

HALLIBURTON

SPECTRAL DENSITY
DUAL SPACED NEUTRON
ARRAY COMPENSATED
TRUE RESISTIVITY

COMPANY				KERR-MCGEE OIL & GAS ONSHORE LP			
WELL				BROWN 5-2S			
FIELD				WATTENBERG			
COUNTY				WELD			
STATE				CO			
Permanent Datum		GL	Sect. 2	Twp. 1N	Rge. 66W	Elev. 5139.0 ft	
Log measured from		KB				Elev. K.B. 5154.0 ft	
Drilling measured from		KB				D.F. 5153.0 ft	
Date		06-Jan-11				G.L. 5139.0 ft	
Run No.		ONE					
Depth - Driller		5090.00 ft					
Depth - Logger		5086.0 ft					
Bottom - Logged Interval		5077.0 ft					
Top - Logged Interval		CASING					
Casing - Driller		8.625 in	@	1140.0 ft		@	
Casing - Logger		1125.0 ft					
Bit Size		7.875 in				@	
Type Fluid in Hole		WBM					
Density		8.4 ppq					
Viscosity		26.00 sqqt					
PH		8.50 pH					
Source of Sample		MUD CELL					
Rm @ Meas. Temperature		1.300 ohmm	@	75.00 degF		@	
Rmf @ Meas. Temperature		1.10 ohmm	@	75.00 degF		@	
Rmc @ Meas. Temperature		1.400 ohmm	@	75.00 degF		@	
Source Rmf		CHART		CHART			
Rm @ BHT		0.66 ohmm	@	154.0 degF		@	
Time Since Circulation		6.0 hr					
Time on Bottom		06-Jan-11 07:00					
Max. Rec. Temperature		154.0 degF	@	5086.0 ft		@	
Equipment		11454566		BRIGHTON			
Recorded By		C. GUILLETT					
Witnessed By		T. BOWER					

Fold here

Service Ticket No.:						API Serial No.: 05123316760000						PGM Version: WL INSITE R3.0.7 (Build 3)																	
CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE												RESISTIVITY SCALE CHANGES																	
Date		Sample No.										Type Log		Depth		Scale Up Hole				Scale Down Hole									
Depth-Driller																													
Type Fluid in Hole																													
Density		Viscosity																											
Ph		Fluid Loss																											
Source of Sample												RESISTIVITY EQUIPMENT DATA																	
Rm @ Meas. Temp				@				@				Run No.		Tool Type & No.				Pad Type				Tool Pos.				Other			
Rmf @ Meas. Temp.				@				@				ONE		ACRt				N/A				1.5" STANDOFF				N/A			
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.		11277436				Serial No.						Serial No.		I440M335				Serial No.		11277440									
Model No.		GTET				Model No.						Model No.		SDLT				Model No.		DSNT									
Diameter		3.625"				No. of Cent.						Diam eter		4.75"				Diam eter		3.625"									
Detector Model No.		102-T				Spacing						Log Type		GAMMA-GAMMA				Log Type		THERMAL									
Type		SCINT.										Source Type		Cs137				Source Type		Am241Be									
Length		8"				LSA [Y/N]						Serial No.		2770GW				Serial No.		DSN-434									
Distance to Source		10'				FWDA [Y/N]						Strength		1.5Ci				Strength		15Ci									

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	T.D.	SURF.	REC.	0	200				20%	0%	2.68 g/cc	20%	0%	SAND
DIRECTIONAL INFORMATION														
Maximum Deviation @								KOP @						
Remarks:														
RWCH-GTET-DSNT-SDLT-ACRt WERE RAN IN COMBINATION.														
A.H.V. CALCULATED FOR 4.5" CASING.														
CHLORIDES REPORTED AT 620 ppm.														
HES CREW: A. LEWIS AND A. DUNCAN.								RIG: XTREME #11.						
THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES - BRIGHTON, CO - (303)-825-4346.														
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HALLIBURTON														

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	MDWT	Borehole Fluid Weight	8.400	ppg
	SHARED	OBM	Oil Based Mud System?	No	
	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	20.0	degF
	SHARED	TD	Total Well Depth	5090.00	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	
	GTET	GROK	Process Gamma Ray?	Yes	
	GTET	GRSO	Gamma Tool Standoff	0.000	in
	GTET	GEOK	Process Gamma Ray EVR?	No	
	GTET	POTA	Potassium	0.00	%
	GTET	MDTP	Mud Type	Natural	
	GTET	TPOS	Tool Position	Standoff	
	DSNT	DNOK	Process DSN?	Yes	
	DSNT	DEOK	Process DSN EVR?	No	
	DSNT	NIUT	Neutron Lithology	Sandstone	

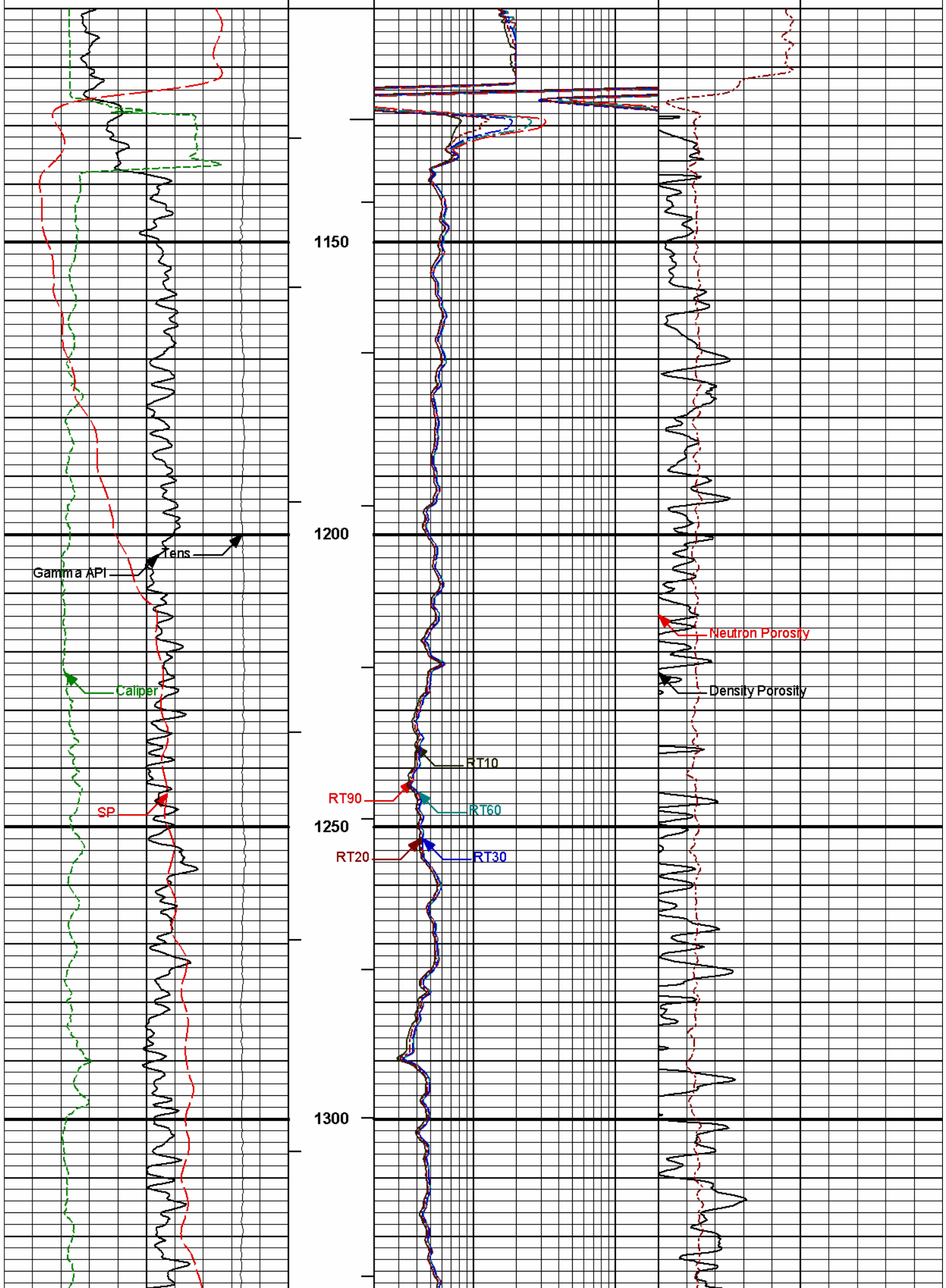
DSNT	RENT	Neutron Enrichment	Sandstone	
DSNT	DSNO	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.000	in
DSNT	DNTP	Temperature Correction Type	None	
DSNT	DPRS	DSN Pressure Correction Type	None	
DSNT	SHCO	View More Correction Options	No	
DSNT	UTVD	Use TVD for Gradient Corrections?	No	
DSNT	LHWT	Logging Horizontal Water Tank?	No	
SDLT	DNOK	Process Density?	Yes	
SDLT	DNOK	Process Density EVR?	No	
SDLT	AD	Is Hole Air Drilled?	No	
SDLT	CB	Logging Calibration Blocks?	No	
SDLT	SPVT	SDLT Pad Temperature Valid?	Yes	
SDLT	DTWN	Disable temperature warning	No	
SDLT	MDTP	Weighted Mud Correction Type?	Barite	
SDLT	DMA	Formation Density Matrix	2.680	g/cc
SDLT	DFL	Formation Density Fluid	1.000	g/cc
SDLT	CLOK	Process Caliper Outputs?	Yes	
SDLT	MLOK	Process MicroLog Outputs?	Yes	
ACRt	RTOK	Process ACRt?	Yes	
ACRt	MNSO	Minimum Tool Standoff	1.50	in
ACRt	TCS1	Temperature Correction Source	FP Lwr & FP Up	
ACRt	TPOS	Tool Position	Free Hanging	
ACRt	RMOP	Rmud Source	Mud Cell	
ACRt	RMIN	Minimum Resistivity for MAP	0.20	ohmm
ACRt	RMIN	Maximum Resistivity for MAP	200.00	ohmm
ACRt	THQY	Threshold Quality	0.50	
BOTTOM				
Data: ANA_BROWN_5_2S\0001 TRIPLEIDLE			Date: 06-Jan-11 05:47:04	

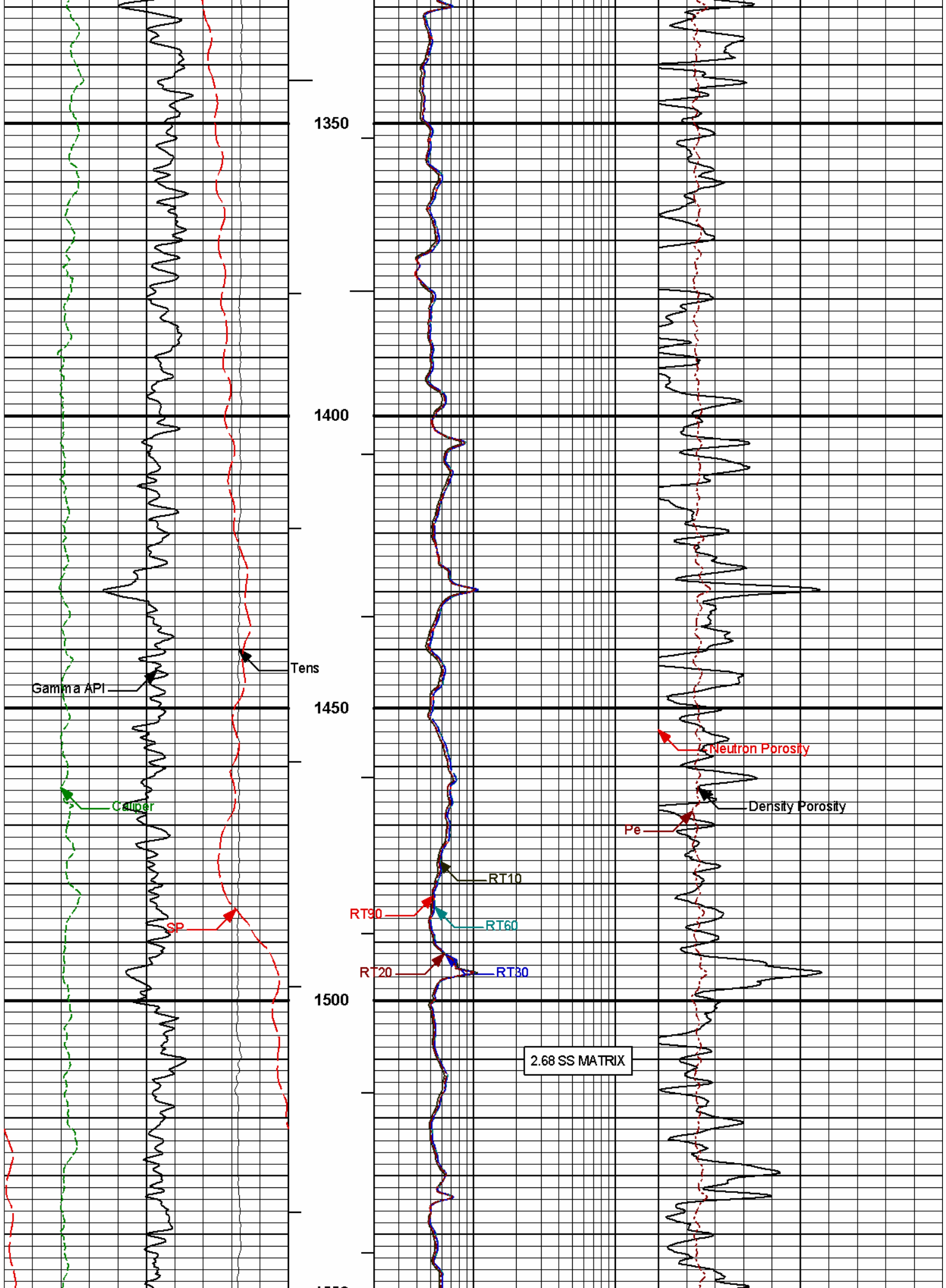
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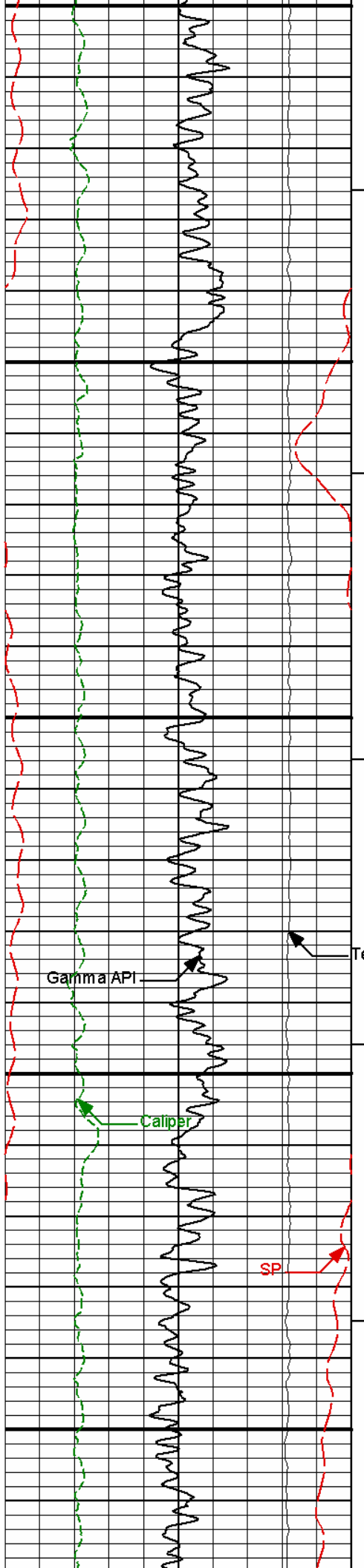
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Plot Range: 1110 ft to 5089.5 ft
Data: {ActiveWell}\Well Based\MAIN*
Plot File: \COMPMAIN

