

HALLIBURTON

SPECTRAL DENSITY
DUAL SPACED NEUTRON
ARRAY COMPENSATED
TRUE RESISTIVITY

COMPANY				HARTMAN OIL CO., INC.			
WELL				ROSE # 1-1			
FIELD				WILDCAT			
COUNTY				WICHITA			
STATE				KANSAS			
COMPANY				HARTMAN OIL CO., INC.			
WELL				ROSE # 1-1			
FIELD				WILDCAT			
COUNTY				WICHITA			
STATE				KANSAS			
API No.				15203201840000			
Location				SURFACE HOLE LOCATION: 1330' FNL & 2280' FWL			
Other Services:				RWCH BSAT MEL			
Sect. 1				Twp. 16S Rge. 35W			
Permanent Datum				GL Elev.: 3143.0 ft			
Log measured from				KB 11.0 ft above perm. Datum			
Drilling measured from				KB G.L. 3143.0 ft			
Date				06-Oct-12			
Run No.				ONE			
Depth - Driller				4850.00 ft			
Depth - Logger				4847.0 ft			
Bottom - Logged Interval				4844.0 ft			
Top - Logged Interval				332.0 ft			
Casing - Driller				8.625 in @ 330.0 ft			
Casing - Logger				332.0 ft			
Bit Size				7.875 in @			
Type Fluid in Hole				CHEMICAL			
Density				9.1 ppg 54.00 s/qt			
PH				10.80 pH 8.8 cpm			
Source of Sample				MUD TANK			
Rm @ Meas. Temperature				0.570 ohmm @ 71.20 degF			
Rmf @ Meas. Temperature				0.43 ohmm @ 64.20 degF			
Rmc @ Meas. Temperature				0.920 ohmm @ 65.50 degF			
Source Rmf				MEASURED MEASURED			
Rm @ BHT				0.33 ohmm @ 129.0 degF			
Time Since Circulation				8.6 hr			
Time on Bottom				06-Oct-12 21:53			
Max. Rec. Temperature				129.0 degF @ N/A			
Equipment				11170614 ROCK SPRING			
Recorded By				V. CREWS			
Witnessed By				K. NOAH			

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Service Ticket No.:						API Serial No.: 15203201840000						PGM Version: WL INSITE R3.6.0 (Build 3)											
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.				@				@						E6988-S8481									
Source Rmf		Rmc										ONE		MEL -		MICROLOG		ECCENTERED		N/A			
Rm @ BHT				@				@						10947725									
Rmf @ BHT				@				@															
Rmc @ BHT				@				@															
EQUIPMENT DATA																							
GAMMA						ACOUSTIC						DENSITY						NEUTRON					
Run No.		ONE				Run No.		ONE				Run No.		ONE				Run No.		ONE			
Serial No.		11602914				Serial No.		10747633				Serial No.		11014275				Serial No.		10860047			
Model No.		GTET				Model No.		BSAT				Model No.		SDLT-I				Model No.		DSNT-I			
Diameter		3.625"				No. of Cent.		2				Diameter		4.5"				Diameter		3.625"			
Detector Model No.		102-A				Spacing		0.5'				Log Type		GAM-GAM				Log Type		THERM-THERM			
Type		SCINT										Source Type		Cs137				Source Type		Am241Be			
Length		8"				LSA [Y/N]		N/A				Serial No.		5235GW				Serial No.		08-018			
Distance to Source		10'				FWDA [Y/N]		N/A				Strength		1.78 Ci				Strength		15.0 Ci			

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	4847'	2540'	REC	0	150	40%	0%	LIME	30%	-10%	2.71 g/cc	30%	-10%	LIME					
ONE	2540'	332'	REC	0	150														
DIRECTIONAL INFORMATION																			
Maximum Deviation								@	KOP							@			
Remarks: RWCH-GTET-DSNT-SDLT-FLEX-BSAT-ACRT RAN IN COMBINATION																			
BOREHOLE RUGOSITY, TENSION PULLS AND WASHOUTS MAY EFFECT LOG QUALITY																			
ANNULAR HOLE VOLUME CALCULATED FOR 5.5-INCH CASING																			
BOWSPRING AND STANDOFF RUN																			
TODAY'S CREW: G. HOOD, C. DAVIS & D. TREFILETTI															RIG: H2 DRILLING				
*** THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES, ROCK SPRINGS, WY (307) 352-8600 ***																			
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.																			
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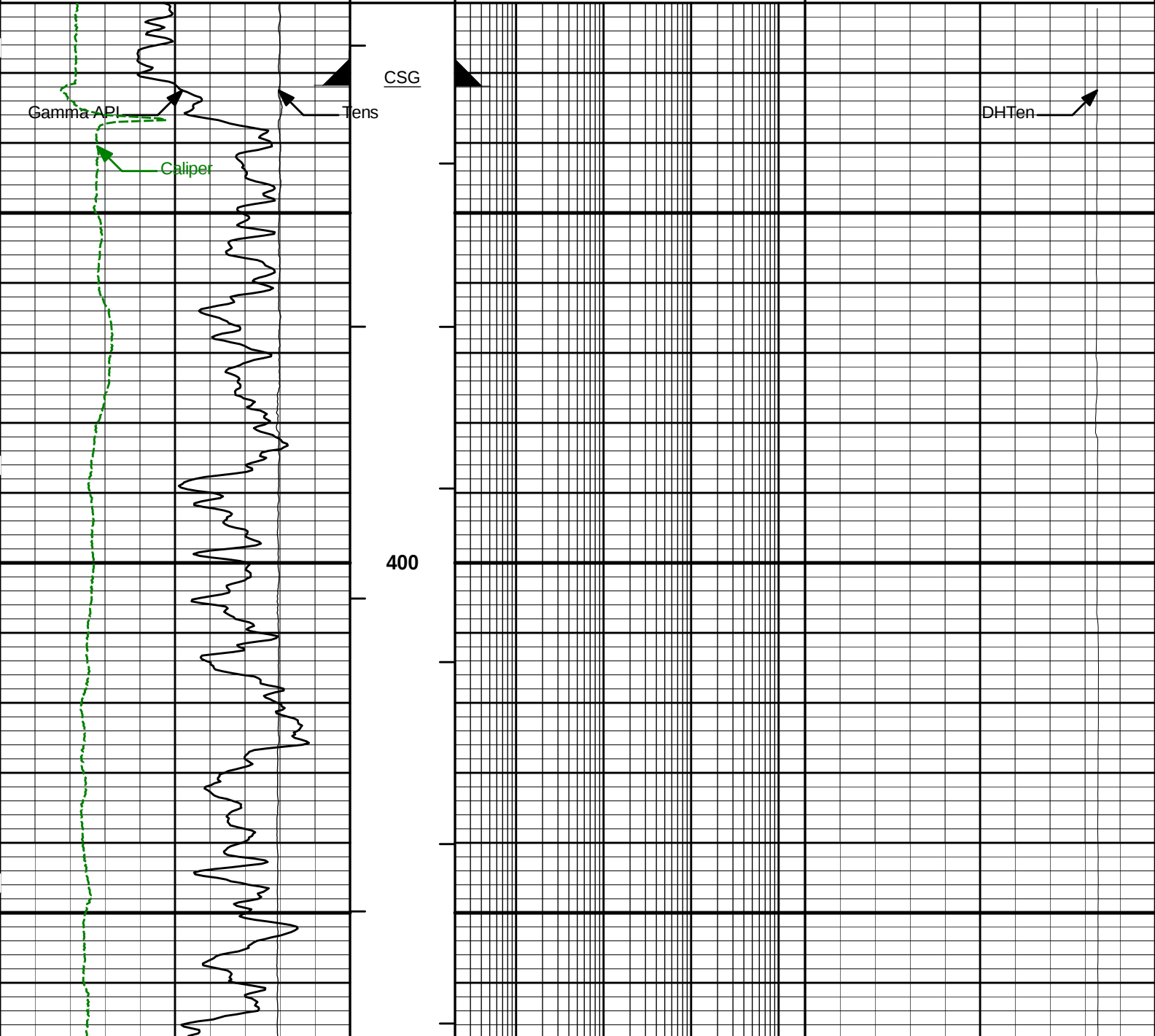
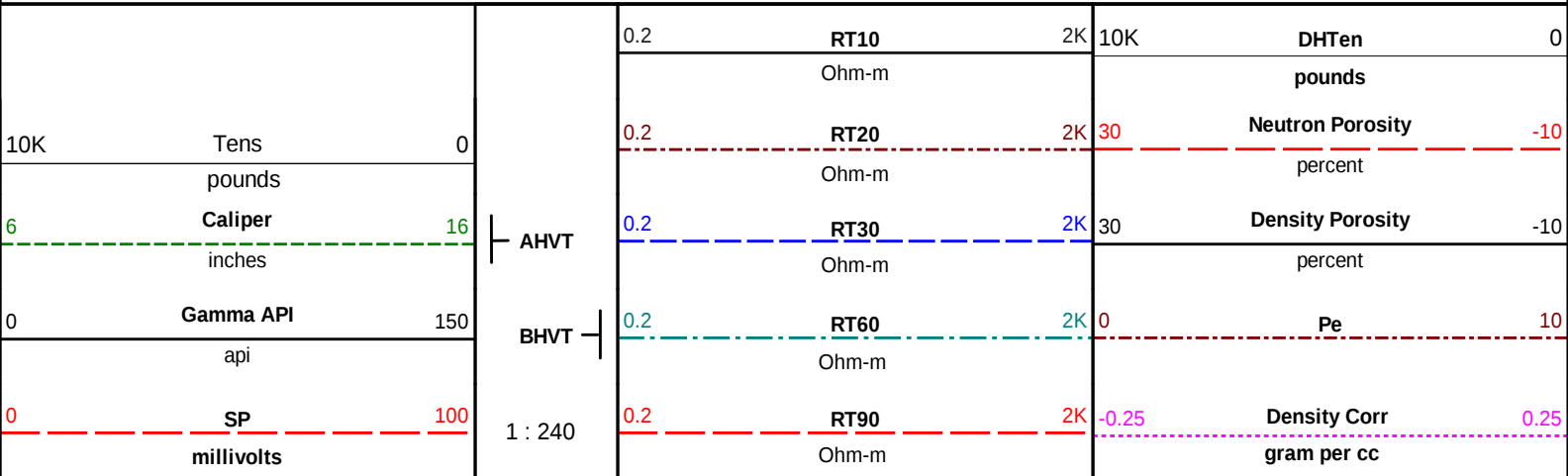
PARAMETERS REPORT

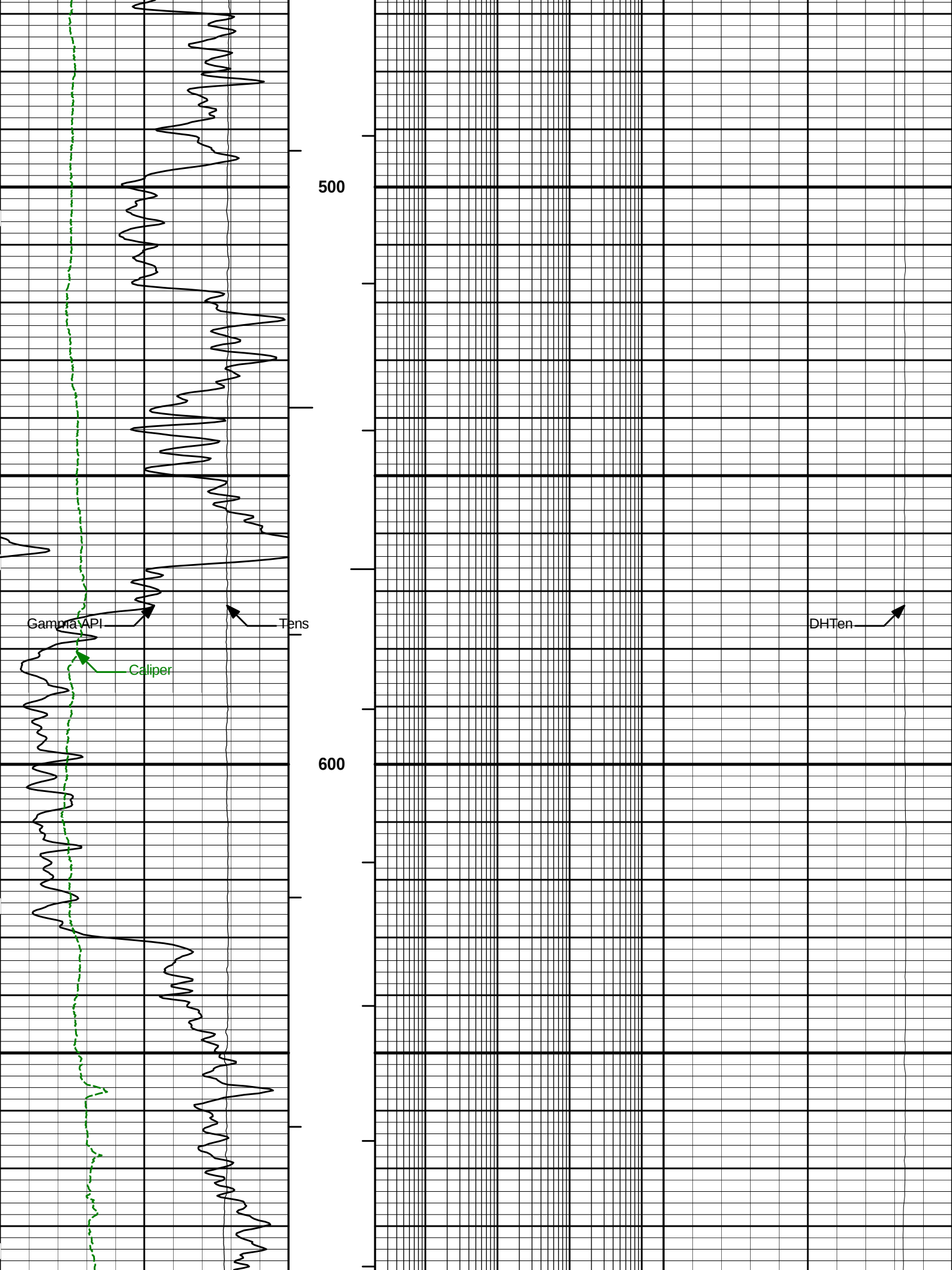
Depth (ft)	Tool Name	Mnemonic	Description	Value	Units
TOP					
	SHARED	BS	Bit Size	7.875	in
	SHARED	UBS	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	MDBS	Mud Base	Water	
	SHARED	MDWT	Borehole Fluid Weight	9.100	ppg
	SHARED	WAGT	Weighting Agent	Barite	
	SHARED	BSAL	Borehole salinity	0.00	ppm
	SHARED	FSAL	Formation Salinity NaCl	0.00	ppm
	SHARED	KPCT	Percent K in Mud by Weight?	0.00	%
	SHARED	RMUD	Mud Resistivity	0.570	ohmm
	SHARED	TRM	Temperature of Mud	71.2	degF
	SHARED	CSD	Logging Interval is Cased?	No	
	SHARED	ICOD	AHV Casing OD	5.500	in
	SHARED	ST	Surface Temperature	53.0	degF
	SHARED	TD	Total Well Depth	4847.00	ft
	SHARED	BHT	Bottom Hole Temperature	129.0	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	
	Rwa / CrossPlot	XPOK	Process Crossplot?	Yes	
	Rwa / CrossPlot	FCHO	Select Source of F	Automatic	
	Rwa / CrossPlot	AFAC	Archie A factor	0.6200	

