

HALLIBURTON

ARRAY COMPENSATED
TRUE RESISTIVITY

HALLIBURTON										ARRAY COMPENSATED TRUE RESISTIVITY			
COMPANY				LARAMIE ENERGY									
WELL				HAWXHURST 17-03C									
FIELD				BRUSH CREEK									
COUNTY				MESA									
STATE				COLORADO									
Permanent Datum				GL					Elev. 6786.0 ft	Elev.: K.B.			
Log measured from				KB						D.F.			
Drilling measured from				KB						G.L.			
Date				28-Nov-11									
Run No.				ONE									
Depth - Driller				7490.00 ft									
Depth - Logger				6423.0 ft									
Bottom - Logged Interval				6420.0 ft									
Top - Logged Interval				1584.0 ft									
Casing - Driller				8.625 in @ 1585.0 ft				@					
Casing - Logger				1584.0 ft									
Bit Size				7.875 in				@					
Type Fluid in Hole				OBM									
Density				Viscosity	9.5 ppg				55.00	s/qt			
PH				Fluid Loss	9.50 pH				6.8	cpm			
Source of Sample				MUD TANK									
Rm @ Meas. Temperature				1.720 ohmm @ 51.40 degF				@					
Rmf @ Meas. Temperature				1.42 ohmm @ 61.20 degF				@					
Rmc @ Meas. Temperature				1.870 ohmm @ 72.00 degF				@					
Source Rmf				Rmc	MEASURED				MEASURED				
Rm @ BHT				0.57 ohmm @ 170.0 degF				@					
Time Since Circulation				14.2 hr									
Time on Bottom				28-Nov-11 06:40									
Max. Rec. Temperature				170.0 degF @ 6423.0 ft				@					
Equipment				Location	11362657				ROCK SPRING				
Recorded By				V. CREWS									
Witnessed By				C. CLAUSSEN									

Fold here

Service Ticket No.: 9086389						API Serial No.: 05077101600000						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.				@				@						E336_S042													
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.		11016182				Serial No.						Serial No.		10733075				Serial No.		10839203							
Model No.		GTET				Model No.						Model No.		SDLT-I				Model No.		DSNT-I							
Diameter		3.625"				No. of Cent.						Diameter		4.5"				Diameter		3.625"							
Detector Model No.		102-A				Spacing						Log Type		GAM-GAM				Log Type		THERM-THERM							
Type		SCINT										Source Type		Cs137				Source Type		Am241Be							
Length		8"				LSA [Y/N]						Serial No.		5116GW				Serial No.		DSN-431							
Distance to Source		10'				FWDA [Y/N]						Strength		1.5 Ci				Strength		15.0 Ci							

LOGGING DATA

GENERAL			GAMMA			ACOUSTIC			DENSITY			NEUTRON		
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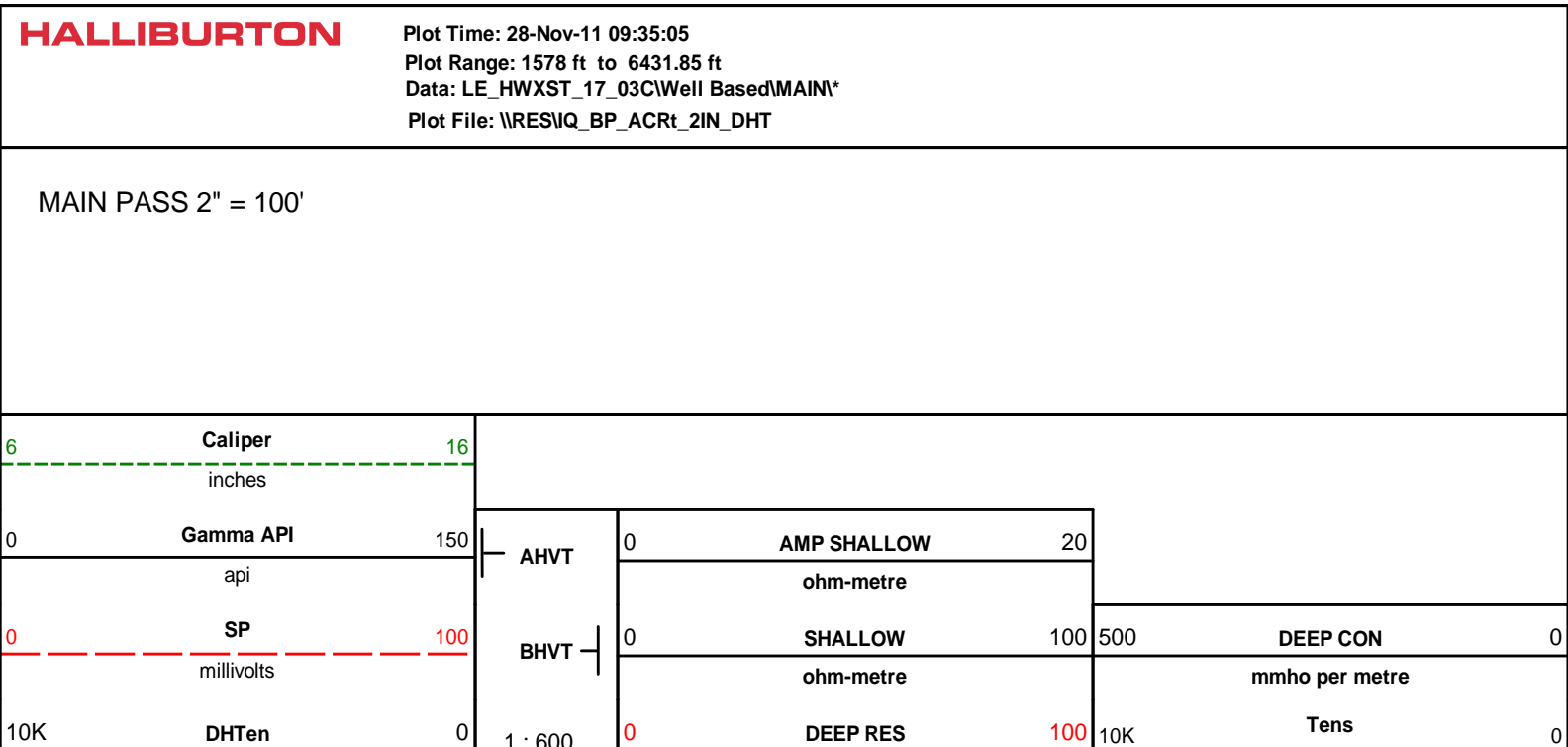
GENERAL			GAMMA		ACOUSTIC		DENSITY		NEUTRON					
Run	Depth		Speed	Scale		Scale		Matrix	Scale		Matrix	Scale		Matrix
No.	From	To	ft/min	L	R	L	R		L	R		L	R	
ONE	6423'	1584'	REC	0	150				30%	-10%	2.68 g/cc	30%	-10%	SAND
ONE	1584'	100'	REC	0	150									
DIRECTIONAL INFORMATION														
Maximum Deviation @									KOP @					
Remarks: RWCH-GTET-DSNT-SDLT-ACRT RAN IN COMBINATION														
BOREHOLE RUGOSITY, TENSION PULLS AND WASHOUTS MAY AFFECT TOOL RESPONSE														
ANNULAR HOLE VOLUME CALCULATED FOR 4.5-INCH PRODUCTION CASING														
TD NOT REACHED, LOGGED OUT FROM 6423'														
LATITUDE: 39.280610														
LONGITUDE: 107.913520														
TODAY'S CREW: G. HOOD & M. GRAHAM RIG: PERCISION 706														
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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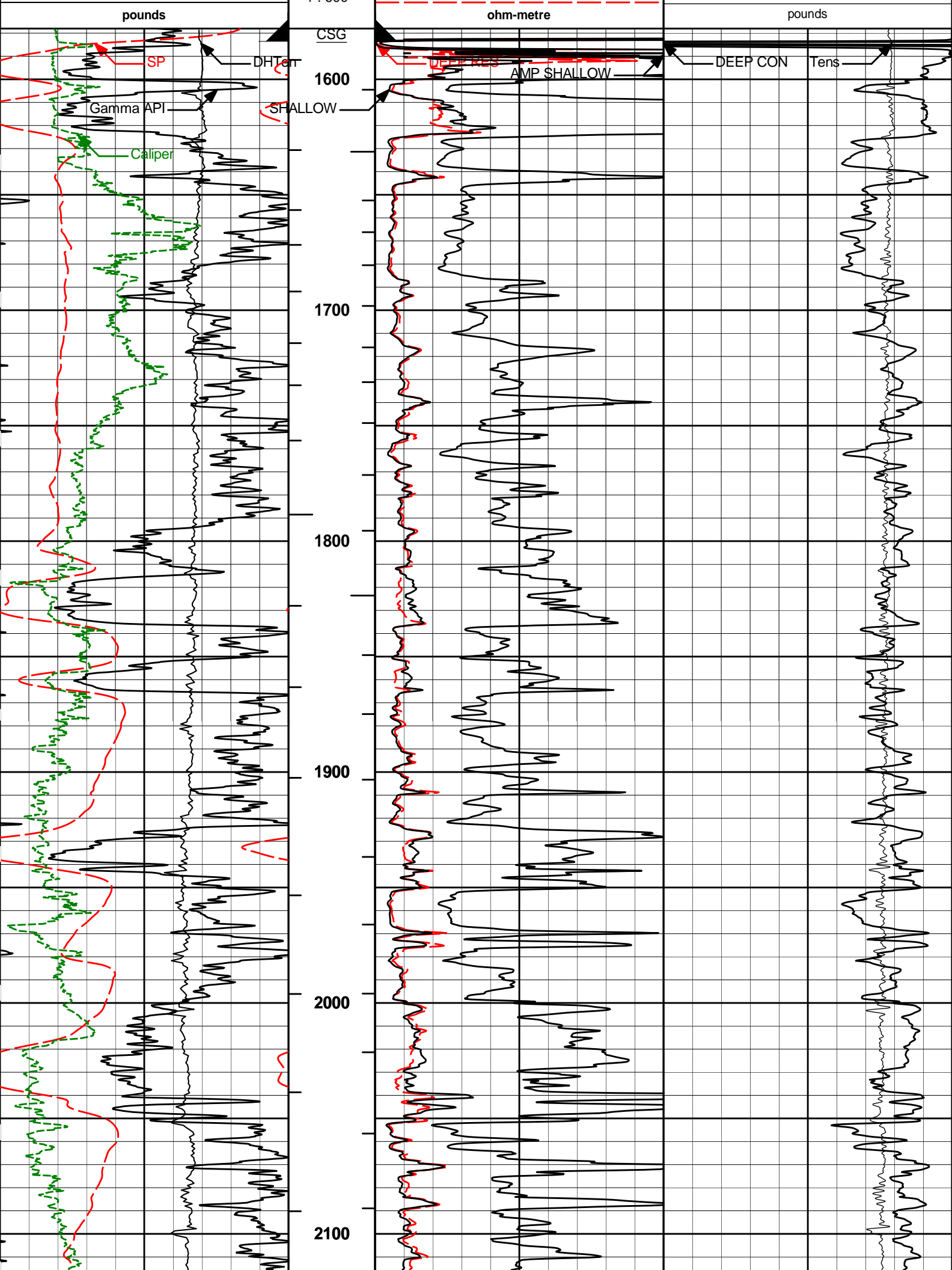
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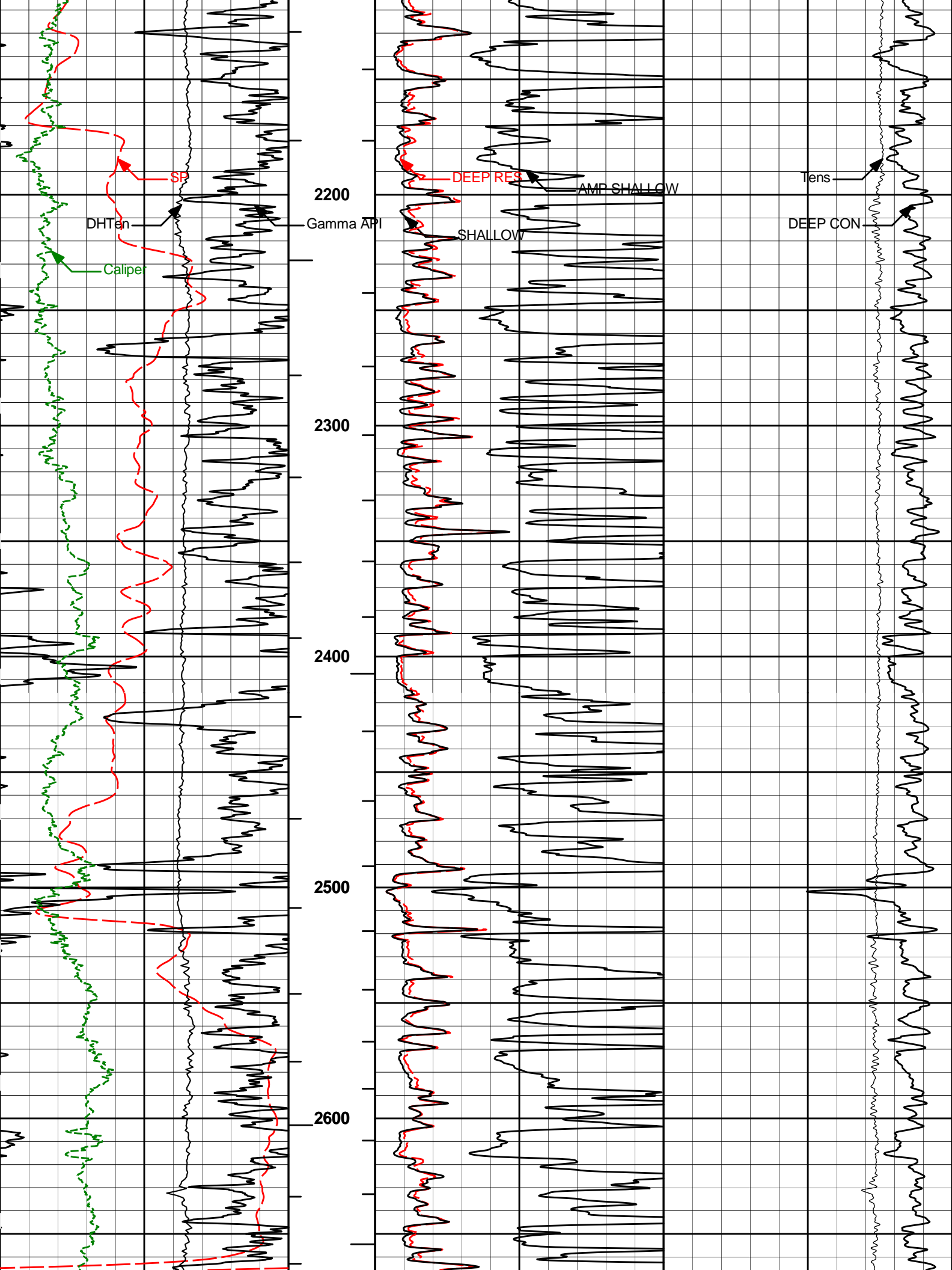
PARAMETERS REPORT

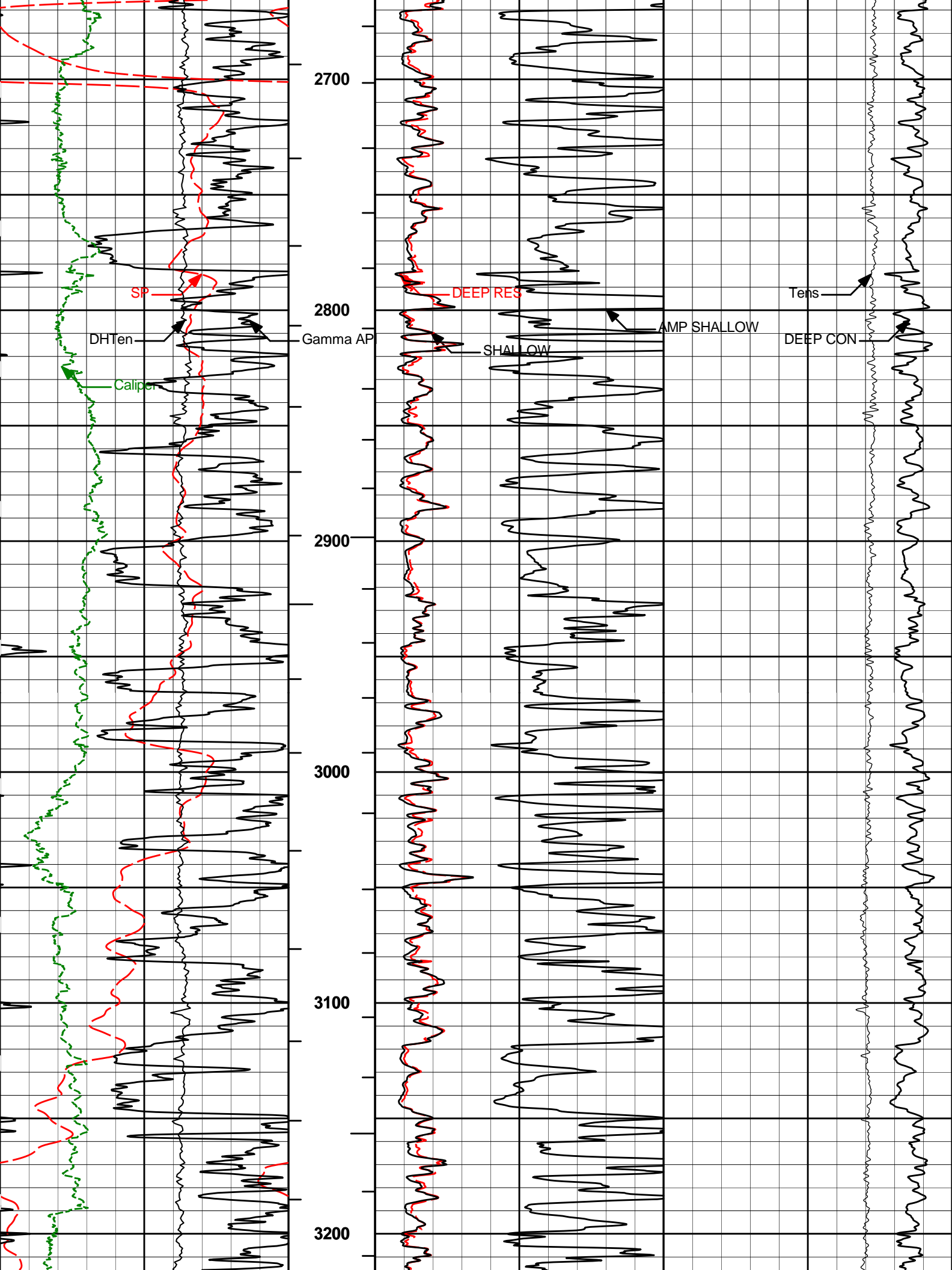
Depth ((ft))	Tool Name	Description	Value	Units
TOP				
	SHARED	Bit Size	7.875	in
	SHARED	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	Mud Base	Water	
	SHARED	Borehole Fluid Weight	9.500	ppg
	SHARED	Weighting Agent	Barite	
	SHARED	Borehole salinity	0.00	ppm
	SHARED	Formation Salinity NaCl	0.00	ppm
	SHARED	Percent K in Mud by Weight?	0.00	%
	SHARED	Mud Resistivity	1.720	ohmm
	SHARED	Temperature of Mud	51.4	degF
	SHARED	Logging Interval is Cased?	No	
	SHARED	AHV Casing OD	4.500	in
	SHARED	Surface Temperature	50.0	degF
	SHARED	Total Well Depth	6423.00	ft
	SHARED	Bottom Hole Temperature	170.0	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	
	Rwa / CrossPlot	Process Crossplot?	Yes	
	Rwa / CrossPlot	Select Source of F	Automatic	
	Rwa / CrossPlot	Archie A factor	0.6200	
	Rwa / CrossPlot	Archie M factor	2.1500	
	Rwa / CrossPlot	Archie Reference	0.10	ohmm

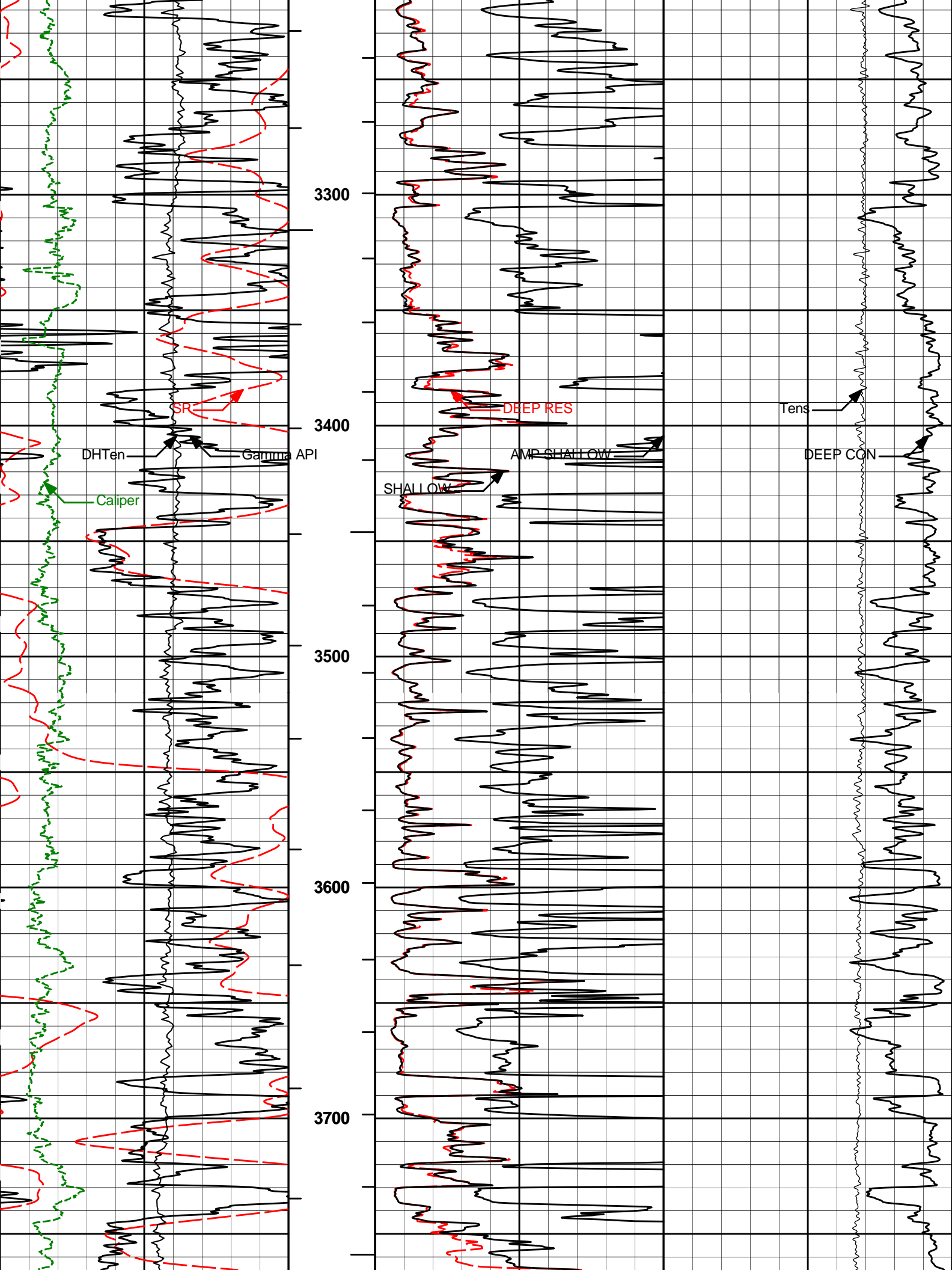
Rwa / CrossPlot	Rmf Reference	0.10	ohmm
Rwa / CrossPlot	Rmf Ref Temp	75.00	degF
Rwa / CrossPlot	Resistivity of Formation Water	0.05	ohmm
Rwa / CrossPlot	Use Air Porosity to calculate CrossplotPhi	No	
GTET	Process Gamma Ray?	Yes	
GTET	Gamma Tool Standoff	0.000	in
GTET	Process Gamma Ray EVR?	No	
GTET	Tool Position for Gamma Ray Tools.	Eccentered	
DSNT	Process DSN?	Yes	
DSNT	Process DSN EVR?	No	
DSNT	Neutron Lithology	Sandstone	
DSNT	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.250	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	1.25	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: LE_HWXST_17_03C\0001 LOGIQ_TRIPLE\IDLE			Date: 28-Nov-11 09:08:13

