

SPECTRAL DENSITY DUAL SPACED NEUTRON LOG

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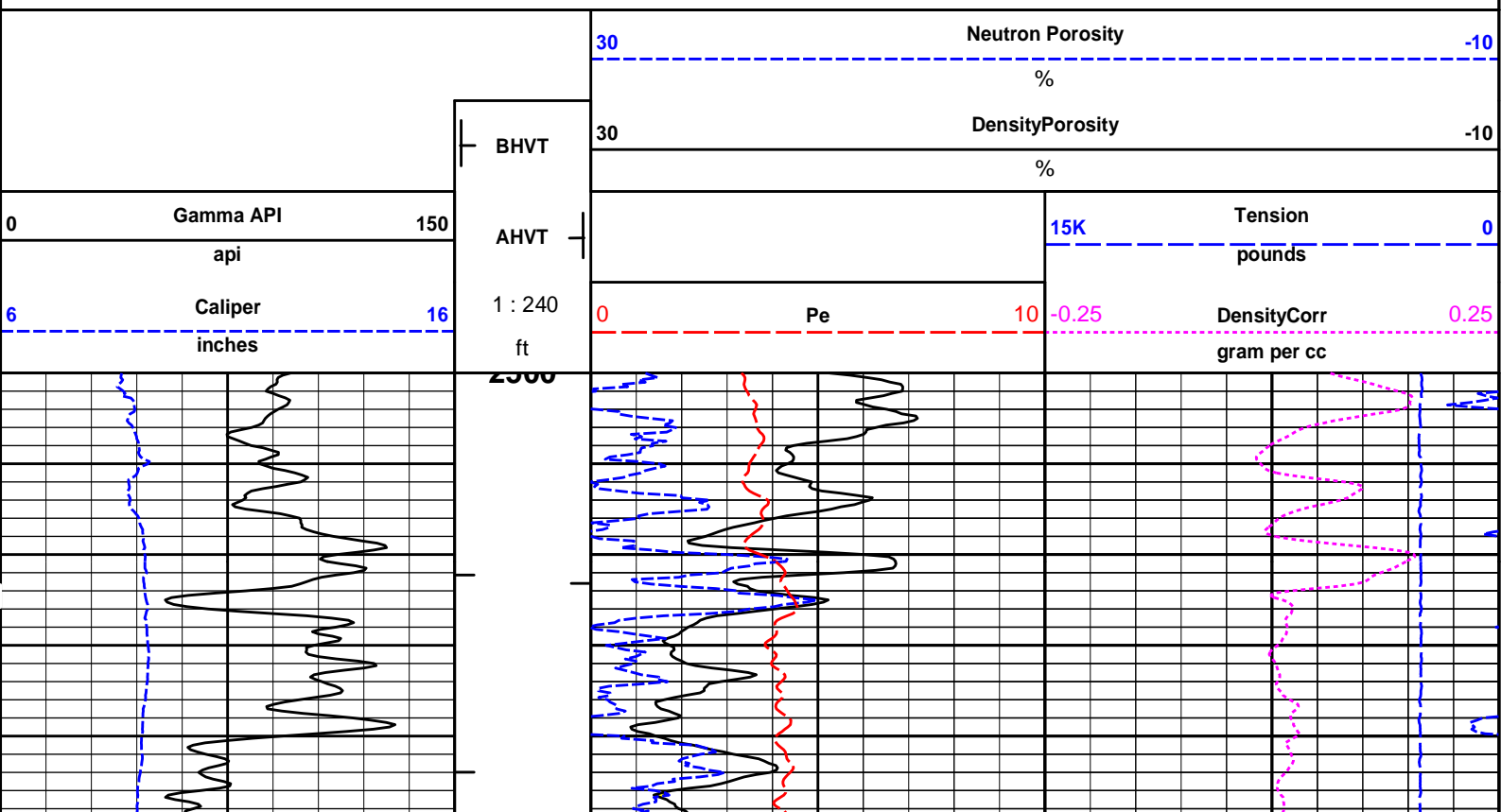
Service Ticket No.: 904838655						API No.: 05-073-06739-00-00		PGM Version: WL INSITE R5.6.3 (Build 4)						
CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE						RESISTIVITY SCALE CHANGES								
Date	Sample No.					Type Log	Depth	Scale Up Hole		Scale Down Hole				
Depth-Driller														
Type Fluid in 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.		@		@										
Rmc @ Meas. Temp.		@		@										
Source Rmf	Rmc													
Rm @ BHT		@		@										
Rmf @ BHT		@		@										
Rmc @ BHT		@		@										
EQUIPMENT DATA														
GAMMA			ACOUSTIC			DENSITY			NEUTRON					
Run No.				Run No.				Run No.						
Serial No.				Serial No.				Serial No.						
Model No.				Model No.				Model No.						
Diameter				No. of Cent.				Diameter						
Detector Model No.				Spacing				Log Type						
Type								Source Type						
Length				LSA [Y/N]				Serial No.						
Distance to Source				FWDA [Y/N]				Strength						
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	

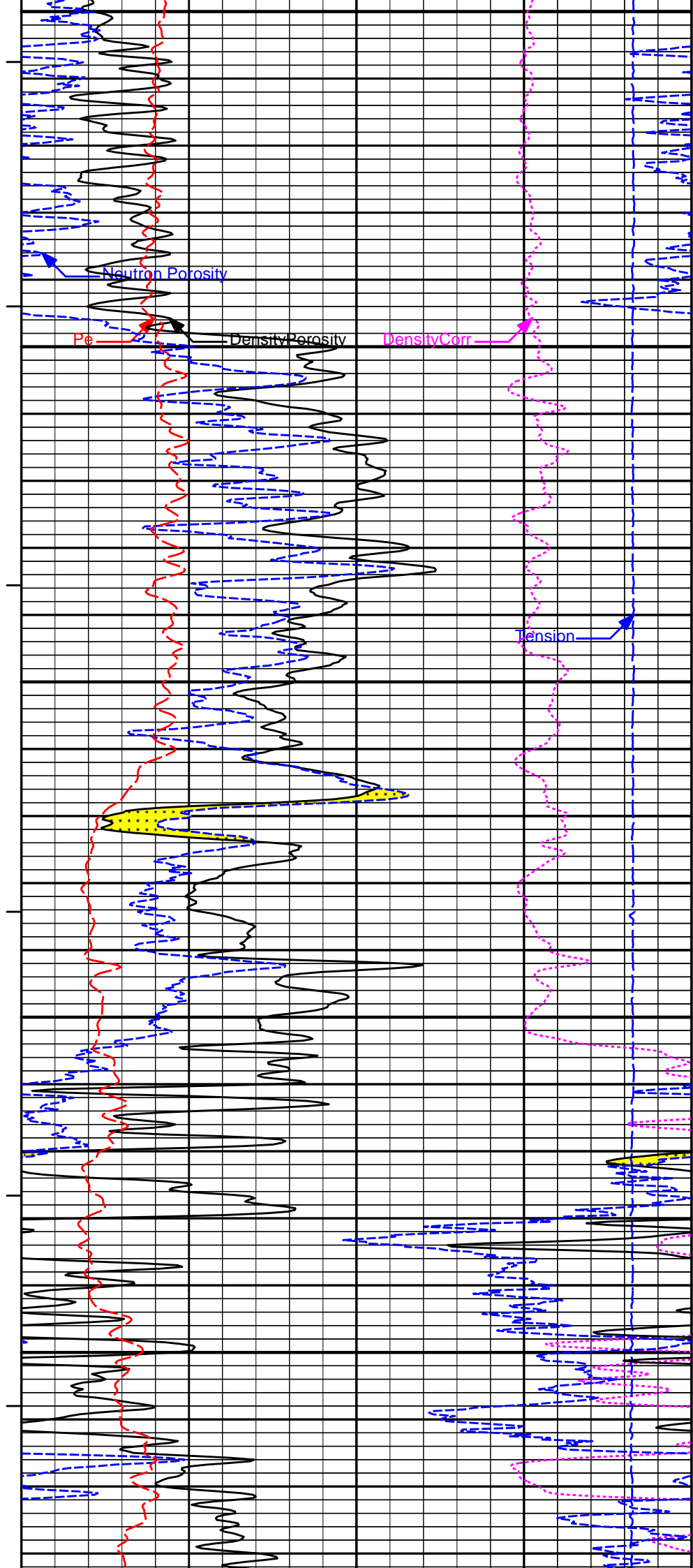
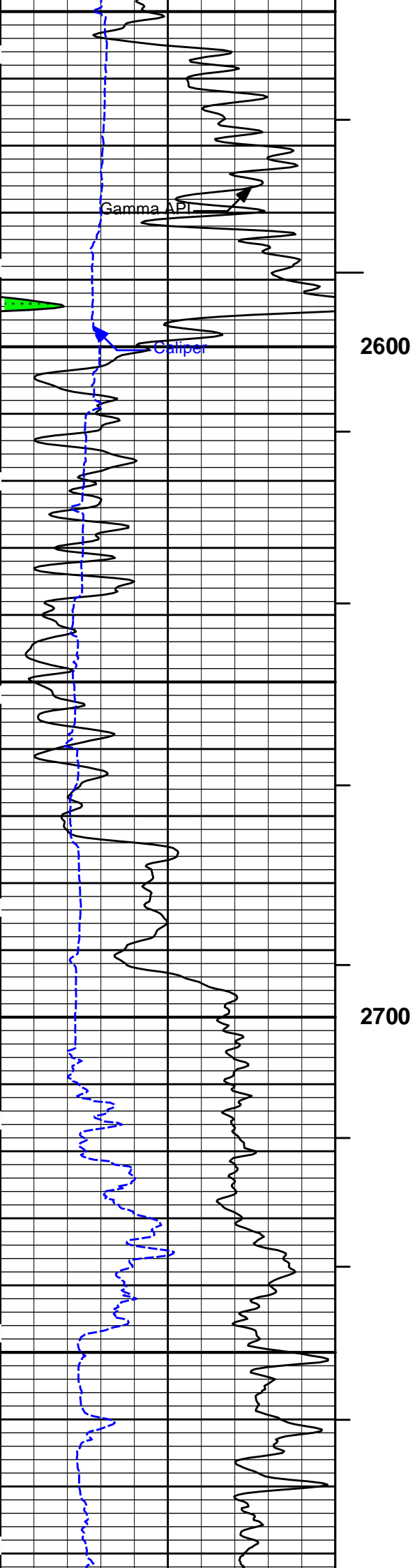
[illegible]**HALLIBURTON**

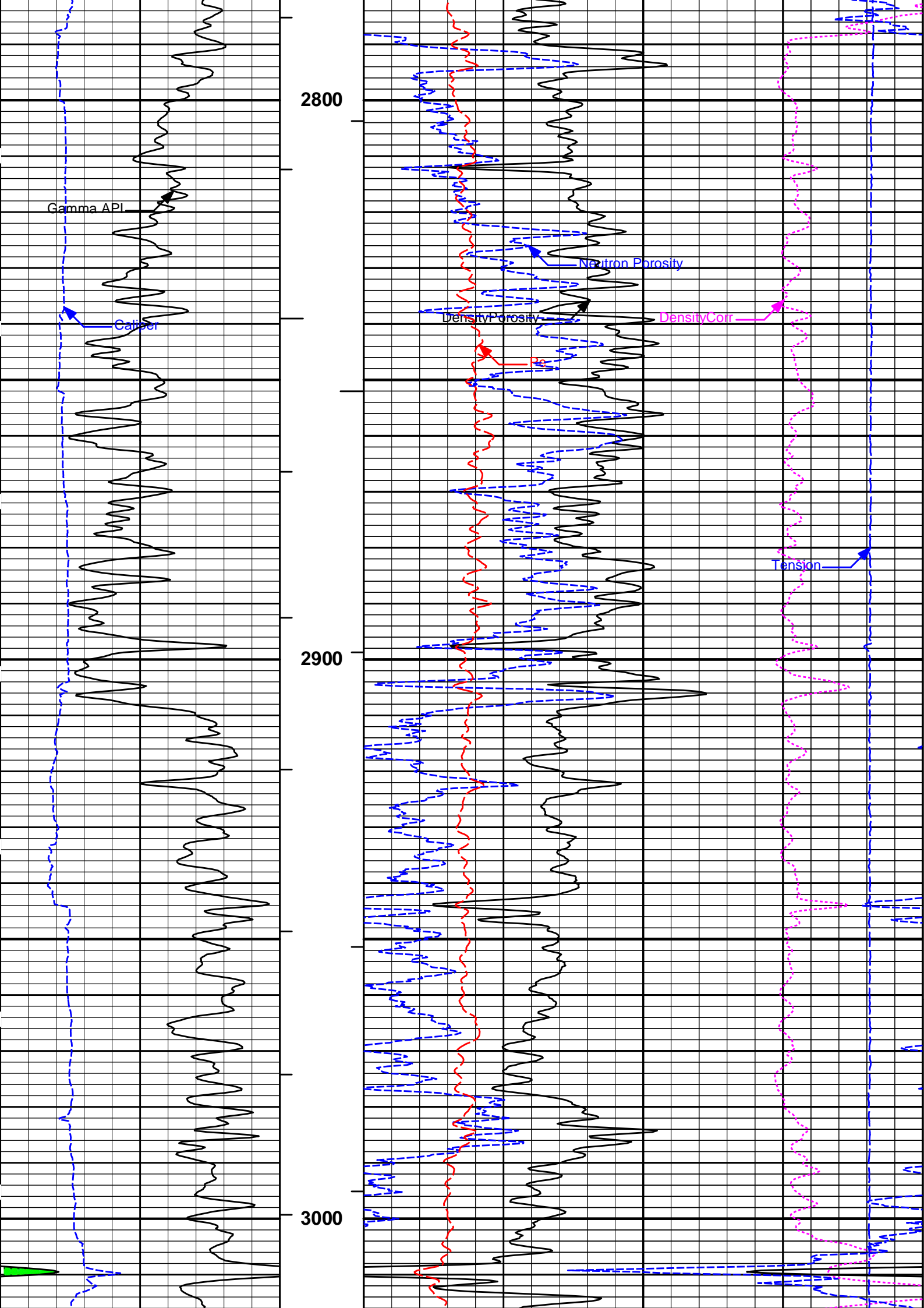
Plot Time: 24-May-18 08:47:01
Plot Range: 2500 ft to 7675.5 ft
Data: K3_JAMES\Well Based\DAQ-0001-005\
Plot File: \\SDL-DSN\Poro IQ_5 MAIN

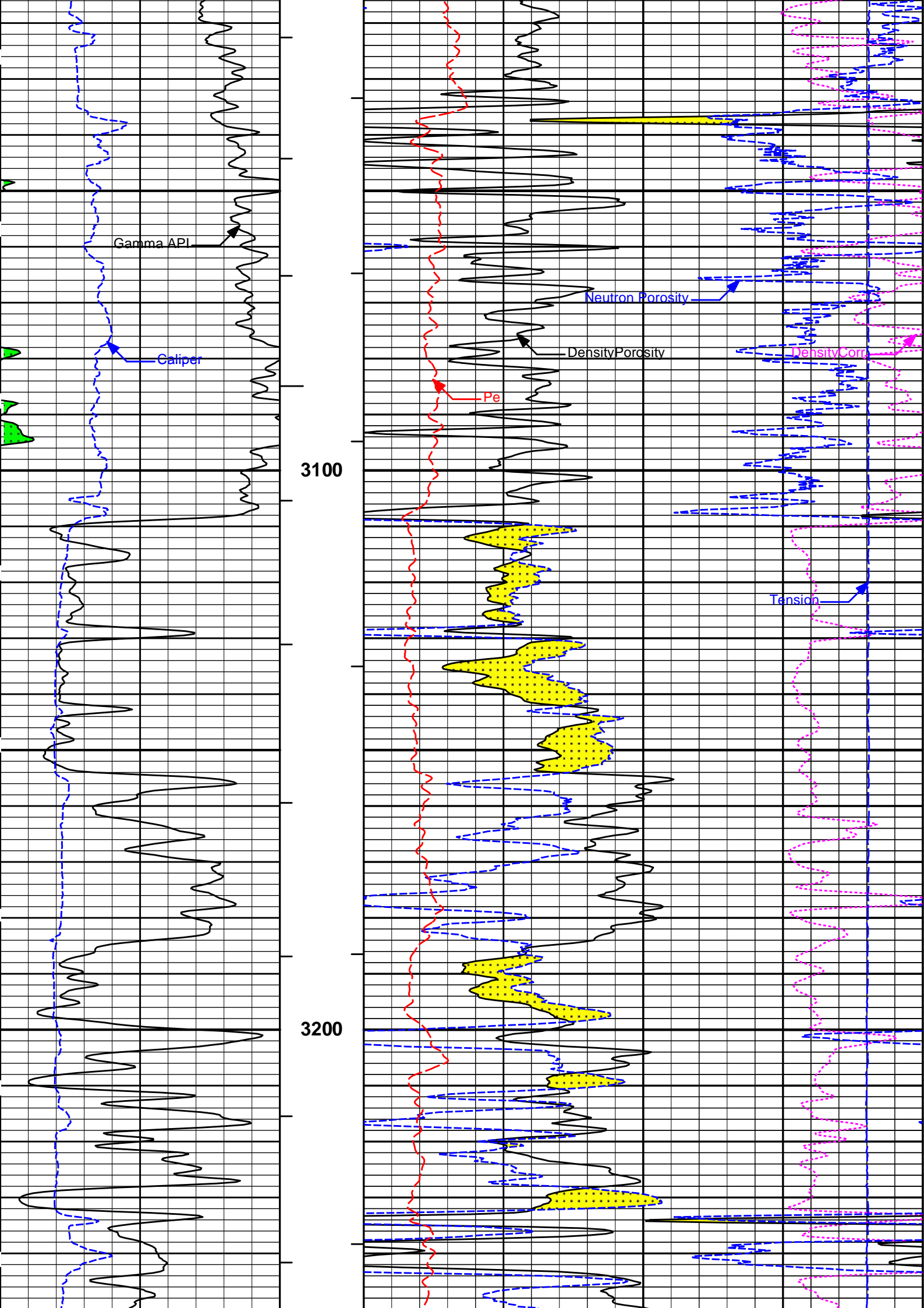
5 INCH MAIN LOG

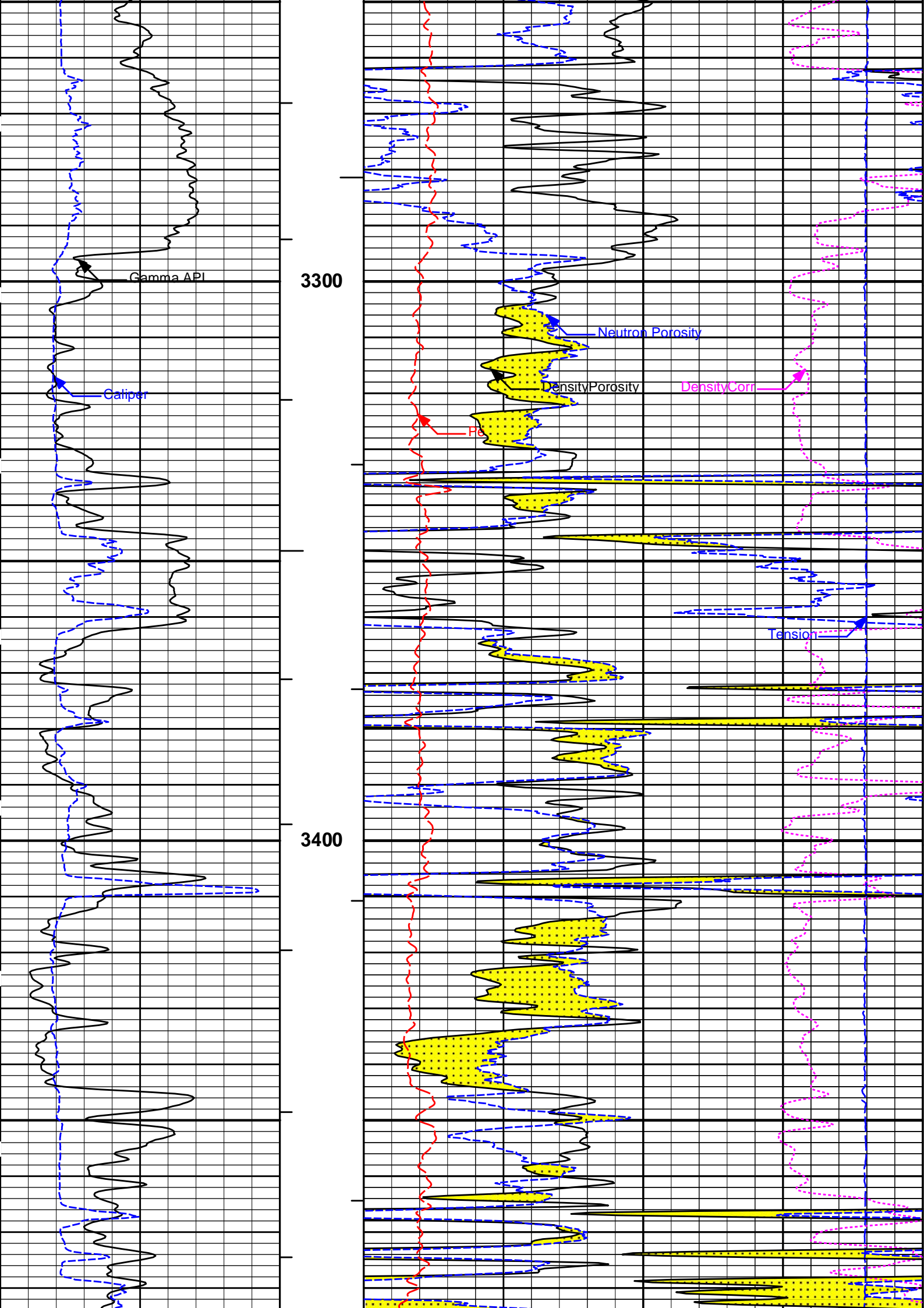
MAIN SECTION 5" PER 100'

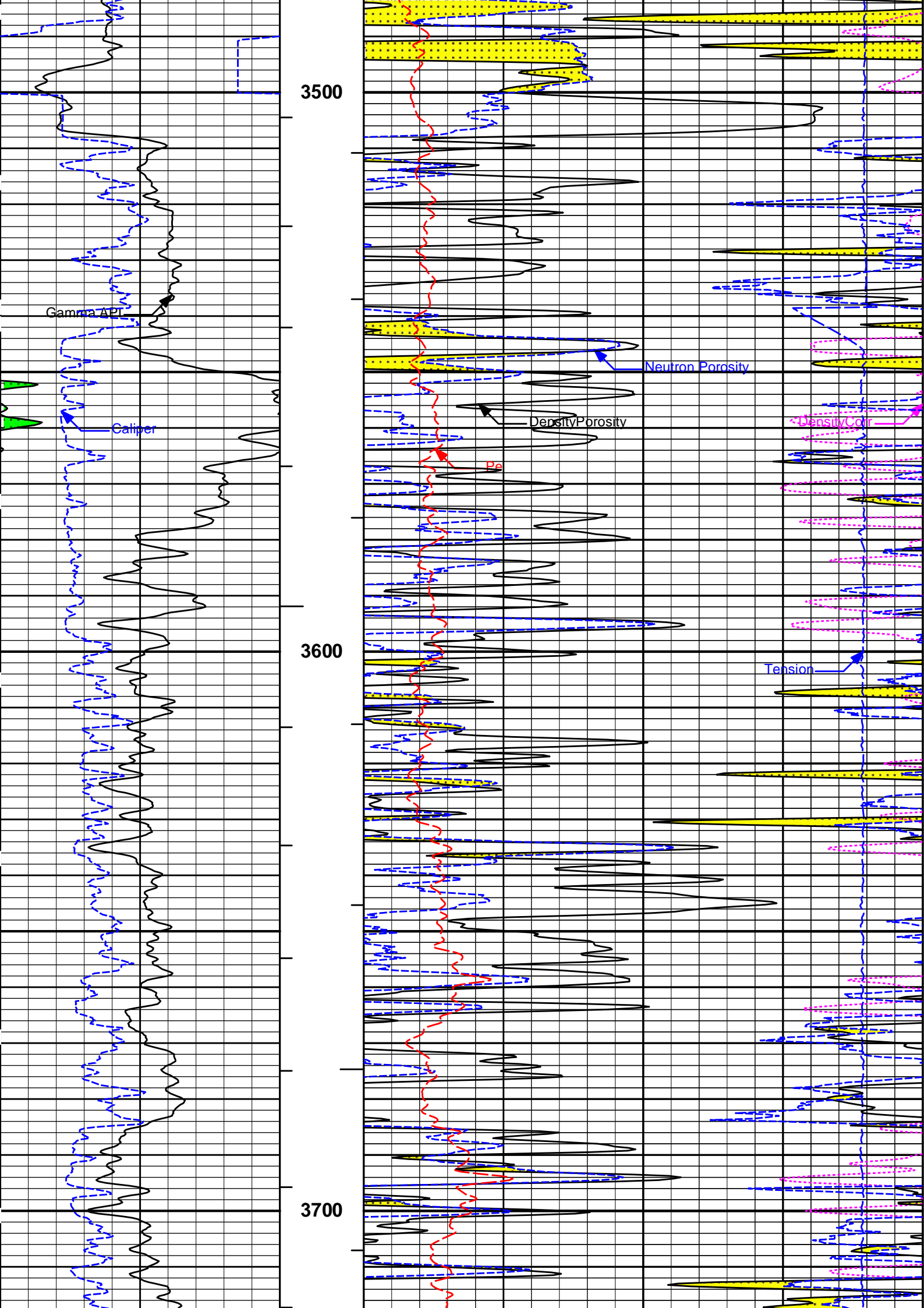


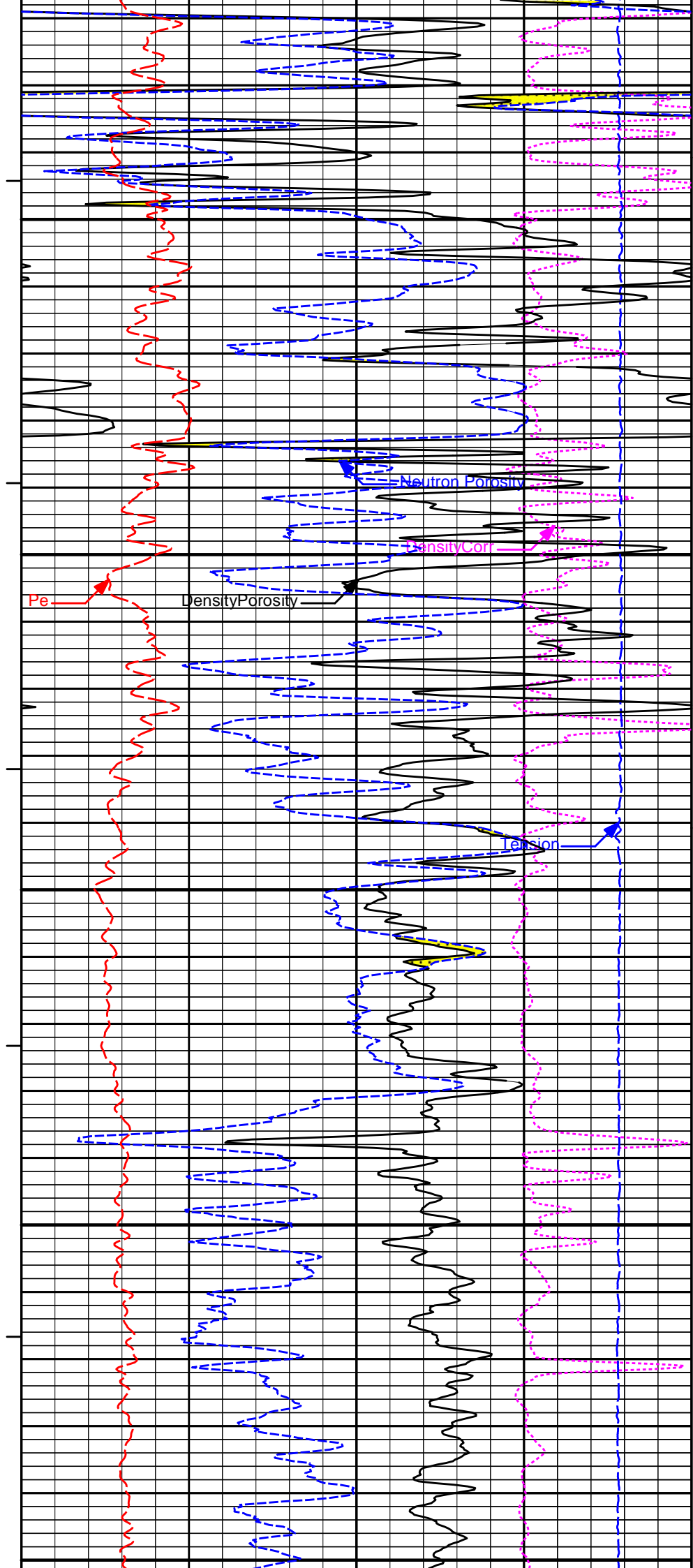
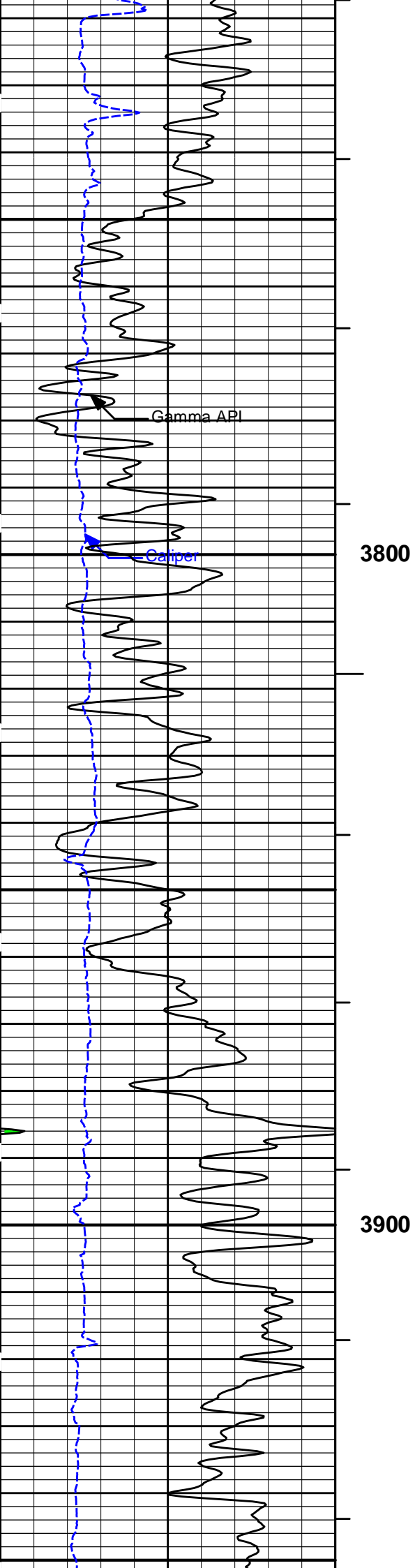


