

HALLIBURTON

ARRAY COMPENSATED
TRUE RESISTIVITY

COMPANY		Koch Exploration Company, LLC	
WELL		AHU WYATT 25-43 SWD	
FIELD/BLOCK		WHITE RIVER DOME	
COUNTY		RIO BLANCO	
STATE		COLORADO	
Permanent Datum		GL	
Log measured from		KB	
Drilling measured from		KB	
Date		26-Sep-13	
Run No.		ONE	
Depth - Driller		3502.00 ft	
Depth - Logger		3499.0 ft	
Bottom - Logged Interval		3497.0 ft	
Top - Logged Interval		1136.0 ft	
Casing - Driller		8.625 in @ 1128.0 ft	
Casing - Logger		1136.0 ft	
Bit Size		8.750 in @	
Type Fluid in Hole		WBM	
Density		9.2 ppg	
Viscosity		52.00 s/qt	
PH		9.40 pH	
Fluid Loss		9.0 cpm	
Source of Sample		MUD TANK	
Rm @ Meas. Temperature		1.800 ohmm @ 87.20 degF	
Rmf @ Meas. Temperature		1.17 ohmm @ 87.20 degF	
Rmc @ Meas. Temperature		1.630 ohmm @ 75.70 degF	
Source Rmf		MEAS	
Rmc		MEAS	
Rm @ BHT		1.41 ohmm @ 113.0 degF	
Time Since Circulation		6.4 hr	
Time on Bottom		26-Sep-13 09:22	
Max. Rec. Temperature		113.0 degF @ N/A	
Equipment		11170614	
Location		ROCK SPRING	
Recorded By		V. CREWS	
Witnessed By		N. NAEVE	

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WELL		AHU WYATT 25-43 SWD	
FIELD/BLOCK		WHITE RIVER DOME	
COUNTY		RIO BLANCO	
STATE		COLORADO	
API No.		05103119610000	
Location		SURFACE HOLE LOCATION: 441' FSL & 1959' FEL BOTTOM HOLE LOCATION: 441' FSL & 1959' FEL	
Sect. 25		Twp. 2N	
Rge. 97W		Elev. 5819.0 ft	
Other Services:		RWCH DSNT/SDLT BSAT	
D.F.		5829.0 ft	
G.L.		5819.0 ft	

Fold here

Service Ticket No.: 900770093				API Serial No.: 05103119610000				PGM Version: WL INSITE R3.8.10 (Build 5)							
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		FREE		N/A	
Rmc @ Meas. Temp.		@		@				E267_S684							
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.		10843477		Serial No.		11105782		Serial No.		11014275		Serial No.		10846353	
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.		GTET		Spacing		0.5'		Log Type		GAM-GAM		Log Type		THERM-THERM	
Type		SCINT						Source Type		Cs137		Source Type		Am241Be	
Length		8"		LSA [Y/N]				Serial No.		5235GW		Serial No.		08-018	
Distance to Source		10'		FWDA [Y/N]				Strength		1.78 Ci		Strength		15.0 Ci	
LOGGING DATA															

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	3499'	100'	REC	0	150				30%	-10%	2.65 g/cc	30%	-10%	SAND
DIRECTIONAL INFORMATION														
Maximum Deviation @									KOP @					
Remarks: RWCH-CCL-GTET-DSNT-SDLT-FLEX-BSAT-ACRT RAN IN COMBINATION														
BOREHOLE RUGOSITY, TENSION PULLS, AND WASHOUTS MAY EFFECT LOG QUALITY														
ANNULAR HOLE VOLUME CALCULATED FOR 7-INCH CASING														
LATITUDE: 40.106933														
LONGITUDE: -108.224175														
TODAY'S CREW: J. DAVIS & J. HARBISON							RIG: CAPSTAR 311							
*** THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES, ROCK SPRINGS, WY (307) 356-8600 ***														
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	Description	Value	Units
TOP				
	SHARED	Bit Size	8.750	in
	SHARED	Use Bit Size instead of Caliper for all applications.	No	
	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	1.800	ohmm
	SHARED	Temperature of Mud	87.2	degF
	SHARED	Logging Interval is Cased?	No	
	SHARED	AHV Casing OD	7.000	in
	SHARED	Surface Temperature	67.0	degF
	SHARED	Total Well Depth	3499.00	ft
	SHARED	Bottom Hole Temperature	113.0	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	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	
CCL-D	Process CCL?	Yes	
CCL-D	CCL Processing Selection	Raw	
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	2.650	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	
ACRt Sonde	Fixed mud resistivity	2000	ohmm

BOTTOM

Data: AW_25_43_SWDI0001 QUAD_BSATI

Date: 26-Sep-13 10:33:18

HALLIBURTON

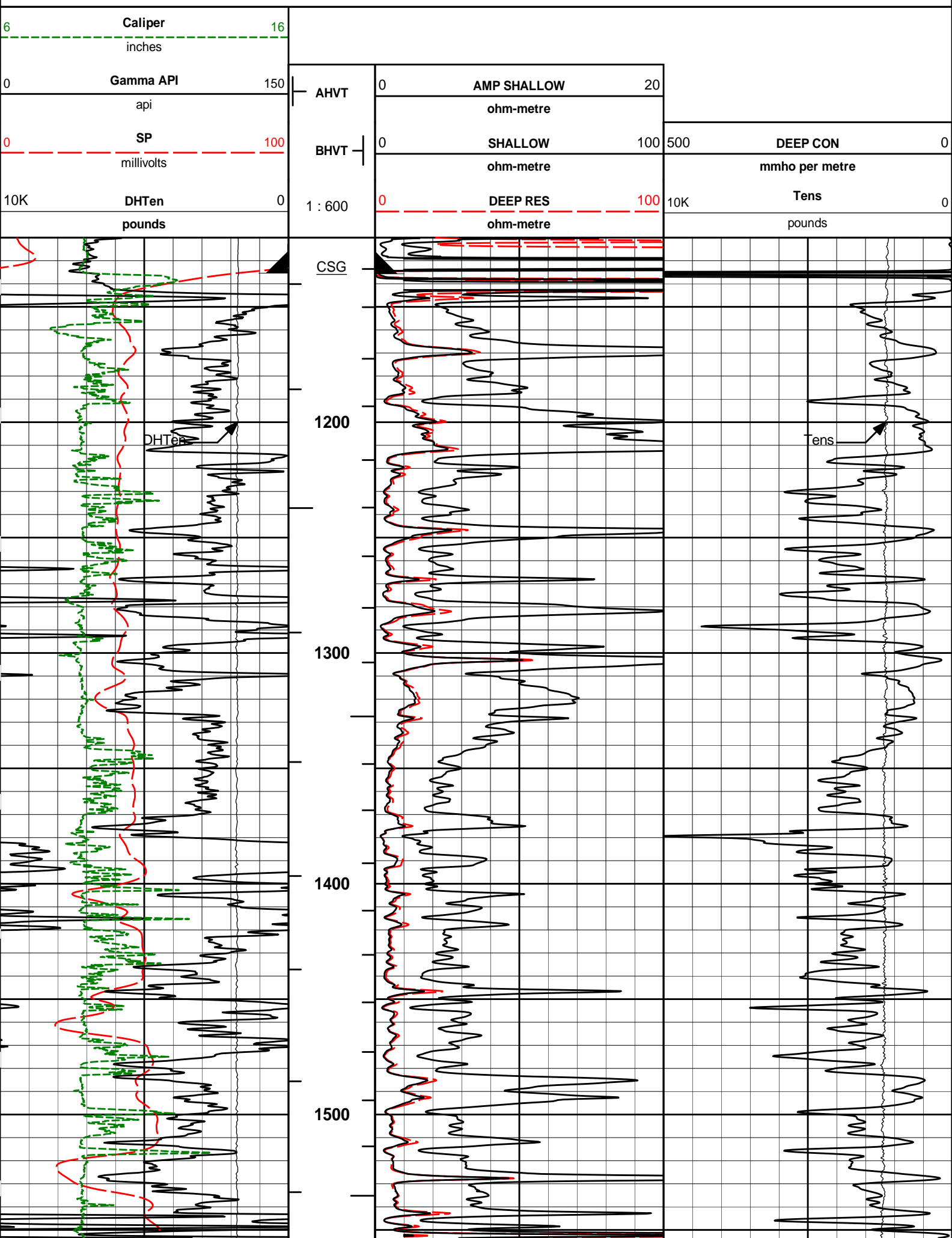
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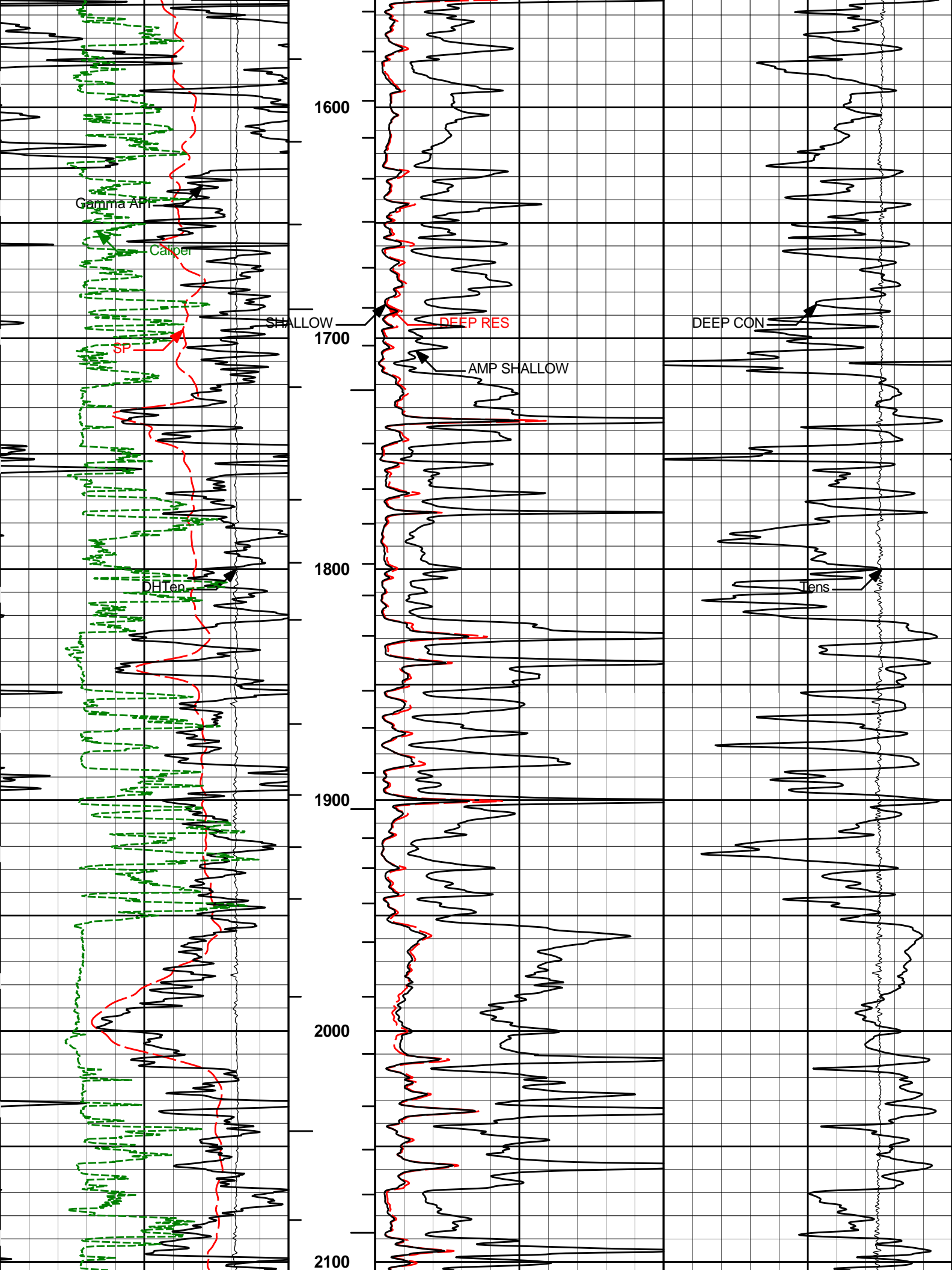
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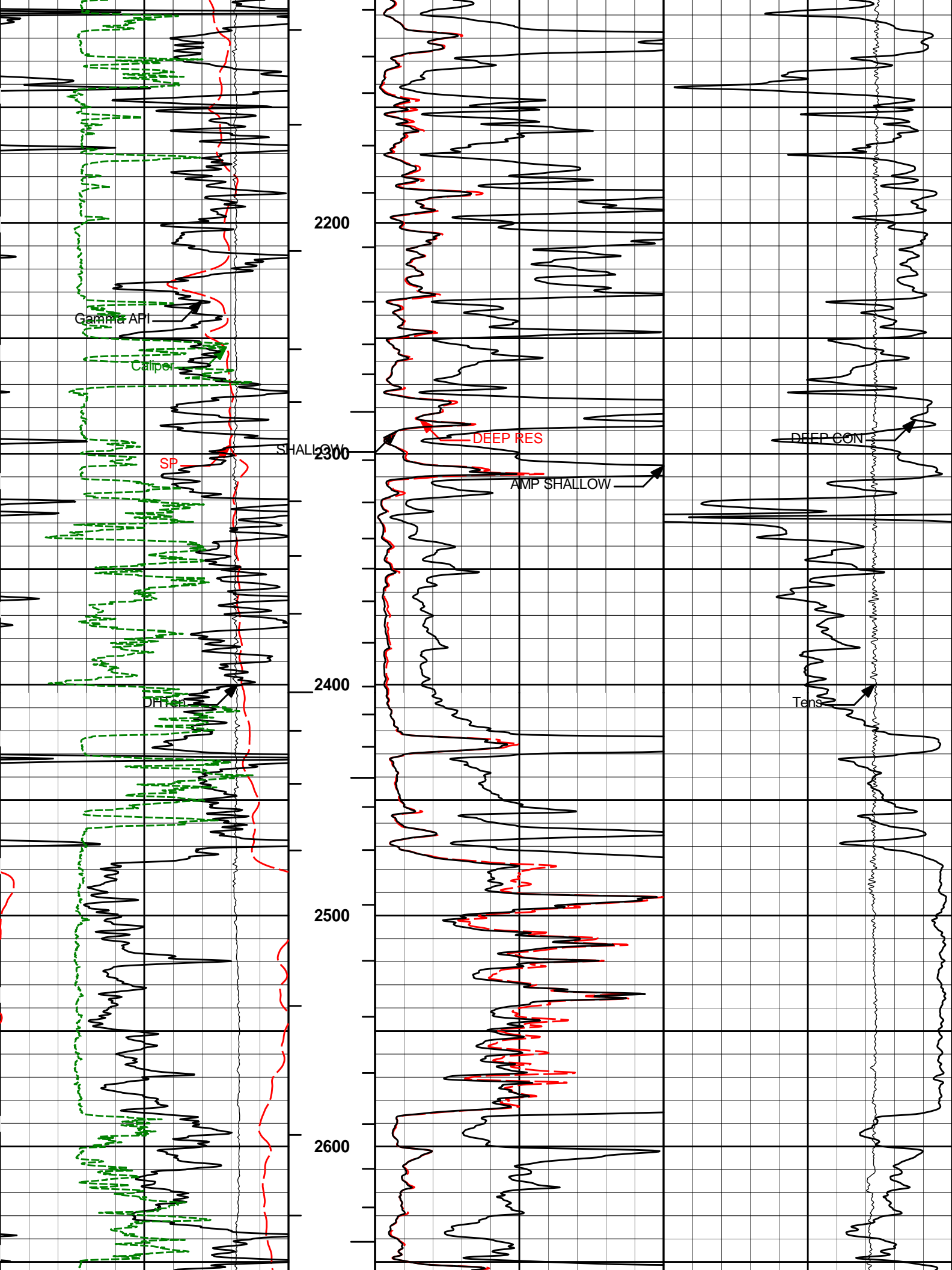
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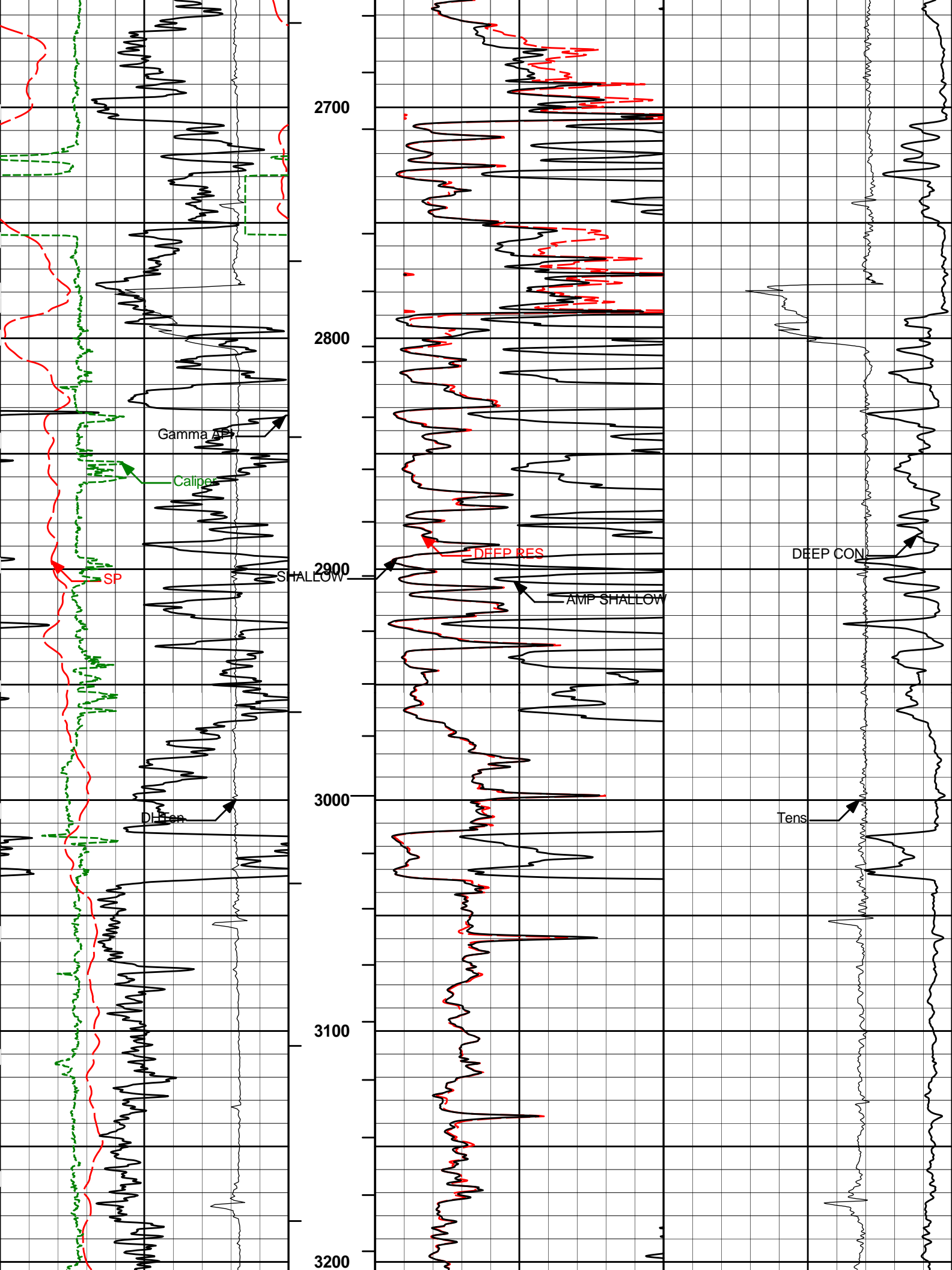
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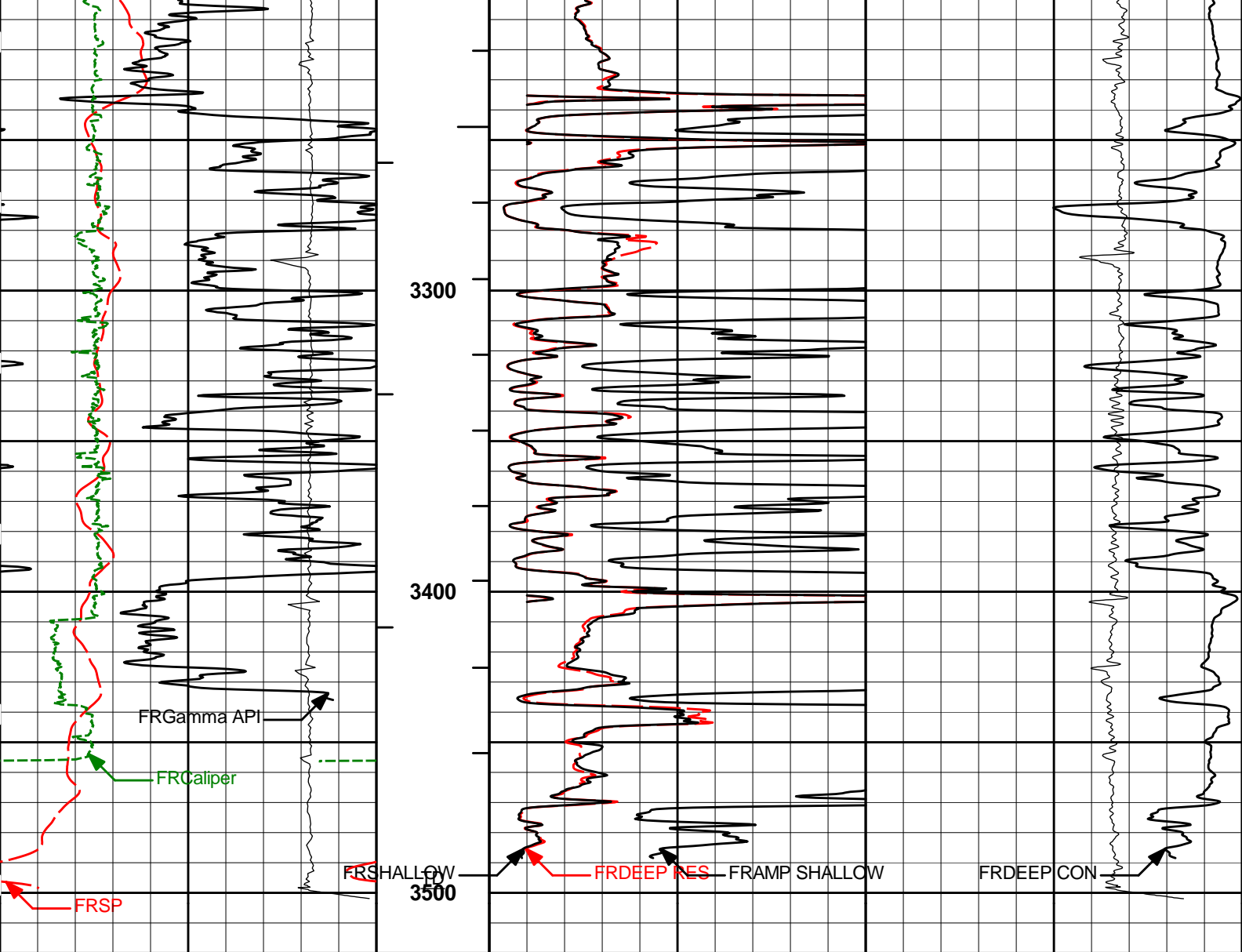
MAIN PASS 2" = 100'











