

COMPANY				KERR-MCGEE OIL & GAS ONSHORE LP			
WELL				HEIN 1-1			
FIELD				WATTENBERG			
COUNTY				WELD			
STATE				CO			
Permanent Datum		GL	Sect. 1		Twp. 1N	Rge. 67W	LAT: 40.082061° LONG: -104.836625°
Log measured from		KB					
Drilling measured from		KB					
Date		23-Apr-12					
Run No.		ONE					
Depth - Driller		8028.00 ft					
Depth - Logger		8006.0 ft					
Bottom - Logged Interval		8004 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				

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																							

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	

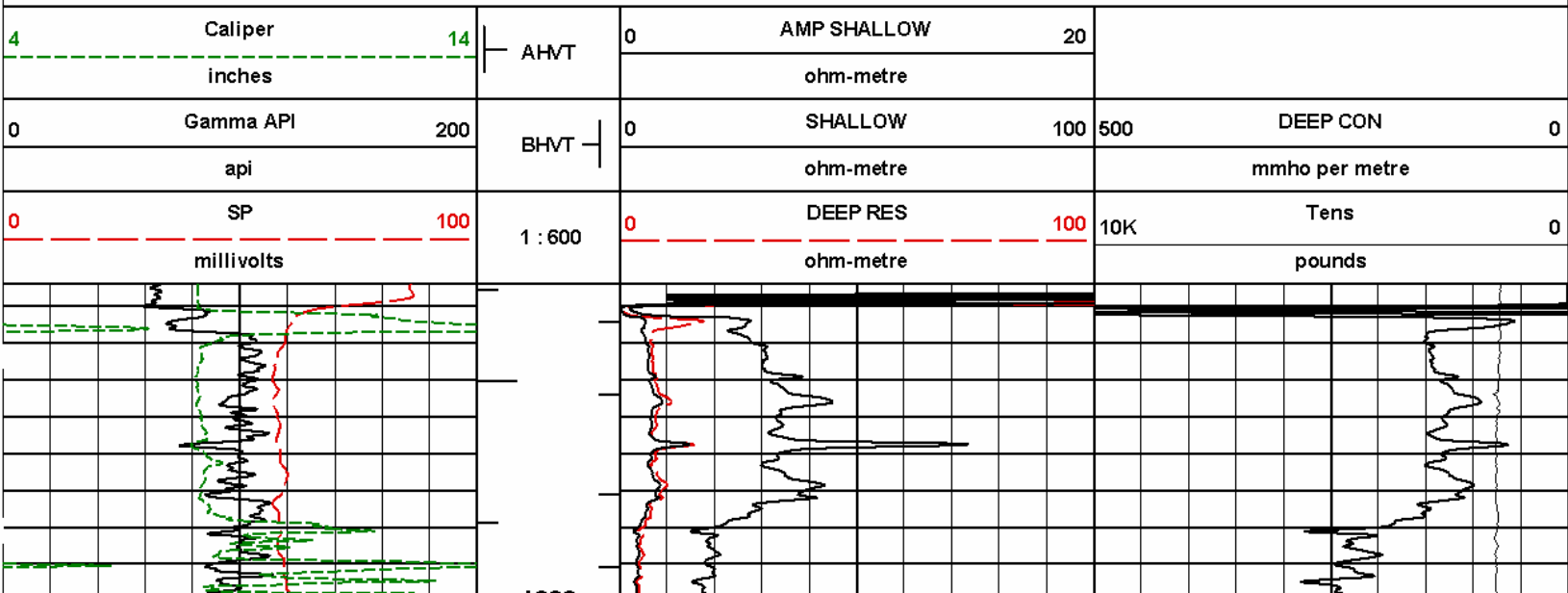
DSNT	DNOK	Process DSN?	Yes	
DSNT	NLIT	Neutron Lithology	Limestone	
DSNT	DNOS	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.250	in
DSNT	DNTP	Temperature Correction Type	None	
DSNT	DPRS	DSN Pressure Correction Type	None	
DSNT	SHCO	View More Correction Options	No	
DSNT	UTVD	Use TVD for Gradient Corrections?	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	

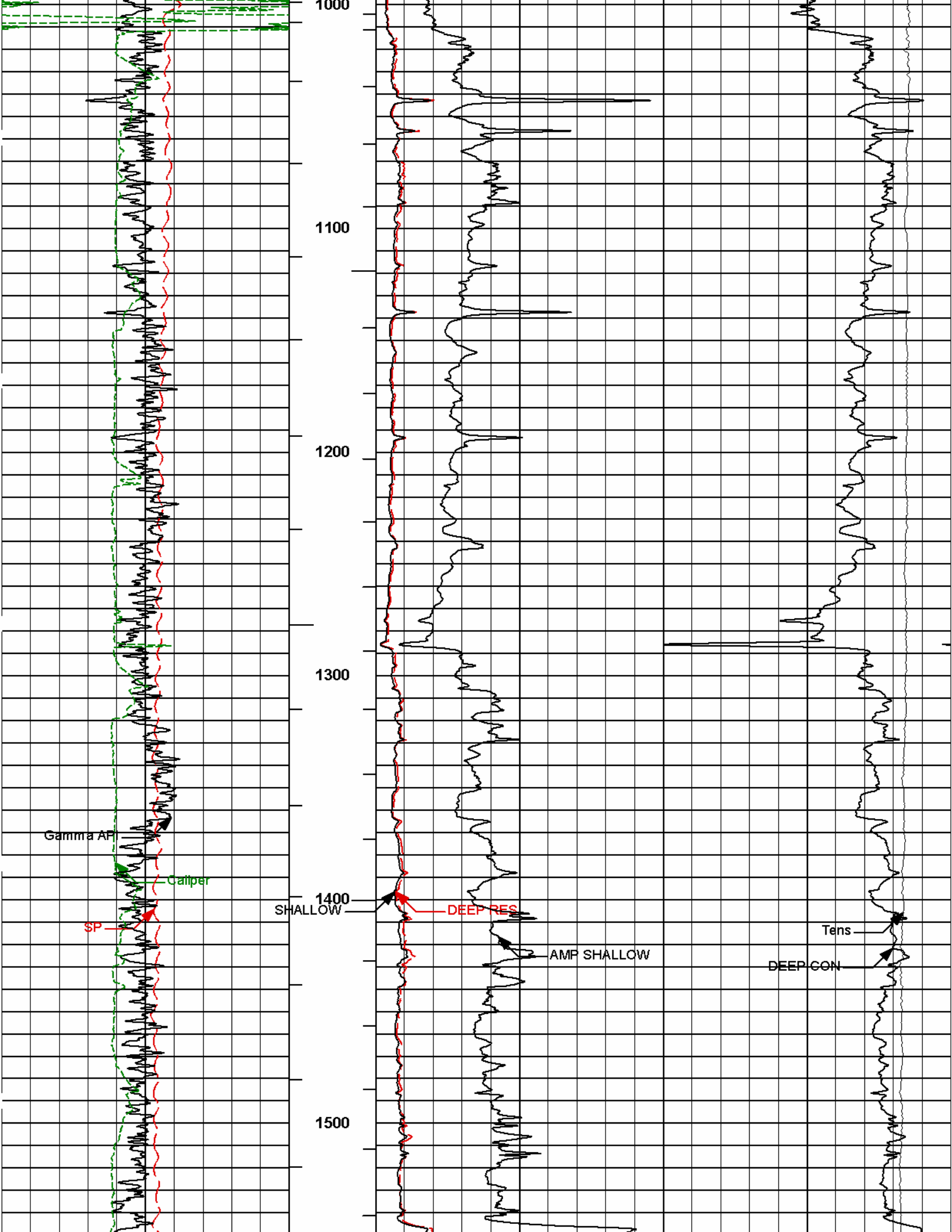
BOTTOM

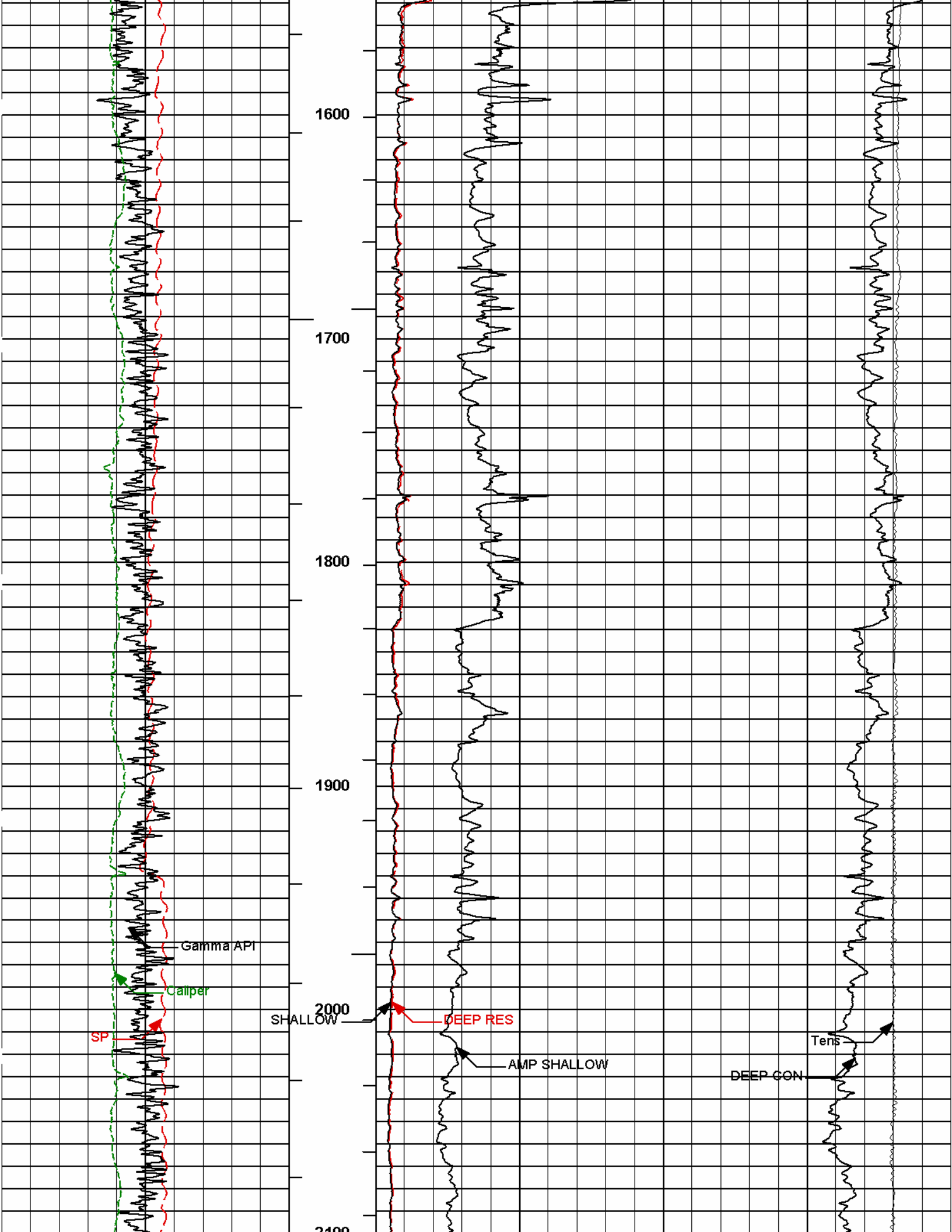


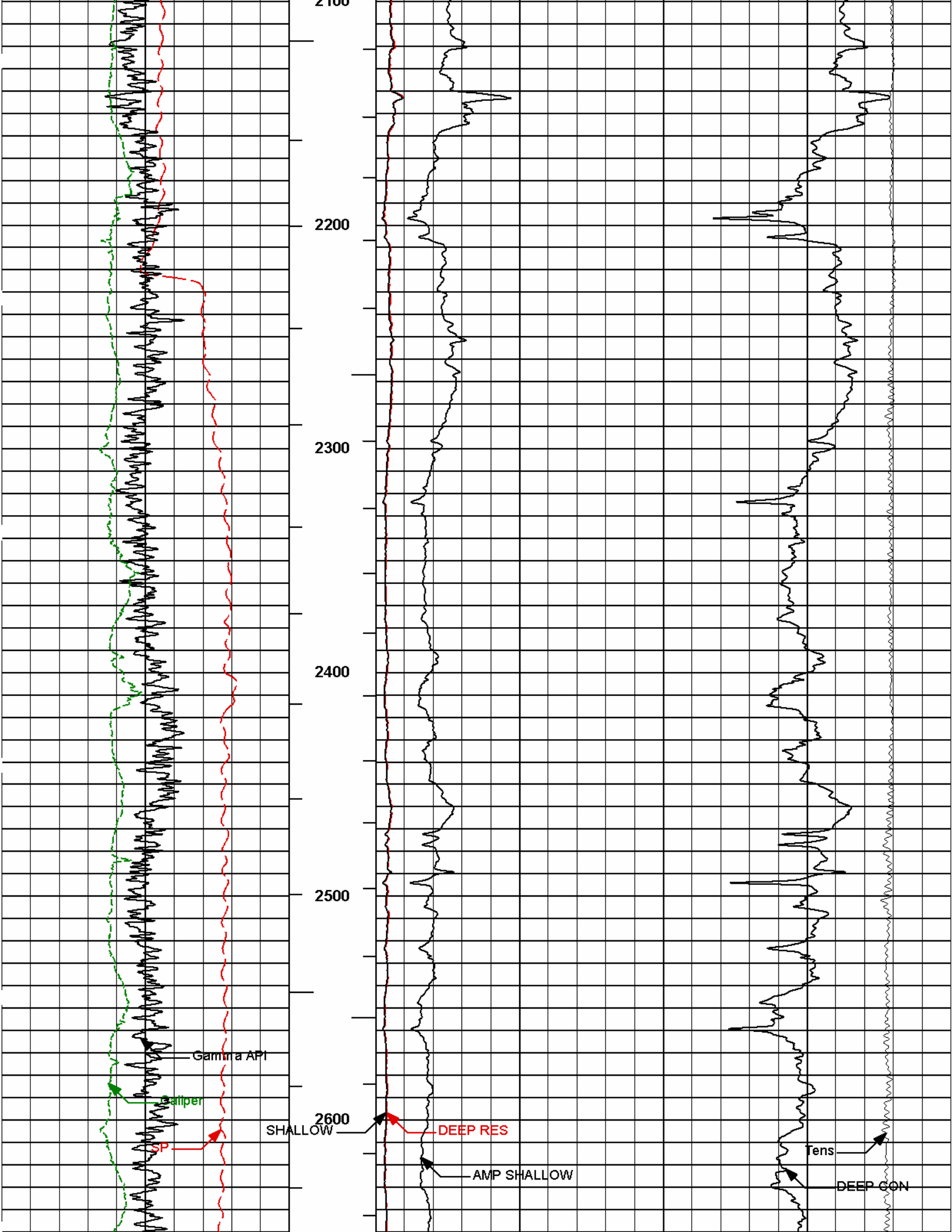
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Plot Range: 914 ft to 8014.25 ft  
Data: HEIN 1-1\Well Based\MAIN\*  
Plot File: \\ACRT\IQ\_ACRt\_2IN\_RM

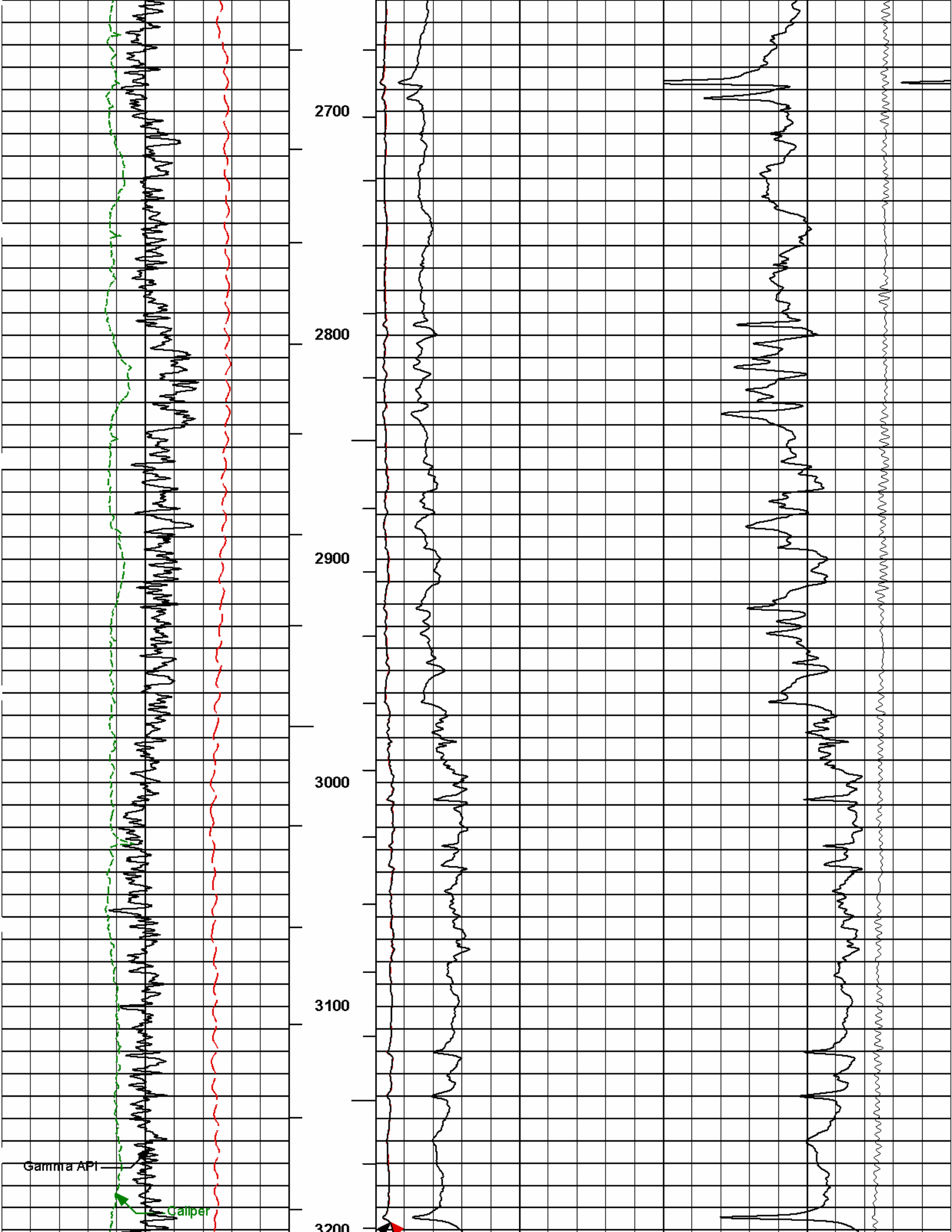
MAIN PASS 2" = 100'

