HALLIBURTON

DUAL SPACED NEUTRON SPECTRAL DENSITY ARRAY COMPENSATED TRUE RESISTIVITY LOG

COMPANY	NOBLE ENERGY INC
WELL	ROHN PC LD09-01
FIELD	WATTENBERG
COUNTY	WELD
STATE	CO

COMPANY **NOBLE ENERGY INC**
WELL **ROHN PC LD09-01**
FIELD **WATTENBERG**
COUNTY **WELD** STATE **CO**

API No. 05123337320000
Location SHL: 660 FNL & 660' FEL (NENE)

Sect. 9 Twp. 9 N Rge. 58 W

Other Services:
RWCH
CSNG

Permanent Datum	GL	Elev. 4744.0 ft	Elev.: K.B.	4759.0 ft
Log measured from	KB	, 15.0 ft above perm. Datum	D.F.	4759.0 ft
Drilling measured from	KB		G.L.	4744.0 ft

Date	03-Oct-11		
Run No.	ONE		
Depth - Driller	6109.00 ft		
Depth - Logger	6109.0 ft		
Bottom - Logged Interval	6107.0 ft		
Top - Logged Interval	CASING		
Casing - Driller	8.625 in @ 551.0 ft	@	@
Casing - Logger	548.0 ft		
Bit Size	7.870 in	@	@
Type Fluid in Hole	WBM		
Density / Viscosity	9.4 ppg / 48.00 s/qt		
PH / Fluid Loss	7.00 pH / 10.4 cptm		
Source of Sample	MUD TANK		
Rm @ Meas. Temperature	1.760 ohmm @ 70.00 degF	@	@
Rmf @ Meas. Temperature	1.42 ohmm @ 75.00 degF	@	@
Rmc @ Meas. Temperature	1.450 ohmm @ 75.00 degF	@	@
Source Rmf / Rmc	CHART / CHART		
Rm @ BHT	0.61 ohmm @ 216.0 degF	@	@
Time Since Circulation	7.0 hr		
Time on Bottom	03-Oct-11 10:10		
Max. Rec. Temperature	216.0 degF @	@	@
Equipment / Location	11014853 / GJ, CO		
Recorded By	J. KRONABLE		
Witnessed By	JOHN TAYLOR		

Fold here

Service Ticket No.: 8518830 API Serial No.: 05123337320000 PGM Version: WL INSITE R3.4.2 (Build 2)

CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE					
Date	Sample No.				
Depth-Driller					
Type Fluid in Hole					
Density	Viscosity				
Ph	Fluid Loss				
Source of Sample					
Rm @ Meas. Temp		@		@	
Rmf @ Meas. Temp.		@		@	
Rmc @ Meas. Temp.		@		@	
Source Rmf	Rmc				
Rm @ BHT		@		@	
Rmf @ BHT		@		@	
Rmc @ BHT		@		@	

RESISTIVITY SCALE CHANGES			
Type Log	Depth	Scale Up Hole	Scale Down Hole

RESISTIVITY EQUIPMENT DATA				
Run No.	Tool Type & No.	Pad Type	Tool Pos.	Other
ONE	ACRT90194258	N/A	1.5"S.0	N/A
	E-7486			

EQUIPMENT DATA

GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Run No.	ONE	Run No.		Run No.	ONE	Run No.	ONE
Serial No.	11005602	Serial No.		Serial No.	10951300	Serial No.	10993887
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.	102 A	Spacing		Log Type	GAM - GAM	Log Type	NEU - NEU
Type	SCINT			Source Type	Cs 137	Source Type	Am241Be
Length	8"	LSA [Y/N]		Serial No.	5153 GW	Serial No.	DSN-388
Distance to Source	18'	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	551	5602	REC	0	250				20%	0%	2.68 g/cc	20%	0%	SAND
ONE	5602	5910	REC	0	250				20%	0%	2.68 g/cc	20%	0%	LIME
ONE	5910	6109	REC	0	250				20%	0%	2.68 g/cc	20%	0%	SAND

DIRECTIONAL INFORMATION

Maximum Deviation	@	KOP	@

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

ANNULAR HOLE VOLUME CALCULATED USING 4.5 INCH PRODUCTION CASING

TENSION PULLS AND HOLE RUGOSITY MAY AFFECT LOG QUALITY AND REPEATABILITY

CHLORIDES REPORTED AT 700 PPM

CALIPER WAS CLOSED AT A DEPTH OF 5452' DUE TO HIGH TENSION

YOUR CREW TODAY: N. EHLERS, J. GAY RIG: ENSIGN 128

THANKYOU FOR CHOOSING HALLIBURTON ENERGY SERVICES, GRAND JUNCTION, CO (970) 523-3600

HALLIBURTON

PARAMETERS REPORT

Depth ((ft))	Tool Name	Mnemonic	Description	Value	Units
TOP					
	DSNT	NLIT	Neutron Lithology	Sandstone	
	SDLT Pad	DMA	Formation Density Matrix	2.680	g/cc
5602.00					
	DSNT	NLIT	Neutron Lithology	Limestone	
	SDLT Pad	DMA	Formation Density Matrix	2.710	g/cc
5910.00					
	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	9.400	ppg
	SHARED	WAGT	Weighting Agent	Barite	
	SHARED	BSAL	Borehole salinity	0.00	ppm
	SHARED	FSAL	Formation Salinity NaCl	0.00	ppm
	SHARED	KPCT	Percent K in Mud by Weight?	0.00	%
	SHARED	RMUD	Mud Resistivity	2.000	ohmm
	SHARED	TRM	Temperature of Mud	75.0	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	6109.00	ft
	SHARED	BHT	Bottom Hole Temperature	200.0	degF
	SHARED	SVTM	Navigation and Survey Master Tool	NONE	
	SHARED	AZTM	High Res Z Accelerometer Master Tool	GTET	

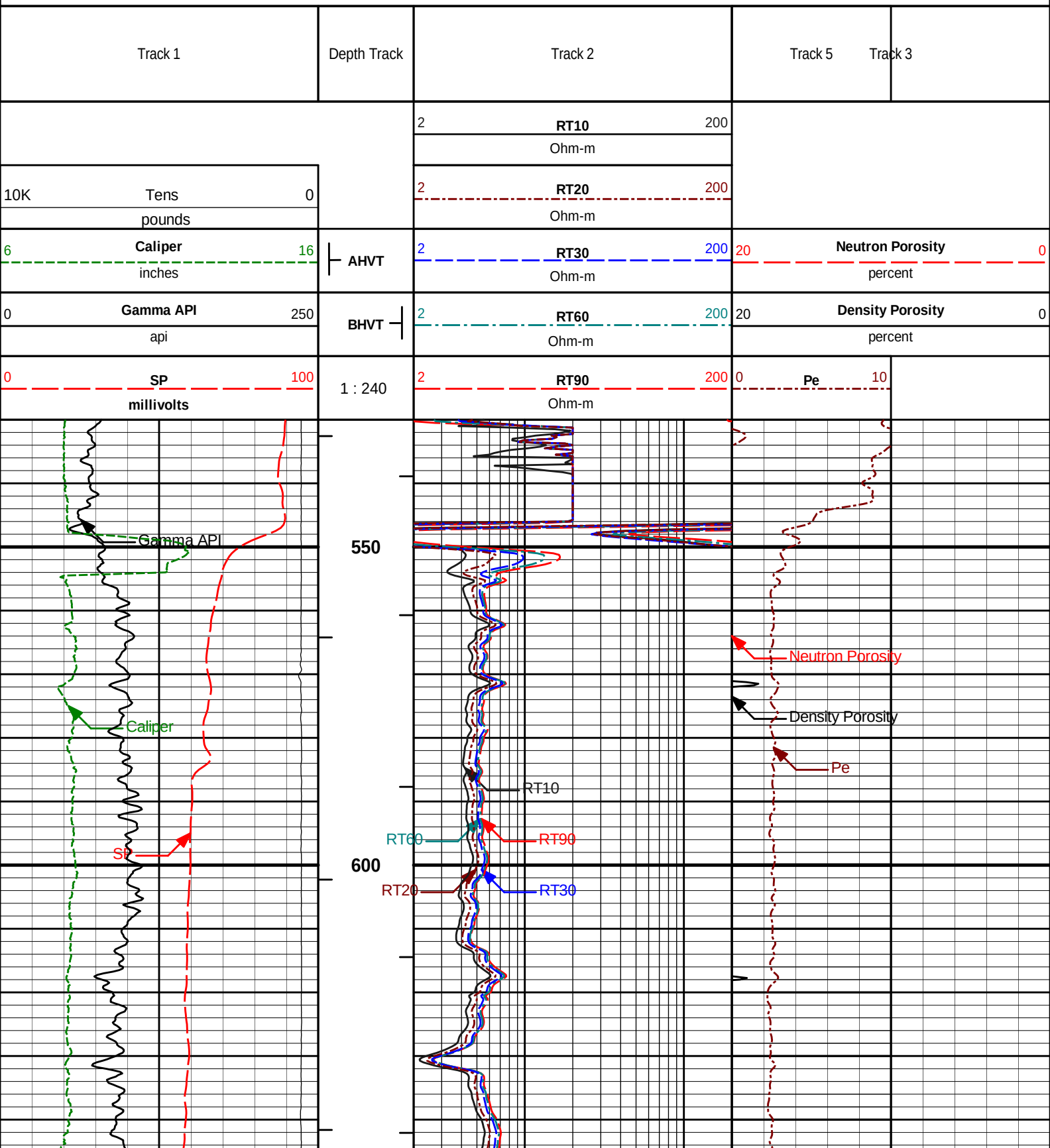
SHARED	TEMM	Temperature Master Tool	NONE	
SHARED	BHSM	Borehole Size Master Tool	NONE	
Rwa / CrossPlot	XPOK	Process Crossplot?	Yes	
Rwa / CrossPlot	FCHO	Select Source of F	Automatic	
Rwa / CrossPlot	AFAC	Archie A factor	0.6200	
Rwa / CrossPlot	MFAC	Archie M factor	2.1500	
Rwa / CrossPlot	RMFR	Rmf Reference	0.10	ohmm
Rwa / CrossPlot	TMFR	Rmf Ref Temp	75.00	degF
Rwa / CrossPlot	RWA	Resistivity of Formation Water	0.05	ohmm
Rwa / CrossPlot	ADP	Use Air Porosity to calculate CrossplotPhi	No	
GTET	GROK	Process Gamma Ray?	Yes	
GTET	GRSO	Gamma Tool Standoff	0.250	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	Sandstone	
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	2.680	g/cc
SDLT Pad	DFL	Formation Density Fluid	1.000	g/cc
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	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	

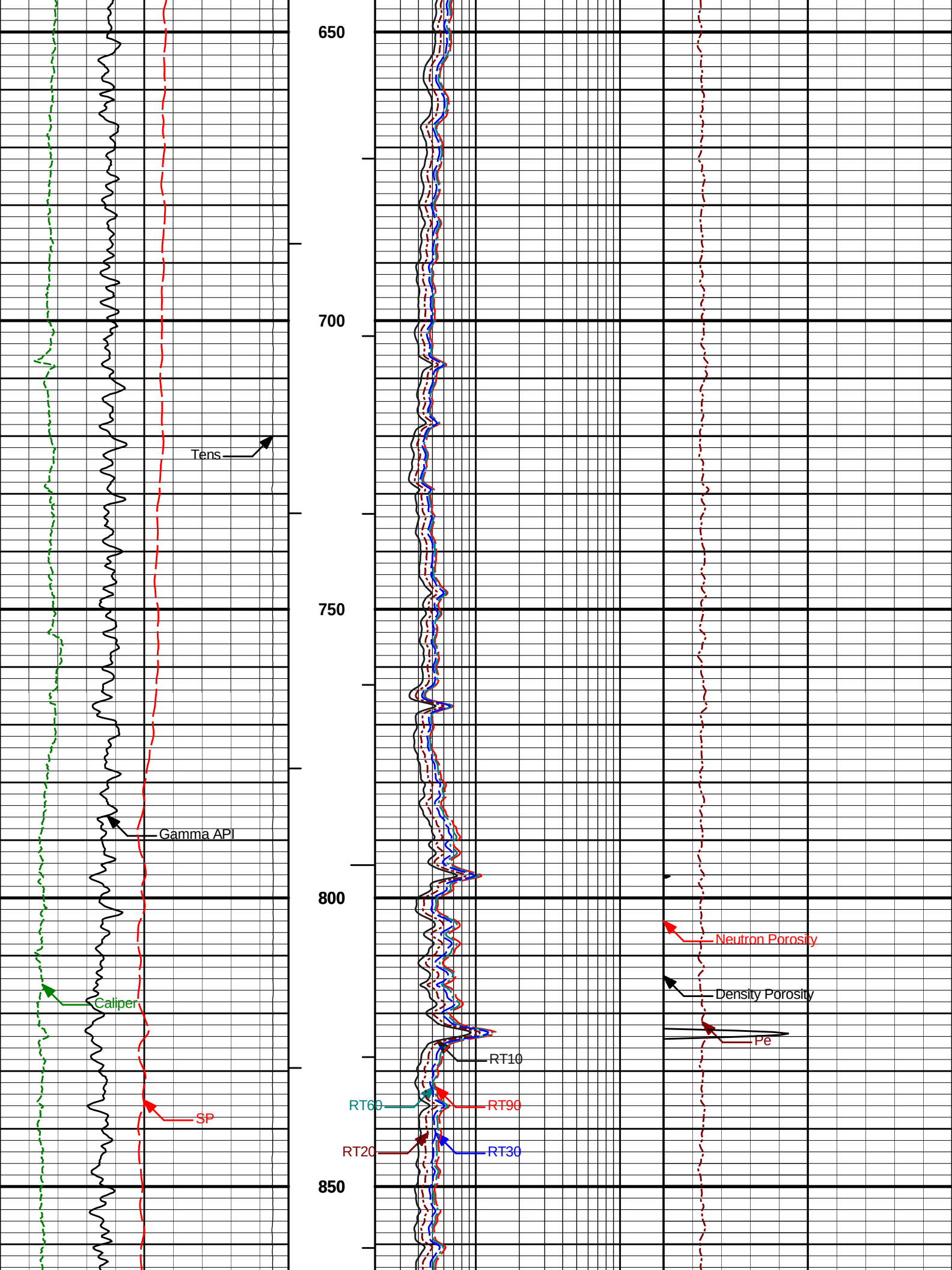
BOTTOM

HALLIBURTON

Plot Time: 03-Oct-11 15:01:17
Plot Range: 530 ft to 6120 ft
Data: NB_ROHN_LD09_01\Well Based\MAIN*
Plot File: \\COMP\WATCH RE

MAIN PASS 5" = 100'

