

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

Fold here

Service Ticket No.: 9104556						API Serial No.: 05123329440000						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							
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" S.O.	N/A							
Rmc @ Meas. Temp.		@		@			E2817_S4353										
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.	M335_P470		Serial No.	11812167							
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.	GTET		Spacing			Log Type	GAM-GAM		Log Type	NEU-NEU							
Type	SCINT					Source Type	CS-137		Source Type	AM241BE							
Length	8"		LSA [Y/N]			Serial No.	2770GW		Serial No.	DSN434							
Distance to Source	17'		FWDA [Y/N]			Strength	1.5 CI		Strength	15 CI							
LOGGING DATA																	
GENERAL			GAMMA			ACOUSTIC			DENSITY			NEUTRON					

GENERAL			GAMMA		ACOUSTIC		DENSITY		NEUTRON							
Run	Depth		Speed	Scale		Scale		Matrix	Scale		Matrix	Scale		Matrix		
No.	From	To	ft/min	L	R	L	R		L	R		L	R			
ONE	TD	7058	REC	0	250				20	0	2.68	20	0	SAND		
ONE	7058	6763	REC	0	250				20	0	2.71	20	0	LIME		
ONE	6763	CSG	REC	0	250				20	0	2.68	20	0	SAND		
DIRECTIONAL INFORMATION																
Maximum Deviation									@	KOP						@
Remarks: RWCH-GTET-CSNG-DSNT-SDLT-ACRt RUN IN COMBINATION.																
ANNULAR HOLE VOLUME CALCULATED USING 4.5-INCH PRODUCTION CASING.																
TENSION PULLS, WASHOUTS AND BOREHOLE RUGOSITY AFFECT LOG RESPONSE.																
CHLORIDES REPORTED AT 1350 ppm.																
REPEAT SECTION NOT RUN AT CLIENT'S REQUEST.																
YOUR CREW TODAY: A. DUNCAN, S. KEENER, J. PINKETT																
RIG: CADE 21																
THANK YOU FOR USING HALLIBURTON LOGGING SERVICES - BRIGHTON, CO - (303) 825-4346																
HALLIBURTON DOES NOT GUARANTEE THE ACCURACY OF ANY INTERPRETATION OF THE LOG DATA, CONVERSION OF LOG DATA TO PHYSICAL ROCK PARAMETERS OR RECOMMENDATIONS WHICH MAY BE GIVEN BY HALLIBURTON PERSONNEL OR WHICH APPEAR ON THE LOG OR IN ANY OTHER FORM. ANY USER OF SUCH DATA, INTERPRETATIONS, CONVERSIONS, OR RECOMMENDATIONS AGREES THAT HALLIBURTON IS NOT RESPONSIBLE EXCEPT WHERE DUE TO GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, FOR ANY LOSS, DAMAGES, OR EXPENSES RESULTING FROM THE USE THEREOF.																
HALLIBURTON																



PARAMETERS REPORT

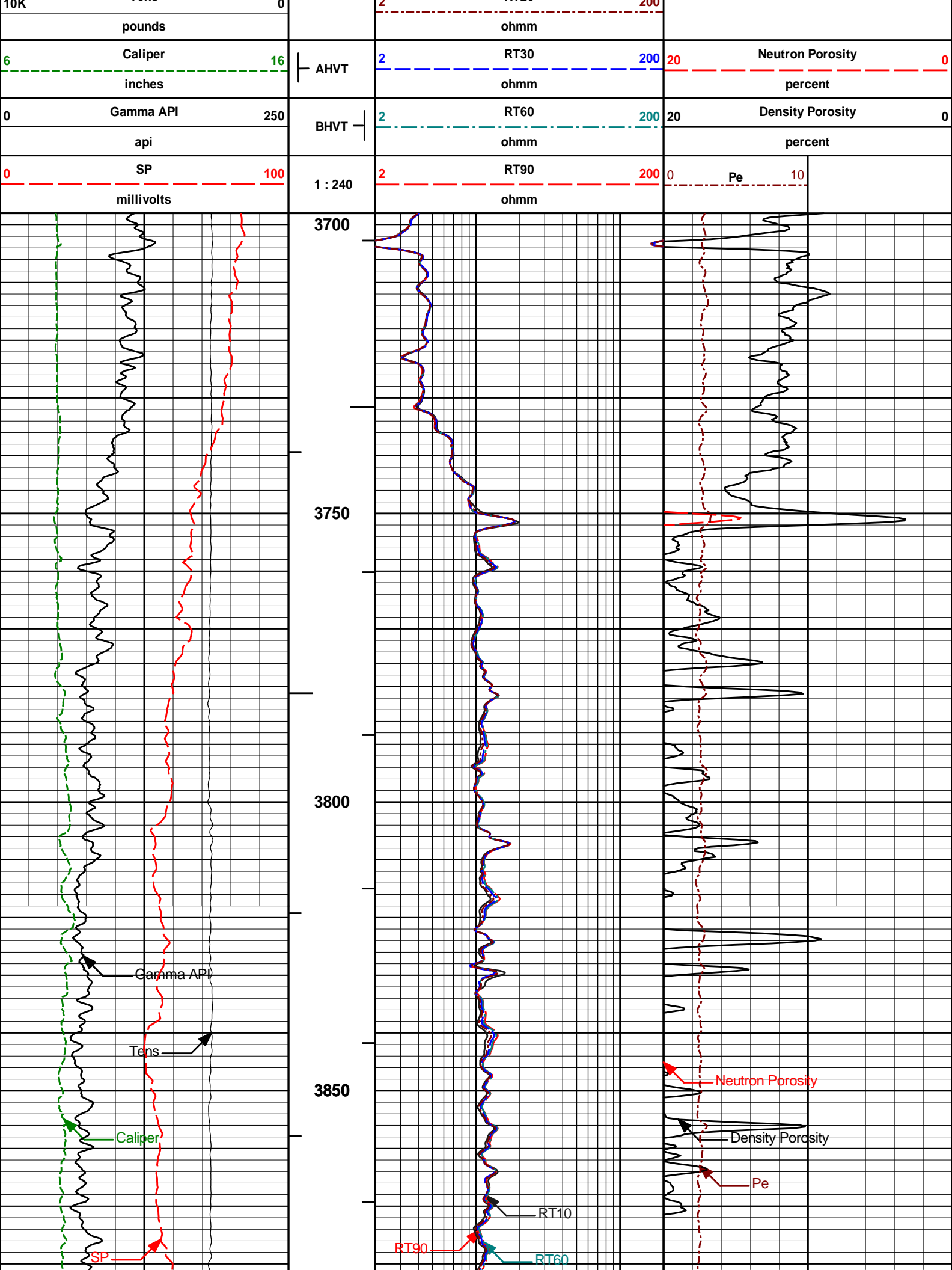
Depth ((ft))	Tool Name	Mnemonic	Description	Value	Units
TOP					
	DSNT	NLIT	Neutron Lithology	Sandstone	
	SDLT Pad	DMA	Formation Density Matrix	2.680	g/cc
6763.00					
	DSNT	NLIT	Neutron Lithology	Limestone	
	SDLT Pad	DMA	Formation Density Matrix	2.710	g/cc
7058.00					
	SHARED	BS	Bit Size	7.875	in
	SHARED	UBS	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	MDBS	Mud Base	Water	
	SHARED	MDWT	Borehole Fluid Weight	9.300	ppg
	SHARED	WAGT	Weighting Agent	Barite	
	SHARED	BSAL	Borehole salinity	1350.00	ppm
	SHARED	FSAL	Formation Salinity NaCl	0.00	ppm
	SHARED	KPCT	Percent K in Mud by Weight?	0.00	%
	SHARED	RMUD	Mud Resistivity	1.380	ohmm
	SHARED	TRM	Temperature of Mud	73.0	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	7240.00	ft
	SHARED	BHT	Bottom Hole Temperature	209.0	degF
	SHARED	SVTM	Navigation and Survey Master Tool	NONE	
	SHARED	AZTM	High Res Z Accelerometer Master Tool	GTET	

