

**DUAL SPACED NEUTRON  
SPECTRAL DENSITY  
WAVESONIC  
ARRAY COMPENSATED  
TRUE RESISTIVITY**

Service Ticket No.: N/A				API Serial No.: 05005071890100		PGM Version: WL INSITE R3.8.12 (Build 3)				
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	F. Viscosity									
Alkalinity	P. Viscosity									
HTHP @ Meas. Temp.		@		@		RESISTIVITY EQUIPMENT DATA				
Solids	Wgt. Mat.					Run No.	Tool Type & No.	Pad Type	Tool Pos.	Other
Oil	Water Ratio					ONE	ACRT	N/A	CENT	N/A
Water Phase Salinity							11296758			
Oil Type	Water Type						11294352			
Electrical Stability										
EQUIPMENT DATA										
GAMMA		ACOUSTIC				DENSITY		NEUTRON		
Run No.	ONE	Run No.	ONE			Run No.	ONE	Run No.	ONE	
Serial No.	11812882	Serial No.	53025250			Serial No.	11045470	Serial No.	11301132	
Model No.	GTET	Model No.	WSTT			Model No.	SDLT	Model No.	DSNT	
Diameter	3.625"	No. of Cent.	2			Diameter	4.5"	Diameter	3.625"	
Detector Model No.	GTET	Spacing	0.5'			Log Type	GAM-GAM	Log Type	NEU-NEU	
Type	SCINT					Source Type	Cs137	Source Type	Am241Be	
Length	8"	LSA [Y/N]	Y			Serial No.	5471GW	Serial No.	DSN-434	
Distance to Source	18'	FWDA [Y/N ]	Y			Strength	1.78 Ci	Strength	15 Ci	

## LOGGING DATA

GENERAL			GAMMA		ACOUSTIC			DENSITY			NEUTRON			
Run	Depth		Speed	Scale		Scale		Matrix	Scale		Matrix	Scale		Matrix
No.	From	To	ft/min	L	R	L	R		L	R		L	R	
ONE	TD	6000	REC	0	200	240	40	47.6	1.95	2.95	2.71	0.45	-0.15	LIME
ONE	6000	150	REC	0	200	240	40	47.6						
DIRECTIONAL INFORMATION														
Maximum Deviation @								KOP @						
Remarks: RWCH/GTET/CSNG/DSNT/SDLT/ICT/WSTT/ACRT/TEMP SUB RAN IN COMBINATION														
TENSION PULLS, WASHOUTS, AND BOREHOLE RUGOSITY CAN AFFECT TOOL RESPONSE														
ANNULAR HOLE VOLUME CALCULATED FOR 5.5-INCH CASING														
MAX RECORDED TEMPERATURE AN AVERAGE OF 4 MAX READ THERMOMETERS														
YOUR CREW: A. AXE, K. MAGLIETTO, R. MEROLA, E. TRUJILLO RIG: H&P 280														
THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES - BRIGHTON, CO - (303) 655-4700														
HALLIBURTON DOES NOT GUARANTEE THE ACCURACY OF ANY INTERPRETATION OF THE LOG DATA, CONVERSION OF LOG DATA TO PHYSICAL ROCK PARAMETERS OR RECOMMENDATIONS WHICH MAY BE GIVEN BY HALLIBURTON PERSONNEL OR WHICH APPEAR ON THE LOG OR IN ANY OTHER FORM. ANY USER OF SUCH DATA, INTERPRETATIONS, CONVERSIONS, OR RECOMMENDATIONS AGREES THAT HALLIBURTON IS NOT RESPONSIBLE EXCEPT WHERE DUE, TO GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, FOR ANY LOSS, DAMAGES, OR EXPENSES RESULTING FROM THE USE THEREOF.														
HALLIBURTON														

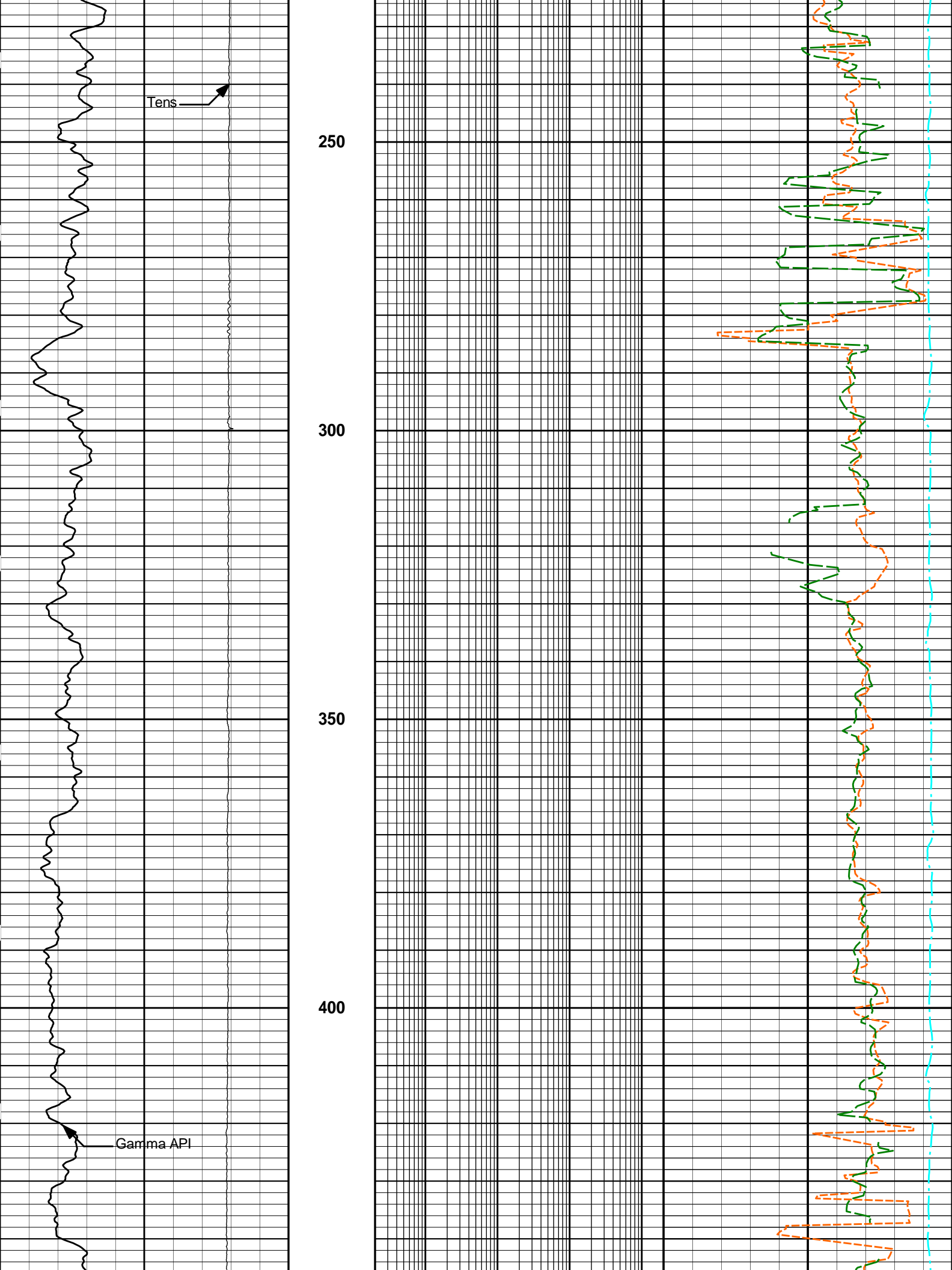


## PARAMETERS REPORT

Depth (ft)	Tool Name	Mnemonic	Description	Value	Units
TOP					
	SHARED	BS	Bit Size	8.750	in
	SHARED	UBS	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	MDBS	Mud Base	Oil	
	SHARED	MDWT	Borehole Fluid Weight	9.300	ppg
	SHARED	WAGT	Weighting Agent	Barite	
	SHARED	BSAL	Borehole salinity	74000.00	ppm
	SHARED	FSAL	Formation Salinity NaCl	0.00	ppm
	SHARED	WPHS	OBM Water Phase Salinity NaCl	0.00	ppm
	SHARED	OFOW	Base Oil Fraction from Oil/Water Ratio	61.70	
	SHARED	OBMT	Oil based Mud Type	Diesel	
	SHARED	KPCT	Percent K in Mud by Weight?	0.00	%
	SHARED	CSD	Logging Interval is Cased?	No	
	SHARED	ICOD	AHV Casing OD	5.500	in
	SHARED	ST	Surface Temperature	75.0	degF
	SHARED	TD	Total Well Depth	8205.00	ft
	SHARED	BHT	Bottom Hole Temperature	239.0	degF
	SHARED	AZTM	High Res Z Accelerometer Master Tool	GTET	
	SHARED	TEMM	Temperature Master Tool	NONE	
	SHARED	BHSM	Borehole Size Master Tool	ICT	
	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	

CSNG	CGOK	Process CSNG Data?	Yes	
CSNG	CENT	Is Tool Centralized?	No	
CSNG	GBOK	Gamma Enviromental Corrections?	Yes	
CSNG	BARF	Barite Correction Factor	1.00	
CSNG	ORDG	Use Fixed Gain	No	
CSNG	ORDO	Use Fixed Offset	No	
CSNG	ORDR	Use Fixed Resolution Degradation Factor	No	
DSNT	DNOK	Process DSN?	Yes	
DSNT	DEOK	Process DSN EVR?	No	
DSNT	NLIT	Neutron Lithology	Limestone	
DSNT	DNSO	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.250	in
DSNT	DNTP	Temperature Correction Type	None	
DSNT	DPRS	DSN Pressure Correction Type	None	
DSNT	SHCO	View More Correction Options	No	
DSNT	UTVD	Use TVD for Gradient Corrections?	No	
DSNT	LHWT	Logging Horizontal Water Tank?	No	
SDLT	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
ICT	CLOK	Process Caliper Outputs?	Yes	
ICT	DARM	Disable Caliper Arm	No	
ICT	ATDS	Arm To Disable	0	
ICT	REPM	Method to replace arm?	Caliper Average	
ICT	ARMV	Diameter to use for disabled arm	0.00	in
ICT	DARM	Disable Second Caliper Arm	No	
ICT	ATDS	Second Arm To Disable	0	
ICT	REPM	Method to replace second arm?	Caliper Average	
ICT	ARMV	Diameter to use for second disabled arm	0.00	in
ICT	CL1O	Radius 1 Offset	0.0	in
ICT	CL2O	Radius 2 Offset	0.0	in
ICT	CL3O	Radius 3 Offset	0.0	in
ICT	CL4O	Radius 4 Offset	0.0	in
ICT	CL5O	Radius 5 Offset	0.0	in
ICT	CL6O	Radius 6 Offset	0.0	in
ICT	BHVC	Radius type for borehole volume calcuations	Elliptical	
Wavesonic-I	WSOK	Process WSTT?	Yes	
Wavesonic-I	AFIL	Adaptive Filtering?	No	
Wavesonic-I	PINT	Process 1 Sample and Skip	0	
Wavesonic-I	PROM	Process Mode: M=1,MX=2,MY=3,MXY=4	4	
Wavesonic-I	DTSH	Delta -T Shale	100.00	uspf
Wavesonic-I	DTMT	Delta -T Matrix Type	User define	
Wavesonic-I	DTMA	Delta -T Matrix	47.60	uspf
Wavesonic-I	DTFL	Delta -T Fluid	189.00	uspf
Wavesonic-I	RHOM	Matrix Density	2.7100	g/cc
Wavesonic-I	RHOF	Fluid Density	1.0000	g/cc
Wavesonic-I	SMTH	Semblance Threshold	0.25	
Wavesonic-I	VPVS	VPVS Ratio for Porosity	1.40	
Wavesonic-I	APEQ	Acoustic Porosity Equation	Wylie	
ACRt Sonde	RTOK	Process ACRt?	Yes	
ACRt Sonde	MNSO	Minimum Tool Standoff	1.50	in
ACRt Sonde	TCS1	Temperature Correction Source	FP Lwr & FP Upr	

ACRt Sonde	TPOS	Tool Position	Centered	
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	
ACRt Sonde	MRFX	Fixed mud resistivity	2000	ohmm
BOTTOM				
Data: WATKINS 30-5-8\0001 TRIPLE BLACK-CSNG-ICT-WSTT006.01 07-Mar-14 05:25 Up				Date: 07-Mar-14 05:26:19