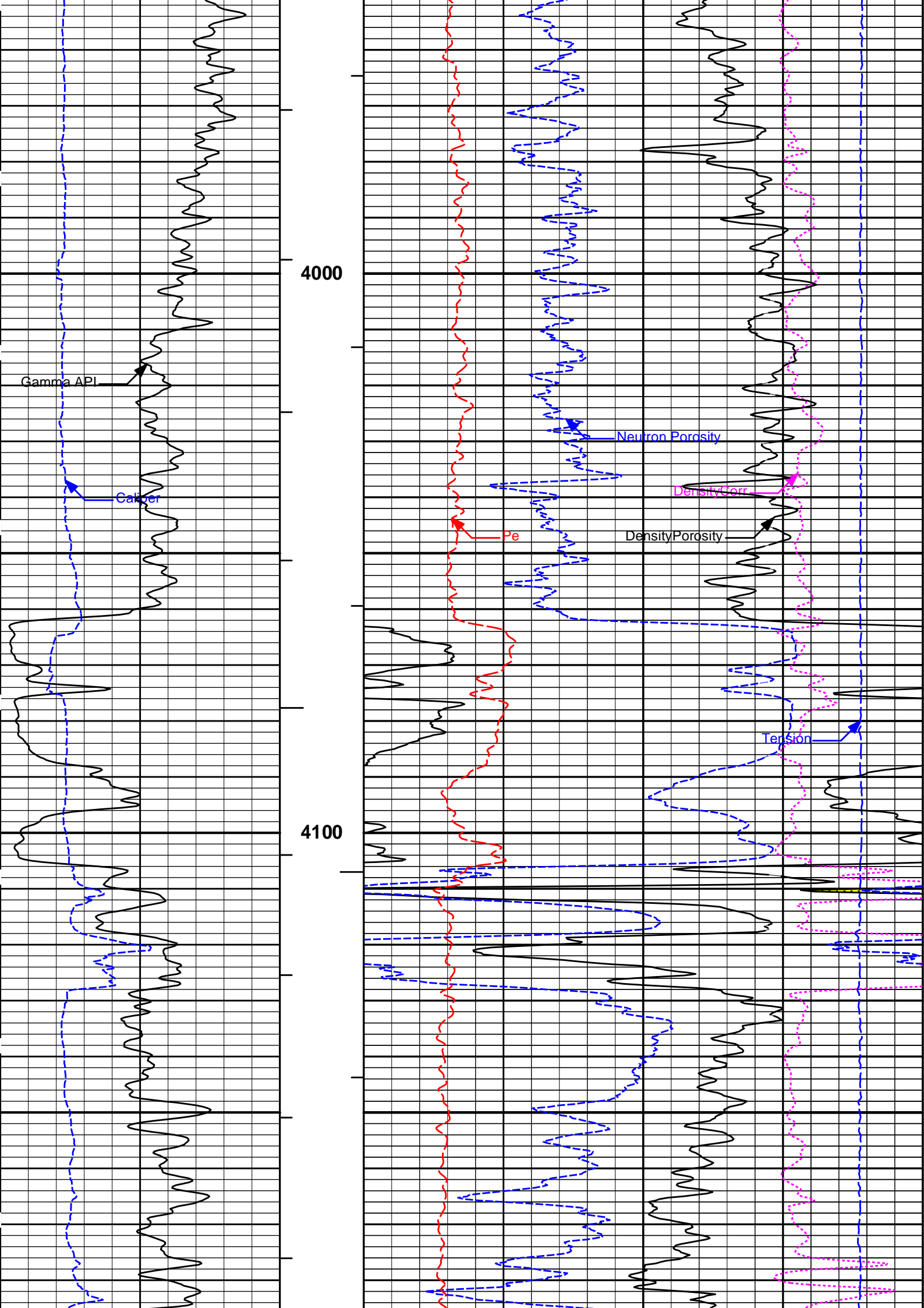


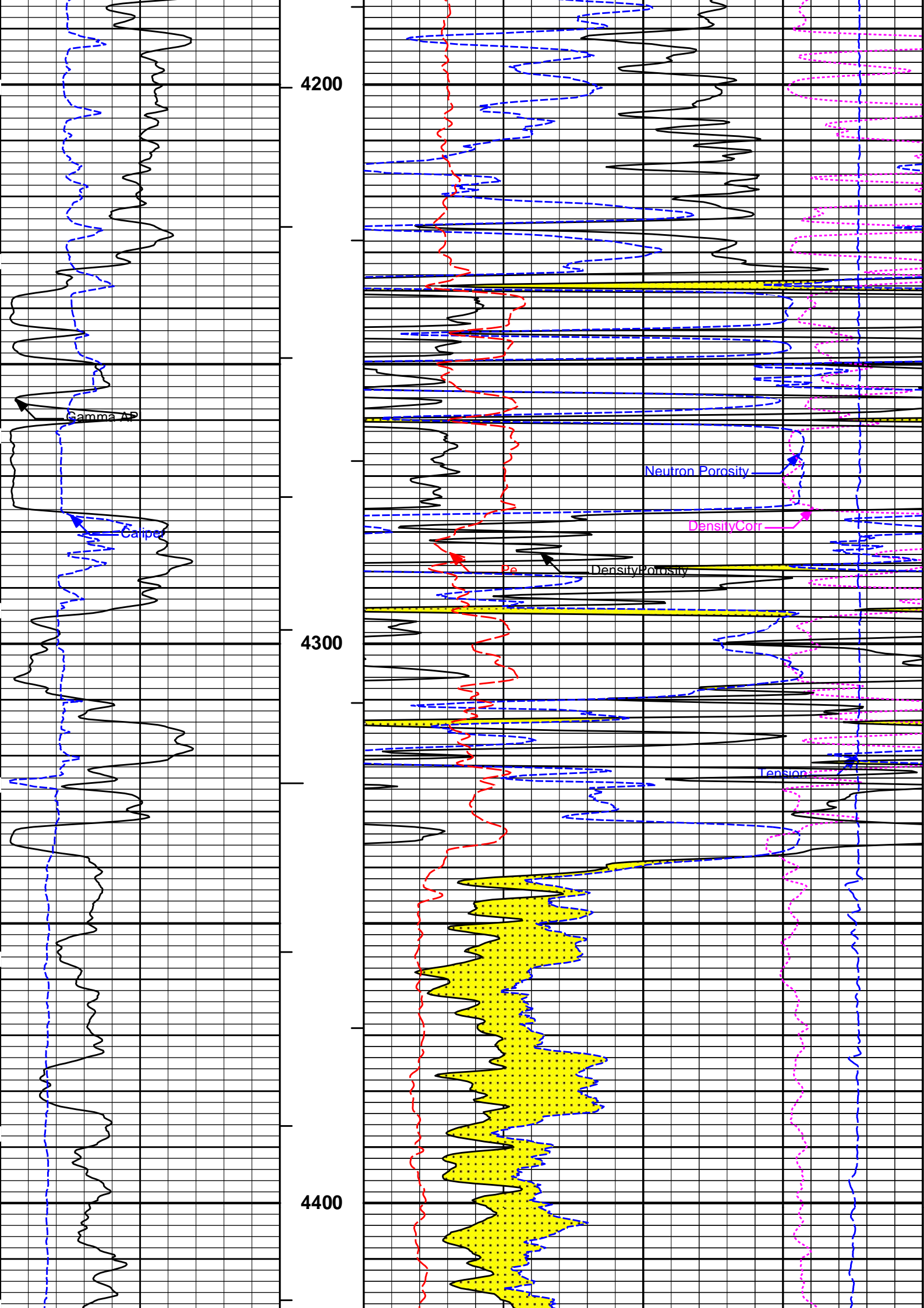


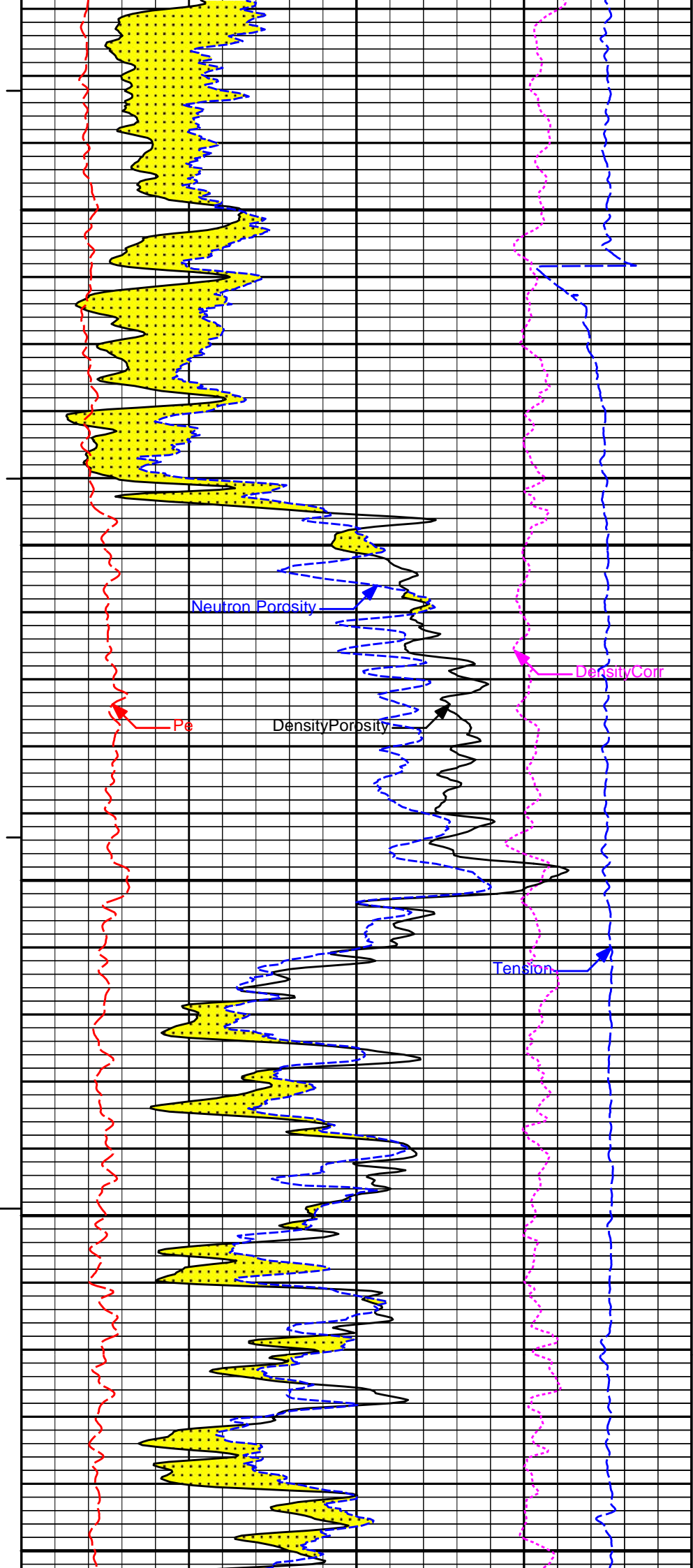
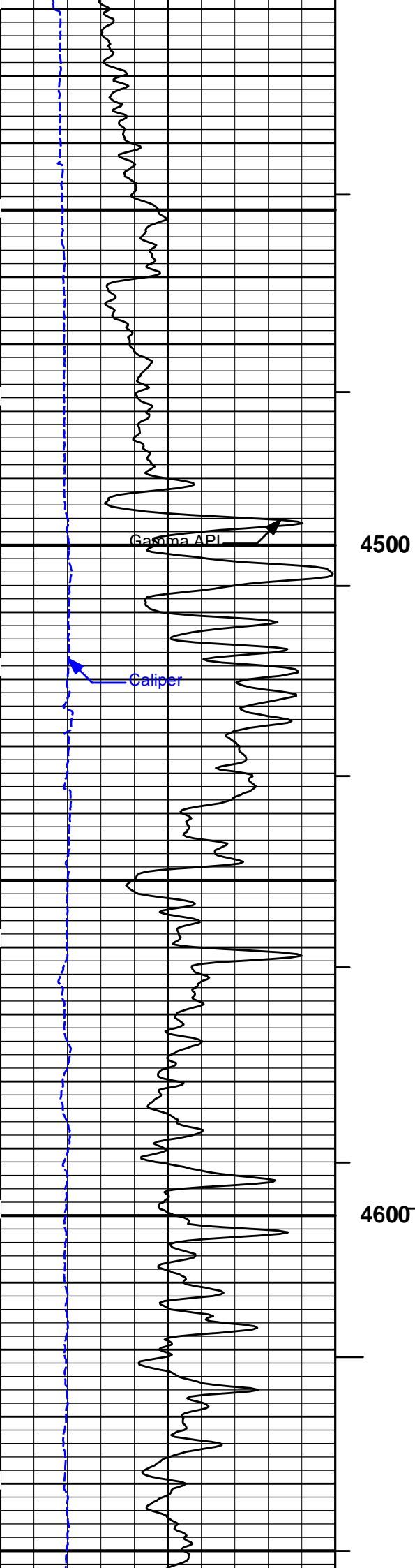


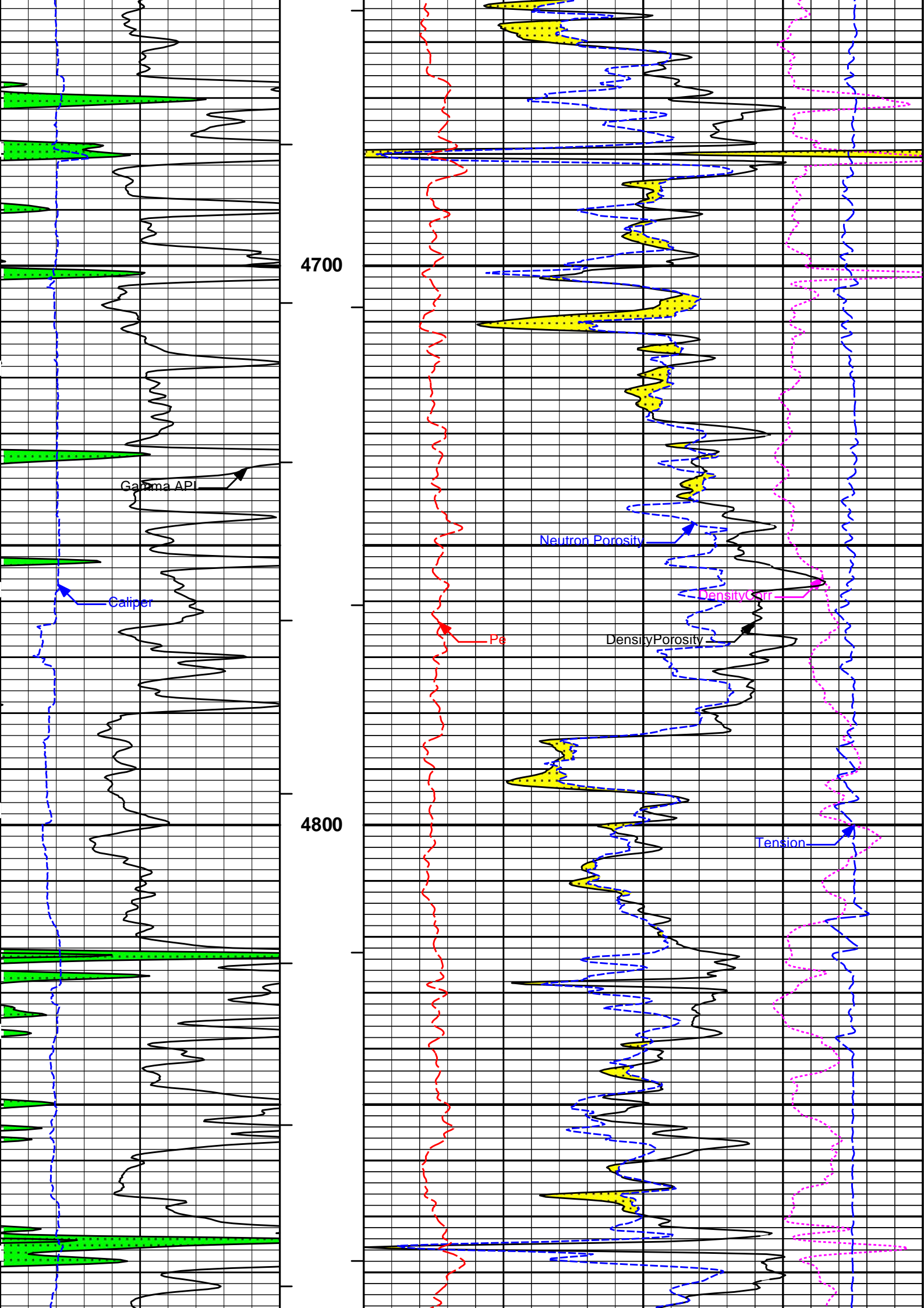


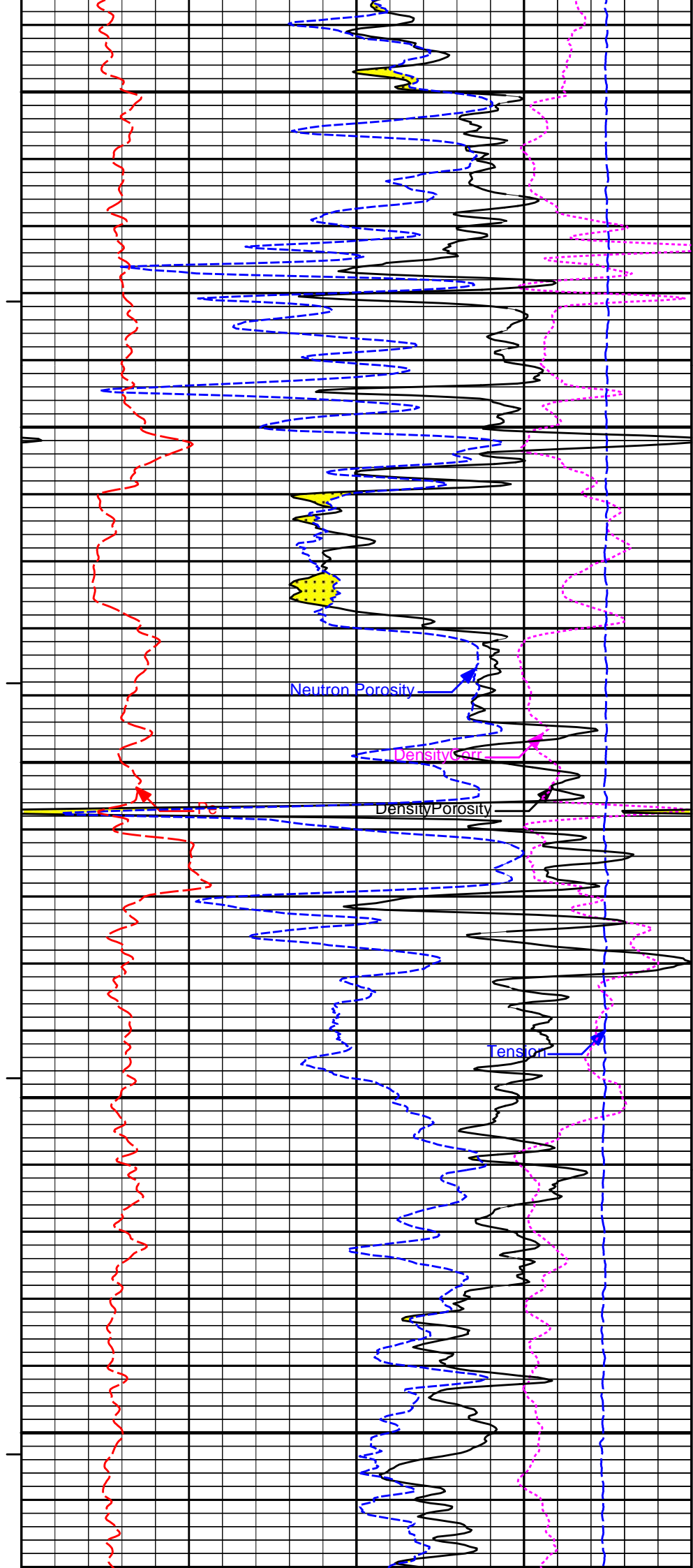
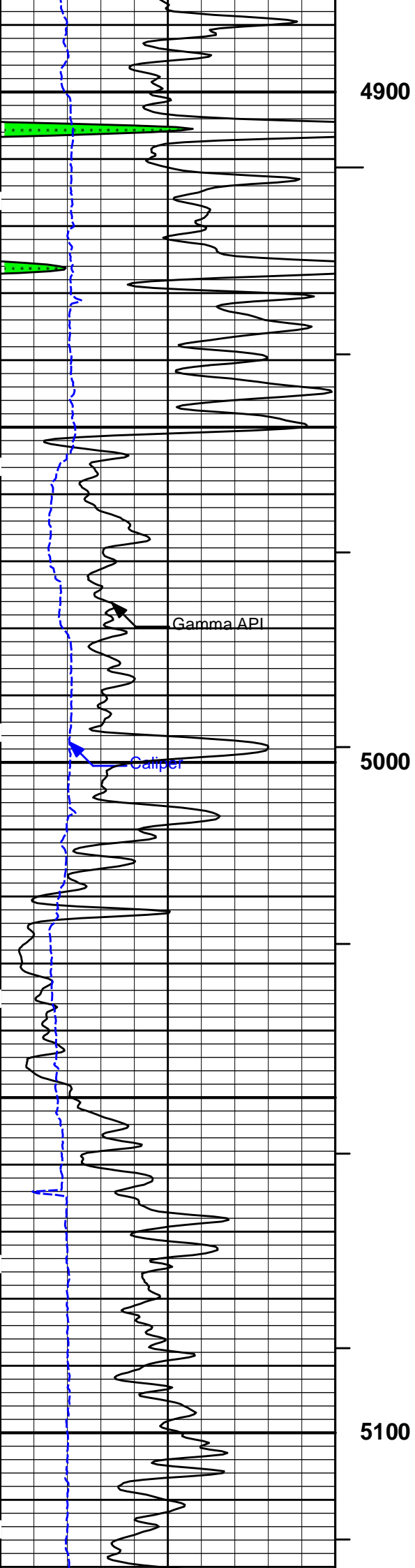