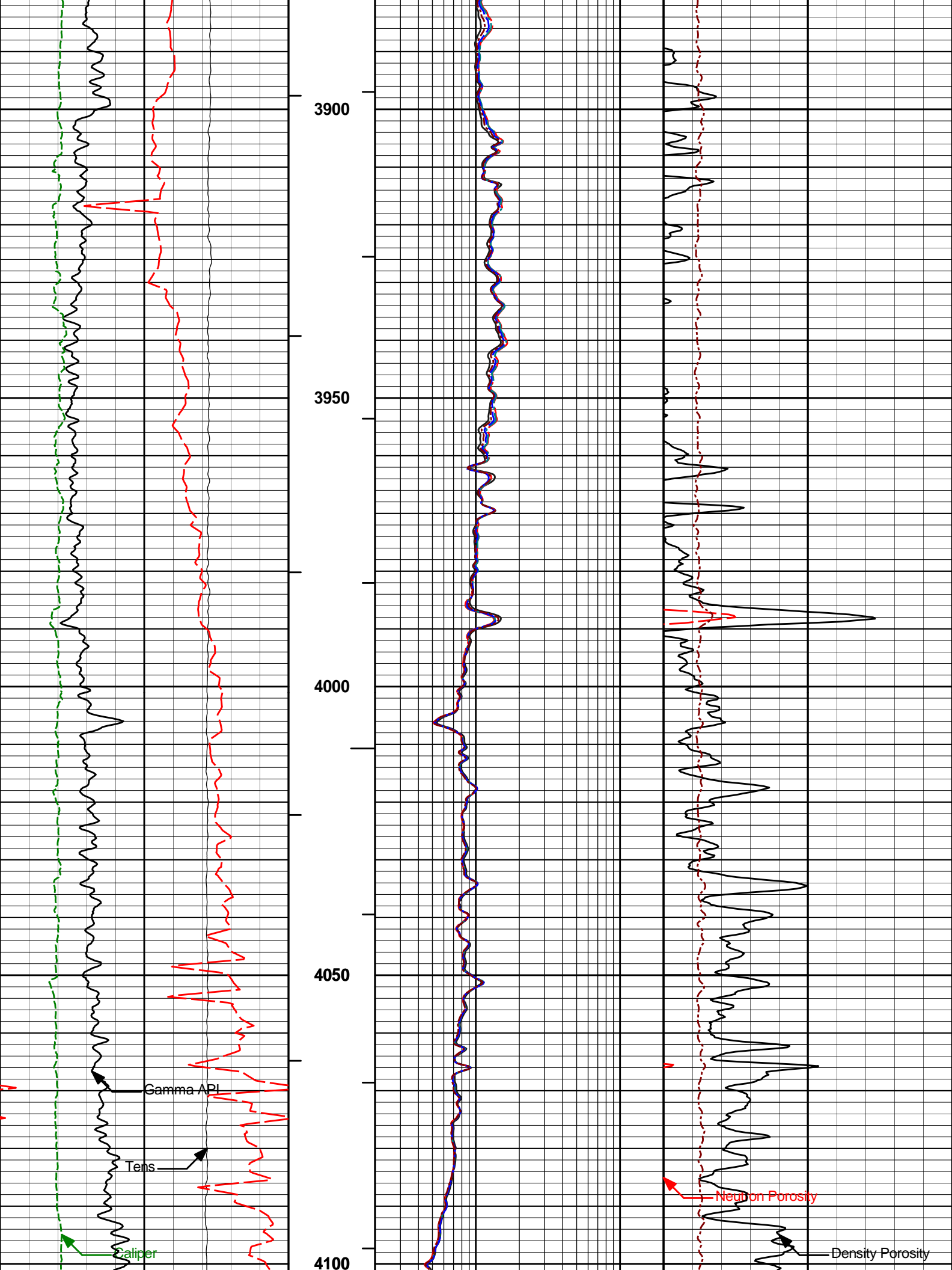
SHARED	TEMM	Temperature Master Tool	NONE	
SHARED	BHSM	Borehole Size Master Tool	NONE	
GTET	GROK	Process Gamma Ray?	Yes	
GTET	GRSO	Gamma Tool Standoff	0.000	in
GTET	GEOK	Process Gamma Ray EVR?	No	
GTET	TPOS	Tool Position for Gamma Ray Tools.	Eccentered	
CSNG	CGOK	Process CSNG Data?	Yes	
CSNG	CENT	Is Tool Centralized?	No	
CSNG	GBOK	Gamma Enviromental Corrections?	Yes	
CSNG	BARF	Barite Correction Factor	1.00	
CSNG	ORDG	Use Fixed Gain	No	
CSNG	ORDO	Use Fixed Offset	No	
CSNG	ORDR	Use Fixed Resolution Degradation Factor	No	
DSNT	DNOK	Process DSN?	Yes	
DSNT	DEOK	Process DSN EVR?	No	
DSNT	NLIT	Neutron Lithology	Sandstone	
DSNT	DNSO	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.000	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	CLOK	Process Caliper Outputs?	Yes	
SDLT Pad	DNOK	Process Density?	Yes	
SDLT Pad	DNOK	Process Density EVR?	No	
SDLT Pad	CB	Logging Calibration Blocks?	No	
SDLT Pad	SPVT	SDLT Pad Temperature Valid?	Yes	
SDLT Pad	DTWN	Disable temperature warning	No	
SDLT Pad	DMA	Formation Density Matrix	2.680	g/cc
SDLT Pad	DFL	Formation Density Fluid	1.000	g/cc
ACRt Sonde	RTOK	Process ACRt?	Yes	
ACRt Sonde	MNSO	Minimum Tool Standoff	1.50	in
ACRt Sonde	TCS1	Temperature Correction Source	FP Lwr & FP Upr	
ACRt Sonde	TPOS	Tool Position	Eccentered	
ACRt Sonde	RMOP	Rmud Source	Mud Cell	
ACRt Sonde	RMIN	Minimum Resistivity for MAP	0.20	ohmm
ACRt Sonde	RMIN	Maximum Resistivity for MAP	200.00	ohmm
ACRt Sonde	THQY	Threshold Quality	0.50	
BOTTOM				
Data: PET_USX_AB27-01\0001 NOBLE\004.01 03-Dec-11 13:23 Up			Date: 03-Dec-11 13:33:36	

