

HALLIBURTON

ARRAY COMPENSATED
TRUE RESISTIVITY

COMPANY		ELM RIDGE EXPLORATION CO.	
WELL		IGW 143	
FIELD/BLOCK		IGNACIO BLANCO	
COUNTY		LA PLATA	
STATE		CO	
Permanent Datum		GL	
Log measured from		KB	
Drilling measured from		KB	
Date		29-Jul-14	
Run No.		ONE	
Depth - Driller		3651.0 ft	
Depth - Logger		3640.0 ft	
Bottom - Logged Interval		3638.00 ft	
Top - Logged Interval		539.00 ft	
Casing - Driller		8.625 in @ 538.0 ft	
Casing - Logger		539.0 ft	
Bit Size		7.875 in	
Type Fluid in Hole		Water Based Mud	
Density		9.5 ppg	
Viscosity		48.00 s/qt	
PH		9.50 pH	
Source of Sample		MUD TANK	
Rm @ Meas. Temperature		3.77 ohmm @ 69.50 degF	
Rmf @ Meas. Temperature		3.22 ohmm @ 61.00 degF	
Rmc @ Meas. Temperature		3.950 ohmm @ 65.00 degF	
Source Rmf		MEASURED	
Rmc		MEASURED	
Rm @ BHT		2.17 ohmm @ 126.0 degF	
Time Since Circulation		4.7 hr	
Time on Bottom		29-Jul-14 04:10	
Max. Rec. Temperature		126.0 degF @ 3640.0 ft	
Equipment		11014853	
Location		VERNAL, UT	
Recorded By		B. HOYTAL	
Witnessed By		D. GILES	

COMPANY	ELM RIDGE EXPLORATION CO.
WELL	IGW 143
FIELD/BLOCK	IGNACIO BLANCO
COUNTY	LA PLATA
STATE	CO

API No.	05067099110000
Location	SURFACE HOLE LOCATION: 1462' FSL & 1085' FWL, NW/SW
	BOTTOM HOLE LOCATION: 2463' FSL & 1106' FWL, NW/SW
Other Services:	RWCH DSNT/SDLT

Sect.	18	Twp.	33N	Rge.	8W
Elev.	6725.0 ft	D.F.	6736.0 ft	G.L.	6725.0 ft

Permanent Datum	GL	Elev.	K.B.
Log measured from	KB	D.F.	6736.0 ft
Drilling measured from	KB	G.L.	6725.0 ft

12.0 ft above perm. Datum

Fold here

Service Ticket No.: N/A				API Serial No.: 05067099110000				PGM Version: WL INSITE R4.2.0 (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	0.25" S.O.	N/A		
Rmc @ Meas. Temp.						@		@		11830593					
Source Rmf										11800419					
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.		11050378		Serial No.				Serial No.		10865872		Serial No.		10978624	
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.		GTET		Spacing				Log Type		GAMMA		Log Type		THERMAL	
Type		SCINT.						Source Type		Cs137		Source Type		Am241Be	
Length		8"		LSA [Y/N]				Serial No.		5432GW		Serial No.		680107B	
Distance to Source		10'		FWDA [Y/N]				Strength		1.78 Ci		Strength		15 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	3640	539	REC	0	200				30%	-10%	2.65 g/cc	30%	-10%	SAND		
DIRECTIONAL INFORMATION																
Maximum Deviation								@	KOP							@
Remarks:																
TENSION PULLS, WASHOUTS, AND BOREHOLE RUGOSITY MAY AFFECT LOG QUALITY																
ANNULAR HOLE VOLUME CALCULATED FOR 5.5 IN CASING																
CHLORIDES: 600 ppm																
LATITUDE: 37.100380° N																
LONGITUDE: 107.764880° W																
YOUR CREW: F. DAVIS, J. PIEP, & R. CRAWFORD																
THANK YOU FOR CHOOSING HALLIBURTON LOGGING SERVICES - VERNAL, UT (435) 781-5517												RIG: BEARCAT #1				
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	9.500	ppg
	SHARED	WAGT	Weighting Agent	Natural	
	SHARED	BSAL	Borehole salinity	600.00	ppm
	SHARED	FSAL	Formation Salinity NaCl	0.00	ppm
	SHARED	KPCT	Percent K in Mud by Weight?	0.00	%
	SHARED	RMUD	Mud Resistivity	3.770	ohmm
	SHARED	TRM	Temperature of Mud	69.5	degF
	SHARED	CSD	Logging Interval is Cased?	No	
	SHARED	ICOD	AHV Casing OD	5.500	in
	SHARED	ST	Surface Temperature	75.0	degF
	SHARED	TD	Total Well Depth	3640.00	ft
	SHARED	BHT	Bottom Hole Temperature	126.0	degF
	SHARED	SVTM	Navigation and Survey Master Tool	NONE	
	SHARED	AZTM	High Res Z Accelerometer Master Tool	GTET	
	SHARED	TEMM	Temperature Master Tool	NONE	
	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	
	GTET	BHSM	Borehole Size Source Tool	SDI T	

DSNT	DNOK	Process DSN?	Yes	
DSNT	DEOK	Process DSN EVR?	No	
DSNT	NLIT	Neutron Lithology	Sandstone	
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	
DSNT	BHSM	Borehole Size Source Tool	SDLT	
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	2.650	g/cc
SDLT Pad	DFL	Formation Density Fluid	1.000	g/cc
SDLT Pad	BHSM	Borehole Size Source Tool	SDLT	
ACRt Sonde	RTOK	Process ACRt?	Yes	
ACRt Sonde	MNSO	Minimum Tool Standoff	0.25	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
ACRt Sonde	BHSM	Borehole Size Source Tool	SDLT	

BOTTOM

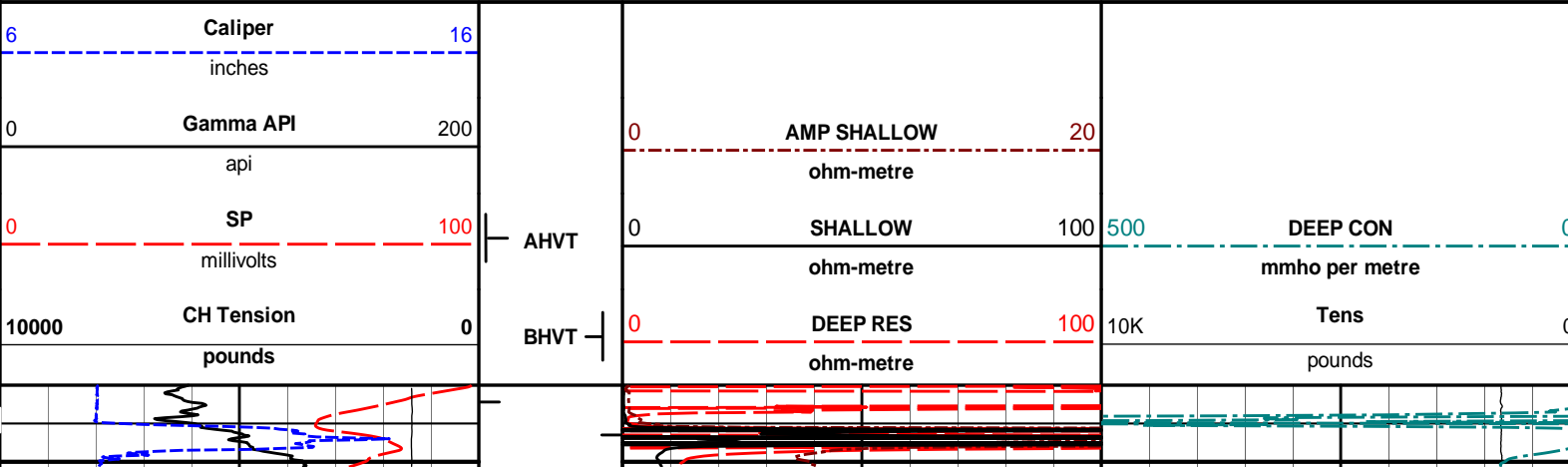
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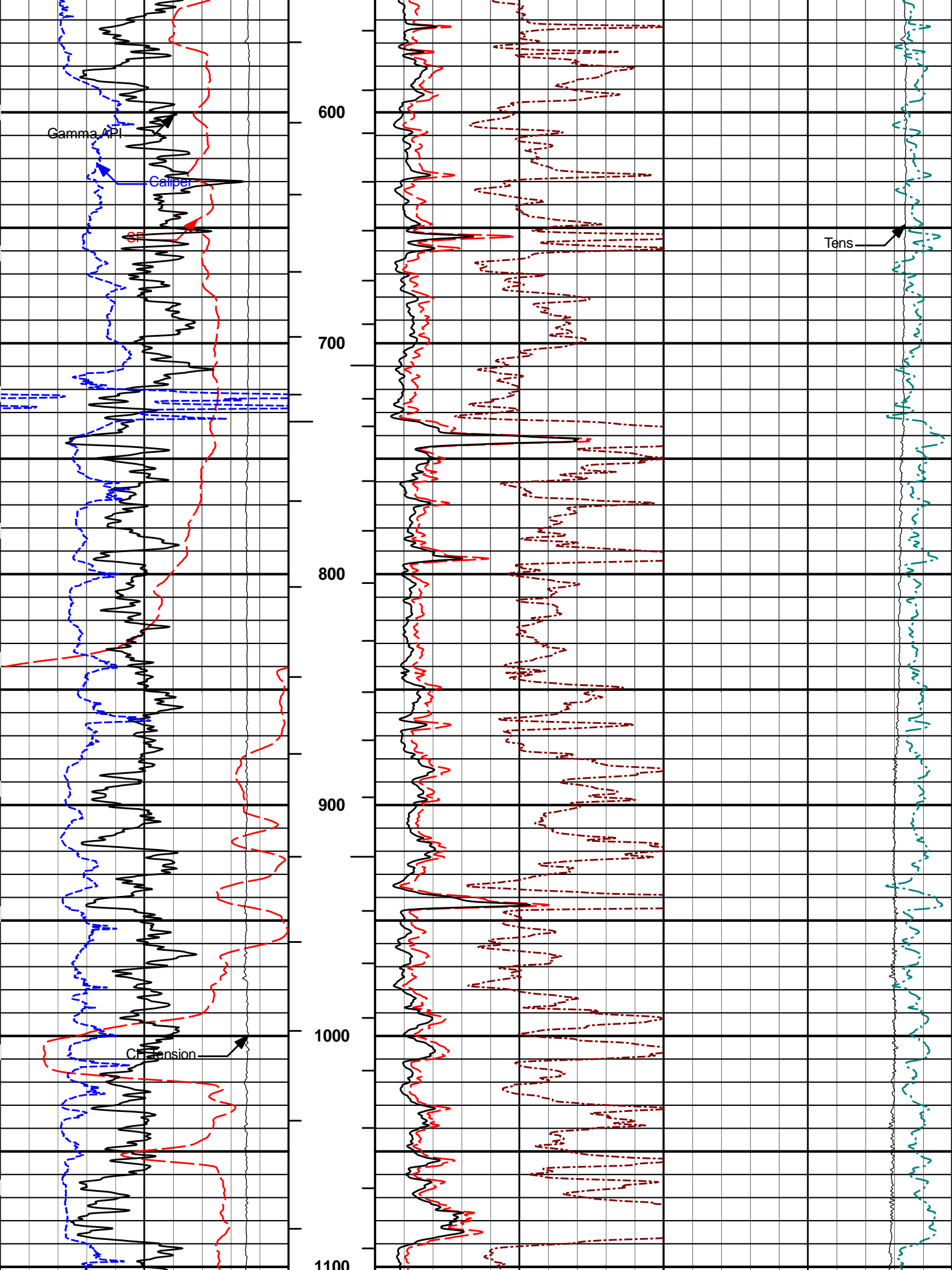
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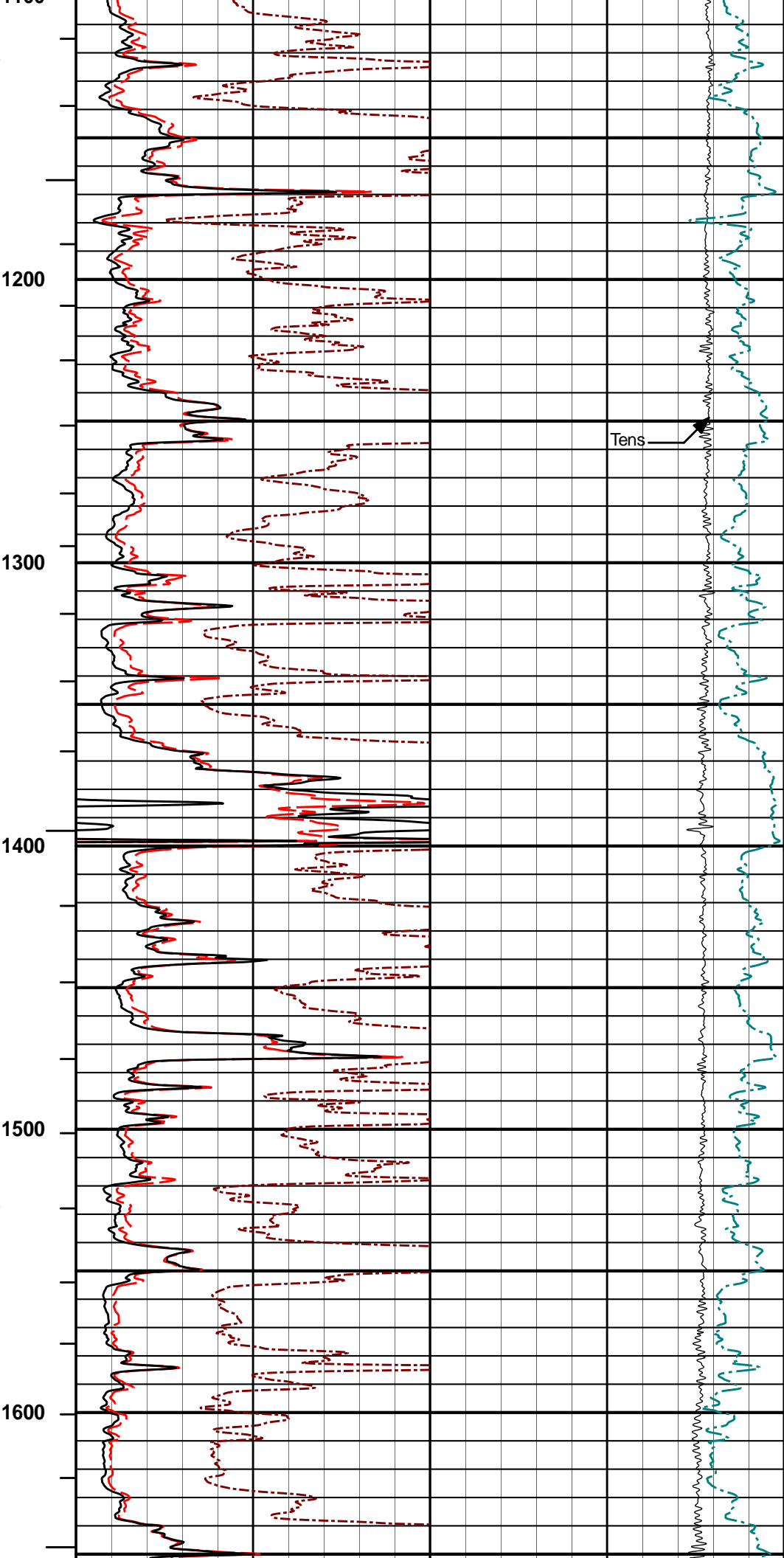
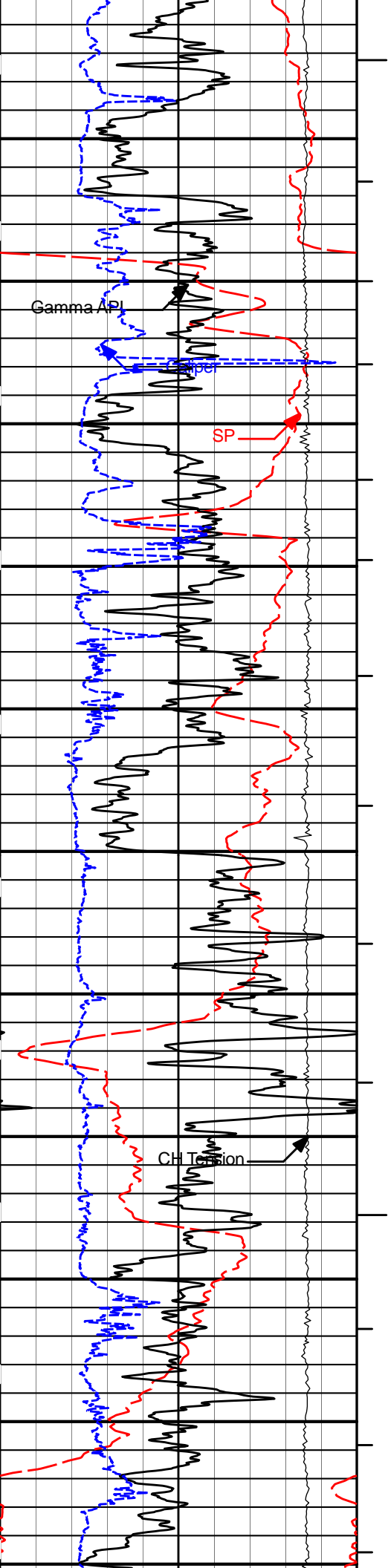
HALLIBURTON

