

HALLIBURTON										SPECTRAL DENSITY DUAL SPACED NEUTRON ARRAY COMPENSATED TRUE RESISTIVITY														
COMPANY WELL FIELD COUNTY STATE					NOBLE WELLS RANCH USX AE31-15P WATTENBERG WELD CO					COMPANY WELL FIELD COUNTY STATE					NOBLE WELLS RANCH USX AE31-15P WATTENBERG WELD CO									
Permanent Datum					GL					Sect. 31					Twp. 6N					Rge. 62W				
Log measured from					KB					Elev. 4681.0 ft					Elev. KB.					4697.0 ft				
Drilling measured from					KB					16.0 ft above perm. Datum					D.F.					4697.0 ft				
Date					11-May-10															G.L. 4681.0 ft				
Run No.					ONE																			
Depth - Driller					6795.00 ft																			
Depth - Logger					6796.0 ft																			
Bottom - Logged Interval					6787 ft																			
Top - Logged Interval					562 ft																			
Casing - Driller					8.625 in					@ 560.0 ft					@									
Casing - Logger					562.0 ft															@				
Bit Size					7.875 in										@									
Type Fluid in Hole					WBM																			
Density					9.2 ppg					33.00 s/qt														
PH					8.50 pH					17.6 cpm														
Source of Sample					FLOWLINE																			
Rm @ Meas. Temperature					1.84 ohmm					@ 82.70 degF					@									
Rmf @ Meas. Temperature					1.79 ohmm					@ 75.00 degF					@									
Rmc @ Meas. Temperature					1.69 ohmm					@ 75.00 degF					@									
Source Rmf					Rmc					CHART					CHART									
Rm @ BHT					0.78 ohmm					@ 203.0 degF					@									
Time Since Circulation					5.0 hr																			
Time on Bottom					11-May-10 21:15																			
Max. Rec. Temperature					203.0 degF					@ 6796.0 ft					@					@				
Equipment					10549597					BRIGHTON														
Recorded By					C. BLUE																			
Witnessed By					CURT PATTERSON																			

**HALLIBURTON**

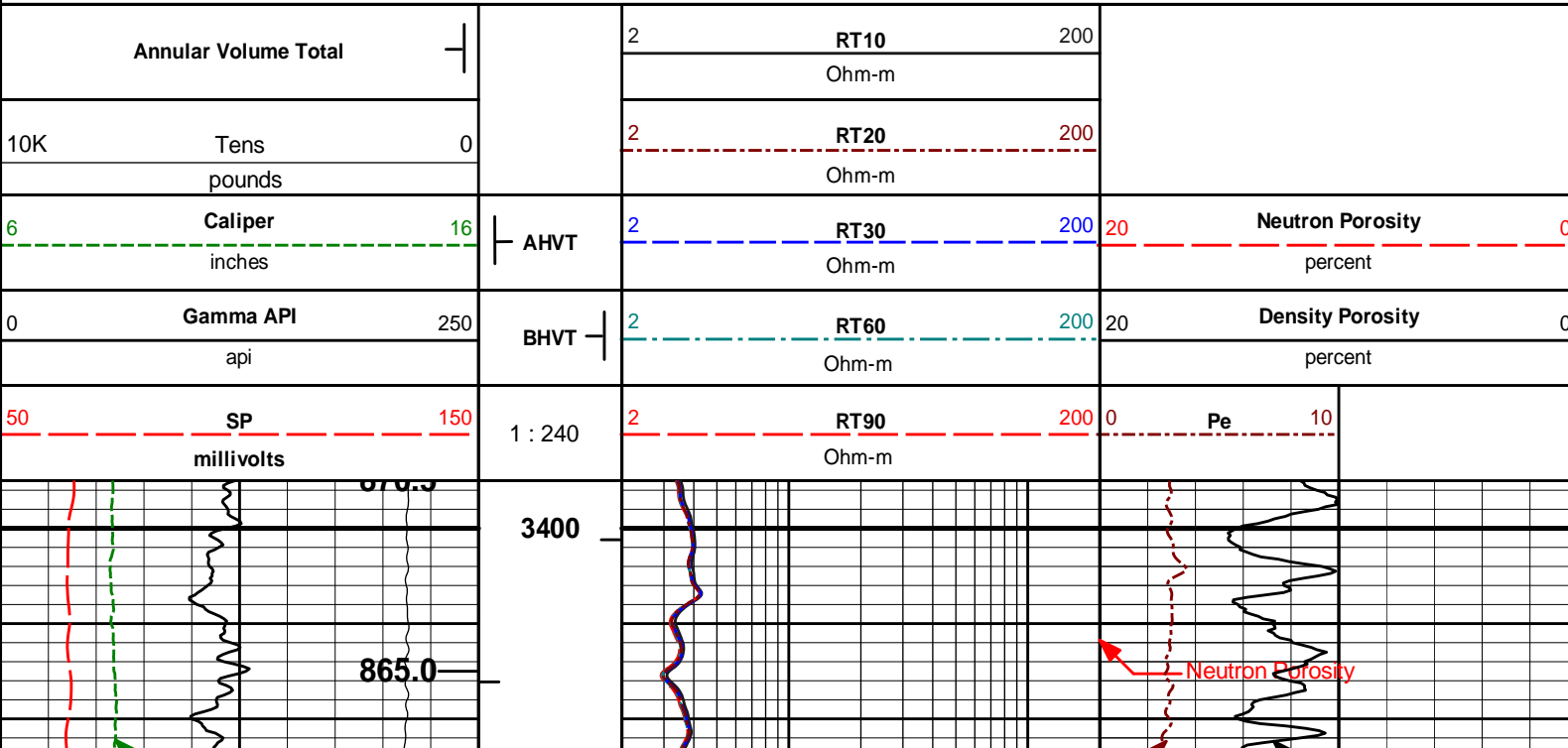
**PARAMETERS REPORT**

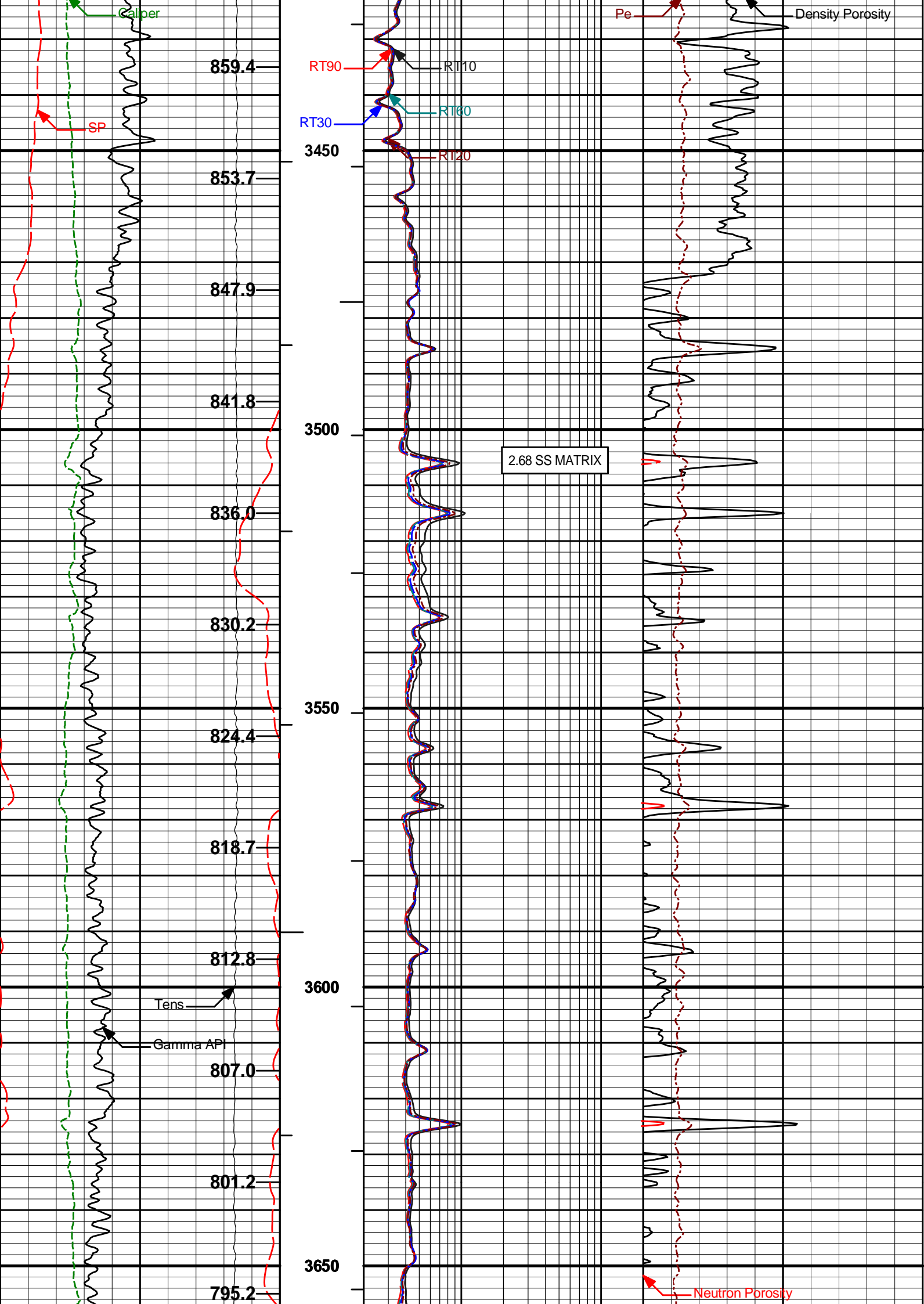
DSNT	Neutron Lithology	Sandstone	
DSNT	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.000	in
DSNT	Temperature Correction Type	None	
DSNT	DSN Pressure Correction Type	None	
DSNT	View More Correction Options	No	
DSNT	Use TVD for Gradient Corrections?	No	
DSNT	Logging Horizontal Water Tank?	No	
SDLT	Process Density?	Yes	
SDLT	Process Density EVR?	No	
SDLT	Is Hole Air Drilled?	No	
SDLT	Use 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	1.50	in
ACRt	Temperature Correction Source	FP Lwr & FP Up	
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
BOTTOM			