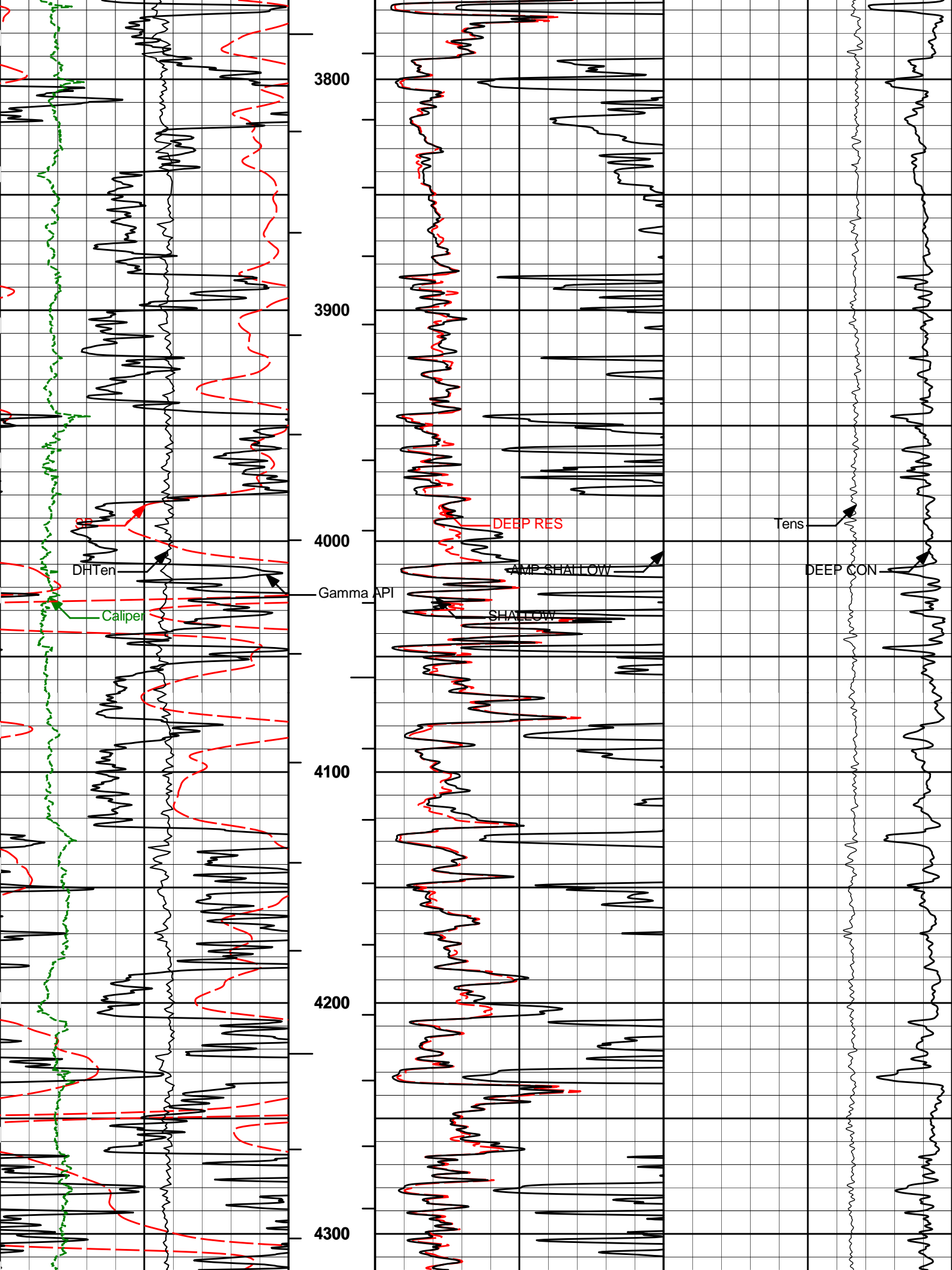


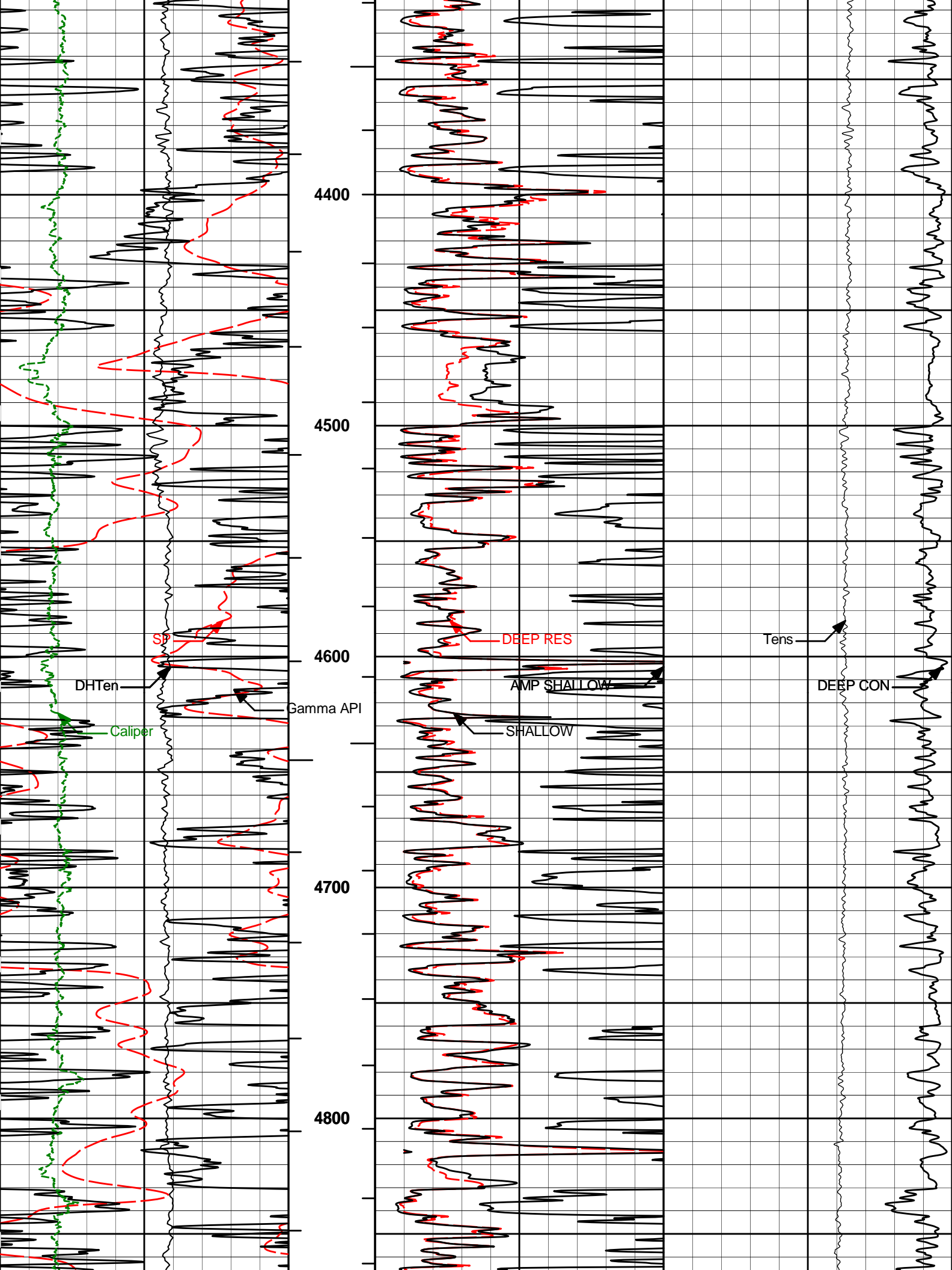


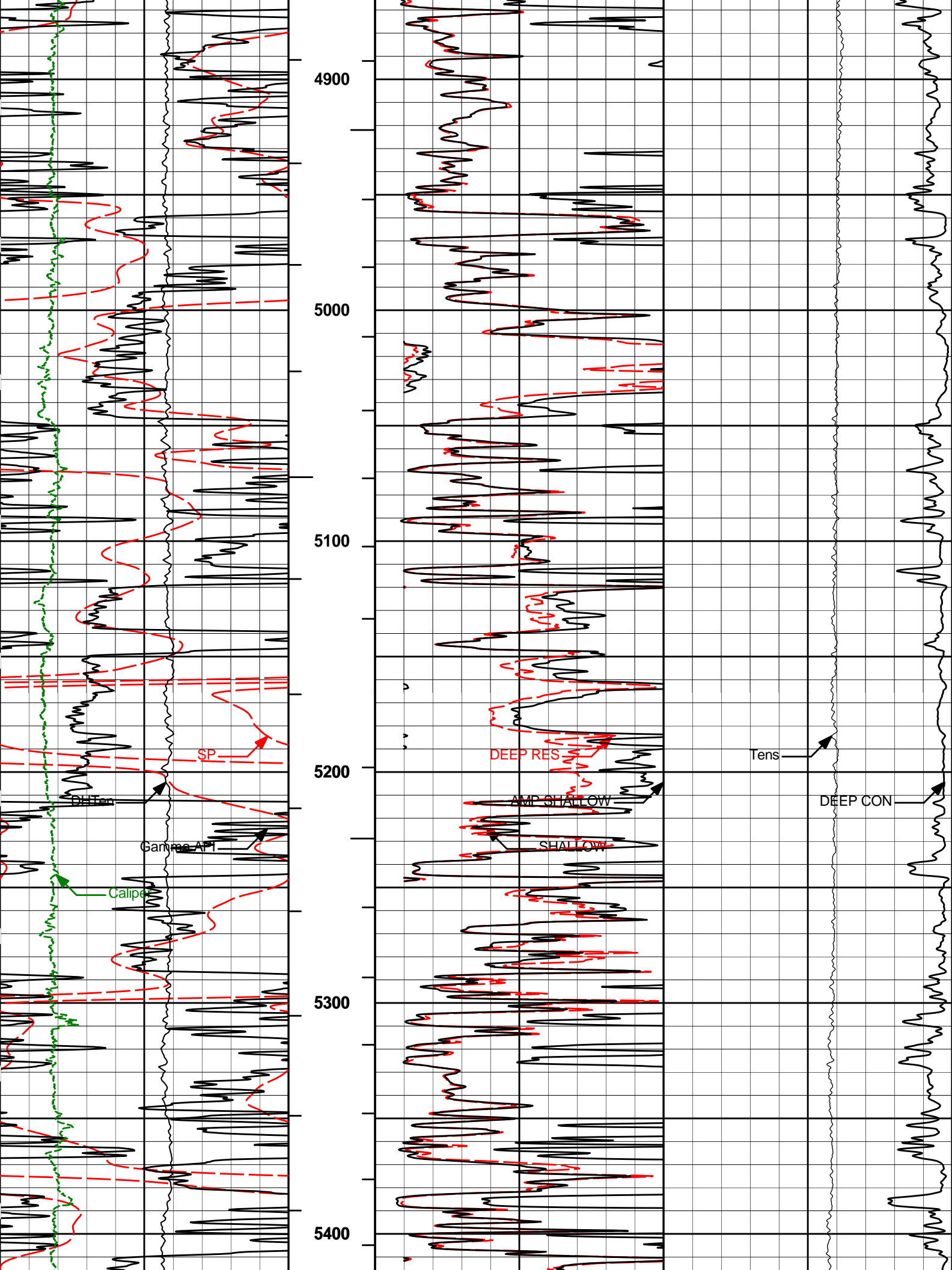


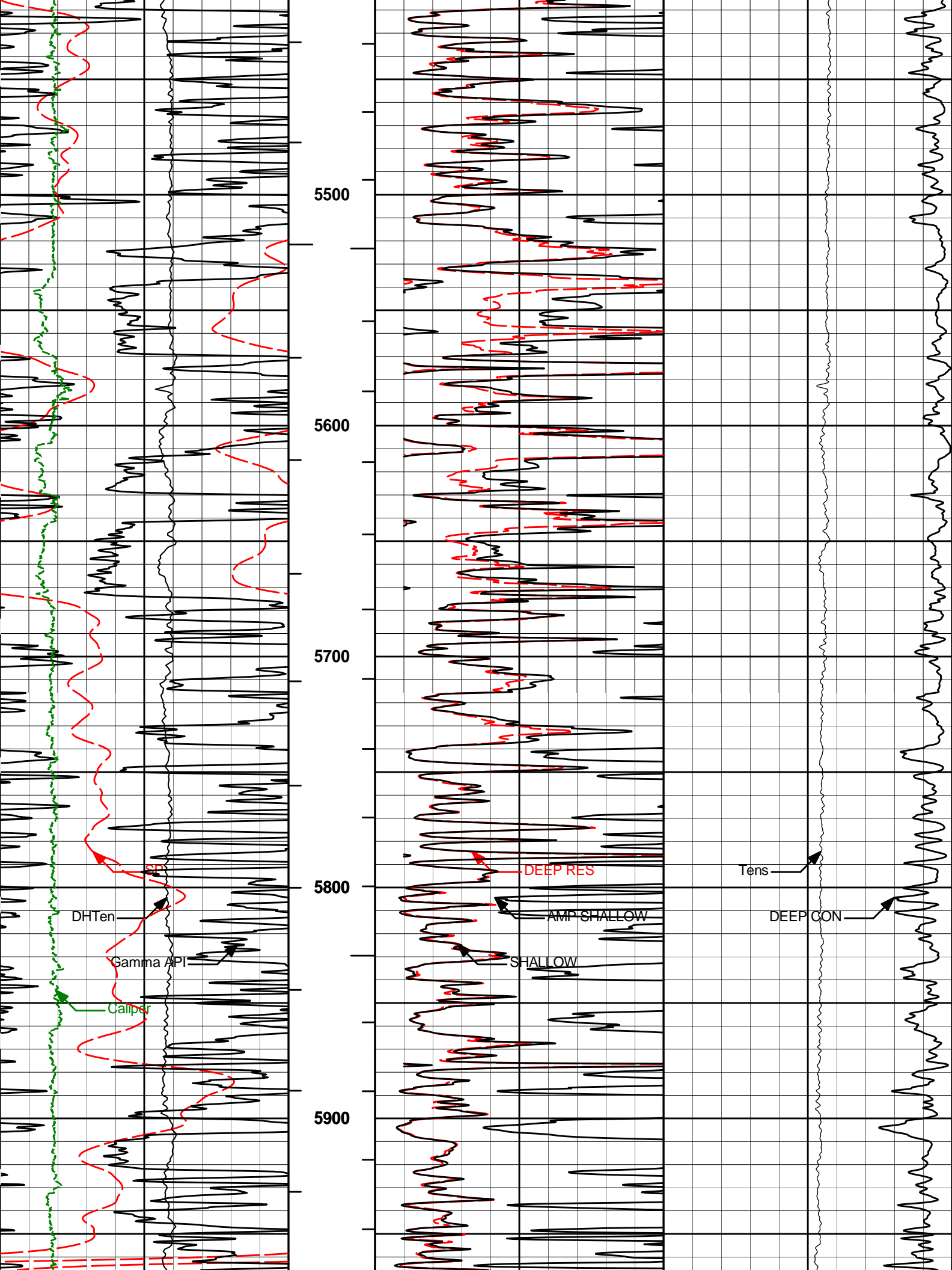


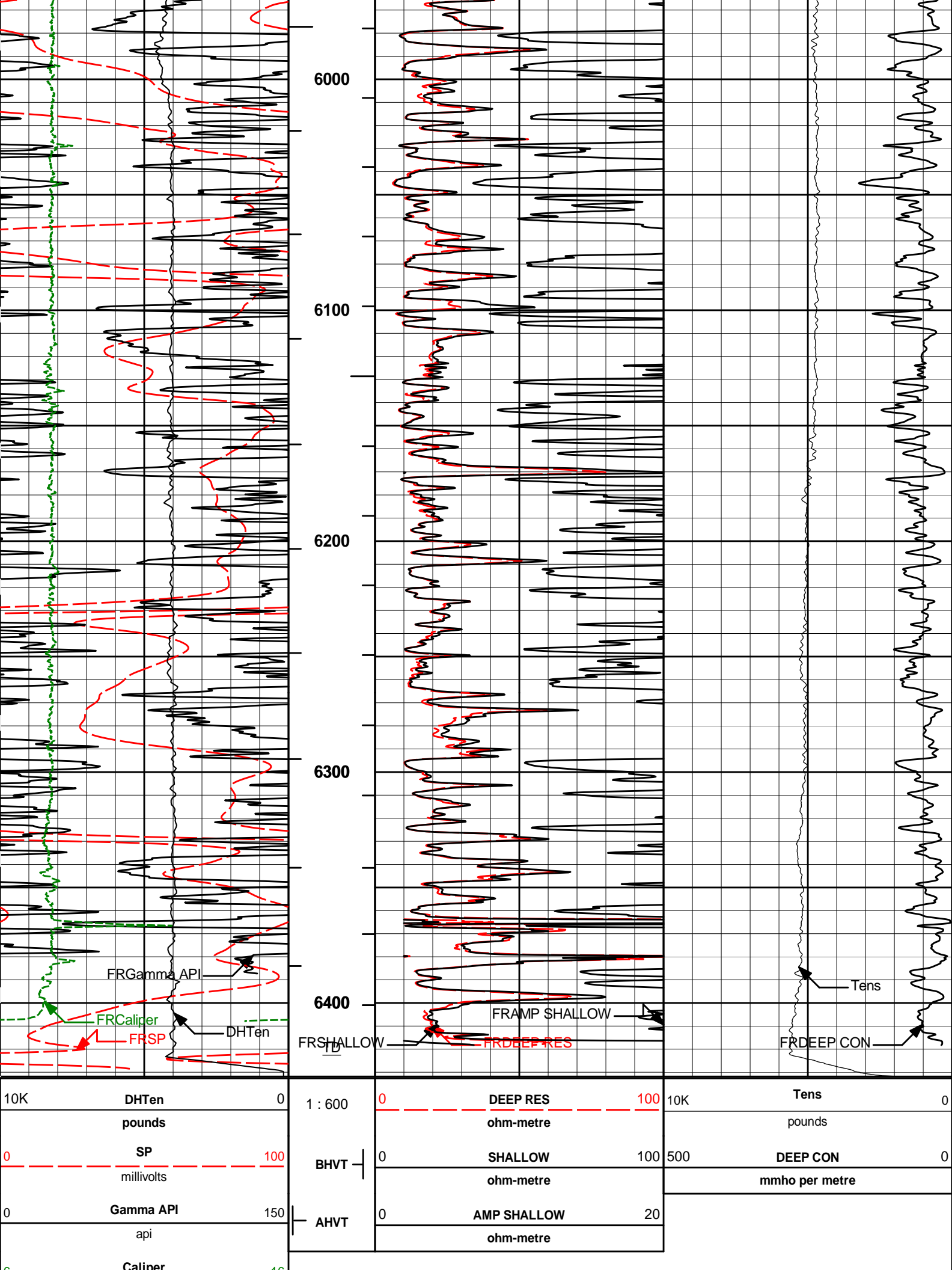












Caliper 16
inches

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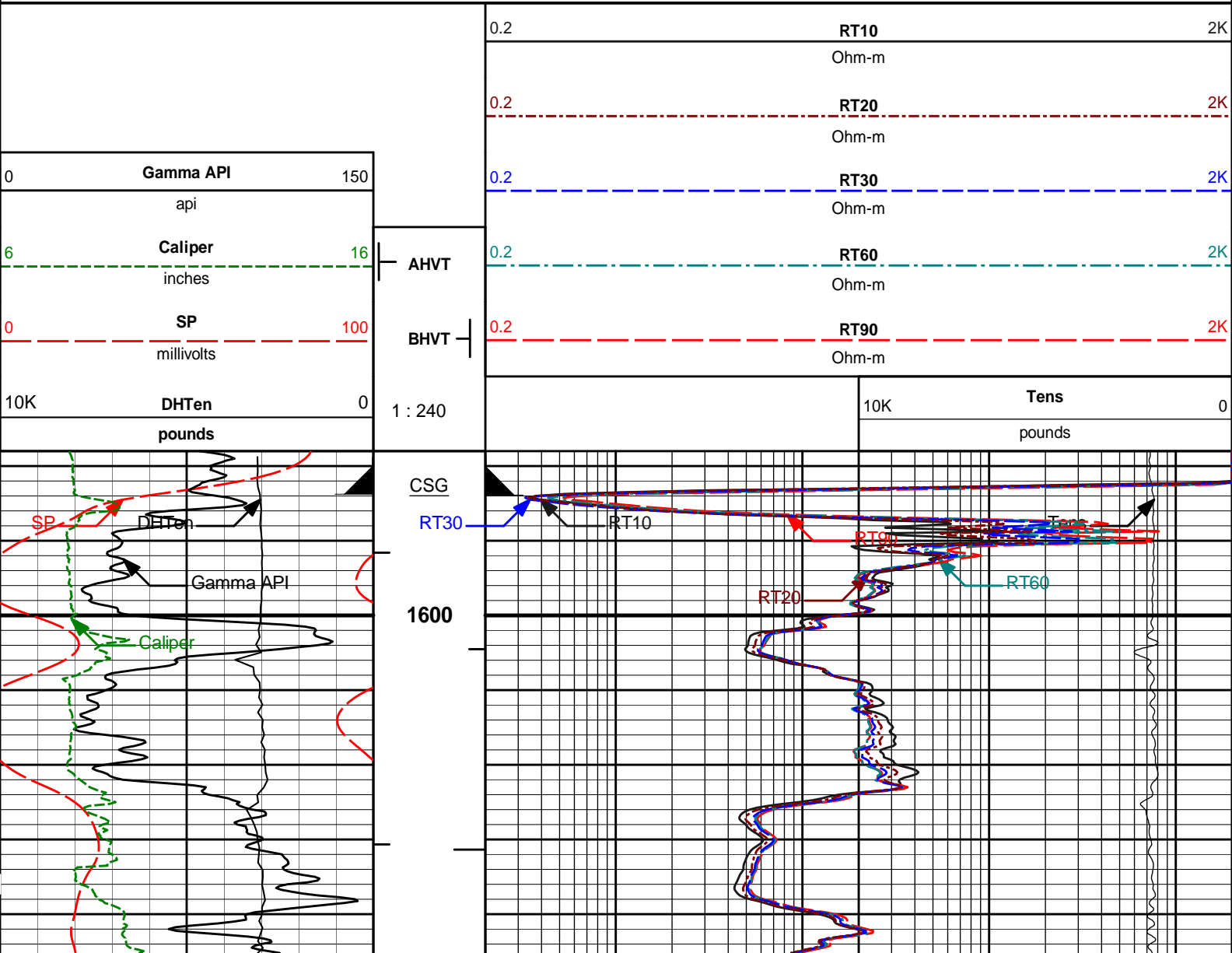
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Data: LE_HWXST_17_03CWell Based\MAIN\
Plot File: \\RES\IQ_BP_ACRt_2IN_DHT