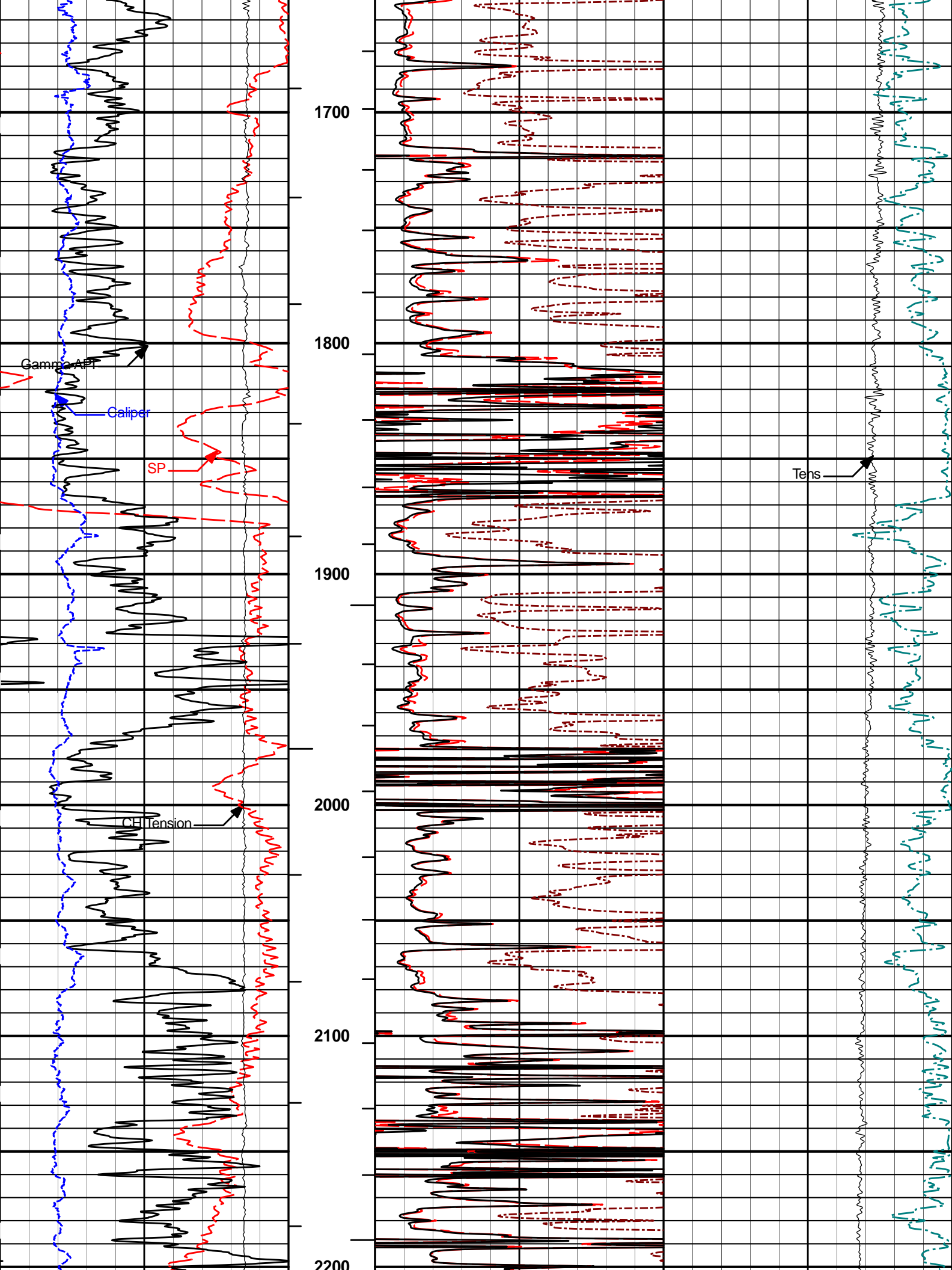
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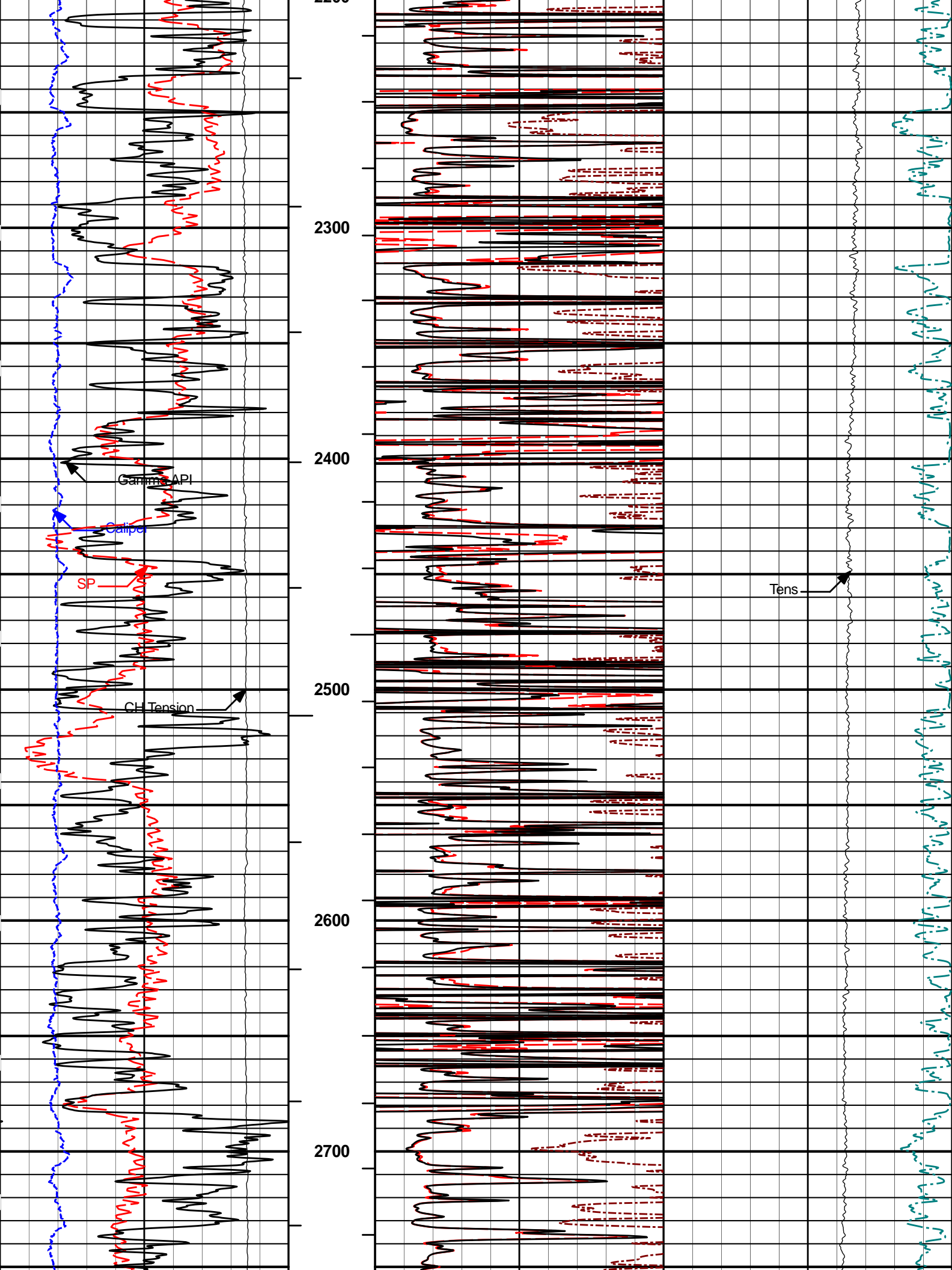
MAIN PASS 2" = 100'

