HALLIBURTON

DUAL SPACED NEUTRON SPECTRAL DENSITY ARRAY COMPENSATED TRUE RESISTIVITY

COMPANY	LARAMIE ENERGY
WELL	HAWXHURST 19-13A
FIELD	BRUSH CREEK
COUNTY	MESA
STATE	CO

COMPANY	LARAMIE ENERGY		
WELL	HAWXHURST 19-13A		
FIELD	BRUSH CREEK		
COUNTY	MESA	STATE	CO

API No. 05077101660000

Location SHL: SEC 24, 1349' FSL AND 602' FEL, T9S R95W
BHL: SEC 19, 1080' FSL AND 647' FWL, T9S R94W

Sect. 24 Twp. 9 S Rge. 95 W

Other Services:
RWCH

Permanent Datum	GL	Elev. 6354.0 ft	Elev.: K.B.	6375.0 ft
Log measured from	KB	, 21.0 ft above perm. Datum	D.F.	6375.0 ft
Drilling measured from	KB		G.L.	6354.0 ft

Date		16-Oct-11		05-Oct-11		
Run No.		TWO		ONE		
Depth - Driller		10625.00 ft		6535.00 ft		
Depth - Logger		10630.0 ft		6533.0 ft		
Bottom - Logged Interval		10627.0 ft				
Top - Logged Interval		6510.0 ft				
Casing - Driller		7.000 in	@ 6514.0 ft	9.625 in	@ 1547.0 ft	@
Casing - Logger		6510.0 ft		1542.0 ft		
Bit Size		6.250 in		8.750 in		@
Type Fluid in Hole		WBM		WBM		
Density	Viscosity	11.5 ppg	63.00 s/qt	9.6 ppg	60.00 s/qt	
PH	Fluid Loss	9.00 pH	6.2 cptm	9.50 pH	7.0 cptm	
Source of Sample		FLOW LINE		MUD TANK		
Rm @ Meas. Temperature		2.380 ohmm	@ 75.00 degF	1.480 ohmm	@ 72.00 degF	@
Rmf @ Meas. Temperature		1.48 ohmm	@ 75.00 degF	1.24 ohmm	@ 75.00 degF	@
Rmc @ Meas. Temperature		3.609 ohmm	@ 75.00 degF	1.242 ohmm	@ 75.00 degF	@
Source Rmf	Rmc	CHART	CHART	CHART	CHART	
Rm @ BHT		0.79 ohmm	@ 240.0 degF	0.61 ohmm	@ 185.0 degF	@
Time Since Circulation		10.8 hr		10.0 hr		
Time on Bottom		16-Oct-11 21:17		05-Oct-11 12:04		
Max. Rec. Temperature		240.0 degF	@ 10625.0 ft	185.0 degF	@ 6533.0 ft	@
Equipment	Location	11014853	GJ, CO	11014853	GJ, CO	
Recorded By		B. DRAKE		J. KRONABLE		
Witnessed By		K. CLAUSSEN		KELLY CLAUSSEN		

Fold here

Service Ticket No.: 8512723 API Serial No.: 05077101660000 PGM Version: WL INSITE R3.4.0 (Build 4)

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
TWO	ACRT-	N/A	FREE	N/A
	I777S201			

EQUIPMENT DATA

GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Run No.	TWO	Run No.		Run No.	TWO	Run No.	TWO
Serial No.	11602915	Serial No.		Serial No.	10950493	Serial No.	10981426
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	Cs-137	Source Type	Am241Be
Length	8"	LSA [Y/N]		Serial No.	18265GW	Serial No.	DSN-362
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	
TWO	6510'	10630'	REC	0	150				30%	-10%	2.68 g/cc	30%	-10%	SAND

DIRECTIONAL INFORMATION

Maximum Deviation	@	KOP	@

Remarks: RWCH-GTET-DSNT-SDLT-ACRT RAN IN COMBINATION

ANNULAR HOLE VOLUME CALCULATED FOR 5.5 INCH CASING

BOREHOLE RUGOSITY, TENSION PULLS AND WASHOUTS MAY EFFECT TOOL RESPONSE AND REPEATABILITY

BOWSPRING DECENTRALIZER AND ACRT STANDOFF REMOVED DUE TO BIT SIZE (6.25")

LATITUDE: 39.52946

LONGITUDE: -107.96547

TODAY'S CREW: J. FREW AND J. MARTIN

*** THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES, VERNAL, UT (435) 789-2550 ***

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	Mnemonic	Description	Value	Units
TOP					
	SHARED	BS	Bit Size	6.250	in
	SHARED	UBS	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	MDBS	Mud Base	Water	
	SHARED	MDWT	Borehole Fluid Weight	11.500	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	2.410	ohmm
	SHARED	TRM	Temperature of Mud	74.0	degF
	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	10625.00	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	0.000	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	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	0.00	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					

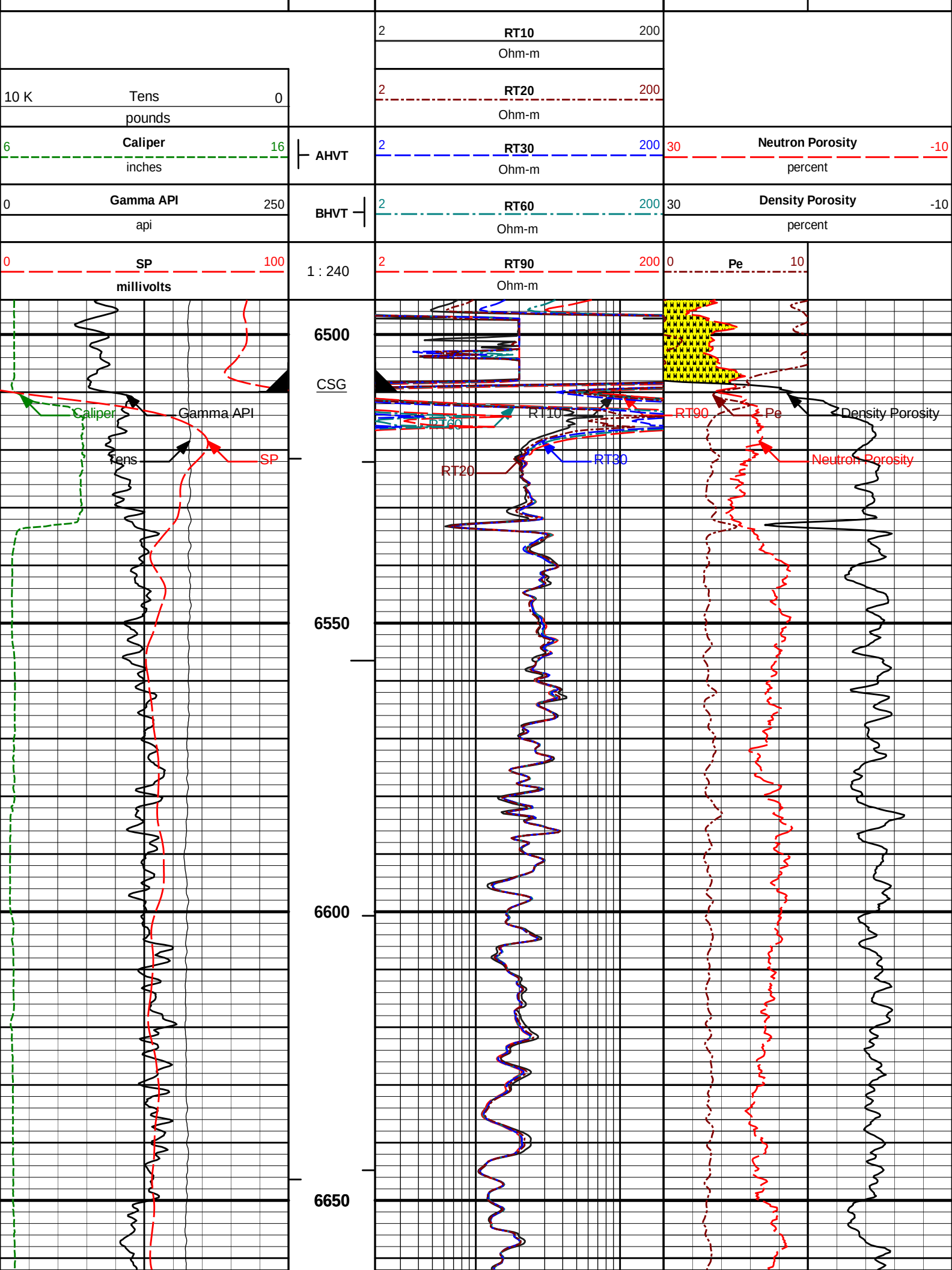
Data: LARA_HAWX19_13A\0003 TRIPLE_ACRT\004 16-Oct-11 21:17 Up 10640.3f **Date: 16-Oct-11 22:35:43**

HALLIBURTON

Plot Time: 16-Oct-11 22:41:39
Plot Range: 6494 ft to 10645.2 ft
Data: LARA_HAWX19_13A\Well Based\MAIN_TD*
Plot File: \\COMP_TD\IQ_COMPOSITE_5IN_RM_NOBLE