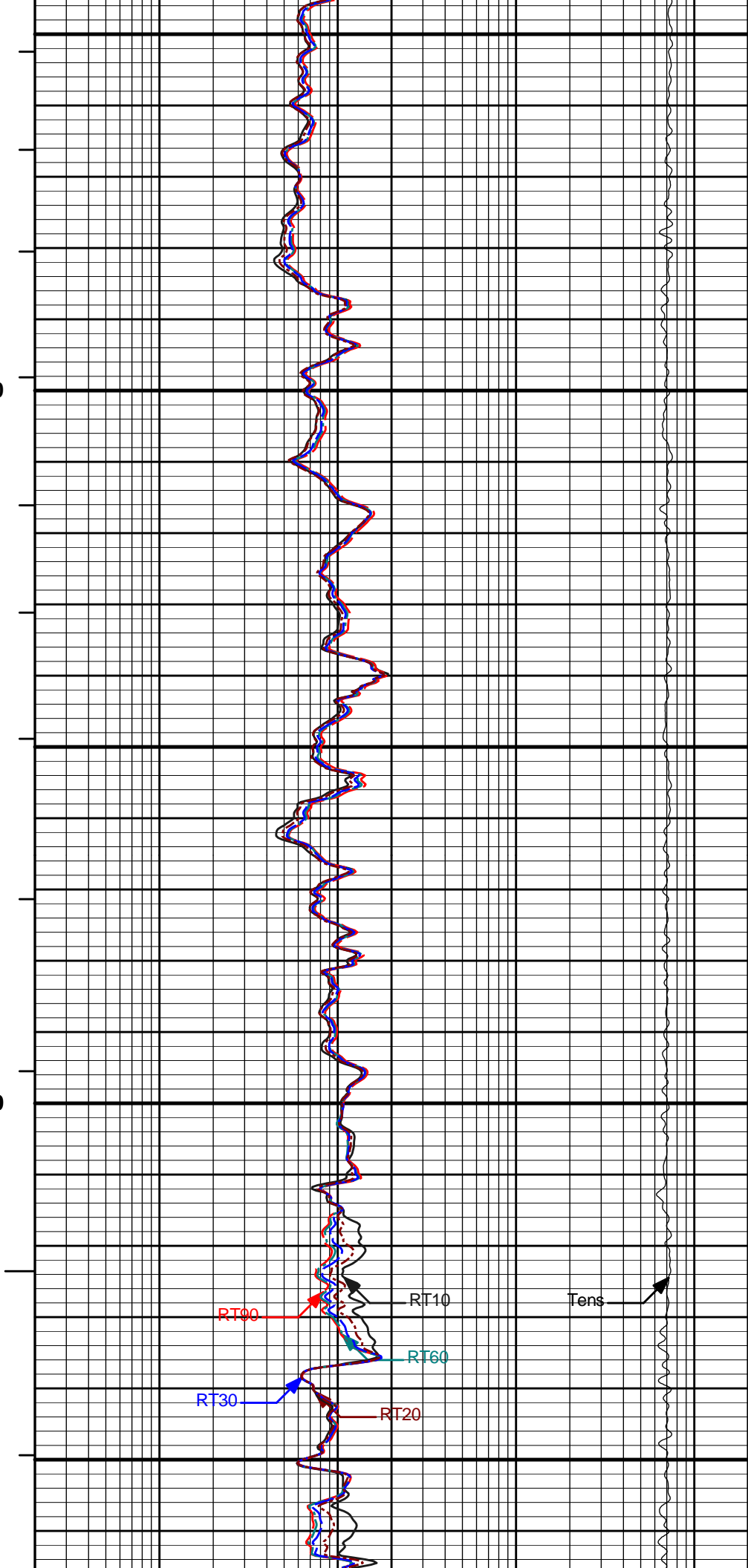
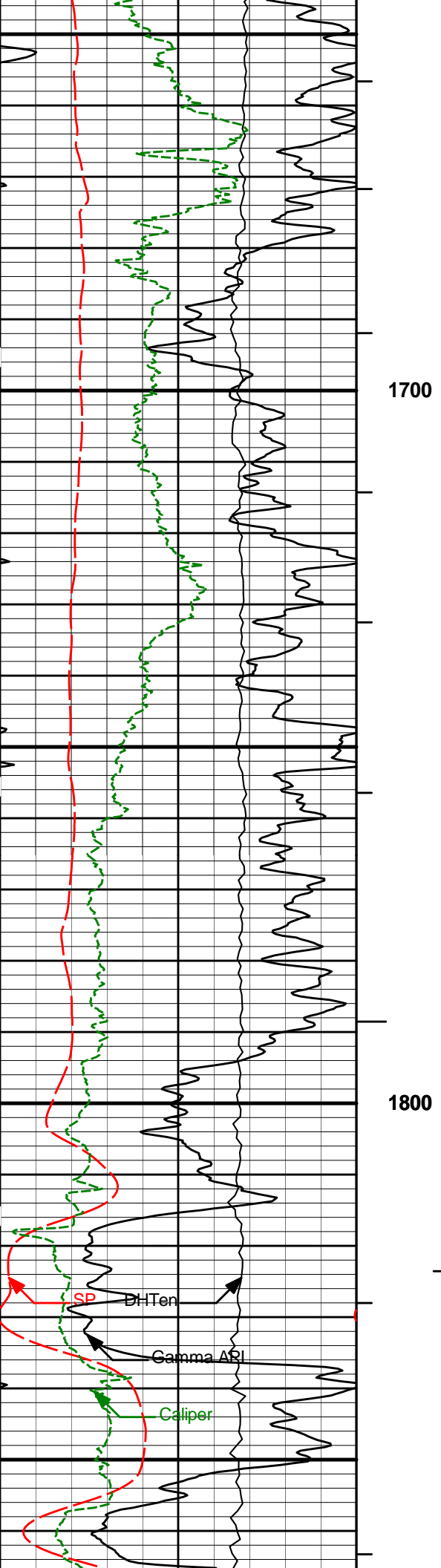
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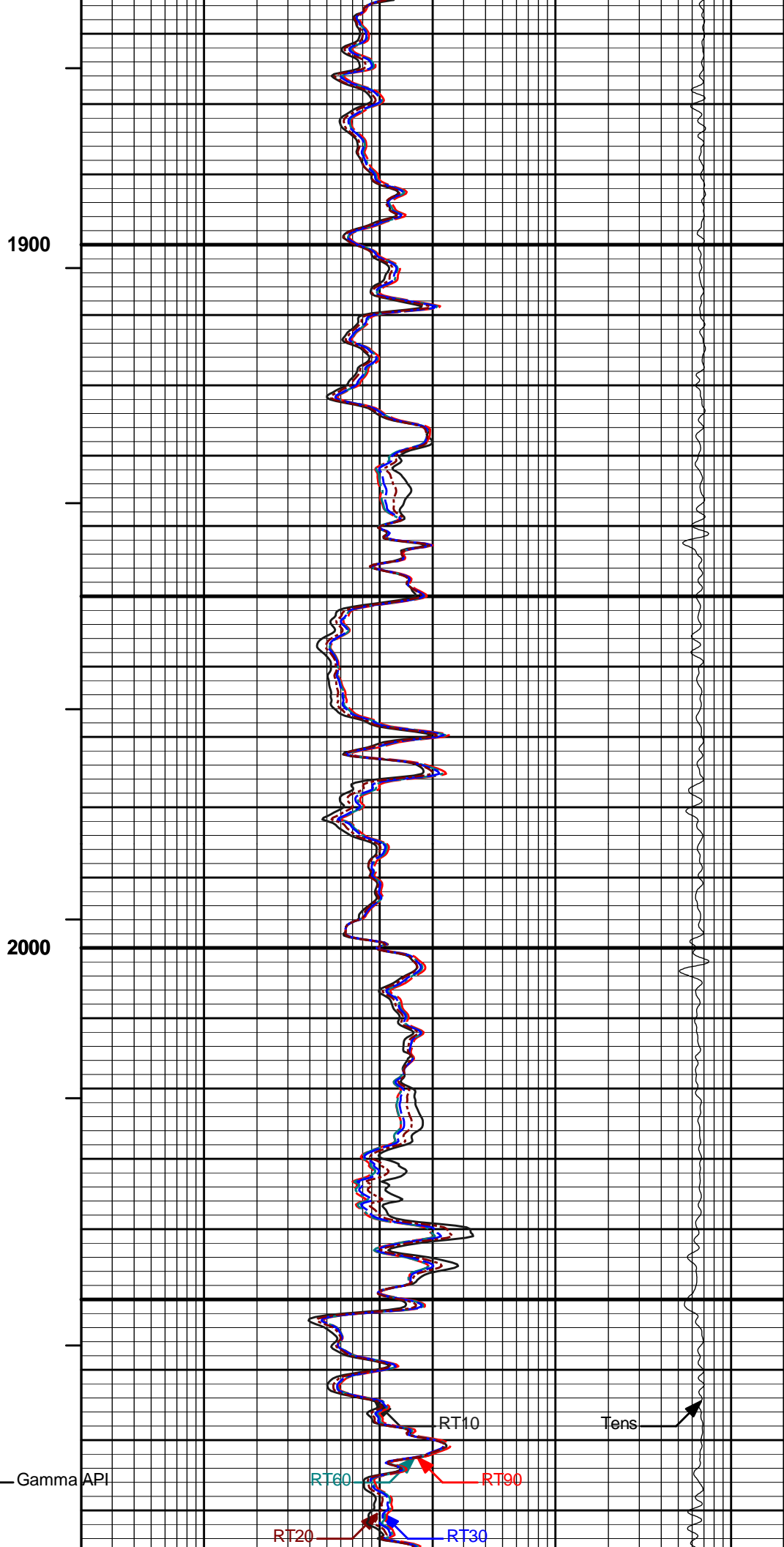
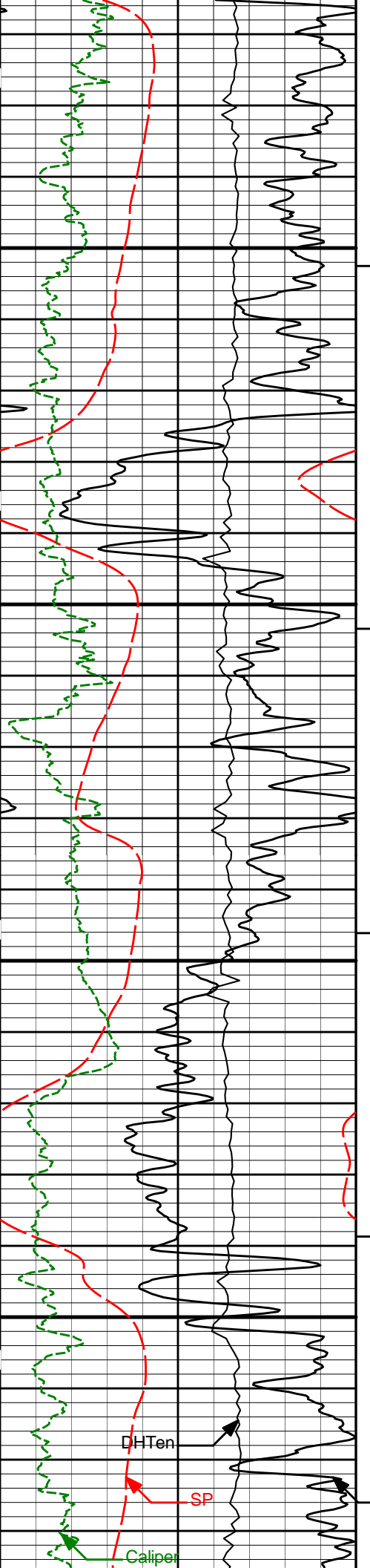
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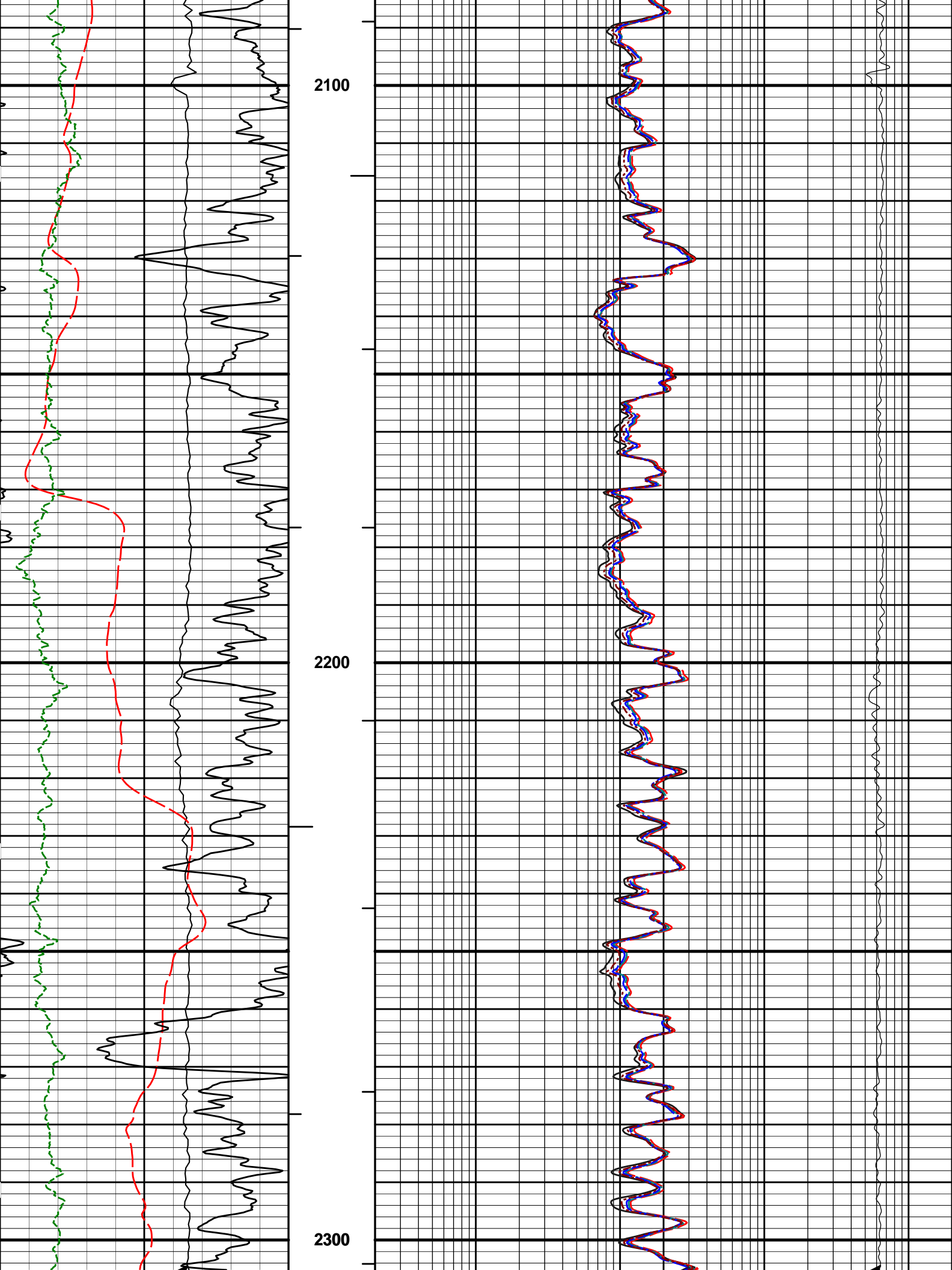
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Plot File: \\RES\IQ_BP_ACRt_5IN_DHT

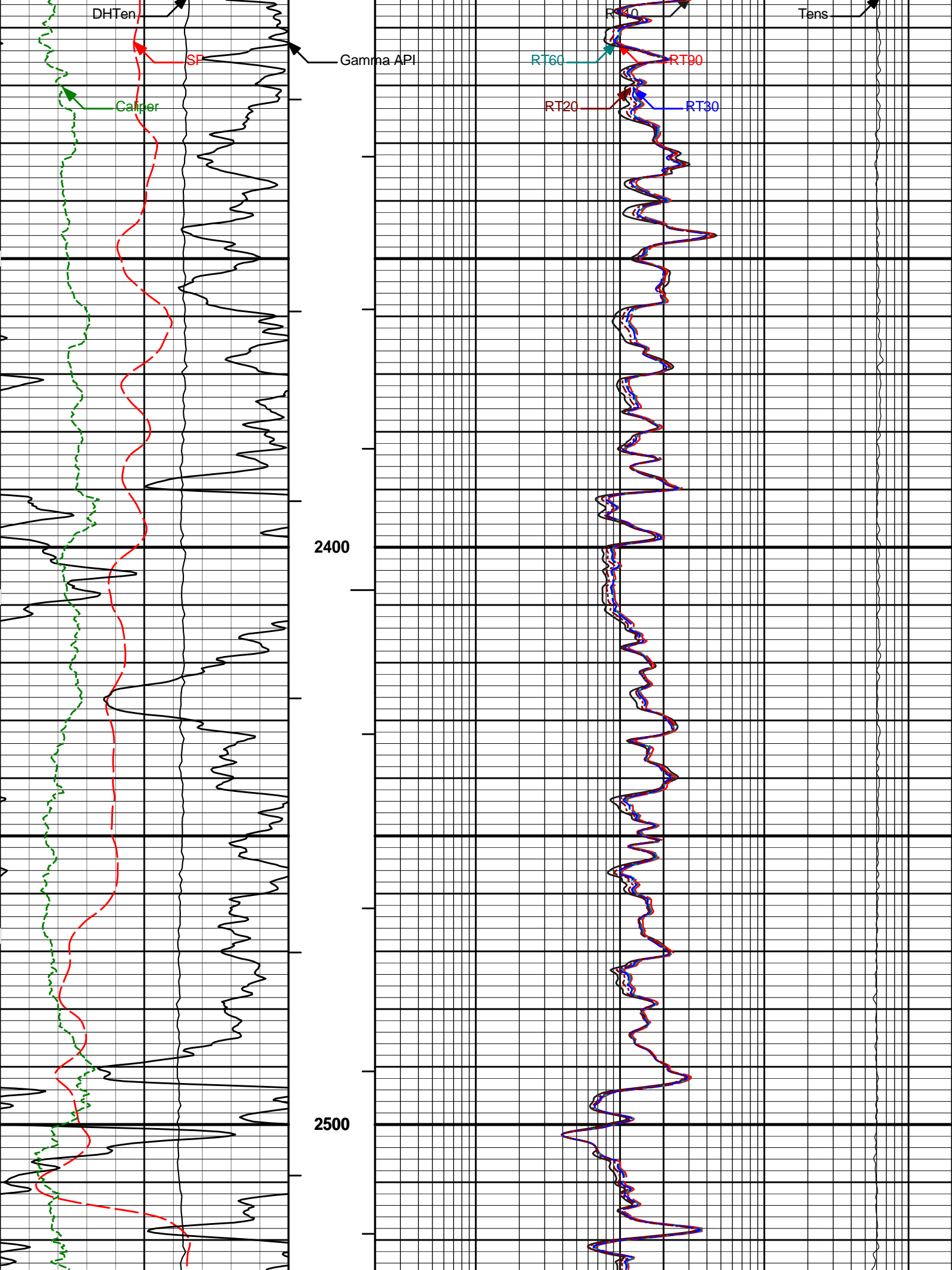
MAIN PASS 5" = 100'

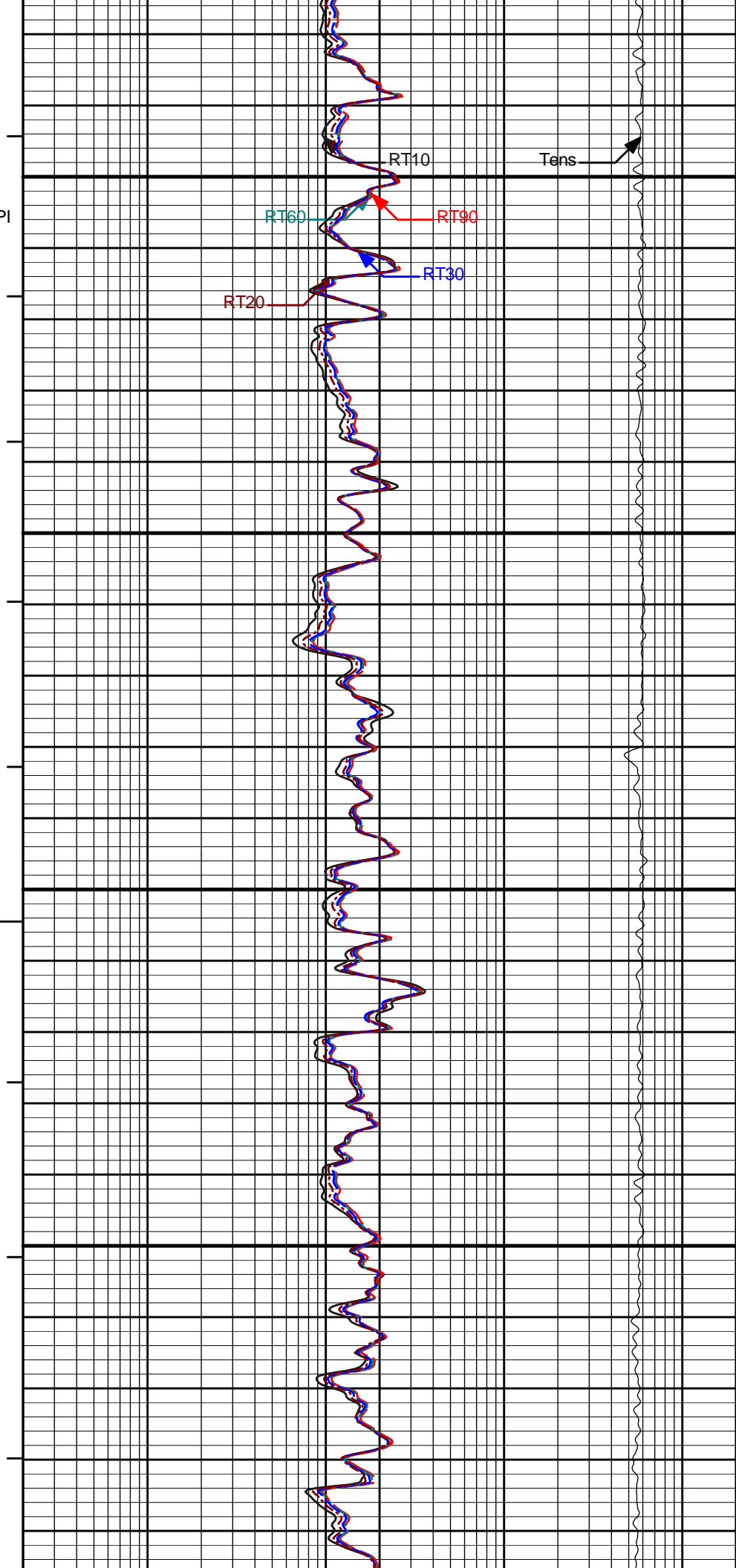
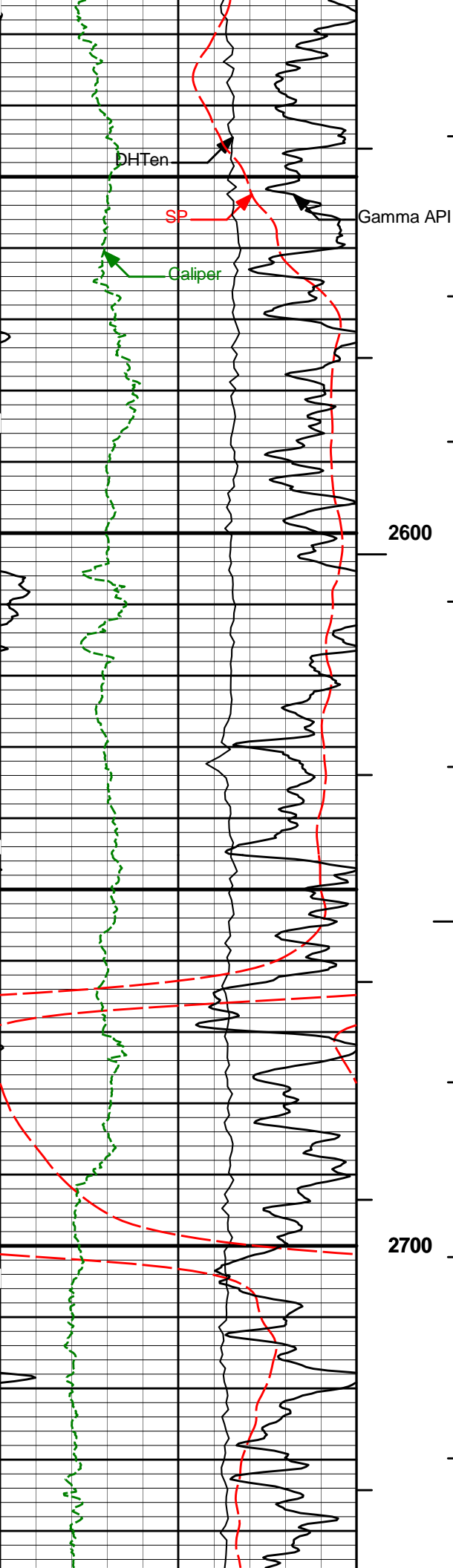


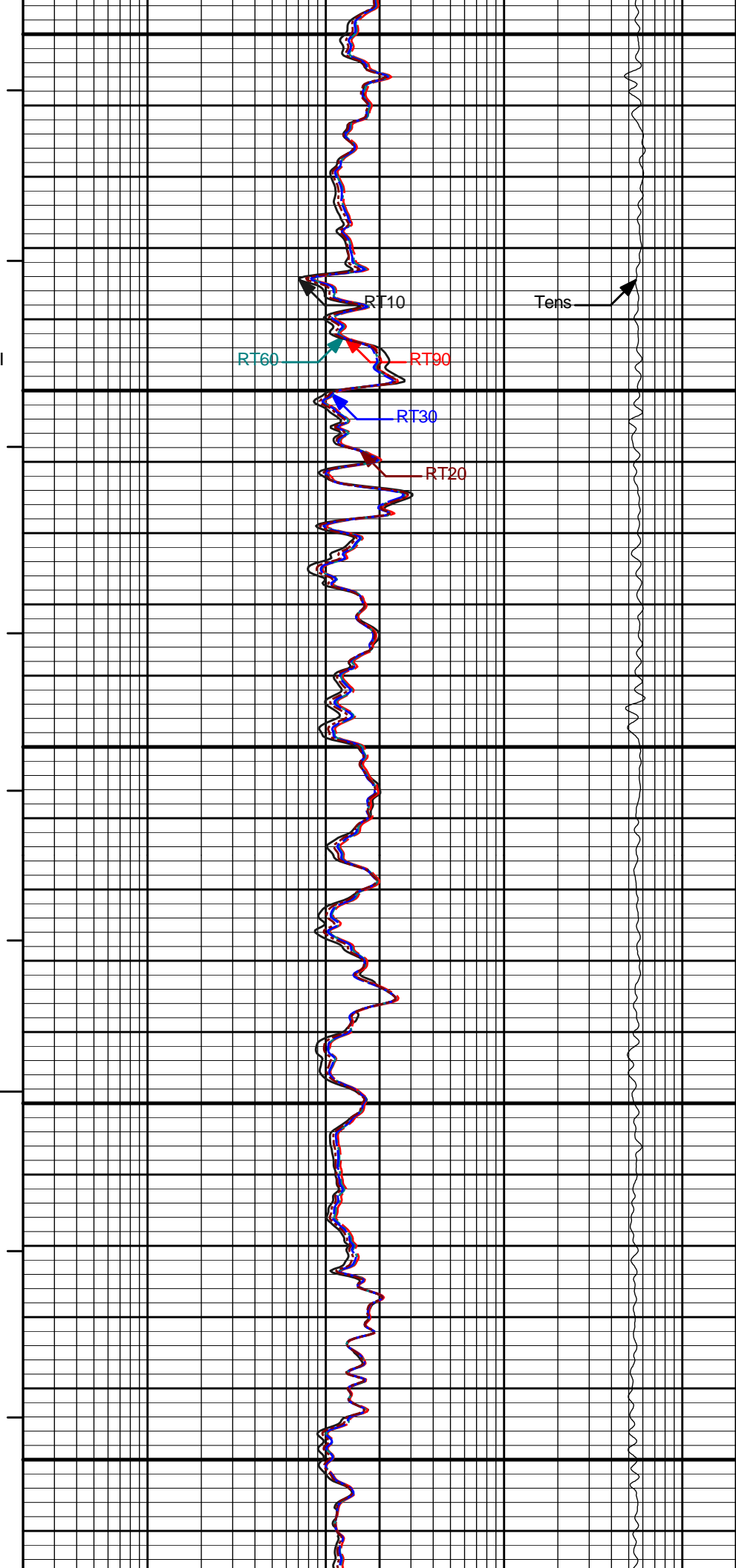
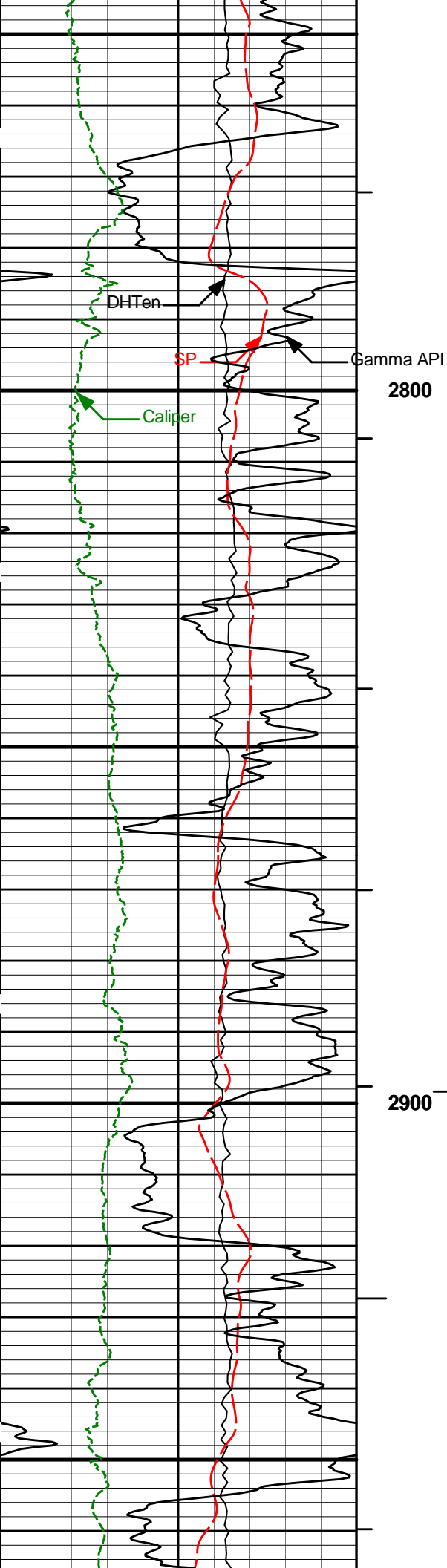