Tens



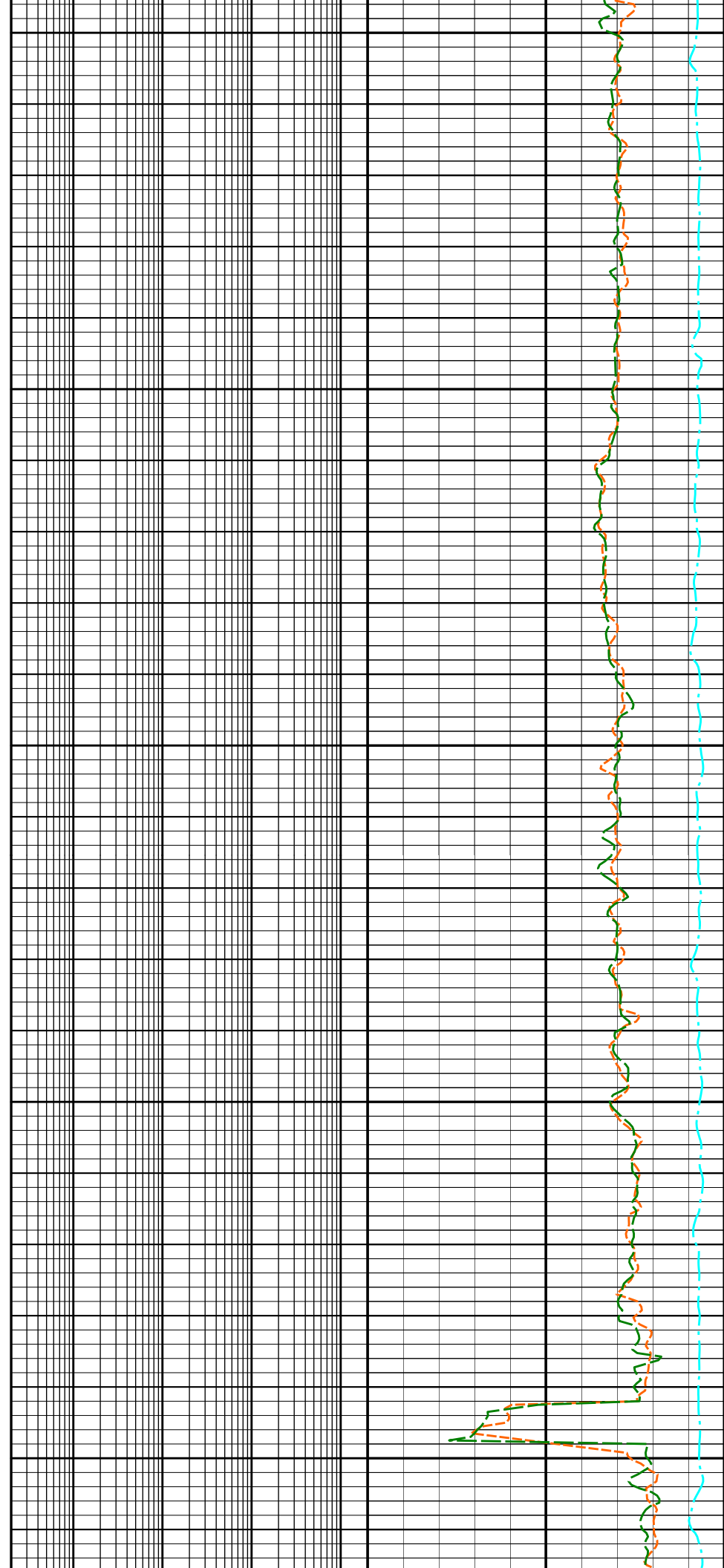
450

500

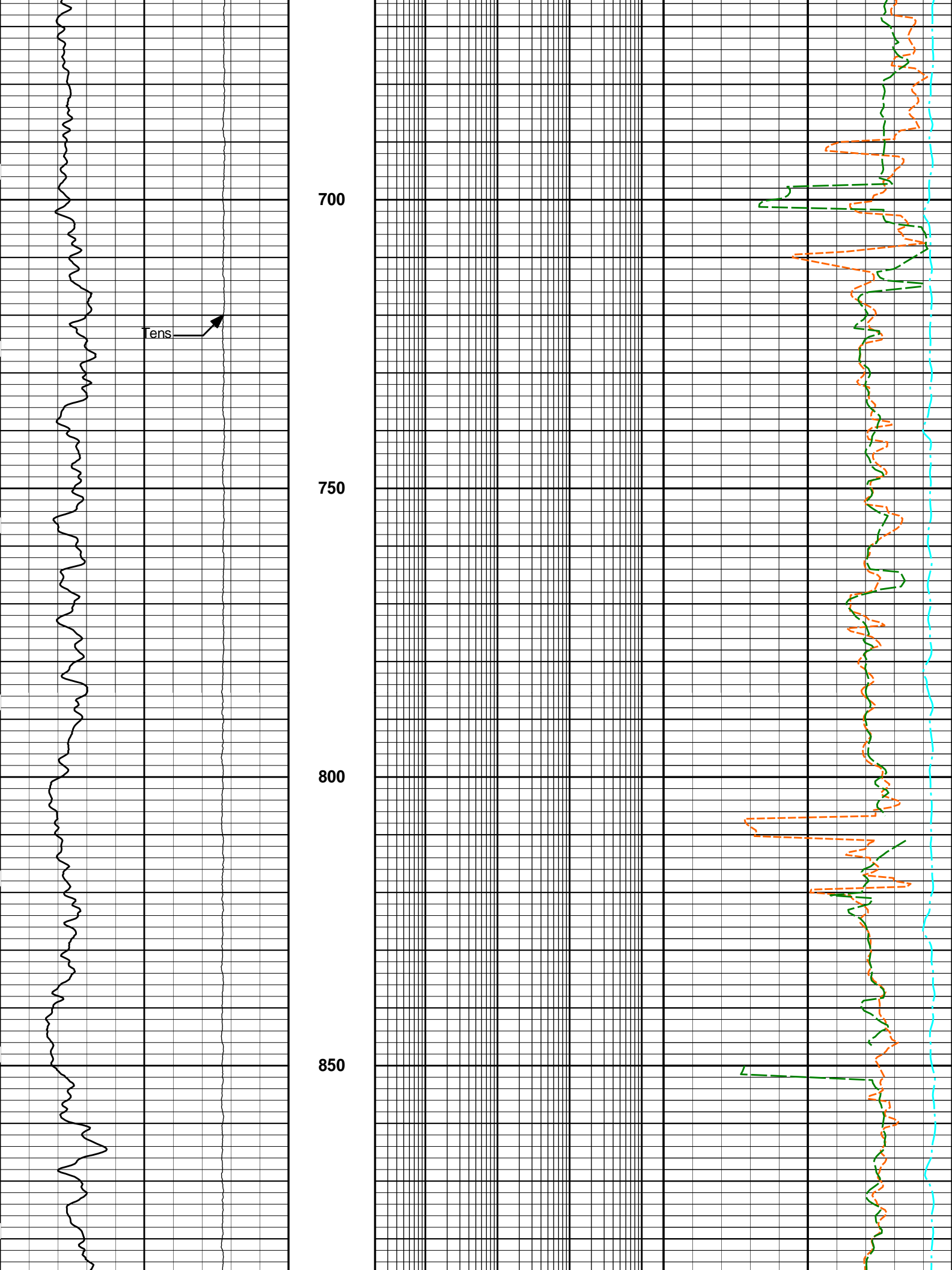
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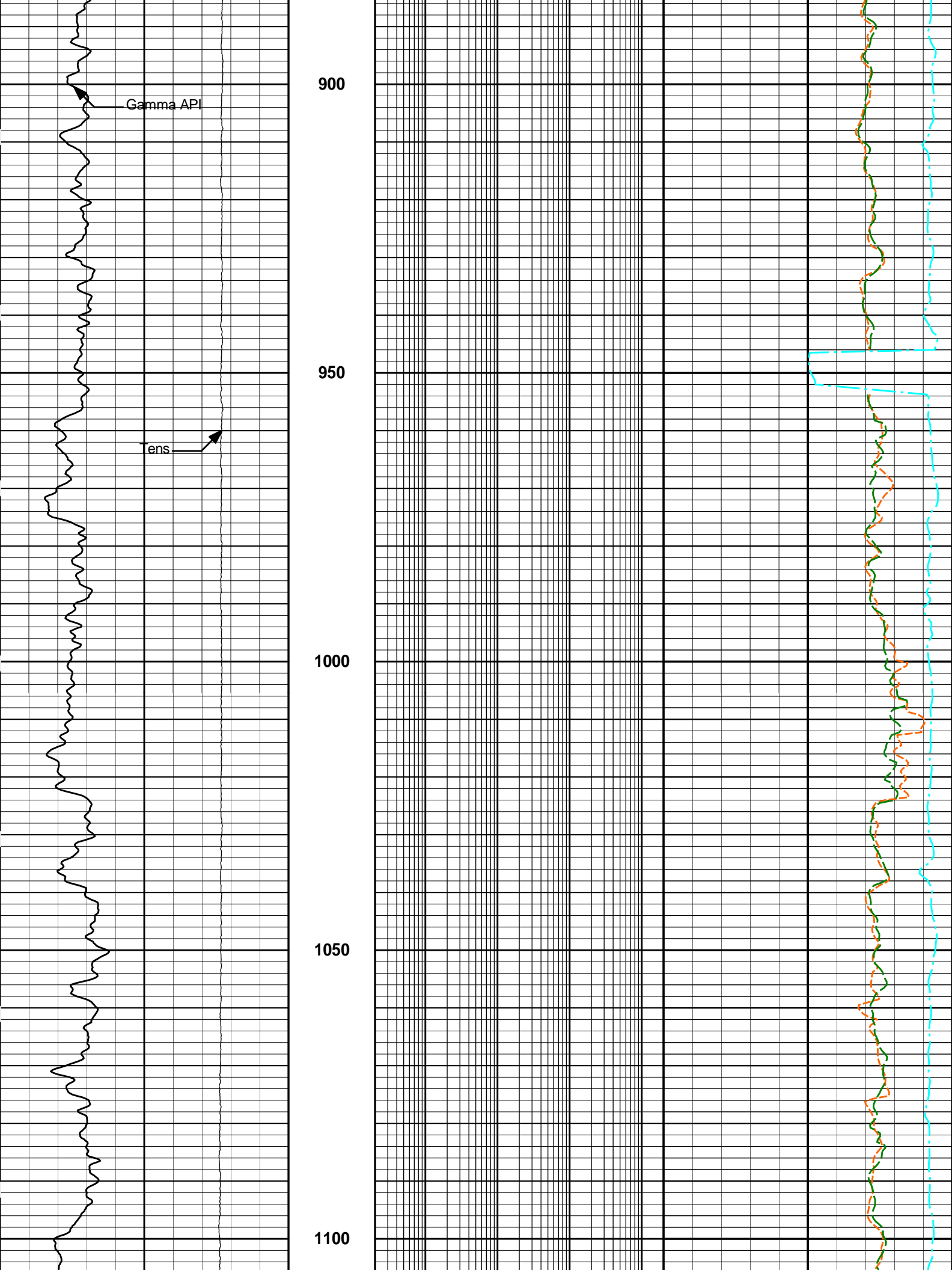
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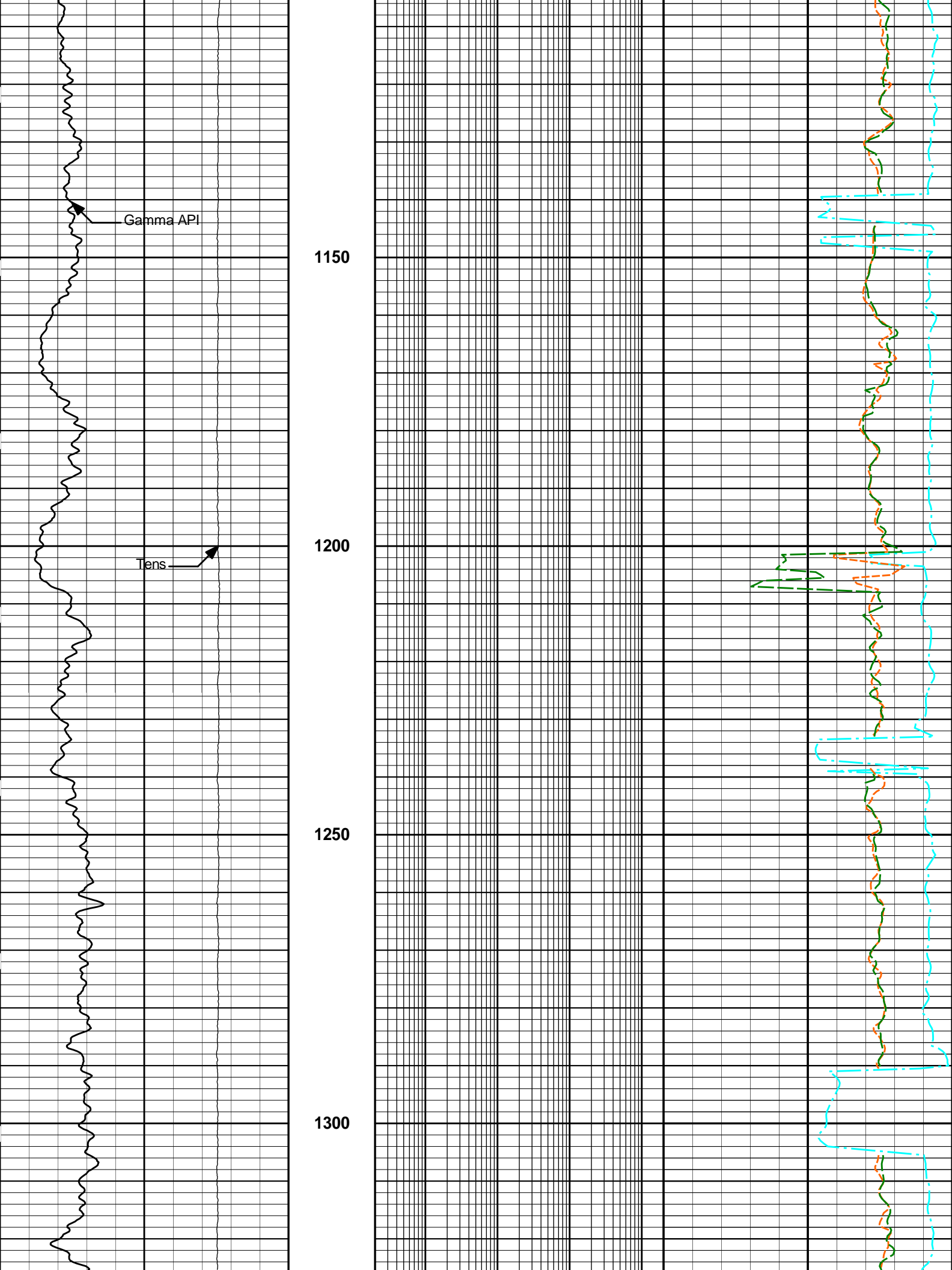
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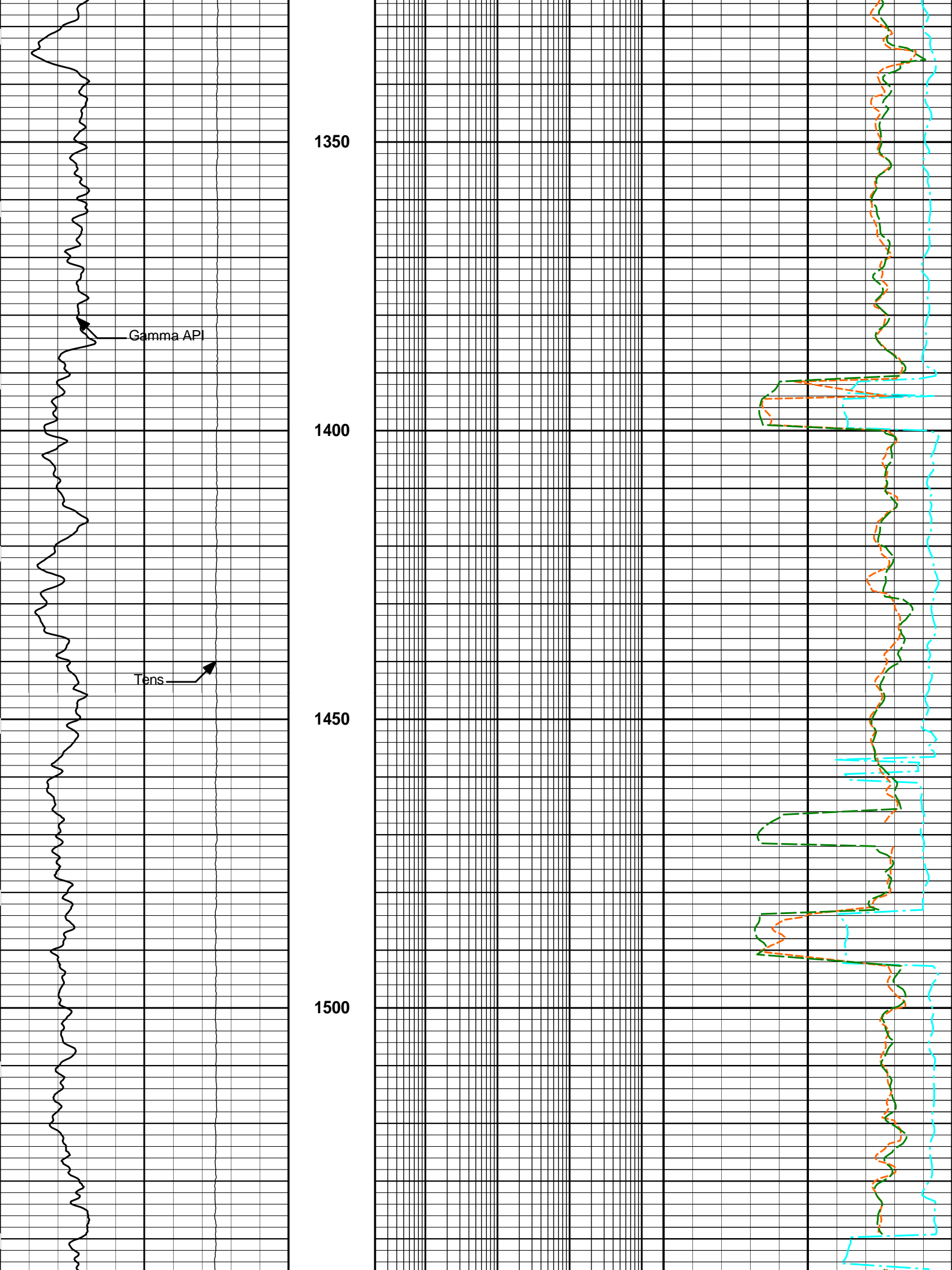