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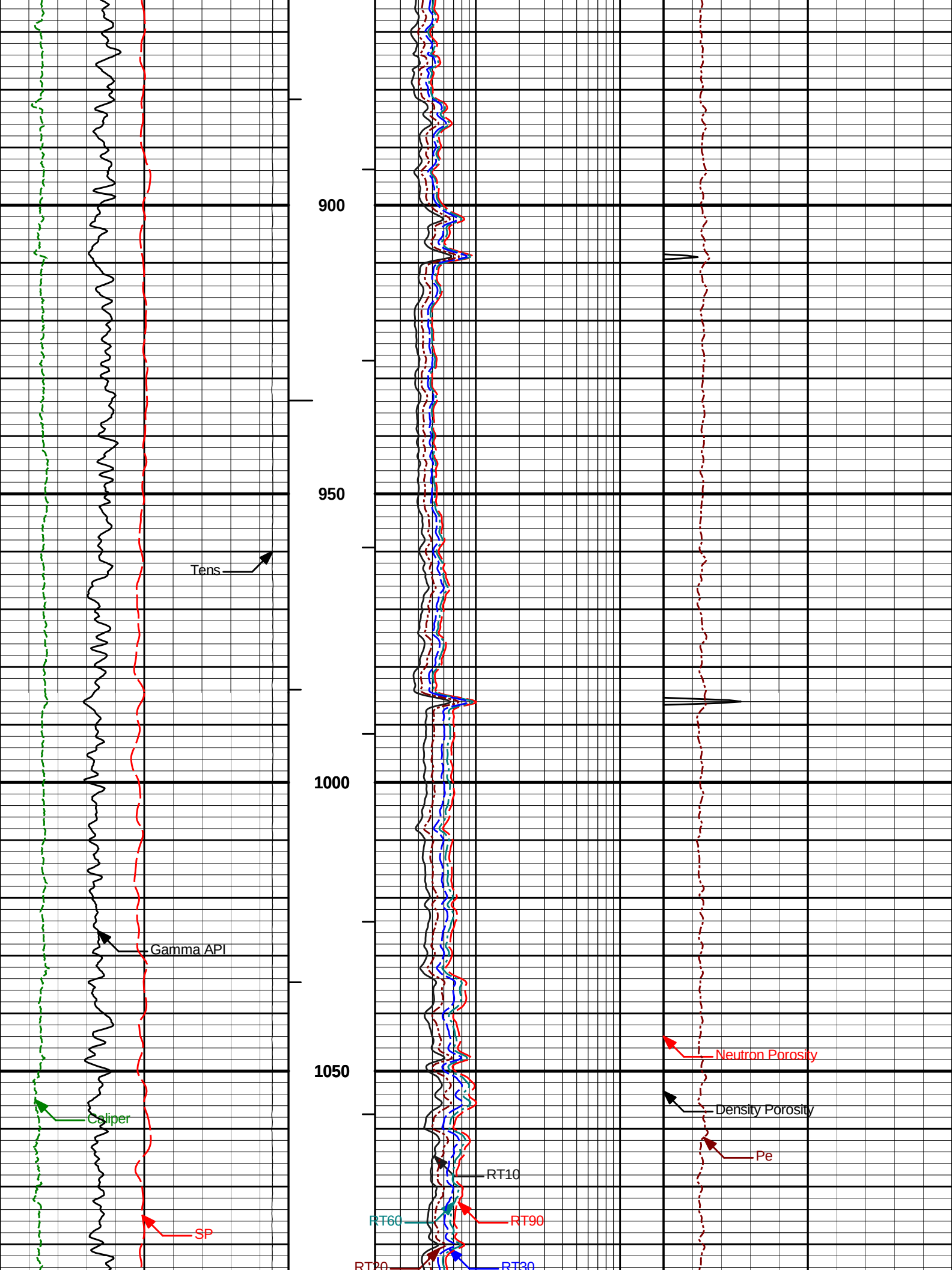
Neutron Porosity
Density Porosity
Pe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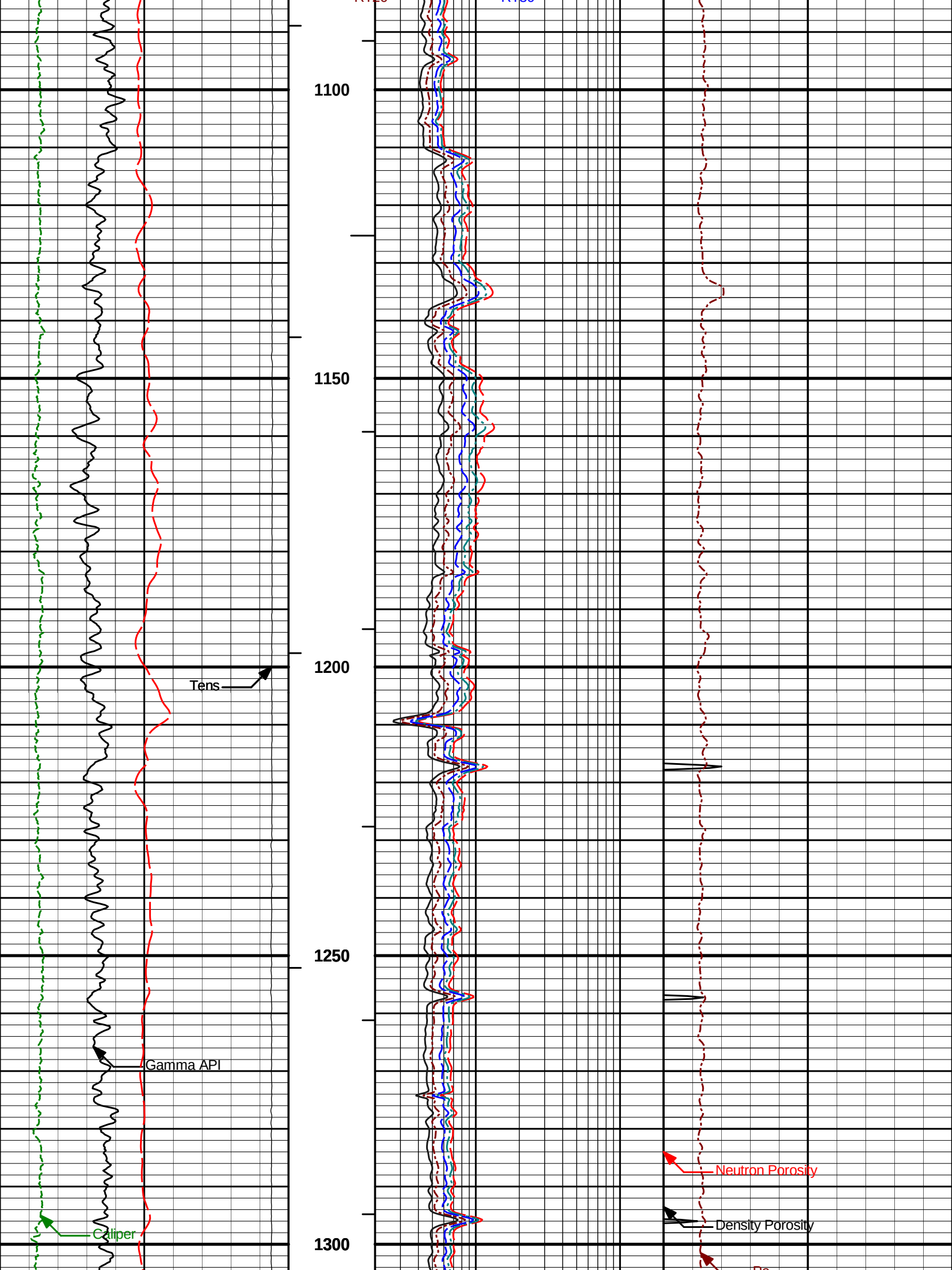
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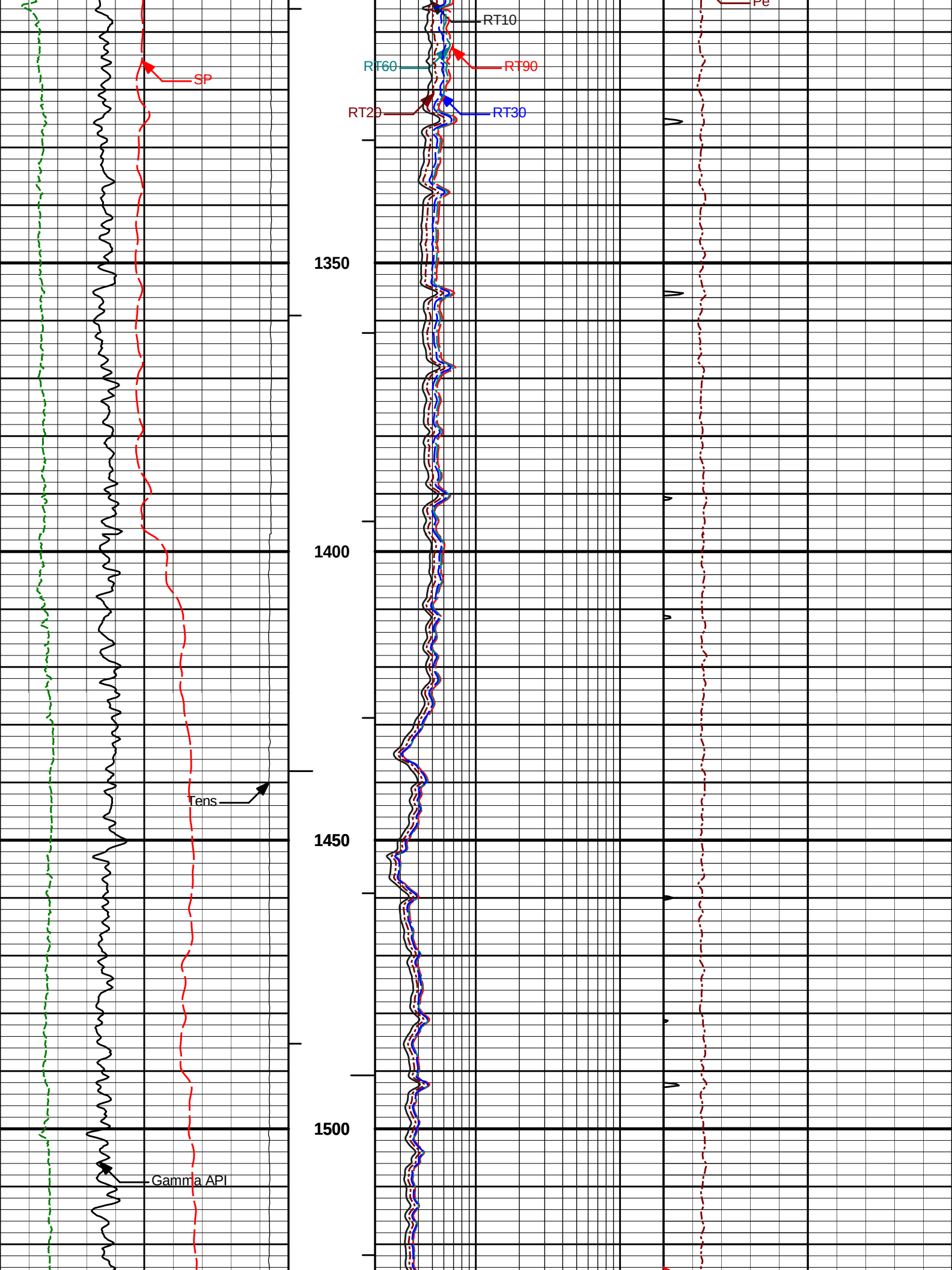
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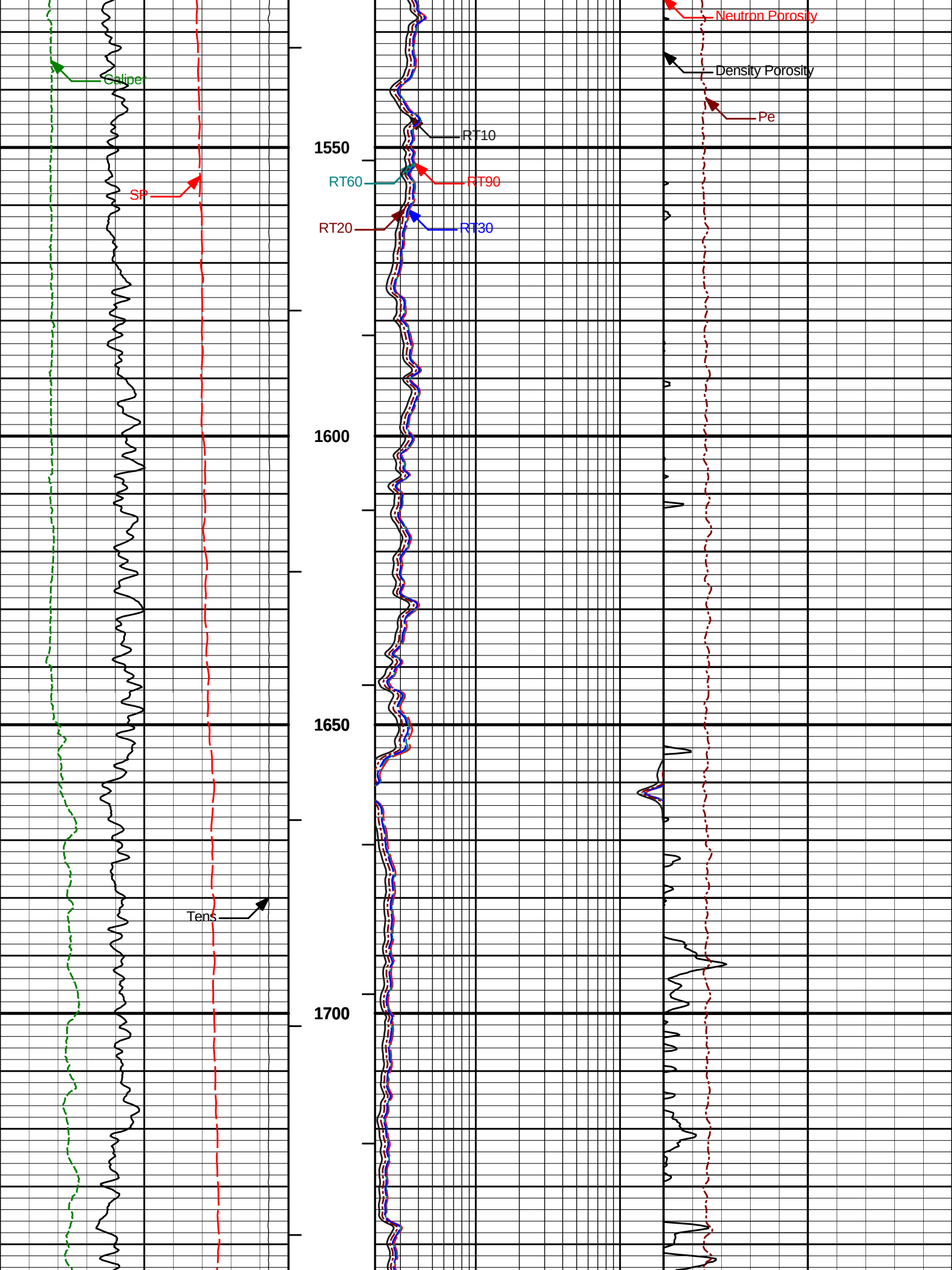