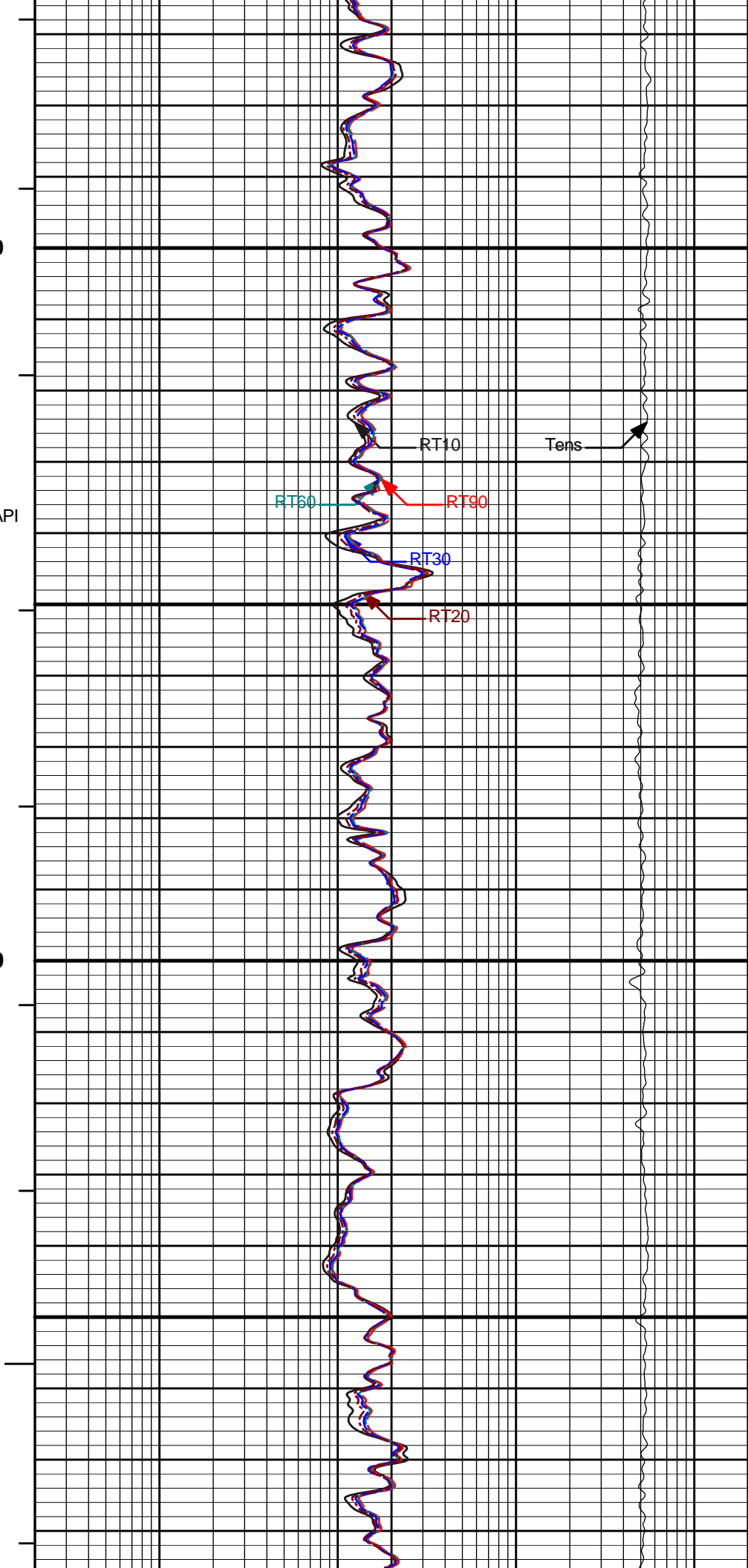
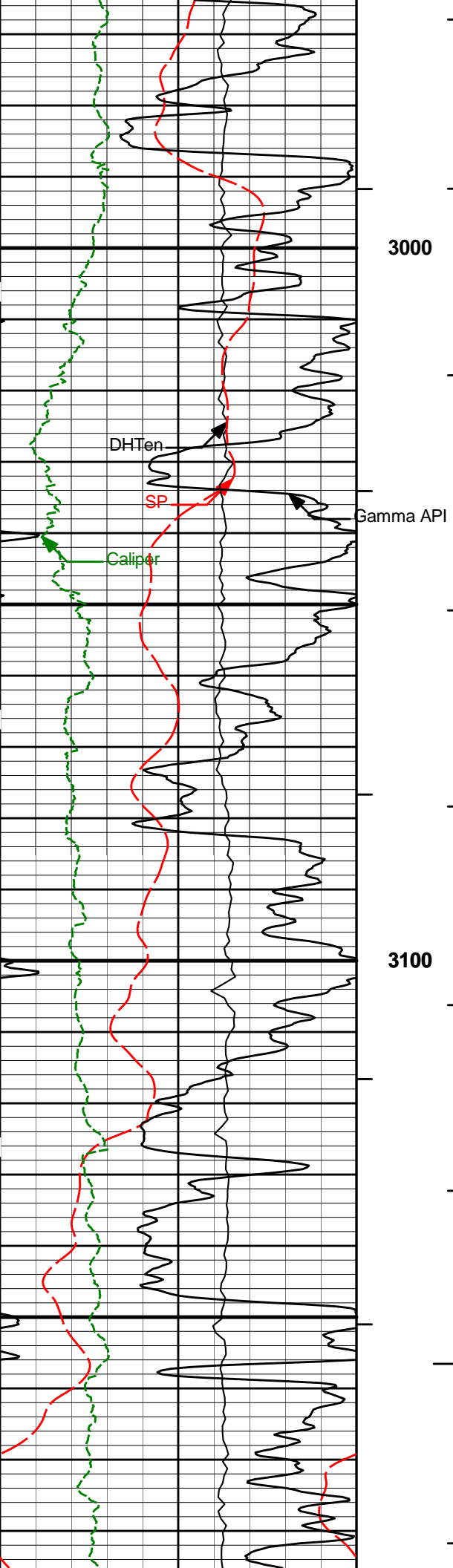


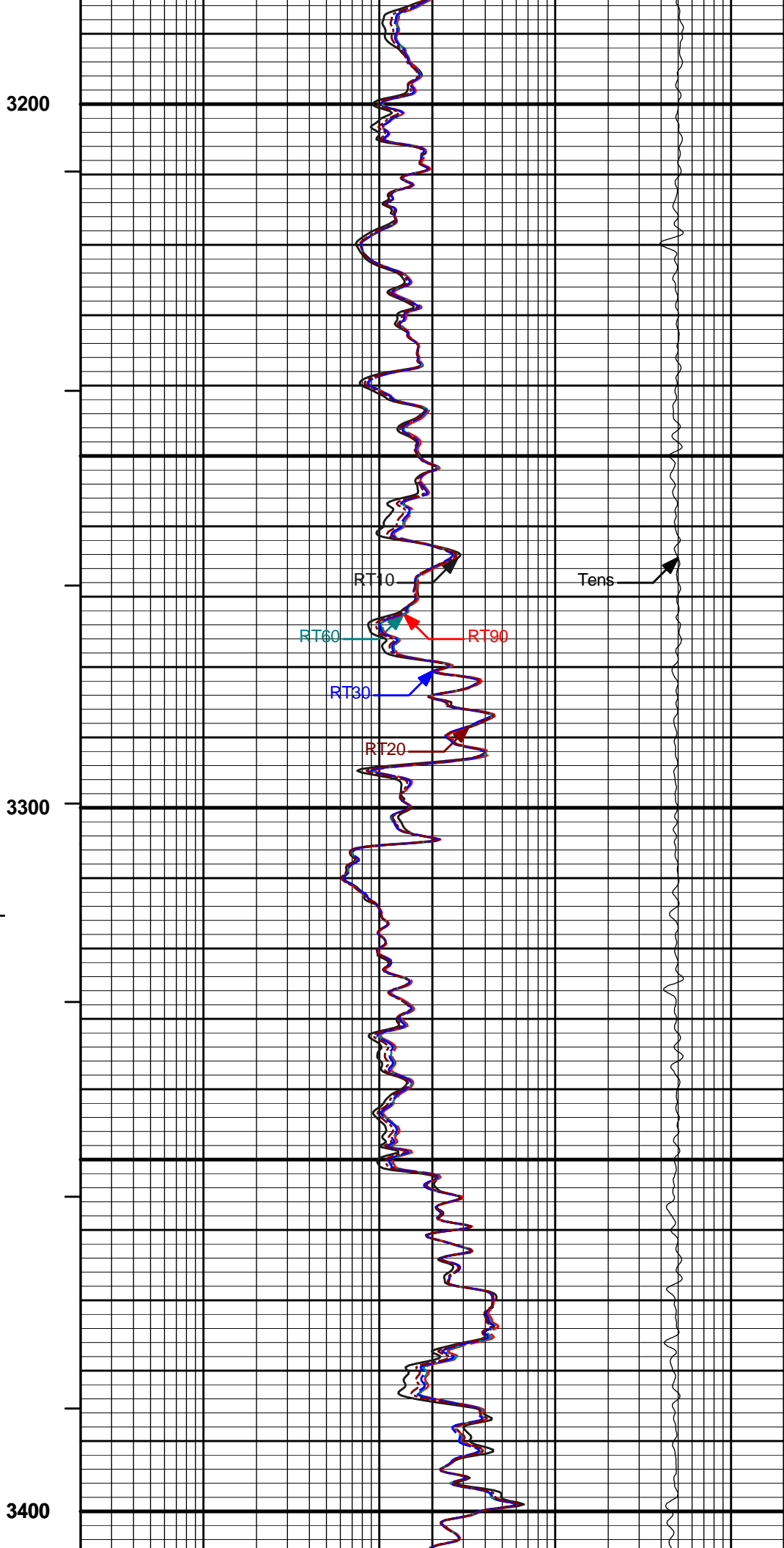
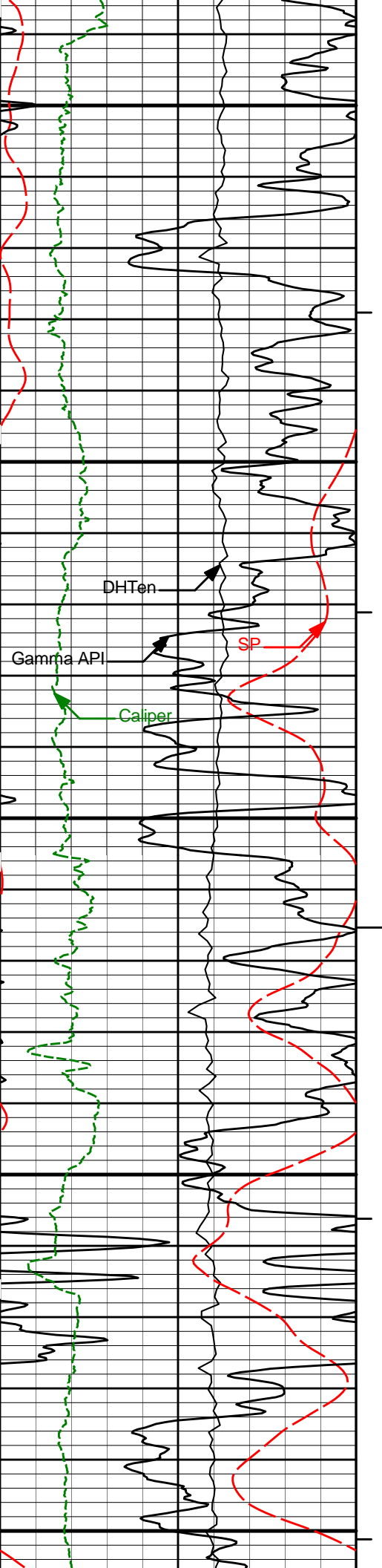


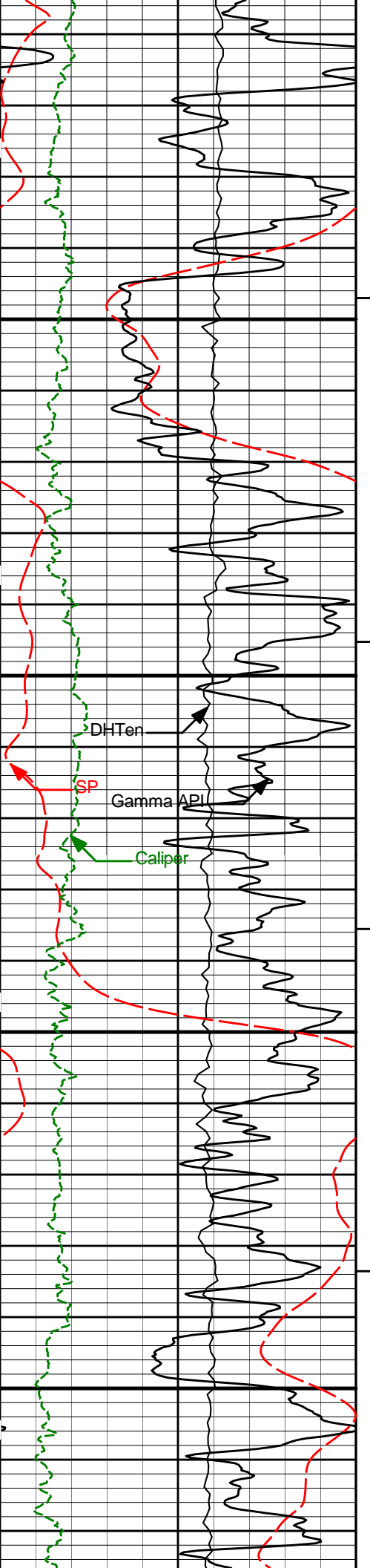






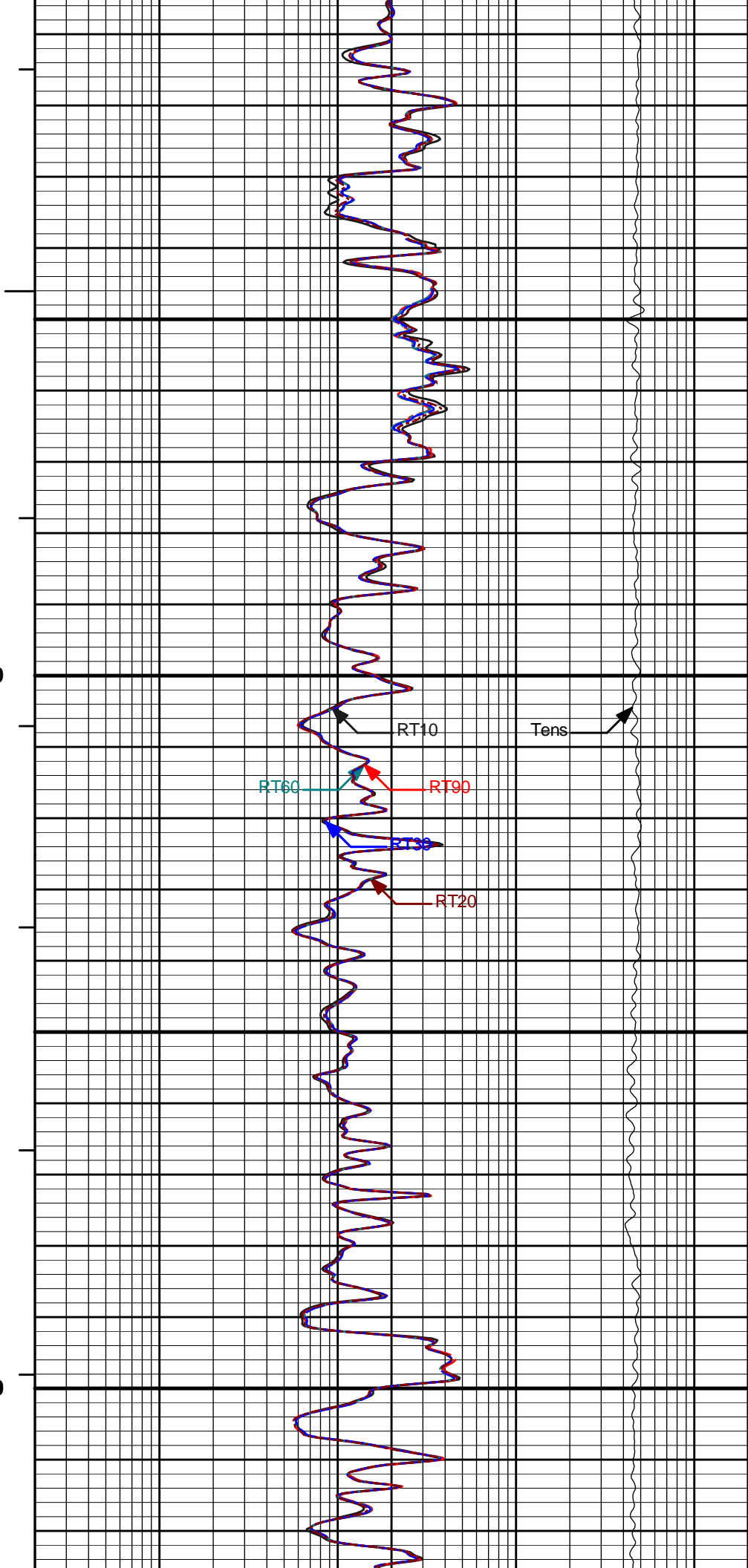


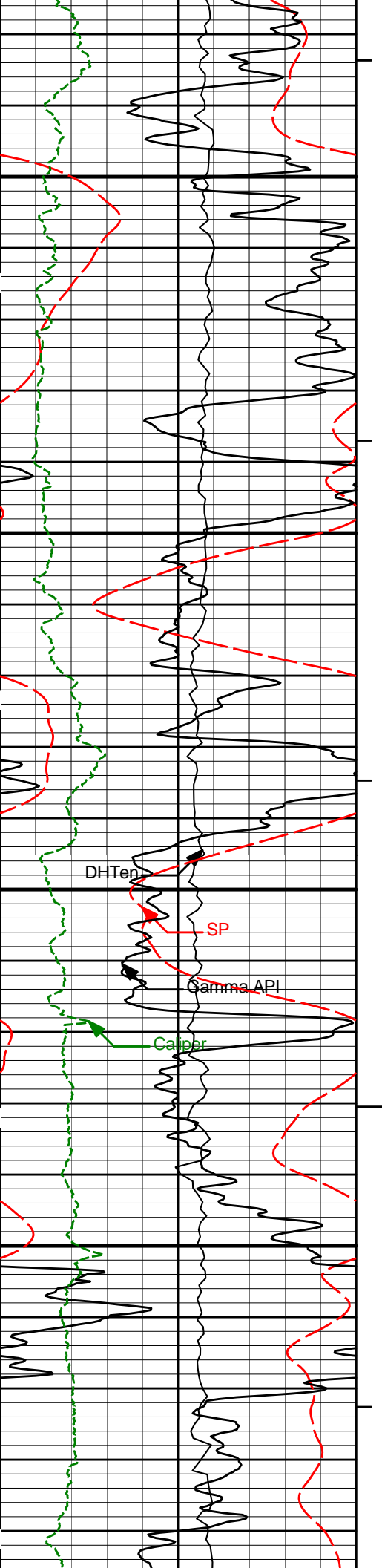




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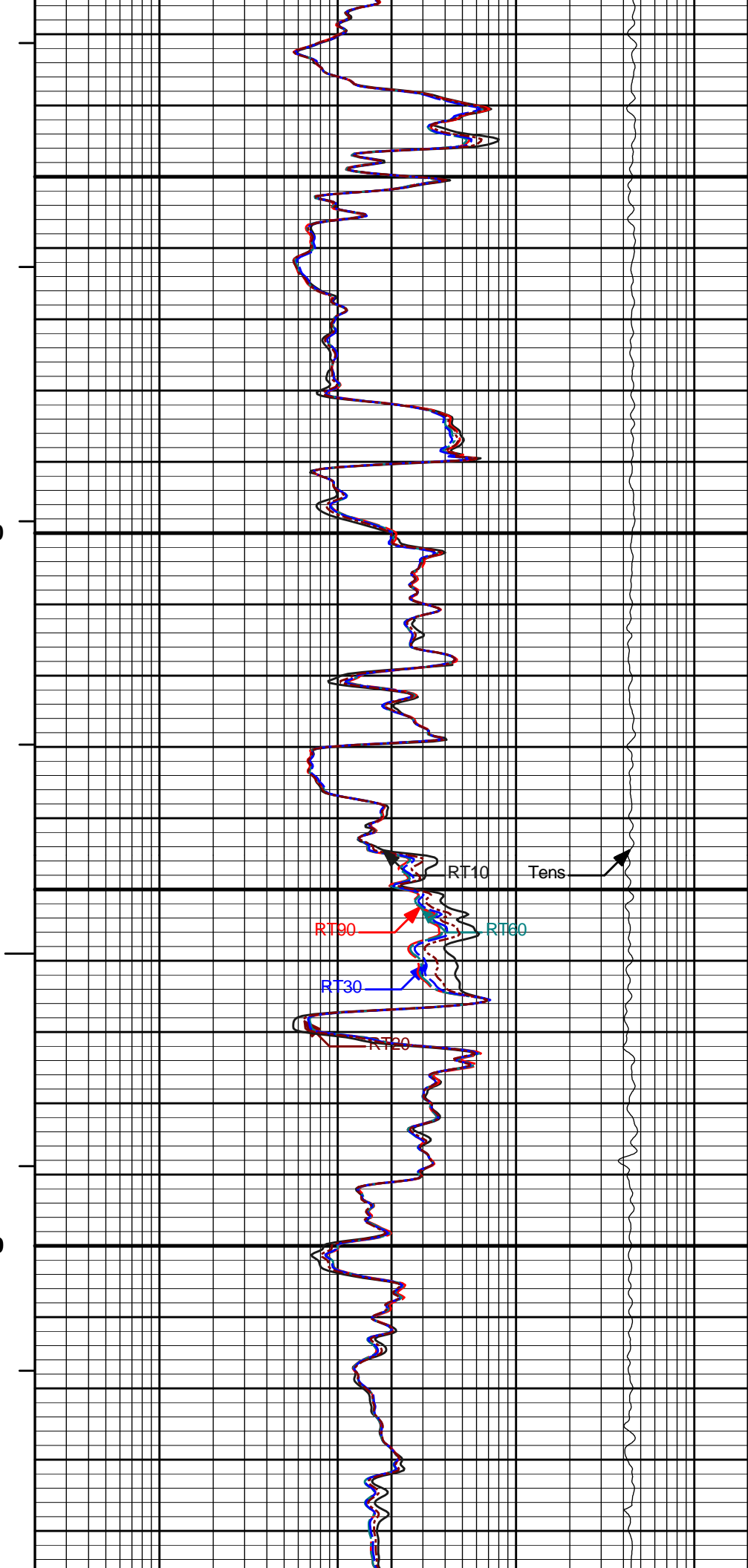
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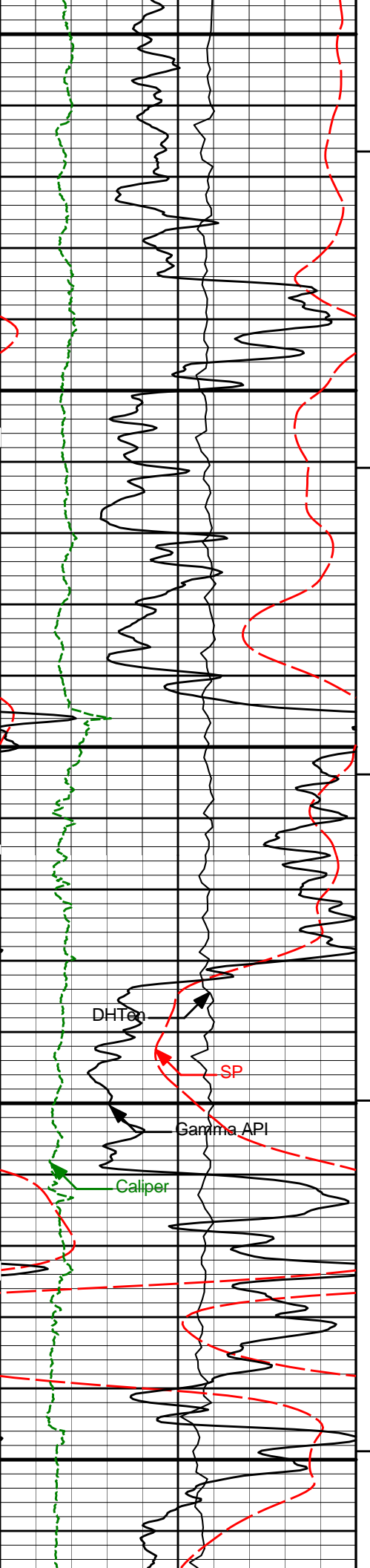