MAIN PASS 5" = 100'

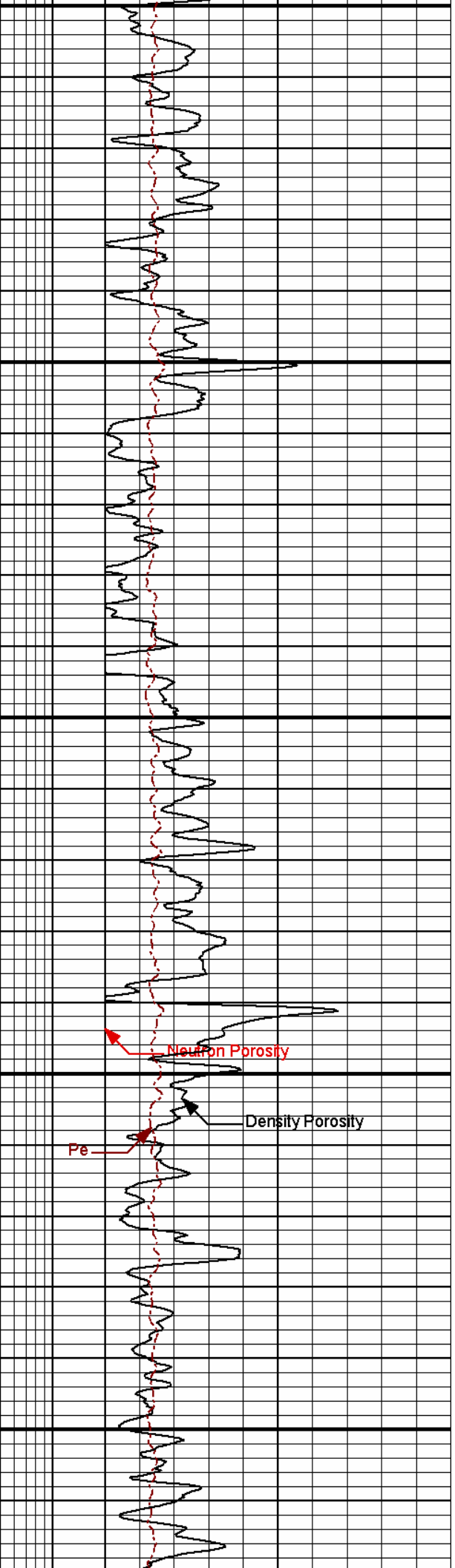
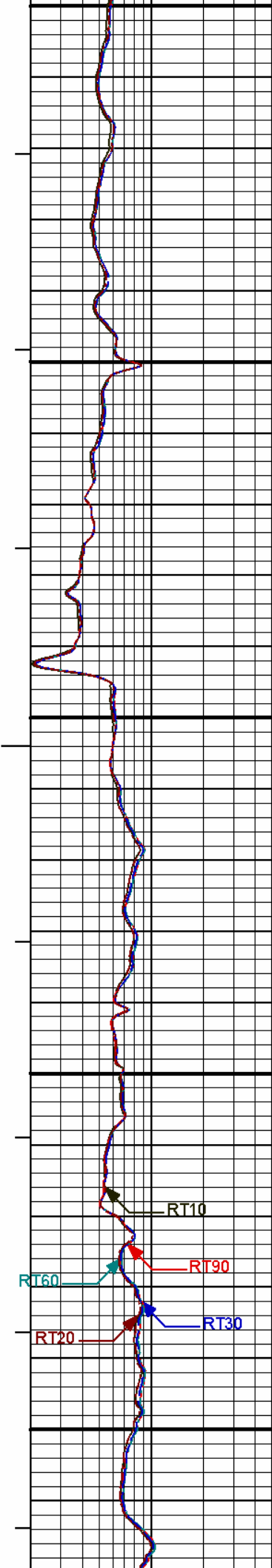
Track 1	Depth Track	Track 2	Track 5	Track 3
	0 30 2	RT10 200		
		Ohm-m		
10K Tens pounds	0 0 30 2	RT20 200		
		Ohm-m		
6 Caliper inches	BHVT 2	RT30 200		
		Ohm-m		
0 Gamma API api	AHVT 2	RT60 200	20	Density Porosity 0
		Ohm-m	percent	
50 SP millivolts	1 : 240 2	RT90 200	0	Pe 10
		Ohm-m		

