HALLIBURTON

DUAL SPACED NEUTRON SPECTRAL DENSITY LOG

COMPANY	MERIT ENERGY COMPANY
WELL	BATMAN B4
FIELD/BLOCK	SANTA FE NORTH
COUNTY	HASKELL
STATE	KANSAS

API No. 15081221710000

Location (SHL) 1193' FNL & 752' FEL
SE SW NE NE

Sect. 10 Twp. 28S Rge. 33W

Other Services:
DSNT/SDLT
MICROLOG
BSAT
ACRT

Permanent Datum	GL	Elev. 2978.6 ft	Elev.: K.B. 2991.6 ft
Log measured from	KB	13.0 ft above perm. Datum	D.F. 2991.6 ft
Drilling measured from	KB		G.L. 2978.6 ft

Date		25-Feb-18					
Run No.		ONE					
Depth - Driller		5655.0 ft					
Depth - Logger		5662.0 ft					
Bottom - Logged Interval		5624.00 ft					
Top - Logged Interval		4000.00 ft					
Casing - Driller		8.625 in	@ 1826.0 ft	@		@	
Casing - Logger		1827.0 ft					
Bit Size		7.875 in		@		@	
Type Fluid in Hole		Water Based Mud					
Density	Viscosity	9.1 ppg	56.00 s/qt				
PH	Fluid Loss	11.00 pH	6.4 cptm				
Source of Sample		FLOWLINE					
Rm @ Meas. Temperature		1.67 ohmm	@ 75.00 degF	@		@	
Rmf @ Meas. Temperature		1.51 ohmm	@ 75.00 degF	@		@	
Rmc @ Meas. Temperature		1.82 ohmm	@ 75.00 degF	@		@	
Source Rmf	Rmc	MEAS	MEAS				
Rm @ BHT		0.96 ohmm	@ 135.0 degF	@		@	
Time Since Circulation		5.0 hr					
Time on Bottom		25-Feb-18 20:45					
Max. Rec. Temperature		135.00 degF	@ 5662.0 ft	@		@	
Equipment	Location	12147634	EL RENO				
Recorded By		JORGE ORLANDO PEREZ					
Witnessed By		MATTHEW GARVIN		AUSTIN GARNER			

Fold here

Service Ticket No.: 904653282 API No.: 15081221710000 PGM Version: WL INSITE R5.0.5 (Build 8)

CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE

	Sample No.	Type Log	Depth	Scale Up Hole	Scale Down Hole
Date					
Depth-Driller					
Type Fluid in Hole					
Density	Viscosity				
Ph	Fluid Loss				
Source of Sample					
Rm @ Meas. Temp		@	@	@	
Rmf @ Meas. Temp.		@	@	@	
Rmc @ Meas. Temp.		@	@	@	
Source Rmf	Rmc				
Rm @ BHT		@	@	@	
Rmf @ BHT		@	@	@	
Rmc @ BHT		@	@	@	

RESISTIVITY SCALE CHANGES

RESISTIVITY EQUIPMENT DATA

	Run No.	Tool Type & No.	Pad Type	Tool Pos.	Other
	ONE	ACRT	N/A	1.5 S.O.	N/A
		I-11026095			
		S-11005908			

EQUIPMENT DATA

GAMMA		ACOUSTIC				DENSITY				NEUTRON				
				Scale				Scale				Scale		
		Run No.	Matrix	L	R	Run No.	Matrix	L	R	Run No.	Matrix	L	R	Matrix
Run No.	ONE	ONE				ONE				ONE				
Serial No.	11958947	10747683				10960494				11055304				
Model No.	GTET	BSAT				SDLT				DSNT				
Diameter	3.625"	No. of Cent.	2			5.5"				3.625"				
Detector Model No.	T-102	Spacing	EVEN			GAM-GAM				NEU-NEUI				
Type	SCINT					CS137				AM241BE				
Length	8"	LSA [Y/N]				5168GW				DSN-424				
Distance to Source	N/A	FWDA [Y/N]				1.5 Ci				15.0 Ci				
		Strength				Strength				Strength				

LOGGING DATA

GENERAL				GAMMA		ACOUSTIC		DENSITY		NEUTRON				
				Scale			Scale		Scale		Scale			
Run No.	Depth From	Depth To	Speed ft/min	L	R	L	R	L	R	Matrix	L	R	Matrix	
ONE	TD	CSG	REC	0	150	30	-10	30	-10	2.71 gr/cc	30	-10	LIME	
										47.6 uSec/ft				

DIRECTIONAL INFORMATION

Maximum Deviation	@	KOP	@

Remarks: ANNULAR HOLE VOLUME CALCULATED FOR 5.5 INCH CASING

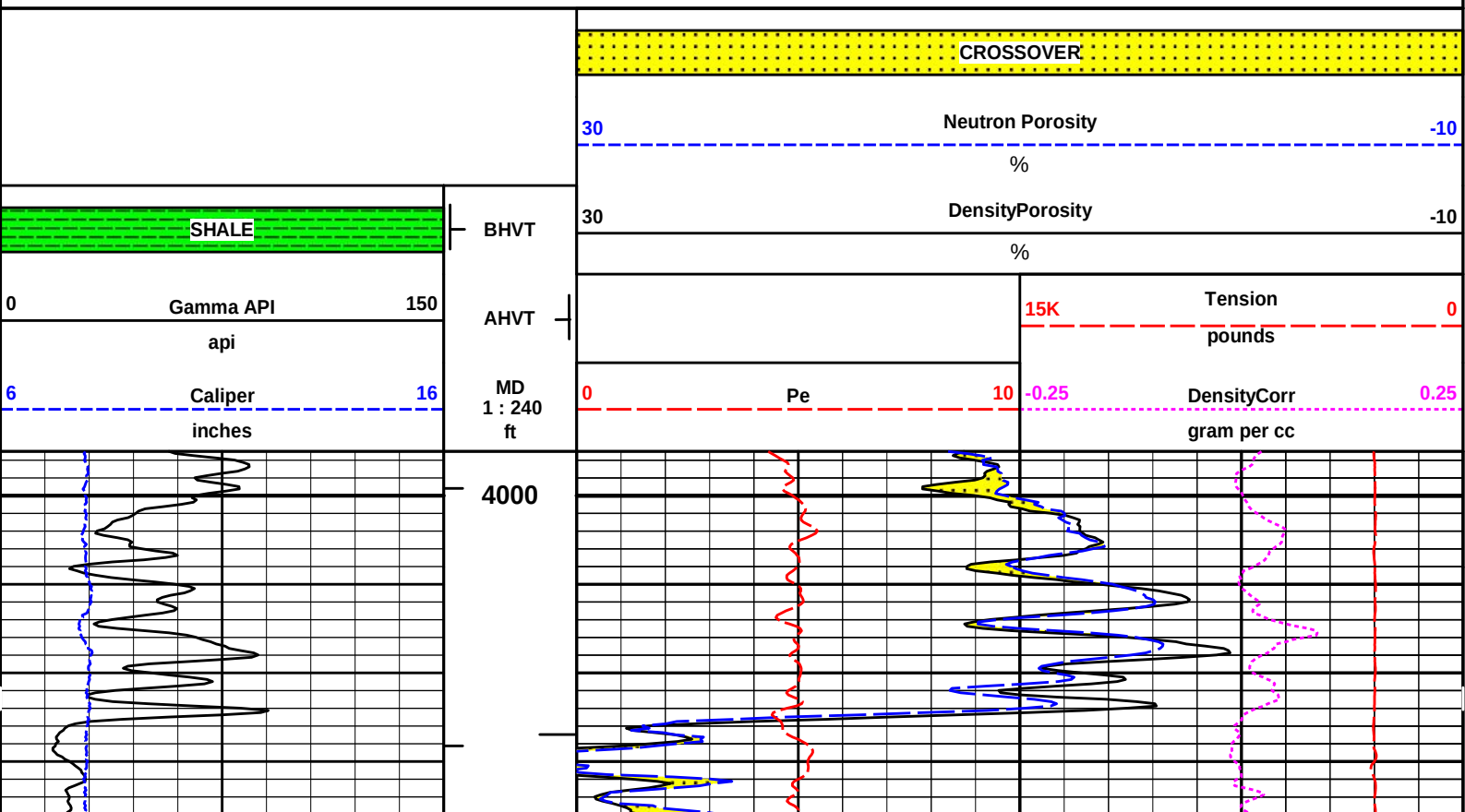
CHLORIDES REPORTED AT 1100 ppm

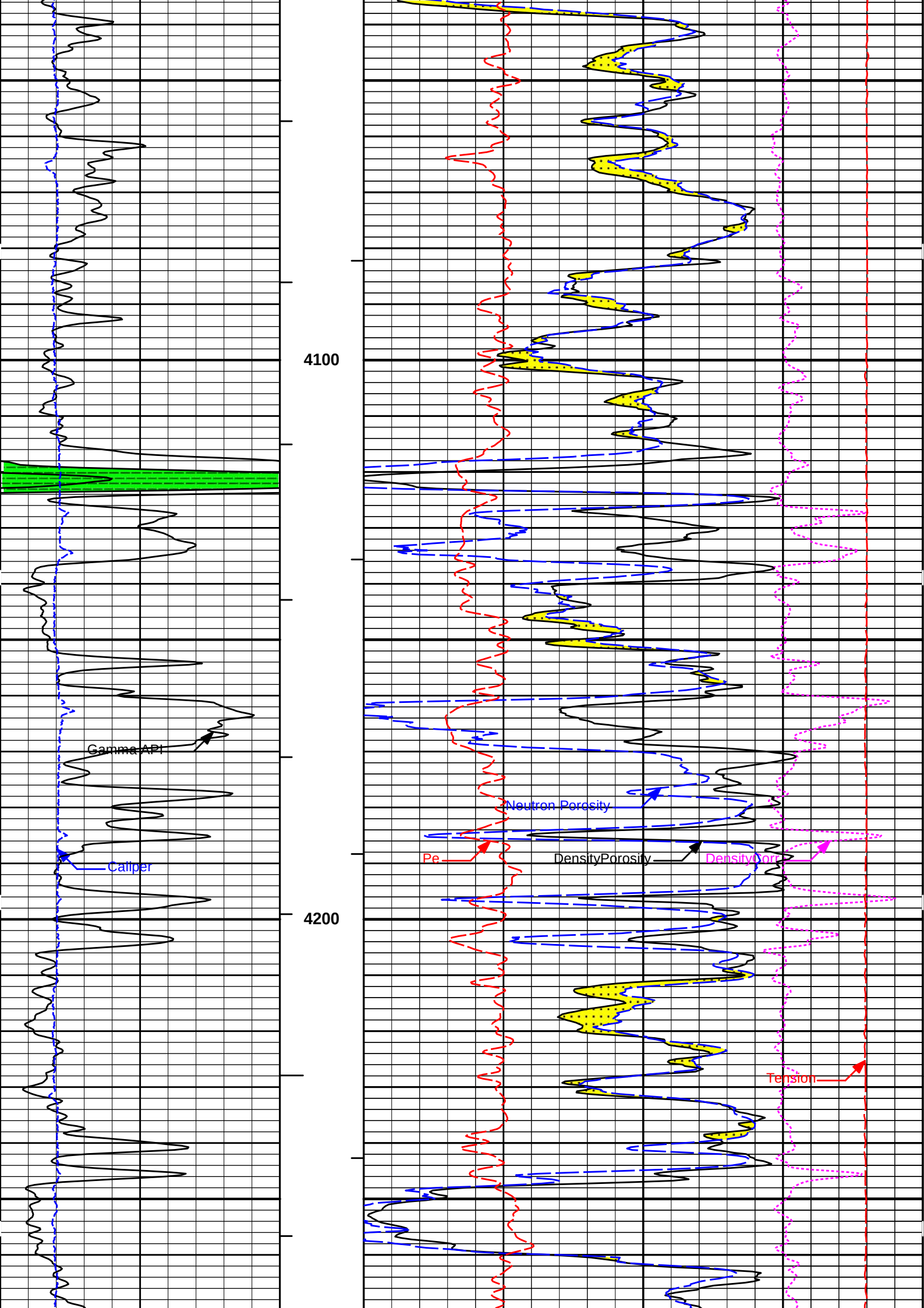
HALLIBURTON

Plot Time: 25-Feb-18 21:17:22
Plot Range: 3995 ft to 5665.42 ft
Data: BATMAN_B4\Well Based\DETAILS
Plot File: \\POROSITY\Poro_IQ_5_MAIN_LIB

5 INCH MAIN LOG

MEASURED DEPTH
MAIN SECTION 5" PER 100'

