HALLIBURTON

SPECTRAL DENSITY DUAL SPACED NEUTRON LOG

COMPANY SANDRIDGE
WELL BLUE 3408 1-35
FIELD/BLOCK NE WALDRON
COUNTY HARPER
STATE KANSAS

COMPANY **SANDRIDGE**
WELL **BLUE 3408 1-35**
FIELD/BLOCK **NE WALDRON**
COUNTY **HARPER** STATE **KANSAS**

API No. 15-077-22001-00-00
Location SW SW SE SE
(SHL) 250' FSL & 1190' FEL

Sect. 35 Twp. 34S Rge. 8W

Other Services:
SDLT
DSNT
MICROLOG
ACRT
CSNG

Permanent Datum	GL	Elev. 1288.0 ft	Elev.: K.B. 1300.0 ft
Log measured from	KB	, 12.0 ft above perm. Datum	D.F. 1300.0 ft
Drilling measured from	KB		G.L. 1288.0 ft

Date		17-Mar-14					
Run No.		ONE					
Depth - Driller		5655.00 ft					
Depth - Logger		5648.0 ft					
Bottom - Logged Interval		5648 ft					
Top - Logged Interval		754 ft					
Casing - Driller		8.625 in @ 762.0 ft		@		@	
Casing - Logger		754.0 ft					
Bit Size		7.875 in		@		@	
Type Fluid in Hole		WBM					
Density	Viscosity	9.9 ppg	72.00 s/qt				
PH	Fluid Loss	10.10 pH	4.4 cptm				
Source of Sample		FLOWLINE					
Rm @ Meas. Temperature		0.460 ohmm @ 85.00 degF		@		@	
Rmf @ Meas. Temperature		0.42 ohmm @ 75.00 degF		@		@	
Rmc @ Meas. Temperature		0.506 ohmm @ 75.00 degF		@		@	
Source Rmf	Rmc	CHART	CHART				
Rm @ BHT		0.29 ohmm @ 141.0 degF		@		@	
Time Since Circulation		10.0 hr					
Time on Bottom		17-Mar-14 03:38					
Max. Rec. Temperature		141.0 degF @ 5648.0 ft		@		@	
Equipment	Location	10549592	PVOK				
Recorded By		Jeremy Cothren					
Witnessed By		TREY BOARDMAN					

Fold here

Service Ticket No.: 901191513 API Serial No.: 15-077-22001-00-00 PGM Version: WL INSITE R3.8.12 (Build 3)

CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE

	Sample No.					
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

	Type Log	Depth	Scale Up Hole	Scale Down Hole

RESISTIVITY EQUIPMENT DATA

	Run No.	Tool Type & No.	Pad Type	Tool Pos.	Other
	@				
	ONE	ACRT 142	N/A	1.5" STANDOFF	N/A
	@				
	@				
	@				
	@				
	@				

EQUIPMENT DATA

GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Run No.	ONE	Run No.		Run No.	ONE	Run No.	ONE
Serial No.	114	Serial No.		Serial No.	772	Serial No.	487
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.	A-102	Spacing		Log Type	GAM-GAM	Log Type	NEU-NEU
Type	SCINT.			Source Type	Cs 137	Source Type	AM 241 Be
Length	8"	LSA [Y/N]		Serial No.	5155 GW	Serial No.	DSN 382
Distance to Source	10'	FWDA [Y/N]		Strength	1.5 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	TD	CSG	REC	0	150				30	-10	2.71	30	-10	LIME

DIRECTIONAL INFORMATION

Maximum Deviation	@	KOP	@

Remarks: THANKS FOR USING HALLIBURTON ENERGY SERVICES.

ANNULAR HOLE VOLUME CALCULATED FOR 5.5 INCH CASING.

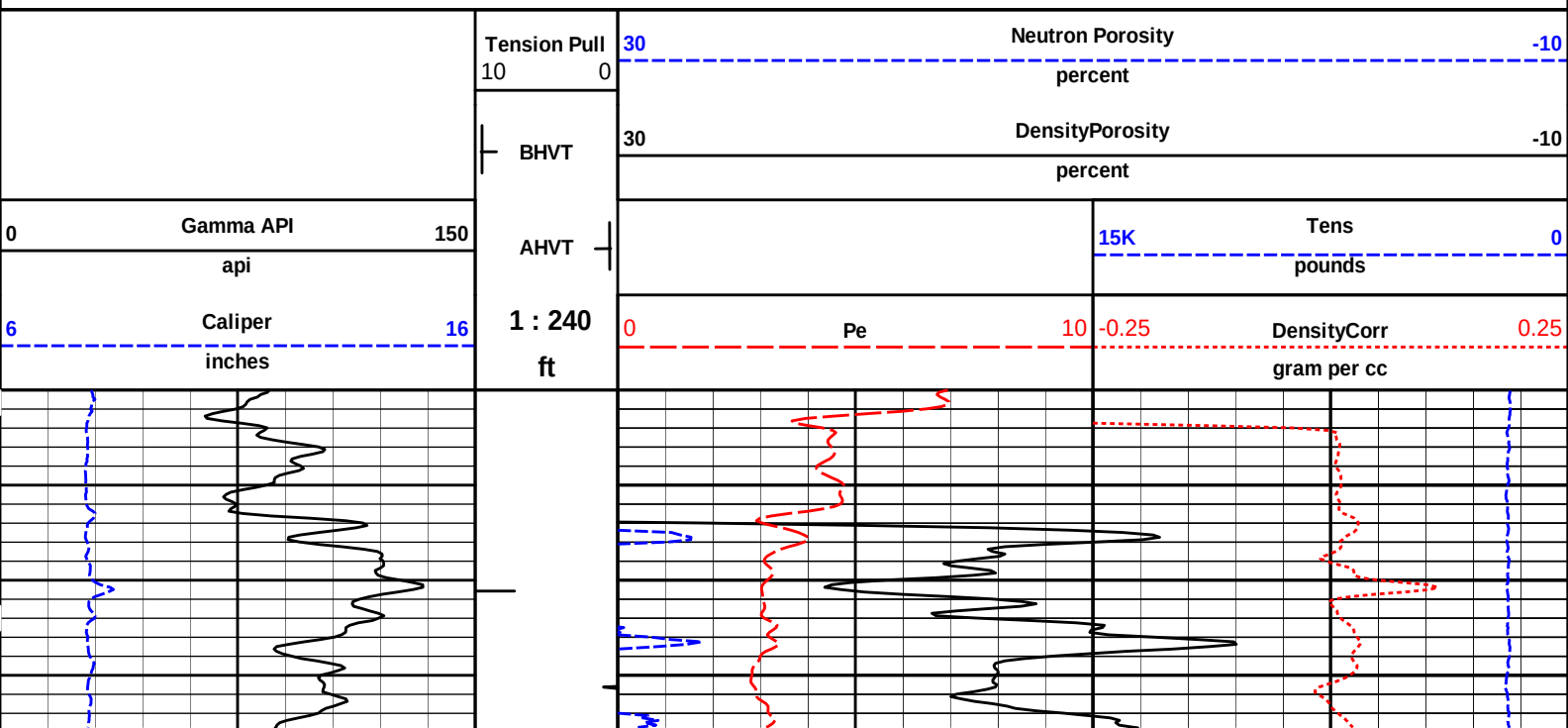
HALLIBURTON DOES NOT GUARANTEE THE ACCURACY OF ANY INTERPRETATION OF THE LOG DATA, CONVERSION OF LOG DATA TO PHYSICAL ROCK PARAMETERS OR RECOMMENDATIONS WHICH MAY BE GIVEN BY HALLIBURTON PERSONNEL OR WHICH APPEAR ON THE LOG OR IN ANY OTHER FORM. ANY USER OF SUCH DATA, INTERPRETATIONS, CONVERSIONS, OR 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.

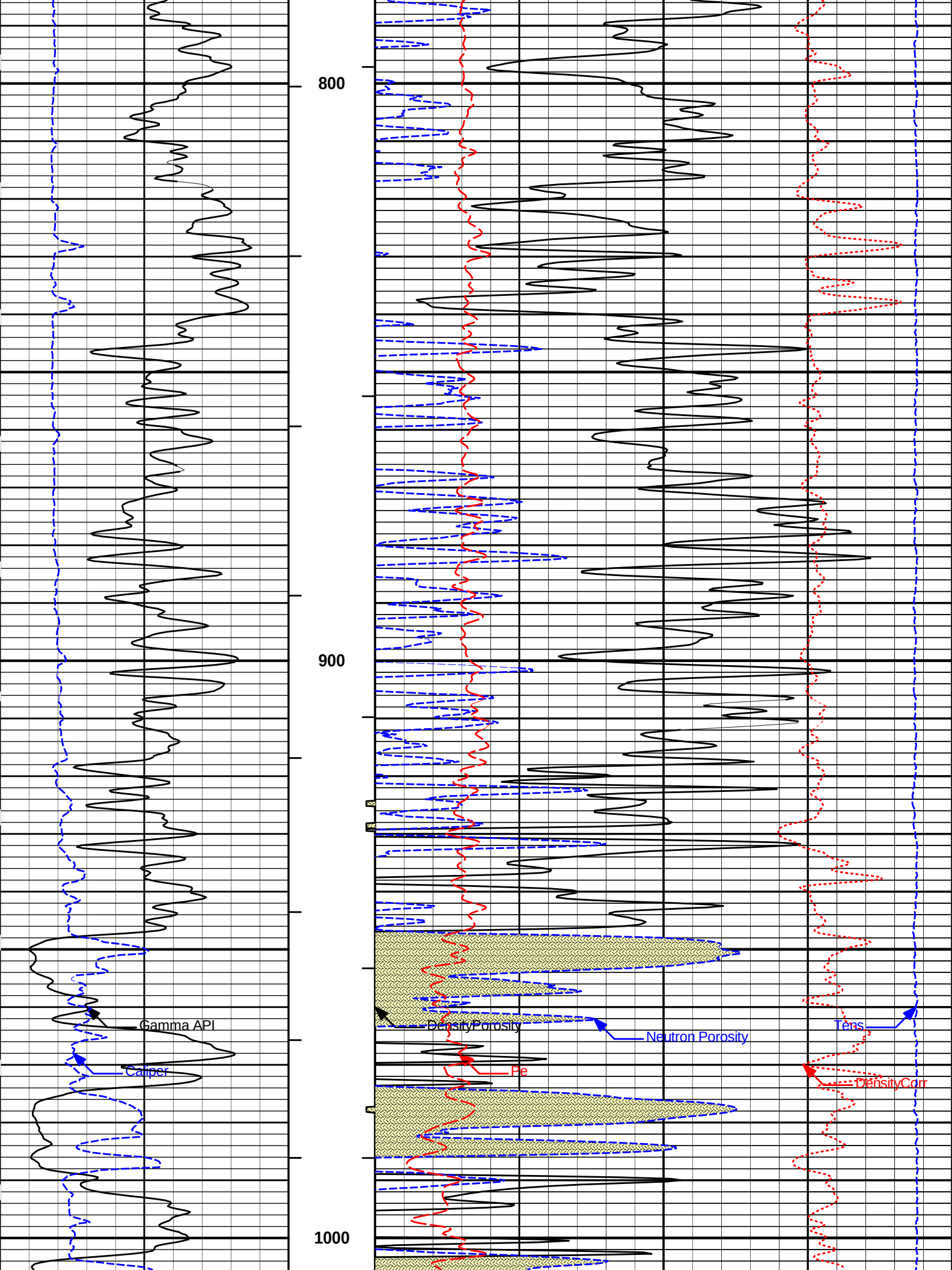
HALLIBURTON

HALLIBURTON

Plot Time: 17-Mar-14 08:13:13
Plot Range: 750 ft to 5652.67 ft
Data: {ActiveWell}\Well Based\MAIN_PASS
Plot File: \\(not saved)\1_Poro_5_mainx