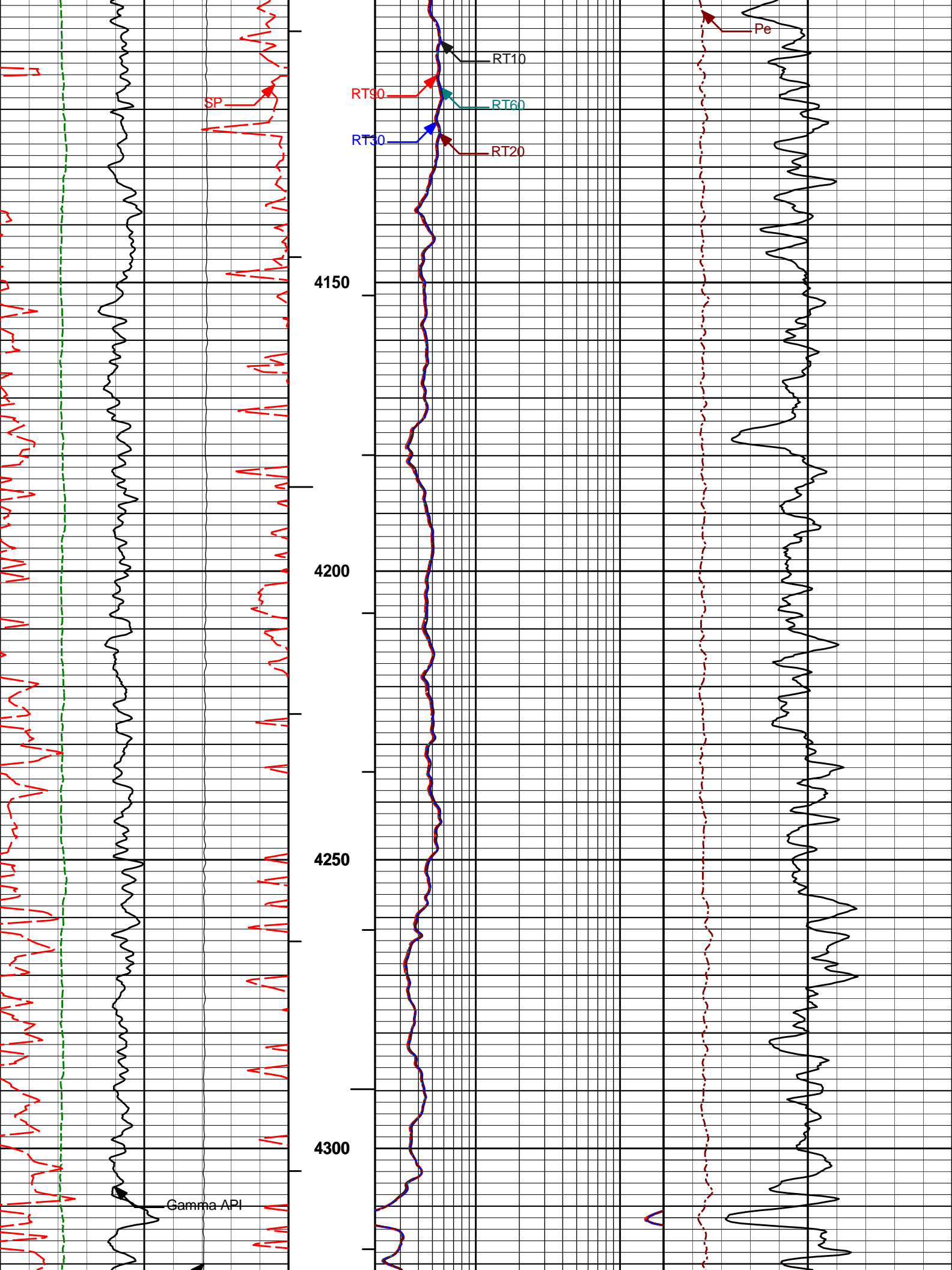
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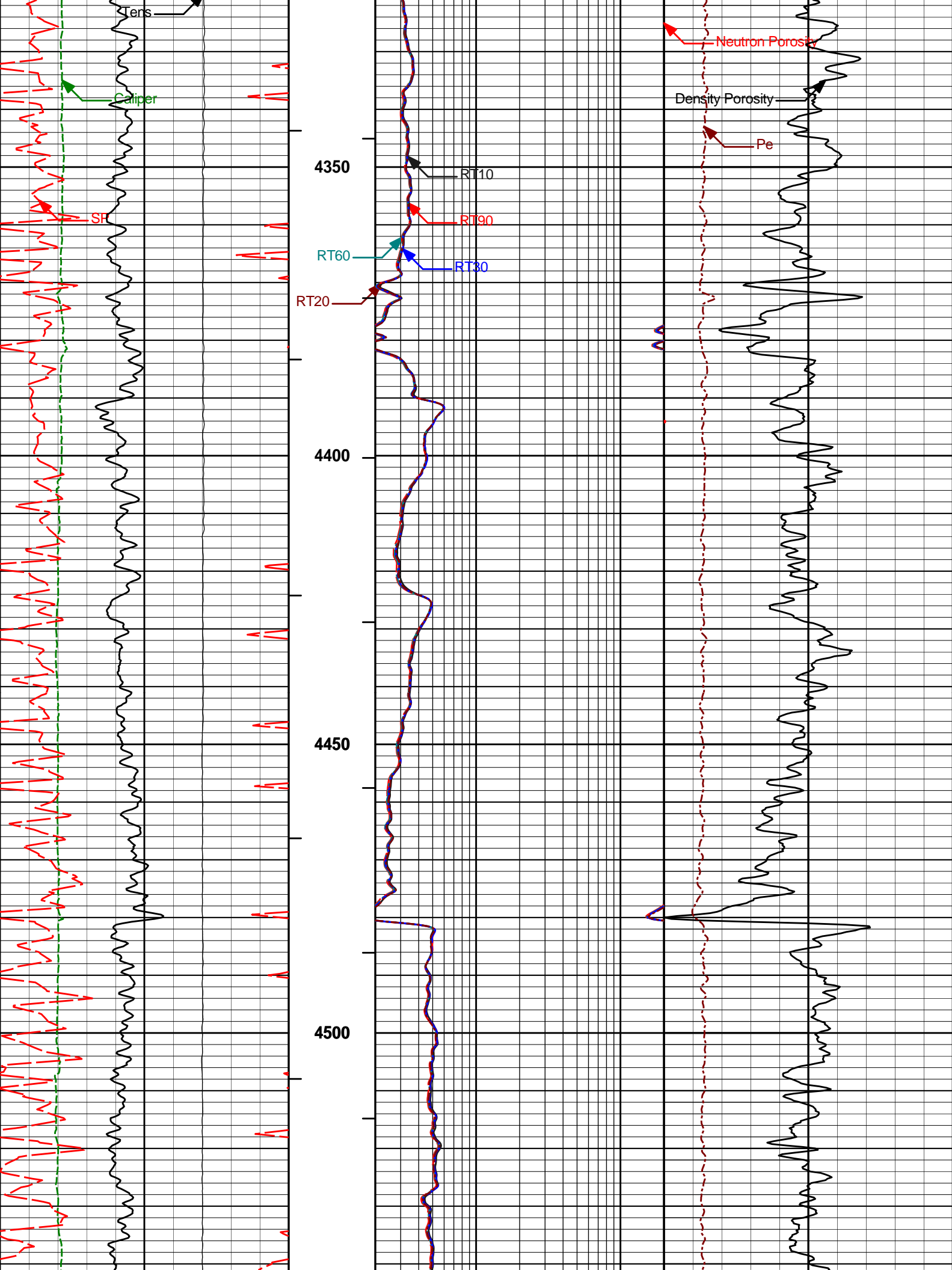
MAIN PASS 5" = 100'				
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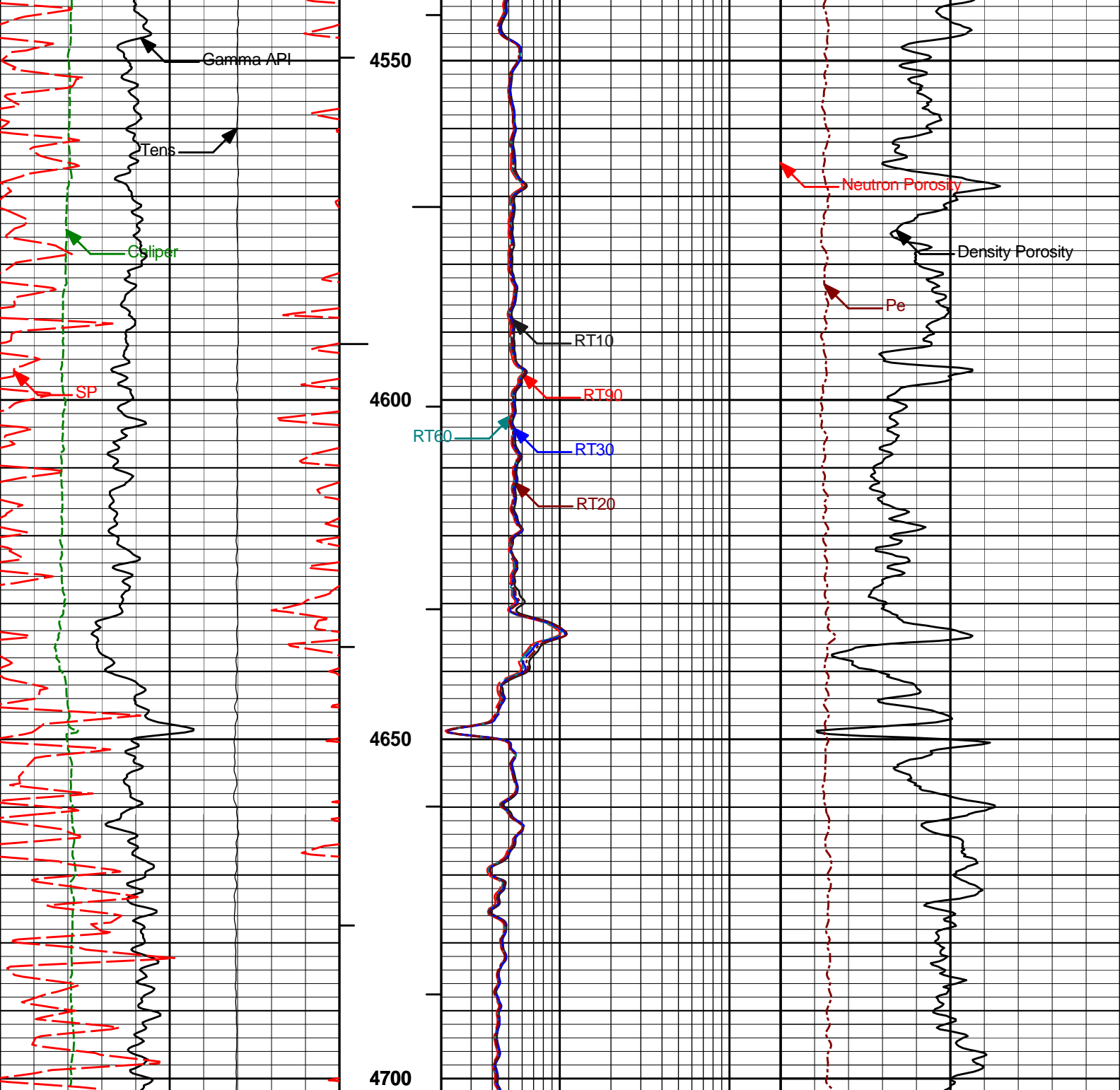
		2	RT10	200		
		ohmm				
Tens		2	RT20	200		











