HALLIBURTON

ARRAY COMPENSATED TRUE RESISTIVITY

KERR-MCGEE OIL & GAS ONSHORE LP | HEIN 2-1 | WATTENBERG | WELD | CO

COMPANY | WELL | FIELD | COUNTY | STATE

COMPANY **KERR-MCGEE OIL & GAS ONSHORE LP**

WELL **HEIN 2-1**

FIELD **WATTENBERG**

COUNTY **WELD** STATE **CO**

API No. 05123350760000

Location SHL: 1923' FNL & 1857' FEL SWNE
BHL: 633' FNL & 2065 FEL NWNE ESTIMATED

LAT: 40.082149 Deg
LONG: -104.836626 Deg

Sect. 1 Twp. 1N Rge. 67W

Other Services:
RWCH
DSNT
SDLT
IDT

Permanent Datum	GL	Elev. 4896.0 ft	Elev.: K.B. 4911.0 ft
Log measured from	KB	15.0 ft above perm. Datum	D.F. 4911.0 ft
Drilling measured from	KB		G.L. 4896.0 ft

Date		14-Apr-12					
Run No.		ONE					
Depth - Driller		8245.00 ft					
Depth - Logger		7796.0 ft					
Bottom - Logged Interval		7794 ft					
Top - Logged Interval		CSG					
Casing - Driller		8.625 in	@ 943.0 ft	@		@	
Casing - Logger		937.0 ft					
Bit Size		7.875 in		@		@	
Type Fluid in Hole		WATER BASED MUD					
Density	Viscosity	8.4 ppg	26.00 s/qt				
PH	Fluid Loss	8.00 pH	0.0 cptm				
Source of Sample		MUD CELL					
Rm @ Meas. Temperature		1.060 ohmm	@ 76.60 degF	@		@	
Rmf @ Meas. Temperature		0.92 ohmm	@ 75.00 degF	@		@	
Rmc @ Meas. Temperature		0.972 ohmm	@ 75.00 degF	@		@	
Source Rmf	Rmc	CHART	CHART				
Rm @ BHT		0.43 ohmm	@ 198.0 degF	@		@	
Time Since Circulation		7.0 hr					
Time on Bottom		14-Apr-12 06:03					
Max. Rec. Temperature		198.0 degF	@ 7796.0 ft	@		@	
Equipment	Location	10800785	BRIGHTON				
Recorded By		A. ZWALI		J. PINKETT			
Witnessed By		BEN BENJAMIN		ROBIN BRACKMAN			

Fold here

Service Ticket No.: N/A

API Serial No.: 05123350760000

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

CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE

RESISTIVITY SCALE CHANGES

	Sample No.	Type Log	Depth	Scale Up Hole	Scale Down Hole
Date					
Depth-Driller					
Type Fluid in Hole					
Density	Viscosity				
Ph	Fluid Loss				

RESISTIVITY EQUIPMENT DATA

	Run No.	Tool Type & No.	Pad Type	Tool Pos.	Other
Source of Sample					
Rm @ Meas. Temp	@	@	@	@	
Rmf @ Meas. Temp.	ONE	ACRT	N/A	1.25" S.O.	N/A
Rmc @ Meas. Temp.		E5787-S5797			
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	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	Cs137	Source Type	Am241Be
Length	8"		LSA [Y/N]		Serial No.	5256GW	Serial No.	DSN-430
Distance to Source	10'		FWDA [Y/N]		Strength	1.5 Ci	Strength	15 Ci

LOGGING DATA

GENERAL | GAMMA | ACOUSTIC | DENSITY | NEUTRON

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	CSG	REC	0	200				20	0	2.71	20	0	LIME

DIRECTIONAL INFORMATION

Maximum Deviation @ KOP @

Remarks: RWCH/GTET/DSNT/SDLT/IDT/ACRT RAN IN COMBINATION

ANNULAR HOLE VOLUME CALCULATED FOR 4.5-INCH CASING

TENSION PULLS, WASHOUTS, AND BOREHOLE RUGOSITY AFFECT TOOL RESPONSE

CREW: N. GOULD, L. SMITH RIG: XTREME 11

THANK YOU FOR USING HALLIBURTON ENERGY SERVICES - BRIGHTON, CO - (303) 825-4346

HALLIBURTON

PARAMETERS REPORT

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	8.400	ppg
	SHARED	WAGT	Weighting Agent	Natural	
	SHARED	BSAL	Borehole salinity	500.00	ppm
	SHARED	FSAL	Formation Salinity NaCl	0.00	ppm
	SHARED	KPCT	Percent K in Mud by Weight?	0.00	%
	SHARED	RMUD	Mud Resistivity	1.060	ohmm
	SHARED	TRM	Temperature of Mud	76.6	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	7796.00	ft
	SHARED	BHT	Bottom Hole Temperature	198.0	degF
	SHARED	SVTM	Navigation and Survey Master Tool	IDT	
	SHARED	AZTM	High Res Z Accelerometer Master Tool	IDT	
	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	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
Microlog Pad	MLOK	Process MicroLog Outputs?	Yes	
IDT	WRTI	Survey Writing Interval	30	ft
IDT	SOPT	Smoothing Option	None	
ACRt Sonde	RTOK	Process ACRt?	Yes	
ACRt Sonde	MNSO	Minimum Tool Standoff	1.25	in
ACRt Sonde	TCS1	Temperature Correction Source	FP Lwr & FP Upr	
ACRt Sonde	TPOS	Tool Position	Free Hanging	
ACRt Sonde	RMOP	Rmud Source	Mud Cell	
ACRt Sonde	RMIN	Minimum Resistivity for MAP	0.20	ohmm
ACRt Sonde	RMIN	Maximum Resistivity for MAP	200.00	ohmm
ACRt Sonde	THQY	Threshold Quality	0.50	

BOTTOM

Data: HEIN 2-1\0001 ANADARKO_IDT\003.01 14-Apr-12 07:27 Up

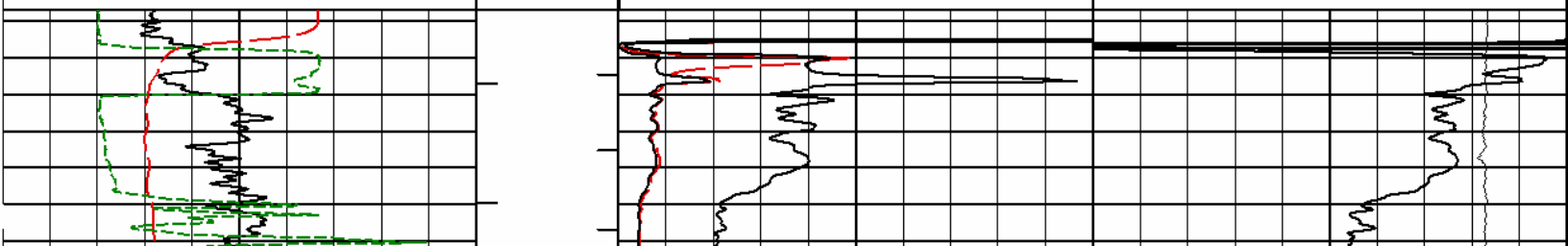
Date: 14-Apr-12 07:31:06

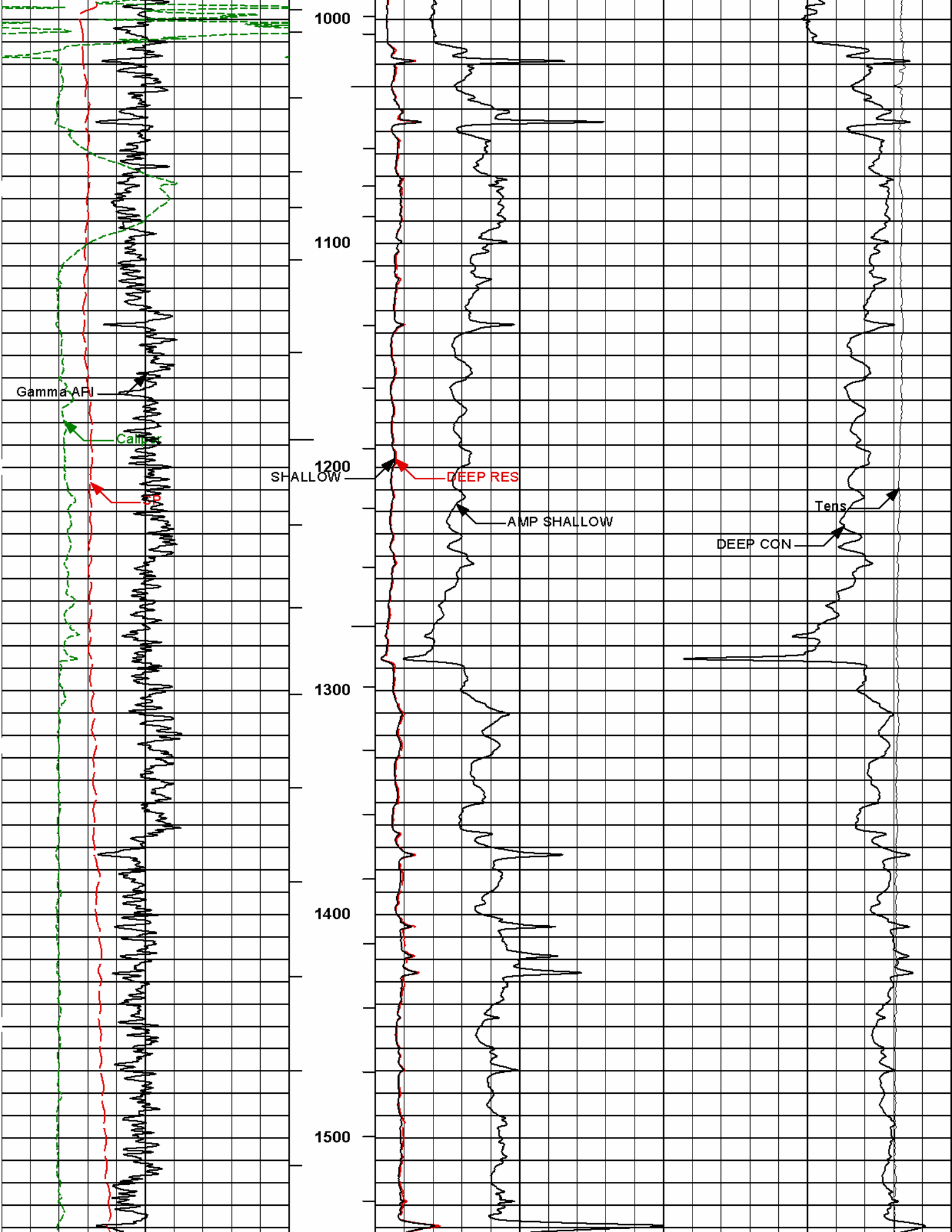
HALLIBURTON

Plot Time: 16-Apr-12 12:06:47
Plot Range: 927 ft to 7798 ft
Data: HEIN 2-1\Well Based\DAQ-0001-003.01*
Plot File: \\ACRT\IQ_ACRt_2IN_RM

MAIN PASS 2" = 100'

Caliper 6 – 16 inches	AHVT	AMP SHALLOW 0 – 20 ohm-metre	
Gamma API 0 – 200 api	BHVT	SHALLOW 0 – 100 ohm-metre	DEEP CON 500 – 0 mmho per metre
SP 50 – 150 millivolts	1 : 600	DEEP RES 0 – 100 ohm-metre	Tens 10K – 0 pounds

