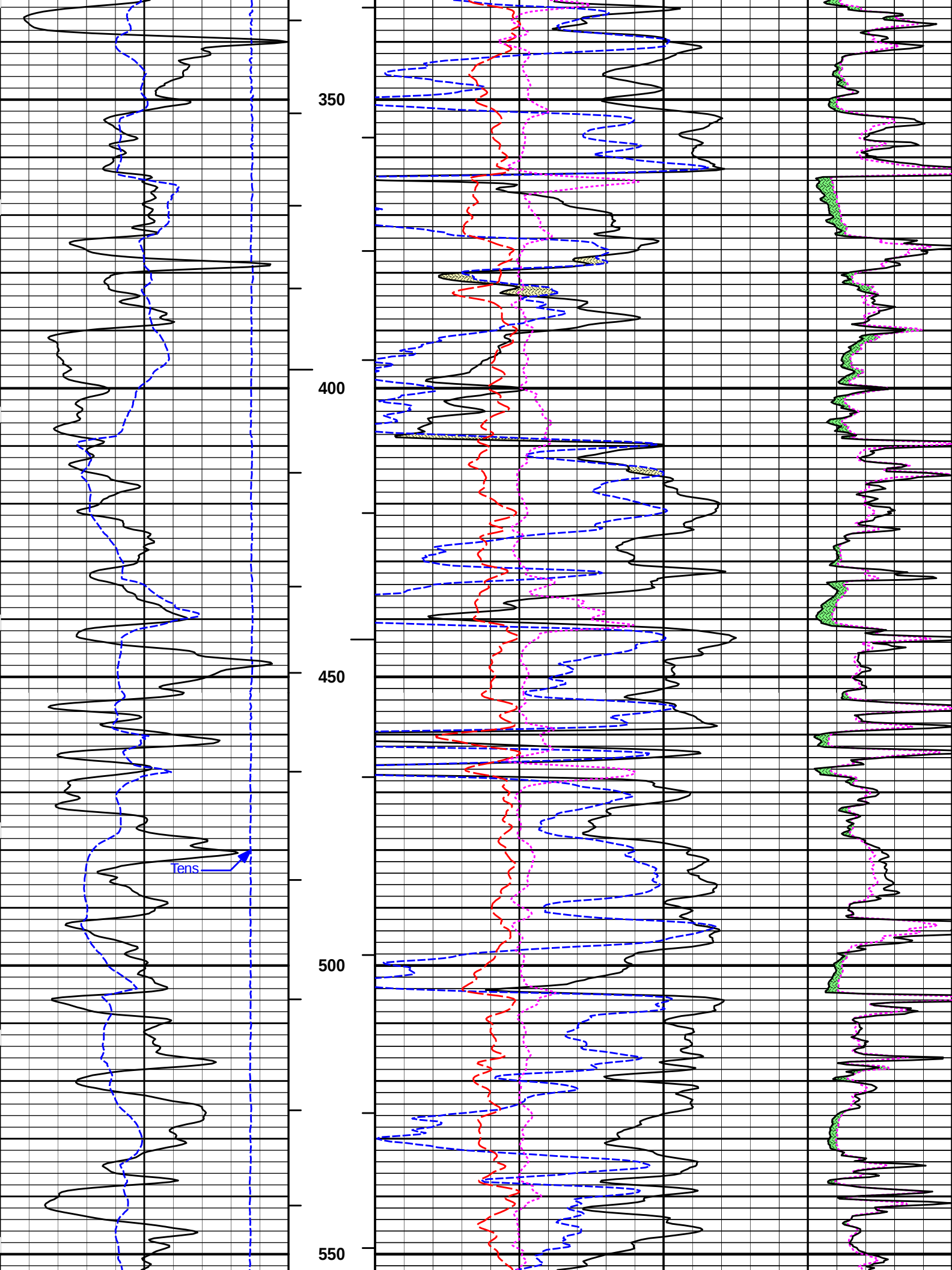
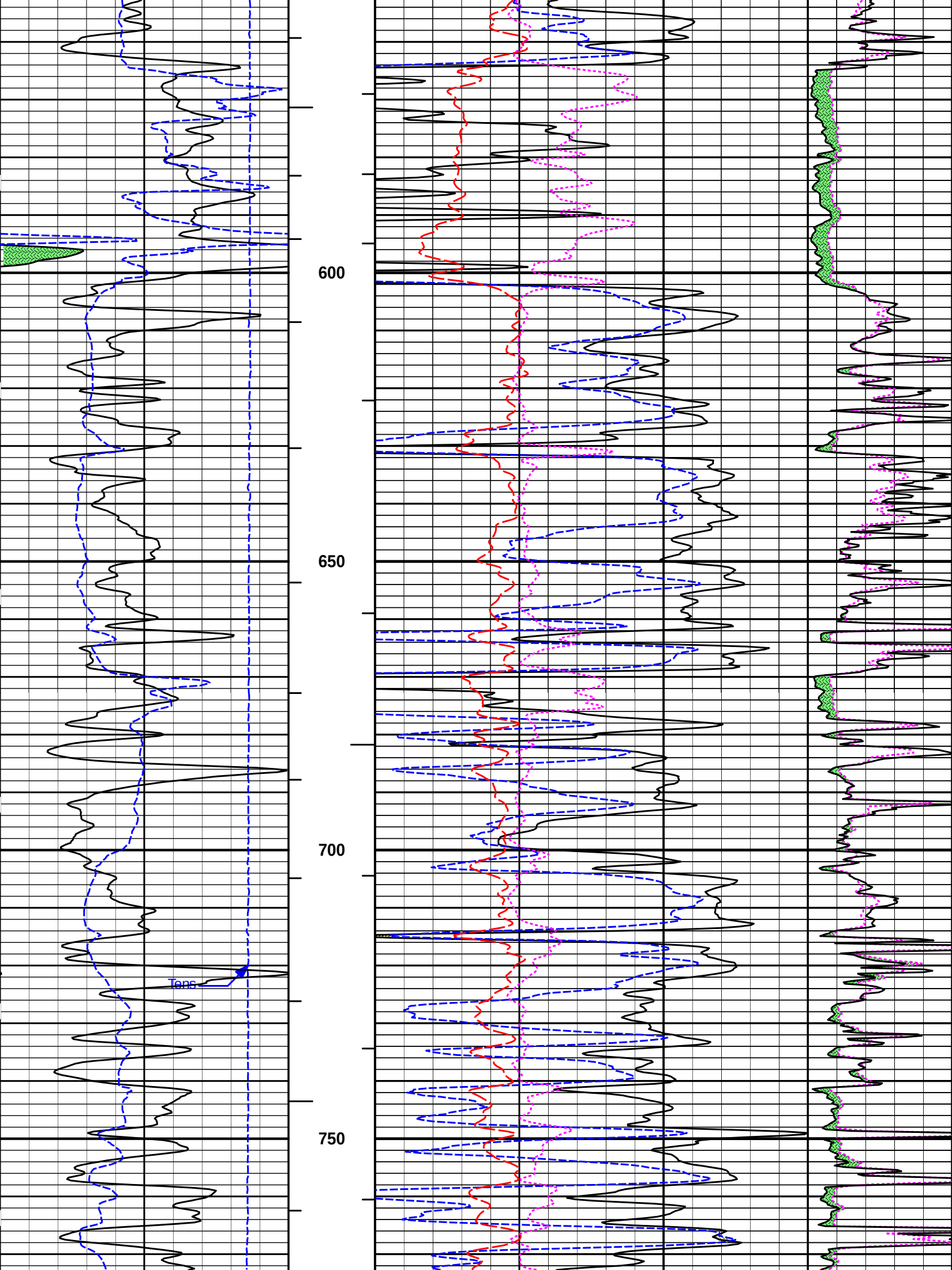


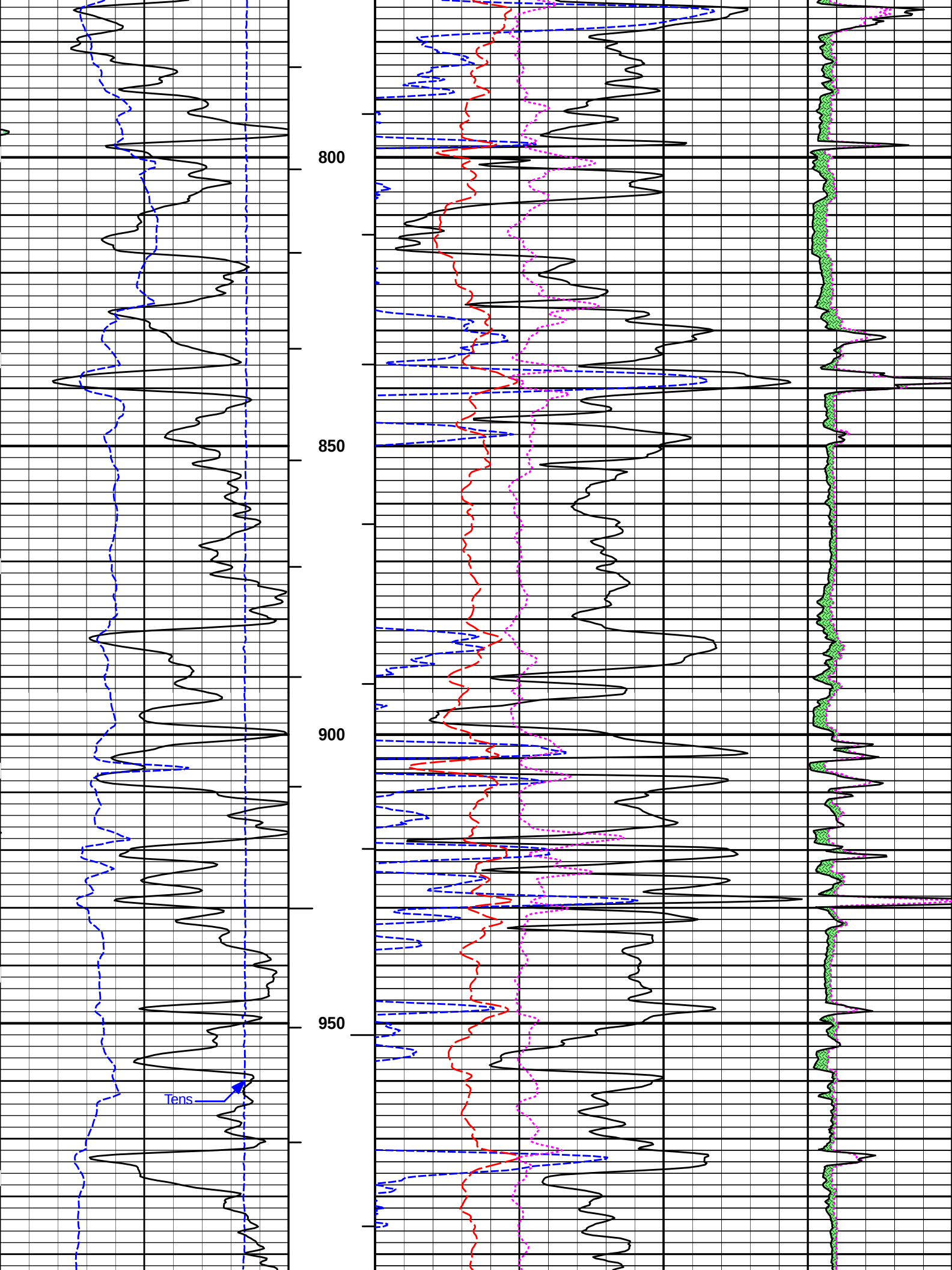
SPECTRAL DENSITY DUAL SPACED NEUTRON MICROLOG

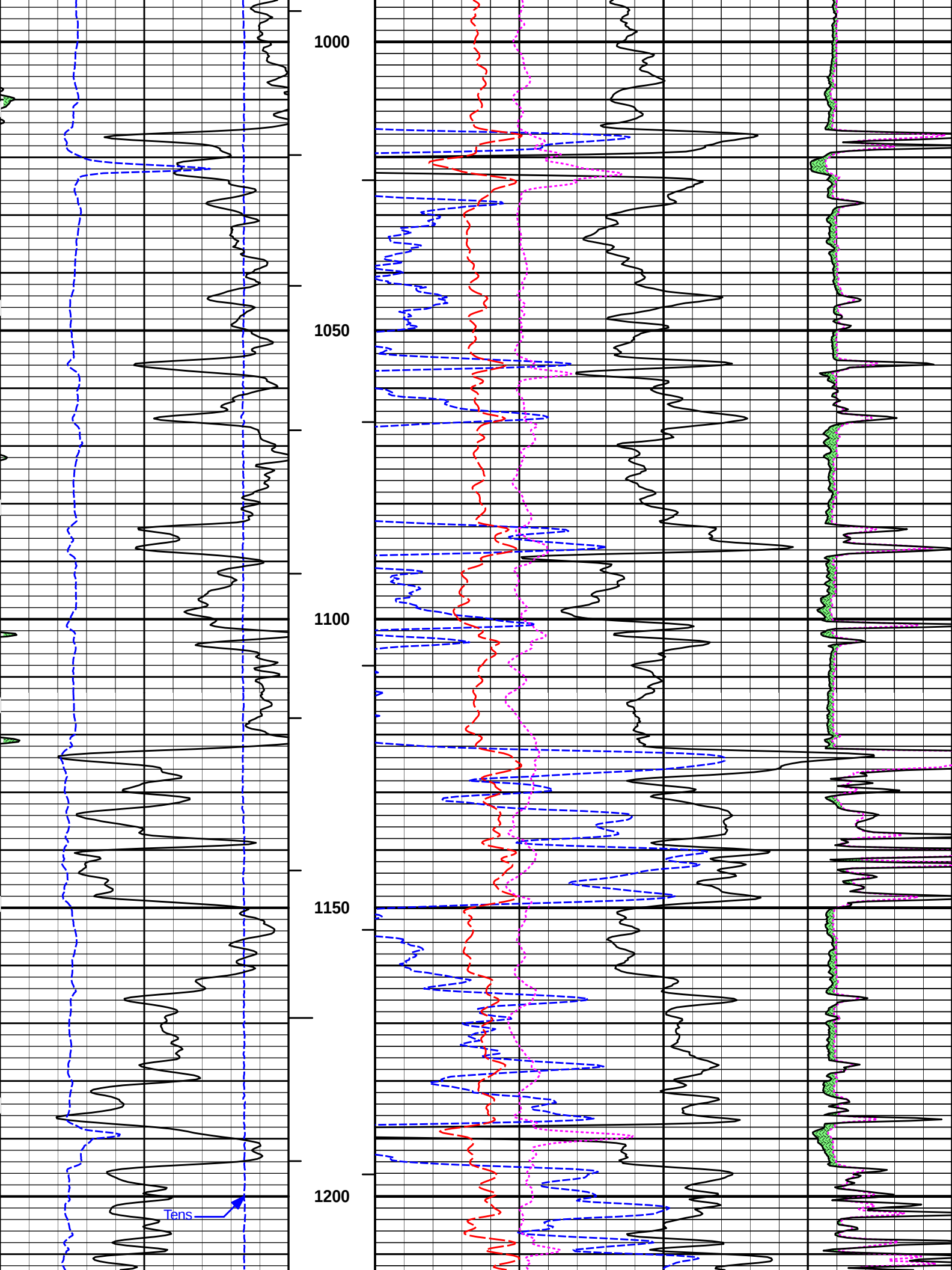
Fold here

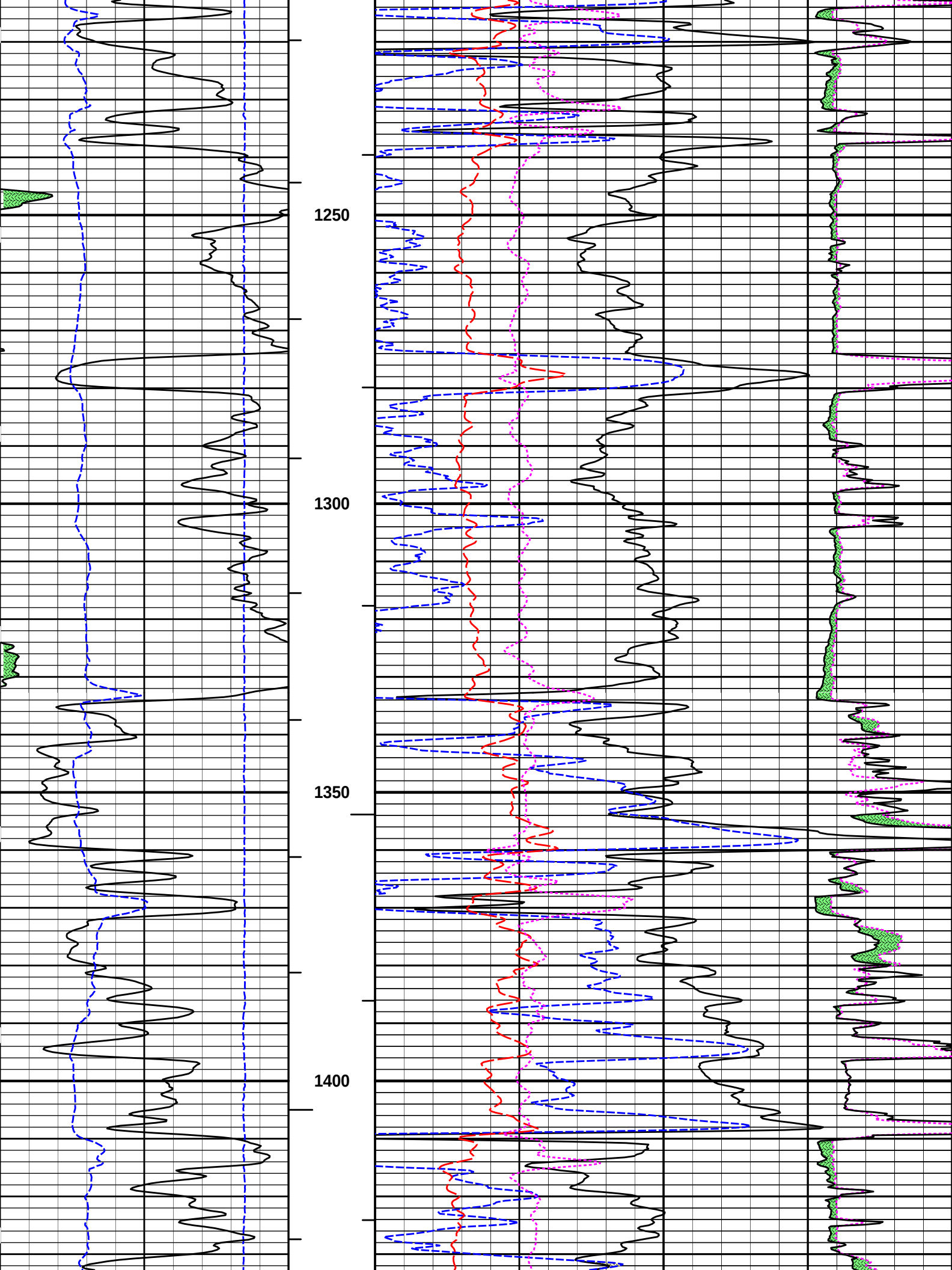
Service Ticket No.: 904384641				API No.: 15-035-24679-00-00		PGM Version: WL INSITE R5.0.5 (Build 8)				
CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE						RESISTIVITY SCALE CHANGES				
Date	Sample No.					Type Log	Depth	Scale Up Hole	Scale Down Hole	
Depth-Driller										
Type Fluid in Hole										
Density	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 095/908	NA	1.5" S.O.	NA
Rmc @ Meas. Temp.		@		@						
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.	11048627	Serial No.	10747683	Serial No.	10844781	Serial No.	11055304			
Model No.	GTET	Model No.	BSAT	Model No.	SDLT	Model No.	DSNT			
Diameter	3.625"	No. of Cent.	2	Diameter	4.75"	Diameter	3.625"			
Detector Model No.	102-A	Spacing	EVEN	Log Type	GAM-GAM	Log Type	NEU-NEU			
Type	SCINT.			Source Type	Cs137	Source Type	Am241Be			
Length	8"	LSA [Y/N]	Y	Serial No.	5168GW	Serial No.	DSN-424			
Distance to Source	9.4'	FWDA [Y/N]	Y	Strength	1.5 Ci	Strength	15 Ci			