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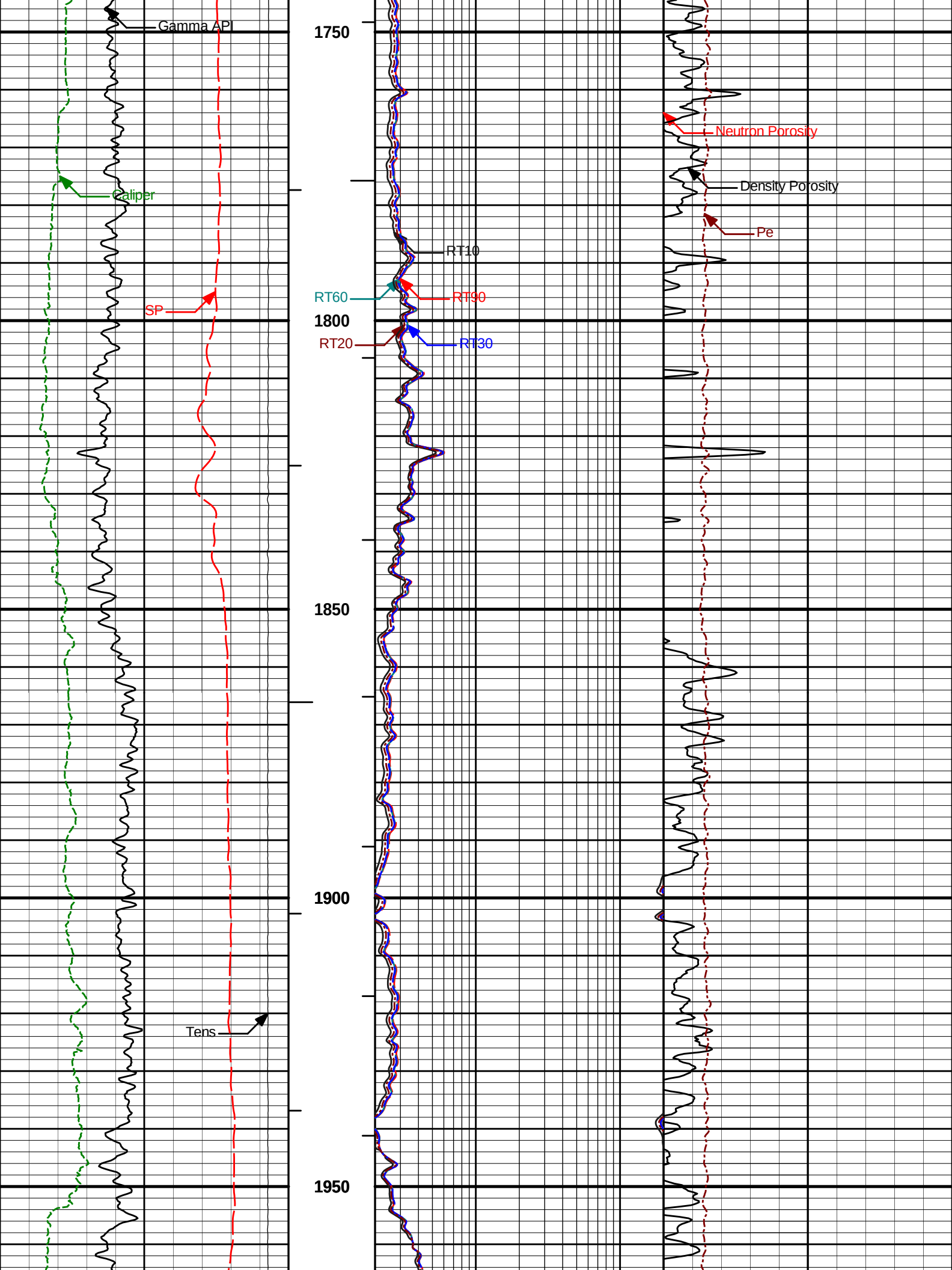
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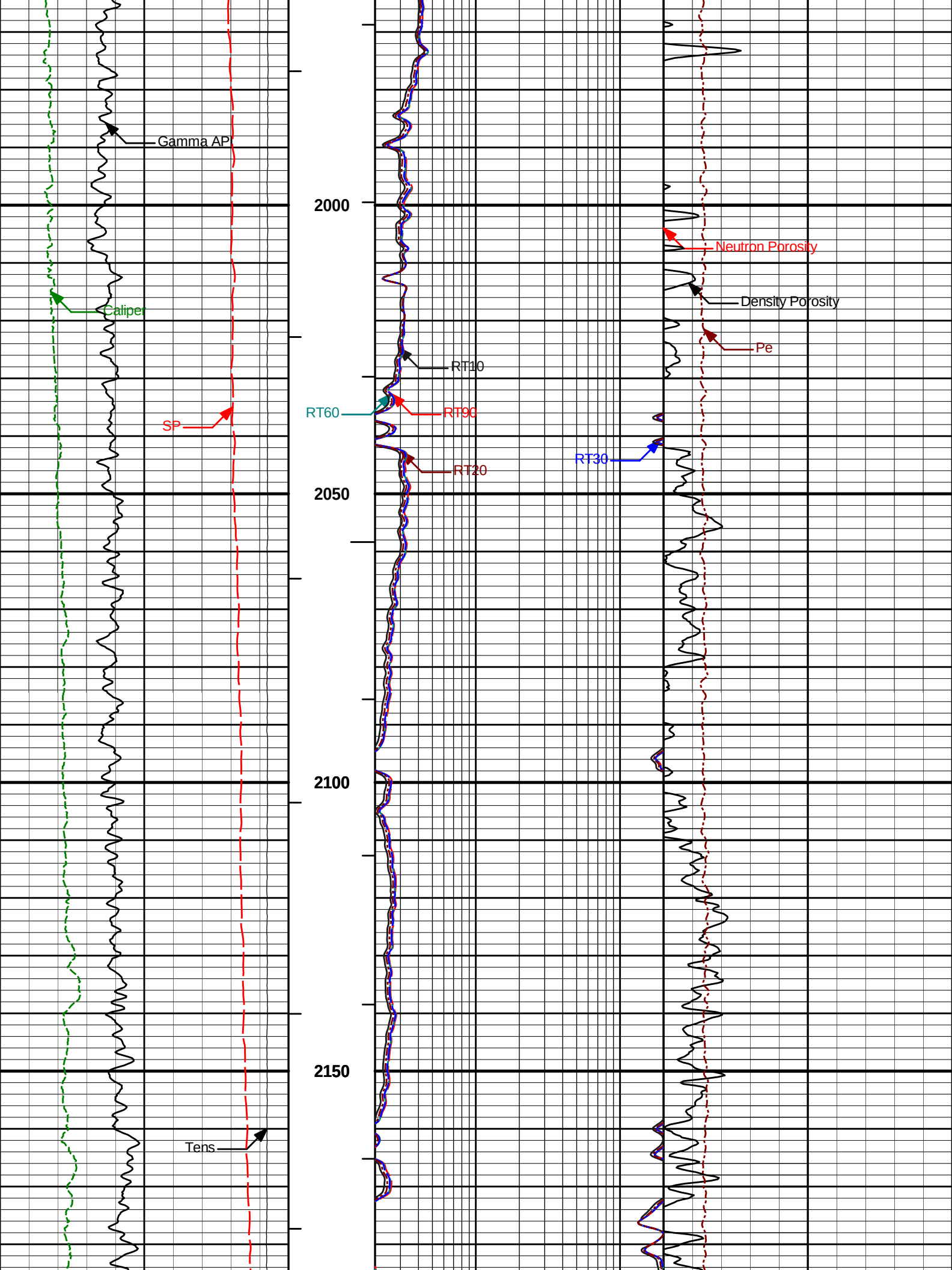
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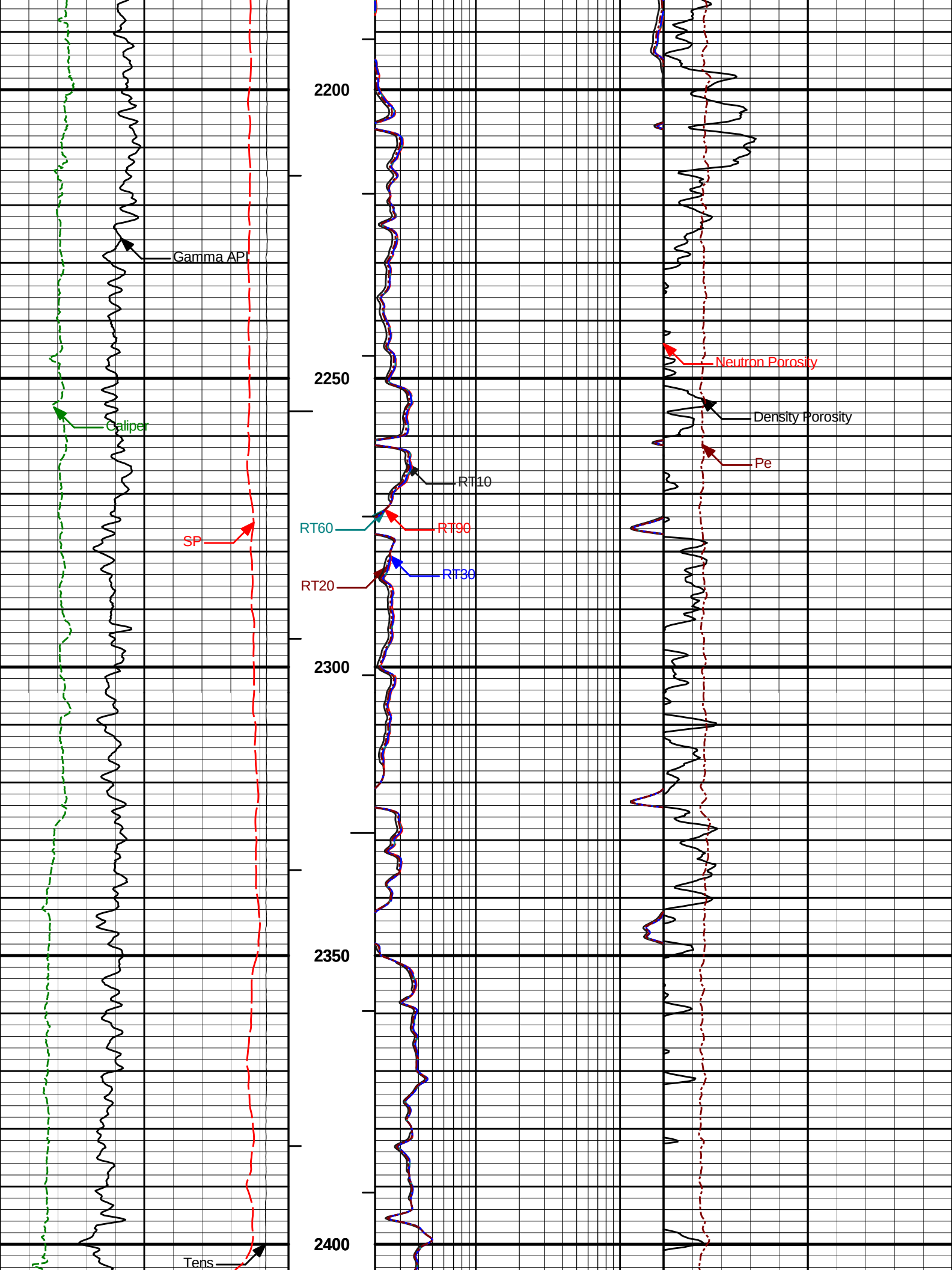
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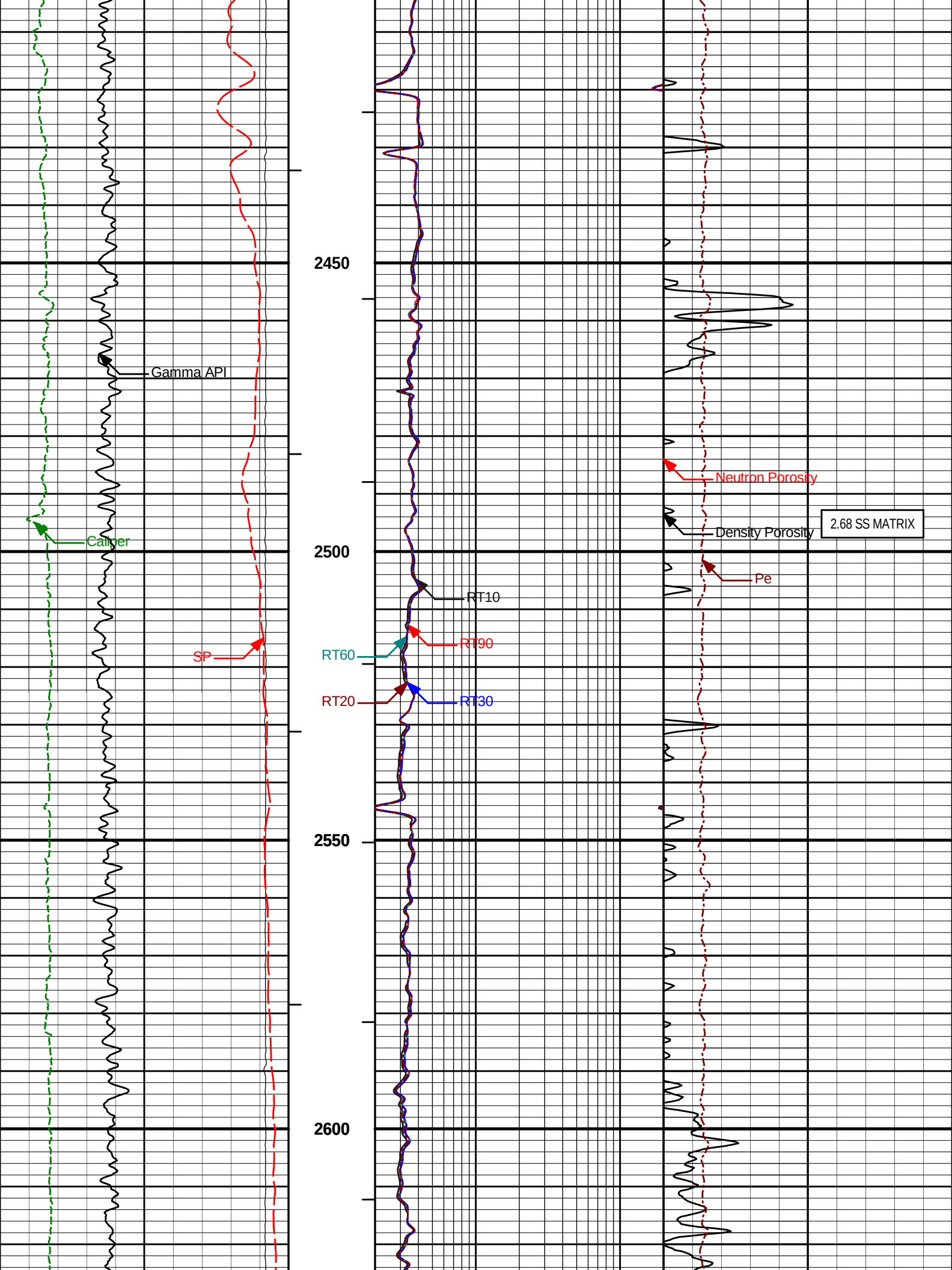
