HALLIBURTON

SPECTRAL DENSITY
DUAL SPACED NEUTRON
ARRAY COMPENSATED
TRUE RESISTIVITY

COMPANY	NOBLE ENERGY
WELL	BERNHARDT PC J31-31D
FIELD	WATTENBERG
COUNTY	WELD
STATE	CO

COMPANY	**NOBLE ENERGY**
WELL	**BERNHARDT PC J31-31D**
FIELD	**WATTENBERG**
COUNTY	**WELD**
STATE	**CO**

API No. 05123328160000

Location SHL: 886' FNL & 413' FWL NWNW
BHL: 1320' FNL & 75' FEL SENE
LAT: 40.36089°
LONG: -104.83055°

Sect. 31 Twp. 5N Rge. 66W

Other Services:
RWCH
GTET
CSNG

Permanent Datum	GL	Elev. 4900.0 ft	Elev.: K.B.	4914.0 ft
Log measured from	KB	, 14.0 ft above perm. Datum	D.F.	4914.0 ft
Drilling measured from	KB		G.L.	4900.0 ft

Date		14-Jan-12				
Run No.		ONE				
Depth - Driller		7635.00 ft				
Depth - Logger		7625.0 ft				
Bottom - Logged Interval		7616 ft				
Top - Logged Interval		CSG				
Casing - Driller		8.625 in @ 698.0 ft		@		@
Casing - Logger		699.0 ft				
Bit Size		7.875 in		@		@
Type Fluid in Hole		WATER BASED MUD				
Density	Viscosity	9.2 ppg	41.00 s/qt			
PH	Fluid Loss	8.50 pH	10.4 cptm			
Source of Sample		MUD CELL				
Rm @ Meas. Temperature		0.980 ohmm @ 61.80 degF		@		@
Rmf @ Meas. Temperature		0.69 ohmm @ 75.00 degF		@		@
Rmc @ Meas. Temperature		0.763 ohmm @ 75.00 degF		@		@
Source Rmf	Rmc	CHART	CHART			
Rm @ BHT		0.28 ohmm @ 231.0 degF		@		@
Time Since Circulation		5.0 hr				
Time on Bottom		15-Jan-12 00:20				
Max. Rec. Temperature		231.0 degF @ 7625.0 ft		@		@
Equipment	Location	10800785	BRIGHTON			
Recorded By		C. BLUE				
Witnessed By		J. TURNER				

Fold here

Service Ticket No.: 9198921 API Serial No.: 05123328160000 PGM Version: WL INSITE R3.4.4 (Build 2)

CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE

Date	Sample No.				
Depth-Driller					
Type Fluid in Hole					
Density	Viscosity				
Ph	Fluid Loss				
Source of Sample					
Rm @ Meas. Temp		@		@	
Rmf @ Meas. Temp.		@		@	
Rmc @ Meas. Temp.		@		@	
Source Rmf	Rmc				
Rm @ BHT		@		@	
Rmf @ BHT		@		@	
Rmc @ BHT		@		@	

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 584-585	N/A	1.5" 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.	10951319	Serial No.	11301132
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

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	7442	REC	0	250				20%	0%	2.68 g/cc	20%	0%	SAND
ONE	7442	7125	REC	0	250				20%	0%	2.71 g/cc	20%	0%	LIME
ONE	7125	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

CALIPER READING INVALID, CUSTOMER ACCEPTED LOGS WITHOUT CALIPER RESPONSE

CREW: N. GOULD, M. BURNETT RIG: SAXON 145

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 Pad	Formation Density Matrix	2.680	g/cc
7125.00				
	DSNT	Neutron Lithology	Limestone	
	SDLT Pad	Formation Density Matrix	2.710	g/cc
7442.00				
	SHARED	Bit Size	7.875	in
	SHARED	Use Bit Size instead of Caliper for all applications.	Yes	
	SHARED	Mud Base	Water	
	SHARED	Borehole Fluid Weight	9.200	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	0.980	ohmm
	SHARED	Temperature of Mud	61.8	degF
	SHARED	Logging Interval is Cased?	No	
	SHARED	AHV Casing OD	4.500	in
	SHARED	Surface Temperature	50.0	degF
	SHARED	Total Well Depth	7625.00	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	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
ACRt Sonde	Process ACRt?	Yes	
ACRt Sonde	Minimum Tool Standoff	1.50	in
ACRt Sonde	Temperature Correction Source	FP Lwr & FP Upr	
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: BERN_PC_J31_31D\0001 NOBLE\005.01 15-Jan-12 01:27 Up **Date: 15-Jan-12 01:28:47**

