HALLIBURTON

DUAL SPACED NEUTRON SPECTRAL DENSITY LOG

COMPANY	MERIT ENERGY COMPANY, LLC
WELL	WENU 604
FIELD/BLOCK	EUBANK NORTH
COUNTY	HASKELL
STATE	KANSAS

COMPANY MERIT ENERGY COMPANY, LLC
WELL WENU 604
FIELD/BLOCK EUBANK NORTH
COUNTY HASKELL
STATE KANSAS

API No. 1508122246000
Location 1666' FWL & 530' FSL
Sect. 04 Twp. 28S Rge. 345W

Other Services:
ACRT
BSAT

Permanent Datum	GL	Elev. 3076.3 ft	Elev.: K.B. 3088.3 ft
Log measured from	KB	, 12.0 ft above perm. Datum	D.F. 3087.3 ft
Drilling measured from	KB		G.L. 3076.3 ft

Date		28-Mar-22		
Run No.		ONE		
Depth - Driller		5637.0 ft		
Depth - Logger		5638.0 ft		
Bottom - Logged Interval		5592.0 ft		
Top - Logged Interval		3680.0 ft		
Casing - Driller		8.625 in @ 1780.0 ft	@	@
Casing - Logger		1776.0 ft		
Bit Size		7.875 in	@	@
Type Fluid in Hole		Water Based Mud		
Density	Viscosity	9.2 ppg	56.00 s/qt	
PH	Fluid Loss	9.00 pH	6.0 cptm	
Source of Sample		MUD PIT		
Rm @ Meas. Temperature		1.48 ohmm @ 70.30 degF	@	@
Rmf @ Meas. Temperature		1.44 ohmm @ 70.30 degF	@	@
Rmc @ Meas. Temperature		0.91 ohmm @ 70.30 degF	@	@
Source Rmf	Rmc	CALC	CALC	
Rm @ BHT		0.85 ohmm @ 127.1 degF	@	@
Time Since Circulation		03:24 hr		
Time on Bottom		28-Mar-22 14:35		
Max. Rec. Temperature		127.10 degF @ 5639.0 ft	@	@
Equipment	Location	12128583	ALVARADO	
Recorded By		K. BJERGA	M. ABUELGASIM	
Witnessed By		KRISTIN ROBINSON		

Fold here

PGM Version: WL INSITE R6.4.20 (Build 2)

Sales Order Number: 907759235 API No.: 1508122246000

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	
@					
@					
@					
@					
@					
@					

EQUIPMENT DATA

GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Run No.	ONE	Run No.		Run No.	ONE	Run No.	ONE
Serial No.	11172469	Serial No.		Serial No.	10763919	Serial No.	11019643
Model No.	GTET	Model No.		Model No.	SDLT	Model No.	DSNT
Diameter	3.625"	No. of Cent.		Diameter	4.5"	Diameter	3.625"
Detector Model No.	GTET	Spacing		Log Type	GAM-GAM	Log Type	NEU-NEU
Type	SCINT			Source Type	Cs137	Source Type	Am241Be
Length	8"	LSA [Y/N]		Serial No.	5381GW	Serial No.	DSN313
Distance to Source	10'	FWDA [Y/N]		Strength	1.78 Ci	Strength	15 Ci

LOGGING DATA

GENERAL				GAMMA		ACOUSTIC			DENSITY			NEUTRON		
Run	Depth		Speed	Scale		Scale		Matrix	Scale		Matrix	Scale		Matrix
No.	From	To	ft/min	L	R	L	R		L	R		L	R	
ONE	5638'	3680'	REC	0 gapi	150 gapi				30%	-10%	2.71 g/cc	30%	-10%	LIME

DIRECTIONAL INFORMATION

Maximum Deviation	@	KOP	@

Remarks: FIRST LOG ON WELL, POSITIVE DEPTH CONTROL APPLIED
ANNULAR HOLE VOLUME CALCULATED FOR 5.5 INCH CASING
LOGGING INTERVALS AND SERVICES ARE AS PER CUSTOMER REQUEST
TOOLS RAN IN COMBINATION AS PER TOOLSTRING DIAGRAM
CHLORIDES REPORTED AT 3,000
LCM REPORTED AT 22 lb/bbl

CREW: C. HERRERA, B. EZEKWU
*****THANK YOU FOR CHOOSING 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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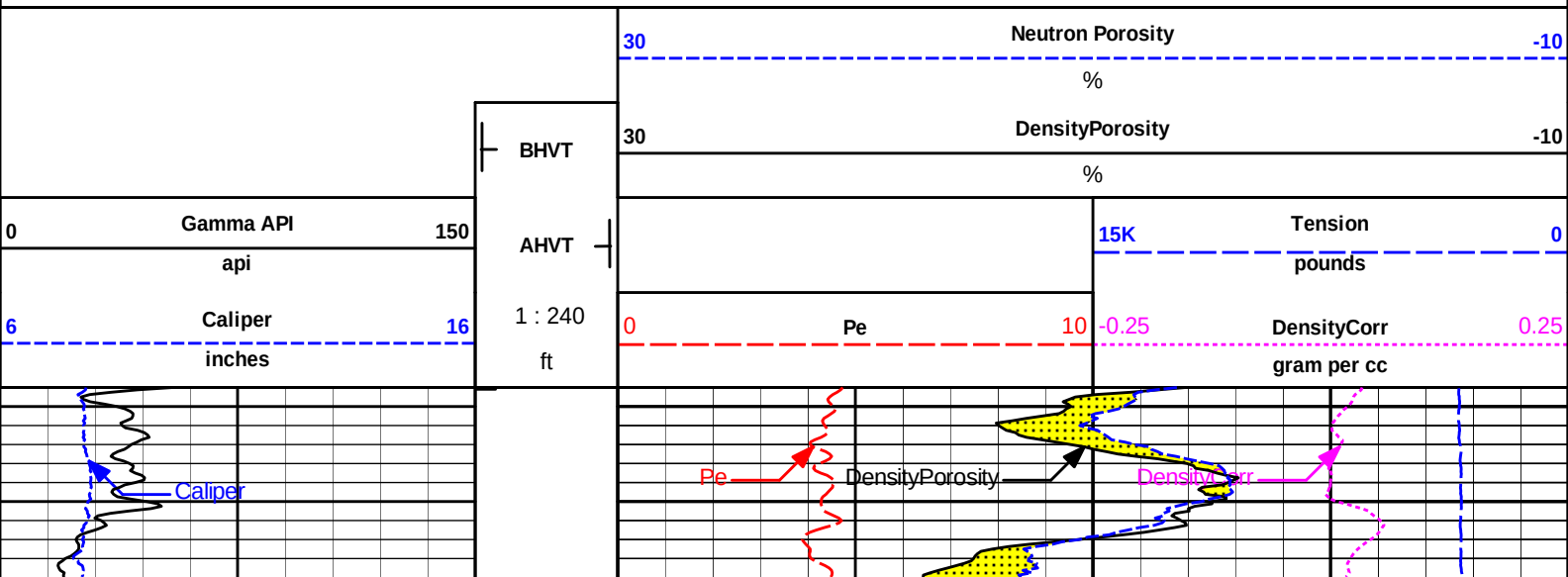
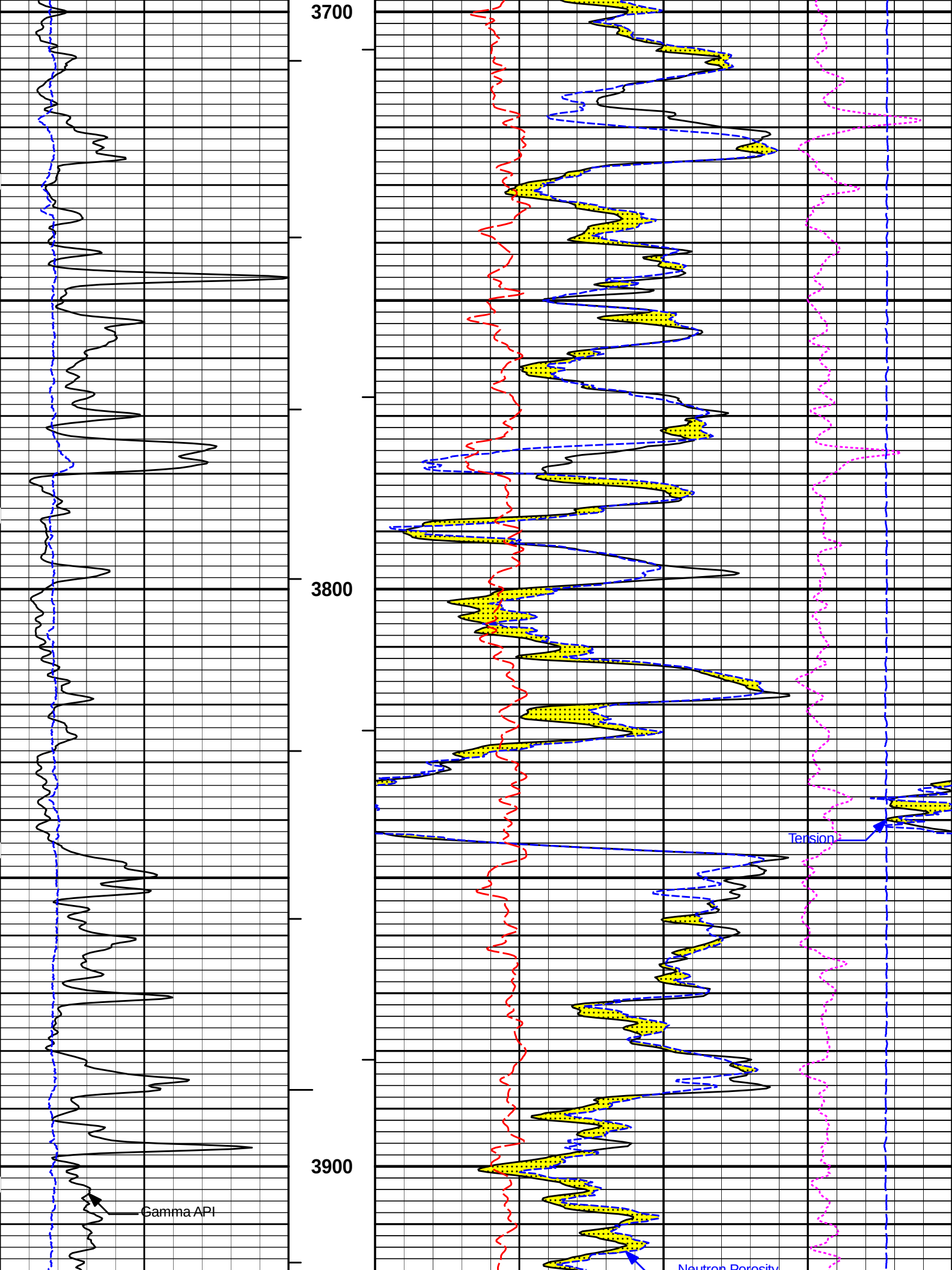
Plot Time: 28-Mar-22 16:47:58
Plot Range: 3678 ft to 5649.67 ft
Data: 03-28-MERIT\Well Based\DAQ-DETAIL
Plot File: \\PORO\Poro_IQ_5_MAIN

5 INCH MAIN LOG

MAIN SECTION 5" PER 100'