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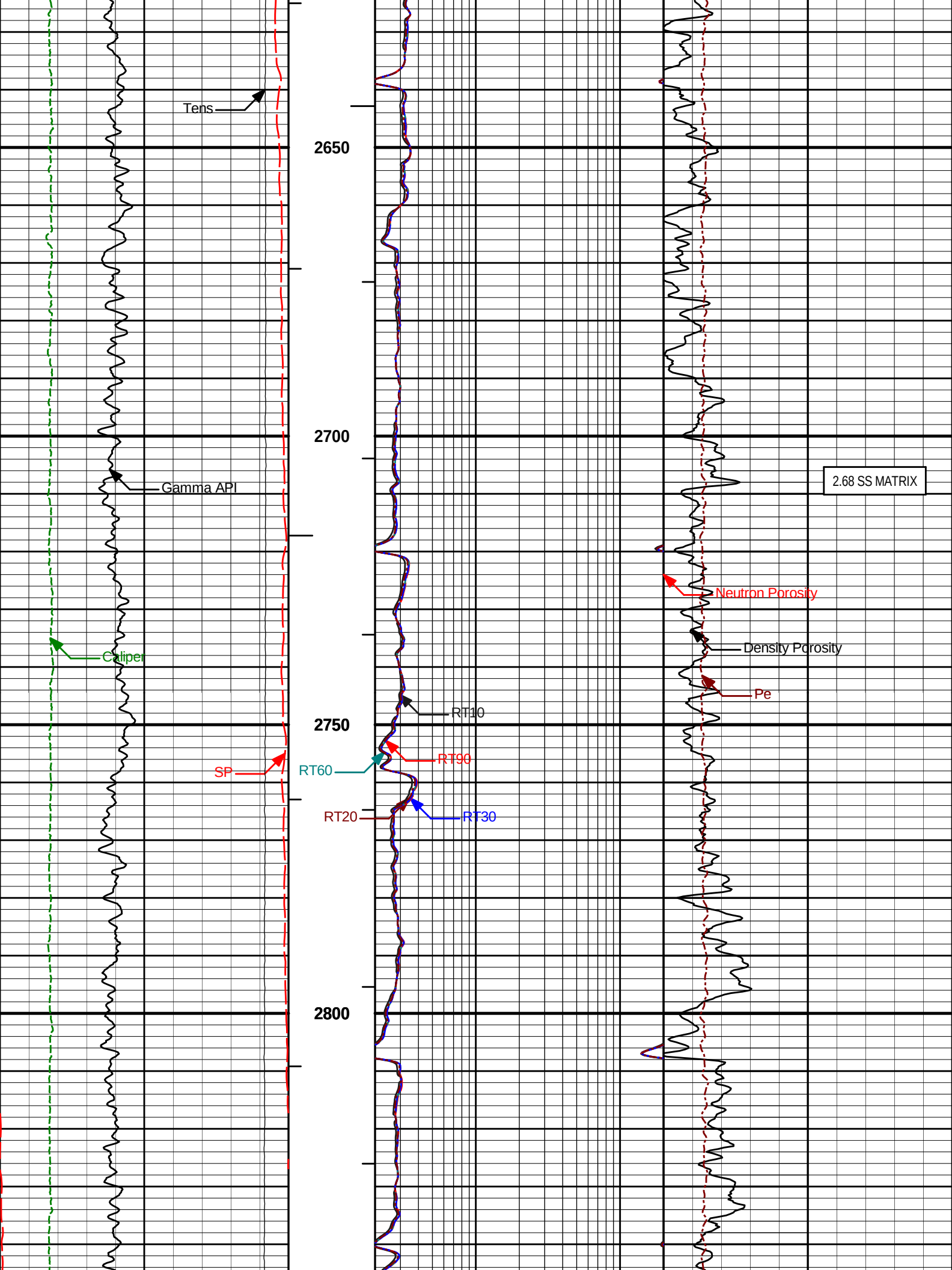
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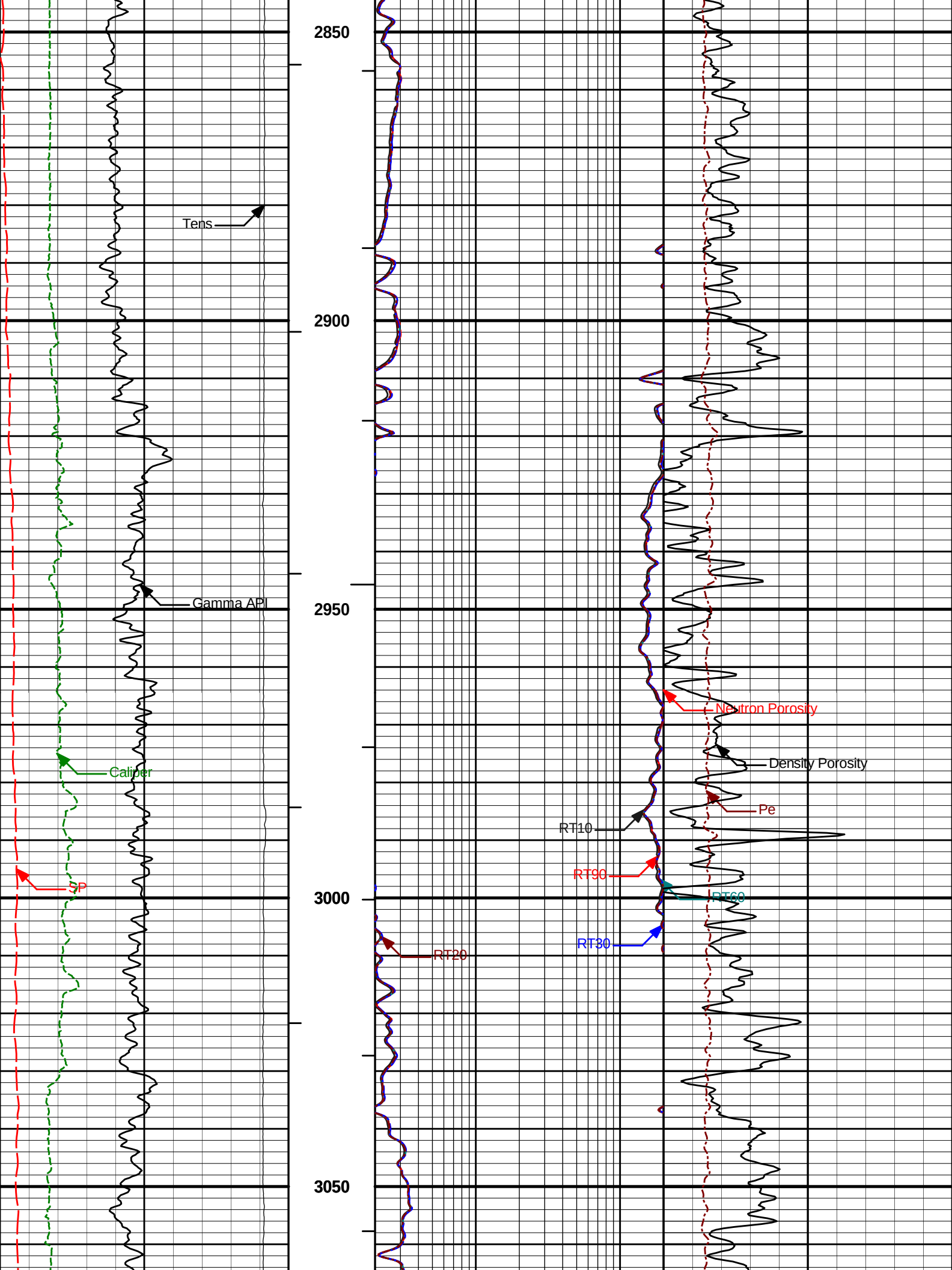
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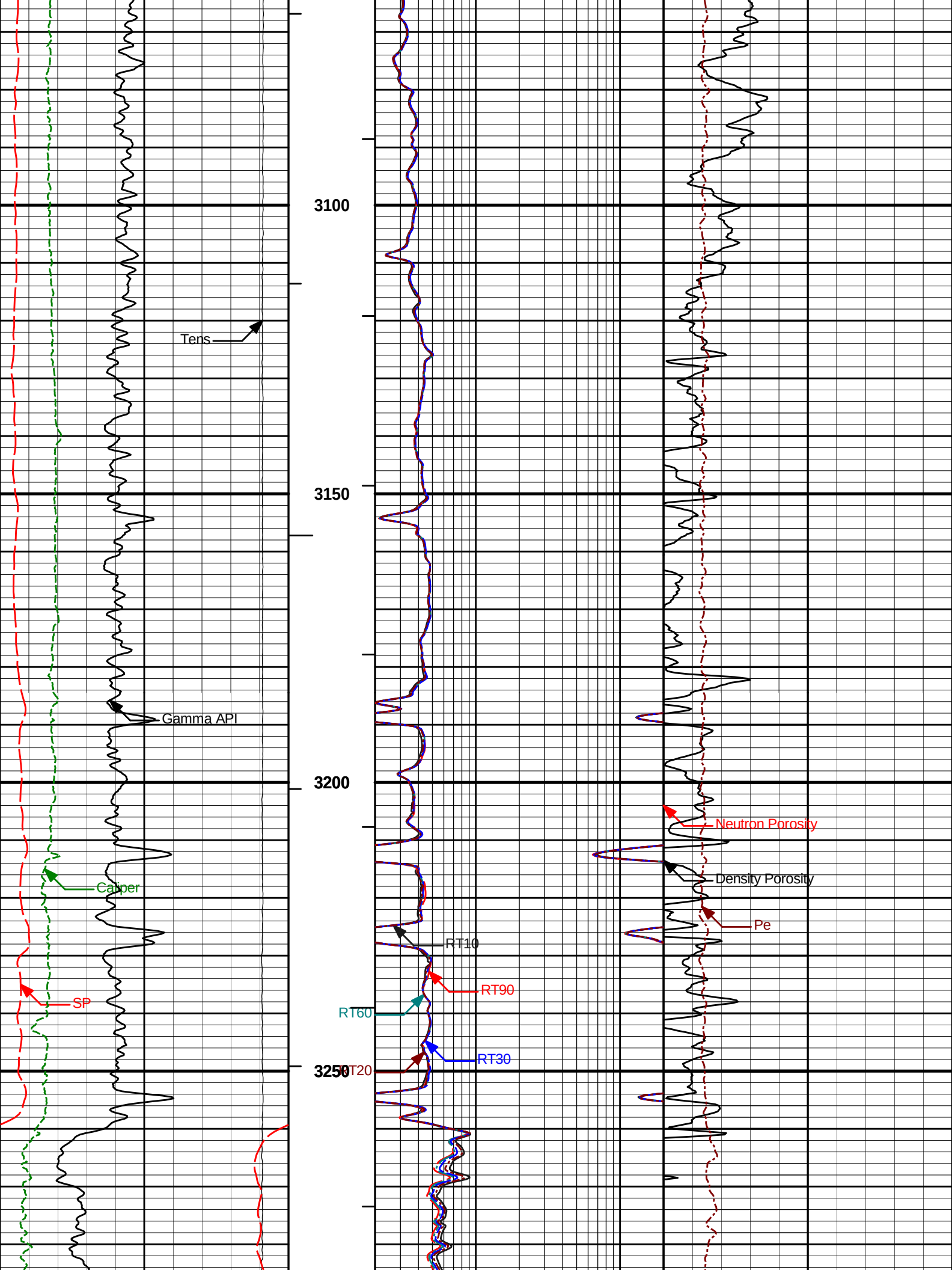
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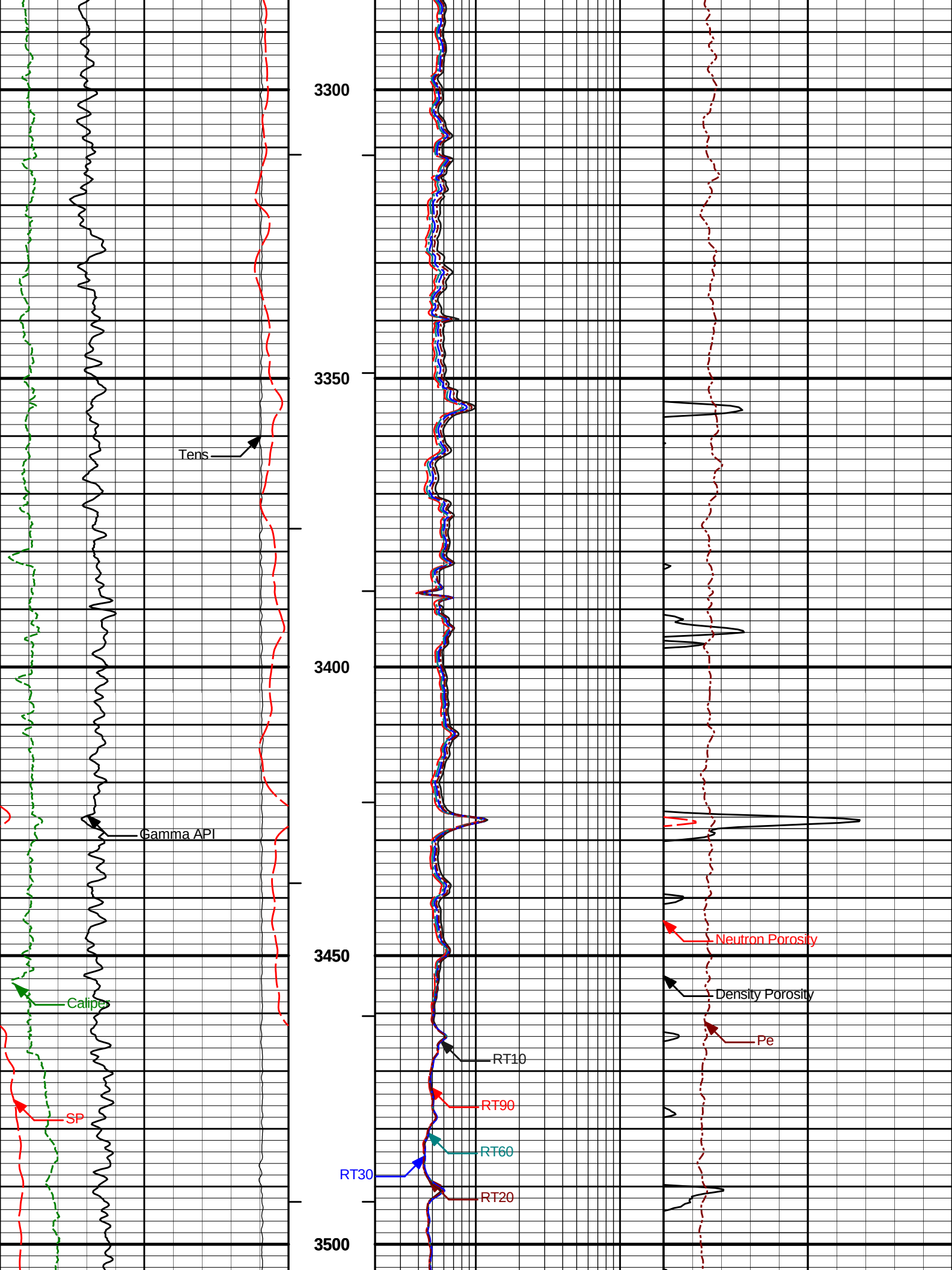