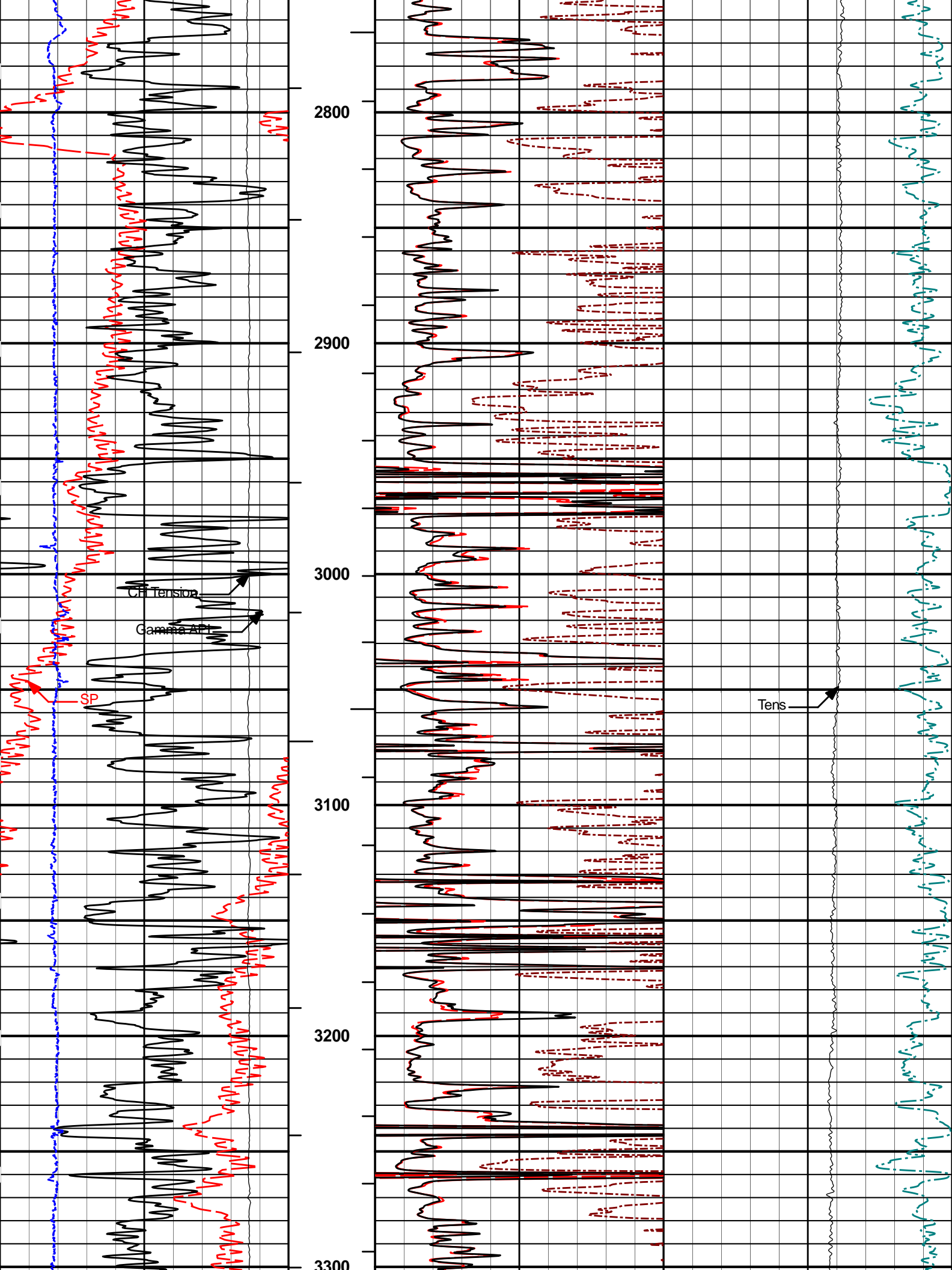


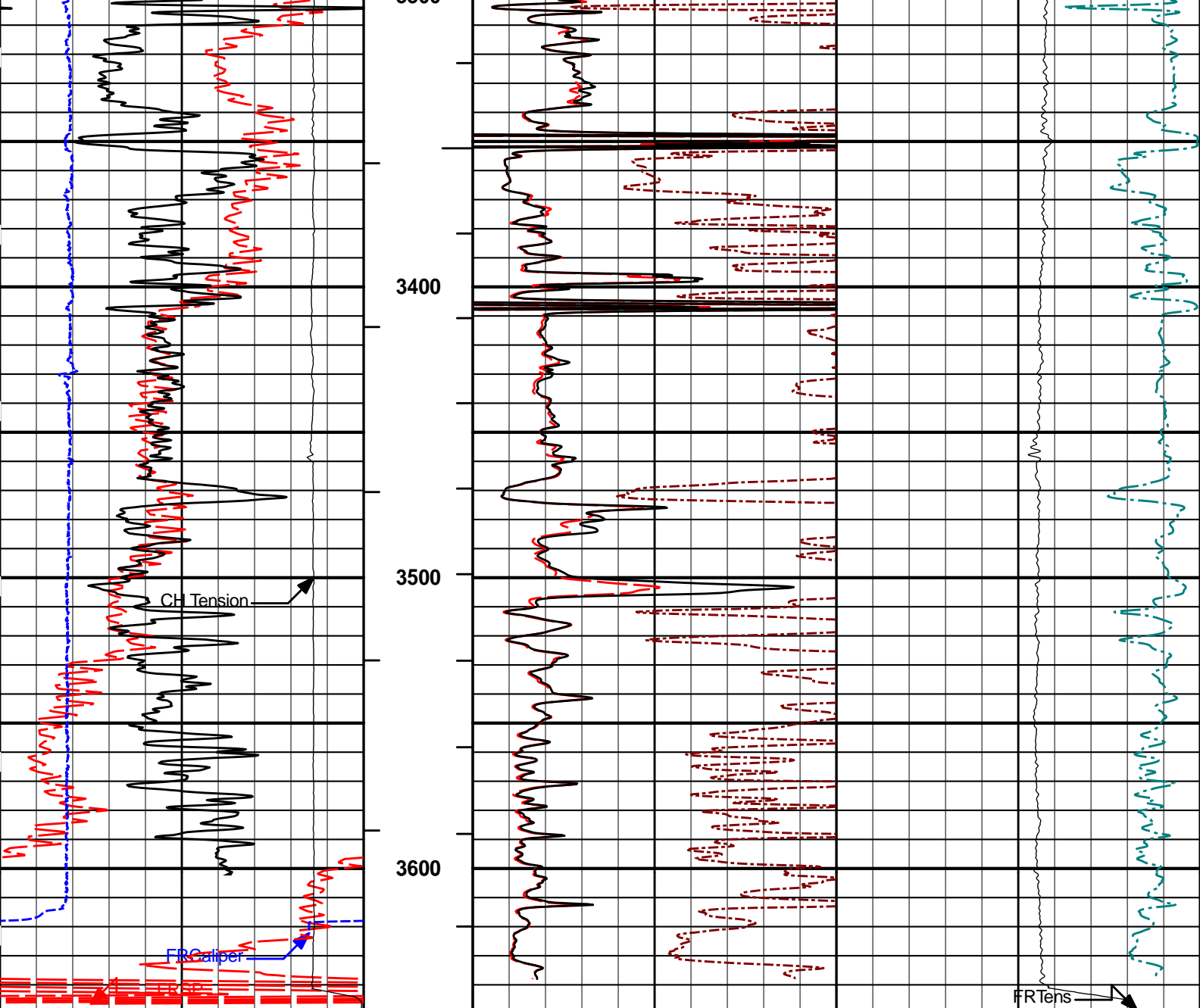












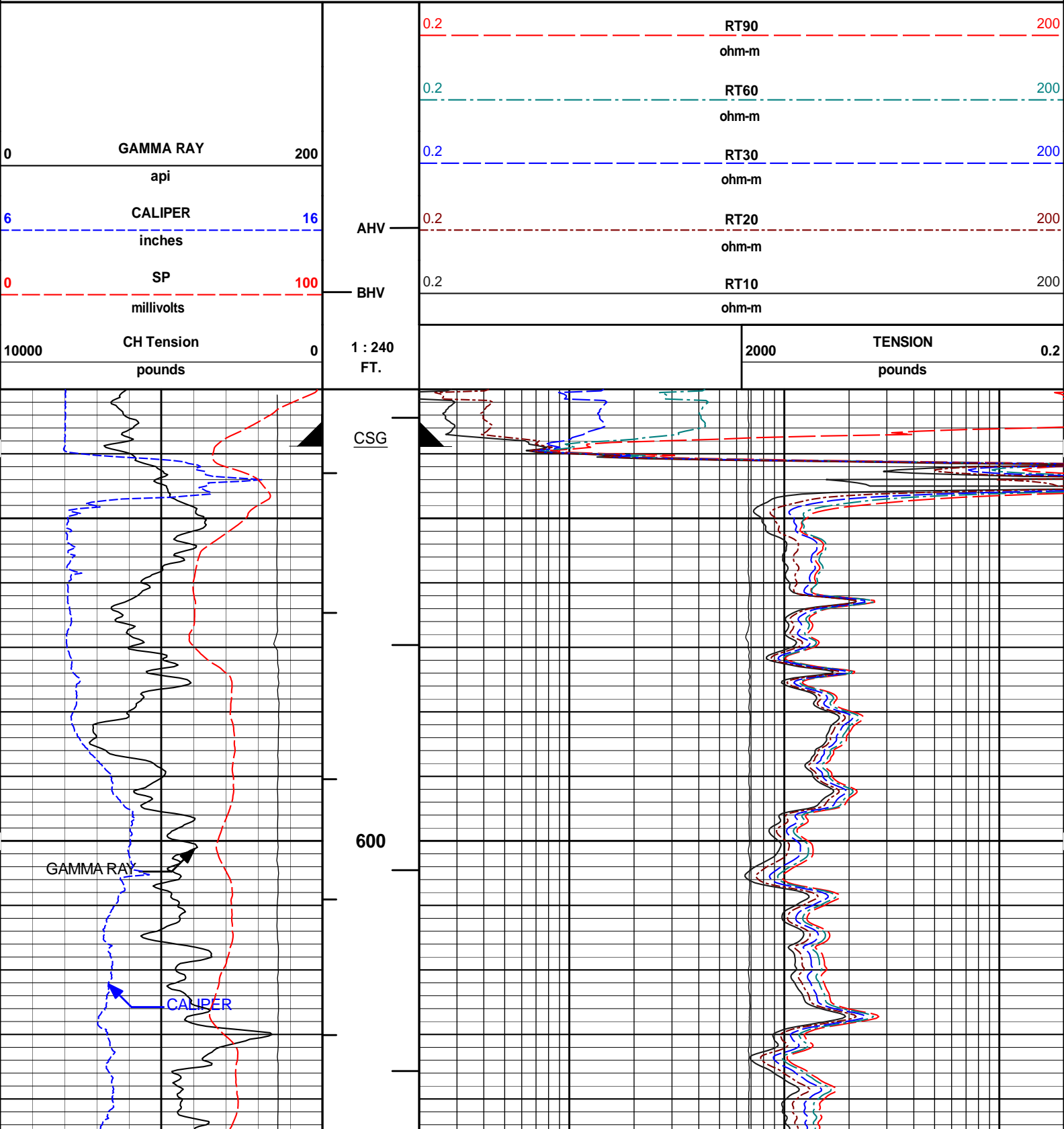
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	pounds				ohm-metre			pounds	
0	SP	100	AHVT	0	SHALLOW	100	500	DEEP CON	0
	millivolts				ohm-metre			mmho per metre	
0	Gamma API	200		0	AMP SHALLOW	20			
	api				ohm-metre				
6	Caliper	16							
	inches								

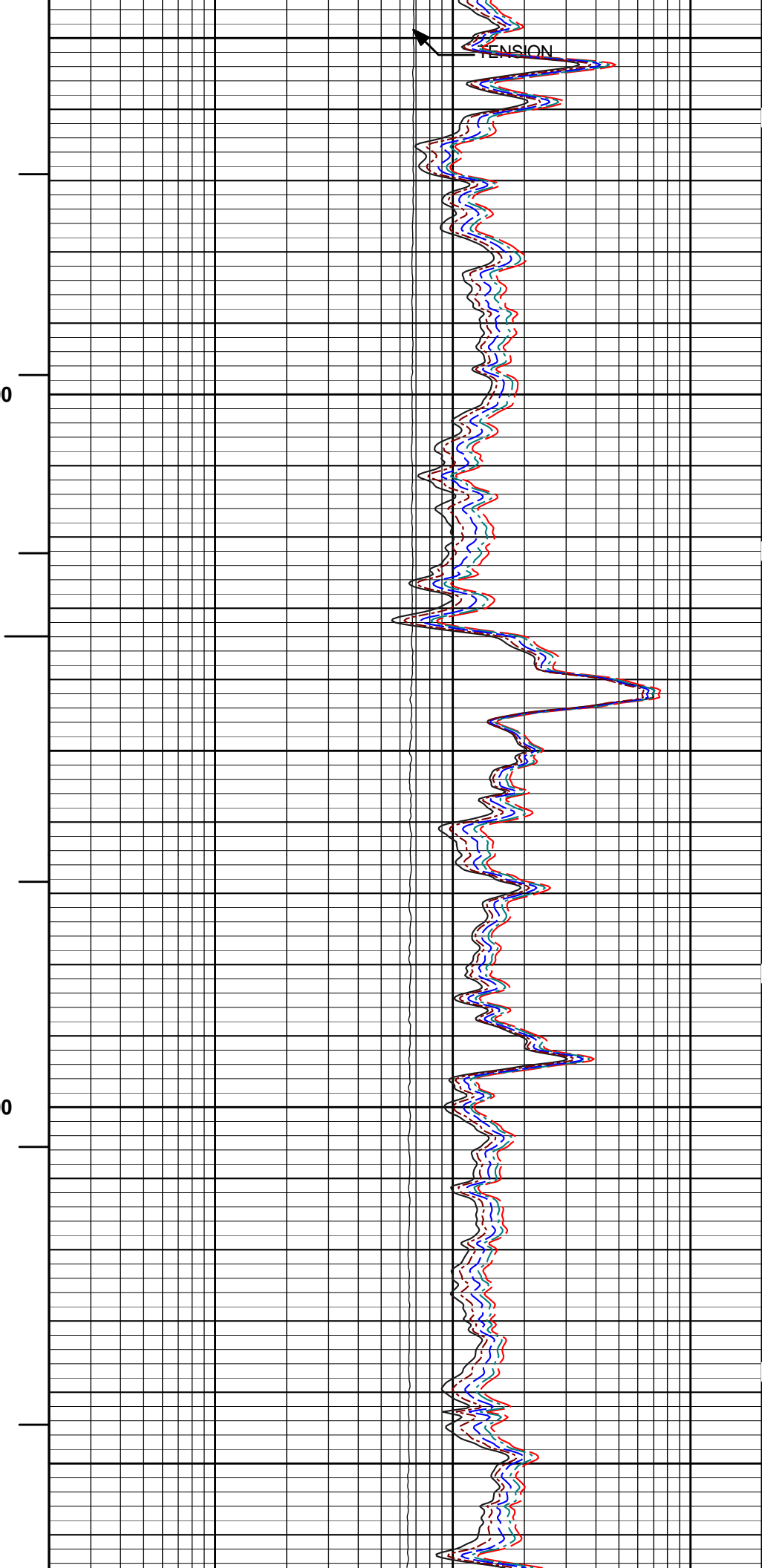
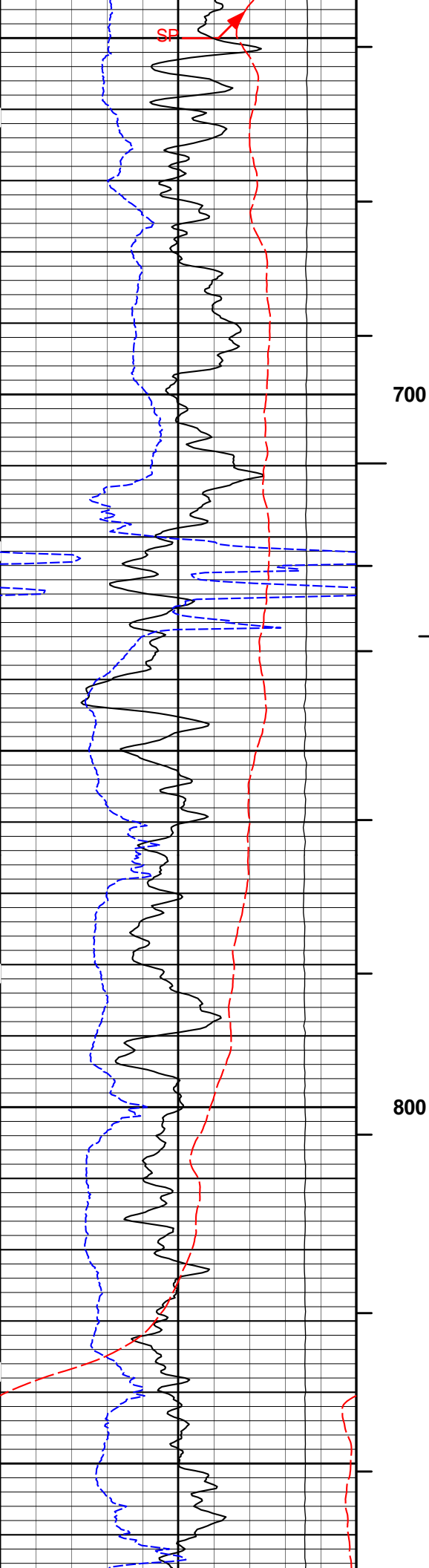
HALLIBURTON

