

HALLIBURTON

ARRAY COMPENSATED
TRUE RESISTIVITY

COMPANY		KERR-MCGEE OIL & GAS ONSHORE LP	
WELL		CAMENISCH 36-2	
FIELD		WATTENBERG	
COUNTY		WELD	
STATE		COLORADO	
Permanent Datum Log measured from		GL	Elev. 5031.0 ft
Drilling measured from		KB	D.F. 5045.0 ft
		KB	G.L. 5031.0 ft
Date		06-Oct-12	
Run No.		ONE	
Depth - Driller		8587.00 ft	
Depth - Logger		8542.0 ft	
Bottom - Logged Interval		8593.0 ft	
Top - Logged Interval		910.0 ft	
Casing - Driller		8625.000 in @ 928.0 ft	
Casing - Logger		928.0 ft	
Bit Size		7.875 in	
Type Fluid in Hole		WBM	
Density		8.3 ppq	26.00 s/qt
PH		7.50 pH	
Source of Sample		MUD TANK	
Rm @ Meas. Temperature		1.640 ohmm @ 70.20 degF	@
Rmf @ Meas. Temperature		1.72 ohmm @ 68.40 degF	@
Rmc @ Meas. Temperature		2.400 ohmm @ 68.40 degF	@
Source Rmf		MEASURED	
Rmc		MEASURED	
Rm @ BHT		0.52 ohmm @ 237.0 degF	@
Time Since Circulation		11.1 hr	
Time on Bottom		06-Oct-12 06:34	
Max. Rec. Temperature		237.0 degF @ N/A	@
Equipment		11170614	ROCK SPRING
Recorded By		V. CREWS	
Witnessed By		T. GEDAMU	

COMPANY	KERR-MCGEE OIL & GAS ONSHORE LP
WELL	CAMENISCH 36-2
FIELD	WATTENBERG
COUNTY	WELD
STATE	COLORADO
API No.	05123346020000
Location	SURFACE HOLE LOCATION: 973' FSL & 1050' FWL / SWSW BOTTOM HOLE LOCATION: 55' FSL & 2539' FEL / SWSE
Other Services:	RWCH DSNT/SDLT MEL

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Service Ticket No.: 9869926				API Serial No.: 05123346020000				PGM Version: WL INSITE R3.6.0 (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		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		FREE		N/A					
Rmc @ Meas. Temp.		@		@				E6988-S8481											
Source Rmf		Rmc				ONE		MEL -		MEL		ECCENTERED		N/A					
Rm @ BHT		@		@				10947725											
Rmf @ BHT		@		@															
Rmc @ BHT		@		@															
EQUIPMENT DATA																			
GAMMA				ACOUSTIC				DENSITY				NEUTRON							
Run No.		ONE		Run No.				Run No.		ONE		Run No.		ONE					
Serial No.		11602914		Serial No.				Serial No.		10947725		Serial No.		11020488					
Model No.		GTET		Model No.				Model No.		SDLT-I		Model No.		DSNT-I					
Diameter		3.625"		No. of Cent.				Diameter		4.5"		Diameter		3.625"					
Detector Model No.		102-A		Spacing				Log Type		GAM-GAM		Log Type		THERM-THERM					
Type		SCINT						Source Type		Cs137		Source Type		Am241Be					
Length		8"		LSA [Y/N]				Serial No.		5235GW		Serial No.		08-018					
Distance to Source		10'		FWDA [Y/N]				Strength		1.78 Ci		Strength		15.0 Ci					
LOGGING DATA																			
GENERAL				GAMMA				ACOUSTIC				DENSITY				NEUTRON			

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	8542'	928'	REC	0	200					20%		0%	2.71 g/cc	
ONE	928'	100'	REC	0	200							20%	0%	LIME
DIRECTIONAL INFORMATION														
Maximum Deviation @									KOP @					
Remarks: RWCH-GTET-DSNT-SDLT-FLEX-ACRT RAN IN COMBINATION														
BOREHOLE RUGOSITY, TENSION PULLS AND WASHOUTS MAY EFFECT LOG QUALITY														
ANNULAR HOLE VOLUME CALCULATED FOR 4.5-INCH CASING														
BOWSPRING AND STANDOFF REMOVED PER CUSTOMER REQUEST														
LATITUDE: 40.075449														
LONGITUDE: -104.863676														
TODAY'S CREW: G. HOOD, C. DAVIS & D. TREFILETTI RIG: XTREME 11														
*** THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES, ROCK SPRINGS, WY (307) 352-8600 ***														
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.														
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PARAMETERS REPORT

Depth (ft)	Tool Name	Description	Value	Units
TOP				
	SHARED	Bit Size	7.875	in
	SHARED	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	Mud Base	Water	
	SHARED	Borehole Fluid Weight	8.300	ppg
	SHARED	Weighting Agent	Barite	
	SHARED	Borehole salinity	0.00	ppm
	SHARED	Formation Salinity NaCl	0.00	ppm
	SHARED	Percent K in Mud by Weight?	0.00	%
	SHARED	Mud Resistivity	2.000	ohmm
	SHARED	Temperature of Mud	75.0	degF
	SHARED	Logging Interval is Cased?	No	
	SHARED	AHV Casing OD	4.500	in
	SHARED	Surface Temperature	45.0	degF
	SHARED	Total Well Depth	8542.00	ft
	SHARED	Bottom Hole Temperature	237.0	degF
	SHARED	Navigation and Survey Master Tool	NONE	
	SHARED	High Res Z Accelerometer Master Tool	GTET	
	SHARED	Temperature Master Tool	NONE	
	SHARED	Borehole Size Master Tool	NONE	
	Rwa / CrossPlot	Process Crossplot?	Yes	
	Rwa / CrossPlot	Select Source of F	Automatic	
	Rwa / CrossPlot	Archie A factor	0.6200	
	Rwa / CrossPlot	Archie M factor	2.1500	

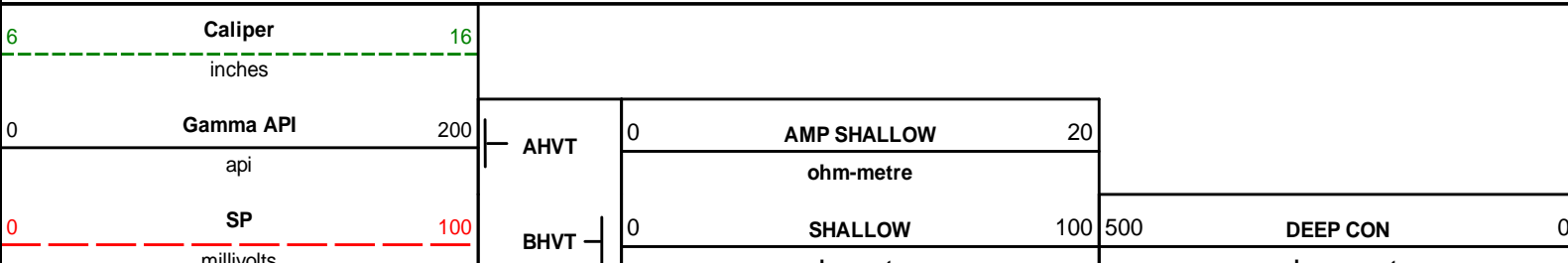
Rwa / CrossPlot	Rmf Reference	0.10	ohmm
Rwa / CrossPlot	Rmf Ref Temp	75.00	degF
Rwa / CrossPlot	Resistivity of Formation Water	0.05	ohmm
Rwa / CrossPlot	Use Air Porosity to calculate CrossplotPhi	No	
GTET	Process Gamma Ray?	Yes	
GTET	Gamma Tool Standoff	0.000	in
GTET	Process Gamma Ray EVR?	No	
GTET	Tool Position for Gamma Ray Tools.	Eccentered	
DSNT	Process DSN?	Yes	
DSNT	Process DSN EVR?	No	
DSNT	Neutron Lithology	Limestone	
DSNT	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.000	in
DSNT	Temperature Correction Type	None	
DSNT	DSN Pressure Correction Type	None	
DSNT	View More Correction Options	No	
DSNT	Use TVD for Gradient Corrections?	No	
DSNT	Logging Horizontal Water Tank?	No	
SDLT	Process Caliper Outputs?	Yes	
SDLT Pad	Process Density?	Yes	
SDLT Pad	Process Density EVR?	No	
SDLT Pad	Logging Calibration Blocks?	No	
SDLT Pad	SDLT Pad Temperature Valid?	Yes	
SDLT Pad	Disable temperature warning	No	
SDLT Pad	Formation Density Matrix	2.710	g/cc
SDLT Pad	Formation Density Fluid	1.000	g/cc
Microlog Pad	Process MicroLog Outputs?	Yes	
ACRt Sonde	Process ACRt?	Yes	
ACRt Sonde	Minimum Tool Standoff	0.00	in
ACRt Sonde	Temperature Correction Source	FP Lwr & FP Up	
ACRt Sonde	Tool Position	Free Hanging	
ACRt Sonde	Rmud Source	Mud Cell	
ACRt Sonde	Minimum Resistivity for MAP	0.20	ohmm
ACRt Sonde	Maximum Resistivity for MAP	200.00	ohmm
ACRt Sonde	Threshold Quality	0.50	
ACRt Sonde	Fixed mud resistivity	2000	ohmm

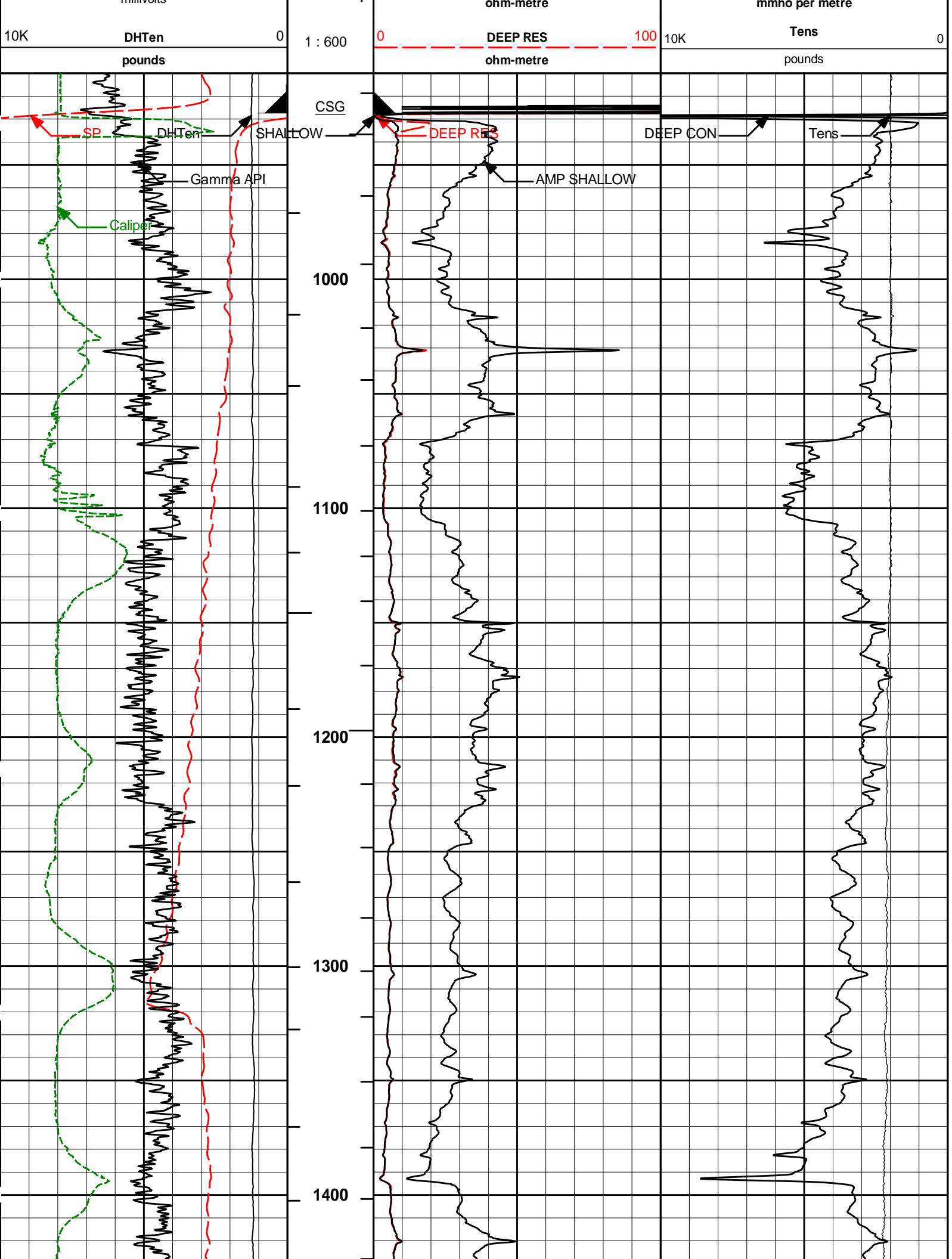
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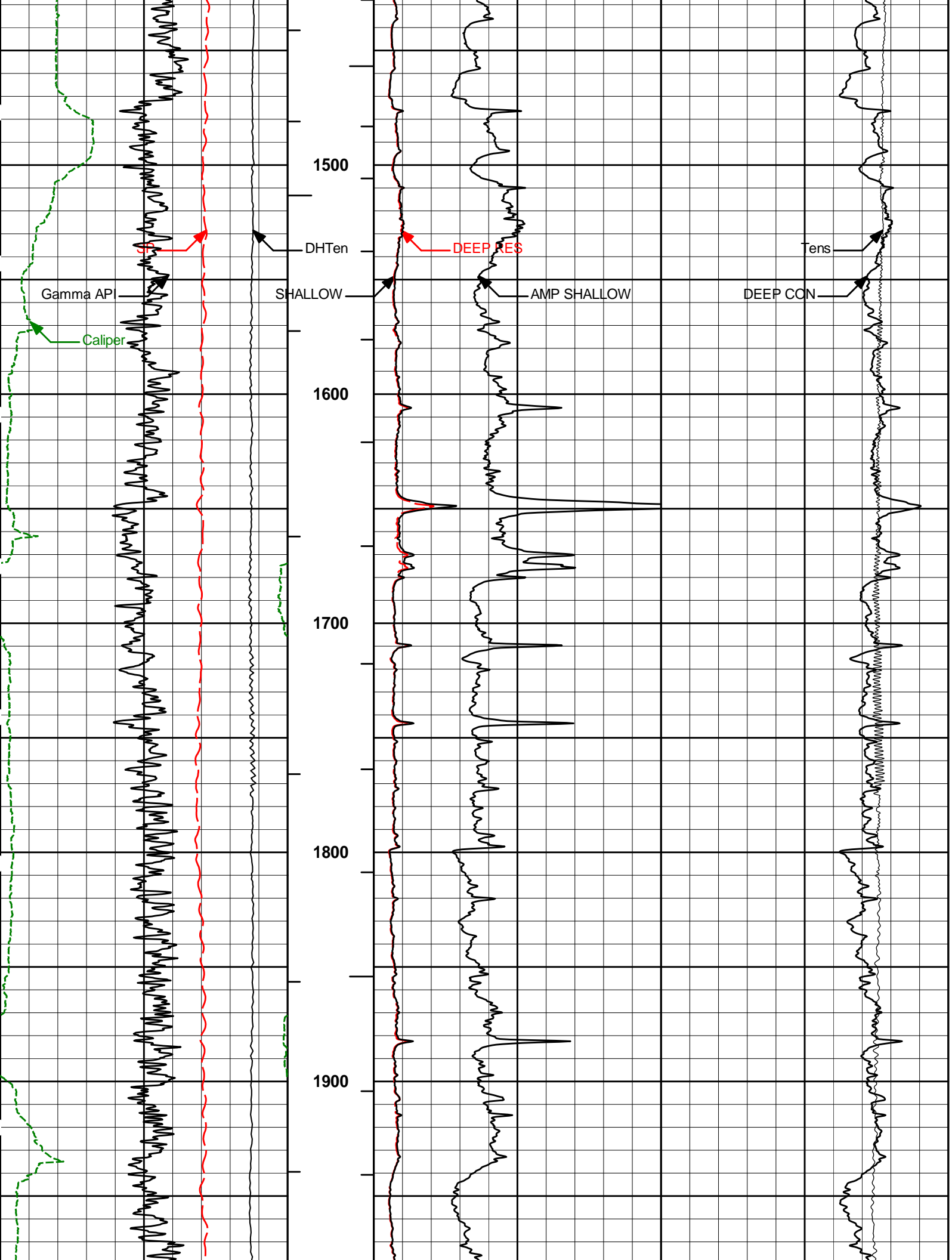
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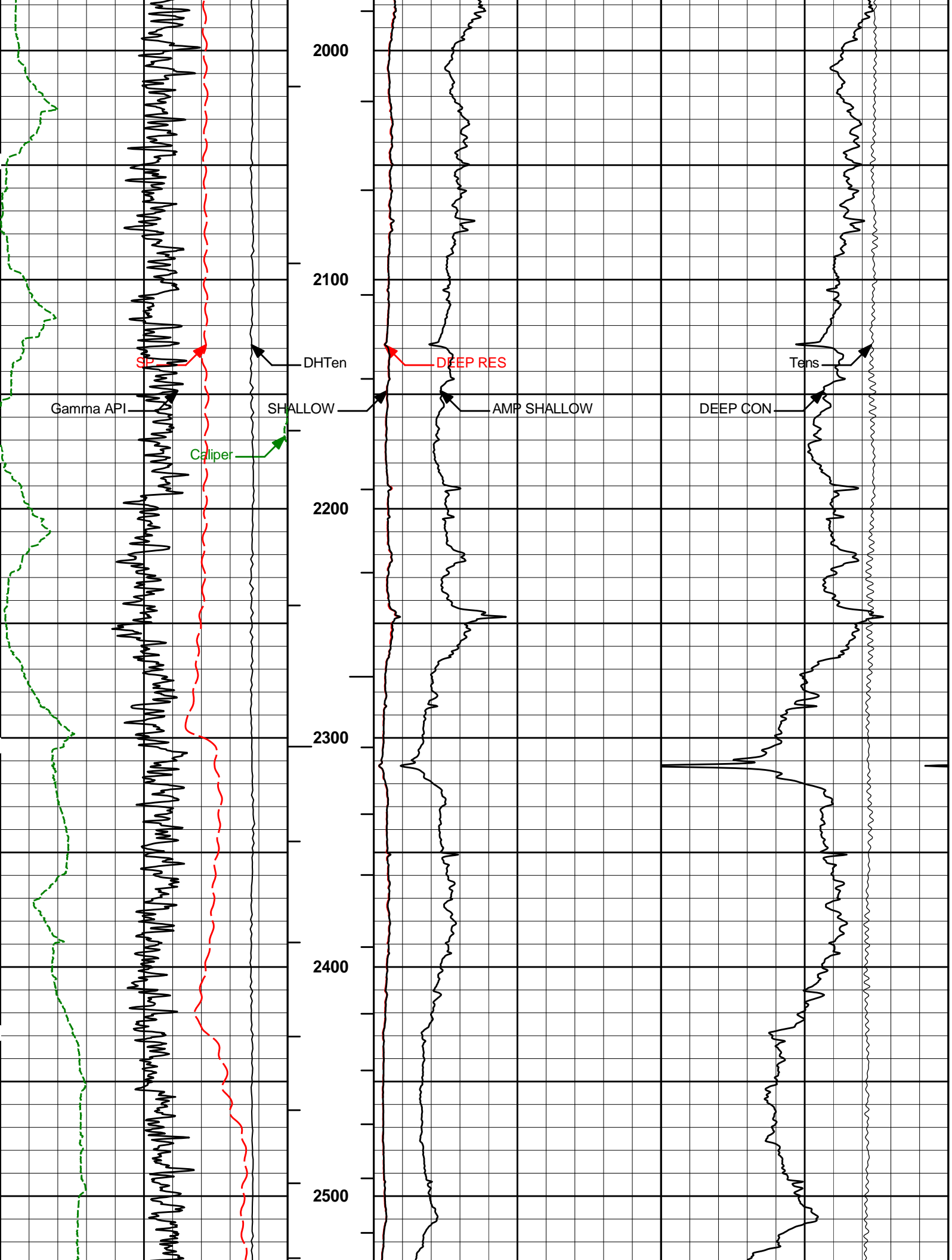
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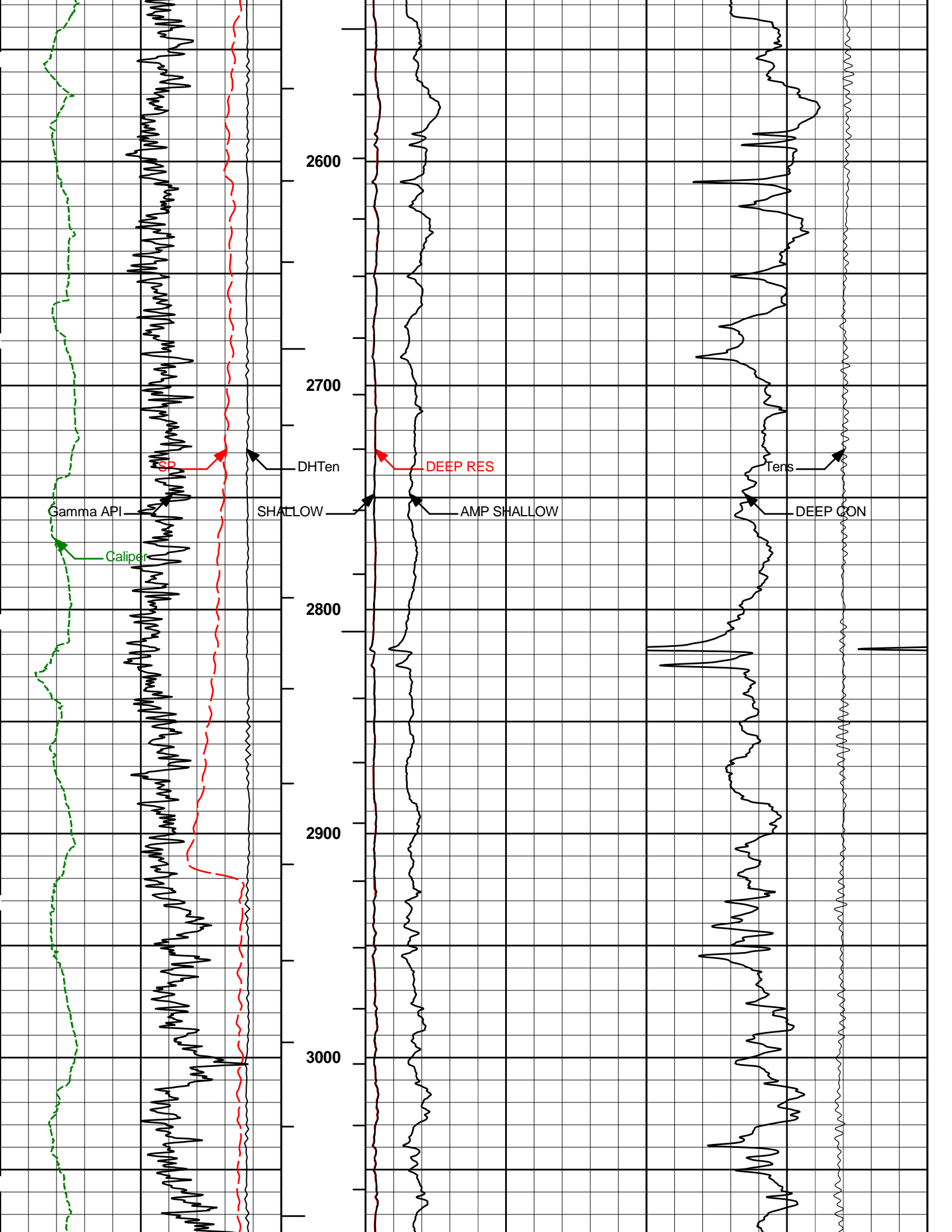
MAIN PASS 2" = 100'