5 INCH MAIN LOG

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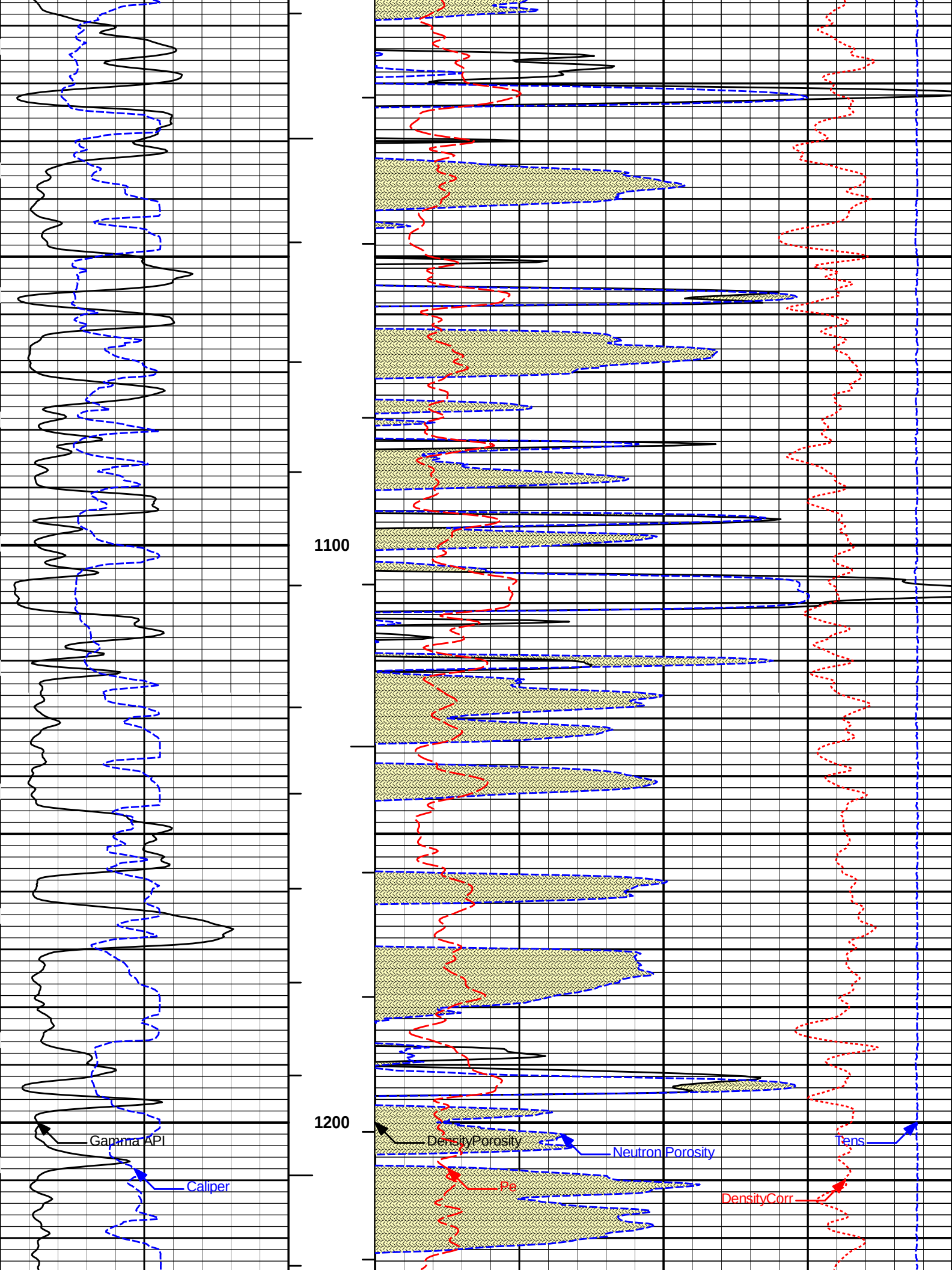
Caliper
DensityPorosity
Neutron Porosity
Pe
Tens
DensityCorr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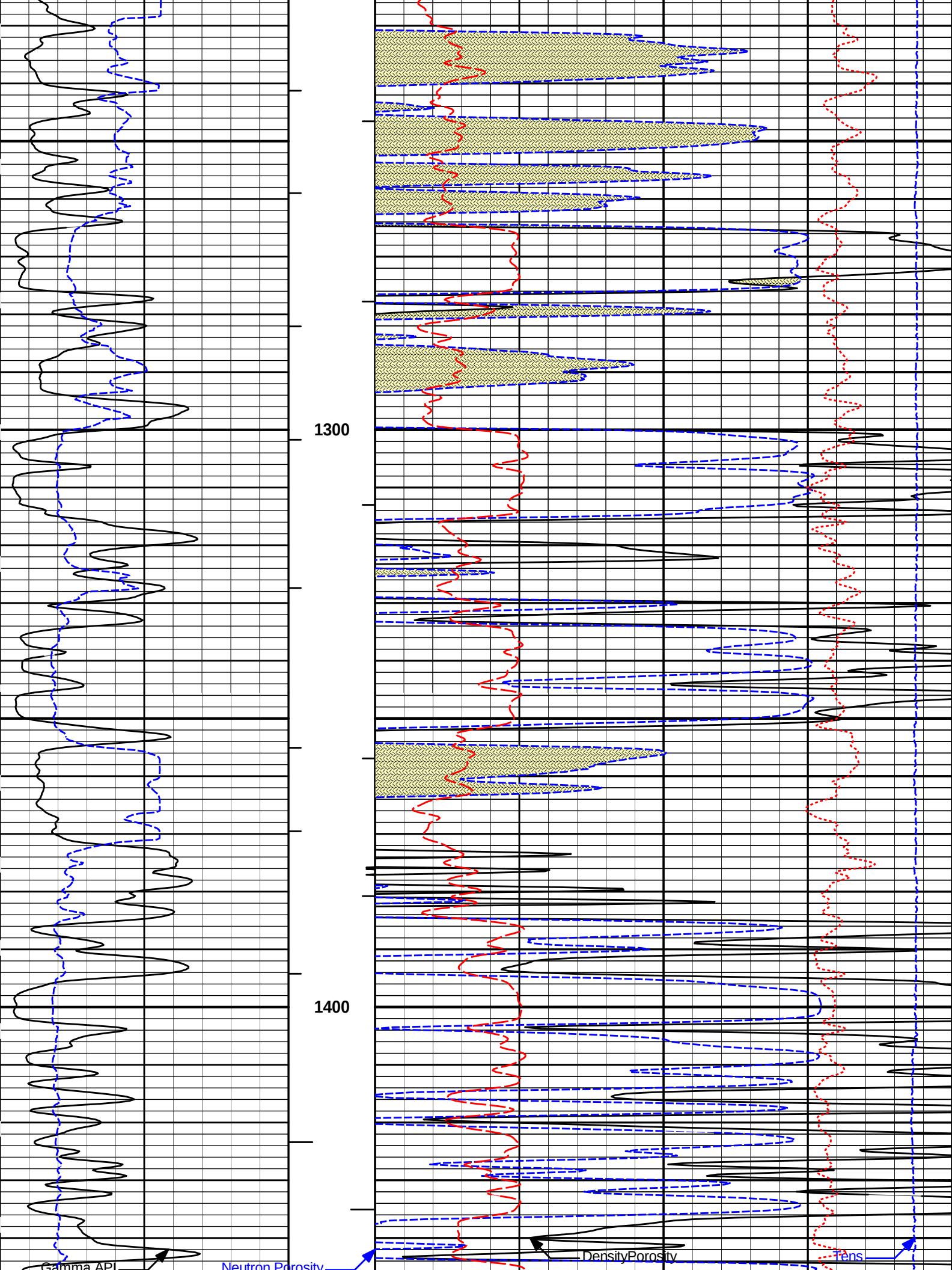
DensityCorr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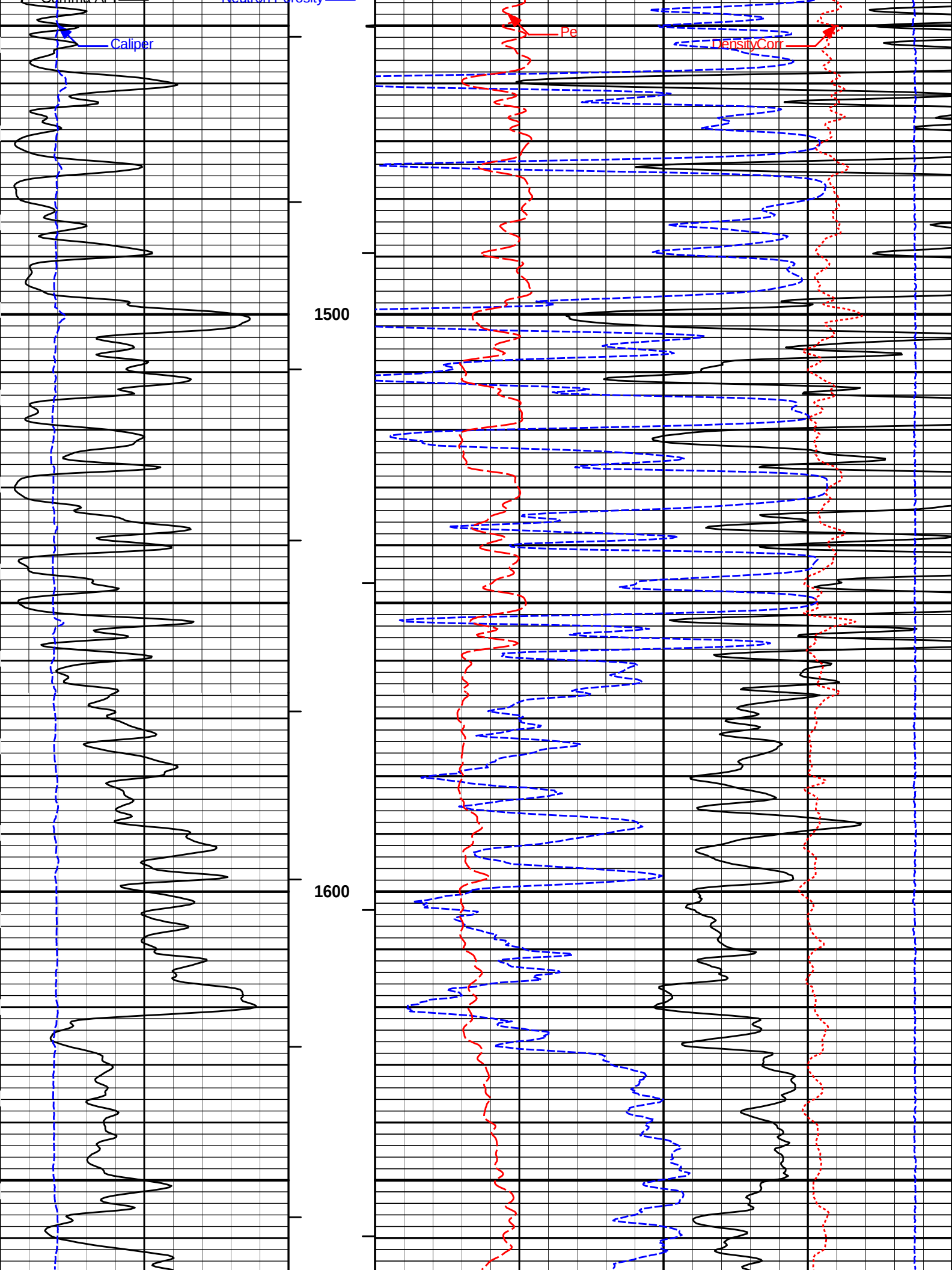
Tens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Pe
DensityCorr
1500
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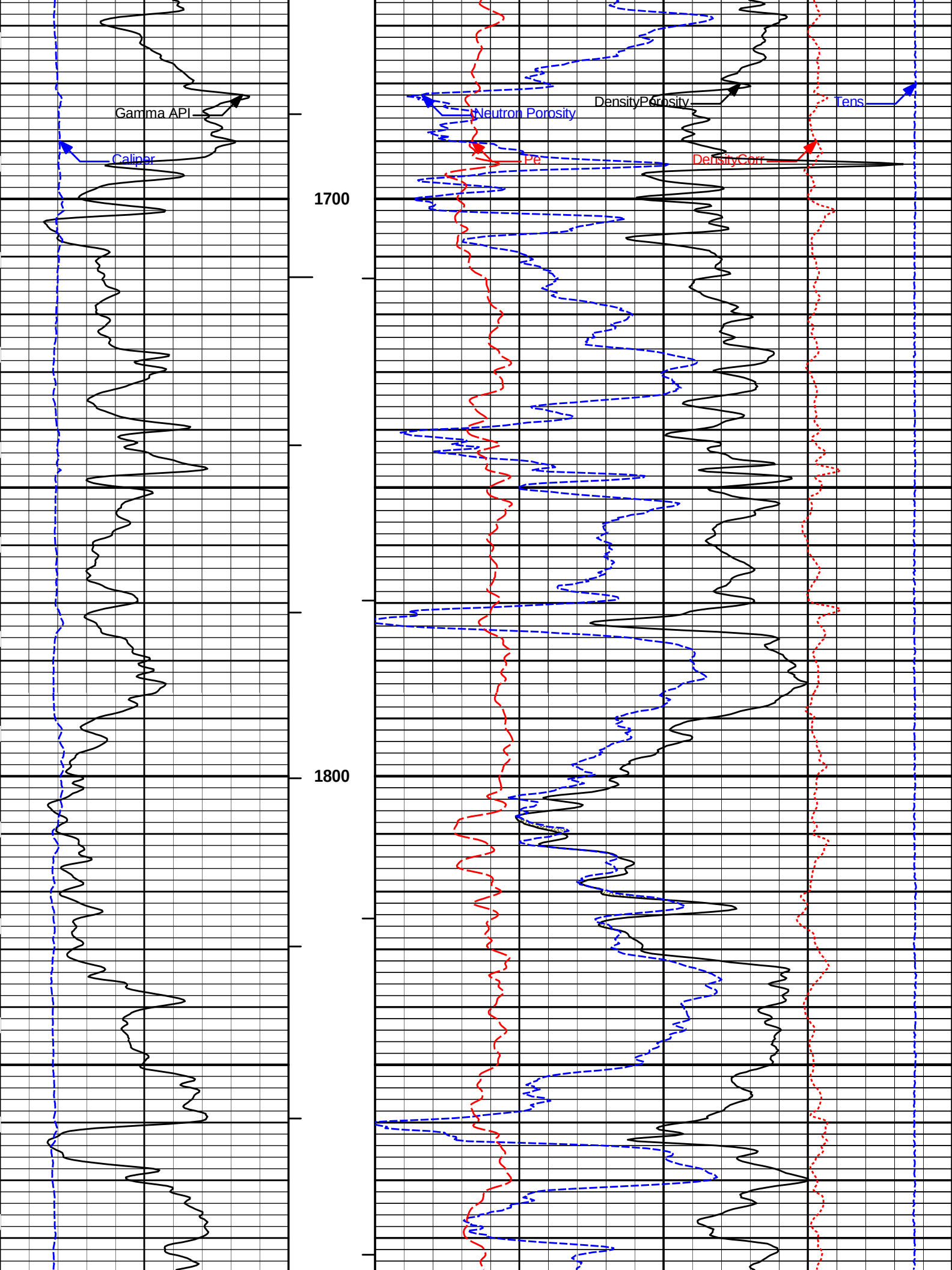
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DensityCorr
Tens
1700
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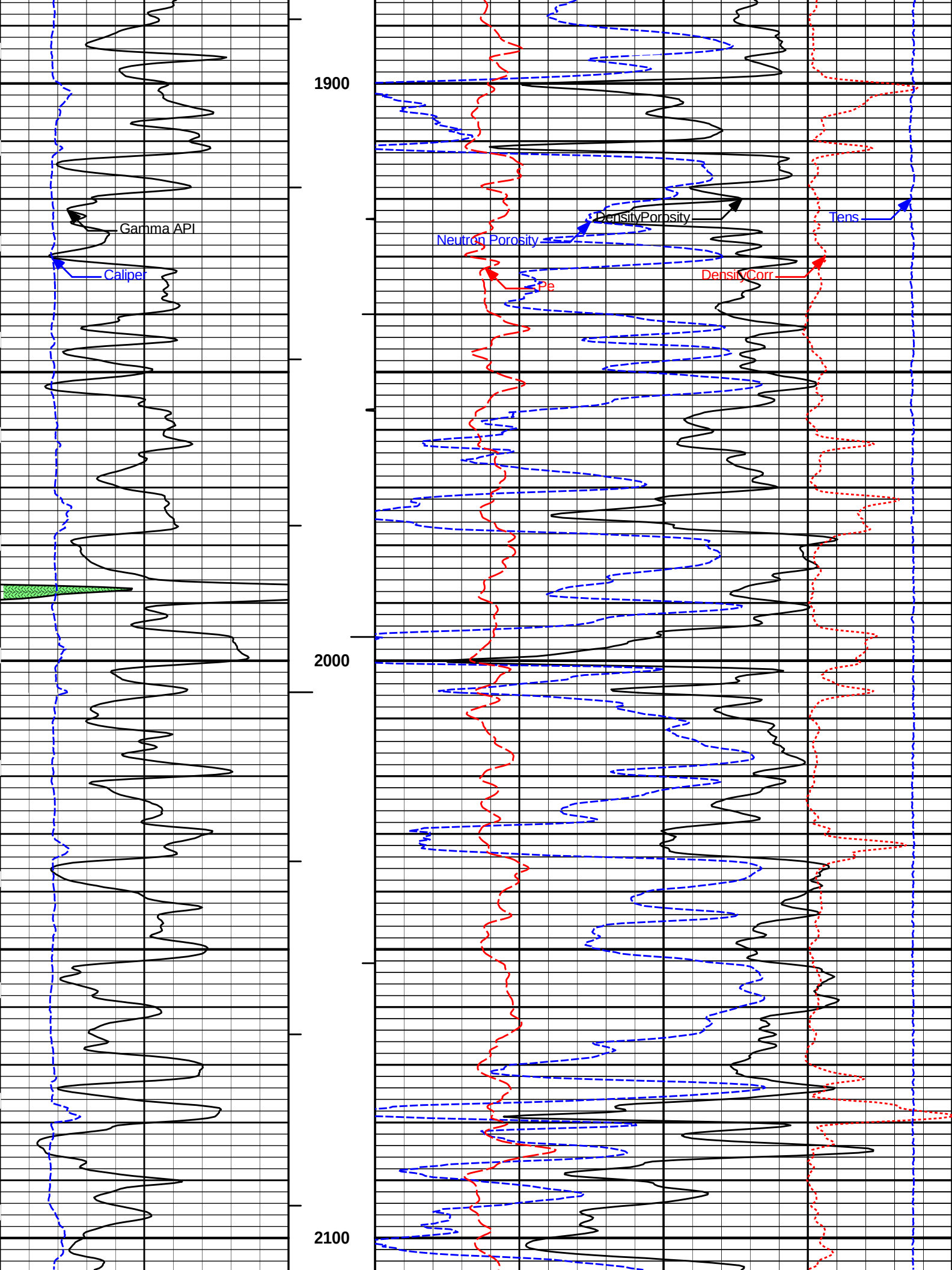
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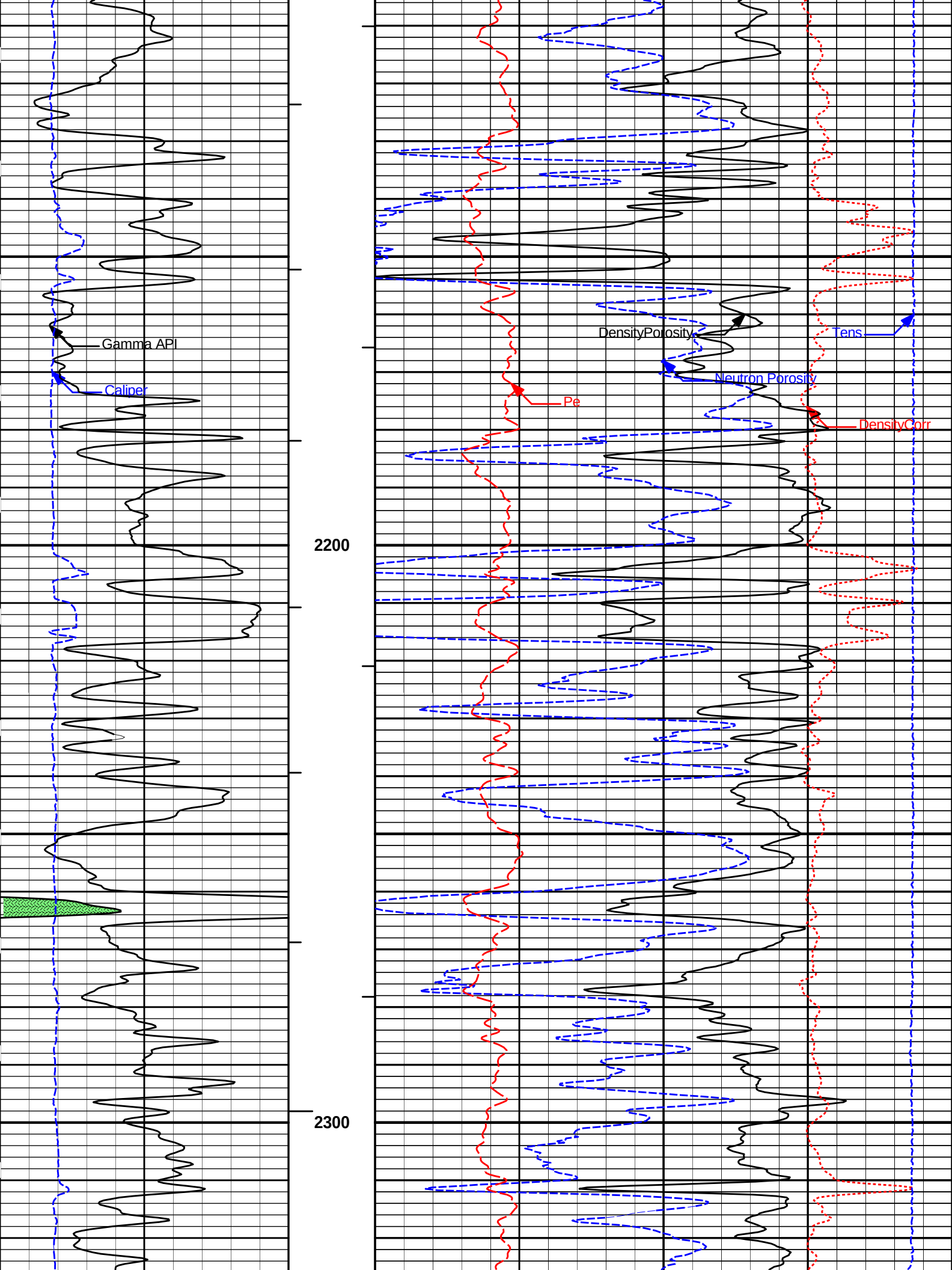
Pe
DensityCorr
Tens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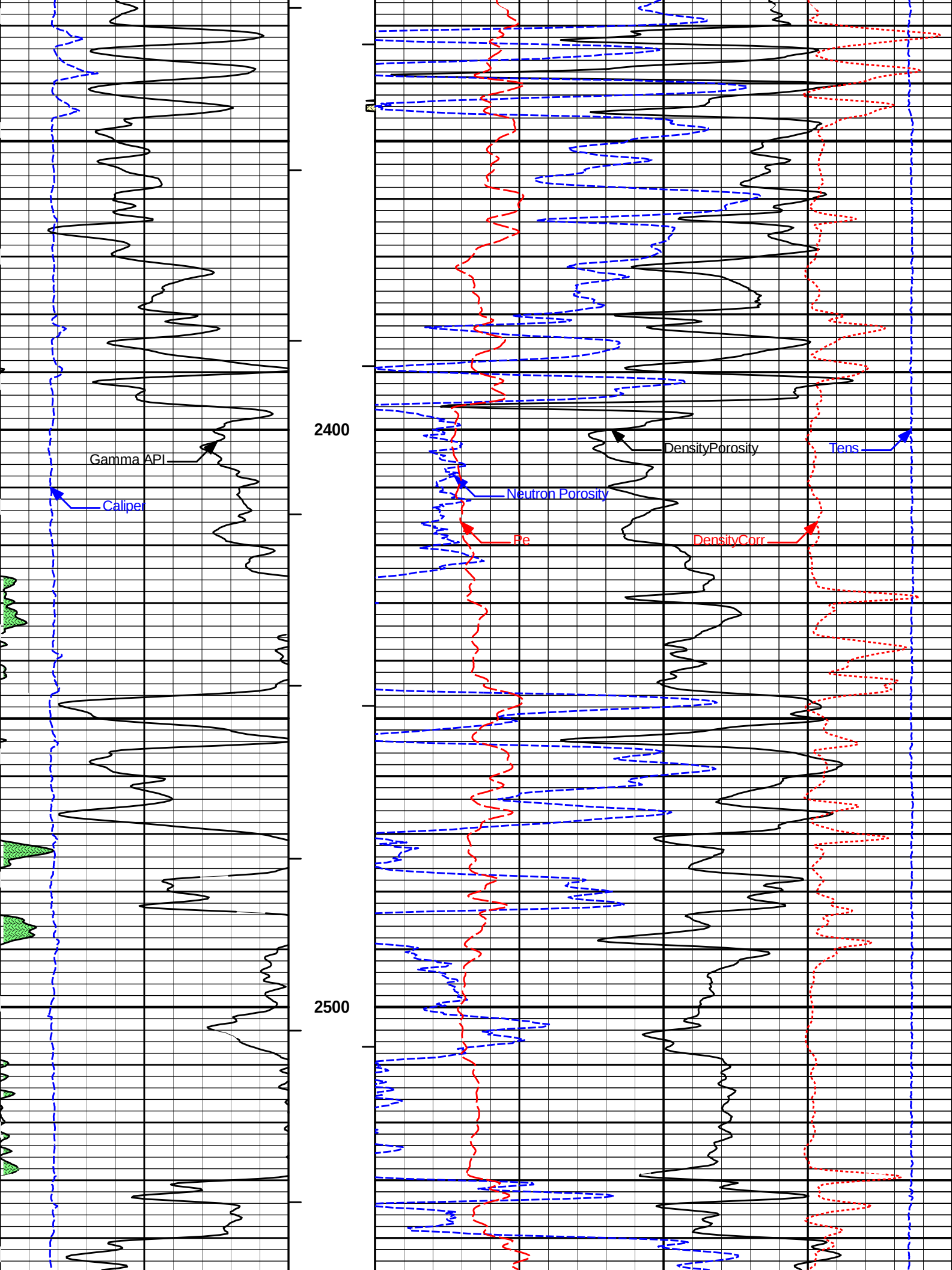
Tens
Neutron Porosity
Pe
DensityCorr
2200
2300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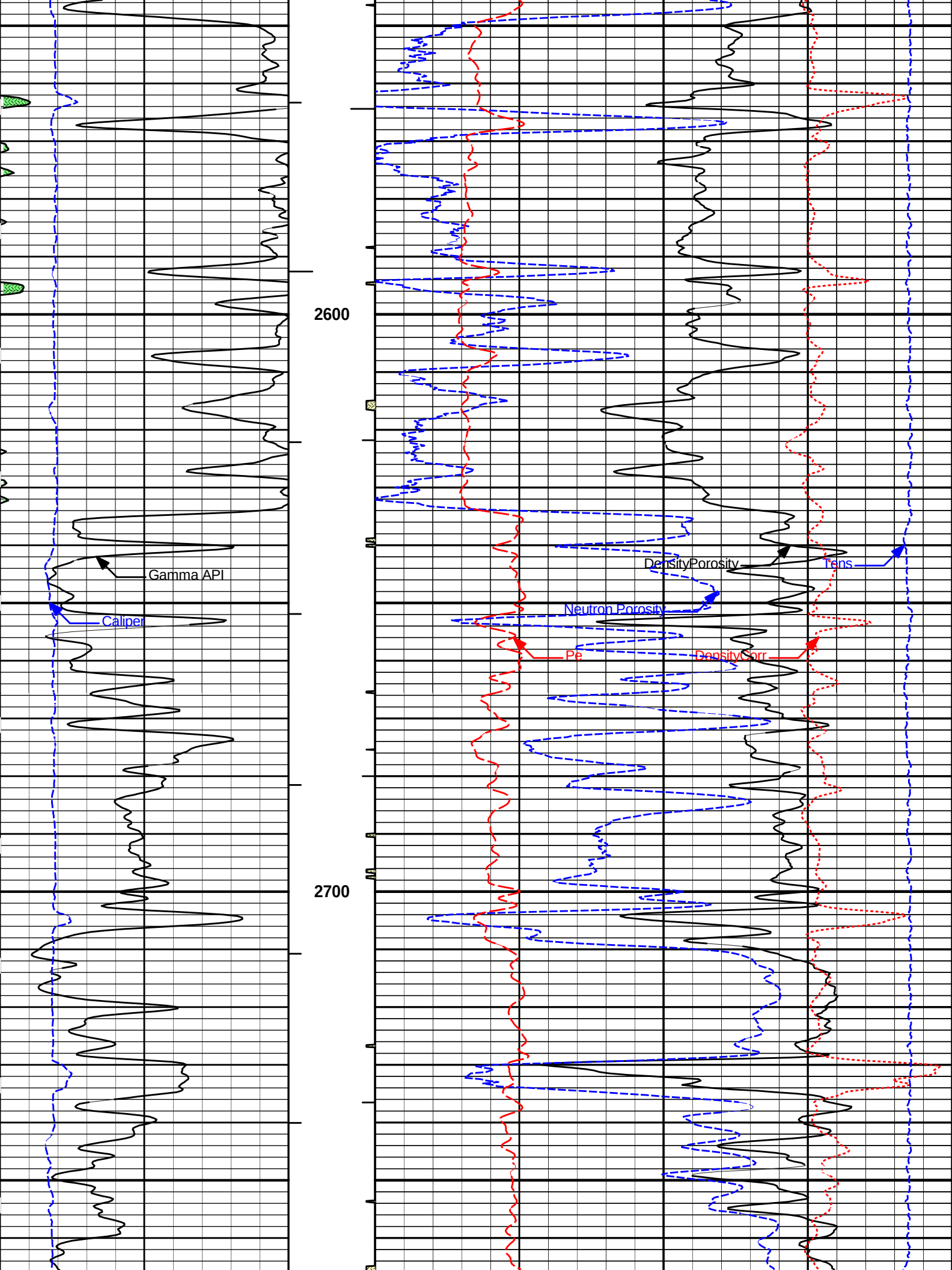
DensityPorosity
Tens
Neutron Porosity
Pe
DensityCorr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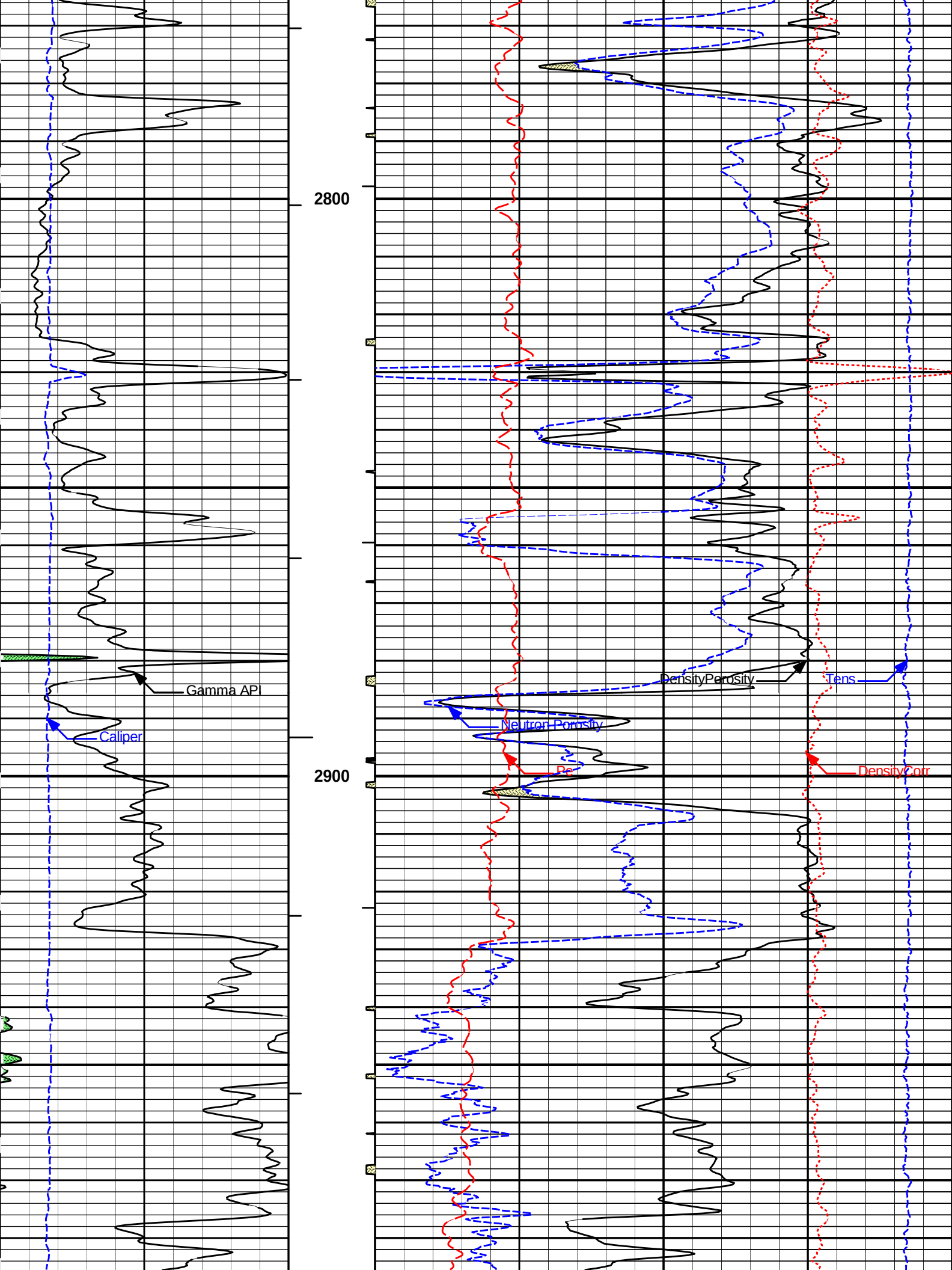
Pe
DensityCorr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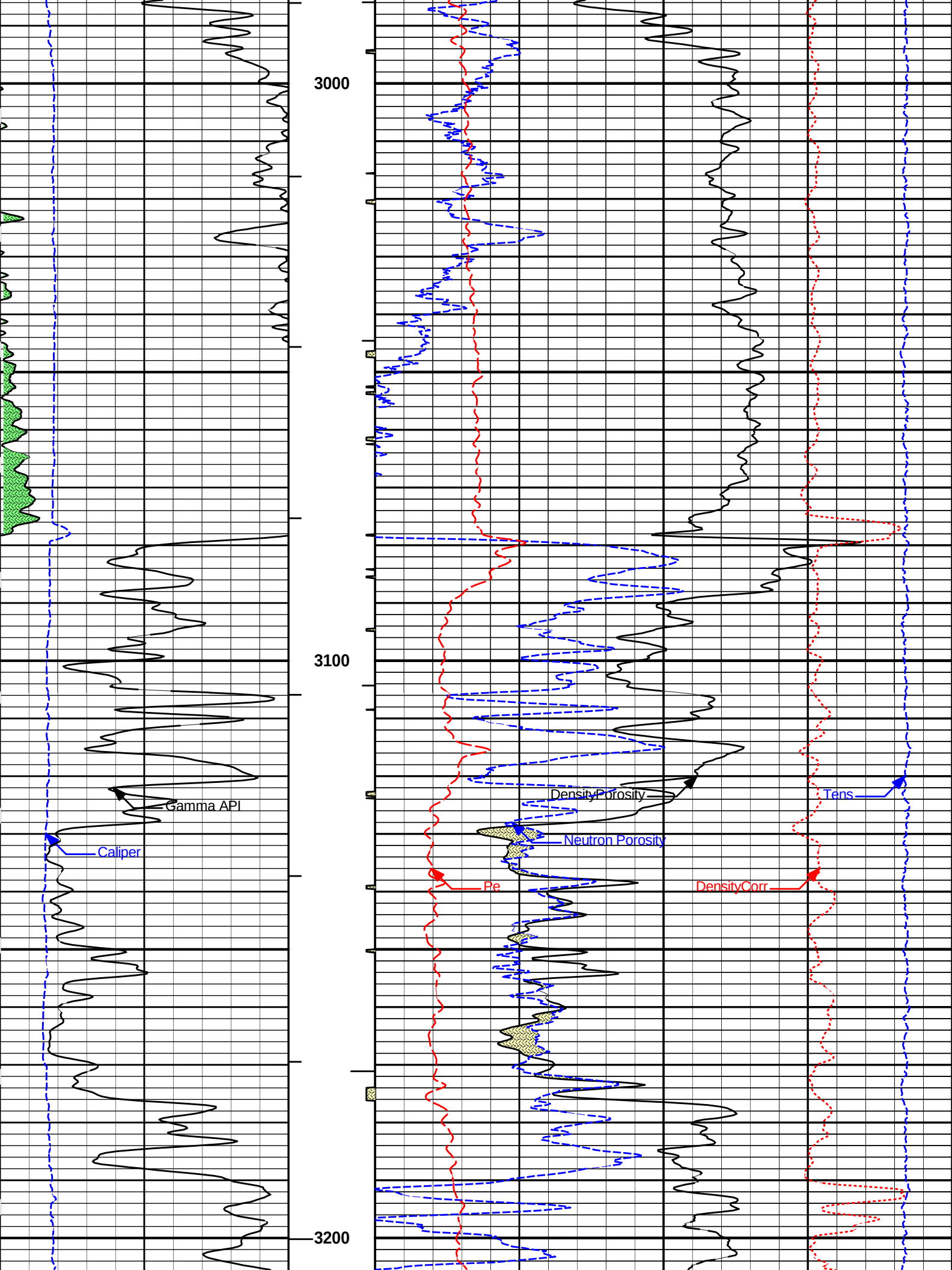
DensityPorosity
Tens
Neutron Porosity
Pe
DensityCorr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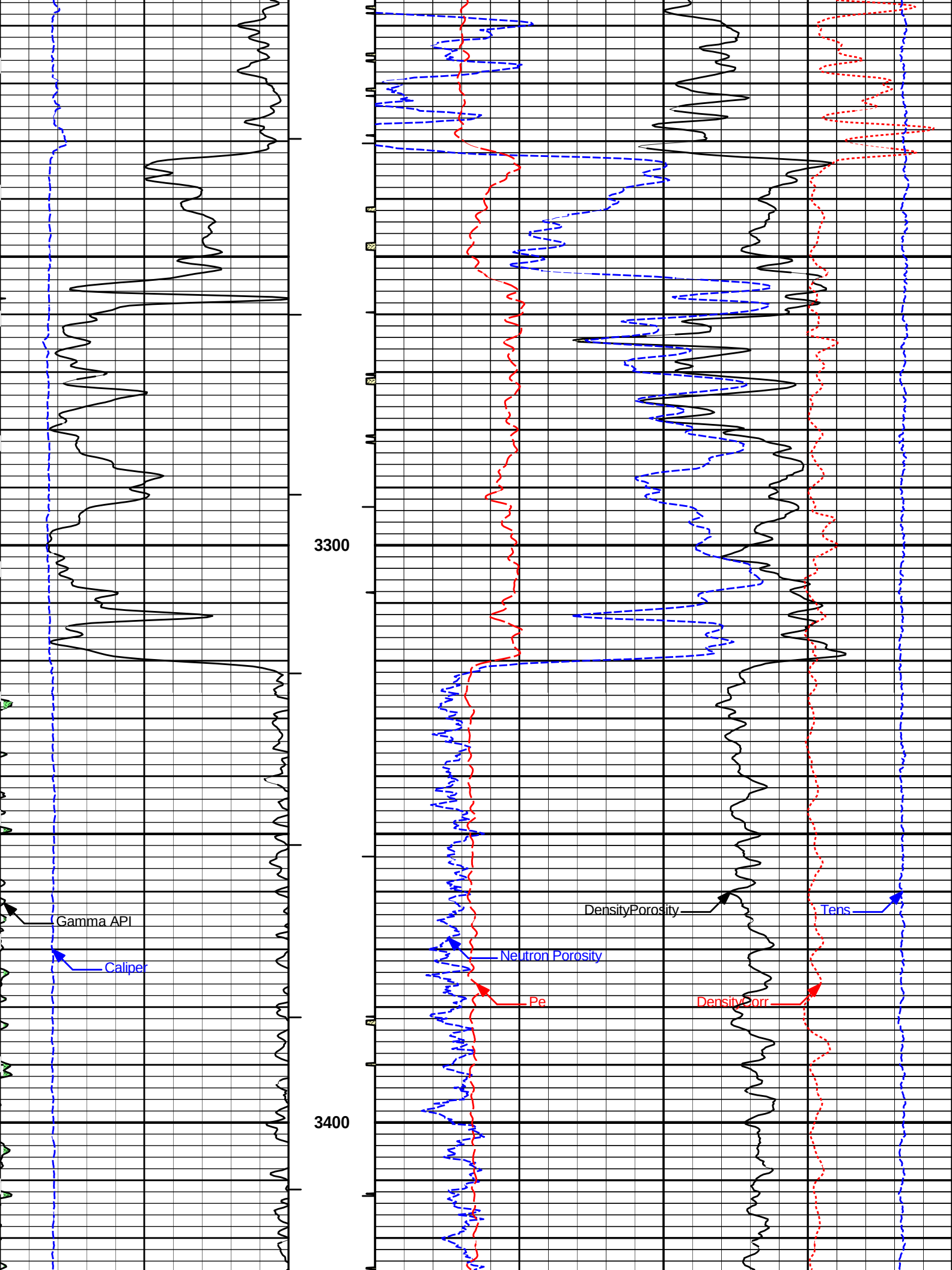
Pe
Tens
DensityCorr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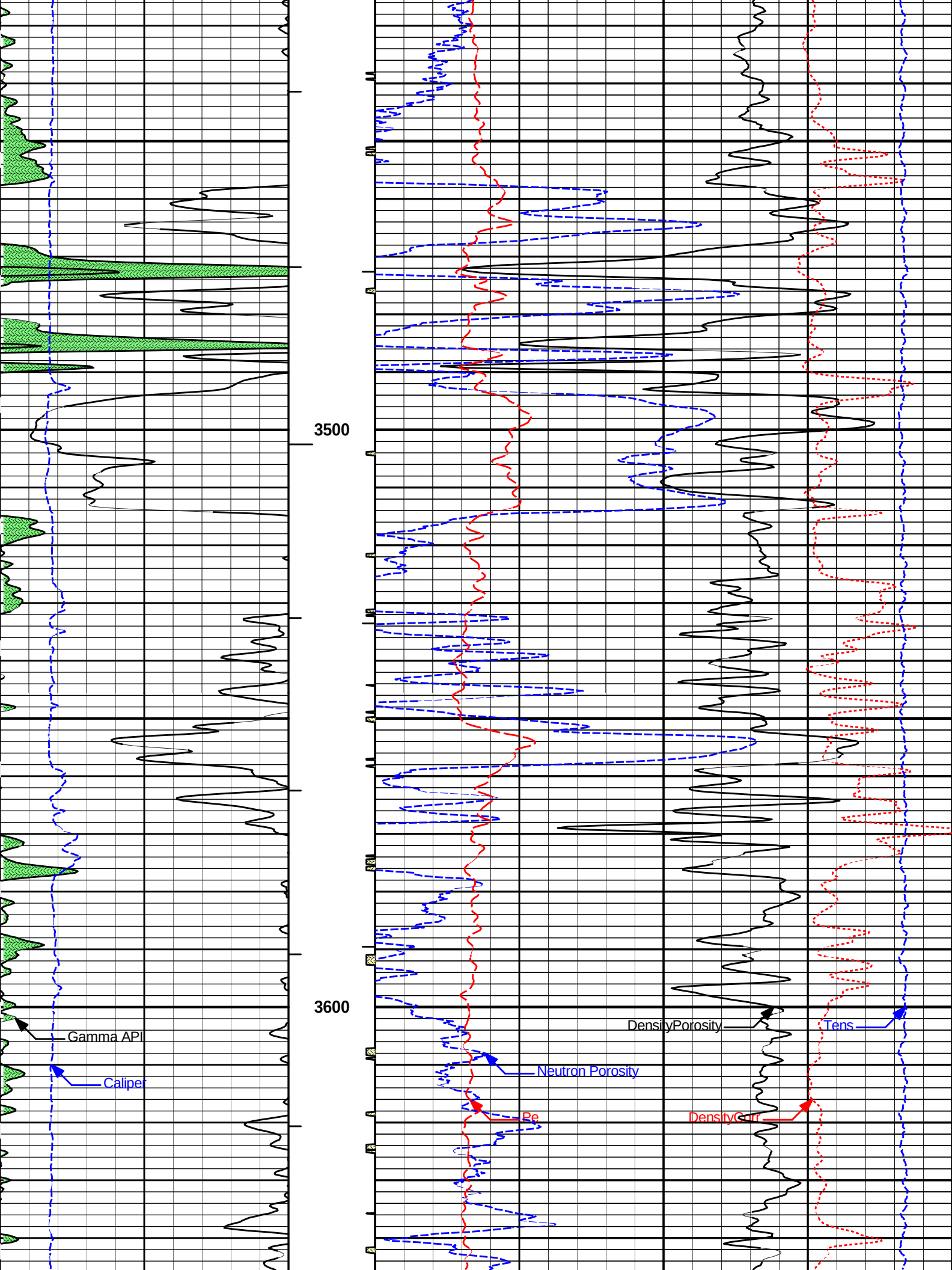