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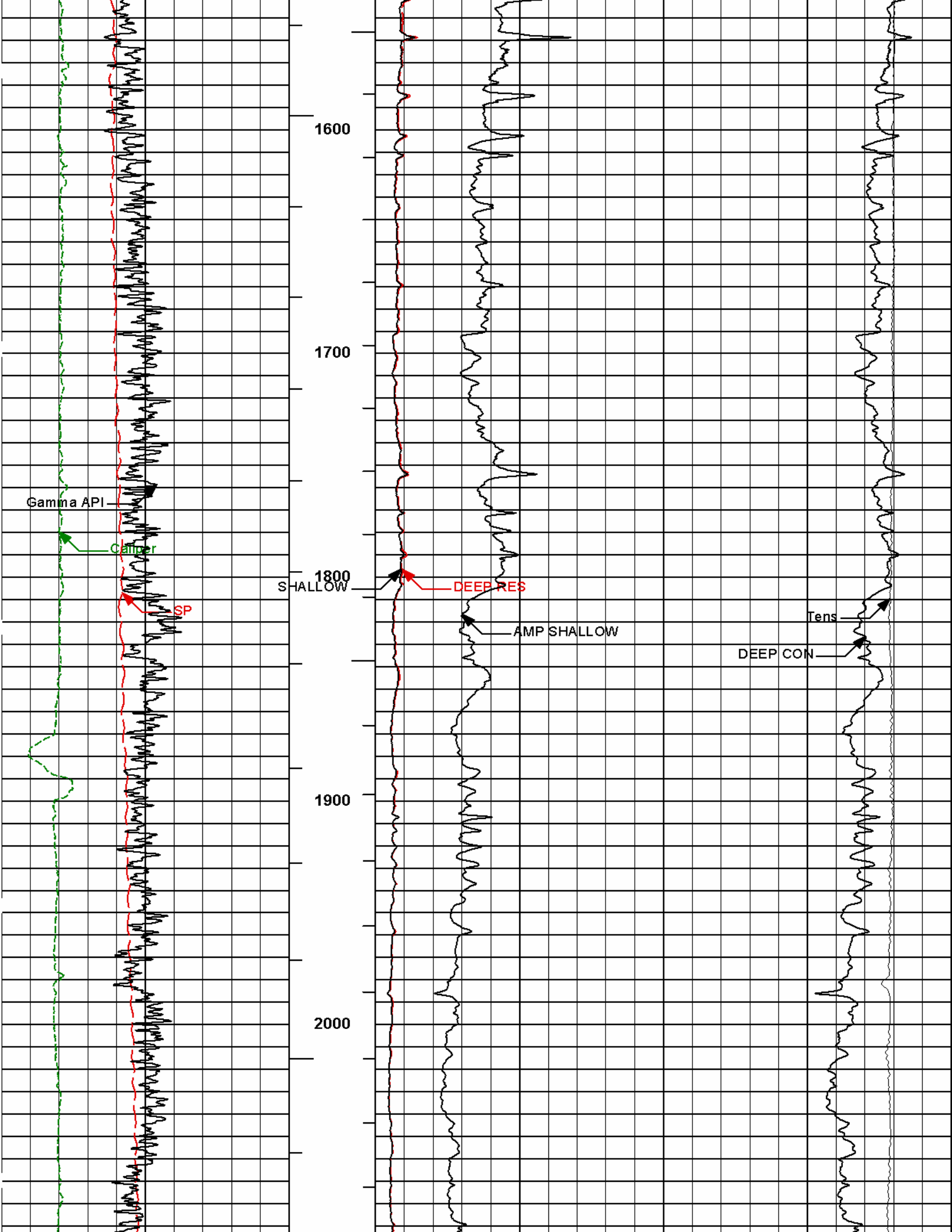
DEEP RES
AMP SHALLOW
Tens
DEEP CON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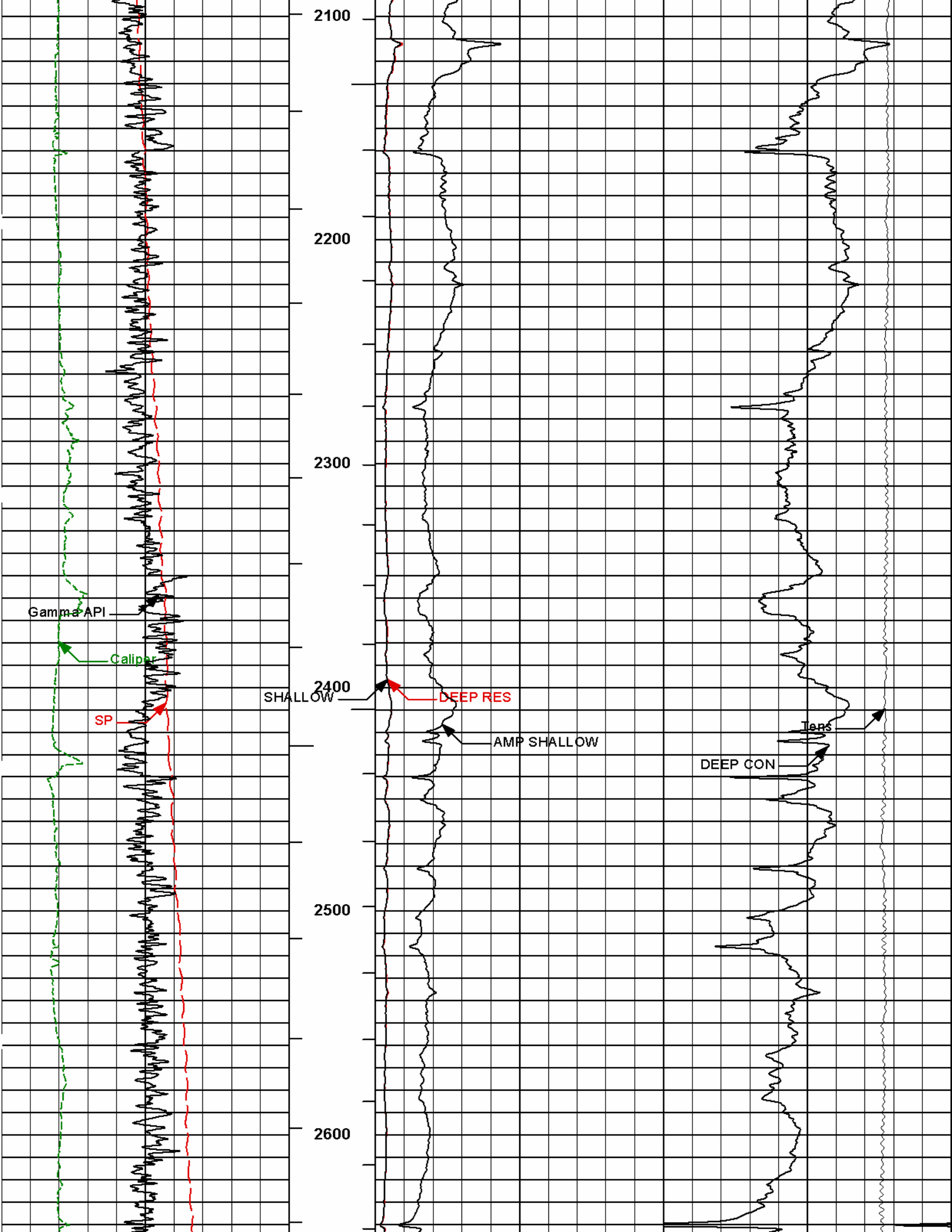
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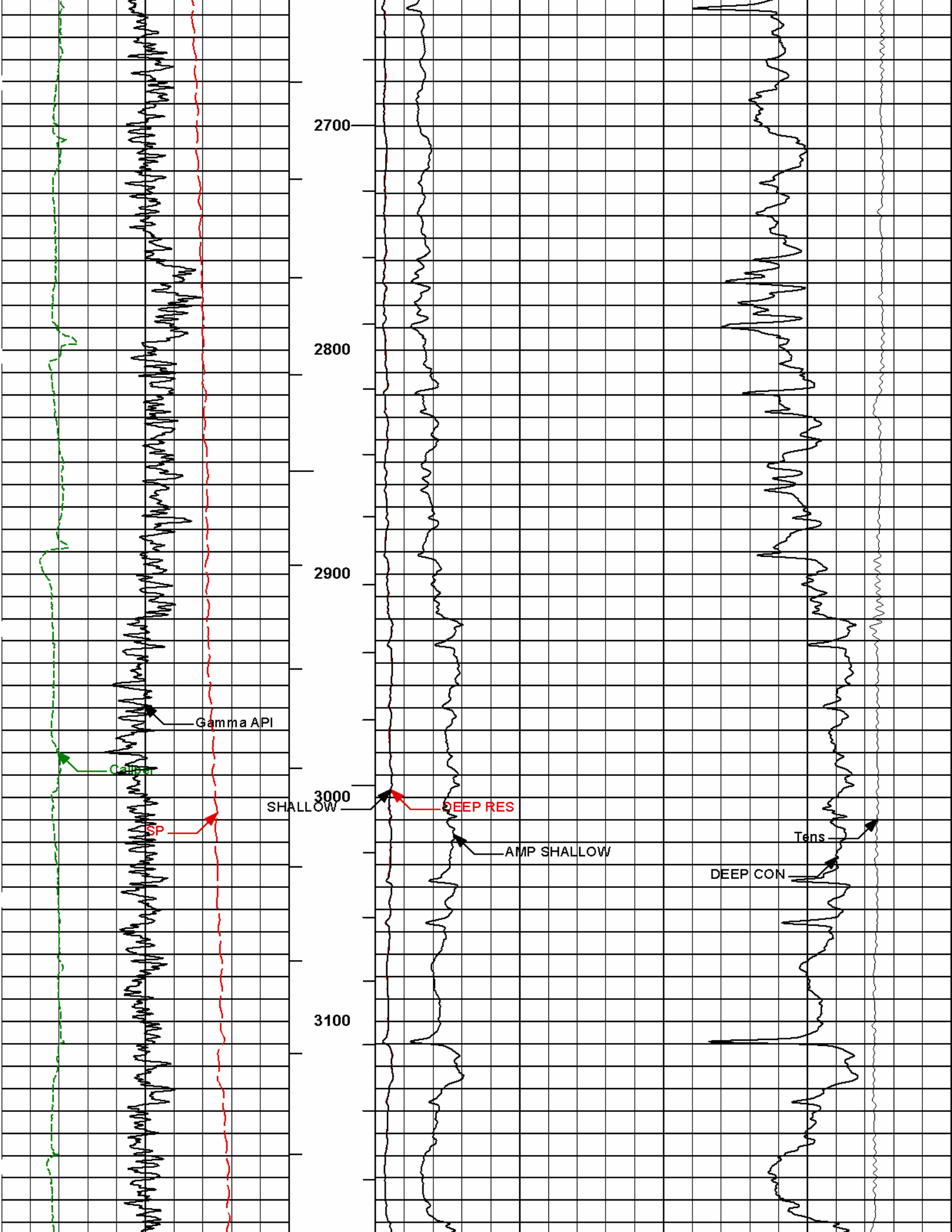
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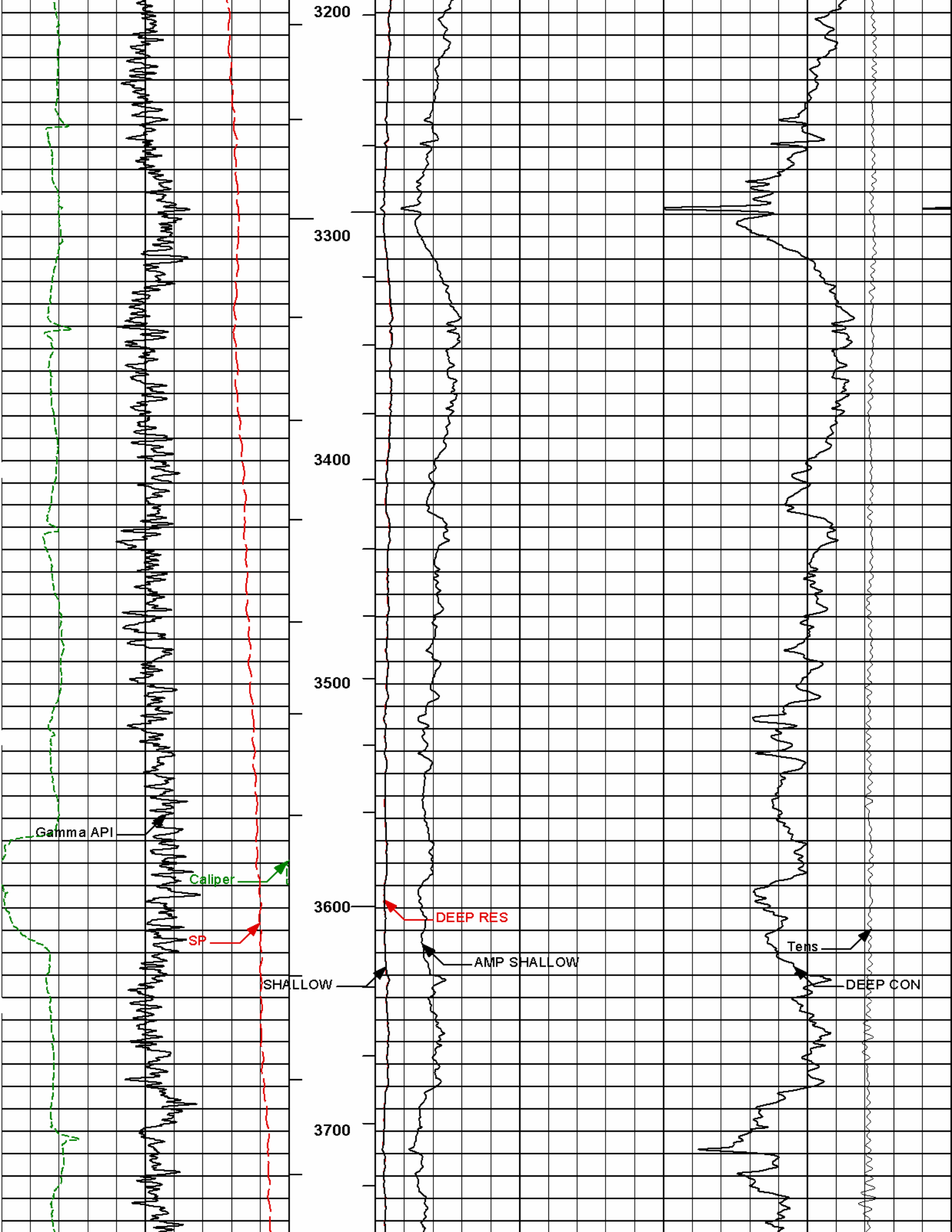
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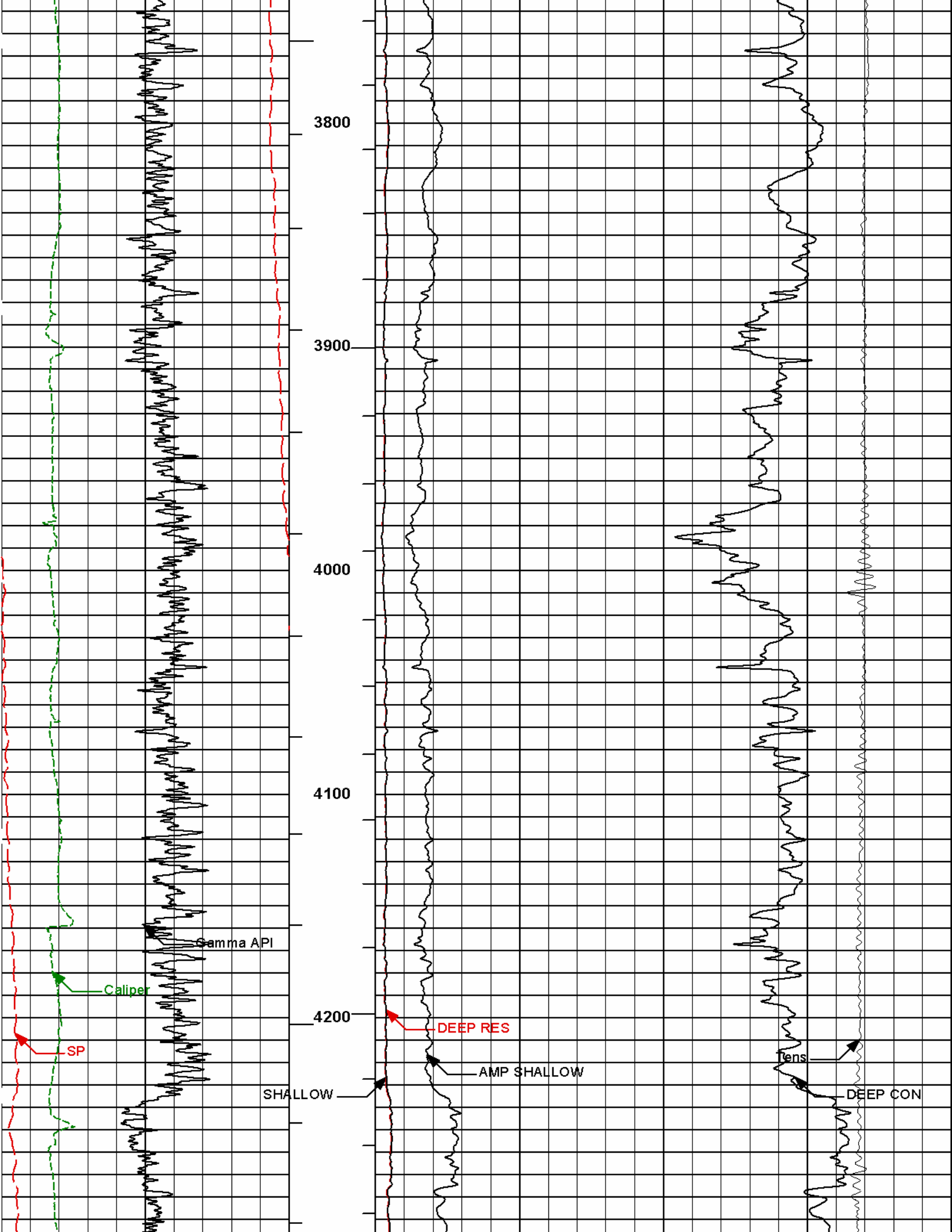
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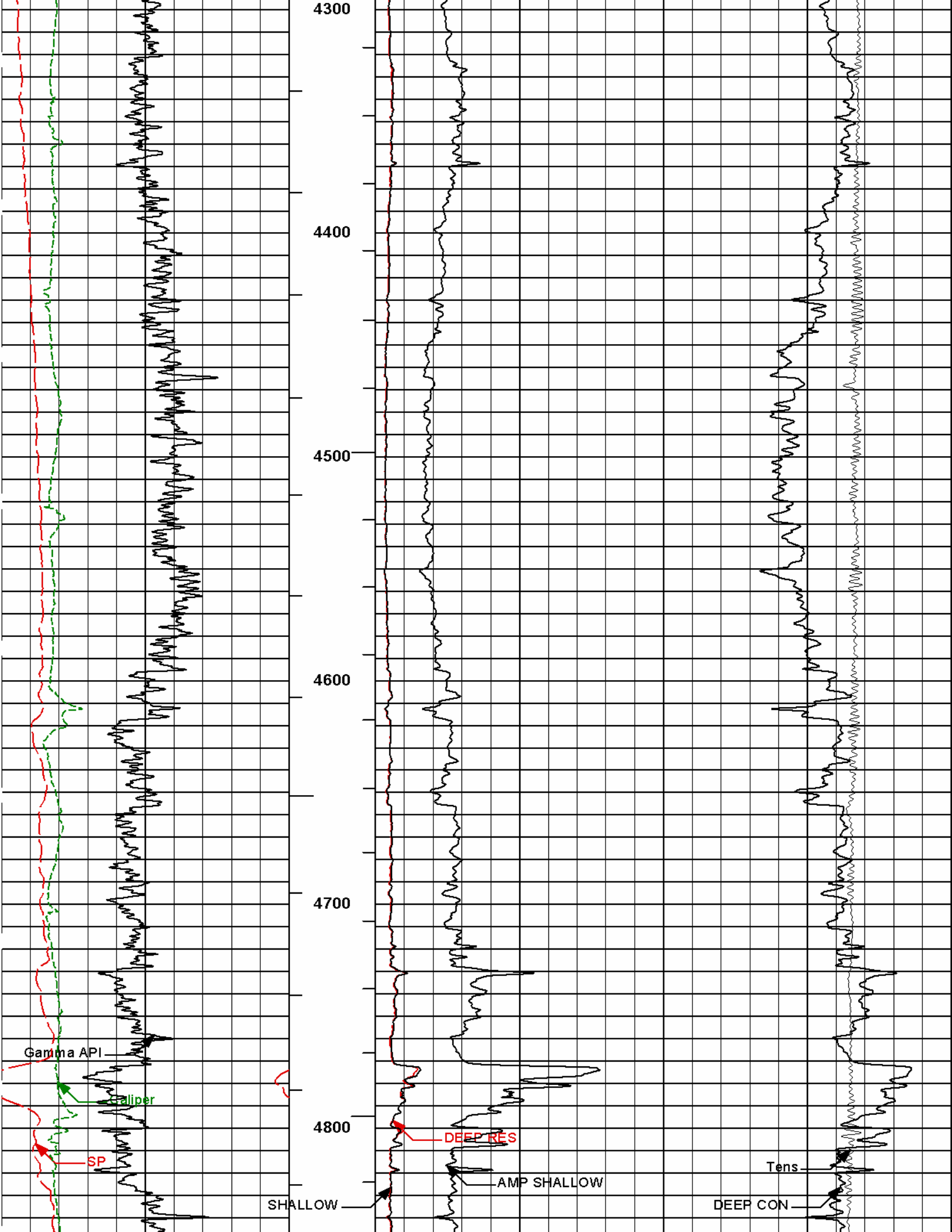
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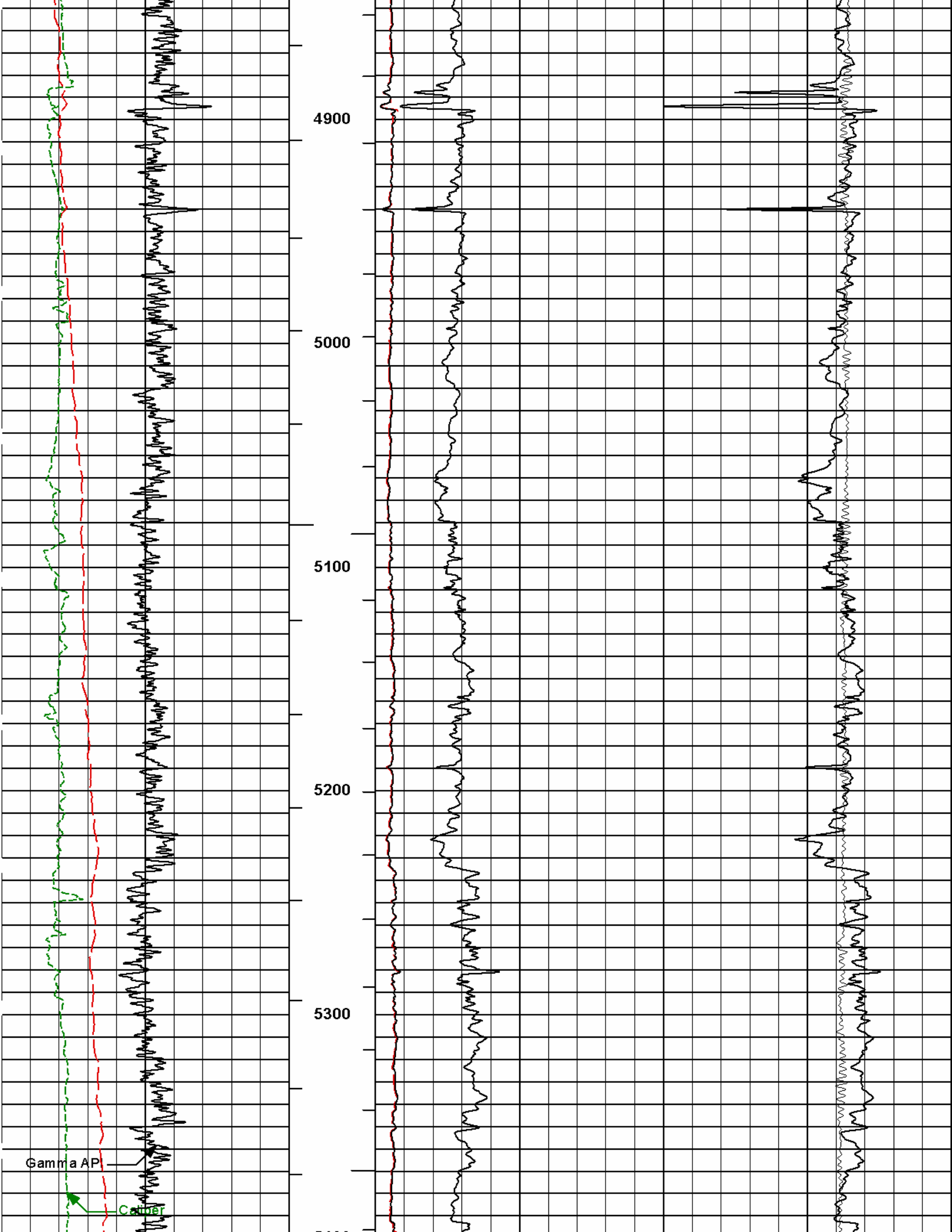
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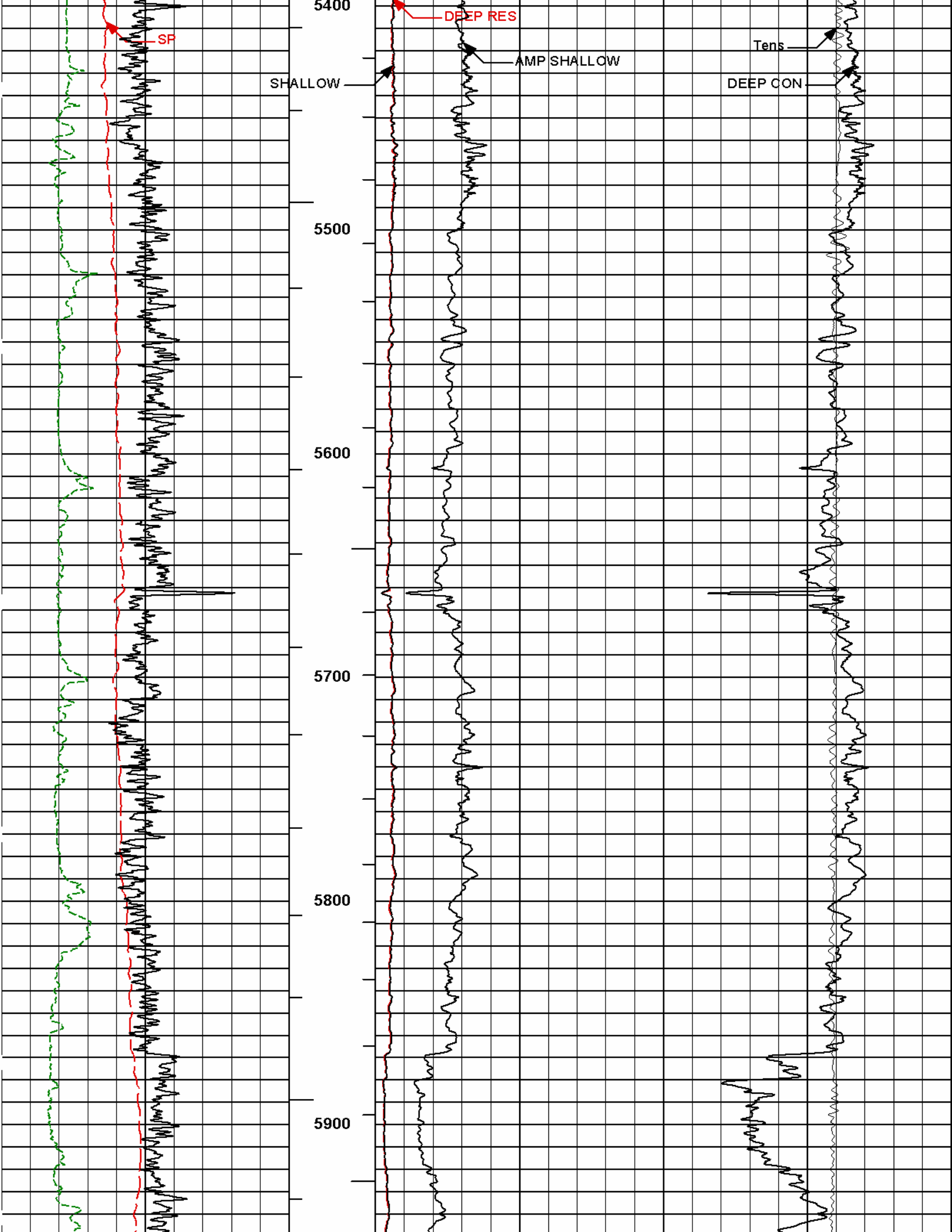
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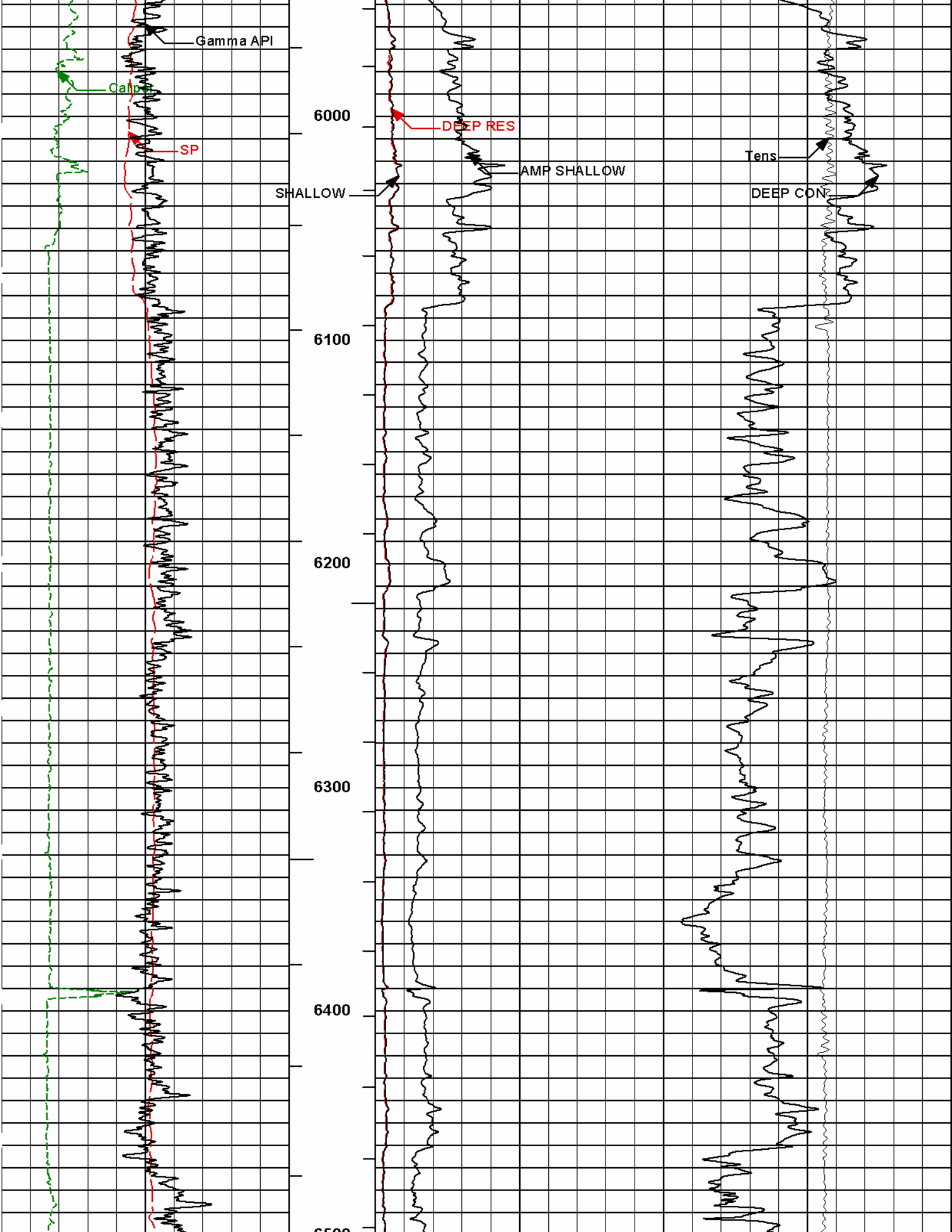
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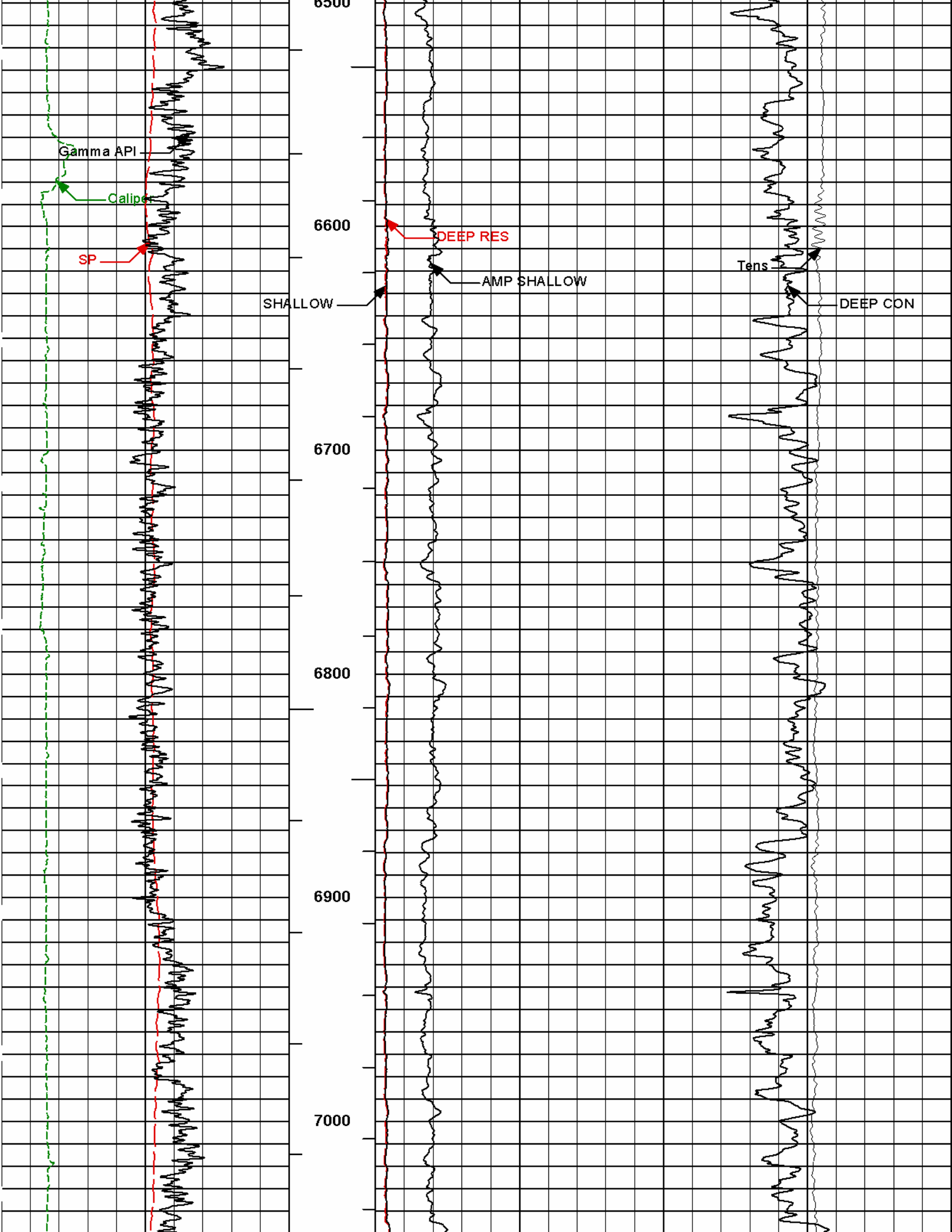
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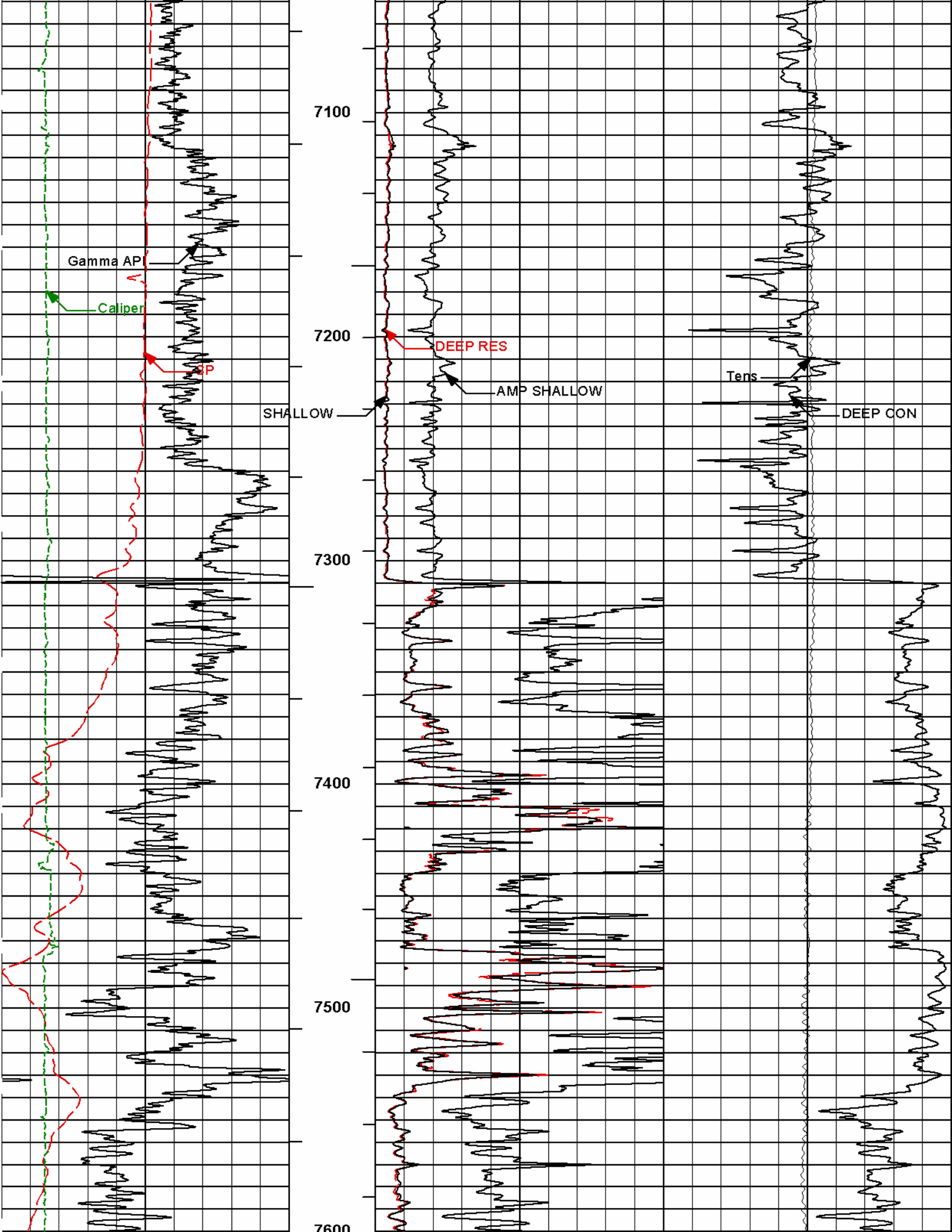
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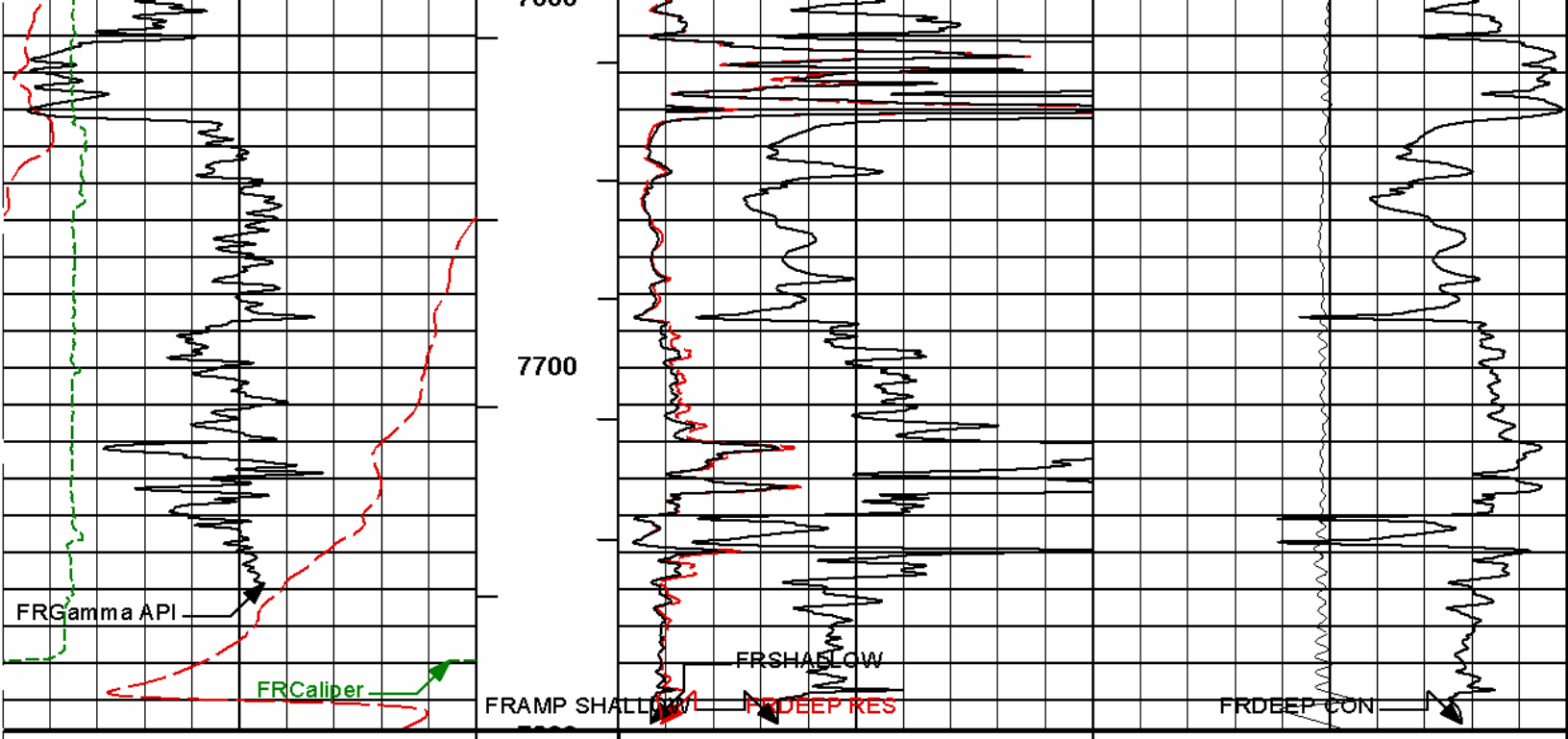


