

KERR-MCGEE OIL & GAS ONSHORE LP				HEIN 1-1				WATTENBERG				WELD				CO			
COMPANY				WELL				FIELD				COUNTY				STATE			
Location				LAT: 40.082061°				LONG: -104.836625°				API No. 05123350680000				Other Services:			
SHL 1956' FNL & 1857' FEL SWNE				RWCH				GTET				ACRT							
BHL 526' FNL & 531' FEL NENE ESTIMATED																			
Sect. 1				Twp. 1N				Rge. 67W											
Permanent Datum				GL				Elev. 4896.0 ft				Elev. K.B.				4911.0 ft			
Log measured from				KB				15.0 ft above perm. Datum				D.F.				4911.0 ft			
Drilling measured from				KB								G.L.				4896.0 ft			
Date				23-Apr-12															
Run No.				ONE															
Depth - Driller				8028.00 ft															
Depth - Logger				8006.0 ft															
Bottom - Logged Interval				7983 ft															
Top - Logged Interval				CASING															
Casing - Driller				8.625 in @ 924.0 ft				@								@			
Casing - Logger				924.0 ft															
Bit Size				7.875 in				@								@			
Type Fluid in Hole				WATER BASED MUD															
Density				8.8 ppq				26.00 s/qt											
PH				8.00 pH				0.0 cpm											
Source of Sample				MUD CELL															
Rm @ Meas. Temperature				0.560 ohmm @ 105.16 degF				@								@			
Rmf @ Meas. Temperature				0.53 ohmm @ 75.00 degF				@								@			
Rmc @ Meas. Temperature				0.964 ohmm @ 75.00 degF				@								@			
Source Rmf				CHART				CHART											
Rm @ BHT				0.26 ohmm @ 232.0 degF				@								@			
Time Since Circulation				4.0 hr															
Time on Bottom				23-Apr-12 16:03															
Max Rec. Temperature				232.0 degF @ 8006.0 ft				@								@			
Equipment				11454566				BRIGHTON											
Recorded By				J. PINKETT				A. ZWALL											
Witnessed By				B. BENJAMIN				R. BRACKMAN											

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Service Ticket No.: N/A						API Serial No.: 05123350680000						PGM Version: WL INSITE R3.4.4 (Build 2)																	
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		1.25" S.O.				N/A							
Rmc @ Meas. Temp.				@				@						E2584-S2585															
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.		11215095				Serial No.						Serial No.		M319_P123_BLUE				Serial No.		11277440									
Model No.		GTET				Model No.						Model No.		SDLT				Model No.		DSNT									
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		Cs 137				Source Type		Am241Be									
Length		8"				LSA [Y/N]						Serial No.		5256GW				Serial No.		DSN-430									
Distance to Source		10'				FWDA [Y/N ]						Strength		1.5 Ci				Strength		15 Ci									
LOGGING DATA																													
GENERAL						GAMMA						ACOUSTIC						DENSITY						NEUTRON					

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	8.800	ppg
	SHARED	WAGT	Weighting Agent	Natural	
	SHARED	BSAL	Borehole salinity	550.00	ppm
	SHARED	FSAL	Formation Salinity NaCl	0.00	ppm
	SHARED	KPCT	Percent K in Mud by Weight?	0.00	%
	SHARED	RMUD	Mud Resistivity	0.560	ohmm
	SHARED	TRM	Temperature of Mud	105.2	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	8006.00	ft
	SHARED	BHT	Bottom Hole Temperature	232.0	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	
	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	
	DSNT	DNOK	Process DSN?	Yes	

DSNT	DNOK	Process DSN?	No	
DSNT	NLIT	Neutron Lithology	Limestone	
DSNT	DNOS	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	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
Microlog Pad	MLOK	Process MicroLog Outputs?	Yes	
ACRt Sonde	RTOK	Process ACRt?	Yes	
ACRt Sonde	MNSO	Minimum Tool Standoff	1.25	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	

BOTTOM

Data: HEIN 1-1\0001 ANADARKO\_21004.01 23-Apr-12 17:11 Up

Date: 23-Apr-12 17:12:09

**HALLIBURTON**

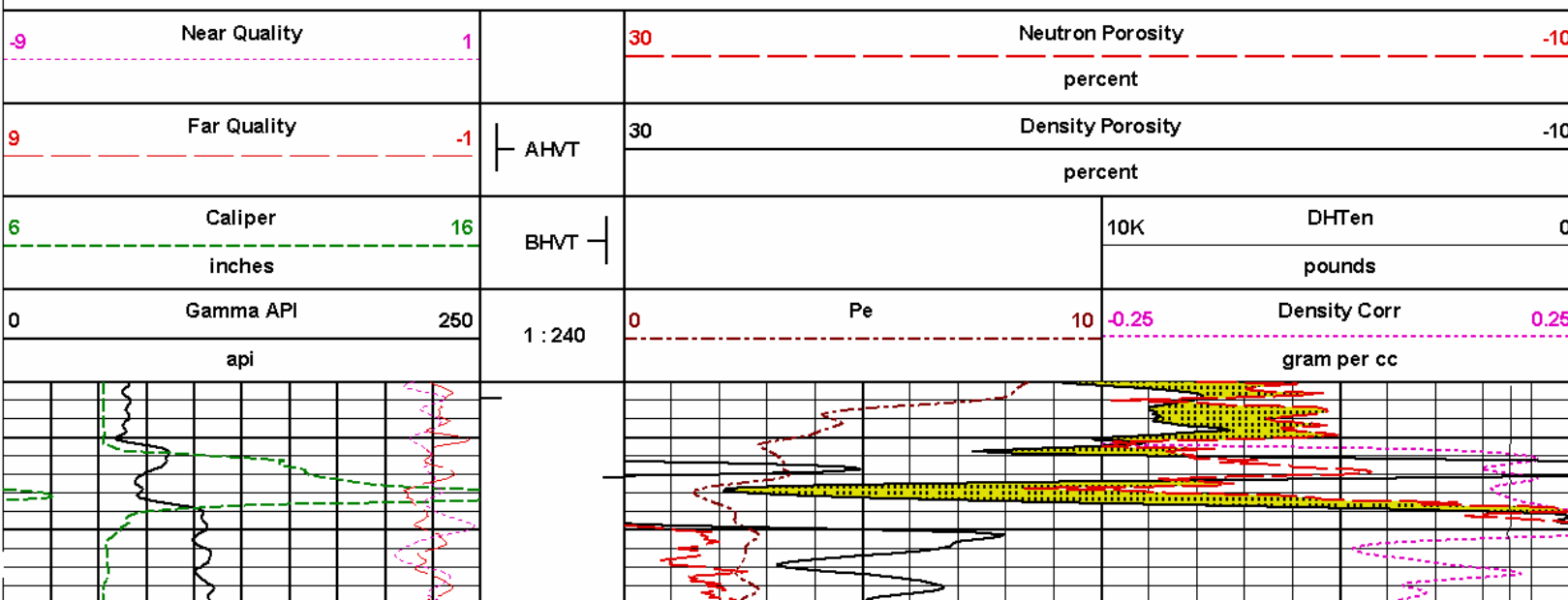
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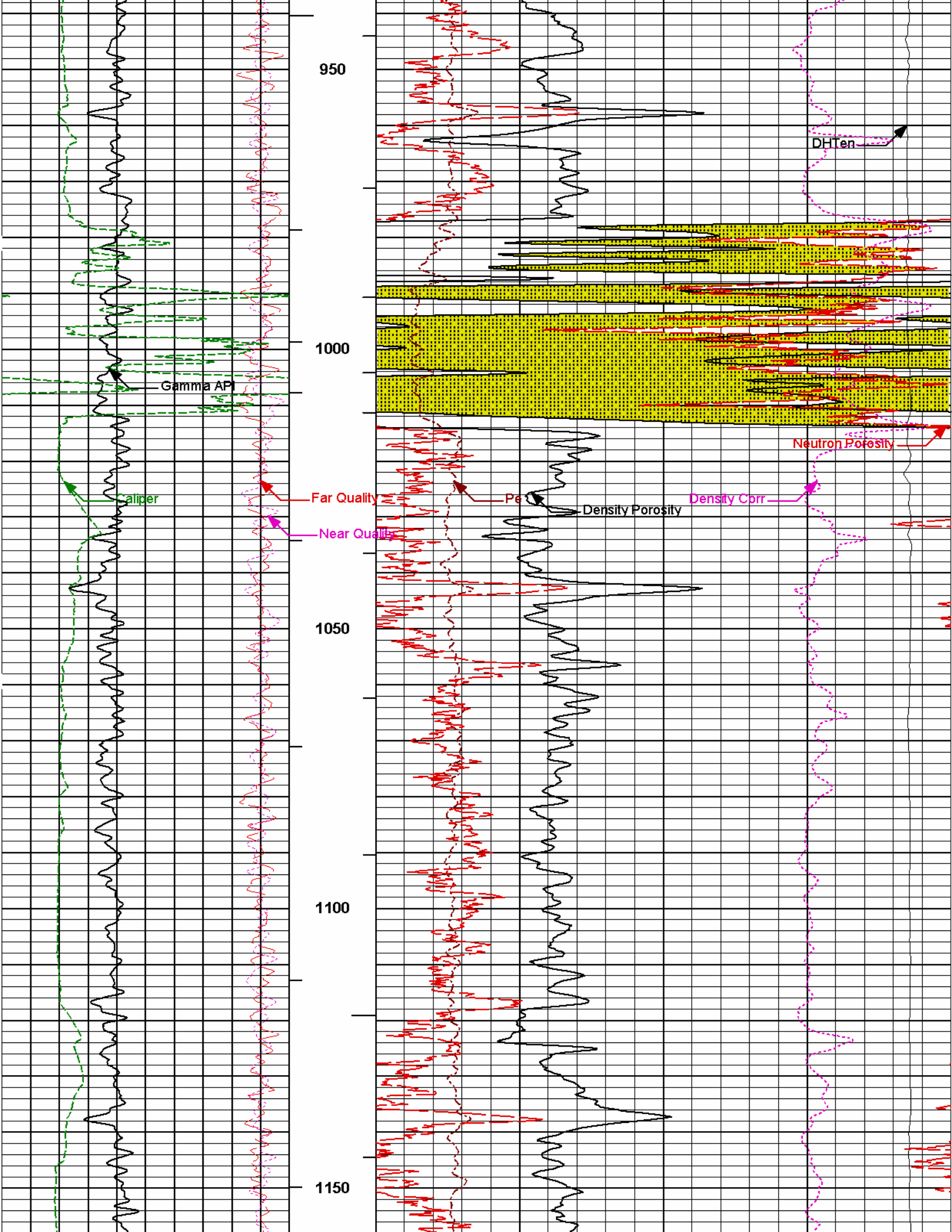
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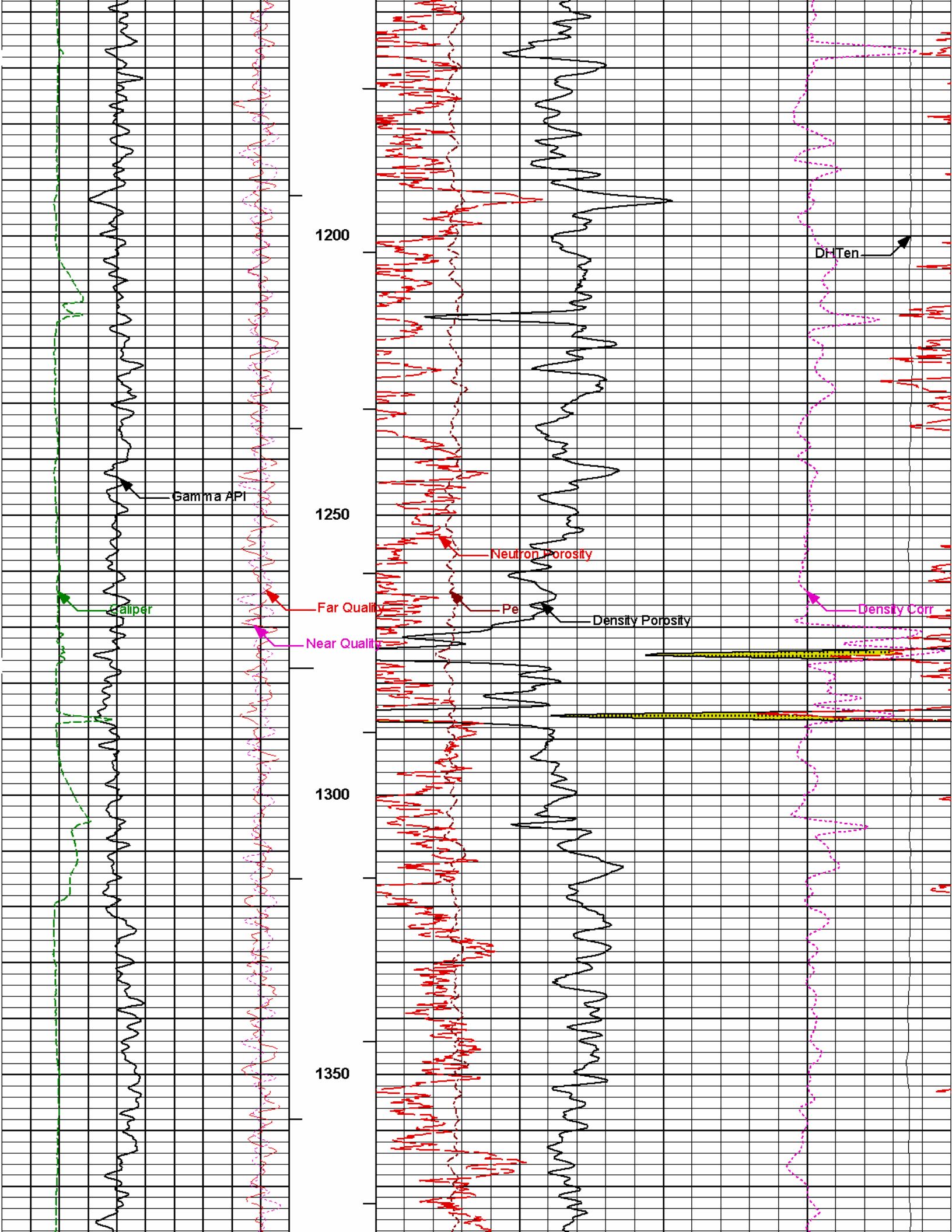
Data: HEIN 1-1\Well Based\MAIN

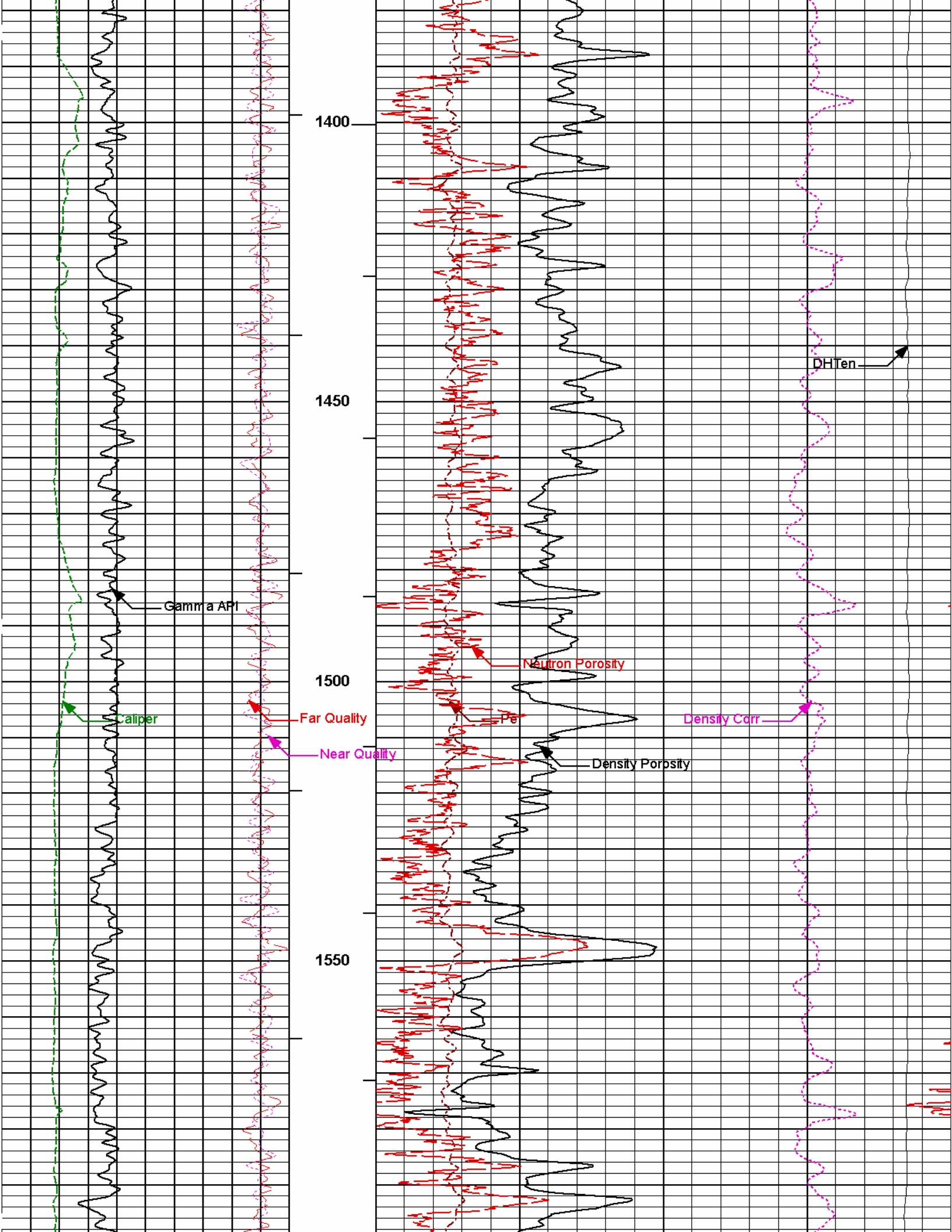
Plot File: \P\PORO\IQ\_POROSITY\_5IN\_RM

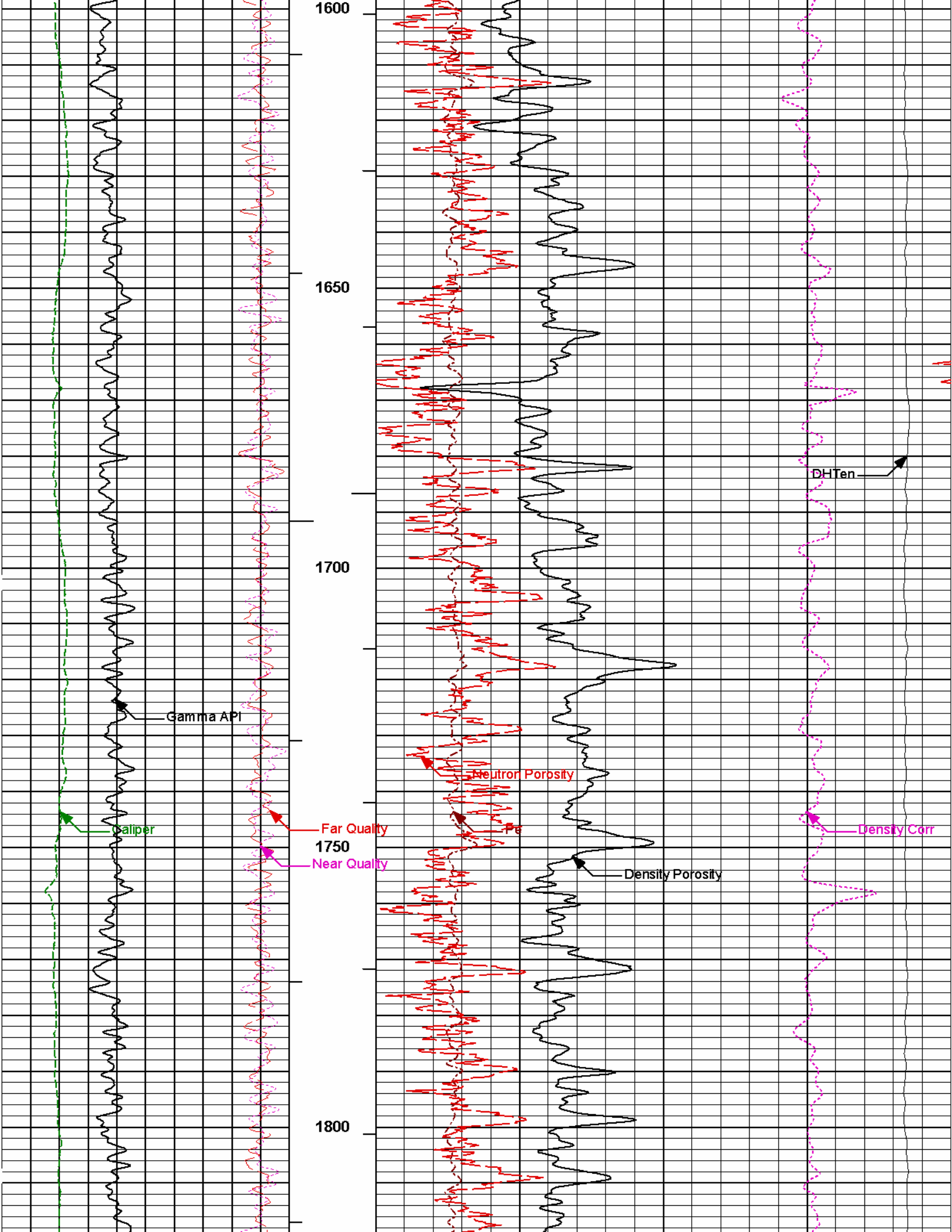
MAIN PASS 5" = 100'