Neutron Porosity
Pe
DensityPorosity
DensityCorr
Tens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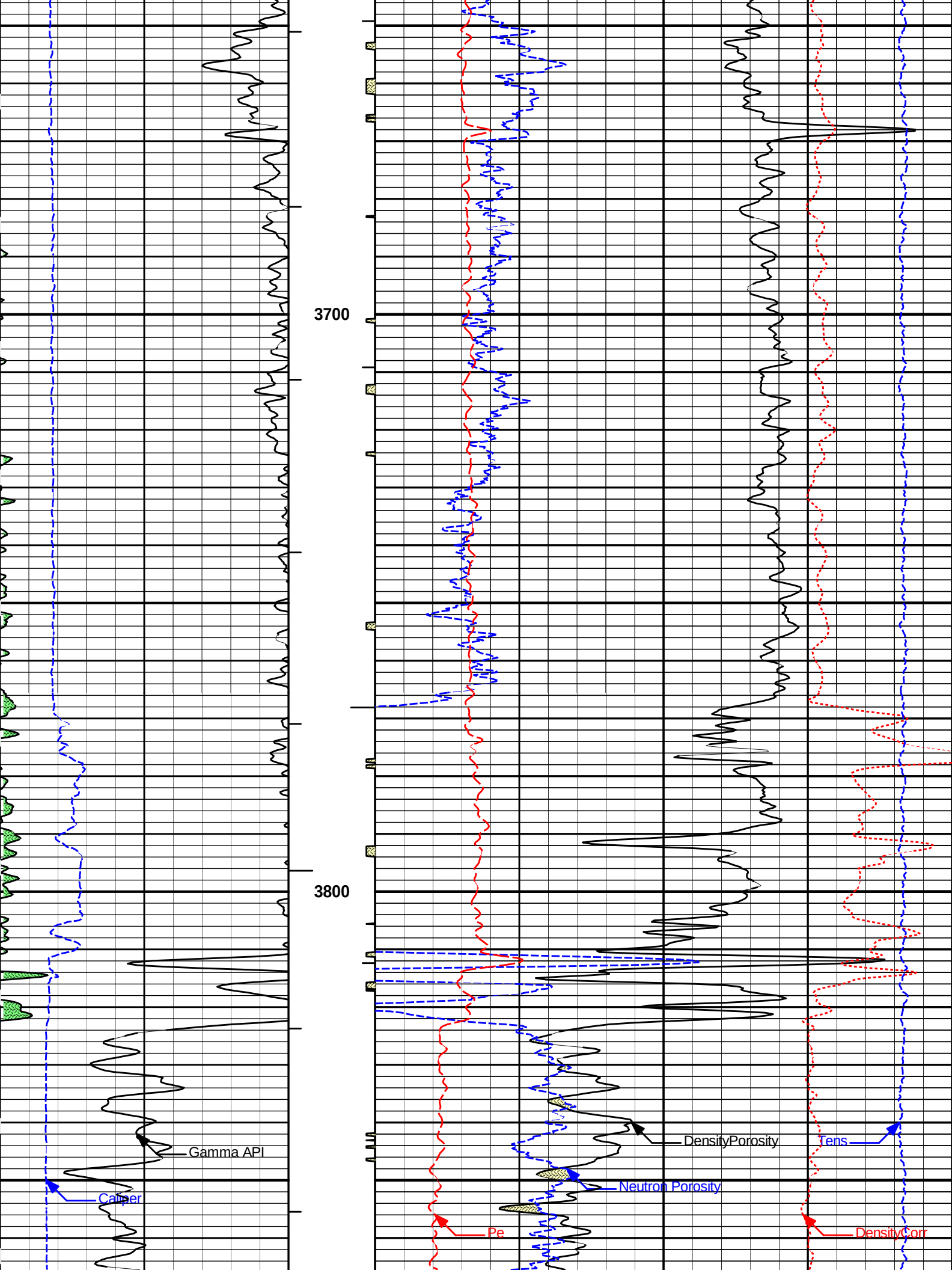
DensityCorr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Neutron Porosity
Pe
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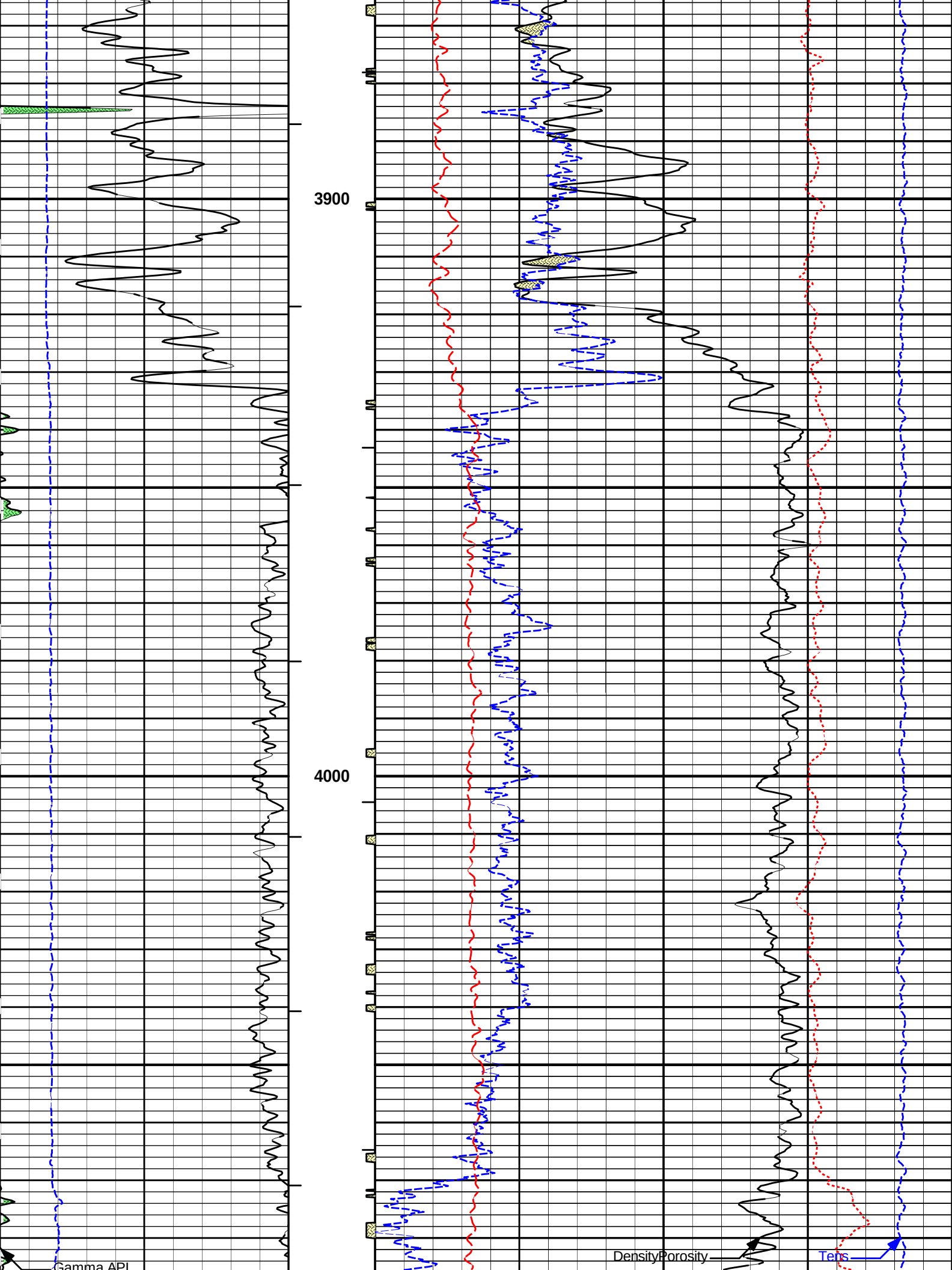
DensityCorr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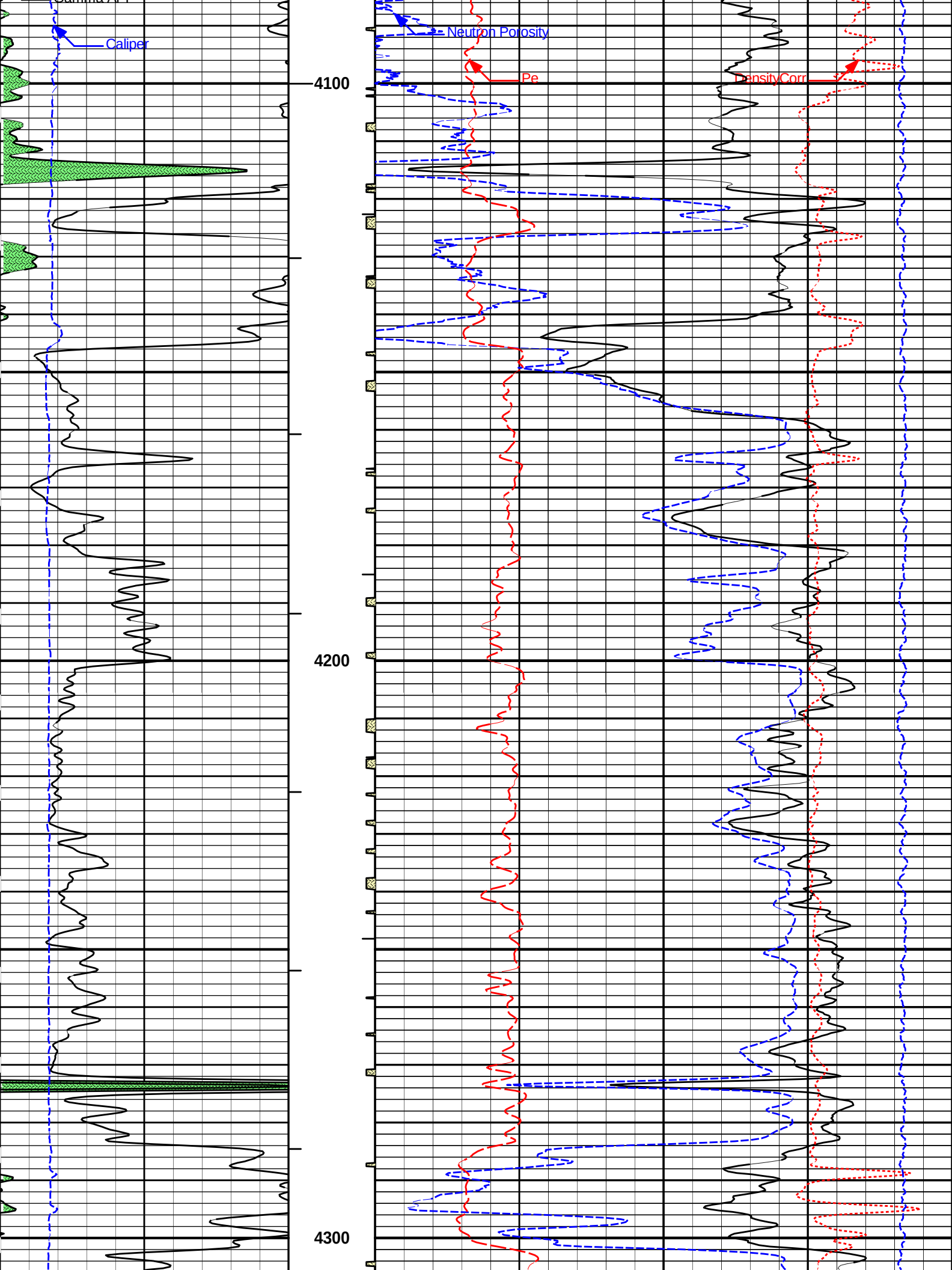
DensityPorosity
Tens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Neutron Porosity
Pe
DensityCorr
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4200
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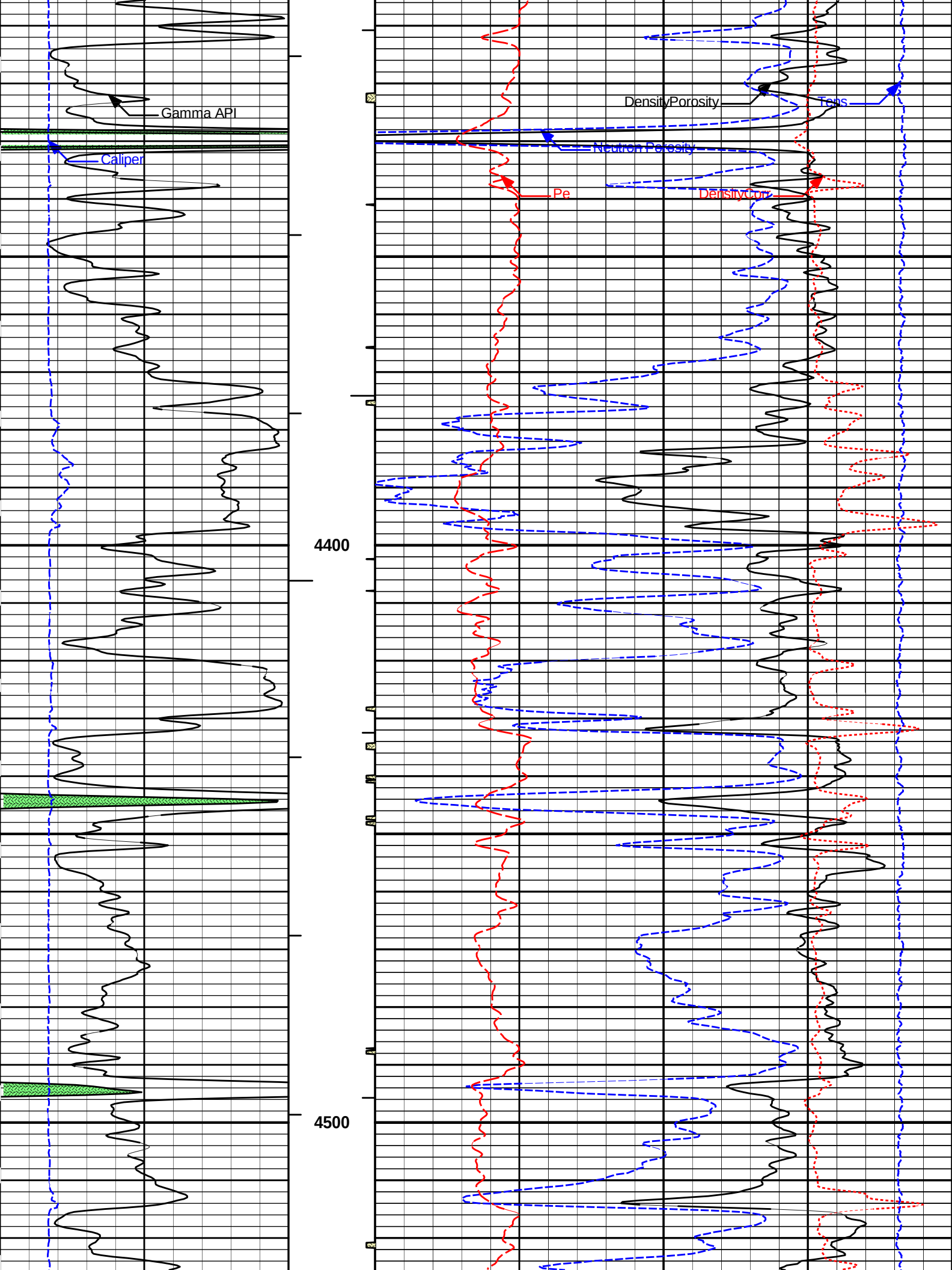
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Caliper
DensityPorosity
Tens
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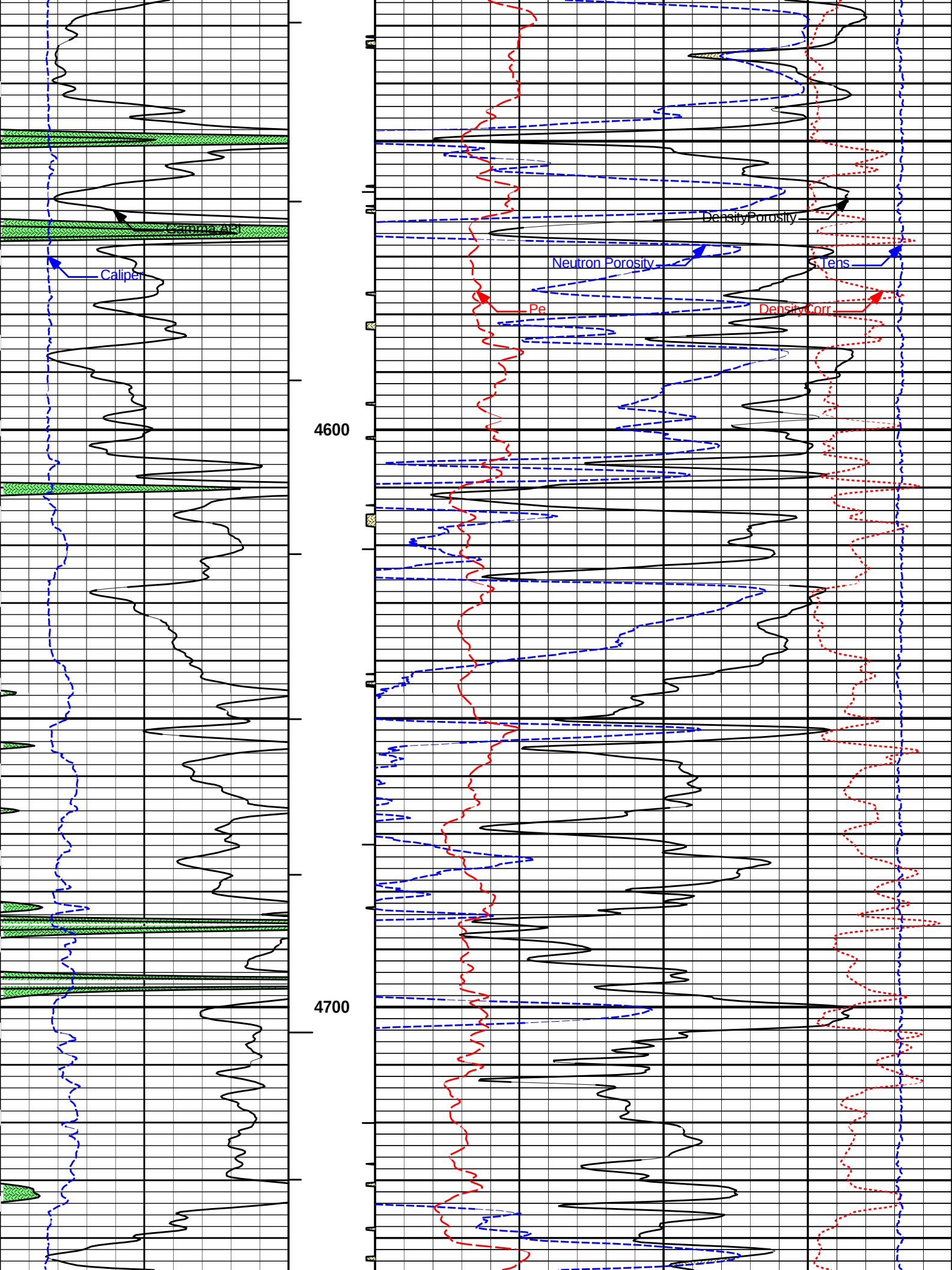
Pe
DensityCorr
4400
4500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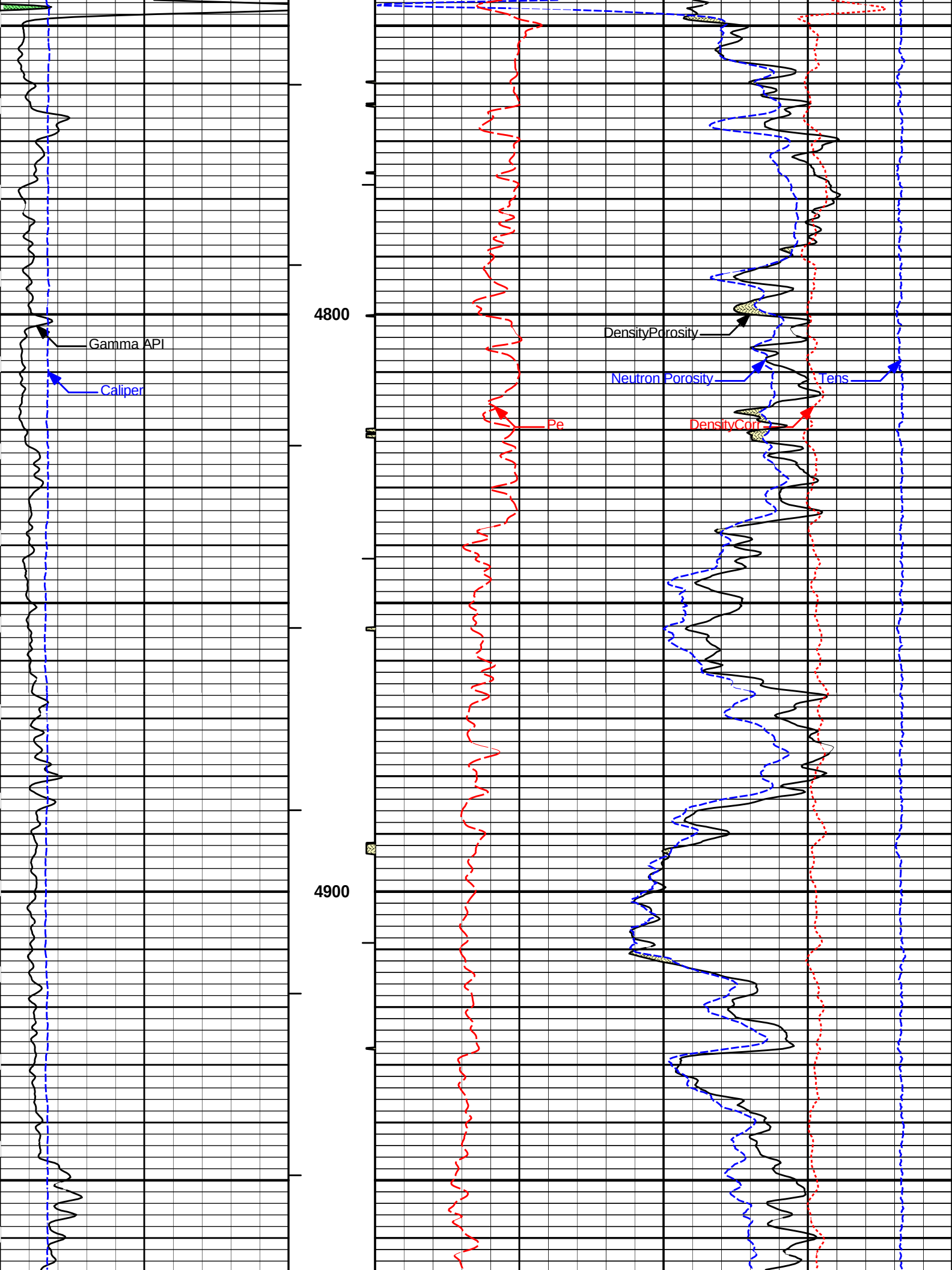
Caliper
DensityPorosity
Neutron Porosity
Tens
Pe
DensityCorr
4600
4700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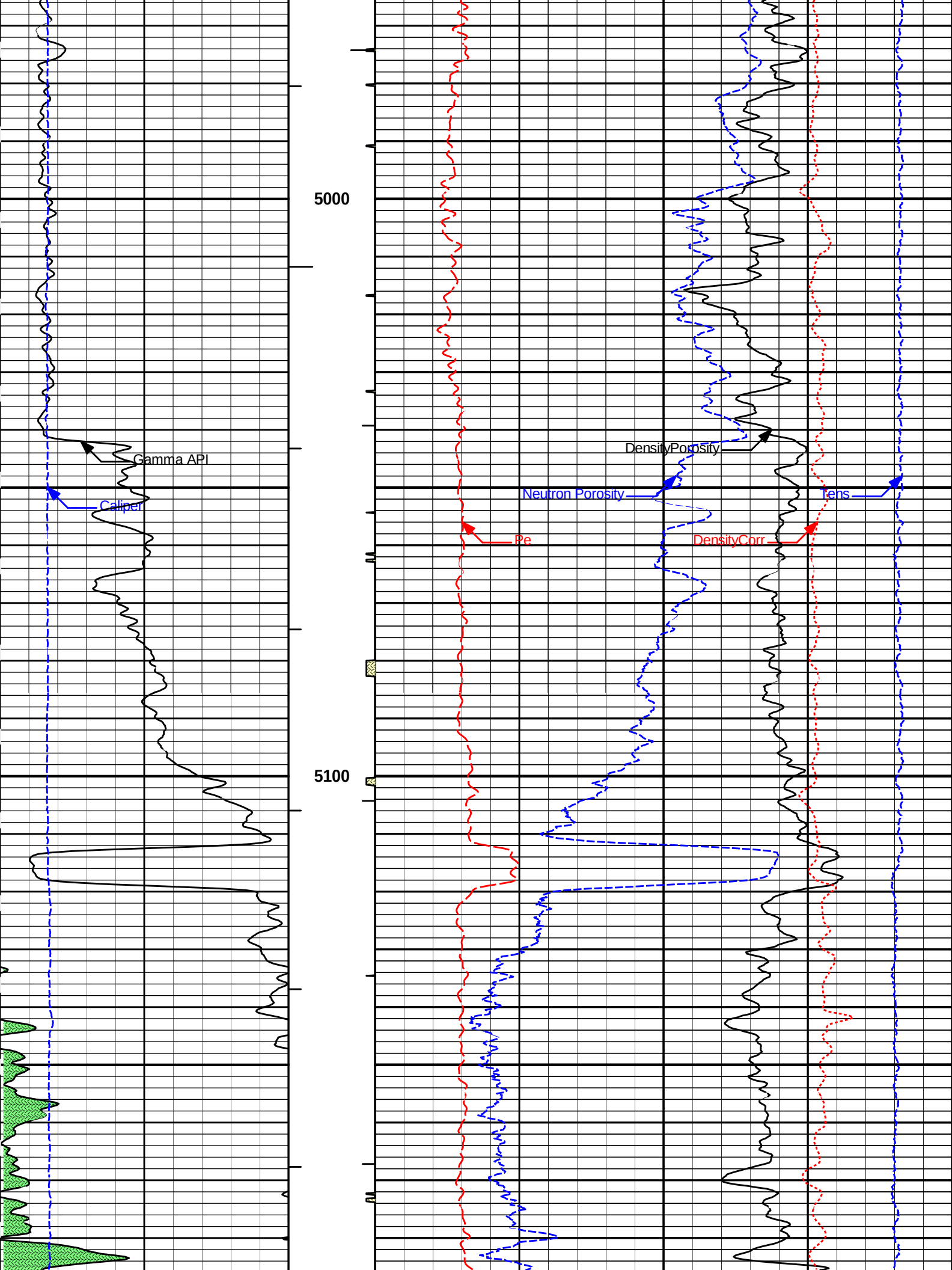
DensityPorosity
Neutron Porosity
Tens
Pe
DensityCorr
4900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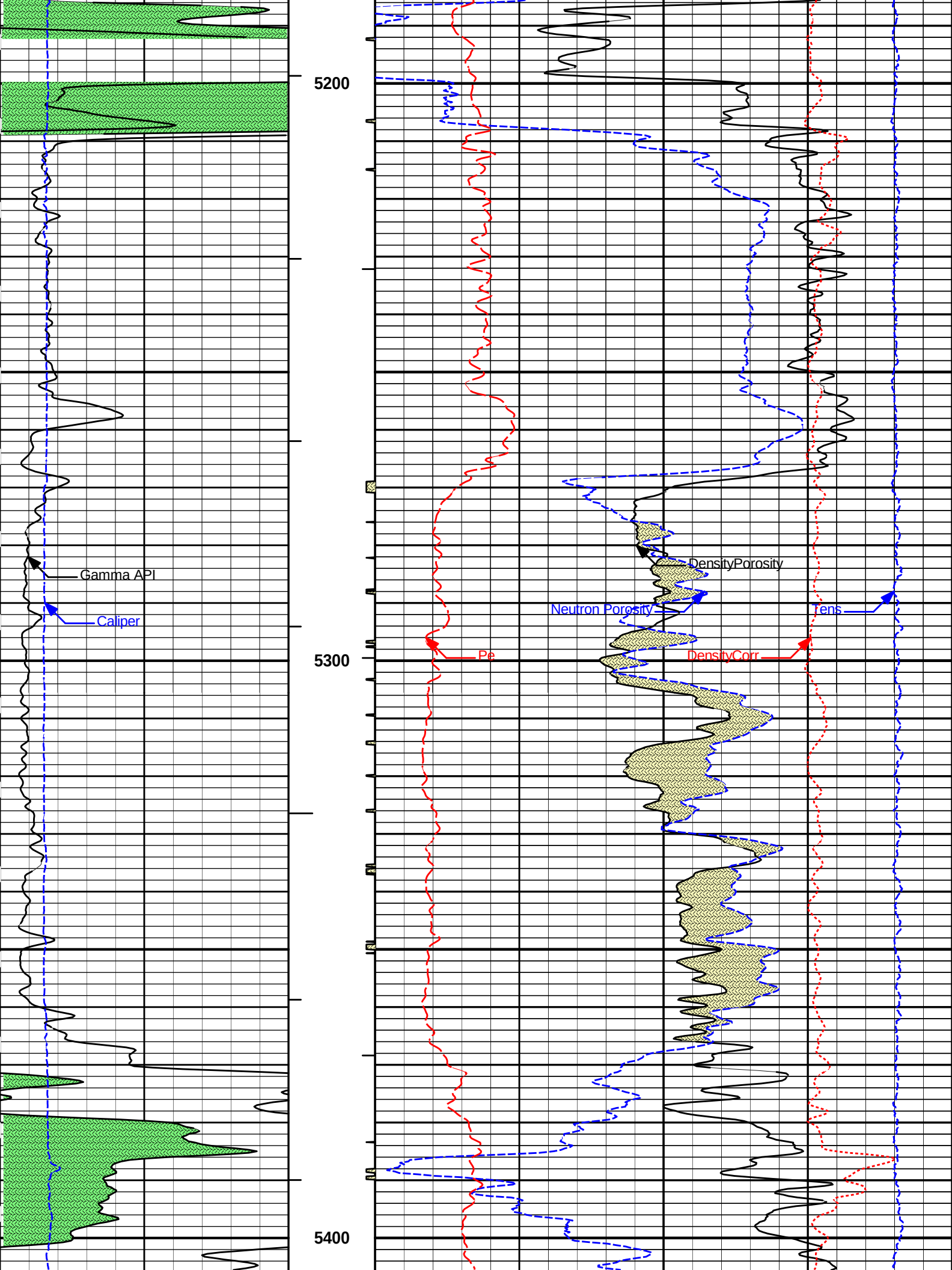
Gamma API
Caliper
Pe
Neutron Porosity
DensityPorosity
DensityCorr
Tens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DensityPorosity
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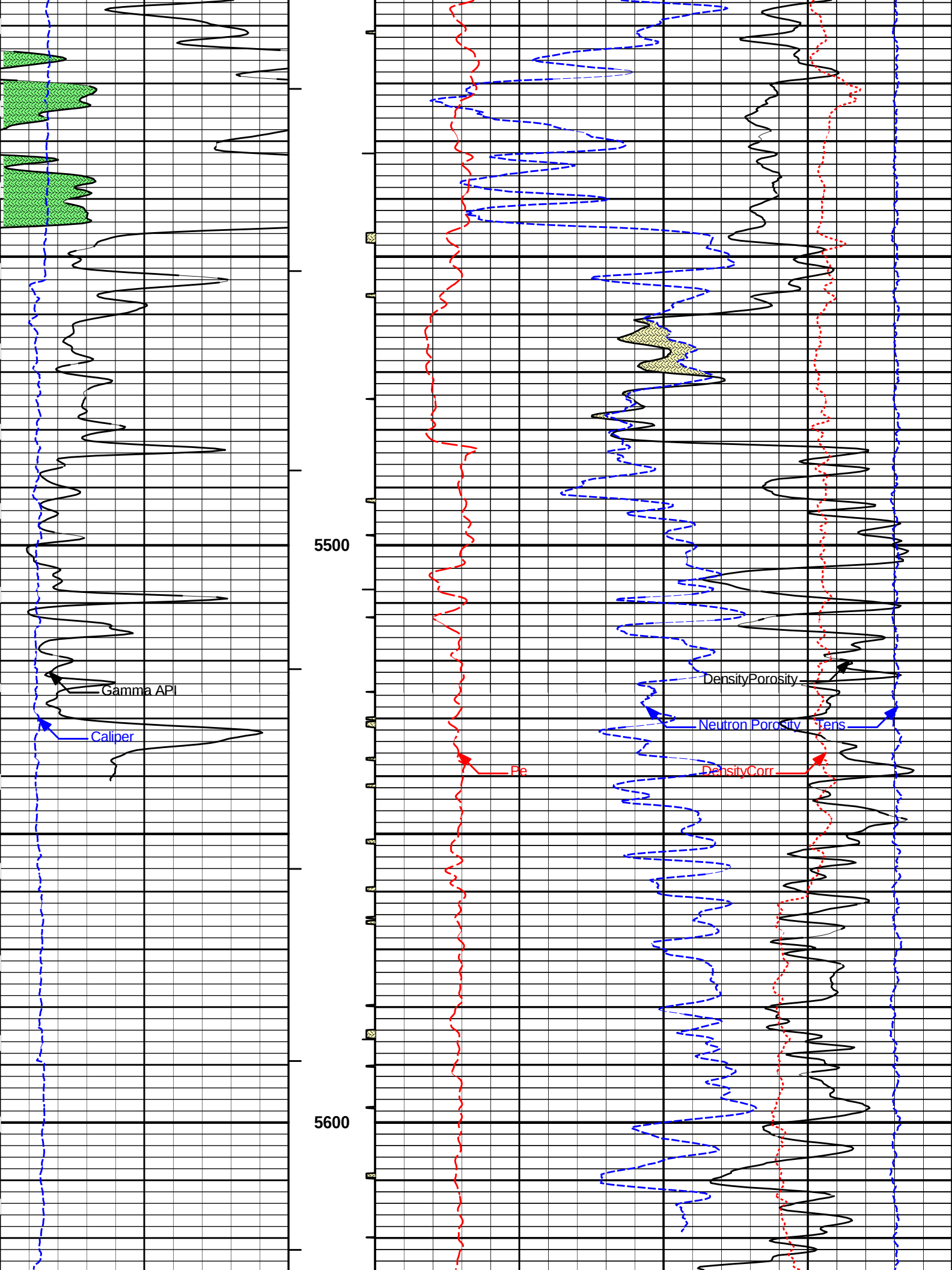
Pe
DensityCorr