50 SP 150	1 : 600	0 DEEP RES 100	10K Tens 0
millivolts		ohm-metre	pounds
0 Gamma API 200	BHVT	0 SHALLOW 100	500 DEEP CON 0
api		ohm-metre	mmho per metre
6 Caliper 16	AHVT	0 AMP SHALLOW 20	
inches		ohm-metre	

HALLIBURTON

Plot Time: 16-Apr-12 12:06:58
Plot Range: 927 ft to 7798 ft
Data: HEIN 2-1\Well Based\DAQ-0001-003.01*
Plot File: \\ACRT\IQ_ACRt_2IN_RM

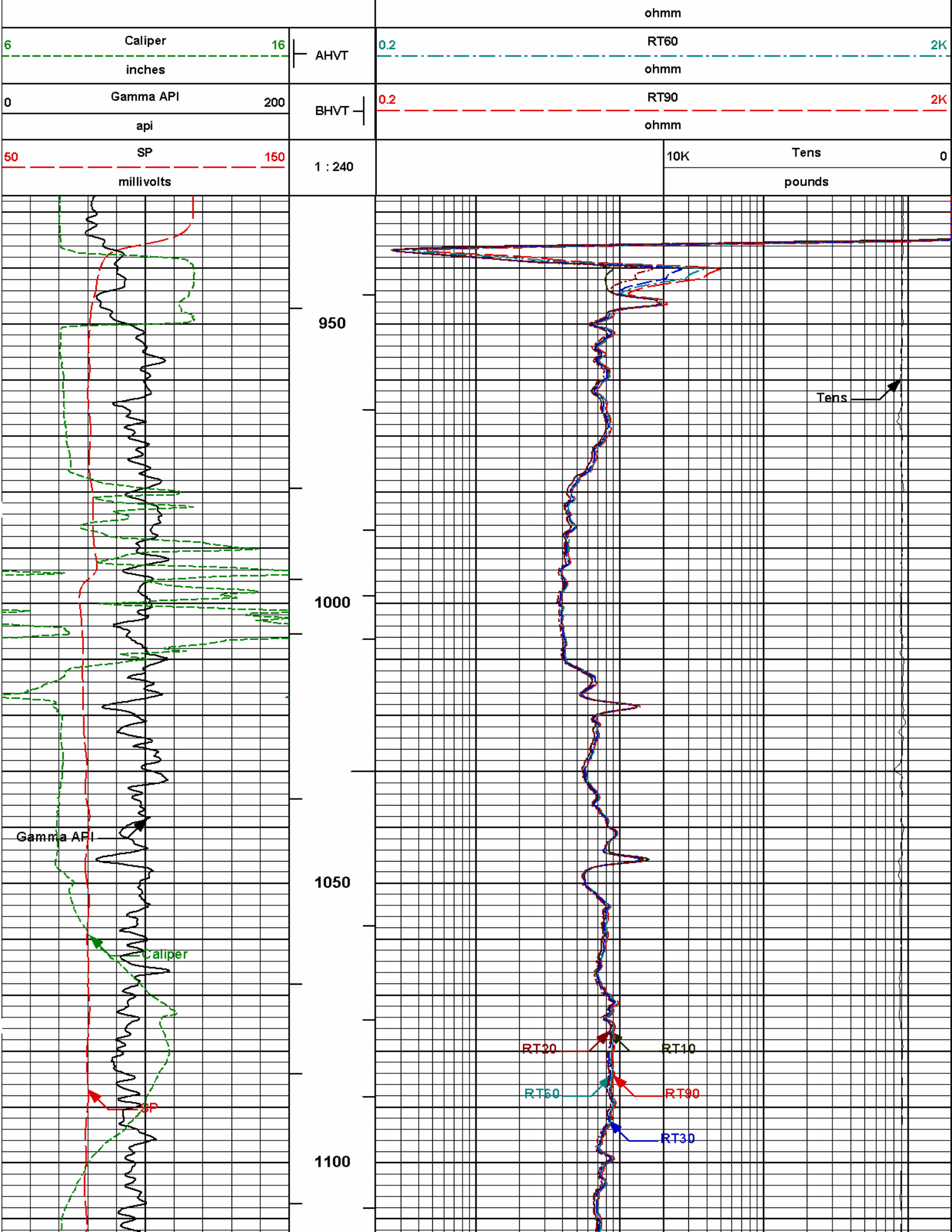
MAIN PASS 2" = 100'

HALLIBURTON

Plot Time: 16-Apr-12 12:06:58
Plot Range: 927 ft to 7798 ft
Data: HEIN 2-1\Well Based\DAQ-0001-003.01\
Plot File: \\ACRT\IQ_ACRt_5IN_RM

MAIN PASS 5" = 100'

