HALLIBURTON

DUAL SPACED NEUTRON SPECTRAL DENSITY

MEASURED DEPTH

COMPANY	MERIT ENERGY COMPANY, LLC
WELL	DANIELS 4-28
FIELD/BLOCK	BLACK KNIGHT
COUNTY	HASKELL
STATE	KANSAS

API No. 15081222530100

Location 1794' FEL & 1245' FSL
NW NE SW SE

Sect. 28 Twp. 27 Rge. 33W

Other Services:
DSNT/SDLT
BSAT
ACRT

Permanent Datum	GL	Elev. 2960.0 ft	Elev.: K.B. 2972.0 ft
Log measured from	KB	12.0 ft above perm. Datum	D.F. 2971.0 ft
Drilling measured from	KB		G.L. 2960.0 ft

Date		16-Sep-22					
Run No.		1					
Depth - Driller		5481.0 ft					
Depth - Logger		5481.0 ft					
Bottom - Logged Interval		5481.0 ft					
Top - Logged Interval		1783.0 ft					
Casing - Driller		8.625 in	@ 1786.0 ft	@		@	
Casing - Logger		1783.0 ft					
Bit Size		7.875 in		@		@	
Type Fluid in Hole		Water Based Mud					
Density	Viscosity	9.3 ppg	66.00 s/qt				
PH	Fluid Loss	11.50 pH	5.6 cptm				
Source of Sample		FLOWLINE					
Rm @ Meas. Temperature		1.21 ohmm	@ 75.00 degF	@		@	
Rmf @ Meas. Temperature		0.83 ohmm	@ 75.00 degF	@		@	
Rmc @ Meas. Temperature		1.30 ohmm	@ 75.00 degF	@		@	
Source Rmf	Rmc	CALC	CALC				
Rm @ BHT		0.65 ohmm	@ 145.0 degF	@		@	
Time Since Circulation		4:00 hr					
Time on Bottom		16-Sep-22 06:27					
Max. Rec. Temperature		145.00 degF	@ 5491.0 ft	@		@	
Equipment	Location	11392047	ALVARADO, T				
Recorded By		M. GALLION					
Witnessed By		M. LANGE					

Fold here

PGM Version: WL INSITE R6.6.5 (Build 5)

API No.: 15081222530100

Sales Order Number: 908104317

CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE

Date	Sample No.																
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

Type Log	Depth	Scale Up Hole	Scale Down Hole

RESISTIVITY EQUIPMENT DATA

Run No.	Tool Type & No.	Pad Type	Tool Pos.	Other
ONE	ACRT	NONE	1.5" S.O.	N/A
	S-10933411			

EQUIPMENT DATA

GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Run No.	ONE	Run No.	ONE	Run No.	ONE	Run No.	ONE
Serial No.	11405267	Serial No.	10758088	Serial No.	10865883	Serial No.	11019641
Model No.	GTET	Model No.	BSAT	Model No.	SDLT	Model No.	DSNT
Diameter	3.625"	No. of Cent.	2	Diameter	4.5"	Diameter	3.625"
Detector Model No.	GTET	Spacing	0.5'	Log Type	GAM-GAM	Log Type	NEU-NEU
Type	SCINT			Source Type	Cs-137	Source Type	Am241Be
Length	8"	LSA [Y/N]	Y	Serial No.	5406GW	Serial No.	96395B
Distance to Source	10'	FWDA [Y/N]	Y	Strength	1.78 Ci	Strength	15.0 Ci

LOGGING DATA

GENERAL				GAMMA		ACOUSTIC			DENSITY			NEUTRON		
Run	Depth		Speed	Scale		Scale		Matrix	Scale		Matrix	Scale		Matrix
No.	From	To	ft/min	L	R	L	R		L	R		L	R	
ONE	5481'	3500'	REC	0gapi	150gapi	0.3decP	-0.1decP	47.6uspf	0.3decP	-0.1decP	2.71g/cc	0.3decP	-0.1decP	LIME
ONE	3500'	1783'	REC	0gapi	150gapi	0.3decP	-0.1decP	47.6uspf						

DIRECTIONAL INFORMATION

Maximum Deviation @ KOP @

Remarks: FIRST LOG ON WELL, POSITIVE DEPTH CONTROL APPLIED
SCALES AND PRESENTATIONS AS PER CLIENT REQUEST
TOOLS RAN IN COMBINATION AS PER TOOLSTRING DIAGRAM
HOLE VOLUME CALCULATED FOR 5.5 INCH CASING

RIG: DUKE DRILLING #9
CREW: J. JONES. S. WALDROP
THANK YOU FOR CHOOSNG 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.

HALLIBURTON

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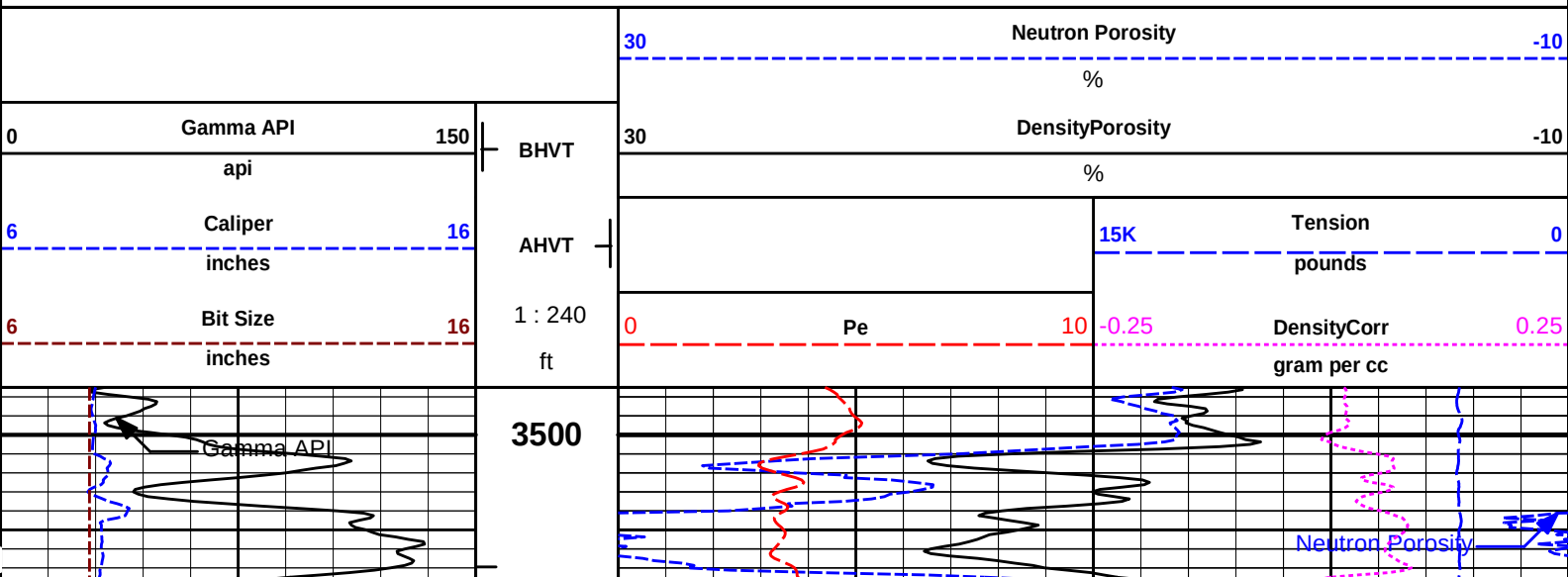
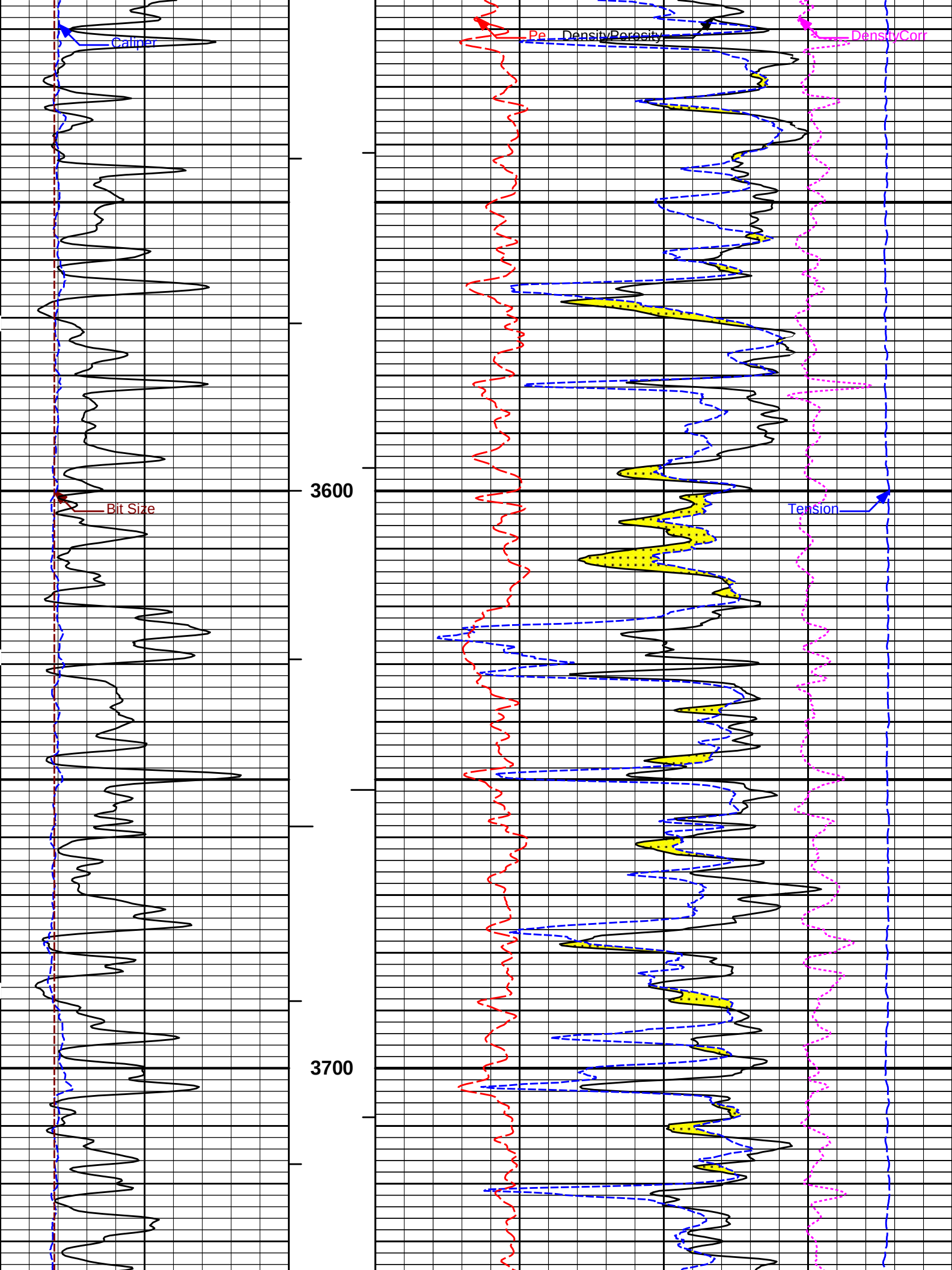
Plot Time: 16-Sep-22 12:36:23
Plot Range: 3495 ft to 5502 ft
Data: 09_16_MERIT\Well Based\DAQ-0001-003
Plot File: \\PORO\Poro_IQ_5_MAIN

5 INCH MAIN LOG

MAIN SECTION 5" PER 100'

