HALLIBURTON

SPECTRAL DENSITY DUAL SPACED NEUTRON ARRAY COMPENSATED TRUE RESISTIVITY

COMPANY NOBLE

WELL PEPPLER PC AA17-25

FIELD WATTENBERG

COUNTY WELD STATE CO

API No. 05123321080000

Location SHL: 1300' FSL & 1380' FWL SESW
LAT: 40.48287°
LONG: -104.46537°

Sect. 17 Twp. 6N Rge. 63W

Other Services:
RWCH
GTET
CSNG

Permanent Datum	GL	Elev. 4667.0 ft	Elev.: K.B. 4681.0 ft
Log measured from	KB	, 14.0 ft above perm. Datum	D.F. 4681.0 ft
Drilling measured from	KB		G.L. 4667.0 ft

Date		24-Jan-11					
Run No.		ONE					
Depth - Driller		6961.00 ft					
Depth - Logger		6955.0 ft					
Bottom - Logged Interval		6946 ft					
Top - Logged Interval		574 ft					
Casing - Driller		8.625 in	@ 574.0 ft	@		@	
Casing - Logger		574.0 ft					
Bit Size		7.875 in		@		@	
Type Fluid in Hole		WBM					
Density	Viscosity	8.4 ppg	26.00 s/qt				
PH	Fluid Loss	7.00 pH					
Source of Sample		FLOWLINE					
Rm @ Meas. Temperature		1.640 ohmm	@ 42.00 degF	@		@	
Rmf @ Meas. Temperature		0.83 ohmm	@ 75.00 degF	@		@	
Rmc @ Meas. Temperature		0.890 ohmm	@ 75.00 degF	@		@	
Source Rmf	Rmc	CHART	CHART				
Rm @ BHT		0.34 ohmm	@ 231.0 degF	@		@	
Time Since Circulation		6.0 hr					
Time on Bottom		24-Jan-11 23:51					
Max. Rec. Temperature		231.0 degF	@ 6955.0 ft	@		@	
Equipment	Location	10800785	BRIGHTON				
Recorded By		C. BLUE					
Witnessed By		J. TURNER					

Fold here

Service Ticket No.: 7924920 API Serial No.: 05123321080000 PGM Version: WL INSITE R3.0.7 (Build 3)

CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE

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	ACRT 336-042	N/A	0.5" S.O.	N/A
@					
@					
@					
@					

EQUIPMENT DATA

GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Run No.	ONE	Run No.		Run No.	ONE	Run No.	ONE
Serial No.	11215095	Serial No.		Serial No.	I332M335	Serial No.	11219332
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	Depth		Speed	Scale		Scale		Matrix	Scale		Matrix	Scale		Matrix
No.	From	To	ft/min	L	R	L	R		L	R		L	R	
ONE	TD	6759	REC	0	250				20%	0%	2.68 g/cc	20%	0%	SAND
ONE	6759	6464	REC	0	250				20%	0%	2.71 g/cc	20%	0%	LIME
ONE	6464	CSG	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 FOR 4.5 INCH PRODUCTION CASING

TENSION PULLS, WASHOUTS, AND BOREHOLE RUGOSITY AFFECT TOOL RESPONSE

CREW: J. WALKER, N. GOULD RIG: CADE 22

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	Formation Density Matrix	2.680	g/cc
6464.00				
	DSNT	Neutron Lithology	Limestone	
	SDLT	Formation Density Matrix	2.710	g/cc
6759.00				
	SHARED	Bit Size	7.875	in
	SHARED	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	Borehole Fluid Weight	8.700	ppg
	SHARED	Oil Based Mud System?	No	
	SHARED	Mud Resistivity	1.640	ohmm
	SHARED	Temperature of Mud	42.0	degF
	SHARED	Logging Interval is Cased?	No	
	SHARED	AHV Casing OD	4.500	in
	SHARED	Surface Temperature	40.0	degF
	SHARED	Total Well Depth	6955.00	ft
	SHARED	Bottom Hole Temperature	231.0	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	Potassium	0.00	%
GTET	Mud Type	Natural	
GTET	Tool Position	Standoff	
CSNG	Process CSNG Data?	Yes	
CSNG	Is Tool Centralized?	No	
CSNG	Mud Type?	Natural	
CSNG	Percent K in Mud by Weight?	0.00	%
CSNG	Gamma Enviromental Corrections?	Yes	
CSNG	Barite Correction Factor	1.00	
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 Density?	Yes	
SDLT	Process Density EVR?	No	
SDLT	Is Hole Air Drilled?	No	
SDLT	Logging Calibration Blocks?	No	
SDLT	SDLT Pad Temperature Valid?	Yes	
SDLT	Disable temperature warning	No	
SDLT	Weighted Mud Correction Type?	None	
SDLT	Formation Density Matrix	2.680	g/cc
SDLT	Formation Density Fluid	1.000	g/cc
SDLT	Process Caliper Outputs?	Yes	
SDLT	Process MicroLog Outputs?	Yes	
ACRt	Process ACRt?	Yes	
ACRt	Minimum Tool Standoff	0.50	in
ACRt	Temperature Correction Source	FP Lwr & FP Upr	
ACRt	Tool Position	Free Hanging	
ACRt	Rmud Source	Mud Cell	
ACRt	Minimum Resistivity for MAP	0.20	ohmm
ACRt	Maximum Resistivity for MAP	200.00	ohmm
ACRt	Threshold Quality	0.50	

BOTTOM

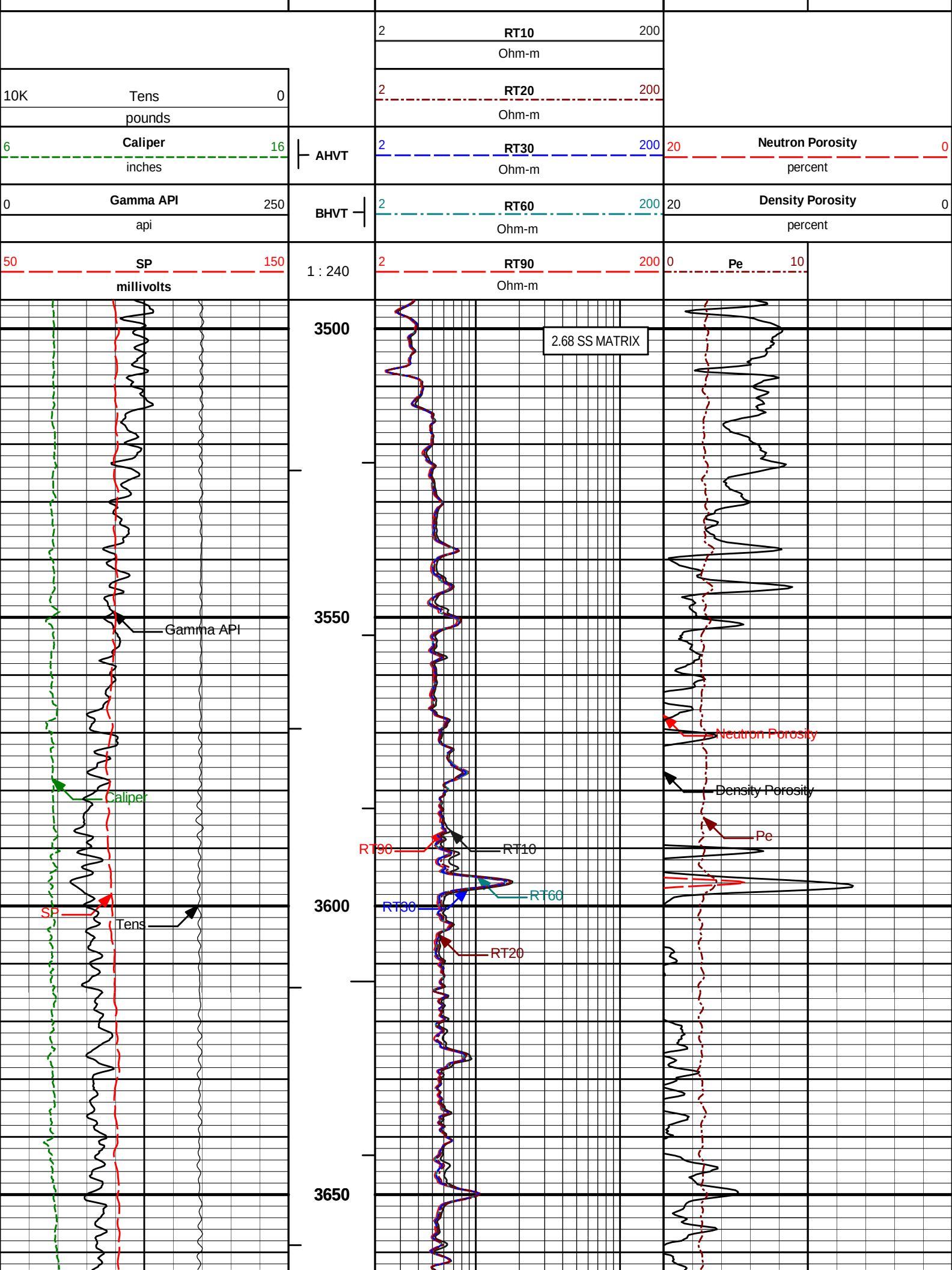
Data: PEPPLER_PC17_25\0001 NOBLE\003.01 25-Jan-11 00:46 Up **Date: 25-Jan-11 00:48:52**