0.2	RT10	2K
ohmm		
0.2	RT20	2K
ohmm		
0.2	RT30	2K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2K
ohmm
0
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200
api
BHVT
0.2
RT90
2K
ohmm
50
SP
150
millivolts
1 : 240
10K
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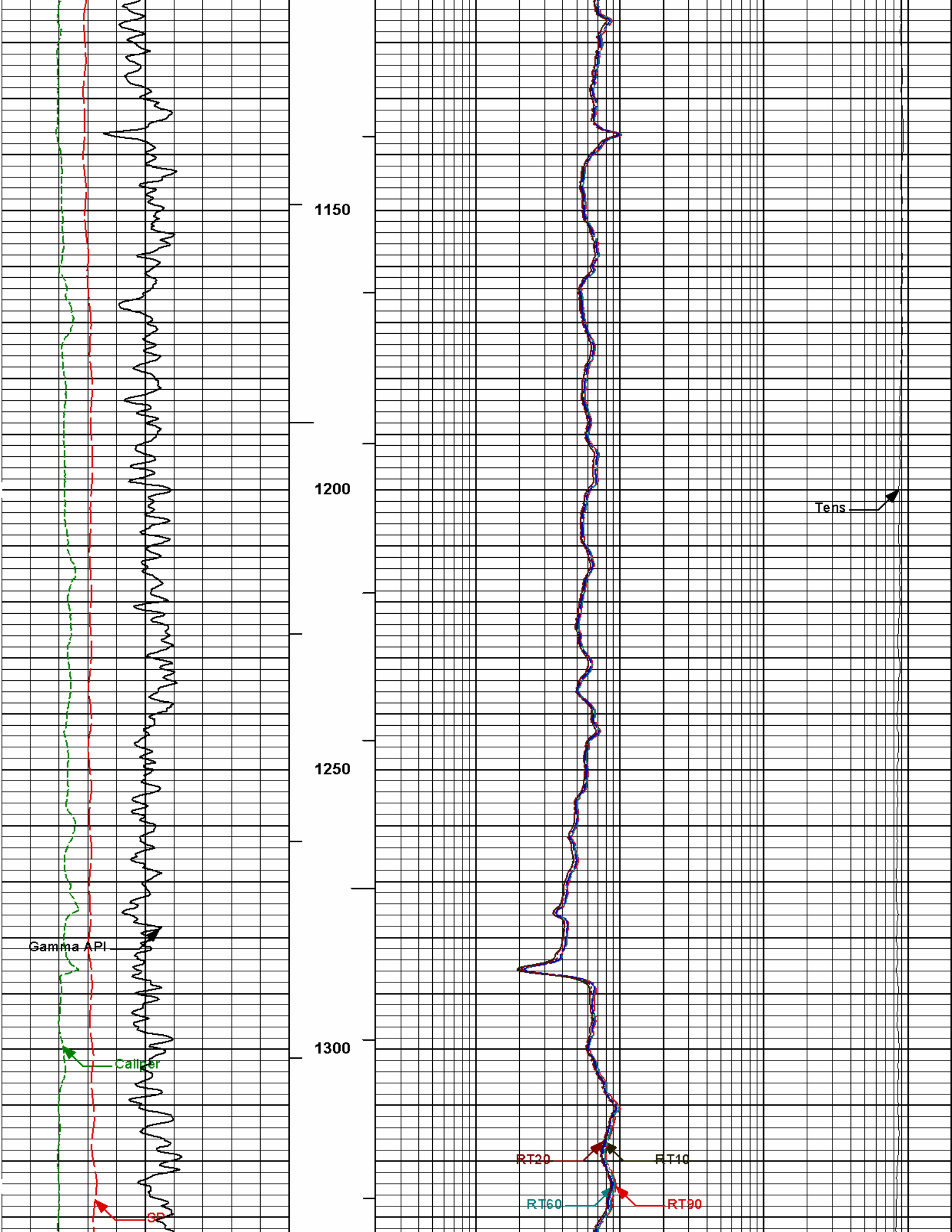
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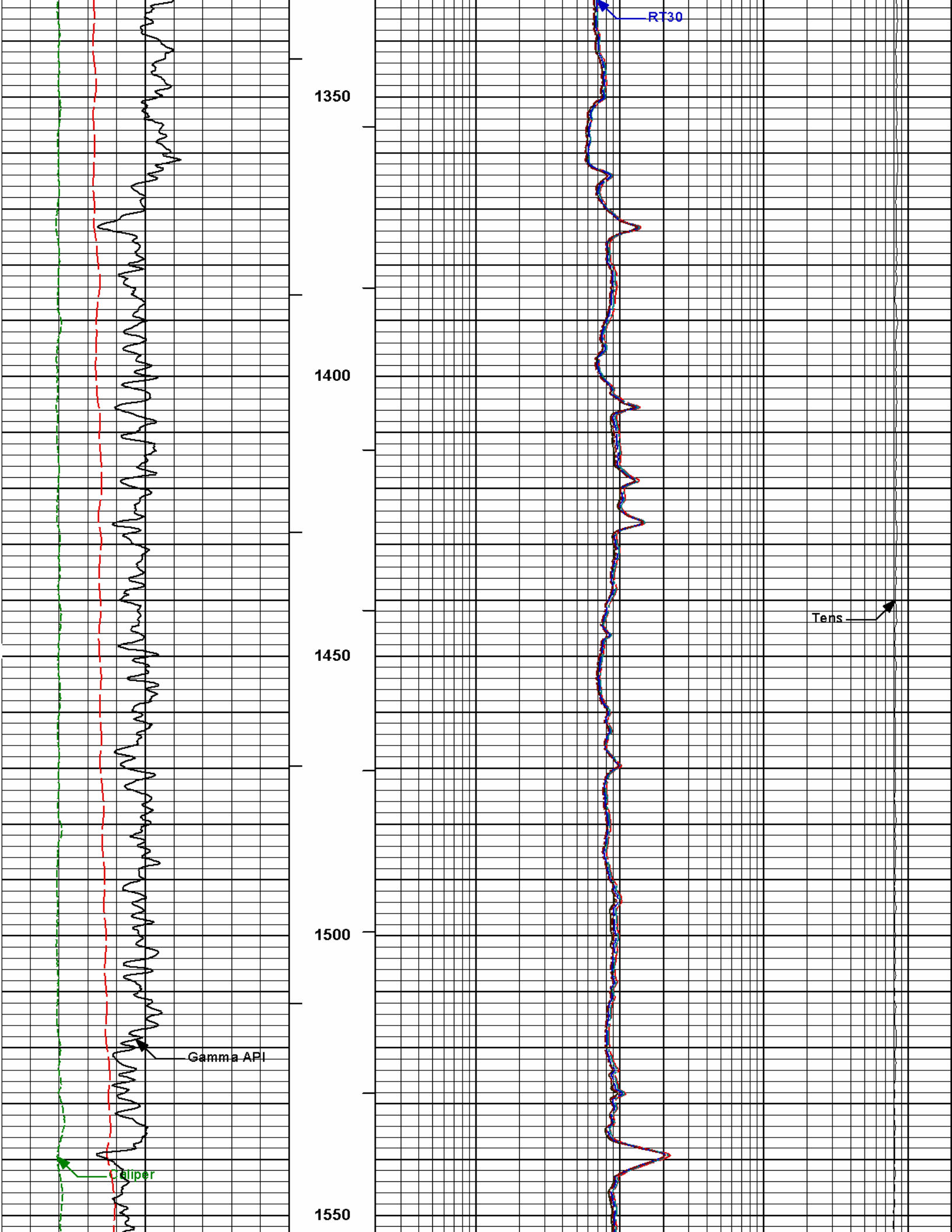
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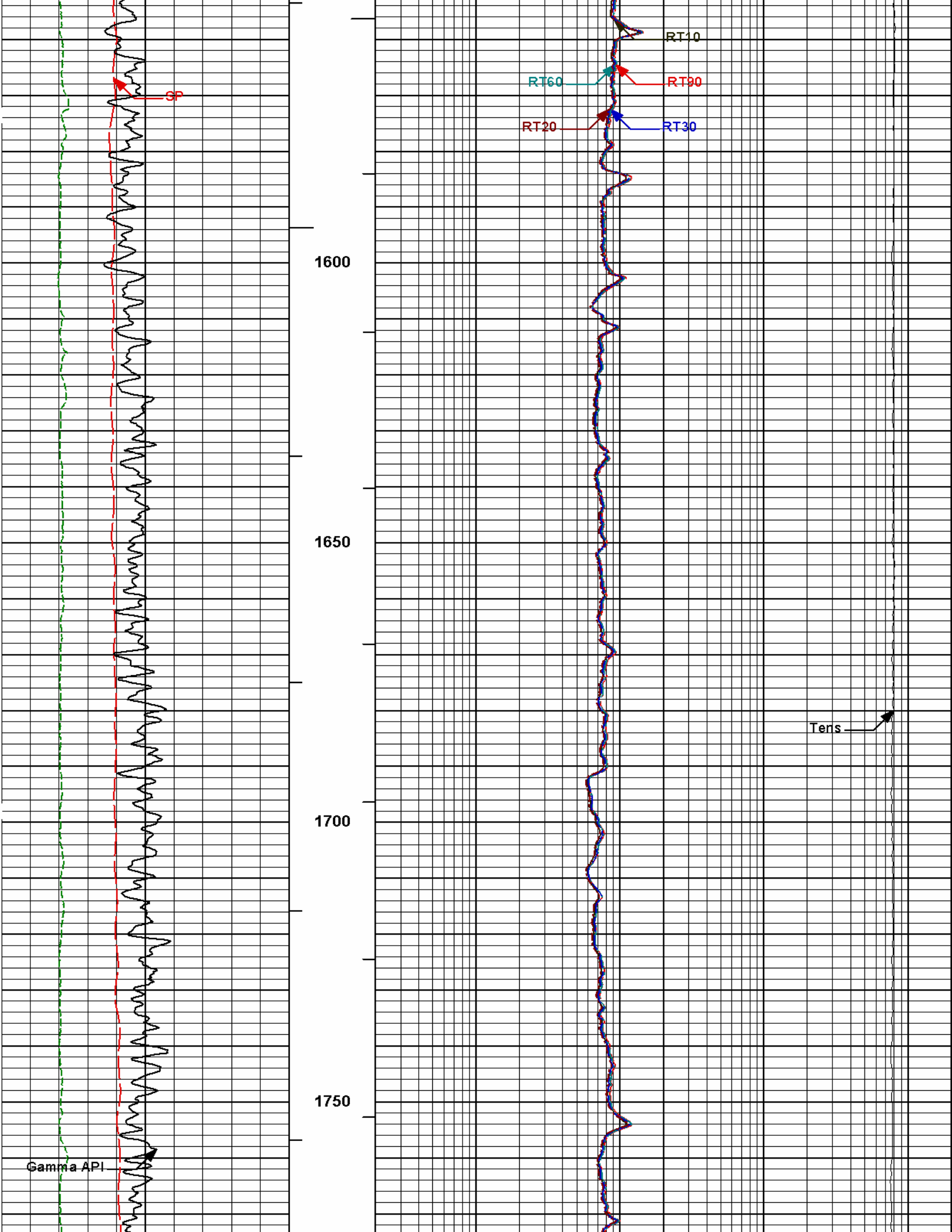
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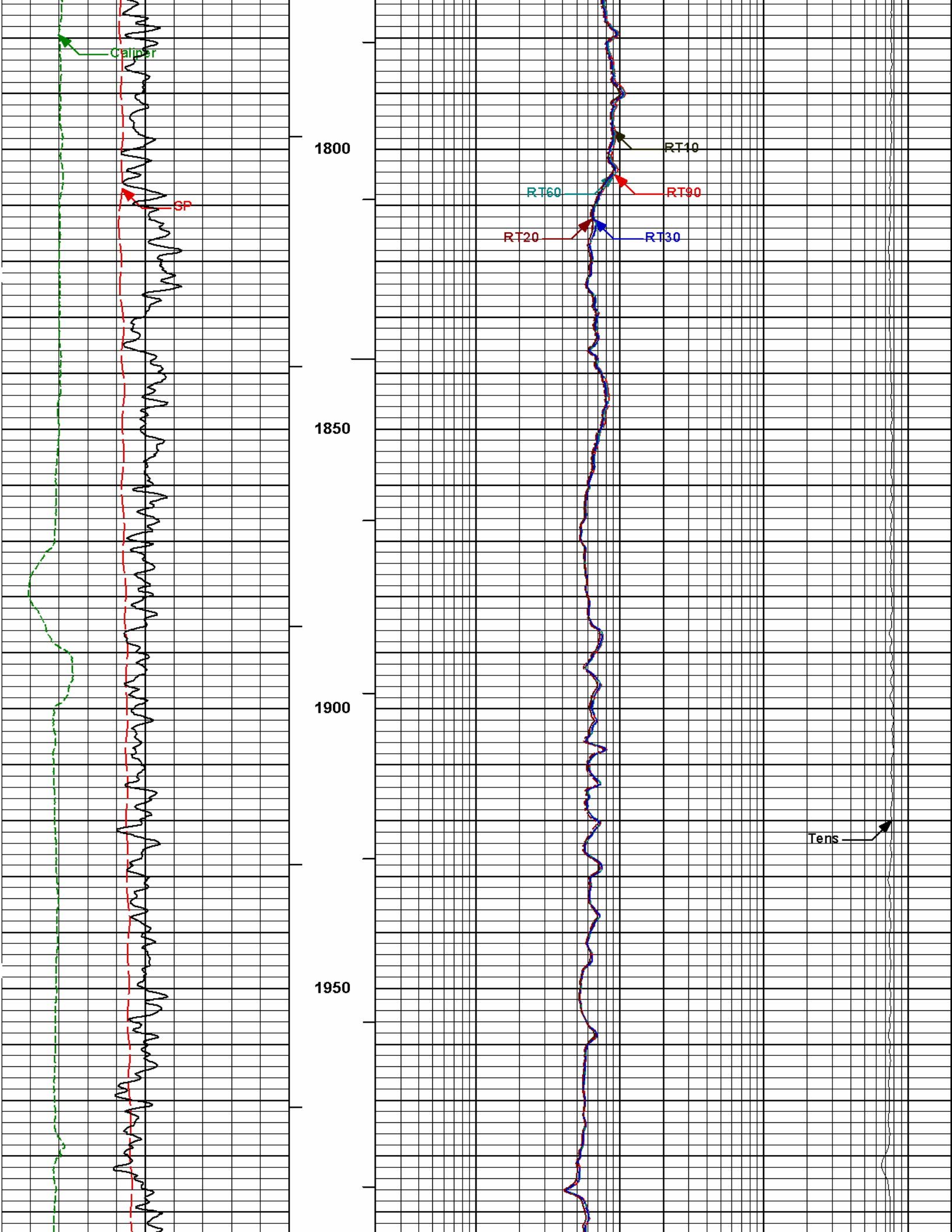
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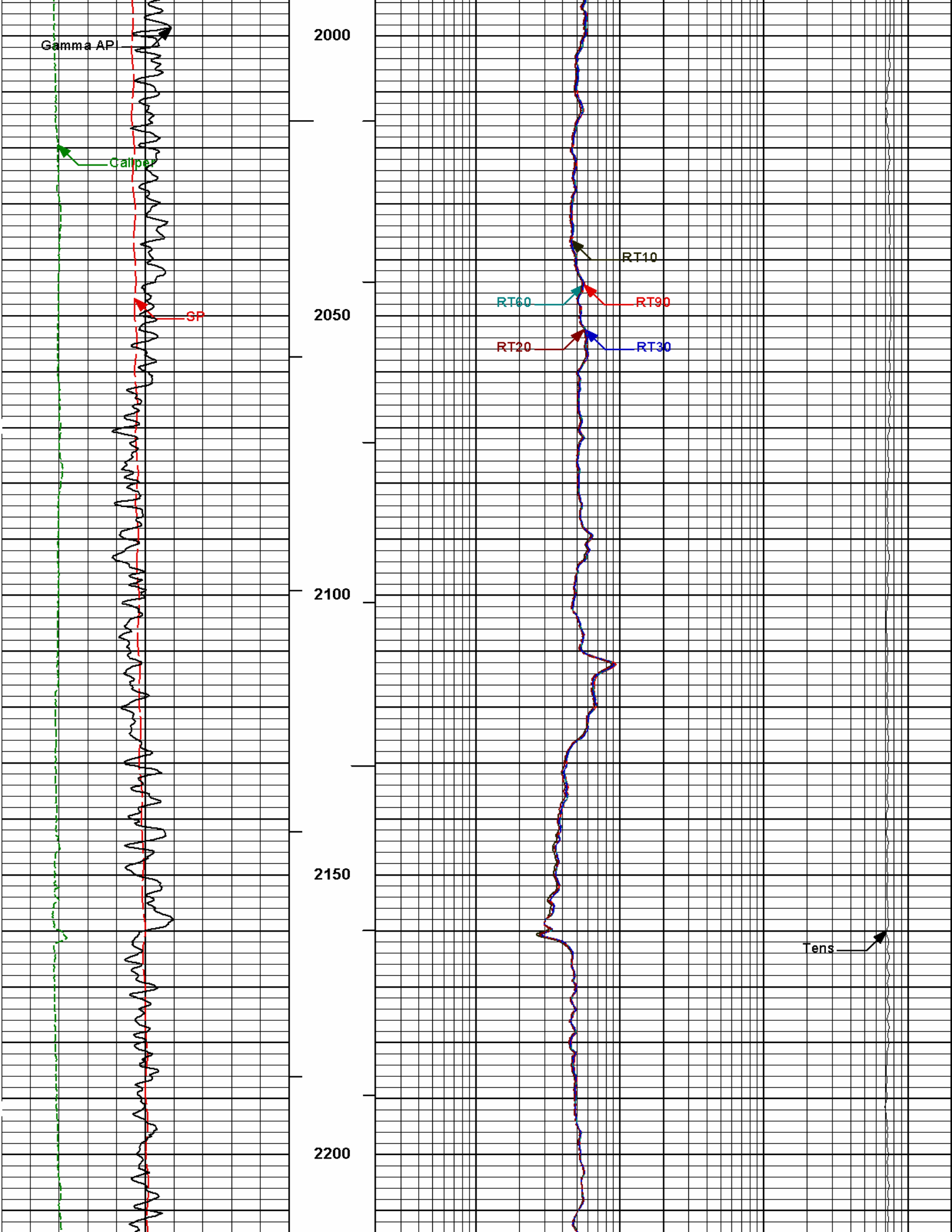
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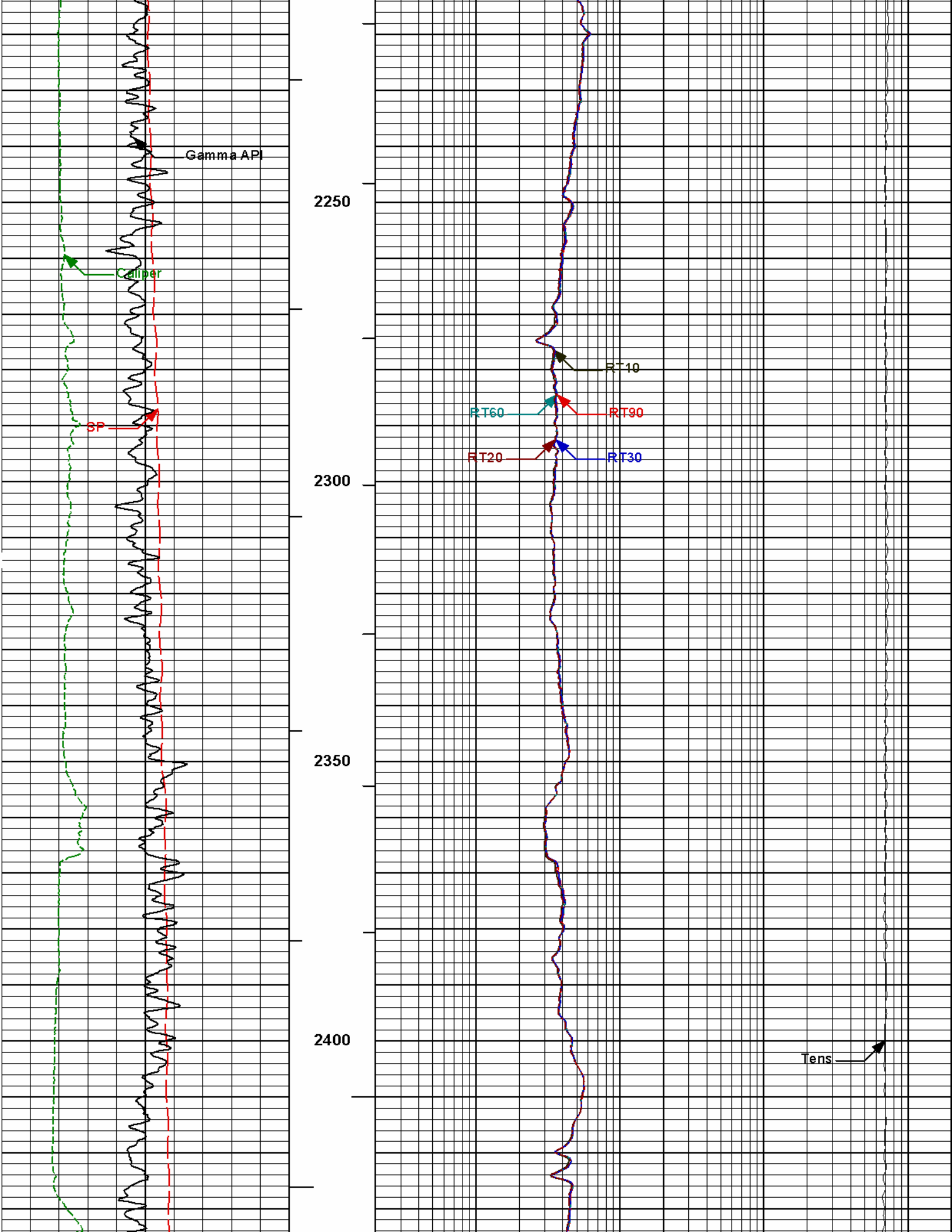
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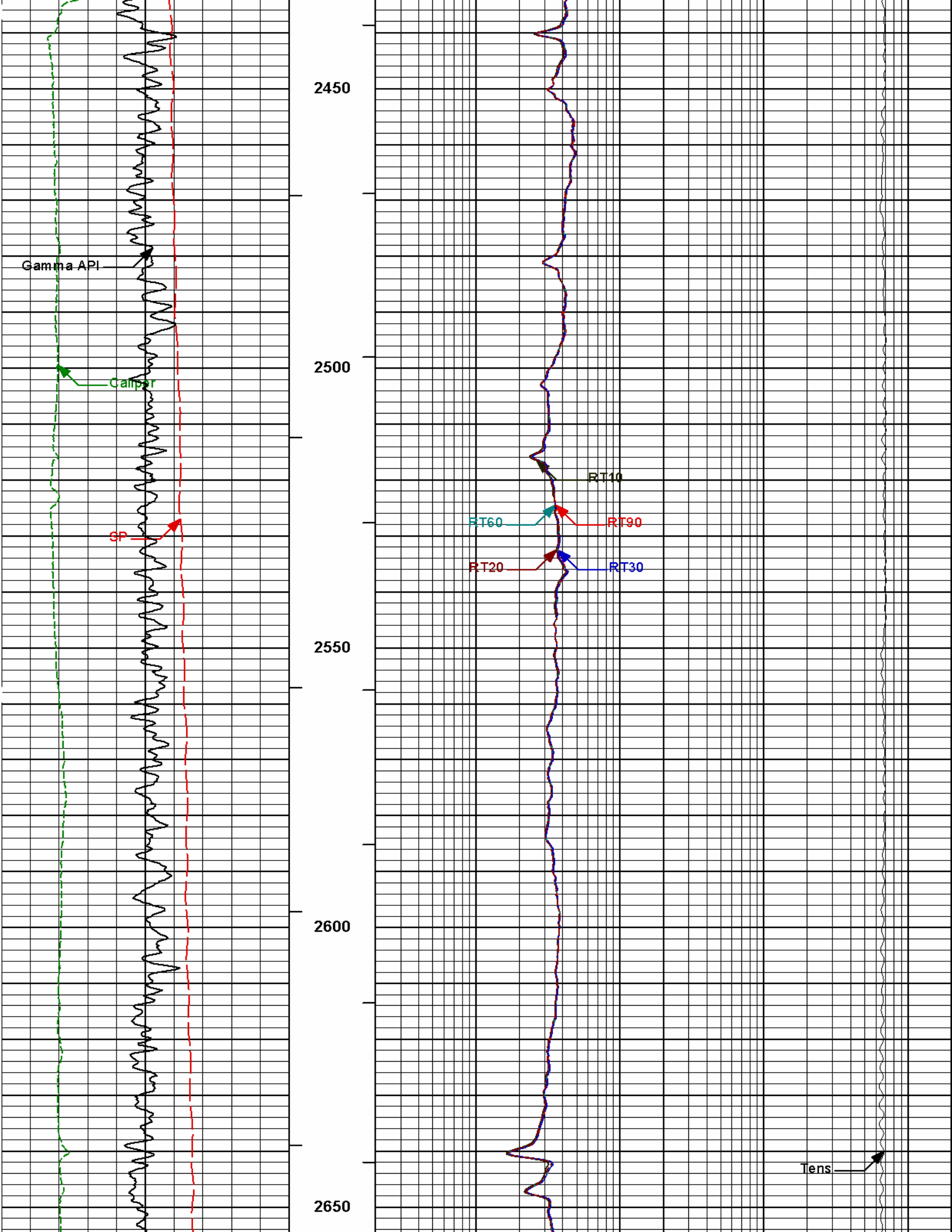
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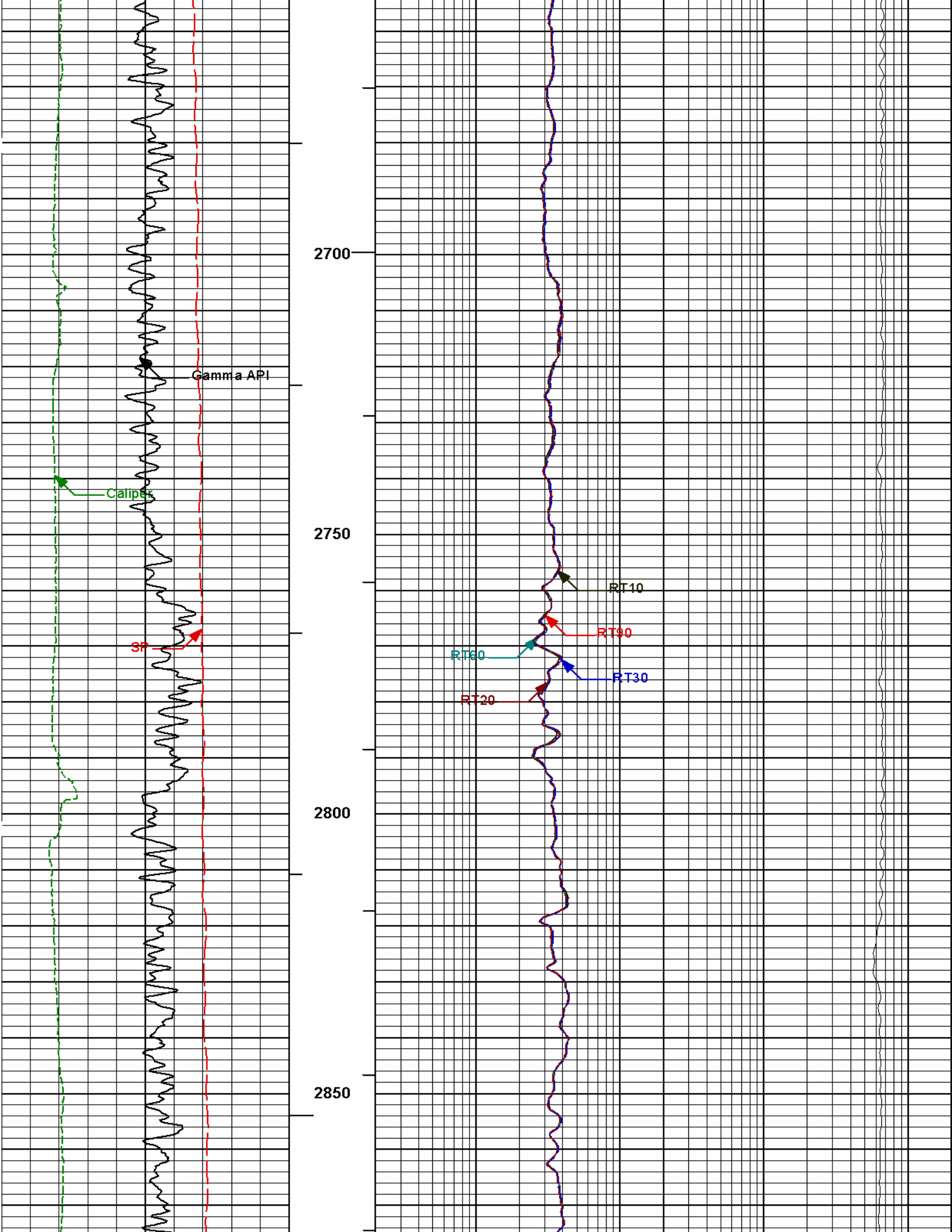
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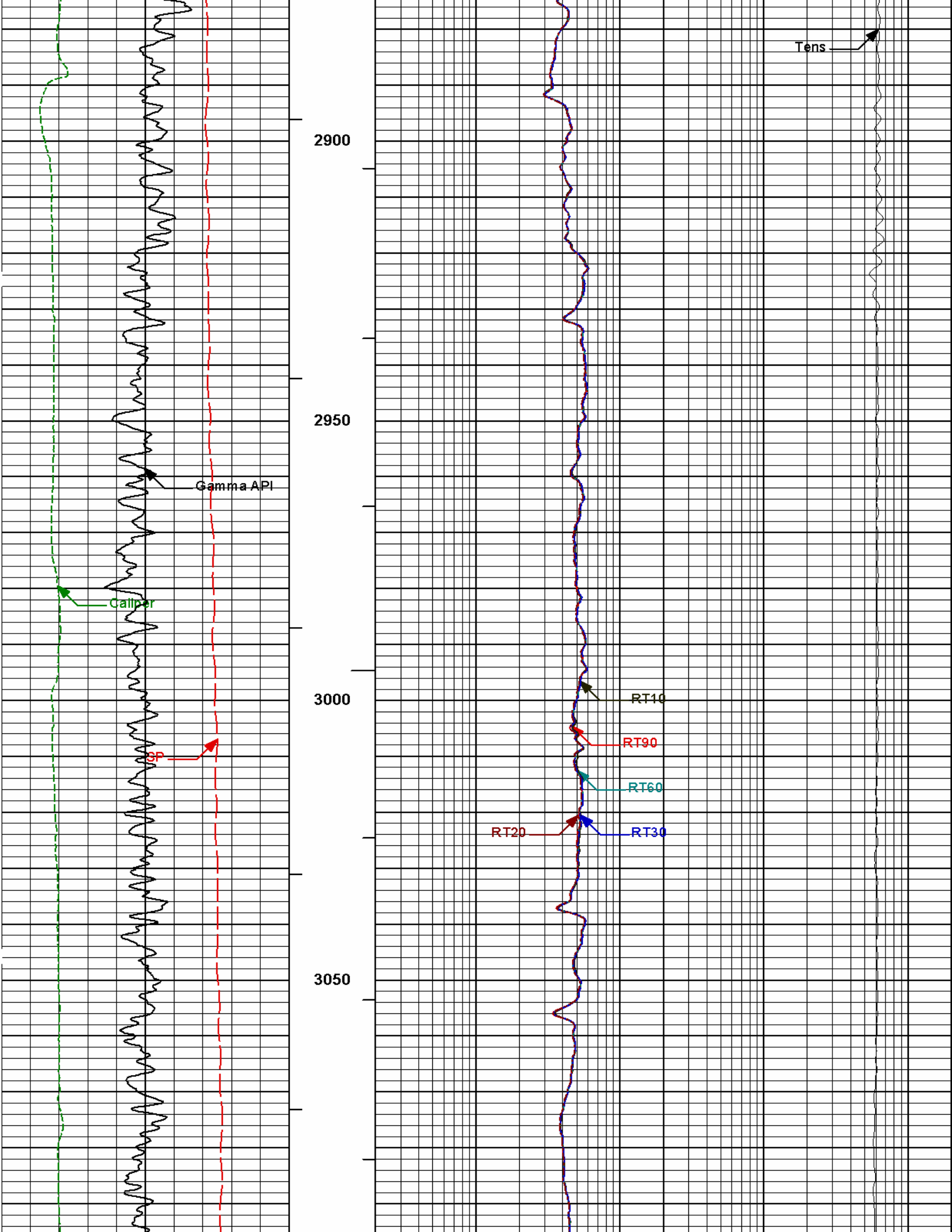
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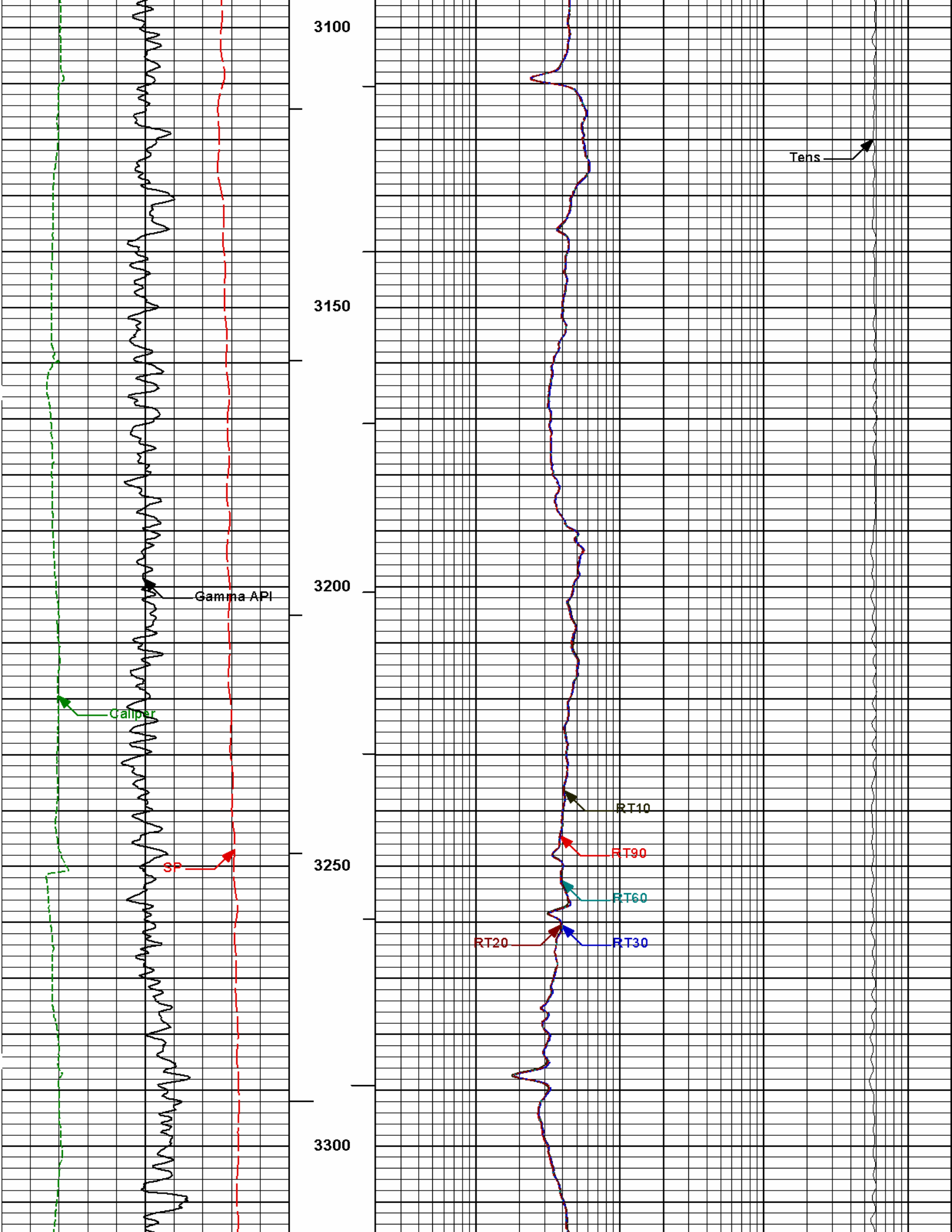
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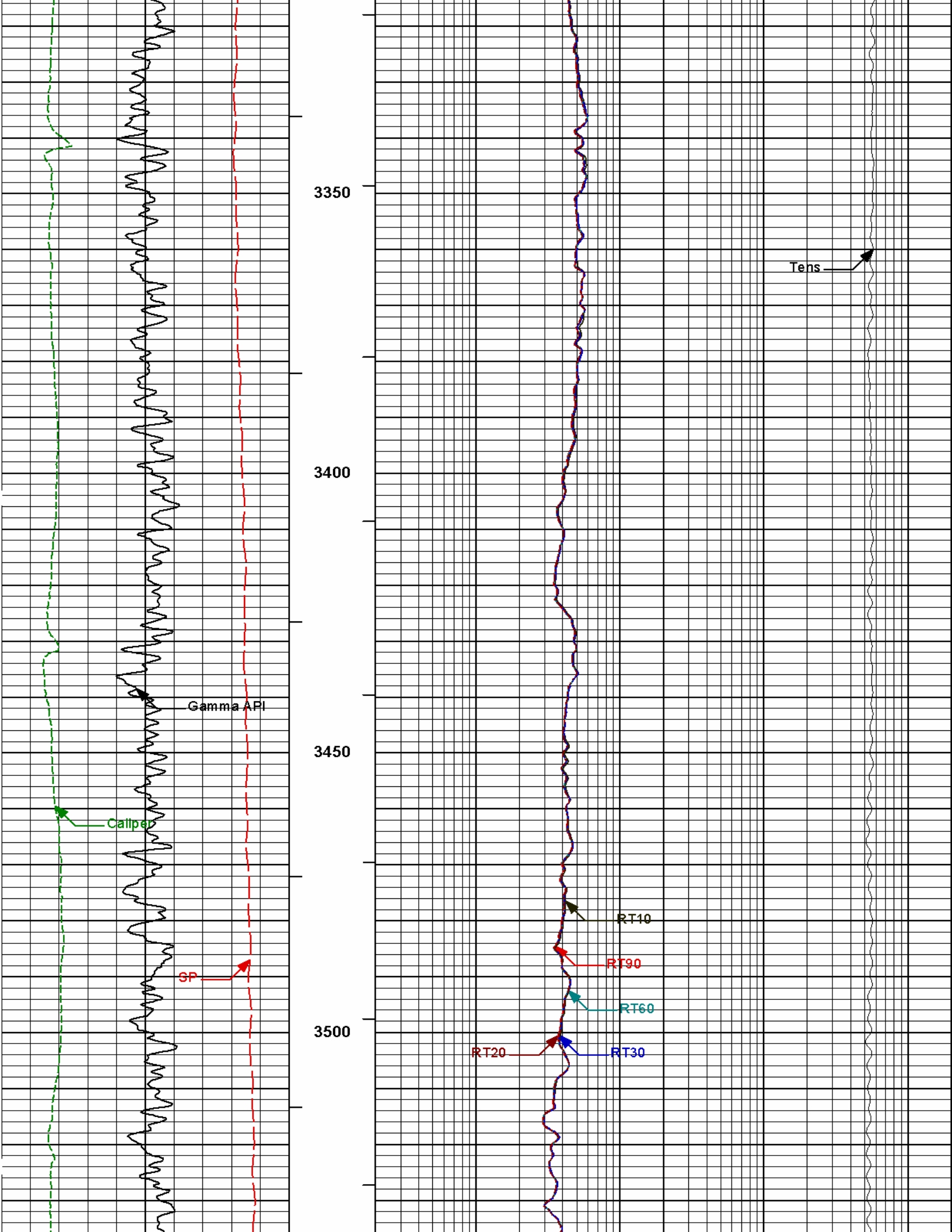
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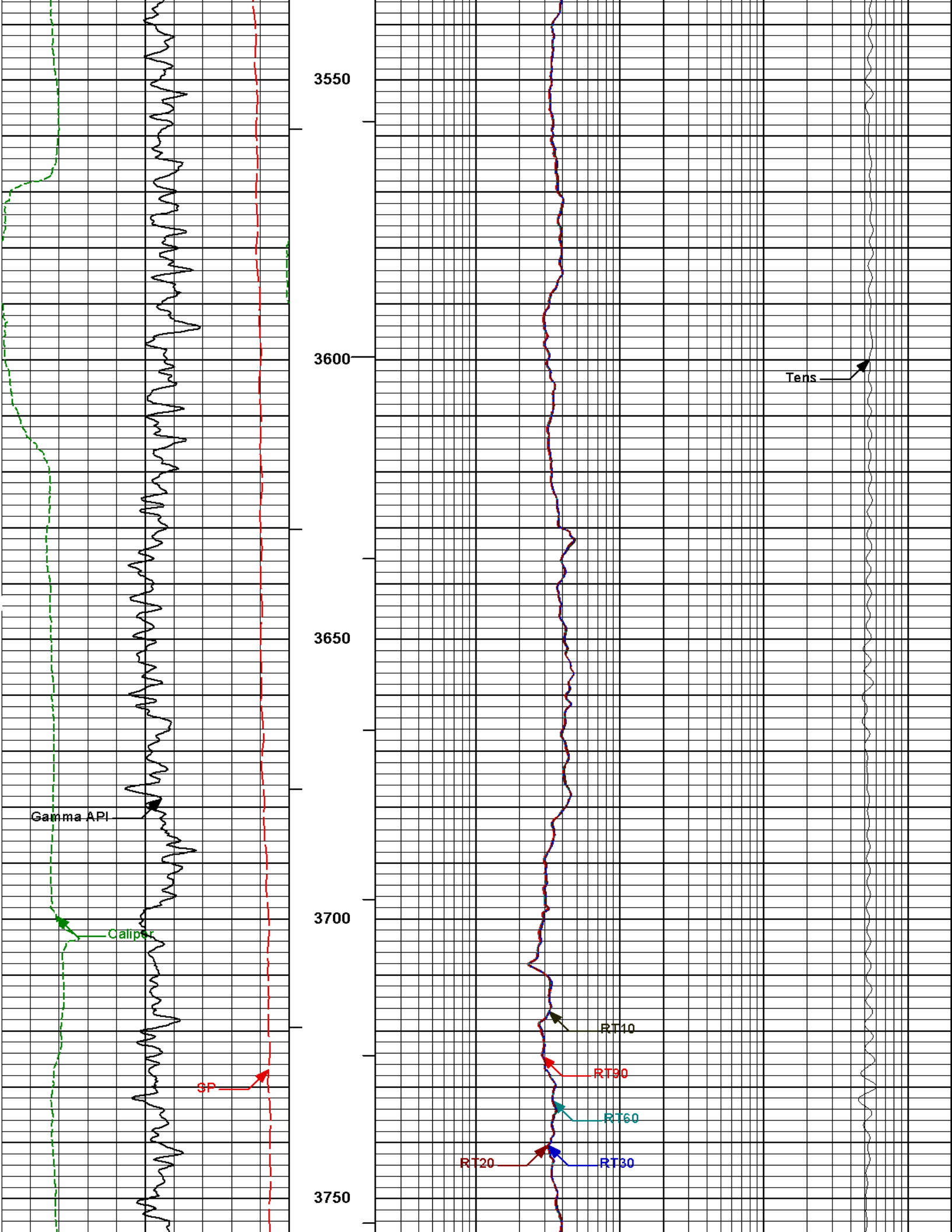
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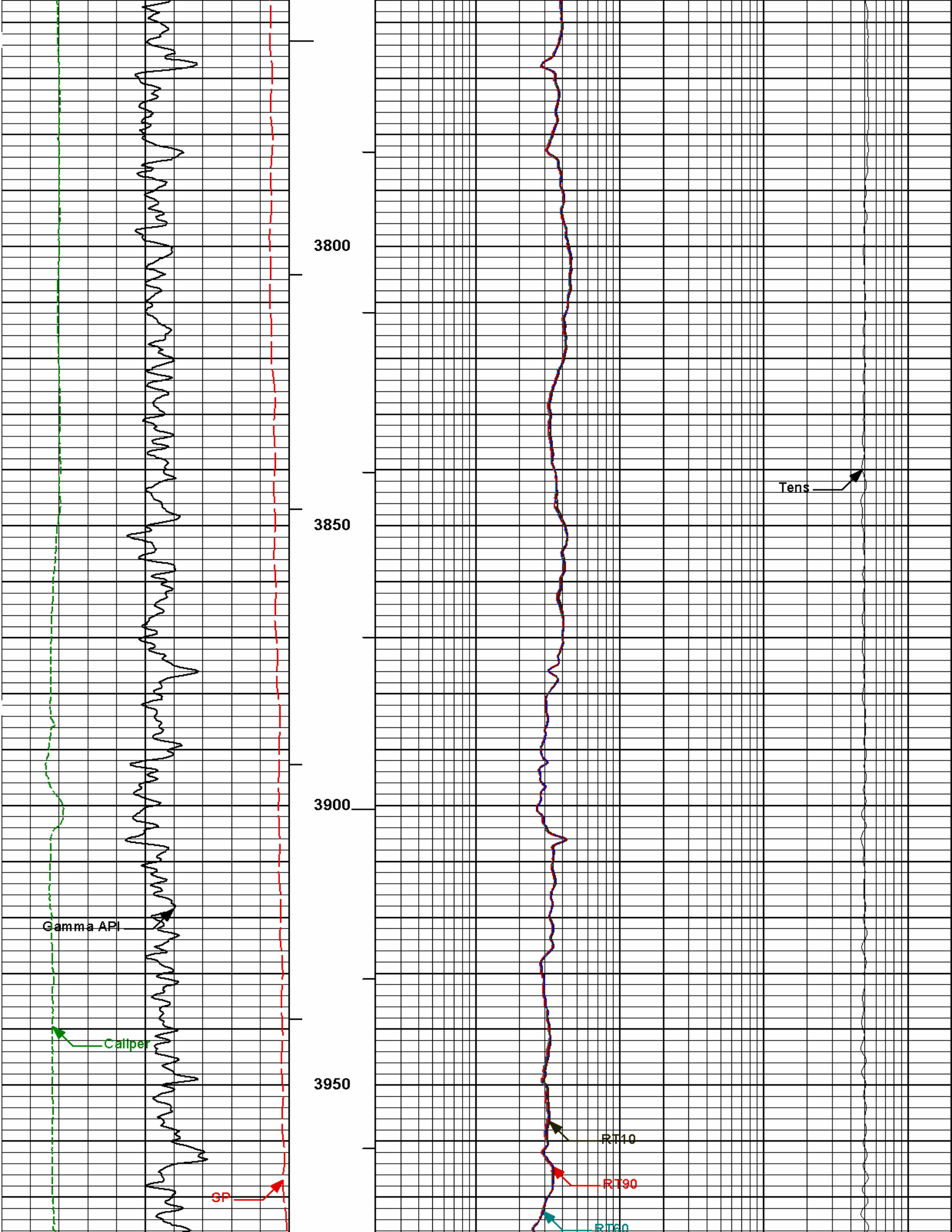
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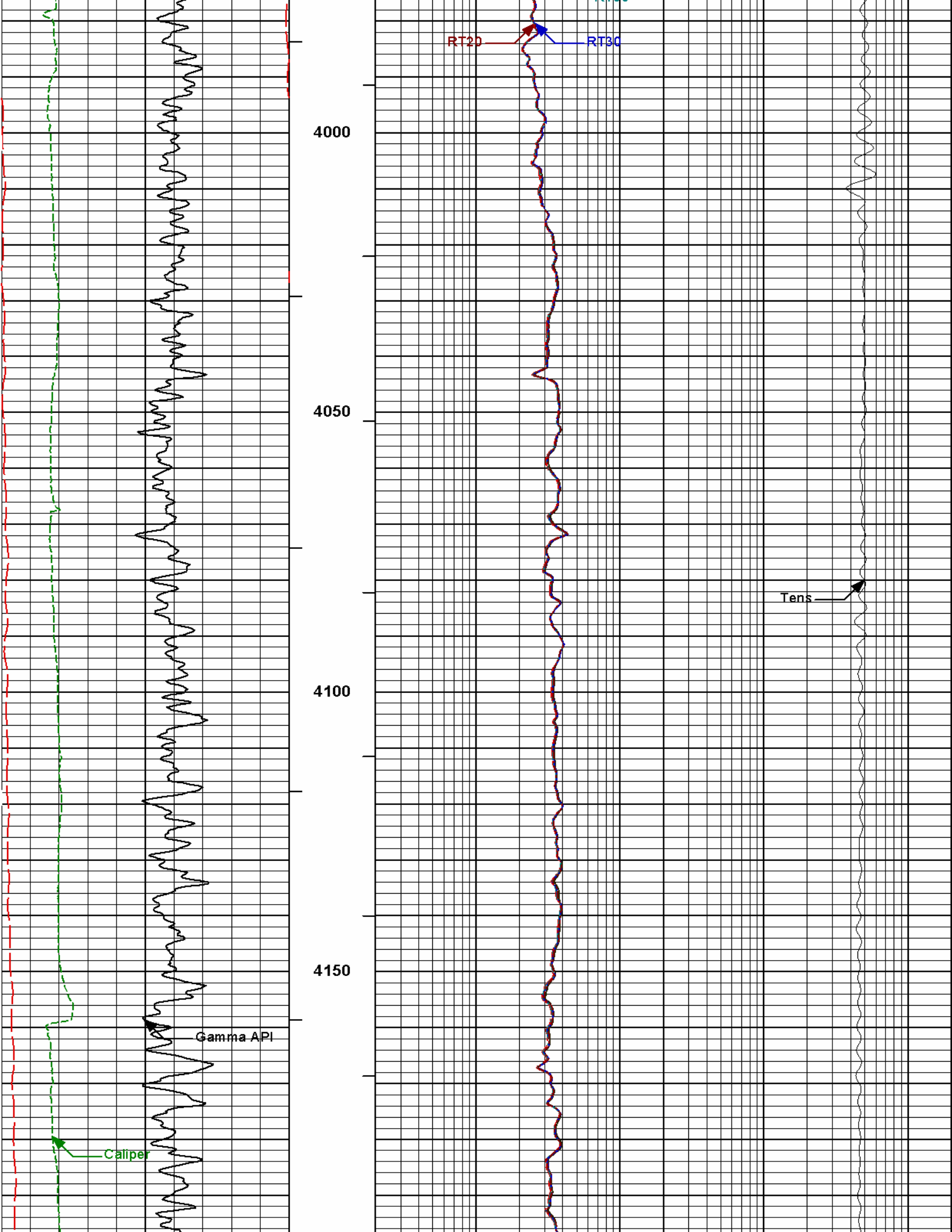
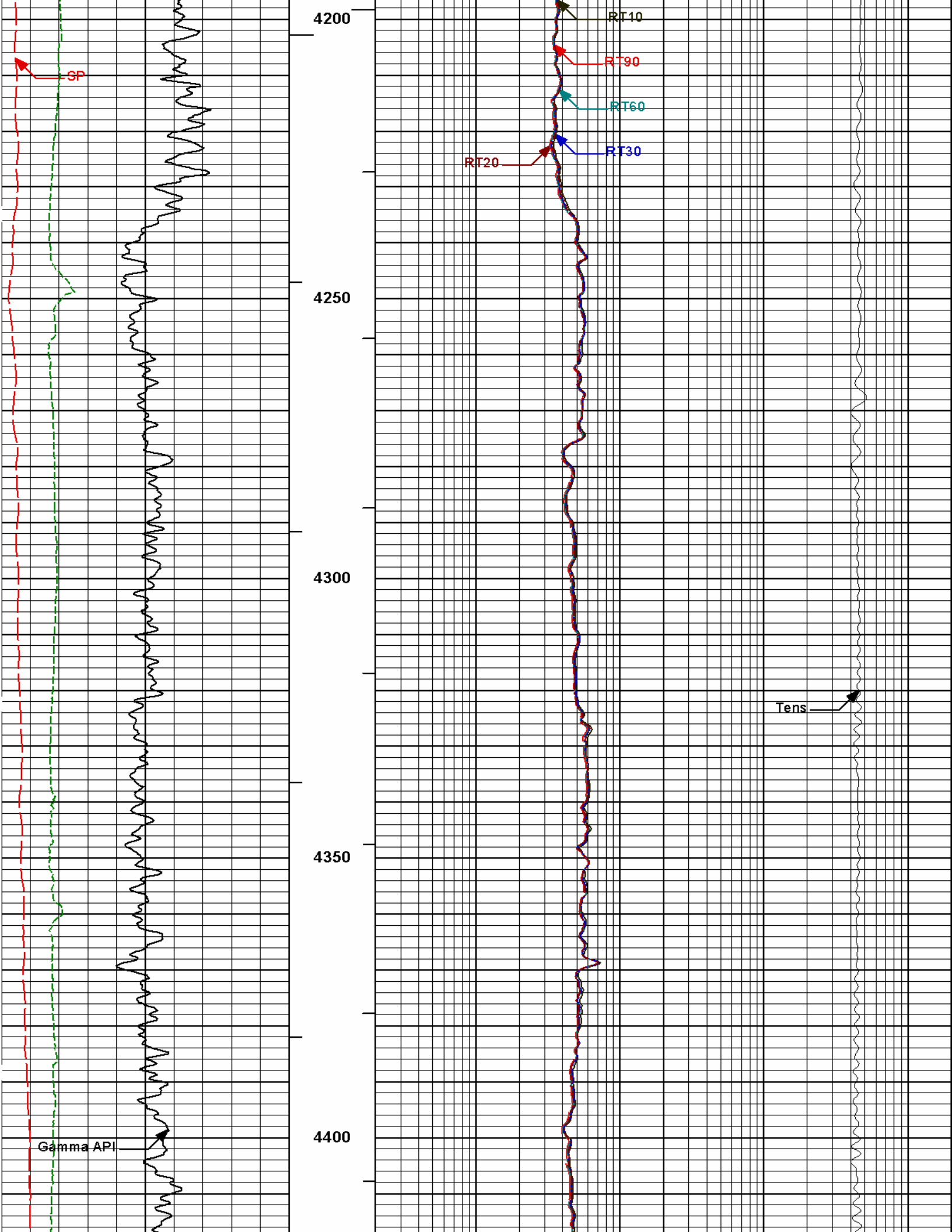
RT60


