

HALLIBURTON

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

COMPANY	NOBLE ENERGY INC.		
WELL	BUTTERBALL D19-22D		
FIELD	WATTENBERG		
COUNTY	WELD		
STATE	CO		
COMPANY	NOBLE ENERGY INC.	WELL	BUTTERBALL D19-22D
FIELD	WATTENBERG	COUNTY	WELD
COUNTY	WELD	STATE	CO
API No.	05123341710000		Other Services:
Location	SHL: 2137' FNL & 673' FEL SENE BHL: 2565' FNL & 1320' FEL SWNE LAT: 40.21218° LONG: -104.58688°		RWCH GTET CSNG
Secl.	19	Twp.	3N
Rge.	64W		Elev.: 4770.0 ft
Permanent Datum	GL	Elev.	4784.0 ft
Log measured from	KB	D.F.	4784.0 ft
Drilling measured from	KB	G.L.	4770.0 ft

Date	02-Nov-11	
Run No.	ONE	
Depth - Driller	7717.00 ft	
Depth - Logger	7722.0 ft	
Bottom - Logged Interval	7713 ft	
Top - Logged Interval	CSG	
Casing - Driller	8.625 in @ 784.0 ft	@
Casing - Logger	785.0 ft	@
Bit Size	7.875 in	@
Type Fluid in Hole	WATER BASED MUD	
Density	9.7 ppg	60.00 sg/c
PH	7.50 pH	7.2 cp/m
Source of Sample	MUD CELL	
Rm @ Meas. Temperature	1.840 ohmm @ 66.80 degF	@
Rmf @ Meas. Temperature	1.45 ohmm @ 75.00 degF	@
Rmc @ Meas. Temperature	1.417 ohmm @ 75.00 degF	@
Source Rmf	CHART	CHART
Rm @ BHT	0.54 ohmm @ 243.0 degF	@
Time Since Circulation	10.0 hr	
Time on Bottom	02-Nov-11 13:42	
Max. Rec. Temperature	243.0 degF @ 7722.0 ft	@
Equipment	10800785	BRIGHTON
Recorded By	C. BLUE	
Witnessed By	S. HEARD	

Fold here

Service Ticket No.: N/A API Serial No.: 05123341710000 PGM Version: WL INSITE R3.4.2 (Build 2)

CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE				RESISTIVITY SCALE CHANGES			
Date	Sample No.			Type Log	Depth	Scale Up Hole	Scale Down Hole
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.
Rmf @ Meas. Temp.	@	@		ONE	ACRT 584-585	N/A	0.5" S.O.
Rmc @ Meas. Temp.	@	@					
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.	11259758	Serial No.		Serial No.	11812177	Serial No.	10935690
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.	102A	Spacing		Log Type	GAM/GAM	Log Type	NEU/NEU
Type	SCINT			Source Type	Cs137	Source Type	Am241Be
Length	8"	LSA [Y/N]		Serial No.	5256 GW	Serial No.	DSN 430
Distance to Source	17'	FWDA [Y/N]		Strength	1.5 Ci	Strength	15 Ci

LOGGING DATA

GENERAL GAMMA ACOUSTIC DENSITY NEUTRON

Run	GENERAL		Speed ft/min	GAMMA		ACOUSTIC		Matrix	DENSITY		NEUTRON			
	Depth			Scale		Scale			Scale		Matrix			
	No.	From		To	L	R	L		R	L	R	L	R	
ONE	TD	7572	REC	0	250				20%	0%	2.65 g/cc	20%	0%	SAND
ONE	7572	7095	REC	0	250				20%	0%	2.68 g/cc	20%	0%	SAND
ONE	7095	6825	REC	0	250				20%	0%	2.71 g/cc	20%	0%	LIME
ONE	6825	CSG	REC	0	250				20%	0%	2.68 g/cc	20%	0%	SAND

DIRECTIONAL INFORMATION

Maximum Deviation	@	KOP	@
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Remarks:

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

ANNULAR HOLE VOLUME CALCULATED FOR 4.5 INCH PRODUCTION CASING

TENSION PULLS, WASHOUTS, AND BOREHOLE RUGOSITY AFFECT TOOL RESPONSE

CREW: M. BURNETT, N. GOULD RIG: SAXON 144

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

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PARAMETERS REPORT

Depth ((ft))	Tool Name	Description	Value	Units
TOP				
	DSNT	Neutron Lithology	Sandstone	
	SDLT Pad	Formation Density Matrix	2.680	g/cc
6825.00				
	DSNT	Neutron Lithology	Limestone	
	SDLT Pad	Formation Density Matrix	2.710	g/cc
7095.00				
	SDLT Pad	Formation Density Matrix	2.680	g/cc
7572.00				
	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	9.700	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	1.840	ohmm
	SHARED	Temperature of Mud	66.8	degF
	SHARED	Logging Interval is Cased?	No	
	SHARED	AHV Casing OD	4.500	in
	SHARED	Surface Temperature	40.0	degF
	SHARED	Total Well Depth	7722.00	ft
	SHARED	Bottom Hole Temperature	243.0	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	
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	
CSNG	Process CSNG Data?	Yes	
CSNG	Is Tool Centralized?	No	
CSNG	Gamma Enviromental Corrections?	Yes	
CSNG	Barite Correction Factor	1.00	
CSNG	Use Fixed Gain	No	
CSNG	Use Fixed Offset	No	
CSNG	Use Fixed Resolution Degradation Factor	No	
DSNT	Process DSN?	Yes	
DSNT	Process DSN EVR?	No	
DSNT	Neutron Lithology	Sandstone	
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	2.650	g/cc
SDLT Pad	Formation Density Fluid	1.000	g/cc
ACRt Sonde	Process ACRt?	Yes	
ACRt Sonde	Minimum Tool Standoff	0.50	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	