10K	DHTen	0	1 : 600	0	DEEP RES	100	10K	Tens	0
	pounds				ohm-metre			pounds	
0	SP	100	BHVT	0	SHALLOW	100	500	DEEP CON	0
	millivolts				ohm-metre			mmho per metre	
0	Gamma API	150	AHVT	0	AMP SHALLOW	20			
	api				ohm-metre				
6	Caliper	16							
	inches								

HALLIBURTON

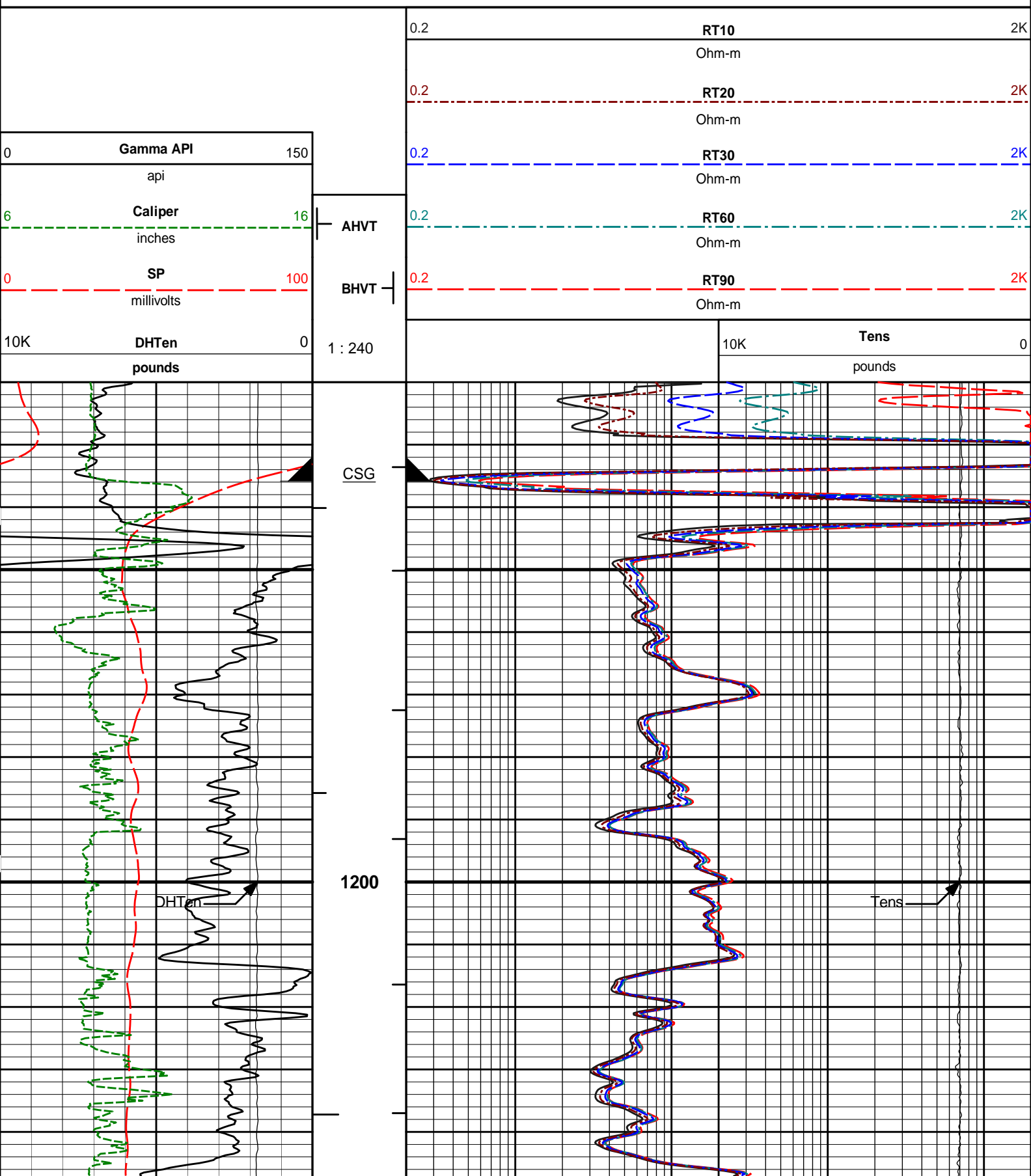
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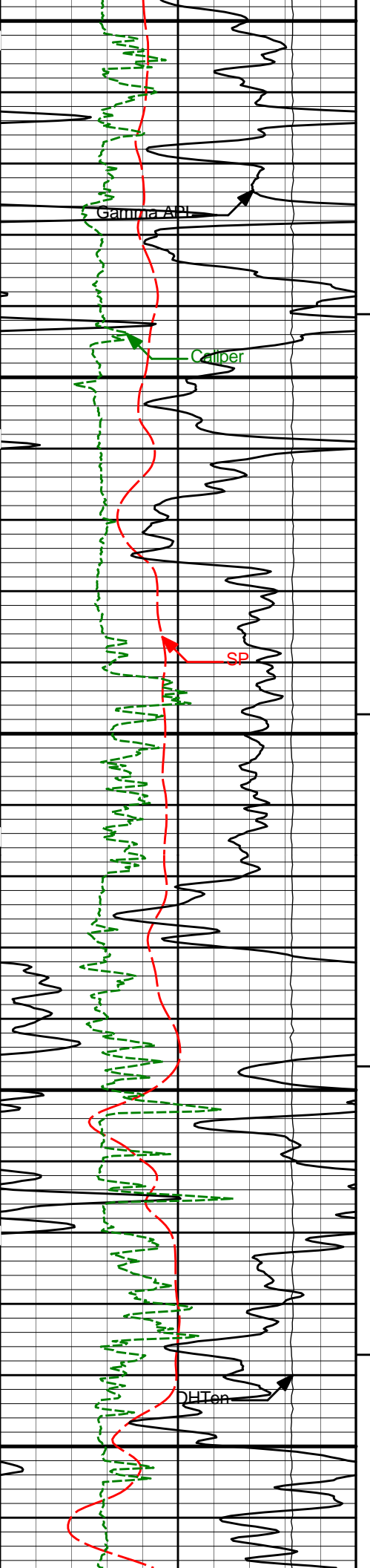
MAIN PASS 2" = 100'