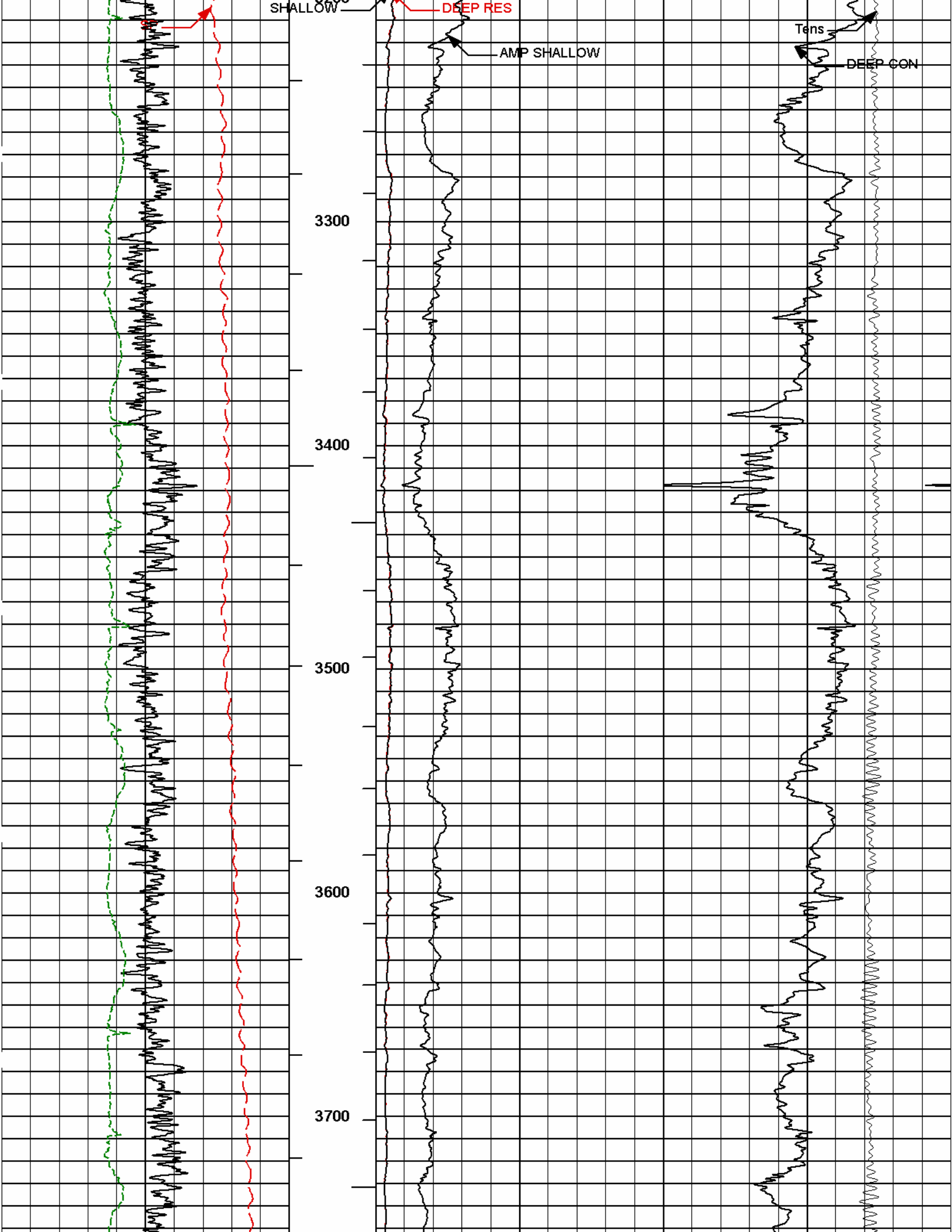




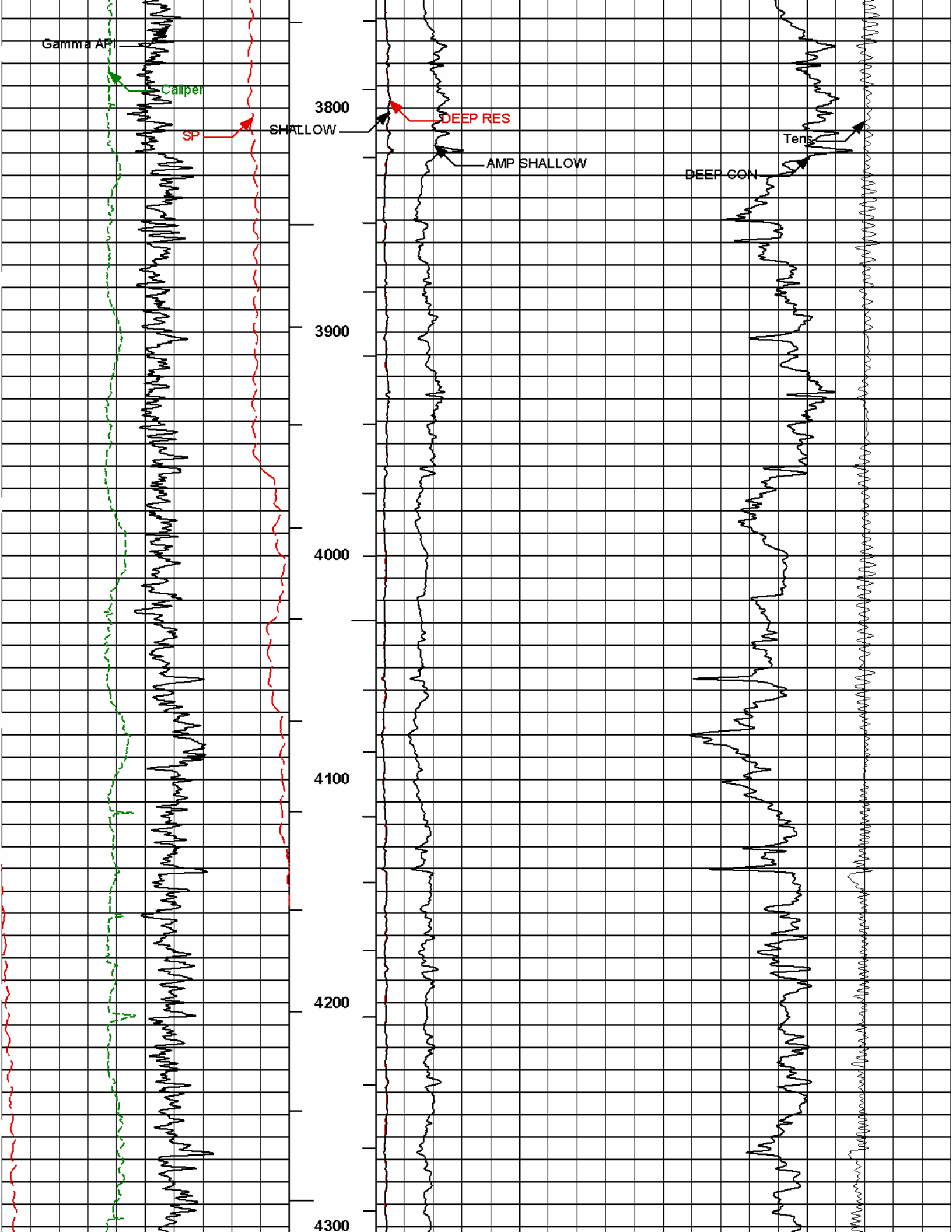


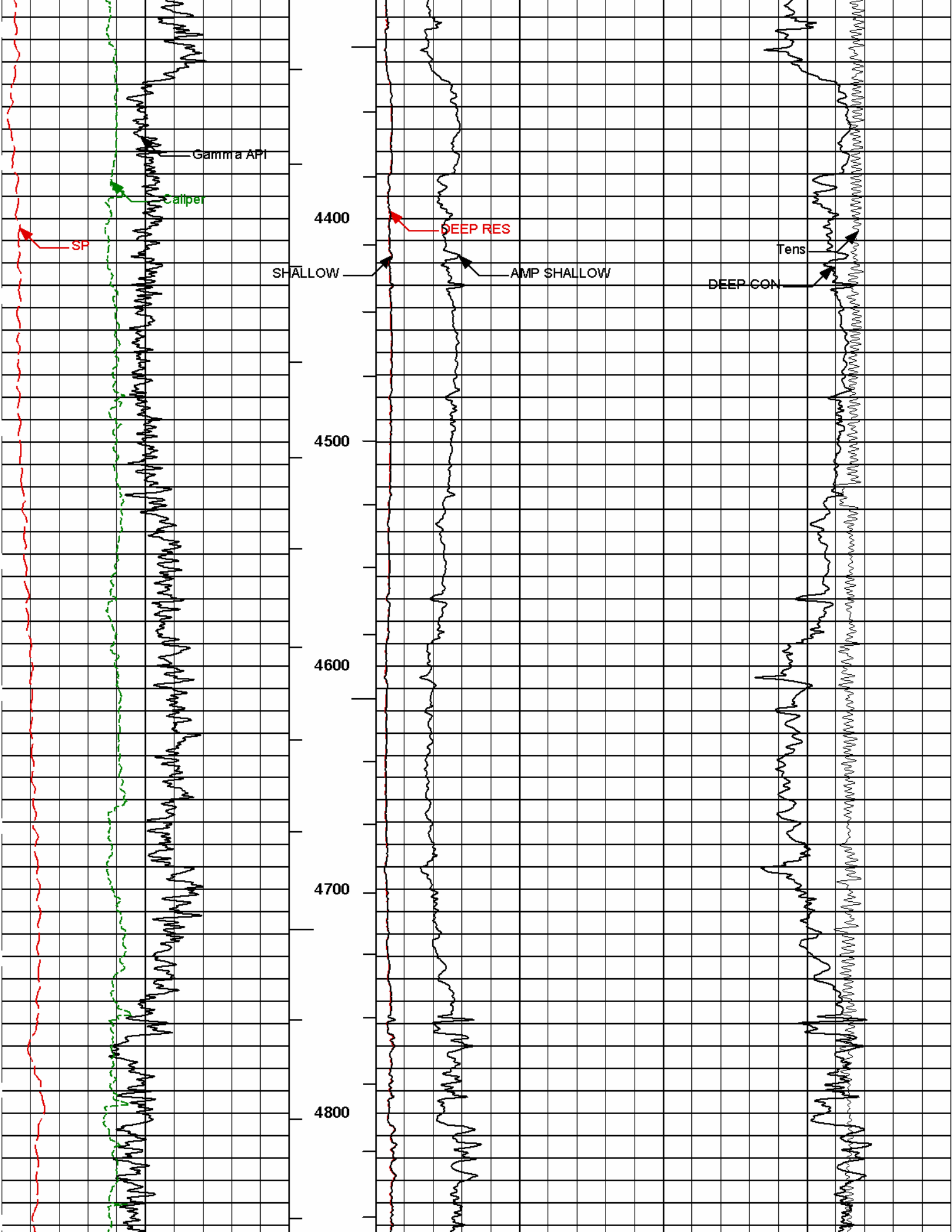


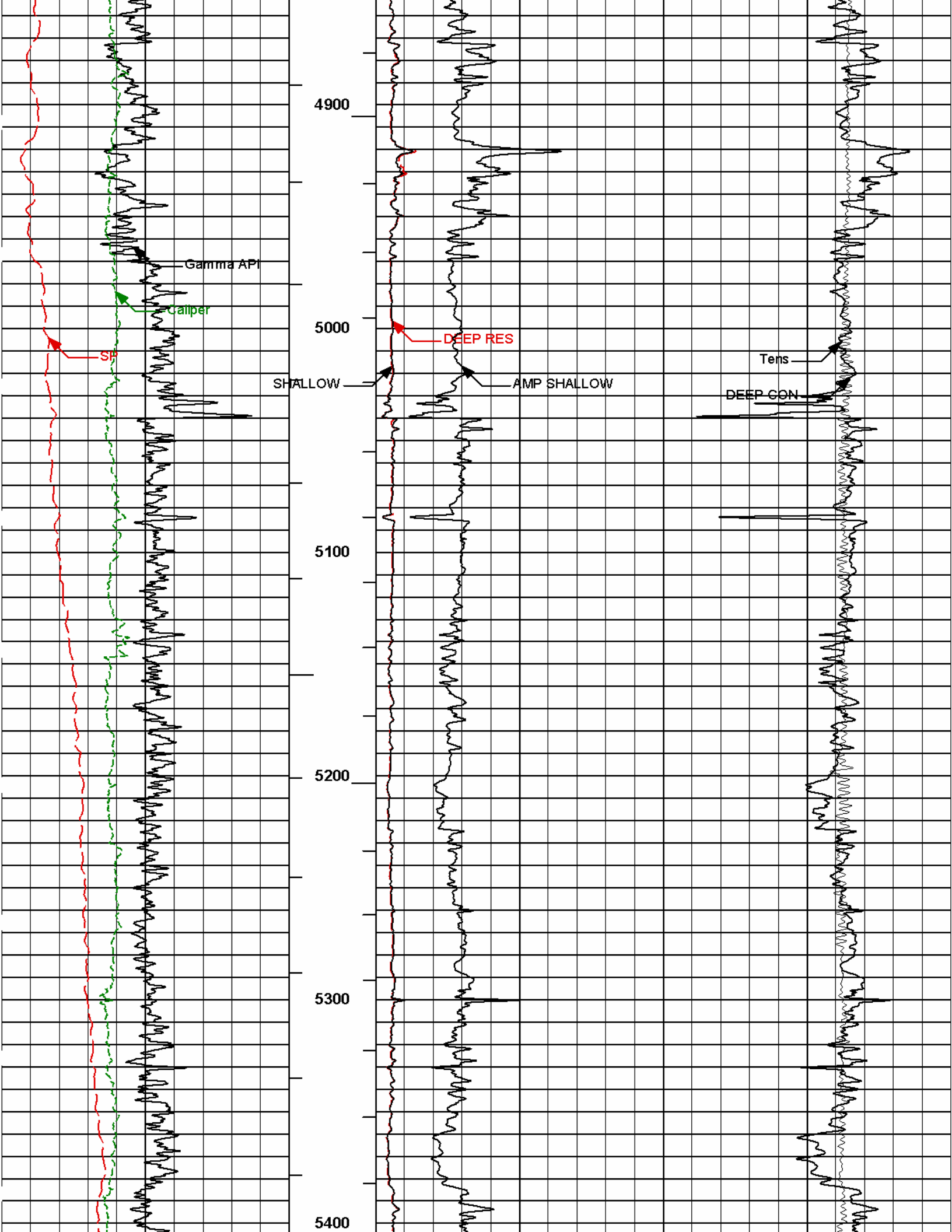


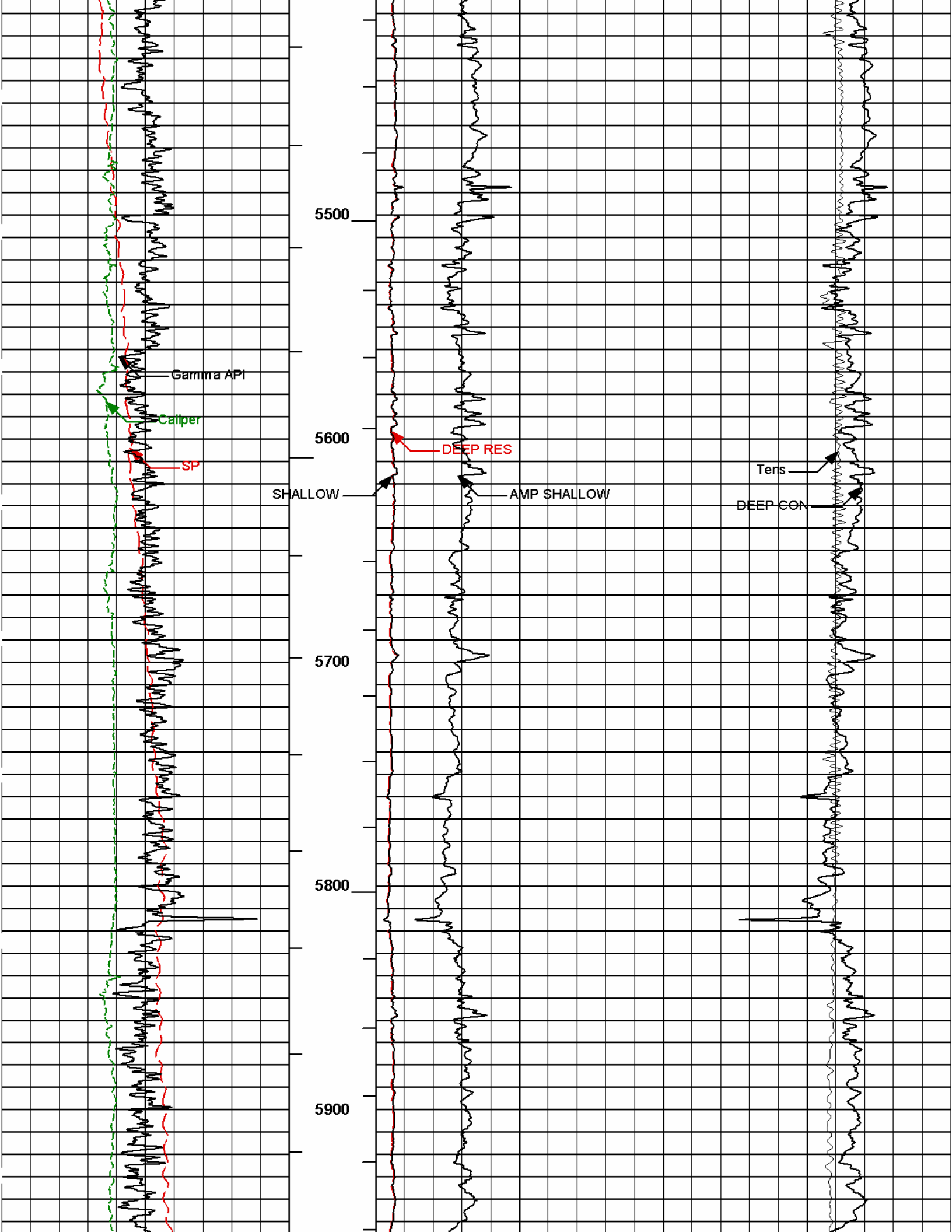


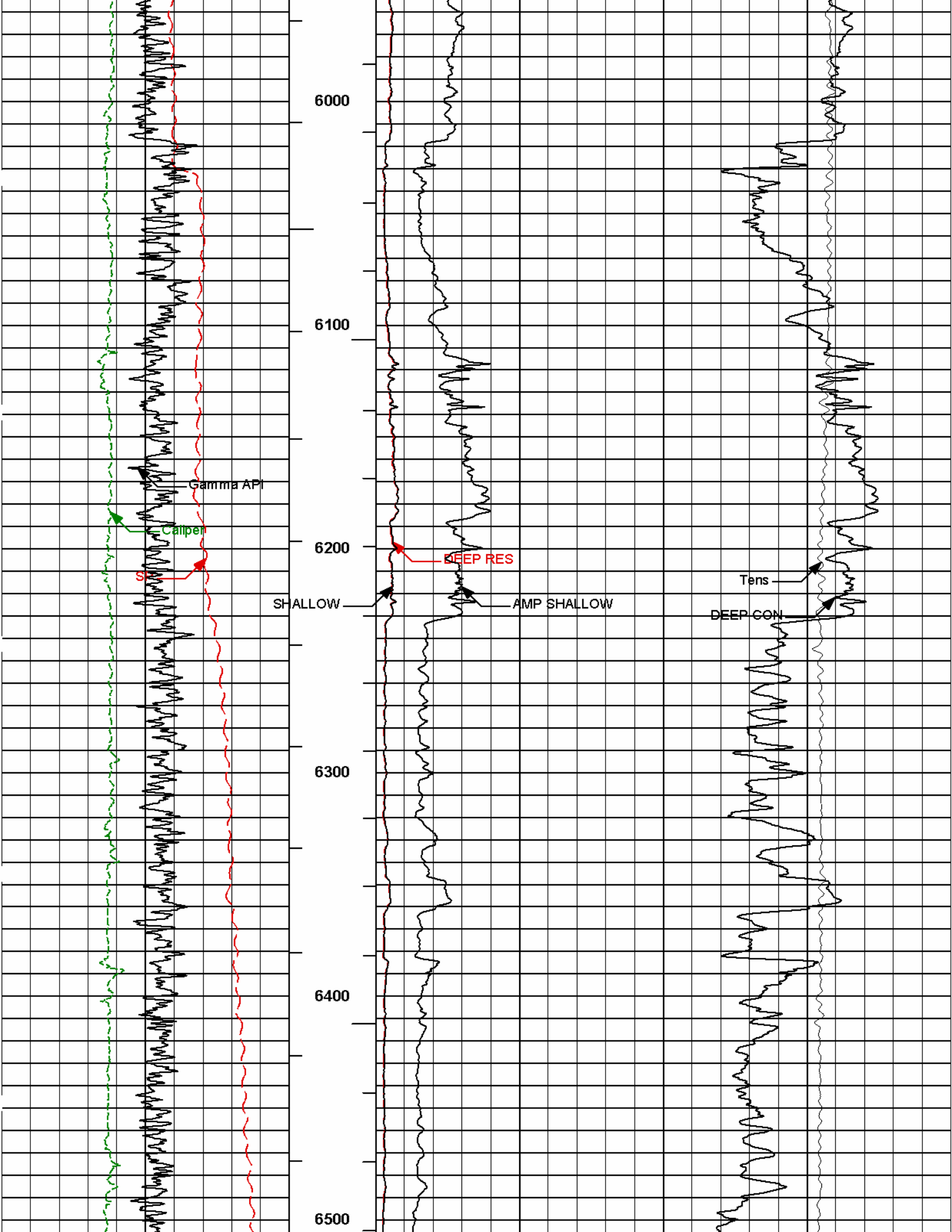


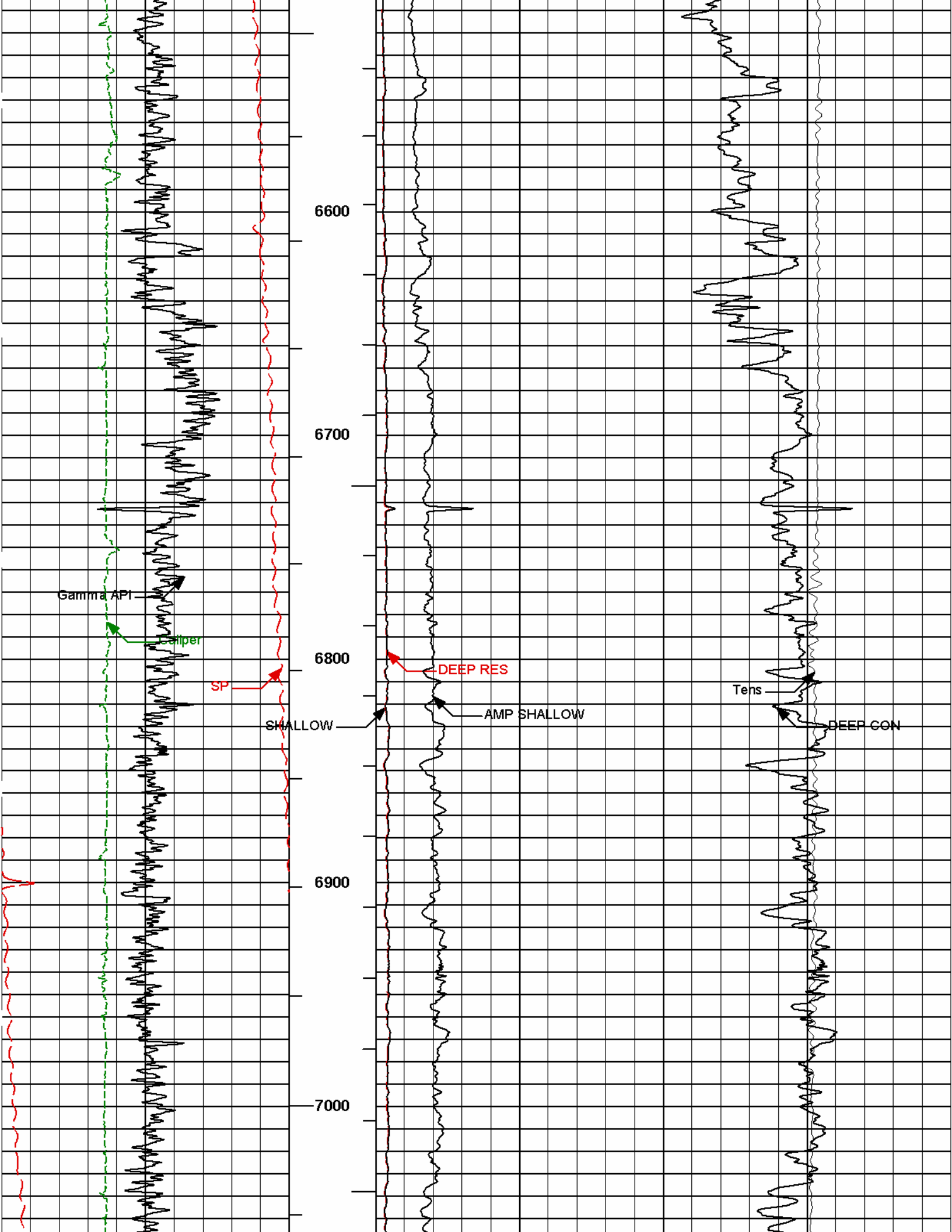


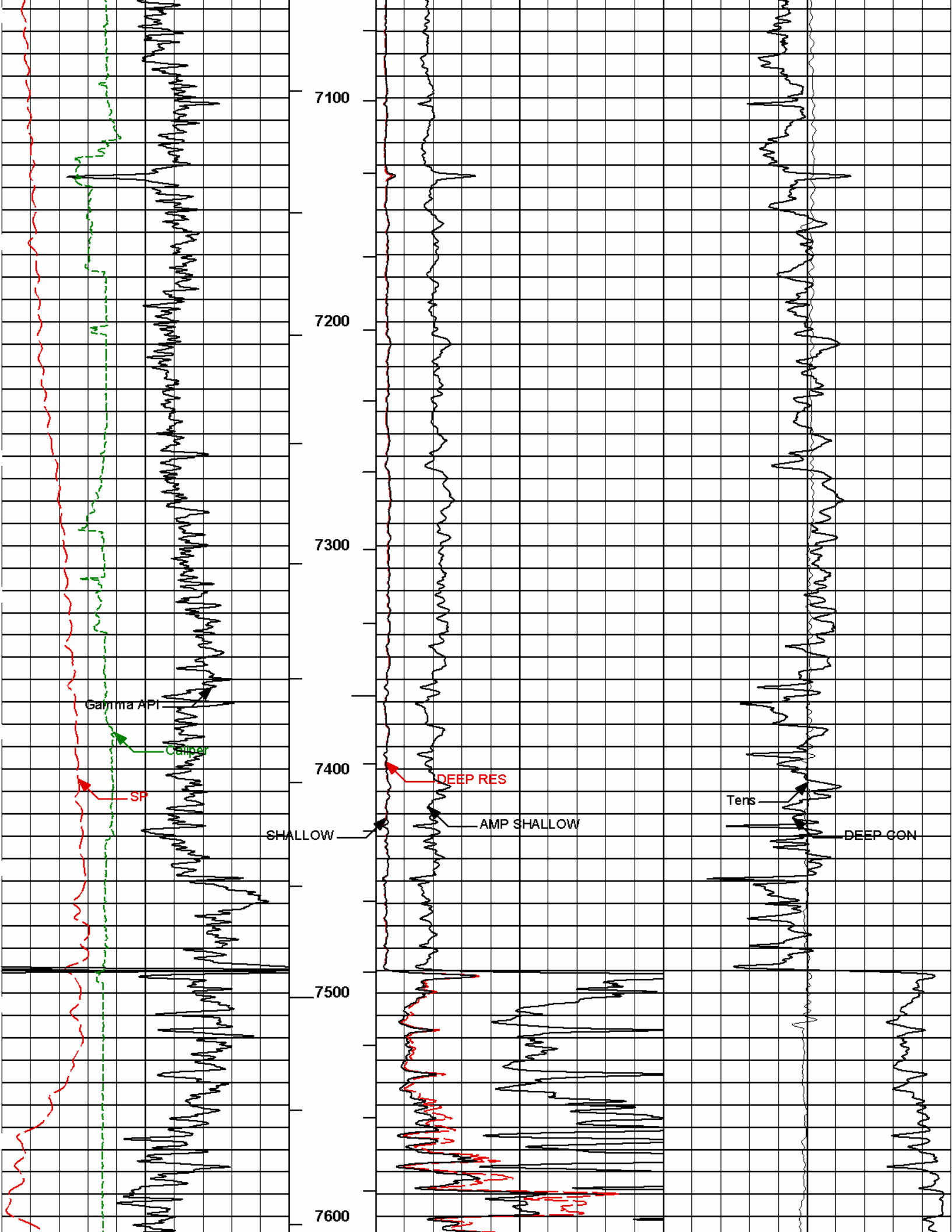


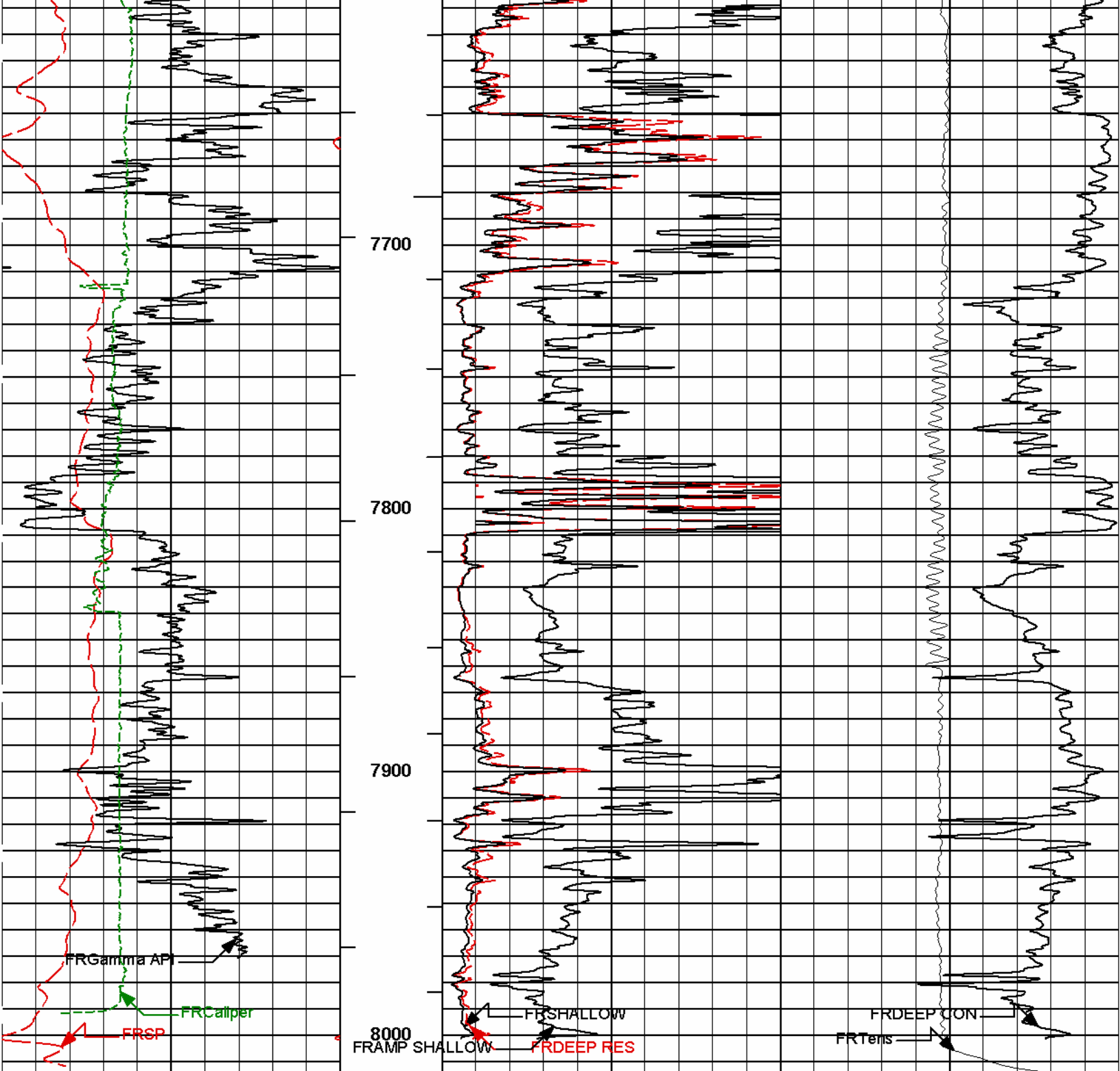












0	SP	100	1 : 600	0	DEEP RES	100	10K	Tens	0
	millivolts				ohm-metre			pounds	
0	Gamma API	200	BHVT	0	SHALLOW	100	500	DEEP CON	0