2150 TO 2500 5" = 100'

Track 1	Depth Track	Track 2	Track 5	Track 3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AHVT
BHVT
1 : 240
2
RT10
200
Ohm-m
2
RT20
200
Ohm-m
2
RT30
200
Ohm-m
2
RT60
200
Ohm-m
2
RT90
200
Ohm-m
30
Neutron Porosity
-10
percent
30
Density Porosity
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percent
0
Pe
10
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6550
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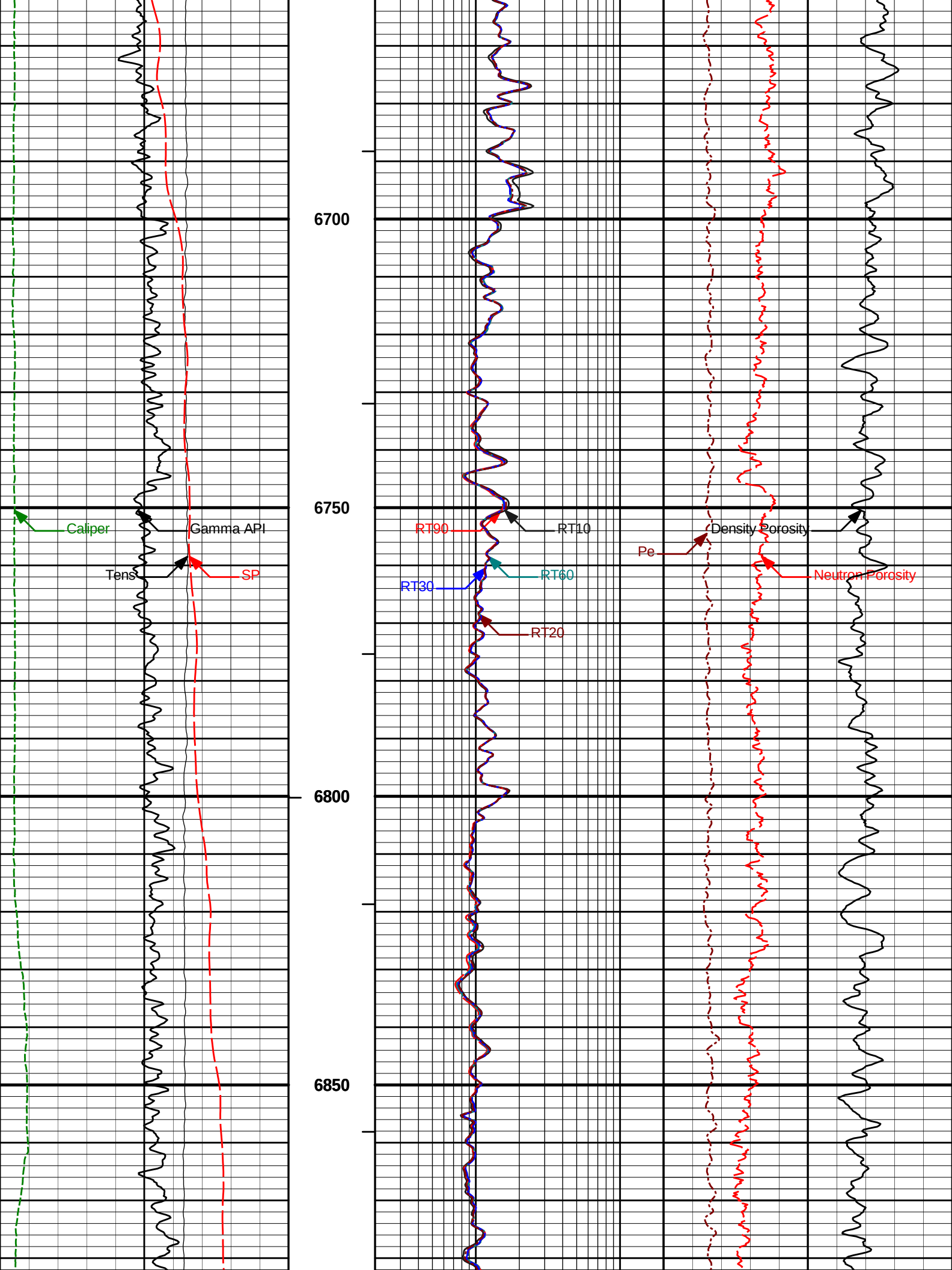
Density Porosity
Neutron Porosity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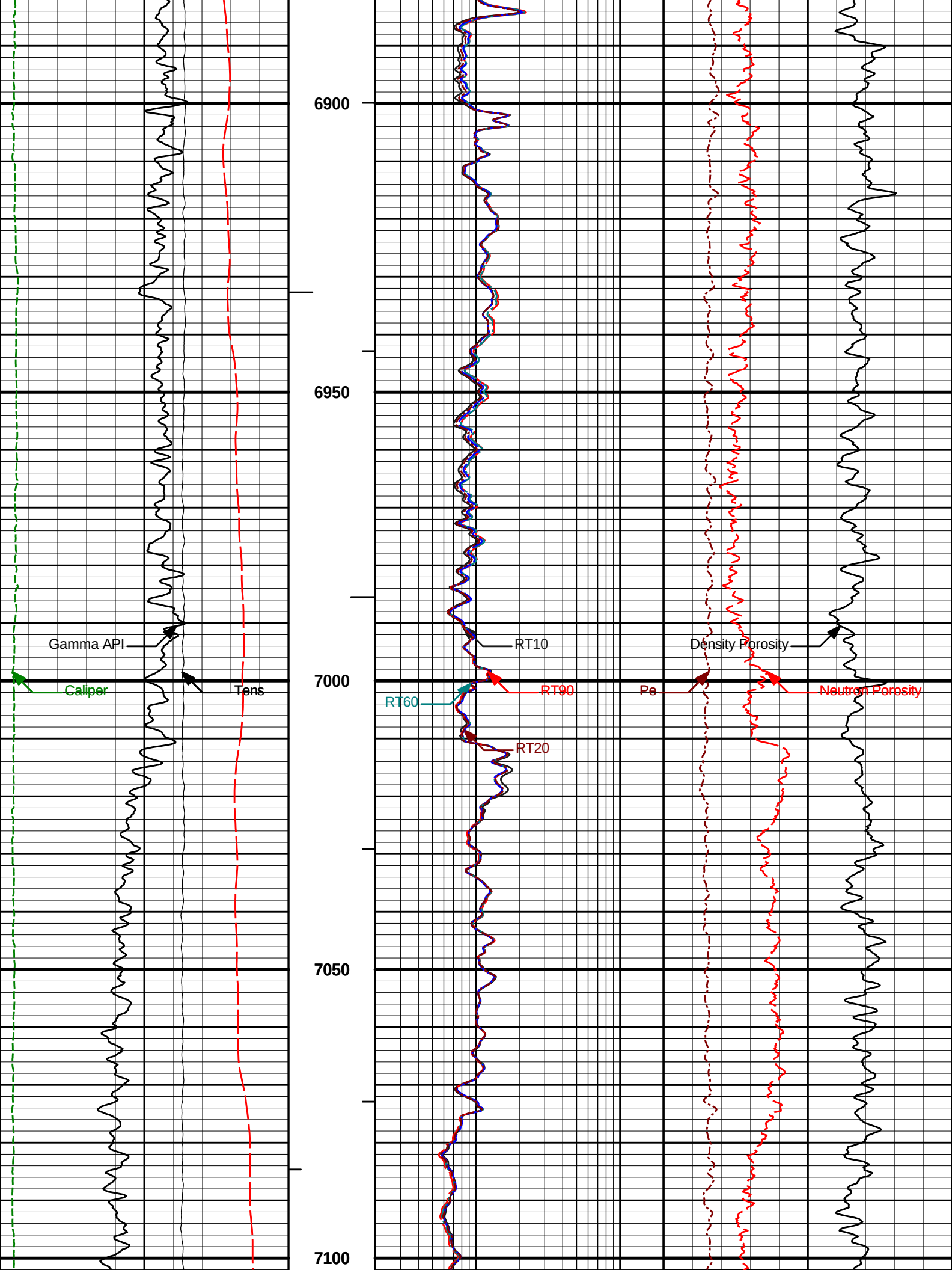
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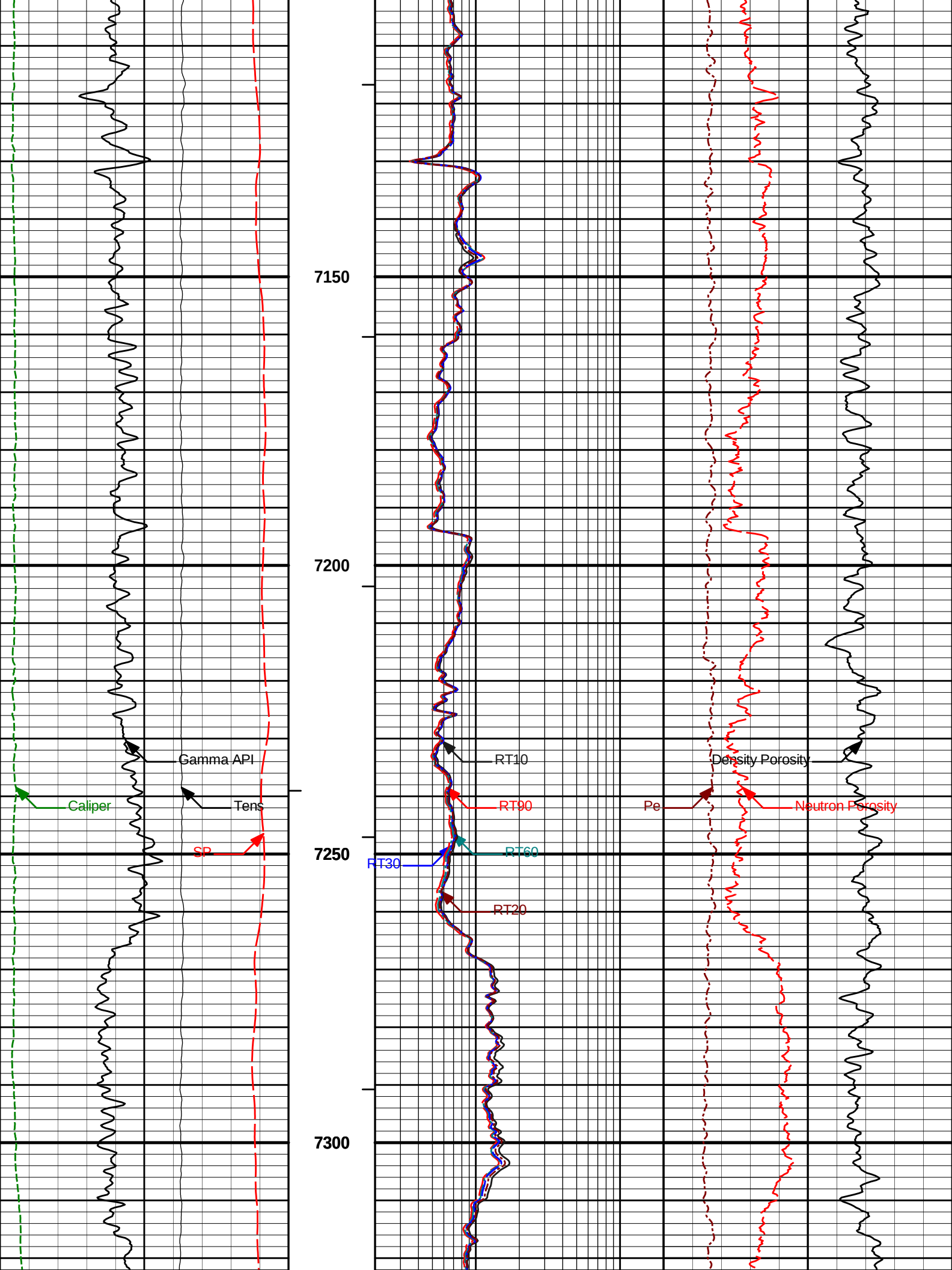
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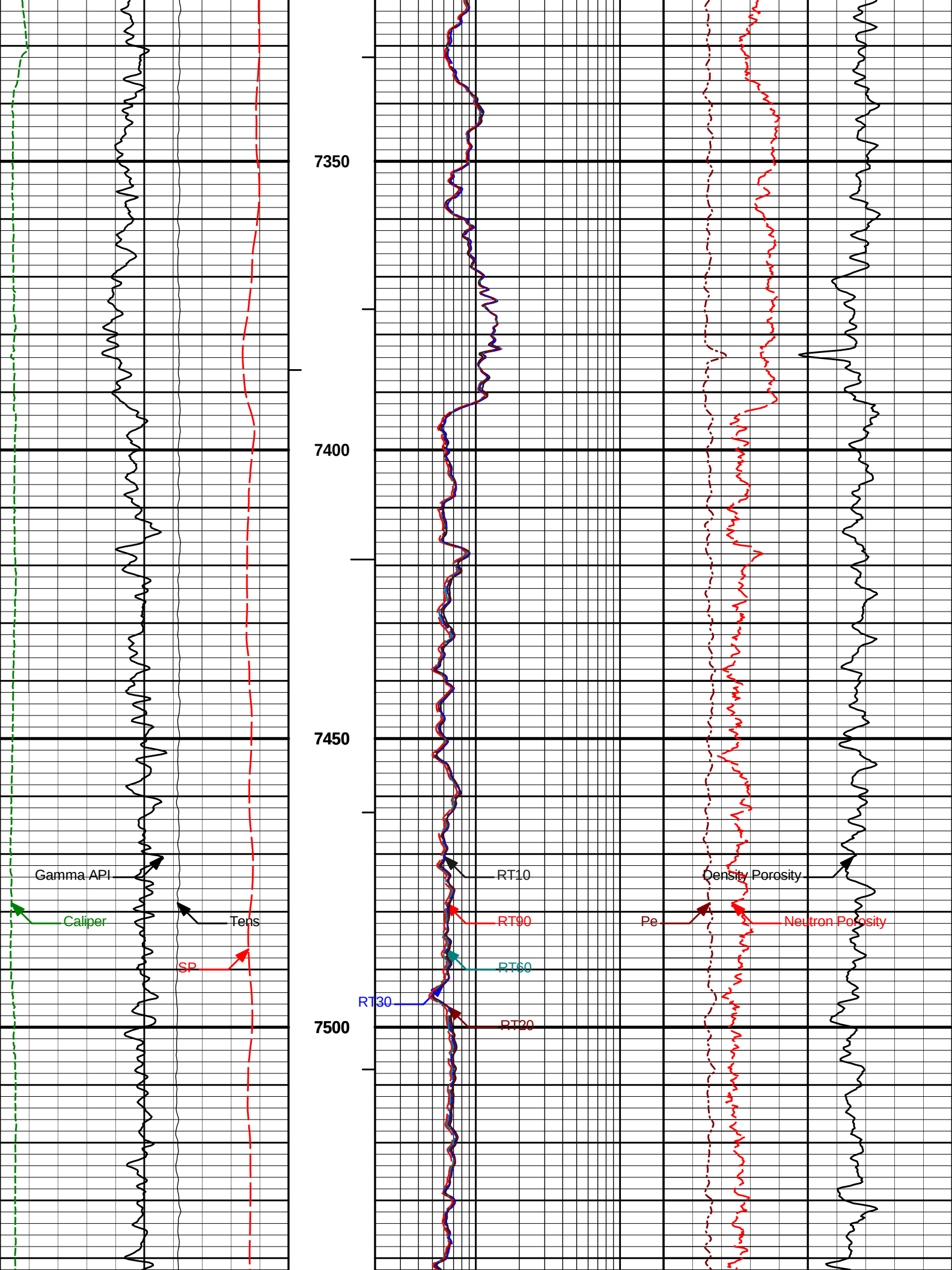
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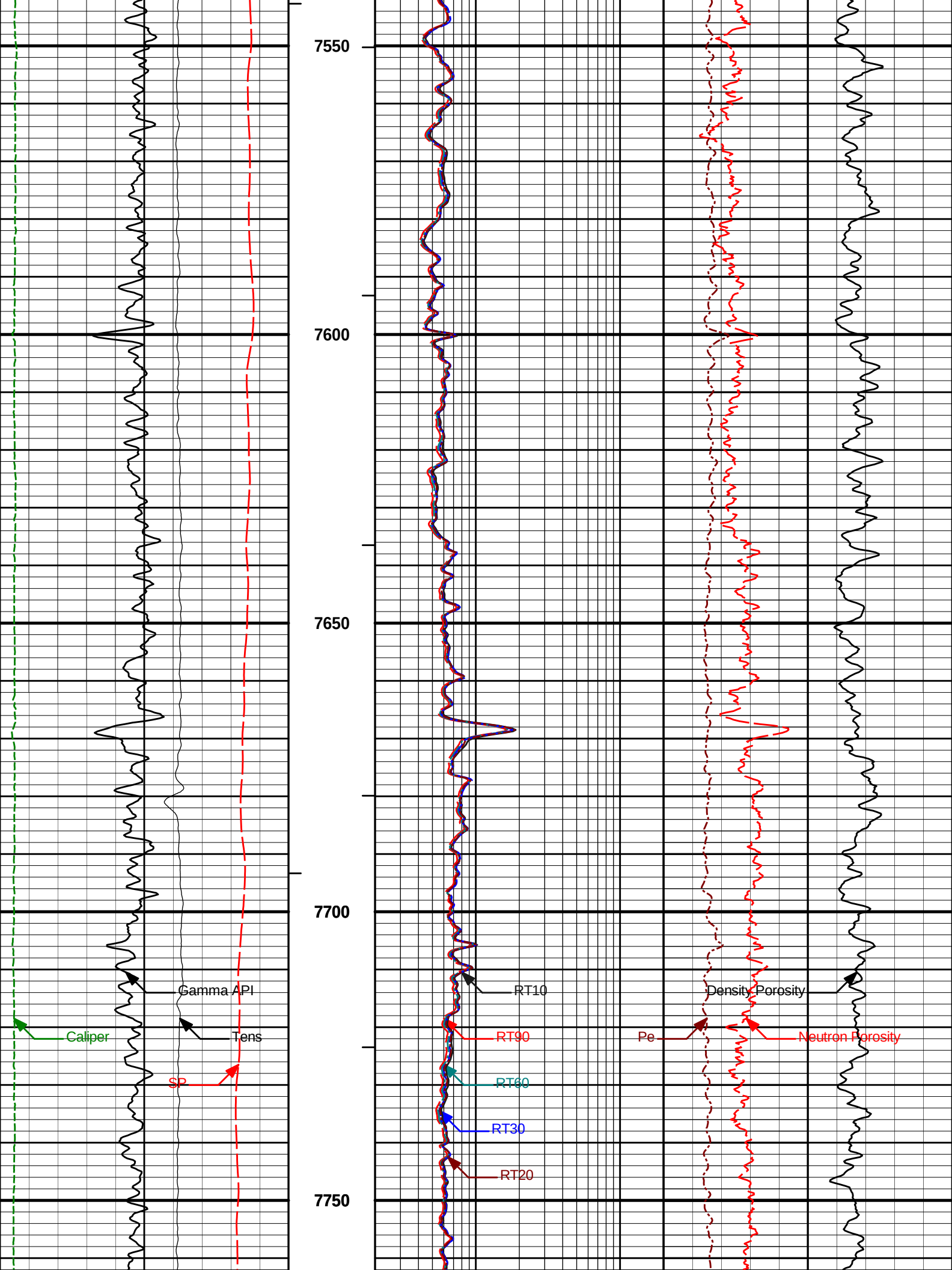