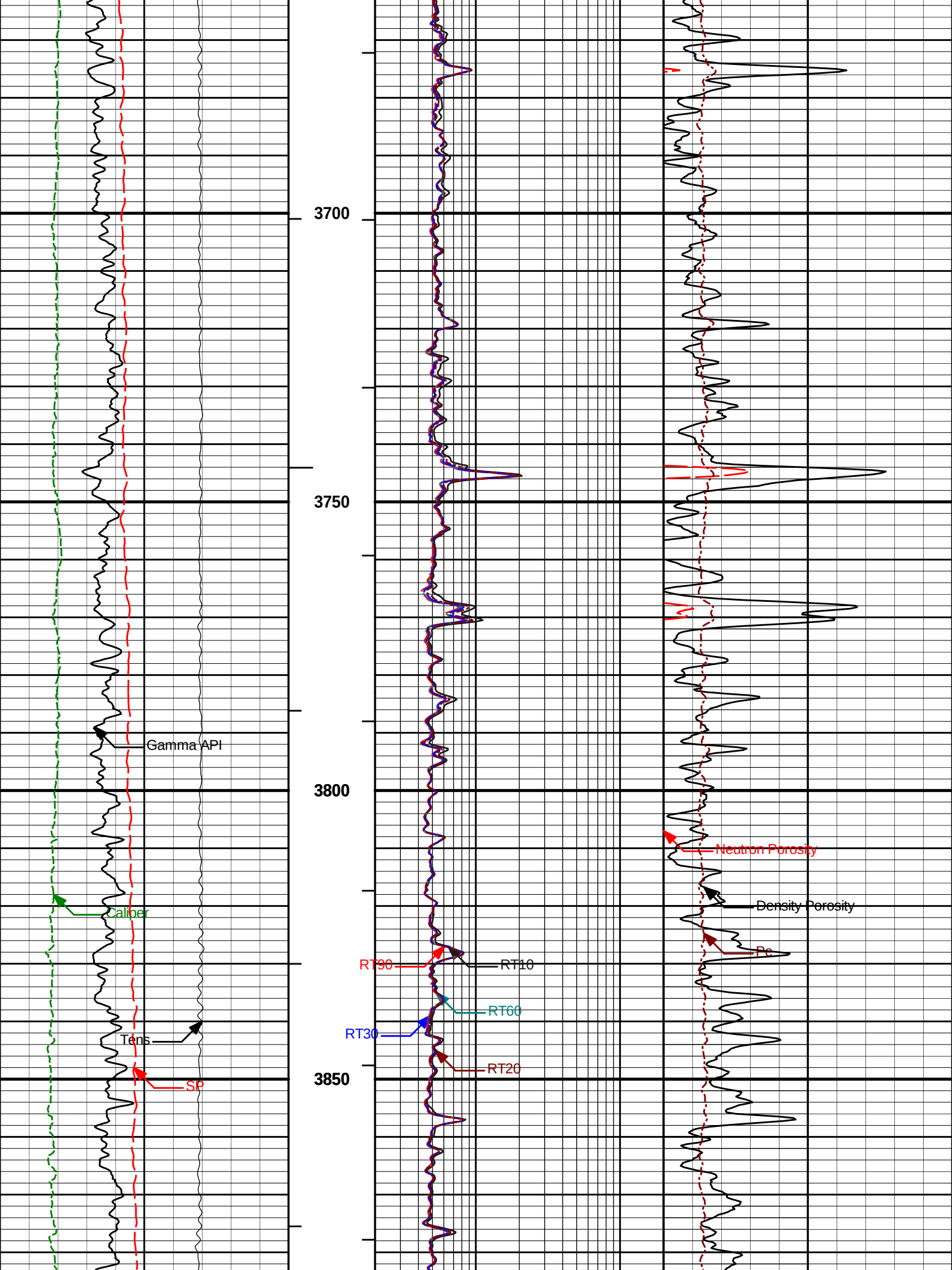
HALLIBURTON

Plot Time: 25-Jan-11 01:27:27
Plot Range: 3495 ft to 5155 ft
Data: {ActiveWell}\Well Based\MAIN*
Plot File: \\COMP\PARK_SUS

MAIN PASS 5" = 100'

Track 1	Depth Track	Track 2	Track 5	Track 3


10K
Tens
0
pounds
6
Caliper
16
inches
0
Gamma API
250
api
50
SP
150
millivolts
1 : 240
AHVT
BHVT
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
20
Neutron Porosity
0
percent
20
Density Porosity
0
percent
0
Pe
10
3500
3550
3600
3650
2.68 SS MATRIX
Gamma API
Caliper
SP
Tens
RT90
RT10
RT30
RT60
RT20
Neutron Porosity
Density Porosity
Pe


