

HALLIBURTON

SPECTRAL DENSITY
DUAL SPACED NEUTRON
MICROLOG

COMPANY		OXY USA INC.	
WELL		CORRELL A-1	
FIELD		LEMON NW	
COUNTY		HASKELL	
STATE		KANSAS	
Permanent Datum		GL	
Log measured from		KB	
Drilling measured from		KB	
Date	19-Jul-11		
Run No.	2		
Depth - Driller	5587.00 ft		
Depth - Logger	4407.0 ft		
Bottom - Logged Interval	5522		
Top - Logged Interval	3400		
Casing - Driller	8.625 in @ 1821.0 ft		
Casing - Logger	1825.0 ft		
Bit Size	7.875 in		
Type Fluid in Hole	WATER BASED MUD		
Density	8.7 ppq	65.00	s/qt
PH	10.20 pH	7.2	cp/m
Source of Sample	FLOWLINE		
Rm @ Meas. Temperature	1.900 ohmm @ 75.00 degF		
Rmf @ Meas. Temperature	1.40 ohmm @ 75.00 degF		
Rmc @ Meas. Temperature	2.200 ohmm @ 75.00 degF		
Source Rmf	CALC	CALC	
Rm @ BHT	1.20 ohmm @ 123.0 degF		
Time Since Circulation	7.0 hr		
Time on Bottom	19-Jul-11 05:00		
Max. Rec. Temperature	123.0 degF @ 4407.0 ft		
Equipment	11230660	PV OK	
Recorded By	T. HARRIS		
Witnessed By	A. GARNER	B. KEMP	N. HAILEY

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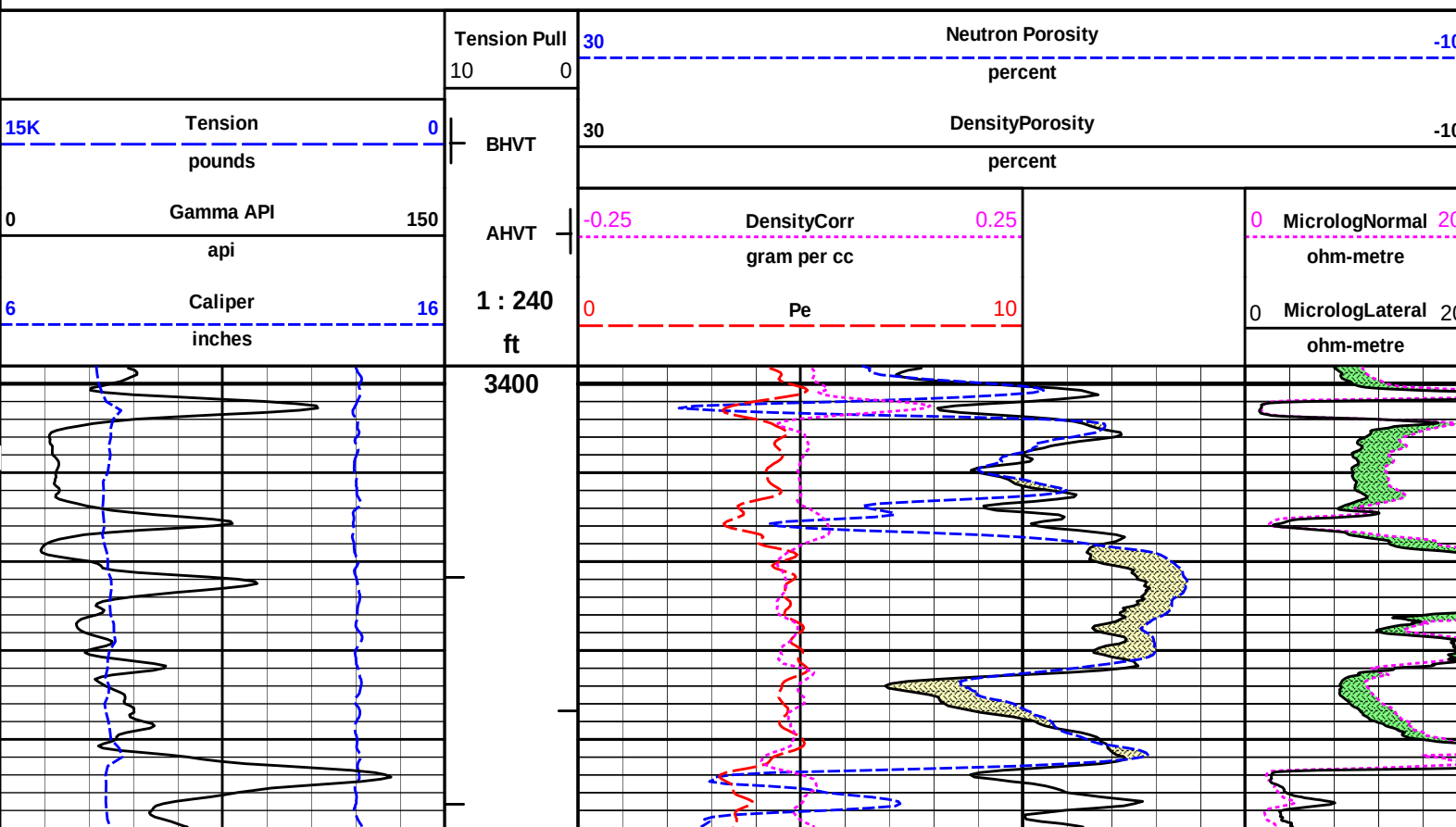
Service Ticket No.: 8334652				API Serial No.: 15-081-21955				PGM Version: WL INSITE R3.2.3 (Build 5)											
CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE								RESISTIVITY SCALE CHANGES											
Date		Sample No.						Type Log		Depth		Scale Up Hole		Scale Down Hole					
Depth-Driller																			
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-910-987		NA		1.5" S.O.		NA			
Rmc @ Meas. Temp.		@		@				ONE		MICROLOG		SLIM		ADJ.		NA			
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.		11013114		Serial No.		10939049		Serial No.		I15M94P73		Serial No.		10993115					
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		2		Log Type		GAM-GAM		Log Type		NEU-NEU					
Type		SCINT.						Source Type		Cs137		Source Type		Am241Be					
Length		8"		LSA [Y/N]		Y		Serial No.		20791B		Serial No.		382					
Distance to Source		9.4'		FWDA [Y/N]		N		Strength		1.5 Ci		Strength		15 Ci					
LOGGING DATA																			
GENERAL				GAMMA				ACOUSTIC				DENSITY				NEUTRON			

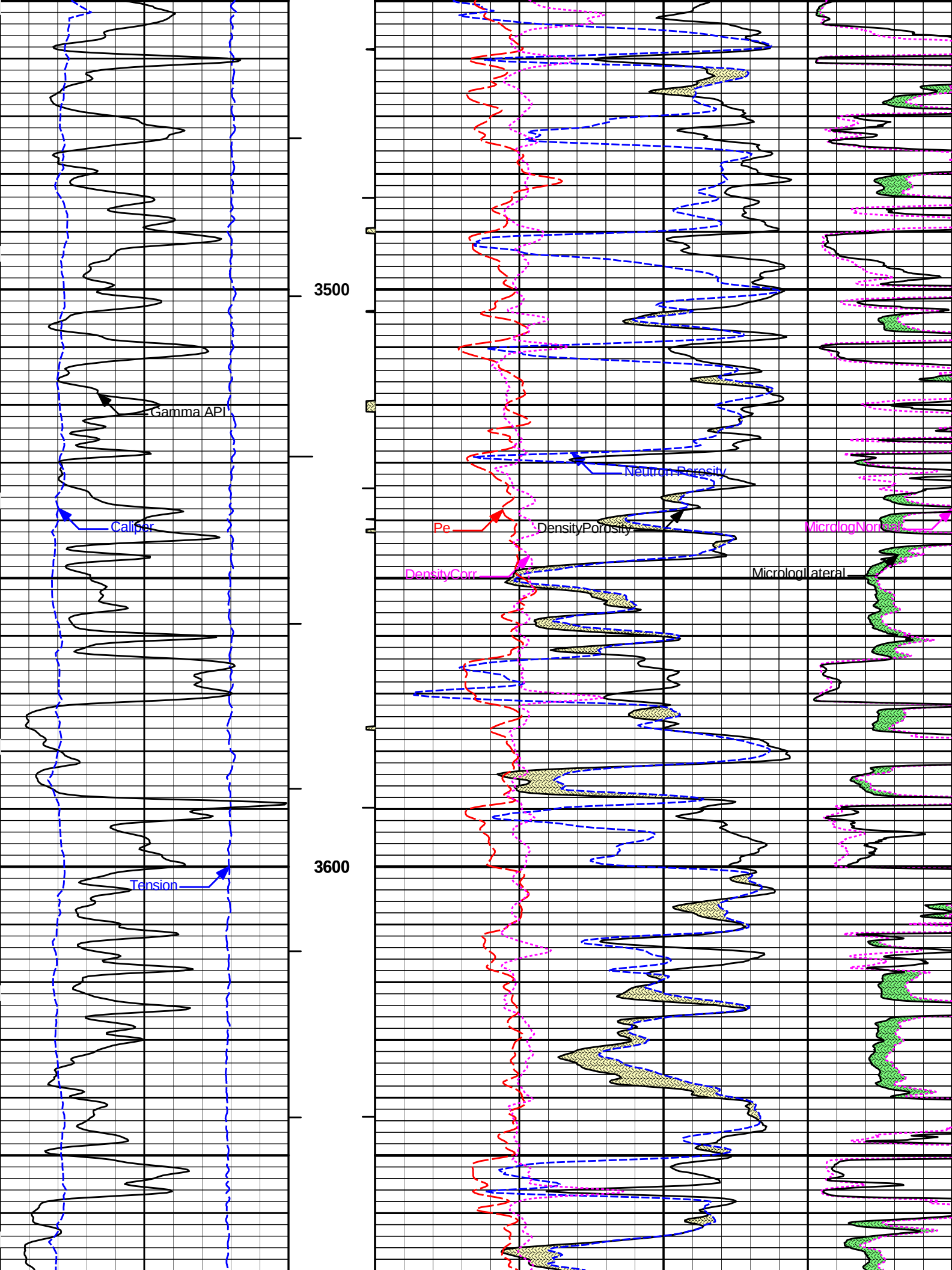
GENERAL				GAMMA				ACOUSTIC				DENSITY				NEUTRON			
Run	Depth		Speed	Scale		Scale		Matrix	Scale		Matrix	Scale		Matrix					
No.	From	To	ft/min	L	R	L	R		L	R		L	R						
ONE	TD	CSG	REC	0	150	40	140	47.6	30%	-10%	2.71	30%	-10%	LIME					
DIRECTIONAL INFORMATION																			
Maximum Deviation @								KOP @											
Remarks:																			
ACRt, BSAT, SDLT/DSNT/ML AND GAMMA ALL RAN IN COMBINATION; THIS IS THE FIRST RUN IN WELL.																			
ALL PRESENTATIONS AND LOG INTERVALS PER CUSTOMER REQUEST.																			
CHLORIDES: 1200 ppm																			
LOG SPLICED WITH FIRST RUN AT 4330'																			
CREW: NETTLES, SUMNER																			
THANK YOU FOR USING HALLIBURTON ENERGY SERVICES.																			
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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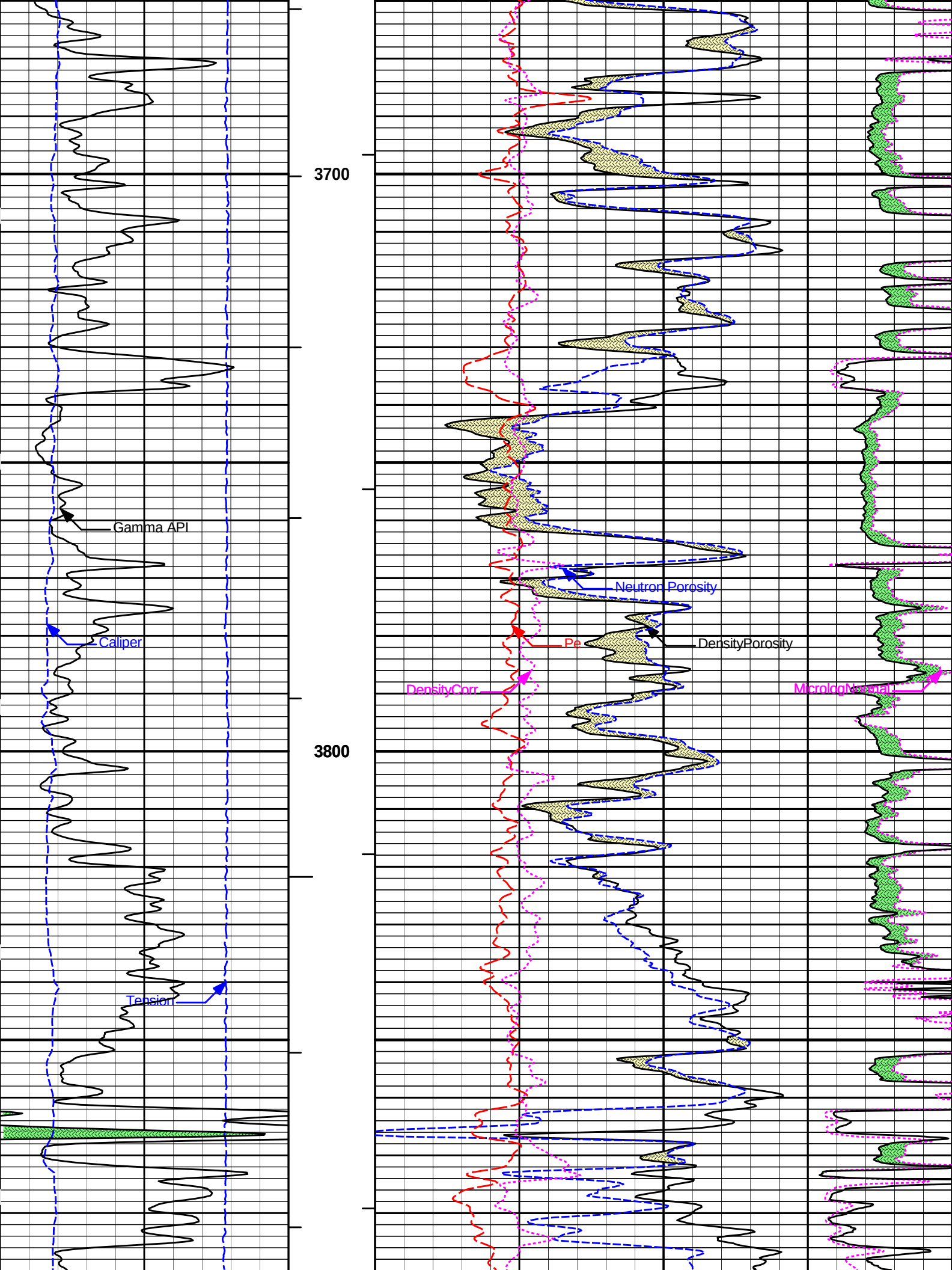
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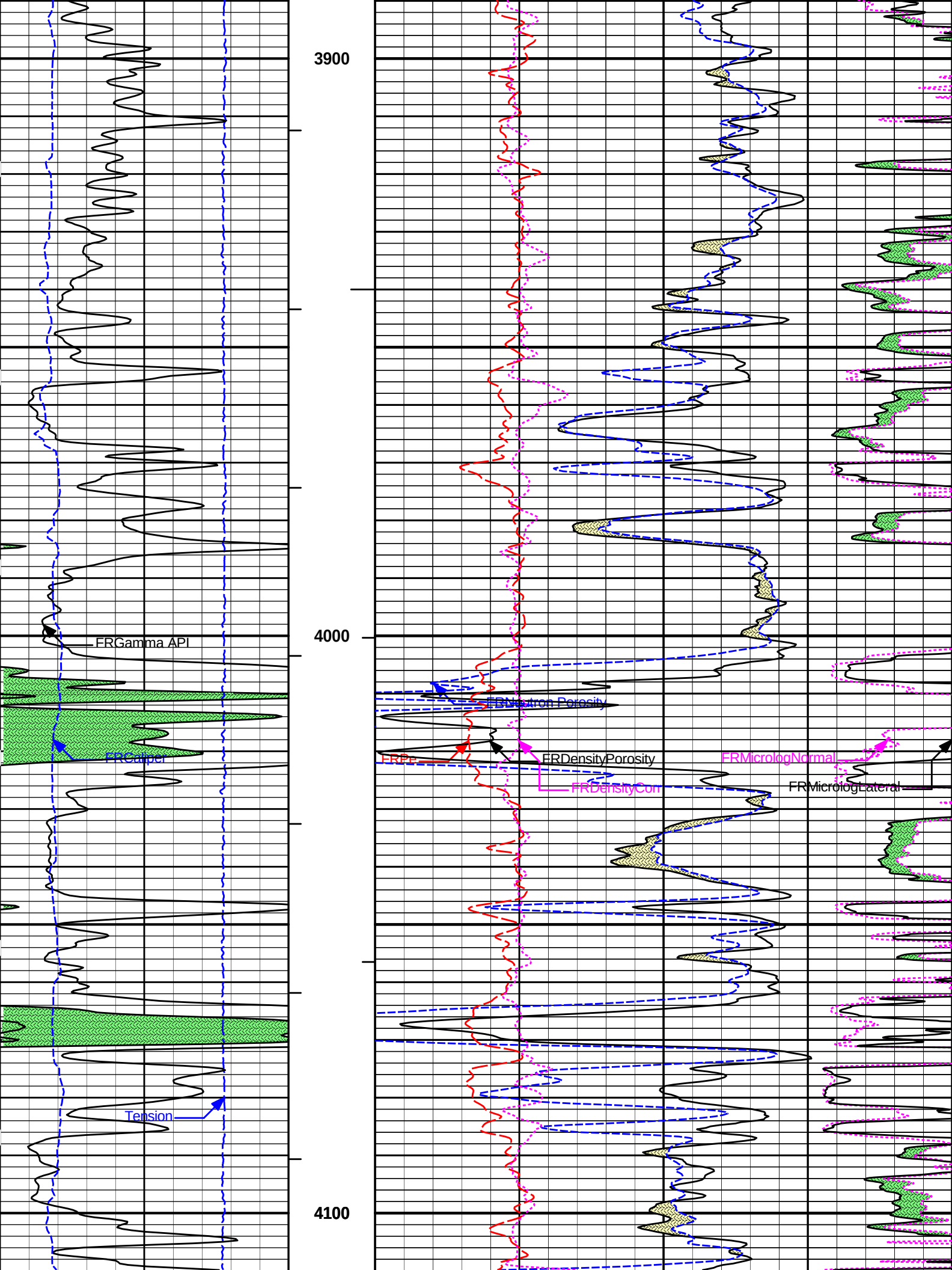
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Data: CORRELL_A_1\Well Based\MAIN_SPLICE
Plot File: \\PORO\1_PoroMicro_5_mainx