HALLIBURTON

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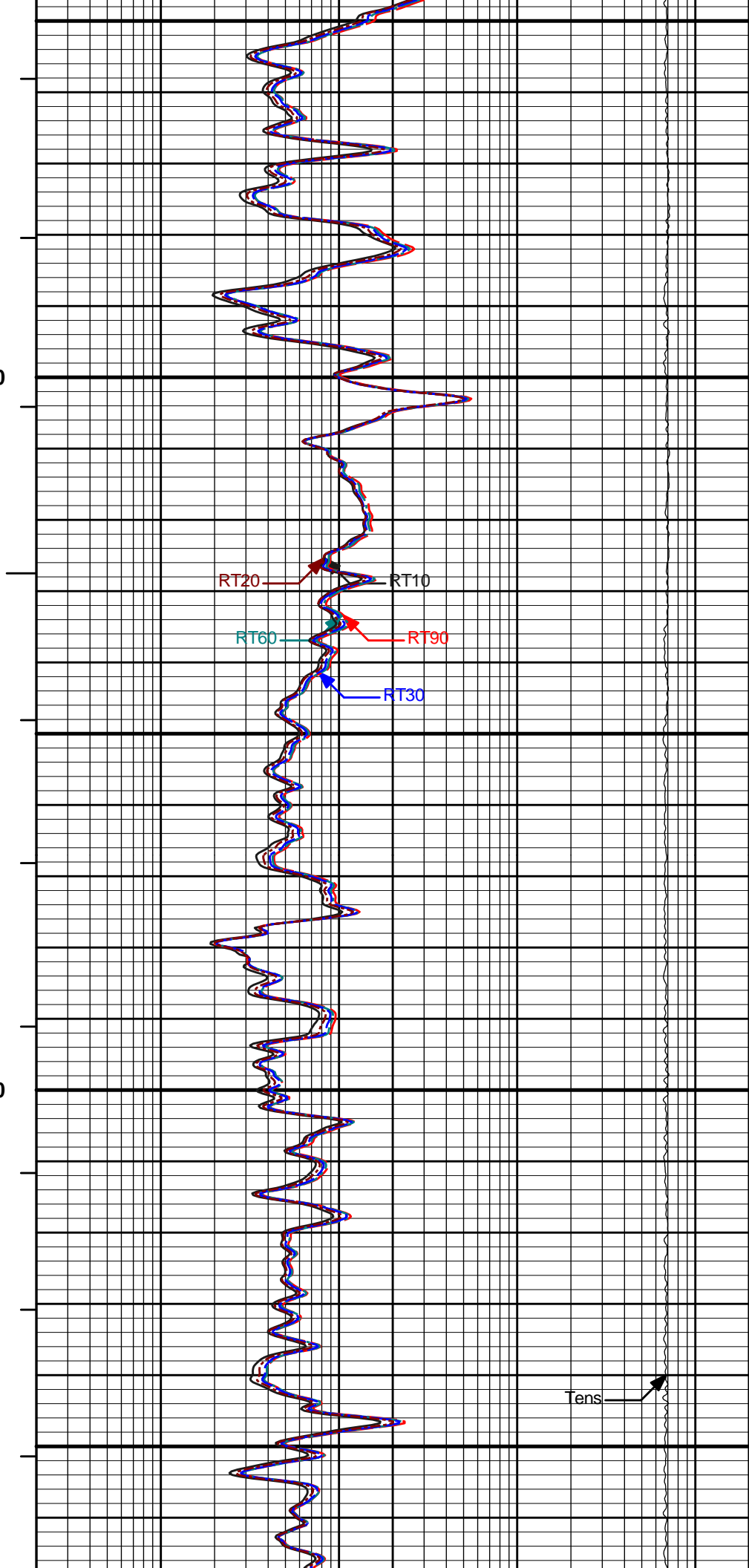
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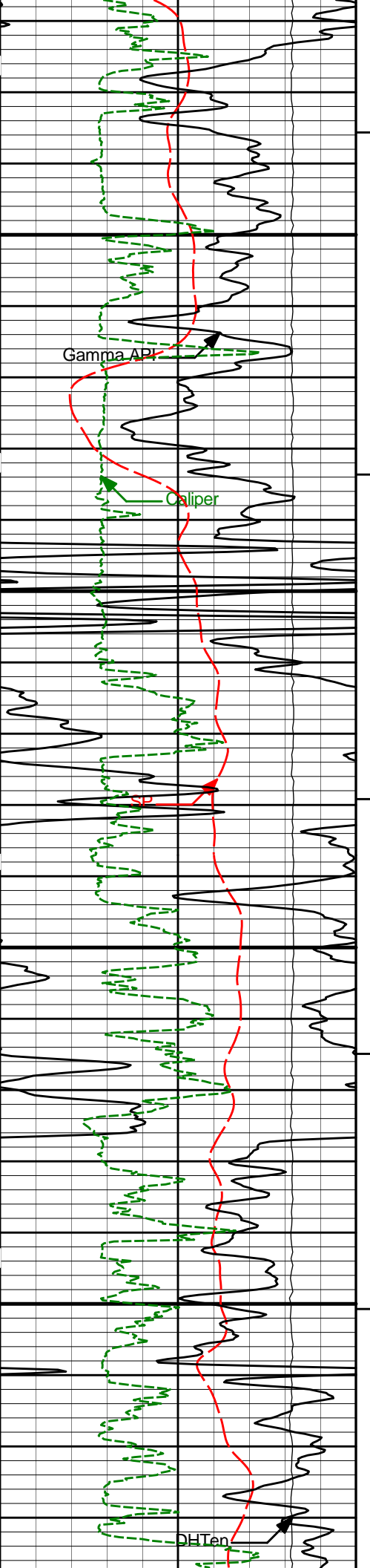




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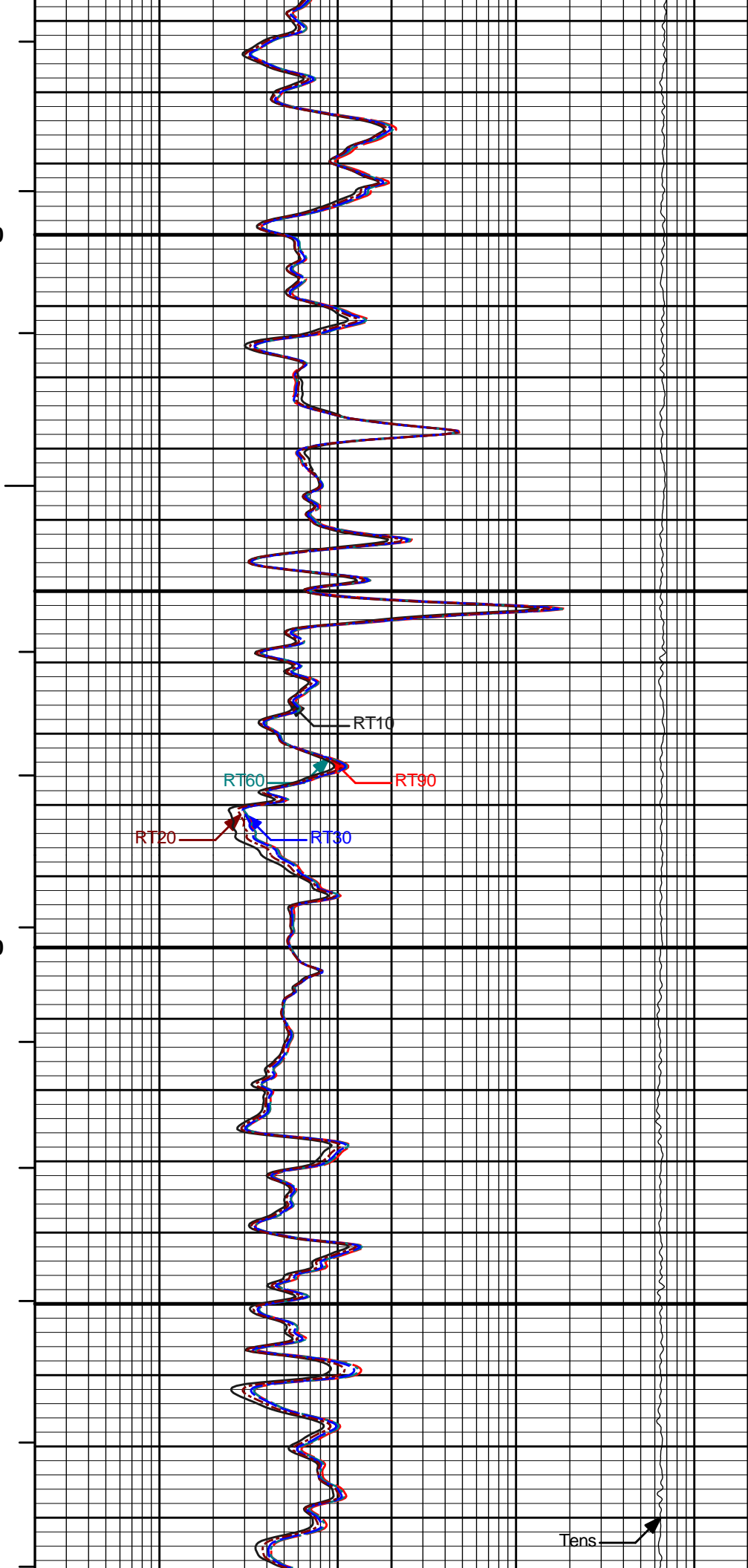
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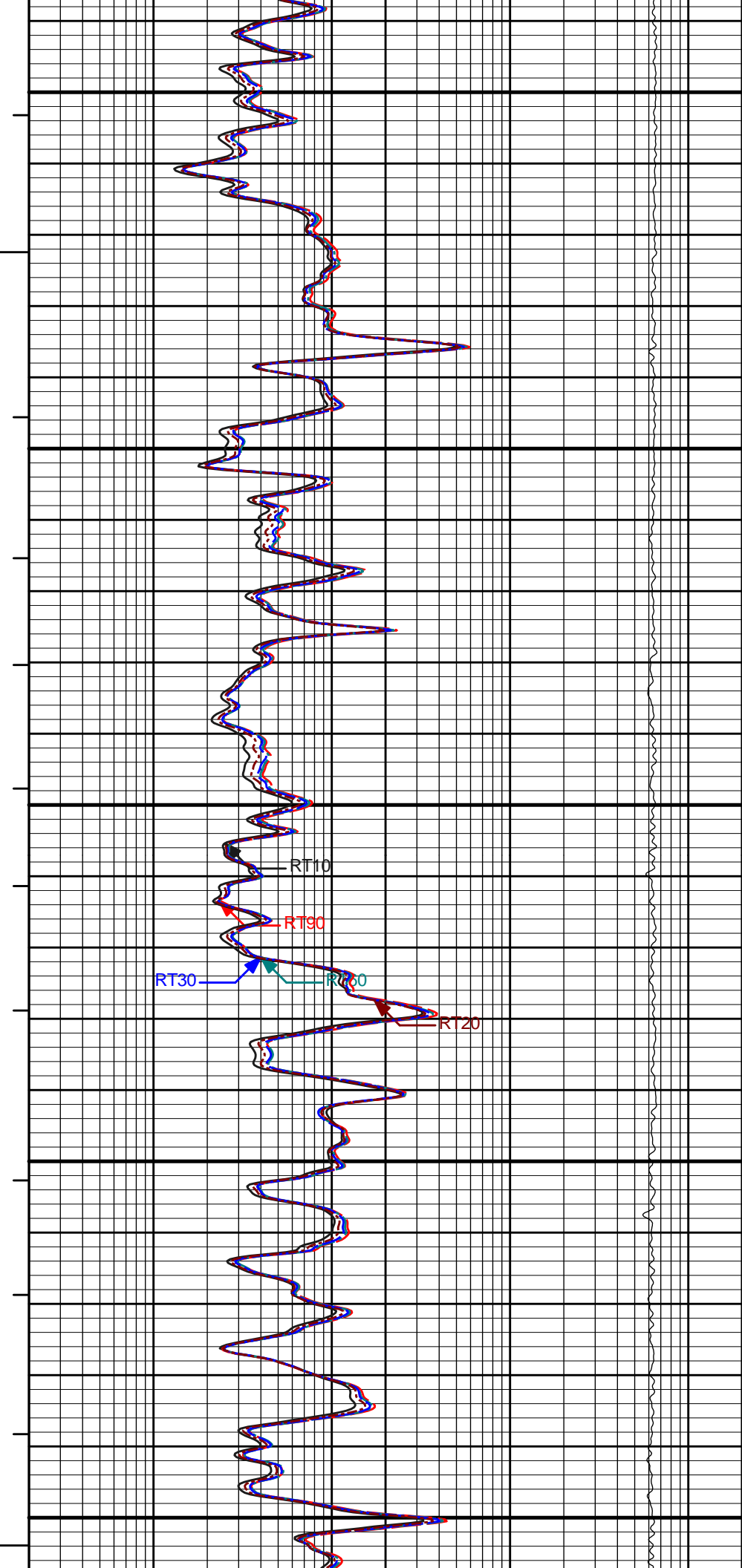
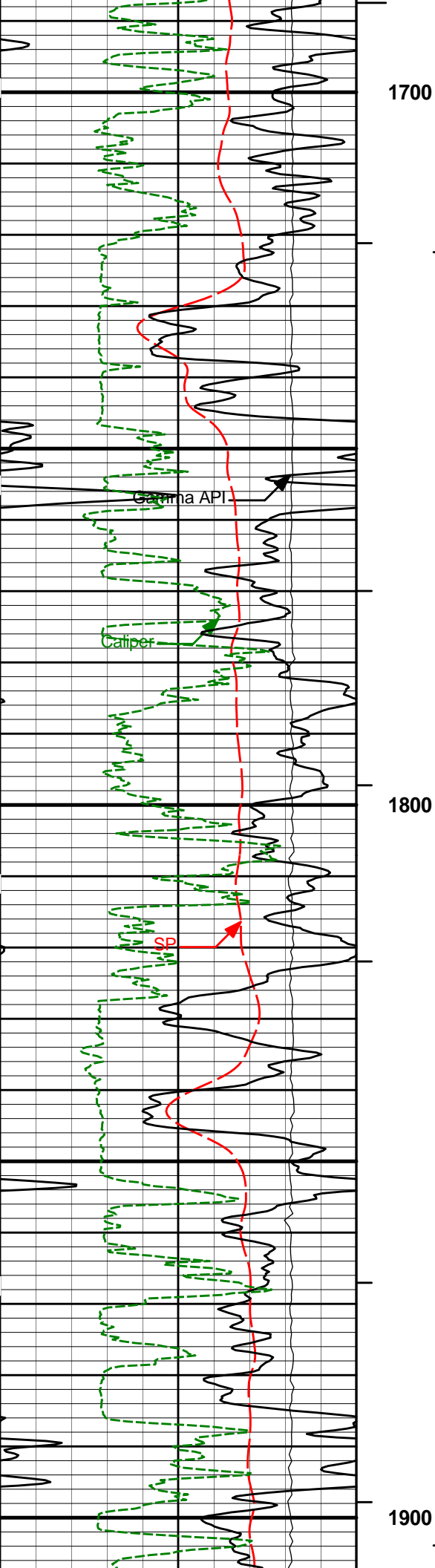