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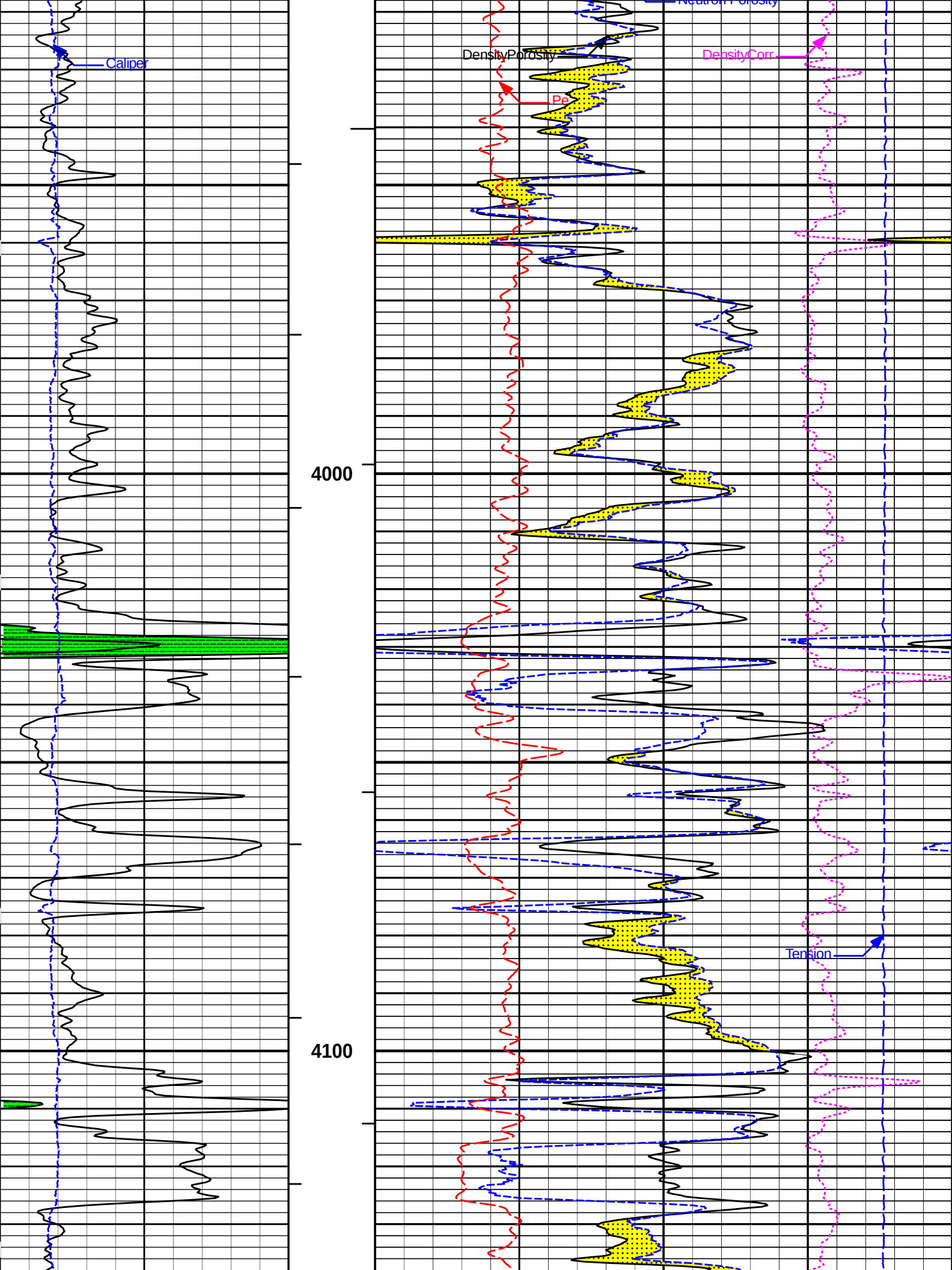
3800
3900
Tension
Gamma API
Neutron Porosity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NeutronPorosity
DensityPorosity
DensityCorr
Pe
Tension
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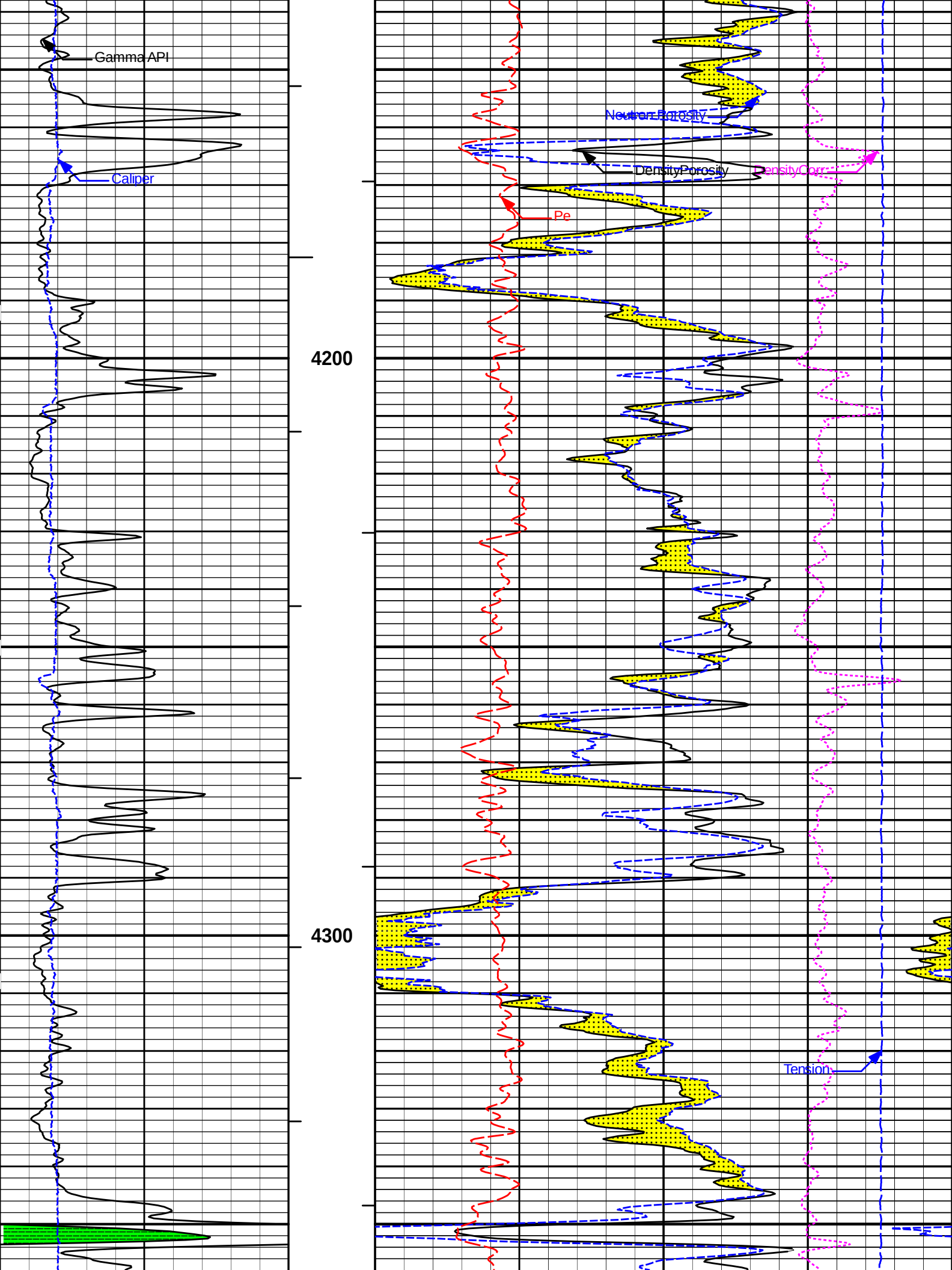
4100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Caliper
Neutron Porosity
DensityPorosity
DensityCorr
Pe
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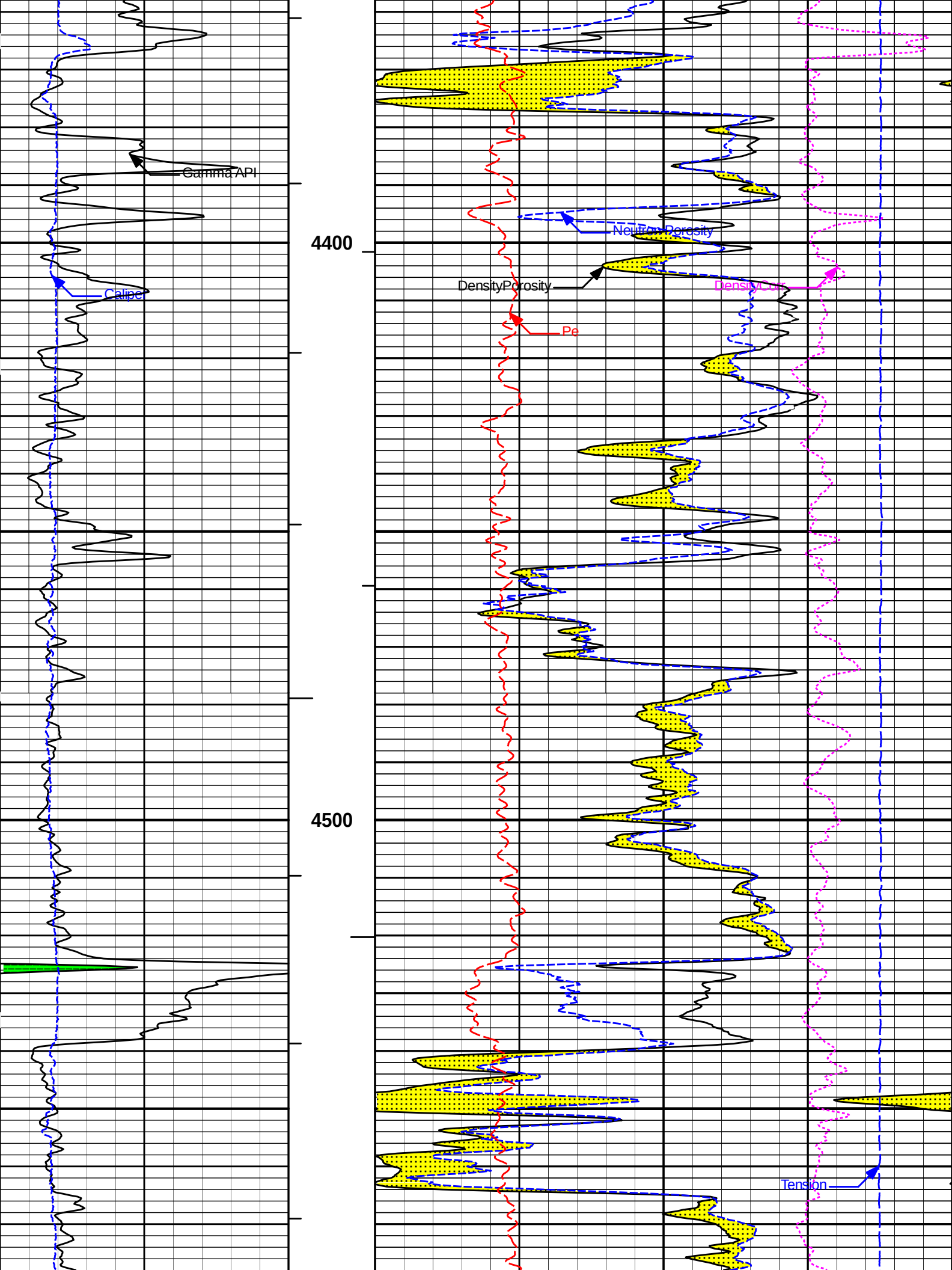
4300
Tension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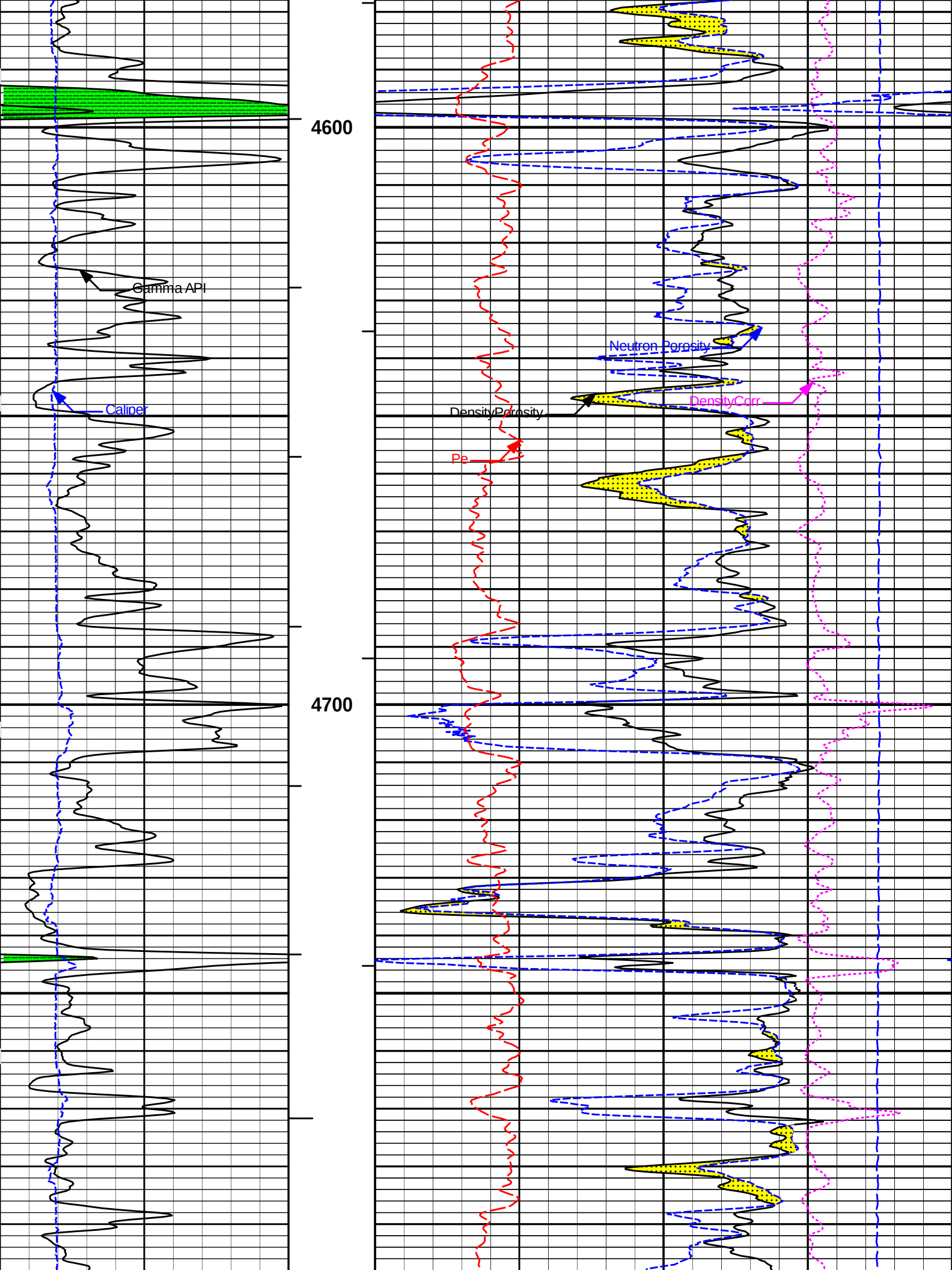
DensityPorosity
DensityCorr
Pe
Tension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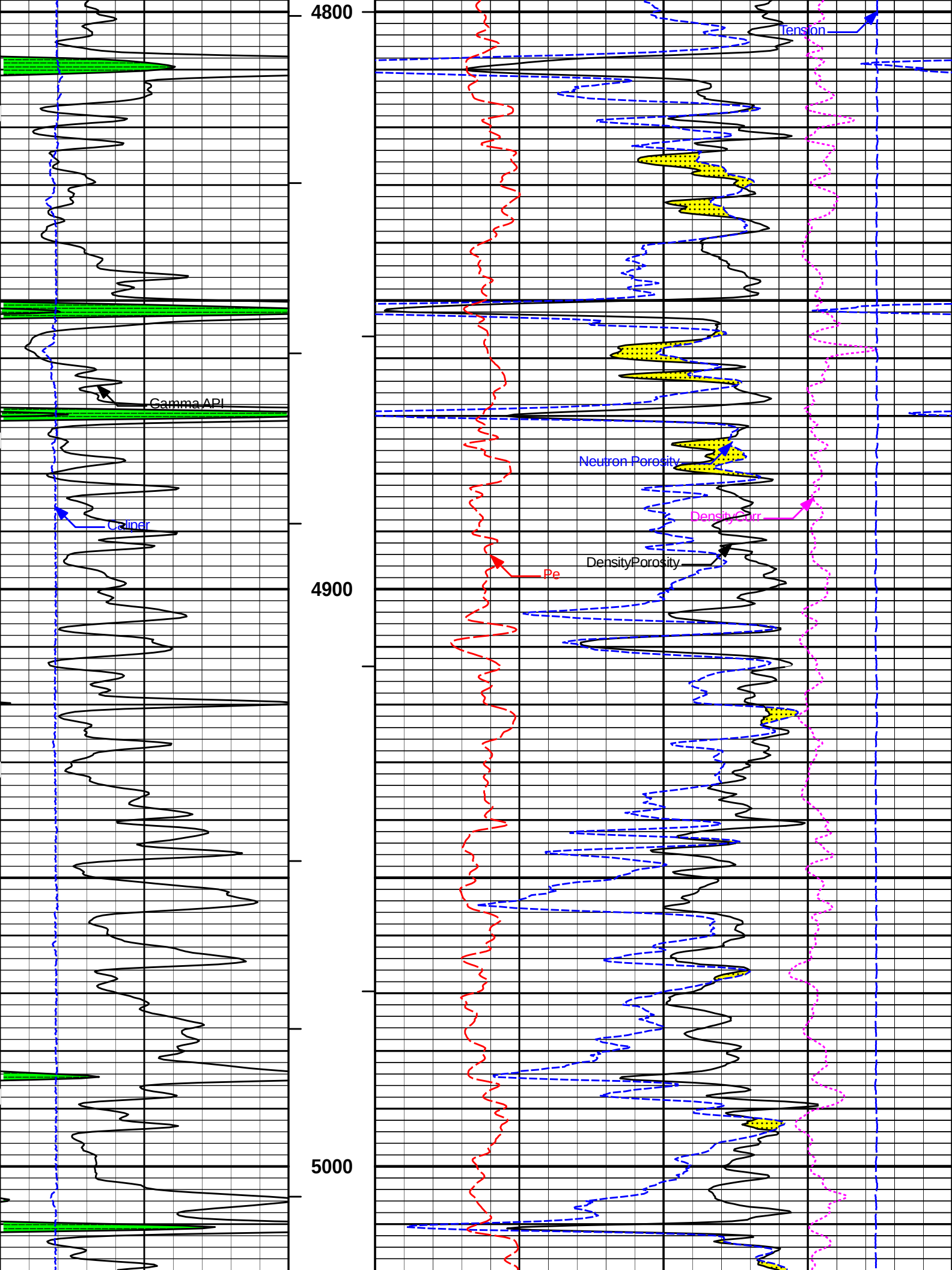
DensityCorr
DensityPorosity
Pe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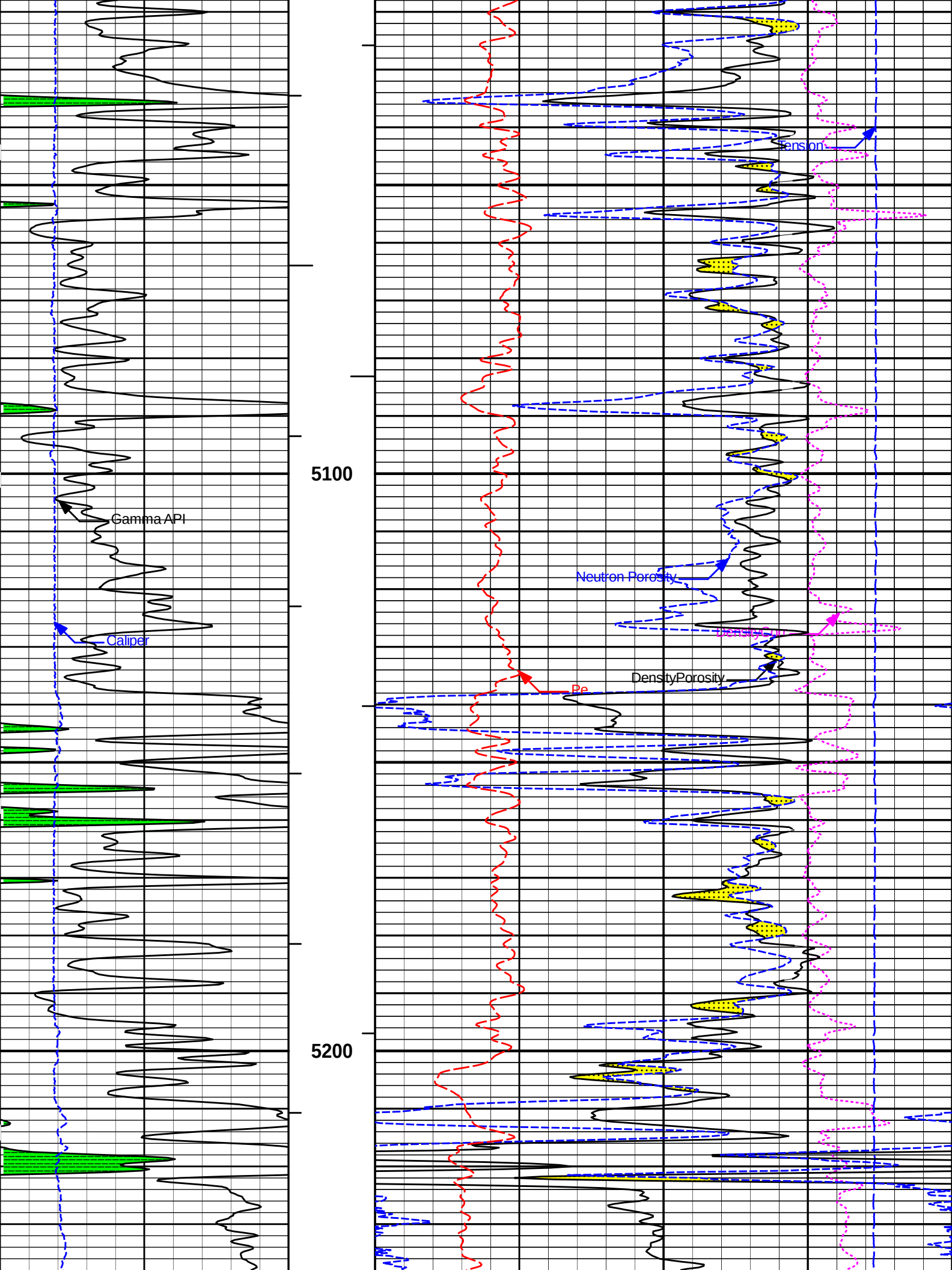
Tension
Gamma API
Neutron Porosity
Caliper
DensityCorr
DensityPorosity
Pe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Caliper
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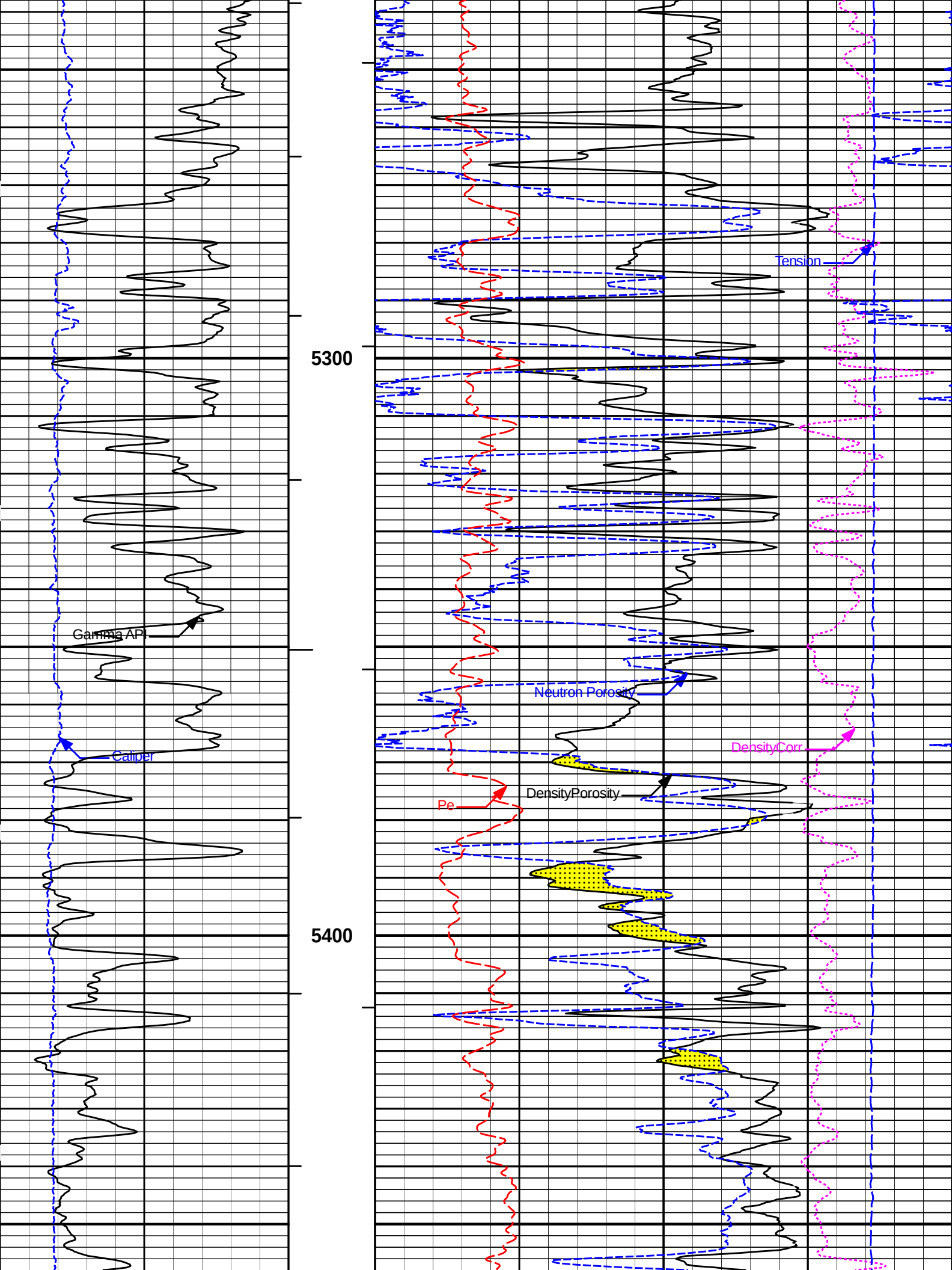
5200
Tension
Neutron Porosity
DensityCorr
DensityPorosity
Pe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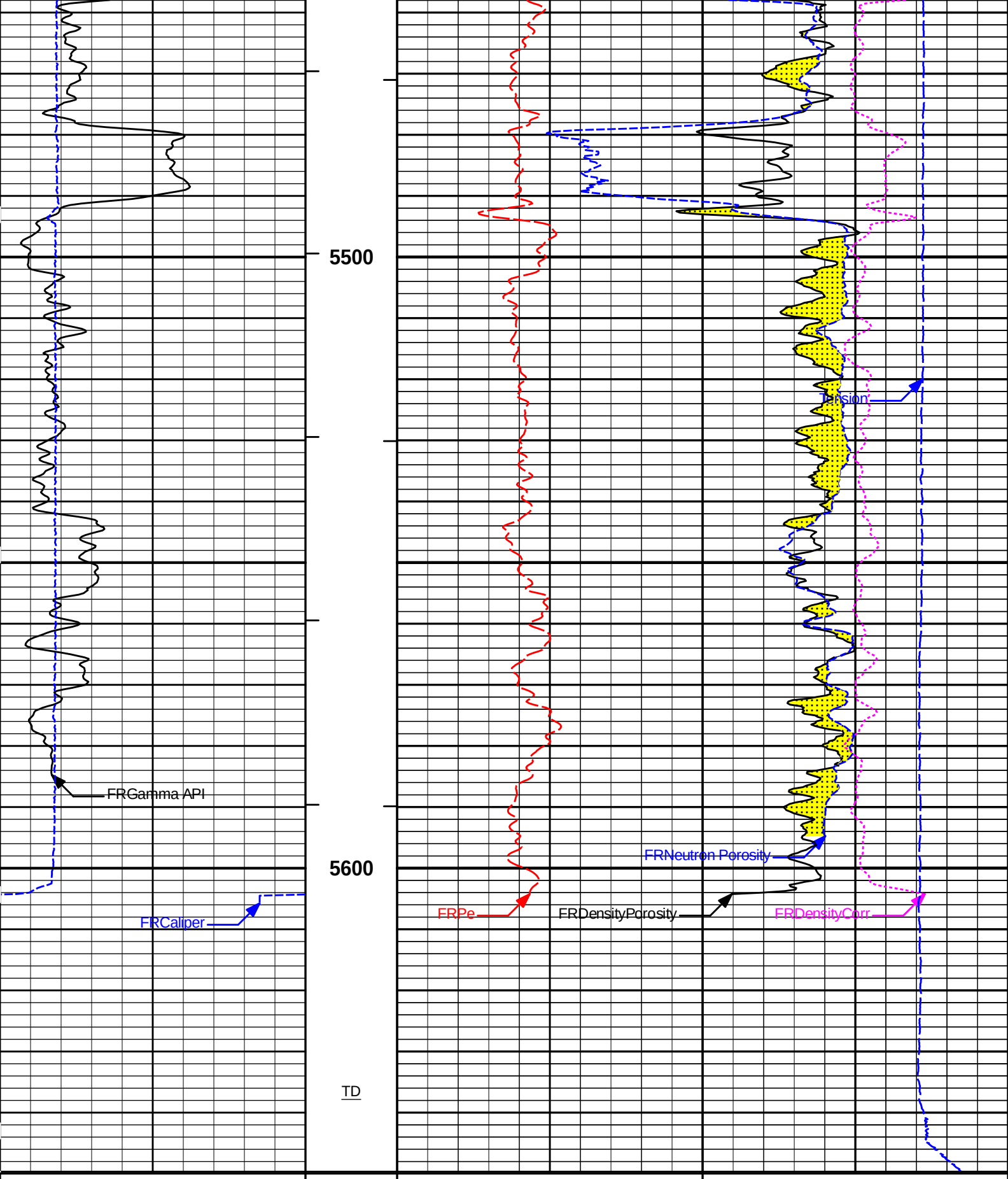
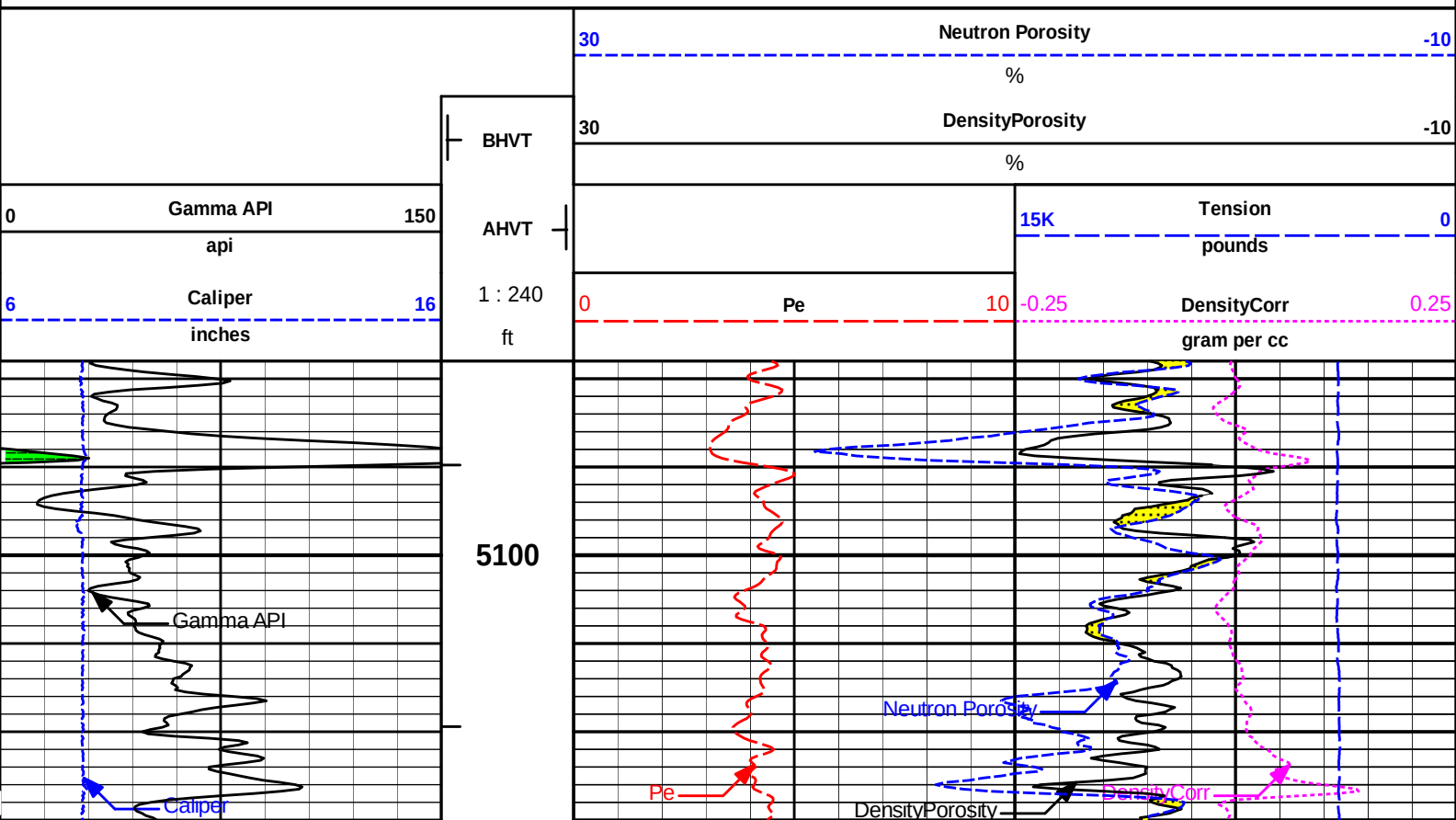
Caliper
5300
5400
Tension
Neutron Porosity
DensityCorr
DensityPorosity
Pe