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Caliper
Neutron Porosity
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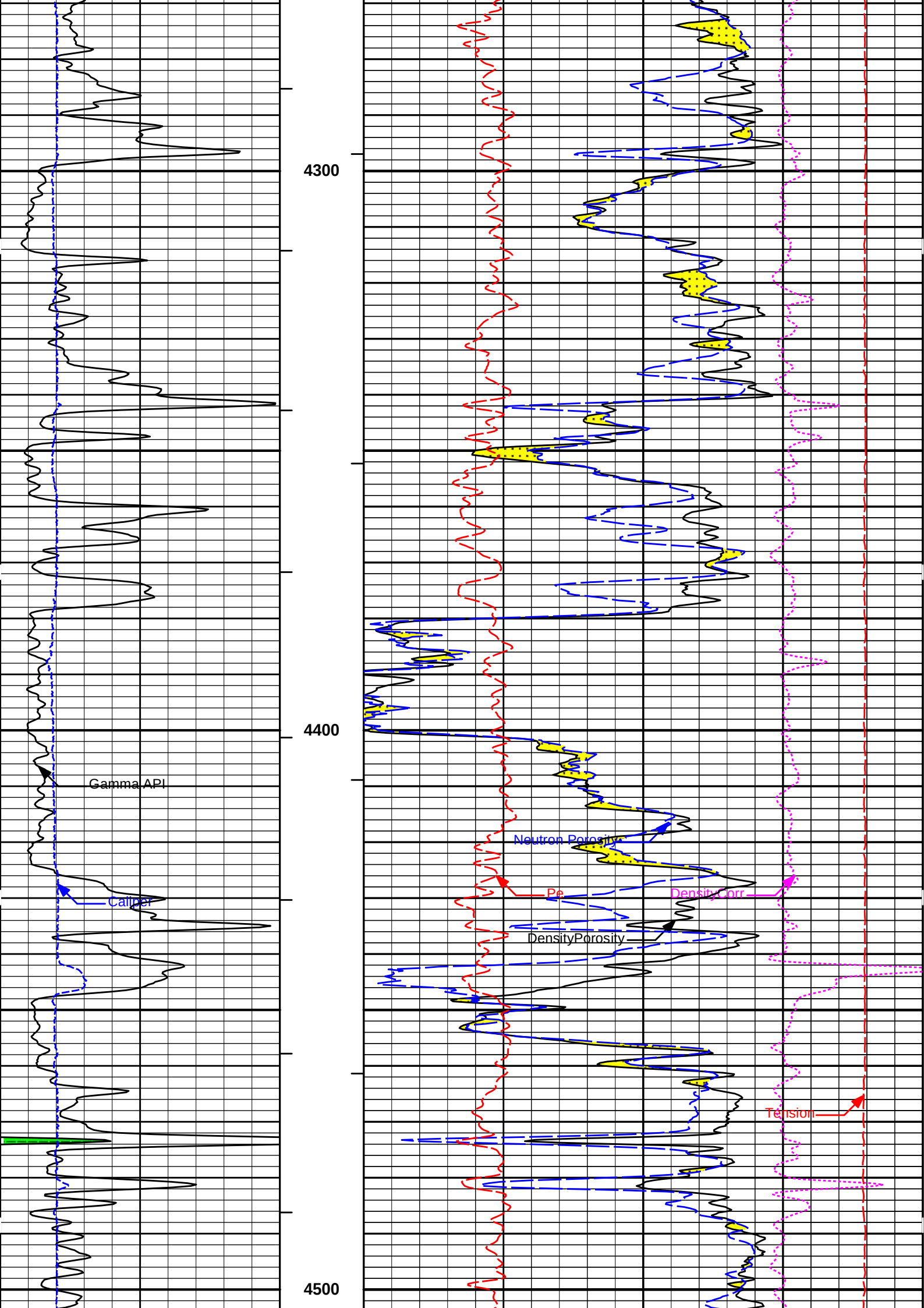
DensityPorosity
DensityCorr
Tension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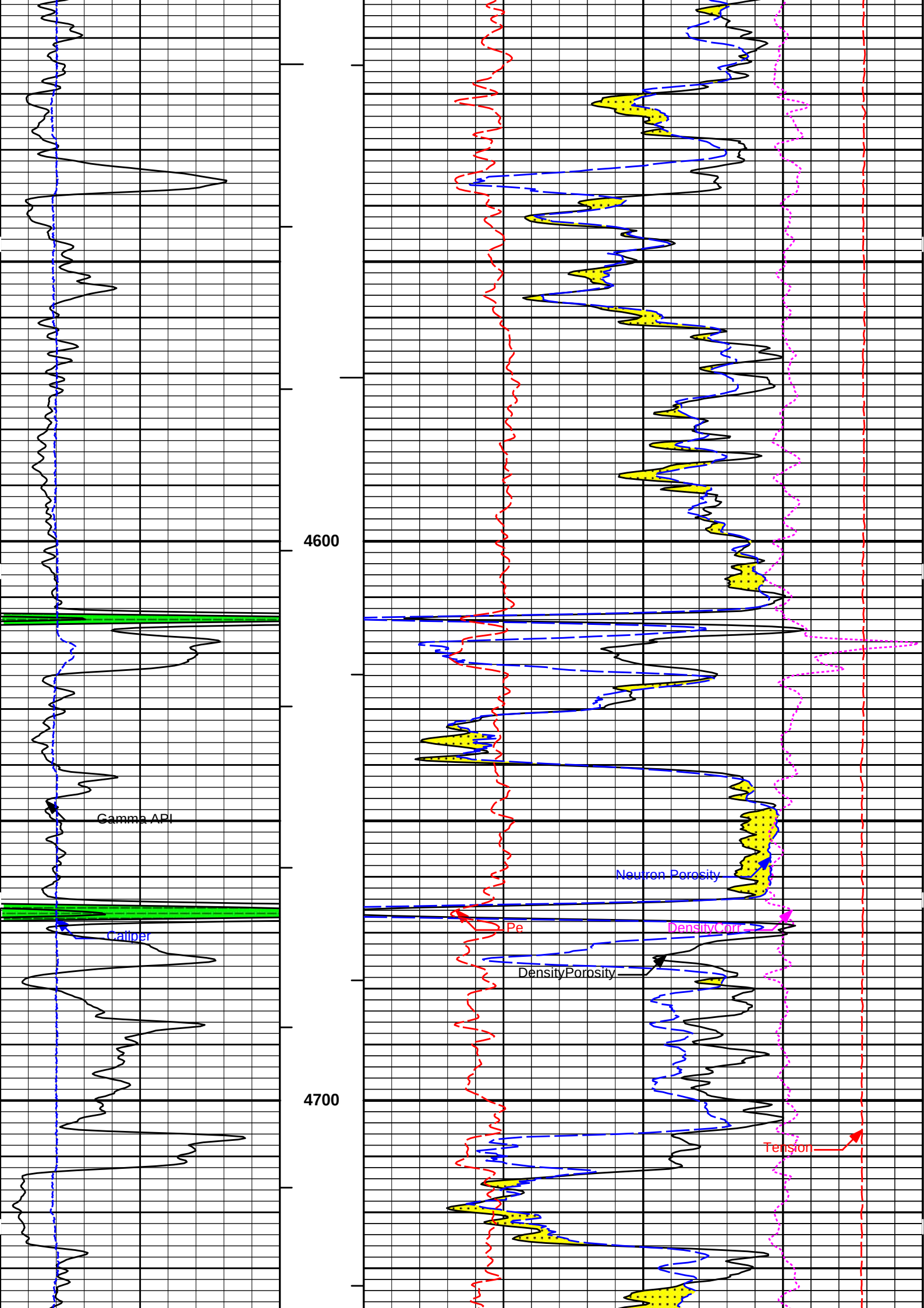
DensityCorr
DensityPorosity
Tension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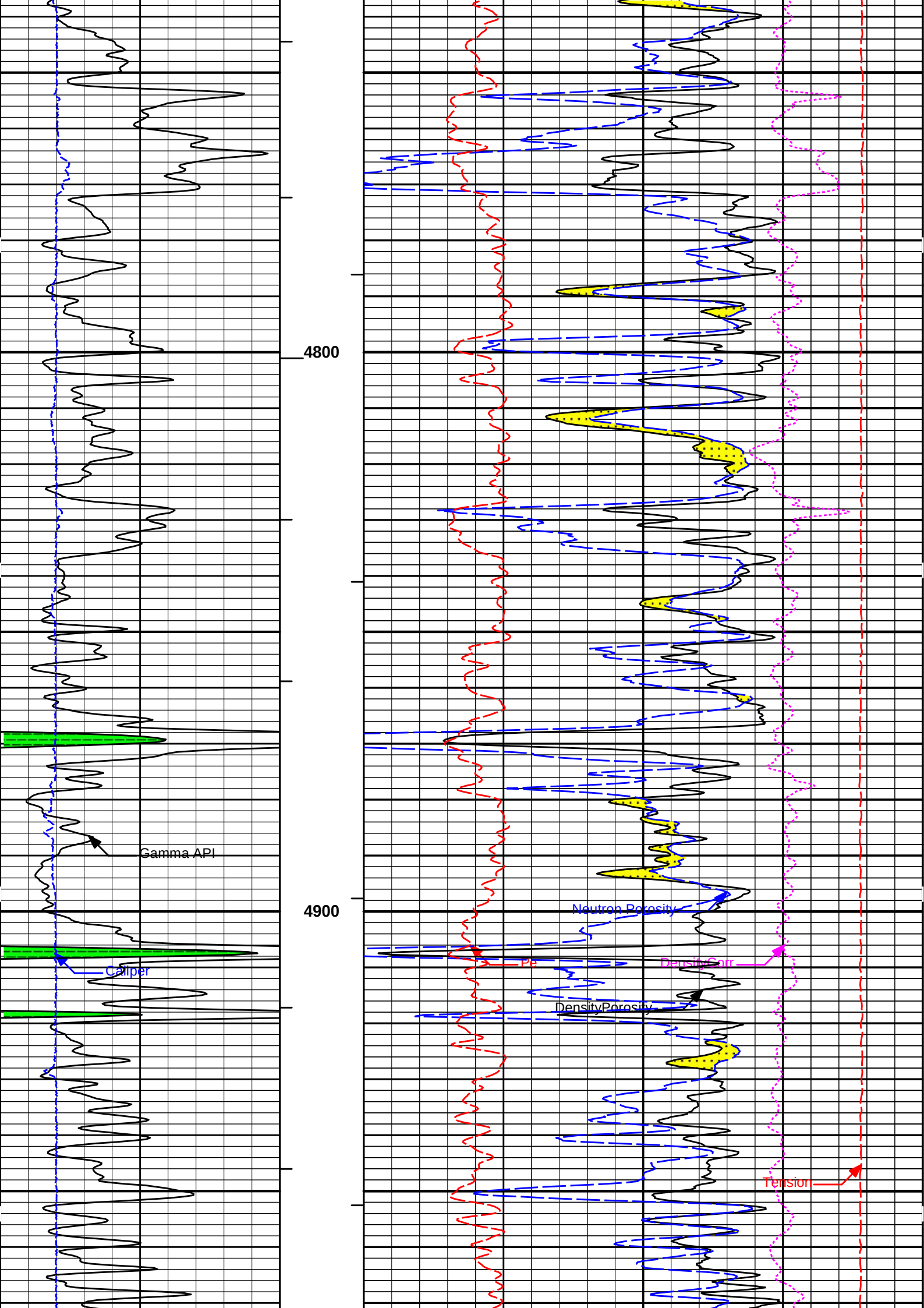
Tension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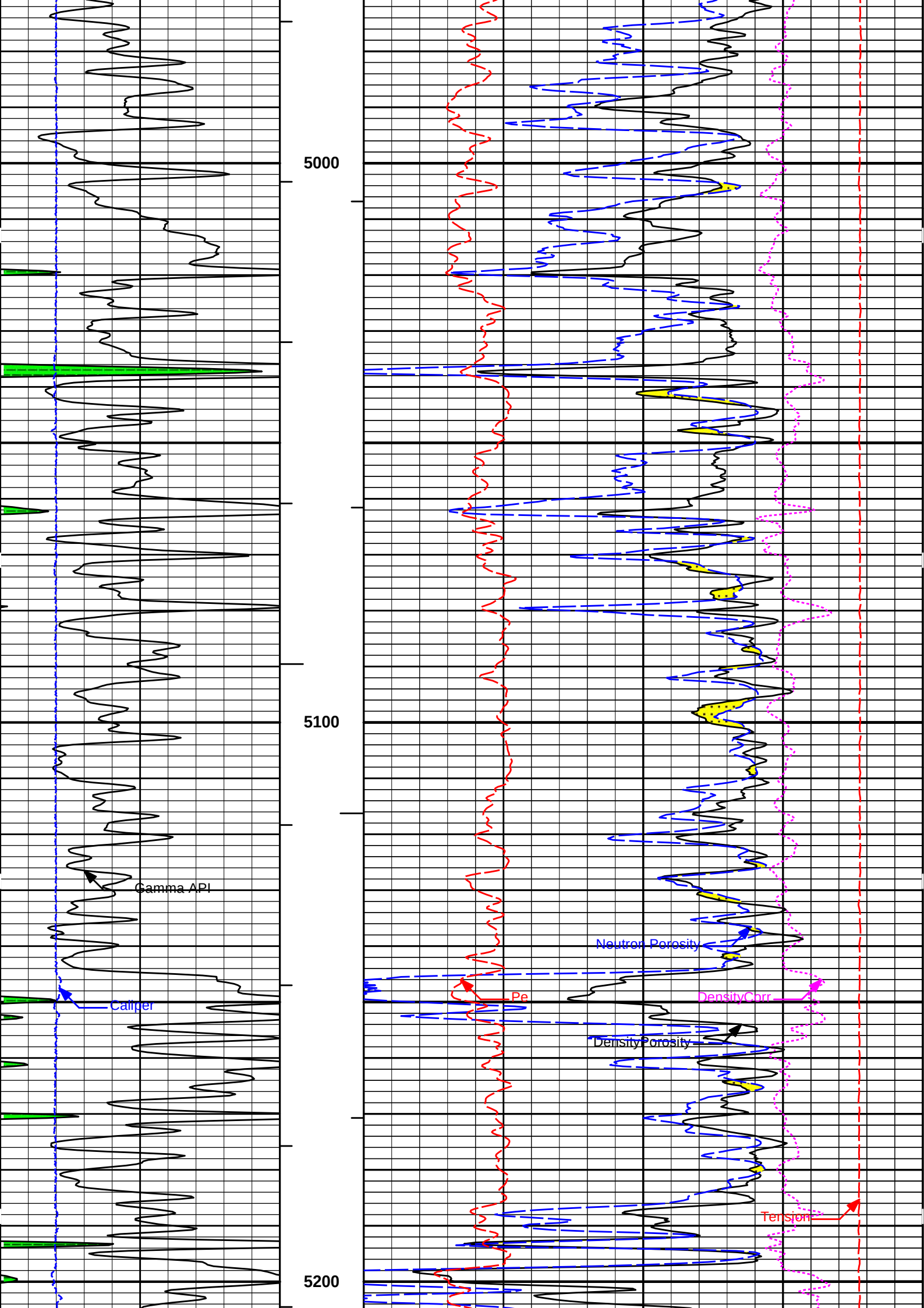
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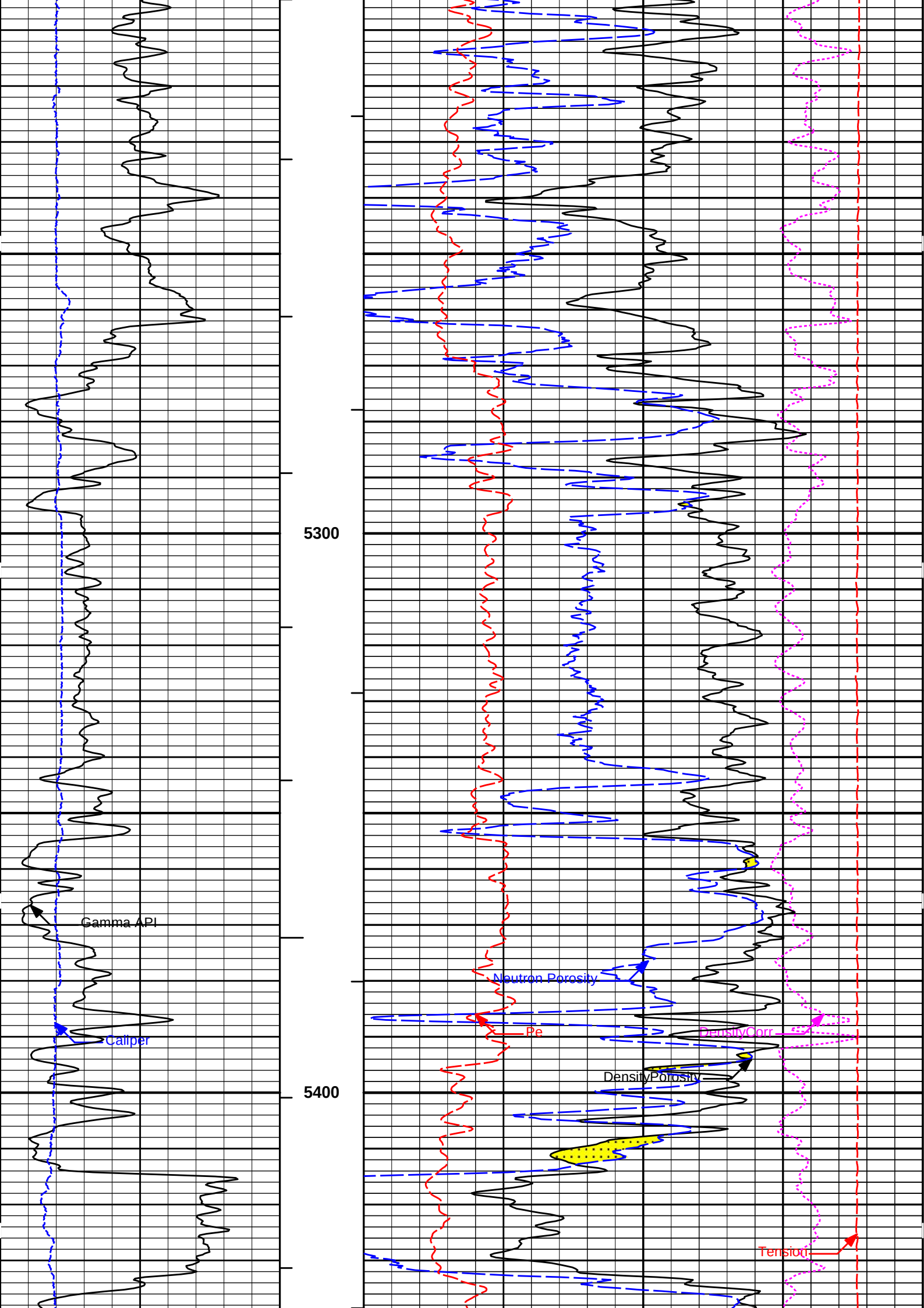
Tension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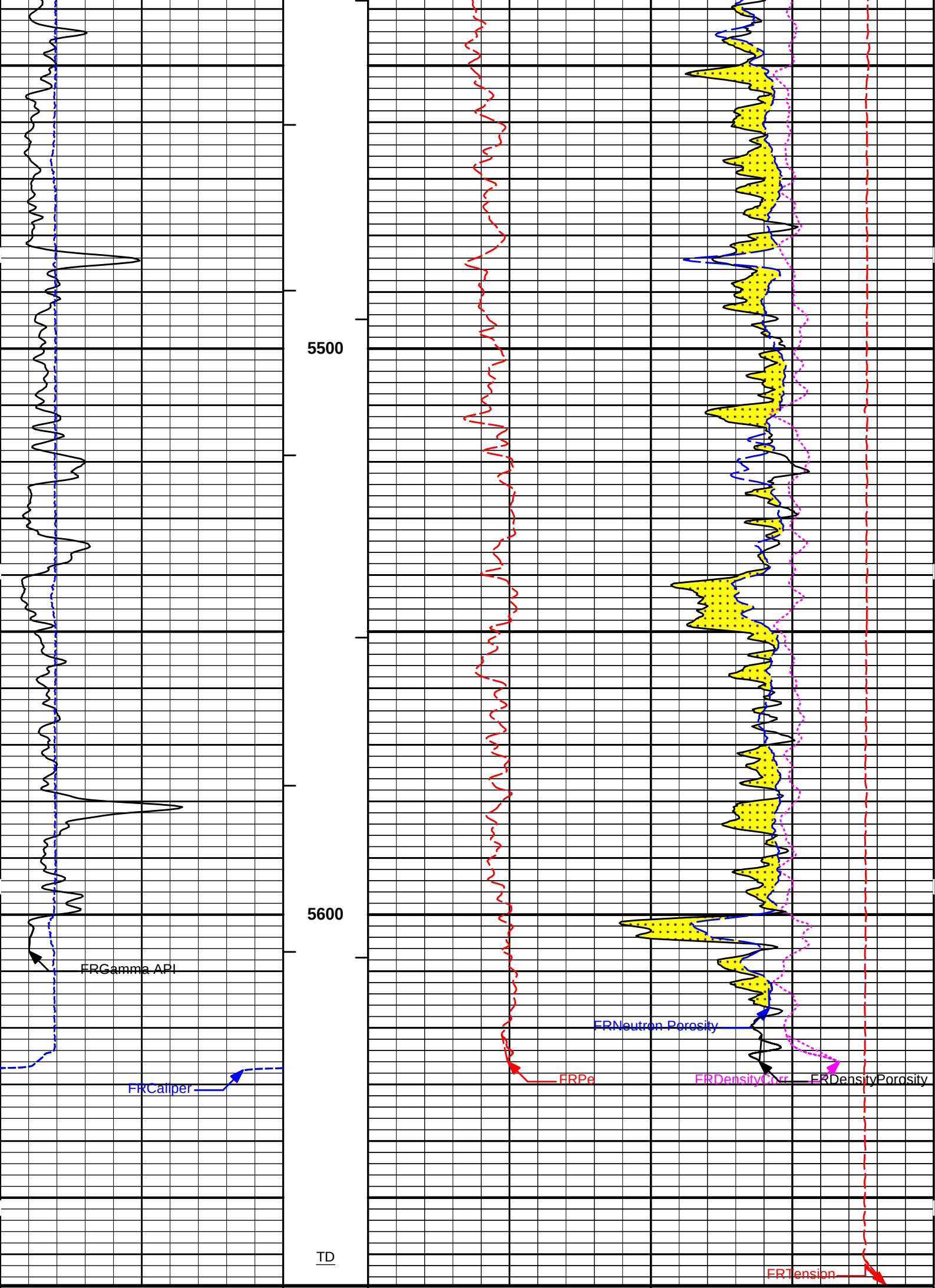
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FRPe
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FRDensityCorr
FRDensityPorosity
FRTension
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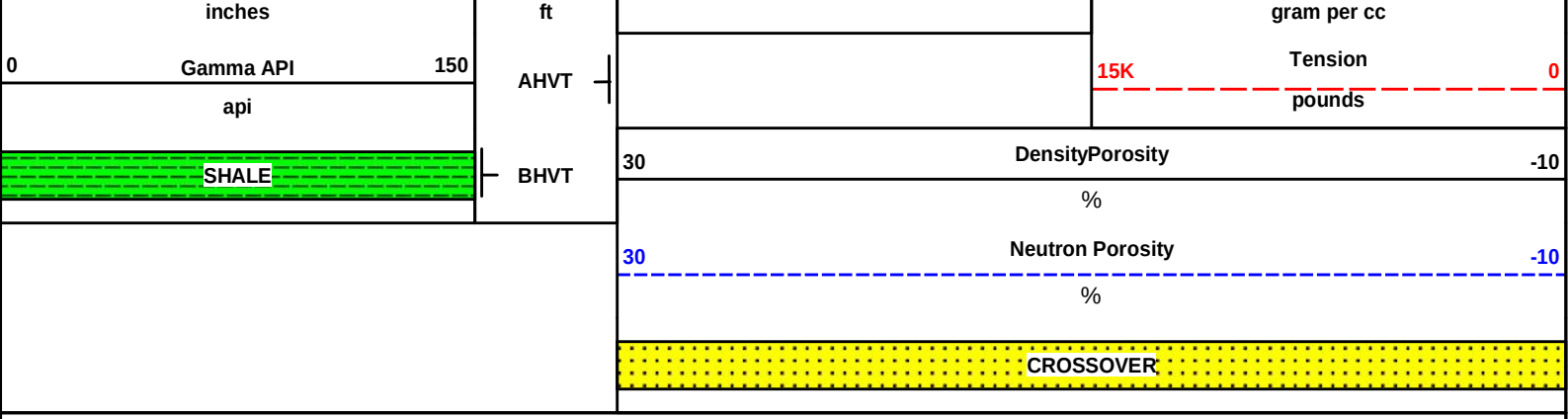
1 : 240
0
Pe
10
-0.25
DensityCorr
0.25