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Pe
DensityPorosity
DensityCorr
Tension
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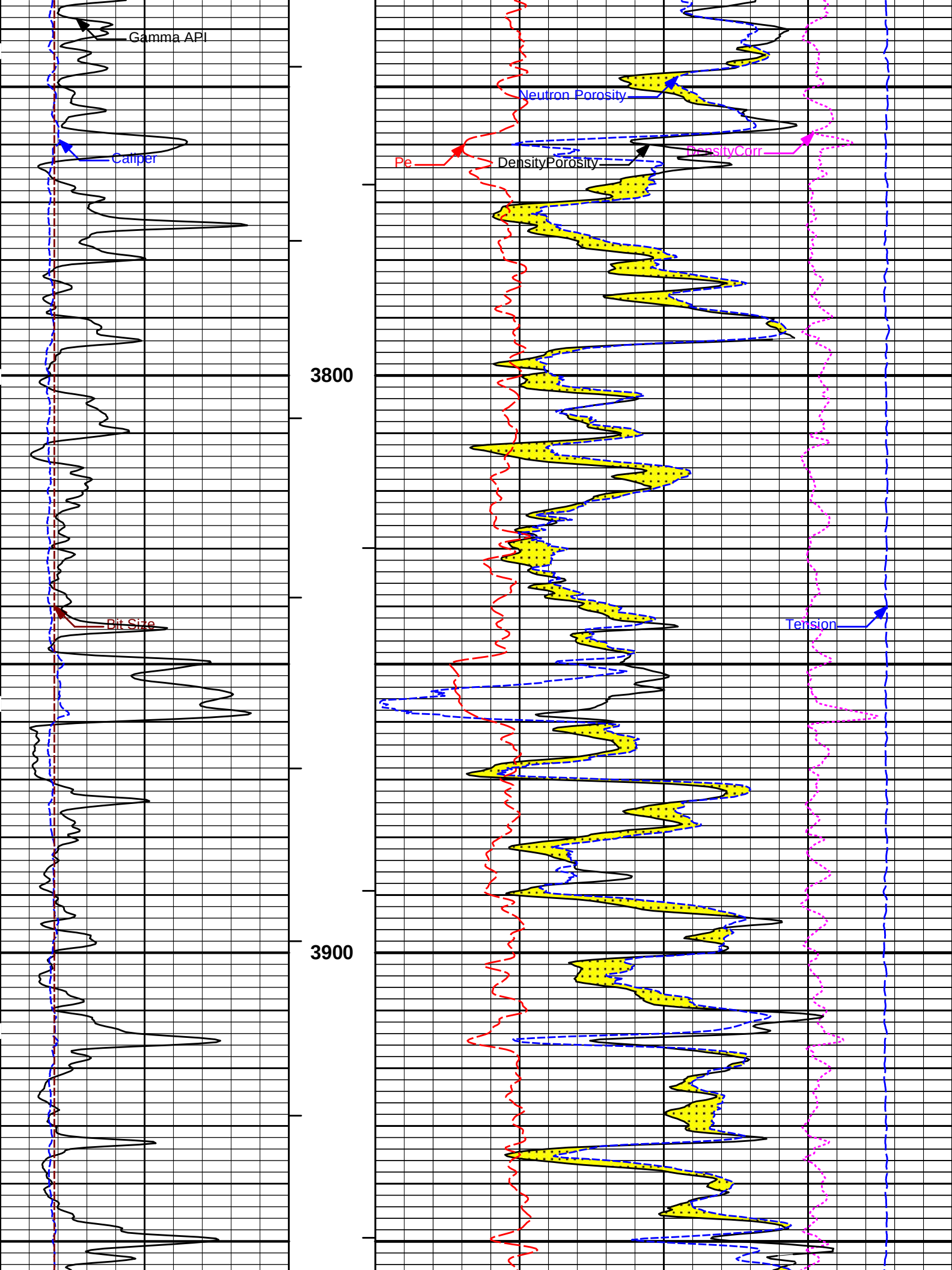
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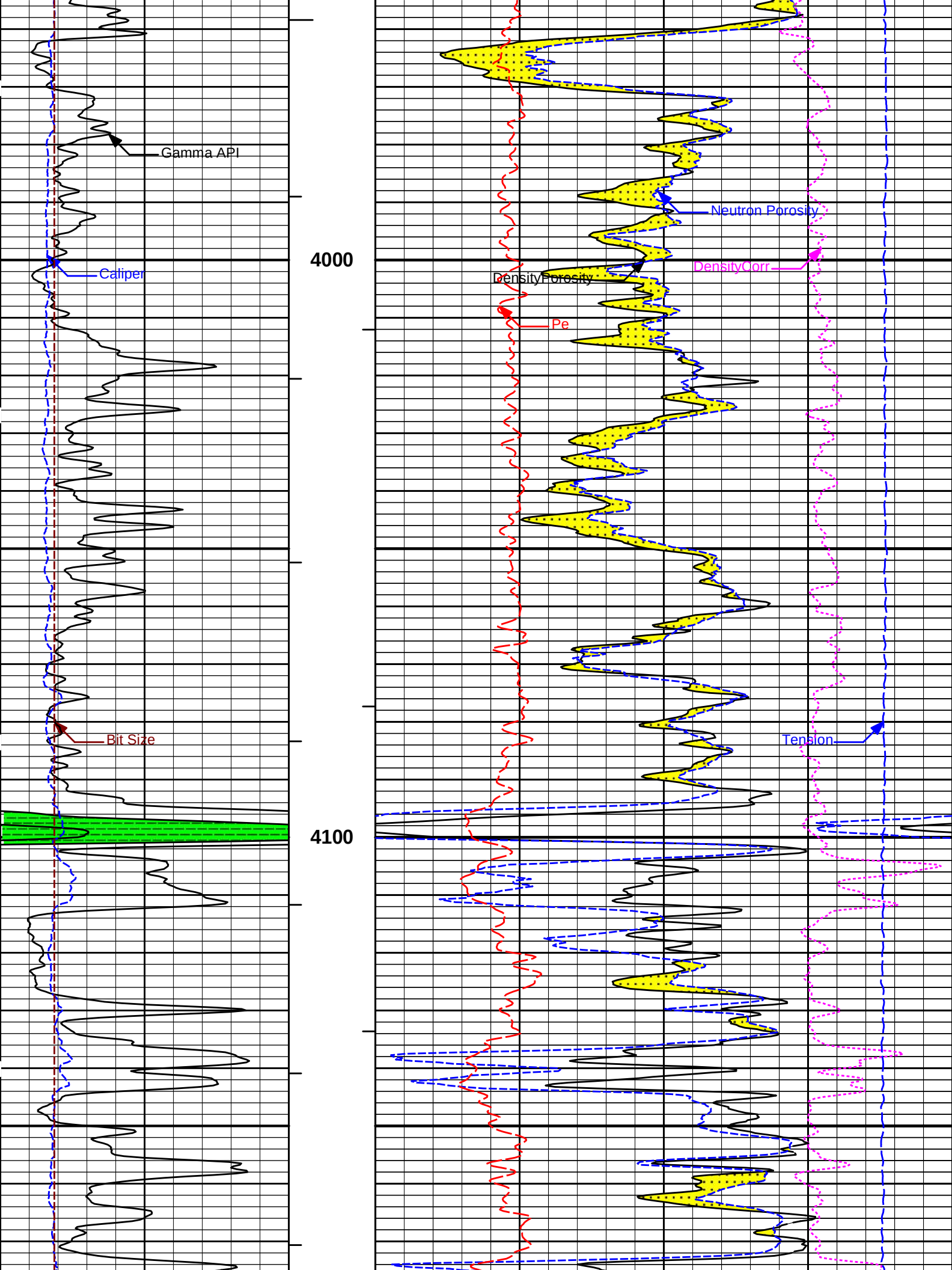
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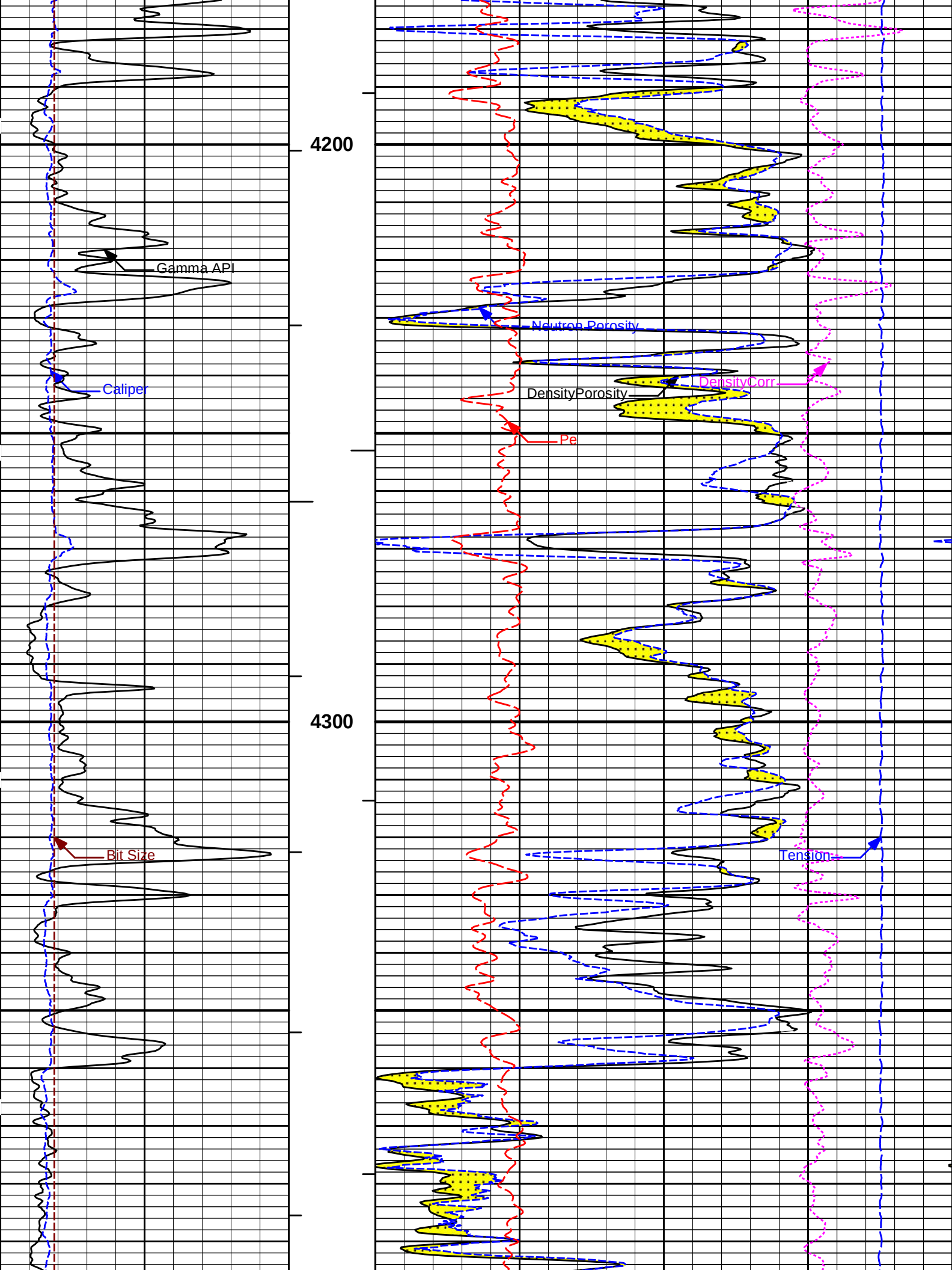
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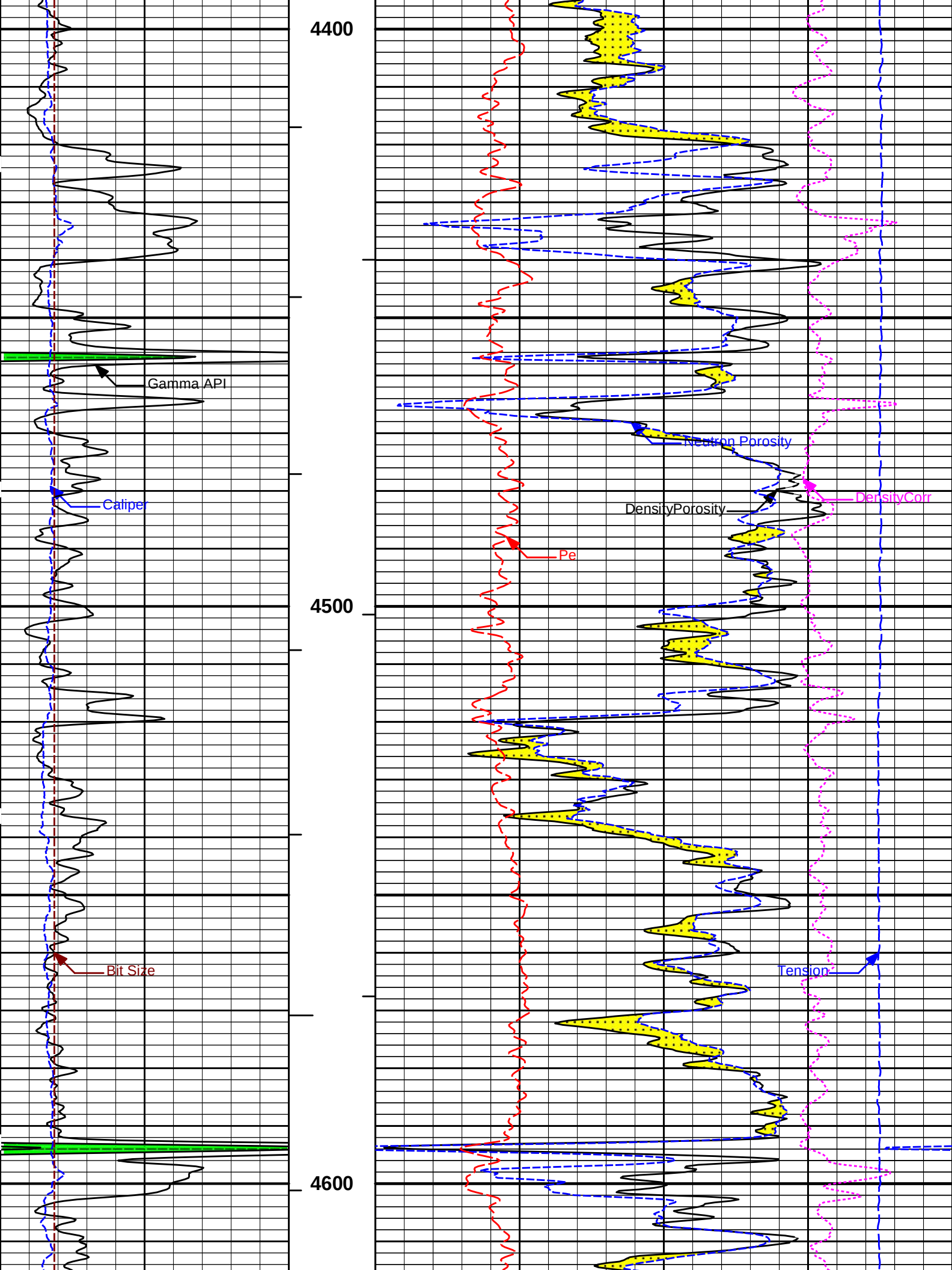
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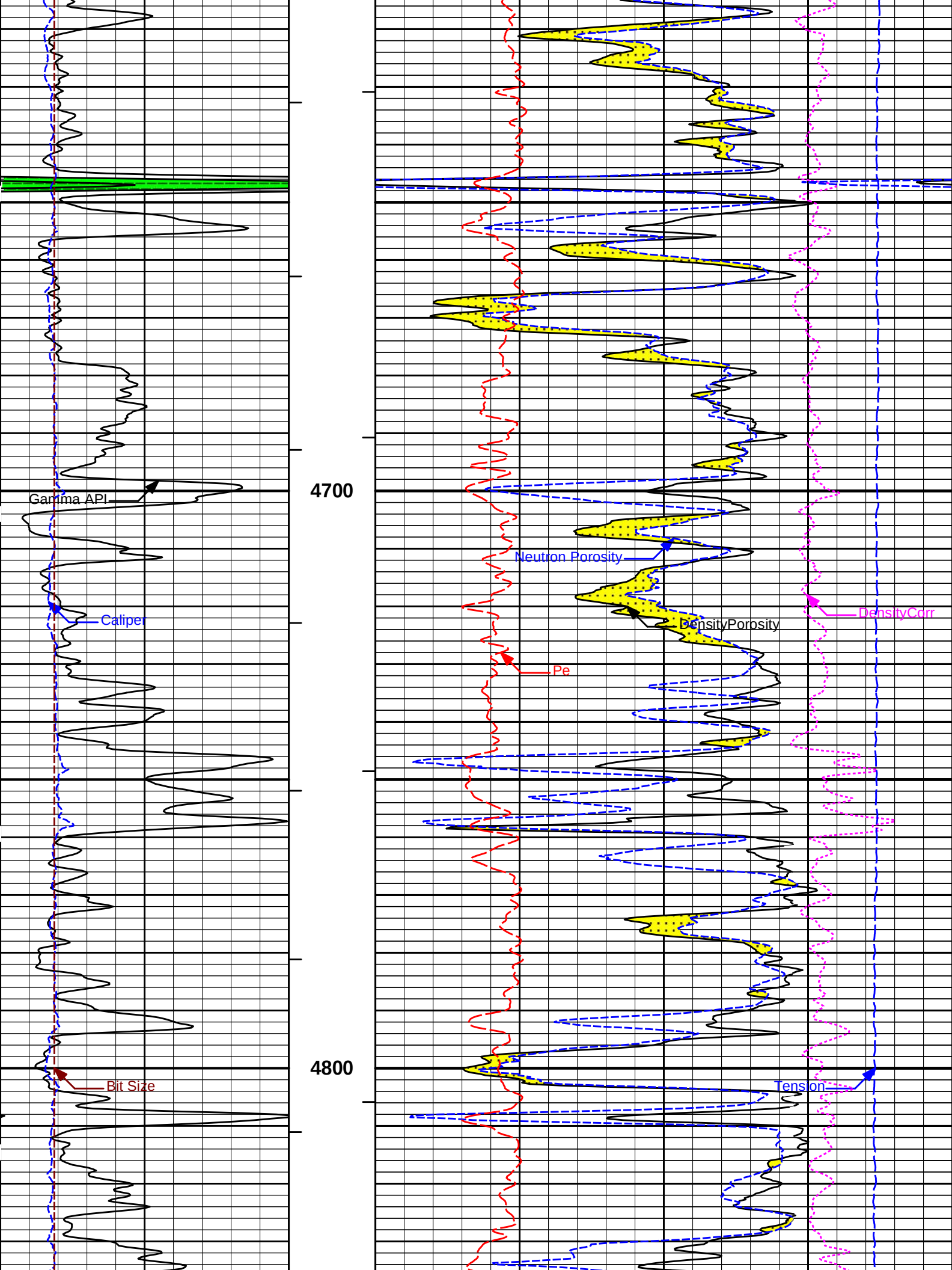