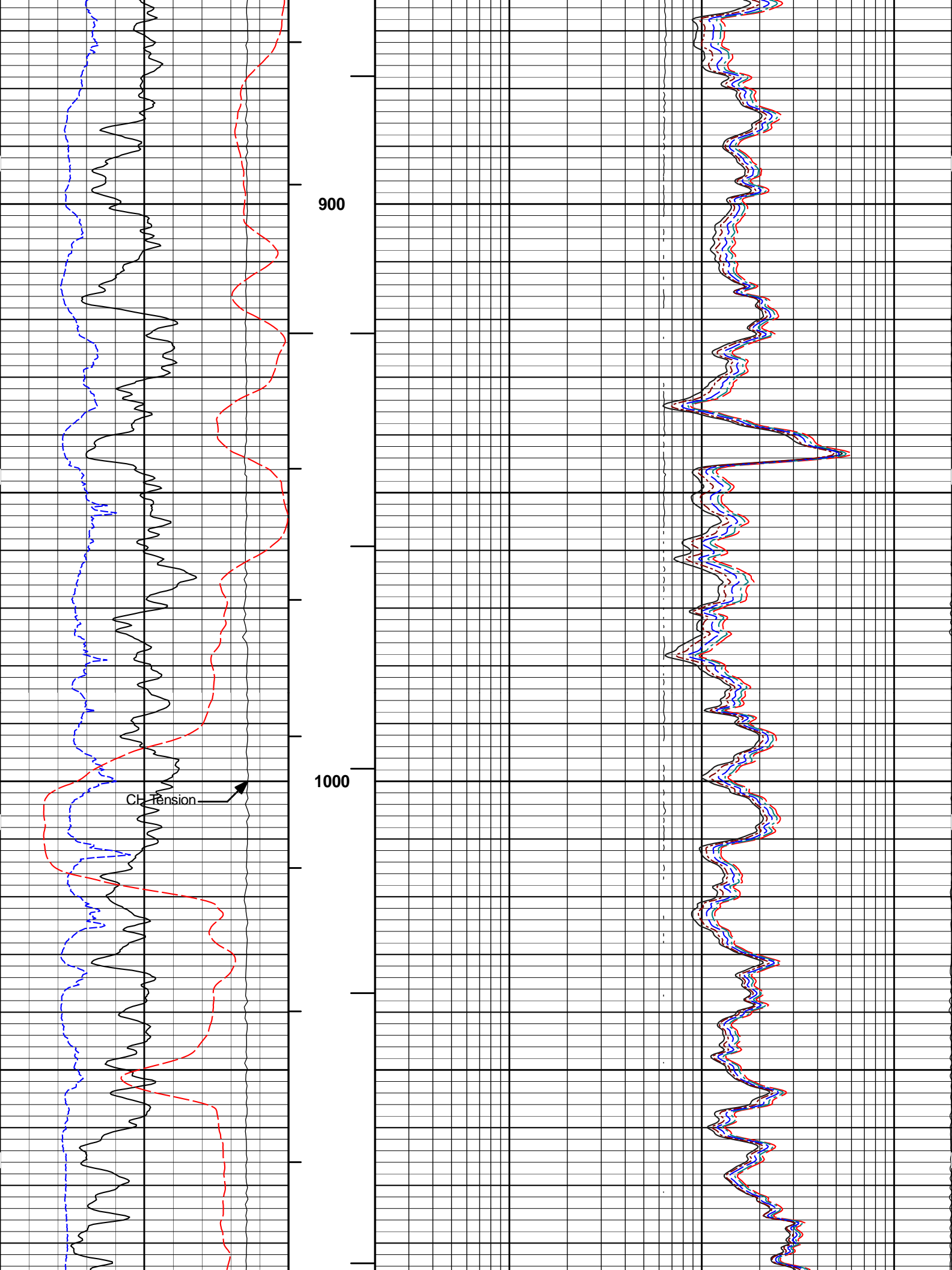
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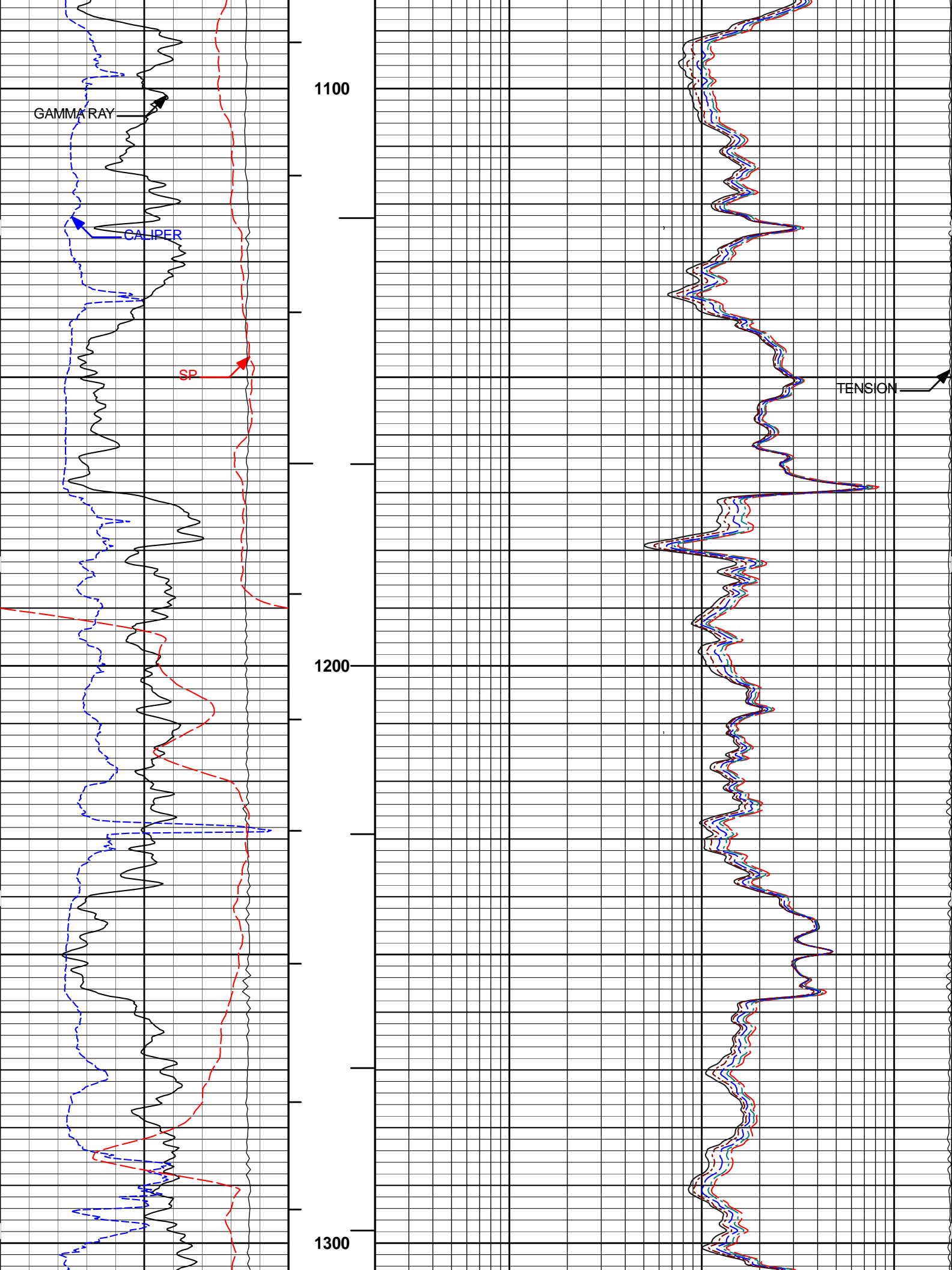
MAIN PASS 2" = 100'

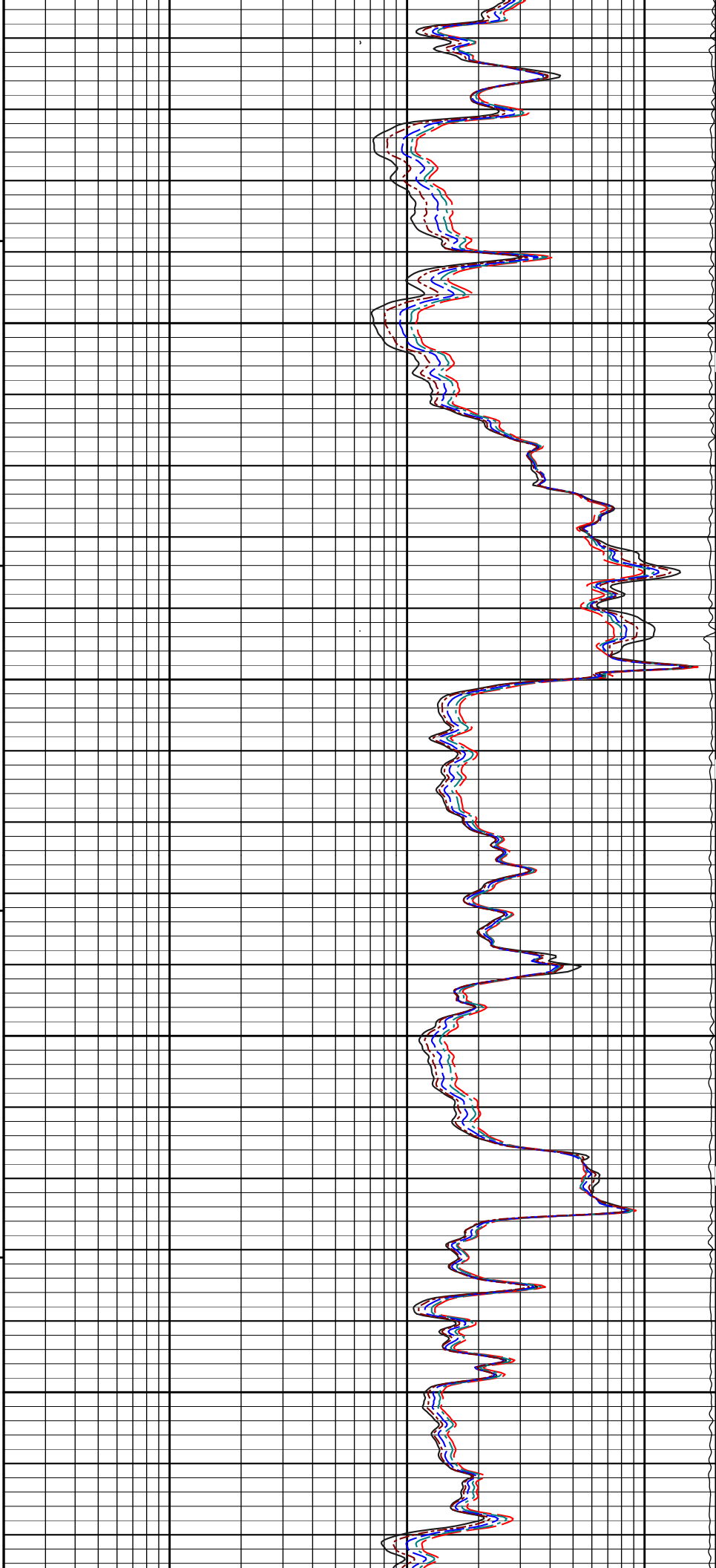
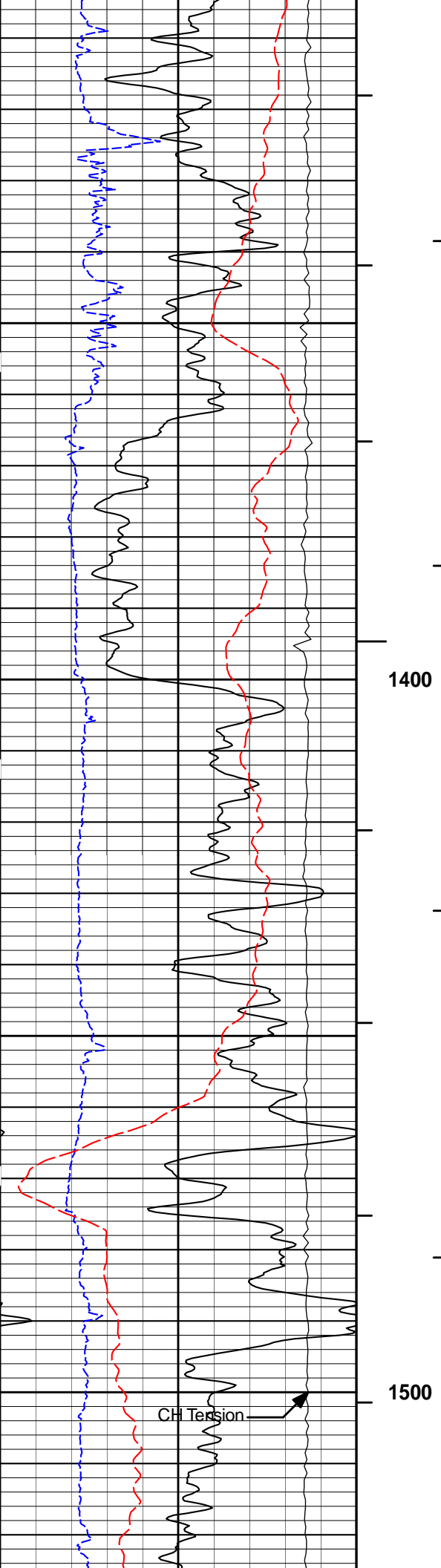
MAIN PASS 5" = 100'