6 Caliper 16	1 : 240	0 Pe 10	-0.25 DensityCorr 0.25	
inches	ft		gram per cc	
0 Gamma API 150	AHVT		15K Tension 0	
api			pounds	
	BHVT	30 DensityPorosity -10		
		%		



HALLIBURTON

Plot Time: 28-Mar-22 16:48:01
Plot Range: 3678 ft to 5649.67 ft
Data: 03-28-MERIT\Well Based\DAQ-DETAIL\
Plot File: \\PORO\Poro_IQ_5_MAIN

5 INCH MAIN LOG

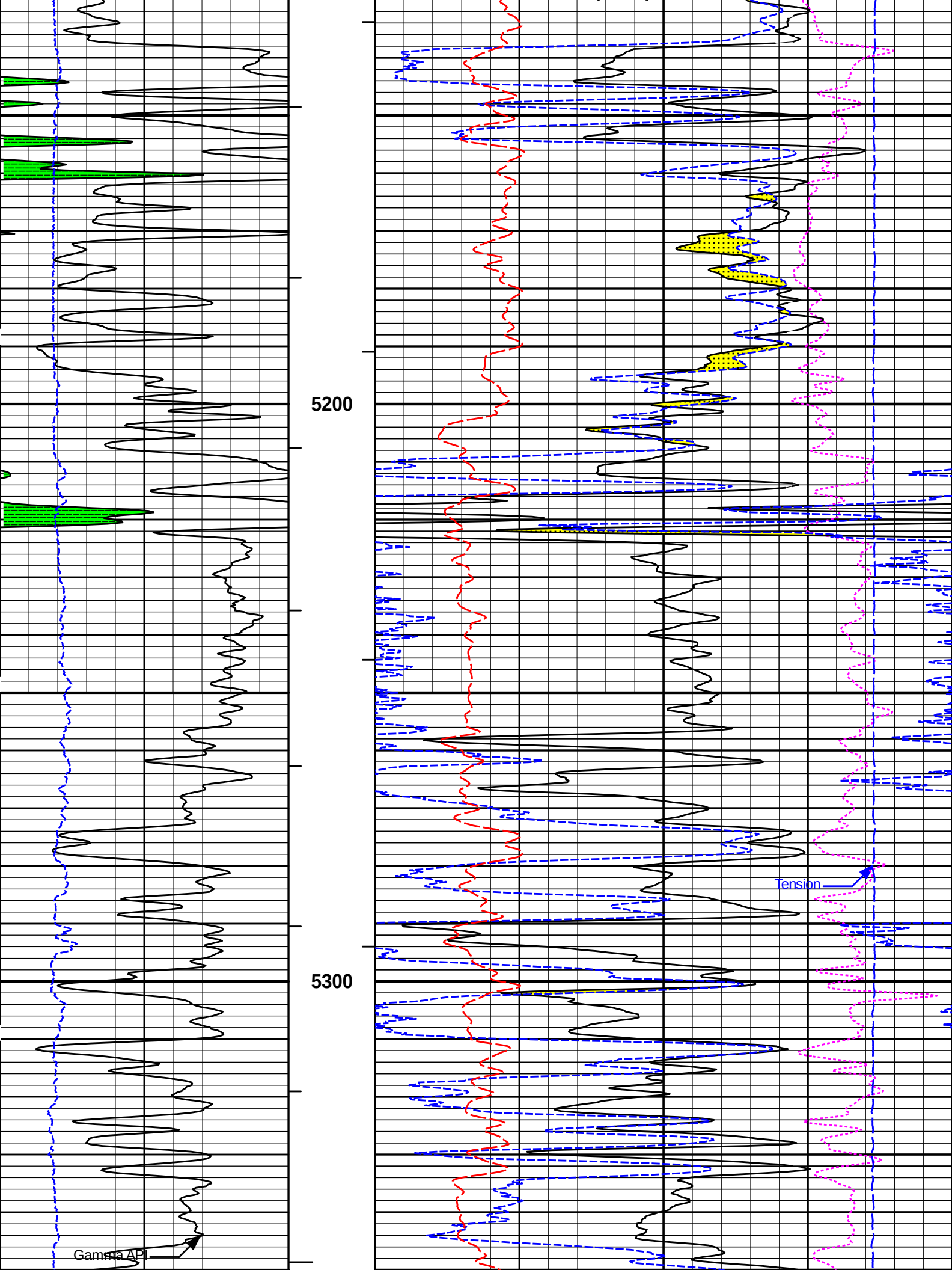
MAIN SECTION 5" PER 100'