RT20
RT30
4000
4050
4100
4150
Tens
Gamma API
Caliper


SP
Gamma API
4200
4250
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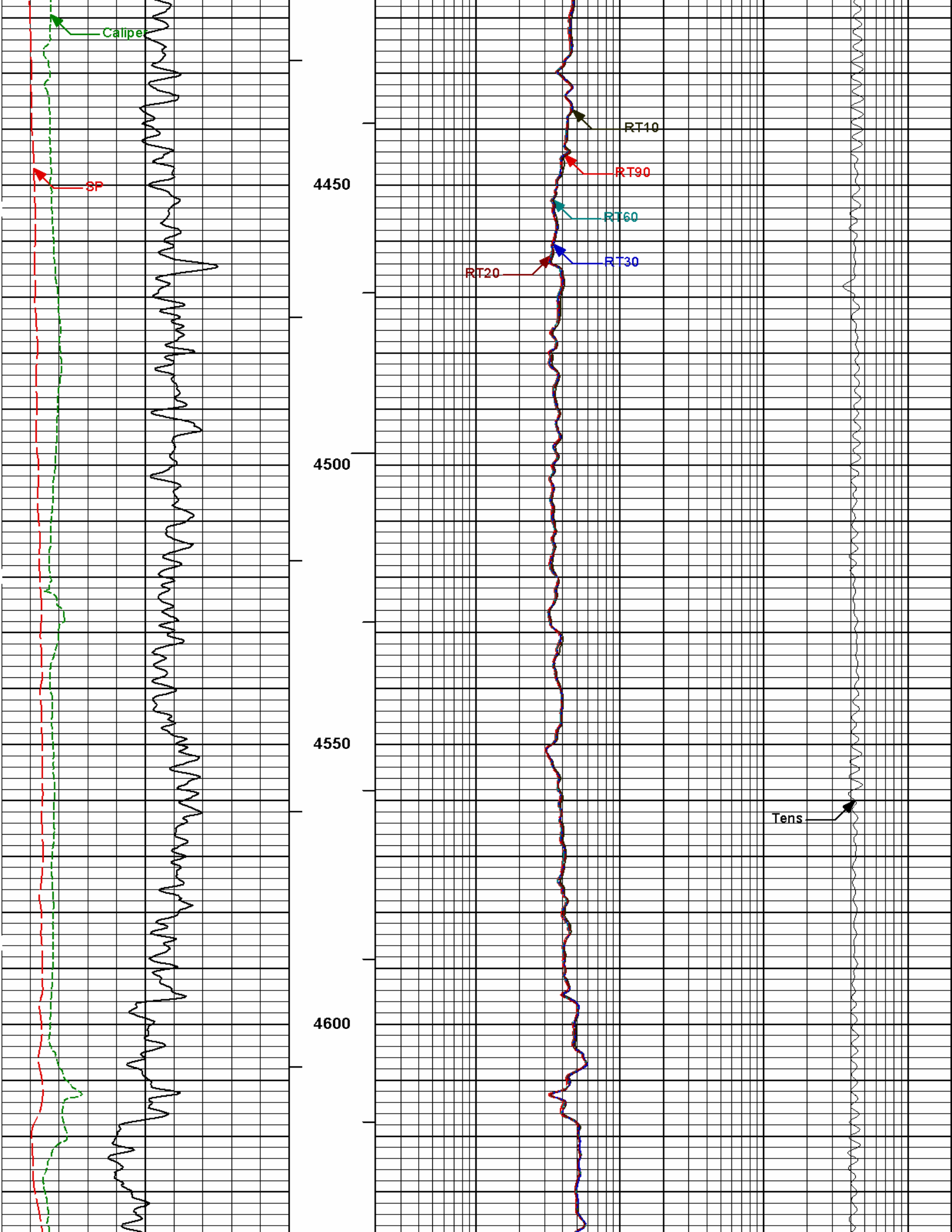
4350
4400
RT10
RT90
RT60
RT30
RT20
Tens