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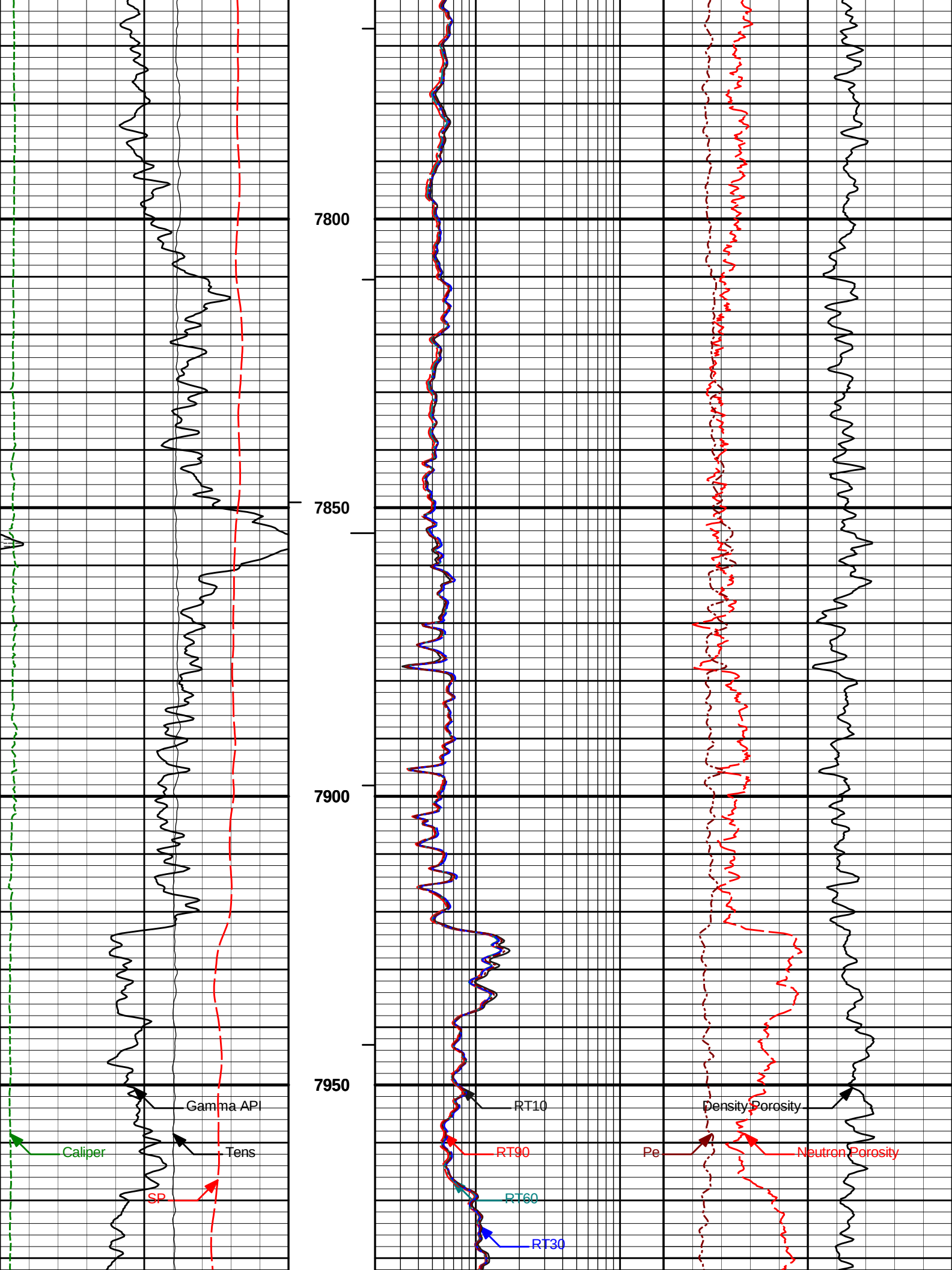
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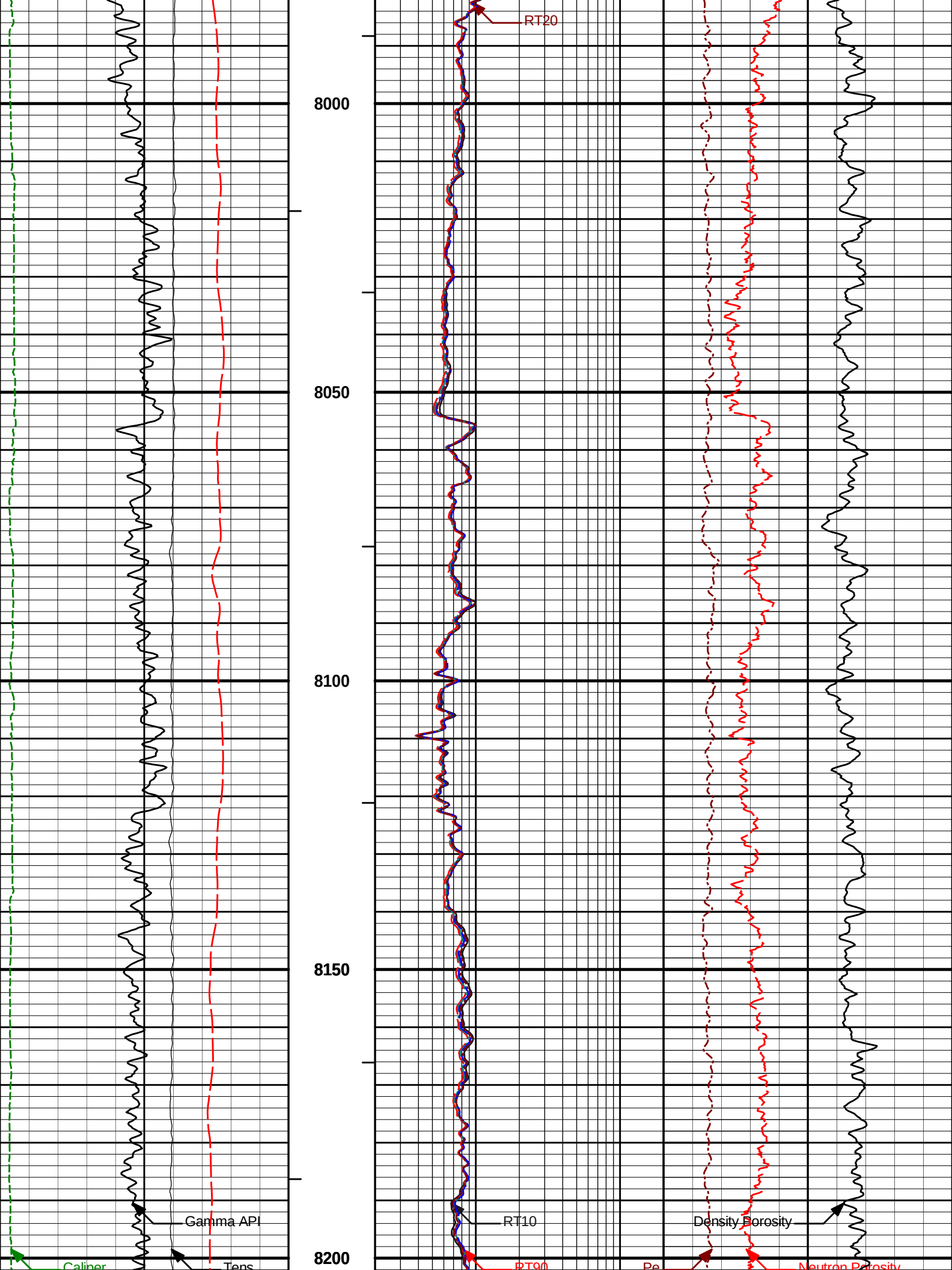
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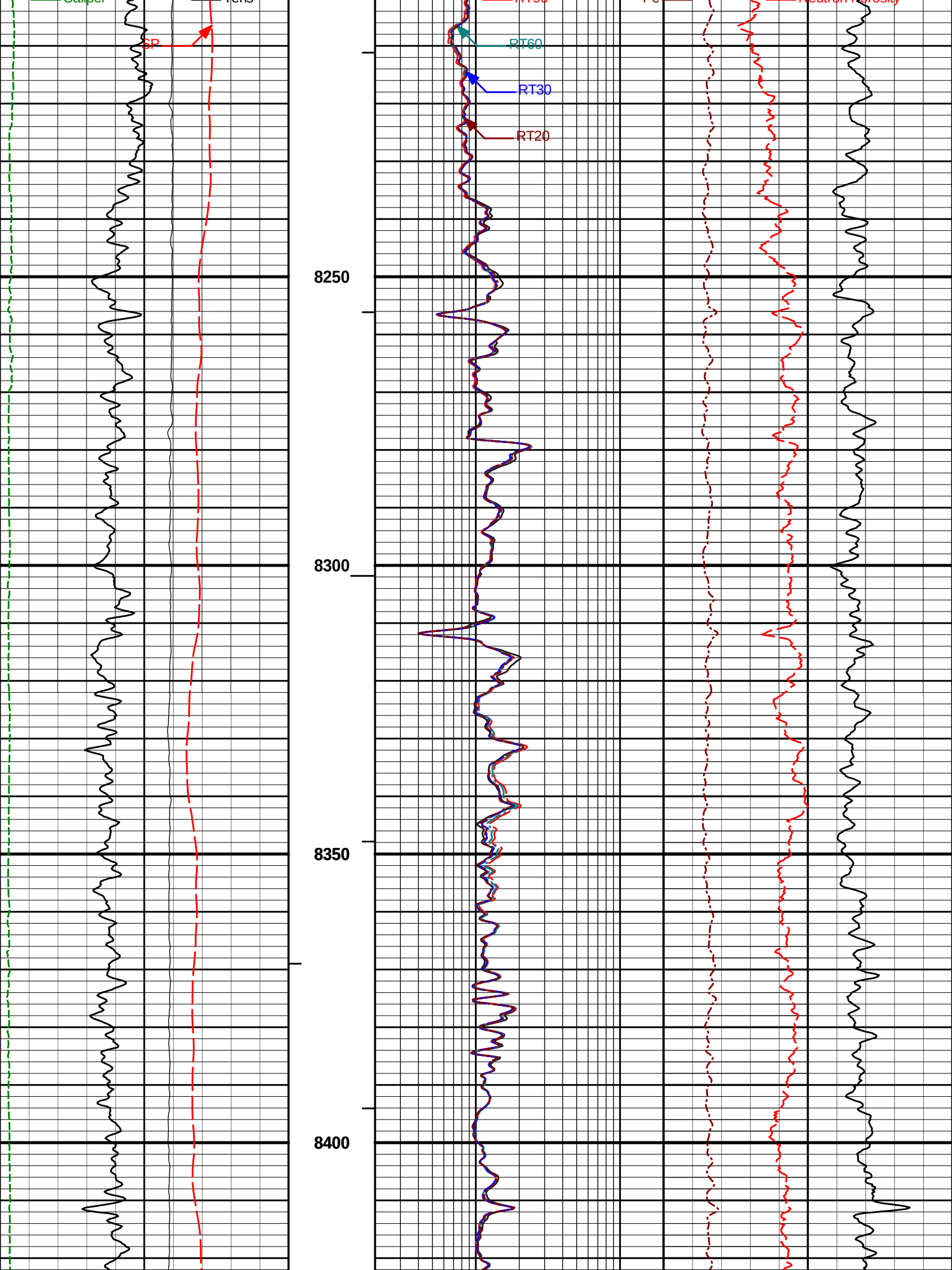
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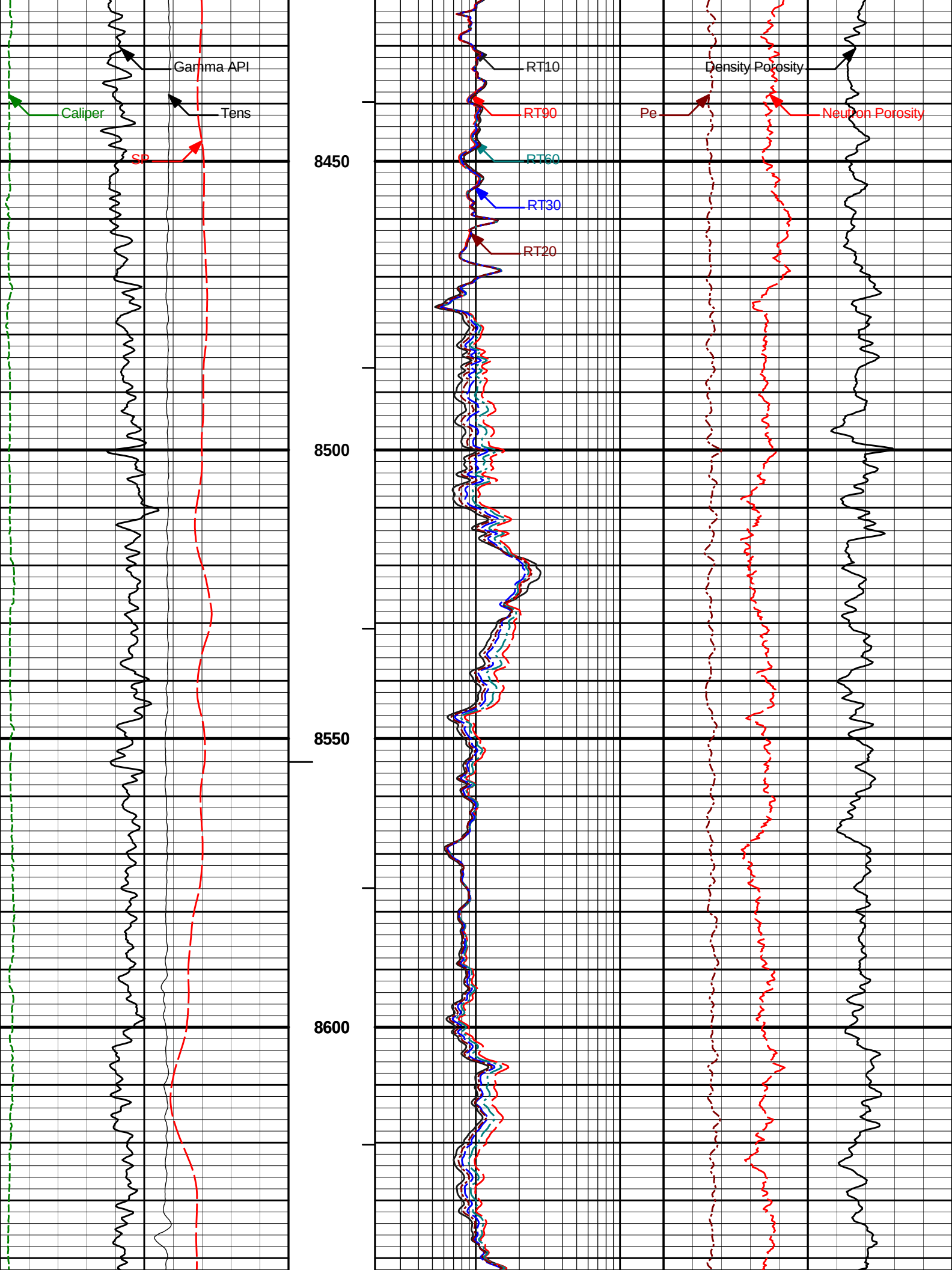
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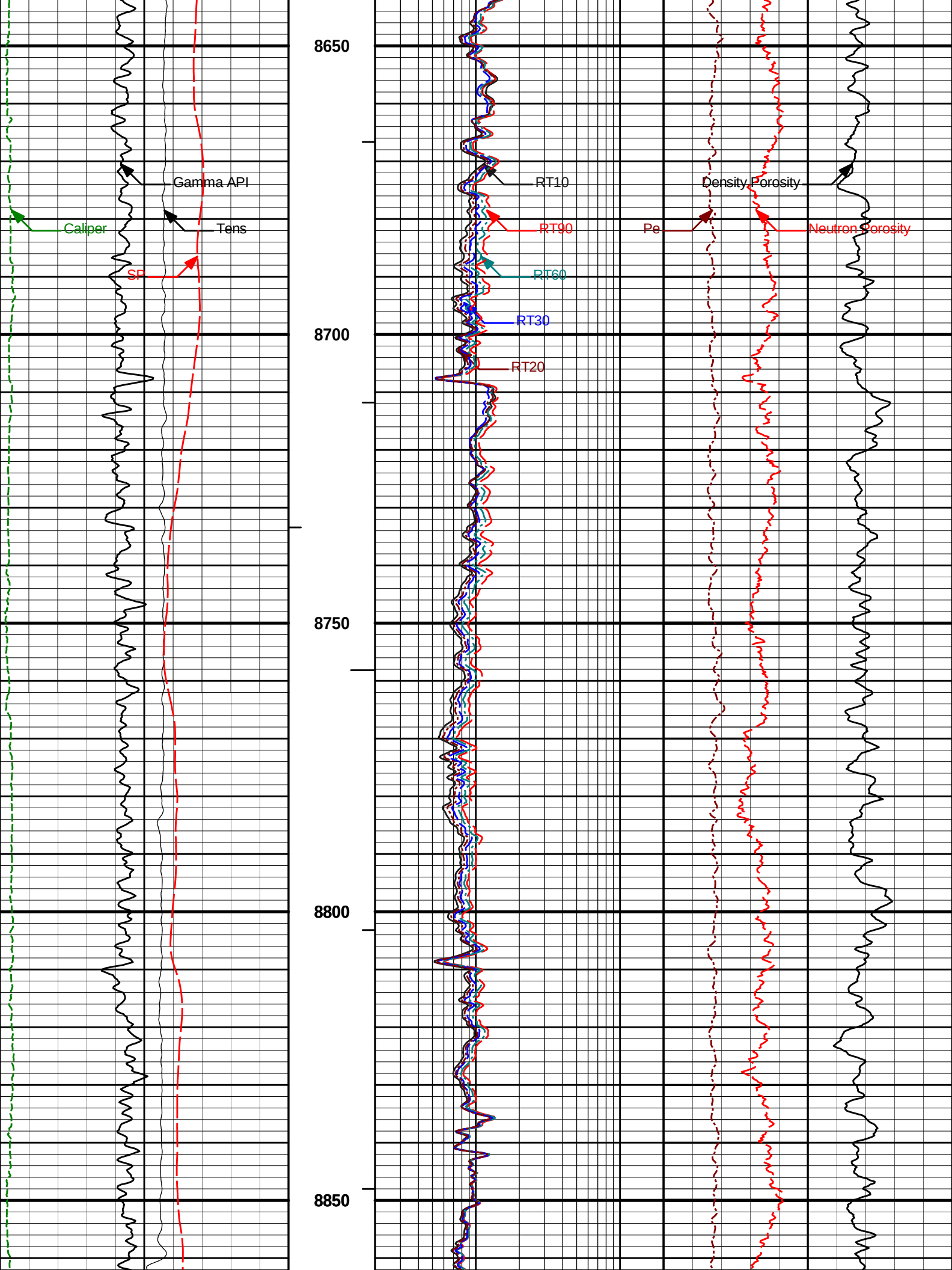