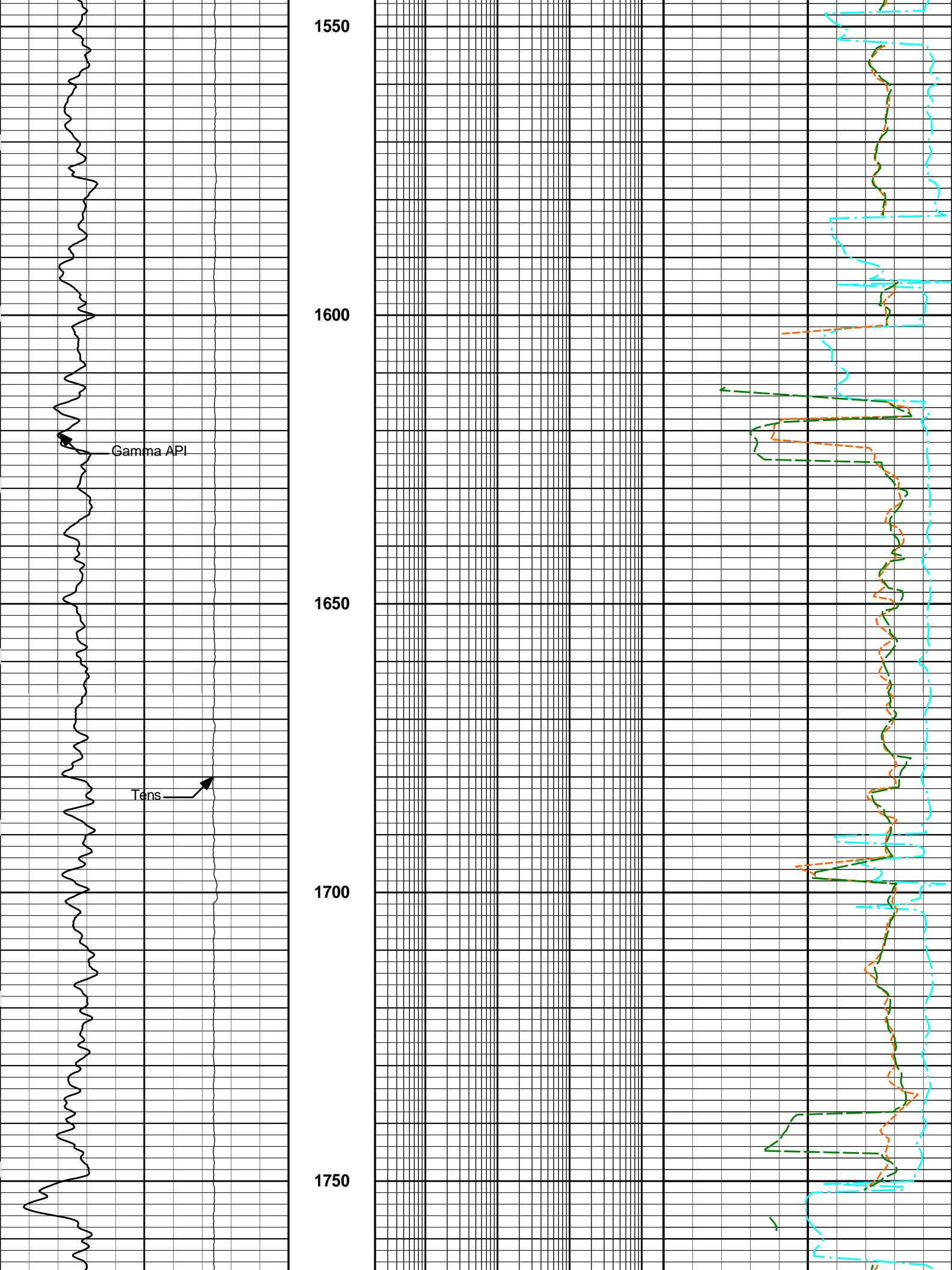
Gamma API

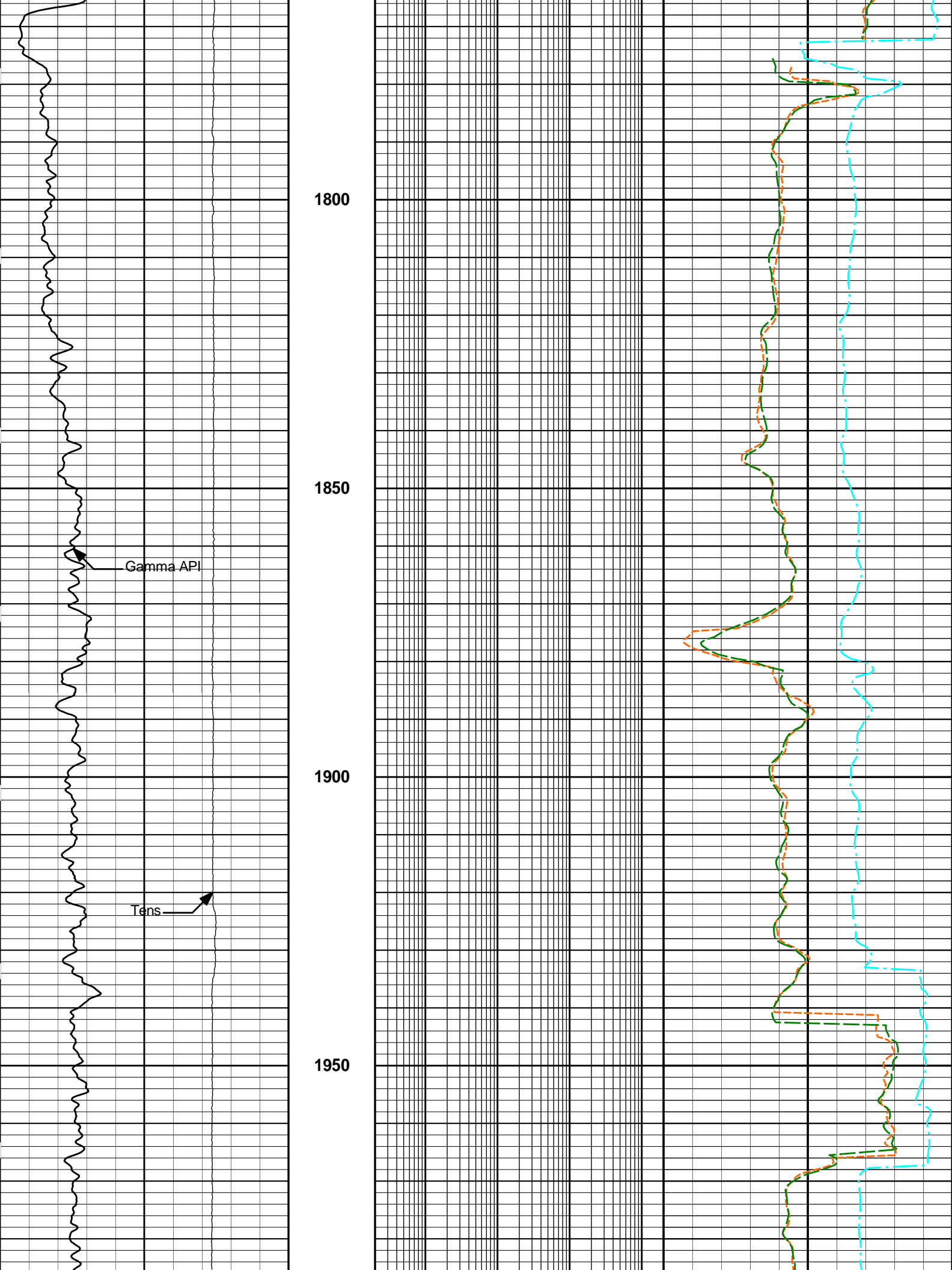


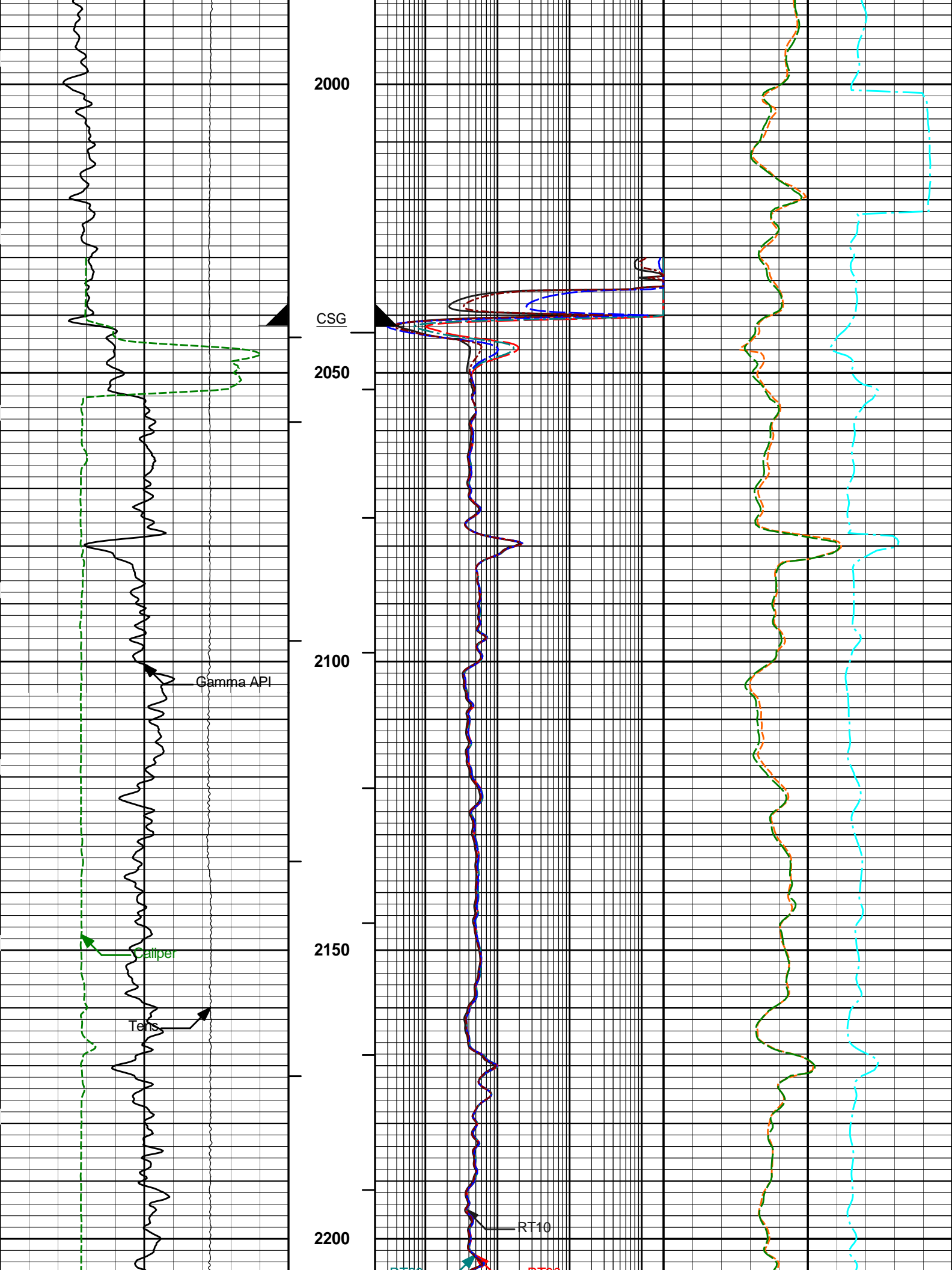


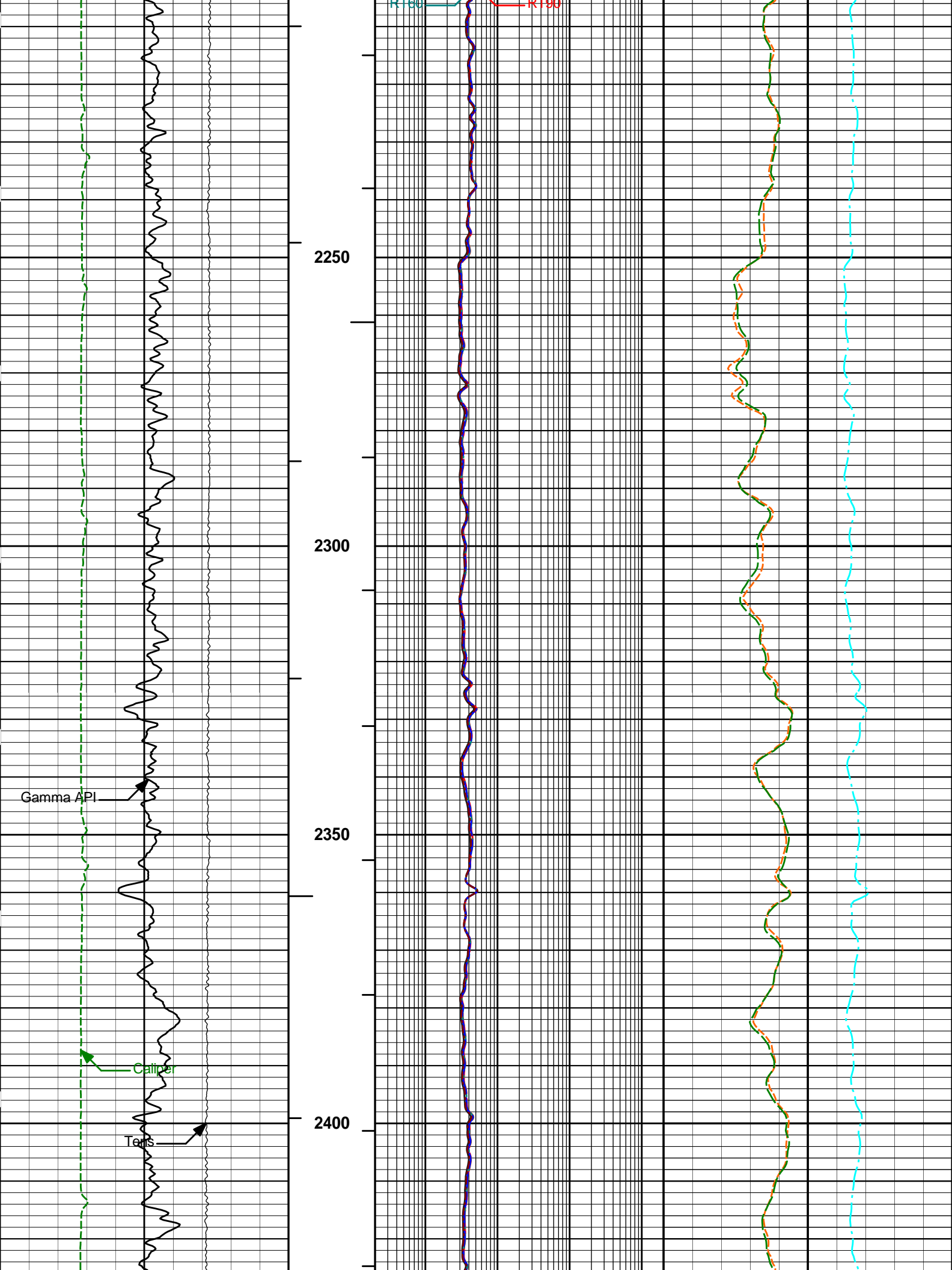


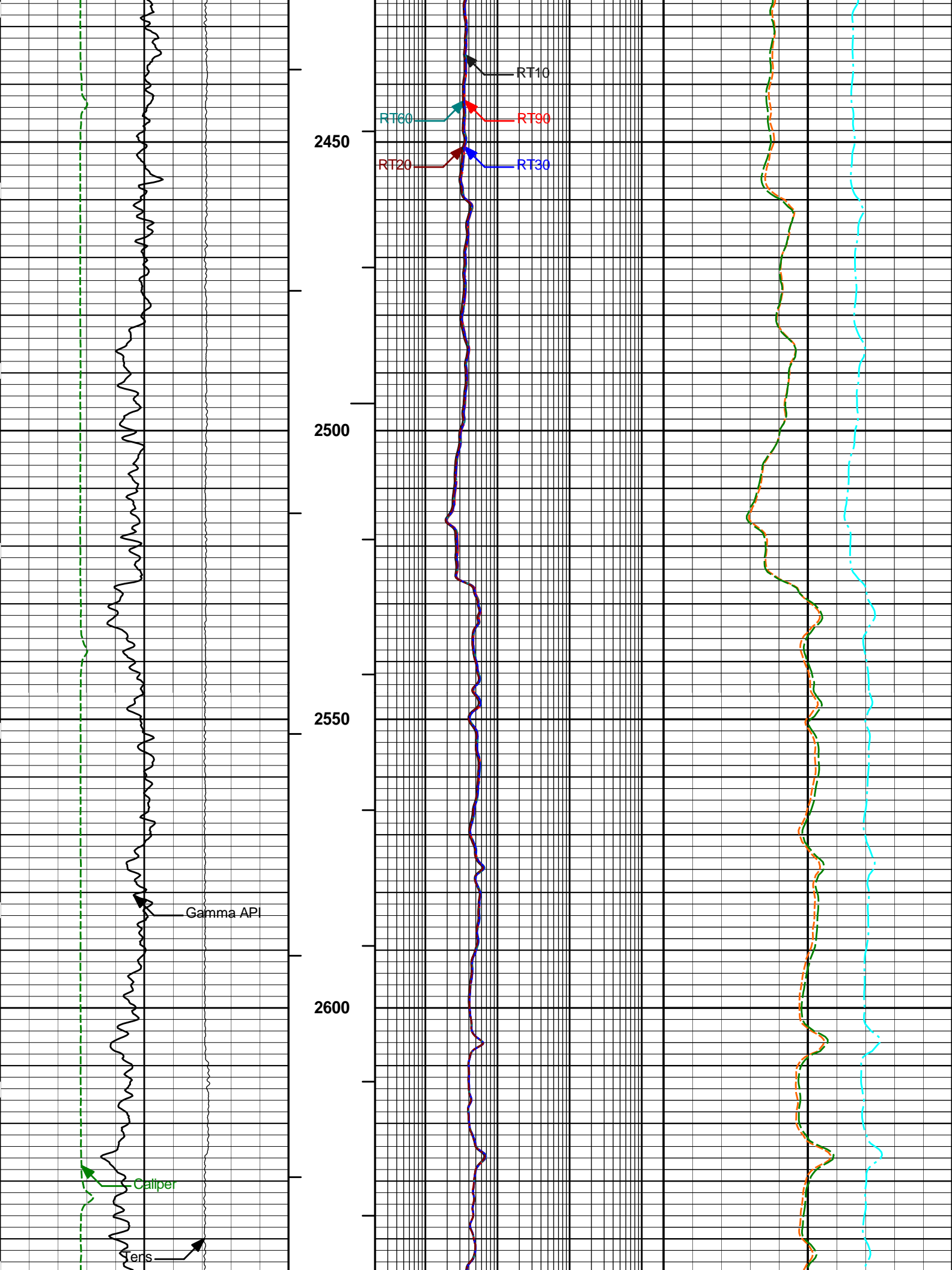


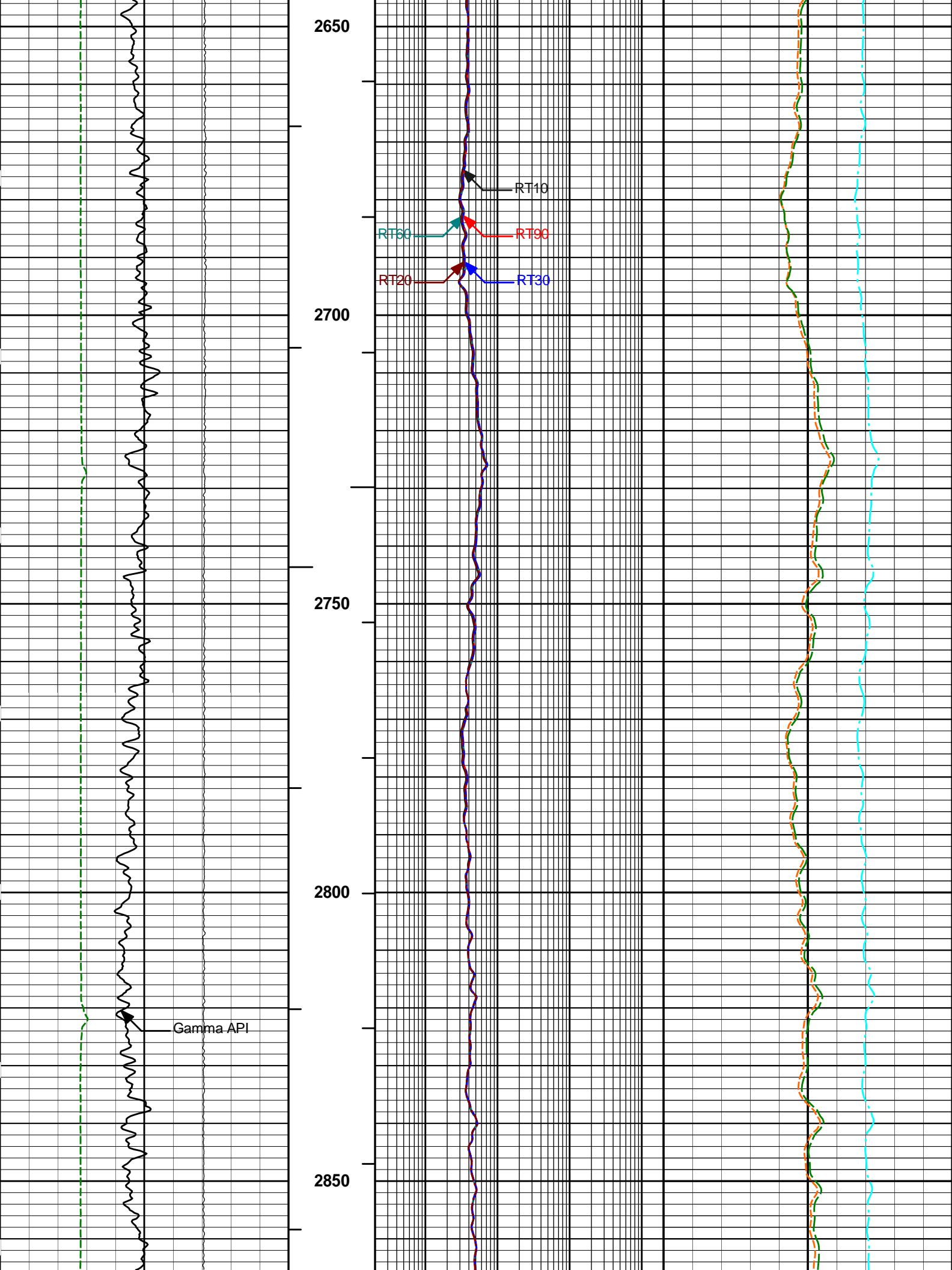


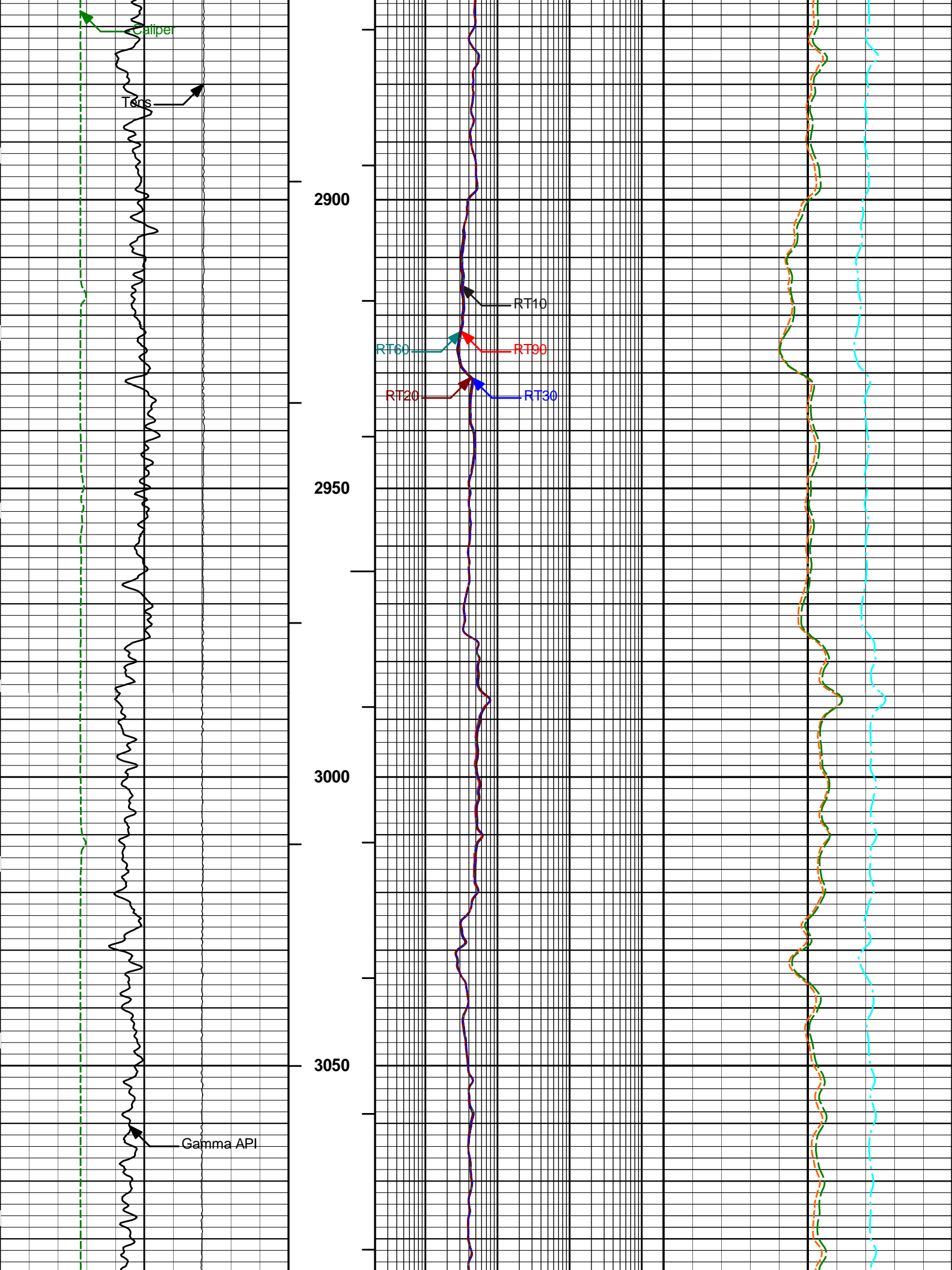


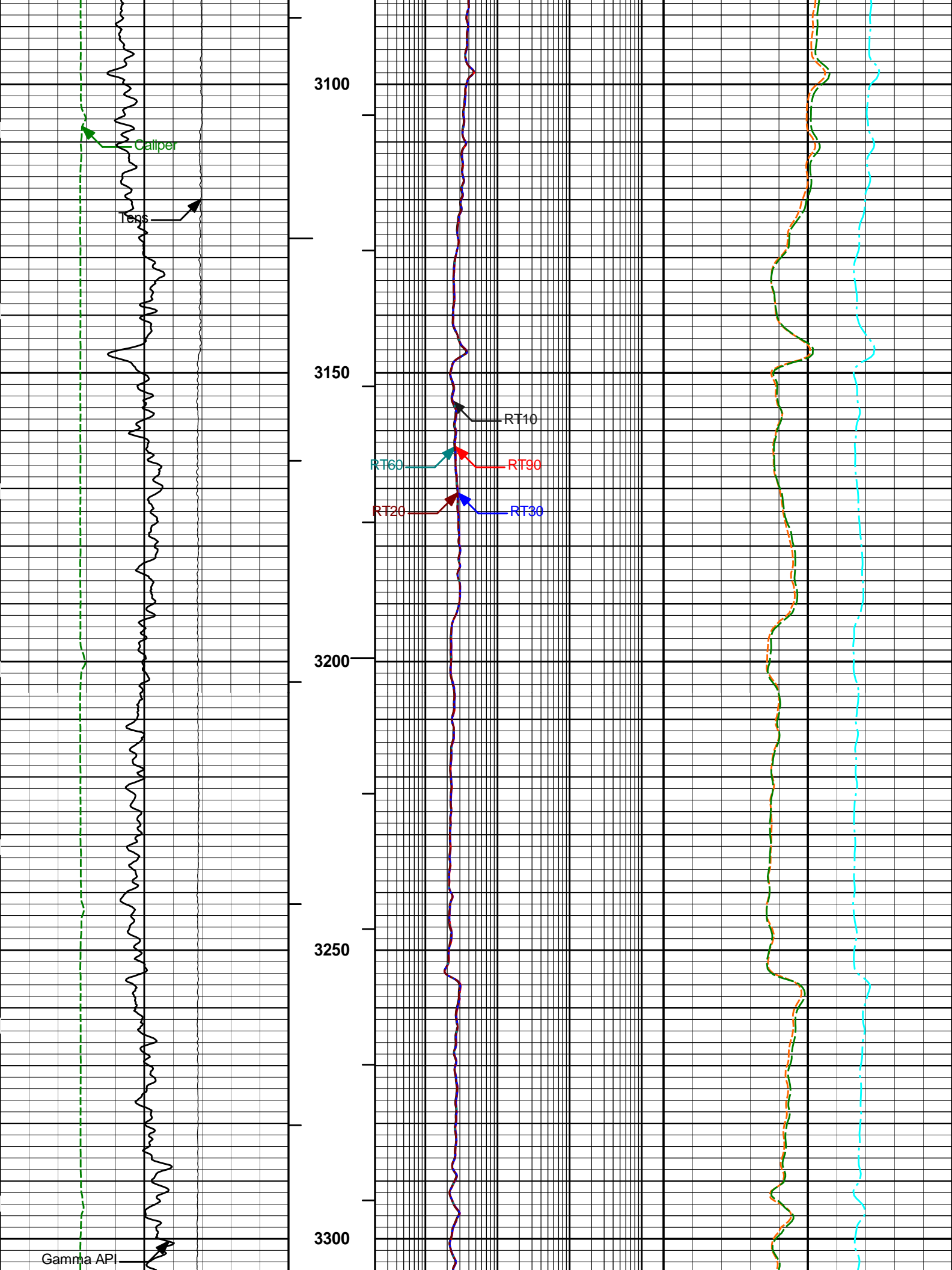


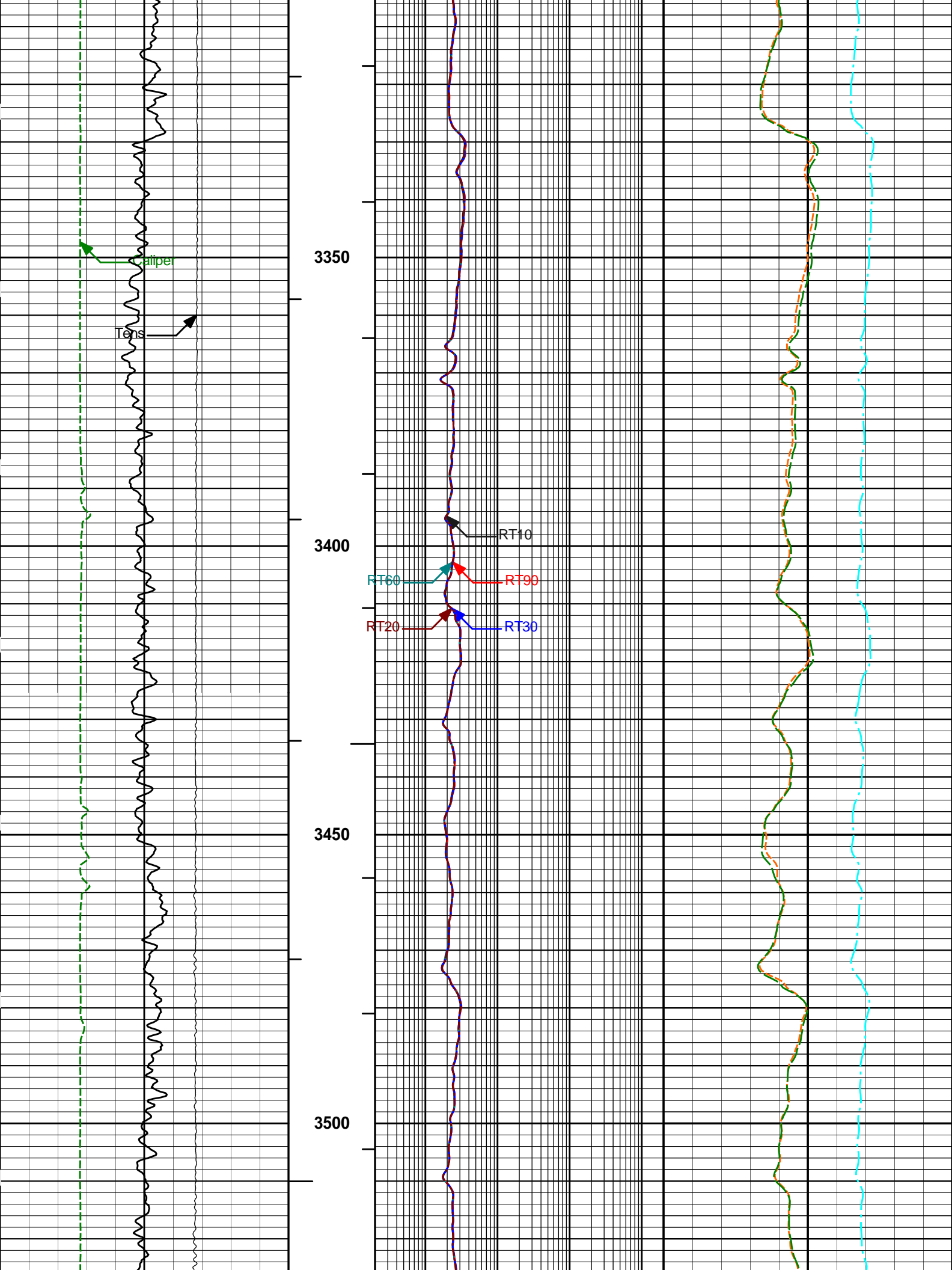


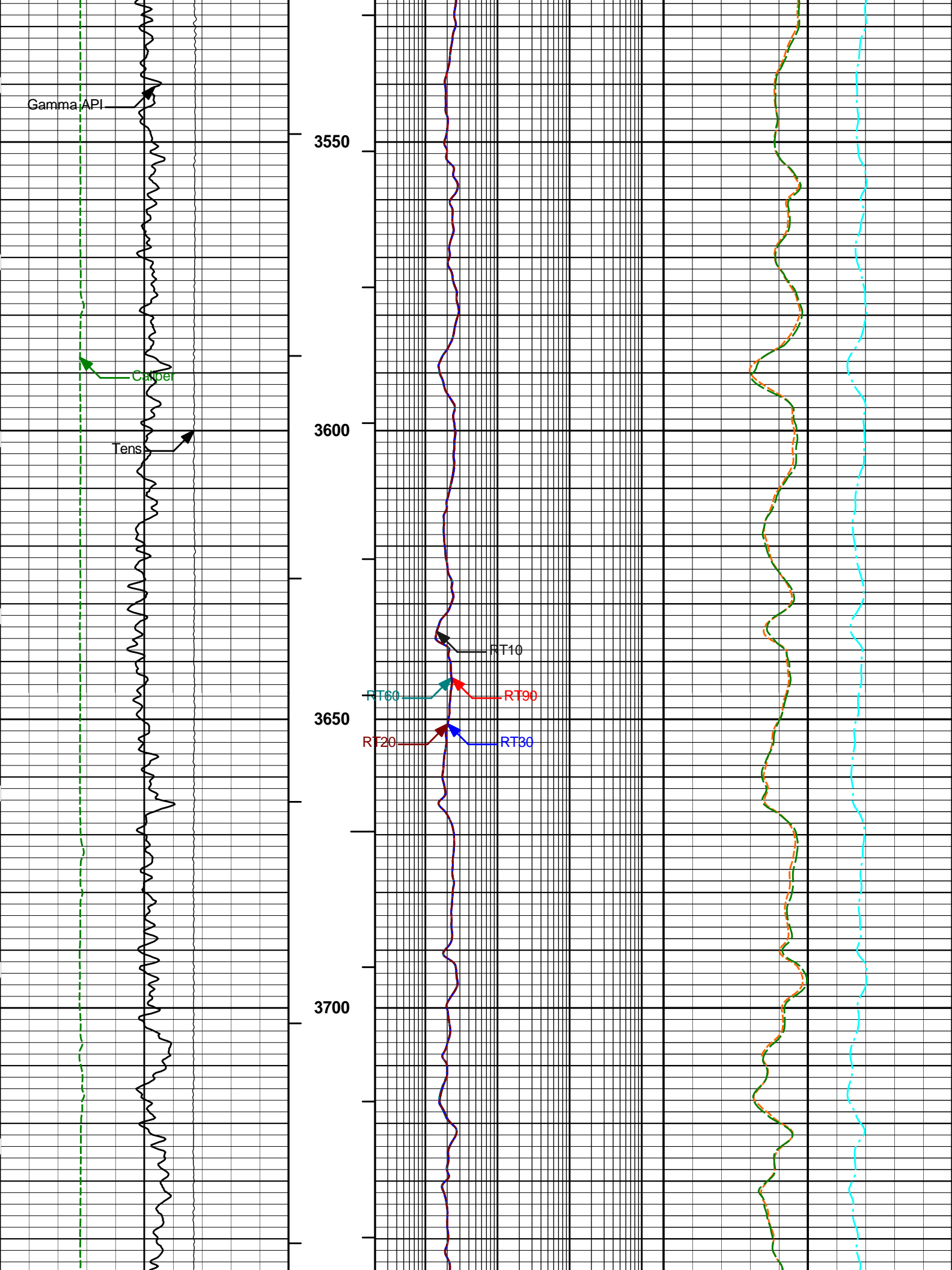


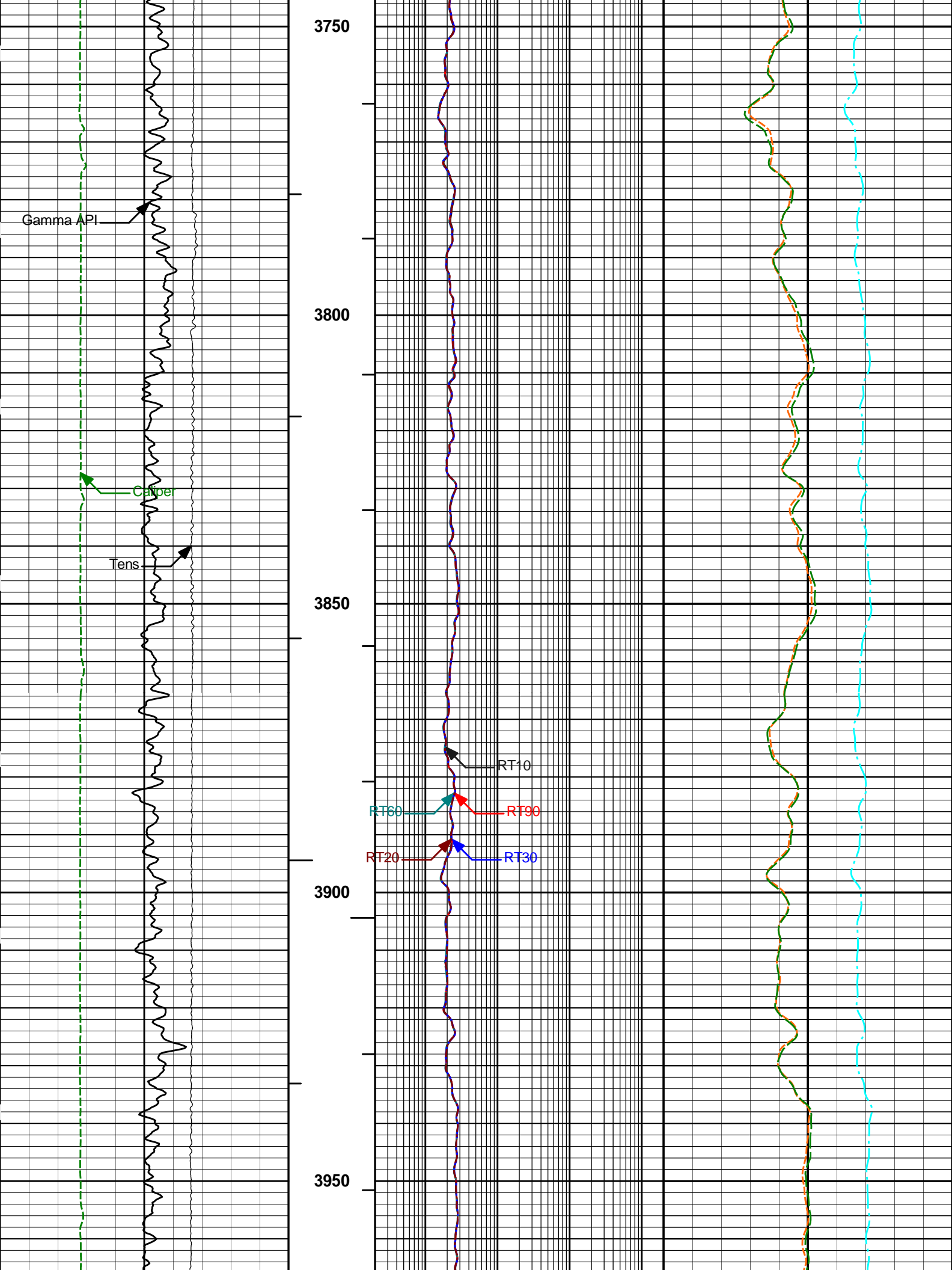


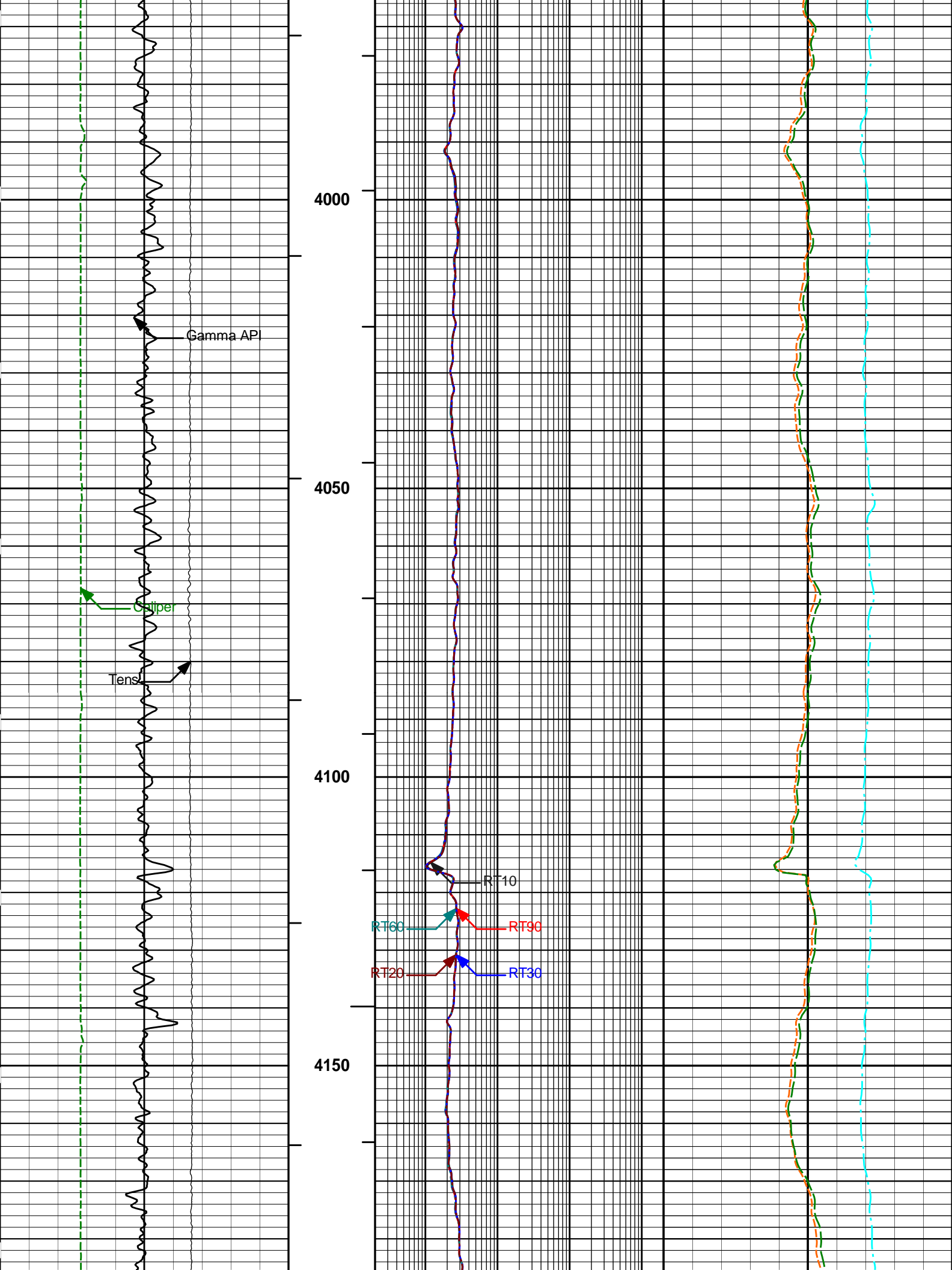


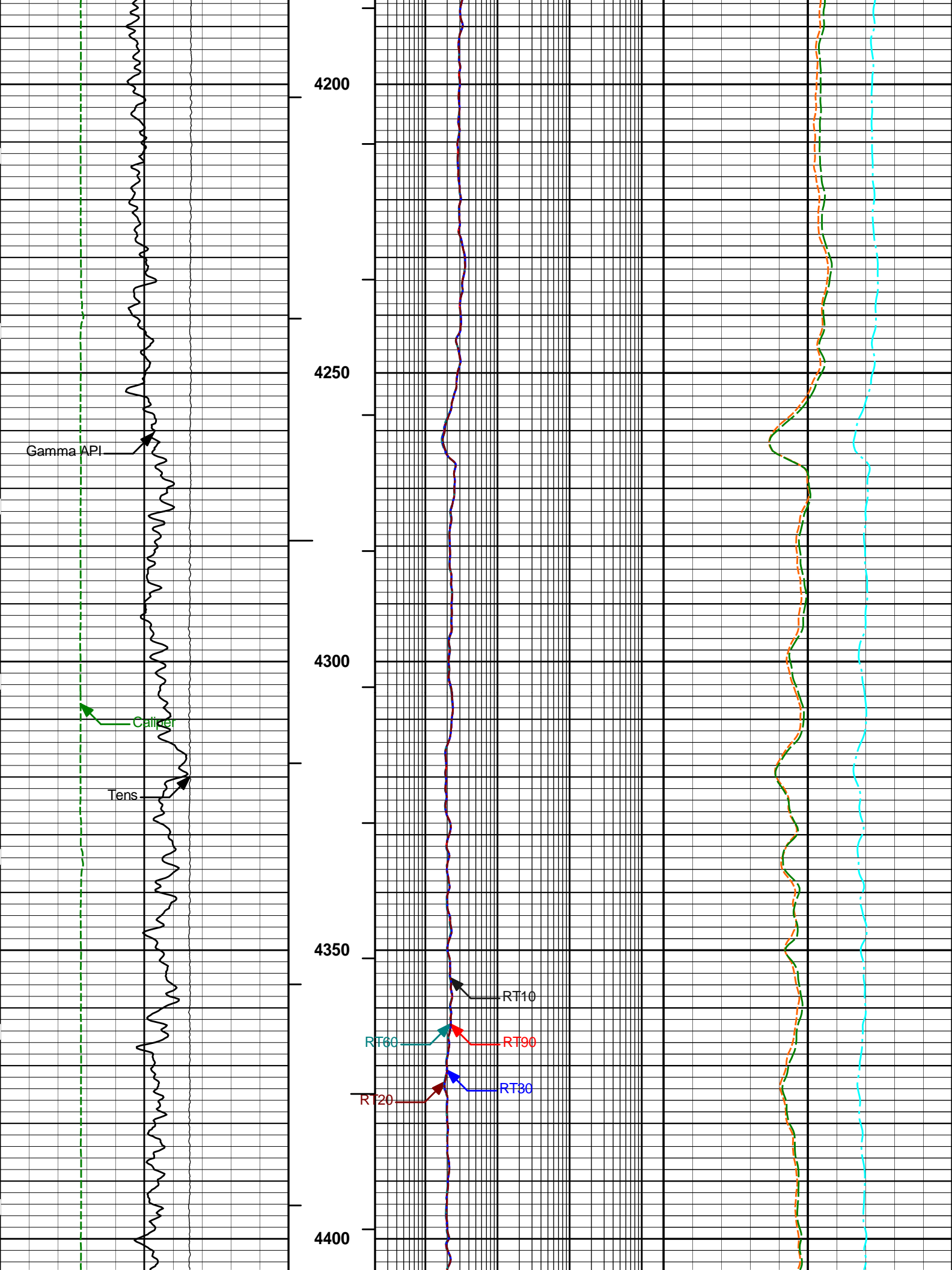


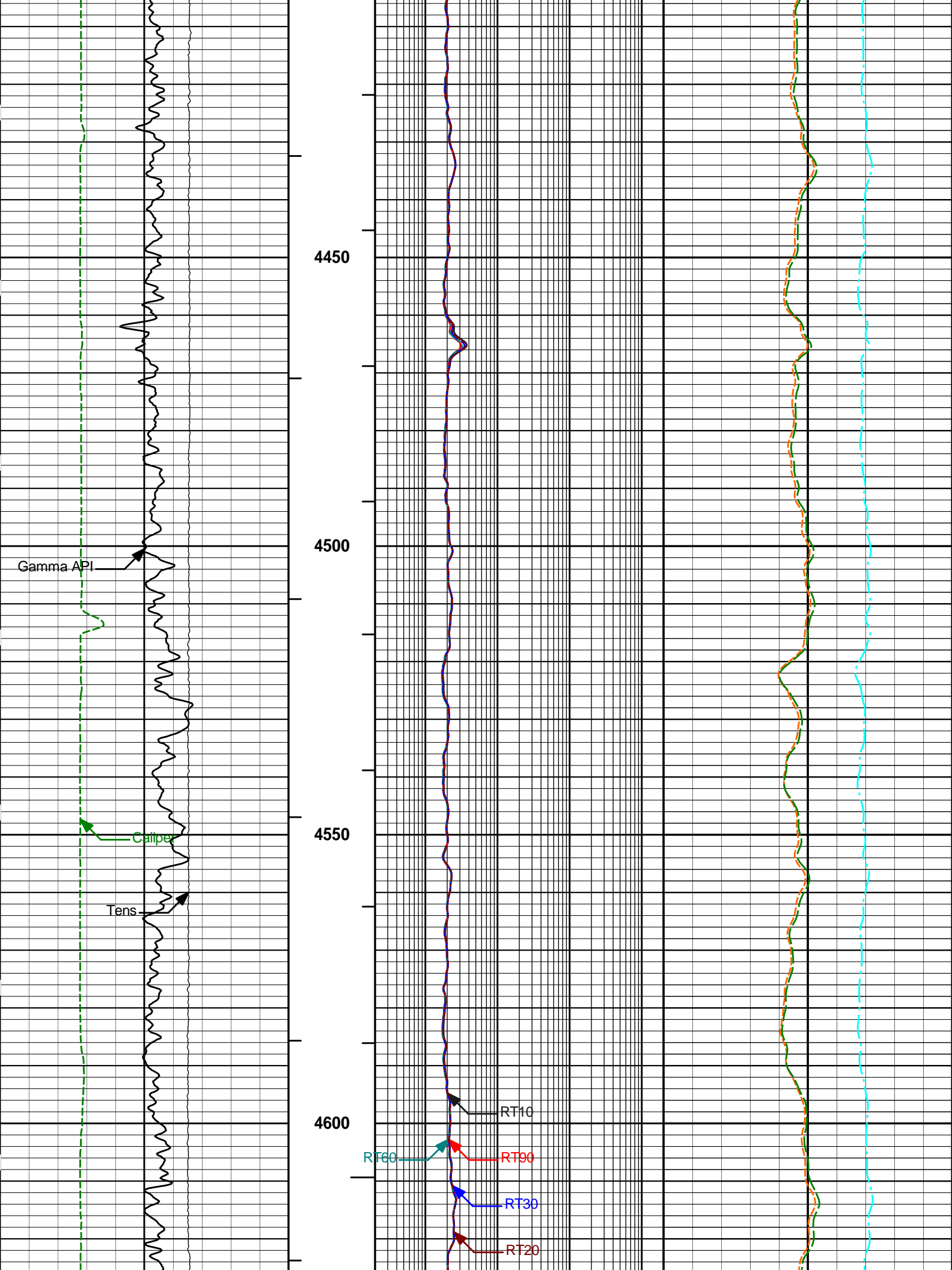


