/-0.10	in
Ring Diameter	8.25	8.23	8.13	0.100	+/-0.15	in
Data: LAURA_21-1\0001 QUAD_RED\IDLE						
Date: 11-Nov-10 17:24:12						

HALLIBURTON						
INPUTS, DELAYS AND FILTERS TABLE						
Mnemonic		Input Description	Delay (ft)	Filter Type	Filter Length (ft)	
Depth Panel						
TENS	Tension		0.00	NO		
CH_HOS						
DHTN	DownholeTension		0.00	BLK	0.000	
GTET						
TPUL	Tension Pull		64.23	NO		
GR	Natural Gamma Ray API		64.23	TRI	1.750	
GRU	Unfiltered Natural Gamma Ray API		64.23	NO		
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution		64.23	W	1.416 , 0.750	
ACCZ	Accelerometer Z		0.00	BLK	0.083	
DEVI	Inclination		0.00	NO		
DSNT						
TPUL	Tension Pull		53.99	NO		
RNDS	Near Detector Telemetry Counts		54.09	BLK	1.417	
RFDS	Far Detector Telemetry Counts		54.84	TRI	0.583	
DNTT	DSN Tool Temperature		54.09	NO		
DSNS	DSN Tool Status		53.99	NO		
ERND	Near Detector Telemetry Counts EVR		54.09	BLK	0.000	
ERFD	Far Detector Telemetry Counts EVR		54.84	BLK	0.000	
ENTM	DSN Tool Temperature EVR		54.09	NO		
SDLT						
TPUL	Tension Pull		44.08	NO		
NAB	Near Above		43.90	BLK	0.920	
NHI	Near Cesium High		43.90	BLK	0.920	
NLO	Near Cesium Low		43.90	BLK	0.920	
NVA	Near Valley		43.90	BLK	0.920	
NBA	Near Barite		43.90	BLK	0.920	
NDE	Near Density		43.90	BLK	0.920	
NPK	Near Peak		43.90	BLK	0.920	
NLI	Near Lithology		43.90	BLK	0.920	
NRAH	Near Resistivity Filtered		43.90	BLK	0.920	

NBAU	Near Barite Unfiltered	43.90	BLK	0.250
NLIU	Near Lithology Unfiltered	43.90	BLK	0.250
FAB	Far Above	44.26	BLK	0.250
FHI	Far Cesium High	44.26	BLK	0.250
FLO	Far Cesium Low	44.26	BLK	0.250
FVA	Far Valley	44.26	BLK	0.250
FBA	Far Barite	44.26	BLK	0.250
FDE	Far Density	44.26	BLK	0.250
FPK	Far Peak	44.26	BLK	0.250
FLI	Far Lithology	44.26	BLK	0.250
PTMP	Pad Temperature	44.09	BLK	0.920
NHV	Near Detector High Voltage	41.28	NO	
FHV	Far Detector High Voltage	41.28	NO	
ITMP	Instrument Temperature	41.28	NO	
DDHV	Detector High Voltage	41.28	NO	
TPUL	Tension Pull	44.09	NO	
PCAL	Pad Caliper	44.09	TRI	0.250
ACAL	Arm Caliper	44.09	TRI	0.250
TPUL	Tension Pull	44.28	NO	
MINV	Microlog Lateral	44.28	BLK	0.750
MNOR	Microlog Normal	44.28	BLK	0.750