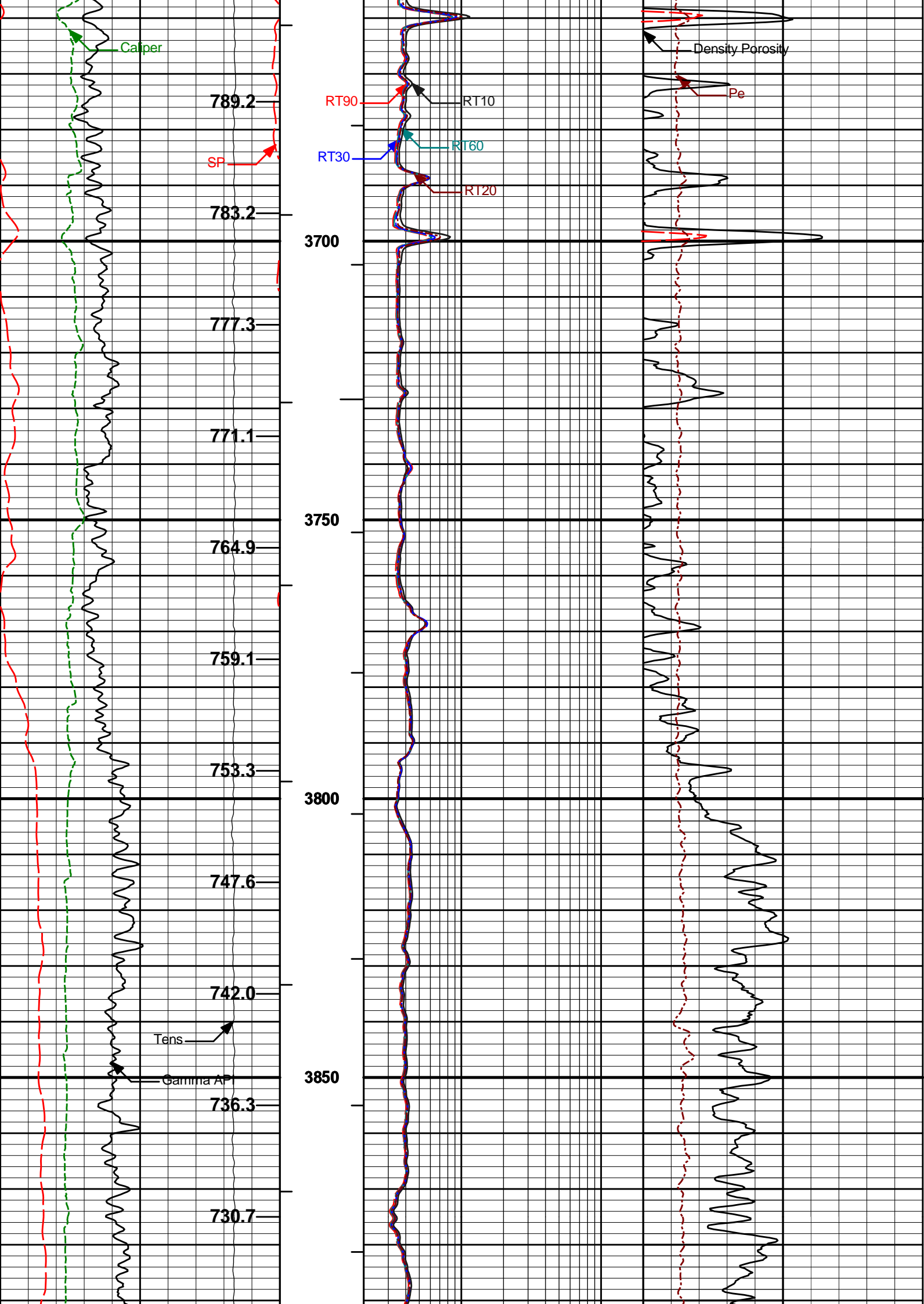
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Date: 11-May-10 22:07:20

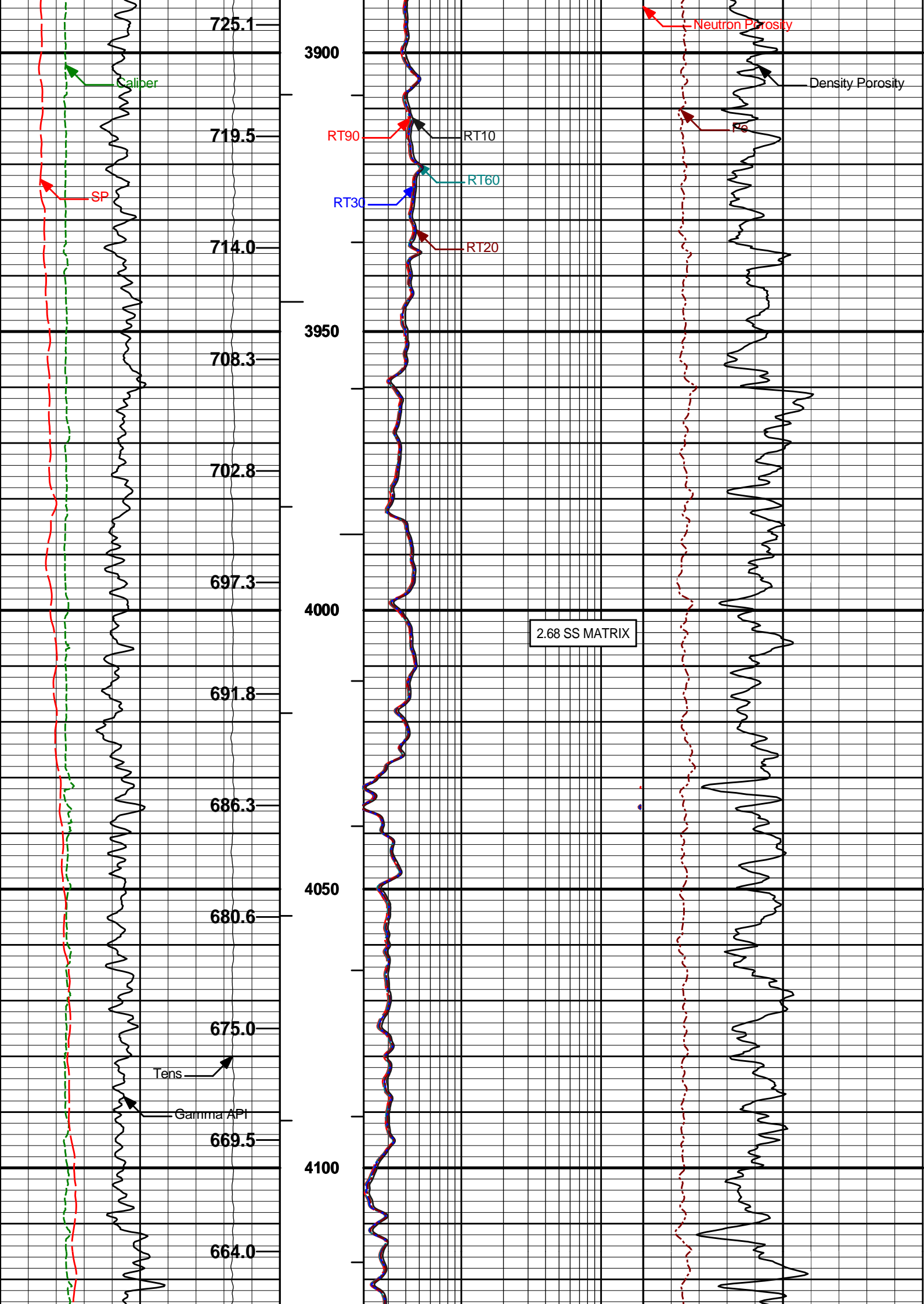
Plot Time: 11-May-10 22:51:22  
Plot Range: 3395 ft to 4955 ft  
Data: WELLS\_RANCH\_USX\Well Based\MAIN\*  
Plot File: \COMP\PARK\_SUS

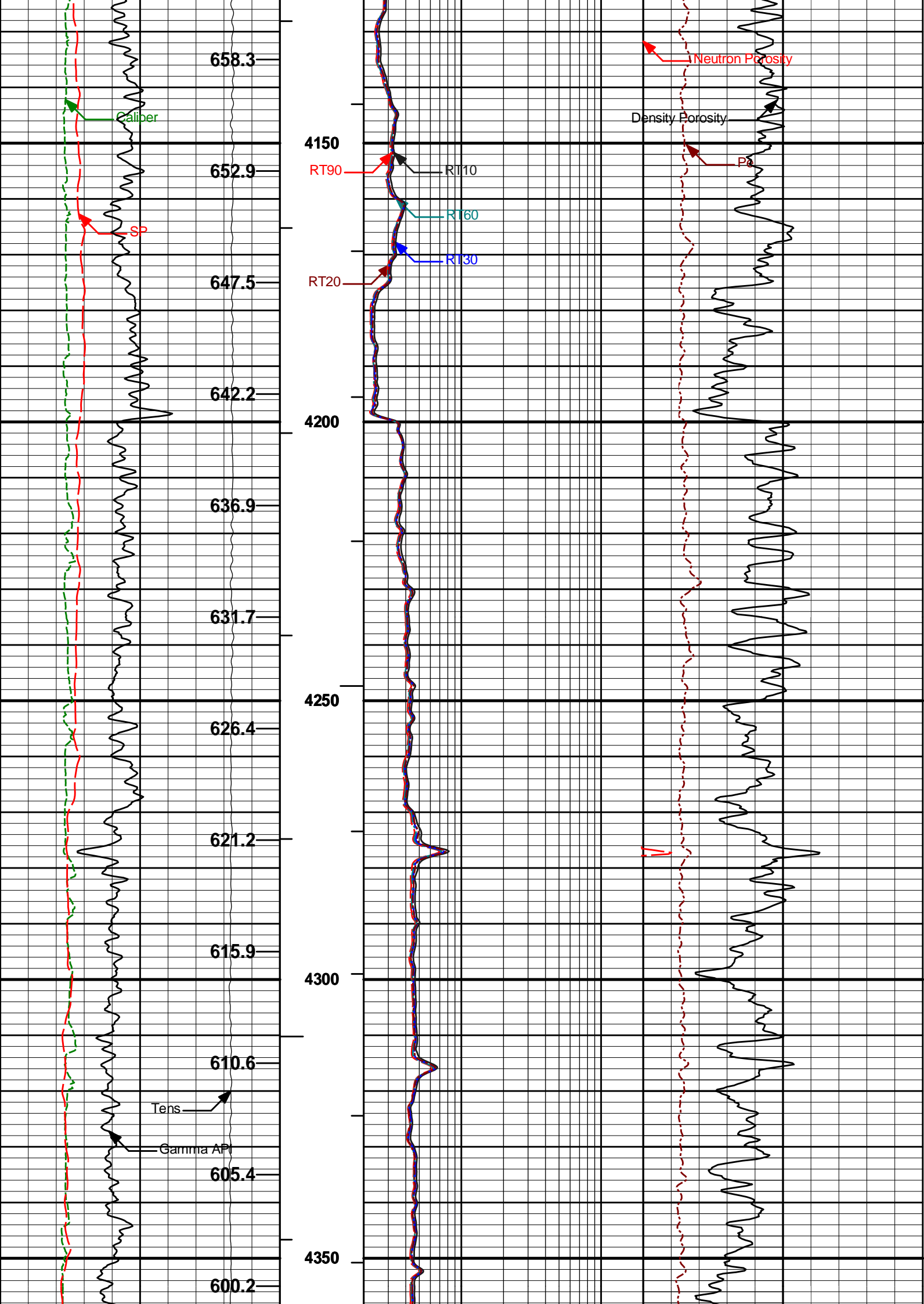
MAIN PASS 5" = 100'