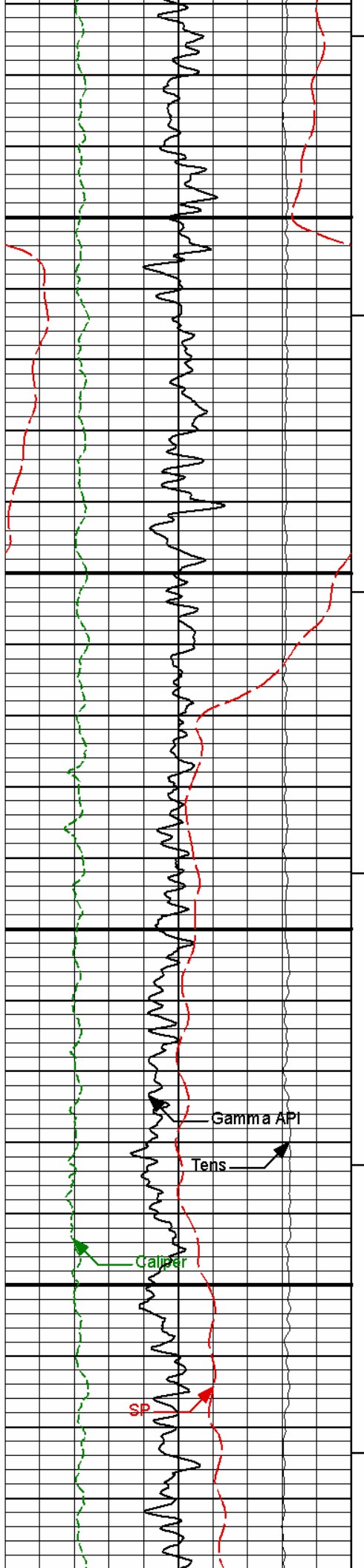






1550
1600
1650
1700
1750





1800

1850

1900

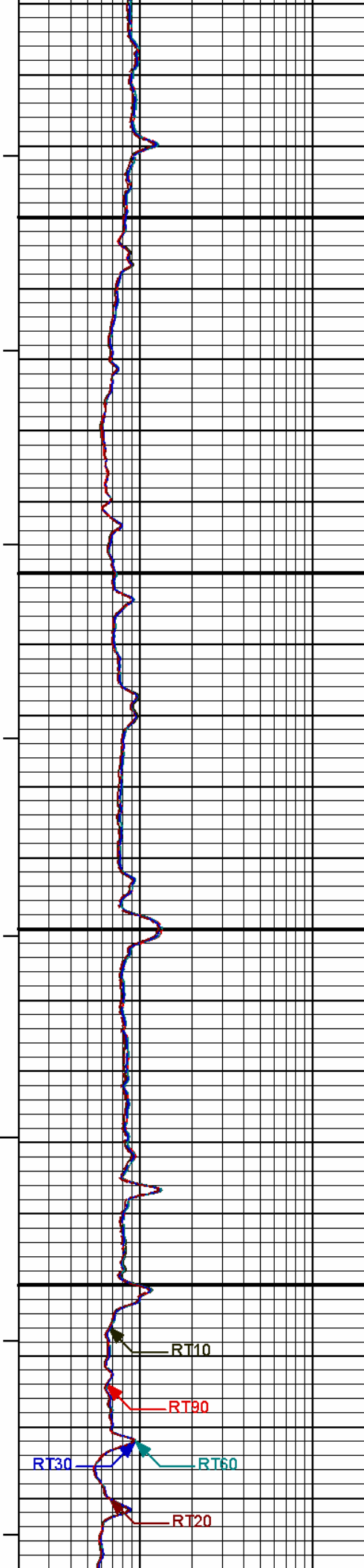
1950

Gamma API

Tens

Caliper

SP



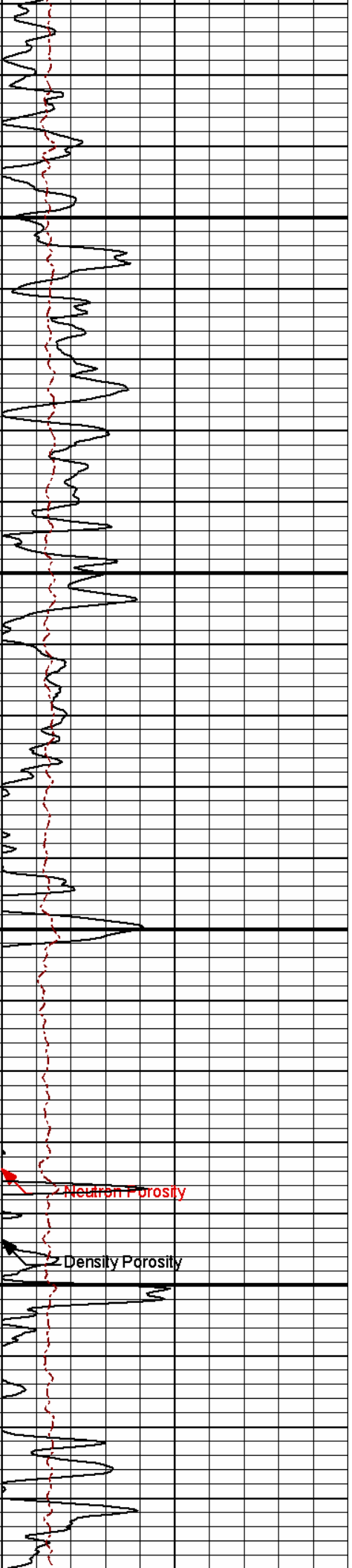
RT10

RT90

RT30

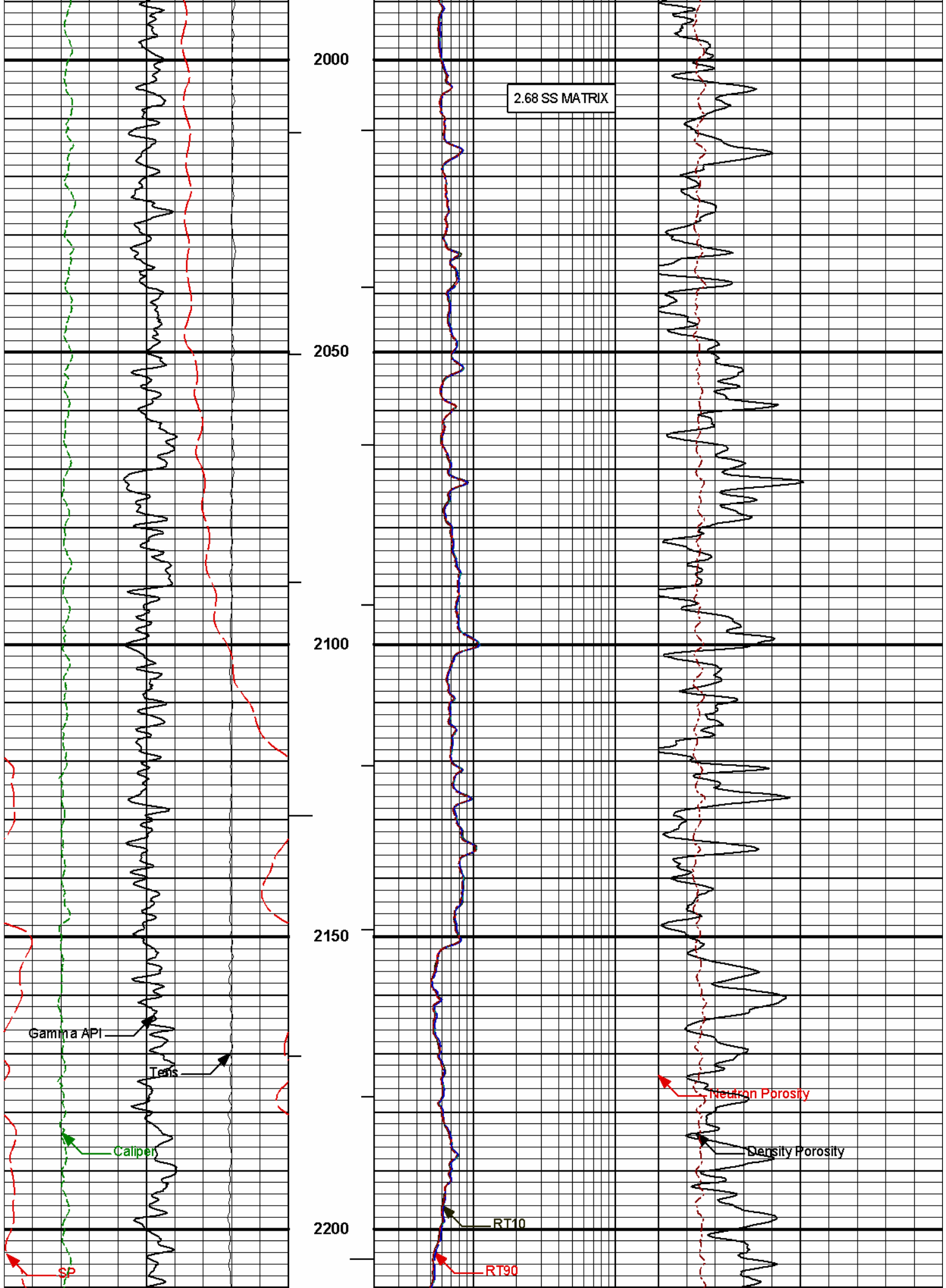
RT60

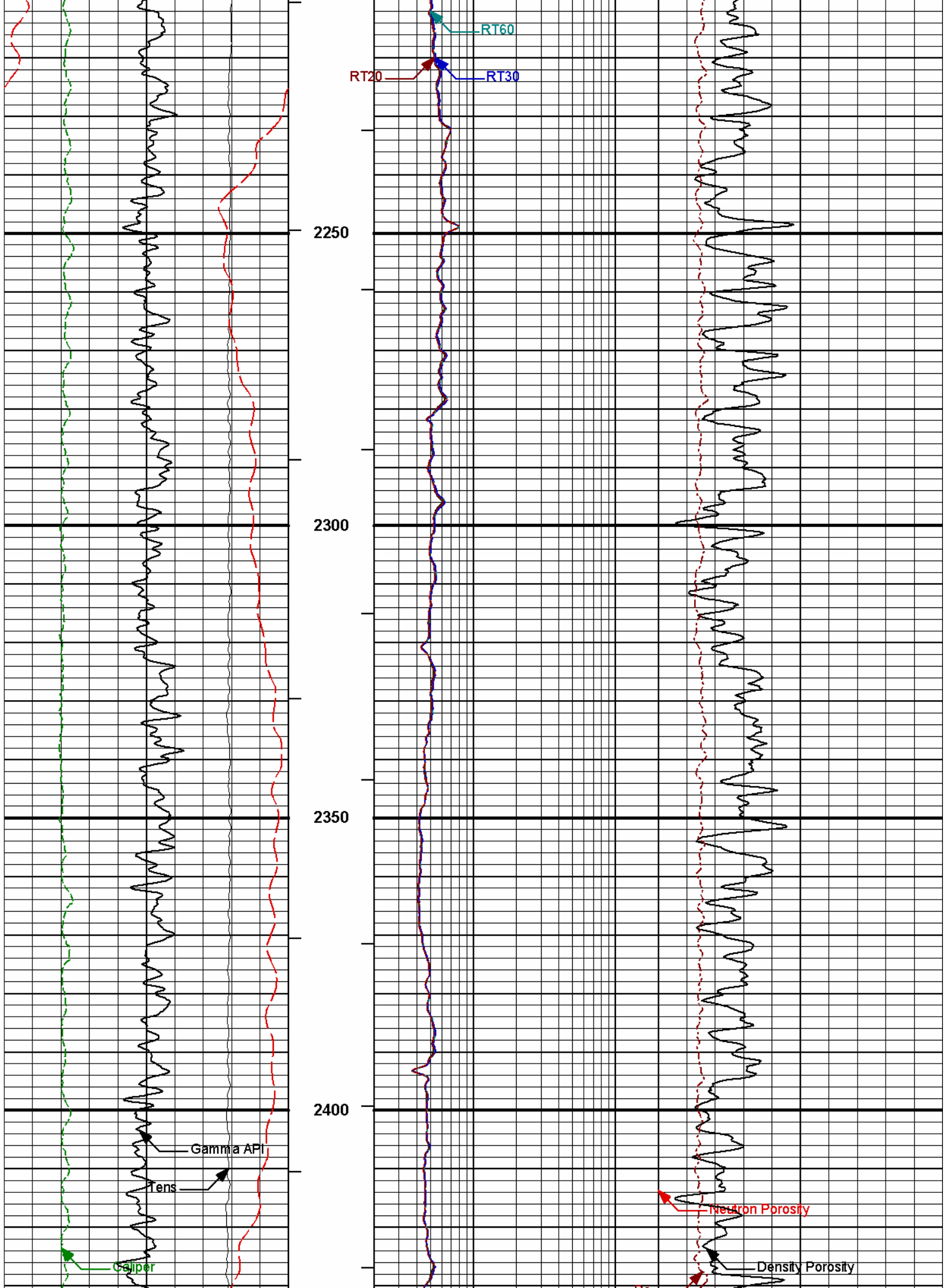