3700
3750
3800
3850
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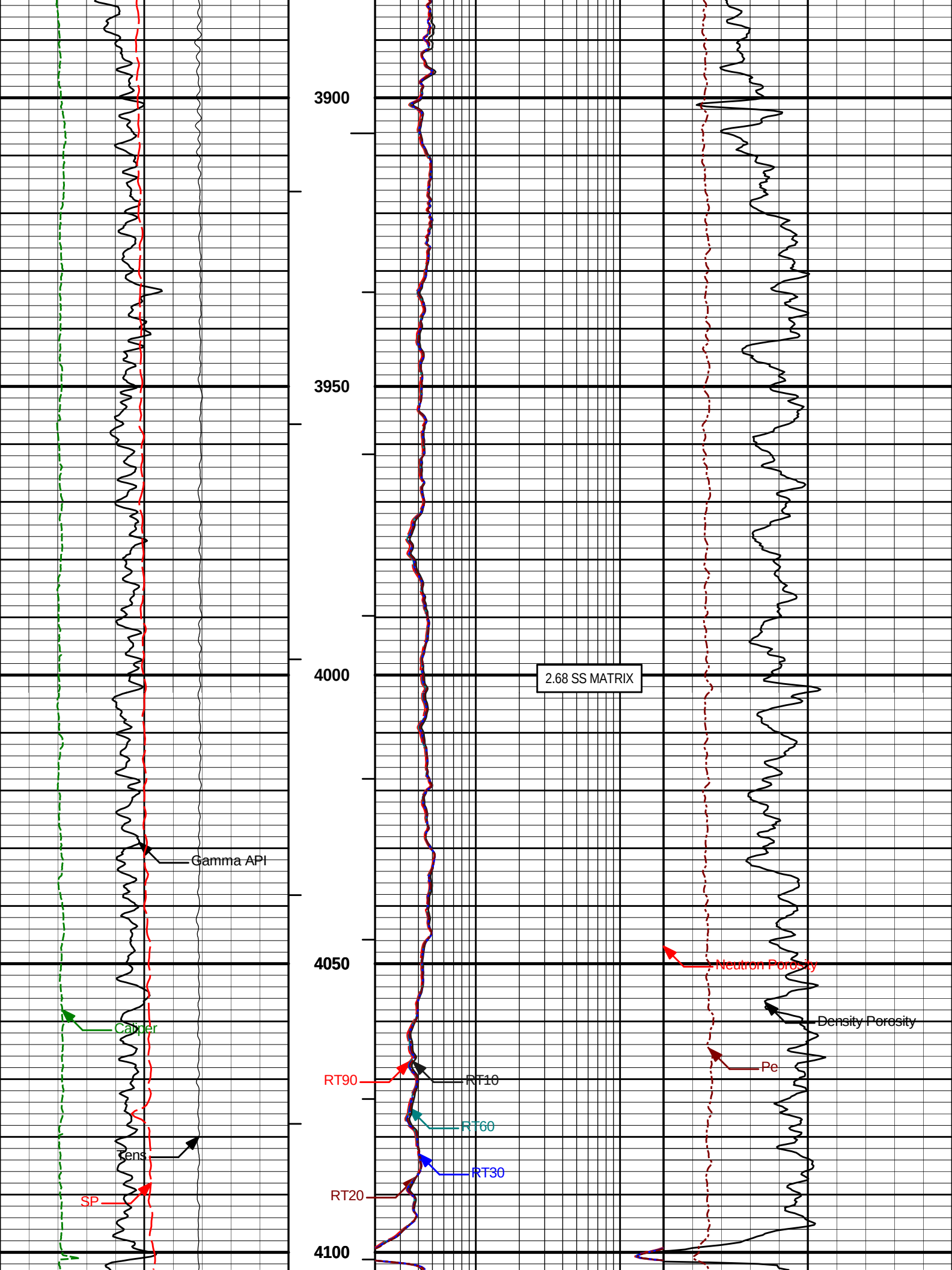
Caliper
Tens
SP
RT90
RT10
RT60
RT30
RT20
Neutron Porosity
Density Porosity
Pe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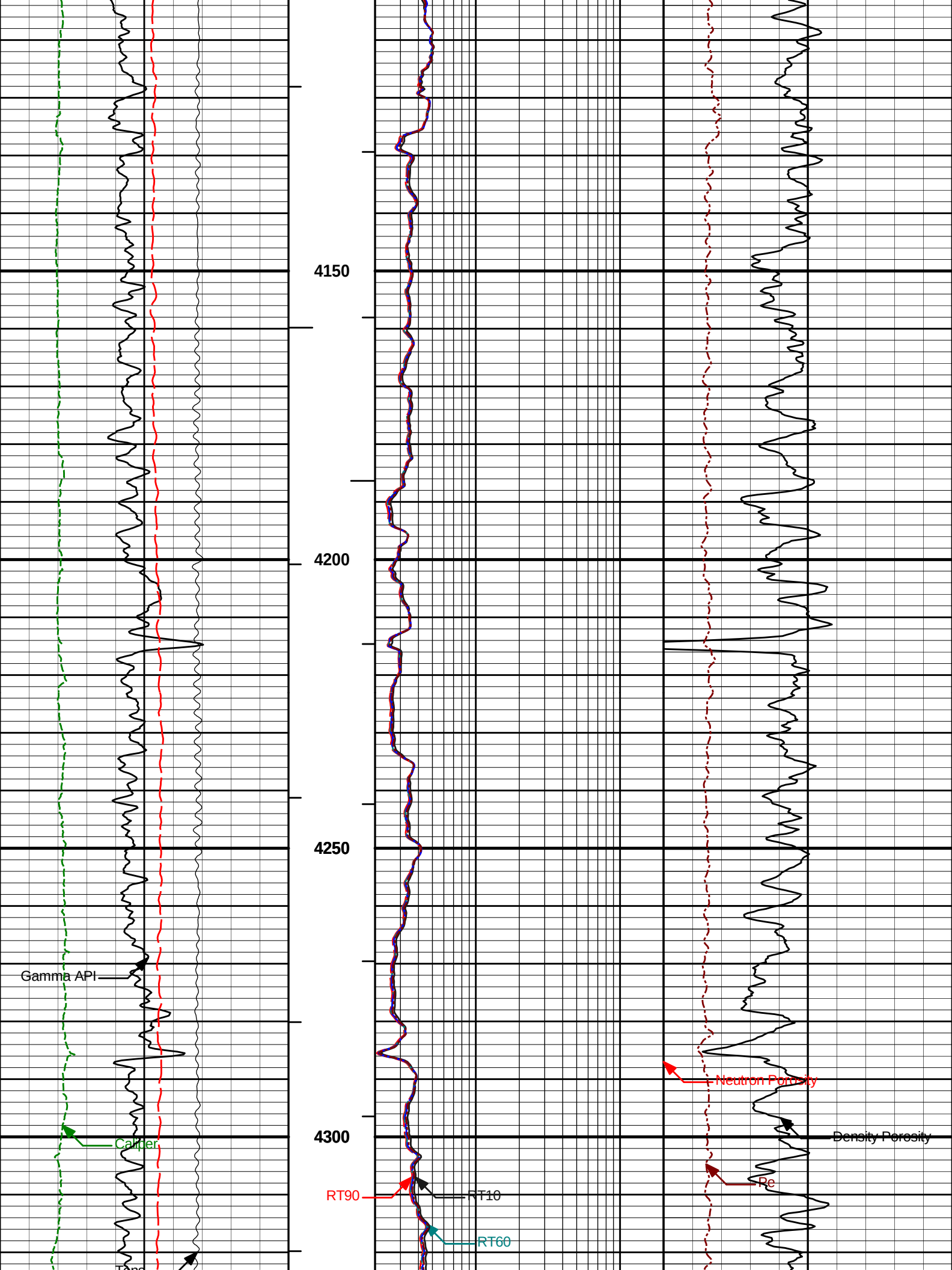
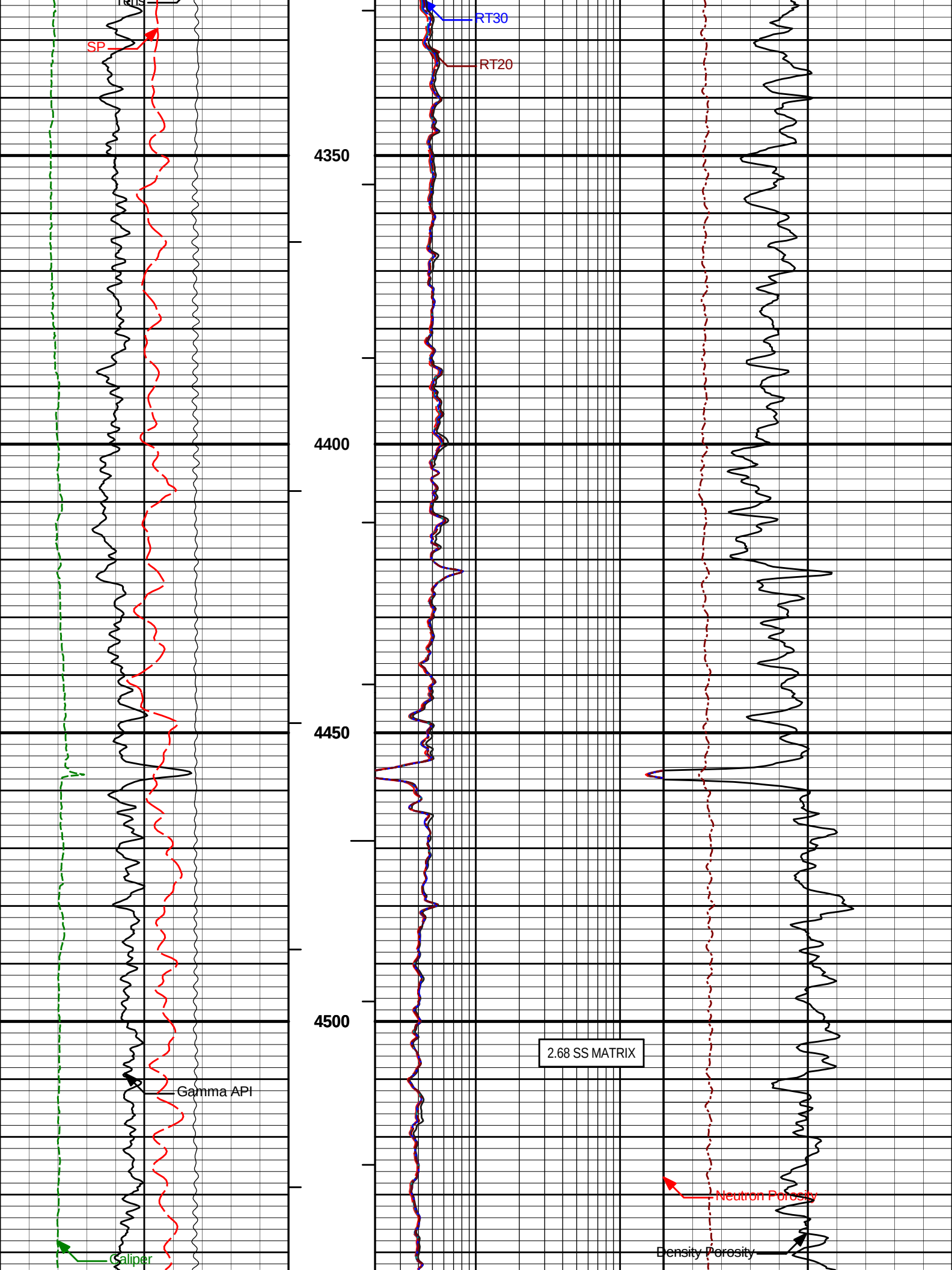
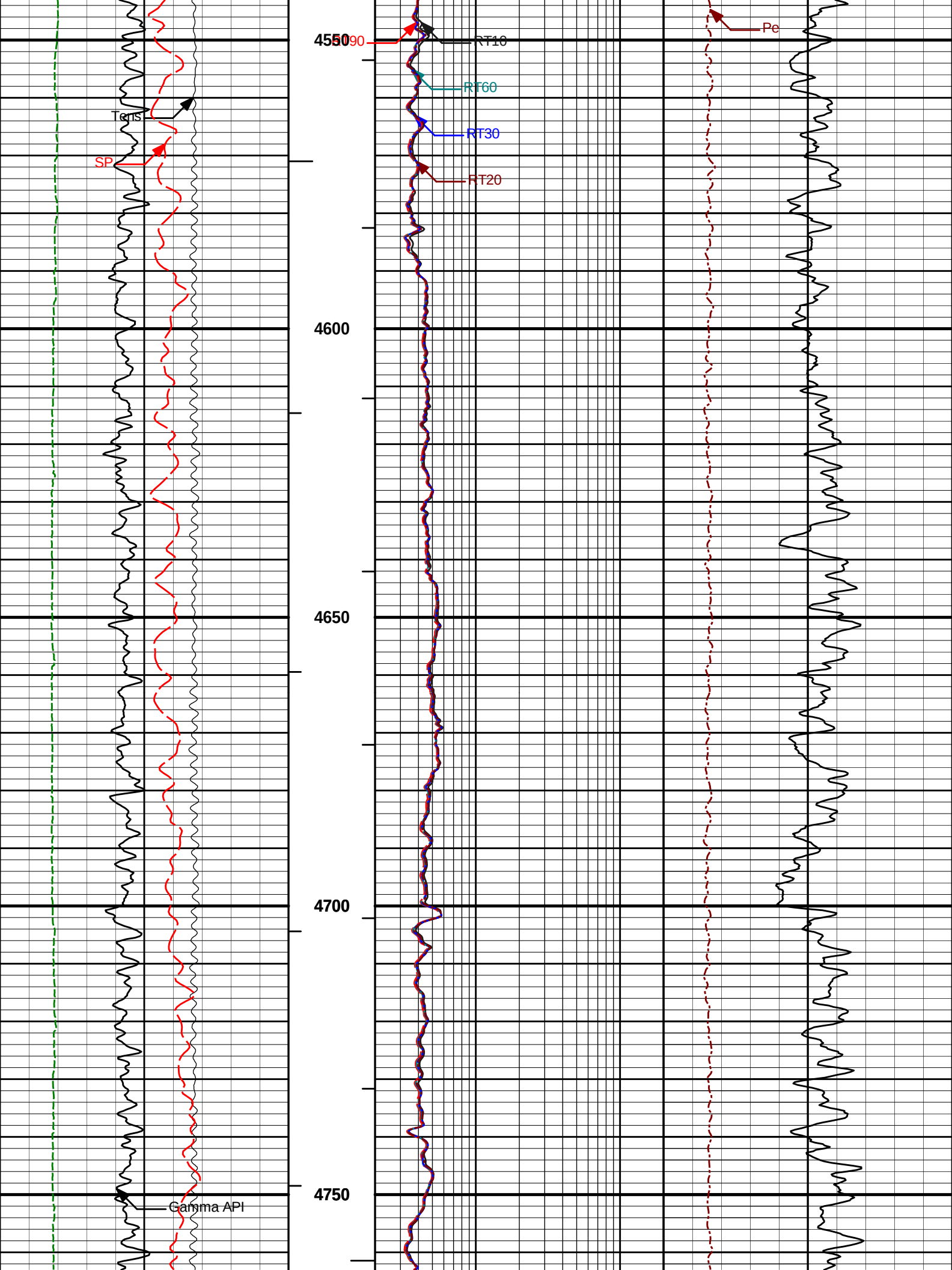
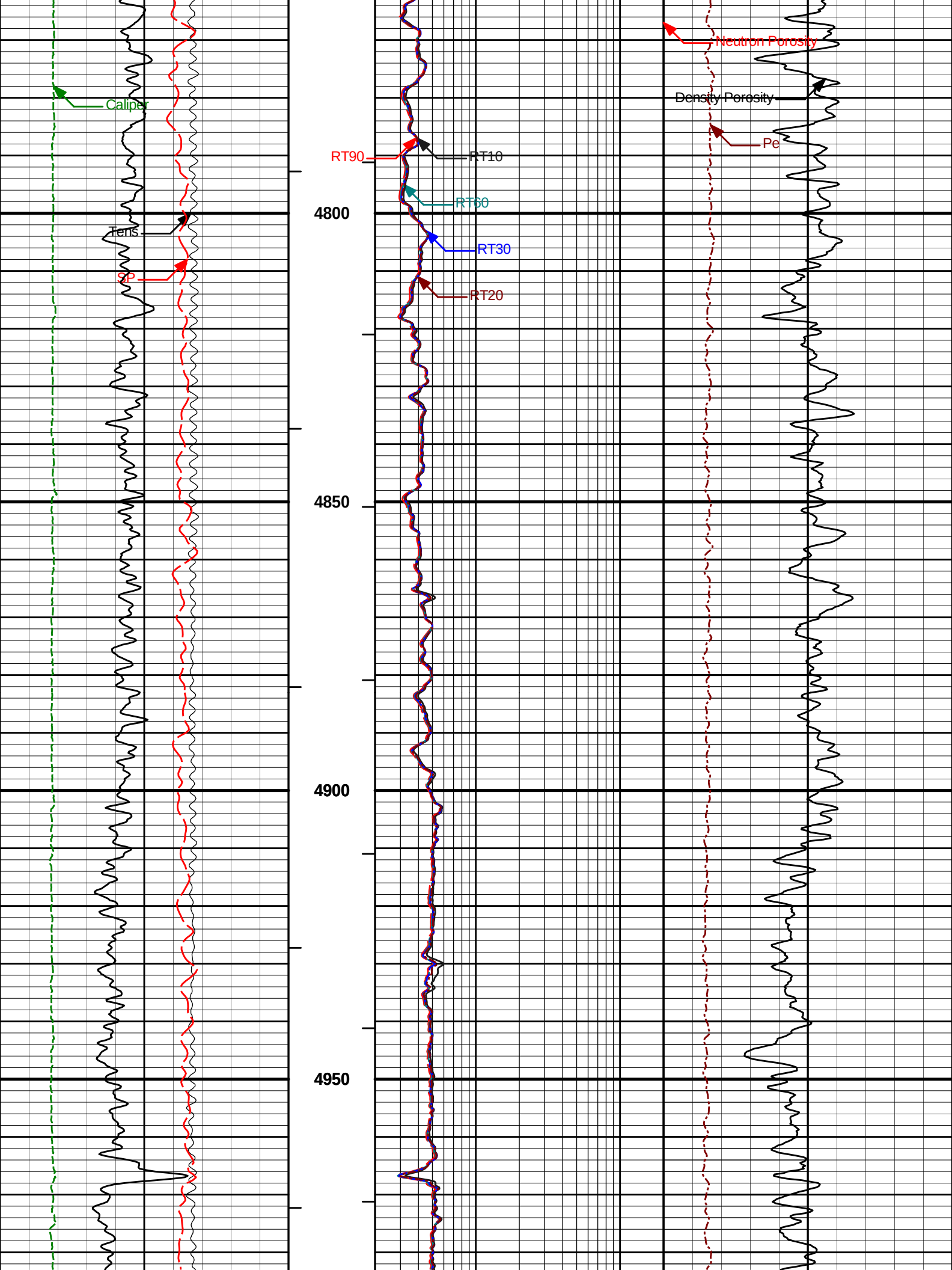
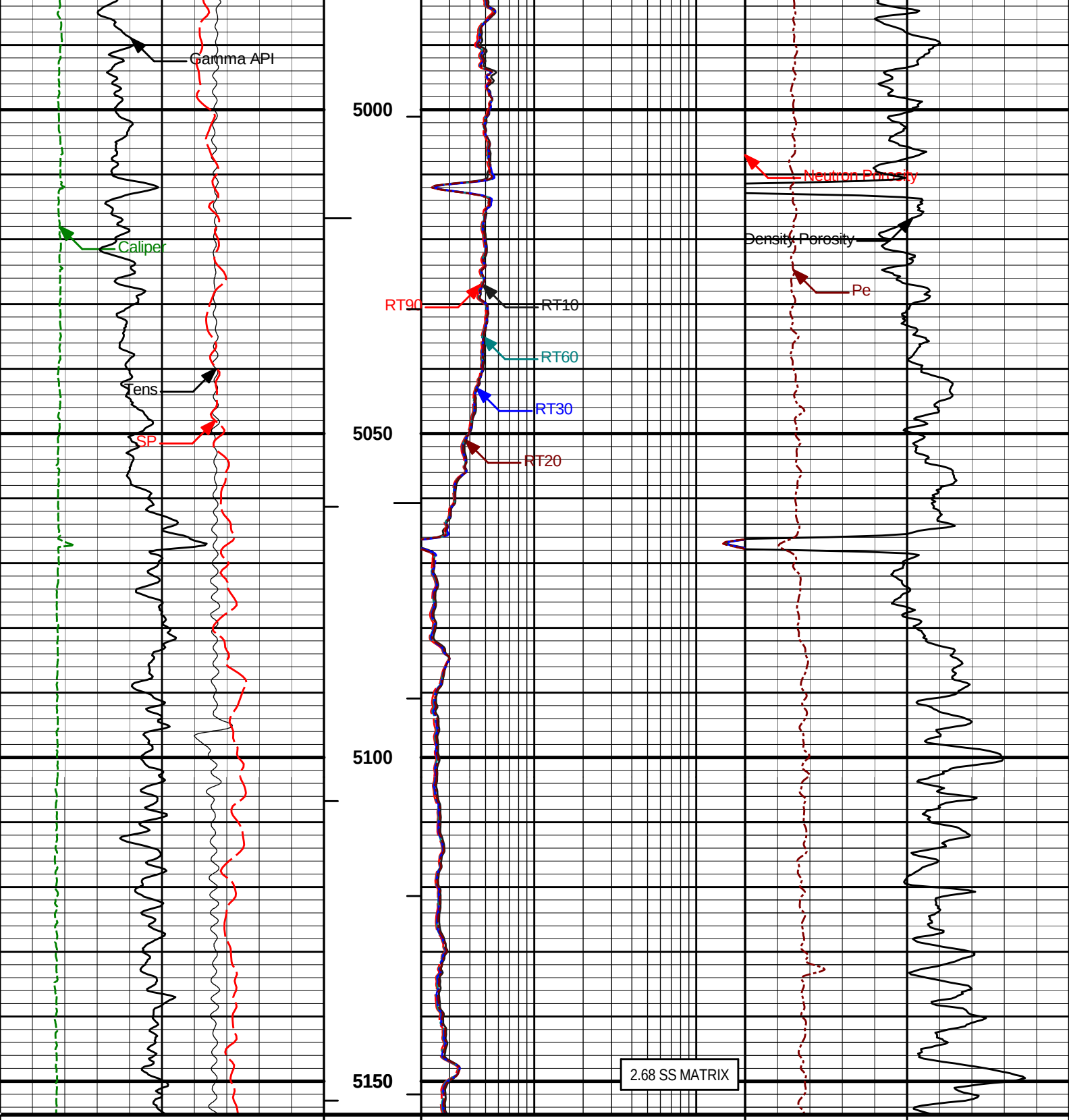
3950
4000
4050
4100
2.68 SS MATRIX
Gamma API
Caliper
Tens
SP
RT90
RT10
RT60
RT30
RT20
Neutron Porosity
Density Porosity
Pe