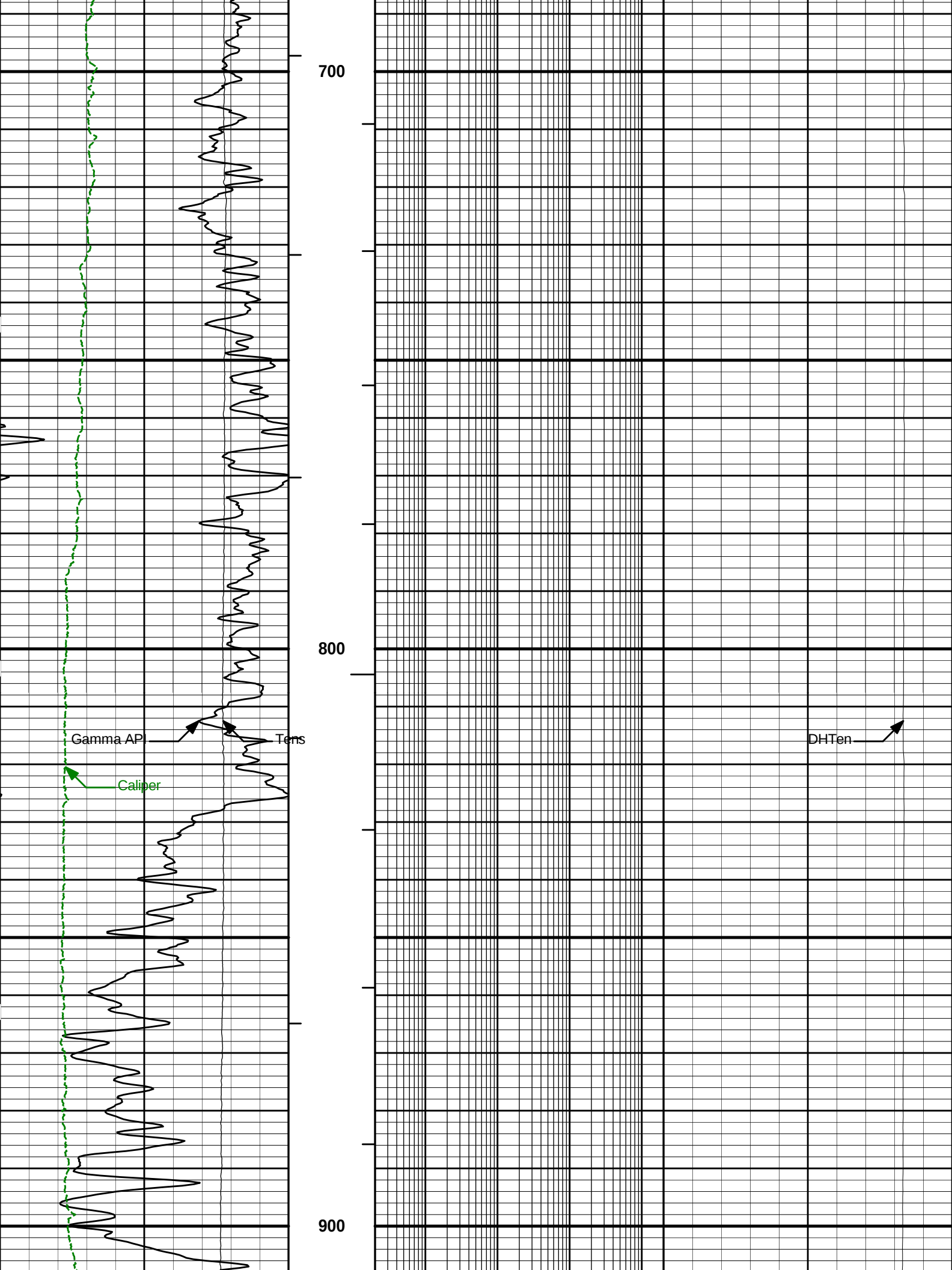
CrossPlot	Rwa / CrossPlot	MFAC	Archie M factor	2.1500	
	Rwa / CrossPlot	RMFR	Rmf Reference	0.10	ohmm
	Rwa / CrossPlot	TMFR	Rmf Ref Temp	75.00	degF
	Rwa / CrossPlot	RWA	Resistivity of Formation Water	0.05	ohmm
	Rwa / CrossPlot	ADP	Use Air Porosity to calculate CrossplotPhi	No	
	GTET	GROK	Process Gamma 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	
	DSNT	DNOK	Process DSN?	Yes	
	DSNT	DEOK	Process DSN EVR?	No	
	DSNT	NLIT	Neutron Lithology	Limestone	
	DSNT	DNSO	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.250	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	2.710	g/cc
	SDLT Pad	DFL	Formation Density Fluid	1.000	g/cc
	Microlog Pad	MLOK	Process MicroLog Outputs?	Yes	
	BSAT	MBOK	Compute BCAS Results?	Yes	
	BSAT	FLLO	Frequency Filter Low Pass Value?	5000	Hz
	BSAT	FLHI	Frequency Filter High Pass Value?	27000	Hz
	BSAT	DTFL	Delta -T Fluid	189.00	uspf
	BSAT	DTMT	Delta -T Matrix Type	Limestone 47.5	
	BSAT	DTSH	Delta -T Shale	100.00	uspf
	BSAT	SPEQ	Acoustic Porosity Equation	Wylie	
	ACRt Sonde	RTOK	Process ACRt?	Yes	
	ACRt Sonde	MNSO	Minimum Tool Standoff	1.50	in
	ACRt Sonde	TCS1	Temperature Correction Source	FP Lwr & FP Up	
	ACRt Sonde	TPOS	Tool Position	Free Hanging	
	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	
	ACRt Sonde	MRFX	Fixed mud resistivity	2000	ohmm
BOTTOM					
Data: HARTMN_ROSE_1_1\0003 QUAD_MEL_BSAT\004.01 06-Oct-12 23:23 Up				Date: 07-Oct-12 00:07:57	

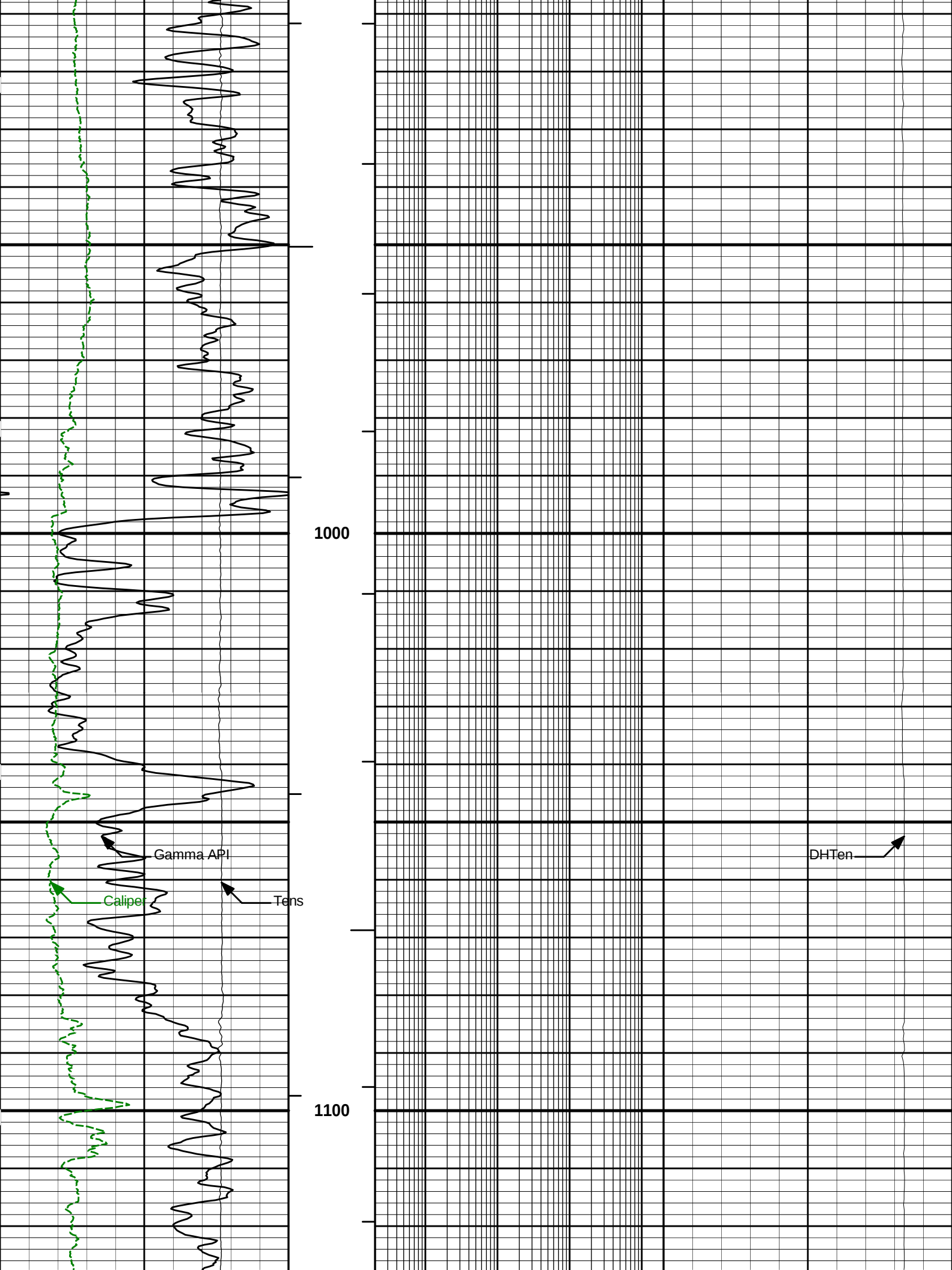


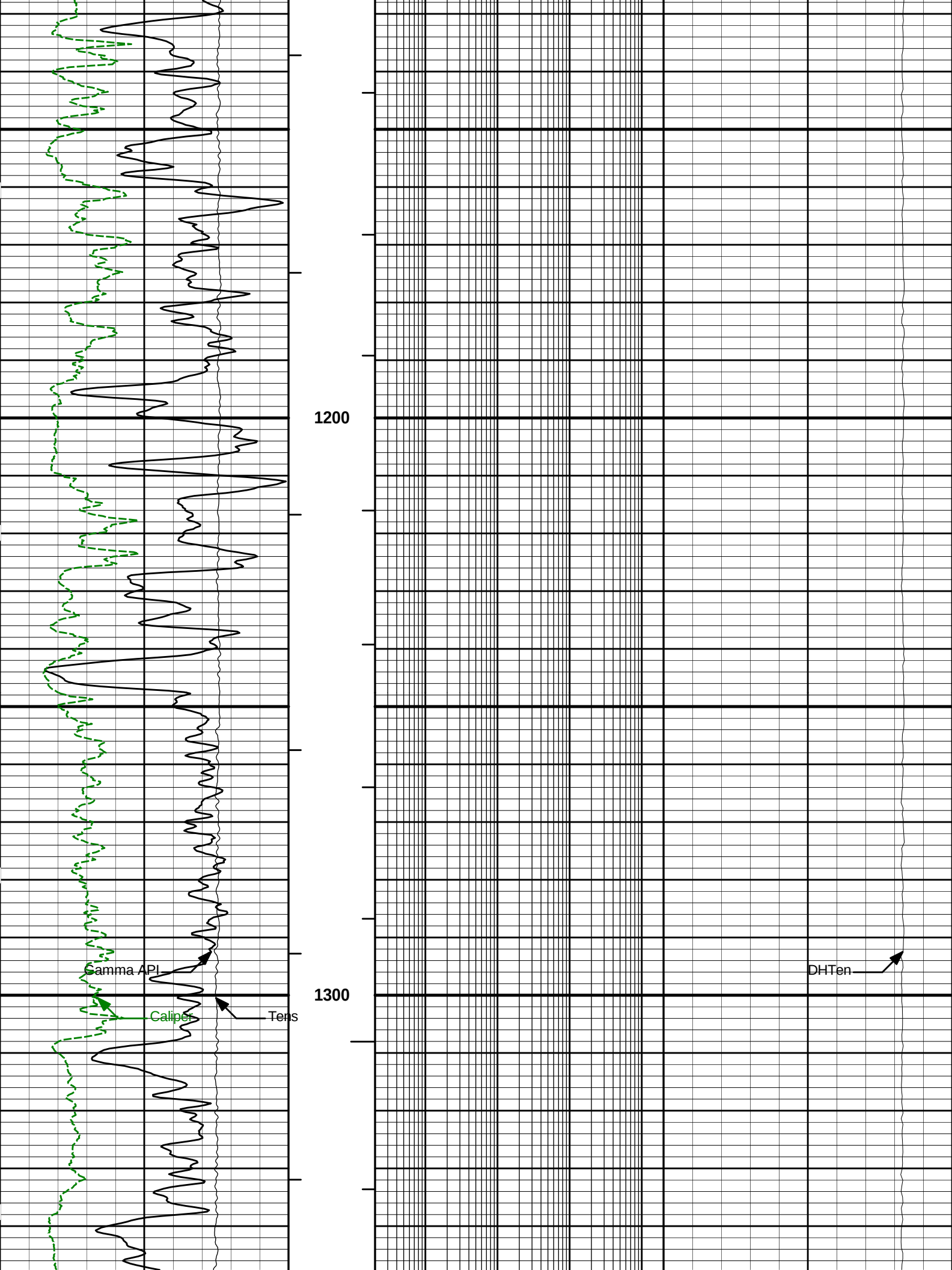
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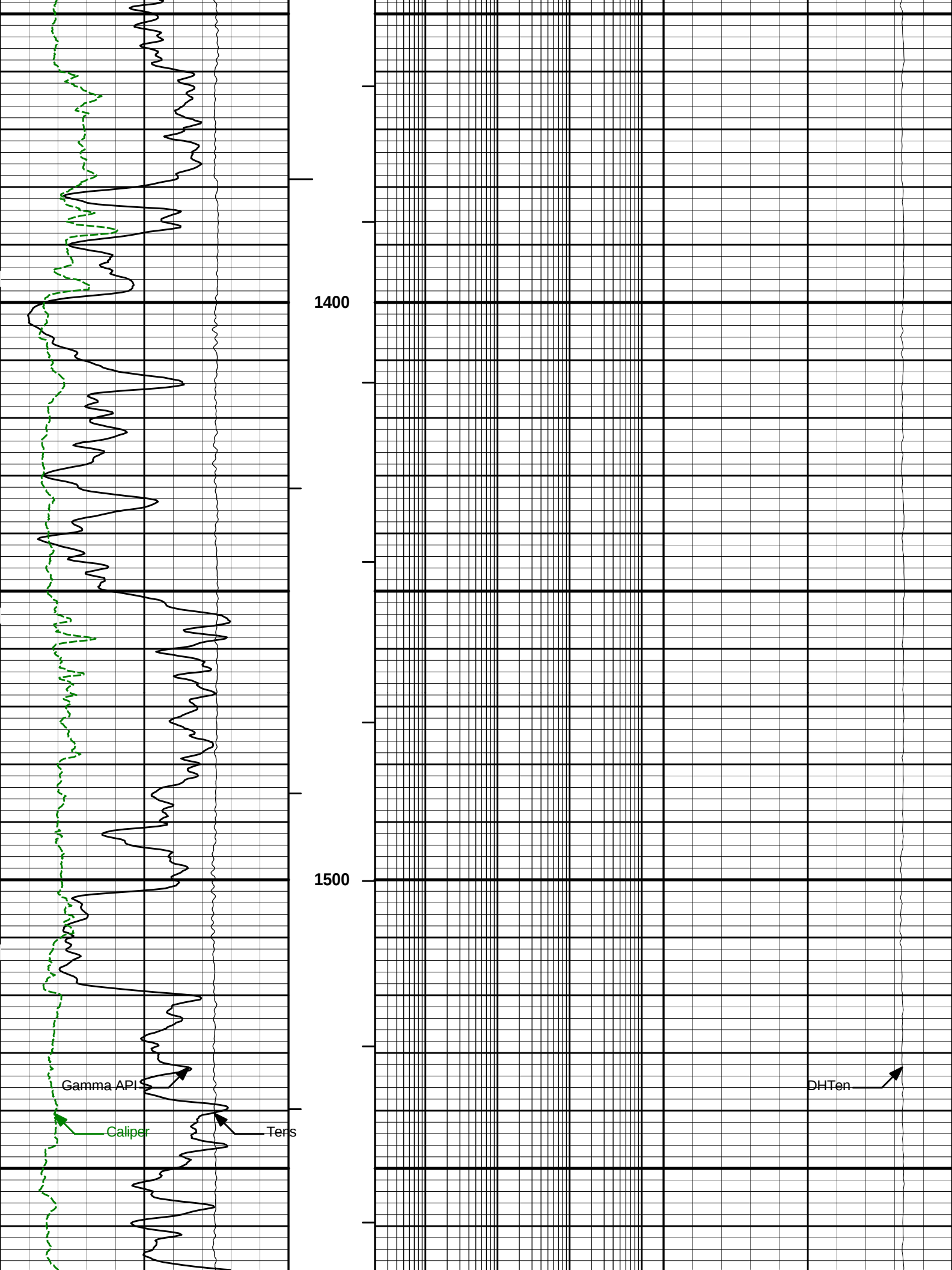