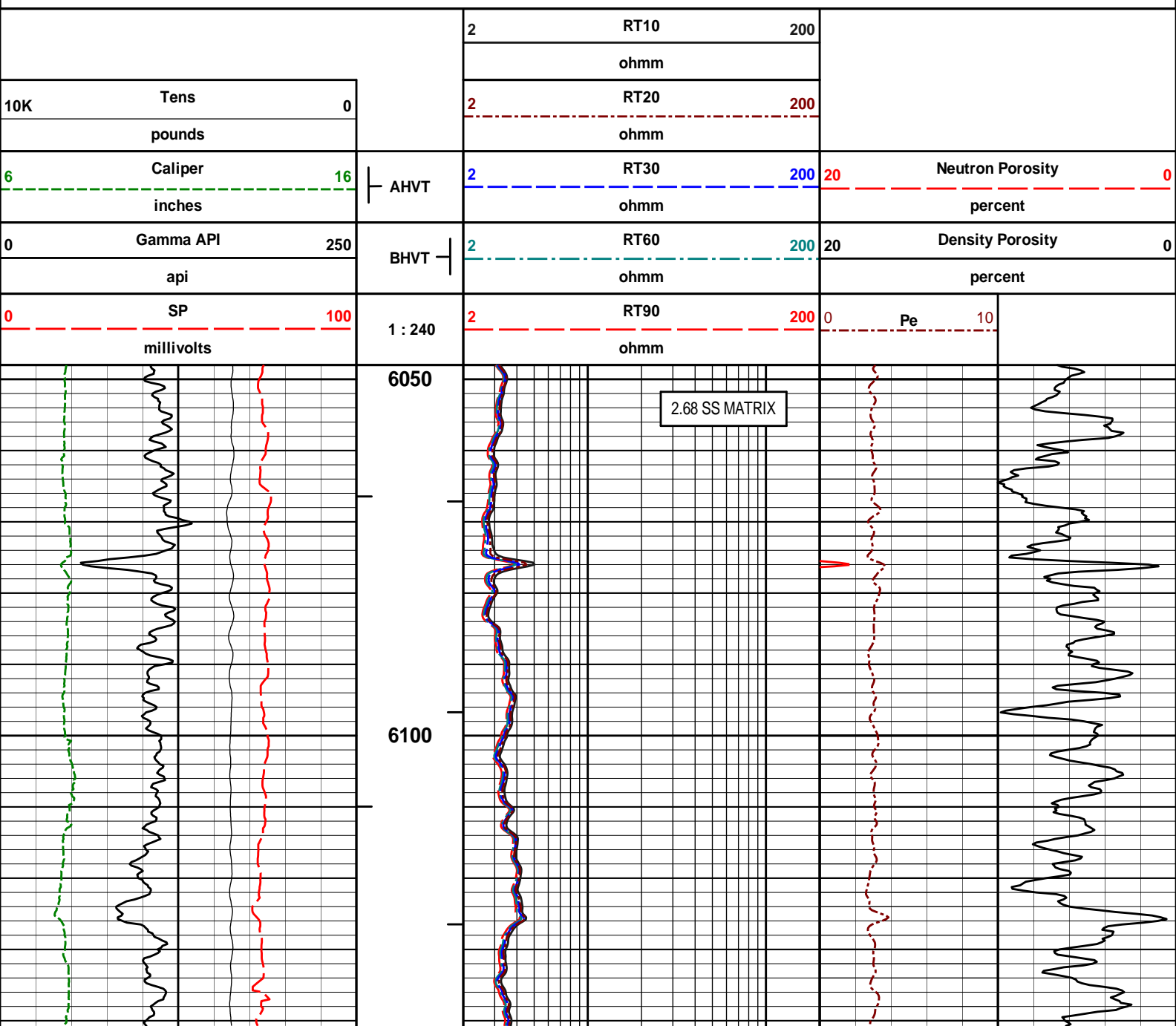
0	SP	100	1 : 240	2	RT90	200	0	Pe	10
	millivolts				ohmm				
0	Gamma API	250	BHVT	2	RT60	200	20	Density Porosity	0
	api				ohmm			percent	
6	Caliper	16	AHVT	2	RT30	200	20	Neutron Porosity	0
	inches				ohmm			percent	
10K	Tens	0		2	RT20	200			
	pounds				ohmm				
				2	RT10	200			
					ohmm				

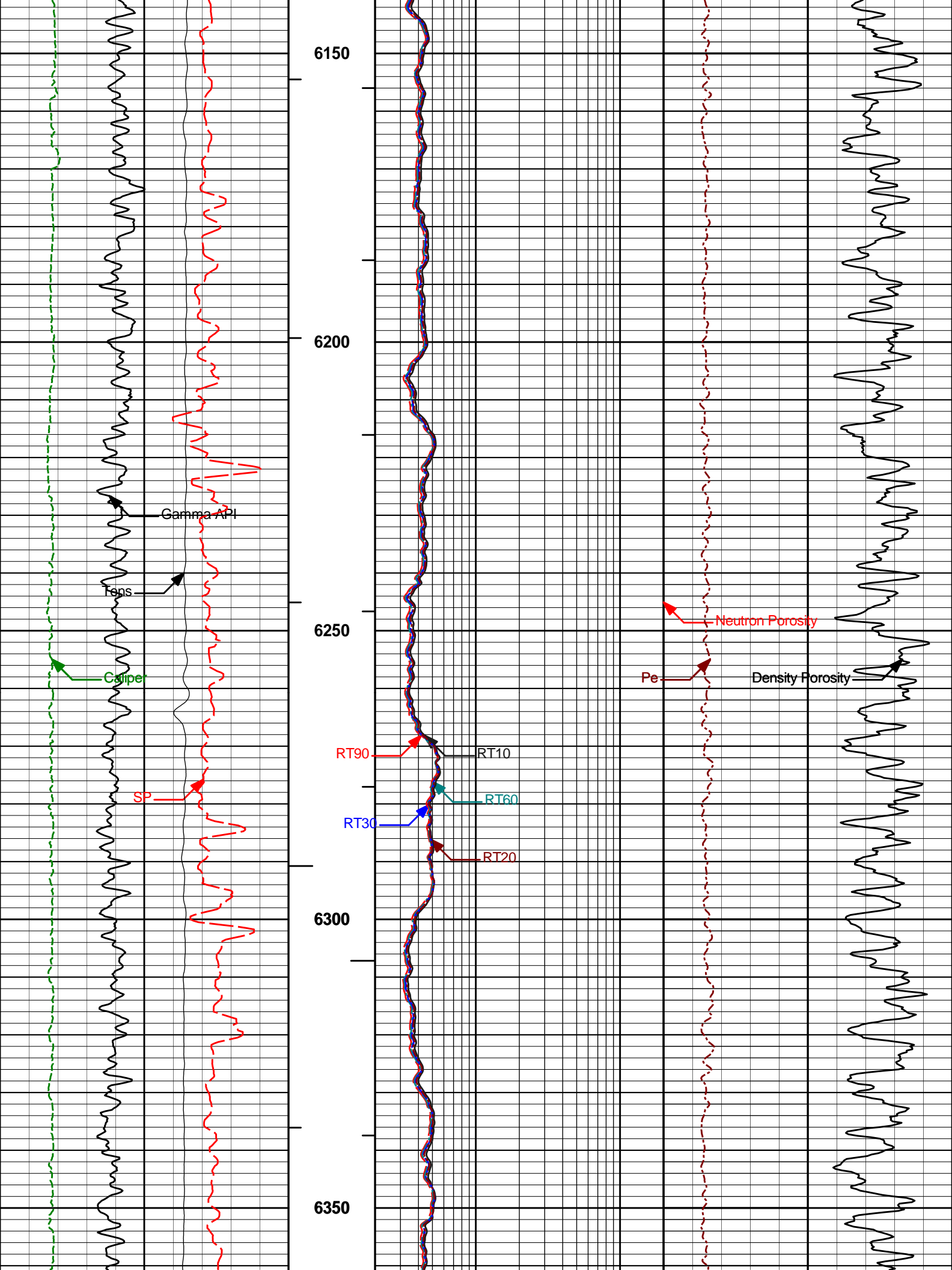
MAIN PASS 5" = 100'