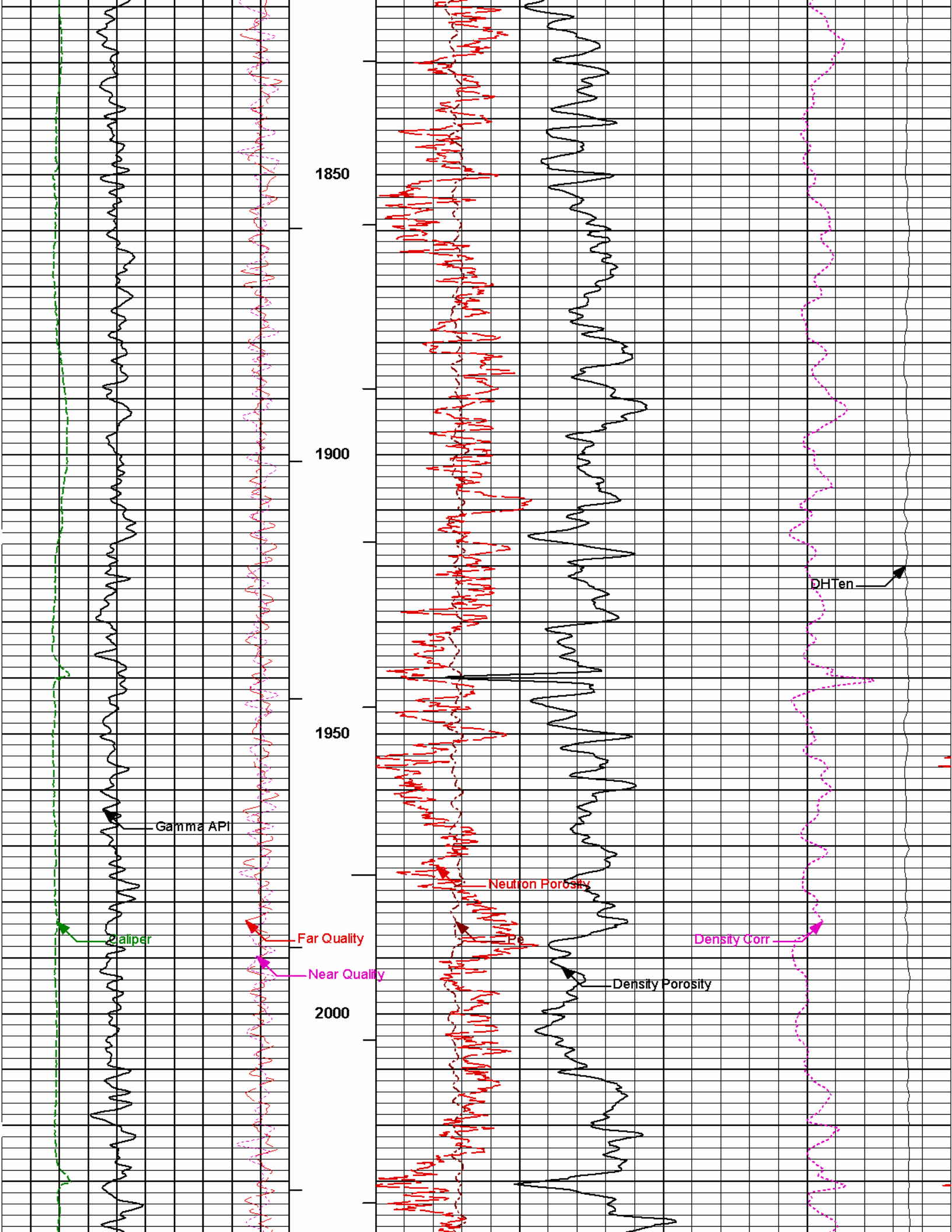




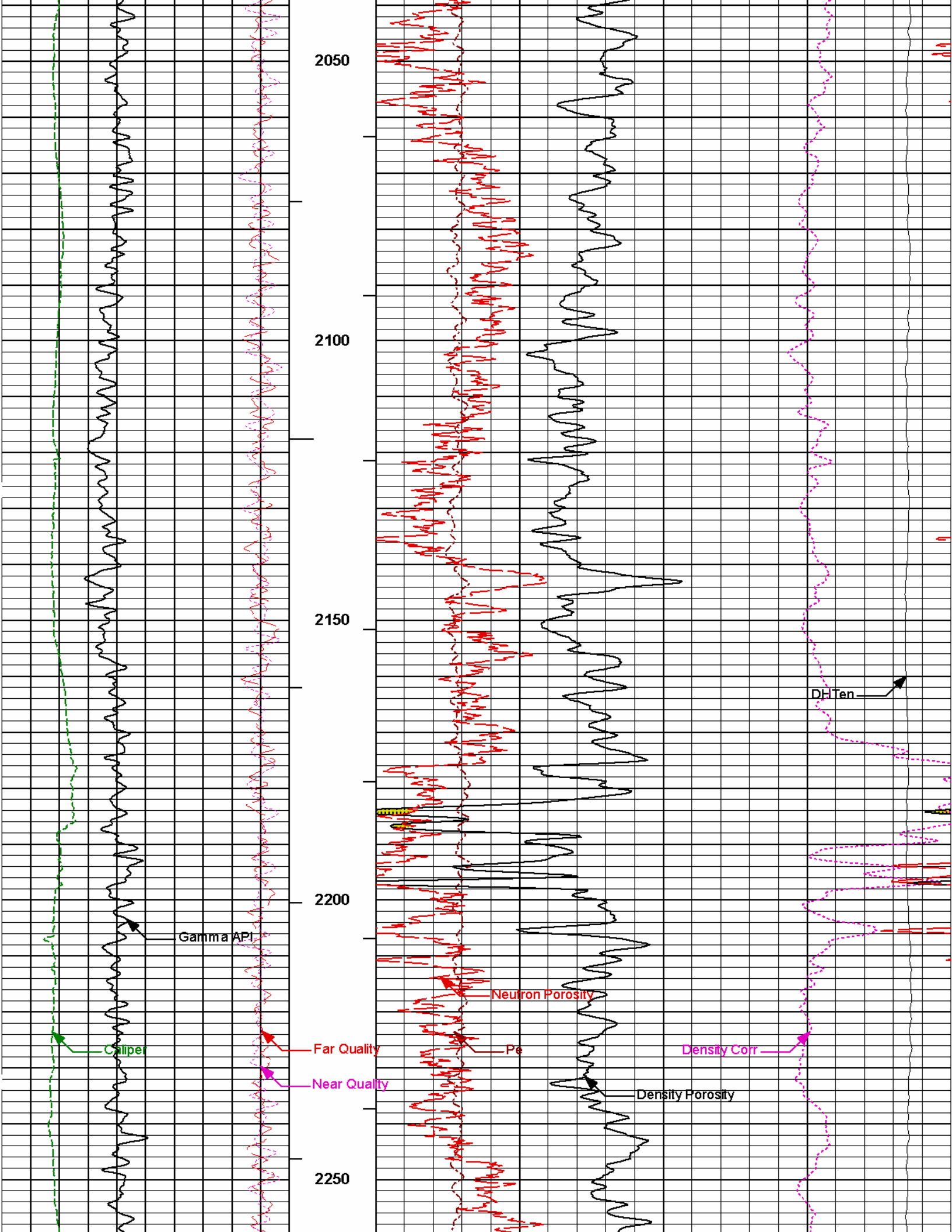


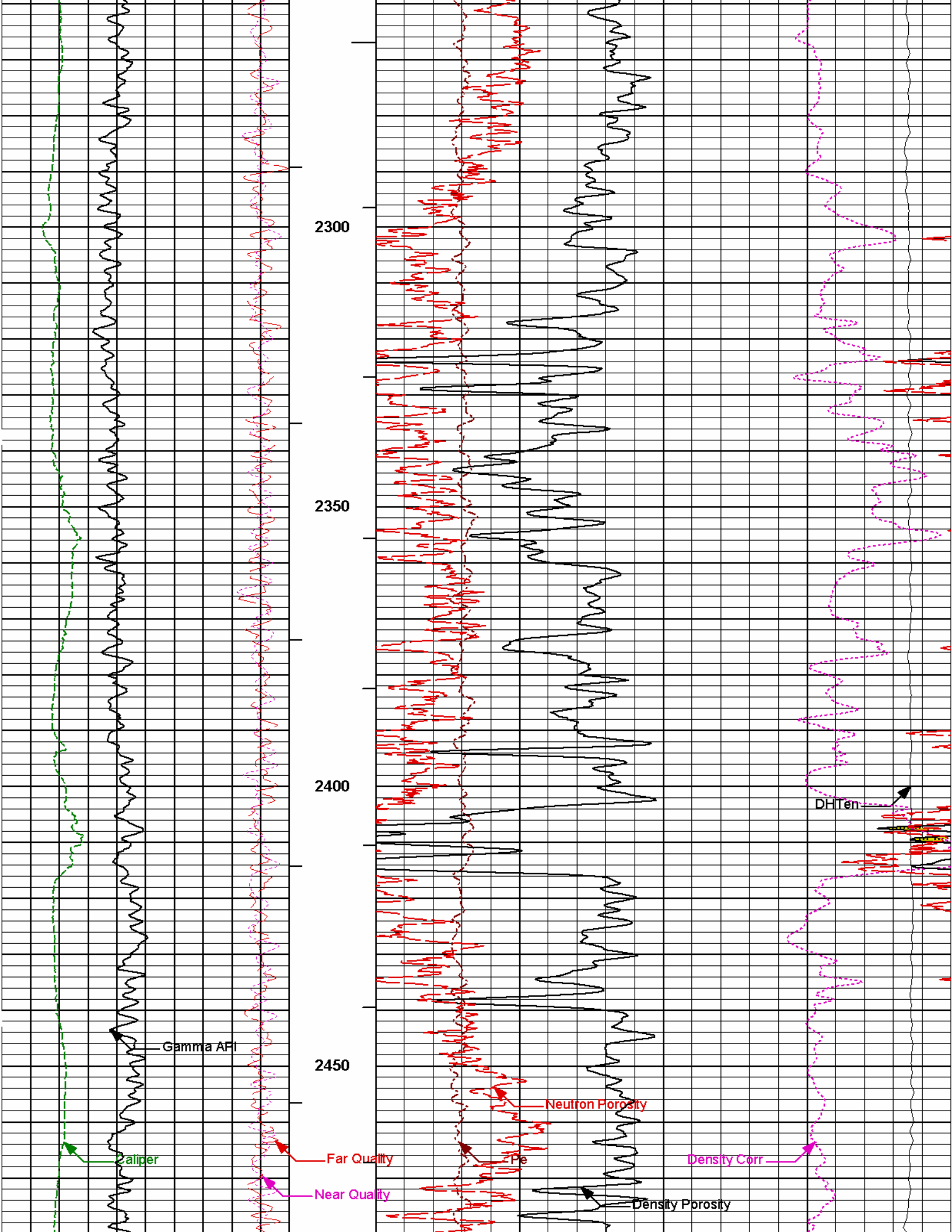


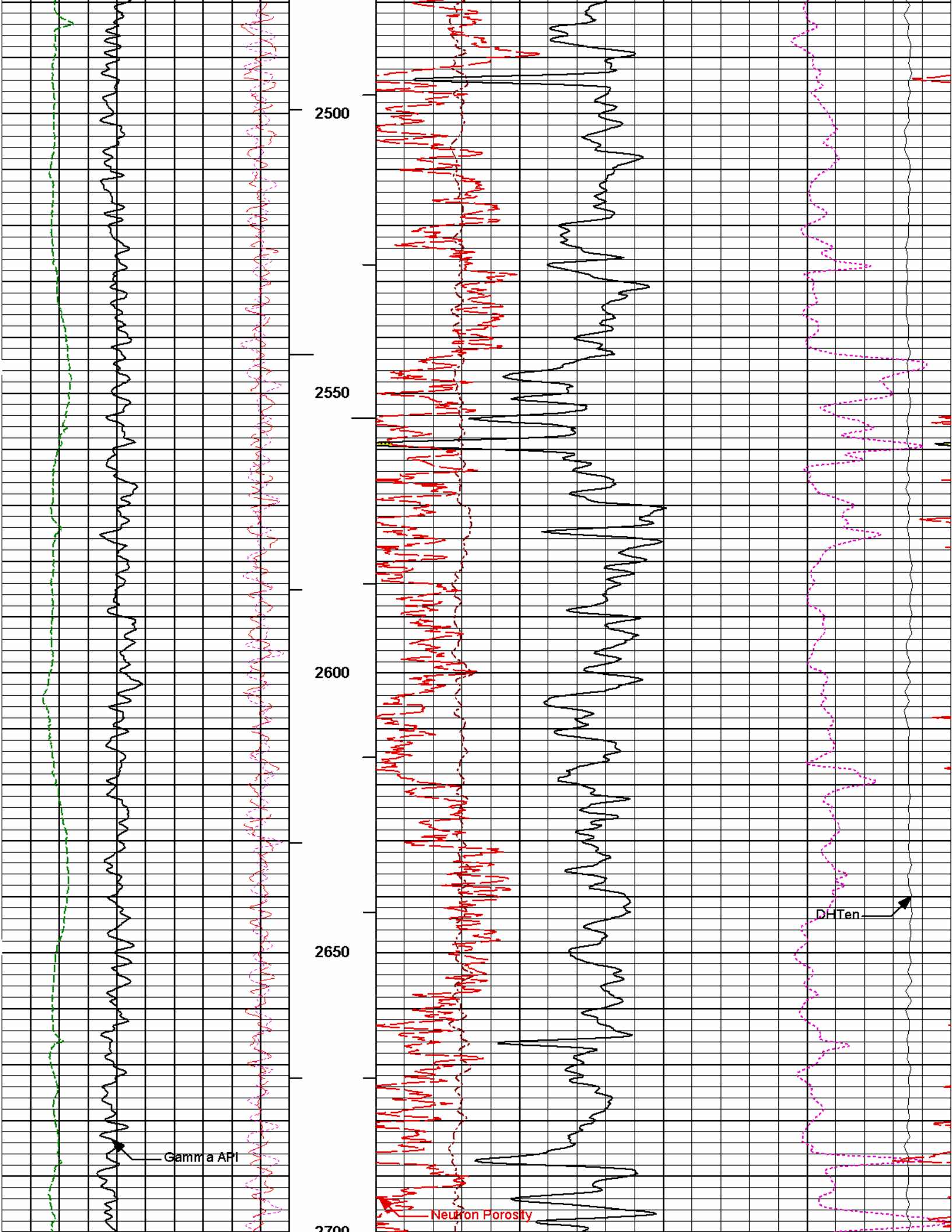


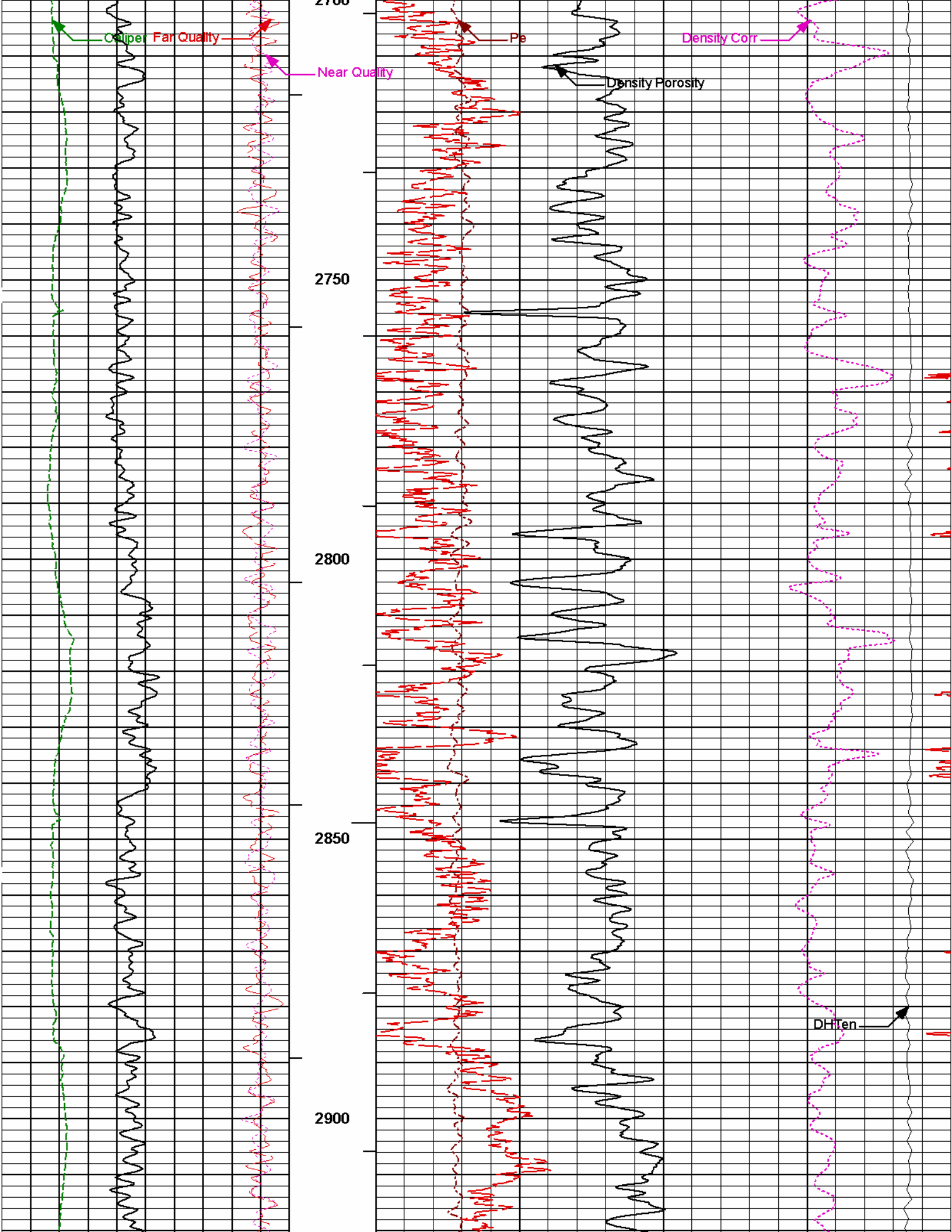


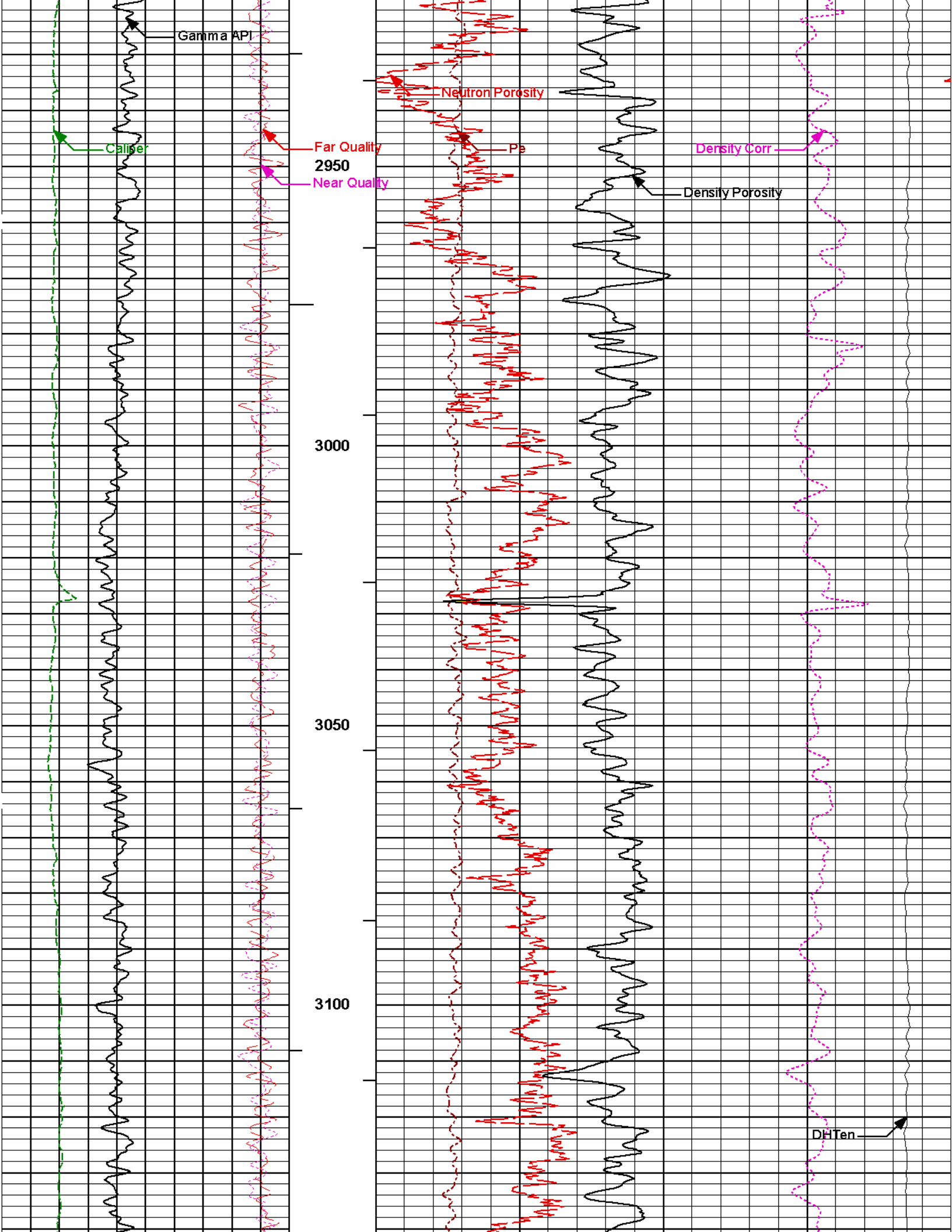


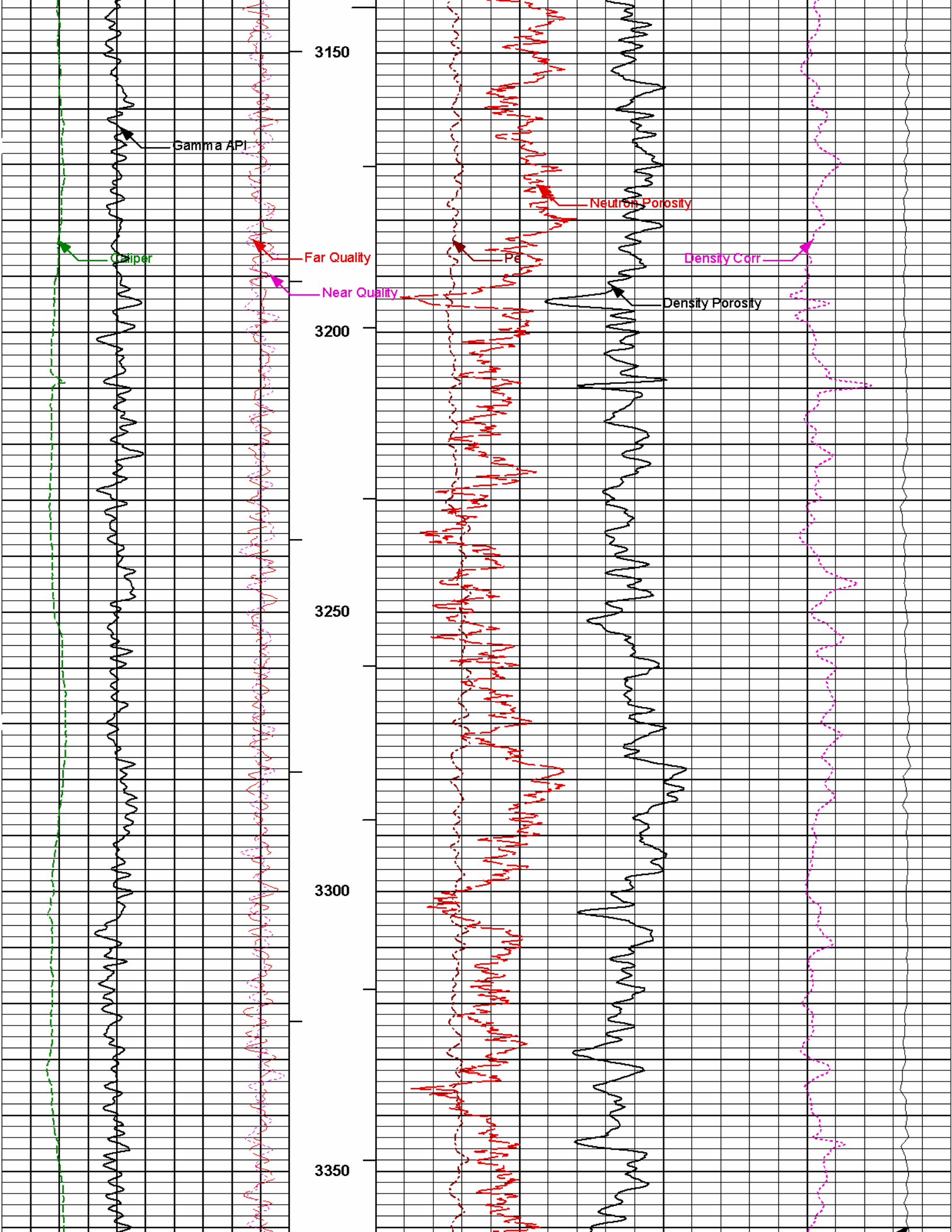


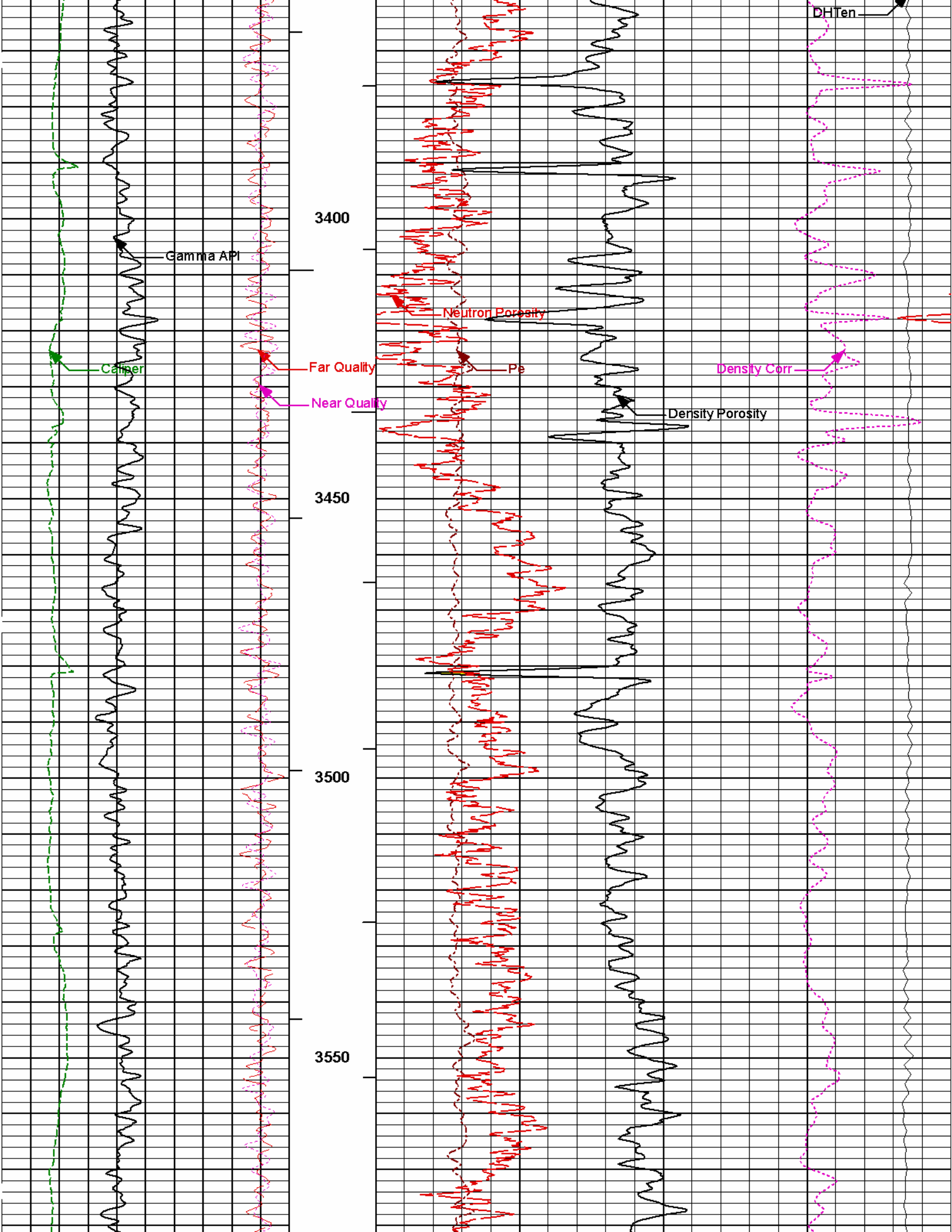




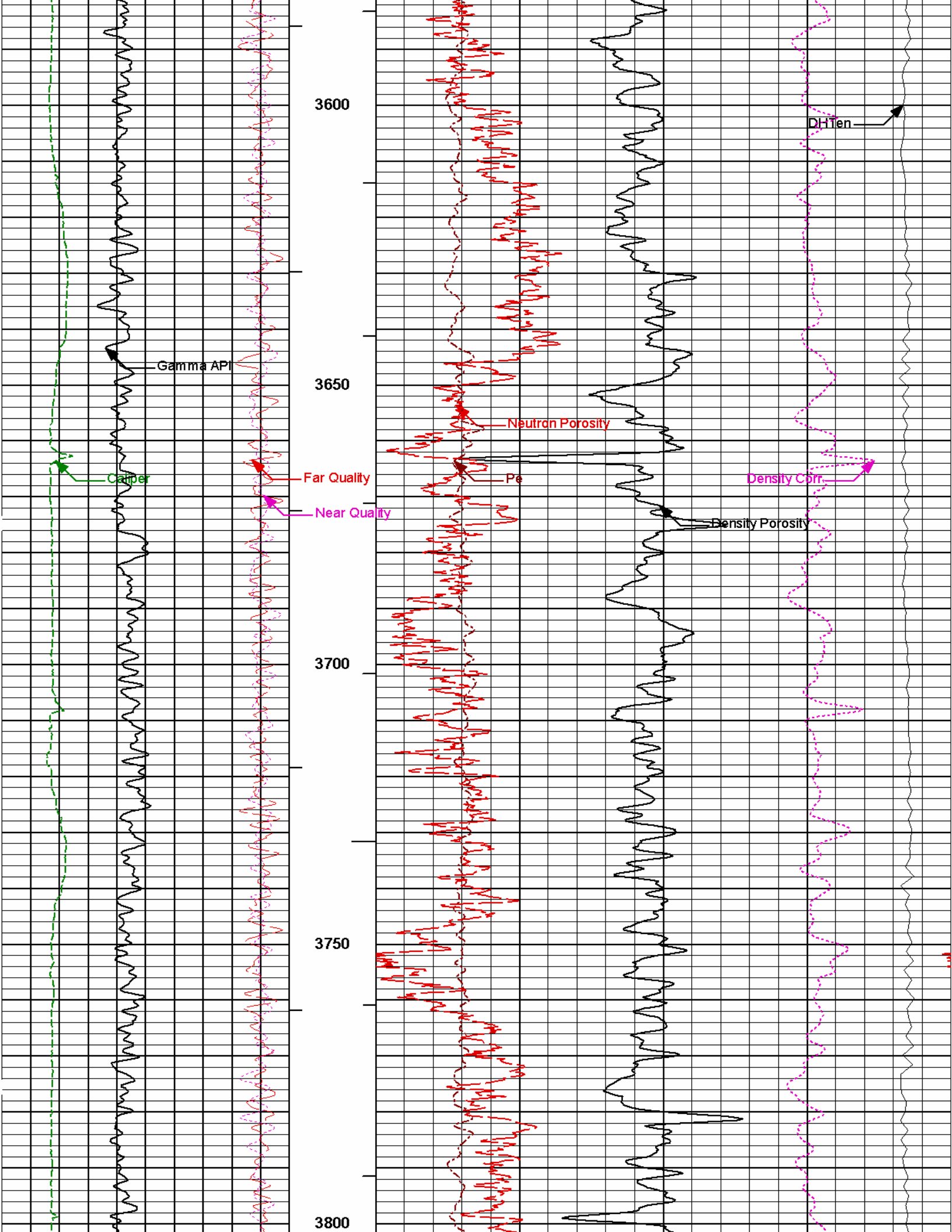


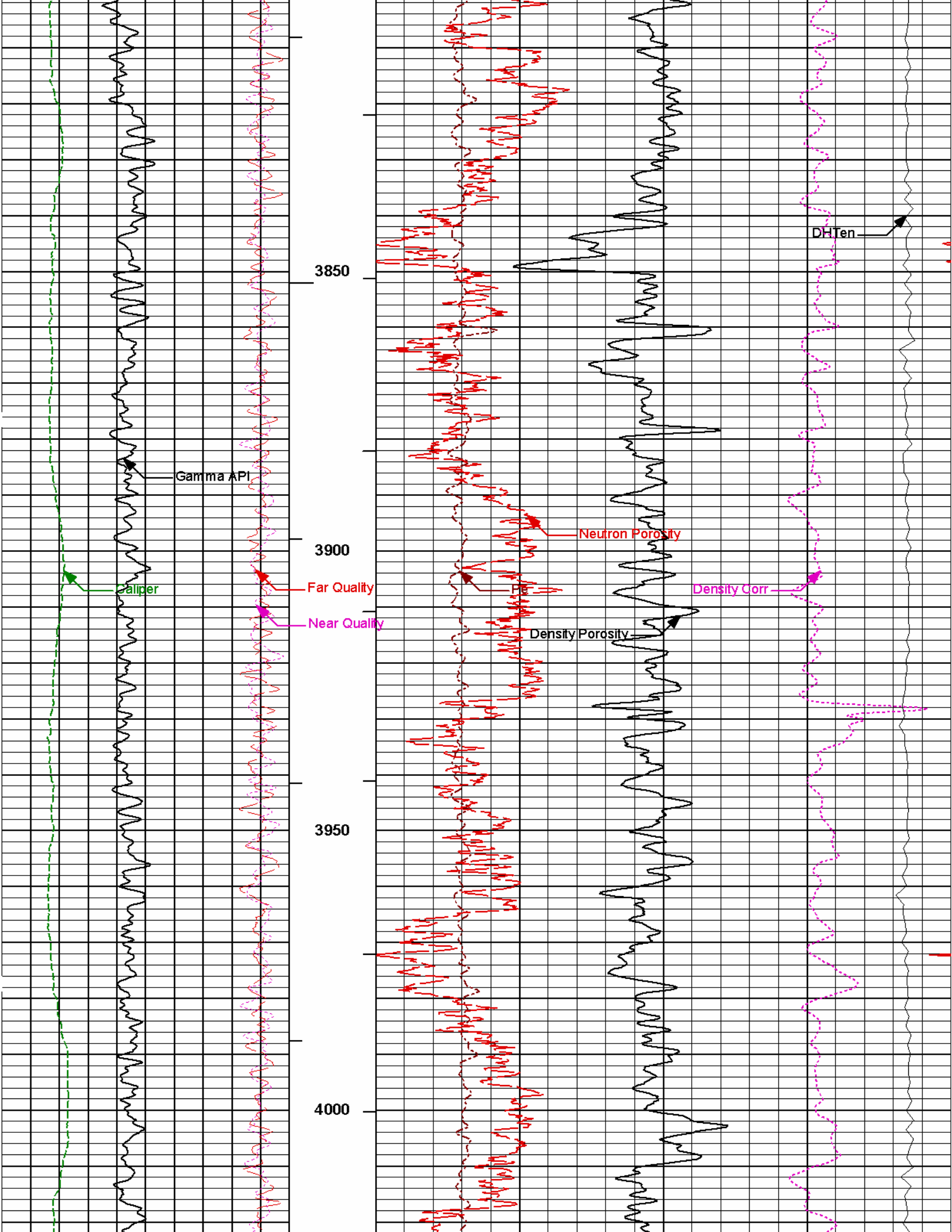


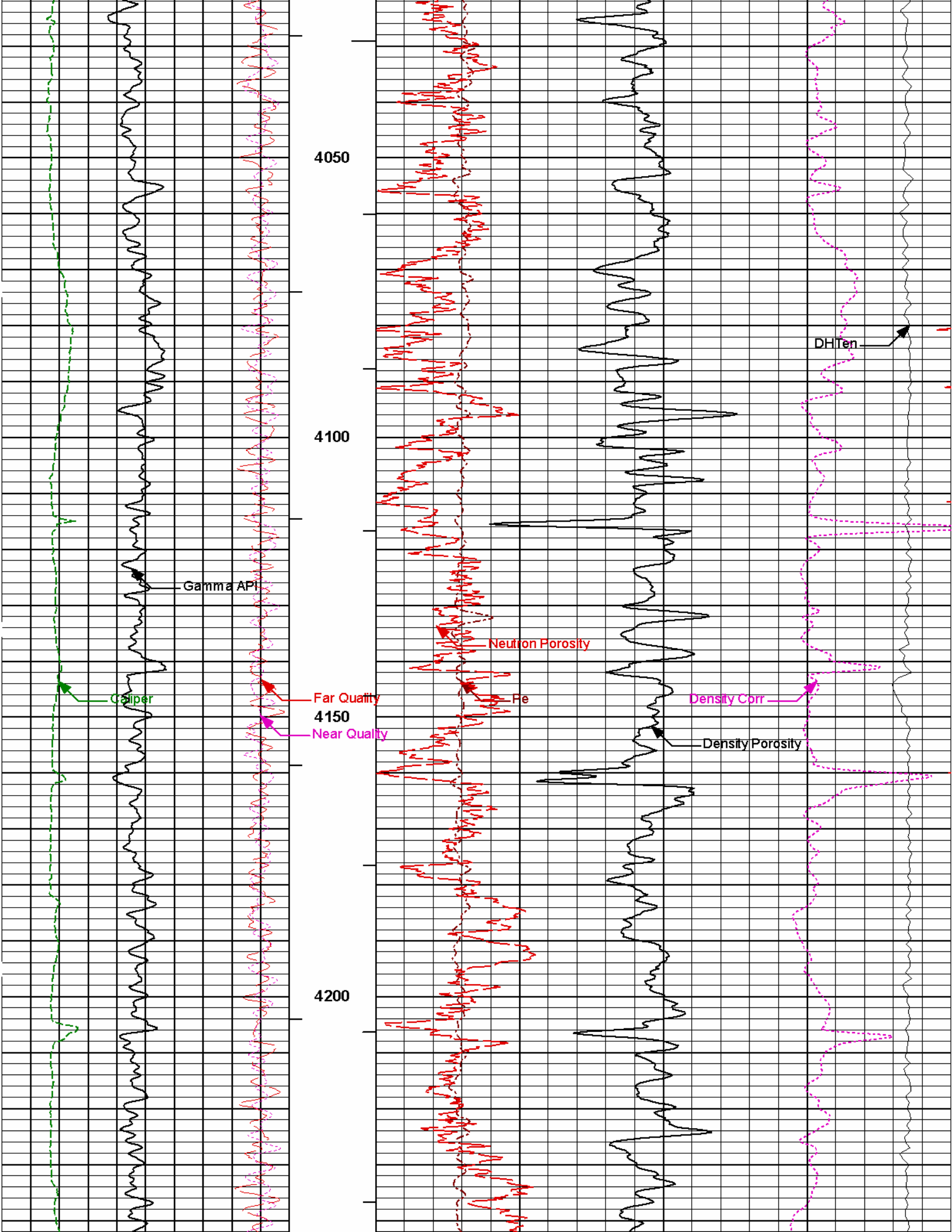


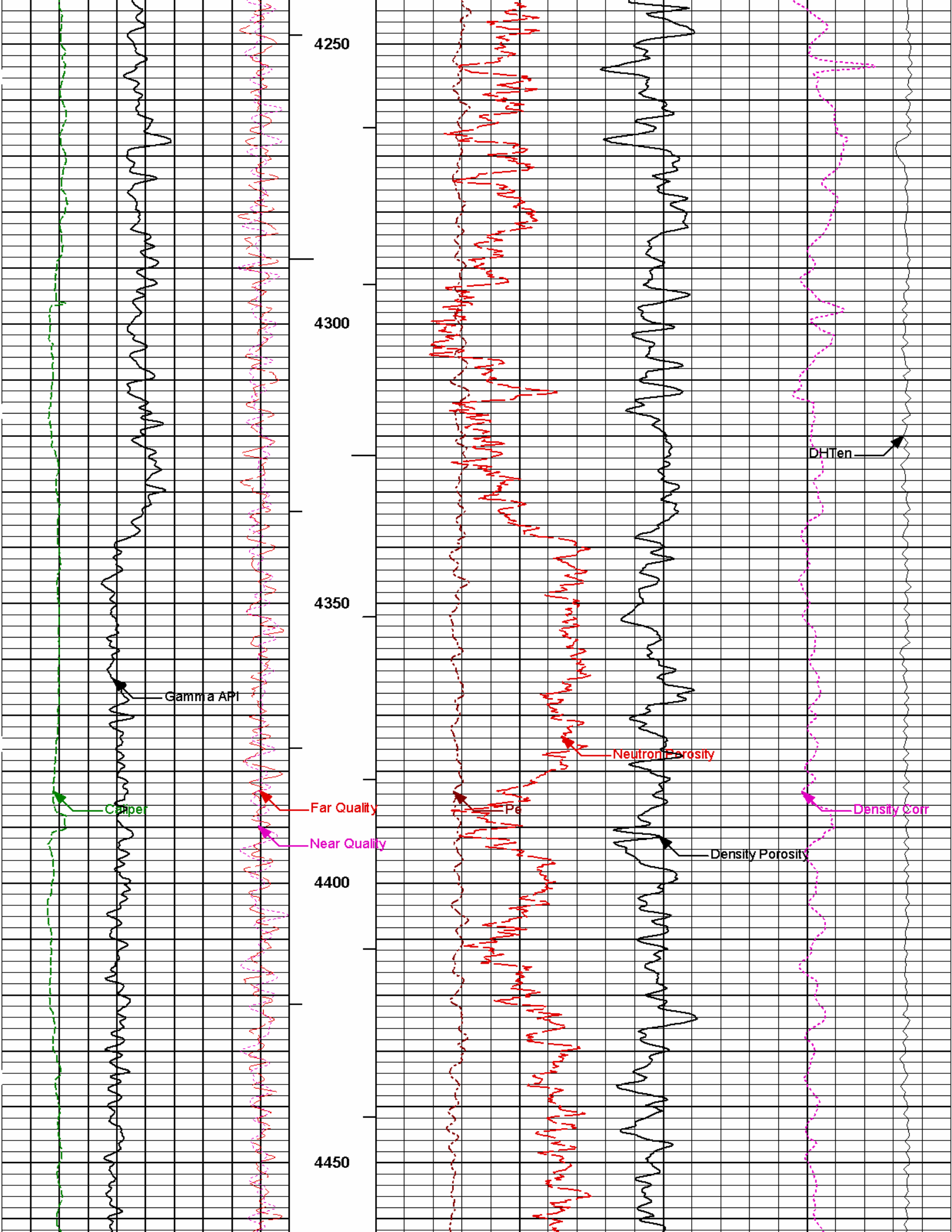


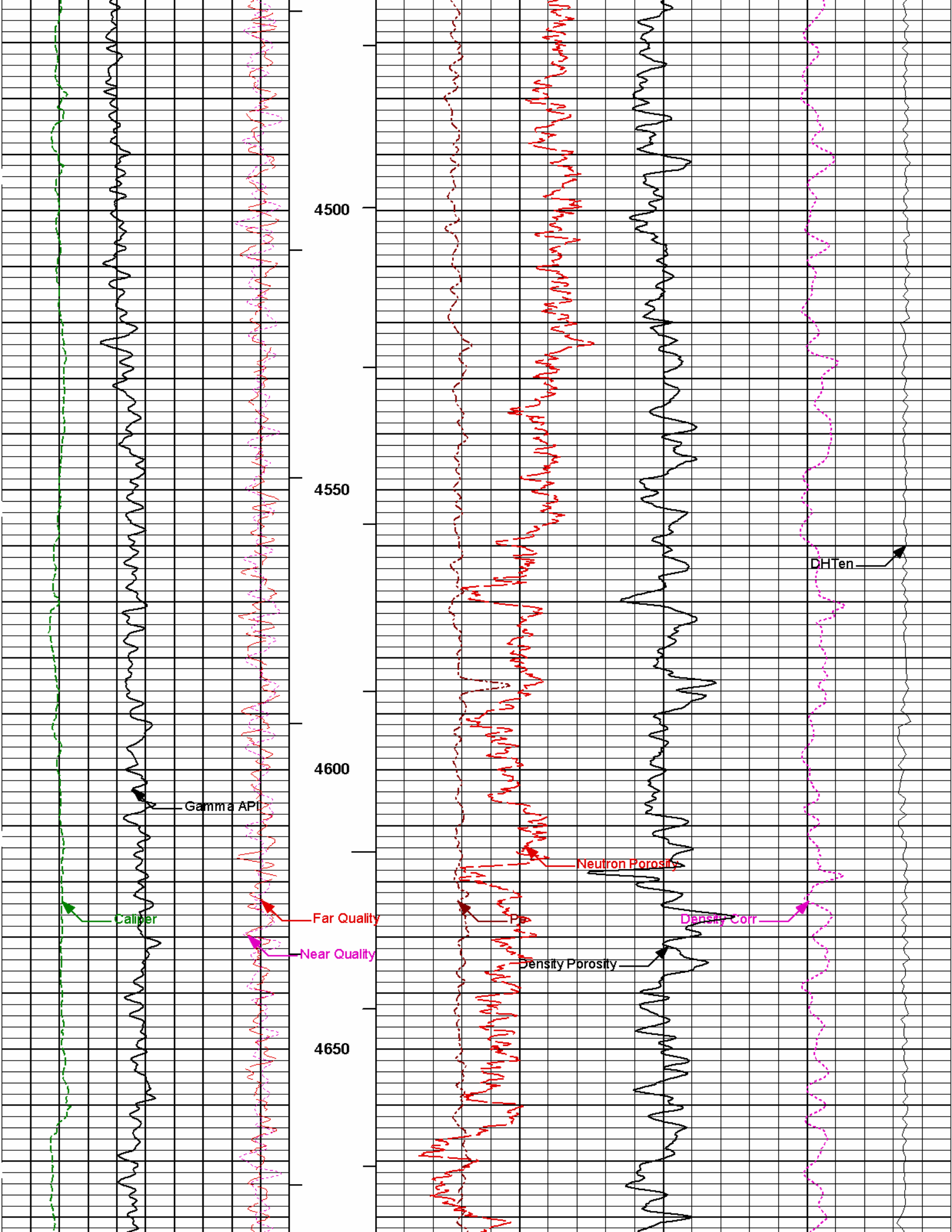


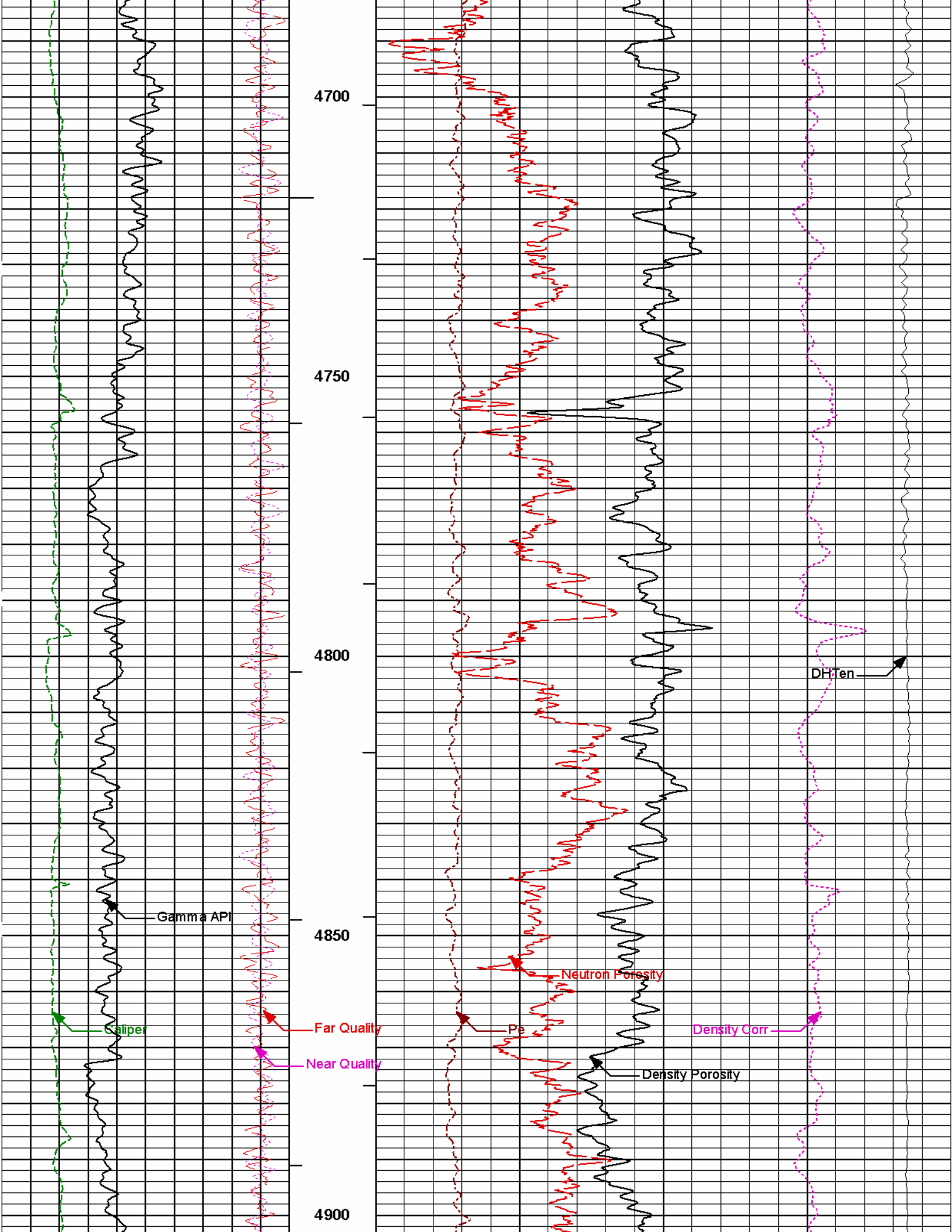


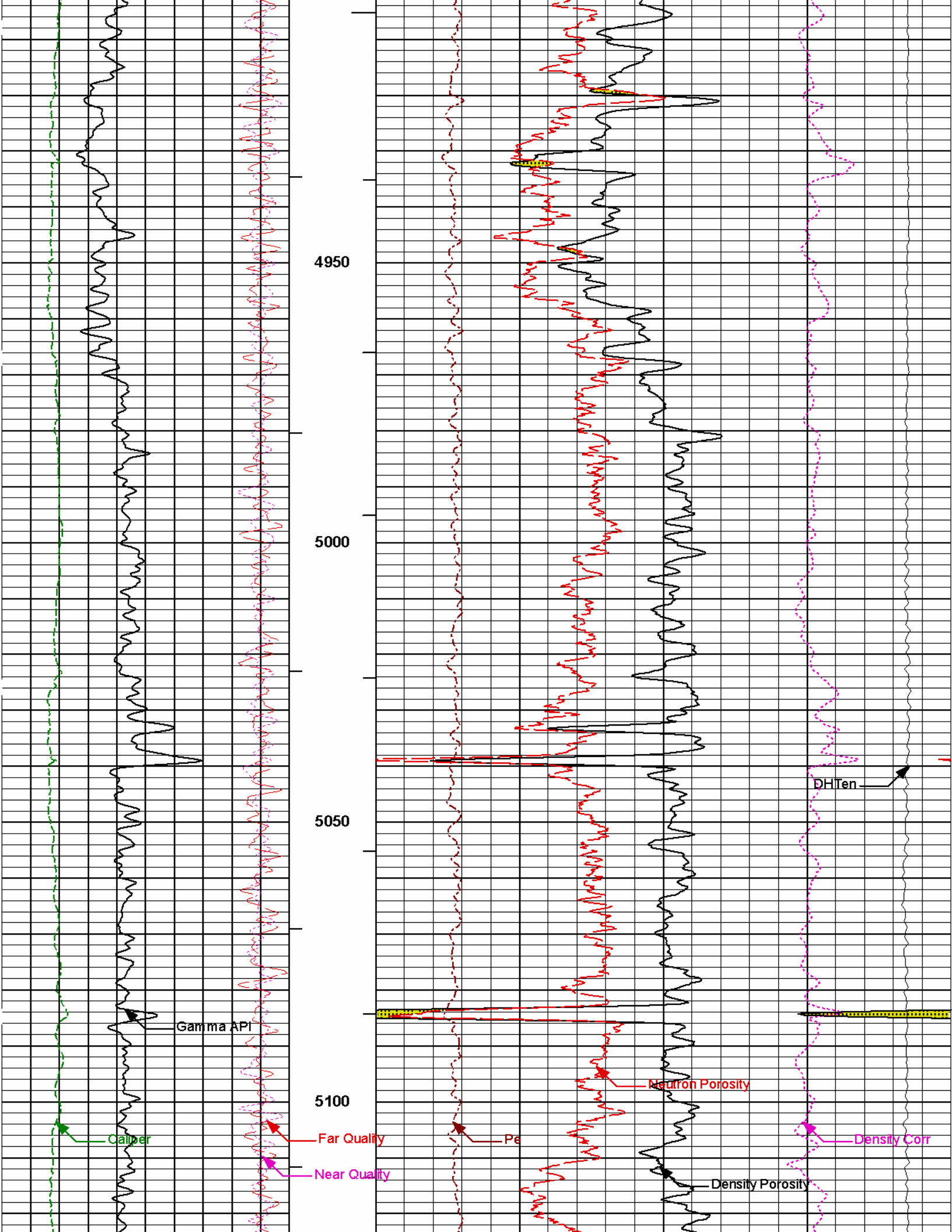




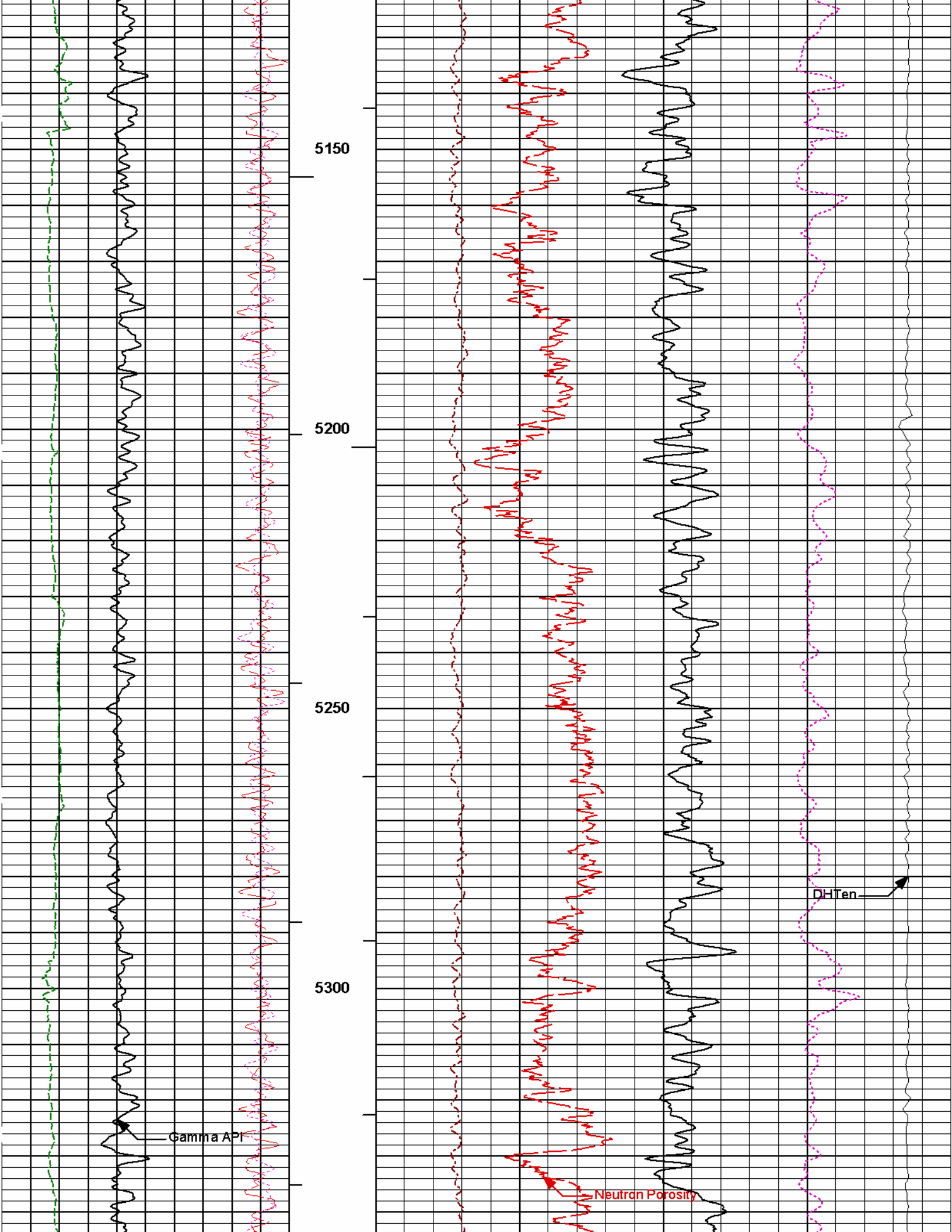


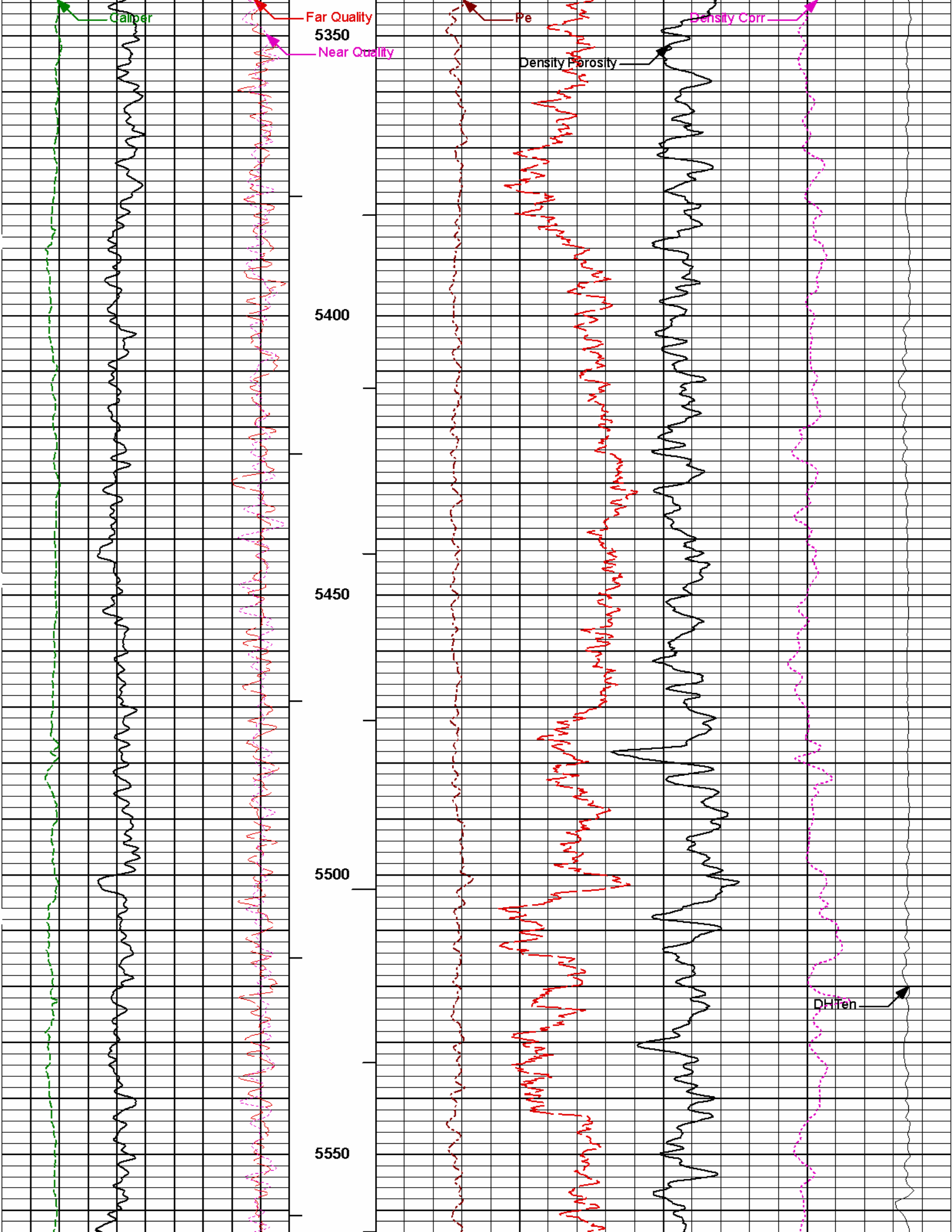


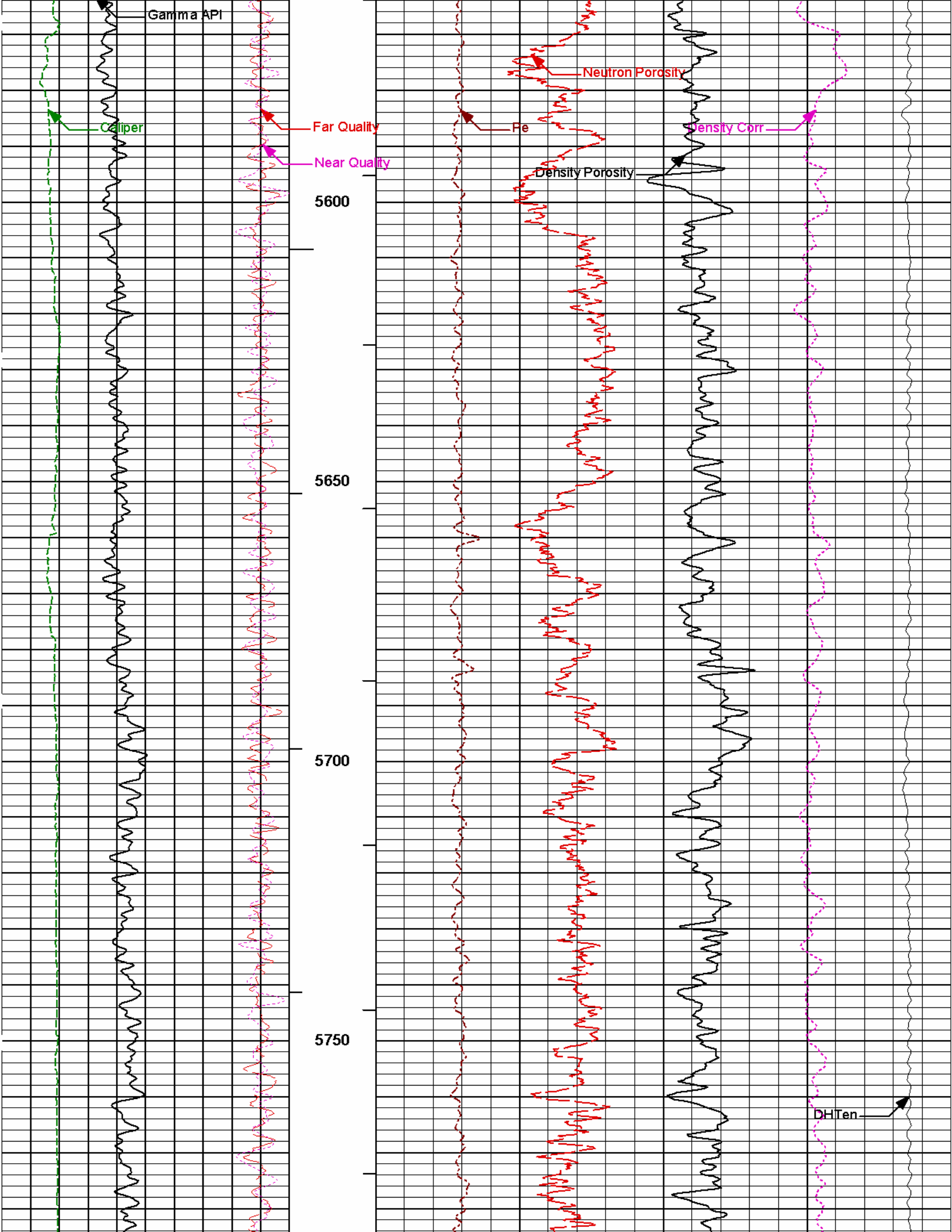