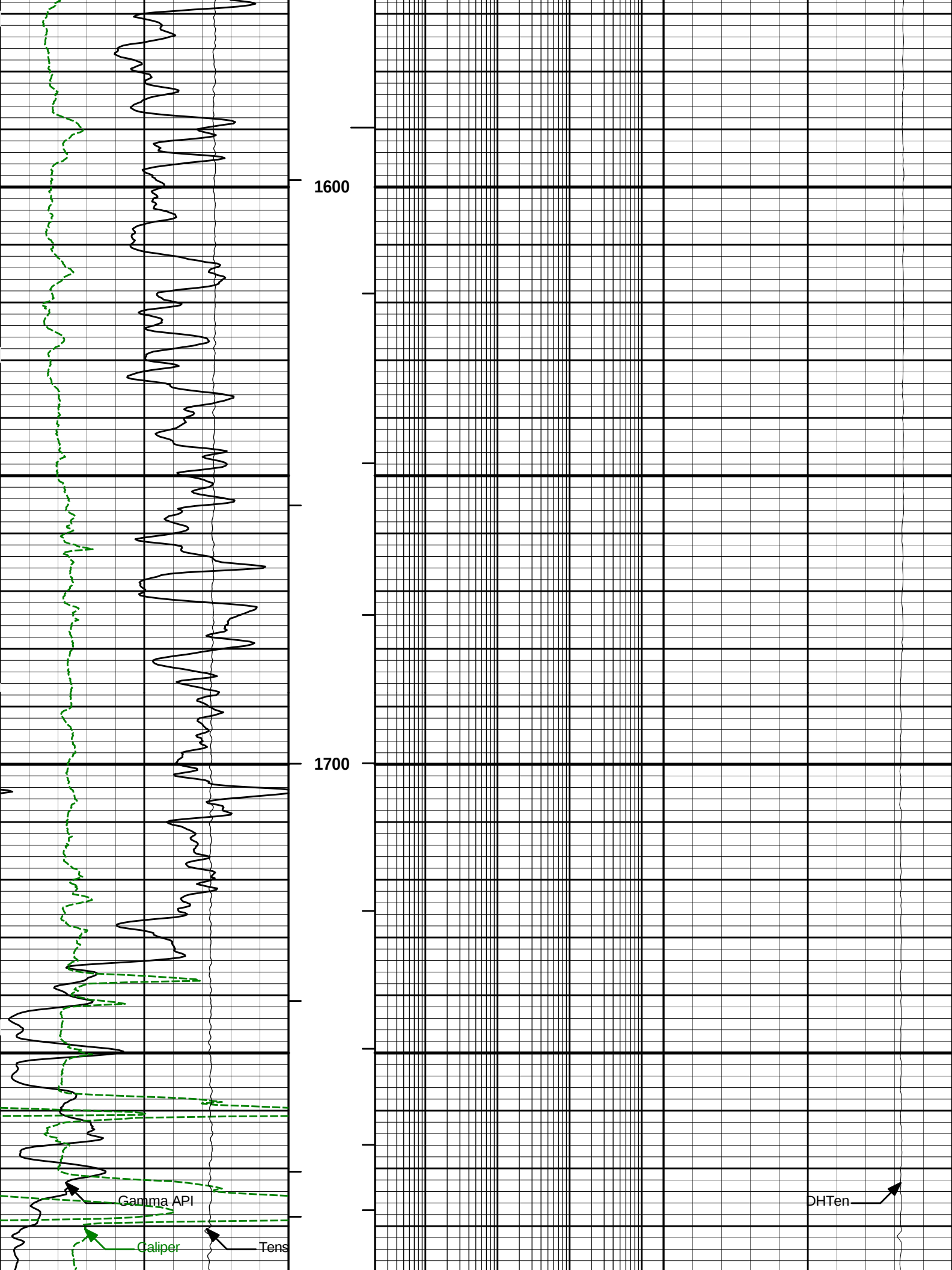


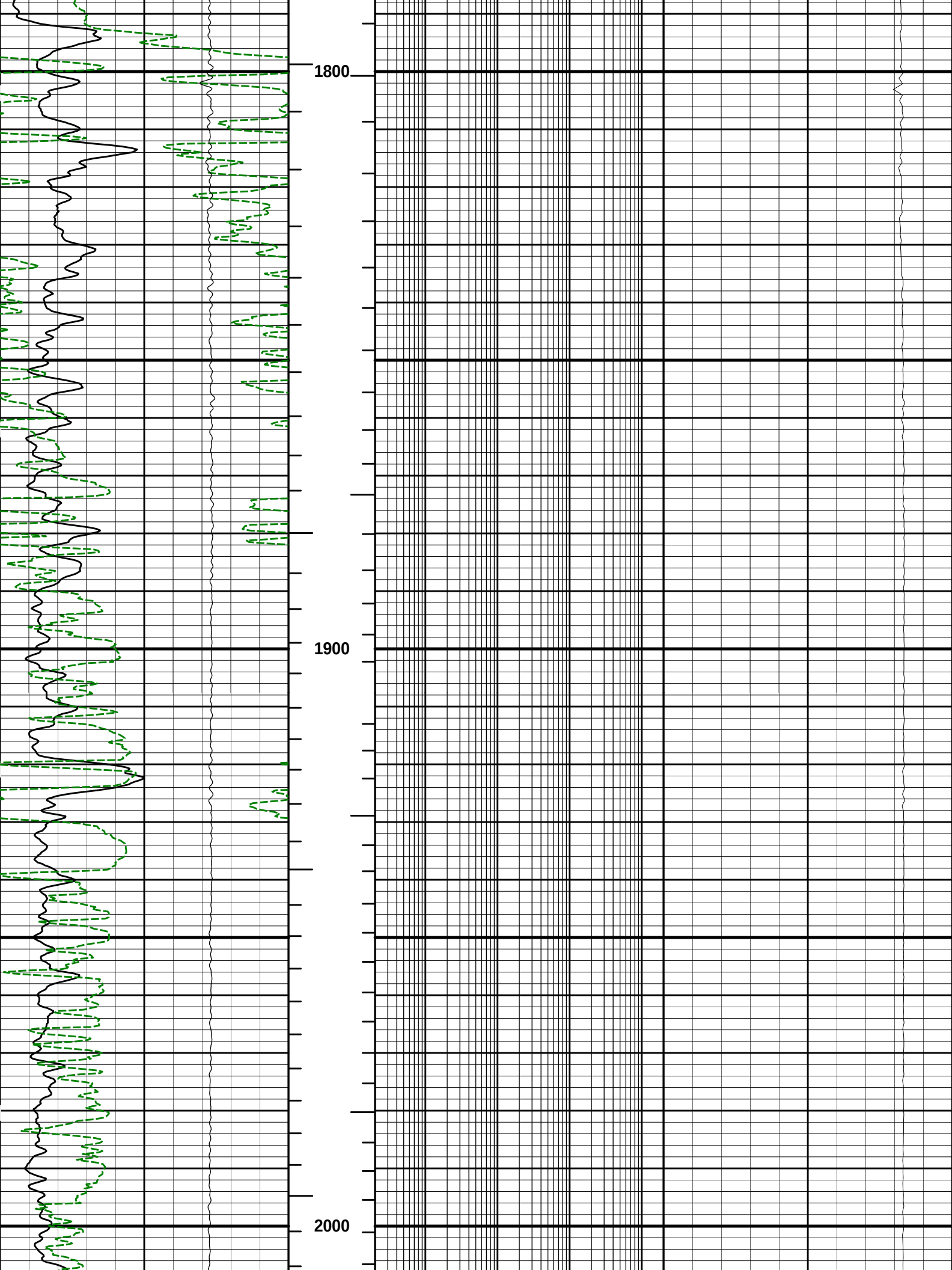


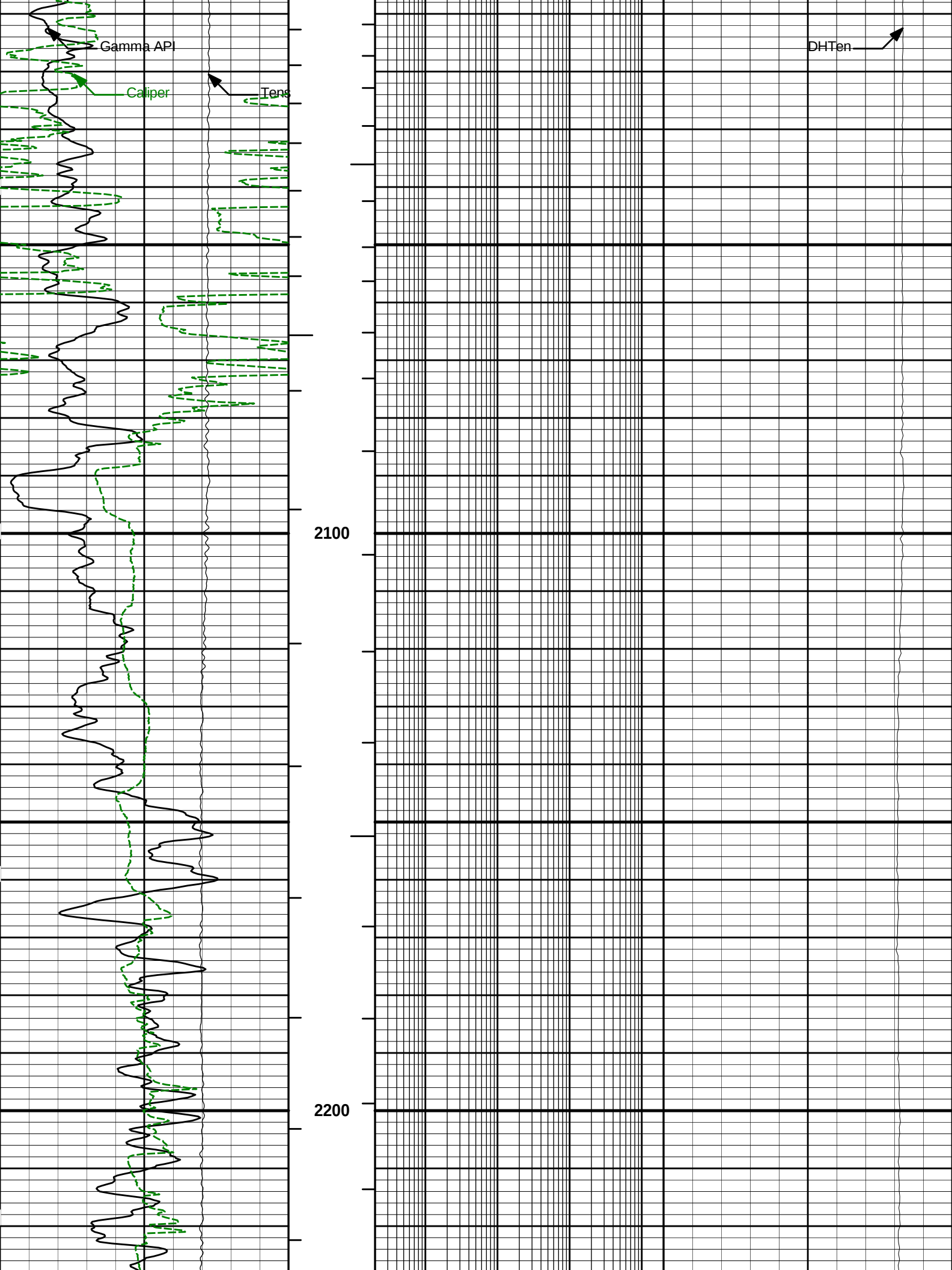


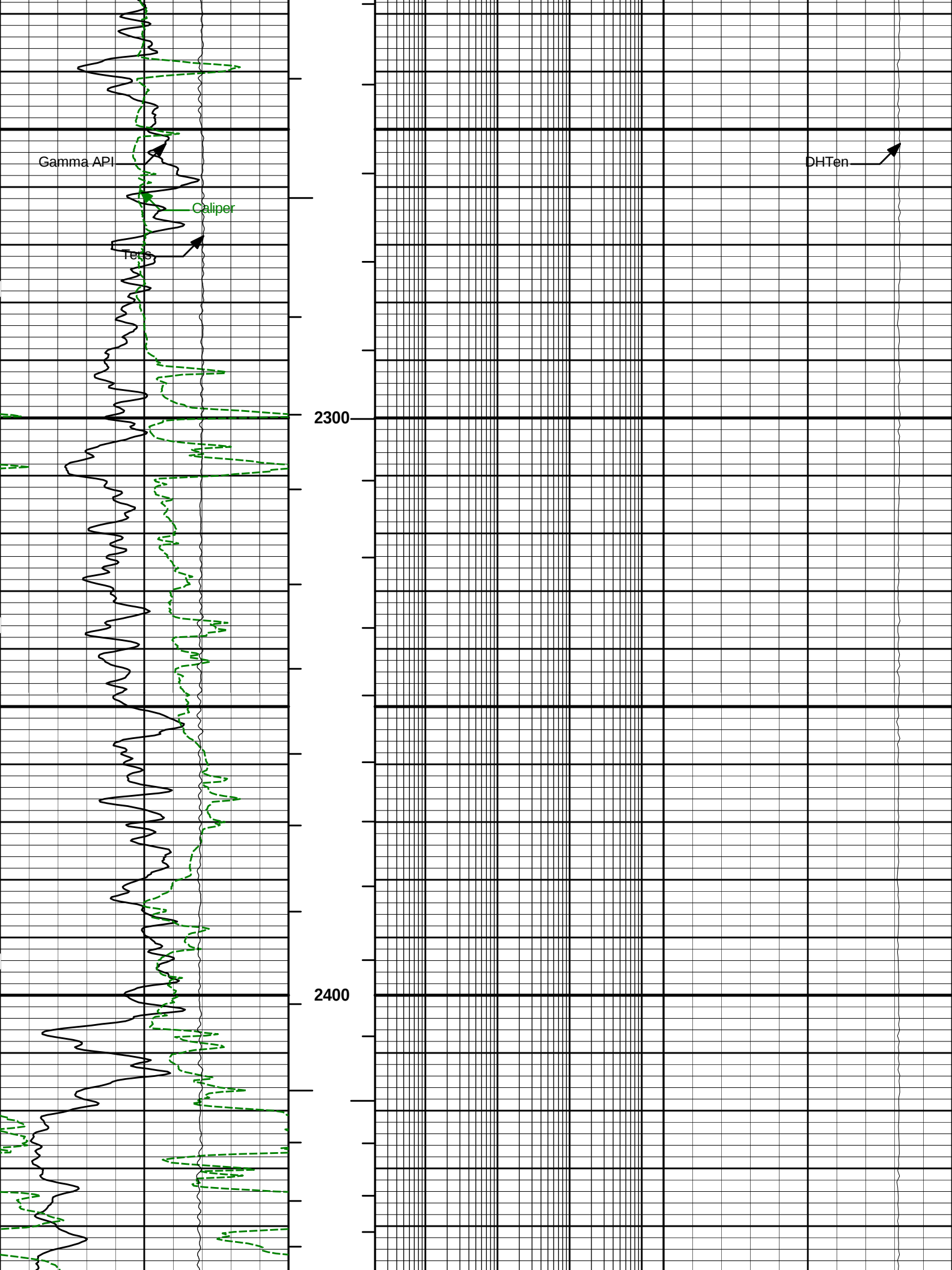