Tension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Pe
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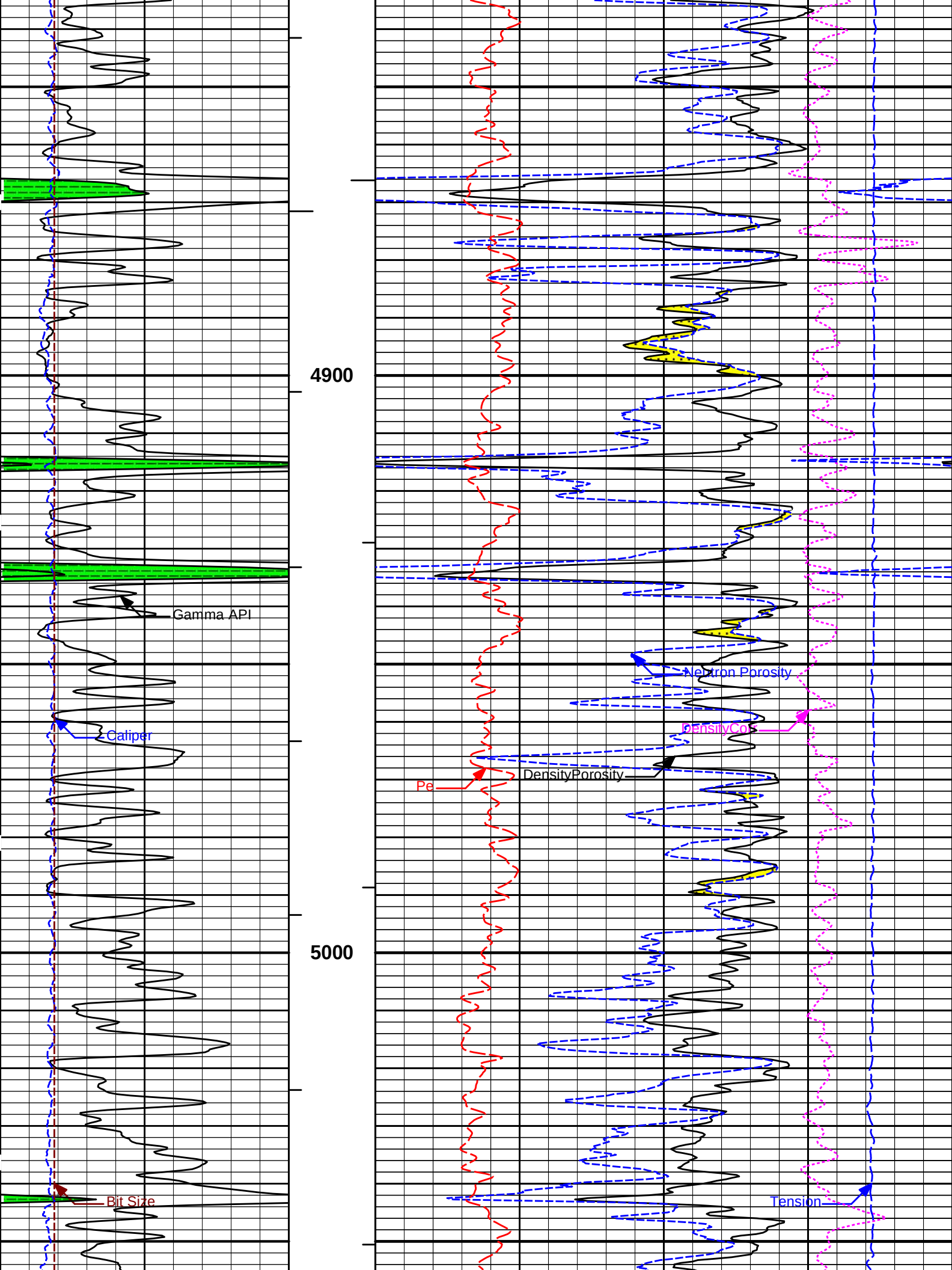
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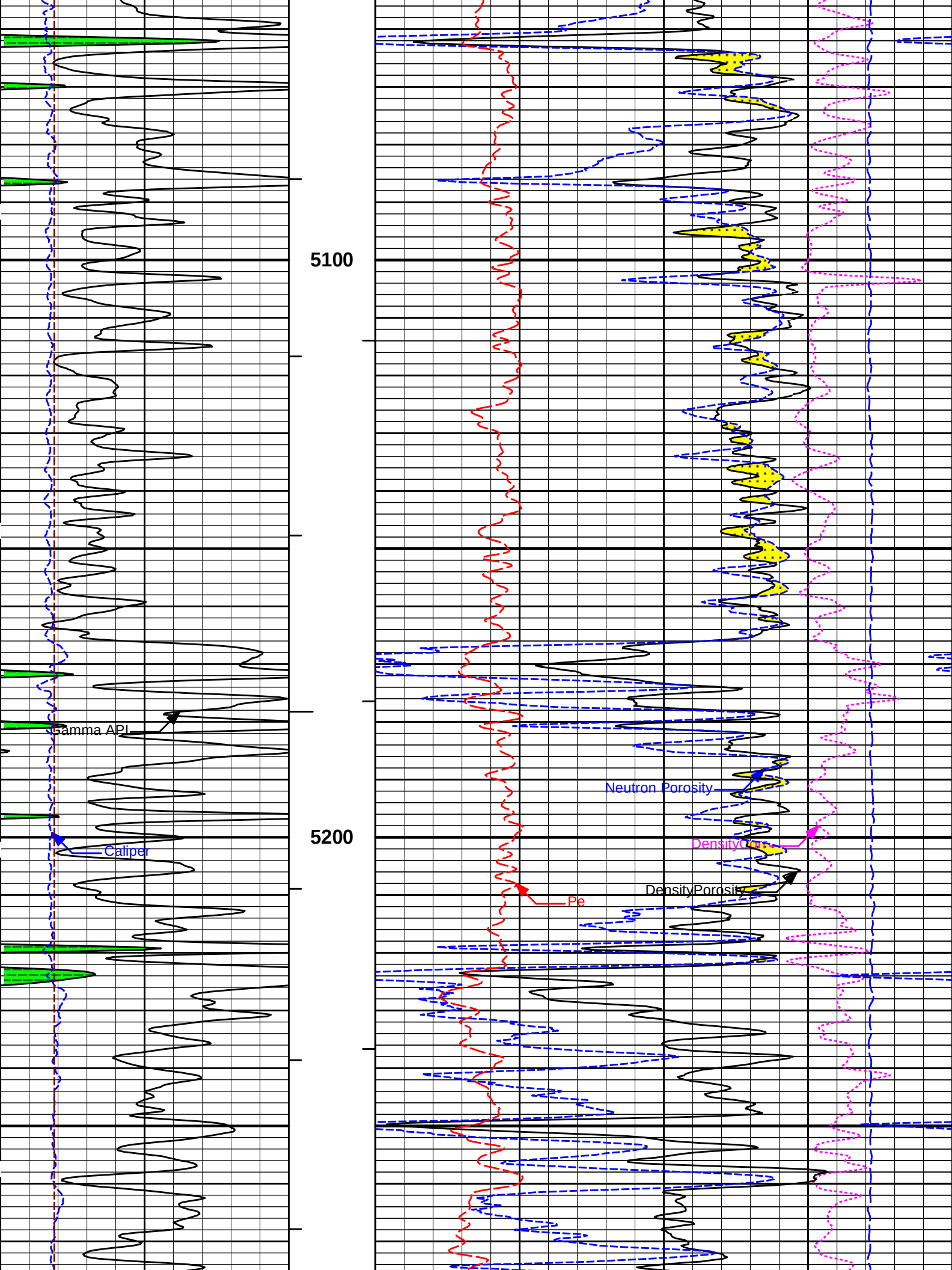
Pe
Tension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Caliper
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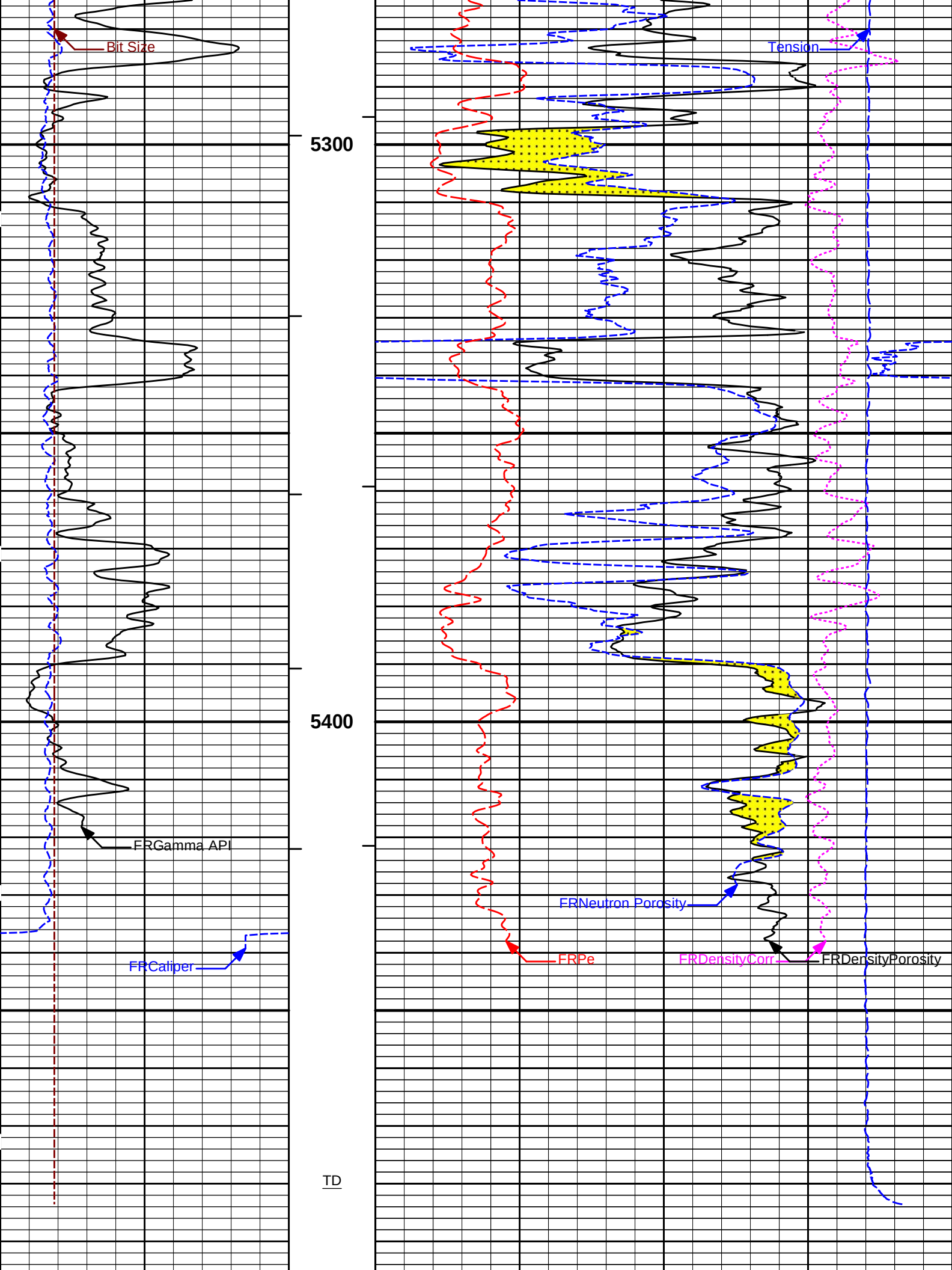
Density Porosity
Pe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FRCaliper
FRPe
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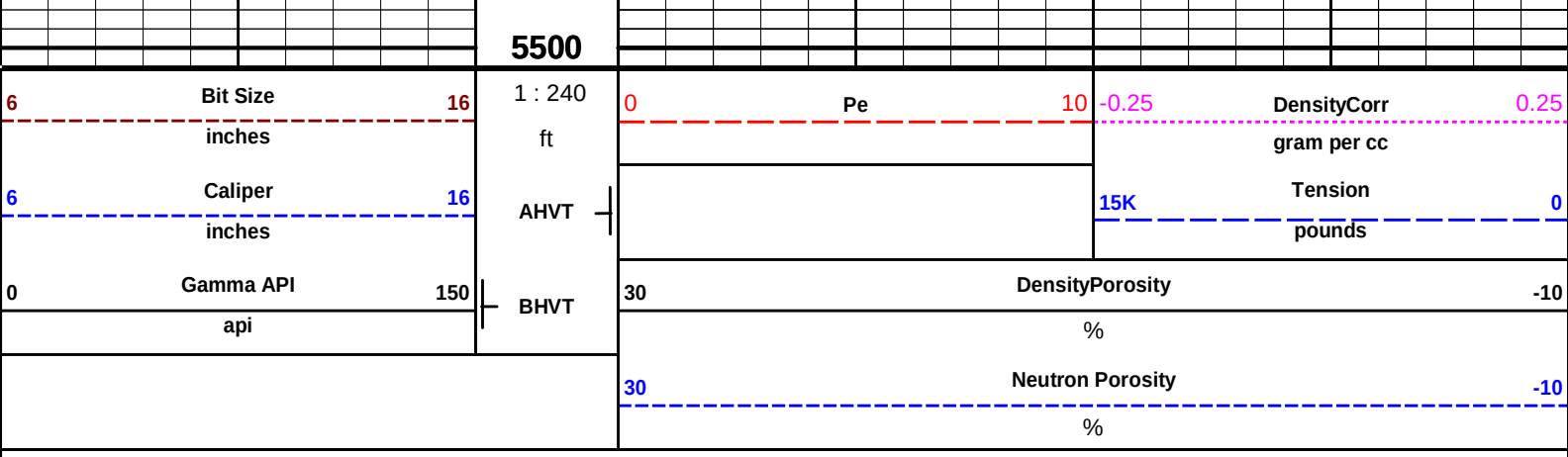
FRDensityPorosity
TD