	api				ohm-metre			mmho per metre	
4	Caliper	14	AHVT	0	AMP SHALLOW	20			
	inches				ohm-metre				

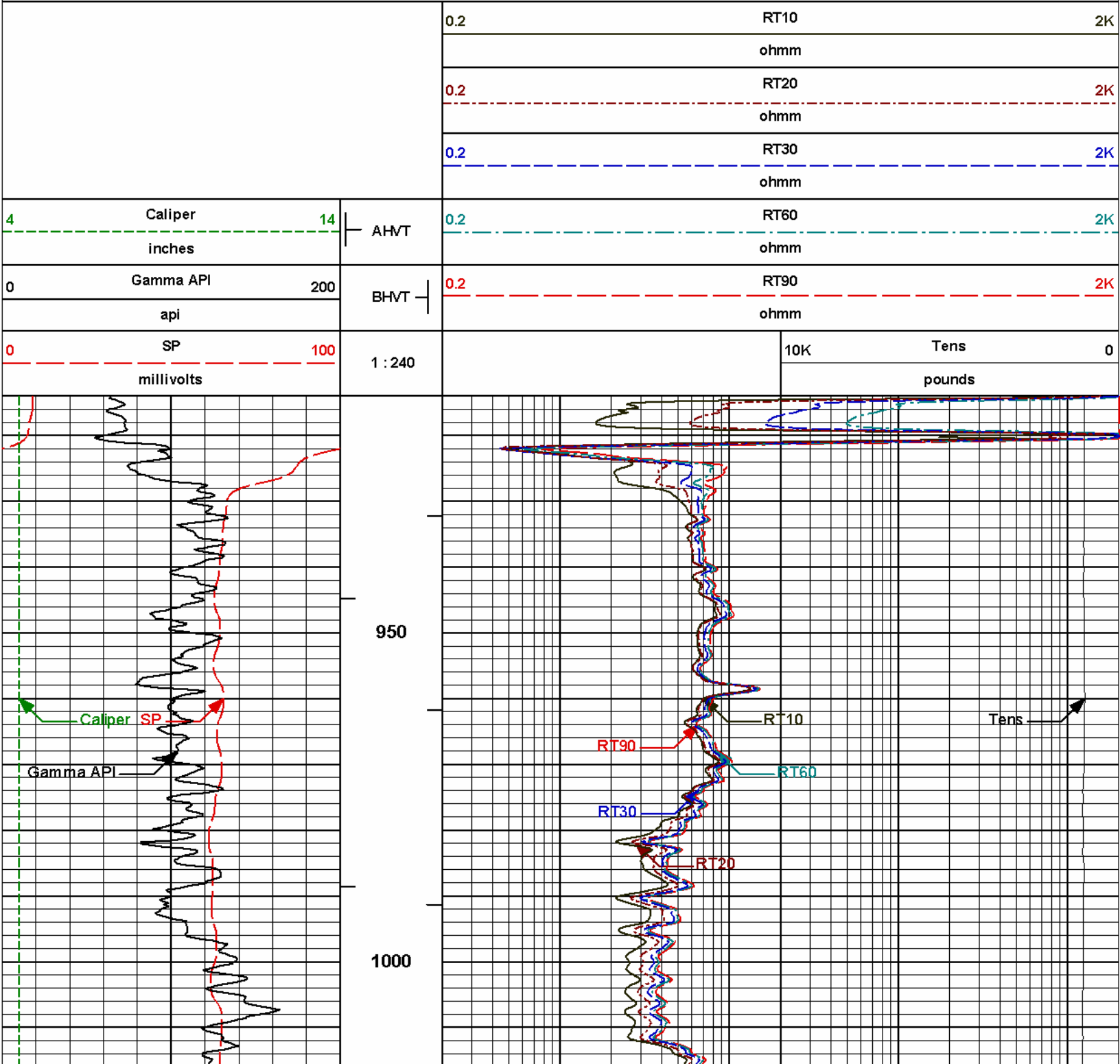
**HALLIBURTON**

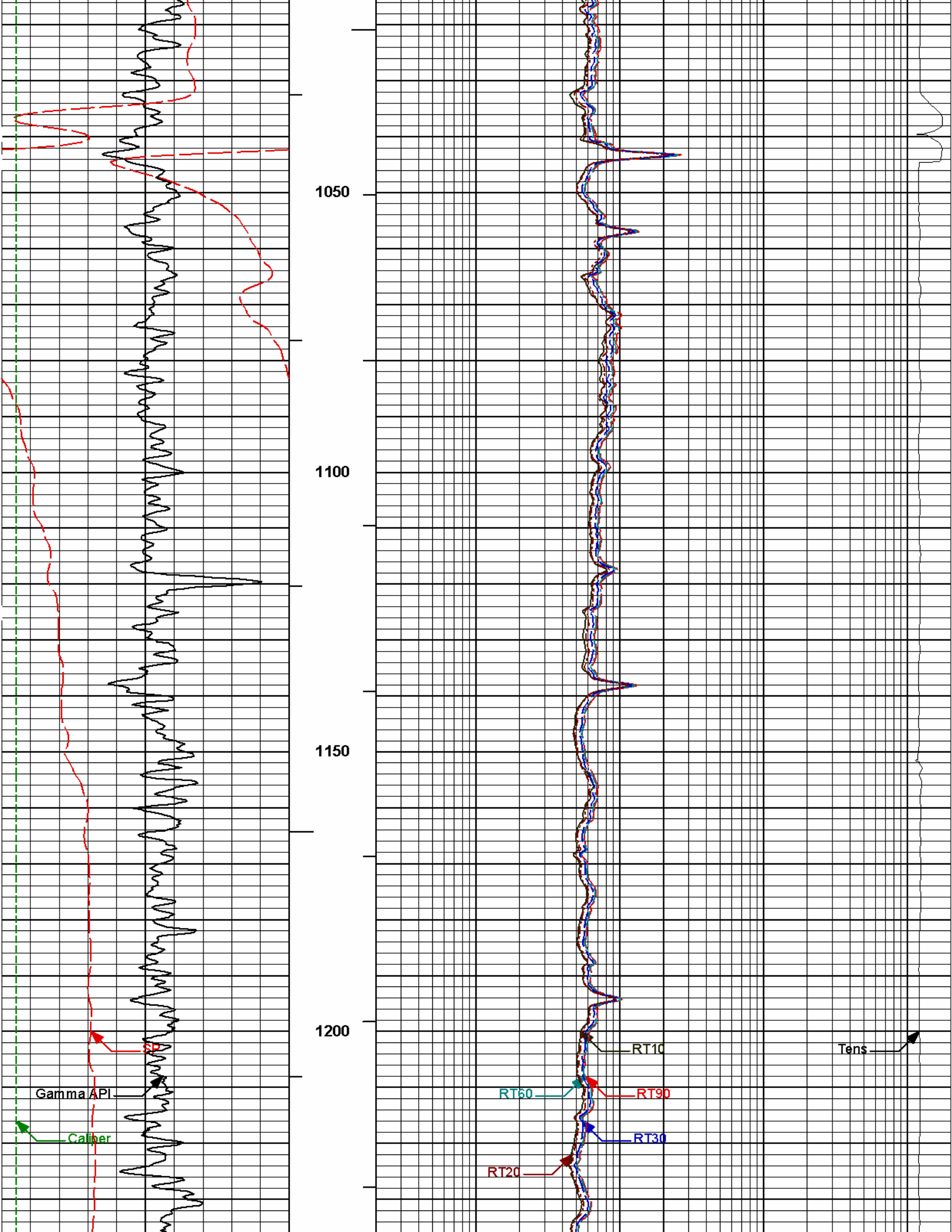
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 Data: HEIN 1-1 Well Based MAIN\*  
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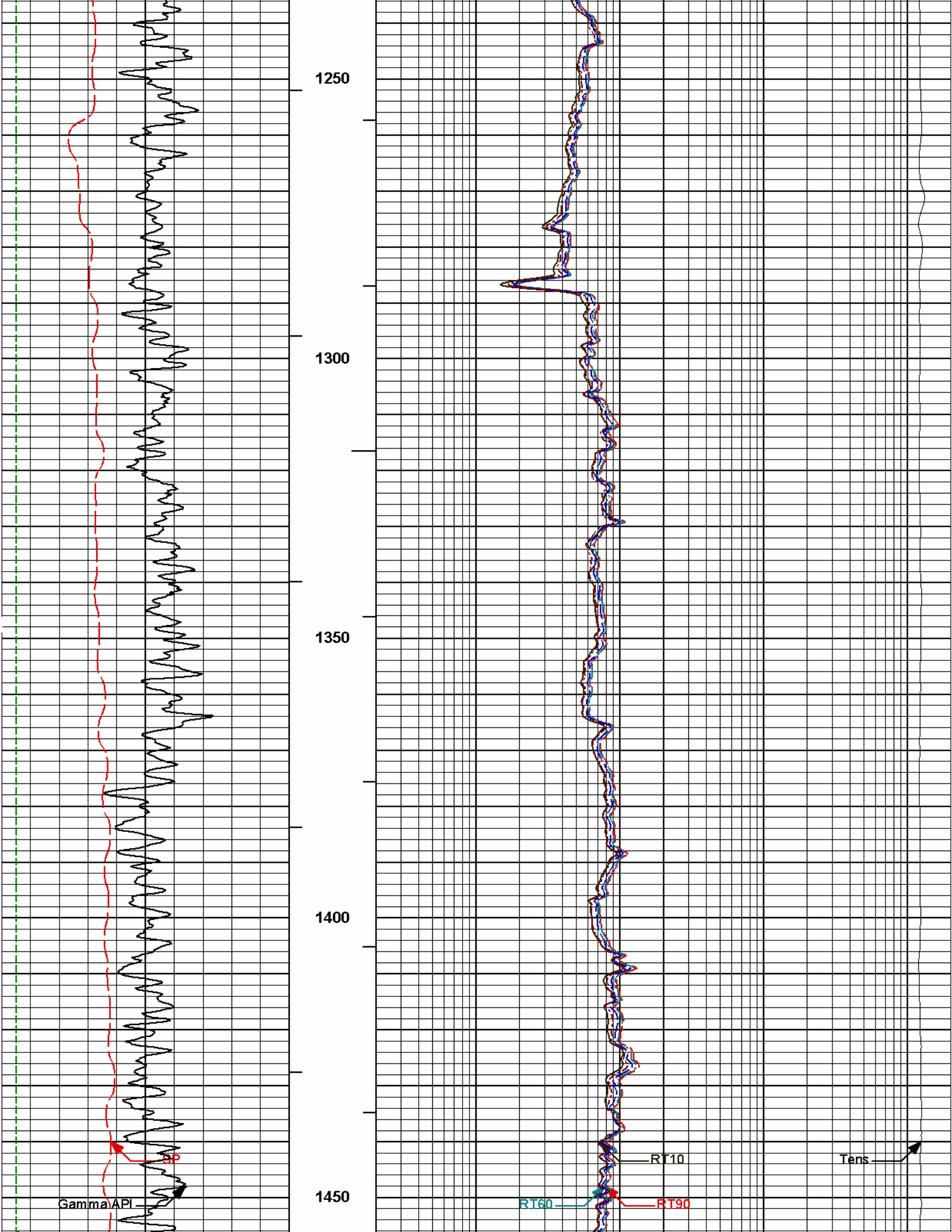
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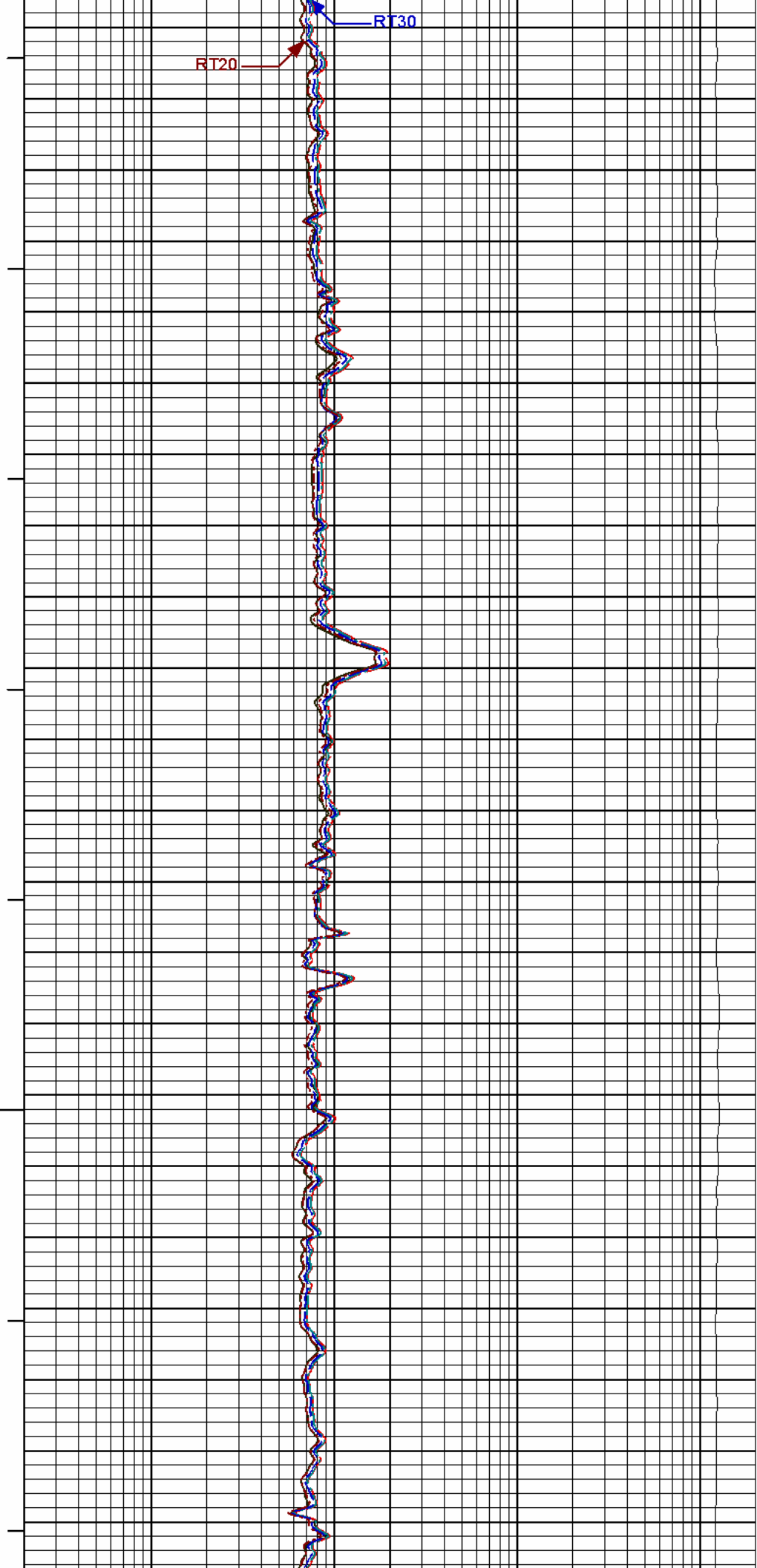
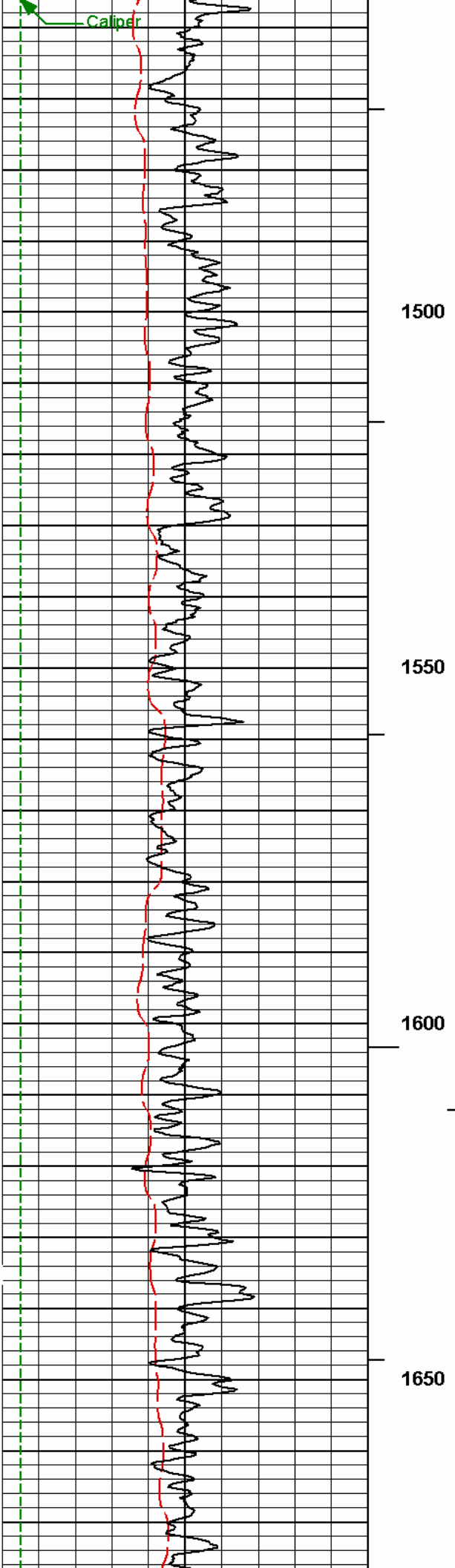