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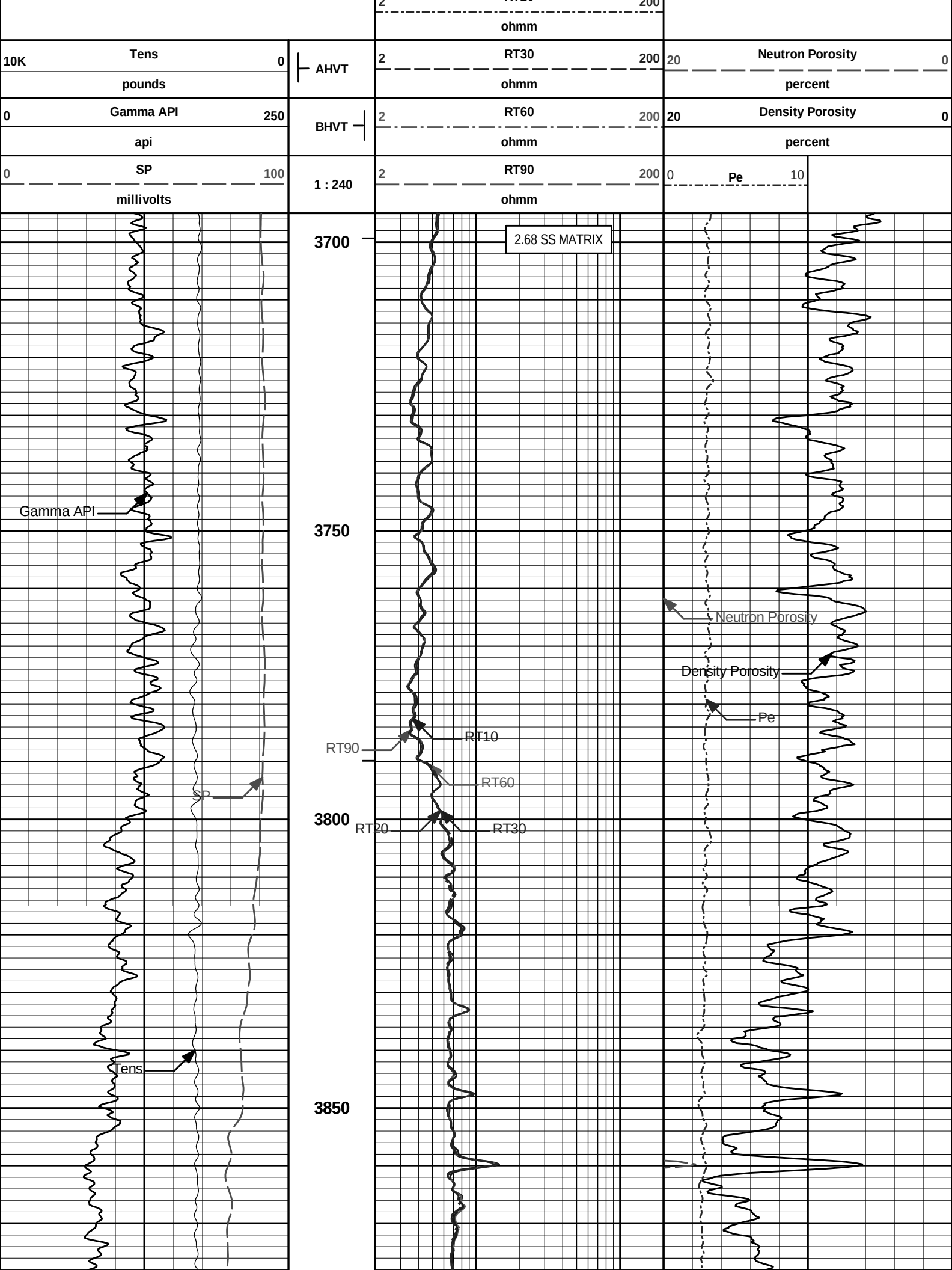
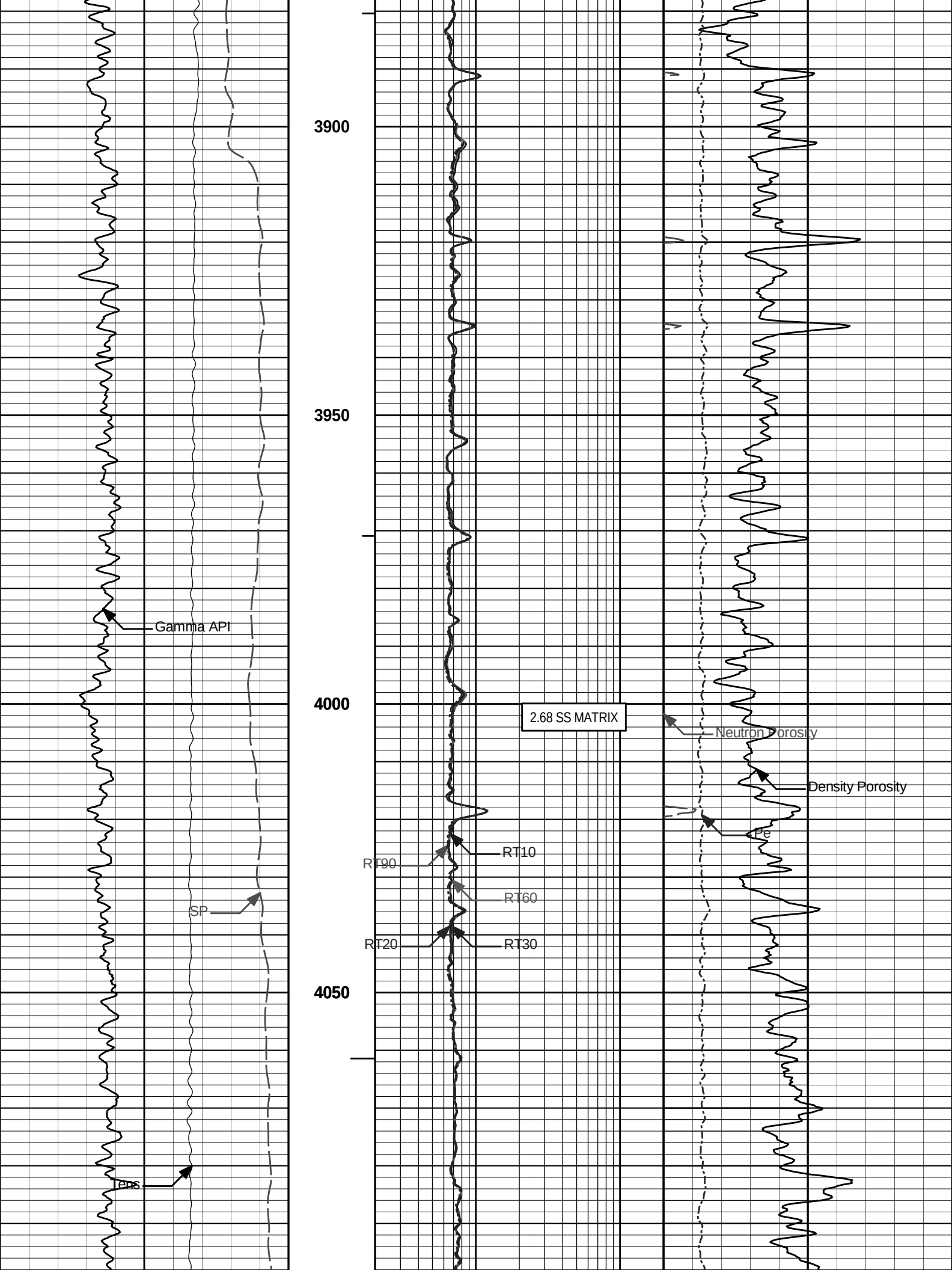
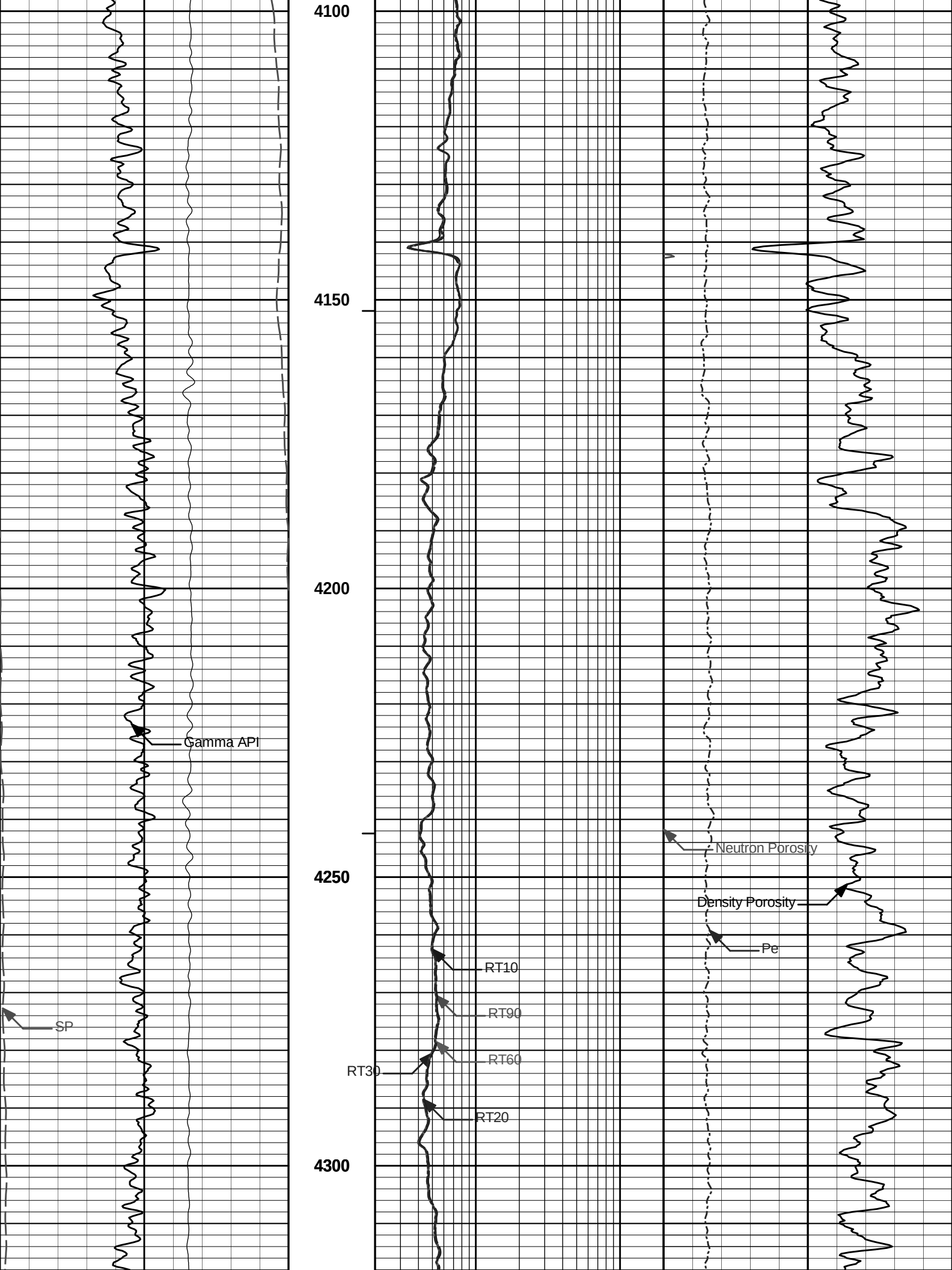
Plot Time: 15-Jan-12 02:09:12
Plot Range: 3695 ft to 5005 ft
Data: BERN_PC_J31_31D\Well Based\MAIN*
Plot File: \\COMP\MAIN