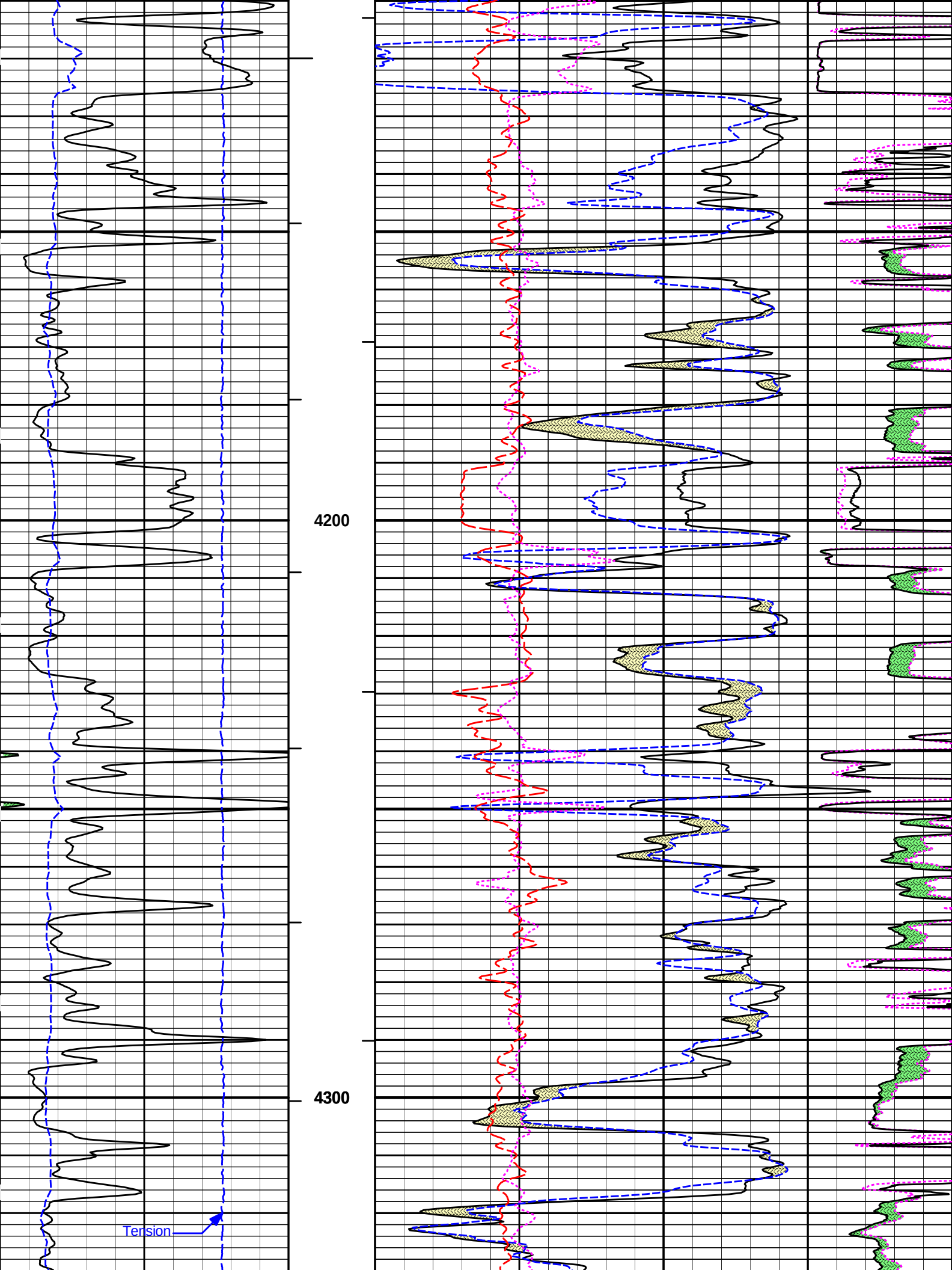
5 INCH MAIN LOG

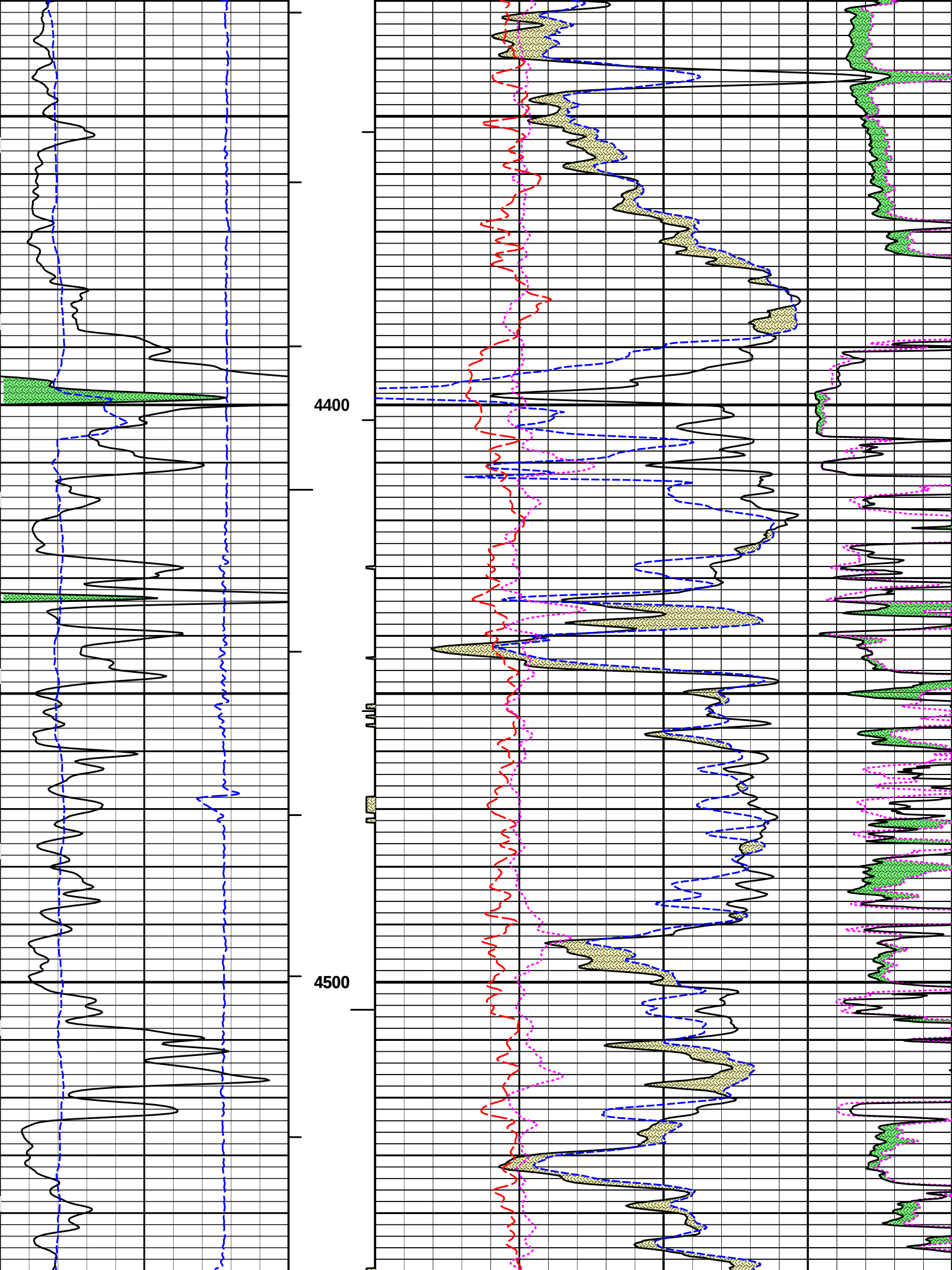


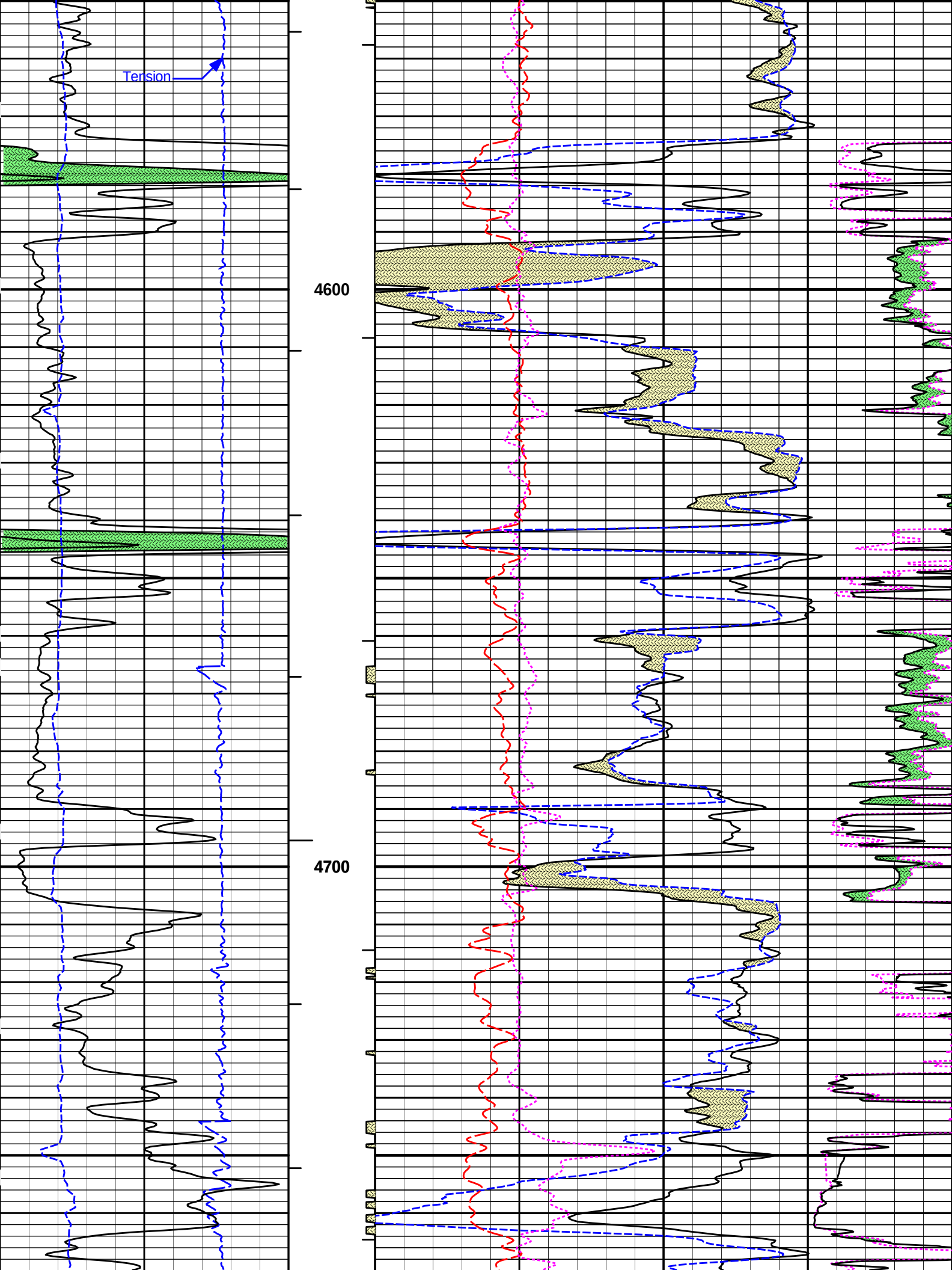


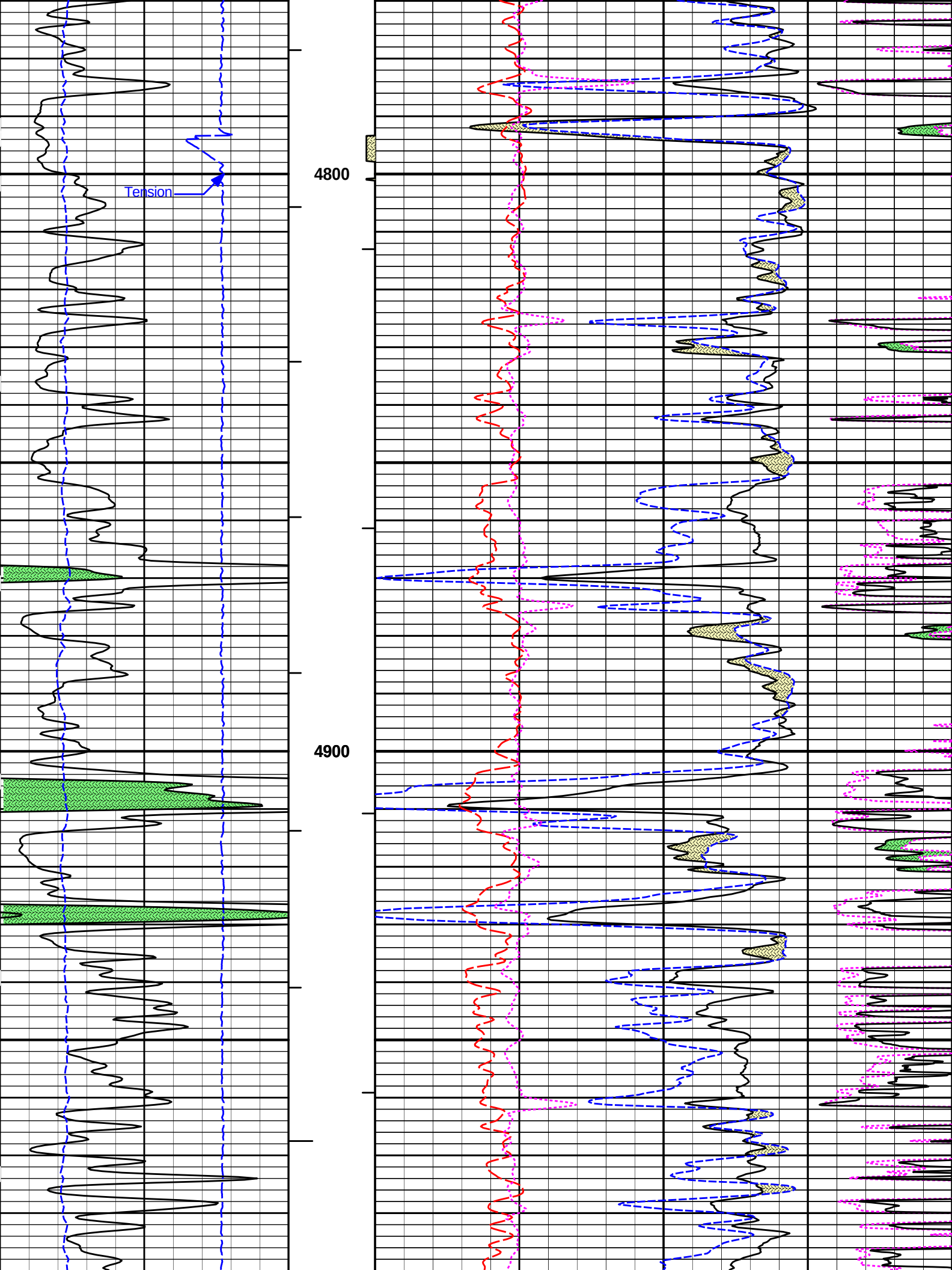


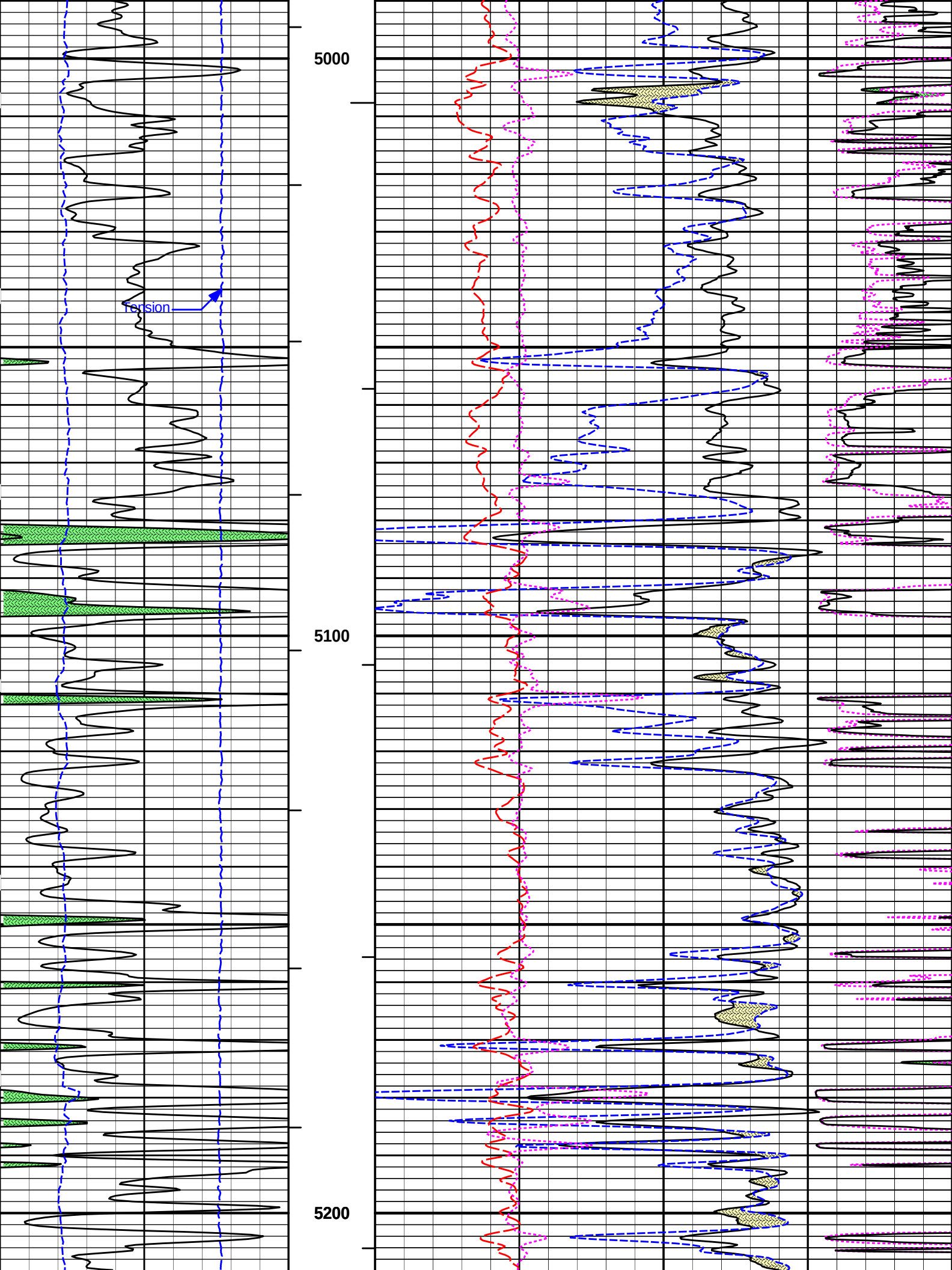


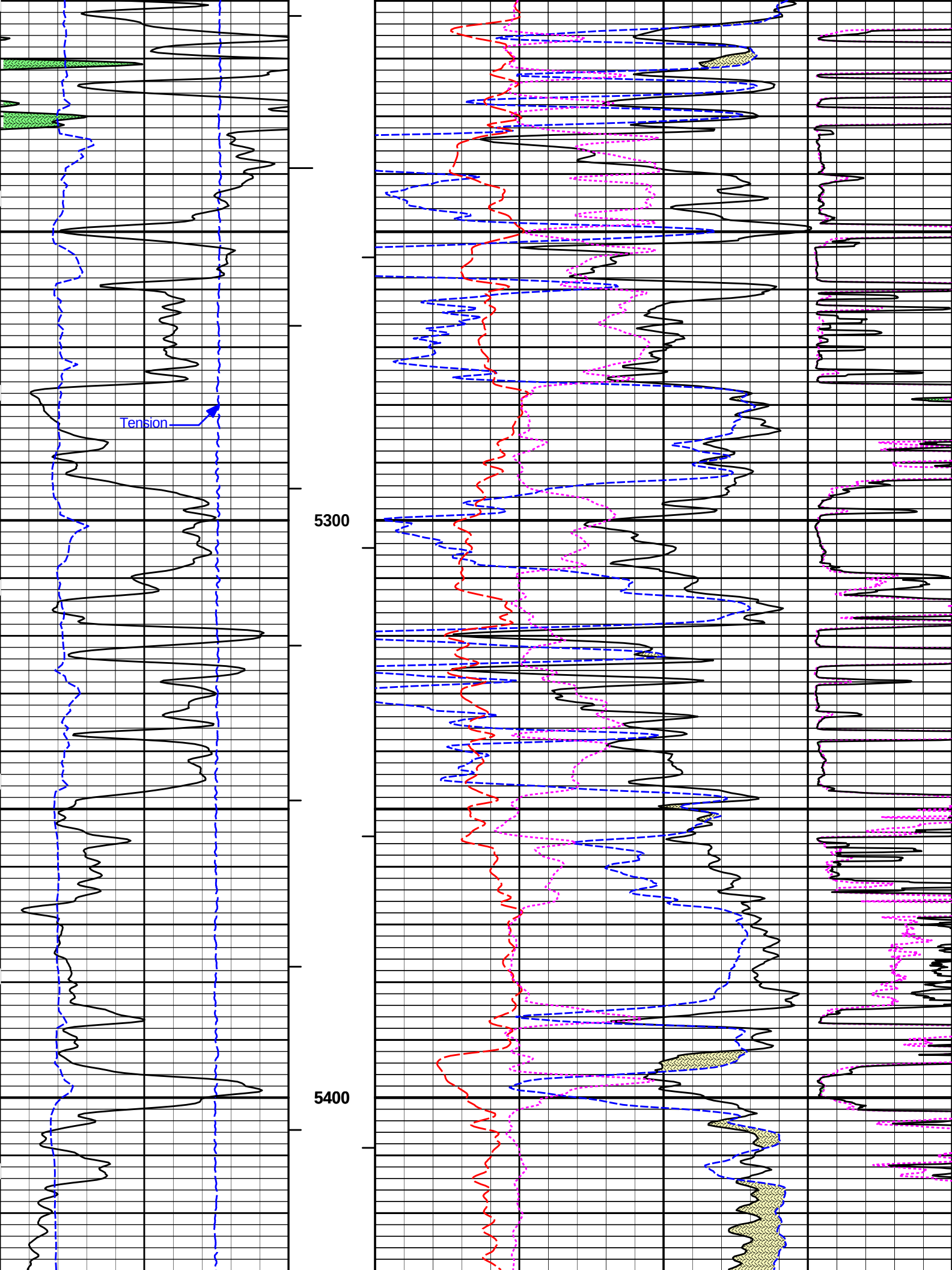


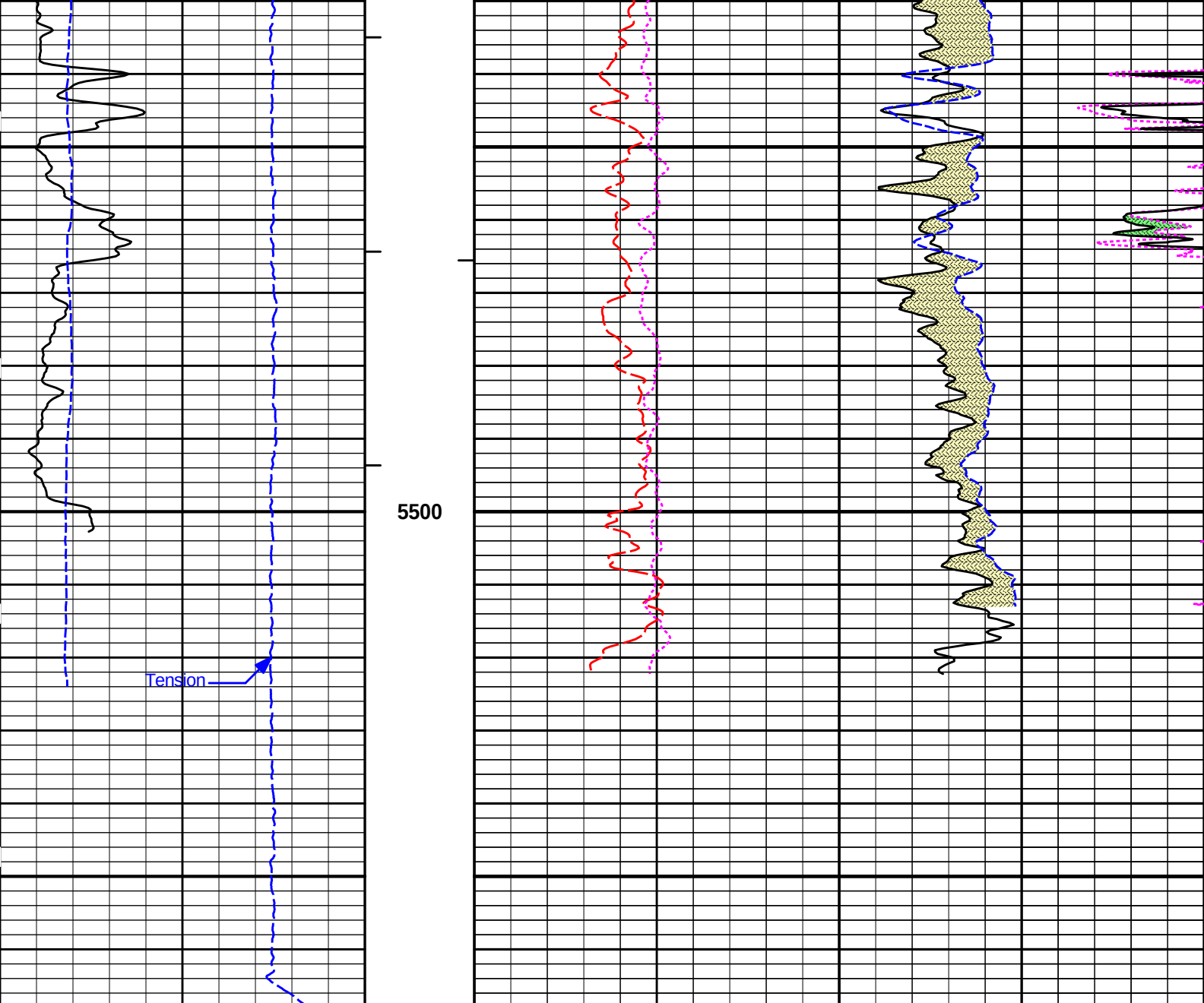












6	Caliper	16	1 : 240	0	Pe	10	0	MicrologLateral	20
	inches		ft					ohm-metre	
0	Gamma API	150	AHVT	-0.25	DensityCorr	0.25	0	MicrologNormal	20
	api				gram per cc			ohm-metre	
15K	Tension	0	BHVT	30	DensityPorosity				-10
	pounds				percent				
			Tension Pull	30	Neutron Porosity				-10
			10 0		percent				