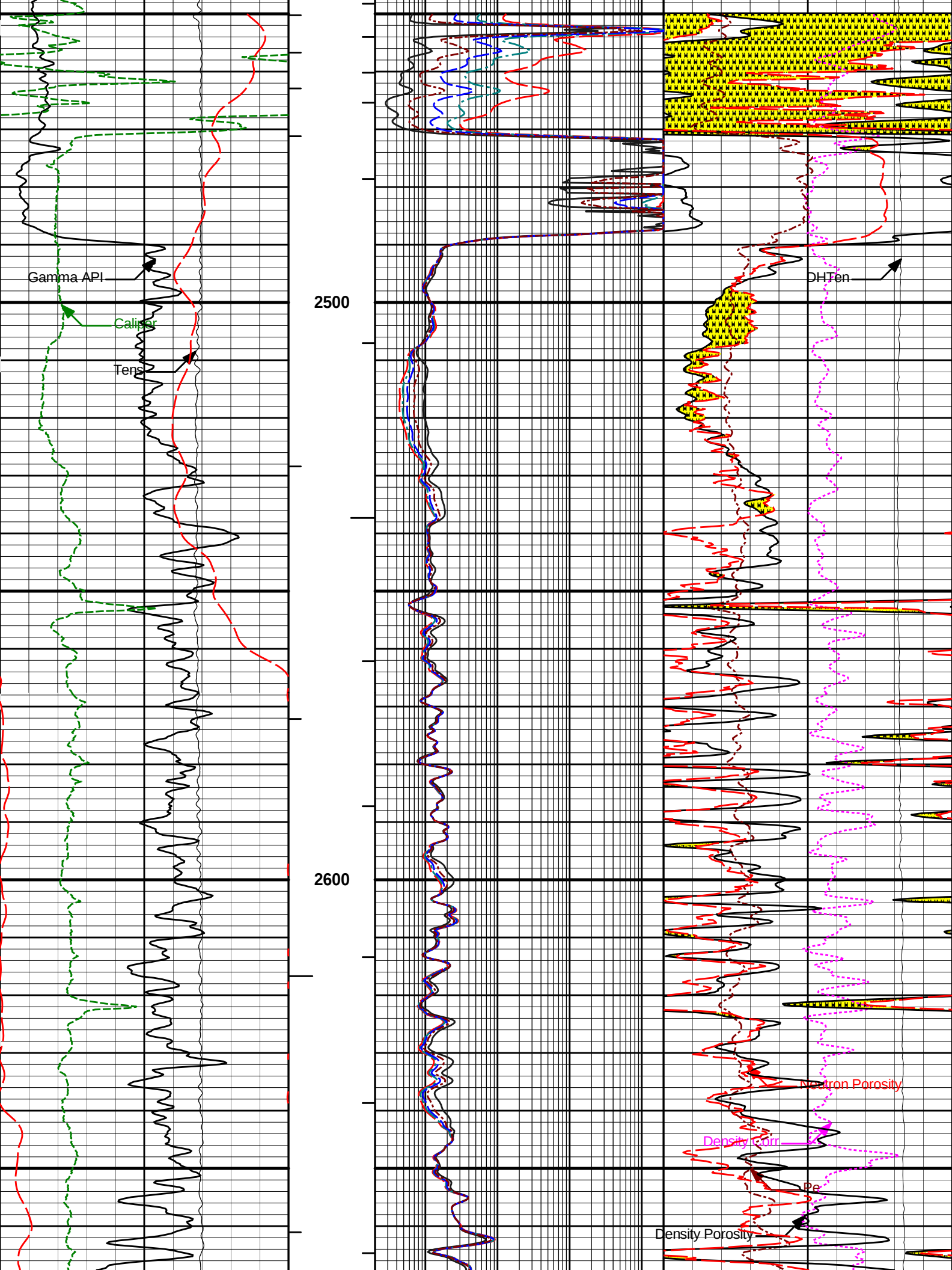


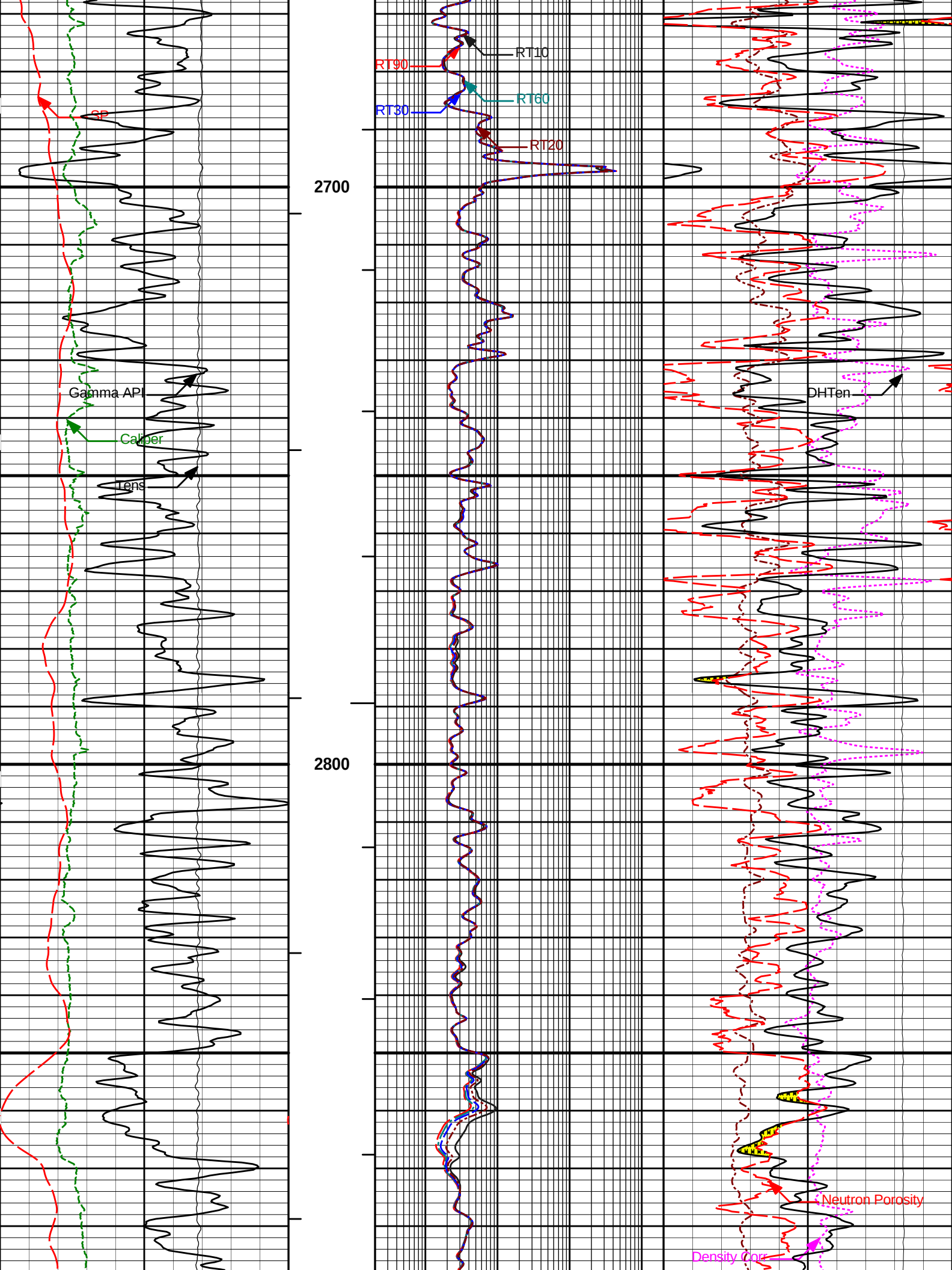


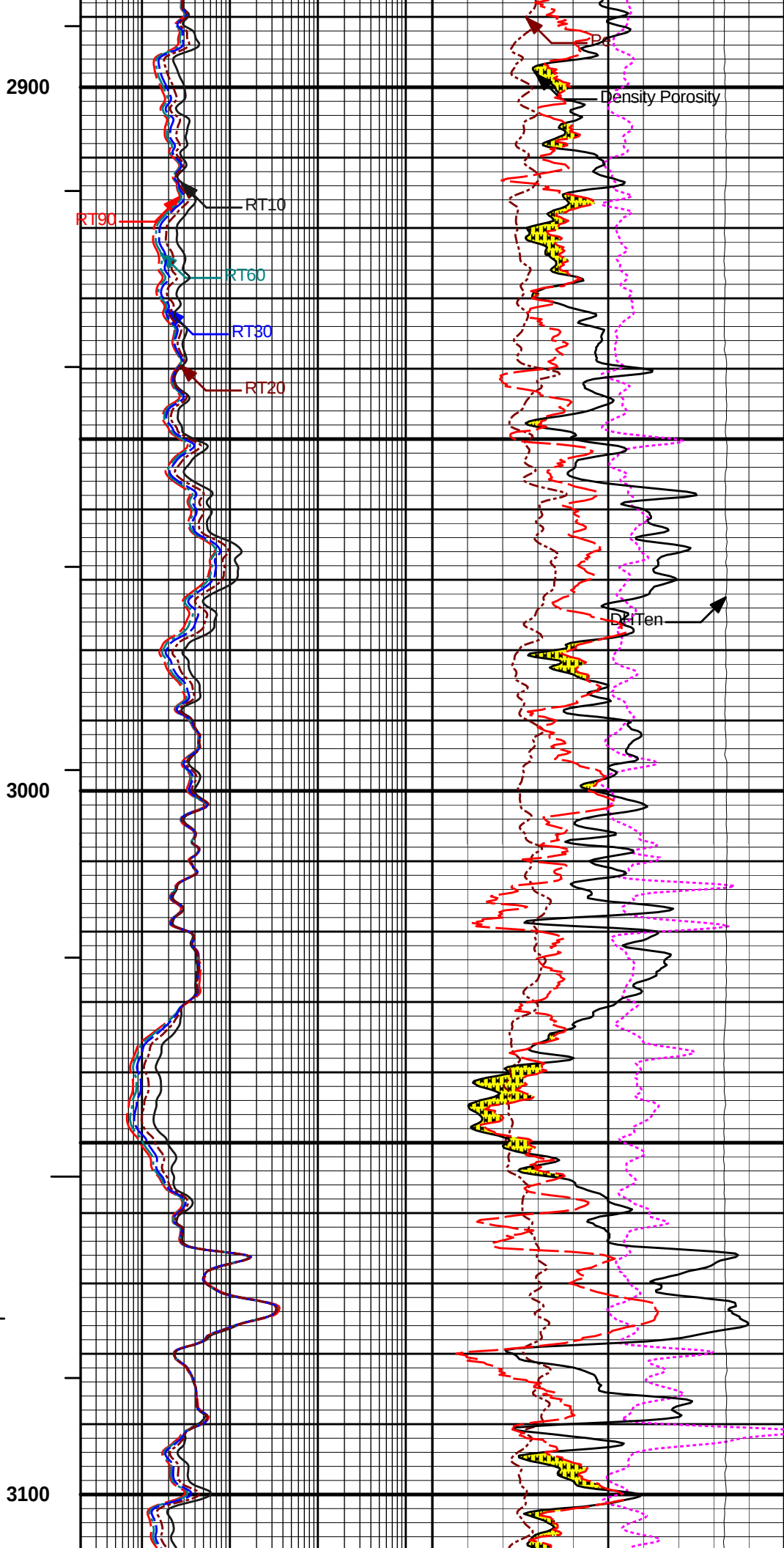
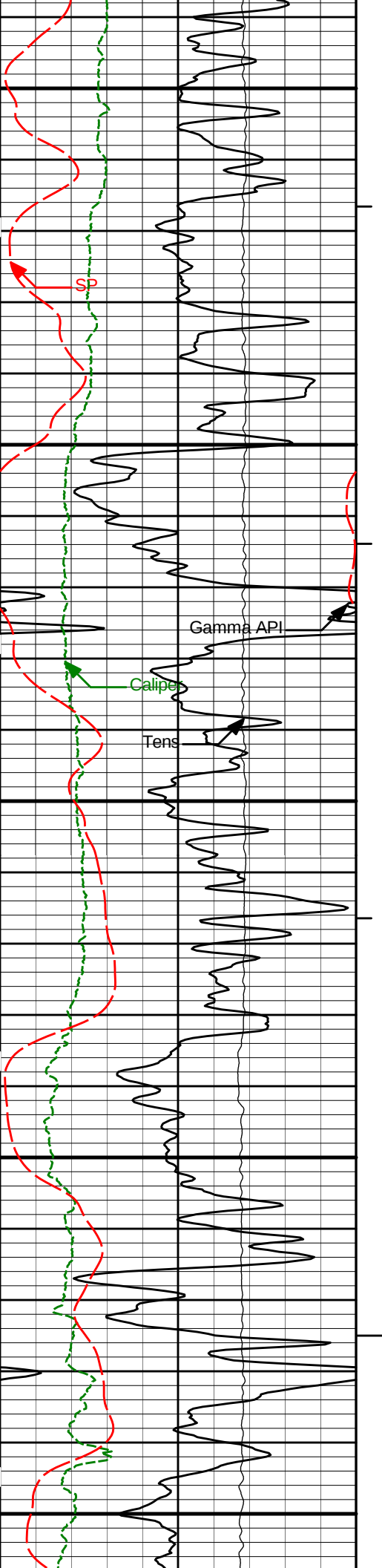


