

HALLIBURTON

SPECTRAL DENSITY DUAL SPACED NEUTRON ARRAY COMPENSATED TRUE RESISTIVITY

COMPANY		NOBLE ENERGY	
WELL		BOULTER PC G11-20D	
FIELD		WATTENBERG	
COUNTY		WELD	
STATE		CO	
Permanent Datum		GL	
Log measured from		KB	
Drilling measured from		KB	
Date		09-Jan-12	
Run No.		ONE	
Depth - Driller		7729.00 ft	
Depth - Logger		7707.0 ft	
Bottom - Logged Interval		7698 ft	
Top - Logged Interval		767 ft	
Casing - Driller		8.625 in @ 767.0 ft	
Casing - Logger		767.0 ft	
Bit Size		7.785 in	
Type Fluid in Hole		WATER	
Density		10.9 ppg	
Viscosity		36.00 s/qt	
PH		8.00 pH	
Fluid Loss		10.0 cpm	
Source of Sample		MUD CELL	
Rm @ Meas. Temperature		1.202 ohmm @ 85.80 degF	
Rmf @ Meas. Temperature		0.98 ohmm @ 75.00 degF	
Rmc @ Meas. Temperature		1.602 ohmm @ 75.00 degF	
Source Rmf		CHART	
Rmc		CHART	
Rm @ BHT		0.46 ohmm @ 235.0 degF	
Time Since Circulation		5.0 hr	
Time on Bottom		09-Jan-12 13:09	
Max. Rec. Temperature		235.0 degF @ 7707.0 ft	
Equipment		10800785	
Location		BRIGHTON	
Recorded By		C. BLUE	
Witnessed By		S. HEARD	

COMPANY	NOBLE ENERGY
WELL	BOULTER PC G11-20D
FIELD	WATTENBERG
COUNTY	WELD
STATE	CO
API No.	05123339370000
Location	SHL: 477' FSL & 1154' FWL SWSW BHL: 1320' FWL & 2550' FNL SENW LAT: 40.321050 LONG: -104.635470
Sect. 11	Twp. 4N
Rge. 65W	
Elev. 4683.0 ft	
Elev. 4697.0 ft	
D.F. 4697.0 ft	
G.L. 4683.0 ft	
Other Services:	RWCH CSNG BSAT

Fold here

Service Ticket No.: N/A						API Serial No.: 05123339370000						PGM Version: WL INSITE R3.4.4 (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 584-585		N/A		1.5' S.O		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.		ONE				Run No.		ONE				Run No.		ONE									
Serial No.		11215095				Serial No.		11105780				Serial No.		M319P593				Serial No.		11219332									
Model No.		GTET				Model No.		BSAT				Model No.		SDLT				Model No.		DSNT									
Diameter		3.625"				No. of Cent.		2				Diameter		4.5"				Diameter		3.625"									
Detector Model No.		102A				Spacing		0.5'				Log Type		GAM/GAM				Log Type		NEU/NEU									
Type		SCINT										Source Type		CS 137				Source Type		AM 241BE									
Length		8"				LSA [Y/N]		N				Serial No.		5356GW				Serial No.		DSN430									
Distance to Source		17'				FWDA [Y/N]		N				Strength		1.5CI				Strength		1.5CI									
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	7517	REC	0	250	30	-10	55.5us/ft	20%	0%	2.68	20%	0%	SAND	
ONE	7517	7216	REC	0	250	30	-10	47.5us/ft	20%	0%	2.71	20%	0%	LIME	
ONE	7216	CSG	REC	0	250	30	-10	55.5us/ft	20%	0%	2.68	20%	0%	SAND	
DIRECTIONAL INFORMATION															
Maximum Deviation			0.00 deg		@		0.00 ft		KOP			@		0.00 ft	
Remarks: RWCH, GTET, CSNG, DSNT, SDLT, BSAT, and ACRt Sonde RAN IN COMBINATION															
ANNULAR HOLE VOLUME CALCULATED USING 4.5 FUTURE PRODUCTION CASING															
TEN PULLS, WASHOUTS, BOREHOLE RUGGOSITY AFFECT TOOL RESPONSE															
CALIPER WAS CLOSED AT 7120' TO 7100', 7045' TO 6970' DUE TO HOLE CONDITION															
CREW; J.WALKER, N. GOULD RIG; SAXON #143															
THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES -- BRIGHTON, CO -- 303 720 4348															
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PARAMETERS REPORT

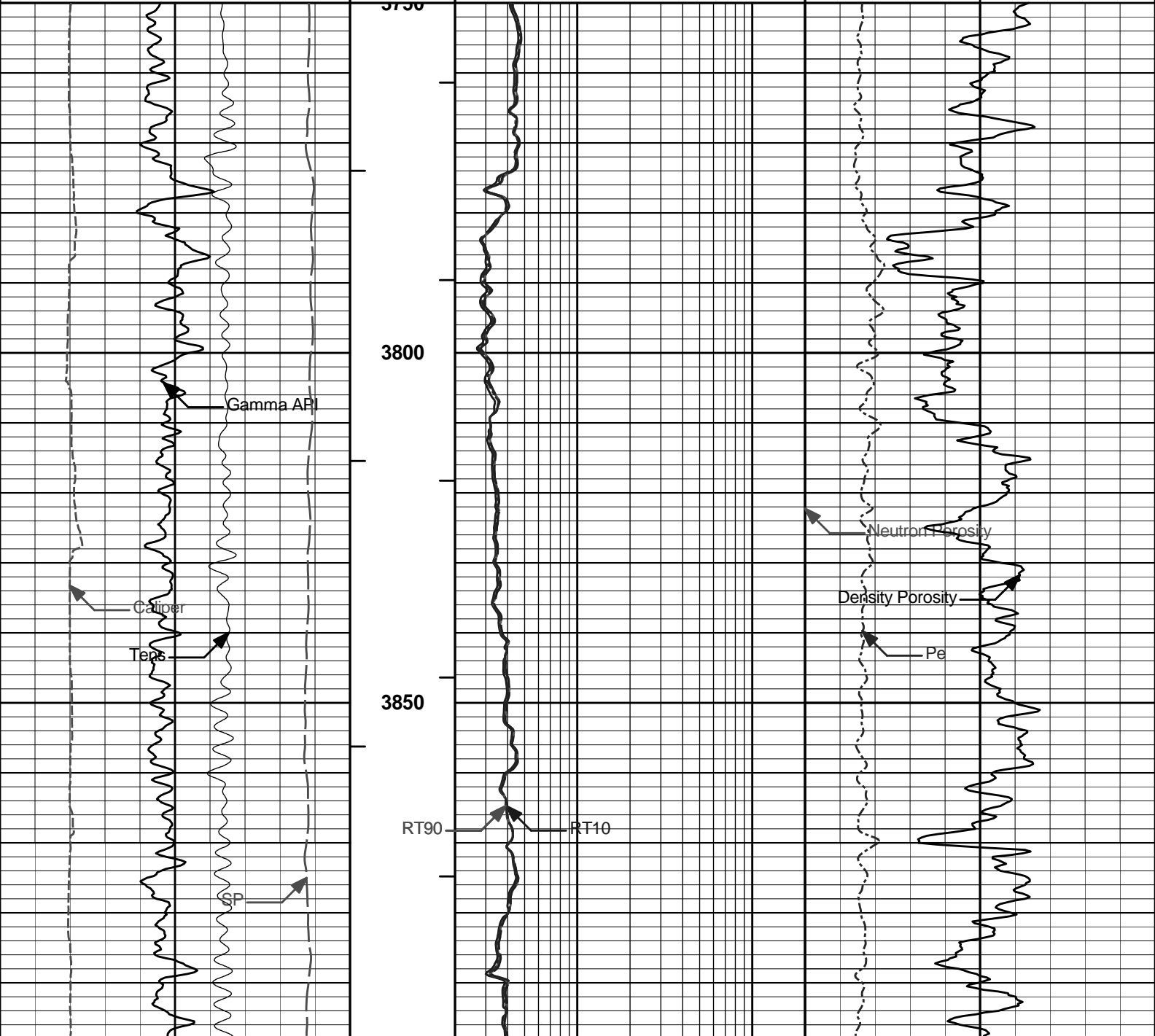
Depth ((ft))	Tool Name	Description	Value	Units
TOP				
	DSNT	Neutron Lithology	Sandstone	
	SDLT Pad	Formation Density Matrix	2.680	g/cc
	BSAT	Delta -T Matrix Type	Sandstone 55.5	
7191.00				
	DSNT	Neutron Lithology	Limestone	
	SDLT Pad	Formation Density Matrix	2.710	g/cc
	BSAT	Delta -T Matrix Type	Limestone 47.5	
7492.00				
	SHARED	Bit Size	7.875	in
	SHARED	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	Mud Base	Water	
	SHARED	Borehole Fluid Weight	10.900	ppg
	SHARED	Weighting Agent	Barite	
	SHARED	Borehole salinity	0.00	ppm
	SHARED	Formation Salinity NaCl	0.00	ppm
	SHARED	Percent K in Mud by Weight?	0.00	%
	SHARED	Mud Resistivity	1.202	ohmm
	SHARED	Temperature of Mud	85.8	degF
	SHARED	Logging Interval is Cased?	No	
	SHARED	AHV Casing OD	4.500	in
	SHARED	Surface Temperature	75.0	degF
	SHARED	Total Well Depth	7682.00	ft
	SHARED	Bottom Hole Temperature	235.0	degF