HALLIBURTON

Plot Time: 16-Sep-22 12:36:26
Plot Range: 3495 ft to 5502 ft
Data: 09_16_MERIT\Well Based\DAQ-0001-003\
Plot File: \\PORO\Poro_IQ_5_MAIN

5 INCH MAIN LOG

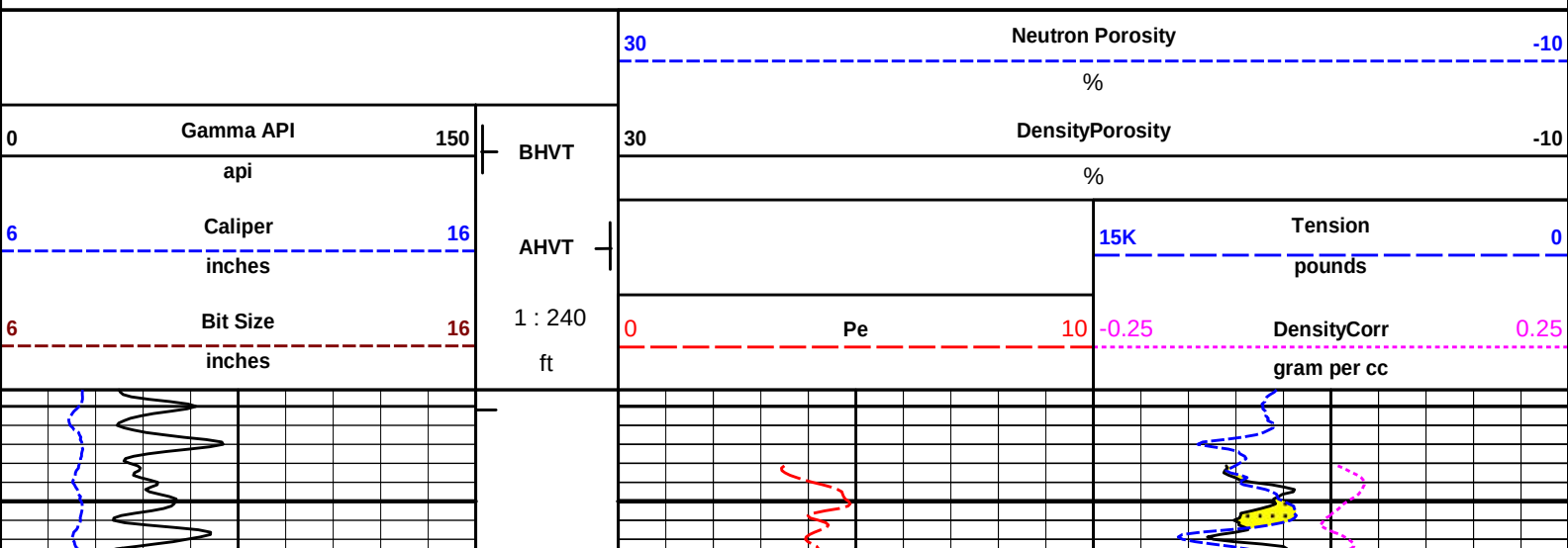
MAIN SECTION 5" PER 100'