HALLIBURTON

Plot Time: 25-Feb-18 21:17:30
Plot Range: 3995 ft to 5665.42 ft
Data: BATMAN_B4\Well Based\DETAILS\
Plot File: \\POROSITY\Poro_IQ_5_MAIN_LIB

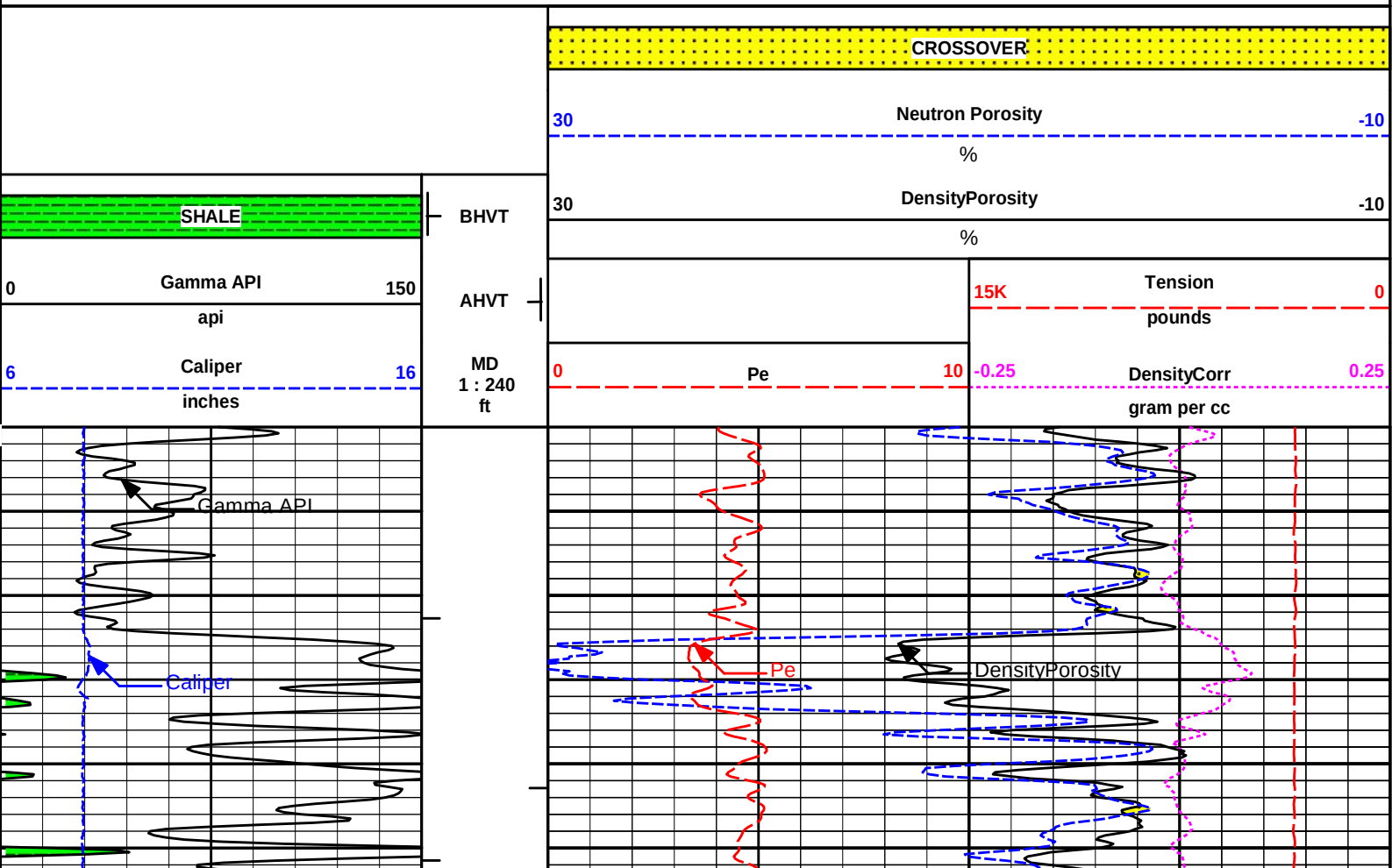
5 INCH MAIN LOG

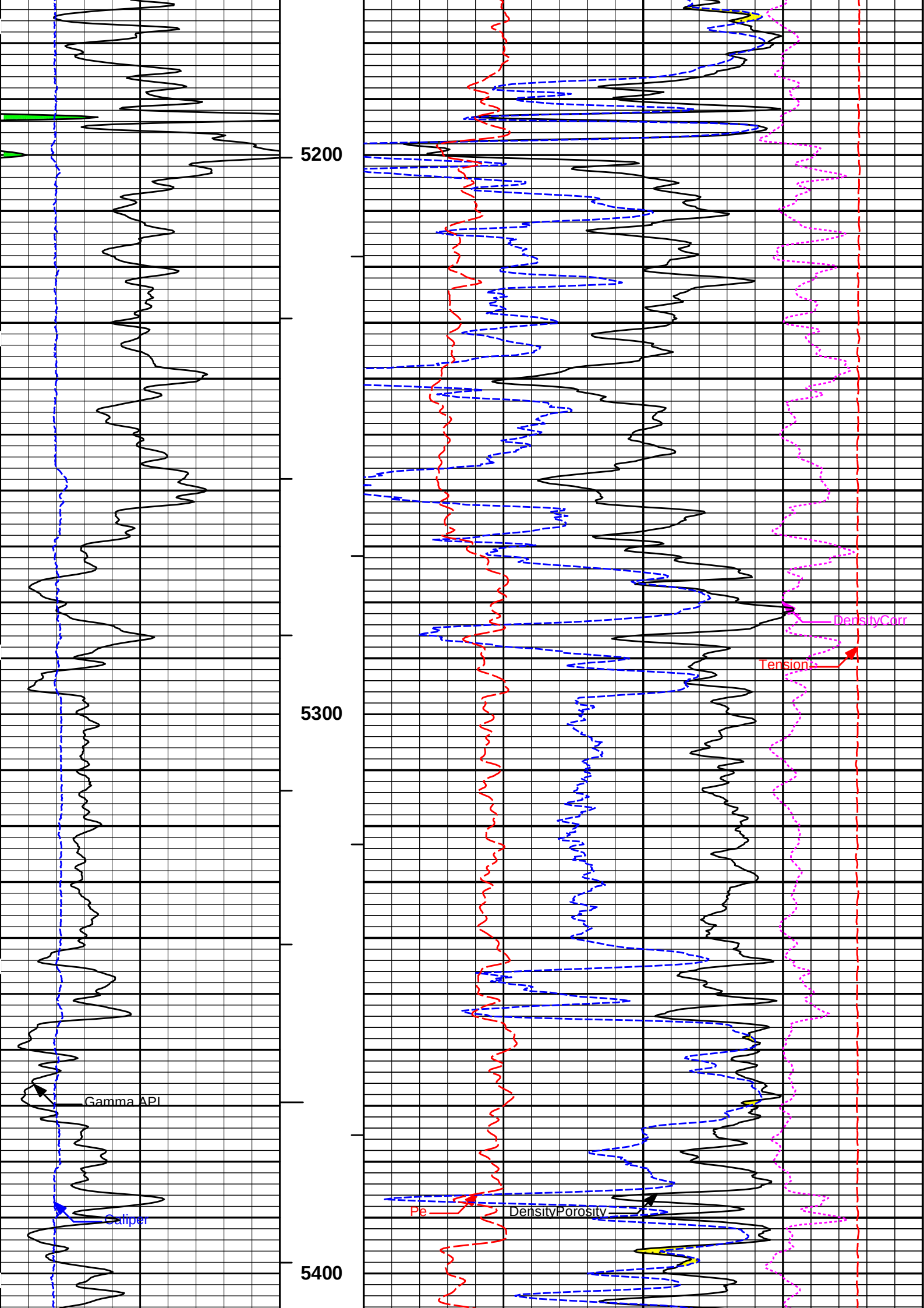
MEASURED DEPTH
MAIN SECTION 5" PER 100'