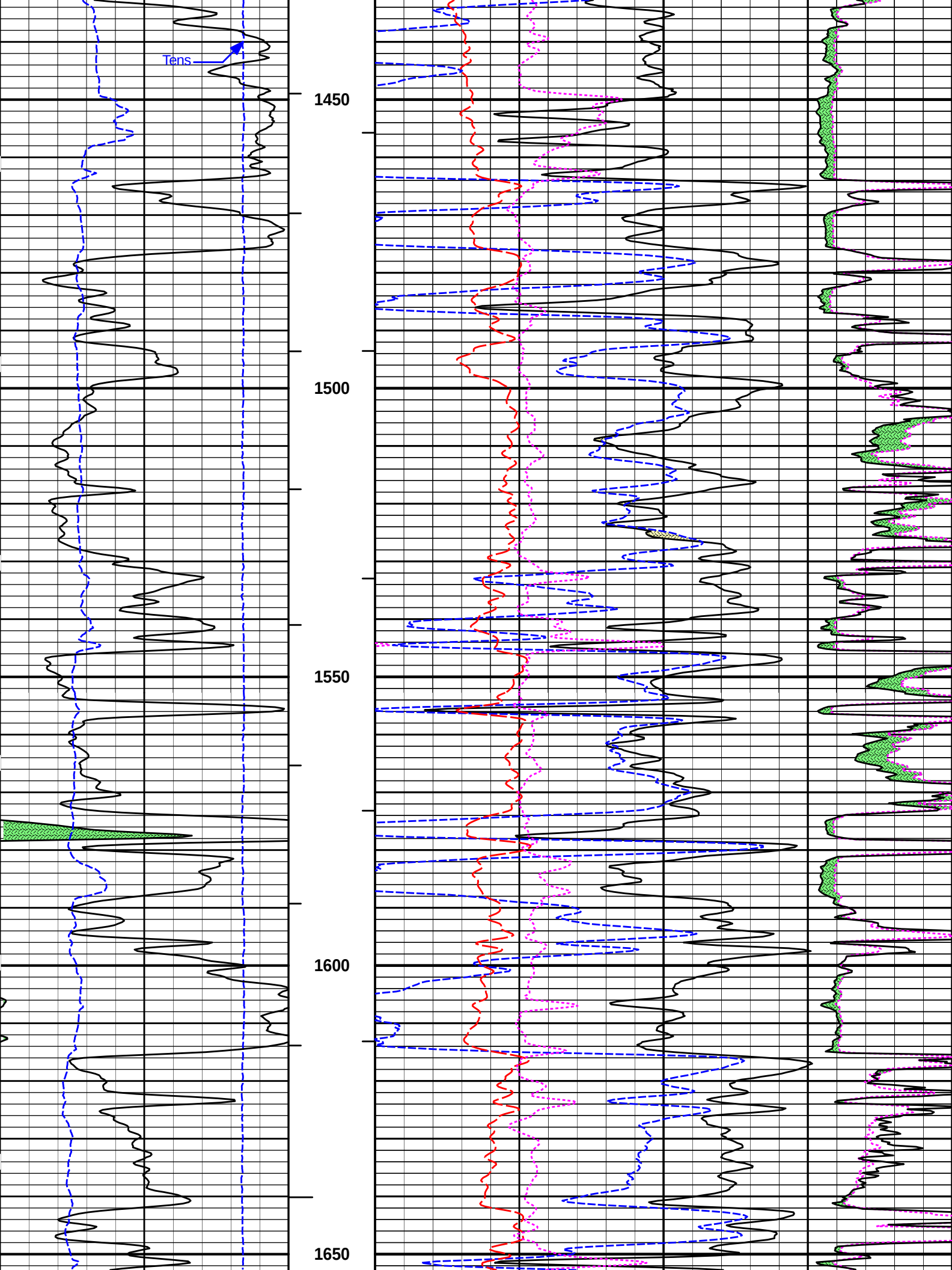


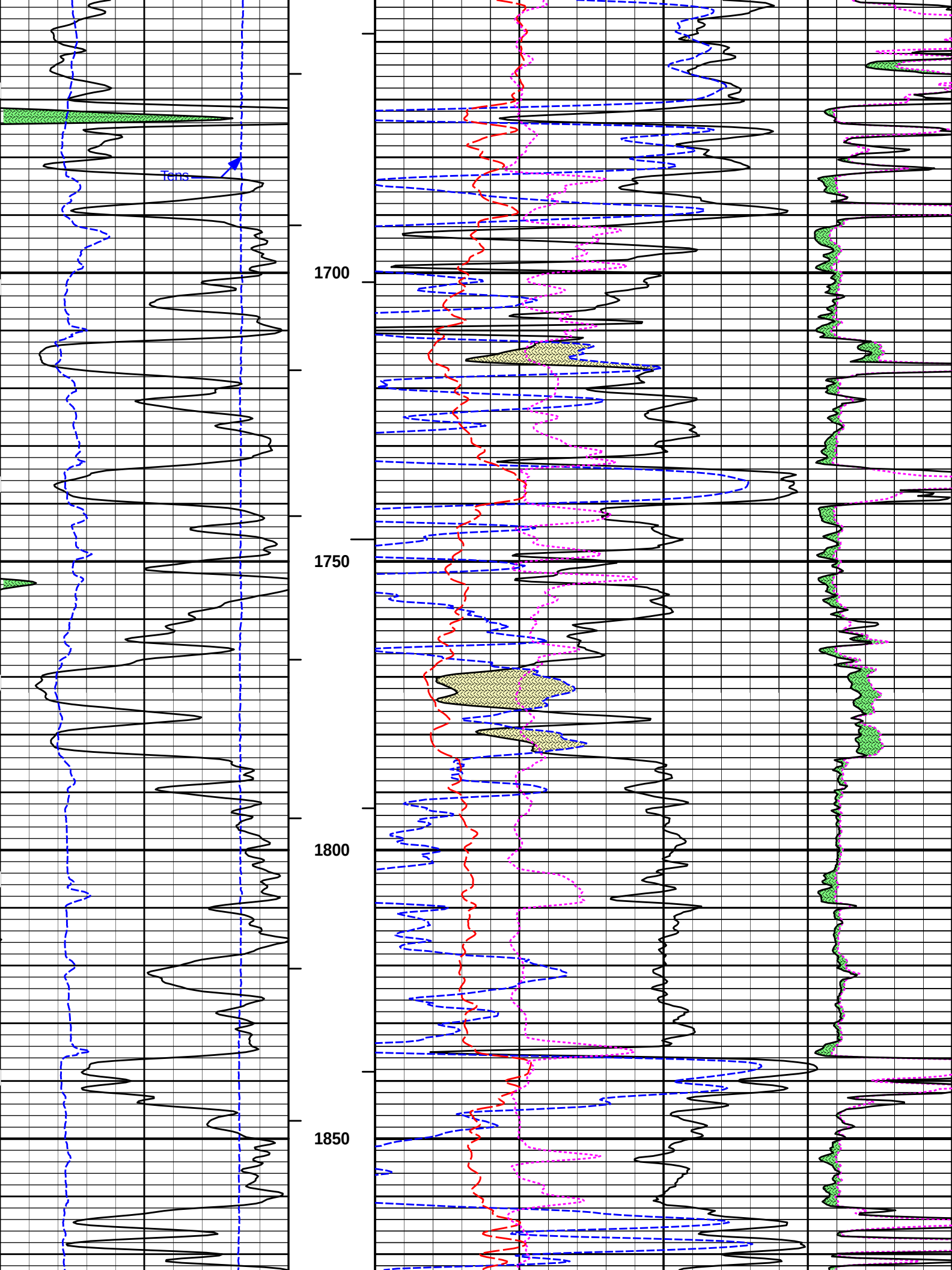


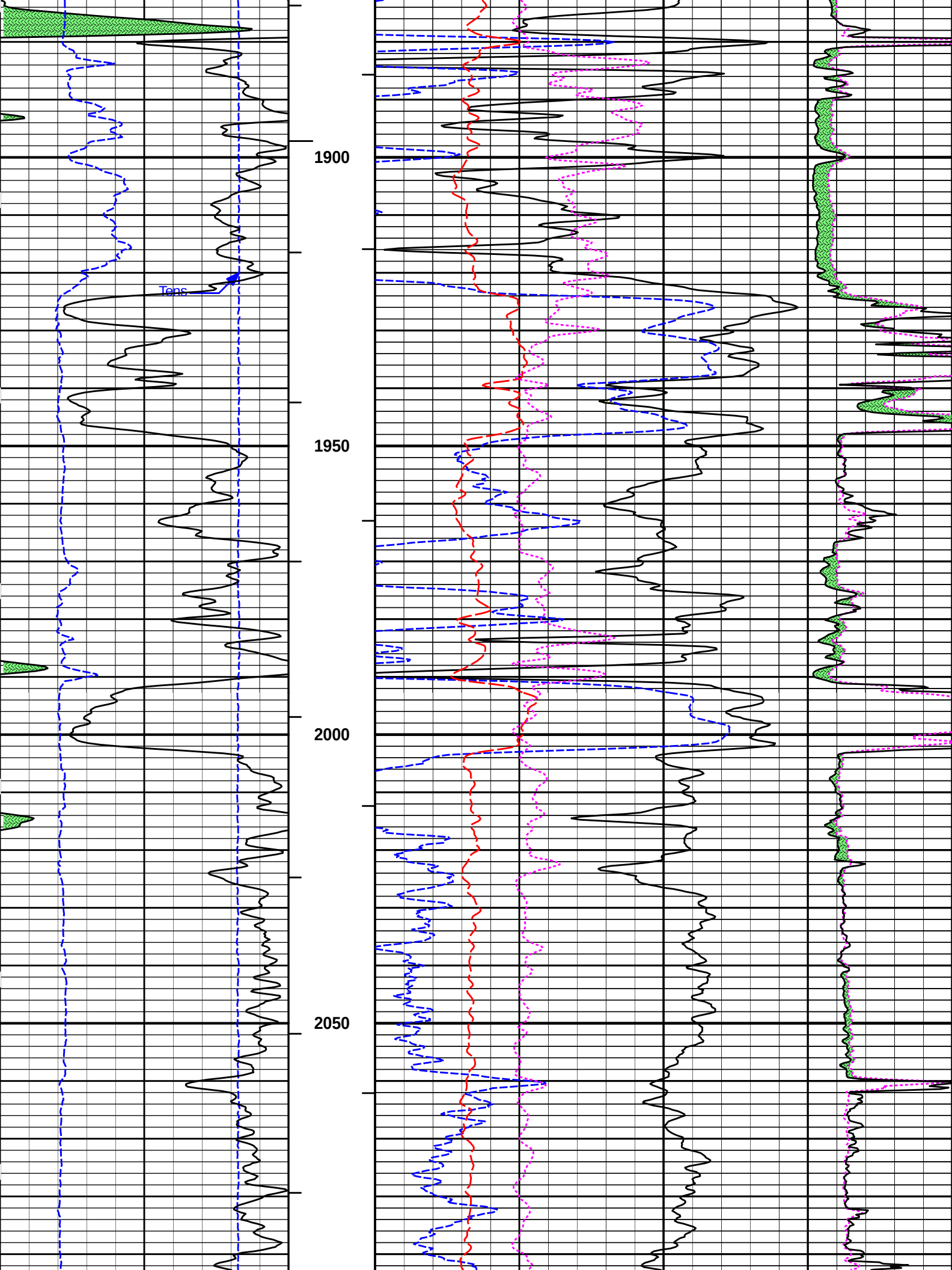


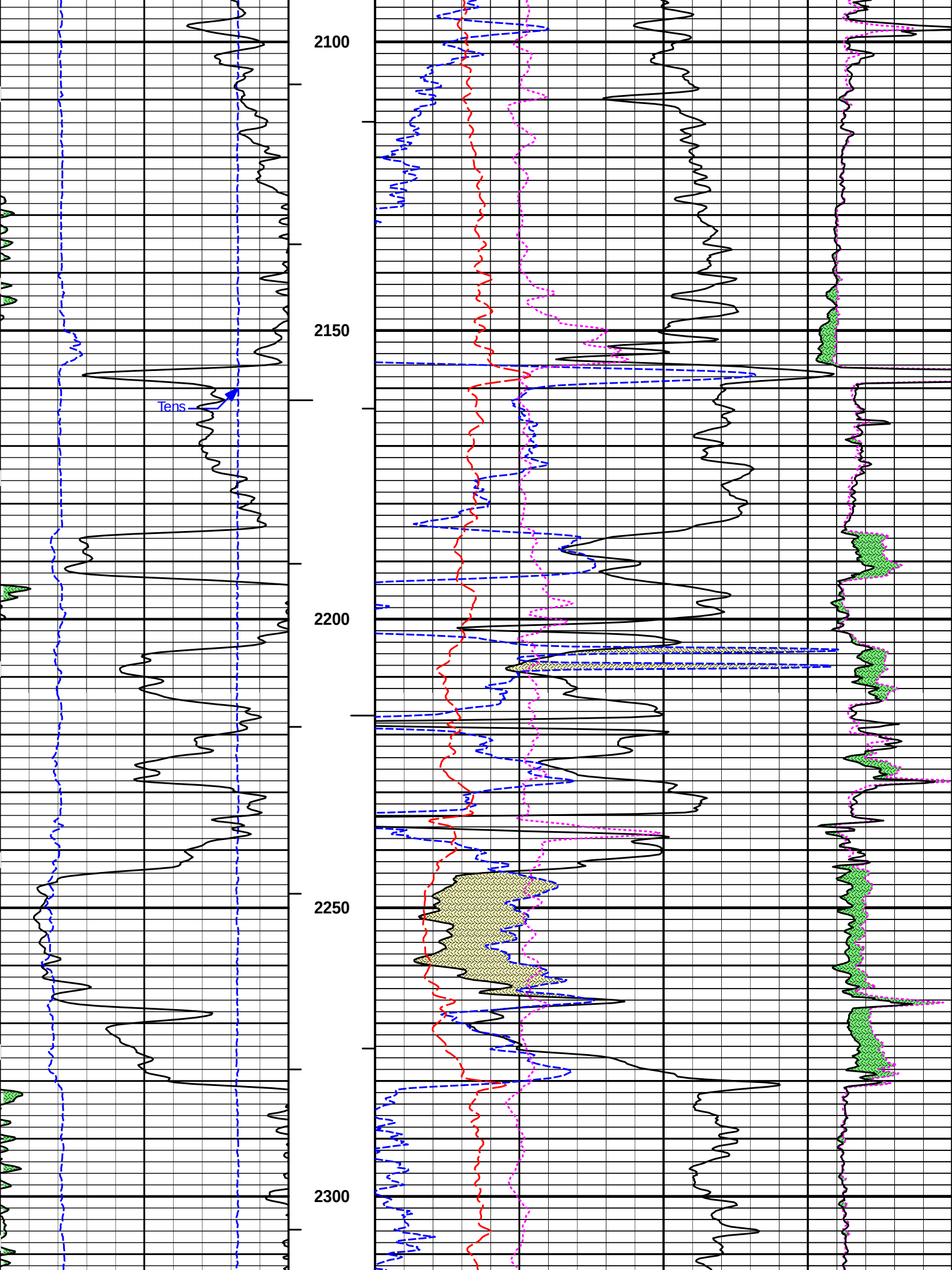


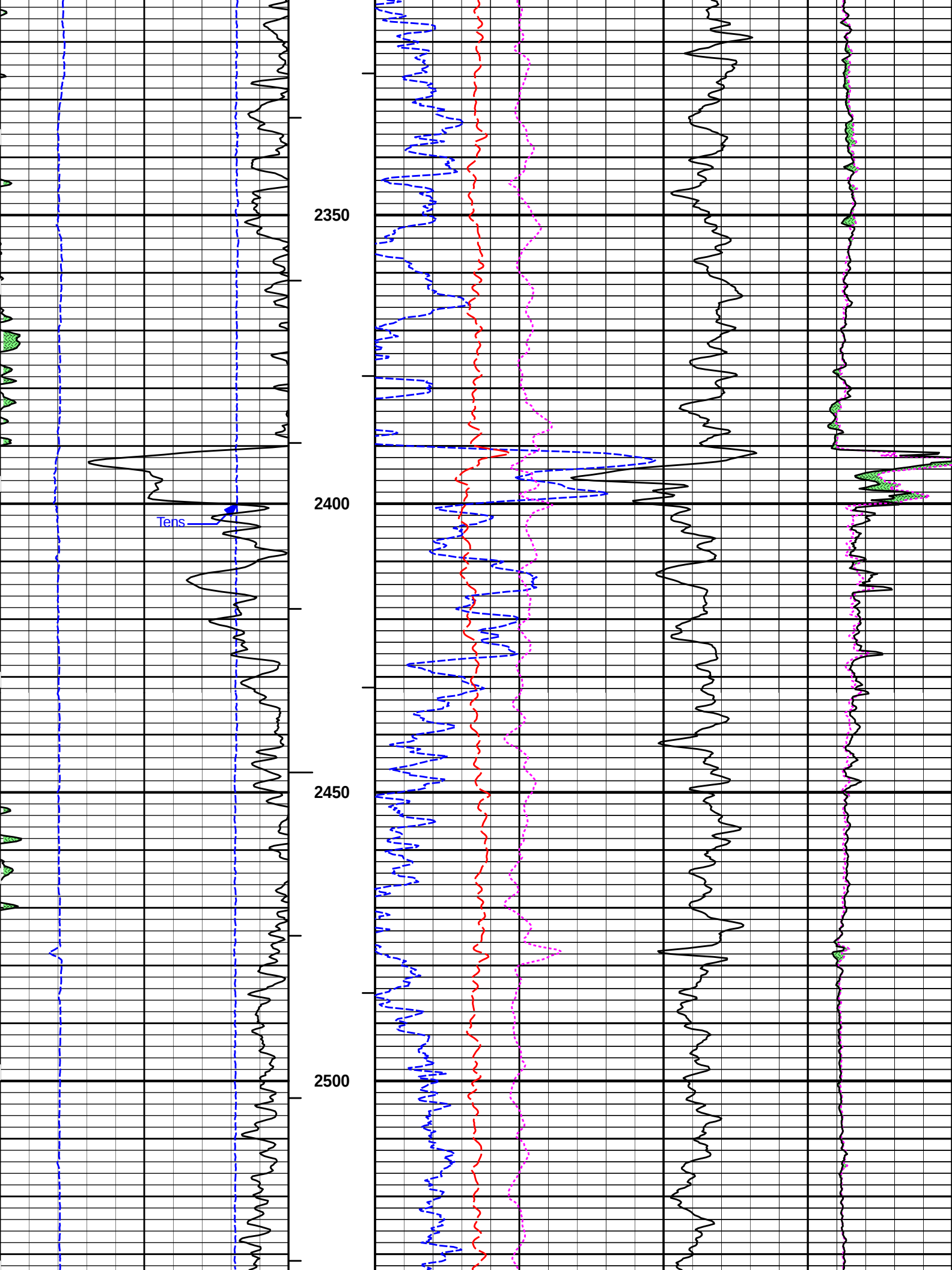


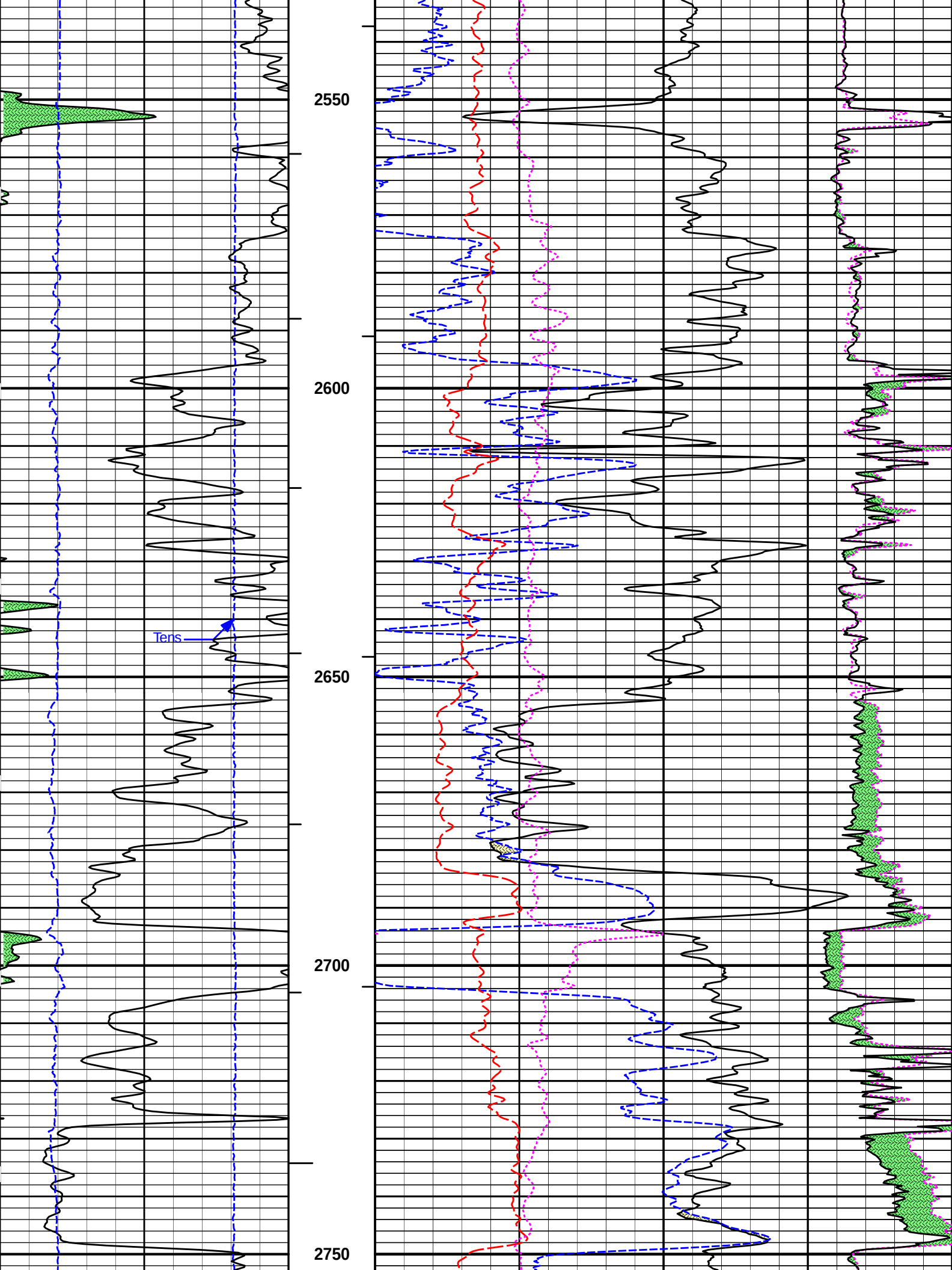


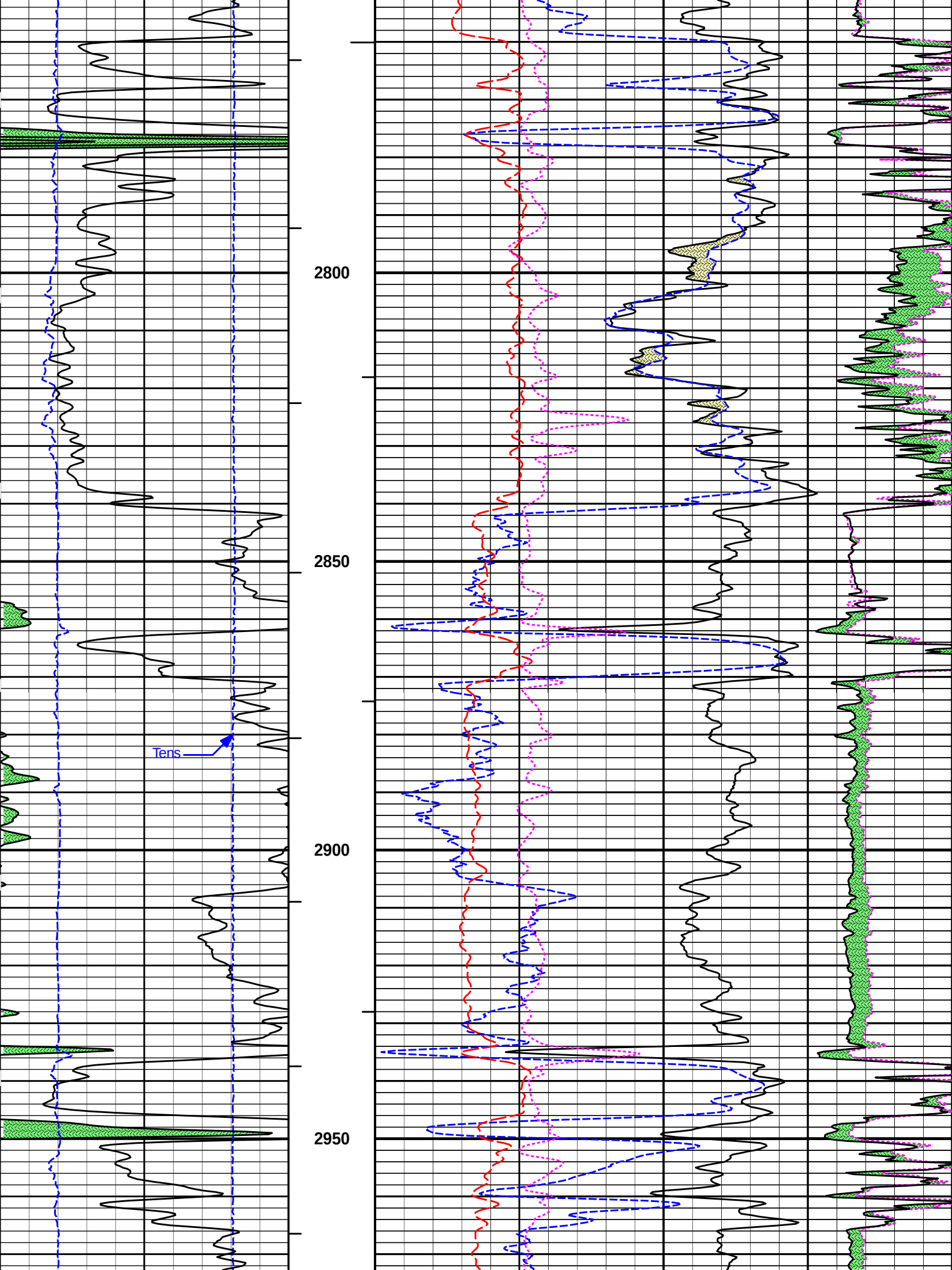


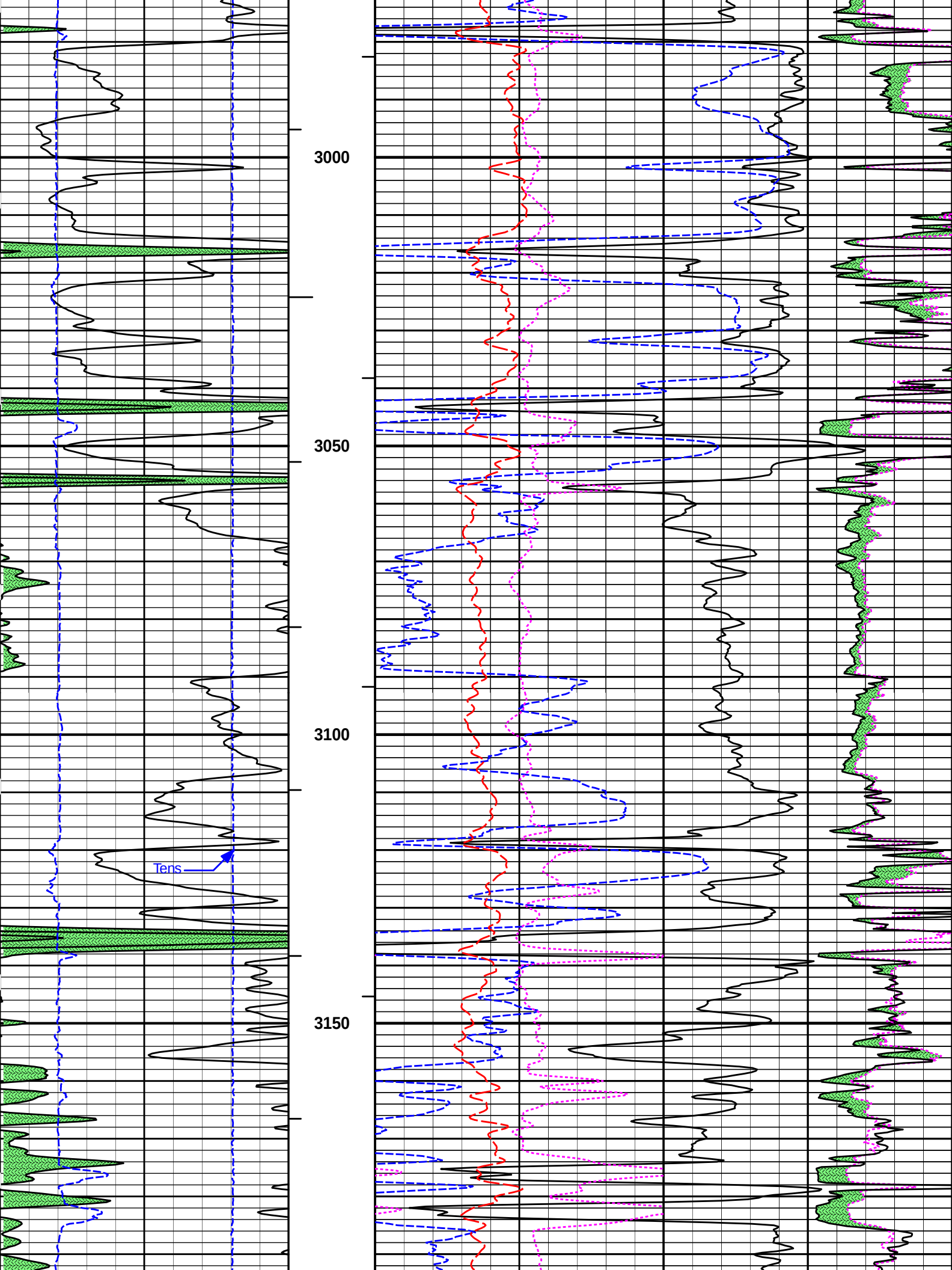


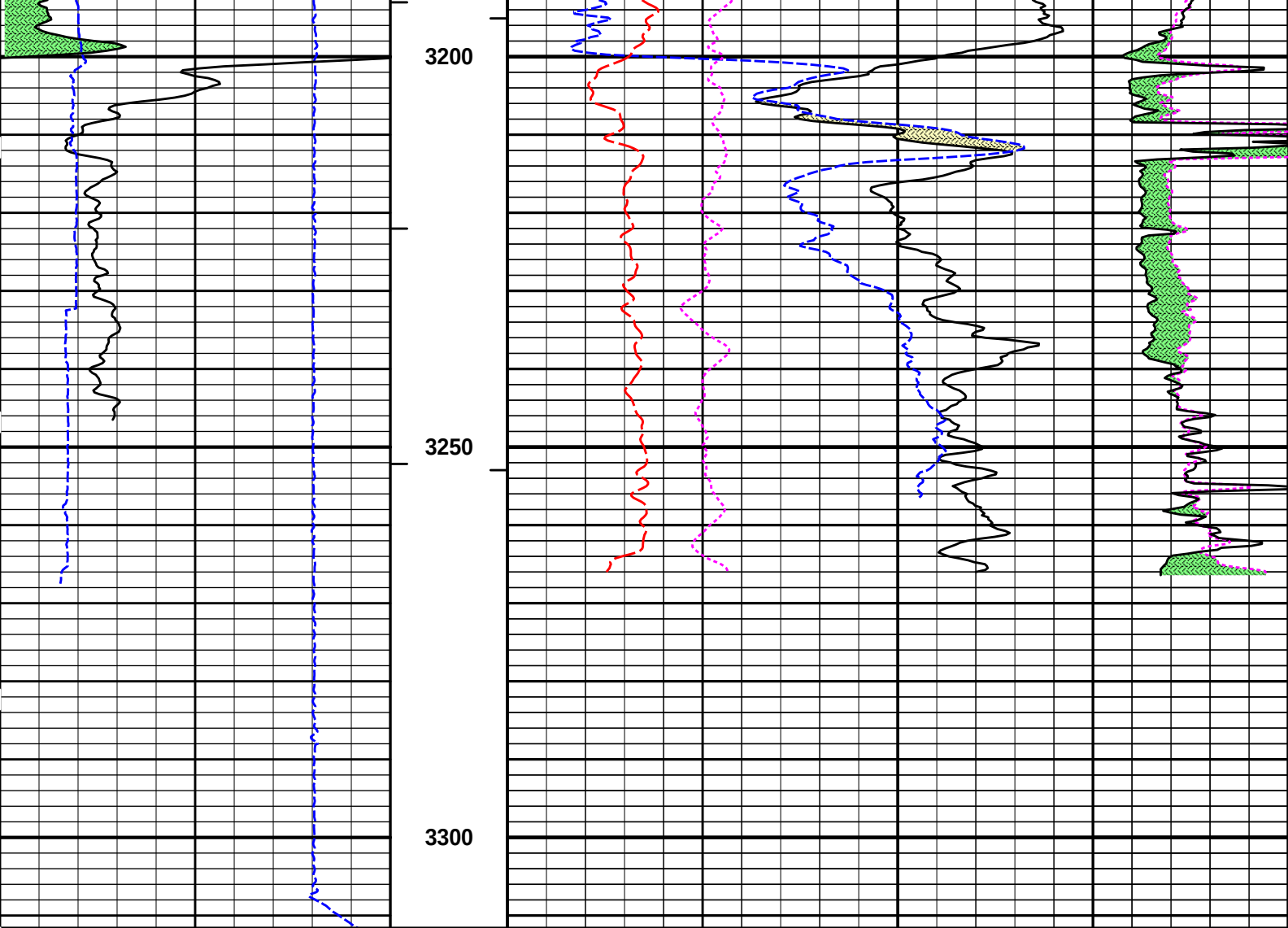












6	Caliper	16	1 : 240	0	Pe	10	0	MicrologLateral	20
	inches		ft					ohm-metre	
0	Gamma API	150	AHVT	-0.25	DensityCorr	0.25	0	MicrologNormal	20
	api				gram per cc			ohm-metre	
15K	Tens	0	BHVT	30	DensityPorosity				-10
	pounds				percent				
			Tension Pull	30	Neutron Porosity				-10
			10 0		percent				

HALLIBURTON