HALLIBURTON

Plot Time: 28-Mar-22 16:48:01
Plot Range: 5078 ft to 5649.33 ft
Data: 03-28-MERIT\Well Based\DAQ-0001-003\
Plot File: \\PORO\Poro_IQ_5_MAIN

REPEAT SECTION

REPEAT SECTION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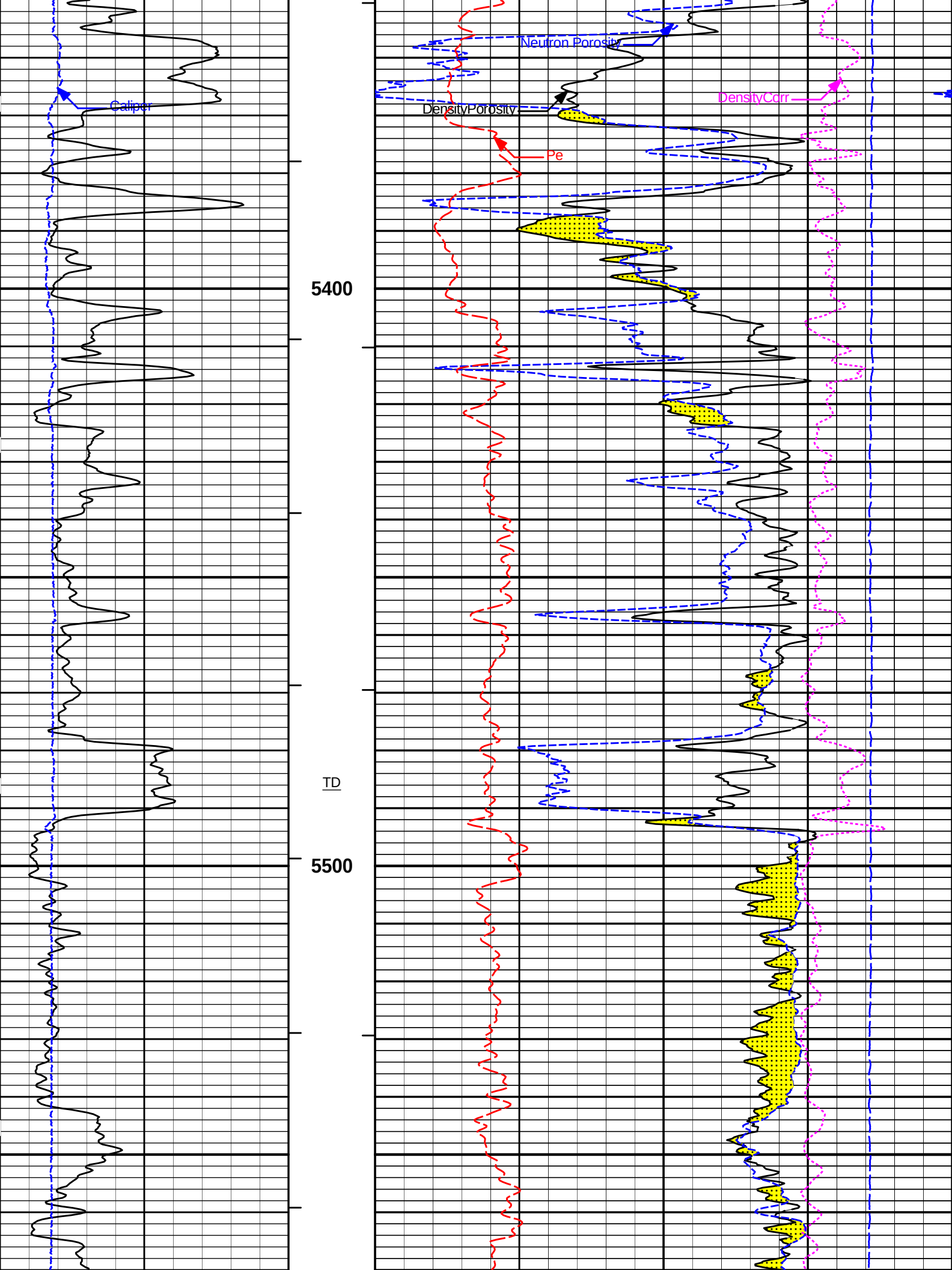
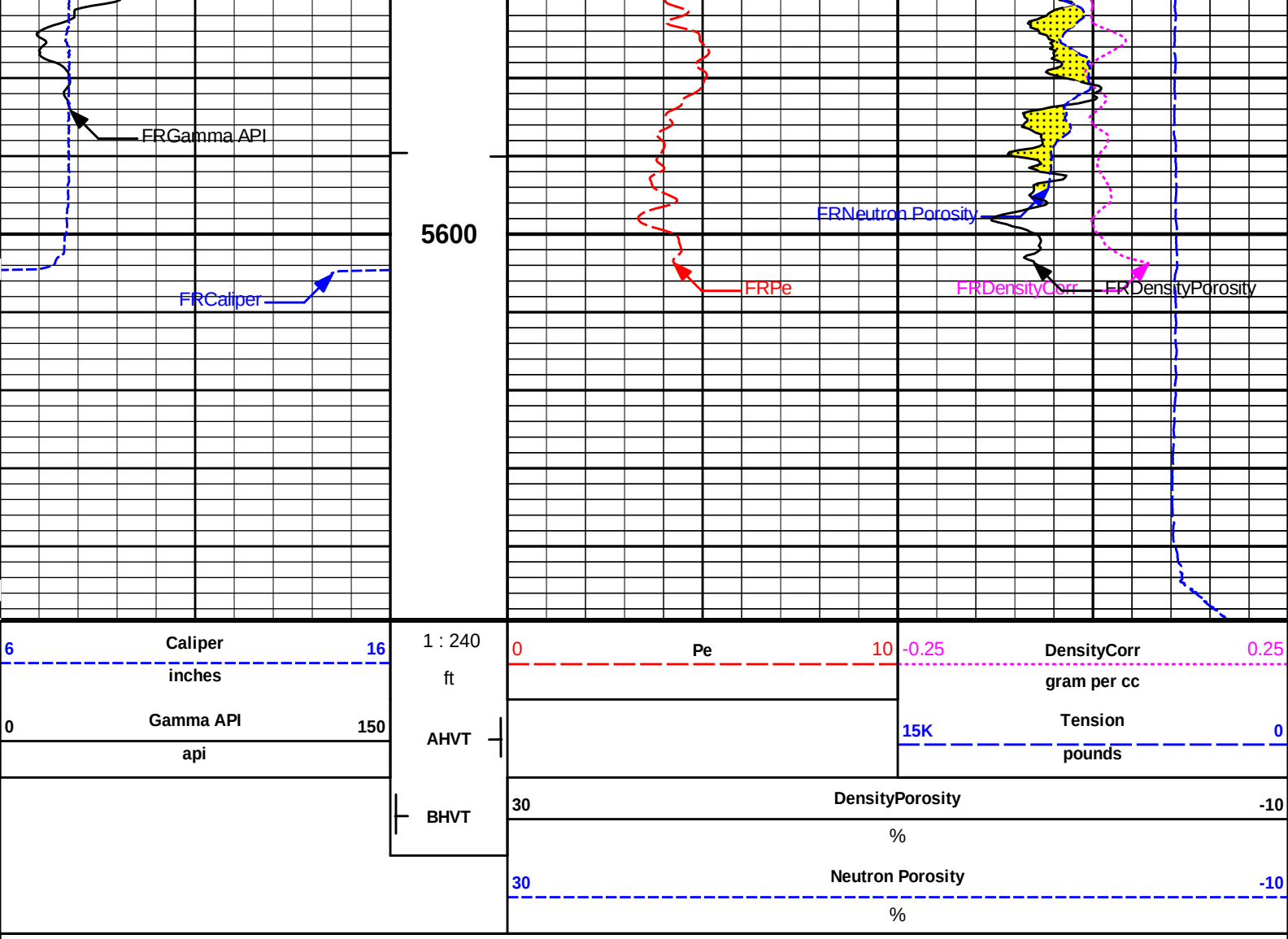
5300
Tension
Gamma API


Caliper
Neutron Porosity
DensityPorosity
Pe
DensityCorr
5400
TD
5500



HALLIBURTON

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Data: 03-28-MERIT\Well Based\DAQ-0001-003\
Plot File: \\PORO\Poro_IQ_5_MAIN

REPEAT SECTION

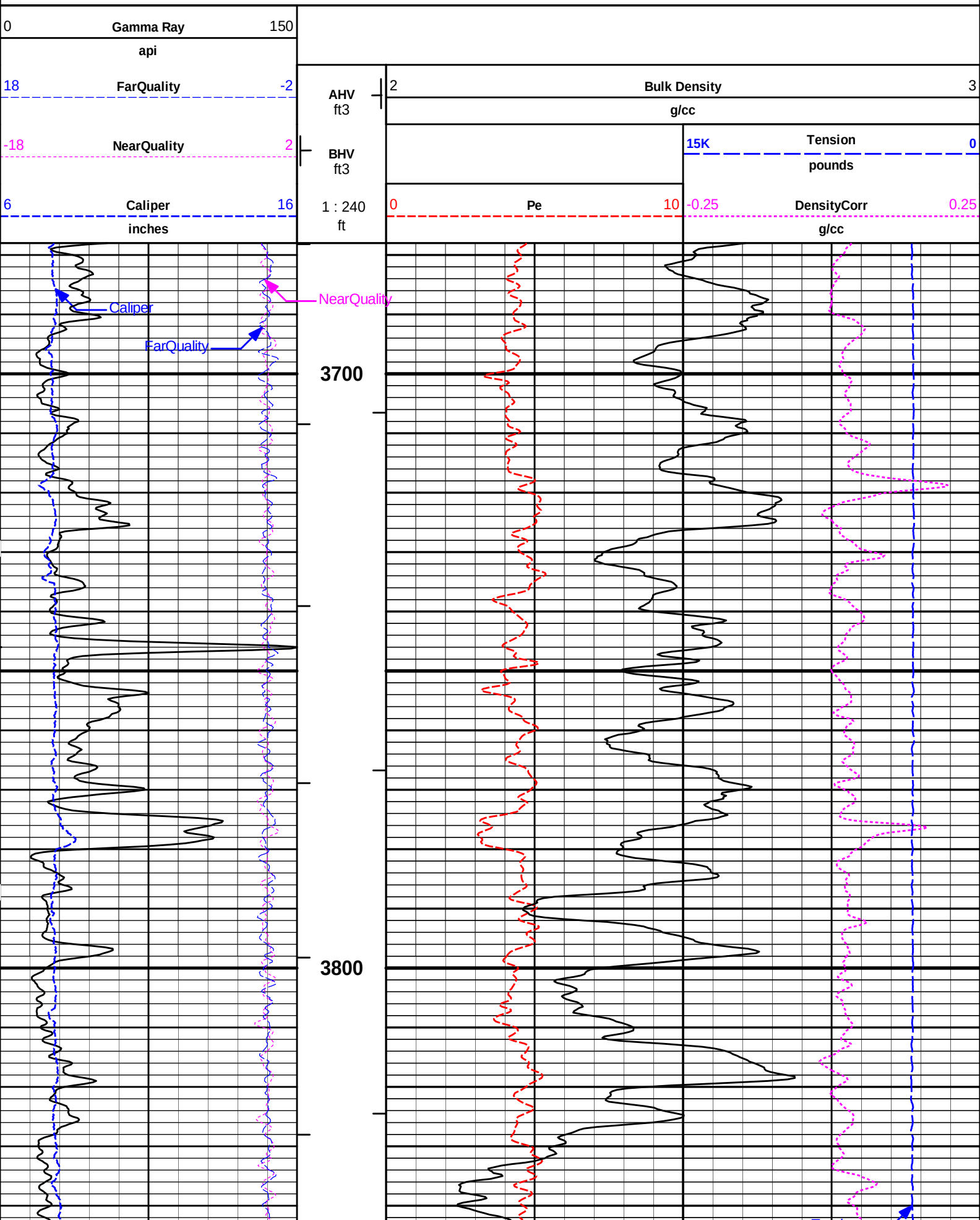
REPEAT SECTION

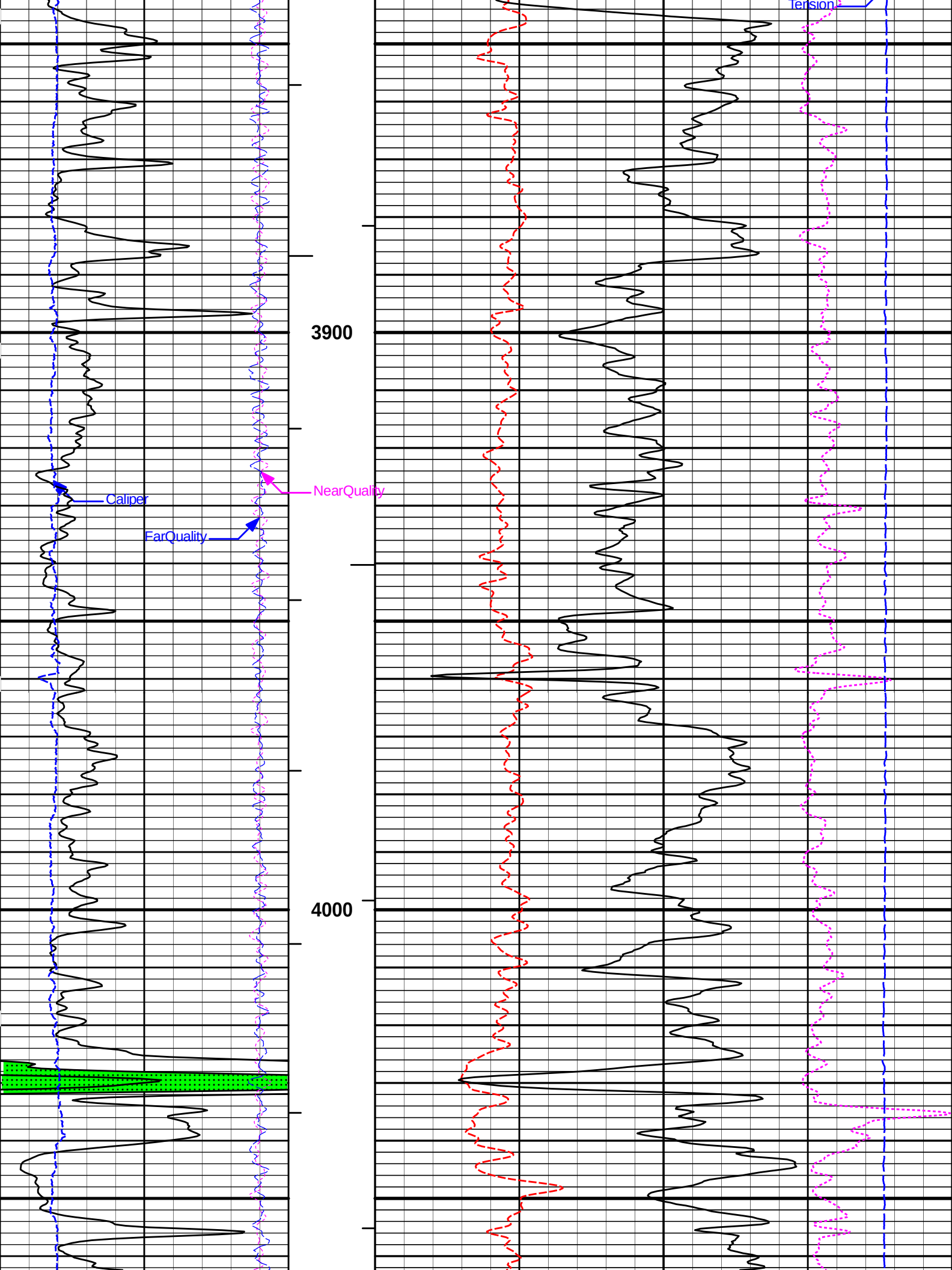
HALLIBURTON

Plot Time: 28-Mar-22 16:48:03
Plot Range: 3678 ft to 5649.67 ft
Data: 03-28-MERIT\Well Based\DAQ-DETAIL\
Plot File: \\-LOCAL-\03-28-MERIT\0001 RWCH-GTET-DSNT-SDLT-BSAT-ACRT\PORO\BULKD_5_MAIN_IQ