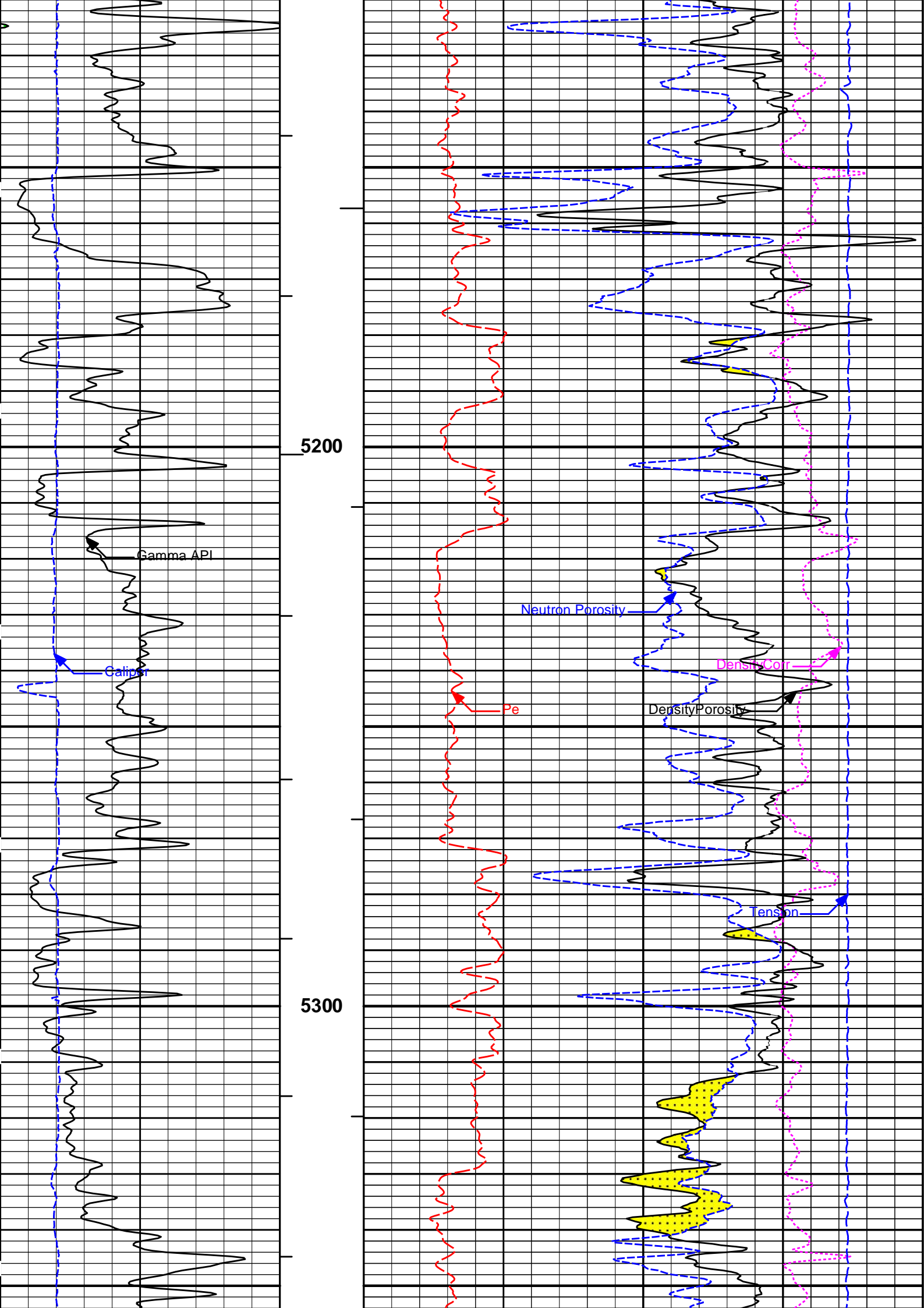


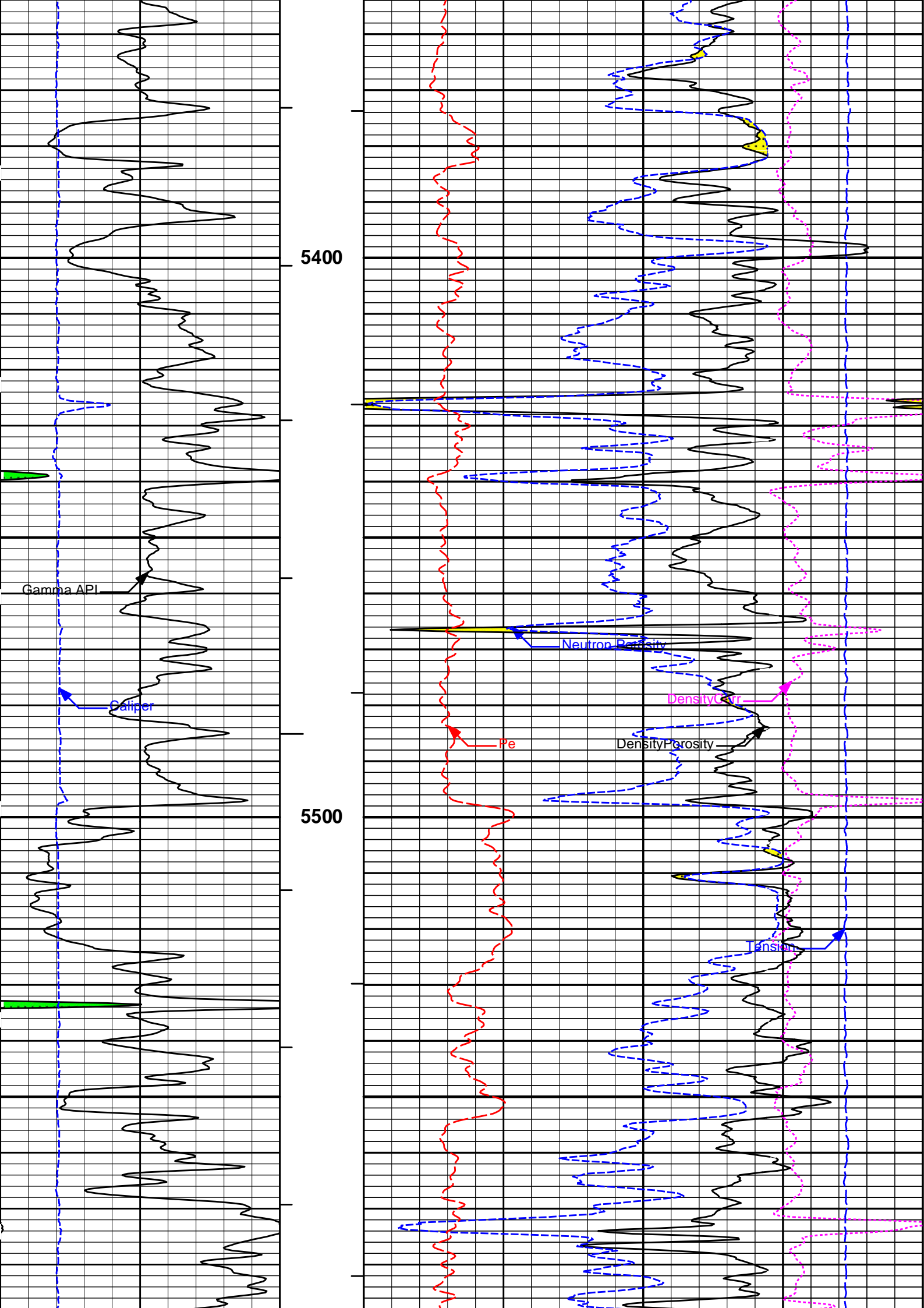


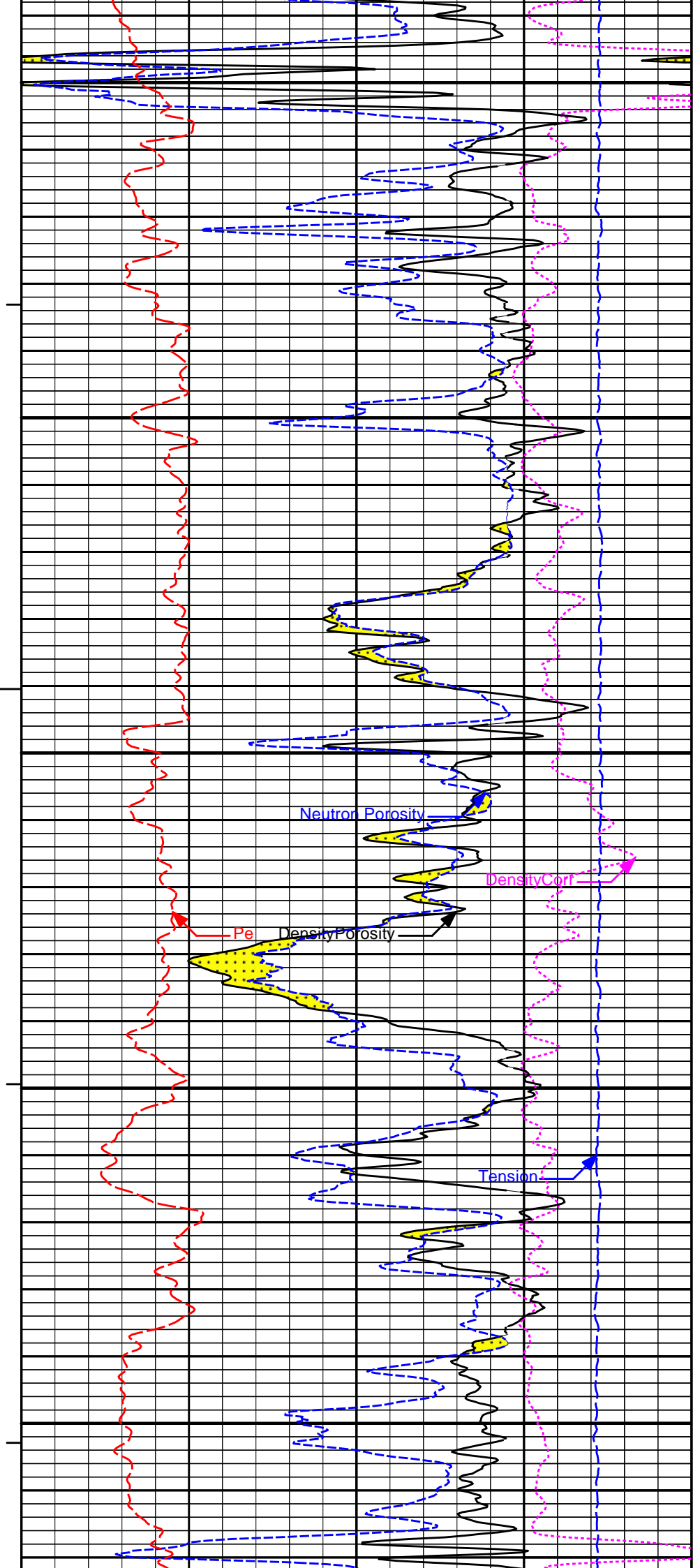
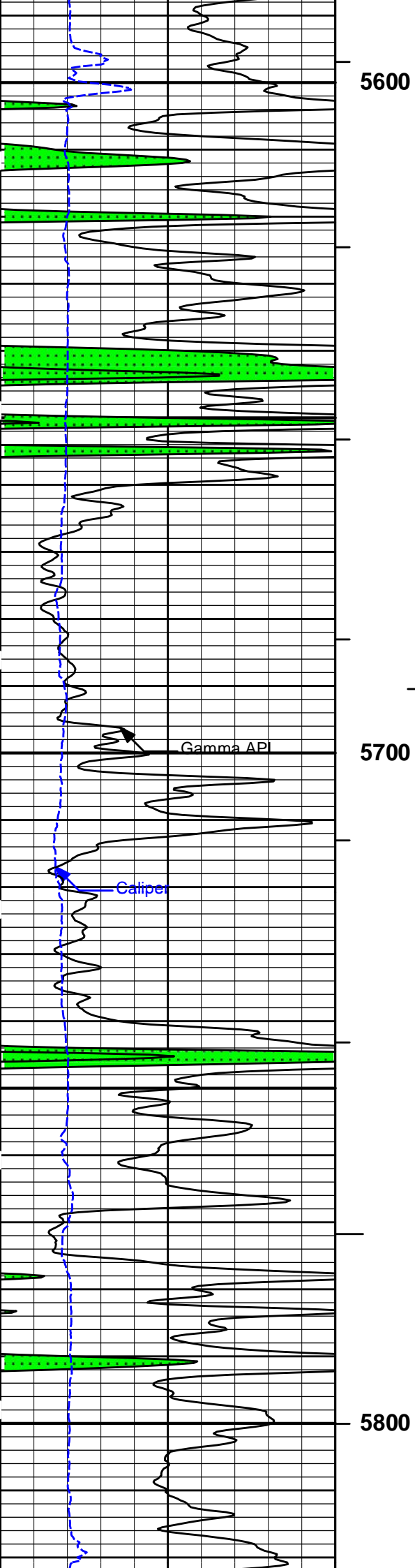


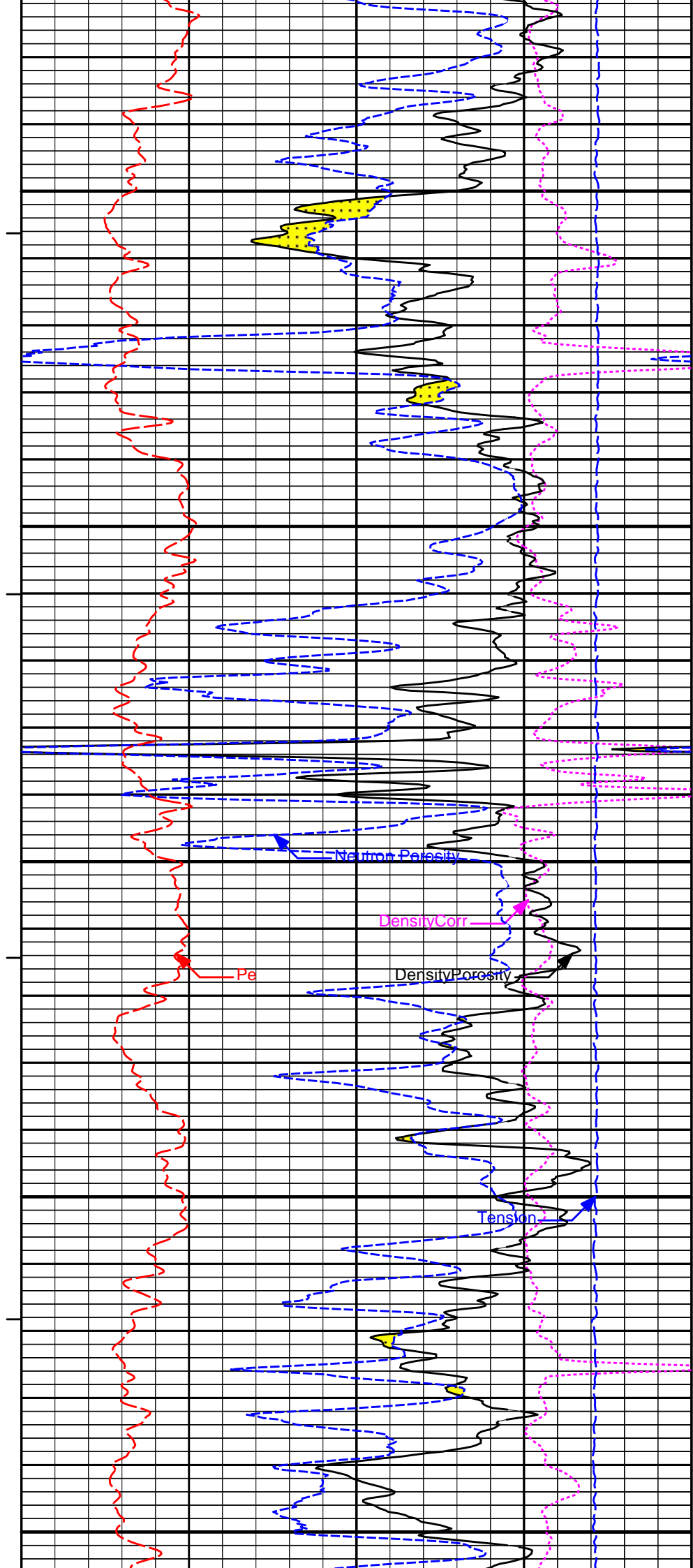
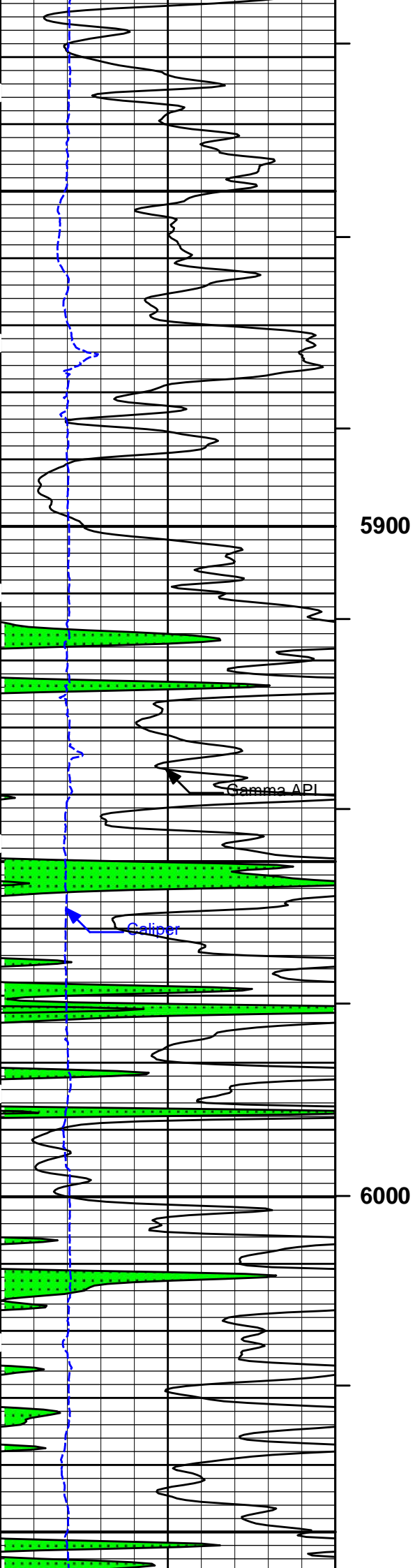


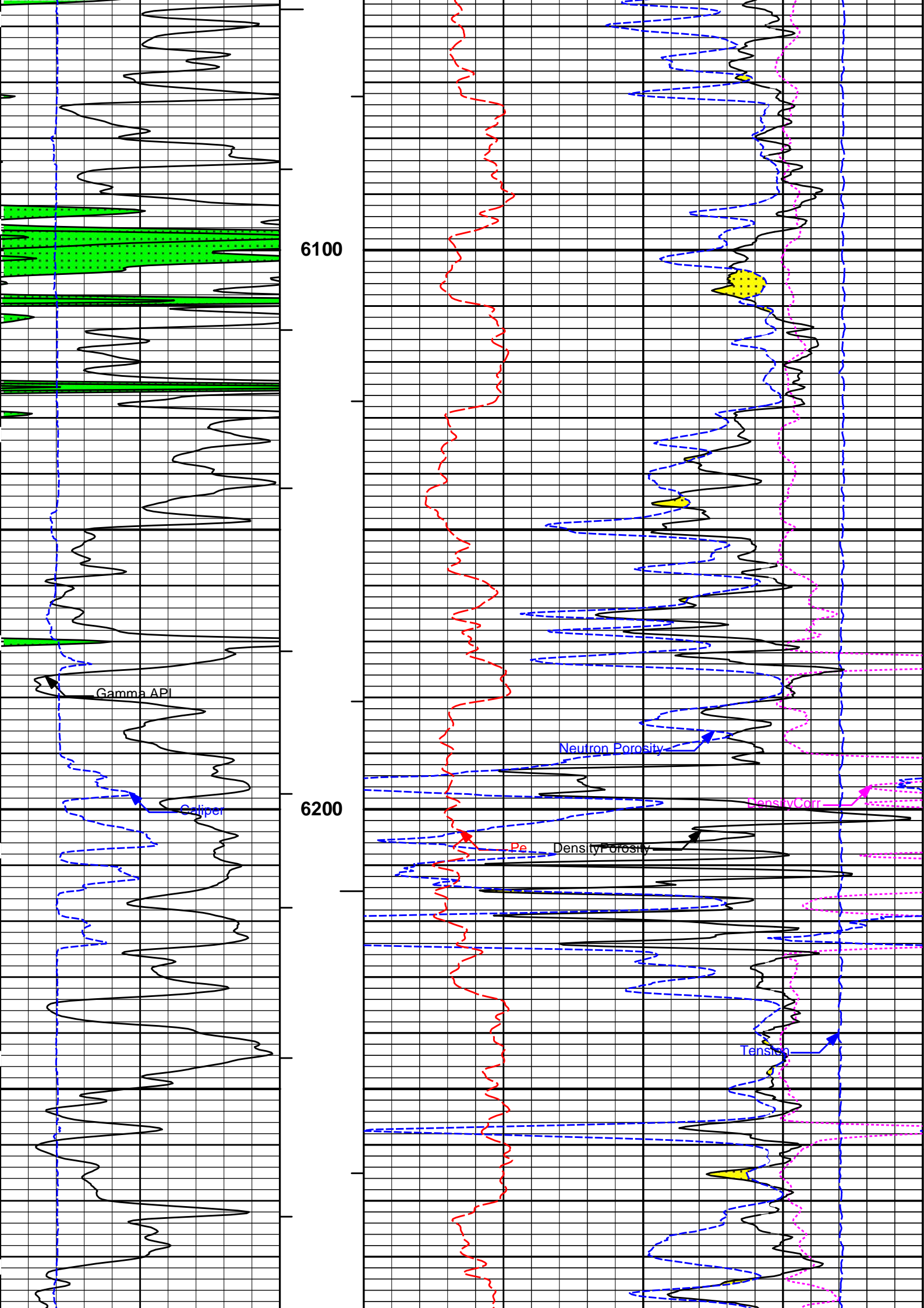


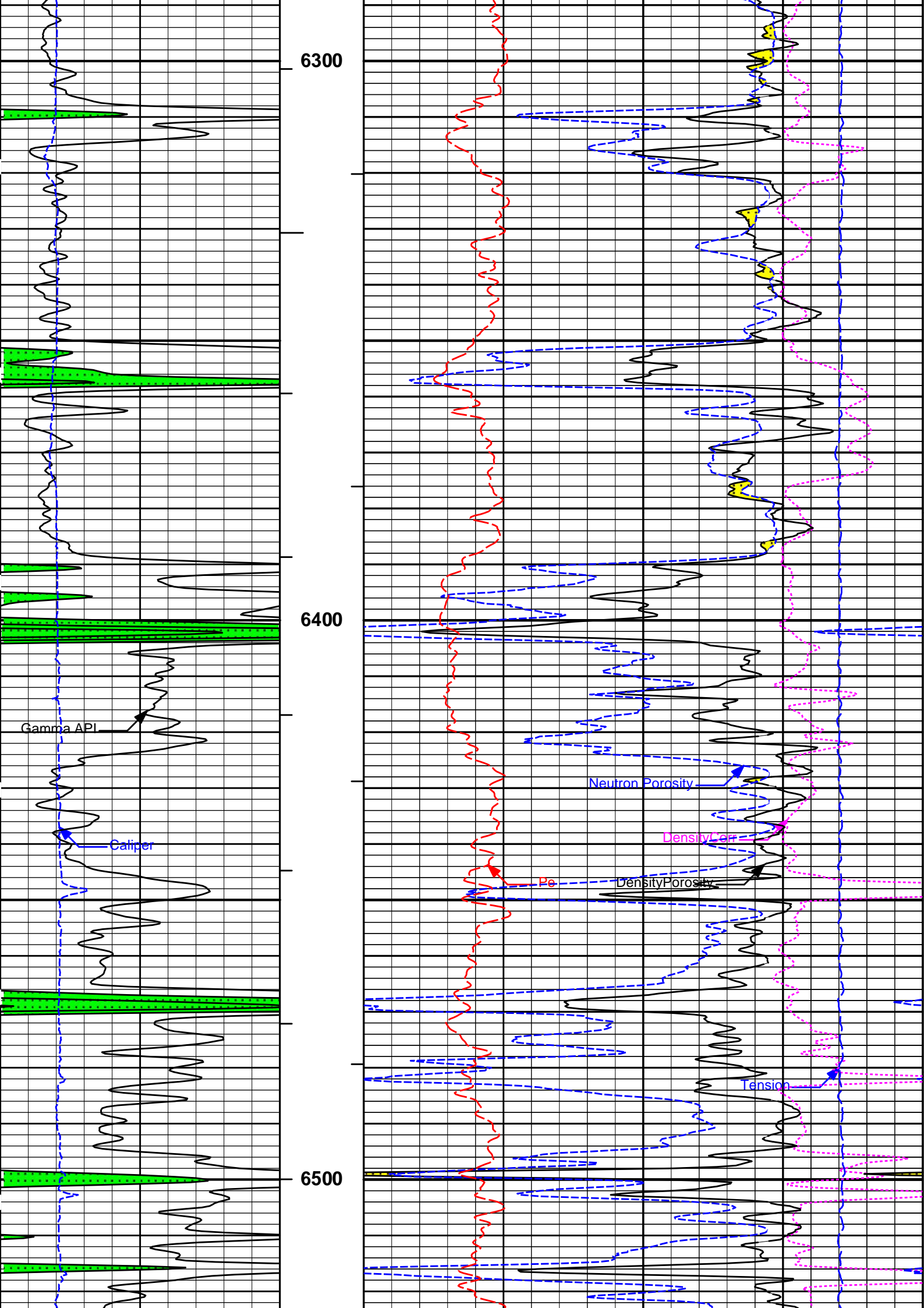


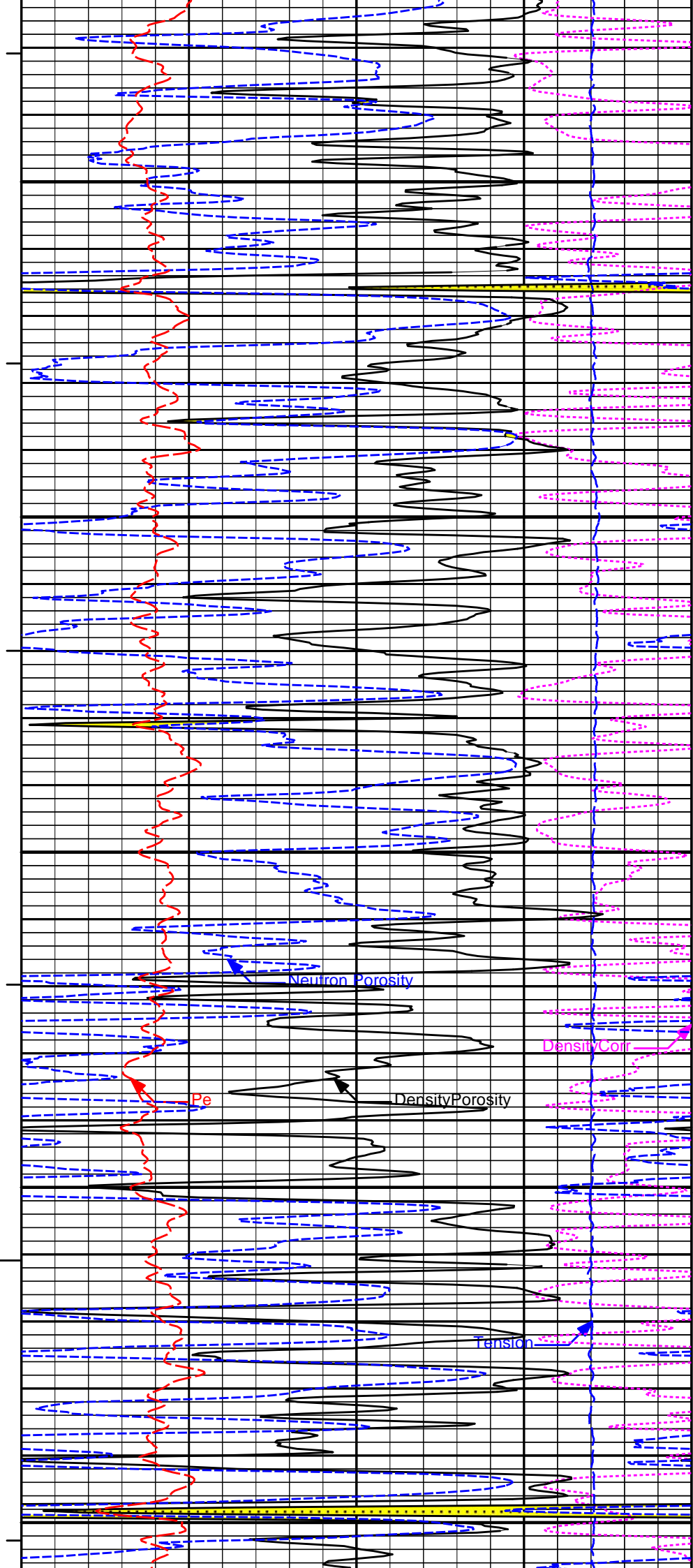
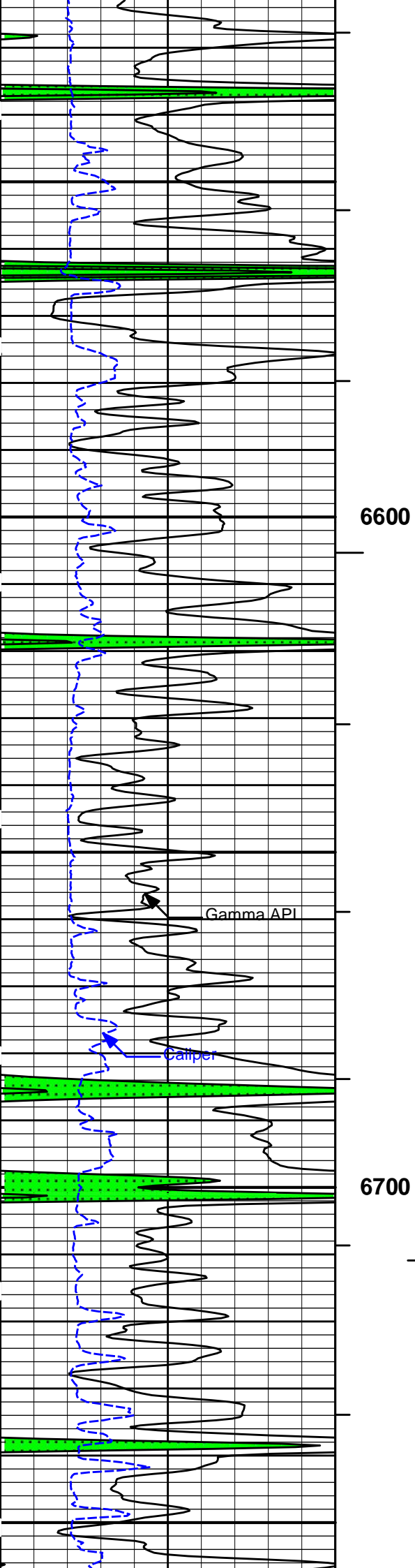


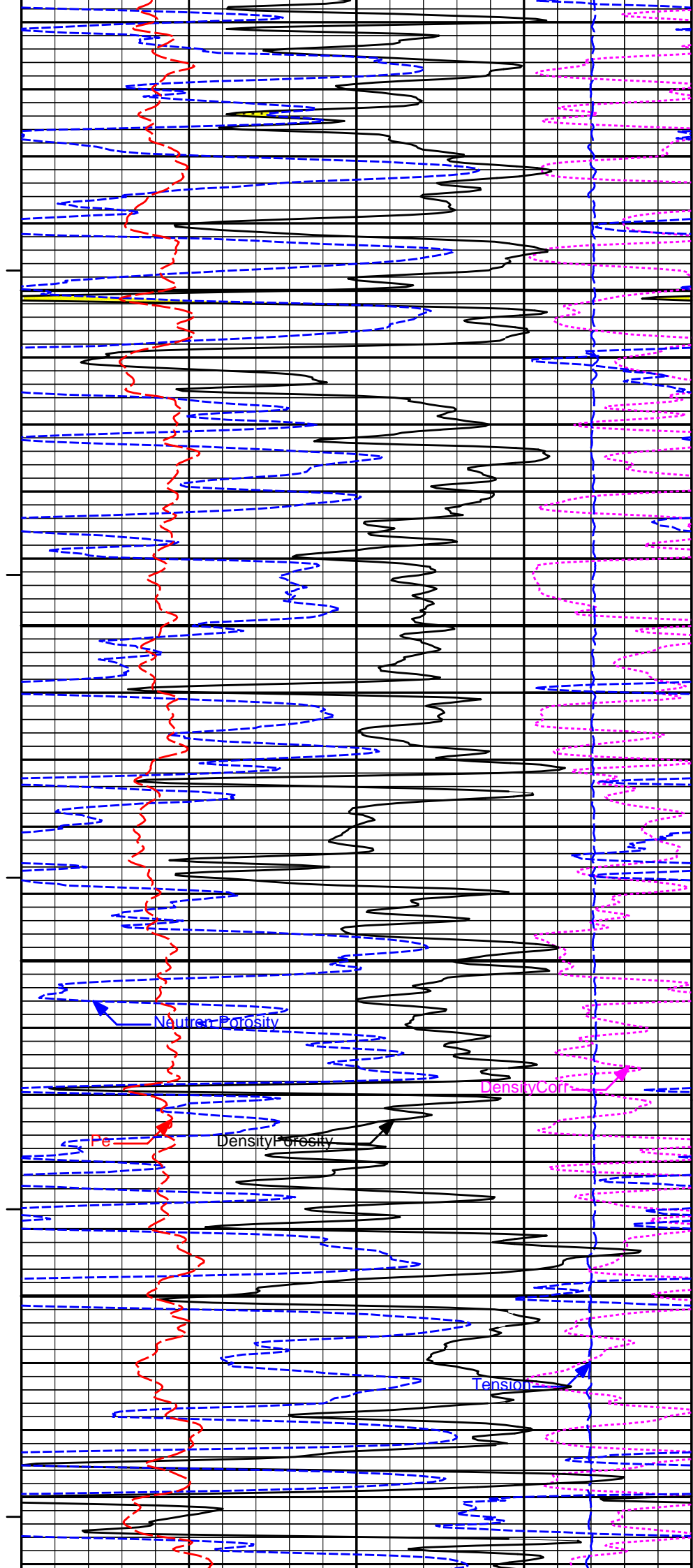
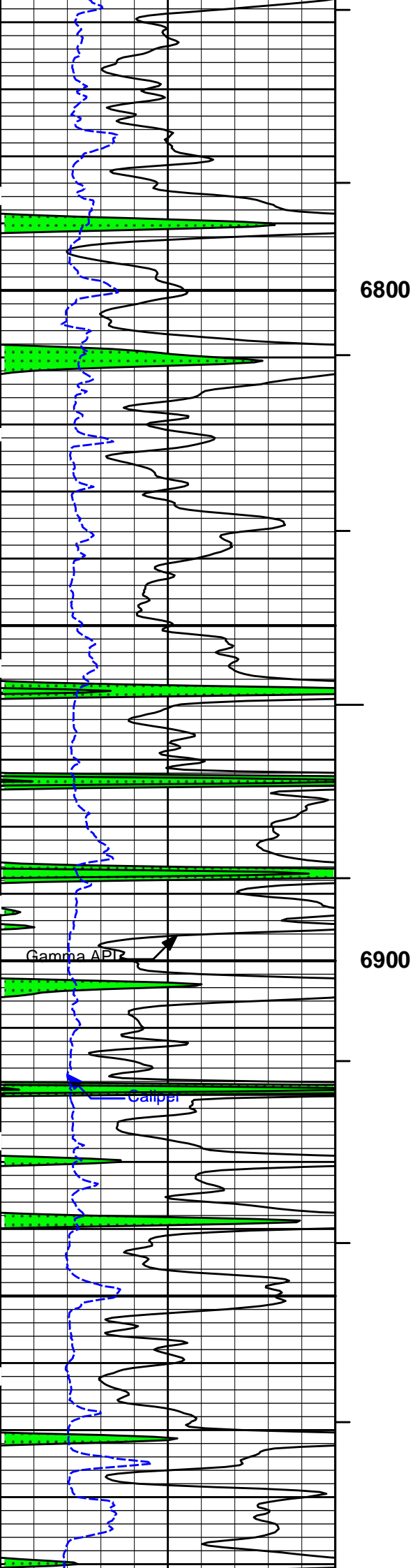