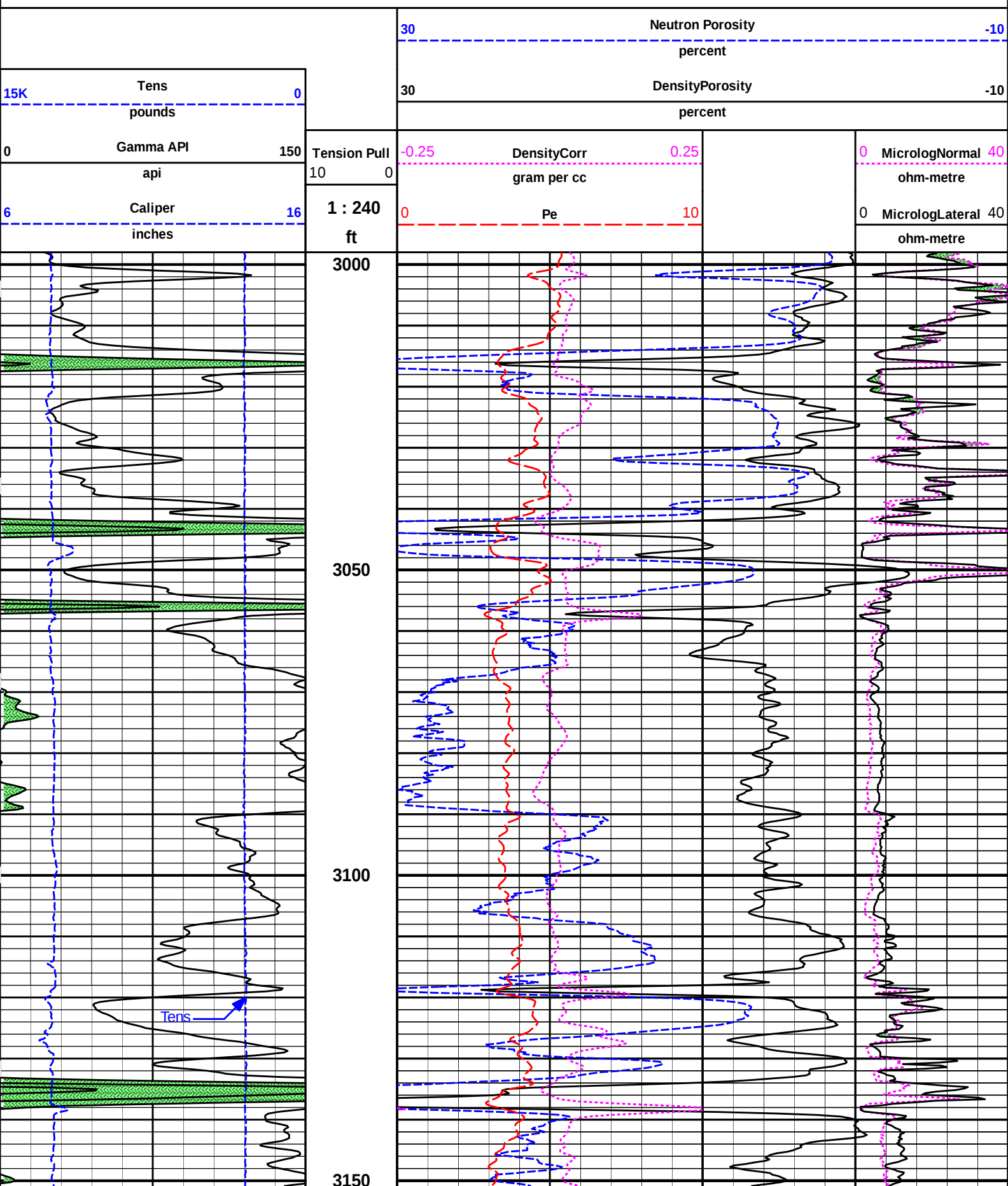
Plot Time: 28-Oct-17 14:49:30
Plot Range: 298 ft to 3311.58 ft
Data: ROSECRANS_1\Well Based\DAQ-0001-004\
Plot File: \\PORO\1_PoroMicro_5_mainx

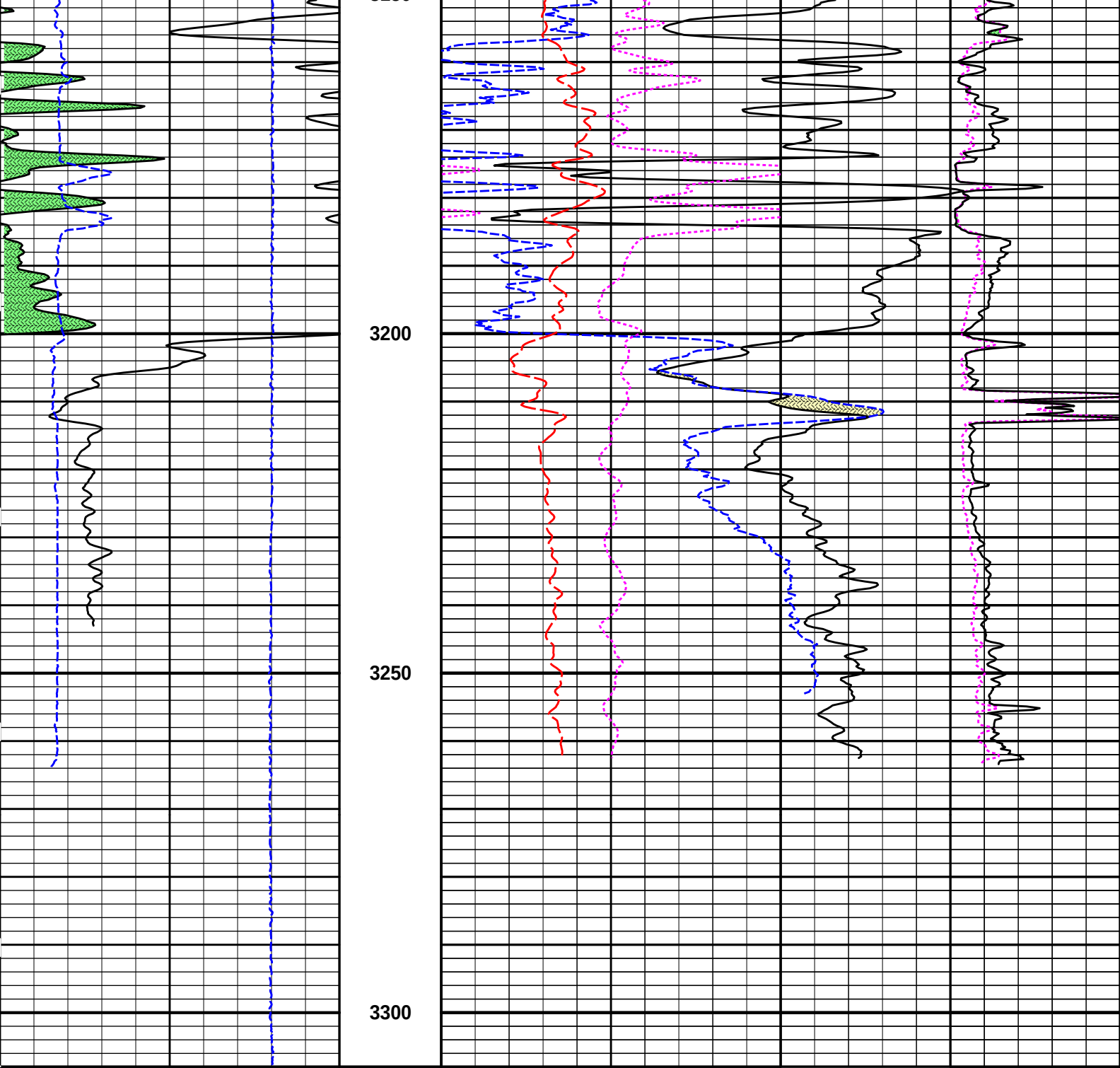
5 INCH MAIN LOG

HALLIBURTON

Plot Time: 28-Oct-17 14:49:30
Plot Range: 2998 ft to 3307.92 ft
Data: ROSECRANS_1\Well Based\DAQ-0001-003\
Plot File: \\PORO\1_PoroMicro_5_rptx

REPEAT SECTION





6	Caliper	16	1 : 240 ft	0	Pe	10	0	MicrologLateral	40
	inches							ohm-metre	
0	Gamma API	150	Tension Pull	-0.25	DensityCorr	0.25	0	MicrologNormal	40
	api		10 0		gram per cc			ohm-metre	
15K	Tens	0		30	DensityPorosity				-10
	pounds				percent				
				30	Neutron Porosity				-10
					percent				