4150
4200
4250
4300
Gamma API
Caliper
RT90
RT10
RT60
Neutron Porosity
Density Porosity
Re


SP
RT30
RT20
4350
4400
4450
4500
2.68 SS MATRIX
Gamma API
Caliper
Neutron Porosity
Density Porosity


4550
4600
4650
4700
4750
RT90
RT10
RT60
RT30
RT20
Pe
Tens
SP
Gamma API


Caliper
Tens
SP
RT90
RT10
RT60
RT30
RT20
Neutron Porosity
Density Porosity
Pe
4800
4850
4900
4950



50 **SP** 150	1 : 240	2 **RT90** 200	0 **Pe** 10
millivolts		Ohm-m	
0 **Gamma API** 250	**BHVT**	2 **RT60** 200	20 **Density Porosity** 0
api		Ohm-m	percent
6 **Caliper** 16	**AHVT**	2 **RT30** 200	20 **Neutron Porosity** 0
inches		Ohm-m	percent
10K Tens 0		2 **RT20** 200	
pounds		Ohm-m	
		2 **RT10** 200	
		Ohm-m	

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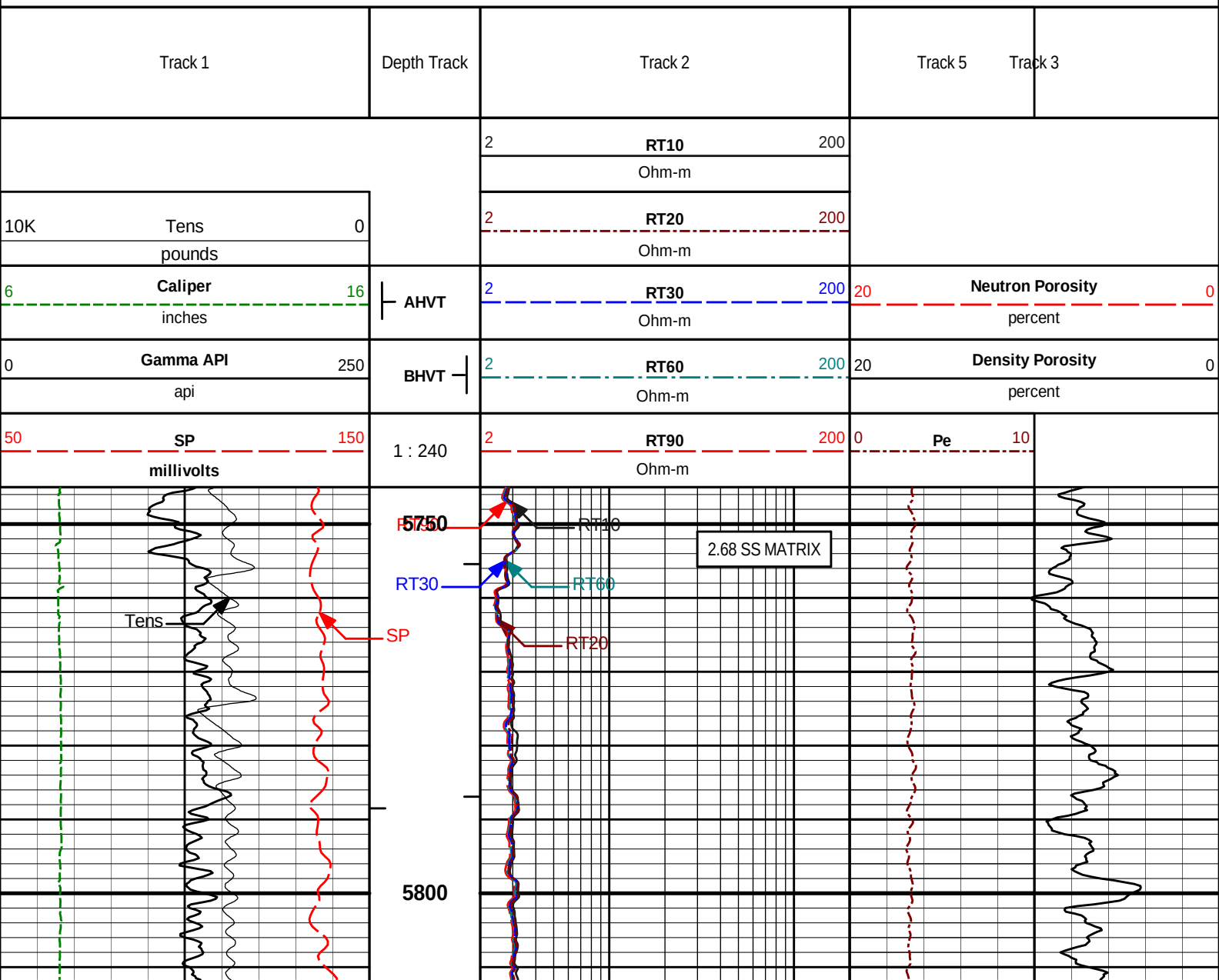
Plot Time: 25-Jan-11 01:27:30
Plot Range: 3495 ft to 5155 ft
Data: {ActiveWell}\Well Based\MAIN*
Plot File: \\COMP\PARK_SUS