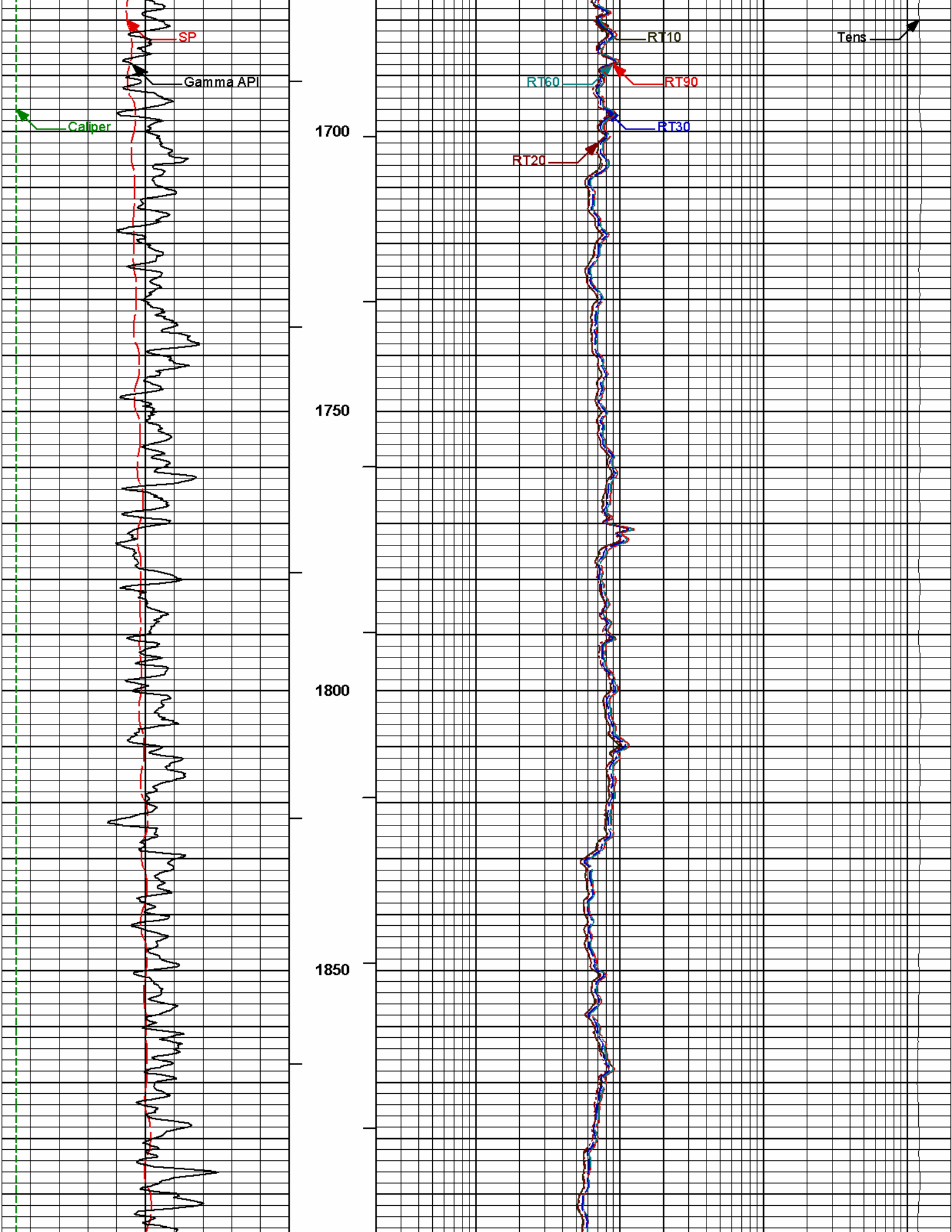
MAIN PASS 5" = 100'