HALLIBURTON

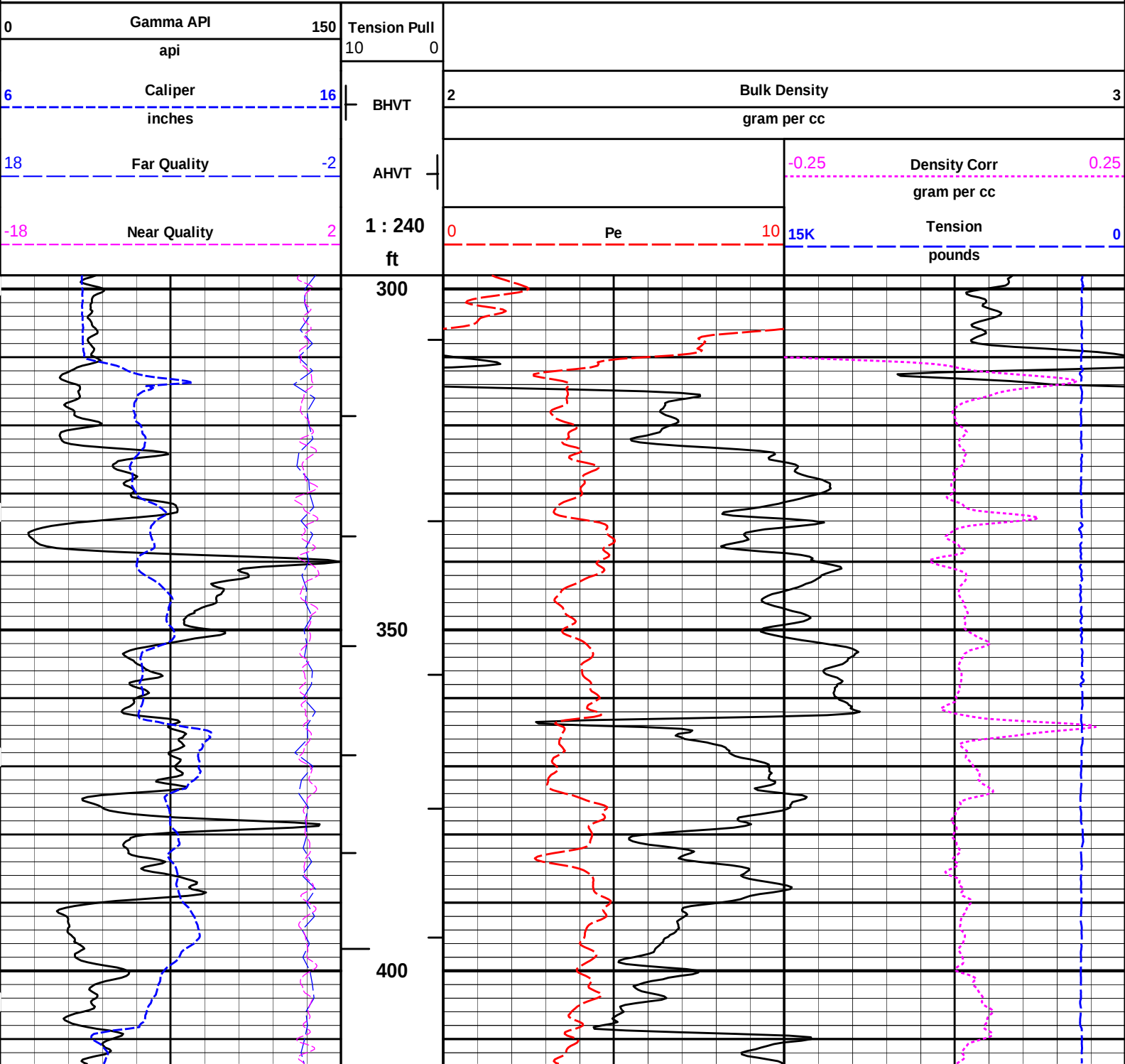
Plot Time: 28-Oct-17 14:49:33
Plot Range: 2998 ft to 3307.92 ft
Data: ROSECRANS_1\Well Based\DAQ-0001-003\
Plot File: \\PORO\1_PoroMicro_5_rptx

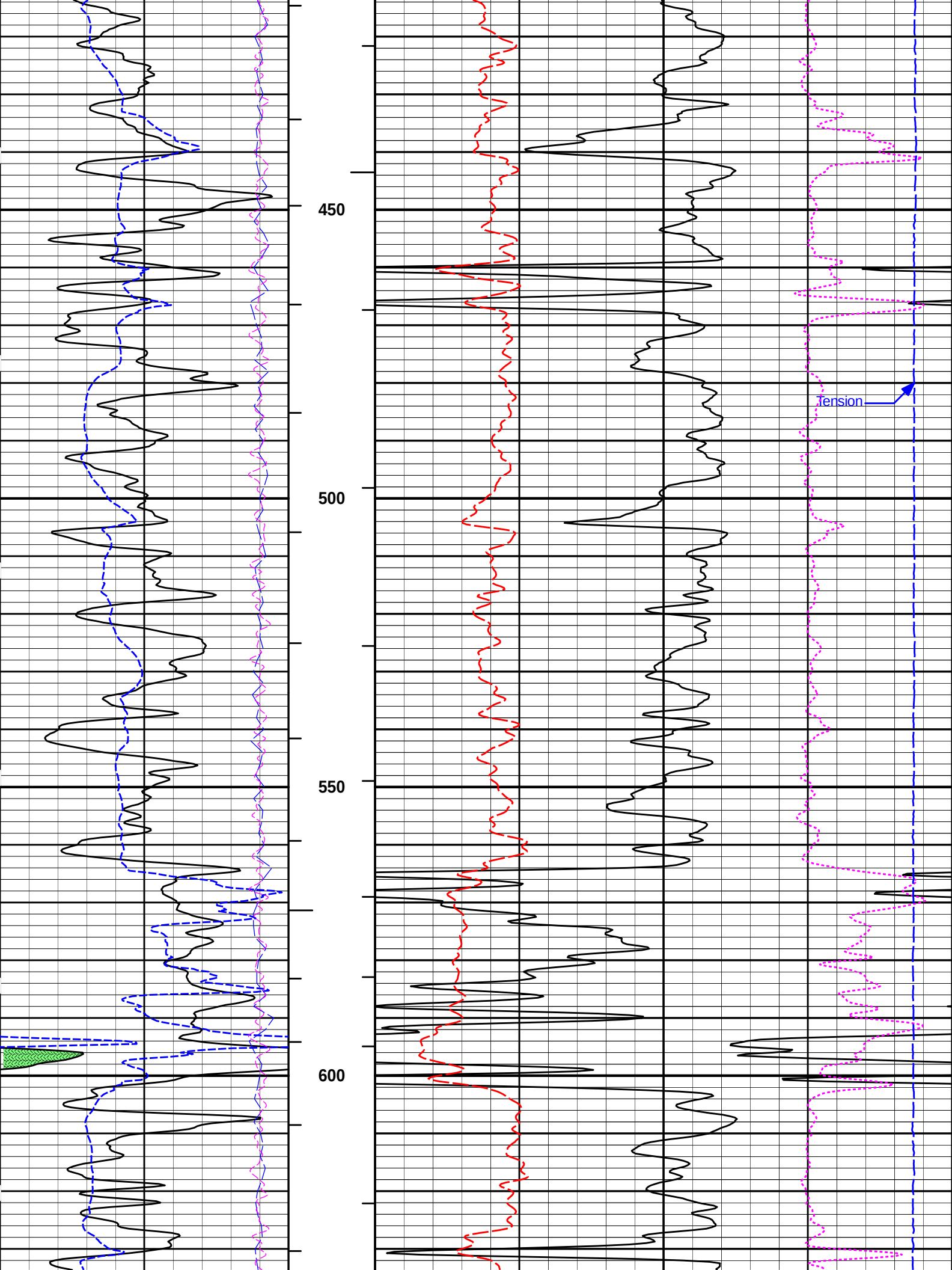
REPEAT SECTION

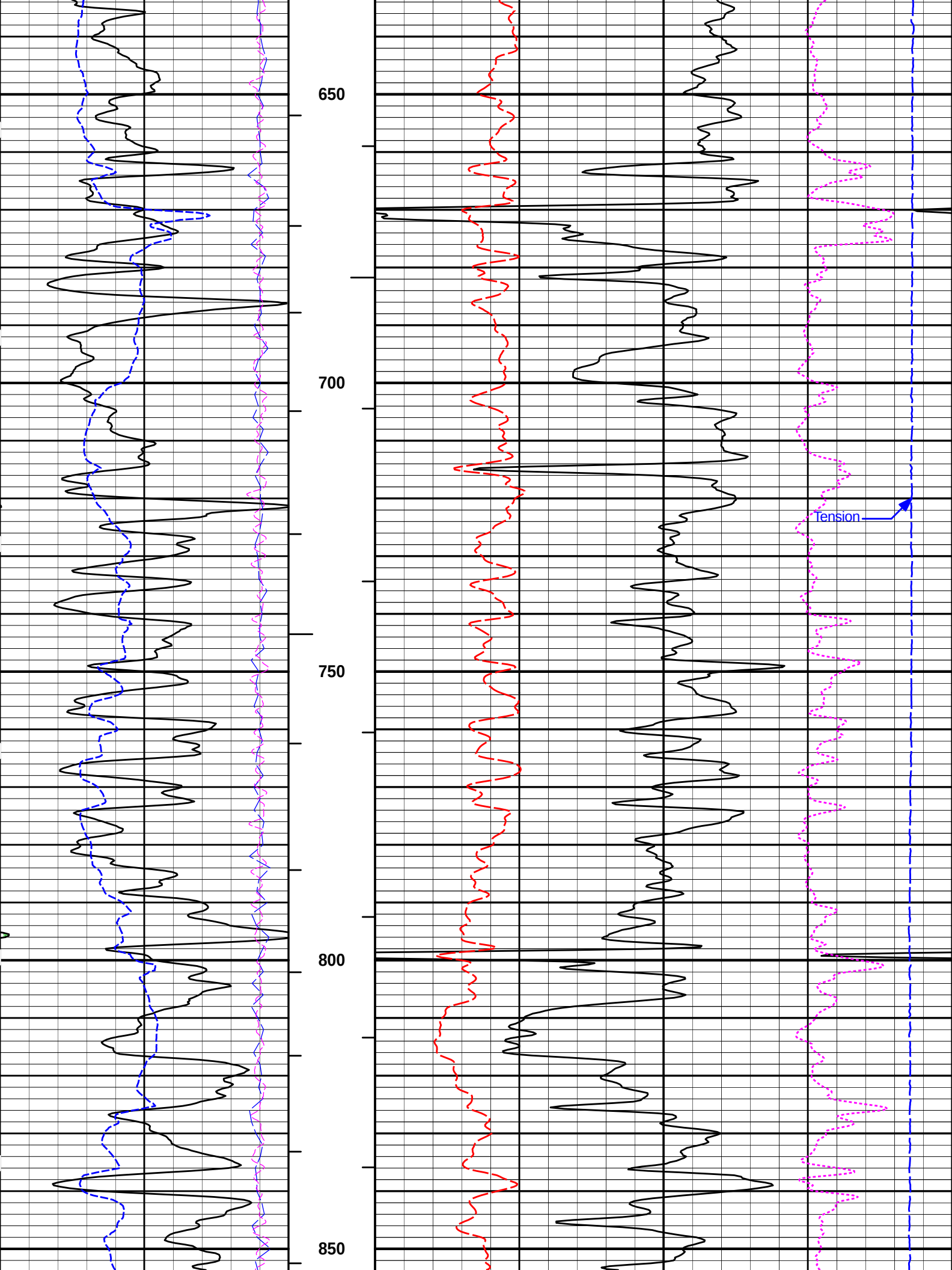
HALLIBURTON

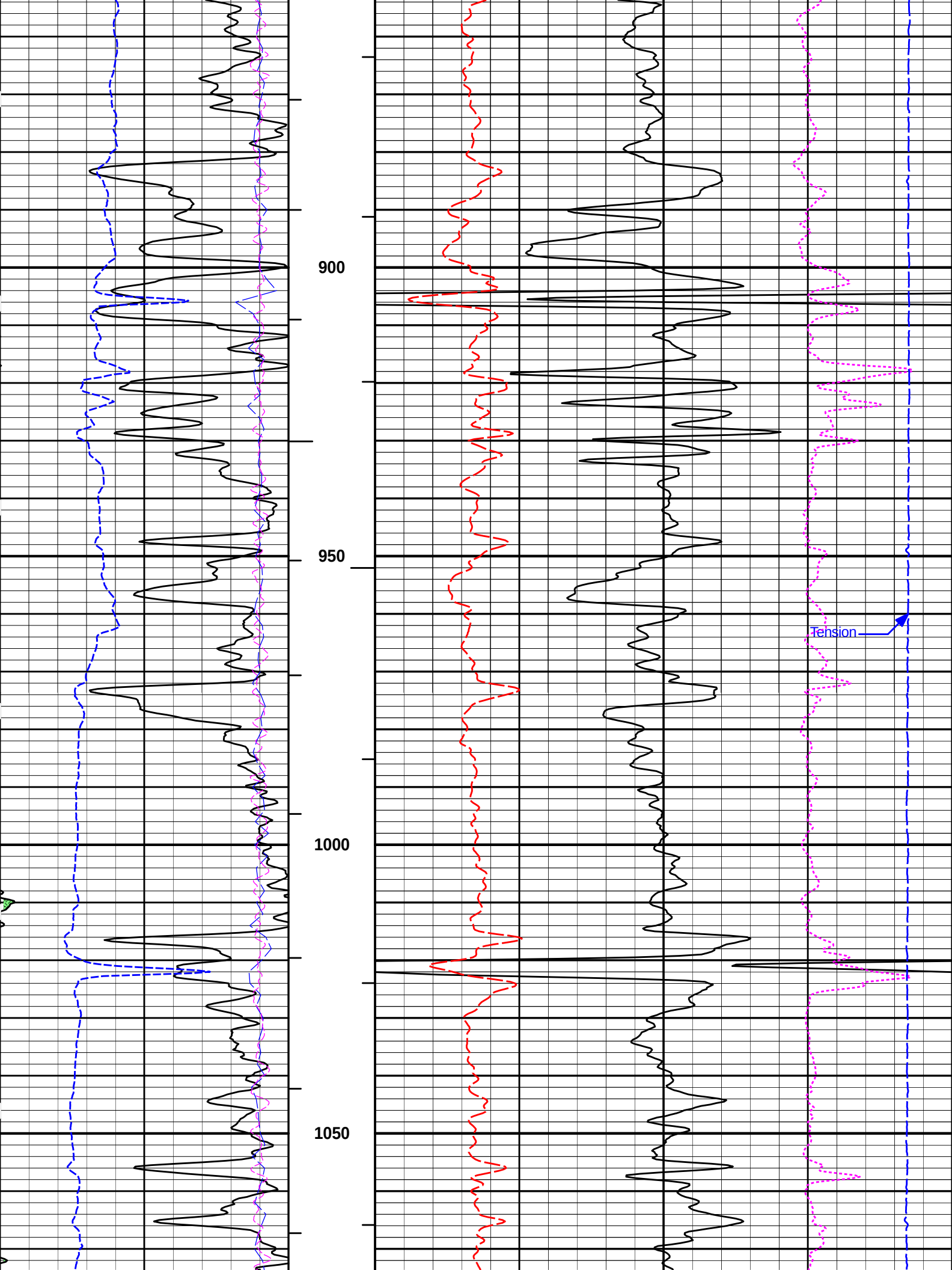
Plot Time: 28-Oct-17 14:49:33
Plot Range: 298 ft to 3311.58 ft
Data: ROSECRANS_1\Well Based\DAQ-0001-004\
Plot File: \\PORO\1_Bulk_5_mainx