5500
5600
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Caliper
Pe
DensityPorosity
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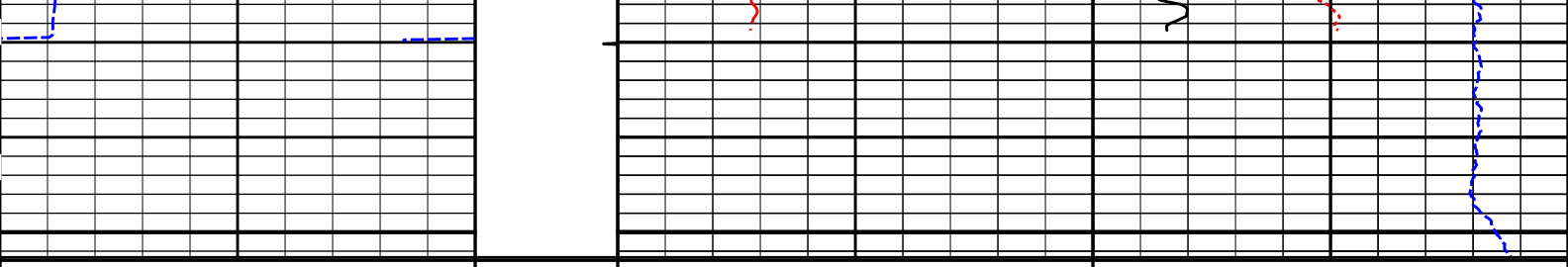
Tens
DensityCorr