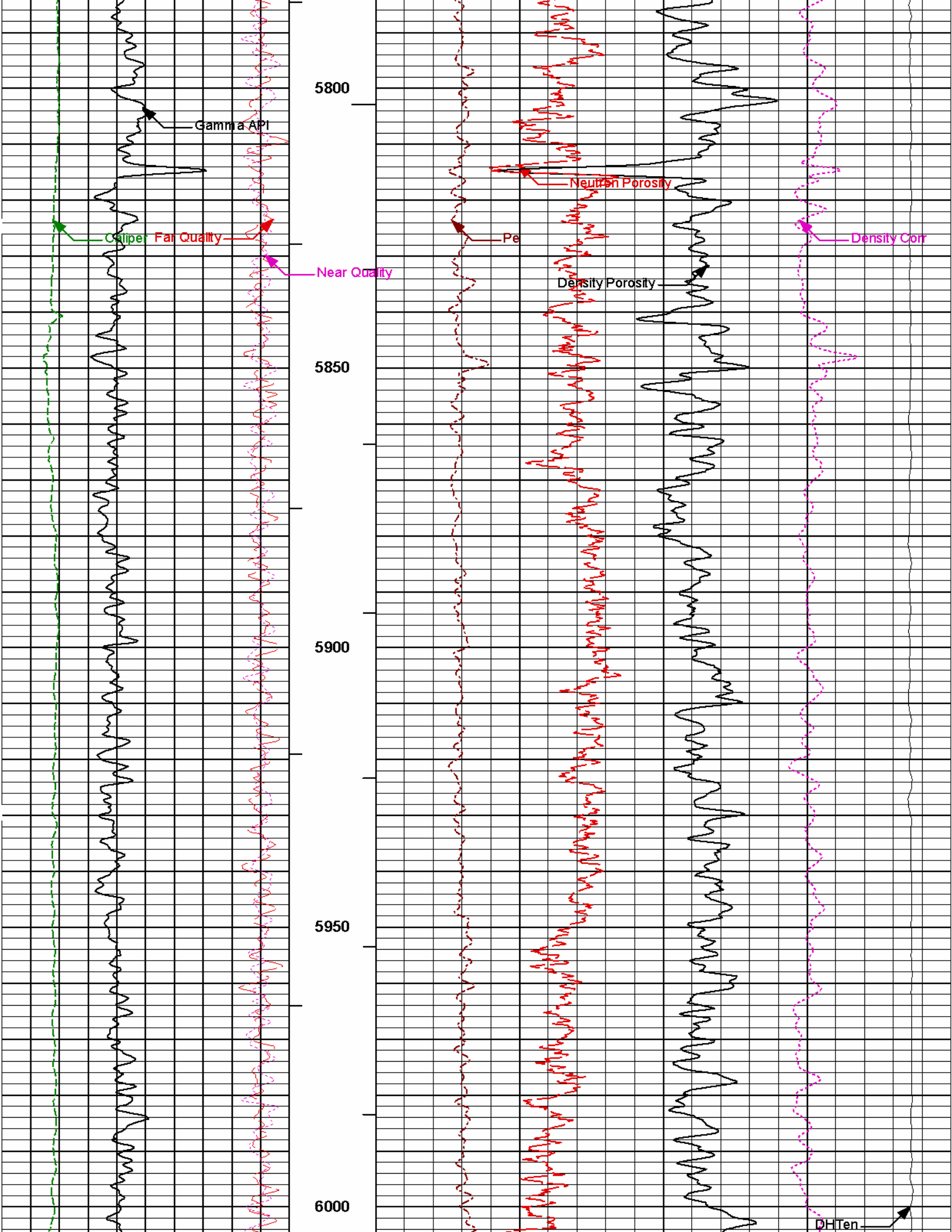


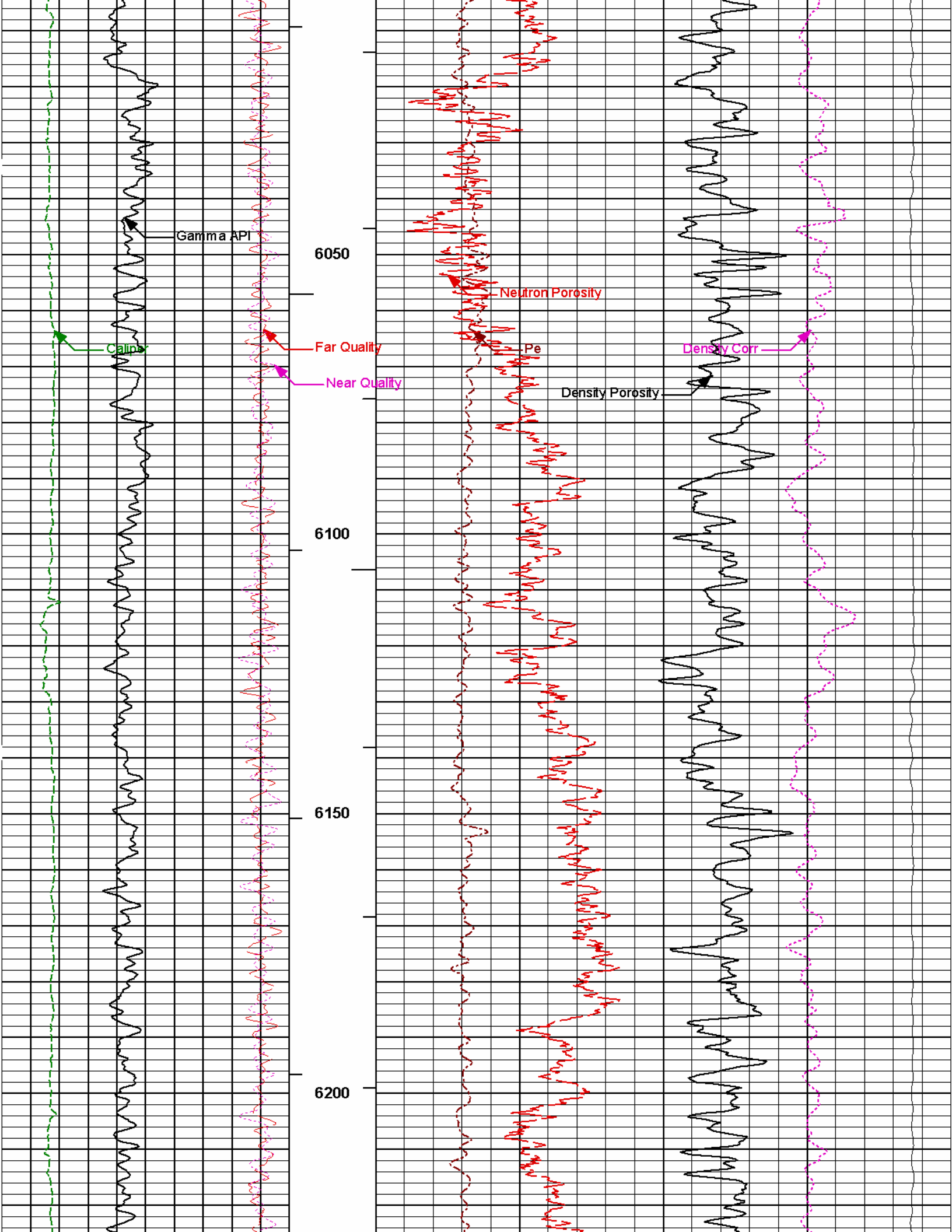


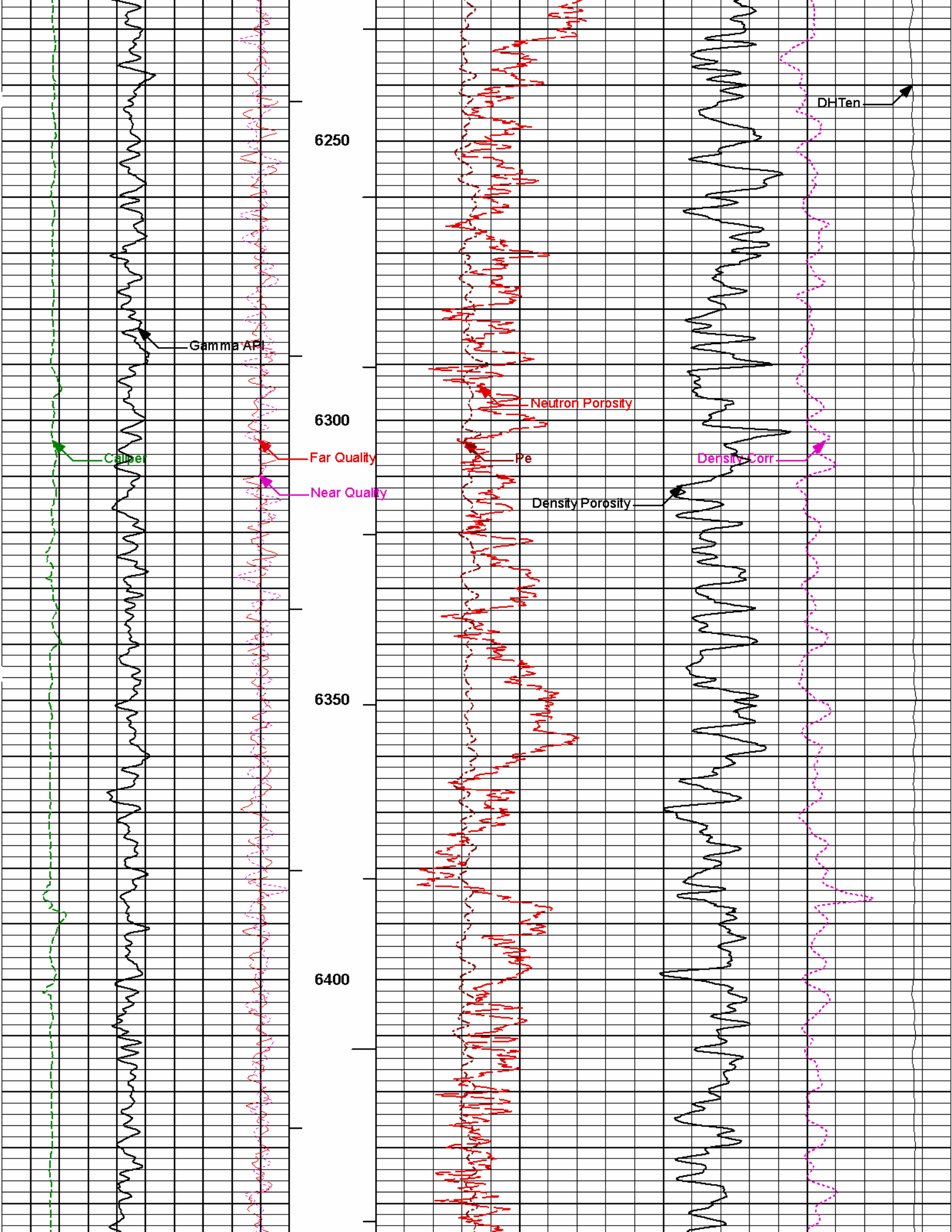


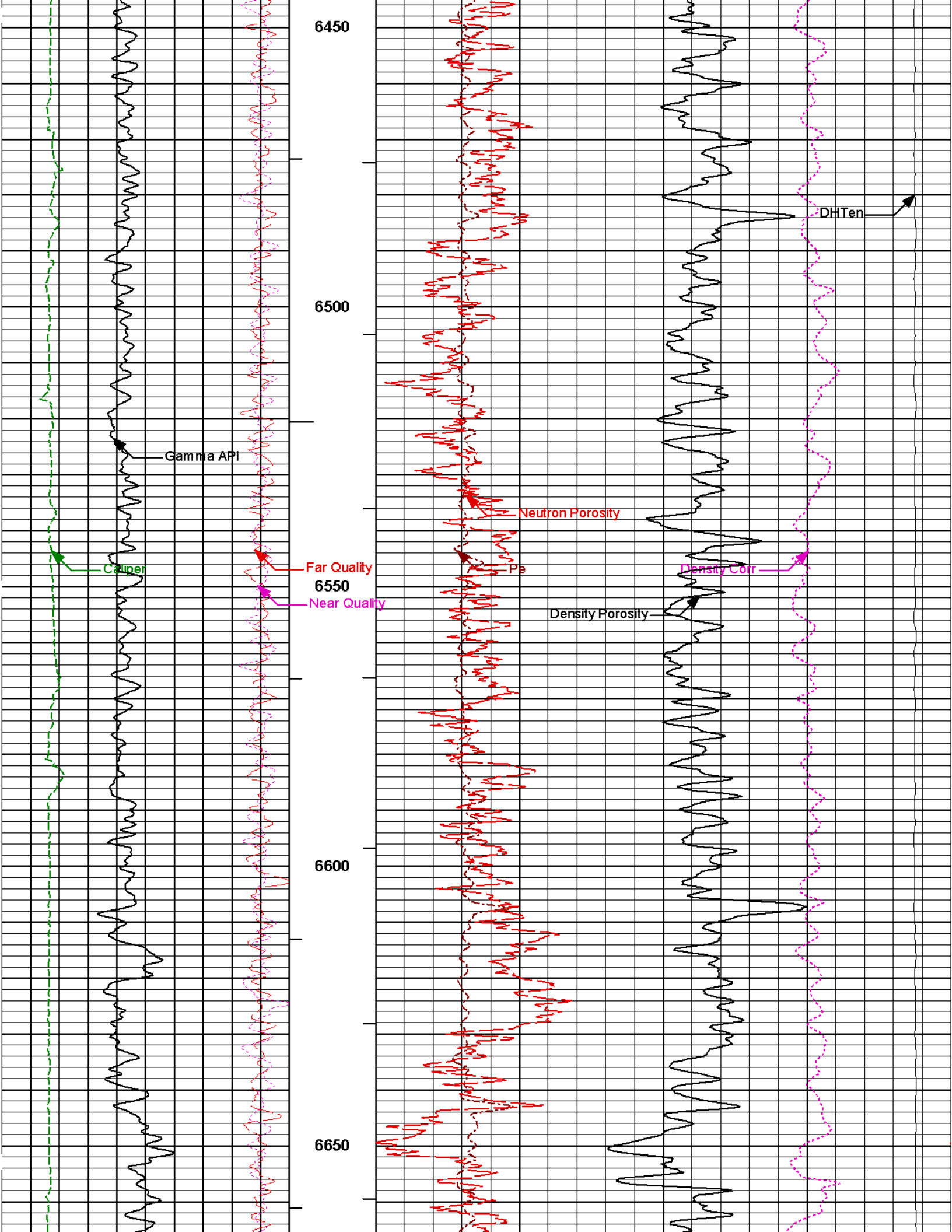




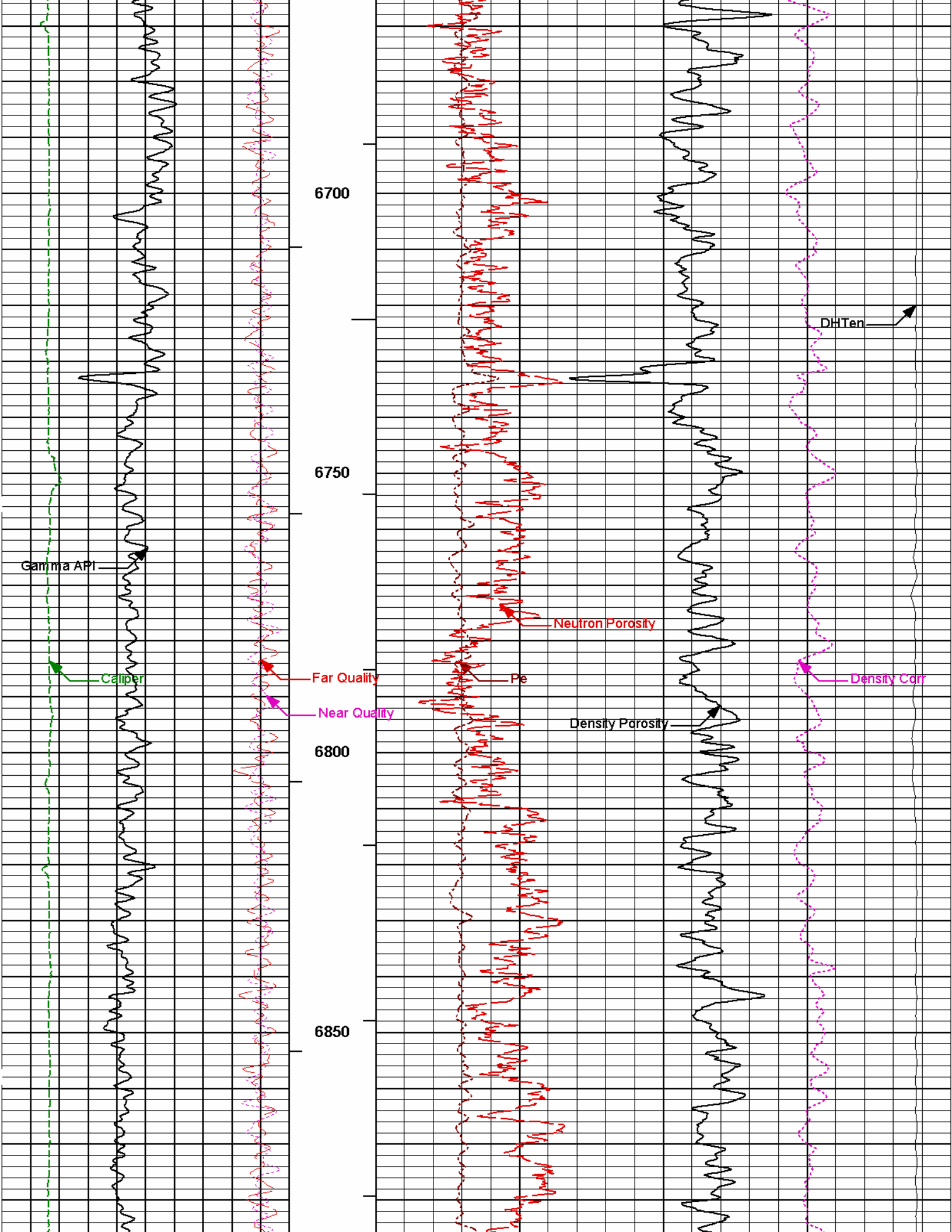


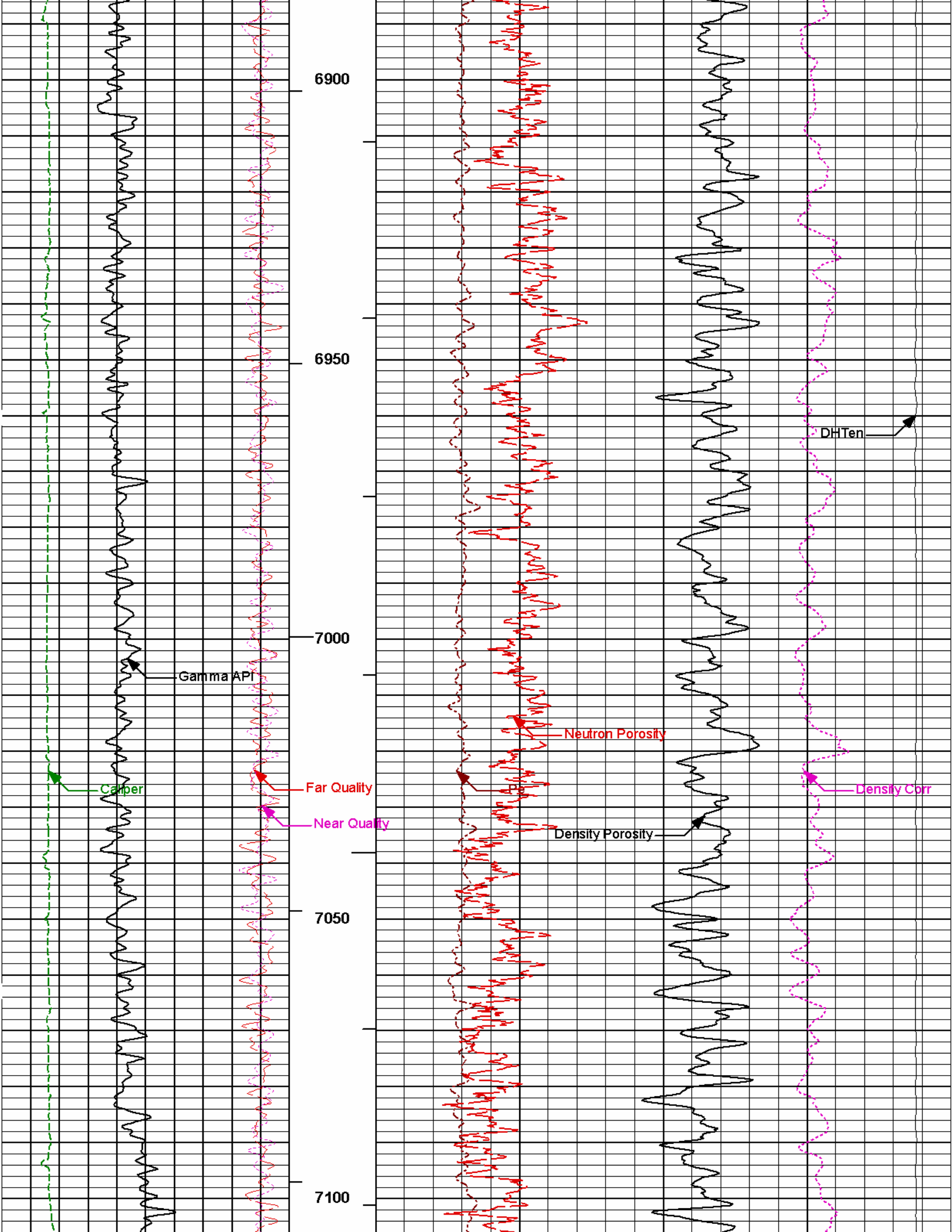


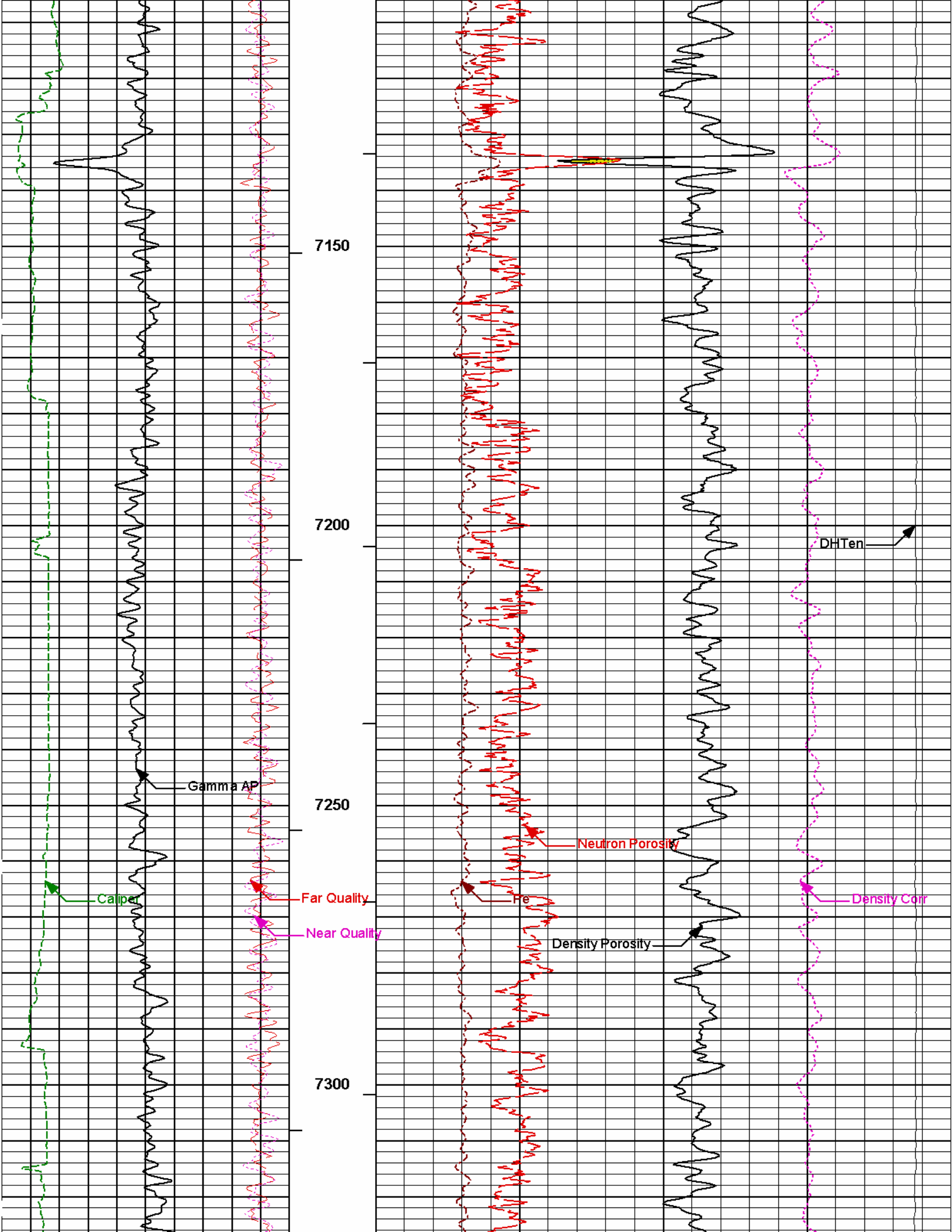


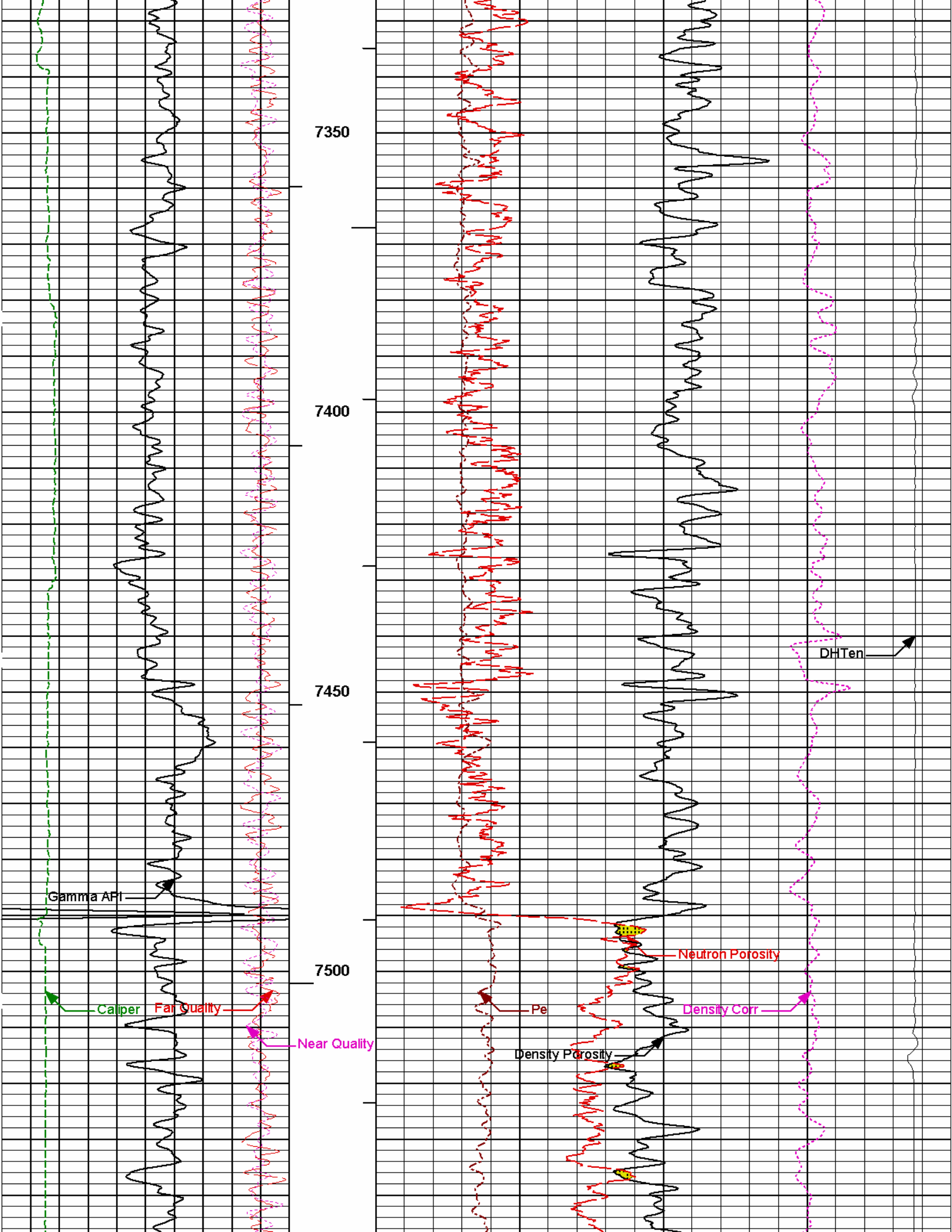


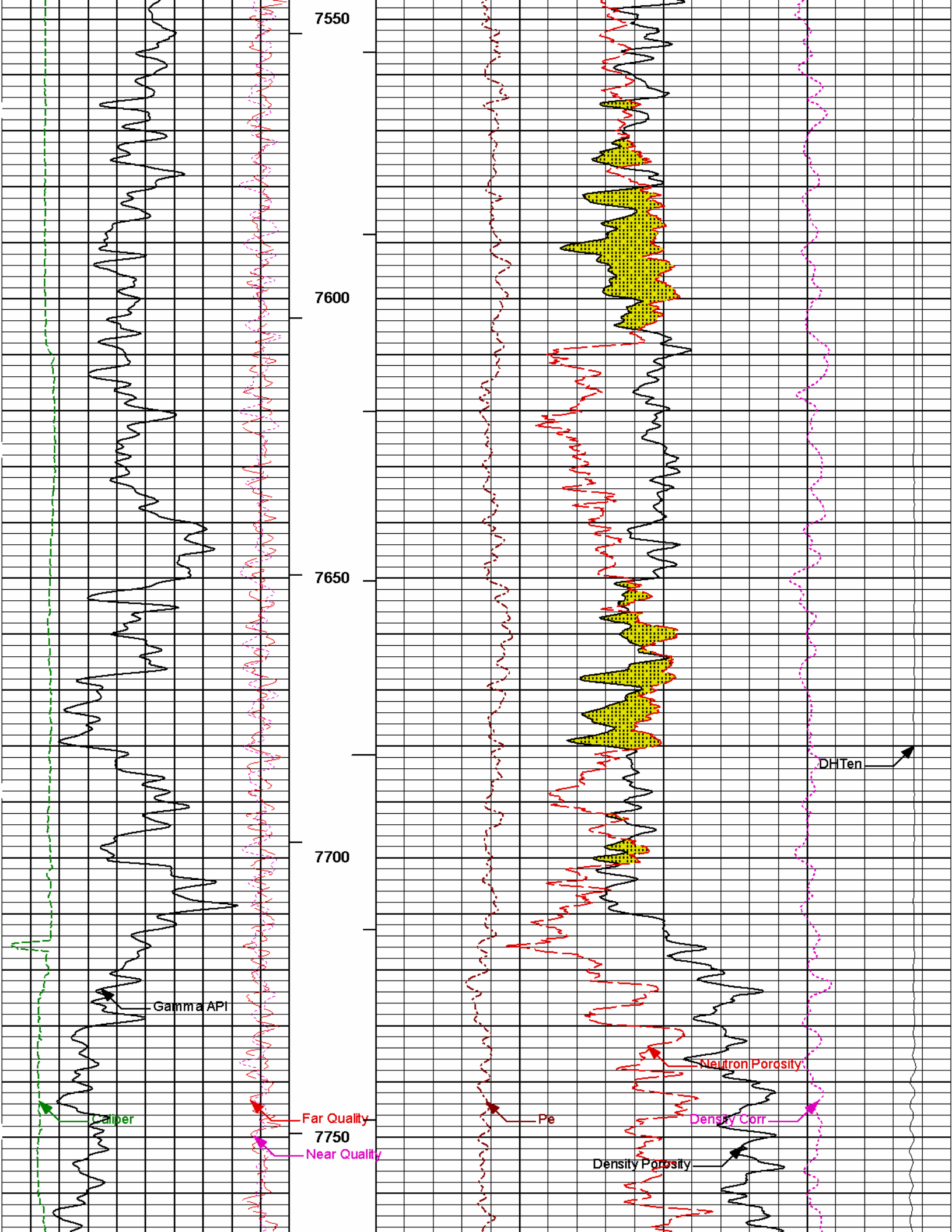


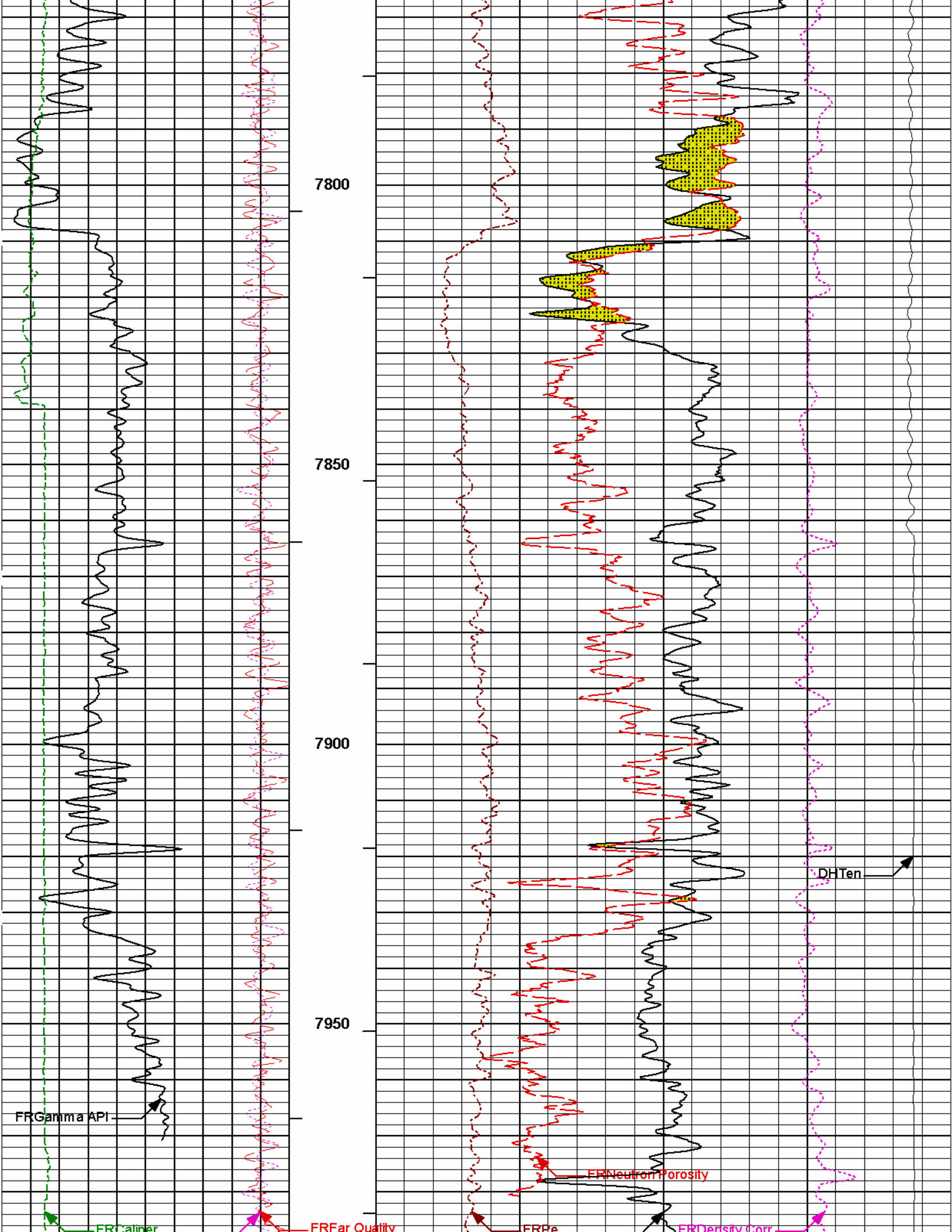


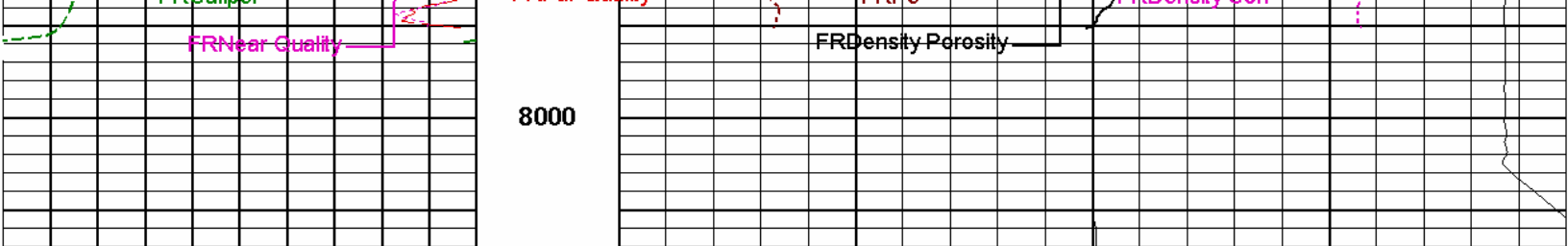












0	Gamma API	250	1 : 240	0	Pe	10	-0.25	Density Corr	0.25
	api							gram per cc	
6	Caliper	16	BHVT				10K	DHTen	0
	inches							pounds	
9	Far Quality	-1	AHVT	30	Density Porosity				-10
					percent				
-9	Near Quality	1		30	Neutron Porosity				-10
					percent				

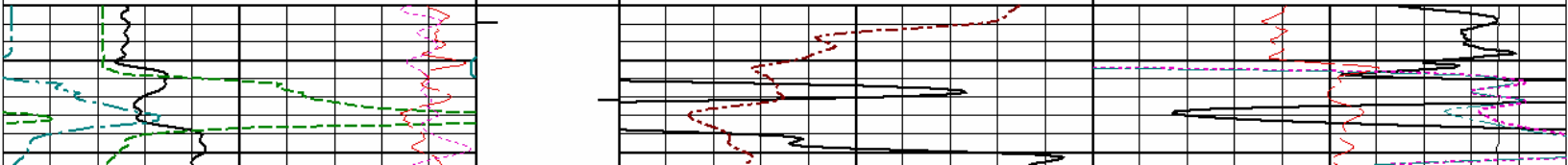