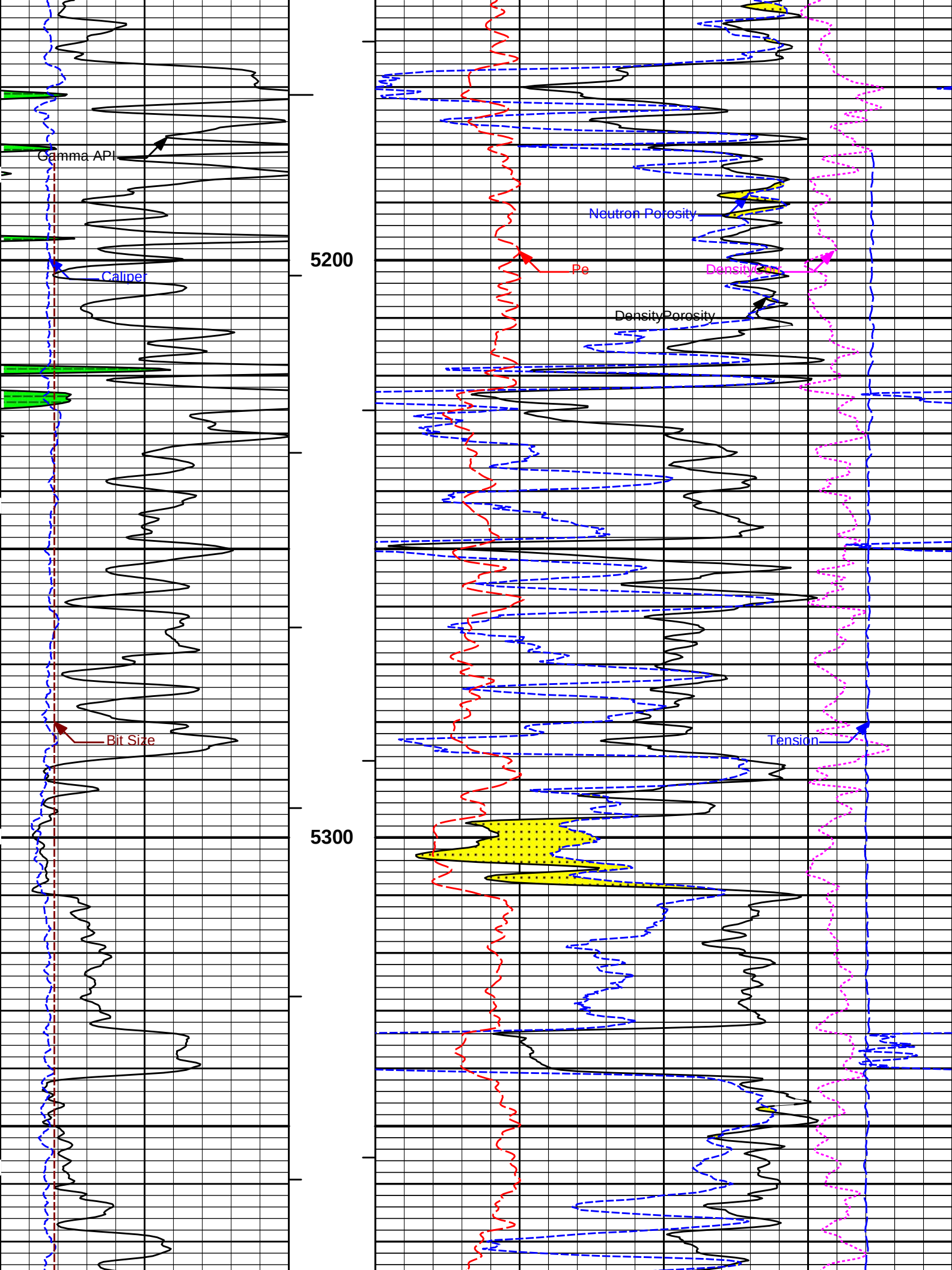
HALLIBURTON

Plot Time: 16-Sep-22 12:36:26
Plot Range: 5138.25 ft to 5502 ft
Data: 09_16_MERIT\Well Based\DAQ-0001-002\
Plot File: \\PORO\Poro_IQ_5 REPEAT

REPEAT SECTION

REPEAT SECTION

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Neutron Porosity
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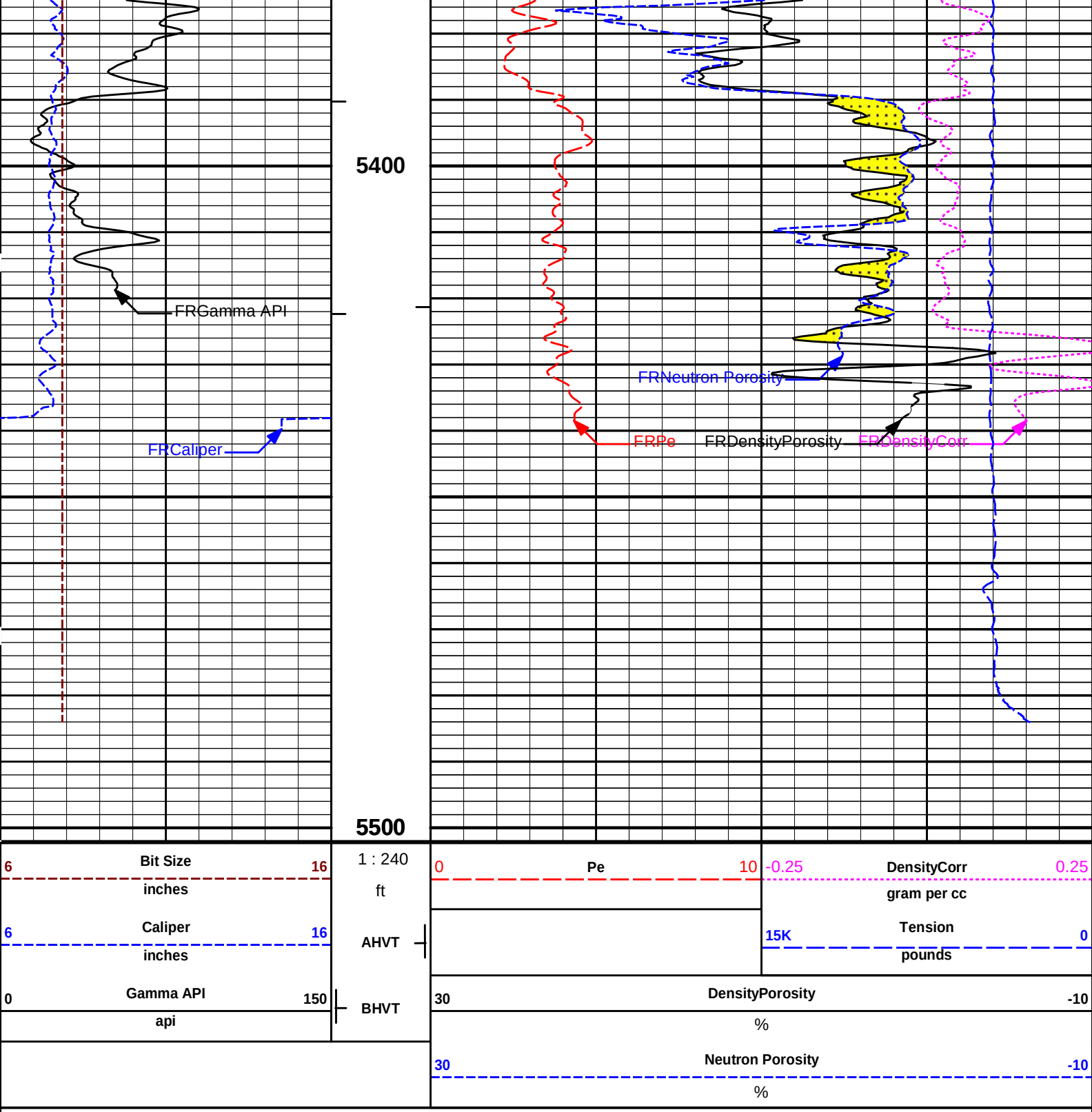
Tension



HALLIBURTON

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REPEAT SECTION

REPEAT SECTION

HALLIBURTON

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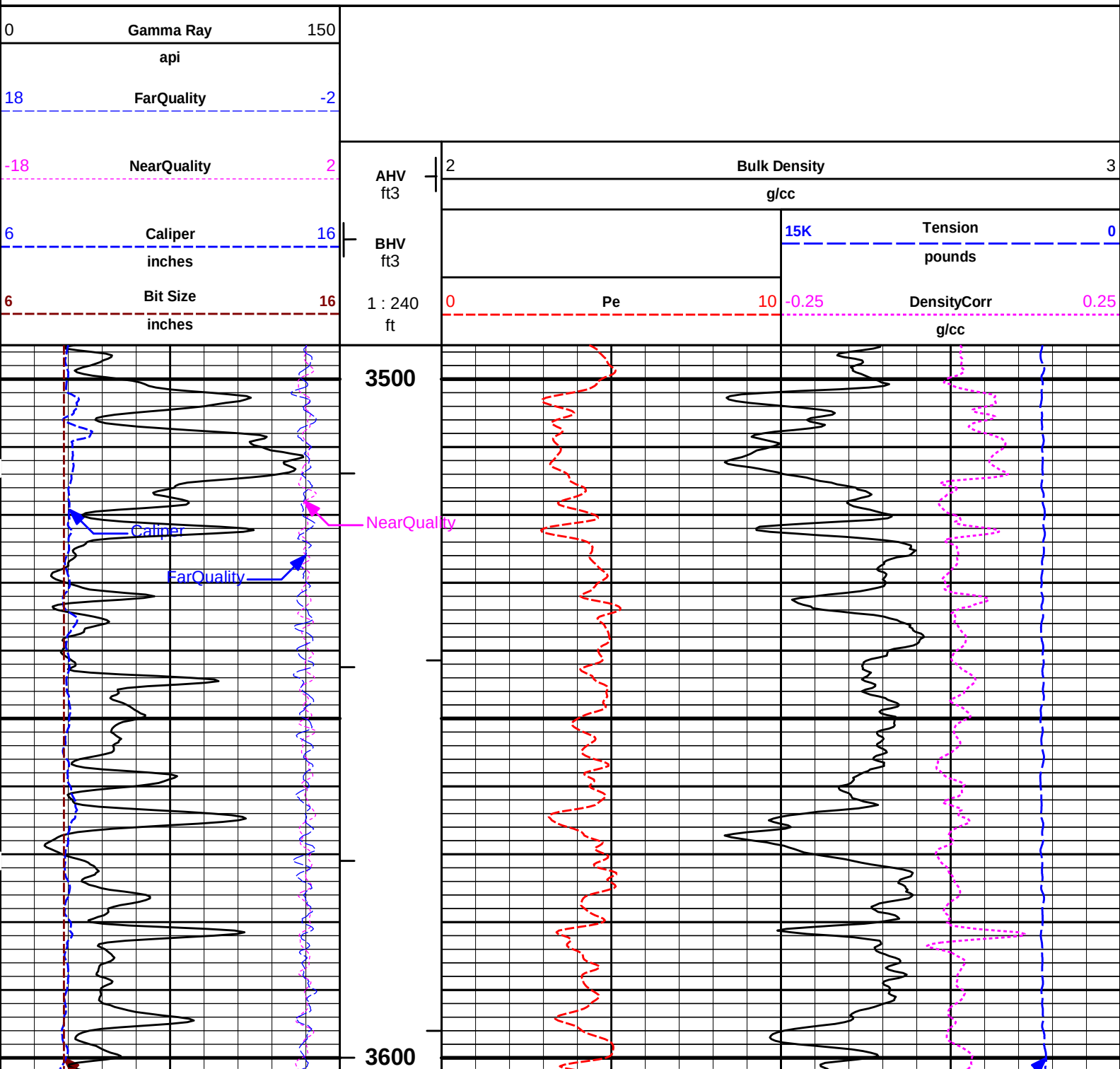
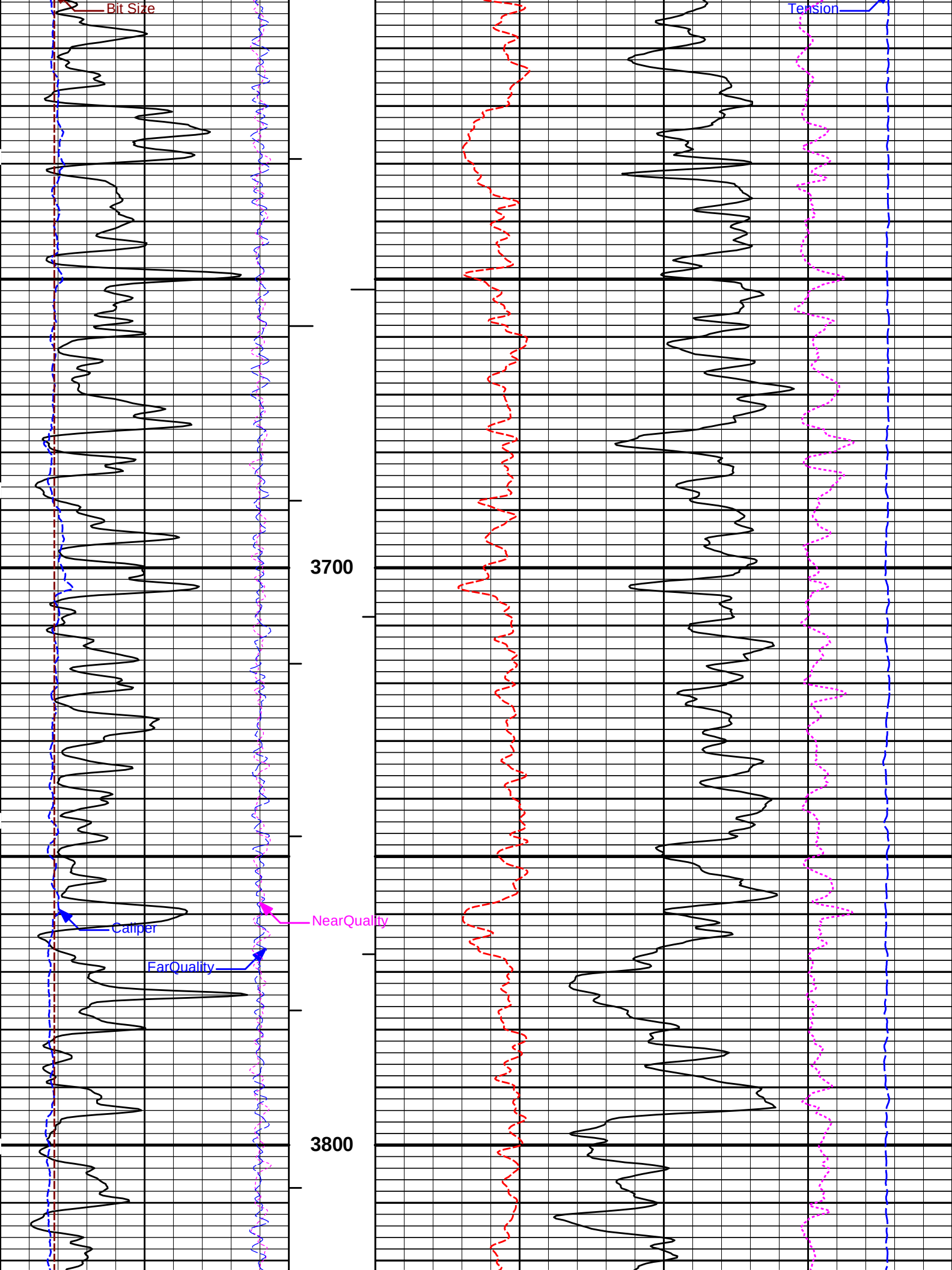
5 INCH MAIN LOG