HALLIBURTON

Plot Time: 17-Mar-14 08:13:15
Plot Range: 750 ft to 5652.67 ft
Data: {ActiveWell}\Well Based\MAIN_PASS\
Plot File: \\(not saved)\1_Poro_5_mainx

5 INCH MAIN LOG

HALLIBURTON

Plot Time: 17-Mar-14 08:13:15
Plot Range: 4500 ft to 4950 ft
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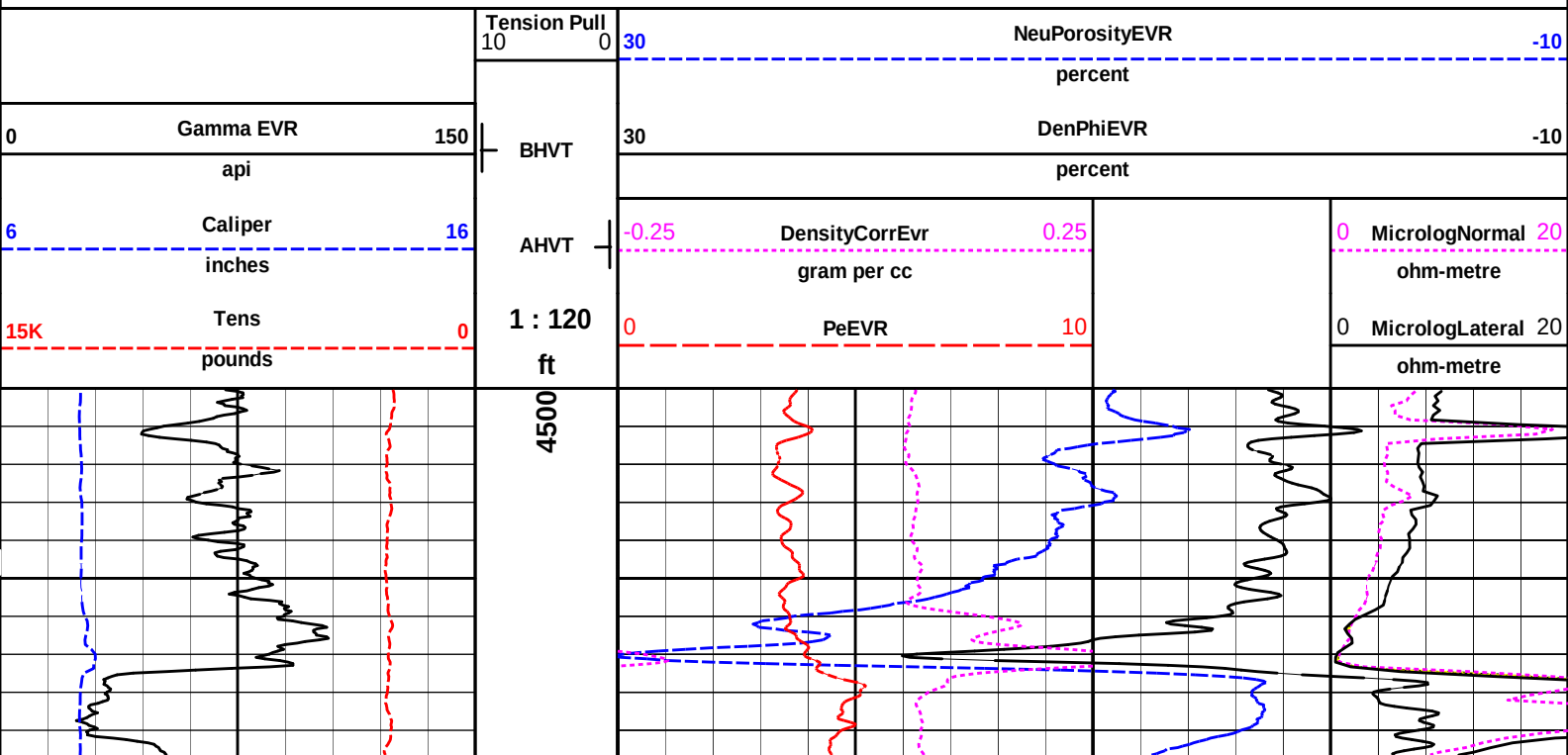
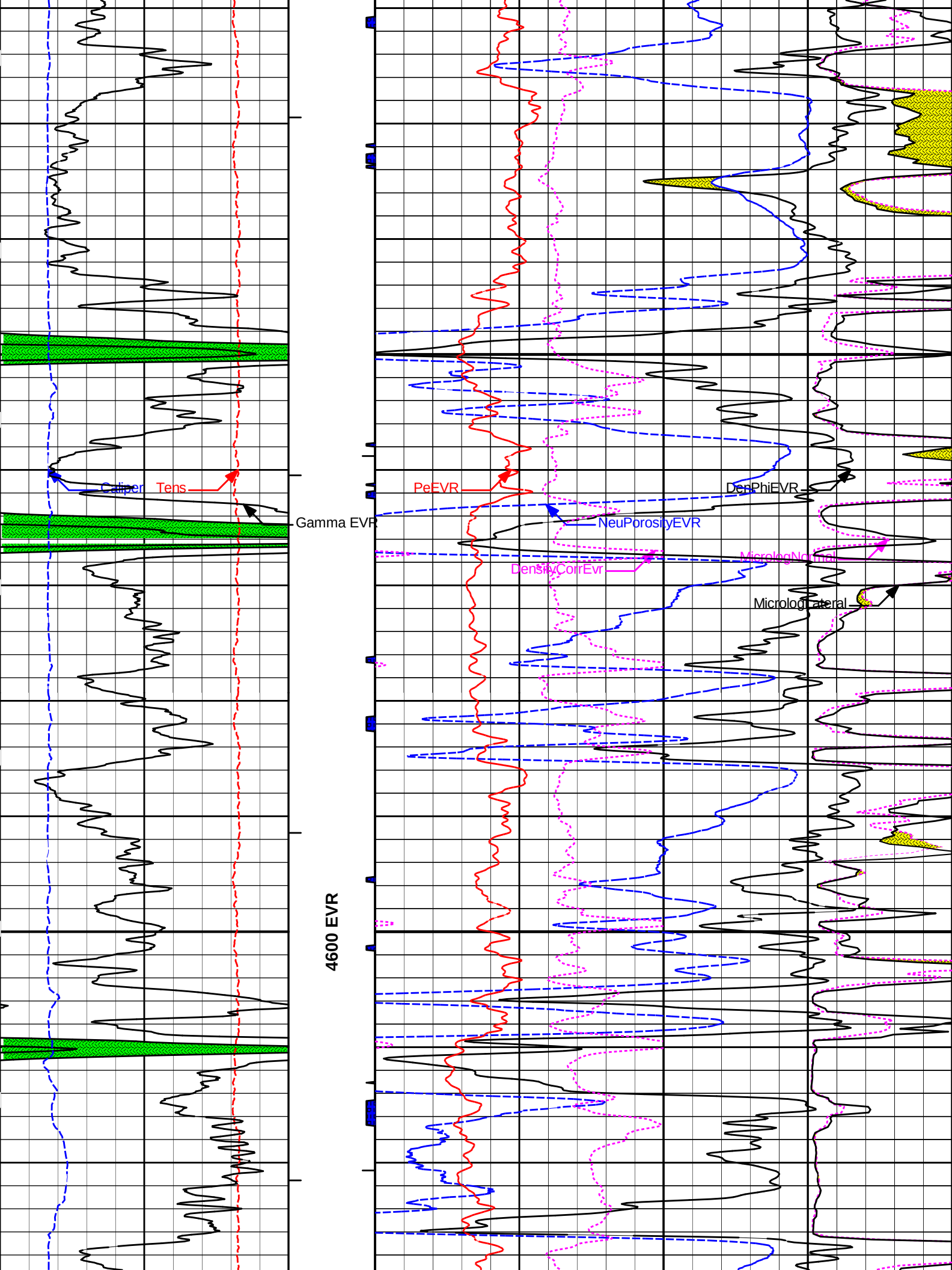
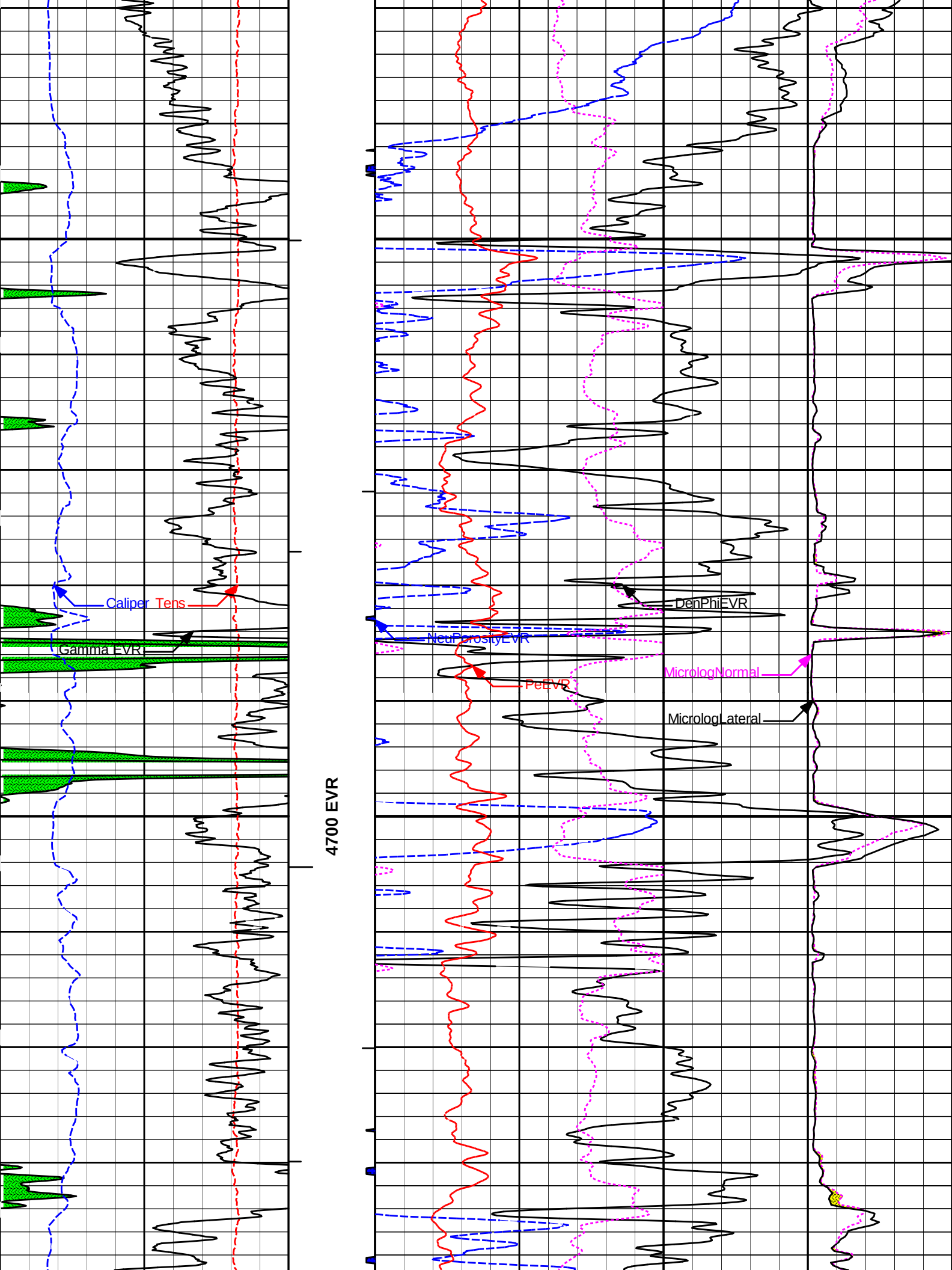
Plot File: \\(not saved)\POR-EVR-3370

5 INCH MAIN LOG - EVR - 4550 TO 4900




Caliper
Tens
Gamma EVR
PeEVR
DenPhiEVR
NeuPorosityEVR
MicrologNormal
DensityCorrEvr
Microloglateral
4600 EVR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PeEVR
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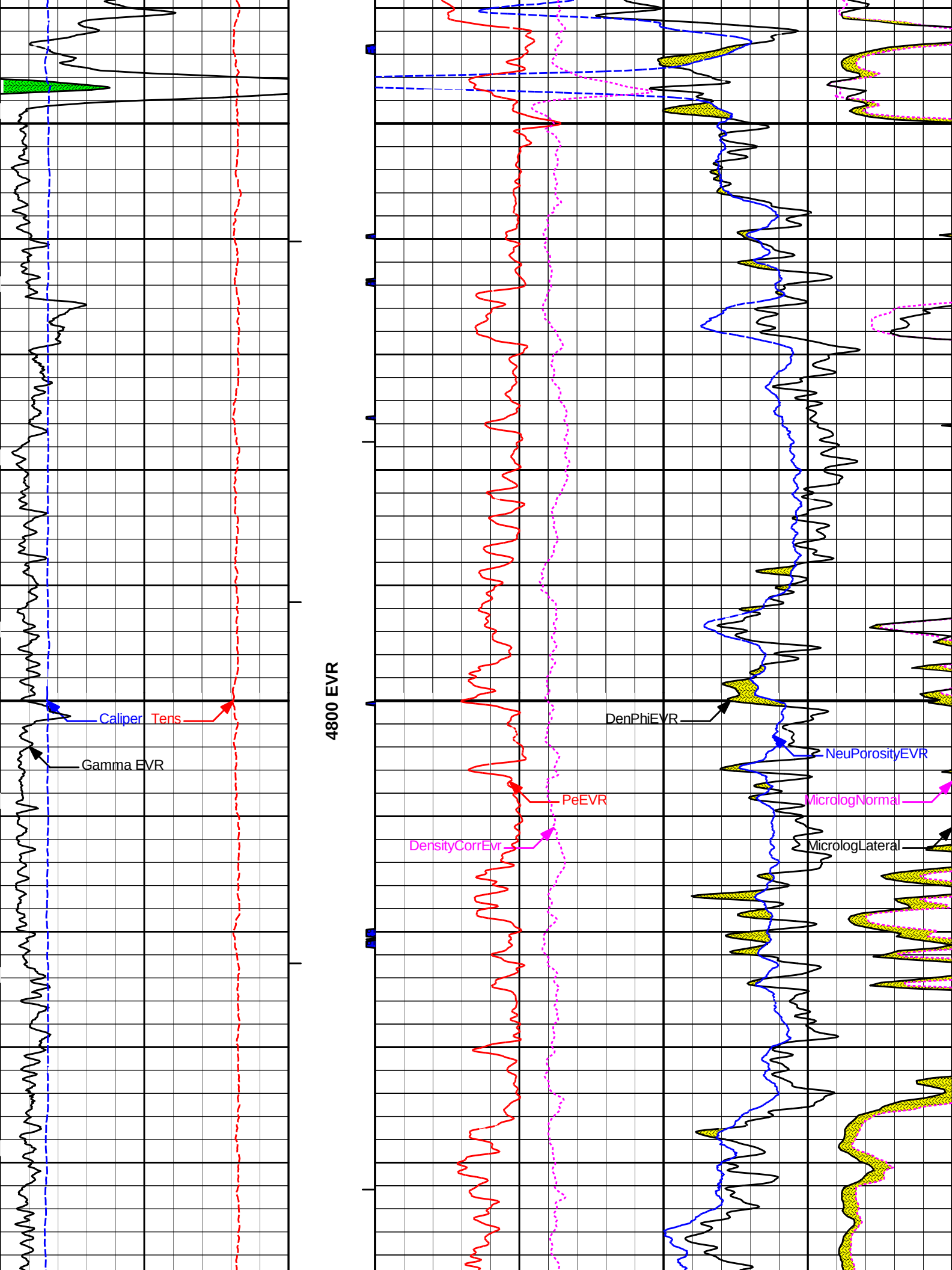
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Gamma EVR
4800 EVR
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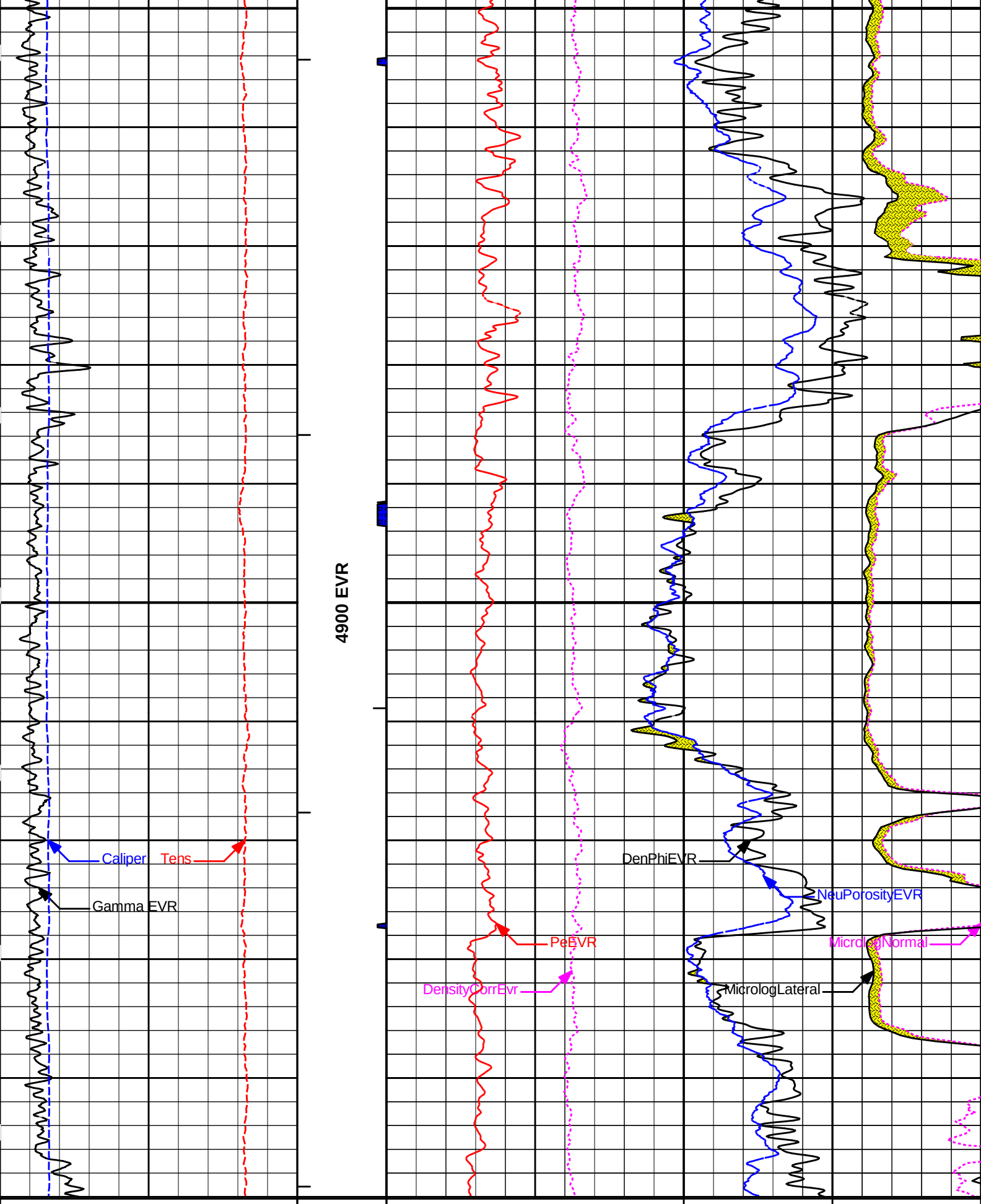