BOTTOM

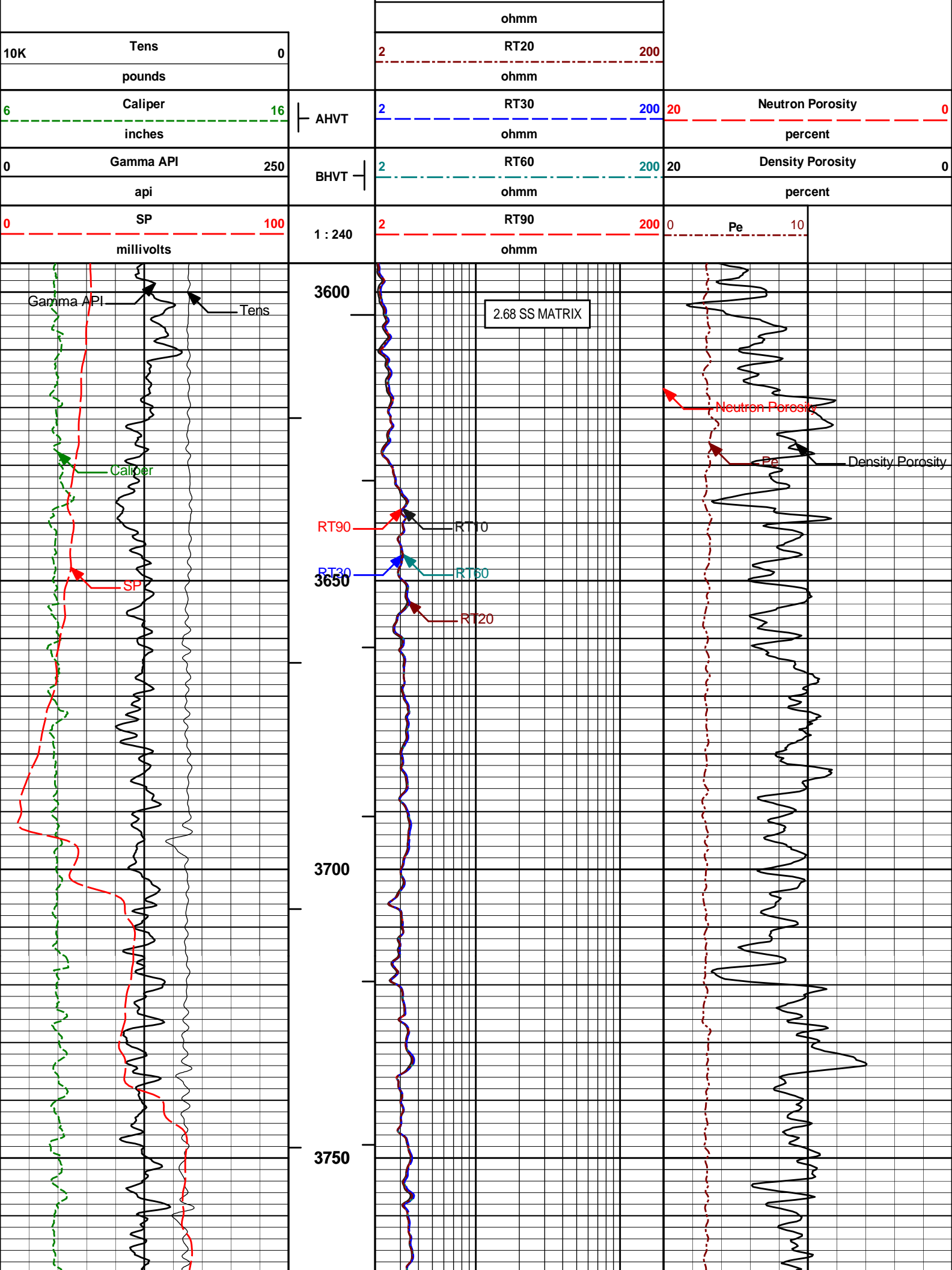
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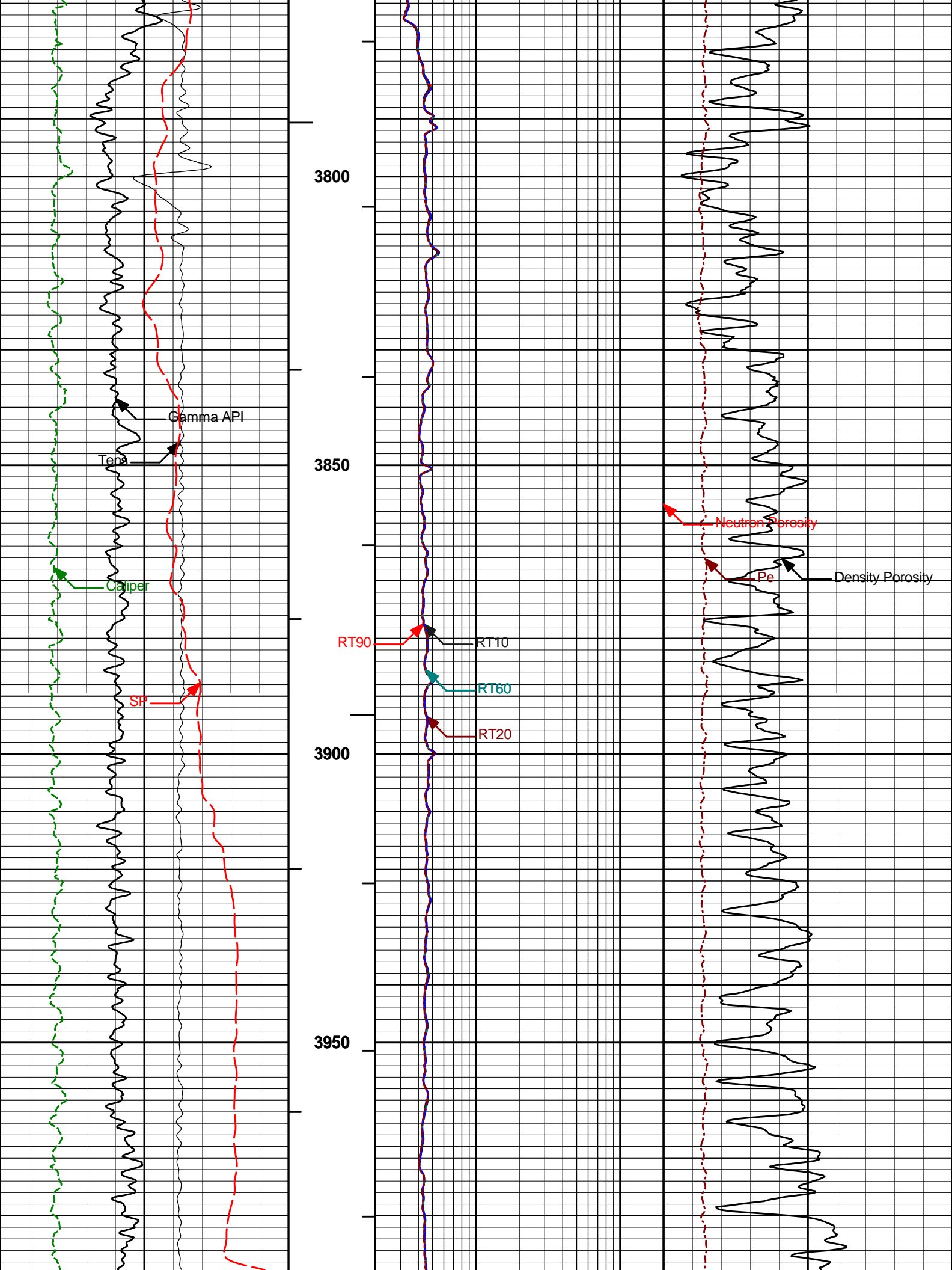
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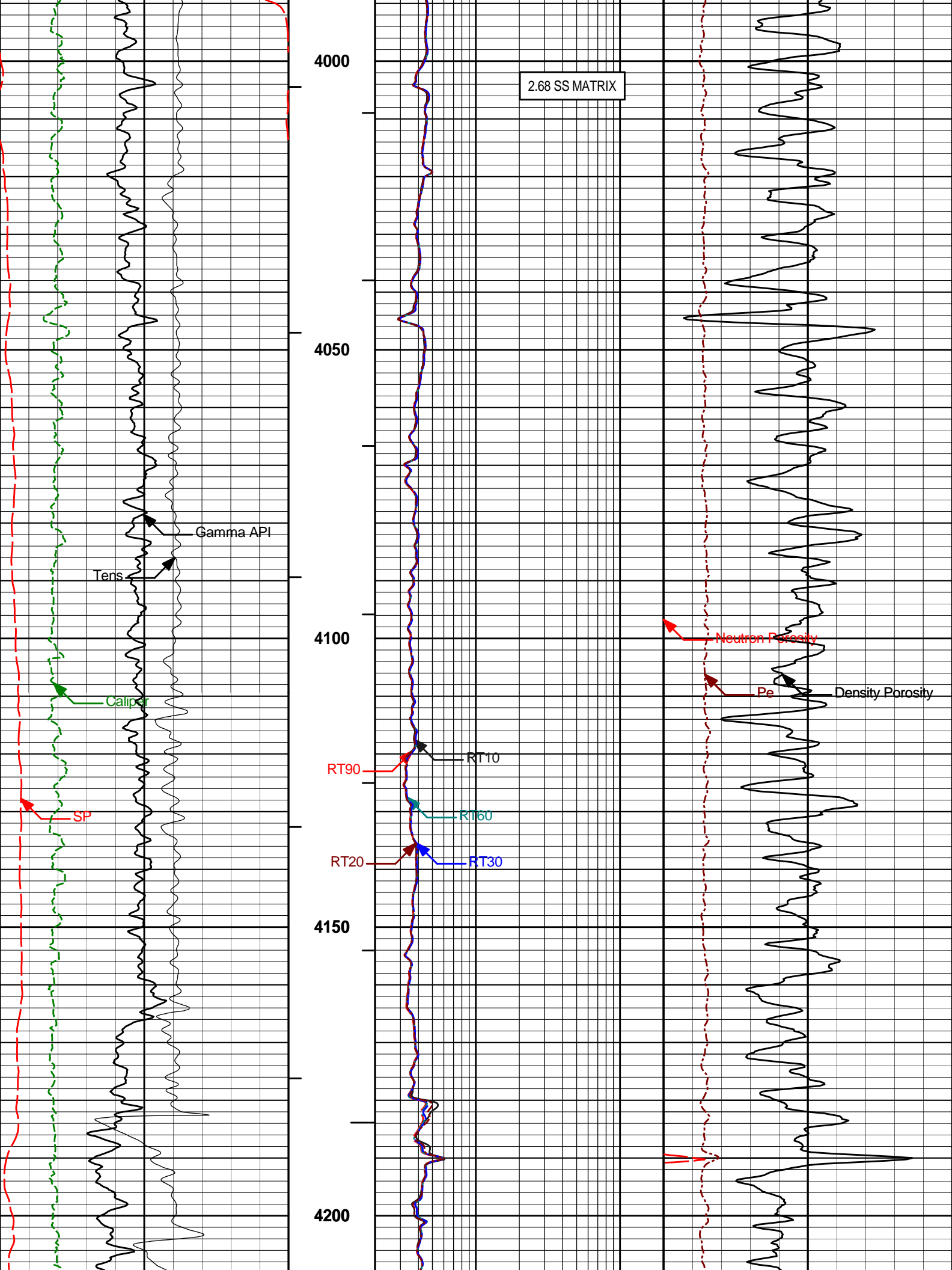