HALLIBURTON

Plot Time: 25-Feb-18 21:17:31
Plot Range: 5120 ft to 5665.08 ft
Data: BATMAN_B4\Well Based\REPEAT\
Plot File: \\POROSITY\Poro_IQ_5_REP_LIB

REPEAT SECTION

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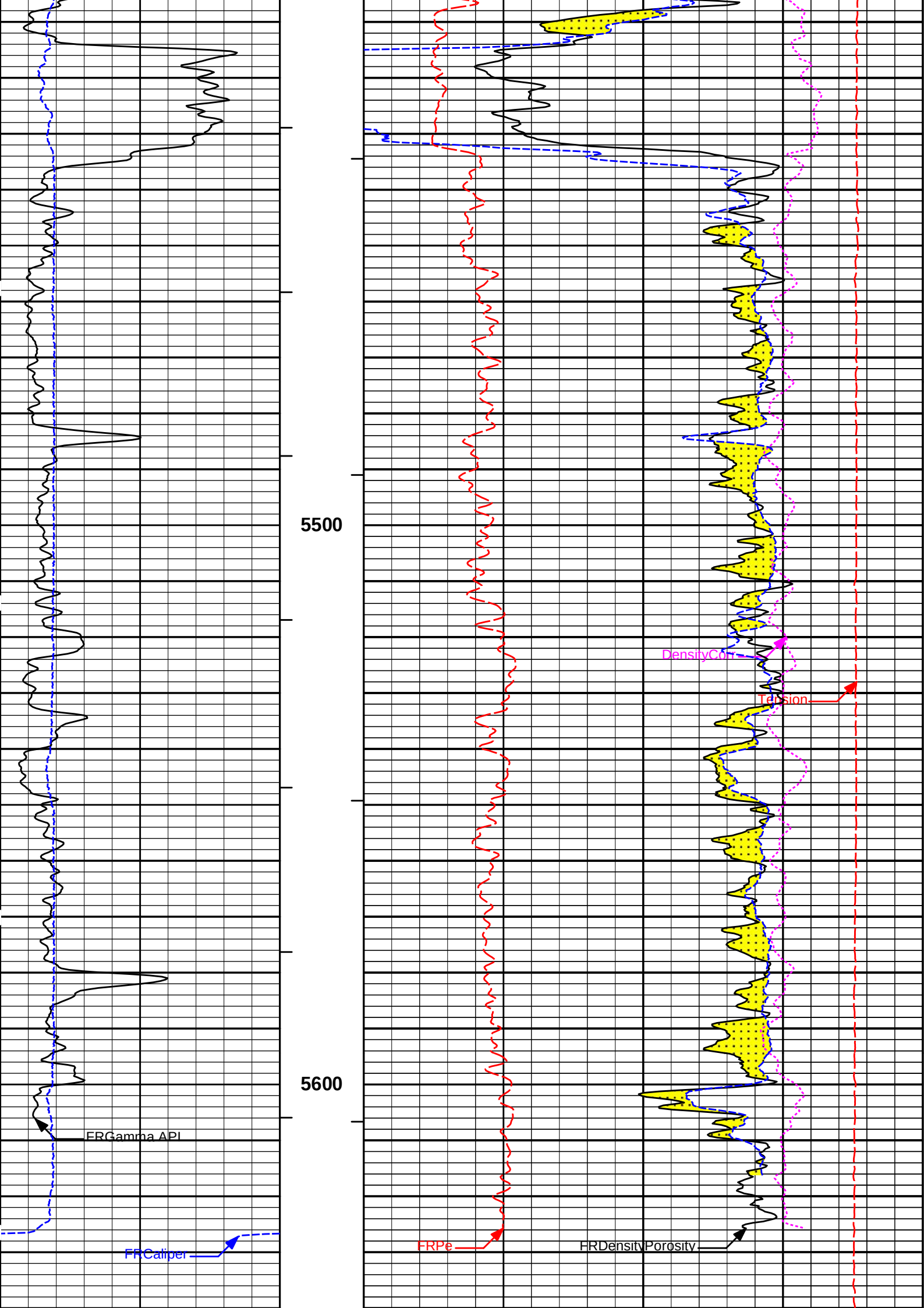
DensityCorr
Tension
Gamma API
Caliper
Pe
DensityPorosity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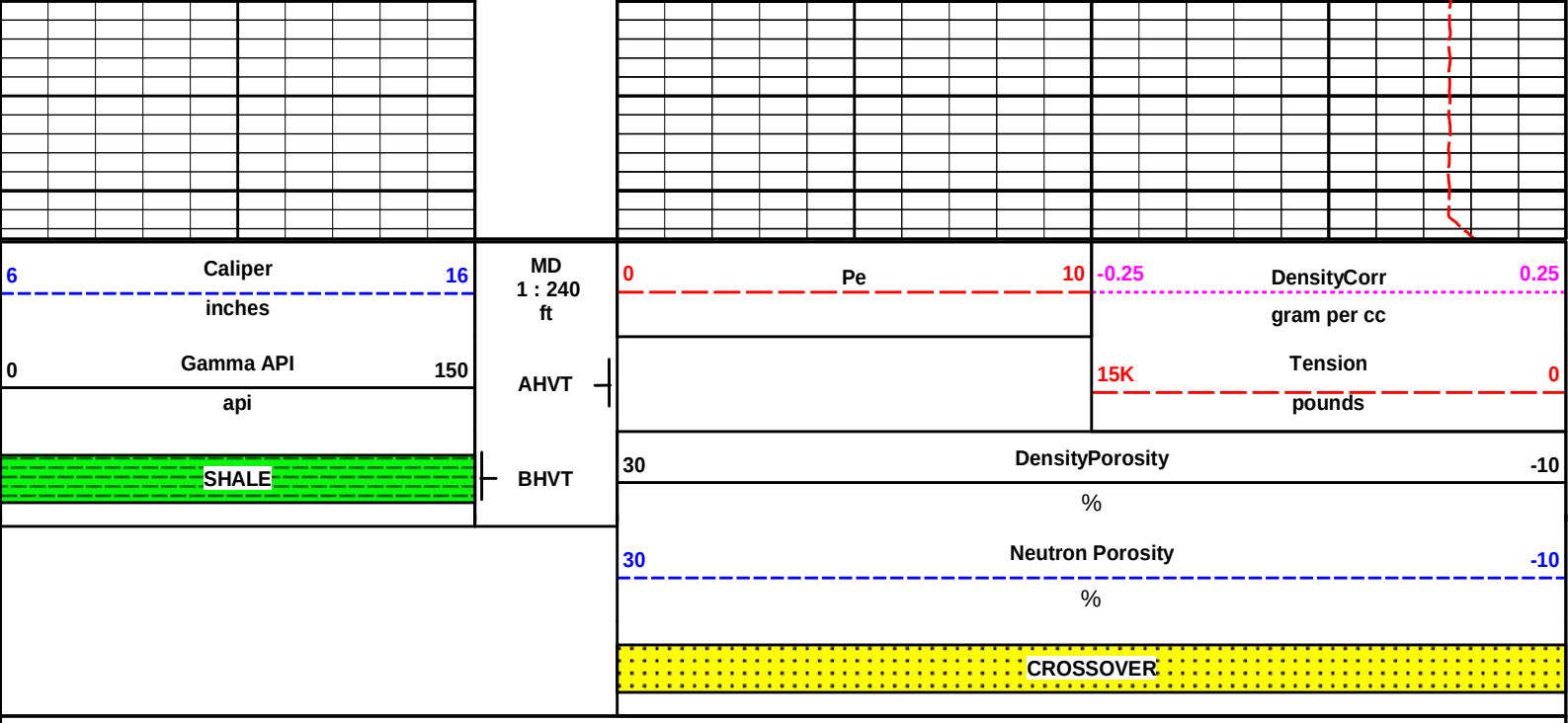
DensityCor
Tension



HALLIBURTON

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Plot File: \\POROSITY\Poro_IQ_5_REP_LIB

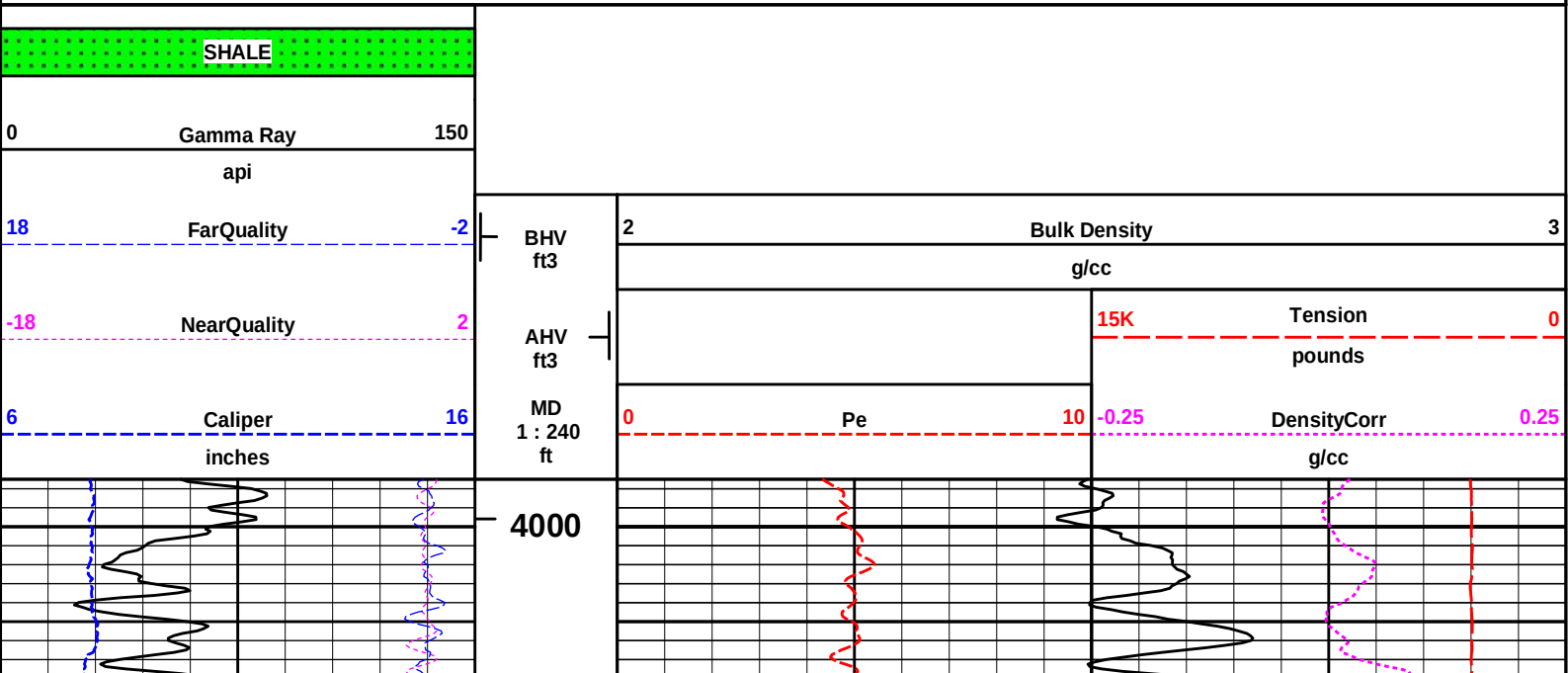
REPEAT SECTION

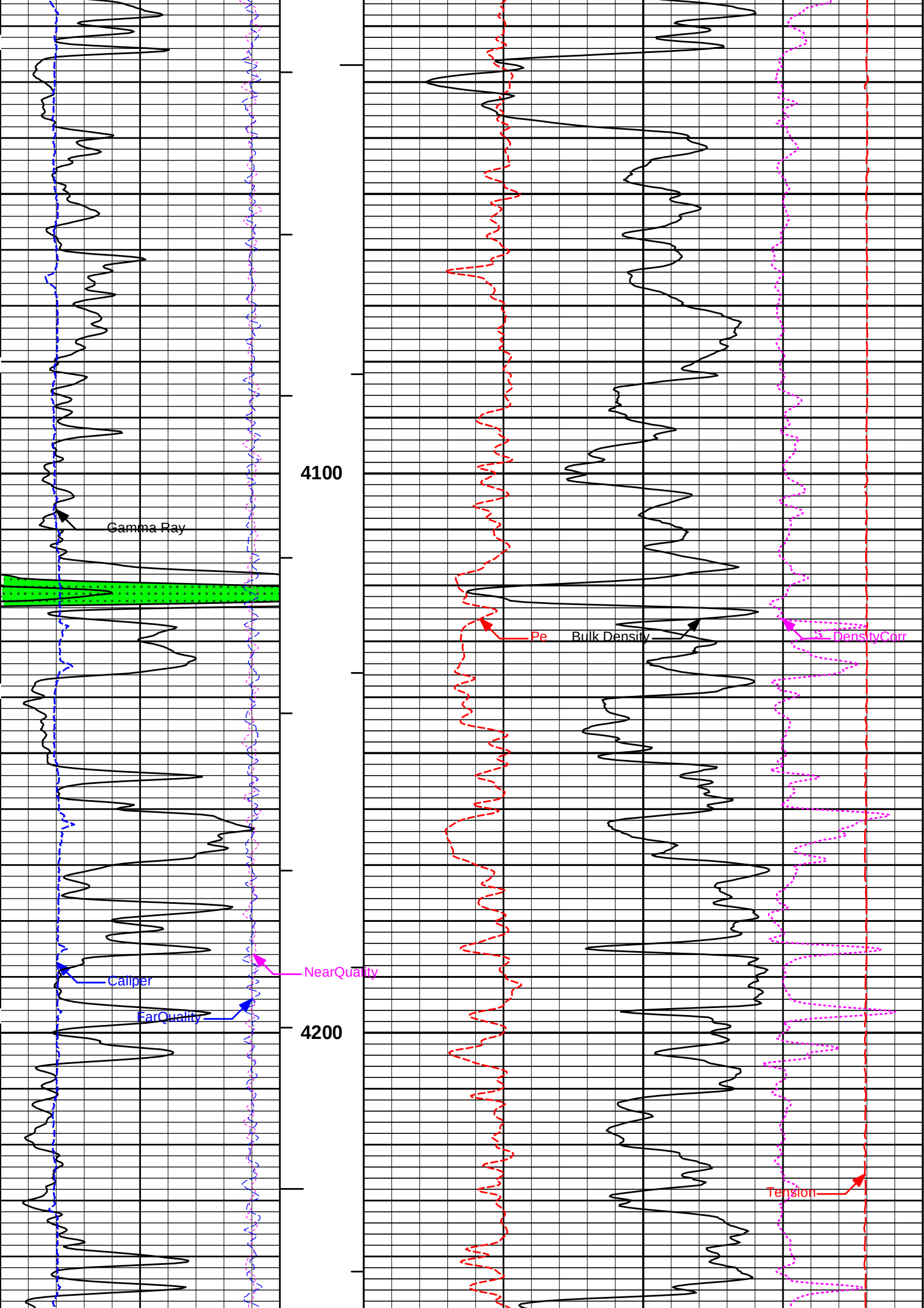
HALLIBURTON

Plot Time: 25-Feb-18 21:17:35
Plot Range: 3995 ft to 5665.42 ft
Data: BATMAN_B4\Well Based\DETAILS\
Plot File: \\-LOCAL-\BATMAN_B4\Well Based\POROSITY\BULKD_5_MAIN_LIB