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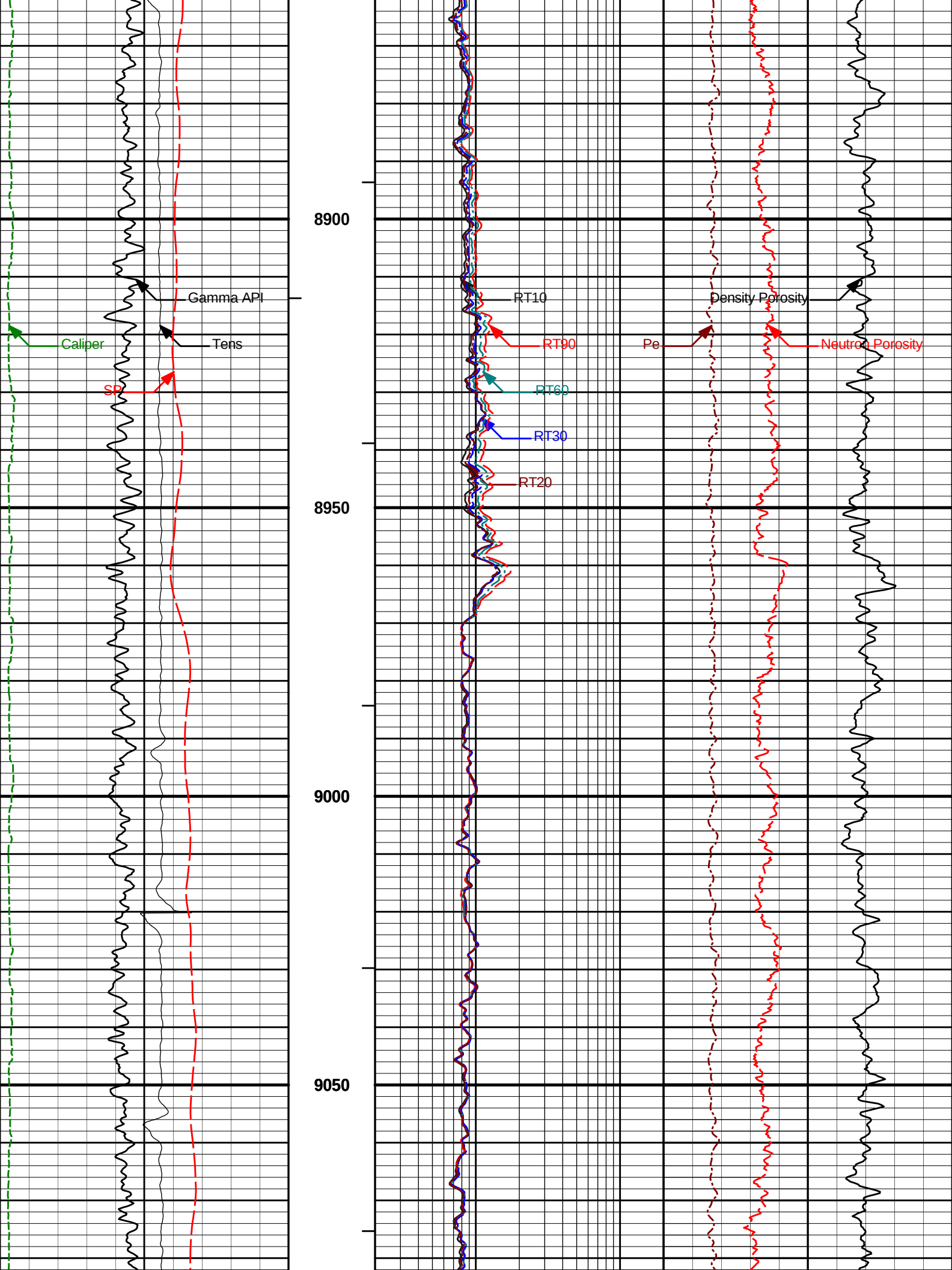
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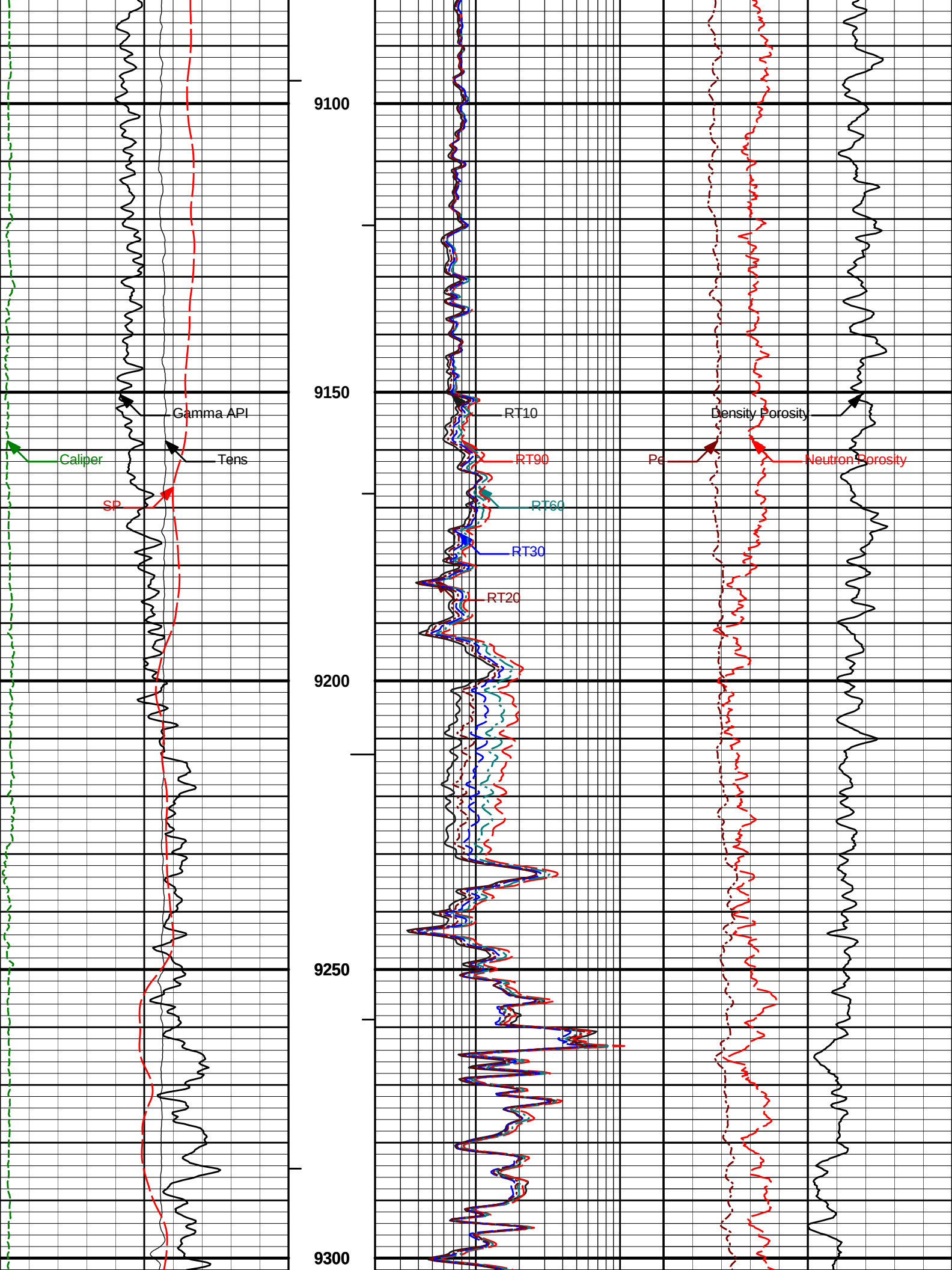
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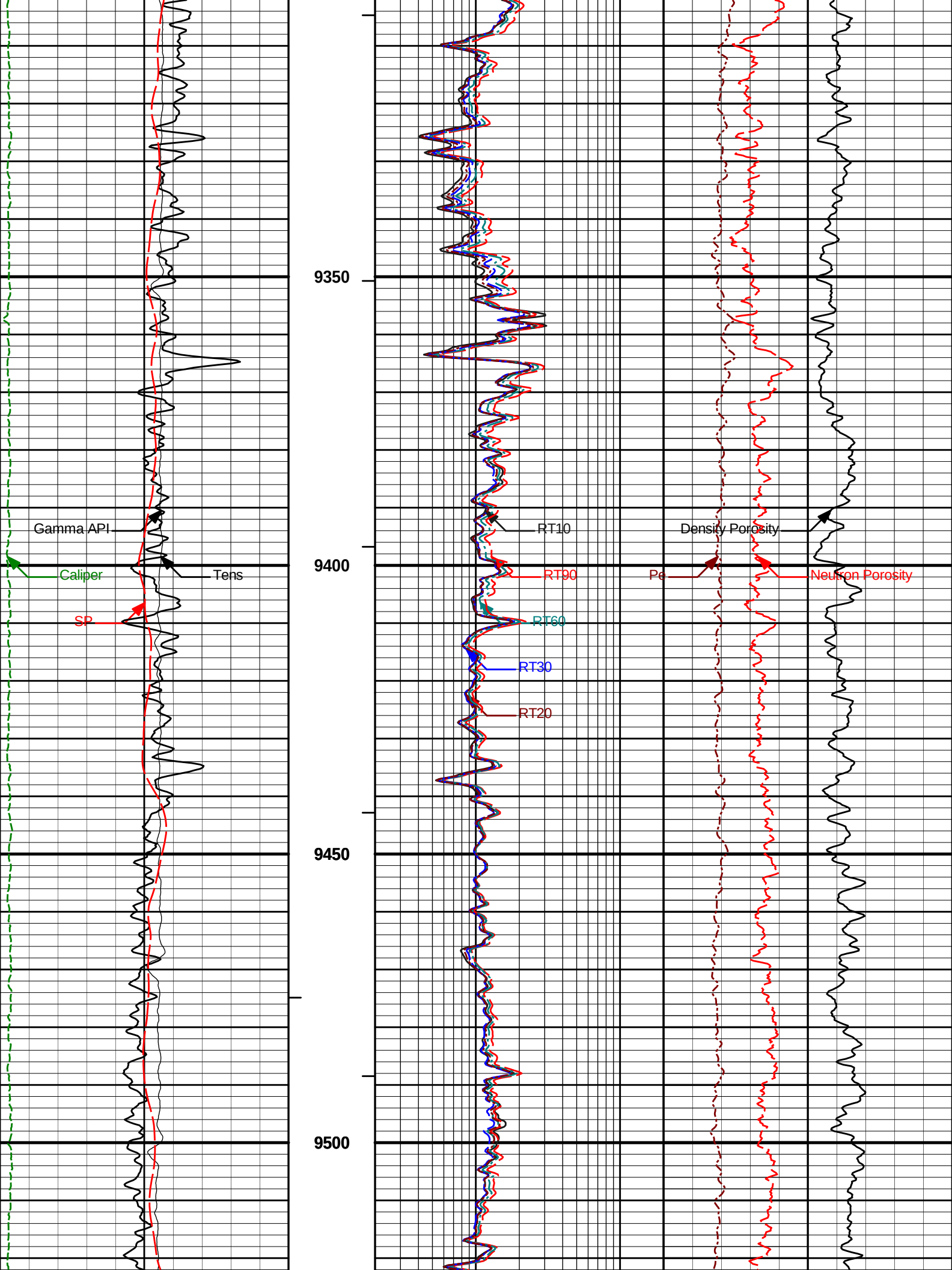
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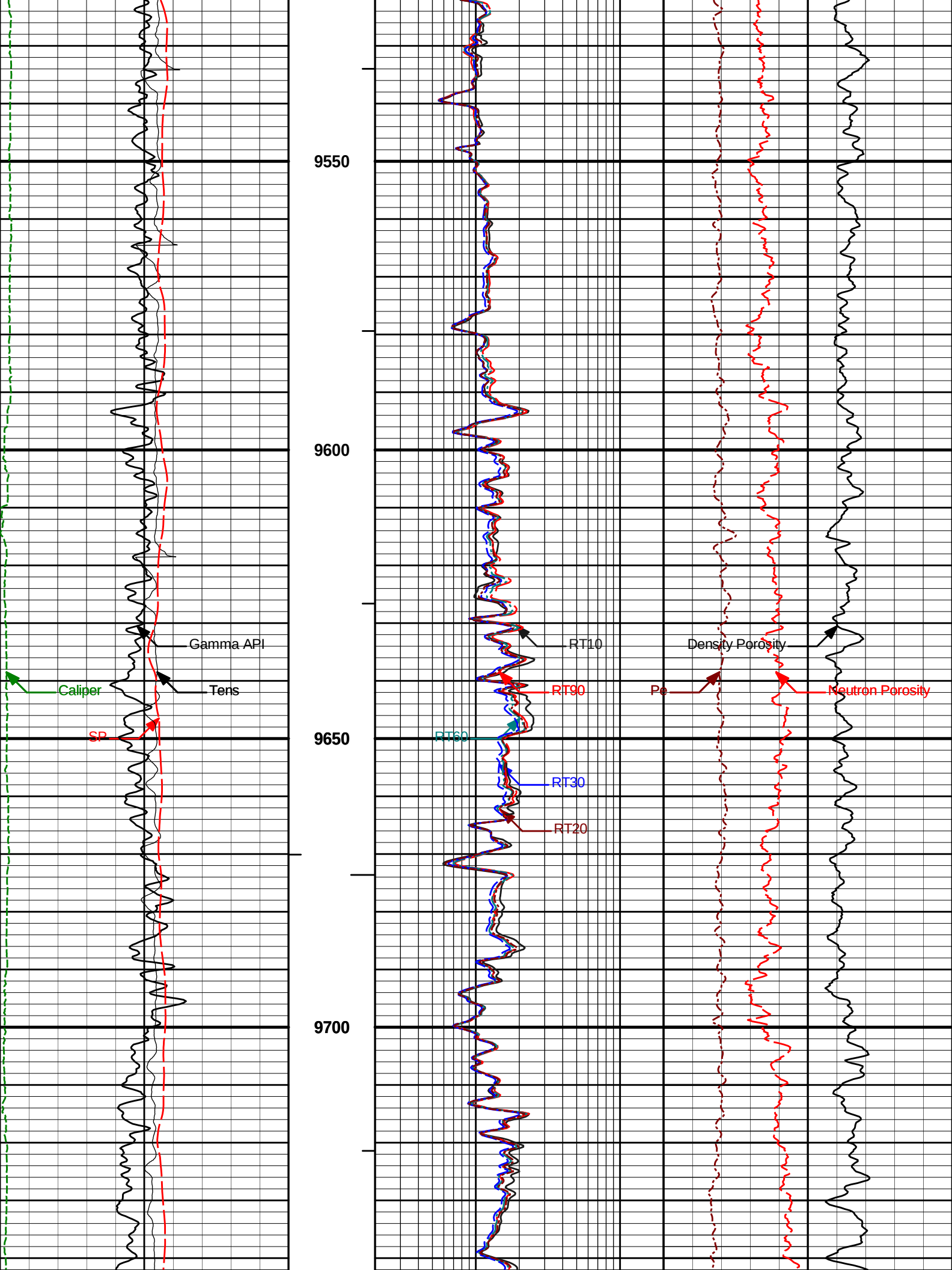