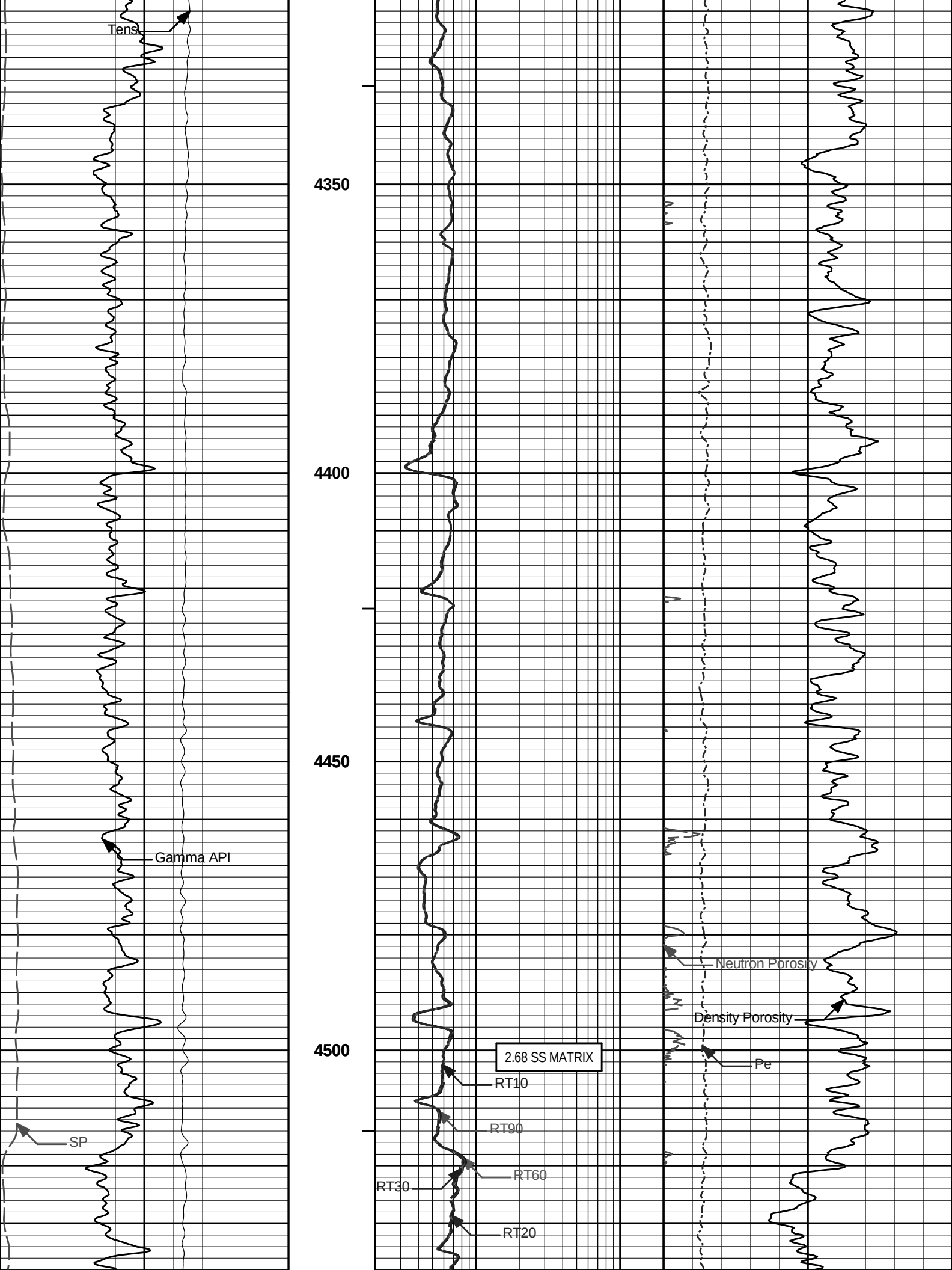
MAIN PASS 5" = 100'