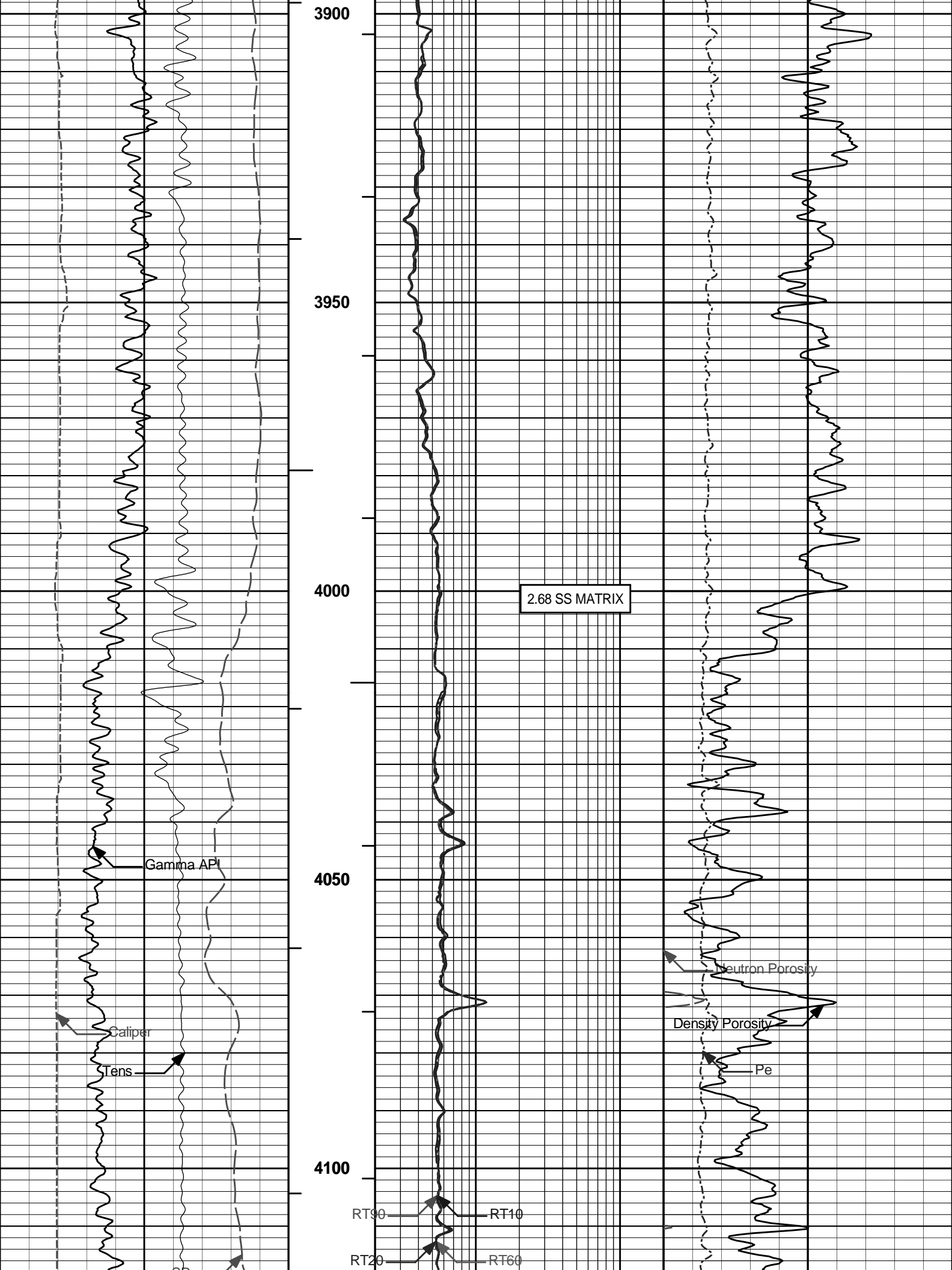
SHARED	Navigation and Survey Master Tool	NONE	
SHARED	High Res Z Accelerometer Master Tool	GTET	
SHARED	Temperature Master Tool	NONE	
SHARED	Borehole Size Master Tool	NONE	
GTET	Process Gamma Ray?	Yes	
GTET	Gamma Tool Standoff	0.000	in
GTET	Process Gamma Ray EVR?	No	
GTET	Tool Position for Gamma Ray Tools.	Eccentered	
CSNG	Process CSNG Data?	Yes	
CSNG	Is Tool Centralized?	No	
CSNG	Gamma Enviromental Corrections?	Yes	
CSNG	Barite Correction Factor	1.00	
CSNG	Use Fixed Gain	No	
CSNG	Use Fixed Offset	No	
CSNG	Use Fixed Resolution Degradation Factor	No	
DSNT	Process DSN?	Yes	
DSNT	Process DSN EVR?	No	
DSNT	Neutron Lithology	Sandstone	
DSNT	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.000	in
DSNT	Temperature Correction Type	None	
DSNT	DSN Pressure Correction Type	None	
DSNT	View More Correction Options	No	
DSNT	Use TVD for Gradient Corrections?	No	
DSNT	Logging Horizontal Water Tank?	No	
SDLT	Process Caliper Outputs?	Yes	
SDLT Pad	Process Density?	Yes	
SDLT Pad	Process Density EVR?	No	
SDLT Pad	Logging Calibration Blocks?	No	
SDLT Pad	SDLT Pad Temperature Valid?	Yes	
SDLT Pad	Disable temperature warning	No	
SDLT Pad	Formation Density Matrix	2.680	g/cc
SDLT Pad	Formation Density Fluid	1.000	g/cc
BSAT	Compute BCAS Results?	Yes	
BSAT	Frequency Filter Low Pass Value?	5000	Hz
BSAT	Frequency Filter High Pass Value?	27000	Hz
BSAT	Delta -T Fluid	189.00	uspf
BSAT	Delta -T Matrix Type	Sandstone 55.5	
BSAT	Delta -T Shale	100.00	uspf
BSAT	Acoustic Porosity Equation	Wylie	
ACRt Sonde	Process ACRt?	Yes	
ACRt Sonde	Minimum Tool Standoff	1.50	in
ACRt Sonde	Temperature Correction Source	FP Lwr & FP Up	
ACRt Sonde	Tool Position	Free Hanging	
ACRt Sonde	Rmud Source	Mud Cell	
ACRt Sonde	Minimum Resistivity for MAP	0.20	ohmm
ACRt Sonde	Maximum Resistivity for MAP	200.00	ohmm
ACRt Sonde	Threshold Quality	0.50	
BOTTOM			
Data: BOUL_PC_G11_20D\0001 NOBLE-QUAD\002.01 09-Jan-12 14:26 Up			Date: 09-Jan-12 14:30:28