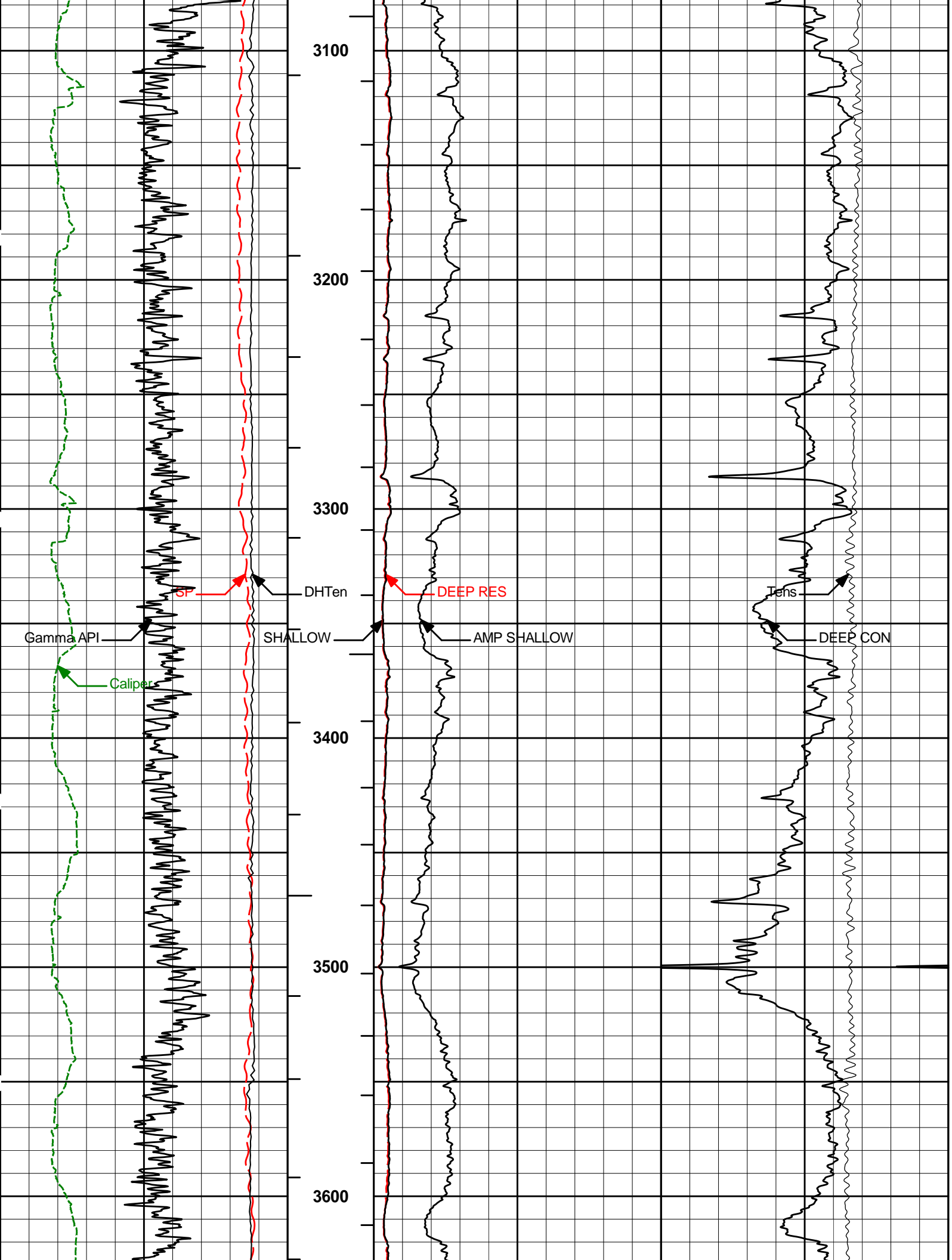


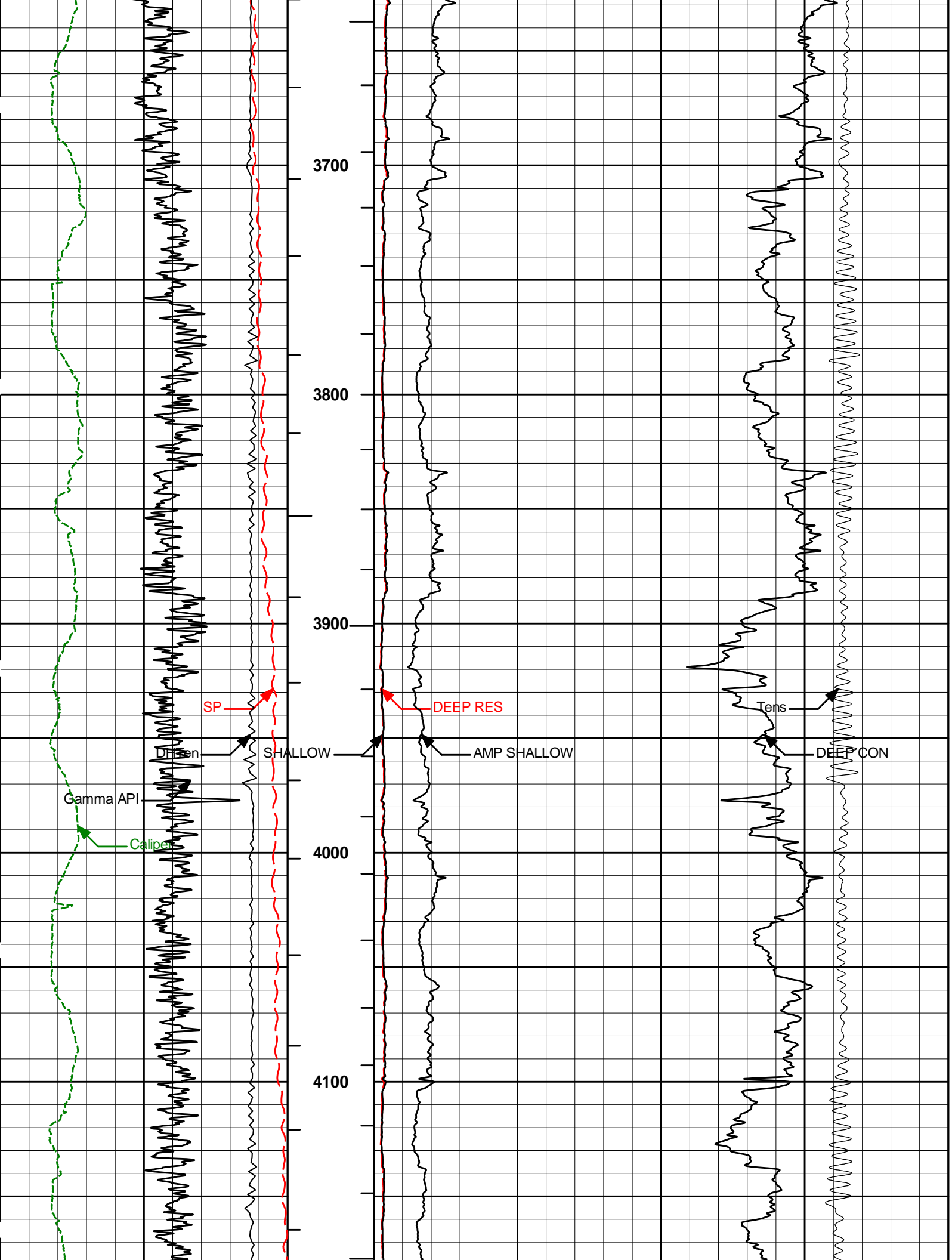


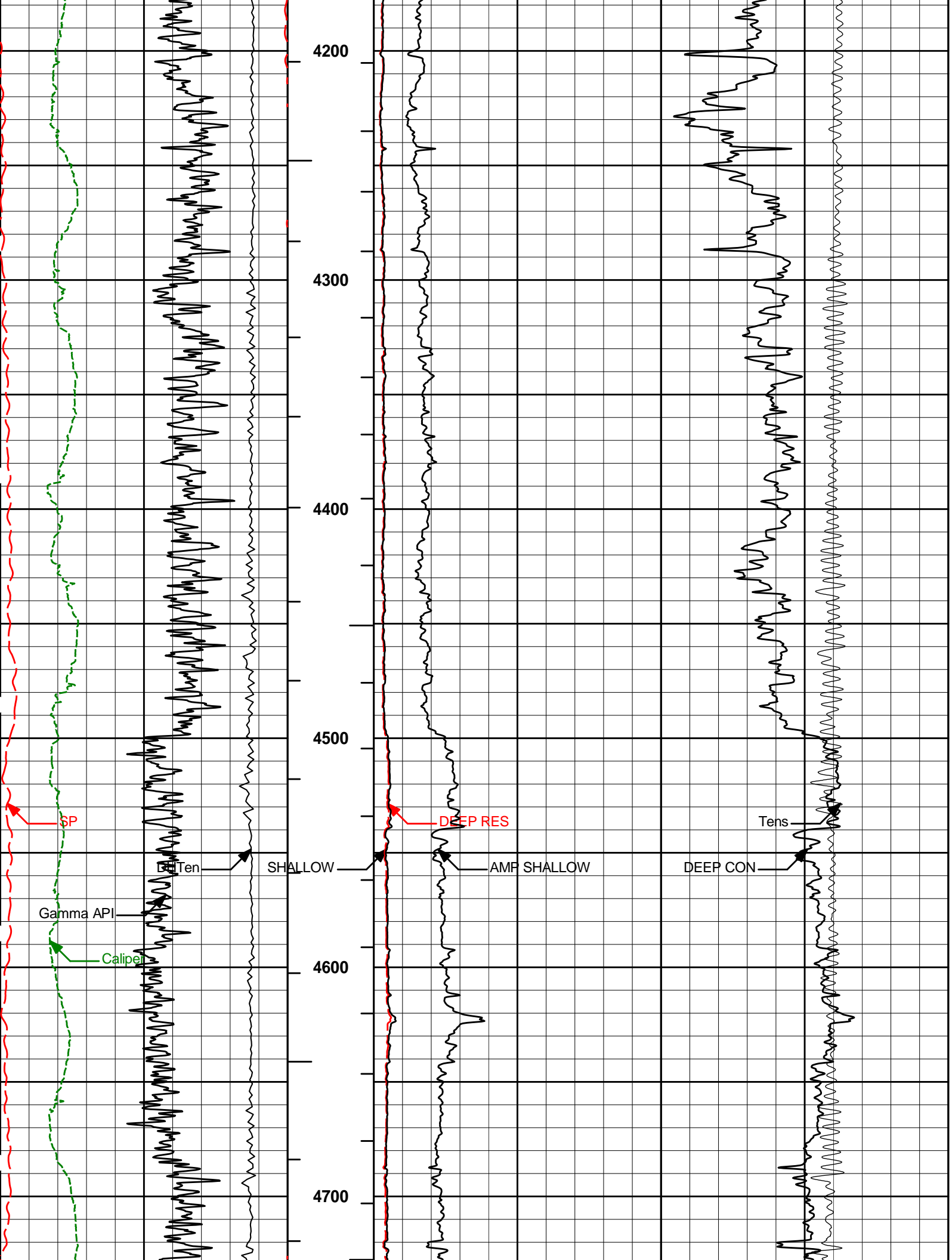


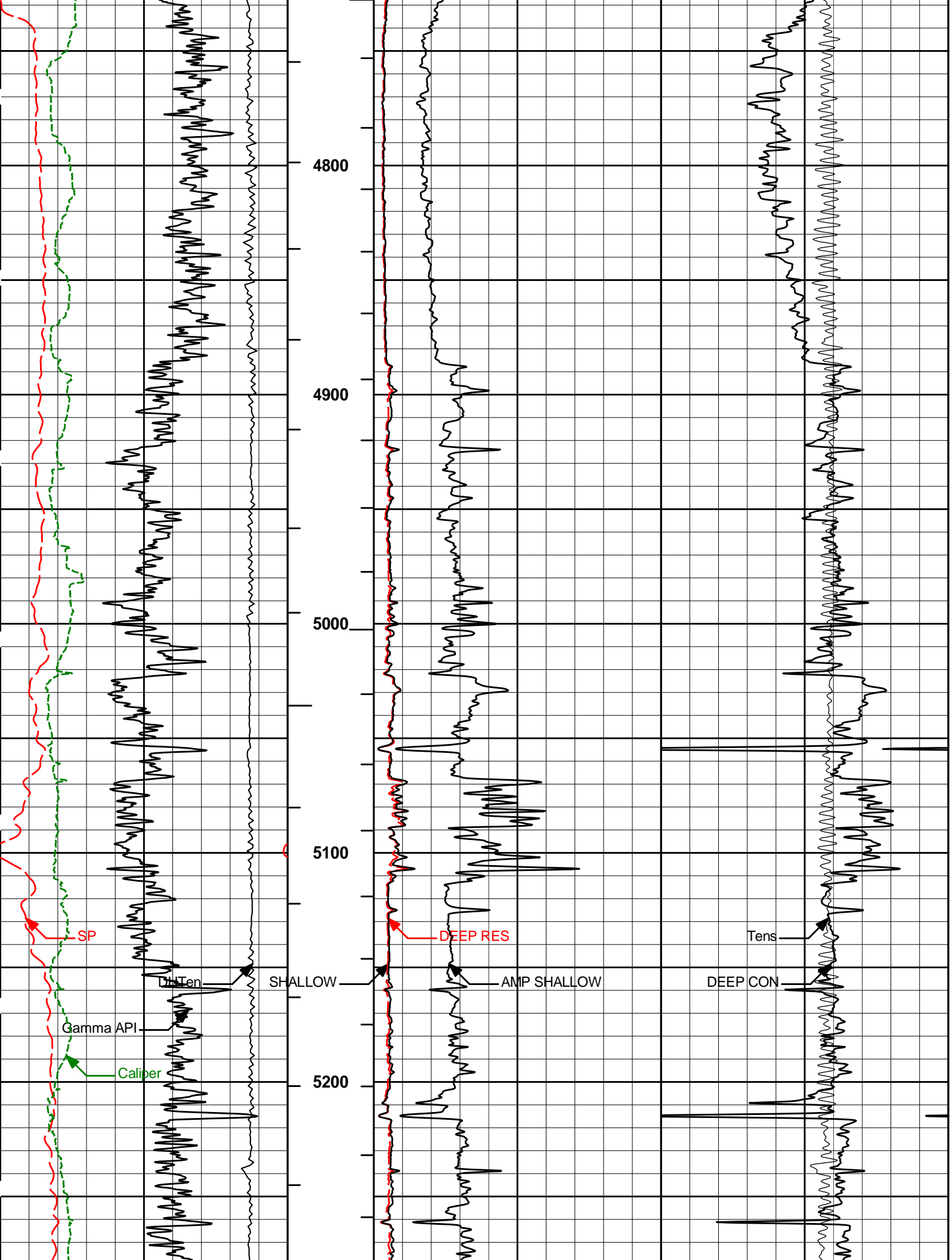


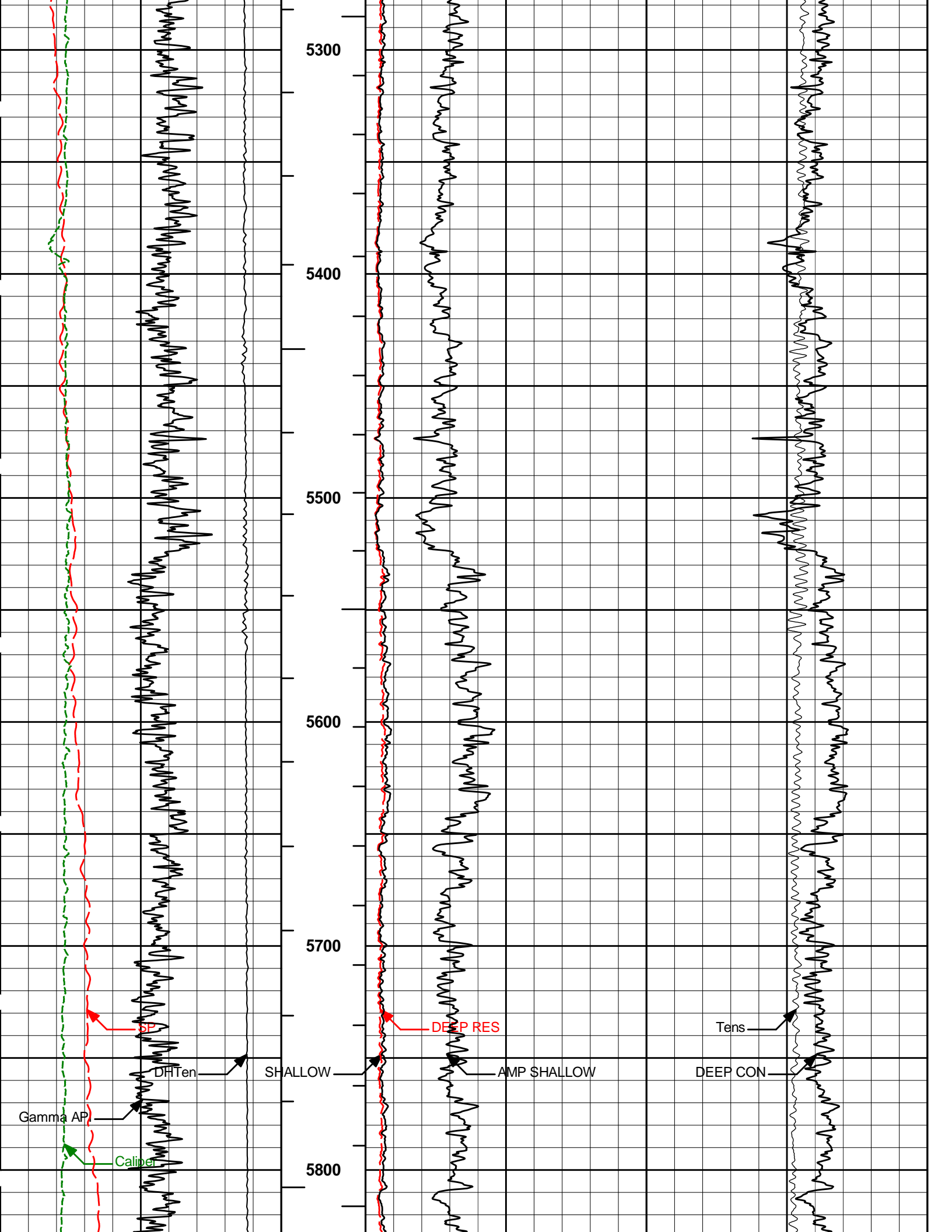


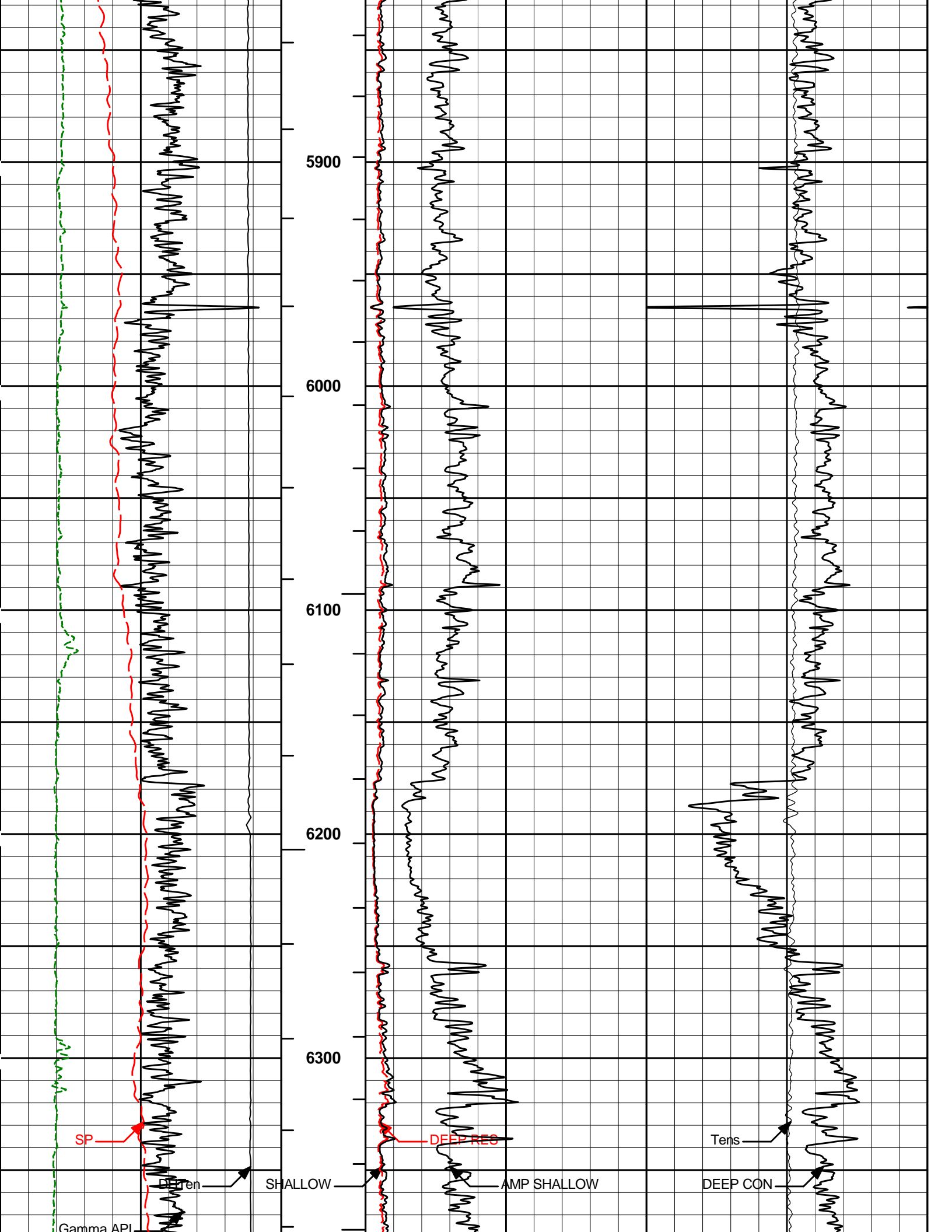


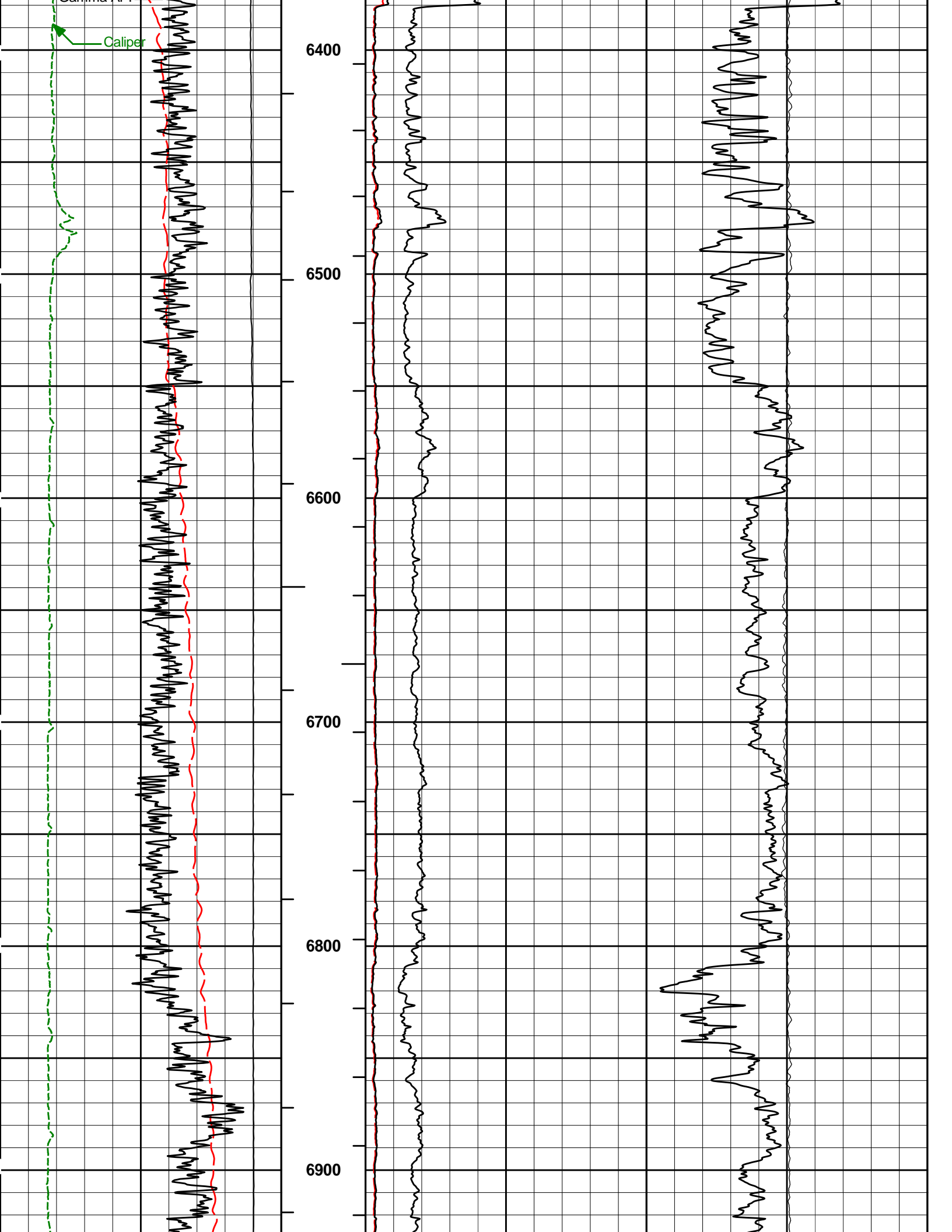


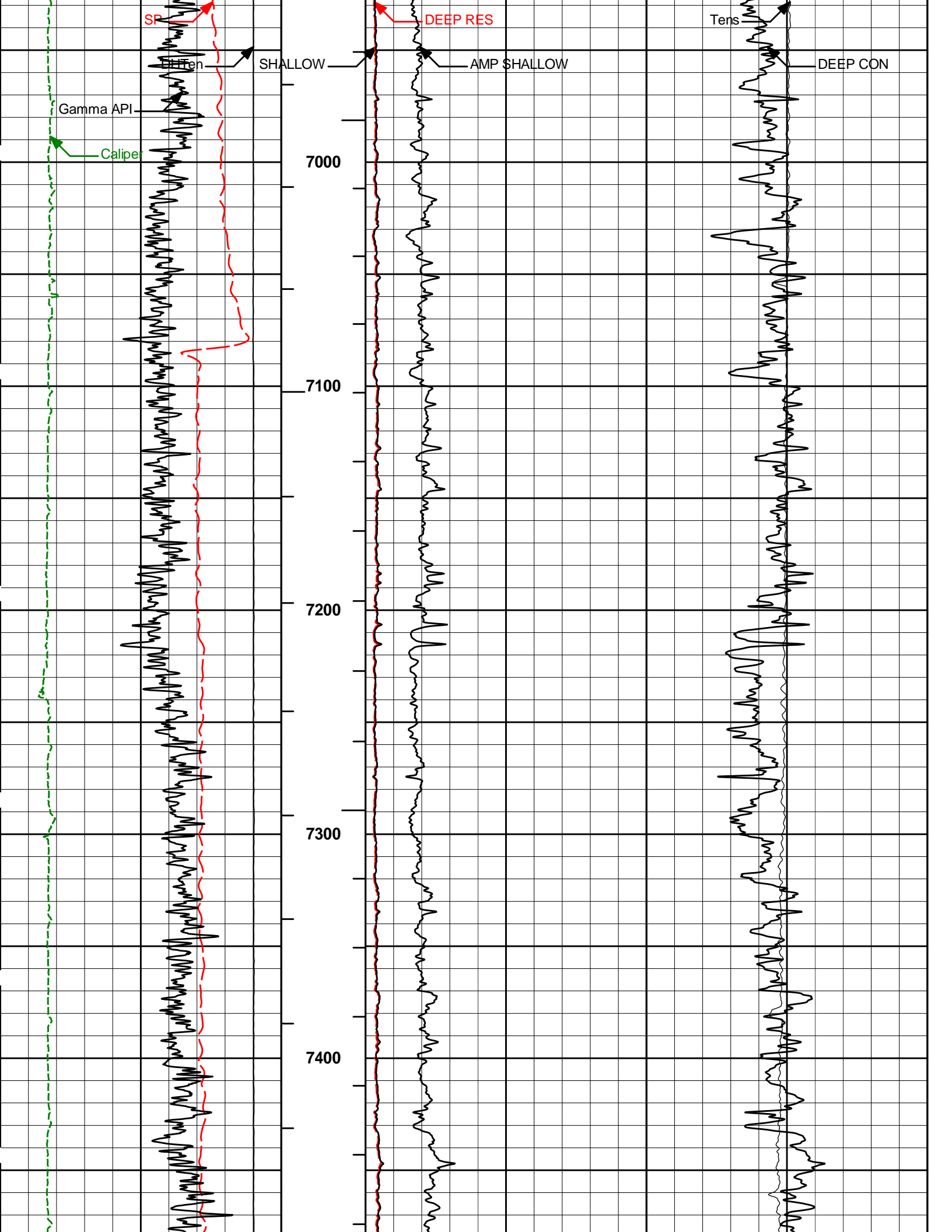


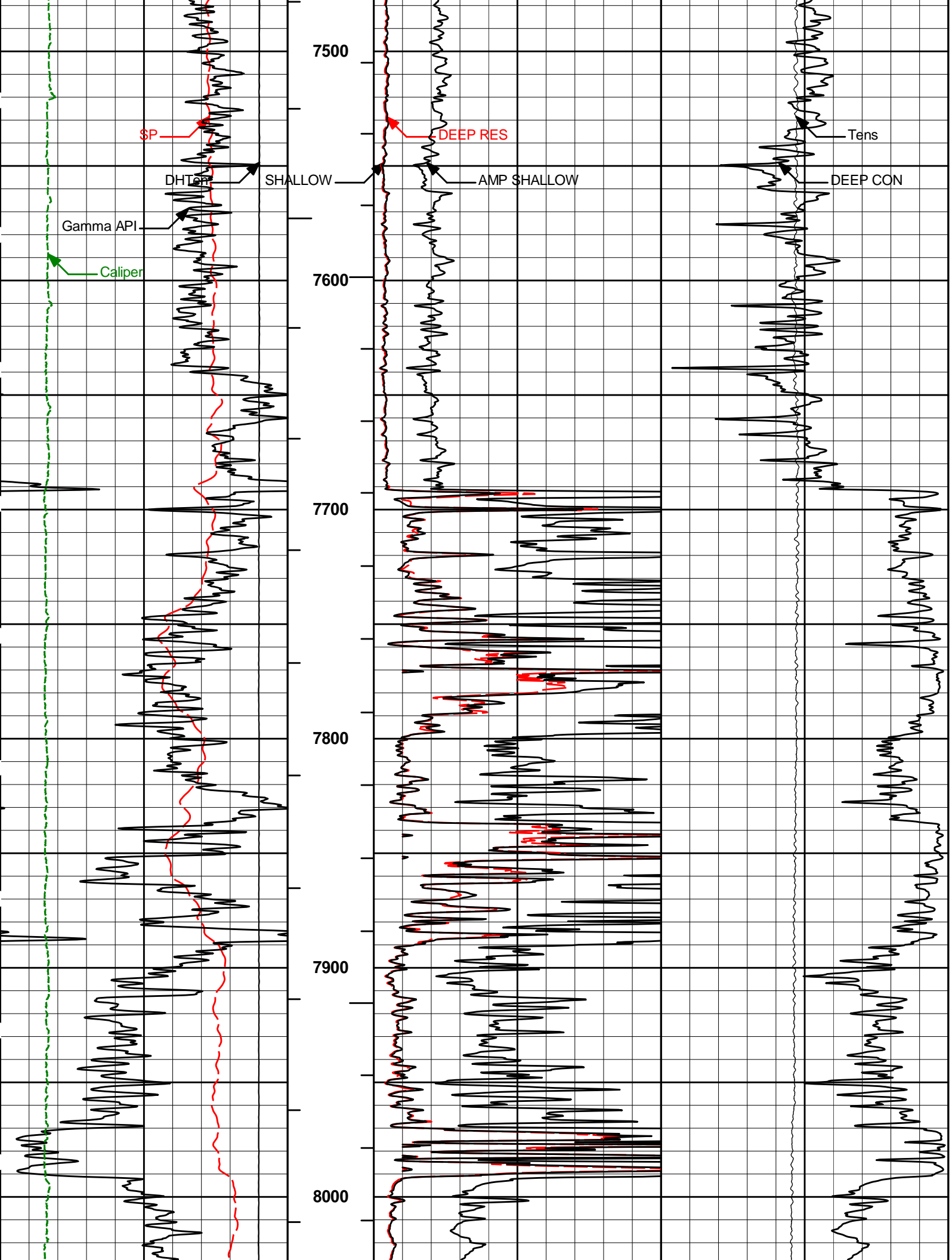


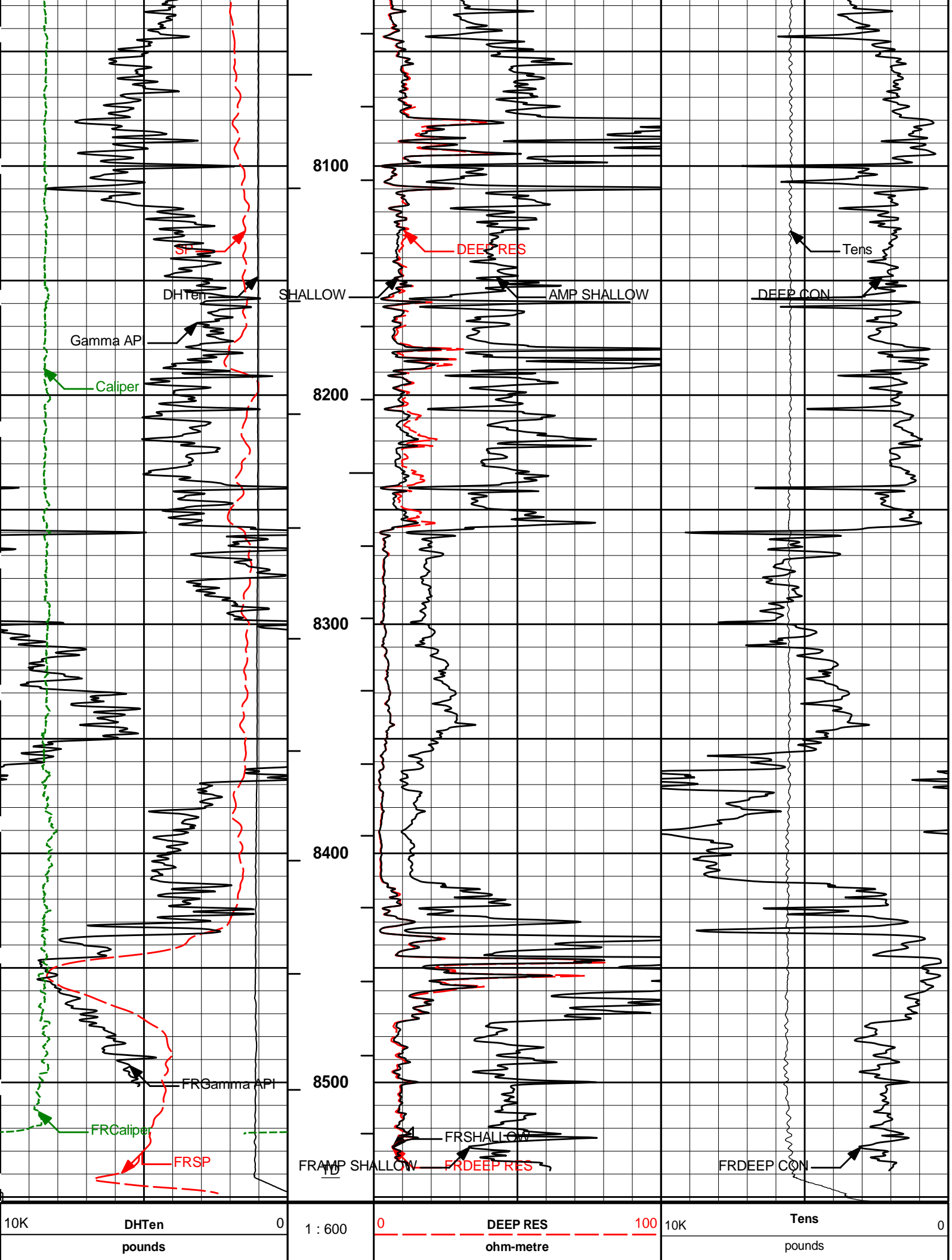






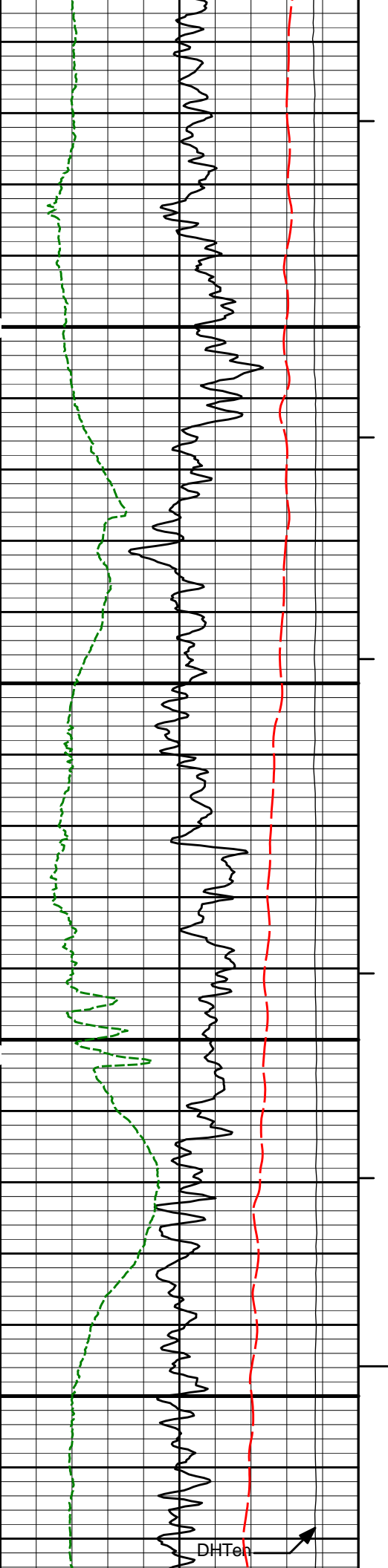






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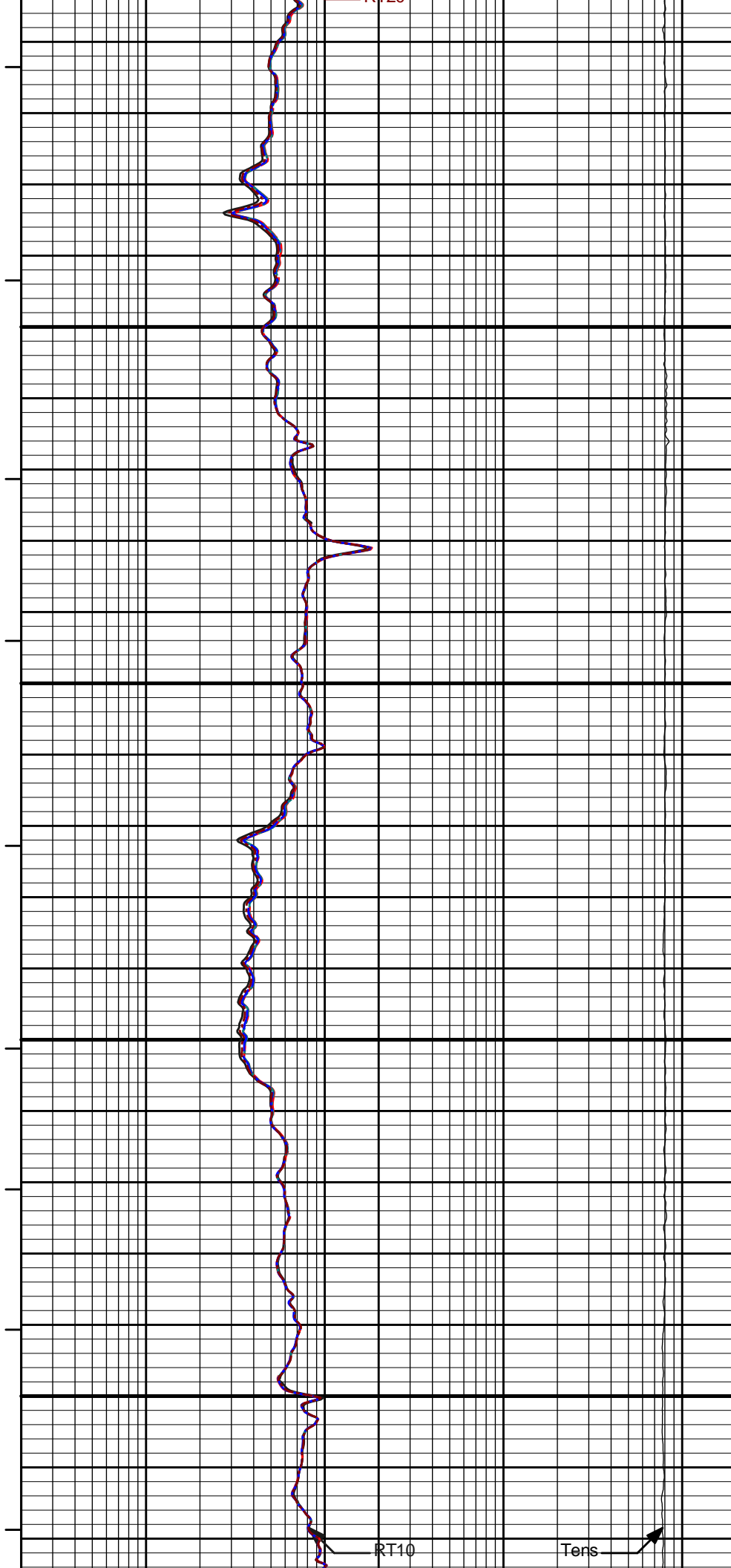