**HALLIBURTON** Plot Time: 23-Apr-12 18:35:50  
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Data: HEIN 1-1Well BasedMAIN  
Plot File: \\POROIQ\_POROSITY\_5IN\_RM

MAIN PASS 5" = 100'

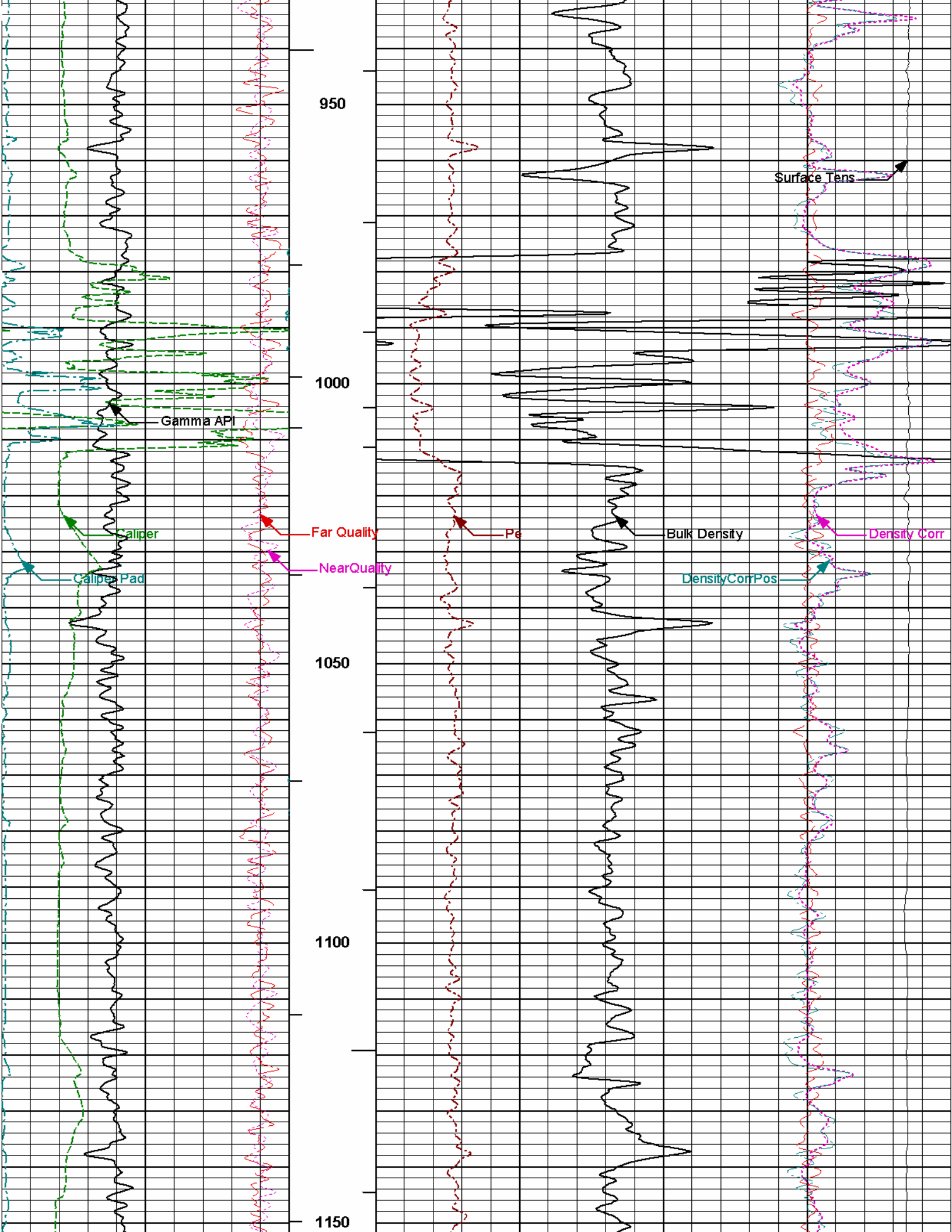
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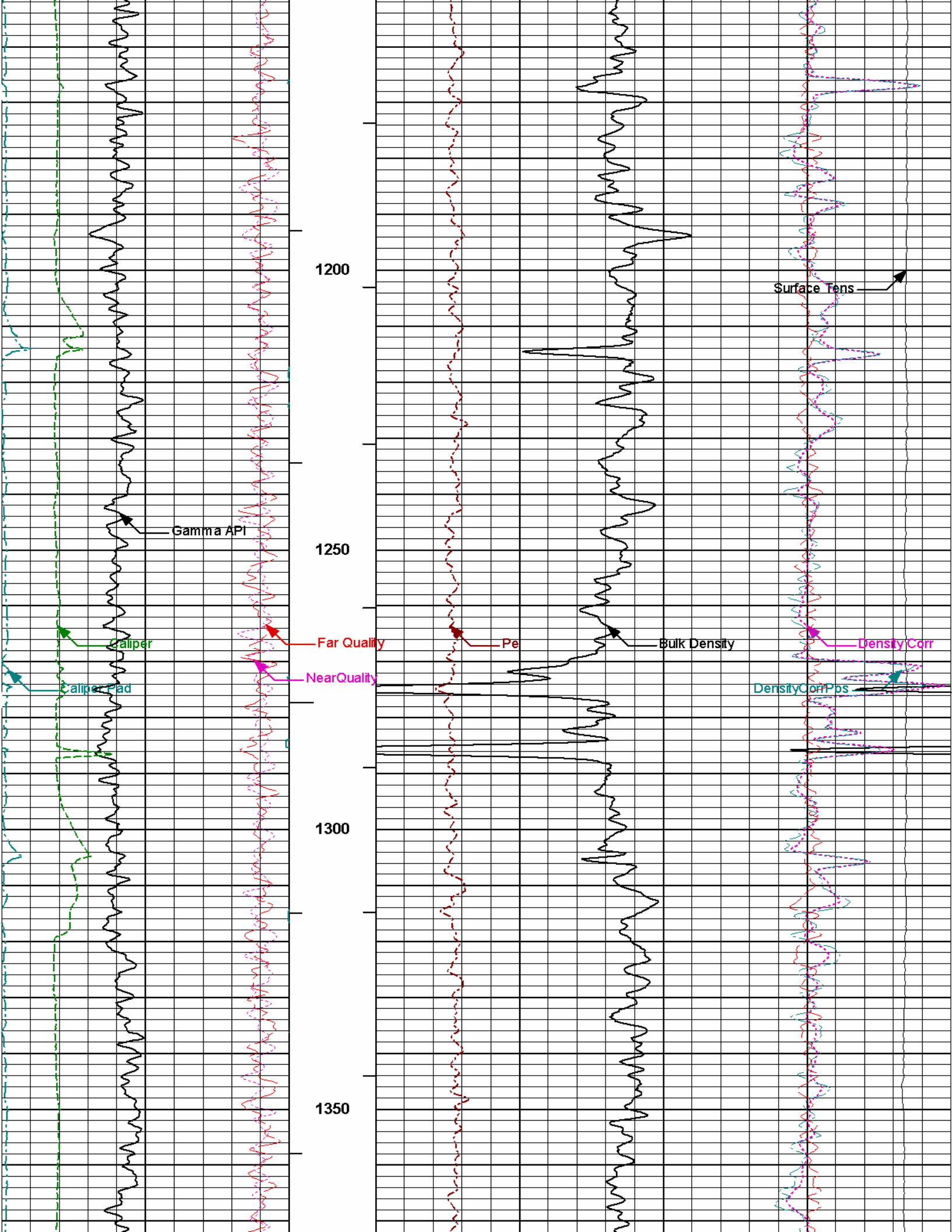
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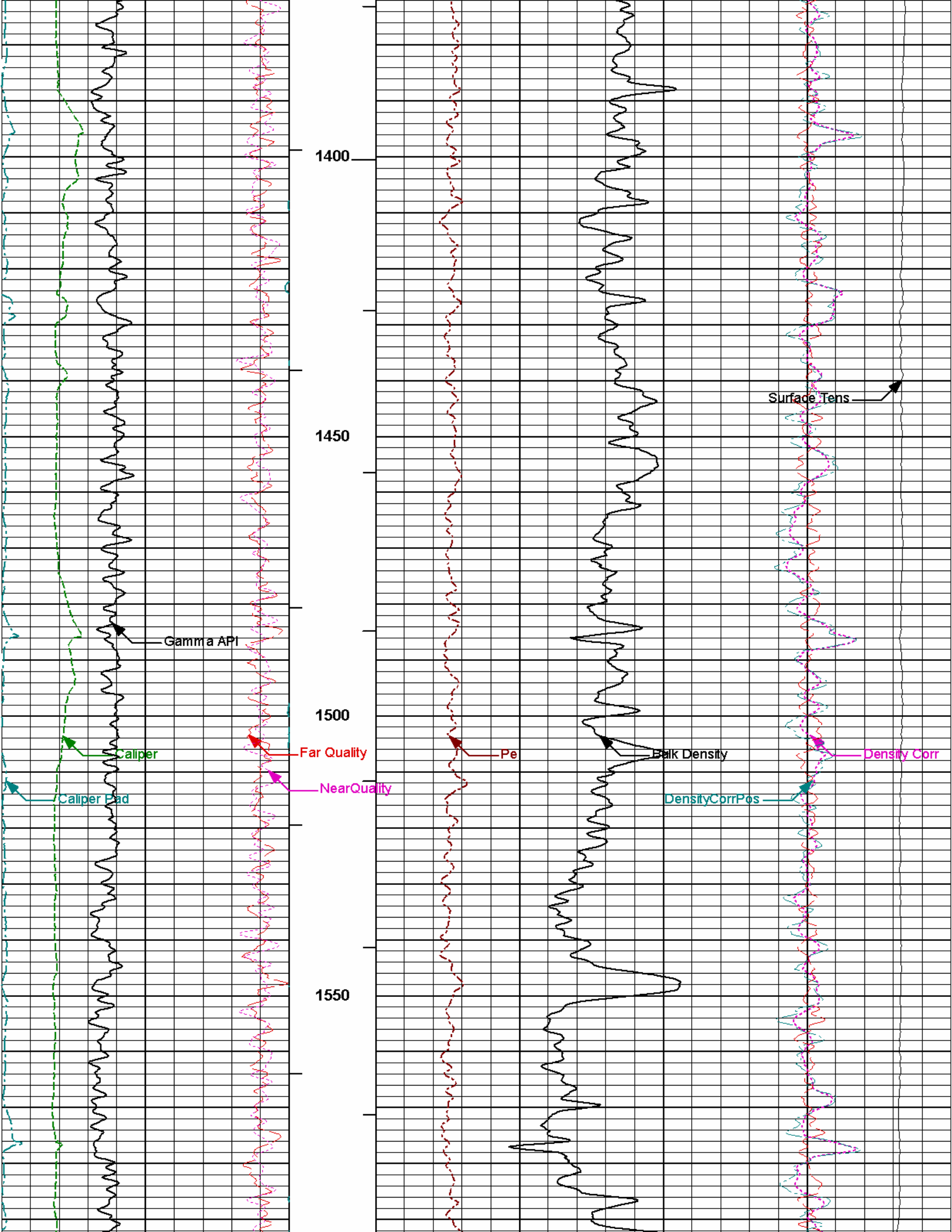
-9	NearQuality	1		2	Bulk Density		3		
				gram per cc					
9	Far Quality	-1			10K	Surface Tens	0		
					pounds				
0	Caliper Pad	10	AHVT		-0.25	DensityCorrNeg	0.25		
inches					gram per cc				
6	Caliper	16	BHVT	-0.25	DensityCorrPos	0.25			
inches				gram per cc					
0	Gamma API	250	1 : 240	0	Pe	10	-0.25	Density Corr	0.25
api						gram per cc			