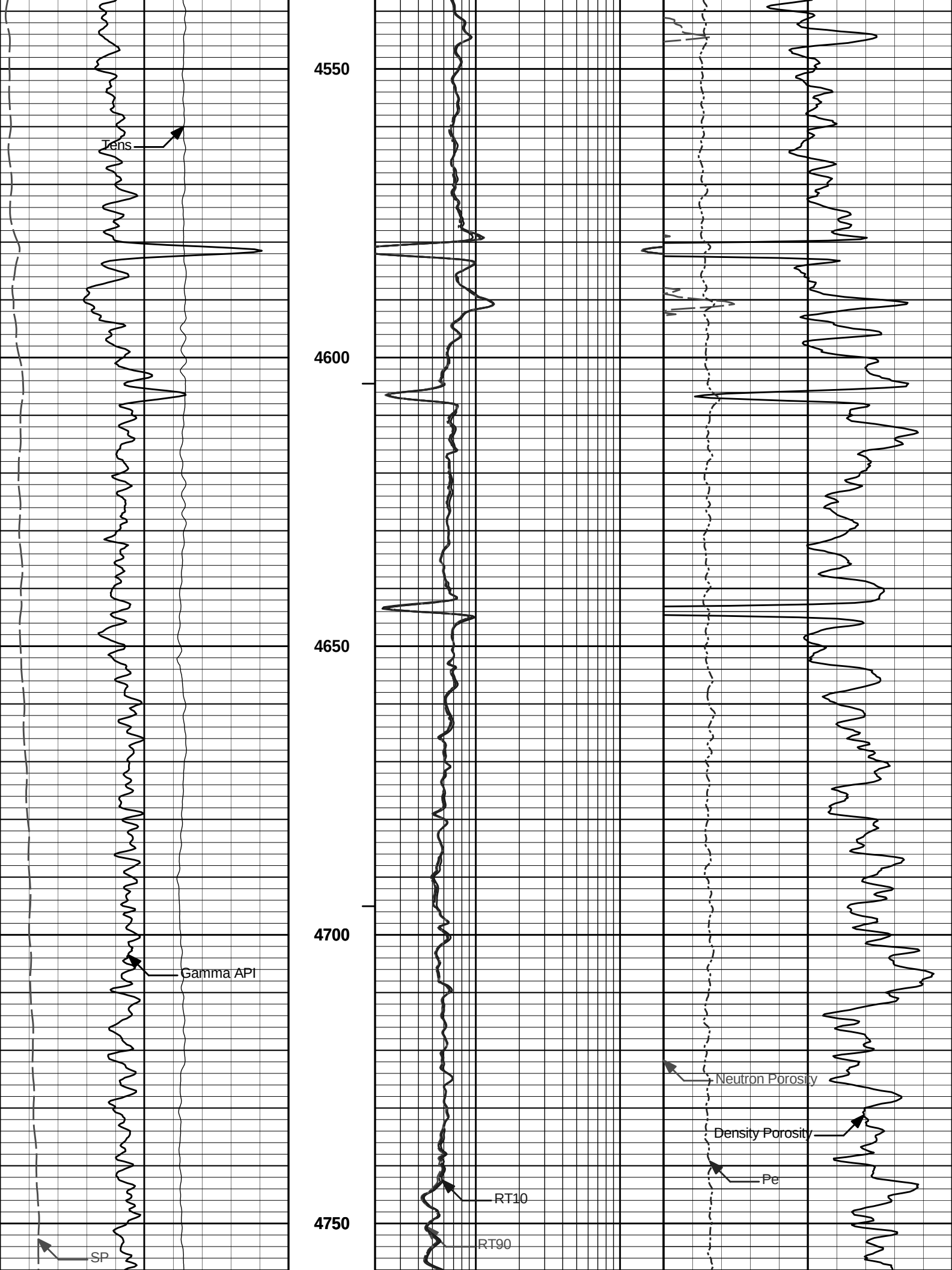
2	RT10	200
	ohmm	
2	RT20	200

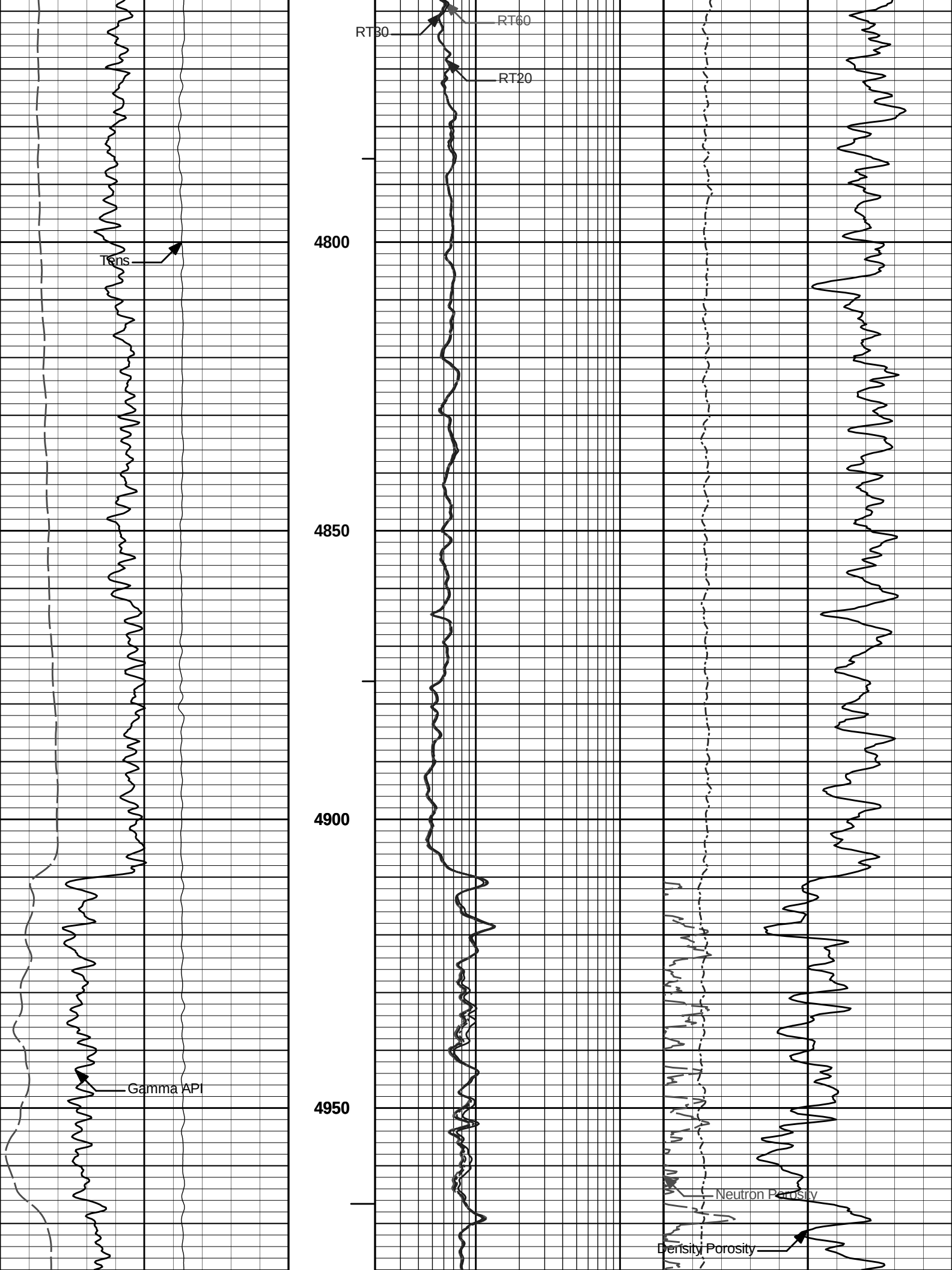

ohmm
10K
Tens
0
pounds
AHVT
2
RT30
200
ohmm
20
Neutron Porosity
0
percent
0
Gamma API
250
api
BHVT
2
RT60
200
ohmm
20
Density Porosity
0
percent
0
SP
100
millivolts
1 : 240
2
RT90
200
ohmm
0
Pe
10
2.68 SS MATRIX
3700
3750
3800
3850
Gamma API
SP
Tens
RT90
RT10
RT60
RT20
RT30
Neutron Porosity
Density Porosity
Pe

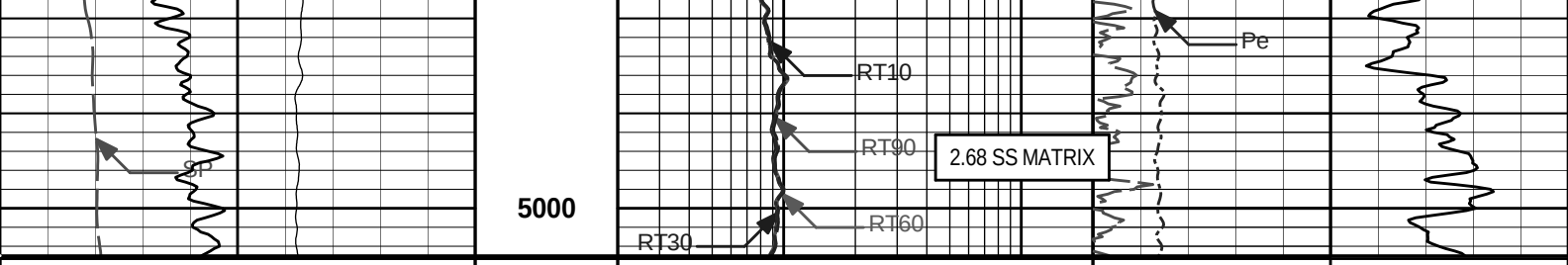

3900
3950
4000
4050
Gamma API
SP
Tens
2.68 SS MATRIX
Neutron Porosity
Density Porosity
Pe
RT90
RT10
RT60
RT20
RT30