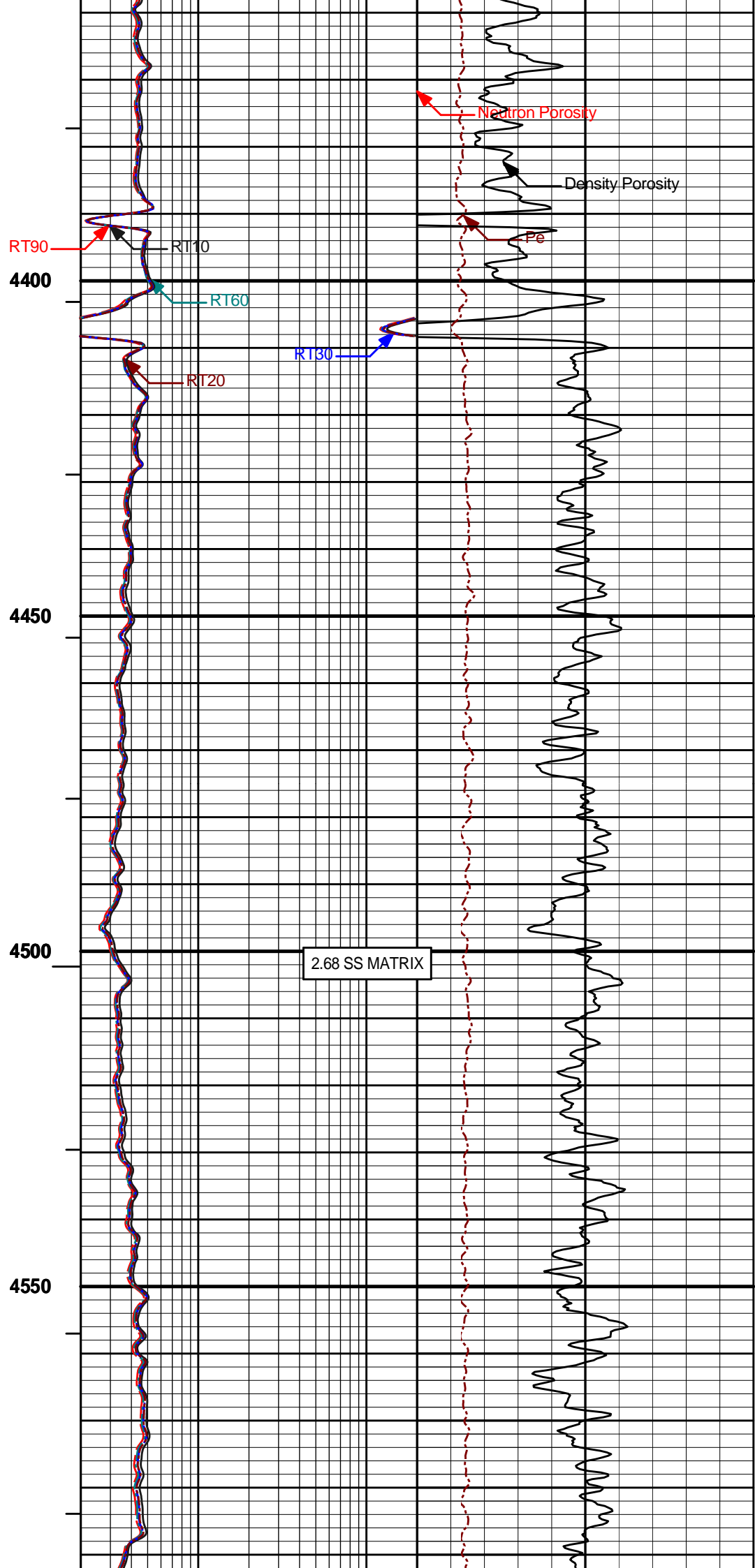
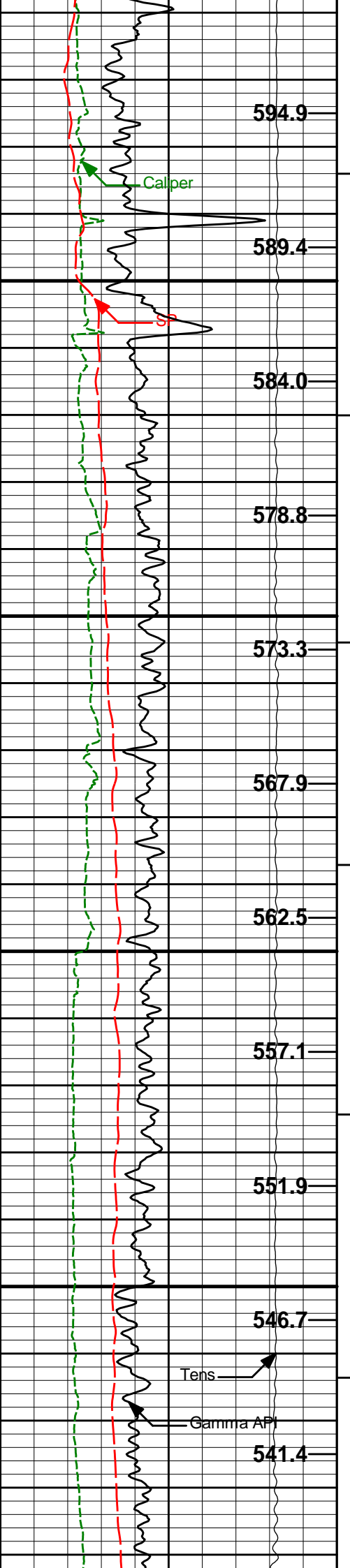