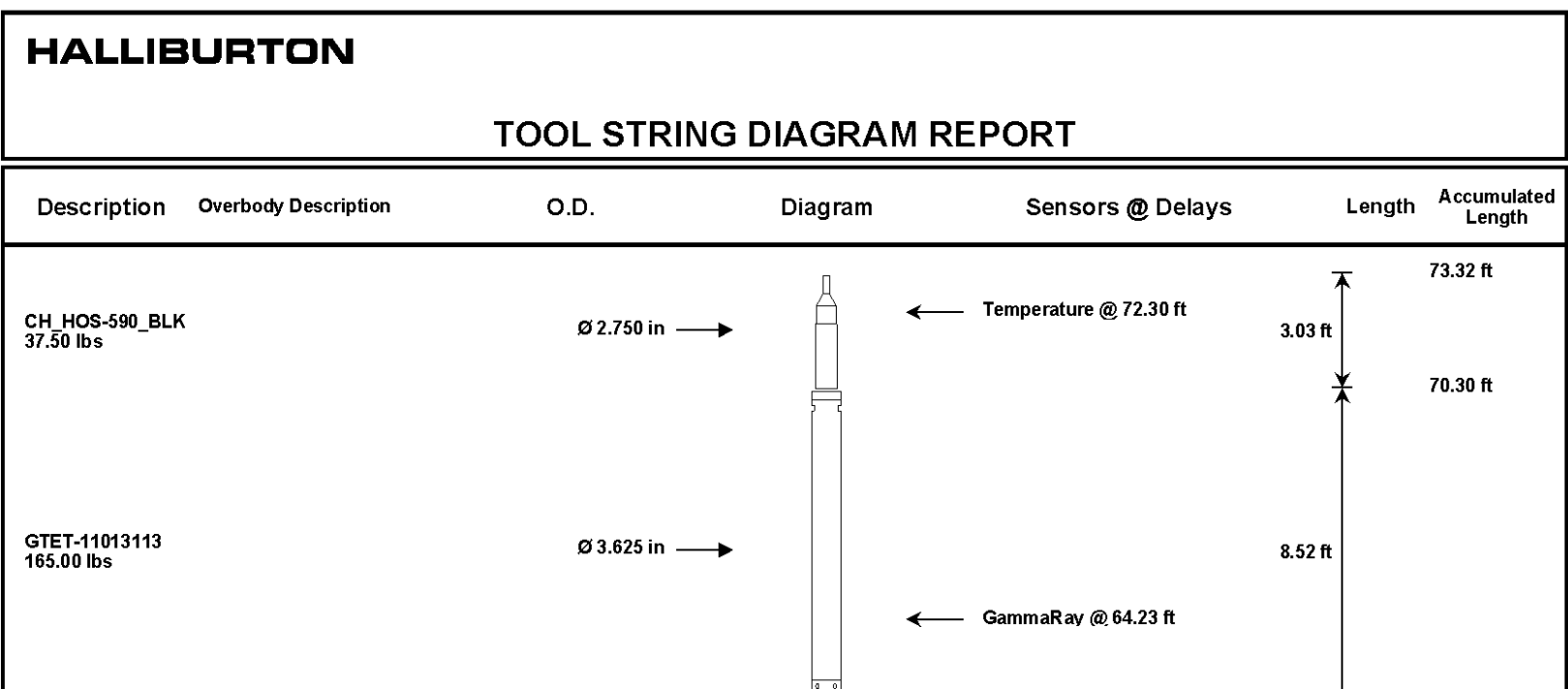
BSAT

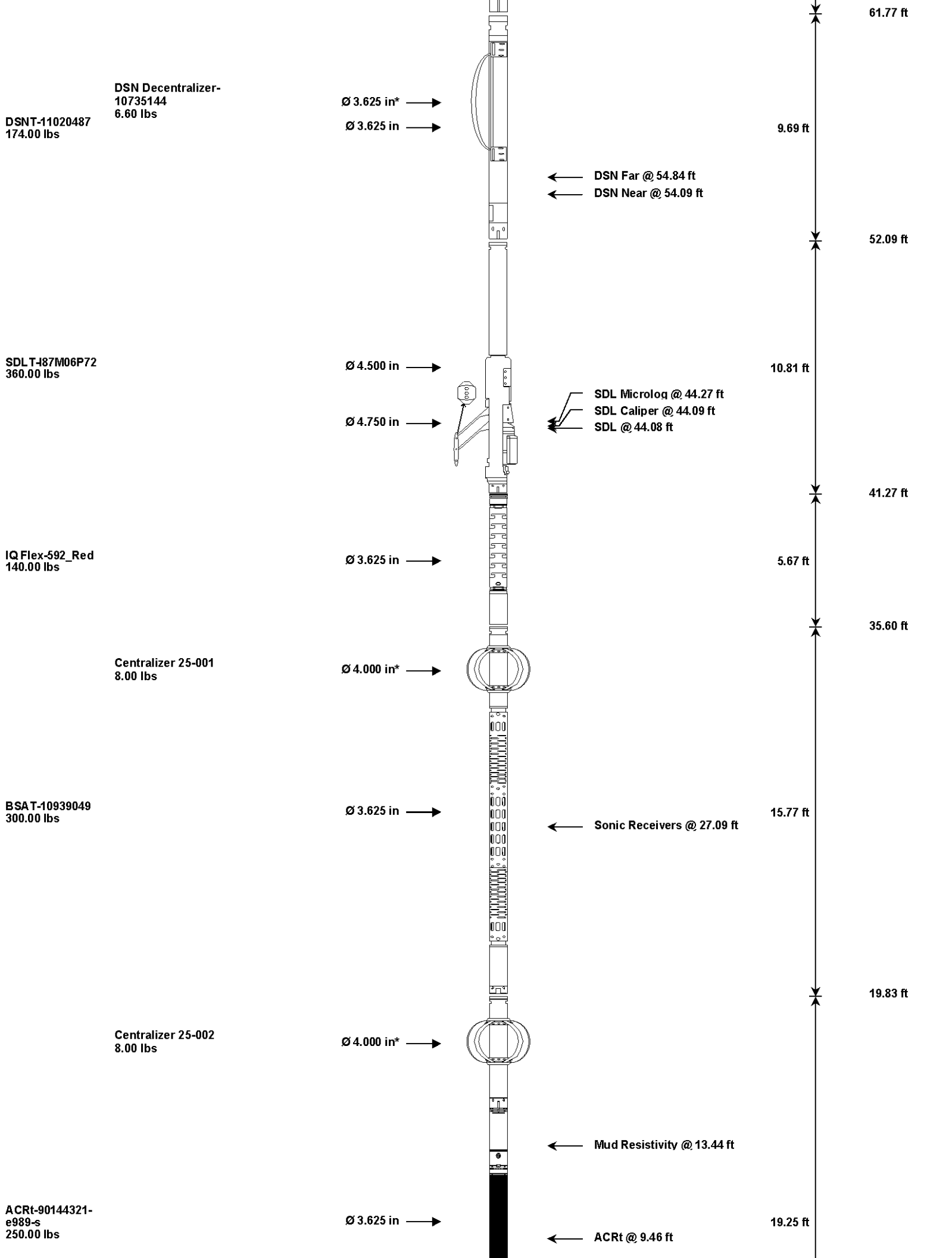
TPUL	Tension Pull	27.09	NO	
STAT	Status	27.09	NO	
DLYT	Delay Time	27.09	NO	
SI	Sample Interval	27.09	NO	
TXRX	Raw Telemetry 10 Receivers	27.09	NO	
FRMC	Tool Frame Count	27.09	NO	

ACRT

TPUL	Tension Pull	2.97	NO	
F1R1	ACRT 12KHz - 80in R value	9.22	BLK	0.000
F1X1	ACRT 12KHz - 80in X value	9.22	BLK	0.000
F1R2	ACRT 12KHz - 50in R value	6.72	BLK	0.000
F1X2	ACRT 12KHz - 50in X value	6.72	BLK	0.000
F1R3	ACRT 12KHz - 29in R value	5.22	BLK	0.000
F1X3	ACRT 12KHz - 29in X value	5.22	BLK	0.000
F1R4	ACRT 12KHz - 17in R value	4.22	BLK	0.000
F1X4	ACRT 12KHz - 17in X value	4.22	BLK	0.000
F1R5	ACRT 12KHz - 10in R value	3.72	BLK	0.000
F1X5	ACRT 12KHz - 10in X value	3.72	BLK	0.000
F1R6	ACRT 12KHz - 6in R value	3.47	BLK	0.000
F1X6	ACRT 12KHz - 6in X value	3.47	BLK	0.000
F2R1	ACRT 36KHz - 80in R value	9.22	BLK	0.000
F2X1	ACRT 36KHz - 80in X value	9.22	BLK	0.000
F2R2	ACRT 36KHz - 50in R value	6.72	BLK	0.000
F2X2	ACRT 36KHz - 50in X value	6.72	BLK	0.000
F2R3	ACRT 36KHz - 29in R value	5.22	BLK	0.000
F2X3	ACRT 36KHz - 29in X value	5.22	BLK	0.000
F2R4	ACRT 36KHz - 17in R value	4.22	BLK	0.000
F2X4	ACRT 36KHz - 17in X value	4.22	BLK	0.000
F2R5	ACRT 36KHz - 10in R value	3.72	BLK	0.000
F2X5	ACRT 36KHz - 10in X value	3.72	BLK	0.000
F2R6	ACRT 36KHz - 6in R value	3.47	BLK	0.000