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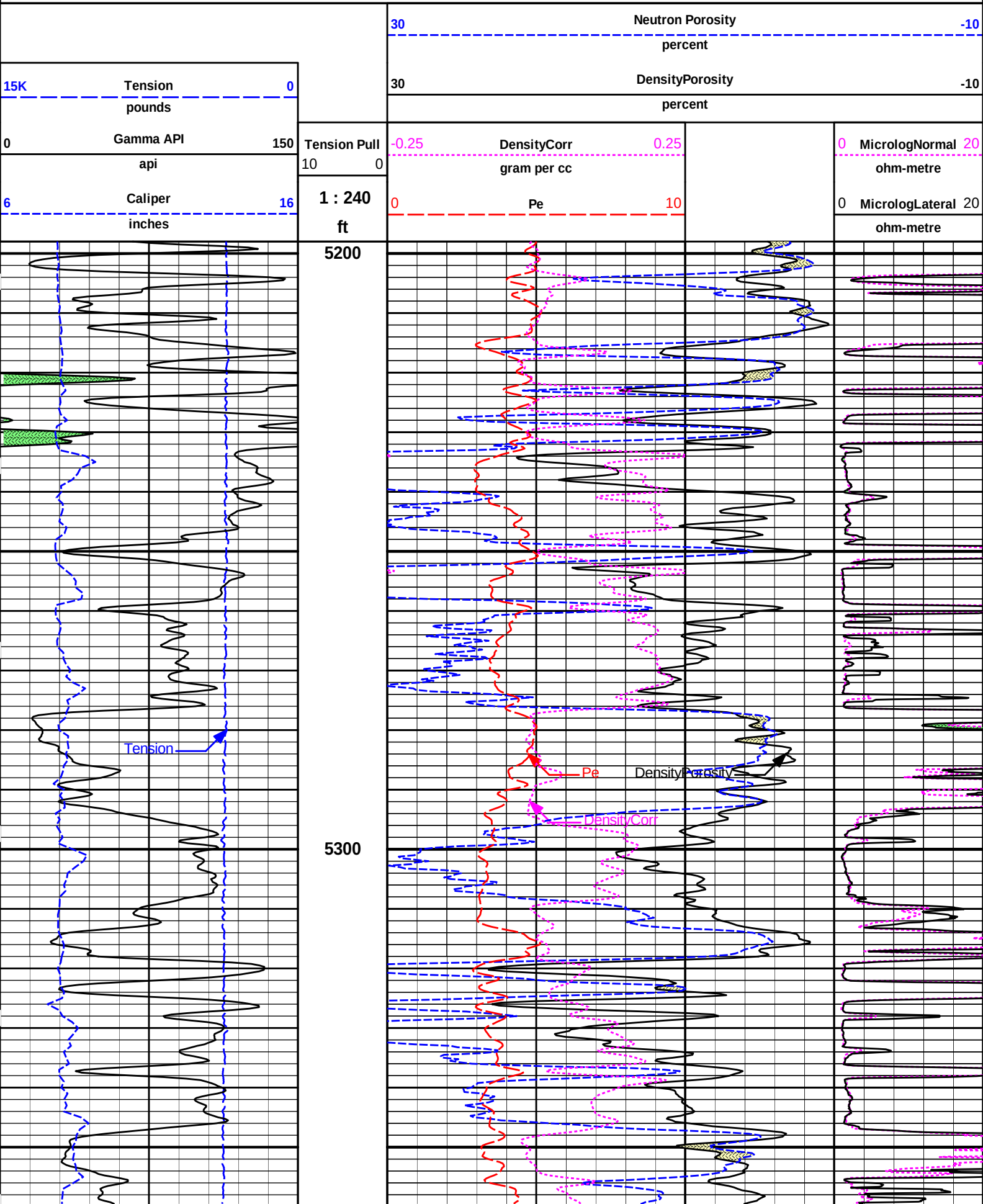
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Data: CORRELL_A_1\Well Based\MAIN_SPLICE\
Plot File: \\PORO\1_PoroMicro_5_mainx

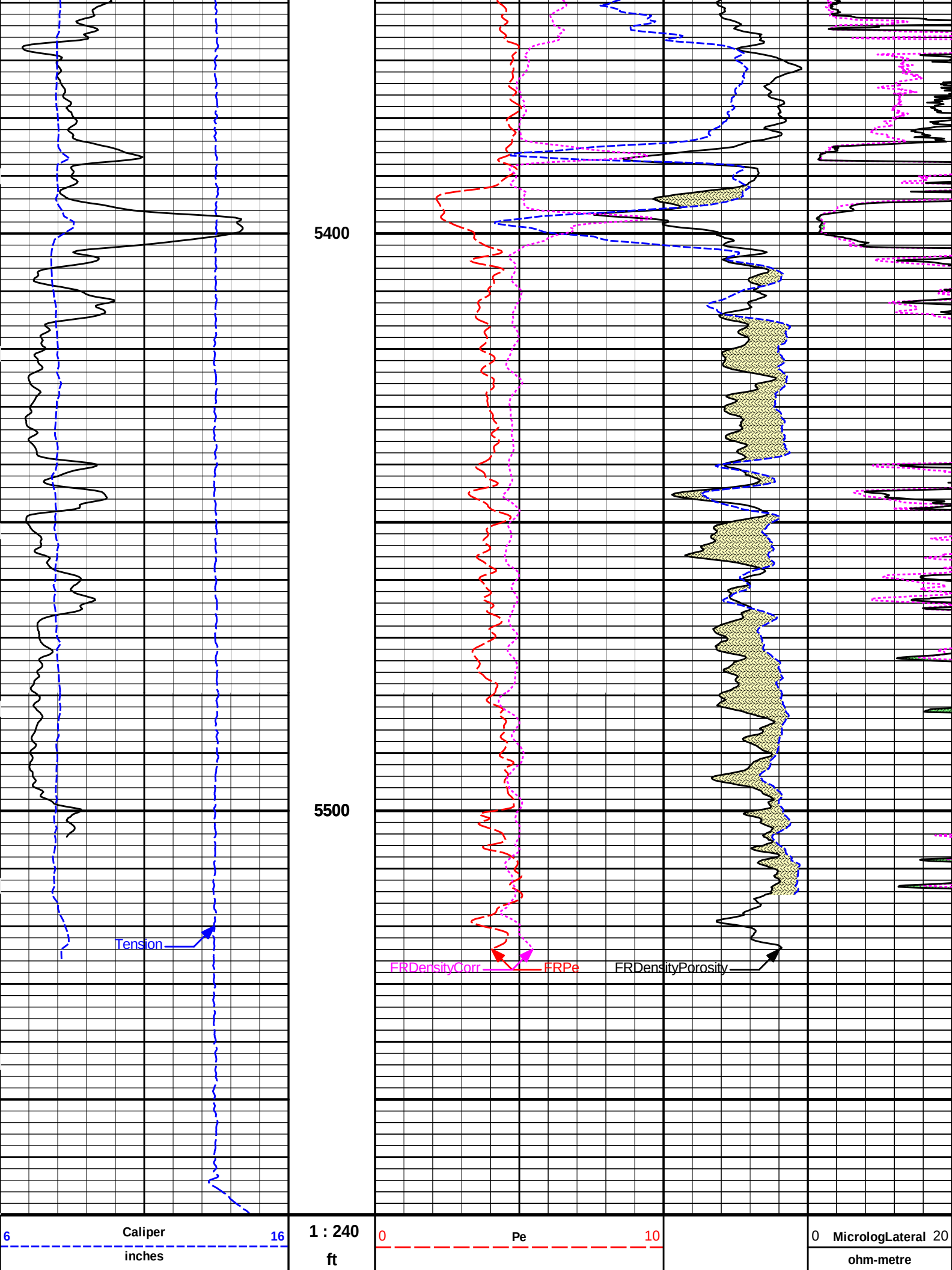
5 INCH MAIN LOG

HALLIBURTON

Plot Time: 20-Jul-11 10:31:51
Plot Range: 5198 ft to 5569.83 ft
Data: CORRELL_A_1\Well Based\DAQ-0002-003\
Plot File: \\PORO\1_PoroMicro_5_mainx

REPEAT SECTION





0	Gamma API	150	Tension Pull	-0.25	DensityCorr	0.25	0	MicrologNormal	20
	api		10	0	gram per cc			ohm-metre	
15K	Tension	0			DensityPorosity				-10
	pounds				percent				
					Neutron Porosity				-10
					percent				

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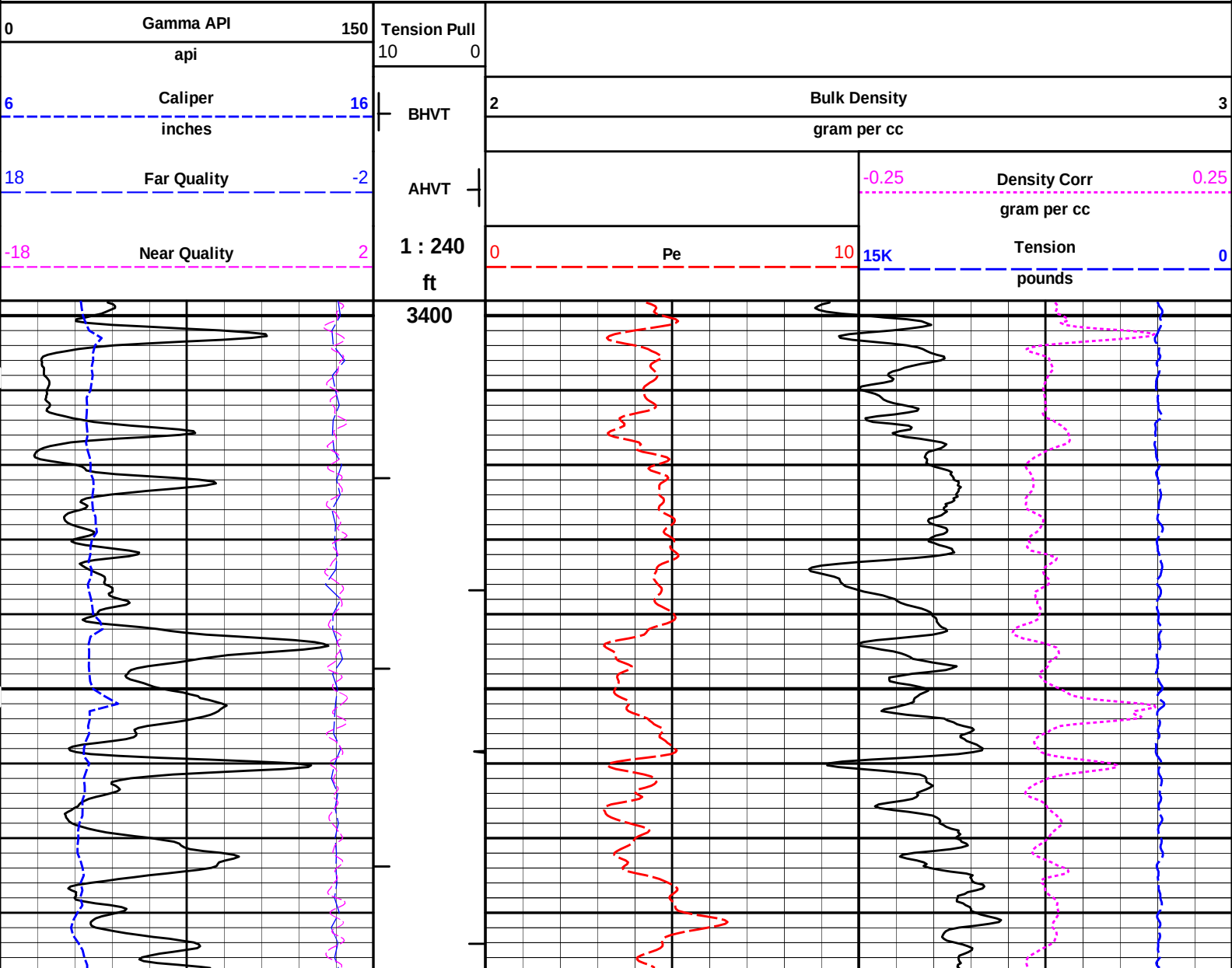
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Plot File: \\PORO\1_PoroMicro_5_rptx