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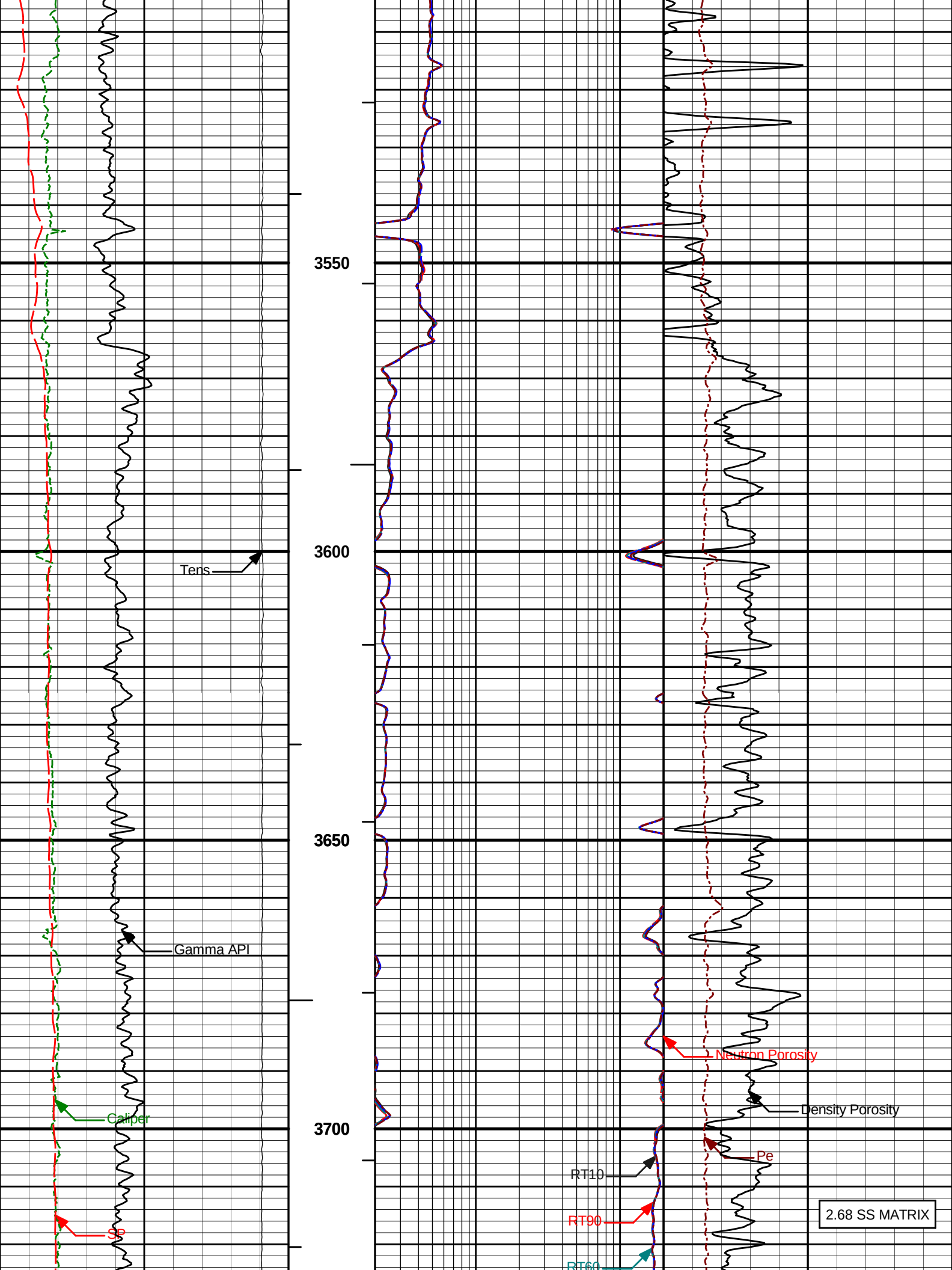
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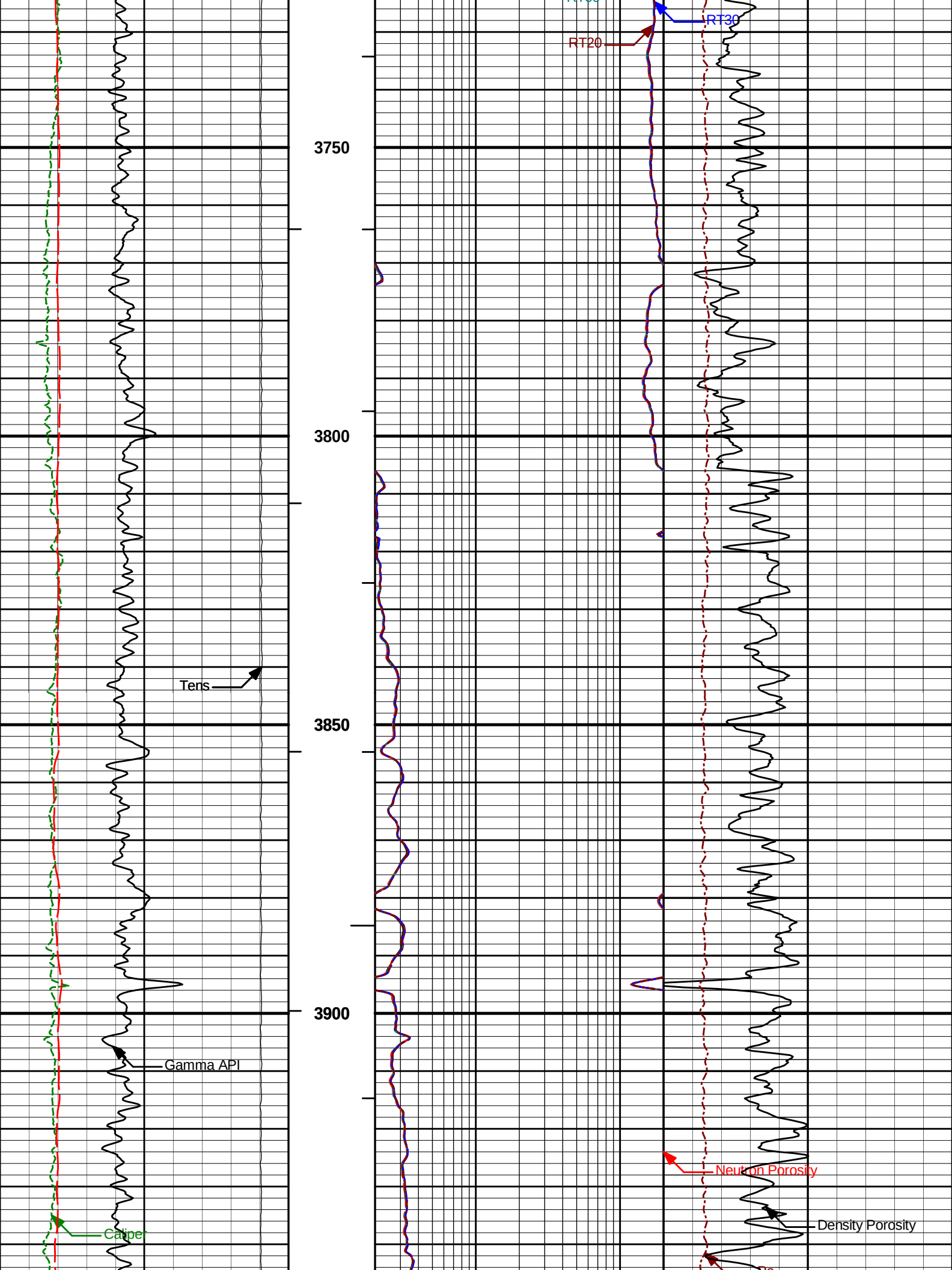
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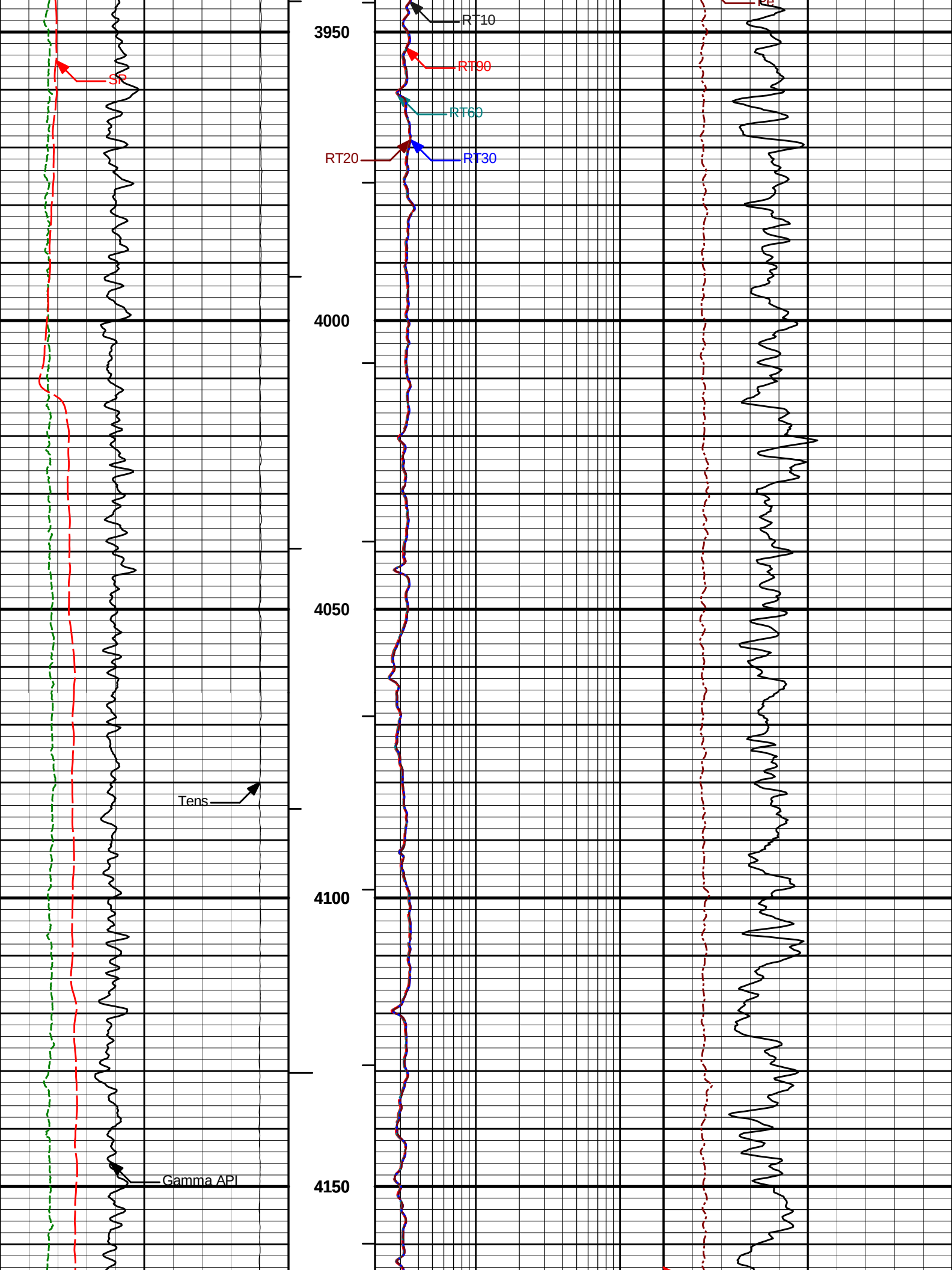
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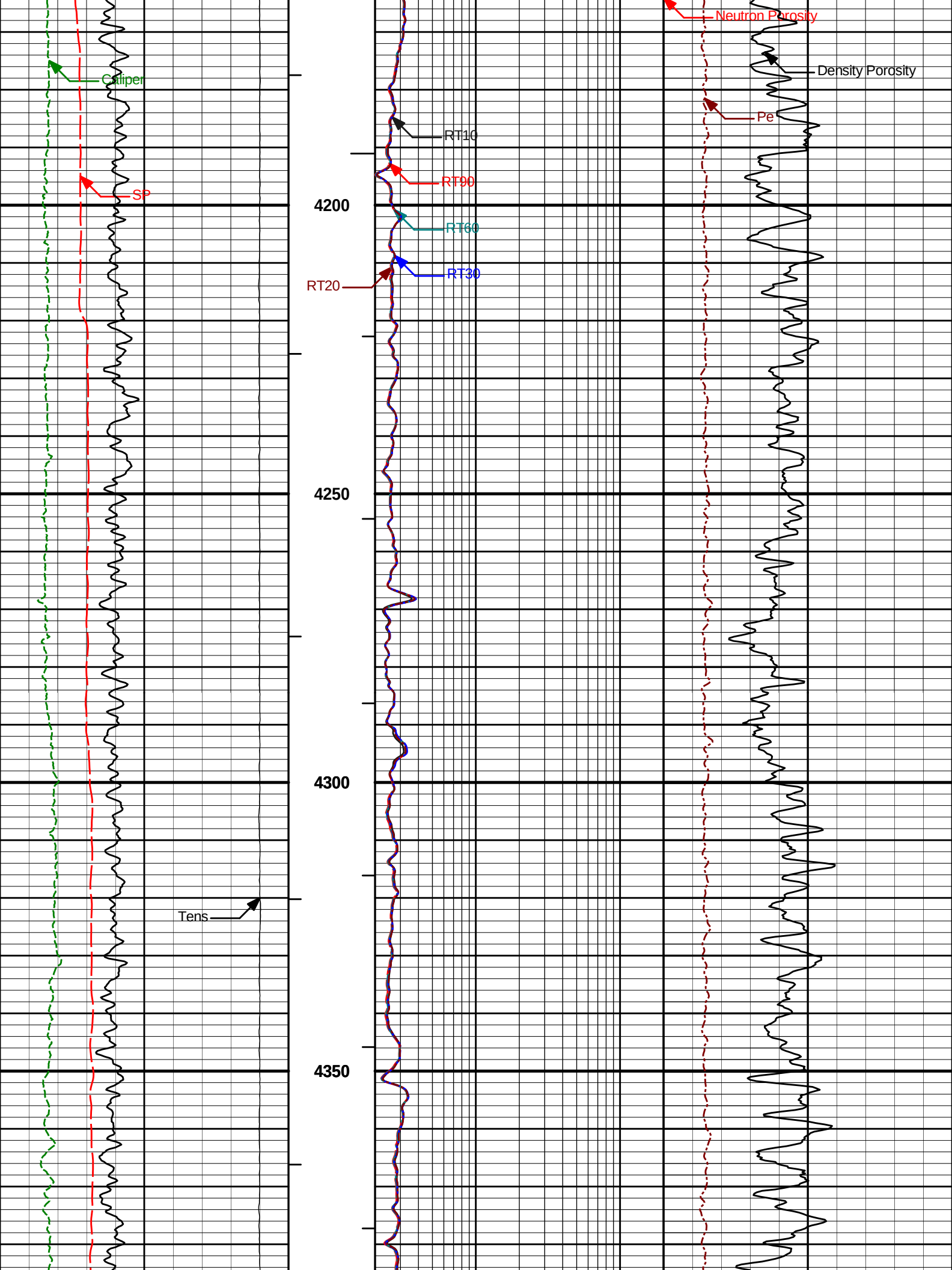