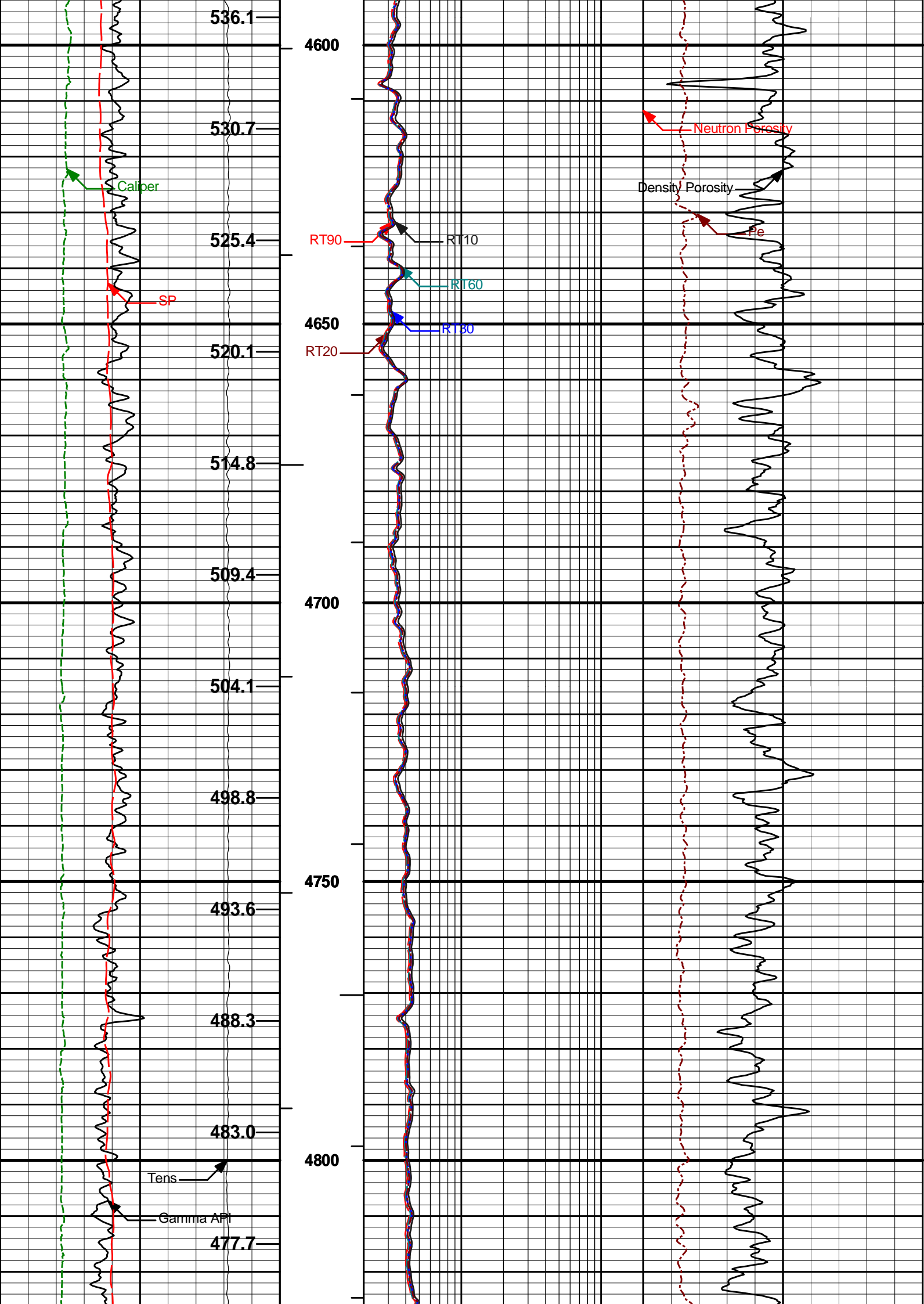


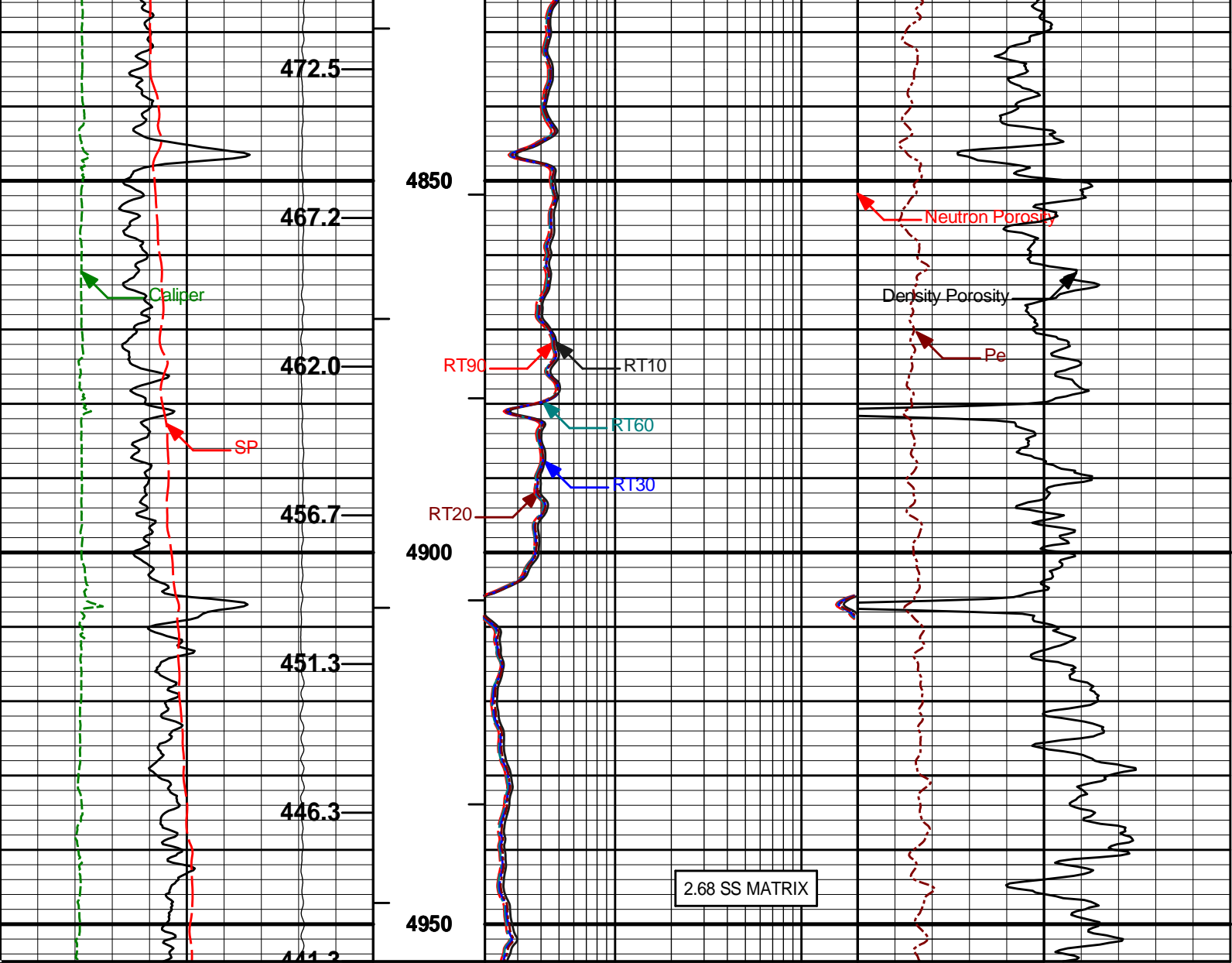












<div>50<div>SP</div>150</div> <div>millivolts</div>			1 : 240	<div>2<div>RT90</div>200</div> <div>Ohm-m</div>		<div>0<div>Pe</div>10</div>		
<div>0<div>Gamma API</div>250</div> <div>api</div>			BHVT <div></div>	<div>2<div>RT60</div>200</div> <div>Ohm-m</div>		<div>20<div>Density Porosity</div>0</div>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

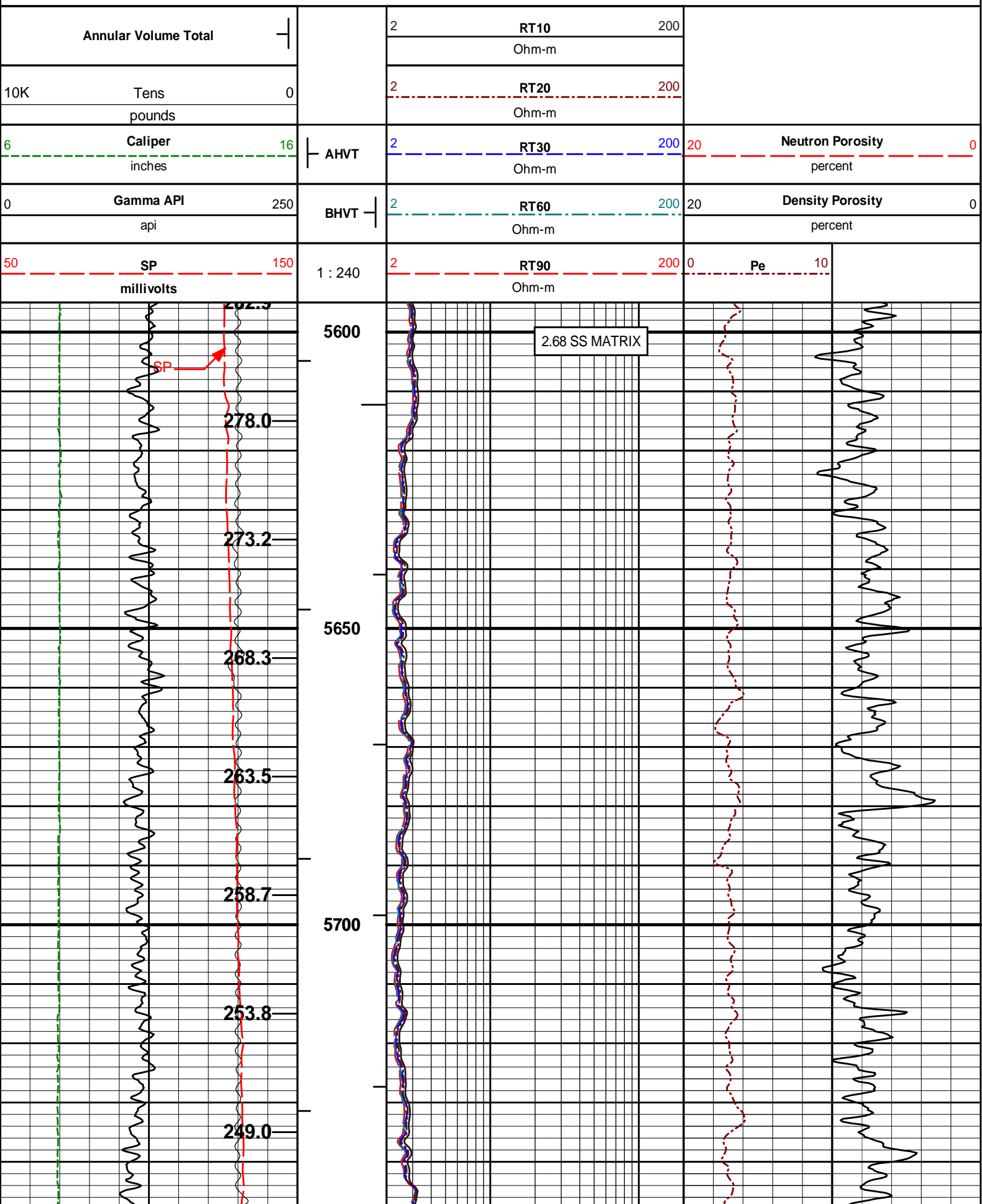
HALLIBURTON

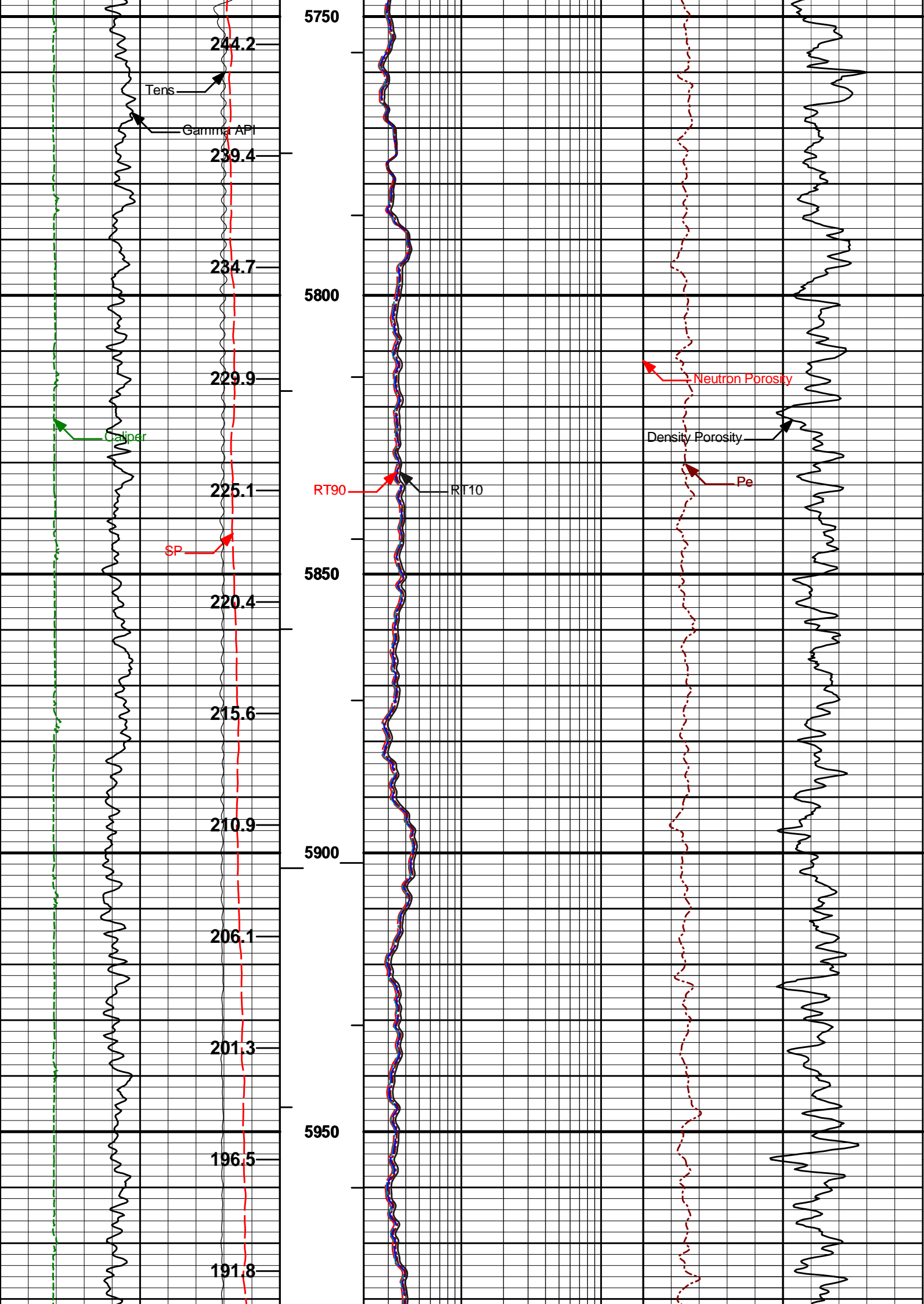
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Plot Range: 3395 ft to 4955 ft  
Data: WELLS\_RANCH\_USX\Well Based\MAIN\*  
Plot File: \COMP\PARK\_SUS