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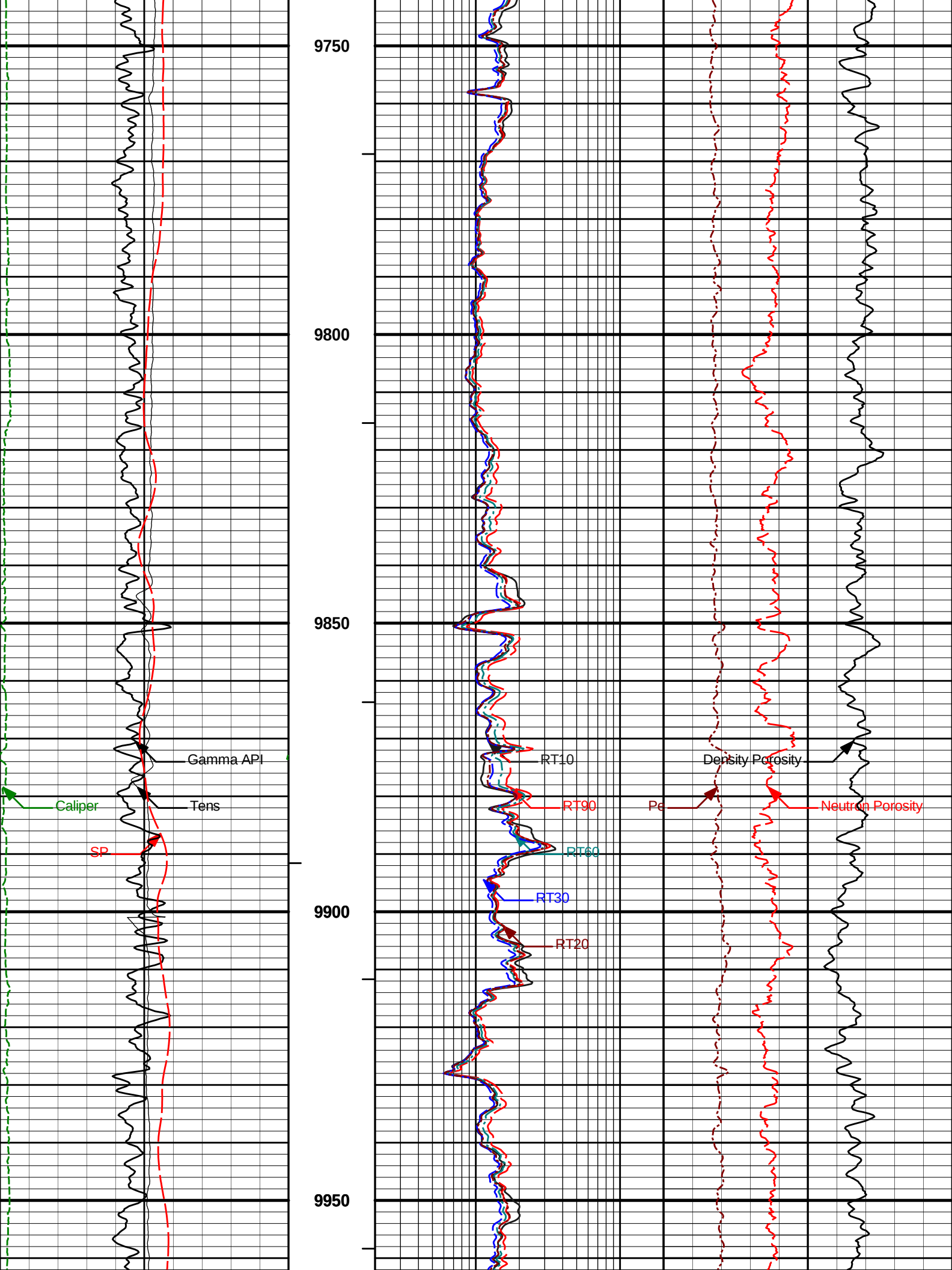
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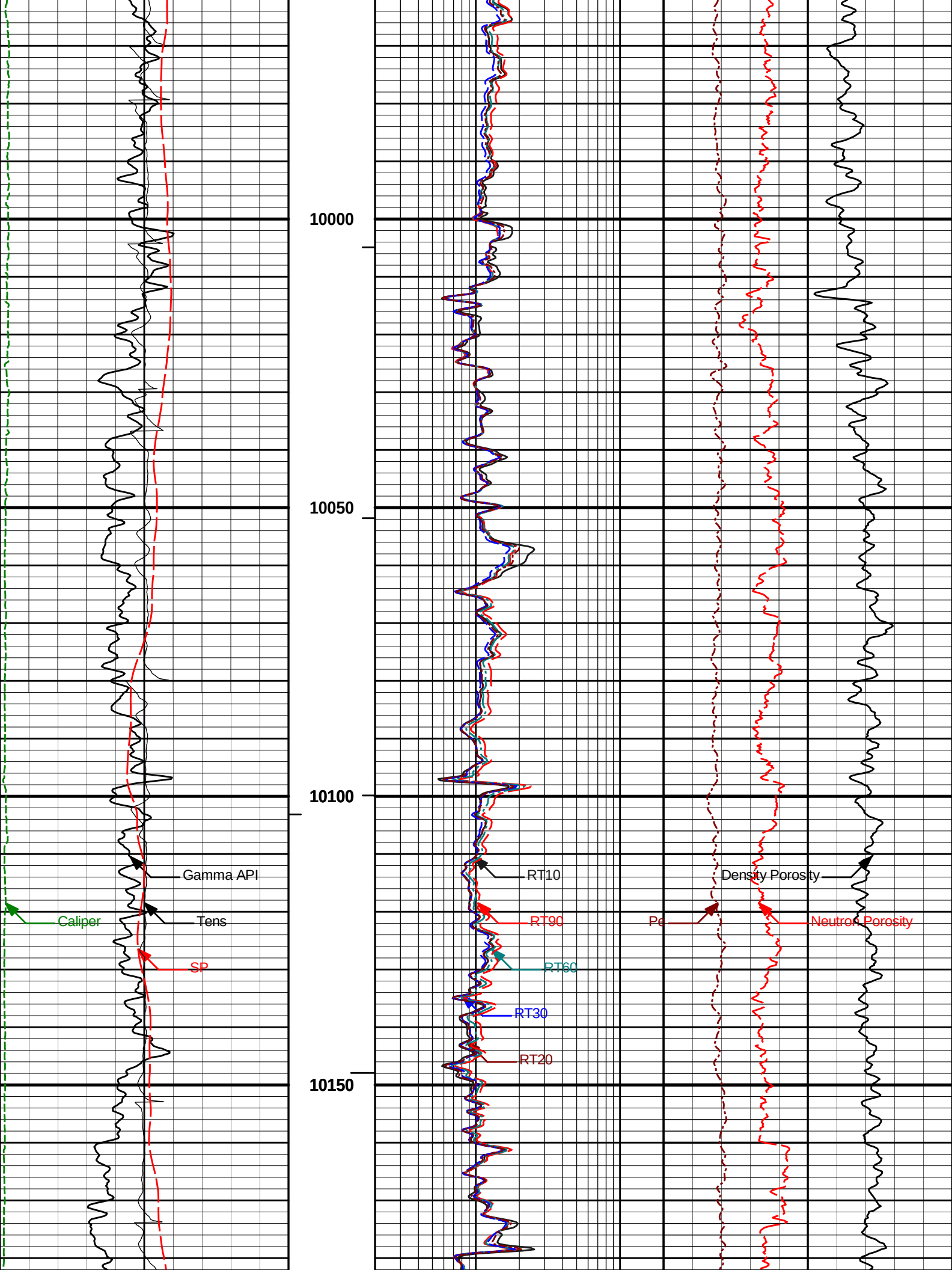
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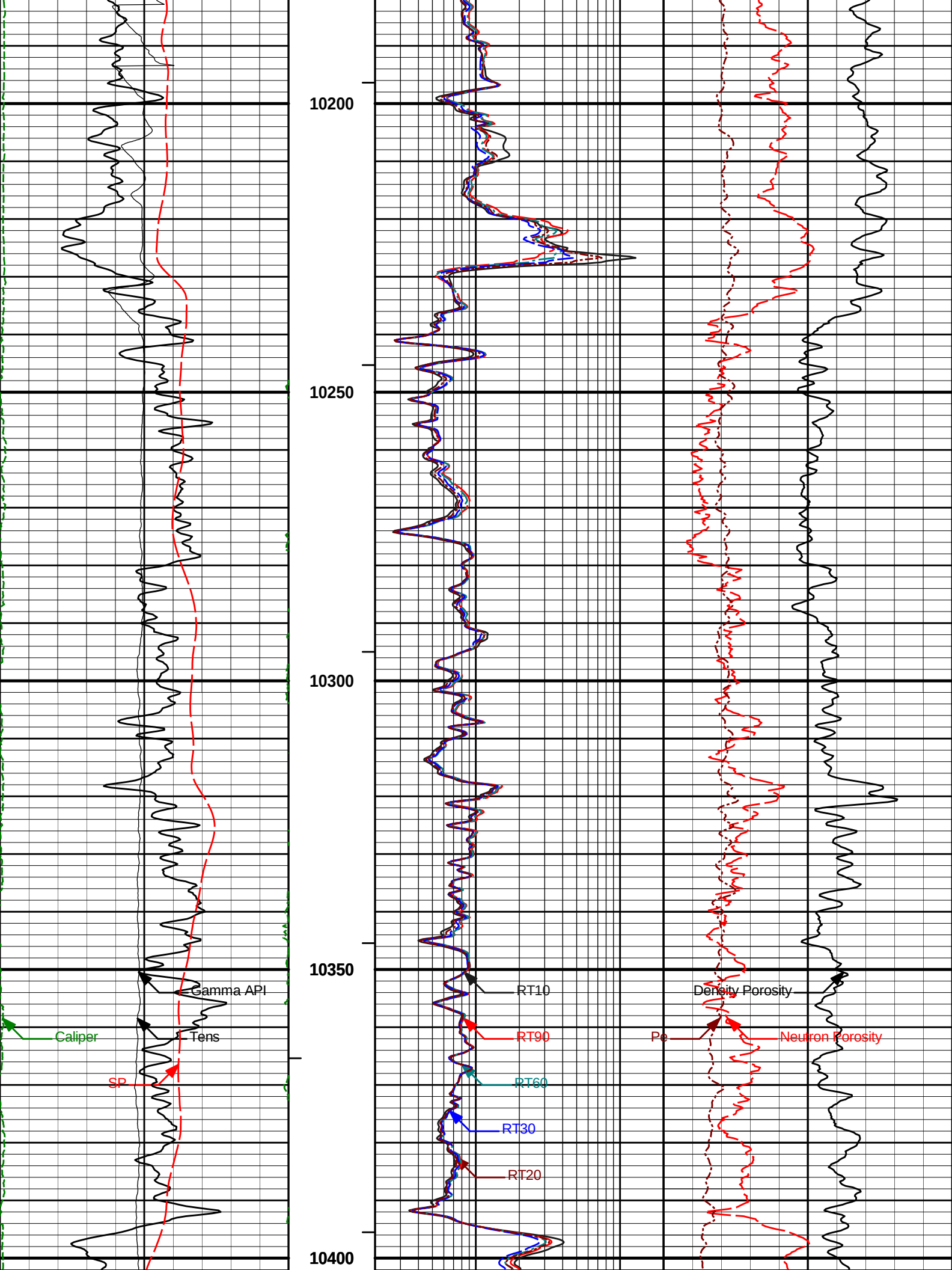
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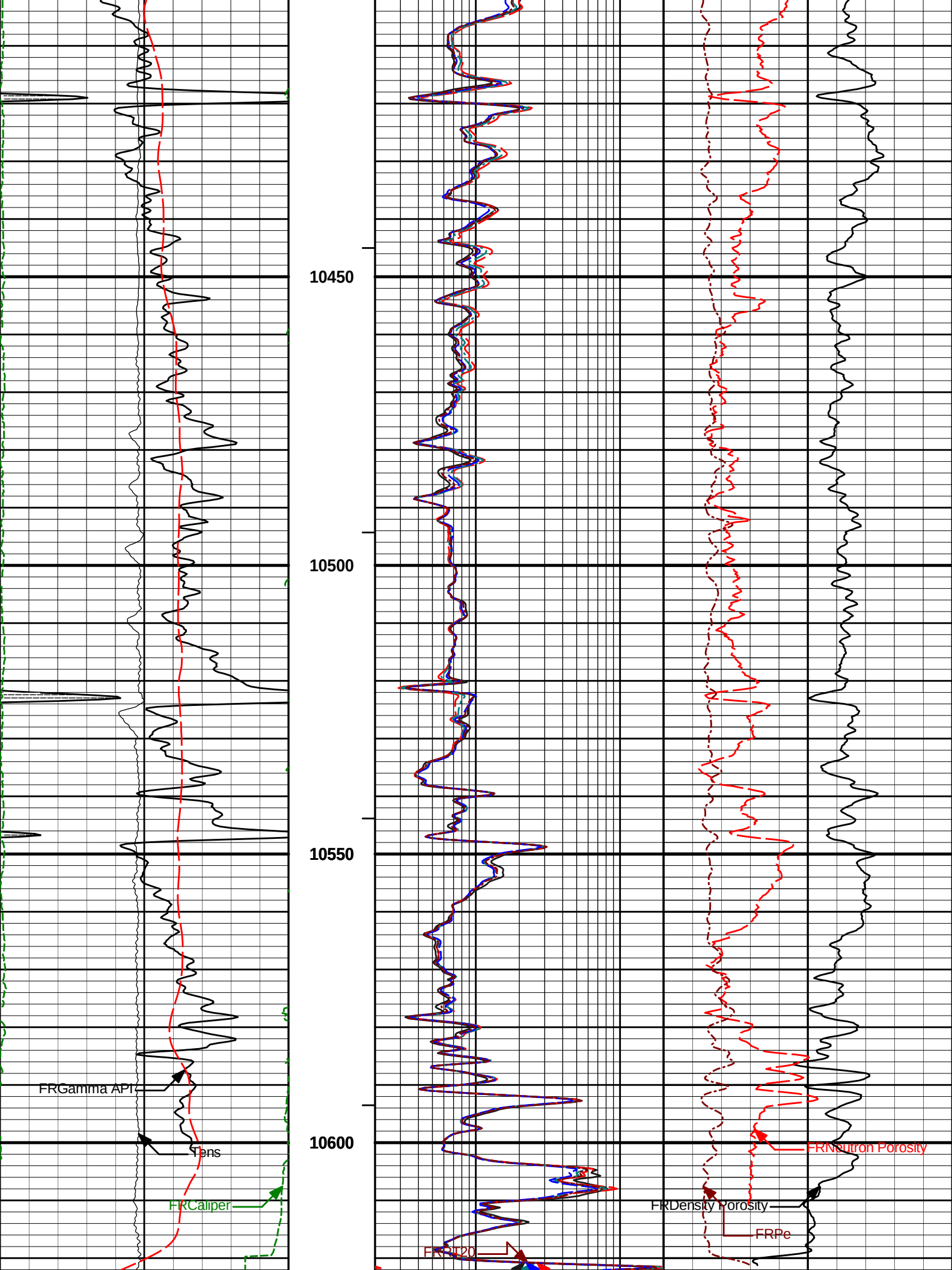
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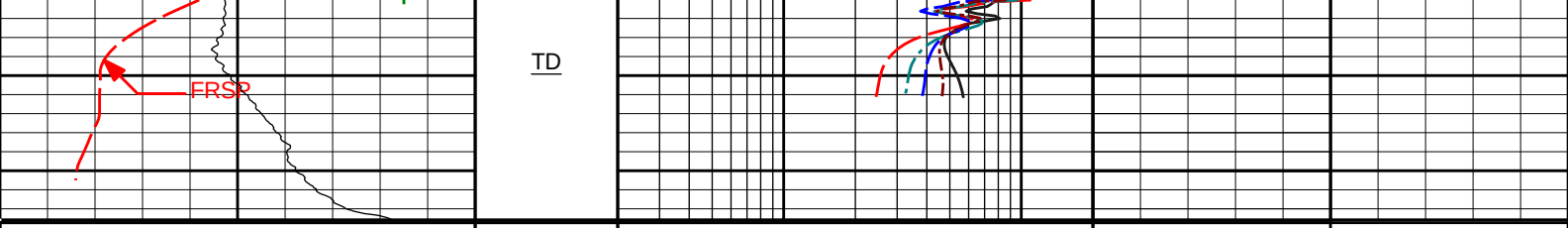