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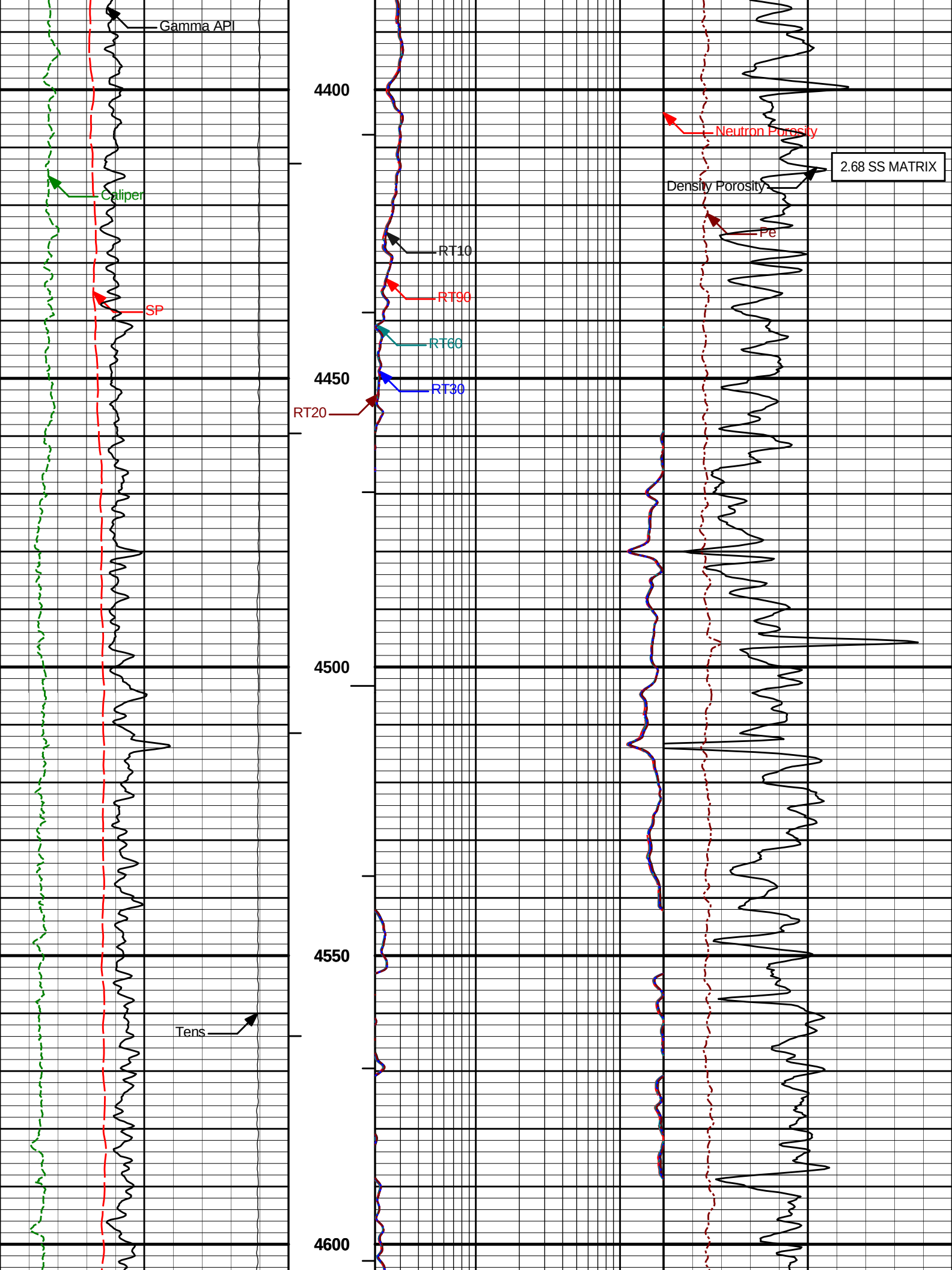
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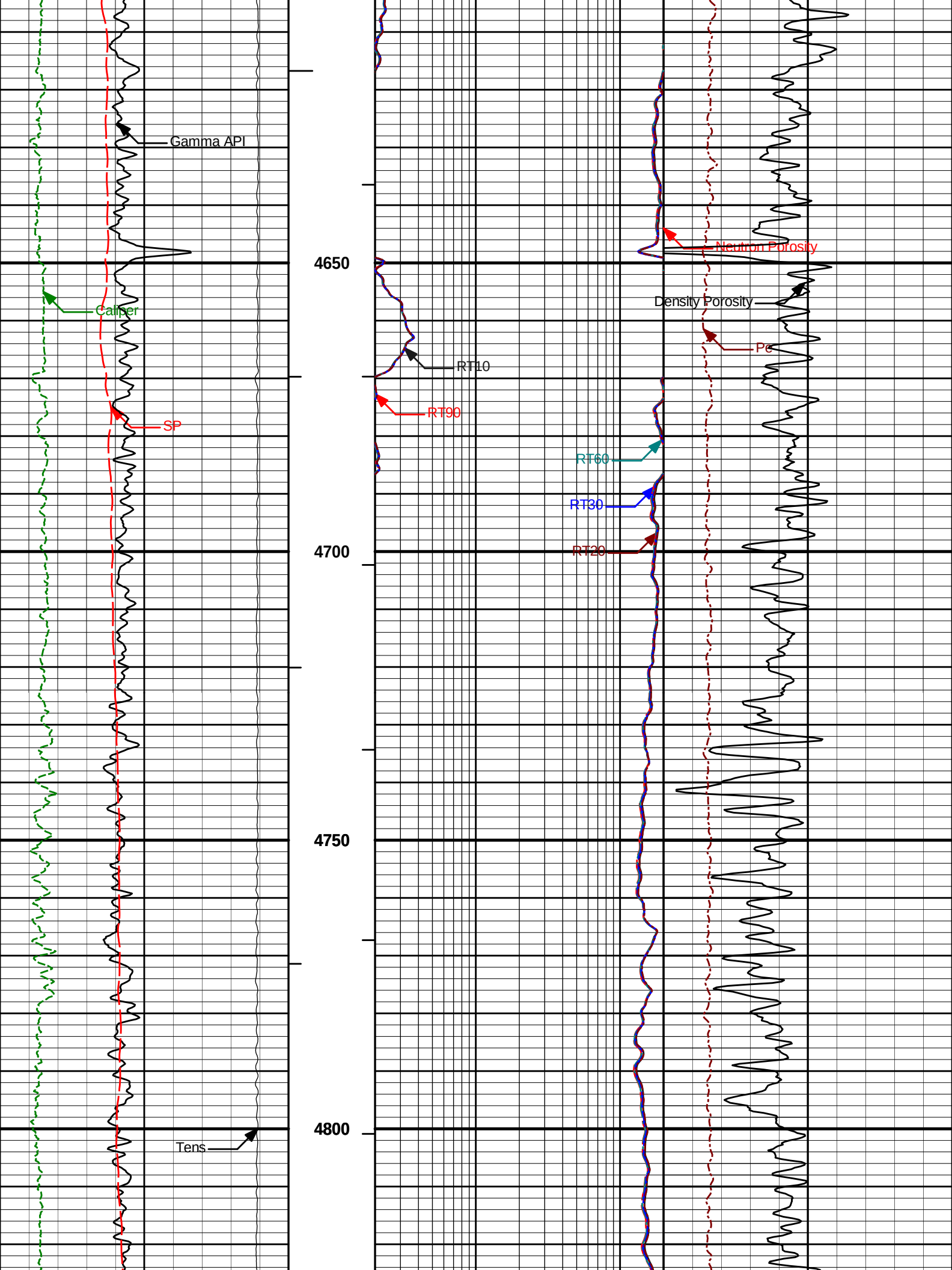
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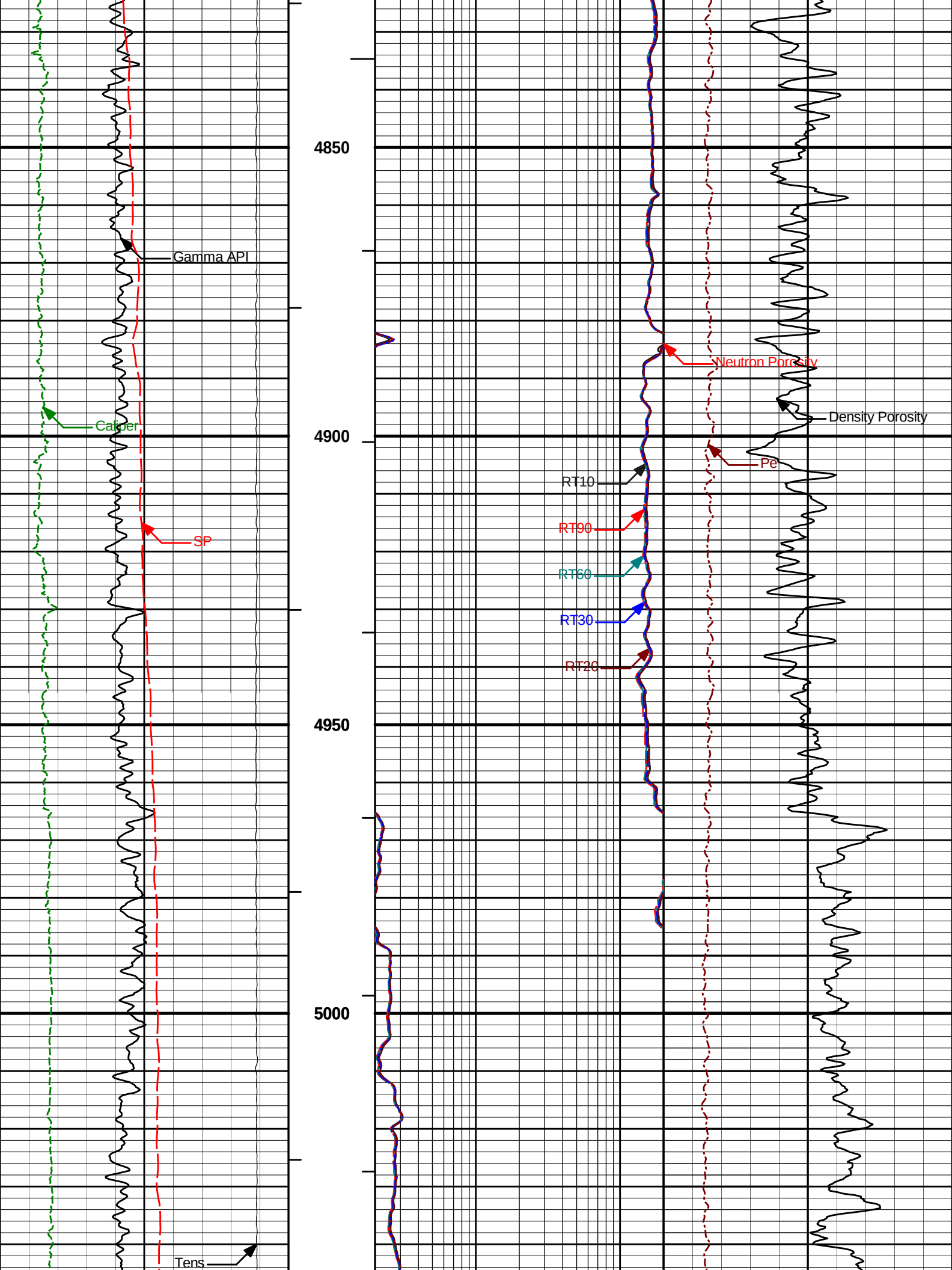
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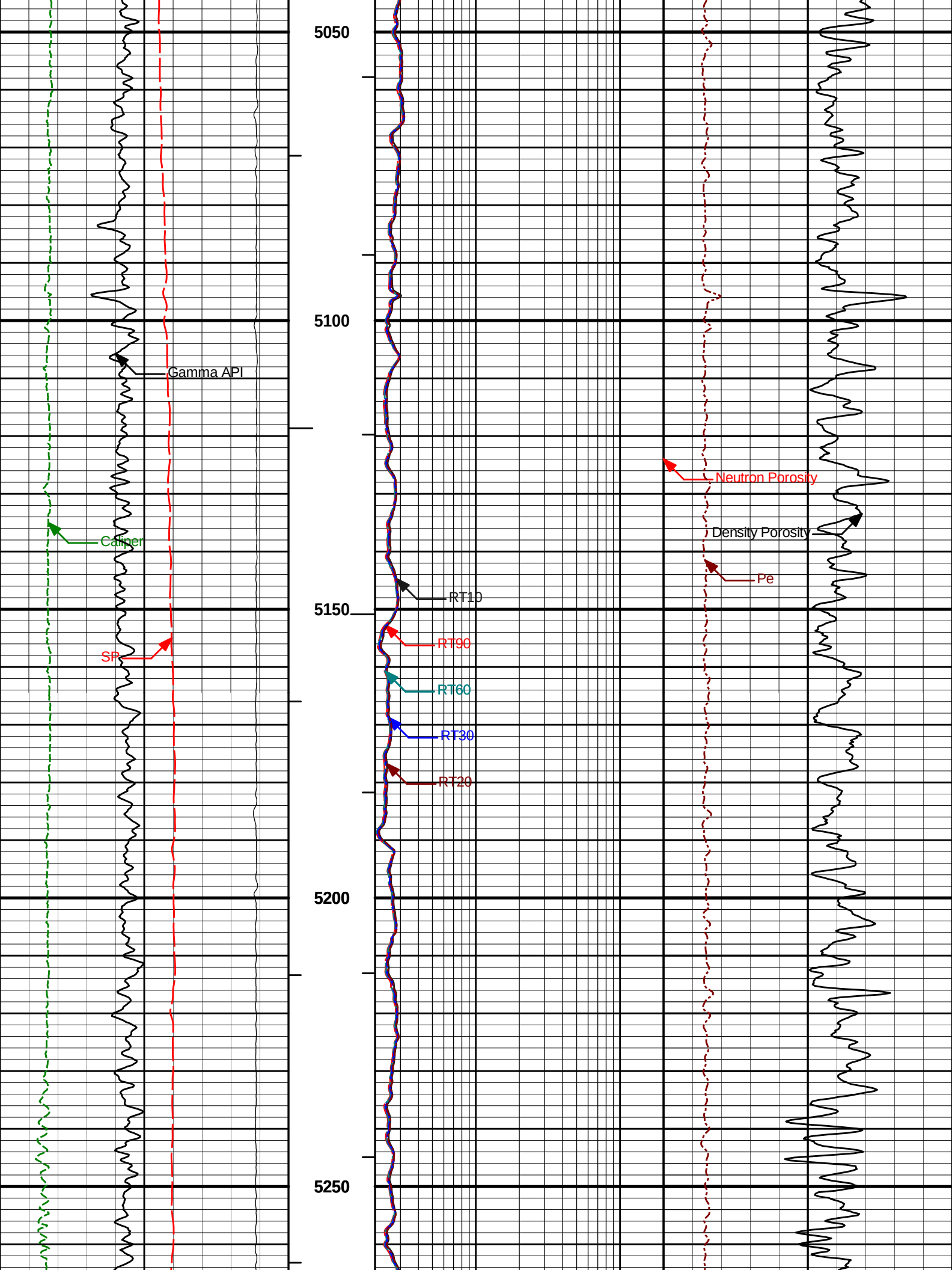
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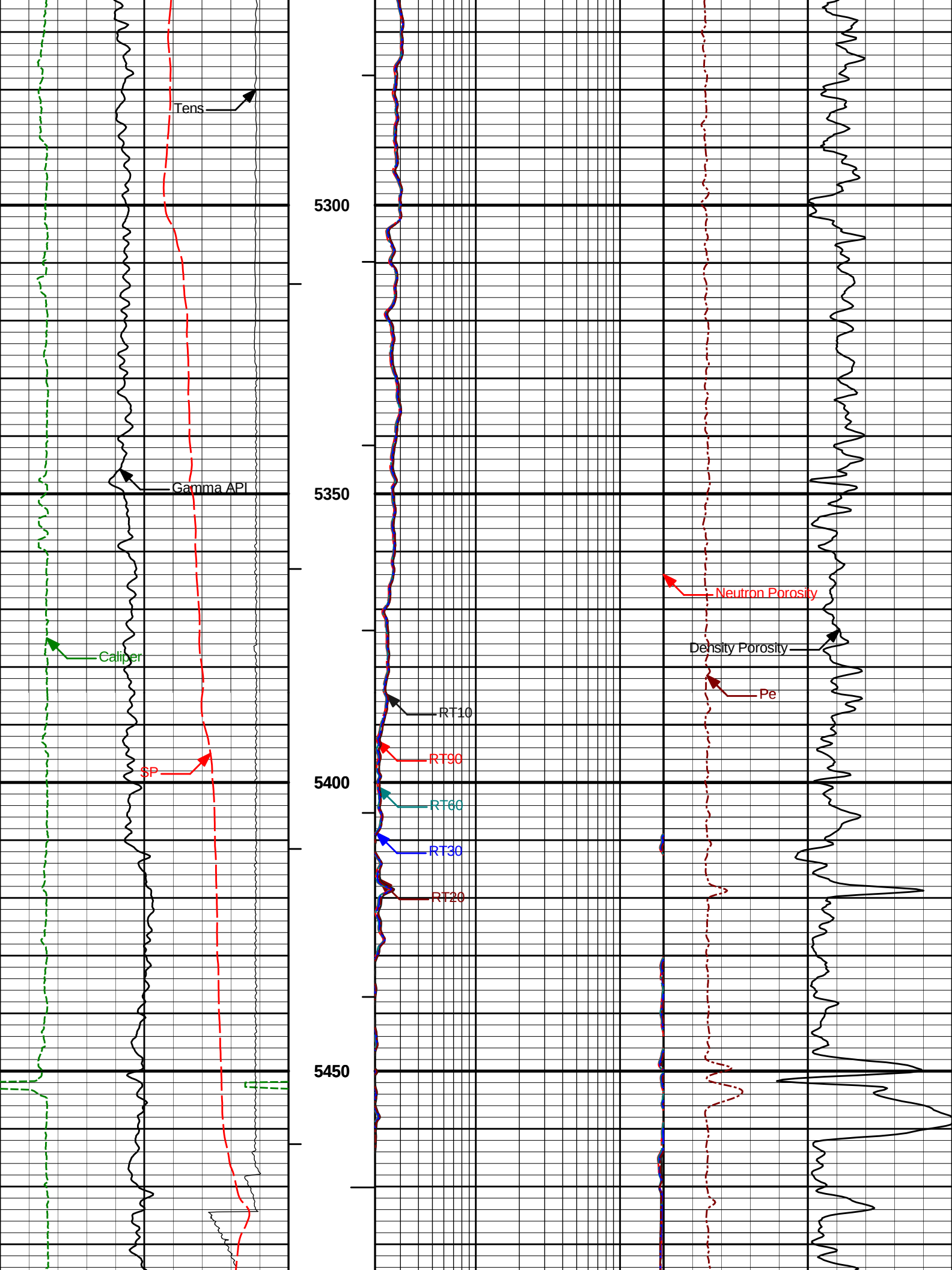