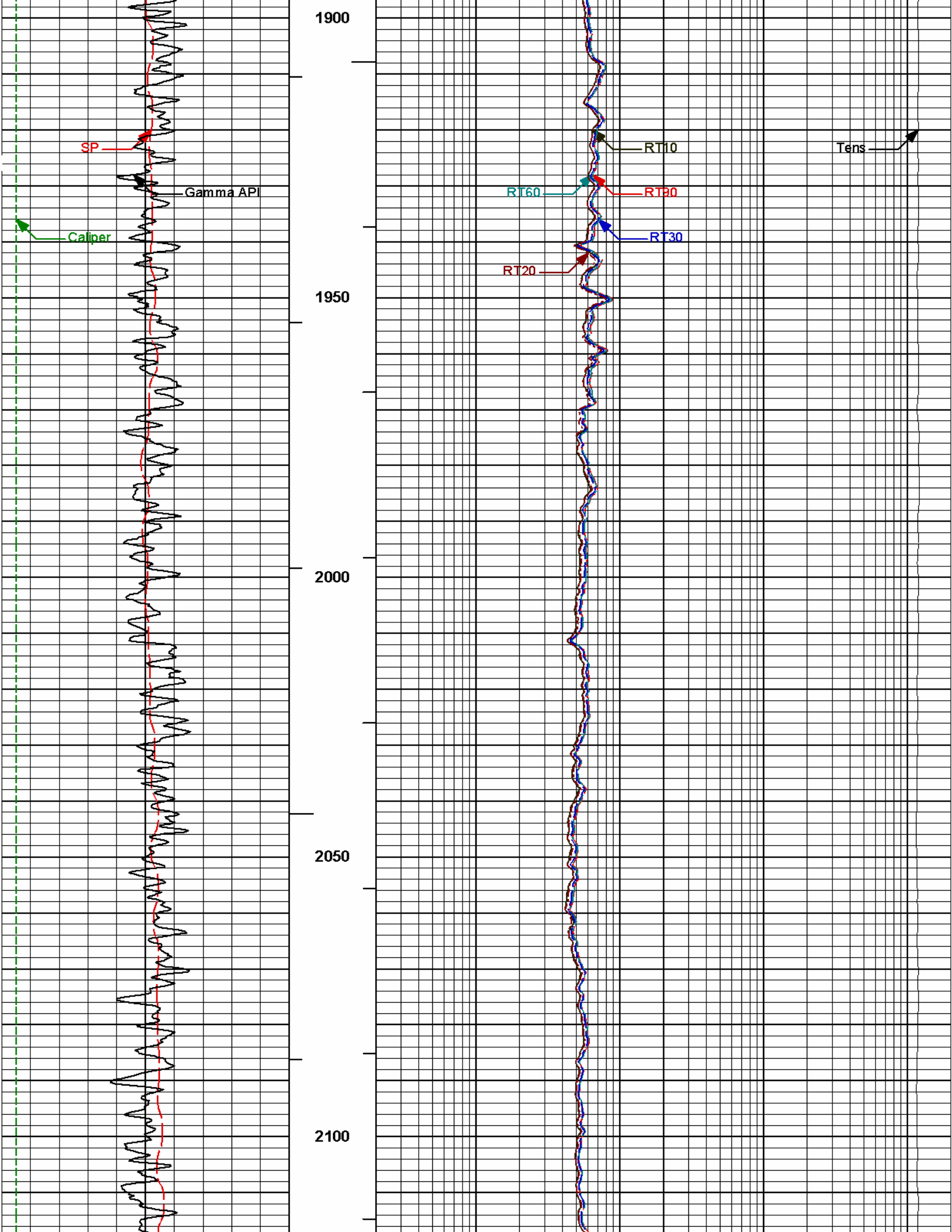


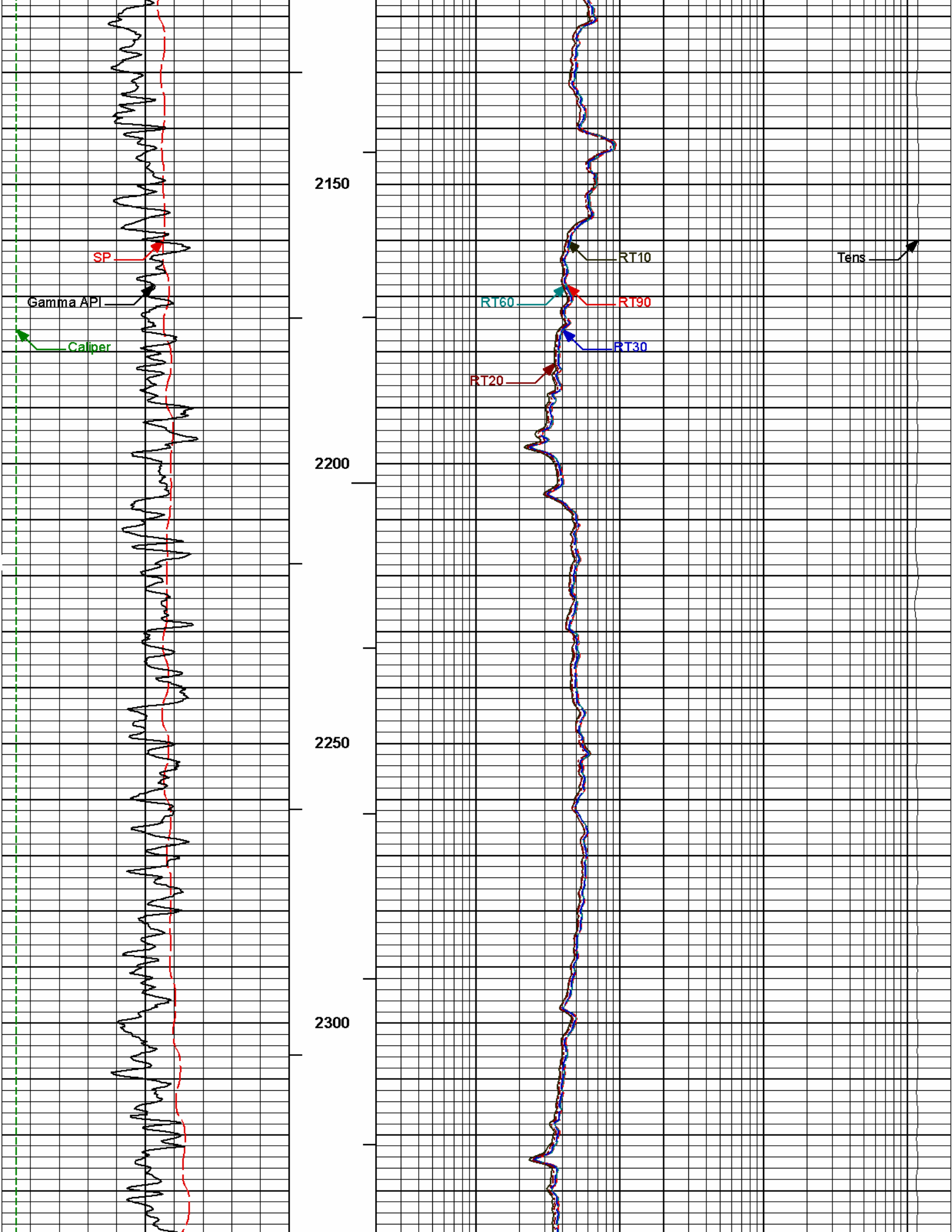


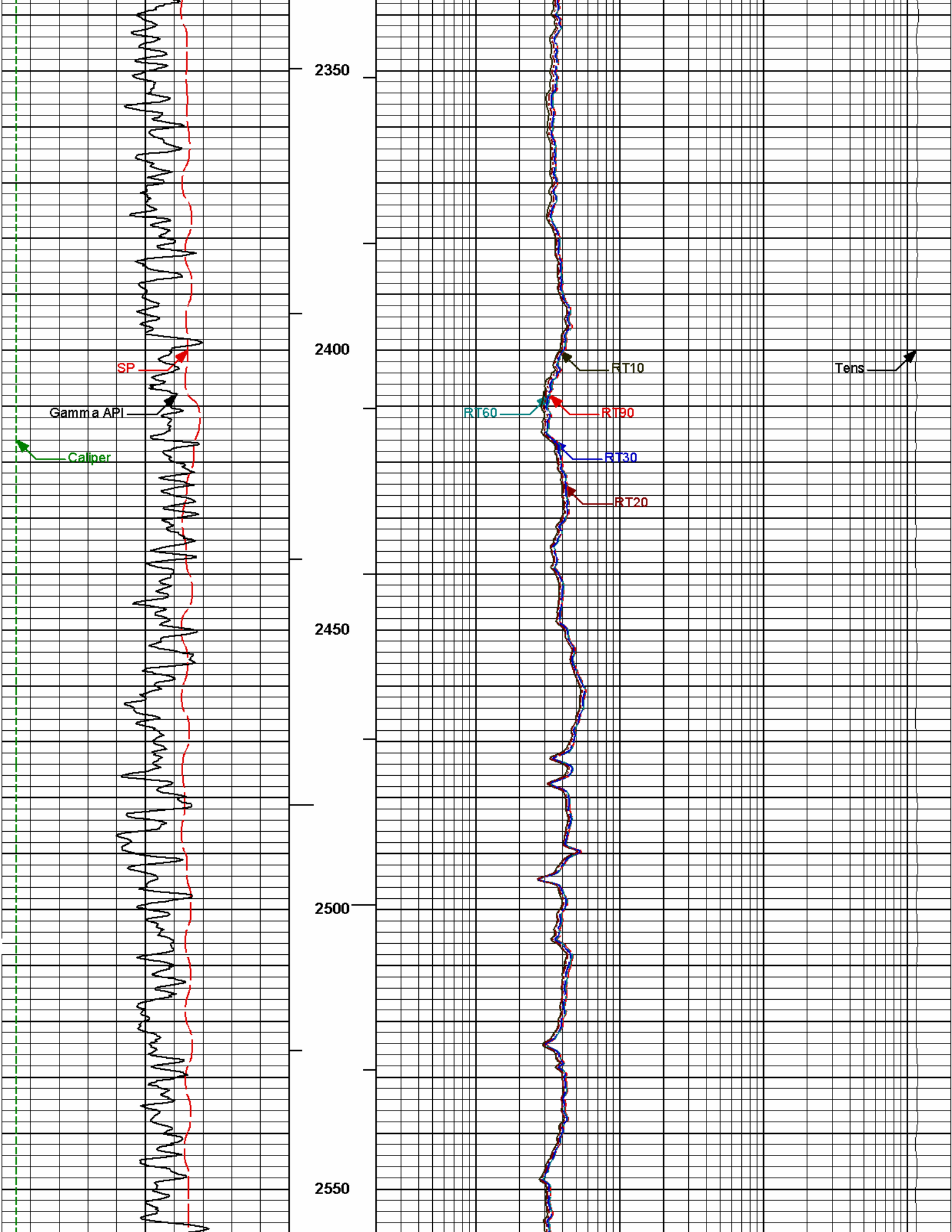




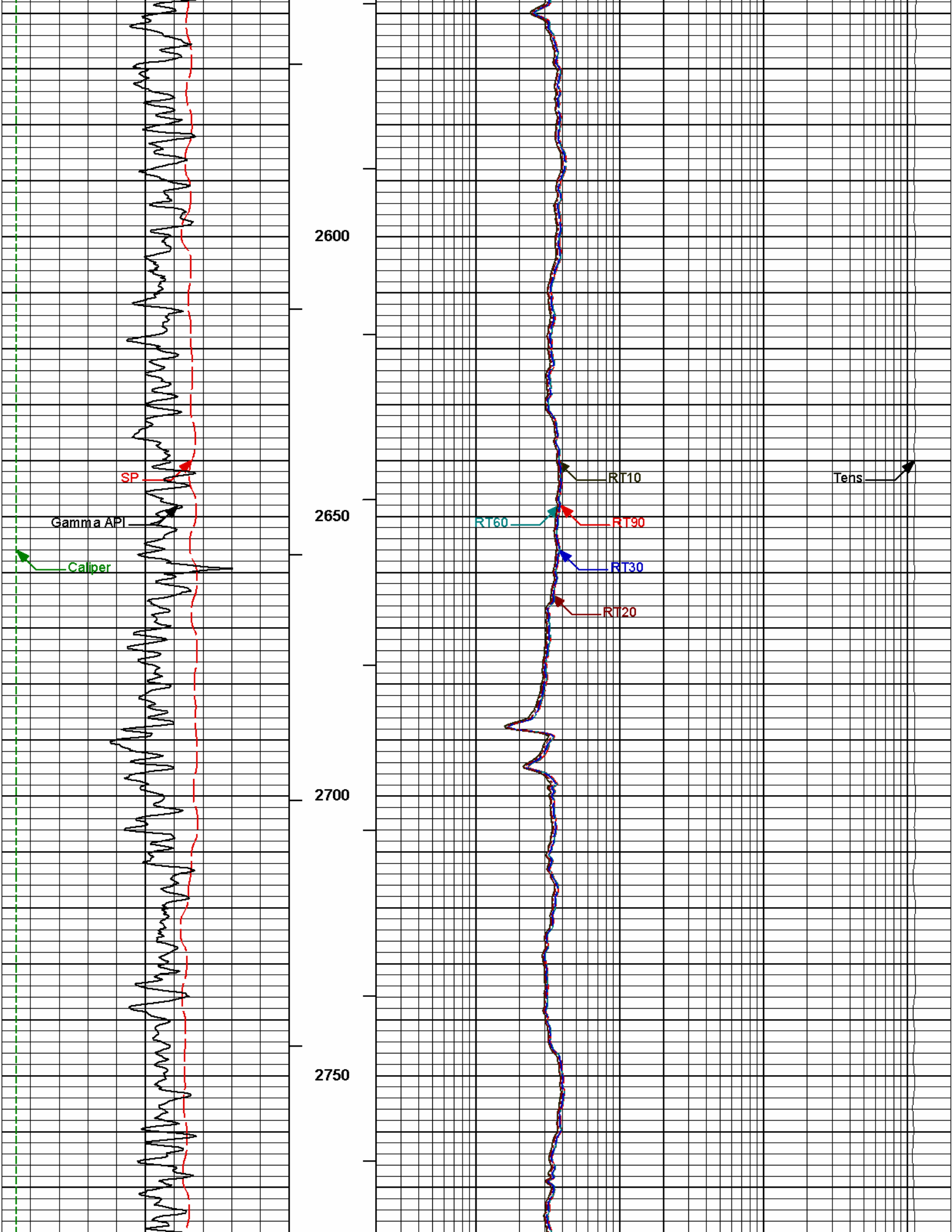


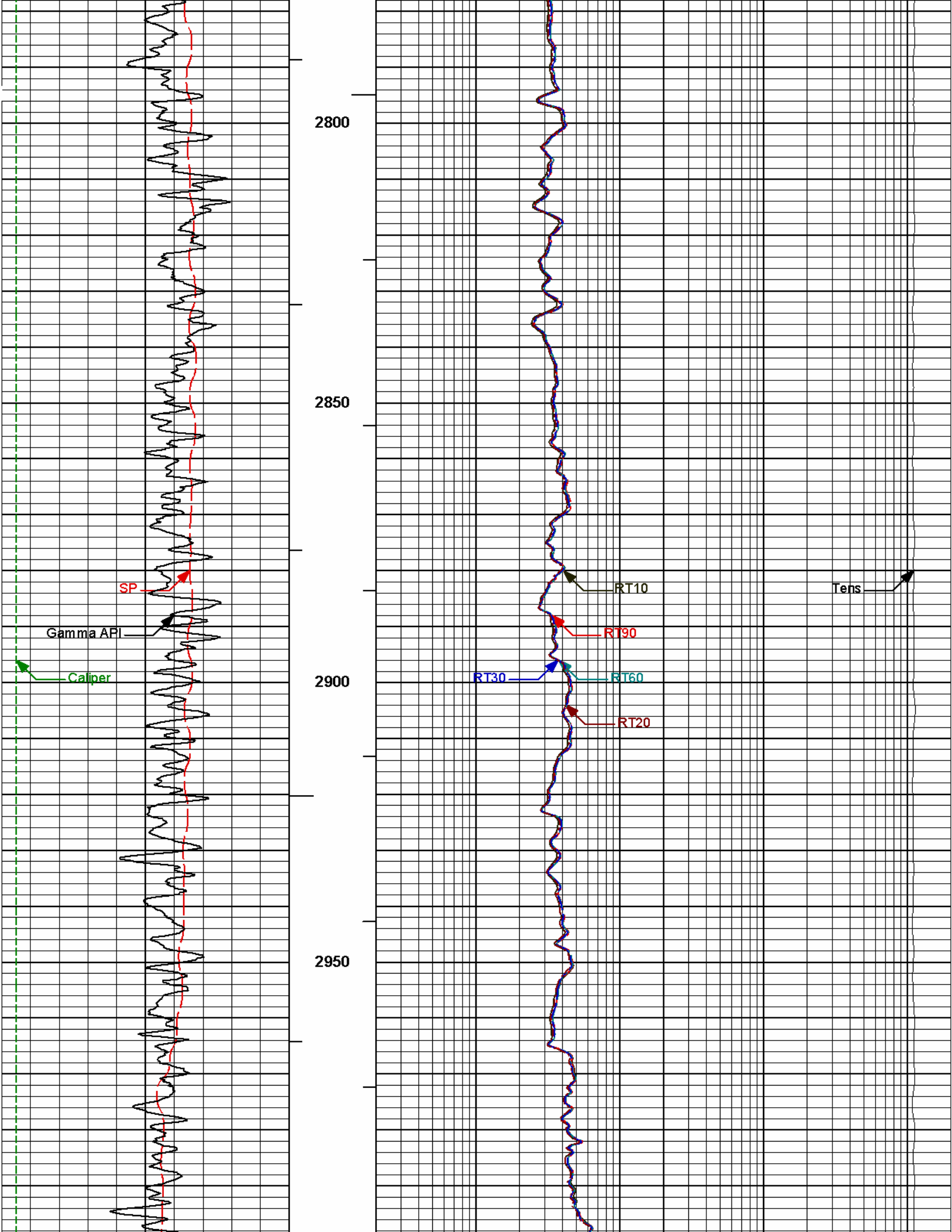


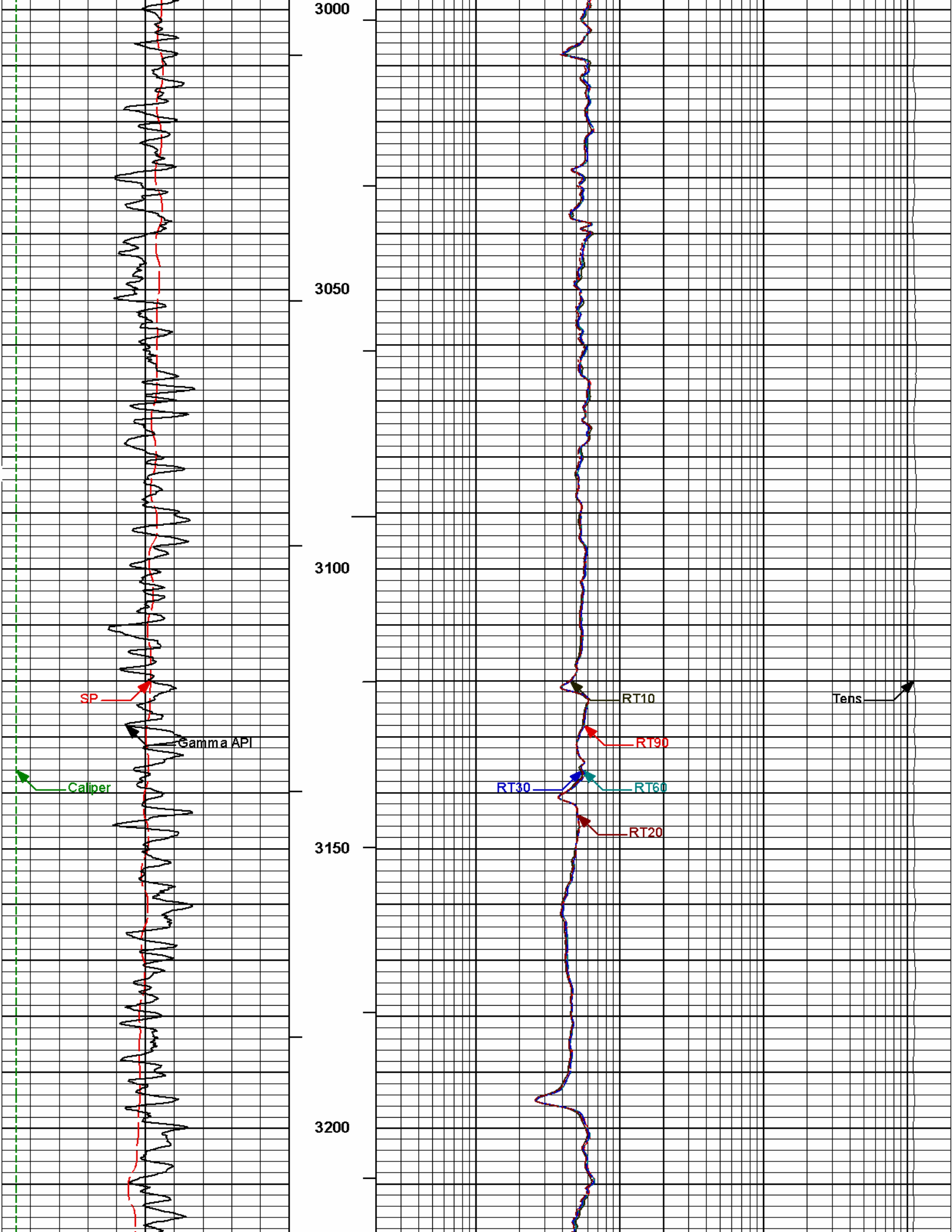


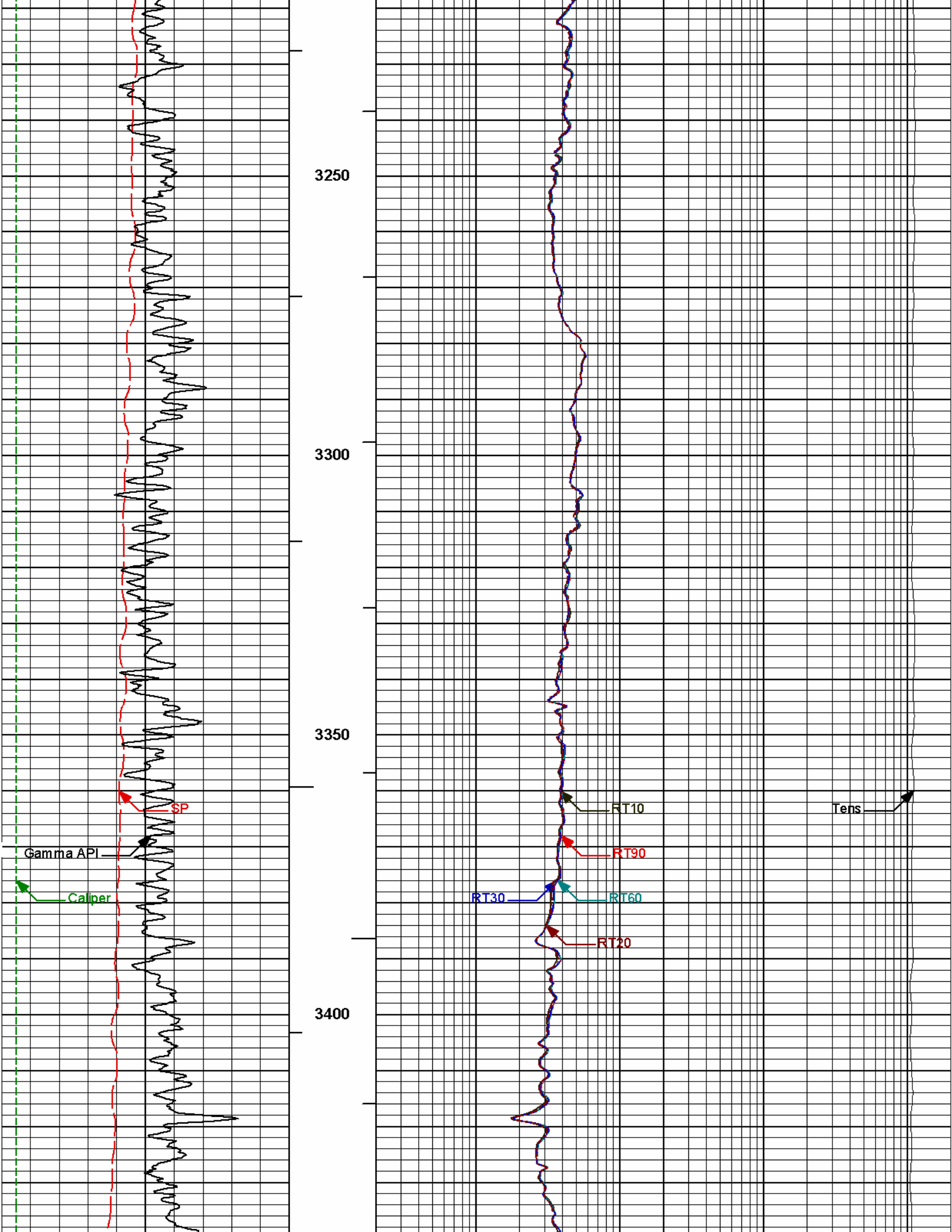