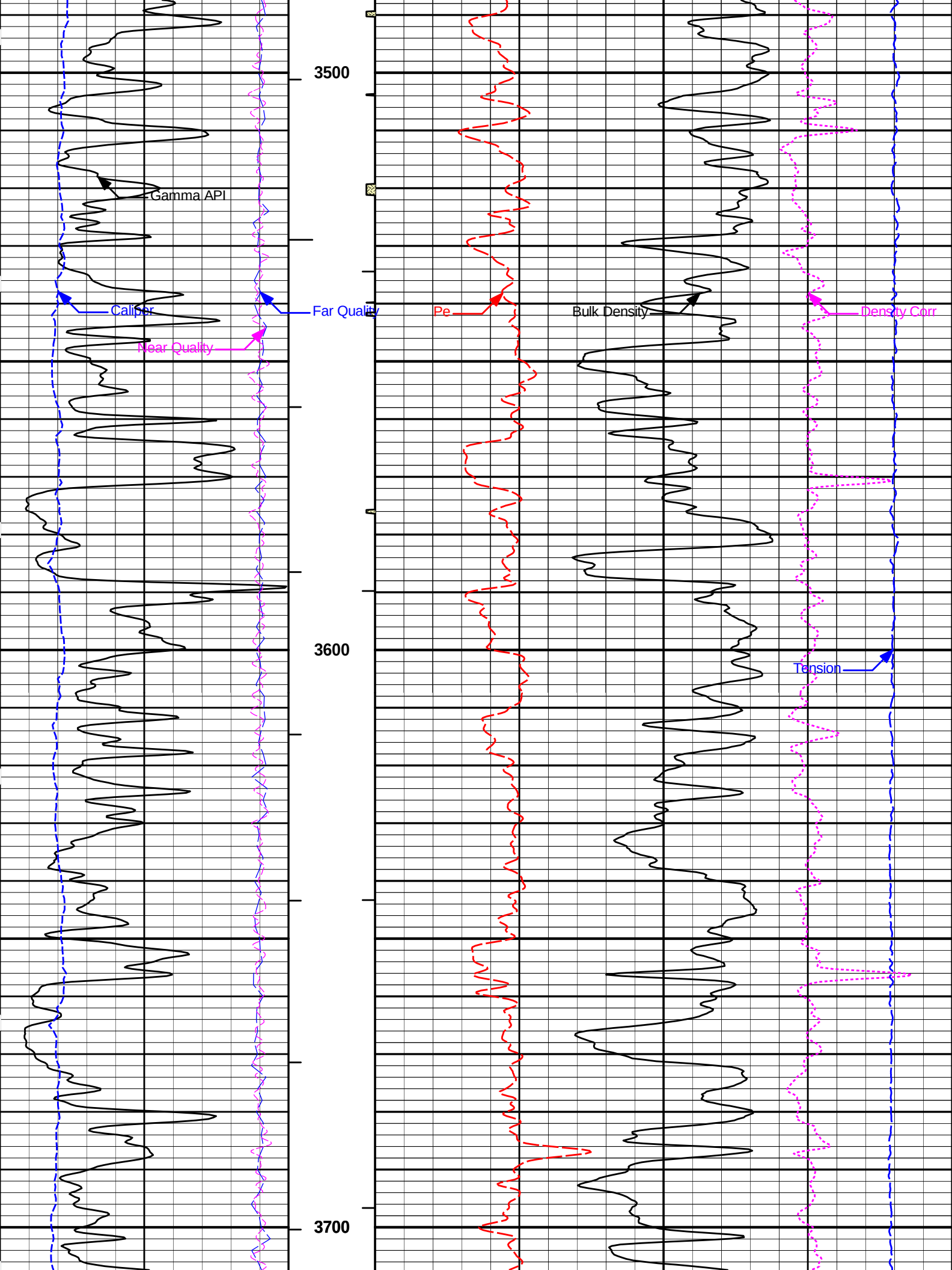
REPEAT SECTION

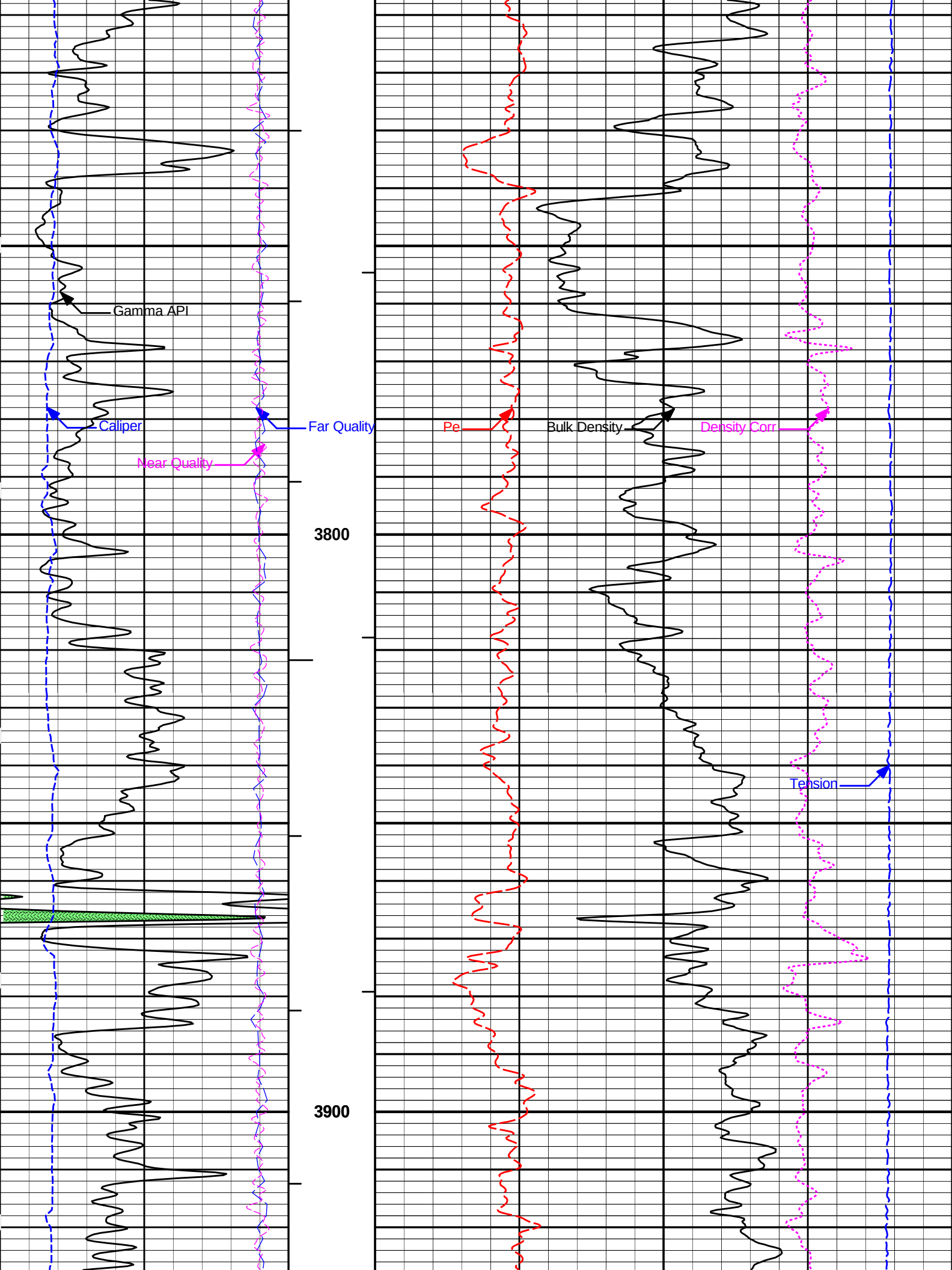
HALLIBURTON

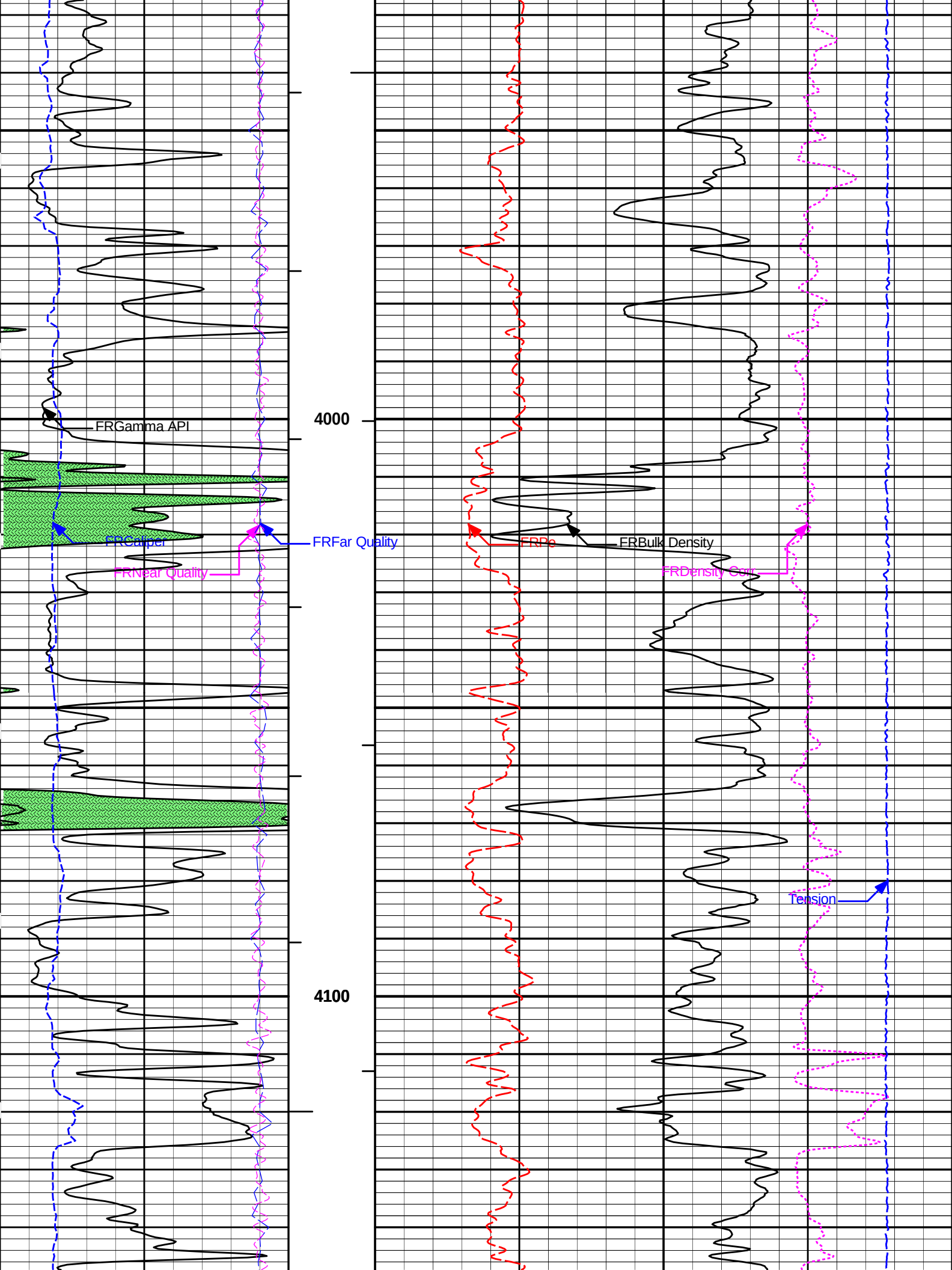
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Plot Range: 3398 ft to 5568 ft
Data: CORRELL_A_1\Well Based\MAIN_SPLICE\
Plot File: \\PORO\1_Bulk_5_mainx