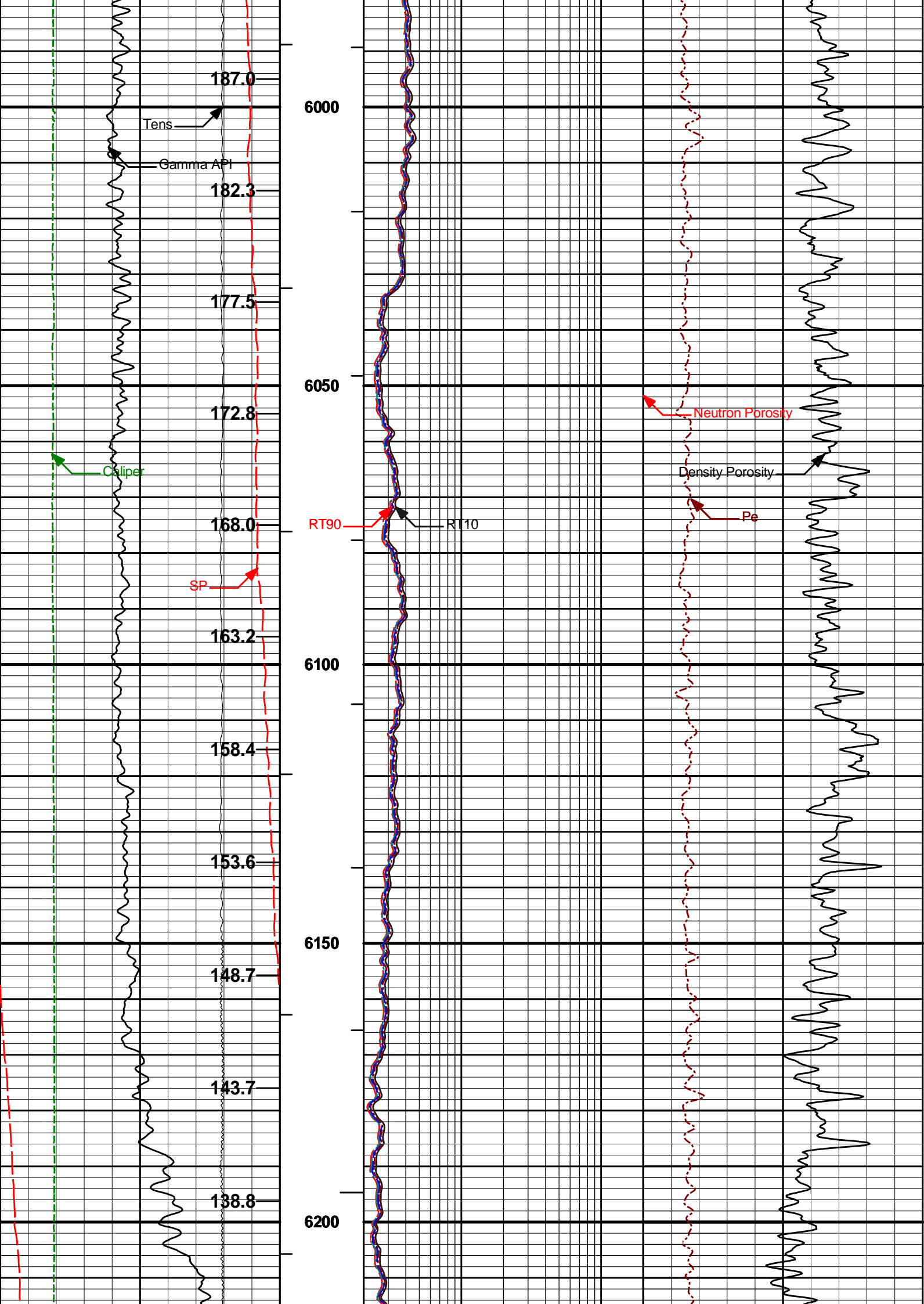
MAIN PASS 5" = 100'

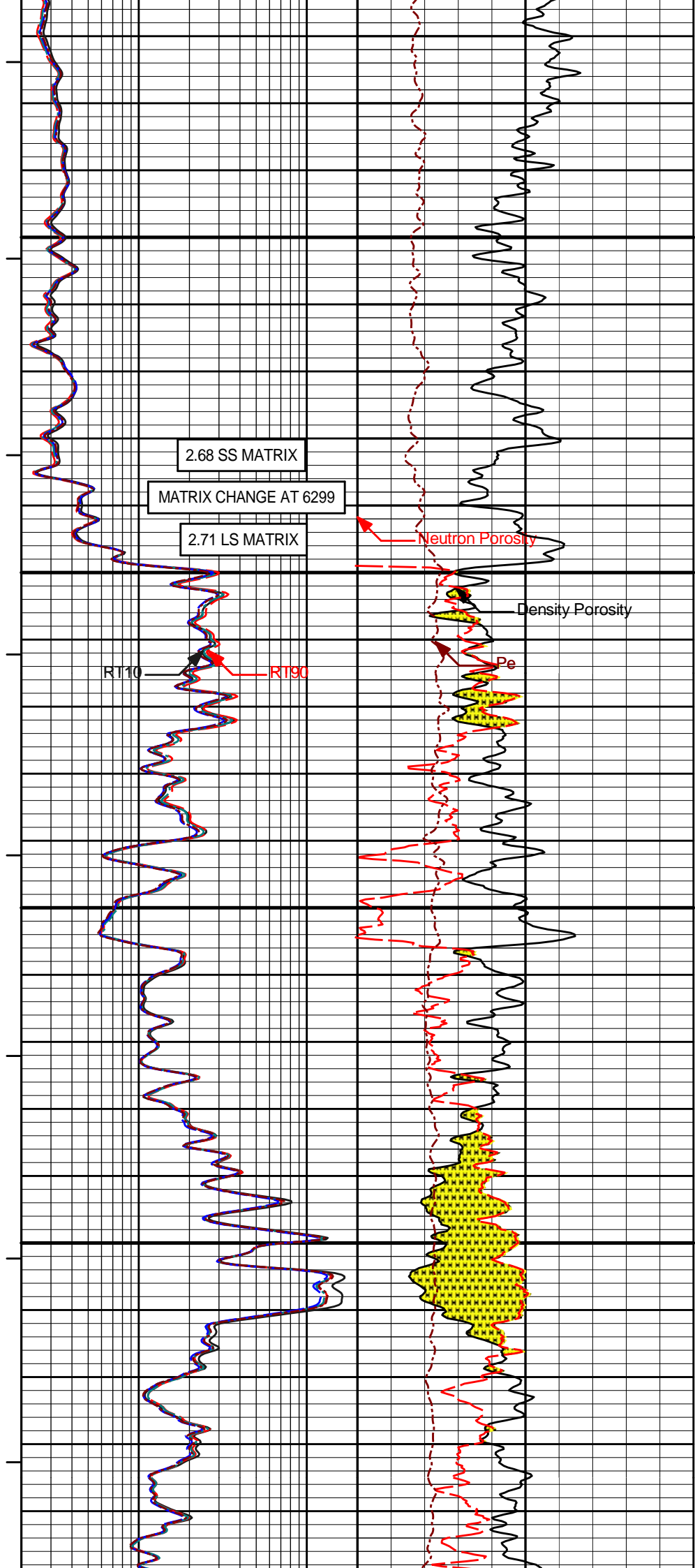
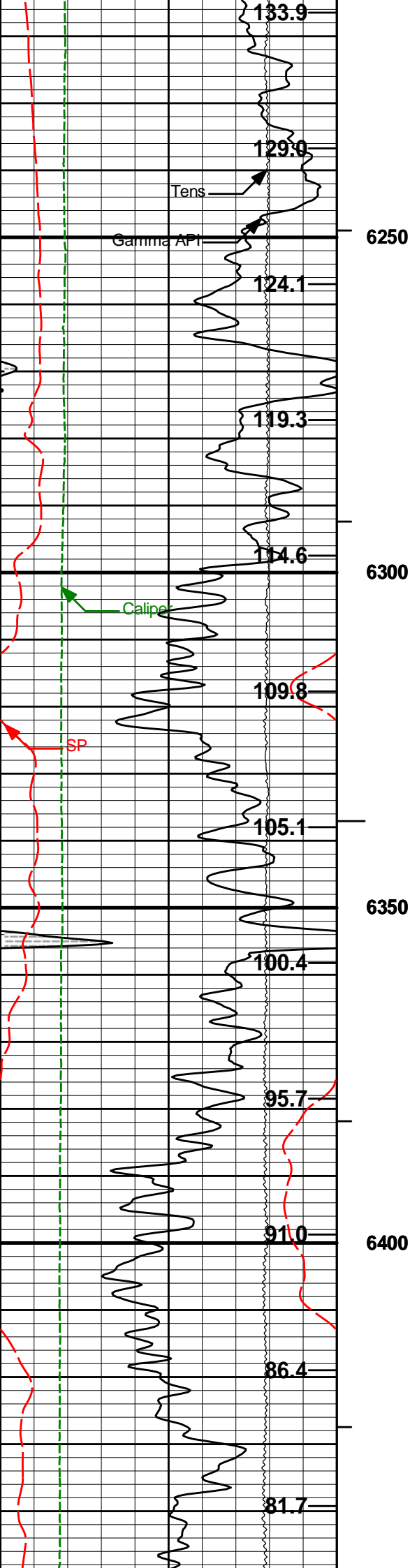
HALLIBURTON