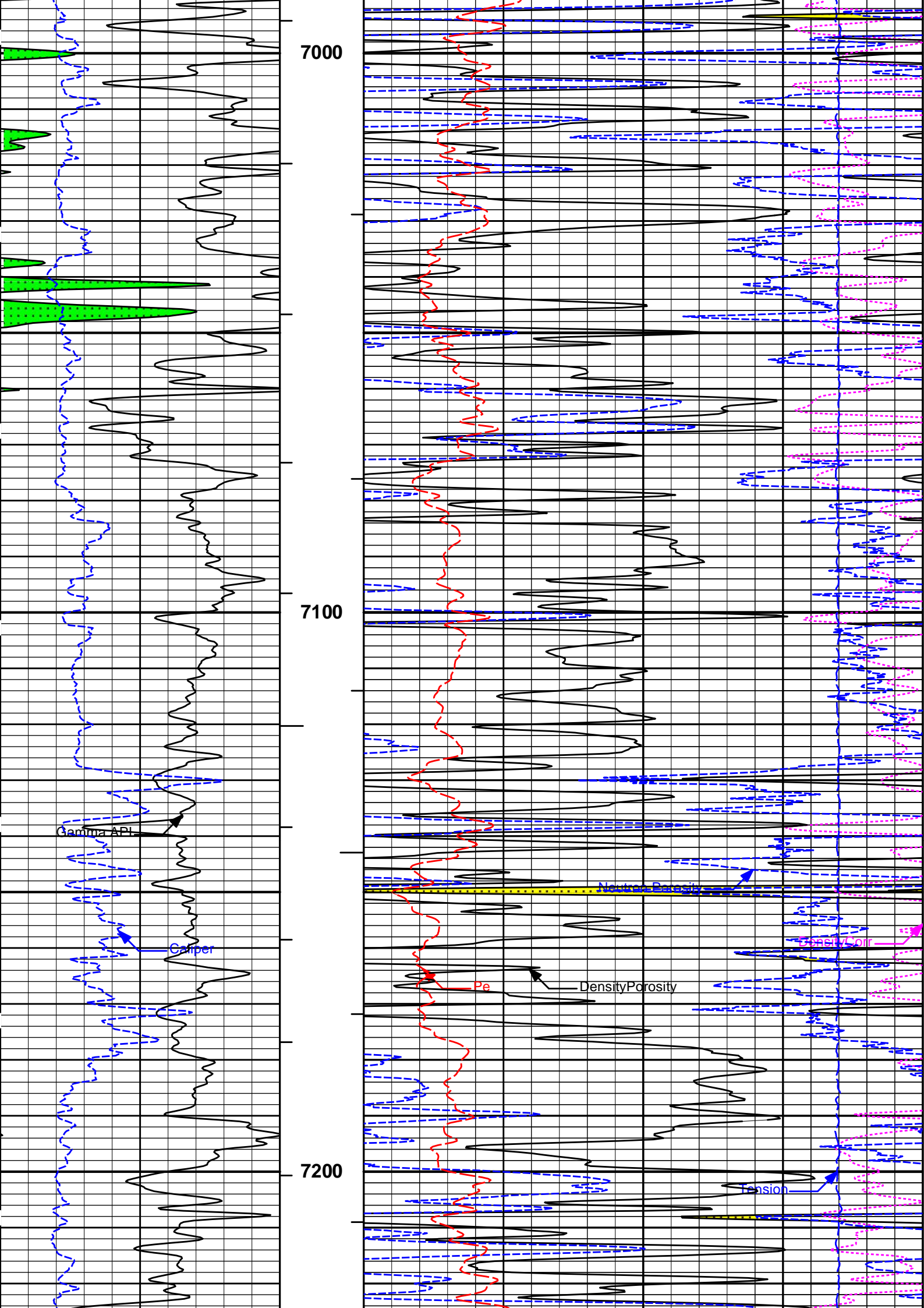


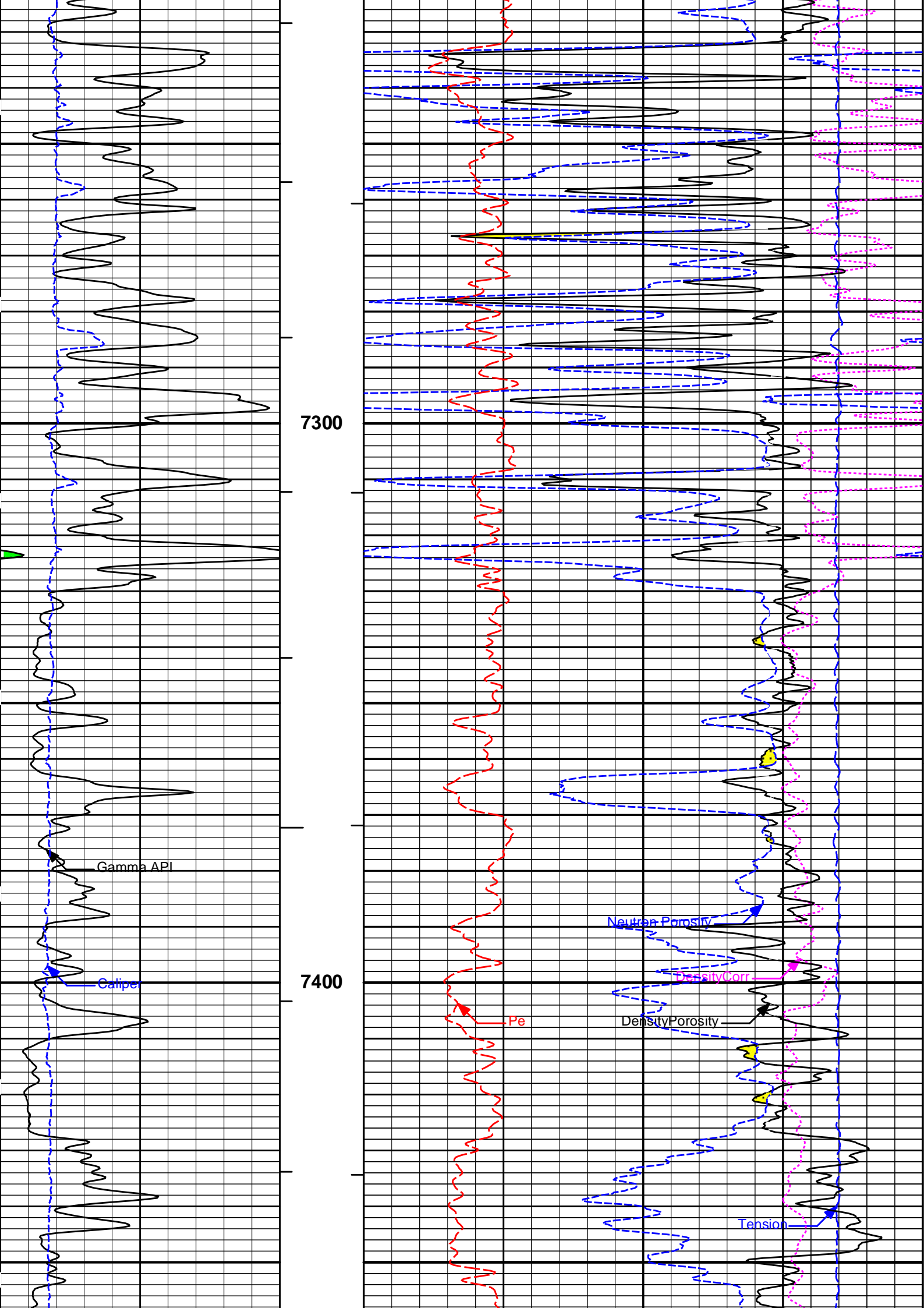


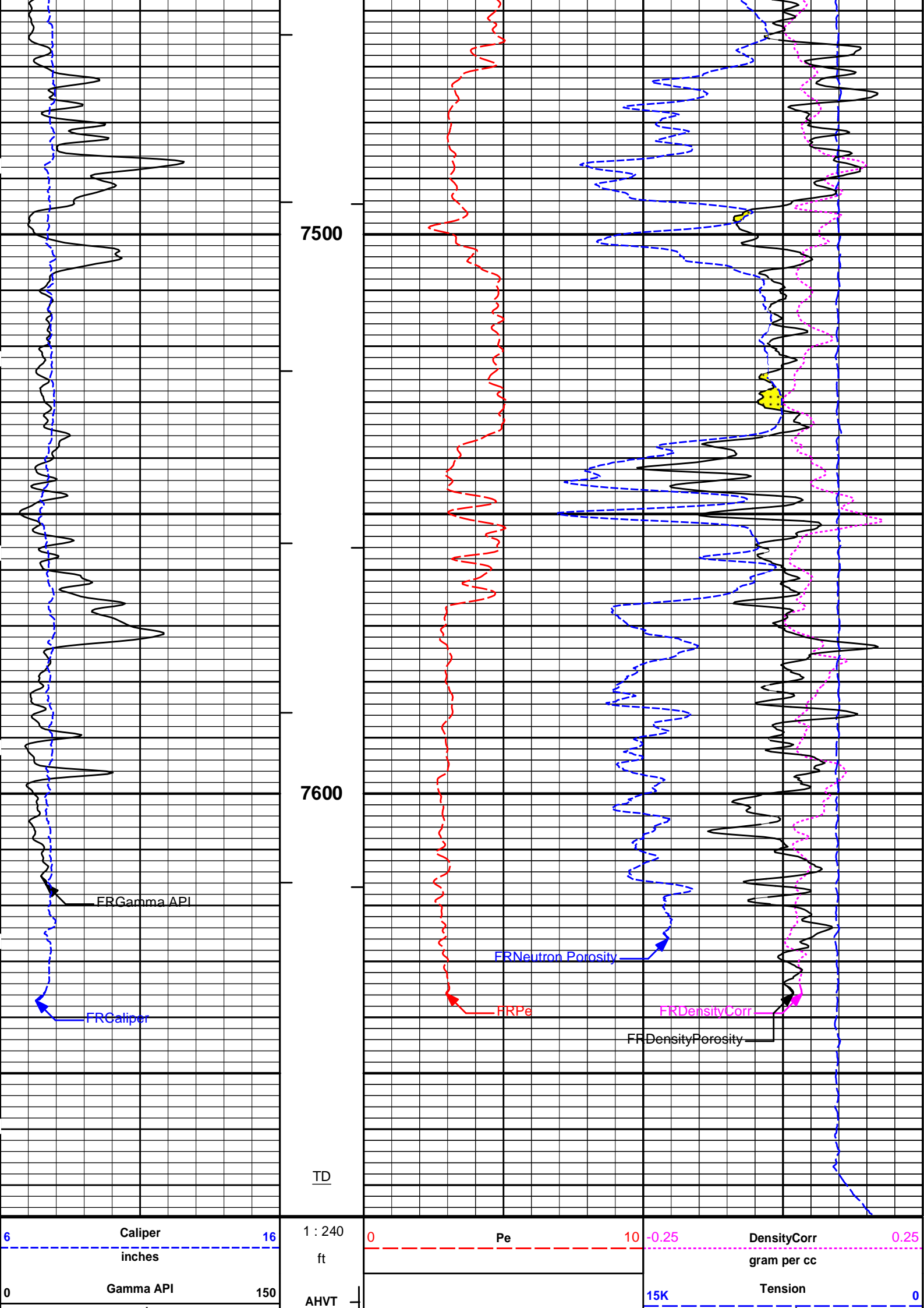




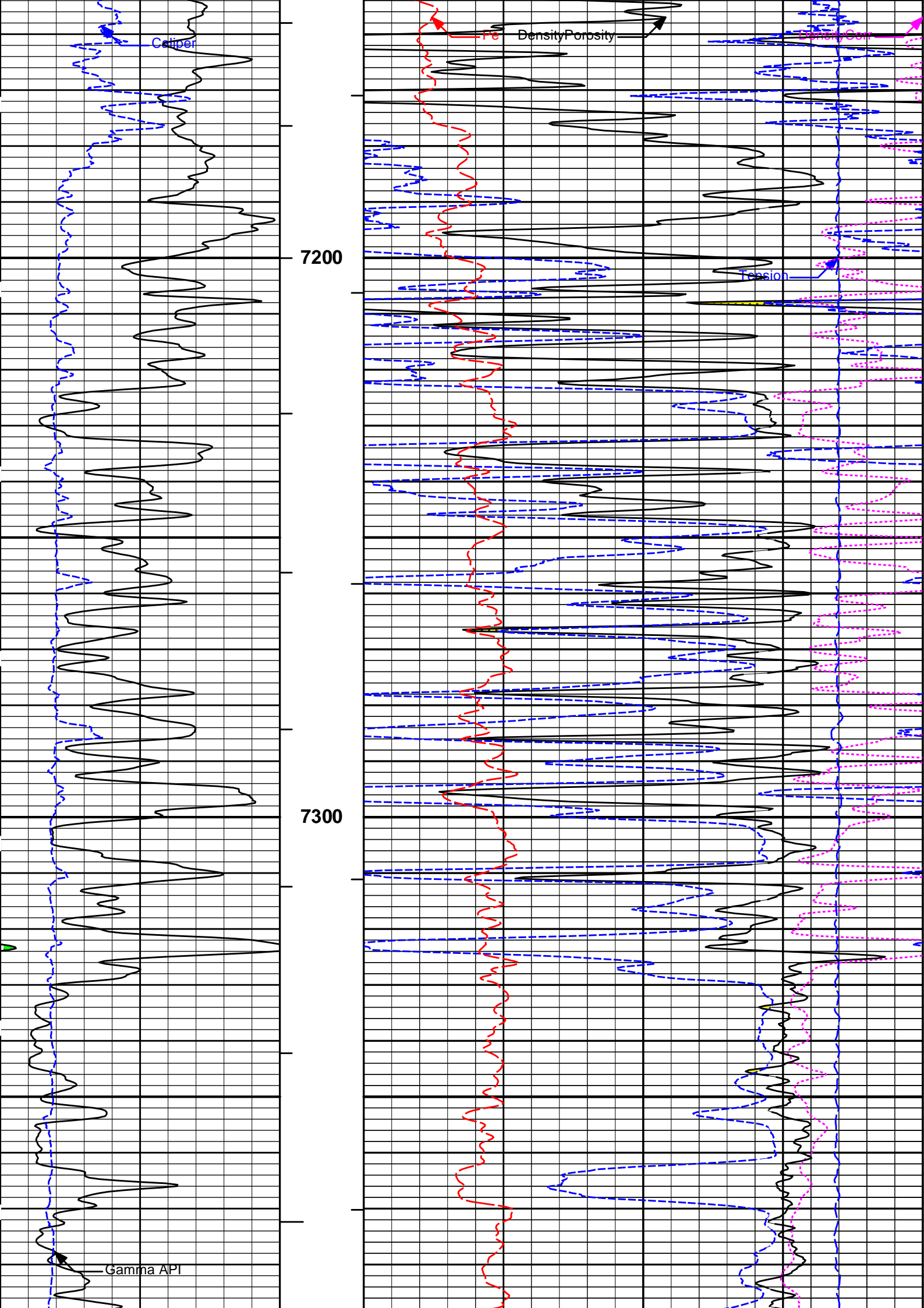


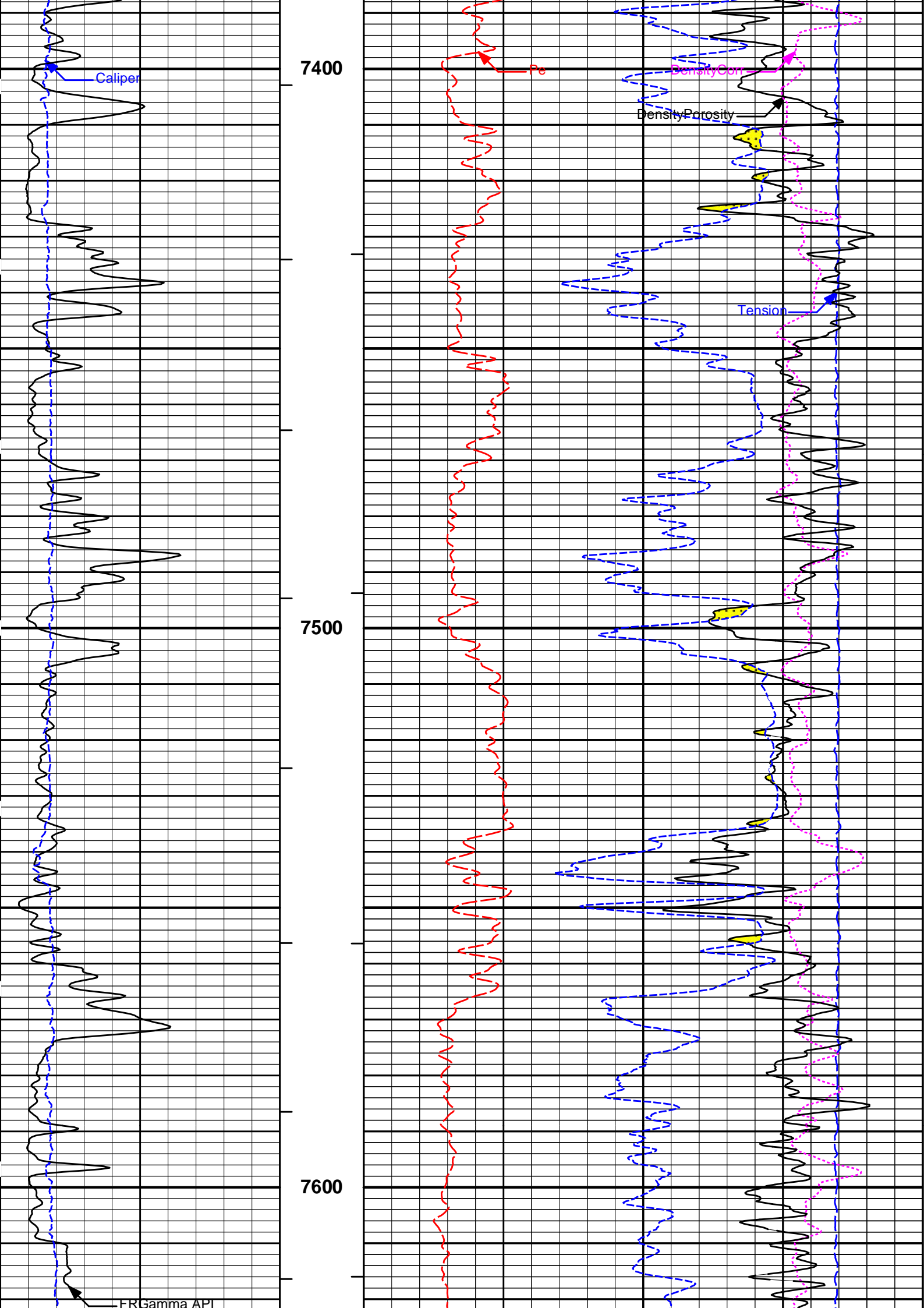


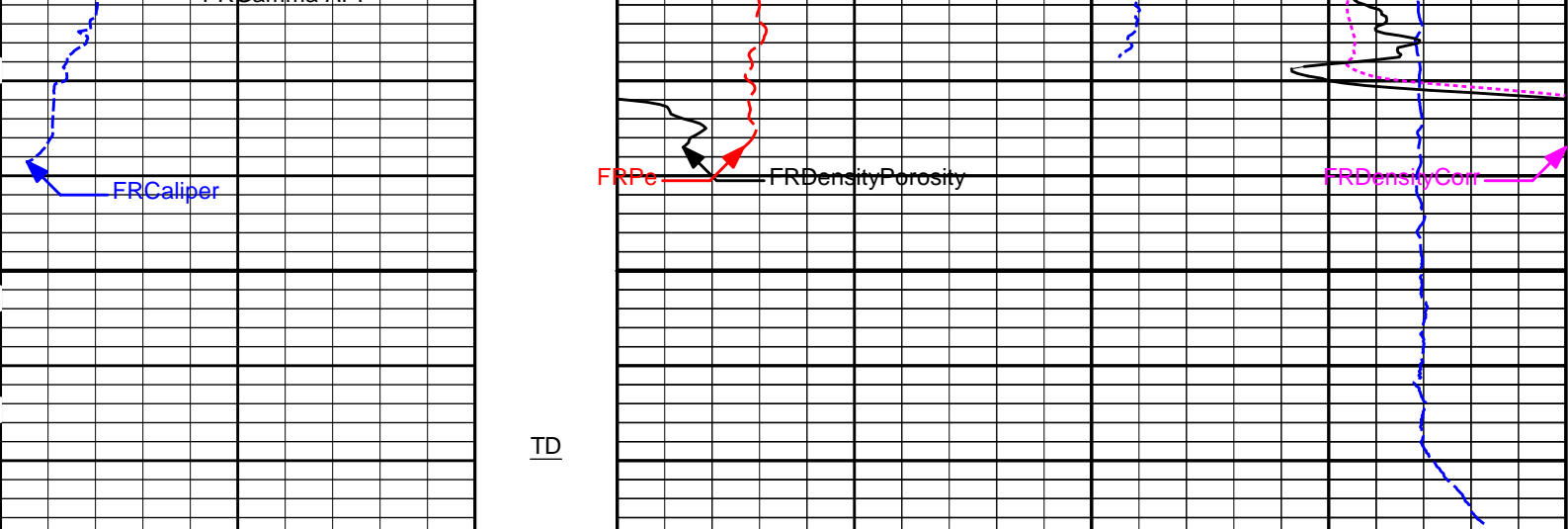




[illegible]







6	Caliper	16	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		
			BHVT	30	DensityPorosity					-10
					%					
				30	Neutron Porosity					-10
					%					

HALLIBURTON

Plot Time: 24-May-18 08:47:07
Plot Range: 7100 ft to 7677.42 ft
Data: K3_JAMES\Well Based\DAQ-0001-004\
Plot File: \\\SDL-DSN\Poro_IQ_5_MAIN

REPEAT SECTION

REPEAT SECTION

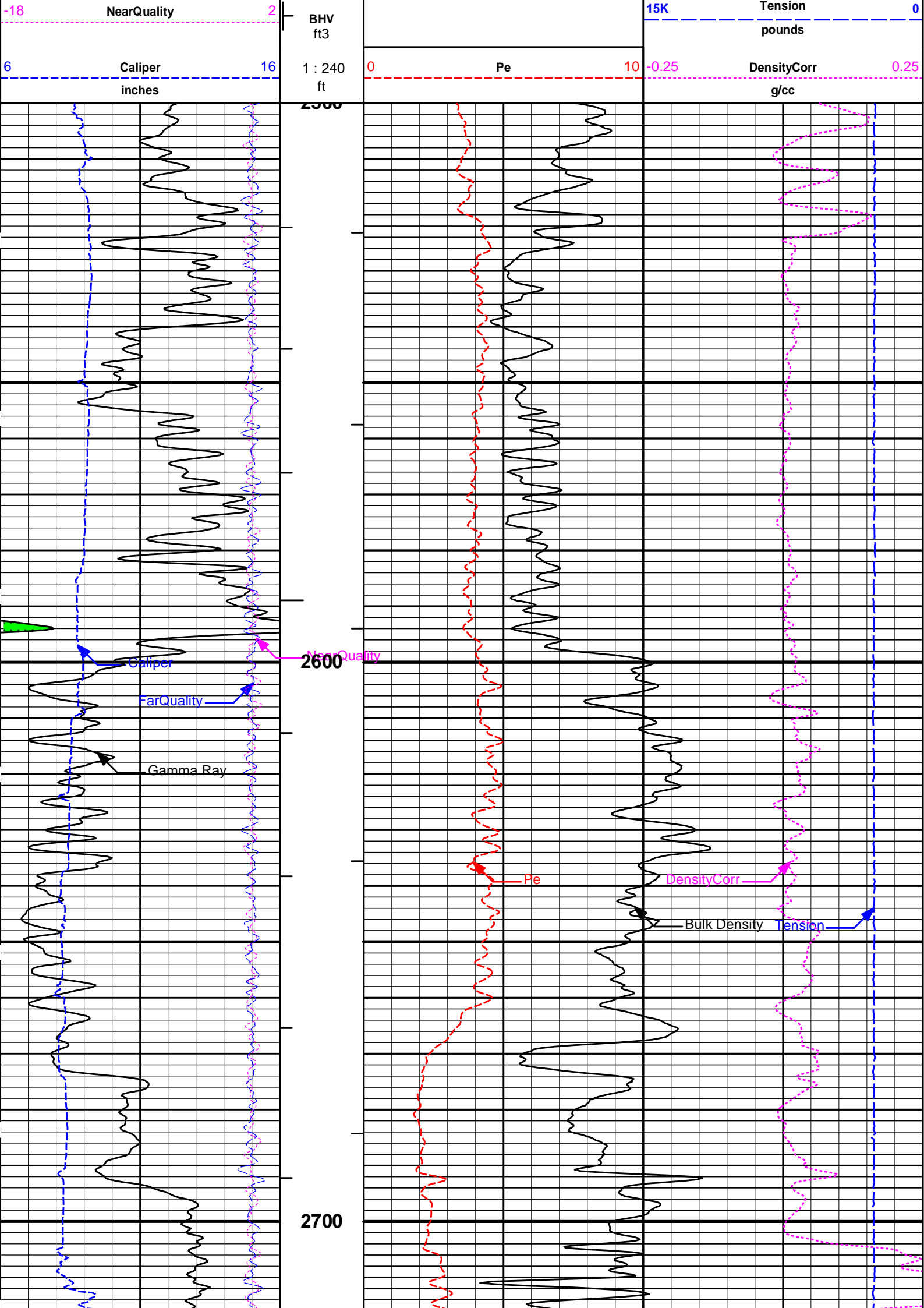
HALLIBURTON

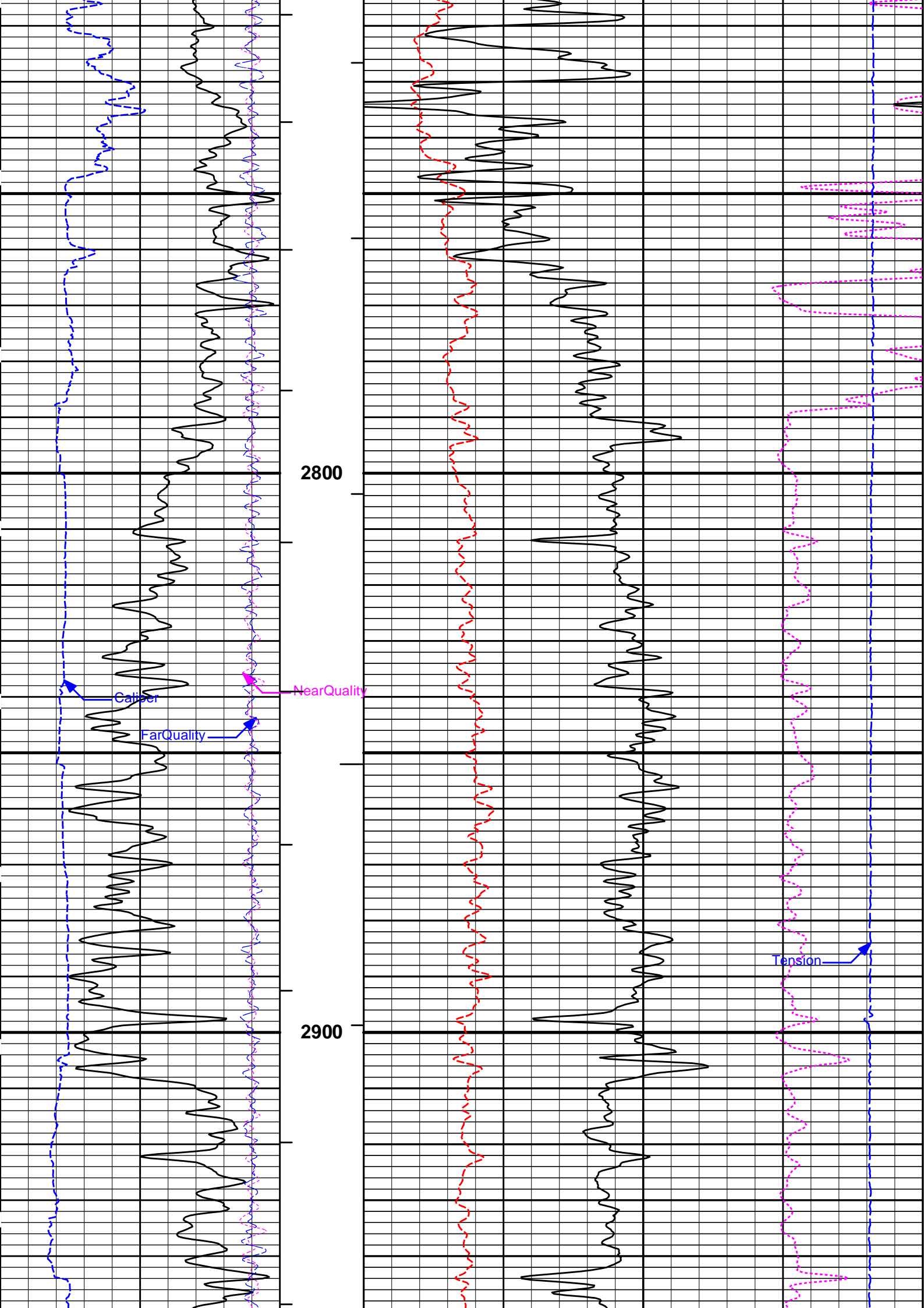
Plot Time: 24-May-18 08:47:08
Plot Range: 2500 ft to 7675.5 ft
Data: K3_JAMES\Well Based\DAQ-0001-005\
Plot File: \\\LOCAL-K3_JAMES\0001 RWCH_GTET-DSNT-SDLT-BSAT-ACRT\SDL-DSN\BULKD_5_MAIN_IQ

