

HALLIBURTON

HIGH RES. INDUCTION  
SPECTRAL DENSITY  
DUAL SPACED NEUTRON

COMPANY		LARAMIE ENERGY II	
WELL		FEDERAL 29-02B	
FIELD		RULISON	
COUNTY		GARFIELD	
STATE		CO	
Permanent Datum		GL	Elev. 5734.0 ft
Log measured from		KB	Elev. 5754.0 ft
Drilling measured from		KB	D.F. 5754.0 ft
Date		25-Sep-08	G.L. 5734.0 ft
Run No.		ONE	
Depth - Driller		9720.0 ft	
Depth - Logger		9724.0 ft	
Bottom - Logged Interval		9714.0 ft	
Top - Logged Interval		CASING	
Casing - Driller		8.625 in	@
Casing - Logger		1610.0 ft	@
Bit Size		7.875 in	@
Type Fluid in Hole		LSND	@
Density		12.6 ppg	
Viscosity		49.00 s/qt	
PH		9.50 pH	7.2 cptrn
Source of Sample		MUD TANK	
Rm @ Meas. Temperature		2.10 ohmm	@ 74.00 degF
Rmf @ Meas. Temperature		1.65 ohmm	@ 71.00 degF
Rmc @ Meas. Temperature		2.56 ohmm	@ 73.00 degF
Source Rmf		Rmc	MEAS.
Rm @ BHT		0.71 ohmm	@ 231.0 degF
Time Since Circulation		18.8 hr	
Time on Bottom		25-Sep-08 02:45	
Max. Rec. Temperature		231.0 degF	@ 9724.0 ft
Equipment		10549593	G.J.
Recorded By		GBOOK	
Witnessed By		M. BLAKELY	M. BIERY

Fold here

Service Ticket No.: 6196587				API Serial No.: 05045157810000				PGM Version: WL INSITE R2.2 (Build 9)											
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									
Rmf @ Meas. Temp.		@		@		ONE		HRI-I81S0944		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.		034		Serial No.				Serial No.		I066M066		Serial No.		I08734					
Model No.		D4TG-X		Model No.				Model No.		SDL-DA		Model No.		DSN-II					
Diameter		3.625"		No. of Cent.				Diameter		4.5"		Diameter		3.625"					
Detector Model No.		D4TG-X		Spacing				Log Type		GAMMA-GAMMA		Log Type		THERMAL					
Type		SCINT.						Source Type		Cs 137		Source Type		Am241Be					
Length		8"		LSA [Y/N]				Serial No.		2189GW		Serial No.		DSN-60					
Distance to Source		72.86'		FWDA [Y/N ]				Strength		18.5 Ci		Strength		1.5 Ci					
LOGGING DATA																			
GENERAL				GAMMA				ACOUSTIC				DENSITY				NEUTRON			



D4TGX	GEOK	Process Gamma Ray EVR?	No	
DSN_II	DNOK	Process DSN?	Yes	
DSN_II	DEOK	Process DSN EVR?	No	
DSN_II	NLIT	Neutron Lithology	Sandstone	
DSN_II	DNSO	DSNTool Standoff	0.000	in
DSN_II	DNTP	Temperature Correction Type	None	
DSN_II	DPRS	DSN Pressure Correction Type	None	
DSN_II	SHCO	View More Correction Options	No	
DSN_II	UTVD	Use TVD for Gradient Corrections?	No	
DSN_II		Logging Horizontal Water Tank?	No	
SDL_DA	DNOK	Process Density?	Yes	
SDL_DA	DNOK	Process Density EVR?	No	
SDL_DA	AD	Is Hole Air Drilled?	No	
SDL_DA	CB	Use Calibration Blocks?	No	
SDL_DA	SPVT	SDLT Pad Temperature Valid?	Yes	
SDL_DA	MDTP	Weighted Mud Correction Type?	Barite	
SDL_DA	DMA	Formation Density Matrix	2.680	g/cc
SDL_DA	DFL	Formation Density Fluid	1.000	g/cc
SDL_DA	CLOK	Process Caliper Outputs?	Yes	
SDL_DA	MLOK	Process MicroLog Outputs?	Yes	
HRID	HRE	Do HRI Induction Calculation?	Yes	
HRID	DFLE	Do DFL Calculation?	Yes	
HRID	PYRI	Pyrite Switch	Off	
HRID	CSDP	Casing Depth	1580.0	ft
HRID	HDSP	Spike Reduction Filter Type	DELTA	
HRID	HRTC	Temperature Correction Source	None	
HRID	MMRS	Hrimap Minimum Resistivity	0.20	
HRID	MXRS	Hrimap Maximum Resistivity	200.00	

BOTTOM

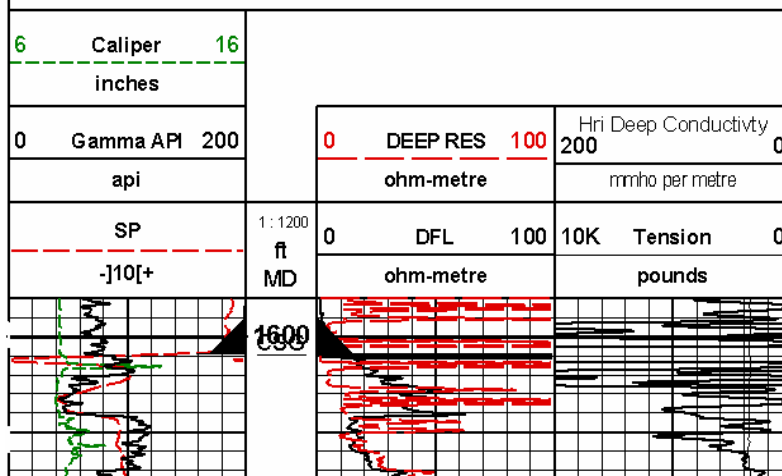
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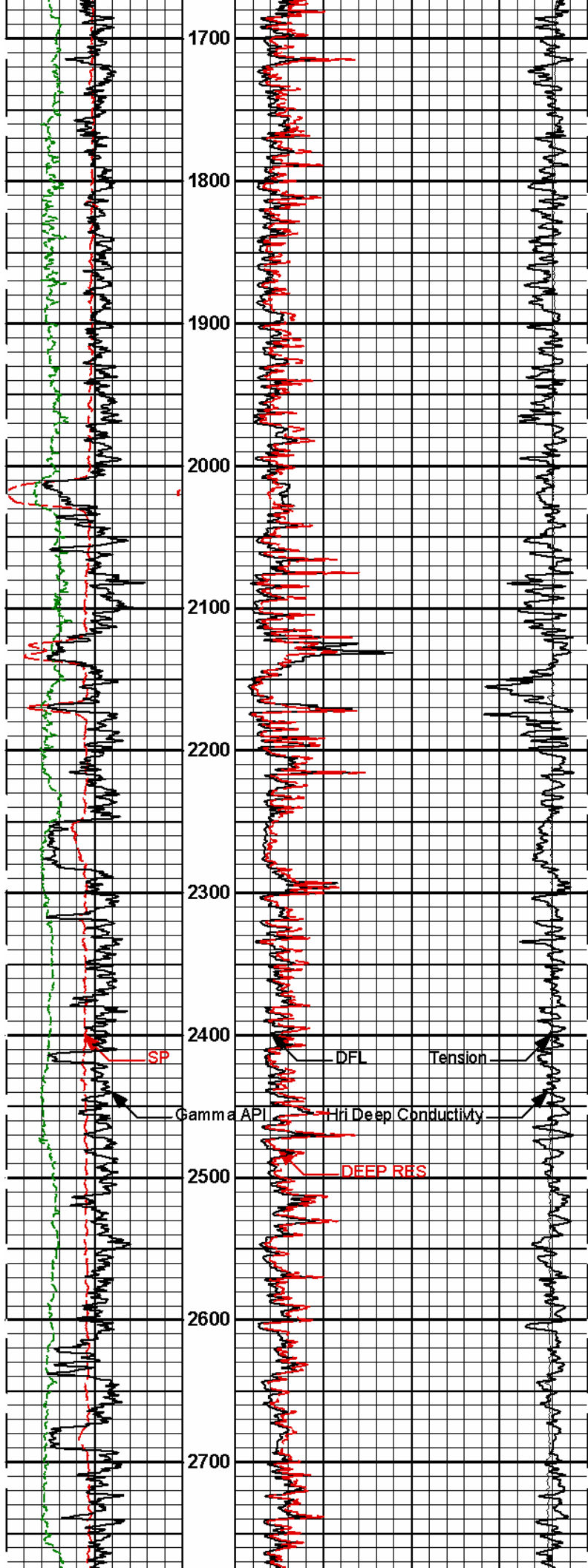
Date: 25-Sep-08 05:19:08

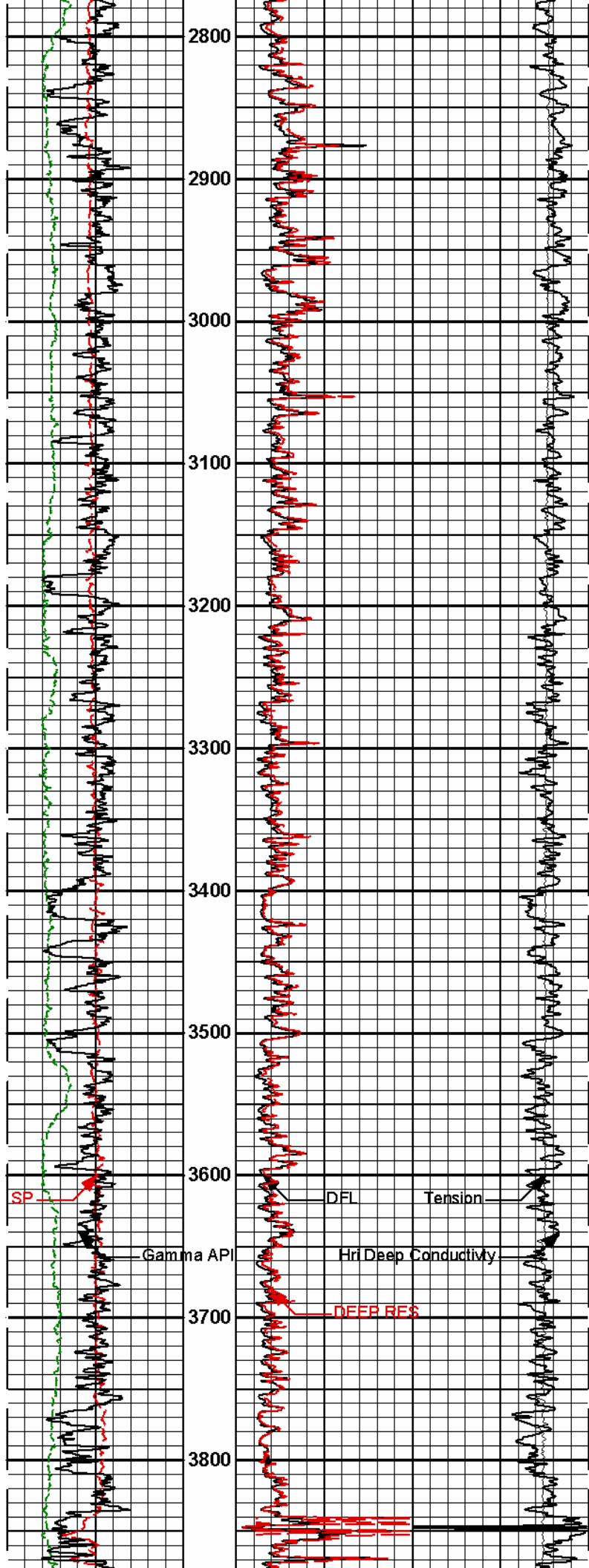
**HALLIBURTON**

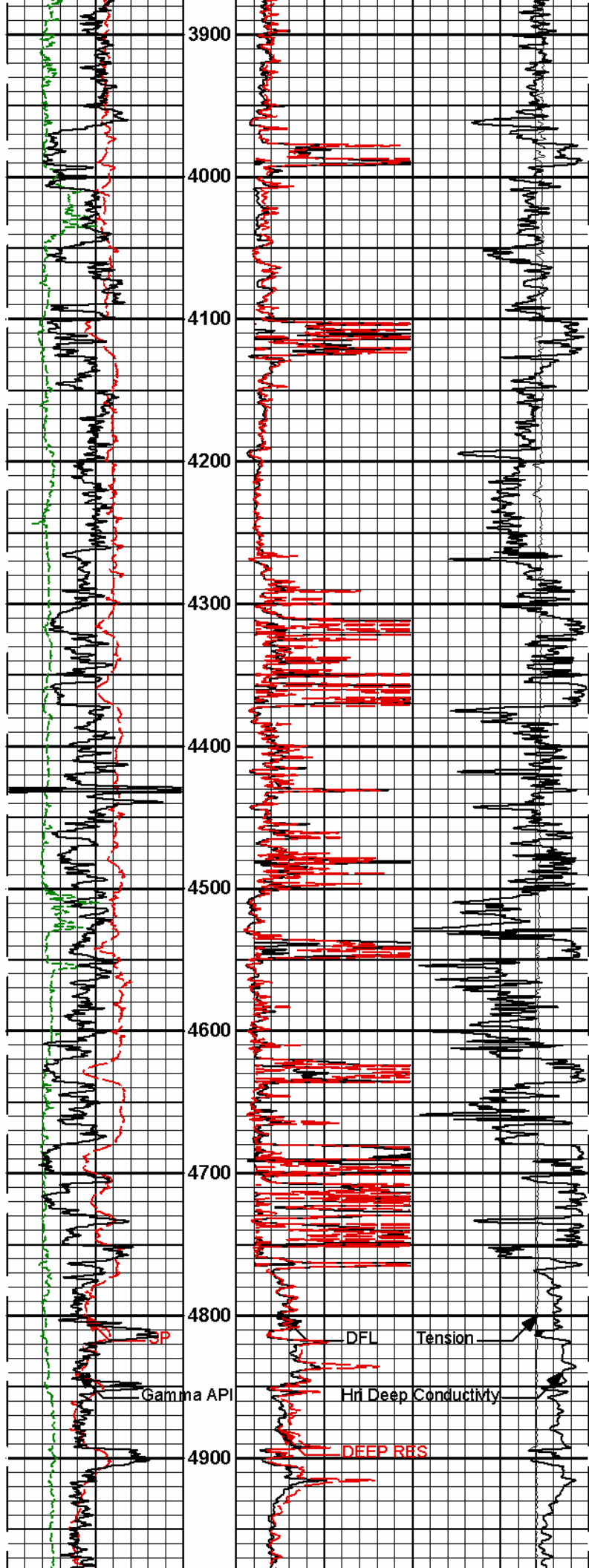
Plot Time: 25-Sep-08 23:03:18  
Plot Range: 1580 ft to 9750 ft  
LAR\_FED\_29-02BWell Based...  
Plot File: \\...MAIN\_1IN\_WILLIAMS

**MAIN PASS 1" = 100' (HALF SCALE)**

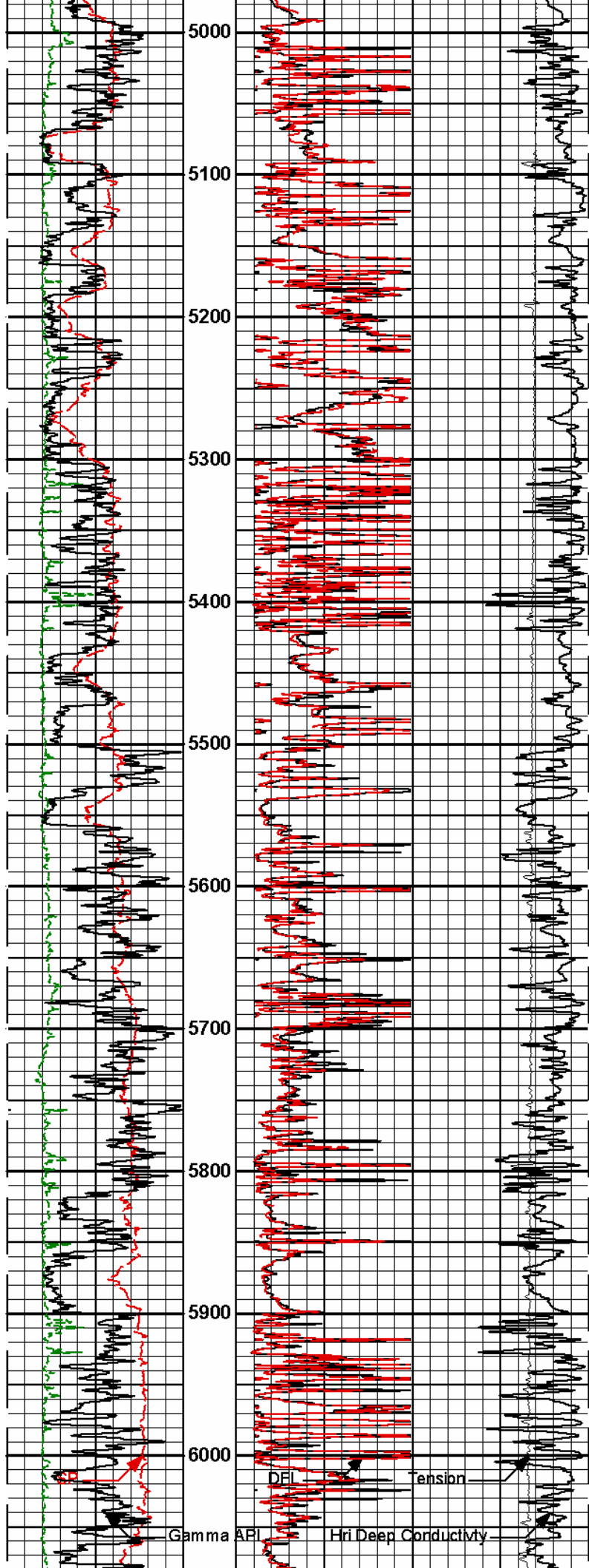


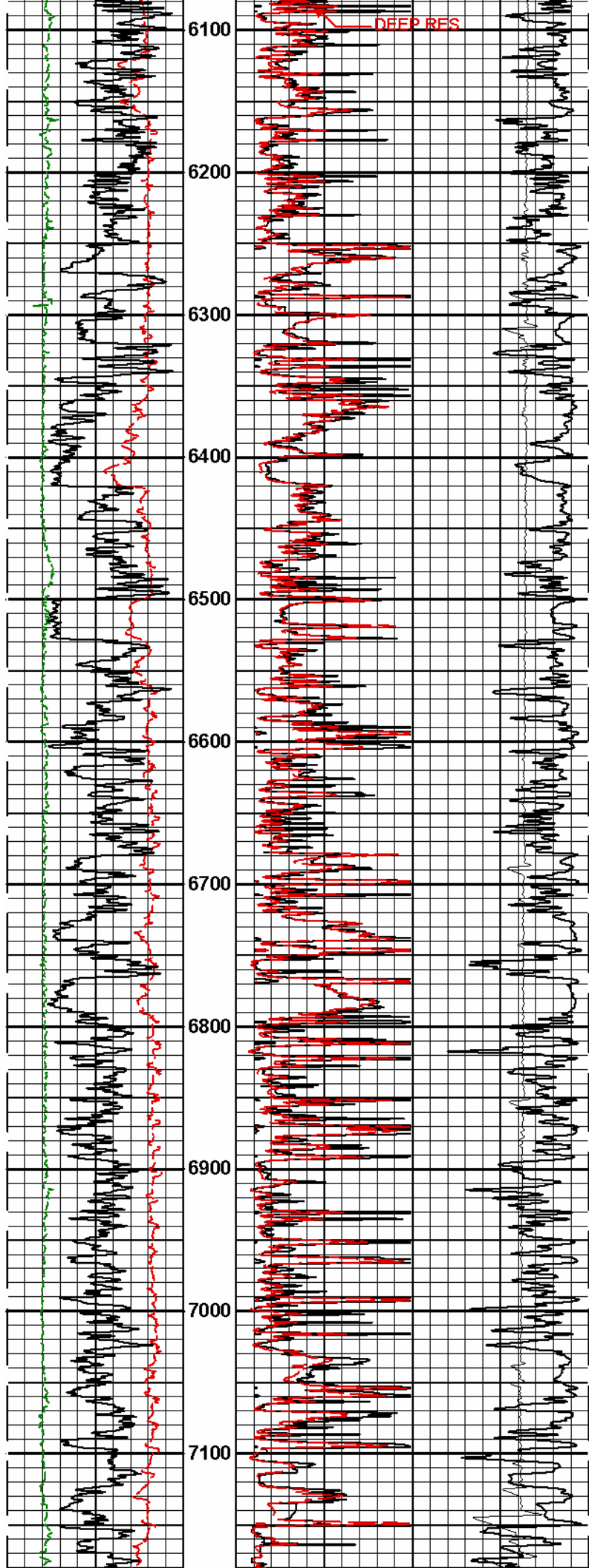




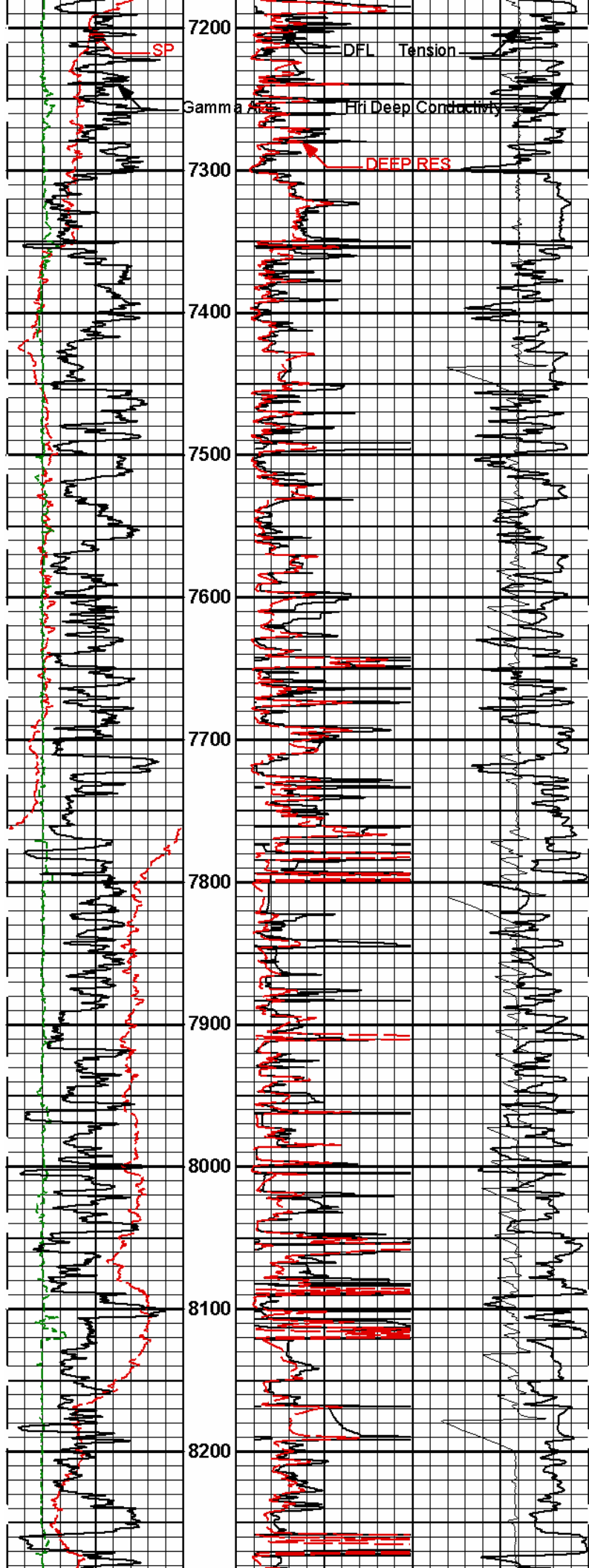


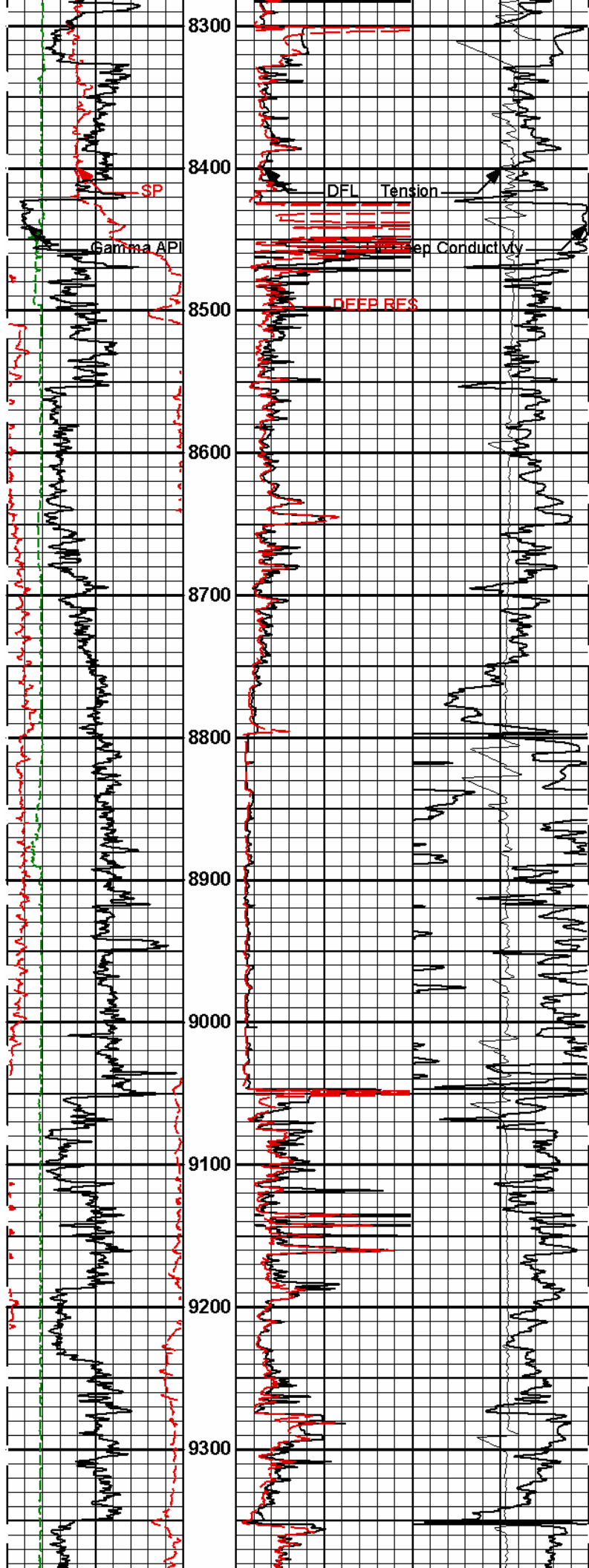
DEEP RES

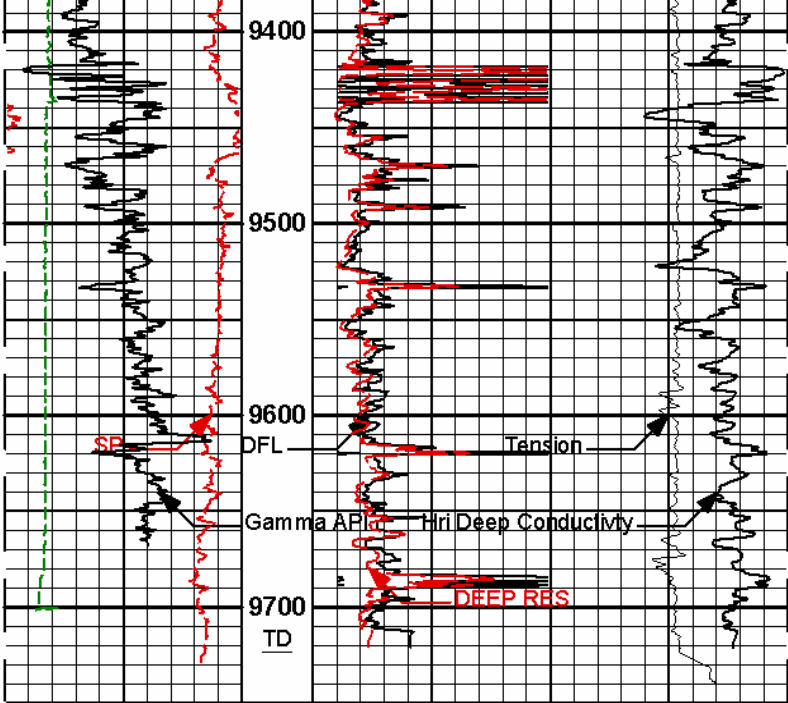












SP		1: 1200 ft MD	0	DFL	100	10K	Tension	0
-]10[+			ohm-metre			pounds		
0	Gamma API	200	0	DEEP RES	100	Hri Deep Conductivity		0
api				ohm-metre			200 mmho per metre	
6	Caliper	16						
inches								