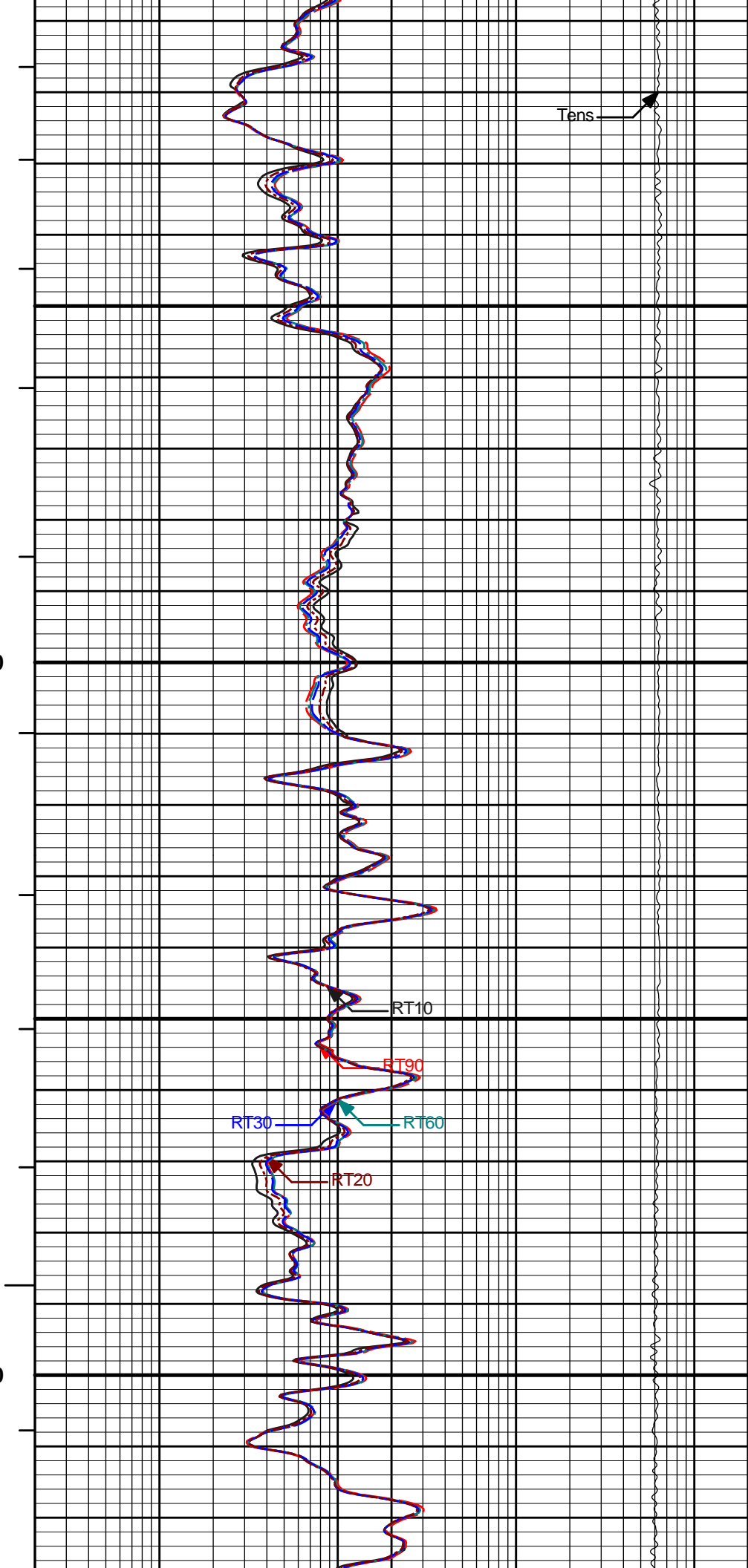
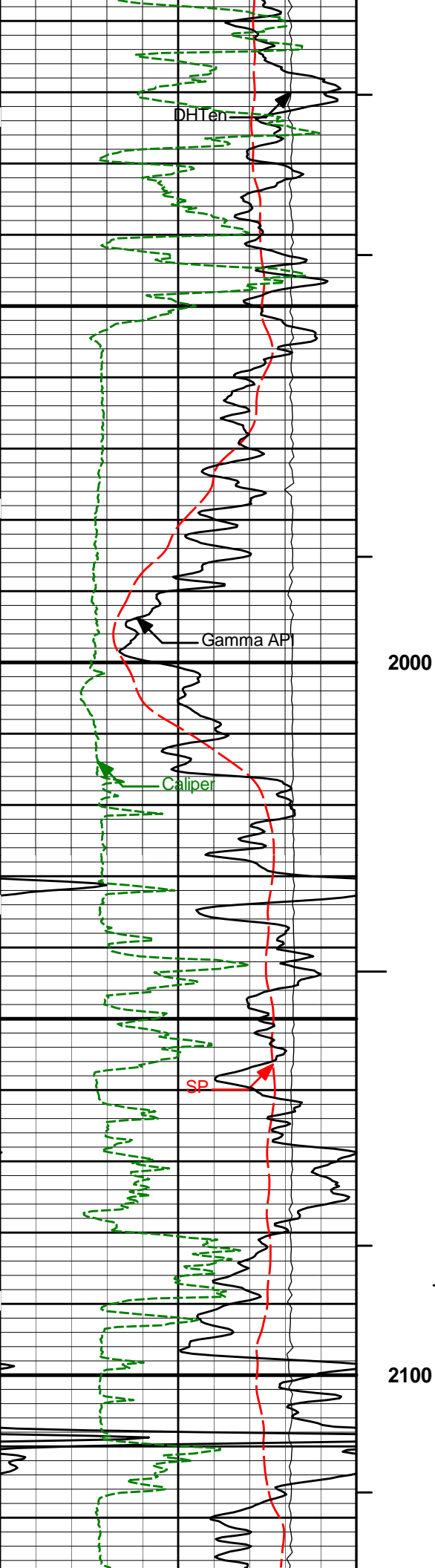
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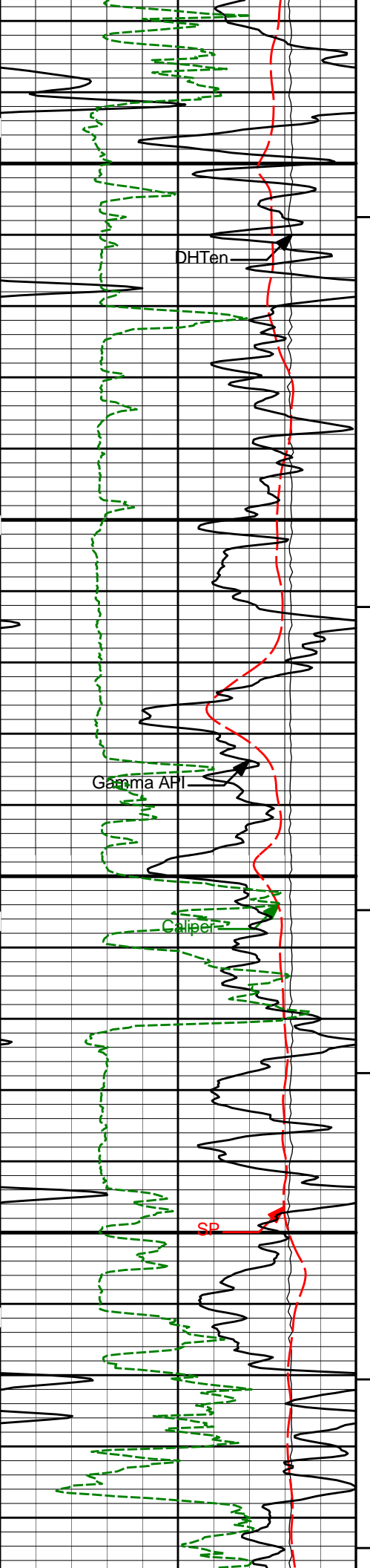
1600



Tens

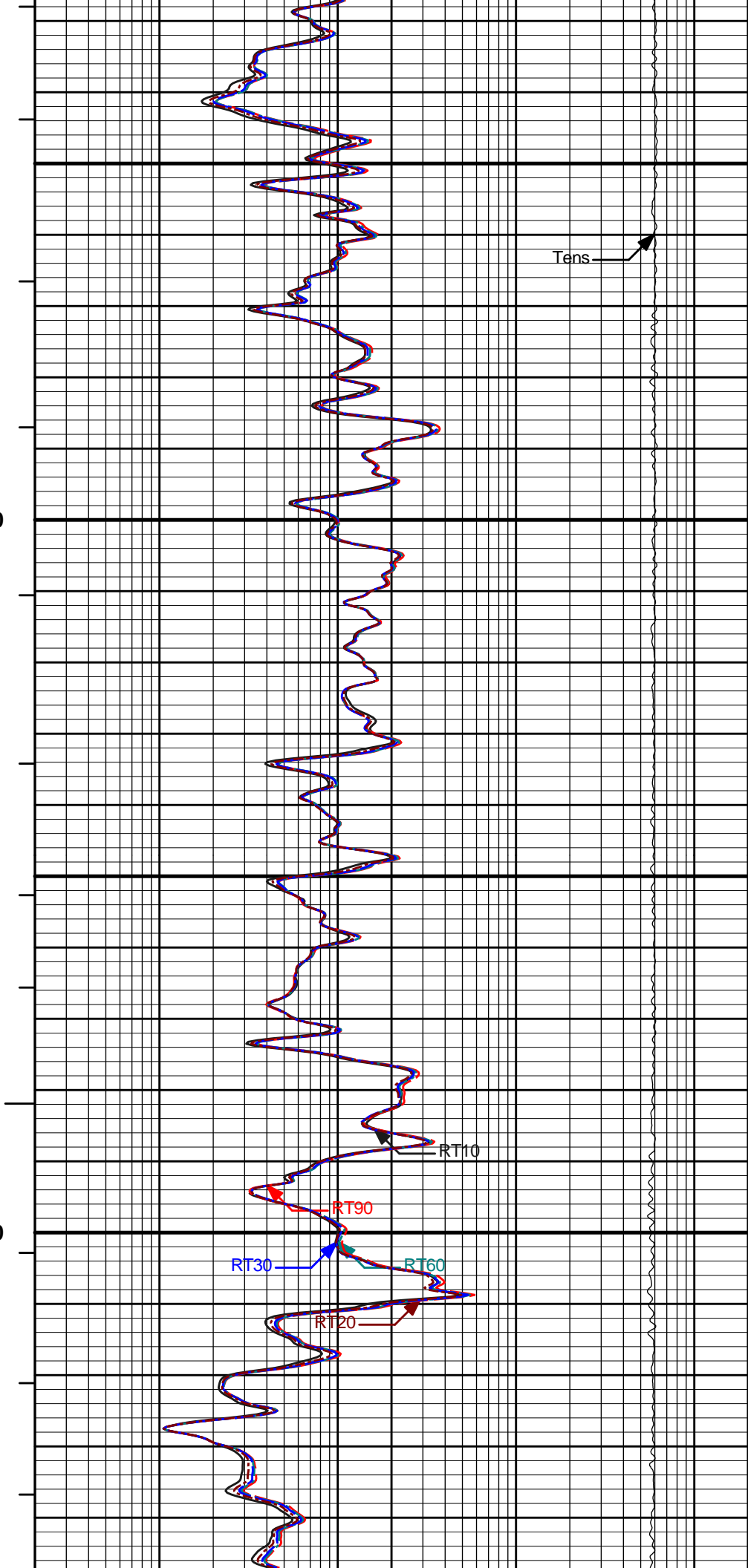


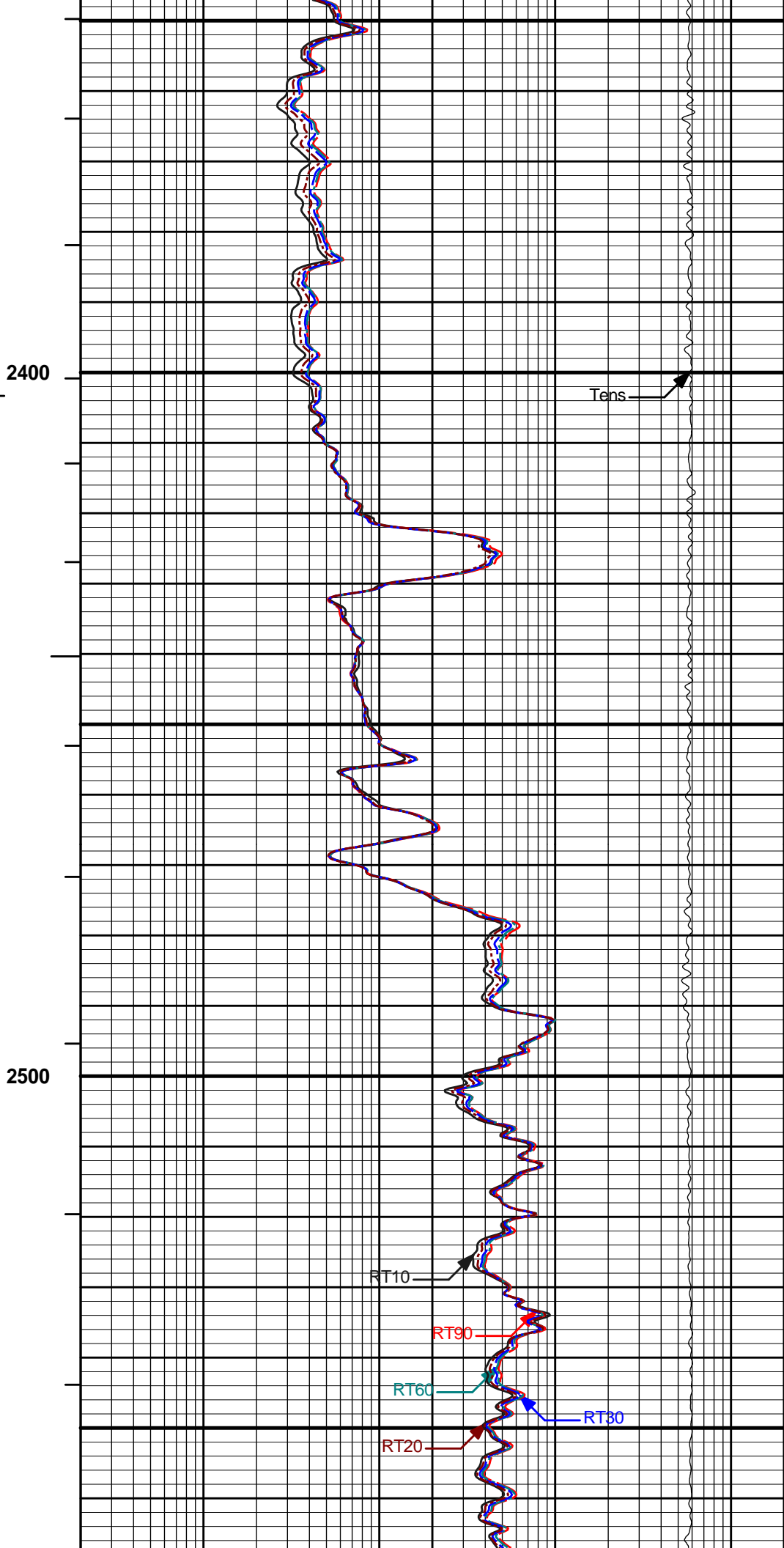
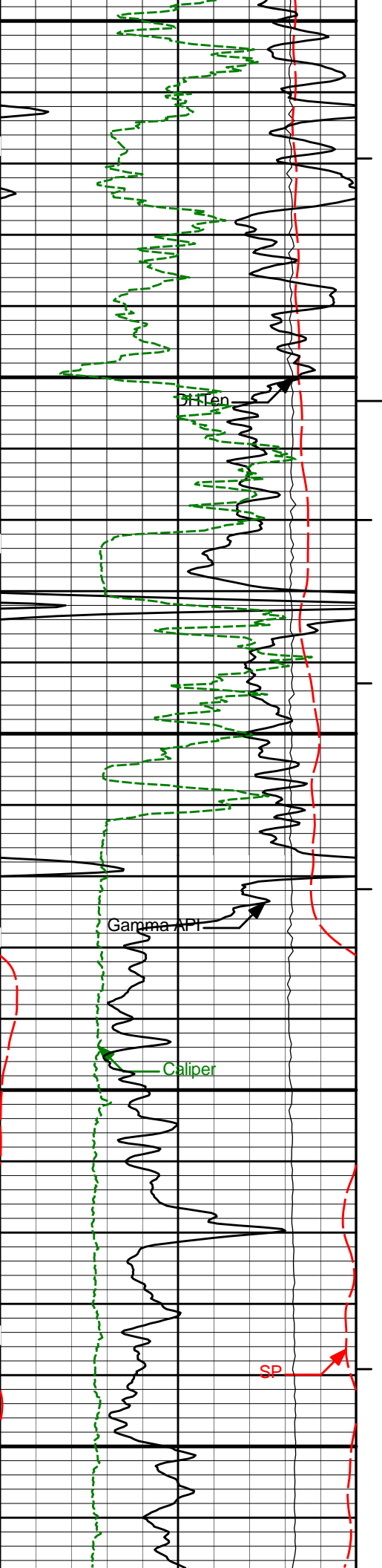