5 INCH MAIN LOG

MEASURED DEPTH
MAIN SECTION 5" PER 100'

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Caliper
NearQuality
FarQuality
Pe
Bulk Density
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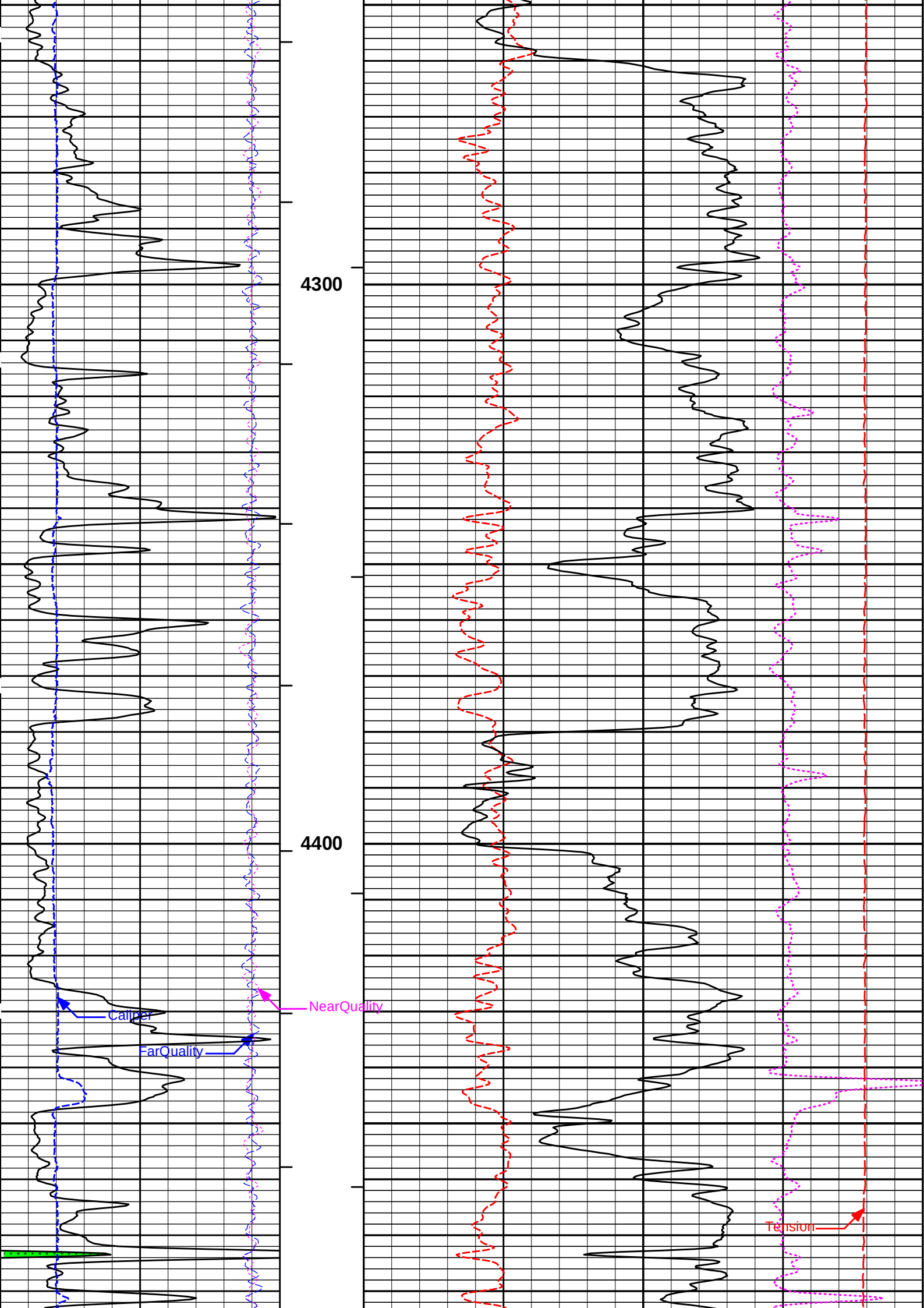
Tension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4400
Caliper
NearQuality
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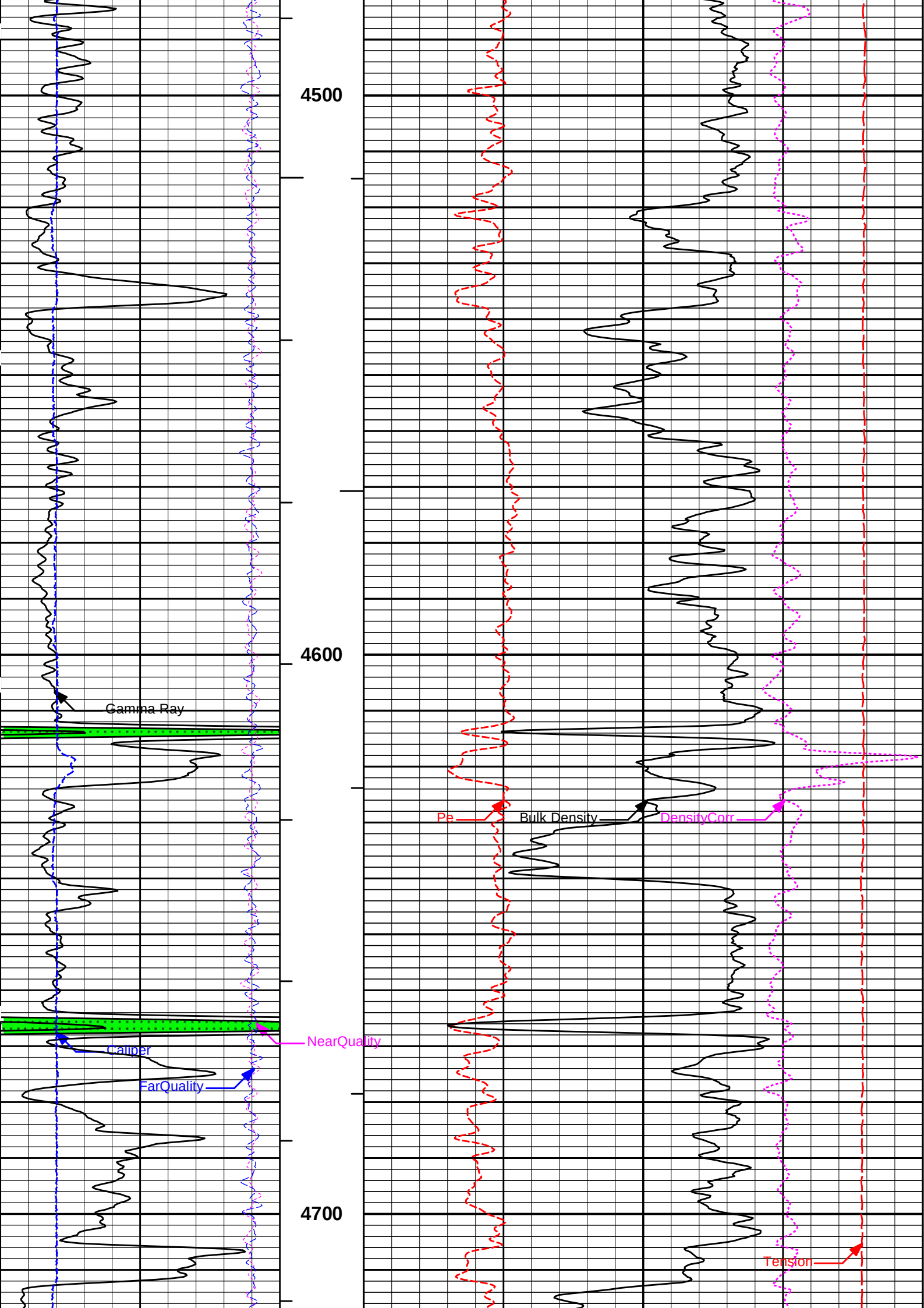
Tension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FarQuality
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DensityCorr
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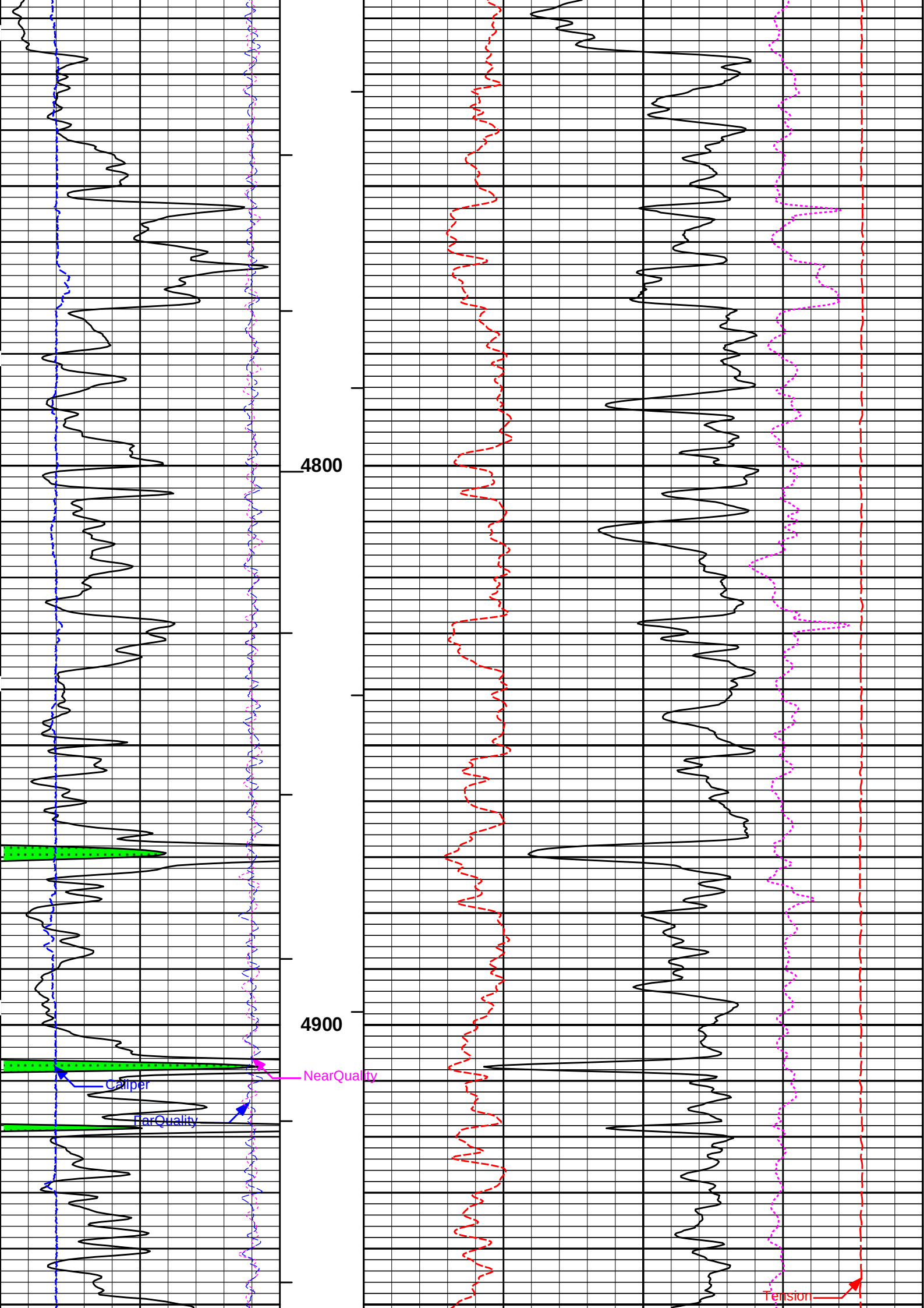