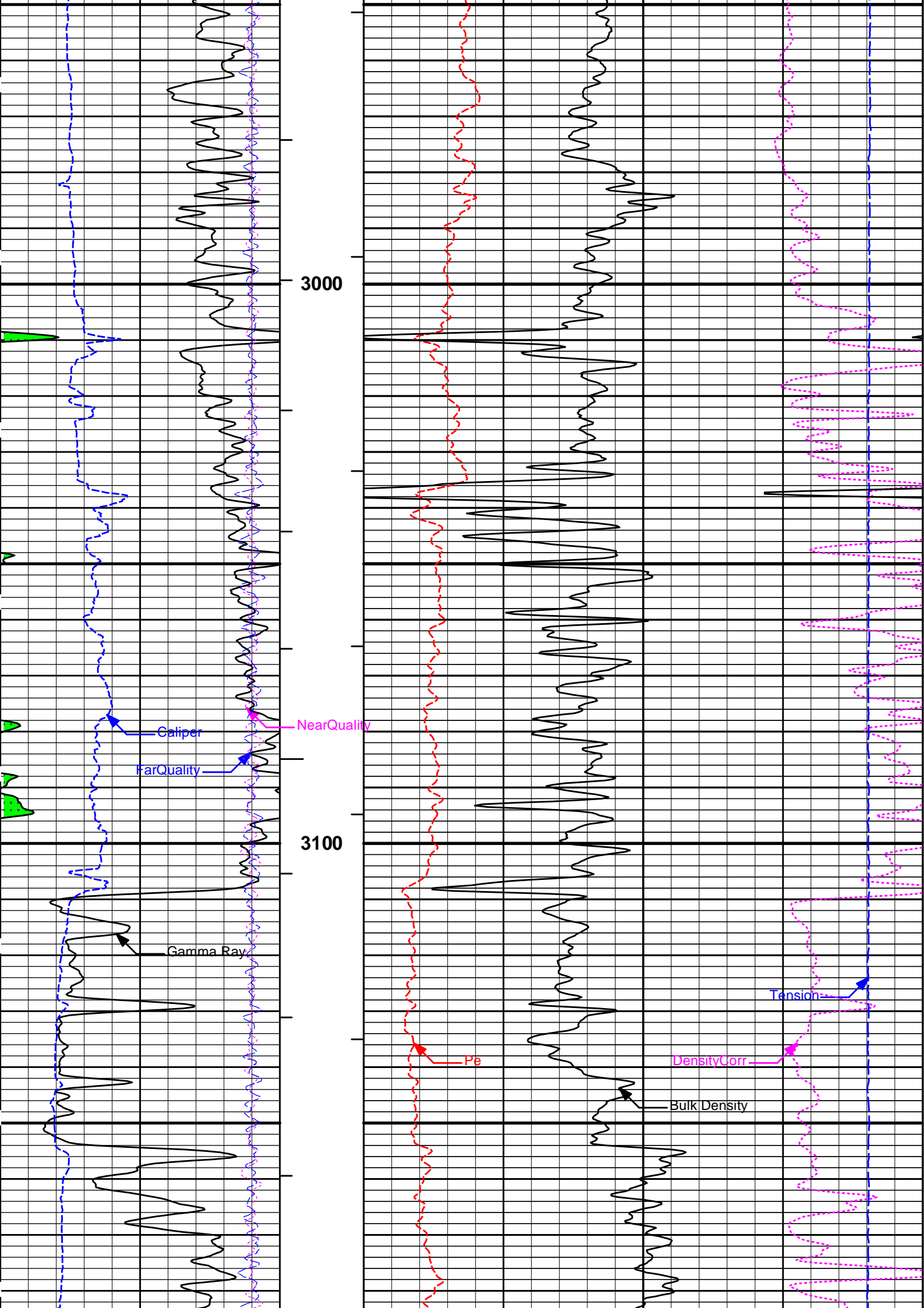
5 INCH MAIN LOG

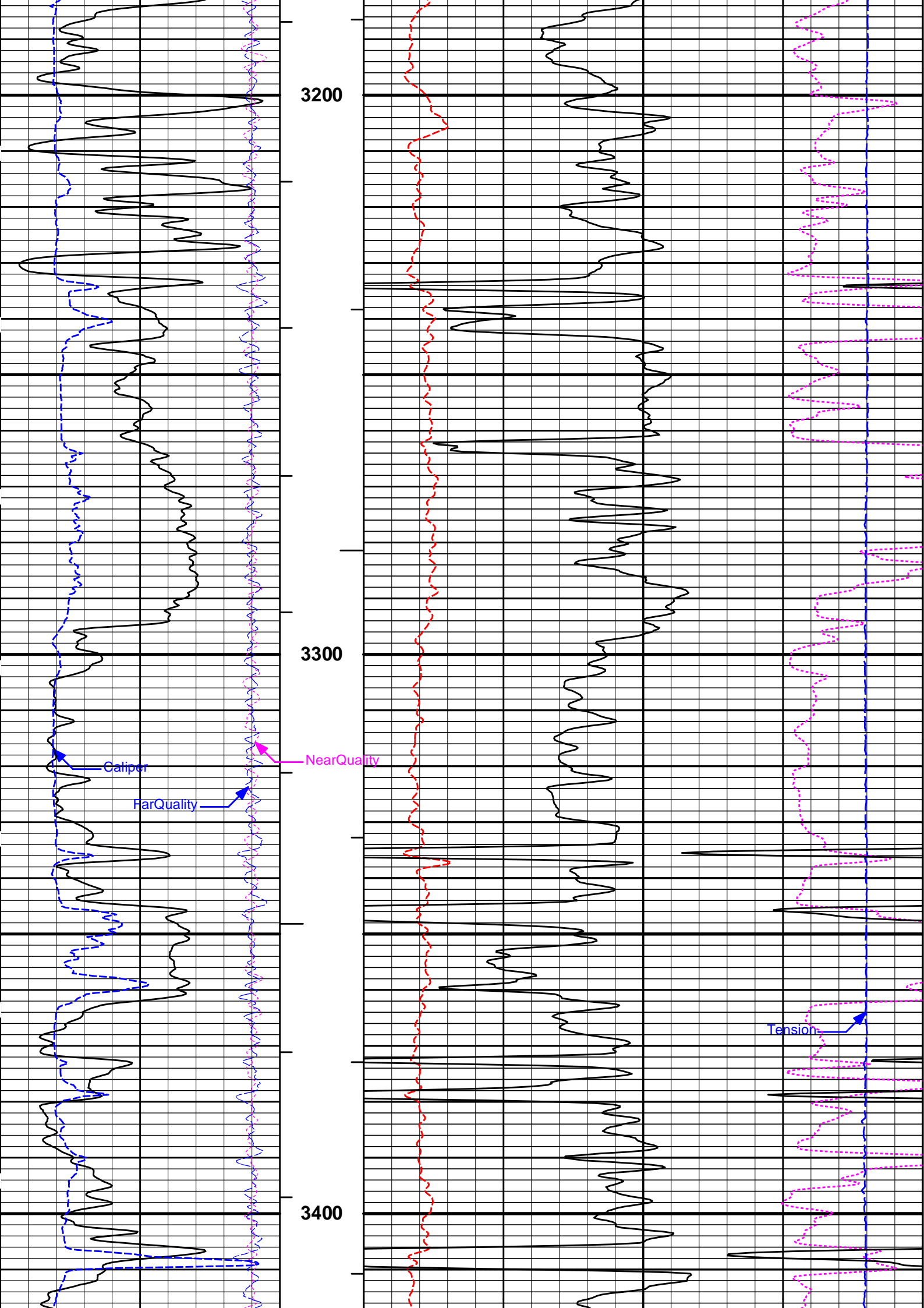
MAIN SECTION 5" PER 100'

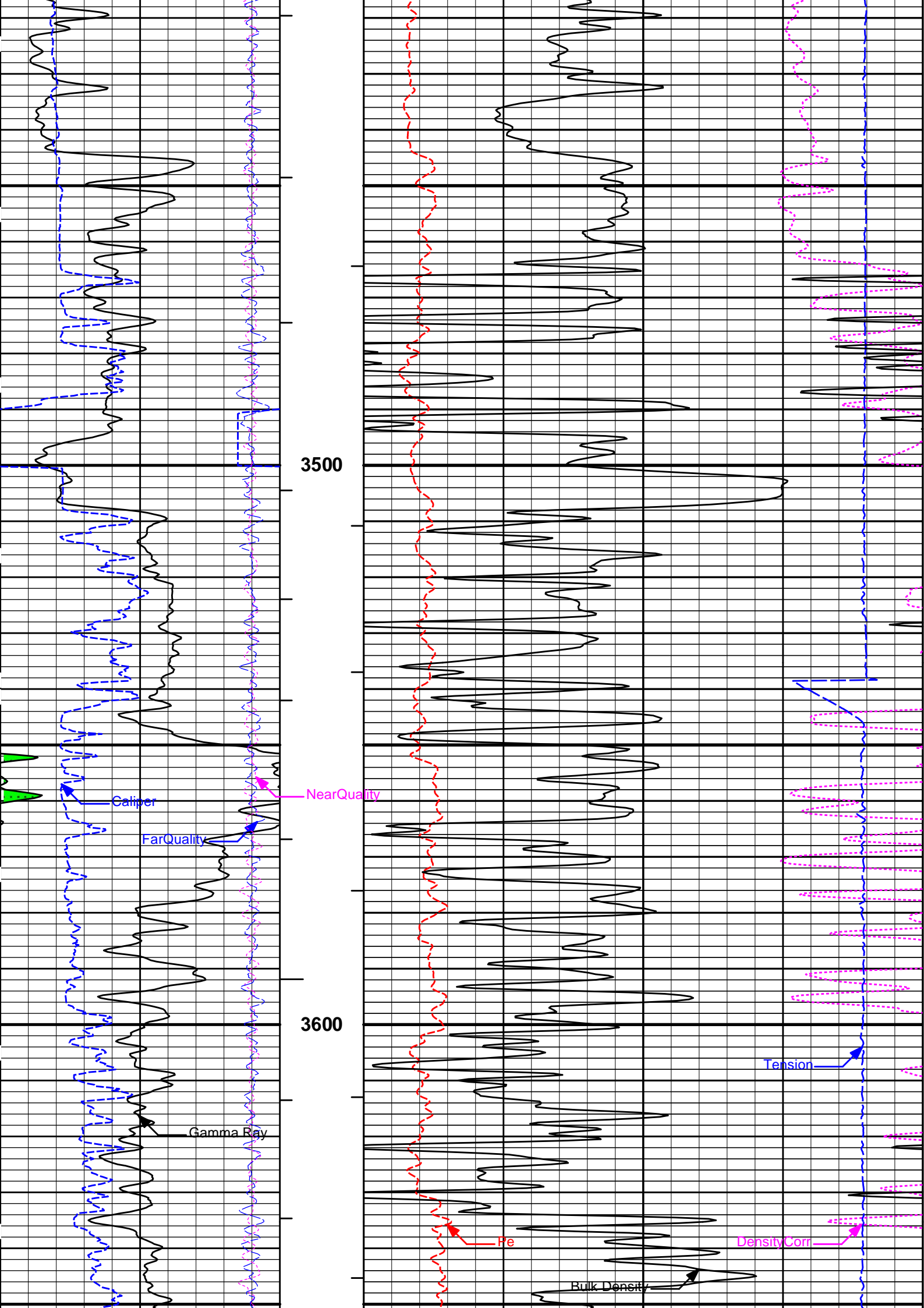
0	Gamma Ray	150		
	api			
18	FarQuality	-2	AHV	2
			ft3	Bulk Density
				g/cc

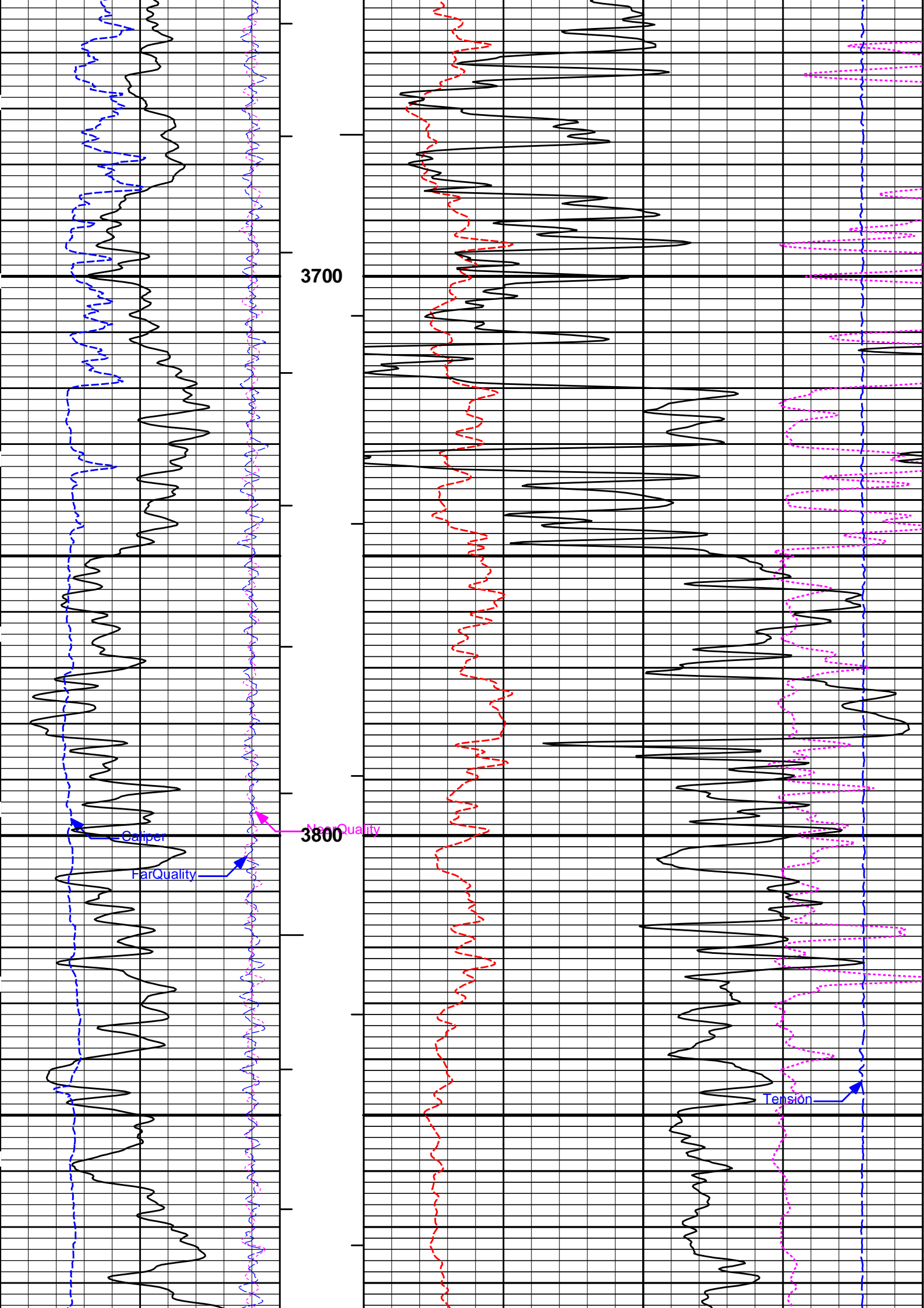


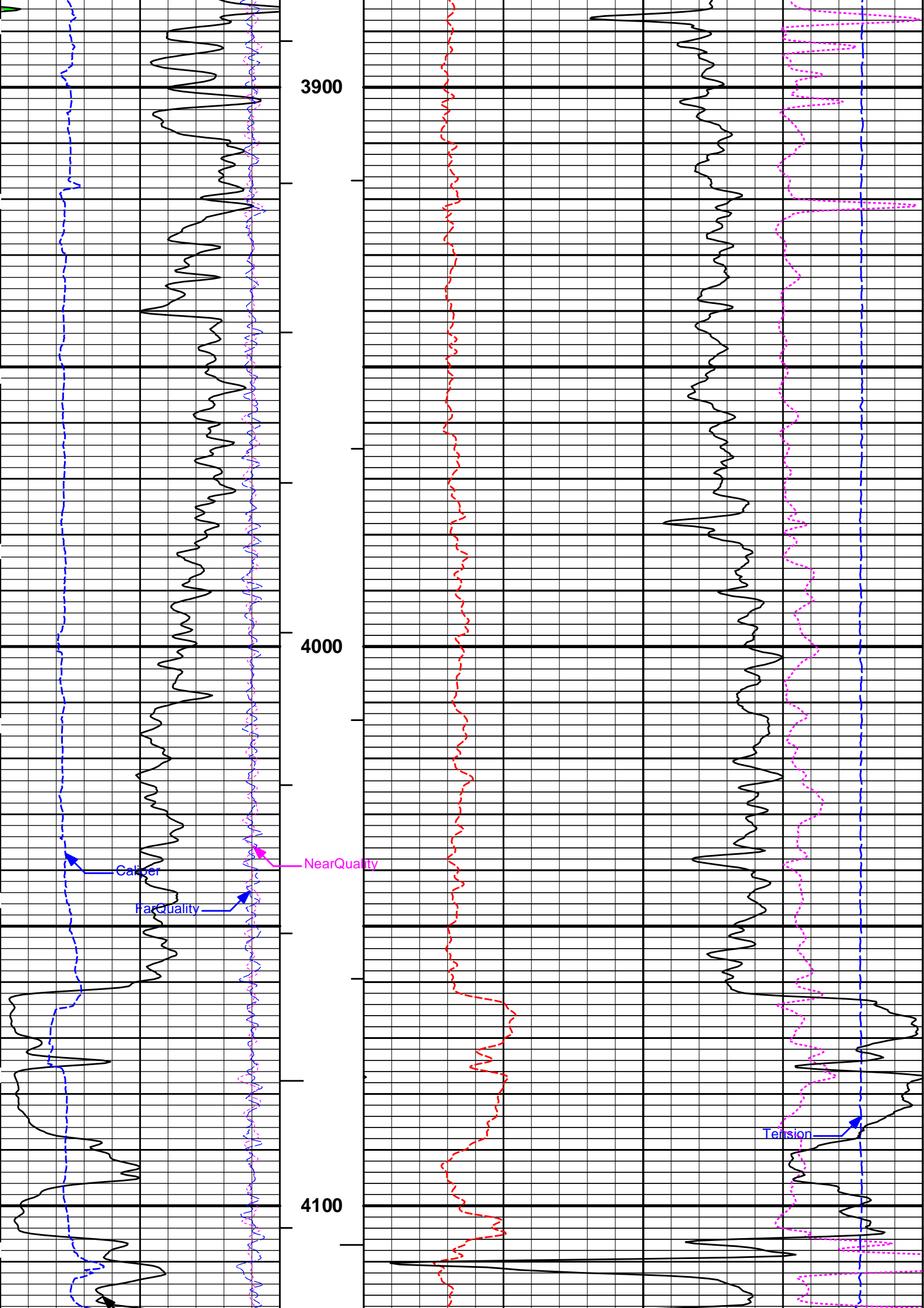


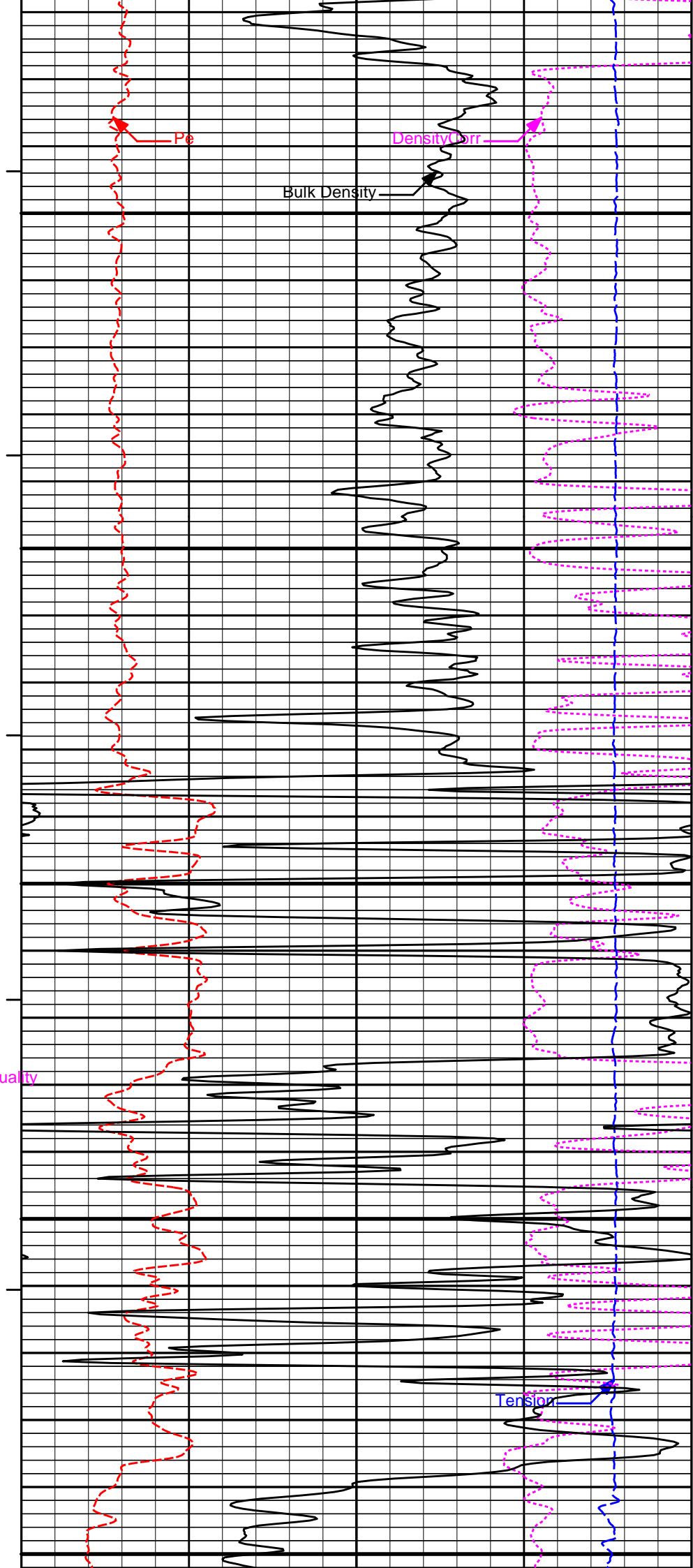
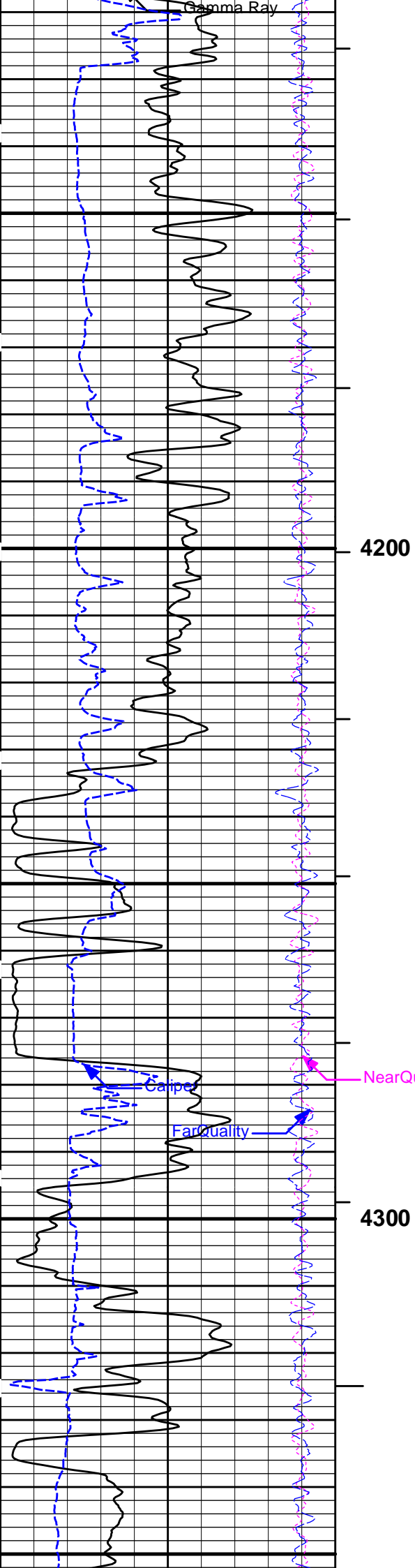