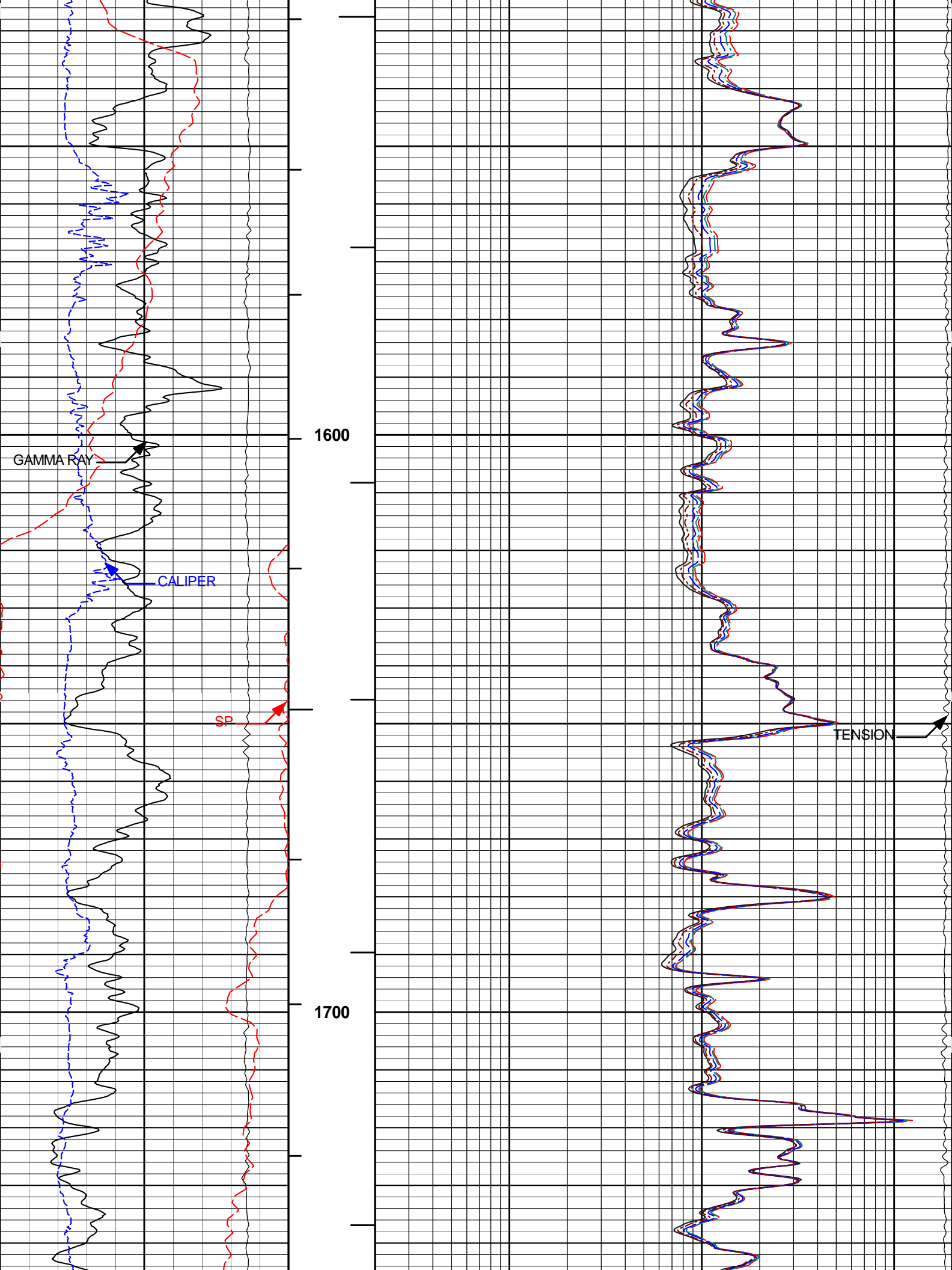


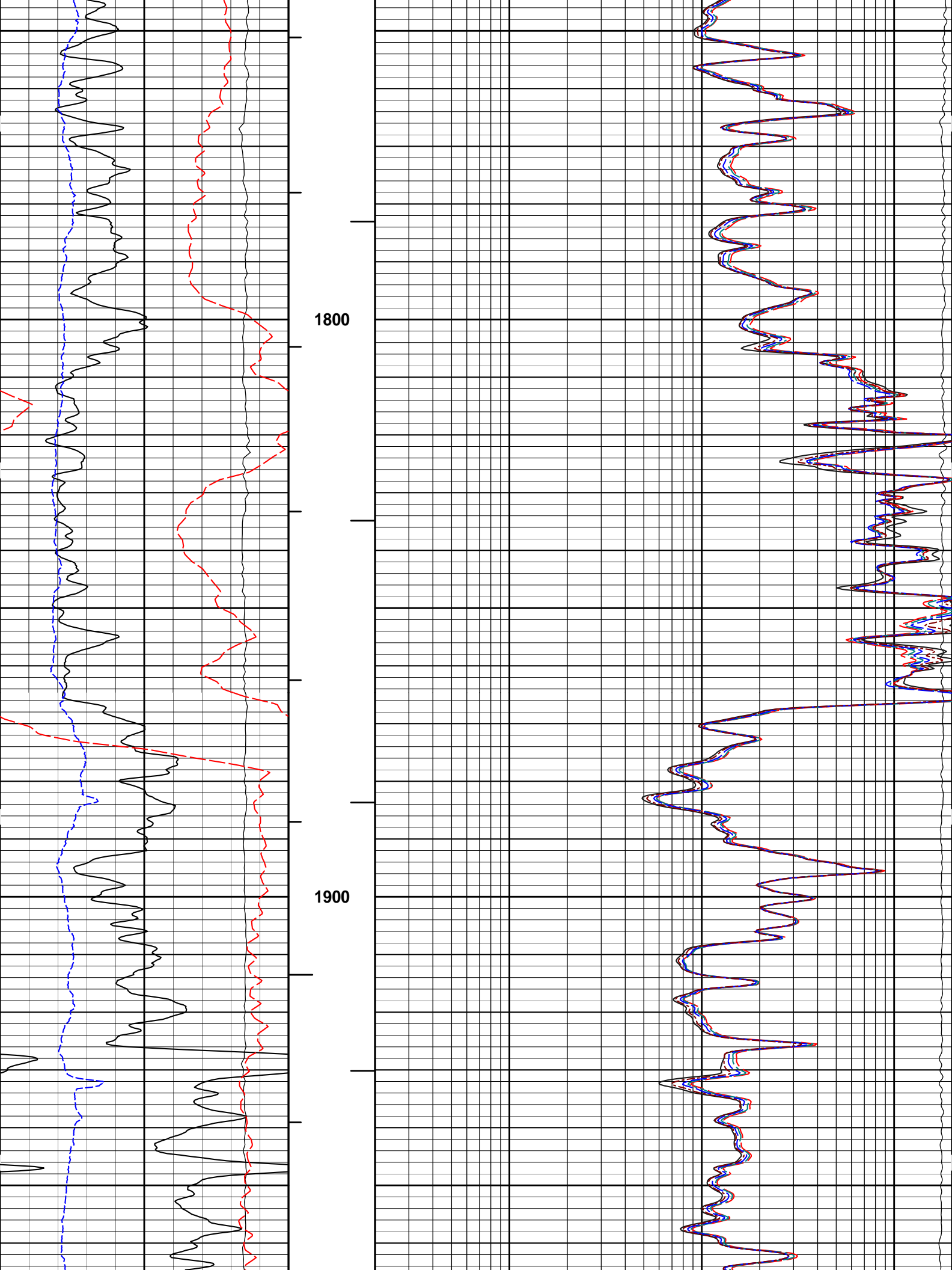


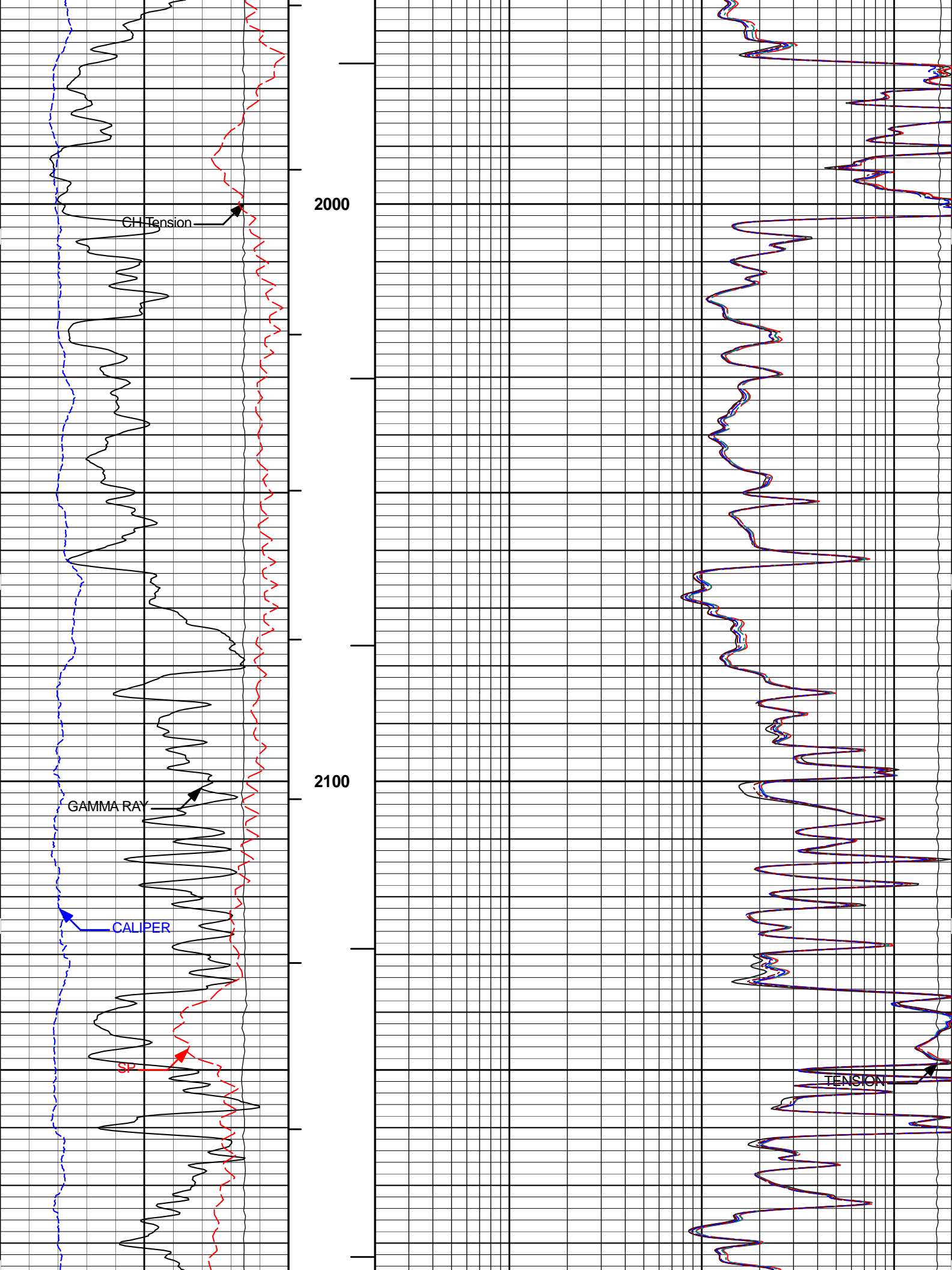


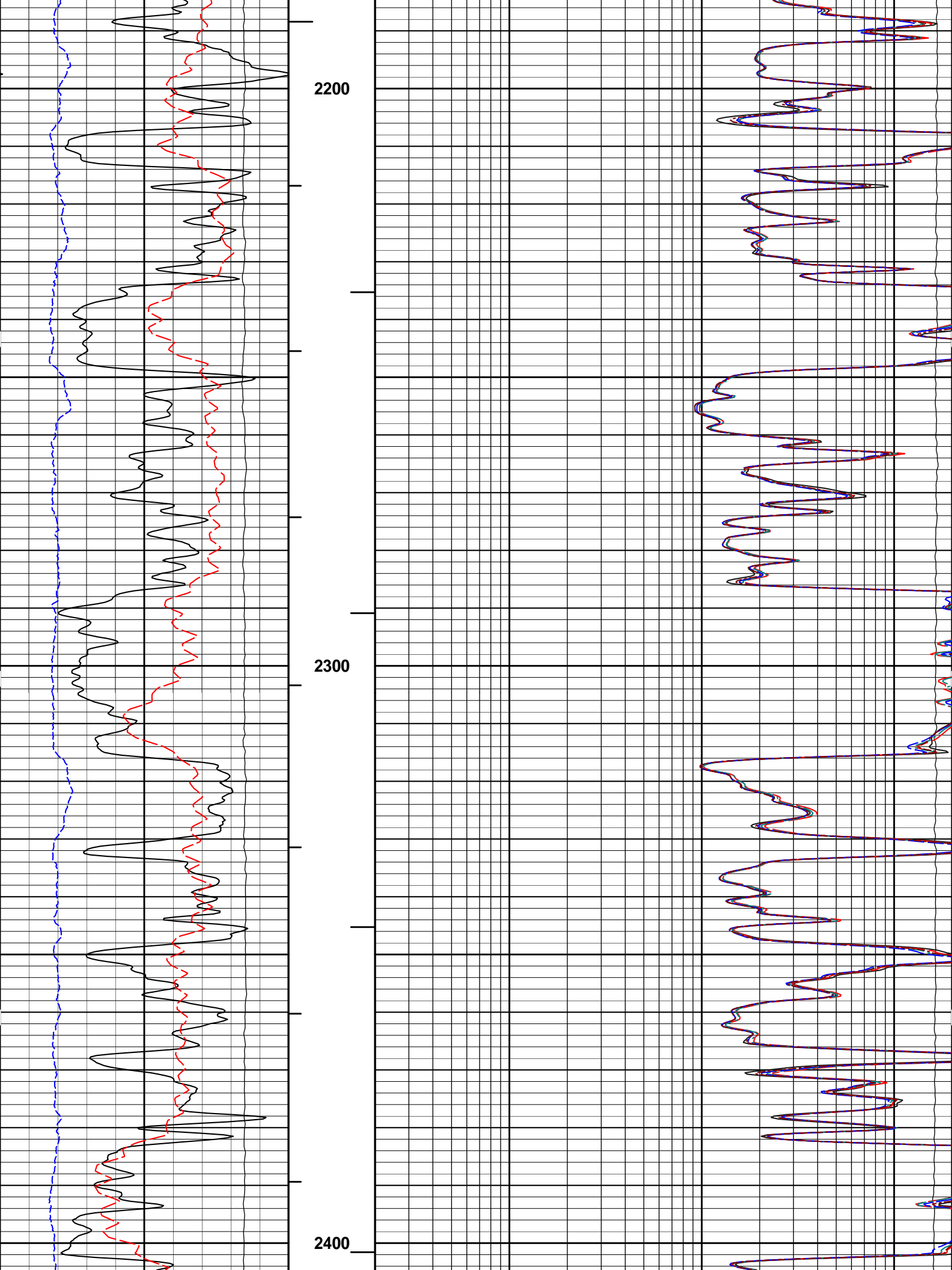


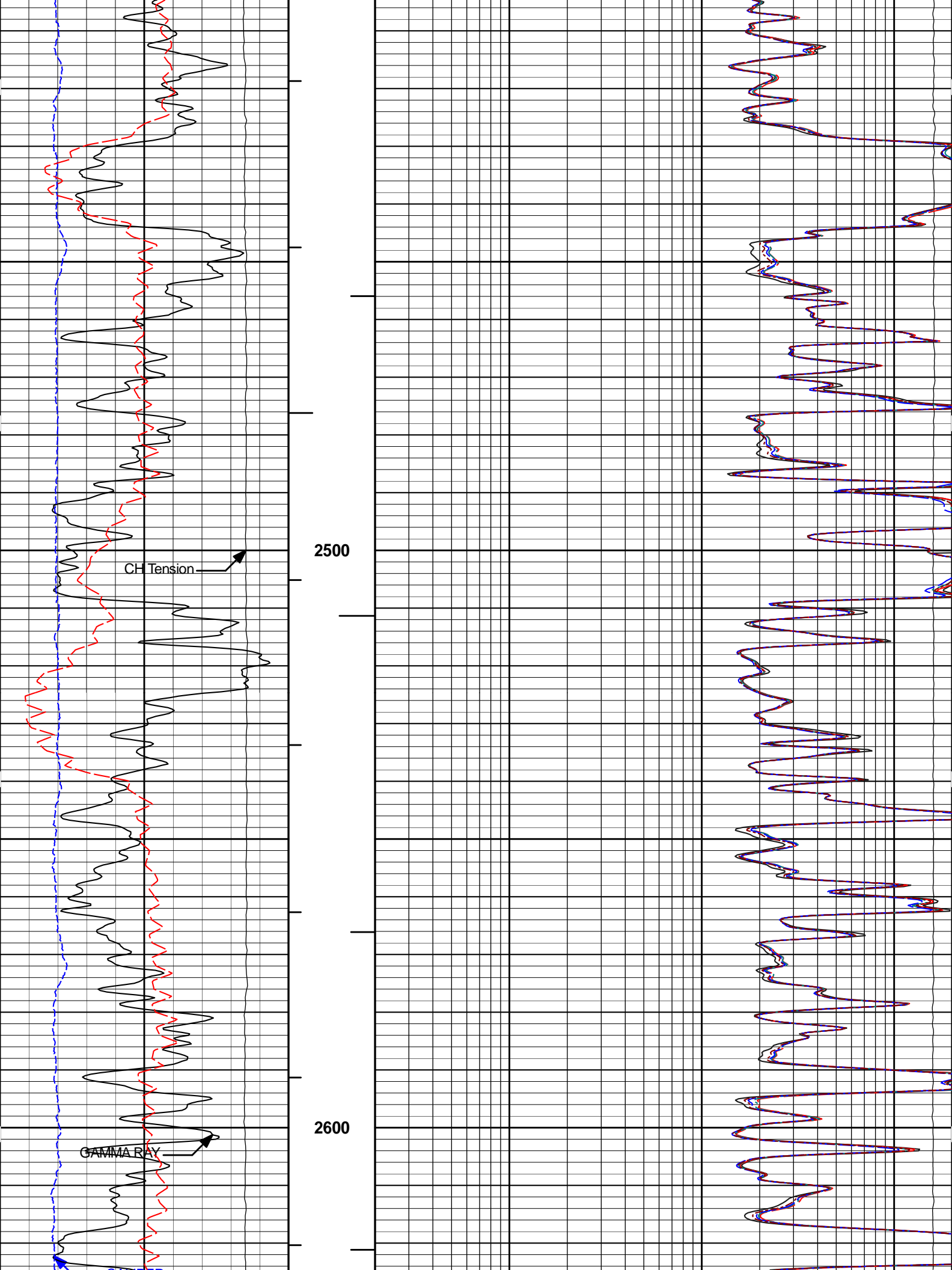


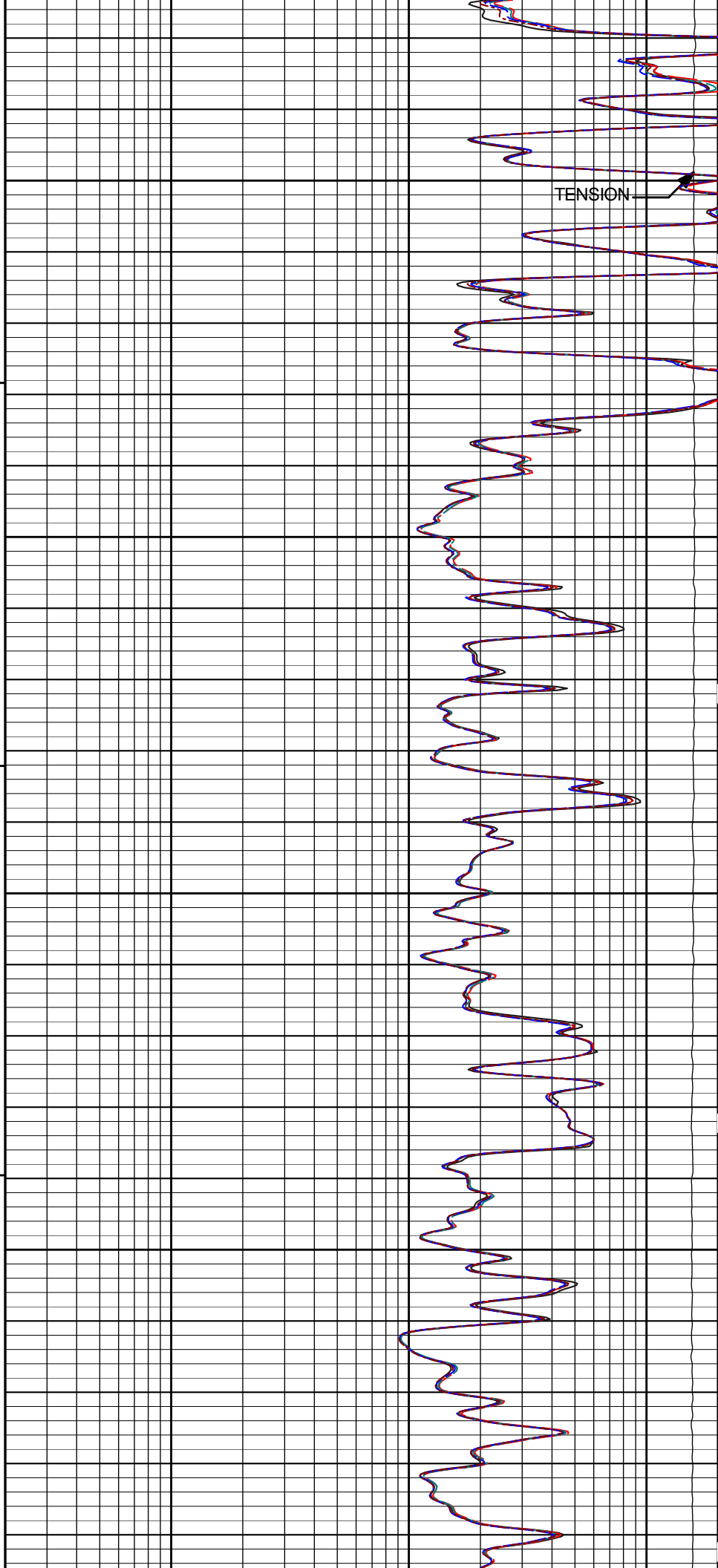
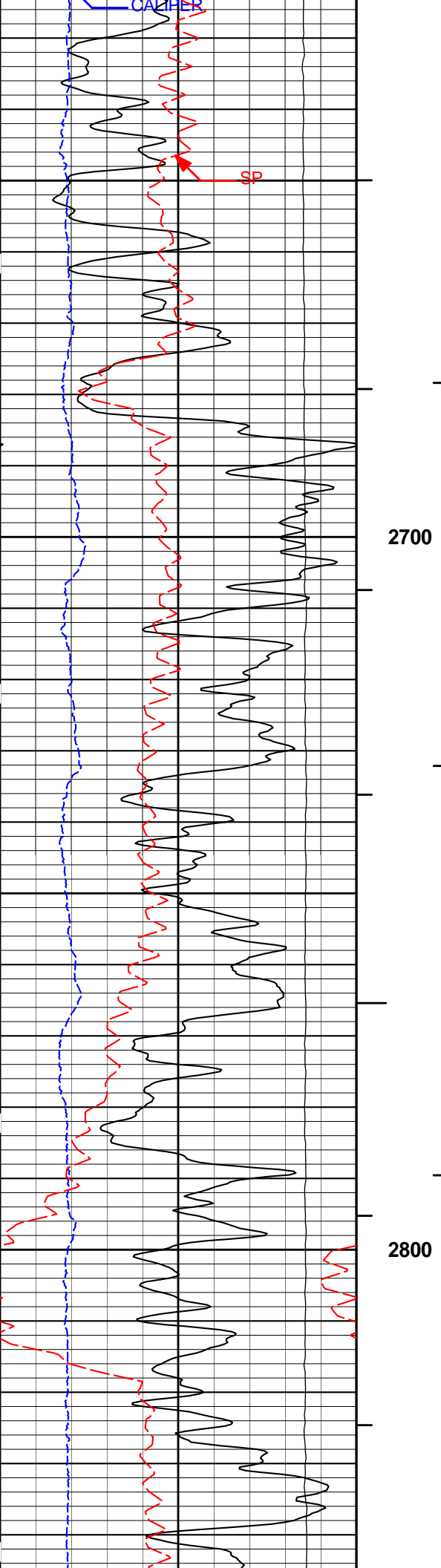