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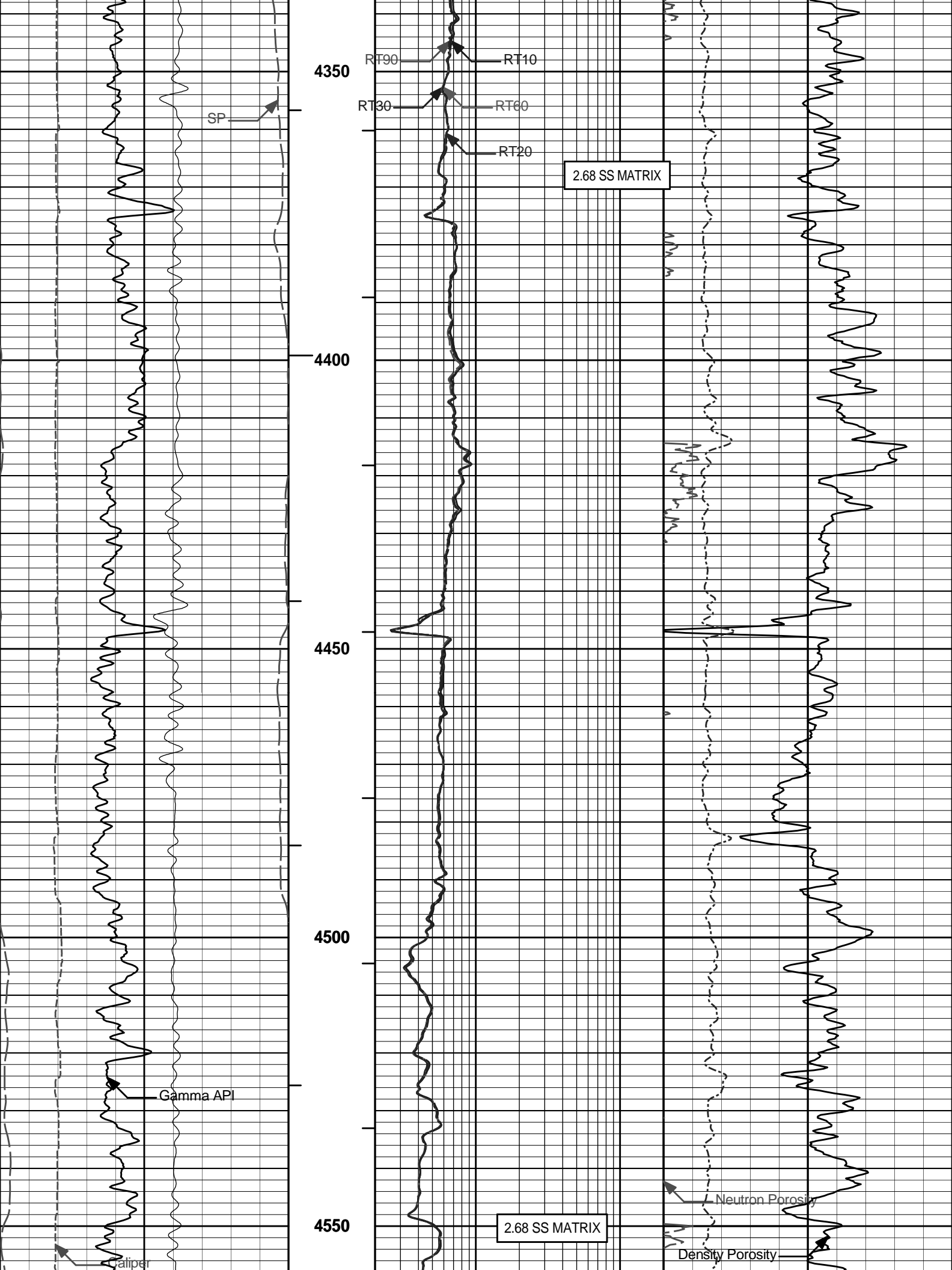
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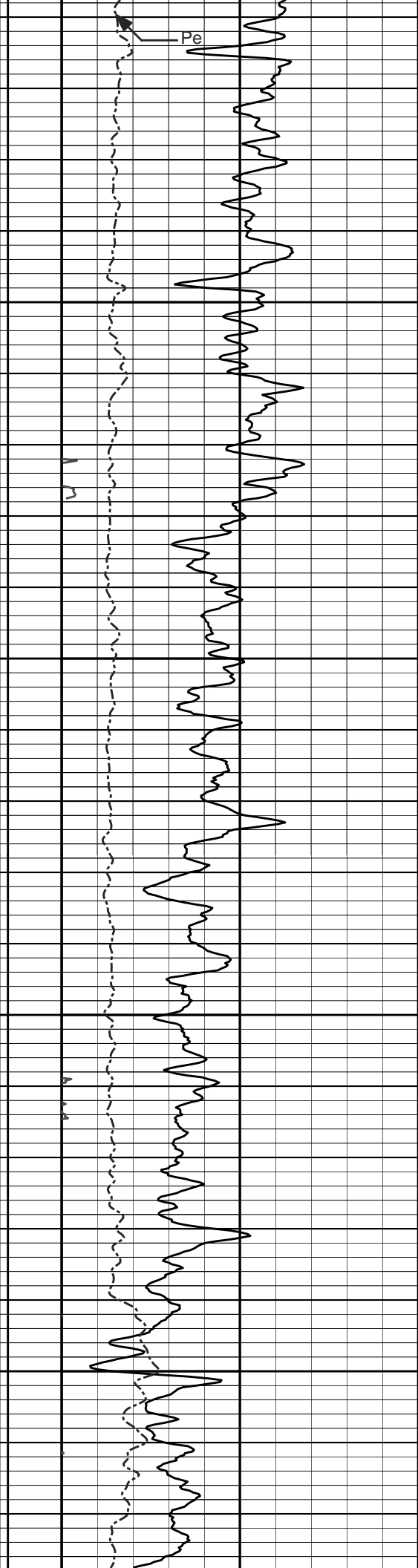
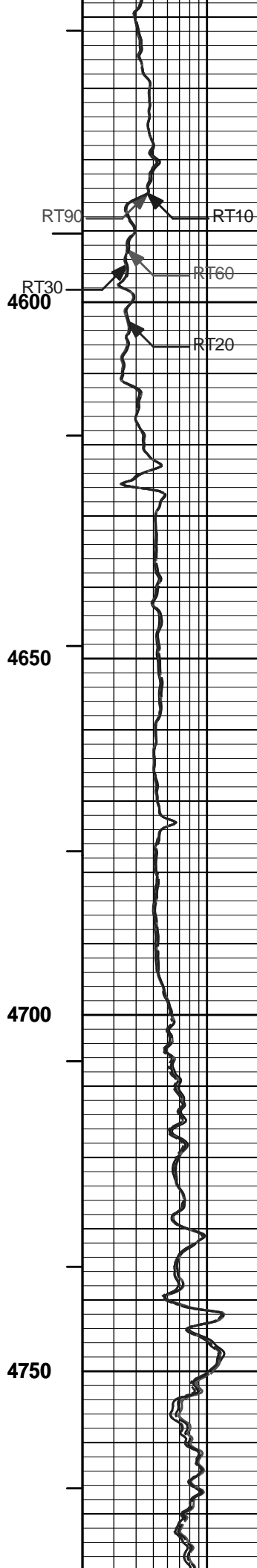
			2	RT10	200			
				ohmm				
10K	Tens	0	2	RT20	200			
	pounds			ohmm				
6	Caliper	16	2	RT30	200	20	Neutron Porosity	0
	inches			ohmm			percent	
0	Gamma API	250	2	RT60	200	20	Density Porosity	0
	api			ohmm			percent	
0	SP	100	2	RT90	200	0	Pe	10
	millivolts			ohmm				
			1 : 240					