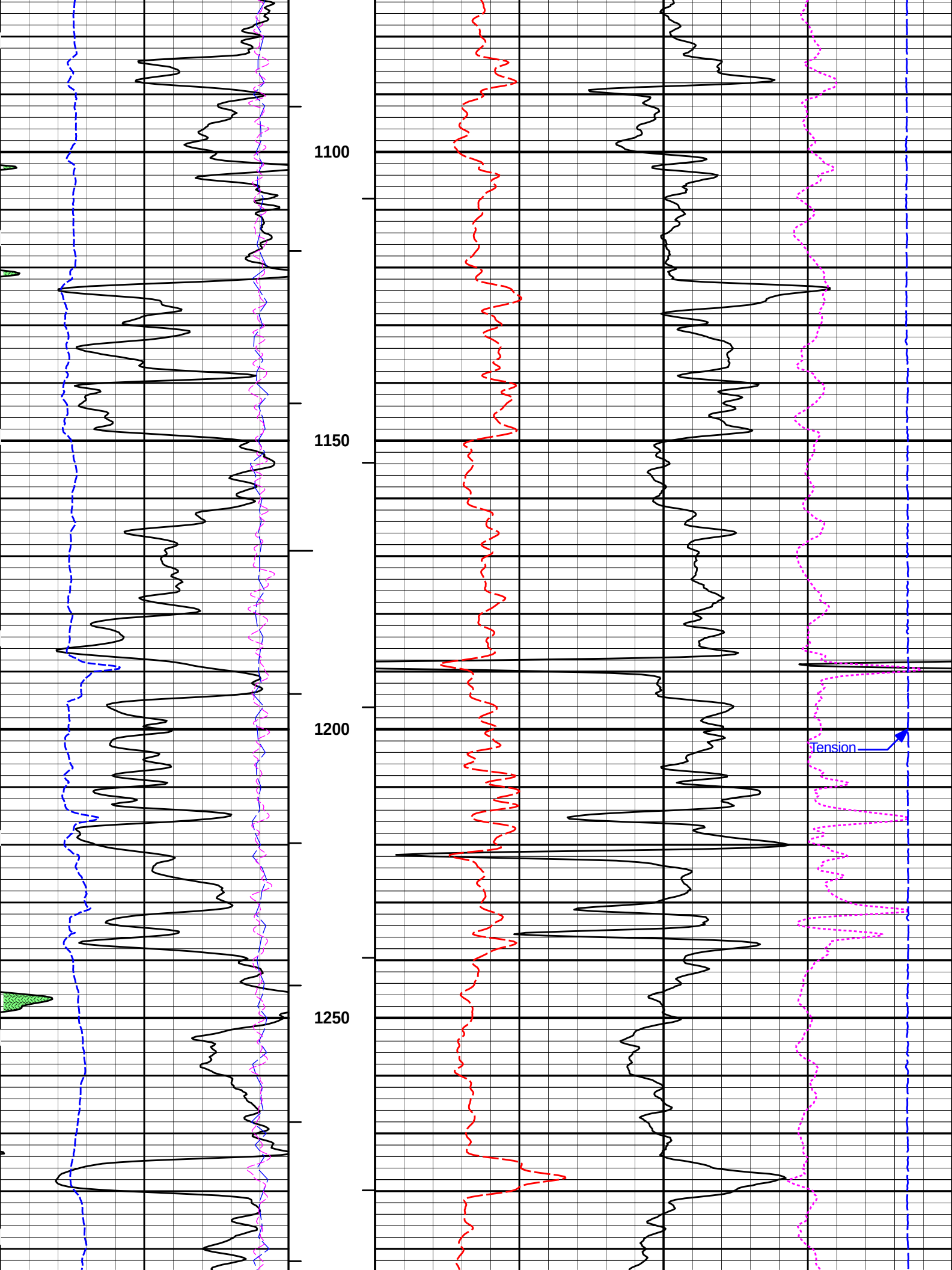
5 INCH MAIN LOG

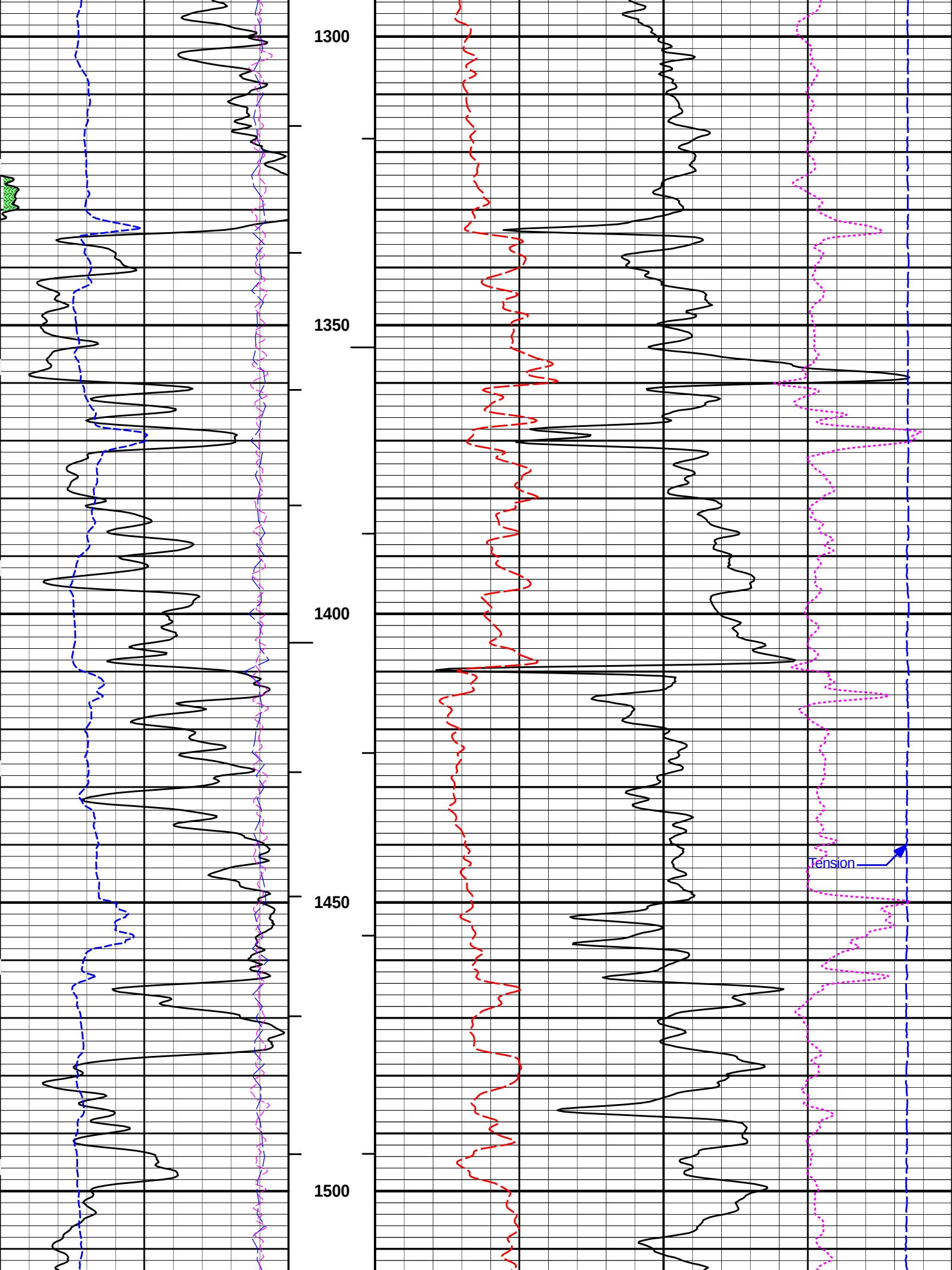


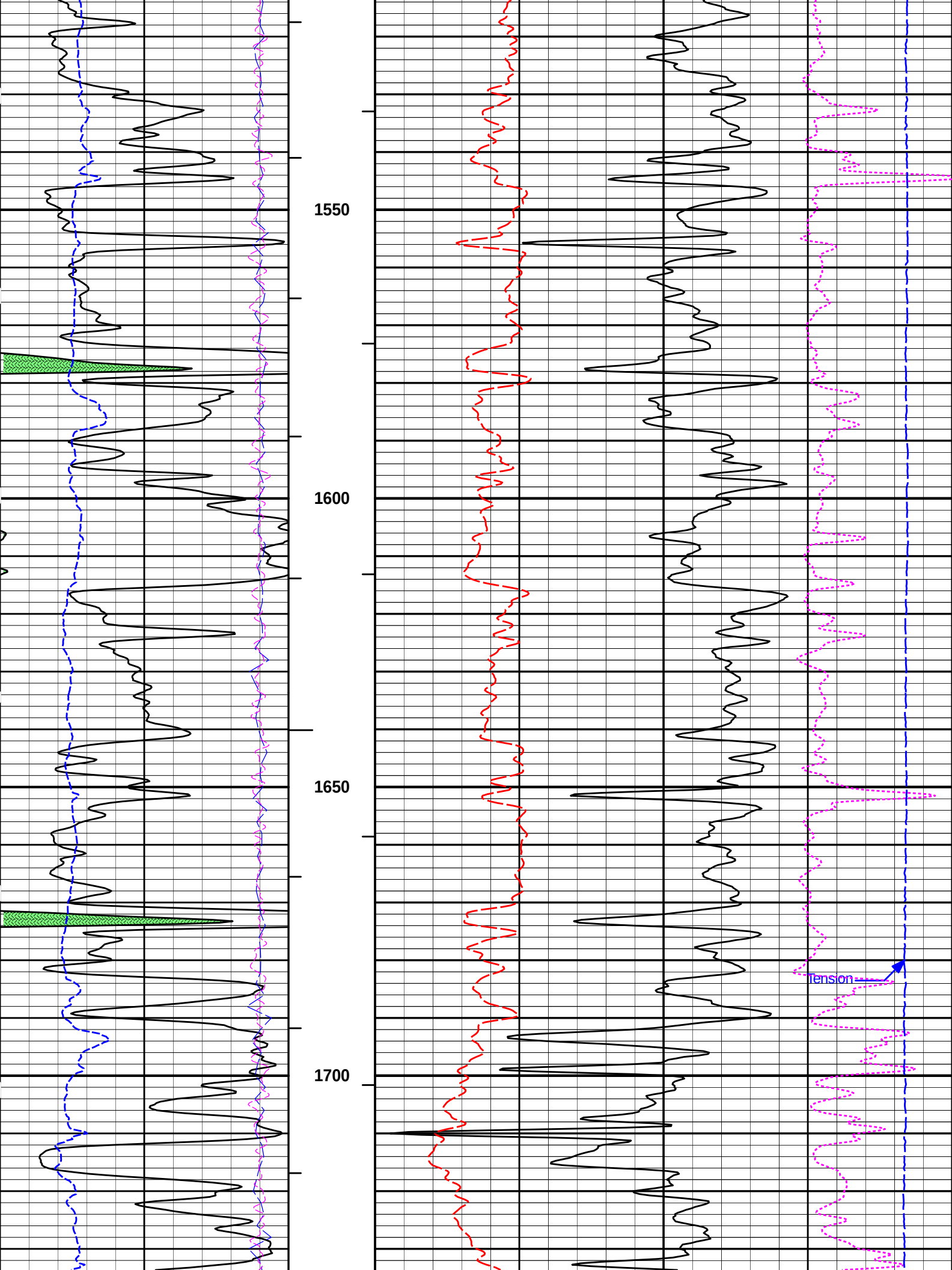


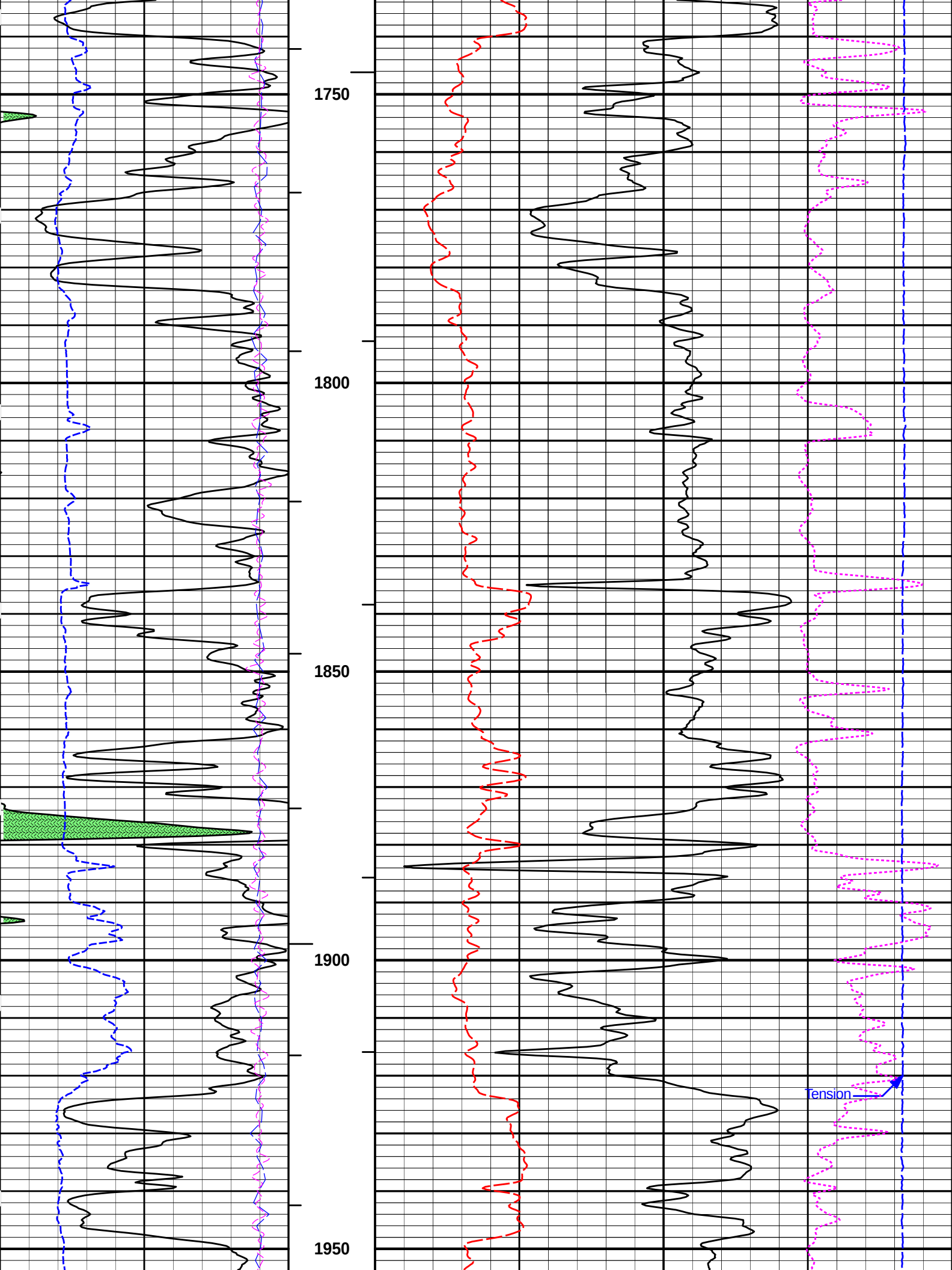


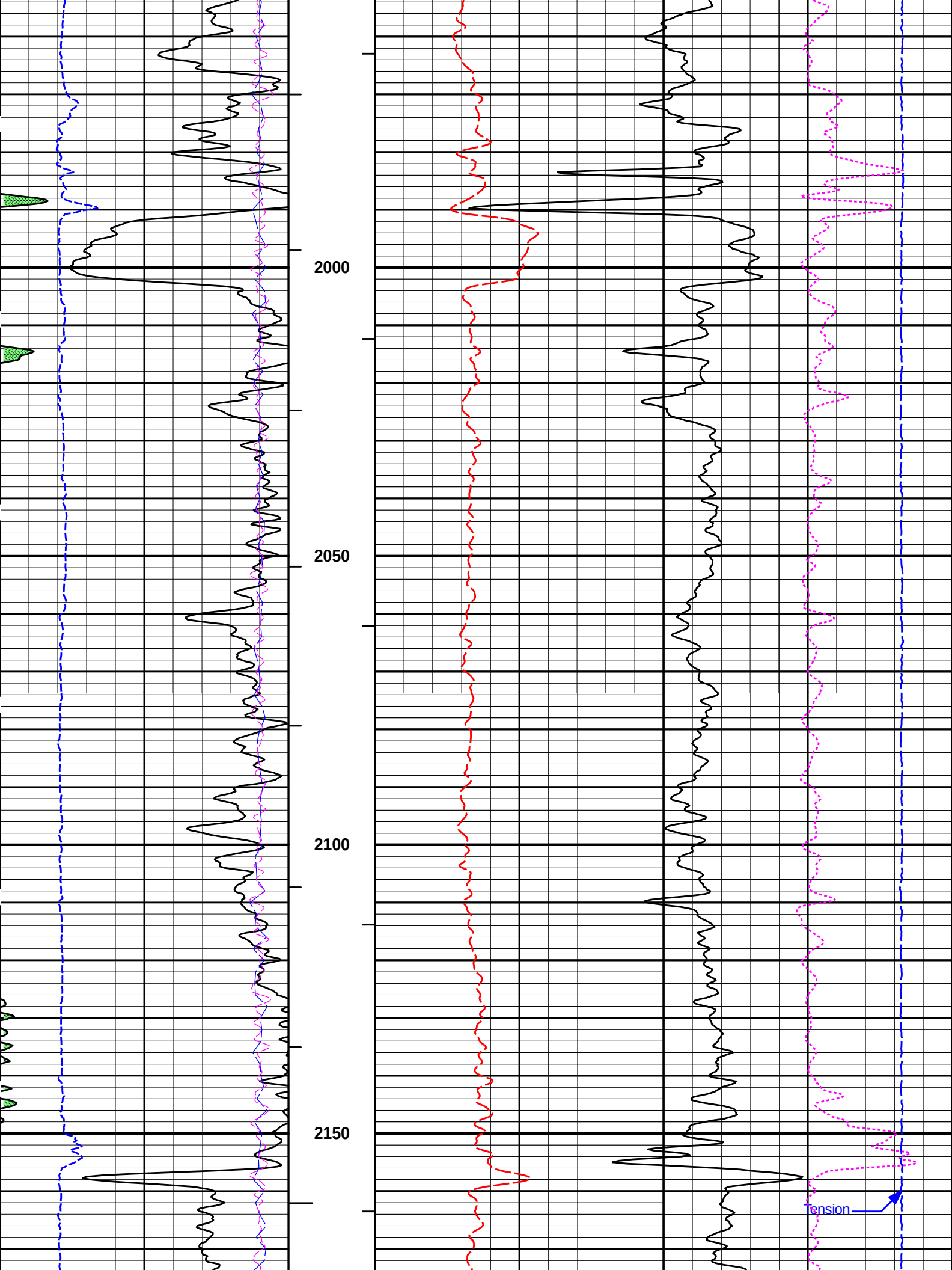


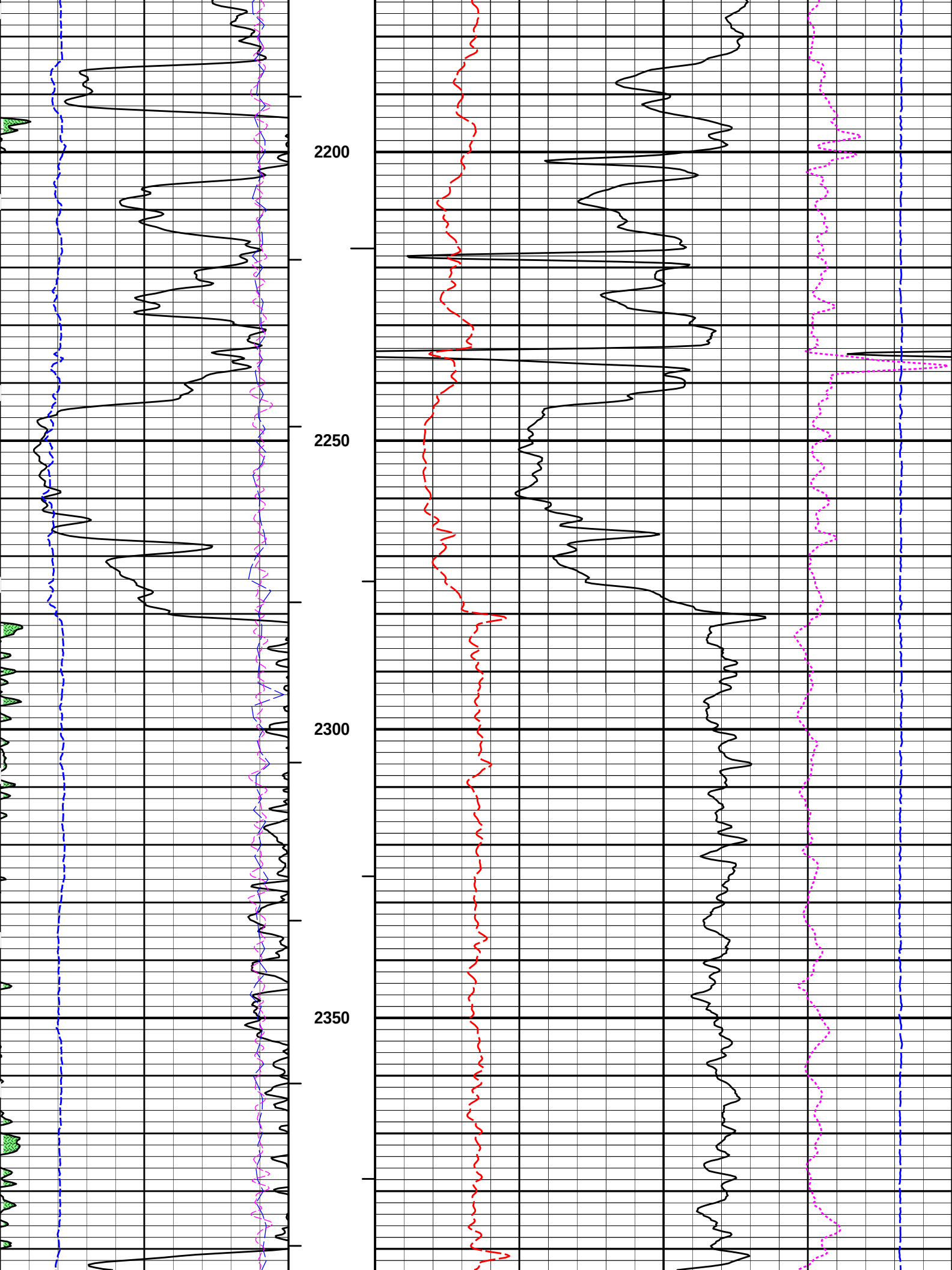


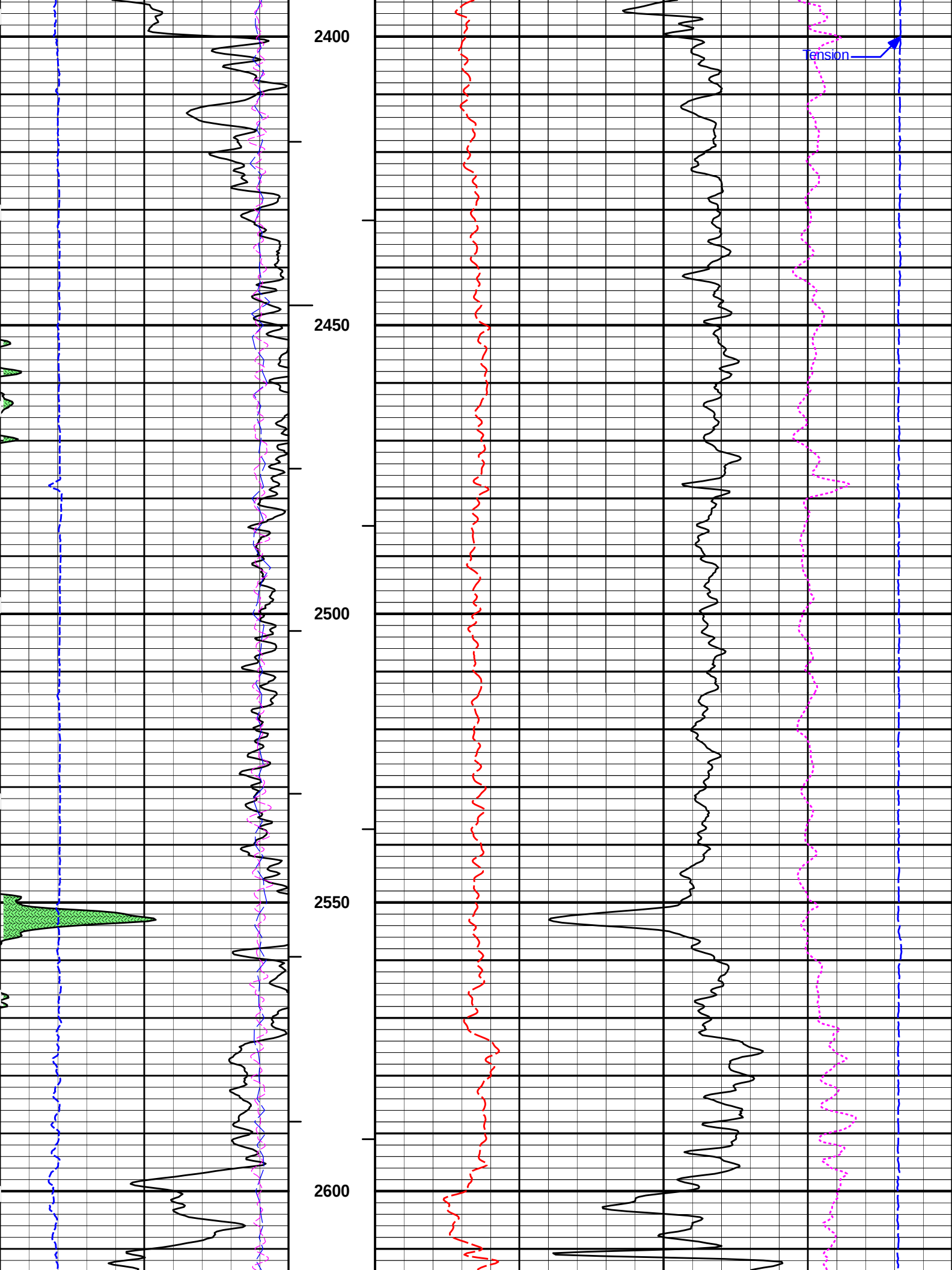


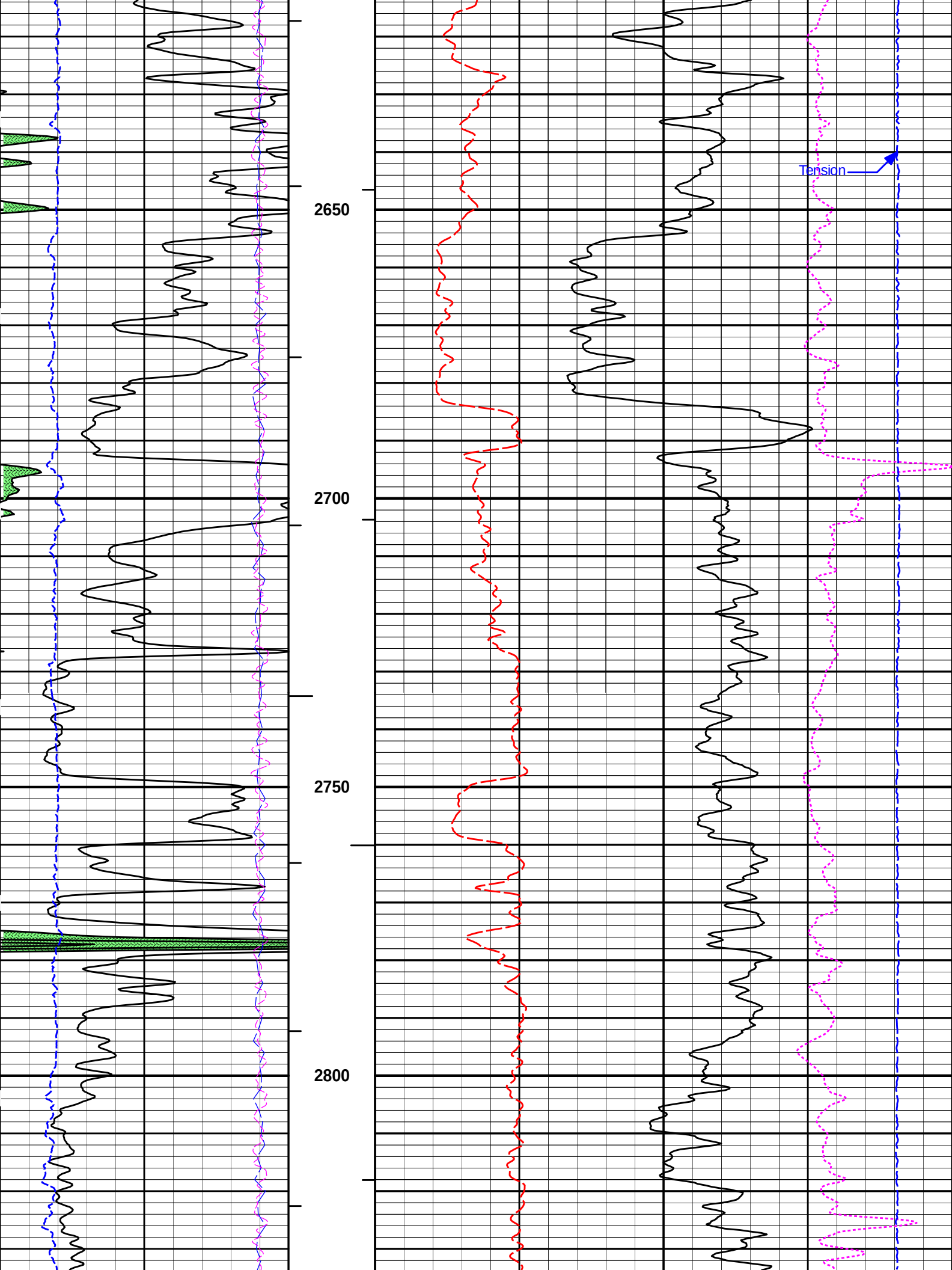


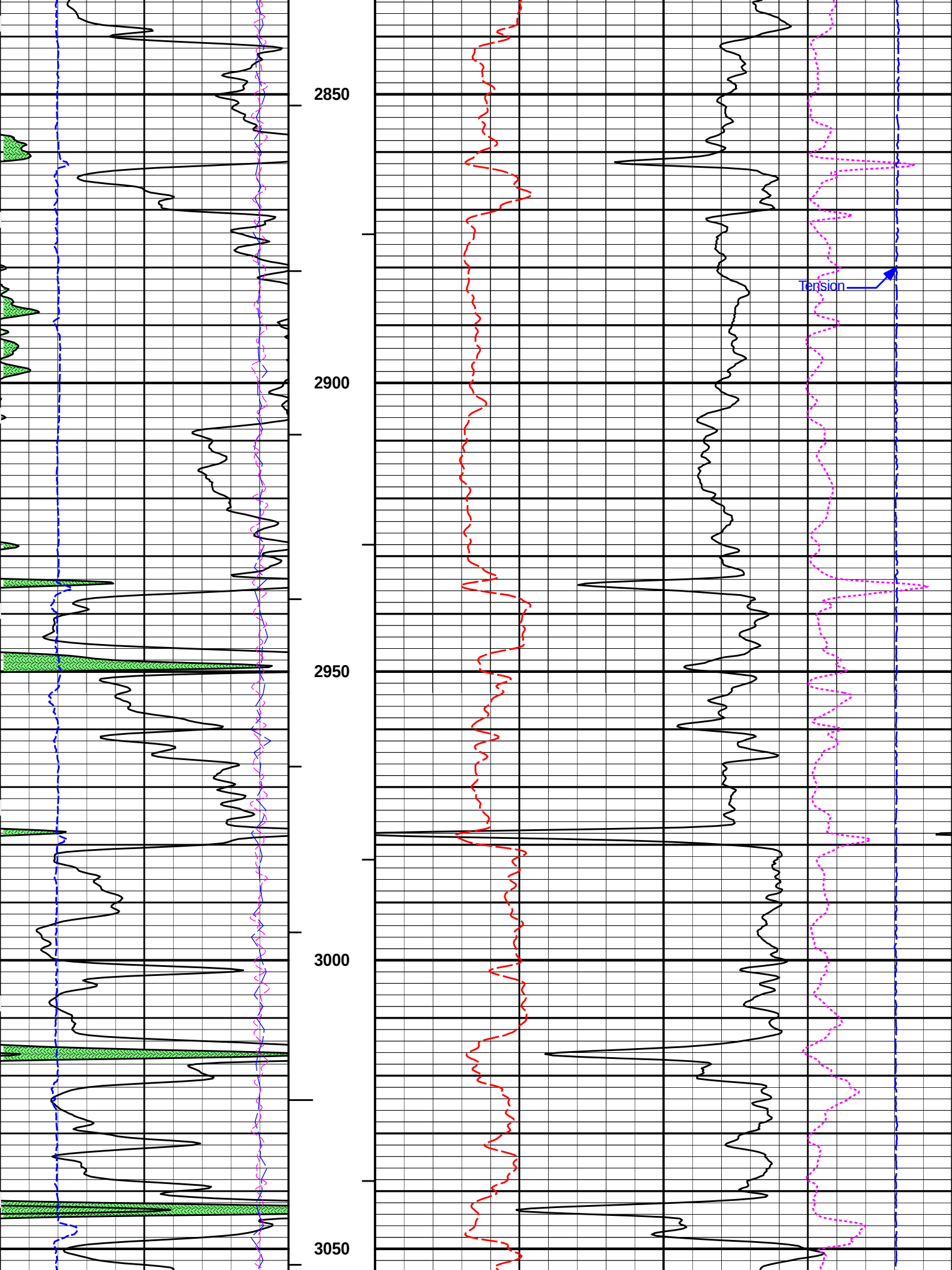


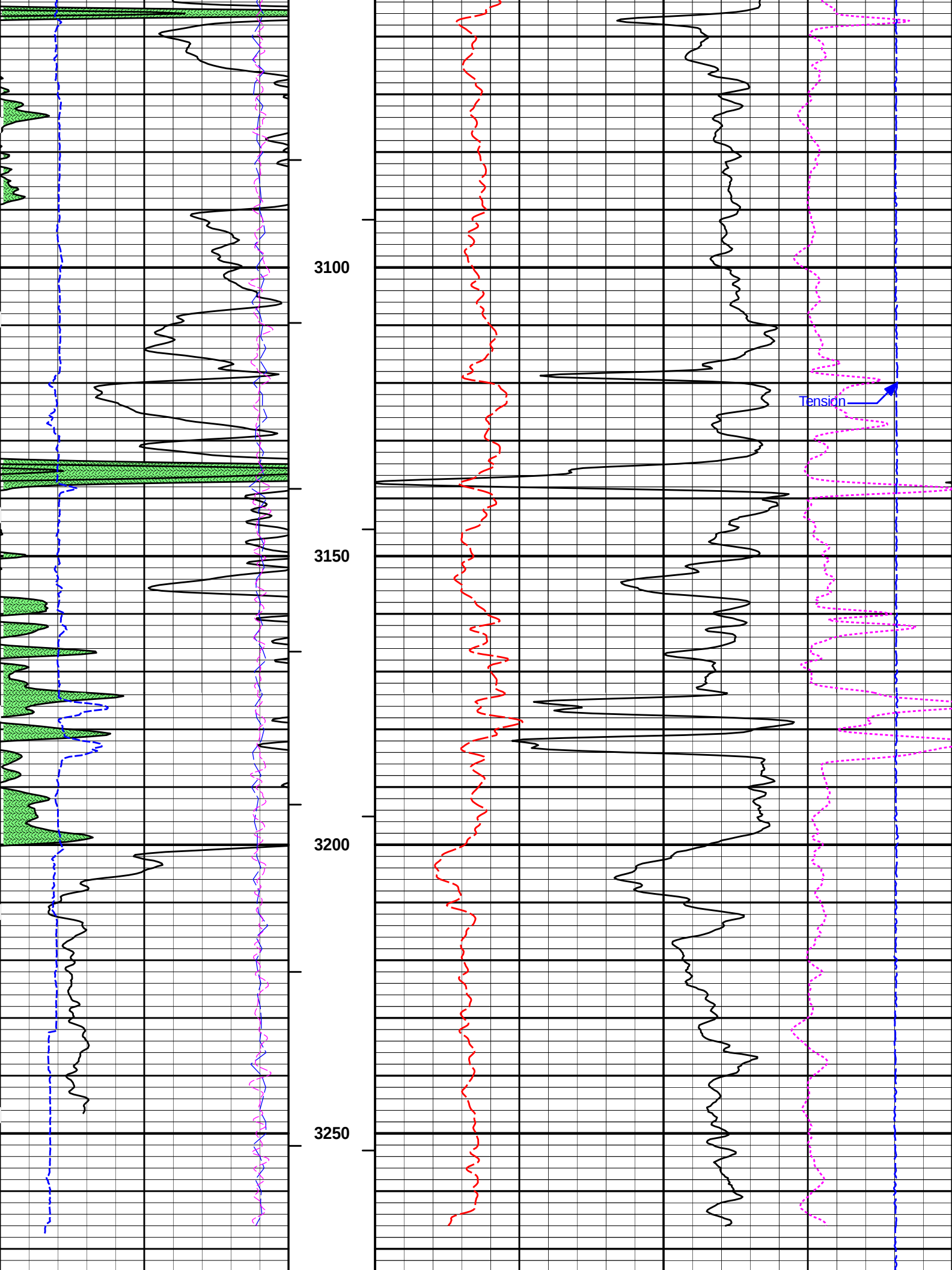


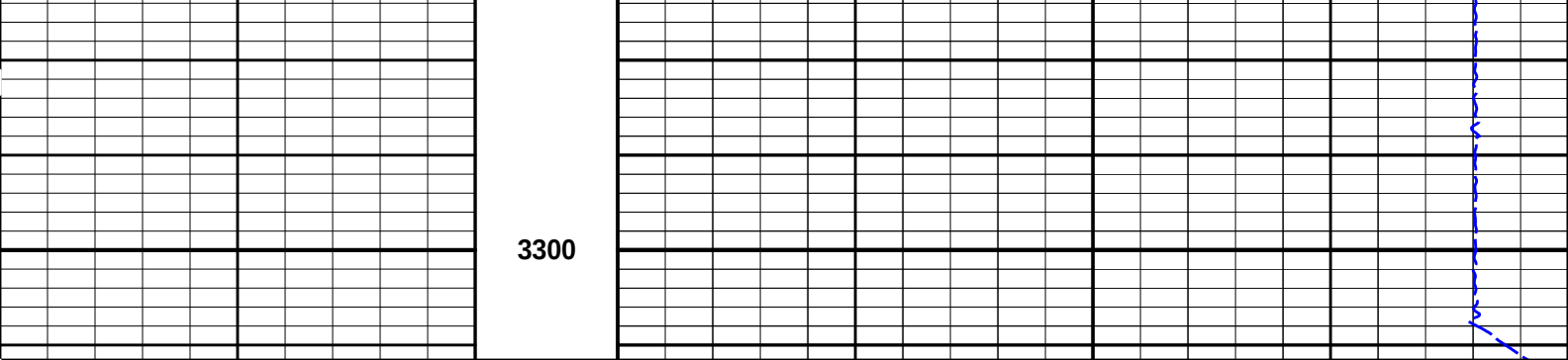












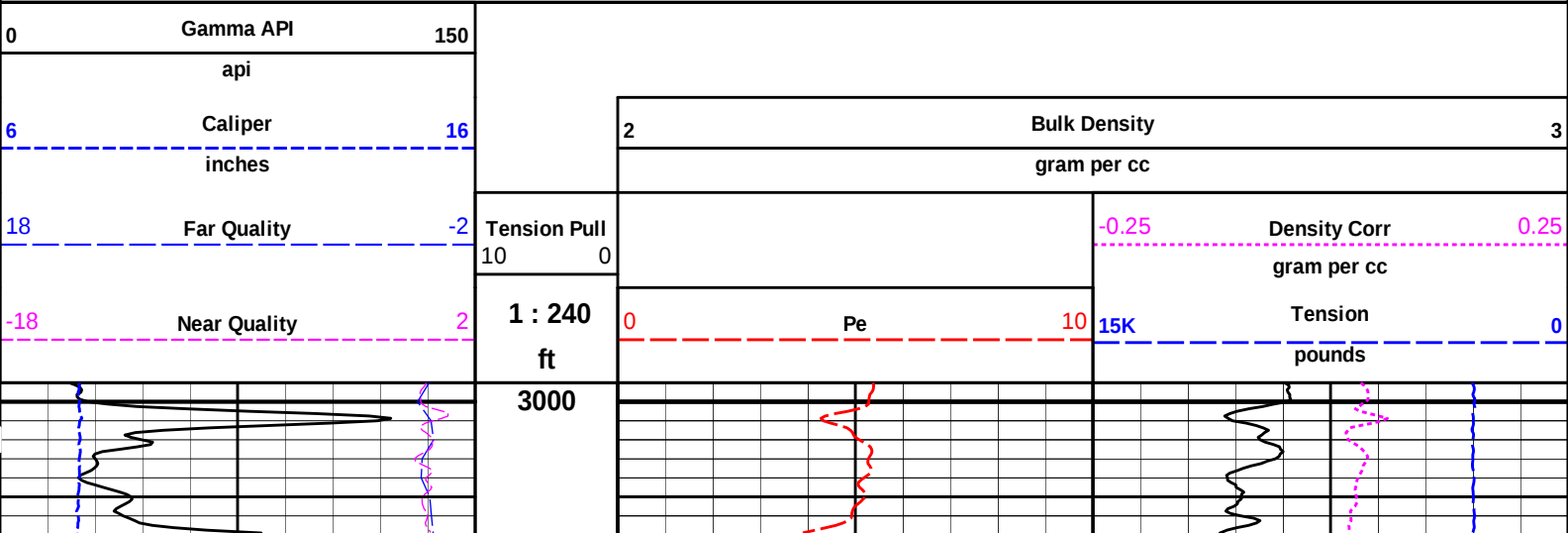
-18	Near Quality	2	1 : 240	0	Pe	10	15K	Tension	0
			ft					pounds	
18	Far Quality	-2	AHVT				-0.25	Density Corr	0.25
								gram per cc	
6	Caliper	16	BHVT	2	Bulk Density				3
	inches				gram per cc				
0	Gamma API	150	Tension Pull						