15K Tens 0	1 : 120	0 PeEVR 10
pounds	ft	
6 Caliper 16	AHVT	-0.25 DensityCorrEvr 0.25
inches		gram per cc

0 MicrologLateral 20
ohm-metre
0 MicrologNormal 20
ohm-metre

0 Gamma EVR 150
api

BHVT

Tension Pull
10 0

30 DenPhiEVR -10
percent

30 NeuPorosityEVR -10
percent

HALLIBURTON

Plot Time: 17-Mar-14 08:13:17
Plot Range: 4500 ft to 4950 ft
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Plot File: \\(not saved)\POR-EVR-3370

5 INCH MAIN LOG - EVR - 4550 TO 4900

HALLIBURTON

Plot Time: 17-Mar-14 08:13:17
Plot Range: 5350 ft to 5655.25 ft
Data: {ActiveWell}\Well Based\REPEAT_SECTION\
Plot File: \\(not saved)\1_Poro_5_rptx

REPEAT SECTION

Tension Pull
10 0

BHVT

AHVT

30 Neutron Porosity -10
percent

30 DensityPorosity -10
percent

0 Gamma API 150
api

6 Caliper 16
inches

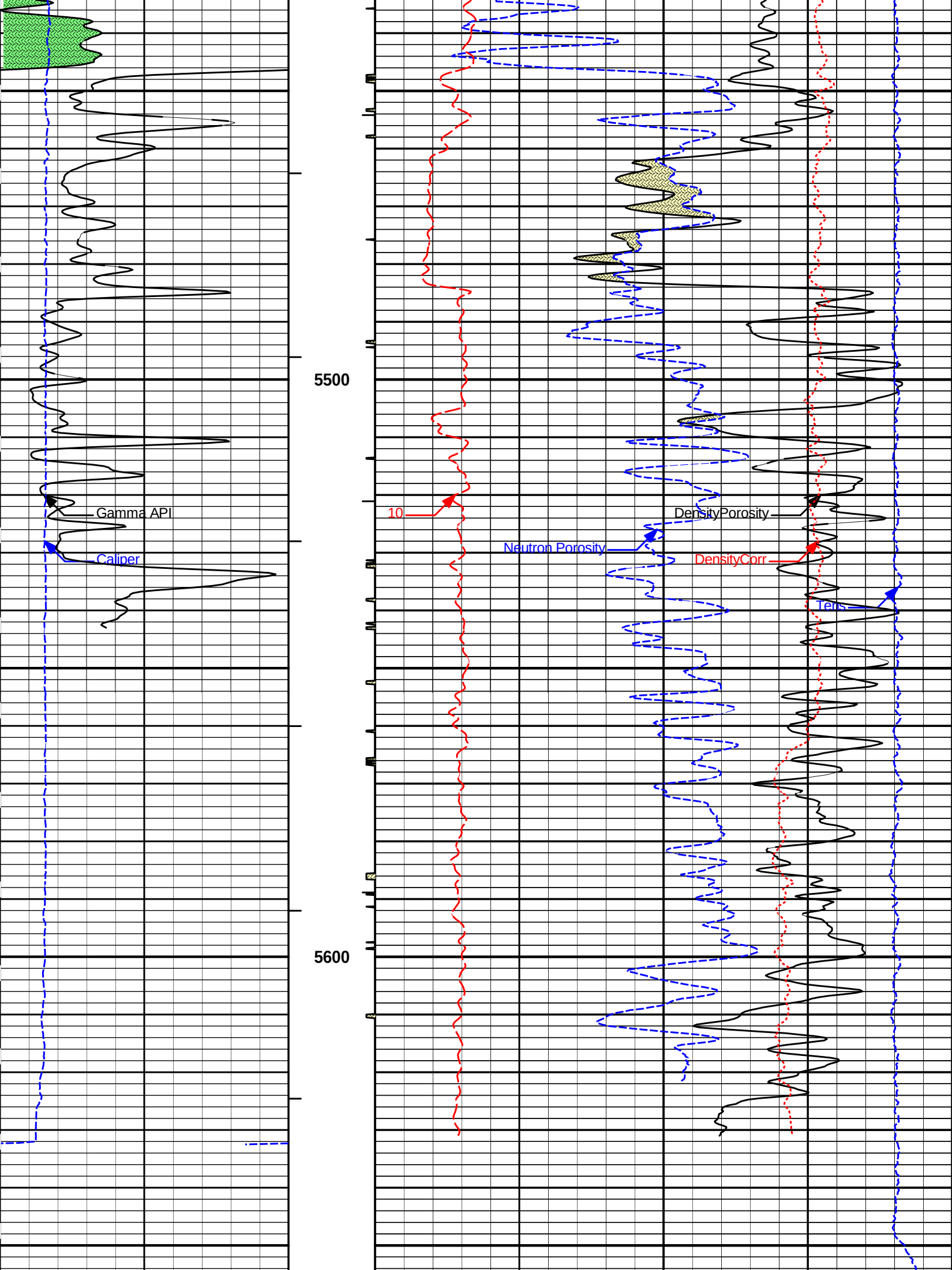
1 : 240
ft

15K Tens 0
pounds

0 10 10

-0.25 DensityCorr 0.25
gram per cc

5400


5500
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Gamma API
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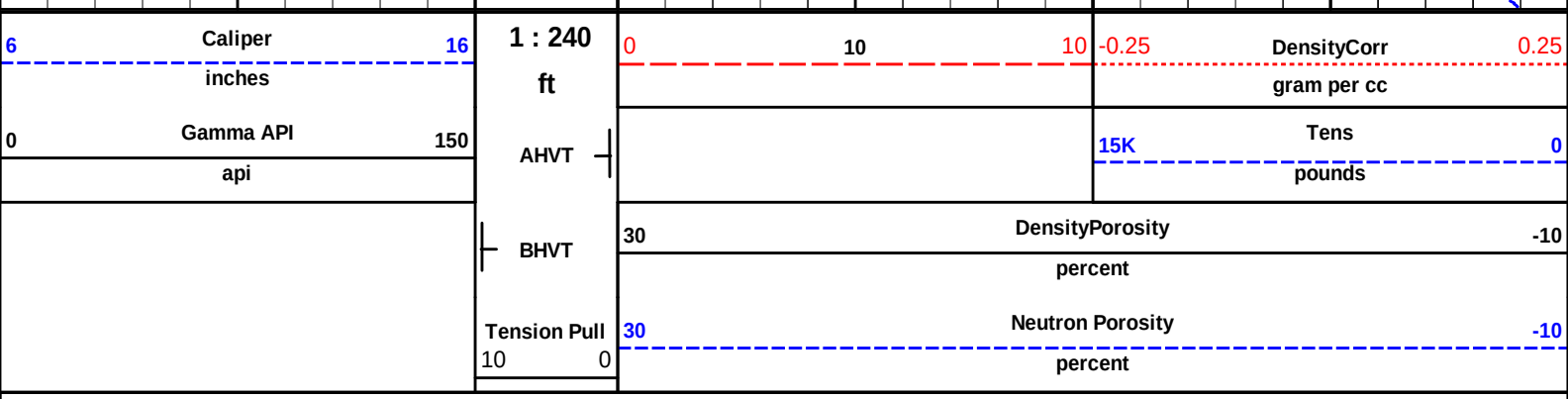
10
Neutron Porosity
DensityPorosity
DensityCorr
Tens



HALLIBURTON

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REPEAT SECTION

HALLIBURTON

Plot Time: 17-Mar-14 08:13:19
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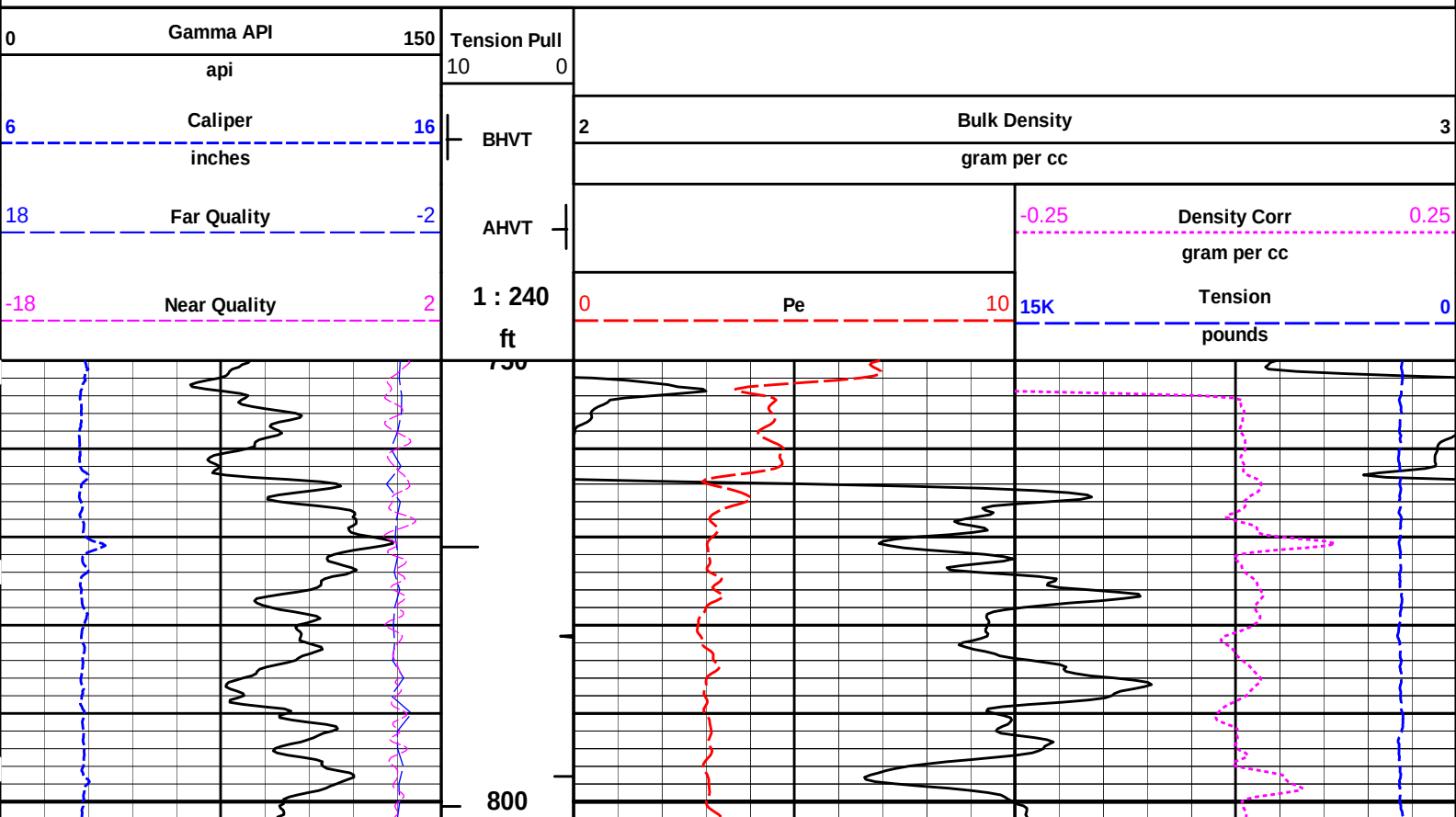
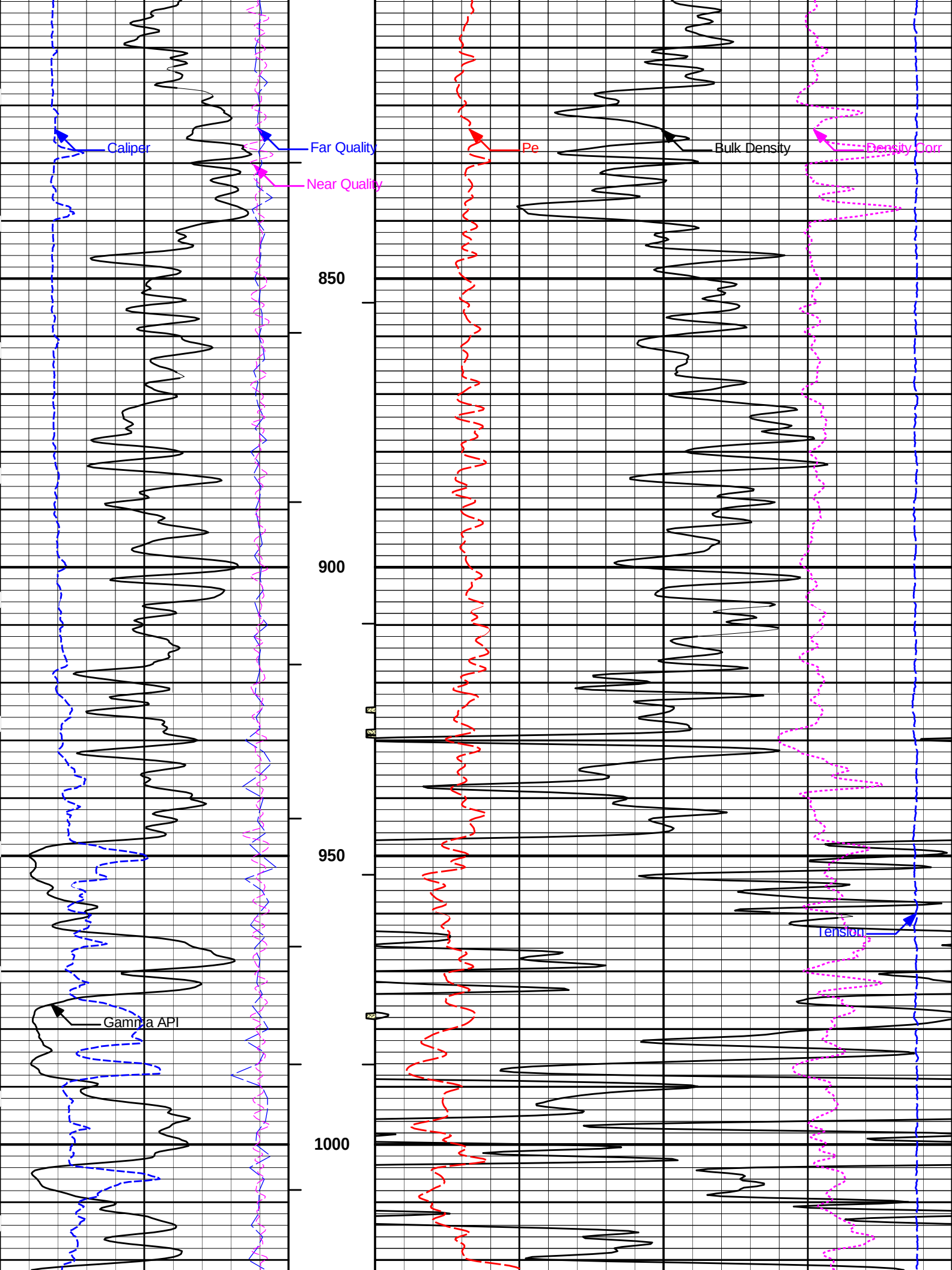
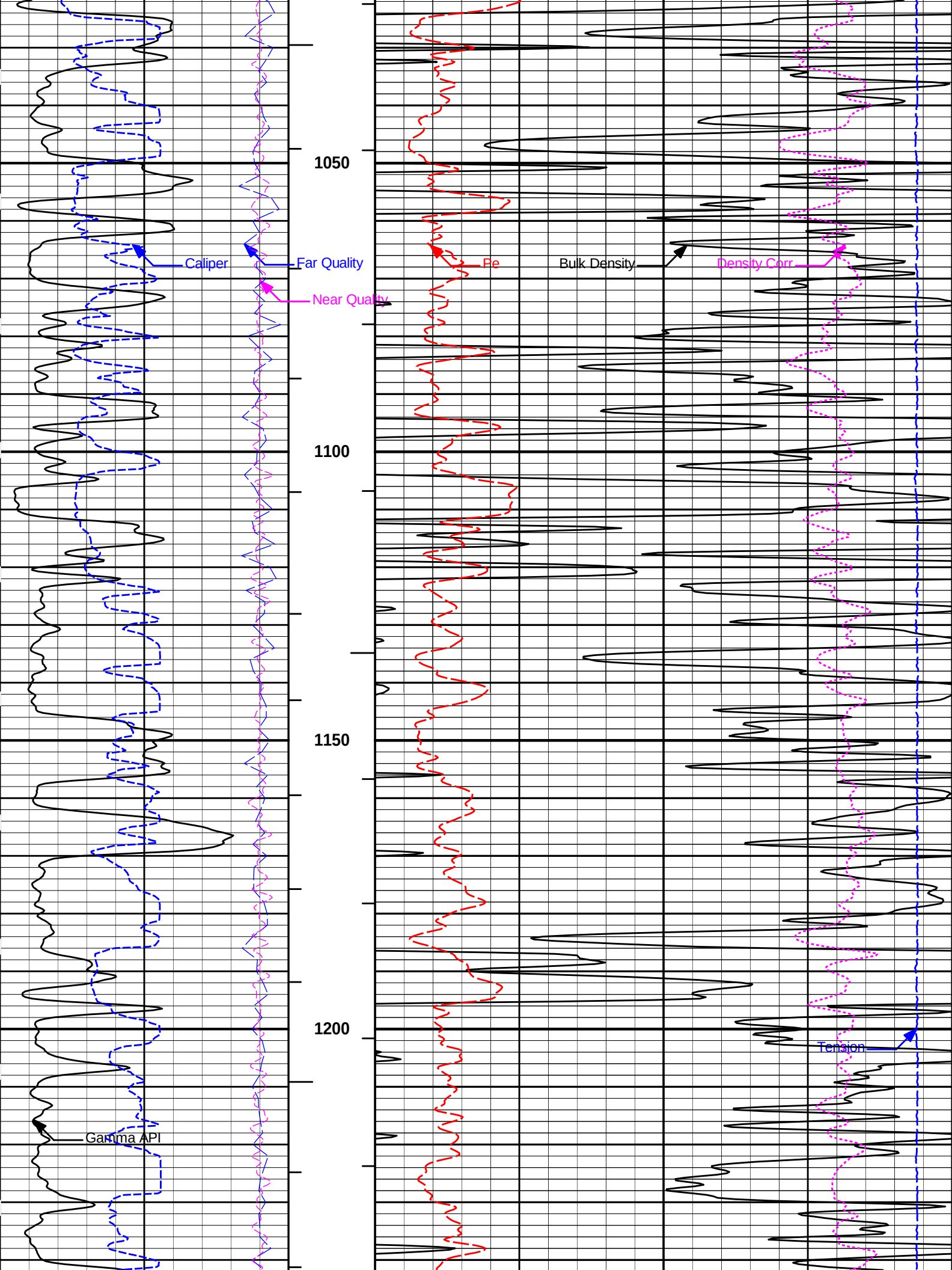
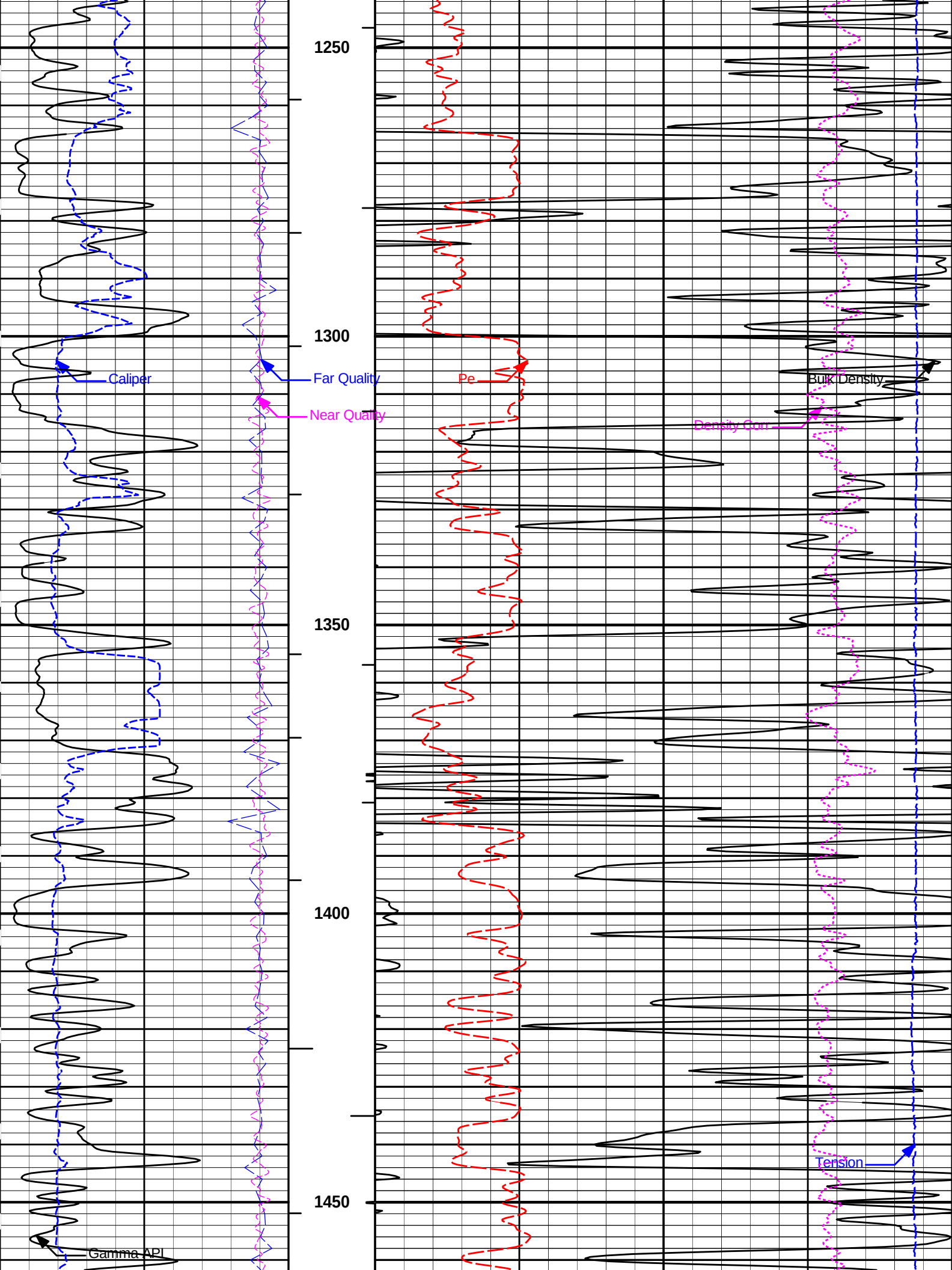
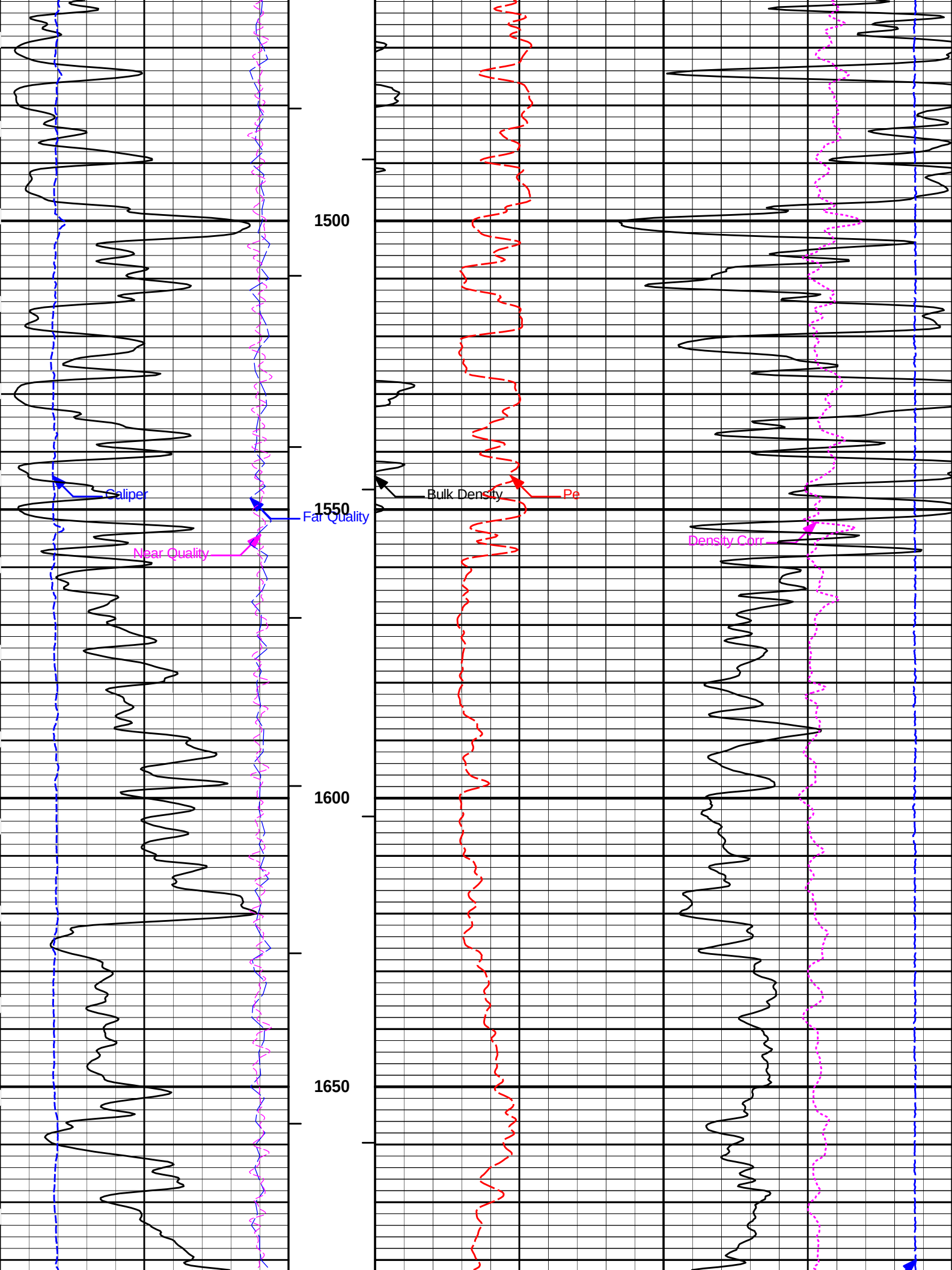
5 INCH MAIN LOG