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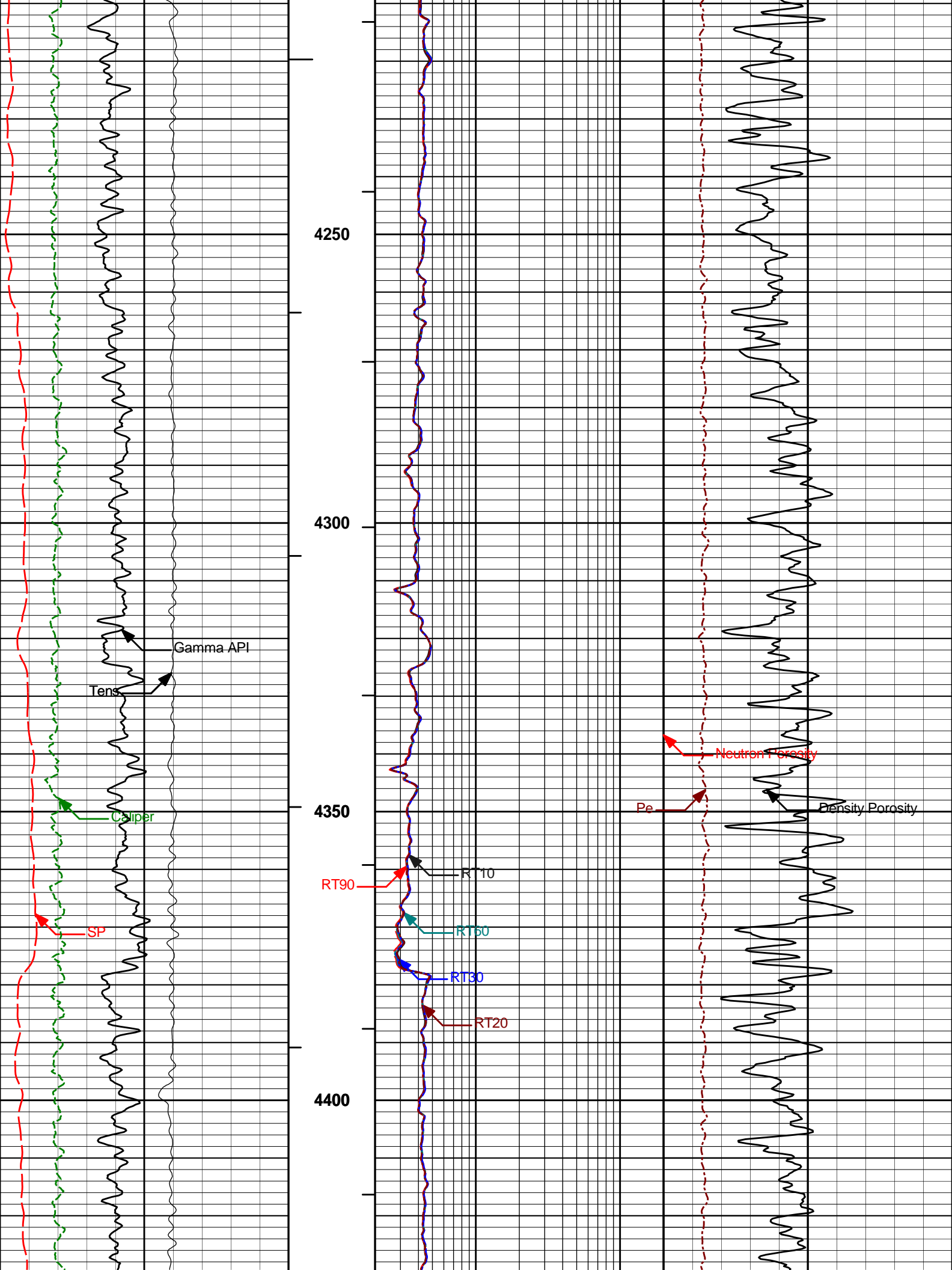
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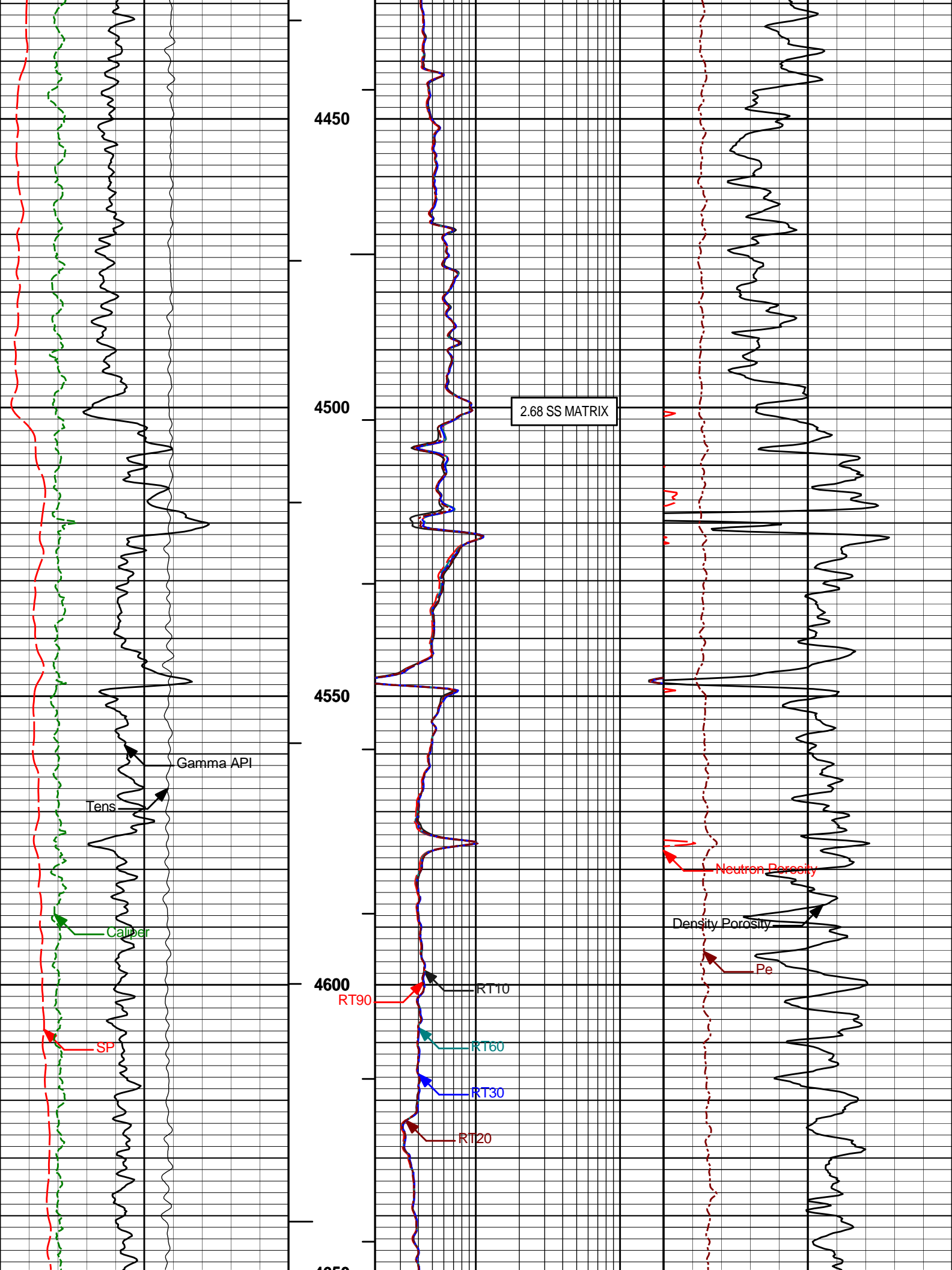
MAIN PASS 5" = 100'