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Plot File: \\RES\IQ_BP_ACRt_5IN_DHT



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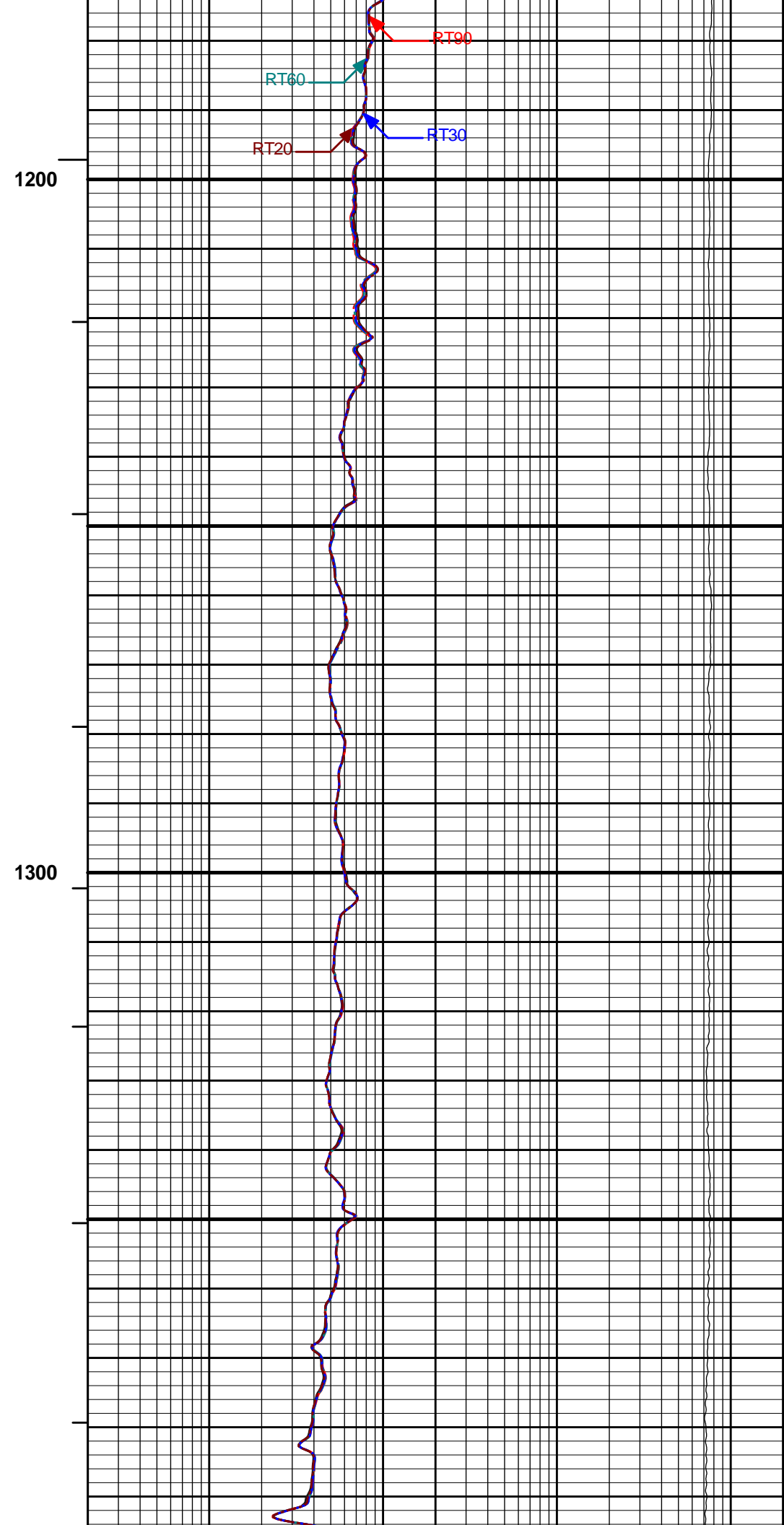
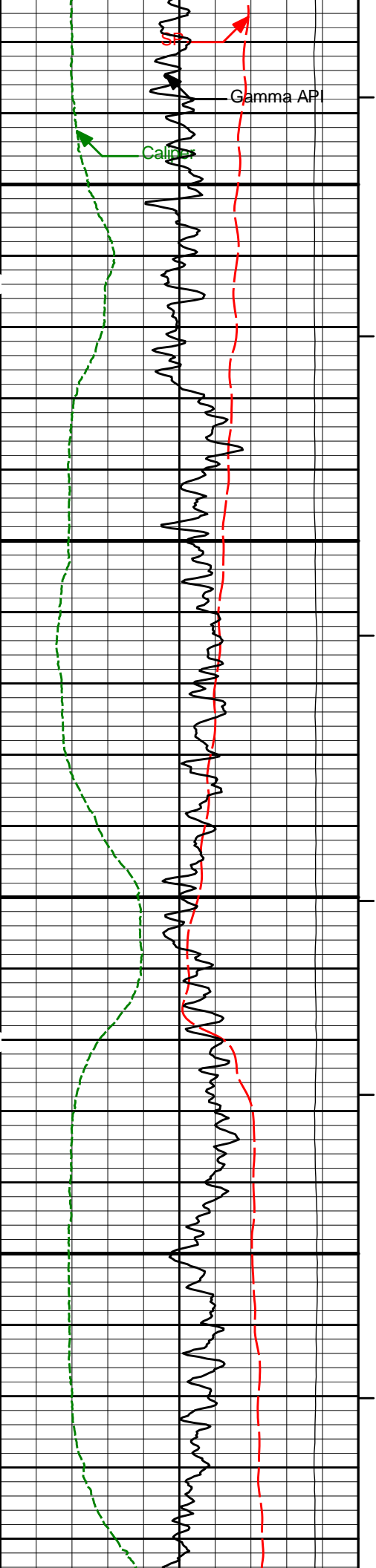
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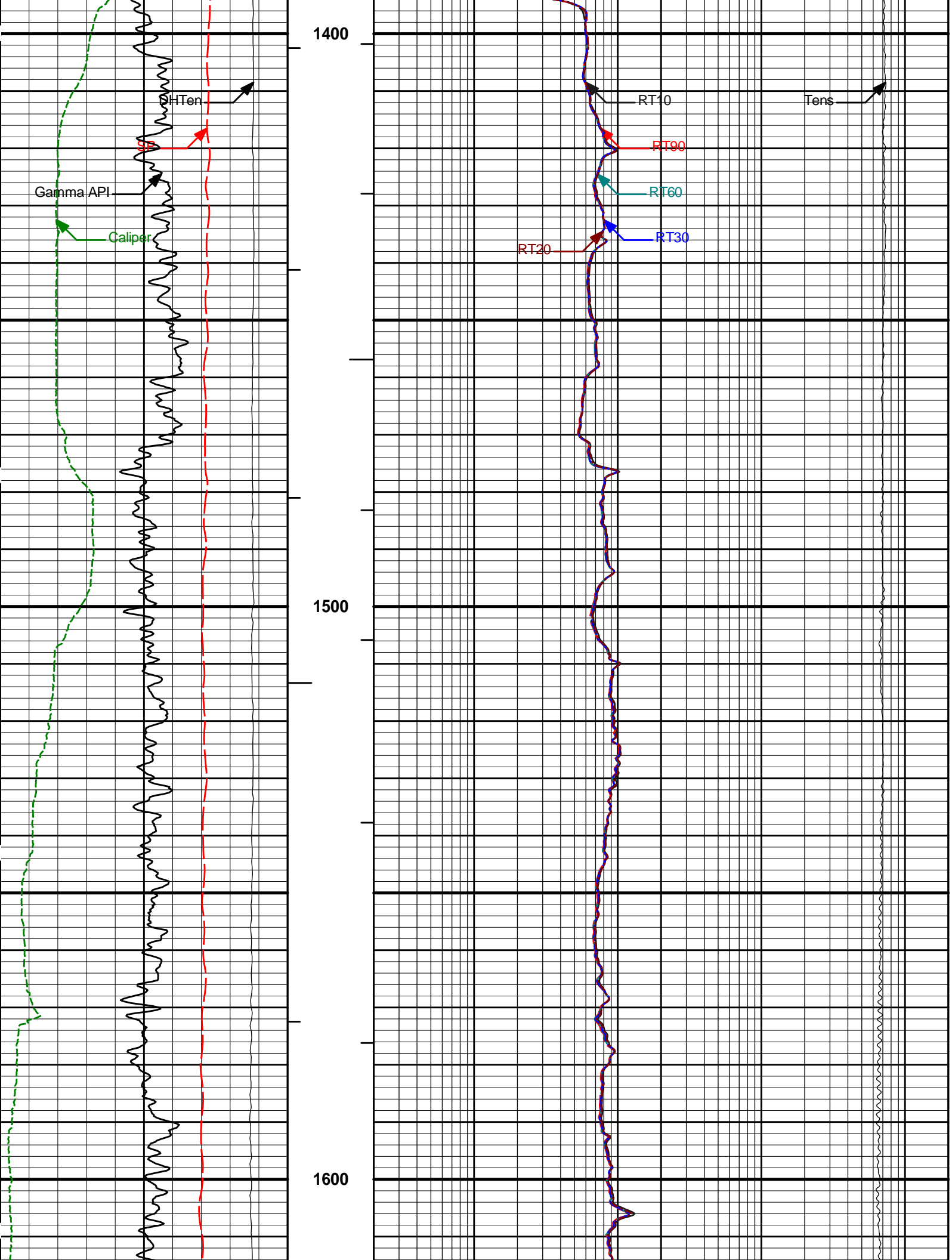
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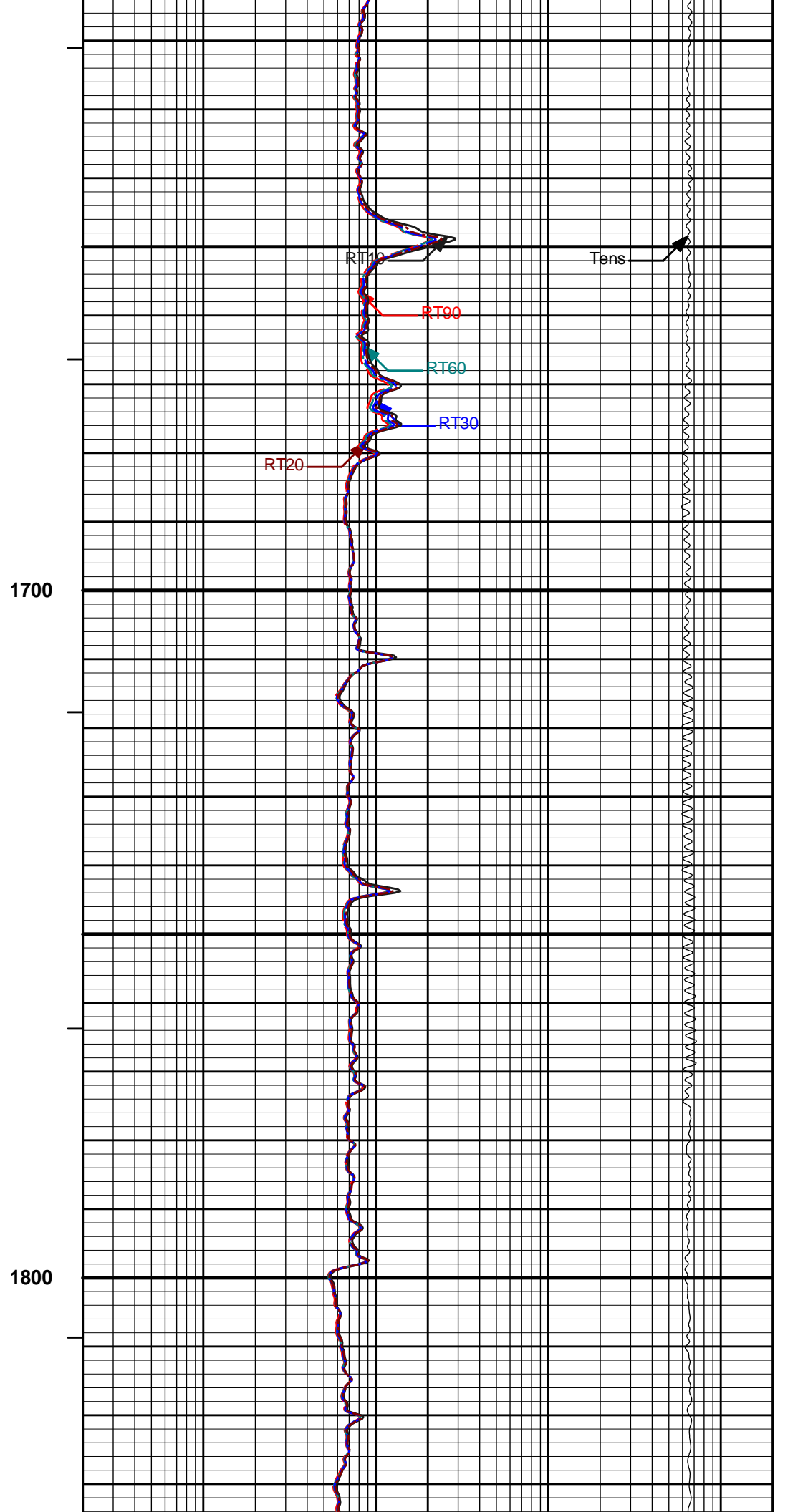
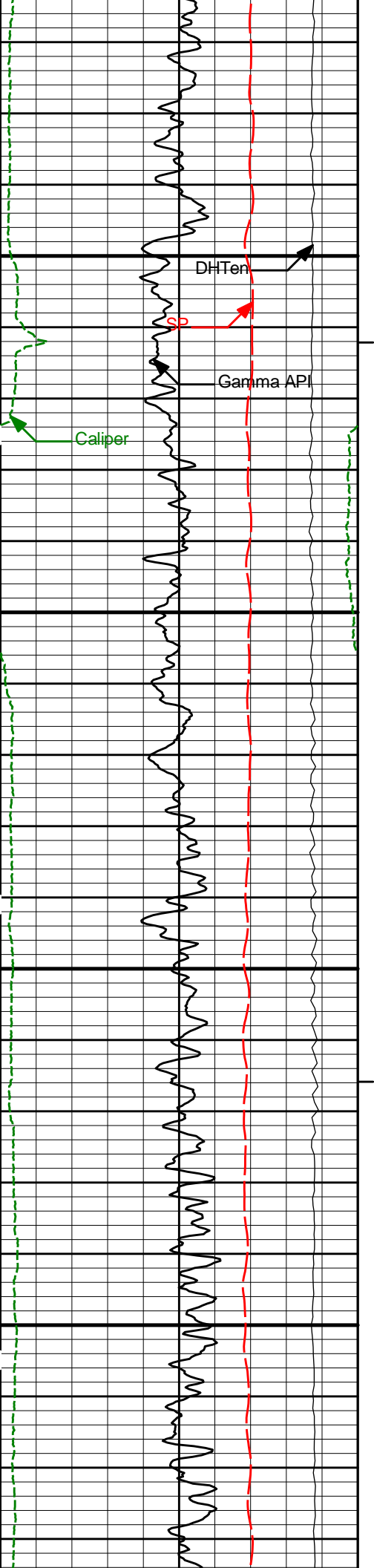


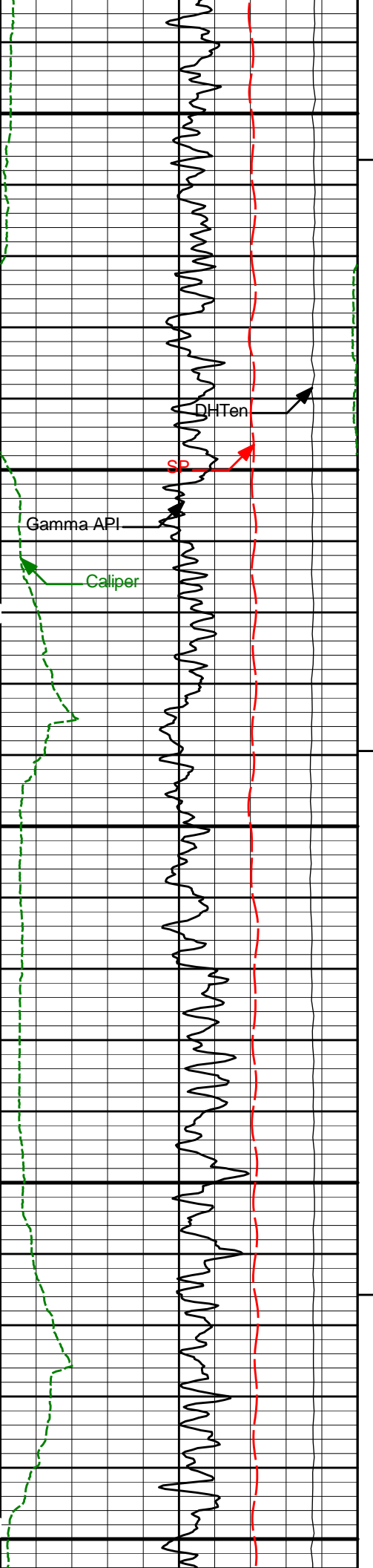
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Tens