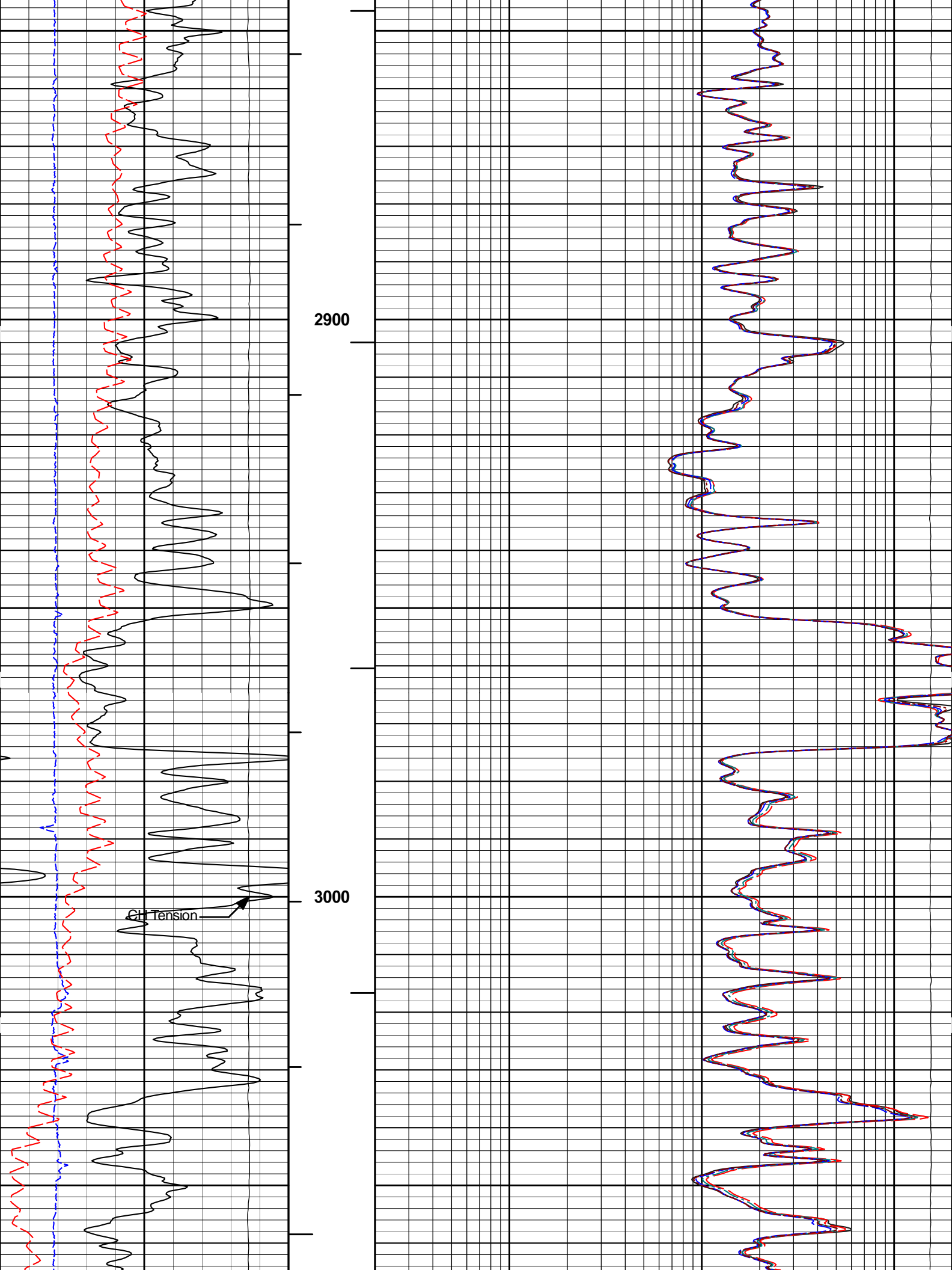


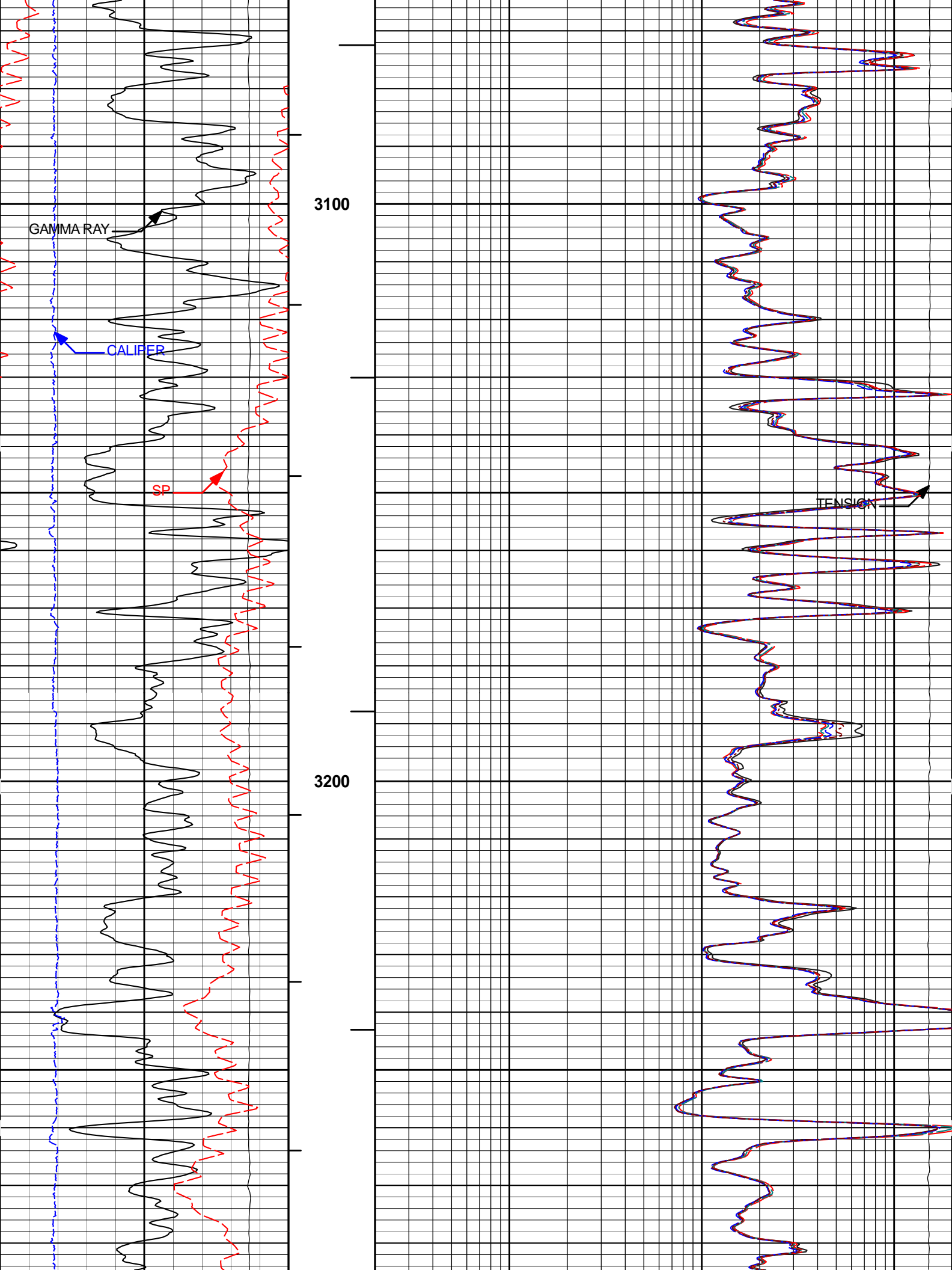


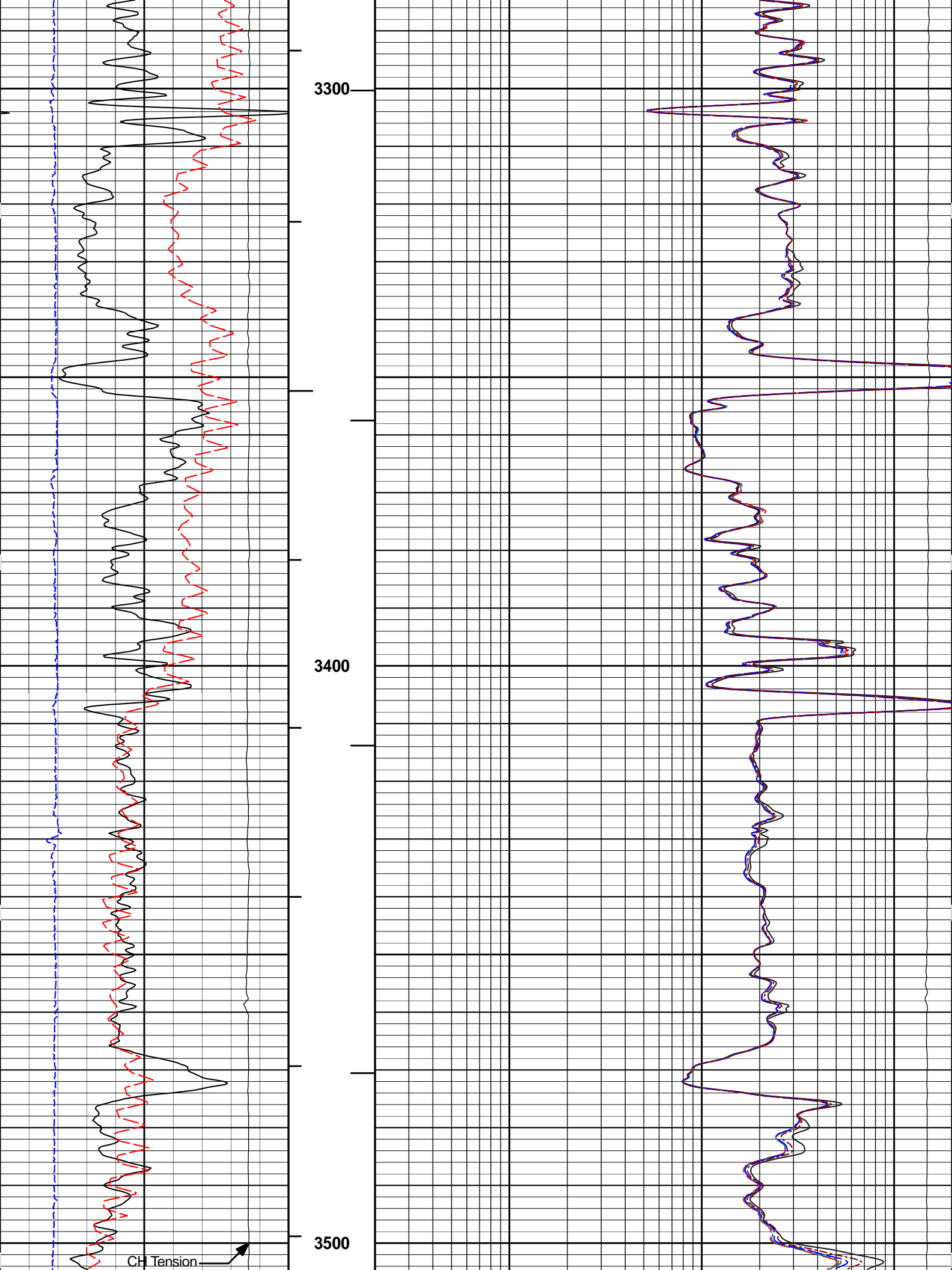


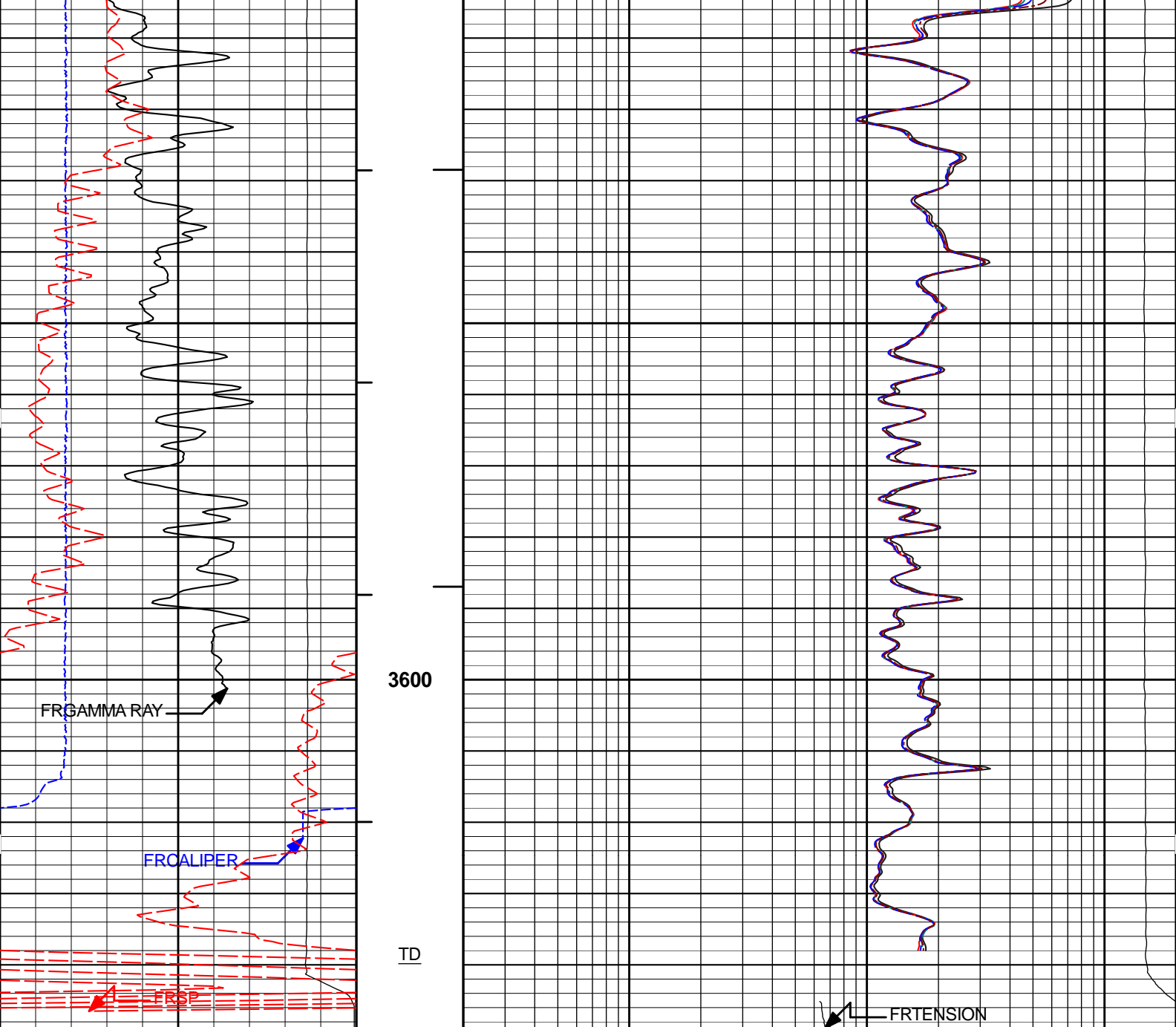












10000	CH Tension	0	1 : 240	2000	TENSION	0.2
	pounds		FT.		pounds	
0	SP	100	BHV	0.2	RT10	200
	millivolts				ohm-m	
6	CALIPER	16	AHV	0.2	RT20	200
	inches				ohm-m	
0	GAMMA RAY	200		0.2	RT30	200
	api				ohm-m	
				0.2	RT60	200
					ohm-m	
				0.2	RT90	200
					ohm-m	

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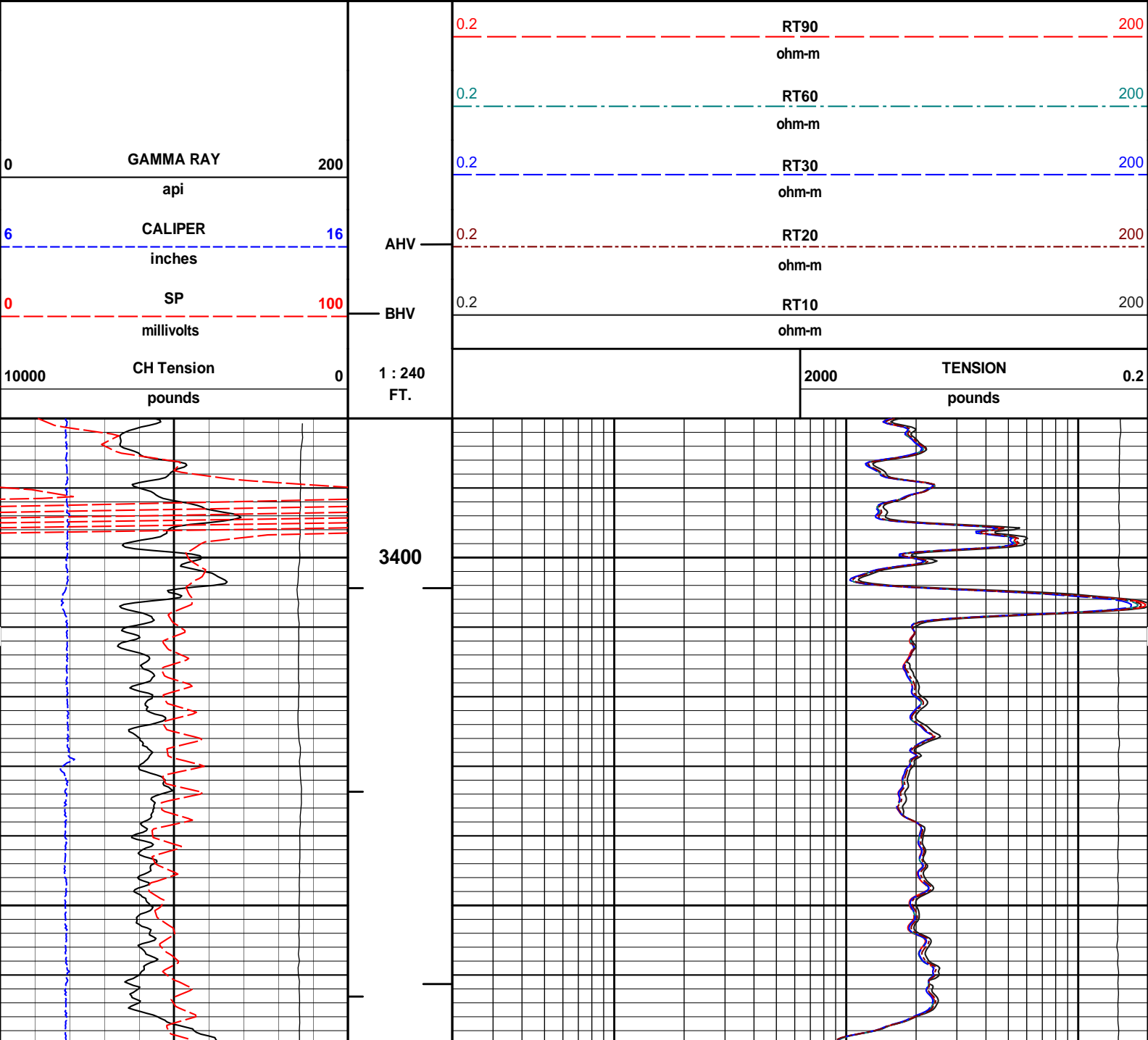
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Plot Range: 530 ft to 3649 ft
Data: IGW_143\Well Based\MAIN
Plot File: \\RESV_ACRT_M

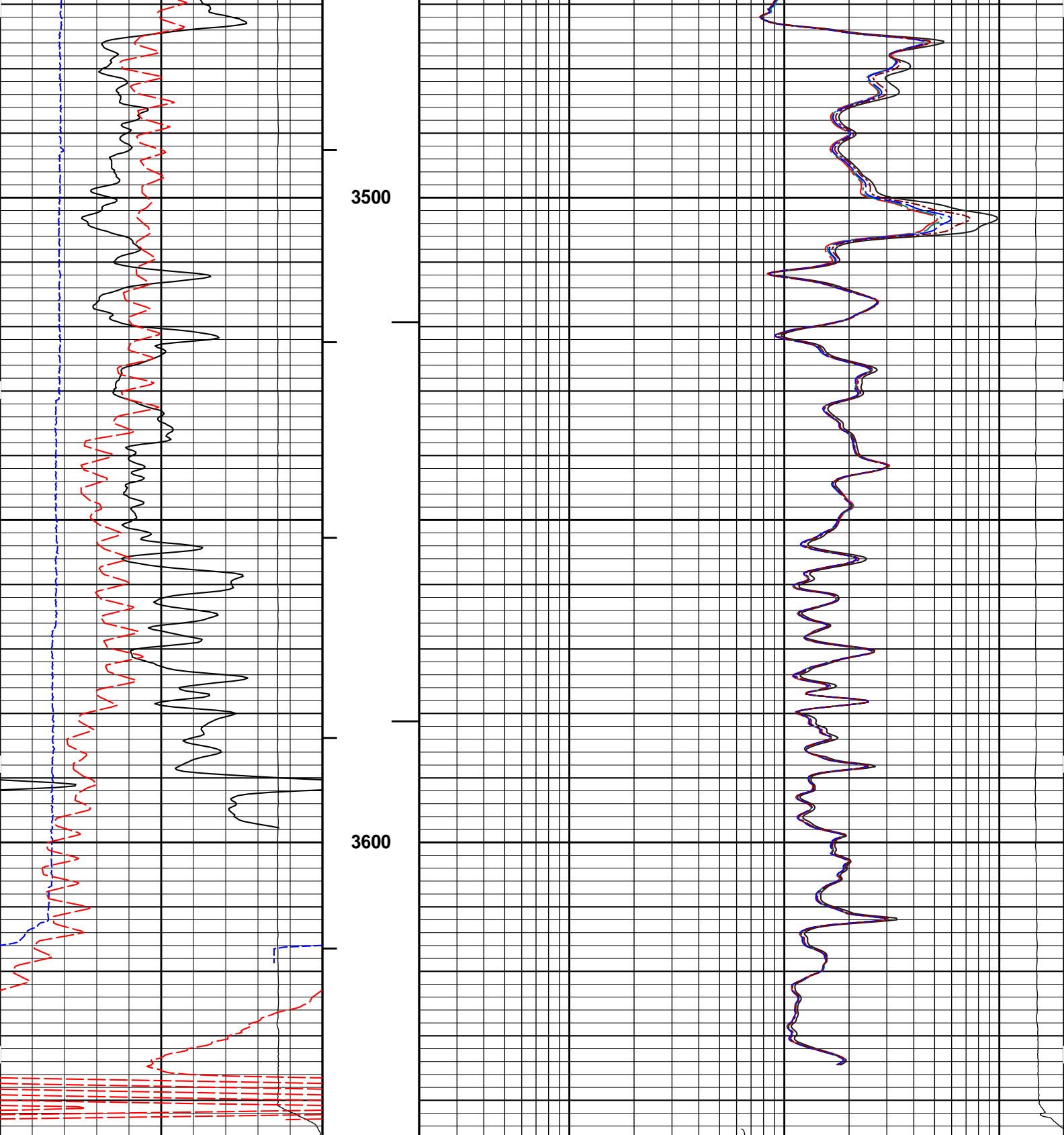
MAIN PASS 5" = 100'

HALLIBURTON

Plot Time: 29-Jul-14 05:39:05
Plot Range: 3380 ft to 3646 ft
Data: IGW_143\Well Based\RPT\
Plot File: \\RES_ACRT_R

REPEAT PASS 5" = 100'





10000	CH Tension	0	1 : 240		2000	TENSION	0.2
	pounds		FT.			pounds	
0	SP	100	BHV	0.2	RT10		200
	millivolts				ohm-m		
6	CALIPER	16	AHV	0.2	RT20		200
	inches				ohm-m		
0	GAMMA RAY	200		0.2	RT30		200