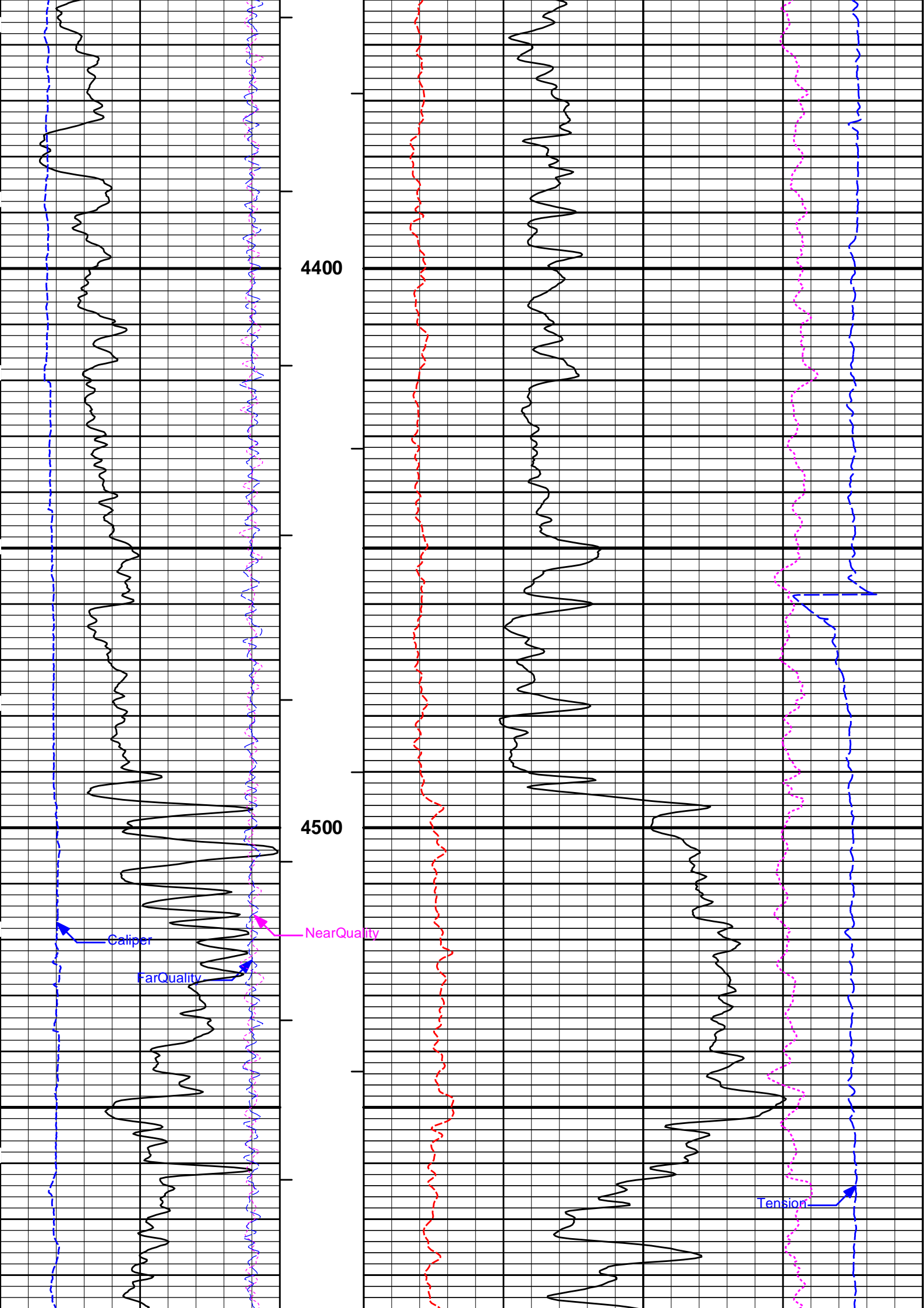


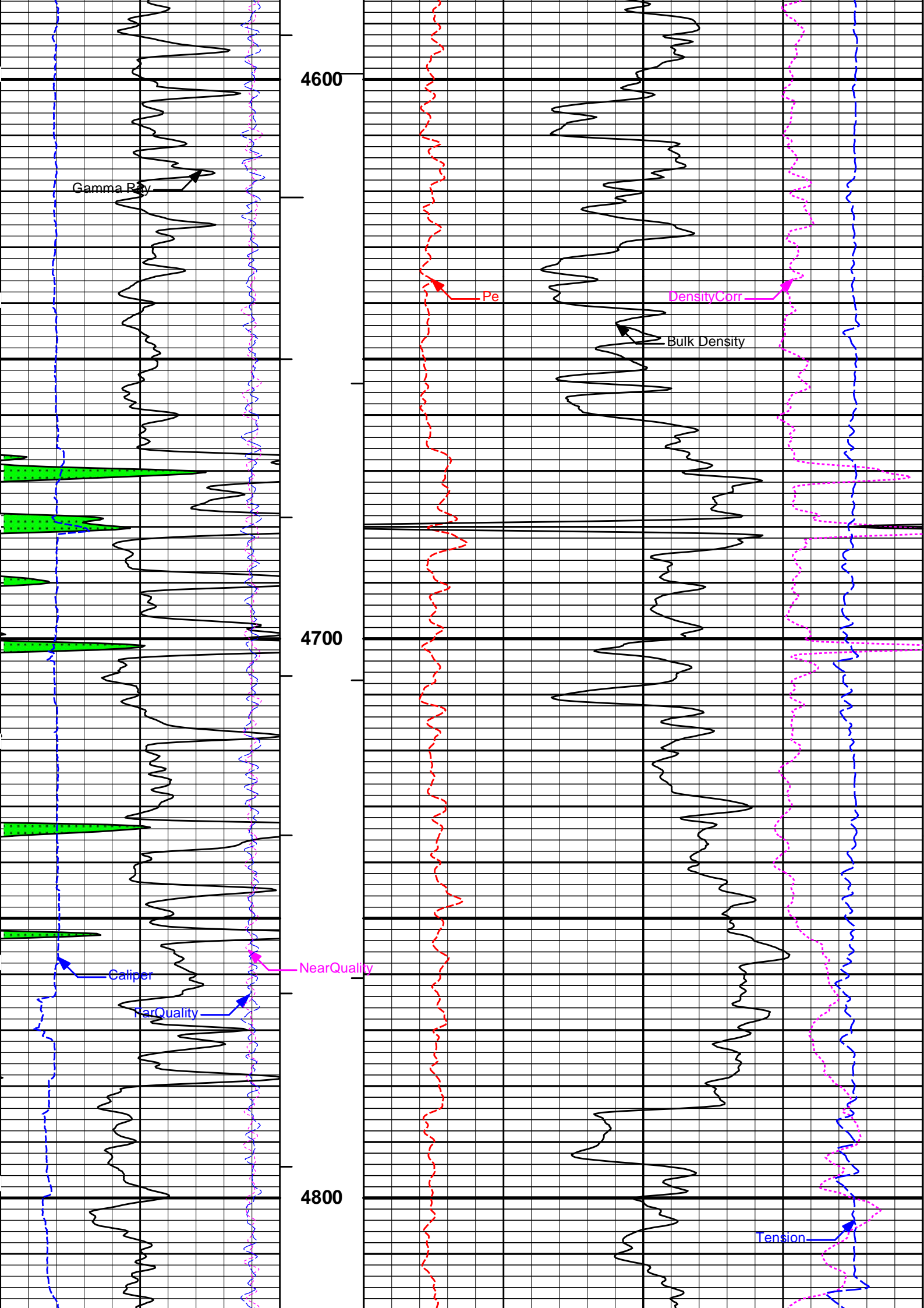


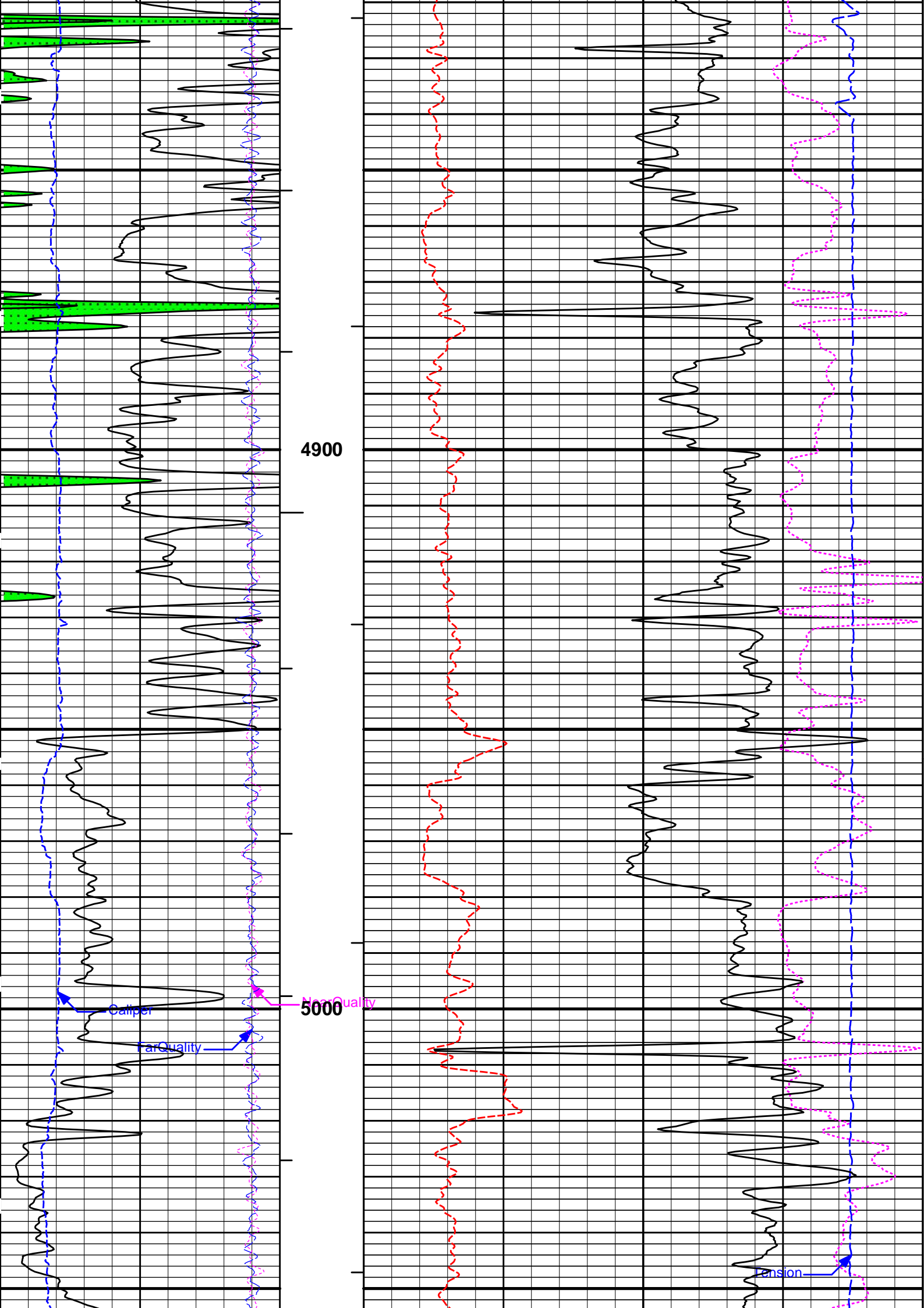


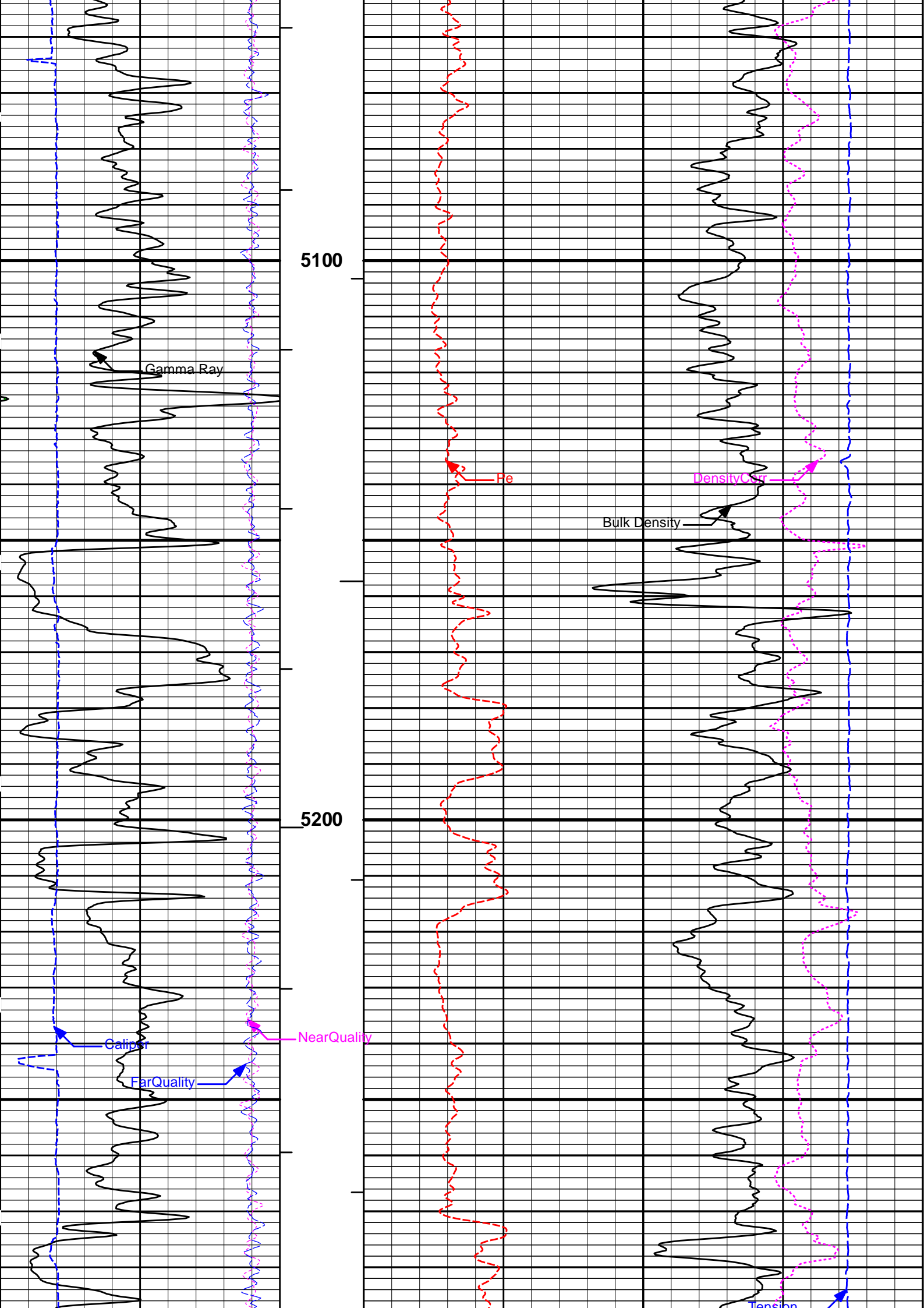


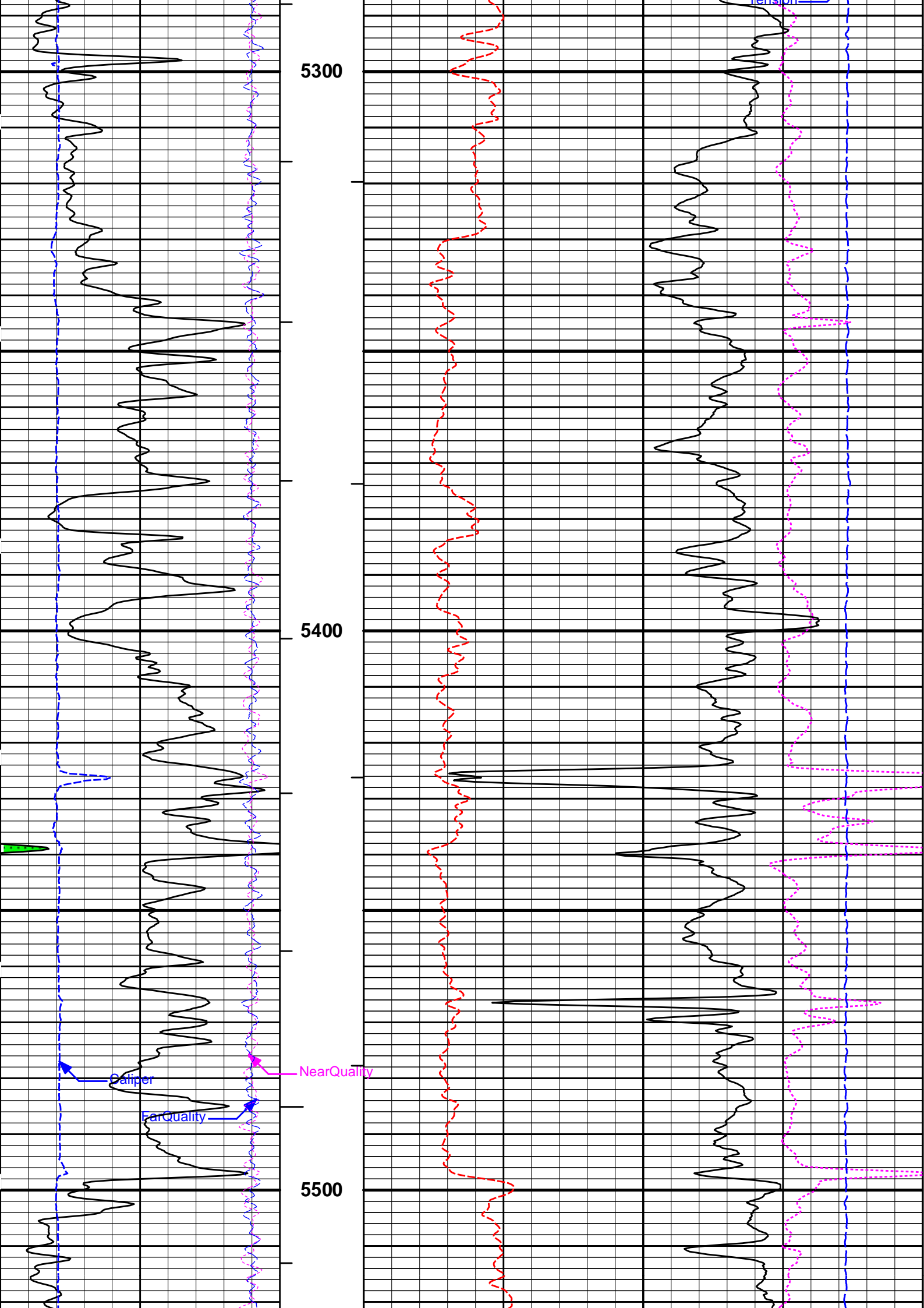


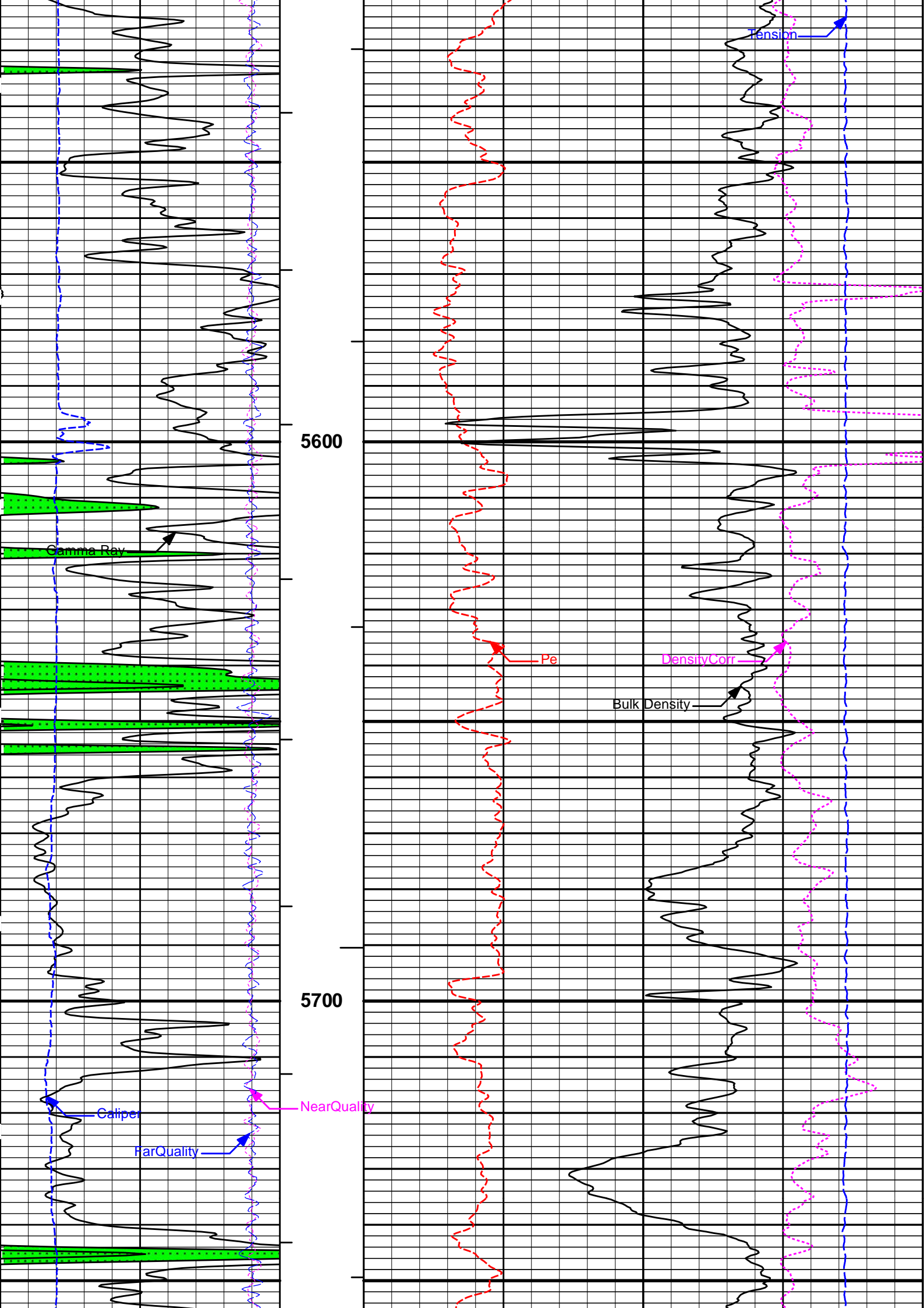


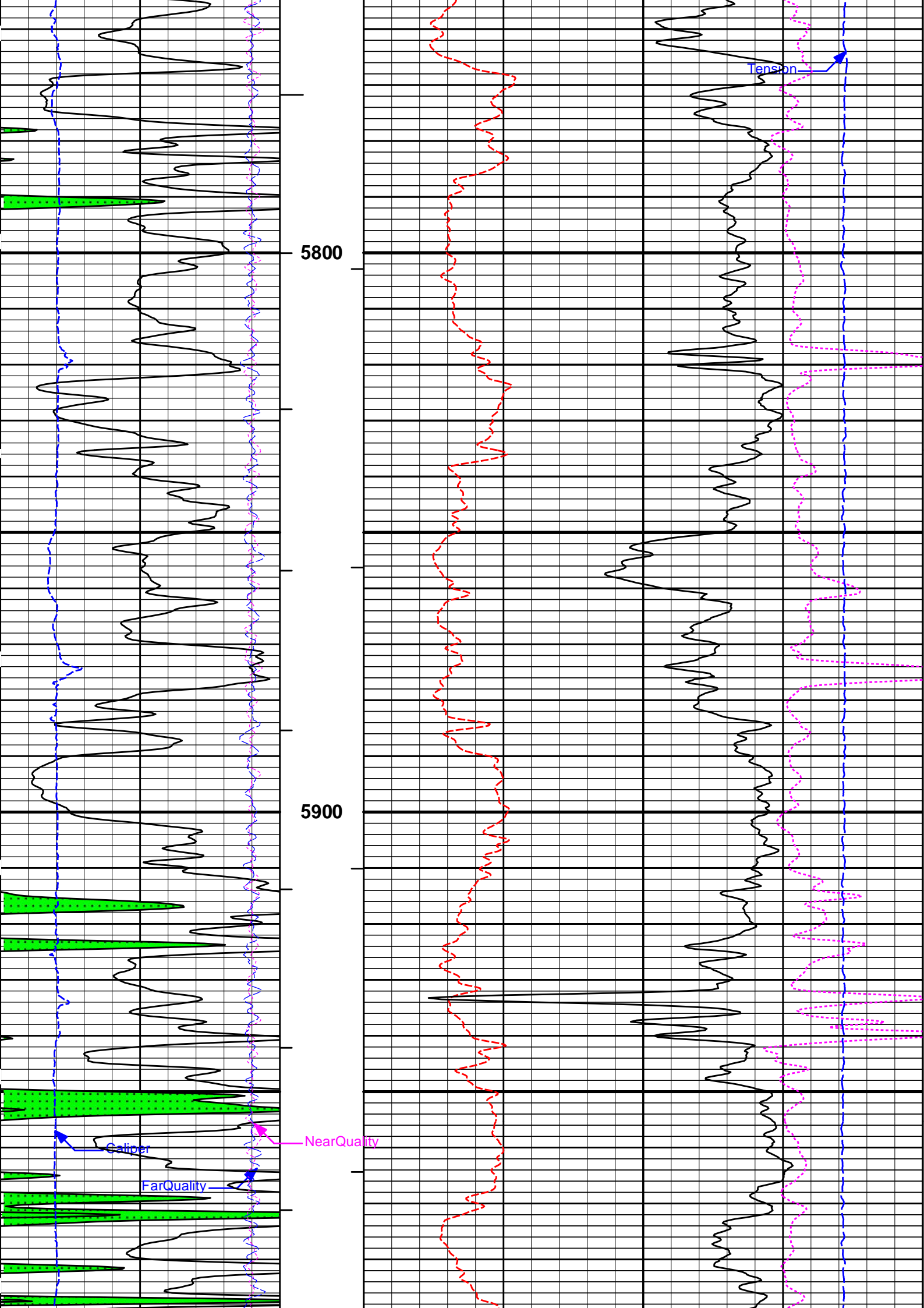


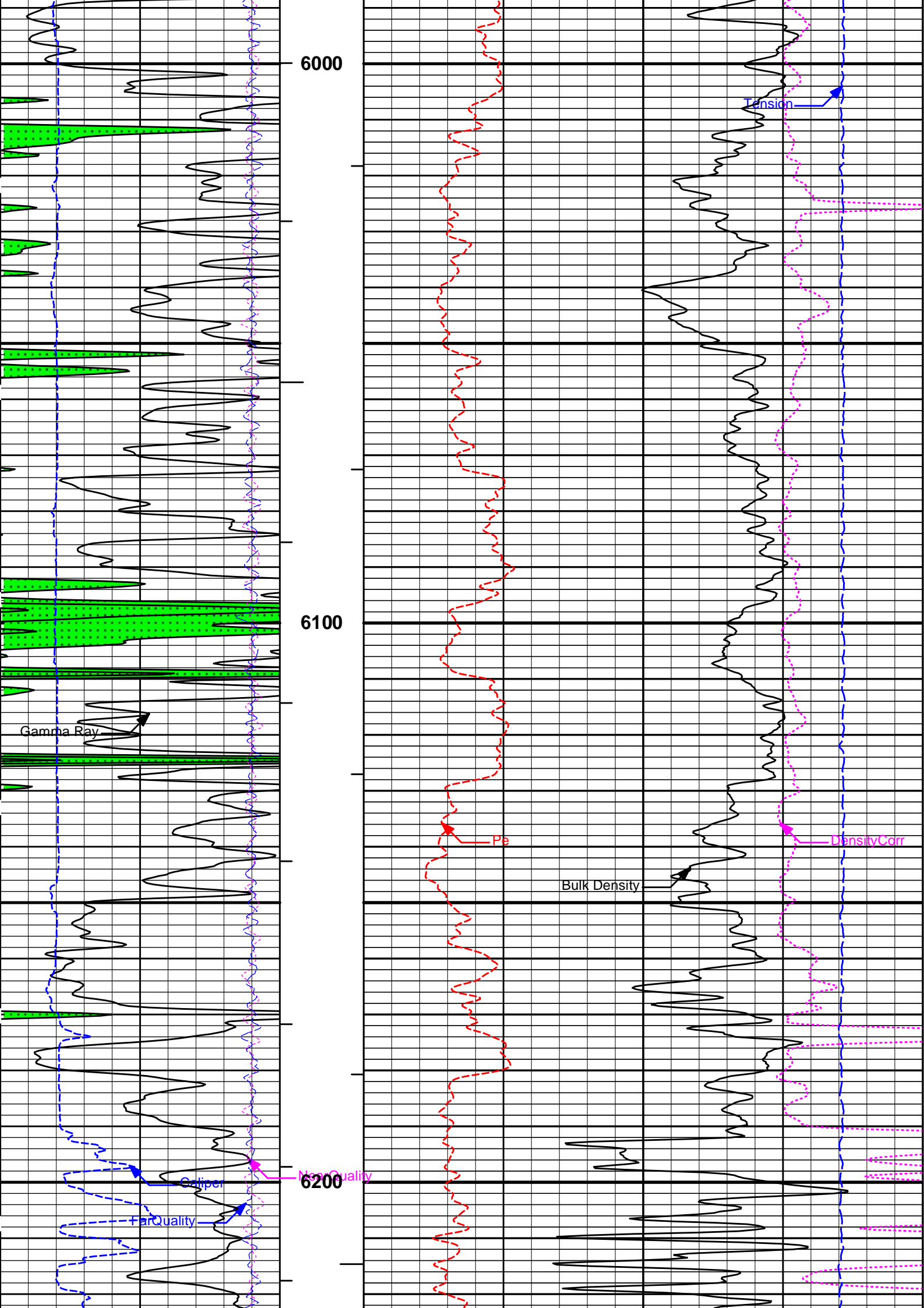


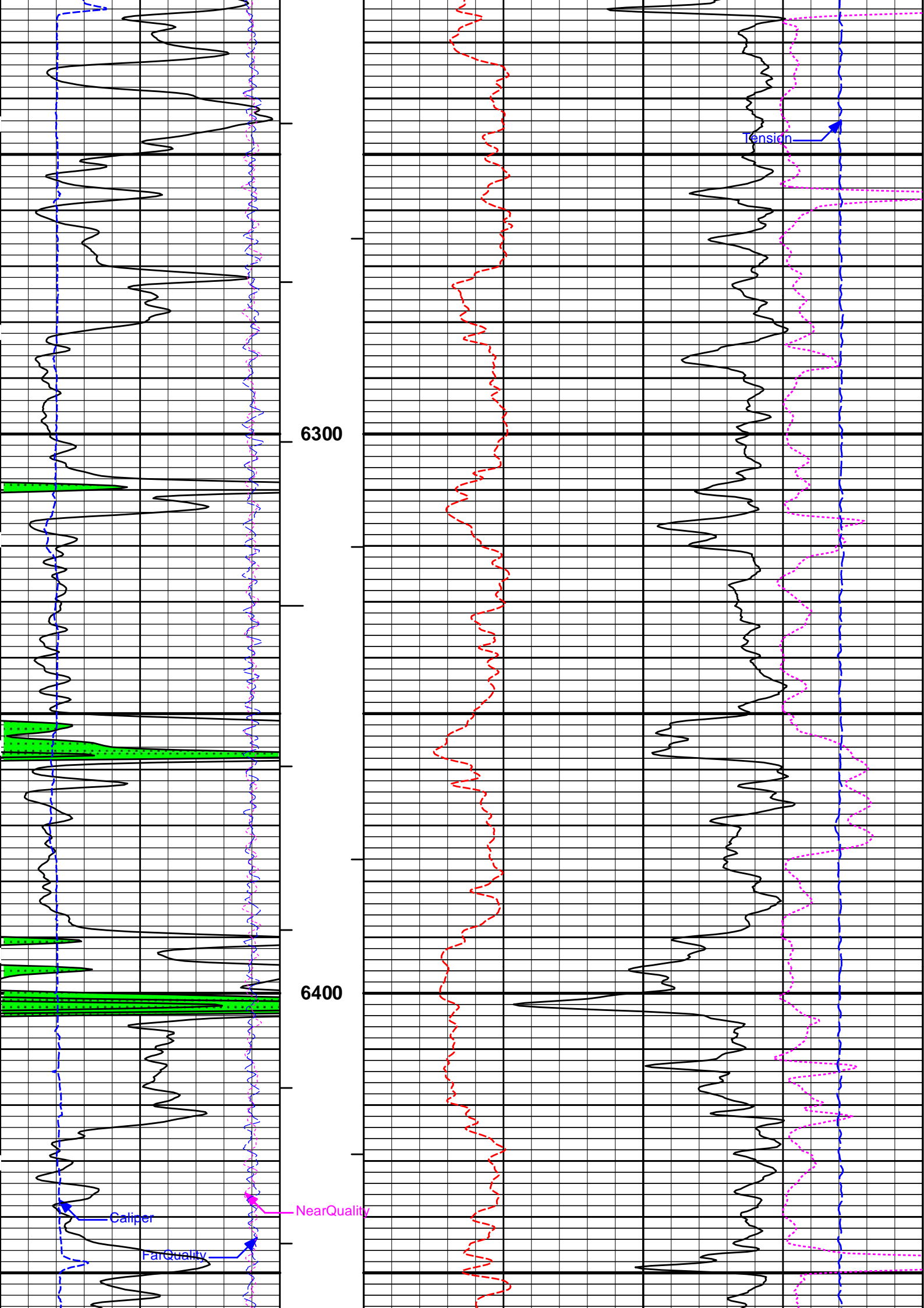


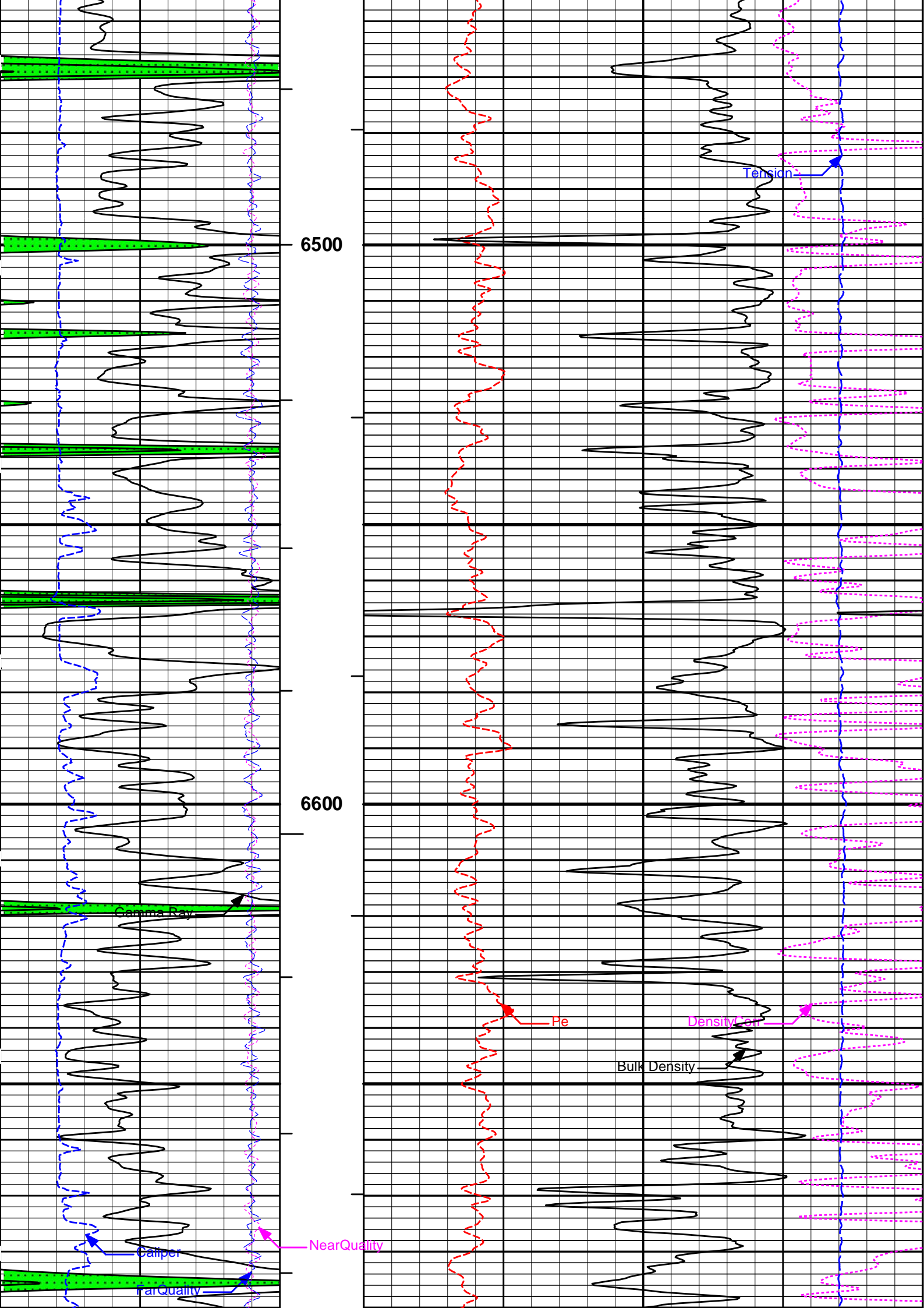


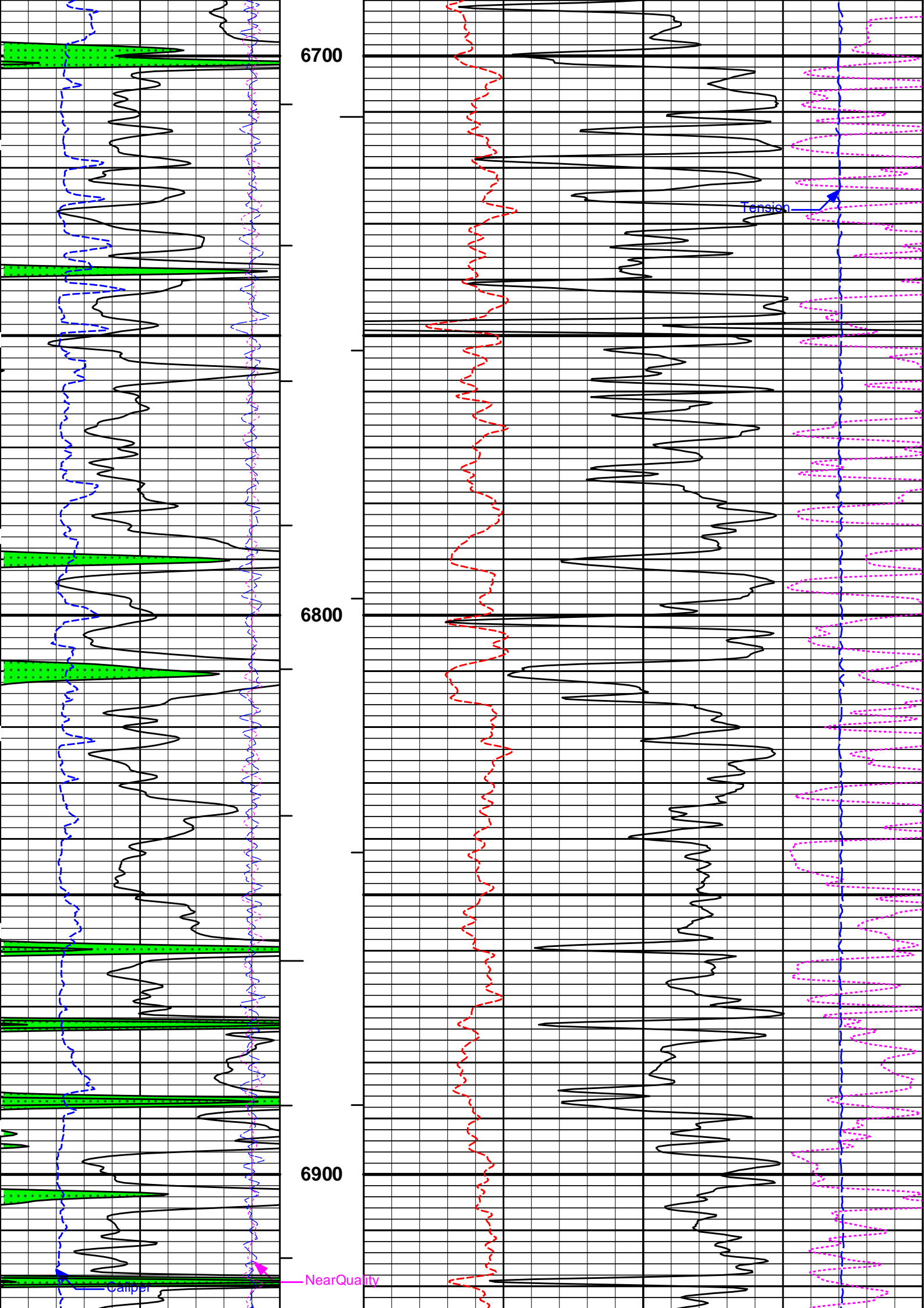


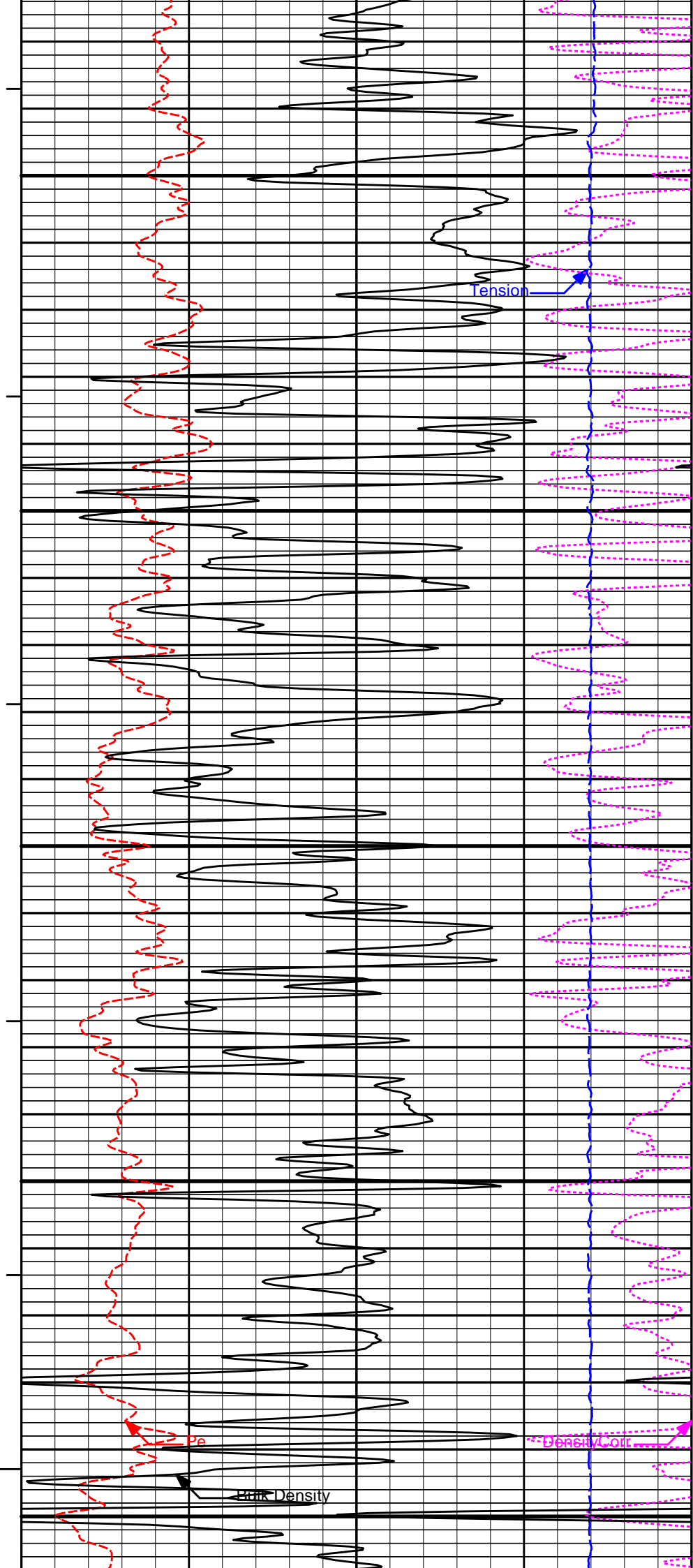
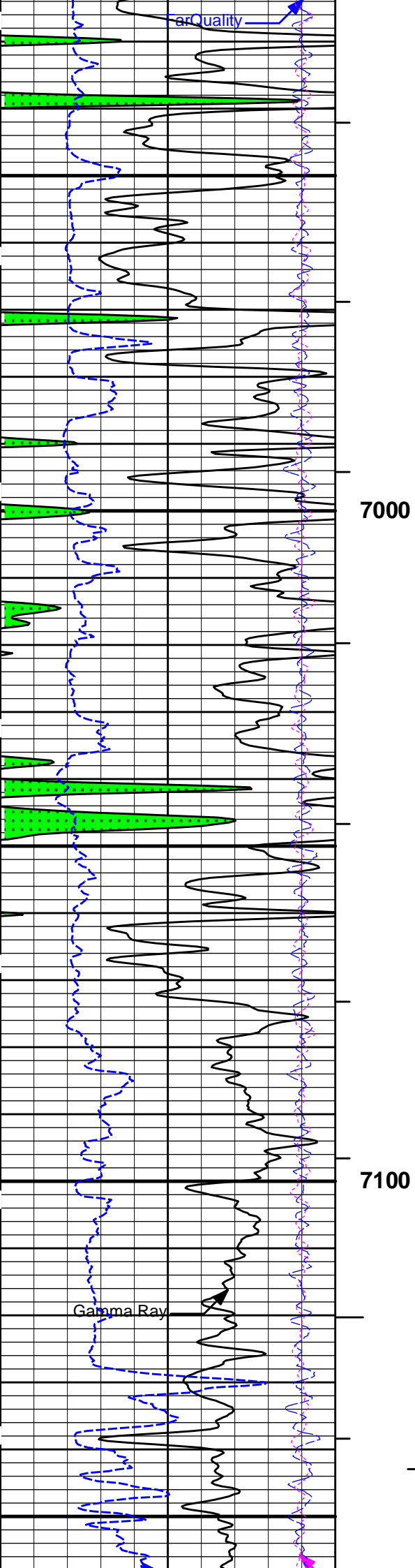


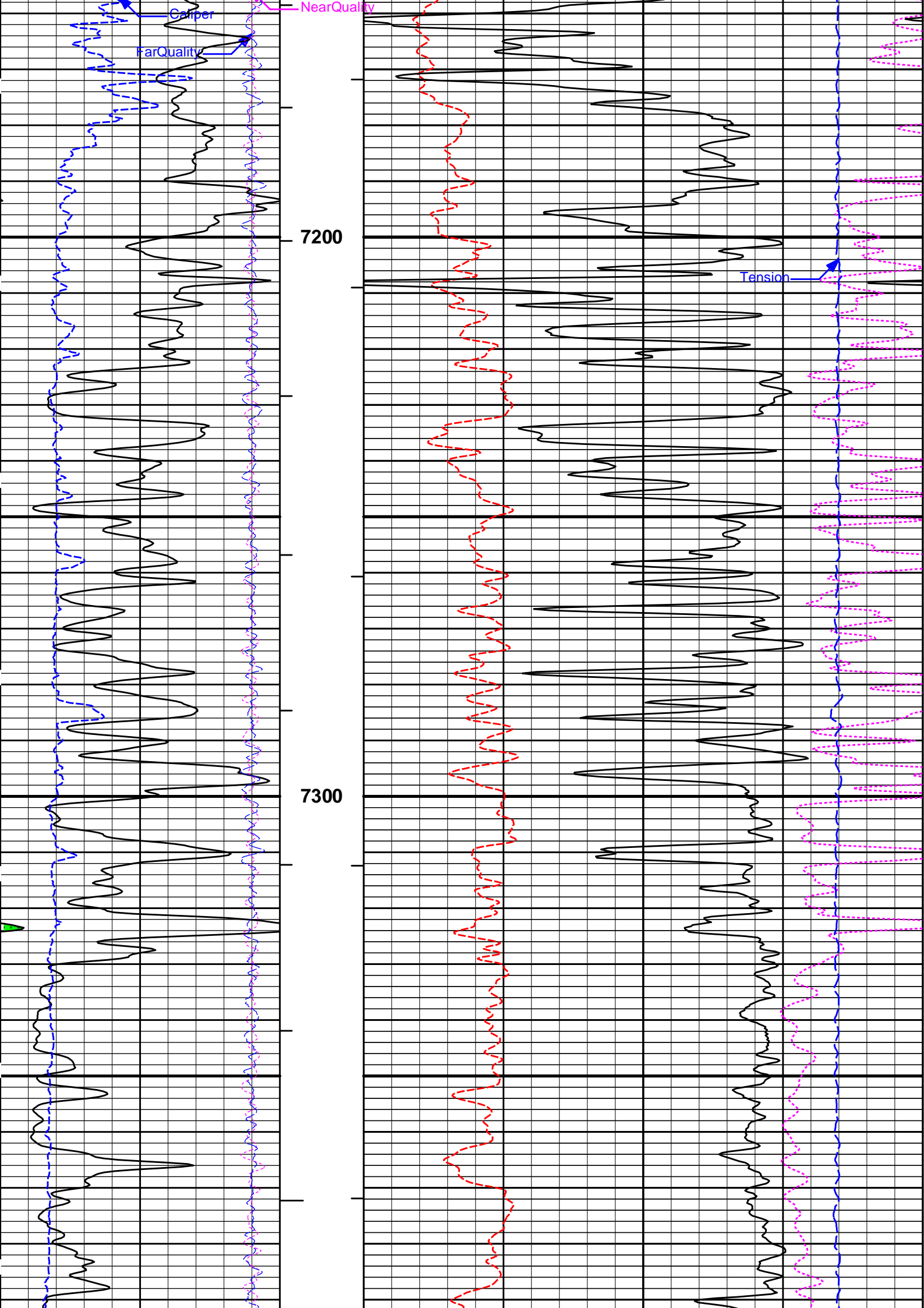


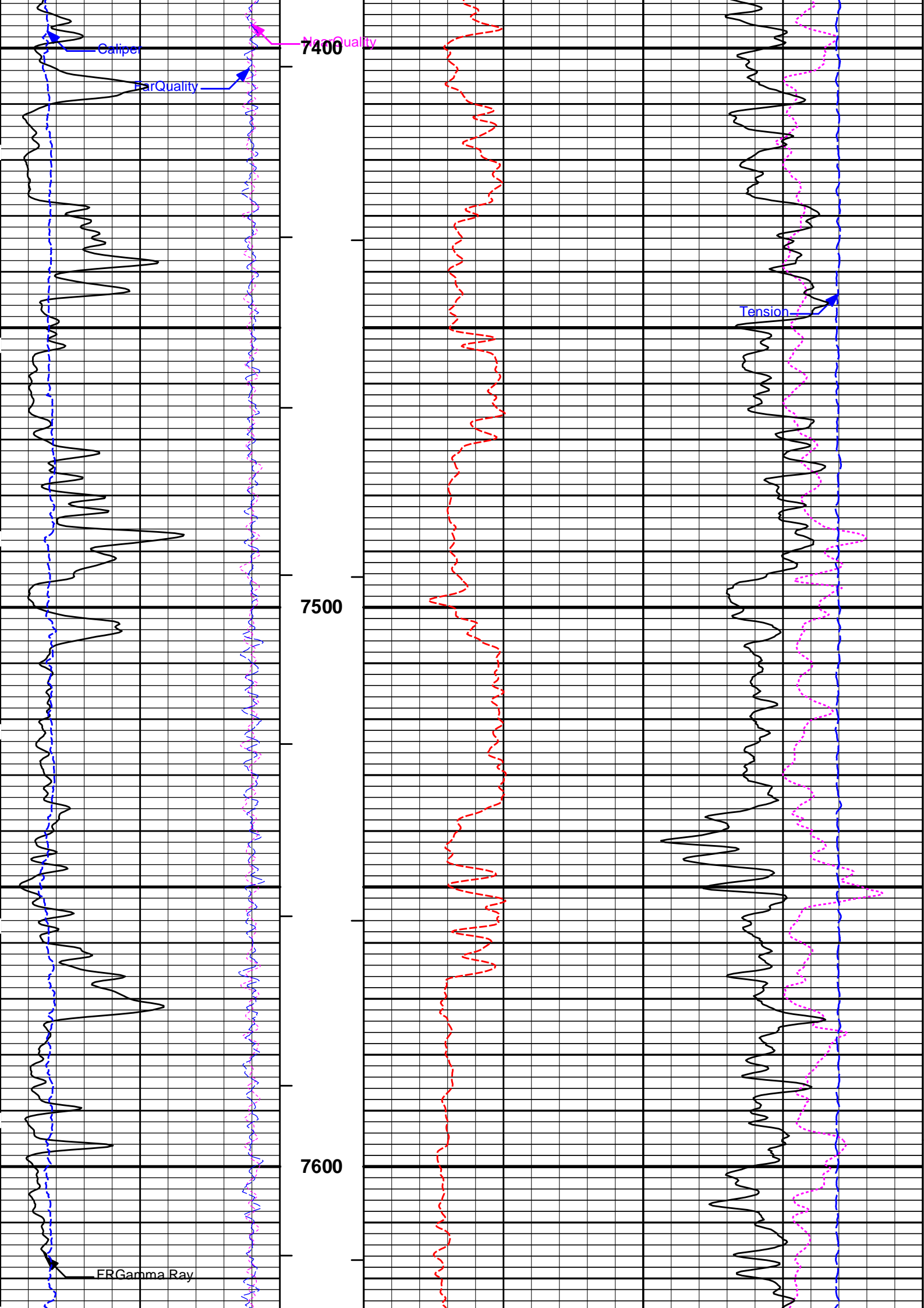


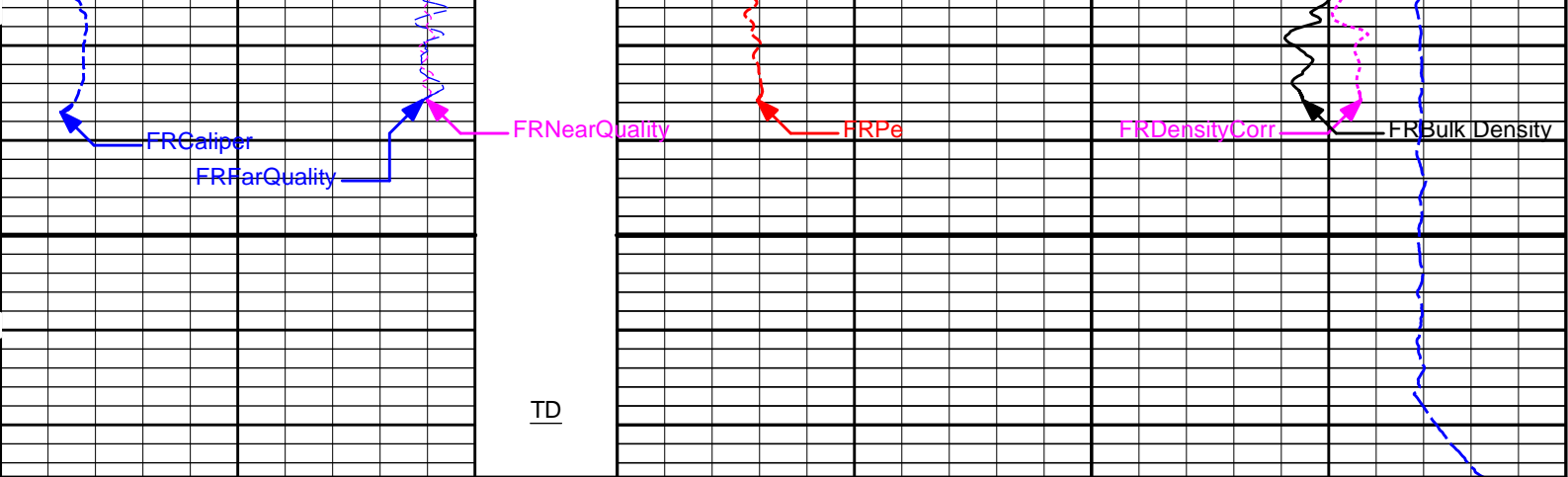












6	Caliper	16	1 : 240 ft	0	Pe	10	-0.25	DensityCorr	0.25	