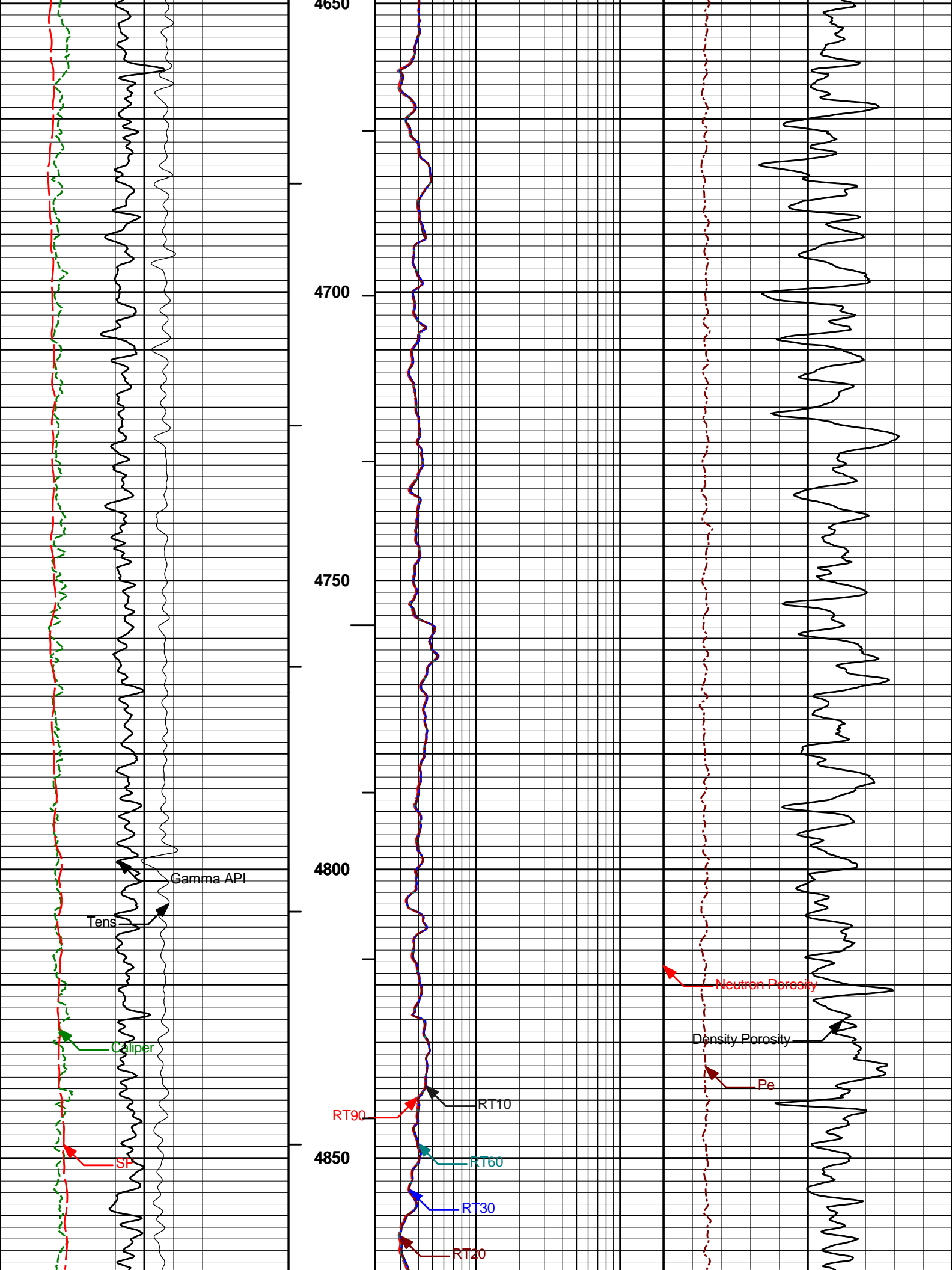


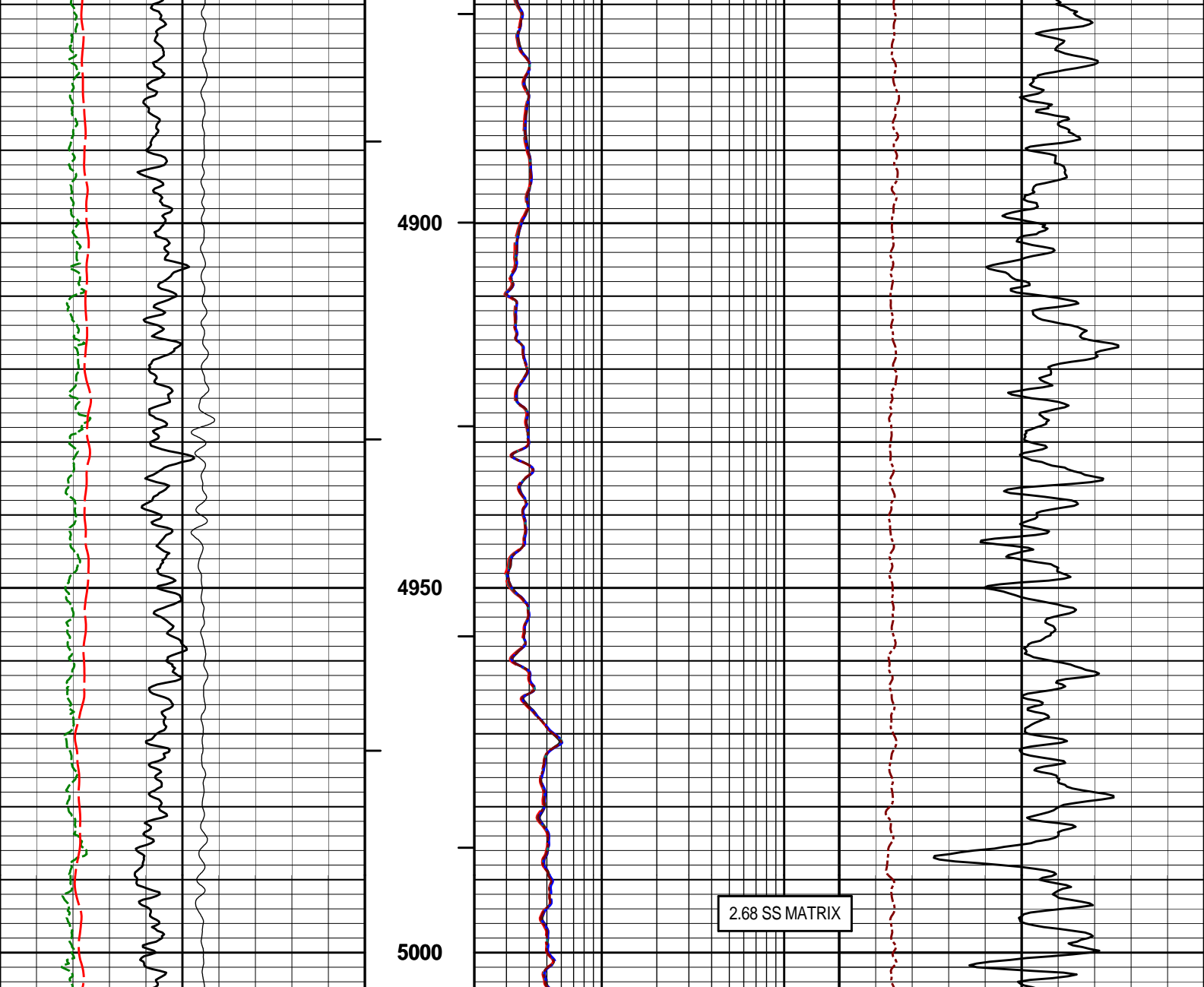












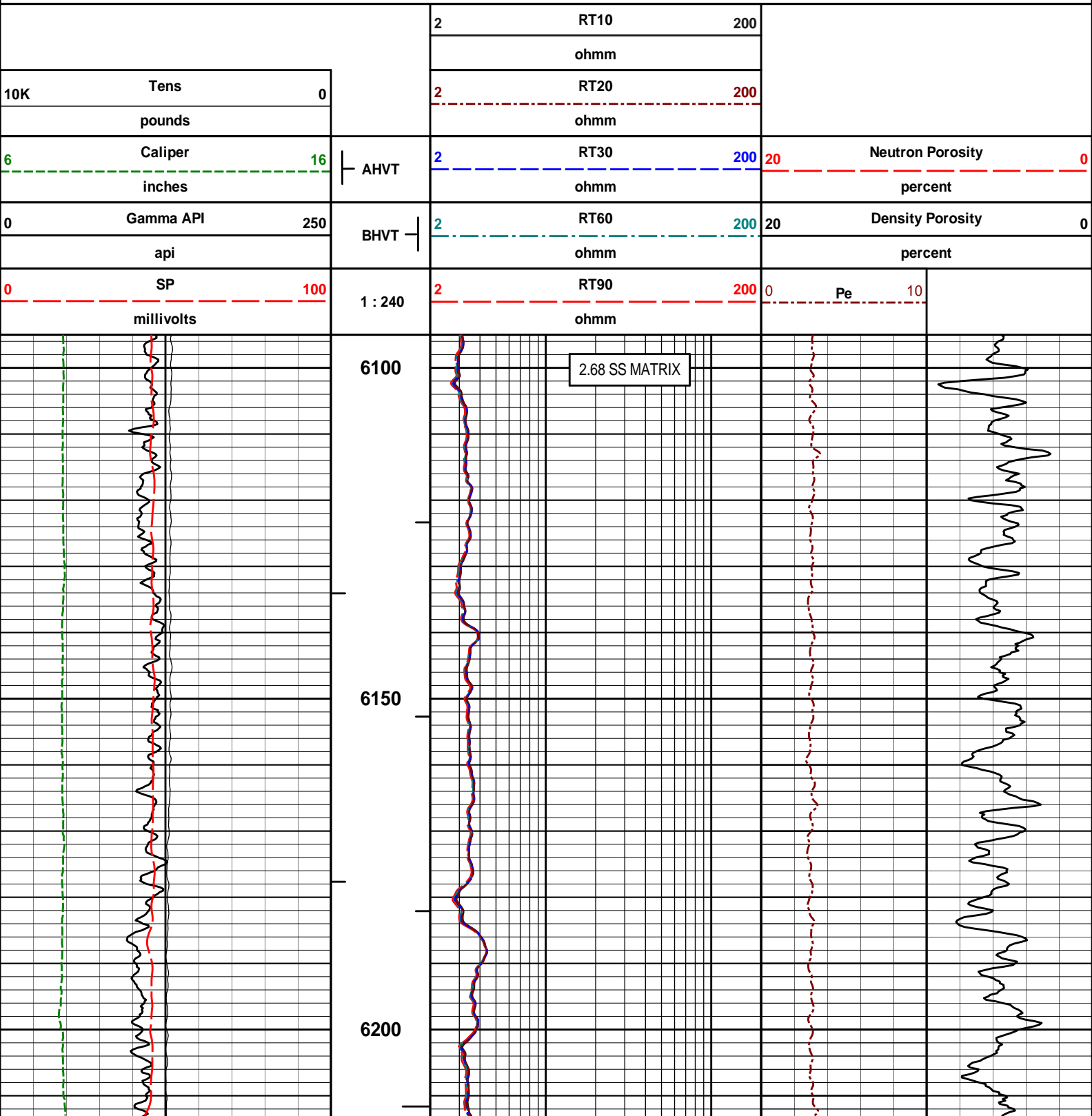
0	SP	100	1 : 240	2	RT90	200	0	Pe	10
	millivolts				ohmm				
0	Gamma API	250	BHVT	2	RT60	200	20	Density Porosity	0
	api				ohmm			percent	
6	Caliper	16	AHVT	2	RT30	200	20	Neutron Porosity	0
	inches				ohmm			percent	
10K	Tens	0		2	RT20	200			
	pounds				ohmm				
				2	RT10	200			
					ohmm				