HALLIBURTON

Plot Time: 25-Sep-08 23:06:05  
Plot Range: 1580 ft to 9750 ft  
LAR\_FED\_29-02BIWell Based...  
Plot File: \\...\\MAIN\_1IN\_WILLIAMS

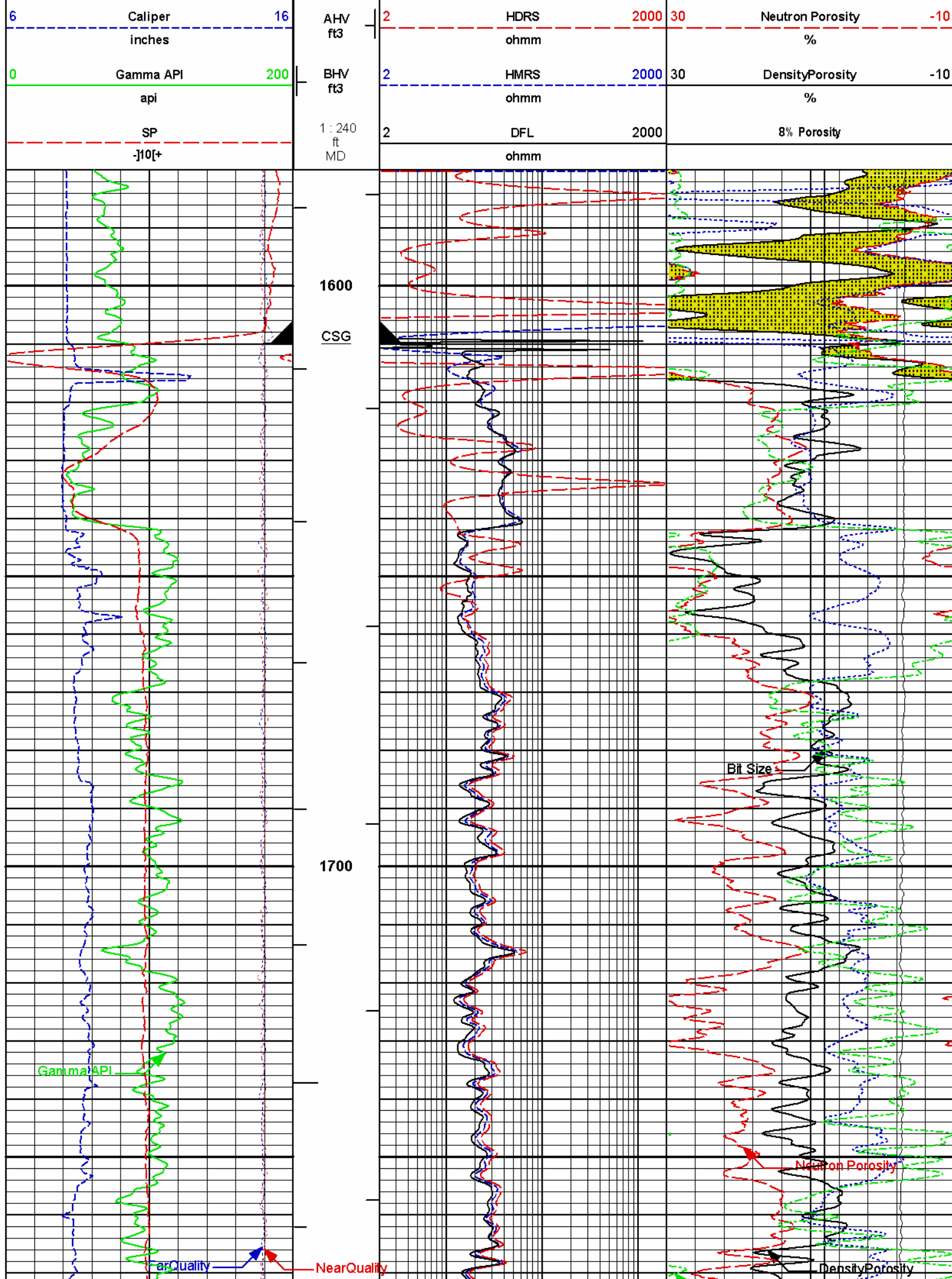
MAIN PASS 1" = 100' (HALF SCALE)

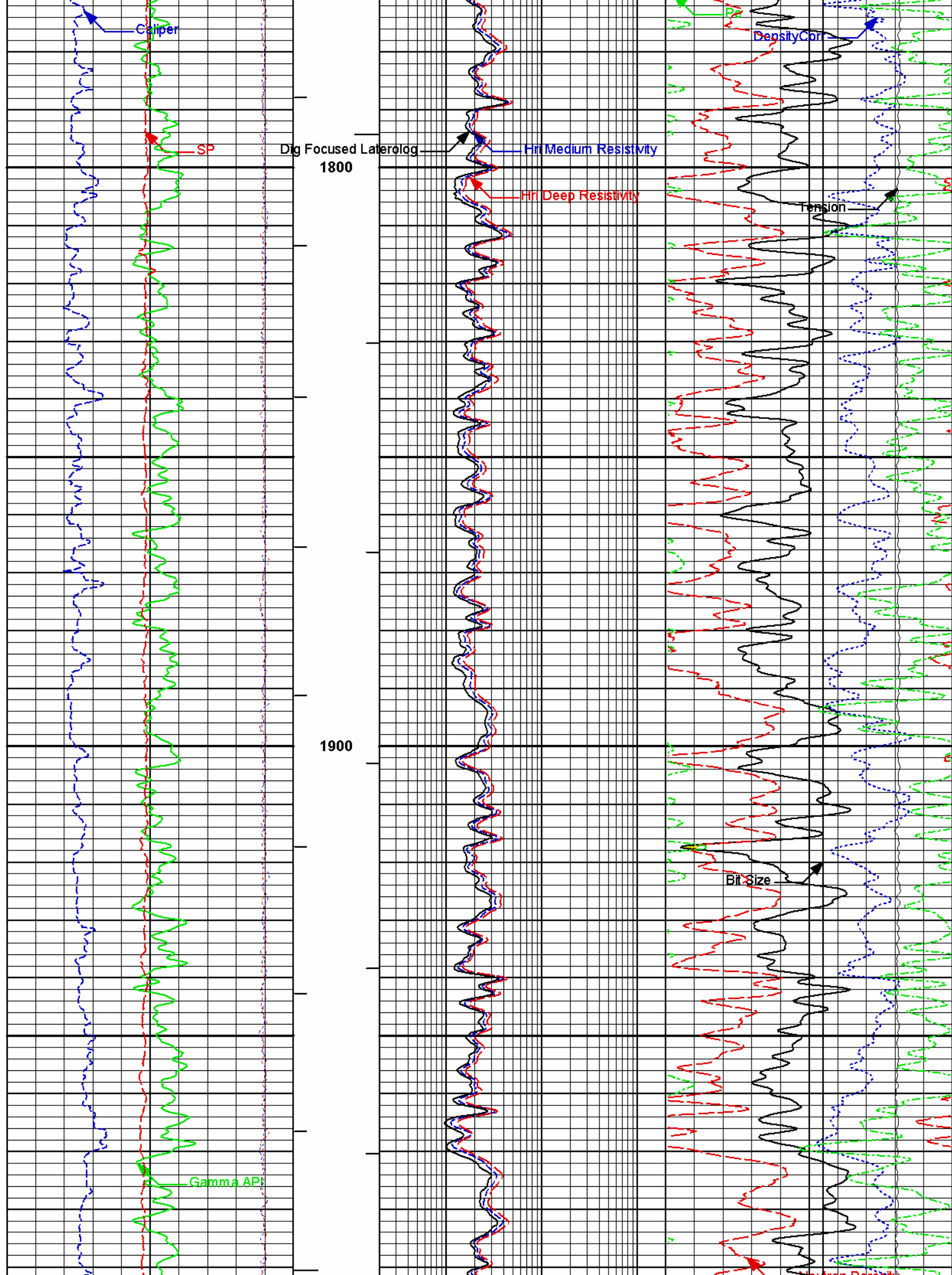
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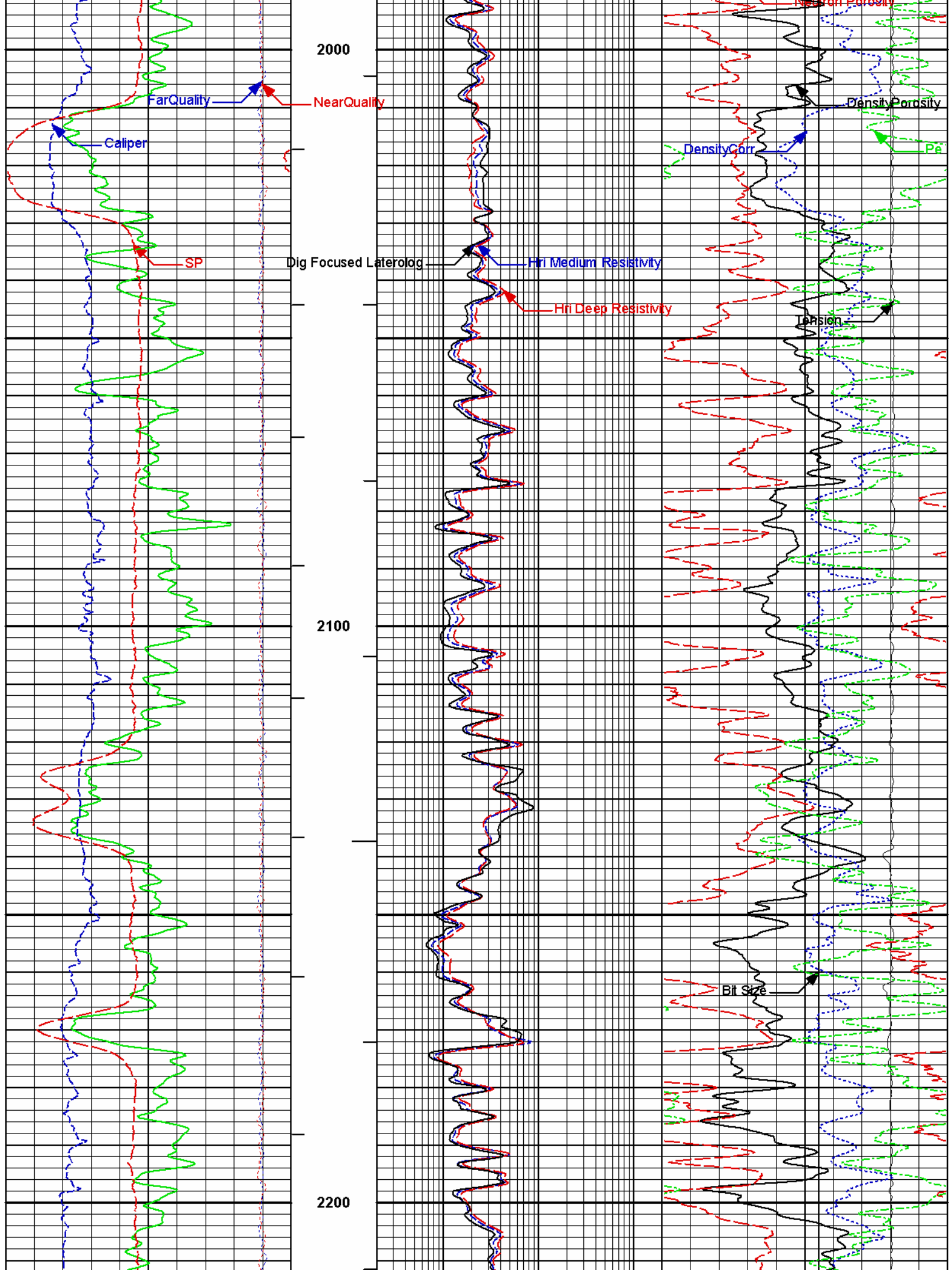
Plot Time: 25-Sep-08 23:06:05  
Plot Range: 1580 ft to 9742 ft  
Data: LAR\_FED\_29-02BIWell Based\\MAIN PASS - CASING\\  
Plot File: \\-LOCAL-\\LAR\_FED\_29-02BI0001 TRIPLE-DC\\TRIPLE\\MAIN PASS

MAIN PASS 5" = 100'

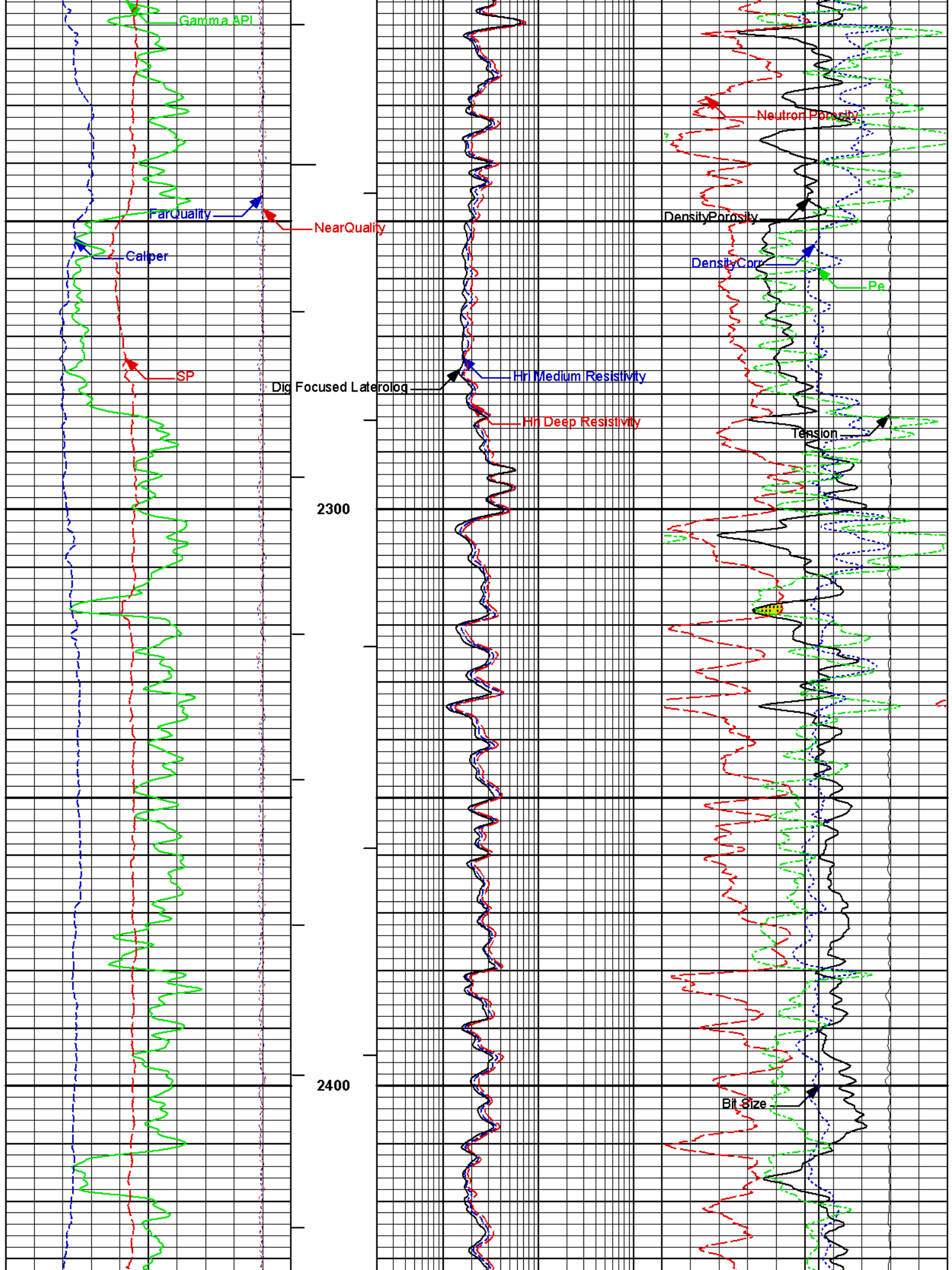
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		lbs		
45	FarQuality	-5	Pe	10
-45	NearQuality	5	DensityCorr	0.25
		g/cc		