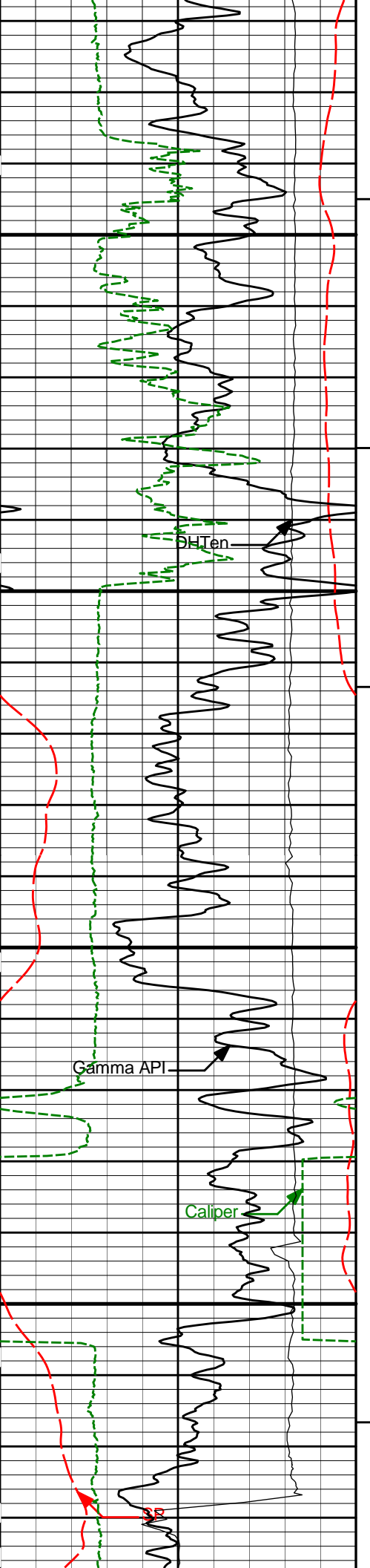


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2300

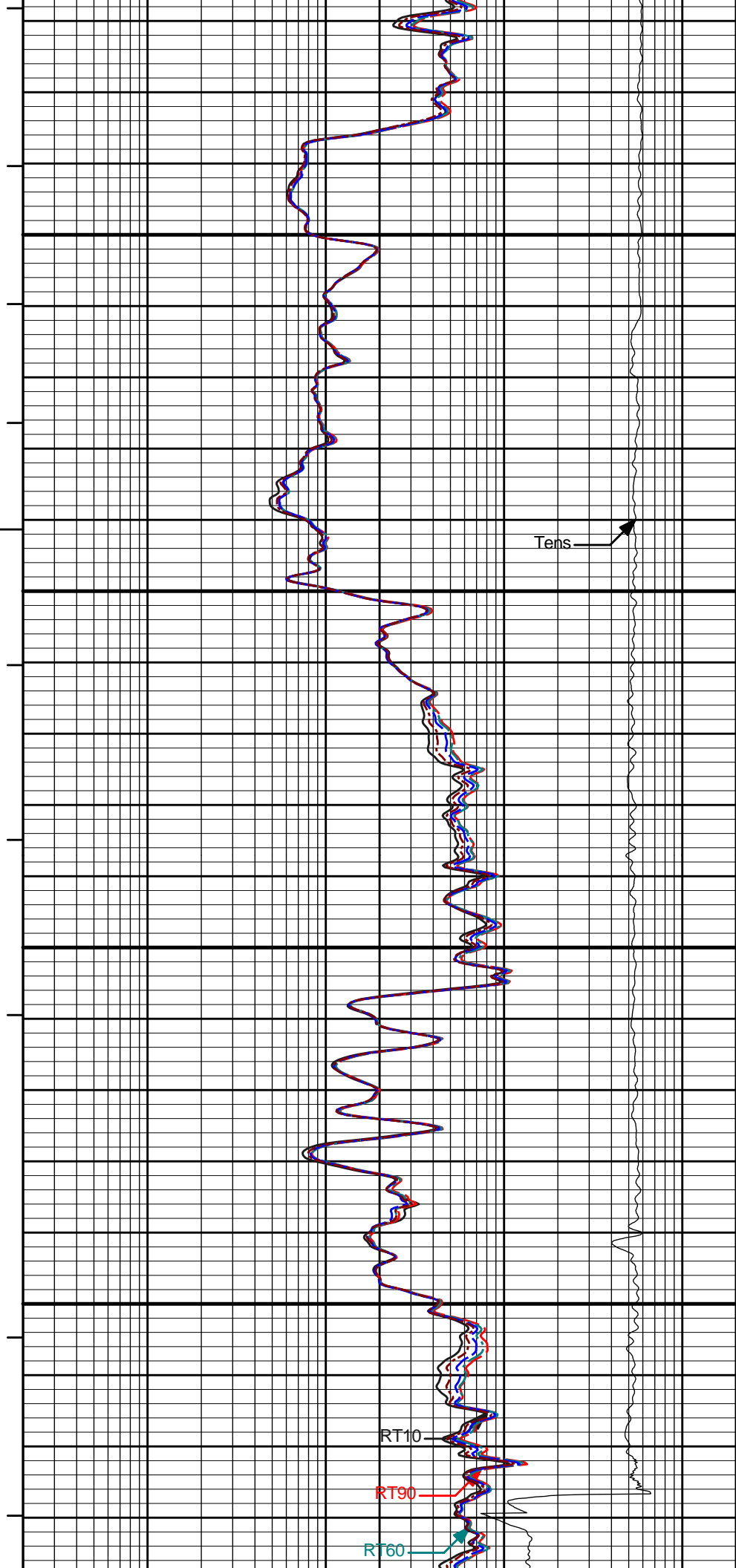






2600

2700

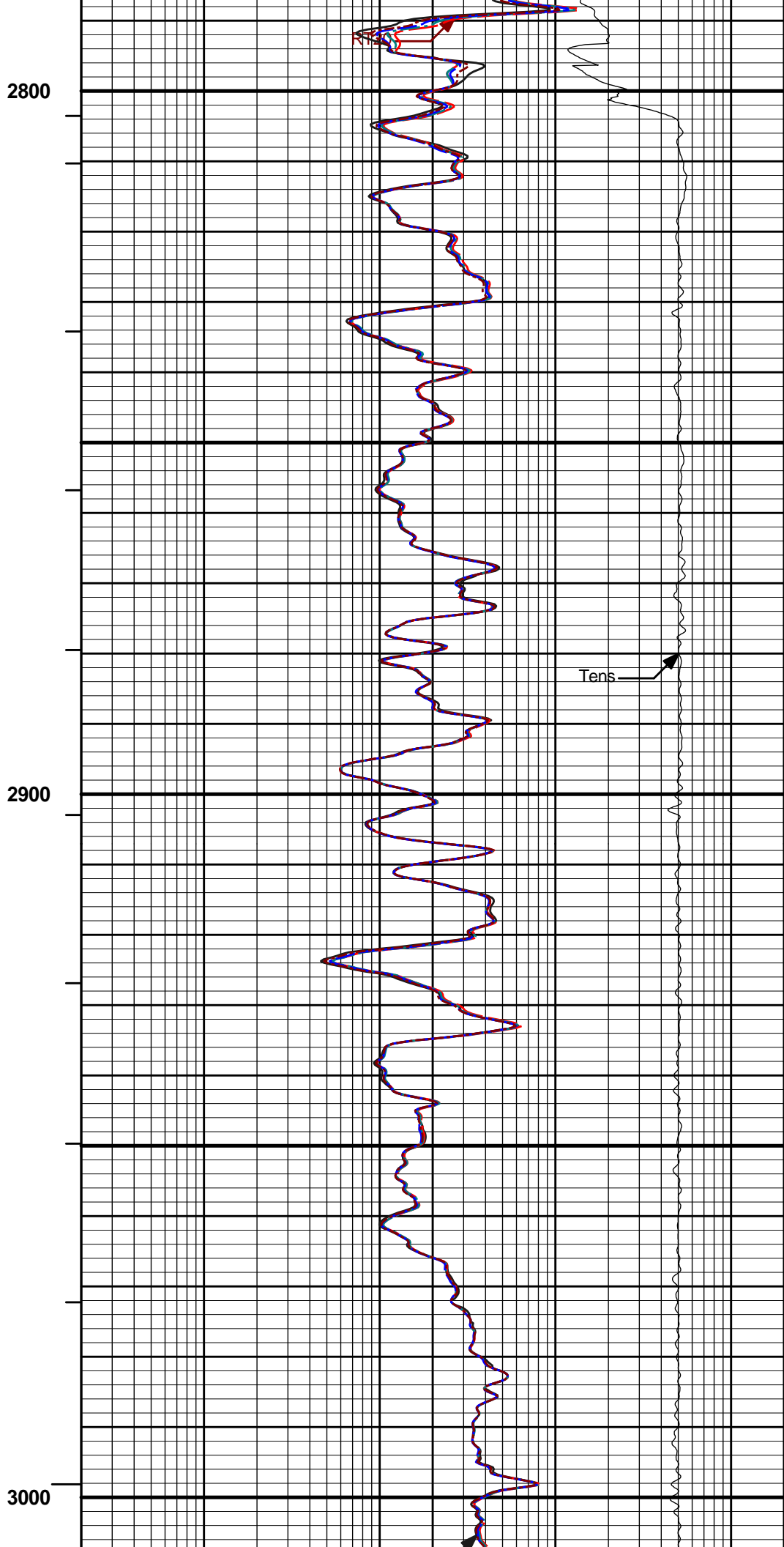
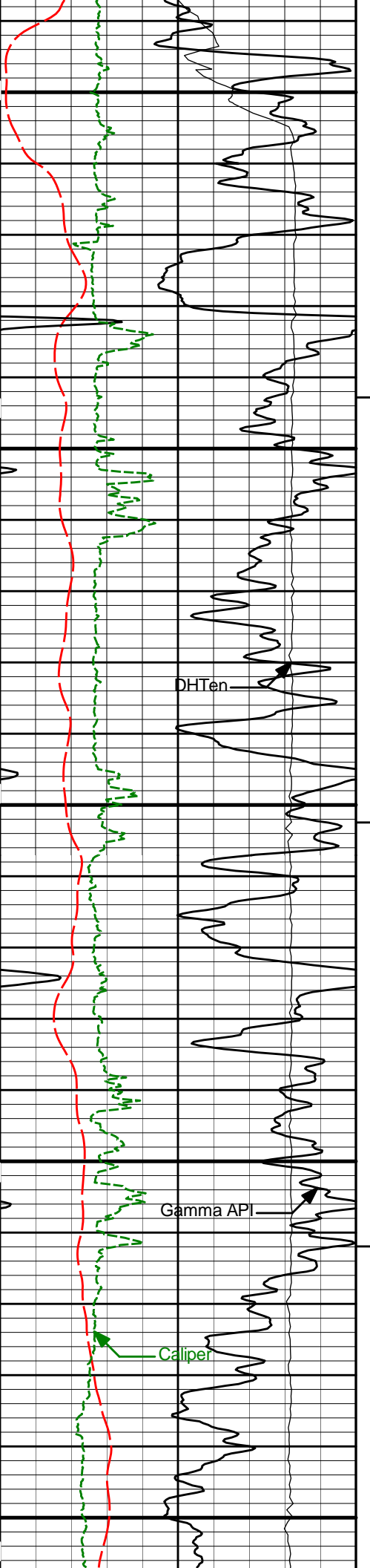