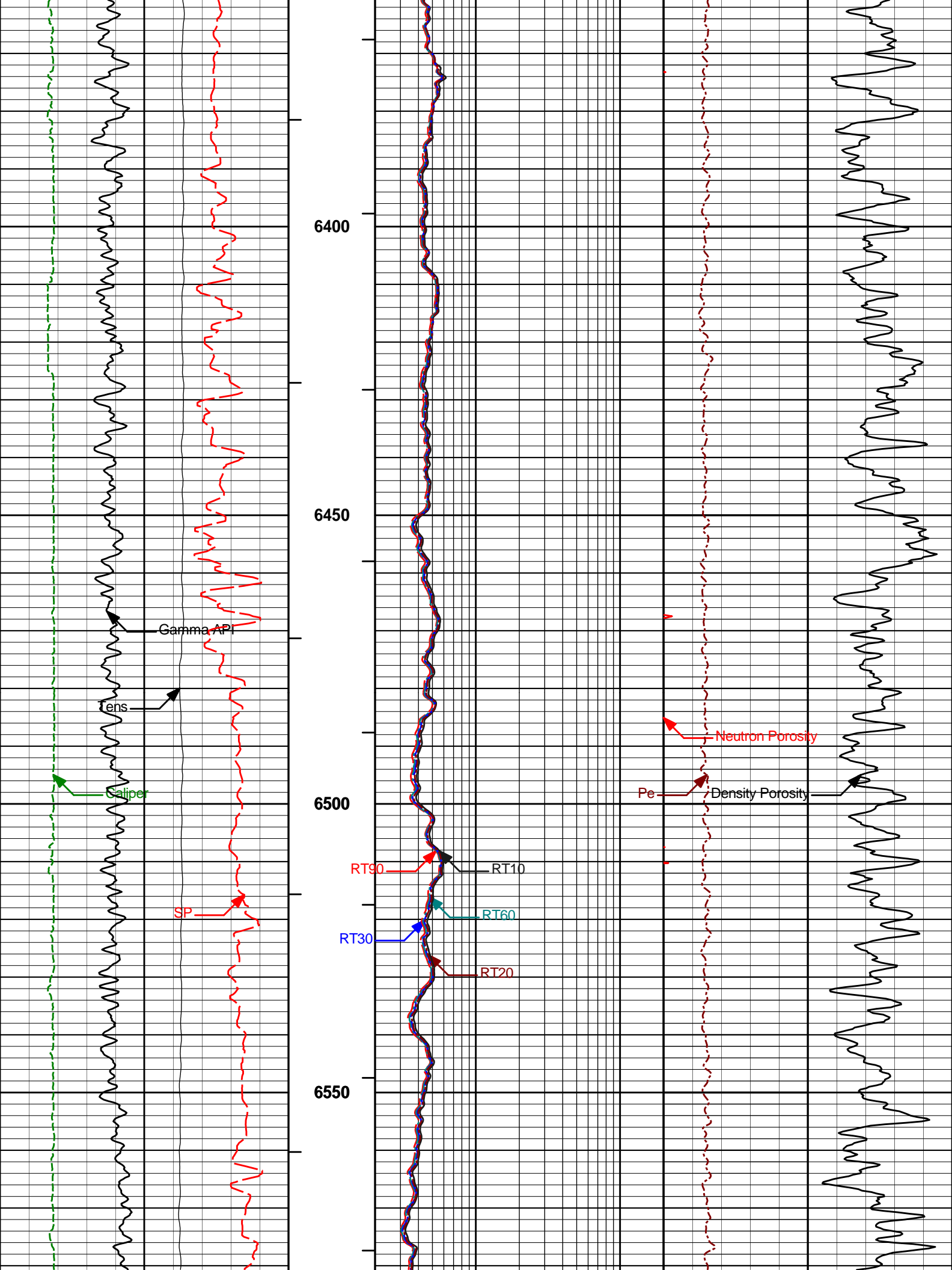
HALLIBURTON

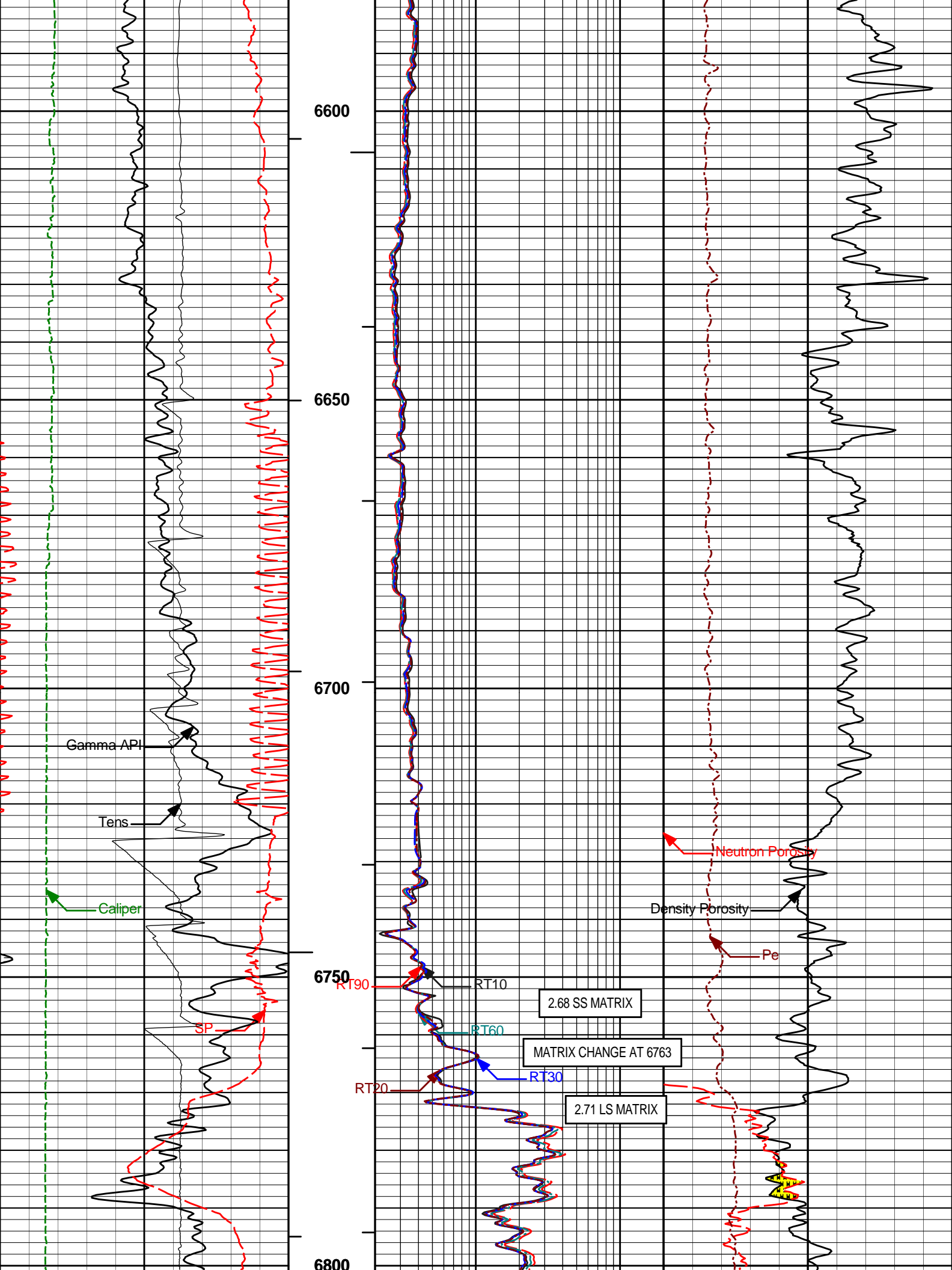
Plot Time: 03-Dec-11 13:52:42
Plot Range: 6048 ft to 7245.33 ft
Data: PET_USX_AB27-01\Well Based\MAIN*
Plot File: \\COMP\TD-NIO