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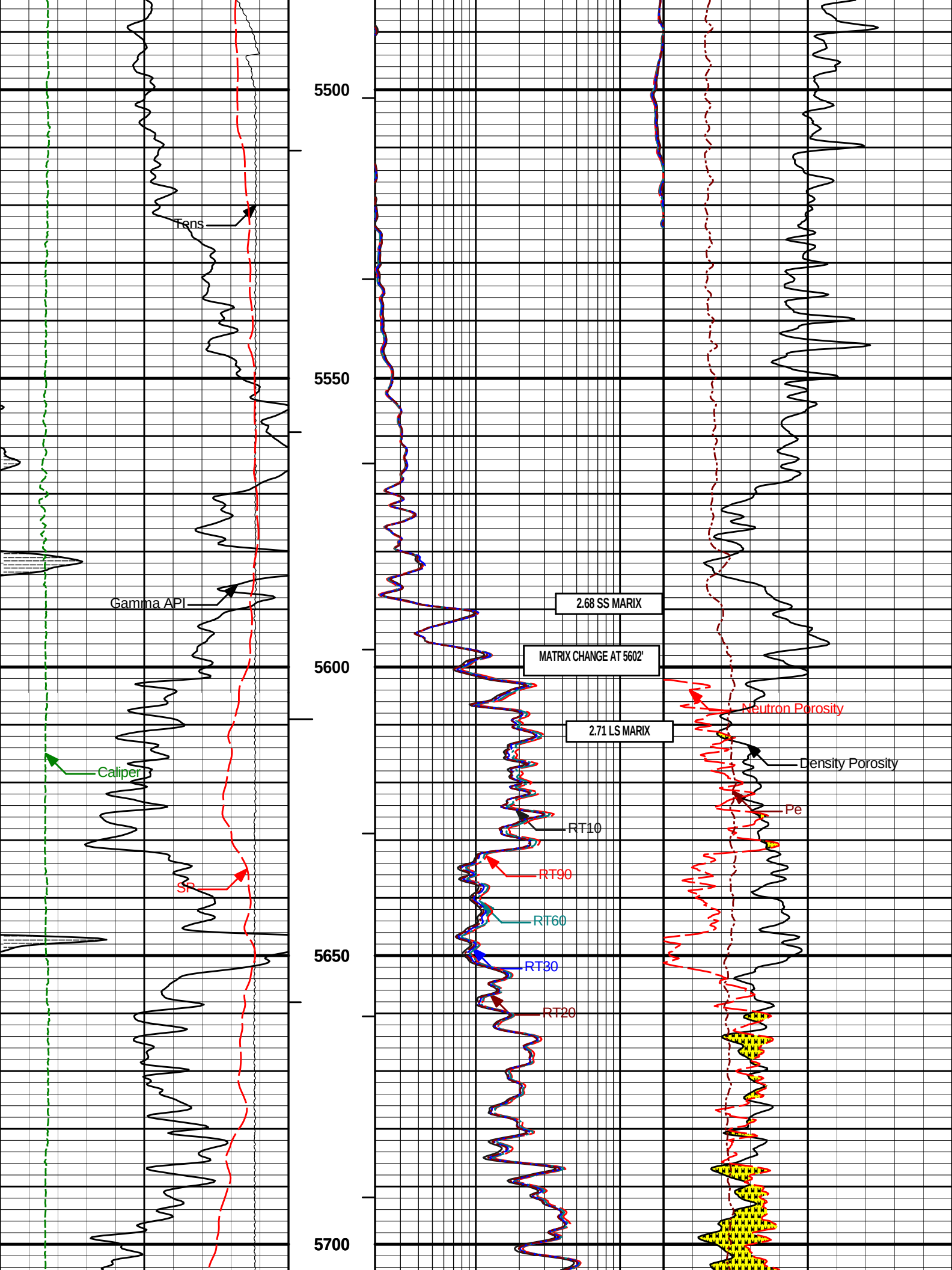
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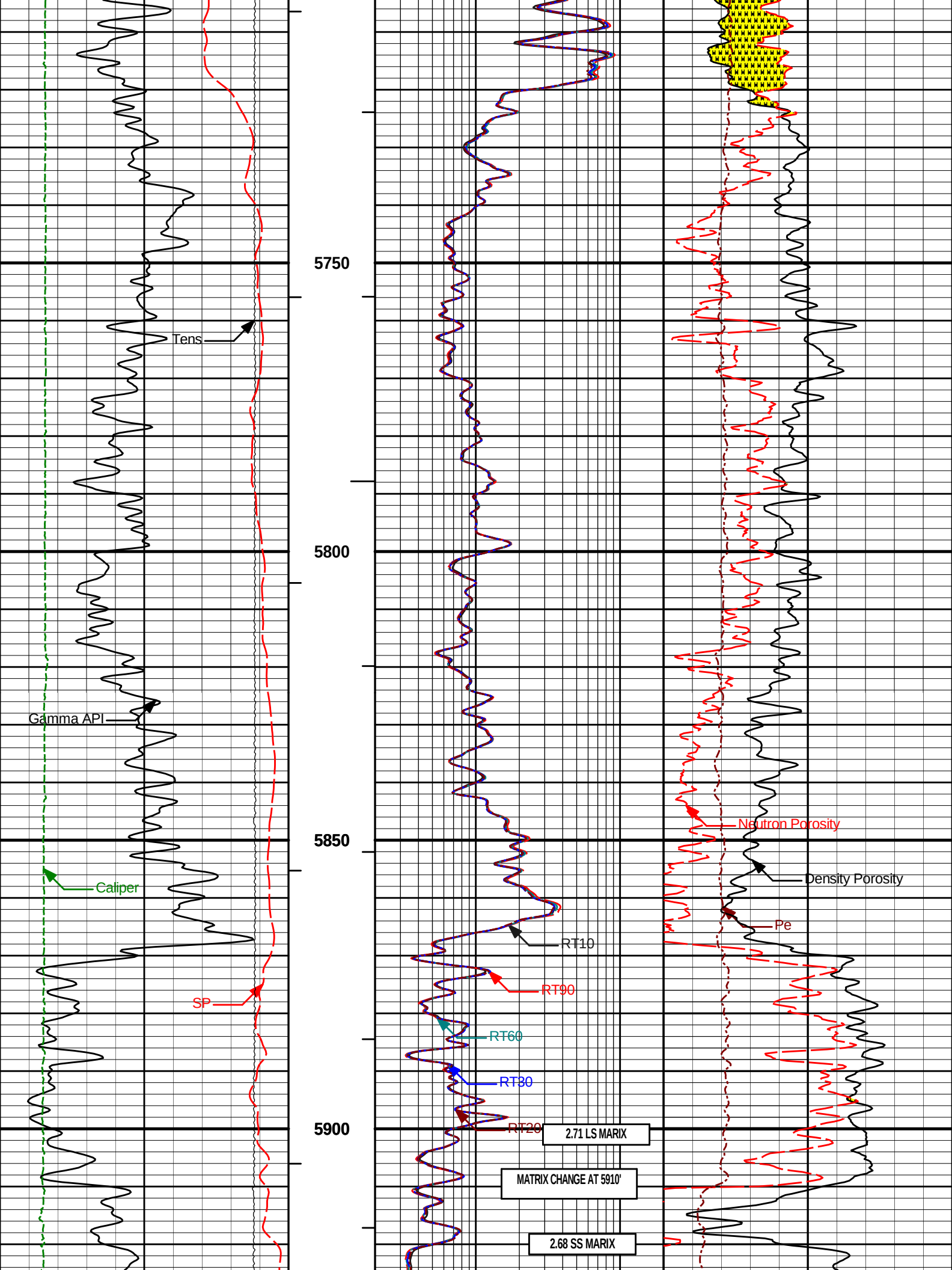
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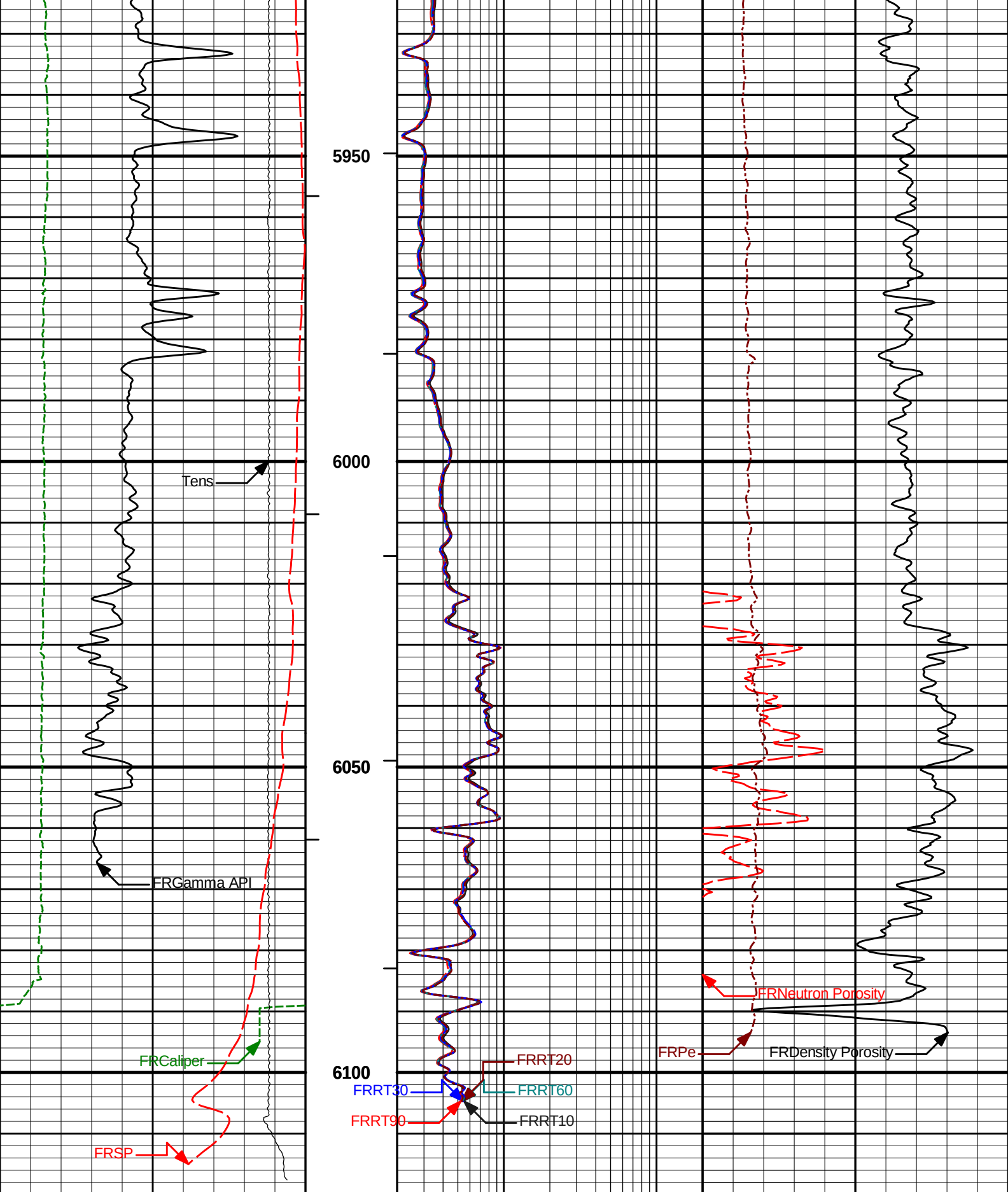
Density Porosity
Pe
2.71 LS MARIX
MATRIX CHANGE AT 5910'
2.68 SS MARIX