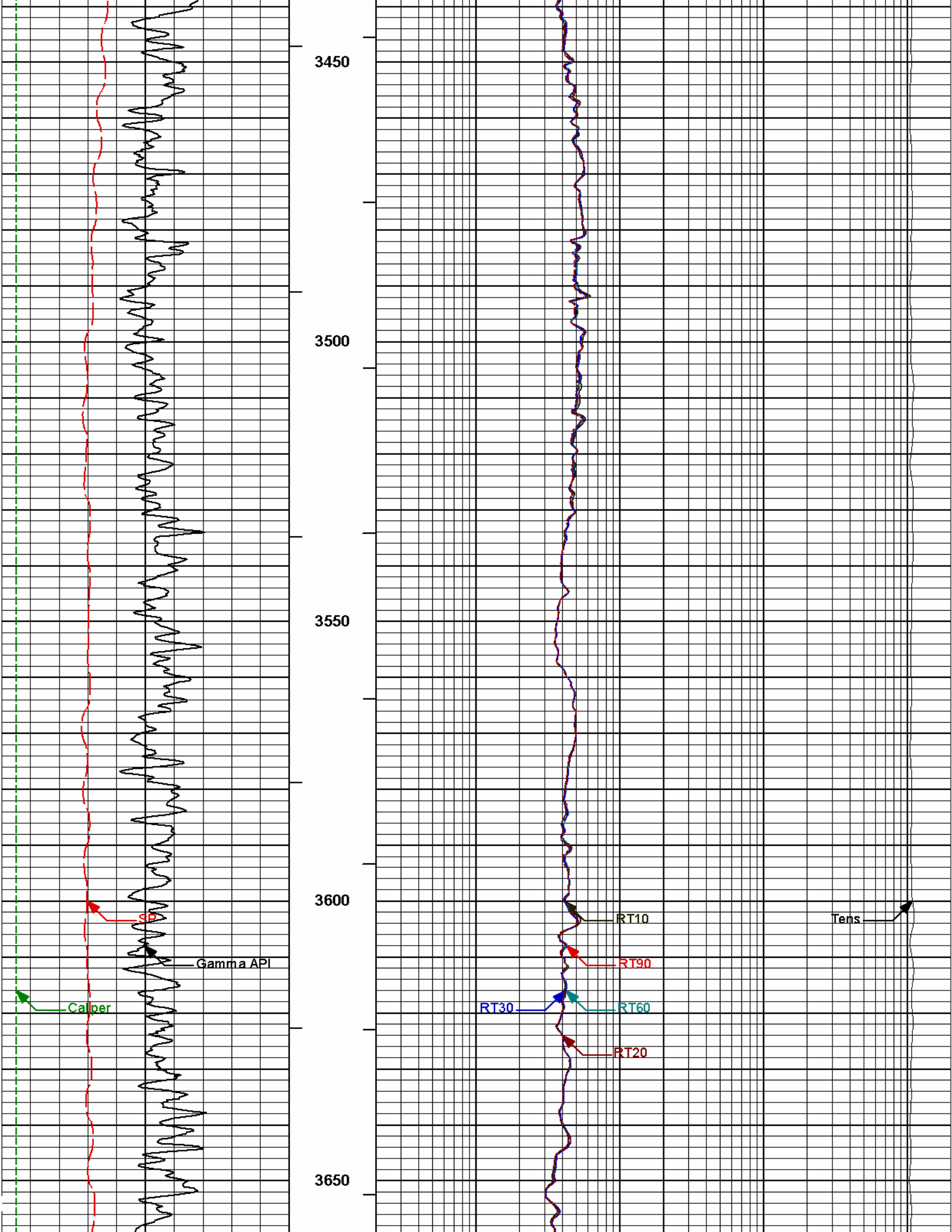


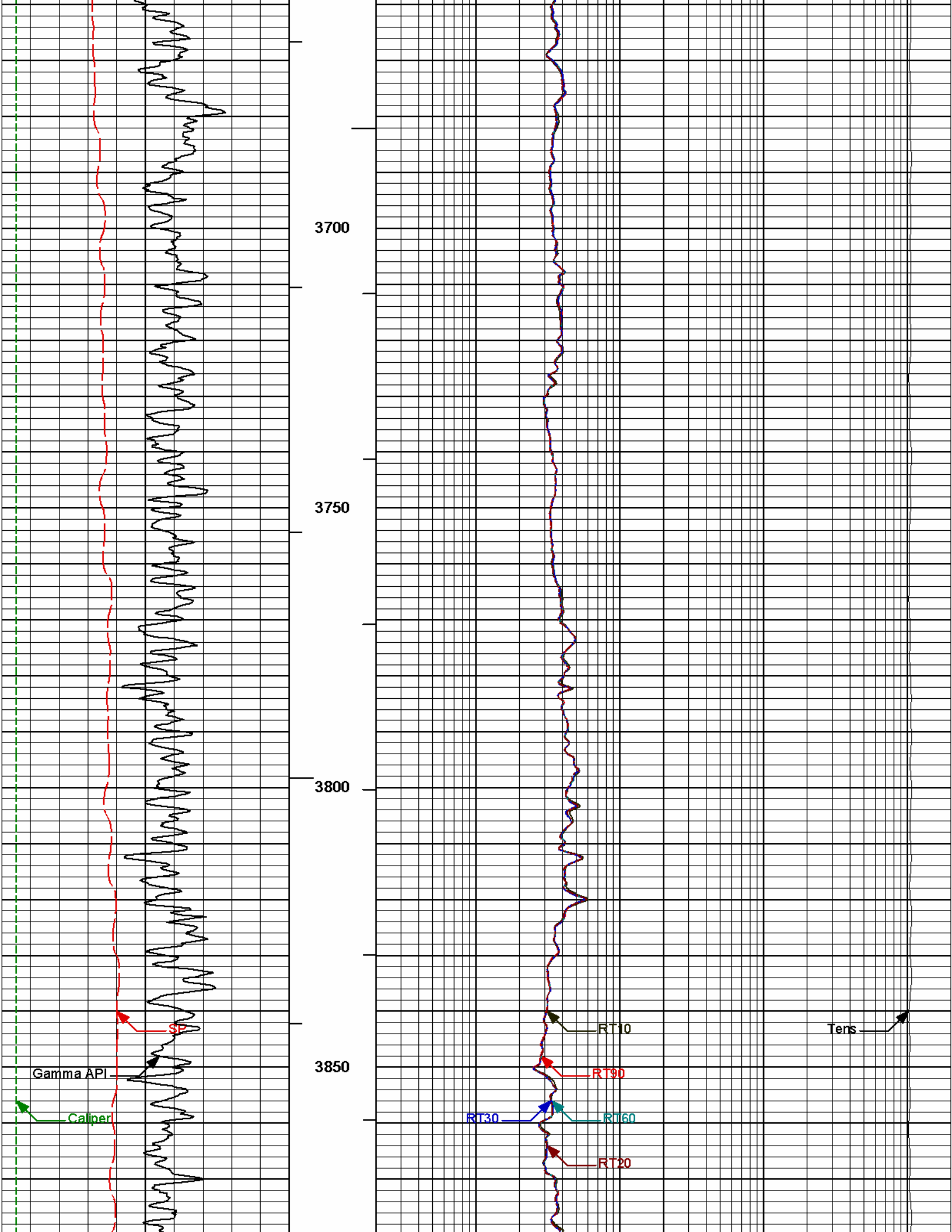


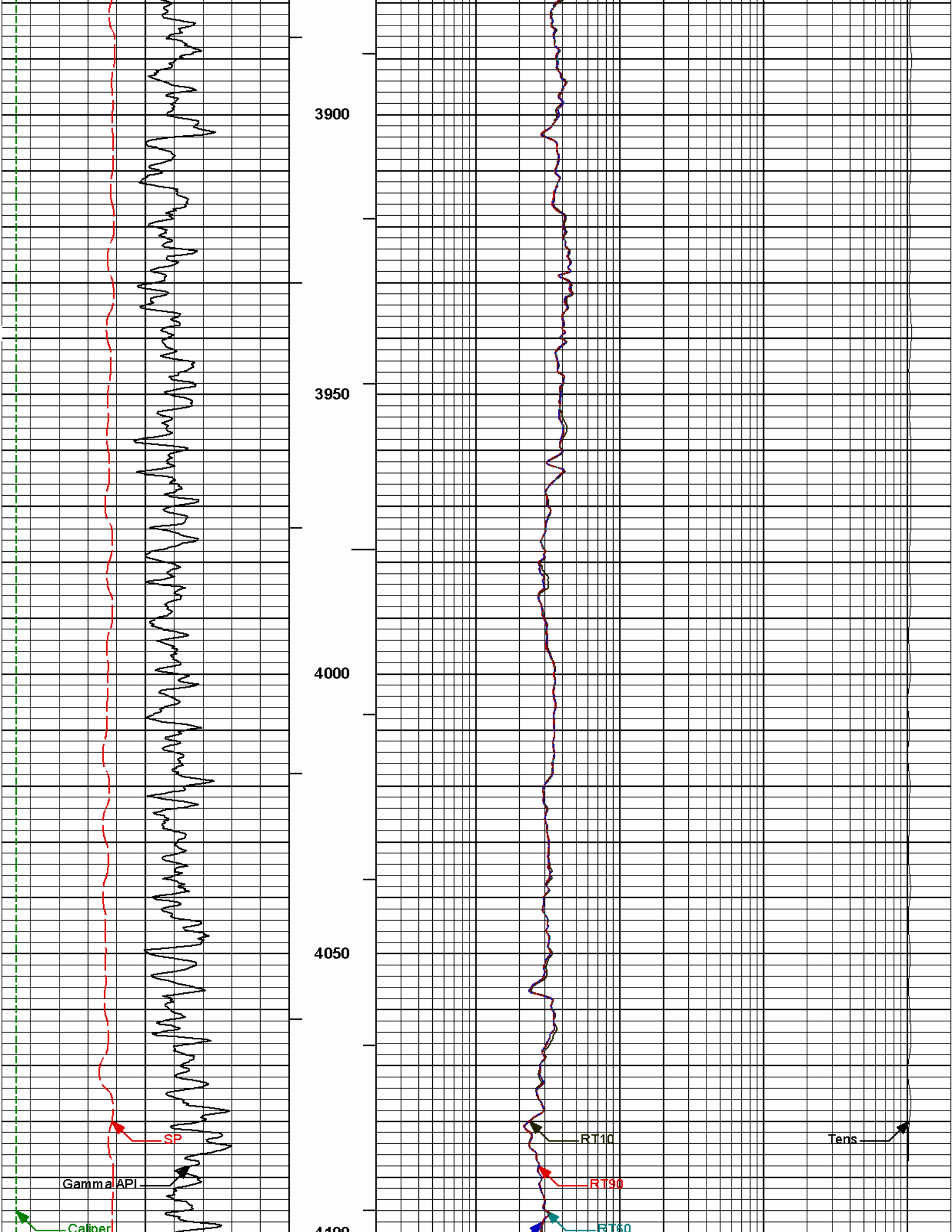


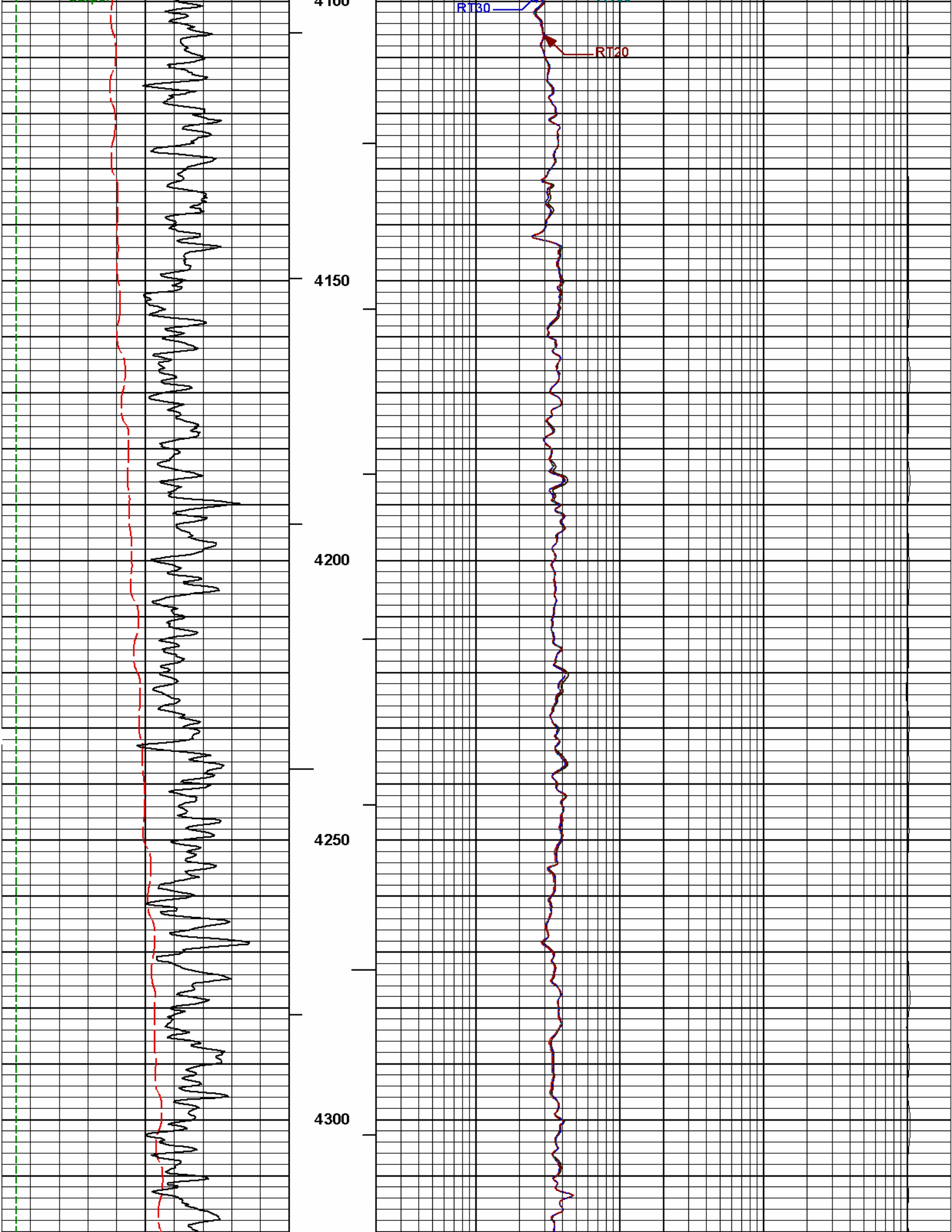




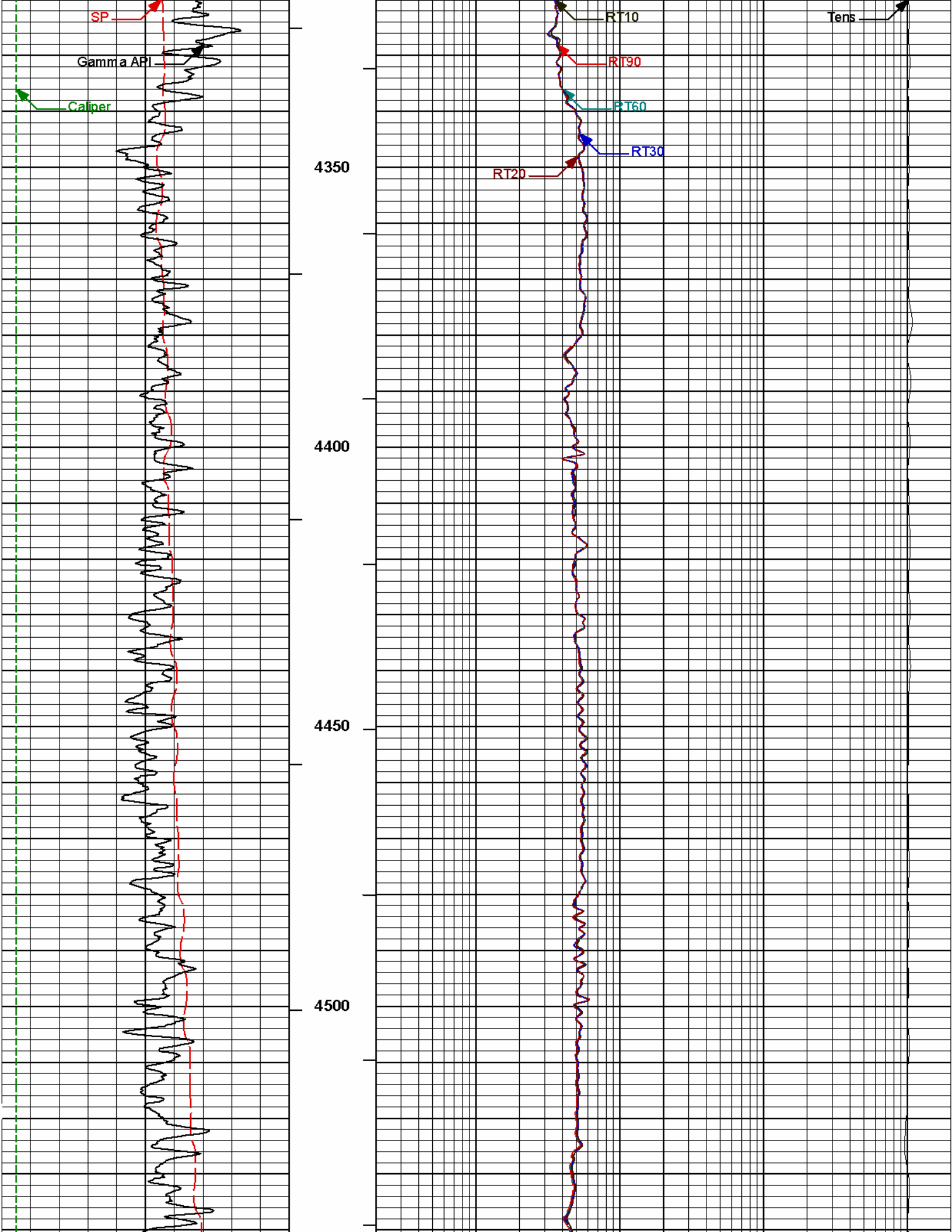


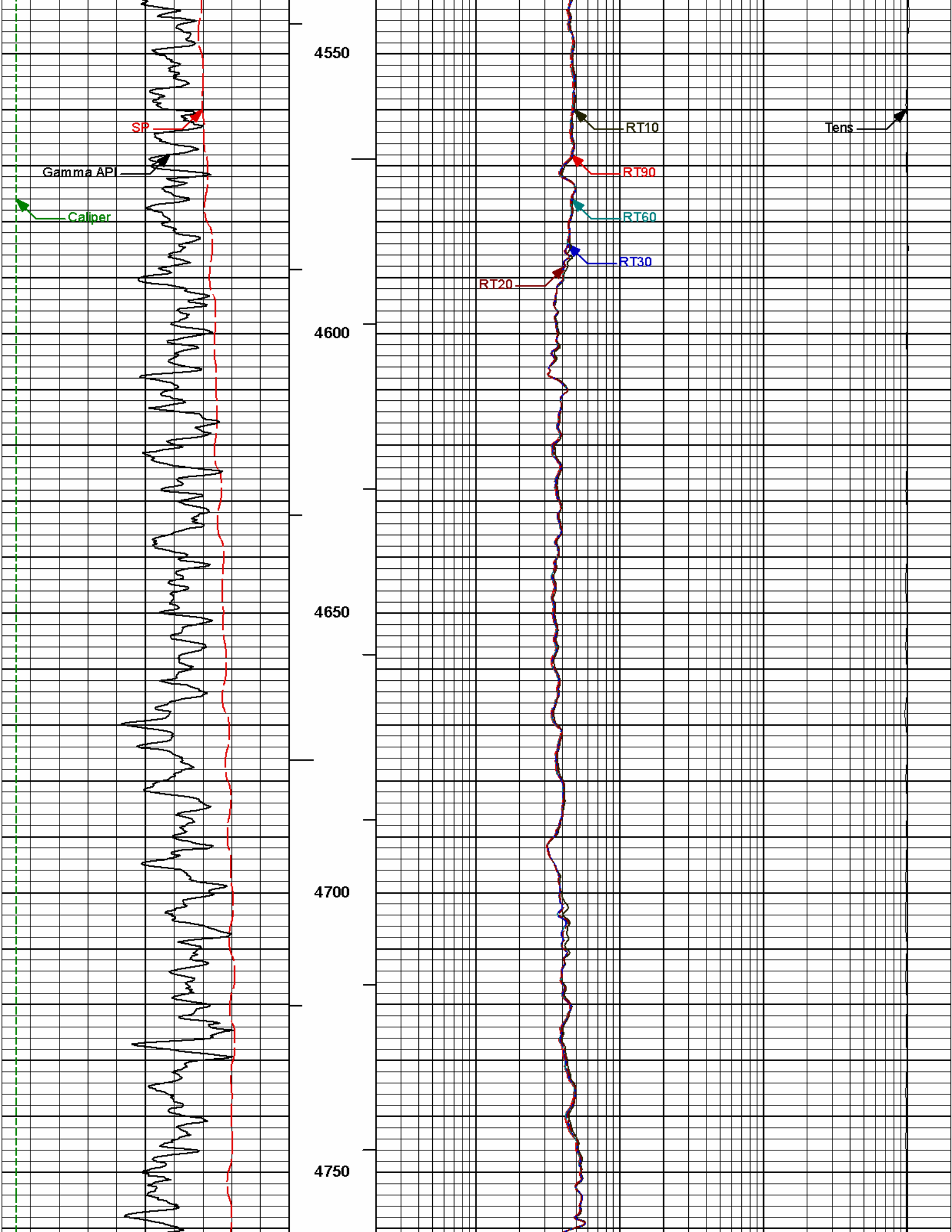


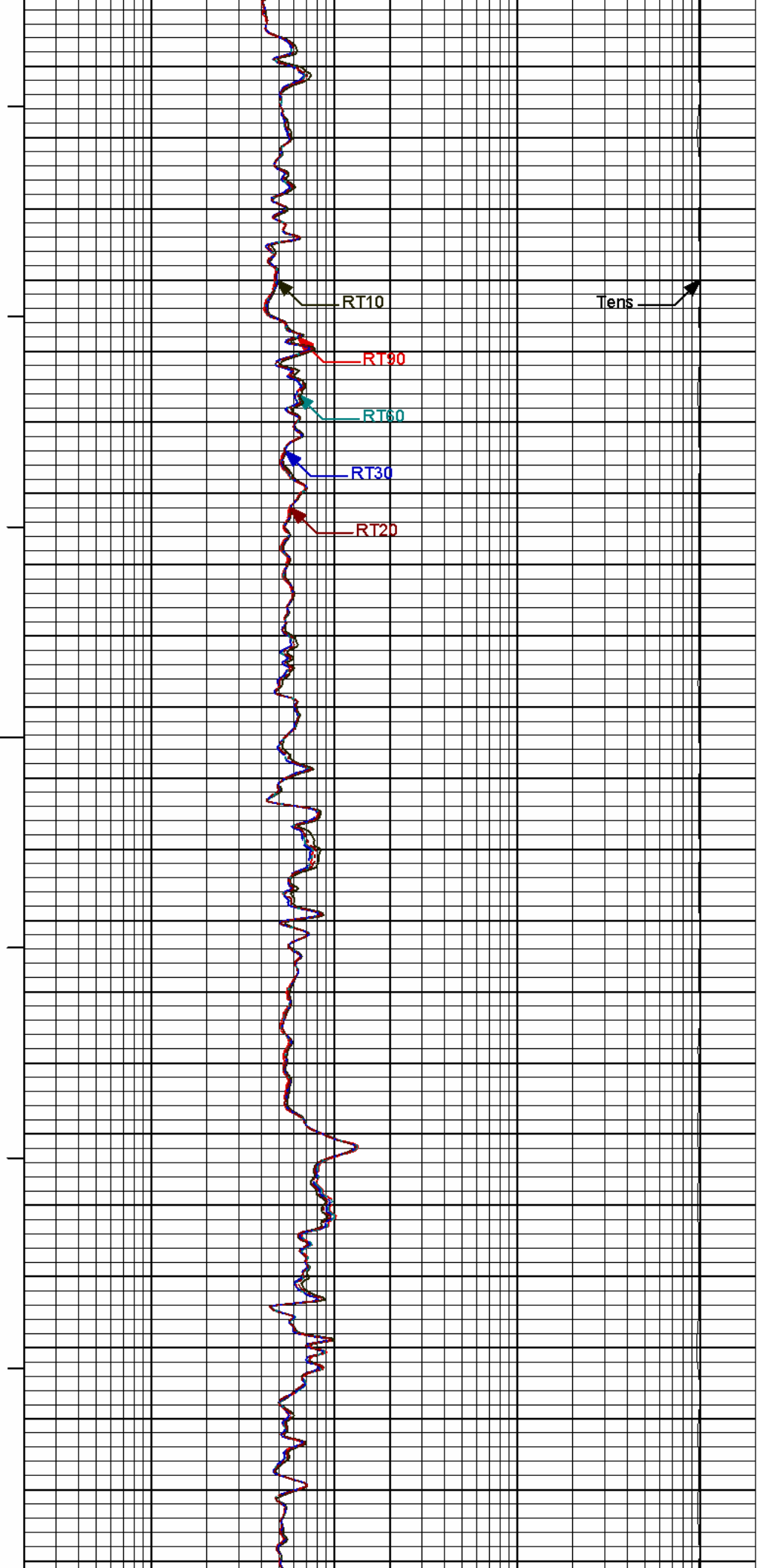
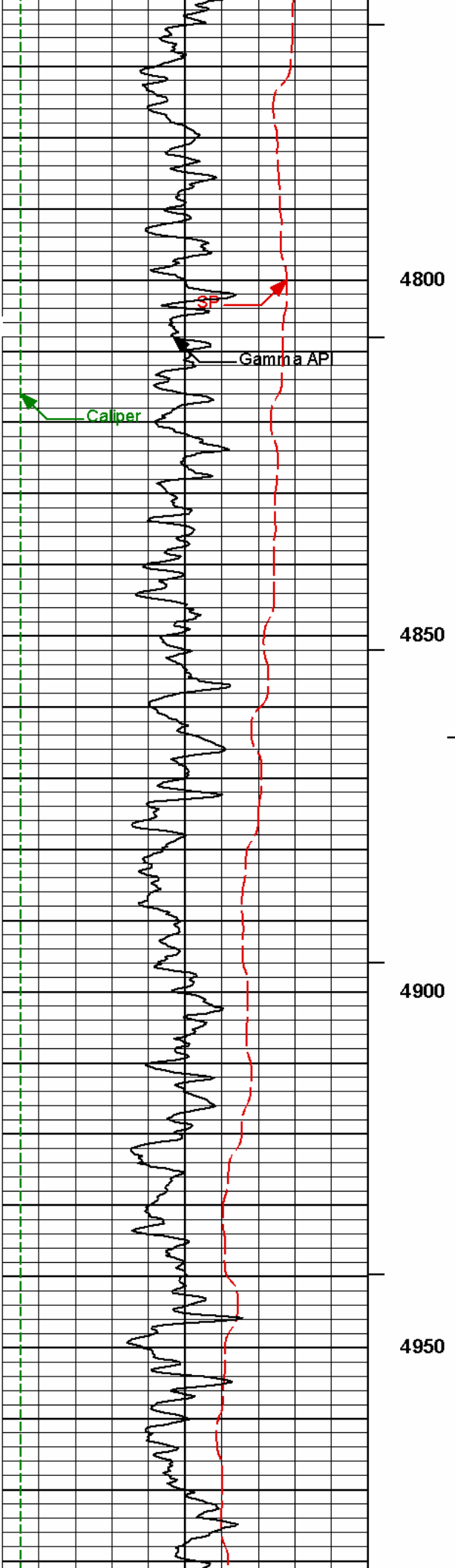