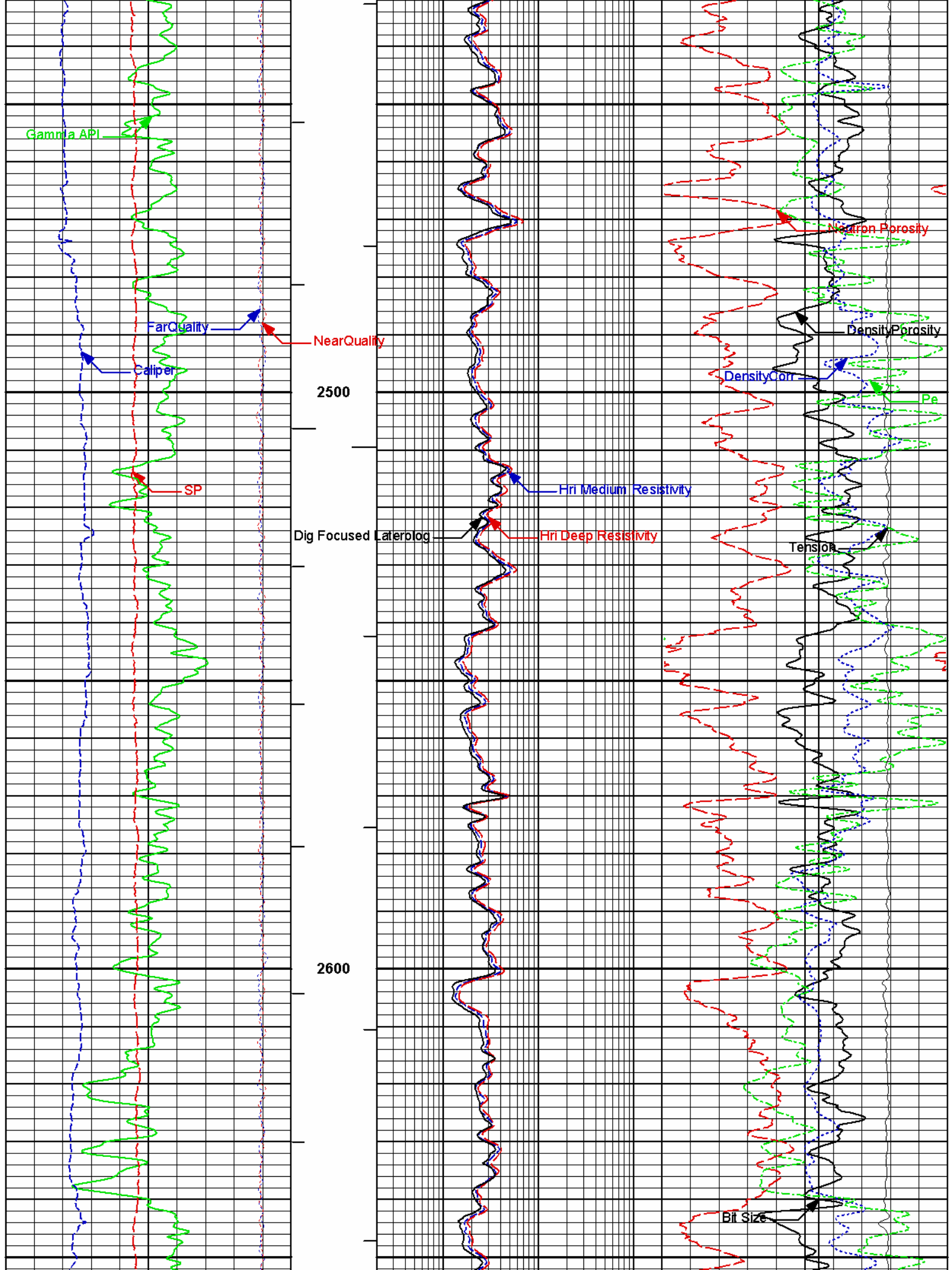




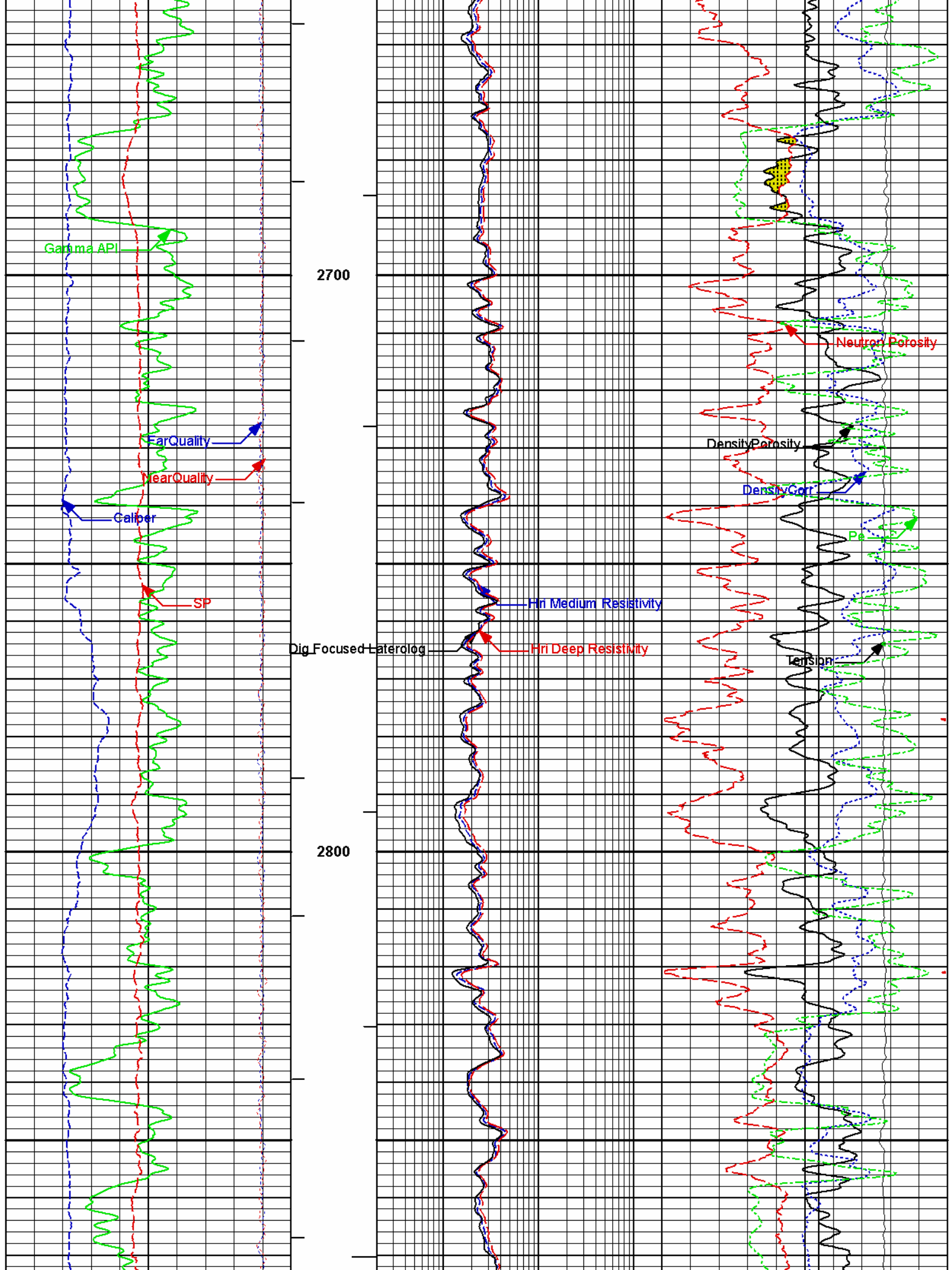


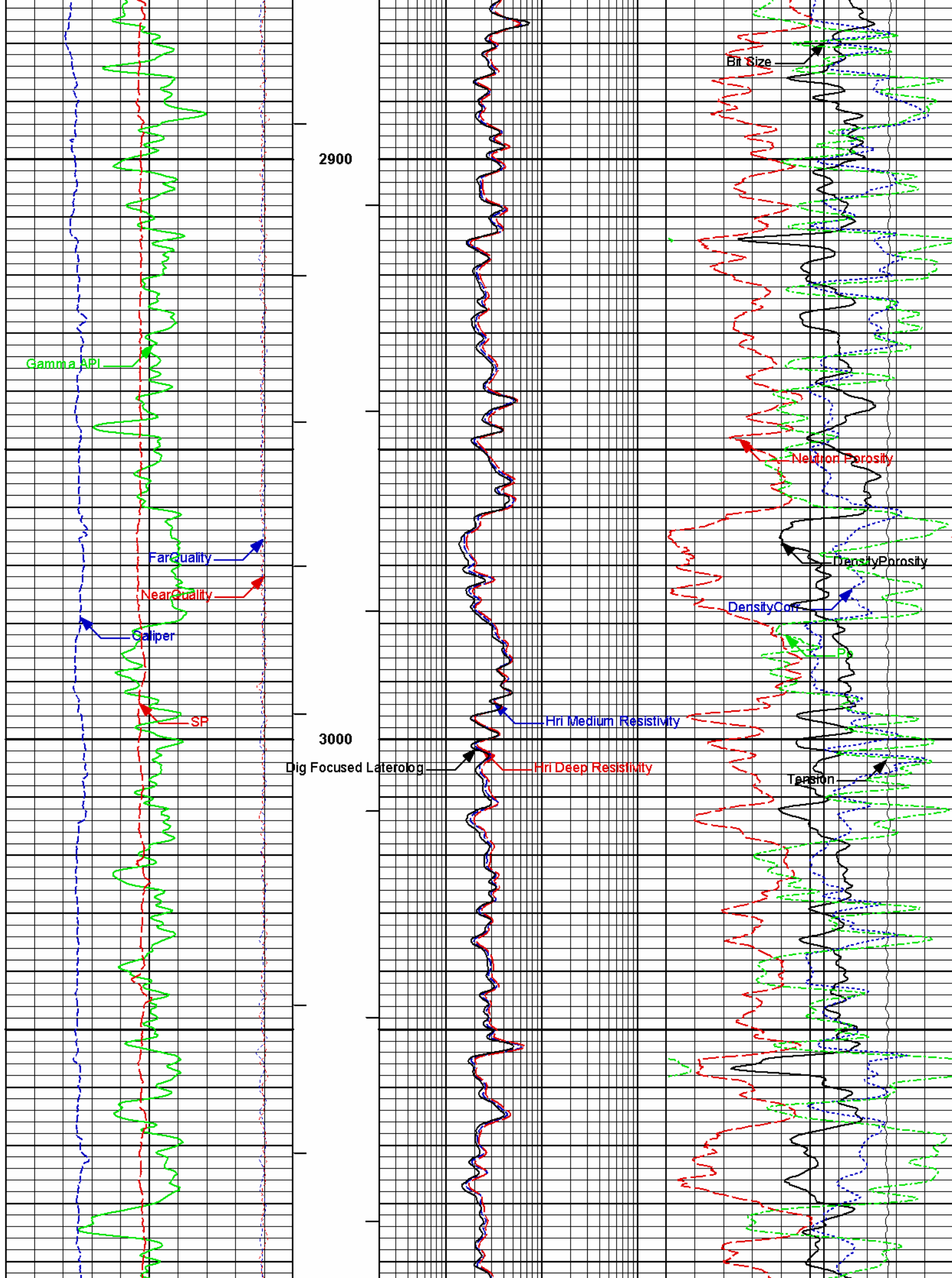


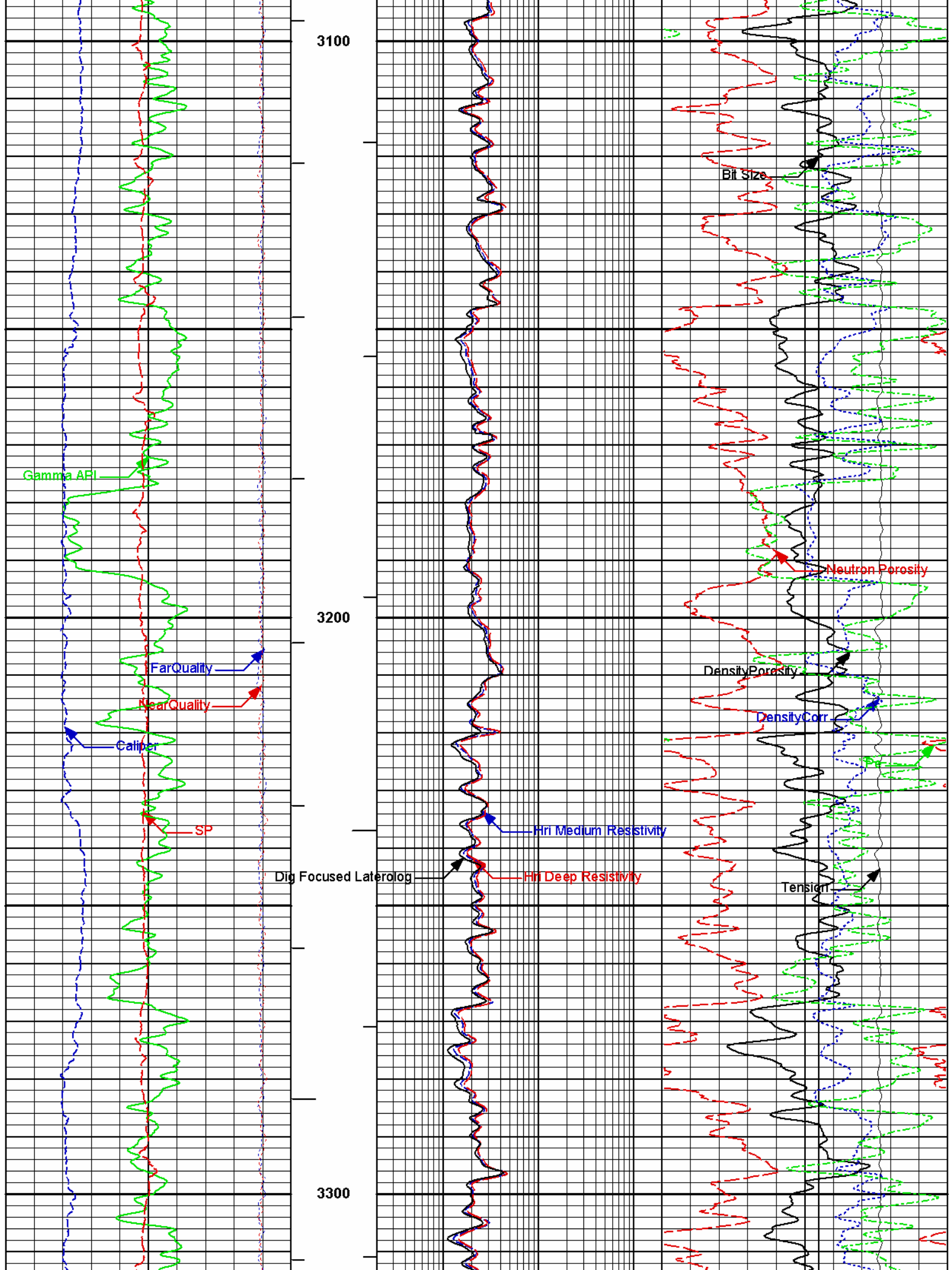


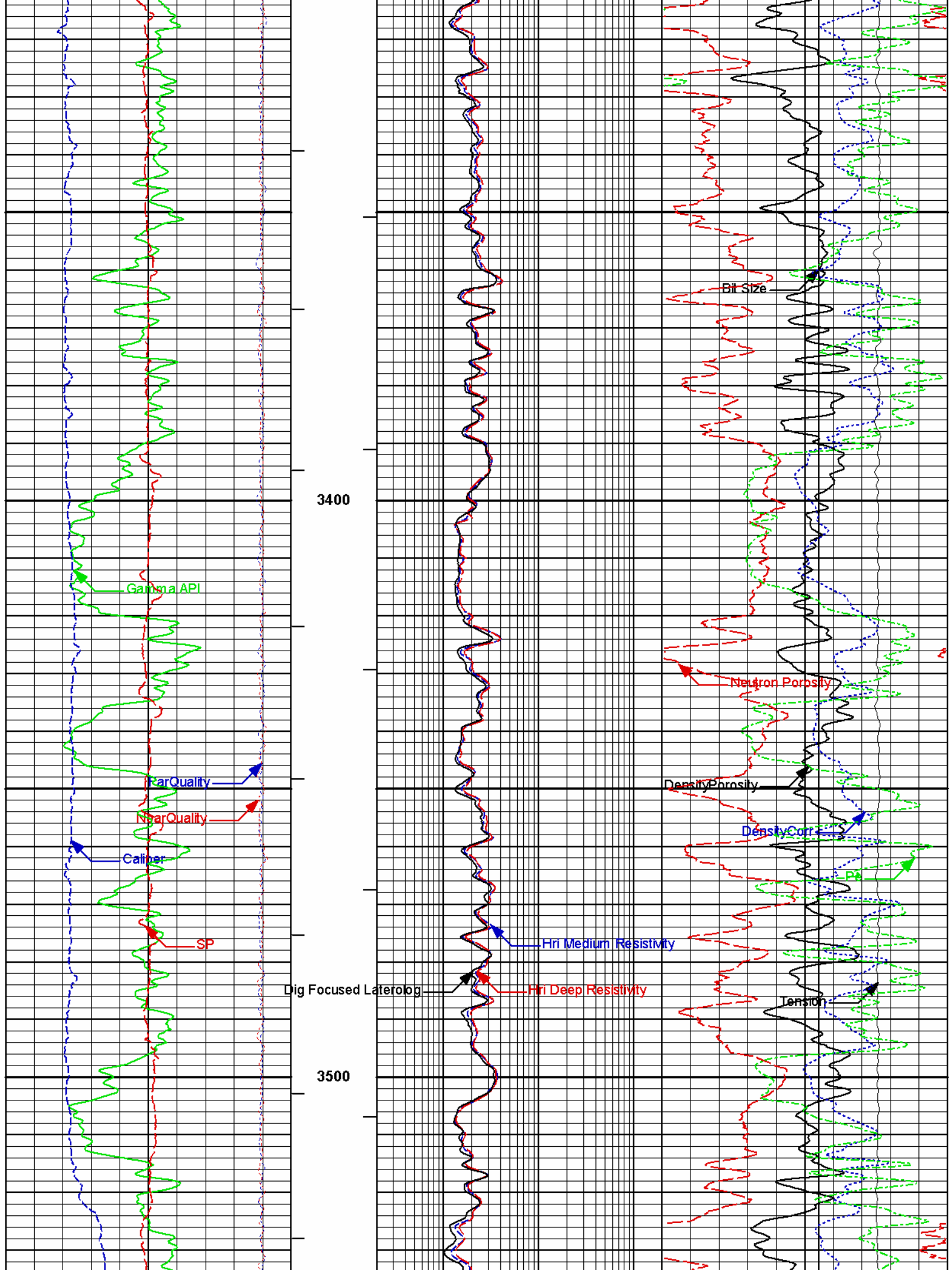


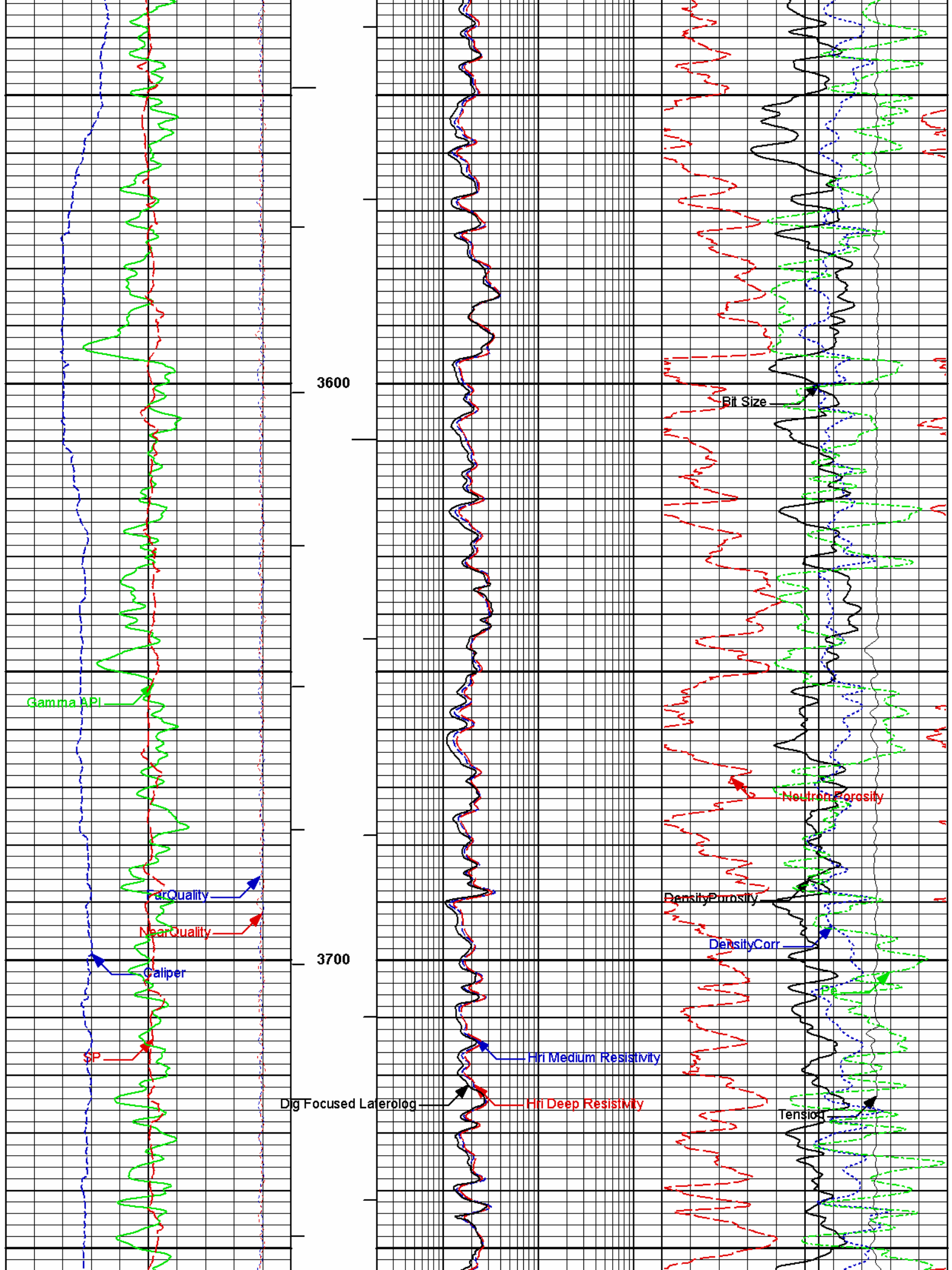