	api		10 0						

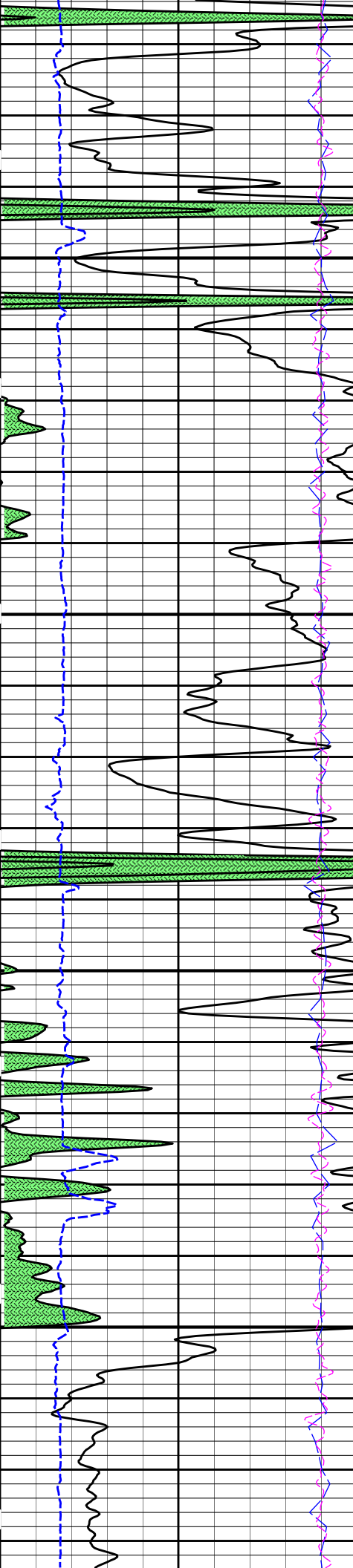
HALLIBURTON	Plot Time: 28-Oct-17 14:49:39 Plot Range: 298 ft to 3311.58 ft Data: ROSECRANS_1\Well Based\DAQ-0001-004\ Plot File: \\PORO\1_Bulk_5_mainx
--------------------	---

5 INCH MAIN LOG

HALLIBURTON	Plot Time: 28-Oct-17 14:49:39 Plot Range: 2998 ft to 3307.92 ft Data: ROSECRANS_1\Well Based\DAQ-0001-003\ Plot File: \\PORO\1_Bulk_5_rptx
--------------------	---

REPEAT SECTION



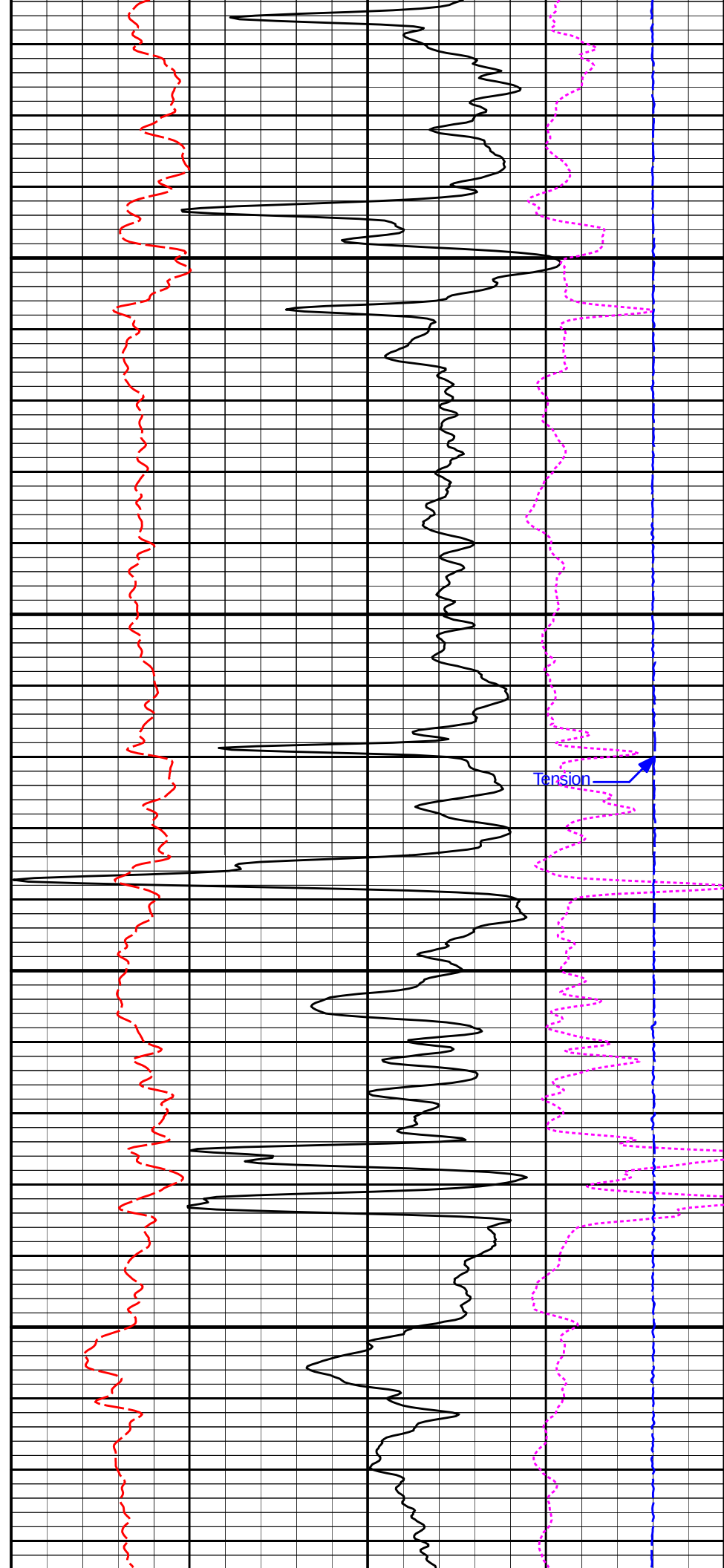


3050

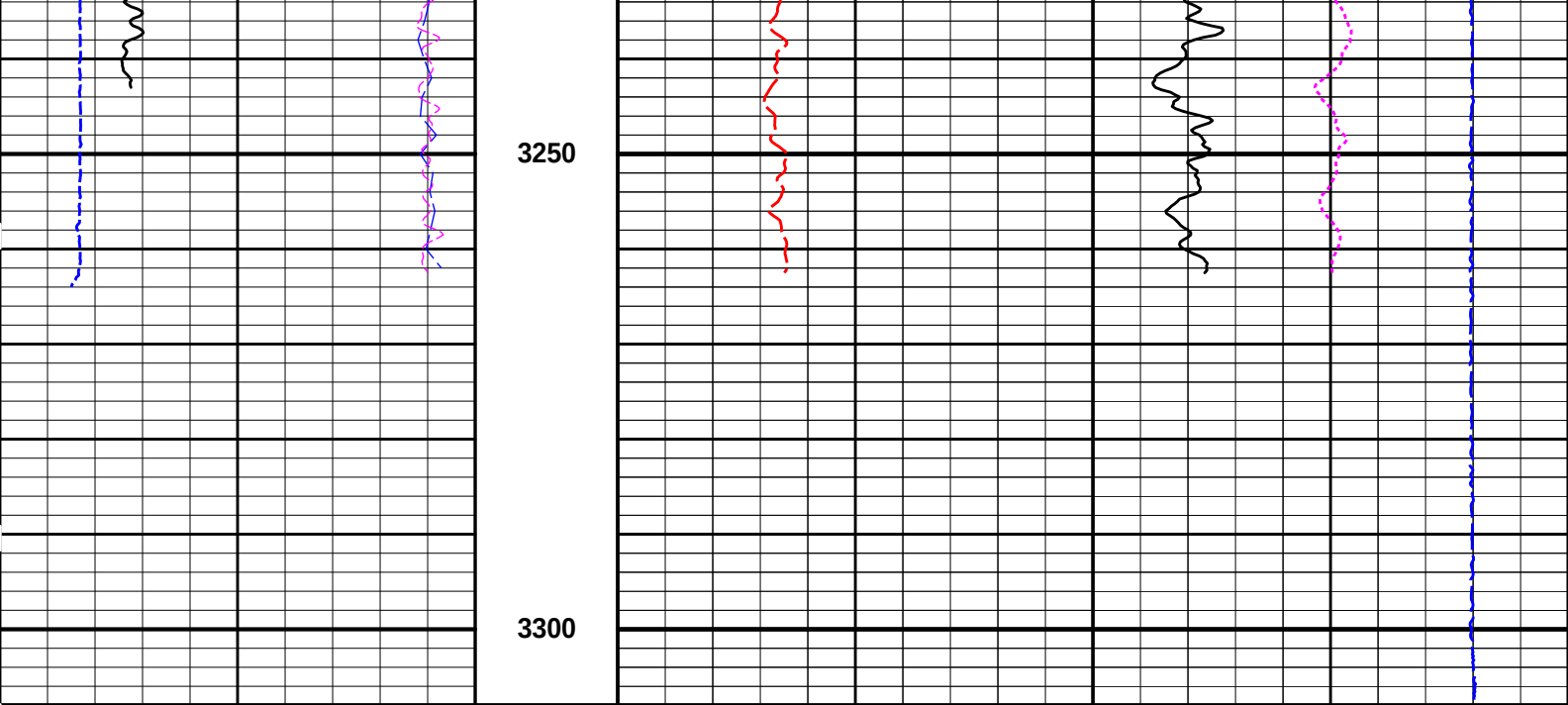
3100

3150

3200



Tension



-18	Near Quality	2	1 : 240 ft	0	Pe	10	15K	Tension	0
18	Far Quality	-2	Tension Pull 10 0					pounds	
6	Caliper	16		2	Bulk Density				3
	inches				gram per cc				
0	Gamma API	150							
	api								