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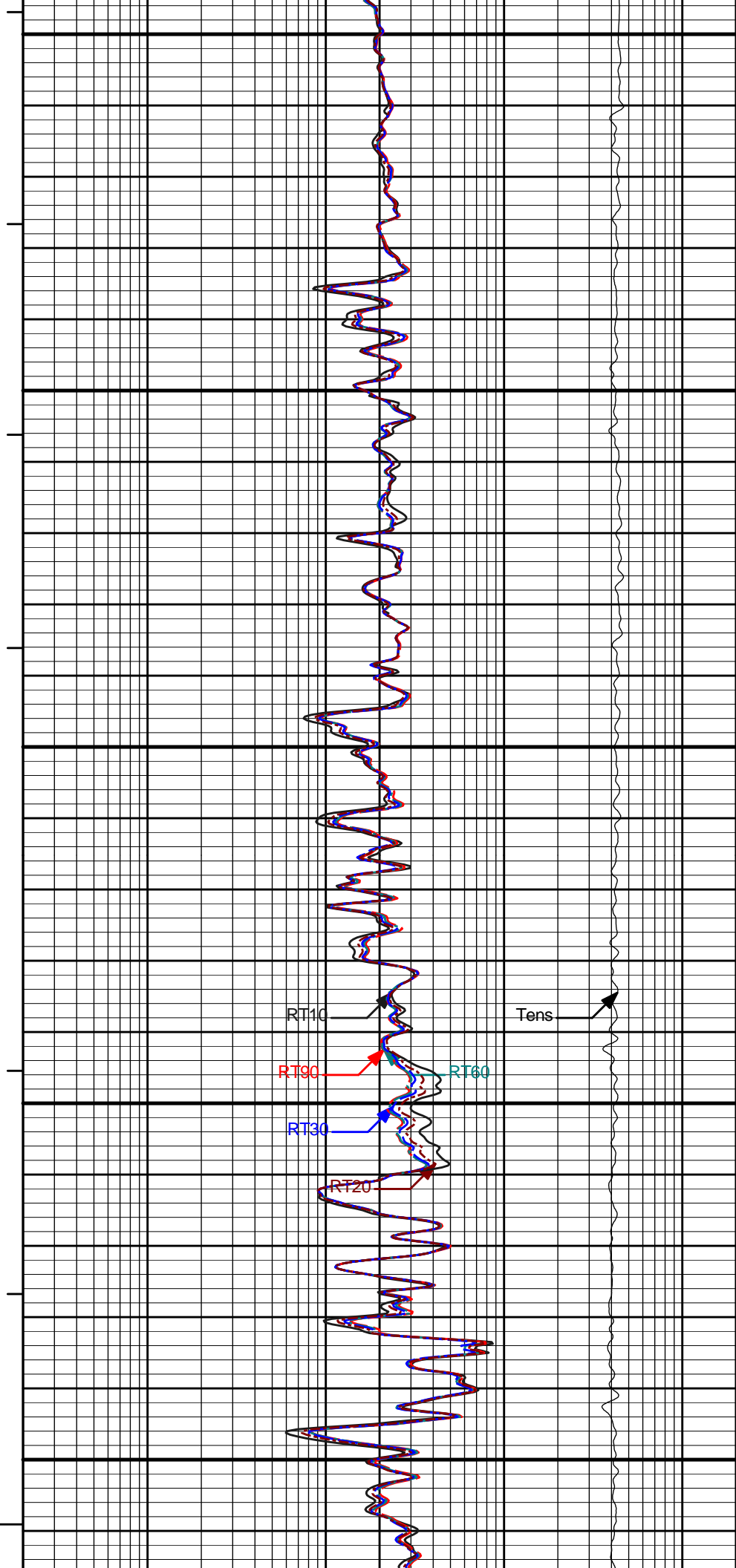
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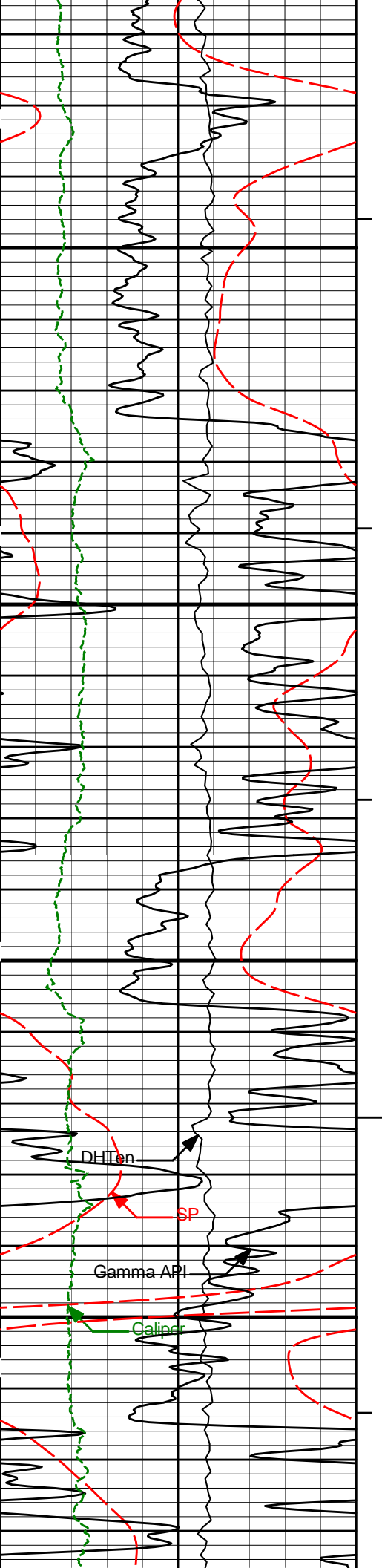




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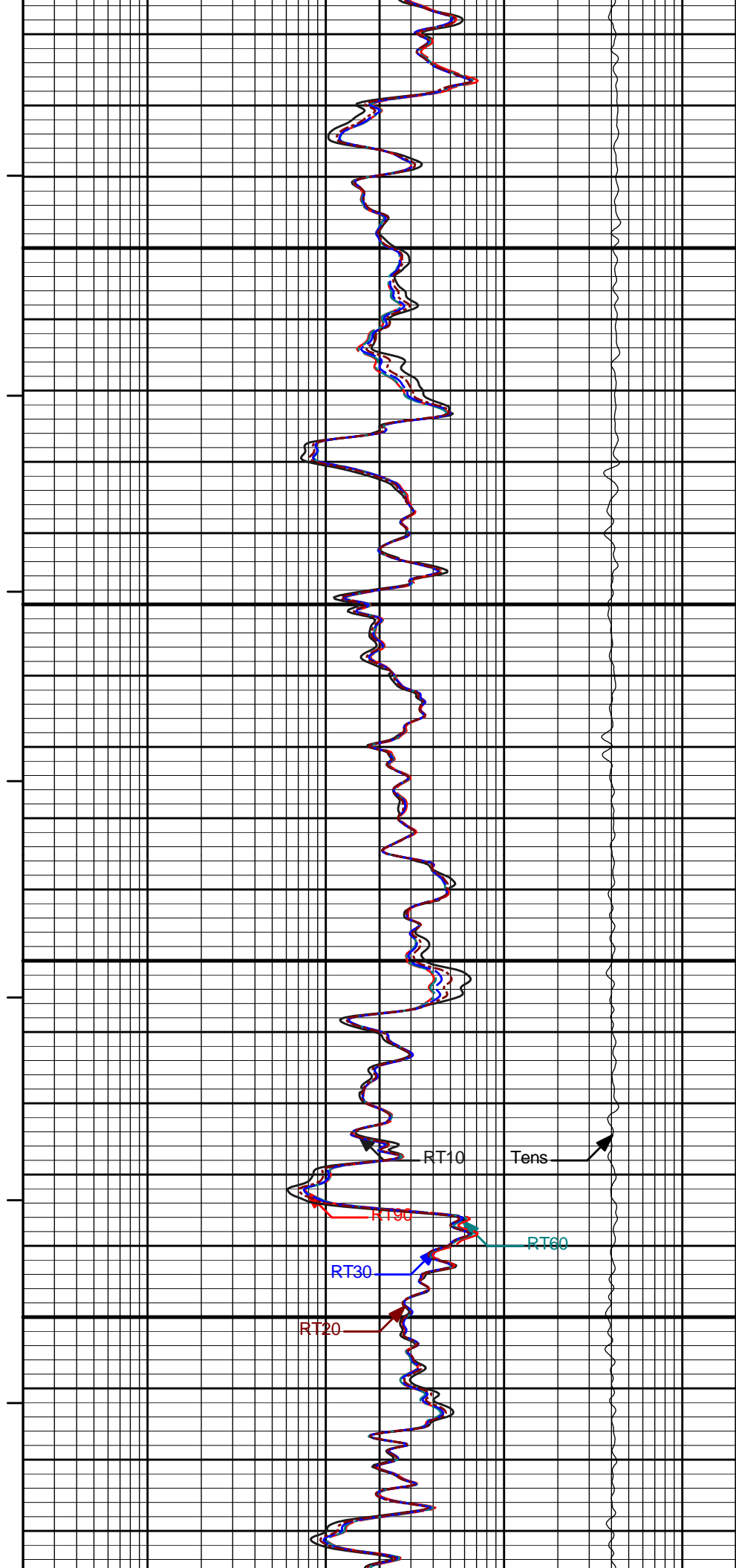
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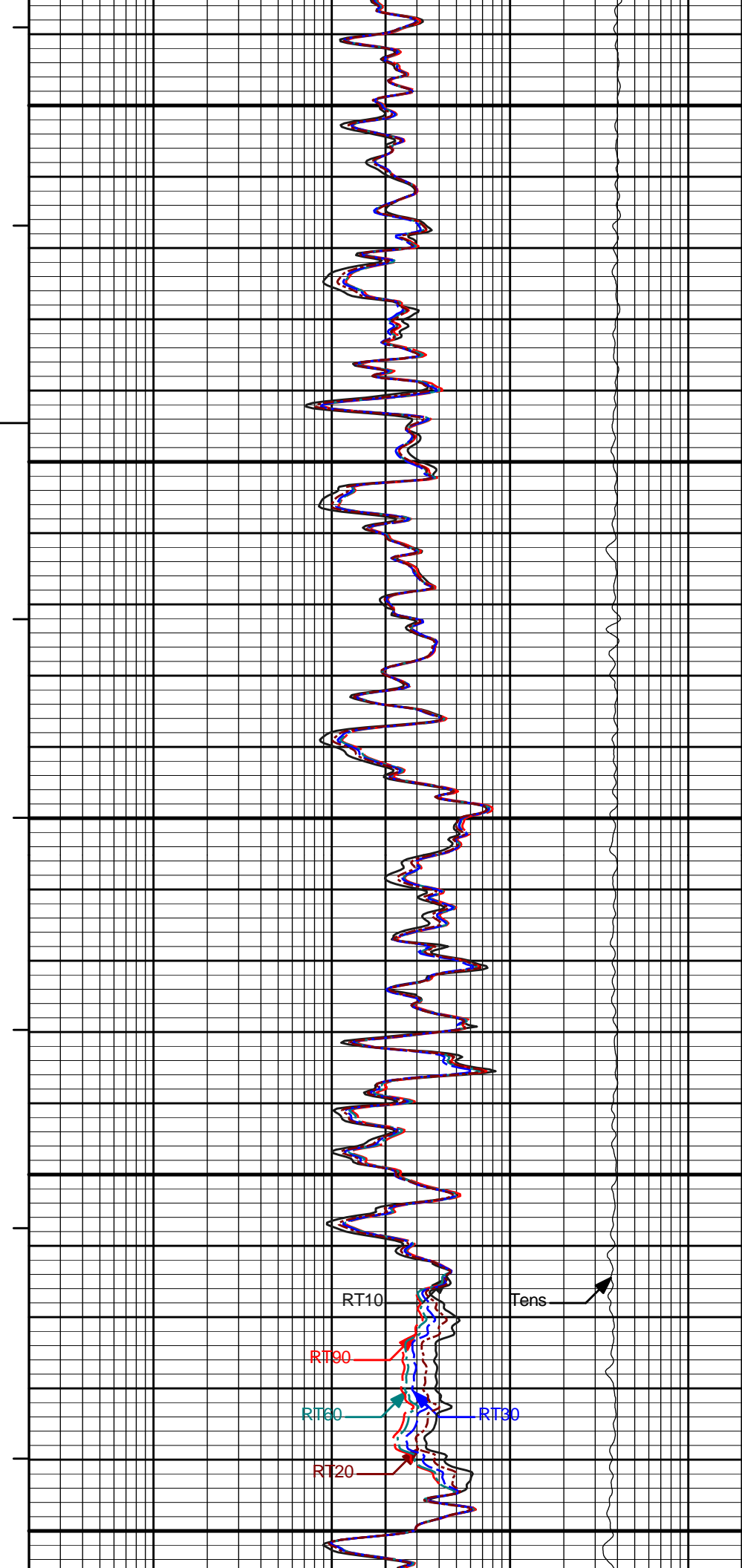
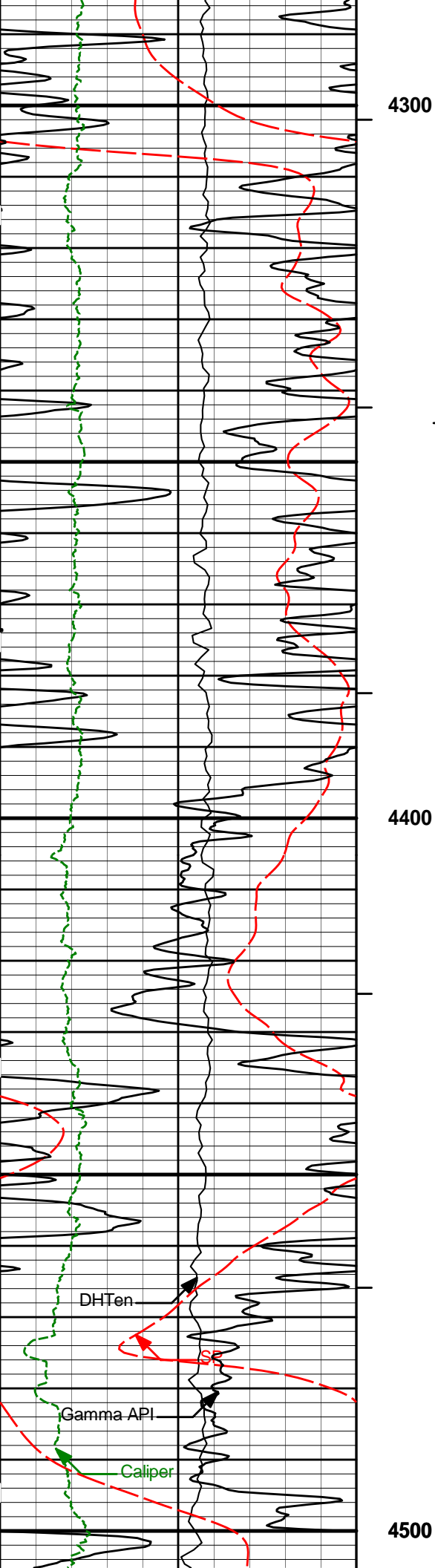


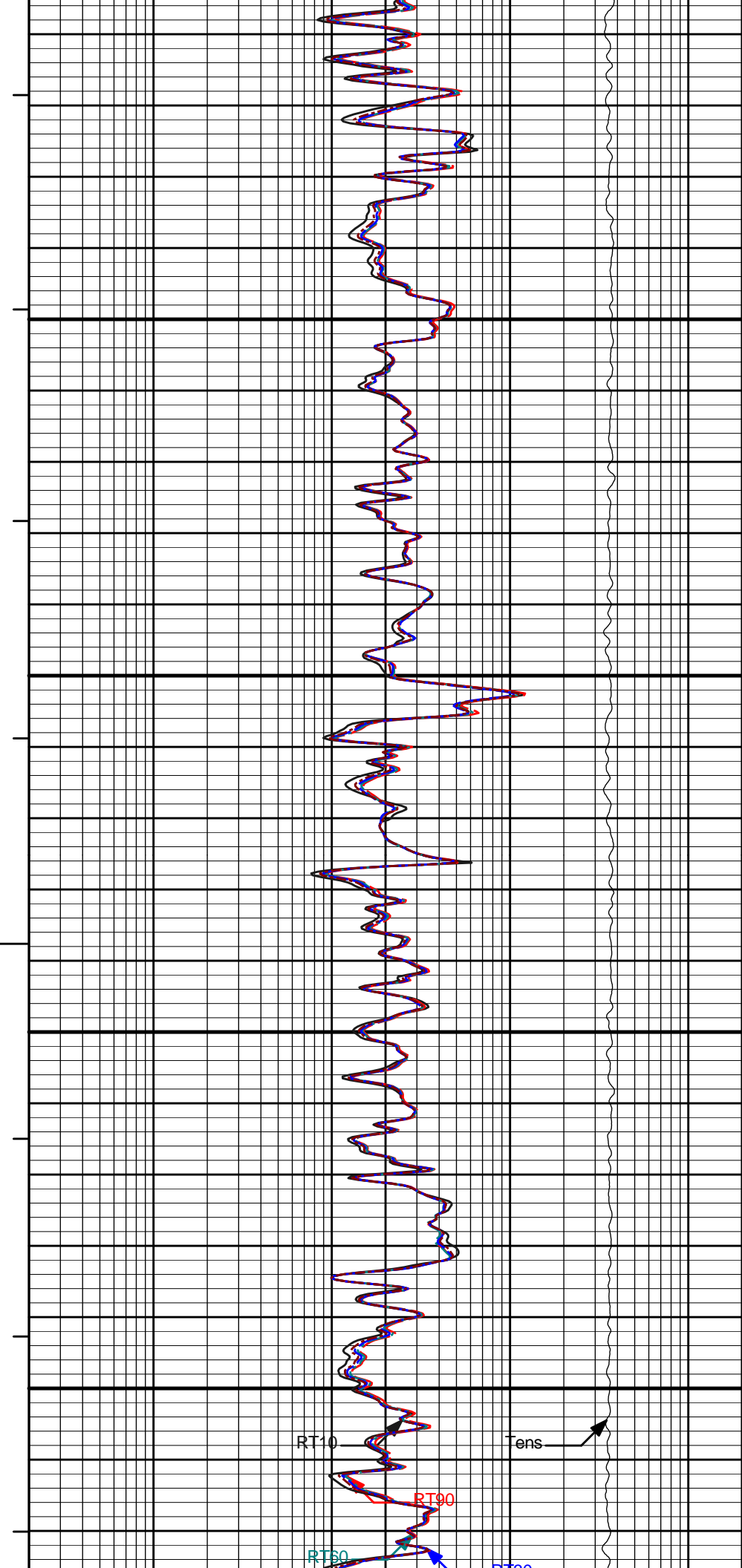
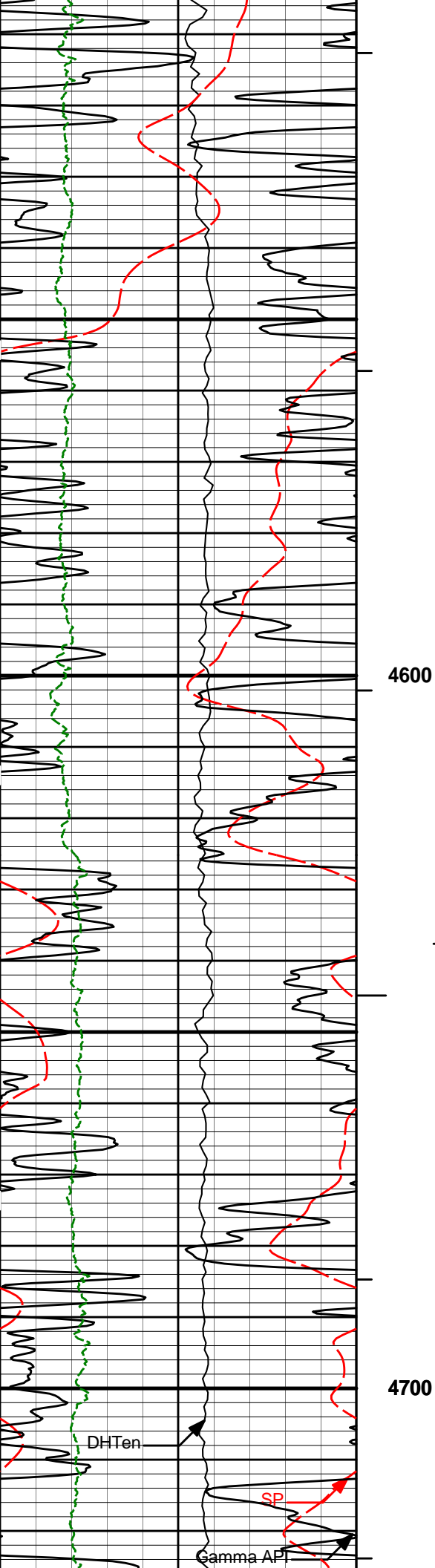