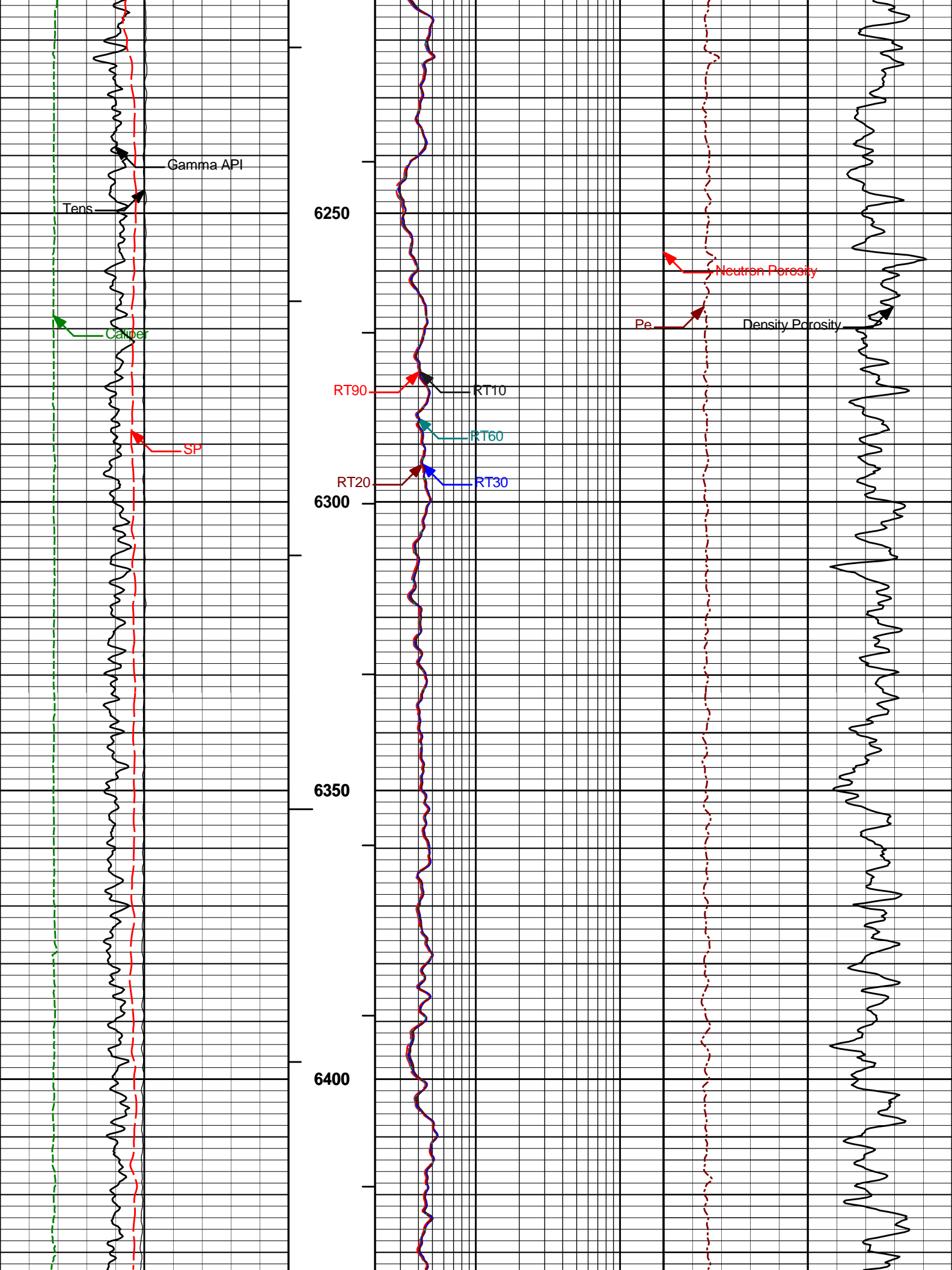
HALLIBURTON

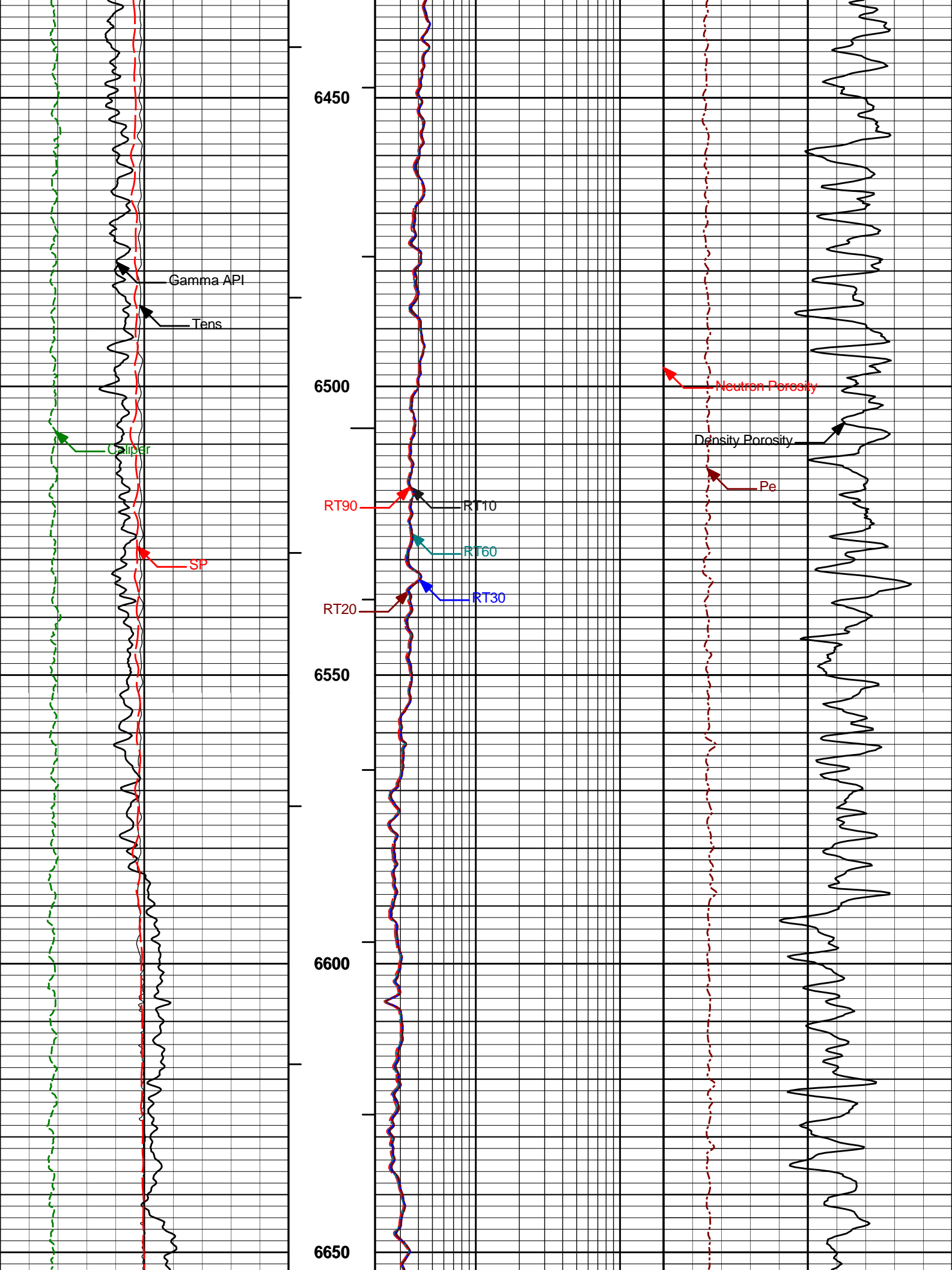
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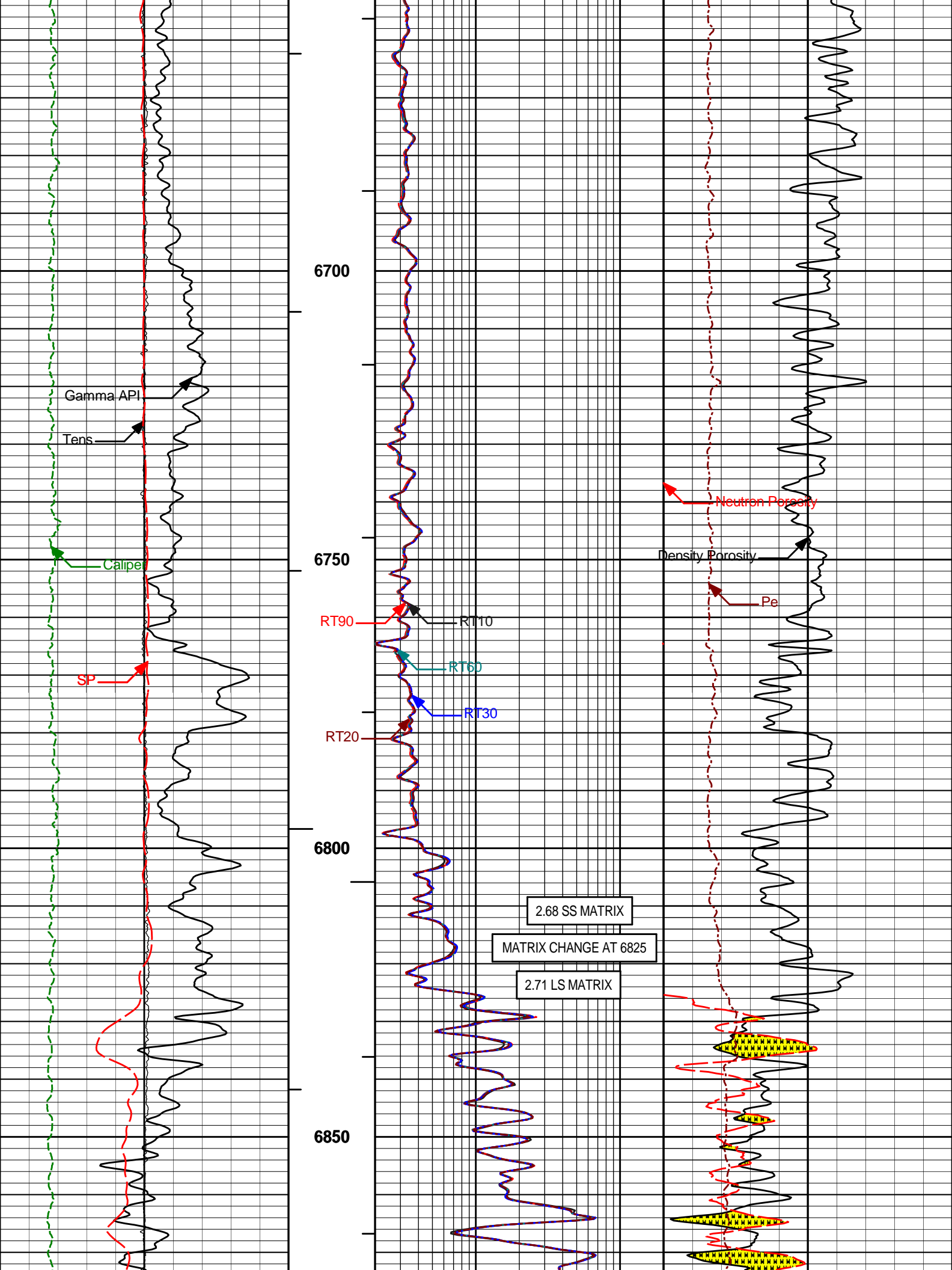
MAIN PASS 5" = 100'