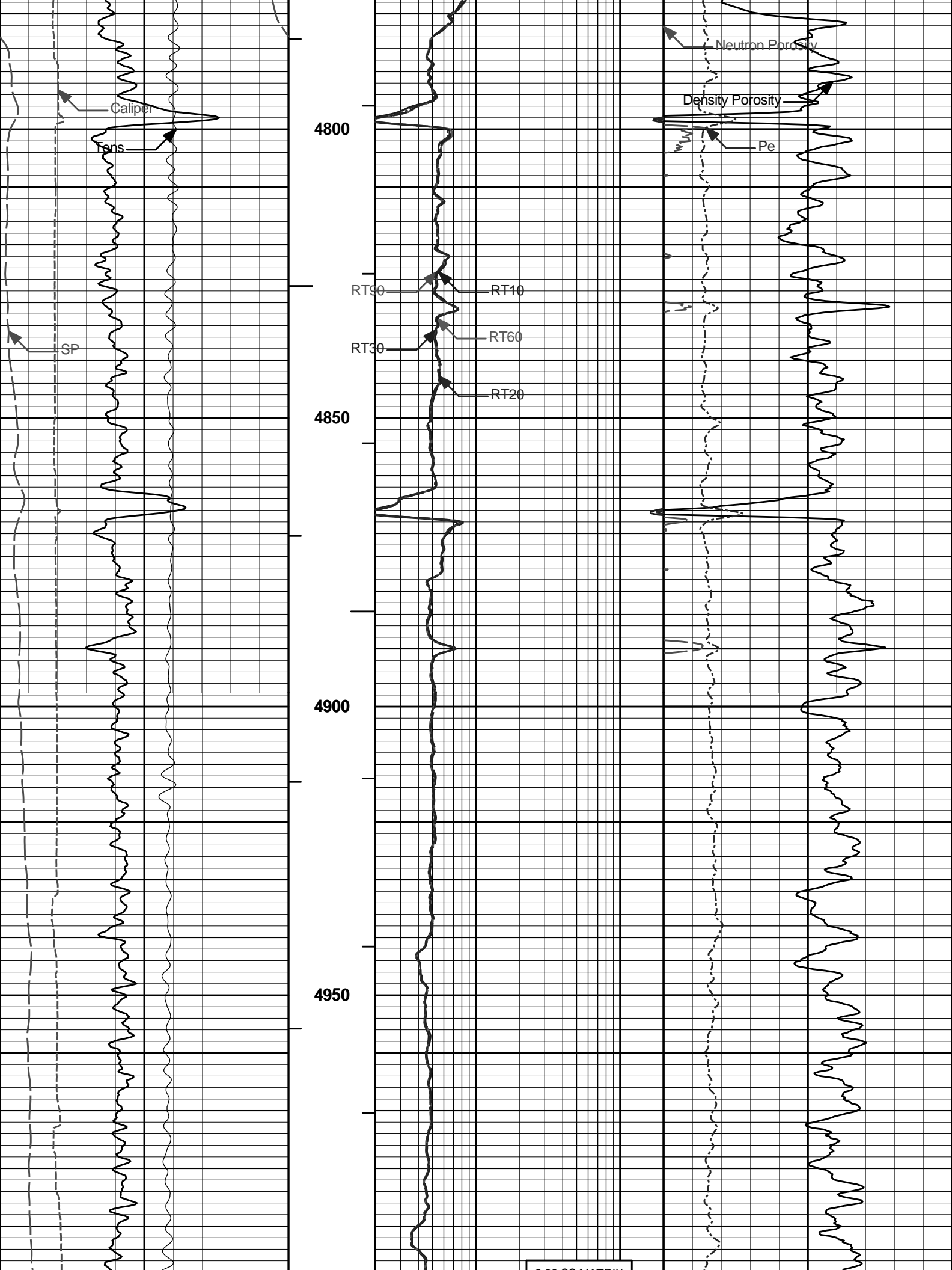


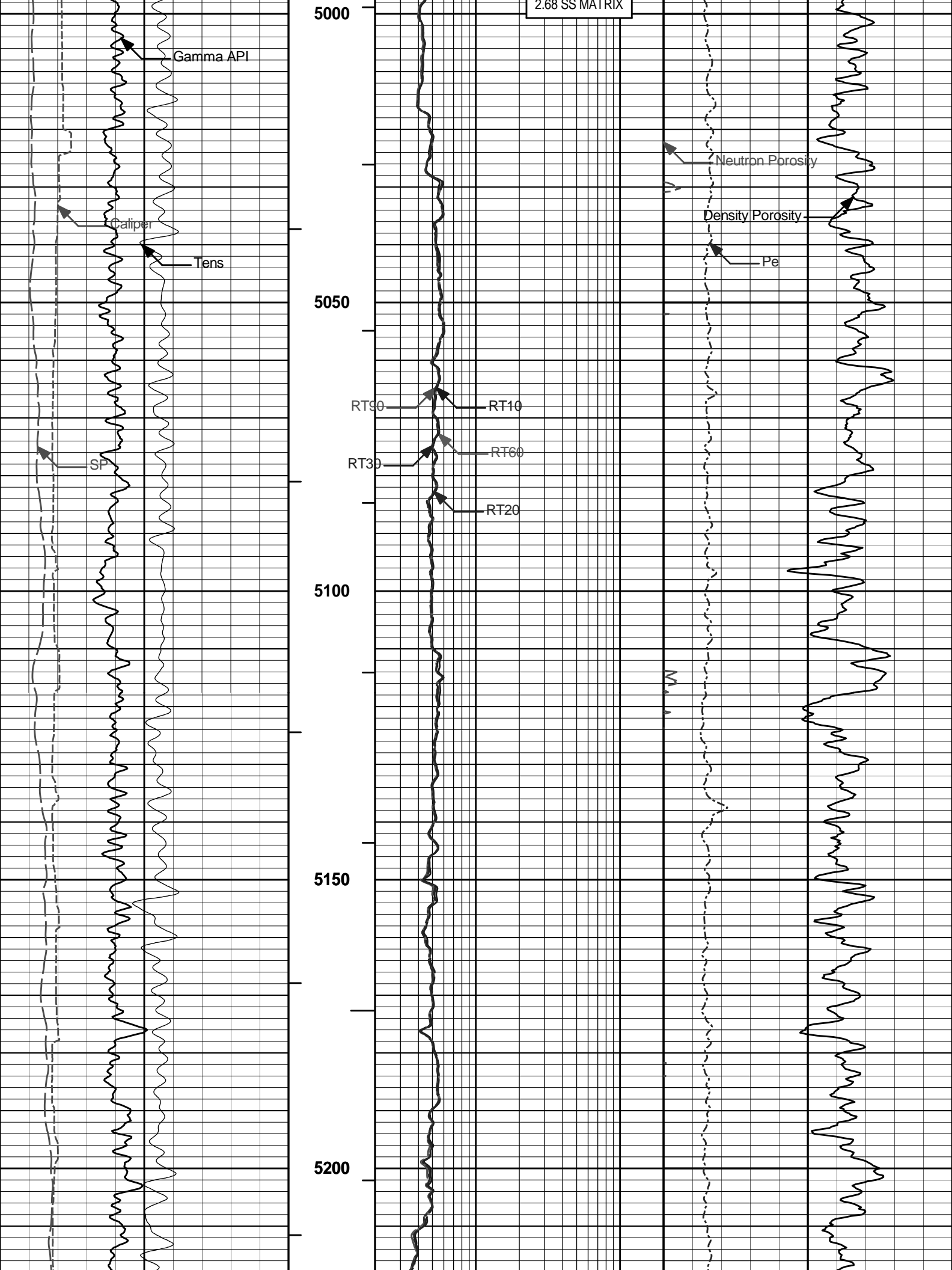


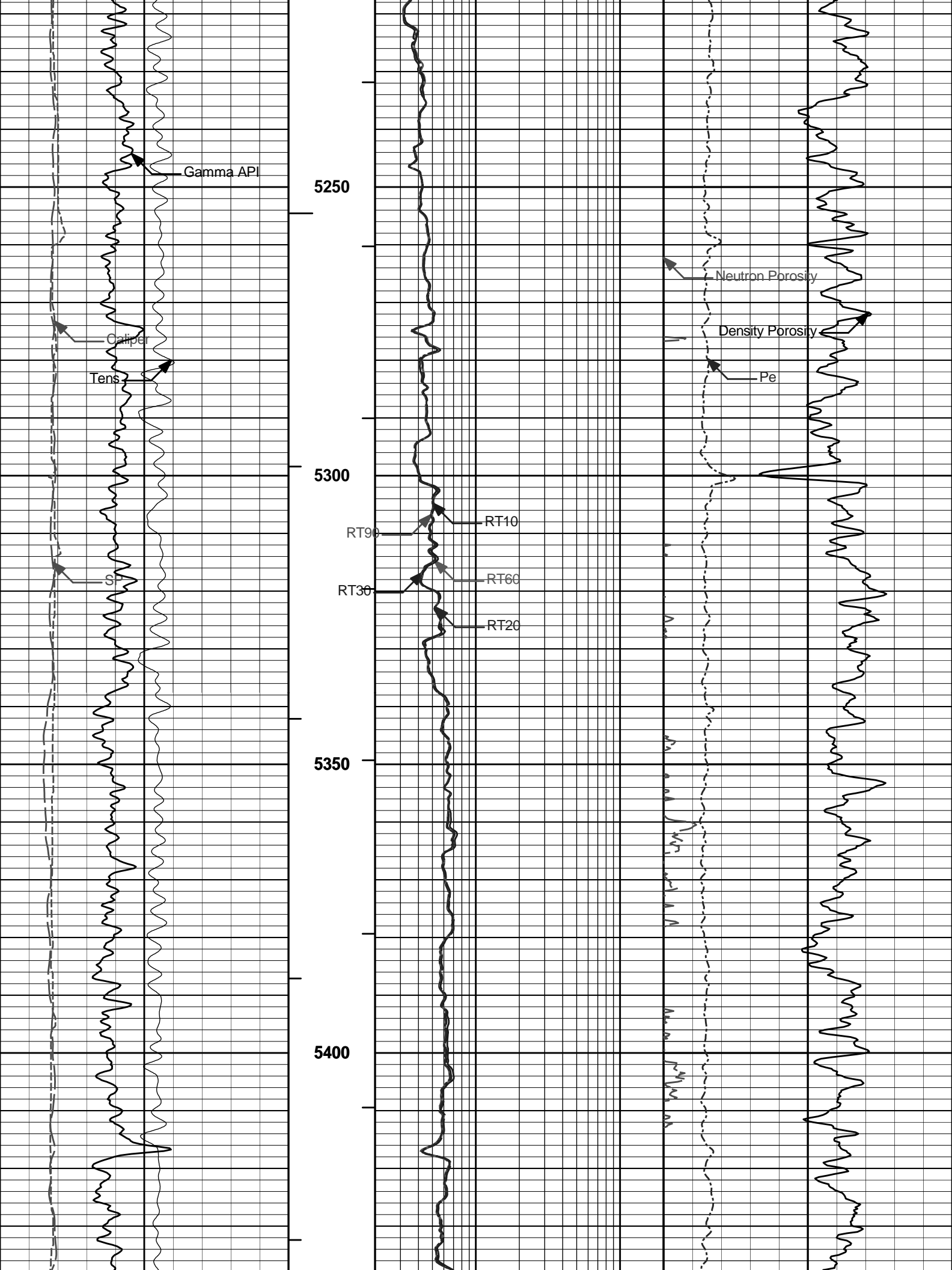