4100
4150
4200
4250
4300
Gamma API
SP
RT10
RT90
RT60
RT30
RT20
Neutron Porosity
Density Porosity
Pe


Tens
4350
4400
4450
4500
Gamma API
SP
2.68 SS MATRIX
RT10
RT90
RT60
RT30
RT20
Neutron Porosity
Density Porosity
Pe


4550
4600
4650
4700
4750
Tens
Gamma API
SP
RT10
RT90
Neutron Porosity
Density Porosity
Pe


RT60
RT30
RT20
Tens
4800
4850
4900
4950
Gamma API
Neutron Porosity
Density Porosity



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
10K Tens 0		AHVT	2 RT30 200	20 Neutron Porosity 0
pounds			ohmm	percent
			2 RT20 200	
			ohmm	
			2 RT10 200	
			ohmm	

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Plot Time: 15-Jan-12 02:09:14
Plot Range: 3695 ft to 5005 ft
Data: BERN_PC_J31_31D\Well Based\MAIN*
Plot File: \\COMP\MAIN

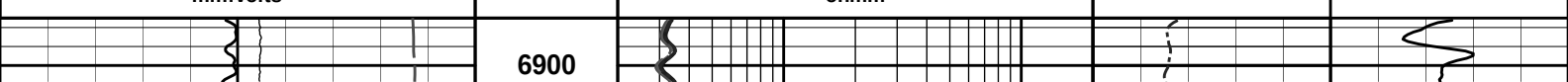
MAIN PASS 5" = 100'

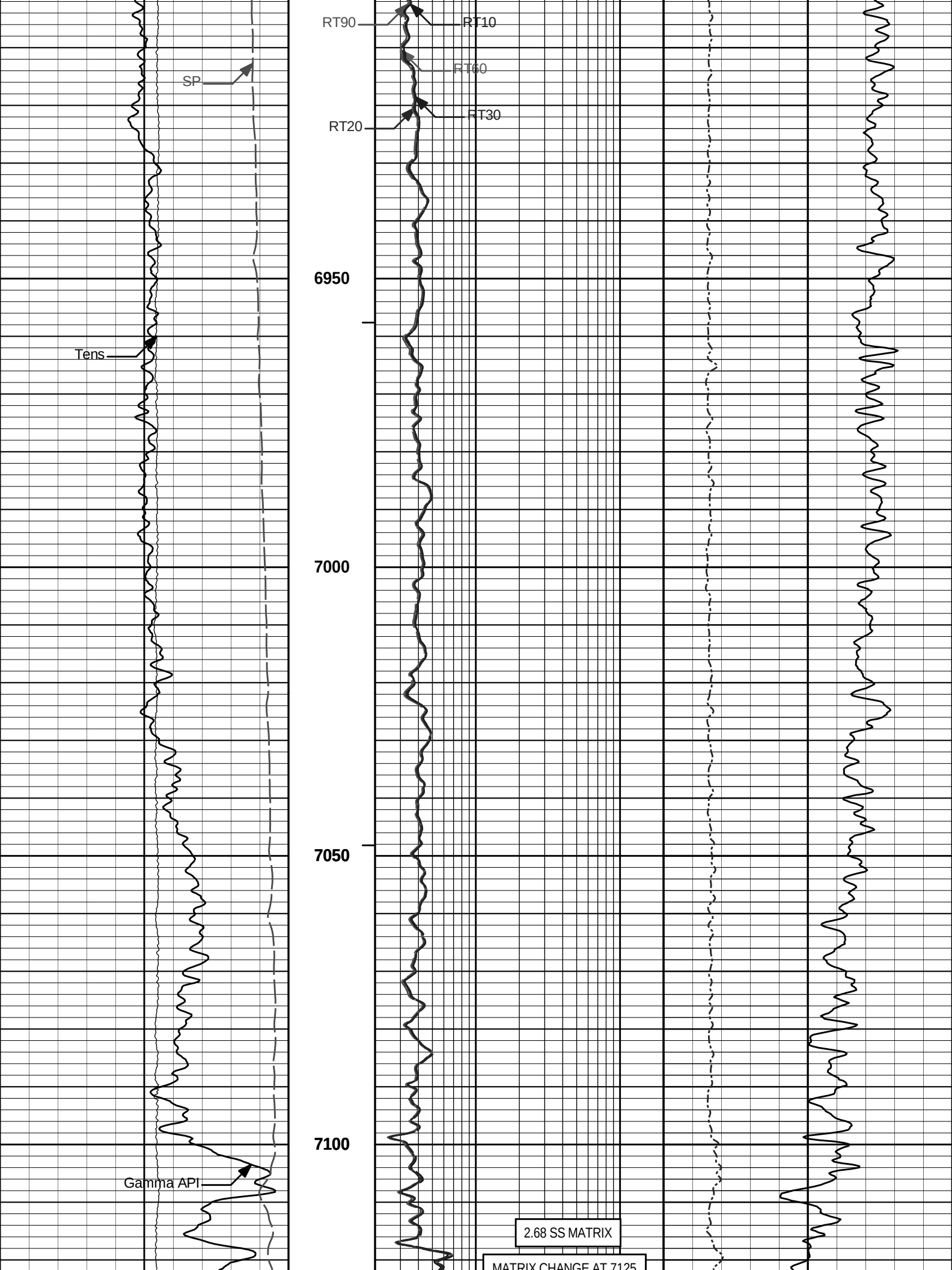
HALLIBURTON

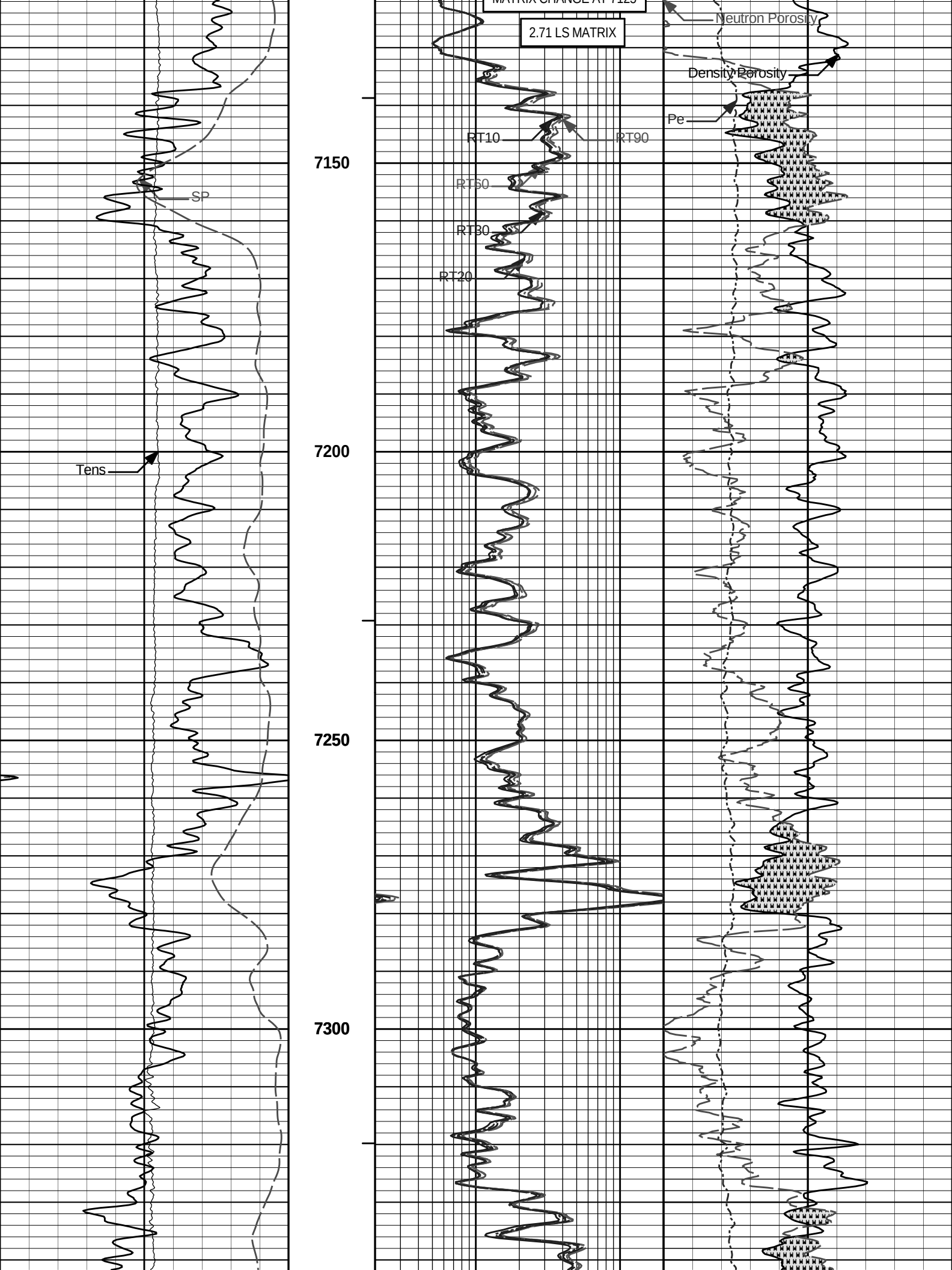
Plot Time: 15-Jan-12 02:09:14
Plot Range: 6895 ft to 7635.25 ft
Data: BERN_PC_J31_31D\Well Based\MAIN*
Plot File: \\COMP\MAIN