RT20

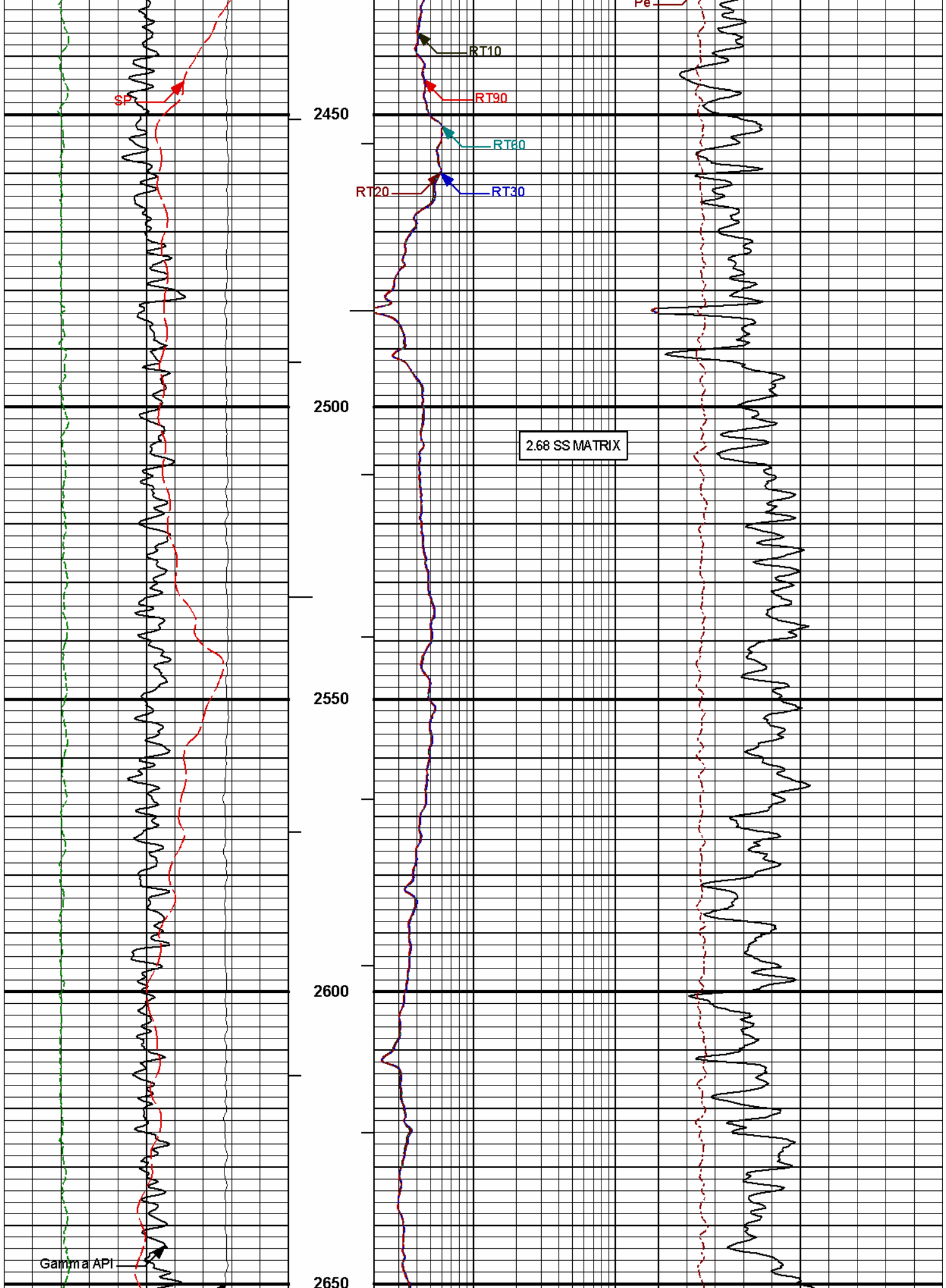


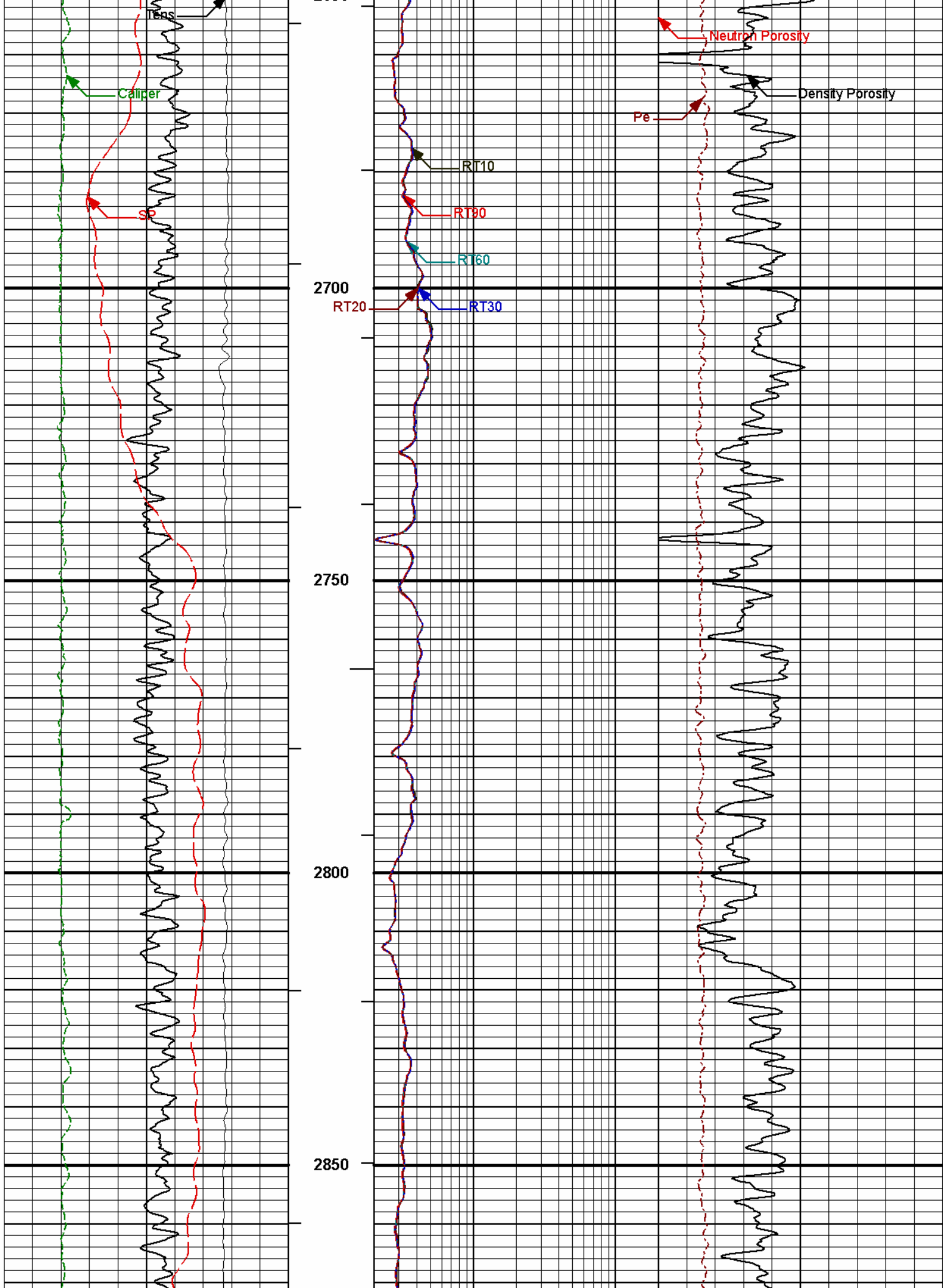
Neutron Porosity

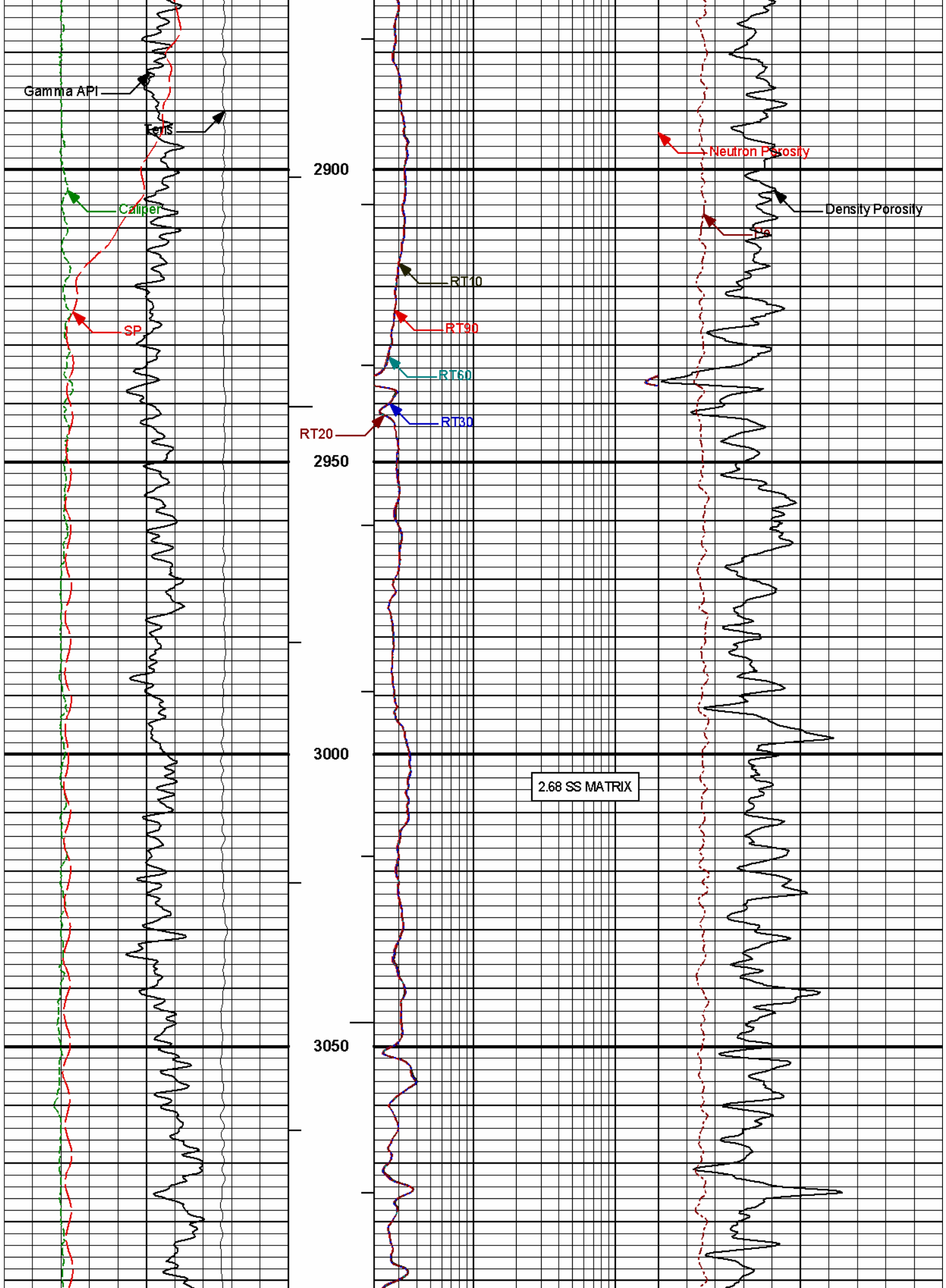
Density Porosity

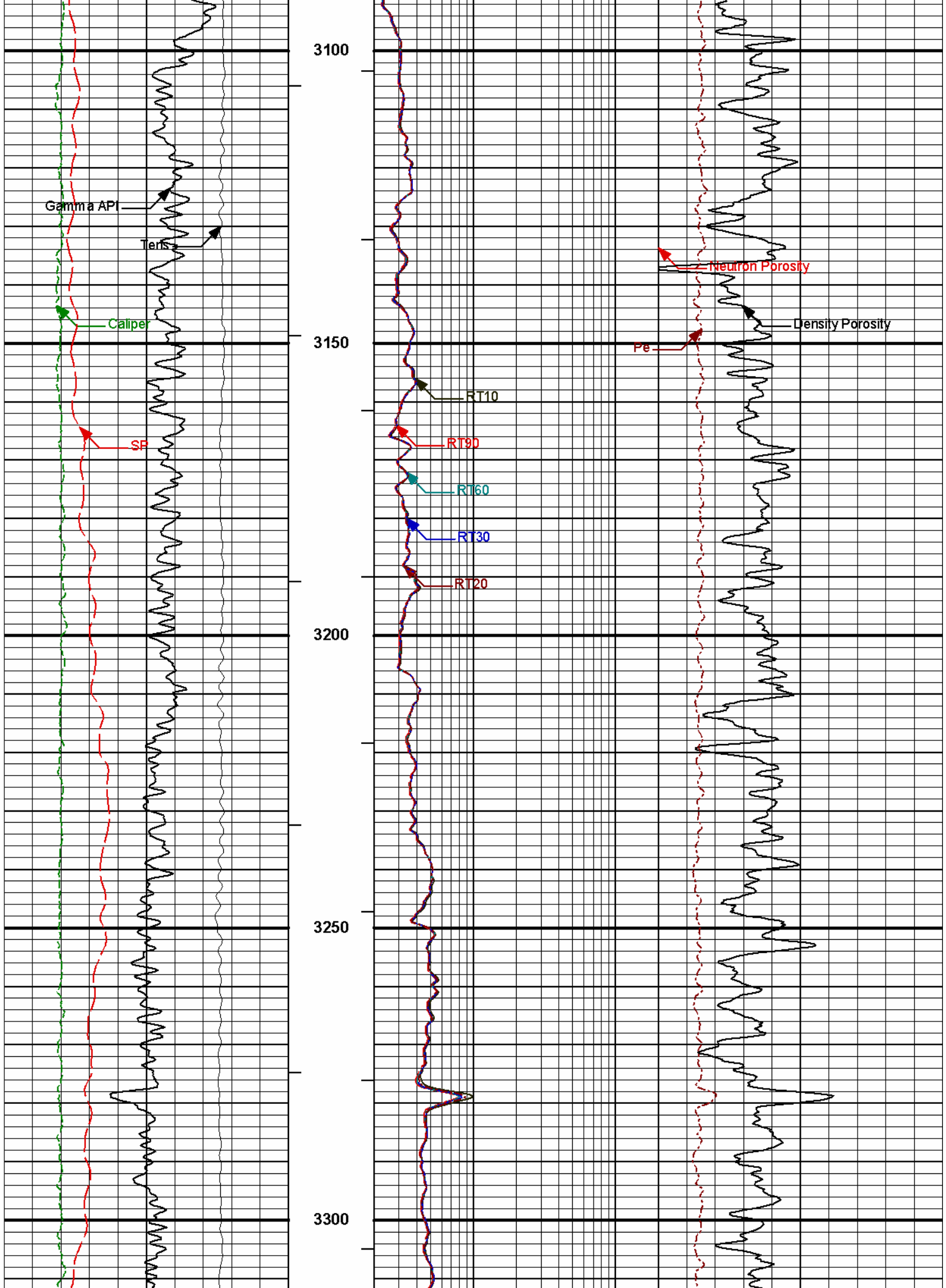


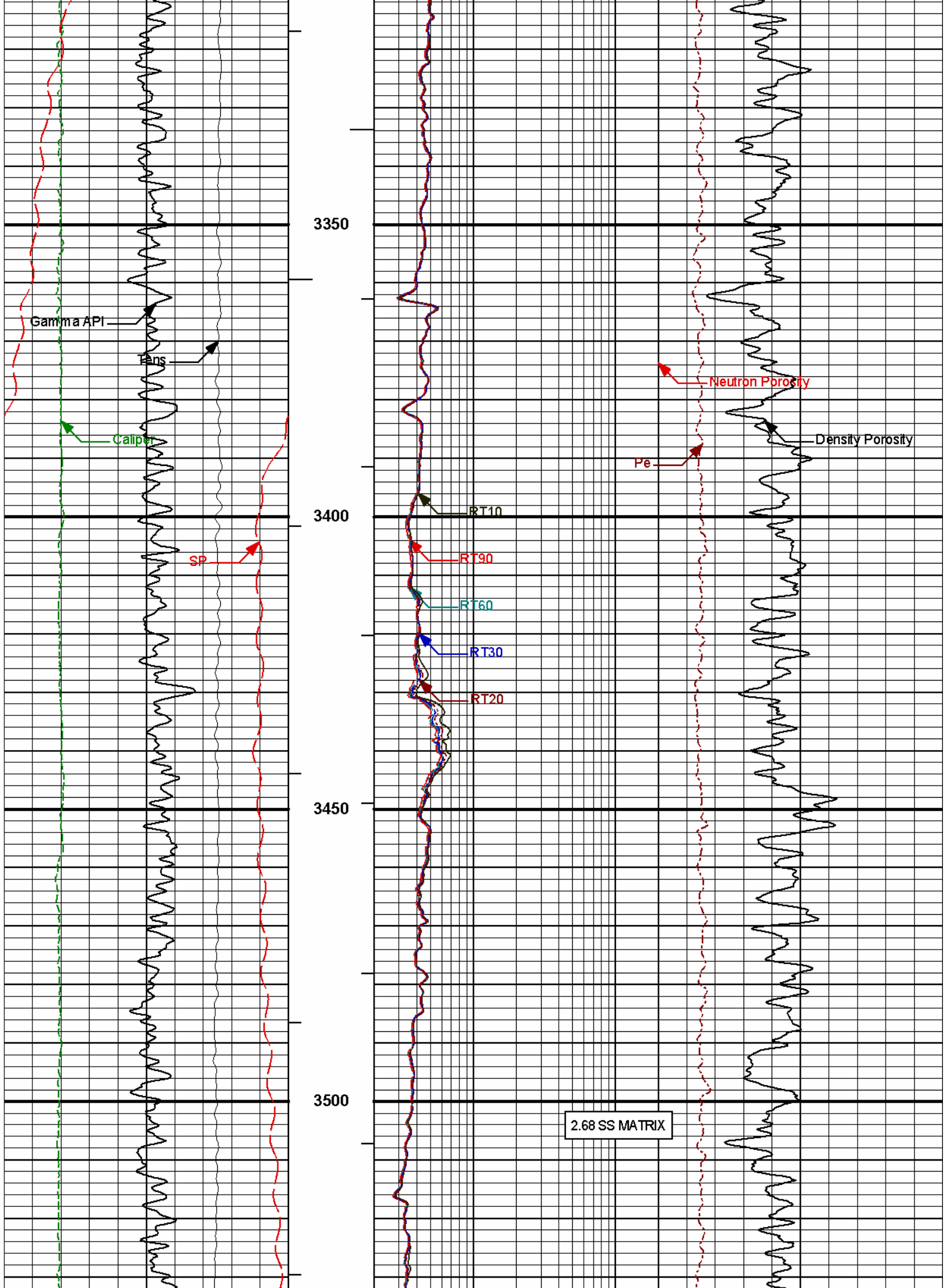


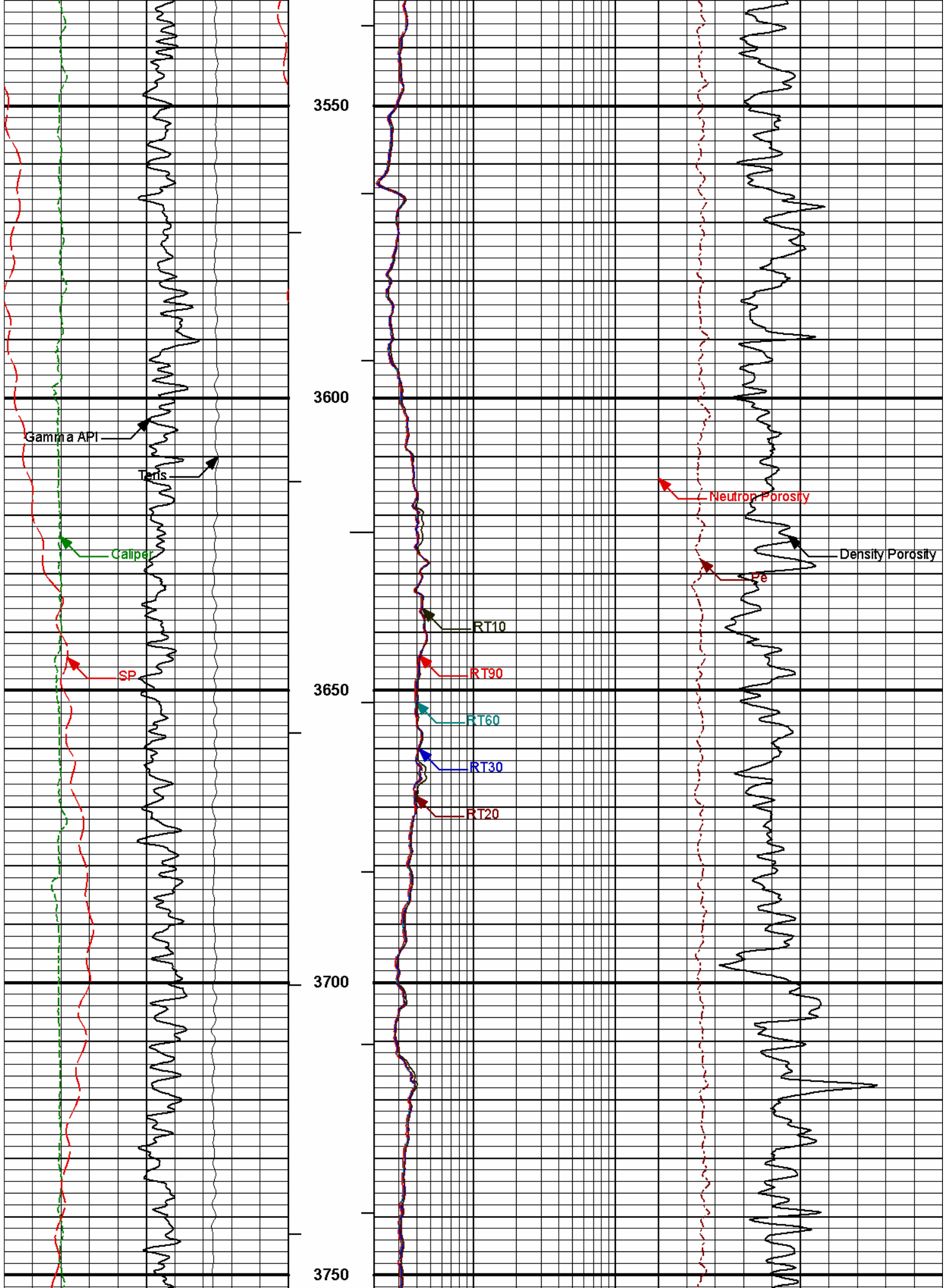