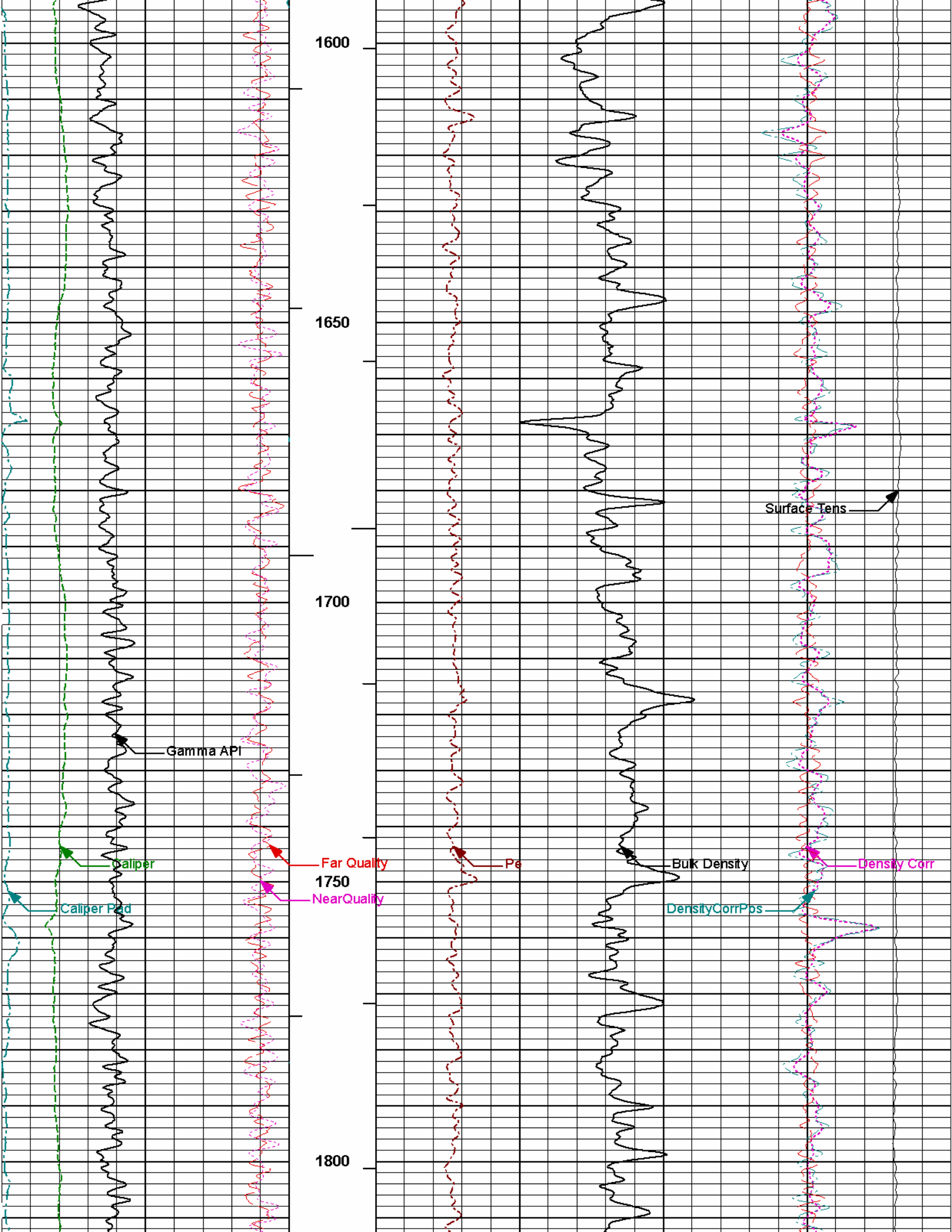


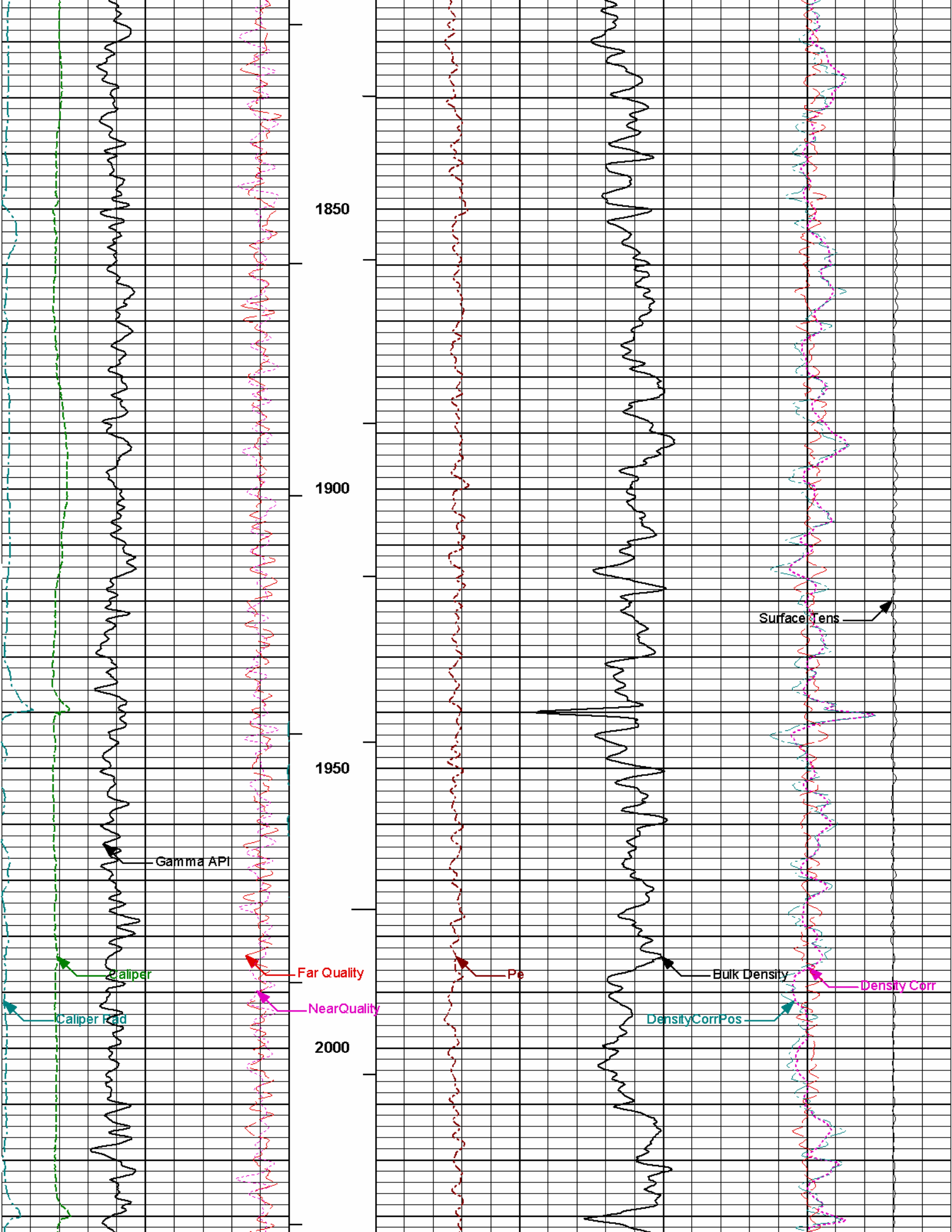


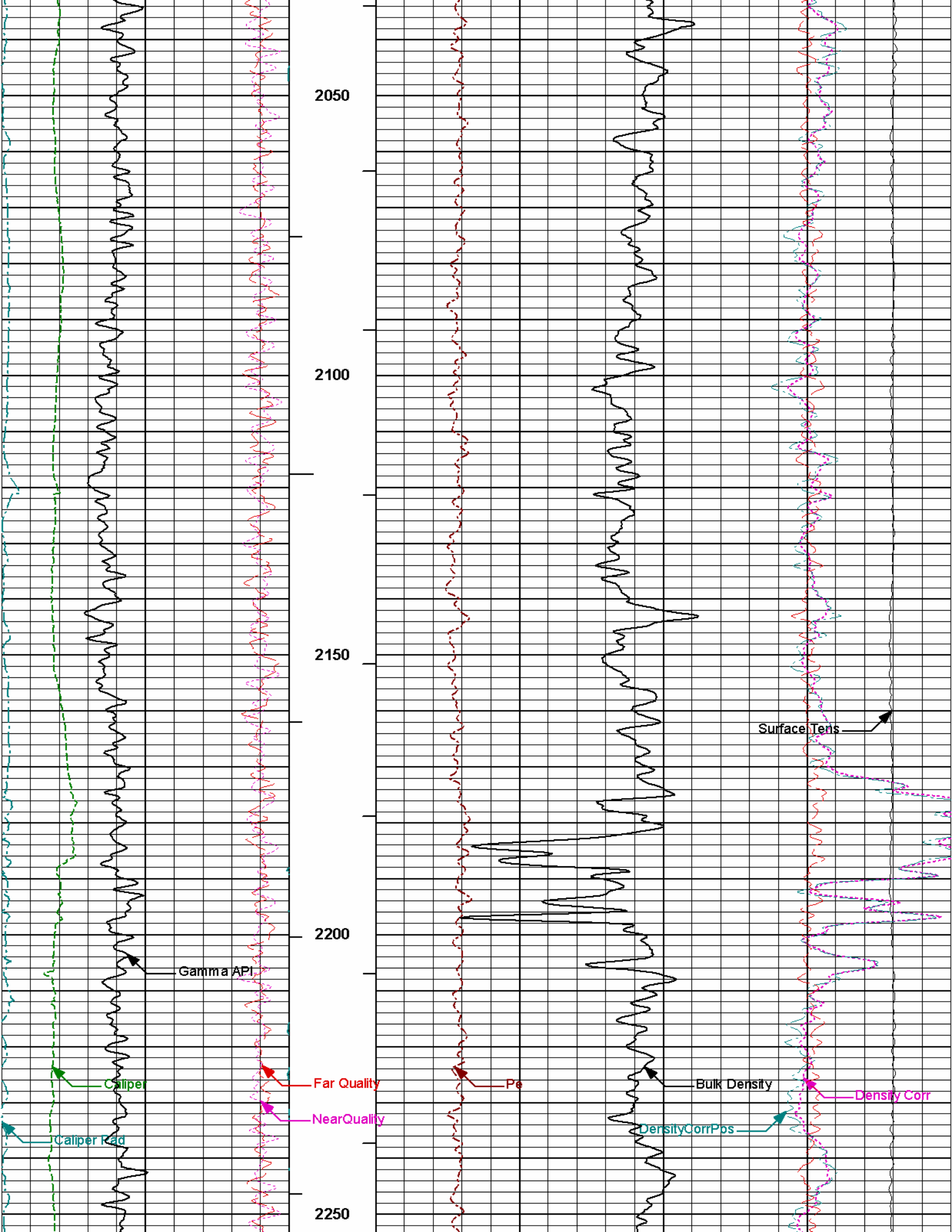


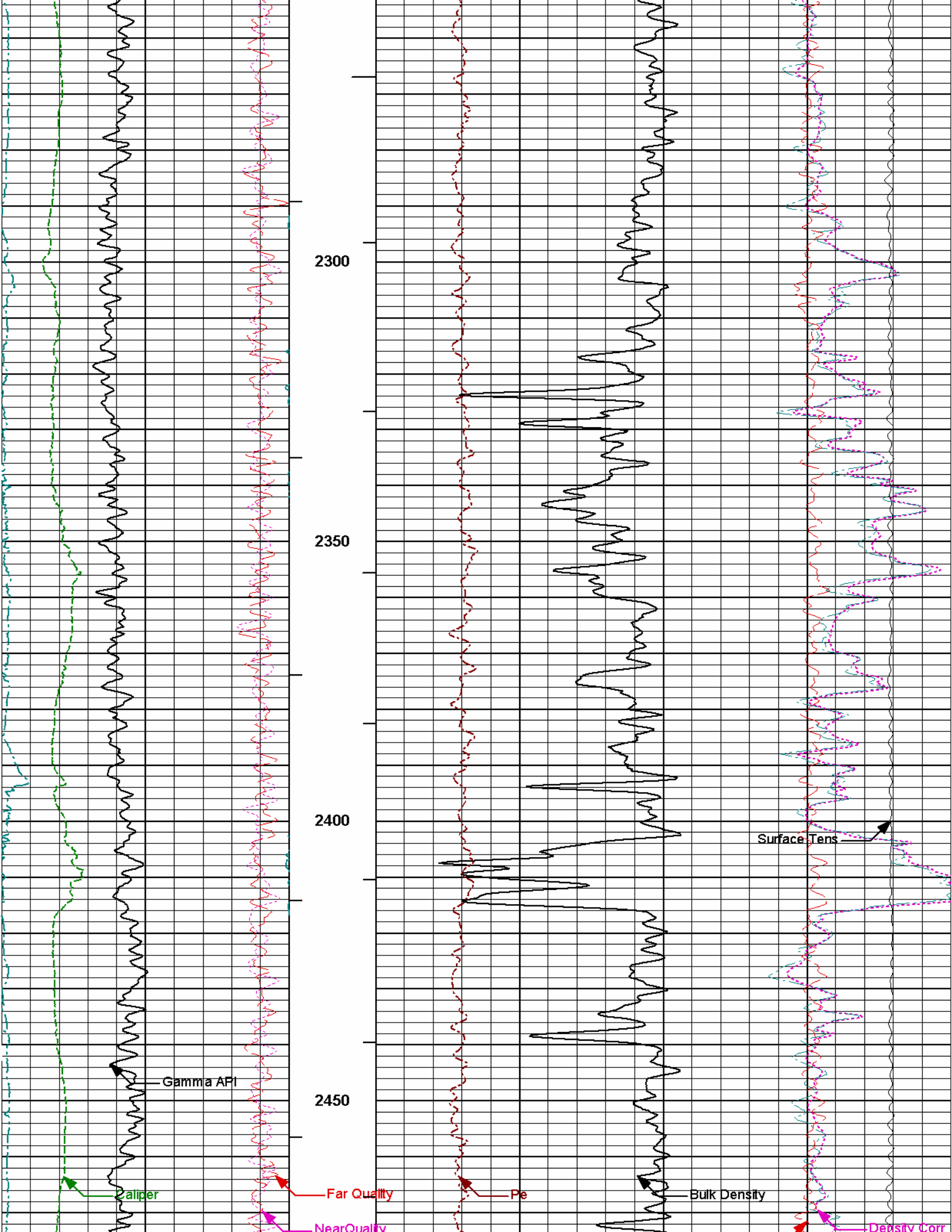




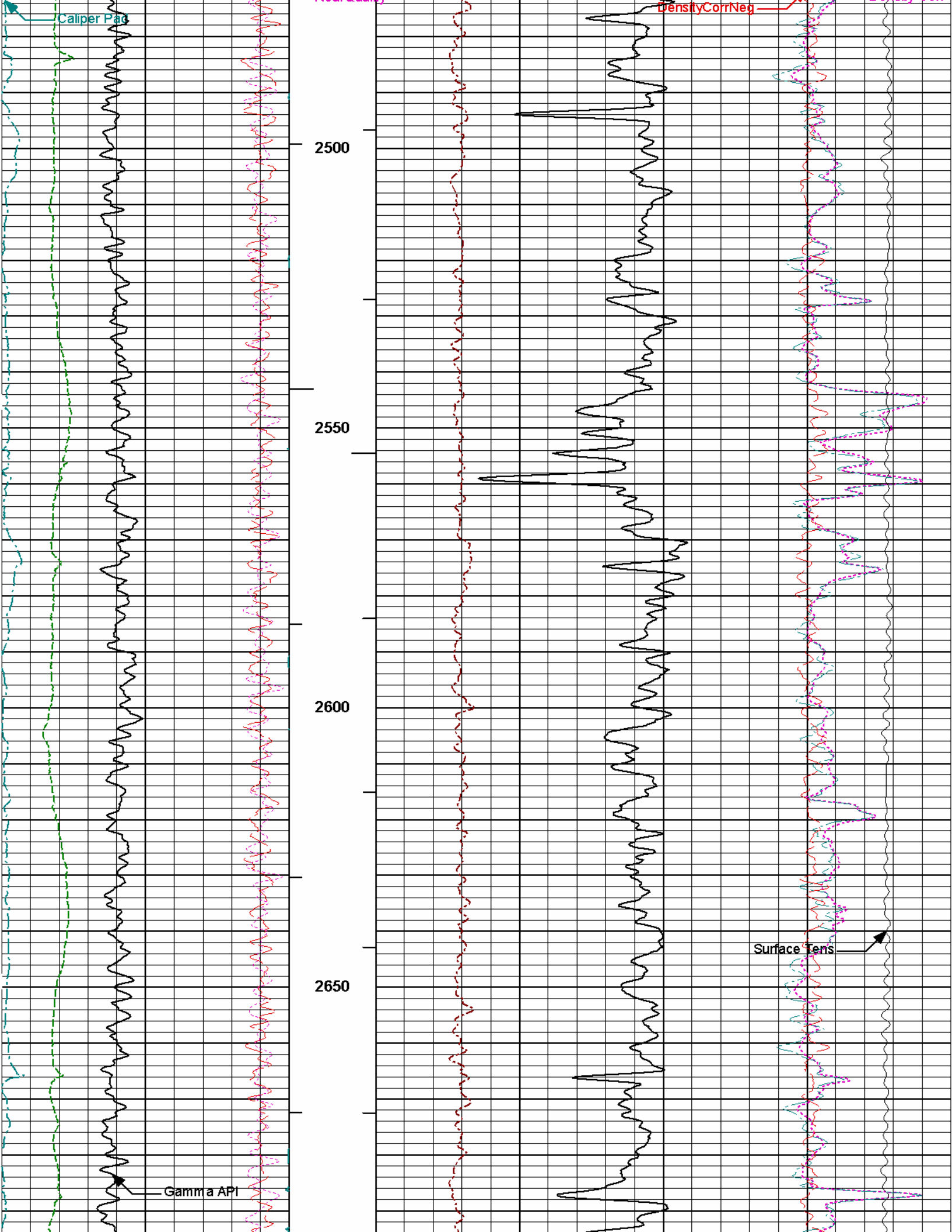


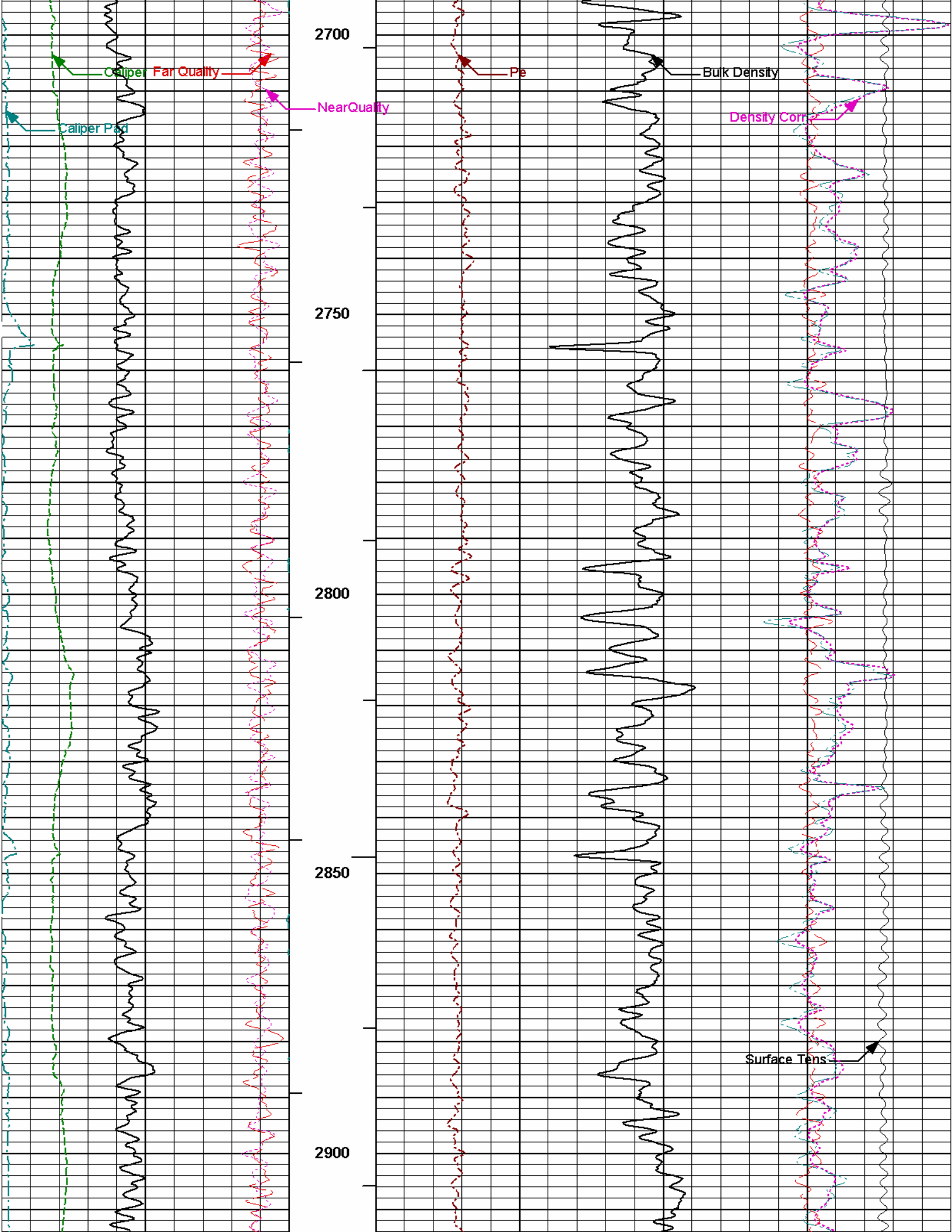


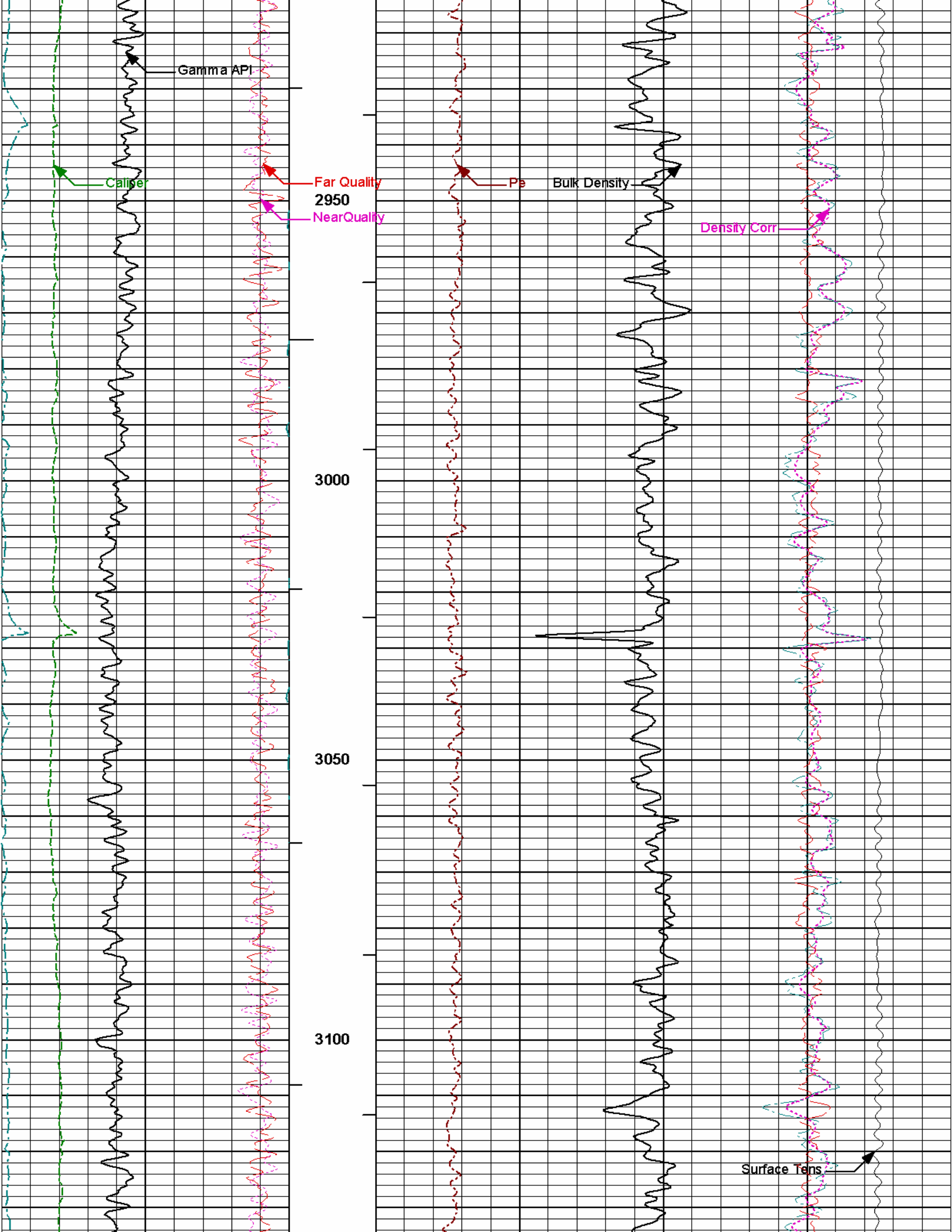


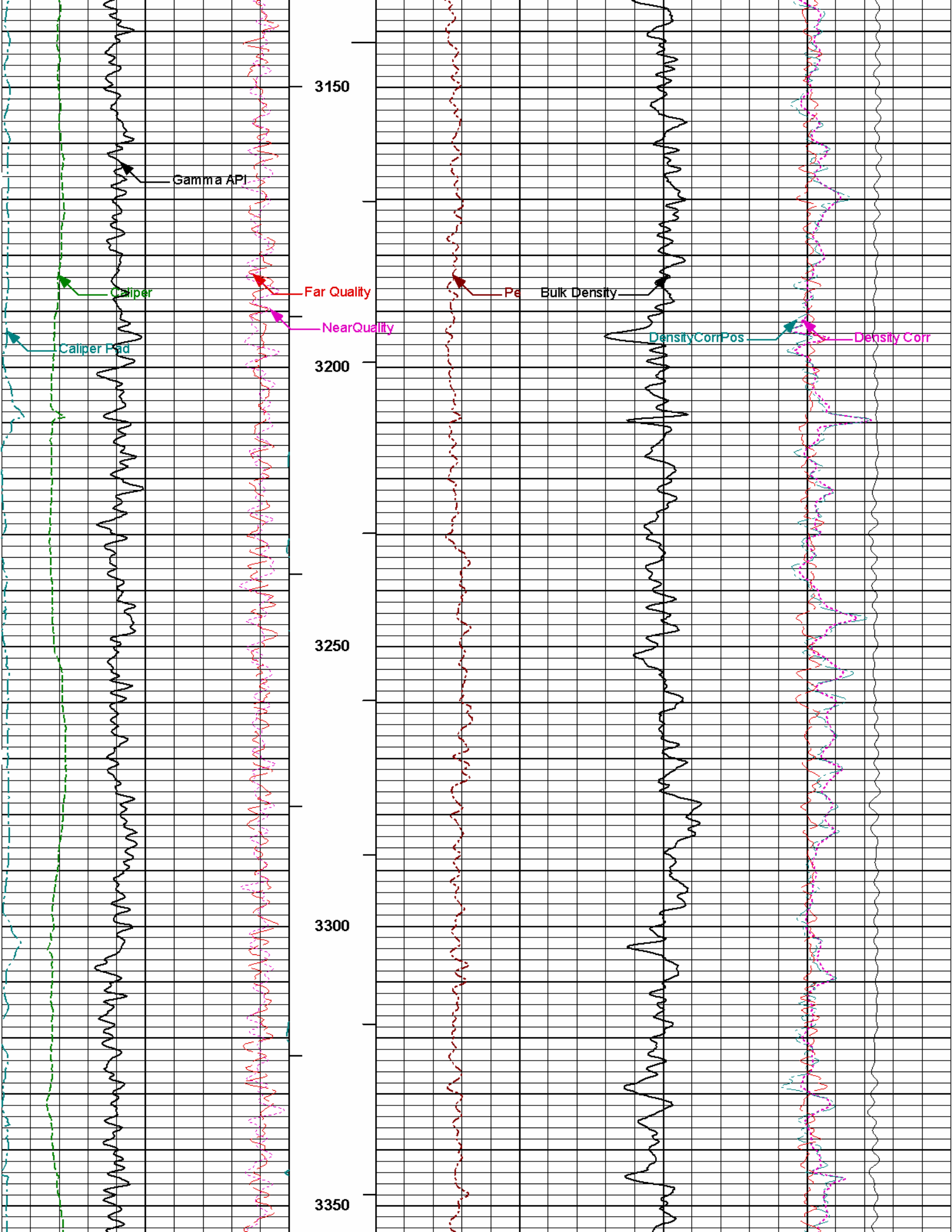


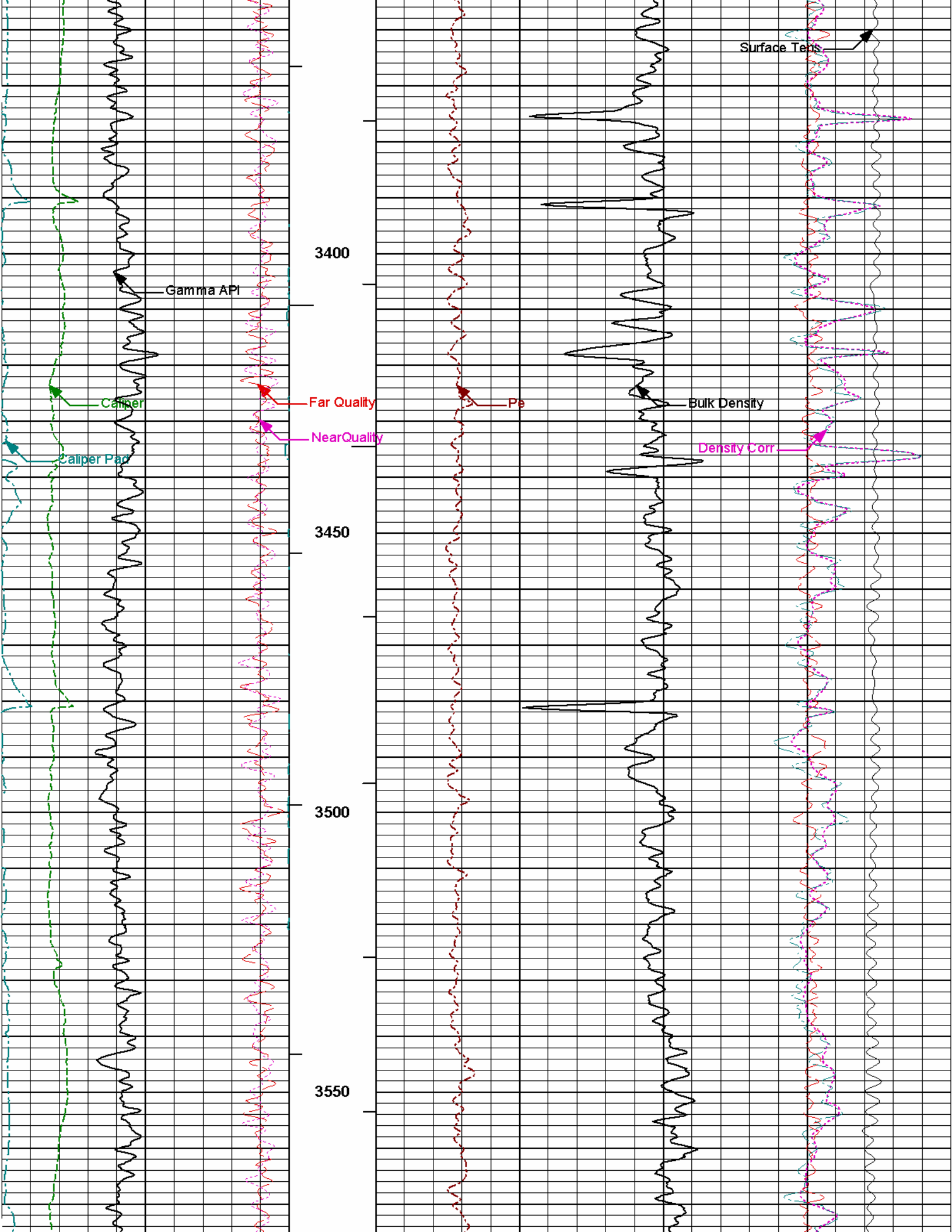


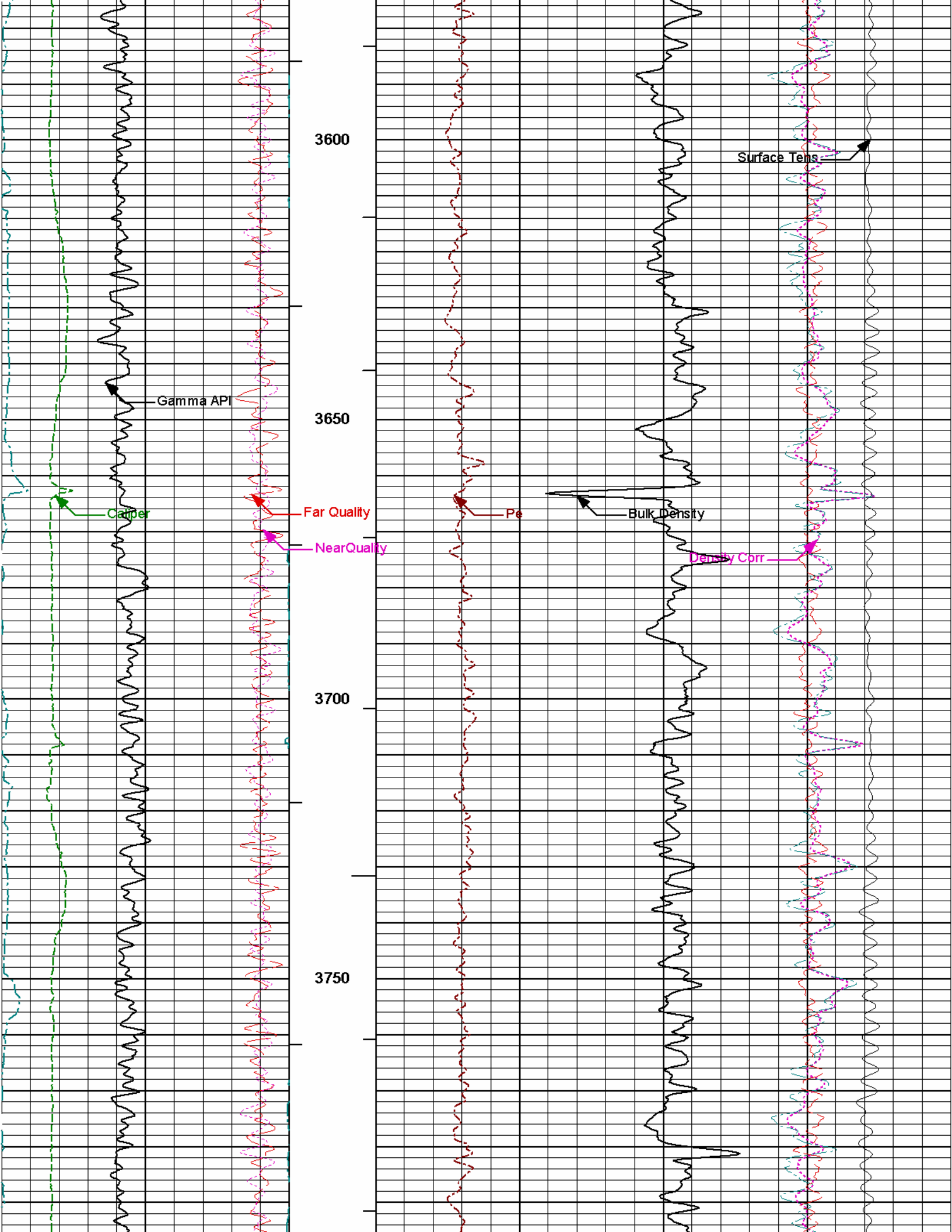


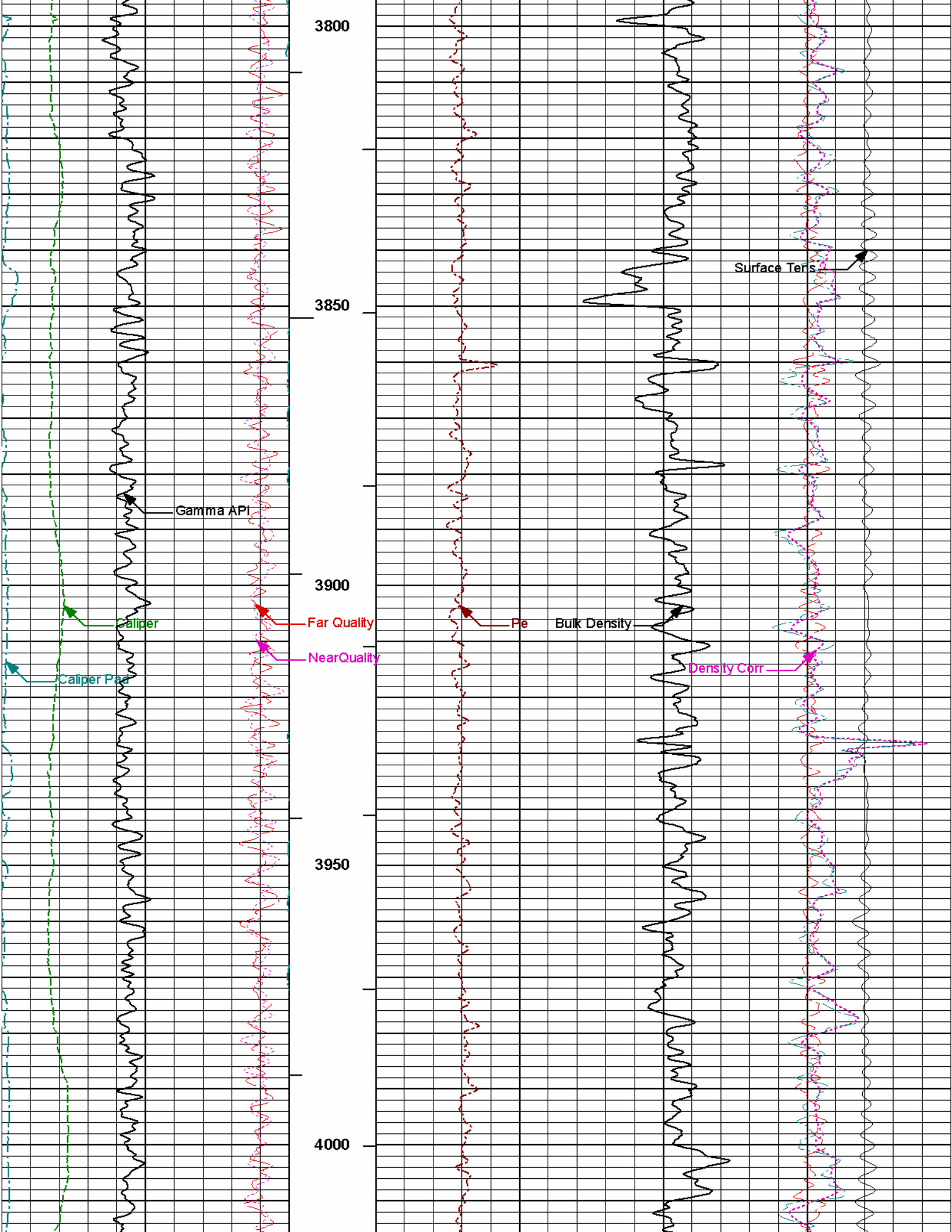




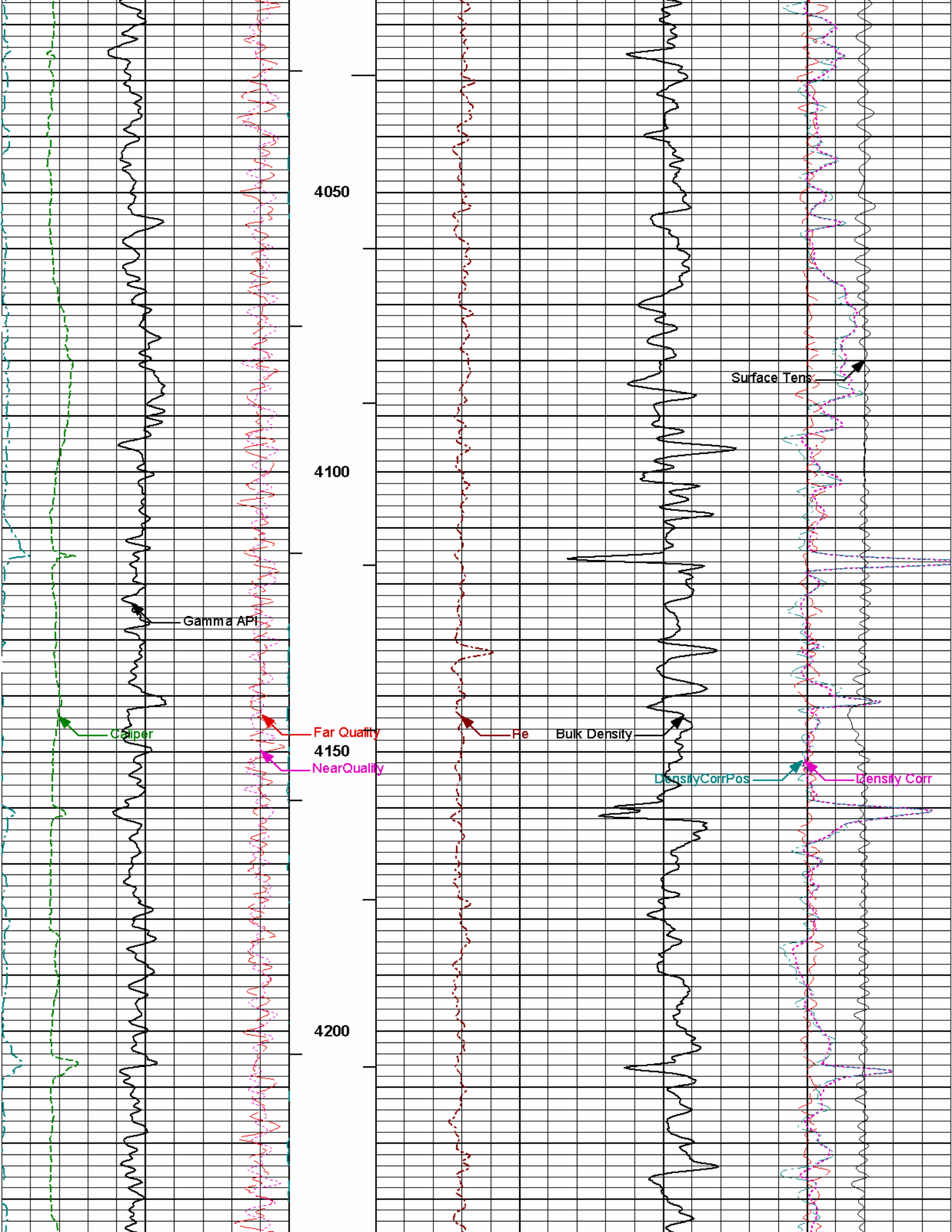


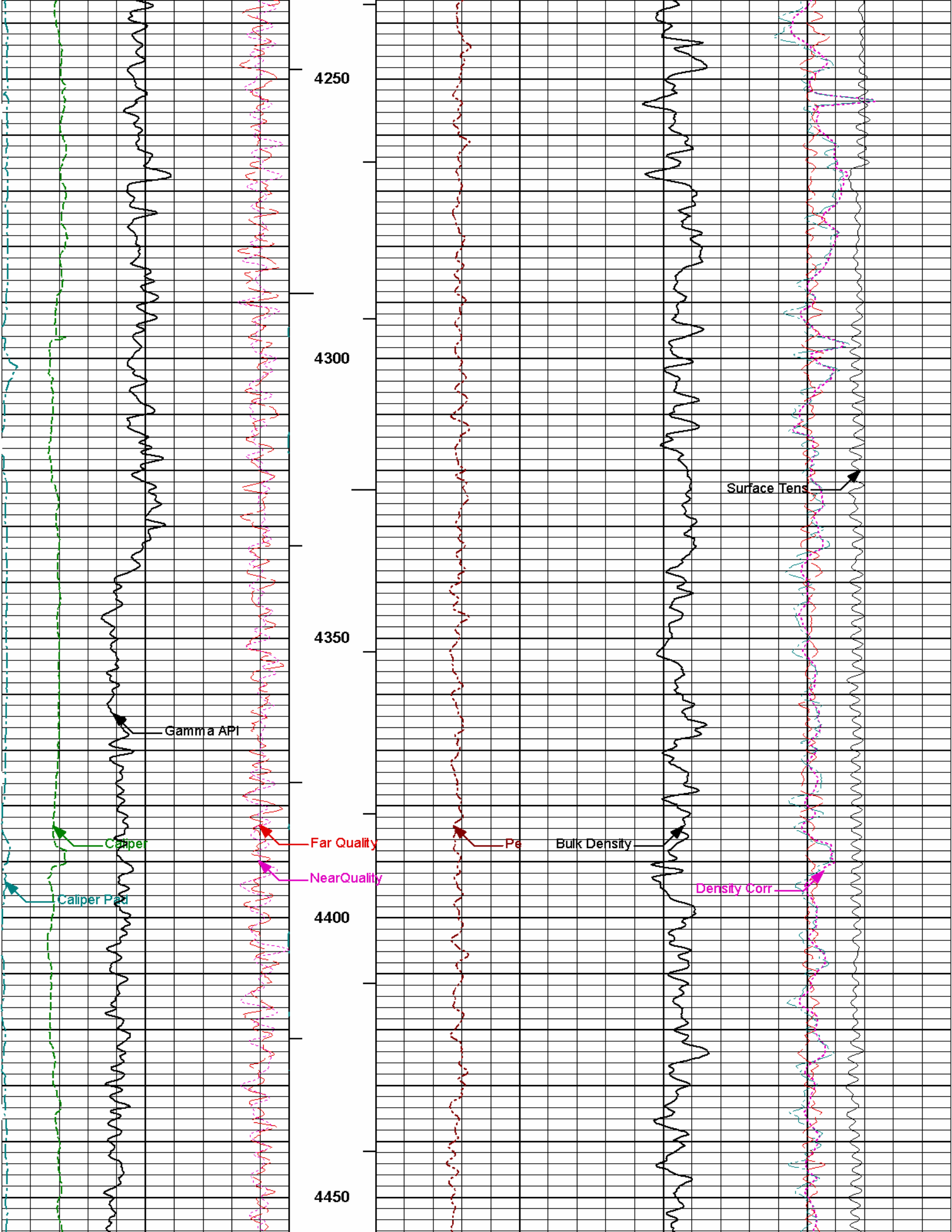


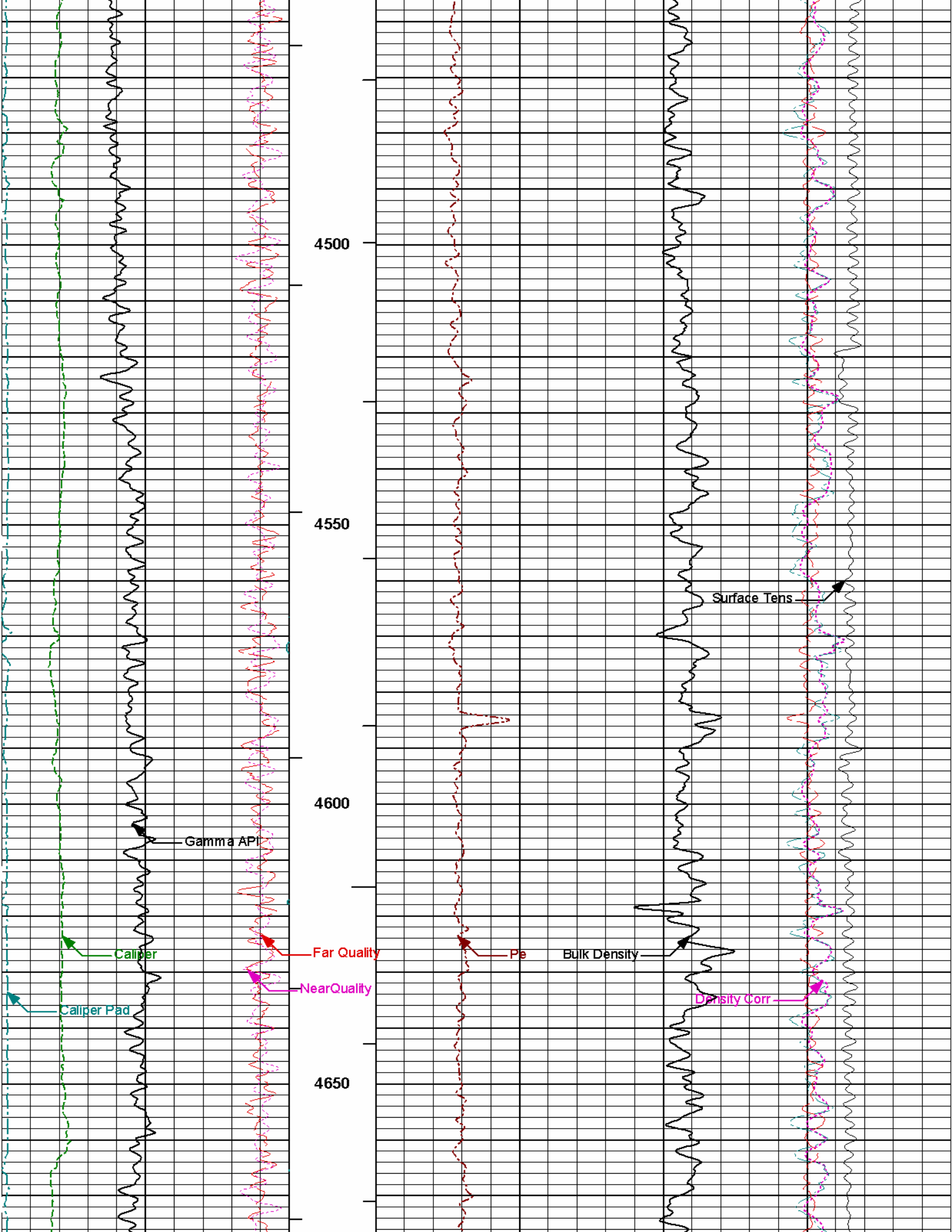


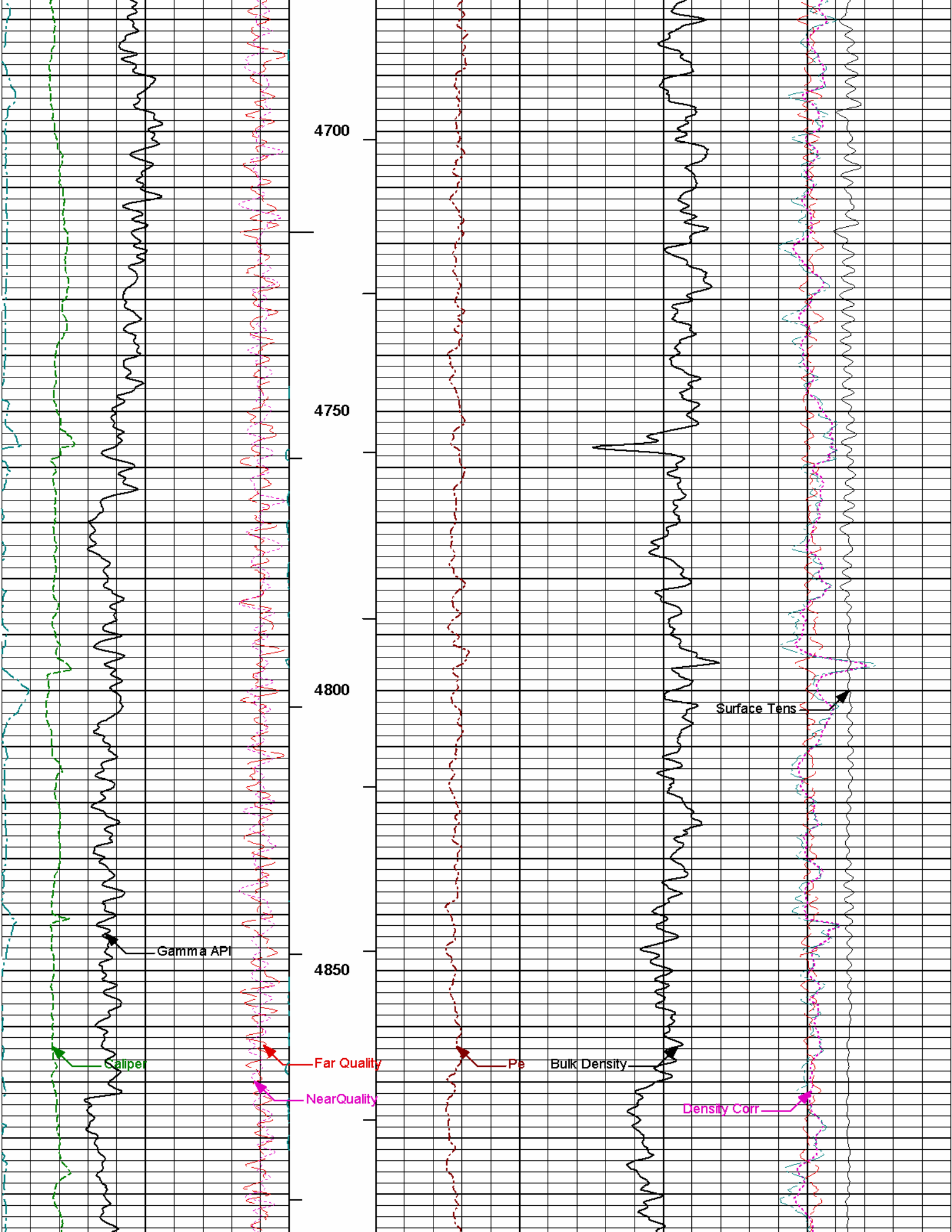


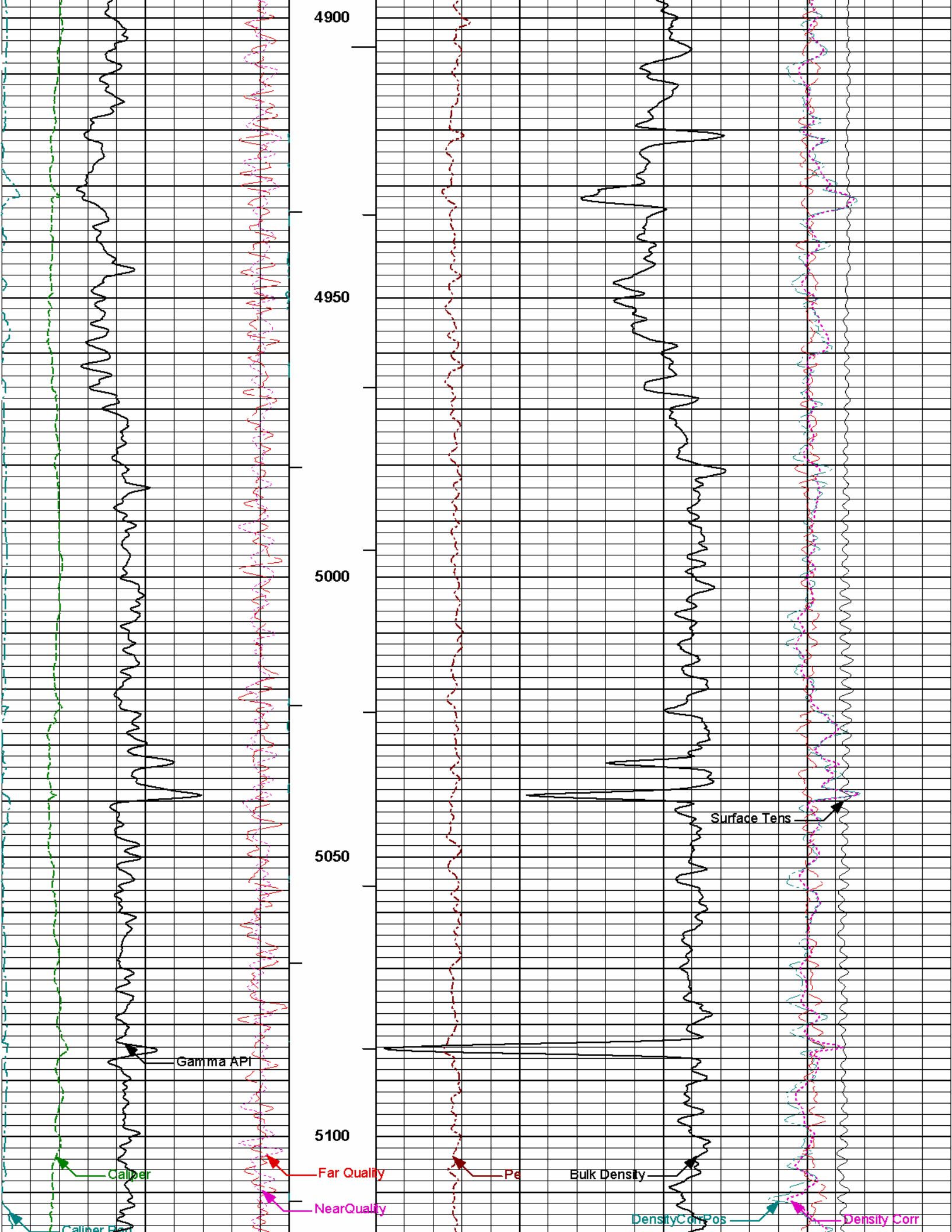


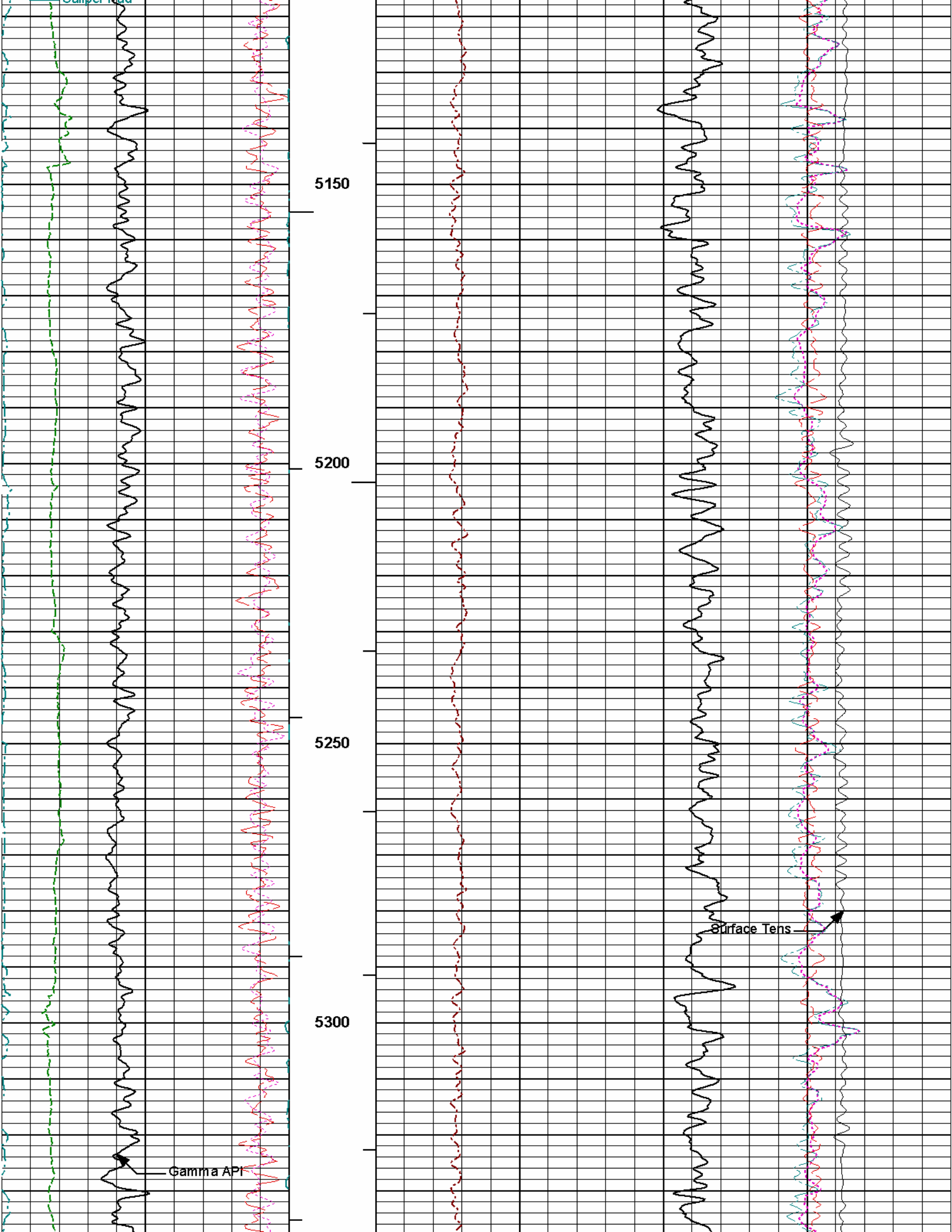


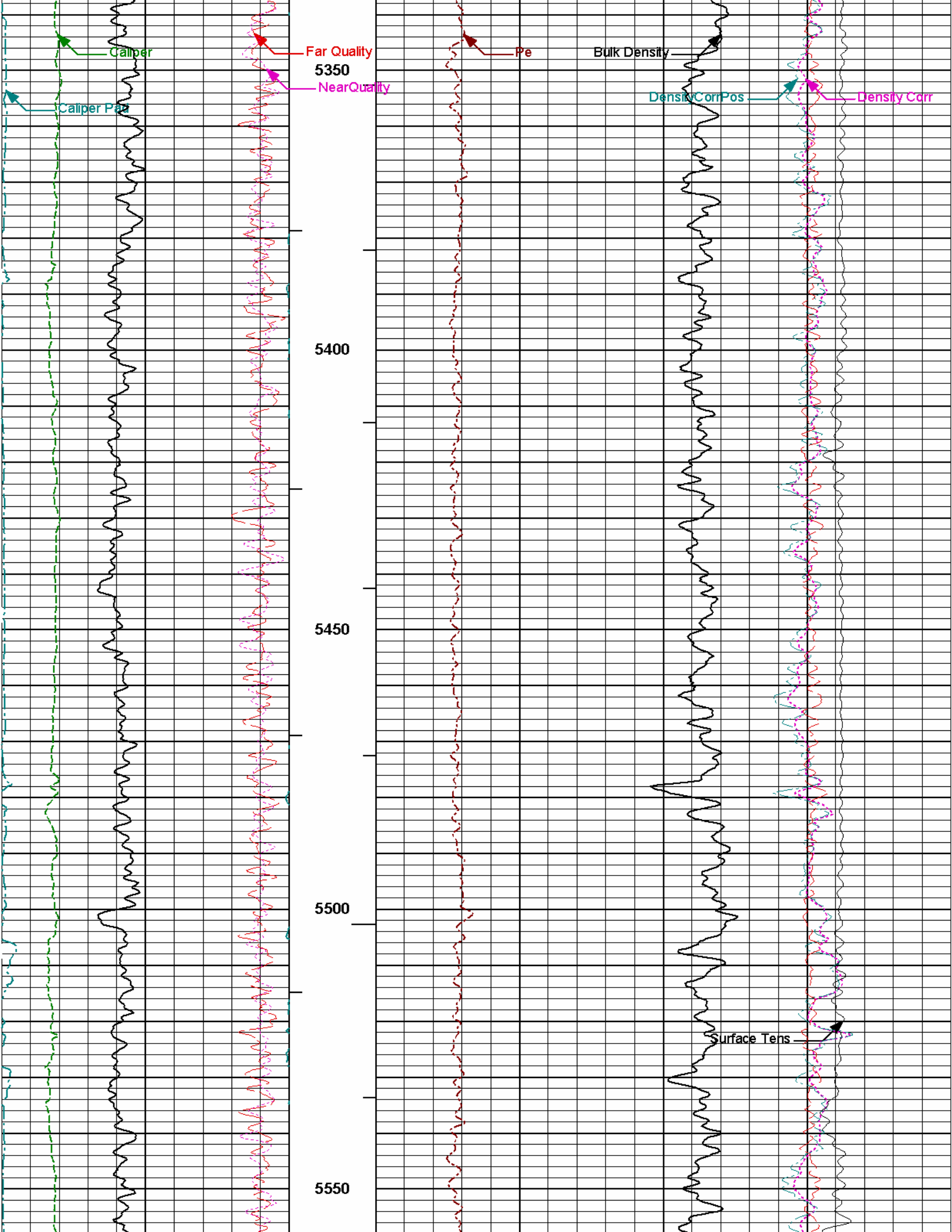




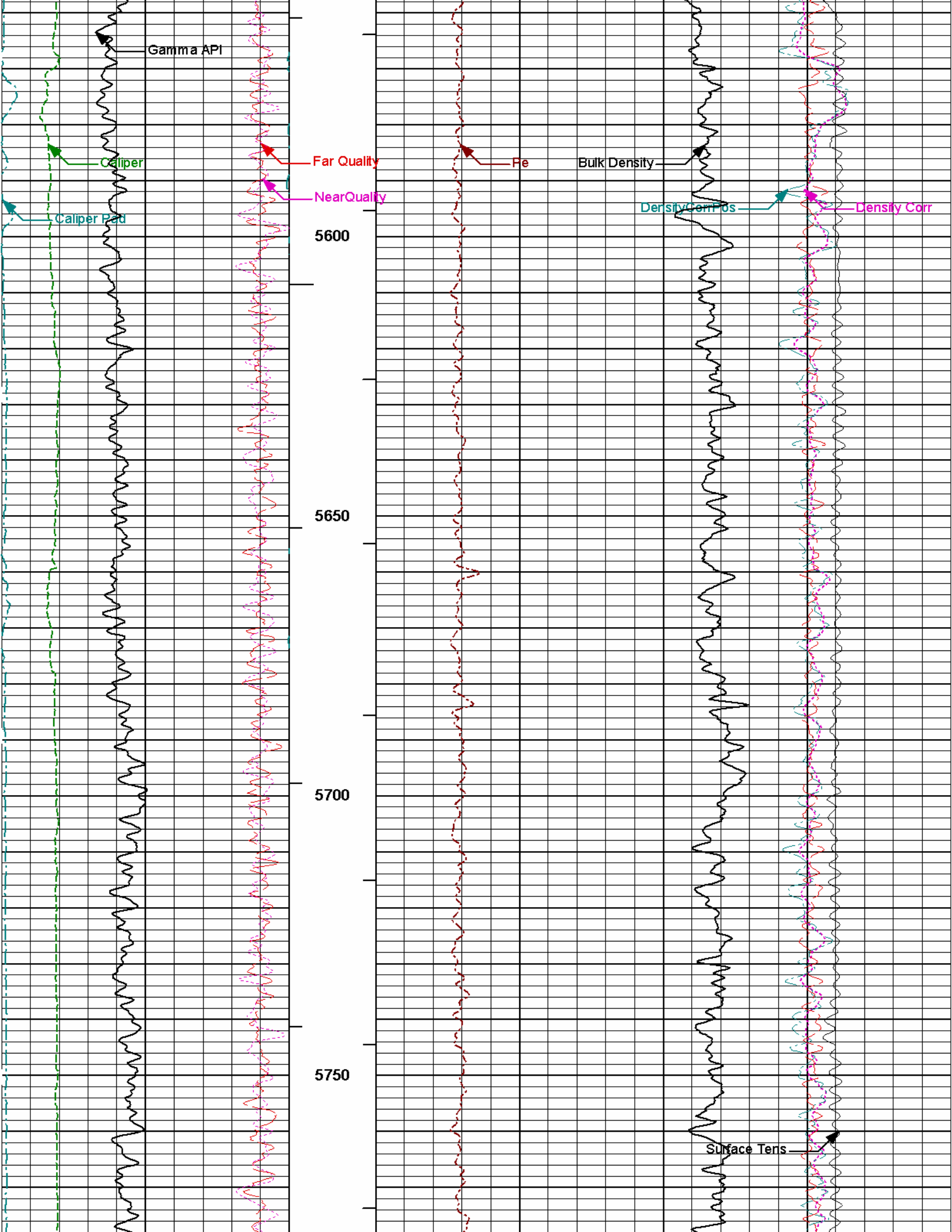


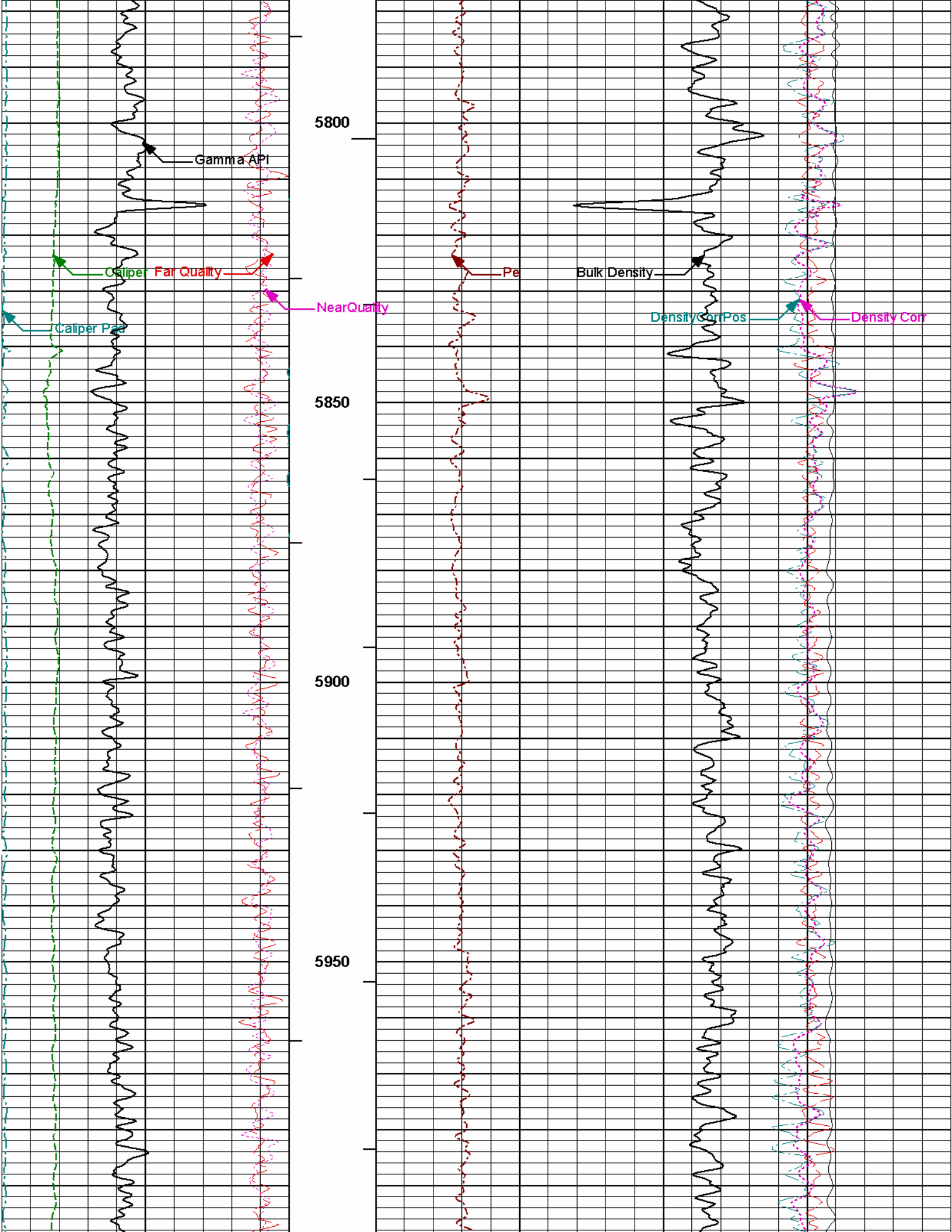


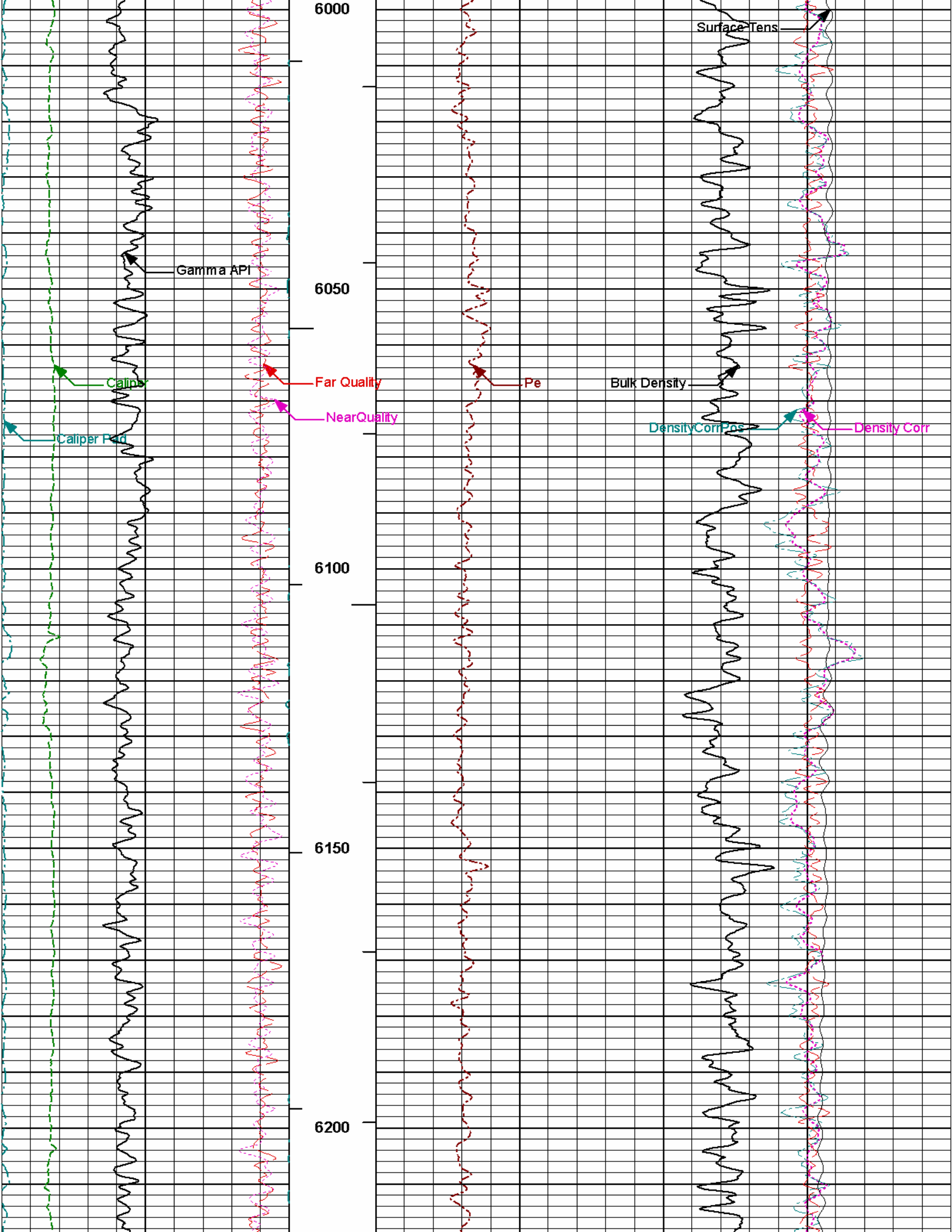


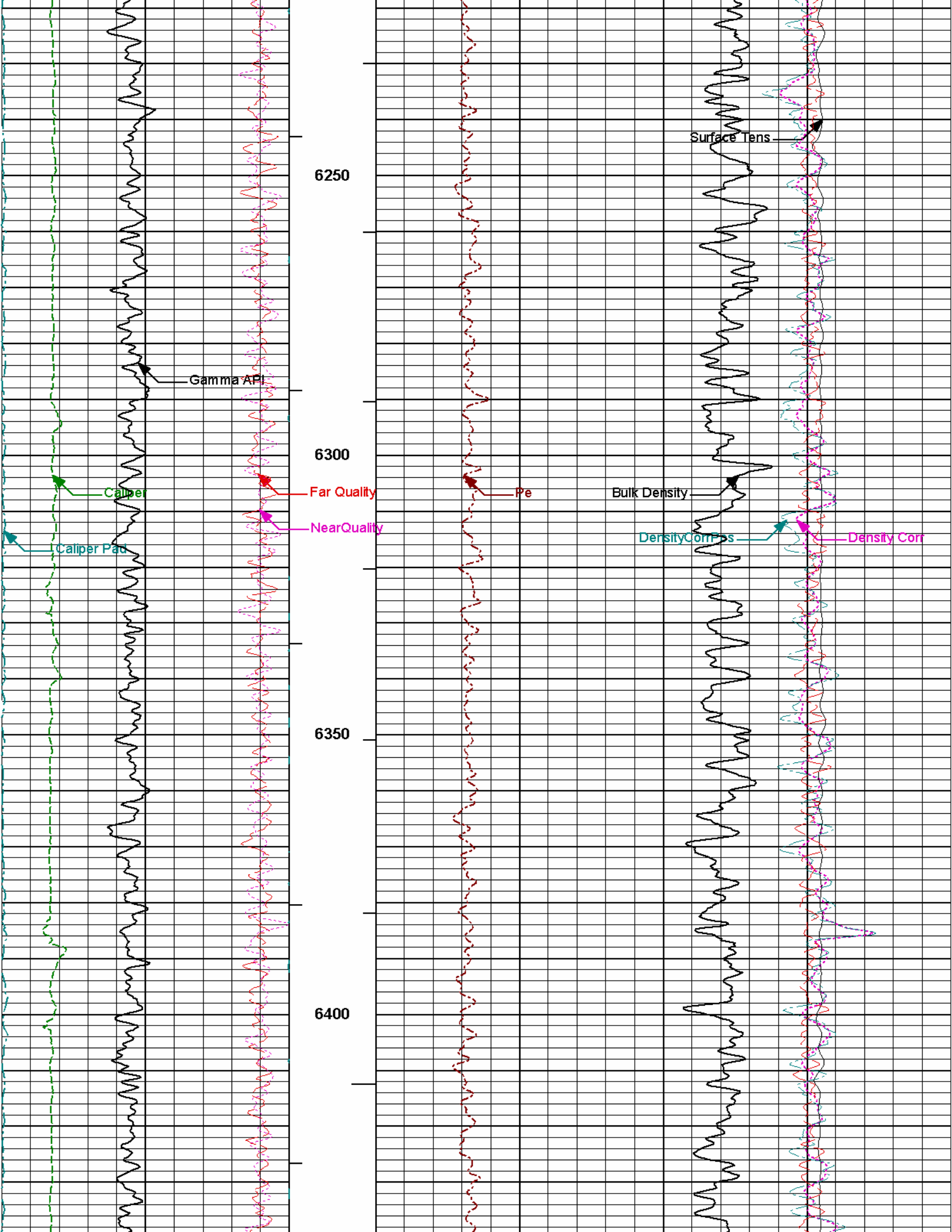


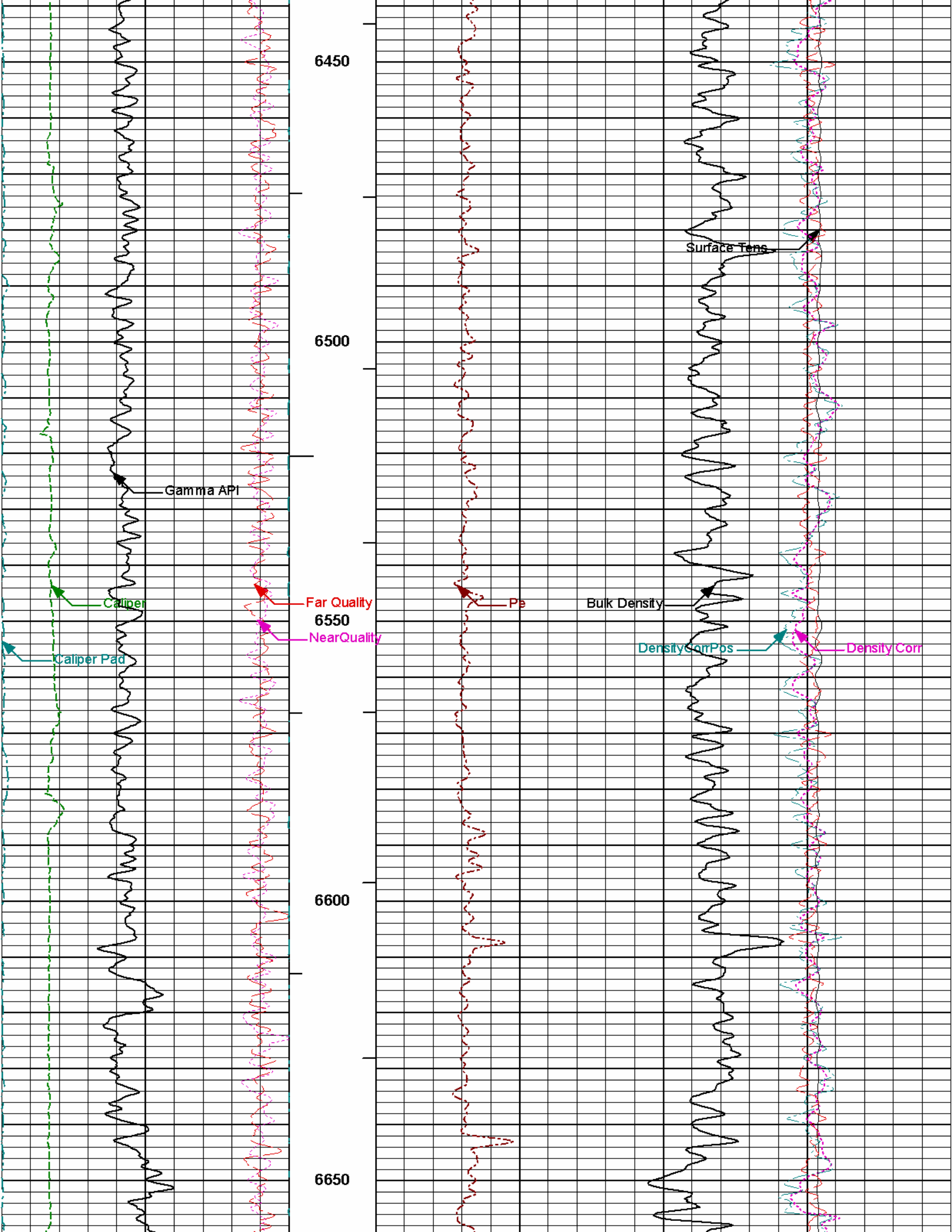


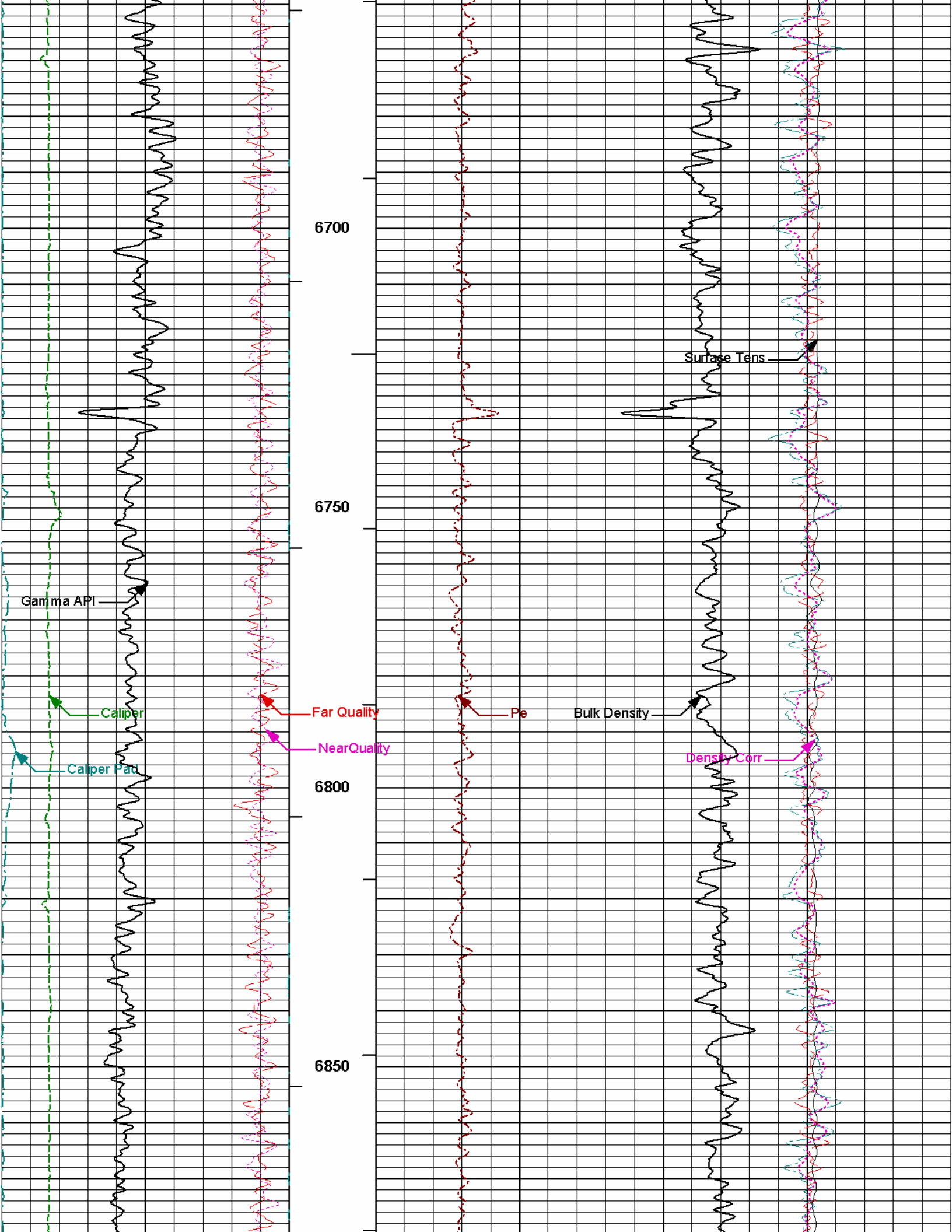


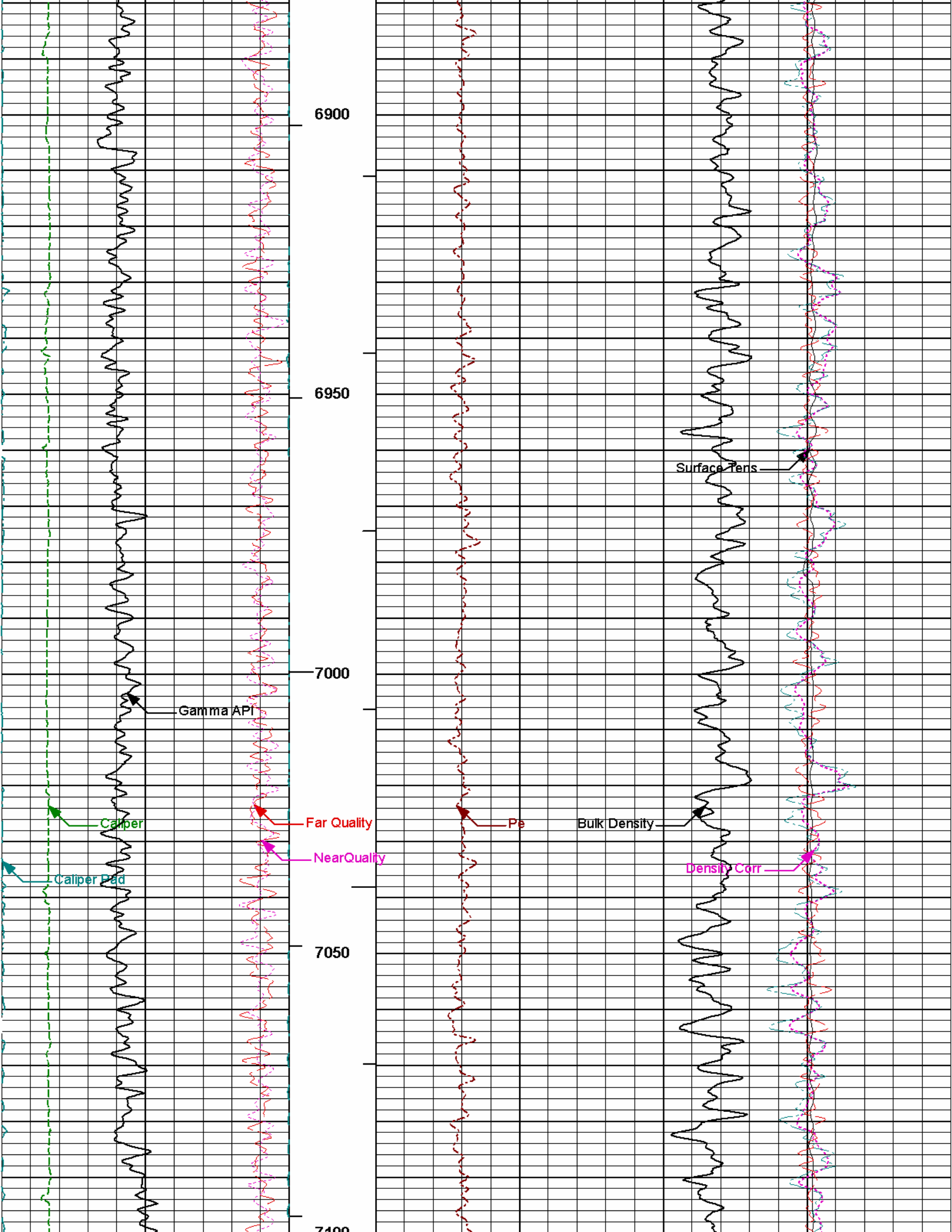




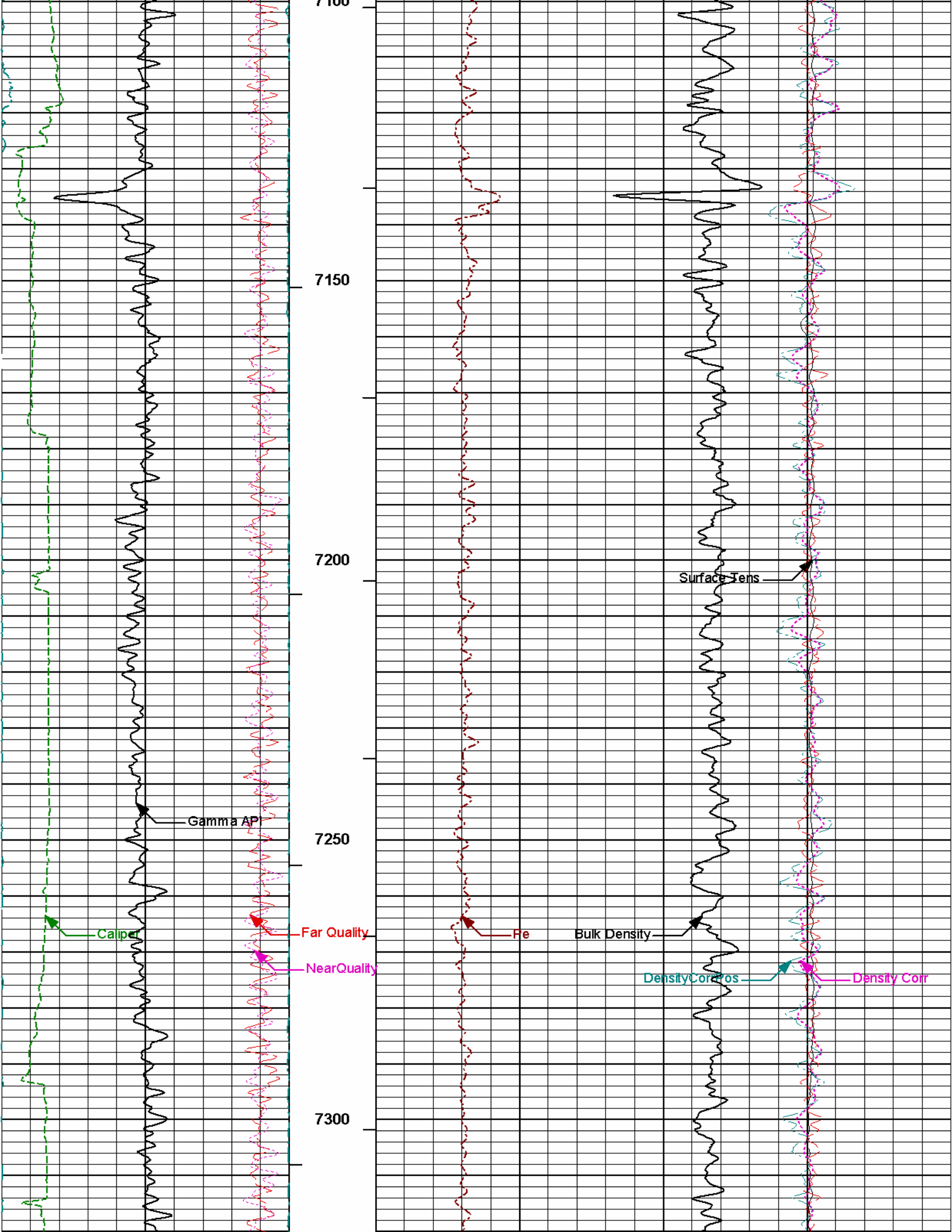


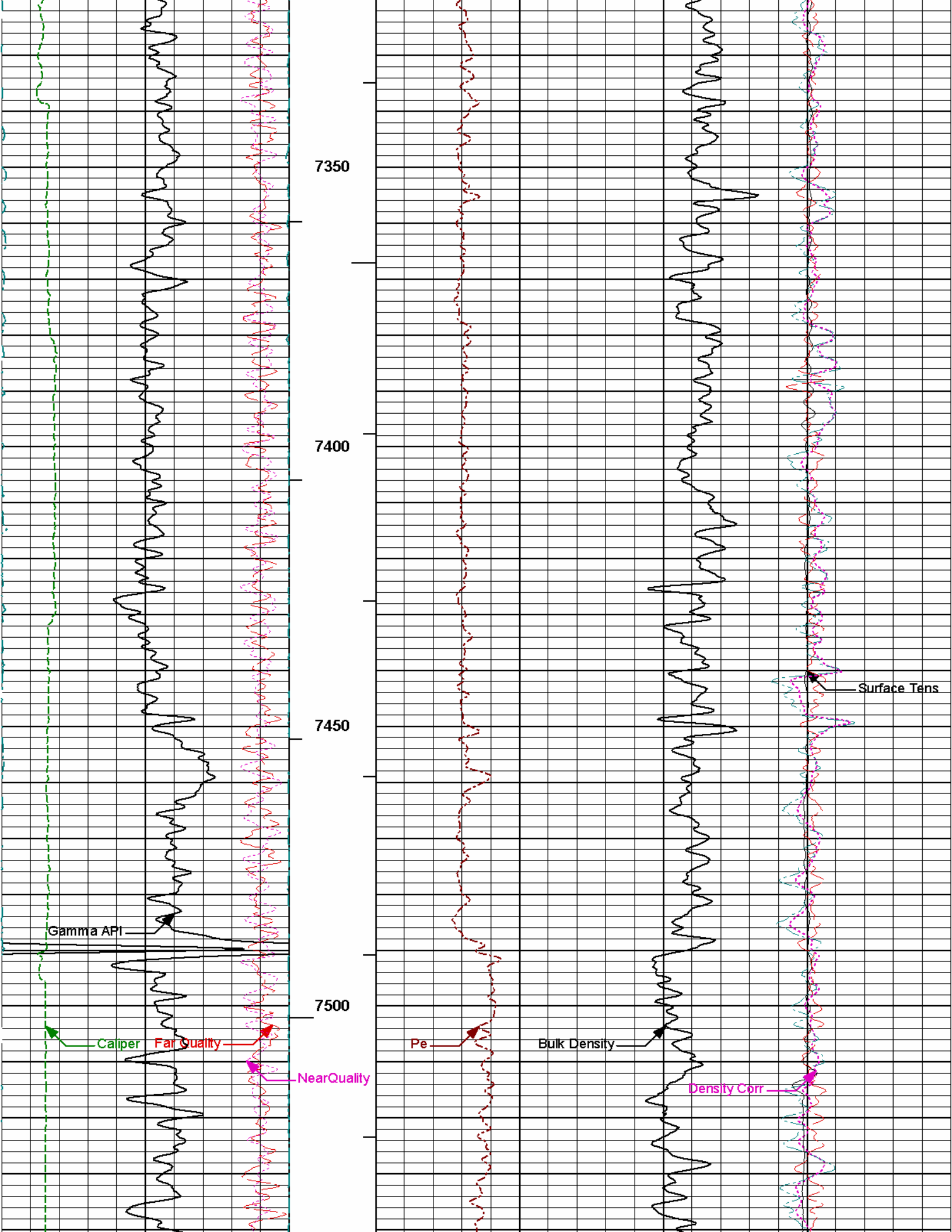


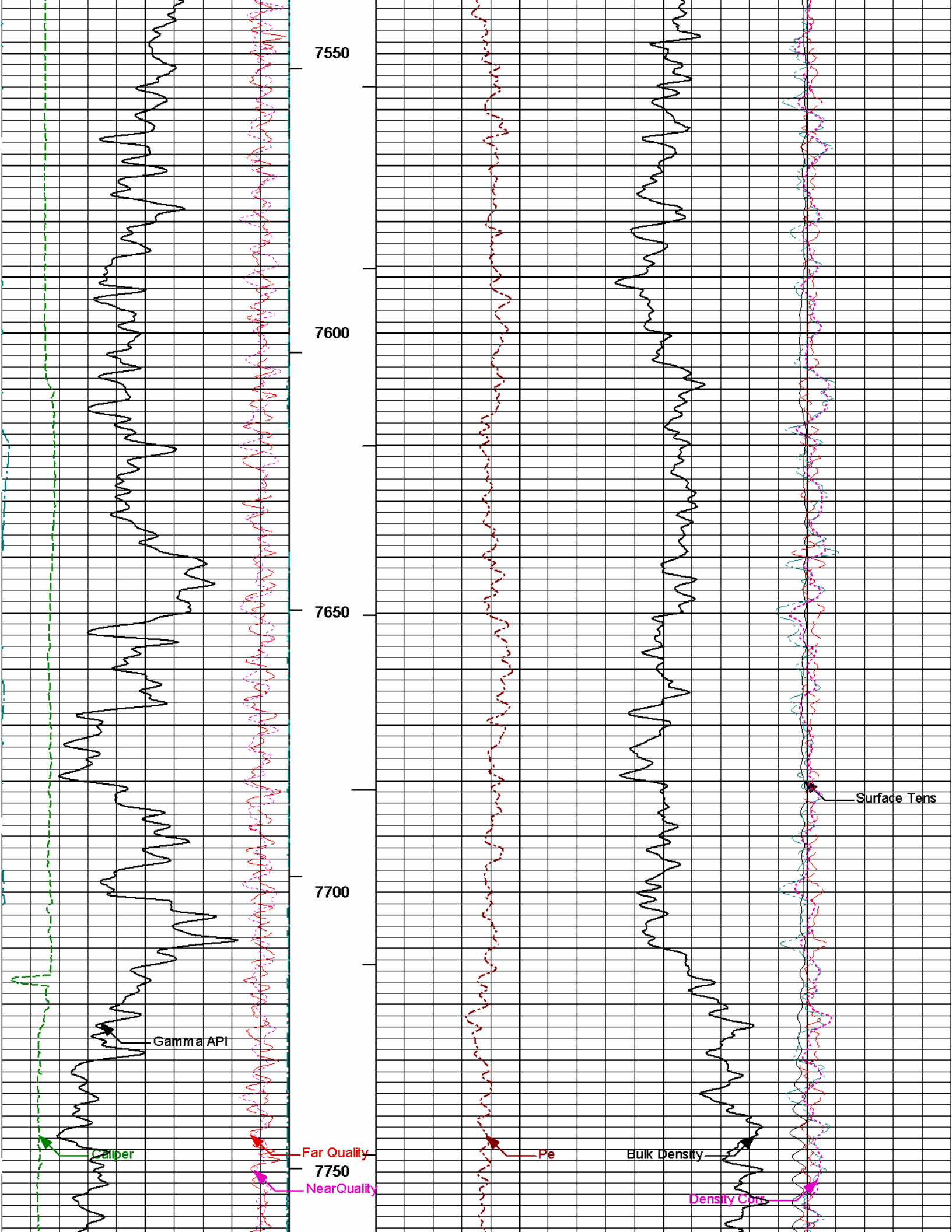


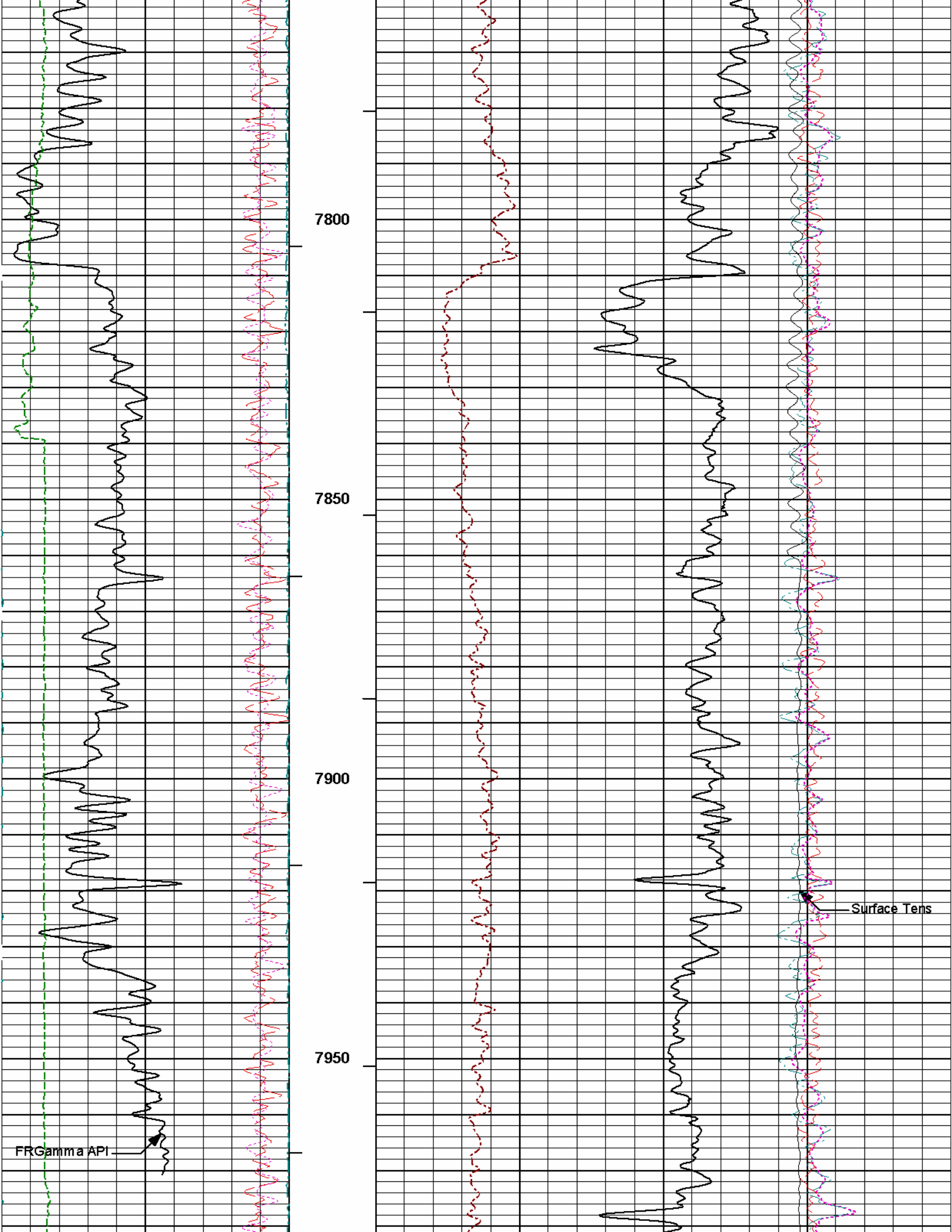


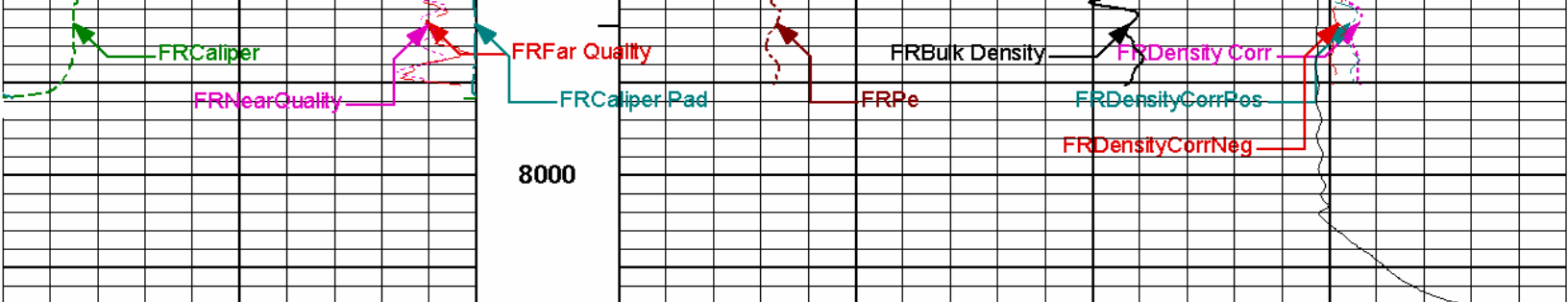












0	Gamma API	250	1 : 240	0	Pe	10	-0.25	Density Corr	0.25
	api							gram per cc	
6	Caliper	16	BHVT				-0.25	DensityCorrPos	0.25
	inches							gram per cc	
0	Caliper Pad	10	AHVT				-0.25	DensityCorrNeg	0.25
	inches							gram per cc	
9	Far Quality	-1						10K Surface Tens	0
								pounds	
-9	NearQuality	1		2	Bulk Density	3			
					gram per cc				

<b>HALLIBURTON</b>	Plot Time: 23-Apr-12 18:35:55 Plot Range: 914 ft to 8014.25 ft Data: HEIN 1-1 Well Based MAIN* Plot File: \\POROIQ_RHOB_5IN_RM
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MAIN PASS 5" = 100'

## HALLIBURTON

### CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION			
<b>Tool Name:</b>	GTET - 11215095	<b>Reference Calibration Date:</b>	13-Apr-12 10:08:49
<b>Engineer:</b>	J. PINKETT	<b>Calibration Date:</b>	13-Apr-12 10:21:55
<b>Software Version:</b>	WL INSITE R3.4.4 (Build 2)	<b>Calibration Version:</b>	1

Calibrator Source S/N: TB 290			
Calibrator API Reference: 230.00 api			
Equivalent Calibrator API Reference: 234.0 api			
Measurement	Measured	Calibrated	Units
Background	68.6	70.8	api
Background + Calibrator	291.6	300.8	api
Calibrator	232.2	230.0	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION			
<b>Tool Name:</b>	GTET - 11215095	<b>Reference Calibration Date:</b>	13-Apr-12 10:21:55
<b>Engineer:</b>	J. PINKETT	<b>Calibration Date:</b>	23-Apr-12 08:40:00
<b>Software Version:</b>	WL INSITE R3.4.4 (Build 2)	<b>Calibration Version:</b>	1

Calibrator Source S/N: TB 290  
Calibrator API Reference: 230.00 api

Field Verification	Shop	Field	Units
Background	70.8	72.7	api
Background + Calibrator	300.8	299.3	api
Calibrator	230.0	226.6	api

Shop	Field	Difference	Tolerance
230.0	226.6	3.4	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name:	DSNT - 11277440	Reference Calibration Date:	13-Apr-12 12:27:11
Engineer:	J. PINKETT	Calibration Date:	13-Apr-12 12:42:50
Software Version:	WL INSITE R3.4.4 (Build 2)	Calibration Version:	1

Logging Source S/N: DSN-430  
Tank Serial Number: 11068236  
Reference value assigned to Tank: 53.720  
Snow Block S/N: 37526  