	inches							g/cc		
-18	NearQuality	2		BHV ft3			15K	Tension	0	
								pounds		
18	FarQuality	-2	AHV ft3	2	Bulk Density					3
					g/cc					
0	Gamma Ray	150								
	api									

HALLIBURTON

Plot Time: 24-May-18 08:47:12
Plot Range: 2500 ft to 7675.5 ft
Data: K3_JAMES\Well Based\DAQ-0001-005\
Plot File: \\-LOCAL-K3_JAMES\0001 RWCH_GTET-DSNT-SDLT-BSAT-ACRT\SDL-DSN\BULKD_5_MAIN_IQ

5 INCH MAIN LOG

MAIN SECTION 5" PER 100'

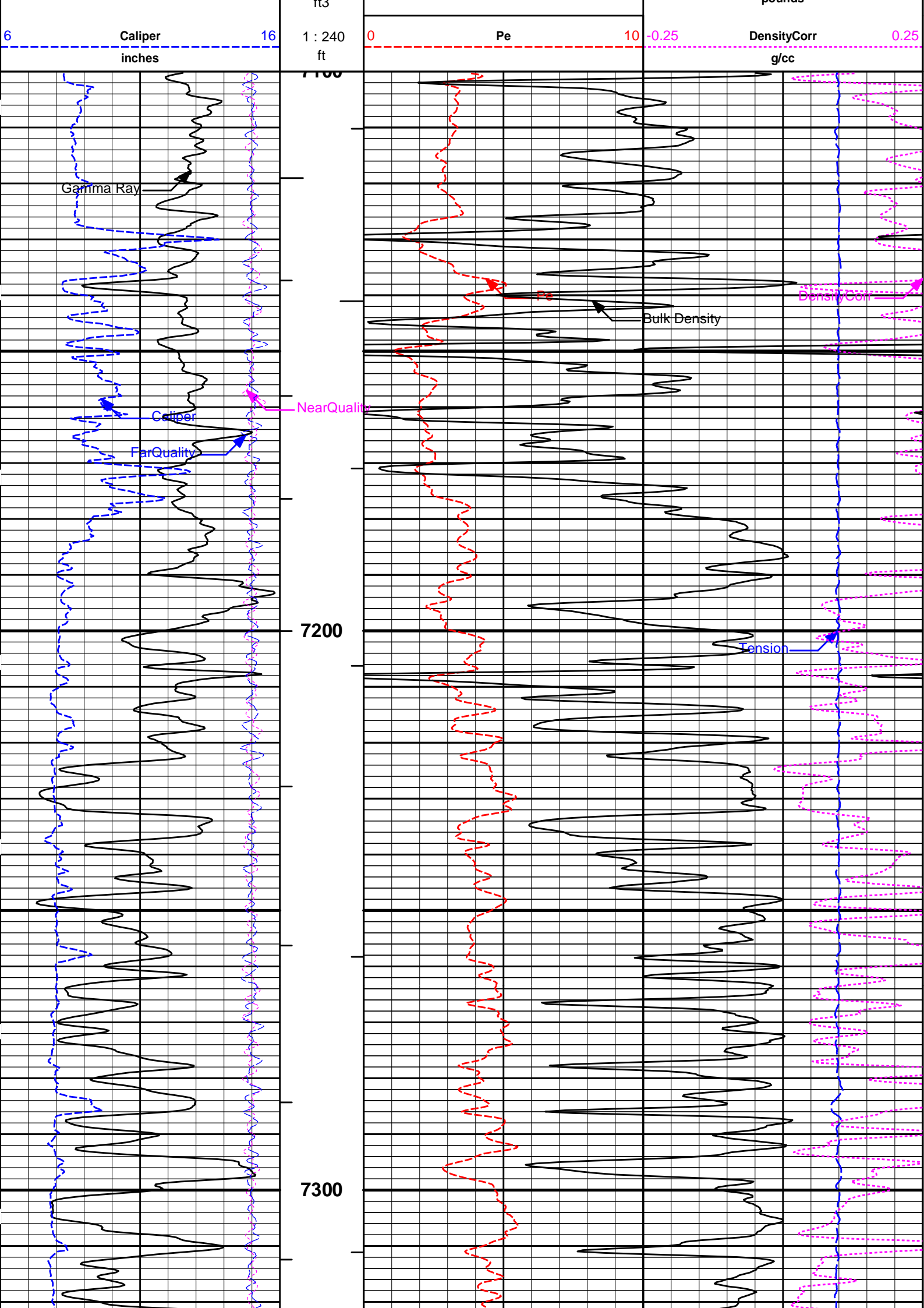
HALLIBURTON

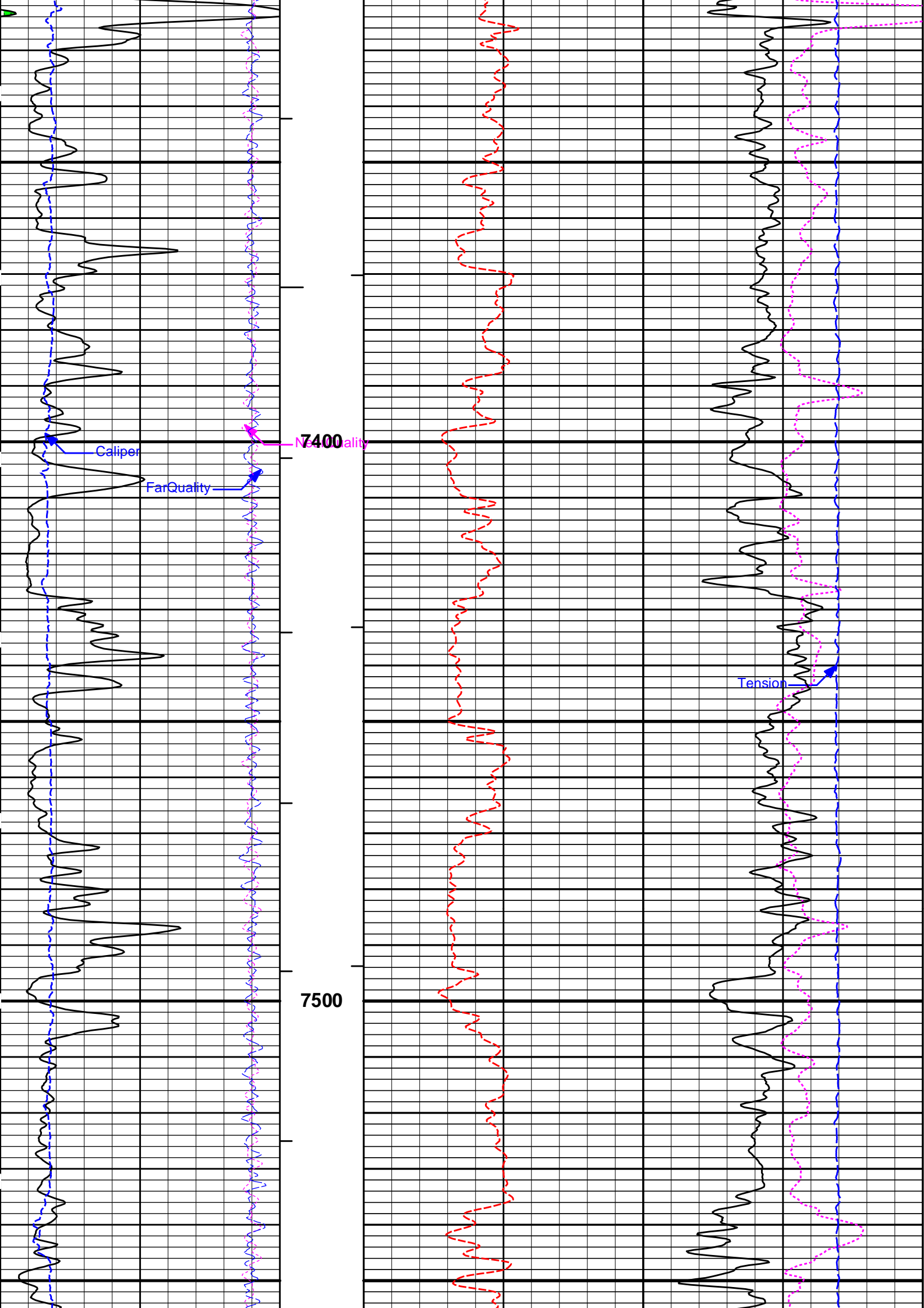
Plot Time: 24-May-18 08:47:13
Plot Range: 7100 ft to 7677.42 ft
Data: K3_JAMES\Well Based\DAQ-0001-004\
Plot File: \\-LOCAL-K3_JAMES\0001 RWCH_GTET-DSNT-SDLT-BSAT-ACRT\SDL-DSN\BULKD_5_MAIN_IQ