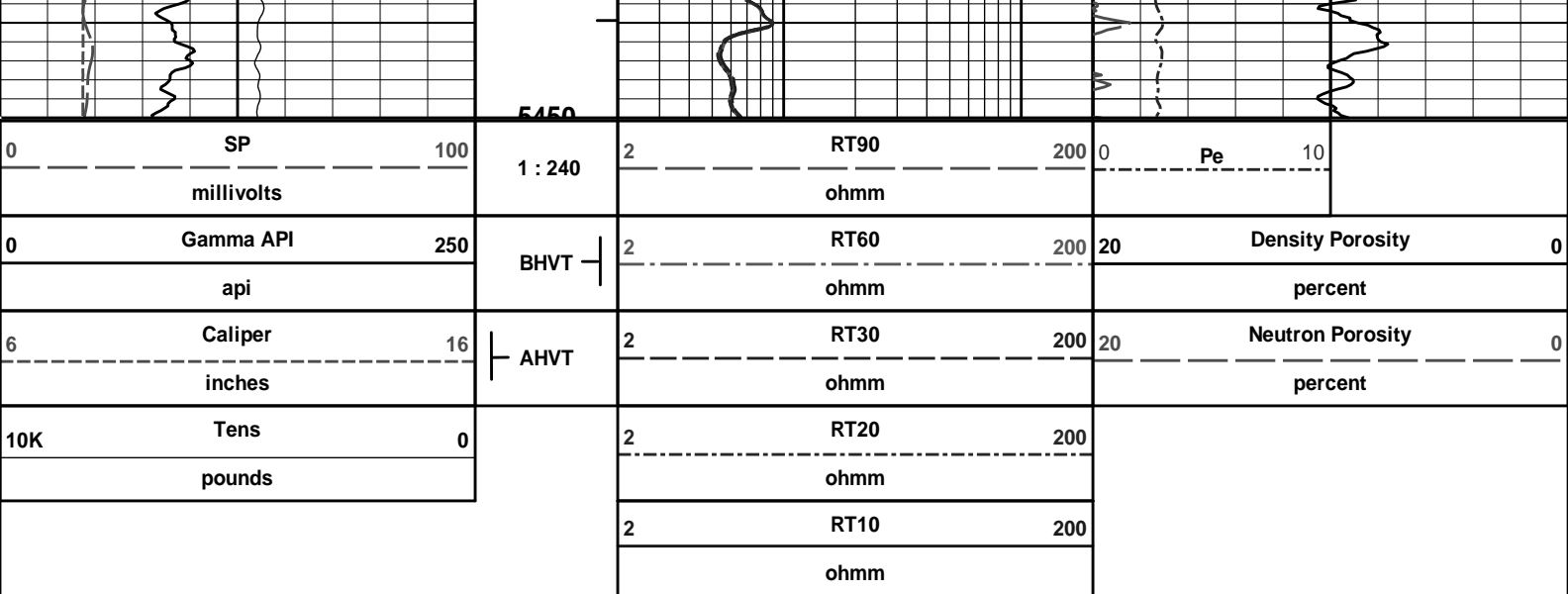










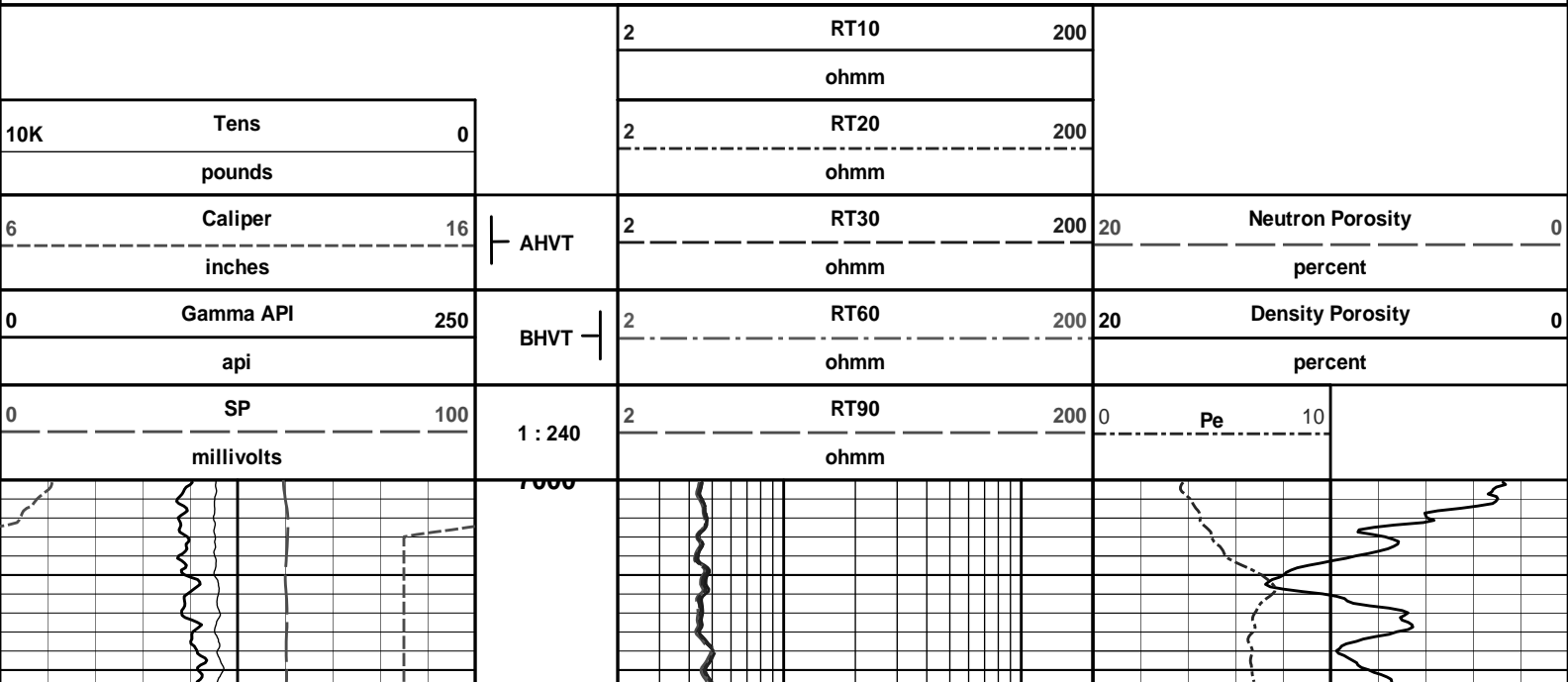


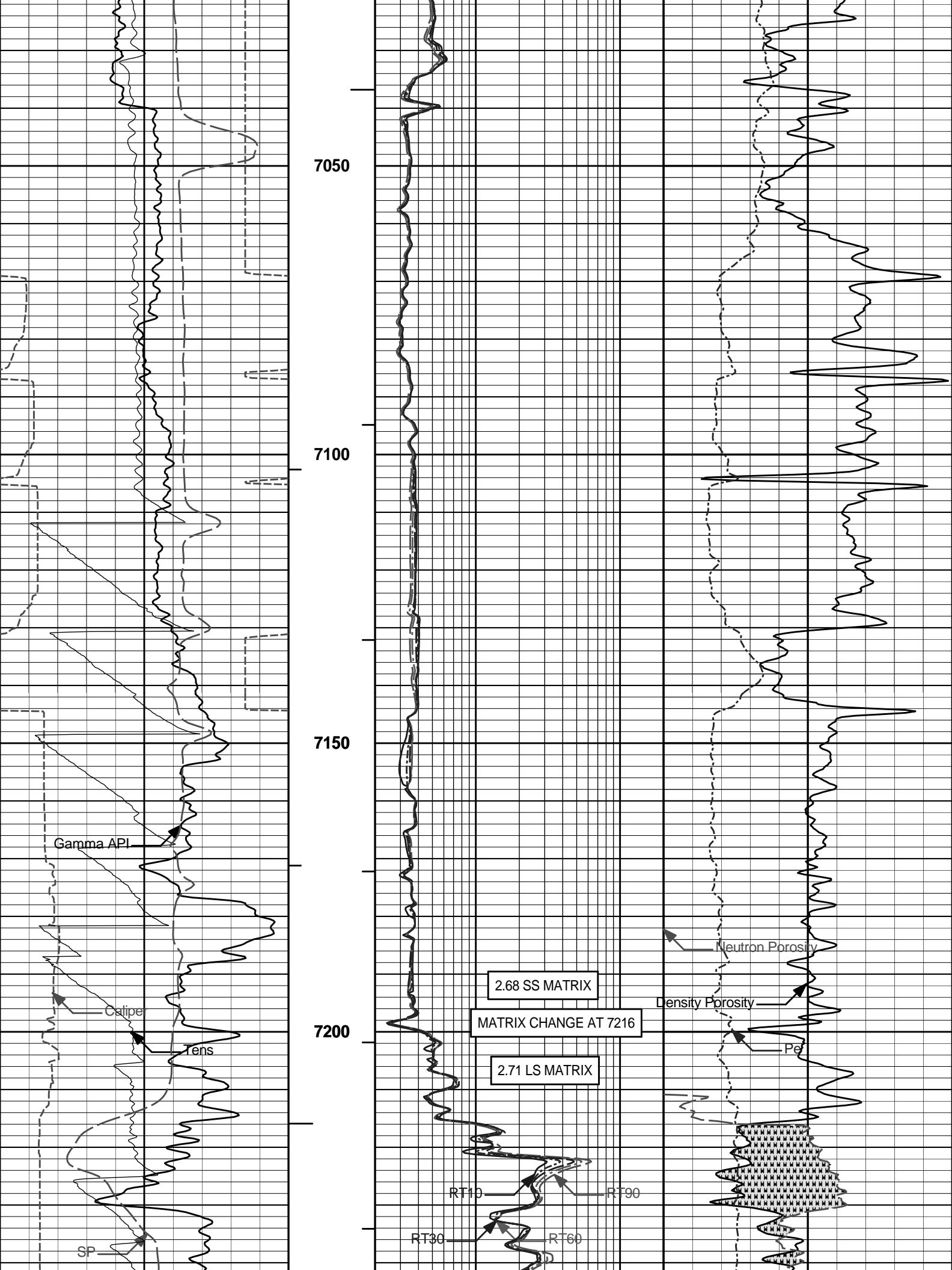