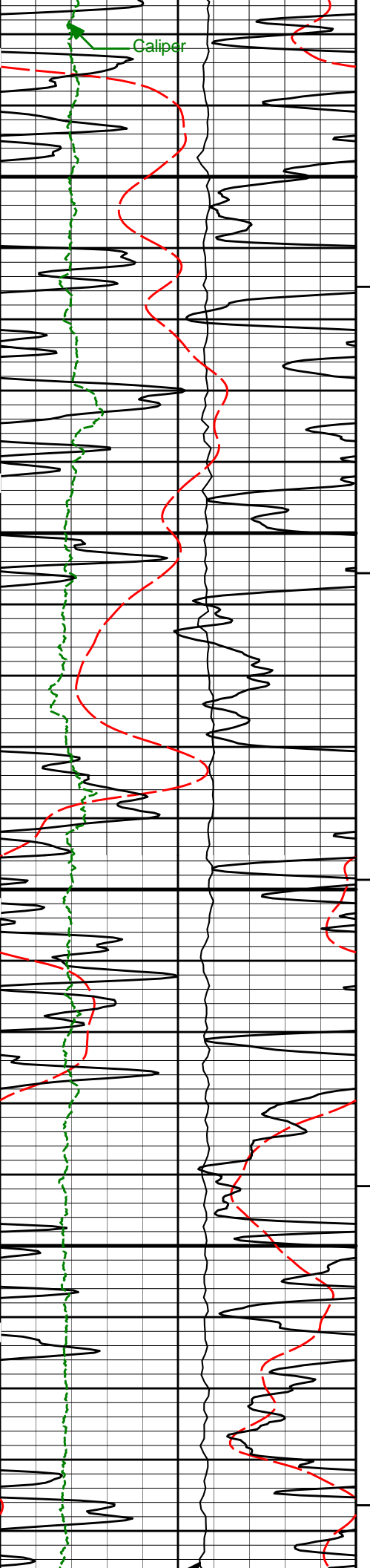
4100

4200



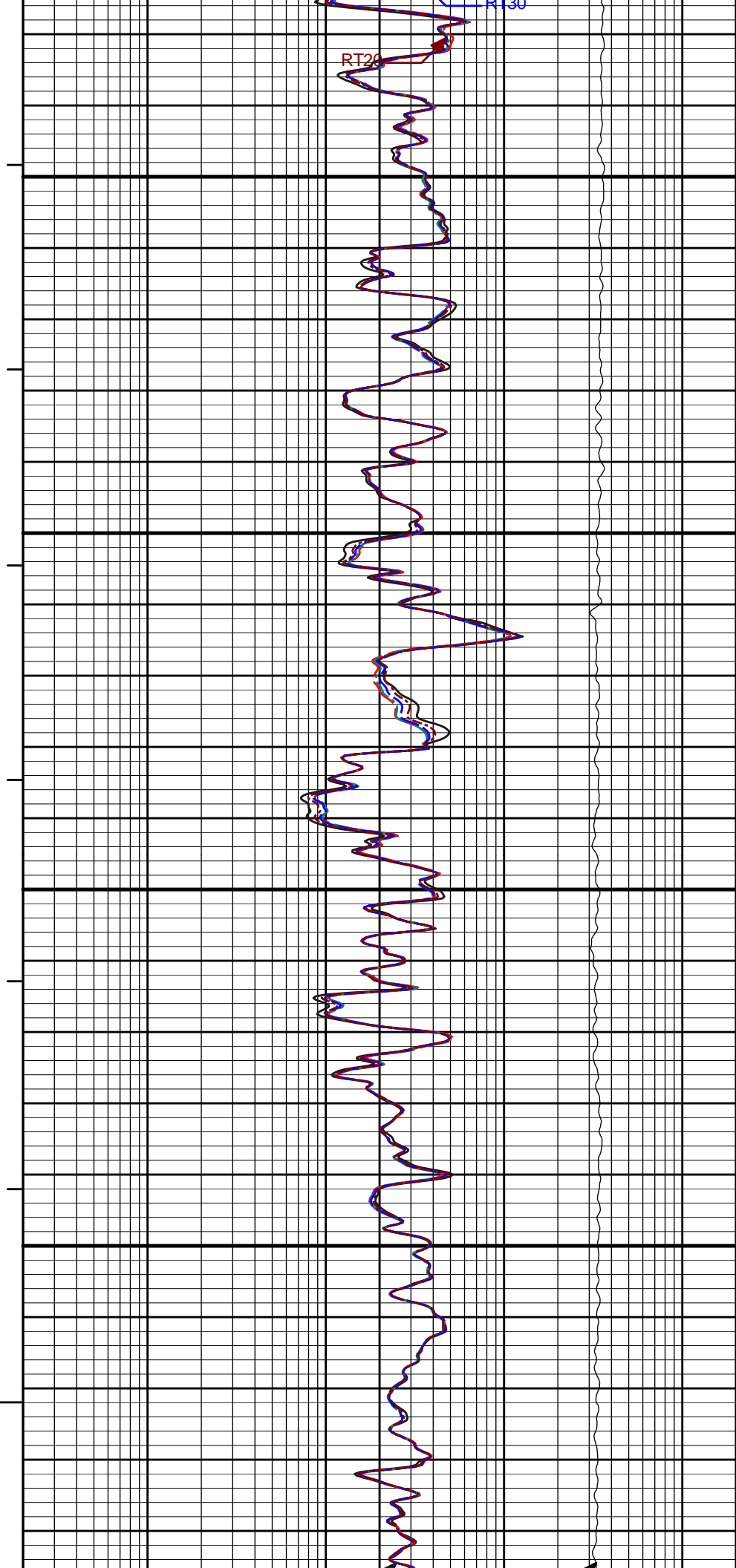


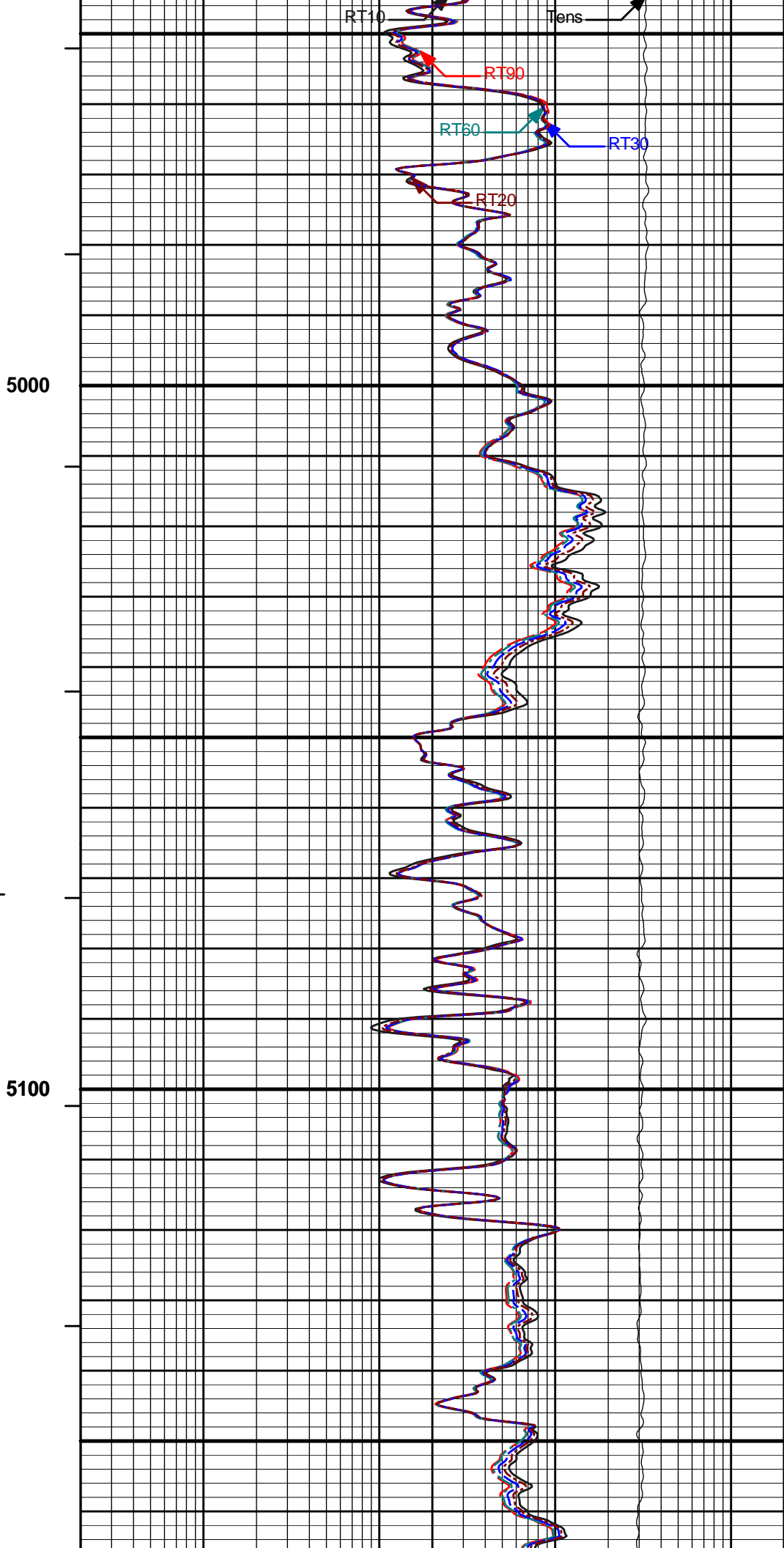
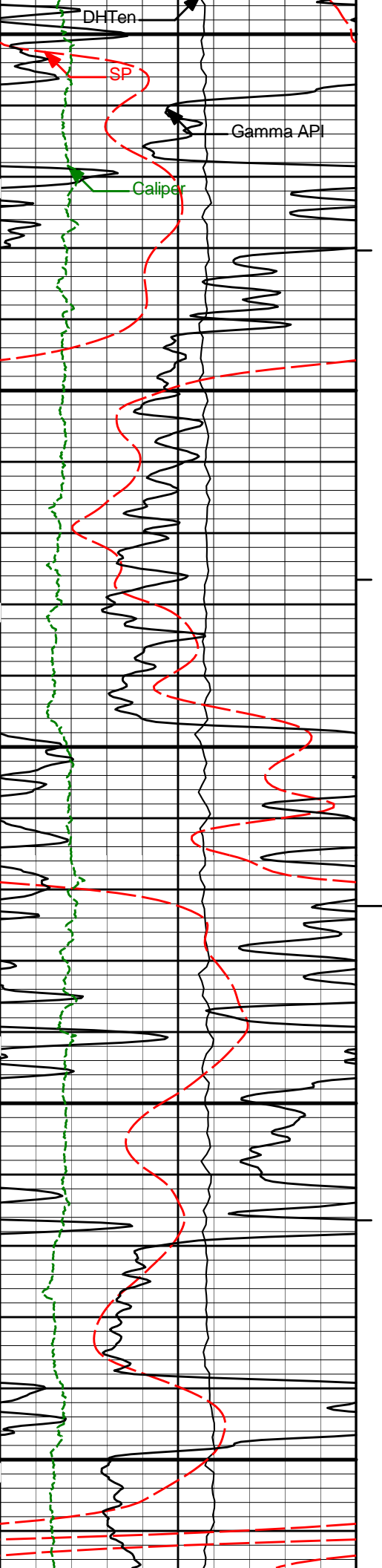


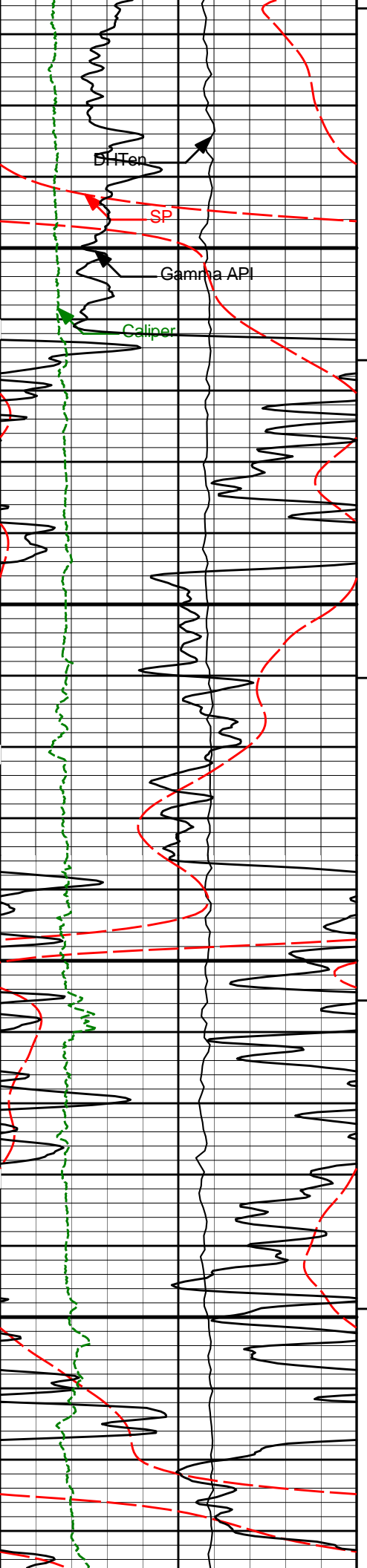


4800

4900

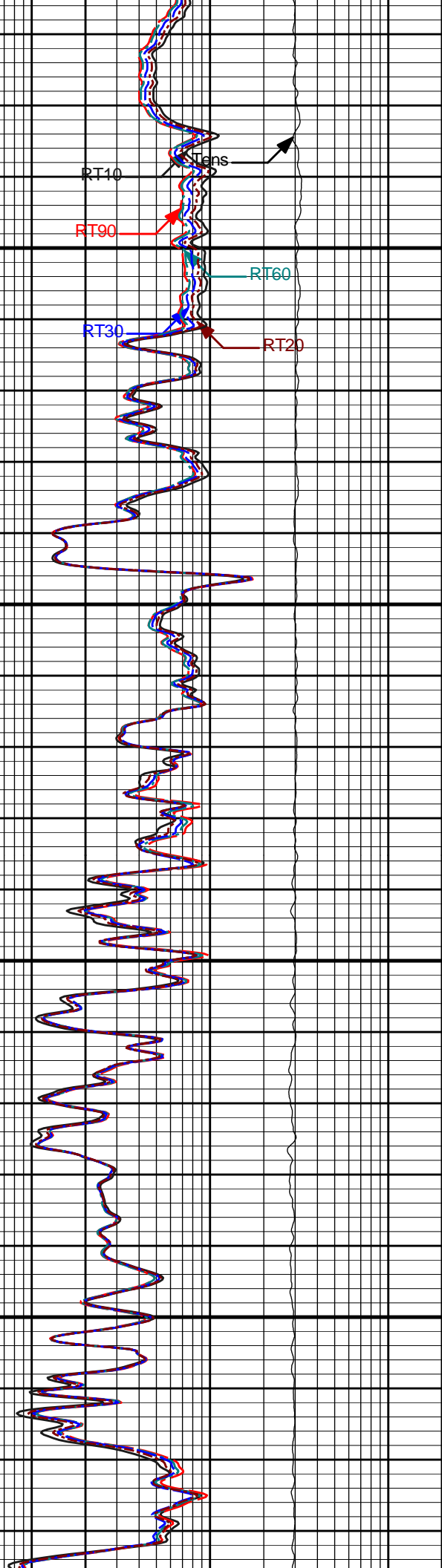






5200

5300



RT10

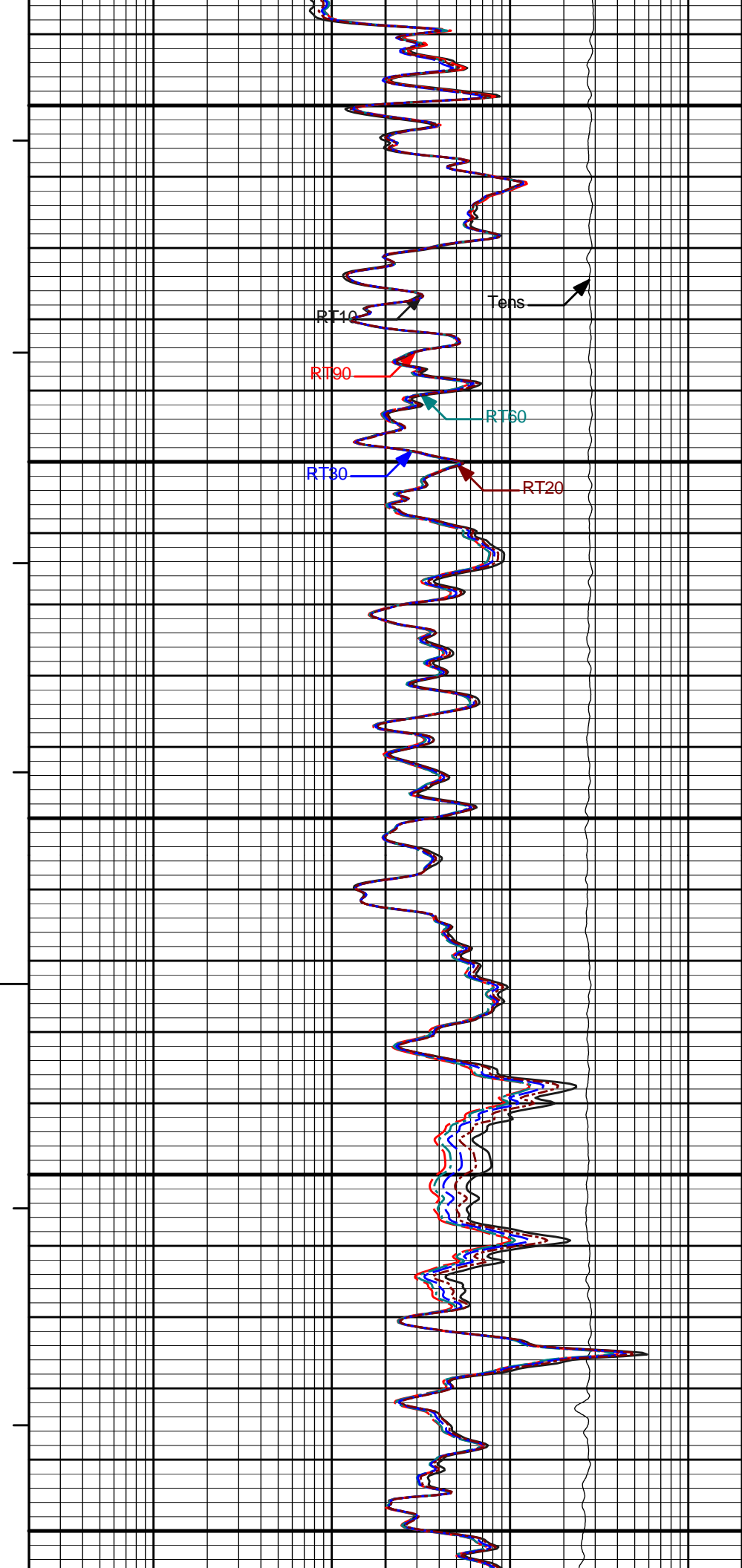
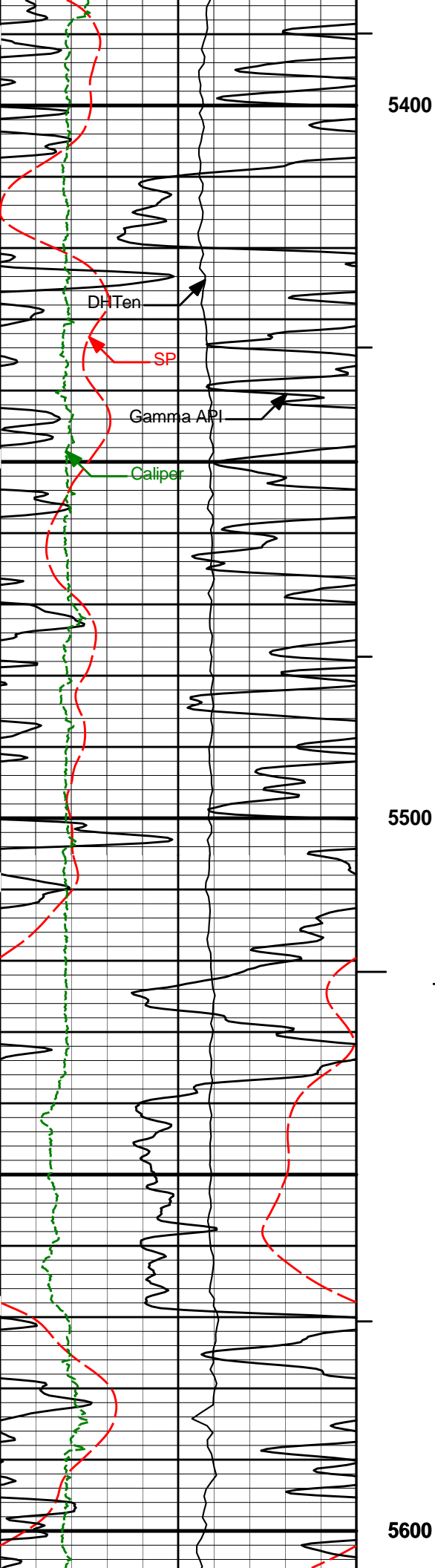
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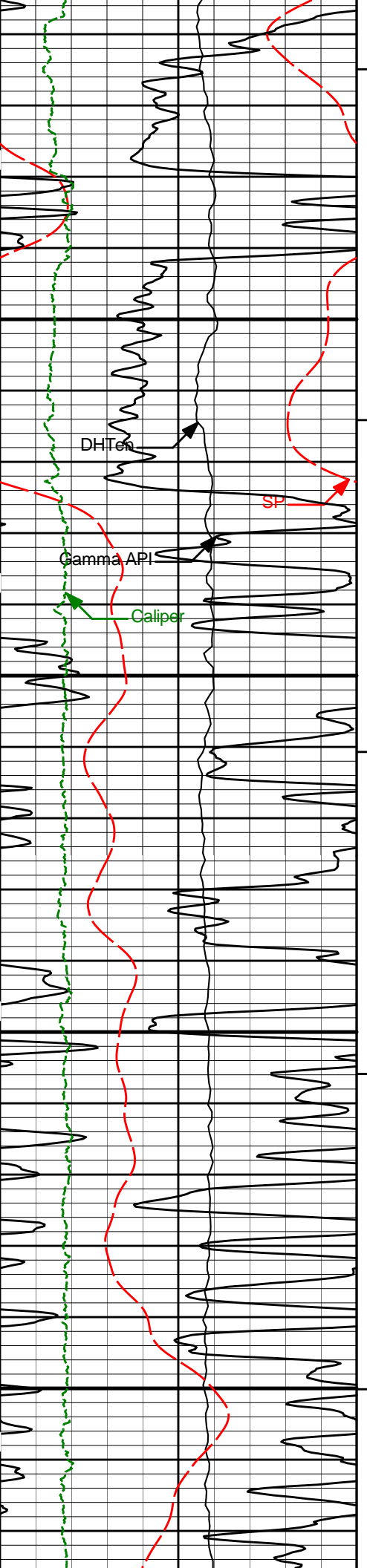
RT30

Lens

RT60

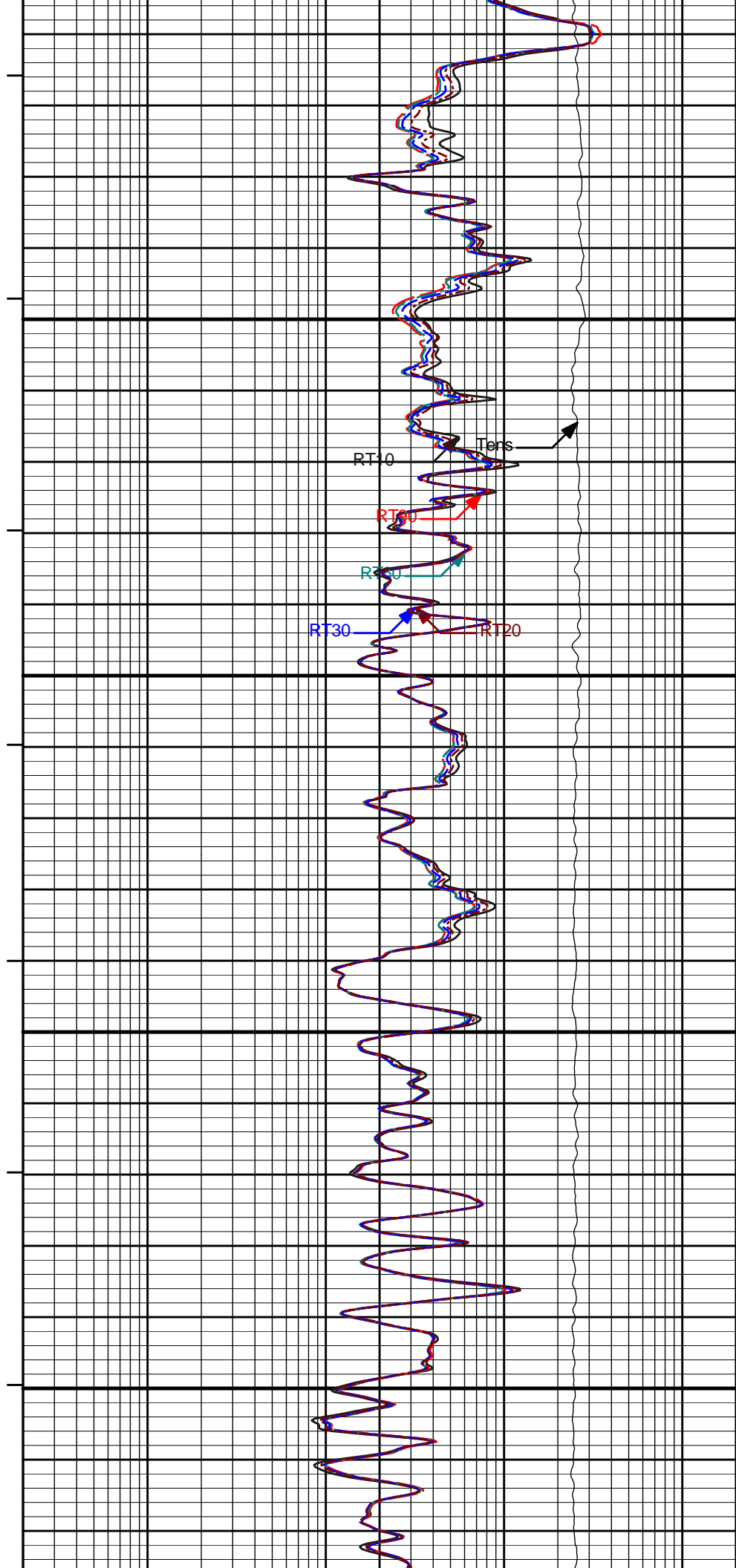
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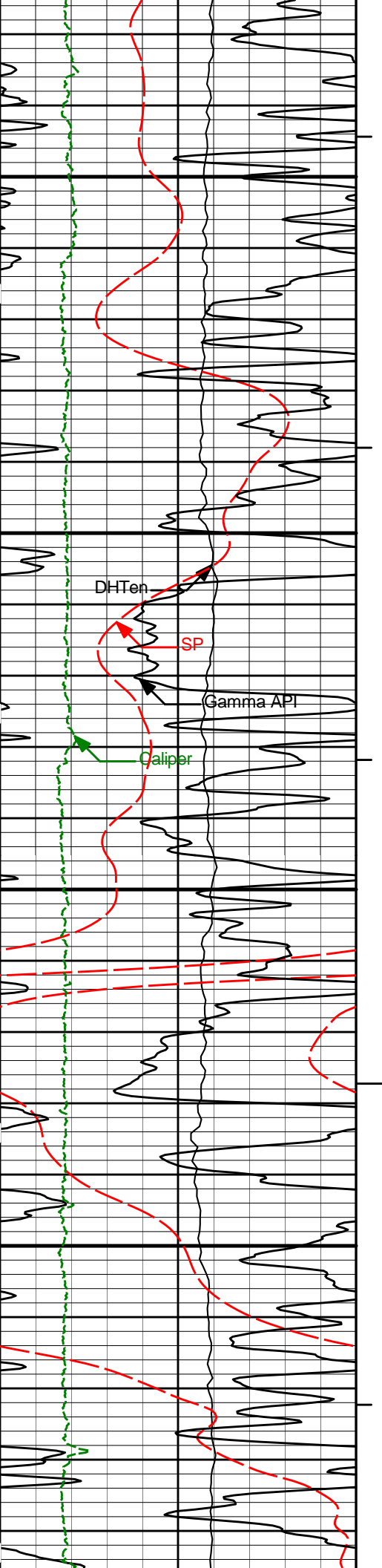