5 INCH MAIN LOG

MAIN SECTION 5" PER 100'


0
Gamma Ray
150
api
18
FarQuality
-2
-18
NearQuality
2
6
Caliper
16
inches
AHV
ft3
BHV
ft3
1 : 240
ft
2
Bulk Density
3
g/cc
15K
Tension
0
pounds
0
Pe
10
-0.25
DensityCorr
0.25
g/cc
Caliper
NearQuality
FarQuality
3700
3800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Caliper
NearQuality
FarQuality
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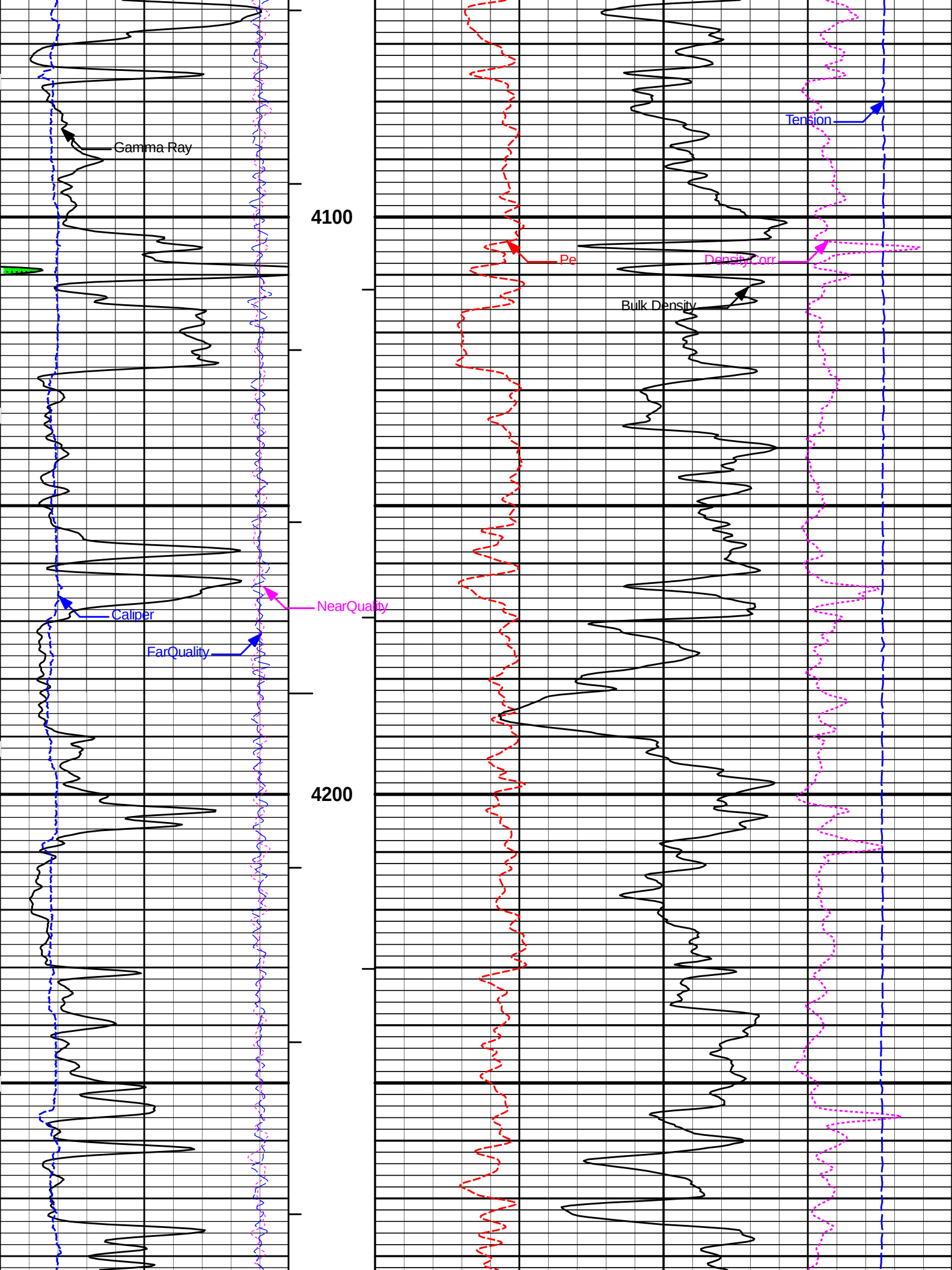
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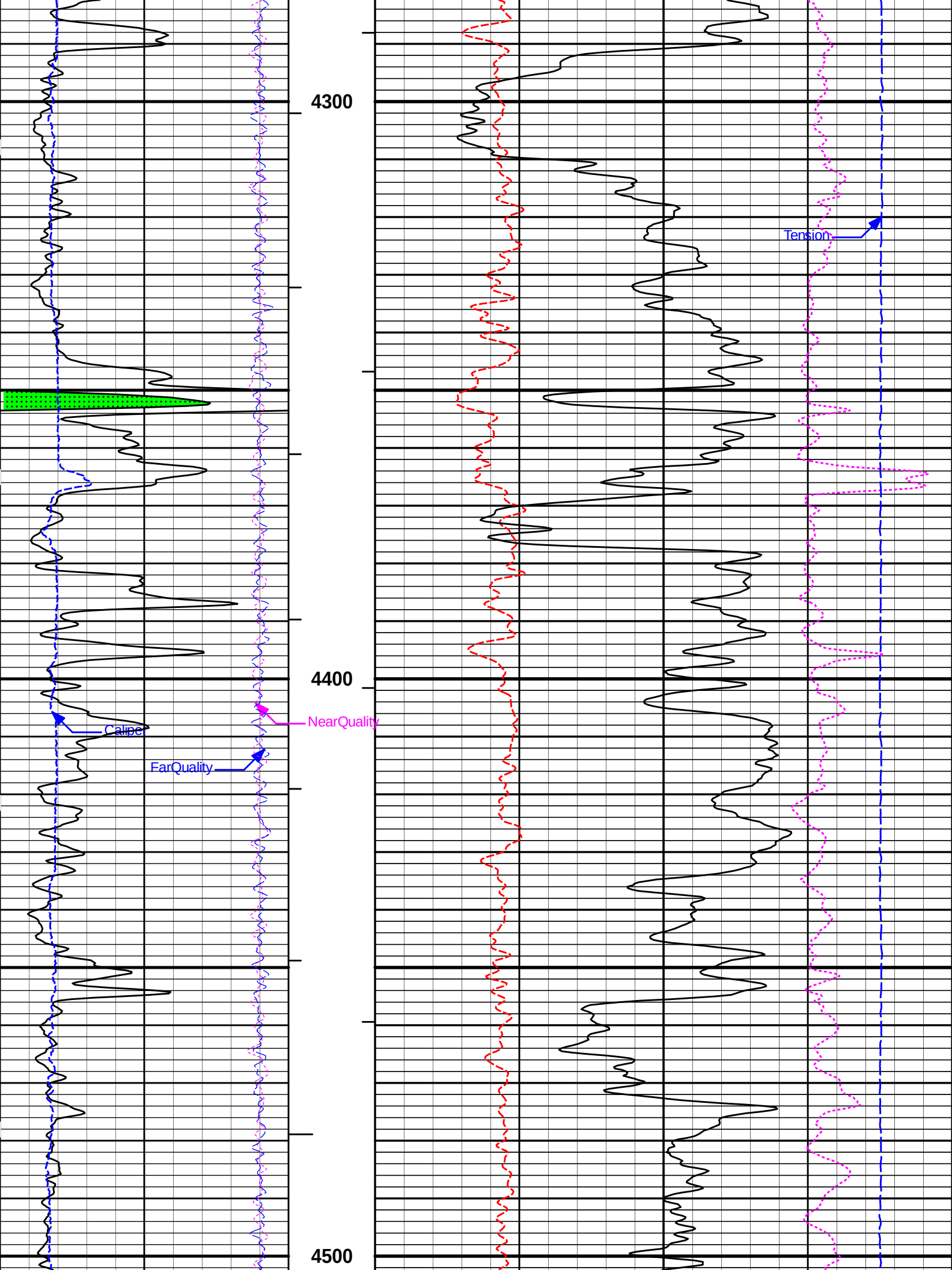
4100
Caliper
NearQuality
FarQuality
4200
Tension
Pe
DensityCorr
Bulk Density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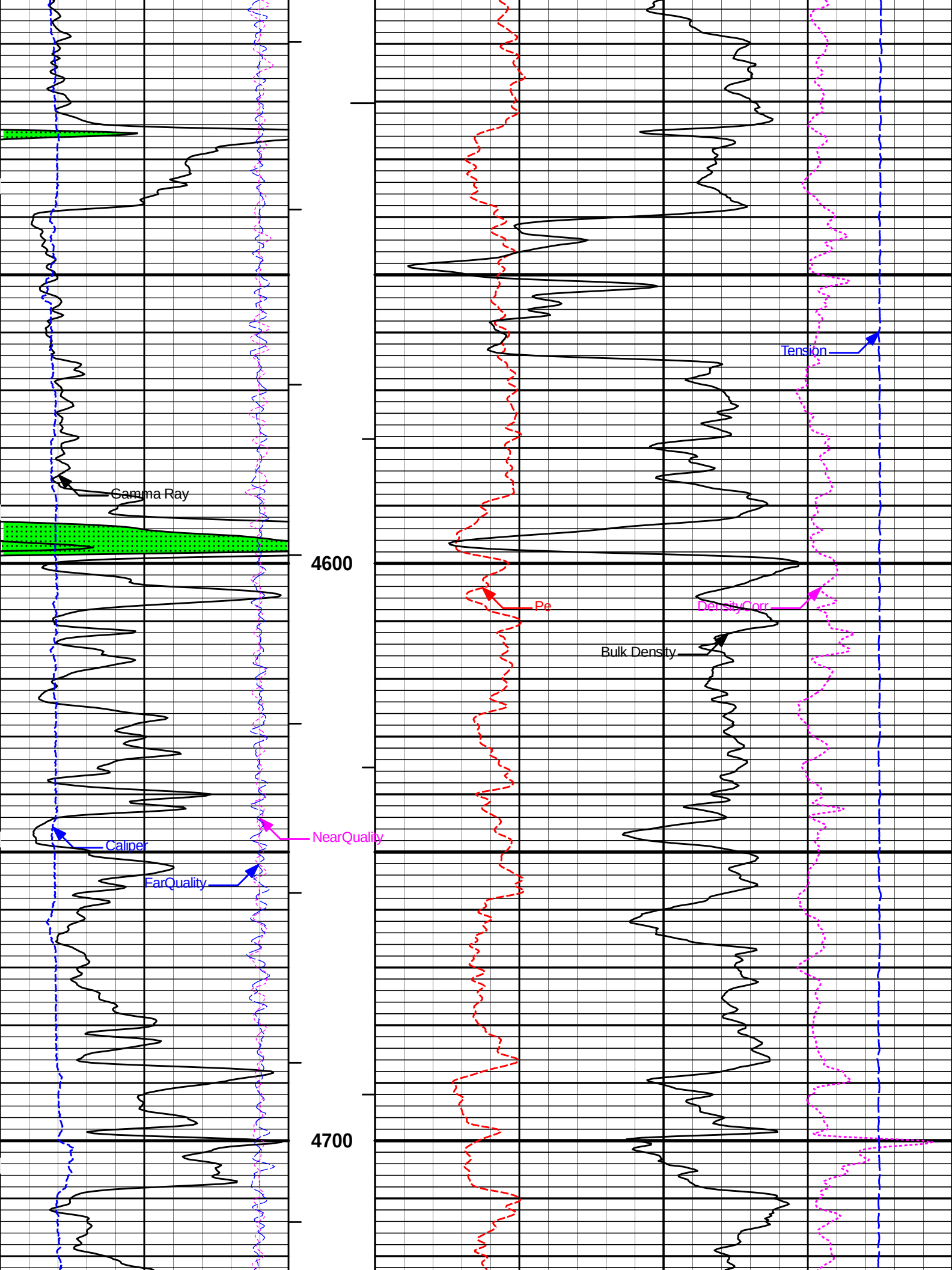
FarQuality
Tension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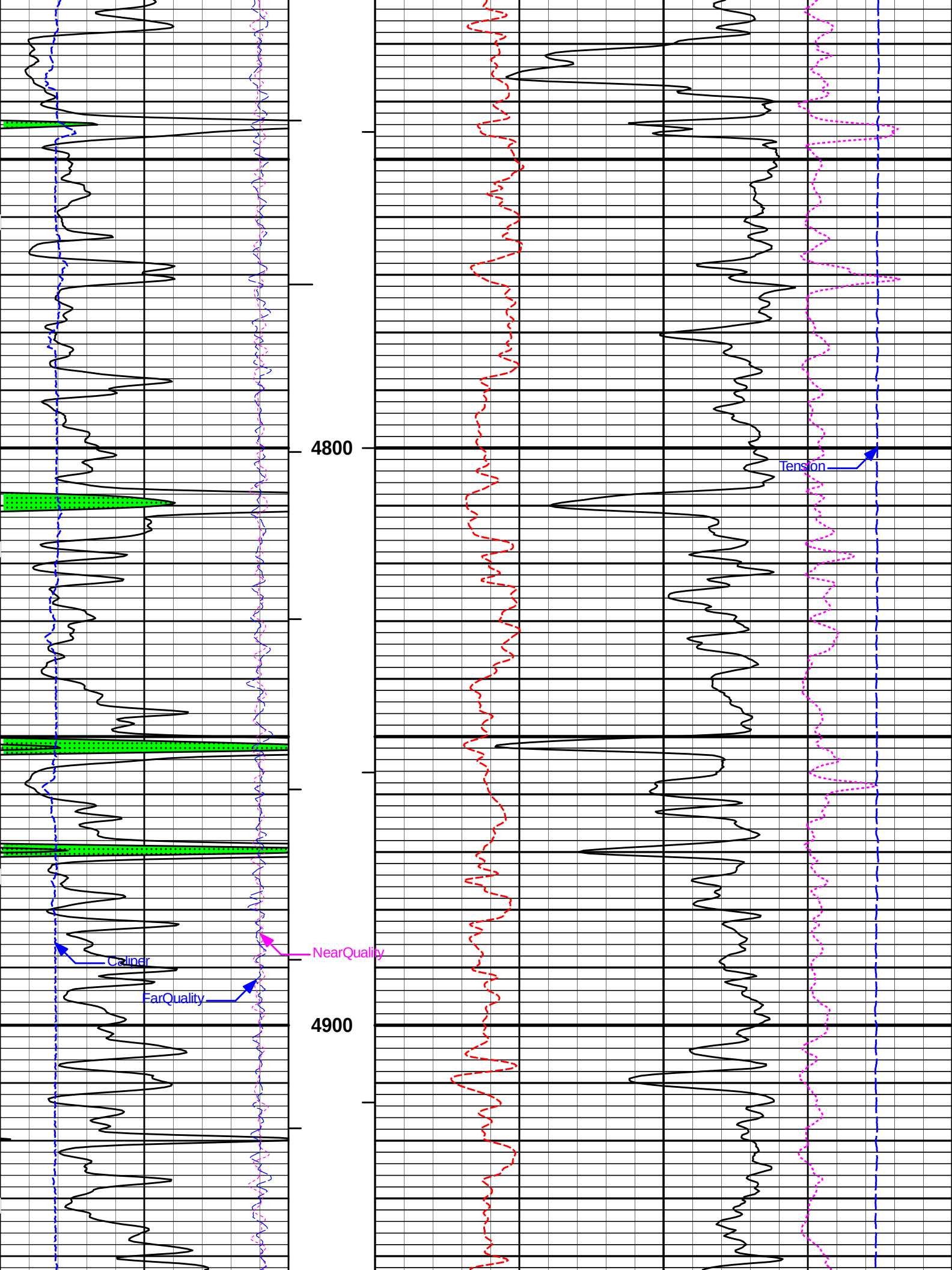
Caliper
NearQuality
FarQuality
4700
Tension
Pe
DensityCorr
Bulk Density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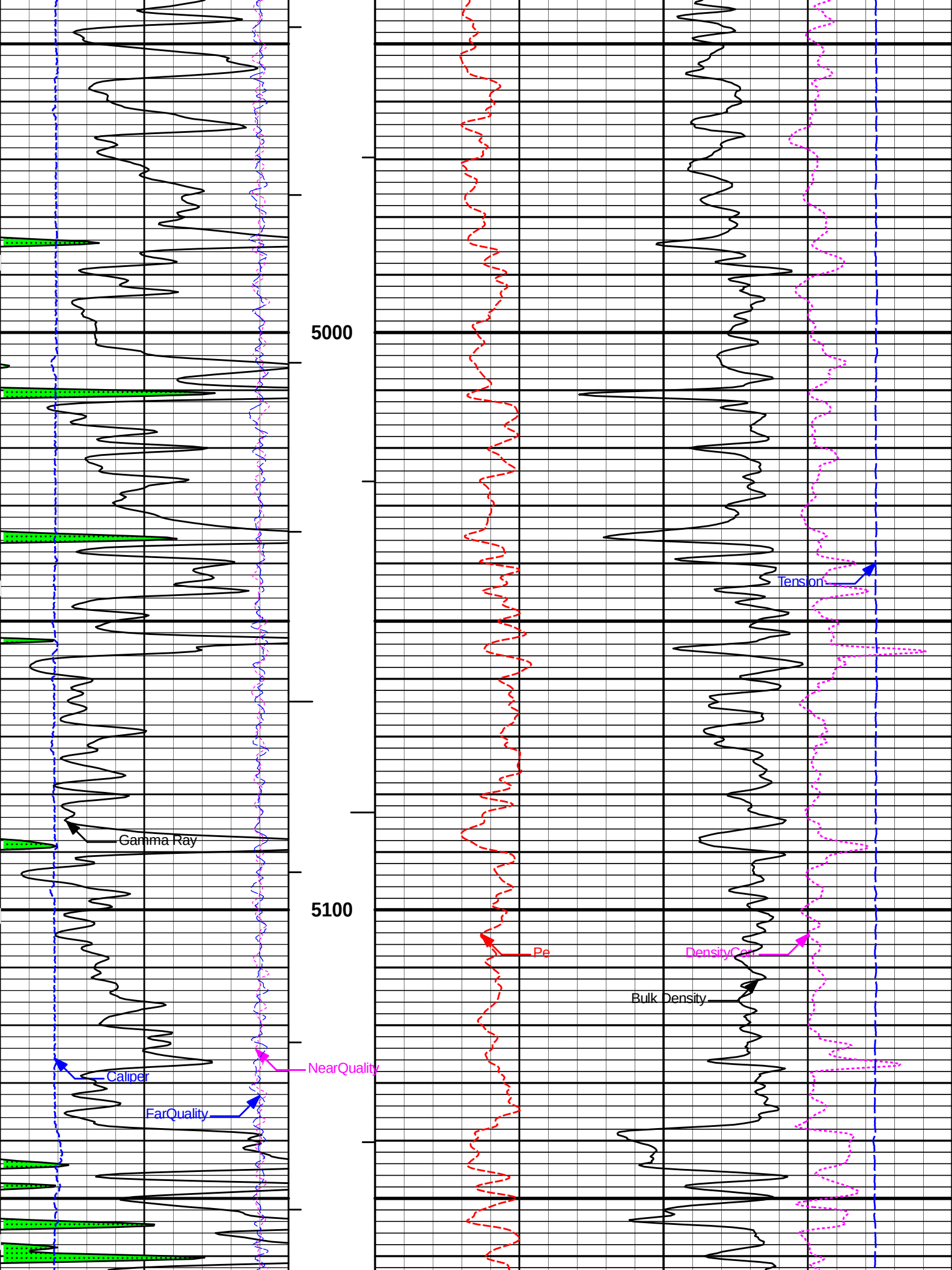
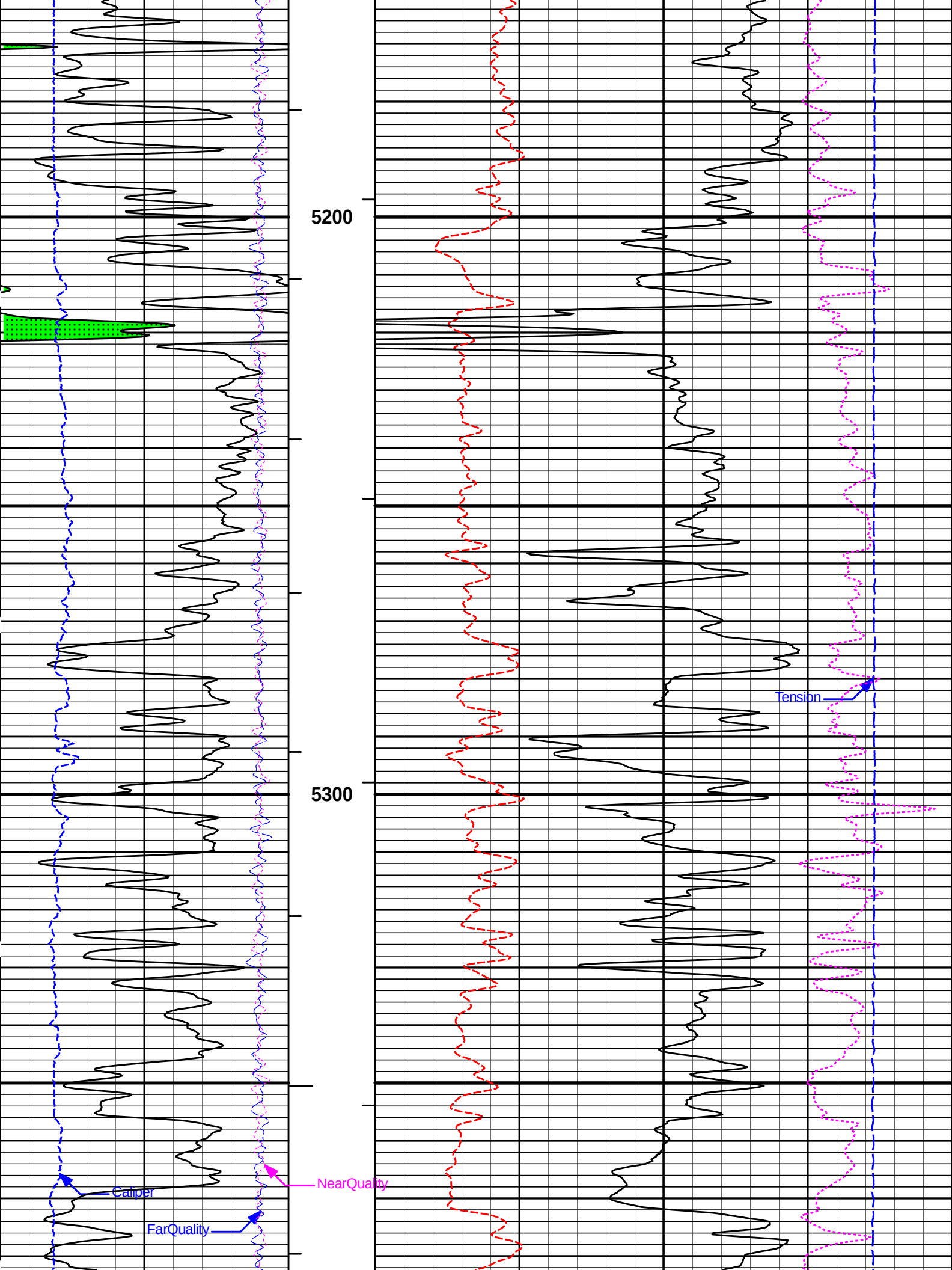
4900
Tension
Caliper
NearQuality
FarQuality