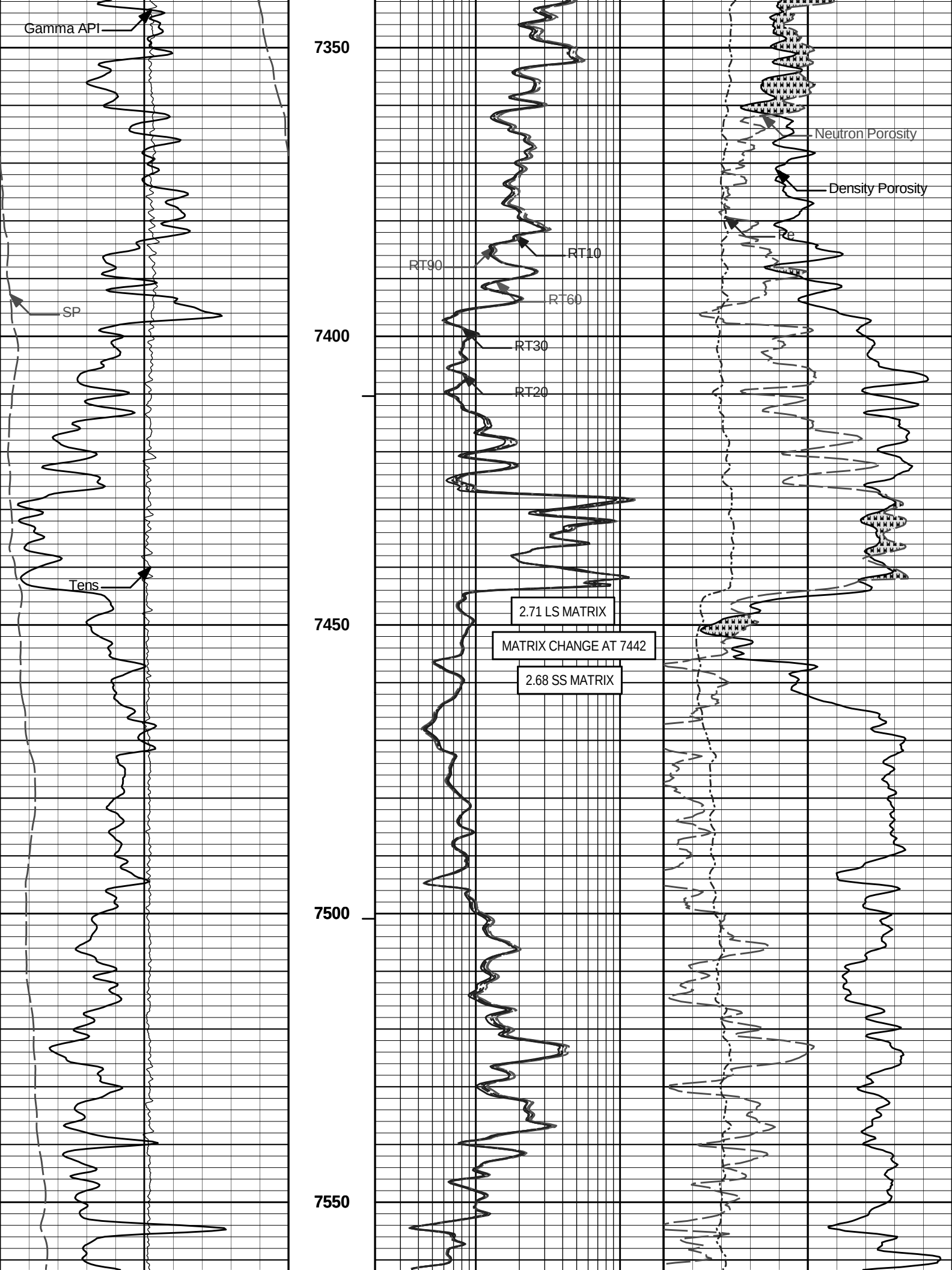
MAIN PASS 5" = 100'