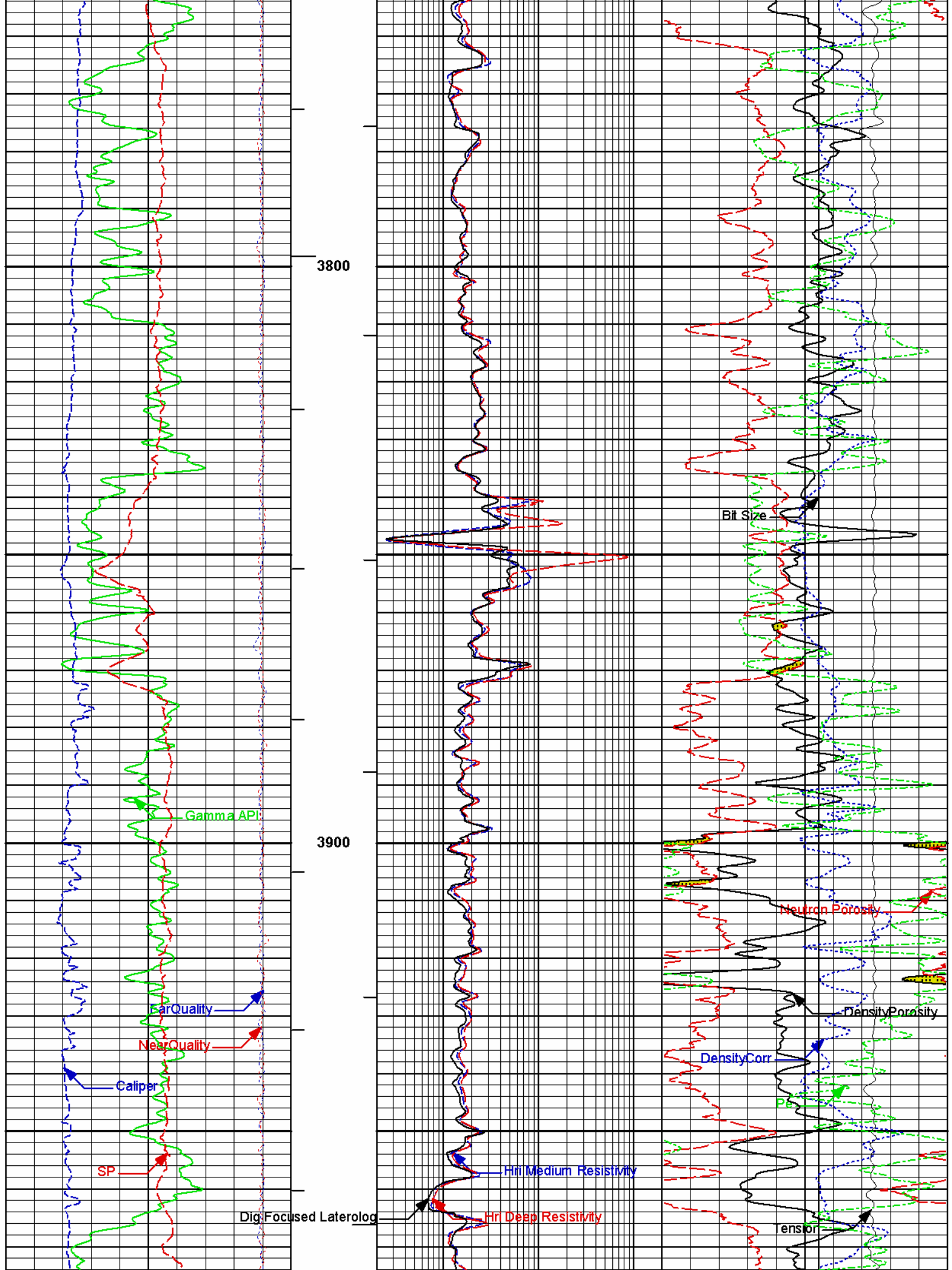


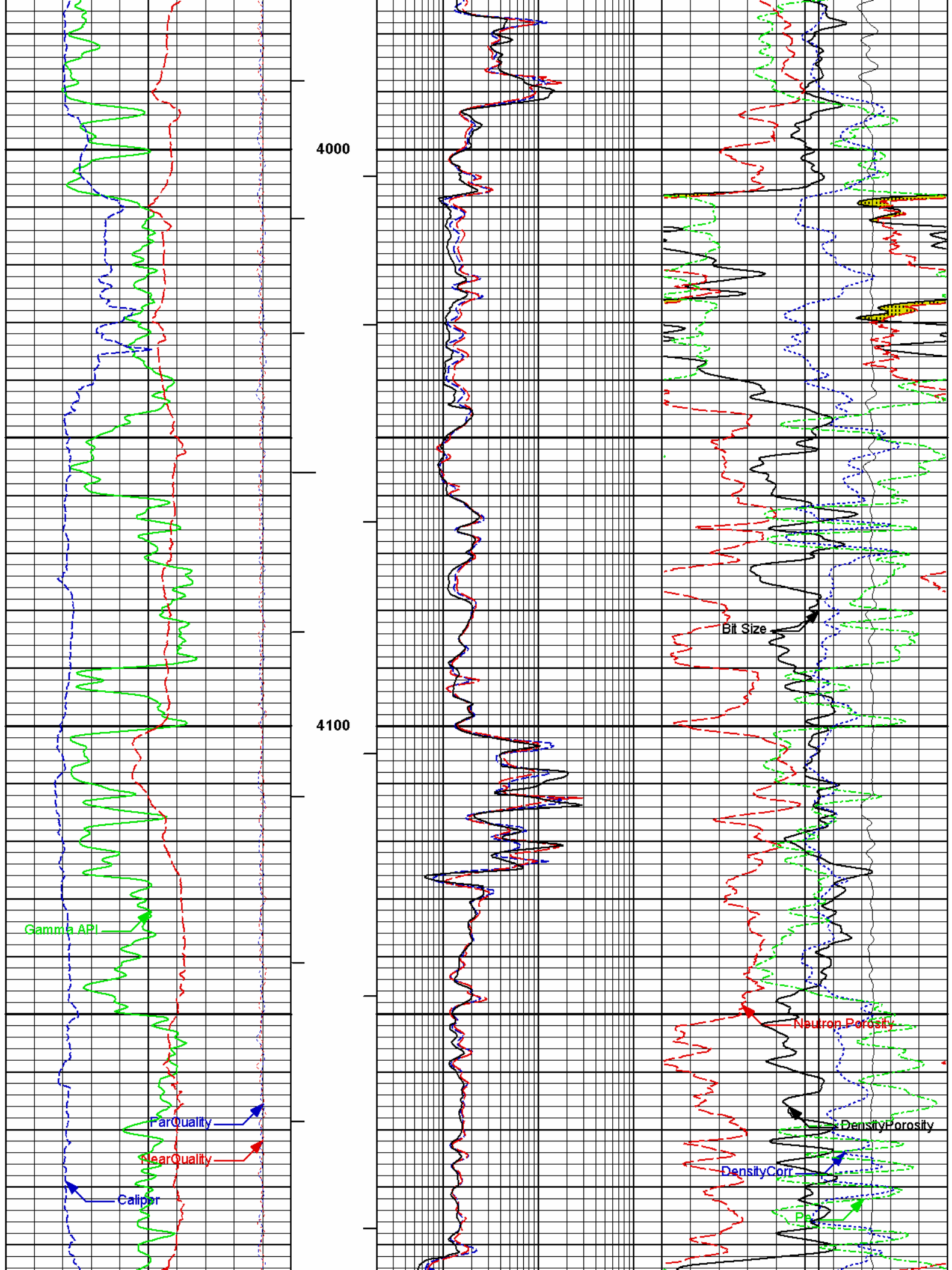


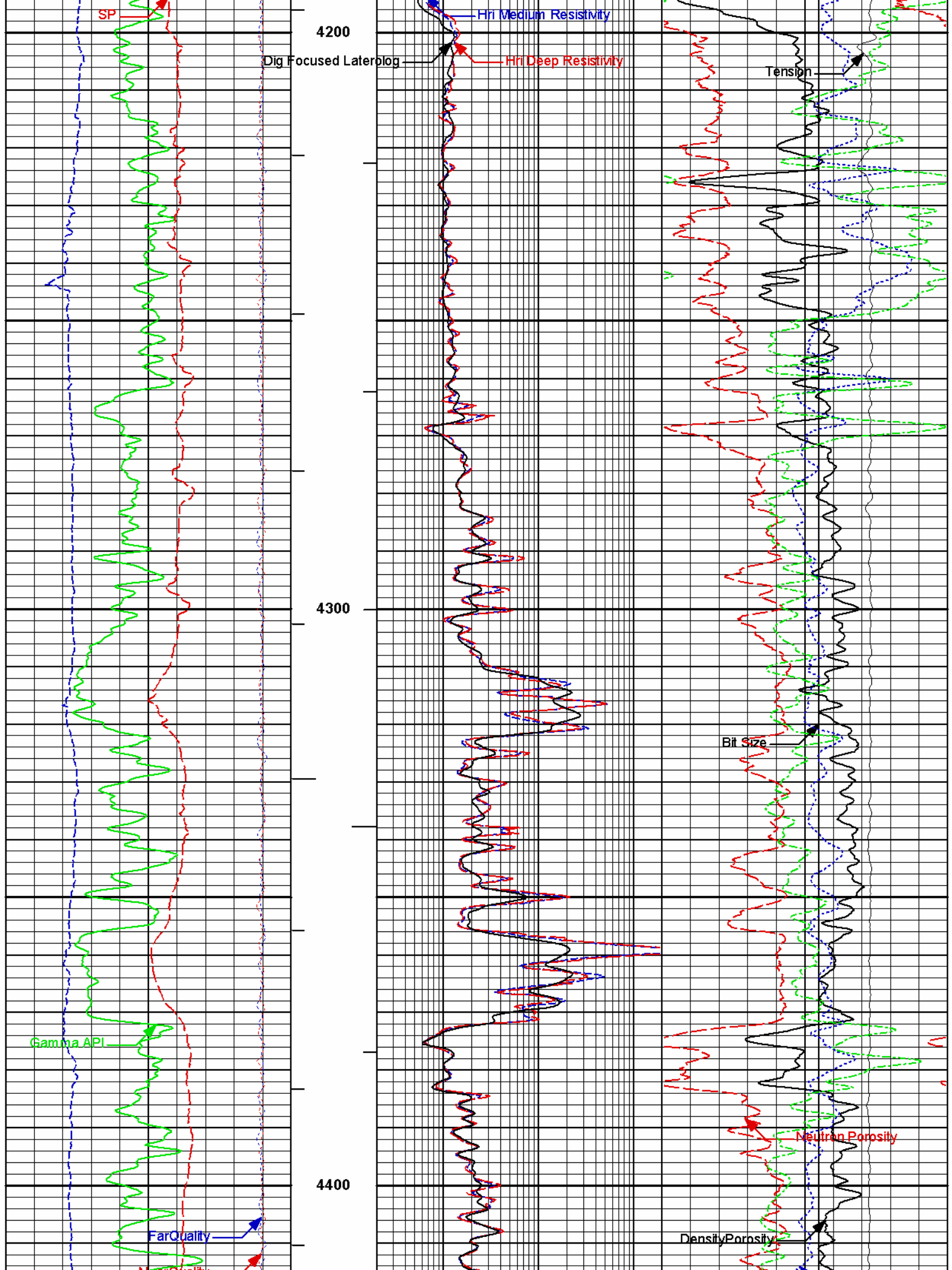




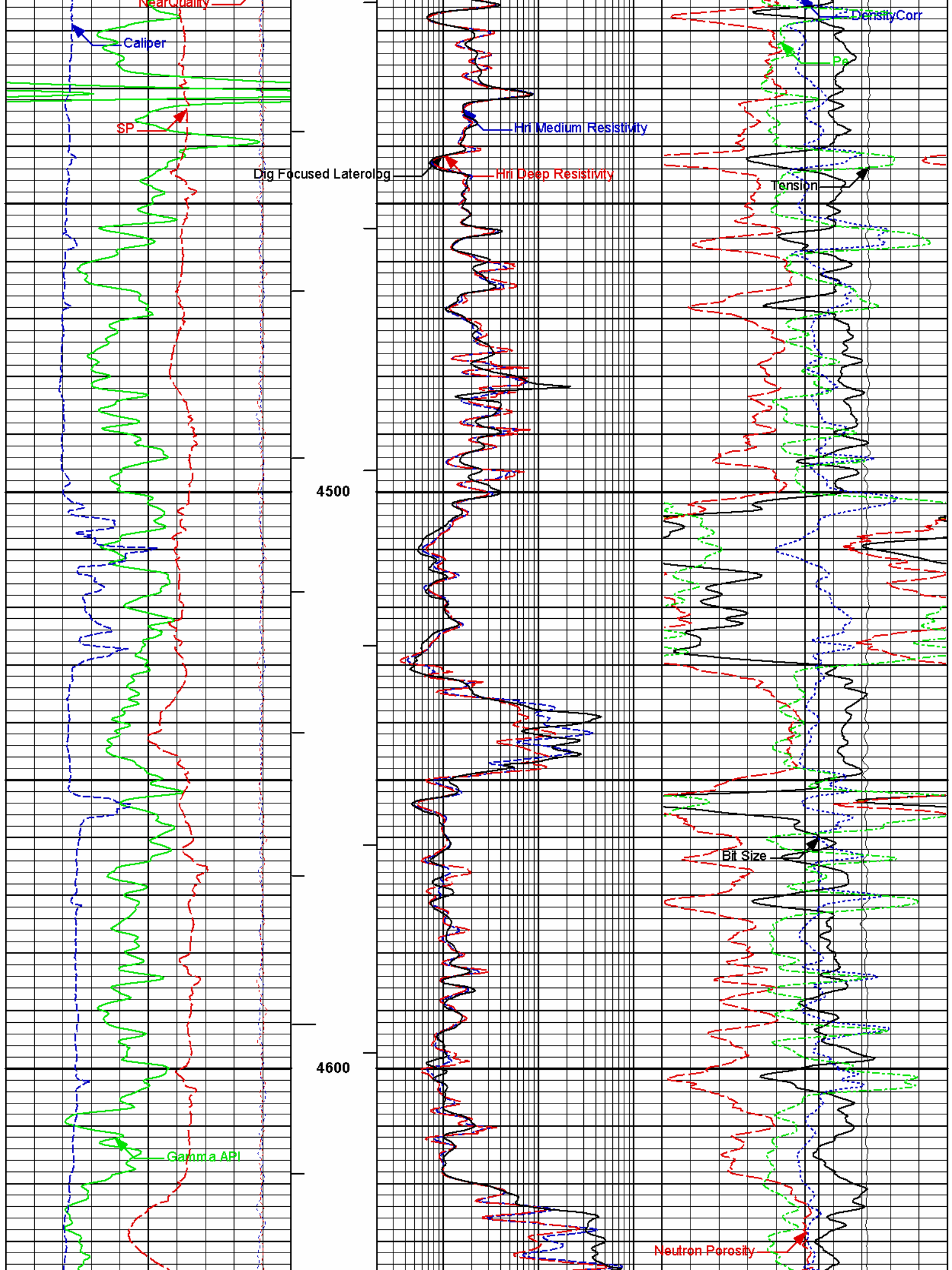


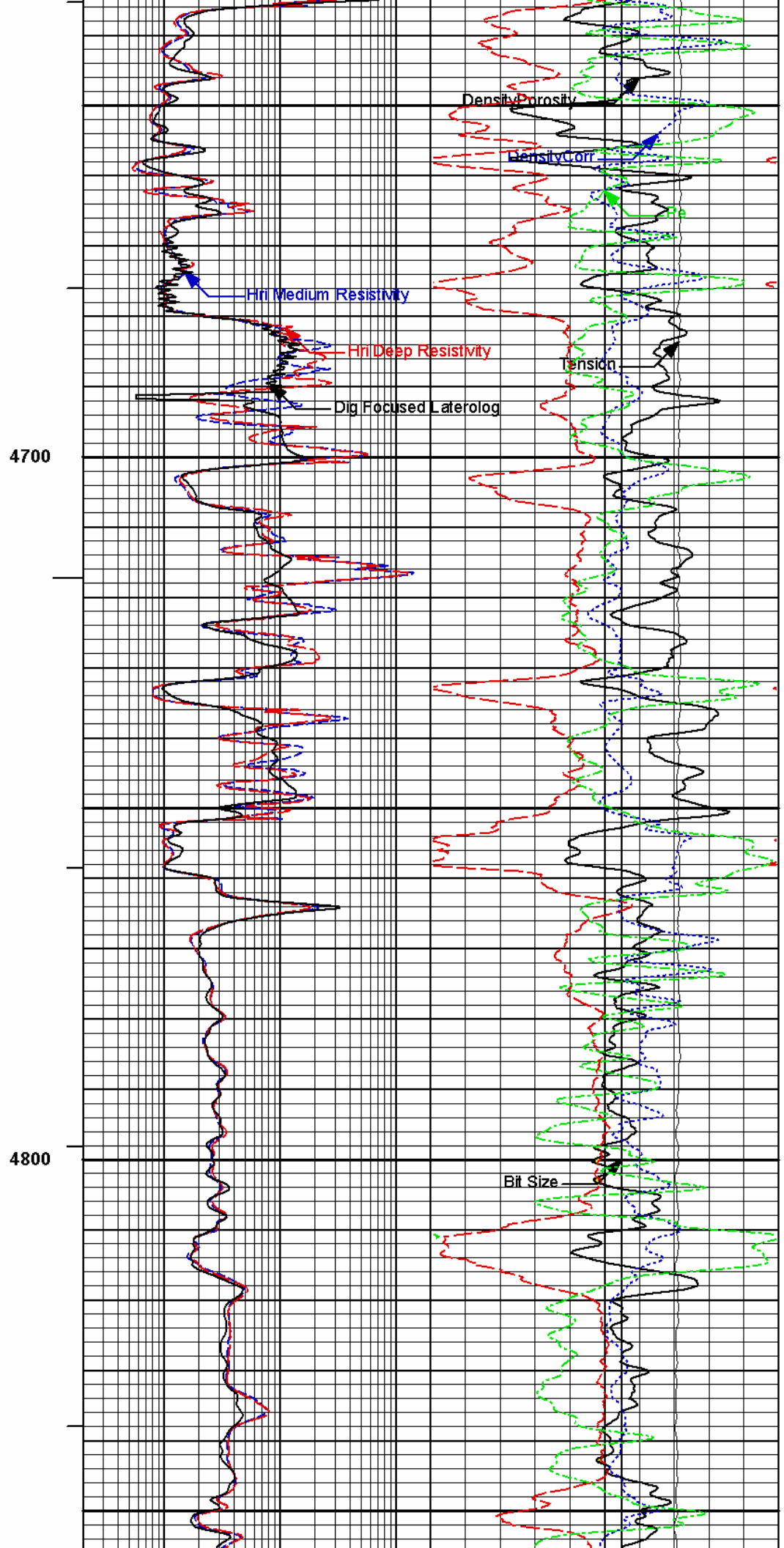
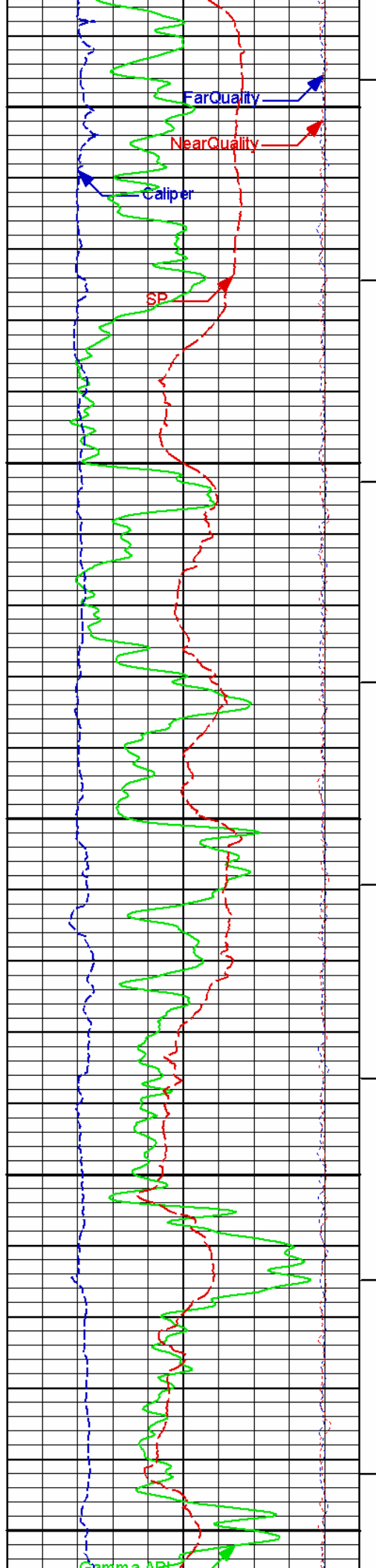