MAIN SECTION 5" PER 100'

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Tension
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NearQuality
Caliper
FarQuality
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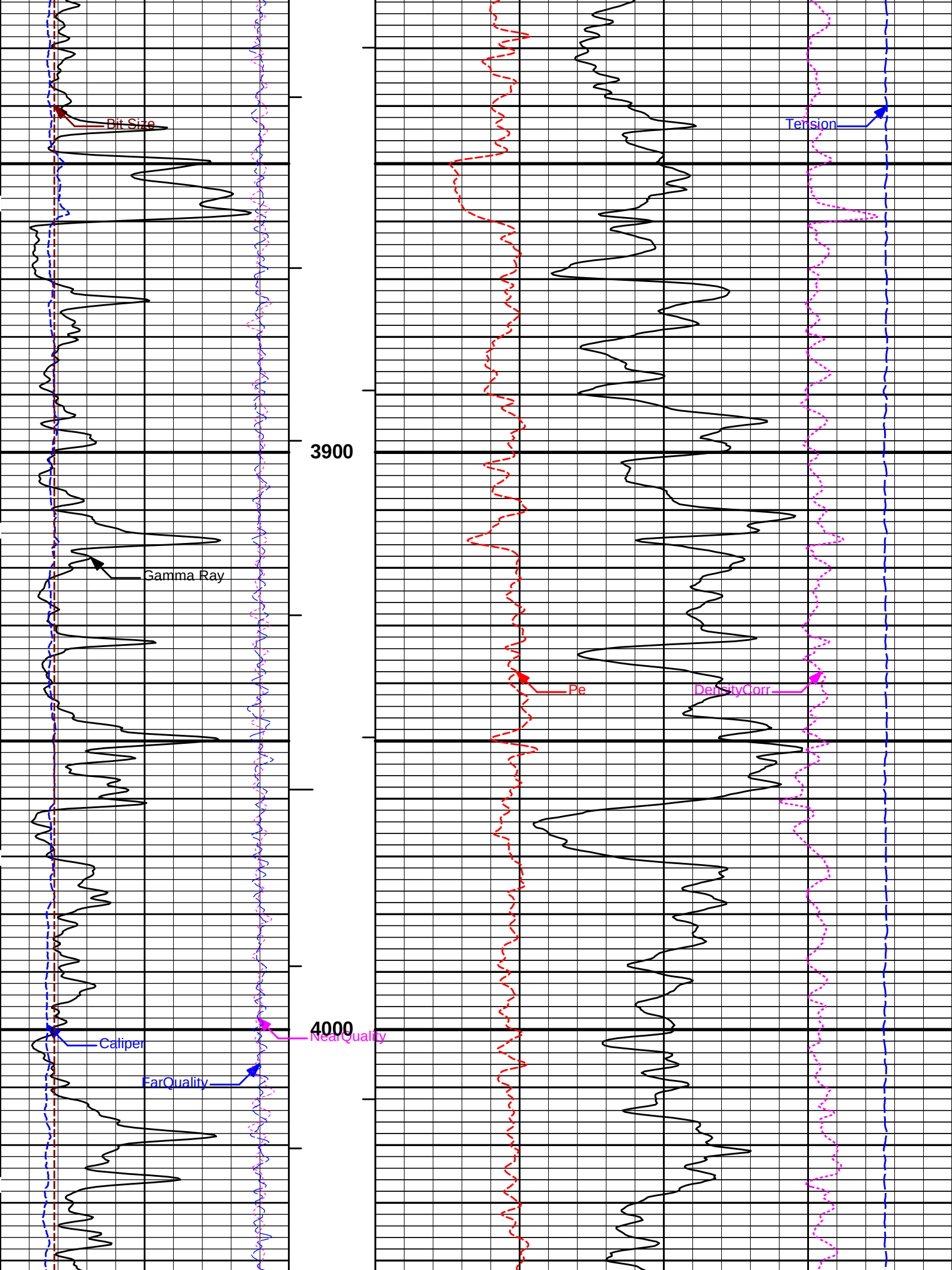
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Pe
DensityCorr
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Caliper
NearQuality
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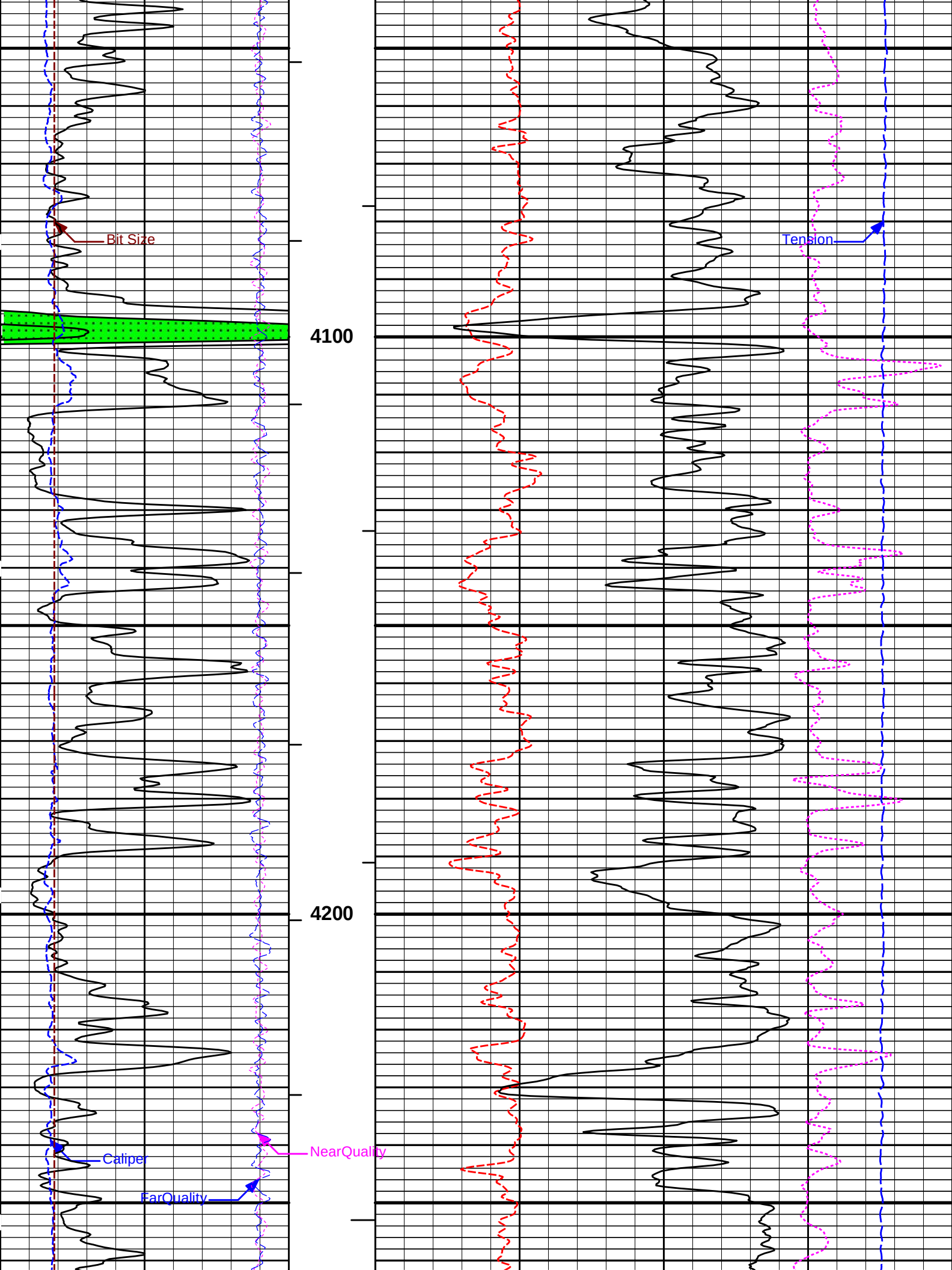
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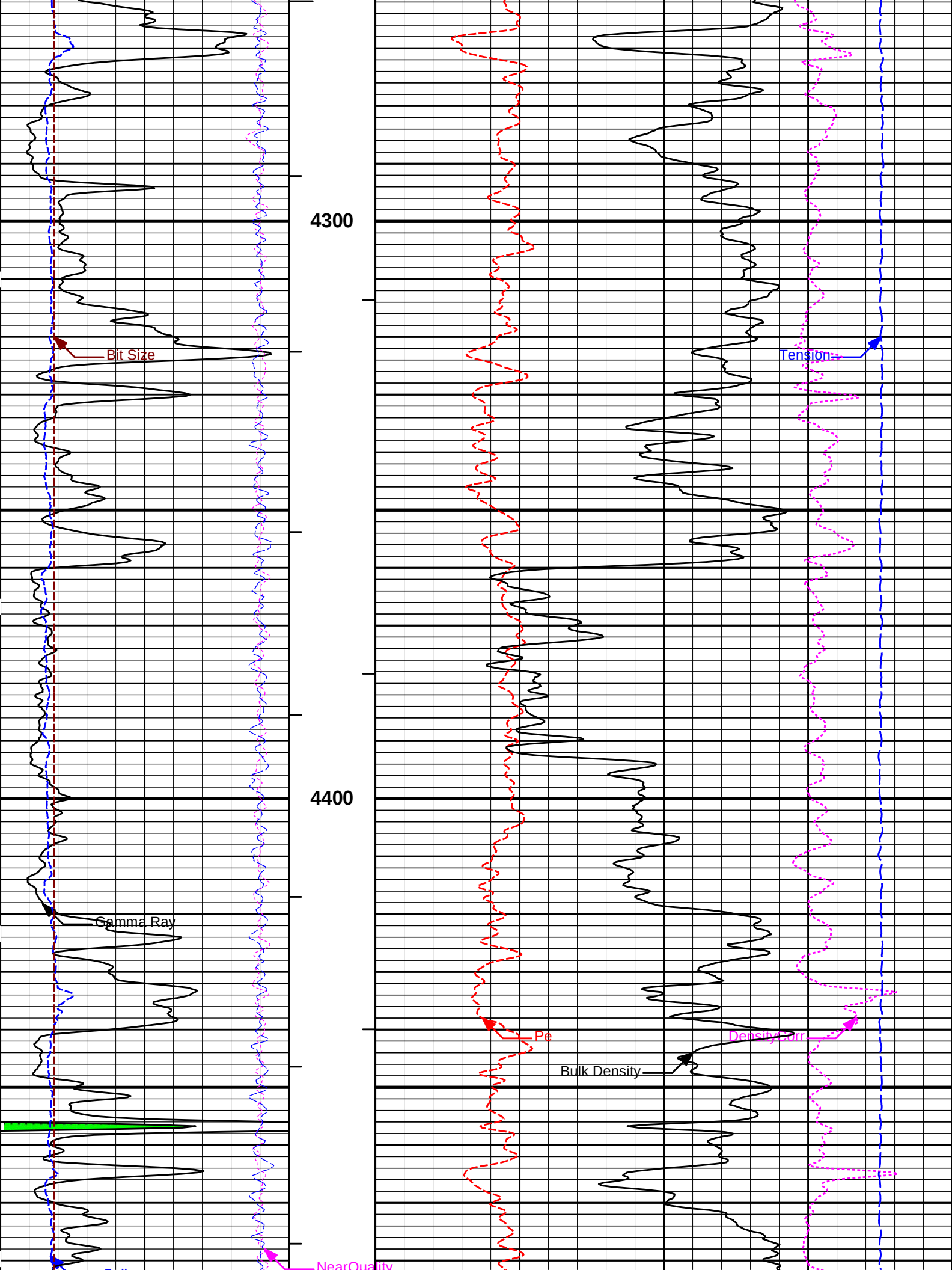
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Tension
Pe
DensityCorr
Bulk Density
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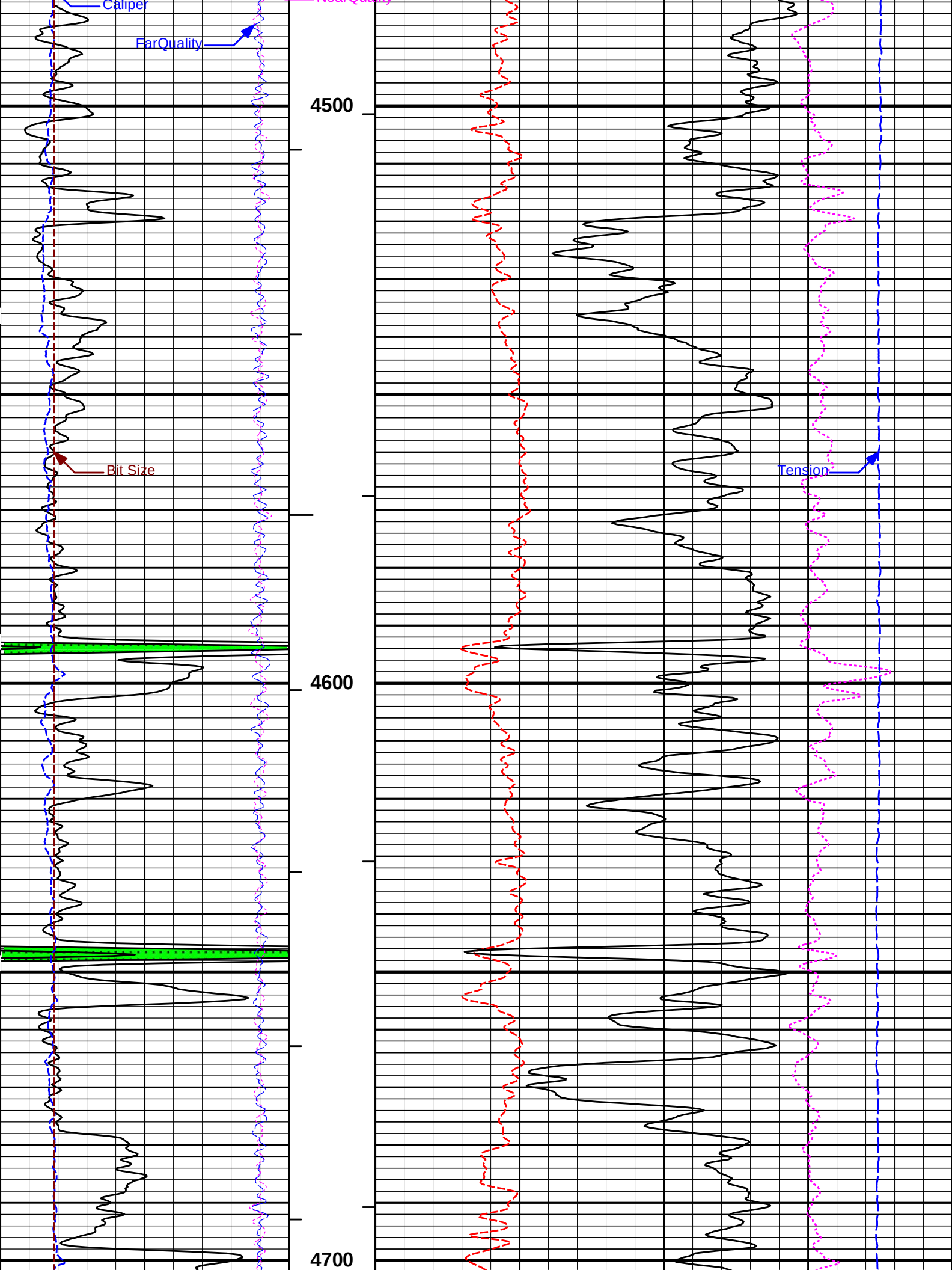
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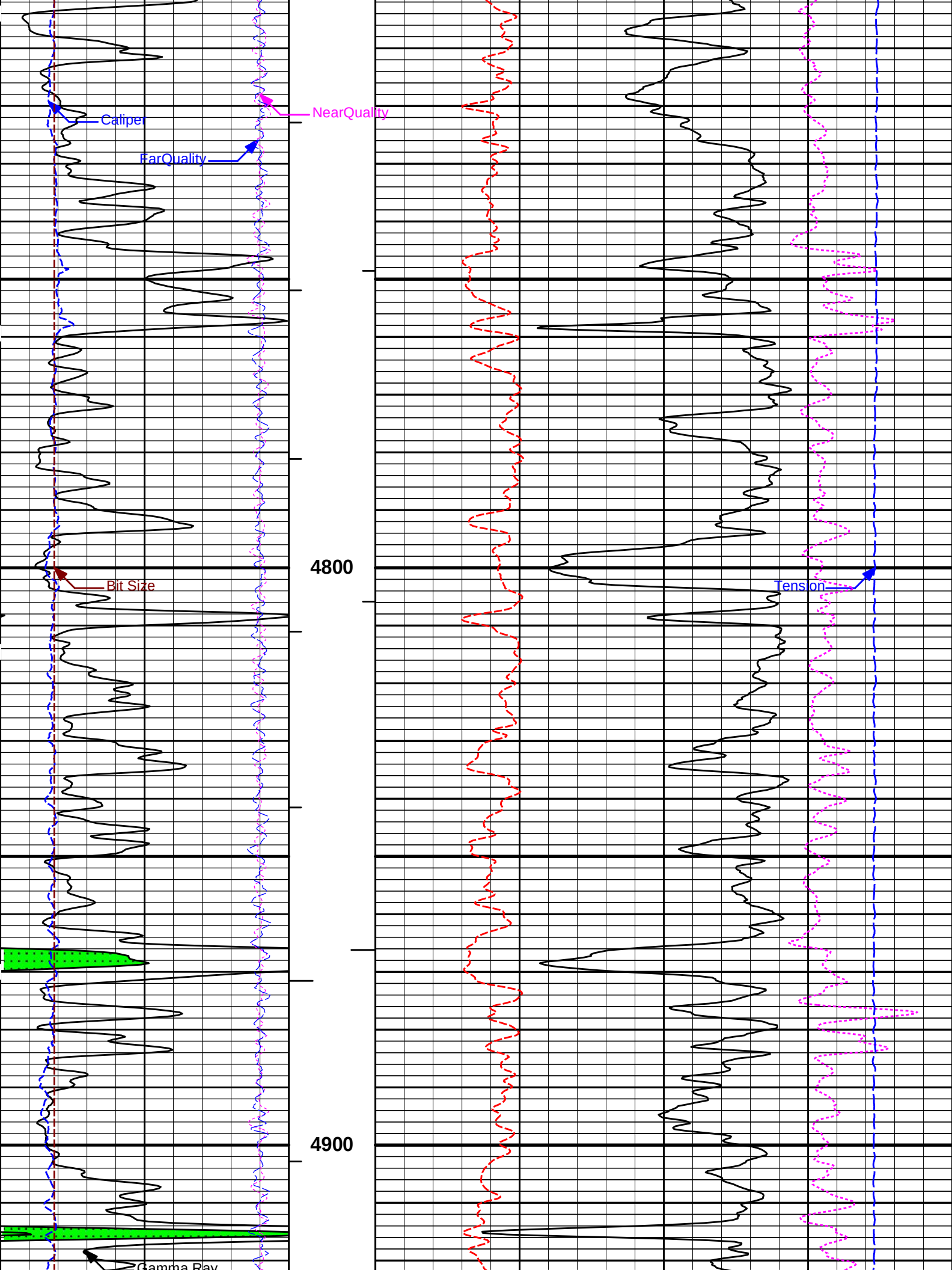
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Tension
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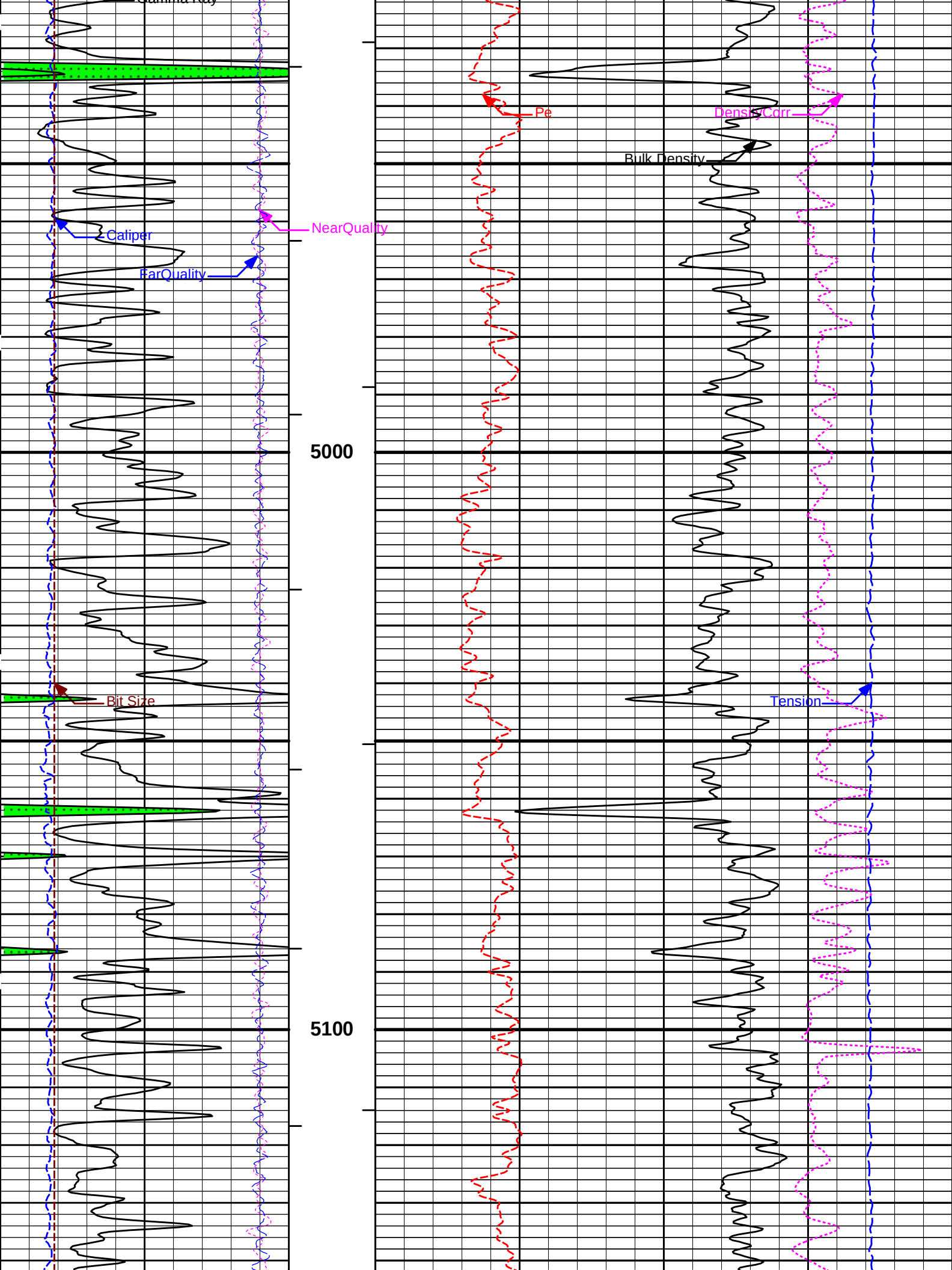
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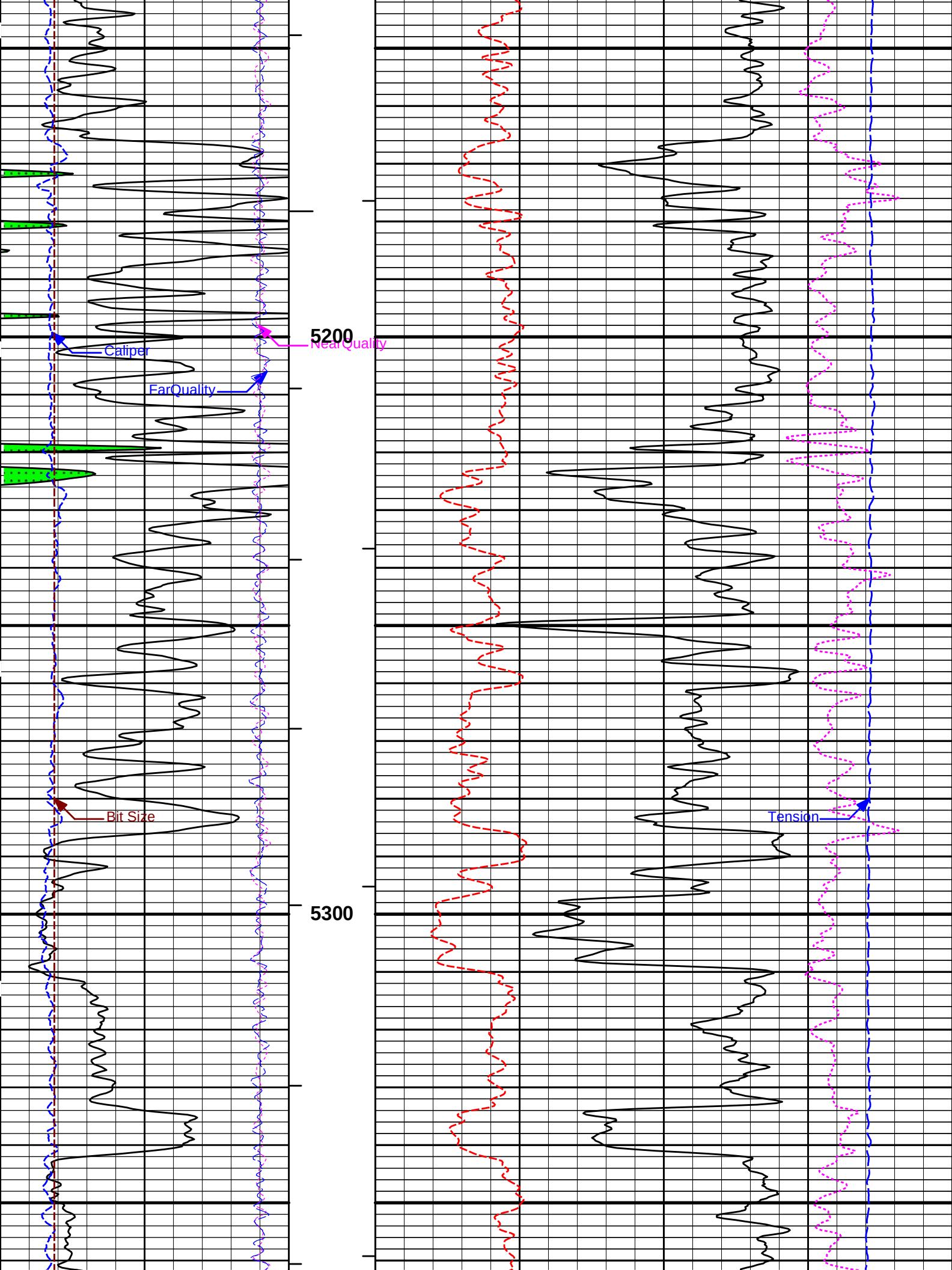
DensityCorr
Bulk Density
Tension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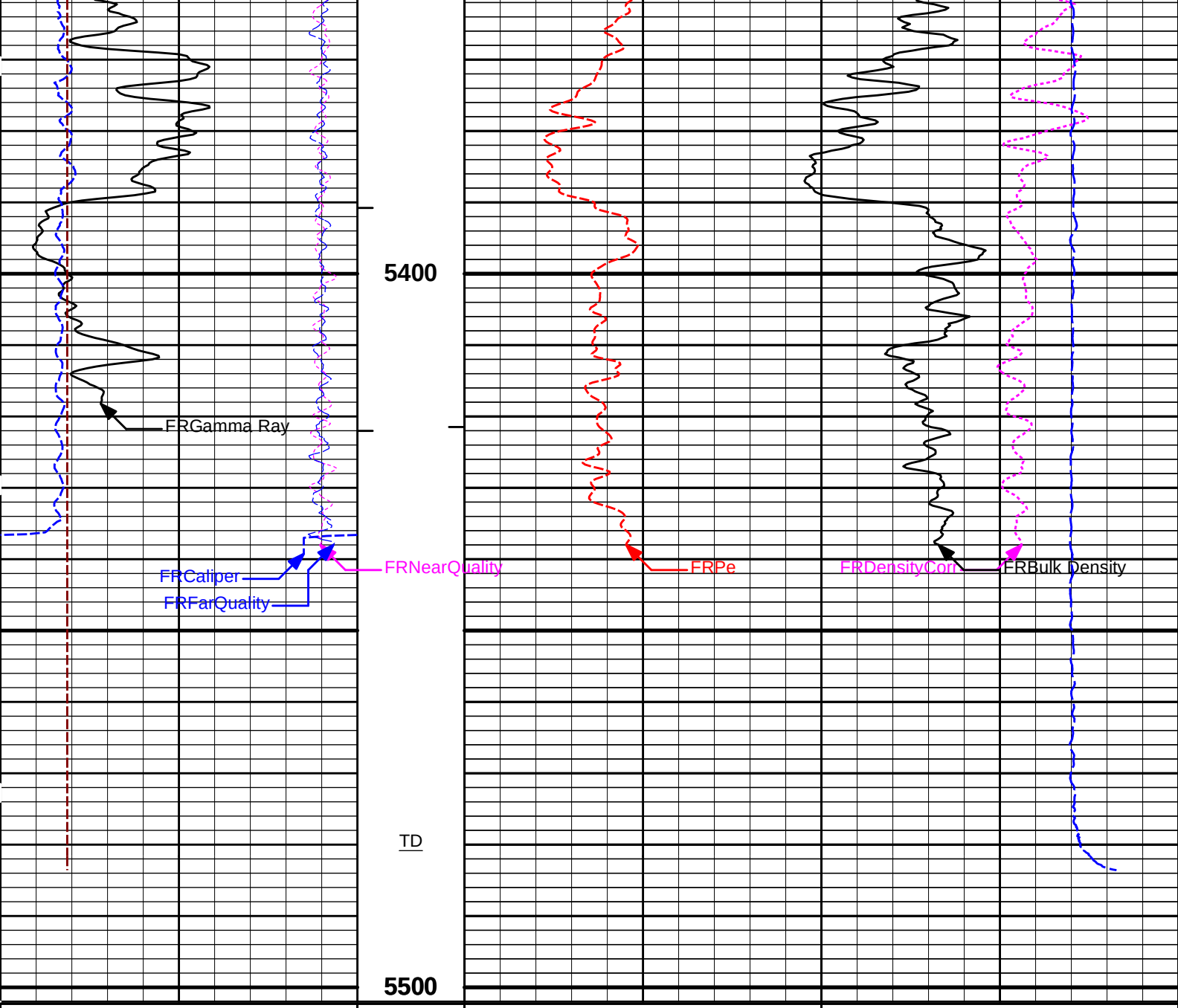