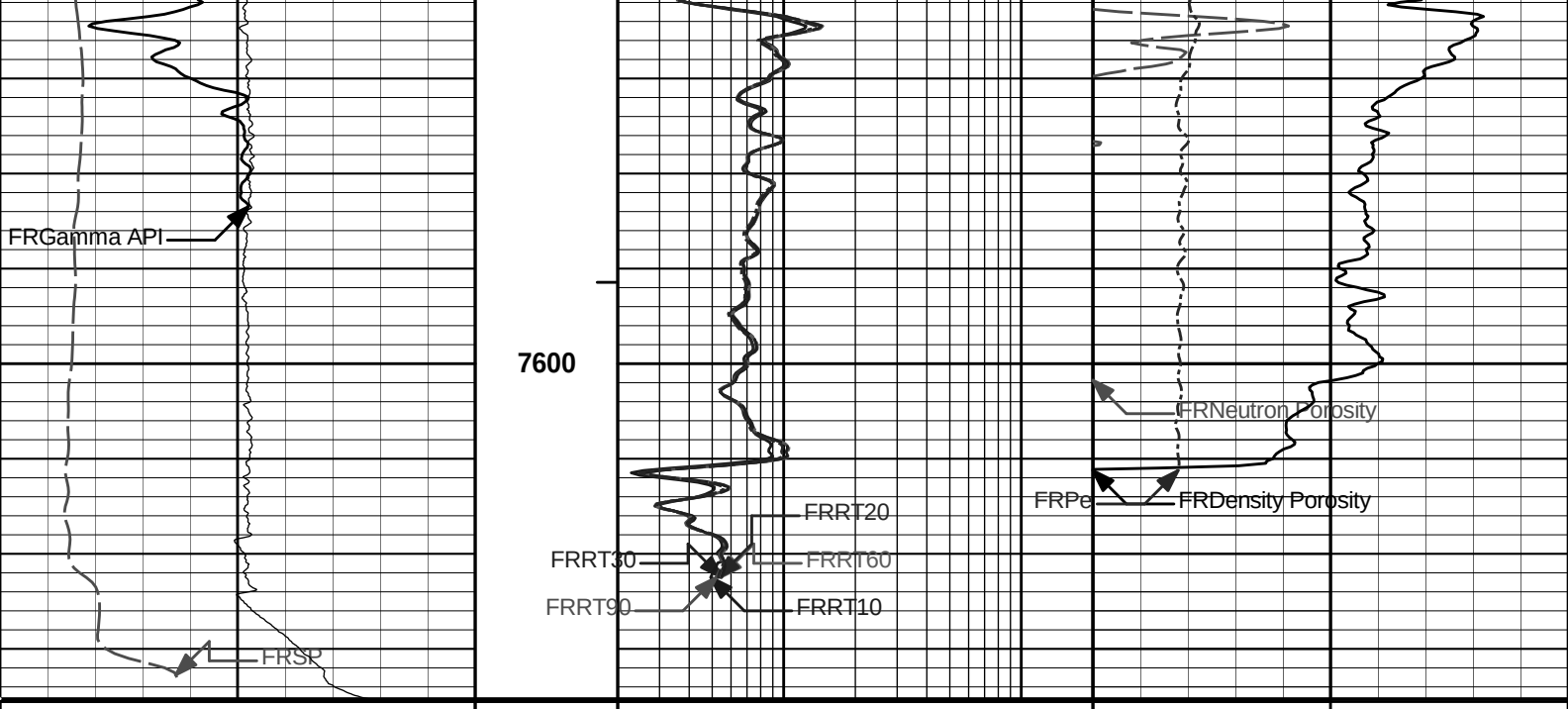
			2 RT10 200	
			ohmm	
			2 RT20 200	
			ohmm	
10K Tens 0		AHVT	2 RT30 200	20 Neutron Porosity 0
pounds			ohmm	percent
0 Gamma API 250		BHVT	2 RT60 200	20 Density Porosity 0
api			ohmm	percent
0 SP 100		1 : 240	2 RT90 200	0 Pe 10
millivolts			ohmm	




RT90
RT10
RT60
RT30
RT20
SP
Tens
Gamma API
6950
7000
7050
7100
2.68 SS MATRIX
MATRIX CHANGE AT 7125


MATRIX CHANGE AT 7125
2.71 LS MATRIX
Neutron Porosity
Density Porosity
Pe
RT10
RT90
RT60
RT30
RT20
SP
Tens
7150
7200
7250
7300


Gamma API
SP
Tens
7350
7400
7450
7500
7550
RT90
RT10
RT60
RT30
RT20
Neutron Porosity
Density Porosity
Re
2.71 LS MATRIX
MATRIX CHANGE AT 7442
2.68 SS MATRIX



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
10K Tens 0	AHVT	2 RT30 200 / 20 Neutron Porosity 0
pounds		ohmm / percent
		2 RT20 200
		ohmm
		2 RT10 200
		ohmm

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Plot Time: 15-Jan-12 02:09:19
Plot Range: 6895 ft to 7635.25 ft
Data: BERN_PC_J31_31D\Well Based\MAIN*
Plot File: \\COMP\MAIN

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

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name: GTET - 11215095 **Reference Calibration Date:** 06-Jan-12 13:21:33

Engineer: C. BLUE **Calibration Date:** 14-Jan-12 19:11:53

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

Field Verification	Shop	Field	Units
Background	67.0	57.4	api
Background + Calibrator	301.0	300.1	api
Calibrator	234.0	242.6	api

Shop	Field	Difference	Tolerance
234.0	242.6	-8.6	+/- 9.00

CSNG-FS SHOP CALIBRATION

Tool Name: CSNG - 10846351 **Reference Calibration Date:** 07-Dec-11 08:56:04

Engineer: C. BLUE **Calibration Date:** 14-Jan-12 19:24:20

Software Version: WL INSITE R3.4.4 (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 #	23.7	23.7	Channel #
583 KEV Peak Channel #	53.4	53.4	Channel #
2614 KEV Peak Channel #	219.6	219.9	Channel #
Calibrate Temperature	50.9	50.9	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	1670.7	CPS	324.4	319.5	API
Background	304.9	CPS	63.2	58.3	API

Gamma Ray Gain: 0.96

Expected Gain Range: 0.85 - 1.15

Gamma Gain Check: Passed

CSNG-FS FIELD CALIBRATION

Tool Name: CSNG - 10846351 **Reference Calibration Date:** 14-Jan-12 19:24:20

Engineer: C. BLUE **Calibration Date:** 14-Jan-12 19:36:43

Software Version: WL INSITE R3.4.4 (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 #	23.7	23.7	Channel #
583 KEV Peak Channel #	53.4	53.4	Channel #
2614 KEV Peak Channel #	219.9	220.4	Channel #
Calibrate Temperature	50.9	52.6	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	1676.5	CPS	319.5	319.5	API
Background	305.6	CPS	58.3	58.2	API

Gamma Ray Gain: 0.96
Expected Gain Range: 0.85 - 1.15
Gamma Gain Check: Passed

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name: DSNT - 11301132 **Reference Calibration Date:** 28-Dec-11 11:09:02
Engineer: C. BLUE **Calibration Date:** 28-Dec-11 11:23:18
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:	1.006	1.006	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):	0.2224	0.2224	0.0000	+/- 0.0020
Calibrated Ratio:	10.11	10.11	0.001	+/- 0.050

VERIFIER		
Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0827	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	-7000.00 - -1000.00
Pad Gain	0.0003715	0.0003719	0.000200 - 0.000600
Arm Offset	-1892.39	-1914.73	-5000.00 - 3000.00
Arm Gain	0.0005085	0.0005095	0.000300 - 0.000700
Arm Power	-0.000004660	-0.000004770	-0.000010 - 0.000010

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

Tool Diameter: 4.50 in

CALIBRATION RINGS

Measurement	Current Reading (Previous Coeff.)	Calibrated (New Coeff.)	Change	Control Limit On New Value
PAD EXTENSION:				
Small Ring (in)	2.00	2.00	0.00	+/- 0.20
Medium Ring (in)	3.75	3.75	0.00	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.51	6.50	-0.01	+/- 0.20
Medium Ring (in)	8.26	8.25	-0.01	+/- 0.20
Large Ring (in)	15.02	15.00	-0.02	+/- 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 - 10951319 **Reference Calibration Date:** 06-Jan-12 15:13:09

Engineer: C. BLUE **Calibration Date:** 14-Jan-12 19:05:26

Software Version: WL INSITE R3.4.4 (Build 2) **Calibration Version:** 1

MEASURED CALIPER VALUES

Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.73	-0.02	+/- 0.10
Ring Diameter	8.25	8.21	-0.04	+/- 0.15

PASS/FAIL SUMMARY

Pad Extension Check:	Passed
Diameter 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

Software Version: WL INSITE R3.2.3 (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
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

Signal	Lower	R	Upper
12K	0.6	0.9962	1.3
36K	1.0	1.9266	2.0
72K	1.0	1.2354	2.0

R-MUD VERIFICATION

Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
Mud Cell	0.95	0.997	1.05

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				
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