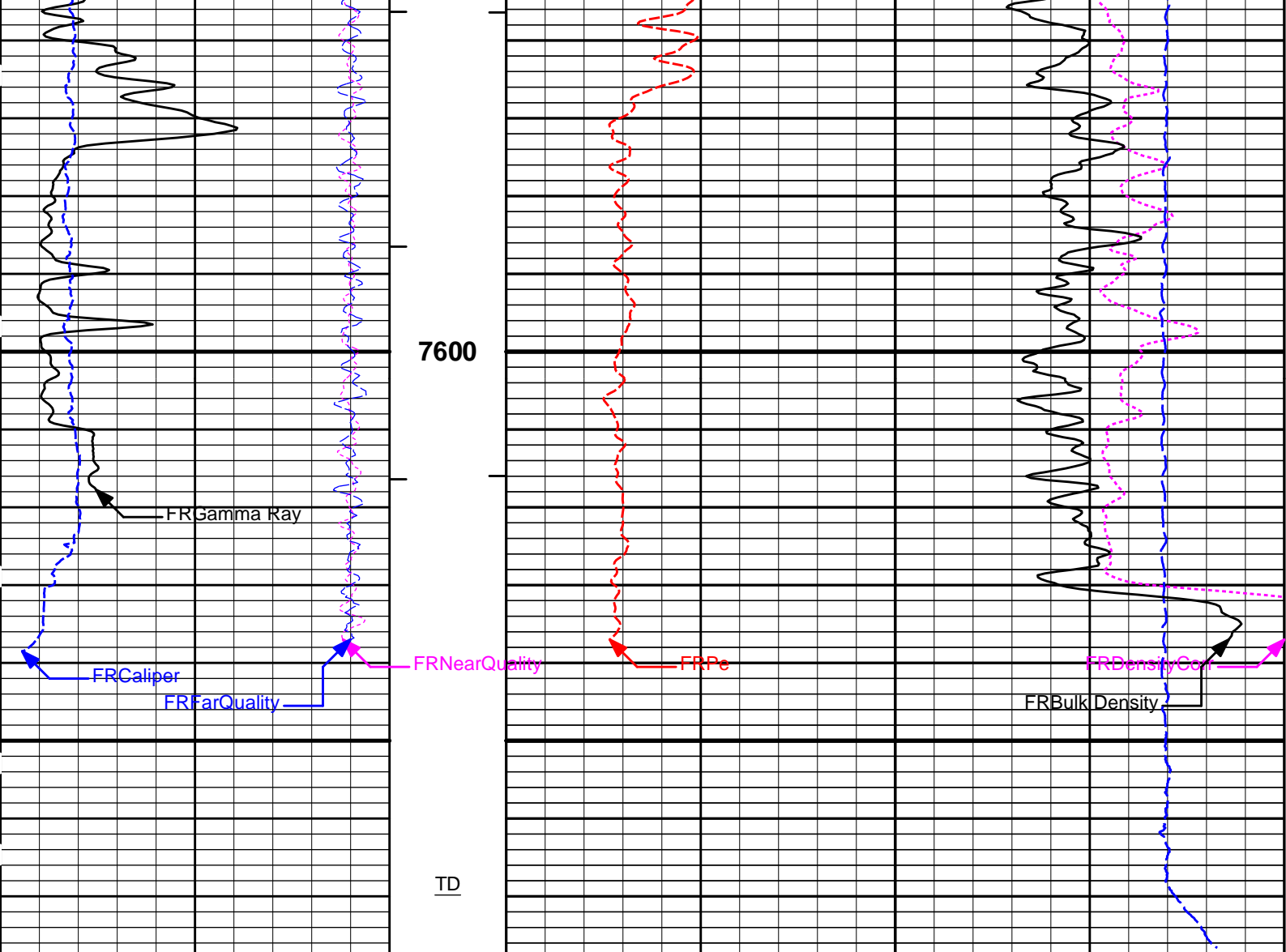
REPEAT SECTION

REPEAT SECTION

0	Gamma Ray	150							
	api								
18	FarQuality	-2	AHV	2	Bulk Density				3
			ft3		g/cc				
-18	NearQuality	2	BHV				15K	Tension	0
			ft3					pounds	







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

HALLIBURTON

Plot Time: 24-May-18 08:47:14
Plot Range: 7100 ft to 7677.42 ft
Data: K3_JAMES\Well Based\DAQ-0001-004\
Plot File: \\-LOCAL-K3_JAMES\0001 RWCH_GTET-DSNT-SDLT-BSAT-ACRT\SDL-DSN\BULKD_5_MAIN_IQ

REPEAT SECTION

REPEAT SECTION

HALLIBURTON

CALIBRATION REPORT

CALIBRATION REPORT

SURFACE TENSION SHOP CALIBRATION				
Tool Name:	Depth Panel - 12345678		Reference Calibration Date:	15-May-18 17:45:06
Engineer:	WHITLOCK		Calibration Date:	21-May-18 05:45:17
Software Version:	WL INSITE R5.6.3 (Build 4)		Calibration Version:	1

	SURFACE TENSION LOAD CELL				
	Measurement	Load Cell Value	Measurement	Calibrated	Units
	Low	10277.32	40.18	0.00	lbs
	High	17587.73	7875.60	7830.00	lbs

DOWNHOLE TENSION SHOP CALIBRATION				
Tool Name:	RWCH - 12345678		Reference Calibration Date:	28-Jun-15 10:00:47
Engineer:	WHITLOCK		Calibration Date:	19-May-18 23:06:56
Software Version:	WL INSITE R5.6.3 (Build 4)		Calibration Version:	1

	DOWNHOLE LOAD CELL				
	Measurement	Tool Value	Measurement	Calibrated	Units
	Low	-2036.82	-131.27	0.00	lbs
	High	8764.38	1007.52	3386.10	lbs

NATURAL GAMMA RAY TOOL SHOP CALIBRATION				
Tool Name:	GTET - 11021139		Reference Calibration Date:	04-Apr-18 18:46:06
Engineer:	WHITLOCK		Calibration Date:	01-May-18 15:06:27
Software Version:	WL INSITE R5.6.3 (Build 4)		Calibration Version:	1

Calibrator Source S/N: TB-79				
Calibrator API Reference:222.00 api				
Equivalent Calibrator API Reference:225.9 api				
	Measurement	Measured	Calibrated	Units
	Background	24.0	24.6	api
	Background + Calibrator	244.0	250.5	api
	Calibrator	220.1	225.9	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION				
Tool Name:	GTET - 11021139		Reference Calibration Date:	01-May-18 15:06:27
Engineer:	WHITLOCK		Calibration Date:	18-May-18 09:25:19
Software Version:	WL INSITE R5.6.3 (Build 4)		Calibration Version:	1

Calibrator Source S/N: TB-79				
Calibrator API Reference:222.00 api				
Equivalent Calibrator API Reference:225.9 api				
	Field Verification	Shop	Field	Units
	Background	24.6	24.4	api
	Background + Calibrator	250.5	257.8	api
	Calibrator	225.9	233.4	api
	Shop	Field	Difference	Tolerance
	225.9	233.4	-7.5	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION				
Tool Name:	DSNT - 11019643		Reference Calibration Date:	04-Apr-18 20:14:34
Engineer:	WHITLOCK		Calibration Date:	04-Apr-18 20:32:22
Software Version:	WL INSITE R5.6.3 (Build 4)		Calibration Version:	1

Logging Source S/N: DSN-436				
Tank Serial Number: EL RENO HWT				
Reference value assigned to Tank: 56.100				
Snow Block S/N: 12156883				

Calibration Tank Water Temperature: 68 degF
Min. Tool Housing Outside Diameter: 3.625 in

CALIBRATION CONSTANTS			
Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	1.02447	1.02018	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):	0.2371	0.2358	0.0013	+/- 0.0020
Calibrated Ratio:	10.6040	10.5595	0.044	+/- 0.050

VERIFIER		
Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0652	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 - 11019643	Reference Calibration Date:	04-Apr-18 20:32:22
Engineer:	WHITLOCK	Calibration Date:	18-May-18 09:37:11
Software Version:	WL INSITE R5.6.3 (Build 4)	Calibration Version:	1

Logging Source S/N: DSN-436
Snow Block S/N: 12156883

NEUTRON FIELD-CHECK SUMMARY				
	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0652	0.0776	0.0124	+/- 0.0150

PASS/FAIL SUMMARY	
Block Change Check:	Passed
Snow Block Stat Check:	Passed
Temperature Check:	Passed

DENSITY CALIPER SHOP CALIBRATION

Tool Name:	SDLT - 12153526	Reference Calibration Date:	01-Jan-70 00:00:00
Engineer:	WHITLOCK	Calibration Date:	22-Apr-18 13:23:29
Software Version:	WL INSITE R5.6.3 (Build 4)	Calibration Version:	1
Host Tool Name:	DSNT - 11019643		

CALIBRATION COEFFICIENTS			
Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-3193.91	-3193.91	-7000.00 - -1000.00
Pad Gain	0.0003882	0.0003882	0.0002000 - 0.0006000
Arm Offset	-1699.11	-1699.11	-5000.00 - 3000.00
Arm Gain	0.0005132	0.0005132	0.000300 - 0.000700
Arm Power	-0.000004611	-0.000004611	-0.000010000 - 0.000010000

The ring diameter is computed from: DIAMETER = PAD EXTENSION + ARM EXTENSION + TOOL DIAMETER
Tool Diameter: 4.50 in

CALIBRATION RINGS			
	Current Reading	Calibrated	Control Limit On

Measurement	Current Reading (Previous Coeff.)	Calibrated (New Coeff.)	Change	Control Limit On New Value
PAD EXTENSION:				
Small Ring (in)	2.00	2.00	0.00	+/- 0.20
Medium Ring (in)	3.75	3.75	0.00	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.50	6.50	0.00	+/- 0.20
Medium Ring (in)	8.25	8.25	0.00	+/- 0.20
Large Ring (in)	15.00	15.00	0.00	+/- 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 - 12153526		Reference Calibration Date:	22-Apr-18 13:23:29
Engineer:	WHITLOCK		Calibration Date:	18-May-18 08:13:34
Software Version:	WL INSITE R5.6.3 (Build 4)		Calibration Version:	1

MEASURED CALIPER VALUES				
Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.75	0.00	+/- 0.10
Ring Diameter	8.25	8.25	0.00	+/- 0.15
PASS/FAIL SUMMARY				
Pad Extension Check:			Passed	
Diameter Check:			Passed	

BSAT FIELD CASING CHECK				
Tool Name:	BSAT - 10939049		Calibration Date:	30-Mar-17 10:01:32
Engineer:	HARRIS		Calibration Date:	26-Mar-18 10:21:56
Software Version:	WL INSITE R5.0.5 (Build 8)		Calibration Version:	1

Pre-Log Check	Check Depth	Shop	Field	Difference	Tolerance	Units
Delta-T Compensated	147.01	57.00	56.56	0.4400	1.00	uspf

ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION				
Tool Name:	ACRt Sonde - 11038385		Reference Calibration Date:	12-Sep-17 13:58:19
Engineer:	JORGE ORLANDO PEREZ		Calibration Date:	26-Mar-18 10:21:56
Software Version:	WL INSITE R5.6.3 (Build 4)		Calibration Version:	1
Host Tool Name:	ACRt Instrument - 11055059			

TYPICAL GAIN RANGE									
Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	0.95	1.0500	1.05	0.95	1.0229	1.05	0.95	1.0048	1.05
A2 (50")	0.95	1.0500	1.05	0.95	1.0261	1.05	0.95	1.0131	1.05
A3 (29")	0.95	1.0472	1.05	0.95	1.0179	1.05	0.95	1.0025	1.05
A4 (17")	0.95	1.0401	1.05	0.95	1.0093	1.05	0.95	0.9956	1.05
A5 (10")	N/A	N/A	N/A	0.95	1.0012	1.05	0.95	0.9839	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.9883	1.05	0.95	0.9739	1.05

SONDE OFFSET									
Subarray	R12KHz			R36KHz			R72KHz		
	(mmho/m)			(mmho/m)			(mmho/m)		

A1 (80")	1.490			-4.736			-6.418		
A2 (50")	-0.183			-4.133			-5.504		
A3 (29")	-12.250			-3.671			-3.367		
A4 (17")	-109.670			-32.737			-24.656		
A5 (10")	N/A			-82.133			-35.124		
A6 (6")	N/A			347.353			195.364		
TRANSMITTER CURRENT GAIN						R-MUD VERIFICATION			
Signal	Lower	R		Upper		Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
12K	0.6	0.86		1.3		Mud Cell	0.95	1.00	1.05
36K	1.0	1.34		2.0					
72K	1.0	1.61		2.0					
PASS/FAIL SUMMARY									
GAIN RANGE CHK						PASS			
SONDE OFFSET CHK						PASS			
TOOL OK TO LOG									

QUALITY CHECK SHOP CALIBRATION									
Tool Name:		ACRt Sonde - 11038385				Reference Calibration Date:		12-Sep-17 14:00:57	
Engineer:		WHITLOCK				Calibration Date:		15-Dec-17 10:50:30	
Software Version:		WL INSITE R5.6.3 (Build 4)				Calibration Version:		1	
Host Tool Name:		ACRt Instrument - 11055059							

STANDARD DEVIATIONS									
	R12KHz			R36KHz			R72KHz		
	Measured (mmho/m)	Expected (mmho/m)	Pass/Fail	Measured (mmho/m)	Expected (mmho/m)	Pass/Fail	Measured (mmho/m)	Expected (mmho/m)	Pass/Fail
A1 (80")	0.000	< 0.750	Pass	0.000	< 0.750	Pass	0.000	< 0.750	Pass
A2 (50")	0.000	< 0.750	Pass	0.000	< 0.750	Pass	0.000	< 0.750	Pass
A3 (29")	0.000	< 0.750	Pass	0.000	< 0.750	Pass	0.000	< 0.750	Pass
A4 (17")	0.000	< 0.750	Pass	0.000	< 0.750	Pass	0.000	< 0.750	Pass
A5 (10")	0.000	< 0.750	Pass	0.000	< 0.750	Pass	0.000	< 0.750	Pass
A6 (6")	0.000	< 0.750	Pass	0.000	< 0.750	Pass	0.000	< 0.750	Pass
AVERAGES									
	R12KHz			R36KHz			R72KHz		
	Measured (mmho/m)	Expected (mmho/m)	Pass/Fail	Measured (mmho/m)	Expected (mmho/m)	Pass/Fail	Measured (mmho/m)	Expected (mmho/m)	Pass/Fail
A1 (80")	0.000	< 0.500	Pass	-0.001	> -0.500	Pass	-0.007	> -0.500	Pass
A2 (50")	0.000	< 0.500	Pass	-0.001	> -0.500	Pass	-0.005	> -0.500	Pass
A3 (29")	-0.000	< 0.500	Pass	-0.001	> -0.500	Pass	-0.003	> -0.500	Pass
A4 (17")	-0.003	> -0.500	Pass	-0.008	> -0.500	Pass	-0.024	> -0.500	Pass
A5 (10")	-0.011	> -0.500	Pass	-0.018	> -0.500	Pass	-0.034	> -0.500	Pass
A6 (6")	0.016	< 0.500	Pass	0.078	< 0.500	Pass	0.183	< 0.500	Pass
GAIN TOLERANCE									
R12KHz									
	Measured (mmho/m)	Last Month (mmho/m)		Difference (mmho/m)		Tolerance (mmho/m)		Pass/Fail	
A1 (80")	-220721488.000	-223155904.000		2434416.000		11157795.200		Pass	
A2 (50")	-218488224.000	-220713888.000		2225664.000		11035694.400		Pass	
A3 (29")	-214911568.000	-216614880.000		1703312.000		10830744.000		Pass	
A4 (17")	-211434368.000	-214578320.000		3143952.000		10728916.000		Pass	

A5 (10")	-211949376.000	-214986432.000	3037056.000	10749321.600	Pass
A6 (6")	-213895760.000	-214394544.000	498784.000	10719727.200	Pass
R36KHz					
	Measured (mmho/m)	Last Month (mmho/m)	Difference (mmho/m)	Tolerance (mmho/m)	Pass/Fail
A1 (80")	59105928.000	60628184.000	1522256.000	3031409.200	Pass
A2 (50")	60252356.000	62049960.000	1797604.000	3102498.000	Pass
A3 (29")	52147940.000	53214172.000	1066232.000	2660708.600	Pass
A4 (17")	48569380.000	50561756.000	1992376.000	2528087.800	Pass
A5 (10")	50672468.000	52600244.000	1927776.000	2630012.200	Pass
A6 (6")	49458680.000	50656572.000	1197892.000	2532828.600	Pass
R72KHz					
	Measured (mmho/m)	Last Month (mmho/m)	Difference (mmho/m)	Tolerance (mmho/m)	Pass/Fail
A1 (80")	-92108696.000	-92698504.000	589808.000	4634925.200	Pass
A2 (50")	-89118672.000	-89662344.000	543672.000	4483117.200	Pass
A3 (29")	-88812376.000	-89109216.000	296840.000	4455460.800	Pass
A4 (17")	-83501792.000	-84842648.000	1340856.000	4242132.400	Pass
A5 (10")	-82094160.000	-83337800.000	1243640.000	4166890.000	Pass
A6 (6")	-84269728.000	-84561904.000	292176.000	4228095.200	Pass
<div>PASS/FAIL SUMMARY</div> <div>Std Deviation VerificationPass</div> <div>Average VerificationPass</div> <div>Gain Tolerance VerificationPass</div>					

MICRO LOG SHOP CALIBRATION			
Tool Name:	Microlog Pad - 12153526	Reference Calibration Date:	01-May-18 15:03:00
Engineer:	WHITLOCK	Calibration Date:	01-May-18 15:06:12
Software Version:	WL INSITE R5.6.3 (Build 4)	Calibration Version:	1
Host Tool Name:	DSNT - 11019643		

Measurement	CALIBRATION COEFFICIENT SUMMARY				
	Micro Log Normal		Micro Log Lateral		Units
	Measured	Calibrated	Measured	Calibrated	
Tool Zero	-0.06	-0.06	0.00	-0.00	ohmm
Calibration Point #1	0.00	0.00	0.00	0.00	ohmm
Calibration Point #2	20.02	20.00	20.02	20.00	ohmm
Internal Reference	19.92	19.91	19.99	19.97	ohmm
Measurement	Micro Log Normal Tool Value		Micro Log Lateral Tool Value		Units
Tool Zero	3.81		1.61		V
Calibration Point #1	20.59		1.69		V
Calibration Point #2	5315.12		6955.08		V
Internal Reference	5290.49		6946.14		V

MICRO LOG FIELD CHECK					
Tool Name:	Microlog Pad - 12153526	Reference Calibration Date:	01-May-18 15:06:12		
Engineer:	WHITLOCK	Calibration Date:	18-May-18 09:22:07		
Software Version:	WL INSITE R5.6.3 (Build 4)	Calibration Version:	1		

	Measurement	Micro Log Normal		Micro Log Lateral	
		Shop	Field	Shop	Field
				Units	
	Tool Zero	-0.06	-0.08	-0.00	-0.00
	Internal Reference	19.91	19.89	19.97	19.95
Summary					

	Signal	Shop	Field	Difference	Tolerance
	Microlog Normal	19.91	19.89	0.02	+/- 0.80
	Microlog Lateral	19.97	19.95	0.02	+/- 0.80

SPECTRAL DENSITY SHOP CALIBRATION					
Tool Name:	SDLT Pad - 10865881			Reference Calibration Date:	31-Mar-18 12:17:01
Engineer:	MICHAEL RICHTER			Calibration Date:	31-Mar-18 12:34:56
Software Version:	WL INSITE R5.6.3 (Build 4)			Calibration Version:	1

Logging Source S/N: 5155GW
 Aluminum Block S/N: EL RENO
 Magnesium Block S/N: EL RENO

Density: 2.581g/cc
 Density: 1.687g/cc

Pe: 3.170
 Pe: 2.594

Density Calibration Summary			
Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0004	1.0422	0.90 - 1.10
Near Dens Gain	0.9786	0.9976	0.90 - 1.10
Near Peak Gain	0.9873	1.0060	0.90 - 1.10
Near Lith Gain	1.0231	1.0469	0.90 - 1.10
Far Bar Gain	1.0042	1.0067	0.90 - 1.10
Far Dens Gain	0.9904	0.9957	0.90 - 1.10
Far Peak Gain	0.9886	0.9924	0.90 - 1.10
Far Lith Gain	0.9669	0.9738	0.90 - 1.10
Near Bar Offset	0.4379	0.0618	NONE
Near Dens Offset	0.5880	0.4209	NONE
Near Peak Offset	0.5244	0.3712	NONE
Near Lith Offset	0.2356	0.0435	NONE
Far Bar Offset	0.2451	0.2219	NONE
Far Dens Offset	0.3471	0.2970	NONE
Far Peak Offset	0.3507	0.3169	NONE
Far Lith Offset	0.4844	0.4310	NONE
Near Bar Background	926.31	924.87	700 - 1450
Near Dens Background	309.66	308.97	230 - 480
Near Peak Background	133.93	133.56	100 - 210
Near Lith Background	162.42	164.06	125 - 260
Far Bar Background	597.87	600.80	450 - 900
Far Dens Background	235.10	233.03	175 - 345
Far Peak Background	91.27	91.89	70 - 140
Far Lith Background	95.76	95.30	75 - 145

Calibration Block Summary				
Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.686	1.687	0.001	+/- 0.015
Pe	2.563	2.553	-0.010	+/- 0.150
ALUMINUM				
Density (g/cc)	2.580	2.581	0.001	+/- 0.01500
Pe	3.154	3.125	-0.029	+/- 0.150

Tool Summary				
Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	0.0006	+/- 0.0110	0.0019	+/- 0.0140
Magnesium Block	-0.0013	+/- 0.0110	-0.0010	+/- 0.0140

Magnesium Block	0.0010	+/- 0.0110	0.0010	+/- 0.0140
Aluminum Block	0.0001	+/- 0.0110	0.0011	+/- 0.0140
Resolution	9.64	6.00 - 11.50	9.00	6.00 - 11.50
Internal Verifier(B+D+P+L)	1531	1200 - 2700	1021	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 - 10865881	Reference Calibration Date:	31-Mar-18 12:34:56
Engineer:	WHITLOCK	Calibration Date:	18-May-18 09:27:42
Software Version:	WL INSITE R5.6.3 (Build 4)	Calibration Version:	1

Pad Temperature: 82.3 degF

DENSITY FIELD CALIBRATION SUMMARY				
Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1531.458	1531.182	-0.276	15.758
Far (B+D+P+L) cps	1021.016	1020.580	-0.436	17.050
Near Resolution	9.64	9.75	0.110	0.50
Far Resolution	9.00	9.03	0.030	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
Depth Panel-12345678						
Tension Zero	0.00	-----	-----	0.00	-----	lbs
Tension Cal	7830.00	-----	-----	0.00	-----	lbs
RWCH-12345678						
DH Tension Zero	0.00	-----	-----	0.00	-----	lbs
DH Tension Cal	3386.10	-----	-----	0.00	-----	lbs
GTET-11021139						
Gamma Ray Calibrator	225.9	233.4	-----	-7.5	+/- 9.00	api
DSNT-11019643						
Snow-Block Porosity	0.0652	0.0776	-----	-0.0124	+/- 0.0150	decg
SDLT-12153526						
Pad Extension	3.75	3.75	-----	0.00	+/-0.10	in
Ring Diameter	8.25	8.25	-----	0.00	+/-0.15	in
ACRt Sonde-11038385						
Mud Cell	1.00	-----	-----	0	-----	ohm-m
Microlog Pad-12153526						
MicroLog Normal	19.91	19.89	-----	0.02	+/-0.80	ohmm
MicroLog Lateral	19.97	19.95	-----	0.02	+/-0.80	ohmm
SDLT Pad-10865881						
Near(B+D+P+L)	1531.458	1531.182	-----	0.276	+/-15.758	cps
Far(B+D+P+L)	1021.016	1020.580	-----	0.436	+/-17.050	cps

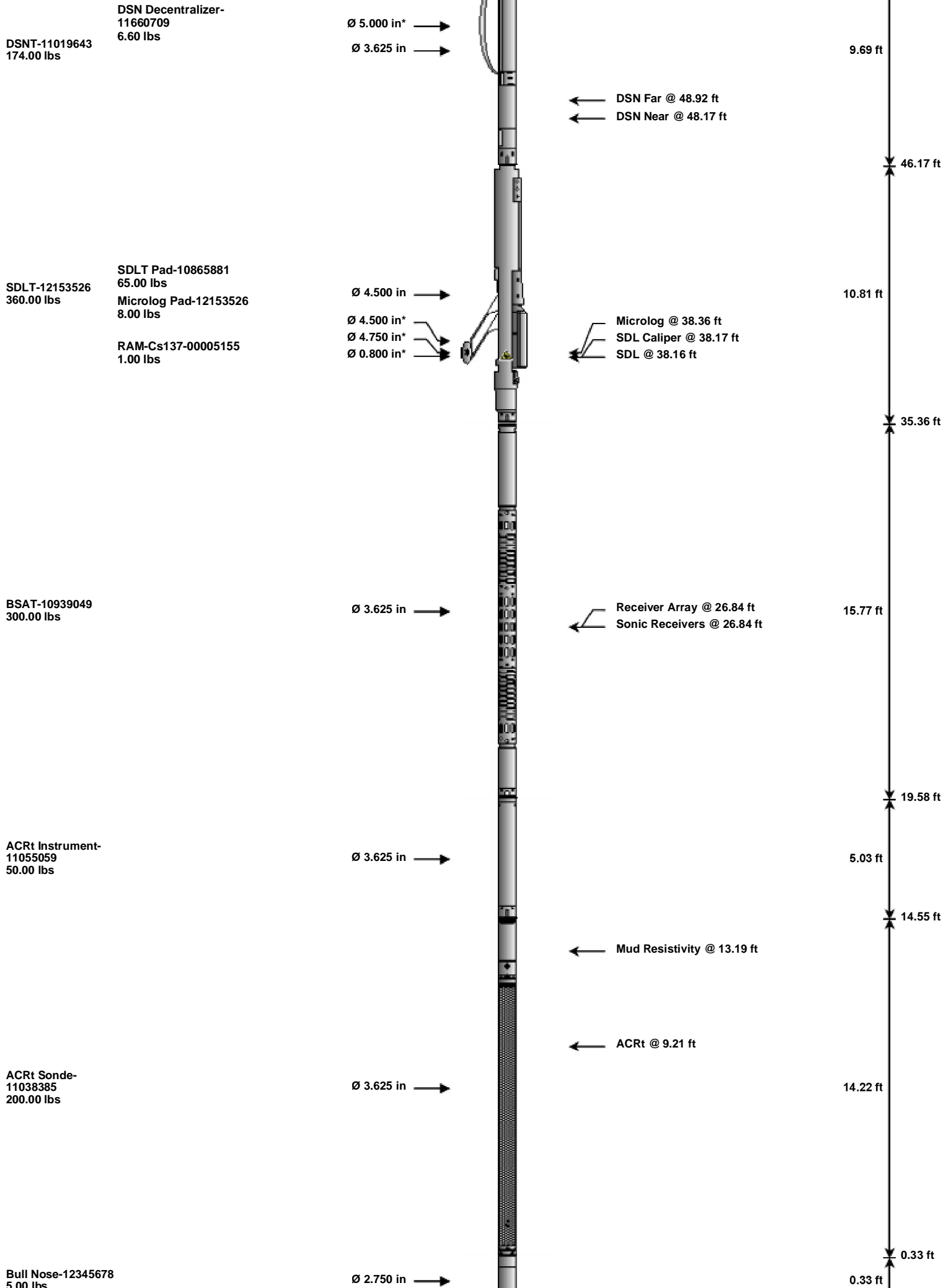


PARAMETERS REPORT

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	8.900	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	2.250	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	CSTR	Compressive Strength	1000.00	psia
	SHARED	ST	Surface Temperature	75.0	degF
	SHARED	TD	Total Well Depth	7670.00	ft
	SHARED	BHT	Bottom Hole Temperature	152.0	degF
	SHARED	SVTM	Navigation and Survey Master Tool	NONE	
	SHARED	AZTM	High Res Z Accelerometer Master Tool	GTET	
	SHARED	TEMM	CBM Temperature Master Tool	GTET	
	SHARED	SOCI	Source of Casing Information	Parameters	
	SHARED	MSAL	Water-base mud filtrate salinity	0.00	ppm
	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	
	Rwa / CrossPlot	ROIN	Input for RO Calculation	Rwa	
	GTET	GROK	Process Gamma Ray?	Yes	
	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	DNTT	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	I HWT	Logging Horizontal Water Tank?	No	

DSNT	UCLA	Classic Neutron Parameter utilized?	No	
DSNT	BHSM	Borehole Size Source Tool	SDLT	
SDLT	CLOK	Process Caliper Outputs?	Yes	
Microlog Pad	MLOK	Process MicroLog 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	
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 Pore Fluid	189.00	uspf
BSAT	DTMT	Delta -T Matrix Type	Limestone 47.6	
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	RMAX	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	
BOTTOM_____				
Data: K3_JAMES\0001 RWCH_GTET-DSNT-SDLT-BSAT-ACRTIDLE				Date: 23-May-18 13:04:29

HALLIBURTON						
TOOL STRING DIAGRAM REPORT						
Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
RWCH-12345678 135.00 lbs	Weak Point 10000 lbs-12345678 0.01 lbs	Ø 2.310 in →		← Fishing Neck @ 73.49 ft		74.37 ft
		Ø 3.625 in →		← Load Cell @ 70.68 ft ← BH Temperature @ 70.12 ft	6.25 ft	
		Ø 0.010 in* →				68.12 ft
SP Sub-10904995 60.00 lbs		Ø 3.625 in →		← SP @ 66.34 ft	3.74 ft	
				← Z-Accelerometer @ 63.93 ft		64.38 ft
GTET-11021139 165.00 lbs		Ø 3.625 in →		← GammaRay @ 58.32 ft	8.52 ft	





Mnemonic		Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max.Log. Speed (fpm)
RWCH	Releasable Wireline Cable Head		12345678	135.00	6.25	68.12	300.00
WP10K	Weak Point 10000 lbs		12345678	0.01	0.01	*	68.92
SP	SP Sub		10904995	60.00	3.74	64.38	300.00
GTET	Gamma Telemetry Tool		11021139	165.00	8.52	55.86	60.00
DSNT	Dual Spaced Neutron		11019643	174.00	9.69	46.17	60.00
DCNT	DSN Decentralizer		11660709	6.60	5.13	*	49.50
SDLT	Spectral Density Tool		12153526	360.00	10.81	35.36	60.00
SDLP	Density Insite Pad		10865881	65.00	2.55	*	37.57
Cs137	Logging Source, SDLT-I, 1.78 Ci - Cs137		00005155	1.00	0.80	*	37.80
MICP	Microlog Pad		12153526	8.00	1.00	*	37.86
BSAT	Borehole Sonic Array Tool		10939049	300.00	15.77	19.58	60.00
ACRt	Array Compensated True Resistivity Instrument Section		11055059	50.00	5.03	14.55	120.00
ACRt	Array Compensated True Resistivity Sonde Section		11038385	200.00	14.22	0.33	120.00
BLNS	Bull Nose		12345678	5.00	0.33	0.00	300.00
Total				1,529.61	74.37		
* Not included in Total Length and Length Accumulation.							
Data: K3_JAMES\0001 RWCH_GTET-DSNT-SDLT-BSAT-ACRT\IDLE						Date: 23-May-18 13:03:53	