0 SP 100 millivolts	1 : 240	2 RT90 200 Ohm-m	0 Pe 10	
0 Gamma API 250 api	BHVT	2 RT60 200 Ohm-m	30 Density Porosity -10 percent	
6 Caliper 16 inches	AHVT	2 RT30 200 Ohm-m	30 Neutron Porosity -10 percent	
10 K Tens 0 pounds		2 RT20 200 Ohm-m		
		2 RT10 200 Ohm-m		

HALLIBURTON

Plot Time: 16-Oct-11 22:41:47
Plot Range: 6494 ft to 10645.2 ft
Data: LARA_HAWX19_13A\Well Based\MAIN_TD*
Plot File: \\COMP_TD\IQ_COMPOSITE_5IN_RM_NOBLE

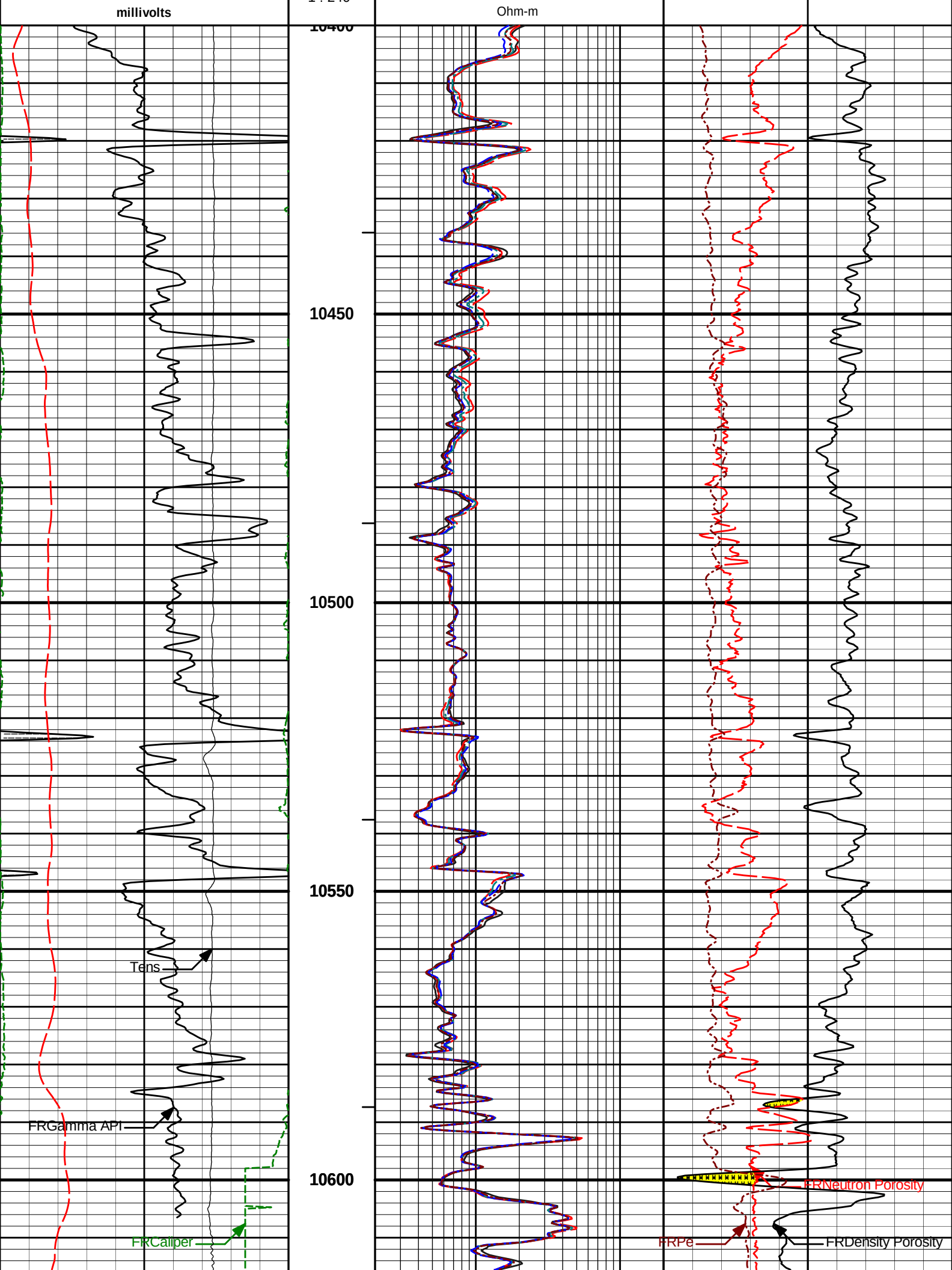
2150 TO 2500 5" = 100'

HALLIBURTON

Plot Time: 16-Oct-11 22:41:47
Plot Range: 10400 ft to 10650 ft
Data: LARA_HAWX19_13A\Well Based\RPT_TD*
Plot File: \\COMP_TD\IQ_COMPOSITE_5IN_RM_NOBLE

3500 TO 4480 5" = 100'

Track 1	Depth Track	Track 2	Track 5	Track 3
		2 RT10 200 Ohm-m		
10K Tens 0 pounds		2 RT20 200 Ohm-m		
6 Caliper 16 inches	AHVT	2 RT30 200 Ohm-m	30 Neutron Porosity -10 percent	
0 Gamma API 250 api	BHVT	2 RT60 200 Ohm-m	30 Density Porosity -10 percent	
50 SP 150	1 : 240	2 RT90 200	0 Pe 10	


millivolts
Ohm-m
10400
10450
10500
10550
10600
Tens
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FRCaliper
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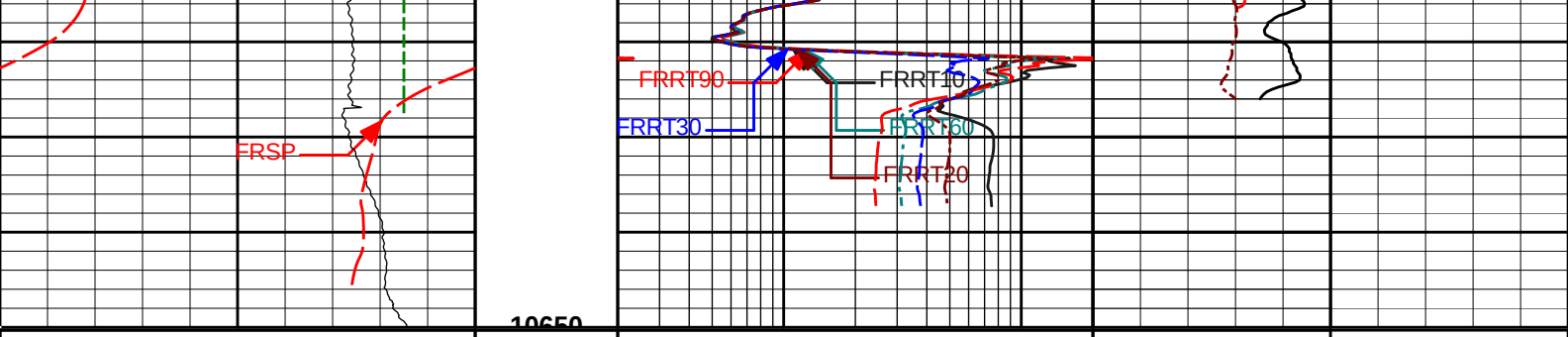

50 SP 150 millivolts	1 : 240	2 RT90 200 Ohm-m	0 Pe 10		
0 Gamma API 250 api	BHVT	2 RT60 200 Ohm-m	30 Density Porosity -10 percent		
6 Caliper 16 inches	AHVT	2 RT30 200 Ohm-m	30 Neutron Porosity -10 percent		
10K Tens 0 pounds		2 RT20 200 Ohm-m			
		2 RT10 200 Ohm-m			

HALLIBURTON

Plot Time: 16-Oct-11 22:41:49
Plot Range: 10400 ft to 10650 ft
Data: LARA_HAWX19_13A\Well Based\RPT_TD*
Plot File: \\COMP_TD\IQ_COMPOSITE_5IN_RM_NOBLE

3500 TO 4480 5" = 100'

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name:	**GTET - 11602915**	**Reference Calibration Date:**	**03-Aug-11 12:55:22**
Engineer:	**C. BRUNTZ**	**Calibration Date:**	**02-Sep-11 10:42:37**
Software Version:	**WL INSITE R3.2.1 (Build 7)**	**Calibration Version:**	**1**

Calibrator Source S/N: TB-775
Calibrator API Reference:212.00 api
Equivalent Calibrator API Reference:215.7 api

Measurement	Measured	Calibrated	Units
Background	30.6	30.0	api
Background + Calibrator	250.5	245.8	api
Calibrator	215.1	215.7	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name:	**GTET - 11602915**	**Reference Calibration Date:**	**02-Sep-11 10:42:37**
Engineer:	**B. DRAKE**	**Calibration Date:**	**16-Oct-11 03:15:06**
Software Version:	**WL INSITE R3.4.0 (Build 4)**	**Calibration Version:**	**1**

Calibrator Source S/N: TB-775

Calibrator API Reference:212.00 api

Equivalent Calibrator API Reference:215.7 api

Field Verification	Shop	Field	Units
Background	30.0	30.0	api
Background + Calibrator	245.8	244.4	api
Calibrator	215.7	214.4	api

Shop	Field	Difference	Tolerance
215.7	214.4	1.3	+/- 9.00

ACCELEROMETER SHOP CALIBRATION

Tool Name: GTET - 11602915 **Reference Calibration Date:** 11-May-11 13:49:10

Engineer: C. BRUNTZ **Calibration Date:** 11-May-11 13:51:36

Software Version: WL INSITE R3.2.1 (Build 7) **Calibration Version:** 1

Horizontal-1 Telemetry	Horizontal-2 Telemetry	Vertical Telemetry	Units
-188.27	-140.73	-16381.18	cnts

Coefficient	Coefficient Value	Tolerance
Gain	-0.000062	-----
Offset	-0.010	-----
Noise	0.0010	0.0000 - 0.0030

Orientation	Measured	Tolerance	Calibrated	Tolerance
Horizontal	0.00	-0.10 - 0.10	0.00	-0.10 - 0.10
Vertical	1.00	0.90 - 1.10	1.00	0.90 - 1.10

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name: DSNT - 10981426 **Reference Calibration Date:** 11-May-11 13:15:06

Engineer: M. LECUREUX **Calibration Date:** 11-May-11 13:30:45

Software Version: WL INSITE R3.2.1 (Build 7) **Calibration Version:** 1

Logging Source S/N: 362

Tank Serial Number: VERNAL

Reference value assigned to Tank: 52.630

Snow Block S/N: VERNAL

Calibration Tank Water Temperature: 64 degF

Min. Tool Housing Outside Diameter: 3.625 in

CALIBRATION CONSTANTS			
Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	0.945	0.946	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):	0.2158	0.2162	0.0004	+/- 0.0020
Calibrated Ratio:	9.89	9.91	0.015	+/- 0.050

VERIFIER		
Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0764	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 - 10981426**	**Reference Calibration Date:**	**11-May-11 13:30:45**
Engineer:	**B. DRAKE**	**Calibration Date:**	**16-Oct-11 03:24:11**
Software Version:	**WL INSITE R3.4.0 (Build 4)**	**Calibration Version:**	**1**

Logging Source S/N: 362

Snow Block S/N: VERNAL

NEUTRON FIELD-CHECK SUMMARY

	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0764	0.0645	-0.0119	+/- 0.0150