Caliper
SP
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4500
4550
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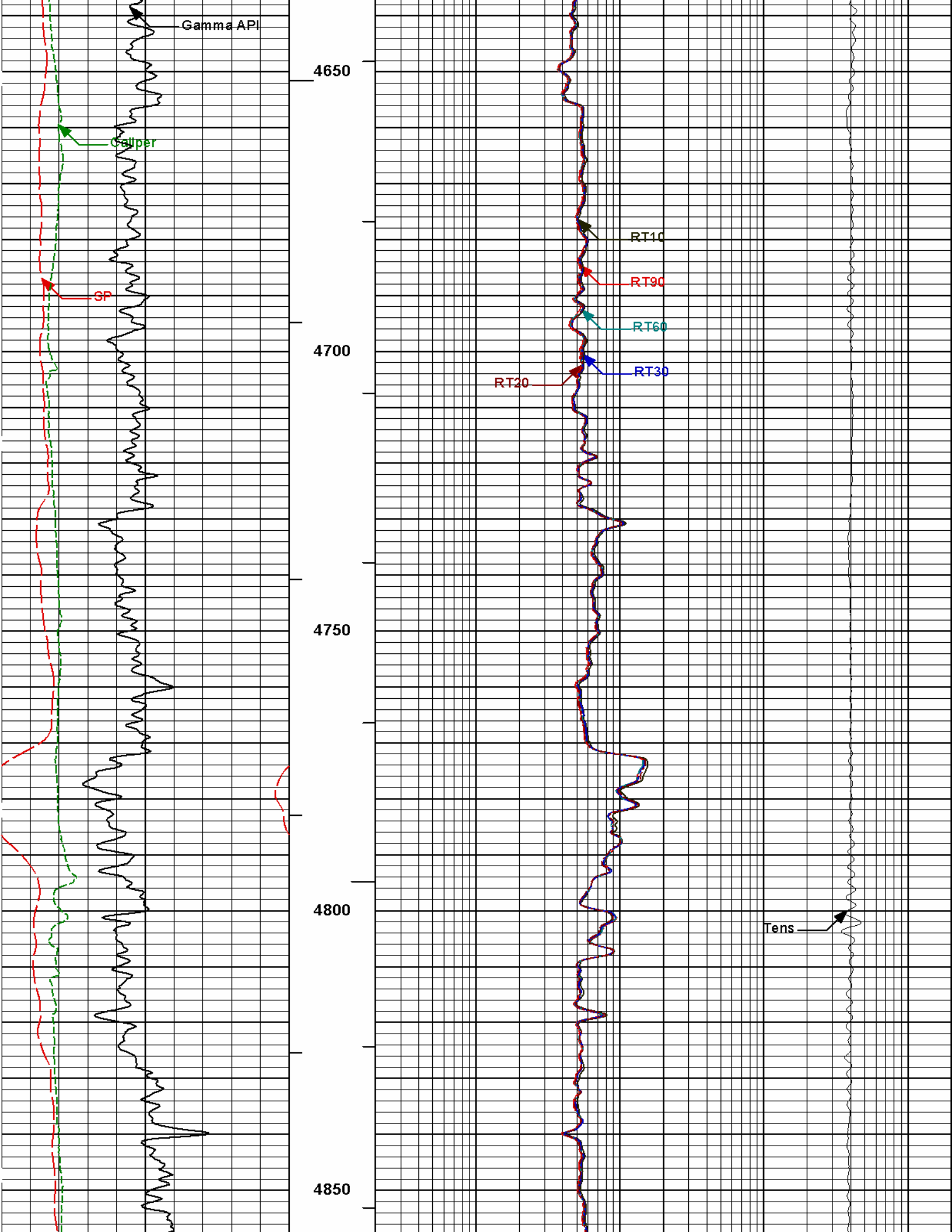
RT10
RT90
RT60
RT30
RT20
Tens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Caliper
SP
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RT60
RT30
RT20
Tens
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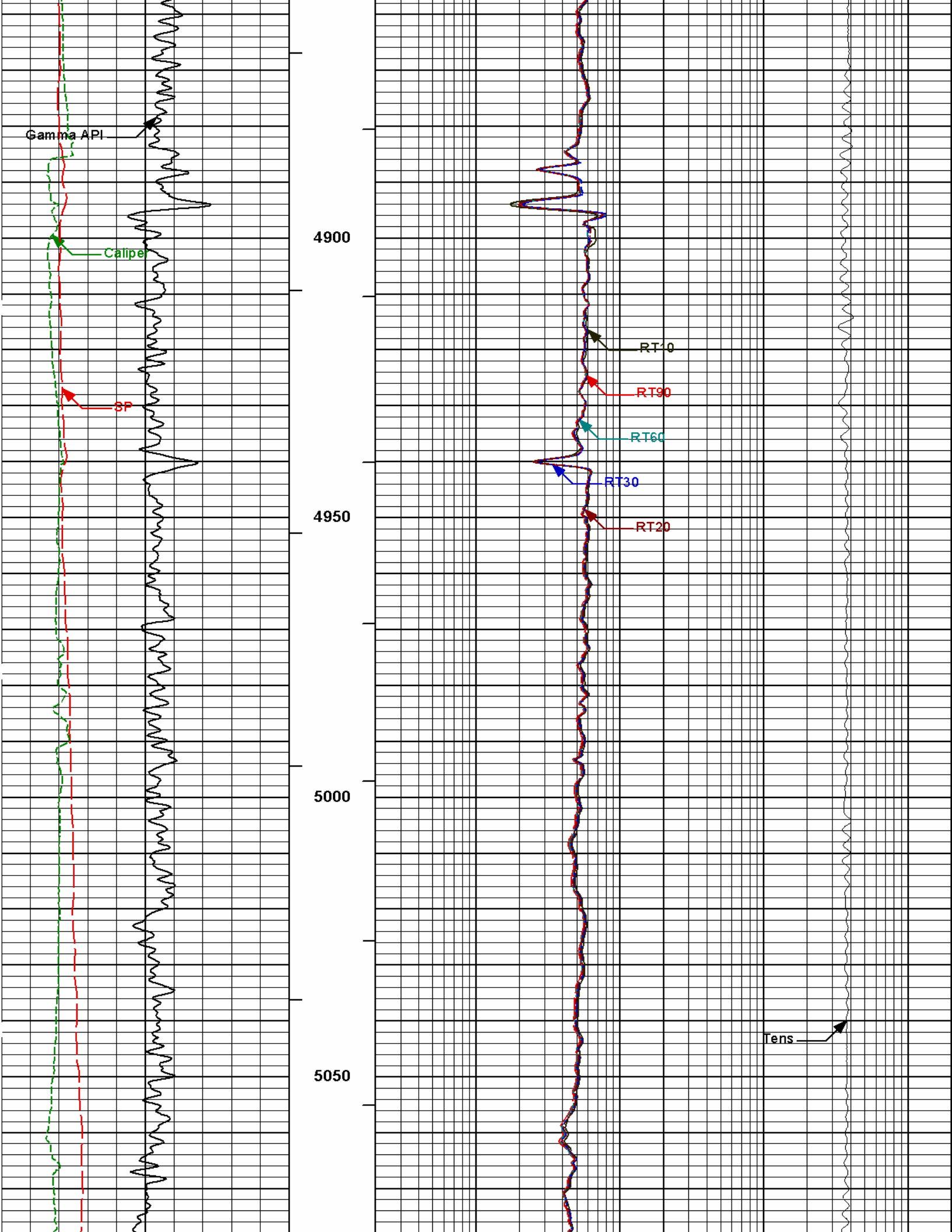
4850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Caliper
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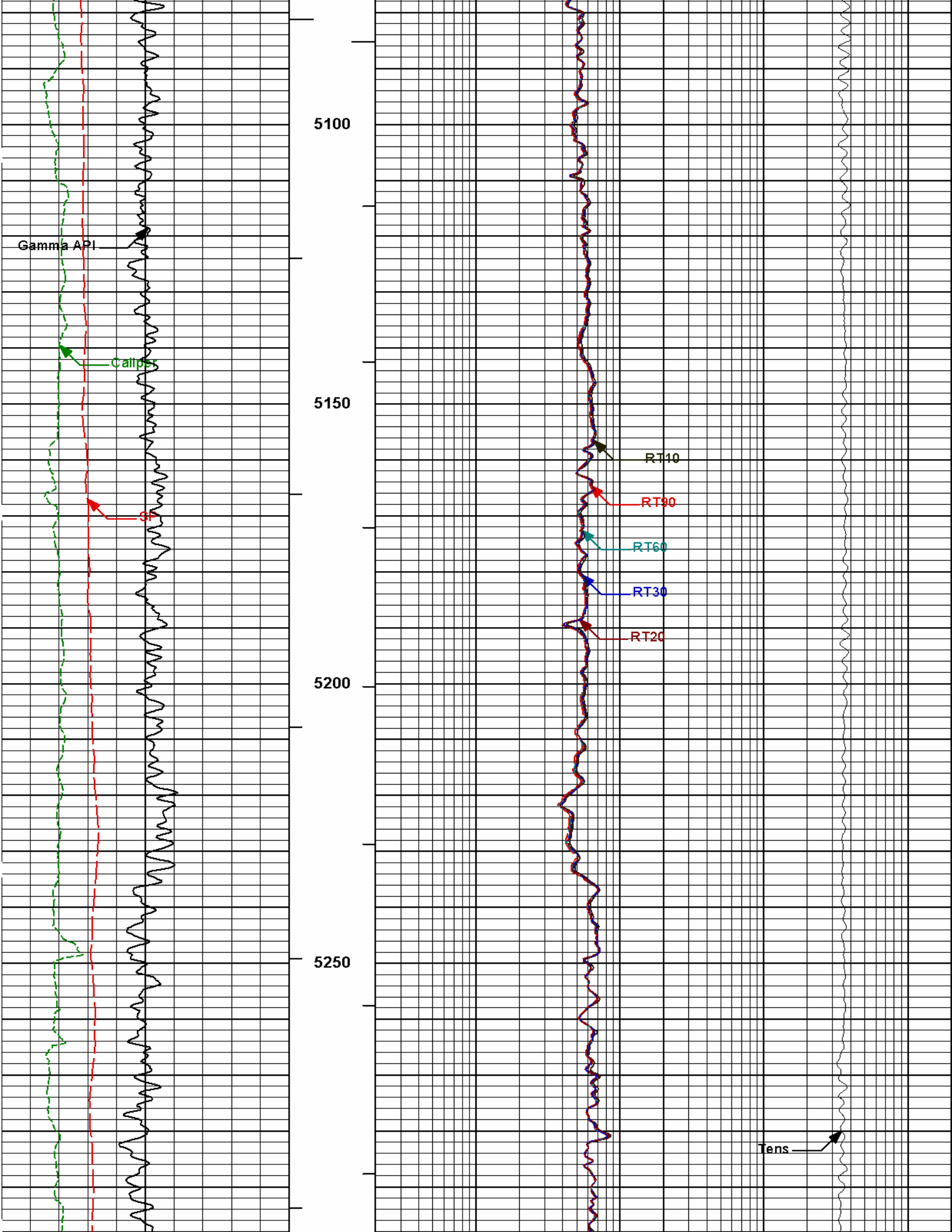
4950
5000
5050
RT10
RT90
RT60
RT30
RT20
Tens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Caliper
SP
RT10
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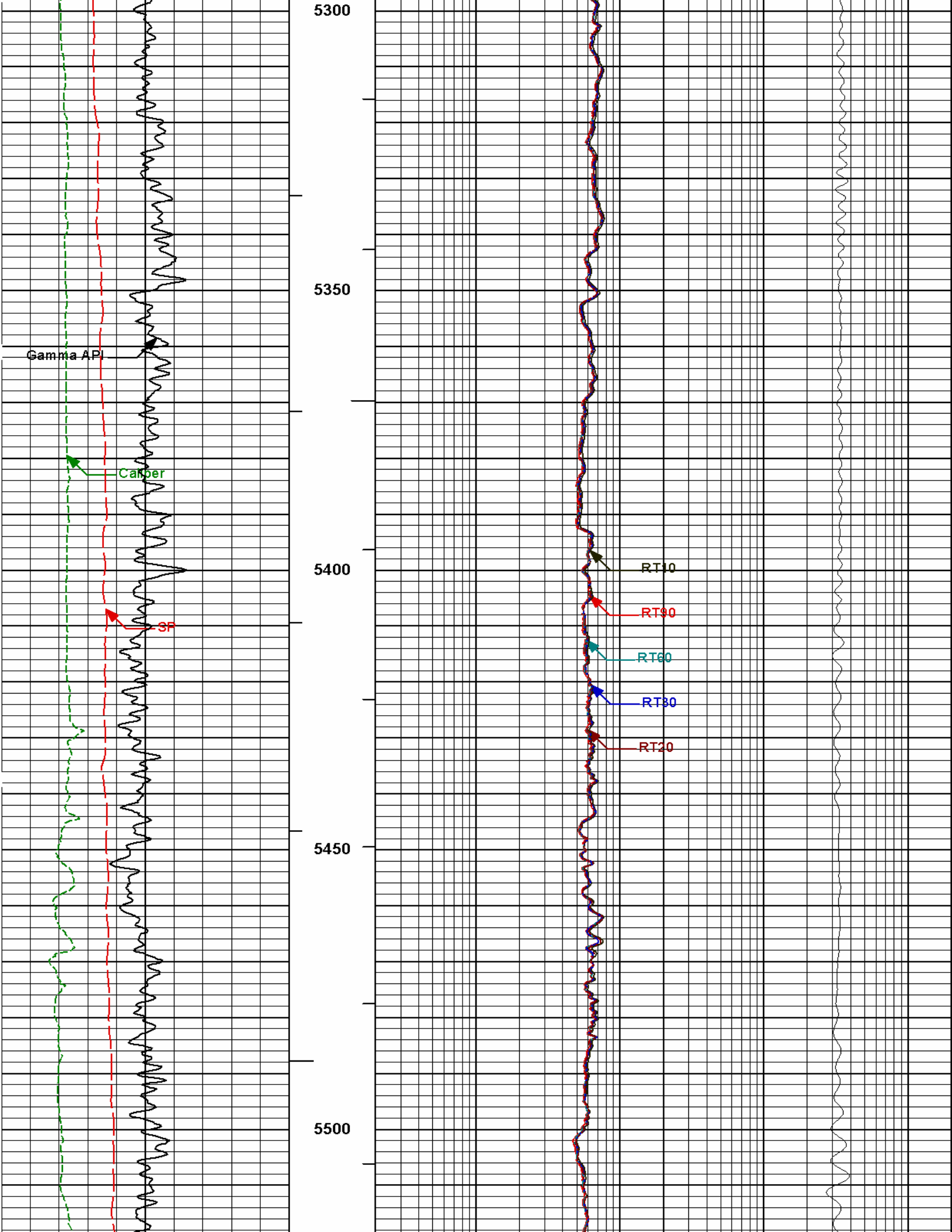
RT60
RT30
RT20
Tens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Caliper
SP
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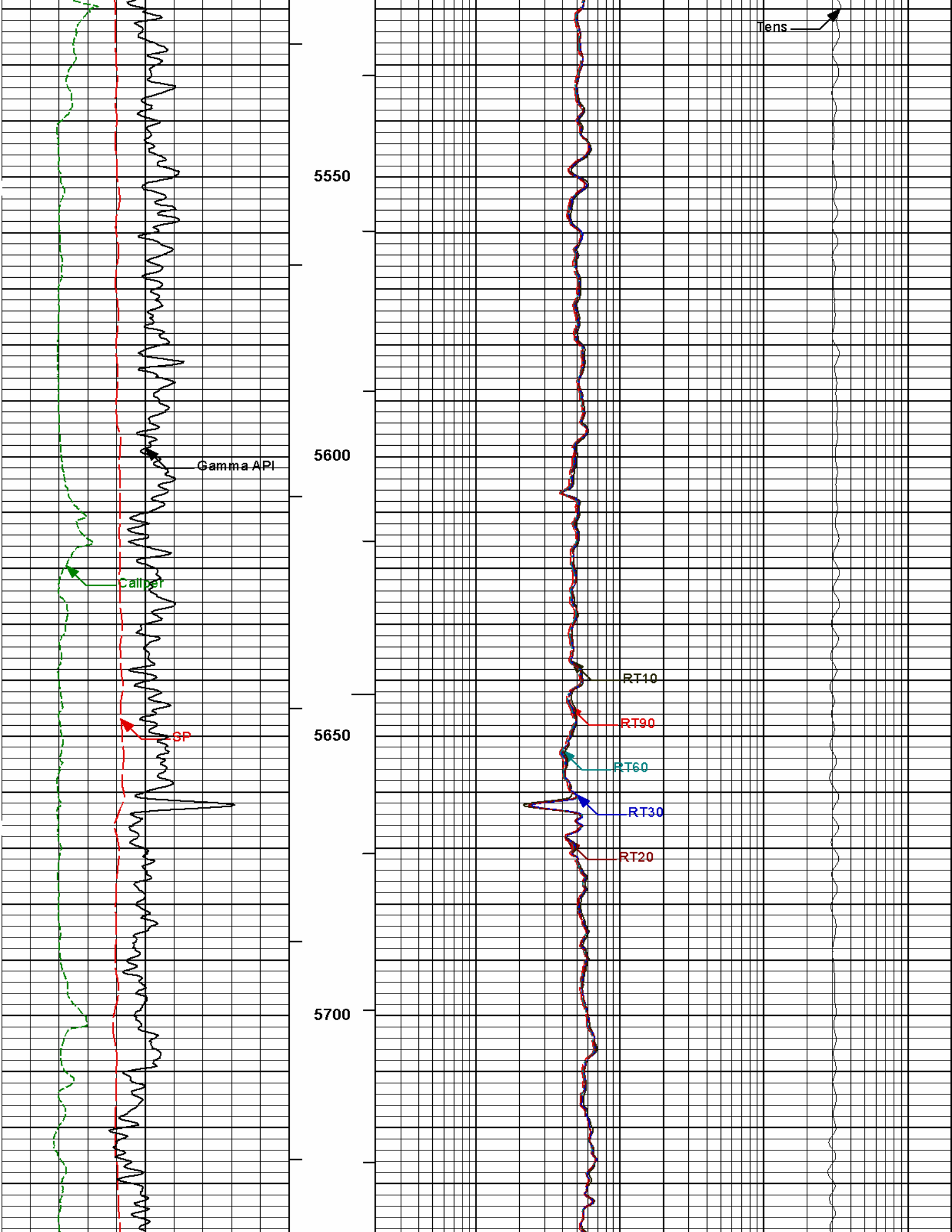
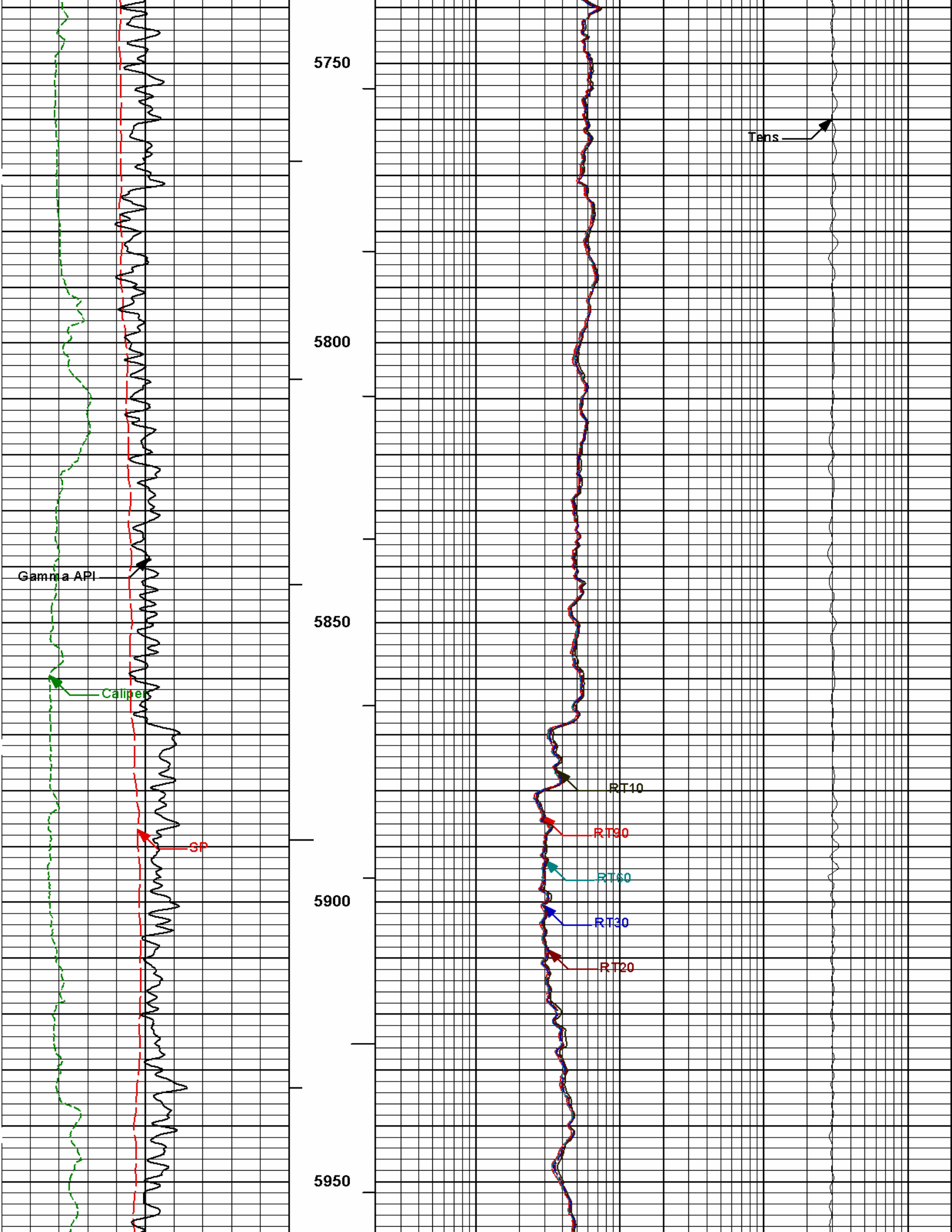
RT90
RT60
RT30
RT20