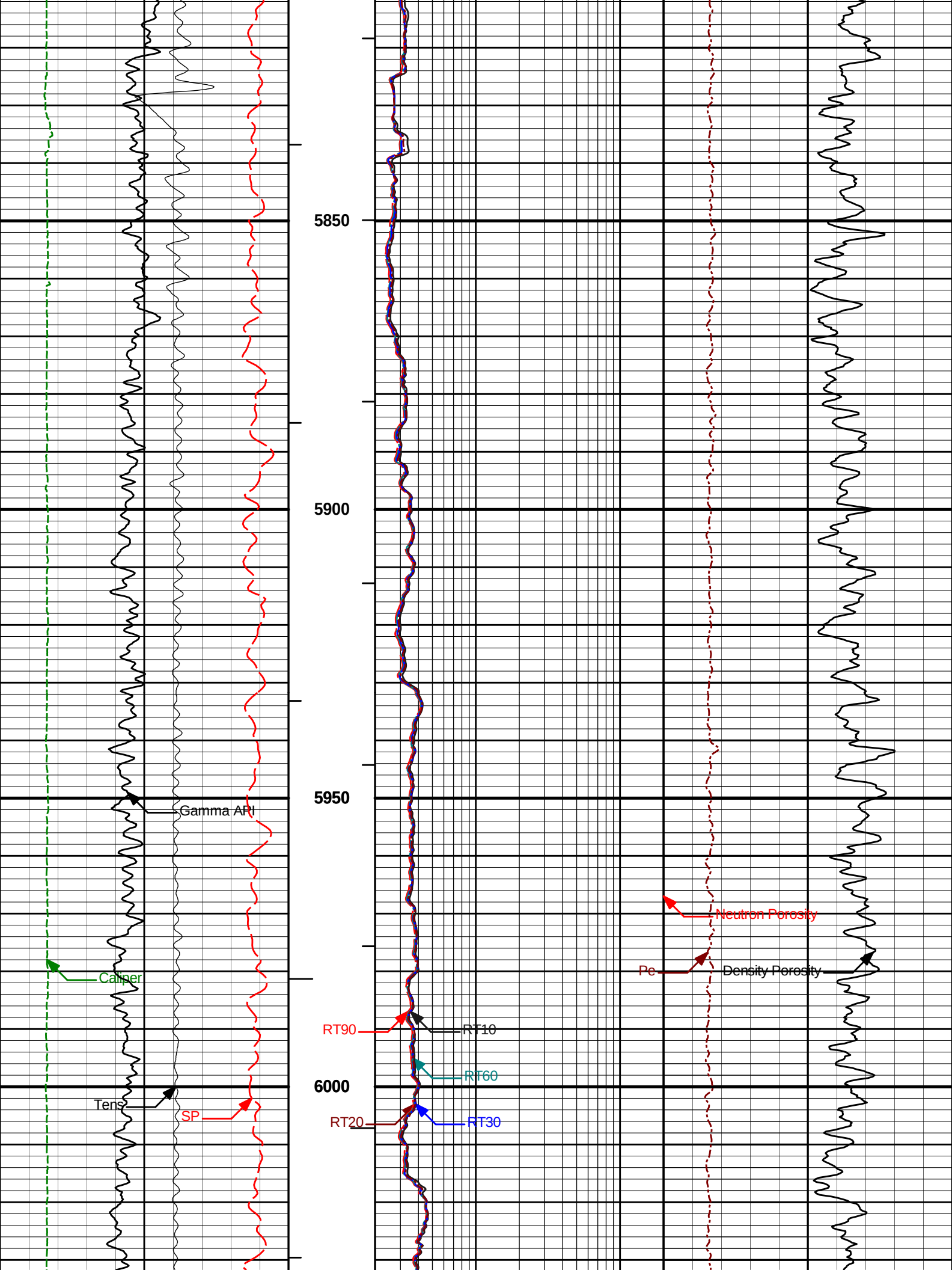
MAIN PASS 5" = 100'