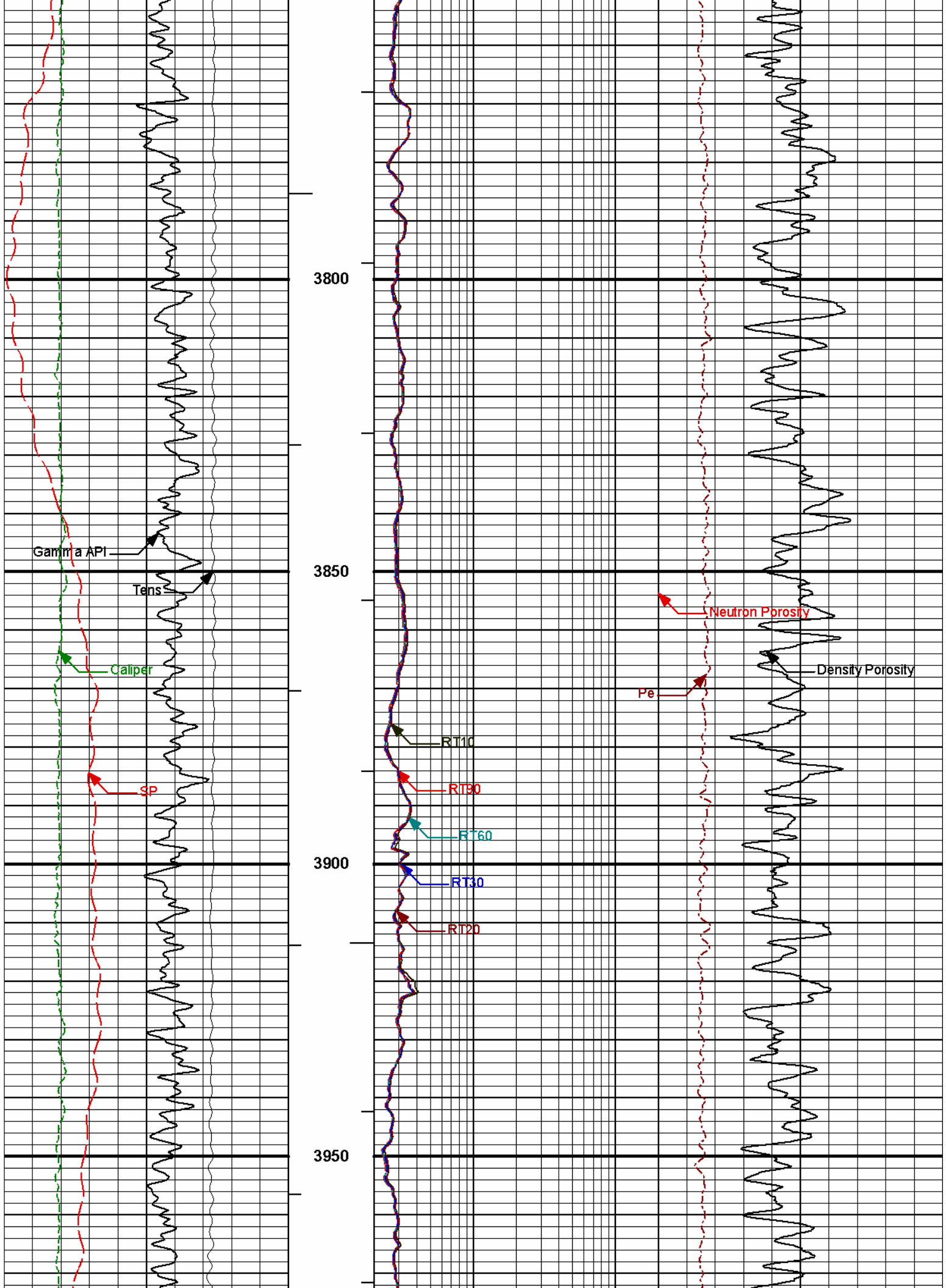


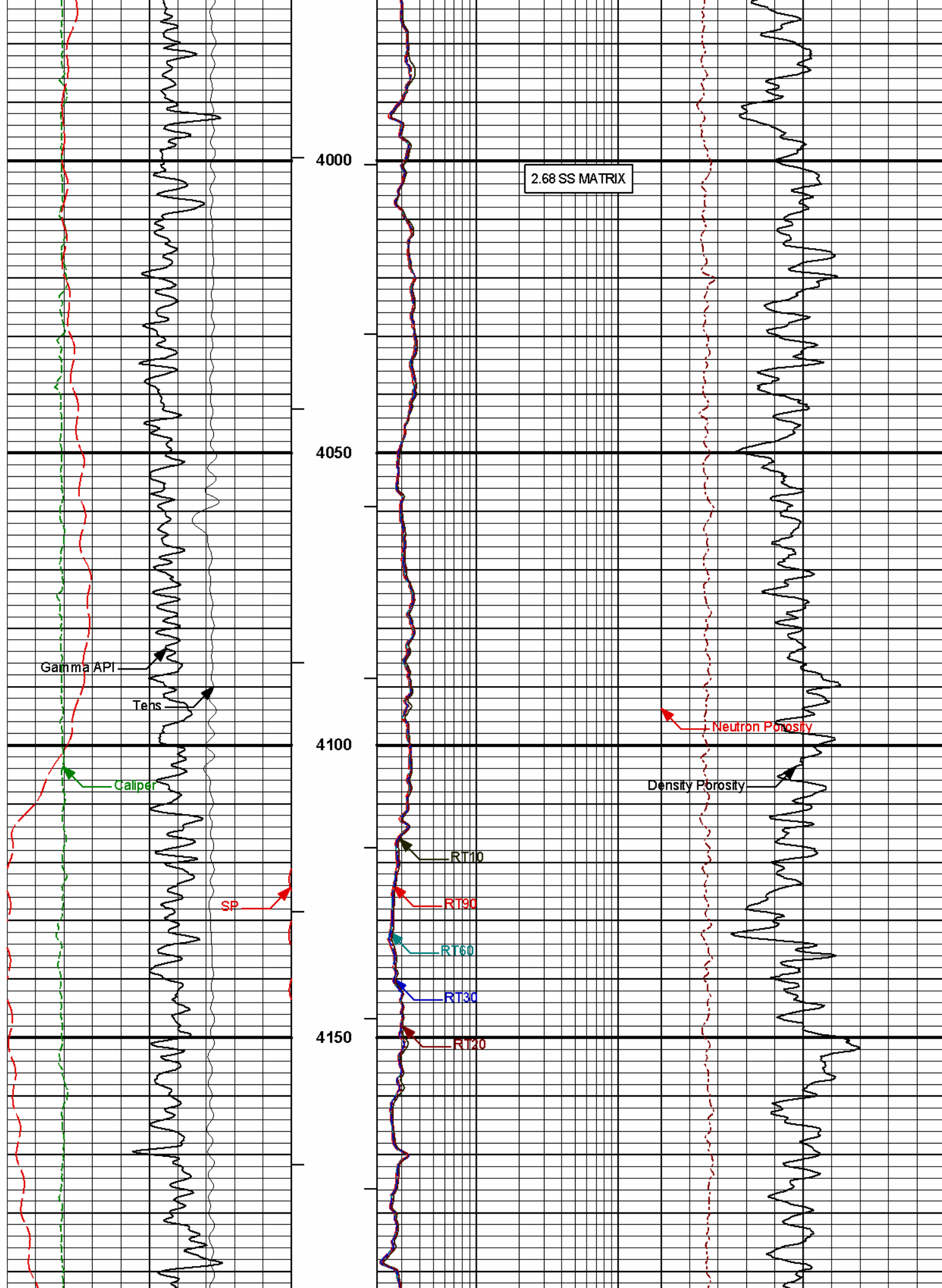


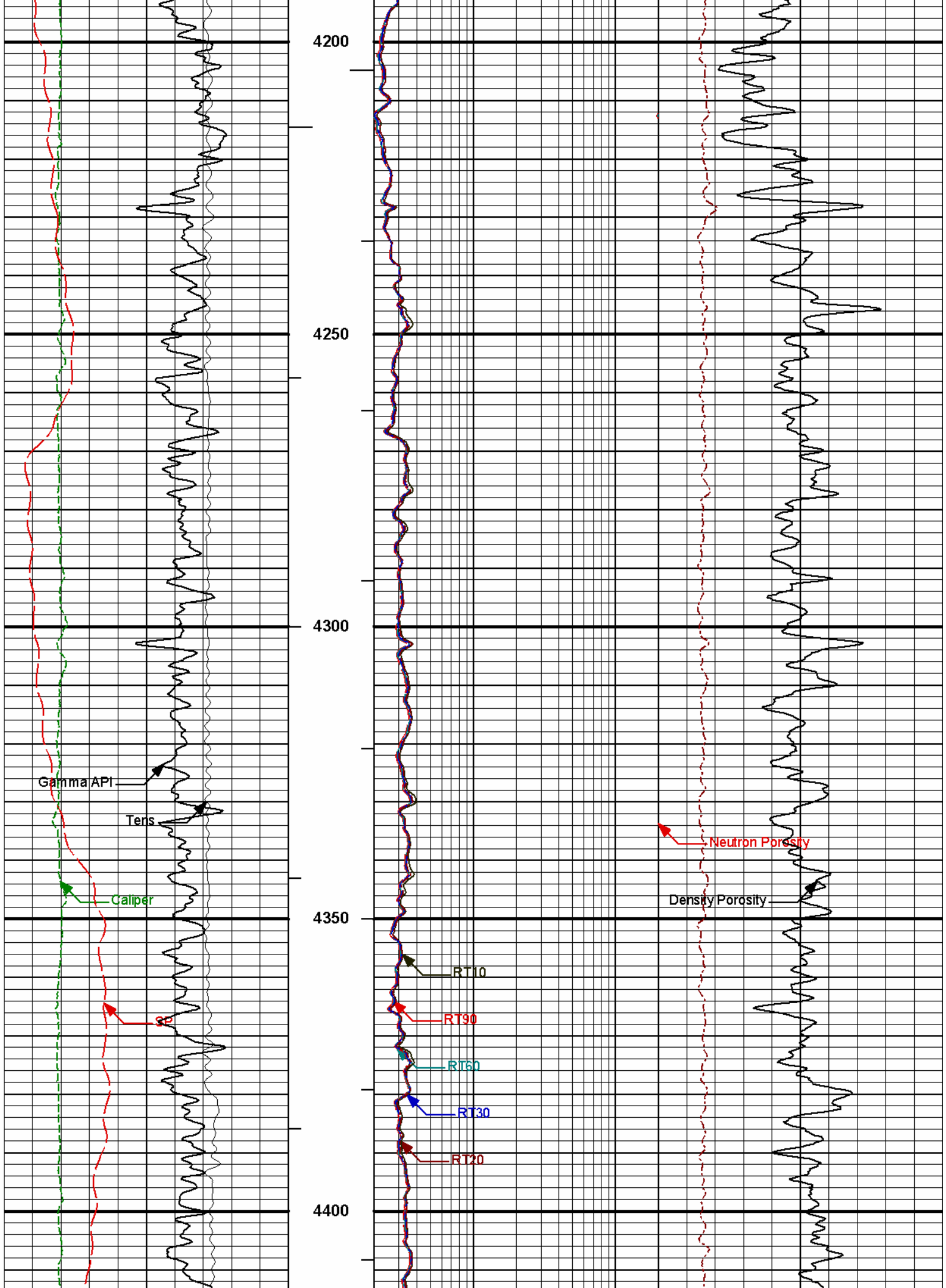


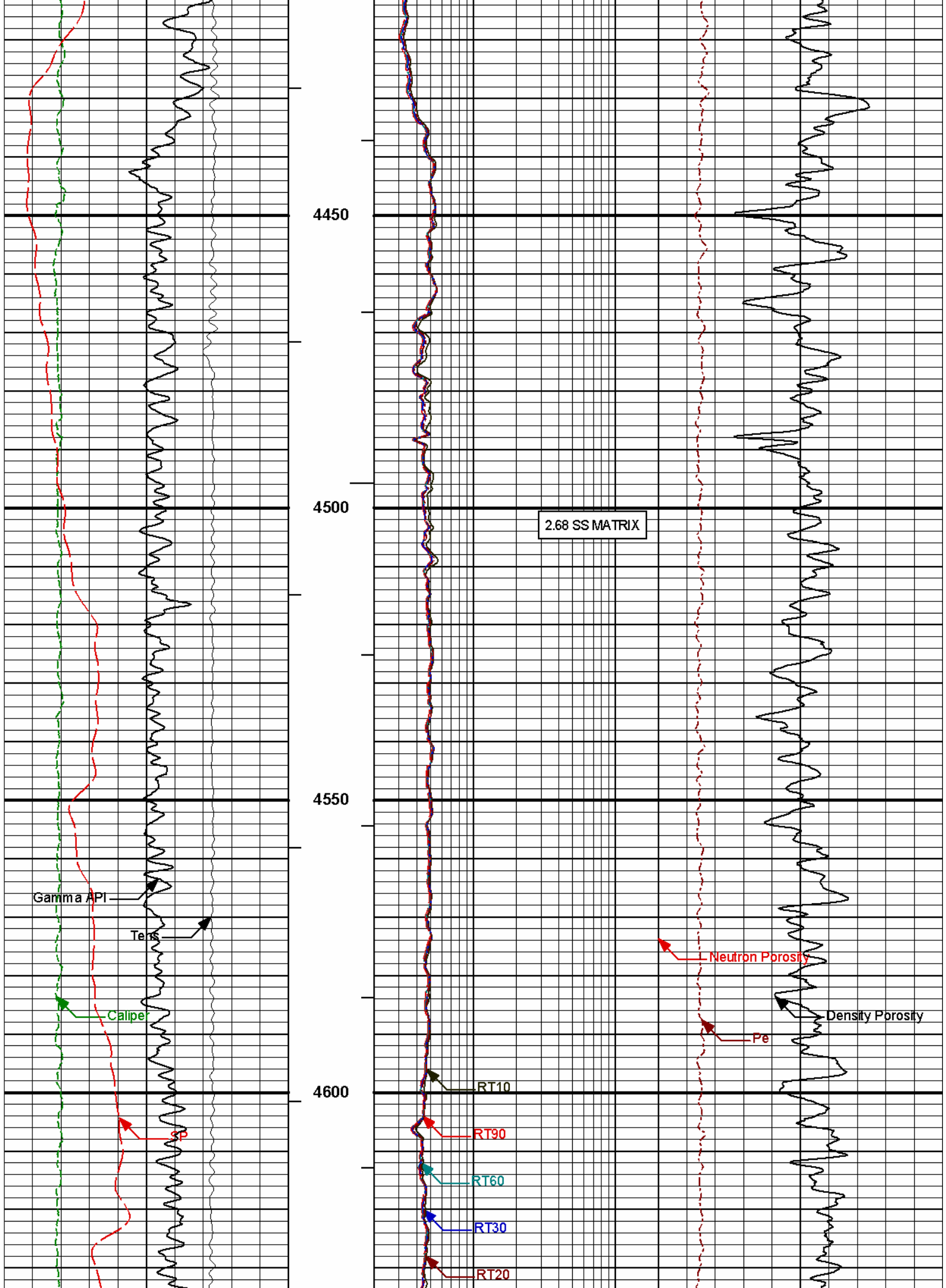


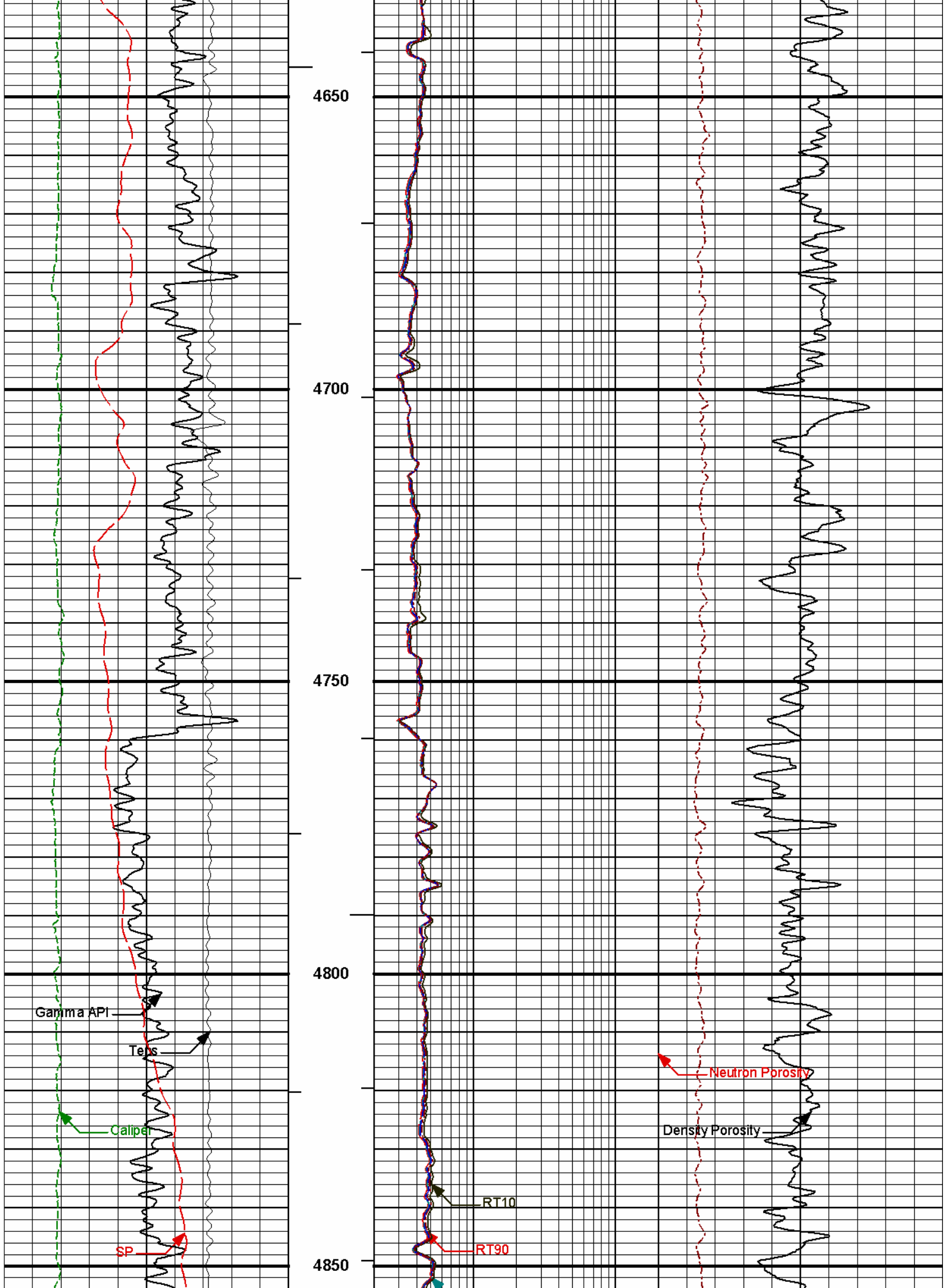


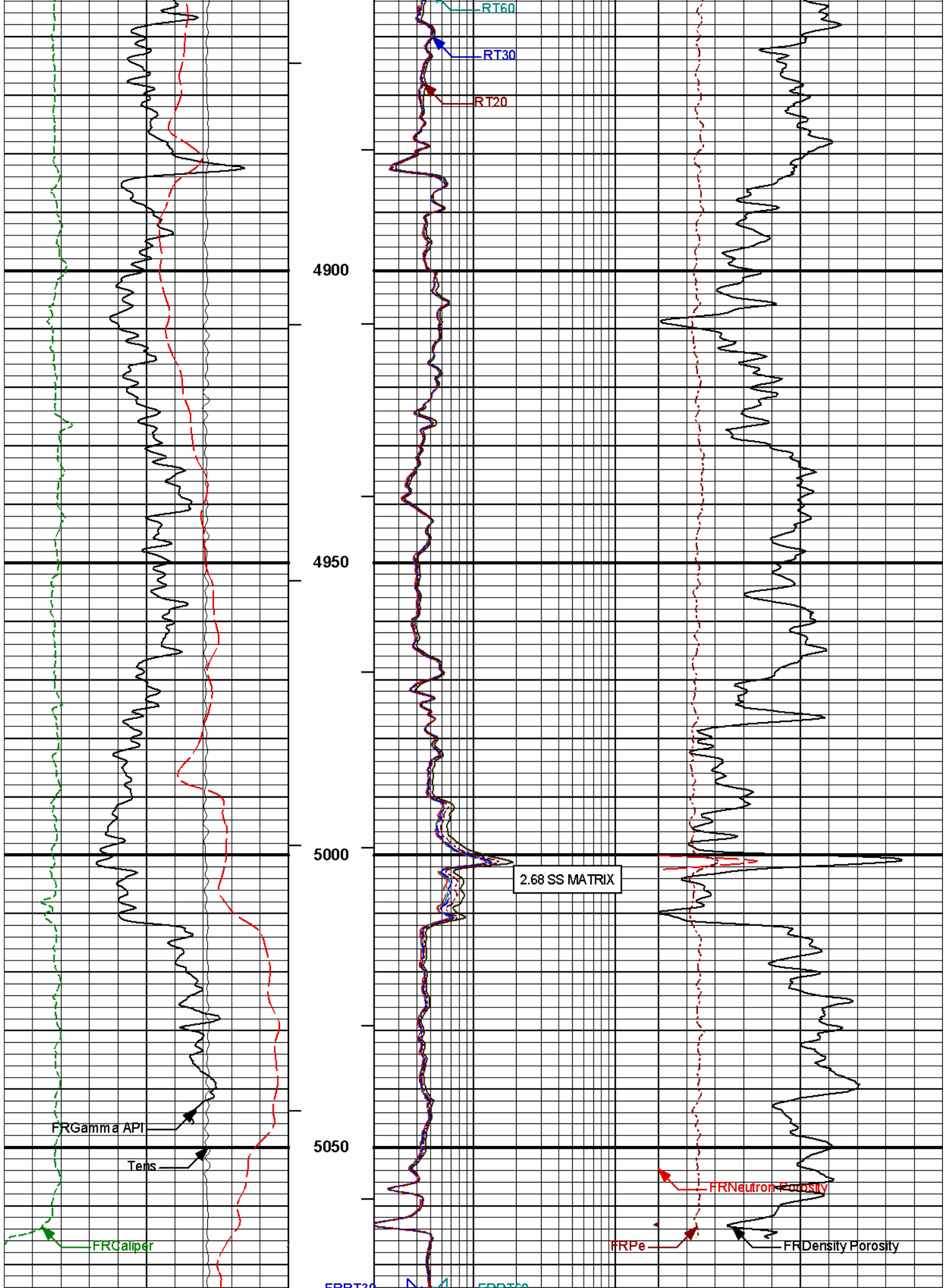


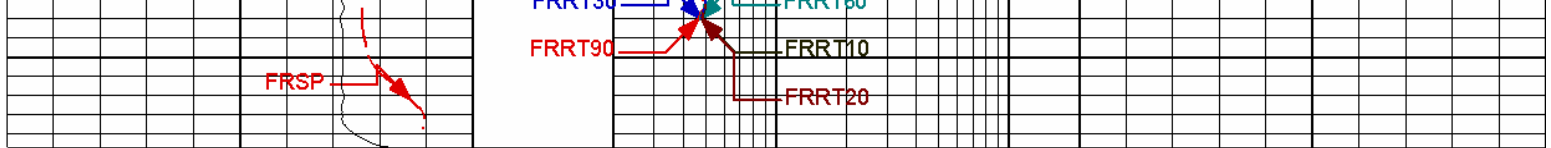












50	SP	150	1 : 240	2	RT90	200	0	Pe	10	
	millivolts				Ohm-m					
0	Gamma API	200	— AHVT	2	RT60	200	20	Density Porosity		0
	api				Ohm-m			percent		
6	Caliper	16	BHVT	2	RT30	200	20	Neutron Porosity		0
	inches				Ohm-m			percent		
10K	Tens	0		2	RT20	200				
	pounds				Ohm-m					
		0		2	RT10	200				
					Ohm-m					