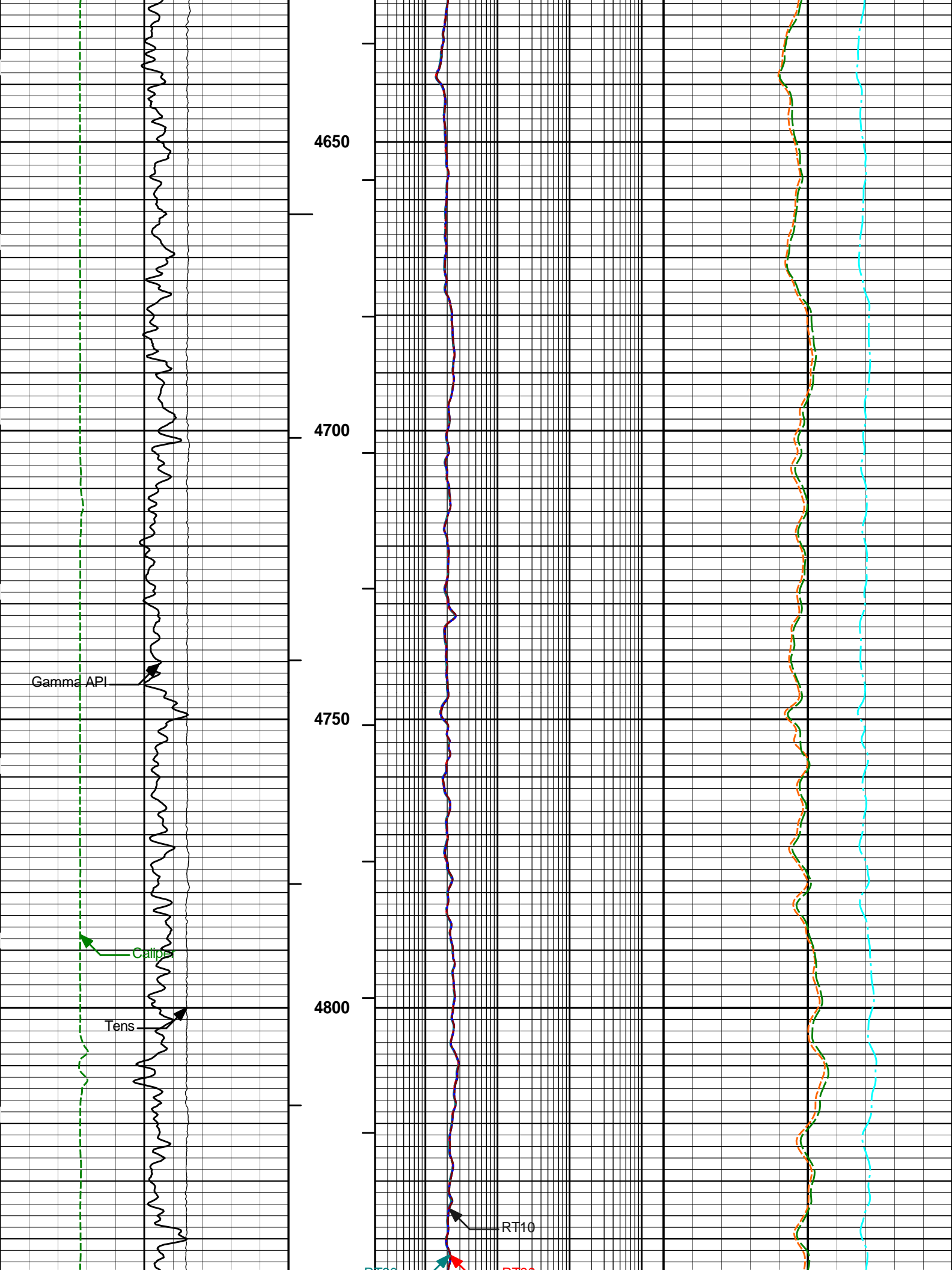


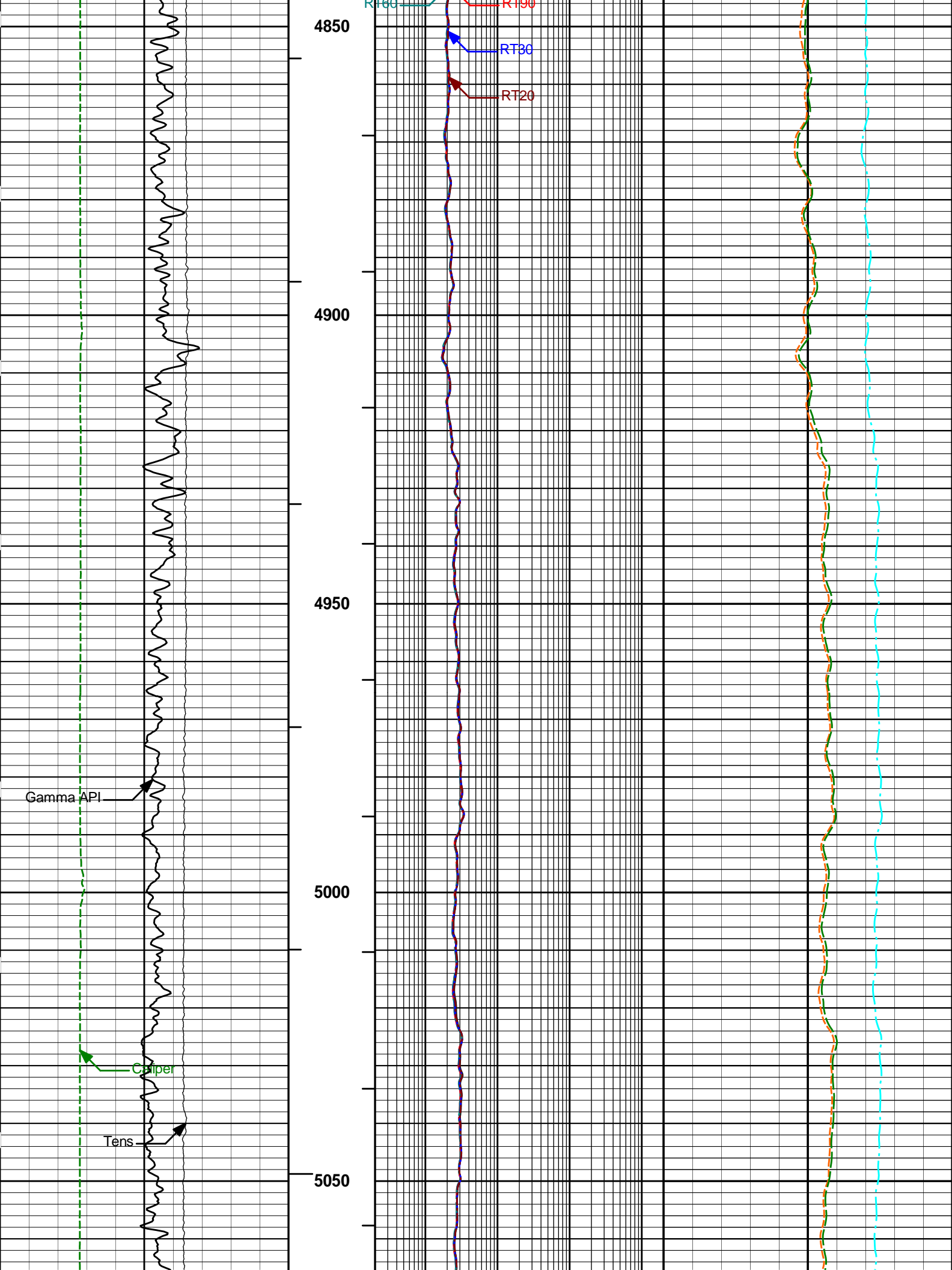


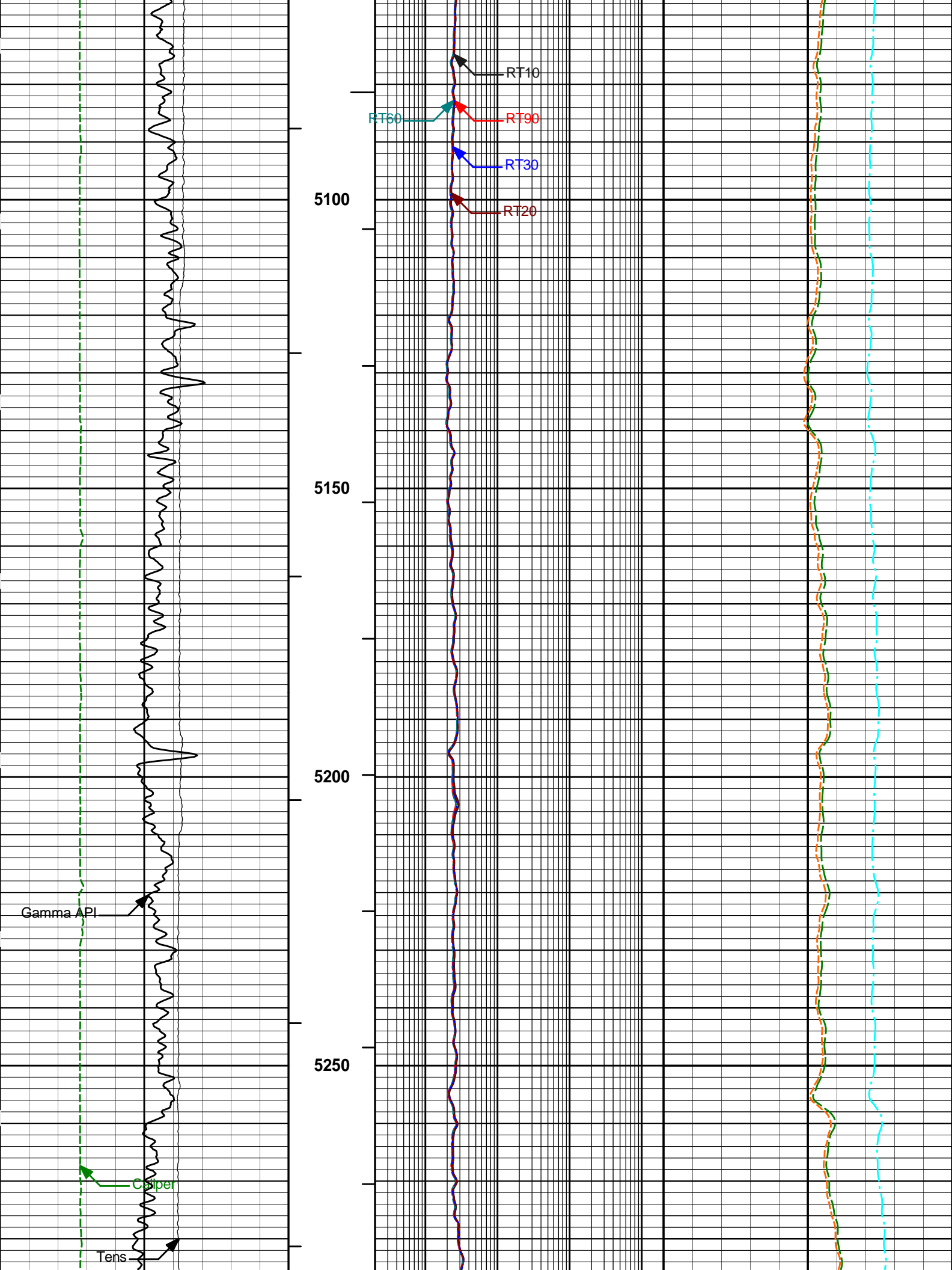


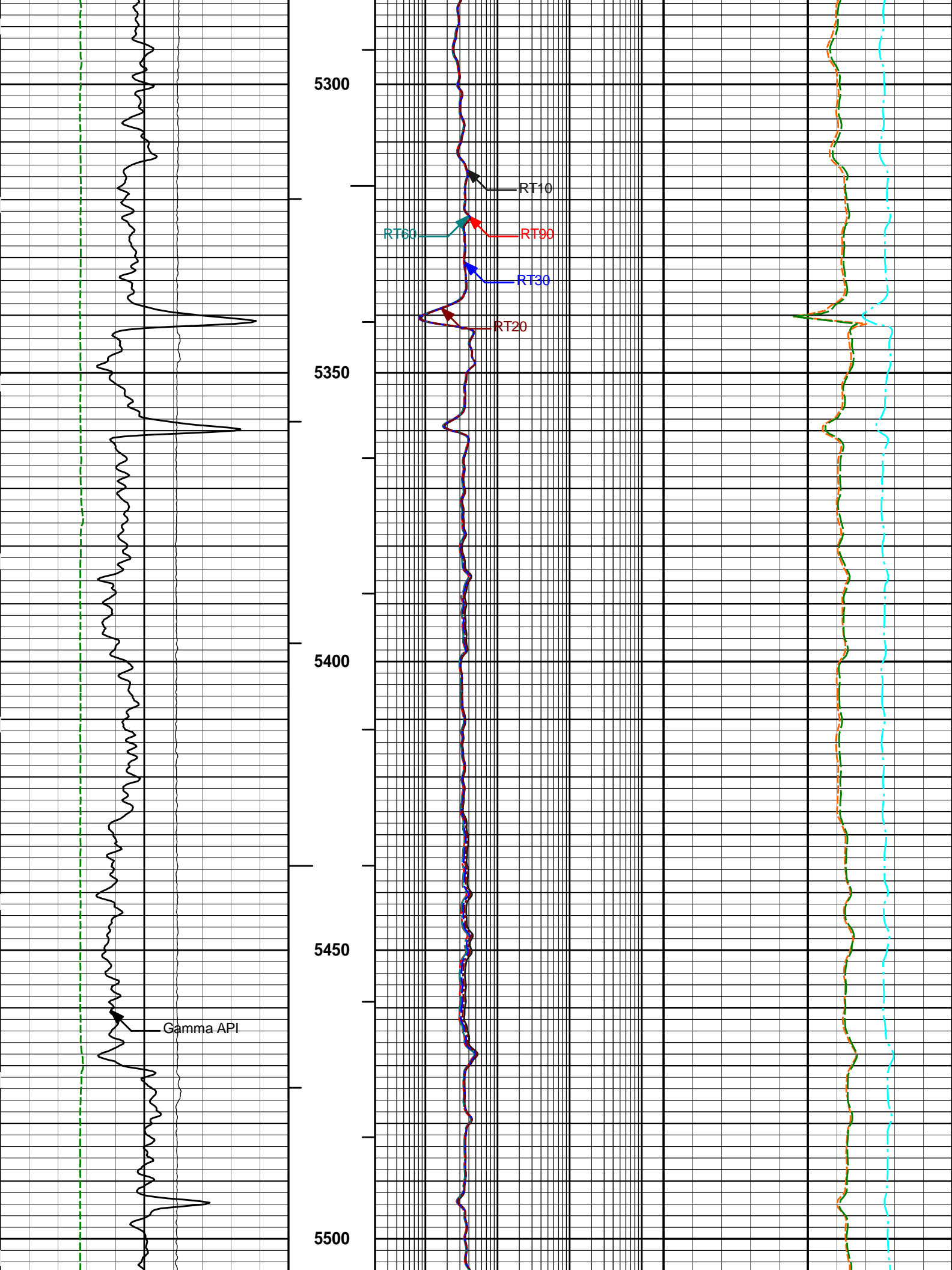


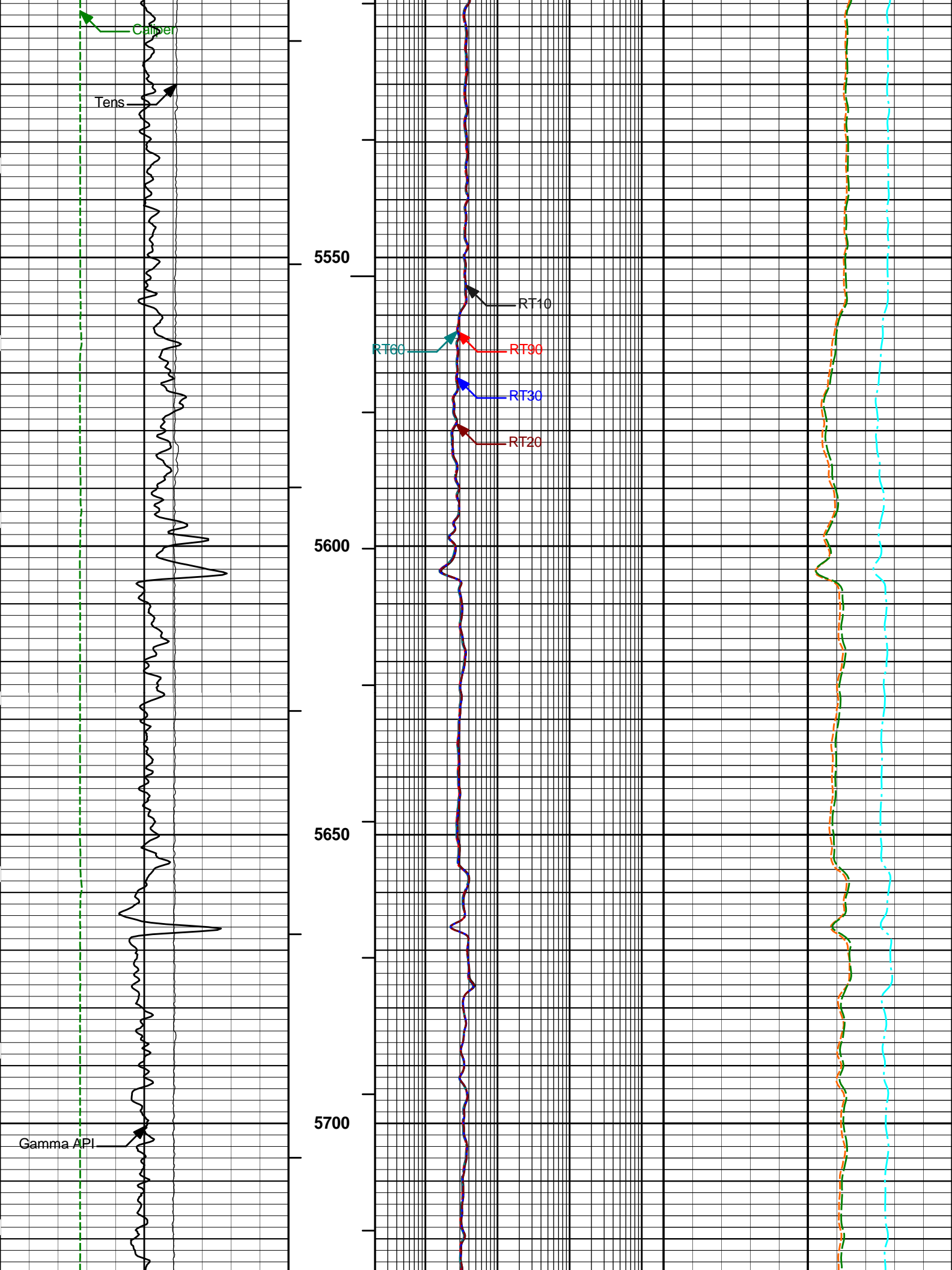


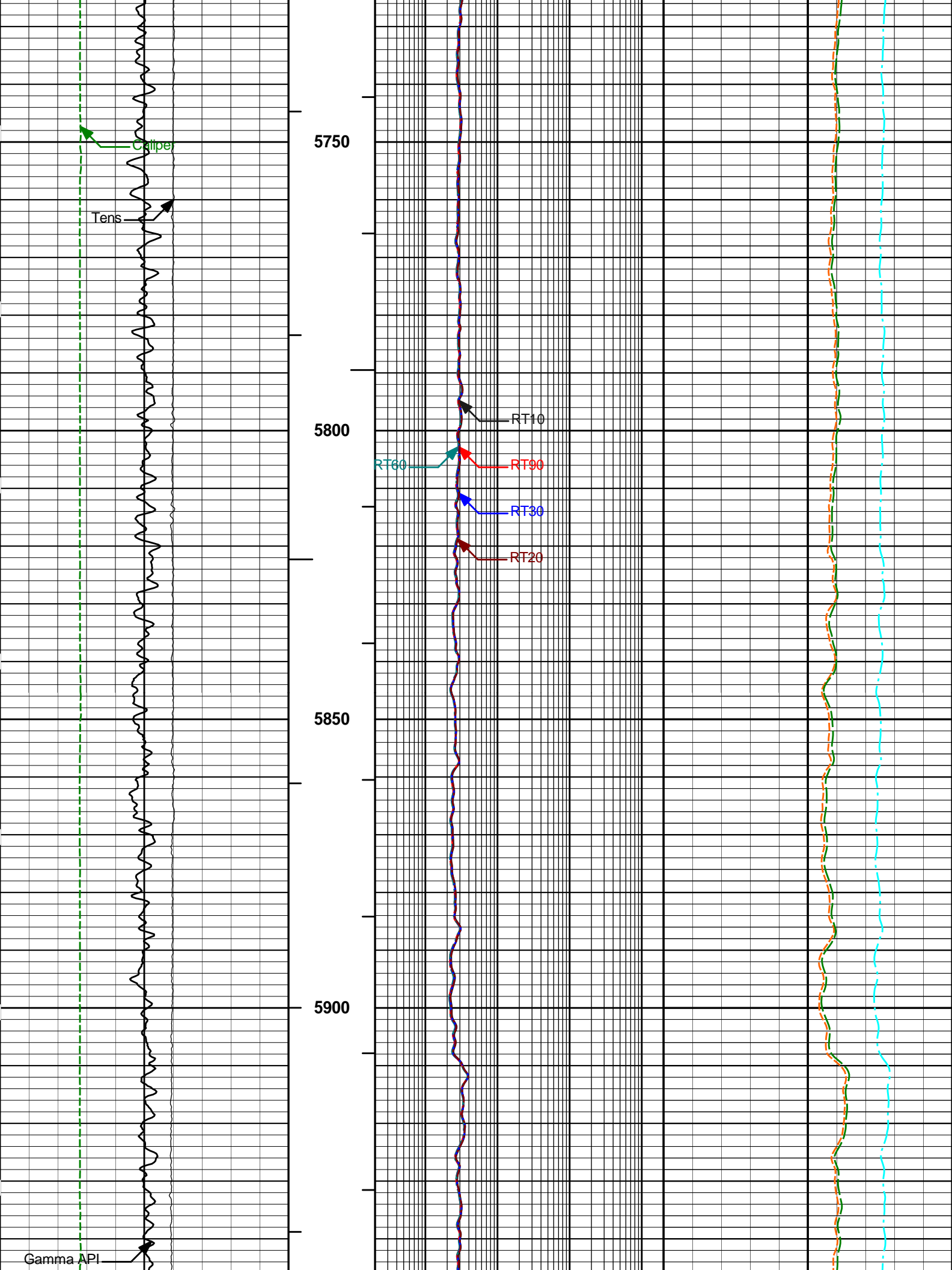


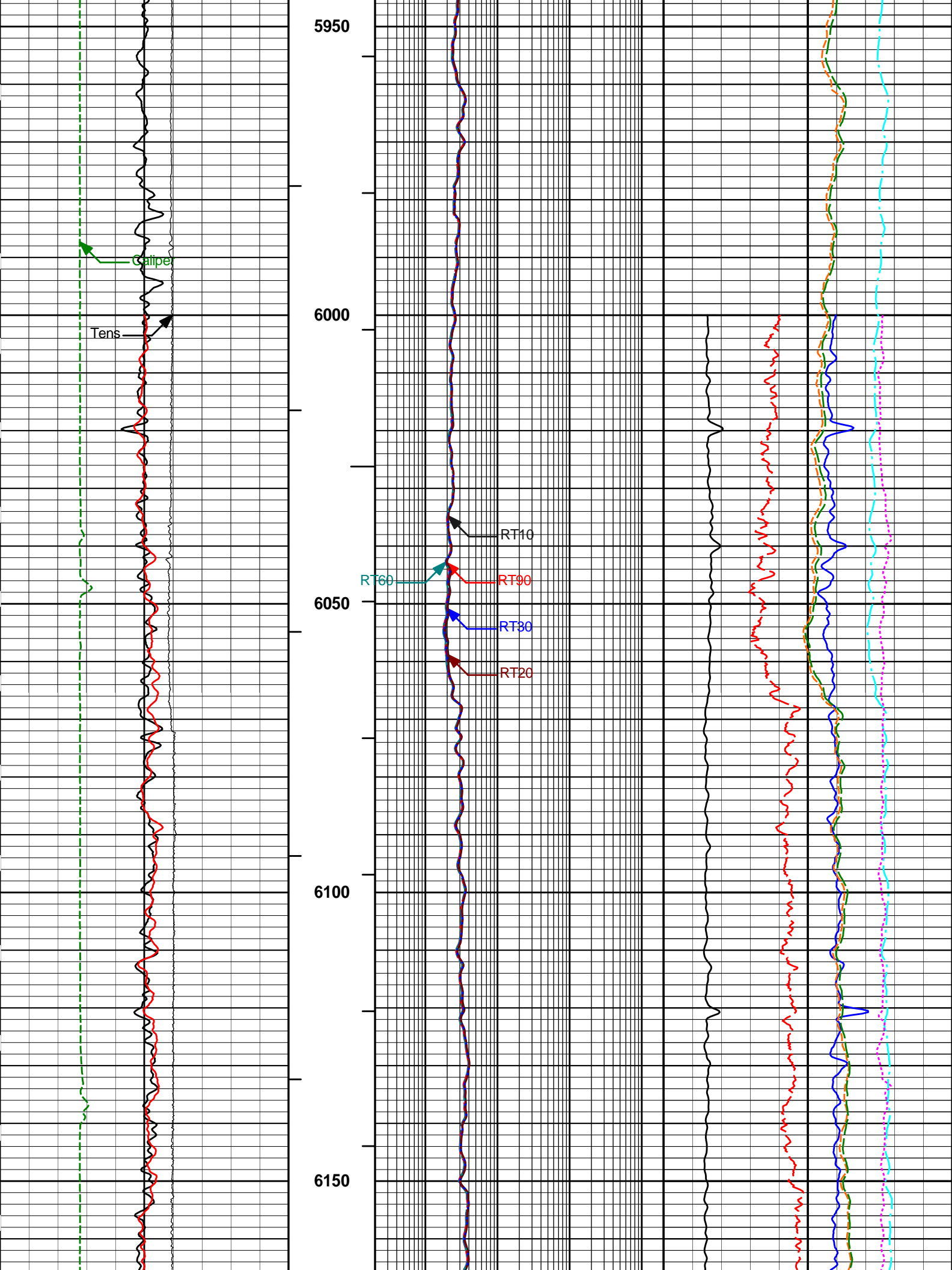


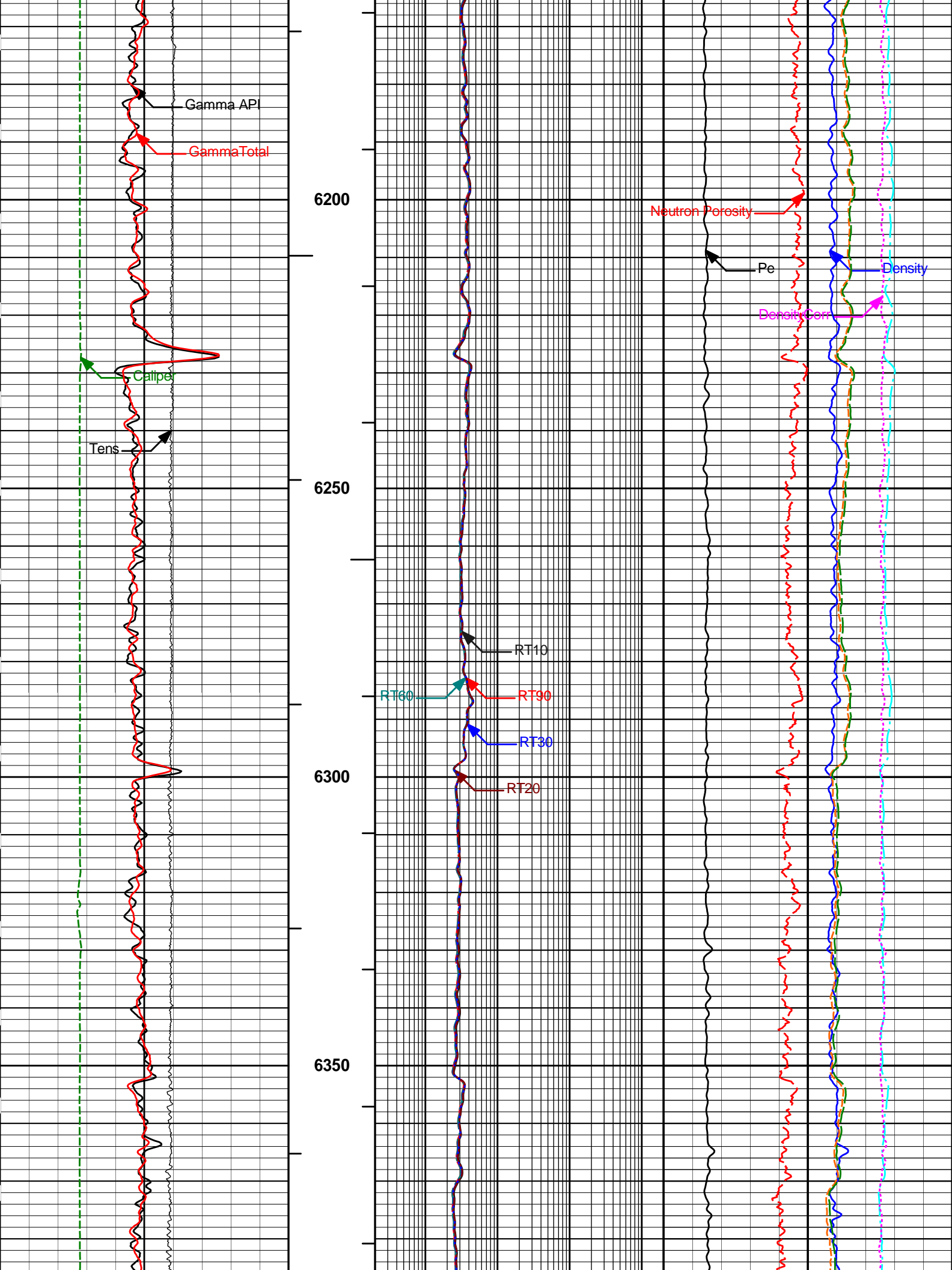


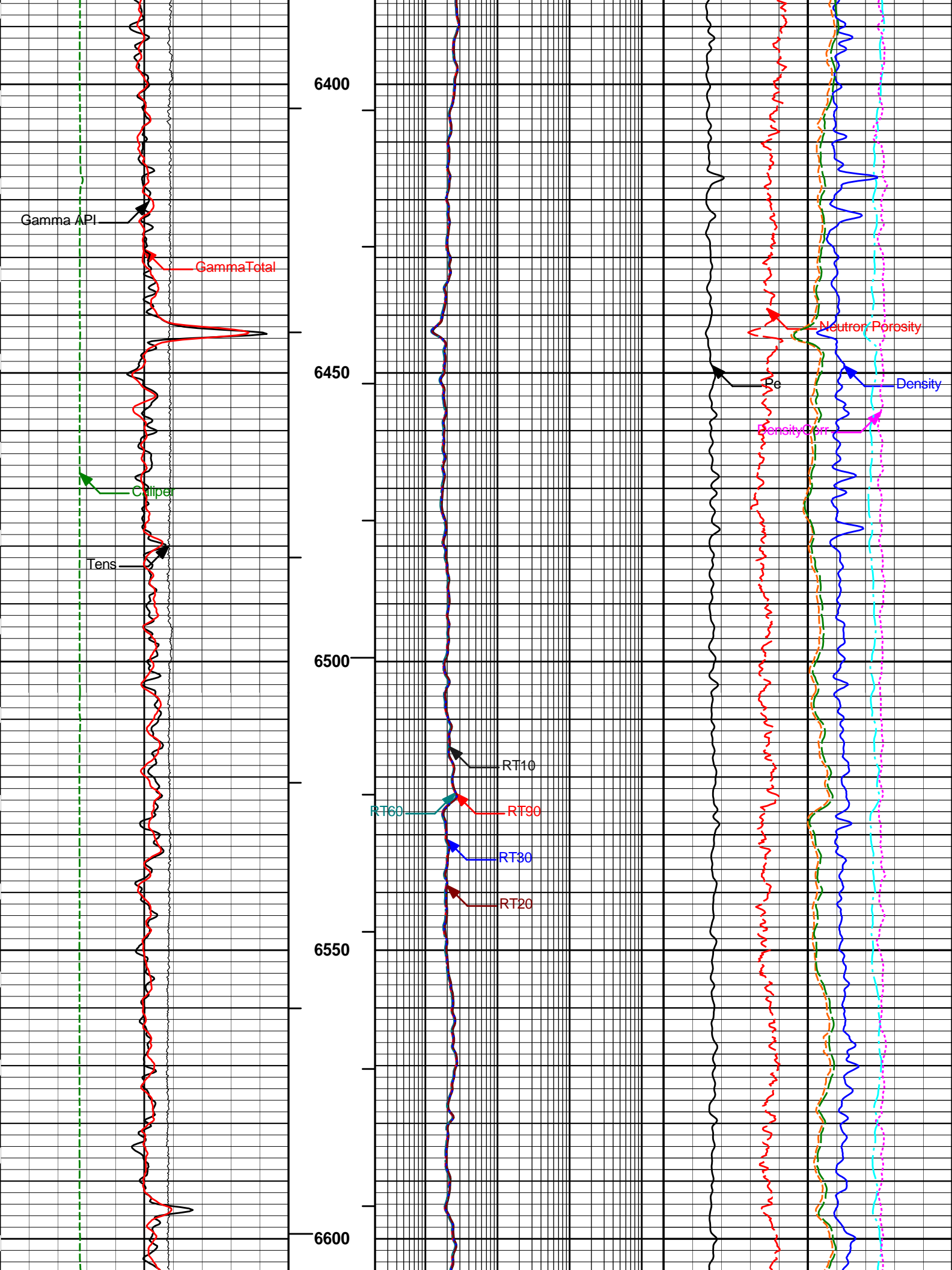


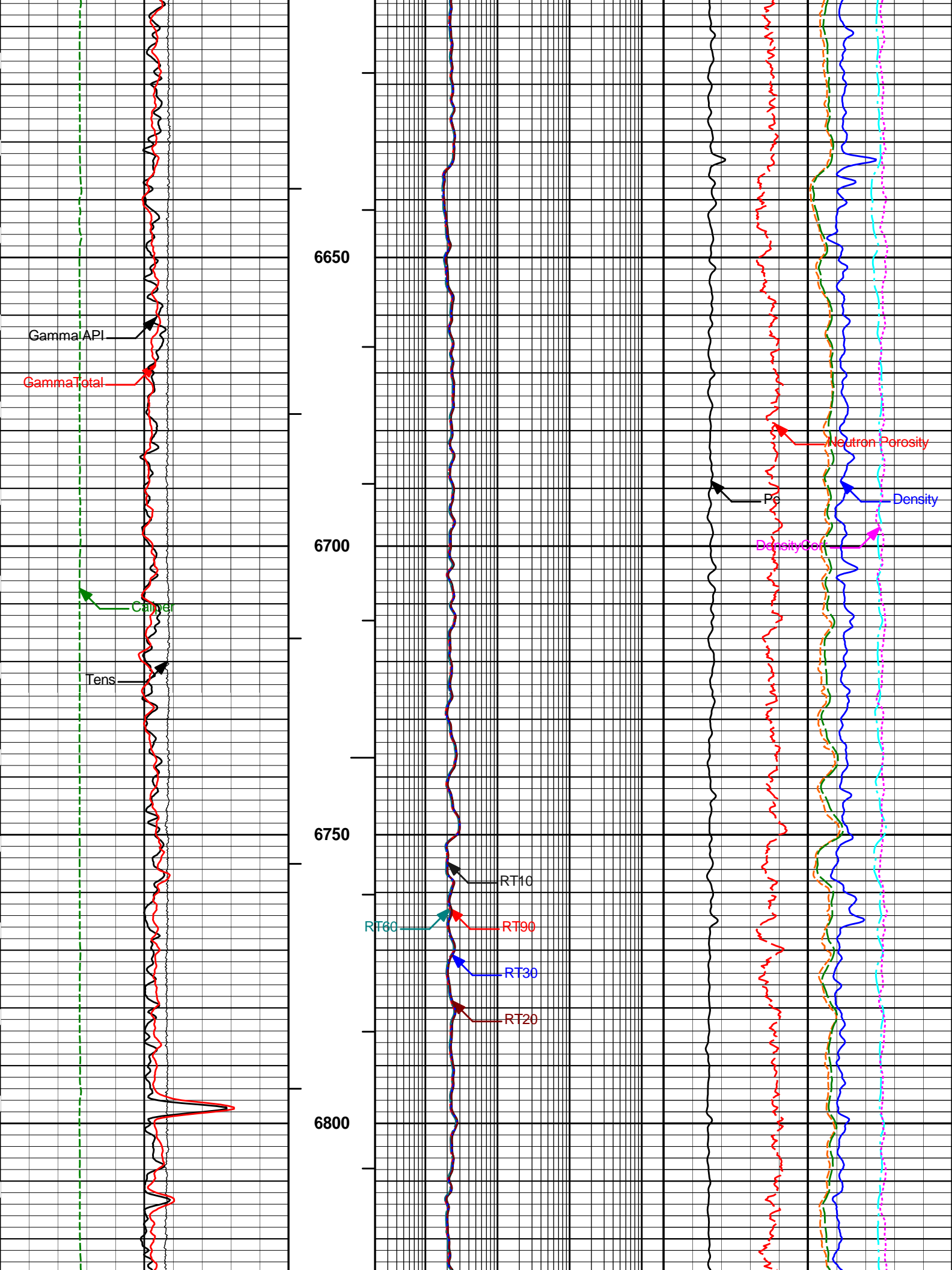


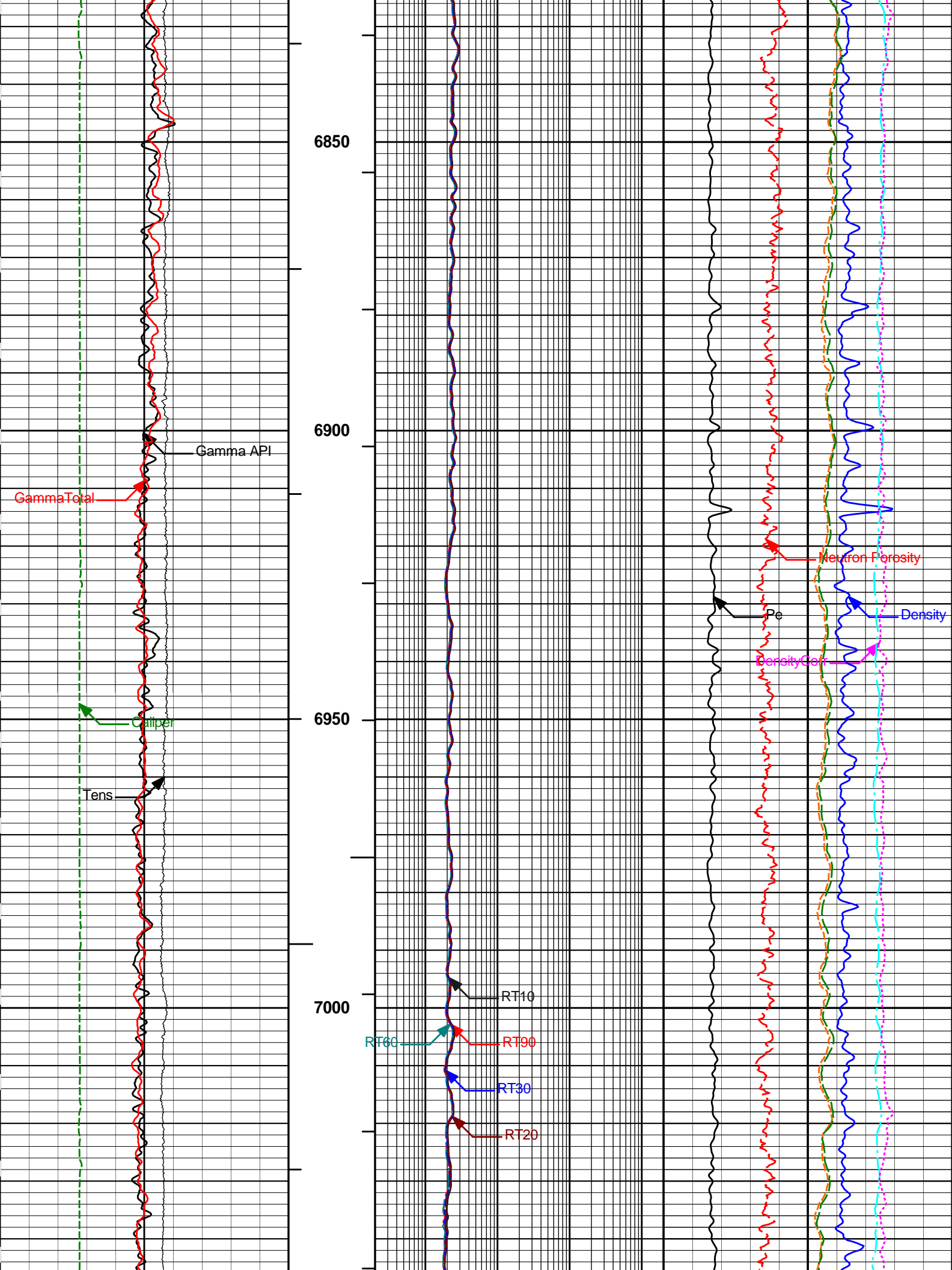


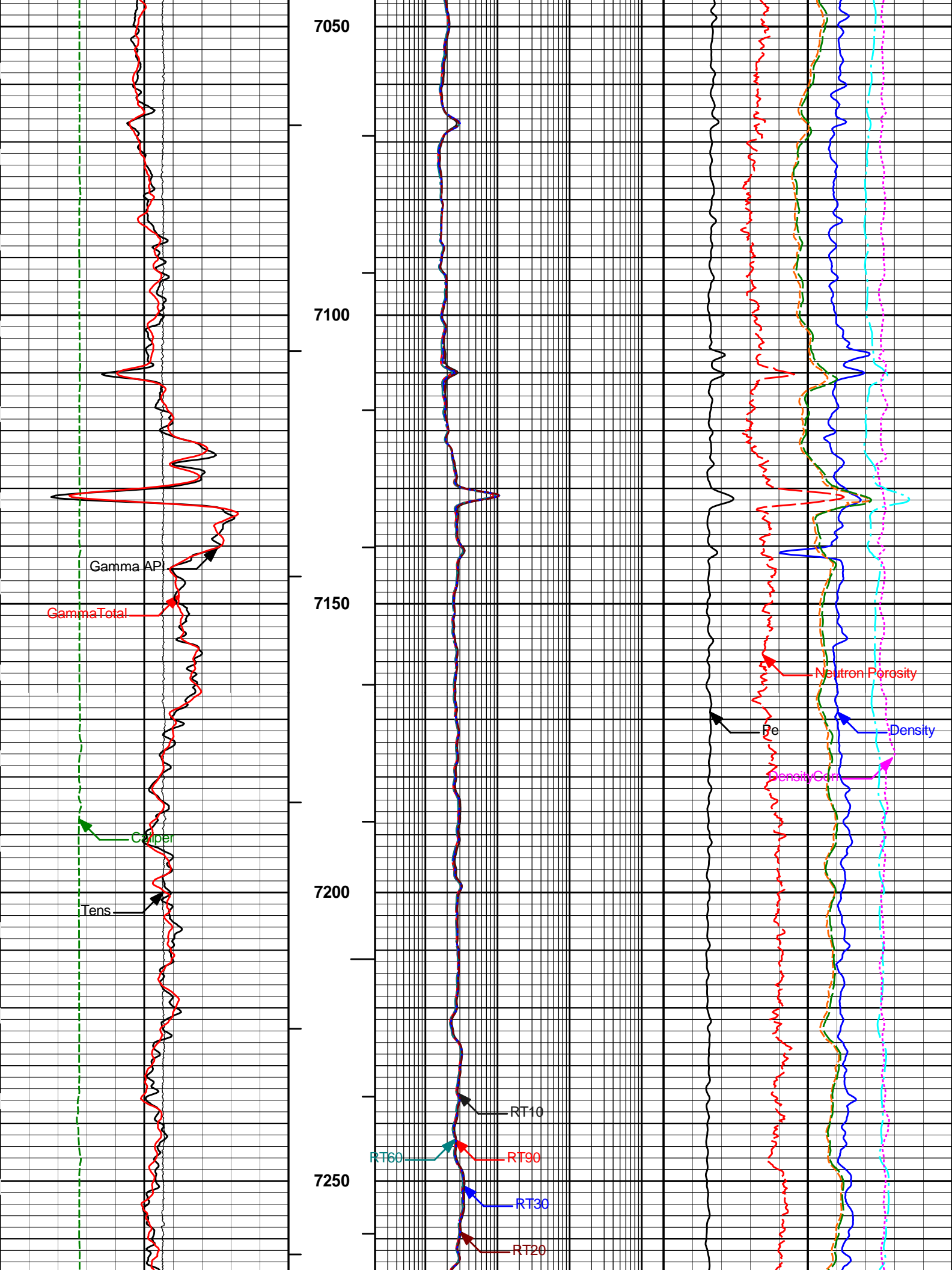


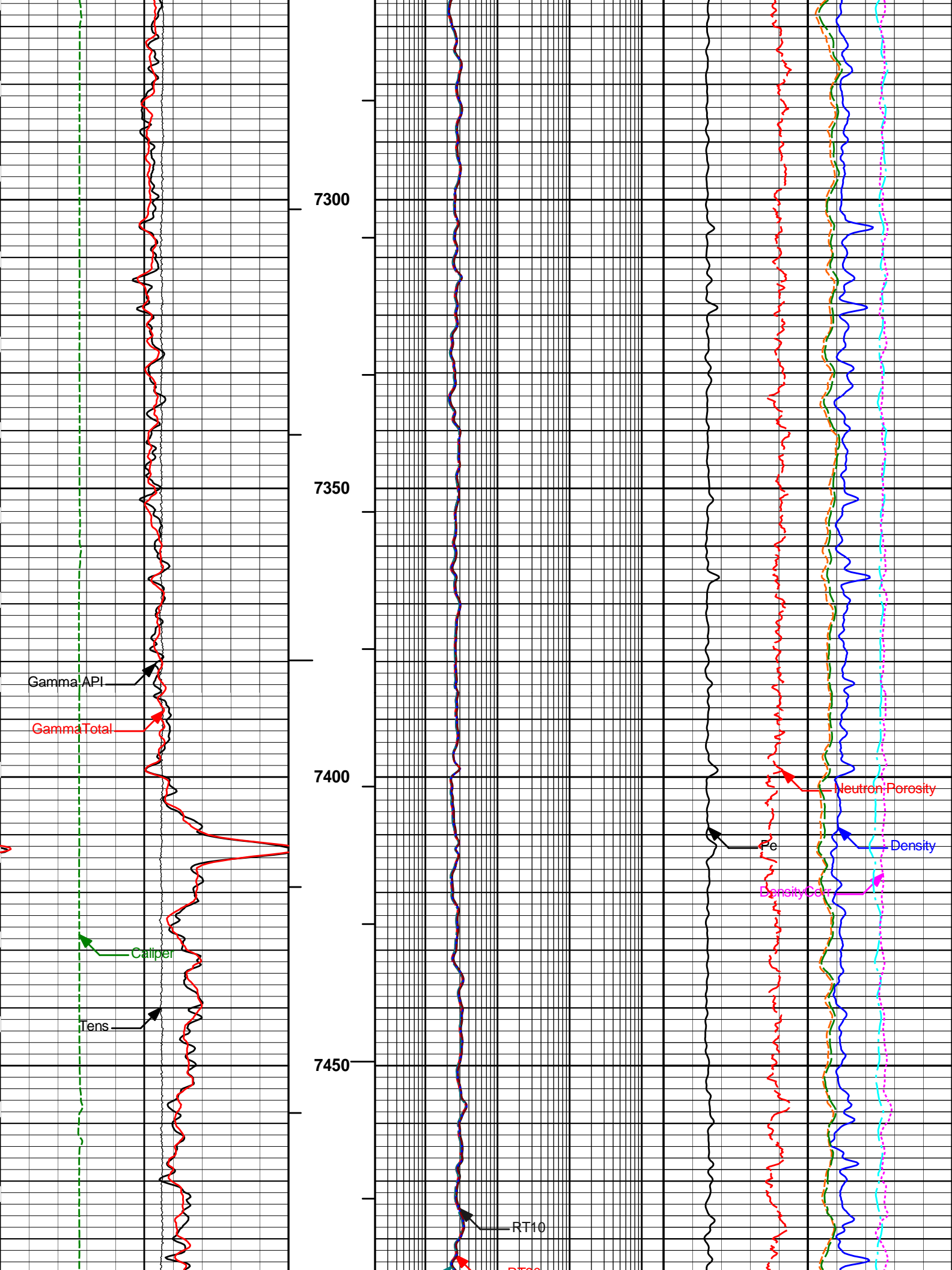


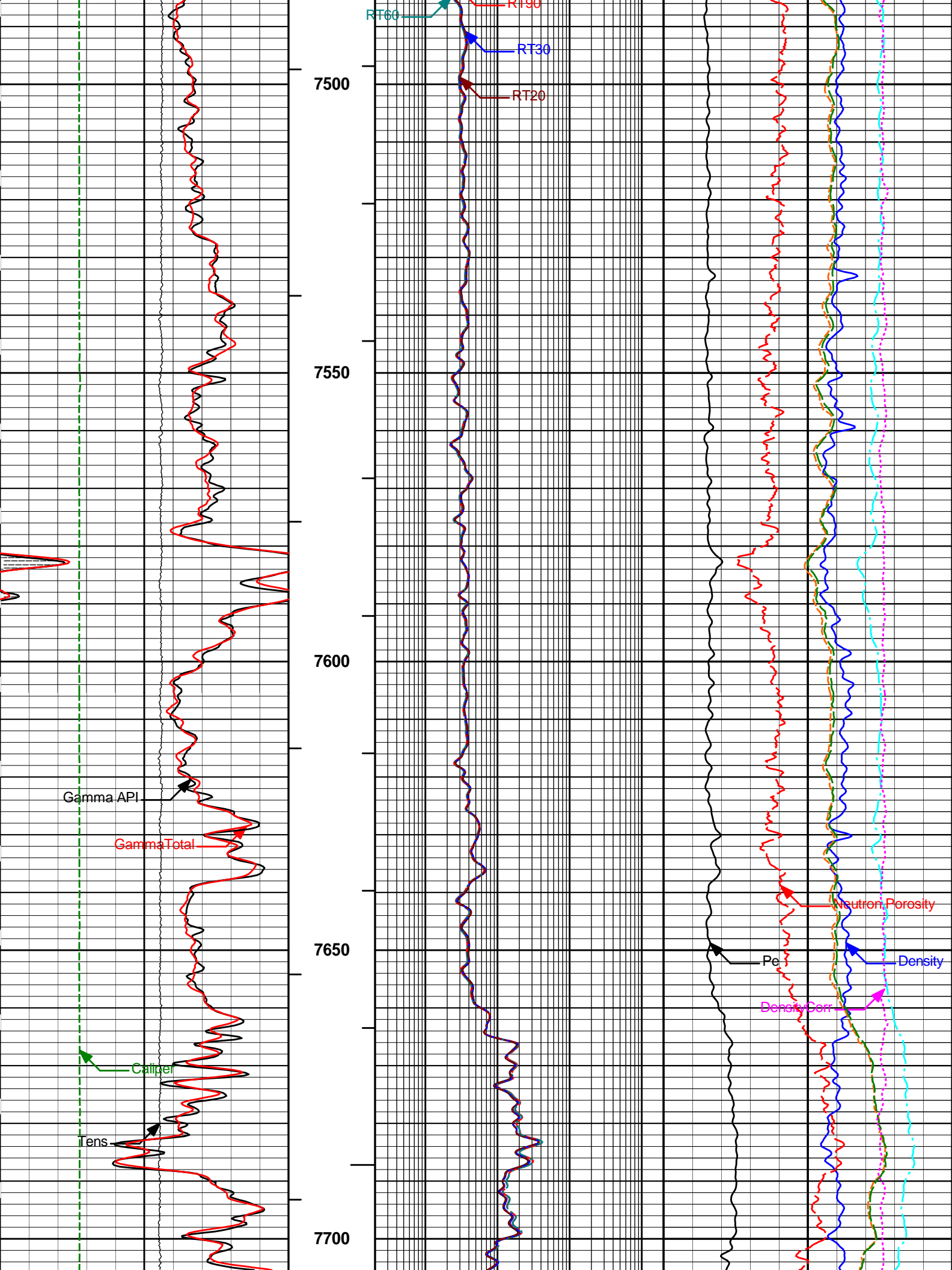