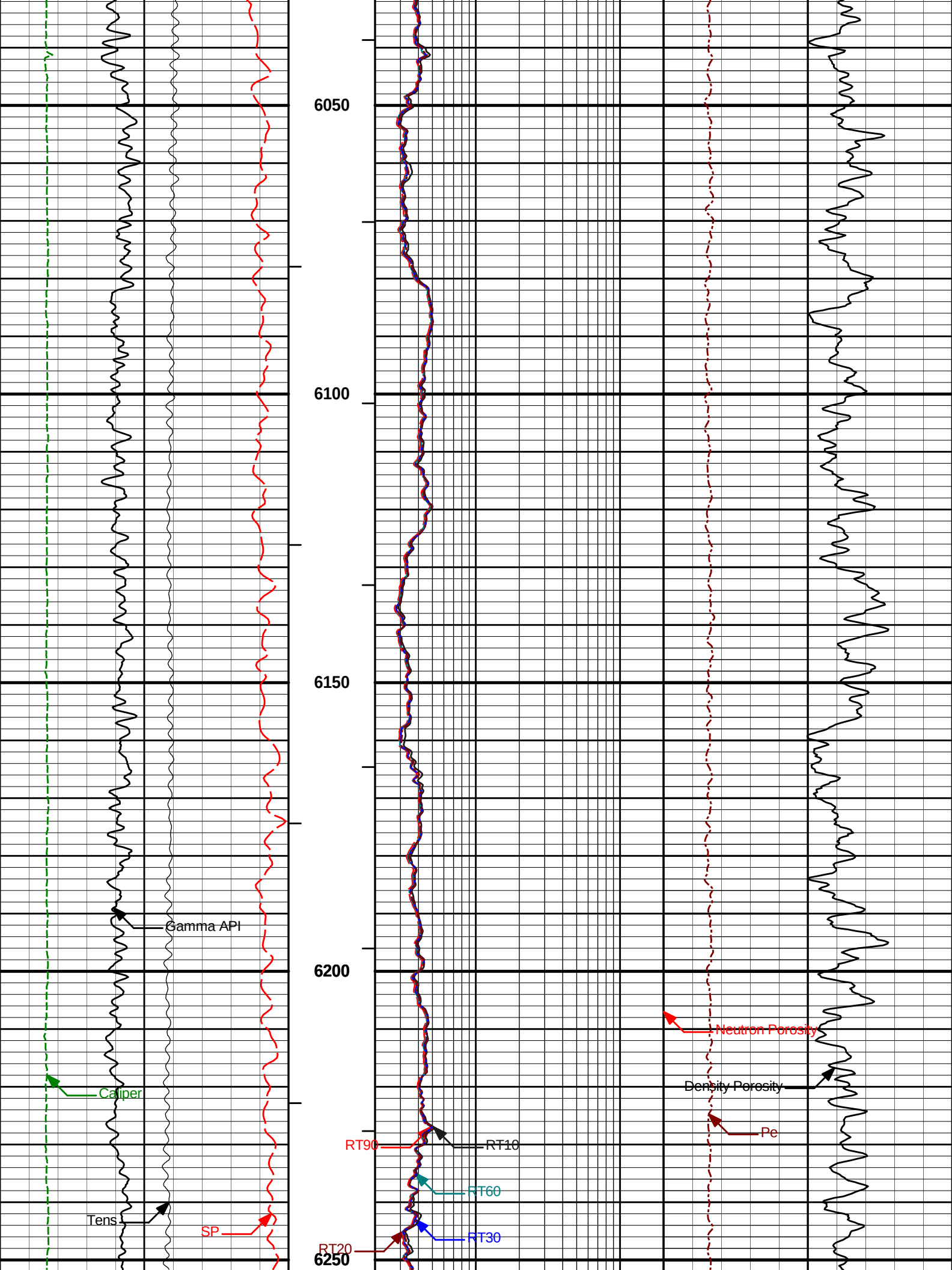
HALLIBURTON

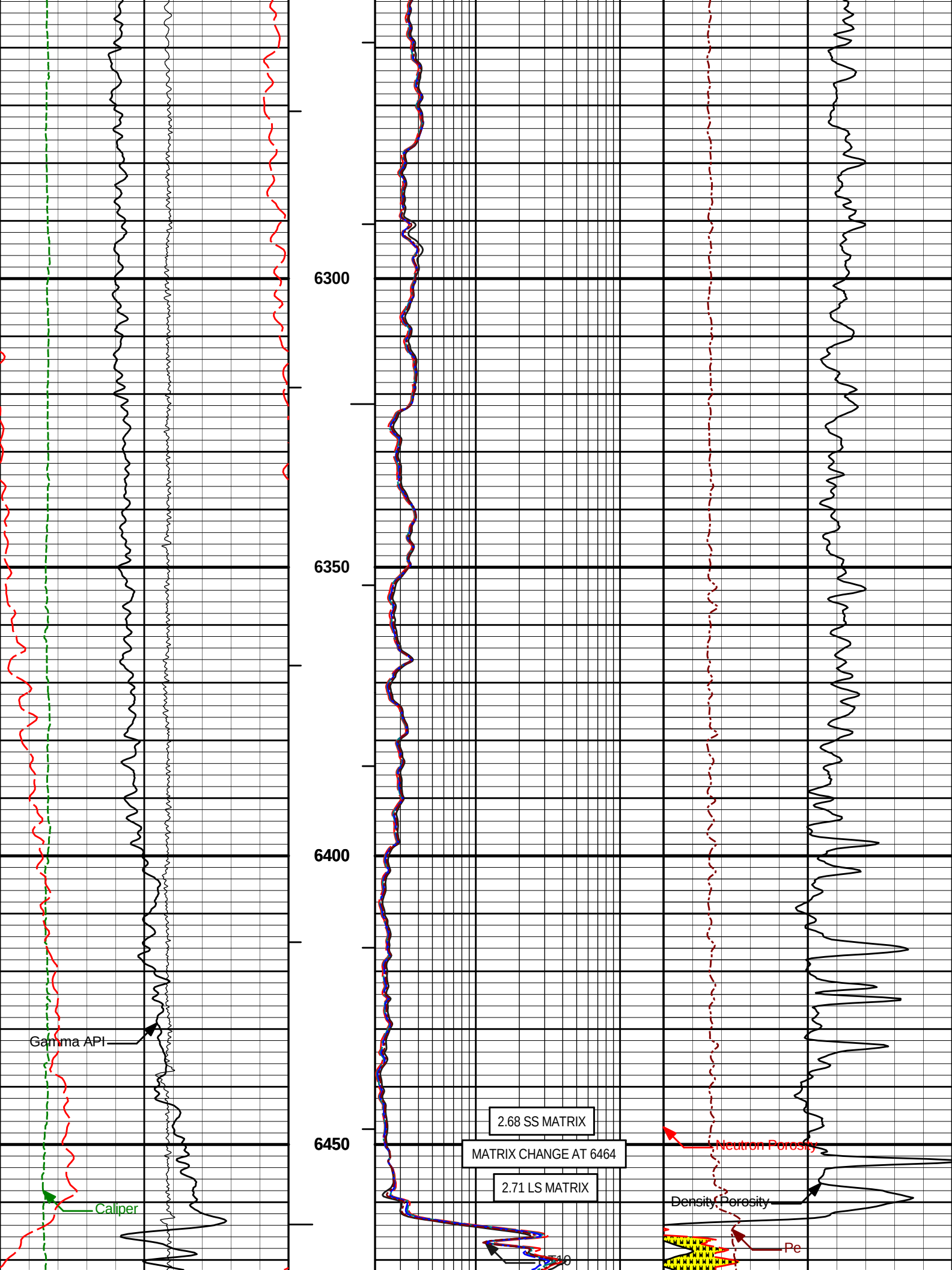
Plot Time: 25-Jan-11 01:27:30
Plot Range: 5745 ft to 6960.67 ft
Data: PEPPLER_PC17_25\Well Based\MAIN*
Plot File: \\COMP\NIO_COD

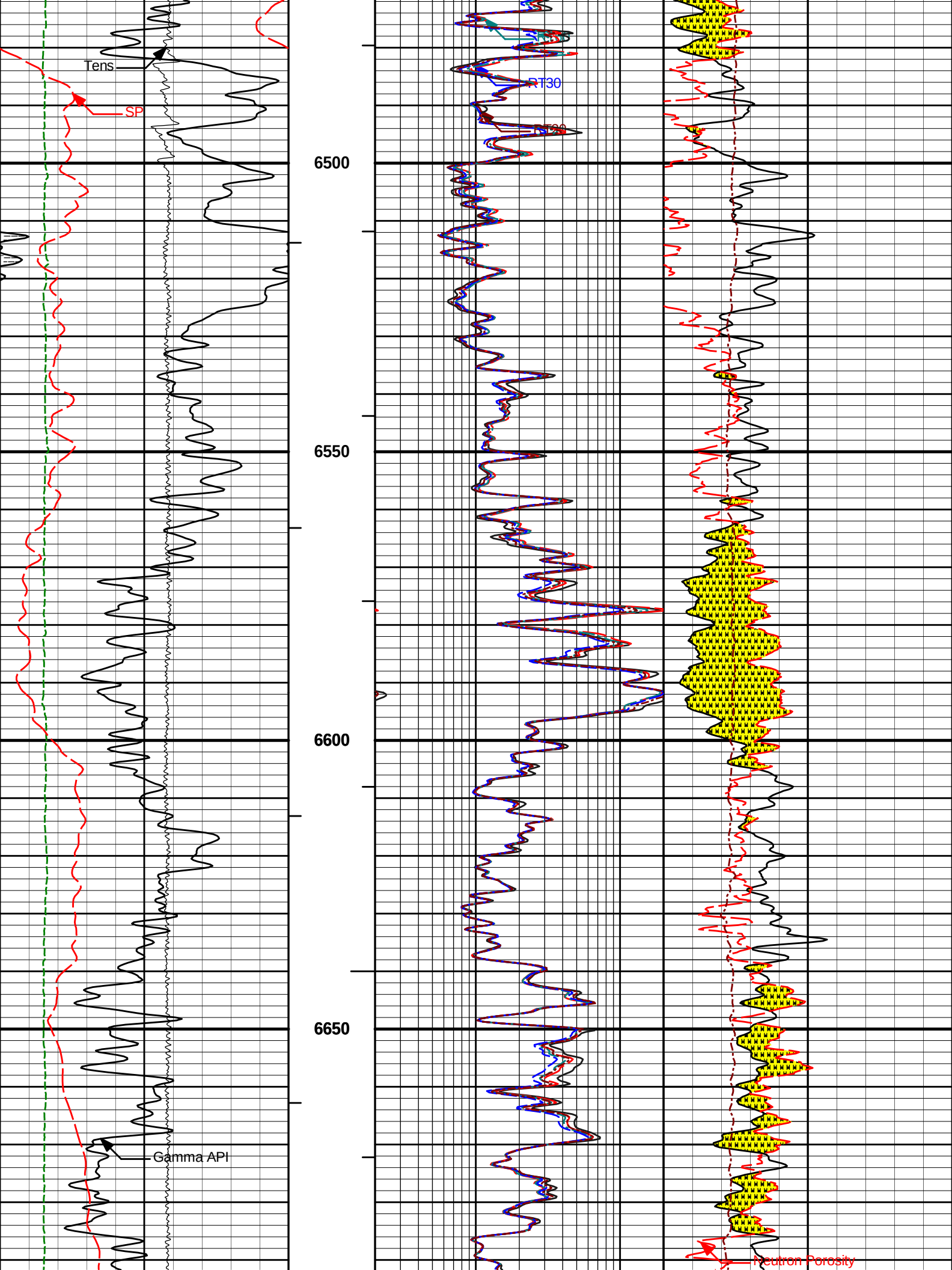
MAIN PASS 5" = 100'