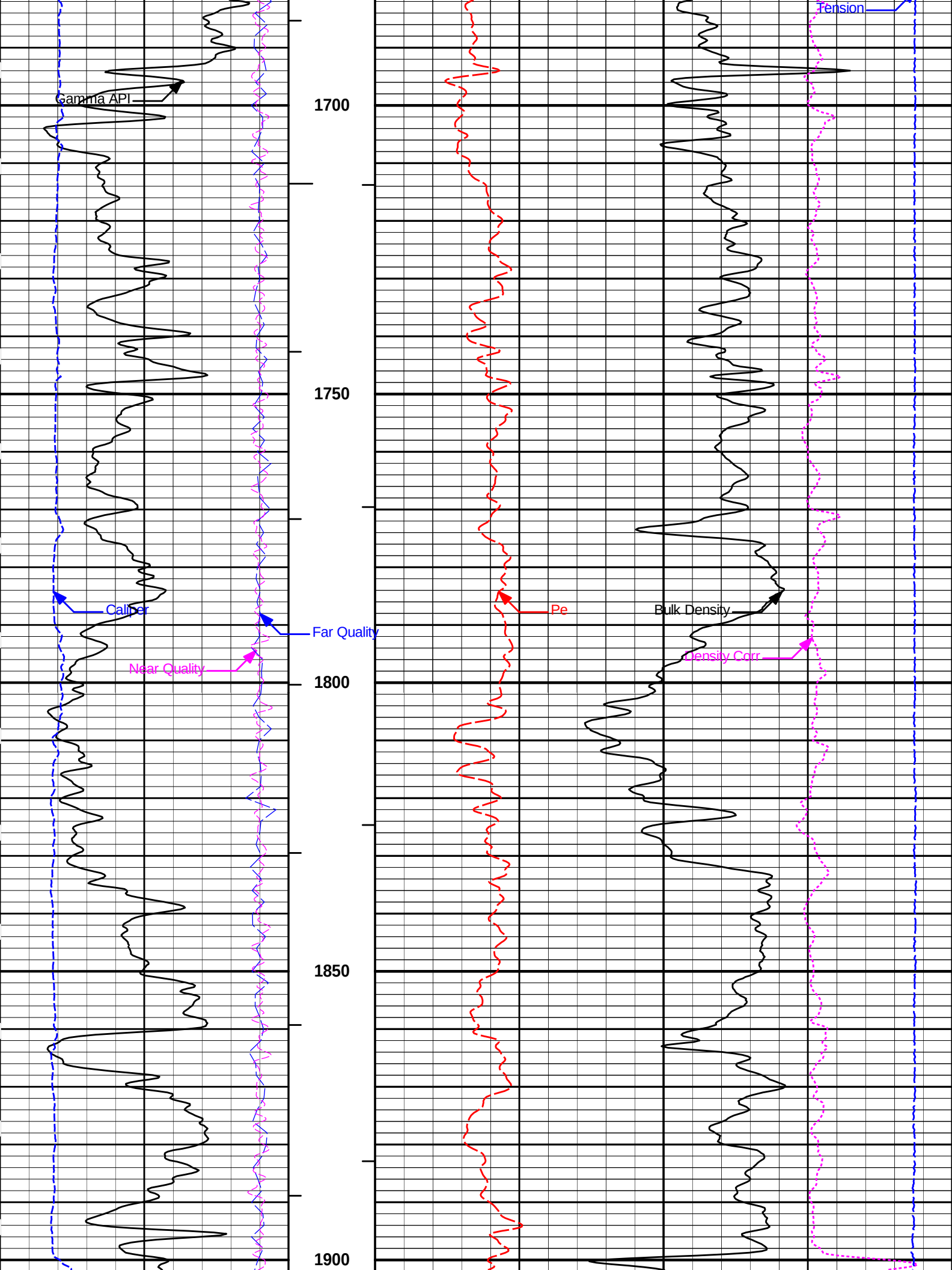


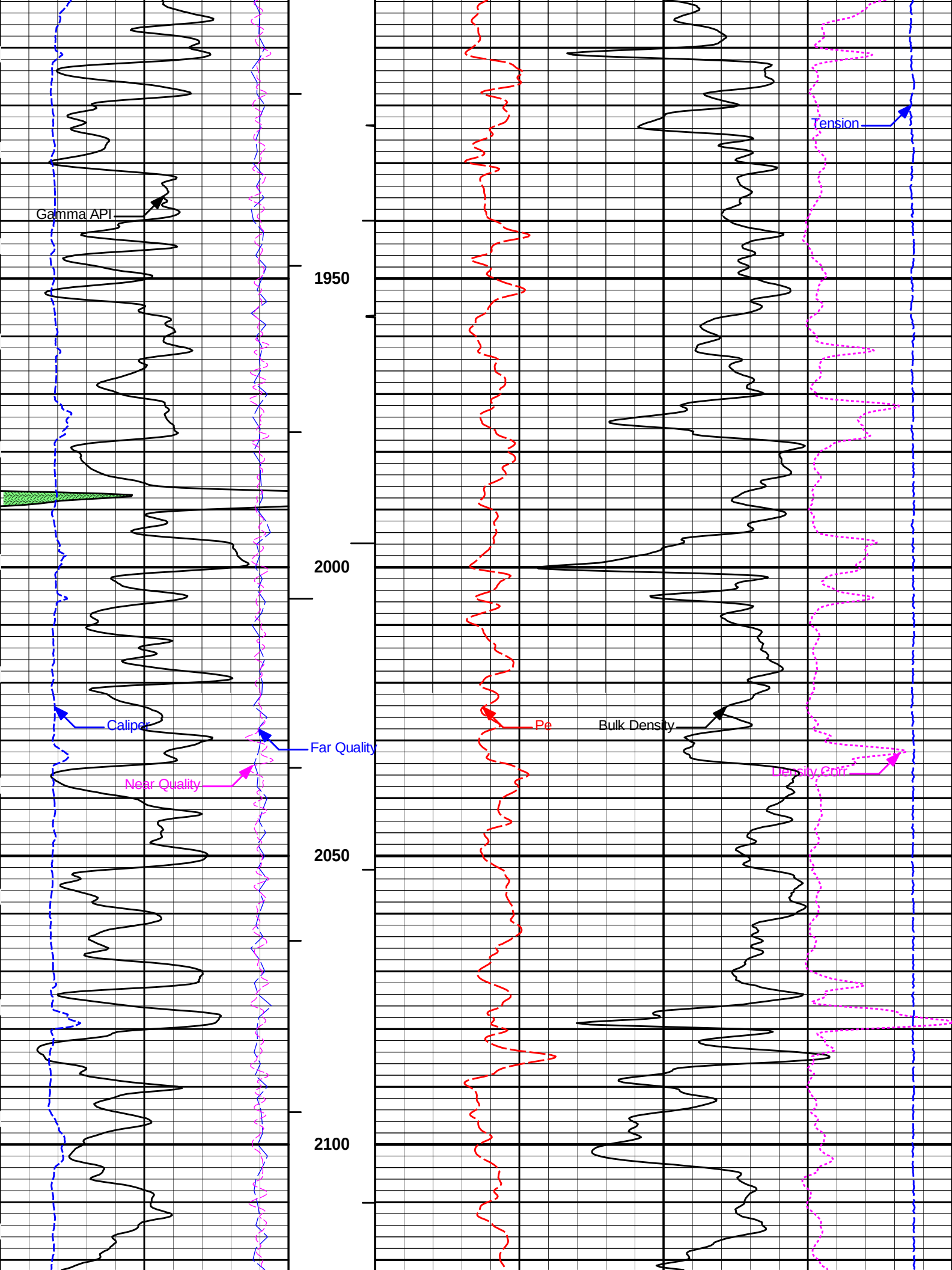

Caliper
Far Quality
Near Quality
Pe
Bulk Density
Density Corr
850
900
950
Tension
Gamma API
1000

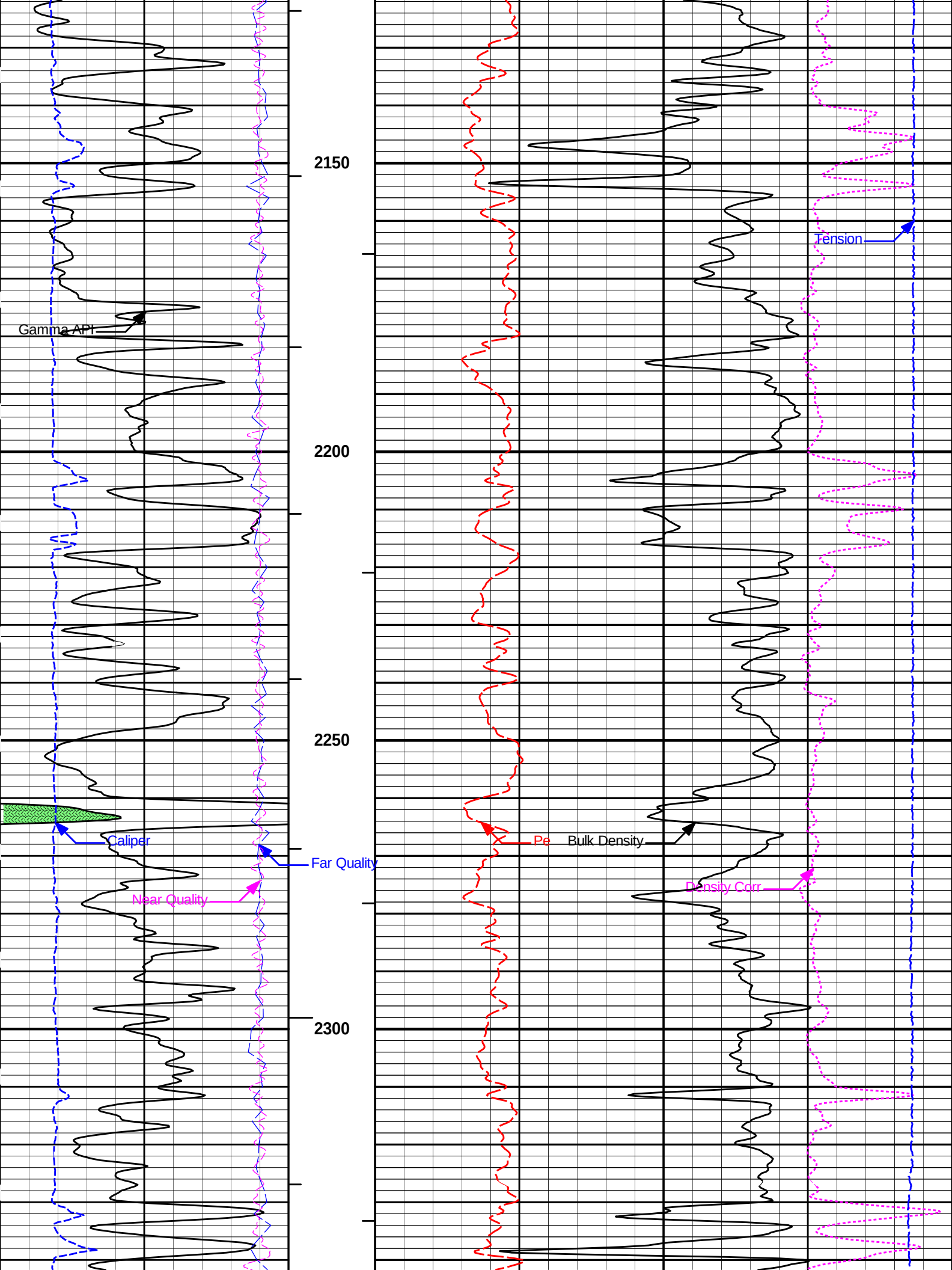

1050
1100
1150
1200
Caliper
Far Quality
Near Quality
Pe
Bulk Density
Density Corr
Tension
Gamma API

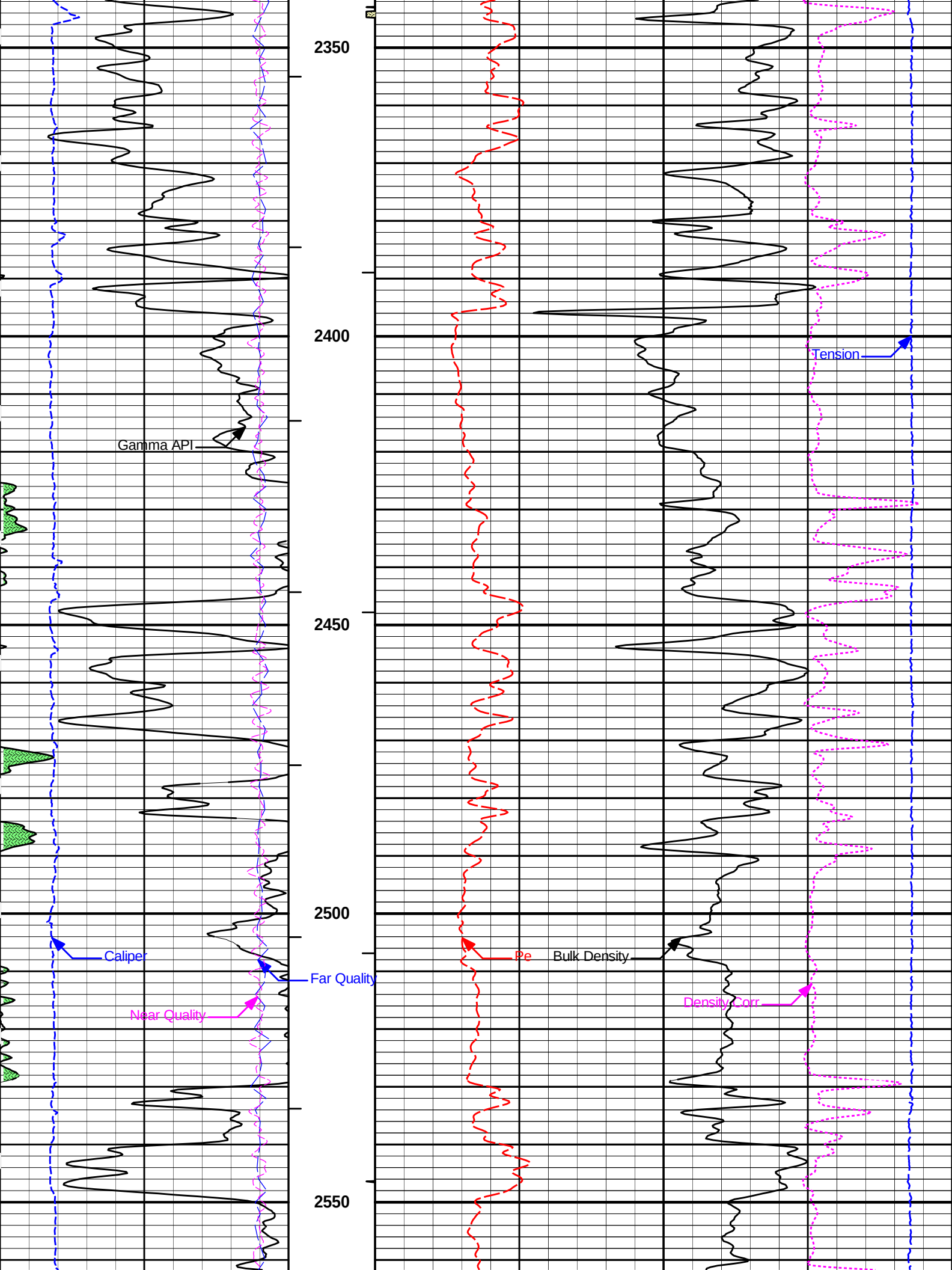

1250
1300
1350
1400
1450
Caliper
Far Quality
Near Quality
Pe
Bulk Density
Density Corr
Tension
Gamma API