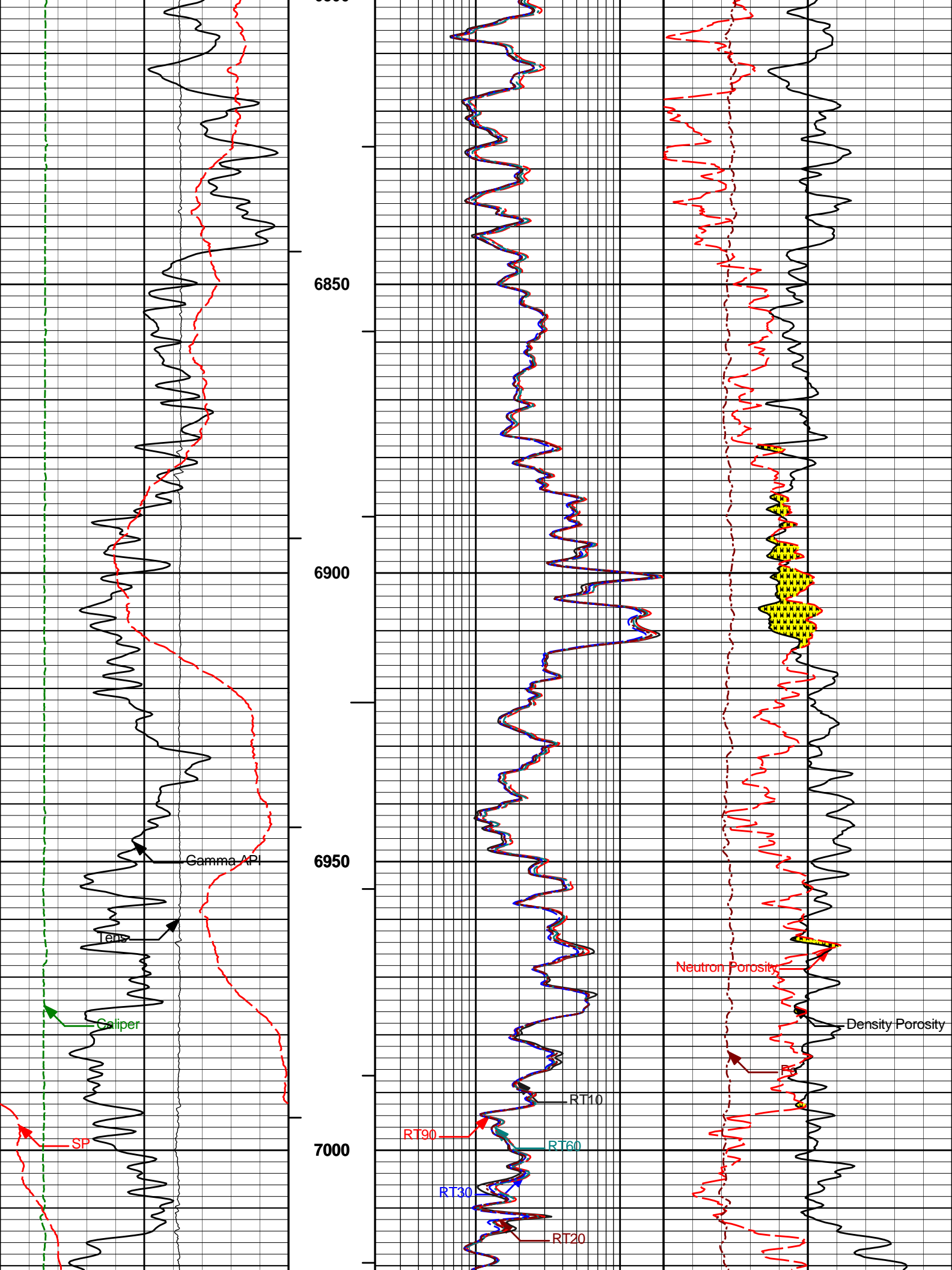
MAIN PASS 5" = 100'

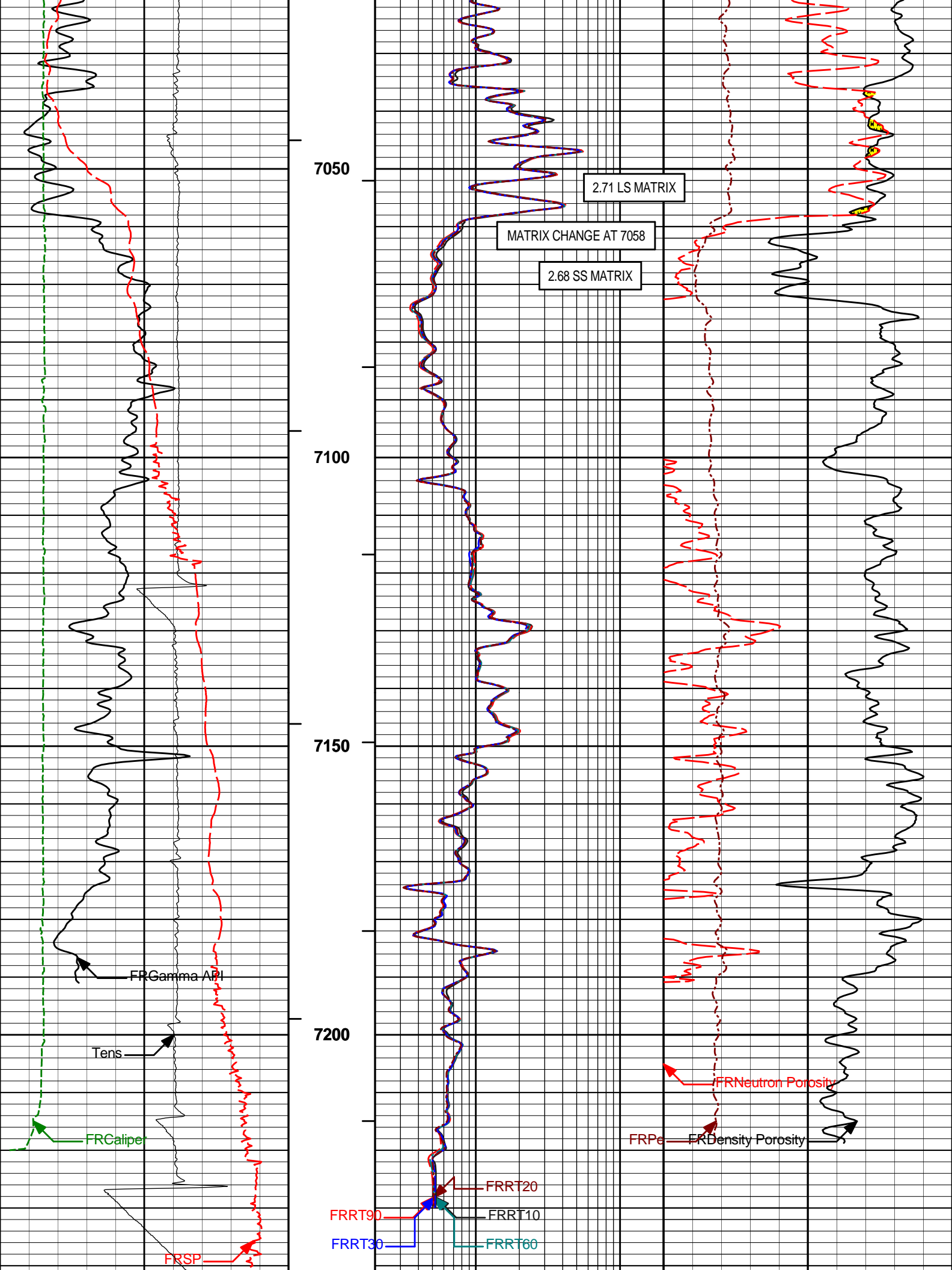












0	SP	100	1 : 240	2	RT90	200	0	Pe	10
	millivolts				ohmm				
0	Gamma API	250	BHVT	2	RT60	200	20	Density Porosity	0
	api				ohmm			percent	
6	Caliper	16	AHVT	2	RT30	200	20	Neutron Porosity	0
	inches				ohmm			percent	
10K	Tens	0		2	RT20	200			
	pounds				ohmm				
				2	RT10	200			
					ohmm				

HALLIBURTON	Plot Time: 03-Dec-11 13:52:45 Plot Range: 6048 ft to 7245.33 ft Data: PET_USX_AB27-01\Well Based\MAIN\ Plot File: \\COMP\TD-NIO
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MAIN PASS 5" = 100'

HALLIBURTON
CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION			
Tool Name:	GTET - 11277436_BLACK	Reference Calibration Date:	12-Oct-11 08:53:25
Engineer:	R. TWEETEN	Calibration Date:	08-Nov-11 13:06:24
Software Version:	WL INSITE R3.4.2 (Build 2)	Calibration Version:	1
Calibrator Source S/N: TB-289 Calibrator API Reference:243.00 api Equivalent Calibrator API Reference:247.3 api			
Measurement	Measured	Calibrated	Units
Background	66.0	65.6	api
Background + Calibrator	314.7	312.9	api
Calibrator	248.7	247.3	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION			
Tool Name:	GTET - 11277436_BLACK	Reference Calibration Date:	08-Nov-11 13:06:24
Engineer:	R. TWEETEN	Calibration Date:	03-Dec-11 06:41:57
Software Version:	WL INSITE R3.4.2 (Build 2)	Calibration Version:	1
Calibrator Source S/N: TB-289 Calibrator API Reference:243.00 api Equivalent Calibrator API Reference:247.3 api			
Field Verification	Shop	Field	Units
Background	65.6	64.7	api
Background + Calibrator	312.9	312.3	api
Calibrator	247.3	247.6	api