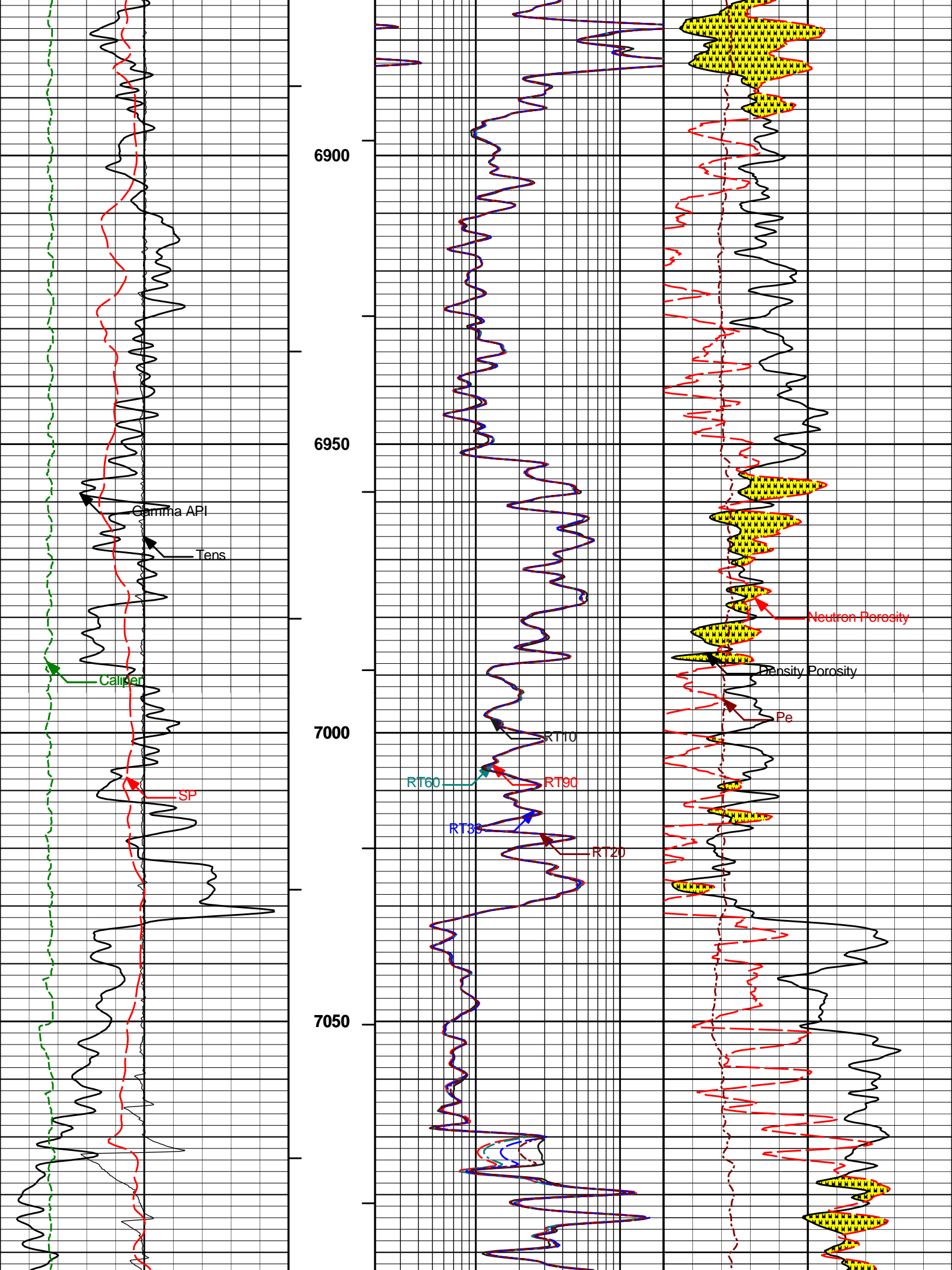
MAIN PASS 5" = 100'