5000
5100
Gamma Ray
Caliper
FarQuality
NearQuality
Pe
Bulk Density
DensityCorr
Tension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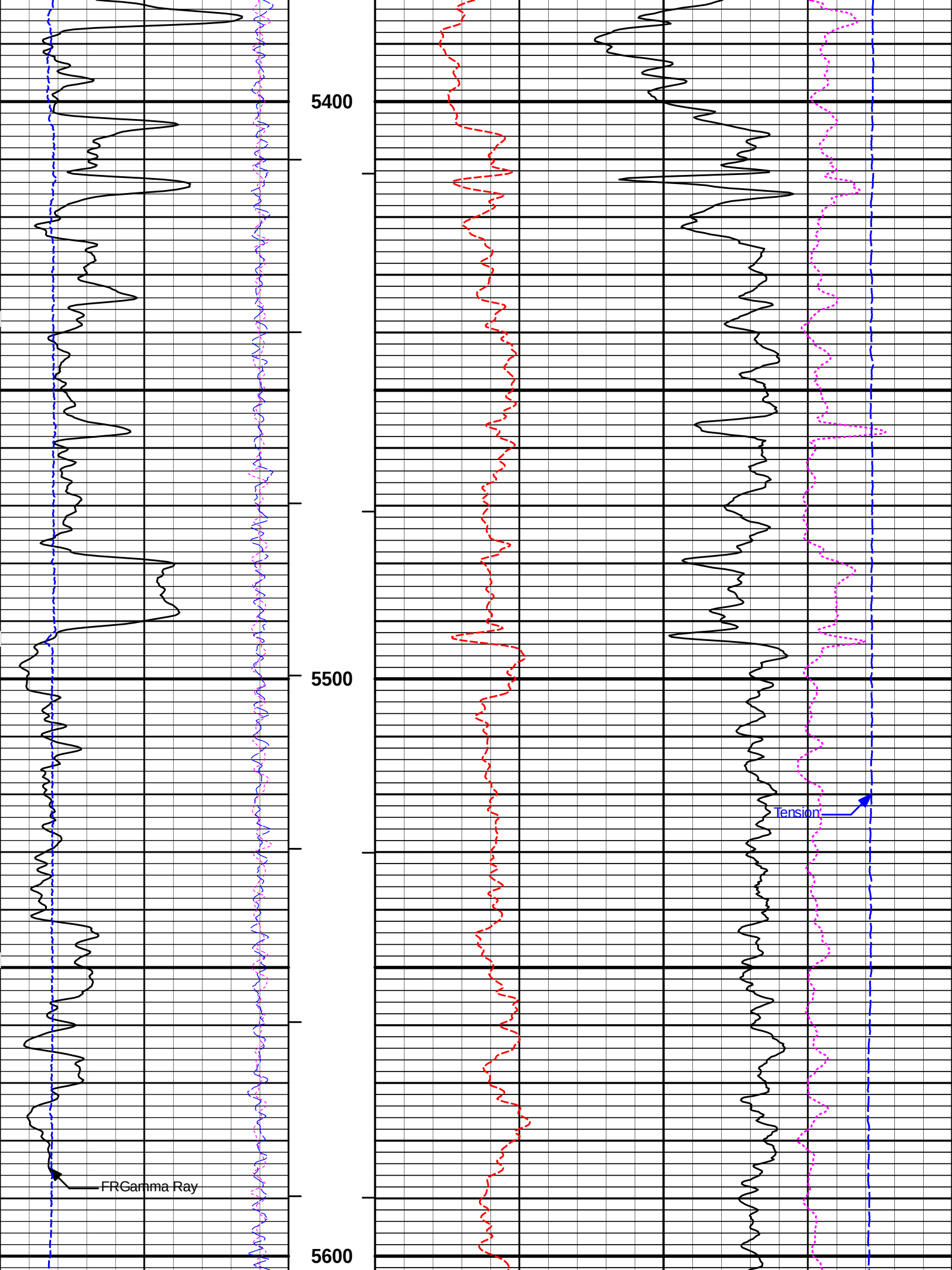
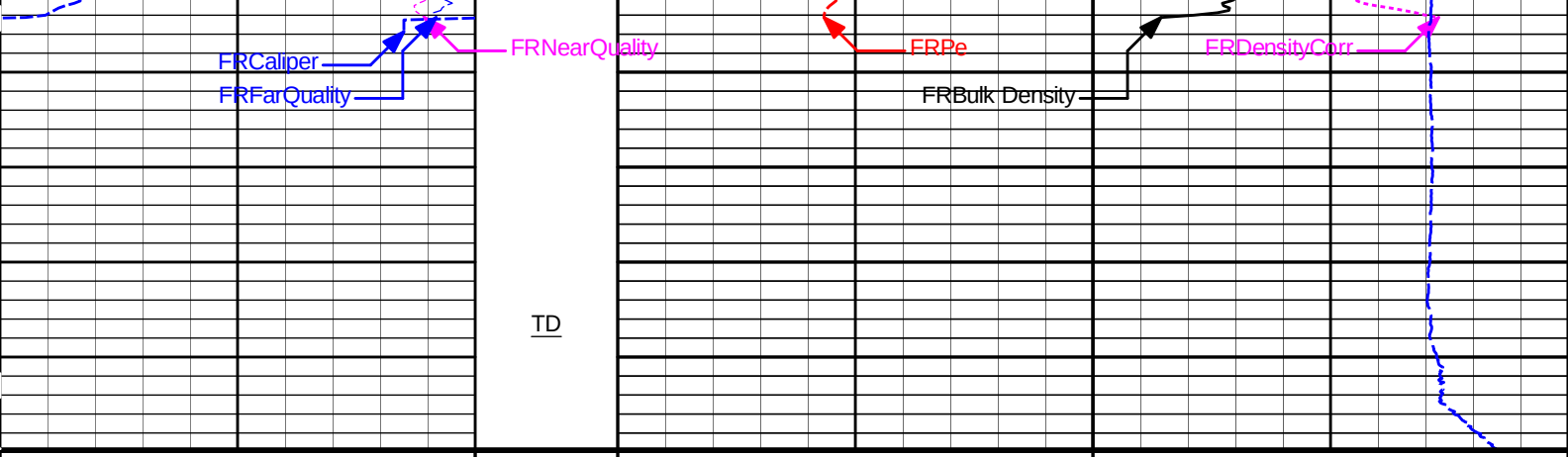

5400
5500
5600
FRGamma Ray
Tension



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

HALLIBURTON

Plot Time: 28-Mar-22 16:48:05
Plot Range: 3678 ft to 5649.67 ft
Data: 03-28-MERIT\Well Based\DAQ-DETAIL\
Plot File: \\-LOCAL-\03-28-MERIT\0001 RWCH-GTET-DSNT-SDLT-BSAT-ACRT\PORO\BULKD_5_MAIN_IQ

5 INCH MAIN LOG

MAIN SECTION 5" PER 100'