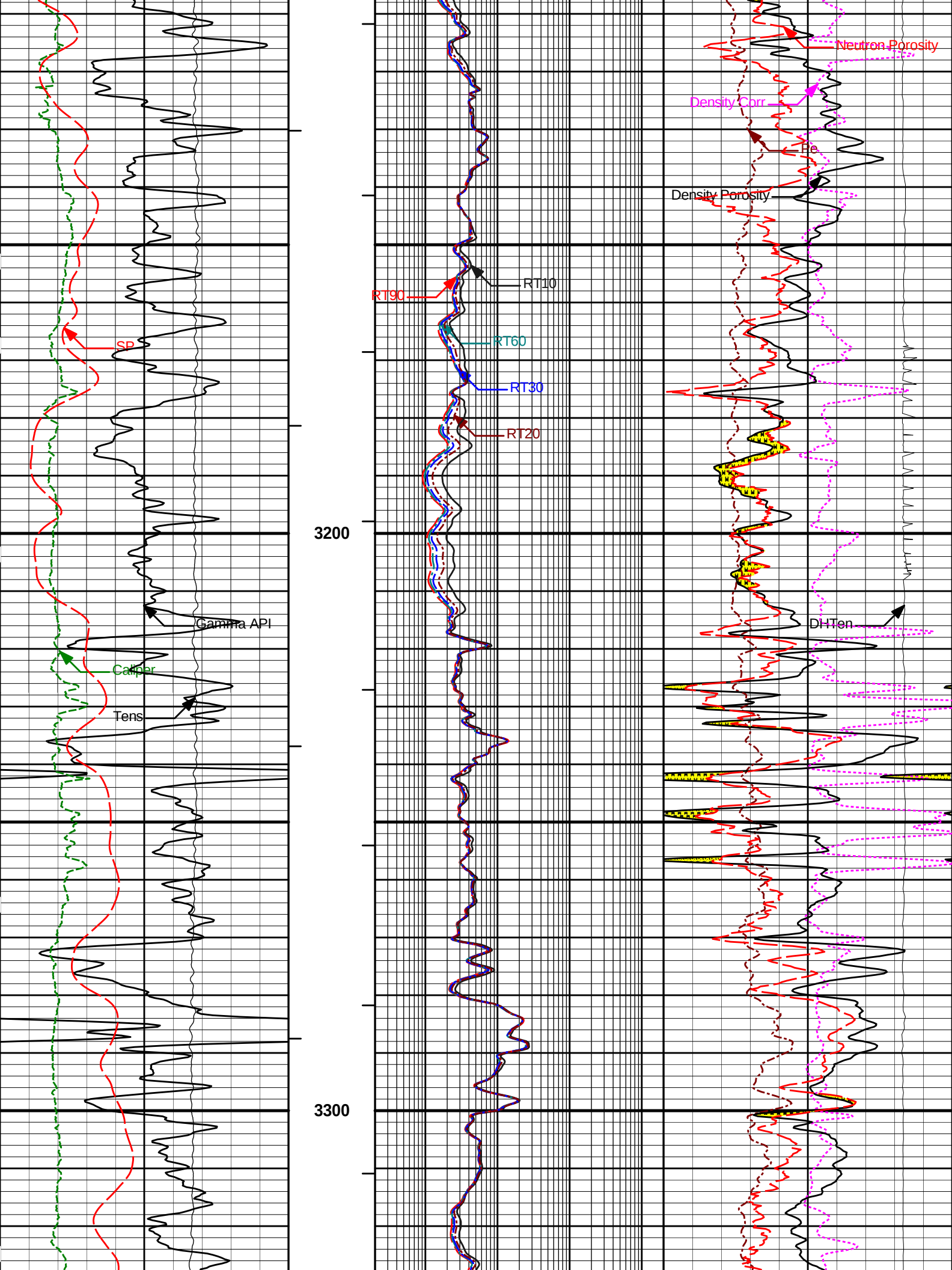


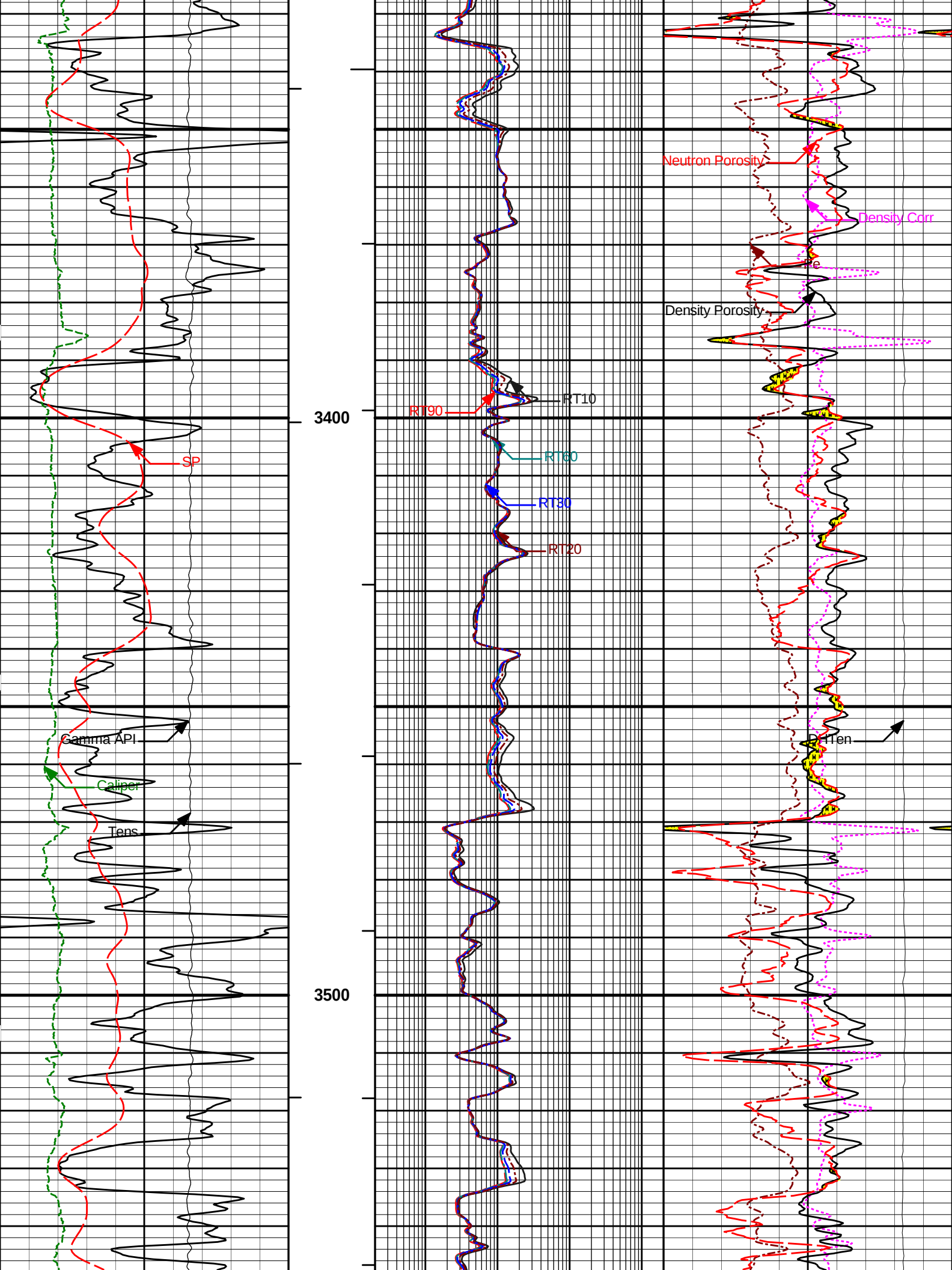


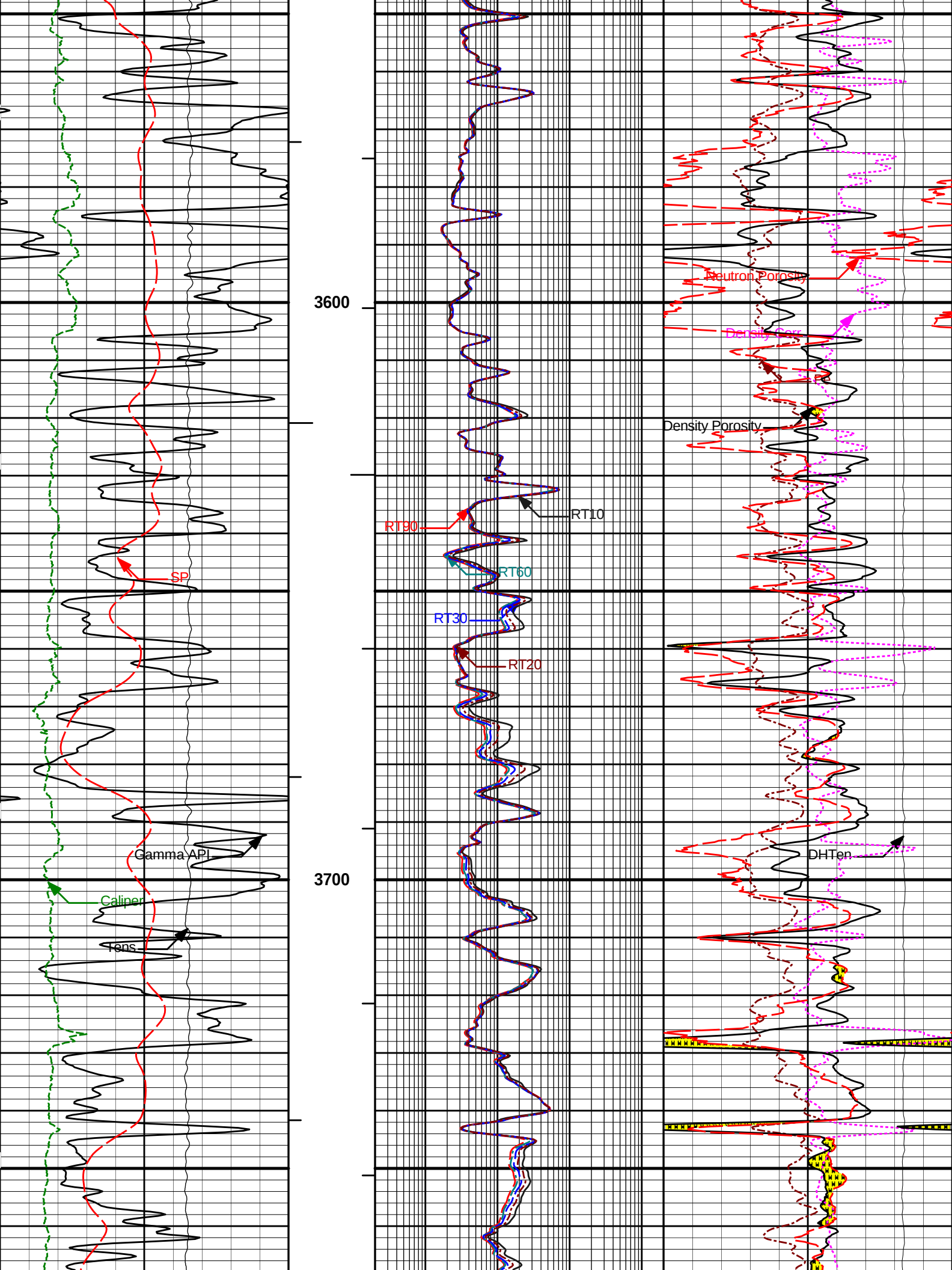


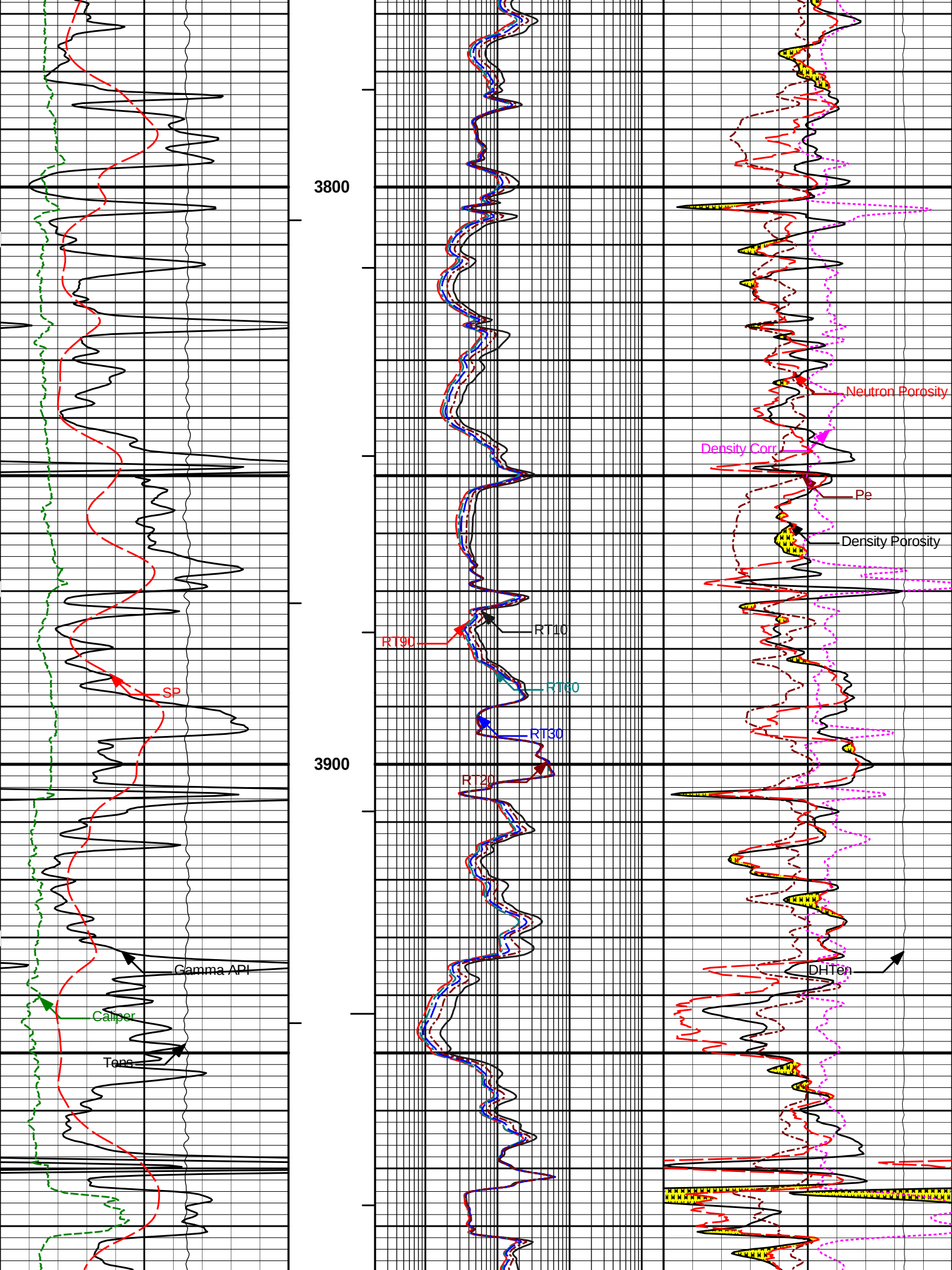


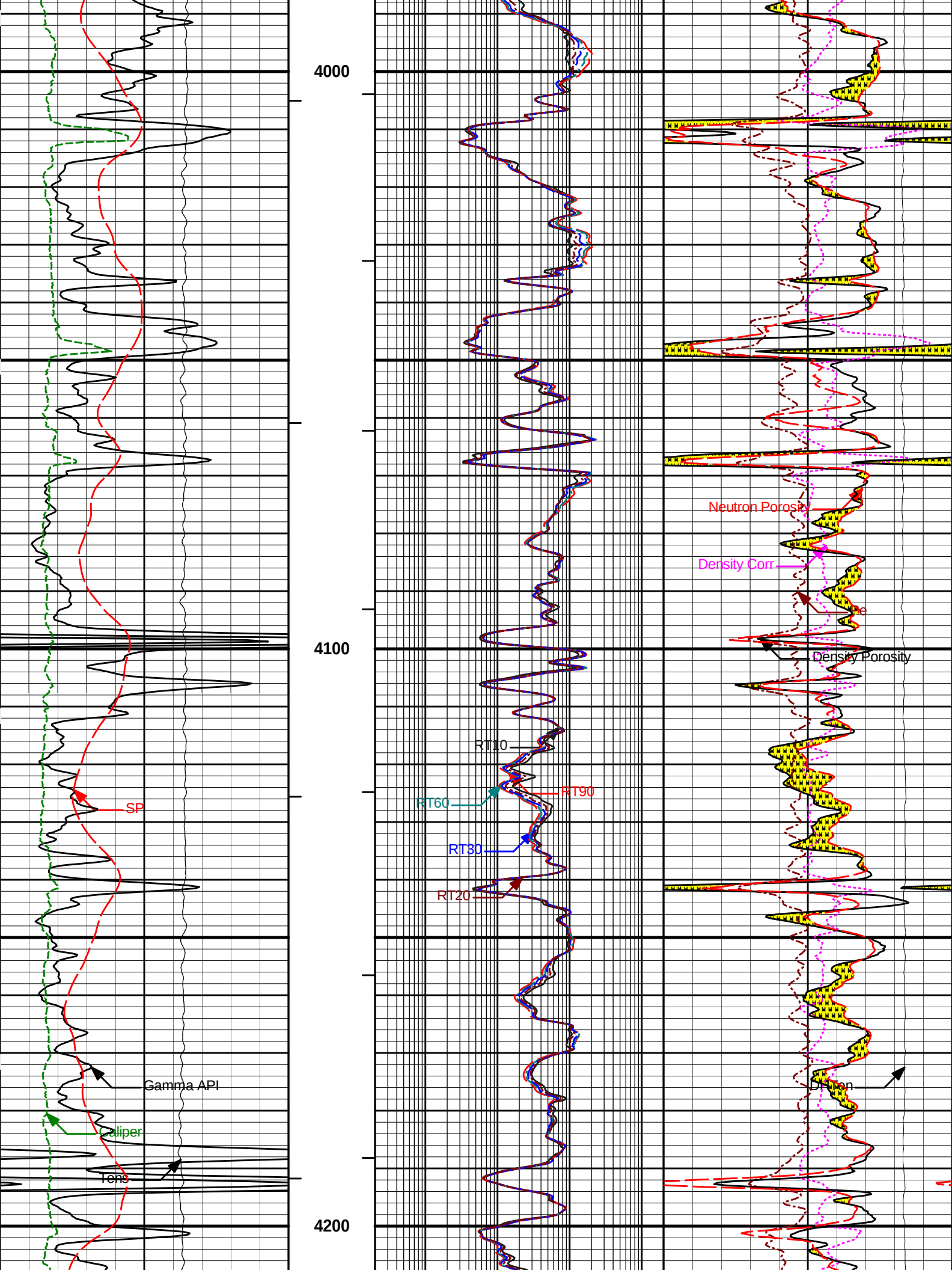


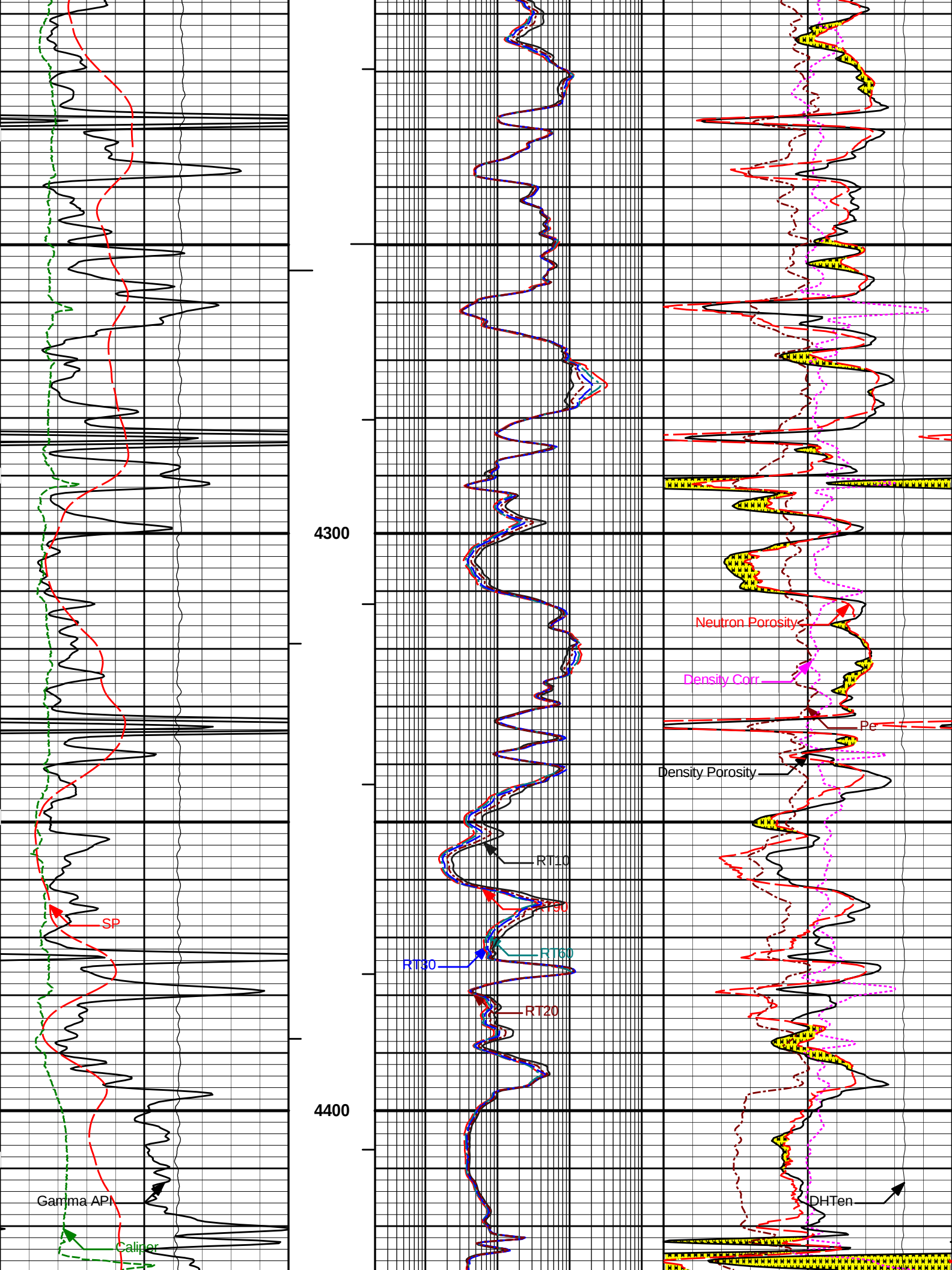


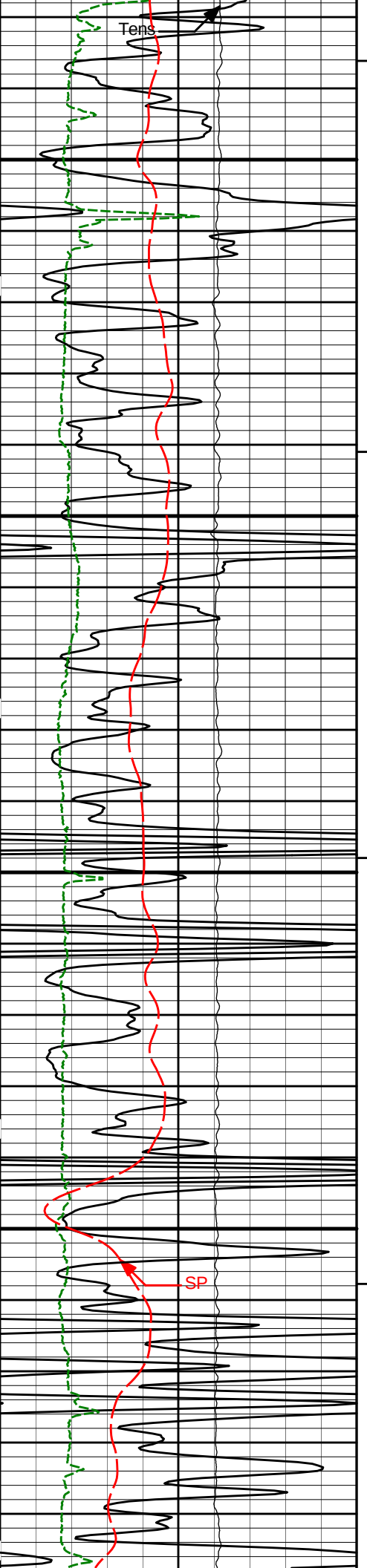






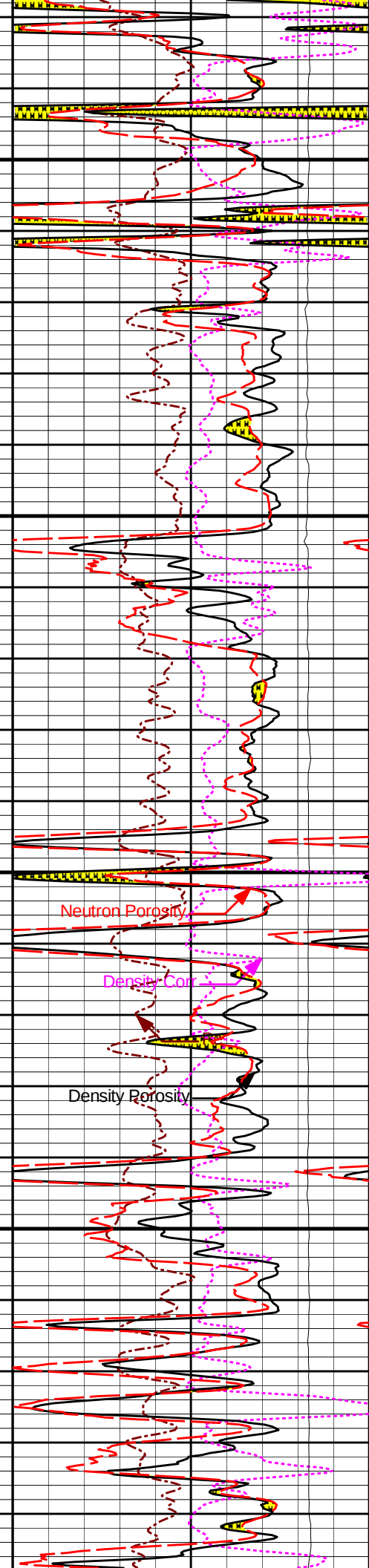
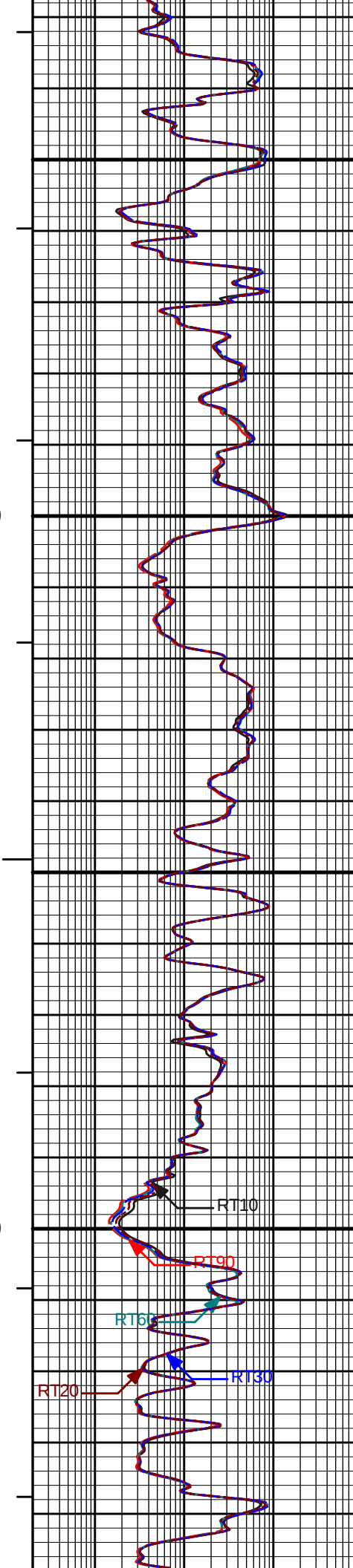


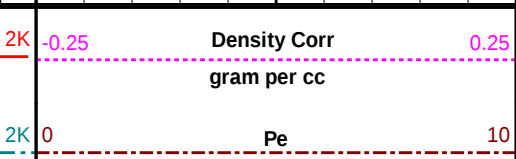
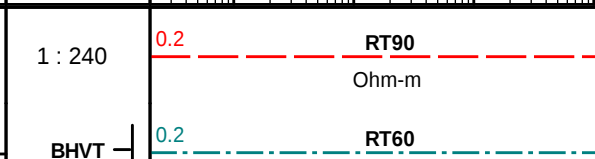
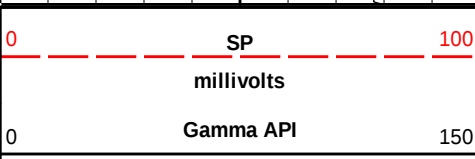
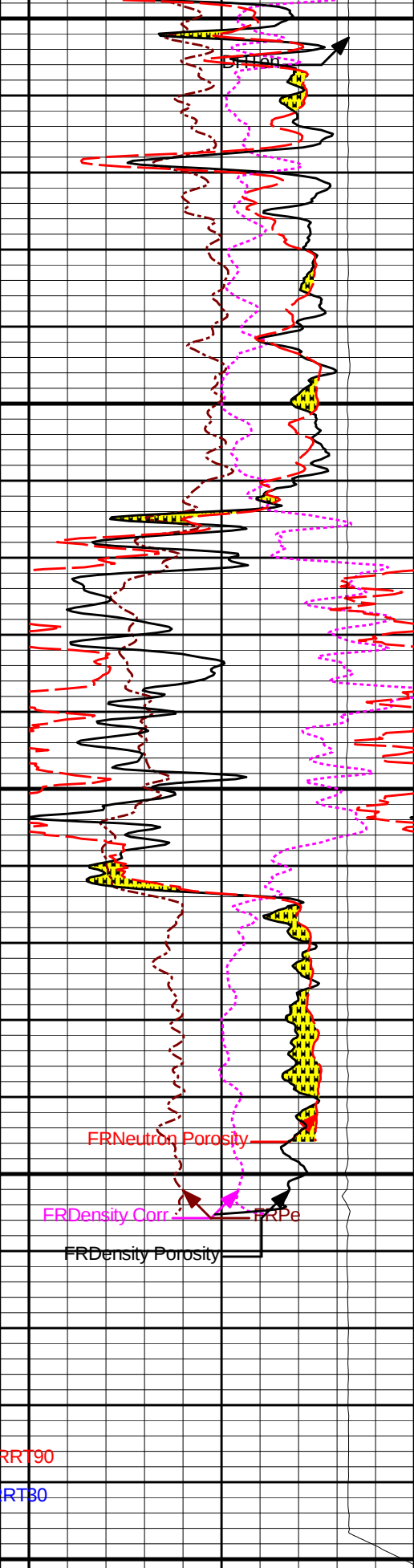