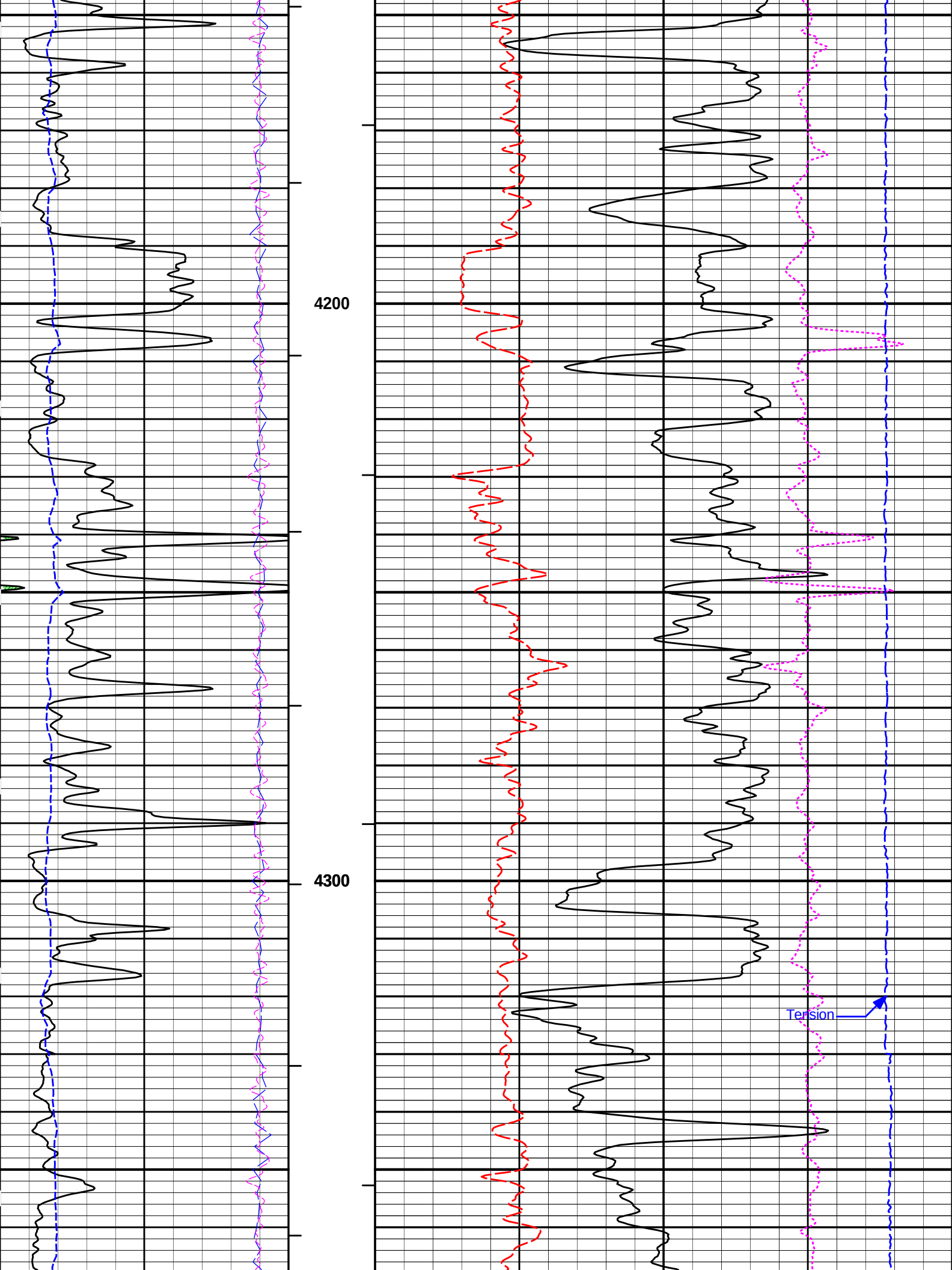
5 INCH MAIN LOG

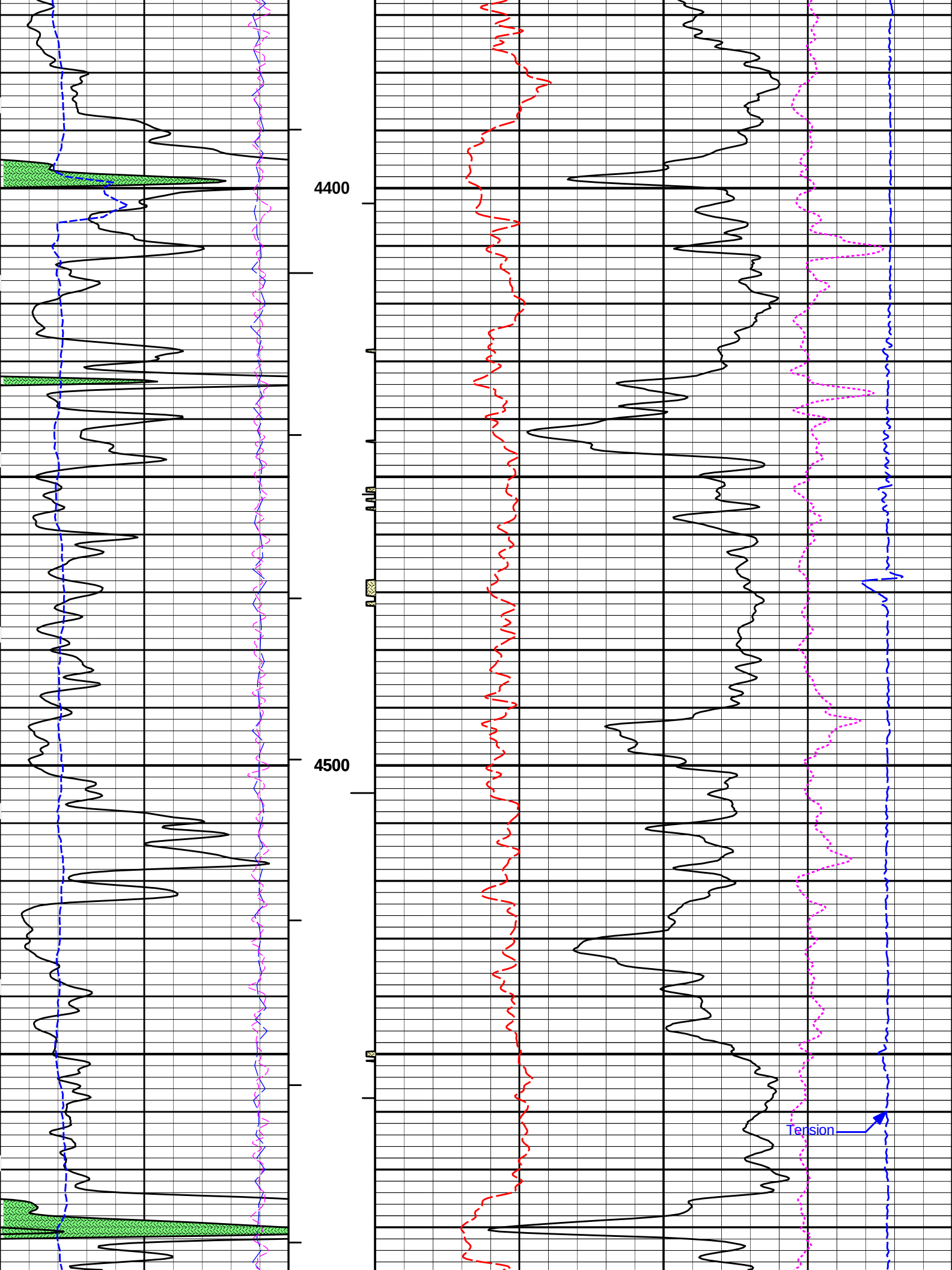


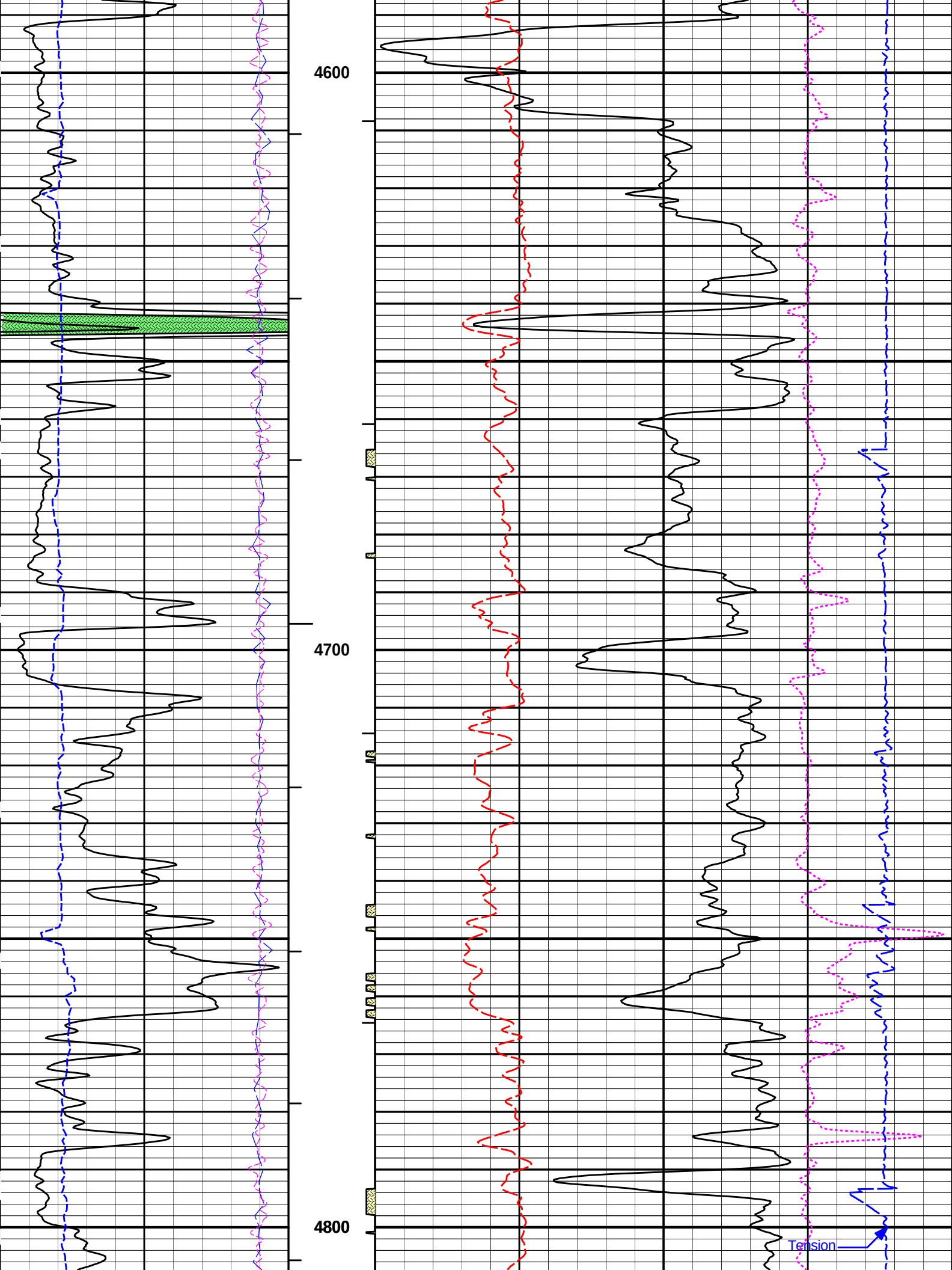


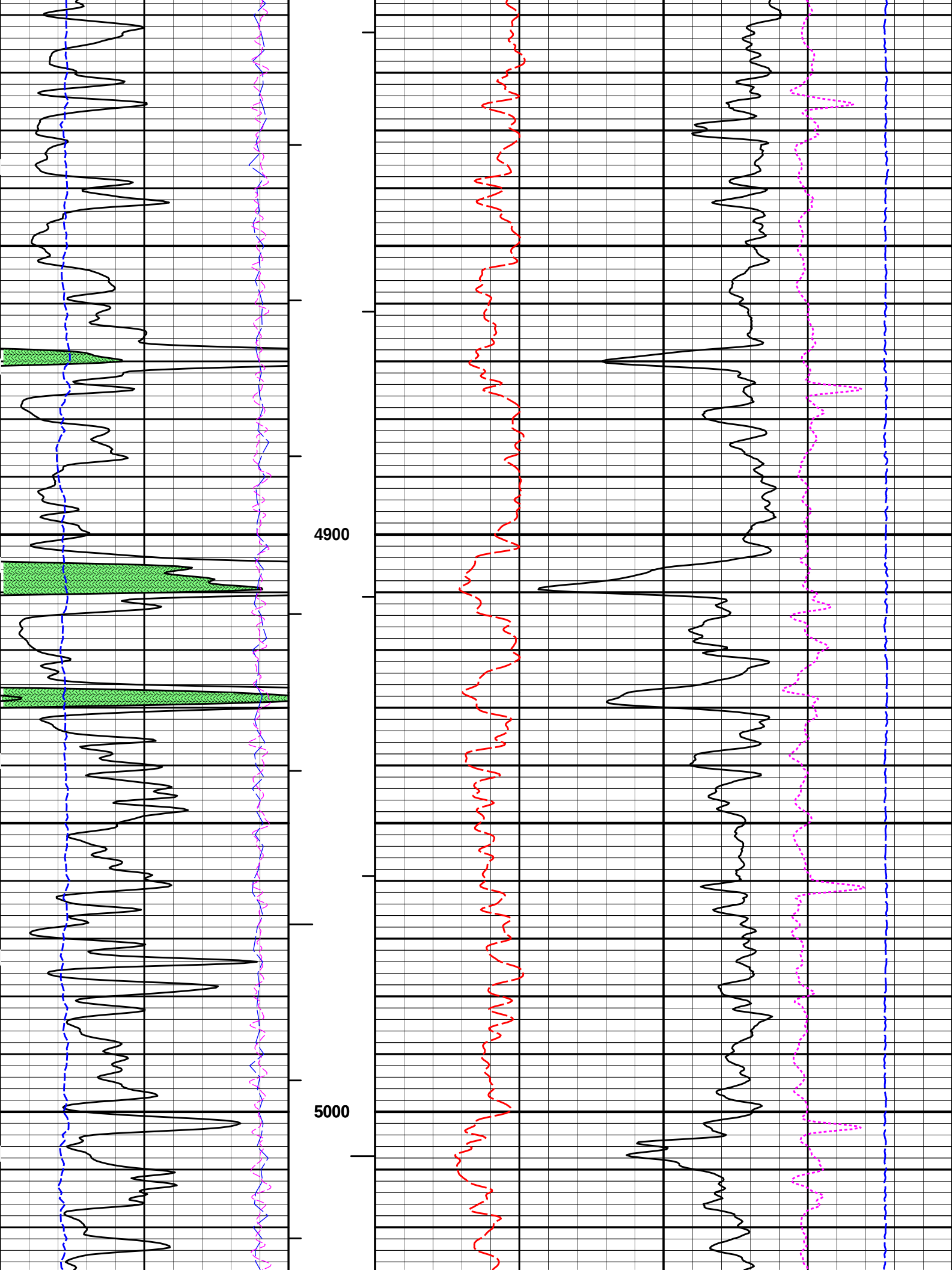


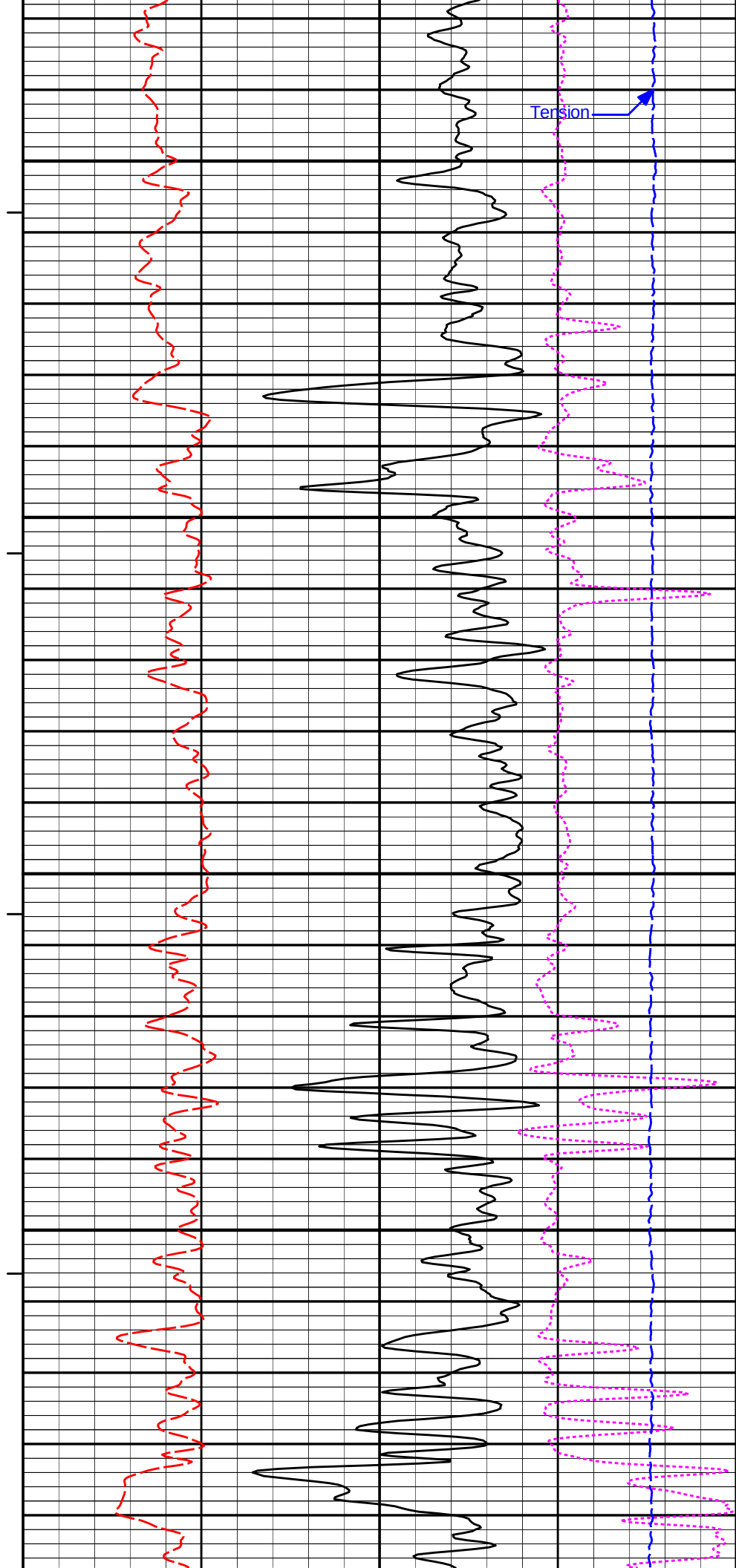
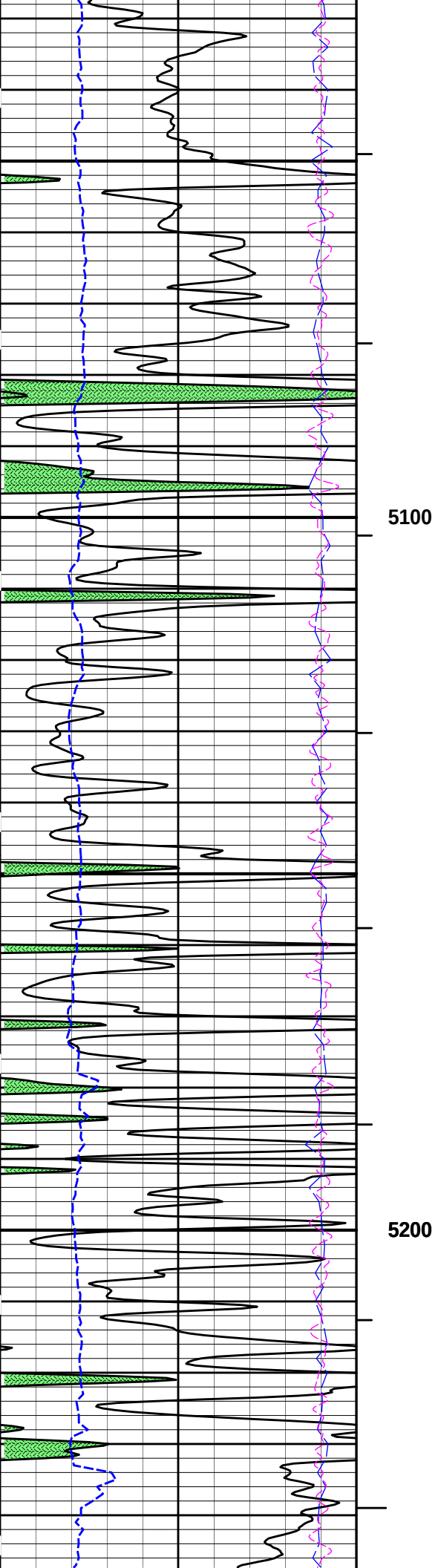