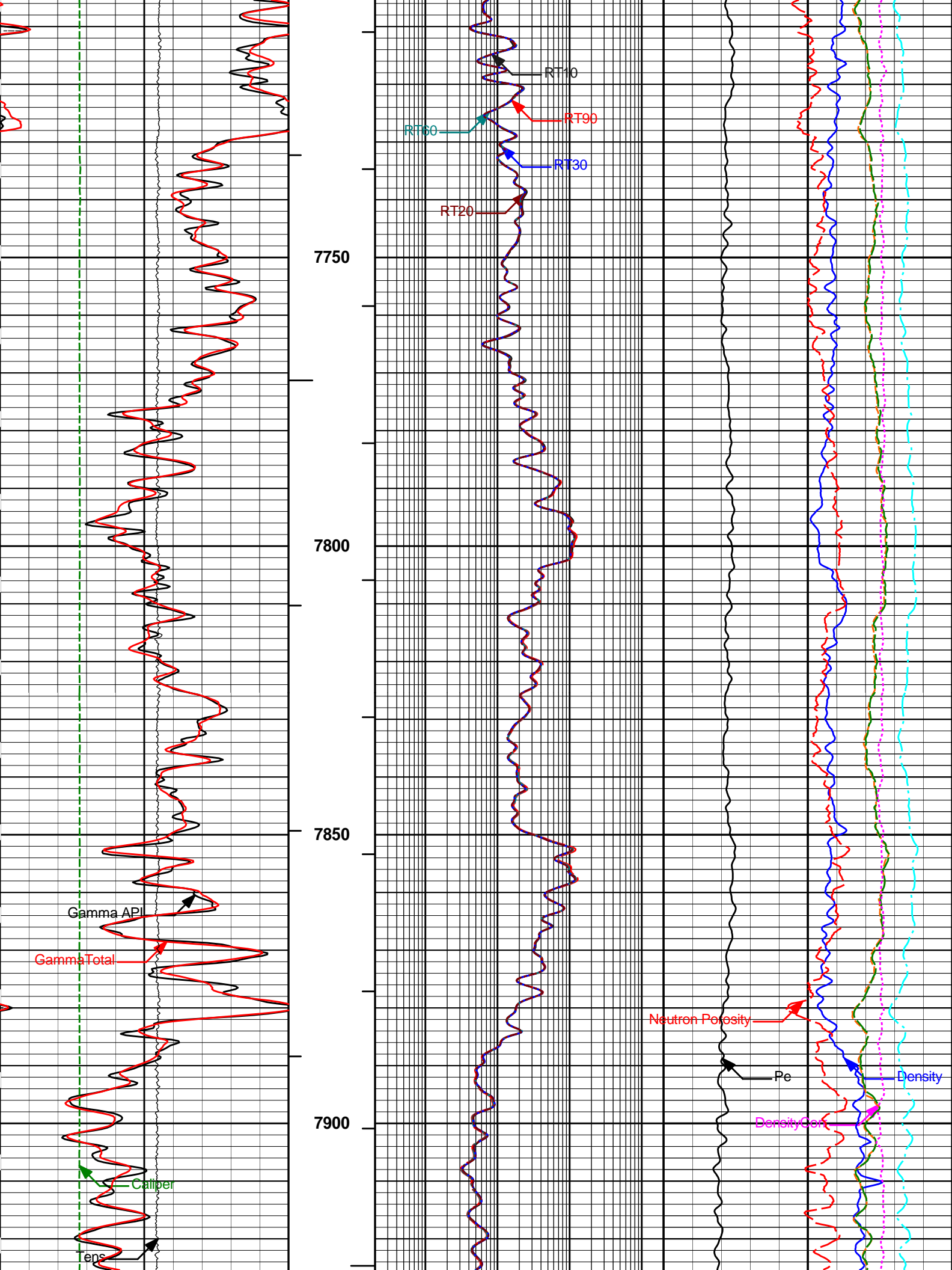


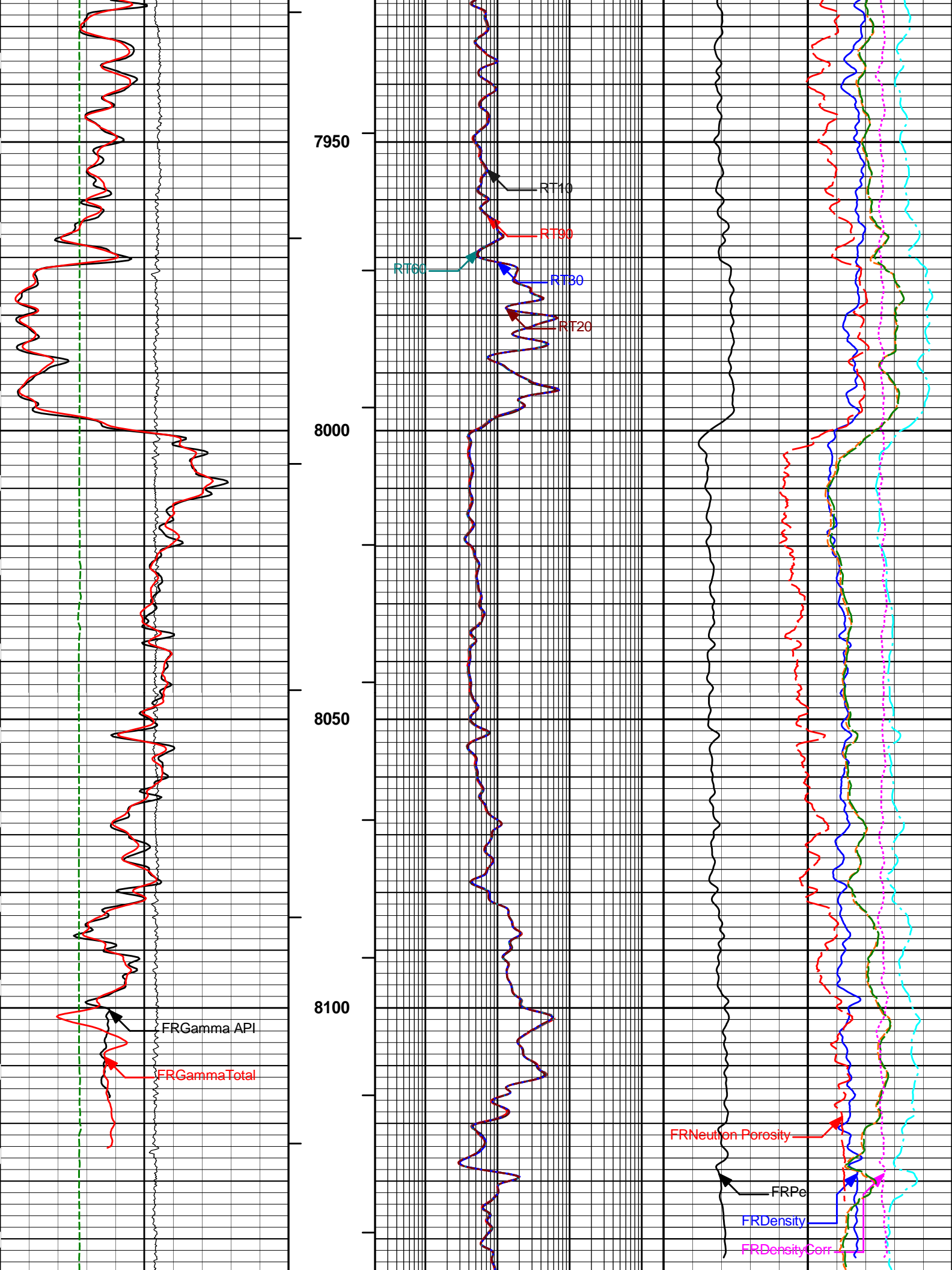


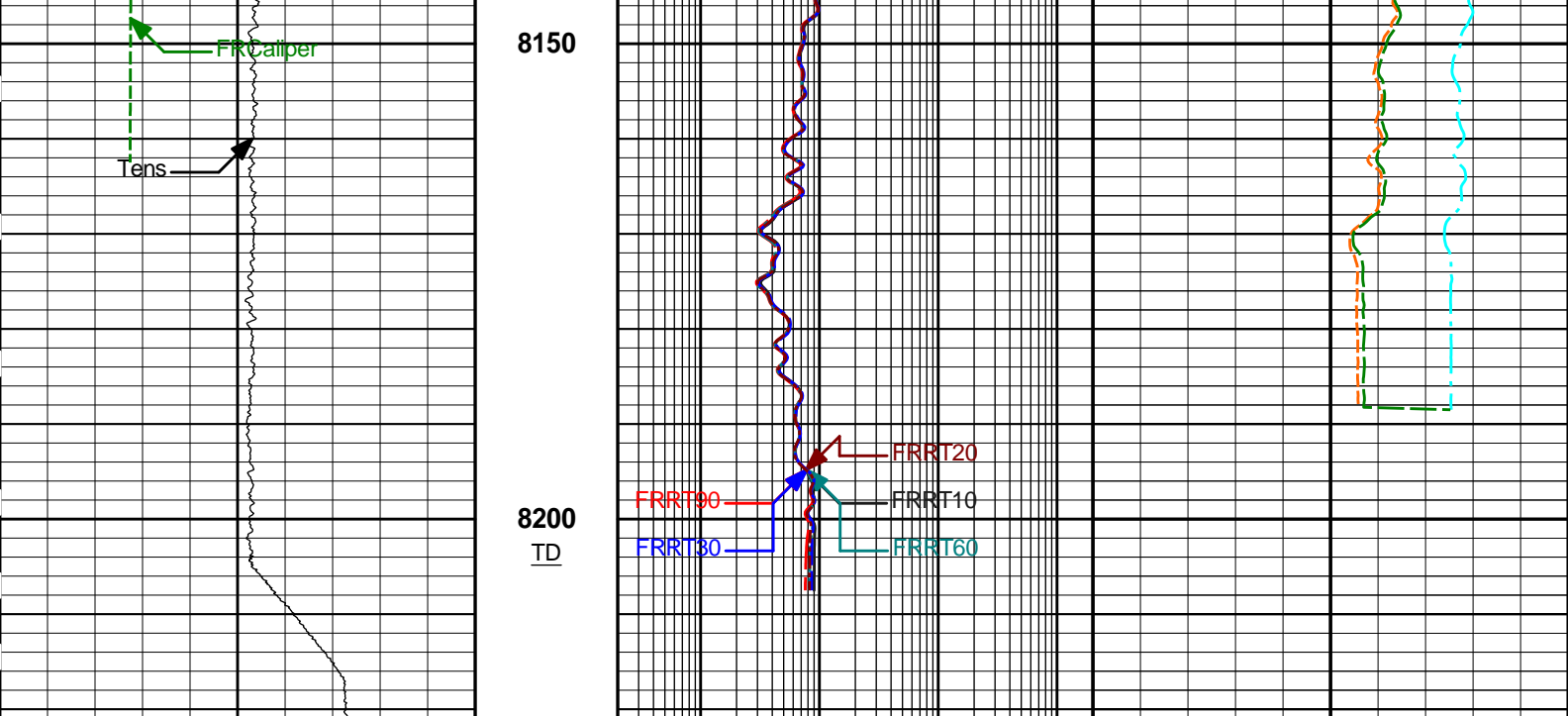












0	Gamma API	200	1 : 240	0.2	RT90	2K	0	Pe	10	-0.25	DensityCorr	0.25
	gapi				ohmm			barns/electron			gram per cc	
0	GammaTotal	200	BHVT	0.2	RT60	2K	1.95	Density			2.95	
	gapi				ohmm			gram per cc				
6	Caliper	16	AHVT	0.2	RT30	2K	0.45	Neutron Porosity			-0.15	
	inches				ohmm			v/v				
10K	Tens	0		0.2	RT20	2K	240	MonoDeltaT 1			40	
	pounds				ohmm			microsec per ft				
				0.2	RT10	2K	350	DipXDeltaT 1			50	
					ohmm			microsec per ft				