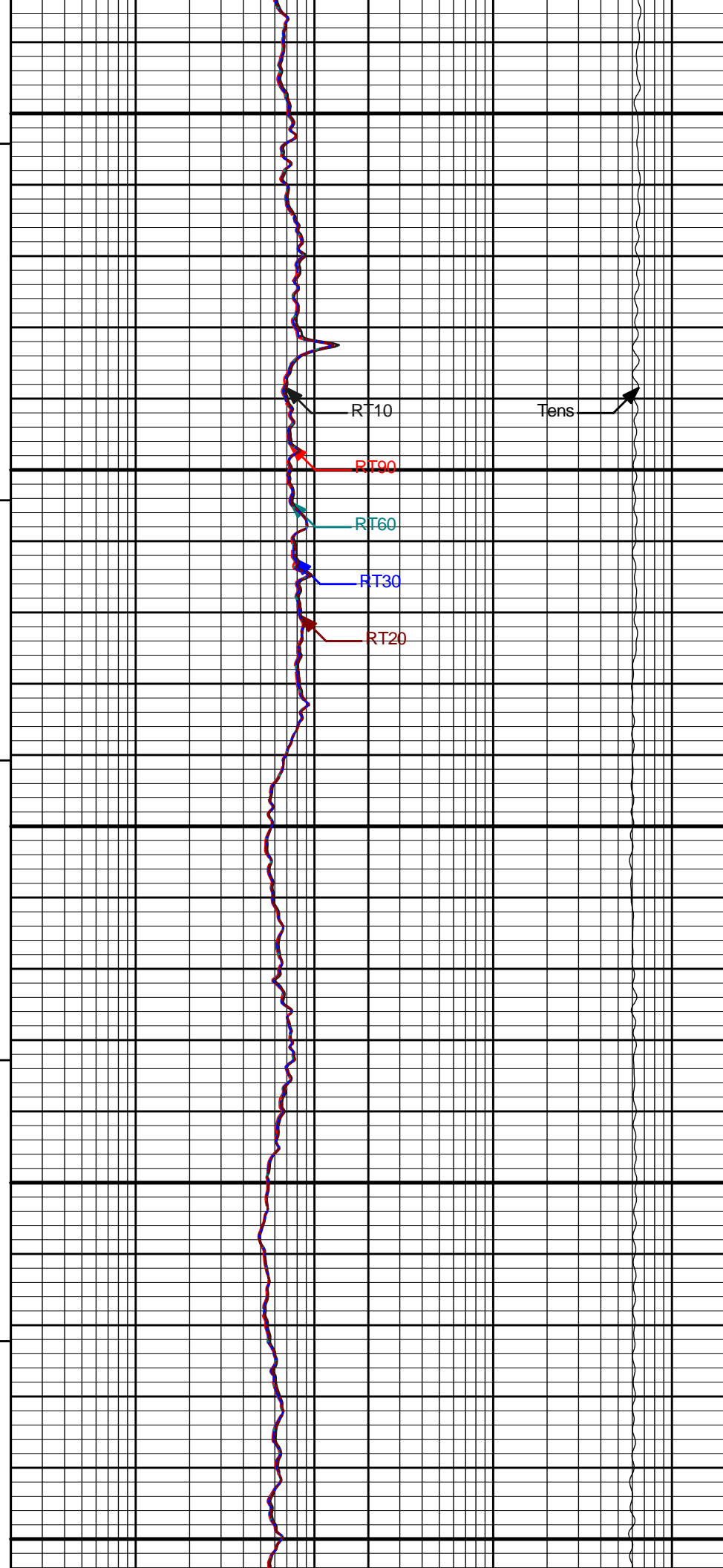


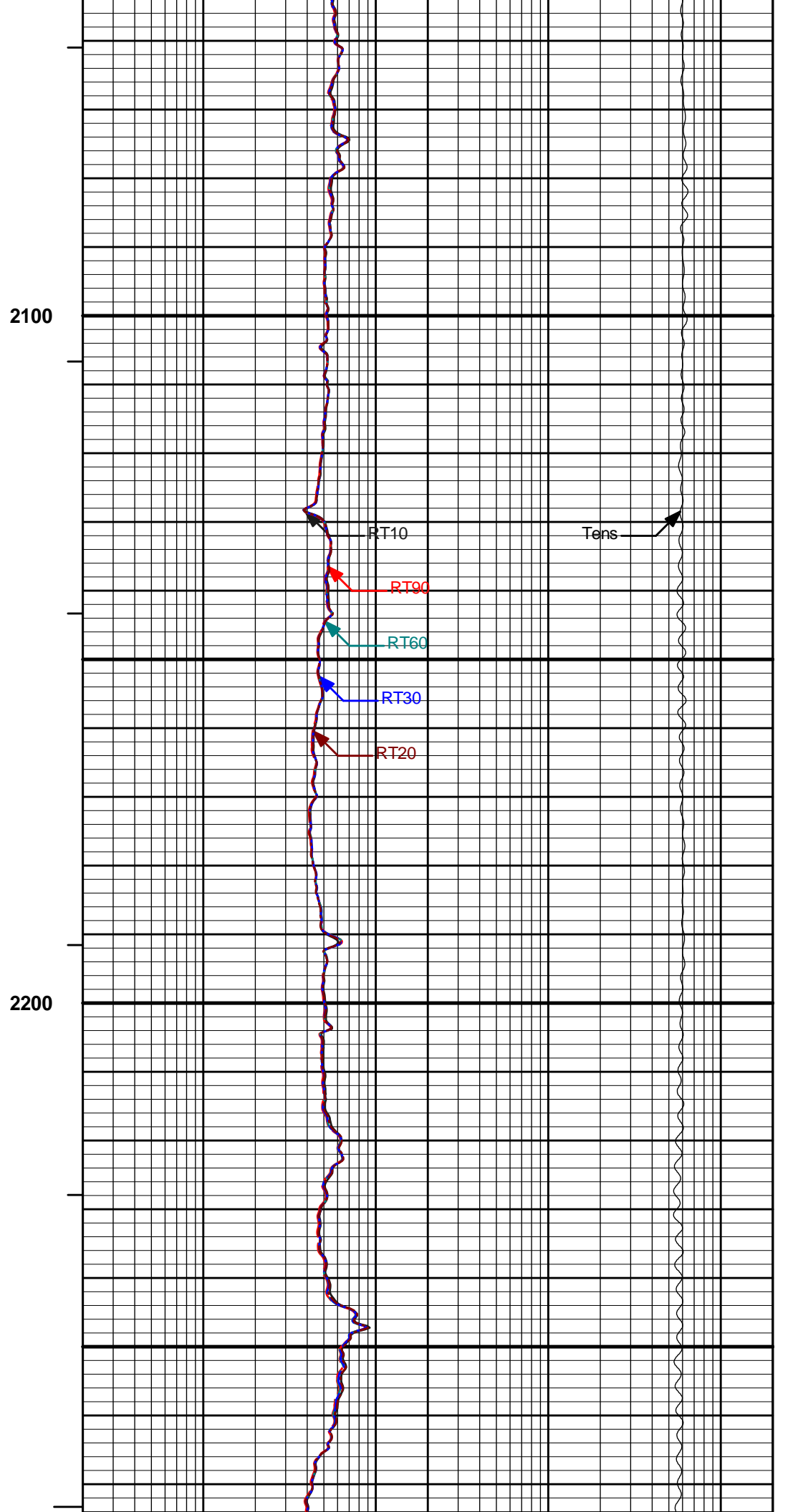
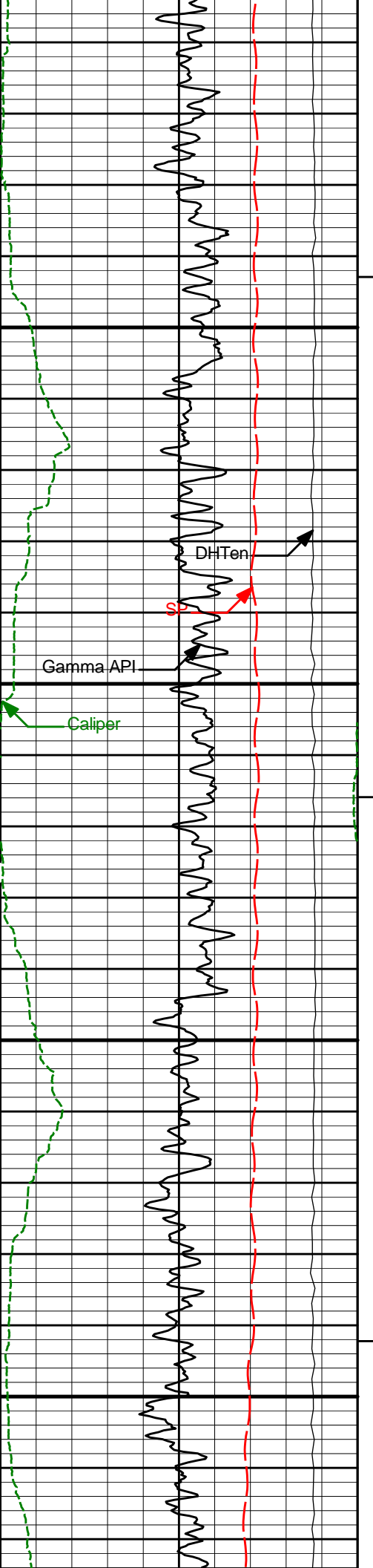


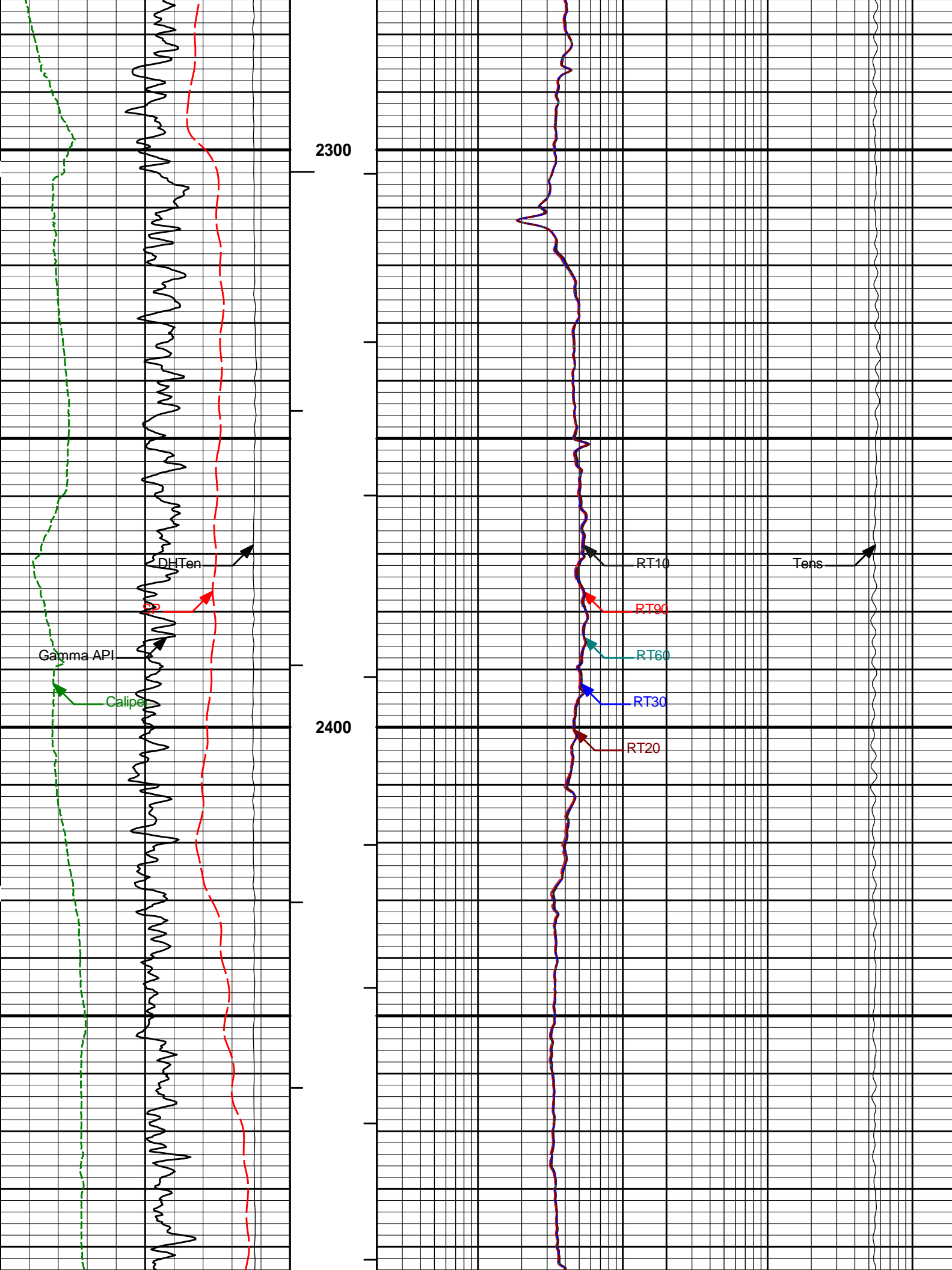


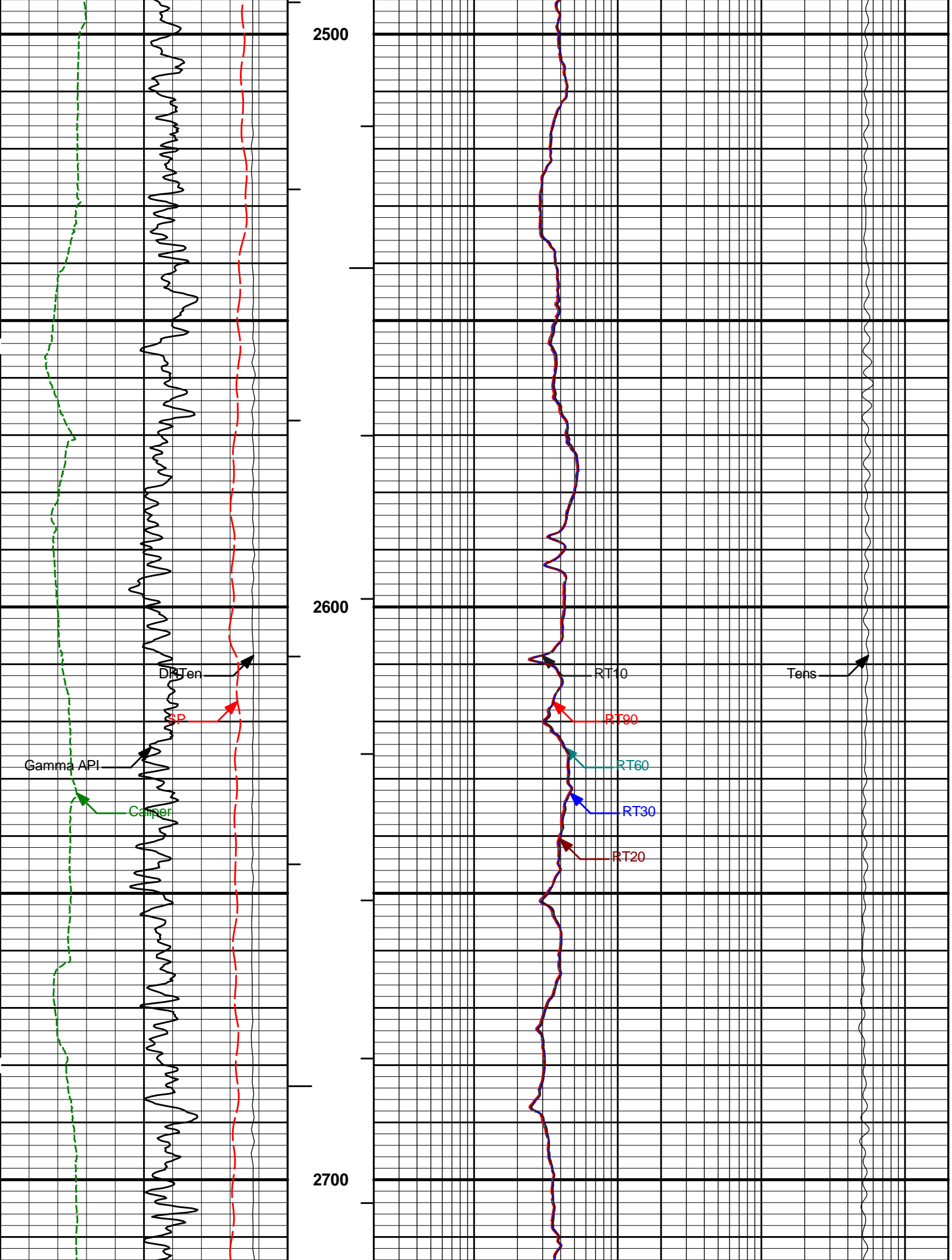
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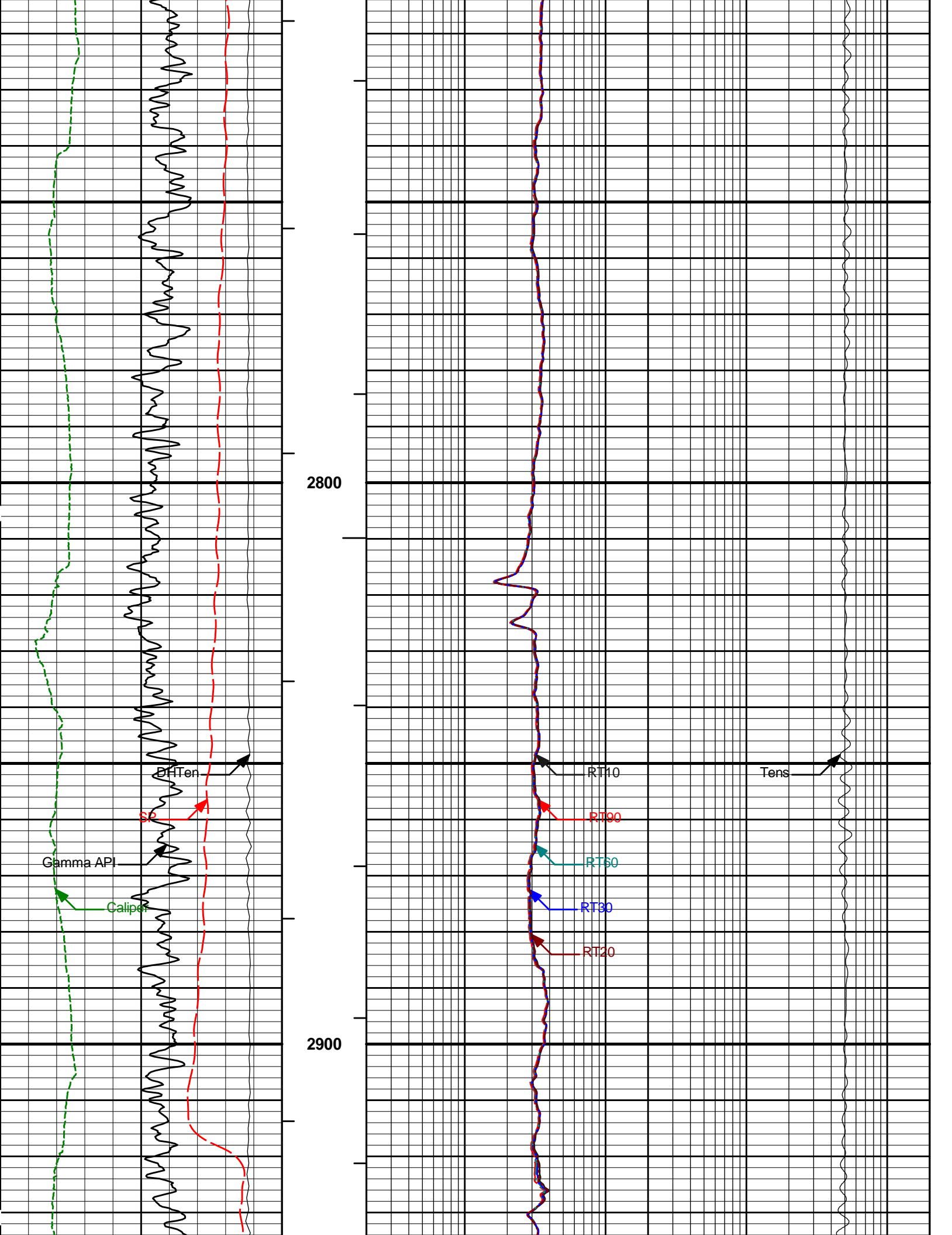
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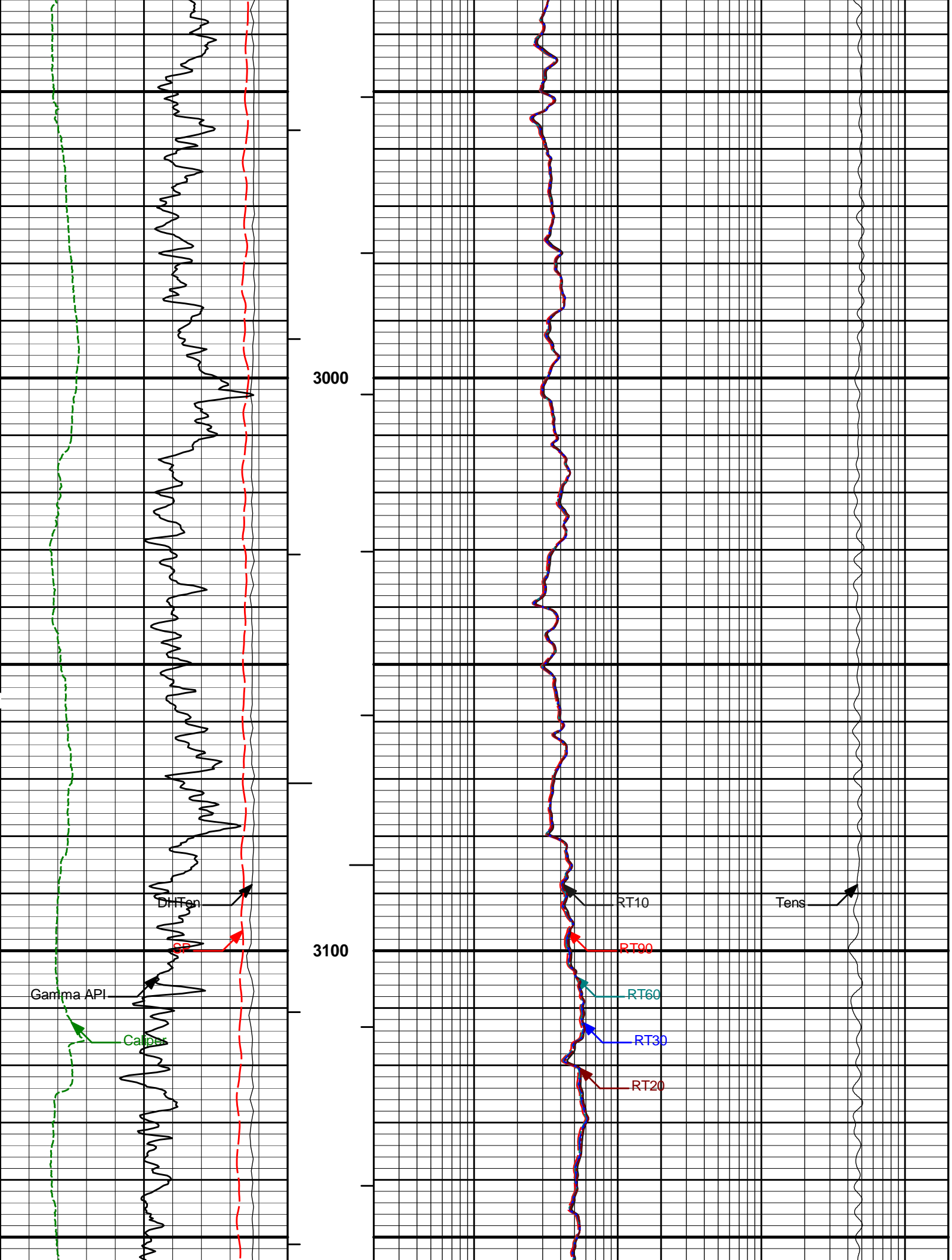