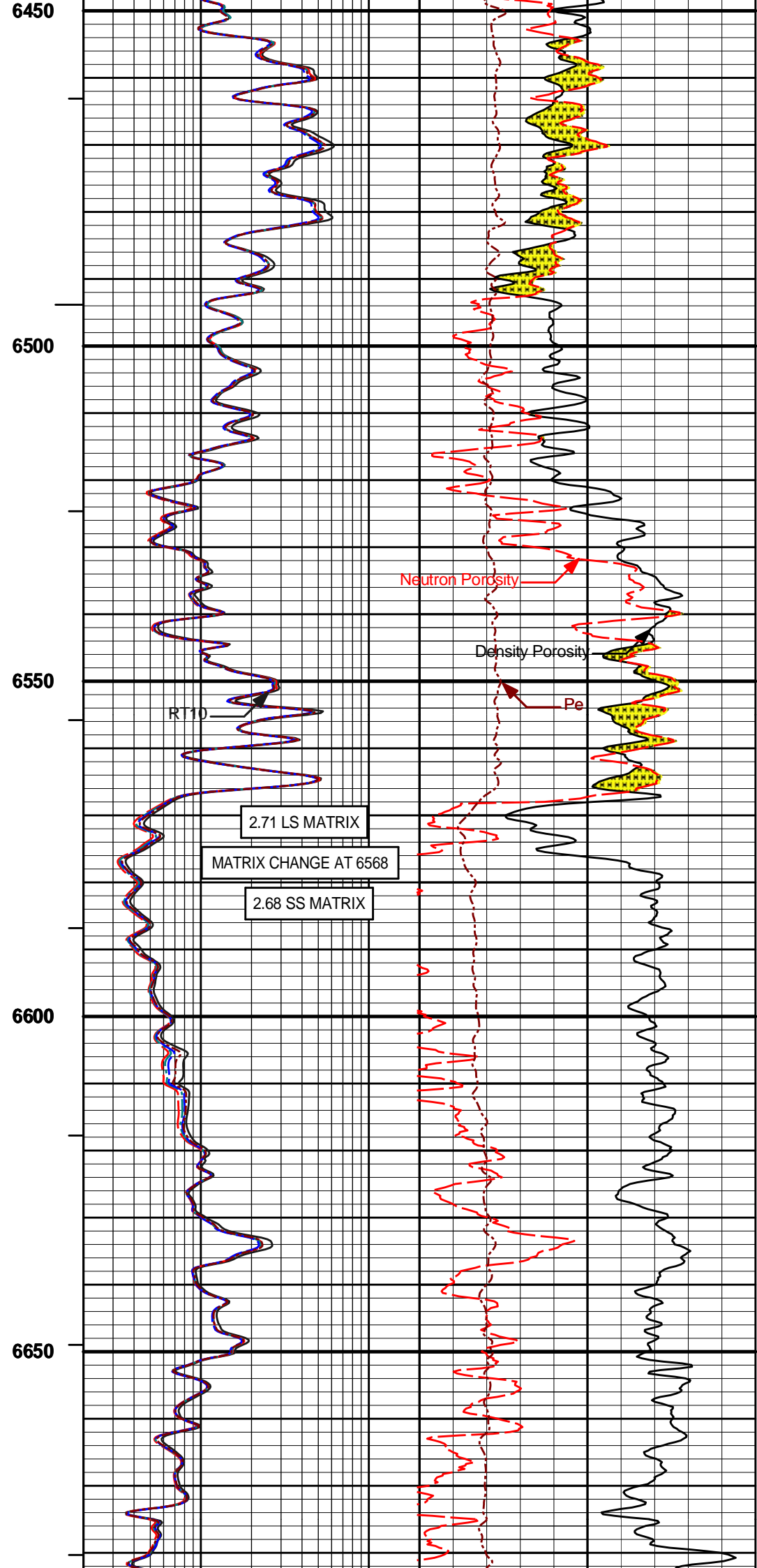
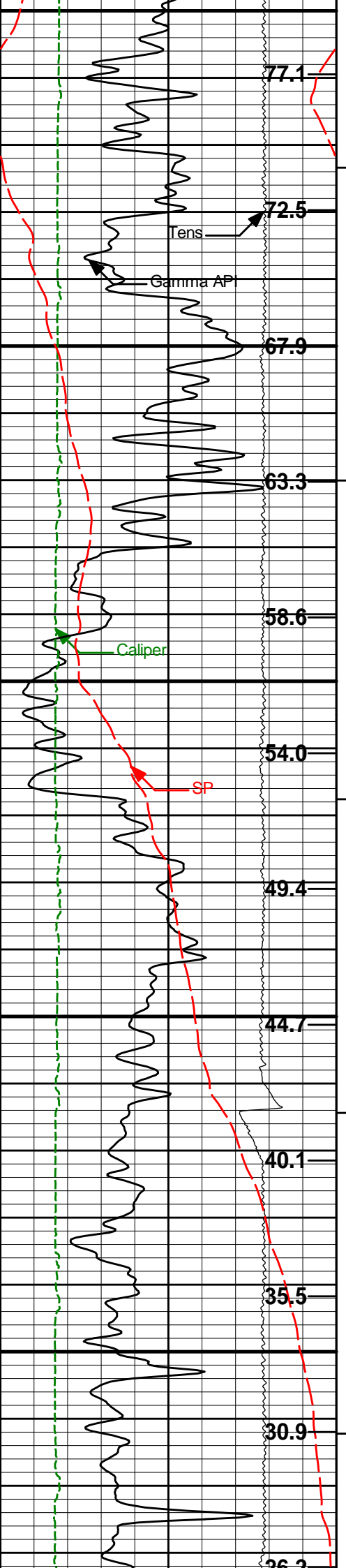
Plot Time: 11-May-10 22:51:27  
Plot Range: 5595 ft to 6804.92 ft  
Data: WELLS\_RANCH\_USX\Well Based\MAIN\*  
Plot File: \COMP\PARK\_SUS



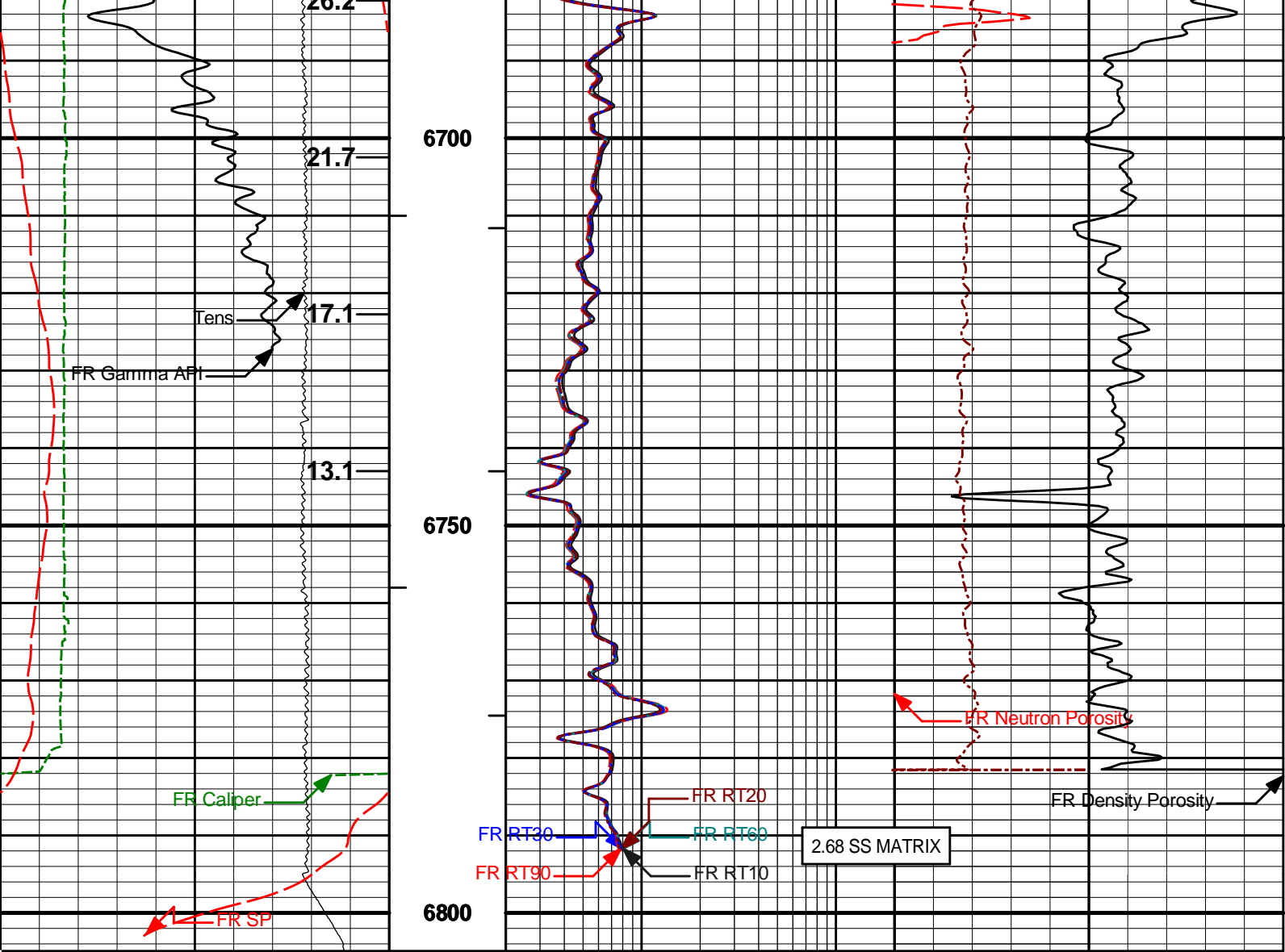












50	SP	150	1 : 240	2	RT90	200	0	Pe	10
	millivolts				Ohm-m				
0	Gamma API	250	BHVT	2	RT60	200	20	Density Porosity	0
	api				Ohm-m			percent	
6	Caliper	16	AHVT	2	RT30	200	20	Neutron Porosity	0
	inches				Ohm-m			percent	
10K	Tens	0		2	RT20	200			
	pounds				Ohm-m				
	Annular Volume Total			2	RT10	200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

HALLIBURTON

Plot Time: 11-May-10 22:51:31  
Plot Range: 5595 ft to 6804.92 ft  
Data: WELLS\_RANCH\_USX\Well Based\MAIN\*  
Plot File: \COMP\NIO\_COD

MAIN PASS 5" = 100'

HALLIBURTON

CALIBRATION REPORT



NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name:	GTET - 11294346	Reference Calibration Date:	06-Apr-10 09:14:39																
Engineer:	C. BLUE	Calibration Date:	27-Apr-10 14:22:21																
Software Version:	WL INSITE R2.4 (Build 20)	Calibration Version:	1																
Calibrator Source S/N: KW-290																			
Calibrator API Reference:230.00 api																			
<table><tr><th>Measurement</th><th>Measured</th><th>Calibrated</th><th>Units</th></tr><tr><td>Background</td><td>71.0</td><td>72.9</td><td>api</td></tr><tr><td>Background + Calibrator</td><td>295.0</td><td>302.9</td><td>api</td></tr><tr><td>Calibrator</td><td>231.9</td><td>230.0</td><td>api</td></tr></table>				Measurement	Measured	Calibrated	Units	Background	71.0	72.9	api	Background + Calibrator	295.0	302.9	api	Calibrator	231.9	230.0	api
Measurement	Measured	Calibrated	Units																
Background	71.0	72.9	api																
Background + Calibrator	295.0	302.9	api																
Calibrator	231.9	230.0	api																

ACCELEROMETER AND MAGNETOMETER SHOP CALIBRATION			
Tool Name:	IDT - 11277453	Reference Calibration Date:	01-Jan-70 00:00:00
Engineer:	Lito	Calibration Date:	18-Dec-08 10:33:15
Software Version:	WL INSITE R2.2 (Build 9)	Calibration Version:	1

Reference Gravity Field: 1.0000 g
Reference Magnetic Field: 42252.1719 nT

\* QF : value of 0 is shown for bad quality if | data - reference | > (2 \* standard deviation) or > (0.5% of reference value)