Shop	Field	Difference	Tolerance
247.3	247.6	-0.3	+/- 9.00

CSNG-FS SHOP CALIBRATION			
Tool Name:	CSNG - 10965402	Reference Calibration Date:	12-Oct-11 08:45:37
Engineer:	R. TWEETEN	Calibration Date:	08-Nov-11 14:10:02
Software Version:	WL INSITE R3.4.2 (Build 2)	Calibration Version:	1
Source SN:	TB-289		

TITANIUM CASE	Measured	Calibrated	Units
60 KEV Peak Channel #	48.0	48.0	Channel #
239 KEV Peak Channel #	23.0	22.8	Channel #
583 KEV Peak Channel #	51.2	51.4	Channel #
2614 KEV Peak Channel #	211.0	211.5	Channel #
Calibrate Temperature	80.0	82.9	degF

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

Blanket Reference Value: 243.00 API
Calibrator Value: 276.0 API

	Counts	Units	Measured	Calibrated	Units
Thorium Blanket	1775.7	CPS	335.1	329.6	API
Background	288.7	CPS	59.1	53.6	API

Gamma Ray Gain: 0.93
Expected Gain Range: 0.85 - 1.15
Gamma Gain Check: Passed

CSNG-FS FIELD CALIBRATION			
Tool Name:	CSNG - 10965402	Reference Calibration Date:	08-Nov-11 14:10:02
Engineer:	R. TWEETEN	Calibration Date:	03-Dec-11 06:55:57
Software Version:	WL INSITE R3.4.2 (Build 2)	Calibration Version:	1
Source SN:			

TITANIUM CASE	Shop	Field	Units
60 KEV Peak Channel #	48.0	48.0	Channel #
239 KEV Peak Channel #	22.8	22.8	Channel #
583 KEV Peak Channel #	51.4	51.3	Channel #
2614 KEV Peak Channel #	211.5	210.8	Channel #
Calibrate Temperature	82.9	81.2	degF

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

Blanket Reference Value: 243.00 API
Calibrator Value: 276.0 API

	Counts	Units	Measured	Calibrated	Units
Thorium Blanket	1793.5	CPS	329.6	329.6	API
Background	292.0	CPS	53.6	53.7	API

Gamma Ray Gain: 0.92
Expected Gain Range: 0.85 - 1.15
Gamma Gain Check: Passed

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name:	DSNT - 11812167	Reference Calibration Date:	08-Nov-11 11:33:27
Engineer:	R. TWEETEN	Calibration Date:	08-Nov-11 11:49:03
Software Version:	WL INSITE R3.4.2 (Build 2)	Calibration Version:	1

Logging Source S/N: DSN434
Tank Serial Number: 11068236
Reference value assigned to Tank: 53.720
Snow Block S/N: BRIGHTON
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:	0.998	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):	0.2222	0.2224	0.0001	+/- 0.0020
Calibrated Ratio:	10.11	10.11	0.004	+/- 0.050

VERIFIER		
Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0816	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 - 11812167	Reference Calibration Date:	08-Nov-11 11:49:03
Engineer:	R. TWEETEN	Calibration Date:	03-Dec-11 06:57:02
Software Version:	WL INSITE R3.4.2 (Build 2)	Calibration Version:	1

Logging Source S/N: DSN434
Snow Block S/N: BRIGHTON

NEUTRON FIELD-CHECK SUMMARY				
	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0816	0.0730	-0.0086	+/- 0.0150

PASS/FAIL SUMMARY	
Block Change Check:	Passed

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

DENSITY CALIPER SHOP CALIBRATION

Tool Name:	SDLT - M335_P470_BLACK	Reference Calibration Date:	06-Nov-11 06:27:31
Engineer:	R. TWEETEN	Calibration Date:	08-Nov-11 14:07:56
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	-3363.47	-3396.74	-7000.00 - -1000.00
Pad Gain	0.0003808	0.0003835	0.000200 - 0.000600
Arm Offset	-4212.60	-4102.72	-5000.00 - 3000.00
Arm Gain	0.0005599	0.0005418	0.000300 - 0.000700
Arm Power	-0.000005430	-0.000004208	-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)	3.74	3.75	0.01	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.51	6.50	-0.01	+/- 0.20
Medium Ring (in)	8.30	8.25	-0.05	+/- 0.20
Large Ring (in)	15.01	15.00	-0.01	+/- 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 - M335_P470_BLACK	Reference Calibration Date:	08-Nov-11 14:07:56
Engineer:	R. TWEETEN	Calibration Date:	03-Dec-11 06:46:43
Software Version:	WL INSITE R3.4.2 (Build 2)	Calibration Version:	1

MEASURED CALIPER VALUES				
Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.68	-0.07	+/- 0.10
Ring Diameter	8.25	8.22	-0.03	+/- 0.15

PASS/FAIL SUMMARY	
Pad Extension Check:	Passed
Diameter Check:	Passed

ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION

Tool Name:	ACRt Sonde - E2817-S4353_RED	Reference Calibration Date:	30-Mar-11 18:36:19
Engineer:	F. LODER	Calibration Date:	25-Aug-11 16:29:16
Software Version:	WL INSITE R3.4.2 (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	0.9989	1.05	0.95	1.0069	1.05	0.95	1.0058	1.05
A2 (50")	0.95	1.0060	1.05	0.95	1.0127	1.05	0.95	1.0132	1.05
A3 (29")	0.95	0.9987	1.05	0.95	1.0048	1.05	0.95	1.0032	1.05
A4 (17")	0.95	1.0082	1.05	0.95	1.0104	1.05	0.95	1.0126	1.05
A5 (10")	N/A	N/A	N/A	0.95	0.9989	1.05	0.95	0.9991	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.9869	1.05	0.95	0.9858	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	-0.868	2	-6	-4.188	-2	-8	-4.566	-2
A2 (50")	-7	-1.381	-1	-6	-2.744	-2	-7	-4.434	-2
A3 (29")	-27	-13.052	-9	-9	-3.447	-3	-7	-3.422	-1
A4 (17")	-180	-90.358	-60	-45	-29.172	-15	-39	-25.028	-13
A5 (10")	N/A	N/A	N/A	-150	-90.077	-50	-80	-43.799	-10
A6 (6")	N/A	N/A	N/A	175	330.846	525	90	166.100	270
TRANSMITTER CURRENT GAIN						R-MUD VERIFICATION			
Signal	Lower		R	Upper		Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
12K		0.6	0.9366	1.3		Mud Cell	0.95	0.997	1.05
36K		1.0	1.8319	2.0					
72K		1.0	1.1750	2.0					

SPECTRAL DENSITY SHOP CALIBRATION					
Tool Name:	SDLT Pad - M335_P470_BLACK		Reference Calibration Date:	20-Sep-11 14:05:14	
Engineer:	R. TWEETEN		Calibration Date:	08-Nov-11 13:37:53	
Software Version:	WL INSITE R3.4.2 (Build 2)		Calibration Version:	1	

Logging Source S/N: 2770GW				
Aluminum Block S/N: 63066			Density: 2.602g/cc	Pe: 3.100
Magnesium Block S/N: 12345			Density: 1.690g/cc	Pe: 2.650

DENSITY CALIBRATION SUMMARY			
Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0769	1.0862	0.90 - 1.10
Near Dens Gain	1.0446	1.0467	0.90 - 1.10
Near Peak Gain	1.0277	1.0177	0.90 - 1.10
Near Lith Gain	0.9752	0.9729	0.90 - 1.10
Far Bar Gain	1.0170	1.0203	0.90 - 1.10
Far Dens Gain	1.0037	1.0052	0.90 - 1.10
Far Peak Gain	0.9954	0.9985	0.90 - 1.10
Far Lith Gain	0.9652	0.9674	0.90 - 1.10
Near Bar Offset	-0.4625	-0.5413	NONE
Near Dens Offset	-0.1319	-0.1421	NONE
Near Peak Offset	0.0240	0.1151	NONE
Near Lith Offset	0.4369	0.4614	NONE
Far Bar Offset	0.0615	0.0377	NONE
Far Dens Offset	0.1601	0.1472	NONE
Far Peak Offset	0.2180	0.1890	NONE

Far Lith Offset	0.4187	0.4001	NONE
Near Bar Background	1052.73	1046.79	700 - 1450
Near Dens Background	343.81	345.57	230 - 480
Near Peak Background	151.08	152.19	100 - 210
Near Lith Background	184.07	183.15	125 - 260
Far Bar Background	550.53	545.59	450 - 900
Far Dens Background	213.70	214.11	175 - 345
Far Peak Background	83.98	83.42	70 - 140
Far Lith Background	88.40	87.41	75 - 145