SPECTRAL DENSITY FIELD CHECK

Tool Name: SDLT Pad - M319P593 **Reference Calibration Date:** 06-Jan-12 13:50:34

Engineer: C. BLUE **Calibration Date:** 14-Jan-12 19:09:29

Software Version: WL INSITE R3.4.4 (Build 2) **Calibration Version:** 1

Pad Temperature: 60.5 degF

DENSITY FIELD CALIBRATION SUMMARY

Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1515.515	1515.923	0.408	15.681
Far (B+D+P+L) cps	909.183	905.376	-3.807	16.371

Near Resolution	9.27	9.23	-0.040	0.50
Far Resolution	8.91	9.08	0.170	1.00

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

CALIBRATION SUMMARY

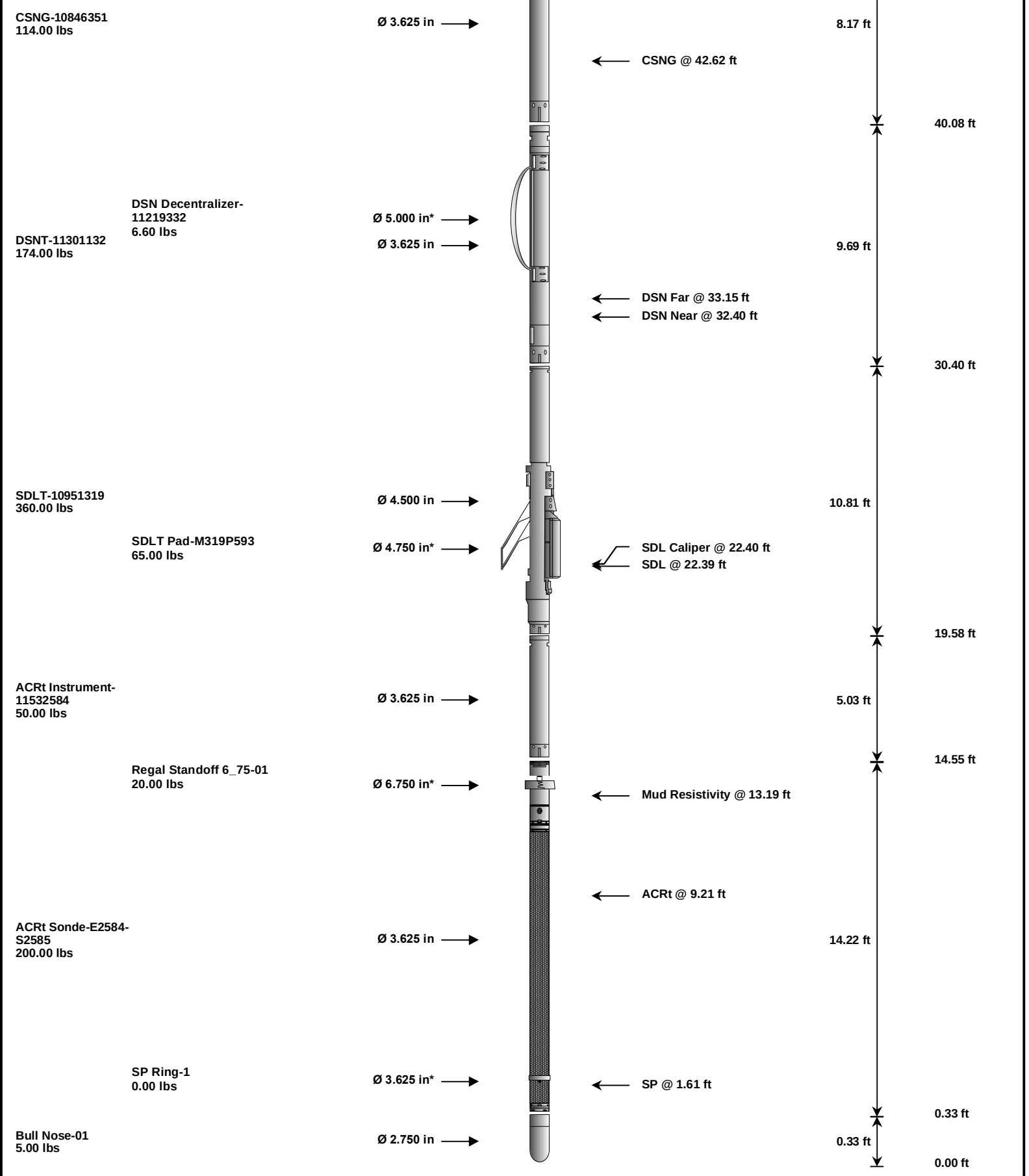
Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-11215095						
Gamma Ray Calibrator	234.0	242.6	----------	-8.6	+/- 9.00	api
CSNG-10846351						
60 KEV Peak Channel #	48.0	48.0	----------	0.0	----------	Channel #
239 KEV Peak Channel #	23.7	23.7	----------	0.0	----------	Channel #
583 KEV Peak Channel #	53.4	53.4	----------	0.0	----------	Channel #
2614 KEV Peak Channel #	219.9	220.4	----------	-0.5	----------	Channel #
DSNT-11301132						
Snow-Block Porosity	0.0827	----------	----------	0.0000	+/- -.--	decp
SDLT-10951319						
Pad Extension	3.75	3.73	----------	0.02	+/-0.10	in
Ring Diameter	8.25	8.21	----------	0.040	+/-0.15	in
ACRt Sonde-E2584-S2585						
Mud Cell	0.997	----------	----------	0.000	----------	ohm-m
SDLT Pad-M319P593						
Near(B+D+P+L)	1515.515	1515.923	----------	-0.408	+/-15.681	cps
Far(B+D+P+L)	909.183	905.376	----------	3.807	+/-16.371	cps

Data: BERN_PC_J31_31D\0001 NOBLE\IDLE **Date: 15-Jan-12 01:29:38**

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
						63.02 ft
RWCH-10895163 135.00 lbs		Ø 3.625 in		Load Cell @ 59.34 ft BH Temperature @ 58.77 ft	6.25 ft	
						56.77 ft
GTET-11215095 165.00 lbs		Ø 3.625 in		GammaRay @ 50.71 ft	8.52 ft	
						48.25 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	10846351	114.00	8.17		40.08	15.00
DSNT	Dual Spaced Neutron	11301132	174.00	9.69		30.40	60.00
DCNT	DSN Decentralizer	11219332	6.60	5.13	*	33.73	300.00
SDLT	Spectral Density Tool	10951319	360.00	10.81		19.58	60.00
SDLP	Density Insite Pad	M319P593	65.00	2.55	*	21.79	60.00

ACRt	Array Compensated True Resistivity Instrument Section	11532584	50.00	5.03		14.55	300.00
ACRt	Array Compensated True Resistivity	E2584-S2585	200.00	14.22		0.33	300.00
SP	SP Ring	1	0.00	0.25	*	1.61	300.00
RSOF	Regal Standoff 6.75in	01	20.00	0.52	*	13.35	300.00
BLNS	Bull Nose	01	5.00	0.33		0.00	300.00
Total			**1,294.60**	**63.02**			

* Not included in Total Length and Length Accumulation.

Data: BERN_PC_J31_31D\0001 NOBLE\IDLE **Date: 14-Jan-12 21:45:31**

COMPANY	**NOBLE ENERGY**
WELL	**BERNHARDT PC J31-31D**
FIELD	**WATTENBERG**
COUNTY	**WELD** STATE **CO**

HALLIBURTON

SPECTRAL DENSITY
DUAL SPACED NEUTRON
ARRAY COMPENSATED
TRUE RESISTIVITY