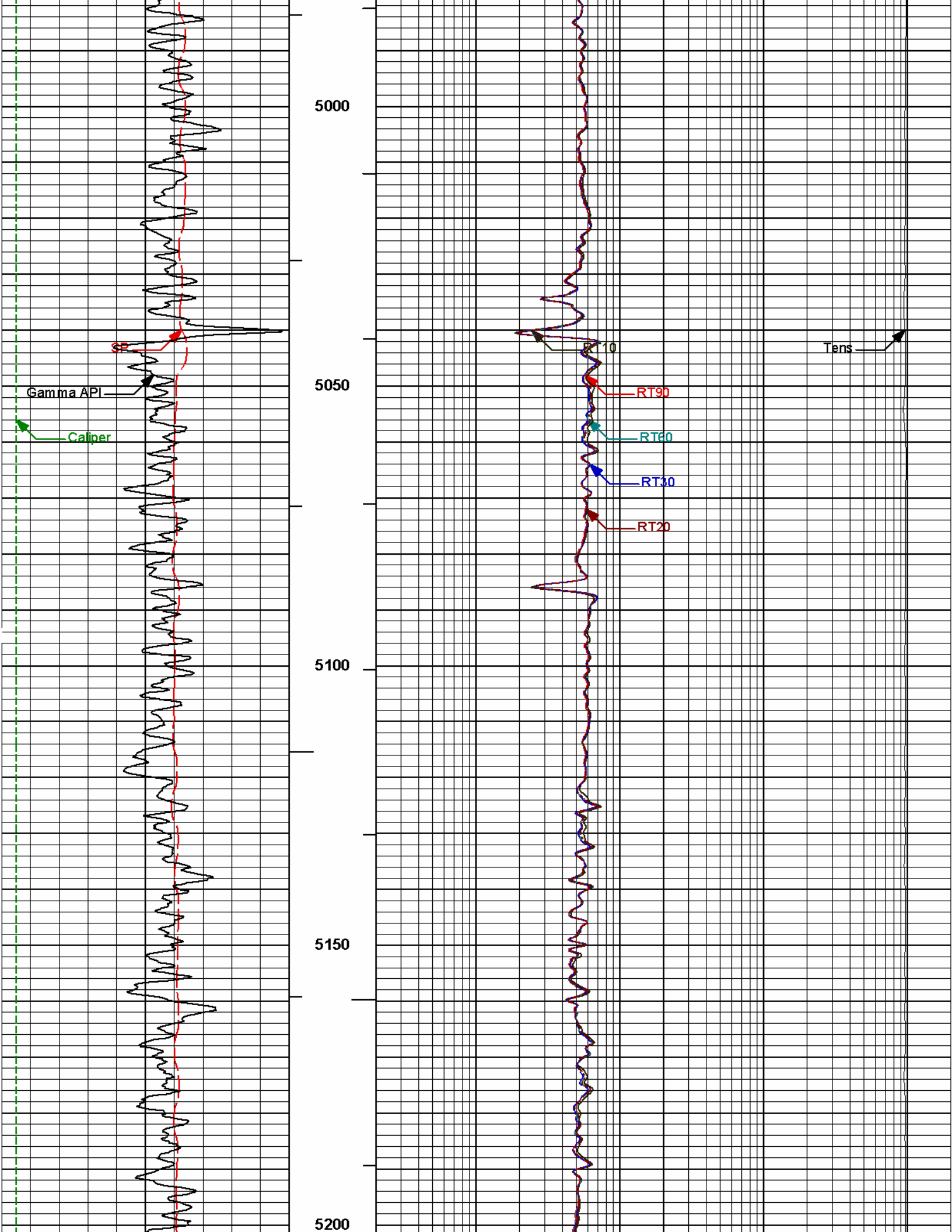


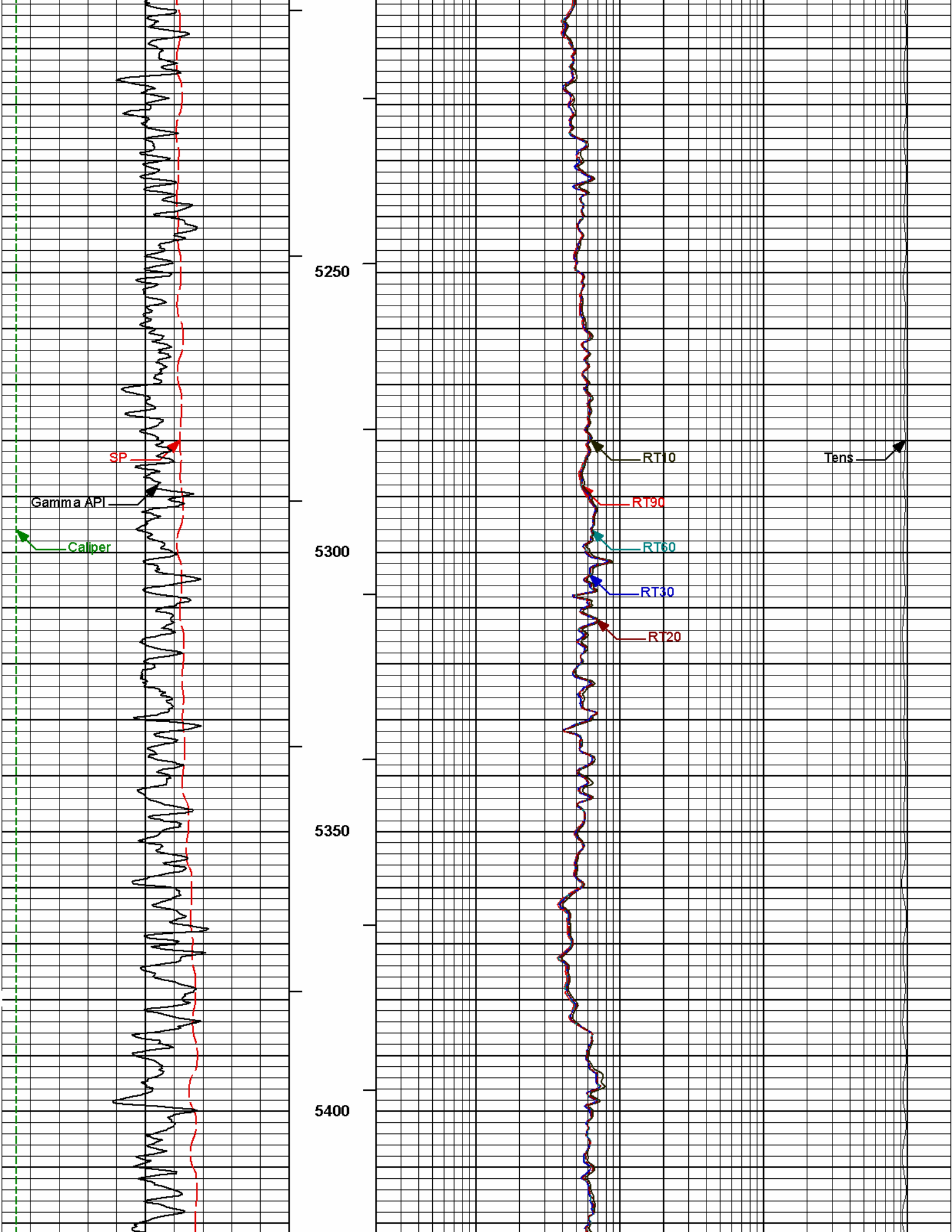


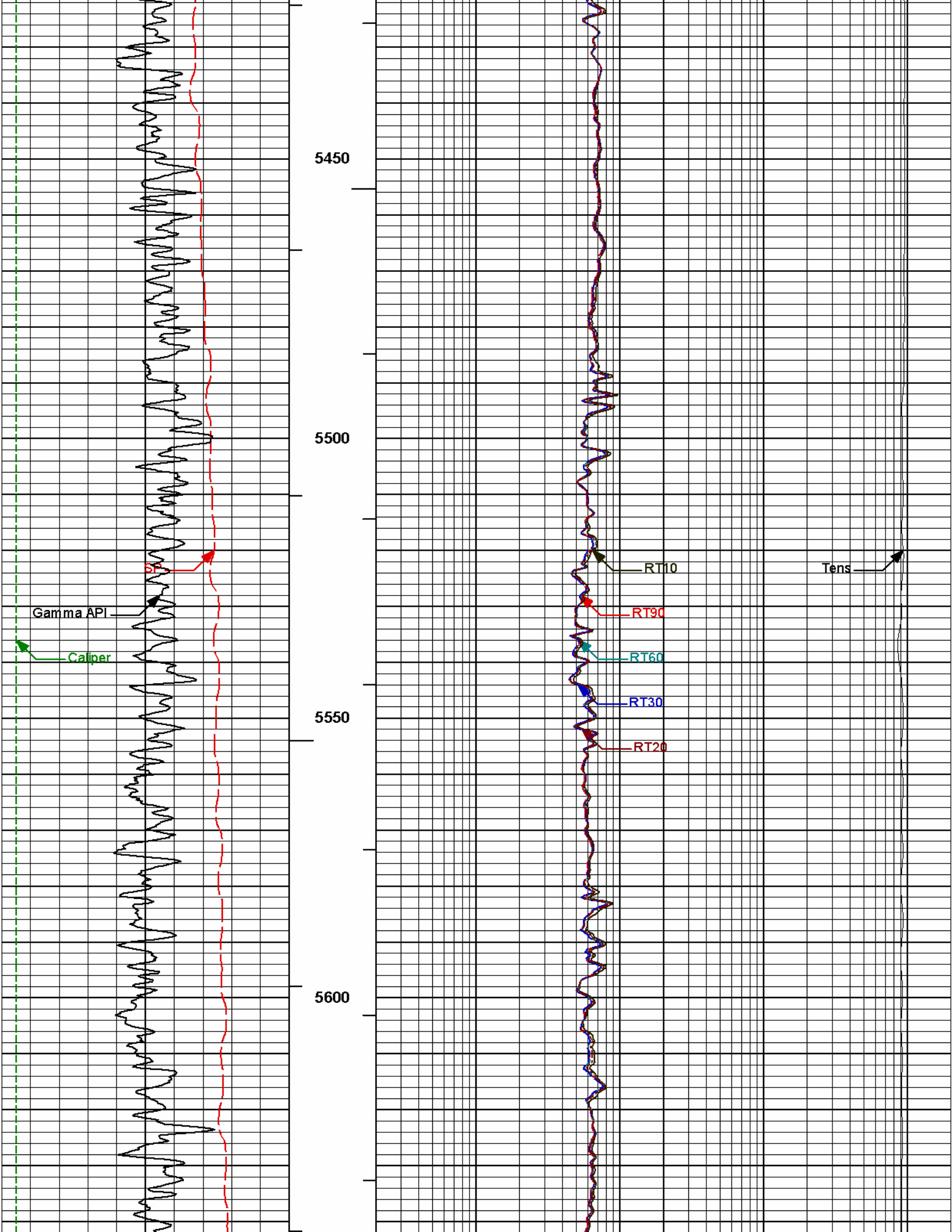


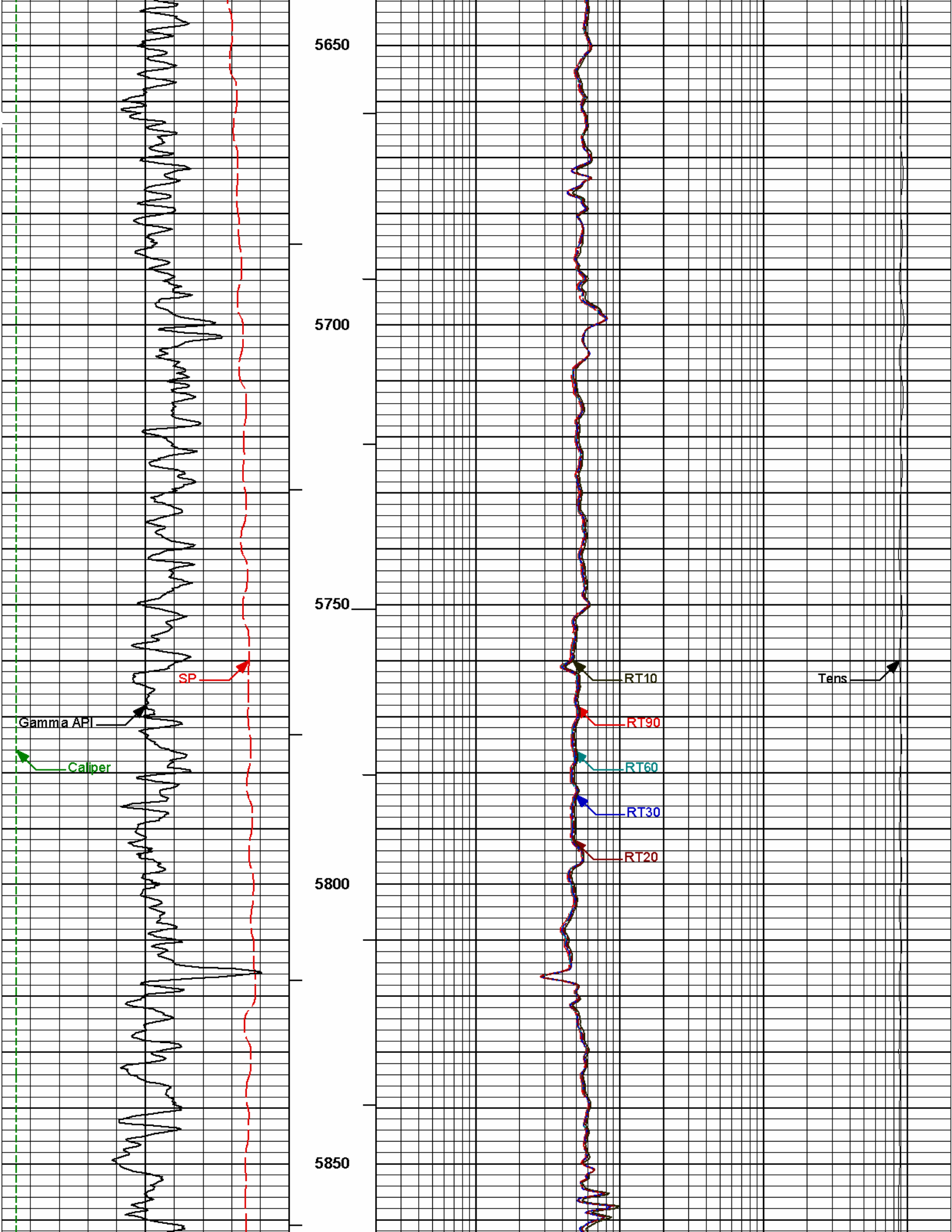


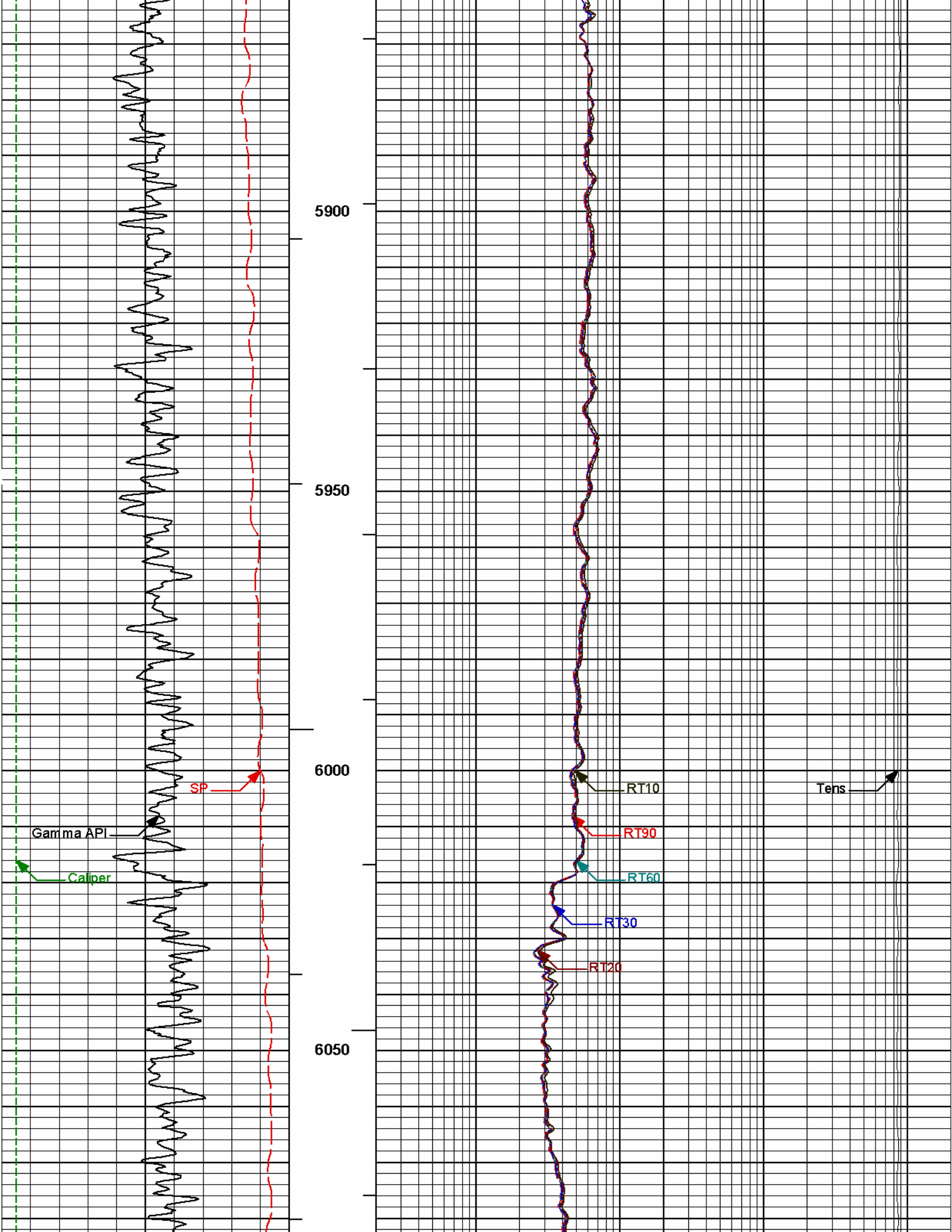




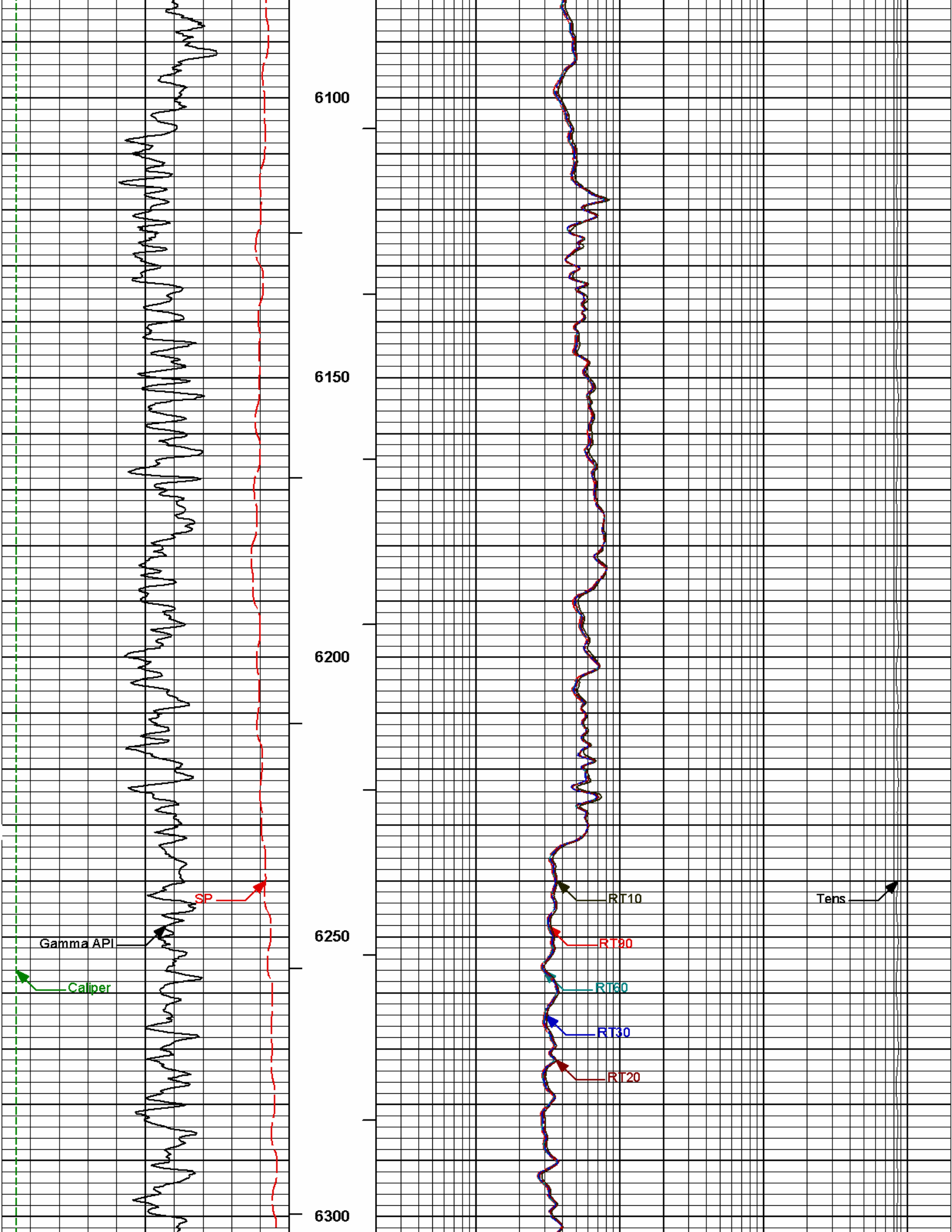


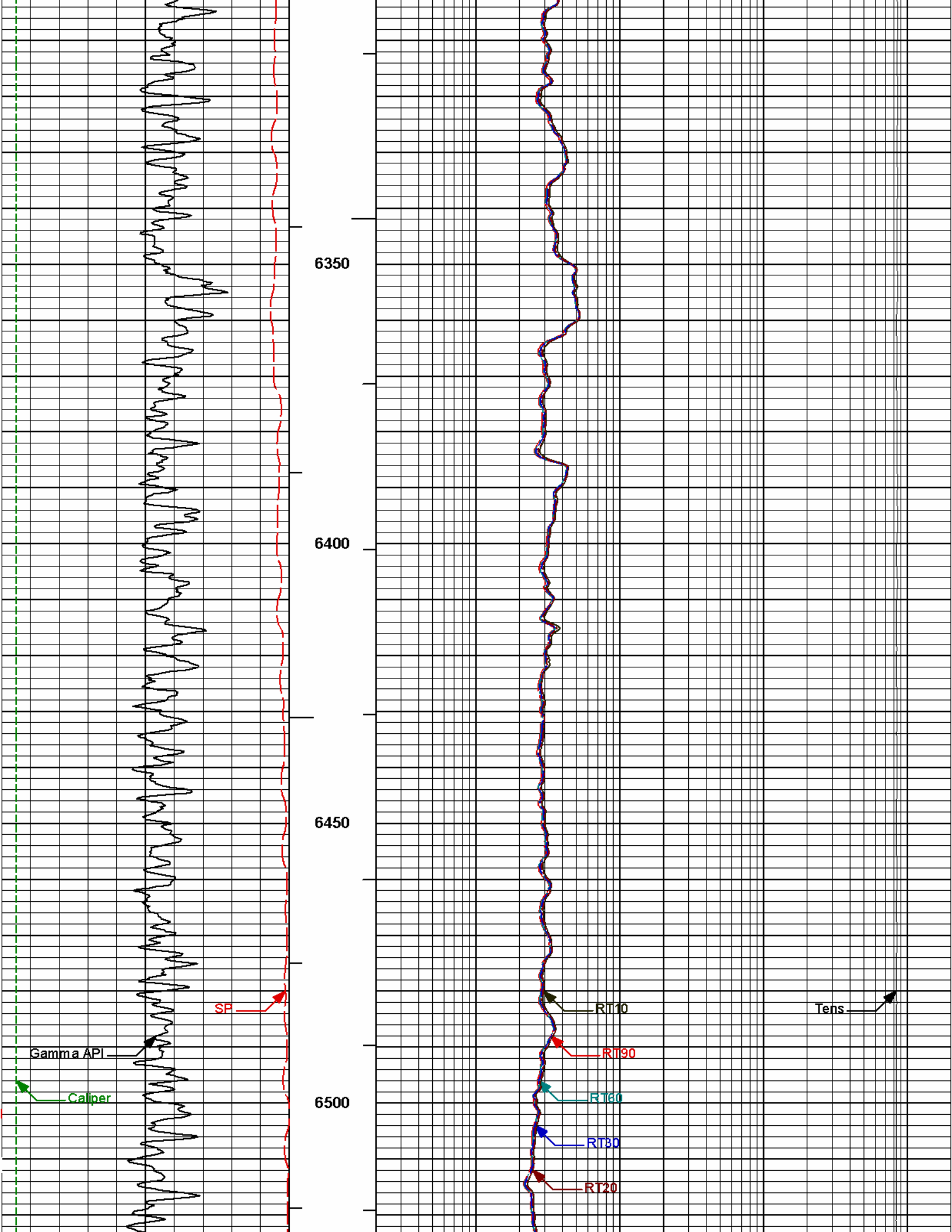


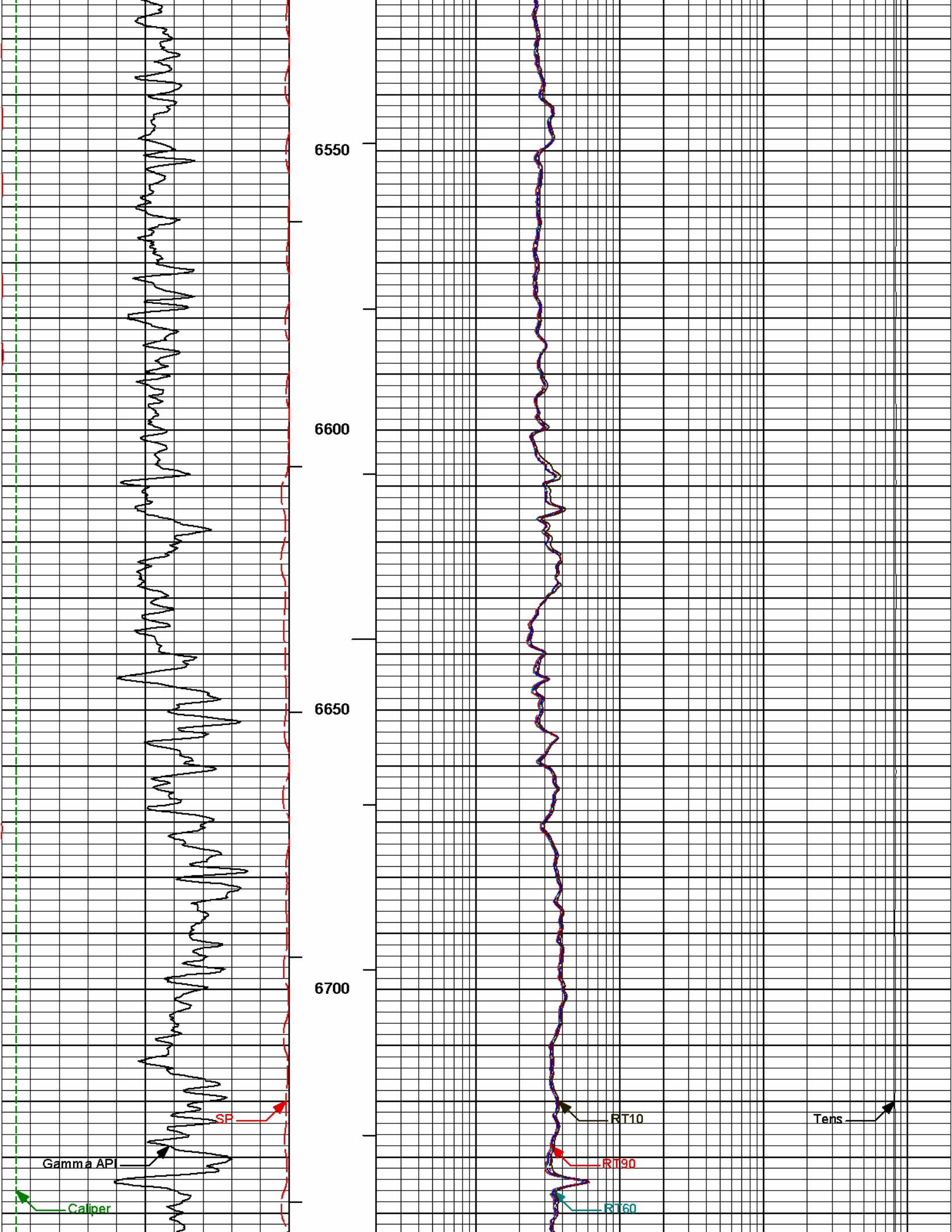


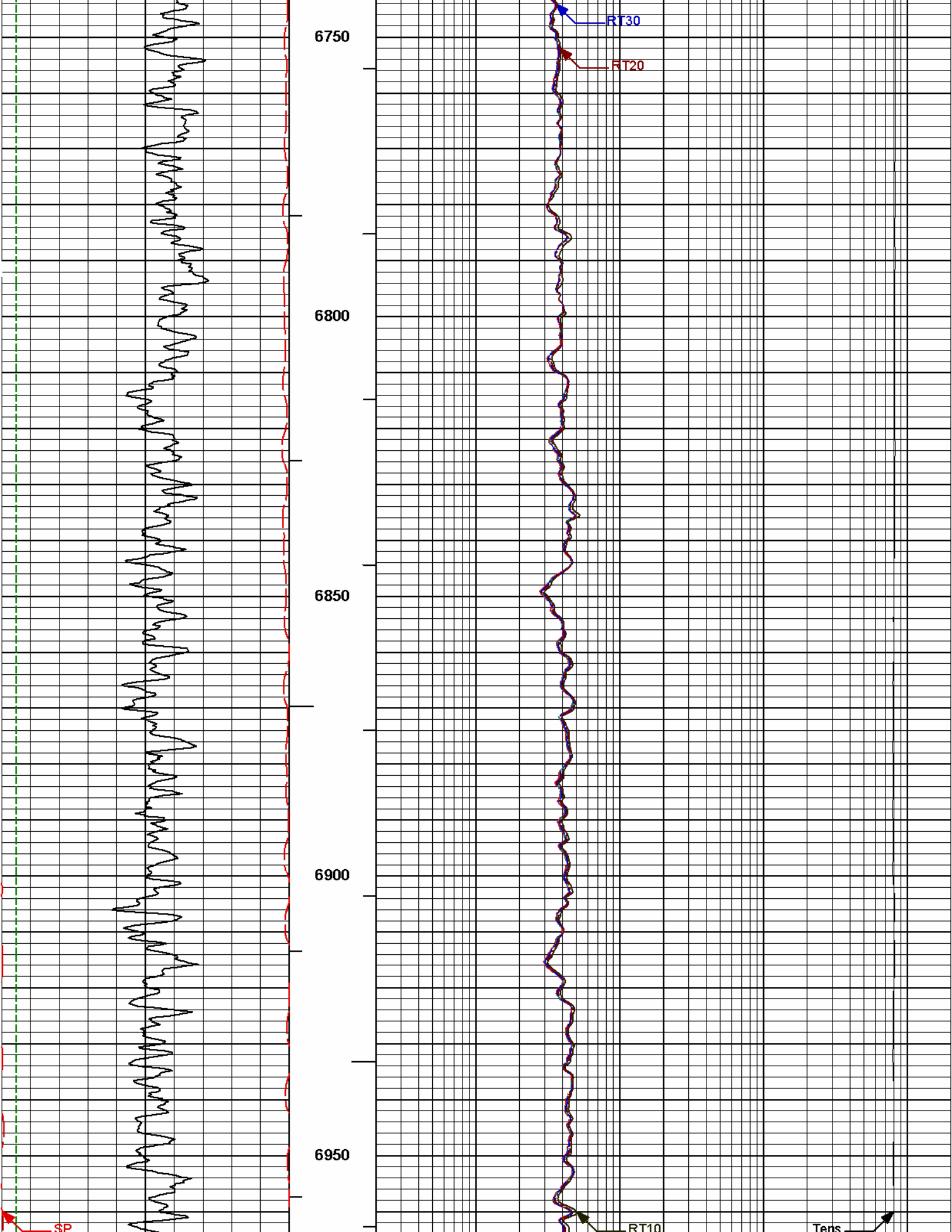


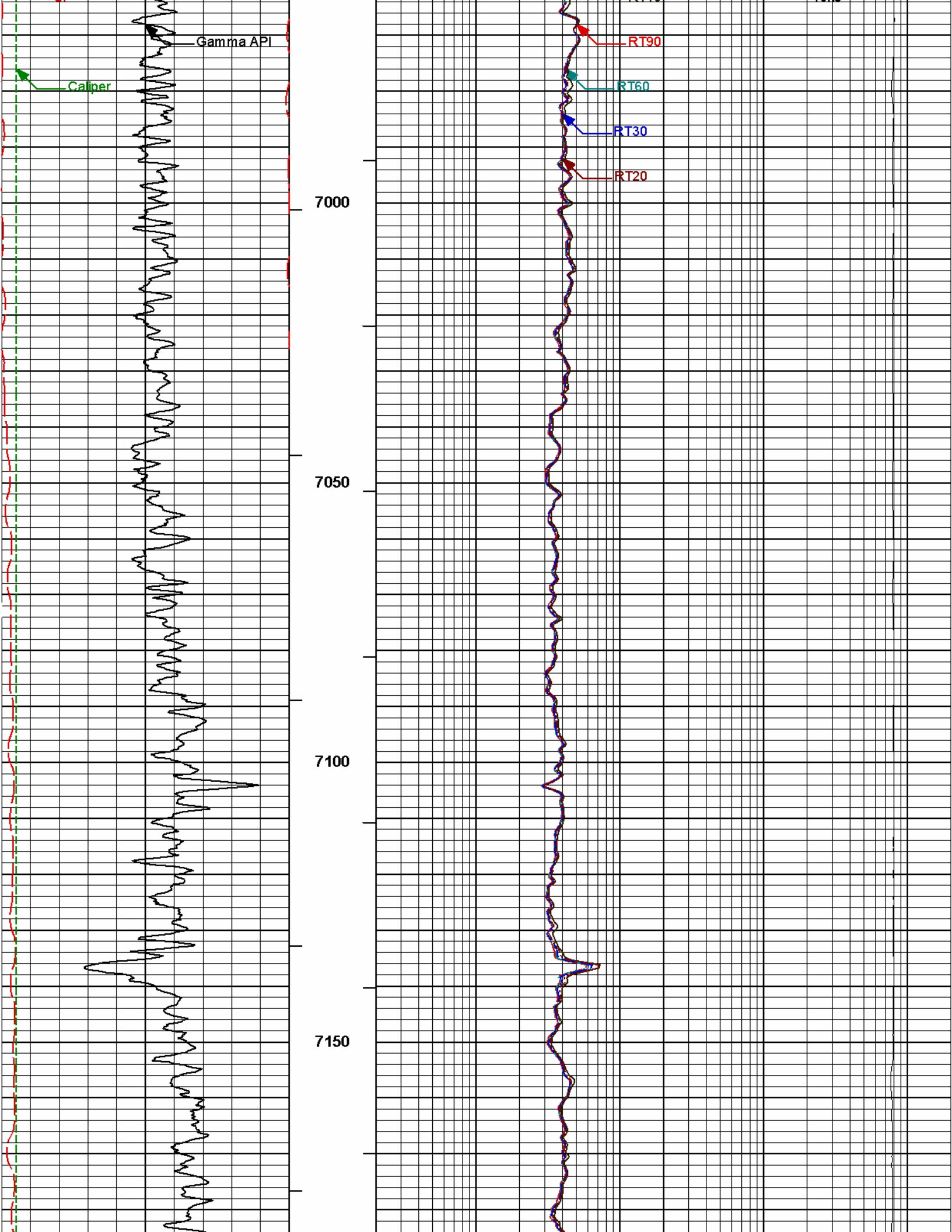


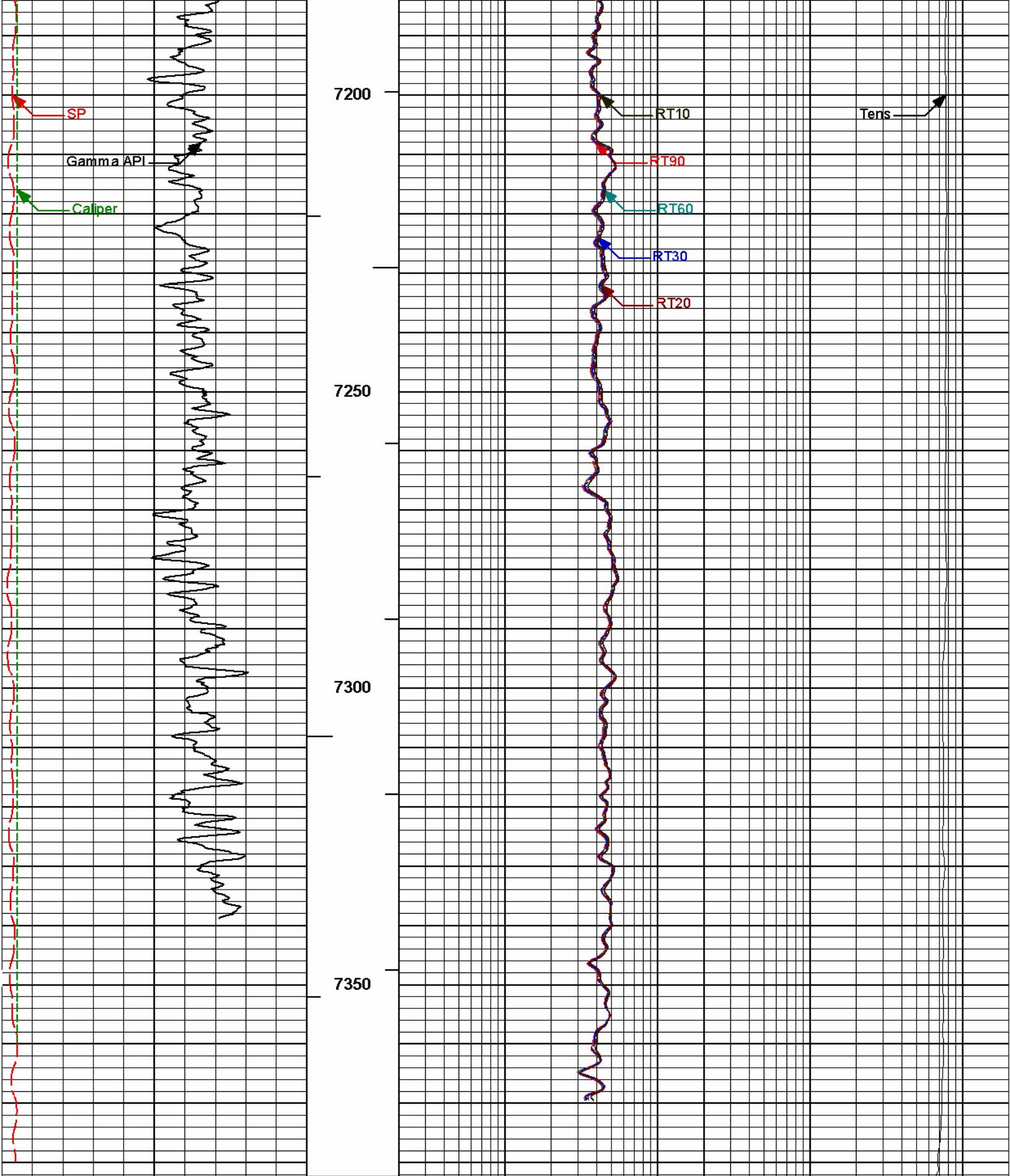












0 SP 100 millivolts	1 : 240	10K	Tens 0 pounds
0 Gamma API 200 api	BHVT	0.2 RT90 2K ohmm	

4	Caliper	14	— AHVT	0.2	RT60	2K
	inches				ohmm	
				0.2	RT30	2K
					ohmm	
				0.2	RT20	2K
					ohmm	
				0.2	RT10	2K
					ohmm	

HALLIBURTON

Plot Time: 23-Apr-12 18:38:30  
Plot Range: 914 ft to 7382.42 ft  
Data: HEIN 1-1\Well Based\DAQ-0001-002\  
Plot File: \\ACRT\IQ\_ACRT\_5IN\_RM

MAIN PASS 5" = 100'

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name:	GTET - 11215095	Reference Calibration Date:	13-Apr-12 10:08:49
Engineer:	J. PINKETT	Calibration Date:	13-Apr-12 10:21:55
Software Version:	WL INSITE R3.4.4 (Build 2)	Calibration Version:	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

Tool Name:	GTET - 11215095	Reference Calibration Date:	13-Apr-12 10:21:55
Engineer:	J. PINKETT	Calibration Date:	23-Apr-12 08:40:00
Software Version:	WL INSITE R3.4.4 (Build 2)	Calibration Version:	1

Calibrator Source S/N: TB 290  
Calibrator API Reference:230.00 api  
Equivalent Calibrator API Reference:234.0 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
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**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**

Block Change Check:	Passed
Snow Block Stat Check:	Passed
Temperature Check:	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
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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: DIAMETER = PAD EXTENSION + ARM EXTENSION + TOOL DIAMETER

Tool Diameter: 4.50 in

CALIBRATION RINGS				
Measurement	Current Reading (Previous Coeff.)	Calibrated (New Coeff.)	Change	Control Limit On New Value
PAD EXTENSION:				
Small Ring (in)	1.99	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

<b>Tool Name:</b>	<b>SDLT - M319_P123_BLUE</b>	<b>Reference Calibration Date:</b>	<b>13-Apr-12 10:12:25</b>
<b>Engineer:</b>	<b>J. PINKETT</b>	<b>Calibration Date:</b>	<b>23-Apr-12 10:01:55</b>
<b>Software Version:</b>	<b>WL INSITE R3.4.4 (Build 2)</b>	<b>Calibration Version:</b>	<b>1</b>

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

<b>Tool Name:</b>	<b>ACRt Sonde - E2584-S2585</b>	<b>Reference Calibration Date:</b>	<b>28-Jul-11 16:05:50</b>
<b>Engineer:</b>	<b>C. BLUE</b>	<b>Calibration Date:</b>	<b>17-Feb-12 02:58:12</b>
<b>Software Version:</b>	<b>WL INSITE R3.4.4 (Build 2)</b>	<b>Calibration Version:</b>	<b>1</b>