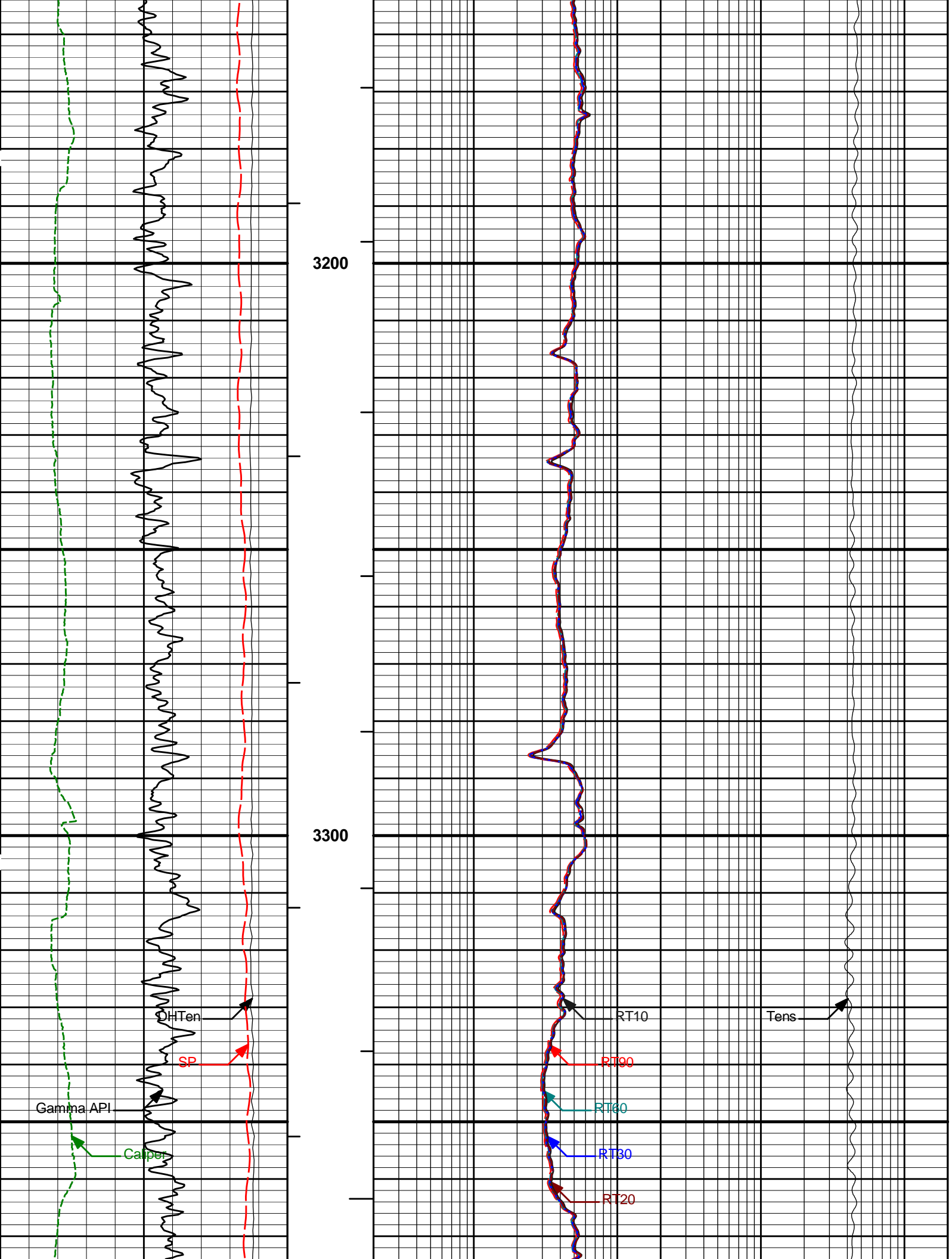


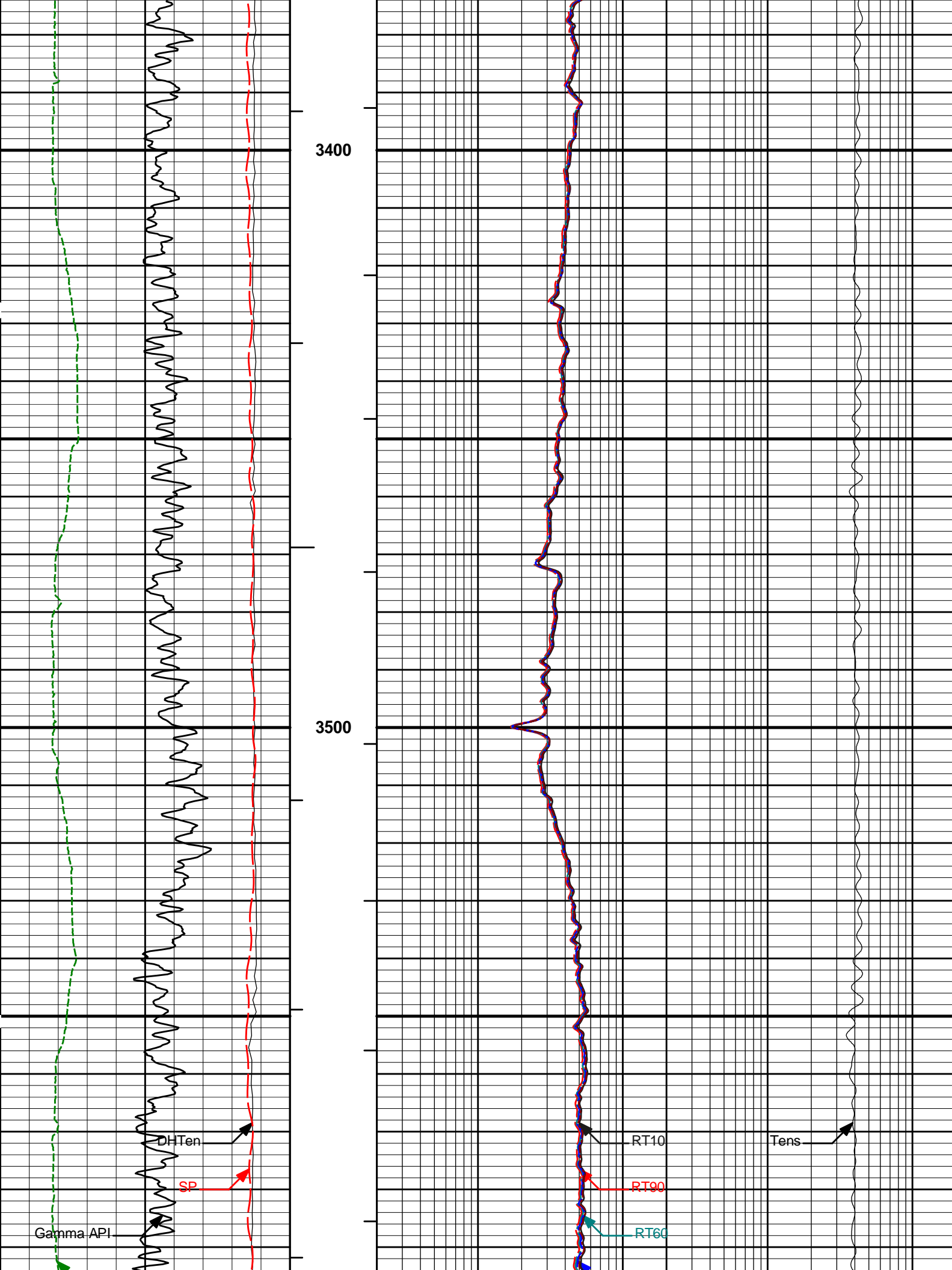


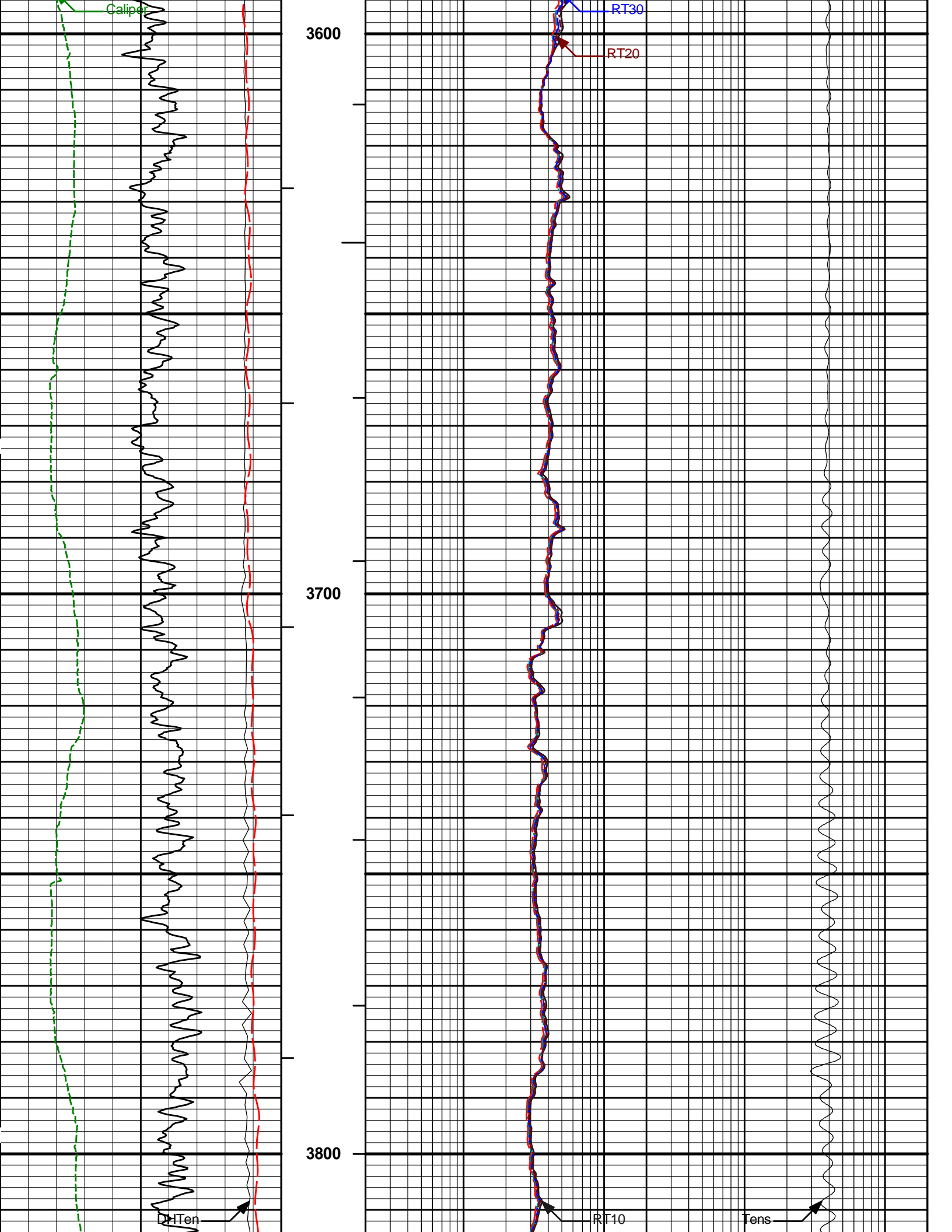


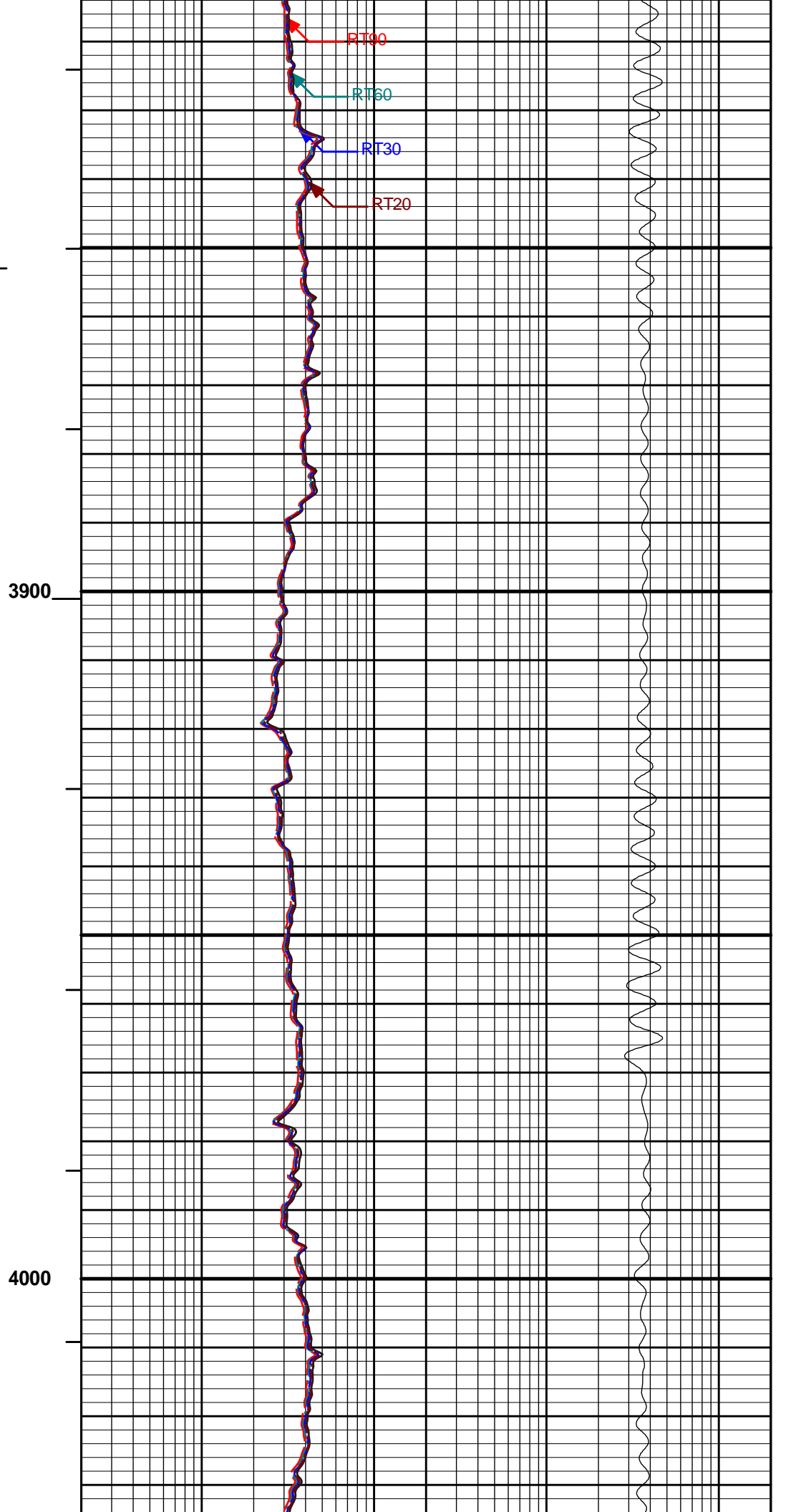
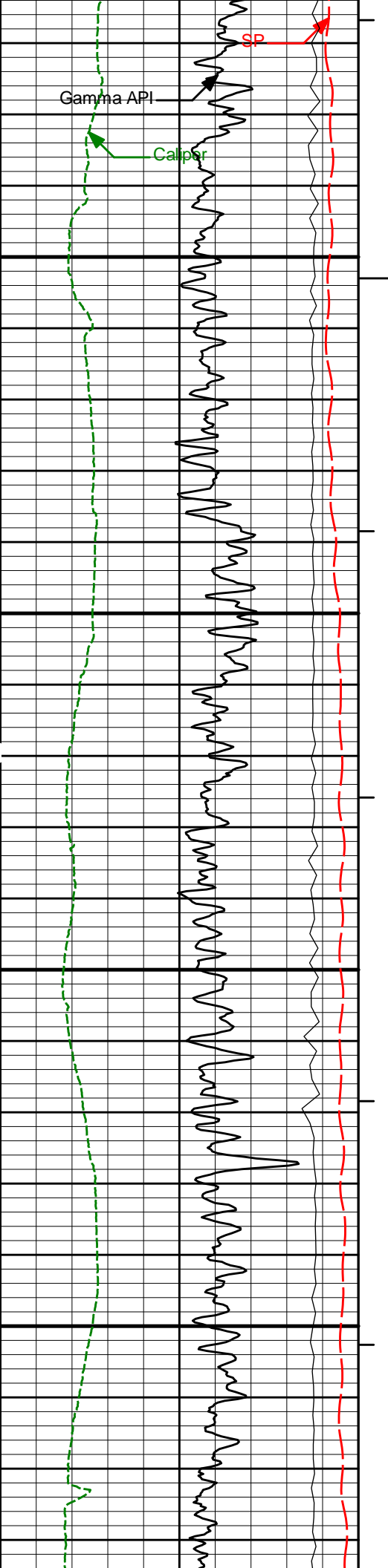


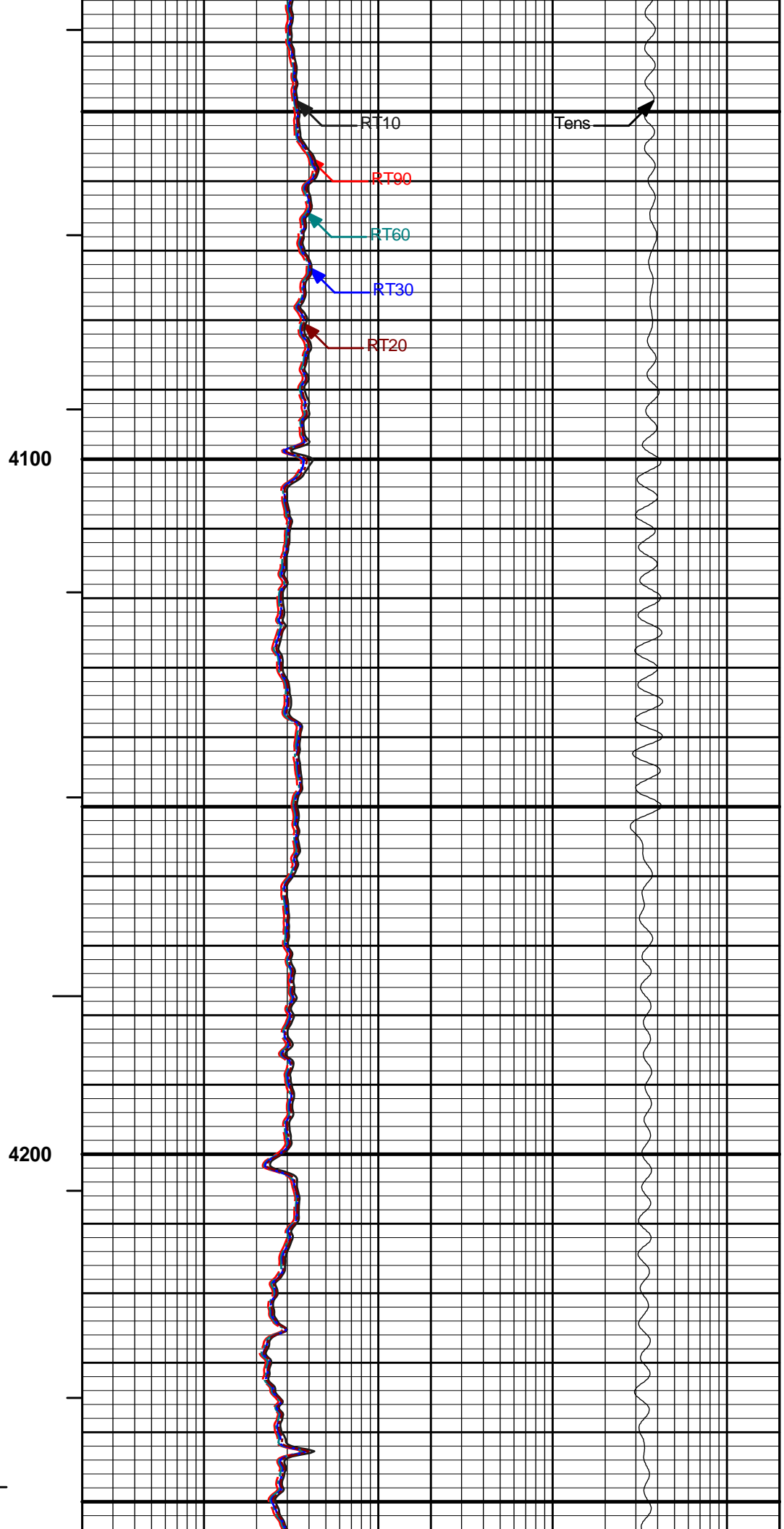
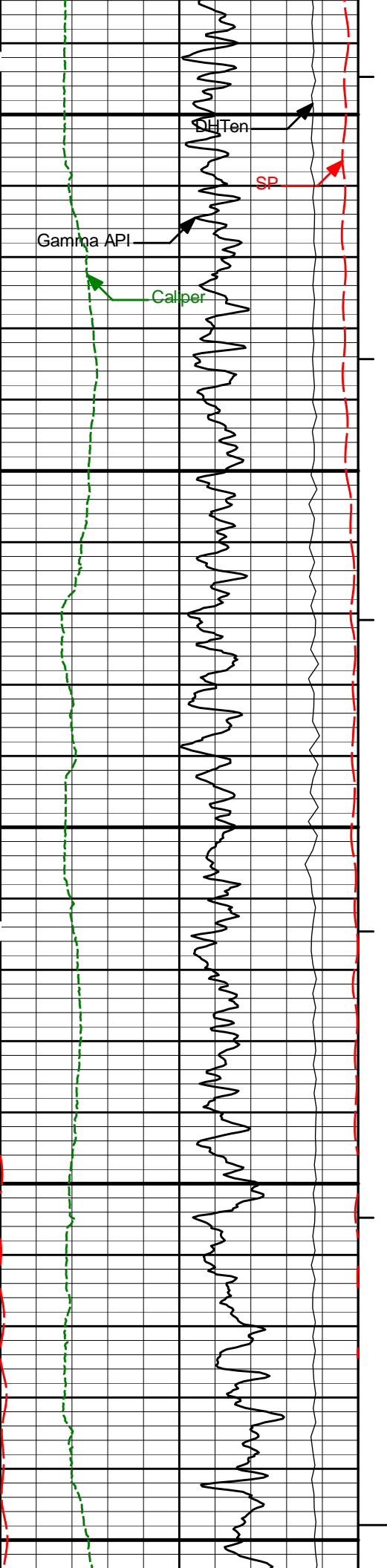


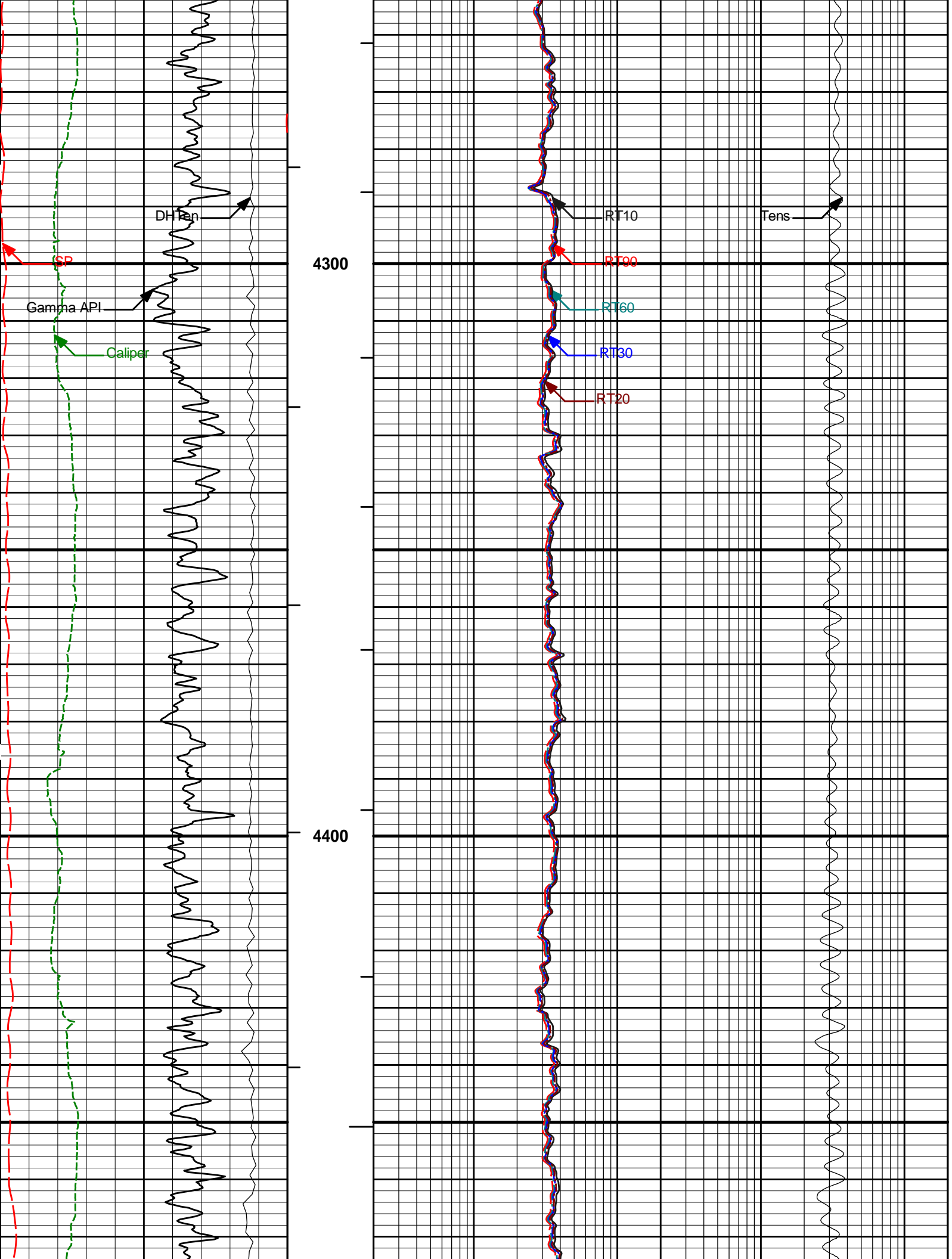


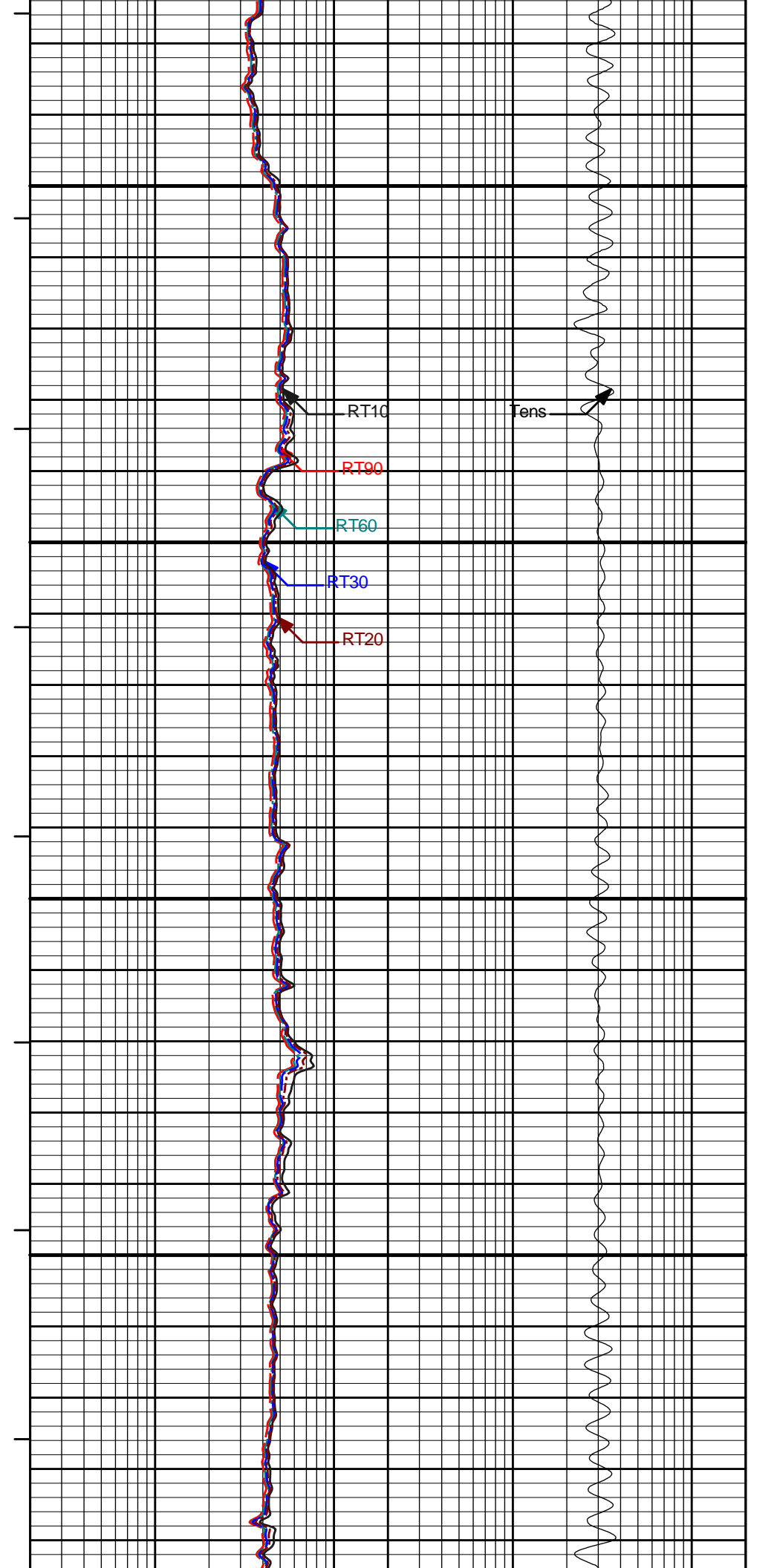
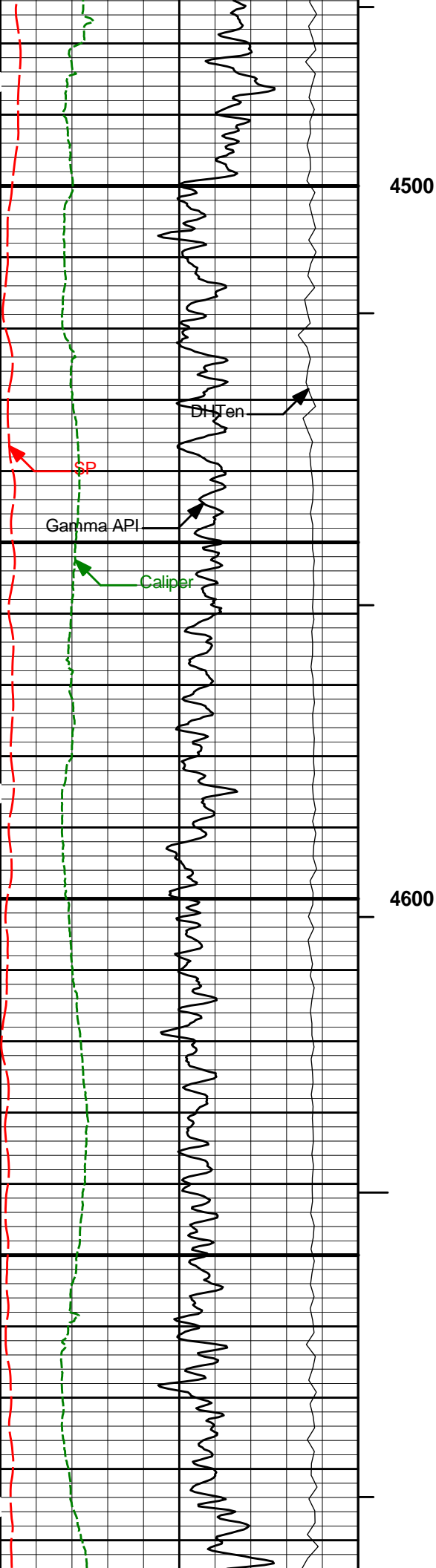