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Plot Time: 06-Jan-11 08:01:49
 Plot Range: 1110 ft to 5089.5 ft
 Data: {ActiveWell}\Well Based\MAIN*
 Plot File: \COMP\MAIN

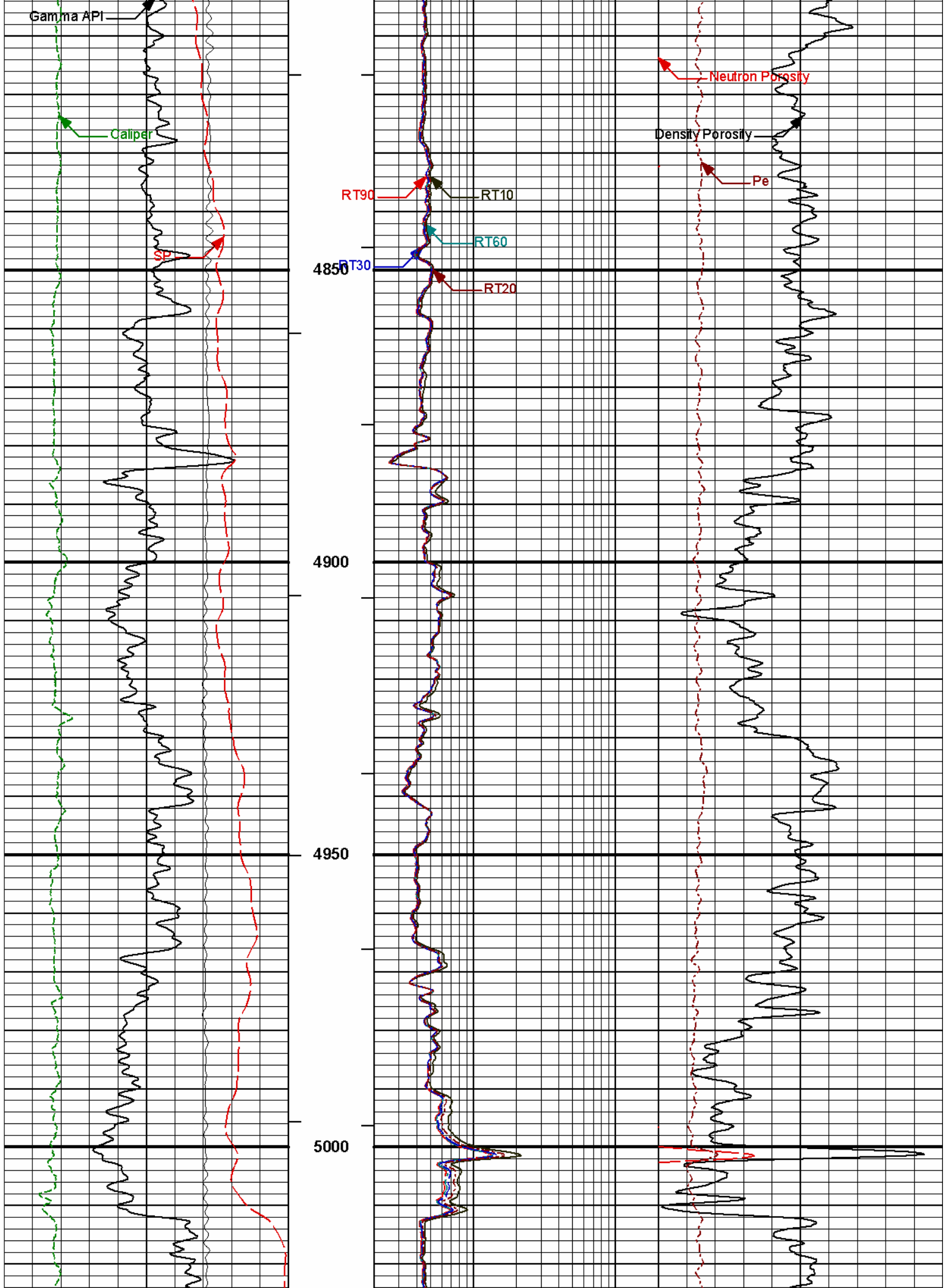
MAIN PASS 5" = 100'

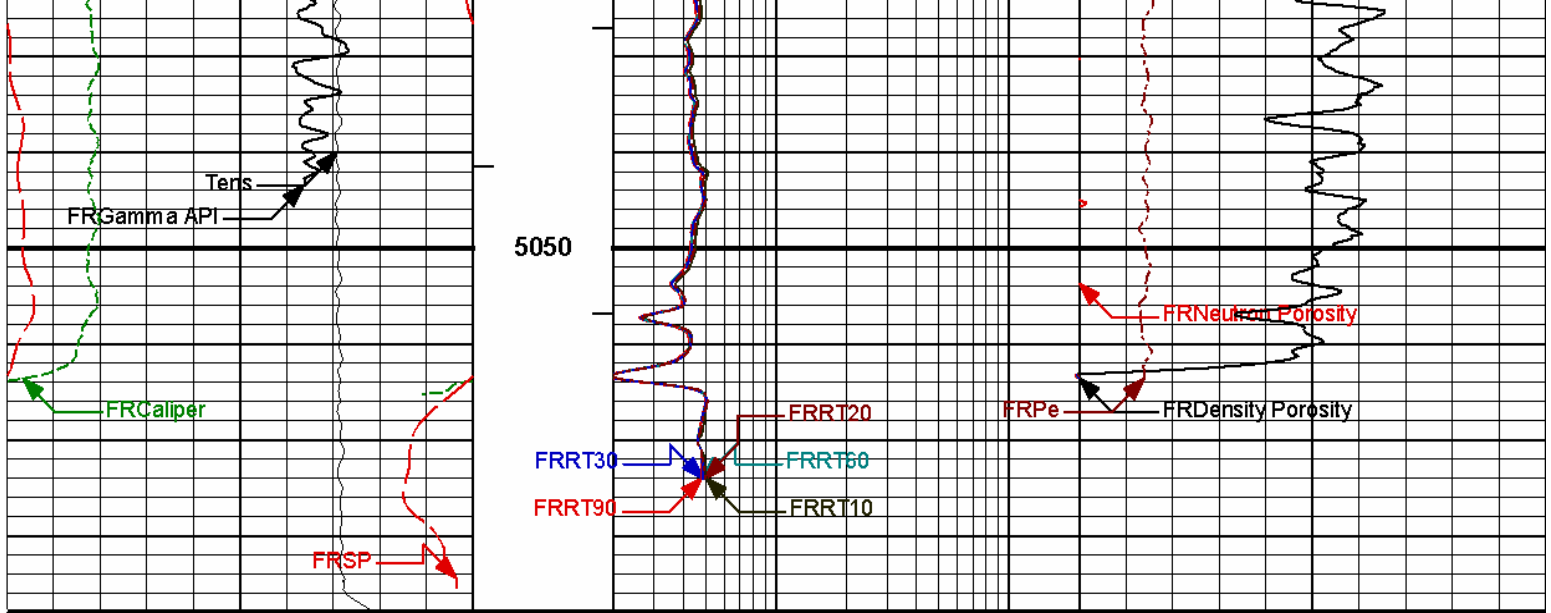
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Plot Time: 06-Jan-11 08:01:49
 Plot Range: 4800 ft to 5087.75 ft
 Data: {ActiveWell}\Well Based\REPEAT*
 Plot File: \COMP\REPEAT

REPEAT PASS 5" = 100'

Track 1	Depth Track	Track 2	Track 5	Track 3
	0 30	2 RT10 200 Ohm-m		
10K Tens 0 pounds	0 30 2	RT20 200 Ohm-m		
6 Caliper 16 inches	BHVT	2 RT30 200 Ohm-m	20	Neutron Porosity 0 percent
0 Gamma API 200 api	— AHVT	2 RT60 200 Ohm-m	20	Density Porosity 0 percent
50 SP 150 millivolts	1 : 240	2 RT90 200 Ohm-m	0	Pe 10





50	SP	150	1 : 240	2	RT90	200	0	Pe	10
	millivolts				Ohm-m				
0	Gamma API	200	AHVT	2	RT60	200	20	Density Porosity	0
	api				Ohm-m			percent	
6	Caliper	16	BHVT	2	RT30	200	20	Neutron Porosity	0
	inches				Ohm-m			percent	
10K	Tens	0		2	RT20	200			
	pounds				Ohm-m				
		0		2	RT10	200			
					Ohm-m				

HALLIBURTON

Plot Time: 06-Jan-11 08:01:51
 Plot Range: 4800 ft to 5087.75 ft
 Data: {ActiveWell}\Well Based\REPEAT*
 Plot File: \COMPREPEAT

REPEAT PASS 5" = 100'

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name: GTET - 11294346

Reference Calibration Date: 24-Nov-10 08:49:15

Engineer: C. BLUE

Calibration Date: 29-Dec-10 00:34:37

Software Version: WL INSITE R3.0.7 (Build 3)

Calibration Version: 1

Calibrator Source S/N: KW-290

Calibrator API Reference: 230.00 api

Measurement	Measured	Calibrated	Units
Background	91.4	90.4	api
Background + Calibrator	328.0	324.4	api
Calibrator	233.0	234.0	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name: GTET - 11294346

Reference Calibration Date: 29-Dec-10 00:34:37

Engineer: C. GULLETT

Calibration Date: 06-Jan-11 04:13:45

Software Version: WL INSITE R3.0.7 (Build 3)

Calibration Version: 1

Calibrator Source S/N: KW-290

Calibrator API Reference:230.00 api

Field Verification	Shop	Field	Units
Background	90.4	73.4	api
Background + Calibrator	324.4	304.1	api
Calibrator	234.0	230.7	api
Shop	Field	Difference	Tolerance
234.0	230.7	3.3	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name: DSNT - 11277440

Reference Calibration Date: 08-Dec-10 19:29:39

Engineer: C. BLUE

Calibration Date: 08-Dec-10 19:49:33

Software Version: WL INSITE R3.0.7 (Build 3)

Calibration Version: 1

Logging Source S/N: CASPER 434

Tank Serial Number: 11068236

Reference value assigned to Tank: 53.720

Snow Block S/N: CASPER IQ

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:	1.034	1.032	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):	0.2230	0.2224	0.0007	+/- 0.0020
Calibrated Ratio:	10.13	10.11	0.023	+/- 0.050

VERIFIER		
Measurement	Value	Control Limit
Snow-Block Porosity (decP):	0.0728	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: 08-Dec-10 19:49:33

Engineer: C. GULLETT

Calibration Date: 06-Jan-11 04:14:17

Software Version: WL INSITE R3.0.7 (Build 3)

Calibration Version: 1

Logging Source S/N: CASPER 434

Snow Block S/N: CASPER IQ

NEUTRON FIELD CHECK SUMMARY

NEUTRON FIELD-CHECK SUMMARY

	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0728	0.0745	0.0017	+/- 0.0150

PASS/FAIL SUMMARY

Block Change Check:	Passed
Snow Block Stat Check:	Passed
Temperature Check:	Passed

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name: SDLT - I440M335

Reference Calibration Date: 26-Oct-10 11:47:09

Engineer: C. BLUE

Calibration Date: 01-Dec-10 11:32:22

Software Version: WL INSITE R3.0.7 (Build 3)