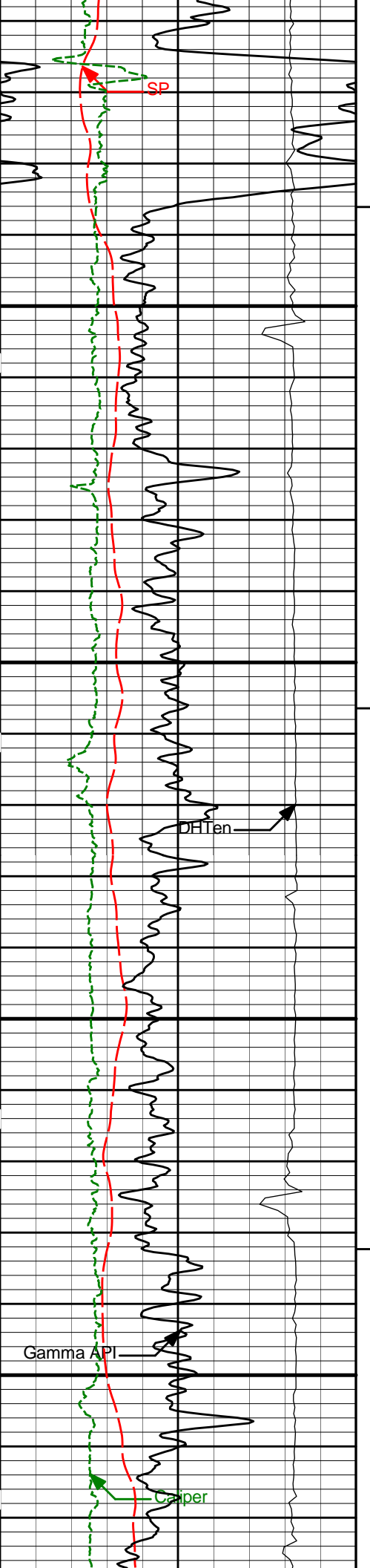
Tens

RT10

RT90

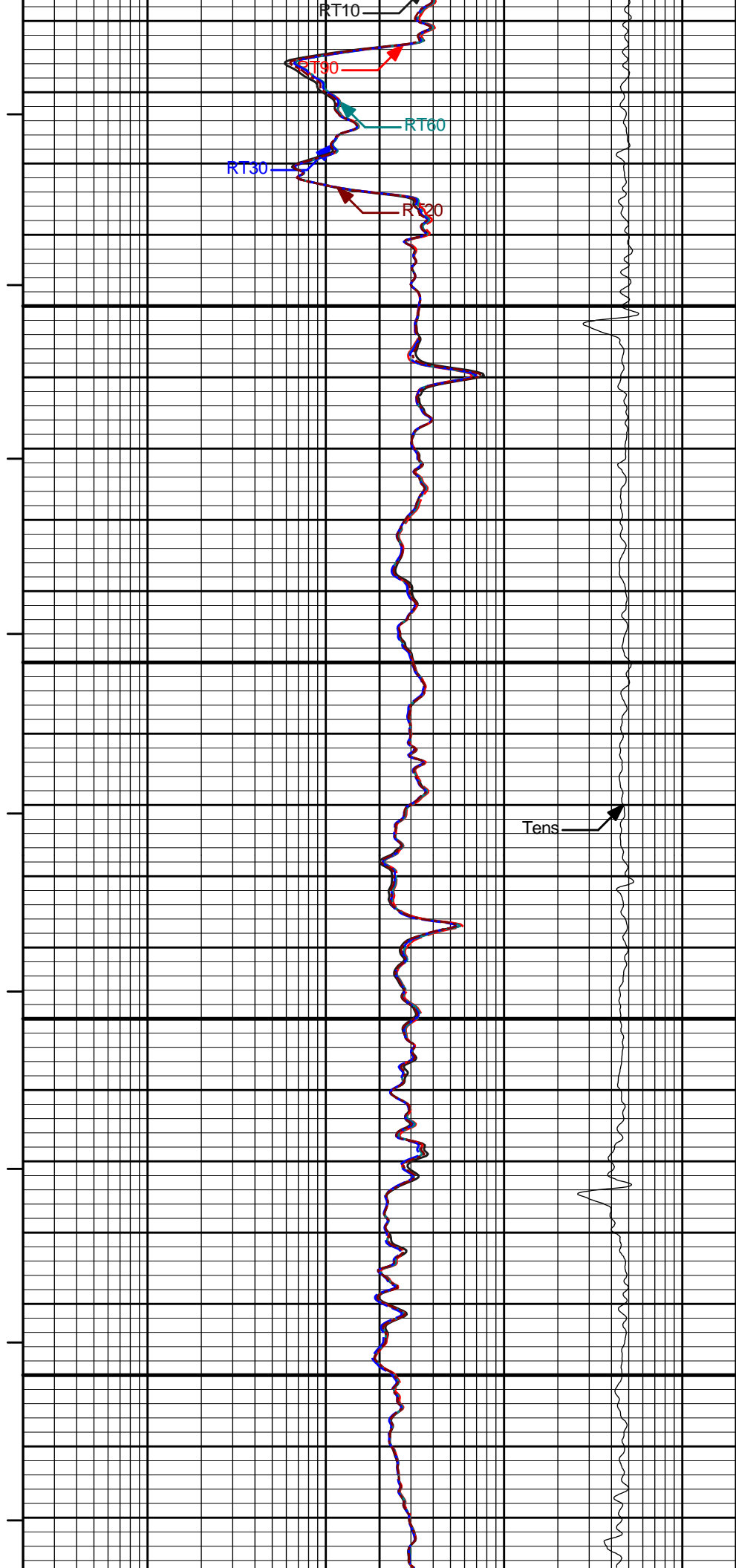
RT60

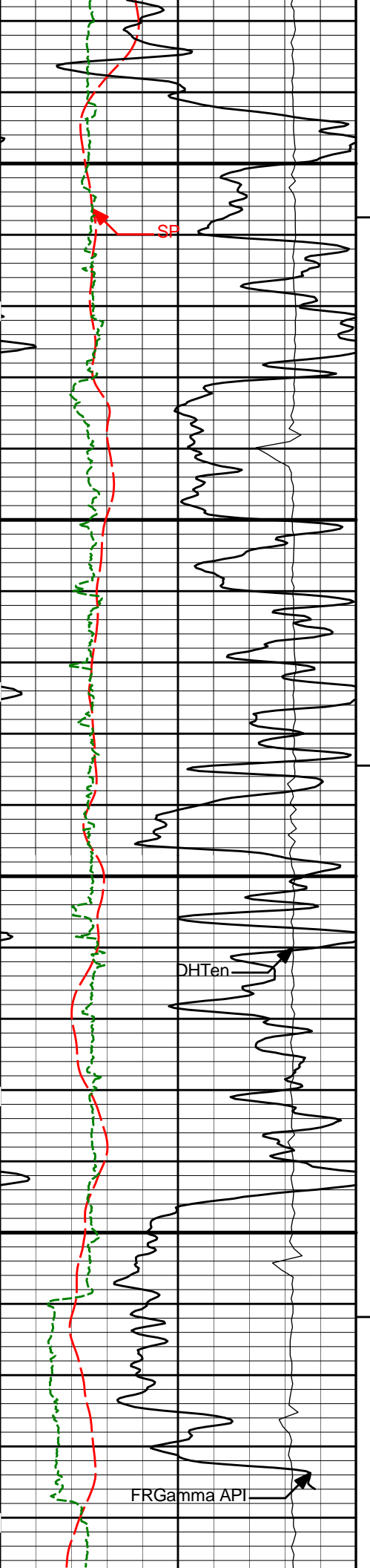




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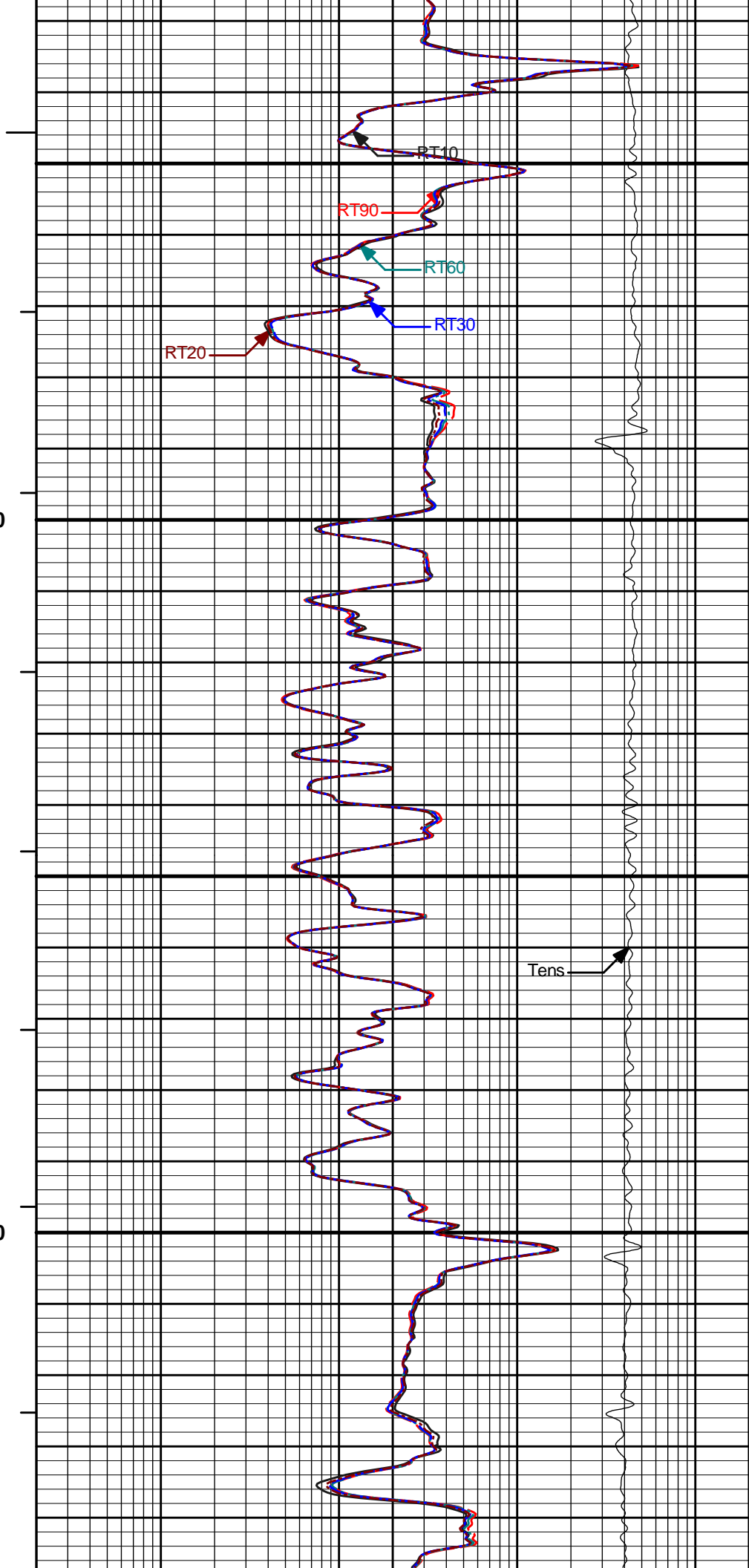
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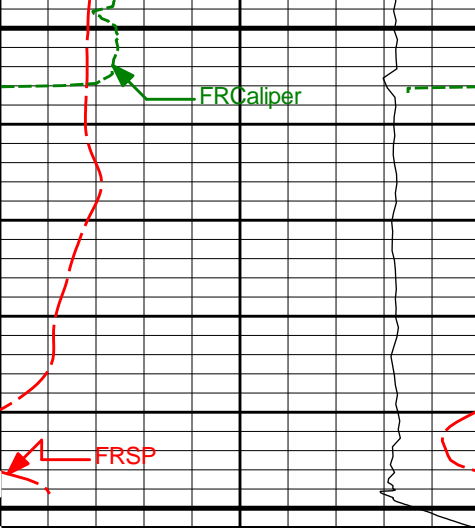




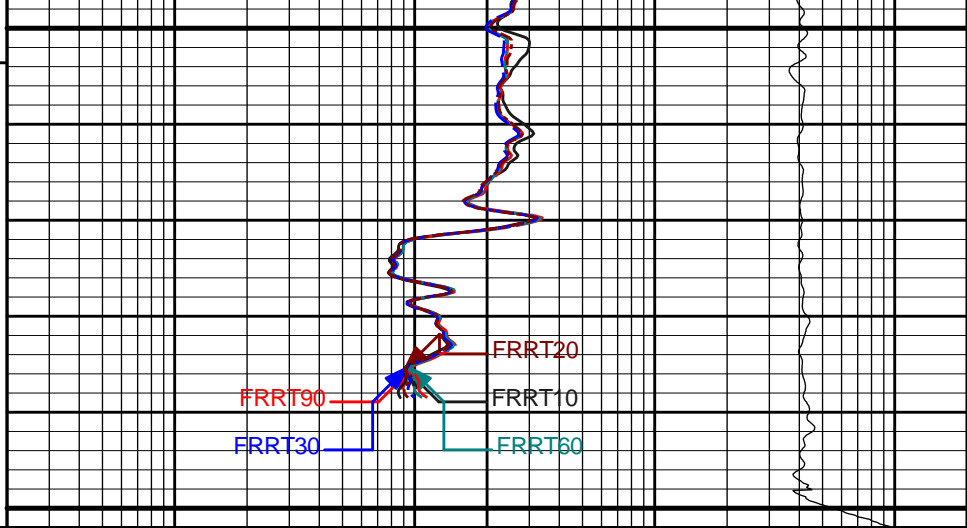
3300

3400





TD
3500



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

1 : 240

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	
0.2	RT10	2K
	Ohm-m	

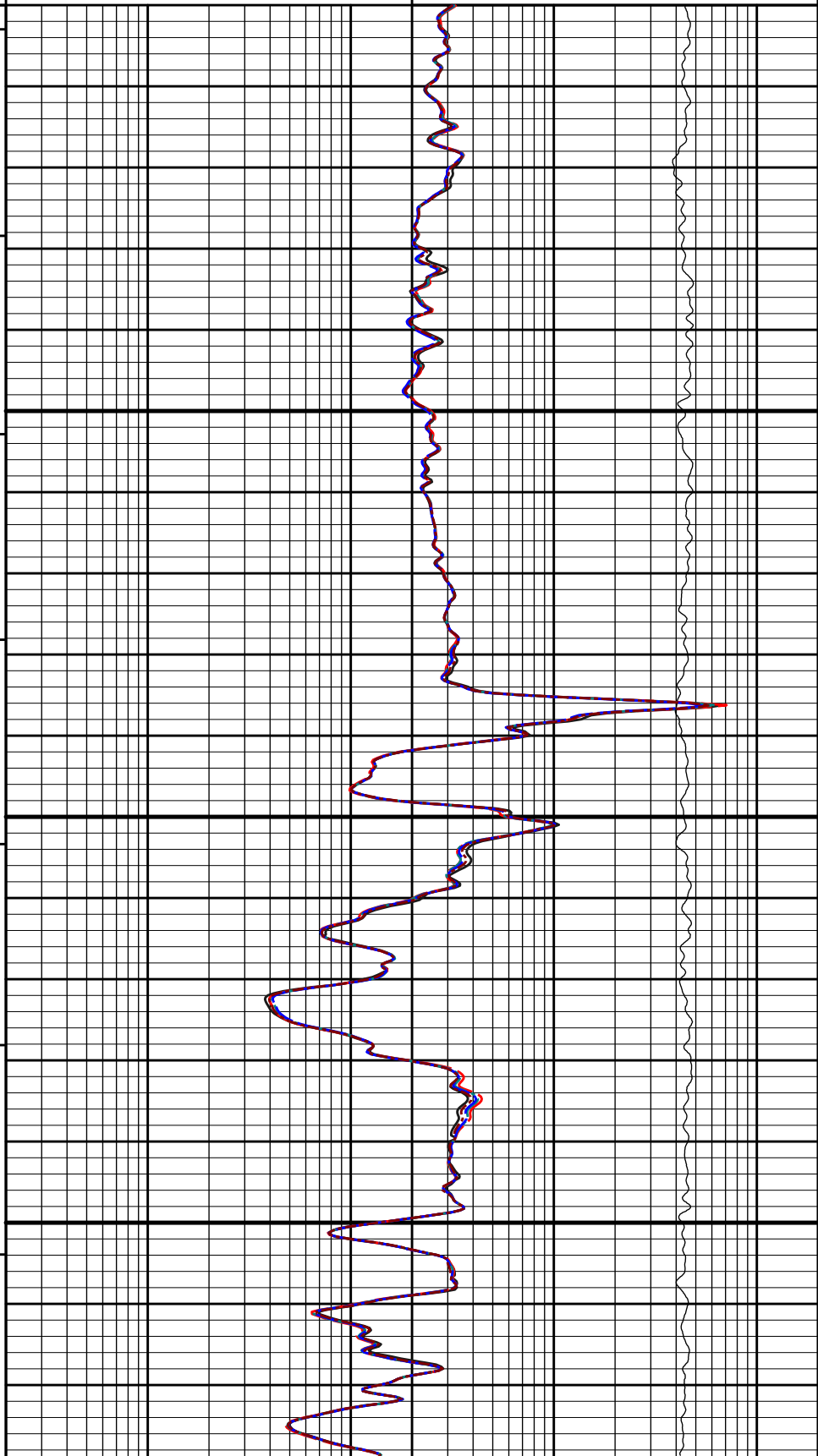
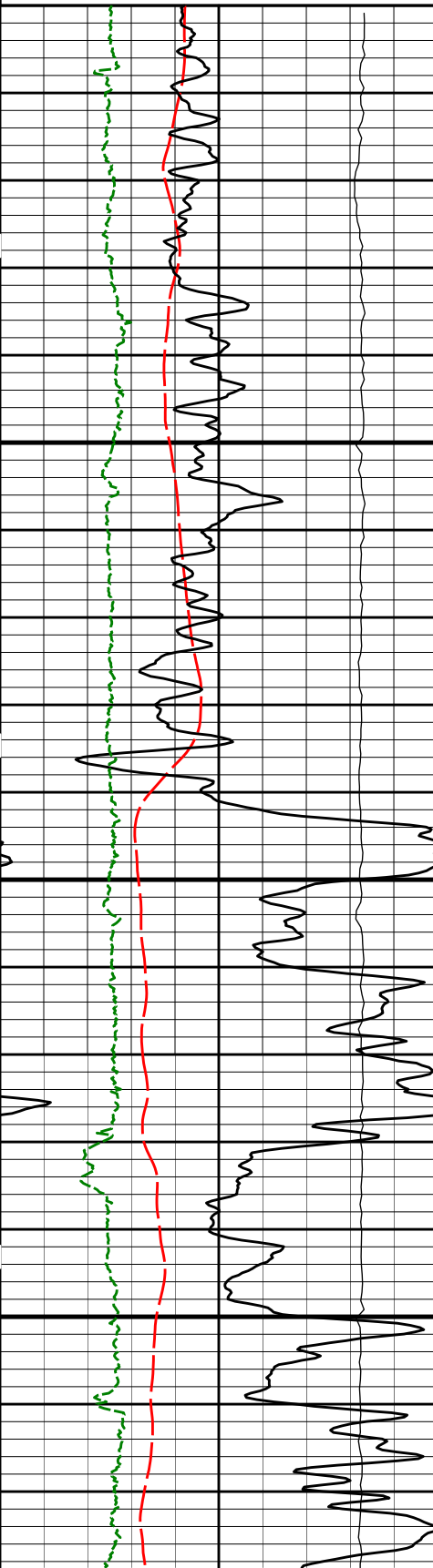
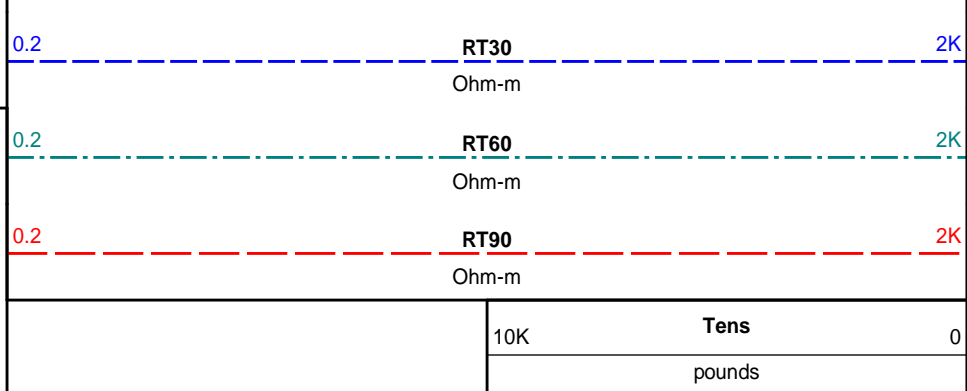
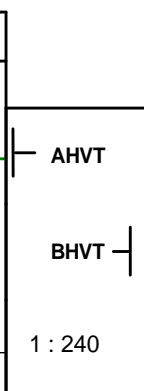
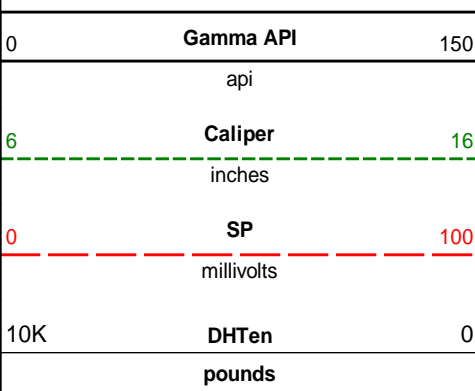
HALLIBURTON Plot Time: 26-Sep-13 11:52:25
 Plot Range: 1120 ft to 3502 ft
 Data: AW_25_43_SWD\Well Based\MAIN
 Plot File: \\ACRT\IQ_BP_ACRt_5IN_DHT