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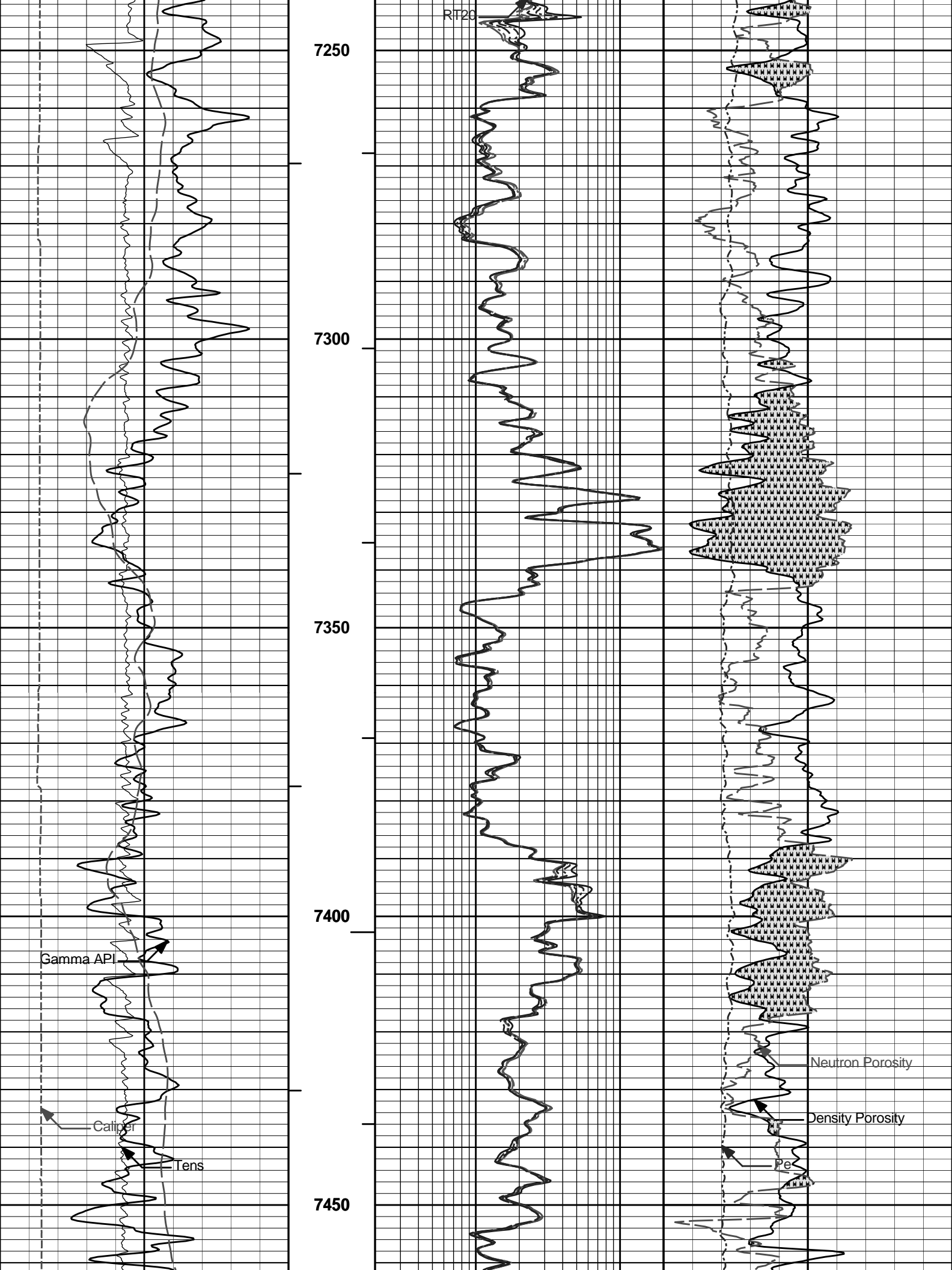
MAIN PASS 5" = 100'