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:	1.004	1.002	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):	0.2229	0.2224	0.0006	+/- 0.0020
Calibrated Ratio:	10.13	10.11	0.020	+/- 0.050

VERIFIER		
Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0671	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 - 11277440	Reference Calibration Date:	13-Apr-12 12:42:50
Engineer:	J. PINKETT	Calibration Date:	23-Apr-12 09:55:22
Software Version:	WL INSITE R3.4.4 (Build 2)	Calibration Version:	1

Logging Source S/N: DSN-430  
Snow Block S/N: 37526

NEUTRON FIELD-CHECK SUMMARY				
	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0671	0.0650	-0.0021	+/- 0.0150

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

Passed  
Passed  
Passed

### DENSITY CALIPER SHOP CALIBRATION

Tool Name: SDLT - M319\_P123\_BLUE

Reference Calibration Date: 13-Apr-12 10:06:31

Engineer: J. PINKETT

Calibration Date: 13-Apr-12 10:12:25

Software Version: WL INSITE R3.4.4 (Build 2)

Calibration Version: 1

#### CALIBRATION COEFFICIENTS

Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-2747.71	-2760.54	-7000.00 - -1000.00
Pad Gain	0.0003864	0.0003890	0.000200 - 0.000600
Arm Offset	-1879.95	-1286.22	-5000.00 - 3000.00
Arm Gain	0.0005413	0.0004847	0.000300 - 0.000700
Arm Power	-0.000006916	-0.000003541	-0.000010 - 0.000010

The ring diameter is computed from:  $\text{DIAMETER} = \text{PAD EXTENSION} + \text{ARM EXTENSION} + \text{TOOL DIAMETER}$

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)	1.99	2.00	0.01	+/- 0.20
Medium Ring (in)	3.73	3.75	0.02	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.42	6.50	0.08	+/- 0.20
Medium Ring (in)	8.30	8.25	-0.05	+/- 0.20
Large Ring (in)	14.99	15.00	0.01	+/- 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 - M319\_P123\_BLUE

Reference Calibration Date: 13-Apr-12 10:12:25

Engineer: J. PINKETT

Calibration Date: 23-Apr-12 10:01:55

Software Version: WL INSITE R3.4.4 (Build 2)

Calibration Version: 1

#### MEASURED CALIPER VALUES

Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.65	-0.10	+/- 0.10
Ring Diameter	8.25	8.15	-0.10	+/- 0.15

#### PASS/FAIL SUMMARY

Pad Extension Check: Passed  
Diameter Check: Passed

### ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION

Tool Name: ACRT Sonde - E2584-S2585

Reference Calibration Date: 28-Jul-11 16:05:50

Engineer: C. BLUE

Calibration Date: 17-Feb-12 02:58:12

Software Version: WL INSITE R3.4.4 (Build 2)

Calibration Version: 1



TYPICAL GAIN RANGE									
Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A 1 (80")	0.95	1.0033	1.05	0.95	1.0042	1.05	0.95	1.0033	1.05
A 2 (50")	0.95	1.0018	1.05	0.95	1.0042	1.05	0.95	1.0063	1.05
A 3 (29")	0.95	0.9952	1.05	0.95	0.9961	1.05	0.95	0.9967	1.05
A 4 (17")	0.95	0.9953	1.05	0.95	0.9938	1.05	0.95	0.9965	1.05
A 5 (10")	N/A	N/A	N/A	0.95	0.9840	1.05	0.95	0.9856	1.05
A 6 (6")	N/A	N/A	N/A	0.95	0.9693	1.05	0.95	0.9711	1.05

TYPICAL SONDE OFFSET RANGE									
Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A 1 (80")	-5	-0.916	2	-6	-4.084	-2	-8	-5.369	-2
A 2 (50")	-7	-1.297	-1	-6	-3.575	-2	-7	-4.655	-2
A 3 (29")	-27	-12.240	-9	-9	-3.457	-3	-7	-3.376	-1
A 4 (17")	-180	-92.899	-60	-45	-29.938	-15	-39	-24.840	-13
A 5 (10")	N/A	N/A	N/A	-150	-83.643	-50	-80	-42.487	-10
A 6 (6")	N/A	N/A	N/A	175	304.068	525	90	152.524	270

TRANSMITTER CURRENT GAIN					R-MUD VERIFICATION			