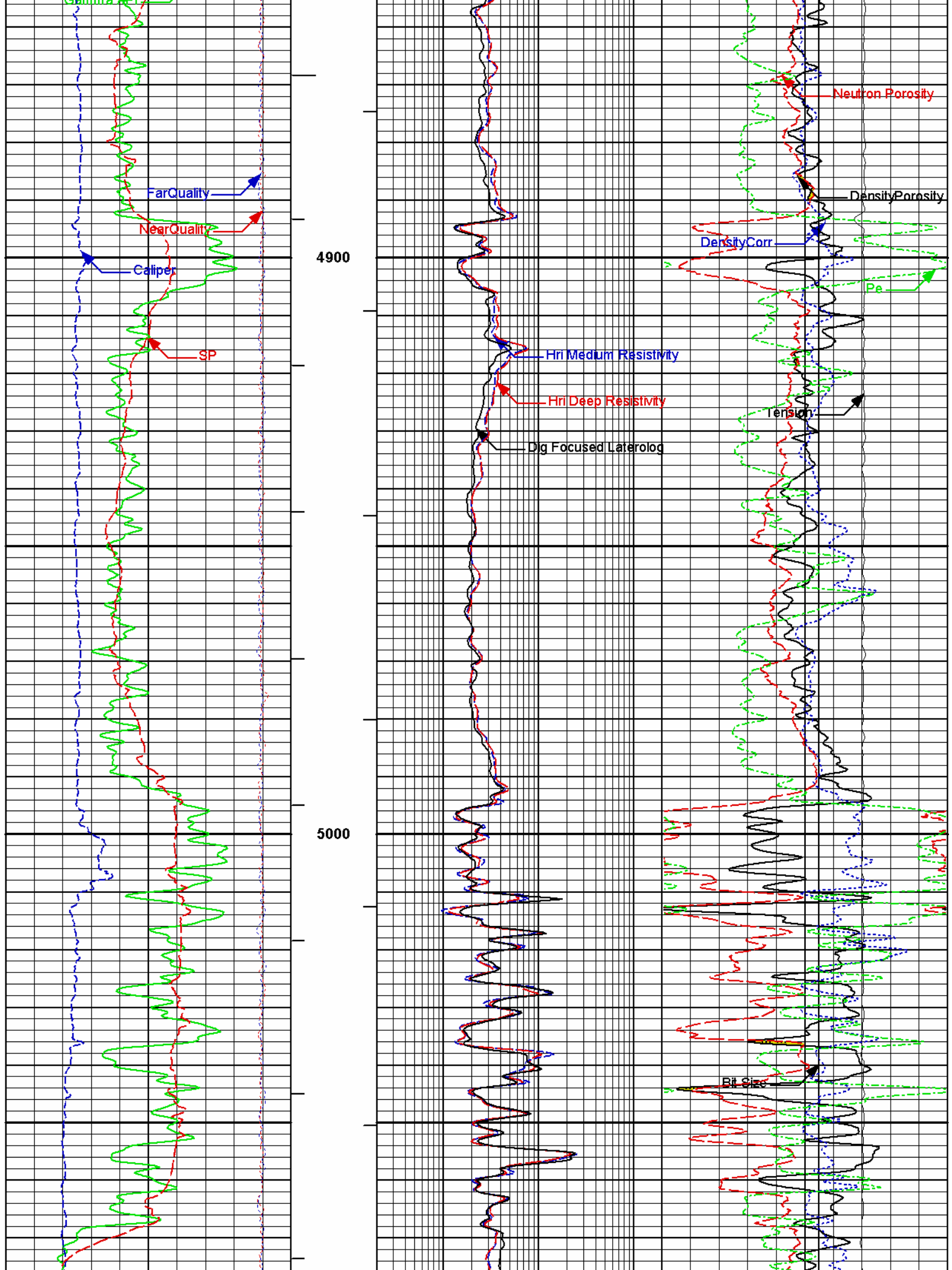


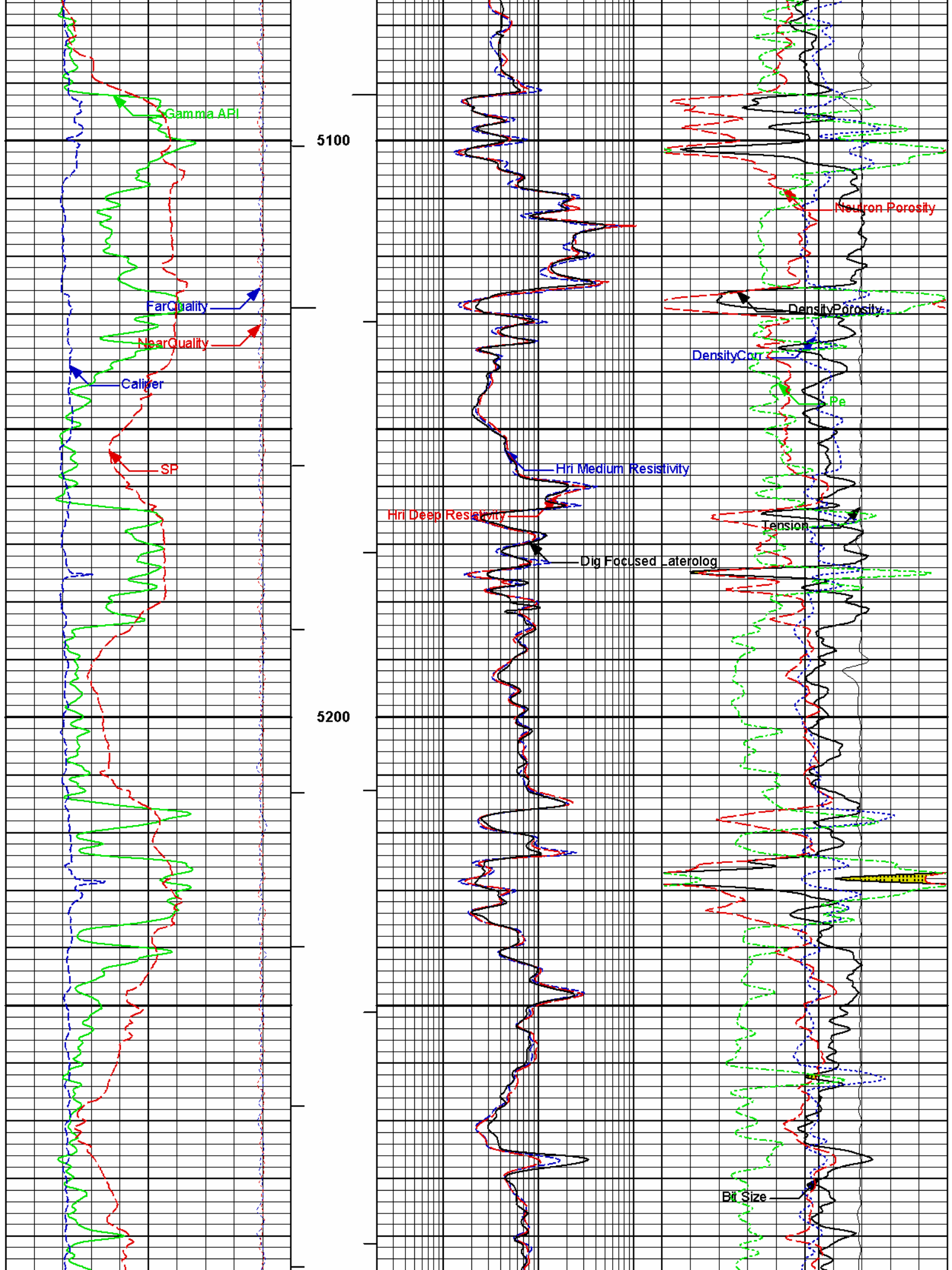


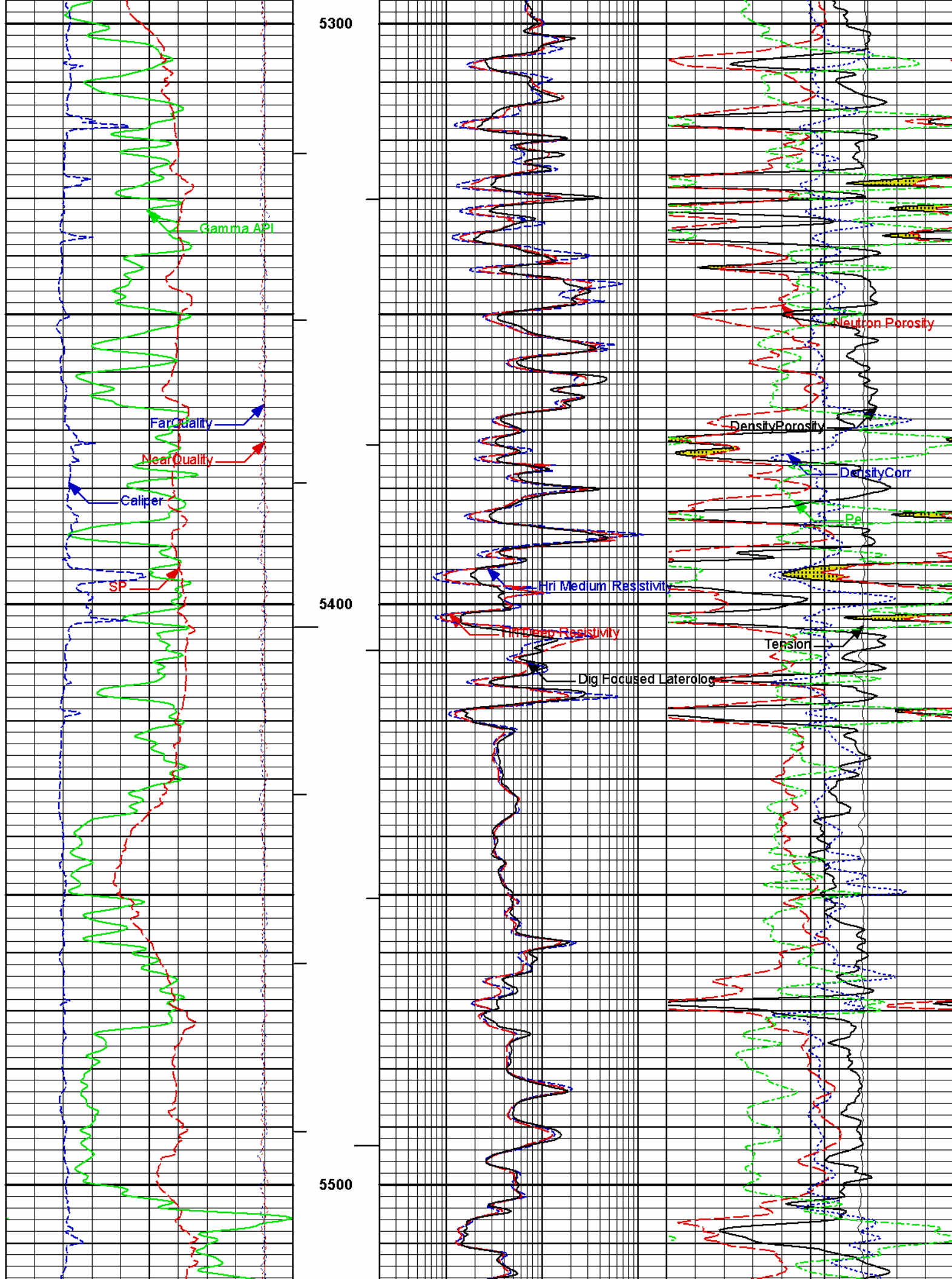




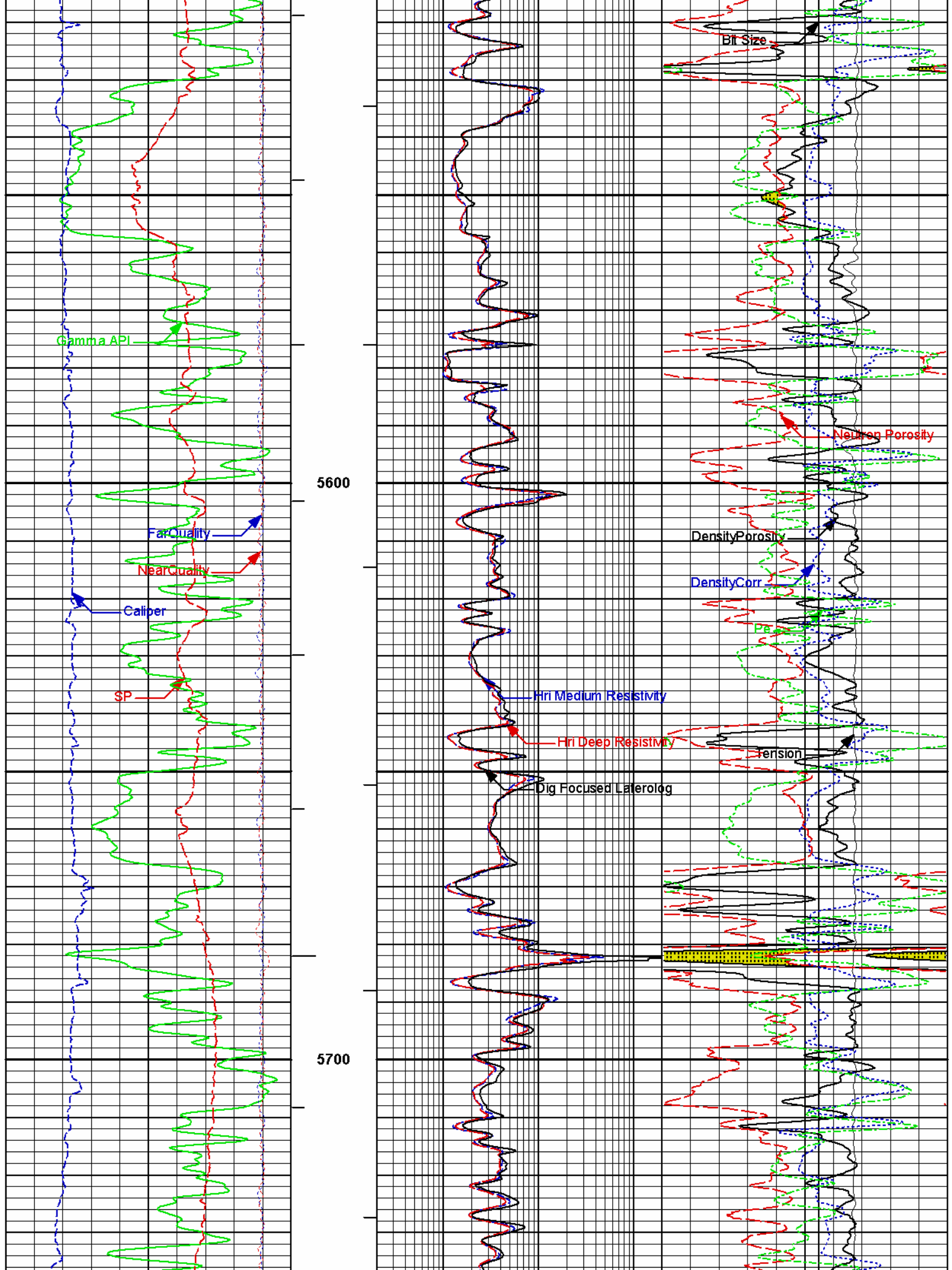


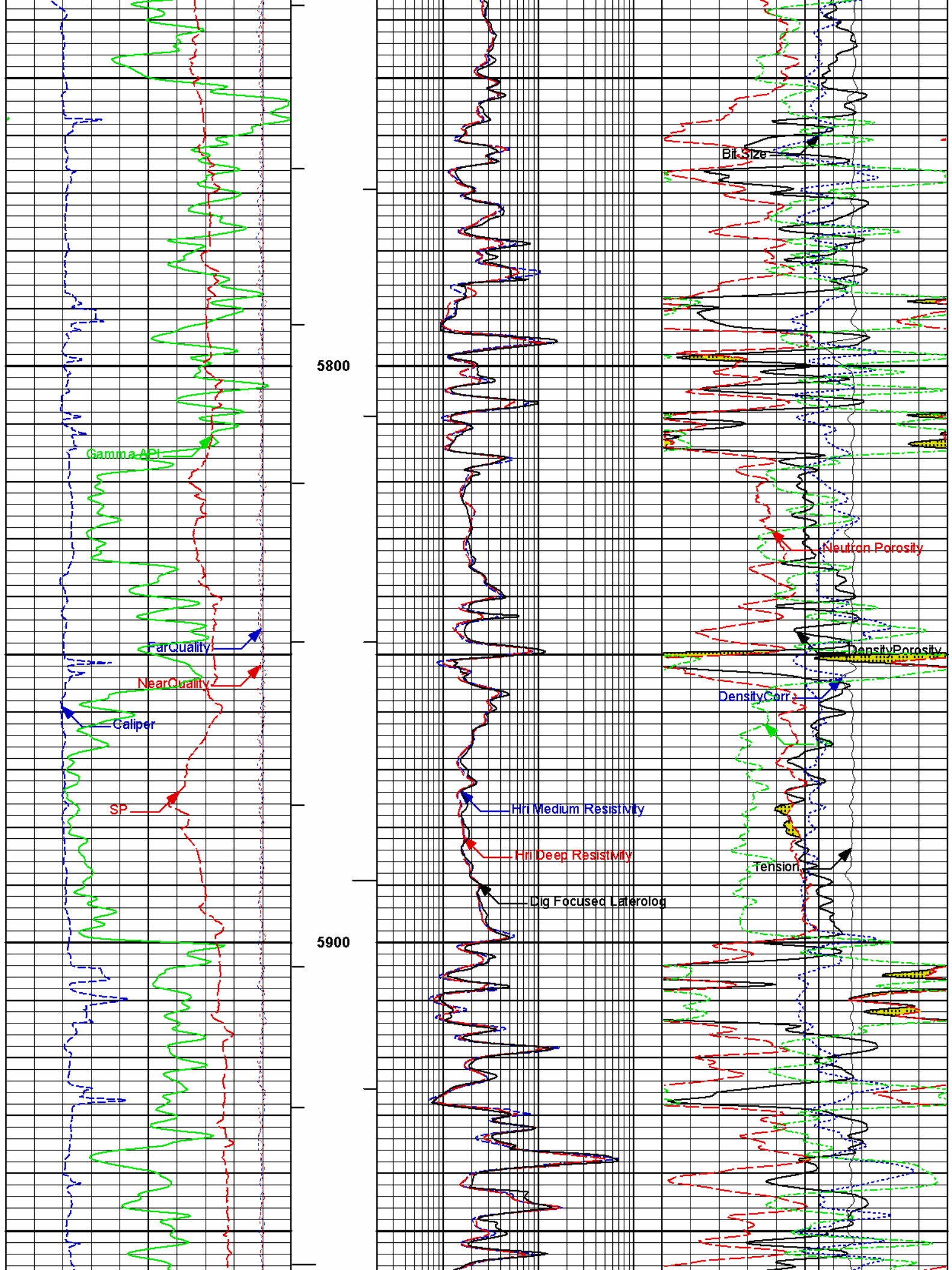


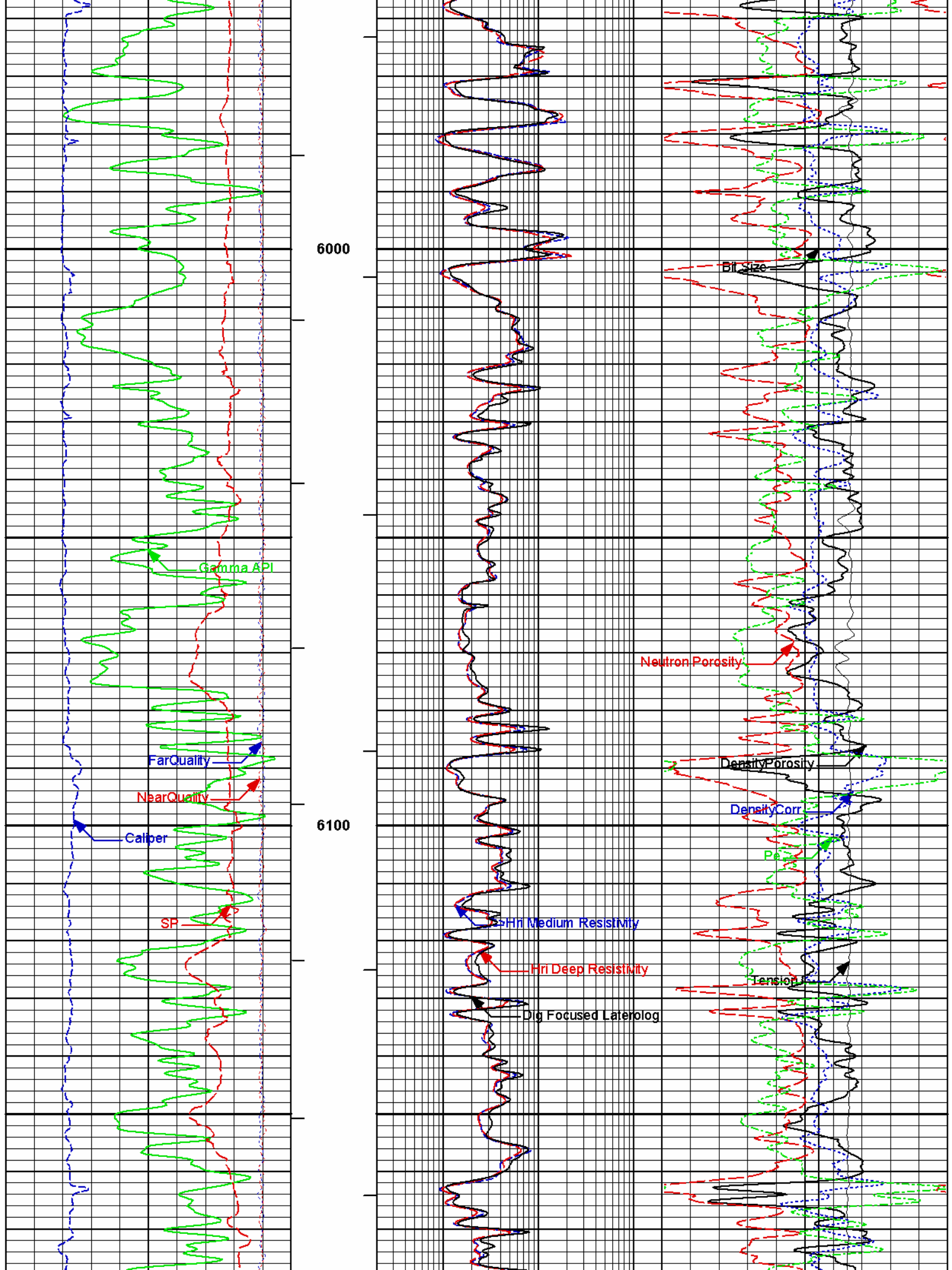




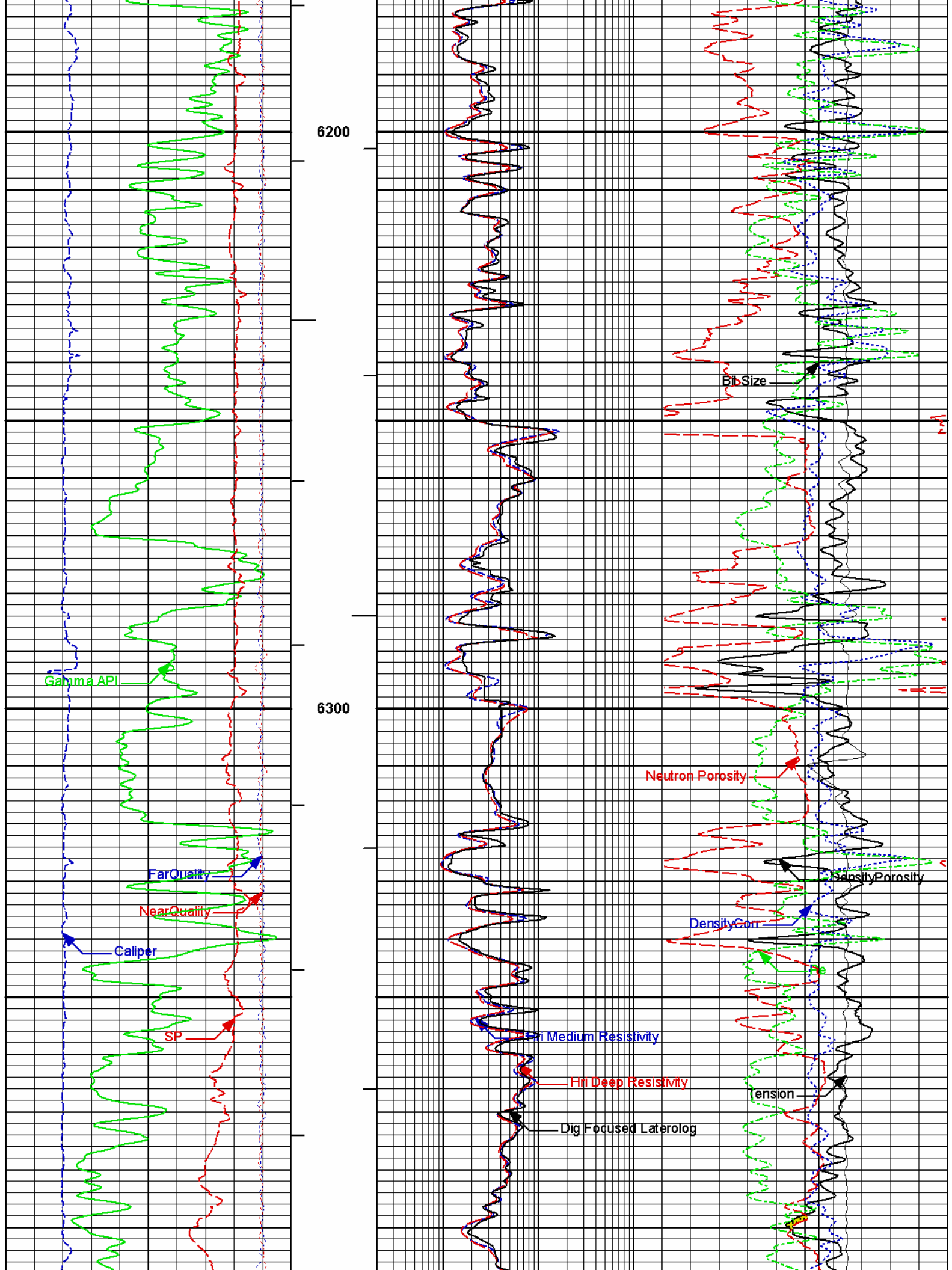


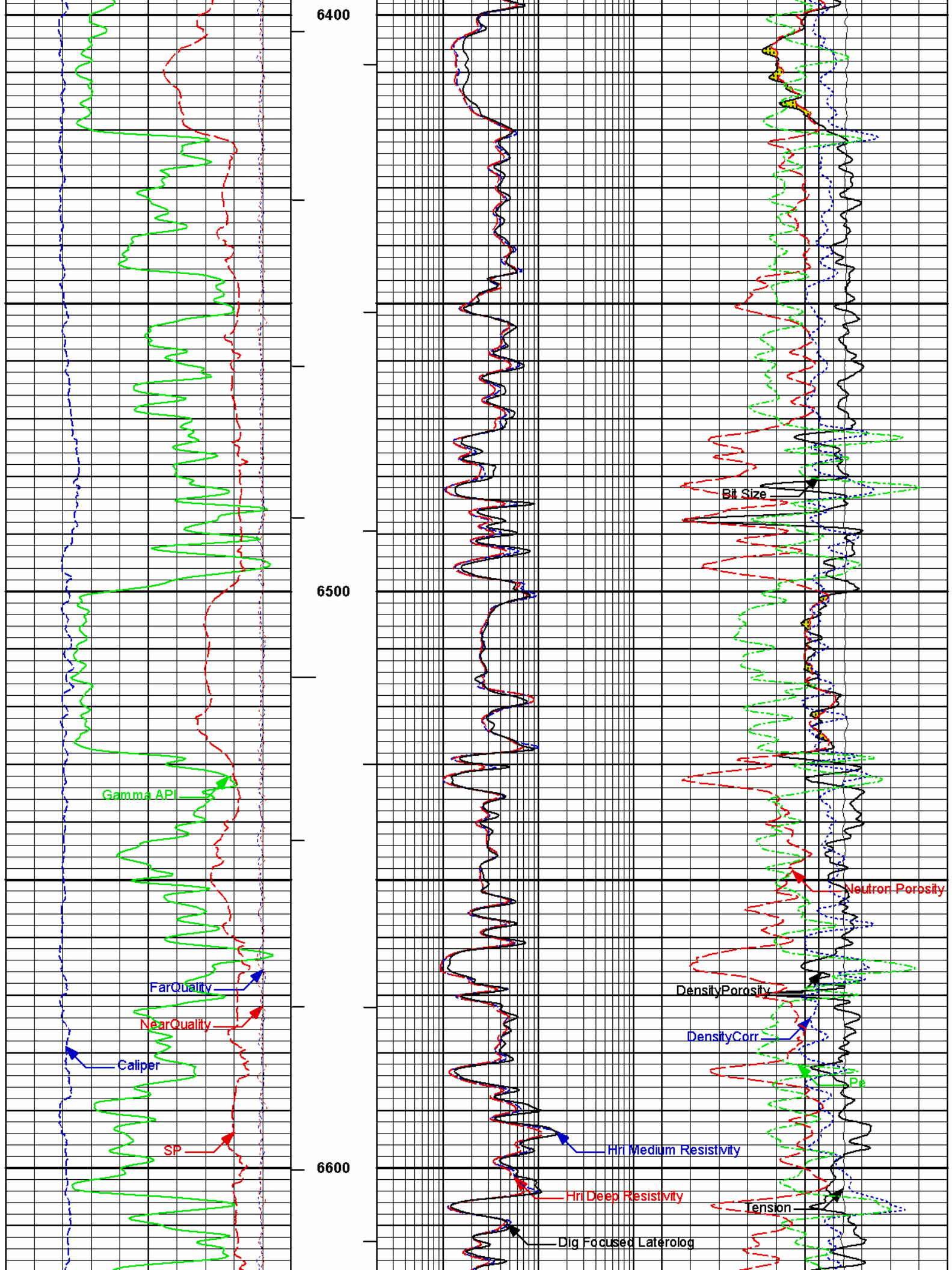