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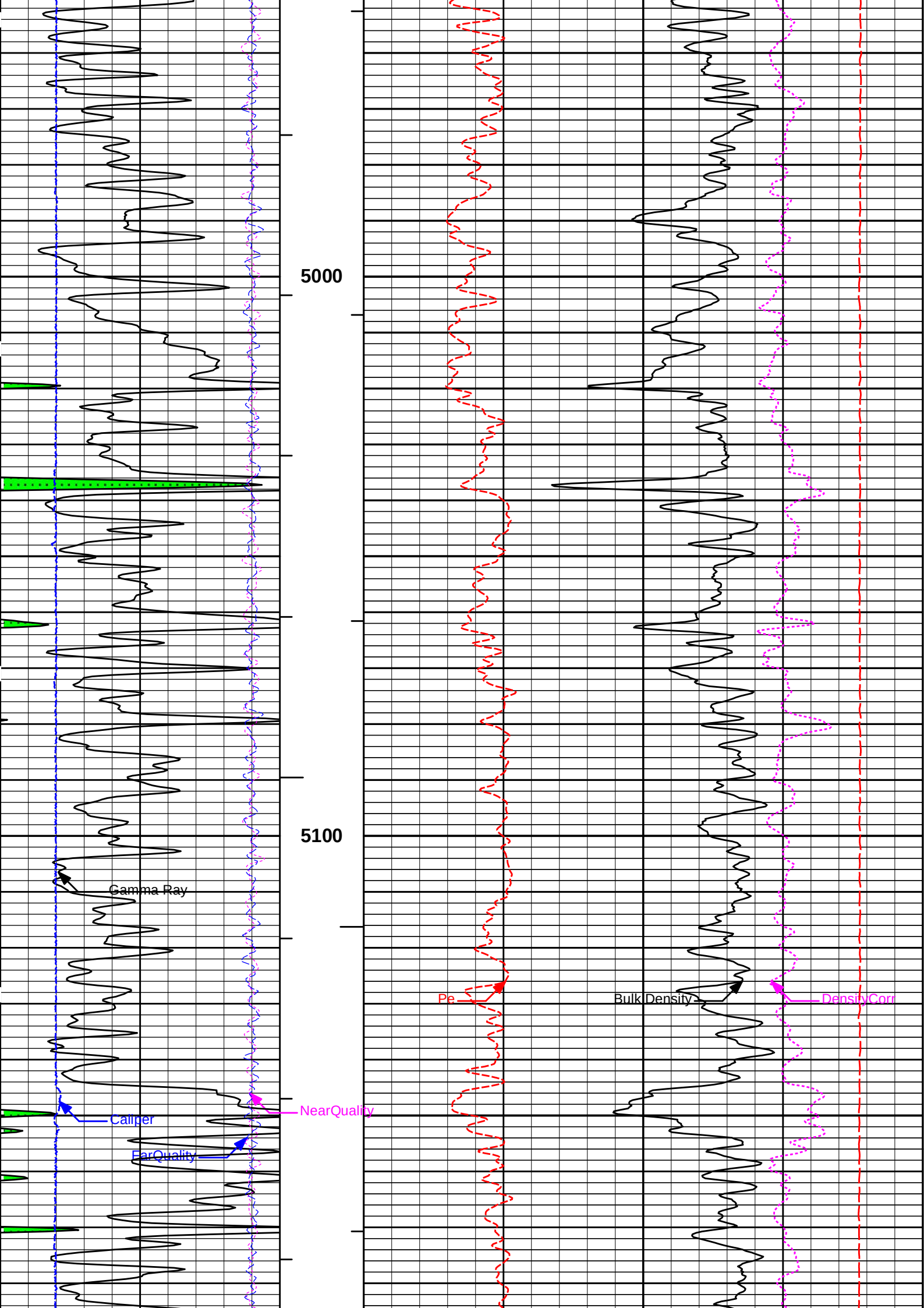
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Gamma Ray
Caliper
FarQuality
NearQuality
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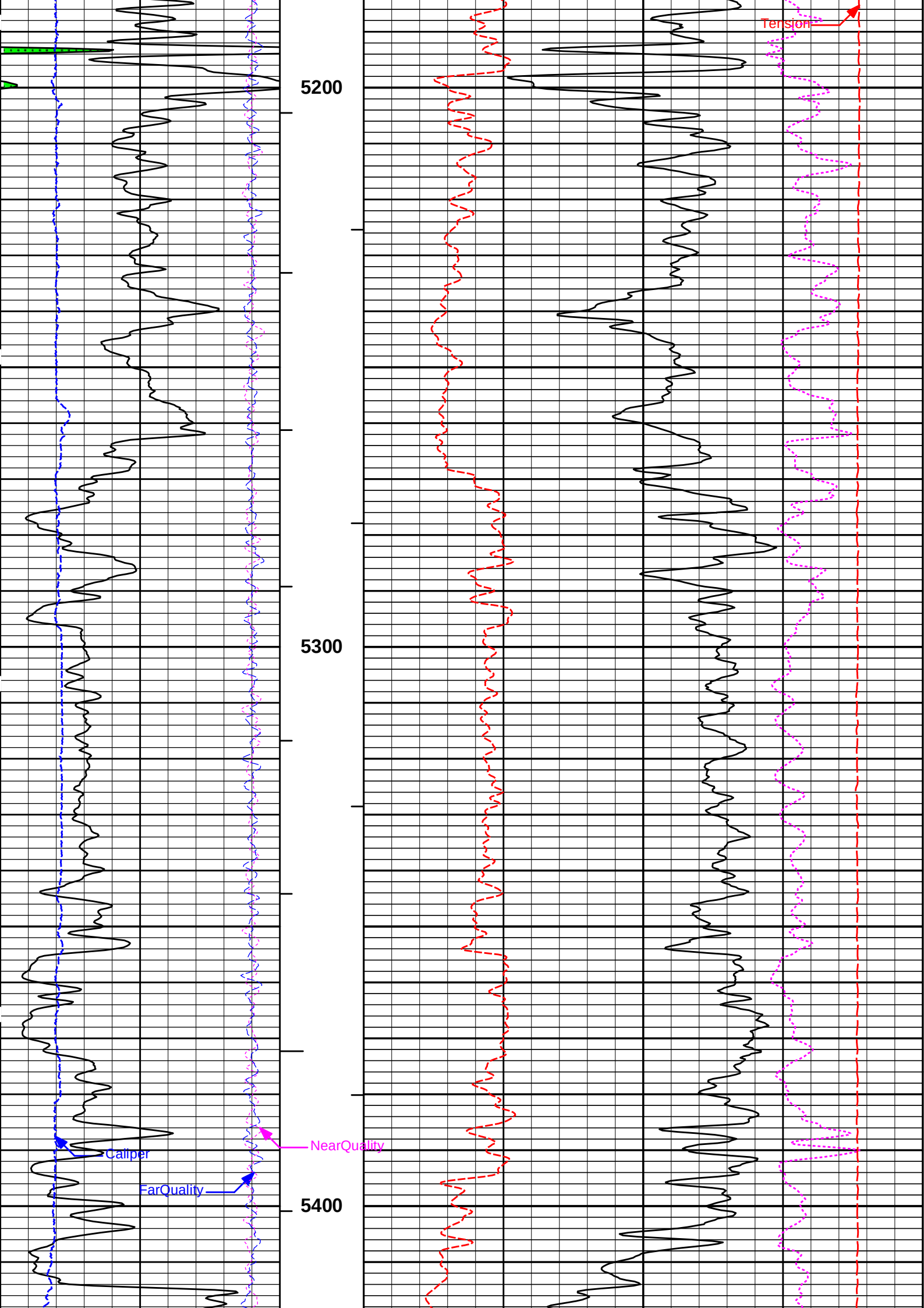
Bulk Density
DensityCorr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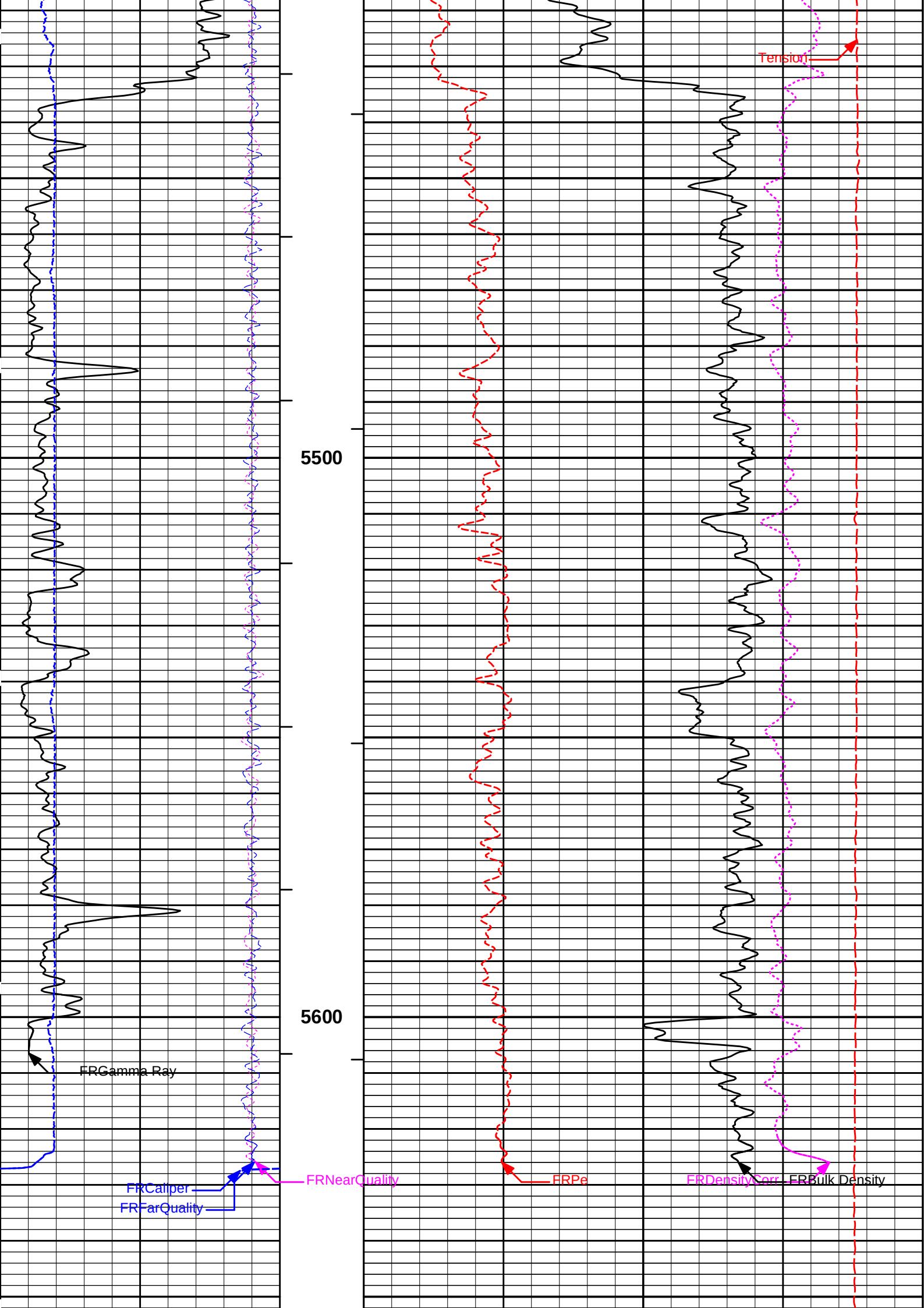
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FRPe
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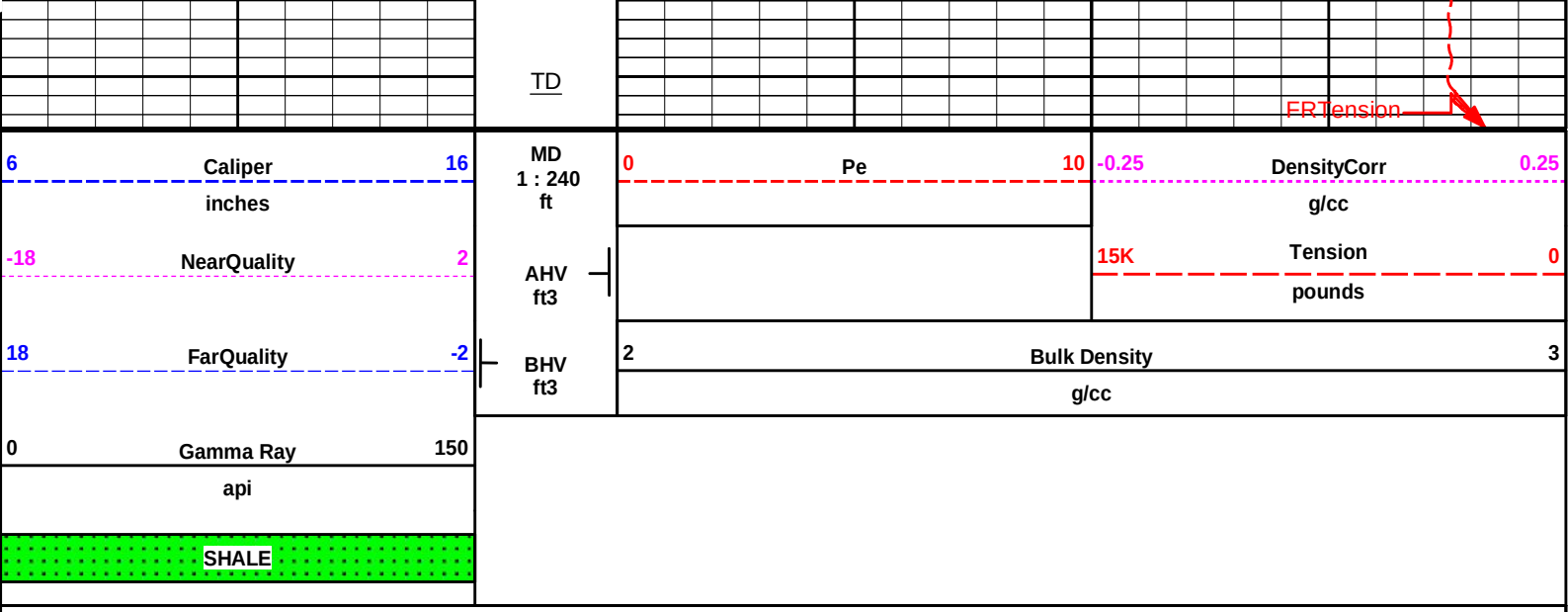
FRBulk Density