F2X6	ACRT 36KHz - 6in X value	3.47	BLK	0.000
F3R1	ACRT 72KHz - 80in R value	9.22	BLK	0.000
F3X1	ACRT 72KHz - 80in X value	9.22	BLK	0.000
F3R2	ACRT 72KHz - 50in R value	6.72	BLK	0.000
F3X2	ACRT 72KHz - 50in X value	6.72	BLK	0.000
F3R3	ACRT 72KHz - 29in R value	5.22	BLK	0.000
F3X3	ACRT 72KHz - 29in X value	5.22	BLK	0.000
F3R4	ACRT 72KHz - 17in R value	4.22	BLK	0.000
F3X4	ACRT 72KHz - 17in X value	4.22	BLK	0.000
F3R5	ACRT 72KHz - 10in R value	3.72	BLK	0.000
F3X5	ACRT 72KHz - 10in X value	3.72	BLK	0.000
F3R6	ACRT 72KHz - 6in R value	3.47	BLK	0.000
F3X6	ACRT 72KHz - 6in X value	3.47	BLK	0.000
RMUD	Mud Resistivity	12.76	BLK	0.000
F1RT	Transmitter Reference 12 KHz Real Signal	2.97	BLK	0.000
F1XT	Transmitter Reference 12 KHz Imaginary Signal	2.97	BLK	0.000
F2RT	Transmitter Reference 36 KHz Real Signal	2.97	BLK	0.000
F2XT	Transmitter Reference 36 KHz Imaginary Signal	2.97	BLK	0.000
F3RT	Transmitter Reference 72 KHz Real Signal	2.97	BLK	0.000
F3XT	Transmitter Reference 72 KHz Imaginary Signal	2.97	BLK	0.000
TFPU	Upper Feedpipe Temperature Calculated	2.97	BLK	0.000
TFPL	Lower Feedpipe Temperature Calculated	2.97	BLK	0.000
ITMP	Instrument Temperature	2.97	BLK	0.000
TCVA	Temperature Correction Values Loop Off	2.97	NO	
TIDV	Instrument Temperature Derivative	2.97	NO	
TUDV	Upper Temperature Derivative	2.97	NO	
TLDV	Lower Temperature Derivative	2.97	NO	
TRBD	Receiver Board Temperature	2.97	NO	
SP Ring				
PLTC	Plot Control Mask	1.86	NO	
SP	Spontaneous Potential	1.86	BLK	1.250
SPR	Raw Spontaneous Potential	1.86	NO	
SPO	Spontaneous Potential Offset	1.86	NO	
Data: LAURA_21-110001 QUAD_RED\\IDLE			Date: 11-Nov-10 13:26:57	





SP Ring-1
0.00 lbs

Ø 3.625 in* →

← SP @ 1.86 ft

0.58 ft

0.58 ft

0.00 ft

Cabbage Head-001
10.00 lbs

Ø 3.625 in
Ø 6.000 in →



Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max.Log. Speed (fpm)
CH_HOS	Hostile Cable Head with Load Cell	590_BLK	37.50	3.03	70.30	300.00
GTET	Gamma Telemetry Tool	11013113	165.00	8.52	61.77	60.00
DSNT	Dual Spaced Neutron	11020487	174.00	9.69	52.09	60.00
DCNT	DSN Decentralizer	10735144	6.60	5.13	* 55.42	300.00
SDLT	Spectral Density Tool	I87M06P72	360.00	10.81	41.27	60.00
IQF	IQ Flex tool	592_Red	140.00	5.67	35.60	300.00
BSAT	Borehole Sonic Array Tool	10939049	300.00	15.77	19.83	60.00
OBCEN	Centralizer - 25 in. Overbody	001	8.00	2.08	* 32.68	300.00
ACRt	Array Compensated True Resistivity	90144321-e989-s	250.00	19.25	0.58	300.00
SP	SP Ring	1	0.00	0.25	* 1.86	300.00
OBCEN	Centralizer - 25 in. Overbody	002	8.00	2.08	* 16.78	300.00
CBHD	Cabbage Head	001	10.00	0.58	0.00	300.00
Total			1,459.10	73.32		
* Not included in Total Length and Length Accumulation.						
Data: LAURA_21-1\0001 QUAD_RED\IDLE						
Date: 11-Nov-10 11:13:43						

COMPANY	EOG RESOURCES		
WELL	LAURA 21#1		
FIELD	WILD CAT		
COUNTY	STEVENS	STATE	KANSAS
HALLIBURTON		SPECTRAL DENSITY DUAL SPACED NEUTRON MICROLOG	