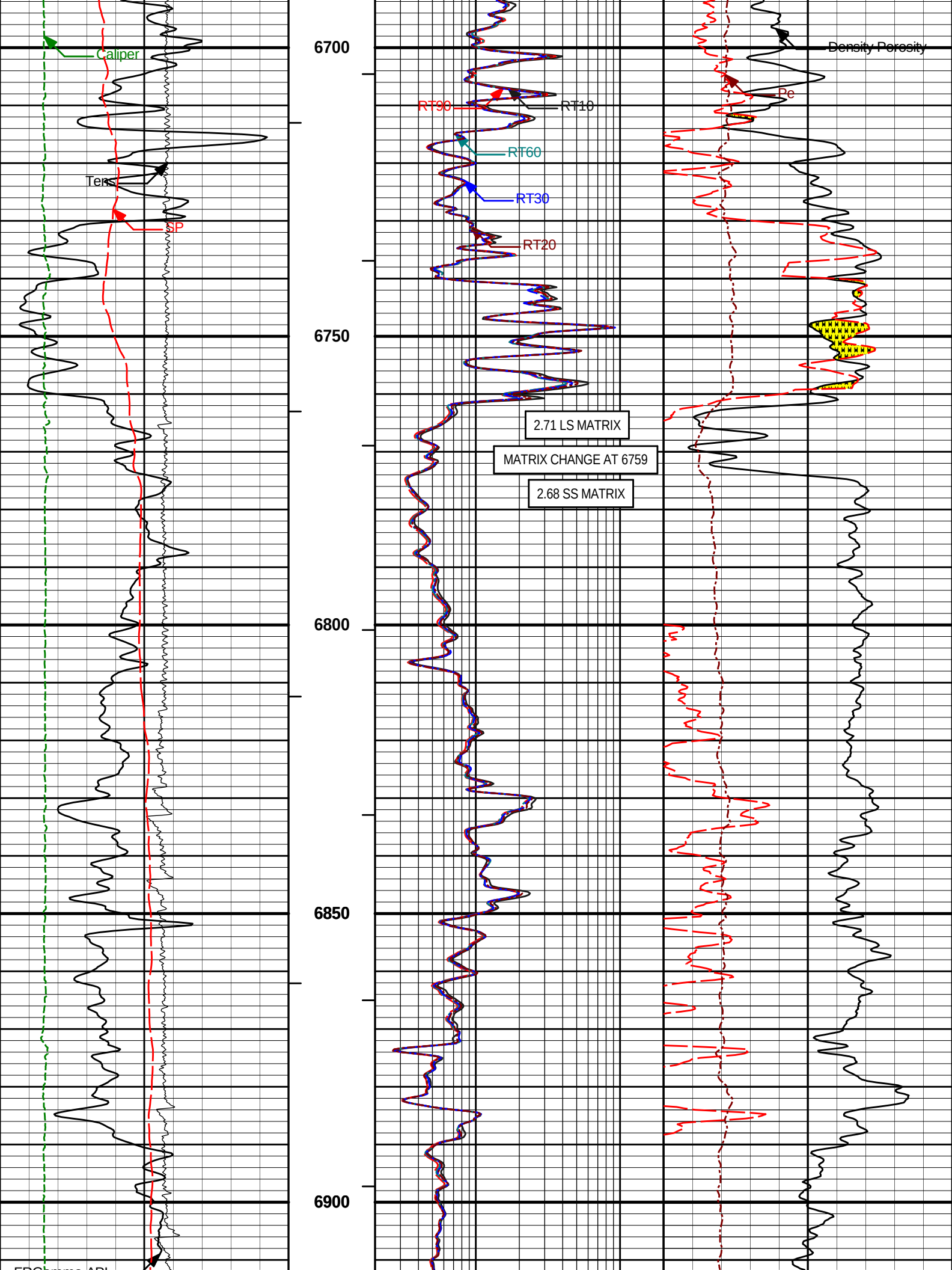


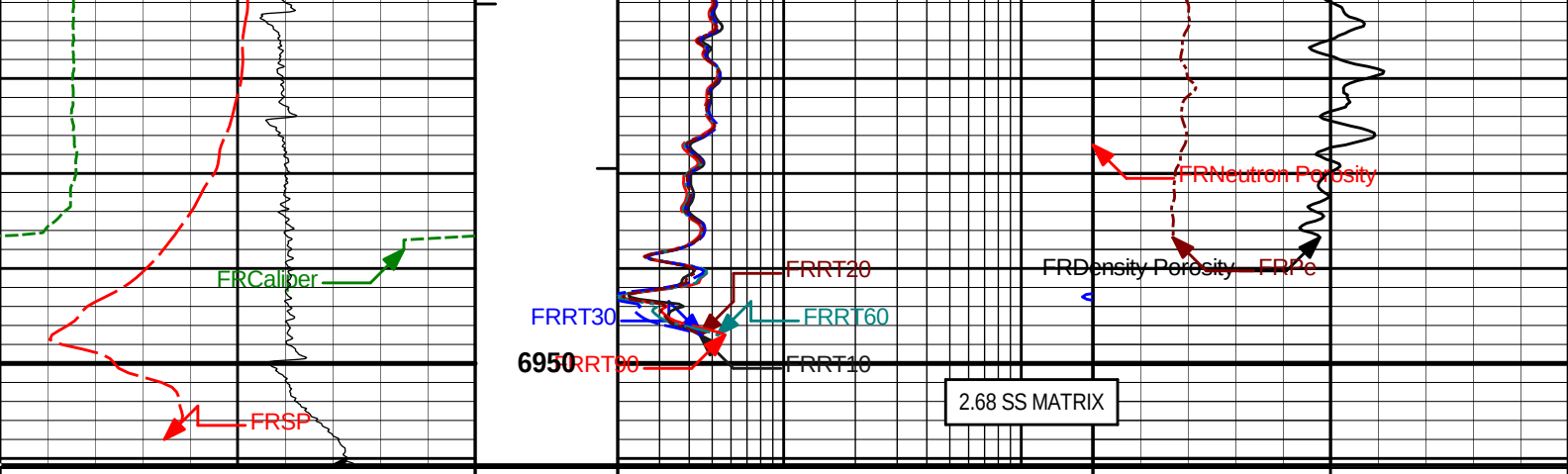

5850
5900
5950
6000
Gamma API
Caliper
Tens
SP
RT90
RT10
RT60
RT20
RT30
Neutron Porosity
Pe
Density Porosity


6050
6100
6150
6200
6250
Gamma API
Caliper
Tens
SP
RT90
RT10
RT60
RT30
RT20
Neutron Porosity
Density Porosity
Pe


6300
6350
6400
6450
Gamma API
Caliper
2.68 SS MATRIX
MATRIX CHANGE AT 6464
2.71 LS MATRIX
Neutron Porosity
Density Porosity
Pe


Tens
SP
6500
6550
6600
6650
RT30
Gamma API
Neutron Porosity


Caliper
Tens
SP
6700
6750
6800
6850
6900
RT90
RT10
RT60
RT30
RT20
2.71 LS MATRIX
MATRIX CHANGE AT 6759
2.68 SS MATRIX
Density Porosity
Pe



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 / 20 Density Porosity 0 percent
6 Caliper 16 inches	AHVT	2 RT30 200 Ohm-m / 20 Neutron Porosity 0 percent
10K Tens 0 pounds		2 RT20 200 Ohm-m
		2 RT10 200 Ohm-m

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Plot Time: 25-Jan-11 01:27:33
Plot Range: 5745 ft to 6960.67 ft
Data: PEPPLER_PC17_25\Well Based\MAIN*
Plot File: \\COMP\NIO_COD

MAIN PASS 5" = 100'

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name:	**GTET - 11215095**	**Reference Calibration Date:**	**29-Nov-10 15:50:18**
Engineer:	**C. BLUE**	**Calibration Date:**	**11-Jan-11 17:38:46**
Software Version:	**WL INSITE R3.0.7 (Build 3)**	**Calibration Version:**	**1**

Calibrator Source S/N: TB290
Calibrator API Reference:235.00 api

Measurement	Measured	Calibrated	Units
Background	74.1	73.9	api
Background + Calibrator	313.8	313.0	api
Calibrator	238.9	239.1	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name:	**GTET - 11215095**	**Reference Calibration Date:**	**11-Jan-11 17:38:46**
Engineer:	**C. BLUE**	**Calibration Date:**	**24-Jan-11 11:20:34**

Software Version:	**WL INSITE R3.0.7 (Build 3)**	**Calibration Version:**	**1**

Calibrator Source S/N: TB290

Calibrator API Reference:235.00 api

Field Verification	Shop	Field	Units
Background	73.9	68.3	api
Background + Calibrator	313.0	307.3	api
Calibrator	239.1	239.0	api

Shop	Field	Difference	Tolerance
239.1	239.0	0.1	+/- 9.00

CSNG-FS SHOP CALIBRATION

Tool Name:	**CSNG - 10965402**	**Reference Calibration Date:**	**24-Nov-10 09:04:15**
Engineer:	**C. BLUE**	**Calibration Date:**	**22-Jan-11 13:59:18**
Software Version:	**WL INSITE R3.0.7 (Build 3)**	**Calibration Version:**	**1**
Source SN:	**TB290**		

TITANIUM CASE	Measured	Calibrated	Units
60 KEV Peak Channel #	48.0	48.0	Channel #
239 KEV Peak Channel #	23.0	23.0	Channel #
583 KEV Peak Channel #	51.5	51.7	Channel #
2614 KEV Peak Channel #	211.3	211.8	Channel #
Calibrate Temperature	75.4	68.4	degF

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

Blanket Reference Value: 235.00 API

Calibrator Value: 266.9 API

	Counts	Units	Measured	Calibrated	Units
Thorium Blanket	1577.7	CPS	324.0	334.8	API
Background	320.1	CPS	62.8	67.9	API

Gamma Ray Gain: 1.07

Gamma Gain Check: Passed

CSNG-FS FIELD CALIBRATION

Tool Name:	**CSNG - 10965402**	**Reference Calibration Date:**	**22-Jan-11 13:59:18**
Engineer:	**C. BLUE**	**Calibration Date:**	**24-Jan-11 11:34:17**
Software Version:	**WL INSITE R3.0.7 (Build 3)**	**Calibration Version:**	**1**
Source SN:			

TITANIUM CASE	Shop	Field	Units
60 KEV Peak Channel #	48.0	48.0	Channel #
239 KEV Peak Channel #	23.0	23.0	Channel #
583 KEV Peak Channel #	51.7	51.4	Channel #
2614 KEV Peak Channel #	211.8	211.7	Channel #
Calibrate Temperature	68.4	73.6	degF

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

Blanket Reference Value: 235.00 API
Calibrator Value: 266.9 API

	Counts	Units	Measured	Calibrated	Units
Thorium Blanket	1583.8	CPS	334.8	323.2	API
Background	275.8	CPS	67.9	56.3	API

Gamma Ray Gain: 1.03
Gamma Gain Check: Passed

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name: DSNT - 11219332 **Reference Calibration Date:** 11-Jan-11 18:09:27
Engineer: C. BLUE **Calibration Date:** 11-Jan-11 18:24:20
Software Version: WL INSITE R3.0.7 (Build 3) **Calibration Version:** 1

Logging Source S/N: DSN430
Tank Serial Number: BRIGHTON
Reference value assigned to Tank: 55.000
Snow Block S/N: BRIGHTON
Calibration Tank Water Temperature: 40 degF
Min. Tool Housing Outside Diameter: 3.625 in

CALIBRATION CONSTANTS			
Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	0.995	0.998	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):	0.2287	0.2295	0.0008	+/- 0.0020
Calibrated Ratio:	10.32	10.35	0.028	+/- 0.050

VERIFIER		
Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0747	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 - 11219332 **Reference Calibration Date:** 11-Jan-11 18:24:20
Engineer: C. BLUE **Calibration Date:** 24-Jan-11 11:35:32
Software Version: WL INSITE R3.0.7 (Build 3) **Calibration Version:** 1

Logging Source S/N: DSN430
Snow Block S/N: BRIGHTON

Snow Block S/N: BRIGHTON

NEUTRON FIELD-CHECK SUMMARY				
	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0747	0.0790	0.0044	+/- 0.0150

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

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name:	**SDLT - I332M335**	**Reference Calibration Date:**	**21-Jan-11 18:12:58**
Engineer:	**C. BLUE**	**Calibration Date:**	**21-Jan-11 18:32:31**
Software Version:	**WL INSITE R3.0.7 (Build 3)**	**Calibration Version:**	**1**