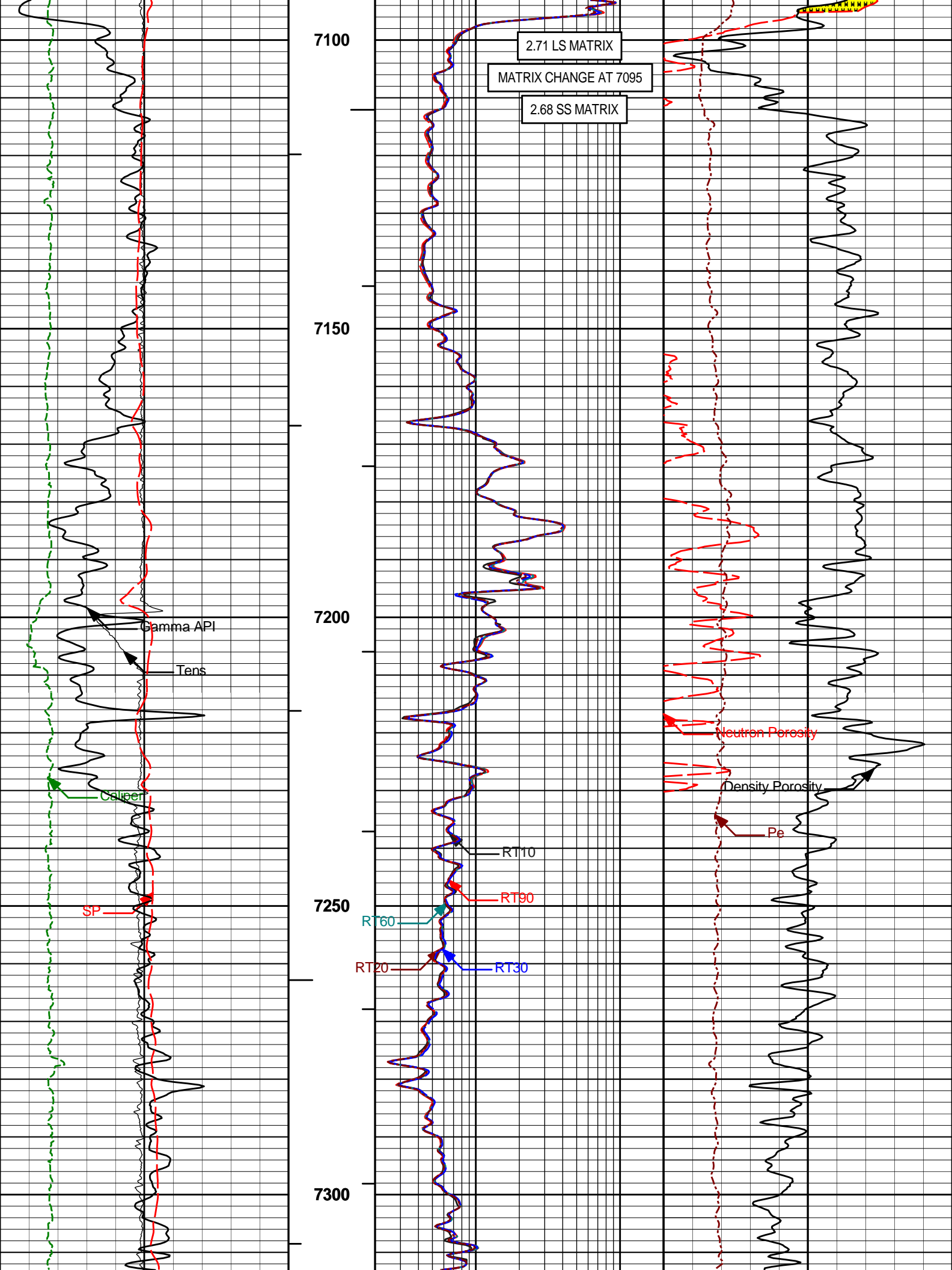


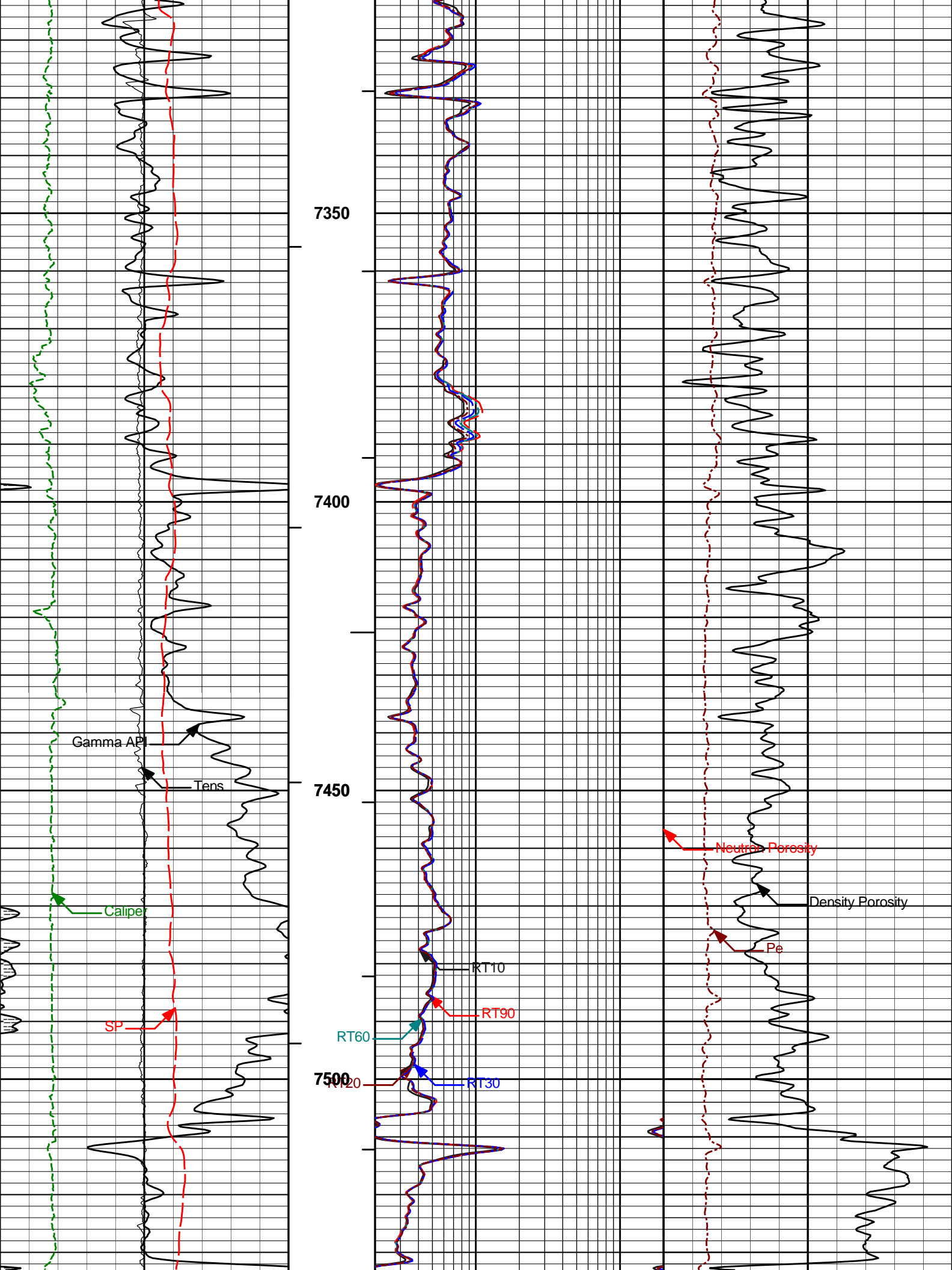


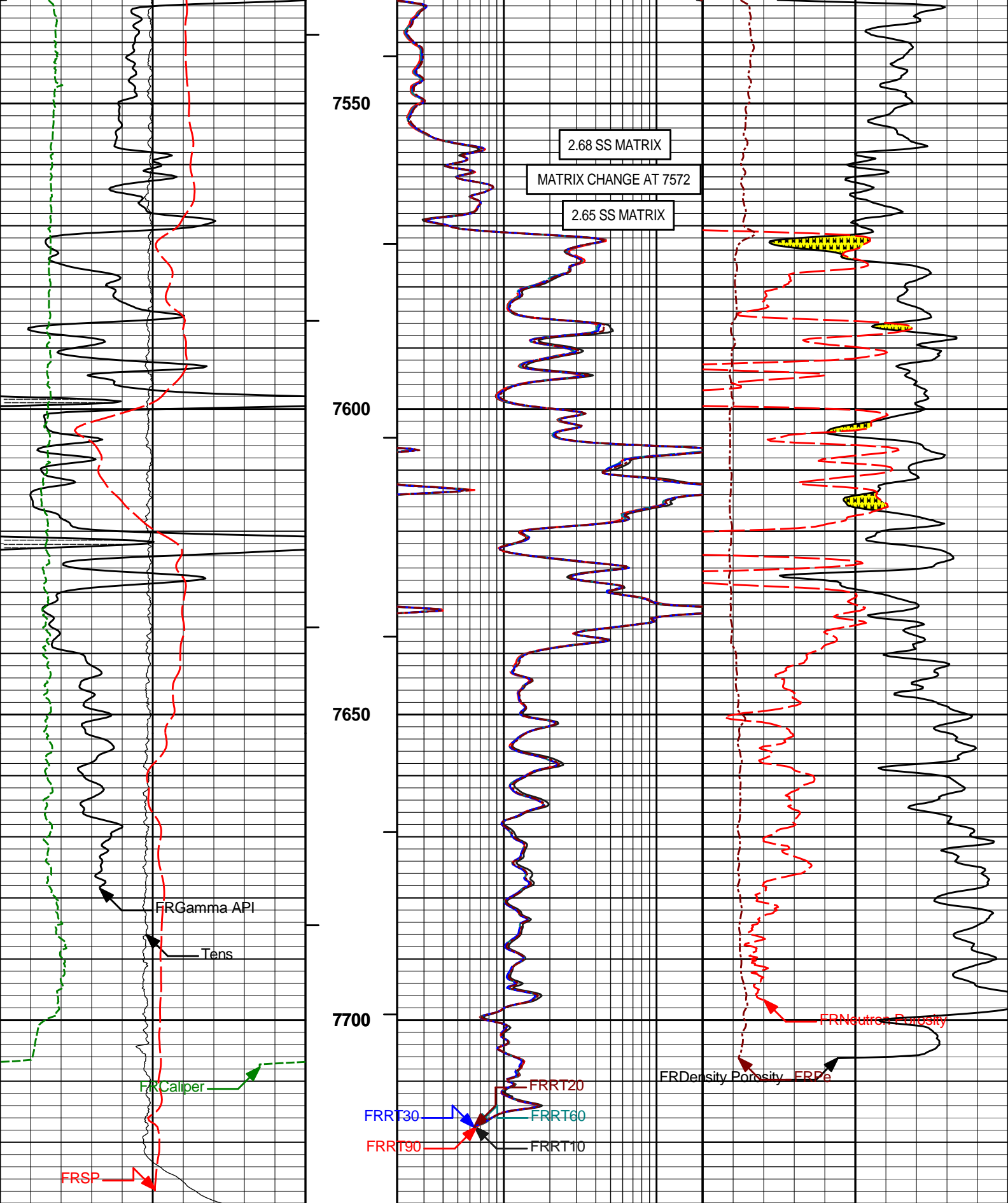












7550

2.68 SS MATRIX

MATRIX CHANGE AT 7572

2.65 SS MATRIX

7600

7650

7700

FRGamma API

Tens

FRCaliper

FRSP

FRRT30

FRRT90

FRRT20

FRRT60

FRRT10

FRDensity Porosity

FRPe

FRNeutron Porosity

0 SP 100
millivolts

1 : 240

2 RT90 200
ohmm

0 Pe 10

0 Gamma API 250
api

BHVT

2 RT60 200
ohmm

20 Density Porosity 0
percent

Caliper

RT30

Neutron Porosity

Caliper	16	AHVT	2	RT20	200	20	Neutron Density	0
inches				ohmm			percent	
10K	Tens	0	2	RT20	200			
	pounds			ohmm				
			2	RT10	200			
				ohmm				

HALLIBURTON Plot Time: 02-Nov-11 15:50:53
 Plot Range: 6095 ft to 7730.25 ft
 Data: BUTTERB_D29_22D\Well Based\MAIN*
 Plot File: \COMP\MAIN

MAIN PASS 5" = 100'

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CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name: GTET - 11259758	Reference Calibration Date: 07-Sep-11 15:26:43
Engineer: C. BLUE	Calibration Date: 13-Oct-11 16:53:13
Software Version: WL INSITE R3.4.2 (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	71.3	70.7	api
Background + Calibrator	307.3	304.7	api
Calibrator	236.0	234.0	api

CSNG-FS SHOP CALIBRATION

Tool Name: CSNG - 10846351	Reference Calibration Date: 11-Oct-11 11:03:35
Engineer: C. BLUE	Calibration Date: 11-Oct-11 11:35:16
Software Version: WL INSITE R3.4.2 (Build 2)	Calibration Version: 1
Source SN: TB 290	

TITANIUM CASE	Measured	Calibrated	Units
60 KEV Peak Channel #	48.0	48.0	Channel #
239 KEV Peak Channel #	23.6	23.6	Channel #
583 KEV Peak Channel #	52.9	53.2	Channel #
2614 KEV Peak Channel #	218.7	219.1	Channel #
Calibrate Temperature	55.0	60.2	degF

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

Blanket Reference Value: 230.00 API
Calibrator Value: 261.2 API

	Counts	Units	Measured	Calibrated	Units
Thorium Blanket	1682.4	CPS	323.6	323.6	API
Background	324.2	CPS	62.3	62.4	API

Gamma Ray Gain: 0.97
Expected Gain Range: 0.85 - 1.15
Gamma Gain Check: Passed

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name:	DSNT - 10935690	Reference Calibration Date:	04-Oct-11 15:06:32
Engineer:	C. BLUE	Calibration Date:	04-Oct-11 15:19:43
Software Version:	WL INSITE R3.4.2 (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: 100133139C
Calibration Tank Water Temperature: 75 degF
Min. Tool Housing Outside Diameter: 3.625 in

CALIBRATION CONSTANTS

Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	1.045	1.045	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):	0.2225	0.2224	0.0002	+/- 0.0020
Calibrated Ratio:	10.12	10.11	0.006	+/- 0.050

VERIFIER

Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0864	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 - 11812177	Reference Calibration Date:	13-Oct-11 16:22:52
Engineer:	C. BLUE	Calibration Date:	13-Oct-11 16:26:51
Software Version:	WL INSITE R3.4.2 (Build 2)	Calibration Version:	1

CALIBRATION COEFFICIENTS

Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-2097.79	-2119.39	-7000.00 - -1000.00
Pad Gain	0.0003846	0.0003850	0.000200 - 0.000600
Arm Offset	-2586.35	-2477.70	-5000.00 - 3000.00
Arm Gain	0.0005637	0.0005344	0.000300 - 0.000700

Arm Power

-0.000005783

-0.000003638

-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)	2.01	2.00	-0.01	+/- 0.20	
Medium Ring (in)	3.75	3.75	0.00	+/- 0.20	
RING DIAMETER:					
Small Ring (in)	6.54	6.50	-0.04	+/- 0.20	
Medium Ring (in)	8.34	8.25	-0.09	+/- 0.20	
Large Ring (in)	15.00	15.00	0.00	+/- 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 - E2584-S2585

Reference Calibration Date: 28-Jul-11 15:52:08

Engineer: C. BLUE

Calibration Date: 28-Jul-11 16:05:50

Software Version: WL INSITE R3.2.5 (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	1.0012	1.05	0.95	1.0001	1.05	0.95	1.0006	1.05
A2 (50")	0.95	0.9994	1.05	0.95	1.0037	1.05	0.95	1.0091	1.05
A3 (29")	0.95	0.9959	1.05	0.95	1.0005	1.05	0.95	1.0031	1.05
A4 (17")	0.95	1.0040	1.05	0.95	1.0060	1.05	0.95	1.0110	1.05
A5 (10")	N/A	N/A	N/A	0.95	1.0014	1.05	0.95	1.0048	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.9776	1.05	0.95	0.9812	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	-0.761	2	-6	-4.073	-2	-8	-5.268	-2
A2 (50")	-7	-1.957	-1	-6	-3.509	-2	-7	-4.574	-2
A3 (29")	-27	-12.918	-9	-9	-3.439	-3	-7	-3.298	-1
A4 (17")	-180	-94.666	-60	-45	-30.479	-15	-39	-25.503	-13
A5 (10")	N/A	N/A	N/A	-150	-86.802	-50	-80	-43.996	-10
A6 (6")	N/A	N/A	N/A	175	306.164	525	90	153.096	270