ACCELEROMETER CALIBRATION RAW DATA VALUE					
Raw Acc X	Raw Acc Y	Raw Acc Z	Quality(Gravity)	Quality Error(%)	QF
0.5639	0.4499	-0.0254	0.9979	0.0021	1
0.0241	-0.7097	-0.0183	0.9995	0.0005	1
-0.7264	0.1572	-0.0198	0.9986	0.0014	1
0.0321	0.7394	-0.0273	1.0008	0.0008	1
0.0087	0.7385	-0.0409	0.9997	0.0003	1
-0.0193	0.7287	0.0487	1.0002	0.0002	1
-0.0188	0.7411	-0.0166	1.0006	0.0006	1
0.7038	-0.0854	0.0044	1.0015	0.0015	1
-0.0222	-0.7110	-0.0119	1.0000	0.0000	1
-0.7419	-0.0072	-0.0271	1.0012	0.0012	1
-0.0052	0.0177	0.3463	0.9999	0.0001	1
-0.1420	0.1556	-0.3685	1.0001	0.0001	1

ACCELEROMETER QUALITY SUMMARY		
Average Calculated Gravity Field	1.0000	g
Standard Deviation Calculated Gravity Field	0.0010	g

ACCELEROMETER GAIN AND OFFSET		
	GAIN	OFFSET
ACC X	1.3768593073	0.0210890602
ACC Y	1.3775787354	-0.0203358047
ACC Z	2.7496292591	0.0477359891

\* QF : value of 0 is shown for bad quality if | data - reference | > (3 \* standard deviation) or > (1% of reference value)

MAGNETOMETER CALIBRATION RAW DATA VALUE					
Raw Mag X	Raw Mag Y	Raw Mag Z	Quality(Magnetic)	Quality Error(%)	QF
-0.4154	1.0229	-0.0950	42024.7539	0.0054	1
1.0528	-0.2167	0.2776	42074.7891	0.0042	1
-0.4415	-1.0055	0.2475	42539.5195	0.0068	1
-1.0086	0.3168	0.2225	41896.5000	0.0084	1
0.1035	0.2138	1.1679	42187.0156	0.0015	1
-0.2684	0.0751	-1.1534	43752.5820	0.0355	1
0.0233	0.2698	-1.1548	43518.4336	0.0300	1
0.2384	0.1877	-1.0735	40961.8242	0.0305	1
0.2729	-0.2633	-1.0552	41254.2813	0.0236	1
-0.2686	-0.2420	-1.0537	41232.5859	0.0241	1

1.0859	-0.1058	-0.2452	42784.8086	0.0126	1
-0.4976	-0.9440	0.3454	42315.6367	0.0015	1

MAGNETOMETER QUALITY SUMMARY		
Average Calculated Magnetic Field	42211.8945	nT
Standard Deviation Calculated Magnetic Field	859.1619	nT

MAGNETOMETER GAIN AND OFFSET		
	GAIN	OFFSET
MAG X	38687.1679687500	-510.5658569336
MAG Y	37591.9726562500	-65.9105224609
MAG Z	35998.0312500000	-764.1088867188

Noise Level Value: 0.000000 cnts  
Noise Level Cal Value: 0.0000 g

ICT SHOP CALIBRATION			
Tool Name:	ICT - 11294350	Reference Calibration Date:	06-Apr-10 13:20:00
Engineer:	C. BLUE	Calibration Date:	05-May-10 12:16:50
Software Version:	WL INSITE R2.4 (Build 20)	Calibration Version:	1

CALIPERS AND RINGS				
Ring	Measured	Calibrated	Units	
CALIPER 1:				
Small Ring	3.75	3.63	in	
Medium Ring	7.99	8.00	in	
Large Ring	14.94	15.00	in	
X-Large Ring	21.01	21.00	in	
CALIPER 2:				
Small Ring	3.65	3.63	in	
Medium Ring	8.03	8.00	in	
Large Ring	14.94	15.00	in	
X-Large Ring	21.00	21.00	in	
CALIPER 3:				
Small Ring	3.65	3.63	in	
Medium Ring	8.05	8.00	in	
Large Ring	15.05	15.00	in	
X-Large Ring	21.07	21.00	in	
CALIPER 4:				
Small Ring	3.77	3.63	in	
Medium Ring	8.10	8.00	in	
Large Ring	15.14	15.00	in	
X-Large Ring	21.07	21.00	in	
CALIPER 5:				
Small Ring	3.76	3.63	in	
Medium Ring	8.06	8.00	in	
Large Ring	15.16	15.00	in	
X-Large Ring	21.04	21.00	in	
CALIPER 6:				
Small Ring	3.66	3.63	in	
Medium Ring	7.99	8.00	in	
Large Ring	15.00	15.00	in	
X-Large Ring	21.04	21.00	in	

CSNG-FS SHOP CALIBRATION			
Tool Name:	CSNG - 10965402	Reference Calibration Date:	10-Mar-10 17:15:40
Engineer:	C. BLUE	Calibration Date:	06-Apr-10 13:29:42
Software Version:	WL INSITE R2.4 (Build 20)	Calibration Version:	1

Source SN: KW-290

TITANIUM CASE	Measured	Calibrated	Units
60 KEV Peak Channel #	48.0	48.0	Channel #
239 KEV Peak Channel #	22.8	22.8	Channel #
583 KEV Peak Channel #	51.6	51.6	Channel #
2614 KEV Peak Channel #	212.2	211.8	Channel #
Calibrate Temperature	68.9	88.2	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	1754.8	CPS	365.4	342.5	API
Background	416.4	CPS	104.2	81.3	API

Gamma Ray Gain: 0.98

## DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name: DSNT - 11277440

Reference Calibration Date: 06-Apr-10 11:36:01

Engineer: C. BLUE

Calibration Date: 27-Apr-10 11:15:35

Software Version: WL INSITE R2.4 (Build 20)

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:	1.006	1.010	0.900 - 1.100

WATER TANK SUMMARY (Horizontal Water Tank)				
Measurement	Current Reading (Previous Coef.)	Calibrated (New Coef.)	Change	Control Limit On Change
Porosity (decg):	0.2214	0.2224	0.0010	+/- 0.0020
Calibrated Ratio:	10.08	10.11	0.034	+/- 0.050

VERIFIER		
Measurement	Value	Control Limit
Snow-Block Porosity (decg):	0.0741	0.02000 - 0.09000

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

## SPECTRAL DENSITY SHOP CALIBRATION

Logging Source S/N: 2770 GW

Aluminum Block S/N: BRIGHTON ALUMINUM BLOCK

Density: 2.600g/cc

Magnesium Block S/N: BRIGHTON MAGNESIUM BLOCK

Density: 1.680g/cc

Density Calibration Summary			
Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0334	1.0839	0.90 - 1.10
Near Dens Gain	1.0077	1.0466	0.90 - 1.10
Near Peak Gain	0.9852	1.0642	0.90 - 1.10
Near Lith Gain	0.9514	1.0294	0.90 - 1.10
Far Bar Gain	1.0190	1.0201	0.90 - 1.10
Far Dens Gain	1.0037	1.0067	0.90 - 1.10
Far Peak Gain	0.9976	1.0011	0.90 - 1.10
Far Lith Gain	0.9660	0.9762	0.90 - 1.10
Near Bar Offset	-0.0710	-0.5322	NONE
Near Dens Offset	0.1826	-0.1599	NONE
Near Peak Offset	0.3715	-0.2846	NONE
Near Lith Offset	0.6246	-0.0145	NONE
Far Bar Offset	0.0329	0.0213	NONE
Far Dens Offset	0.1511	0.1270	NONE
Far Peak Offset	0.1947	0.1713	NONE
Far Lith Offset	0.4065	0.3386	NONE
Near Bar Background	1092.14	1088.80	700 - 1450
Near Dens Background	358.61	357.77	230 - 480
Near Peak Background	155.50	154.99	100 - 210
Near Lith Background	191.23	189.52	125 - 260
Far Bar Background	571.65	571.17	450 - 900
Far Dens Background	221.93	222.65	175 - 345
Far Peak Background	86.44	86.19	70 - 140
Far Lith Background	92.10	91.40	75 - 145

Calibration Block Summary				
Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.679	1.680	0.001	+/- 0.015
Pe	2.648	2.594	-0.054	+/- 0.150
ALUMINUM				
Density (g/cc)	2.604	2.600	-0.004	+/- 0.01500
Pe	3.086	3.100	0.014	+/- 0.150

Tool Summary				
Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	-0.0028	+/- 0.0110	-0.0027	+/- 0.0140
Magnesium Block	-0.0000	+/- 0.0110	-0.0007	+/- 0.0140
Aluminum Block	-0.0020	+/- 0.0110	-0.0017	+/- 0.0140
Resolution	9.14	6.00 - 11.50	9.73	6.00 - 11.50
Internal Verifier(B+D+P+L)	1791	1200 - 2700	971	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

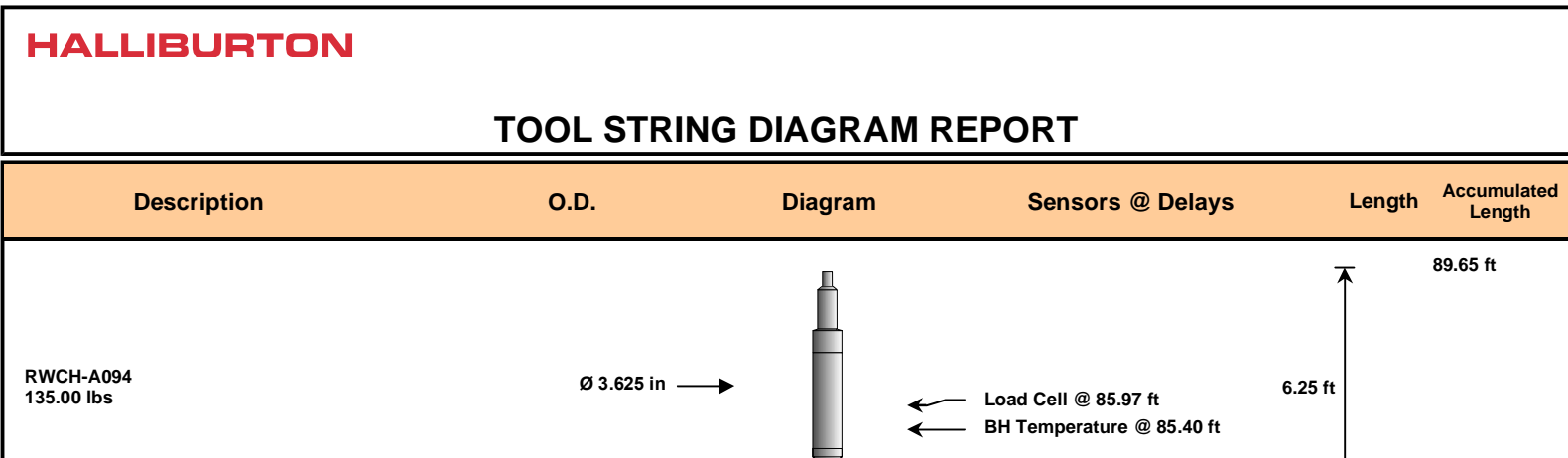
Density Caliper Shop Calibration			
Tool Name:	SDLT - I440M335	Reference Calibration Date:	05-May-10 12:28:08
Engineer:	C. BLUE	Calibration Date:	05-May-10 12:32:56
Software Version:	WL INSITE R2.4 (Build 20)	Calibration Version:	1