6	Bit Size (inches)	16	1 : 240 ft	0	Pe	10
6	Caliper (inches)	16	BHV ft3			
-18	NearQuality	2	AHV ft3	2	Bulk Density (g/cc)	3
18	FarQuality	-2				
0	Gamma Ray (api)	150				

-0.25	DensityCorr (g/cc)	0.25
15K	Tension (pounds)	0

HALLIBURTON

Plot Time: 16-Sep-22 12:36:30
Plot Range: 3495 ft to 5502 ft
Data: 09_16_MERIT\Well Based\DAQ-0001-003\
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5 INCH MAIN LOG

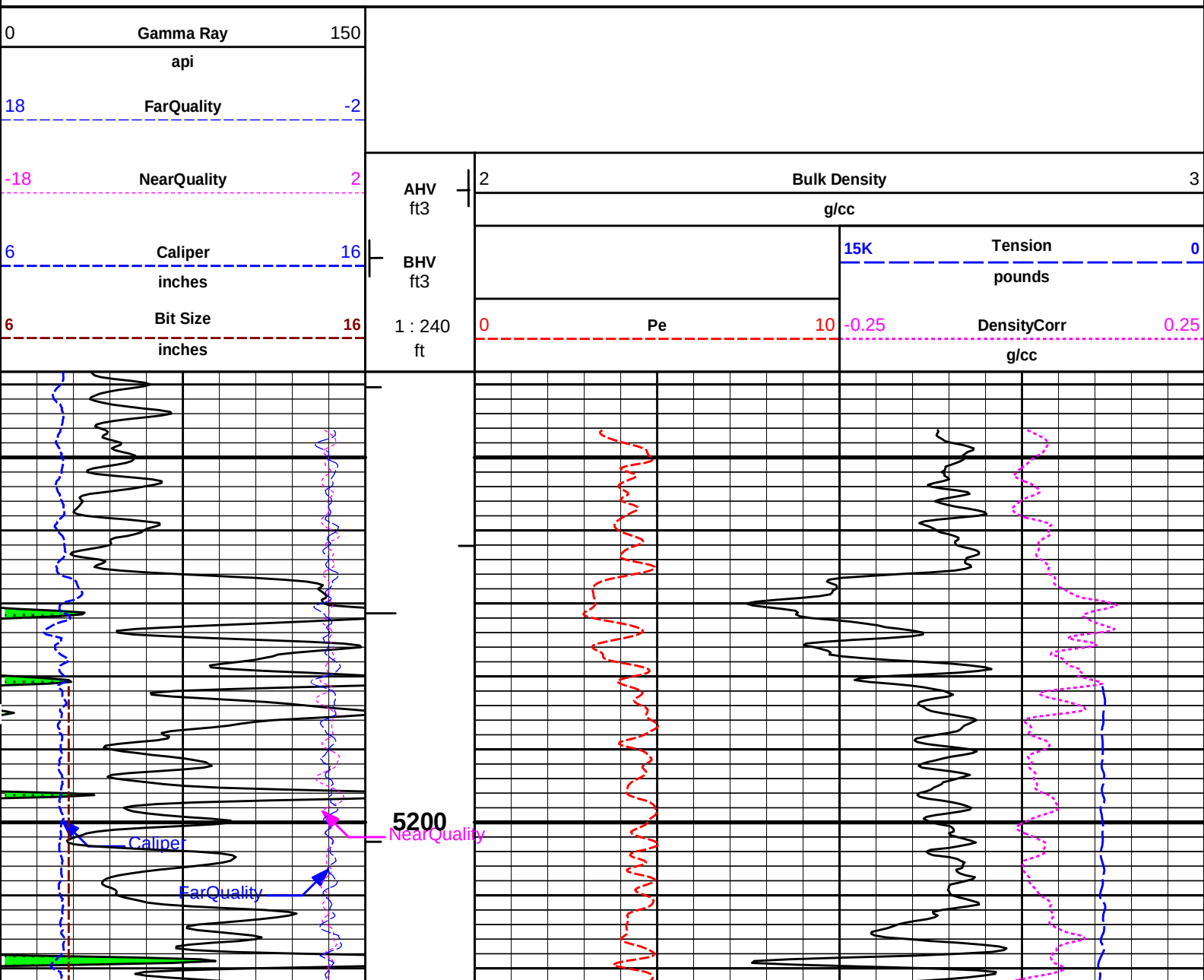
MAIN SECTION 5" PER 100'

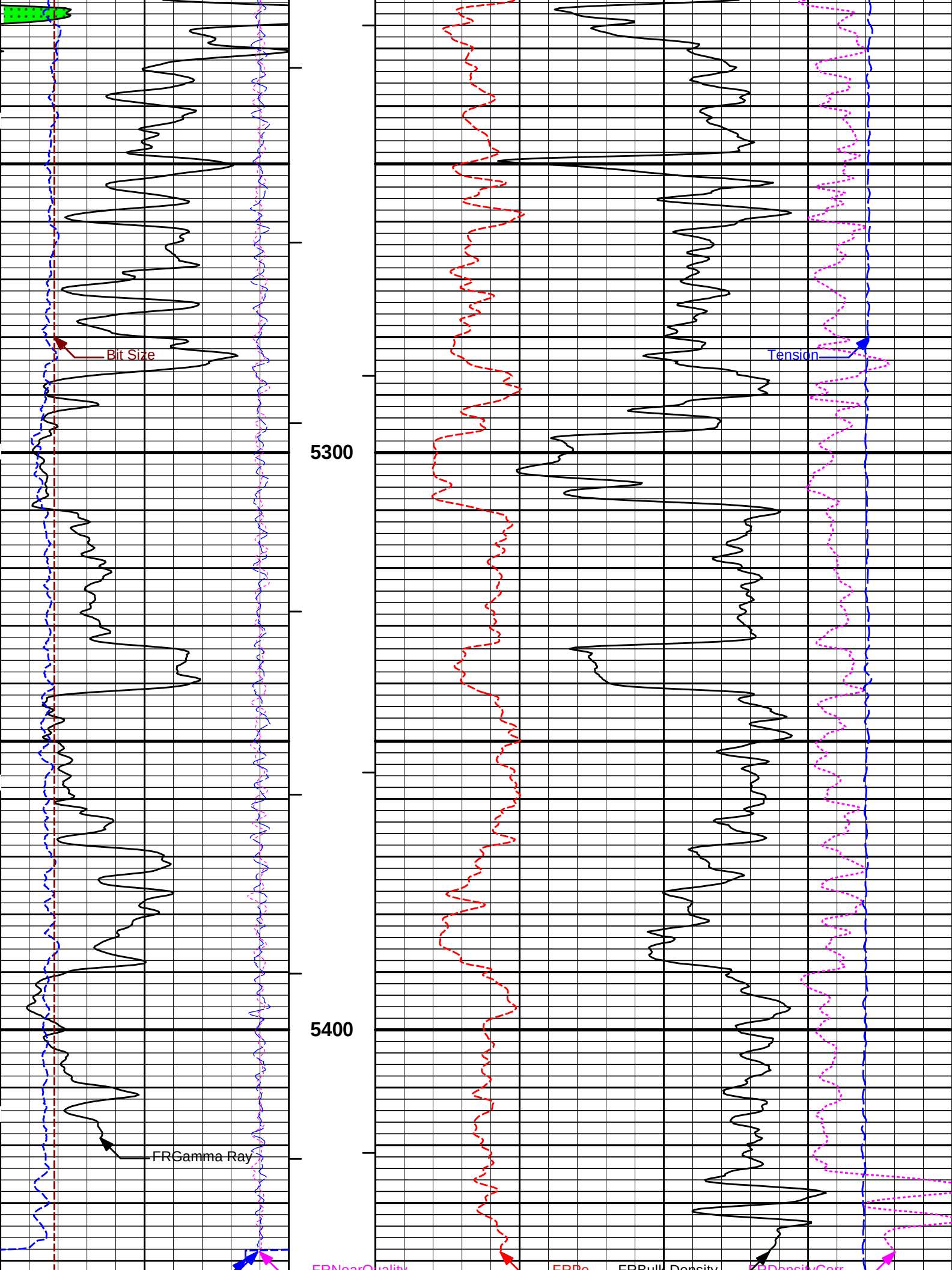
HALLIBURTON

Plot Time: 16-Sep-22 12:36:30
Plot Range: 5138.25 ft to 5502 ft
Data: 09_16_MERIT\Well Based\DAQ-0001-002\
Plot File: \\-LOCAL-\09_16_MERIT\0001 GTET-DSNT-SDLT-BSAT-ACRT\PORO\BULKD_5_RPT_IQ

REPEAT SECTION

REPEAT SECTION

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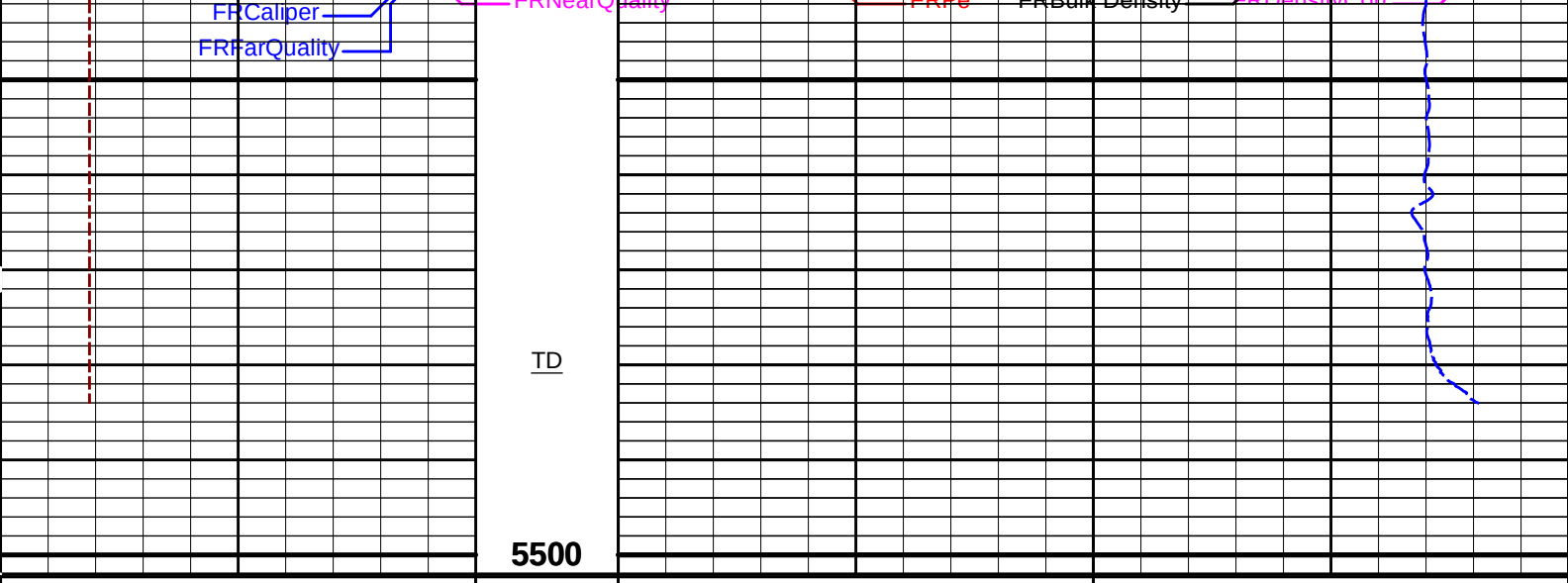
FRNearQuality
FRPe
FRBulk Density
FRDensityCorr



6	Bit Size (inches)	16	1 : 240 ft	0	Pe	10
6	Caliper (inches)	16	BHV ft3			
-18	NearQuality	2	AHV ft3	2	Bulk Density (g/cc)	3
18	FarQuality	-2				
0	Gamma Ray (api)	150				

-0.25	DensityCorr (g/cc)	0.25
15K	Tension (pounds)	0

HALLIBURTON

Plot Time: 16-Sep-22 12:36:32
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Data: 09_16_MERIT\Well Based\DAQ-0001-002\
Plot File: \\-LOCAL-\09_16_MERIT\0001 GTET-DSNT-SDLT-BSAT-ACRT\PORO\BULKD_5_RPT_IQ

REPEAT SECTION

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	9.300	ppg
	SHARED	WAGT	Weighting Agent	Barite	
	SHARED	BSAL	Borehole salinity	0.00	ppm

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	1.300	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	5391.00	ft
SHARED	BHT	Bottom Hole Temperature	145.0	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	
SHARED	MSAL	Water-base mud filtrate salinity	0.00	ppm
Rwa / CrossPlot	XPOK	Process Crossplot?	Yes	
Rwa / CrossPlot	FCHO	Select Source of F	Density	
Rwa / CrossPlot	AFAC	Archie A factor	1.0000	
Rwa / CrossPlot	MFAC	Archie M factor	2.0000	
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	ACOK	Do ACCZ Calculations?	Yes	
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	UCLA	Classic Neutron Parameter utilized?	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	

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: 09_16_MERIT\0001 GTET-DSNT-SDLT-BSAT-ACRT\003 16-Sep-22 06:15 Up @5483.8f **Date: 16-Sep-22 11:40:08**

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CALIBRATION REPORT

SURFACE TENSION SHOP CALIBRATION

Tool Name:	**Depth Panel - 12345678**	**Reference Calibration Date:**	**09-Sep-22 07:36:03**
Engineer:	**M. GALLION**	**Calibration Date:**	**16-Sep-22 05:06:31**
Software Version:	**WL INSITE R6.6.5 (Build 5)**	**Calibration Version:**	**1**

SURFACE TENSION LOAD CELL

Measurement	Load Cell Value	Measurement	Calibrated	Units
Low	10713.26	-32.22	0.00	lbs
High	17356.75	7011.05	7050.00	lbs

DOWNHOLE TENSION SHOP CALIBRATION

Tool Name:	**RWCH - 12027540**	**Reference Calibration Date:**	**09-Sep-22 07:37:36**
Engineer:	**M. GALLION**	**Calibration Date:**	**16-Sep-22 05:07:56**
Software Version:	**WL INSITE R6.6.5 (Build 5)**	**Calibration Version:**	**1**

DOWNHOLE LOAD CELL

Measurement	Tool Value	Measurement	Calibrated	Units
Low	-365.12	15.63	0.00	lbs
High	5124.14	1315.72	1300.00	lbs

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name:	**GTET - 11405267**	**Reference Calibration Date:**	**05-Aug-21 10:53:16**
Engineer:	**MOHAMED ABUELGASIM**	**Calibration Date:**	**17-Jun-22 16:53:35**
Software Version:	**WL INSITE R6.4.5 (Build 6)**	**Calibration Version:**	**1**

Calibrator Source S/N: TB-768

Calibrator API Reference:203.00 api

Equivalent Calibrator API Reference:206.6 api

Measurement	Measured	Calibrated	Units
Background	19.1	17.9	api
Background + Calibrator	238.9	224.5	api
Calibrator	219.9	206.6	api

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name:	**DSNT - 11019641**	**Reference Calibration Date:**	**19-Aug-22 17:45:26**
Engineer:	**J. Cabanzo**	**Calibration Date:**	**19-Aug-22 18:08:05**
Software Version:	**WL INSITE R6.6.7 (Build 8)**	**Calibration Version:**	**1**

Logging Source S/N: 96395B

Tank Serial Number: 10585331

Reference value assigned to Tank: 54.090

Snow Block S/N: 2

Calibration Tank Water Temperature: 86 degF

Min. Tool Housing Outside Diameter: 3.625 in

CALIBRATION CONSTANTS			
Measurement	**Prev. Value**	**New Value**	**Control Limit On New Value**
Gain:	0.95915	0.96288	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):	0.2233	0.2244	0.0012	+/- 0.0020
Calibrated Ratio:	10.1421	10.1815	0.039	+/- 0.050

VERIFIER		
Measurement	**Value**	**Control Limit**
Snow-Block Porosity (decp):	0.0589	0.02000 - 0.09000

PASS/FAIL SUMMARY	
Background Check:	Passed
Gain-Range Check:	Passed
Snow-Block Check:	Passed