CALIBRATION BLOCK SUMMARY				
Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.684	1.690	0.006	+/- 0.015
Pe	2.596	2.597	0.001	+/- 0.150
ALUMINUM				
Density (g/cc)	2.592	2.602	0.010	+/- 0.01500
Pe	3.059	3.056	-0.003	+/- 0.150

TOOL SUMMARY				
Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	-0.0006	+/- 0.0110	-0.0015	+/- 0.0140
Magnesium Block	0.0001	+/- 0.0110	-0.0020	+/- 0.0140
Aluminum Block	0.0011	+/- 0.0110	0.0013	+/- 0.0140
Resolution	9.03	6.00 - 11.50	9.72	6.00 - 11.50
Internal Verifier(B+D+P+L)	1728	1200 - 2700	931	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 Pad - M335_P470_BLACK	Reference Calibration Date:	08-Nov-11 13:37:53
Engineer:	R. TWEETEN	Calibration Date:	03-Dec-11 06:42:17
Software Version:	WL INSITE R3.4.2 (Build 2)	Calibration Version:	1

Pad Temperature: 61.1 degF

DENSITY FIELD CALIBRATION SUMMARY				
Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1727.704	1729.292	1.588	16.675
Far (B+D+P+L) cps	930.530	935.850	5.320	16.504
Near Resolution	9.03	9.16	0.130	0.50

Far Resolution

9.72

9.92

0.200

1.00

PASS/FAIL SUMMARY

Bkg Quality Check:	Passed
Bkg Resolution Check:	Passed
Bkg Verification Check:	Passed

CALIBRATION SUMMARY


Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-11277436_BLACK						
Gamma Ray Calibrator	247.3	247.6	-----	-0.3	+/- 9.00	api
CSNG-10965402						
60 KEV Peak Channel #	48.0	48.0	-----	0.0	-----	Channel #
239 KEV Peak Channel #	22.8	22.8	-----	0.0	-----	Channel #
583 KEV Peak Channel #	51.4	51.3	-----	0.1	-----	Channel #
2614 KEV Peak Channel #	211.5	210.8	-----	0.7	-----	Channel #
DSNT-11812167						
Snow-Block Porosity	0.0816	0.0730	-----	0.0086	+/- 0.0150	decp
SDLT-M335_P470_BLACK						
Pad Extension	3.75	3.68	-----	0.07	+/-0.10	in
Ring Diameter	8.25	8.22	-----	0.030	+/-0.15	in
ACRt Sonde-E2817-S4353_RED						
Mud Cell	0.997	-----	-----	0.000	-----	ohm-m
SDLT Pad-M335_P470_BLACK						
Near(B+D+P+L)	1727.704	1729.292	-----	-1.588	+/-16.675	cps
Far(B+D+P+L)	930.530	935.850	-----	-5.320	+/-16.504	cps

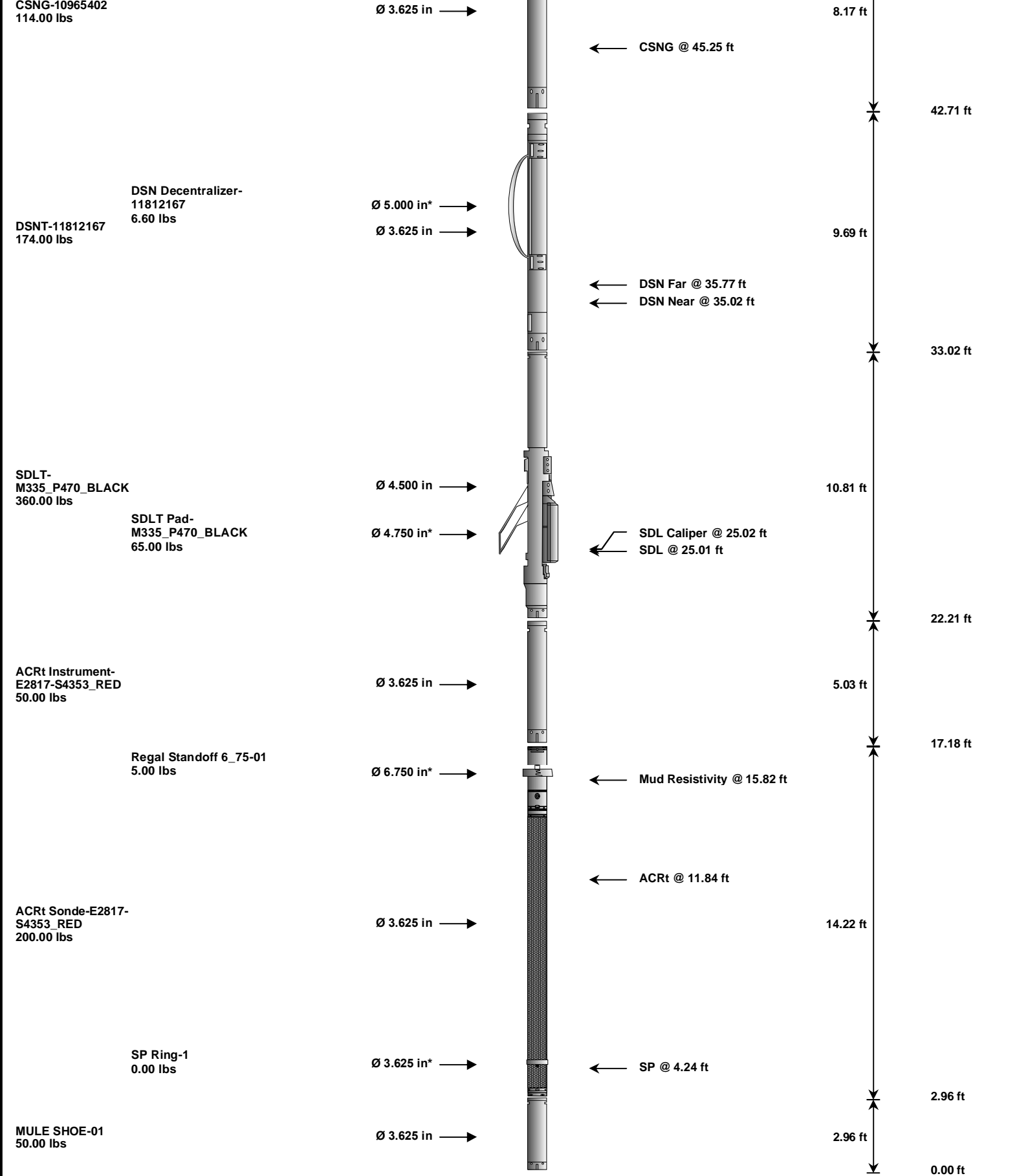
Data: PET_USX_AB27-01\0001 NOBLE\IDLE

Date: 03-Dec-11 12:05:31

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 @ 61.96 ft ← BH Temperature @ 61.39 ft	6.25 ft	65.64 ft
						59.39 ft
GTET-11277436_BLACK 165.00 lbs		Ø 3.625 in →		← GammaRay @ 53.33 ft	8.52 ft	50.87 ft



Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max. Log. Speed (fpm)
RWCH	Releasable Wireline Cable Head	11078326	135.00	6.25	59.39	300.00
GTET	Gamma Telemetry Tool	11277436_BLACK	165.00	8.52	50.87	60.00
CSNG	Compensated Spectral Natural Gamma	10965402	114.00	8.17	42.71	15.00
DSNT	Dual Spaced Neutron	11812167	174.00	9.69	33.02	60.00
DCNT	DSN Decentralizer	11812167	6.60	5.13	*	36.35
SDLT	Spectral Density Tool	M335_P470_BLACK	360.00	10.81	22.21	60.00

SDLP	Density Insite Pad	M335_P470_BLACK	65.00	2.55	*	24.42	60.00
ACRt	Array Compensated True Resistivity Instrument Section	E2817-S4353_RED	50.00	5.03		17.18	300.00
ACRt	Array Compensated True Resistivity	E2817-S4353_RED	200.00	14.22		2.96	300.00
SP	SP Ring	1	0.00	0.25	*	4.24	300.00
RSOF	Regal Standoff 6.75in	01	5.00	0.52	*	15.86	300.00
MS	MULE SHOE	01	50.00	2.96		0.00	100.00
Total			1,324.60	65.64			
* Not included in Total Length and Length Accumulation.							
Data: PET_USX_AB27-01\0001 NOBLE\IDLE							
Date: 03-Dec-11 11:34:38							

COMPANY	NOBLE ENERGY INC		
WELL	PETTINGER USX AB27-01		
FIELD	WATTENBERG		
COUNTY	WELD	STATE	CO
HALLIBURTON		ARRAY COMPENSATED TRUE RESITIVITY SPECTRAL DENSITY DUAL SPACED NEUTRON	