Calibration Version: 1

Logging Source S/N: 2770GW

Aluminum Block S/N: BRIGHTON_AL

Density: 2.600g/cc

Pe: 3.100

Magnesium Block S/N: BRIGHTON_MG

Density: 1.680g/cc

Pe: 2.594

DENSITY CALIBRATION SUMMARY

Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0737	1.0849	0.90 - 1.10
Near Dens Gain	1.0349	1.0474	0.90 - 1.10
Near Peak Gain	1.0336	1.0769	0.90 - 1.10
Near Lith Gain	1.0035	1.0472	0.90 - 1.10
Far Bar Gain	1.0192	1.0191	0.90 - 1.10
Far Dens Gain	1.0052	1.0074	0.90 - 1.10
Far Peak Gain	0.9977	1.0010	0.90 - 1.10
Far Lith Gain	0.9745	0.9756	0.90 - 1.10
Near Bar Offset	-0.4423	-0.5290	NONE
Near Dens Offset	-0.0561	-0.1492	NONE
Near Peak Offset	-0.0302	-0.3746	NONE
Near Lith Offset	0.1912	-0.1515	NONE
Far Bar Offset	0.0281	0.0339	NONE
Far Dens Offset	0.1322	0.1196	NONE
Far Peak Offset	0.1814	0.1592	NONE
Far Lith Offset	0.3279	0.3275	NONE
Near Bar Background	1073.57	1070.84	700 - 1450
Near Dens Background	350.31	351.54	230 - 480
Near Peak Background	153.27	153.93	100 - 210
Near Lith Background	188.01	185.33	125 - 260
Far Bar Background	562.53	558.32	450 - 900
Far Dens Background	220.95	218.18	175 - 345
Far Peak Background	85.60	85.22	70 - 140
Far Lith Background	90.30	89.57	75 - 145

CALIBRATION BLOCK SUMMARY

Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.667	1.681	0.014	+/- 0.015
Pe	2.638	2.582	-0.056	+/- 0.150
ALUMINUM				

Density (g/cc)	2.588	2.600	0.012	+/- 0.01500
Pe	3.093	3.087	-0.006	+/- 0.150

TOOL SUMMARY				
Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	-0.0012	+/- 0.0110	-0.0004	+/- 0.0140
Magnesium Block	-0.0005	+/- 0.0110	-0.0002	+/- 0.0140
Aluminum Block	-0.0008	+/- 0.0110	-0.0001	+/- 0.0140
Resolution	9.07	6.00 - 11.50	9.58	6.00 - 11.50
Internal Verifier(B+D+P+L)	1762	1200 - 2700	951	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

SPECTRAL DENSITY FIELD CHECK

Tool Name: SDLT - I440M335

Reference Calibration Date: 01-Dec-10 11:32:22

Engineer: C. GULLETT

Calibration Date: 06-Jan-11 04:06:43

Software Version: WL INSITE R3.0.7 (Build 3)

Calibration Version: 1

Pad Temperature: 73.4 degF

DENSITY FIELD CALIBRATION SUMMARY				
Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1761.641	1761.228	-0.413	16.829
Far (B+D+P+L) cps	951.292	955.629	4.337	16.632
Near Resolution	9.07	9.13	0.060	0.50
Far Resolution	9.58	9.91	0.330	1.00

PASS/FAIL SUMMARY	
Bkg Quality Check:	Passed
Bkg Resolution Check:	Passed
Bkg Verification Check:	Passed

MICRO LOG SHOP CALIBRATION

Tool Name: SDLT - I440M335

Reference Calibration Date: 01-Dec-10 09:15:59

Engineer: C. GULLETT

Calibration Date: 23-Dec-10 12:12:32

Software Version: WL INSITE R3.0.7 (Build 3)

Calibration Version: 1

CALIBRATION COEFFICIENT SUMMARY					
Measurement	Micro Log Normal		Micro Log Lateral		Units
	Measured	Calibrated	Measured	Calibrated	
Tool Zero	-0.07	-0.29	-0.00	0.13	ohmm
Calibration Point #1	-0.06	0.00	-0.01	0.00	ohmm
Calibration Point #2	0.88	20.00	0.87	20.00	ohmm
Internal Reference	10.00	120.25	20.00	155.00	ohmm

Internal Reference	19.98	428.25	20.03	455.93	0.0000
Measurement	Micro Log Normal Tool Value		Micro Log Lateral Tool Value		Units
Tool Zero	-0.14		0.08		V
Calibration Point #1	3.41		-1.95		V
Calibration Point #2	252.20		299.98		V
Internal Reference	5330.63		6880.91		V

DENSITY CALIPER SHOP CALIBRATION

Tool Name: SDLT - I440M335

Reference Calibration Date: 01-Jan-70 00:00:00

Engineer: C. GULLETT

Calibration Date: 23-Dec-10 12:34:50

Software Version: WL INSITE R3.0.7 (Build 3)

Calibration Version: 1

CALIBRATION COEFFICIENTS

Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-1262.62	-1262.62	-7000.00 - -1000.00
Pad Gain	0.0003743	0.0003743	0.000200 - 0.000600
Arm Offset	-46.22	-46.22	-5000.00 - 3000.00
Arm Gain	0.0005168	0.0005168	0.000300 - 0.000700
Arm Power	-0.000005491	-0.000005491	-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)	2.00	2.00	0.00	+/- 0.20
Medium Ring (in)	3.75	3.75	0.00	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.50	6.50	0.00	+/- 0.20
Medium Ring (in)	8.25	8.25	0.00	+/- 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 - E2817-S4353

Reference Calibration Date: 04-Jun-10 17:05:07

Engineer: C. BLUE

Calibration Date: 13-Aug-10 20:06:47

Software Version: WL INSITE R3.0.4 (Build 6)

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	1.0167	1.05	0.95	1.0163	1.05	0.95	1.0146	1.05
A2 (50")	0.95	1.0118	1.05	0.95	1.0132	1.05	0.95	1.0128	1.05
A3 (29")	0.95	1.0069	1.05	0.95	1.0085	1.05	0.95	1.0057	1.05
A4 (17")	0.95	1.0150	1.05	0.95	1.0133	1.05	0.95	1.0143	1.05
A5 (10")	N/A	N/A	N/A	0.95	1.0000	1.05	0.95	0.9992	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.9881	1.05	0.95	0.9862	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	-0.995	2	-6	-4.514	-2	-8	-4.963	-2
A2 (50")	-7	-1.354	-1	-6	-2.867	-2	-7	-4.762	-2
A3 (29")	-27	-13.303	-9	-9	-3.580	-3	-7	-3.628	-1
A4 (17")	-180	-90.373	-60	-45	-29.209	-15	-39	-25.034	-13
A5 (10")	N/A	N/A	N/A	-150	-90.980	-50	-80	-43.898	-10
A6 (6")	N/A	N/A	N/A	175	329.261	525	90	166.175	270

TRANSMITTER CURRENT GAIN

Signal	Lower	R	Upper
12K	0.6	0.9189	1.3
36K	1.0	1.8306	2.0
72K	1.0	1.1584	2.0

R-MUD VERIFICATION

Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
Mud Cell	0.95	0.996	1.05

CALIBRATION SUMMARY


Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-11294346						
Gamma Ray Calibrator	234.0	230.7	-----	3.3	+/- 9.00	api
DSNT-11277440						
Snow-Block Porosity	0.0728	0.0745	-----	-0.0017	+/- 0.0150	decP
SDLT-I440M335						
Near(B+D+P+L)	1761.641	1761.228	-----	0.413	+/-16.829	cps
Far(B+D+P+L)	951.292	955.629	-----	-4.337	+/-16.632	cps
MicroLog Normal	428.25	-----	-----	0.00	-----	ohmm
MicroLog Lateral	455.93	-----	-----	0.00	-----	ohmm
Pad Extension	3.75	-----	-----	0.00	+/-0.20	in
Ring Diameter	8.25	-----	-----	0.00	+/-0.20	in
ACRt-E2817-S4353						
Mud Cell	0.996	-----	-----	0.000	-----	ohm-m

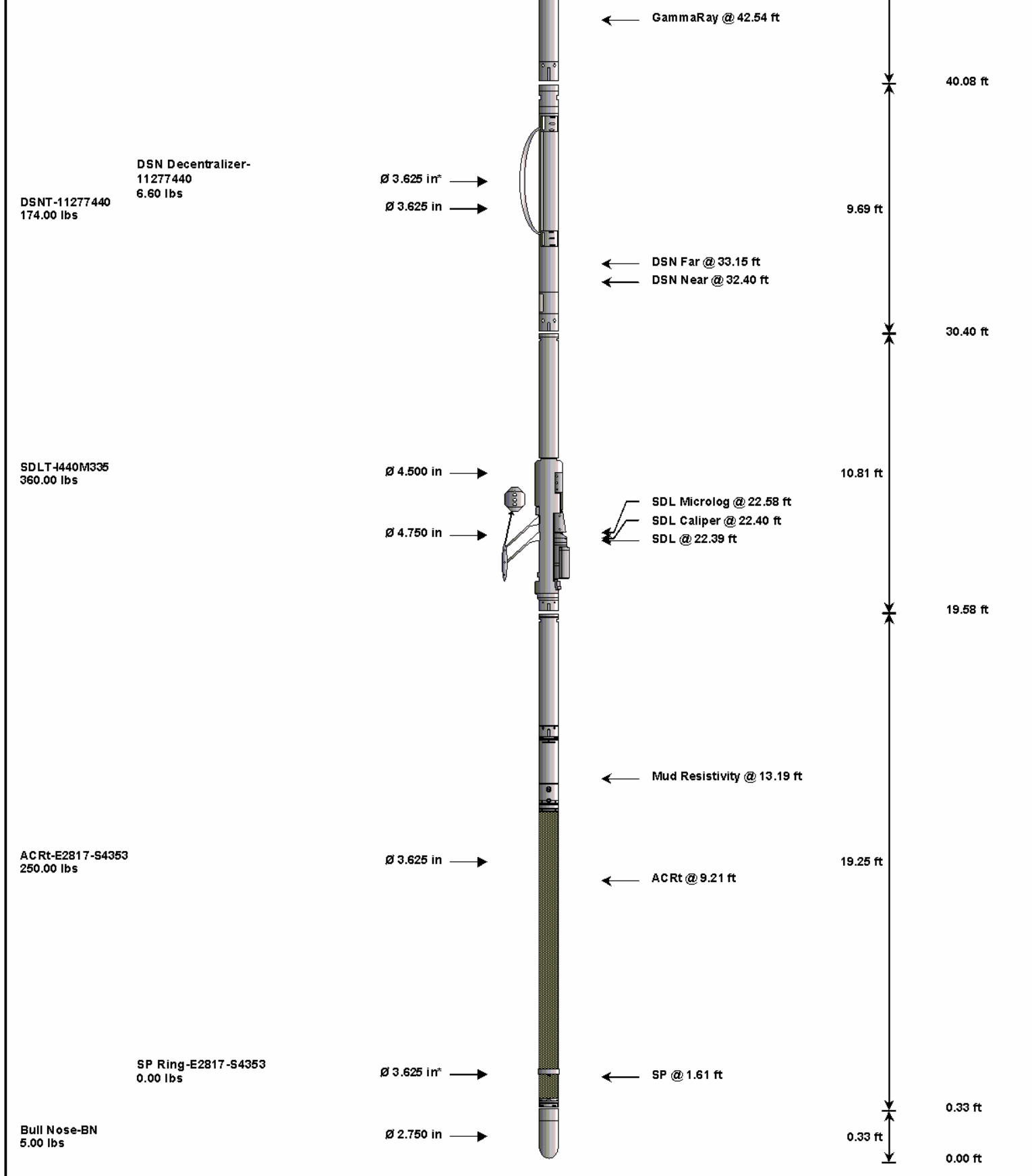
Data: ANA_BROWN_5_2SI0001 TRIPLEIDLE

Date: 06-Jan-11 05:47:27

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
RWCH-A094 135.00 lbs		Ø 3.625 in →		Load Cell @ 51.17 ft BH Temperature @ 50.60 ft	6.25 ft	54.85 ft
						48.60 ft
GTET-11294346 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)
RWCH	Releasable Wireline Cable Head	A094	135.00	6.25	48.60	300.00
GTET	Gamma Telemetry Tool	11294346	165.00	8.52	40.08	60.00
DSNT	Dual Spaced Neutron	11277440	174.00	9.69	30.40	60.00
DCNT	DSN Decentralizer	11277440	6.60	5.13 *	33.73	300.00
SDLT	Spectral Density Tool	I440M335	360.00	10.81	19.58	60.00
ACRt	Array Compensated True Resistivity	E2817-S4353	250.00	19.25	0.33	300.00
SP	SP Ring	E2817-S4353	0.00	0.25 *	1.61	300.00
BLNS	Bull Nose	BN	5.00	0.33	0.00	300.00

Total

1,095.60

54.85

* Not included in Total Length and Length Accumulation.

Data: ANA_BROWN_5_2S\0001 TRIPLE\IDLE

Date: 06-Jan-11 05:37:59

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

WELL **BROWN 5-2S**

FIELD **WATTENBERG**

COUNTY **WELD**

STATE

CO

HALLIBURTON

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