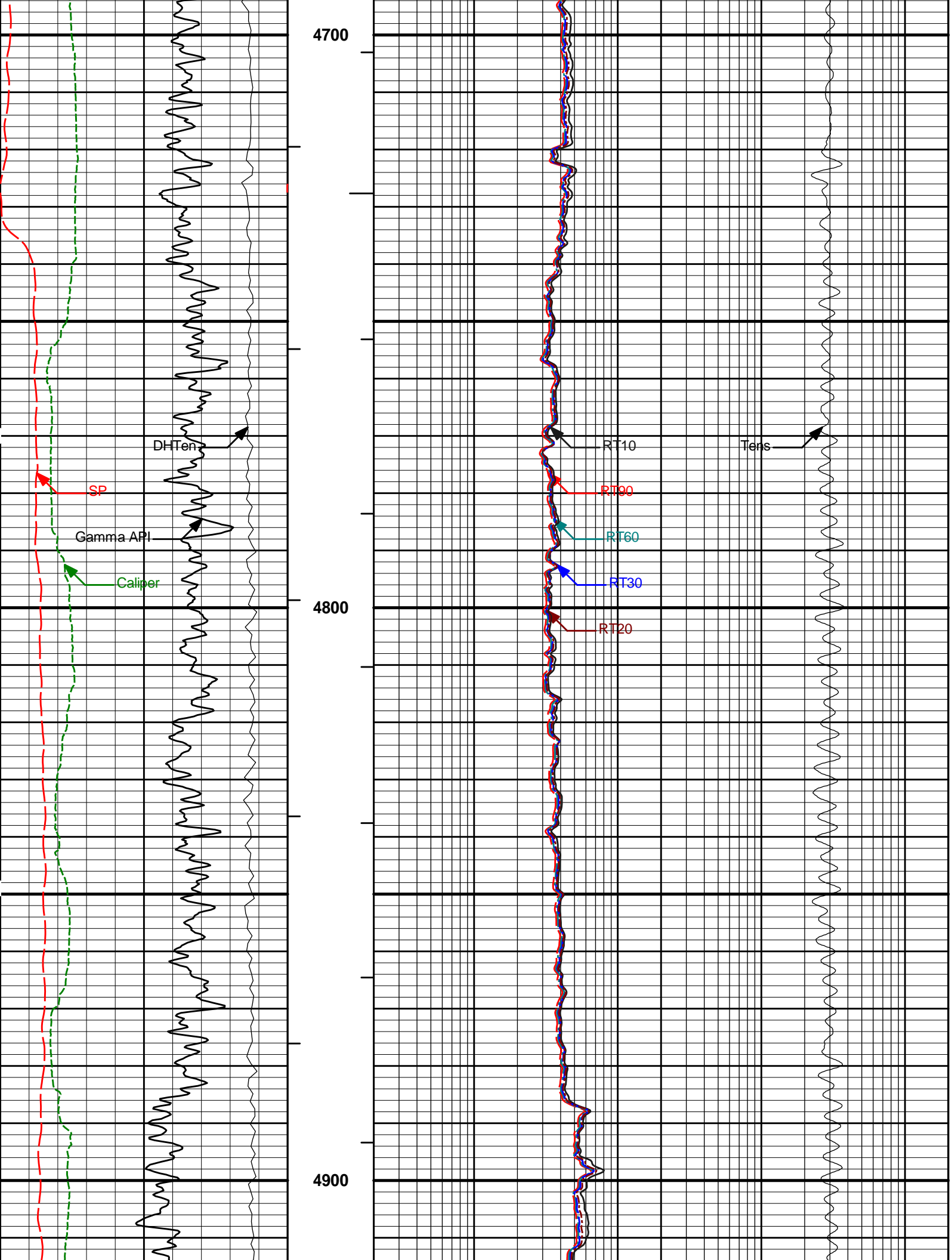


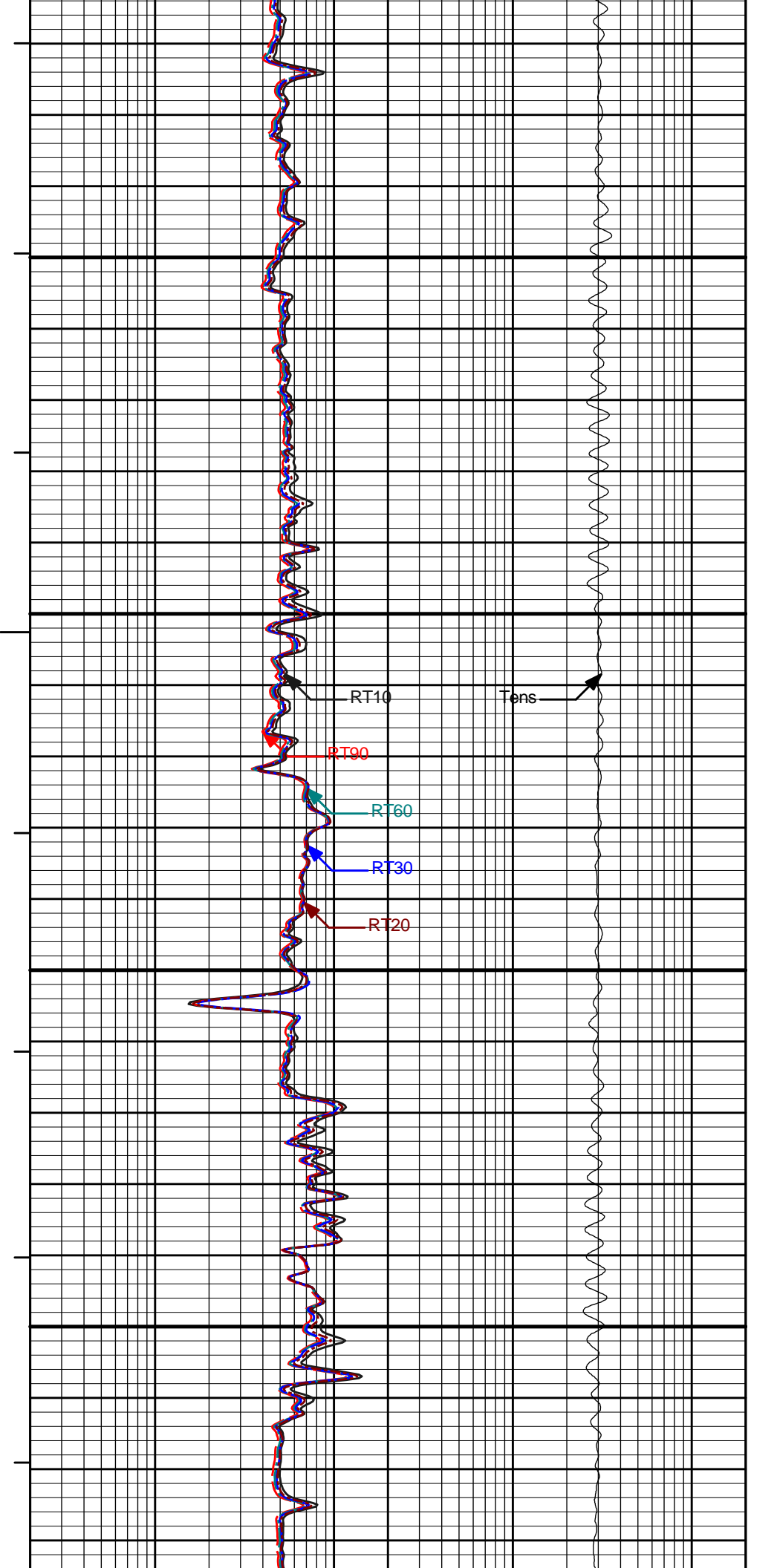
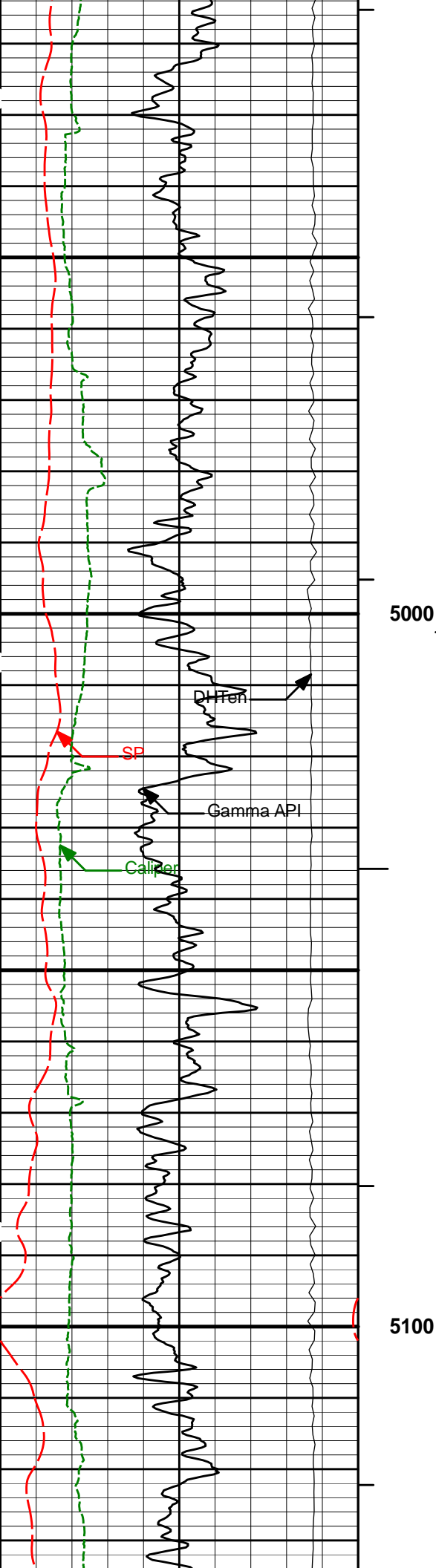


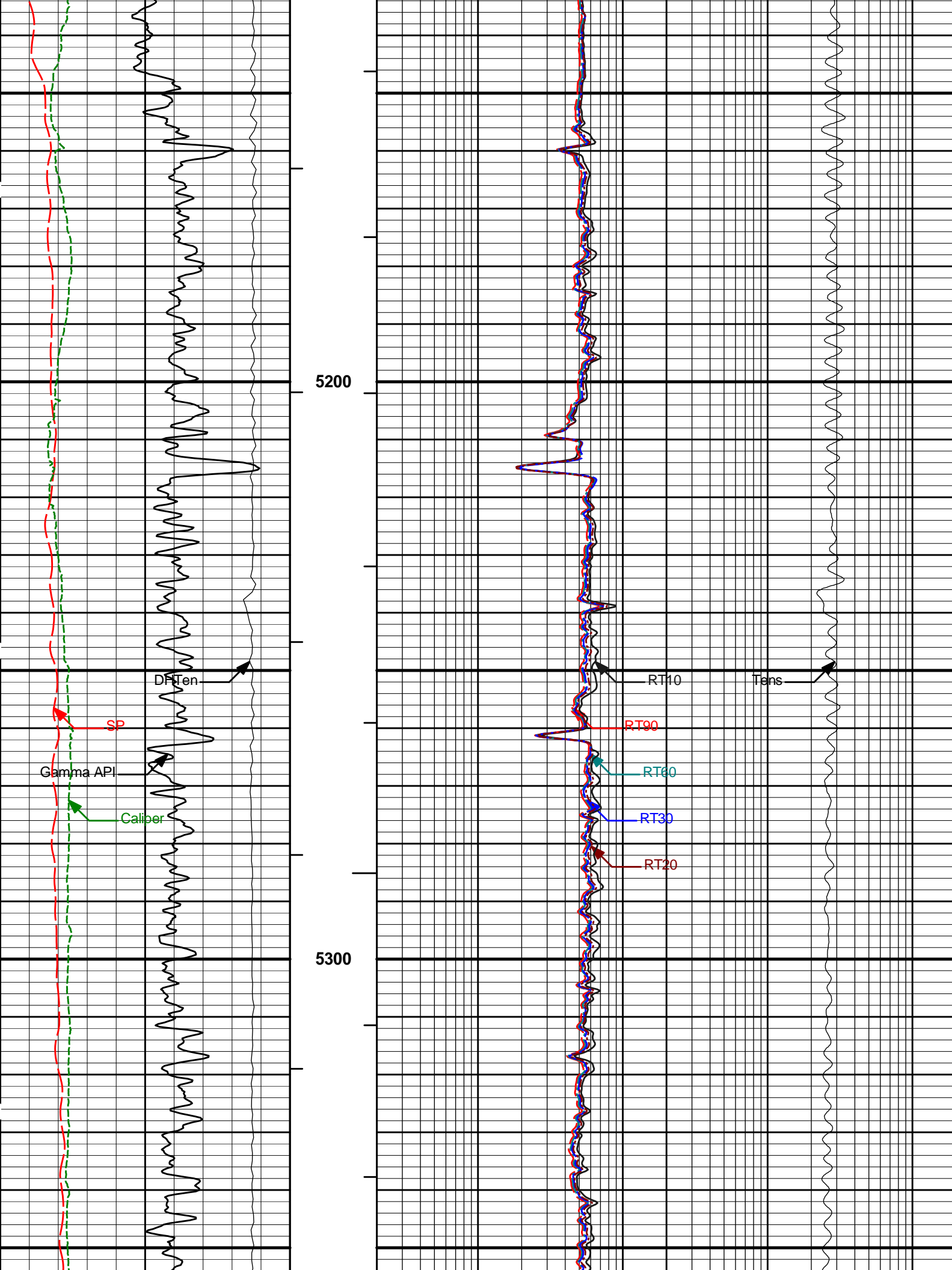


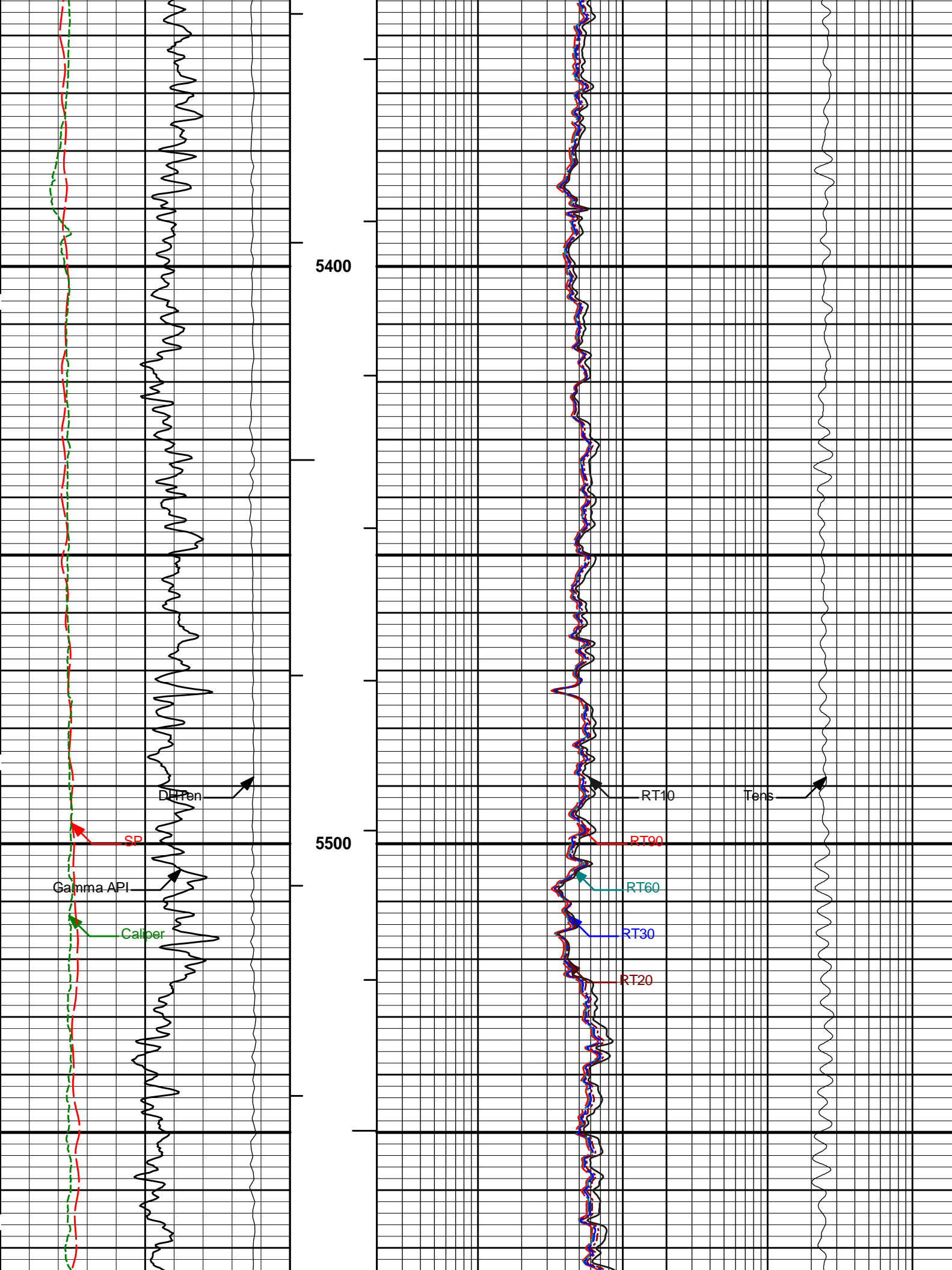


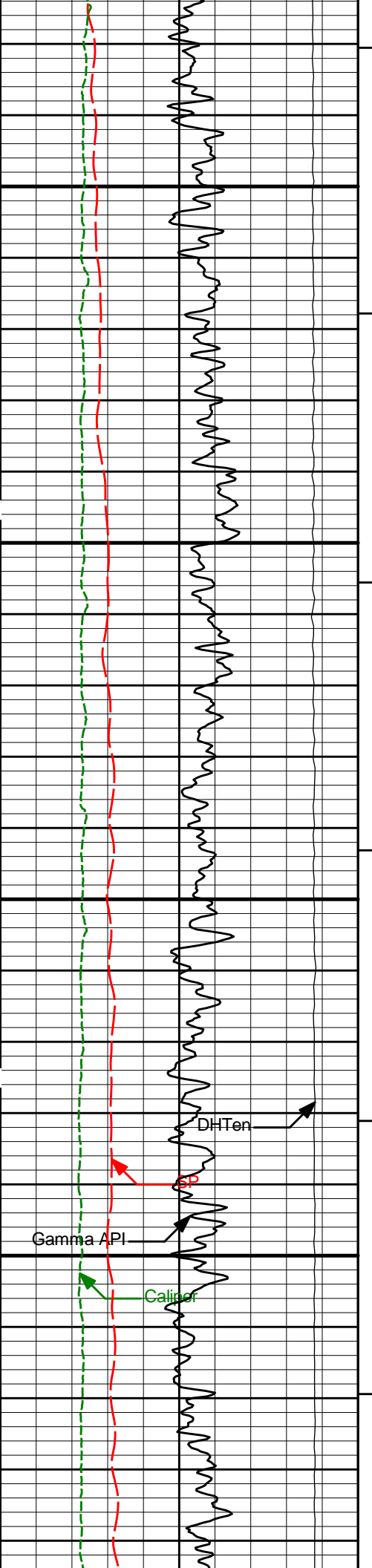






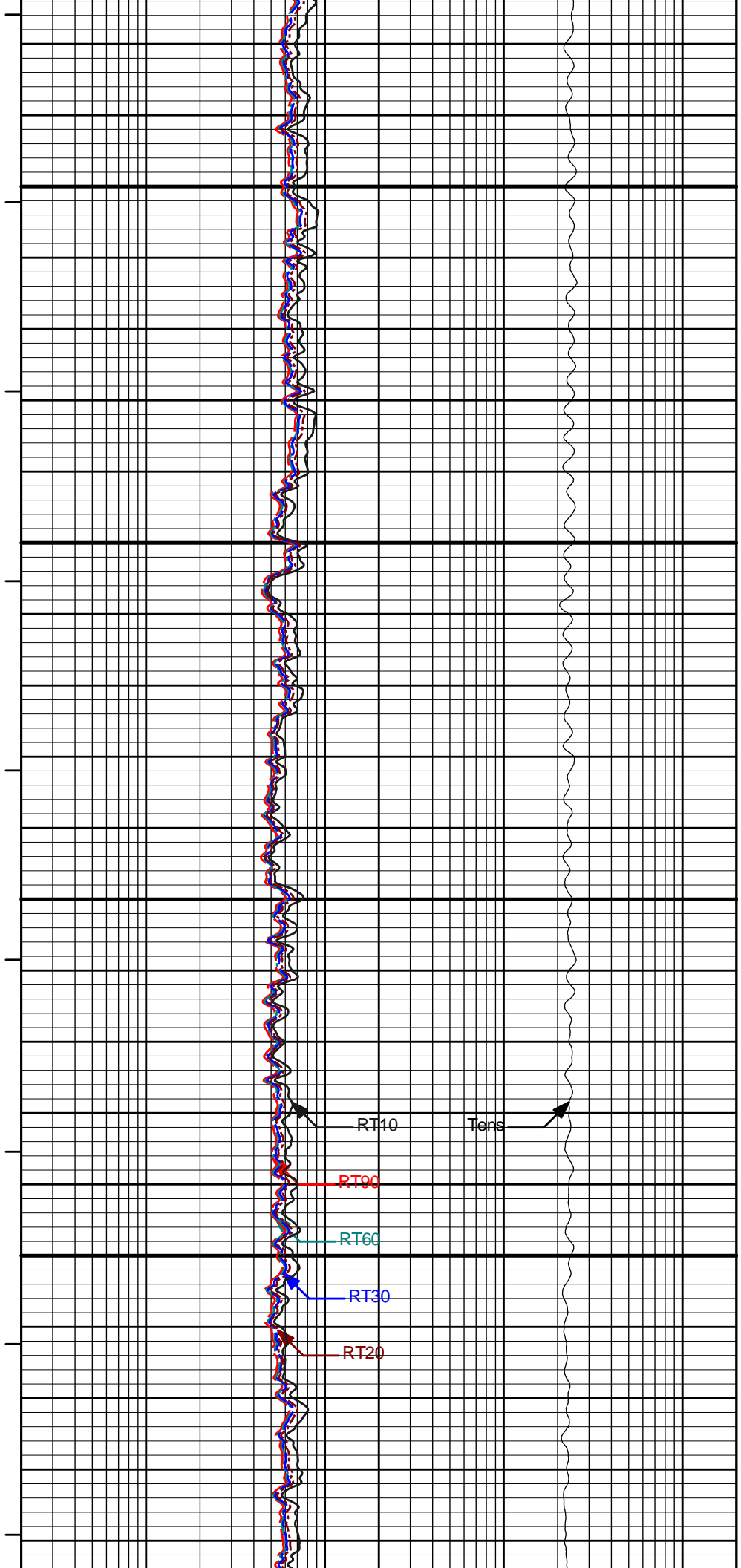


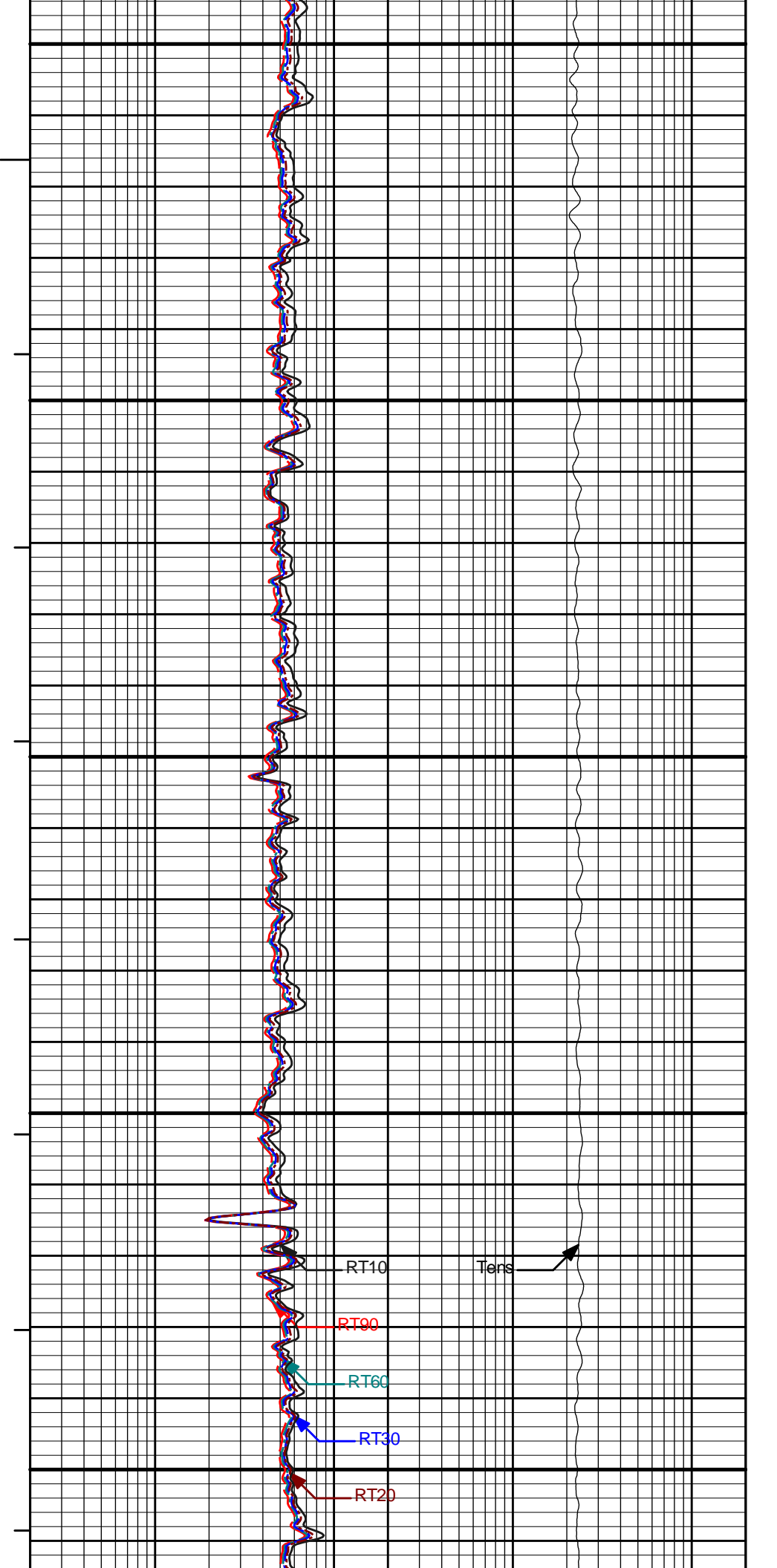
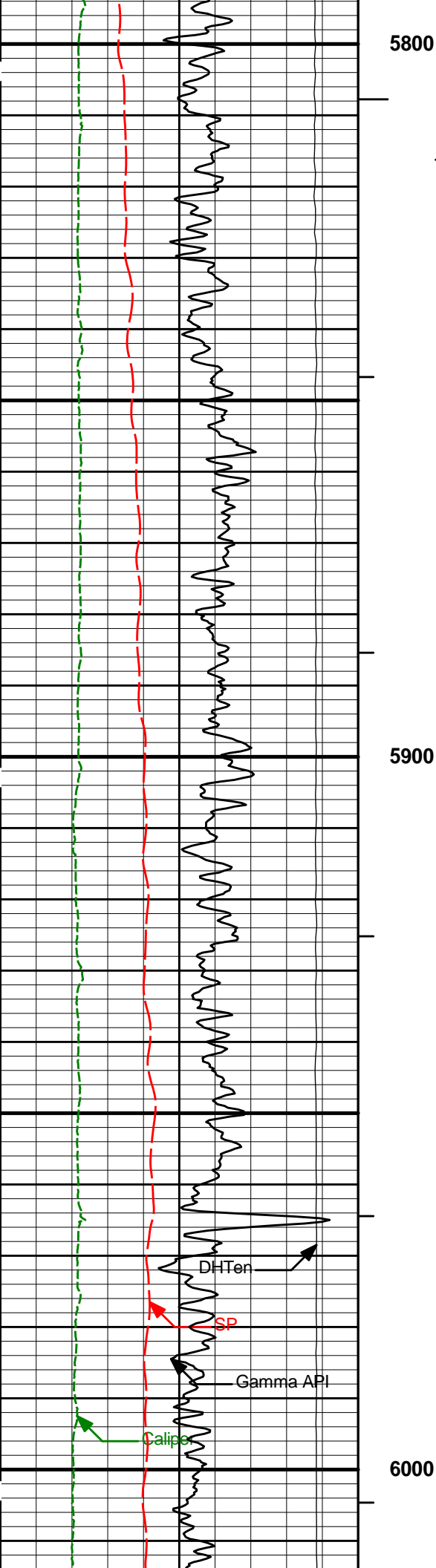