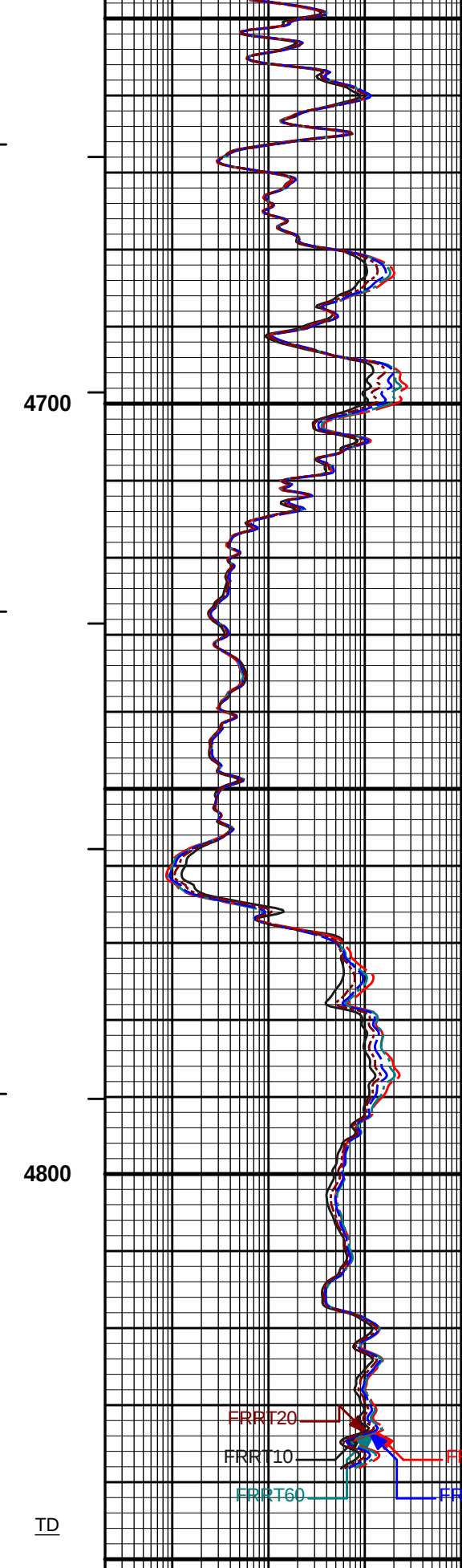
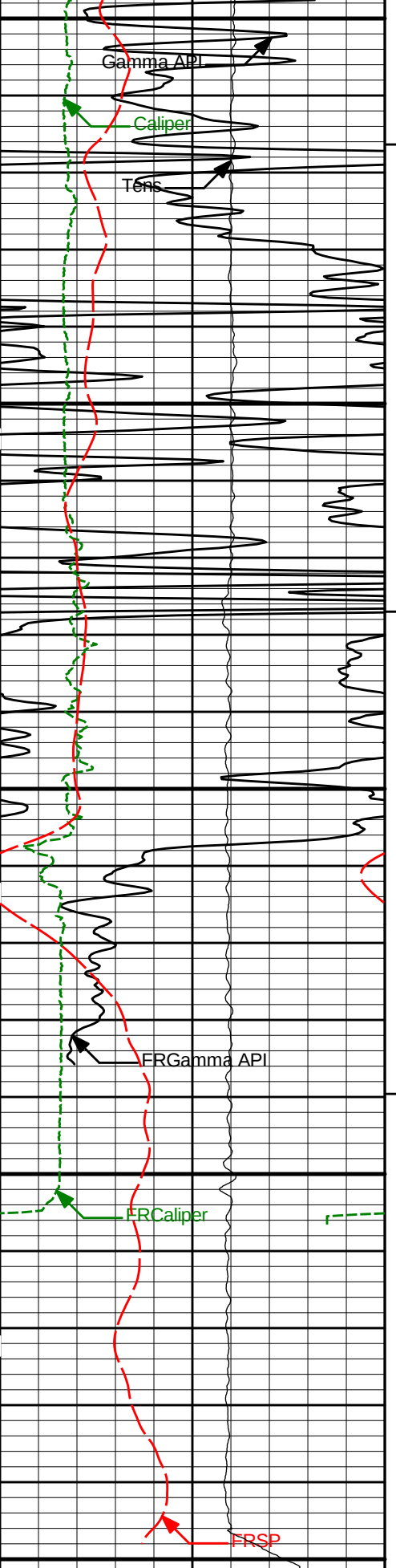




4500

4600





6	api	16	AHVT	0.2	RT30	2K	30	Density Porosity	-10
	Caliper				Ohm-m			percent	
10K	Tens	0		0.2	RT20	2K	30	Neutron Porosity	-10
	inches				Ohm-m			percent	
	pounds			0.2	RT10	2K	10K	DHTen	0
					Ohm-m			pounds	

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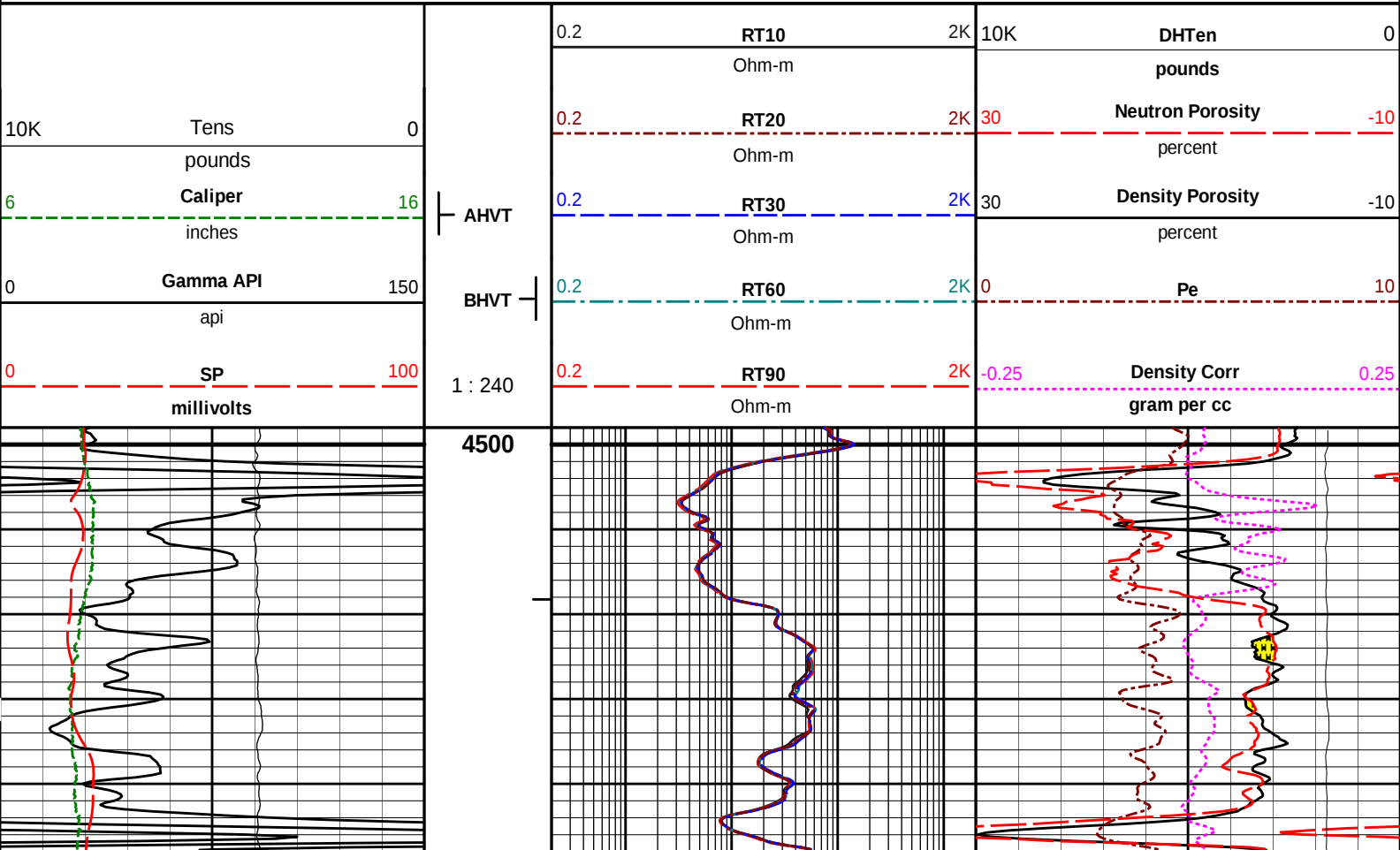
Plot Time: 07-Oct-12 00:12:54
Plot Range: 320 ft to 4851.5 ft
Data: HARTMN_ROSE_1_1\Well Based\MAIN*
Plot File: \\COMPIQ_BP_COMPOSITE_ACRT_5IN_DHT