Signal	Lower	R	Upper		Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
12K	0.6	0.8674	1.3		Mud Cell	0.95	0.997	1.05
36K	1.0	1.9281	2.0					
72K	1.0	1.1211	2.0					

SPECTRAL DENSITY SHOP CALIBRATION			
Tool Name:	SDLT Pad - M319_P123_BLUE	Reference Calibration Date:	13-Apr-12 11:11:41
Engineer:	J. PINKETT	Calibration Date:	13-Apr-12 11:31:11
Software Version:	WL INSITE R3.4.4 (Build 2)	Calibration Version:	1

Logging Source S/N: 5256GW		
Aluminum Block S/N: 63066 (BRIGHTON AL BLOCK)	Density: 2.602g/cc	Pe: 3.100
Magnesium Block S/N: 12345	Density: 1.691g/cc	Pe: 2.650

DENSITY CALIBRATION SUMMARY			
Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0228	1.0144	0.90 - 1.10
Near Dens Gain	0.9790	0.9748	0.90 - 1.10
Near Peak Gain	0.9776	0.9545	0.90 - 1.10
Near Lith Gain	0.9946	0.9786	0.90 - 1.10
Far Bar Gain	0.9987	0.9960	0.90 - 1.10
Far Dens Gain	0.9894	0.9876	0.90 - 1.10
Far Peak Gain	0.9841	0.9840	0.90 - 1.10
Far Lith Gain	0.9632	0.9625	0.90 - 1.10
Near Bar Offset	-0.0287	0.0480	NONE
Near Dens Offset	0.3841	0.4196	NONE
Near Peak Offset	0.4723	0.6614	NONE
Near Lith Offset	0.3896	0.5175	NONE
Far Bar Offset	0.0215	0.0450	NONE
Far Dens Offset	0.0839	0.0987	NONE
Far Peak Offset	0.1117	0.1089	NONE

Far Peak Offset	0.2668	0.2698	NONE
Near Bar Background	824.04	829.45	700 - 1450
Near Dens Background	272.42	272.67	230 - 480
Near Peak Background	118.21	117.61	100 - 210
Near Lith Background	145.49	146.89	125 - 260
Far Bar Background	526.67	528.67	450 - 900
Far Dens Background	201.85	205.02	175 - 345
Far Peak Background	79.25	78.80	70 - 140
Far Lith Background	83.56	83.59	75 - 145

CALIBRATION BLOCK SUMMARY				
Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.691	1.691	-0.000	+/- 0.015
Pe	2.575	2.601	0.026	+/- 0.150
ALUMINUM				
Density (g/cc)	2.601	2.602	0.002	+/- 0.01500
Pe	3.050	3.061	0.011	+/- 0.150

TOOL SUMMARY				
Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	0.0009	+/- 0.0110	0.0004	+/- 0.0140
Magnesium Block	-0.0009	+/- 0.0110	-0.0007	+/- 0.0140
Aluminum Block	0.0001	+/- 0.0110	-0.0011	+/- 0.0140
Resolution	9.48	6.00 - 11.50	9.69	6.00 - 11.50
Internal Verifier(B+D+P+L)	1367	1200 - 2700	896	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 - M319\_P123\_BLUE

Reference Calibration Date: 13-Apr-12 11:31:11

Engineer: J. PINKETT

Calibration Date: 23-Apr-12 08:39:09

Software Version: WL INSITE R3.4.4 (Build 2)

Calibration Version: 1

Pad Temperature: 67.1 degF

DENSITY FIELD CALIBRATION SUMMARY				
Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1366.622	1364.029	-2.593	14.941
Far (B+D+P+L) cps	896.085	895.927	-0.158	16.289
Near Resolution	9.48	9.62	0.140	0.50

Far Resolution

9.69

9.87

0.180

1.00

**PASS/FAIL SUMMARY**

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

**MICRO LOG SHOP CALIBRATION****Tool Name:** Microlog Pad - M319\_P123\_BLUE**Reference Calibration Date:** 13-Apr-12 11:46:20**Engineer:** J. PINKETT**Calibration Date:** 13-Apr-12 11:48:38**Software Version:** WL INSITE R3.4.4 (Build 2)**Calibration Version:** 1**CALIBRATION COEFFICIENT SUMMARY**

Measurement	Micro Log Normal		Micro Log Lateral		Units
	Measured	Calibrated	Measured	Calibrated	
Tool Zero	-0.41	-0.42	-0.00	-0.00	ohmm
Calibration Point #1	0.00	0.00	-0.00	0.00	ohmm
Calibration Point #2	20.01	20.00	20.02	20.00	ohmm
Internal Reference	19.60	19.60	20.01	19.99	ohmm