#### TYPICAL GAIN RANGE

Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	0.95	1.0033	1.05	0.95	1.0042	1.05	0.95	1.0033	1.05
A2 (50")	0.95	1.0018	1.05	0.95	1.0042	1.05	0.95	1.0063	1.05
A3 (29")	0.95	0.9952	1.05	0.95	0.9961	1.05	0.95	0.9967	1.05
A4 (17")	0.95	0.9953	1.05	0.95	0.9938	1.05	0.95	0.9965	1.05
A5 (10")	N/A	N/A	N/A	0.95	0.9840	1.05	0.95	0.9856	1.05
A6 (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
A1 (80")	-5	-0.916	2	-6	-4.084	-2	-8	-5.369	-2
A2 (50")	-7	-1.297	-1	-6	-3.575	-2	-7	-4.655	-2
A3 (29")	-27	-12.240	-9	-9	-3.457	-3	-7	-3.376	-1
A4 (17")	-180	-92.899	-60	-45	-29.938	-15	-39	-24.840	-13
A5 (10")	N/A	N/A	N/A	-150	-83.643	-50	-80	-42.487	-10
A6 (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 Lith 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

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
GTET-11215095						
Gamma Ray Calibrator	230.0	226.6	-----	3.4	+/- 9.00	api
DSNT-11277440						
Snow-Block Porosity	0.0671	0.0650	-----	0.0021	+/- 0.0150	decp
SDLT-M319_P123_BLUE						
Pad Extension	3.75	3.65	-----	0.10	+/-0.10	in
Ring Diameter	8.25	8.15	-----	0.100	+/-0.15	in
ACRt Sonde-E2584-S2585						
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
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<div>HALLIBURTON</div> <div>TOOL STRING DIAGRAM REPORT</div>	
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# TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
						54.85 ft
RWCH-11830866 135.00 lbs		Ø 3.625 in →		Load Cell @ 51.17 ft BH Temperature @ 50.60 ft	6.25 ft	
						48.60 ft
GTET-11215095 165.00 lbs		Ø 3.625 in →		GammaRay @ 42.54 ft	8.52 ft	
						40.08 ft
DSNT-11277440 174.00 lbs		Ø 3.625 in →		DSN Far @ 33.15 ft DSN Near @ 32.40 ft	9.69 ft	
						30.40 ft
SDLT-M319_P123_BLUE 360.00 lbs	SDLT Pad-M319_P123_BLUE 65.00 lbs	Ø 4.500 in →		Microlog @ 22.58 ft SDL Caliper @ 22.40 ft SDL @ 22.39 ft	10.81 ft	
	Microlog Pad-M319_P123_BLUE 8.00 lbs	Ø 4.750 in" →				19.58 ft
		Ø 4.750 in" →				
ACRt Instrument-11532584 50.00 lbs		Ø 3.625 in →			5.03 ft	
						14.55 ft
	Regal Standoff 6_75-01 20.00 lbs	Ø 6.750 in" →		Mud Resistivity @ 13.19 ft		
ACRt Sonde-E2584-S2585 200.00 lbs		Ø 3.625 in →		ACRt @ 9.21 ft	14.22 ft	

SP Ring-E2584\_S2585  
0.00 lbs

Ø 3.625 in

SP @ 1.61 ft

Bull Nose-01  
5.00 lbs

Ø 2.750 in



0.33 ft

0.33 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		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
SDLP	Density Insite Pad		M319_P123_BLUE	65.00	2.55	*	21.79
ACRt	Array Compensated True Resistivity Instrument Section		11532584	50.00	5.03		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
RSOF	Regal Standoff 6.75in		01	20.00	0.52	*	13.33
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		ARRAY COMPENSATED TRUE RESISTIVITY	