	api				ohm-m		
				0.2	RT40		200
					ohm-m		

		0.2	RT60	200
			ohm-m	
		0.2	RT90	200
			ohm-m	

HALLIBURTON	Plot Time: 29-Jul-14 05:39:06 Plot Range: 3380 ft to 3646 ft Data: IGW_143\Well Based\RPT\ Plot File: \\RESV\ _ACRT_R
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<p>REPEAT PASS 5" = 100'</p>

HALLIBURTON
CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION			
Tool Name:	GTET - 11050378	Reference Calibration Date:	08-Jun-14 10:58:53
Engineer:	A. KAMPA	Calibration Date:	09-Jul-14 15:17:08
Software Version:	WL INSITE R4.2.0 (Build 2)	Calibration Version:	1

Calibrator Source S/N: MP051807-01 Calibrator API Reference:236.00 api Equivalent Calibrator API Reference:240.1 api			
Measurement	Measured	Calibrated	Units
Background	36.5	36.3	api
Background + Calibrator	278.4	276.4	api
Calibrator	241.9	240.1	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION			
Tool Name:	GTET - 11050378	Reference Calibration Date:	09-Jul-14 15:17:08
Engineer:	B. HOYTAL	Calibration Date:	28-Jul-14 14:19:37
Software Version:	WL INSITE R4.2.0 (Build 2)	Calibration Version:	1