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

DENSITY CALIPER SHOP CALIBRATION

Tool Name:	**SDLT - 11577181**	**Reference Calibration Date:**	**05-Jul-11 23:18:57**
Engineer:	**C. BRUNTZ**	**Calibration Date:**	**02-Sep-11 12:04:09**
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	-2275.94	-2523.85	-7000.00 - -1000.00
Pad Gain	0.0003859	0.0003892	0.000200 - 0.000600
Arm Offset	-3646.69	-3446.12	-5000.00 - 3000.00
Arm Gain	0.0005223	0.0005396	0.000300 - 0.000700
Arm Power	-0.000002418	-0.000003471	-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)	3.81	3.75	-0.06	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.44	6.50	0.06	+/- 0.20
Medium Ring (in)	8.15	8.25	0.10	+/- 0.20
Large Ring (in)	14.91	15.00	0.09	+/- 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 - 11577181**	**Reference Calibration Date:**	**02-Sep-11 12:04:09**
Engineer:	**B. DRAKE**	**Calibration Date:**	**16-Oct-11 03:15:03**
Software Version:	**WL INSITE R3.4.0 (Build 4)**	**Calibration Version:**	**1**

MEASURED CALIPER VALUES

Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.75	-0.00	+/- 0.10
Ring Diameter	8.25	8.25	-0.00	+/- 0.15

PASS/FAIL SUMMARY

Pad Extension Check:	Passed
Diameter Check:	Passed

ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION

Tool Name:	**ACRt Sonde - I777S201**	**Reference Calibration Date:**	**27-May-11 09:42:13**
Engineer:	**B. PEDERSEN**	**Calibration Date:**	**27-May-11 09:52:04**
Software Version:	**WL INSITE R3.2.1 (Build 7)**	**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	1.0067	1.05	0.95	1.0119	1.05	0.95	1.0173	1.05
A2 (50")	0.95	1.0123	1.05	0.95	1.0187	1.05	0.95	1.0258	1.05
A3 (29")	0.95	1.0041	1.05	0.95	1.0087	1.05	0.95	1.0136	1.05
A4 (17")	0.95	1.0019	1.05	0.95	1.0053	1.05	0.95	1.0126	1.05
A5 (10")	N/A	N/A	N/A	0.95	0.9913	1.05	0.95	0.9971	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.9817	1.05	0.95	0.9856	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	-1.423	2	-6	-4.169	-2	-8	-4.609	-2
A2 (50")	-7	-3.152	-1	-6	-4.088	-2	-7	-4.081	-2
A3 (29")	-27	-13.620	-9	-9	-4.328	-3	-7	-2.971	-1
A4 (17")	-180	-94.403	-60	-45	-30.649	-15	-39	-25.615	-13
A5 (10")	N/A	N/A	N/A	-150	-86.594	-50	-80	-40.842	-10
A6 (6")	N/A	N/A	N/A	175	329.351	525	90	166.441	270

TRANSMITTER CURRENT GAIN

Signal	Lower	R	Upper
12K	0.6	0.9423	1.3
36K	1.0	1.2880	2.0
72K	1.0	1.4668	2.0

R-MUD VERIFICATION

Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
Mud Cell	0.95	1.005	1.05

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name:	**SDLT Pad - 10950493**	**Reference Calibration Date:**	**03-Aug-11 13:06:44**
Engineer:	**B. DRAKE**	**Calibration Date:**	**03-Aug-11 13:26:15**
Software Version:	**WL INSITE R3.2.1 (Build 7)**	**Calibration Version:**	**1**

Logging Source S/N: 18265B

Aluminum Block S/N: 8261	Density: 2.602g/cc	Pe: 3.182
Magnesium Block S/N: 8260	Density: 1.688g/cc	Pe: 2.594

DENSITY CALIBRATION SUMMARY			
Measurement	**Previous Value**	**New Value**	**Control Limit**
Near Bar Gain	1.0383	1.0507	0.90 - 1.10
Near Dens Gain	1.0232	1.0218	0.90 - 1.10
Near Peak Gain	1.0280	1.0203	0.90 - 1.10
Near Lith Gain	1.0076	1.0027	0.90 - 1.10
Far Bar Gain	1.0175	1.0162	0.90 - 1.10
Far Dens Gain	1.0046	1.0035	0.90 - 1.10
Far Peak Gain	1.0010	1.0035	0.90 - 1.10
Far Lith Gain	0.9795	0.9794	0.90 - 1.10
Near Bar Offset	-0.1717	-0.2858	NONE
Near Dens Offset	-0.0598	-0.0455	NONE
Near Peak Offset	-0.1105	-0.0456	NONE
Near Lith Offset	0.0591	0.0997	NONE
Far Bar Offset	0.0124	0.0246	NONE
Far Dens Offset	0.1209	0.1326	NONE
Far Peak Offset	0.1445	0.1212	NONE
Far Lith Offset	0.2890	0.2910	NONE
Near Bar Background	1104.66	1107.60	700 - 1450
Near Dens Background	364.19	363.36	230 - 480
Near Peak Background	158.46	158.29	100 - 210
Near Lith Background	194.23	195.38	125 - 260
Far Bar Background	593.92	596.40	450 - 900
Far Dens Background	235.22	236.58	175 - 345
Far Peak Background	92.69	92.55	70 - 140
Far Lith Background	95.47	95.54	75 - 145

CALIBRATION BLOCK SUMMARY				
Measurement	**Current Reading (Previous Coef)**	**Calibrated (New Coef)**	**Change**	**Control Limit On Change**
MAGNESIUM				
Density (g/cc)	1.687	1.688	0.001	+/- 0.015
Pe	2.545	2.554	0.009	+/- 0.150
ALUMINUM				
Density (g/cc)	2.601	2.602	0.002	+/- 0.01500
Pe	3.152	3.138	-0.014	+/- 0.150

TOOL SUMMARY				
Measurement	**Near Detector**		**Far Detector**	
	Value	**Control Limits**	**Value**	**Control Limits**
QUALITY				
Background	0.0013	+/- 0.0110	0.0007	+/- 0.0140
Magnesium Block	-0.0010	+/- 0.0110	-0.0016	+/- 0.0140
Aluminum Block	0.0002	+/- 0.0110	-0.0003	+/- 0.0140
Resolution	9.68	6.00 - 11.50	9.29	6.00 - 11.50
Internal Verifier(B+D+P+L)	1825	1200 - 2700	1021	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-11602915						
Gamma Ray Calibrator	215.7	214.4	----------	1.3	+/- 9.00	api
DSNT-10981426						
Snow-Block Porosity	0.0764	0.0645	----------	0.0119	+/- 0.0150	decp
SDLT-11577181						
Pad Extension	3.75	3.75	----------	0.00	+/-0.10	in
Ring Diameter	8.25	8.25	----------	0.000	+/-0.15	in
ACRt Sonde-I777S201						
Mud Cell	1.005	----------	----------	0.000	----------	ohm-m
SDLT Pad-10950493						
Near(B+D+P+L)	1824.629	----------	----------	0.000	+/-14.951	cps
Far(B+D+P+L)	1021.072	----------	----------	0.000	+/-15.436	cps

Data: LARA_HAWX19_13A\0003 TRIPLE_ACRT\004 16-Oct-11 21:17 Up 10640.3f **Date: 16-Oct-11 22:36:11**

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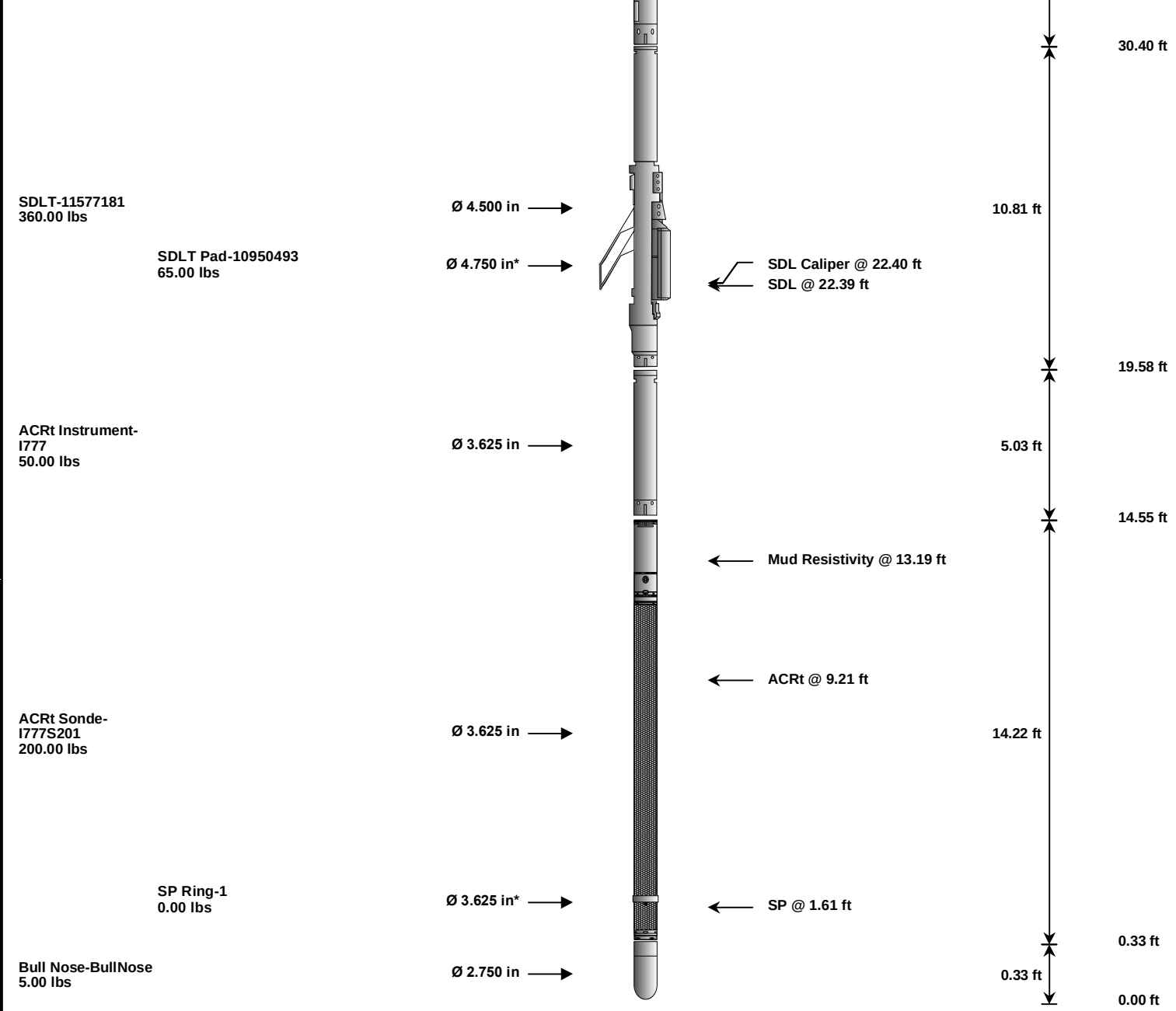
TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
						54.85 ft
RWCH-10895163 135.00 lbs		Ø 3.625 in		Load Cell @ 51.17 ft BH Temperature @ 50.60 ft	6.25 ft	
						48.60 ft
GTET-11602915 165.00 lbs		Ø 3.625 in		GammaRay @ 42.54 ft	8.52 ft	
						40.08 ft
DSNT-10981426 174.00 lbs		Ø 3.625 in		DSN Far @ 33.15 ft DSN Near @ 32.40 ft	9.69 ft	



Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)		Accumulated Length (ft)	Max.Log. Speed (fpm)
RWCH	Releasable Wireline Cable Head	10895163	135.00	6.25		48.60	300.00
GTET	Gamma Telemetry Tool	11602915	165.00	8.52		40.08	60.00
DSNT	Dual Spaced Neutron	10981426	174.00	9.69		30.40	60.00
SDLT	Spectral Density Tool	11577181	360.00	10.81		19.58	60.00
SDLP	Density Insite Pad	10950493	65.00	2.55	*	21.79	60.00
ACRt	Array Compensated True Resistivity Instrument Section	I777	50.00	5.03		14.55	300.00
ACRt	Array Compensated True Resistivity	I777S201	200.00	14.22		0.33	300.00
SP	SP Ring	1	0.00	0.25	*	1.61	300.00
BLNS	Bull Nose	BullNose	5.00	0.33		0.00	300.00
Total			**1,154.00**	**54.85**			

* Not included in Total Length and Length Accumulation.

Data: LARA_HAWX19_13A\0003 TRIPLE_ACRT\004 16-Oct-11 21:17 Up 10640.3f **Date: 16-Oct-11 22:08:31**

COMPANY	**LARAMIE ENERGY**
WELL	**HAWXHURST 19-13A**
FIELD	**BRUSH CREEK**

COUNTY	**MESA**	STATE	**CO**

HALLIBURTON

DUAL SPACED NEUTRON
SPECTRAL DENSITY
ARRAY COMPENSATED
TRUE RESISITIVITY