HALLIBURTON

Plot Time: 25-Feb-18 21:17:44
Plot Range: 3995 ft to 5665.42 ft
Data: BATMAN_B4\Well Based\DETAILS\
Plot File: \\-LOCAL-\BATMAN_B4\Well Based\POROSITY\BULKD_5_MAIN_LIB

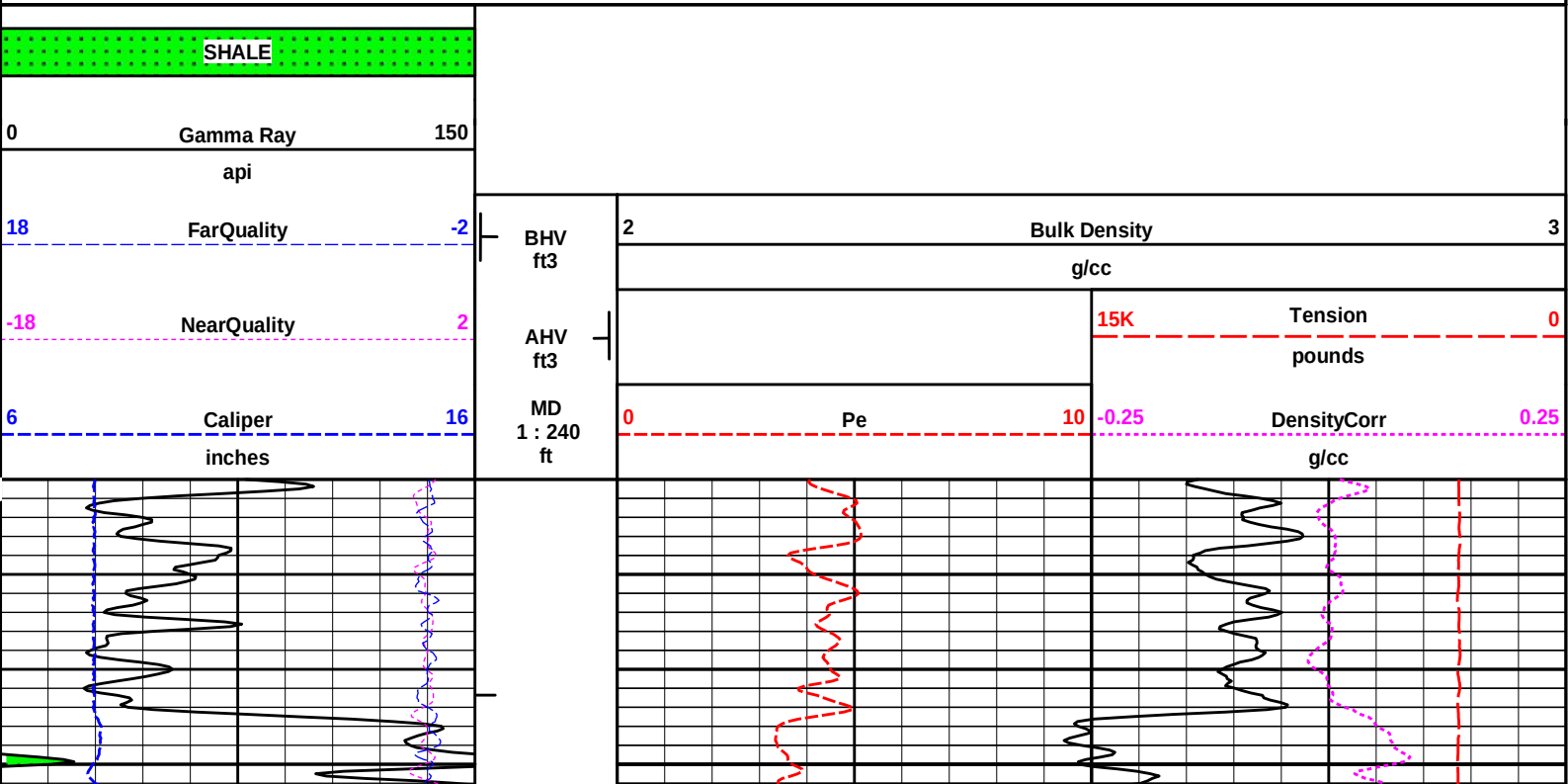
5 INCH MAIN LOG

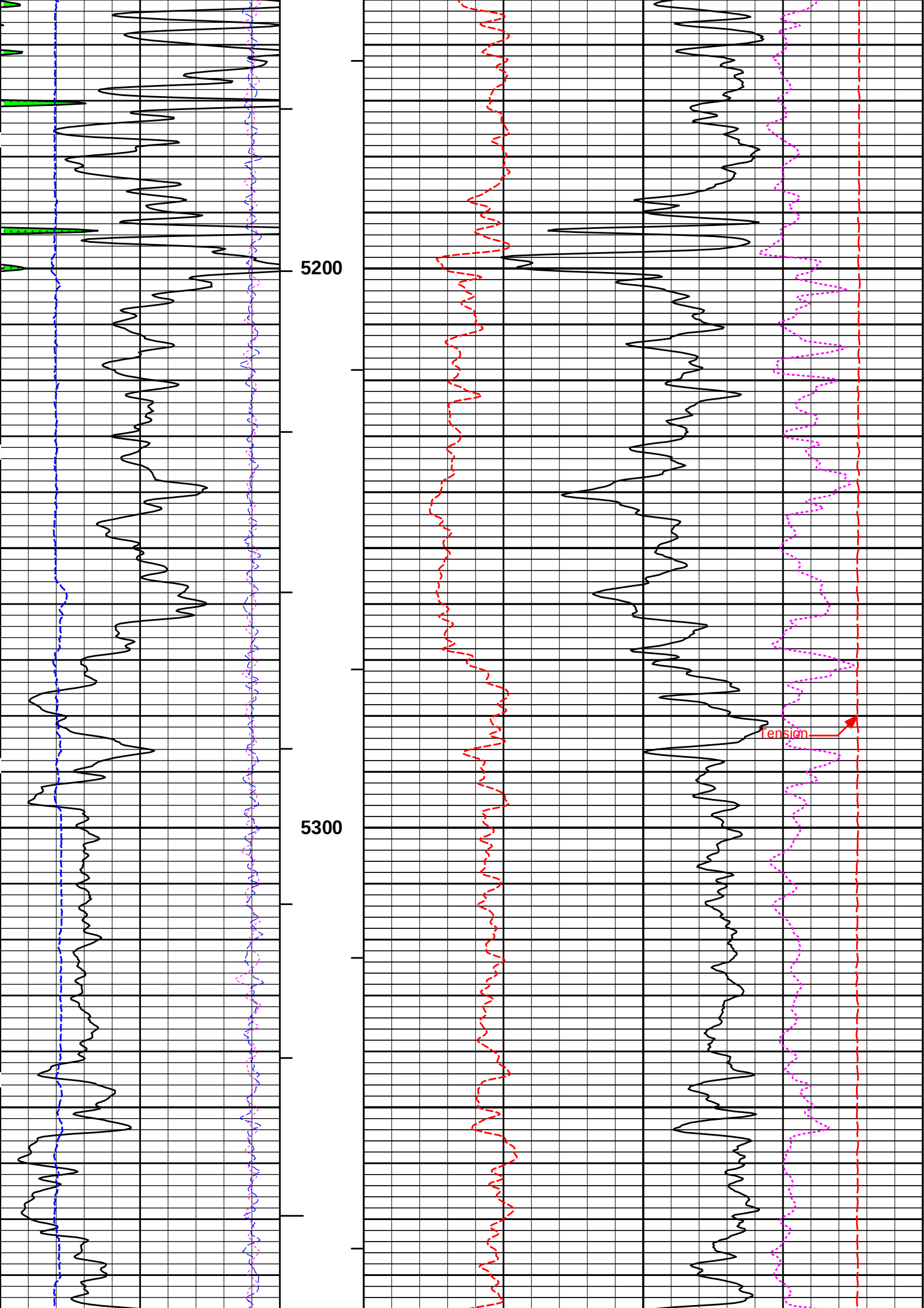
MEASURED DEPTH
MAIN SECTION 5" PER 100'

HALLIBURTON

Plot Time: 25-Feb-18 21:17:44
Plot Range: 5120 ft to 5665.08 ft
Data: BATMAN_B4\Well Based\REPEAT\
Plot File: \\-LOCAL-\BATMAN_B4\Well Based\POROSITY\BULKD_5_REP_LIB

REPEAT SECTION

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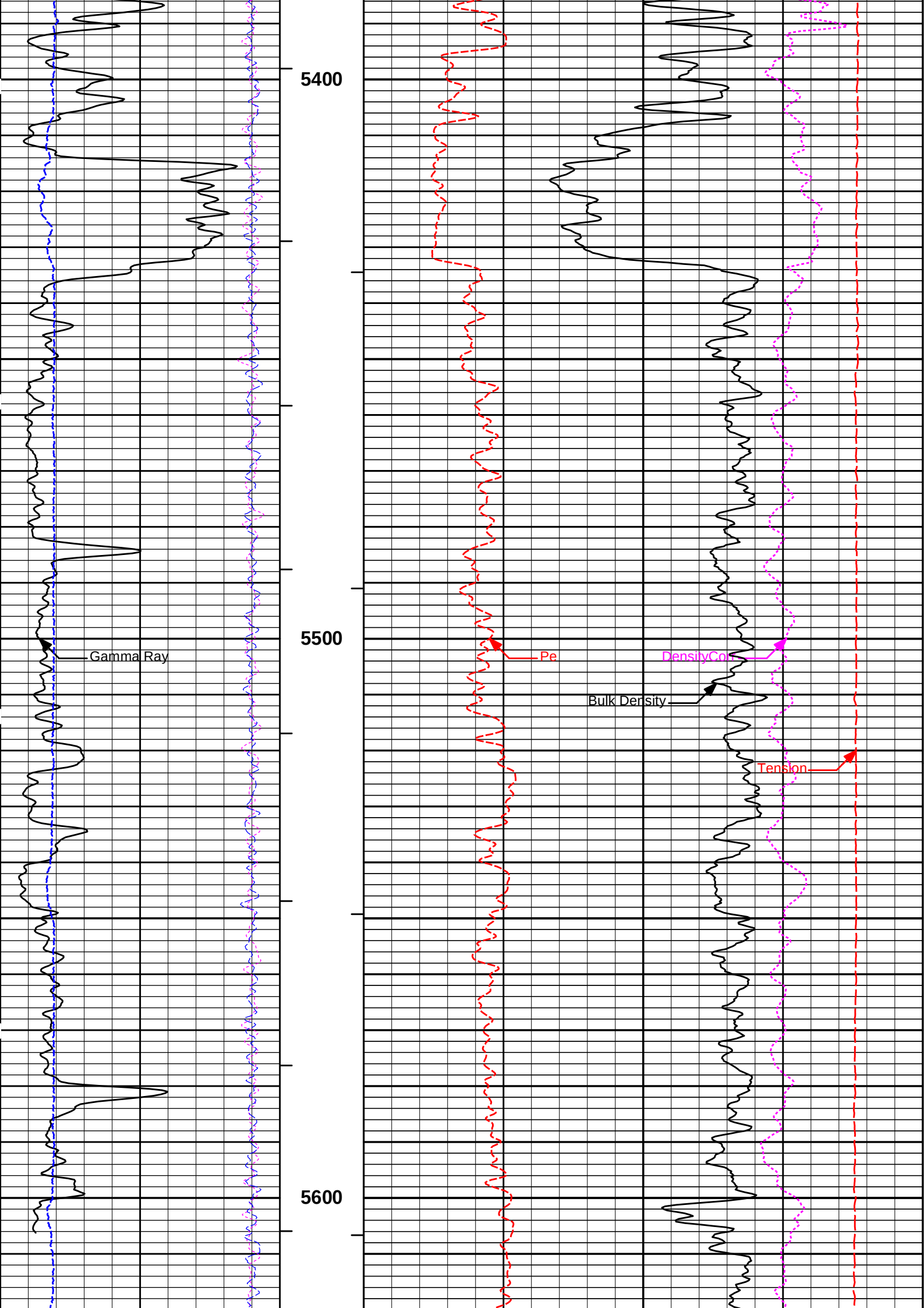
Tension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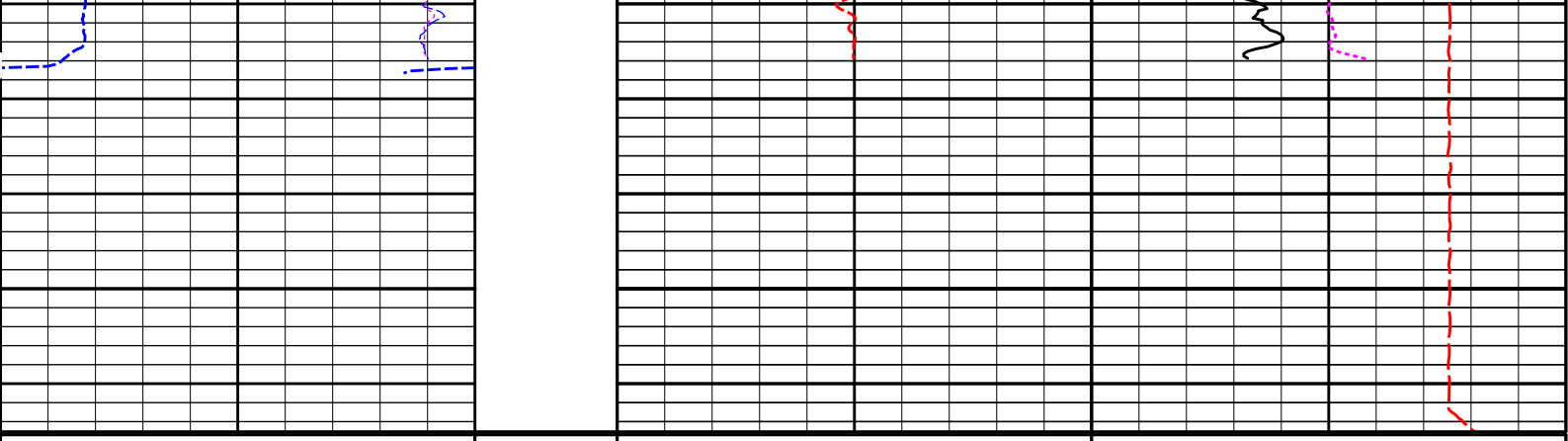
Bulk Density
Tension



6 Caliper 16 inches	MD 1 : 240 ft	0 Pe 10
-18 NearQuality 2	AHV ft3	-0.25 DensityCorr 0.25 g/cc
18 FarQuality -2	BHV ft3	15K Tension 0 pounds
0 Gamma Ray 150 api		2 Bulk Density 3 g/cc
SHALE		

HALLIBURTON

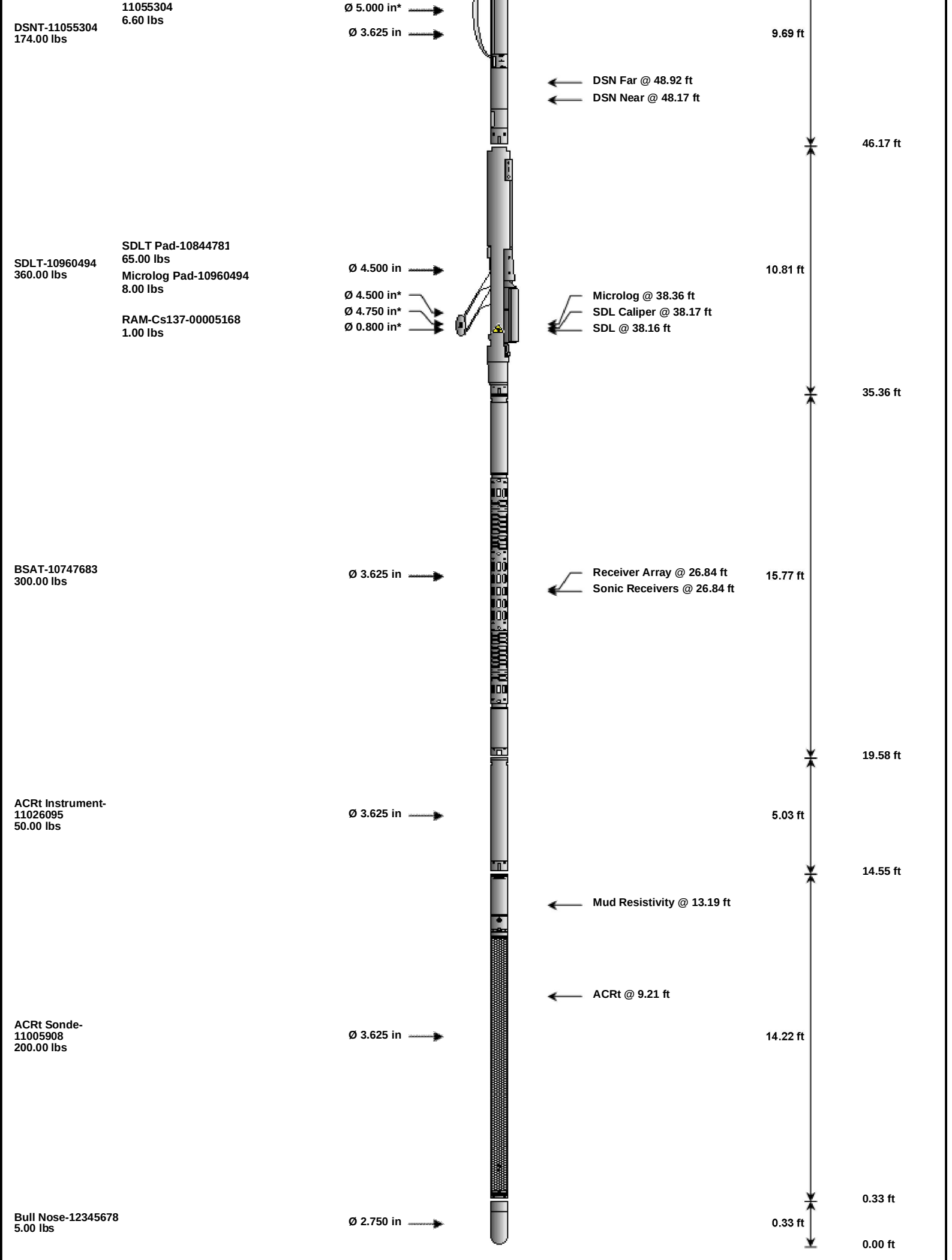
Plot Time: 25-Feb-18 21:17:48
Plot Range: 5120 ft to 5665.08 ft
Data: BATMAN_B4\Well Based\REPEAT\
Plot File: \\-LOCAL-\BATMAN_B4\Well Based\POROSITY\BULKD_5_REP_LIB

REPEAT SECTION

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
				Temperature @ 71.07 ft		71.57 ft
CH_HOS-11459024 37.50 lbs	Weak Point 7000 lbs-00000025 0.01 lbs	Ø 2.750 in Ø 0.010 in*			2.50 ft	
XOHD-11569312 20.00 lbs		Ø 2.750 in Ø 3.625 in			0.95 ft	69.07 ft 68.12 ft
SP Sub-11441455 60.00 lbs		Ø 3.625 in		SP @ 66.34 ft	3.74 ft	
				Z-Accelerometer @ 63.93 ft		64.38 ft
GTET-11958947 165.00 lbs		Ø 3.625 in			8.52 ft	
				GammaRay @ 58.32 ft		
	DSN Decentralizer-					55.86 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		69.07	300.00
WP7K	Weak Point 7000 lbs	00000025	0.01	0.01	*	69.87	300.00

XOHD	Hostile to Dits Cross Over	11569312	20.00	0.95		68.12	300.00
SP	SP Sub	11441455	60.00	3.74		64.38	300.00
GTET	Gamma Telemetry Tool	11958947	165.00	8.52		55.86	60.00
DSNT	Dual Spaced Neutron	11055304	174.00	9.69		46.17	60.00
DCNT	DSN Decentralizer	11055304	6.60	5.13	*	49.50	300.00
SDLT	Spectral Density Tool	10960494	360.00	10.81		35.36	60.00
SDLP	Density Insite Pad	10844781	65.00	2.55	*	37.57	60.00
Cs137	Logging Source, SDLT-I, 1.78 Ci - Cs137	00005168	1.00	0.80	*	37.80	300.00
MICP	Microlog Pad	10960494	8.00	1.00	*	37.86	60.00
BSAT	Borehole Sonic Array Tool	10747683	300.00	15.77		19.58	60.00
ACRt	Array Compensated True Resistivity Instrument Section	11026095	50.00	5.03		14.55	120.00
ACRt	Array Compensated True Resistivity Sonde Section	11005908	200.00	14.22		0.33	120.00
BLNS	Bull Nose	12345678	5.00	0.33		0.00	300.00
Total			**1,452.11**	**71.57**			

* Not included in Total Length and Length Accumulation.