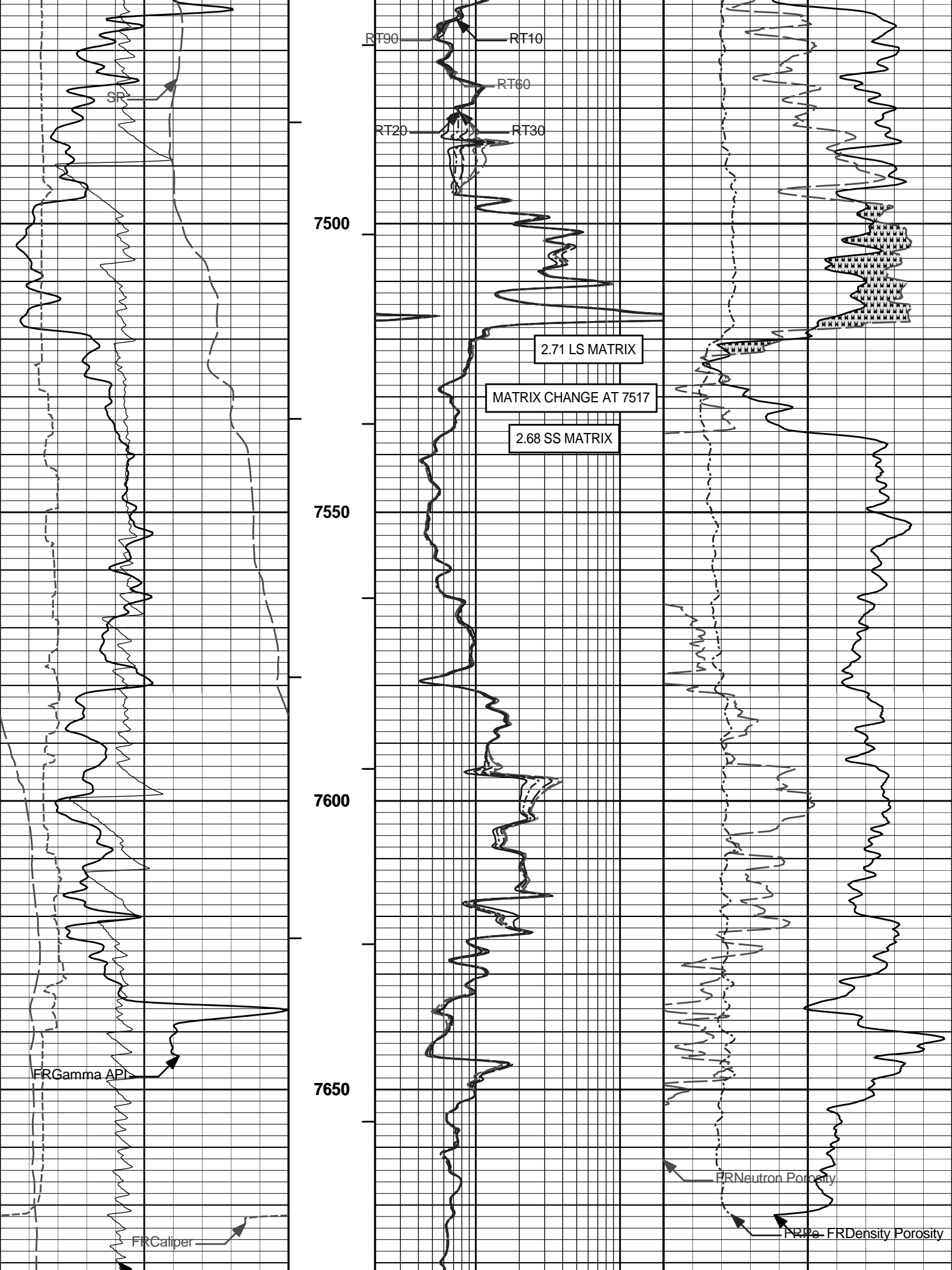
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Plot Range: 7000 ft to 7717.33 ft
Data: BOUL_PC_G11_20DWell Based\MAIN*
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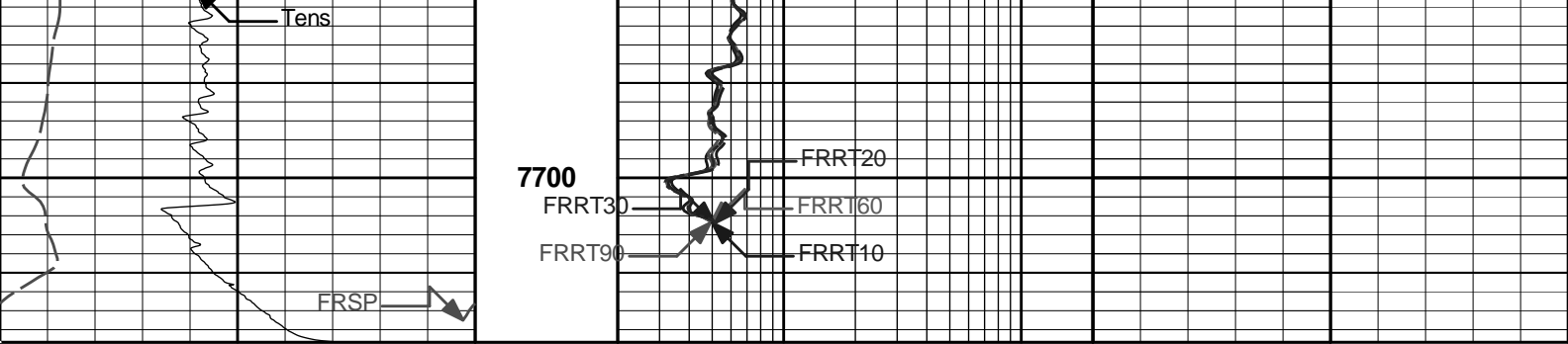
MAIN PASS 5" = 100'











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

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Plot Time: 09-Jan-12 15:20:54
Plot Range: 7000 ft to 7717.33 ft
Data: BOUL_PC_G11_20D\Well Based\MAIN*
Plot File: \\QUAD_COMBOMAIN

MAIN PASS 5" = 100'

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name:	GTET - 11215095	Reference Calibration Date:	05-Dec-11 11:45:20
Engineer:	C. BLUE	Calibration Date:	06-Jan-12 13:21:33
Software Version:	WL INSITE R3.4.4 (Build 2)	Calibration Version:	1

Calibrator Source S/N: TB 290
Calibrator API Reference:230.00 api
Equivalent Calibrator API Reference:234.0 api

Measurement	Measured	Calibrated	Units
Background	64.9	67.0	api
Background + Calibrator	291.6	301.0	api
Calibrator	226.7	234.0	api

CSNG-FS SHOP CALIBRATION

Tool Name:	CSNG - 10846351	Reference Calibration Date:	11-Oct-11 11:35:16
Engineer:	C. BLUE	Calibration Date:	04-Nov-11 10:29:39
Software Version:	WL INSITE R3.4.2 (Build 2)	Calibration Version:	1
Source SN:	TB 290		

TITANIUM CASE	Measured	Calibrated	Units
60 KEV Peak Channel #	48.0	48.0	Channel #
239 KEV Peak Channel #	23.6	23.6	Channel #
583 KEV Peak Channel #	53.2	52.9	Channel #
2614 KEV Peak Channel #	219.1	218.4	Channel #
Calibrate Temperature	60.2	70.7	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	1694.0	CPS	323.6	327.6	API
Background	343.4	CPS	62.4	66.4	API

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

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name:	DSNT - 11219332	Reference Calibration Date:	05-Dec-11 16:37:29
Engineer:	C. BLUE	Calibration Date:	05-Dec-11 16:50:13
Software Version:	WL INSITE R3.4.4 (Build 2)	Calibration Version:	1

Logging Source S/N: DSN-430
 Tank Serial Number: 11068236
 Reference value assigned to Tank: 53.720
 Snow Block S/N: 100133139C
 Calibration Tank Water Temperature: 68 degF
 Min. Tool Housing Outside Diameter: 3.625 in

CALIBRATION CONSTANTS			
Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	0.990	0.989	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):	0.2229	0.2224	0.0006	+/- 0.0020
Calibrated Ratio:	10.13	10.11	0.019	+/- 0.050

VERIFIER		
Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0782	0.02000 - 0.09000

PASS/FAIL SUMMARY	
Background Check:	Passed

		Gain-Range Check:		Passed					
		Snow-Block Check:		Passed					
DENSITY CALIPER SHOP CALIBRATION									
Tool Name:		SDLT - 10951319		Reference Calibration Date: 06-Jan-12 15:07:10					
Engineer:		C. BLUE		Calibration Date: 06-Jan-12 15:13:09					
Software Version:		WL INSITE R3.4.4 (Build 2)		Calibration Version: 1					
CALIBRATION COEFFICIENTS									
Measurement		Previous Value		New Value					
				Control Limit On New Value					
Pad Offset		-1877.07		-1882.03					
Pad Gain		0.0003715		0.0003719					
Arm Offset		-1892.39		-1914.73					
Arm Gain		0.0005085		0.0005095					
Arm Power		-0.000004660		-0.000004770					
				-7000.00 - -1000.00					
				0.000200 - 0.000600					
				-5000.00 - 3000.00					
				0.000300 - 0.000700					
				-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					
Medium Ring (in)		3.75		3.75					
				0.00					
				+/- 0.20					
RING DIAMETER:									
Small Ring (in)		6.51		6.50					
Medium Ring (in)		8.26		8.25					
Large Ring (in)		15.02		15.00					
				-0.01					
				+/- 0.20					
				-0.01					
				+/- 0.20					
				-0.02					
				+/- 0.20					
PASS/FAIL SUMMARY									
Calibration-Coefficients Range Check:				Passed					
Ring-Measurement Check:				Passed					
PASS/FAIL SUMMARY									
Calibration-Coefficients Range Check:				Passed					
ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION									
Tool Name:		ACRt Sonde - E2584-S2585		Reference Calibration Date: 28-Jul-11 15:52:08					
Engineer:		C. BLUE		Calibration Date: 28-Jul-11 16:05:50					
Software Version:		WL INSITE R3.2.5 (Build 2)		Calibration Version: 1					
TYPICAL GAIN RANGE									
Subarray	R12KHz			R36KHz		R72KHz			
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	0.95	1.0012	1.05	0.95	1.0001	1.05	0.95	1.0006	1.05
A2 (50")	0.95	0.9994	1.05	0.95	1.0037	1.05	0.95	1.0091	1.05
A3 (29")	0.95	0.9959	1.05	0.95	1.0005	1.05	0.95	1.0031	1.05
A4 (17")	0.95	1.0040	1.05	0.95	1.0060	1.05	0.95	1.0110	1.05
A5 (10")	N/A	N/A	N/A	0.95	1.0014	1.05	0.95	1.0048	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.9776	1.05	0.95	0.9812	1.05
TYPICAL SONDE OFFSET RANGE									
Subarray	R12KHz			R36KHz		R72KHz			
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	-5	-0.761	2	-6	-4.073	-2	-8	-5.268	-2

A1 (50")	0	0.161	2	0	1.078	2	0	0.208	2
A2 (50")	-7	-1.957	-1	-6	-3.509	-2	-7	-4.574	-2
A3 (29")	-27	-12.918	-9	-9	-3.439	-3	-7	-3.298	-1
A4 (17")	-180	-94.666	-60	-45	-30.479	-15	-39	-25.503	-13
A5 (10")	N/A	N/A	N/A	-150	-86.802	-50	-80	-43.996	-10
A6 (6")	N/A	N/A	N/A	175	306.164	525	90	153.096	270