5700

5800





5900

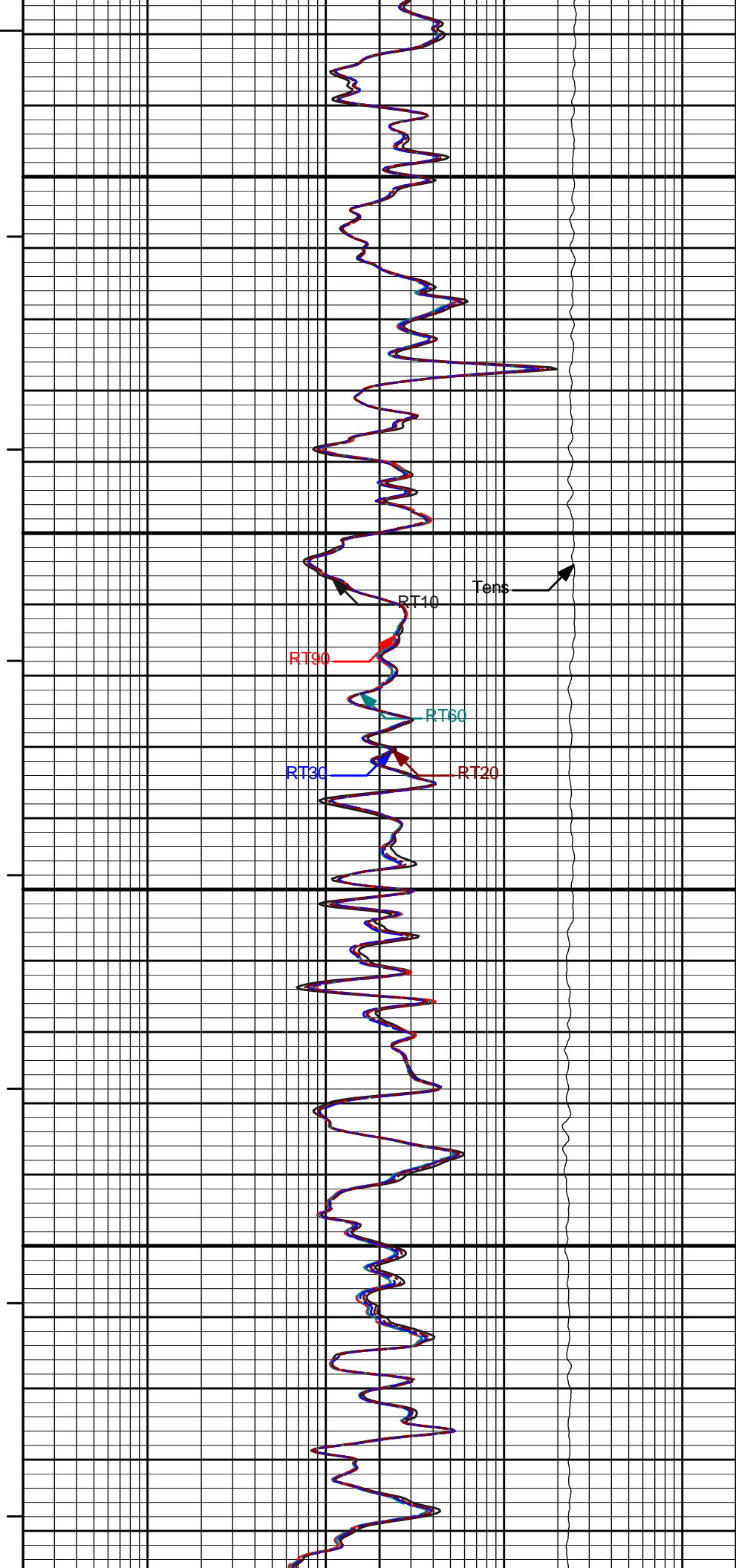
DHTen

SP

Gamma API

Caliper

6000



RT90

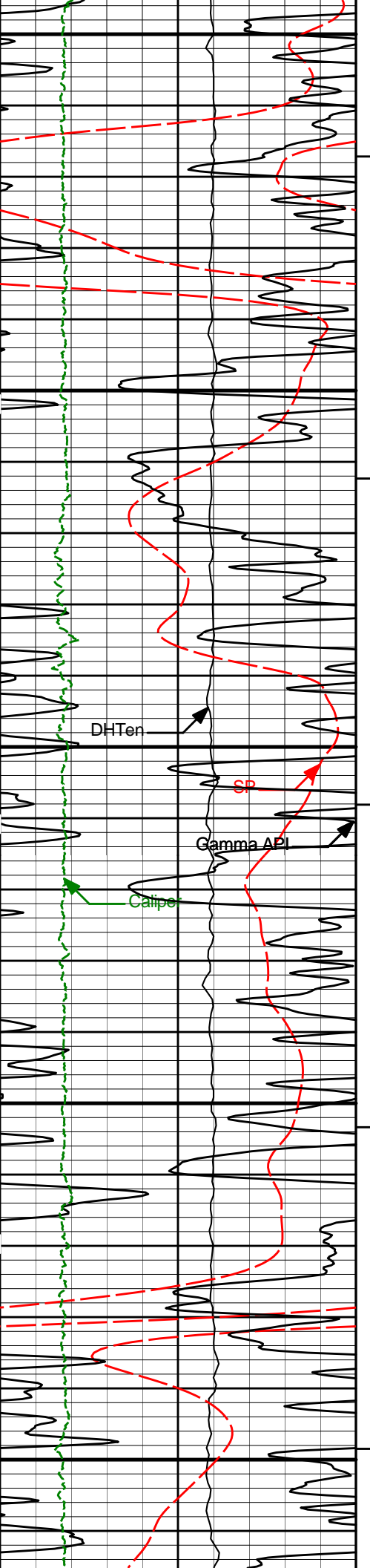
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RT60

RT30

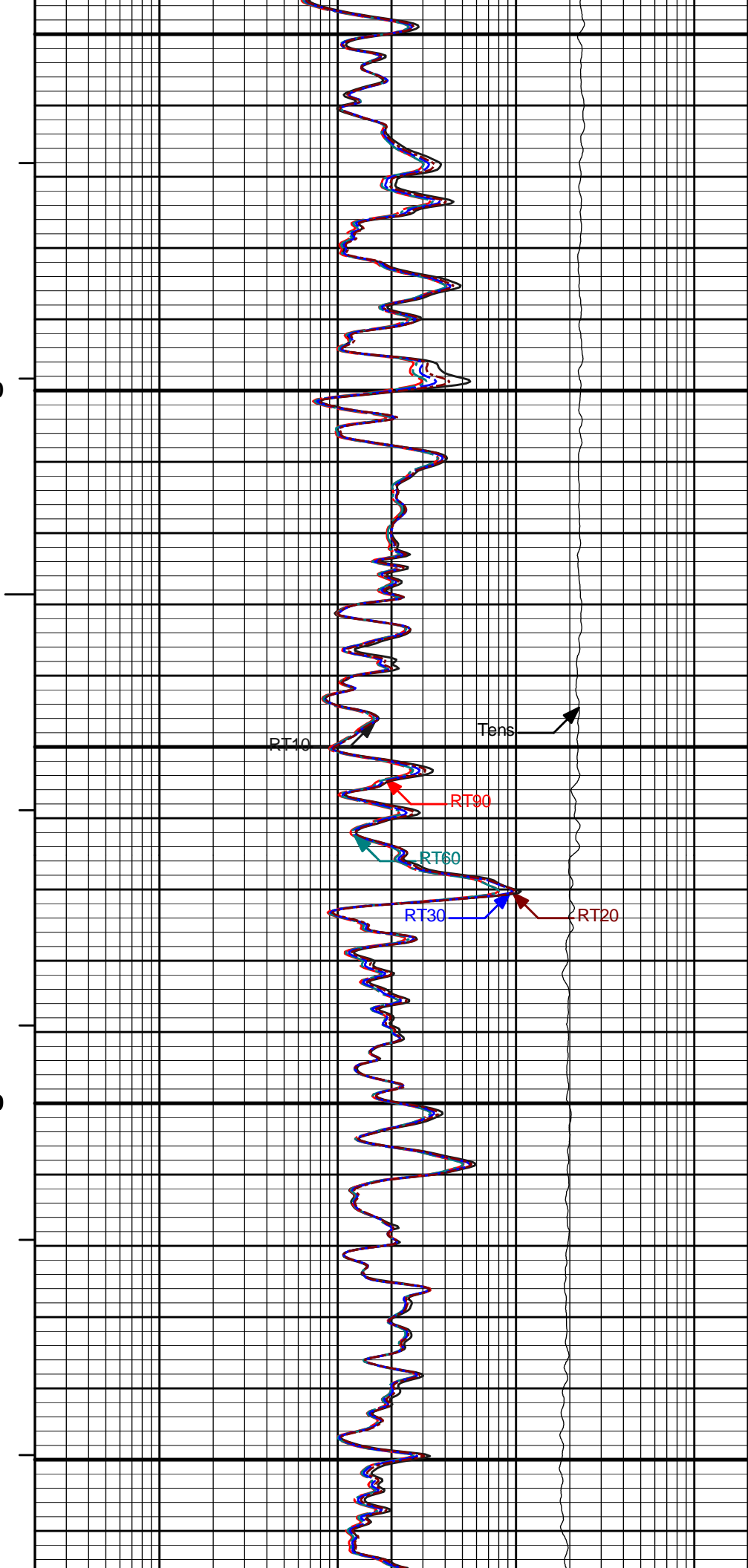
RT20

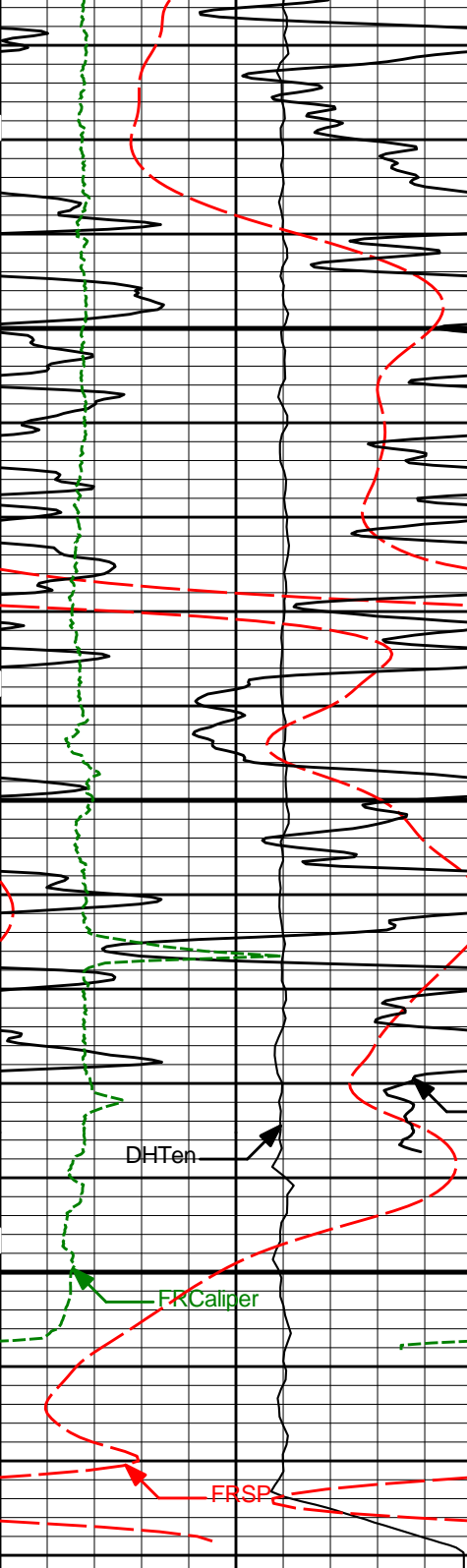
Tens



6100

6200

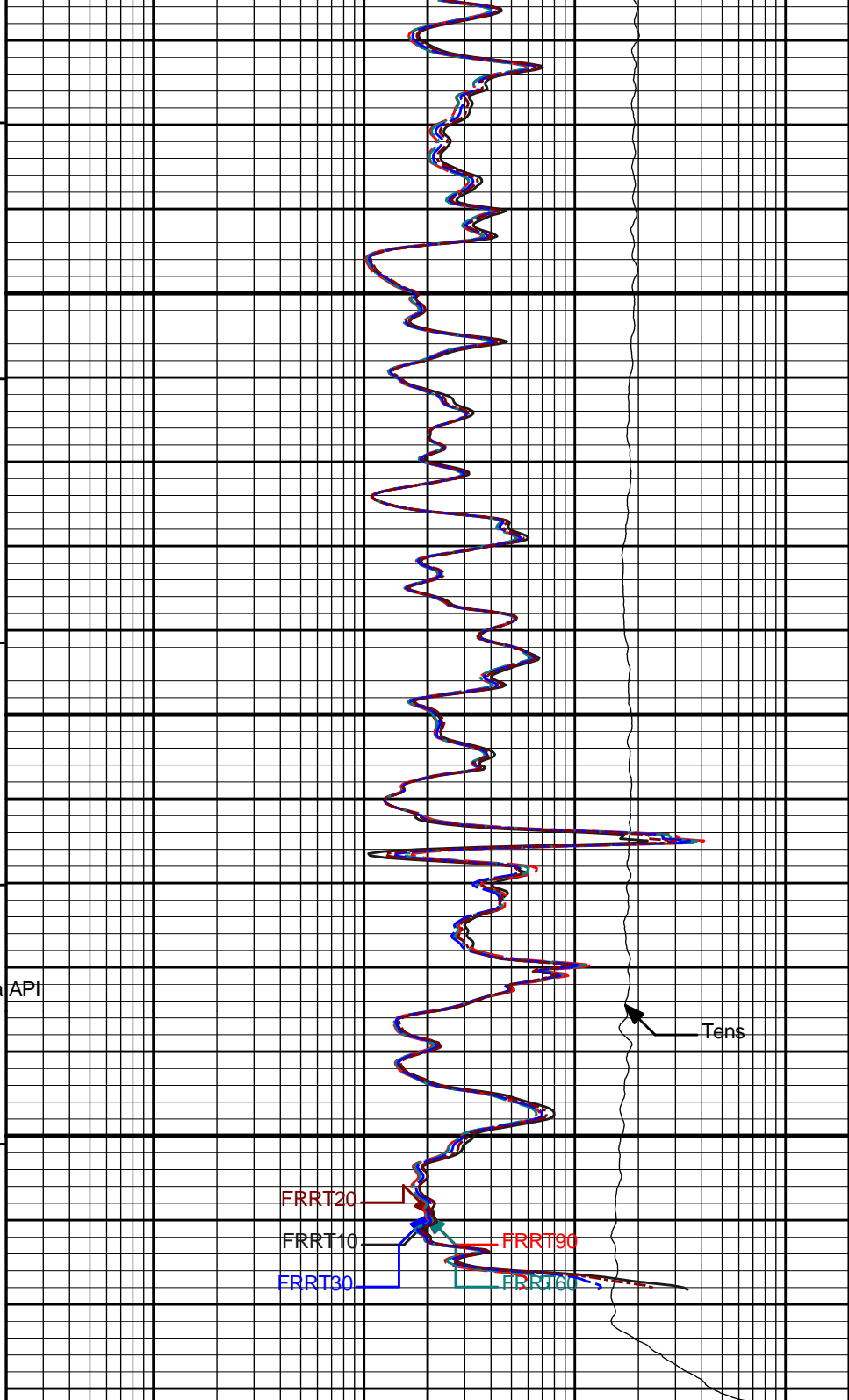




6300

6400

TD



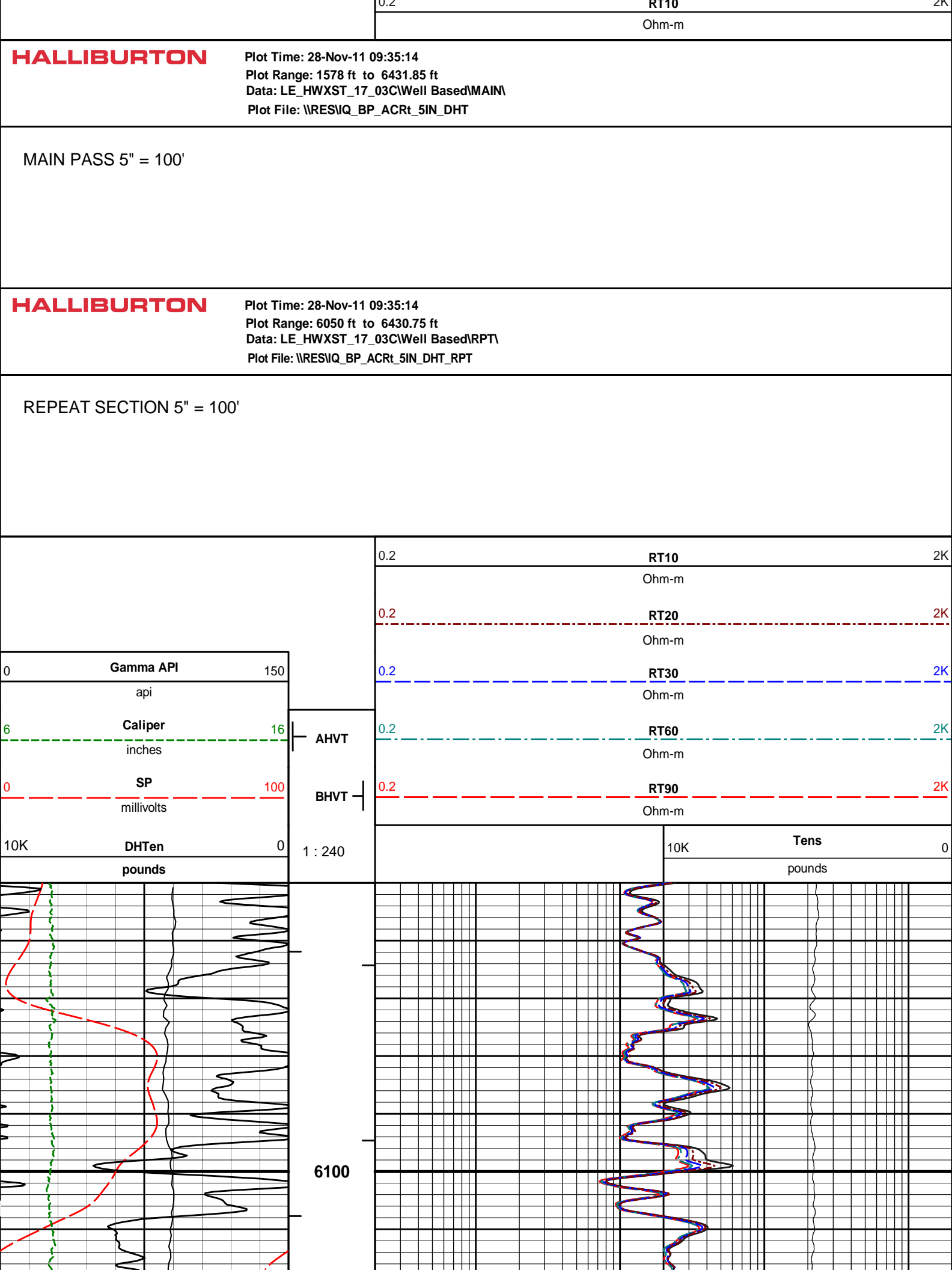
10K	DHTen	0
	pounds	
0	SP	100
	millivolts	
6	Caliper	16
	inches	
0	Gamma API	150
	api	

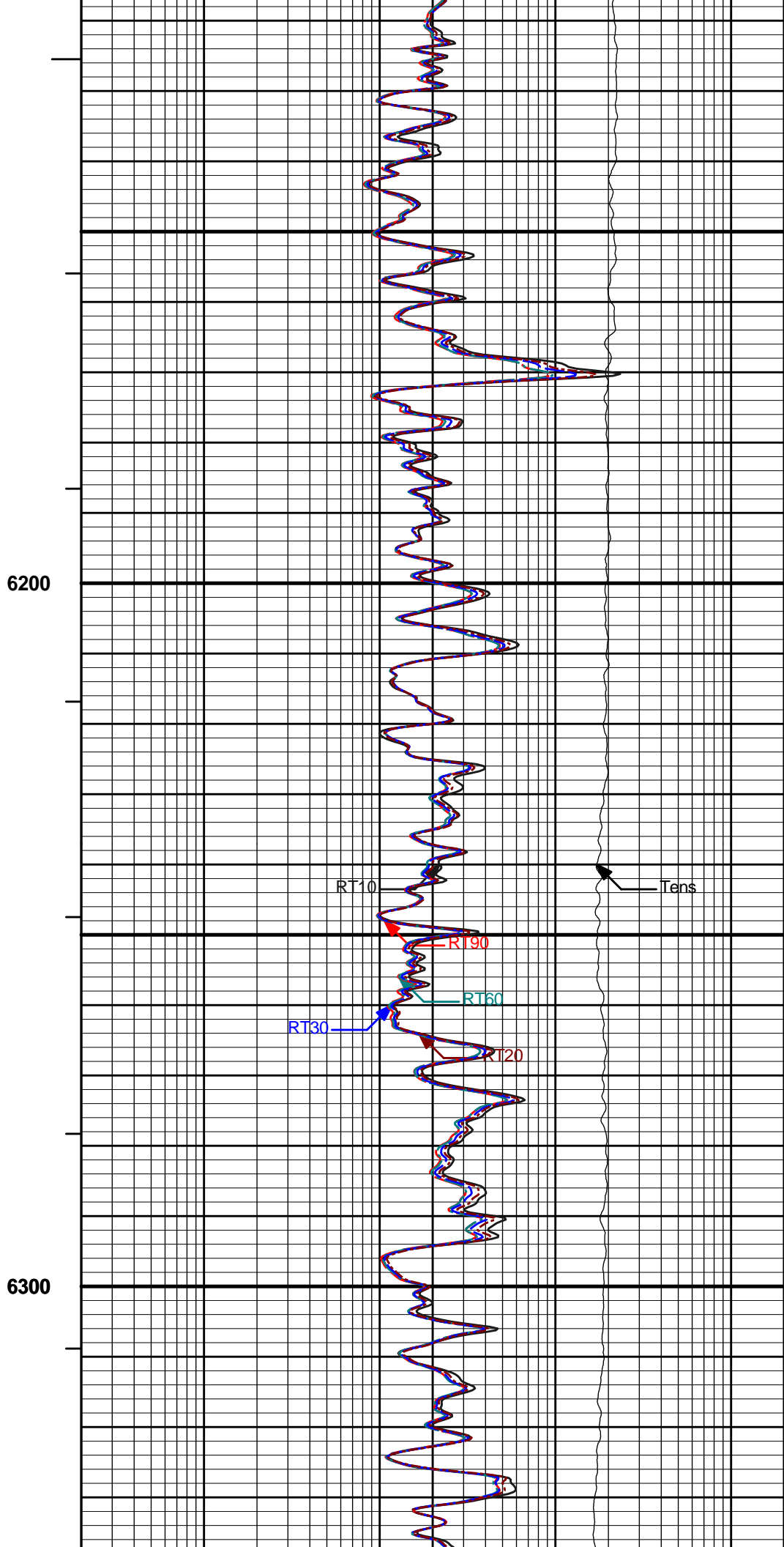
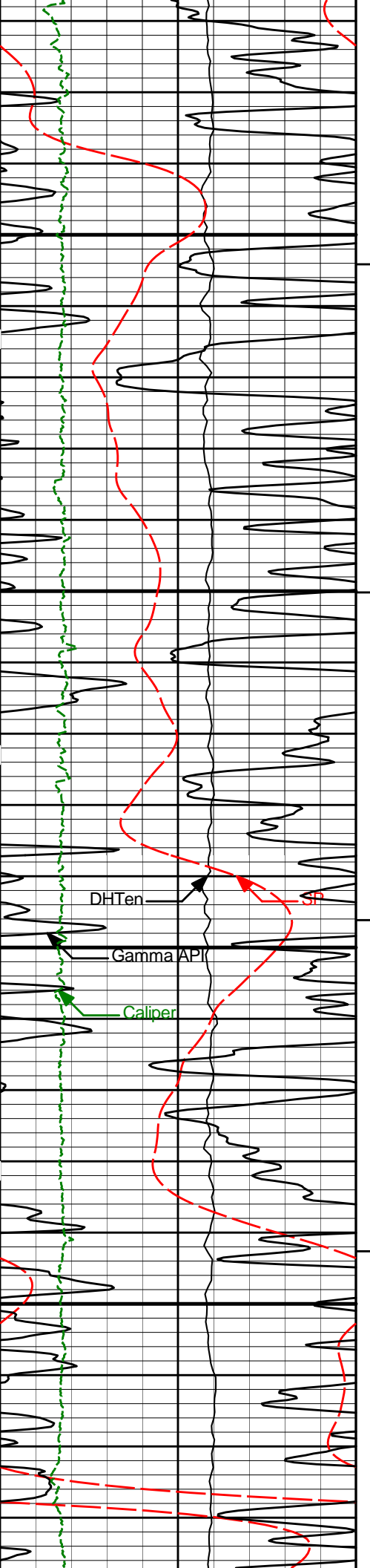
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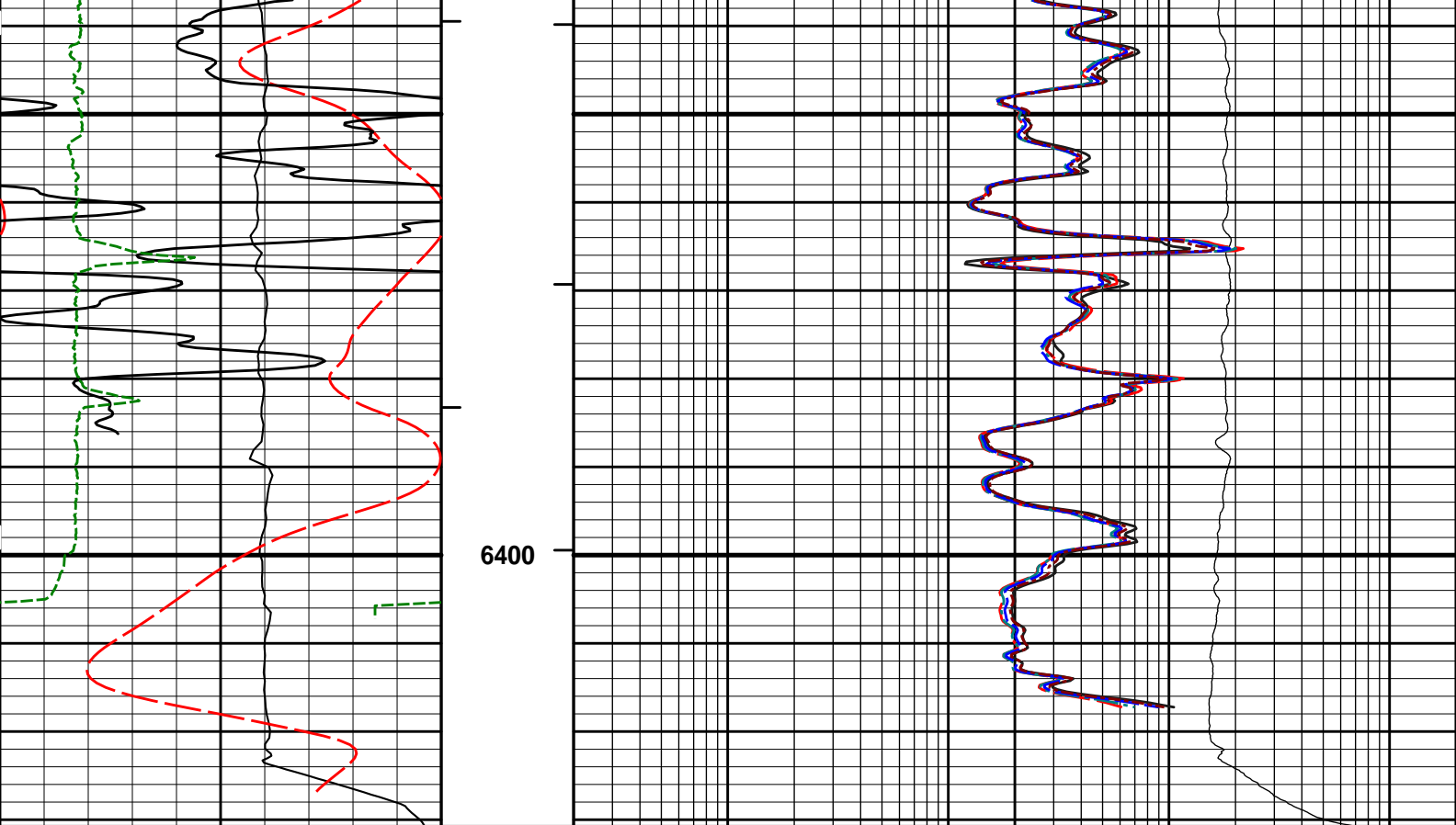
BHVT