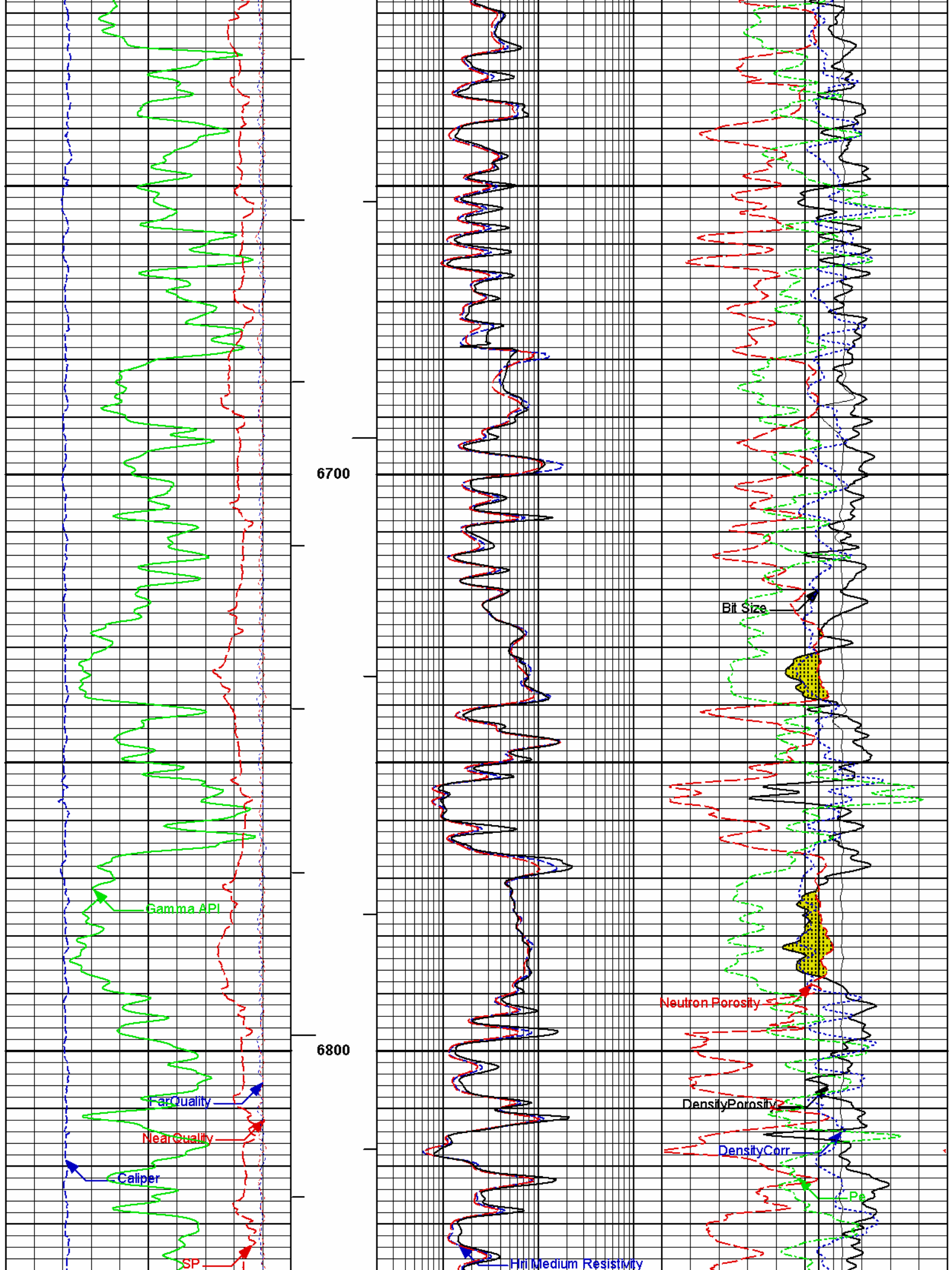


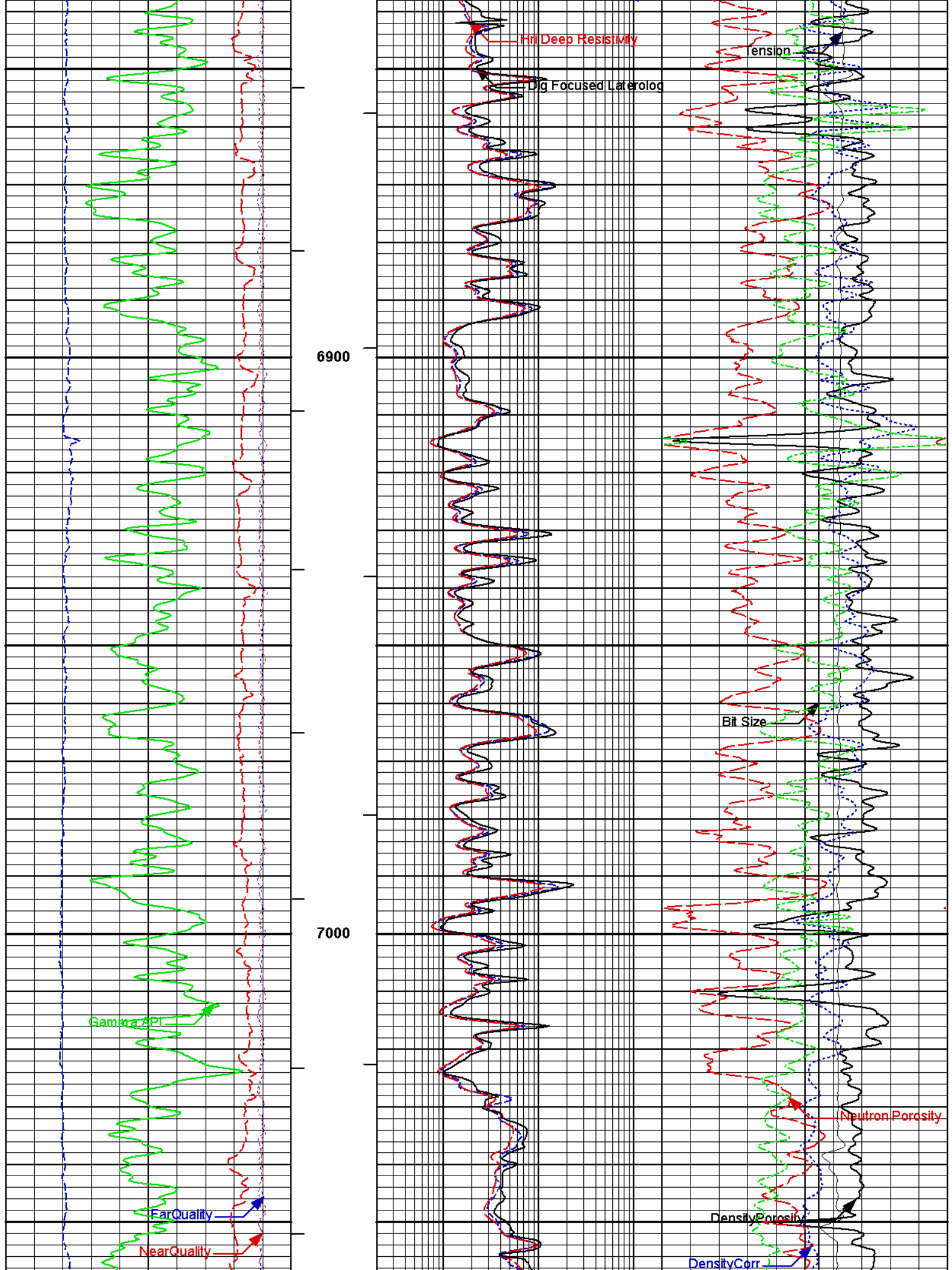


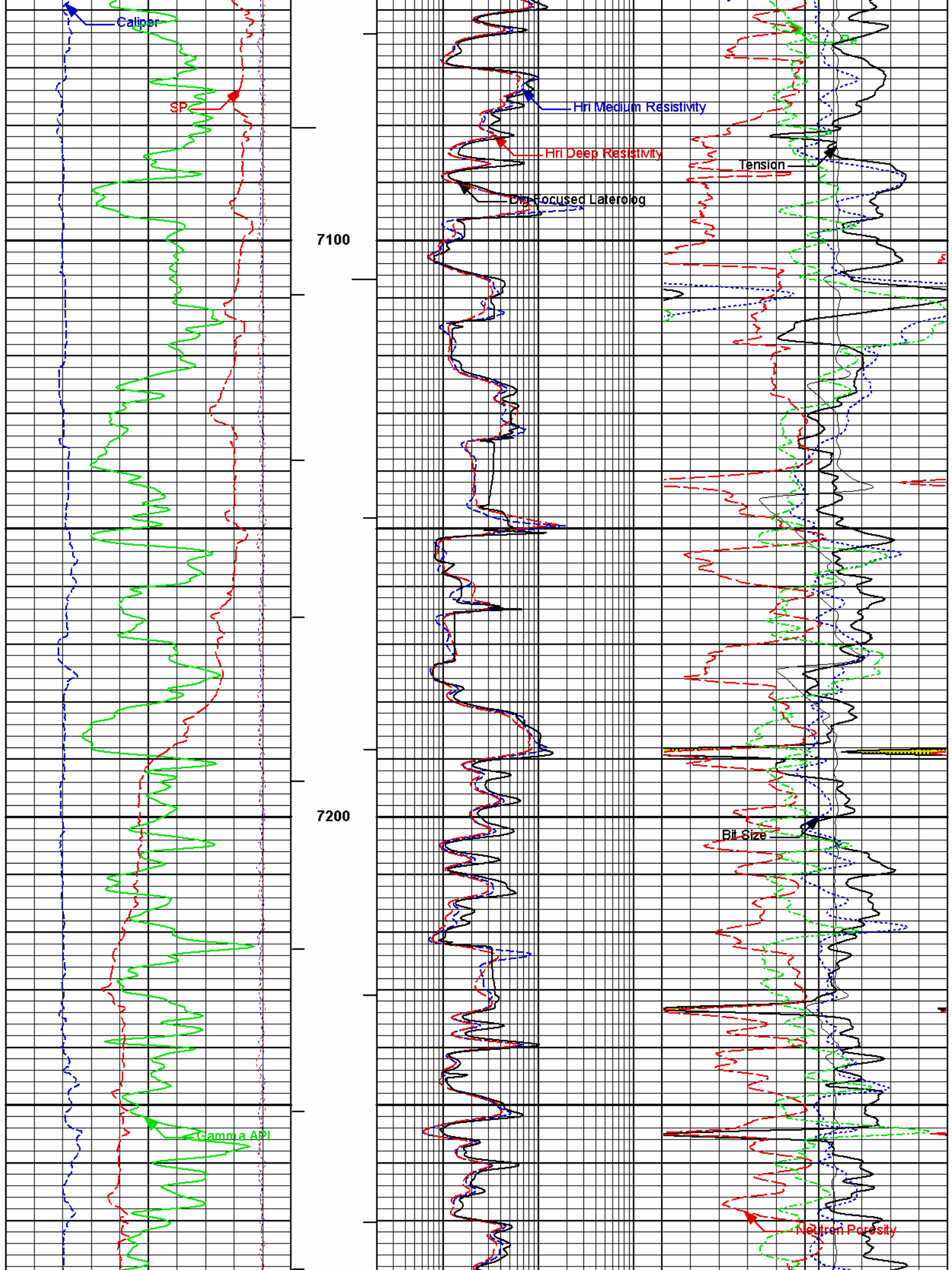




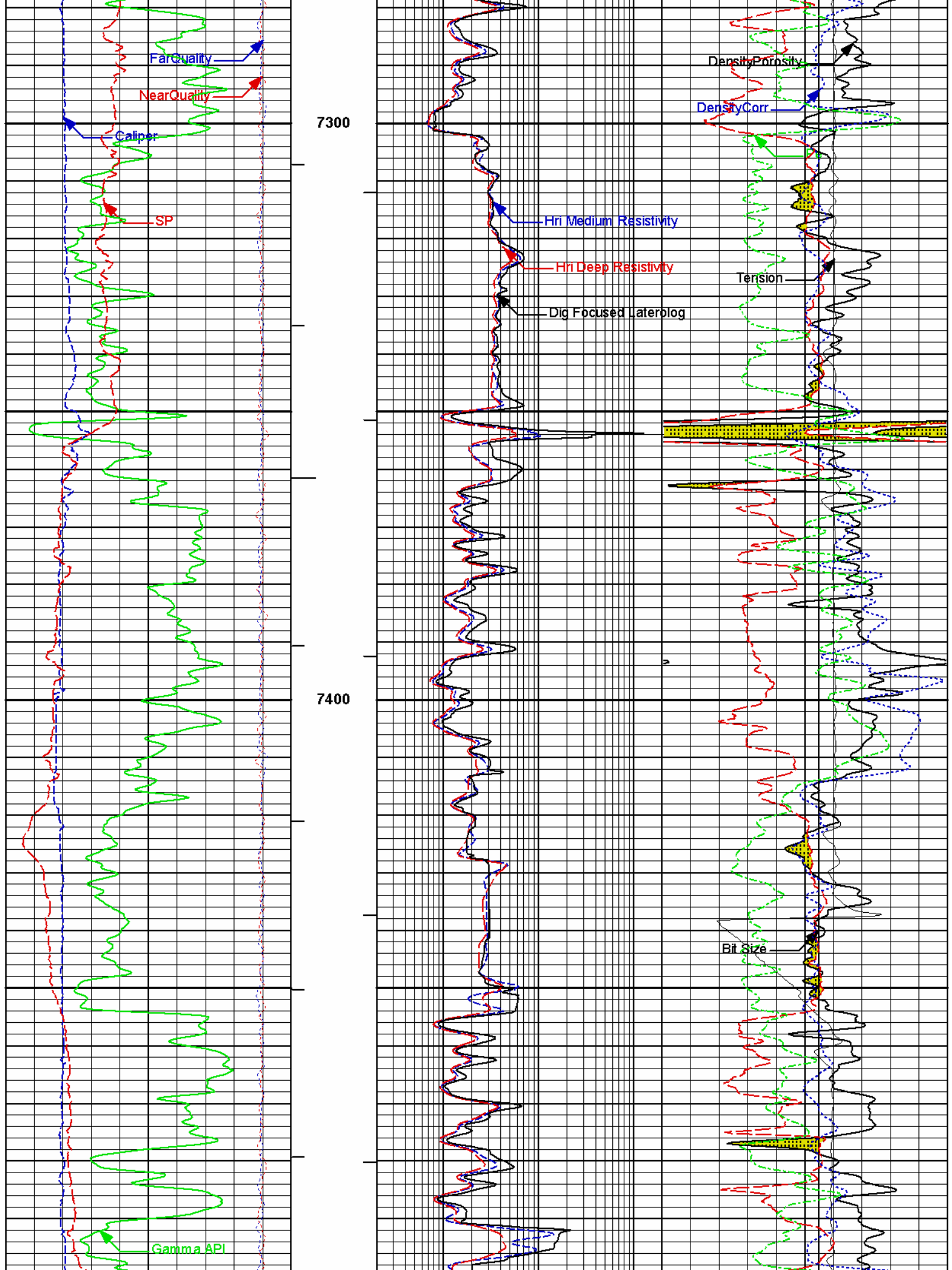


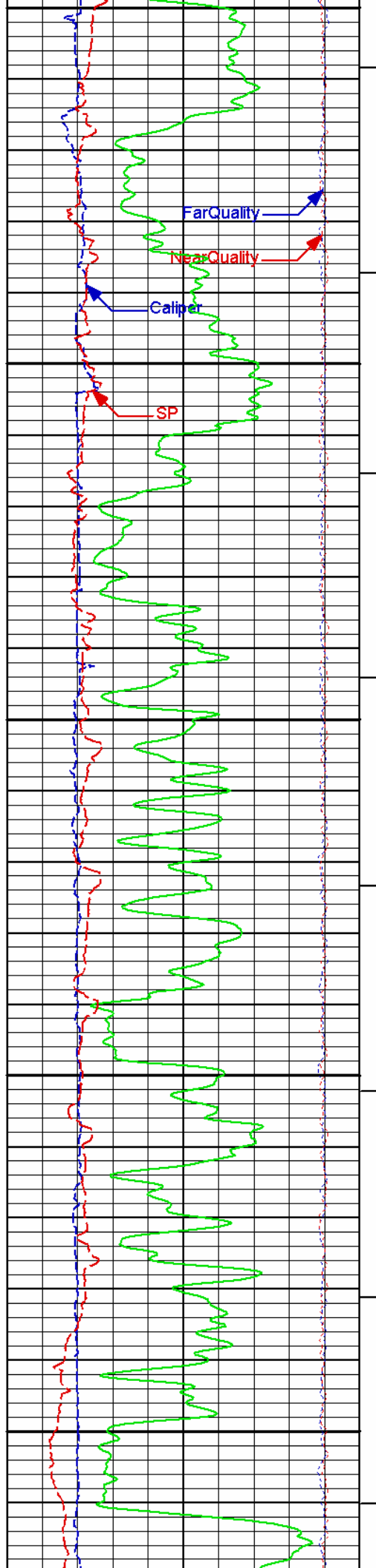








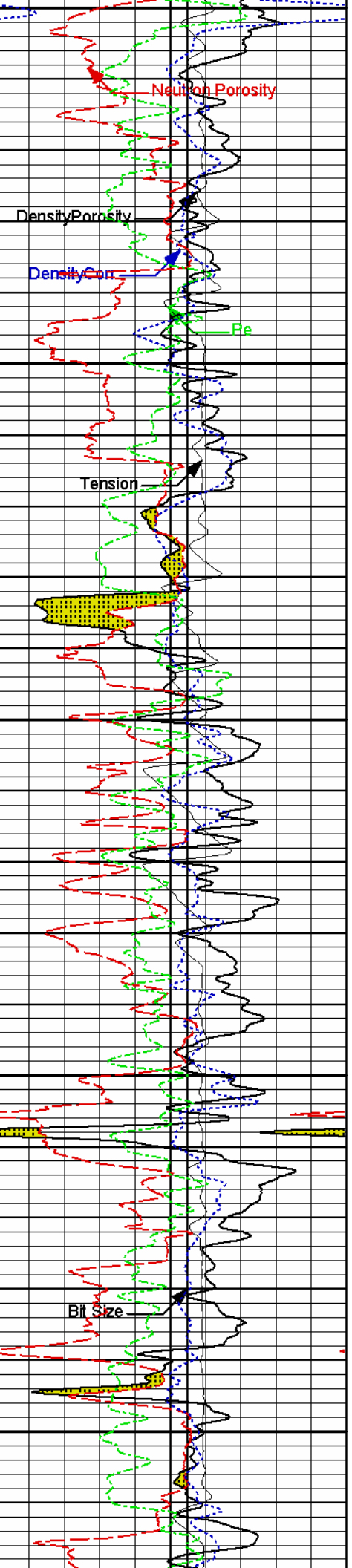
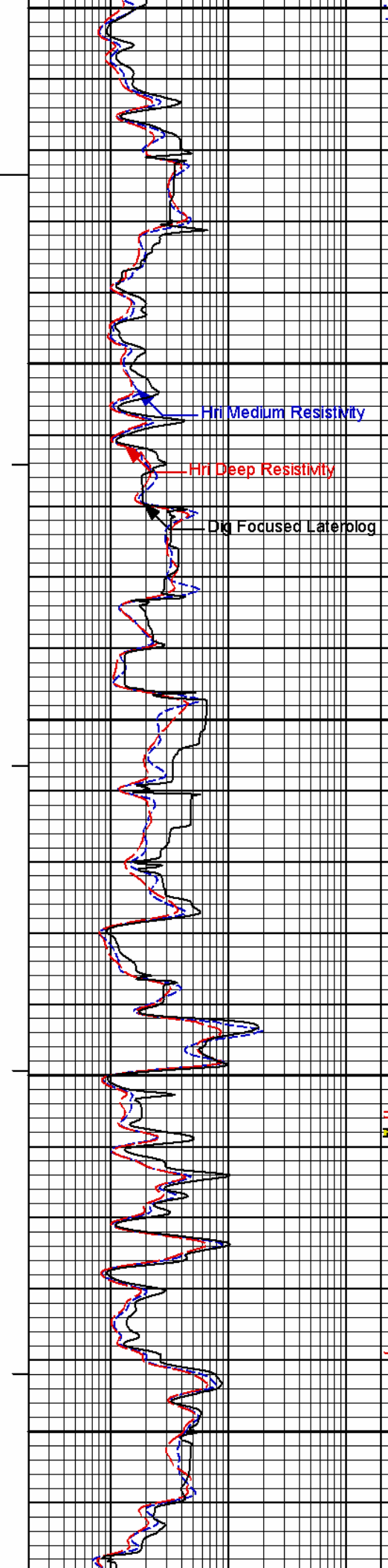