CALIBRATION COEFFICIENTS				
Measurement	Previous Value	New Value	Control Limit On New Value	
Pad Offset	-2476.09	-2480.32	-7000.00 - -1000.00	
Pad Gain	0.0003828	0.0003811	0.000200 - 0.000600	
Arm Offset	-3486.79	-3472.18	-5000.00 - 3000.00	
Arm Gain	0.0005449	0.0005404	0.000300 - 0.000700	
Arm Power	-0.000003911	-0.000003549	-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)	3.77	3.75	-0.02	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.51	6.50	-0.01	+/- 0.20
Medium Ring (in)	8.27	8.25	-0.02	+/- 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 - 90199477-E2817-S4353	Reference Calibration Date:	14-Apr-10 10:45:08
Engineer:	C. BLUE	Calibration Date:	14-Apr-10 10:59:55
Software Version:	WL INSITE R2.4 (Build 20)	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	1.0035	1.05	0.95	1.0074	1.05	0.95	1.0054	1.05
A2 (50")	0.95	1.0102	1.05	0.95	1.0142	1.05	0.95	1.0148	1.05
A3 (29")	0.95	1.0033	1.05	0.95	1.0060	1.05	0.95	1.0035	1.05
A4 (17")	0.95	1.0065	1.05	0.95	1.0067	1.05	0.95	1.0075	1.05
A5 (10")	N/A	N/A	N/A	0.95	0.9957	1.05	0.95	0.9949	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.9826	1.05	0.95	0.9817	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	-1.158	2	-6	-4.357	-2	-8	-4.686	-2
A2 (50")	-7	-1.911	-2	-6	-2.967	-2	-7	-4.615	-2
A3 (29")	-27	-12.876	-9	-9	-3.485	-3	-7	-3.402	-1
A4 (17")	-180	-91.122	-60	-45	-29.375	-15	-39	-24.941	-13
A5 (10")	N/A	N/A	N/A	-150	-86.818	-50	-80	-42.414	-10
A6 (6")	N/A	N/A	N/A	175	316.205	525	90	158.894	270
TRANSMITTER CURRENT GAIN						R-MUD VERIFICATION			
Signal	Lower		R	Upper		Signal	Lower (ohm-m)	Measured (ohmm)	Upper (ohm-m)
12K		0.6	0.8991	1.3		Mud Cell	0.95	0.997	1.05
36K		1.0	1.8313	2.0					
72K		1.0	1.1404	2.0					
CALIBRATION SUMMARY									
Sensor		Shop	Field	Post	Difference	Tolerance	Units		
GTET-11294346									
Gamma Ray Calibrator		230.0	-----	-----	0.0	+/- 9.00	api		
ICT-11294350									
Caliper 1		8.00	-----	-----	0.00	-----	in		
Caliper 2		8.00	-----	-----	0.00	-----	in		
Caliper 3		8.00	-----	-----	0.00	-----	in		
Caliper 4		8.00	-----	-----	0.00	-----	in		
Caliper 5		8.00	-----	-----	0.00	-----	in		
Caliper 6		8.00	-----	-----	0.00	-----	in		
CSNG-10965402									
60 KEV Peak Channel #		48.0	-----	-----	0.0	-----	Channel #		
239 KEV Peak Channel #		22.8	-----	-----	0.0	-----	Channel #		
583 KEV Peak Channel #		51.6	-----	-----	0.0	-----	Channel #		
2614 KEV Peak Channel #		211.8	-----	-----	0.0	-----	Channel #		
DSNT-11277440									
Snow-Block Porosity		0.0741	-----	-----	0.0000	+/- -.--	decp		
SDLT-I440M335									
Near(B+D+P+L)		1791.073	-----	-----	0.000	+/-14.822	cps		
Far(B+D+P+L)		971.416	-----	-----	0.000	+/-15.179	cps		
Pad Extension		3.75	-----	-----	0.00	+/-0.20	in		
Ring Diameter		8.25	-----	-----	0.00	+/-0.20	in		
ACRt-90199477-E2817-S4353									
Mud Cell		0.997	-----	-----	0.000	-----	ohmm		
Data: WELLS_RANCH_USX\0001 NOBLE_RED\IDLE							Date: 11-May-10 21:03:54		



GTET-11294346  
165.00 lbs

Ø 3.625 in →

8.52 ft

83.40 ft

← GammaRay @ 77.34 ft

IDT-11277453  
150.00 lbs

Ø 3.625 in →

7.58 ft

74.88 ft

ICT-11294350  
330.00 lbs

Ø 3.625 in →

12.83 ft

67.30 ft

← ICT Caliper @ 57.26 ft

CSNG-10965402  
114.00 lbs

Ø 3.625 in →

8.17 ft

54.47 ft

← CSNG @ 48.84 ft

Flex Joint - Pressure Comp-KW-BLACK  
140.00 lbs

Ø 3.625 in →

5.97 ft

46.30 ft

40.33 ft

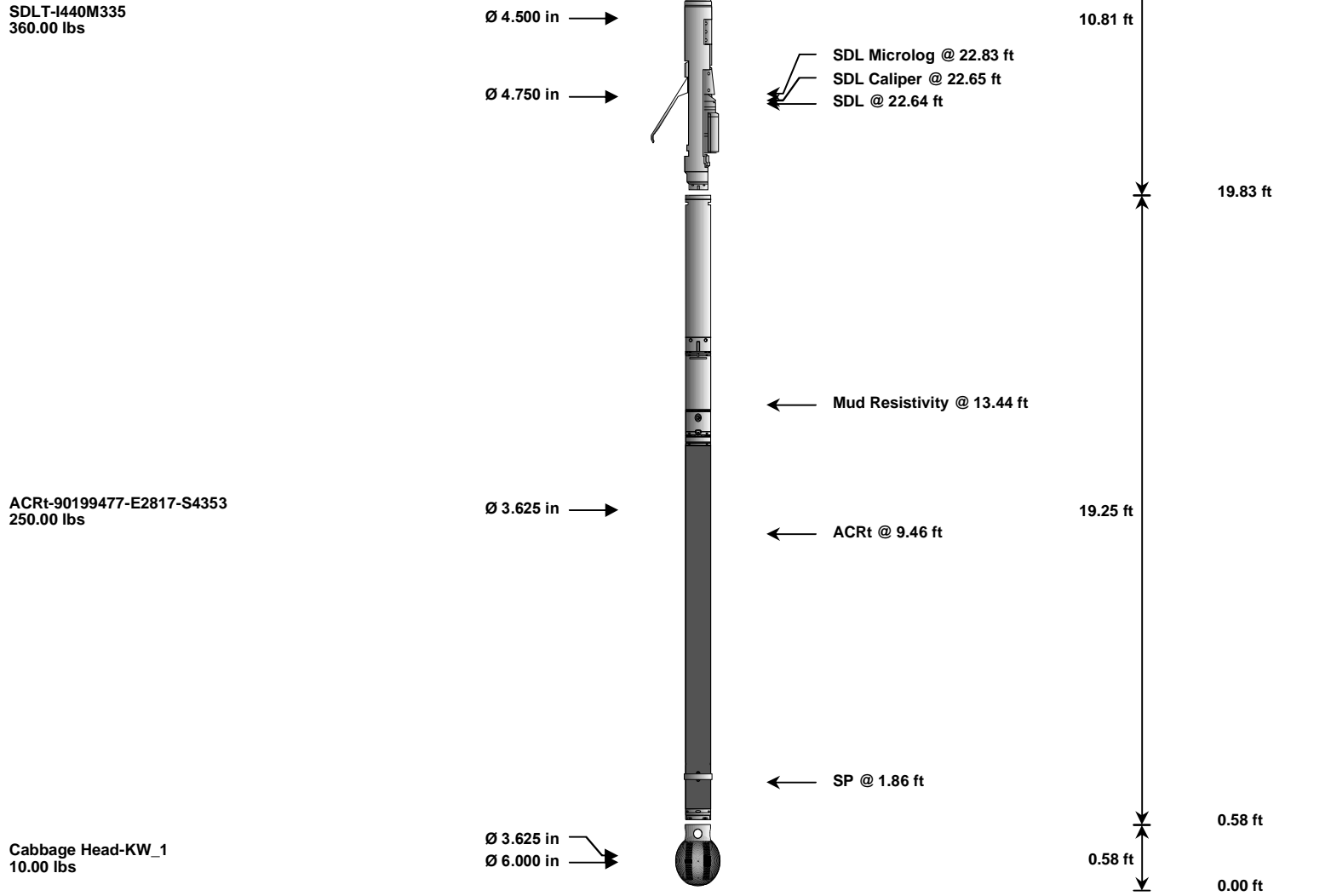
DSNT-11277440  
174.00 lbs

Ø 3.625 in →

9.69 ft

30.64 ft

← DSN Far @ 33.39 ft  
← DSN Near @ 32.64 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	83.40	300.00
GTET	Natural Gamma Ray Tool	11294346	165.00	8.52	74.88	60.00
IDT	Insite Directional Tool	11277453	150.00	7.58	67.30	30.00
ICT	Six Independent Arm Caliper	11294350	330.00	12.83	54.47	30.00
CSNG	Compensated Spectral Natural Gamma	10965402	114.00	8.17	46.30	15.00
FLEX	Flex Joint	KW-BLACK	140.00	5.97	40.33	300.00
DSNT	Dual Spaced Neutron	11277440	174.00	9.69	30.64	60.00
DCNT	DSN Decentralizer	11277440	50.00	5.13	* 33.97	300.00
SDLT	Spectral Density Tool	I440M335	360.00	10.81	19.83	60.00
ACRt	Array Compensated True Resistivity	90199477-E2817-S4353	250.00	19.25	0.58	300.00
SP	SP Ring	PROTO1	0.00	0.25	* 1.86	300.00
CBHD	Cabbage Head	KW_1	10.00	0.58	0.00	300.00
Total			1,878.00	89.65		
* Not included in Total Length and Length Accumulation.						
Data: WELLS_RANCH_USX\0001 NOBLE_RED\IDLE					Date: 11-May-10 20:12:20	

COMPANY	NOBLE		
WELL	WELLS RANCH USX AE31-15P		
FIELD	WATTENBERG		
COUNTY	WELD	STATE	CO
HALLIBURTON		SPECTRAL DENSITY DUAL SPACED NEUTRON ARRAY COMPENSATED TRUE RESISTIVITY	