TRANSMITTER CURRENT GAIN

Signal	Lower	R	Upper
12K	0.6	0.9962	1.3
36K	1.0	1.9266	2.0
72K	1.0	1.2354	2.0

R-MUD VERIFICATION

Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
Mud Cell	0.95	0.997	1.05

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name: SDLT Pad - M177P867

Reference Calibration Date: 13-Oct-11 15:32:57

Logging Source S/N: 5256 GW

Aluminum Block S/N: 63066

Density: 2.602g/cc

Pe: 3.100

Magnesium Block S/N: BRIGHTON

Density: 1.691g/cc

Pe: 2.650

DENSITY CALIBRATION SUMMARY

Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0540	1.0384	0.90 - 1.10
Near Dens Gain	1.0134	1.0115	0.90 - 1.10
Near Peak Gain	0.9885	0.9920	0.90 - 1.10
Near Lith Gain	0.9431	0.9449	0.90 - 1.10
Far Bar Gain	1.0103	1.0085	0.90 - 1.10
Far Dens Gain	0.9946	0.9934	0.90 - 1.10
Far Peak Gain	0.9872	0.9881	0.90 - 1.10
Far Lith Gain	0.9696	0.9666	0.90 - 1.10
Near Bar Offset	-0.4780	-0.3338	NONE
Near Dens Offset	-0.0866	-0.0719	NONE
Near Peak Offset	0.1316	0.1012	NONE
Near Lith Offset	0.4947	0.4800	NONE
Far Bar Offset	-0.1015	-0.0844	NONE
Far Dens Offset	0.0467	0.0579	NONE
Far Peak Offset	0.1020	0.0938	NONE
Far Lith Offset	0.2427	0.2670	NONE
Near Bar Background	870.17	865.48	700 - 1450
Near Dens Background	285.74	286.18	230 - 480
Near Peak Background	124.58	124.41	100 - 210
Near Lith Background	153.03	152.63	125 - 260
Far Bar Background	675.65	676.54	450 - 900
Far Dens Background	265.10	267.58	175 - 345
Far Peak Background	105.08	104.20	70 - 140
Far Lith Background	108.29	108.55	75 - 145

CALIBRATION BLOCK SUMMARY

Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.693	1.691	-0.002	+/- 0.015
Pe	2.621	2.604	-0.017	+/- 0.150
ALUMINUM				
Density (g/cc)	2.603	2.602	-0.001	+/- 0.01500
Pe	3.059	3.064	0.005	+/- 0.150

TOOL SUMMARY

Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	-0.0001	+/- 0.0110	-0.0007	+/- 0.0140
Magnesium Block	-0.0003	+/- 0.0110	0.0000	+/- 0.0140
Aluminum Block	-0.0014	+/- 0.0110	-0.0005	+/- 0.0140

Resolution	8.44	6.00 - 11.50	8.75	6.00 - 11.50
Internal Verifier(B+D+P+L)	1429	1200 - 2700	1157	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-11259758						
Gamma Ray Calibrator	234.0	-----	-----	0.0	+/- 9.00	api
CSNG-10846351						
60 KEV Peak Channel #	48.0	-----	-----	0.0	-----	Channel #
239 KEV Peak Channel #	23.6	-----	-----	0.0	-----	Channel #
583 KEV Peak Channel #	53.2	-----	-----	0.0	-----	Channel #
2614 KEV Peak Channel #	219.1	-----	-----	0.0	-----	Channel #
DSNT-10935690						
Snow-Block Porosity	0.0864	-----	-----	0.0000	+/- .--	decp
SDLT-11812177						
Pad Extension	3.75	-----	-----	0.00	+/-0.20	in
Ring Diameter	8.25	-----	-----	0.00	+/-0.20	in
ACRt Sonde-E2584-S2585						
Mud Cell	0.997	-----	-----	0.000	-----	ohm-m
SDLT Pad-M177P867						
Near(B+D+P+L)	1428.701	-----	-----	0.000	+/-13.345	cps
Far(B+D+P+L)	1156.874	-----	-----	0.000	+/-16.109	cps

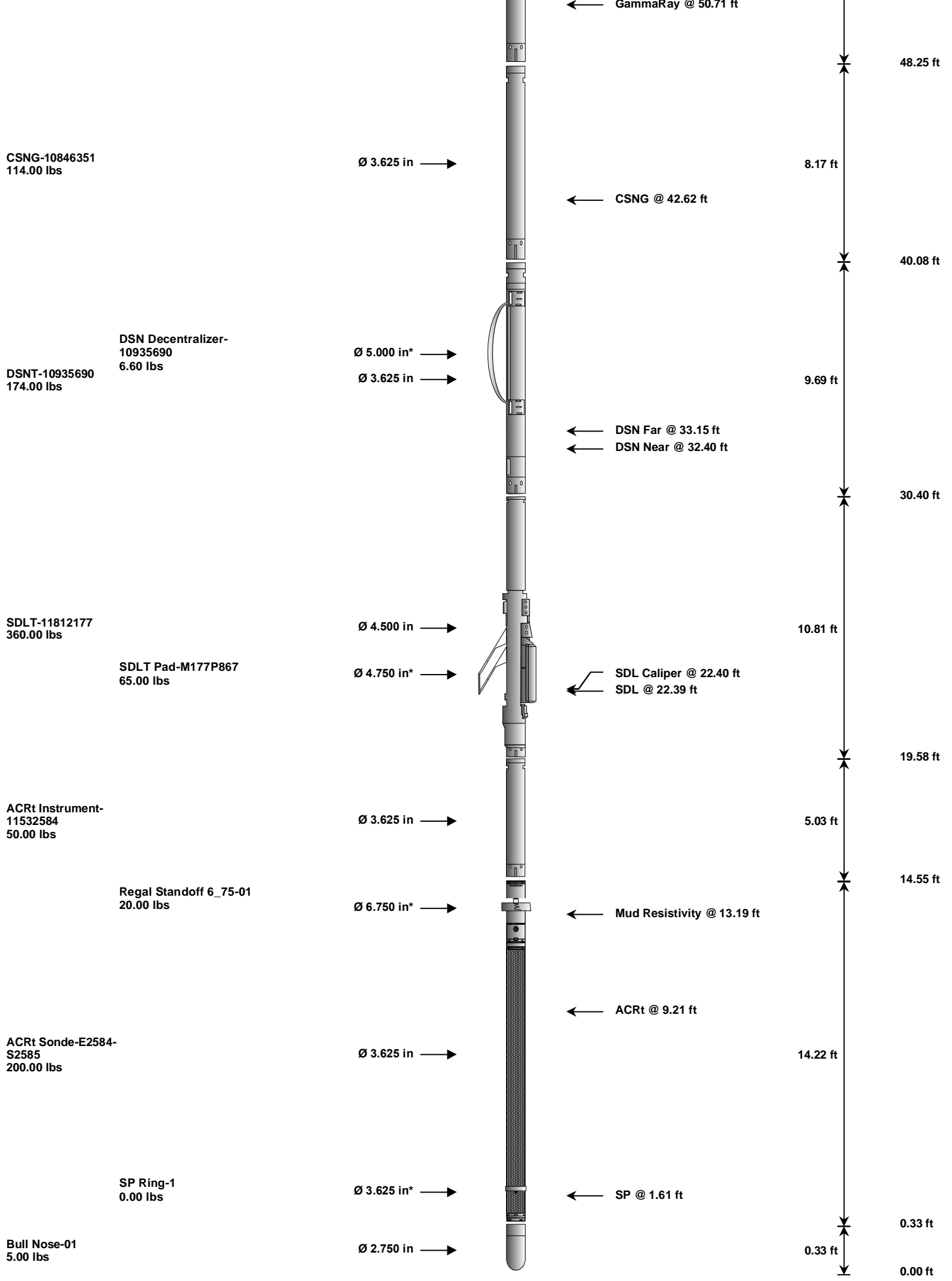
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HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
RWCH-11078326 135.00 lbs		Ø 3.625 in		Load Cell @ 59.34 ft BH Temperature @ 58.77 ft	6.25 ft	63.02 ft
						56.77 ft
GTET-11259758 165.00 lbs		Ø 3.625 in				8.52 ft



Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max. Log. Speed (fpm)
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RWCH	Releasable Wireline Cable Head	11078326	135.00	6.25	56.77	300.00
GTET	Gamma Telemetry Tool	11259758	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	10935690	174.00	9.69	30.40	60.00
DCNT	DSN Decentralizer	10935690	6.60	5.13 *	33.73	300.00
SDLT	Spectral Density Tool	11812177	360.00	10.81	19.58	60.00
SDLP	Density Insite Pad	M177P867	65.00	2.55 *	21.79	60.00
ACRt	Array Compensated True Resistivity Instrument Section	11532584	50.00	5.03	14.55	300.00
ACRt	Array Compensated True Resistivity	E2584-S2585	200.00	14.22	0.33	300.00
SP	SP Ring	1	0.00	0.25 *	1.61	300.00
RSOF	Regal Standoff 6.75in	01	20.00	0.52 *	13.24	300.00
BLNS	Bull Nose	01	5.00	0.33	0.00	300.00

Total			1,294.60	63.02		
			* Not included in Total Length and Length Accumulation.			
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COMPANY	NOBLE ENERGY INC.					
WELL	BUTTERBALL D19-22D					
FIELD	WATTENBERG					
COUNTY	WELD		STATE		CO	
HALLIBURTON			SPECTRAL DENSITY DUAL SPACED NEUTRON ARRAY COMPENSATED TRUE RESISTIVITY			