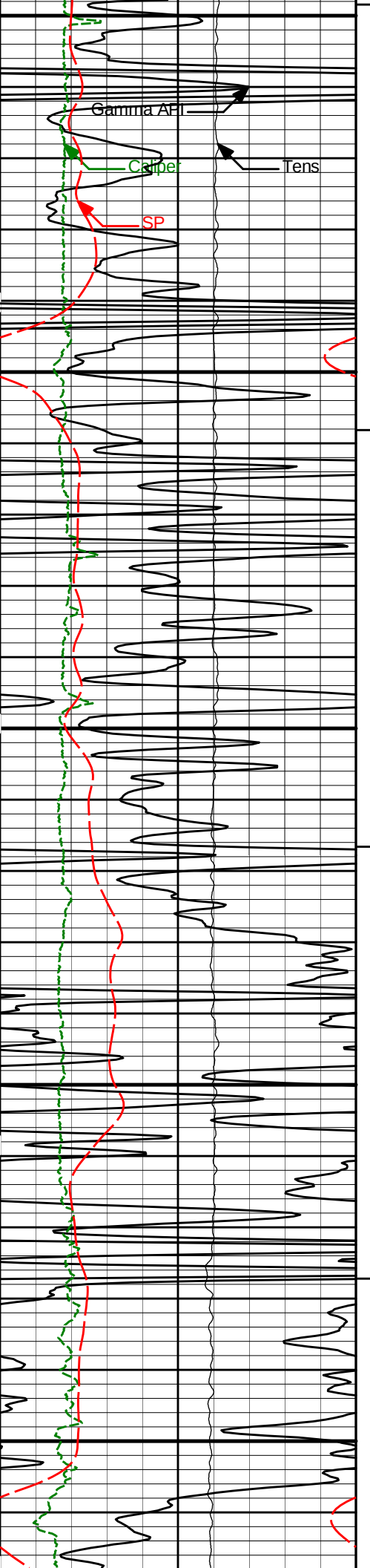
MAIN PASS 5" = 100'

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Plot Time: 07-Oct-12 00:12:54
Plot Range: 4498 ft to 4851.92 ft
Data: HARTMN_ROSE_1_1\Well Based\RPT*
Plot File: \\COMPIQ_BP_COMPOSITE_ACRT_5IN_DHT_RPT

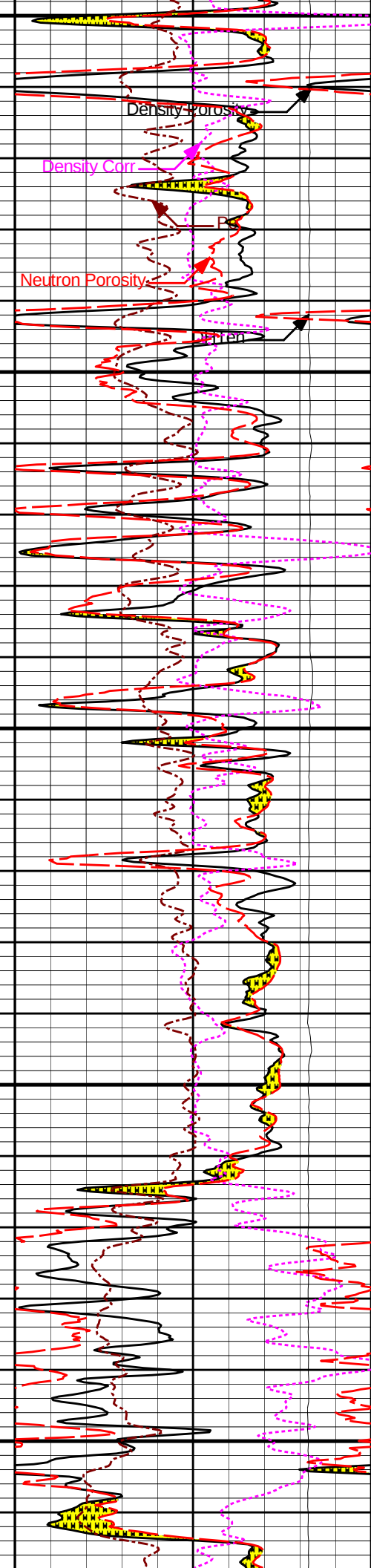
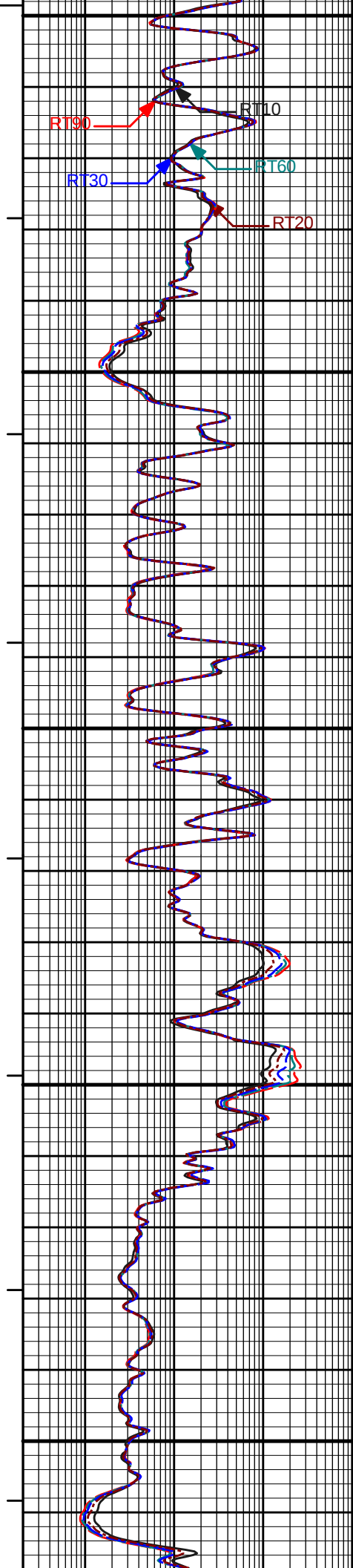
REPEAT SECTION 5" = 100'

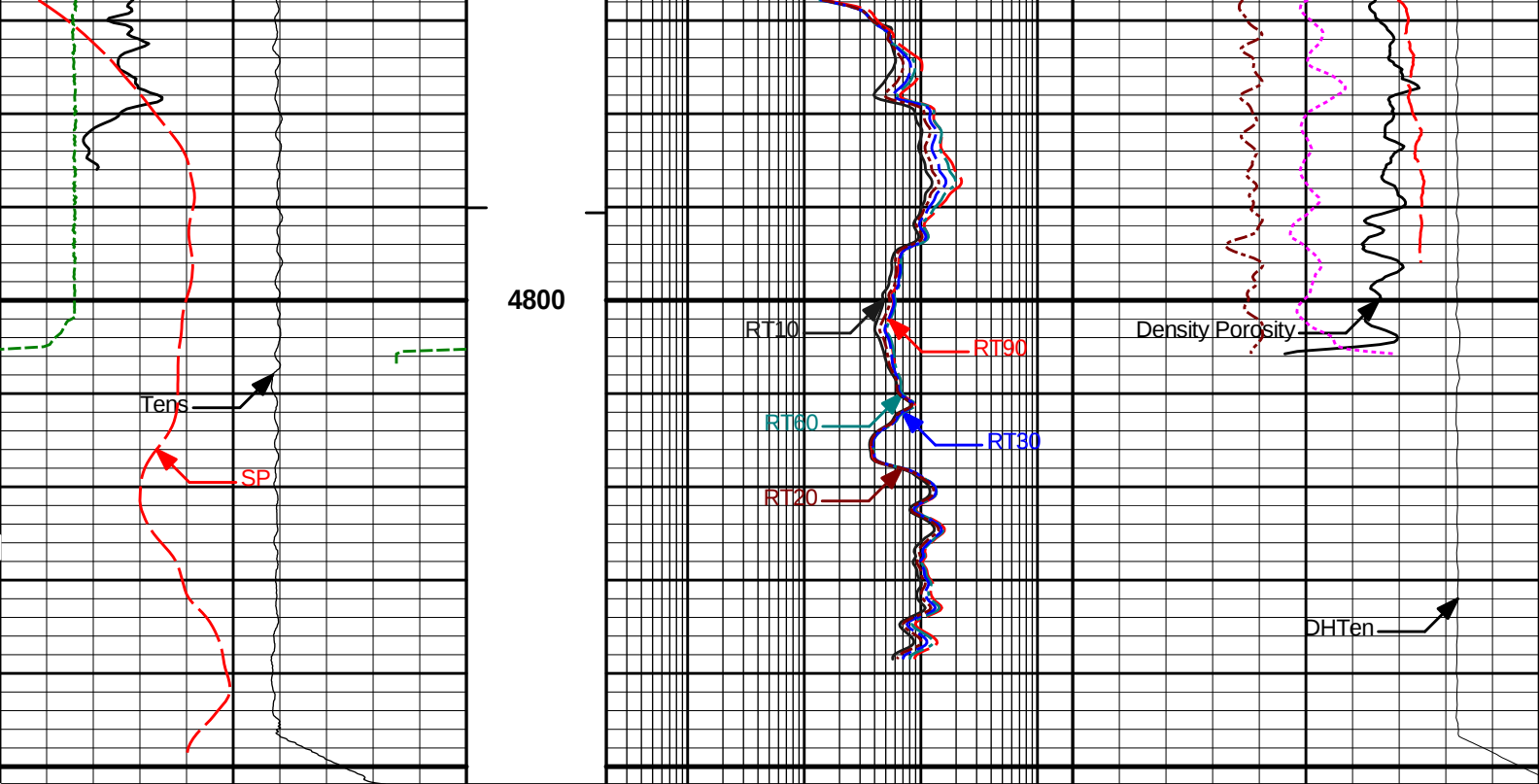




4600

4700





0	SP	100	1 : 240	0.2	RT90	2K	-0.25	Density Corr	0.25
	millivolts				Ohm-m			gram per cc	
0	Gamma API	150	BHVT	0.2	RT60	2K	0	Pe	10
	api				Ohm-m				
6	Caliper	16	AHVT	0.2	RT30	2K	30	Density Porosity	-10
	inches				Ohm-m			percent	
10K	Tens	0		0.2	RT20	2K	30	Neutron Porosity	-10
	pounds				Ohm-m			percent	
				0.2	RT10	2K	10K	DHTen	0
					Ohm-m			pounds	

HALLIBURTON Plot Time: 07-Oct-12 00:12:56
 Plot Range: 4498 ft to 4851.92 ft
 Data: HARTMN_ROSE_1_1\Well Based\RPT*
 Plot File: \\COMPIQ_BP_COMPOSITE_ACRT_5IN_DHT_RPT

REPEAT SECTION 5" = 100'

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION			
Tool Name:	GTET - 11602914	Reference Calibration Date:	03-Sep-12 14:11:39
Engineer:	D. CULVER	Calibration Date:	19-Sep-12 17:02:22
Software Version:	WL INSITE R3.6.0 (Build 3)	Calibration Version:	1

Calibrator Source S/N: TB-270
 Calibrator API Reference: 250.00 api

Calibrator API Reference:259.00 api
Equivalent Calibrator API Reference:263.5 api

Measurement	Measured	Calibrated	Units
Background	43.0	43.2	api
Background + Calibrator	305.9	306.7	api
Calibrator	262.8	263.5	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name: GTET - 11602914

Reference Calibration Date: 19-Sep-12 17:02:22

Engineer: V. CREWS

Calibration Date: 06-Oct-12 20:50:47

Software Version: WL INSITE R3.6.0 (Build 3)

Calibration Version: 1

Calibrator Source S/N: TB-270

Calibrator API Reference:259.00 api

Equivalent Calibrator API Reference:263.5 api

Field Verification	Shop	Field	Units
Background	43.2	116.6	api
Background + Calibrator	306.7	383.1	api
Calibrator	263.5	266.4	api

Shop	Field	Difference	Tolerance
263.5	266.4	-2.9	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name: DSNT - 10860047

Reference Calibration Date: 21-Aug-12 11:15:06

Engineer: D. CULVER

Calibration Date: 19-Sep-12 14:13:35

Software Version: WL INSITE R3.6.0 (Build 3)

Calibration Version: 1

Logging Source S/N: 08-018

Tank Serial Number: 105039

Reference value assigned to Tank: 49.230

Snow Block S/N: 11170614

Calibration Tank Water Temperature: 72 degF

Min. Tool Housing Outside Diameter: 3.625 in

CALIBRATION CONSTANTS			
Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	0.941	0.938	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):	0.1982	0.1974	0.0008	+/- 0.0020
Calibrated Ratio:	9.29	9.27	0.026	+/- 0.050

VERIFIER		
Measurement	Value	Control Limit
Snow-Block Porosity (decg):	0.0735	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 - 10860047

Reference Calibration Date: 19-Sep-12 14:13:35

Engineer: V. CREWS

Calibration Date: 06-Oct-12 12:38:23

Software Version: WL INSITE R3.6.0 (Build 3)

Calibration Version: 1

Logging Source S/N: 08-018

Snow Block S/N: 11170614

NEUTRON FIELD-CHECK SUMMARY

	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decip):	0.0735	0.0606	-0.0129	+/- 0.0150

PASS/FAIL SUMMARY

Block Change Check: Passed

Snow Block Stat Check: Passed

Temperature Check: Passed

DENSITY CALIPER SHOP CALIBRATION

Tool Name: SDLT - 10947725

Reference Calibration Date: 06-Oct-12 12:06:34

Engineer: V. CREWS

Calibration Date: 06-Oct-12 12:10:52

Software Version: WL INSITE R3.6.0 (Build 3)

Calibration Version: 1

Host Tool Name: DSNT - 10860047

CALIBRATION COEFFICIENTS

Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-1342.92	-1398.94	-7000.00 - -1000.00
Pad Gain	0.0003750	0.0003752	0.000200 - 0.000600
Arm Offset	-1039.27	-1052.18	-5000.00 - 3000.00
Arm Gain	0.0004958	0.0005057	0.000300 - 0.000700
Arm Power	-0.000002083	-0.000002847	-0.000010000 - 0.000010000

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)	2.02	2.00	-0.02	+/- 0.20
Medium Ring (in)	3.77	3.75	-0.02	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.49	6.50	0.01	+/- 0.20
Medium Ring (in)	8.23	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

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name: SDLT Pad - 11014275

Reference Calibration Date: 19-Sep-12 10:23:41

Engineer: V. CREWS

Calibration Date: 05-Oct-12 09:24:27

Software Version: WL INSITE R3.6.0 (Build 3)

Calibration Version: 1

DENSITY CALIBRATION SUMMARY			
Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0476	1.0337	0.90 - 1.10
Near Dens Gain	1.0107	1.0071	0.90 - 1.10
Near Peak Gain	1.0119	1.0184	0.90 - 1.10
Near Lith Gain	1.0110	1.0231	0.90 - 1.10
Far Bar Gain	1.0113	1.0121	0.90 - 1.10
Far Dens Gain	1.0022	1.0016	0.90 - 1.10
Far Peak Gain	0.9983	0.9989	0.90 - 1.10
Far Lith Gain	0.9748	0.9806	0.90 - 1.10
Near Bar Offset	-0.4135	-0.2834	NONE
Near Dens Offset	-0.0803	-0.0470	NONE
Near Peak Offset	-0.0904	-0.1464	NONE
Near Lith Offset	-0.0834	-0.1771	NONE
Far Bar Offset	-0.1673	-0.1720	NONE
Far Dens Offset	-0.0711	-0.0593	NONE
Far Peak Offset	-0.0874	-0.0840	NONE
Far Lith Offset	0.0241	-0.0069	NONE
Near Bar Background	905.33	902.03	700 - 1450
Near Dens Background	301.28	302.87	230 - 480
Near Peak Background	130.47	129.77	100 - 210
Near Lith Background	158.05	157.75	125 - 260
Far Bar Background	478.41	477.90	450 - 900
Far Dens Background	190.19	190.67	175 - 345
Far Peak Background	75.21	74.54	70 - 140
Far Lith Background	77.72	77.56	75 - 145