							350	DipYDeltaT 1			50	
								microsec per ft				

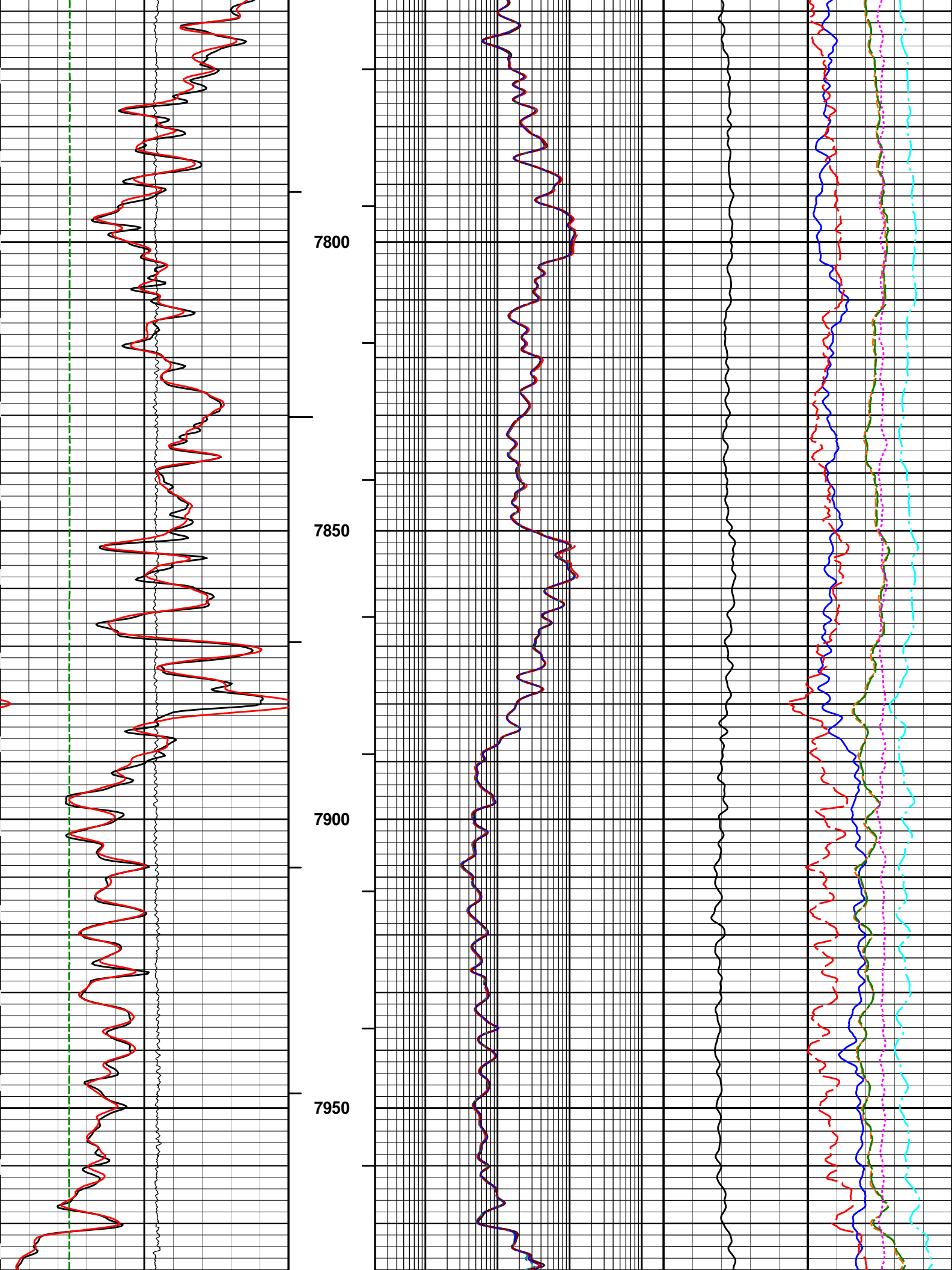
**HALLIBURTON** Plot Time: 10-Mar-14 12:08:39  
 Plot Range: 150 ft to 8221 ft  
 Data: {ActiveWell}\Well Based\\*\\*  
 Plot File: \\COMP\CoP MAIN

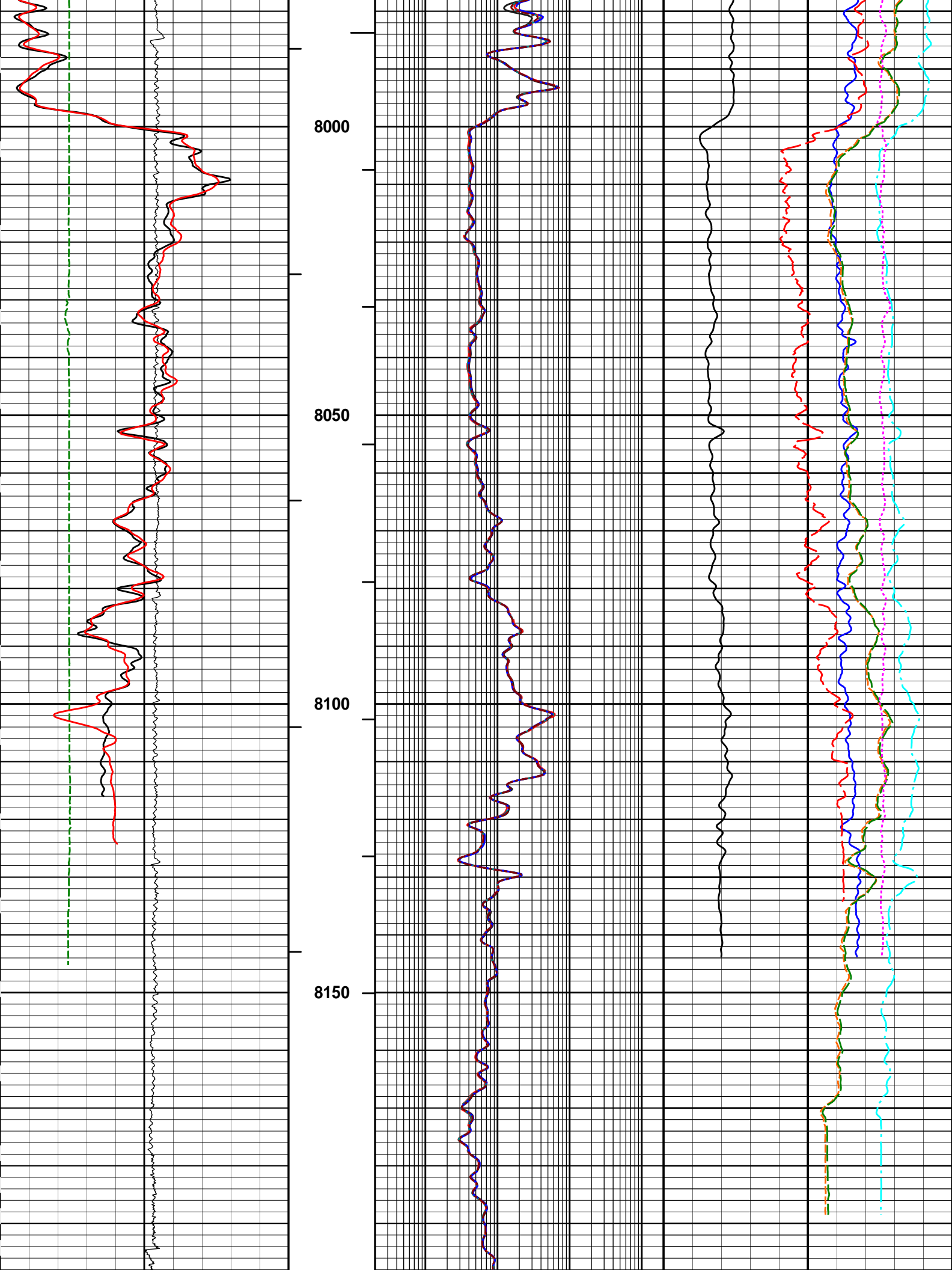
MAIN PASS 5" = 100'

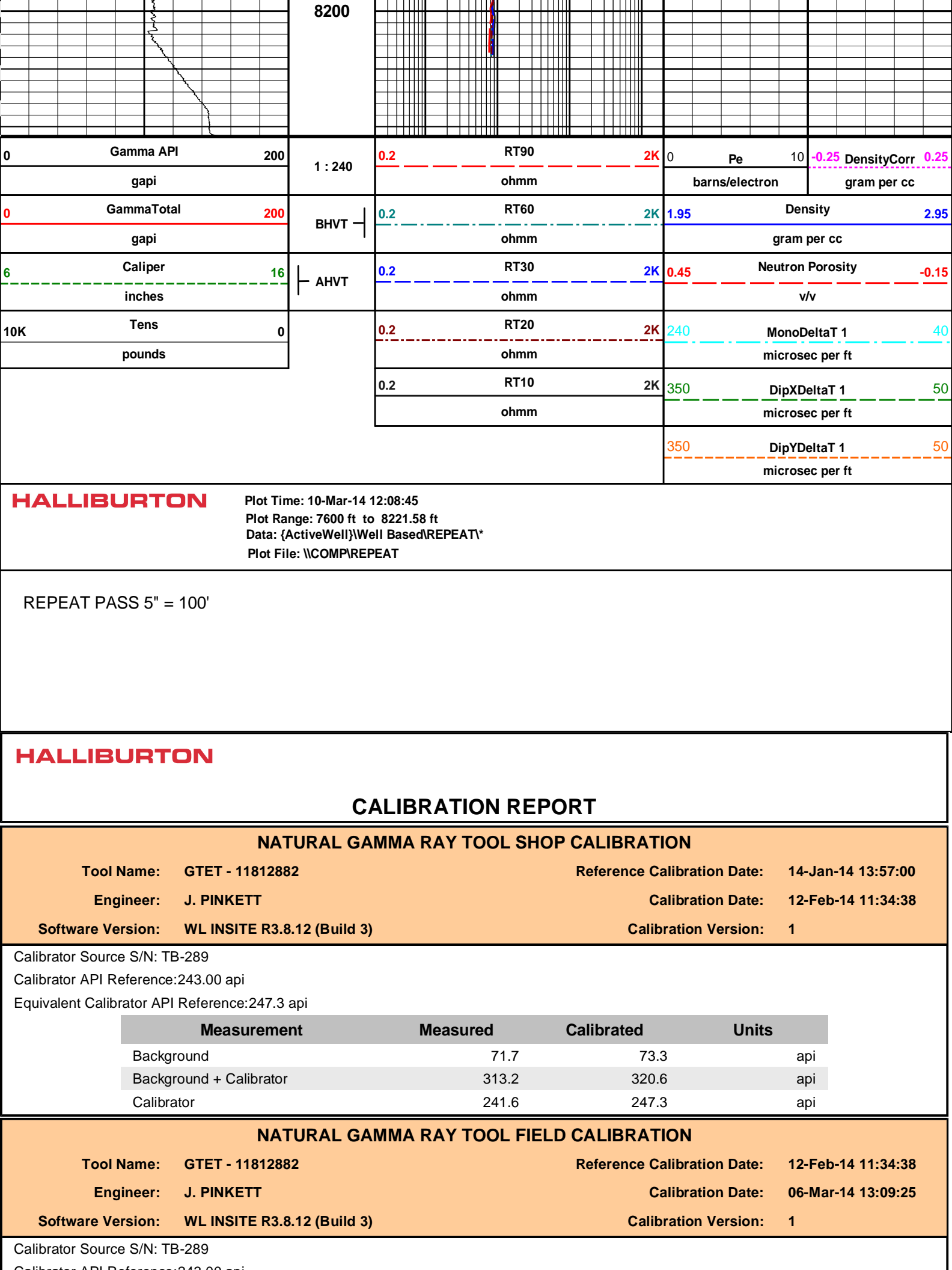
**HALLIBURTON** Plot Time: 10-Mar-14 12:08:39  
 Plot Range: 7600 ft to 8221.58 ft  
 Data: {ActiveWell}\Well Based\REPEAT\*  
 Plot File: \\COMP\REPEAT

REPEAT PASS 5" = 100'

[illegible]







0			Gamma API		200		1 : 240	0.2		RT90		2K		0		Pe		10		-0.25		DensityCorr		0.25	
			gapi							ohmm						barns/electron						gram per cc			
0			GammaTotal		200		BHVT	0.2		RT60		2K		1.95		Density						2.95			
			gapi							ohmm						gram per cc									
6			Caliper		16		AHVT	0.2		RT30		2K		0.45		Neutron Porosity						-0.15			
			inches							ohmm						v/v									
10K			Tens		0			0.2		RT20		2K		240		MonoDeltaT 1						40			
			pounds							ohmm						microsec per ft									
								0.2		RT10		2K		350		DipXDeltaT 1						50			
										ohmm						microsec per ft									
														350		DipYDeltaT 1						50			
																microsec per ft									