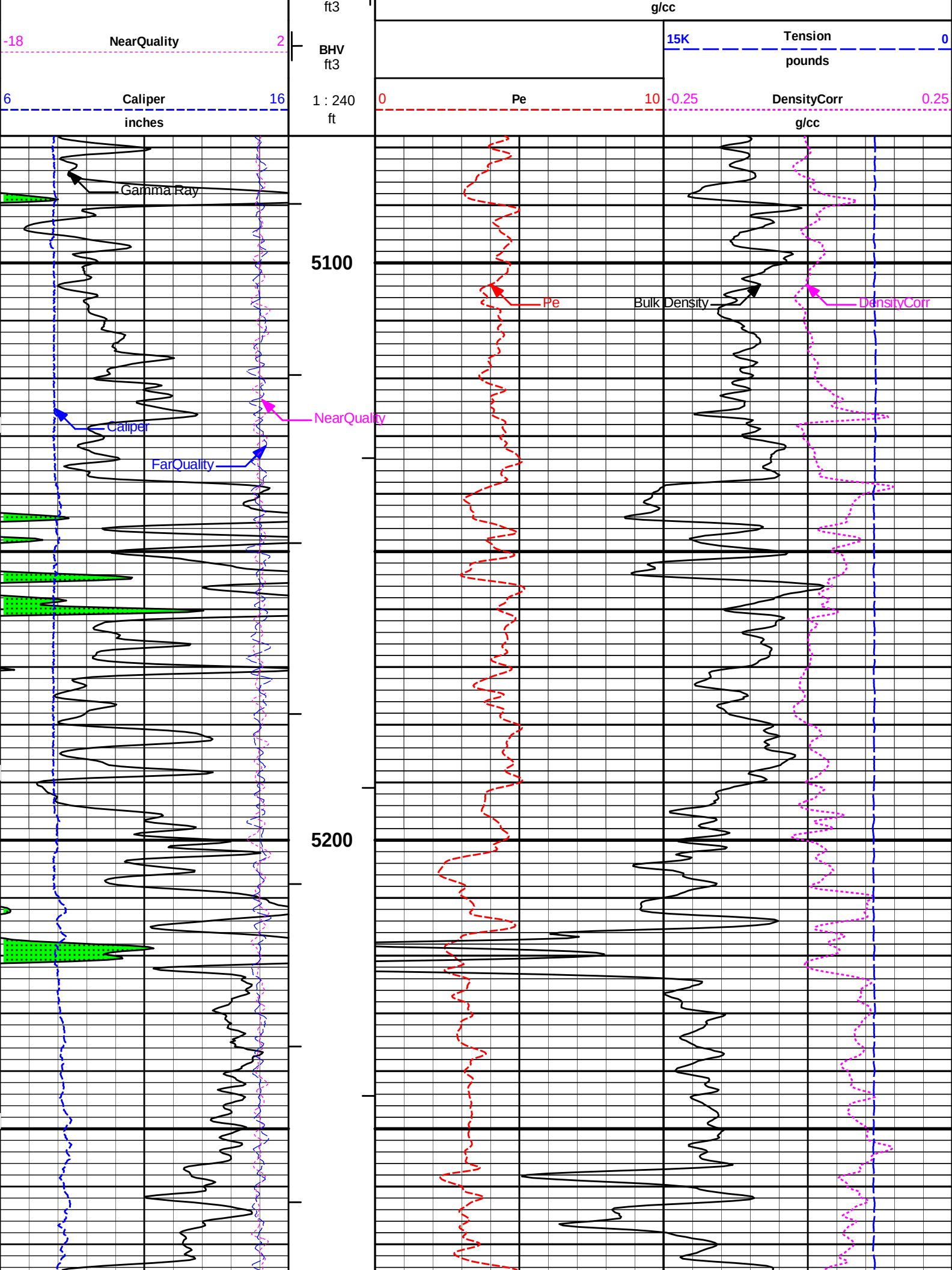
HALLIBURTON

Plot Time: 28-Mar-22 16:48:05
Plot Range: 5078 ft to 5649.33 ft
Data: 03-28-MERIT\Well Based\DAQ-0001-003\
Plot File: \\-LOCAL-\03-28-MERIT\0001 RWCH-GTET-DSNT-SDLT-BSAT-ACRT\PORO\BULKD_5_MAIN_IQ

REPEAT SECTION

REPEAT SECTION

0	Gamma Ray	150				
	api					
18	FarQuality	-2	AHV	2	Bulk Density	3


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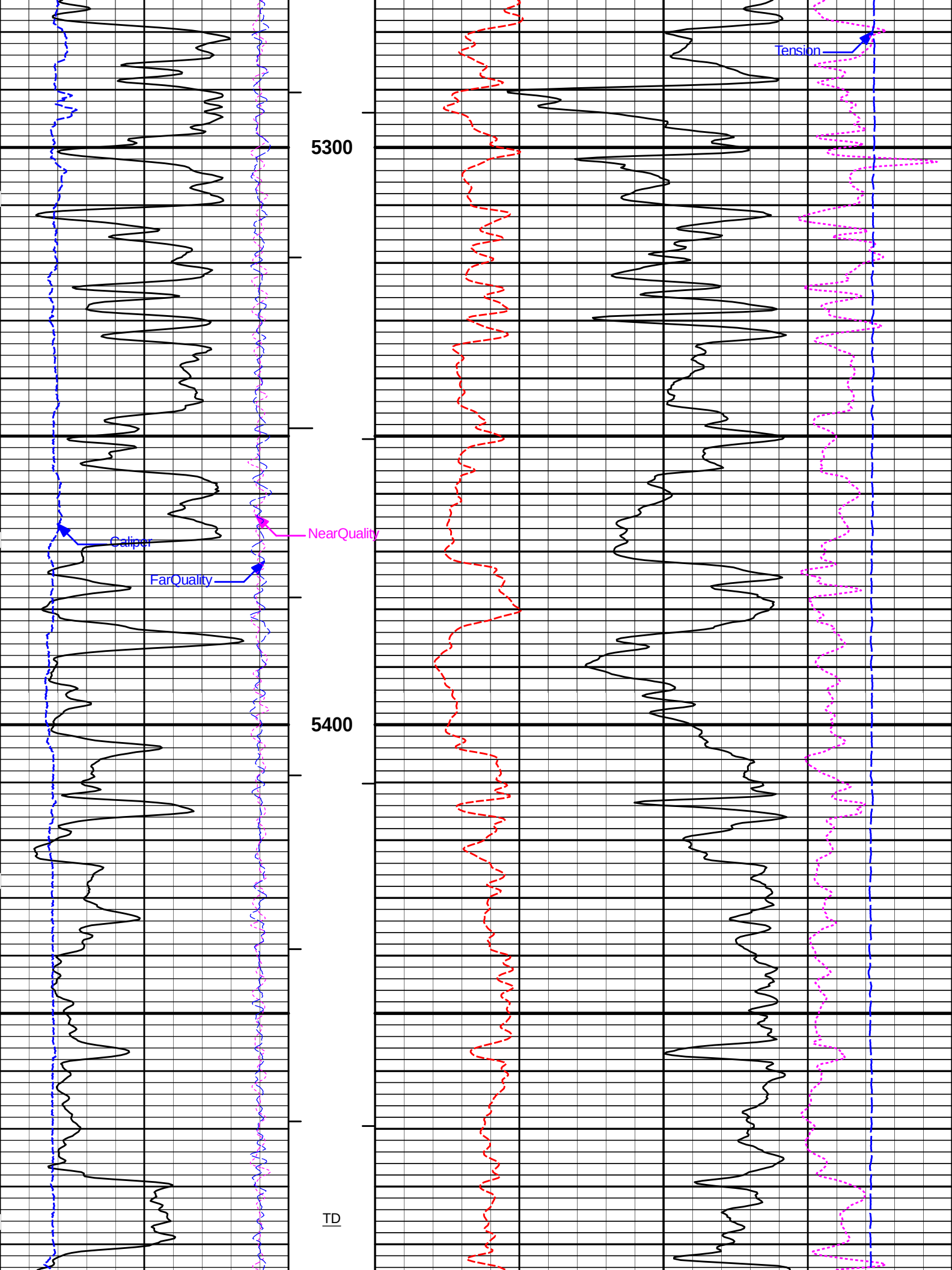
Tension
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FarQuality
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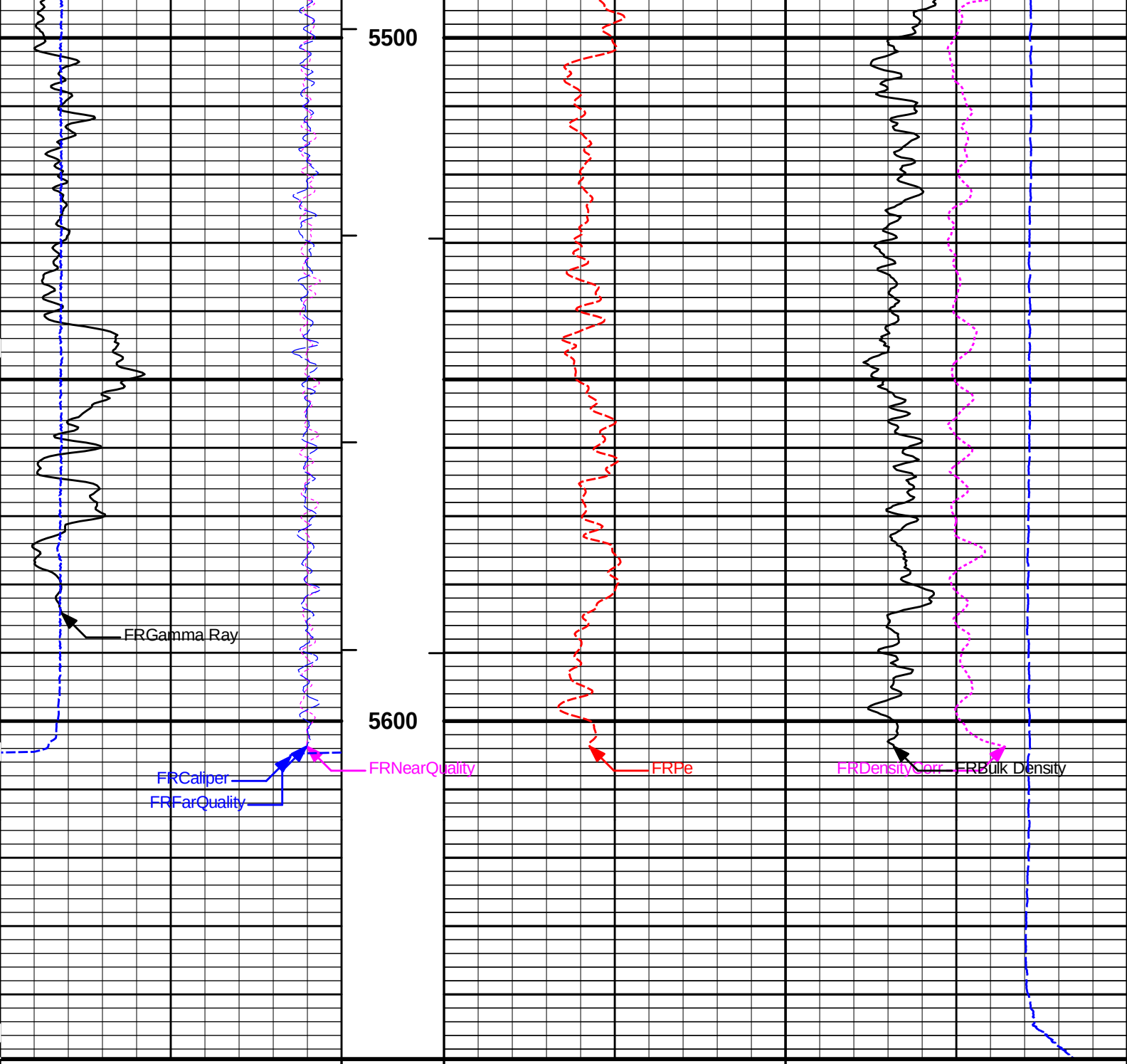
TD



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

HALLIBURTON

Plot Time: 28-Mar-22 16:48:06
Plot Range: 5078 ft to 5649.33 ft
Data: 03-28-MERIT\Well Based\DAQ-0001-003\
Plot File: \\-LOCAL-\03-28-MERIT\0001 RWCH-GTET-DSNT-SDLT-BSAT-ACRT\PORO\BULKD_5_MAIN_IQ

REPEAT SECTION

REPEAT SECTION

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name:	**GTET - 11172469**	**Reference Calibration Date:**	**14-Dec-21 17:47:25**
Engineer:	**M. GALLION**	**Calibration Date:**	**07-Mar-22 15:48:15**
Software Version:	**WL INSITE R6.4.20 (Build 2)**	**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	16.9	17.2	api
Background + Calibrator	220.1	223.8	api
Calibrator	203.2	206.6	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name:	**GTET - 11172469**	**Reference Calibration Date:**	**07-Mar-22 15:48:15**
Engineer:	**M. GALLION**	**Calibration Date:**	**12-Mar-22 10:39:01**
Software Version:	**WL INSITE R6.4.20 (Build 2)**	**Calibration Version:**	**1**

Calibrator Source S/N: TB-768
Calibrator API Reference:203.00 api
Equivalent Calibrator API Reference:206.6 api

Field Verification	Shop	Field	Units
Background	17.2	17.1	api
Background + Calibrator	223.8	221.4	api
Calibrator	206.6	204.3	api

Shop	Field	Difference	Tolerance
206.6	204.3	2.3	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name:	**DSNT - 11019643**	**Reference Calibration Date:**	**20-Nov-21 07:01:22**
Engineer:	**M. GALLION**	**Calibration Date:**	**03-Mar-22 14:13:22**
Software Version:	**WL INSITE R6.6.1 (Build 2)**	**Calibration Version:**	**1**

Logging Source S/N: DSN-313
Tank Serial Number: 10585331
Reference value assigned to Tank: 54.090
Snow Block S/N: 7665
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:	0.99248	0.98833	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):	0.2257	0.2244	0.0013	+/- 0.0020
Calibrated Ratio:	10.2239	10.1812	0.043	+/- 0.050

VERIFIER		
Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0842	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 - 11019643**	**Reference Calibration Date:**	**03-Mar-22 14:13:22**
Engineer:	**M. GALLION**	**Calibration Date:**	**03-Mar-22 14:14:35**
Software Version:	**WL INSITE R6.6.1 (Build 2)**	**Calibration Version:**	**1**

Logging Source S/N: DSN-313

Snow Block S/N: 7665

NEUTRON FIELD-CHECK SUMMARY				
	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0842	0.0844	0.0002	+/- 0.0150

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

DUAL SPACED NEUTRON POST CALIBRATION

Tool Name:	**DSNT - 11019643**	**Reference Calibration Date:**	**03-Mar-22 14:14:35**
Engineer:	**M. GALLION**	**Calibration Date:**	**03-Mar-22 14:15:45**
Software Version:	**WL INSITE R6.6.1 (Build 2)**	**Calibration Version:**	**1**

Logging Source S/N: DSN-313

Snow Block S/N: 7665

NEUTRON POST-CHECK SUMMARY				
	Field Value	Post Value	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0844	0.0847	0.0003	+/- 0.0150

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

DENSITY CALIPER SHOP CALIBRATION

Tool Name:	**SDLT - 11014296**	**Reference Calibration Date:**	**03-Mar-22 17:02:51**
Engineer:	**M. GALLION**	**Calibration Date:**	**03-Mar-22 17:07:15**

Software Version:	**WL INSITE R6.6.1 (Build 2)**	**Calibration Version:**	**1**
Host Tool Name:	**DSNT - 11019643**		

CALIBRATION COEFFICIENTS			
Measurement	**Previous Value**	**New Value**	**Control Limit On New Value**
Pad Offset	-3072.02	-2996.82	-7000.00 - -1000.00
Pad Gain	0.0003911	0.0003888	0.0002000 - 0.0006000
Arm Offset	-2272.58	-2154.18	-5000.00 - 3000.00
Arm Gain	0.0005311	0.0005170	0.000300 - 0.000700
Arm Power	-0.000005994	-0.000005256	-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)	1.98	2.00	0.02	+/- 0.20
Medium Ring (in)	3.74	3.75	0.01	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.46	6.50	0.04	+/- 0.20
Medium Ring (in)	8.24	8.25	0.01	+/- 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

SDLT CALIPER FIELD CALIBRATION

Tool Name:	**SDLT - 11014296**	**Reference Calibration Date:**	**03-Mar-22 17:07:15**
Engineer:	**M. GALLION**	**Calibration Date:**	**03-Mar-22 17:08:43**
Software Version:	**WL INSITE R6.6.1 (Build 2)**	**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 - 10763919**	**Reference Calibration Date:**	**27-Nov-21 18:58:04**
Engineer:	**M. GALLION**	**Calibration Date:**	**03-Mar-22 14:57:18**
Software Version:	**WL INSITE R6.6.1 (Build 2)**	**Calibration Version:**	**1**

Logging Source S/N: 5381GW

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	1.0635	1.0463	0.90 - 1.10
Near Dens Gain	1.0182	1.0224	0.90 - 1.10
Near Peak Gain	1.0153	1.0087	0.90 - 1.10
Near Lith Gain	0.9960	0.9946	0.90 - 1.10
Far Bar Gain	1.0131	1.0125	0.90 - 1.10
Far Dens Gain	0.9974	0.9983	0.90 - 1.10
Far Peak Gain	0.9909	0.9935	0.90 - 1.10
Far Lith Gain	0.9670	0.9594	0.90 - 1.10
Near Bar Offset	-0.4009	-0.2344	NONE
Near Dens Offset	0.0352	0.0040	NONE
Near Peak Offset	0.0554	0.1183	NONE
Near Lith Offset	0.1652	0.1750	NONE
Far Bar Offset	0.0380	0.0510	NONE
Far Dens Offset	0.1461	0.1396	NONE
Far Peak Offset	0.1605	0.1304	NONE
Far Lith Offset	0.2829	0.3123	NONE
Near Bar Background	920.62	917.41	700 - 1450
Near Dens Background	302.56	301.92	230 - 480
Near Peak Background	133.05	132.96	100 - 210
Near Lith Background	164.13	163.11	125 - 260
Far Bar Background	622.74	619.39	450 - 900
Far Dens Background	243.73	242.74	175 - 345
Far Peak Background	97.27	95.52	70 - 140
Far Lith Background	100.58	101.28	75 - 145