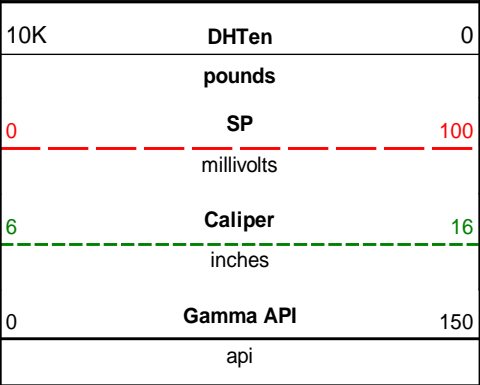
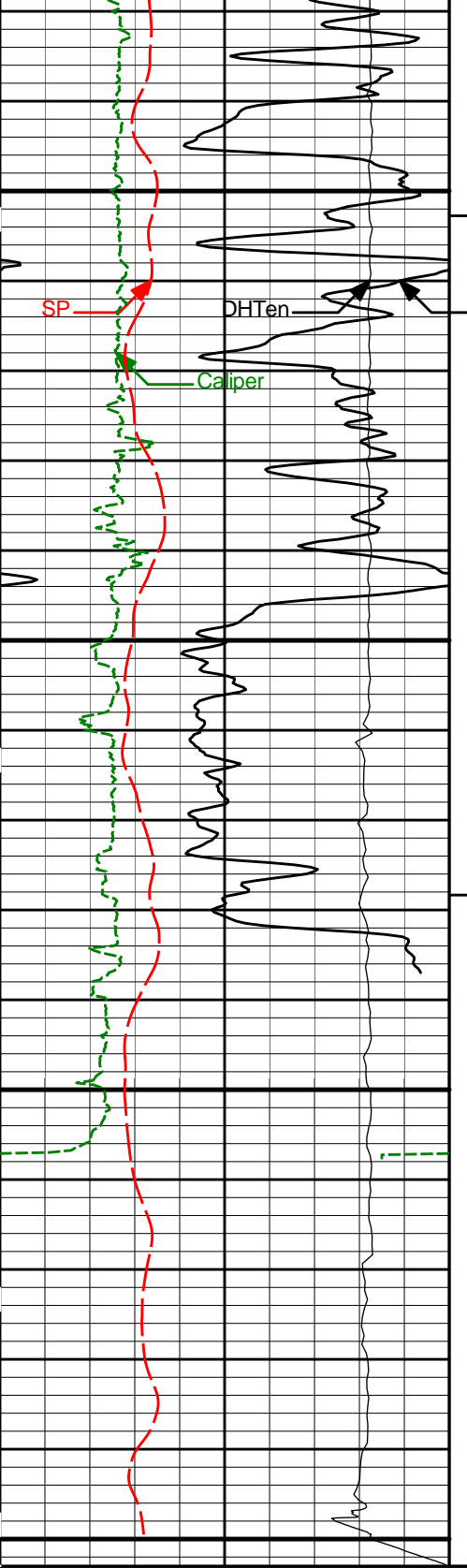
MAIN PASS 5" = 100'

HALLIBURTON Plot Time: 26-Sep-13 11:52:25
 Plot Range: 3150 ft to 3503 ft
 Data: AW_25_43_SWD\Well Based\RPT\
 Plot File: \\ACRT\IQ_BP_ACRt_5IN_DHT_RPT

REPEAT SECTION 5" = 100'

0.2	RT10	2K
	Ohm-m	
0.2	RT20	2K
	Ohm-m	





Gamma API

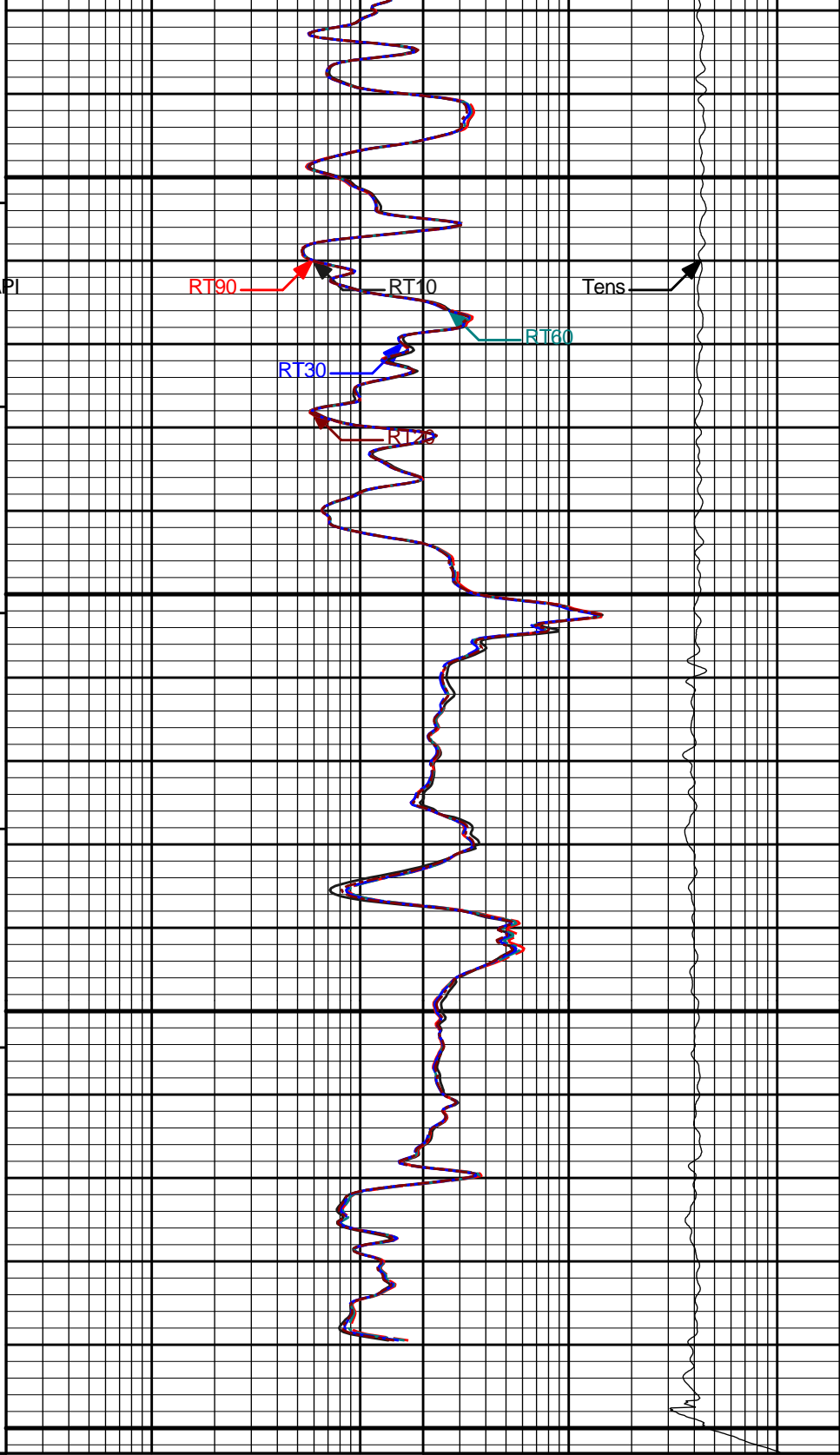
3400

3500

1 : 240

BHVT

AHVT



RT90

RT10

Tens

RT30

RT60

RT20

10K

Tens

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	
0.2	RT10	2K
	Ohm-m	

HALLIBURTON	Plot Time: 26-Sep-13 11:52:26 Plot Range: 3150 ft to 3503 ft Data: AW_25_43_SWD\Well Based\RPT\ Plot File: \\ACRT\IQ_BP_ACRt_5IN_DHT_RPT
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REPEAT SECTION 5" = 100'

HALLIBURTON
CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION			
Tool Name:	GTET - 10843477	Reference Calibration Date:	14-Aug-13 10:58:08
Engineer:	B. PEDERSEN	Calibration Date:	14-Sep-13 16:14:25
Software Version:	WL INSITE R3.8.10 (Build 5)	Calibration Version:	1

Calibrator Source S/N: TB-270 Calibrator API Reference:259.00 api Equivalent Calibrator API Reference:263.5 api			
Measurement	Measured	Calibrated	Units
Background	55.7	57.2	api
Background + Calibrator	311.9	320.8	api
Calibrator	256.3	263.5	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION			
Tool Name:	GTET - 10843477	Reference Calibration Date:	14-Sep-13 16:14:25
Engineer:	V. CREWS	Calibration Date:	26-Sep-13 07:10:10
Software Version:	WL INSITE R3.8.10 (Build 5)	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	57.2	81.8	api
Background + Calibrator	320.8	349.3	api
Calibrator	263.5	267.5	api
Shop	Field	Difference	Tolerance
263.5	267.5	-4.0	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION			
Tool Name:	DSNT - 10846353	Reference Calibration Date:	14-Aug-13 10:52:18
Engineer:	B. PEDERSEN	Calibration Date:	14-Sep-13 16:03:11
Software Version:	WL INSITE R3.8.10 (Build 5)	Calibration Version:	1

Logging Source S/N: 08-018 Tank Serial Number: 105039 Reference value assigned to Tank: 49.230
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Reference Value Assigned to Value: 1200
Snow Block S/N: 111
Calibration Tank Water Temperature: 72 degF
Min. Tool Housing Outside Diameter: 3.600 in

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

Gain:	0.943	0.941	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):	0.1961	0.1954	0.0008	+/- 0.0020
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Calibrated Ratio:	9.22	9.20	0.026	+/- 0.050
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VERIFIER		
Measurement	Value	Control Limit

Snow-Block Porosity (decP):	0.0687	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 - 10846353	Reference Calibration Date:	14-Sep-13 16:03:11
Engineer:	V. CREWS	Calibration Date:	26-Sep-13 08:31:13
Software Version:	WL INSITE R3.8.10 (Build 5)	Calibration Version:	1

Logging Source S/N: 08-018
Snow Block S/N: 111

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

Snow-Block Porosity (decP):	0.0687	0.0630	-0.0057	+/- 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

Tool Name:	SDLT - 11014275	Reference Calibration Date:	06-Sep-13 11:36:23
Engineer:	B. PEDERSEN	Calibration Date:	14-Sep-13 15:21:42
Software Version:	WL INSITE R3.8.10 (Build 5)	Calibration Version:	1
Host Tool Name:	DSNT - 10846353		

CALIBRATION COEFFICIENTS			
Measurement	Previous Value	New Value	Control Limit On New Value

Pad Offset	-2073.62	-1851.37	-7000.00 - -1000.00
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Pad Gain	0.0003838	0.0003765	0.000200 - 0.000600
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Arm Offset	-3561.36	-3614.60	-5000.00 - 3000.00
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Arm Gain	0.0005513	0.0005514	0.000300 - 0.000700
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Arm Power

-0.000004724

-0.000004456

-0.000010000 - 0.000010000

The ring diameter is computed from: $\text{DIAMETER} = \text{PAD EXTENSION} + \text{ARM EXTENSION} + \text{TOOL DIAMETER}$

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)	1.95	2.00	0.05	+/- 0.20
Medium Ring (in)	3.74	3.75	0.01	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.44	6.50	0.06	+/- 0.20
Medium Ring (in)	8.19	8.25	0.06	+/- 0.20
Large Ring (in)	14.87	15.00	0.13	+/- 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 - 11014275	Reference Calibration Date:	14-Sep-13 15:21:42
Engineer:	V. CREWS	Calibration Date:	26-Sep-13 07:10:52
Software Version:	WL INSITE R3.8.10 (Build 5)	Calibration Version:	1

MEASURED CALIPER VALUES				
Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.70	-0.05	+/- 0.10
Ring Diameter	8.25	8.24	-0.01	+/- 0.15

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

SPECTRAL DENSITY SHOP CALIBRATION			
Tool Name:	SDLT Pad - 11045462	Reference Calibration Date:	14-Aug-13 09:57:54
Engineer:	B. PEDERSEN	Calibration Date:	14-Sep-13 14:24:51
Software Version:	WL INSITE R3.8.10 (Build 5)	Calibration Version:	1

Logging Source S/N: 5235GW

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	1.0394	1.0691	0.90 - 1.10
Near Dens Gain	1.0038	1.0331	0.90 - 1.10
Near Peak Gain	1.0092	1.0435	0.90 - 1.10
Near Lith Gain	1.0149	1.0352	0.90 - 1.10
Far Bar Gain	1.0135	1.0184	0.90 - 1.10
Far Dens Gain	1.0011	1.0058	0.90 - 1.10
Far Peak Gain	0.9964	0.9990	0.90 - 1.10
Far Lith Gain	0.9739	0.9761	0.90 - 1.10

Near Bar Offset	-0.3089	-0.5863	NONE
Near Dens Offset	0.0132	-0.2544	NONE
Near Peak Offset	-0.0440	-0.3479	NONE
Near Lith Offset	-0.0886	-0.2818	NONE
Far Bar Offset	-0.1563	-0.1936	NONE
Far Dens Offset	-0.0299	-0.0689	NONE
Far Peak Offset	-0.0143	-0.0352	NONE
Far Lith Offset	0.0808	0.0602	NONE