TRANSMITTER CURRENT GAIN					R-MUD VERIFICATION			
Signal	Lower	R	Upper		Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
12K	0.6	0.9962	1.3		Mud Cell	0.95	0.997	1.05
36K	1.0	1.9266	2.0					
72K	1.0	1.2354	2.0					

SPECTRAL DENSITY SHOP CALIBRATION			
Tool Name:	SDLT Pad - M319P593	Reference Calibration Date:	05-Dec-11 15:31:10
Engineer:	C. BLUE	Calibration Date:	06-Jan-12 13:50:34
Software Version:	WL INSITE R3.4.4 (Build 2)	Calibration Version:	1

Logging Source S/N: 5256 GW		
Aluminum Block S/N: 63066	Density: 2.602g/cc	Pe: 3.100
Magnesium Block S/N: BRIGHTON	Density: 1.691g/cc	Pe: 2.650

DENSITY CALIBRATION SUMMARY			
Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0935	1.0978	0.90 - 1.10
Near Dens Gain	1.0164	1.0220	0.90 - 1.10
Near Peak Gain	1.0080	1.0091	0.90 - 1.10
Near Lith Gain	0.9726	0.9667	0.90 - 1.10
Far Bar Gain	1.0072	1.0124	0.90 - 1.10
Far Dens Gain	0.9981	1.0029	0.90 - 1.10
Far Peak Gain	0.9922	0.9968	0.90 - 1.10
Far Lith Gain	0.9877	0.9816	0.90 - 1.10
Near Bar Offset	-0.8072	-0.8532	NONE
Near Dens Offset	-0.0769	-0.1361	NONE
Near Peak Offset	-0.0059	-0.0317	NONE
Near Lith Offset	0.2543	0.2815	NONE
Far Bar Offset	-0.0879	-0.1369	NONE
Far Dens Offset	-0.0029	-0.0494	NONE
Far Peak Offset	0.0495	0.0017	NONE
Far Lith Offset	0.0922	0.1203	NONE
Near Bar Background	918.21	917.65	700 - 1450
Near Dens Background	305.19	304.64	230 - 480
Near Peak Background	132.54	131.29	100 - 210
Near Lith Background	160.63	161.93	125 - 260
Far Bar Background	530.23	530.96	450 - 900
Far Dens Background	208.84	209.24	175 - 345
Far Peak Background	82.61	83.23	70 - 140
Far Lith Background	84.39	85.76	75 - 145

CALIBRATION BLOCK SUMMARY				
Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				

MAGNESIUM				
Density (g/cc)	1.698	1.691	-0.007	+/- 0.015
Pe	2.473	2.597	0.124	+/- 0.150
ALUMINUM				
Density (g/cc)	2.602	2.602	-0.000	+/- 0.01500
Pe	2.959	3.057	0.098	+/- 0.150

TOOL SUMMARY				
Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	-0.0008	+/- 0.0110	-0.0011	+/- 0.0140
Magnesium Block	-0.0006	+/- 0.0110	-0.0012	+/- 0.0140
Aluminum Block	0.0004	+/- 0.0110	-0.0001	+/- 0.0140
Resolution	9.27	6.00 - 11.50	8.91	6.00 - 11.50
Internal Verifier(B+D+P+L)	1516	1200 - 2700	909	800 - 1700

PASS/FAIL SUMMARY	
Background Quality Check:	Passed
Background Range Check:	Passed
Background Resolution Check:	Passed
Background Verification Check:	Passed
Magnesium Quality Check:	Passed
Aluminum Quality Check:	Passed
Gains Check:	Passed
Changes in Calibration Blocks:	Passed

CALIBRATION SUMMARY						
Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-11215095						
Gamma Ray Calibrator	234.0	-----	-----	0.0	+/- 9.00	api
CSNG-10846351						
60 KEV Peak Channel #	48.0	-----	-----	0.0	-----	Channel #
239 KEV Peak Channel #	23.6	-----	-----	0.0	-----	Channel #
583 KEV Peak Channel #	52.9	-----	-----	0.0	-----	Channel #
2614 KEV Peak Channel #	218.4	-----	-----	0.0	-----	Channel #
DSNT-11219332						
Snow-Block Porosity	0.0782	-----	-----	0.0000	+/- -.--	decp
SDLT-10951319						
Pad Extension	3.75	-----	-----	0.00	+/-0.20	in
Ring Diameter	8.25	-----	-----	0.00	+/-0.20	in
ACRt Sonde-E2584-S2585						
Mud Cell	0.997	-----	-----	0.000	-----	ohm-m
SDLT Pad-M319P593						
Near(B+D+P+L)	1515.515	-----	-----	0.000	+/-13.714	cps
Far(B+D+P+L)	909.183	-----	-----	0.000	+/-14.848	cps

Data: BOUL_PC_G11_20D\0001 NOBLE-QUAD\IDLE	Date: 09-Jan-12 15:08:59
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HALLIBURTON
TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
						84.43 ft
RWCH-11078326 135.00 lbs		Ø 3.625 in →		← Load Cell @ 80.75 ft ← BH Temperature @ 80.18 ft	6.25 ft	78.18 ft
GTET-11215095 165.00 lbs		Ø 3.625 in →		← GammaRay @ 72.12 ft	8.52 ft	69.66 ft
CSNG-10846351 114.00 lbs		Ø 3.625 in →		← CSNG @ 64.03 ft	8.17 ft	61.49 ft
DSNT-11219332 174.00 lbs	DSN Decentralizer- 11219332 6.60 lbs	Ø 5.000 in* → Ø 3.625 in →		← DSN Far @ 54.56 ft ← DSN Near @ 53.81 ft	9.69 ft	51.81 ft
SDLT-10951319 360.00 lbs	SDLT Pad-M319P593 65.00 lbs	Ø 4.500 in → Ø 4.750 in* →		← SDL Caliper @ 43.81 ft ← SDL @ 43.80 ft	10.81 ft	40.99 ft
Flex Joint - Pressure Comp-01 140.00 lbs		Ø 3.625 in →			5.97 ft	35.03 ft
Centralizer 29-02 12.00 lbs		Ø 4.000 in* →				

BSAT-11105780
300.00 lbs

Ø 3.625 in →

← Sonic Receivers @ 26.51 ft

15.77 ft

ACRt Instrument-
11532584
50.00 lbs

Centralizer 29-01
12.00 lbs

Ø 3.625 in
Ø 4.000 in* →

5.03 ft

19.25 ft

← Mud Resistivity @ 12.86 ft

14.22 ft

← ACRt @ 8.88 ft

ACRt Sonde-E2584-
S2585
200.00 lbs

Ø 3.625 in →

14.22 ft

SP Ring-1
0.00 lbs

Ø 3.625 in* →

← SP @ 1.28 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	11078326	135.00	6.25	78.18	300.00
GTET	Gamma Telemetry Tool	11215095	165.00	8.52	69.66	60.00
CSNG	Compensated Spectral Natural Gamma	10846351	114.00	8.17	61.49	15.00
DSNT	Dual Spaced Neutron	11219332	174.00	9.69	51.81	60.00
DCNT	DSN Decentralizer	11219332	6.60	5.13	55.14	300.00
SDLT	Spectral Density Tool	10951319	360.00	10.81	40.99	60.00
SDLP	Density Insite Pad	M319P593	65.00	2.55	43.20	60.00
FLEX	Flex Joint - Pressure Compensated	01	140.00	5.97	35.03	300.00
BSAT	Borehole Sonic Array Tool	11105780	300.00	15.77	19.25	60.00
OBCEN	Centralizer - 29 in.Overbody	02	12.00	2.42	32.26	300.00
ACRt	Array Compensated True Resistivity Instrument Section	11532584	50.00	5.03	14.22	300.00
OBCEN	Centralizer - 29 in.Overbody	01	12.00	2.42	15.28	300.00
ACRt	Array Compensated True Resistivity	E2584-S2585	200.00	14.22	0.00	300.00
SP	SP Ring	1	0.00	0.25	1.28	300.00

Total

1,733.60

84.43

* Not included in Total Length and Length Accumulation.

Data: BOUL_PC_G11_20D\0001 NOBLE-QUAD\IDLE

Date: 09-Jan-12 11:52:00

COMPANY

NOBLE ENERGY

WELL

BOULTER PC G11 20D

WELL	BOULDER PC GTT-20D		
FIELD	WATTENBERG		
COUNTY	WELD	STATE	CO
HALLIBURTON		SPECTRAL DENSITY DUAL SPACED NEUTRON ARRAY COMPENSATED TRUE RESISTIVITY	