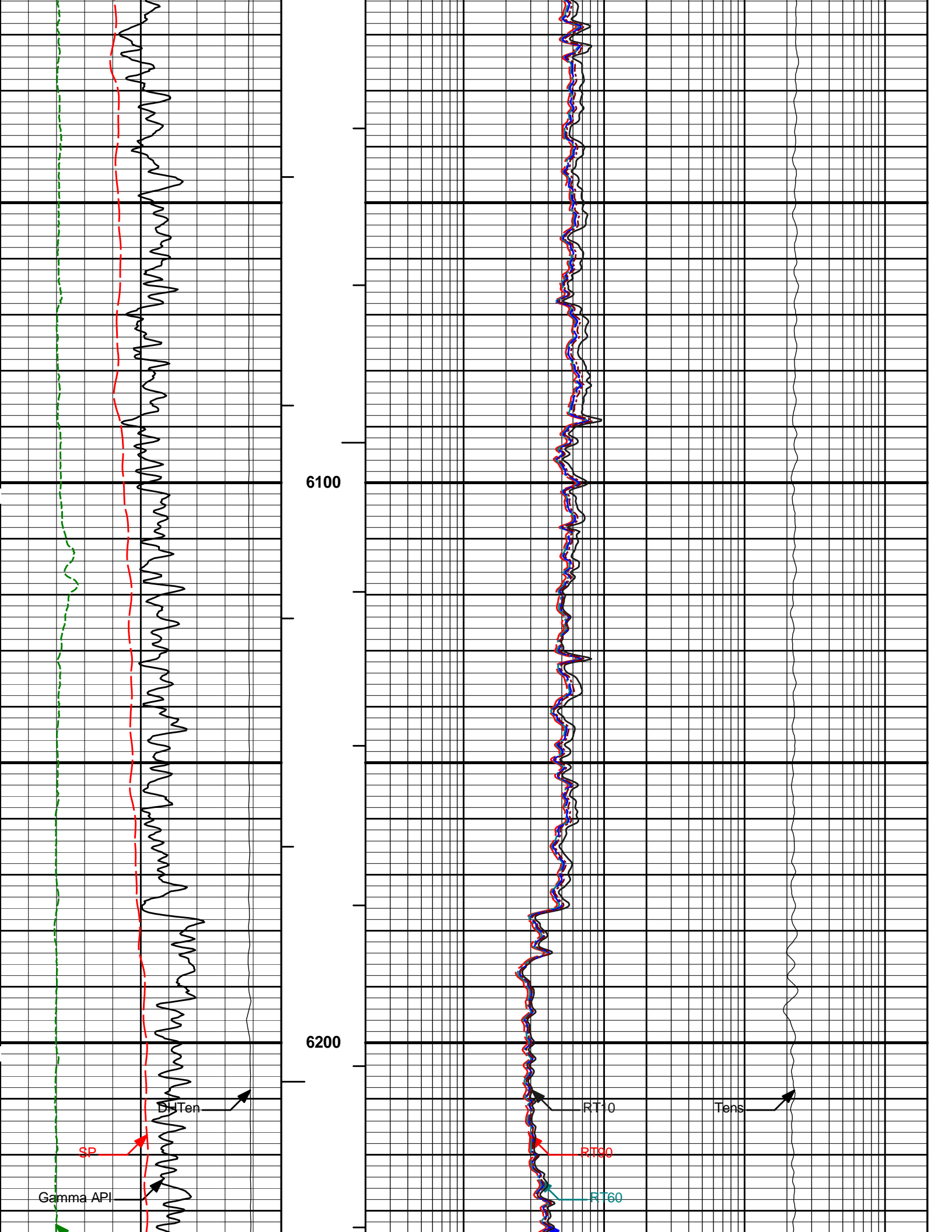


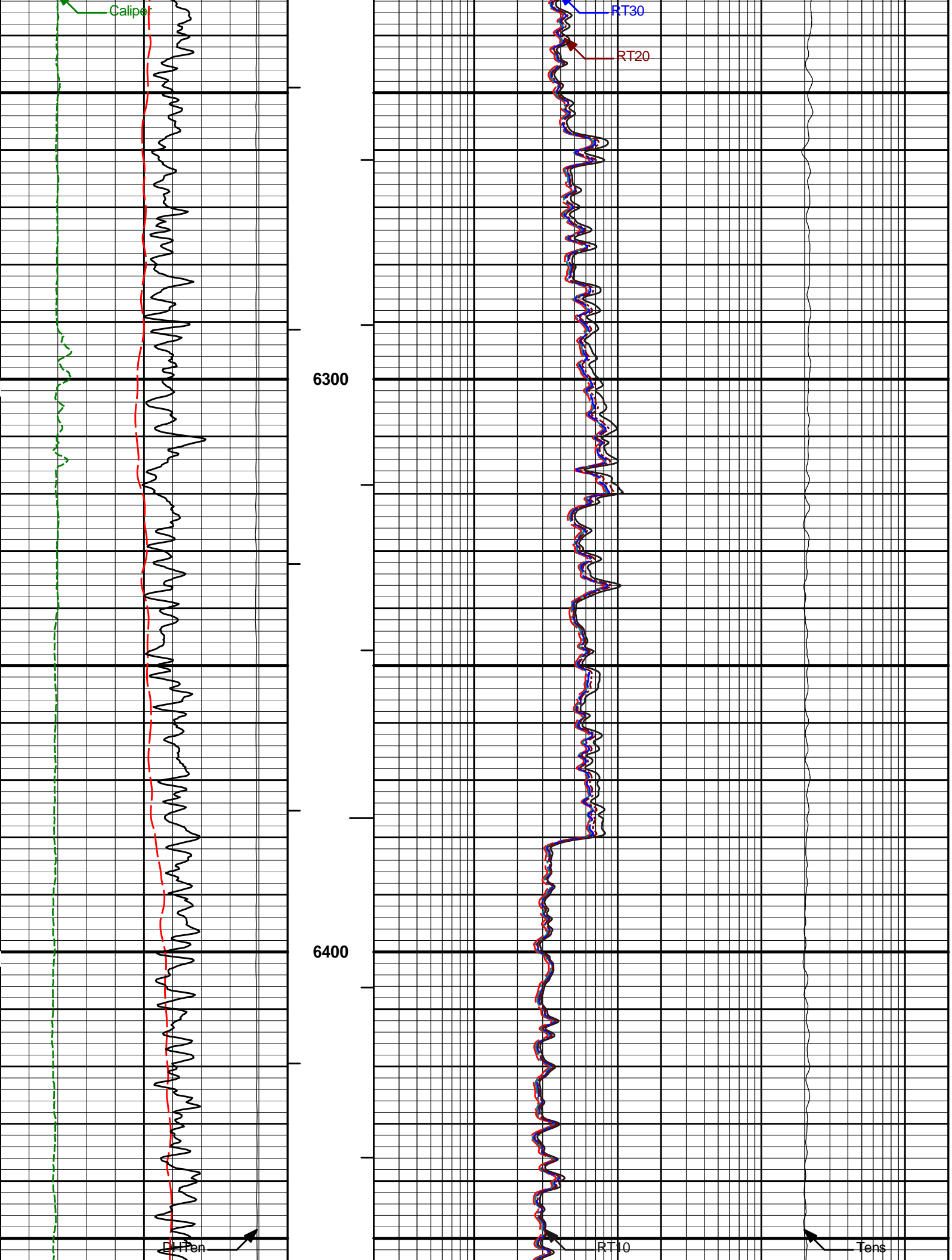
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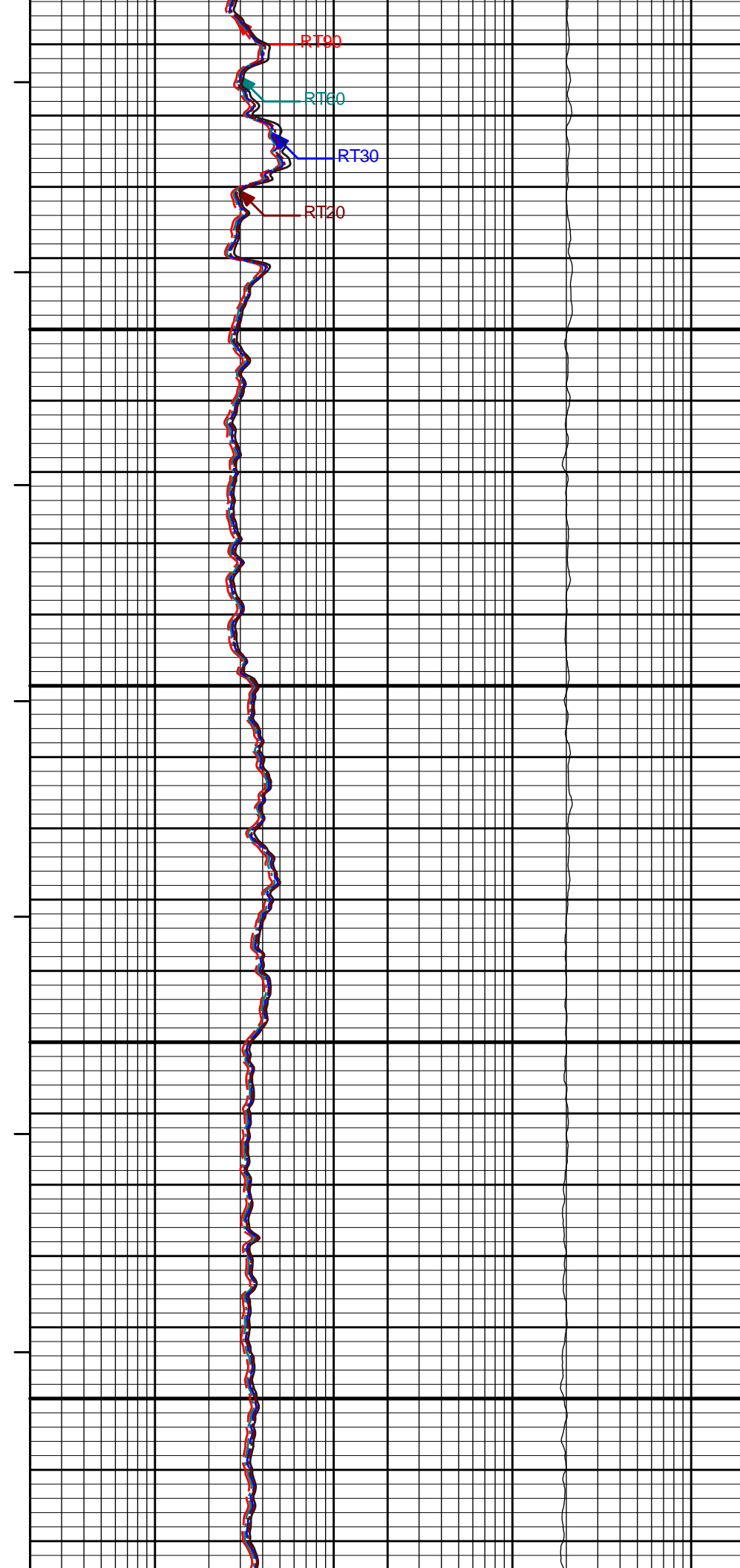
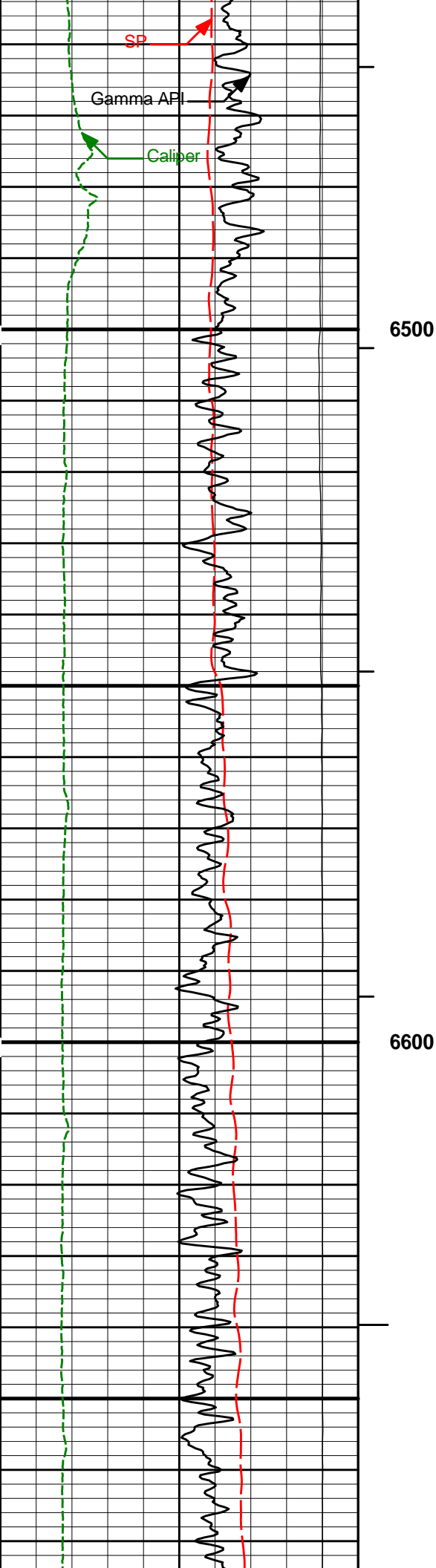
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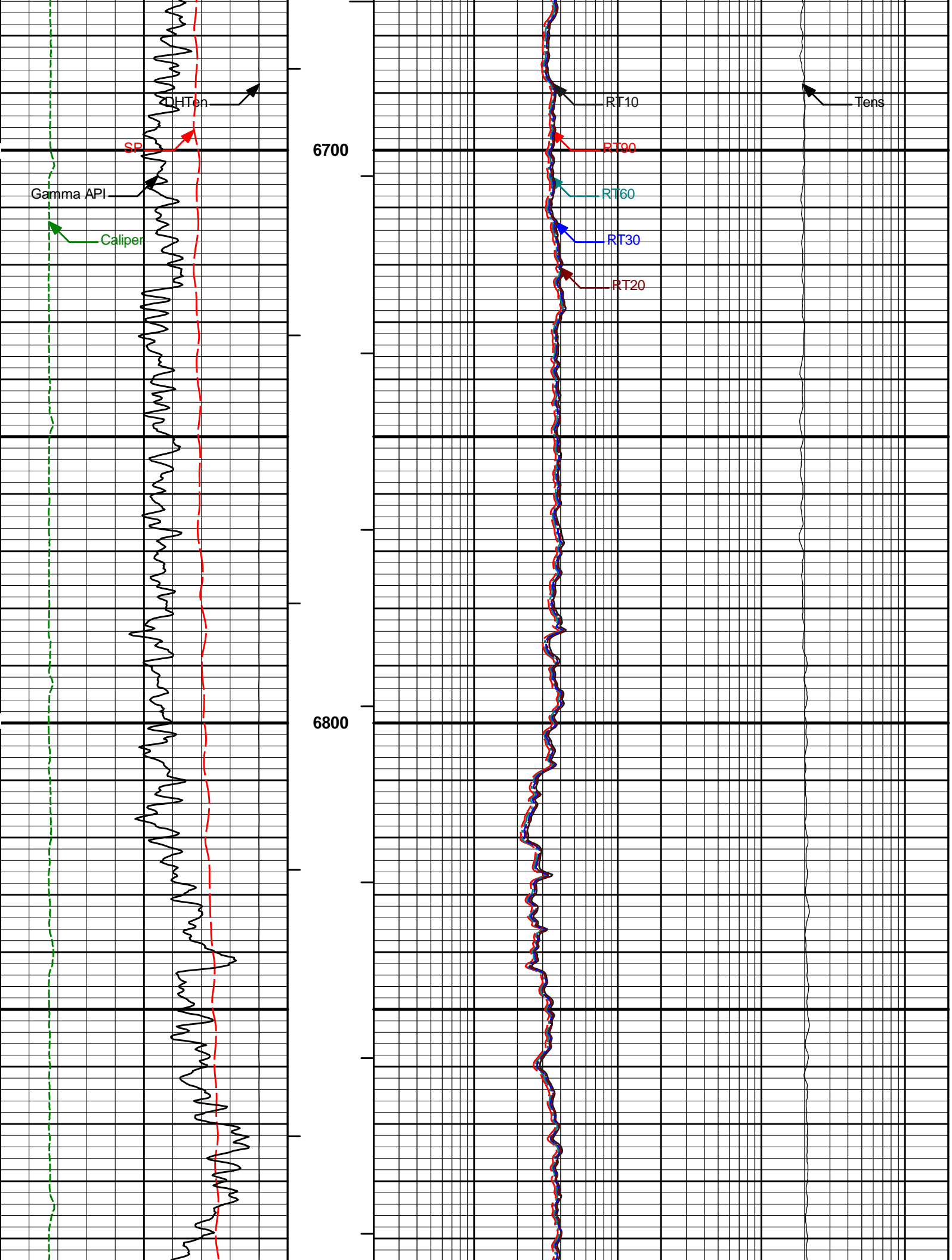