0 **SP** 100		2 **RT90** 200	0 **Pe** 10
millivolts	1 : 240	Ohm-m	
0 **Gamma API** 250	**BHVT**	2 **RT60** 200	20 **Density Porosity** 0
api		Ohm-m	percent
6 **Caliper** 16		2 **RT30** 200	20 **Neutron Porosity** 0

inches

AHVT

Ohm-m

percent

10K Tens 0

pounds

2 RT20 200

Ohm-m

2 RT10 200

Ohm-m

HALLIBURTON

Plot Time: 03-Oct-11 15:01:54
Plot Range: 530 ft to 6120 ft
Data: NB_ROHN_LD09_01\Well Based\MAIN*
Plot File: \\COMP\WATCH RE

MAIN PASS 5" = 100'

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name:	**GTET - 11005602**	**Reference Calibration Date:**	**20-Aug-11 04:20:38**
Engineer:	**W. MATSON**	**Calibration Date:**	**17-Sep-11 05:47:29**
Software Version:	**WL INSITE R3.4.2 (Build 2)**	**Calibration Version:**	**1**

Calibrator Source S/N: MPO51807-04
Calibrator API Reference:239.00 api
Equivalent Calibrator API Reference:243.2 api

Measurement	Measured	Calibrated	Units
Background	51.9	54.0	api
Background + Calibrator	281.7	293.0	api
Calibrator	241.1	239.0	api

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name:	**DSNT - 10993887**	**Reference Calibration Date:**	**16-Jul-11 15:54:24**
Engineer:	**W. MATSON**	**Calibration Date:**	**03-Aug-11 10:37:48**
Software Version:	**WL INSITE R3.2.1 (Build 7)**	**Calibration Version:**	**1**

Logging Source S/N: DSN-388
Tank Serial Number: GJWATERTANK
Reference value assigned to Tank: 52.750
Snow Block S/N: GJ
Calibration Tank Water Temperature: 74 degF
Min. Tool Housing Outside Diameter: 3.625 in

CALIBRATION CONSTANTS

Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	0.954	0.953	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):	0.2170	0.2169	0.0001	+/- 0.0020

Calibrated Ratio:	9.93	9.93	0.002	+/- 0.050

VERIFIER		
Measurement	**Value**	**Control Limit**
Snow-Block Porosity (decp):	0.0792	0.02000 - 0.09000

PASS/FAIL SUMMARY	
Background Check:	Passed
Gain-Range Check:	Passed
Snow-Block Check:	Passed

DENSITY CALIPER SHOP CALIBRATION

Tool Name:	**SDLT - 10951300**	**Reference Calibration Date:**	**16-Jul-11 10:10:43**
Engineer:	**J. KRONABLE**	**Calibration Date:**	**16-Jul-11 10:46:46**
Software Version:	**WL INSITE R3.2.1 (Build 7)**	**Calibration Version:**	**1**

CALIBRATION COEFFICIENTS

Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-1198.71	-1385.68	-7000.00 - -1000.00
Pad Gain	0.0003733	0.0003722	0.000200 - 0.000600
Arm Offset	-3619.14	-3788.88	-5000.00 - 3000.00
Arm Gain	0.0005455	0.0005802	0.000300 - 0.000700
Arm Power	-0.000004507	-0.000006601	-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)	2.08	2.00	-0.08	+/- 0.20
Medium Ring (in)	3.83	3.75	-0.08	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.56	6.50	-0.06	+/- 0.20
Medium Ring (in)	8.24	8.25	0.01	+/- 0.20
Large Ring (in)	15.02	15.00	-0.02	+/- 0.20

PASS/FAIL SUMMARY	
Calibration-Coefficients Range Check:	Passed
Ring-Measurement Check:	Passed

PASS/FAIL SUMMARY	
Calibration-Coefficients Range Check:	Passed

ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION

Tool Name:	**ACRt Sonde - 90194258-E7486-**	**Reference Calibration Date:**	**16-Sep-11 09:56:06**
Engineer:	**W. MATSON**	**Calibration Date:**	**16-Sep-11 10:05:53**
Software Version:	**WL INSITE R3.4.2 (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	0.9990	1.05	0.95	1.0010	1.05	0.95	0.9984	1.05
A2 (50")	0.95	1.0079	1.05	0.95	1.0098	1.05	0.95	1.0084	1.05
A3 (30")	0.95	1.0079	1.05	0.95	1.0079	1.05	0.95	1.0046	1.05

A3 (29")	0.95	1.0070	1.05	0.95	1.0079	1.05	0.95	1.0046	1.05
A4 (17")	0.95	1.0002	1.05	0.95	1.0003	1.05	0.95	0.9980	1.05
A5 (10")	N/A	N/A	N/A	0.95	0.9960	1.05	0.95	0.9921	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.9864	1.05	0.95	0.9822	1.05

TYPICAL SONDE OFFSET RANGE

Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	-5	-0.227	2	-6	-3.962	-2	-8	-5.147	-2
A2 (50")	-7	-1.967	-1	-6	-3.725	-2	-7	-4.690	-2
A3 (29")	-27	-11.435	-9	-9	-3.493	-3	-7	-2.946	-1
A4 (17")	-180	-102.277	-60	-45	-32.251	-15	-39	-25.909	-13
A5 (10")	N/A	N/A	N/A	-150	-68.582	-50	-80	-35.110	-10
A6 (6")	N/A	N/A	N/A	175	273.528	525	90	141.684	270

TRANSMITTER CURRENT GAIN

Signal	Lower	R	Upper
12K	0.6	0.8631	1.3
36K	1.0	1.7921	2.0
72K	1.0	1.1061	2.0

R-MUD VERIFICATION

Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
Mud Cell	0.95	1.004	1.05

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name: SDLT Pad - 10951300
Reference Calibration Date: 23-Sep-11 13:48:20
Engineer: J. KRONABLE
Calibration Date: 23-Sep-11 14:20:31
Software Version: WL INSITE R3.4.2 (Build 2)
Calibration Version: 1

Logging Source S/N: 5153GW
Aluminum Block S/N: 63094 Density: 2.610g/cc Pe: 3.100
Magnesium Block S/N: 63387 Density: 1.685g/cc Pe: 2.594

DENSITY CALIBRATION SUMMARY

Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0315	1.0655	0.90 - 1.10
Near Dens Gain	1.0025	1.0265	0.90 - 1.10
Near Peak Gain	0.9637	0.9930	0.90 - 1.10
Near Lith Gain	0.9057	0.9359	0.90 - 1.10
Far Bar Gain	1.0122	1.0175	0.90 - 1.10
Far Dens Gain	0.9990	1.0011	0.90 - 1.10
Far Peak Gain	0.9900	0.9906	0.90 - 1.10
Far Lith Gain	0.9629	0.9663	0.90 - 1.10
Near Bar Offset	-0.1414	-0.4574	NONE
Near Dens Offset	0.0838	-0.1319	NONE
Near Peak Offset	0.3968	0.1468	NONE
Near Lith Offset	0.8551	0.5995	NONE
Far Bar Offset	-0.0171	-0.0655	NONE
Far Dens Offset	0.0800	0.0611	NONE
Far Peak Offset	0.1503	0.1420	NONE
Far Lith Offset	0.3472	0.3151	NONE
Near Bar Background	949.09	948.87	700 - 1450
Near Dens Background	310.00	311.22	230 - 480
Near Peak Background	136.92	135.95	100 - 210
Near Lith Background	167.96	168.26	125 - 260

Far Bar Background	558.69	560.42	450 - 900
Far Dens Background	221.28	220.73	175 - 345
Far Peak Background	88.46	87.33	70 - 140
Far Lith Background	90.90	89.84	75 - 145

CALIBRATION BLOCK SUMMARY

Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.684	1.685	0.001	+/- 0.015
Pe	2.573	2.557	-0.016	+/- 0.150
ALUMINUM				
Density (g/cc)	2.609	2.610	0.001	+/- 0.01500
Pe	3.071	3.066	-0.005	+/- 0.150

TOOL SUMMARY

Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	0.0010	+/- 0.0110	-0.0009	+/- 0.0140
Magnesium Block	-0.0002	+/- 0.0110	-0.0004	+/- 0.0140
Aluminum Block	-0.0000	+/- 0.0110	0.0001	+/- 0.0140
Resolution	8.59	6.00 - 11.50	8.84	6.00 - 11.50
Internal Verifier(B+D+P+L)	1564	1200 - 2700	958	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

CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-11005602						
Gamma Ray Calibrator	239.0	----------	----------	0.0	+/- 9.00	api
DSNT-10993887						
Snow-Block Porosity	0.0792	----------	----------	0.0000	+/- -.--	decp
SDLT-10951300						
Pad Extension	3.75	----------	----------	0.00	+/-0.20	in
Ring Diameter	8.25	----------	----------	0.00	+/-0.20	in
ACRt Sonde-90194258-E7486-						
Mud Cell	1.004	----------	----------	0.000	----------	ohm-m
SDLT Pad-10951300						
Near(B+D+P+L)	1564.292	----------	----------	0.000	+/-13.917	cps
Far(B+D+P+L)	958.312	----------	----------	0.000	+/-15.110	cps

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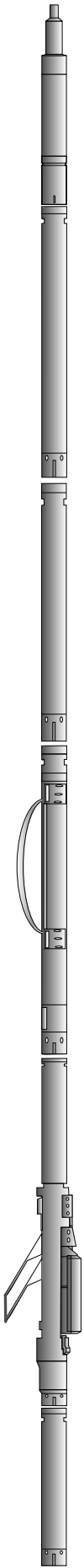
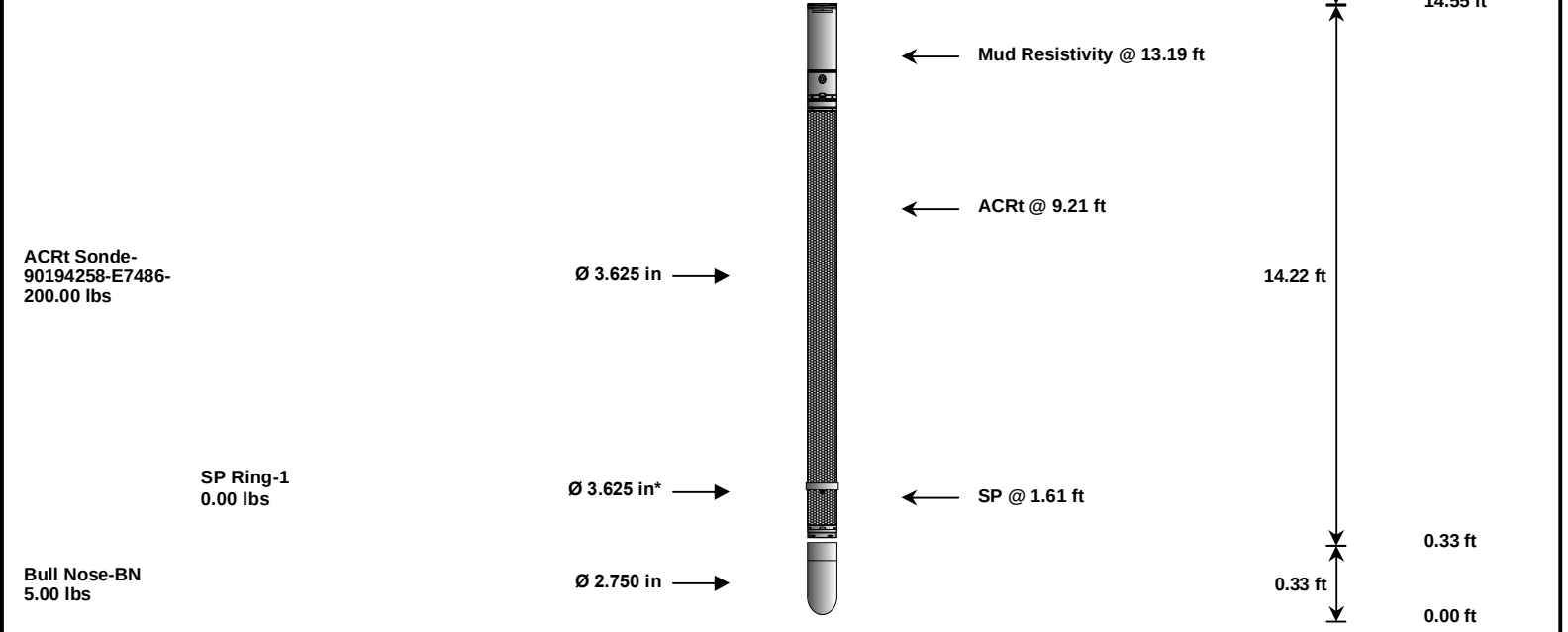
TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
						63.02 ft
RWCH-10763226 135.00 lbs		Ø 3.625 in →		Load Cell @ 59.34 ft BH Temperature @ 58.77 ft	6.25 ft	
						56.77 ft
GTET-11005602 165.00 lbs		Ø 3.625 in →		GammaRay @ 50.71 ft	8.52 ft	
						48.25 ft
CSNG-10846351 114.00 lbs		Ø 3.625 in →		CSNG @ 42.62 ft	8.17 ft	
						40.08 ft
DSNT-10993887 174.00 lbs	DSN Decentralizer-10839203 6.60 lbs	Ø 5.000 in* → Ø 3.625 in →		DSN Far @ 33.15 ft DSN Near @ 32.40 ft	9.69 ft	
						30.40 ft
SDLT-10951300 360.00 lbs	SDLT Pad-10951300 65.00 lbs	Ø 4.500 in → Ø 4.750 in* →		SDL Caliper @ 22.40 ft SDL @ 22.39 ft	10.81 ft	
						19.58 ft
ACRt Instrument-11287482 50.00 lbs		Ø 3.625 in →			5.03 ft	
						14.55 ft



Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)		Accumulated Length (ft)	Max.Log. Speed (fpm)
RWCH	Releasable Wireline Cable Head	10763226	135.00	6.25		56.77	300.00
GTET	Gamma Telemetry Tool	11005602	165.00	8.52		48.25	60.00
CSNG	Compensated Spectral Natural Gamma	10846351	114.00	8.17		40.08	15.00
DSNT	Dual Spaced Neutron	10993887	174.00	9.69		30.40	60.00
DCNT	DSN Decentralizer	10839203	6.60	5.13	*	33.73	300.00
SDLT	Spectral Density Tool	10951300	360.00	10.81		19.58	60.00
SDLP	Density Insite Pad	10951300	65.00	2.55	*	21.79	60.00
ACRt	Array Compensated True Resistivity Instrument Section	11287482	50.00	5.03		14.55	300.00
ACRt	Array Compensated True Resistivity	90194258-E7486-	200.00	14.22		0.33	300.00
SP	SP Ring	1	0.00	0.25	*	1.61	300.00
BLNS	Bull Nose	BN	5.00	0.33		0.00	300.00
Total			**1,274.60**	**63.02**			

* Not included in Total Length and Length Accumulation.

Data: NB_ROHN_LD09_01\0002 TRIPLE_CSNG\IDLE **Date: 03-Oct-11 13:44:37**

COMPANY	**NOBLE ENERGY INC**
WELL	**ROHN PC LD09-01**
FIELD	**WATTENBERG**
COUNTY	**WELD** STATE **CO**

HALLIBURTON

DUAL SPACED NEUTRON
SPECTRAL DENSITY
ARRAY COMPENSATED
TRUE RESISTIVITY
LOG