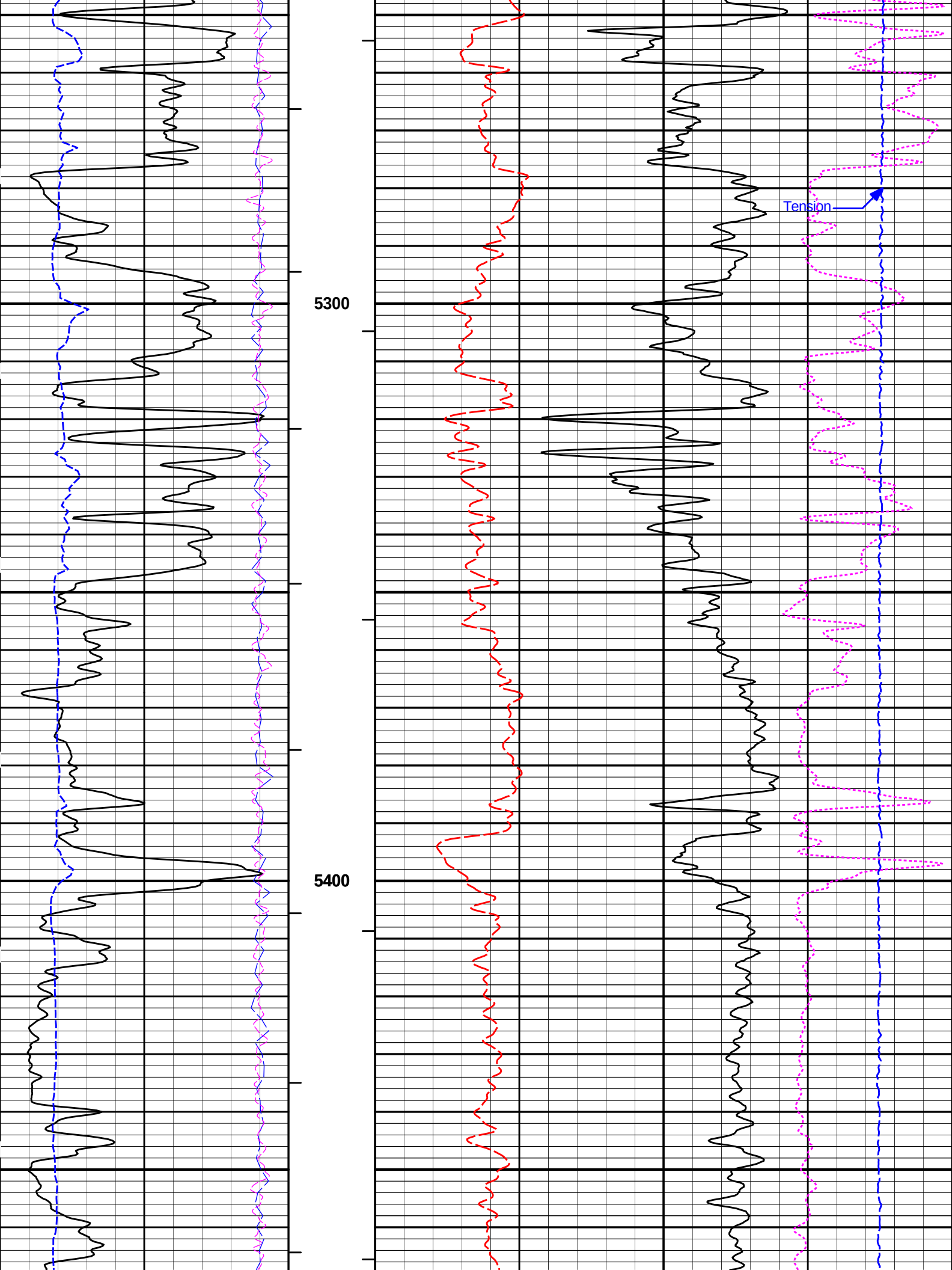


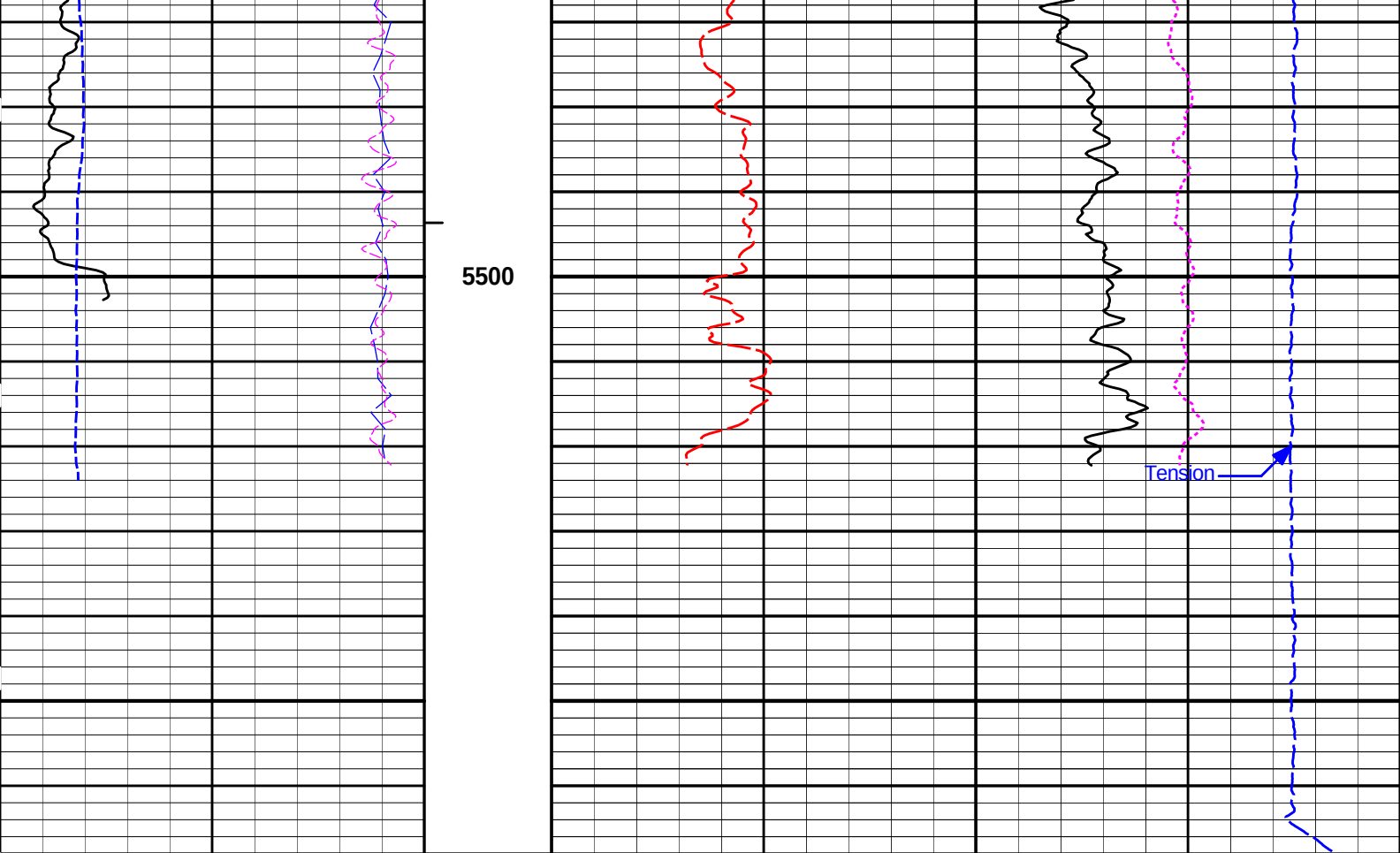












-18	Near Quality	2	1 : 240 ft	0	Pe	10	15K	Tension	0
18	Far Quality	-2	AHVT					pounds	
6	Caliper	16	BHVT	2	Bulk Density				3
	inches				gram per cc				
0	Gamma API	150	Tension Pull						
	api		10 0						

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Plot Time: 20-Jul-11 10:31:56
Plot Range: 3398 ft to 5568 ft
Data: CORRELL_A_1\Well Based\MAIN_SPLICE\
Plot File: \\PORO\1_Bulk_5_mainx

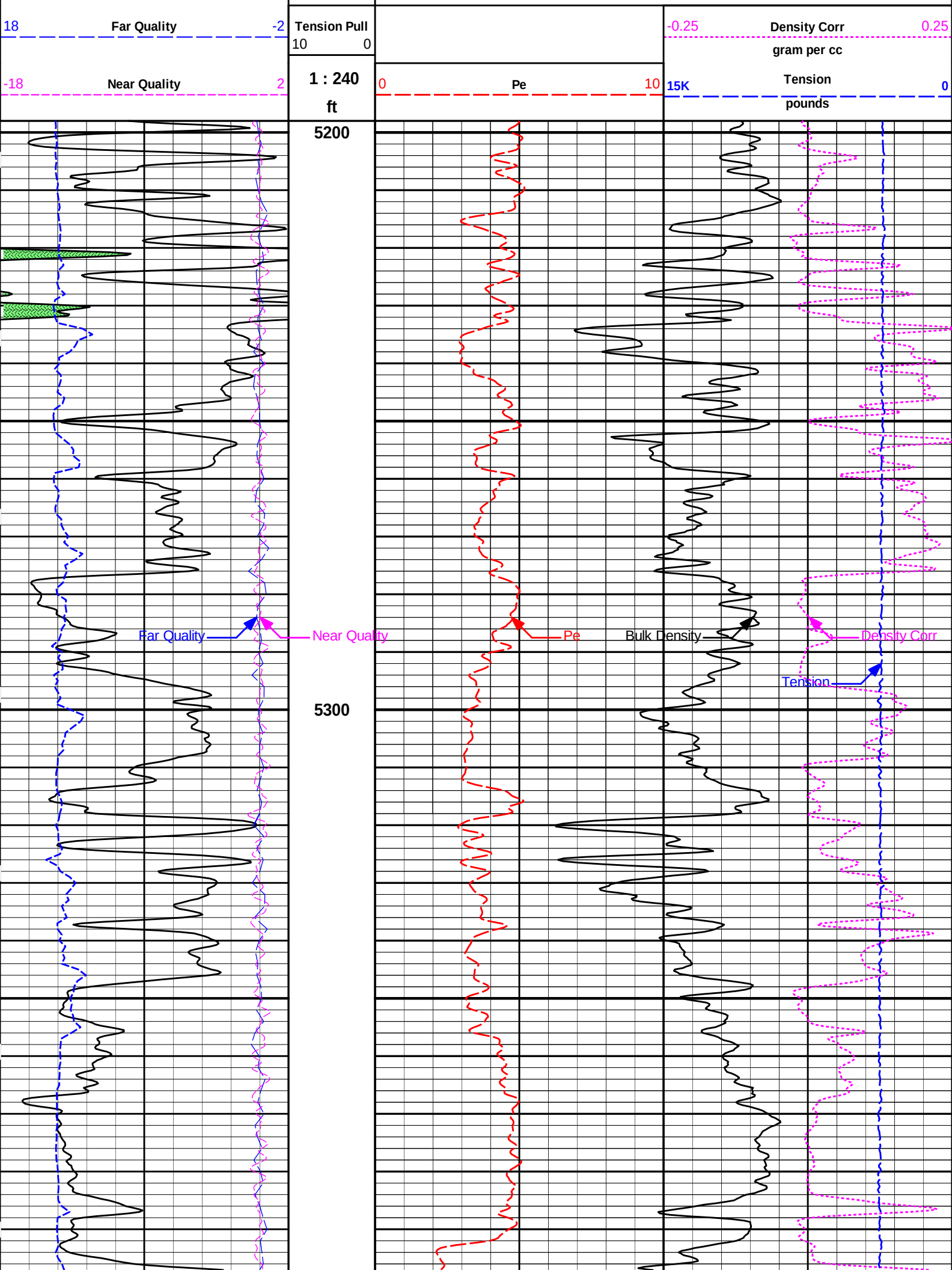
5 INCH MAIN LOG

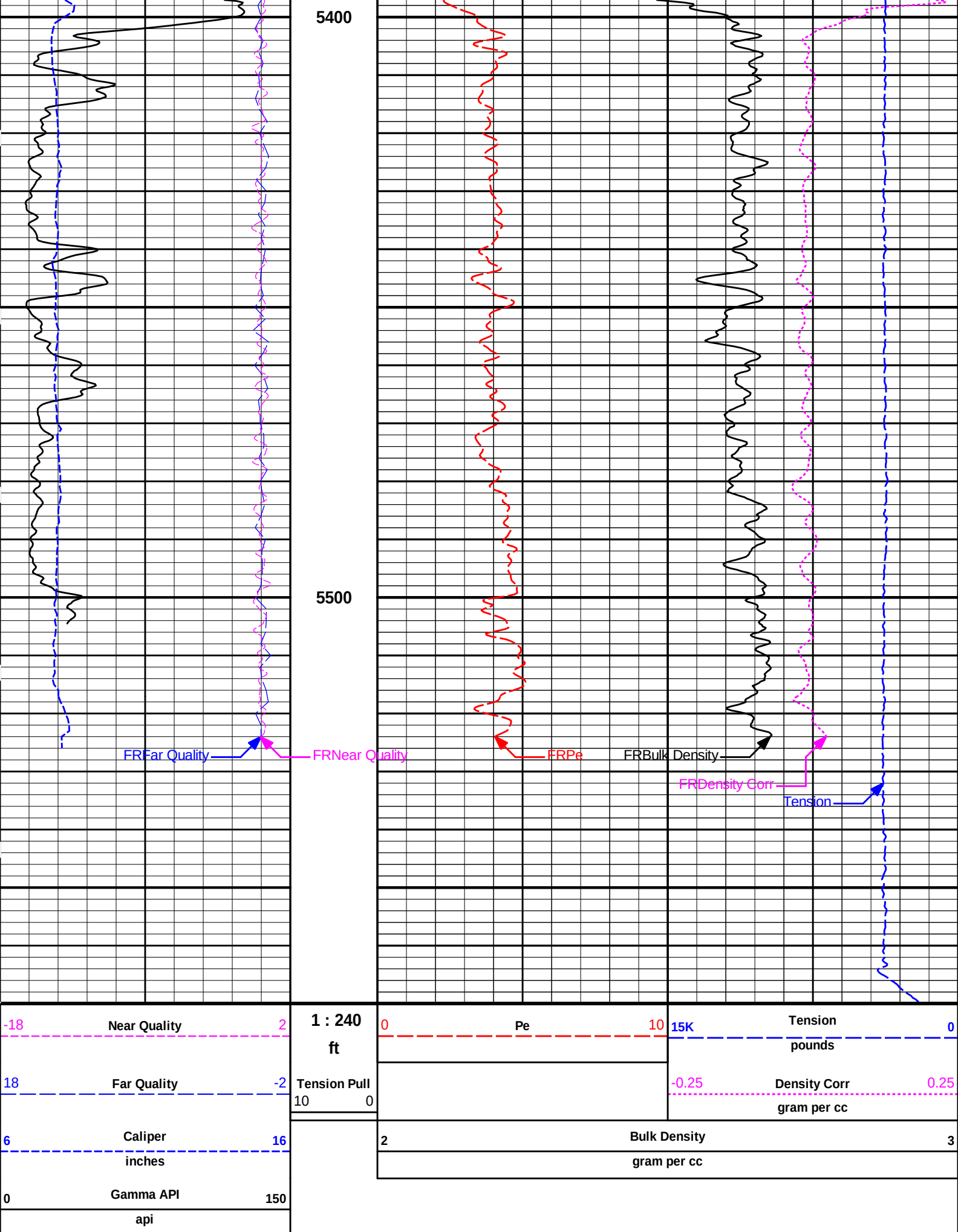
HALLIBURTON

Plot Time: 20-Jul-11 10:31:57
Plot Range: 5198 ft to 5569.83 ft
Data: CORRELL_A_1\Well Based\DAQ-0002-003\
Plot File: \\PORO\1_Bulk_5_rptx

REPEAT SECTION

0	Gamma API	150			
	api				
6	Caliper	16	2	Bulk Density	3
	inches			gram per cc	





REPEAT SECTION

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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	8.700	ppg
	SHARED	WAGT	Weighting Agent	Barite	
	SHARED	BSAL	Borehole salinity	1200.00	ppm
	SHARED	FSAL	Formation Salinity NaCl	0.00	ppm
	SHARED	KPCT	Percent K in Mud by Weight?	0.00	%
	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	ST	Surface Temperature	75.0	degF
	SHARED	TD	Total Well Depth	5587.00	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	Temperature Master Tool	NONE	
	SHARED	BHSM	Borehole Size Master Tool	NONE	
	Rwa / CrossPlot	XPOK	Process Crossplot?	Yes	
	Rwa / CrossPlot	FCHO	Select Source of F	Automatic	
	Rwa / CrossPlot	AFAC	Archie A factor	0.6200	
	Rwa / CrossPlot	MFAC	Archie M factor	2.1500	
	Rwa / CrossPlot	RMFR	Rmf Reference	0.10	ohmm
	Rwa / CrossPlot	TMFR	Rmf Ref Temp	75.00	degF
	Rwa / CrossPlot	RWA	Resistivity of Formation Water	0.05	ohmm
	Rwa / CrossPlot	ADP	Use Air Porosity to calculate CrossplotPhi	No	
	GTET	GROK	Process Gamma Ray?	Yes	
	GTET	GRSO	Gamma Tool Standoff	0.000	in
	GTET	GEOK	Process Gamma Ray EVR?	No	
	GTET	TPOS	Tool Position	Centered	
	DSNT	DNOK	Process DSN?	Yes	
	DSNT	DEOK	Process DSN EVR?	No	
	DSNT	NLIT	Neutron Lithology	Limestone	
	DSNT	DSNO	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.250	in
	DSNT	DNTP	Temperature Correction Type	None	
	DSNT	DPRS	DSN Pressure Correction Type	None	
	DSNT	SHCO	View More Correction Options	No	

DSNT	UTVD	Use TVD for Gradient Corrections?	No	
DSNT	LHWT	Logging Horizontal Water Tank?	No	
SDLT	DNOK	Process Density?	Yes	
SDLT	DNOK	Process Density EVR?	No	
SDLT	CB	Logging Calibration Blocks?	No	
SDLT	SPVT	SDLT Pad Temperature Valid?	Yes	
SDLT	DTWN	Disable temperature warning	No	
SDLT	DMA	Formation Density Matrix	2.710	g/cc
SDLT	DFL	Formation Density Fluid	1.000	g/cc
SDLT	CLOK	Process Caliper Outputs?	Yes	
SDLT	MLOK	Process MicroLog Outputs?	Yes	
BSAT	MBOK	Compute BCAS Results?	Yes	
BSAT	FLLO	Frequency Filter Low Pass Value?	5000	Hz
BSAT	FLHI	Frequency Filter High Pass Value?	27000	Hz
BSAT	DTFL	Delta -T Fluid	189.00	uspf
BSAT	DTMT	Delta -T Matrix Type	Limestone 47.5	
BSAT	DTSH	Delta -T Shale	100.00	uspf
BSAT	SPEQ	Acoustic Porosity Equation	Wylie	
ACRt	RTOK	Process ACRt?	Yes	
ACRt	MNSO	Minimum Tool Standoff	1.50	in
ACRt	TCS1	Temperature Correction Source	FP Lwr & FP Up	
ACRt	TPOS	Tool Position	Free Hanging	
ACRt	RMOP	Rmud Source	Mud Cell	
ACRt	RMIN	Minimum Resistivity for MAP	0.20	ohmm
ACRt	RMIN	Maximum Resistivity for MAP	200.00	ohmm
ACRt	THQY	Threshold Quality	0.50	
BOTTOM				
Data: CORRELL_A_110001 BLACK_QUAD_BSAT1004 19-Jul-11 05:19 Up @4408.5f				Date: 19-Jul-11 06:45:05

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name:

GTET - 11013114

Engineer:

T. HARRIS

Software Version:

WL INSITE R3.2.3 (Build 5)

Reference Calibration Date:

26-Jun-11 01:37:50

Calibration Date:

18-Jul-11 09:18:26

Calibration Version:

1

Calibrator Source S/N: 150

Calibrator API Reference:225.00 api

Equivalent Calibrator API Reference:228.9 api

Measurement	Measured	Calibrated	Units
Background	25.2	23.4	api
Background + Calibrator	268.3	248.4	api
Calibrator	223.1	225.0	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name:

GTET - 11013114

Engineer:

T. HARRIS

Software Version:

WL INSITE R3.2.3 (Build 5)

Reference Calibration Date:

18-Jul-11 09:18:26

Calibration Date:

20-Jul-11 06:21:55

Calibration Version:

1

Calibrator Source S/N: 150

Calibrator API Reference:225.00 api

Equivalent Calibrator API Reference:228.9 api

Field Verification	Shop	Field	Units
Background	23.4	32.1	api
Background + Calibrator	248.4	248.8	api
Calibrator	225.0	216.7	api

Shop	Field	Difference	Tolerance
225.0	216.7	8.3	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name:	DSNT - 10993115	Reference Calibration Date:	24-May-11 12:45:30
Engineer:	J.COTHREN	Calibration Date:	22-Jun-11 11:00:54
Software Version:	WL INSITE R3.2.3 (Build 5)	Calibration Version:	1

Logging Source S/N: DSN-382
 Tank Serial Number: PVOK
 Reference value assigned to Tank: 56.100
 Snow Block S/N: 592_PV
 Calibration Tank Water Temperature: 85 degF
 Min. Tool Housing Outside Diameter: 3.625 in

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

Gain:	0.993	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):	0.2355	0.2358	0.0002	+/- 0.0020
Calibrated Ratio:	10.55	10.56	0.008	+/- 0.050

VERIFIER		
Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0858	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 - 10993115	Reference Calibration Date:	22-Jun-11 11:00:54
Engineer:	T. HARRIS	Calibration Date:	20-Jul-11 06:24:43
Software Version:	WL INSITE R3.2.3 (Build 5)	Calibration Version:	1

Logging Source S/N: DSN-382
 Snow Block S/N: 592_PV

NEUTRON FIELD-CHECK SUMMARY				
	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0858	0.0856	-0.0003	+/- 0.0150

PASS/FAIL SUMMARY	
Block Change Check:	Passed

Snow Block Stat Check:		Passed		
Temperature Check:		Passed		
SPECTRAL DENSITY SHOP CALIBRATION				
Tool Name:	SDLT - I15M94P73	Reference Calibration Date:	12-Apr-11 11:19:08	
Engineer:	J.COTHREN	Calibration Date:	22-Jun-11 12:28:40	
Software Version:	WL INSITE R3.2.3 (Build 5)	Calibration Version:	1	
Logging Source S/N: 20791B				
Aluminum Block S/N: 63074		Density: 2.589g/cc	Pe: 3.140	
Magnesium Block S/N: 632386		Density: 1.683g/cc	Pe: 2.594	
DENSITY CALIBRATION SUMMARY				
Measurement	Previous Value	New Value	Control Limit	
Near Bar Gain	0.9649	1.0477	0.90 - 1.10	
Near Dens Gain	0.9709	1.0254	0.90 - 1.10	
Near Peak Gain	0.9616	1.0314	0.90 - 1.10	
Near Lith Gain	0.9393	1.0113	0.90 - 1.10	
Far Bar Gain	0.9944	1.0070	0.90 - 1.10	
Far Dens Gain	0.9865	0.9955	0.90 - 1.10	
Far Peak Gain	0.9791	0.9918	0.90 - 1.10	
Far Lith Gain	0.9614	0.9640	0.90 - 1.10	
Near Bar Offset	0.3736	-0.3920	NONE	
Near Dens Offset	0.2975	-0.1869	NONE	
Near Peak Offset	0.3459	-0.2439	NONE	
Near Lith Offset	0.5102	-0.1117	NONE	
Far Bar Offset	0.0467	-0.0661	NONE	
Far Dens Offset	0.1134	0.0319	NONE	
Far Peak Offset	0.1373	0.0239	NONE	
Far Lith Offset	0.2188	0.1792	NONE	
Near Bar Background	969.63	966.57	700 - 1450	
Near Dens Background	316.89	316.84	230 - 480	
Near Peak Background	138.70	138.17	100 - 210	
Near Lith Background	170.45	169.50	125 - 260	
Far Bar Background	549.43	550.24	450 - 900	
Far Dens Background	213.50	215.57	175 - 345	
Far Peak Background	85.74	85.76	70 - 140	
Far Lith Background	89.13	89.50	75 - 145	
CALIBRATION BLOCK SUMMARY				
Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.673	1.683	0.010	+/- 0.015
Pe	2.477	2.562	0.085	+/- 0.150
ALUMINUM				
Density (g/cc)	2.583	2.589	0.006	+/- 0.01500
Pe	3.021	3.107	0.086	+/- 0.150
TOOL SUMMARY				
Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits

QUALITY				
Background	-0.0020	+/- 0.0110	-0.0013	+/- 0.0140
Magnesium Block	0.0005	+/- 0.0110	-0.0021	+/- 0.0140
Aluminum Block	-0.0012	+/- 0.0110	-0.0015	+/- 0.0140
Resolution	10.26	6.00 - 11.50	8.70	6.00 - 11.50
Internal Verifier(B+D+P+L)	1591	1200 - 2700	941	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 - I15M94P73	Reference Calibration Date:	22-Jun-11 12:28:40
Engineer:	T. HARRIS	Calibration Date:	20-Jul-11 06:17:01
Software Version:	WL INSITE R3.2.3 (Build 5)	Calibration Version:	1

Pad Temperature: 94.1 degF

DENSITY FIELD CALIBRATION SUMMARY				
Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1591.080	1585.791	-5.289	16.043
Far (B+D+P+L) cps	941.070	935.477	-5.593	16.569
Near Resolution	10.26	10.23	-0.030	0.50
Far Resolution	8.70	8.92	0.220	1.00

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

MICRO LOG SHOP CALIBRATION

Tool Name:	SDLT - I15M94P73	Reference Calibration Date:	16-May-11 23:27:34
Engineer:	T. HARRIS	Calibration Date:	19-May-11 00:24:47
Software Version:	WL INSITE R3.2.3 (Build 5)	Calibration Version:	1

CALIBRATION COEFFICIENT SUMMARY					
Measurement	Micro Log Normal		Micro Log Lateral		Units
	Measured	Calibrated	Measured	Calibrated	
Tool Zero	-0.05	-0.09	-0.00	0.00	ohmm
Calibration Point #1	0.04	0.00	-0.01	0.00	ohmm
Calibration Point #2	20.25	20.00	20.22	20.00	ohmm
Internal Reference	20.14	19.90	20.21	19.99	ohmm

Measurement	Micro Log Normal Tool Value	Micro Log Lateral Tool Value	Units
Tool Zero	1.63	-0.04	V
Calibration Point #1	25.51	-0.60	V
Calibration Point #2	5357.63	6949.54	V
Internal Reference	5329.67	6946.45	V

MICRO LOG FIELD CHECK					
Tool Name:	SDLT - I15M94P73			Reference Calibration Date:	19-May-11 00:24:47
Engineer:	T. HARRIS			Calibration Date:	20-Jul-11 08:11:15
Software Version:	WL INSITE R3.2.3 (Build 5)			Calibration Version:	1
	Measurement	Micro Log Normal		Micro Log Lateral	
		Shop	Field	Shop	Field
	Units				
	Tool Zero	-0.09	-0.10	0.00	0.00
	Internal Reference	19.90	19.84	19.99	19.92
	Summary				
	Signal	Shop	Field	Difference	Tolerance
	Microlog Normal	19.90	19.84	0.06	+/- 0.80
	Microlog Lateral	19.99	19.92	0.07	+/- 0.80

DENSITY CALIPER SHOP CALIBRATION					
Tool Name:	SDLT - I15M94P73			Reference Calibration Date:	12-Apr-11 14:06:56
Engineer:	T. HARRIS			Calibration Date:	16-May-11 23:23:00
Software Version:	WL INSITE R3.2.3 (Build 5)			Calibration Version:	1
	CALIBRATION COEFFICIENTS				
	Measurement	Previous Value	New Value	Control Limit On New Value	
	Pad Offset	-2321.44	-2473.16	-7000.00 - -1000.00	
	Pad Gain	0.0003737	0.0003851	0.000200 - 0.000600	
	Arm Offset	-282.69	-443.16	-5000.00 - 3000.00	
	Arm Gain	0.0004952	0.0005356	0.000300 - 0.000700	
	Arm Power	-0.000003633	-0.000006378	-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)	2.00	2.00	0.00	+/- 0.20
	Medium Ring (in)	3.70	3.75	0.05	+/- 0.20
	RING DIAMETER:				
	Small Ring (in)	6.50	6.50	0.00	+/- 0.20
Medium Ring (in)	8.17	8.25	0.08	+/- 0.20	
Large Ring (in)	15.05	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 - I15M94P73			Reference Calibration Date:	16-May-11 23:23:00
Engineer:	T. HARRIS			Calibration Date:	20-Jul-11 06:18:27
Software Version:	WL INSITE R3.2.3 (Build 5)			Calibration Version:	1
	MEASURED CALIPER VALUES				
	Control Limit On				

Measurement		Shop		Field		Change		Control Limit On New Value	
Pad Extension		3.75		3.73		-0.02		+/- 0.10	
Ring Diameter		8.25		8.14		-0.11		+/- 0.15	
PASS/FAIL SUMMARY									
Pad Extension Check:						Passed			
Diameter Check:						Passed			

ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION									
Tool Name:		ACRt - 90144557-e910-s				Reference Calibration Date:		15-Feb-11 15:24:31	
Engineer:		J.COTHREN				Calibration Date:		12-Apr-11 14:38:06	
Software Version:		WL INSITE R3.2.3 (Build 5)				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	1.0105	1.05	0.95	1.0122	1.05	0.95	1.0090	1.05
A2 (50")	0.95	1.0170	1.05	0.95	1.0211	1.05	0.95	1.0206	1.05
A3 (29")	0.95	1.0060	1.05	0.95	1.0091	1.05	0.95	1.0054	1.05
A4 (17")	0.95	1.0034	1.05	0.95	1.0052	1.05	0.95	1.0037	1.05
A5 (10")	N/A	N/A	N/A	0.95	0.9977	1.05	0.95	0.9957	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.9840	1.05	0.95	0.9817	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	0.435	2	-6	-3.793	-2	-8	-4.886	-2
A2 (50")	-7	-2.867	-1	-6	-4.172	-2	-7	-4.053	-2
A3 (29")	-27	-13.325	-9	-9	-3.953	-3	-7	-2.699	-1
A4 (17")	-180	-100.279	-60	-45	-31.546	-15	-39	-25.059	-13
A5 (10")	N/A	N/A	N/A	-150	-93.202	-50	-80	-42.747	-10
A6 (6")	N/A	N/A	N/A	175	295.400	525	90	149.285	270

TRANSMITTER CURRENT GAIN					R-MUD VERIFICATION			
Signal	Lower	R	Upper		Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
12K	0.6	0.8622	1.3		Mud Cell	0.95	1.001	1.05
36K	1.0	1.3491	2.0					
72K	1.0	1.5542	2.0					

CALIBRATION SUMMARY							
Sensor		Shop	Field	Post	Difference	Tolerance	Units
GTET-11013114							
Gamma Ray Calibrator		225.0	216.7	-----	8.3	+/- 9.00	api
DSNT-10993115							
Snow-Block Porosity		0.0858	0.0856	-----	0.0002	+/- 0.0150	decp
SDLT-I15M94P73							
Near(B+D+P+L)		1591.080	1585.791	-----	5.289	+/-16.043	cps
Far(B+D+P+L)		941.070	935.477	-----	5.593	+/-16.569	cps
MicroLog Normal		19.90	19.84	-----	0.06	+/-0.80	ohmm
MicroLog Lateral		19.99	19.92	-----	0.07	+/-0.80	ohmm
Pad Extension		3.75	3.73	-----	0.02	+/-0.10	in
Ring Diameter		8.25	8.14	-----	0.110	+/- 0.15	in

Ring Diameter	8.25	8.14	-----	0.110	+/-0.15	in
ACRt-90144557-e910-s						
Mud Cell	1.001	-----	-----	0.000	-----	ohm-m
Data: CORRELL_A_1\0002 BLACK_QUAD_BSAT\004 20-Jul-11 09:10 Up @5568.3f						
Date: 20-Jul-11 10:18:05						

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length	
CH_HOS-590_BLK 37.50 lbs		Ø 2.750 in →		Temperature @ 72.30 ft	3.03 ft	73.32 ft	
							70.30 ft
GTET-11013114 165.00 lbs		Ø 3.625 in →			GammaRay @ 64.23 ft	8.52 ft	
							61.77 ft
DSNT-10993115 174.00 lbs	DSN Decentralizer- 10735144 6.60 lbs	Ø 3.625 in* → Ø 3.625 in →			DSN Far @ 54.84 ft DSN Near @ 54.09 ft	9.69 ft	
							52.09 ft
SDLT-I15M94P73 360.00 lbs		Ø 4.500 in → Ø 4.750 in →			SDL Microlog @ 44.27 ft SDL Caliper @ 44.09 ft SDL @ 44.08 ft	10.81 ft	
							41.27 ft
IQ Flex-592_Blk 140.00 lbs		Ø 3.625 in →			5.67 ft		
						35.60 ft	
	Centralizer 25-002 8.00 lbs	Ø 4.000 in* →					

BSAT-10939049
300.00 lbs

Ø 3.625 in →

← Sonic Receivers @ 27.09 ft

15.77 ft

Centralizer 25-001
8.00 lbs

Ø 4.000 in* →

19.83 ft

ACRt-90144557-
e910-s
250.00 lbs

Ø 3.625 in →

← Mud Resistivity @ 13.44 ft

← ACRt @ 9.46 ft

19.25 ft

SP Ring-1
0.00 lbs

Ø 3.625 in* →

← SP @ 1.86 ft

Cabbage Head-001
10.00 lbs

Ø 3.625 in
Ø 6.000 in →

0.58 ft

0.58 ft

0.00 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	590 BLK	37.50	3.03	70.30	300.00
GTET		Gamma Telemetry Tool	11013114	165.00	8.52	61.77	60.00
DSNT		Dual Spaced Neutron	10993115	174.00	9.69	52.09	60.00
DCNT		DSN Decentralizer	10735144	6.60	5.13	* 55.42	300.00
SDLT		Spectral Density Tool	I15M94P73	360.00	10.81	41.27	60.00
IQF		IQ Flex tool	592_BlK	140.00	5.67	35.60	300.00
BSAT		Borehole Sonic Array Tool	10939049	300.00	15.77	19.83	60.00
OBCEN		Centralizer - 25 in. Overbody	002	8.00	2.08	* 32.92	300.00
ACRt		Array Compensated True Resistivity	90144557-e910-s	250.00	19.25	0.58	300.00
SP		SP Ring	1	0.00	0.25	* 1.86	300.00
OBCEN		Centralizer - 25 in. Overbody	001	8.00	2.08	* 16.41	300.00
CBHD		Cabbage Head	001	10.00	0.58	0.00	300.00
Total				1,459.10	73.32		
* Not included in Total Length and Length Accumulation.							
Data: CORRELL_A_1\0001 BLACK_QUAD_BSAT\004 19-Jul-11 05:19 Up @4408.5f							Date: 19-Jul-11 06:46:04

HALLIBURTON

Plot Time: 20-Jul-11 10:31:59
Plot Range: 1795 ft to 5568 ft
Data: CORRELL_A_1\Well Based\MAIN_SPLICE\
Plot File: \\-LOCAL-\\CORRELL_A_1\0001 BLACK_QUAD_BSAT\PORO\1_AHV Plot_x

ANNULAR HOLE VOLUME PLOT

ANNULAR HOLE VOLUME PLOT