CALIBRATION BLOCK SUMMARY

Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.672	1.679	0.008	+/- 0.015
Pe	2.496	2.545	0.049	+/- 0.150
ALUMINUM				
Density (g/cc)	2.583	2.595	0.012	+/- 0.01500
Pe	3.137	3.221	0.084	+/- 0.150

TOOL SUMMARY

Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	0.0002	+/- 0.0110	-0.0003	+/- 0.0140
Magnesium Block	-0.0002	+/- 0.0110	-0.0015	+/- 0.0140
Aluminum Block	0.0004	+/- 0.0110	-0.0005	+/- 0.0140
Resolution	8.80	6.00 - 11.50	9.20	6.00 - 11.50
Internal Verifier(B+D+P+L)	1515	1200 - 2700	1059	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 - 10763919**	**Reference Calibration Date:**	**03-Mar-22 14:57:18**
Engineer:	**M. GALLION**	**Calibration Date:**	**03-Mar-22 15:02:13**
Software Version:	**WL INSITE R6.6.1 (Build 2)**	**Calibration Version:**	**1**

Pad Temperature: 82.3 degF

DENSITY FIELD CALIBRATION SUMMARY

Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1515.394	1519.413	4.019	15.681
Far (B+D+P+L) cps	1058.939	1053.560	-5.379	17.272
Near Resolution	8.80	8.85	0.050	0.50
Far Resolution	9.20	9.15	-0.050	1.00

PASS/FAIL SUMMARY

Bkg Quality Check:	Passed
Bkg Resolution Check:	Passed
Bkg Verification Check:	Passed

SPECTRAL DENSITY POST CHECK

Tool Name:	**SDLT Pad - 10763919**	**Reference Calibration Date:**	**03-Mar-22 15:02:13**
Engineer:	**M. GALLION**	**Calibration Date:**	**03-Mar-22 15:05:26**
Software Version:	**WL INSITE R6.6.1 (Build 2)**	**Calibration Version:**	**1**

Pad Temperature: 82.3 degF

DENSITY POST CALIBRATION SUMMARY

Measurement	Field	Post	Change	Control Limit +/-
Near (B+D+P+L) cps	1519.413	1511.939	-7.474	15.681
Far (B+D+P+L) cps	1053.560	1056.094	2.534	17.272
Near Resolution	8.85	8.73	-0.120	0.50
Far Resolution	9.15	9.19	0.040	1.00

PASS/FAIL SUMMARY

Bkg Quality Check:	Passed
Bkg Resolution Check:	Passed
Bkg Verification Check:	Passed

MICRO LOG SHOP CALIBRATION

Tool Name:	**Microlog Pad - 11014296**	**Reference Calibration Date:**	**21-Jan-22 15:19:35**
Engineer:	**M. GALLION**	**Calibration Date:**	**03-Mar-22 17:13:27**
Software Version:	**WL INSITE R6.6.1 (Build 2)**	**Calibration Version:**	**1**
Host Tool Name:	**DSNT - 11019643**		

CALIBRATION COEFFICIENT SUMMARY

Measurement	Micro Log Normal		Micro Log Lateral		
	Measured	Calibrated	Measured	Calibrated	Units
Tool Zero	0.03	0.05	0.02	0.02	ohmm
Calibration Point #1	-0.00	0.02	0.02	0.02	ohmm
Calibration Point #2	19.90	20.00	20.05	20.00	ohmm

Internal Reference	19.83	19.93	20.04	19.99	ohmm

Measurement	Micro Log Normal Tool Value	Micro Log Lateral Tool Value	Units
Tool Zero	3.19	0.02	V
Calibration Point #1	-4.69	1.39	V
Calibration Point #2	5311.30	6943.48	V
Internal Reference	5292.64	6940.73	V

MICRO LOG FIELD CHECK

Tool Name: Microlog Pad - 11014296
Reference Calibration Date: 03-Mar-22 17:13:27
Engineer: M. GALLION
Calibration Date: 03-Mar-22 17:13:58
Software Version: WL INSITE R6.6.1 (Build 2)
Calibration Version: 1

Measurement	Micro Log Normal		Micro Log Lateral		
	Shop	Field	Shop	Field	Units
Tool Zero	0.05	0.03	0.02	0.02	ohmm
Internal Reference	19.93	19.93	19.99	19.99	ohmm

Summary				
Signal	Shop	Field	Difference	Tolerence
Microlog Normal	19.93	19.93	0.00	+/- 0.80
Microlog Lateral	19.99	19.99	0.00	+/- 0.80

ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION

Tool Name: ACRt Sonde - 10947895
Reference Calibration Date: 29-Nov-21 18:24:28
Engineer: J. CABANZO
Calibration Date: 10-Mar-22 12:20:29
Software Version: WL INSITE R6.6.1 (Build 2)
Calibration Version: 1
Host Tool Name: ACRt Instrument - 10937852

TYPICAL GAIN RANGE

Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	0.95	1.0126	1.05	0.95	1.0107	1.05	0.95	1.0014	1.05
A2 (50")	0.95	1.0093	1.05	0.95	1.0069	1.05	0.95	0.9979	1.05
A3 (29")	0.95	1.0038	1.05	0.95	1.0018	1.05	0.95	0.9932	1.05
A4 (17")	0.95	1.0082	1.05	0.95	1.0027	1.05	0.95	0.9974	1.05
A5 (10")	N/A	N/A	N/A	0.95	0.9967	1.05	0.95	0.9917	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.9813	1.05	0.95	0.9768	1.05

SONDE OFFSET

Subarray	R12KHz	R36KHz	R72KHz
	(mmho/m)	(mmho/m)	(mmho/m)
A1 (80")	0.091	-3.205	-5.370
A2 (50")	-1.993	-5.050	-7.471
A3 (29")	-15.480	-5.635	-6.034
A4 (17")	-103.132	-32.683	-26.370
A5 (10")	N/A	-88.492	-43.615
A6 (6")	N/A	294.356	148.105

TRANSMITTER CURRENT GAIN

Signal	Lower	R	Upper
12K	0.6	0.87	1.3

R-MUD VERIFICATION

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

36K	1.0	1.88	2.0
72K	1.0	1.12	2.0

PASS/FAIL SUMMARY	
GAIN RANGE CHK	PASS
SONDE OFFSET CHK	PASS

TOOL OK TO LOG

CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-11172469						
Gamma Ray Calibrator	206.6	204.3	----------	2.3	+/- 9.00	api
DSNT-11019643						
Snow-Block Porosity	0.0842	0.0844	0.0847	-0.0003	+/- 0.0150	decp
SDLT-11014296						
Pad Extension	3.75	3.75	----------	0.00	+/-0.10	in
Ring Diameter	8.25	8.25	----------	0.00	+/-0.15	in
SDLT Pad-10763919						
Near(B+D+P+L)	1515.394	1519.413	1511.939	7.474	+/-15.681	cps
Far(B+D+P+L)	1058.939	1053.560	1056.094	-2.534	+/-17.272	cps
Microlog Pad-11014296						
MicroLog Normal	19.93	19.93	----------	0.00	+/-0.80	ohmm
MicroLog Lateral	19.99	19.99	----------	0.00	+/-0.80	ohmm
ACRt Sonde-10947895						
Mud Cell	1.00	----------	----------	0	----------	ohm-m

Data: 03-28-MERIT\0001 RWCH-GTET-DSNT-SDLT-BSAT-ACRT\004 28-Mar-22 15:07 Up @5650.3f **Date: 28-Mar-22 15:44:26**

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	9.200	ppg
	SHARED	WAGT	Weighting Agent	Barite	
	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	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	
SHARED	MSAL	Water-base mud filtrate salinity	0.00	ppm
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	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	
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	
Microlog Pad	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 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	Centered	
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: 03-28-MERIT\0001 RWCH-GTET-DSNT-SDLT-BSAT-ACRT\004 28-Mar-22 15:07 Up @5650.3f **Date: 28-Mar-22 15:45:32**

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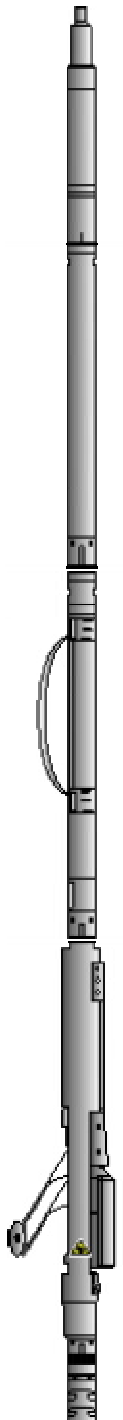
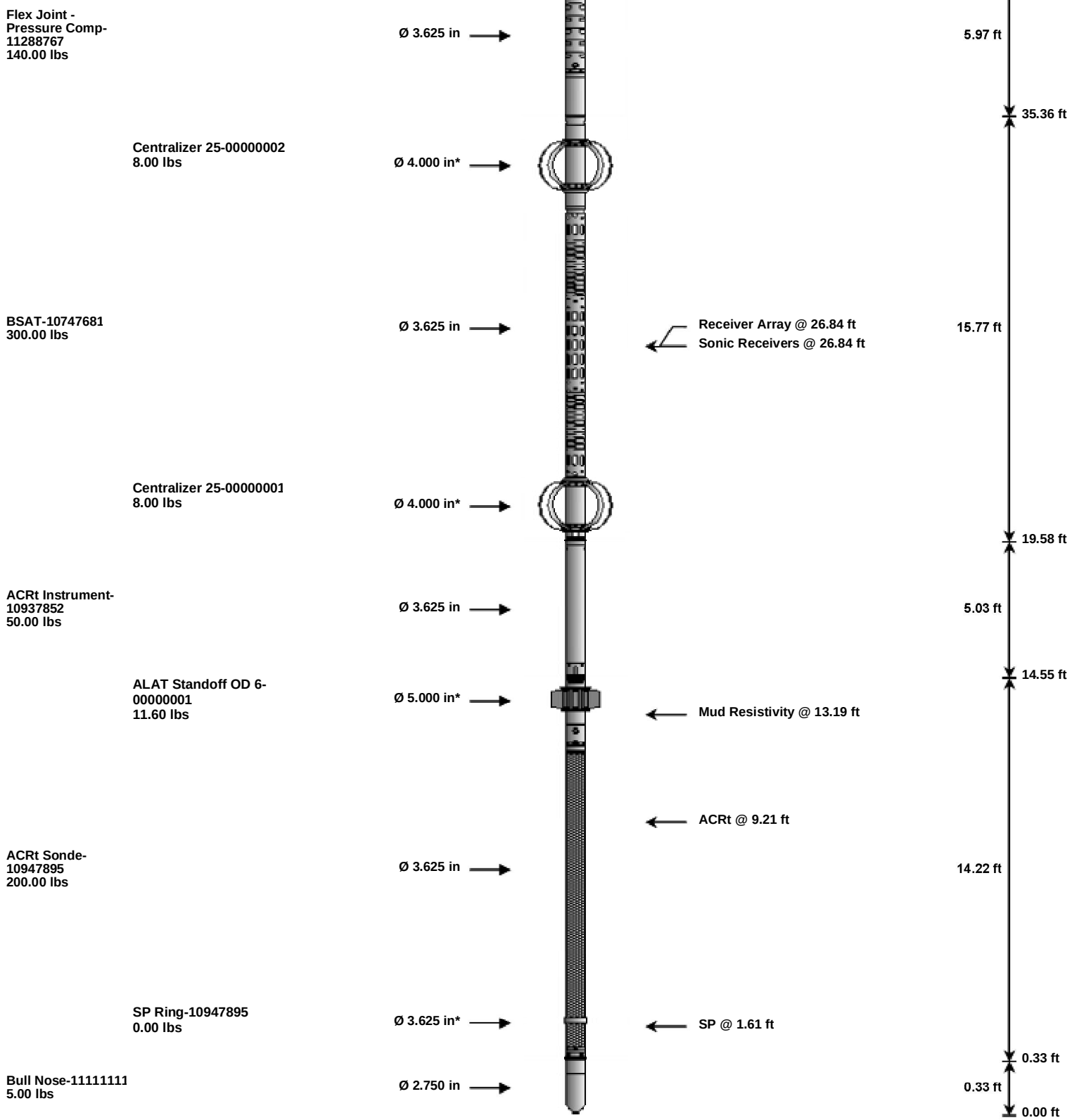
TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Sensors @ Delays	Length	Accumulated Length
					76.60 ft
		Ø 2.310 in	Fishing Neck @ 75.72 ft		
RWCH-12027542 135.00 lbs		Ø 3.625 in		6.25 ft	
			Load Cell @ 72.91 ft BH Temperature @ 72.35 ft		
	Weak Point 12000 lbs- 11111111 0.01 lbs	Ø 0.010 in*			
					70.35 ft
			Z-Accelerometer @ 69.90 ft		
GTET-11172469 165.00 lbs		Ø 3.625 in		8.52 ft	
			GammaRay @ 64.29 ft		
					61.83 ft
	DSN Decentralizer- 11020488 6.60 lbs	Ø 5.000 in*			
DSNT-11019643 174.00 lbs		Ø 3.625 in		9.69 ft	
			DSN Far @ 54.89 ft DSN Near @ 54.14 ft		
					52.14 ft
SDLT-11014296 360.00 lbs	SDLT Pad-10763919 65.00 lbs Microlog Pad-11014296 8.00 lbs	Ø 4.500 in		10.81 ft	
		Ø 4.500 in*	Microlog @ 44.33 ft		
	RAM-Cs137-11206141 1.00 lbs	Ø 4.750 in*	SDL Caliper @ 44.14 ft		
		Ø 0.800 in*	SDL @ 44.13 ft		
					41.33 ft





Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)		Accumulated Length (ft)	Max.Log. Speed (fpm)
RWCH	Releasable Wireline Cable Head	12027542	135.00	6.25		70.35	300.00
WP12K	Weak Point 12000 lbs	11111111	0.01	0.01	*	71.15	300.00
GTET	Gamma Telemetry Tool	11172469	165.00	8.52		61.83	60.00
DSNT	Dual Spaced Neutron	11019643	174.00	9.69		52.14	60.00
DCNT	DSN Decentralizer	11020488	6.60	5.13	*	55.47	300.00
SDLT	Spectral Density Tool	11014296	360.00	10.81		41.33	60.00
SDLP	Density Insite Pad	10763919	65.00	2.55	*	43.54	60.00
Cs137	Logging Source, SDLT-I, 1.78 Ci - Cs137	11206141	1.00	0.80	*	43.77	300.00
MICP	Microlog Pad	11014296	8.00	1.00	*	43.83	60.00
FLEX	Flex Joint - Pressure Compensated	11288767	140.00	5.97		35.36	300.00
BSAT	Borehole Sonic Array Tool	10747681	300.00	15.77		19.58	60.00
OBCEN	Centralizer - 25 in. Overbody	00000001	8.00	2.08	*	19.87	300.00
OBCEN	Centralizer - 25 in. Overbody	00000002	8.00	2.08	*	32.48	300.00
ACRt	Array Compensated True Resistivity Instrument Section	10937852	50.00	5.03		14.55	120.00

ACRt	Array Compensated True Resistivity Instrument Section	10937852	50.00	5.03		14.55	120.00
ACRt	Array Compensated True Resistivity Sonde Section	10947895	200.00	14.22		0.33	120.00
SP	SP Ring	10947895	0.00	0.25	*	1.61	300.00
ALATS	Array Laterolog Tool OD 5 Standoff	00000001	11.60	1.00	*	13.21	60.00
BLNS	Bull Nose	11111111	5.00	0.33		0.00	300.00
Total			**1,637.21**	**76.60**			

* Not included in Total Length and Length Accumulation.

Data: 03-28-MERIT\0001 RWCH-GTET-DSNT-SDLT-BSAT-ACRT\004 28-Mar-22 15:07 Up @5650.3f **Date: 28-Mar-22 15:45:58**

COMPANY	**MERIT ENERGY COMPANY, LLC**		
WELL	**WENU 604**		
FIELD	**EUBANK NORTH**		
COUNTY	**HASKELL**	STATE	**KANSAS**

HALLIBURTON

DUAL SPACED NEUTRON SPECTRAL DENSITY LOG