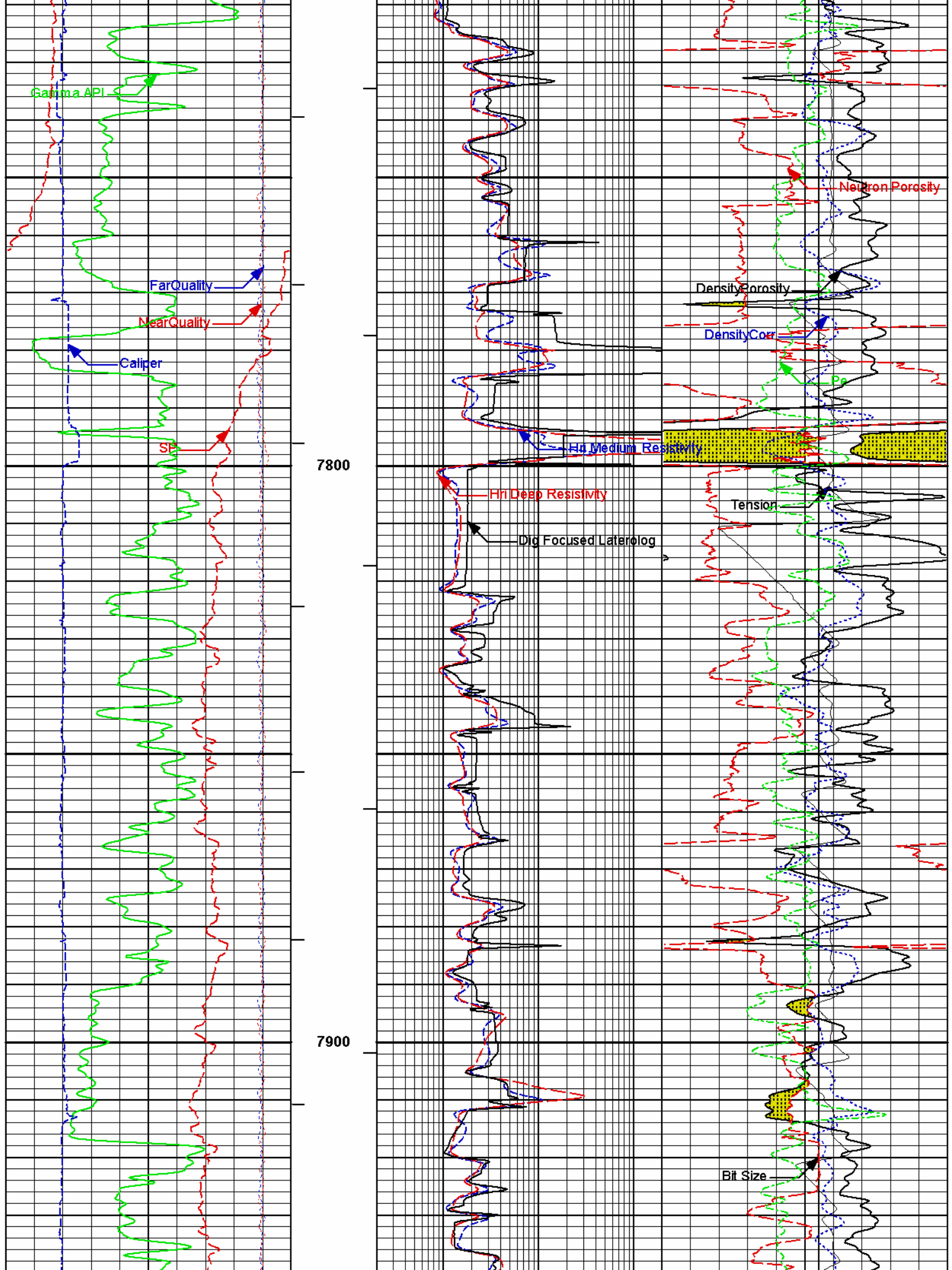


7500

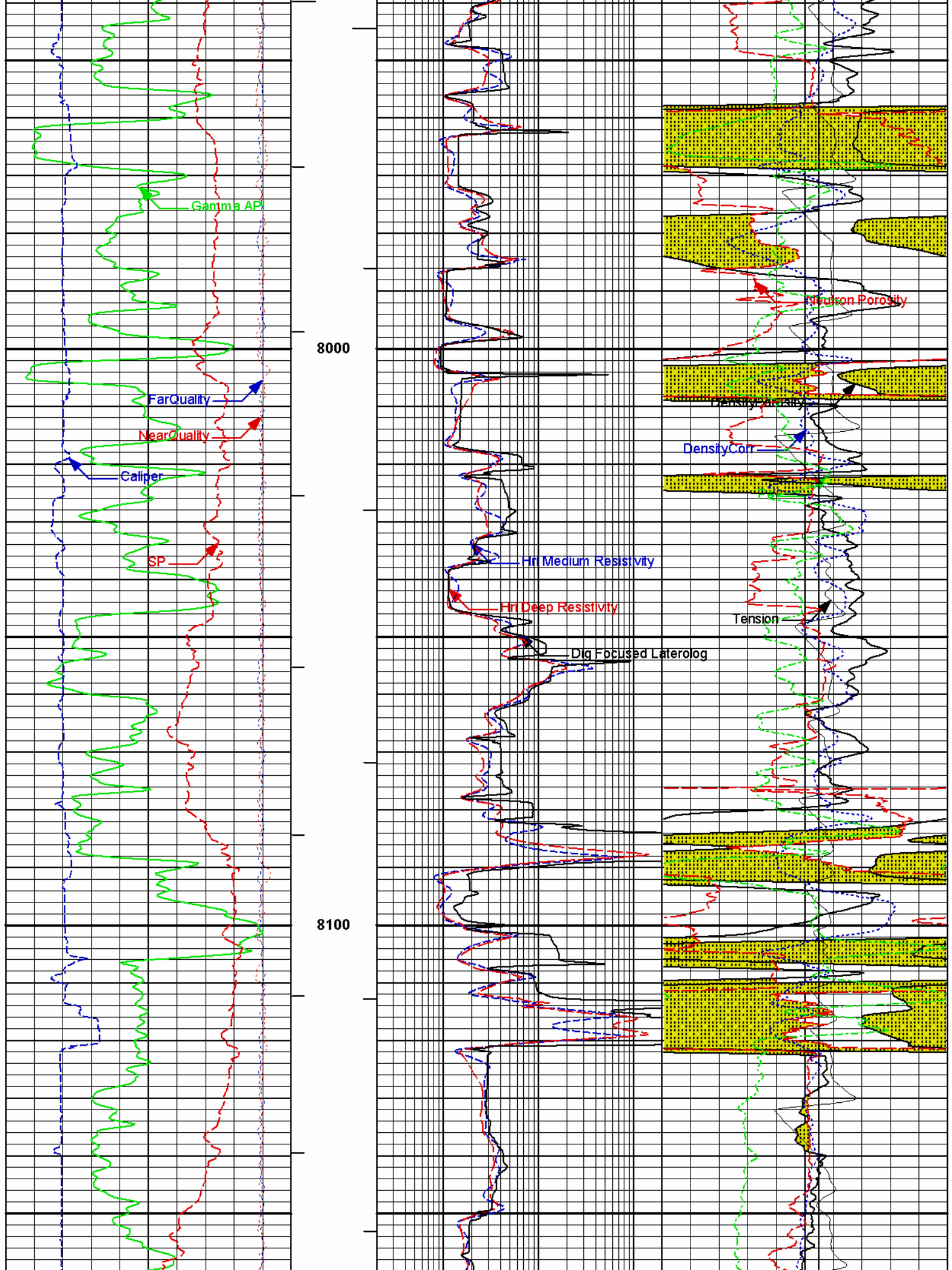
7600

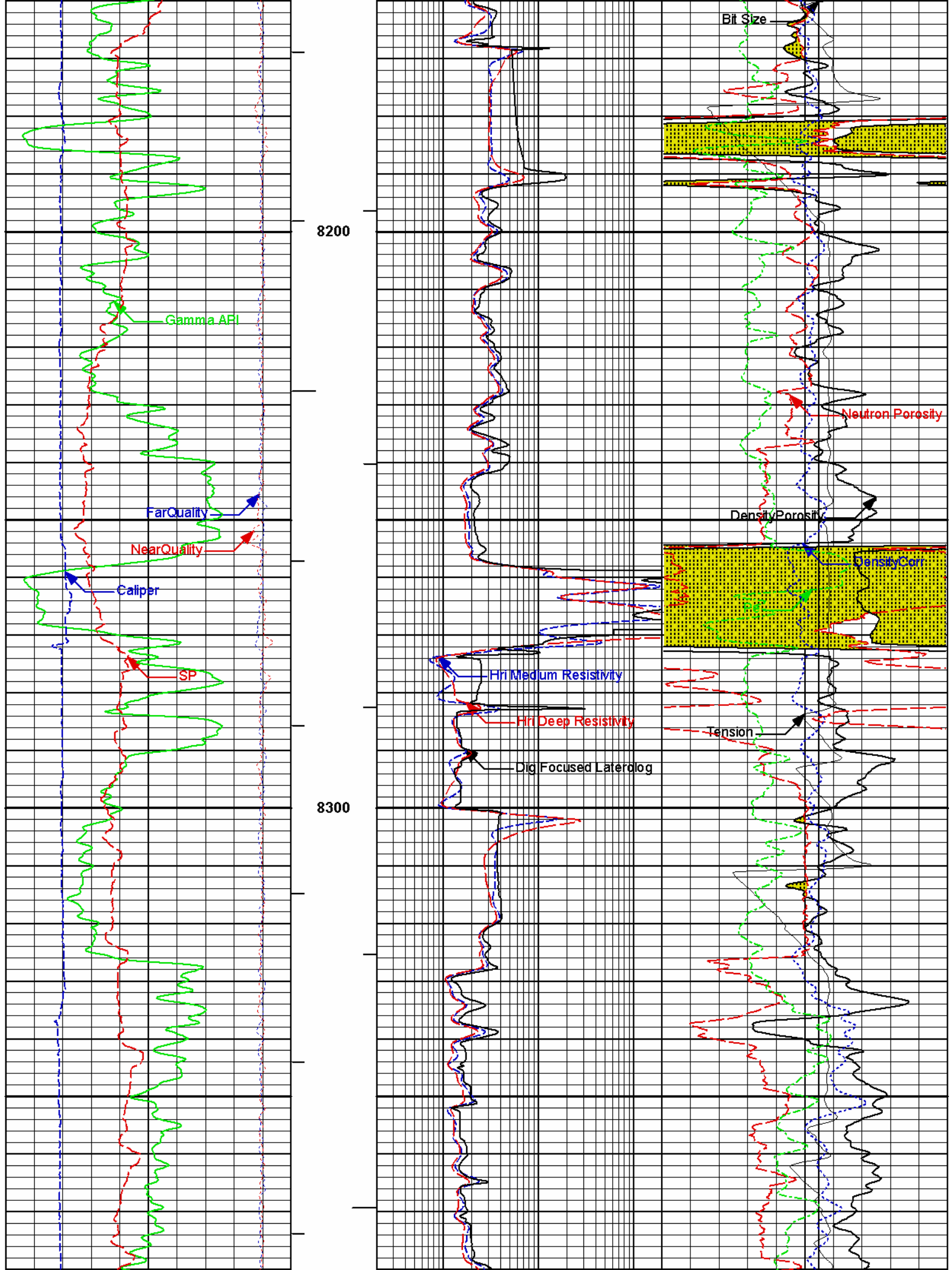
7700

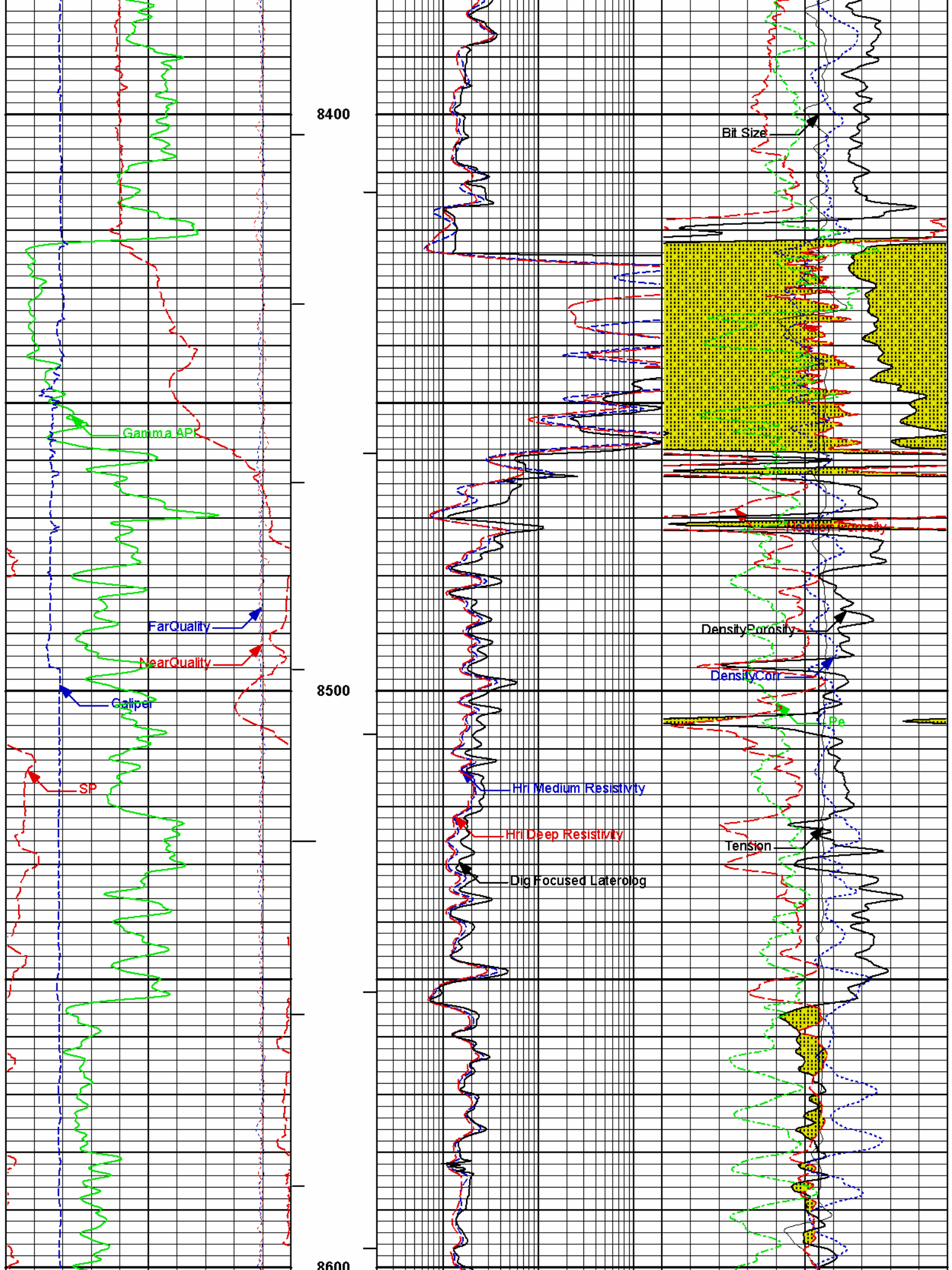


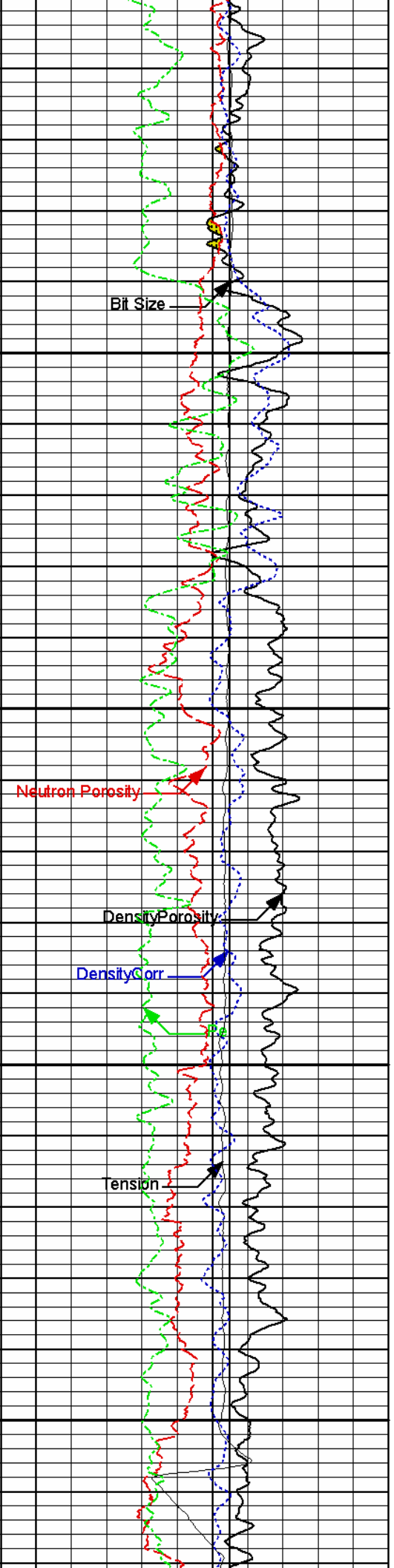
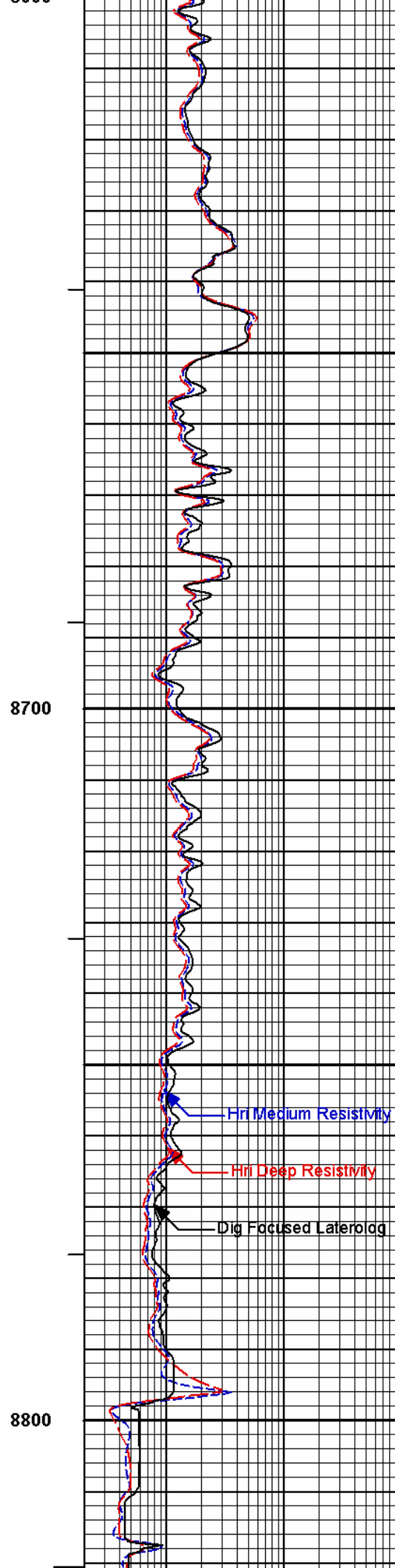
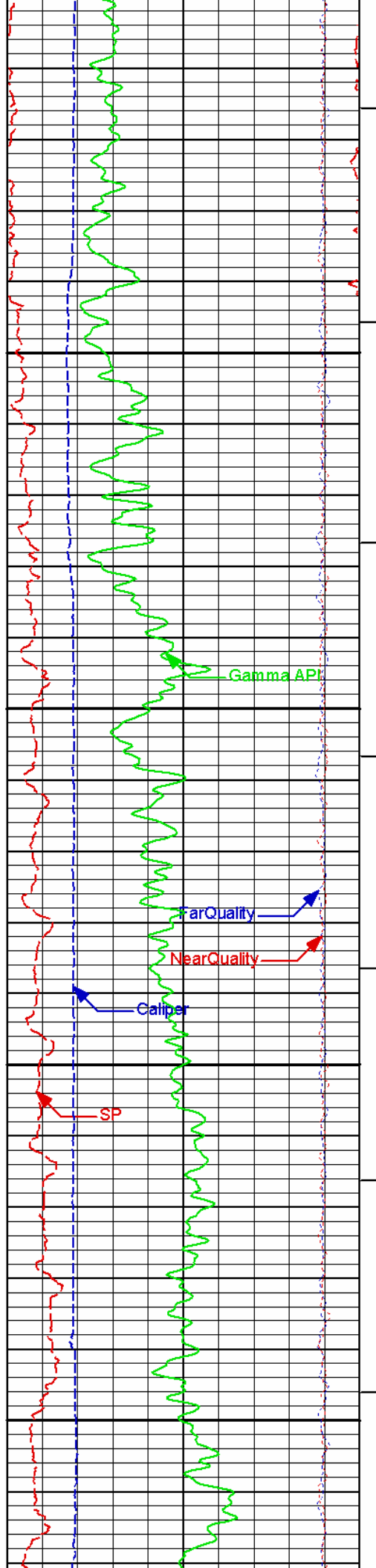


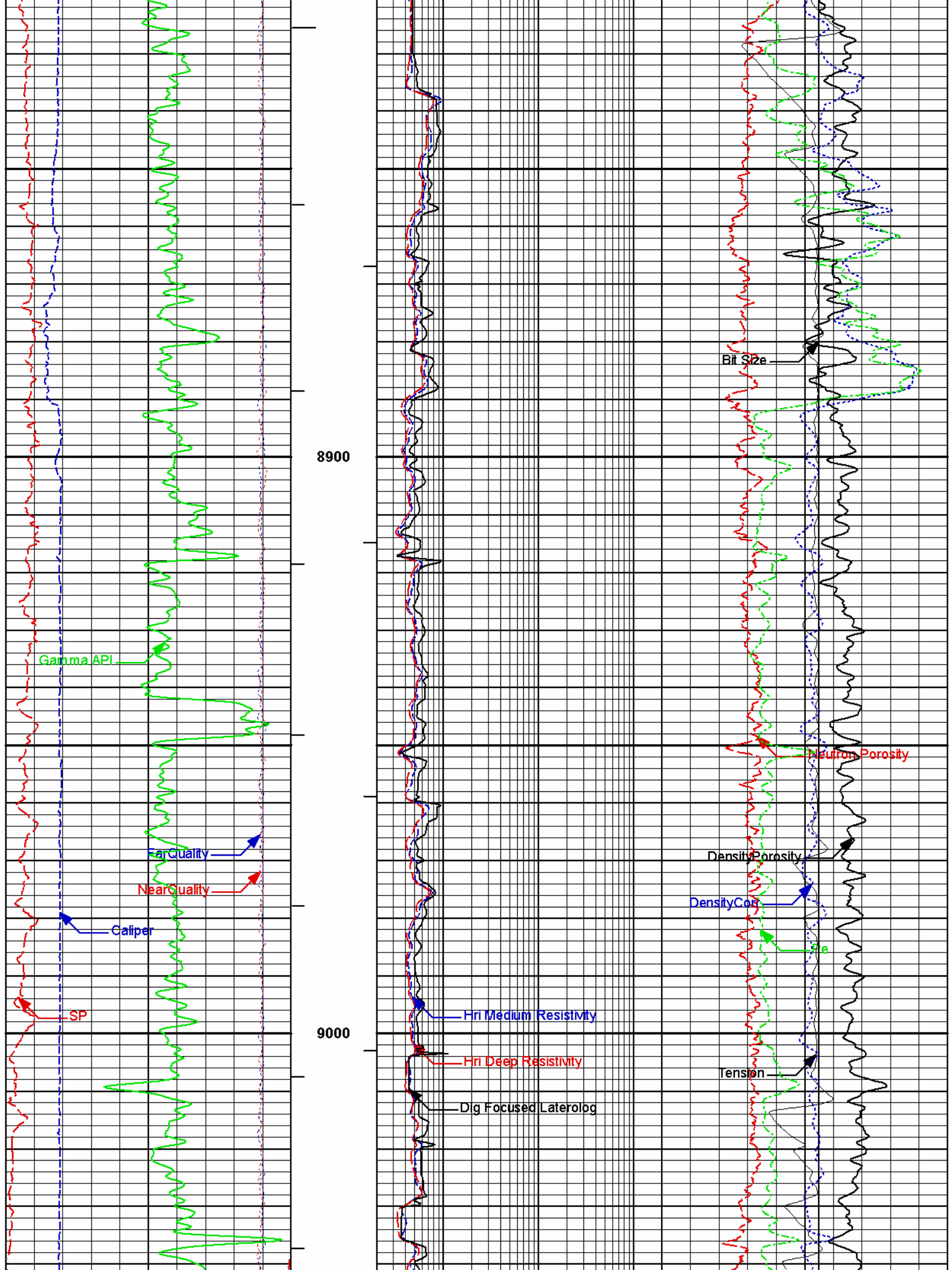




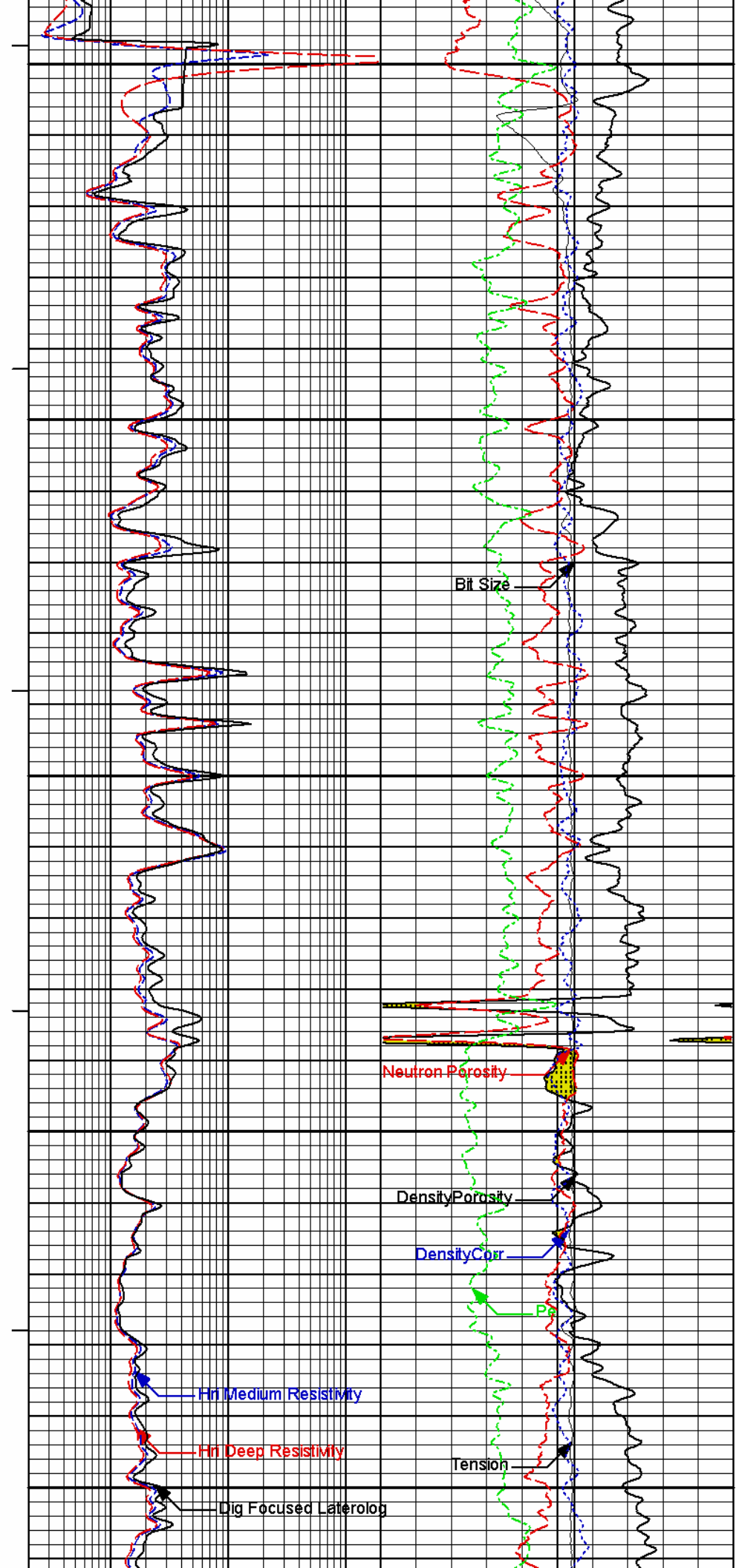
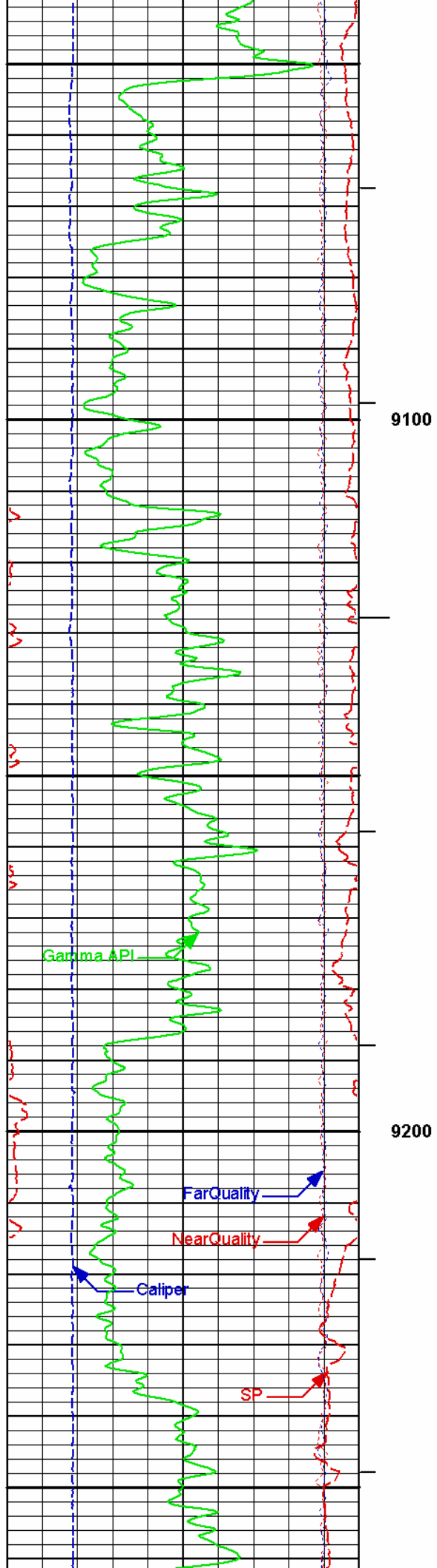




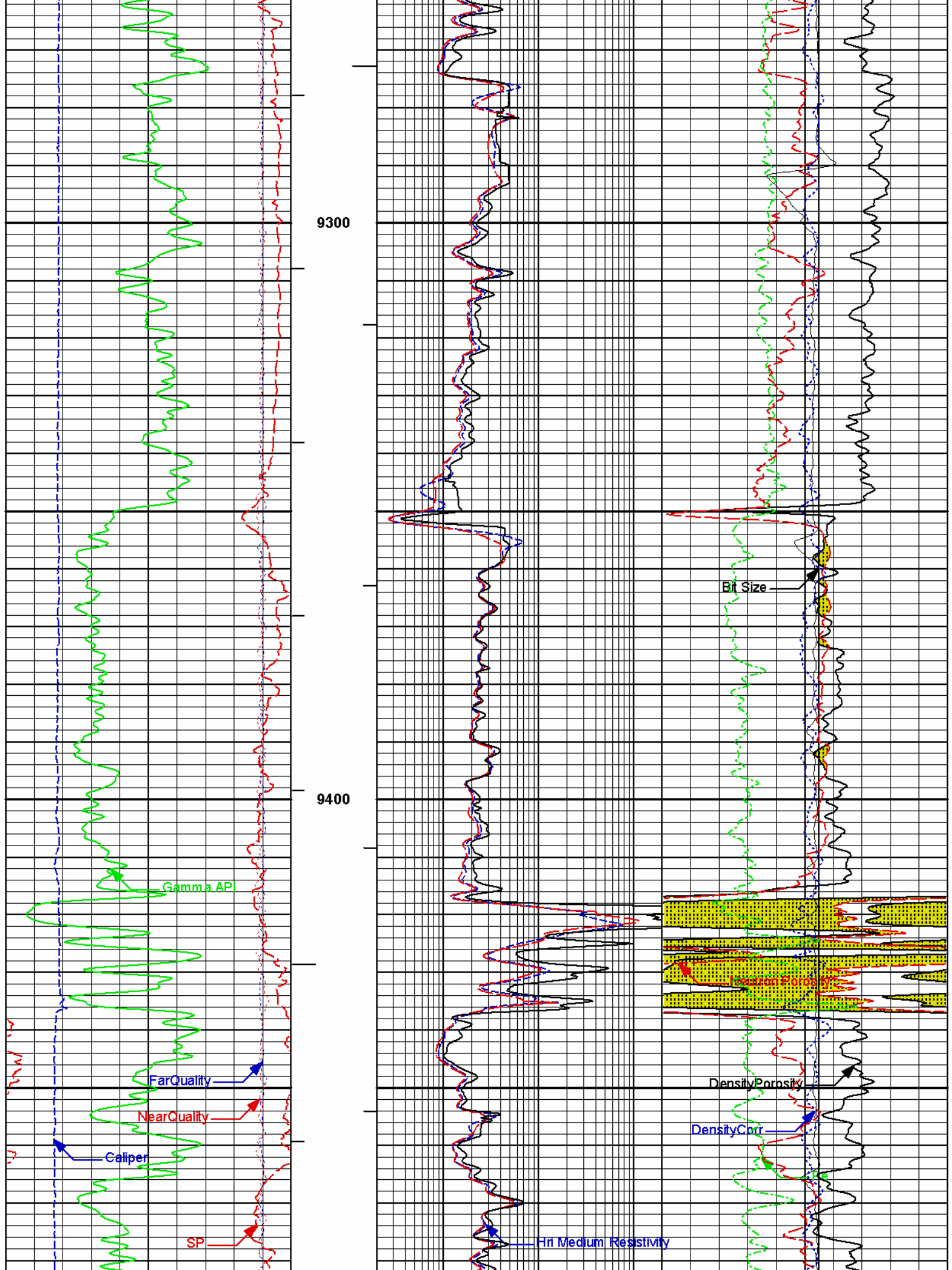


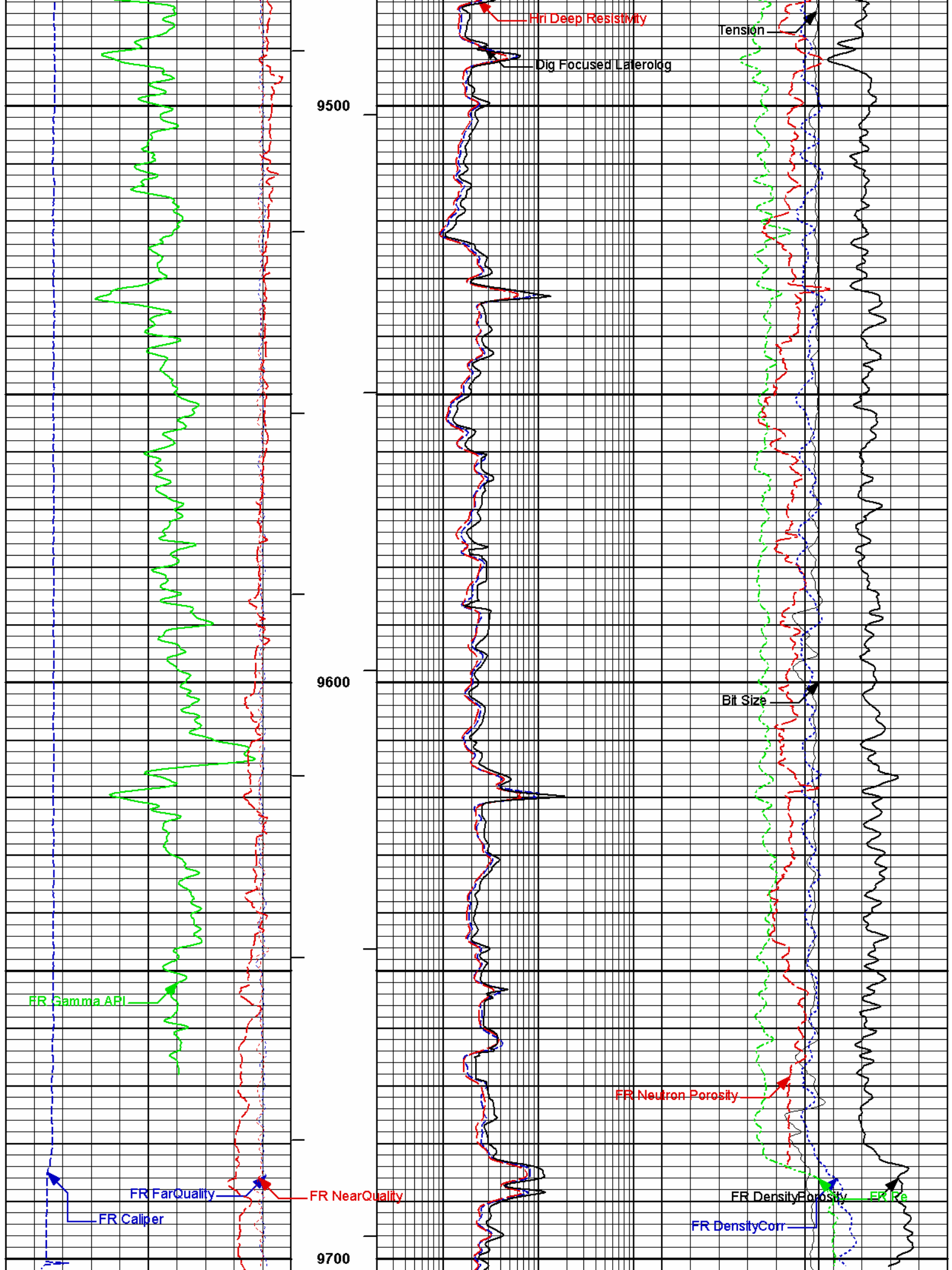


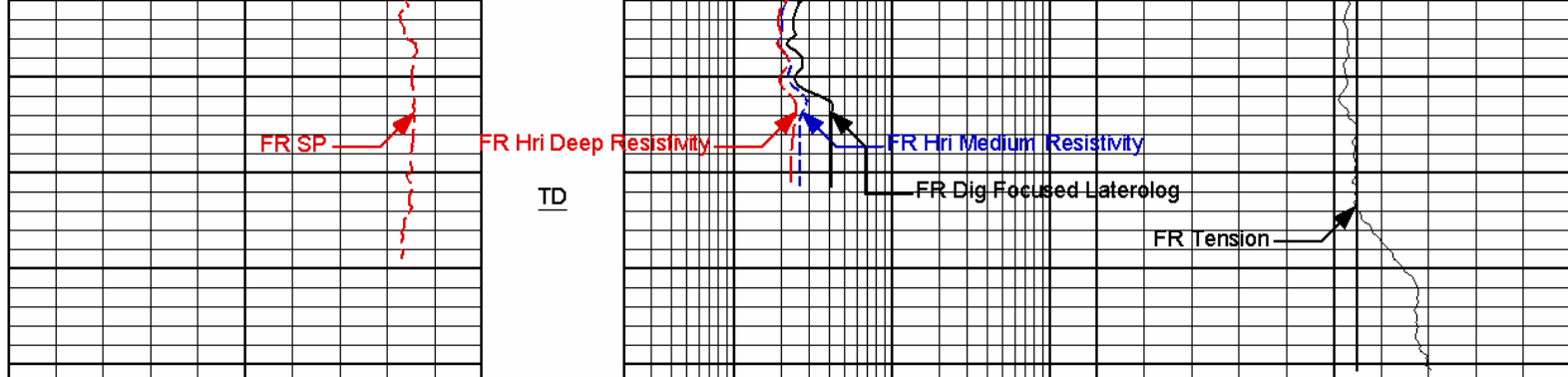












SP		1 : 240 ft MD	2	DFL	2000	8% Porosity			
-]10[+			ohmm						
0	Gamma API	BHV ft3	2	HMRS	2000	30	DensityPorosity	-10	
api			ohmm						
6	Caliper	AHV ft3	2	HDRS	2000	30	Neutron Porosity	-10	
inches			ohmm						
-45	NearQuality					-0.25	DensityCorr	0.25	
						g/cc			
45	FarQuality					Pe		10	
						10000	Tension	0	
						lbs			

HALLIBURTON

Plot Time: 25-Sep-08 23:07:18  
Plot Range: 1580 ft to 9742 ft  
Data: LAR\_FED\_29-02BWell BasedMAIN PASS - CASINGI  
Plot File: \\LOCAL-\\LAR\_FED\_29-02B\\0001 TRIPLE-DC\\TRIPLE\\MAIN PASS

MAIN PASS 5" = 100'