HALLIBURTON Plot Time: 28-Oct-17 14:49:42
Plot Range: 2998 ft to 3307.92 ft
Data: ROSECRANS_1\Well Based\DAQ-0001-003\
Plot File: \\PORO\1_Bulk_5_rptx

REPEAT SECTION

HALLIBURTON

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	1500.00	ppm
	SHARED	FSAL	Formation Salinity NaCl	0.00	ppm
	SHARED	KPCT	Percent K in Mud by Weight?	0.00	%
	SHARED	DMWD	Mud Weight Density	8.333	lb/gal

SHARED	RMUD	Mud Resistivity	2.000	ohmm
SHARED	TRM	Temperature of Mud	75.0	degF
SHARED	CSD	Logging Interval is Cased?	No	
SHARED	ICOD	AHV Casing OD	5.500	in
SHARED	CSTR	Compressive Strength	1000.00	psia
SHARED	ST	Surface Temperature	75.0	degF
SHARED	TD	Total Well Depth	10000.00	ft
SHARED	BHT	Bottom Hole Temperature	200.0	degF
SHARED	SVTM	Navigation and Survey Master Tool	NONE	
SHARED	AZTM	High Res Z Accelerometer Master Tool	GTET	
SHARED	TEMM	CBM Temperature Master Tool	GTET	
Rwa / CrossPlot	XPOK	Process Crossplot?	Yes	
Rwa / CrossPlot	FCHO	Select Source of F	Automatic	
Rwa / CrossPlot	AFAC	Archie A factor	0.6200	
Rwa / CrossPlot	MFAC	Archie M factor	2.1500	
Rwa / CrossPlot	RMFR	Rmf Reference	0.10	ohmm
Rwa / CrossPlot	TMFR	Rmf Ref Temp	75.00	degF
Rwa / CrossPlot	RWA	Resistivity of Formation Water	0.05	ohmm
Rwa / CrossPlot	ADP	Use Air Porosity to calculate CrossplotPhi	No	
Rwa / CrossPlot	BHSM	Borehole Size Source Tool	SDLT	
Rwa / CrossPlot	ROIN	Input for RO Calculation	Rwa	
GTET	GROK	Process Gamma Ray?	Yes	
GTET	GEOK	Process Gamma Ray EVR?	No	
GTET	TPOS	Tool Position for Gamma Ray Tools.	Eccentered	
GTET	BHSM	Borehole Size Source Tool	SDLT	
DSNT	DNOK	Process DSN?	Yes	
DSNT	DEOK	Process DSN EVR?	No	
DSNT	NLIT	Neutron Lithology	Limestone	
DSNT	DNSO	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.250	in
DSNT	DNTT	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	
Microlog Pad	MLOK	Process MicroLog Outputs?	Yes	
SDLT Pad	DNOK	Process Density?	Yes	
SDLT Pad	DNOK	Process Density EVR?	No	
SDLT Pad	CB	Logging Calibration Blocks?	No	
SDLT Pad	SPVT	SDLT Pad Temperature Valid?	Yes	
SDLT Pad	DTWN	Disable temperature warning	No	
SDLT Pad	DMA	Formation Density Matrix	2.710	g/cc
SDLT Pad	DFL	Formation Density Fluid	1.000	g/cc
SDLT Pad	BHSM	Borehole Size Source Tool	SDLT	
BSAT	MBOK	Compute BCAS Results?	Yes	
BSAT	FLLO	Frequency Filter Low Pass Value?	5000	Hz
BSAT	FLHI	Frequency Filter High Pass Value?	27000	Hz
BSAT	DTFL	Delta -T Pore Fluid	189.00	uspf
BSAT	DTMT	Delta -T Matrix Type	Limestone 47.6	
BSAT	DTCH	Delta -T Shale	100.00	uspf

BSAT	DTSH	Delta - T Snale	100.00	uspr
BSAT	SPEQ	Acoustic Porosity Equation	Wylie	
ACRt Sonde	RTOK	Process ACRt?	Yes	
ACRt Sonde	MNSO	Minimum Tool Standoff	1.50	in
ACRt Sonde	TCS1	Temperature Correction Source	FP Lwr & FP Up	
ACRt Sonde	TPOS	Tool Position	Free Hanging	
ACRt Sonde	RMOP	Rmud Source	Mud Cell	
ACRt Sonde	RMIN	Minimum Resistivity for MAP	0.20	ohmm
ACRt Sonde	RMAX	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	
ACRt Sonde	MBFL	Apply Corkscrew Effect?	No	
BOTTOM-----				
Data: ROSECRANS_1\0001 GTET-DSNT-SDLT-BSAT-ACRT\004 28-Oct-17 12:33 Up @3311.8f				Date: 28-Oct-17 13:04:01

HALLIBURTON CUSTOMER EVENT LOG				
Event Type	Time & Date	Depth (ft)	Event Description	
	28-Oct-17 11:52:08.211	402.75	Logging 001 28-Oct-17 11:52 Up @402.8f	
	28-Oct-17 11:58:00.827	239.73	Halting 001 28-Oct-17 11:52 Up @402.8f	
	28-Oct-17 11:58:19.792	153.75	Logging 002 28-Oct-17 11:58 Dn @153.8f	
	28-Oct-17 12:16:32.752	3310.27	Halting 002 28-Oct-17 11:58 Dn @153.8f	
	28-Oct-17 12:16:47.319	3308.25	Logging 003 28-Oct-17 12:16 Up @3308.3f	
	28-Oct-17 12:28:33.625	2946.65	Halting 003 28-Oct-17 12:16 Up @3308.3f	
	28-Oct-17 12:33:12.530	3311.75	Logging 004 28-Oct-17 12:33 Up @3311.8f	
Data: ROSECRANS_1\0001 GTET-DSNT-SDLT-BSAT-ACRT\HW12127				Date: 28-Oct-17 13:03:41

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name:GTET - 11048627

Engineer:WHITLOCK

Software Version:WL INSITE R5.0.5 (Build 8)

Reference Calibration Date:20-Aug-17 14:02:22

Calibration Date:21-Sep-17 09:43:40

Calibration Version:1

Calibrator Source S/N: TB-146

Calibrator API Reference:265.00 api

Equivalent Calibrator API Reference:269.6 api

Measurement	Measured	Calibrated	Units
Background	29.7	29.3	api
Background + Calibrator	303.0	299.0	api
Calibrator	273.2	269.6	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name:GTET - 11048627

Engineer:T. HARRIS

Software Version:WL INSITE R5.0.5 (Build 8)

Reference Calibration Date:21-Sep-17 09:43:40

Calibration Date:28-Oct-17 10:15:29

Calibration Version:1

Calibrator Source S/N: TB-146

Calibrator API Reference:265.00 api

Equivalent Calibrator API Reference:269.6 api

Calibrator API Reference:265.00 api
Equivalent Calibrator API Reference:269.6 api

Field Verification	Shop	Field	Units
Background	29.3	26.5	api
Background + Calibrator	299.0	298.4	api
Calibrator	269.6	271.9	api

Shop	Field	Difference	Tolerance
269.6	271.9	-2.3	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name:	DSNT - 11055304	Reference Calibration Date:	20-Aug-17 11:51:57
Engineer:	T. HARRIS	Calibration Date:	20-Aug-17 12:13:57
Software Version:	WL INSITE R5.0.5 (Build 8)	Calibration Version:	1

Logging Source S/N: DSN-424
Tank Serial Number: 12345678
Reference value assigned to Tank: 56.100
Snow Block S/N: 12345678
Calibration Tank Water Temperature: 73 degF
Min. Tool Housing Outside Diameter: 3.625 in

CALIBRATION CONSTANTS			
Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	1.04773	1.05081	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):	0.2348	0.2358	0.0009	+/- 0.0020
Calibrated Ratio:	10.5287	10.5596	0.031	+/- 0.050

VERIFIER		
Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0846	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 - 11055304	Reference Calibration Date:	20-Aug-17 12:13:57
Engineer:	T. HARRIS	Calibration Date:	28-Oct-17 10:25:06
Software Version:	WL INSITE R5.0.5 (Build 8)	Calibration Version:	1

Logging Source S/N: DSN-424
Snow Block S/N: 12345678

NEUTRON FIELD-CHECK SUMMARY				
	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0846	0.0836	-0.0010	+/- 0.0150

PASS/FAIL SUMMARY	
-------------------	--

Block Change Check:	Passed
Snow Block Stat Check:	Passed
Temperature Check:	Passed

DENSITY CALIPER SHOP CALIBRATION

Tool Name:	SDLT - 10960494	Reference Calibration Date:	20-Aug-17 12:41:21
Engineer:	T. HARRIS	Calibration Date:	20-Aug-17 12:48:22
Software Version:	WL INSITE R5.0.5 (Build 8)	Calibration Version:	1
Host Tool Name:	DSNT - 11055304		

CALIBRATION COEFFICIENTS			
Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-2993.12	-3003.48	-7000.00 - -1000.00
Pad Gain	0.0003799	0.0003806	0.0002000 - 0.0006000
Arm Offset	-746.82	-1647.28	-5000.00 - 3000.00
Arm Gain	0.0004486	0.0005279	0.000300 - 0.000700
Arm Power	-0.000001023	-0.000005848	-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)	2.00	2.00	0.00	+/- 0.20
Medium Ring (in)	3.75	3.75	0.00	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.64	6.50	-0.14	+/- 0.20
Medium Ring (in)	8.21	8.25	0.04	+/- 0.20
Large Ring (in)	14.95	15.00	0.05	+/- 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 - 10960494	Reference Calibration Date:	20-Aug-17 12:48:22
Engineer:	T. HARRIS	Calibration Date:	28-Oct-17 10:40:40
Software Version:	WL INSITE R5.0.5 (Build 8)	Calibration Version:	1

MEASURED CALIPER VALUES				
Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.75	-0.00	+/- 0.10
Ring Diameter	8.25	8.25	0.00	+/- 0.15

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

MICRO LOG SHOP CALIBRATION

Tool Name:	Microlog Pad - 10960494	Reference Calibration Date:	04-Oct-16 14:39:47
Engineer:	T. HARRIS	Calibration Date:	20-Aug-17 12:57:45

Software Version: WL INSITE R5.0.5 (Build 8)			Calibration Version: 1		
Host Tool Name: DSNT - 11055304					

	CALIBRATION COEFFICIENT SUMMARY					
	Measurement	Micro Log Normal		Micro Log Lateral		Units
		Measured	Calibrated	Measured	Calibrated	
	Tool Zero	-0.10	-0.09	-0.00	0.00	ohmm
	Calibration Point #1	-0.02	0.00	-0.00	0.00	ohmm
	Calibration Point #2	20.43	20.00	19.95	20.00	ohmm
	Internal Reference	20.42	19.99	20.25	20.30	ohmm
	Measurement	Micro Log Normal Tool Value		Micro Log Lateral Tool Value		Units
	Tool Zero	0.08		0.36		V
	Calibration Point #1	22.98		0.30		V
	Calibration Point #2	5373.30		6830.18		V
	Internal Reference	5369.77		6931.81		V

MICRO LOG FIELD CHECK					
Tool Name: Microlog Pad - 10960494			Reference Calibration Date: 20-Aug-17 12:57:45		
Engineer: T. HARRIS			Calibration Date: 28-Oct-17 10:30:20		
Software Version: WL INSITE R5.0.5 (Build 8)			Calibration Version: 1		

	Measurement	Micro Log Normal		Micro Log Lateral		Units
		Shop	Field	Shop	Field	
	Tool Zero	-0.09	-0.09	0.00	0.00	ohmm
	Internal Reference	19.99	19.80	20.30	20.20	ohmm
	Summary					
	Signal	Shop	Field	Difference	Tolerance	
	Microlog Normal	19.99	19.80	0.19	+/- 0.80	
	Microlog Lateral	20.30	20.20	0.10	+/- 0.80	

SPECTRAL DENSITY SHOP CALIBRATION					
Tool Name: SDLT Pad - 10844781			Reference Calibration Date: 13-Mar-17 10:24:03		
Engineer: T. HARRIS			Calibration Date: 20-Aug-17 11:03:23		
Software Version: WL INSITE R5.0.5 (Build 8)			Calibration Version: 1		

Logging Source S/N: 5168GW

Aluminum Block S/N: EL RENO STD ALUMINUM

Magnesium Block S/N: EL RENO

Density: 2.581g/cc

Density: 1.687g/cc

Pe: 3.170

Pe: 2.594

DENSITY CALIBRATION SUMMARY			
Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0364	1.0186	0.90 - 1.10
Near Dens Gain	1.0238	1.0069	0.90 - 1.10
Near Peak Gain	1.0221	1.0079	0.90 - 1.10
Near Lith Gain	1.0552	1.0294	0.90 - 1.10
Far Bar Gain	1.0145	1.0123	0.90 - 1.10
Far Dens Gain	1.0038	0.9989	0.90 - 1.10
Far Peak Gain	1.0000	0.9971	0.90 - 1.10
Far Lith Gain	0.9816	0.9753	0.90 - 1.10
Near Bar Offset	-0.0376	0.1365	NONE
Near Dens Offset	0.0482	0.2065	NONE

Near Peak Offset	0.0495	0.1754	NONE
Near Lith Offset	-0.2247	-0.0123	NONE
Far Bar Offset	0.1095	0.1369	NONE
Far Dens Offset	0.1904	0.2360	NONE
Far Peak Offset	0.2182	0.2309	NONE
Far Lith Offset	0.3442	0.3659	NONE
Near Bar Background	733.33	732.60	700 - 1450
Near Dens Background	239.77	241.62	230 - 480
Near Peak Background	105.24	104.56	100 - 210
Near Lith Background	129.58	128.06	125 - 260
Far Bar Background	478.31	473.96	450 - 900
Far Dens Background	188.83	186.91	175 - 345
Far Peak Background	74.80	74.19	70 - 140
Far Lith Background	77.92	76.67	75 - 145

CALIBRATION BLOCK SUMMARY				
Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.675	1.687	0.012	+/- 0.015
Pe	2.474	2.559	0.085	+/- 0.150
ALUMINUM				
Density (g/cc)	2.566	2.581	0.015	+/- 0.01500
Pe	3.051	3.132	0.081	+/- 0.150

TOOL SUMMARY				
Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	-0.0007	+/- 0.0110	-0.0009	+/- 0.0140
Magnesium Block	-0.0007	+/- 0.0110	-0.0029	+/- 0.0140
Aluminum Block	-0.0007	+/- 0.0110	0.0006	+/- 0.0140
Resolution	9.59	6.00 - 11.50	8.79	6.00 - 11.50
Internal Verifier(B+D+P+L)	1207	1200 - 2700	812	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 - 10844781	Reference Calibration Date:	20-Aug-17 11:03:23
Engineer:	T. HARRIS	Calibration Date:	28-Oct-17 10:15:46
Software Version:	WL INSITE R5.0.5 (Build 8)	Calibration Version:	1

Pad Temperature: 75.2 degF

DENSITY FIELD CALIBRATION SUMMARY

Measurement		Shop	Field	Change	Control Limit +/-	
Near (B+D+P+L) cps		1206.834	1194.703	-12.131	14.101	
Far (B+D+P+L) cps		811.738	808.372	-3.366	15.745	
Near Resolution		9.59	9.61	0.020	0.50	
Far Resolution		8.79	8.78	-0.010	1.00	
PASS/FAIL SUMMARY						
Bkg Quality Check:				Passed		
Bkg Resolution Check:				Passed		
Bkg Verification Check:				Passed		

BSAT FIELD CASING CHECK								
Tool Name:		BSAT - 10747683			Calibration Date:		28-Oct-17 11:49:41	
Engineer:		T. HARRIS						
Software Version:		WL INSITE R5.0.5 (Build 8)			Calibration Version:		1	

Pre-Log Check	Check Depth	Shop	Field	Difference	Tolerance	Units
Delta-T Compensated	77.24	57.00	57.44	-0.4400	1.00	uspf

ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION								
Tool Name:		ACRt Sonde - 11005908			Reference Calibration Date:		23-Oct-17 10:10:12	
Engineer:		T. HYDE			Calibration Date:		23-Oct-17 10:20:54	
Software Version:		WL INSITE R5.0.5 (Build 8)			Calibration Version:		1	
Host Tool Name:		ACRt Instrument - 11026095						

TYPICAL GAIN RANGE									
Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	0.95	1.0398	1.05	0.95	1.0211	1.05	0.95	1.0138	1.05
A2 (50")	0.95	1.0496	1.05	0.95	1.0318	1.05	0.95	1.0265	1.05
A3 (29")	0.95	1.0394	1.05	0.95	1.0200	1.05	0.95	1.0123	1.05
A4 (17")	0.95	1.0406	1.05	0.95	1.0192	1.05	0.95	1.0135	1.05
A5 (10")	N/A	N/A	N/A	0.95	1.0074	1.05	0.95	1.0003	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.9922	1.05	0.95	0.9851	1.05

SONDE OFFSET						
Subarray	R12KHz		R36KHz		R72KHz	
	(mmho/m)		(mmho/m)		(mmho/m)	
A1 (80")	1.393		-4.176		-6.223	
A2 (50")	-0.075		-3.964		-5.591	
A3 (29")	-13.715		-4.478		-4.009	
A4 (17")	-97.616		-30.011		-25.152	
A5 (10")	N/A		-104.930		-46.135	
A6 (6")	N/A		339.306		175.255	

TRANSMITTER CURRENT GAIN				R-MUD VERIFICATION			
Signal	Lower	R	Upper	Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
12K	0.6	0.92	1.3	Mud Cell	0.95	1.00	1.05
36K	1.0	1.93	2.0				
72K	1.0	1.27	2.0				

PASS/FAIL SUMMARY			
-------------------	--	--	--

GAIN RANGE CHK	PASS
SONDE OFFSET CHK	PASS
TOOL OK TO LOG	

QUALITY CHECK SHOP CALIBRATION			
Tool Name:	ACRt Sonde - 11005908	Reference Calibration Date:	23-Oct-17 10:22:46
Engineer:	T. HYDE	Calibration Date:	23-Oct-17 10:24:00
Software Version:	WL INSITE R5.0.5 (Build 8)	Calibration Version:	1
Host Tool Name:	ACRt Instrument - 11026095		

STANDARD DEVIATIONS									
	R12KHz			R36KHz			R72KHz		
	Measured (mmho/m)	Expected (mmho/m)	Pass/Fail	Measured (mmho/m)	Expected (mmho/m)	Pass/Fail	Measured (mmho/m)	Expected (mmho/m)	Pass/Fail
A1 (80")	0.000	< 0.750	Pass	0.000	< 0.750	Pass	0.000	< 0.750	Pass
A2 (50")	0.000	< 0.750	Pass	0.000	< 0.750	Pass	0.000	< 0.750	Pass
A3 (29")	0.000	< 0.750	Pass	0.000	< 0.750	Pass	0.000	< 0.750	Pass
A4 (17")	0.000	< 0.750	Pass	0.000	< 0.750	Pass	0.000	< 0.750	Pass
A5 (10")	0.000	< 0.750	Pass	0.000	< 0.750	Pass	0.000	< 0.750	Pass
A6 (6")	0.000	< 0.750	Pass	0.000	< 0.750	Pass	0.000	< 0.750	Pass