Tens
5550
5600
Gamma API
Caliper
SP
5650
RT10
RT90
RT60
RT30
RT20
5700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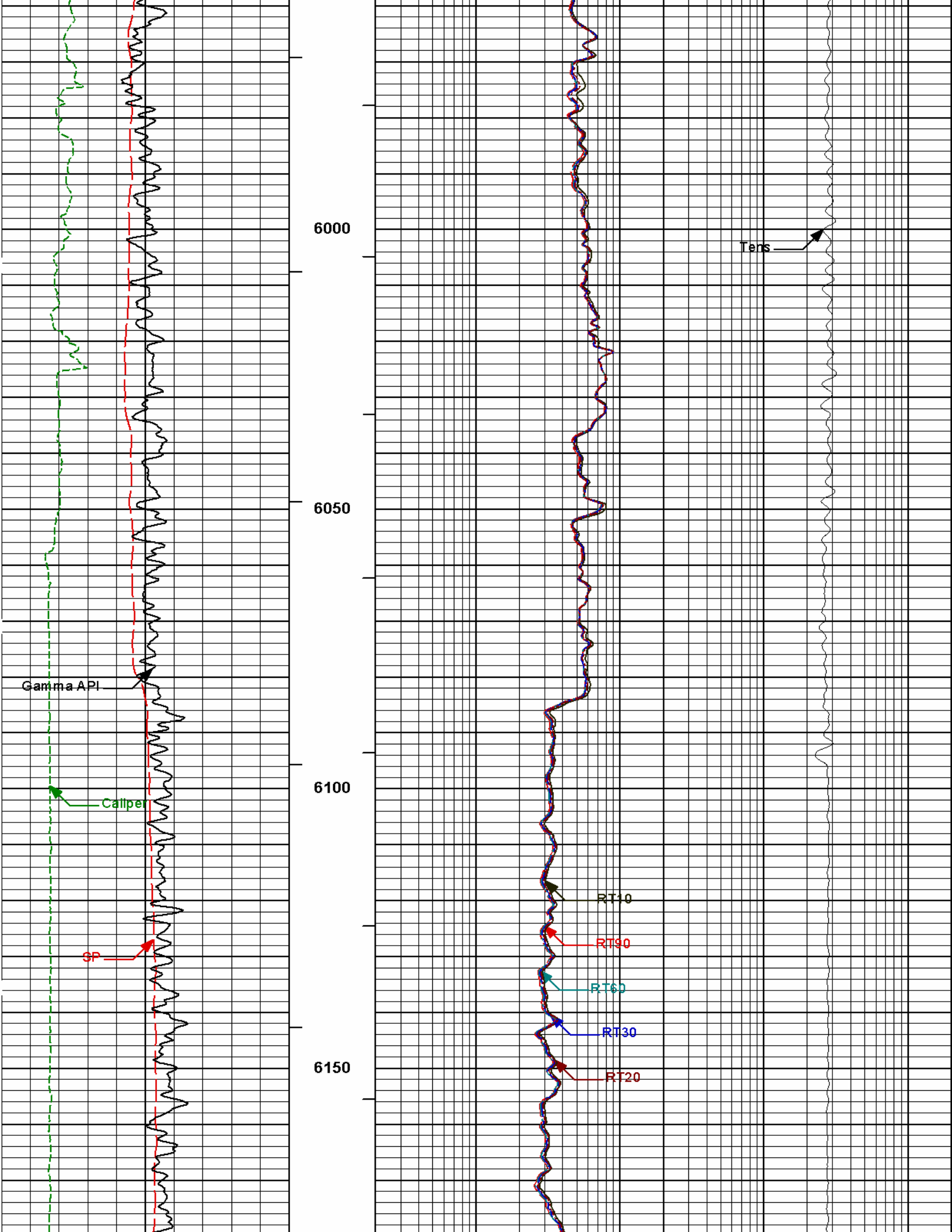
5950
Tens
Gamma API
Caliper
SP
RT10
RT90
RT60
RT30
RT20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6150
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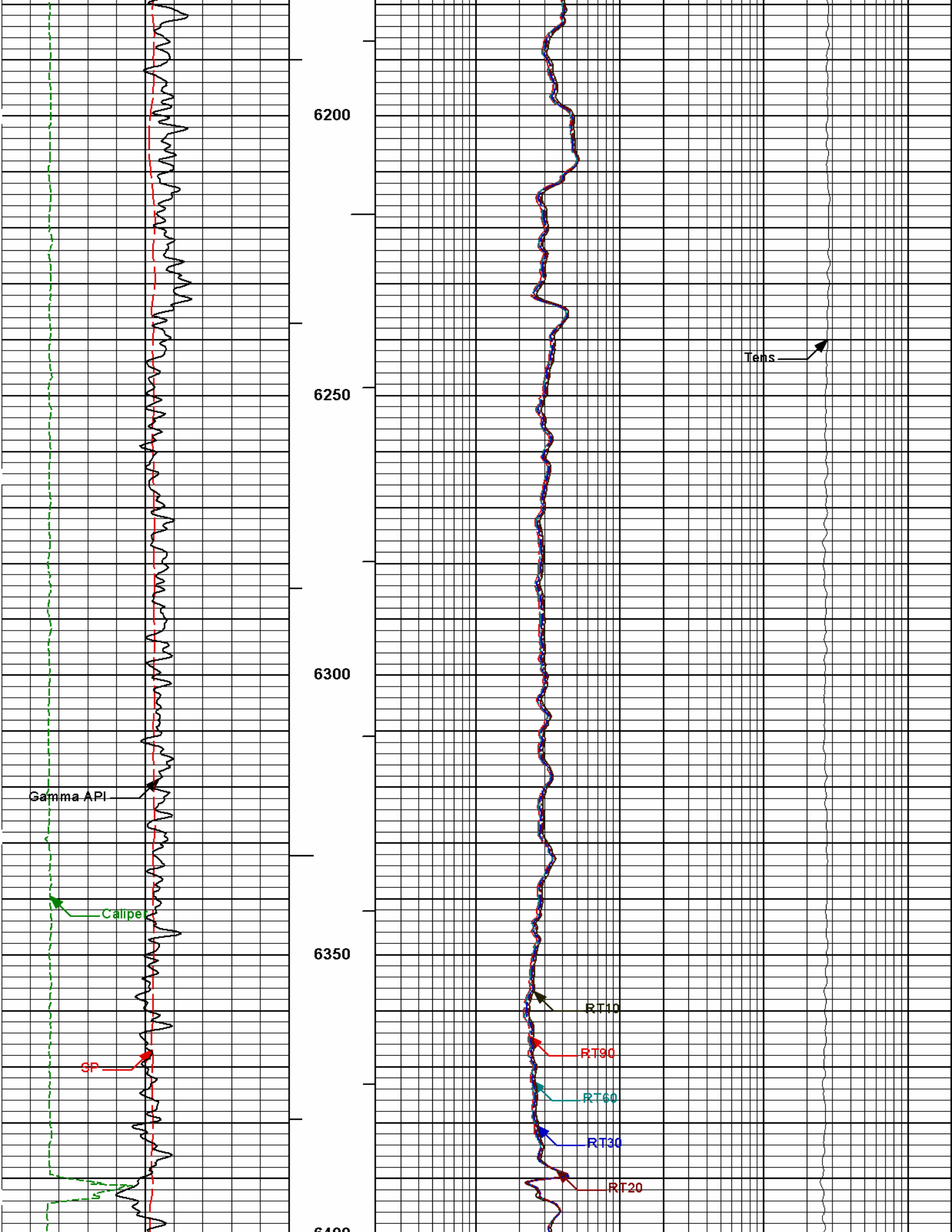
Caliper
SP
Tens
RT10
RT90
RT60
RT30
RT20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Caliper
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Tens
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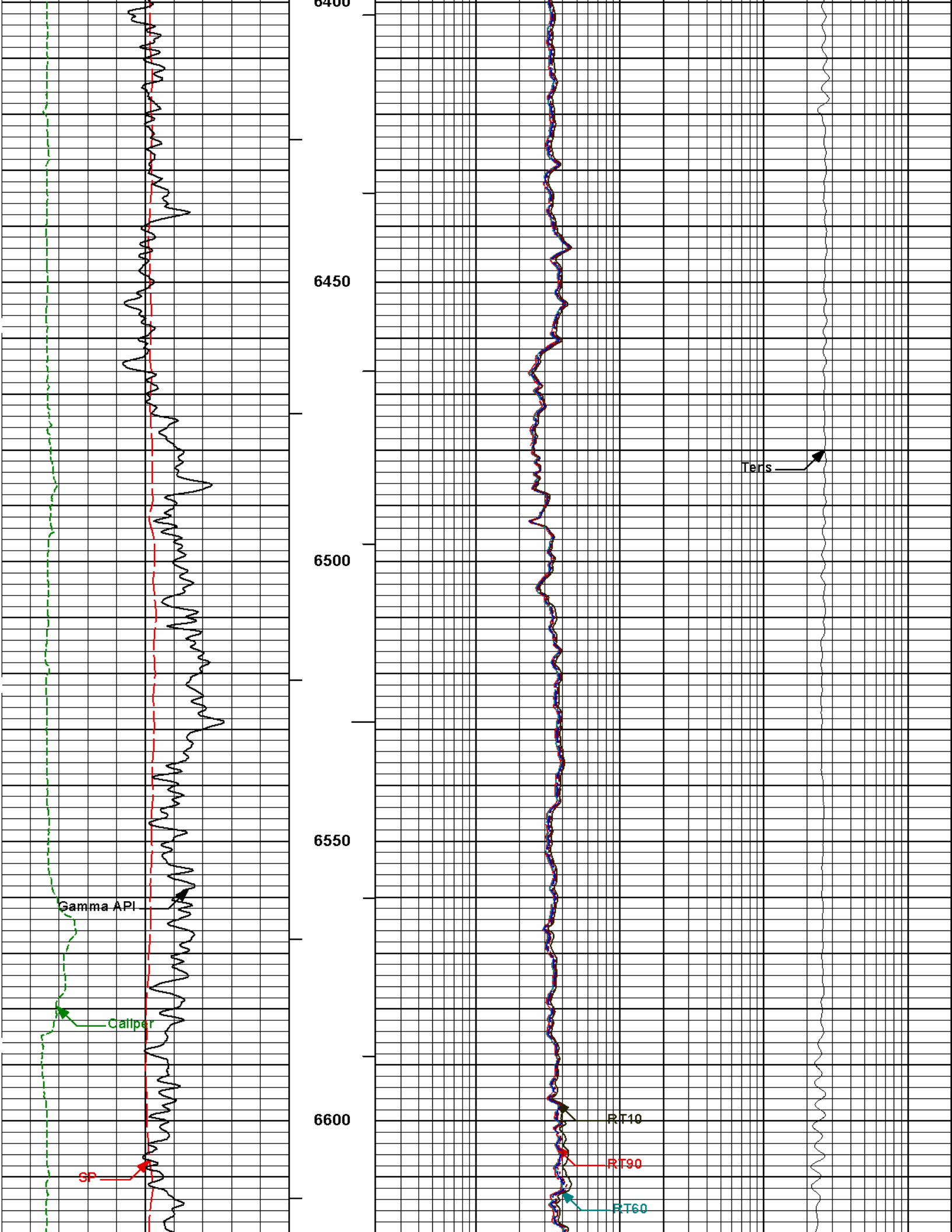
RT90
RT60
RT30
RT20


6400
6450
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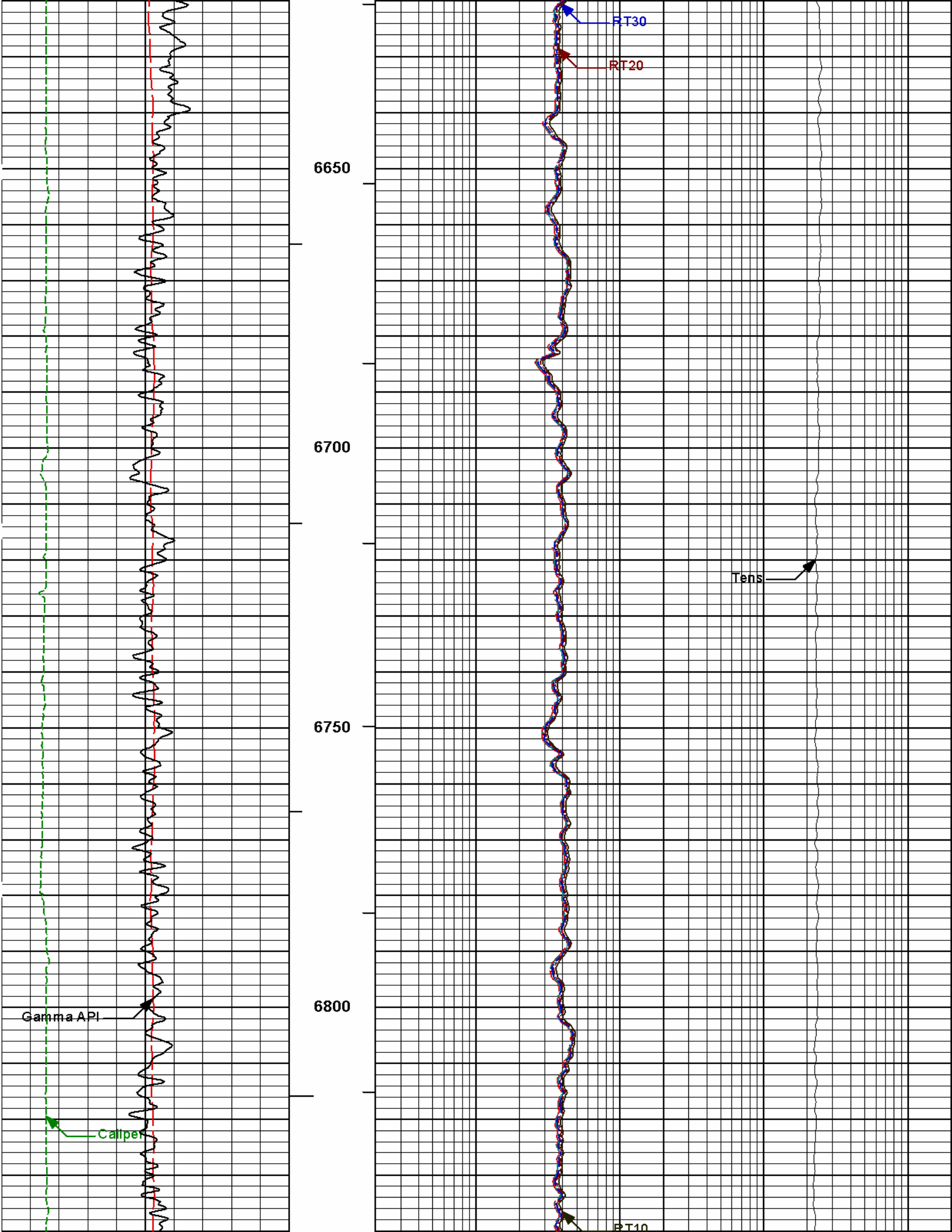
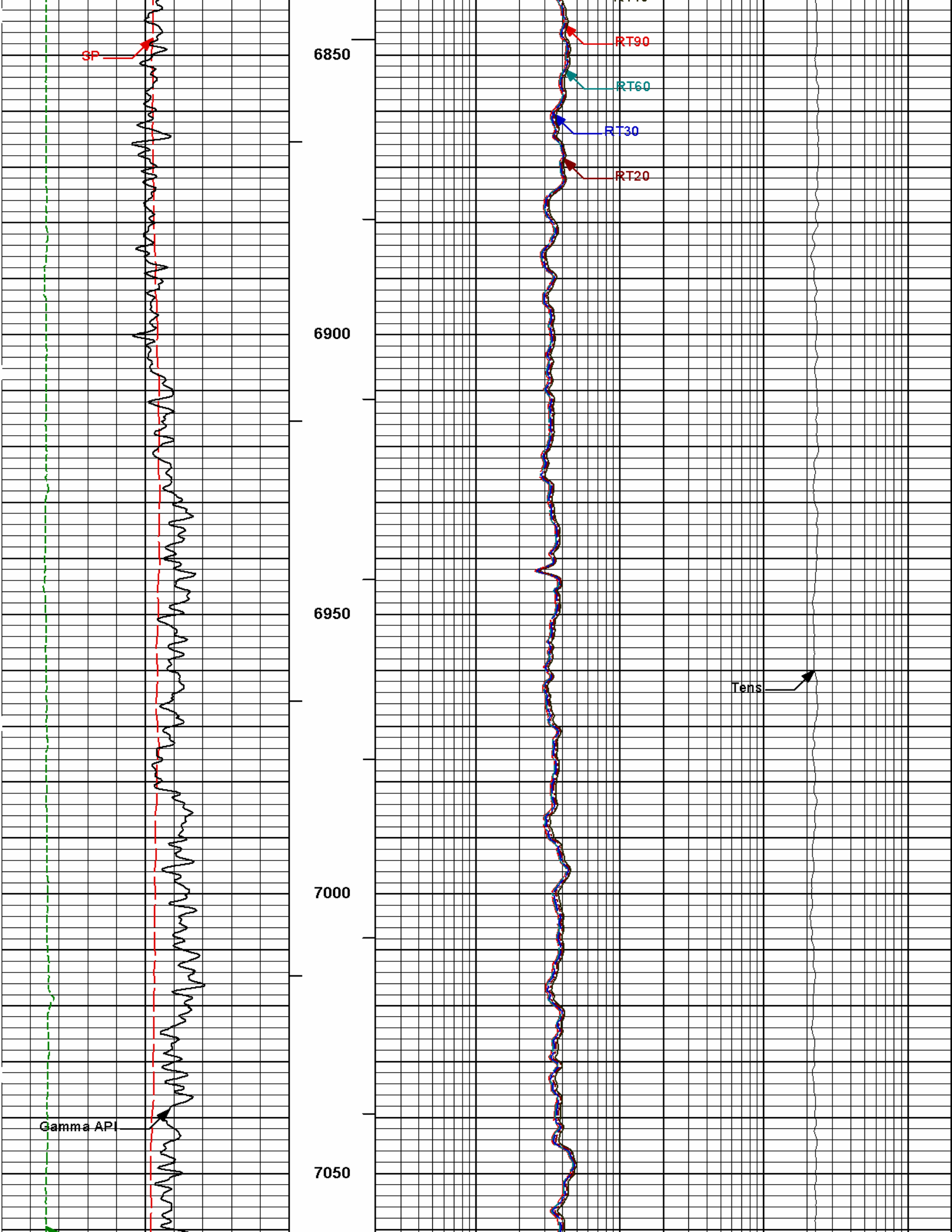
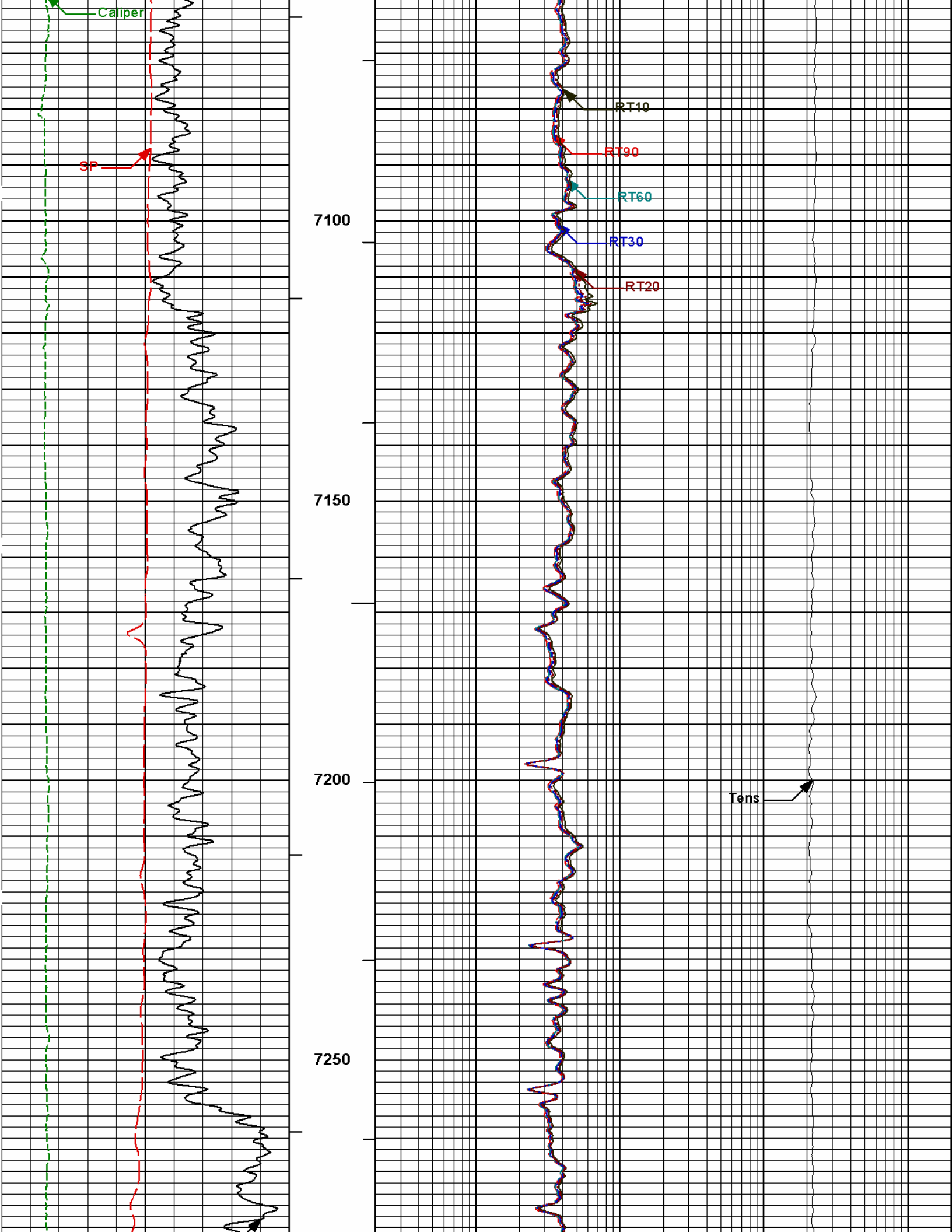
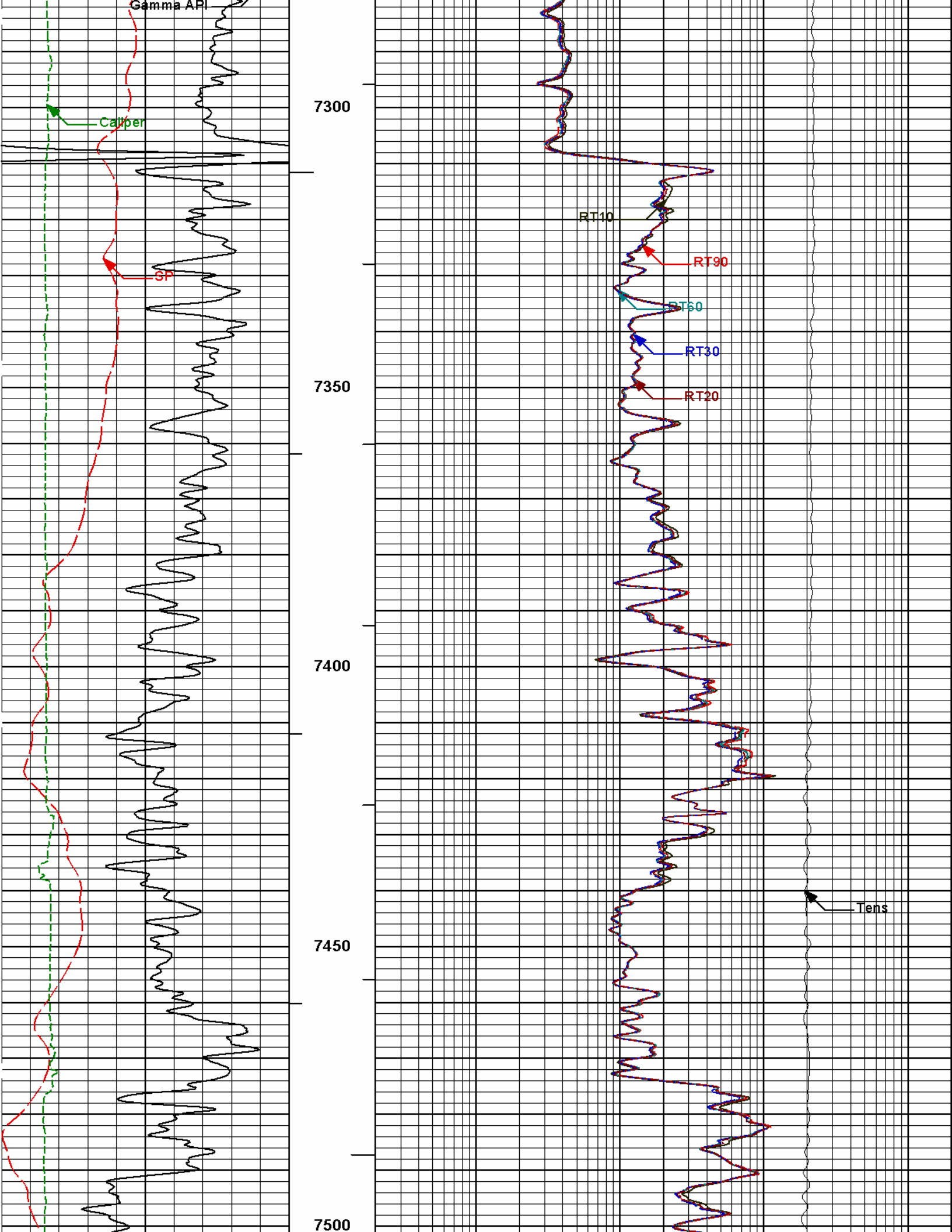
6600
Gamma API
Caliper
SP
Tens
RT10
RT90
RT60