Calibrator Source S/N: MP051807-01 Calibrator API Reference:236.00 api Equivalent Calibrator API Reference:240.1 api			
Field Verification	Shop	Field	Units
Background	36.3	31.2	api
Background + Calibrator	276.4	273.2	api
Calibrator	240.1	242.0	api
Shop	Field	Difference	Tolerance
240.1	242.0	-1.9	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION			
Tool Name:	DSNT - 10978624	Reference Calibration Date:	08-Jun-14 12:09:50
Engineer:	A. KAMPA	Calibration Date:	10-Jul-14 08:59:58
Software Version:	WL INSITE R4.2.0 (Build 2)	Calibration Version:	1

Logging Source S/N: 680107B Tank Serial Number: 105045

Reference value assigned to Tank: 52.630
Snow Block S/N: 12001406
Calibration Tank Water Temperature: 65 degF
Min. Tool Housing Outside Diameter: 3.620 in

CALIBRATION CONSTANTS			
Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	0.958	0.962	0.900 - 1.100

WATER TANK SUMMARY (Horizontal Water Tank)				
Measurement	Current Reading (Previous Coef.)	Calibrated (New Coef.)	Change	Control Limit On Change
Porosity (decp):	0.2146	0.2159	0.0013	+/- 0.0020
Calibrated Ratio:	9.85	9.90	0.045	+/- 0.050

VERIFIER		
Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0597	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 - 10978624	Reference Calibration Date:	10-Jul-14 08:59:58
Engineer:	B. HOYTAL	Calibration Date:	28-Jul-14 14:30:06
Software Version:	WL INSITE R4.2.0 (Build 2)	Calibration Version:	1

Logging Source S/N: 680107B
Snow Block S/N: 12001406

NEUTRON FIELD-CHECK SUMMARY				
	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0597	0.0608	0.0011	+/- 0.0150

PASS/FAIL SUMMARY	
Block Change Check:	Passed
Snow Block Stat Check:	Passed
Temperature Check:	Passed

DENSITY CALIPER SHOP CALIBRATION

Tool Name:	SDLT - 10950483	Reference Calibration Date:	08-Jun-14 11:43:09
Engineer:	A. KAMPA	Calibration Date:	09-Jul-14 16:42:06
Software Version:	WL INSITE R4.2.0 (Build 2)	Calibration Version:	1
Host Tool Name:	DSNT - 10978624		

CALIBRATION COEFFICIENTS			
Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-3055.77	-3677.43	-7000.00 - -1000.00
Pad Gain	0.0003795	0.0004022	0.000200 - 0.000600
Arm Offset	-3722.81	-3364.29	-5000.00 - 3000.00

Arm Gain0.00054520.00055460.000300 - 0.000700

Arm Power-0.000004157-0.000004773-0.000010000 - 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)	2.12	2.00	-0.12	+/- 0.20
Medium Ring (in)	3.77	3.75	-0.02	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.51	6.50	-0.01	+/- 0.20
Medium Ring (in)	8.25	8.25	0.00	+/- 0.20
Large Ring (in)	15.04	15.00	-0.04	+/- 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 - 10950483	Reference Calibration Date:	09-Jul-14 16:42:06
Engineer:	B. HOYTAL	Calibration Date:	28-Jul-14 14:21:59
Software Version:	WL INSITE R4.2.0 (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	8.20	-0.05	+/- 0.15

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

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name:	SDLT Pad - 10865872	Reference Calibration Date:	17-Jul-14 13:24:21
Engineer:	A. KAMPA	Calibration Date:	17-Jul-14 13:45:31
Software Version:	WL INSITE R4.2.0 (Build 2)	Calibration Version:	1

Logging Source S/N: 5432GW

Aluminum Block S/N: 63069 - VERNALDensity: 2.583g/ccPe: 3.160

Magnesium Block S/N: 63376 - VERNALDensity: 1.685g/ccPe: 2.594

DENSITY CALIBRATION SUMMARY			
Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0382	1.0430	0.90 - 1.10
Near Dens Gain	1.0190	1.0224	0.90 - 1.10
Near Peak Gain	1.0117	1.0111	0.90 - 1.10
Near Lith Gain	1.0011	0.9929	0.90 - 1.10
Far Bar Gain	1.0055	1.0078	0.90 - 1.10
Far Dens Gain	0.9973	0.9973	0.90 - 1.10
Far Peak Gain	0.9924	0.9903	0.90 - 1.10
Far Lith Gain	0.9732	0.9738	0.90 - 1.10

Near Bar Offset	-0.2954	-0.3407	NONE
Near Dens Offset	-0.1173	-0.1478	NONE
Near Peak Offset	-0.0282	-0.0225	NONE
Near Lith Offset	0.0311	0.1006	NONE
Far Bar Offset	-0.0588	-0.0776	NONE
Far Dens Offset	0.0120	0.0130	NONE
Far Peak Offset	0.0437	0.0621	NONE
Far Lith Offset	0.1702	0.1645	NONE
Near Bar Background	867.61	865.43	700 - 1450
Near Dens Background	282.91	283.63	230 - 480
Near Peak Background	121.30	122.53	100 - 210
Near Lith Background	153.50	153.24	125 - 260
Far Bar Background	494.23	493.78	450 - 900
Far Dens Background	193.75	193.52	175 - 345
Far Peak Background	77.81	77.48	70 - 140
Far Lith Background	80.15	80.50	75 - 145

CALIBRATION BLOCK SUMMARY				
Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.686	1.685	-0.001	+/- 0.015
Pe	2.552	2.555	0.003	+/- 0.150
ALUMINUM				
Density (g/cc)	2.583	2.583	-0.000	+/- 0.01500
Pe	3.129	3.118	-0.011	+/- 0.150

TOOL SUMMARY				
Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	0.0002	+/- 0.0110	-0.0001	+/- 0.0140
Magnesium Block	0.0003	+/- 0.0110	-0.0005	+/- 0.0140
Aluminum Block	-0.0018	+/- 0.0110	-0.0005	+/- 0.0140
Resolution	9.32	6.00 - 11.50	8.87	6.00 - 11.50
Internal Verifier(B+D+P+L)	1425	1200 - 2700	845	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 - 10865872

Reference Calibration Date: 17-Jul-14 13:45:31

Engineer: B. HOYTAL

Calibration Date: 28-Jul-14 14:18:49

Pad Temperature: 72.1 degF

DENSITY FIELD CALIBRATION SUMMARY

Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1424.836	1419.138	-5.698	15.235
Far (B+D+P+L) cps	845.274	843.503	-1.771	15.964
Near Resolution	9.32	9.33	0.010	0.50
Far Resolution	8.87	8.83	-0.040	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 - 11800419	Reference Calibration Date:	19-Jun-14 13:54:02
Engineer:	Z. TAYLOR	Calibration Date:	20-Jul-14 09:22:06
Software Version:	WL INSITE R4.2.0 (Build 2)	Calibration Version:	1
Host Tool Name:	ACRt Instrument - 11830593		

TYPICAL GAIN RANGE

Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	0.95	1.0005	1.05	0.95	1.0021	1.05	0.95	1.0006	1.05
A2 (50")	0.95	1.0048	1.05	0.95	1.0075	1.05	0.95	1.0087	1.05
A3 (29")	0.95	0.9989	1.05	0.95	1.0018	1.05	0.95	1.0021	1.05
A4 (17")	0.95	0.9964	1.05	0.95	0.9967	1.05	0.95	0.9991	1.05
A5 (10")	N/A	N/A	N/A	0.95	0.9971	1.05	0.95	0.9991	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.9920	1.05	0.95	0.9932	1.05

SONDE OFFSET

Subarray	R12KHz	R36KHz	R72KHz
	(mmho/m)	(mmho/m)	(mmho/m)
A1 (80")	-1.864	-4.723	-4.653
A2 (50")	-1.539	-3.152	-4.977
A3 (29")	-10.882	-4.008	-2.910
A4 (17")	-96.592	-31.759	-25.777
A5 (10")	N/A	-101.860	-48.719
A6 (6")	N/A	310.169	156.386

TRANSMITTER CURRENT GAIN

Signal	Lower	R	Upper
12K	0.6	0.86	1.3
36K	1.0	1.84	2.0
72K	1.0	1.08	2.0

R-MUD VERIFICATION

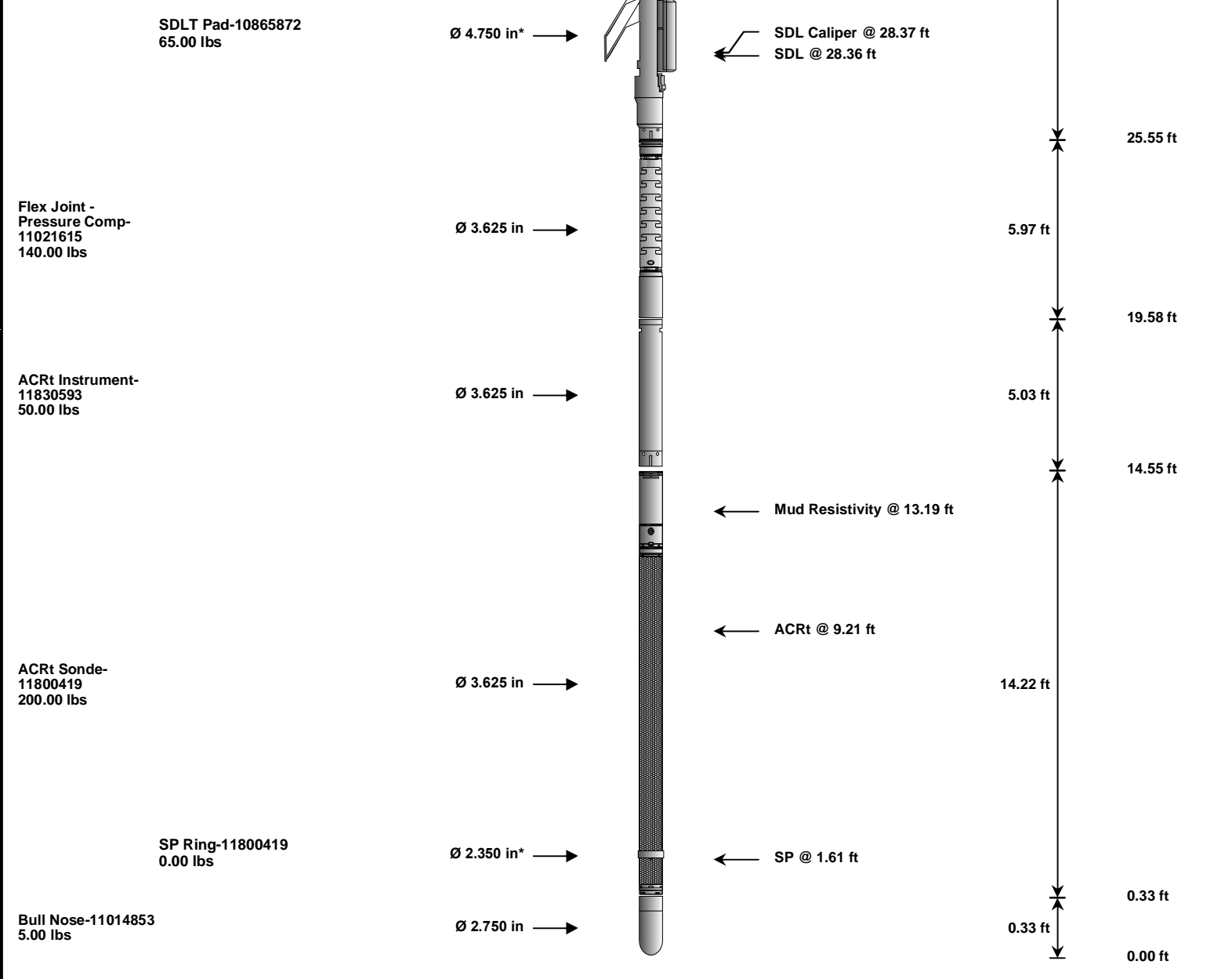
Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
Mud Cell	0.95	1.00	1.05

PASS/FAIL SUMMARY

GAIN RANGE CHK	PASS
SONDE OFFSET CHK	PASS

TOOL OK TO LOG

CALIBRATION SUMMARY						
Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-11050378						
Gamma Ray Calibrator	240.1	242.0	-----	-1.9	+/- 9.00	api
DSNT-10978624						
Snow-Block Porosity	0.0597	0.0608	-----	-0.0011	+/- 0.0150	decp
SDLT-10950483						
Pad Extension	3.75	3.73	-----	0.02	+/-0.10	in
Ring Diameter	8.25	8.20	-----	0.05	+/-0.15	in
SDLT Pad-10865872						
Near(B+D+P+L)	1424.836	1419.138	-----	5.698	+/-15.235	cps
Far(B+D+P+L)	845.274	843.503	-----	1.771	+/-15.964	cps
ACRt Sonde-11800419						
Mud Cell	1.00	-----	-----	0.00	-----	ohm-m
Data: IGW 143\0001 TRIPLE ACRT\IDLE				Date: 29-Jul-14 04:20:57		
HALLIBURTON						
TOOL STRING DIAGRAM REPORT						
Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
RWCH-11435225 135.00 lbs		Ø 3.625 in →		← Load Cell @ 57.14 ft ← BH Temperature @ 56.57 ft	6.25 ft	60.82 ft
GTET-11050378 165.00 lbs		Ø 3.625 in →		← GammaRay @ 48.51 ft	8.52 ft	54.57 ft
DSNT-10978624 174.00 lbs		Ø 3.625 in →		← DSN Far @ 39.12 ft ← DSN Near @ 38.37 ft	9.69 ft	46.05 ft
SDLT-10950483 360.00 lbs		Ø 4.500 in →			10.81 ft	36.37 ft



Mnemonic		Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max.Log. Speed (fpm)
RWCH	Releasable Wireline Cable Head		11435225	135.00	6.25	54.57	300.00
GTET	Gamma Telemetry Tool		11050378	165.00	8.52	46.05	60.00
DSNT	Dual Spaced Neutron		10978624	174.00	9.69	36.37	60.00
SDLT	Spectral Density Tool		10950483	360.00	10.81	25.55	60.00
SDLP	Density Insite Pad		10865872	65.00	2.55	27.76	60.00
FLEX	Flex Joint - Pressure Compensated		11021615	140.00	5.97	19.58	300.00
ACRt	Array Compensated True Resistivity Instrument Section		11830593	50.00	5.03	14.55	120.00
ACRt	Array Compensated True Resistivity Sonde Section		11800419	200.00	14.22	0.33	120.00
SP	SP Ring		11800419	0.00	0.25	1.61	300.00
BLNS	Bull Nose		11014853	5.00	0.33	0.00	300.00
Total				1,294.00	60.82		
* Not included in Total Length and Length Accumulation.							
Data: IGW_143\0001 TRIPLE_ACRT\IDLE							Date: 29-Jul-14 04:20:13

COMPANY	ELM RIDGE EXPLORATION CO.
WELL	IGW 143
FIELD	IGNACIO BLANCO
COUNTY	LA PLATA
STATE	CO

COUNTY

LA PLATA

STATE

CO

HALLIBURTON

ARRAY COMPENSATED
TRUE RESISTIVITY