AVERAGES									
	R12KHz			R36KHz			R72KHz		
	Measured (mmho/m)	Expected (mmho/m)	Pass/Fail	Measured (mmho/m)	Expected (mmho/m)	Pass/Fail	Measured (mmho/m)	Expected (mmho/m)	Pass/Fail
A1 (80")	0.000	< 0.500	Pass	-0.001	> -0.500	Pass	-0.007	> -0.500	Pass
A2 (50")	0.000	< 0.500	Pass	-0.001	> -0.500	Pass	-0.005	> -0.500	Pass
A3 (29")	-0.000	< 0.500	Pass	-0.001	> -0.500	Pass	-0.004	> -0.500	Pass
A4 (17")	-0.002	> -0.500	Pass	-0.007	> -0.500	Pass	-0.025	> -0.500	Pass
A5 (10")	-0.013	> -0.500	Pass	-0.024	> -0.500	Pass	-0.046	> -0.500	Pass
A6 (6")	0.016	< 0.500	Pass	0.076	< 0.500	Pass	0.163	< 0.500	Pass

GAIN TOLERANCE					
R12KHz					
	Measured (mmho/m)	Last Month (mmho/m)	Difference (mmho/m)	Tolerance (mmho/m)	Pass/Fail
A1 (80")	-219616896.000	-219604064.000	12832.000	10980203.200	Pass
A2 (50")	-213590992.000	-213574816.000	16176.000	10678740.800	Pass
A3 (29")	-217556288.000	-217547088.000	9200.000	10877354.400	Pass
A4 (17")	-212140624.000	-212130336.000	10288.000	10606516.800	Pass
A5 (10")	-215404640.000	-215393120.000	11520.000	10769656.000	Pass
A6 (6")	-216812320.000	-216798784.000	13536.000	10839939.200	Pass
R36KHz					
	Measured (mmho/m)	Last Month (mmho/m)	Difference (mmho/m)	Tolerance (mmho/m)	Pass/Fail
A1 (80")	54098772.000	54082008.000	16764.000	2704100.400	Pass
A2 (50")	43509488.000	43493728.000	15760.000	2174686.400	Pass
A3 (29")	40482792.000	40467628.000	15164.000	2023381.400	Pass
A4 (17")	36008828.000	35993908.000	14920.000	1799695.400	Pass
A5 (10")	41803516.000	41790616.000	12900.000	2089530.800	Pass
A6 (6")	41510596.000	41495356.000	15240.000	2074767.800	Pass
R72KHz					

	Measured (mmho/m)	Last Month (mmho/m)	Difference (mmho/m)	Tolerance (mmho/m)	Pass/Fail
A1 (80")	-95450208.000	-95444384.000	5824.000	4772219.200	Pass
A2 (50")	-89963016.000	-89956592.000	6424.000	4497829.600	Pass
A3 (29")	-92003408.000	-91997384.000	6024.000	4599869.200	Pass
A4 (17")	-87091448.000	-87086968.000	4480.000	4354348.400	Pass
A5 (10")	-86621288.000	-86616648.000	4640.000	4330832.400	Pass
A6 (6")	-87193792.000	-87188080.000	5712.000	4359404.000	Pass

PASS/FAIL SUMMARY

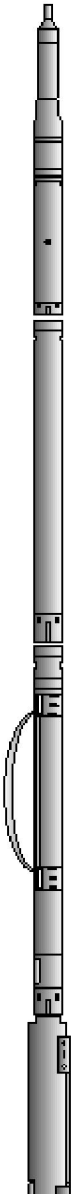
Std Deviation Verification	Pass
Average Verification	Pass
Gain Tolerance Verification	Pass

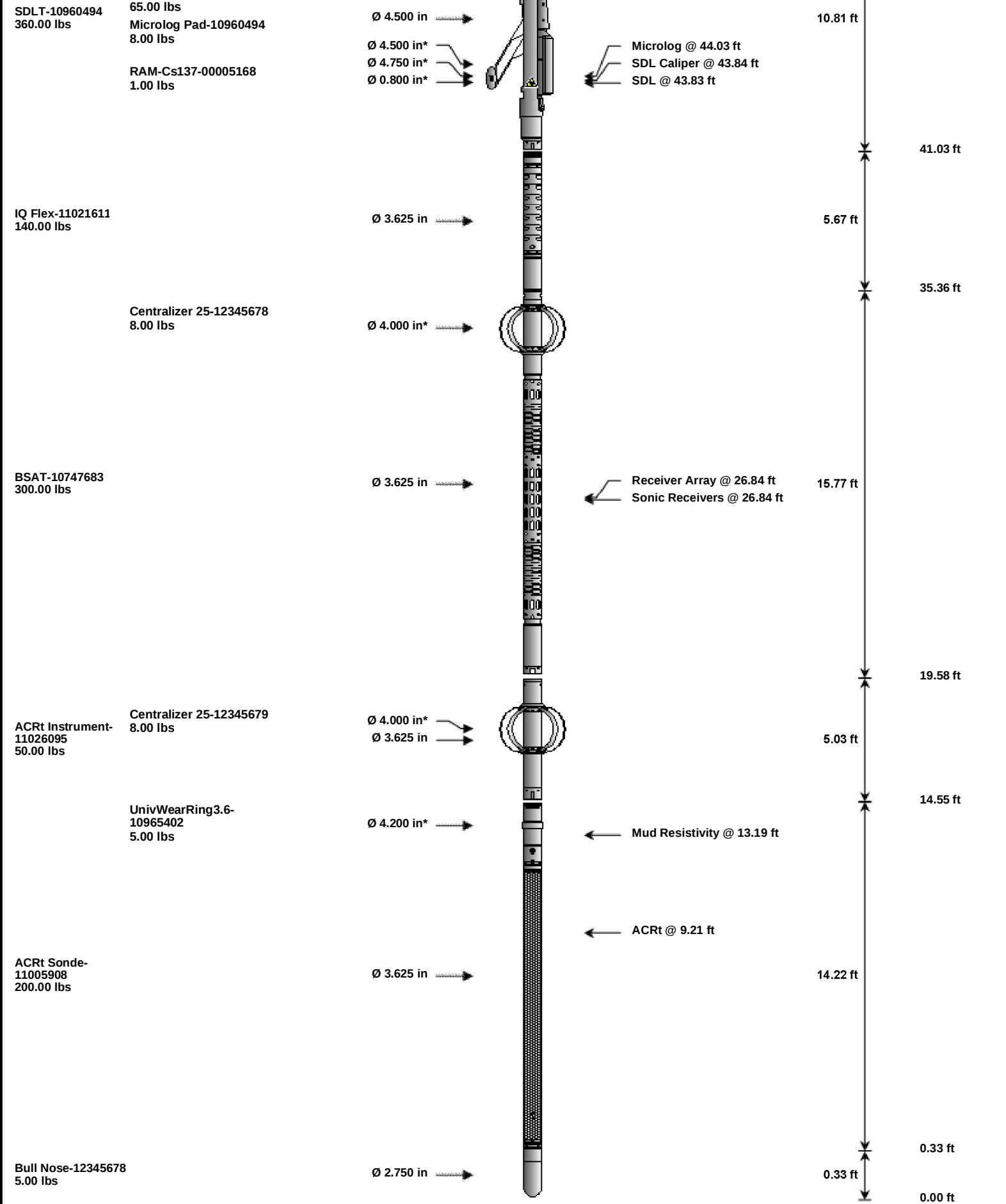
Data: ROSECRANS_1\0001 GTET-DSNT-SDLT-BSAT-ACRT\004 28-Oct-17 12:33 Up @3311.8f

Date: 28-Oct-17 13:04:30

HALLIBURTON

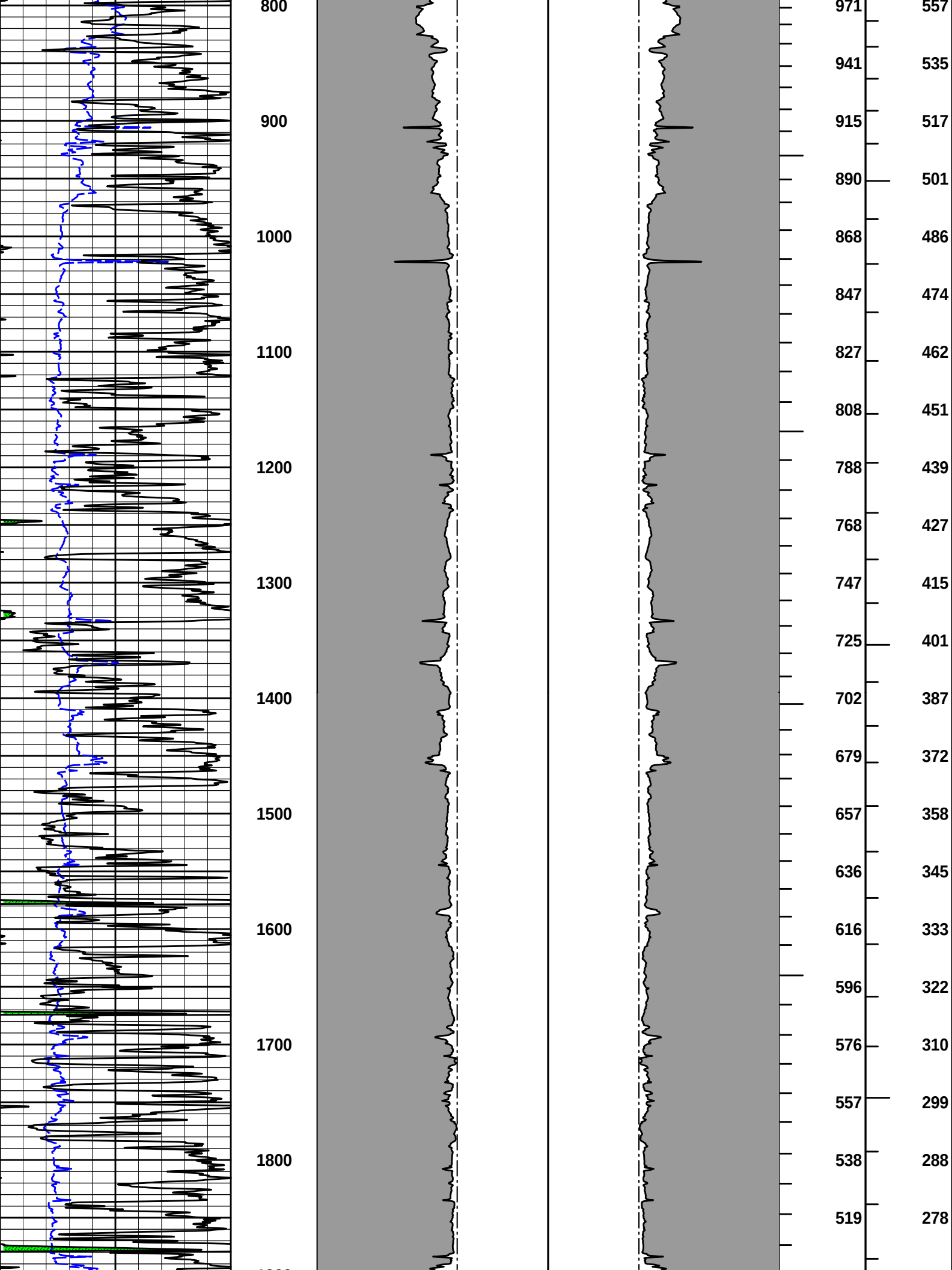
TOOL STRING DIAGRAM REPORT

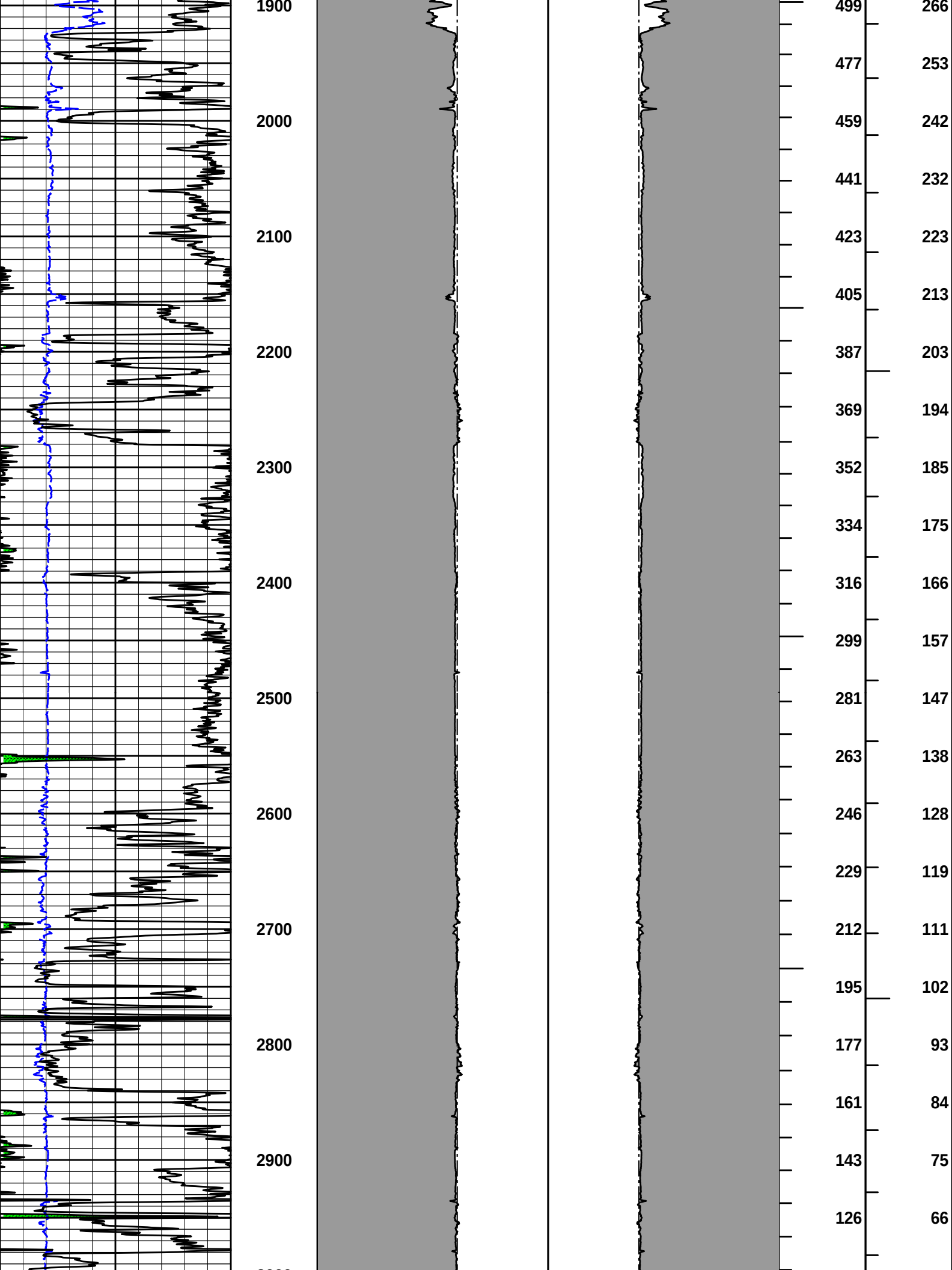
Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
CH_HOS-11459024 37.50 lbs		Ø 2.750 in →		← Temperature @ 76.74 ft	2.50 ft	77.24 ft
XOHD-11572809 20.00 lbs		Ø 2.750 in → Ø 3.625 in →			0.95 ft	74.74 ft
SP Sub-11441455 60.00 lbs		Ø 3.625 in →		← SP @ 72.01 ft	3.74 ft	73.79 ft
				← Z-Accelerometer @ 69.60 ft		70.05 ft
GTET-11048627 165.00 lbs		Ø 3.625 in →		← GammaRay @ 63.99 ft	8.52 ft	
						61.53 ft
DSN Decentralizer- 11055304 6.60 lbs		Ø 5.000 in* → Ø 3.625 in →			9.69 ft	
DSNT-11055304 174.00 lbs				← DSN Far @ 54.59 ft ← DSN Near @ 53.84 ft		51.84 ft

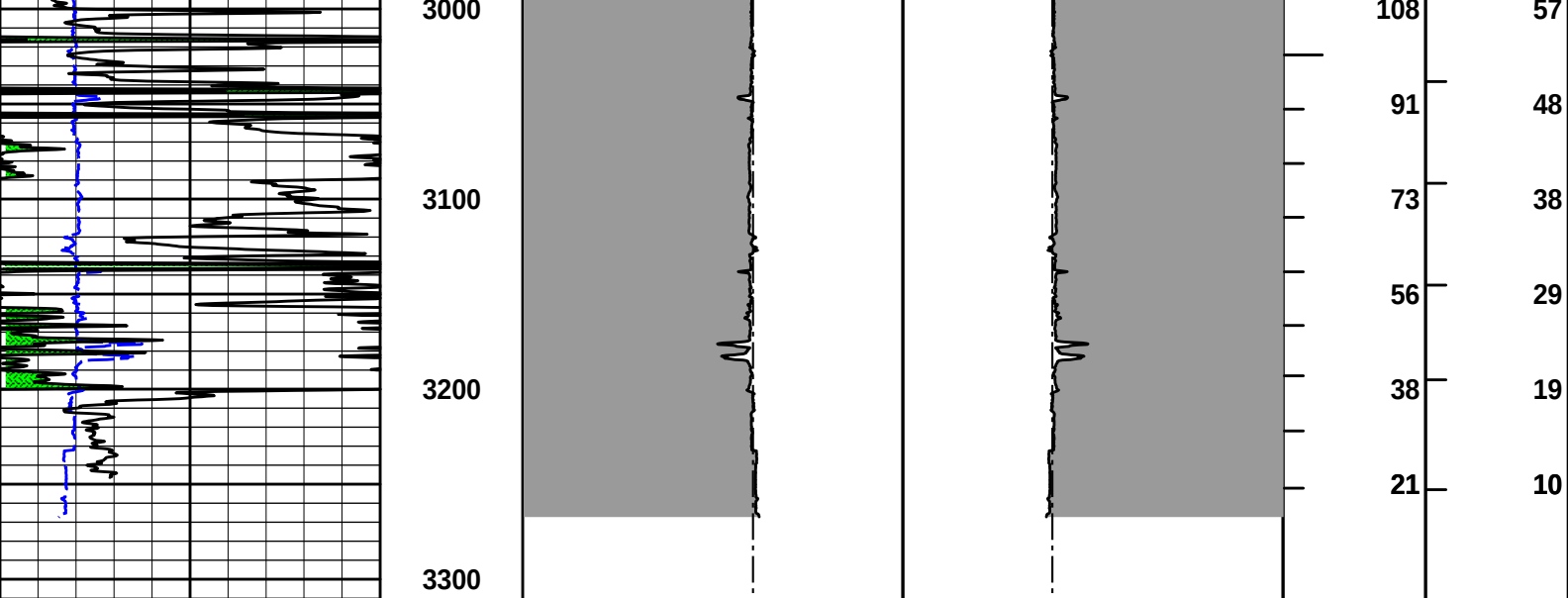


Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max.Log. Speed (fpm)
CH_HOS	Hostile Cable Head with Load Cell	11459024	37.50	2.50	74.74	300.00
XOHD	Hostile to Dits Cross Over	11572809	20.00	0.95	73.79	300.00
SP	SP Sub	11441455	60.00	3.74	70.05	300.00
GTET	Gamma Telemetry Tool	11048627	165.00	8.52	61.53	60.00

DSNT	Dual Spaced Neutron	11055304	174.00	9.69	51.84	60.00
DCNT	DSN Decentralizer	11055304	6.60	5.13 *	55.17	300.00
SDLT	Spectral Density Tool	10960494	360.00	10.81	41.03	60.00
SDLP	Density Insite Pad	10844781	65.00	2.55 *	43.24	60.00
Cs137	Logging Source, SDLT-I, 1.78 Ci - Cs137	00005168	1.00	0.80 *	43.47	300.00
MICP	Microlog Pad	10960494	8.00	1.00 *	43.53	60.00
IQF	IQ Flex tool	11021611	140.00	5.67	35.36	300.00
BSAT	Borehole Sonic Array Tool	10747683	300.00	15.77	19.58	60.00
OBCEN	Centralizer - 25 in. Overbody	12345678	8.00	2.08 *	32.79	300.00
ACRt	Array Compensated True Resistivity Instrument Section	11026095	50.00	5.03	14.55	120.00
OBCEN	Centralizer - 25 in. Overbody	12345679	8.00	2.08 *	16.42	300.00
ACRt	Array Compensated True Resistivity Sonde Section	11005908	200.00	14.22	0.33	120.00
UWR3P6	Universal Wear Ring 3 5-8 inch	10965402	5.00	0.35 *	13.40	300.00
BLNS	Bull Nose	12345678	5.00	0.33	0.00	300.00
Total			1,613.10	77.24		
* Not included in Total Length and Length Accumulation.						
Data: ROSECRANS_1\0001 GTET-DSNT-SDLT-BSAT-ACRT\IDLE						
Date: 28-Oct-17 10:53:06						







6	CALI	16	1 : 1200	20	CALI	0	0	CALI	20	BHVT	AHVT
	inches		ft		inches			inches			
0	Gamma API	150		20	Bit Size	0	0	Bit Size	20		
	api										

HALLIBURTON

Plot Time: 28-Oct-17 14:49:54
Plot Range: 290 ft to 3311.58 ft
Data: ROSECRANS_1\Well Based\DAQ-0001-004\
Plot File: \\LOCAL-ROSECRANS_1\0001 GTET-DSNT-SDLT-BSAT-ACRT\PORO\AHV Plot_INSITE_IQ

ANNULAR HOLE VOLUME PLOT

COMPANY	QUAIL OIL AND GAS		
WELL	ROSECRANS 1		
FIELD	UNNAMED		
COUNTY	COWLEY	STATE	KANSAS
HALLIBURTON		SPECTRAL DENSITY DUAL SPACED NEUTRON MICROLOG	