HALLIBURTON

Plot Time: 10-Mar-14 12:08:45  
Plot Range: 7600 ft to 8221.58 ft  
Data: {ActiveWell}\Well Based\REPEAT\*  
Plot File: \\COMP\REPEAT

REPEAT PASS 5" = 100'

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name:	GTET - 11812882	Reference Calibration Date:	14-Jan-14 13:57:00
Engineer:	J. PINKETT	Calibration Date:	12-Feb-14 11:34:38
Software Version:	WL INSITE R3.8.12 (Build 3)	Calibration Version:	1

Calibrator Source S/N: TB-289  
Calibrator API Reference:243.00 api  
Equivalent Calibrator API Reference:247.3 api

Measurement	Measured	Calibrated	Units
Background	71.7	73.3	api
Background + Calibrator	313.2	320.6	api
Calibrator	241.6	247.3	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name:	GTET - 11812882	Reference Calibration Date:	12-Feb-14 11:34:38
Engineer:	J. PINKETT	Calibration Date:	06-Mar-14 13:09:25
Software Version:	WL INSITE R3.8.12 (Build 3)	Calibration Version:	1

Calibrator Source S/N: TB-289  
Calibrator API Reference:243.00 api

Field Verification	Shop	Field	Units
Background	73.3	71.2	api
Background + Calibrator	320.6	324.9	api
Calibrator	247.3	253.7	api

Shop	Field	Difference	Tolerance
247.3	253.7	-6.4	+/- 9.00

**CSNG-FS SHOP CALIBRATION**

Tool Name:	CSNG - 10727964	Reference Calibration Date:	05-Mar-14 13:33:52
Engineer:	J. PINKETT	Calibration Date:	05-Mar-14 14:32:16
Software Version:	WL INSITE R3.8.12 (Build 3)	Calibration Version:	1
Source SN:	TB-289		

TITANIUM CASE	Measured	Calibrated	Units
60 KEV Peak Channel #	48.0	48.0	Channel #
239 KEV Peak Channel #	23.5	23.5	Channel #
583 KEV Peak Channel #	52.6	52.7	Channel #
2614 KEV Peak Channel #	216.9	216.9	Channel #
Calibrate Temperature	44.5	52.6	degF

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

Blanket Reference Value: 243.00 API

Calibrator Value: 276.0 API

	Counts	Units	Measured	Calibrated	Units
Thorium Blanket	1788.6	CPS	337.8	336.6	API
Background	322.1	CPS	61.9	60.6	API

Gamma Ray Gain: 0.95

Expected Gain Range: 0.85 - 1.15

Gamma Gain Check: Passed

**CSNG-FS FIELD CALIBRATION**

Tool Name:	CSNG - 10727964	Reference Calibration Date:	05-Mar-14 14:32:16
Engineer:	J. PINKETT	Calibration Date:	06-Mar-14 13:19:10
Software Version:	WL INSITE R3.8.12 (Build 3)	Calibration Version:	1
Source SN:			

TITANIUM CASE	Shop	Field	Units
60 KEV Peak Channel #	48.0	48.0	Channel #
239 KEV Peak Channel #	23.5	23.4	Channel #
583 KEV Peak Channel #	52.7	52.5	Channel #
2614 KEV Peak Channel #	216.9	216.3	Channel #
Calibrate Temperature	52.6	53.2	degF

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

Blanket Reference Value: 243.00 API  
Calibrator Value: 276.0 API

	Counts	Units	Measured	Calibrated	Units
Thorium Blanket	1789.3	CPS	336.6	336.1	API
Background	320.2	CPS	60.6	60.2	API

Gamma Ray Gain: 0.95  
Expected Gain Range: 0.85 - 1.15  
Gamma Gain Check: Passed

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name:	DSNT - 11301132	Reference Calibration Date:	14-Jan-14 14:11:53
Engineer:	J. PINKETT	Calibration Date:	12-Feb-14 11:48:57
Software Version:	WL INSITE R3.8.12 (Build 3)	Calibration Version:	1

Logging Source S/N: DSN 434  
Tank Serial Number: 11068236  
Reference value assigned to Tank: 53.720  
Snow Block S/N: Brighton  
Calibration Tank Water Temperature: 50 degF  
Min. Tool Housing Outside Diameter: 3.625 in

CALIBRATION CONSTANTS			
Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	0.998	0.999	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):	0.2221	0.2223	0.0002	+/- 0.0020
Calibrated Ratio:	10.10	10.11	0.007	+/- 0.050

VERIFIER		
Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0846	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 - 11301132	Reference Calibration Date:	12-Feb-14 11:48:57
Engineer:	J. PINKETT	Calibration Date:	06-Mar-14 13:27:09
Software Version:	WL INSITE R3.8.12 (Build 3)	Calibration Version:	1

Logging Source S/N: DSN 434

NEUTRON FIELD-CHECK SUMMARY				
	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0846	0.0806	-0.0040	+/- 0.0150

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

DENSITY CALIPER SHOP CALIBRATION

Tool Name:	SDLT - 11107335	Reference Calibration Date:	14-Jan-14 15:58:11
Engineer:	J. PINKETT	Calibration Date:	12-Feb-14 13:39:24
Software Version:	WL INSITE R3.8.12 (Build 3)	Calibration Version:	1
Host Tool Name:	DSNT - 11301132		

CALIBRATION COEFFICIENTS			
Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-4177.67	-3133.66	-7000.00 - -1000.00
Pad Gain	0.0004240	0.0003774	0.000200 - 0.000600
Arm Offset	-3076.05	-3301.39	-5000.00 - 3000.00
Arm Gain	0.0005795	0.0005412	0.000300 - 0.000700
Arm Power	-0.000006397	-0.000004853	-0.000010000 - 0.000010000

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)	1.80	2.00	0.20	+/- 0.20
Medium Ring (in)	3.77	3.75	-0.02	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.30	6.50	0.20	+/- 0.20
Medium Ring (in)	8.14	8.25	0.11	+/- 0.20
Large Ring (in)	14.97	15.00	0.03	+/- 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 - 11107335	Reference Calibration Date:	12-Feb-14 13:39:24
Engineer:	J. PINKETT	Calibration Date:	06-Mar-14 13:21:01
Software Version:	WL INSITE R3.8.12 (Build 3)	Calibration Version:	1

MEASURED CALIPER VALUES				
Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.77	0.02	+/- 0.10
Ring Diameter	8.25	8.24	-0.01	+/- 0.15

## PASS/FAIL SUMMARY

Pad Extension Check:

Passed

Diameter Check:

Passed

## SPECTRAL DENSITY SHOP CALIBRATION

Tool Name: SDLT Pad - 11045470

Reference Calibration Date: 12-Feb-14 12:59:58

Engineer: J. PINKETT

Calibration Date: 12-Feb-14 13:20:16

Software Version: WL INSITE R3.8.12 (Build 3)

Calibration Version: 1

Logging Source S/N: 5471GW

Aluminum Block S/N: 63066

Density: 2.602g/cc

Pe: 3.100

Magnesium Block S/N: BRIGHTON MAGNESIUM BLOCK

Density: 1.691g/cc

Pe: 2.650

## DENSITY CALIBRATION SUMMARY

Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0856	1.0869	0.90 - 1.10
Near Dens Gain	1.0334	1.0278	0.90 - 1.10
Near Peak Gain	1.0162	1.0099	0.90 - 1.10
Near Lith Gain	0.9733	0.9671	0.90 - 1.10
Far Bar Gain	1.0102	1.0064	0.90 - 1.10
Far Dens Gain	1.0012	1.0009	0.90 - 1.10
Far Peak Gain	0.9956	0.9955	0.90 - 1.10
Far Lith Gain	0.9779	0.9833	0.90 - 1.10
Near Bar Offset	-0.8256	-0.8381	NONE
Near Dens Offset	-0.2941	-0.2438	NONE
Near Peak Offset	-0.1263	-0.0749	NONE
Near Lith Offset	0.2285	0.2819	NONE
Far Bar Offset	-0.1769	-0.1418	NONE
Far Dens Offset	-0.0850	-0.0822	NONE
Far Peak Offset	-0.0379	-0.0361	NONE
Far Lith Offset	0.1009	0.0567	NONE
Near Bar Background	997.31	991.26	700 - 1450
Near Dens Background	328.87	327.43	230 - 480
Near Peak Background	143.15	143.25	100 - 210
Near Lith Background	174.07	173.08	125 - 260
Far Bar Background	526.40	529.23	450 - 900
Far Dens Background	206.07	207.75	175 - 345
Far Peak Background	82.70	83.89	70 - 140
Far Lith Background	85.66	86.17	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	2.589	2.598	0.009	+/- 0.150
ALUMINUM				
Density (g/cc)	2.603	2.602	-0.001	+/- 0.01500
Pe	3.062	3.057	-0.005	+/- 0.150

## TOOL SUMMARY

Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	-0.0000	+/- 0.0110	0.0008	+/- 0.0140
Magnesium Block	-0.0002	+/- 0.0110	-0.0037	+/- 0.0140
Aluminum Block	-0.0004	+/- 0.0110	0.0007	+/- 0.0140
Resolution	8.95	6.00 - 11.50	9.03	6.00 - 11.50
Internal Verifier(B+D+P+L)	1635	1200 - 2700	907	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 - 11045470	Reference Calibration Date:	12-Feb-14 13:20:16	
Engineer:	J. PINKETT	Calibration Date:	06-Mar-14 13:16:44	
Software Version:	WL INSITE R3.8.12 (Build 3)	Calibration Version:	1	

Pad Temperature: 57.6 degF

DENSITY FIELD CALIBRATION SUMMARY				
Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1635.028	1637.901	2.873	16.249
Far (B+D+P+L) cps	907.042	910.409	3.367	16.358
Near Resolution	8.95	9.00	0.050	0.50
Far Resolution	9.03	9.32	0.290	1.00

PASS/FAIL SUMMARY	
Bkg Quality Check:	Passed
Bkg Resolution Check:	Passed
Bkg Verification Check:	Passed

ICT SHOP CALIBRATION				
Tool Name:	ICT - 10935686	Reference Calibration Date:	05-Mar-14 16:05:56	
Engineer:	J. PINKETT	Calibration Date:	05-Mar-14 16:15:08	
Software Version:	WL INSITE R3.8.12 (Build 3)	Calibration Version:	1	

CALIPERS AND RINGS				
Ring	Measured	Calibrated	Units	
CALIPER 1:				
Small Ring	3.73	3.65	in	
Medium Ring	7.99	8.00	in	
Large Ring	15.00	15.00	in	
X-Large Ring	21.00	21.00	in	
CALIPER 2:				
Small Ring	3.67	3.65	in	
Medium Ring	7.99	8.00	in	
Large Ring	14.99	15.00	in	

X-Large Ring	21.00	21.00	in
CALIPER 3:			
Small Ring	3.67	3.65	in
Medium Ring	8.01	8.00	in
Large Ring	15.00	15.00	in
X-Large Ring	21.00	21.00	in
CALIPER 4:			
Small Ring	3.74	3.65	in
Medium Ring	7.99	8.00	in
Large Ring	15.01	15.00	in
X-Large Ring	21.00	21.00	in
CALIPER 5:			
Small Ring	3.68	3.65	in
Medium Ring	8.00	8.00	in
Large Ring	15.00	15.00	in
X-Large Ring	21.00	21.00	in
CALIPER 6:			
Small Ring	3.67	3.65	in
Medium Ring	7.99	8.00	in
Large Ring	15.00	15.00	in
X-Large Ring	21.00	21.00	in

ICT FIELD CALIBRATION			
Tool Name:	ICT - 10935686	Reference Calibration Date:	05-Mar-14 16:15:08
Engineer:	J. PINKETT	Calibration Date:	06-Mar-14 13:05:32
Software Version:	WL INSITE R3.8.12 (Build 3)	Calibration Version:	1

CALIPERS			
Caliper	Shop	Field	Units
Caliper 1	8.00	7.98	in
Caliper 2	8.00	8.00	in
Caliper 3	8.00	7.95	in
Caliper 4	8.00	7.94	in
Caliper 5	8.00	8.05	in
Caliper 6	8.00	8.03	in

ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION			
Tool Name:	ACRt Sonde - 11294352	Reference Calibration Date:	20-Jan-14 09:52:48
Engineer:	J. PINKETT	Calibration Date:	14-Feb-14 09:54:42
Software Version:	WL INSITE R3.8.12 (Build 3)	Calibration Version:	1
Host Tool Name:	ACRt Instrument - 11296758		

TYPICAL GAIN RANGE									
Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	0.95	1.01	1.05	0.95	1.01	1.05	0.95	1.01	1.05
A2 (50")	0.95	1.01	1.05	0.95	1.02	1.05	0.95	1.02	1.05
A3 (29")	0.95	1.00	1.05	0.95	1.01	1.05	0.95	1.00	1.05
A4 (17")	0.95	1.01	1.05	0.95	1.01	1.05	0.95	1.01	1.05
A5 (10")	N/A	N/A	N/A	0.95	1.00	1.05	0.95	1.00	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.98	1.05	0.95	0.98	1.05

SONDE OFFSET									
Subarray	R12KHz			R36KHz			R72KHz		

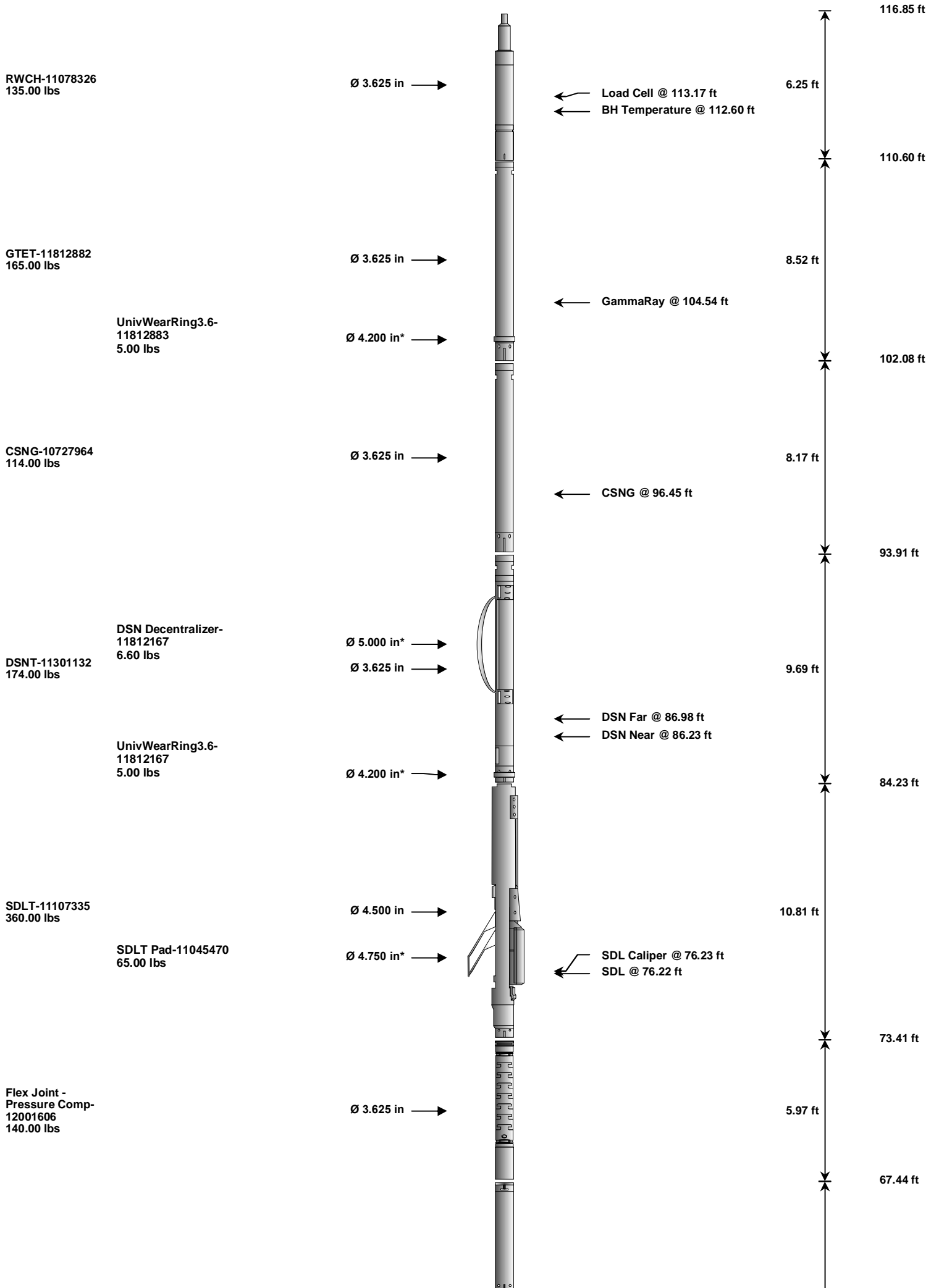
	(mmho/m)	(mmho/m)	(mmho/m)
A1 (80")	-0.99	-4.06	-5.21
A2 (50")	-2.81	-4.00	-4.54
A3 (29")	-14.07	-4.10	-3.20
A4 (17")	-97.47	-31.18	-25.26
A5 (10")	N/A	-103.17	-49.28
A6 (6")	N/A	319.34	161.88

TRANSMITTER CURRENT GAIN				R-MUD VERIFICATION			
Signal	Lower	R	Upper	Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
12K	0.6	0.85	1.3	Mud Cell	0.95	0.98	1.05
36K	1.0	1.85	2.0				
72K	1.0	1.10	2.0				
PASS/FAIL SUMMARY							
GAIN RANGE CHK				PASS			
SONDE OFFSET CHK				PASS			
TOOL OK TO LOG							

CALIBRATION SUMMARY						
Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-11812882						
Gamma Ray Calibrator	247.3	253.7	-----	-6.4	+/- 9.00	api
CSNG-10727964						
60 KEV Peak Channel #	48.0	48.0	-----	0.0	-----	Channel #
239 KEV Peak Channel #	23.5	23.4	-----	0.1	-----	Channel #
583 KEV Peak Channel #	52.7	52.5	-----	0.2	-----	Channel #
2614 KEV Peak Channel #	216.9	216.3	-----	0.6	-----	Channel #
DSNT-11301132						
Snow-Block Porosity	0.0846	0.0806	-----	0.0040	+/- 0.0150	decp
SDLT-11107335						
Pad Extension	3.75	3.77	-----	-0.02	+/-0.10	in
Ring Diameter	8.25	8.24	-----	0.01	+/-0.15	in
SDLT Pad-11045470						
Near(B+D+P+L)	1635.028	1637.901	-----	-2.873	+/-16.249	cps
Far(B+D+P+L)	907.042	910.409	-----	-3.367	+/-16.358	cps
ICT-10935686						
Caliper 1	8.00	7.98	-----	0.02	+/-0.25	in
Caliper 2	8.00	8.00	-----	0.00	+/-0.25	in
Caliper 3	8.00	7.95	-----	0.05	+/-0.25	in
Caliper 4	8.00	7.94	-----	0.06	+/-0.25	in
Caliper 5	8.00	8.05	-----	-0.05	+/-0.25	in
Caliper 6	8.00	8.03	-----	-0.03	+/-0.25	in
ACRt Sonde-11294352						
Mud Cell	0.98	-----	-----	0.00	-----	ohm-m

<div>HALLIBURTON</div> <div>TOOL STRING DIAGRAM REPORT</div>						
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Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
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ICT-10935686  
330.00 lbs

Ø 3.625 in →

12.83 ft

← ICT Caliper @ 57.40 ft

54.61 ft

Centralizer 25-00000001  
8.00 lbs

Ø 4.000 in\* →

Regal Standoff 6\_75-  
00000001  
20.00 lbs

Ø 6.750 in\* →

Wavesonic-I-  
53025250  
520.00 lbs

Ø 3.625 in →

34.07 ft

← Wavesonic Delay @ 32.04 ft

Regal Standoff 6\_75-  
00000002  
20.00 lbs

Ø 6.750 in\* →

Centralizer 25-00000002  
8.00 lbs

Ø 4.000 in\* →

20.54 ft

ACRt Instrument-  
11296758  
50.00 lbs

Regal Standoff 6\_75-  
00000003  
20.00 lbs

Ø 6.750 in\* →  
Ø 3.625 in →

5.03 ft

← Mud Resistivity @ 14.15 ft

15.51 ft

← ACRt @ 10.17 ft

ACRt Sonde-  
11294352  
200.00 lbs

Ø 3.625 in →

14.22 ft

200.00 lbs

SP Ring-12345671  
0.00 lbs

Ø 3.625 in\* →

← SP @ 2.57 ft

Temperature Sub-  
00000001  
15.00 lbs

Ø 3.625 in →

0.96 ft

1.29 ft

Bull Nose-00000001  
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		11078326	135.00	6.25	110.60	300.00
GTET	Gamma Telemetry Tool		11812882	165.00	8.52	102.08	60.00
UWR3P6	Universal Wear Ring 3 5-8 inch		11812883	5.00	0.35	*	102.81
CSNG	Compensated Spectral Natural Gamma		10727964	114.00	8.17	93.91	15.00
DSNT	Dual Spaced Neutron		11301132	174.00	9.69	84.23	60.00
UWR3P6	Universal Wear Ring 3 5-8 inch		11812167	5.00	0.35	*	84.35
DCNT	DSN Decentralizer		11812167	6.60	5.13	*	87.56
SDLT	Spectral Density Tool		11107335	360.00	10.81	73.41	60.00
SDLP	Density Insite Pad		11045470	65.00	2.55	*	75.62
FLEX	Flex Joint - Pressure Compensated		12001606	140.00	5.97	67.44	300.00
ICT	Six Independent Arm Caliper		10935686	330.00	12.83	54.61	30.00
WSTT	WaveSonic Insite		53025250	520.00	34.07	20.54	30.00
OBCEN	Centralizer - 25 in. Overbody		00000002	8.00	2.08	*	22.48
RSOF	Regal Standoff 6.75in		00000002	20.00	0.52	*	26.87
RSOF	Regal Standoff 6.75in		00000001	20.00	0.52	*	47.56
OBCEN	Centralizer - 25 in. Overbody		00000001	8.00	2.08	*	50.02
ACRt	Array Compensated True Resistivity Instrument Section		11296758	50.00	5.03	15.51	300.00
RSOF	Regal Standoff 6.75in		00000003	20.00	0.52	*	18.09
ACRt	Array Compensated True Resistivity Sonde Section		11294352	200.00	14.22	1.29	300.00
SP	SP Ring		12345671	0.00	0.25	*	2.57
TMAX	Temperature Sub - 3_625 OD		00000001	15.00	0.96	0.33	300.00
BLNS	Bull Nose		00000001	5.00	0.33	0.00	300.00
Total				2,365.60	116.85		
* Not included in Total Length and Length Accumulation.							Date: 06-Mar-14 22:00:30
Data: WATKINS 30-5-8\0001 TRIPLE BLACK-CSNG-ICT-WSTT\IDLE							

COMPANY	CONOCO PHILLIPS COMPANY		
WELL	WATKINS 30-5-8P		
FIELD	WILDCAT		
COUNTY	ARAPAHOE	STATE	CO
HALLIBURTON		DUAL SPACED NEUTRON SPECTRAL DENSITY WAVESONIC ARRAY COMPENSATED TRUE RESISTIVITY	