Logging Source S/N: 5256GW

Aluminum Block S/N: BRIGHTON Density: 2.600g/cc Pe: 3.100

Magnesium Block S/N: BRIGHTON Density: 1.680g/cc Pe: 2.594

DENSITY CALIBRATION SUMMARY			
Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0659	1.0701	0.90 - 1.10
Near Dens Gain	1.0257	1.0427	0.90 - 1.10
Near Peak Gain	1.0220	1.0433	0.90 - 1.10
Near Lith Gain	1.0083	1.0324	0.90 - 1.10
Far Bar Gain	1.0170	1.0152	0.90 - 1.10
Far Dens Gain	1.0083	1.0047	0.90 - 1.10
Far Peak Gain	1.0029	1.0006	0.90 - 1.10
Far Lith Gain	0.9847	0.9832	0.90 - 1.10
Near Bar Offset	-0.6266	-0.6647	NONE
Near Dens Offset	-0.2167	-0.3664	NONE
Near Peak Offset	-0.1735	-0.3516	NONE
Near Lith Offset	-0.0773	-0.2777	NONE
Far Bar Offset	-0.2049	-0.1899	NONE
Far Dens Offset	-0.1331	-0.0993	NONE
Far Peak Offset	-0.0990	-0.0807	NONE
Far Lith Offset	0.0257	0.0358	NONE
Near Bar Background	1069.73	1071.20	700 - 1450
Near Dens Background	350.53	351.42	230 - 480
Near Peak Background	153.87	152.84	100 - 210
Near Lith Background	187.53	186.92	125 - 260
Far Bar Background	558.10	557.96	450 - 900
Far Dens Background	217.51	219.17	175 - 345
Far Peak Background	84.73	84.91	70 - 140
Far Lith Background	89.97	89.66	75 - 145

CALIBRATION BLOCK SUMMARY				
Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.676	1.681	0.005	+/- 0.015
Pe	2.627	2.586	-0.041	+/- 0.150

ALUMINUM				
Density (g/cc)	2.601	2.600	-0.001	+/- 0.01500
Pe	3.096	3.091	-0.005	+/- 0.150

TOOL SUMMARY				
Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	-0.0006	+/- 0.0110	0.0014	+/- 0.0140
Magnesium Block	-0.0009	+/- 0.0110	-0.0017	+/- 0.0140
Aluminum Block	0.0016	+/- 0.0110	-0.0005	+/- 0.0140
Resolution	9.10	6.00 - 11.50	9.67	6.00 - 11.50
Internal Verifier(B+D+P+L)	1762	1200 - 2700	952	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 - I332M335 **Reference Calibration Date:** 21-Jan-11 18:32:31

Engineer: C. BLUE **Calibration Date:** 24-Jan-11 11:20:25

Software Version: WL INSITE R3.0.7 (Build 3) **Calibration Version:** 1

Pad Temperature: 57.6 degF

DENSITY FIELD CALIBRATION SUMMARY				
Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1762.380	1759.624	-2.756	16.832
Far (B+D+P+L) cps	951.703	952.204	0.501	16.634
Near Resolution	9.10	9.20	0.100	0.50
Far Resolution	9.67	9.78	0.110	1.00

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

DENSITY CALIPER SHOP CALIBRATION

Tool Name: SDLT - I332M335 **Reference Calibration Date:** 21-Jan-11 18:47:16

Engineer: C. BLUE **Calibration Date:** 21-Jan-11 18:51:33

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	-2404.06	-2407.77	-7000.00 - -1000.00
Pad Gain	0.0003925	0.0003957	0.000200 - 0.000600
Arm Offset	-3229.94	-2928.72	-5000.00 - 3000.00

Arm Gain	0.0006115	0.0005786	0.000300 - 0.000700
Arm Power	-0.000007993	-0.000006215	-0.000010 - 0.000010

The ring diameter is computed from: DIAMETER = PAD EXTENSION + ARM EXTENSION + TOOL DIAMETER

Tool Diameter: 4.50 in

CALIBRATION RINGS

Measurement	Current Reading (Previous Coeff.)	Calibrated (New Coeff.)	Change	Control Limit On New Value
PAD EXTENSION:				
Small Ring (in)	1.98	2.00	0.02	+/- 0.20
Medium Ring (in)	3.72	3.75	0.03	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.43	6.50	0.07	+/- 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

SDLT CALIPER FIELD CALIBRATION

Tool Name:	**SDLT - I332M335**	**Reference Calibration Date:**	**21-Jan-11 18:51:33**
Engineer:	**C. BLUE**	**Calibration Date:**	**24-Jan-11 11:30:17**
Software Version:	**WL INSITE R3.0.7 (Build 3)**	**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	8.11	-0.14	+/- 0.15

PASS/FAIL SUMMARY

Pad Extension Check:	Passed
Diameter Check:	Passed

ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION

Tool Name:	**ACRt - E9336-S4042**	**Reference Calibration Date:**	**29-Nov-10 10:05:24**
Engineer:	**C. BLUE**	**Calibration Date:**	**29-Nov-10 10:24:28**
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	1.0124	1.05	0.95	1.0112	1.05	0.95	1.0087	1.05
A2 (50")	0.95	0.9999	1.05	0.95	0.9994	1.05	0.95	0.9992	1.05
A3 (29")	0.95	1.0027	1.05	0.95	1.0017	1.05	0.95	0.9984	1.05
A4 (17")	0.95	0.9959	1.05	0.95	0.9923	1.05	0.95	0.9933	1.05
A5 (10")	N/A	N/A	N/A	0.95	0.9818	1.05	0.95	0.9804	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.9703	1.05	0.95	0.9694	1.05

TYPICAL SONDE OFFSET RANGE

Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper

	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	-5	0.658	2	-6	-3.458	-2	-8	-5.078	-2
A2 (50")	-7	-1.854	-1	-6	-3.756	-2	-7	-4.493	-2
A3 (29")	-27	-13.021	-9	-9	-3.753	-3	-7	-3.013	-1
A4 (17")	-180	-98.689	-60	-45	-31.432	-15	-39	-25.166	-13
A5 (10")	N/A	N/A	N/A	-150	-69.697	-50	-80	-36.680	-10
A6 (6")	N/A	N/A	N/A	175	268.707	525	90	139.940	270

TRANSMITTER CURRENT GAIN

Signal	Lower	R	Upper
12K	0.6	0.8512	1.3
36K	1.0	1.8893	2.0
72K	1.0	1.0922	2.0

R-MUD VERIFICATION

Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
Mud Cell	0.95	1.008	1.05

CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-11215095						
Gamma Ray Calibrator	239.1	239.0	----------	0.1	+/- 9.00	api
CSNG-10965402						
60 KEV Peak Channel #	48.0	48.0	----------	0.0	----------	Channel #
239 KEV Peak Channel #	23.0	23.0	----------	0.0	----------	Channel #
583 KEV Peak Channel #	51.7	51.4	----------	0.3	----------	Channel #
2614 KEV Peak Channel #	211.8	211.7	----------	0.1	----------	Channel #
DSNT-11219332						
Snow-Block Porosity	0.0747	0.0790	----------	-0.0043	+/- 0.0150	decp
SDLT-I332M335						
Near(B+D+P+L)	1762.380	1759.624	----------	2.756	+/-16.832	cps
Far(B+D+P+L)	951.703	952.204	----------	-0.501	+/-16.634	cps
Pad Extension	3.75	3.75	----------	0.00	+/-0.10	in
Ring Diameter	8.25	8.11	----------	0.140	+/-0.15	in
ACRt-E9336-S4042						
Mud Cell	1.008	----------	----------	0.000	----------	ohm-m

Data: PEPPLER_PC17_25\0001 NOBLE\IDLE **Date: 25-Jan-11 00:46:19**

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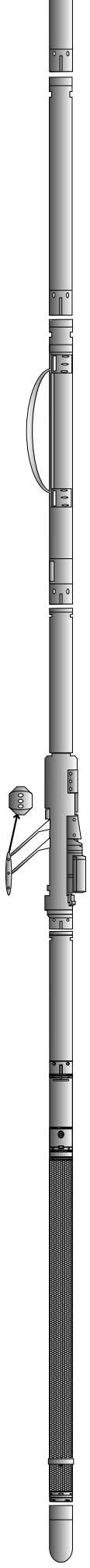
TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
RWCH-10895163 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-11215095 165.00 lbs		Ø 3.625 in		GammaRay @ 50.71 ft	8.52 ft	



GammaRay @ 50.71 ft

48.25 ft

CSNG-10965402
114.00 lbs

Ø 3.625 in

8.17 ft

CSNG @ 42.62 ft

40.08 ft

DSN Decentralizer-10813523
6.60 lbs

Ø 3.625 in*

DSNT-11219332
174.00 lbs

Ø 3.625 in

9.69 ft

DSN Far @ 33.15 ft

DSN Near @ 32.40 ft

30.40 ft

SDLT-I332M335
360.00 lbs

Ø 4.500 in

10.81 ft

SDL Microlog @ 22.58 ft

SDL Caliper @ 22.40 ft

Ø 4.750 in

SDL @ 22.39 ft

19.58 ft

Mud Resistivity @ 13.19 ft

ACRt-E9336-S4042
250.00 lbs

Ø 3.625 in

19.25 ft

ACRt @ 9.21 ft

SP Ring-1
0.00 lbs

Ø 3.625 in*

SP @ 1.61 ft

0.33 ft

Bull Nose-BN
5.00 lbs

Ø 2.750 in

0.33 ft

0.00 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		56.77	300.00
GTET	Gamma Telemetry Tool	11215095	165.00	8.52		48.25	60.00
CSNG	Compensated Spectral Natural Gamma	10965402	114.00	8.17		40.08	15.00
DSNT	Dual Spaced Neutron	11219332	174.00	9.69		30.40	60.00
DCNT	DSN Decentralizer	10813523	6.60	5.13	*	33.73	300.00
SDLT	Spectral Density Tool	I332M335	360.00	10.81		19.58	60.00
ACRt	Array Compensated True Resistivity	E9336-S4042	250.00	19.25		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			**1,209.60**	**63.02**			

* Not included in Total Length and Length Accumulation.

Data: PEPPLER_PC17_25\0001 NOBLE\IDLE **Date: 24-Jan-11 22:23:44**

COMPANY	**NOBLE**		
WELL	**PEPPLER PC AA17-25**		
FIELD	**WATTENBERG**		
COUNTY	**WELD**	STATE	**CO**

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SPECTRAL DENSITY
DUAL SPACED NEUTRON
ARRAY COMPENSATED
TRUE RESISTIVITY