RT30
RT20
6650
6700
6750
6800
Tens
Gamma API
Caliper
RT10


SP
6850
6900
6950
7000
7050
RT90
RT60
RT30
RT20
Tens
Gamma API


Caliper
SP
RT10
RT90
RT60
RT30
RT20
7100
7150
7200
7250
Tens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Caliper
SP
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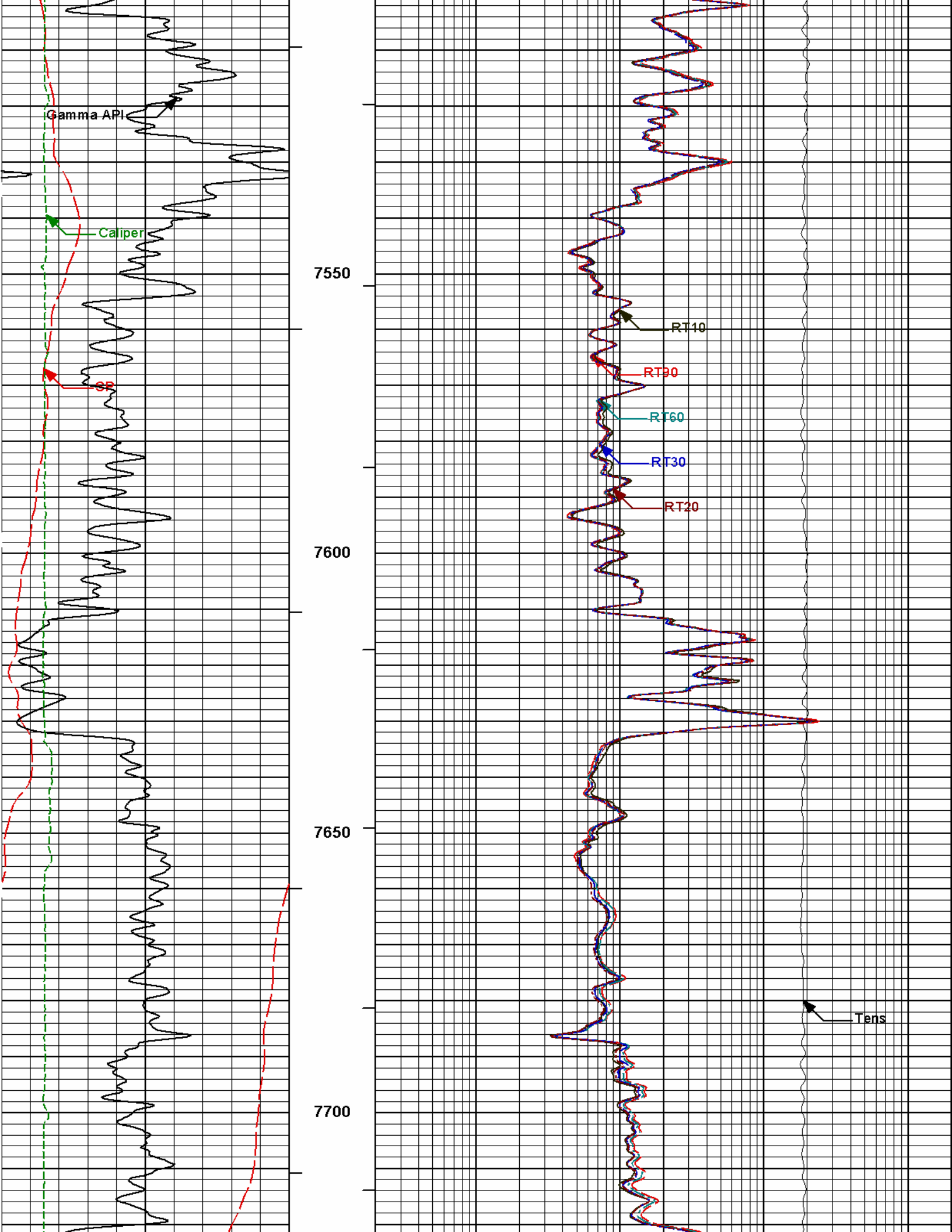
7350
7400
7450
7500
RT10
RT90
RT60
RT30
RT20
Tens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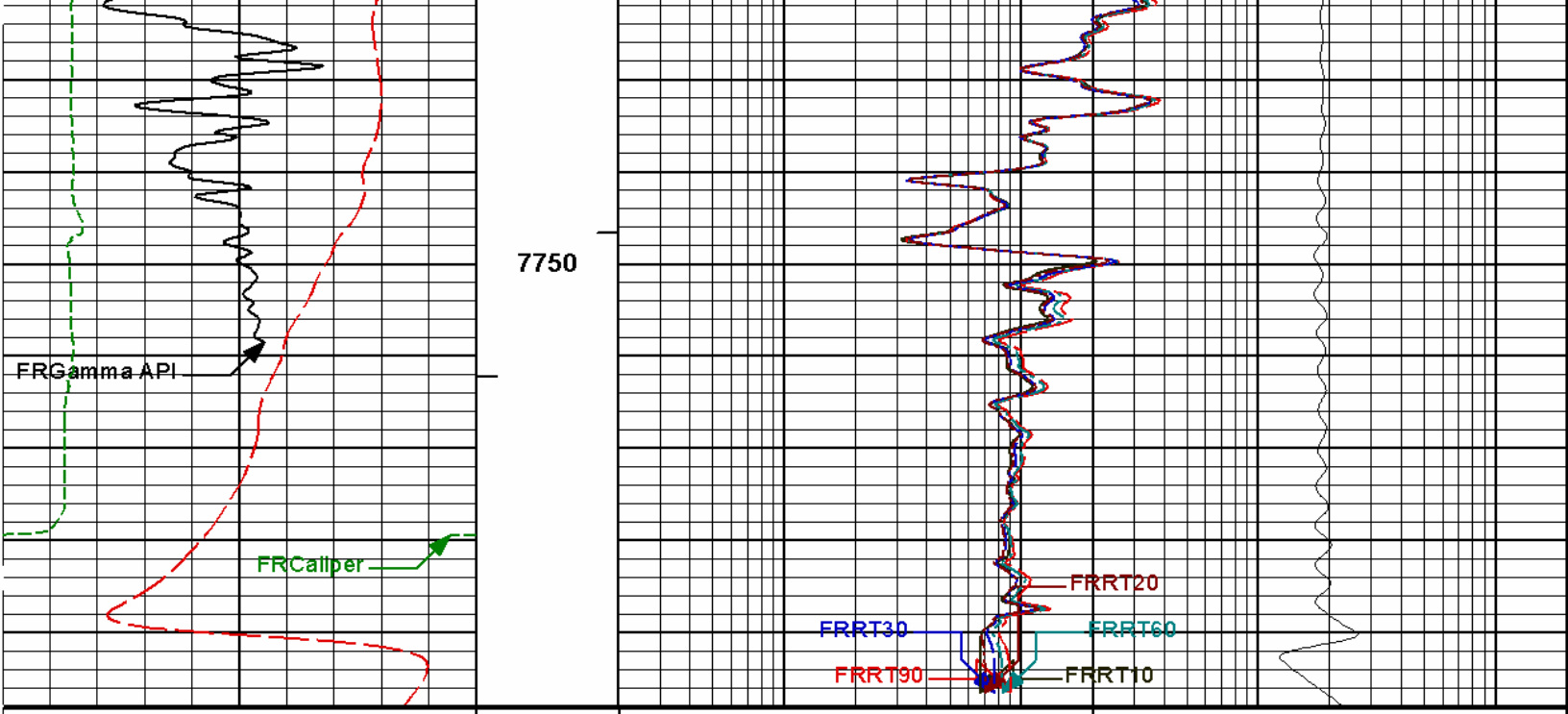
Caliper
SP
7550
RT10
RT90
RT60
RT30
RT20
7600
7650
Tens
7700



50 SP 150 millivolts	1 : 240		10K Tens 0 pounds
0 Gamma API 200 api	BHVT	0.2 RT90 2K ohmm	
6 Caliper 16 inches	AHVT	0.2 RT60 2K ohmm	
		0.2 RT30 2K ohmm	
		0.2 RT20 2K ohmm	
		0.2 RT10 2K ohmm	

HALLIBURTON

Plot Time: 16-Apr-12 12:07:05
Plot Range: 927 ft to 7798 ft
Data: HEIN 2-1\Well Based\DAQ-0001-003.01\
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:** 13-Apr-12 10:25:25

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	70.9	api
Background + Calibrator	300.8	300.1	api
Calibrator	230.0	229.2	api

Shop	Field	Difference	Tolerance
230.0	229.2	0.8	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name: DSNT - 11277440 **Reference Calibration Date:** 13-Apr-12 12:27:11

Engineer: J. PINKETT **Calibration Date:** 13-Apr-12 12:42:50

Software Version: WL INSITE R3.4.4 (Build 2) **Calibration Version:** 1

Logging Source S/N: DSN-430

Tank Serial Number: 11068236

Reference value assigned to Tank: 53.720

Snow Block S/N: 37526

Calibration Tank Water Temperature: 68 degF

Min. Tool Housing Outside Diameter: 3.625 in

CALIBRATION CONSTANTS

Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	1.004	1.002	0.900 - 1.100

WATER TANK SUMMARY (Horizontal Water Tank)

Measurement	Current Reading (Previous Coef.)	Calibrated (New Coef.)	Change	Control Limit On Change
Porosity (decp):	0.2229	0.2224	0.0006	+/- 0.0020
Calibrated Ratio:	10.13	10.11	0.020	+/- 0.050

VERIFIER

Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0671	0.02000 - 0.09000

PASS/FAIL SUMMARY

Background Check:	Passed
Gain-Range Check:	Passed
Snow-Block Check:	Passed

DUAL SPACED NEUTRON FIELD CALIBRATION

Tool Name:	**DSNT - 11277440**	**Reference Calibration Date:**	**13-Apr-12 12:42:50**
Engineer:	**J. PINKETT**	**Calibration Date:**	**13-Apr-12 12:47:19**
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	0.0800	0.0129	+/- 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
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

Tool Name:	**SDLT - M319_P123_BLUE**	**Reference Calibration Date:**	**13-Apr-12 10:12:25**
Engineer:	**J. PINKETT**	**Calibration Date:**	**13-Apr-12 10:21:39**
Software Version:	**WL INSITE R3.4.4 (Build 2)**	**Calibration Version:**	**1**

MEASURED CALIPER VALUES

MEASURED CALIPER VALUES

Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.68	-0.07	+/- 0.10
Ring Diameter	8.25	8.16	-0.09	+/- 0.15

PASS/FAIL SUMMARY

Pad Extension Check:	Passed
Diameter Check:	Passed

ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION

Tool Name: ACRt Sonde - E5787-S5797 **Reference Calibration Date:** 28-Jul-11 17:33:20

Engineer: C. BLUE **Calibration Date:** 17-Feb-12 03:46:27

Software Version: WL INSITE R3.4.4 (Build 2) **Calibration Version:** 1

TYPICAL GAIN RANGE

Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	0.95	1.0074	1.05	0.95	1.0078	1.05	0.95	1.0038	1.05
A2 (50")	0.95	1.0089	1.05	0.95	1.0116	1.05	0.95	1.0121	1.05
A3 (29")	0.95	1.0002	1.05	0.95	1.0009	1.05	0.95	1.0000	1.05
A4 (17")	0.95	0.9907	1.05	0.95	0.9889	1.05	0.95	0.9911	1.05
A5 (10")	N/A	N/A	N/A	0.95	0.9880	1.05	0.95	0.9887	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.9726	1.05	0.95	0.9728	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	-2.992	2	-6	-4.284	-2	-8	-5.526	-2
A2 (50")	-7	-1.100	-1	-6	-3.385	-2	-7	-4.538	-2
A3 (29")	-27	-15.583	-9	-9	-4.174	-3	-7	-3.135	-1
A4 (17")	-180	-117.008	-60	-45	-35.477	-15	-39	-27.073	-13
A5 (10")	N/A	N/A	N/A	-150	-90.891	-50	-80	-47.397	-10
A6 (6")	N/A	N/A	N/A	175	297.724	525	90	151.286	270

TRANSMITTER CURRENT GAIN

Signal	Lower	R	Upper
12K	0.6	0.7906	1.3
36K	1.0	1.8311	2.0
72K	1.0	1.0474	2.0

R-MUD VERIFICATION

Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
Mud Cell	0.95	1.006	1.05

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

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:**	**13-Apr-12 11:44:44**
Software Version:	**WL INSITE R3.4.4 (Build 2)**	**Calibration Version:**	**1**

Pad Temperature: 68.2 degF

DENSITY FIELD CALIBRATION SUMMARY

Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1366.622	1369.013	2.391	14.941
Far (B+D+P+L) cps	896.085	895.065	-1.020	16.289
Near Resolution	9.48	9.44	-0.040	0.50
Far Resolution	9.69	9.88	0.190	1.00

PASS/FAIL SUMMARY

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

MICRO LOG SHOP CALIBRATION

Tool Name:	**Microlog Pad - M319_P123_BLUE**	**Reference Calibration Date:**	**13-Apr-12 11:46:20**
Engineer:	**J. PINKETT**	**Calibration Date:**	**13-Apr-12 11:48:38**
Software Version:	**WL INSITE R3.4.4 (Build 2)**	**Calibration Version:**	**1**

CALIBRATION COEFFICIENT SUMMARY

Measurement	Micro Log Normal		Micro Log Lateral		
	Measured	Calibrated	Measured	Calibrated	Units
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:**	**13-Apr-12 11:49:26**
Software Version:	**WL INSITE R3.4.4 (Build 2)**	**Calibration Version:**	**1**

Measurement	Micro Log Normal		Micro Log Lateral		
	Shop	Field	Shop	Field	Units
Tool Zero	-0.42	-0.42	-0.00	-0.00	ohmm
Internal Reference	19.60	19.60	19.99	20.00	ohmm

Summary

Signal	Shop	Field	Difference	Tolerence
Microlog Normal	19.60	19.60	0.00	+/- 0.80

Microlog Lateral	19.99	20.00	-0.01	+/- 0.80	

CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-11215095						
Gamma Ray Calibrator	230.0	229.2	----------	0.8	+/- 9.00	api
DSNT-11277440						
Snow-Block Porosity	0.0671	0.0800	----------	-0.0129	+/- 0.0150	decp
SDLT-M319_P123_BLUE						
Pad Extension	3.75	3.68	----------	0.07	+/-0.10	in
Ring Diameter	8.25	8.16	----------	0.090	+/-0.15	in
ACRt Sonde-E5787-S5797						
Mud Cell	1.006	----------	----------	0.000	----------	ohm-m
SDLT Pad-M319_P123_BLUE						
Near(B+D+P+L)	1366.622	1369.013	----------	-2.391	+/-14.941	cps
Far(B+D+P+L)	896.085	895.065	----------	1.020	+/-16.289	cps
Microlog Pad-M319_P123_BLUE						
MicroLog Normal	19.60	19.60	----------	0.00	+/-0.80	ohmm
MicroLog Lateral	19.99	20.00	----------	-0.01	+/-0.80	ohmm

Data: HEIN 2-1\0001 ANADARKO IDT\IDLE Date: 14-Apr-12 04:53:31

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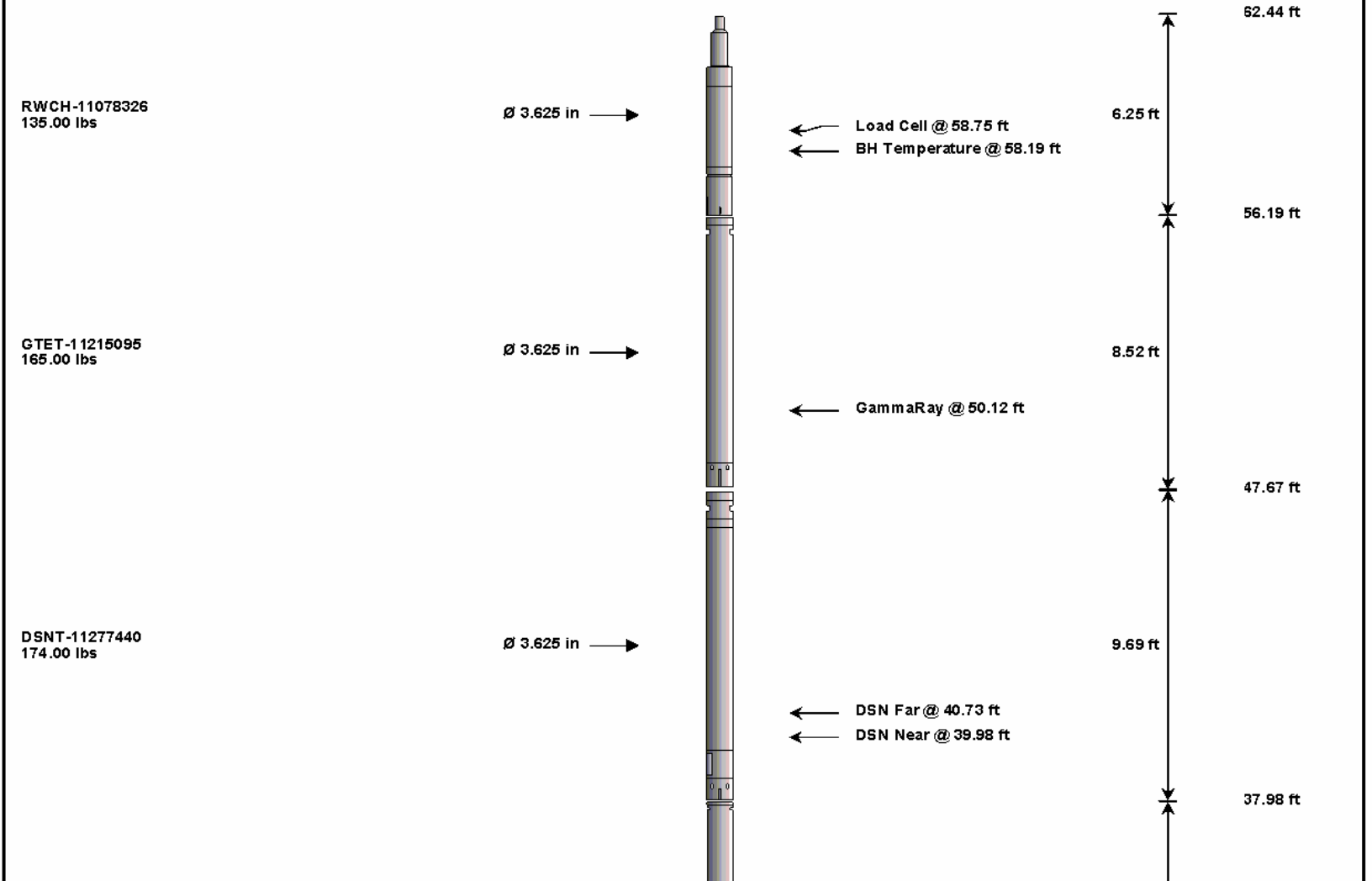
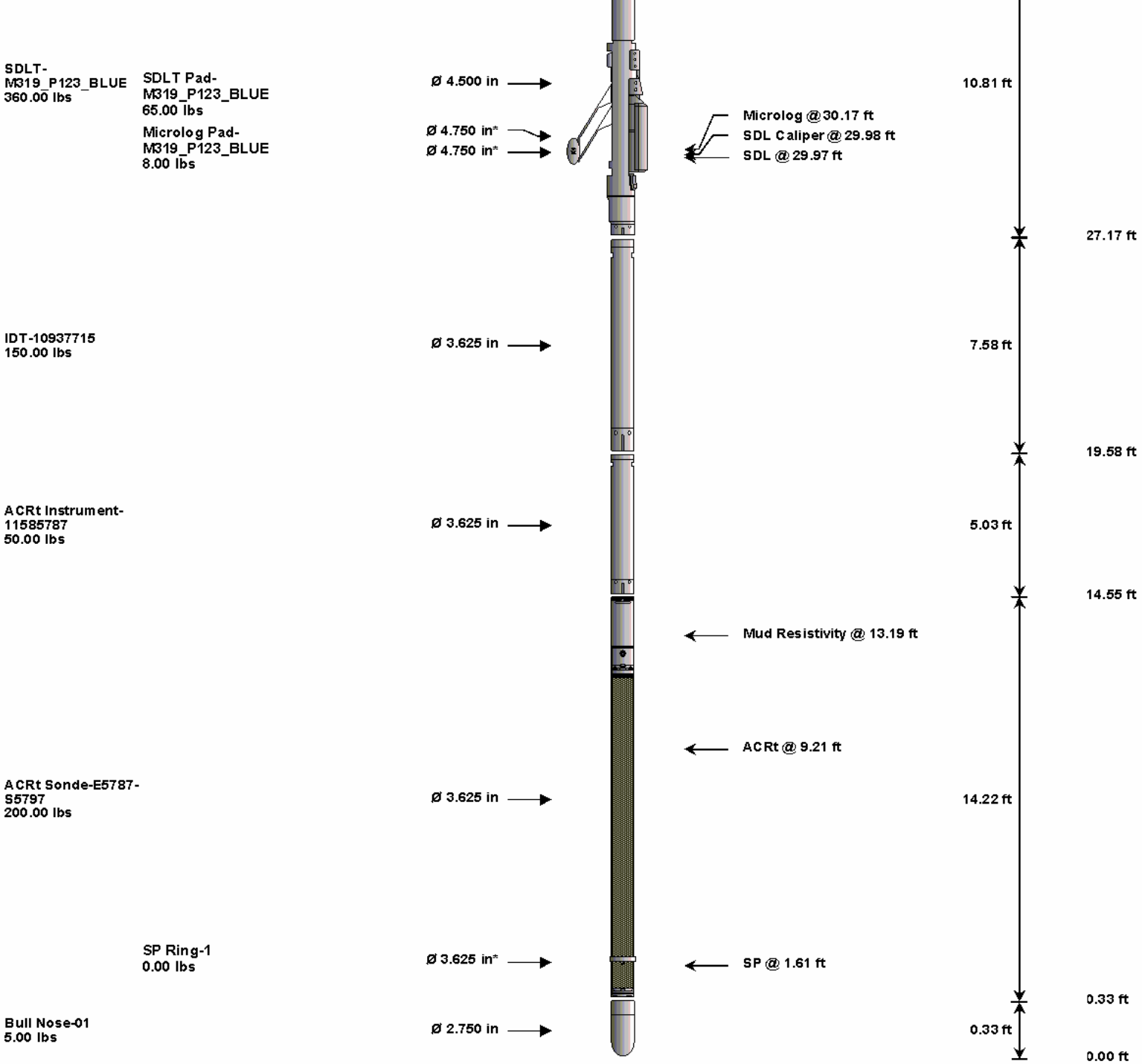
TOOL STRING DIAGRAM REPORT





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		56.19	300.00
GTET	Gamma Telemetry Tool	11215095	165.00	8.52		47.67	60.00
DSNT	Dual Spaced Neutron	11277440	174.00	9.69		37.98	60.00
SDLT	Spectral Density Tool	M319_P123_BLUE	360.00	10.81		27.17	60.00
SDLP	Density Insite Pad	M319_P123_BLUE	65.00	2.55	*	29.38	60.00
MICP	Microlog Pad	M319_P123_BLUE	8.00	1.00	*	29.67	60.00
IDT	Insite Directional Tool	10937715	150.00	7.58		19.58	30.00
ACRt	Array Compensated True Resistivity Instrument Section	11585787	50.00	5.03		14.55	300.00
ACRt	Array Compensated True Resistivity	E5787-S5797	200.00	14.22		0.33	300.00
SP	SP Ring	1	0.00	0.25	*	1.61	300.00
BLNS	Bull Nose	01	5.00	0.33		0.00	300.00
Total			**1,312.00**	**62.44**			

* Not included in Total Length and Length Accumulation.

Data: HEIN 2-1\0001 ANADARKO_IDT\IDLE **Date: 14-Apr-12 04:54:23**

COMPANY	**KERR-MCGEE OIL & GAS ONSHORE LP**		
WELL	**HEIN 2-1**		
FIELD	**WATTENBERG**		
COUNTY	**WELD**	STATE	**CO**

HALLIBURTON

ARRAY COMPENSATED TRUE RESISTIVITY