Measurement	Micro Log Normal Tool Value	Micro Log Lateral Tool Value	Units
Tool Zero	-0.89	0.13	V
Calibration Point #1	110.27	1.15	V
Calibration Point #2	5444.82	6890.93	V
Internal Reference	5337.47	6888.76	V

**MICRO LOG FIELD CHECK****Tool Name:** Microlog Pad - M319\_P123\_BLUE**Reference Calibration Date:** 13-Apr-12 11:48:38**Engineer:** J. PINKETT**Calibration Date:** 23-Apr-12 16:01:59**Software Version:** WL INSITE R3.4.4 (Build 2)**Calibration Version:** 1

Measurement	Micro Log Normal		Micro Log Lateral		Units
	Shop	Field	Shop	Field	
Tool Zero	-0.42	-0.41	-0.00	-0.00	ohmm
Internal Reference	19.60	19.68	19.99	20.06	ohmm

Summary				
Signal	Shop	Field	Difference	Tolerance
Microlog Normal	19.60	19.68	-0.08	+/- 0.80
Microlog Lateral	19.99	20.06	-0.07	+/- 0.80

**CALIBRATION SUMMARY**

Sensor	Shop	Field	Post	Difference	Tolerance	Units
<b>GTET-11215095</b>						
Gamma Ray Calibrator	230.0	226.6	-----	3.4	+/- 9.00	api
<b>DSNT-11277440</b>						
Snow-Block Porosity	0.0671	0.0650	-----	0.0021	+/- 0.0150	decP
<b>SDLT-M319_P123_BLUE</b>						
Pad Extension	3.75	3.65	-----	0.10	+/-0.10	in
Ring Diameter	8.25	8.15	-----	0.100	+/-0.15	in
<b>ACRt Sonde-E2584-S2585</b>						
Mud Cell	0.997	-----	-----	0.000	-----	ohm-m

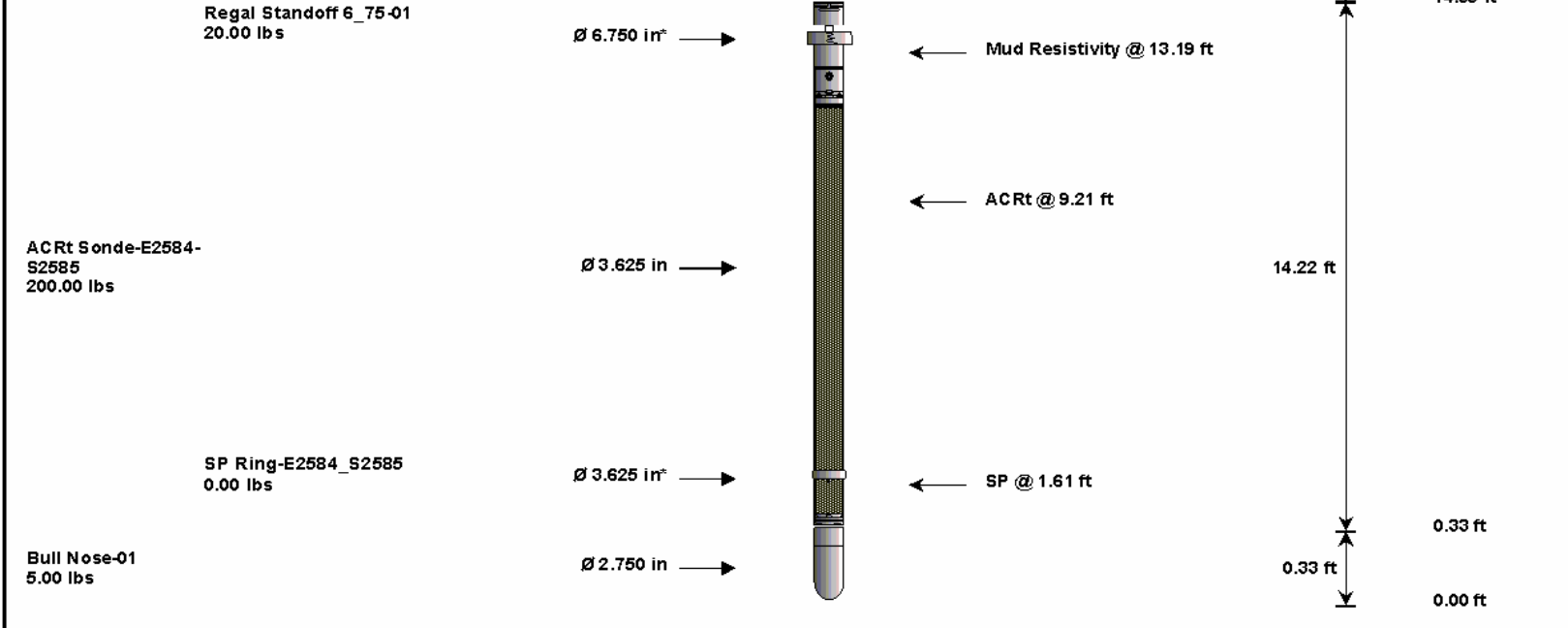
SDLT Pad-M319\_P123\_BLUE

Near(B+D+P+L)	1366.622	1364.029	-----	2.593	+/-14.941	cps
Far(B+D+P+L)	896.085	895.927	-----	0.158	+/-16.289	cps
Microlog Pad-M319_P123_BLUE						
MicroLog Normal	19.60	19.68	-----	-0.08	+/-0.80	ohmm
MicroLog Lateral	19.99	20.06	-----	-0.07	+/-0.80	ohmm
Data: HEIN 1-110001 ANADARKO_21001 23-Apr-12 16:02 Dn @499.3f						
Date: 23-Apr-12 16:17:44						

**HALLIBURTON**

## TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
RWCH-11830866 135.00 lbs		Ø 3.625 in →		Load Cell @ 51.17 ft BH Temperature @ 50.60 ft	6.25 ft	54.85 ft
GTET-11215095 165.00 lbs		Ø 3.625 in →		GammaRay @ 42.54 ft	8.52 ft	48.60 ft
DSNT-11277440 174.00 lbs		Ø 3.625 in →		DSN Far @ 33.15 ft DSN Near @ 32.40 ft	9.69 ft	40.08 ft
SDLT-M319_P123_BLUE 360.00 lbs	SDLT Pad-M319_P123_BLUE 65.00 lbs  Microlog Pad-M319_P123_BLUE 8.00 lbs	Ø 4.500 in → Ø 4.750 in" → Ø 4.750 in" →		Microlog @ 22.58 ft SDL Caliper @ 22.40 ft SDL @ 22.39 ft	10.81 ft	30.40 ft
ACRt Instrument-11532584 50.00 lbs		Ø 3.625 in →			5.03 ft	19.58 ft
						14.55 ft



Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max.Log. Speed (fpm)
RWCH	Releasable Wireline Cable Head	11830866	135.00	6.25	48.60	300.00
GTET	Gamma Telemetry Tool	11215095	165.00	8.52	40.08	60.00
DSNT	Dual Spaced Neutron	11277440	174.00	9.69	30.40	60.00
SDLT	Spectral Density Tool	M319_P123_BLUE	360.00	10.81	19.58	60.00
MICP	Microlog Pad	M319_P123_BLUE	8.00	1.00	* 22.08	60.00
SDLP	Density Insite Pad	M319_P123_BLUE	65.00	2.55	* 21.79	60.00
ACRt	Array Compensated True Resistivity Instrument Section	11532584	50.00	5.03	14.55	300.00
ACRt	Array Compensated True Resistivity	E2584-S2585	200.00	14.22	0.33	300.00
SP	SP Ring	E2584_S2585	0.00	0.25	* 1.61	300.00
RSOF	Regal Standoff 6.75in	01	20.00	0.52	* 13.33	300.00
BLNS	Bull Nose	01	5.00	0.33	0.00	300.00
Total			1,182.00	54.85		

\* Not included in Total Length and Length Accumulation.

Data: HEIN 1-110001 ANADARKO\_21002 23-Apr-12 16:05 Dn @692.3f Date: 23-Apr-12 16:16:55

COMPANY	KERR-MCGEE OIL & GAS ONSHORE LP		
WELL	HEIN 1-1		
FIELD	WATTENBERG		
COUNTY	WELD	STATE	CO
HALLIBURTON		SPECTRAL DENSITY DUAL SPACED NEUTRON	