Data: BATMAN_B4\0001 GTET-DSNT-SDLT-BSAT-ACRT\IDLE **Date: 25-Feb-18 19:19:43**

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	9.100	ppg
	SHARED	WAGT	Weighting Agent	Natural	
	SHARED	BSAL	Borehole salinity	0.00	ppm
	SHARED	FSAL	Formation Salinity NaCl	0.00	ppm
	SHARED	KPCT	Percent K in Mud by Weight?	0.00	%
	SHARED	RMUD	Mud Resistivity	1.670	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	5655.00	ft
	SHARED	BHT	Bottom Hole Temperature	141.0	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	1.52	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	DTSH	Delta -T Shale	100.00	uspf
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 Upr	
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: BATMAN_B4\0001 GTET-DSNT-SDLT-BSAT-ACRT\IDLE **Date: 25-Feb-18 19:46:39**

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CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name:	**GTET - 11958947**	**Reference Calibration Date:**	**20-Feb-18 09:19:12**
Engineer:	**JORGE ORLANDO PEREZ**	**Calibration Date:**	**20-Feb-18 09:23:22**
Software Version:	**WL INSITE R5.0.5 (Build 8)**	**Calibration Version:**	**1**

Calibrator Source S/N: TB-146

Calibrator API Reference:225.00 api

Equivalent Calibrator API Reference:228.9 api

Measurement	Measured	Calibrated	Units

Measurement	Measured	Calibrated	Units
Background	29.2	29.5	api
Background + Calibrator	256.0	258.4	api
Calibrator	226.8	228.9	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name: GTET - 11958947 **Reference Calibration Date:** 20-Feb-18 09:23:22

Engineer: JORGE ORLANDO PEREZ **Calibration Date:** 20-Feb-18 09:28:38

Software Version: WL INSITE R5.0.5 (Build 8) **Calibration Version:** 1

Calibrator Source S/N: TB-146

Calibrator API Reference:225.00 api

Equivalent Calibrator API Reference:228.9 api

Field Verification	Shop	Field	Units
Background	29.5	30.3	api
Background + Calibrator	258.4	262.2	api
Calibrator	228.9	231.8	api

Shop	Field	Difference	Tolerance
228.9	231.8	-2.9	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name: DSNT - 11055304 **Reference Calibration Date:** 26-Dec-17 10:04:12

Engineer: JORGE ORLANDO PEREZ **Calibration Date:** 26-Dec-17 10:24:08

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: 68 degF

Min. Tool Housing Outside Diameter: 3.625 in

CALIBRATION CONSTANTS			
Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	1.03005	1.02655	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):	0.2368	0.2358	0.0011	+/- 0.0020
Calibrated Ratio:	10.5954	10.5595	0.036	+/- 0.050

VERIFIER		
Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0338	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:** 26-Dec-17 10:24:08

Engineer: JORGE ORLANDO PEREZ **Calibration Date:** 20-Feb-18 09:26:02

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):	0.0338	0.0474	0.0136	+/- 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: JORGE ORLANDO PEREZ **Calibration Date:** 09-Dec-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:** 09-Dec-17 12:48:22

Engineer: JORGE ORLANDO PEREZ **Calibration Date:** 20-Feb-18 09:50:40

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

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name:	**SDLT Pad - 10844781**	**Reference Calibration Date:**	**13-Mar-17 10:24:03**
Engineer:	**JORGE ORLANDO PEREZ**	**Calibration Date:**	**09-Dec-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	Density: 2.581g/cc	Pe: 3.170
Magnesium Block S/N: EL RENO	Density: 1.687g/cc	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:** 09-Dec-17 11:03:23

Engineer: JORGE ORLANDO PEREZ **Calibration Date:** 20-Feb-18 09:40:37

Software Version: WL INSITE R5.0.5 (Build 8) **Calibration Version:** 1

Pad Temperature: 64.7 degF

DENSITY FIELD CALIBRATION SUMMARY				
Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1206.834	1193.624	-13.210	14.101
Far (B+D+P+L) cps	811.738	805.890	-5.848	15.745
Near Resolution	9.59	9.63	0.040	0.50
Far Resolution	8.79	8.79	0.000	1.00

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

CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-11958947						
Gamma Ray Calibrator	228.9	231.8	----------	-2.9	+/- 9.00	api
DSNT-11055304						
Snow-Block Porosity	0.0338	0.0474	----------	-0.0136	+/- 0.0150	decp
SDLT-10960494						
Pad Extension	3.75	3.75	----------	0.00	+/-0.10	in
Ring Diameter	8.25	8.25	----------	0.00	+/-0.15	in
SDLT Pad-10844781						
Near(B+D+P+L)	1206.834	1193.624	----------	13.210	+/-14.101	cps
Far(B+D+P+L)	811.738	805.890	----------	5.848	+/-15.745	cps

Data: BATMAN_B4\0001 GTET-DSNT-SDLT-BSAT-ACRT\IDLE **Date: 25-Feb-18 19:43:58**

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INPUTS, DELAYS AND FILTERS TABLE

Mnemonic	Input Description	Delay (ft)	Filter Type	Filter Length (ft)
Depth Panel				
TENS	Tension	0.00	NO	
Rwa / CrossPlot				
TPUL	Tension Pull	71.57	NO	
BS	Bit Size	71.57	NO	
HDIA	Measured Hole Diameter	0.00	NO	

CH_HOS				
DHTN	DownholeTension	0.00	BLK	0.000
SP Sub				
PLTC	Plot Control Mask	66.34	NO	
SP	Spontaneous Potential	66.34	BLK	1.250
SPR	Raw Spontaneous Potential	66.34	NO	
SPO	Spontaneous Potential Offset	66.34	NO	
GTET				
TPUL	Tension Pull	58.32	NO	
GR	Natural Gamma Ray API	58.32	TRI	1.750
GRU	Unfiltered Natural Gamma Ray API	58.32	NO	
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution	58.32	W	1.416 , 0.750
HDIA	Measured Hole Diameter	0.00	NO	
ACCZ	Accelerometer Z	0.00	BLK	0.083
DEVI	Inclination	0.00	NO	
DSNT				
TPUL	Tension Pull	48.07	NO	
RNDS	Near Detector Telemetry Counts	48.17	BLK	1.417
RFDS	Far Detector Telemetry Counts	48.92	TRI	0.583
DNTT	DSN Tool Temperature	48.17	NO	
DSNS	DSN Tool Status	48.07	NO	
ERND	Near Detector Telemetry Counts EVR	48.17	BLK	0.000
ERFD	Far Detector Telemetry Counts EVR	48.92	BLK	0.000
ENTM	DSN Tool Temperature EVR	48.17	NO	
HDIA	Measured Hole Diameter	0.00	NO	
SDLT				
TPUL	Tension Pull	38.17	NO	
PCAL	Pad Caliper	38.17	TRI	0.250
ACAL	Arm Caliper	38.17	TRI	0.250
BSAT				
TPUL	Tension Pull	26.84	NO	
STAT	Status	26.84	NO	
DLYT	Delay Time	26.84	NO	
SI	Sample Interval	26.84	NO	
TXRX	Raw Telemetry 10 Receivers	26.84	NO	
FRMC	Tool Frame Count	26.84	NO	
GMOD	Gain processing mode	19.58	NO	
ACRt Sonde				
TPUL	Tension Pull	2.73	NO	
F1R1	ACRT 12KHz - 80in R value	8.98	BLK	0.000
F1X1	ACRT 12KHz - 80in X value	8.98	BLK	0.000
F1R2	ACRT 12KHz - 50in R value	6.48	BLK	0.000
F1X2	ACRT 12KHz - 50in X value	6.48	BLK	0.000
F1R3	ACRT 12KHz - 29in R value	4.98	BLK	0.000
F1X3	ACRT 12KHz - 29in X value	4.98	BLK	0.000
F1R4	ACRT 12KHz - 17in R value	3.98	BLK	0.000
F1X4	ACRT 12KHz - 17in X value	3.98	BLK	0.000
F1R5	ACRT 12KHz - 10in R value	3.48	BLK	0.000
F1X5	ACRT 12KHz - 10in X value	3.48	BLK	0.000
F1R6	ACRT 12KHz - 6in R value	3.23	BLK	0.000
F1X6	ACRT 12KHz - 6in X value	3.23	BLK	0.000
F2R1	ACRT 36KHz - 80in R value	8.98	BLK	0.000
F2X1	ACRT 36KHz - 80in X value	8.98	BLK	0.000
F2R2	ACRT 36KHz - 50in R value	6.48	BLK	0.000

F2X2	ACRT 36KHz - 50in X value	6.48	BLK	0.000
F2R3	ACRT 36KHz - 29in R value	4.98	BLK	0.000
F2X3	ACRT 36KHz - 29in X value	4.98	BLK	0.000
F2R4	ACRT 36KHz - 17in R value	3.98	BLK	0.000
F2X4	ACRT 36KHz - 17in X value	3.98	BLK	0.000
F2R5	ACRT 36KHz - 10in R value	3.48	BLK	0.000
F2X5	ACRT 36KHz - 10in X value	3.48	BLK	0.000
F2R6	ACRT 36KHz - 6in R value	3.23	BLK	0.000
F2X6	ACRT 36KHz - 6in X value	3.23	BLK	0.000
F3R1	ACRT 72KHz - 80in R value	8.98	BLK	0.000
F3X1	ACRT 72KHz - 80in X value	8.98	BLK	0.000
F3R2	ACRT 72KHz - 50in R value	6.48	BLK	0.000
F3X2	ACRT 72KHz - 50in X value	6.48	BLK	0.000
F3R3	ACRT 72KHz - 29in R value	4.98	BLK	0.000
F3X3	ACRT 72KHz - 29in X value	4.98	BLK	0.000
F3R4	ACRT 72KHz - 17in R value	3.98	BLK	0.000
F3X4	ACRT 72KHz - 17in X value	3.98	BLK	0.000
F3R5	ACRT 72KHz - 10in R value	3.48	BLK	0.000
F3X5	ACRT 72KHz - 10in X value	3.48	BLK	0.000
F3R6	ACRT 72KHz - 6in R value	3.23	BLK	0.000
F3X6	ACRT 72KHz - 6in X value	3.23	BLK	0.000
RMUD	Mud Resistivity	12.52	BLK	0.000
F1RT	Transmitter Reference 12 KHz Real Signal	2.73	BLK	0.000
F1XT	Transmitter Reference 12 KHz Imaginary Signal	2.73	BLK	0.000
F2RT	Transmitter Reference 36 KHz Real Signal	2.73	BLK	0.000
F2XT	Transmitter Reference 36 KHz Imaginary Signal	2.73	BLK	0.000
F3RT	Transmitter Reference 72 KHz Real Signal	2.73	BLK	0.000
F3XT	Transmitter Reference 72 KHz Imaginary Signal	2.73	BLK	0.000
TFPU	Upper Feedpipe Temperature Calculated	2.73	BLK	0.000
TFPL	Lower Feedpipe Temperature Calculated	2.73	BLK	0.000
ITMP	Instrument Temperature	2.73	BLK	0.000
TCVA	Temperature Correction Values Loop Off	2.73	NO	
TIDV	Instrument Temperature Derivative	2.73	NO	
TUDV	Upper Temperature Derivative	2.73	NO	
TLDV	Lower Temperature Derivative	2.73	NO	
TRBD	Receiver Board Temperature	2.73	NO	
HDIA	Measured Hole Diameter	0.00	NO	
	Microlog Pad			
TPUL	Tension Pull	38.36	NO	
MINV	Microlog Lateral	38.36	BLK	0.750
MNOR	Microlog Normal	38.36	BLK	0.750
	SDLT Pad			
TPUL	Tension Pull	38.16	NO	
NAB	Near Above	37.99	BLK	0.920
NHI	Near Cesium High	37.99	BLK	0.920
NLO	Near Cesium Low	37.99	BLK	0.920
NVA	Near Valley	37.99	BLK	0.920
NBA	Near Barite	37.99	BLK	0.920
NDE	Near Density	37.99	BLK	0.920
NPK	Near Peak	37.99	BLK	0.920
NLI	Near Lithology	37.99	BLK	0.920
NBAU	Near Barite Unfiltered	37.99	BLK	0.250
NLIU	Near Lithology Unfiltered	37.99	BLK	0.250
FAB	Far Above	38.34	BLK	0.250
FHI	Far Cesium High	38.34	BLK	0.250
FLO	Far Cesium Low	38.34	BLK	0.250
FVA	Far Valley	38.34	BLK	0.250

FBA	Far Barite	38.34	BLK	0.250
FDE	**Far Density**	**38.34**	**BLK**	**0.250**
FPK	Far Peak	38.34	BLK	0.250
FLI	**Far Lithology**	**38.34**	**BLK**	**0.250**
PTMP	Pad Temperature	38.17	BLK	0.920
NHV	**Near Detector High Voltage**	**37.57**	**NO**	
FHV	Far Detector High Voltage	37.57	NO	
ITMP	**Instrument Temperature**	**37.57**	**NO**	
DDHV	Detector High Voltage	37.57	NO	
HDIA	**Measured Hole Diameter**	**0.00**	**NO**	

Data: BATMAN_B4\0001 GTET-DSNT-SDLT-BSAT-ACRT\IDLE **Date: 25-Feb-18 19:47:03**

COMPANY	**MERIT ENERGY COMPANY**
WELL	**BATMAN B4**
FIELD	**SANTA FE NORTH**
COUNTY	**HASKELL** STATE **KANSAS**

HALLIBURTON

DUAL SPACED NEUTRON SPECTRAL DENSITY LOG