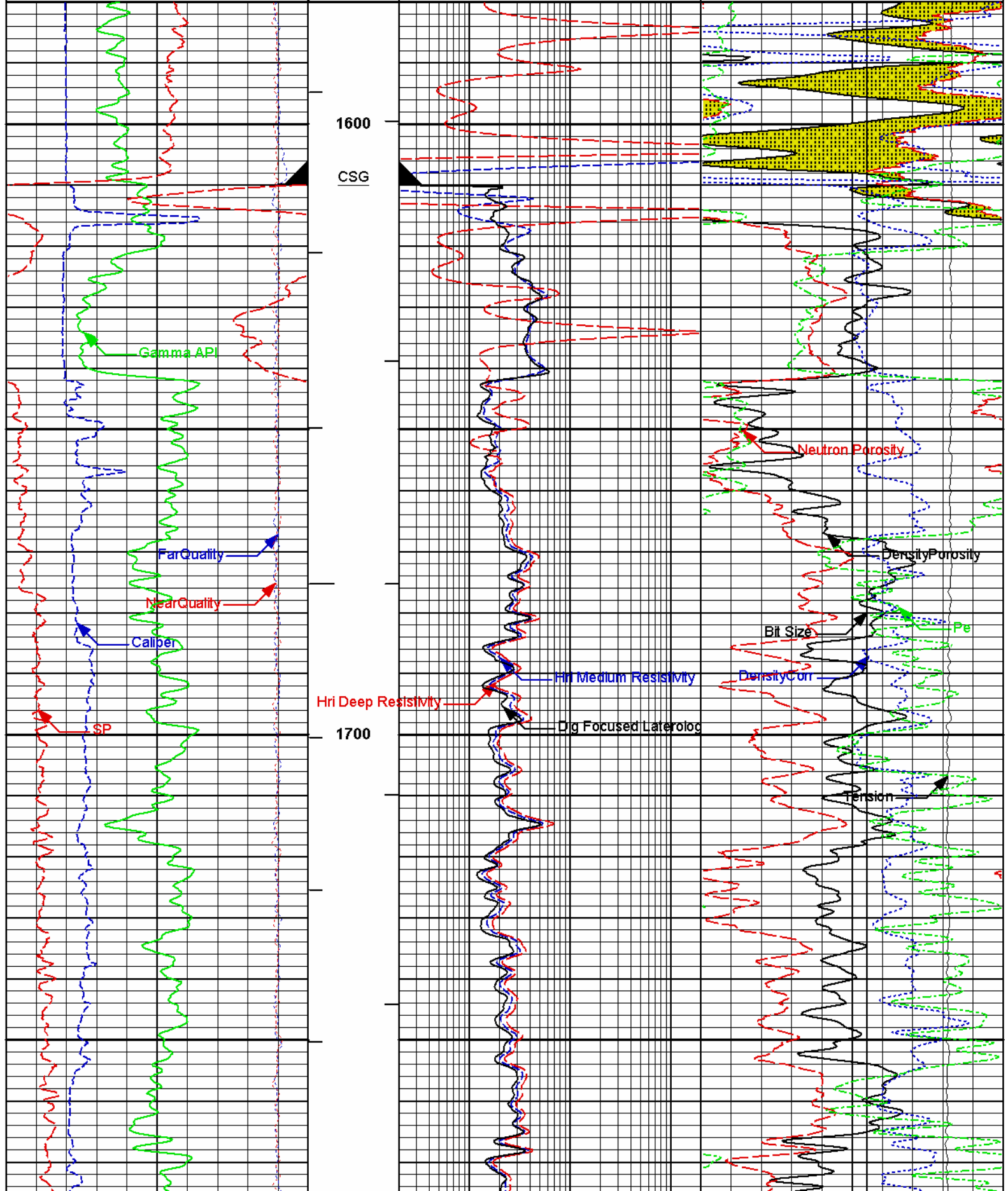
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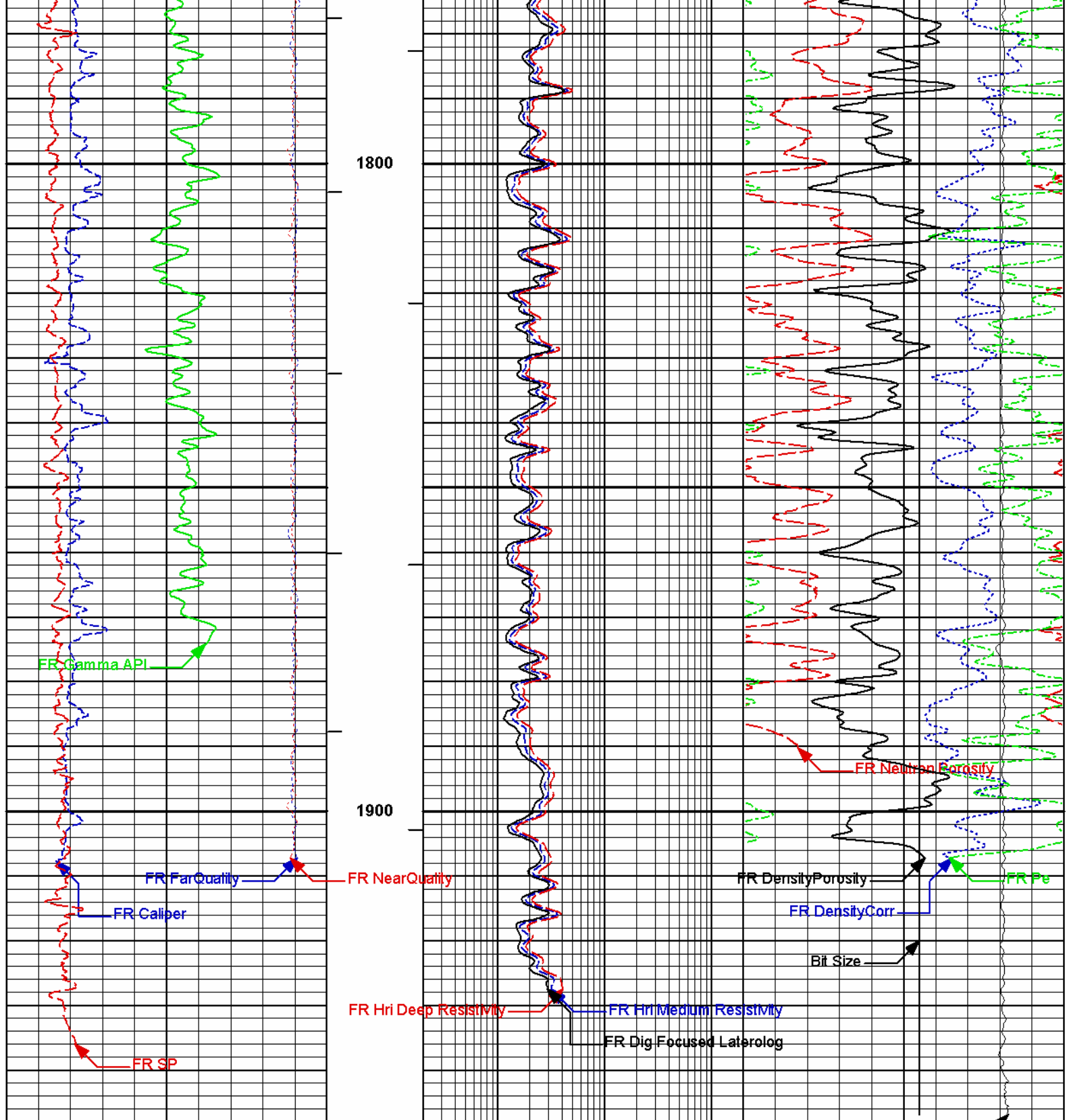
Plot Time: 25-Sep-08 23:07:19  
Plot Range: 1580 ft to 1948 ft  
Data: LAR\_FED\_29-02BWell BasedREPEATI  
Plot File: \\LOCAL-\\LAR\_FED\_29-02B\\0001 TRIPLE-DC\\TRIPLE\\REPEAT

MAIN PASS 5" = 100'

		10000		Tension		0	
				lbs			
45		0		Pe		10	
-45		-0.25		DensityCorr		0.25	
				g/cc			
6		30		Neutron Porosity		-10	
Caliper		2		HDRS		2000	
		AHV					

inches	ft3	ohmm	%
0	Gamma API	200	DensityPorosity
api	BHV	2	30
SP	ft3	ohmm	%
-]10[+	1:240	2	8% Porosity
	ft	DFL	
	MD	ohmm	





SP	1 : 240 ft MD	2	DFL	2000	FR Tension 8% Porosity
-10[+]			ohmm		
0 Gamma API 200	BHV ft3	2	HMRS	2000	30 DensityPorosity -10
api			ohmm		%
6 Caliper 16	AHV ft3	2	HDRS	2000	30 Neutron Porosity -10
inches			ohmm		%
-45 NearQuality 5					-0.25 DensityCorr 0.25
					g/cc
45 FarQuality -5					0 Pe 10

	10000	Tension	0
	lbs		

HALLIBURTON

Plot Time: 25-Sep-08 23:07:26  
Plot Range: 1580 ft to 1948 ft  
Data: LAR\_FED\_29-02B\Well Based\REPEAT\  
Plot File: \\LOCAL-ILAR\_FED\_29-02B\0001 TRIPLE-DC\TRIPLE\REPEAT

MAIN PASS 5" = 100'

HALLIBURTON

CALIBRATION REPORT

ACCELEROMETER SHOP CALIBRATION

Tool Name:	D4TGX - 034	Reference Calibration Date:	01-Jan-70 00:00:00
Engineer:	Unkown	Calibration Date:	21-Jul-05 12:10:41
Software Version:	Legacy Version	Calibration Version:	0

Horizontal-1 Telemetry	Horizontal-2 Telemetry	Vertical Telemetry	Units
16666.54	16656.18	20861.91	cnts

Coefficient	Coefficient Value	Tolerance
Gain	0.000238	0.0002 - 0.0003
Offset	-3.966	----

Orientation	Measured	Calibrated
Horizontal	16661.36	0.00
Vertical	20861.91	1.00

DITS 4 TELEMETRY GAMMA SHOP CALIBRATION (GIBRALTAR)

Tool Name:	D4TGX - 034	Reference Calibration Date:	24-Jul-08 11:29:25
Engineer:	M. BIERY	Calibration Date:	05-Sep-08 15:24:54
Software Version:	WL INSITE R2.2 (Build 9)	Calibration Version:	1

Calibrator Source S/N: TB-255  
Calibrator API Reference:253.00 api

Measurement	Measured	Calibrated	Units
Background	150.9	150.4	api
Background + Calibrator	404.7	403.4	api
Calibrator	252.5	253.0	api

DITS 4 TELEMETRY GAMMA FIELD CALIBRATION (GIBRALTAR)

Tool Name:	D4TGX - 034	Reference Calibration Date:	05-Sep-08 15:24:54
Engineer:	G.BOOK	Calibration Date:	24-Sep-08 14:55:42
Software Version:	WL INSITE R2.2 (Build 9)	Calibration Version:	1

Calibrator Source S/N: TB-255  
Calibrator API Reference:253.00 api

Field Verification	Shop	Field	Units
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Background	150.4	252.8	api
Background + Calibrator	403.4	497.3	api
Calibrator	253.0	244.6	api

Shop	Field	Difference	Tolerance
253.0	244.6	8.4	+/- 9.00

#### DITS 4 TELEMETRY GAMMA POST CALIBRATION (GIBALTAR)

<b>Tool Name:</b>	<b>D4TGX - 034</b>	<b>Reference Calibration Date:</b>	<b>24-Sep-08 14:55:42</b>
<b>Engineer:</b>	<b>M. BIERY</b>	<b>Calibration Date:</b>	<b>25-Sep-08 22:33:59</b>
<b>Software Version:</b>	<b>WL INSITE R2.2 (Build 9)</b>	<b>Calibration Version:</b>	<b>1</b>

Calibrator Source S/N: TB-255

Calibrator API Reference:253.00 api

Post Verification	Field	Post	Units
Background	252.8	43.1	api
Background + Calibrator	497.3	294.3	api
Calibrator	244.6	251.2	api

Shop	Field	Post	Difference	Tolerance
253.0	244.6	251.2	-6.6	+/- 9.00

#### CSNG-FS SHOP CALIBRATION

<b>Tool Name:</b>	<b>CSNGA-FS - I989S989</b>	<b>Reference Calibration Date:</b>	<b>08-Sep-08 11:02:52</b>
<b>Engineer:</b>	<b>MICHAEL PATSILEVAS</b>	<b>Calibration Date:</b>	<b>08-Sep-08 11:26:26</b>
<b>Software Version:</b>	<b>WL INSITE R2.2 (Build 2)</b>	<b>Calibration Version:</b>	<b>1</b>
<b>Source SN:</b>	<b>TB290</b>		

TITANIUM CASE	Measured	Calibrated	Units
60 KEV Peak Channel #	48.0	48.0	Channel #
239 KEV Peak Channel #	20.6	20.6	Channel #
583 KEV Peak Channel #	52.9	53.0	Channel #
2614 KEV Peak Channel #	227.8	228.4	Channel #
Calibrate Temperature	N/A	N/A	degF

Pass/Fail Summary	Centroid
239 KEV Peak	Passed
583 KEV Peak	Passed
2614 KEV Peak	Passed

Blanket Reference Value: 230.00 API

Calibrator Value: 201.6 API

	Counts	Units	Measured	Calibrated	Units
Thorium Blanket	1590.8	CPS	319.2	319.6	API
Background	290.5	CPS	58.0	58.4	API

Gamma Ray Gain: 1.01

#### DUAL SPACED NEUTRON SHOP CALIBRATION

<b>Tool Name:</b>	<b>DSN_II - 108734</b>	<b>Reference Calibration Date:</b>	<b>14-Jul-08 15:28:26</b>
<b>Engineer:</b>	<b>M. BIERY</b>	<b>Calibration Date:</b>	<b>05-Sep-08 16:08:25</b>
<b>Software Version:</b>	<b>WL INSITE R2.2 (Build 9)</b>	<b>Calibration Version:</b>	<b>1</b>

Logging Source S/N: DSN-60  
Calibrator Source S/N: CAL-131  
Water Tank S/N: GJ\_TANK  
Water Tank Value: 52.750  
Snow Block S/N: OH477-(10549593)  
Calibration Tank Water Temperature: 74 degF  
Min. Tool Housing Outside Diameter: 3.468 in

WATER TANK SUMMARY (Horizontal Water Tank)			
Measurement	Measured	Calibrated	Units
Ratio	6.407	6.450	
Porosity	0.11632	0.11749	decP

SNOW BLOCK SUMMARY			
Measurement	Measured	Calibrated	Units
Ratio	5.963	5.982	
Porosity	0.12026	0.11846	decP

DSN Sensitivity: 1.095

DUAL SPACED NEUTRON FIELD CALIBRATION

Tool Name:	DSN_II - 108734	Reference Calibration Date:	05-Sep-08 16:08:25
Engineer:	G.BOOK	Calibration Date:	24-Sep-08 15:08:27
Software Version:	WL INSITE R2.2 (Build 9)	Calibration Version:	1

Logging Source S/N: DSN-60  
Calibrator Source S/N: CAL-131  
Snow Block S/N: OH477-(10549593)

SNOW BLOCK SUMMARY			
Measurement	Shop	Field	Units
Ratio	5.982	6.014	
Porosity	0.11846	0.12115	decP

DSN Sensitivity: 1.095

DUAL SPACED NEUTRON POST CALIBRATION

Tool Name:	DSN_II - 108734	Reference Calibration Date:	24-Sep-08 15:08:27
Engineer:	M. BIERY	Calibration Date:	25-Sep-08 22:26:43
Software Version:	WL INSITE R2.2 (Build 9)	Calibration Version:	1

Logging Source S/N: DSN-60  
Calibrator Source S/N: CAL-131  
Snow Block S/N: OH477-(10549593)

SNOW BLOCK SUMMARY			
Measurement	Field	Post	Units
Ratio	6.014	5.968	
Porosity	0.12115	0.11977	decP

DSN Sensitivity: 1.095

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name:	SDL_DA - I066M066	Reference Calibration Date:	06-Sep-08 10:42:16
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Logging Source S/N: 2189GW

Aluminum Block S/N: 63094

Density: 2.610g/cc

Magnesium Block S/N: 63387

Density: 1.685g/cc

**DENSITY CALIBRATION SUMMARY**

Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0519	1.0597	0.85 - 1.15
Near Dens Gain	1.0407	1.0451	0.85 - 1.15
Near Peak Gain	1.0254	1.0494	0.85 - 1.15
Near Lith Gain	1.0393	1.0810	0.85 - 1.15
Far Bar Gain	1.0216	1.0229	0.85 - 1.15
Far Dens Gain	1.0047	1.0061	0.85 - 1.15
Far Peak Gain	1.0038	1.0058	0.85 - 1.15
Far Lith Gain	1.0016	1.0042	0.85 - 1.15
Near Bar Offset	-0.1350	-0.2054	NONE
Near Dens Offset	-0.0444	-0.0816	NONE
Near Peak Offset	0.0912	-0.1138	NONE
Near Lith Offset	-0.0276	-0.3892	NONE
Far Bar Offset	0.2342	0.2242	NONE
Far Dens Offset	0.3501	0.3405	NONE
Far Peak Offset	0.3395	0.3246	NONE
Far Lith Offset	0.3482	0.3279	NONE
Near Bar Background	951.20	952.17	700 - 1500
Near Dens Background	391.30	388.59	290 - 600
Near Peak Background	172.79	172.92	130 - 280
Near Lith Background	167.75	166.70	125 - 270
Far Bar Background	495.17	492.95	350 - 750
Far Dens Background	193.45	193.36	140 - 300
Far Peak Background	83.32	82.35	50 - 130
Far Lith Background	82.11	81.91	50 - 130

**CALIBRATION BLOCK SUMMARY**

Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.683	1.685	0.002	+/- 0.015
Pe	2.554	2.520	-0.034	+/- 0.150
ALUMINUM				
Density (g/cc)	2.609	2.610	0.001	+/- 0.01500
Pe	3.182	3.210	0.028	+/- 0.150

**TOOL SUMMARY**

Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	-0.0009	+/- 0.0110	0.0007	+/- 0.0140
Magnesium Block	0.0023	+/- 0.0110	-0.0006	+/- 0.0140
Aluminum Block	-0.0013	+/- 0.0110	0.0027	+/- 0.0140
Resolution	8.83	6.00 - 11.00	9.49	6.00 - 11.00

**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:** SDL\_DA - I066M066**Reference Calibration Date:** 06-Sep-08 11:04:24**Engineer:** G.BOOK**Calibration Date:** 25-Sep-08 00:37:05**Software Version:** WL INSITE R2.2 (Build 9)**Calibration Version:** 1

Aluminum Block S/N: 63094

Density: 2.610g/cc

Magnesium Block S/N: 63387

Density: 1.685g/cc

Pad Temperature: 66.1 degF

**DENSITY FIELD CALIBRATION SUMMARY**

Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1680.377	1680.930	0.553	16.459
Far (B+D+P+L) cps	850.569	845.456	-5.113	15.999
Near Resolution	8.83	8.84	0.010	0.50
Far Resolution	9.70	9.49	0.210	1.00

**PASS/FAIL SUMMARY**

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

**SPECTRAL DENSITY POST CHECK****Tool Name:** SDL\_DA - I066M066**Reference Calibration Date:** 25-Sep-08 00:37:05**Engineer:** M. BIERY**Calibration Date:** 25-Sep-08 22:22:26**Software Version:** WL INSITE R2.2 (Build 9)**Calibration Version:** 1

Aluminum Block S/N: 63094

Density: 2.610g/cc

Magnesium Block S/N: 63387

Density: 1.685g/cc

Pad Temperature: 69.9 degF

**DENSITY POST CALIBRATION SUMMARY**

Measurement	Field	Post	Change	Control Limit +/-
Near (B+D+P+L) cps	1680.930	1685.392	4.462	18.284
Far (B+D+P+L) cps	845.456	836.702	-8.754	17.297
Near Resolution	8.84	8.85	0.010	0.50
Far Resolution	9.58	9.70	-0.120	1.00

**PASS/FAIL SUMMARY**

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

**CALIPER SHOP CALIBRATION**

Tool Name:	SDL_DA - I066M066	Reference Calibration Date:	15-Jun-08 16:05:15
Engineer:	K. WOOD	Calibration Date:	06-Sep-08 11:23:24
Software Version:	WL INSITE R2.2 (Build 9)	Calibration Version:	1

MEASURED CALIPER RINGS			
Measurement	Current Reading (Previous Coeff.)	Calibrated (New Coeff.)	Change
RING DIAMETER:			
Ring #1 (in)	6.31	6.50	-0.19
Ring #2 (in)	13.46	13.88	-0.42

CALIPER FIELD CALIBRATION			
Tool Name:	SDL_DA - I066M066	Reference Calibration Date:	06-Sep-08 11:23:24
Engineer:	G.BOOK	Calibration Date:	25-Sep-08 00:22:46
Software Version:	WL INSITE R2.2 (Build 9)	Calibration Version:	1

MEASURED CALIPER RINGS				
Measurement	Shop	Field	Change	Control Limit On New Value
Ring #1 (in)	6.31	6.59	0.28	+/- 0.50
PASS/FAIL SUMMARY				
Ring #1 Check:			Passed	

CALIPER POST CALIBRATION			
Tool Name:	SDL_DA - I066M066	Reference Calibration Date:	25-Sep-08 00:22:46
Engineer:	M. BIERY	Calibration Date:	25-Sep-08 22:16:46
Software Version:	WL INSITE R2.2 (Build 9)	Calibration Version:	1

MEASURED CALIPER RING				
Measurement	Field	Post	Change	Control Limit On New Value
Ring #1 (in)	6.59	6.33	-0.26	+/- 0.50
PASS/FAIL SUMMARY				
Ring #1 Check:			Passed	

HIGH RESOLUTION INDUCTION SHOP CALIBRATION			
Tool Name:	HRID - I81S0944	Reference Calibration Date:	25-Jul-08 14:06:02
Engineer:	J. GEISER	Calibration Date:	17-Sep-08 10:59:41
Software Version:	WL INSITE R2.2 (Build 9)	Calibration Version:	1

HIGH RESOLUTION INDUCTION SHOP CALIBRATION SUMMARY					
TEST LOOP RESPONSE					
1 - Test Loop Closed	Measured Signal		Nominal		Units
	R	X	R	X	
HRD	1976	1972	1976	1972	MMHOS
HRM	2838	2832	2838	2832	MMHOS
2 - Test Loop Off(Sonde Error)	Measured Signal		Nominal		Units
	R	X	R	X	
HRD	-4	-94	+/- 15	+/- 100	MMHOS
HRM	-11	-112	+/- 15	+50/-150	MMHOS

ELECTRONICS RELATIVE GAIN					

Set

Nominal

	Magnitude	Phase	Magnitude	Phase
HRD	1.00	-1.38	1. +/- .1	0. +/- 5
HRM	1.00	-1.29	1. +/- .1	0. +/- 5
Temperature at time of calibration:		83.23	degF	

\*\*\*\* NOTICE \*\*\*\*

THE HIGH RESOLUTION INDUCTION TOOL (HRID) IS A CONTINUAL SELF-CALIBRATING TOOL. DURING LOGGING, THE TOOL CONSTANTLY SELF-UPDATES ITS COEFFICIENTS, THE SHOP CALIBRATION IS PERFORMED UNDER VERY STRINGENT CONDITIONS. SINCE THE TOOL IS SELF-CALIBRATING DURING LOGGING, FIELD AND POST CALIBRATIONS ARE NOT AVAILABLE OR NECESSARY FOR THE HRID TOOL.

### CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
<b>D4TGX-034</b>						
Gamma Ray Calibrator	253.0	244.6	251.2	-6.6	+/- 9.00	api
<b>CSNGA-FS-I989S989</b>						
60 KEV Peak Channel #	48.0	-----	-----	0.0	-----	Channel #
239 KEV Peak Channel #	20.6	-----	-----	0.0	-----	Channel #
583 KEV Peak Channel #	53.0	-----	-----	0.0	-----	Channel #
2614 KEV Peak Channel #	228.4	-----	-----	0.0	-----	Channel #
<b>DSN_II-108734</b>						
Snow Block Porosity	0.11846	0.12115	0.11977	0.00138	+/- 0.00900	decP
<b>SDL_DA-I066M066</b>						
Near(B+D+P+L)	1680.377	1680.930	1685.392	-4.462	+/-18.284	cps
Far(B+D+P+L)	850.569	845.456	836.702	8.754	+/-17.297	cps
Field Block Density	2.159	0.000	0.000	0.000	+/-0.01500	g/cc
Ring #1	6.50	6.59	6.33	0.26	+/-0.500	in

Data: WIL\_AP\_44\_1\_696I0001 TRIPLE-DA-CSNGI0DLE

Date: 25-Sep-08 22:34:29

## HALLIBURTON

### CUSTOMER EVENT LOG


Event Type	Time & Date	Depth (ft)	Event Description
	25-Sep-08 01:14:11	1947.50	Logging 001 25-Sep-08 01:14 Up @1947.5f
	25-Sep-08 01:23:04	1543.68	Halting 001 25-Sep-08 01:14 Up @1947.5f
	25-Sep-08 01:24:55	1511.50	Logging 002 25-Sep-08 01:24 Dn @1513.8f
	25-Sep-08 02:44:31	9741.80	Halting 002 25-Sep-08 01:24 Dn @1513.8f
	25-Sep-08 02:45:14	9741.50	Logging 003 25-Sep-08 02:45 Up @9741.3f
	25-Sep-08 05:34:58	90.61	Halting 003 25-Sep-08 02:45 Up @9741.3f

Data: LAR\_FED\_29-02B\0002 TRIPLE-DA\HWI0782

Date: 25-Sep-08 05:36:17

## HALLIBURTON

### TOOL STRING DIAGRAM REPORT

Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
RWCH-A032 135.00 lbs	Ø 3.625 in		Load Cell @ 76.11 ft BH Temperature @ 75.54 ft	6.25 ft	79.79 ft



D4TGX-034  
221.00 lbs

Ø 3.625 in →

← GammaRay @ 71.86 ft

9.63 ft

73.54 ft

← Z-Accelerometer @ 65.13 ft

63.91 ft

DSN\_II-108734  
195.80 lbs

Ø 3.625 in →

10.25 ft

← Neutron Porosity @ 55.56 ft

53.66 ft

SDL\_DA-1066M066  
475.00 lbs

Ø 4.500 in →

18.83 ft

← SDL Caliper @ 39.00 ft  
← SDL Microlog @ 39.00 ft  
← SDL @ 37.87 ft

34.83 ft

HRID-I81S0944  
445.00 lbs

Ø 3.625 in →

33.33 ft

← HRID @ 10.30 ft  
← SP @ 10.20 ft

Spacer-THERMSUB  
10.00 lbs

Ø 3.625 in →

1.00 ft

1.50 ft

Bull Nose-001  
10.00 lbs

Ø 2.750 in →

0.50 ft

0.50 ft

0.00 ft

Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max.Log. Speed (fpm)
RWCH	Releasable Wireline Cable Head	A032	135.00	6.25	73.54	300.00
D4TGX	DITS Telemetry Gamma - Gibraltar Class	034	221.00	9.63	63.91	60.00
DSN_II	Dual Spaced Neutron-II Tool	108734	195.80	10.25	53.66	60.00
SDLD	SDL (D) with (A) Mandrel w/ EVR	I066M066	475.00	18.83	34.83	60.00
HRID	High Resolution Induction Tool Dits	I81S0944	445.00	33.33	1.50	100.00
SP	SP Ring	PROTO1	0.00	0.00	*	10.20
SPC	Test	THERMSUB	10.00	1.00	0.50	100.00
BLNS	Bull Nose	001	10.00	0.50	0.00	300.00

Total 1,491.80 79.79

\* Not included in Total Length and Length Accumulation.

Data: LAR\_FED\_29-02B\0002 TRIPLE-DA\002 25-Sep-08 01:24 Dn @1513.8f

Date: 25-Sep-08 01:39:36

COMPANY LARAMIE ENERGY II

WELL FEDERAL 29-02B

FIELD RULISON

COUNTY GARFIELD

STATE

CO

**HALLIBURTON**

HIGH RES. INDUCTION  
SPECTRAL DENSITY  
DUAL SPACED NEUTRON