Near Bar Background	888.38	886.63	700 - 1450
Near Dens Background	294.07	293.03	230 - 480
Near Peak Background	127.29	127.14	100 - 210
Near Lith Background	154.16	155.11	125 - 260
Far Bar Background	469.22	467.59	450 - 900
Far Dens Background	186.11	186.92	175 - 345
Far Peak Background	72.47	72.50	70 - 140
Far Lith Background	76.47	76.37	75 - 145

CALIBRATION BLOCK SUMMARY				
Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.697	1.690	-0.007	+/- 0.015
Pe	2.442	2.566	0.124	+/- 0.150
ALUMINUM				
Density (g/cc)	2.608	2.602	-0.006	+/- 0.01500
Pe	2.954	3.072	0.118	+/- 0.150

TOOL SUMMARY				
Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	-0.0005	+/- 0.0110	-0.0033	+/- 0.0140
Magnesium Block	-0.0007	+/- 0.0110	-0.0001	+/- 0.0140
Aluminum Block	-0.0006	+/- 0.0110	-0.0011	+/- 0.0140
Resolution	9.00	6.00 - 11.50	9.83	6.00 - 11.50
Internal Verifier(B+D+P+L)	1462	1200 - 2700	803	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 - 11045462

Reference Calibration Date: 14-Sep-13 14:24:51

Engineer: V. CREWS

Calibration Date: 26-Sep-13 07:10:31

Pad Temperature: 43.5 degF

DENSITY FIELD CALIBRATION SUMMARY

Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1461.914	1458.999	-2.915	15.419
Far (B+D+P+L) cps	803.389	804.501	1.112	15.689
Near Resolution	9.00	9.15	0.150	0.50
Far Resolution	9.83	10.52	0.690	1.00

PASS/FAIL SUMMARY

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

ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION

Tool Name:	ACRt Sonde - 11953684	Reference Calibration Date:	14-May-13 15:32:46
Engineer:	B. CRAWFORD	Calibration Date:	01-Sep-13 13:41:47
Software Version:	WL INSITE R3.8.10 (Build 5)	Calibration Version:	1
Host Tool Name:	ACRt Instrument - 11999267		

TYPICAL GAIN RANGE

Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	0.95	0.99	1.05	0.95	1.00	1.05	0.95	1.00	1.05
A2 (50")	0.95	0.99	1.05	0.95	1.00	1.05	0.95	1.01	1.05
A3 (29")	0.95	1.00	1.05	0.95	1.00	1.05	0.95	1.00	1.05
A4 (17")	0.95	1.00	1.05	0.95	1.00	1.05	0.95	1.00	1.05
A5 (10")	N/A	N/A	N/A	0.95	0.99	1.05	0.95	1.00	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.98	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	-0.66	2	-6	-3.85	-2	-8	-4.54	-2
A2 (50")	-7	-2.39	0	-7	-3.57	0	-7	-4.54	0
A3 (29")	-27	-13.44	-9	-9	-3.72	-3	-7	-3.12	-1
A4 (17")	-180	-100.61	-60	-45	-35.24	-15	-39	-28.78	-13
A5 (10")	N/A	N/A	N/A	-150	-94.54	-50	-80	-48.49	-10
A6 (6")	N/A	N/A	N/A	175	274.17	525	90	133.16	270

TRANSMITTER CURRENT GAIN

Signal	Lower	R	Upper
12K	0.6	0.85	1.3
36K	1.0	1.78	2.0
72K	1.0	1.08	2.0

R-MUD VERIFICATION

Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
Mud Cell	0.95	1.00	1.05

PASS/FAIL SUMMARY

GAIN RANGE CHK	PASS
TOOL OK TO LOG	

CALIBRATION SUMMARY



Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-10843477						
Gamma Ray Calibrator	263.5	267.5	-----	-4.0	+/- 9.00	api
DSNT-10846353						
Snow-Block Porosity	0.0687	0.0630	-----	0.0057	+/- 0.0150	decp
SDLT-11014275						
Pad Extension	3.75	3.70	-----	0.05	+/-0.10	in
Ring Diameter	8.25	8.24	-----	0.01	+/-0.15	in
SDLT Pad-11045462						
Near(B+D+P+L)	1461.914	1458.999	-----	2.915	+/-15.419	cps
Far(B+D+P+L)	803.389	804.501	-----	-1.112	+/-15.689	cps
ACRt Sonde-11953684						
Mud Cell	1.00	-----	-----	0.00	-----	ohm-m

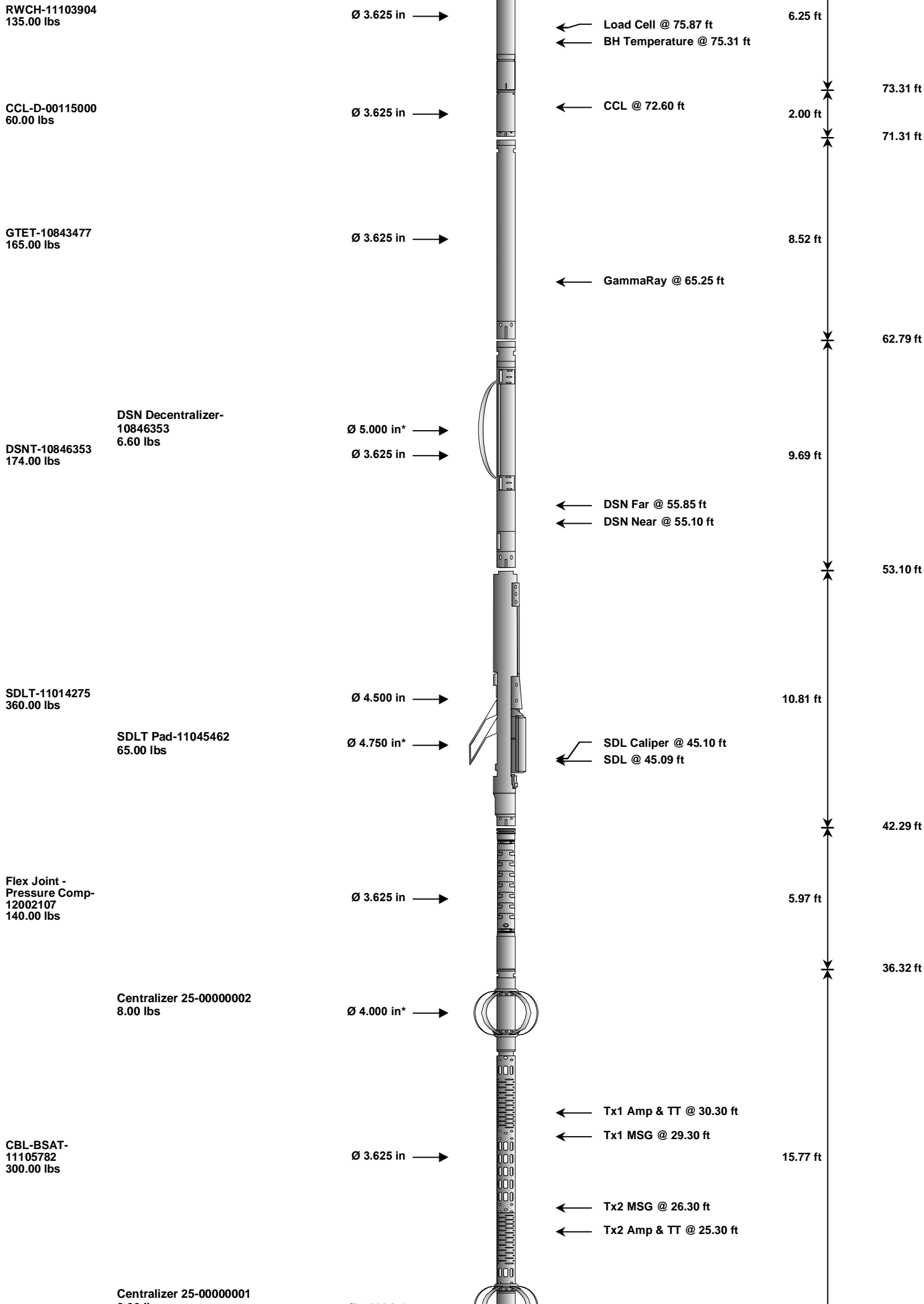
Data: AW 25 43 SWD\0001 QUAD BSAT\004 26-Sep-13 09:22 Up @3502.5f										Date: 26-Sep-13 09:30:21									
<div>HALLIBURTON</div>																			
<div>CUSTOMER EVENT LOG</div>																			

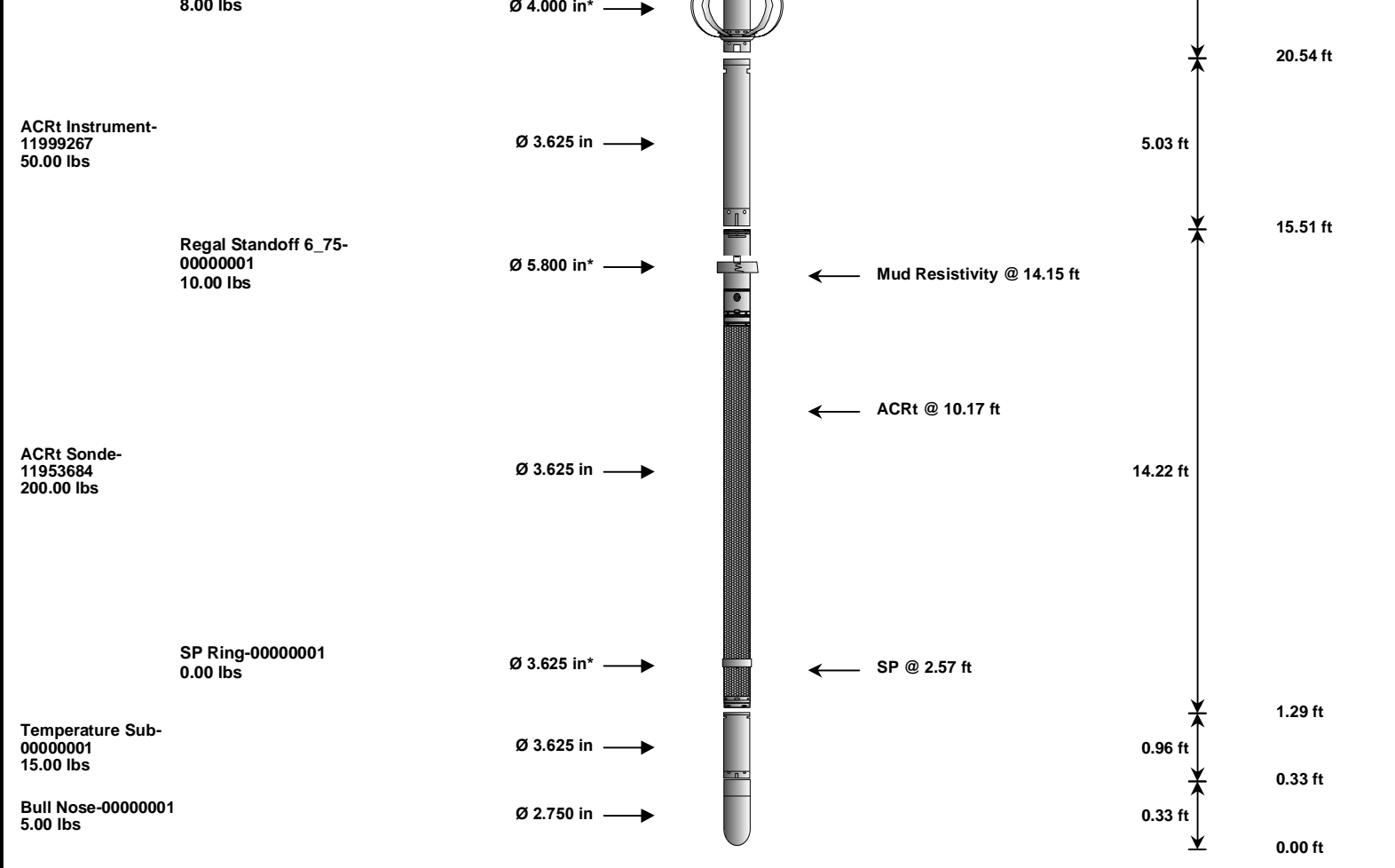
Event Type	Time & Date	Depth (ft)	Event Description
	26-Sep-13 08:49:21	1470.75	Logging 001 26-Sep-13 08:49 Up @1470.8f
	26-Sep-13 08:55:17	1153.66	Halting 001 26-Sep-13 08:49 Up @1470.8f
	26-Sep-13 08:56:17	1022.25	Logging 002 26-Sep-13 08:56 Dn @1022.3f
	26-Sep-13 09:09:19	3471.17	Halting 002 26-Sep-13 08:56 Dn @1022.3f
	26-Sep-13 09:10:52	3503.50	Logging 003 26-Sep-13 09:10 Up @3503.5f
	26-Sep-13 09:19:49	3065.92	Halting 003 26-Sep-13 09:10 Up @3503.5f
	26-Sep-13 09:22:14	3502.50	Logging 004 26-Sep-13 09:22 Up @3502.5f
	26-Sep-13 09:37:17	2812.29	Halting 004 26-Sep-13 09:22 Up @3502.5f
	26-Sep-13 09:37:56	2899.75	Logging 005 26-Sep-13 09:37 Up @2899.8f
	26-Sep-13 10:32:11	94.41	Halting 005 26-Sep-13 09:37 Up @2899.8f
Data: AW_25_43_SWD\0001 QUAD_BSATHW11433			Date: 26-Sep-13 10:33:35

COMPANY	KOCH EXPLORATION COMPANY, LLC		
WELL	AHU WYATT 25-43 SWD		
FIELD	WHITE RIVER DOME		
COUNTY	RIO BLANCO	STATE	COLORADO
<div>HALLIBURTON</div>		ARRAY COMPENSATED TRUE RESISTIVITY	

<div>HALLIBURTON</div>		TOOL STRING DIAGRAM REPORT	
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Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
						79.56 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	73.31	300.00
CCL	Casing Collar Locator - Digital Source	00115000	60.00	2.00	71.31	300.00
GTET	Gamma Telemetry Tool	10843477	165.00	8.52	62.79	60.00
DSNT	Dual Spaced Neutron	10846353	174.00	9.69	53.10	60.00
DCNT	DSN Decentralizer	10846353	6.60	5.13	* 56.43	300.00
SDLT	Spectral Density Tool	11014275	360.00	10.81	42.29	60.00
SDLP	Density Insite Pad	11045462	65.00	2.55	* 44.50	60.00
FLEX	Flex Joint - Pressure Compensated	12002107	140.00	5.97	36.32	300.00
CBL-BSAT	Borehole Sonic Array Tool - CBL	11105782	300.00	15.77	20.54	60.00
OBCEN	Centralizer - 25 in. Overbody	00000001	8.00	2.08	* 20.96	300.00
OBCEN	Centralizer - 25 in. Overbody	00000002	8.00	2.08	* 33.45	300.00
ACRt	Array Compensated True Resistivity Instrument Section	11999267	50.00	5.03	15.51	300.00
ACRt	Array Compensated True Resistivity Sonde Section	11953684	200.00	14.22	1.29	300.00
RSOF	Regal Standoff 6.75in	00000001	10.00	0.52	* 14.16	300.00
SP	SP Ring	00000001	0.00	0.25	* 2.57	300.00
TMAX	Temperature Sub - 3_625 OD	00000001	15.00	0.96	0.33	300.00
BLNS	Bull Nose	00000001	5.00	0.33	0.00	300.00
Total			1,701.60	79.56		

* Not included in Total Length and Length Accumulation.

Data: AW_25_43_SWD\0002 QUAD_BSAT_CBL\IDLE

Date: 26-Sep-13 11:00:15