AHVT

10K	Tens	0
	pounds	
0.2	RT90	2K
	Ohm-m	
0.2	RT60	2K
	Ohm-m	
0.2	RT30	2K
	Ohm-m	
0.2	RT20	2K
	Ohm-m	







10K	DHTen	0	1 : 240	10K	Tens	0
	pounds				pounds	
0	SP	100	BHVT	0.2	RT90	2K
	millivolts				Ohm-m	
6	Caliper	16	AHVT	0.2	RT60	2K
	inches				Ohm-m	
0	Gamma API	150		0.2	RT30	2K
	api				Ohm-m	
				0.2	RT20	2K
					Ohm-m	
				0.2	RT10	2K
					Ohm-m	

HALLIBURTON

Plot Time: 28-Nov-11 09:35:16
Plot Range: 6050 ft to 6430.75 ft
Data: LE_HWXST_17_03C\Well Based\RPT\
Plot File: \\RES\IQ_BP_ACRt_5IN_DHT_RPT

REPEAT SECTION 5" = 100'

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name: GTET - 11016182		Reference Calibration Date: 26-Oct-11 09:25:20		
Engineer: V. CREWS		Calibration Date: 26-Nov-11 14:39:38		
Software Version: WL INSITE R3.4.2 (Build 2)		Calibration Version: 1		
Calibrator Source S/N: TB-11				
Calibrator API Reference:246.00 api				
Equivalent Calibrator API Reference:250.3 api				
Measurement		Measured	Calibrated	Units
Background		39.6	39.1	api
Background + Calibrator		293.0	289.4	api
Calibrator		253.5	250.3	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION				
Tool Name: GTET - 11016182		Reference Calibration Date: 26-Nov-11 14:39:38		
Engineer: V. CREWS		Calibration Date: 27-Nov-11 11:50:01		
Software Version: WL INSITE R3.4.2 (Build 2)		Calibration Version: 1		
Calibrator Source S/N: TB-11				
Calibrator API Reference:246.00 api				
Equivalent Calibrator API Reference:250.3 api				
Field Verification		Shop	Field	Units
Background		39.1	39.4	api
Background + Calibrator		289.4	283.0	api
Calibrator		250.3	243.5	api
Shop		Field	Difference	Tolerance
250.3		243.5	6.8	+/- 9.00

NATURAL GAMMA RAY TOOL POST CALIBRATION					
Tool Name: GTET - 11016182		Reference Calibration Date: 27-Nov-11 11:50:01			
Engineer: V. CREWS		Calibration Date: 28-Nov-11 09:11:21			
Software Version: WL INSITE R3.4.2 (Build 2)		Calibration Version: 1			
Calibrator Source S/N: TB-11					
Calibrator API Reference:246.00 api					
Calibrator API Reference:250.3 api					
Post Verification		Field	Post	Units	
Background		39.4	43.9	api	
Background + Calibrator		283.0	290.2	api	
Calibrator		243.5	246.3	api	
Shop		Field	Post	Difference	Tolerance
250.3		243.5	246.3	-2.8	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION			
Tool Name: DSNT - 10839203		Reference Calibration Date: 10-Nov-11 21:51:58	
Engineer: V. CREWS		Calibration Date: 26-Nov-11 14:32:06	
Software Version: WL INSITE R3.4.2 (Build 2)		Calibration Version: 1	
Logging Source S/N: DSN-431			
Tank Serial Number: 105039			
Reference value assigned to Tank: 51.650			
Snow Block S/N: SNOWBLOCK			
Calibration Tank Water Temperature: 69 degF			
Min. Tool Housing Outside Diameter: 3.625 in			

CALIBRATION CONSTANTS			
Measurement	Prev. Value	New Value	Control Limit On New Value

Gain:	0.998	0.993	0.900 - 1.100
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WATER TANK SUMMARY (Horizontal Water Tank)				
Measurement	Current Reading (Previous Coef.)	Calibrated (New Coef.)	Change	Control Limit On Change
Porosity (decp):	0.2122	0.2108	0.0014	+/- 0.0020
Calibrated Ratio:	9.77	9.72	0.047	+/- 0.050

VERIFIER		
Measurement	Value	Control Limit

Snow-Block Porosity (decp):	0.0675	0.02000 - 0.09000
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PASS/FAIL SUMMARY	
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Background Check:	Passed
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Gain-Range Check:	Passed
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Snow-Block Check:	Passed
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DUAL SPACED NEUTRON FIELD CALIBRATION			
Tool Name:	DSNT - 10839203	Reference Calibration Date:	26-Nov-11 14:32:06
Engineer:	V. CREWS	Calibration Date:	27-Nov-11 12:02:24
Software Version:	WL INSITE R3.4.2 (Build 2)	Calibration Version:	1

Logging Source S/N: DSN-431
Snow Block S/N: SNOWBLOCK

NEUTRON FIELD-CHECK SUMMARY				
	Shop	Field	Difference	Control Limit On Change

Snow-Block Porosity (decp):	0.0675	0.0817	0.0142	+/- 0.0150
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PASS/FAIL SUMMARY	
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Block Change Check:	Passed
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Snow Block Stat Check:	Passed
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Temperature Check:	Passed
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DUAL SPACED NEUTRON POST CALIBRATION			
Tool Name:	DSNT - 10839203	Reference Calibration Date:	27-Nov-11 12:02:24
Engineer:	V. CREWS	Calibration Date:	28-Nov-11 09:16:14
Software Version:	WL INSITE R3.4.2 (Build 2)	Calibration Version:	1

Logging Source S/N: DSN-431
Snow Block S/N: SNOWBLOCK

NEUTRON POST-CHECK SUMMARY				
	Field Value	Post Value	Difference	Control Limit On Change

Snow-Block Porosity (decp):	0.0817	0.0696	-0.0120	+/- 0.0150
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PASS/FAIL SUMMARY	
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Block Change Check:	Passed
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Snow Block Stat Check:	Passed
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Temperature Check:	Passed
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DENSITY CALIPER SHOP CALIBRATION	
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Tool Name:	SDLT - 10733075	Reference Calibration Date:	25-Oct-11 16:27:41
Engineer:	V. CREWS	Calibration Date:	26-Nov-11 11:18:04
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	-2024.77	-1893.78	-7000.00 - -1000.00
Pad Gain	0.0003751	0.0003714	0.000200 - 0.000600
Arm Offset	-3490.43	-3332.50	-5000.00 - 3000.00
Arm Gain	0.0005480	0.0005436	0.000300 - 0.000700
Arm Power	-0.000004451	-0.000004298	-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)	1.97	2.00	0.03	+/- 0.20
Medium Ring (in)	3.74	3.75	0.01	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.38	6.50	0.12	+/- 0.20
Medium Ring (in)	8.15	8.25	0.10	+/- 0.20
Large Ring (in)	14.93	15.00	0.07	+/- 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 - 10733075	Reference Calibration Date:	26-Nov-11 11:18:04
Engineer:	V. CREWS	Calibration Date:	27-Nov-11 11:53:33
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	3.73	-0.02	+/- 0.10
Ring Diameter	8.25	8.26	0.01	+/- 0.15

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

SDLT CALIPER POST CALIBRATION			
Tool Name:	SDLT - 10733075	Reference Calibration Date:	27-Nov-11 11:53:33
Engineer:	V. CREWS	Calibration Date:	28-Nov-11 09:13:59
Software Version:	WL INSITE R3.4.2 (Build 2)	Calibration Version:	1

MEASURED CALIPER VALUES				
Measurement	Field	Post	Change	Control Limit On New Value
Pad Extension	3.73	3.73	0.00	+/- 0.10

Ring Diameter				8.26	8.36	0.10	+/- 0.15		
PASS/FAIL SUMMARY									
Pad Extension Check:						Passed			
Diameter Check:						Passed			
ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION									
Tool Name: ACRt Sonde - E336_S042				Reference Calibration Date: 31-Aug-11 10:13:19					
Engineer: B. PEDERSEN				Calibration Date: 28-Sep-11 10:49:25					
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	1.0019	1.05	0.95	1.0053	1.05	0.95	1.0054	1.05
A2 (50")	0.95	1.0584	1.05	0.95	1.0628	1.05	0.95	1.0643	1.05
A3 (29")	0.95	1.0012	1.05	0.95	1.0049	1.05	0.95	1.0037	1.05
A4 (17")	0.95	0.9915	1.05	0.95	0.9932	1.05	0.95	0.9958	1.05
A5 (10")	N/A	N/A	N/A	0.95	0.9913	1.05	0.95	0.9919	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.9764	1.05	0.95	0.9768	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	-0.301	2	-6	-3.728	-2	-8	-4.797	-2
A2 (50")	-7	-2.094	-1	-6	-3.856	-2	-7	-4.583	-2
A3 (29")	-27	-13.233	-9	-9	-3.792	-3	-7	-3.035	-1
A4 (17")	-180	-102.591	-60	-45	-32.410	-15	-39	-25.653	-13
A5 (10")	N/A	N/A	N/A	-150	-59.814	-50	-80	-33.132	-10
A6 (6")	N/A	N/A	N/A	175	276.058	525	90	141.666	270
TRANSMITTER CURRENT GAIN						R-MUD VERIFICATION			
Signal	Lower	R	Upper	Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)		
12K	0.6	0.8833	1.3	Mud Cell	0.95	1.009	1.05		
36K	1.0	1.8987	2.0						
72K	1.0	1.1229	2.0						
SPECTRAL DENSITY SHOP CALIBRATION									
Tool Name: SDLT Pad - 10733075				Reference Calibration Date: 25-Oct-11 14:42:19					
Engineer: V. CREWS				Calibration Date: 26-Nov-11 10:40:49					
Software Version: WL INSITE R3.4.2 (Build 2)				Calibration Version: 1					
Logging Source S/N: 5116GW									
Aluminum Block S/N: ROCK SPRINGS				Density: 2.602g/cc				Pe: 3.110	
Magnesium Block S/N: ROCK SPRINGS				Density: 1.690g/cc				Pe: 2.610	
DENSITY CALIBRATION SUMMARY									
Measurement		Previous Value		New Value		Control Limit			
Near Bar Gain		1.0551		1.0310		0.90 - 1.10			
Near Dens Gain		1.0304		1.0254		0.90 - 1.10			
Near Peak Gain		1.0508		1.0444		0.90 - 1.10			
Near Lith Gain		1.0168		1.0051		0.90 - 1.10			
Far Bar Gain		1.0162		1.0089		0.90 - 1.10			

Far Dens Gain	1.0008	1.0000	0.90 - 1.10
Far Peak Gain	0.9953	0.9945	0.90 - 1.10
Far Lith Gain	0.9811	0.9770	0.90 - 1.10
Near Bar Offset	-0.3299	-0.1169	NONE
Near Dens Offset	-0.1065	-0.0697	NONE
Near Peak Offset	-0.2743	-0.2310	NONE
Near Lith Offset	0.0133	0.0984	NONE
Far Bar Offset	-0.0697	0.0006	NONE
Far Dens Offset	0.0868	0.0954	NONE
Far Peak Offset	0.1288	0.1347	NONE
Far Lith Offset	0.2180	0.2385	NONE
Near Bar Background	856.17	854.04	700 - 1450
Near Dens Background	283.17	280.77	230 - 480
Near Peak Background	123.90	124.05	100 - 210
Near Lith Background	152.50	152.54	125 - 260
Far Bar Background	530.10	530.56	450 - 900
Far Dens Background	205.78	206.95	175 - 345
Far Peak Background	81.42	80.81	70 - 140
Far Lith Background	83.95	84.62	75 - 145

CALIBRATION BLOCK SUMMARY				
Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.699	1.690	-0.009	+/- 0.015
Pe	2.523	2.568	0.045	+/- 0.150
ALUMINUM				
Density (g/cc)	2.611	2.602	-0.009	+/- 0.01500
Pe	3.032	3.073	0.041	+/- 0.150

TOOL SUMMARY				
Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	-0.0003	+/- 0.0110	-0.0004	+/- 0.0140
Magnesium Block	-0.0006	+/- 0.0110	-0.0016	+/- 0.0140
Aluminum Block	-0.0006	+/- 0.0110	-0.0006	+/- 0.0140
Resolution	8.43	6.00 - 11.50	9.27	6.00 - 11.50
Internal Verifier(B+D+P+L)	1411	1200 - 2700	903	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

Tool Name: SDLT Pad - 10733075		Reference Calibration Date: 26-Nov-11 10:40:49	
Engineer: V. CREWS		Calibration Date: 27-Nov-11 11:49:36	
Software Version: WL INSITE R3.4.2 (Build 2)		Calibration Version: 1	

Pad Temperature: 64.7 degF

DENSITY FIELD CALIBRATION SUMMARY				
Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1411.402	1405.971	-5.431	15.168
Far (B+D+P+L) cps	902.940	903.478	0.538	16.332
Near Resolution	8.43	8.39	-0.040	0.50
Far Resolution	9.27	9.34	0.070	1.00

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

SPECTRAL DENSITY POST CHECK			
Tool Name: SDLT Pad - 10733075		Reference Calibration Date: 27-Nov-11 11:49:36	
Engineer: V. CREWS		Calibration Date: 28-Nov-11 09:11:54	
Software Version: WL INSITE R3.4.2 (Build 2)		Calibration Version: 1	

Pad Temperature: 75.2 degF

DENSITY POST CALIBRATION SUMMARY				
Measurement	Field	Post	Change	Control Limit +/-
Near (B+D+P+L) cps	1405.971	1410.536	4.565	15.168
Far (B+D+P+L) cps	903.478	901.144	-2.334	16.332
Near Resolution	8.39	8.49	0.100	0.50
Far Resolution	9.34	9.33	-0.010	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-11016182						
Gamma Ray Calibrator	250.3	243.5	246.3	-2.8	+/- 9.00	api
DSNT-10839203						
Snow-Block Porosity	0.0675	0.0817	0.0696	0.0121	+/- 0.0150	decg
SDLT-10733075						
Pad Extension	3.75	3.73	3.73	0.00	+/-0.10	in
Ring Diameter	8.25	8.26	8.36	-0.100	+/-0.15	in
ACRt Sonde-E336_S042						
Mud Cell	1.009	-----	-----	0.000	-----	ohm-m
SDLT Pad-10733075						
Near(B+D+P+L)	1411.402	1405.971	1410.536	-4.565	+/-15.168	cps
Far(B+D+P+L)	902.940	903.478	901.144	2.334	+/-16.332	cps

Data: LE_HWXST_17_03C\0001 LOGIQ_TRIPLE\IDLE


Date: 28-Nov-11 09:16:49

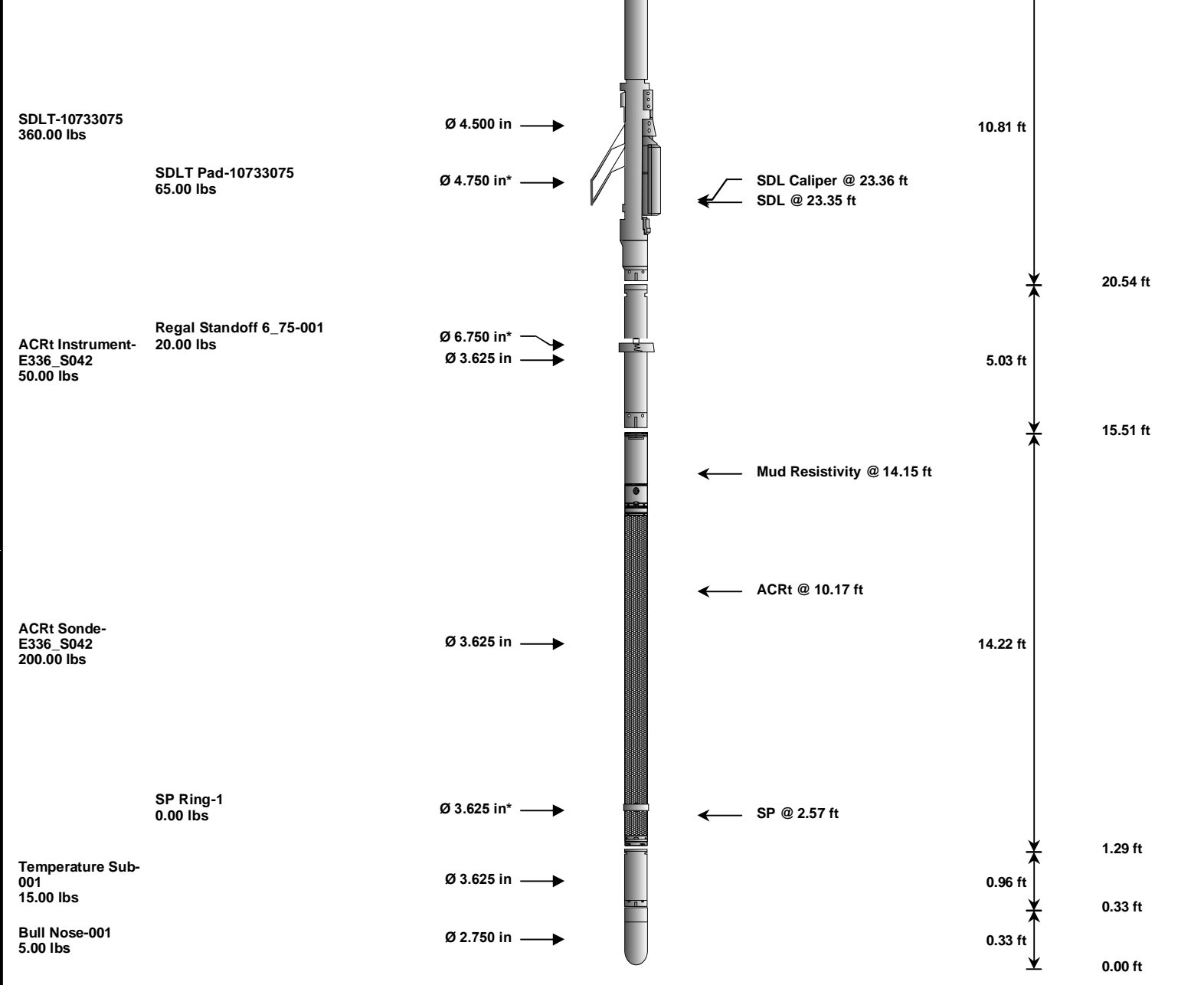
CUSTOMER EVENT LOG

Event Type	Time & Date	Depth (ft)	Event Description
	28-Nov-11 05:42:30	1038.50	Logging 001 28-Nov-11 05:42 Up @1038.5f
	28-Nov-11 05:42:34	1065.82	Halting 001 28-Nov-11 05:42 Up @1038.5f
	28-Nov-11 05:43:13	1175.25	Logging 002 28-Nov-11 05:43 Dn @1175.3f
	28-Nov-11 05:46:12	1757.90	Halting 002 28-Nov-11 05:43 Dn @1175.3f
	28-Nov-11 05:47:07	1852.00	Logging 003 28-Nov-11 05:47 Up @1852.0f
	28-Nov-11 05:52:27	1554.97	Halting 003 28-Nov-11 05:47 Up @1852.0f
	28-Nov-11 05:52:48	1478.75	Logging 004 28-Nov-11 05:52 Dn @1478.8f
	28-Nov-11 06:08:16	4444.60	Halting 004 28-Nov-11 05:52 Dn @1478.8f
	28-Nov-11 06:09:22	4292.25	Logging 005 28-Nov-11 06:09 Dn @4292.3f
	28-Nov-11 06:09:27	4360.52	Halting 005 28-Nov-11 06:09 Dn @4292.3f
	28-Nov-11 06:09:42	4348.75	Logging 006 28-Nov-11 06:09 Dn @4348.8f
	28-Nov-11 06:30:03	6411.89	Halting 006 28-Nov-11 06:09 Dn @4348.8f
	28-Nov-11 06:31:17	6412.25	Logging 007 28-Nov-11 06:31 Up @6412.3f
	28-Nov-11 06:38:35	6012.68	Halting 007 28-Nov-11 06:31 Up @6412.3f
	28-Nov-11 06:43:08	6412.00	Logging 008 28-Nov-11 06:43 Up @6412.0f
	28-Nov-11 08:31:27	79.16	Halting 008 28-Nov-11 06:43 Up @6412.0f
Data: LE_HWXST_17_03C\0001 LOGIQ_TRIPLE\HW11111			Date: 28-Nov-11 08:53:28

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
RWCH-001 135.00 lbs		Ø 3.625 in →		← Load Cell @ 52.13 ft ← BH Temperature @ 51.56 ft	6.25 ft	55.81 ft
GTET-11016182 165.00 lbs		Ø 3.625 in →		← GammaRay @ 43.50 ft	8.52 ft	49.56 ft
DSN Decentralizer- 10839203 6.60 lbs		Ø 5.000 in* →				41.04 ft
DSNT-10839203 174.00 lbs		Ø 3.625 in →		← DSN Far @ 34.11 ft ← DSN Near @ 33.36 ft	9.69 ft	31.36 ft



Mnemonic		Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max.Log. Speed (fpm)	
RWCH	Releasable Wireline Cable Head		001	135.00	6.25	49.56	300.00	
GTET	Gamma Telemetry Tool		11016182	165.00	8.52	41.04	60.00	
DSNT	Dual Spaced Neutron		10839203	174.00	9.69	31.36	60.00	
DCNT	DSN Decentralizer		10839203	6.60	5.13	*	34.69	300.00
SDLT	Spectral Density Tool		10733075	360.00	10.81	20.54	60.00	
SDLP	Density Insite Pad		10733075	65.00	2.55	*	22.75	60.00
ACRt	Array Compensated True Resistivity Instrument Section		E336_S042	50.00	5.03	15.51	300.00	
RSOF	Regal Standoff 6.75in		001	20.00	0.52	*	18.17	300.00
ACRt	Array Compensated True Resistivity		E336_S042	200.00	14.22	1.29	300.00	
SP	SP Ring		1	0.00	0.25	*	2.57	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				1,195.60	55.81			
* Not included in Total Length and Length Accumulation.								
Data: LE_HWXST_17_03C\0001 LOGIQ_TRIPLE\IDLE								
Date: 28-Nov-11 05:02:51								

COMPANY	LARAMIE ENERGY
WELL	HAWXHURST 17-03C

FIELD	BRUSH CREEK		
COUNTY	MESA	STATE	COLORADO
HALLIBURTON		ARRAY COMPENSATED TRUE RESISTIVITY	