CALIBRATION BLOCK SUMMARY				
Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.694	1.690	-0.004	+/- 0.015
Pe	2.618	2.556	-0.062	+/- 0.150
ALUMINUM				
Density (g/cc)	2.604	2.602	-0.002	+/- 0.01500
Pe	3.090	3.061	-0.029	+/- 0.150

TOOL SUMMARY				
Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	-0.0008	+/- 0.0110	-0.0022	+/- 0.0140
Magnesium Block	-0.0011	+/- 0.0110	-0.0009	+/- 0.0140
Aluminum Block	0.0006	+/- 0.0110	0.0010	+/- 0.0140
Resolution	9.15	6.00 - 11.50	10.14	6.00 - 11.50
Internal Verifier(B+D+P+L)	1492	1200 - 2700	821	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 - 11014275		Reference Calibration Date: 05-Oct-12 09:24:27		
Engineer: V. CREWS		Calibration Date: 06-Oct-12 12:24:34		
Software Version: WL INSITE R3.6.0 (Build 3)		Calibration Version: 1		

Pad Temperature: 56.9 degF

DENSITY FIELD CALIBRATION SUMMARY				
Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1492.432	1496.326	3.894	15.569
Far (B+D+P+L) cps	820.674	824.912	4.238	15.804
Near Resolution	9.15	9.11	-0.040	0.50
Far Resolution	10.14	10.41	0.270	1.00

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

MICRO LOG SHOP CALIBRATION				
Tool Name: Microlog Pad - 10947725		Reference Calibration Date: 06-Oct-12 12:20:37		
Engineer: V. CREWS		Calibration Date: 06-Oct-12 12:22:08		
Software Version: WL INSITE R3.6.0 (Build 3)		Calibration Version: 1		
Host Tool Name: DSNT - 10860047				

CALIBRATION COEFFICIENT SUMMARY					
Measurement	Micro Log Normal		Micro Log Lateral		Units
	Measured	Calibrated	Measured	Calibrated	
Tool Zero	-0.04	-0.05	0.01	0.00	ohmm
Calibration Point #1	0.01	0.00	0.00	0.00	ohmm
Calibration Point #2	20.00	20.00	19.93	20.00	ohmm
Internal Reference	20.09	20.09	20.16	20.24	ohmm

Measurement	Micro Log Normal Tool Value	Micro Log Lateral Tool Value	Units
Tool Zero	4.44	2.91	V
Calibration Point #1	16.49	2.05	V
Calibration Point #2	5239.40	6752.30	V
Internal Reference	5263.45	6831.70	V

MICRO LOG FIELD CHECK				
Tool Name: Microlog Pad - 10947725		Reference Calibration Date: 06-Oct-12 12:22:08		
Engineer: V. CREWS		Calibration Date: 06-Oct-12 12:23:11		
Software Version: WL INSITE R3.6.0 (Build 3)		Calibration Version: 1		

Software Version: WL INSITE R3.6.0 (Build 3)			Calibration Version: 1						
	Measurement	Micro Log Normal		Micro Log Lateral					
		Shop	Field	Shop	Field				
	Tool Zero	-0.05	-0.05	0.00	-0.00				
	Internal Reference	20.09	20.09	20.24	20.24				
	Units	ohmm							
Summary									
	Signal	Shop	Field	Difference	Tolerance				
	Microlog Normal	20.09	20.09	0.00	+/- 0.80				
	Microlog Lateral	20.24	20.24	0.00	+/- 0.80				
SDLT CALIPER FIELD CALIBRATION									
Tool Name: SDLT - 10947725		Reference Calibration Date: 06-Oct-12 12:10:52							
Engineer: V. CREWS		Calibration Date: 06-Oct-12 12:12:42							
Software Version: WL INSITE R3.6.0 (Build 3)		Calibration Version: 1							
	MEASURED CALIPER VALUES								
	Measurement	Shop	Field	Change	Control Limit On New Value				
	Pad Extension	3.75	3.77	0.02	+/- 0.10				
	Ring Diameter	8.25	8.32	0.07	+/- 0.15				
	PASS/FAIL SUMMARY								
Pad Extension Check:			Passed						
Diameter Check:			Passed						
BSAT FIELD CASING CHECK									
Tool Name: BSAT - 10747633		Calibration Date: 06-Oct-12 21:15:41							
Engineer: V. CREWS		Calibration Date: 25-Sep-12 12:13:40							
Software Version: WL INSITE R3.6.0 (Build 3)		Calibration Version: 1							
	Pre-Log Check	Check Depth	Shop	Field	Difference	Tolerance	Units		
	Delta-T Compensated	131.69	57.00	56.03	0.9700	1.00	uspf		
ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION									
Tool Name: ACRT Sonde - E6988-S8481		Reference Calibration Date: 11-Feb-12 12:56:56							
Engineer: J.MAYNE		Calibration Date: 25-Sep-12 12:13:40							
Software Version: WL INSITE R3.6.0 (Build 3)		Calibration Version: 1							
Host Tool Name: ACRT Instrument - E6988-S8481									
TYPICAL GAIN RANGE									
Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	0.95	1.05	1.05	0.95	1.02	1.05	0.95	1.01	1.05
A2 (50")	0.95	1.06	1.05	0.95	1.03	1.05	0.95	1.02	1.05
A3 (29")	0.95	1.03	1.05	0.95	1.01	1.05	0.95	1.01	1.05
A4 (17")	0.95	1.02	1.05	0.95	1.01	1.05	0.95	1.01	1.05
A5 (10")	N/A	N/A	N/A	0.95	0.99	1.05	0.95	0.99	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.99	1.05	0.95	0.99	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	1.55	2	-6	-4.36	-2	-8	-6.36	-2

A2 (50")	-7	-1.34	0	-7	-4.84	0	-7	-5.76	0
A3 (29")	-27	-13.41	-9	-9	-5.12	-3	-7	-3.79	-1
A4 (17")	-180	-98.44	-60	-45	-30.17	-15	-39	-24.25	-13
A5 (10")	N/A	N/A	N/A	-150	-101.38	-50	-80	-48.71	-10
A6 (6")	N/A	N/A	N/A	175	304.71	525	90	152.90	270

TRANSMITTER CURRENT GAIN					R-MUD VERIFICATION			
Signal	Lower	R	Upper		Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
12K	0.6	0.81	1.3		Mud Cell	0.95	1.00	1.05
36K	1.0	1.24	2.0					
72K	1.0	1.43	2.0					

PASS/FAIL SUMMARY	
GAIN RANGE CHK	FAIL
SONDE OFFSET RANGE CHK	PASS
Tx CURRENT GAIN	PASS
Rmud VERIFICATION	PASS

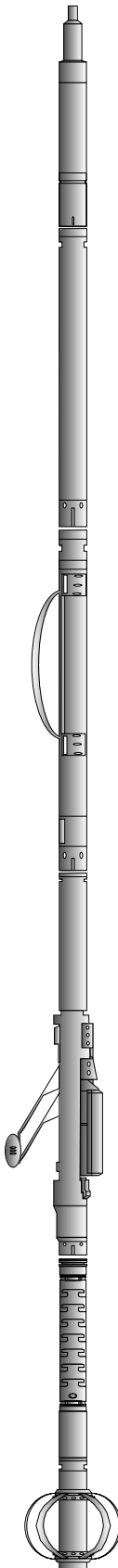
TOOL OUT OF TOLERANCE

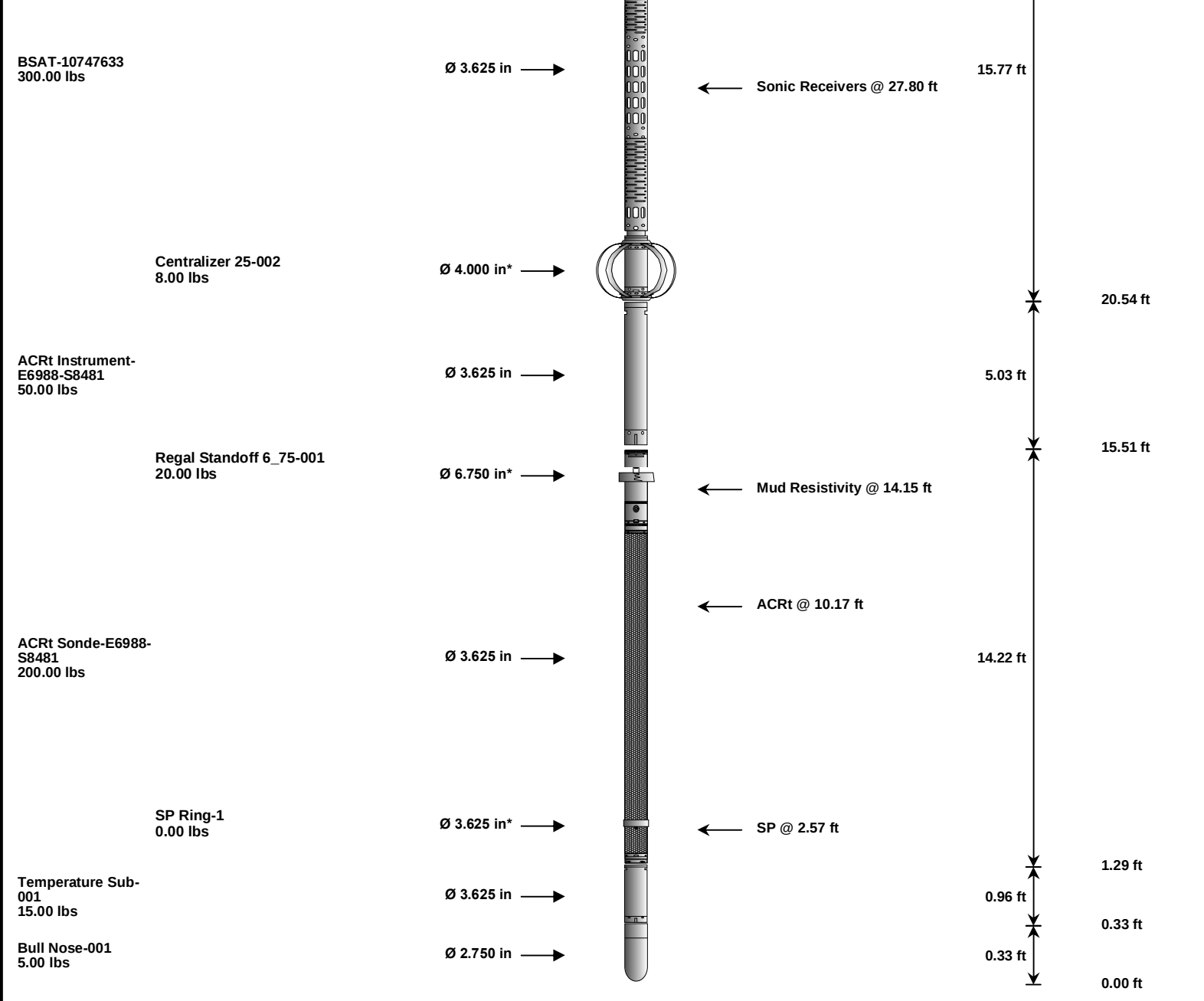
CALIBRATION SUMMARY						
Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-11602914						
Gamma Ray Calibrator	263.5	266.4	-----	-2.9	+/- 9.00	api
DSNT-10860047						
Snow-Block Porosity	0.0735	0.0606	-----	0.0129	+/- 0.0150	decp
SDLT-10947725						
Pad Extension	3.75	3.77	-----	-0.02	+/-0.10	in
Ring Diameter	8.25	8.32	-----	-0.07	+/-0.15	in
SDLT Pad-11014275						
Near(B+D+P+L)	1492.432	1496.326	-----	-3.894	+/-15.569	cps
Far(B+D+P+L)	820.674	824.912	-----	-4.238	+/-15.804	cps
Microlog Pad-10947725						
MicroLog Normal	20.09	20.09	-----	0.00	+/-0.80	ohmm
MicroLog Lateral	20.24	20.24	-----	0.00	+/-0.80	ohmm
ACRt Sonde-E6988-S8481						
Mud Cell	1.00	-----	-----	0.00	-----	ohm-m

Data: HARTMN ROSE 1 10003 QUAD MEL BSAT\IDLE				Date: 06-Oct-12 23:22:45
HALLIBURTON				
CUSTOMER EVENT LOG				

Event Type	Time & Date	Depth (ft)	Event Description
	06-Oct-12 21:23:20	655.75	Logging 001 06-Oct-12 21:23 Dn @655.8f
	06-Oct-12 21:36:29	3831.58	Halting 001 06-Oct-12 21:23 Dn @655.8f
	06-Oct-12 21:37:19	3771.75	Logging 002 06-Oct-12 21:37 Dn @3771.8f
	06-Oct-12 21:43:27	4832.07	Halting 002 06-Oct-12 21:37 Dn @3771.8f
	06-Oct-12 21:44:39	4852.25	Logging 003 06-Oct-12 21:44 Up @4852.3f
	06-Oct-12 21:51:25	4485.66	Halting 003 06-Oct-12 21:44 Up @4852.3f
	06-Oct-12 21:53:59	4852.00	Logging 004 06-Oct-12 21:53 Up @4852.0f
	06-Oct-12 23:18:43	78.10	Halting 004 06-Oct-12 21:53 Up @4852.0f

HALLIBURTON**TOOL STRING DIAGRAM REPORT**

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
RWCH-11103904 135.00 lbs		Ø 3.625 in →		← Load Cell @ 73.57 ft ← BH Temperature @ 73.01 ft	6.25 ft	77.26 ft
GTET-11602914 165.00 lbs		Ø 3.625 in →		← GammaRay @ 64.95 ft	8.52 ft	71.01 ft
DSNT-10860047 174.00 lbs	DSN Decentralizer-10860047 6.60 lbs	Ø 5.000 in* → Ø 3.625 in →		← DSN Far @ 55.55 ft ← DSN Near @ 54.80 ft	9.69 ft	62.49 ft
SDLT-10947725 360.00 lbs	SDLT Pad-11014275 65.00 lbs Microlog Pad-10947725 8.00 lbs	Ø 4.500 in → Ø 4.750 in* → Ø 4.750 in* →		← Microlog @ 44.99 ft ← SDL Caliper @ 44.80 ft ← SDL @ 44.79 ft	10.81 ft	52.80 ft
Flex Joint-11021615 140.00 lbs		Ø 3.625 in →			5.67 ft	41.99 ft
Centralizer 25-001 8.00 lbs		Ø 4.000 in* →			36.32 ft	36.32 ft



Mnemonic		Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max.Log. Speed (fpm)
RWCH	Releasable Wireline Cable Head		11103904	135.00	6.25	71.01	300.00
GTET	Gamma Telemetry Tool		11602914	165.00	8.52	62.49	60.00
DSNT	Dual Spaced Neutron		10860047	174.00	9.69	52.80	60.00
DCNT	DSN Decentralizer		10860047	6.60	5.13	* 56.13	300.00
SDLT	Spectral Density Tool		10947725	360.00	10.81	41.99	60.00
SDLP	Density Insite Pad		11014275	65.00	2.55	* 44.20	60.00
MICP	Microlog Pad		10947725	8.00	1.00	* 44.49	60.00
FLEX	Flex Joint		11021615	140.00	5.67	36.32	300.00
BSAT	Borehole Sonic Array Tool		10747633	300.00	15.77	20.54	60.00
OBCEN	Centralizer - 25 in. Overbody		002	8.00	2.08	* 20.55	300.00
OBCEN	Centralizer - 25 in. Overbody		001	8.00	2.08	* 33.42	300.00
ACRt	Array Compensated True Resistivity Instrument Section		E6988-S8481	50.00	5.03	15.51	300.00
ACRt	Array Compensated True Resistivity Sonde Section		E6988-S8481	200.00	14.22	1.29	300.00
SP	SP Ring		1	0.00	0.25	* 2.57	300.00
RSOF	Regal Standoff 6.75in		001	20.00	0.52	* 14.36	300.00
TMAX	Temperature Sub - 3_625 OD		001	15.00	0.96	0.33	300.00
BLNS	Bull Nose		001	5.00	0.33	0.00	300.00

Total				1,659.60	77.26		
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* Not included in Total Length and Length Accumulation.

COMPANY	HARTMAN OIL CO., INC.		
WELL	ROSE # 1-1		
FIELD	WILDCAT		
COUNTY	WICHITA	STATE	KANSAS

HALLIBURTON

SPECTRAL DENSITY
DUAL SPACED NEUTRON
ARRAY COMPENSATED
TRUE RESISTIVITY