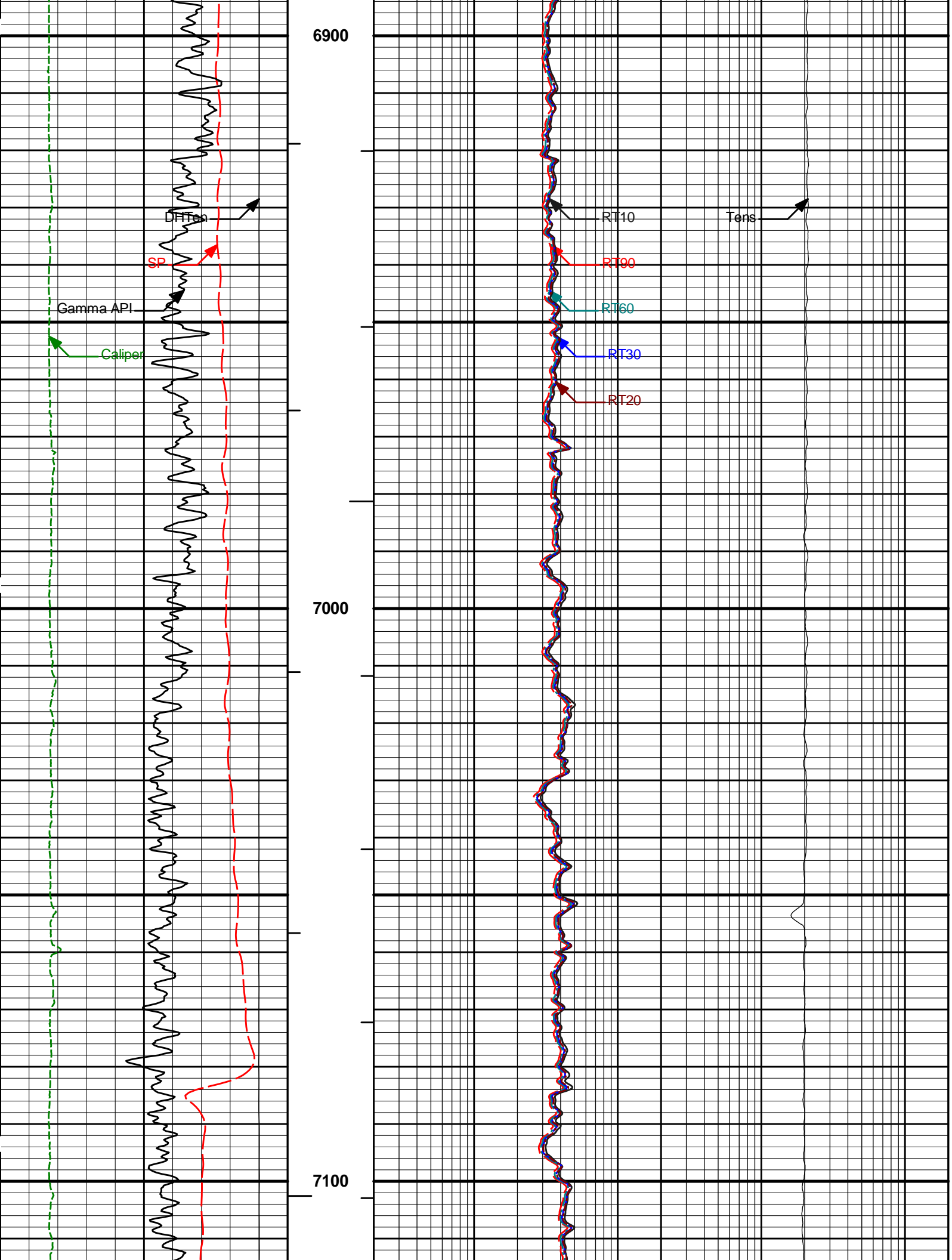


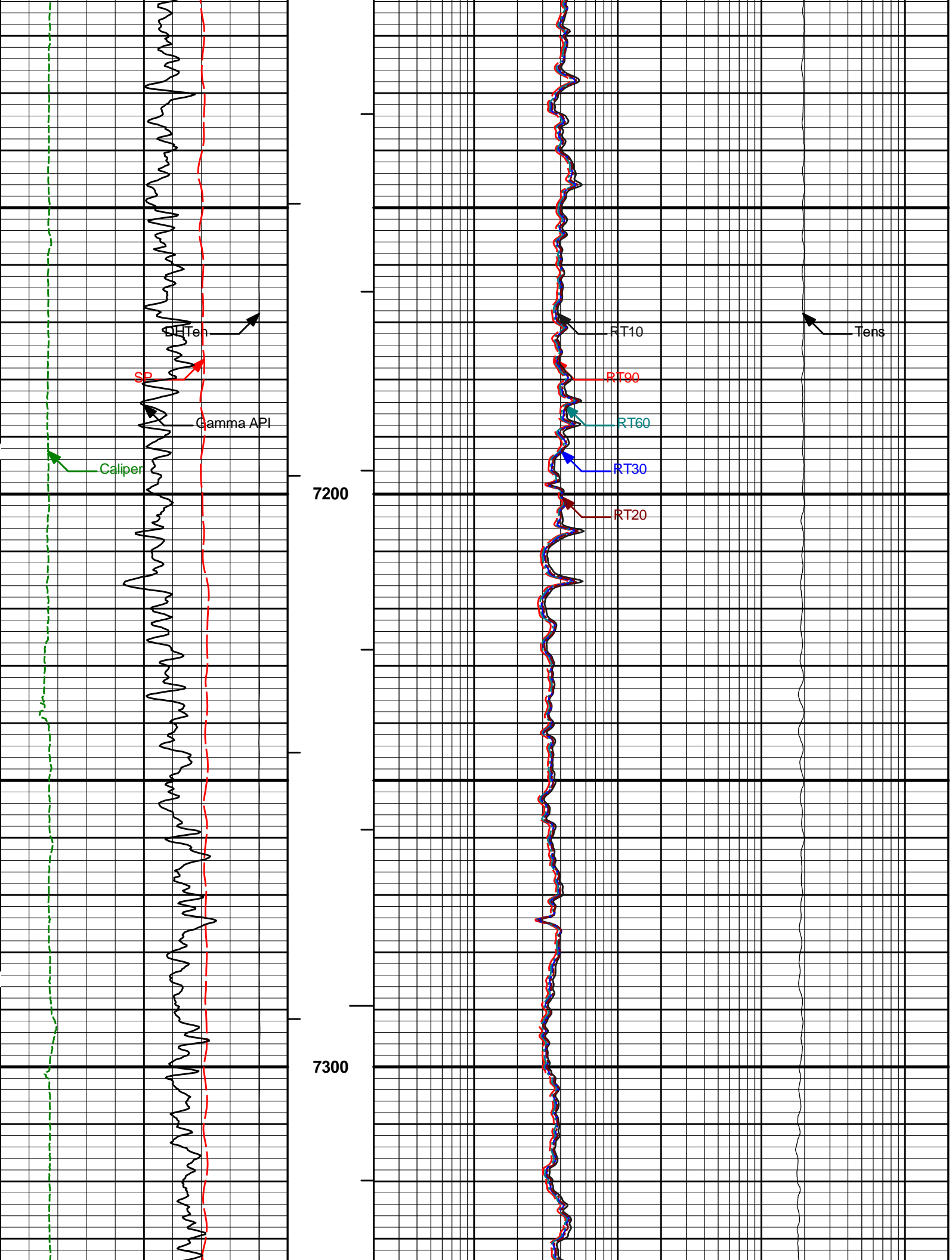


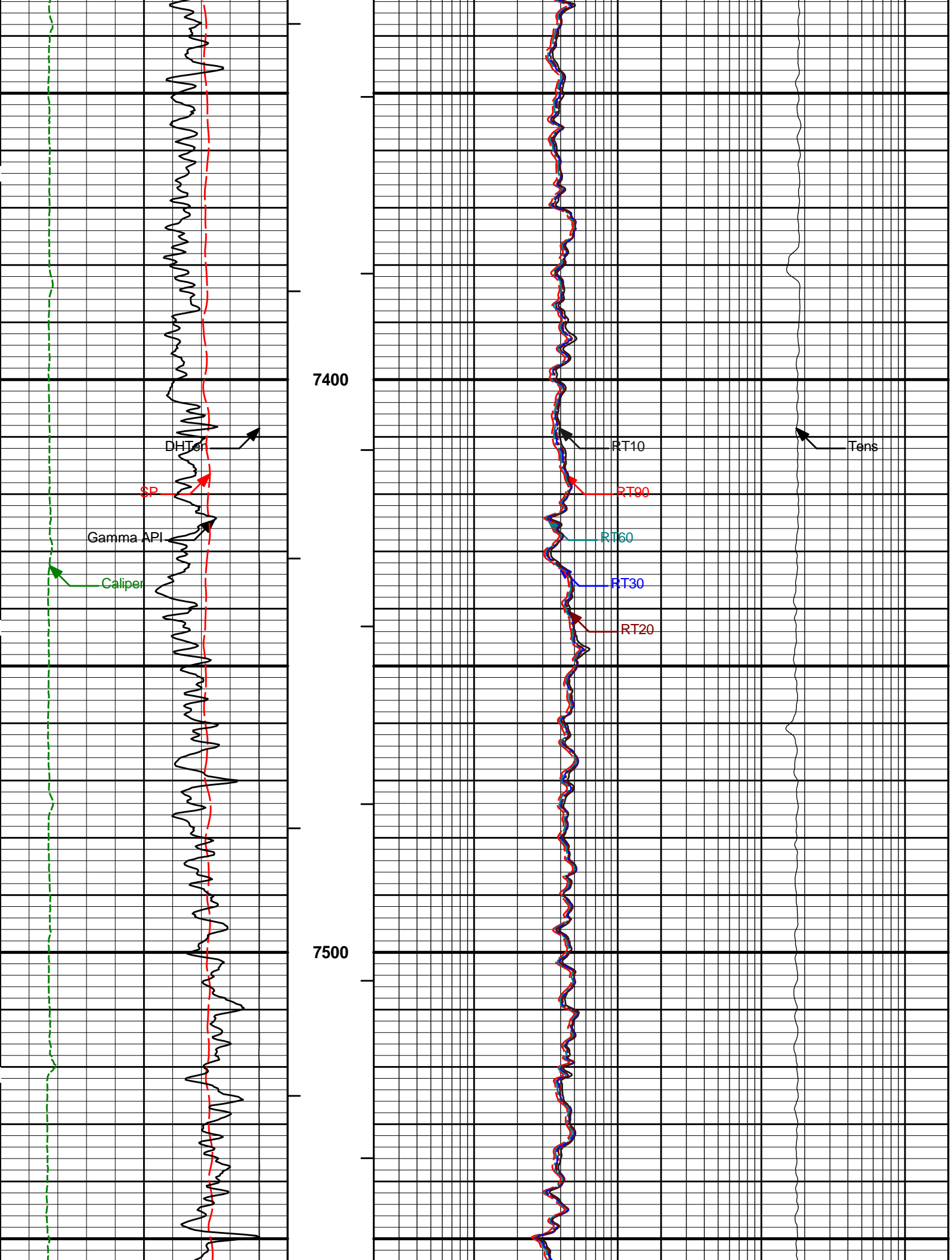


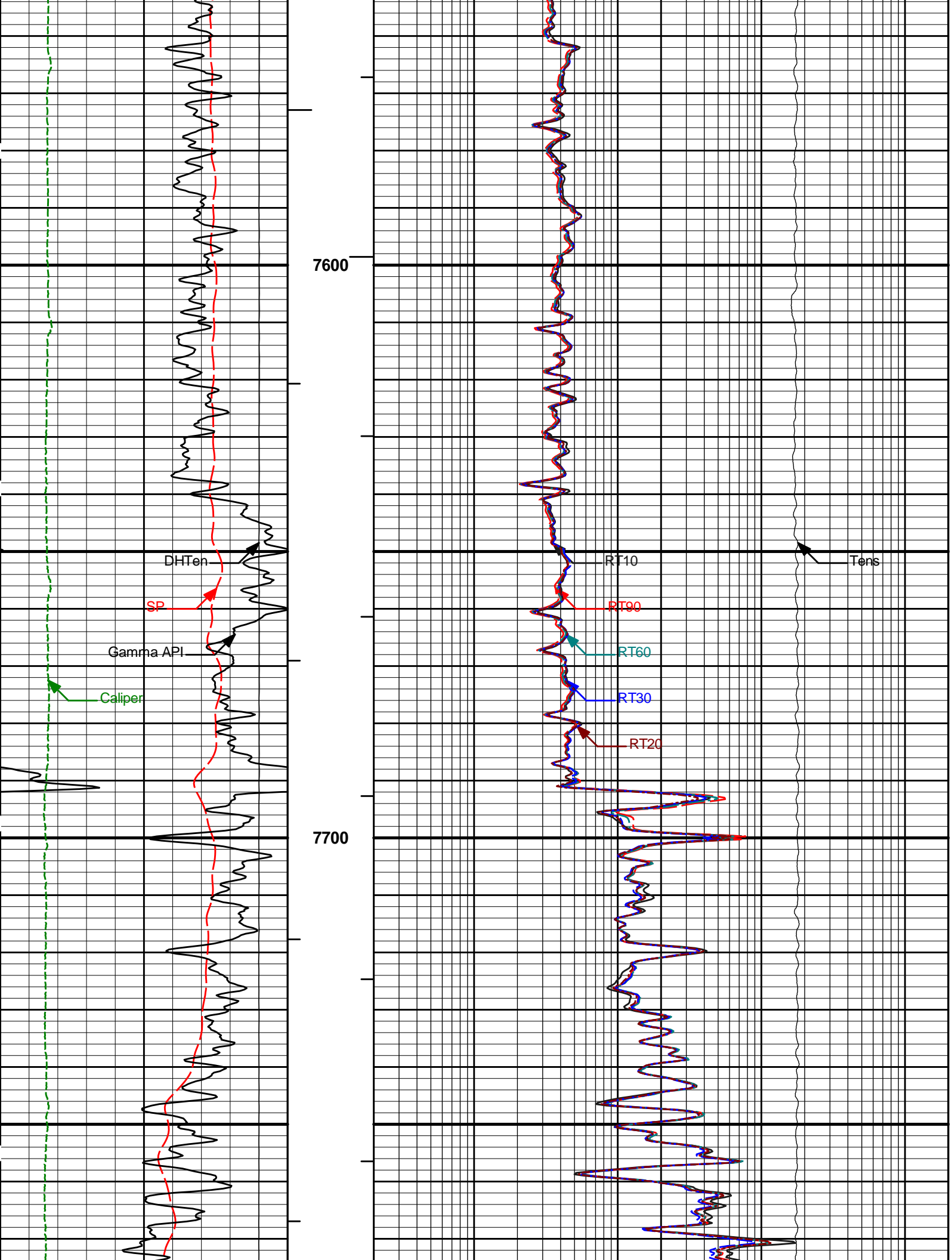


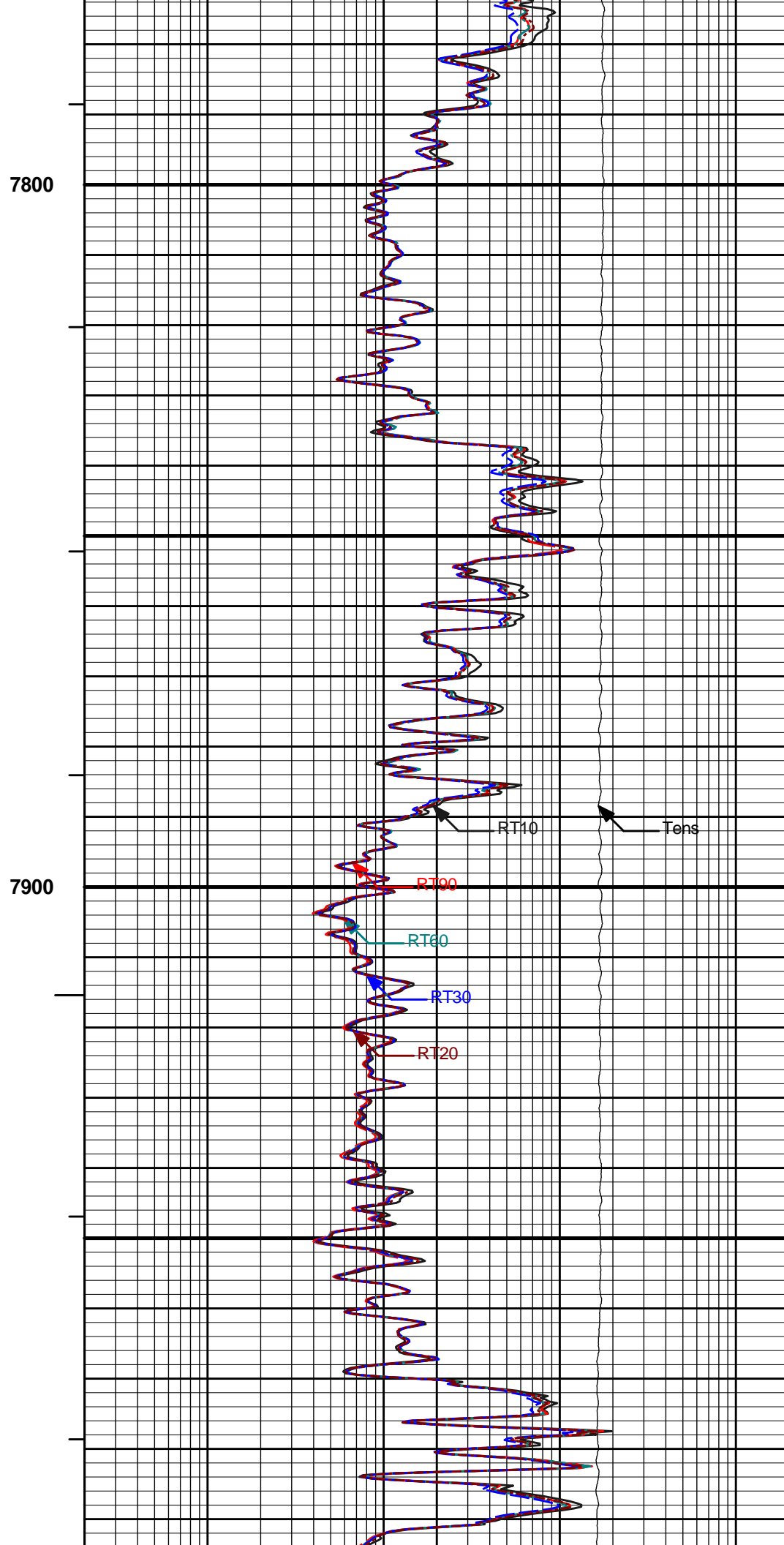
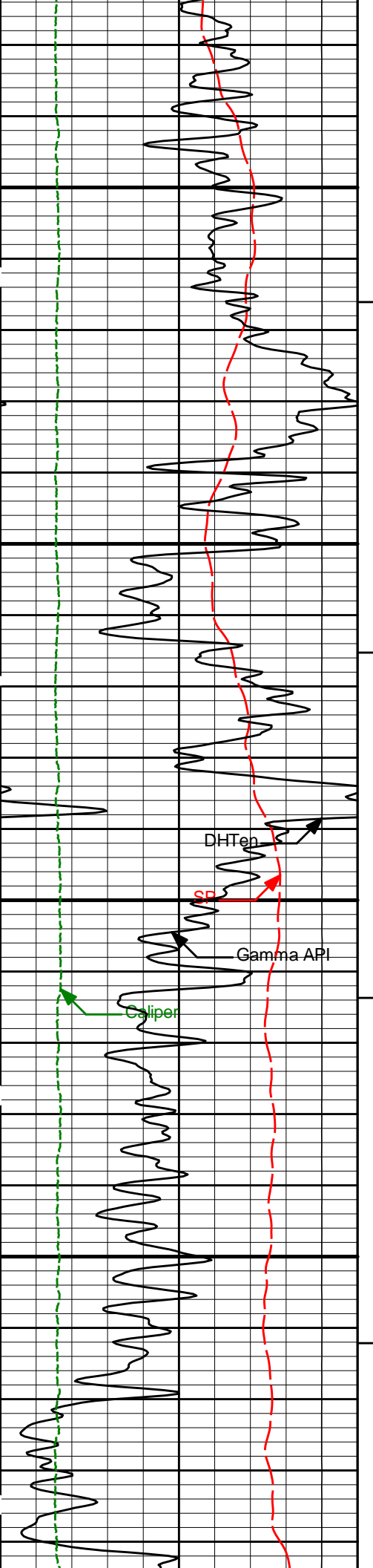


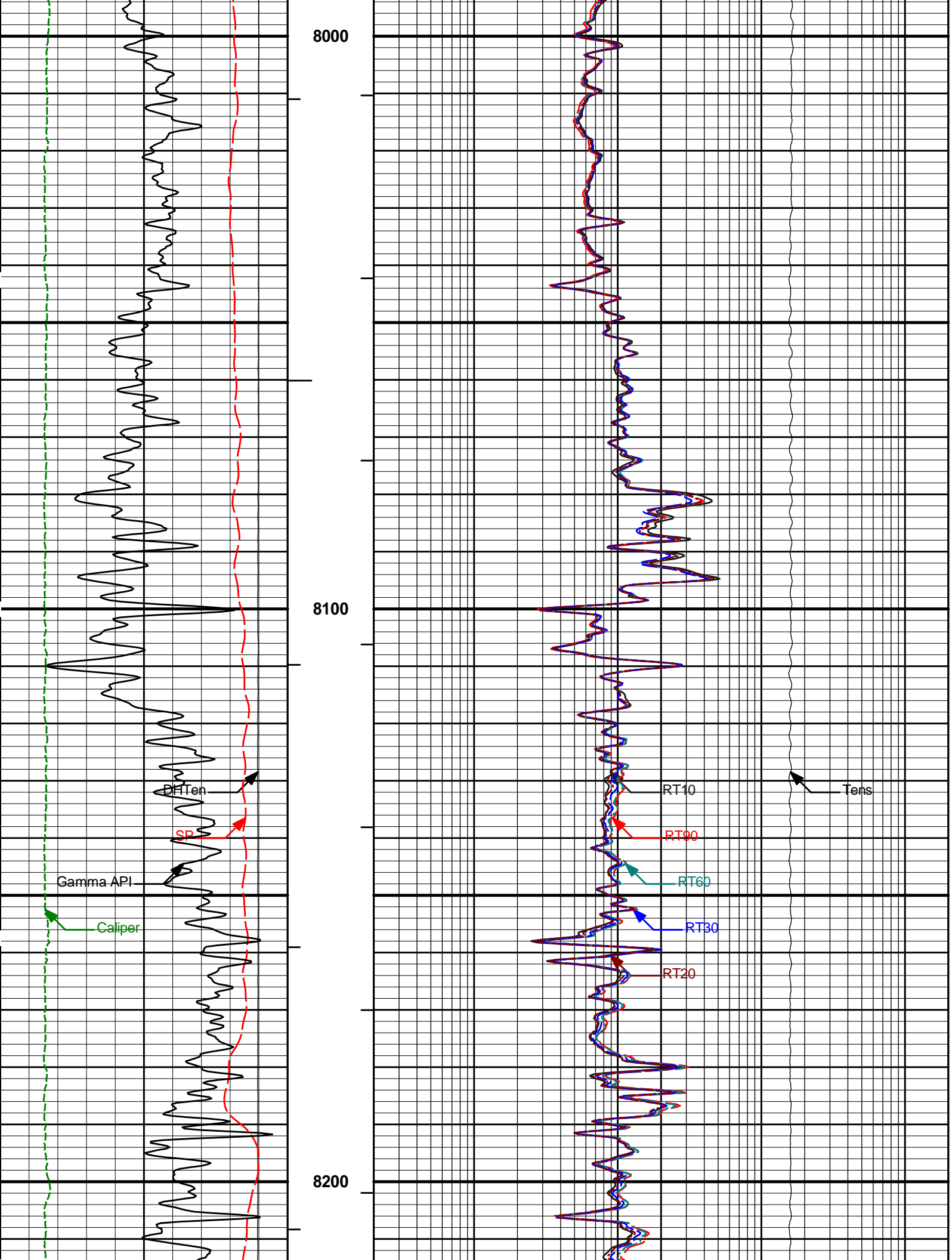


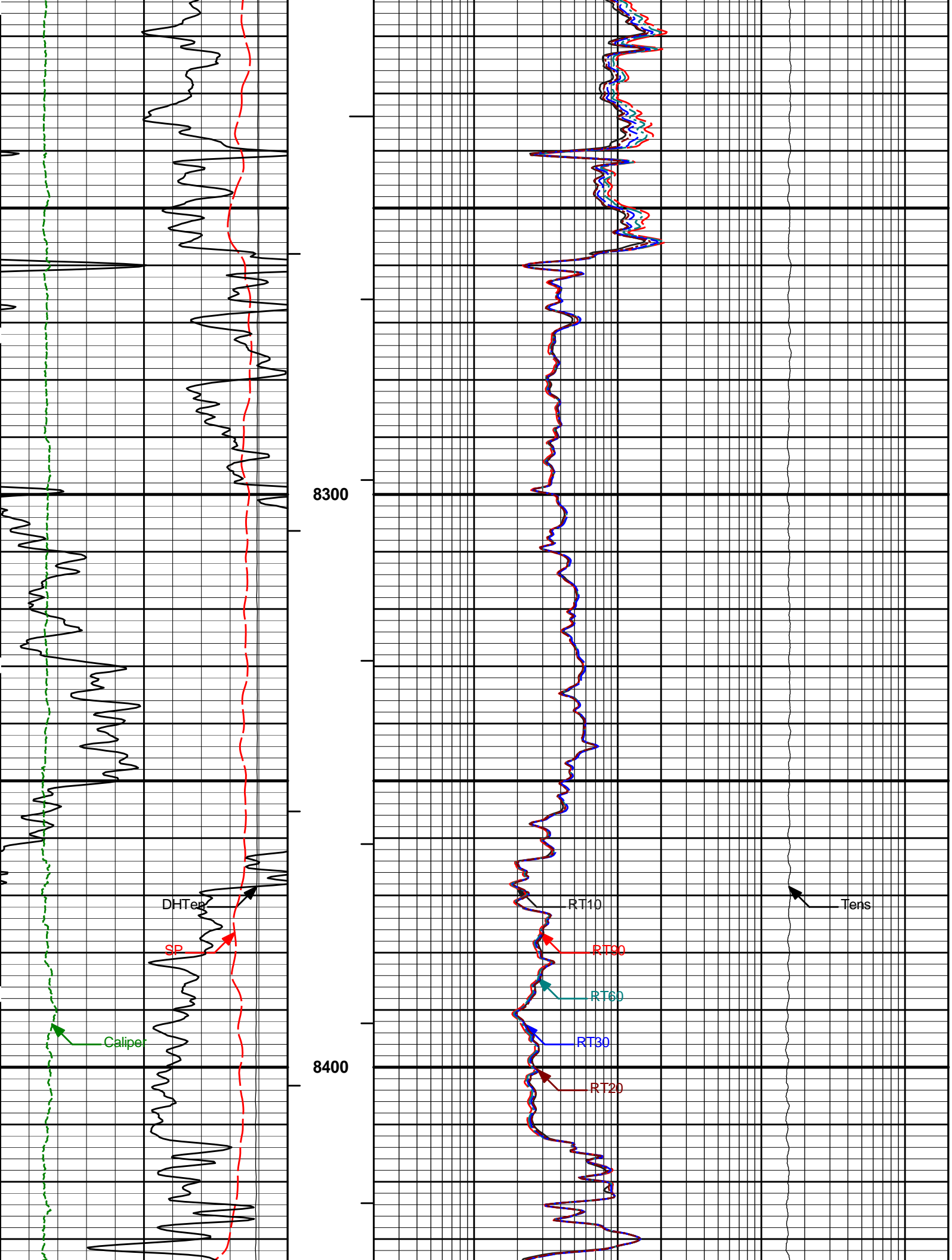


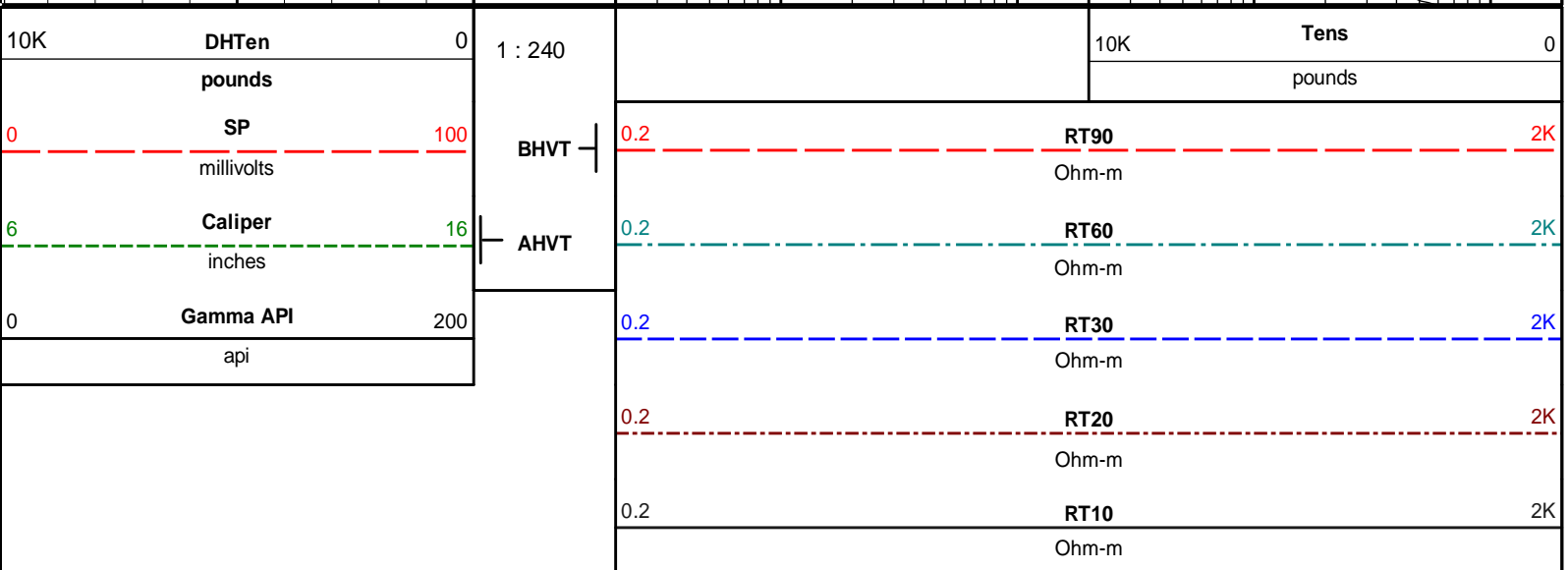
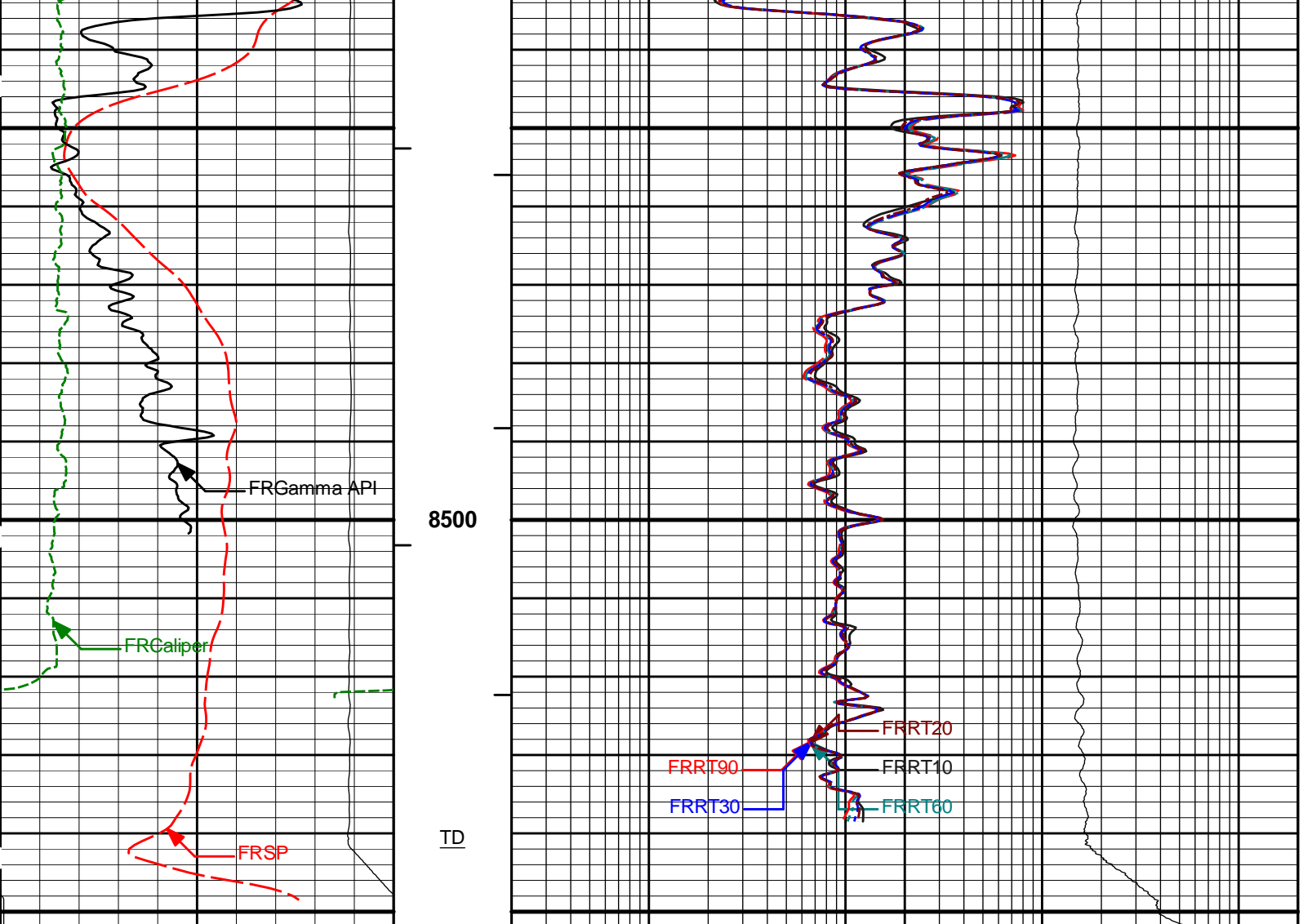













HALLIBURTON

Plot Time: 06-Oct-12 08:39:08
 Plot Range: 910 ft to 8551.95 ft
 Data: ANA_CAMNCH_36_2\Well Based\MAIN\
 Plot File: \\RES\IQ_BP_ACRt_5IN_DHT

MAIN PASS 5" = 100'

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
RWCH-11103904 135.00 lbs		Ø 3.625 in →		← Load Cell @ 57.80 ft ← BH Temperature @ 57.23 ft	6.25 ft	61.48 ft
GTET-11602914 165.00 lbs		Ø 3.625 in →		← GammaRay @ 49.17 ft	8.52 ft	55.23 ft
DSNT-11020488 174.00 lbs		Ø 3.625 in →		← DSN Far @ 39.78 ft ← DSN Near @ 39.03 ft	9.69 ft	46.71 ft
SDLT-10947725 360.00 lbs	SDLT Pad-10947725 65.00 lbs Microlog Pad-10947725 8.00 lbs	Ø 4.500 in → Ø 4.750 in* → Ø 4.750 in* →		← Microlog @ 29.21 ft ← SDL Caliper @ 29.03 ft ← SDL @ 29.02 ft	10.81 ft	37.03 ft
Flex Joint-11021615 140.00 lbs		Ø 3.625 in →			5.67 ft	26.21 ft
ACRT Instrument-E6988-S8481 50.00 lbs		Ø 3.625 in →			5.03 ft	20.54 ft
				← Mud Resistivity @ 14.15 ft		15.51 ft

ACRt Sonde-E6988-S8481 200.00 lbs		Ø 3.625 in →		← ACRt @ 10.17 ft	14.22 ft				
SP Ring-1 0.00 lbs		Ø 3.625 in* →		← SP @ 2.57 ft		1.29 ft			
Temperature Sub-001 15.00 lbs		Ø 3.625 in →			0.96 ft	0.33 ft			
Bull Nose-001 5.00 lbs		Ø 2.750 in →			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			11103904	135.00	6.25	55.23	300.00	
GTET	Gamma Telemetry Tool			11602914	165.00	8.52	46.71	60.00	
DSNT	Dual Spaced Neutron			11020488	174.00	9.69	37.03	60.00	
SDLT	Spectral Density Tool			10947725	360.00	10.81	26.21	60.00	
MICP	Microlog Pad			10947725	8.00	1.00	*	28.71	60.00
SDLP	Density Insite Pad			10947725	65.00	2.55	*	28.42	60.00
FLEX	Flex Joint			11021615	140.00	5.67	20.54	300.00	
ACRt	Array Compensated True Resistivity Instrument Section			E6988-S8481	50.00	5.03	15.51	300.00	
ACRt	Array Compensated True Resistivity Sonde Section			E6988-S8481	200.00	14.22	1.29	300.00	
SP	SP Ring			1	0.00	0.25	*	2.57	300.00
TMAX	Temperature Sub - 3_625 OD			001	15.00	0.96	0.33	300.00	
BLNS	Bull Nose			001	5.00	0.33	0.00	300.00	
Total					1,317.00	61.48			
* Not included in Total Length and Length Accumulation.									
Data: ANA_CAMNCH_36_2\0001 TRIPLE_MICROLOG\IDLE									
Date: 06-Oct-12 04:26:35									

COMPANY	KERR-MCGEE OIL & GAS ONSHORE LP		
WELL	CAMENISCH 36-2		
FIELD	WATTENBERG		
COUNTY	WELD	STATE	COLORADO
HALLIBURTON		ARRAY COMPENSATED TRUE RESISTIVITY	