DENSITY CALIPER SHOP CALIBRATION

Tool Name:	**SDLT - 10695352**	**Reference Calibration Date:**	**19-Aug-22 15:31:53**
Engineer:	**J. Cabanzo**	**Calibration Date:**	**19-Aug-22 15:37:09**
Software Version:	**WL INSITE R6.6.7 (Build 8)**	**Calibration Version:**	**1**
Host Tool Name:	**DSNT - 11019641**		

CALIBRATION COEFFICIENTS			
Measurement	**Previous Value**	**New Value**	**Control Limit On New Value**
Pad Offset	-2934.34	-3021.58	-7000.00 - -1000.00
Pad Gain	0.0003900	0.0003927	0.0002000 - 0.0006000
Arm Offset	-3023.74	-2984.46	-5000.00 - 3000.00
Arm Gain	0.0005200	0.0005114	0.000300 - 0.000700
Arm Power	-0.000005411	-0.000004687	-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)	2.02	2.00	-0.02	+/- 0.20
Medium Ring (in)	3.76	3.75	-0.01	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.54	6.50	-0.04	+/- 0.20
Medium Ring (in)	8.30	8.25	-0.05	+/- 0.20
Large Ring (in)	15.00	15.00	0.00	+/- 0.20

PASS/FAIL SUMMARY	
Calibration-Coefficients Range Check:	Passed
Ring-Measurement Check:	Passed

PASS/FAIL SUMMARY	
Calibration-Coefficients Range Check:	Passed

MICRO LOG SHOP CALIBRATION

Tool Name: Microlog Pad - 10695352
Reference Calibration Date: 01-Jan-70 00:00:00
Engineer: J. Cabanzo
Calibration Date: 19-Aug-22 15:26:27
Software Version: WL INSITE R6.6.7 (Build 8)
Calibration Version: 1
Host Tool Name: DSNT - 11019641

CALIBRATION COEFFICIENT SUMMARY

Measurement	Micro Log Normal		Micro Log Lateral		
	Measured	Calibrated	Measured	Calibrated	Units
Tool Zero	-0.07	-0.07	-0.01	-0.01	ohmm
Calibration Point #1	0.00	0.00	0.00	0.00	ohmm
Calibration Point #2	20.00	20.00	20.00	20.00	ohmm
Internal Reference	19.94	19.94	20.00	20.00	ohmm

Measurement	Micro Log Normal Tool Value	Micro Log Lateral Tool Value	Units
Tool Zero	-0.45	0.37	V
Calibration Point #1	18.50	2.58	V
Calibration Point #2	5343.13	6962.23	V
Internal Reference	5326.46	6962.38	V

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name: SDLT Pad - 10865883
Reference Calibration Date: 18-Aug-22 15:18:35
Engineer: J. Cabanzo
Calibration Date: 18-Aug-22 15:40:41
Software Version: WL INSITE R6.6.7 (Build 8)
Calibration Version: 1

Logging Source S/N: 5406GW

Aluminum Block S/N: 10585329	Density: 2.595g/cc	Pe: 3.270
Magnesium Block S/N: 10585330	Density: 1.679g/cc	Pe: 2.580

DENSITY CALIBRATION SUMMARY

Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0268	1.0413	0.90 - 1.10
Near Dens Gain	1.0028	1.0178	0.90 - 1.10
Near Peak Gain	1.0111	1.0223	0.90 - 1.10
Near Lith Gain	0.9937	1.0032	0.90 - 1.10
Far Bar Gain	1.0130	1.0125	0.90 - 1.10
Far Dens Gain	1.0018	1.0019	0.90 - 1.10

Far Peak Gain	0.9966	0.9966	0.90 - 1.10
Far Lith Gain	0.9721	0.9764	0.90 - 1.10
Near Bar Offset	0.0440	-0.0871	NONE
Near Dens Offset	0.2346	0.1031	NONE
Near Peak Offset	0.1484	0.0544	NONE
Near Lith Offset	0.2572	0.1772	NONE
Far Bar Offset	0.0901	0.0959	NONE
Far Dens Offset	0.1963	0.1949	NONE
Far Peak Offset	0.2260	0.2243	NONE
Far Lith Offset	0.3754	0.3427	NONE
Near Bar Background	926.68	925.11	700 - 1450
Near Dens Background	305.57	305.68	230 - 480
Near Peak Background	132.20	132.48	100 - 210
Near Lith Background	164.41	164.83	125 - 260
Far Bar Background	582.80	586.26	450 - 900
Far Dens Background	228.90	229.53	175 - 345
Far Peak Background	90.63	91.49	70 - 140
Far Lith Background	94.02	94.43	75 - 145

CALIBRATION BLOCK SUMMARY

Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.678	1.678	0.000	+/- 0.015
Pe	2.546	2.552	0.006	+/- 0.150
ALUMINUM				
Density (g/cc)	2.596	2.595	-0.001	+/- 0.01500
Pe	3.221	3.228	0.007	+/- 0.150

TOOL SUMMARY

Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	0.0014	+/- 0.0110	0.0003	+/- 0.0140
Magnesium Block	-0.0006	+/- 0.0110	-0.0014	+/- 0.0140
Aluminum Block	-0.0004	+/- 0.0110	-0.0004	+/- 0.0140
Resolution	8.83	6.00 - 11.50	8.98	6.00 - 11.50
Internal Verifier(B+D+P+L)	1528	1200 - 2700	1002	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

BSAT FIELD CASING CHECK

Tool Name: **BSAT - 10758088** **Calibration Date:** **07-Sep-22 06:46:32**

Engineer:	**K. BJERGA**		
Software Version:	**WL INSITE R6.6.5 (Build 5)**	**Calibration Version:**	**1**

Pre-Log Check	Check Depth	Shop	Field	Difference	Tolerance	Units
Delta-T Compensated	1150.88	57.00	56.06	0.9400	1.00	uspf

ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION

Tool Name:	**ACRt Sonde - 10933411**	**Reference Calibration Date:**	**10-Mar-22 11:52:39**
Engineer:	**MOHAMED ABUELGASIM**	**Calibration Date:**	**17-Jun-22 12:35:28**
Software Version:	**WL INSITE R6.6.7 (Build 8)**	**Calibration Version:**	**1**
Host Tool Name:	**ACRt Instrument - 10967817**		

TYPICAL GAIN RANGE

Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	0.95	1.0093	1.05	0.95	1.0097	1.05	0.95	1.0029	1.05
A2 (50")	0.95	1.0129	1.05	0.95	1.0137	1.05	0.95	1.0066	1.05
A3 (29")	0.95	1.0093	1.05	0.95	1.0074	1.05	0.95	1.0011	1.05
A4 (17")	0.95	1.0092	1.05	0.95	1.0064	1.05	0.95	1.0040	1.05
A5 (10")	N/A	N/A	N/A	0.95	0.9991	1.05	0.95	0.9969	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.9833	1.05	0.95	0.9814	1.05

SONDE OFFSET

Subarray	R12KHz	R36KHz	R72KHz
	(mmho/m)	(mmho/m)	(mmho/m)
A1 (80")	-0.514	-4.153	-5.096
A2 (50")	-1.142	-3.528	-4.869
A3 (29")	-10.576	-3.717	-3.307
A4 (17")	-100.911	-32.858	-26.318
A5 (10")	N/A	-93.684	-45.343
A6 (6")	N/A	345.620	160.599

TRANSMITTER CURRENT GAIN

Signal	Lower	R	Upper
12K	0.6	0.94	1.3
36K	1.0	1.85	2.0
72K	1.0	1.18	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

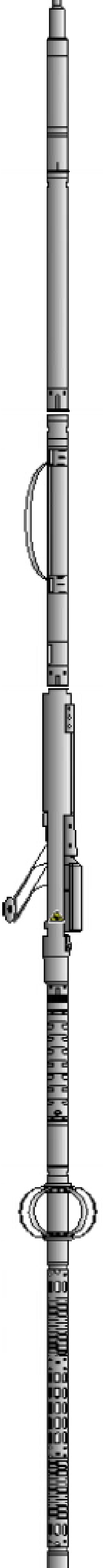
TOOL OK TO LOG

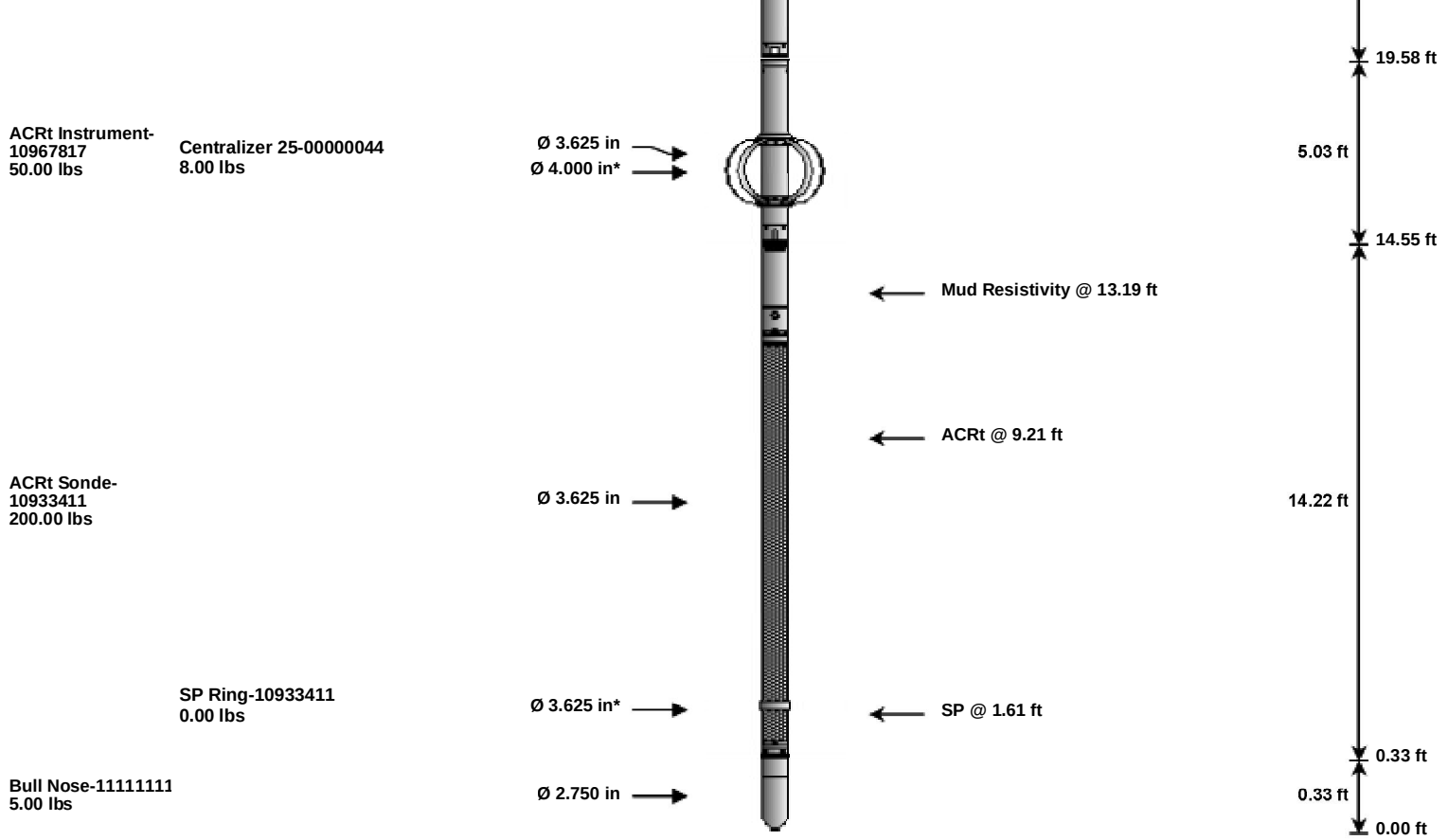
Data: 09_16_MERIT\0001 GTET-DSNT-SDLT-BSAT-ACRT\IDLE **Date: 16-Sep-22 11:40:44**

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length


Ø 2.310 in
Fishing Neck @ 75.72 ft
RWCH-12027540
135.00 lbs
Ø 3.625 in
6.25 ft
Load Cell @ 72.91 ft
BH Temperature @ 72.35 ft
Weak Point Solid-
11111111
0.01 lbs
Ø 0.010 in*
70.35 ft
Z-Accelerometer @ 69.90 ft
GTET-11405267
165.00 lbs
Ø 3.625 in
8.52 ft
GammaRay @ 64.29 ft
61.83 ft
DSN Decentralizer-
11000000
6.60 lbs
Ø 5.000 in*
DSNT-11019641
174.00 lbs
Ø 3.625 in
9.69 ft
DSN Far @ 54.89 ft
DSN Near @ 54.14 ft
52.14 ft
SDLT Pad-10865883
65.00 lbs
SDLT-10695352
360.00 lbs
Ø 4.500 in
10.81 ft
Microlog Pad-10695352
8.00 lbs
Ø 4.500 in*
Ø 4.750 in*
Microlog @ 44.33 ft
SDL Caliper @ 44.14 ft
RAM-Cs137-10935813
1.00 lbs
Ø 0.800 in*
SDL @ 44.13 ft
41.33 ft
Flex Joint -
Pressure Comp-
10968478
140.00 lbs
Ø 3.625 in
5.97 ft
35.36 ft
Centralizer 25-00000003
8.00 lbs
Ø 4.000 in*
BSAT-10758088
300.00 lbs
Ø 3.625 in
Receiver Array @ 26.84 ft
Sonic Receivers @ 26.84 ft
15.77 ft



Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)		Accumulated Length (ft)	Max.Log. Speed (fpm)
RWCH	Releasable Wireline Cable Head	12027540	135.00	6.25		70.35	300.00
WPSS	Weak Point Solid	11111111	0.01	0.01	*	70.35	300.00
GTET	Gamma Telemetry Tool	11405267	165.00	8.52		61.83	60.00
DSNT	Dual Spaced Neutron	11019641	174.00	9.69		52.14	60.00
DCNT	DSN Decentralizer	11000000	6.60	5.13	*	55.47	300.00
SDLT	Spectral Density Tool	10695352	360.00	10.81		41.33	60.00
SDLP	Density Insite Pad	10865883	65.00	2.55	*	43.54	60.00
Cs137	Logging Source, SDLT-I, 1.78 Ci - Cs137	10935813	1.00	0.80	*	43.77	300.00
MICP	Microlog Pad	10695352	8.00	1.00	*	43.83	60.00
FLEX	Flex Joint - Pressure Compensated	10968478	140.00	5.97		35.36	300.00
BSAT	Borehole Sonic Array Tool	10758088	300.00	15.77		19.58	60.00
OBCEN	Centralizer - 25 in. Overbody	00000003	8.00	2.08	*	32.67	300.00
ACRt	Array Compensated True Resistivity Instrument Section	10967817	50.00	5.03		14.55	120.00
OBCEN	Centralizer - 25 in. Overbody	00000044	8.00	2.08	*	15.50	300.00
ACRt	Array Compensated True Resistivity Sonde Section	10933411	200.00	14.22		0.33	120.00
SP	SP Ring	10933411	0.00	0.25	*	1.61	300.00
BLNS	Bull Nose	11111111	5.00	0.33		0.00	300.00
Total			**1,625.61**	**76.60**			

* Not included in Total Length and Length Accumulation.

Data: 09_16_MERIT\0001 GTET-DSNT-SDLT-BSAT-ACRT\IDLE **Date: 16-Sep-22 05:06:23**

COMPANY	**MERIT ENERGY COMPANY, LLC**		
WELL	**DANIELS 4-28**		
FIELD	**BLACK KNIGHT**		
COUNTY	**HASKELL**	STATE	**KANSAS**

DUAL SPACED NEUTRON

HALLIBURTON

DUAL SPACED NEUTRON
SPECTRAL DENSITY

MEASURED DEPTH