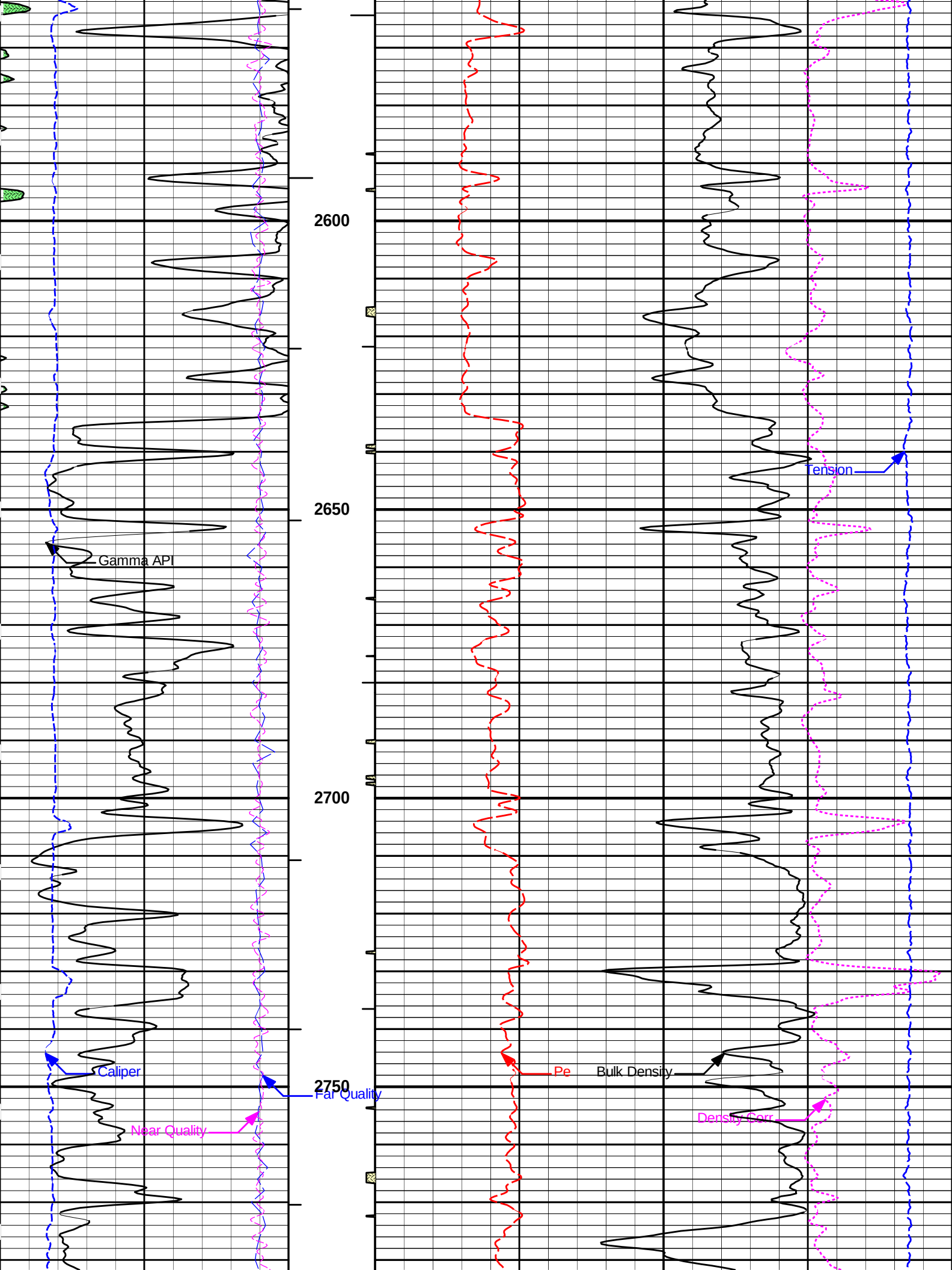

1500
1550
1600
1650
Caliper
Far Quality
Near Quality
Bulk Density
Pe
Density Corr

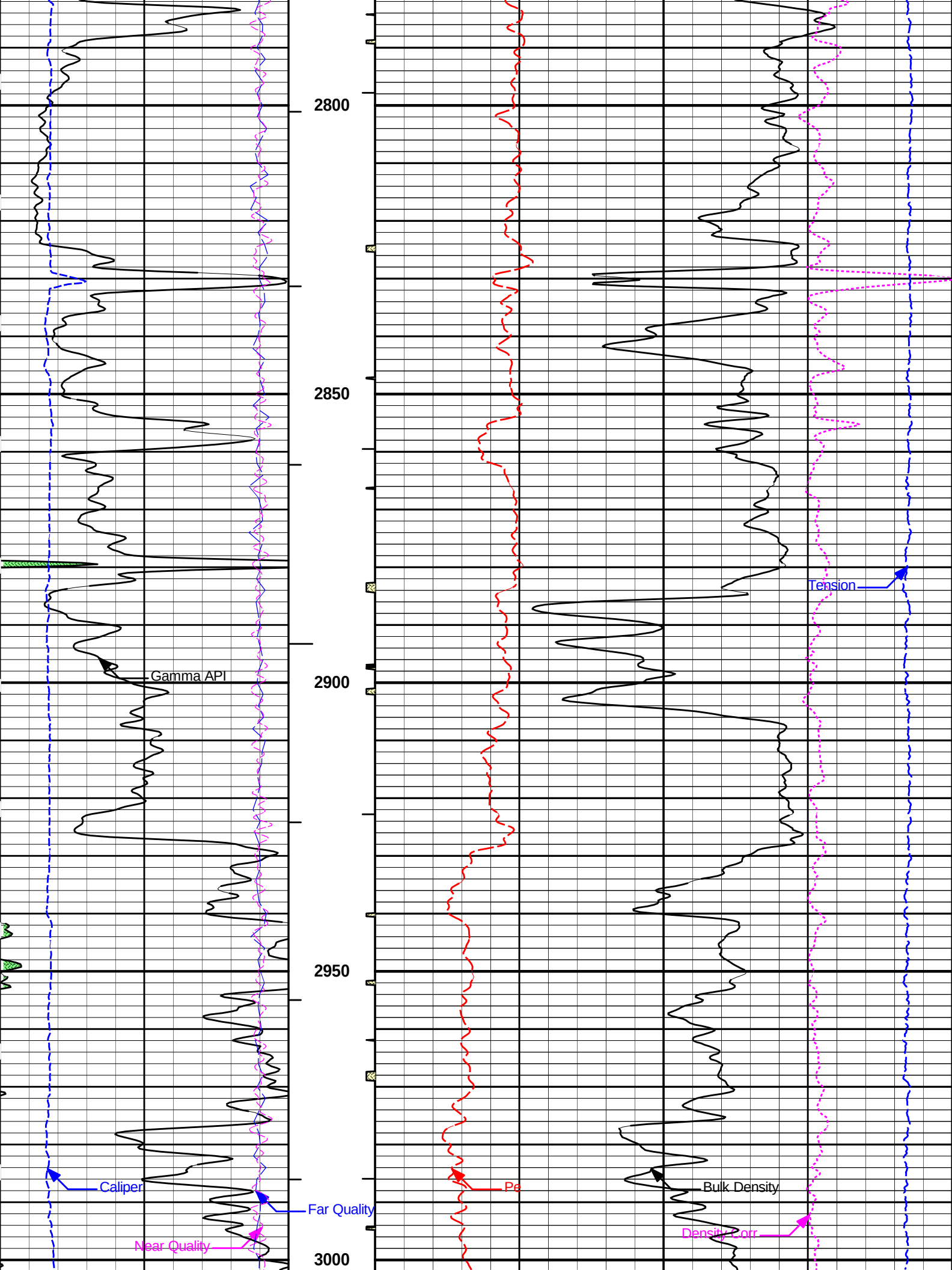

Tension
Gamma API
1700
1750
Caliper
Far Quality
Near Quality
1800
Pe
Bulk Density
Density Corr
1850
1900

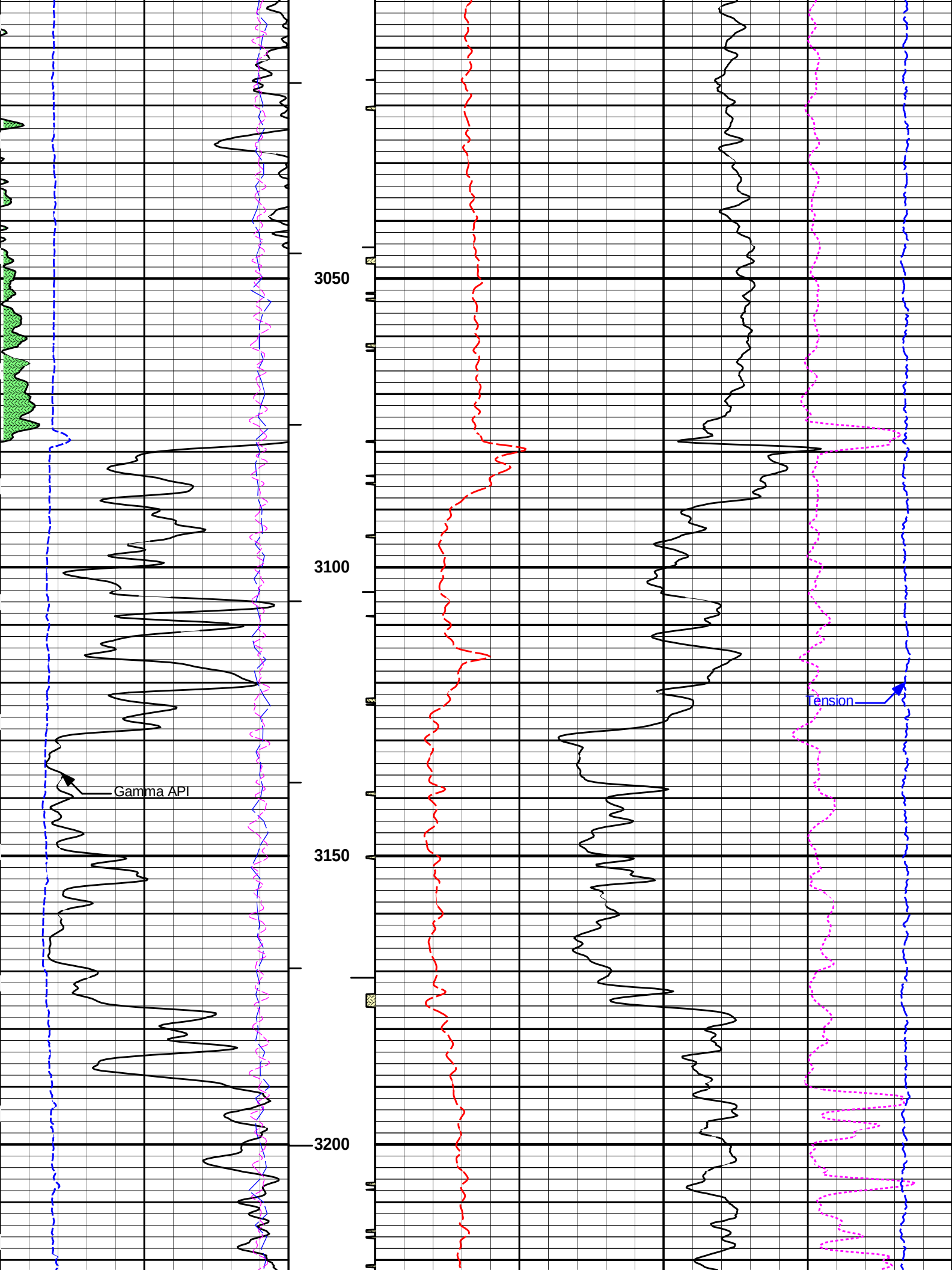

Gamma API
1950
2000
Caliper
Near Quality
Far Quality
Pe
Bulk Density
Tension
Density Corr
2050
2100

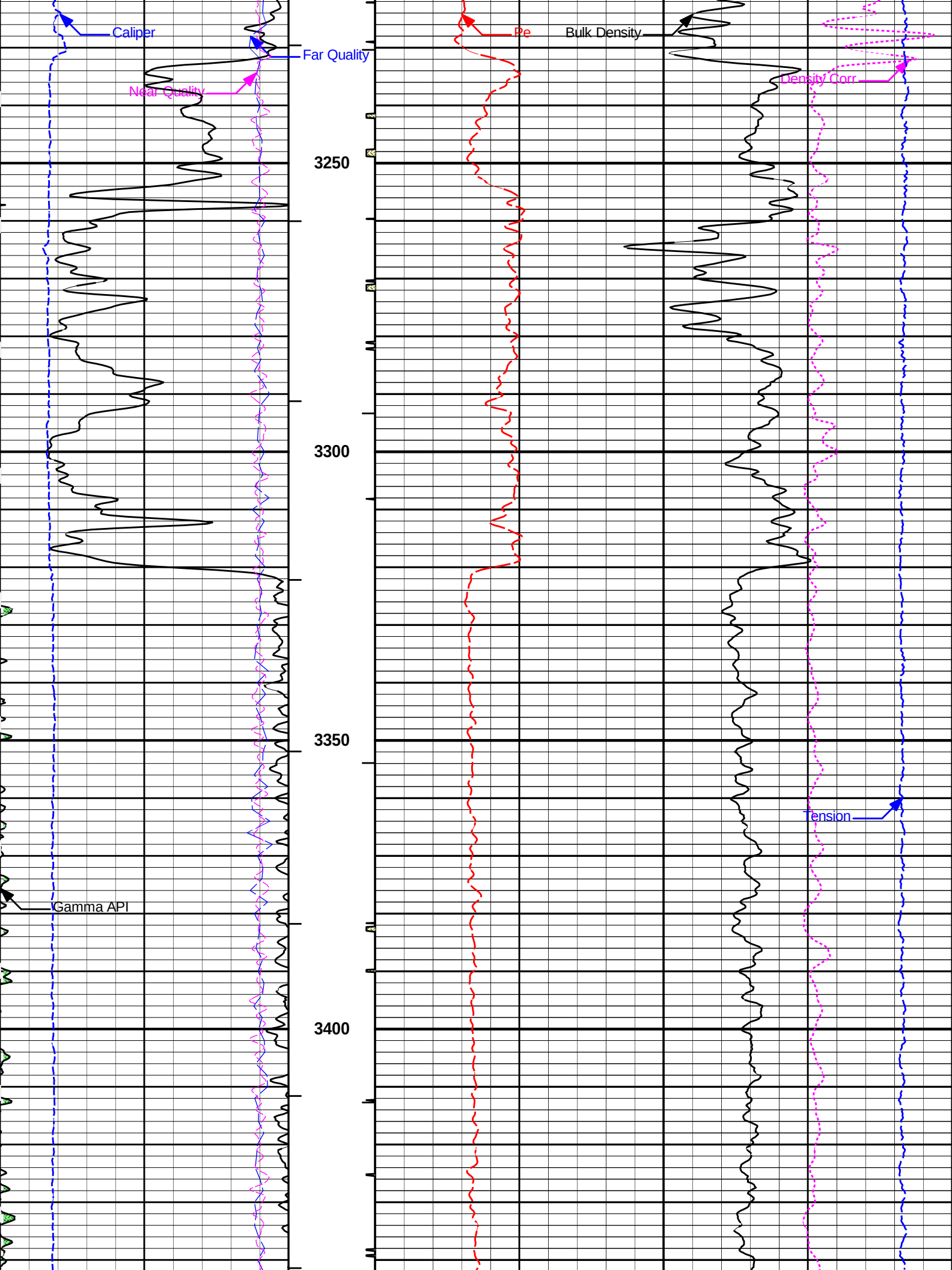

2150
2200
2250
2300
Gamma API
Caliper
Near Quality
Far Quality
Pe
Bulk Density
Density Corr
Tension

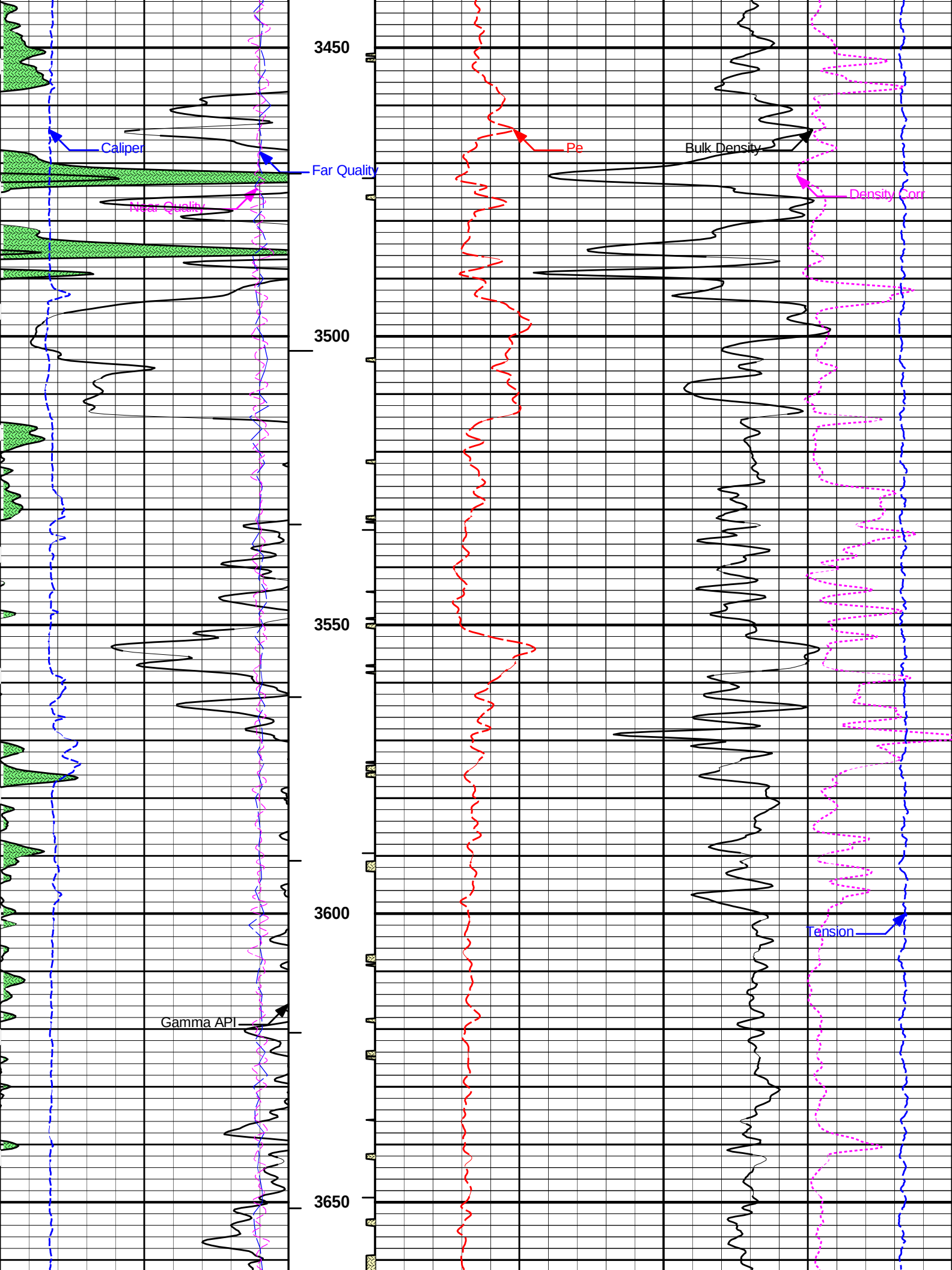

2350
2400
2450
2500
2550
Gamma API
Tension
Caliper
Far Quality
Near Quality
Pe
Bulk Density
Density Corr

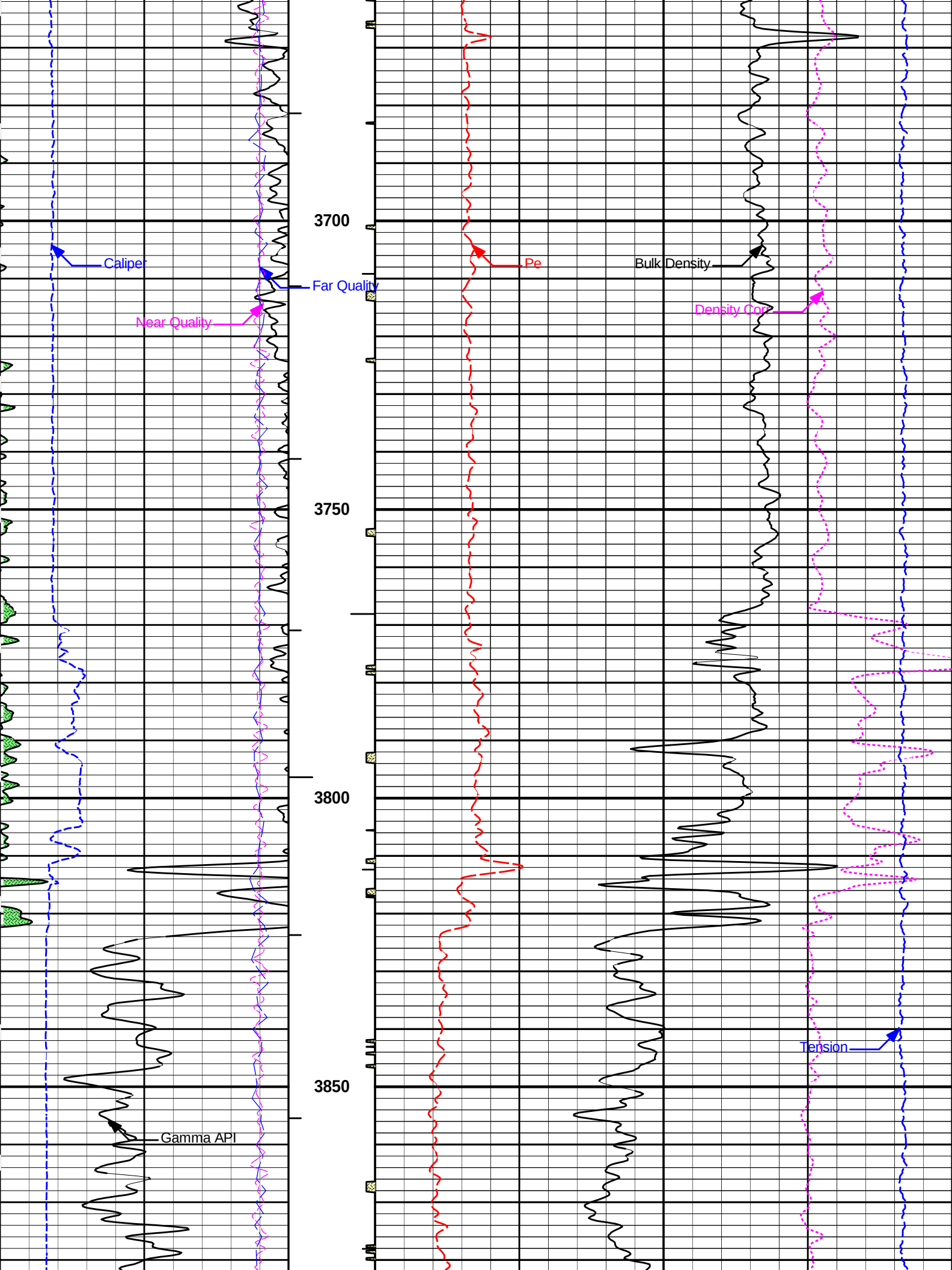

2600
2650
2700
2750
Gamma API
Caliper
Near Quality
Far Quality
Pe
Bulk Density
Density Corr
Tension

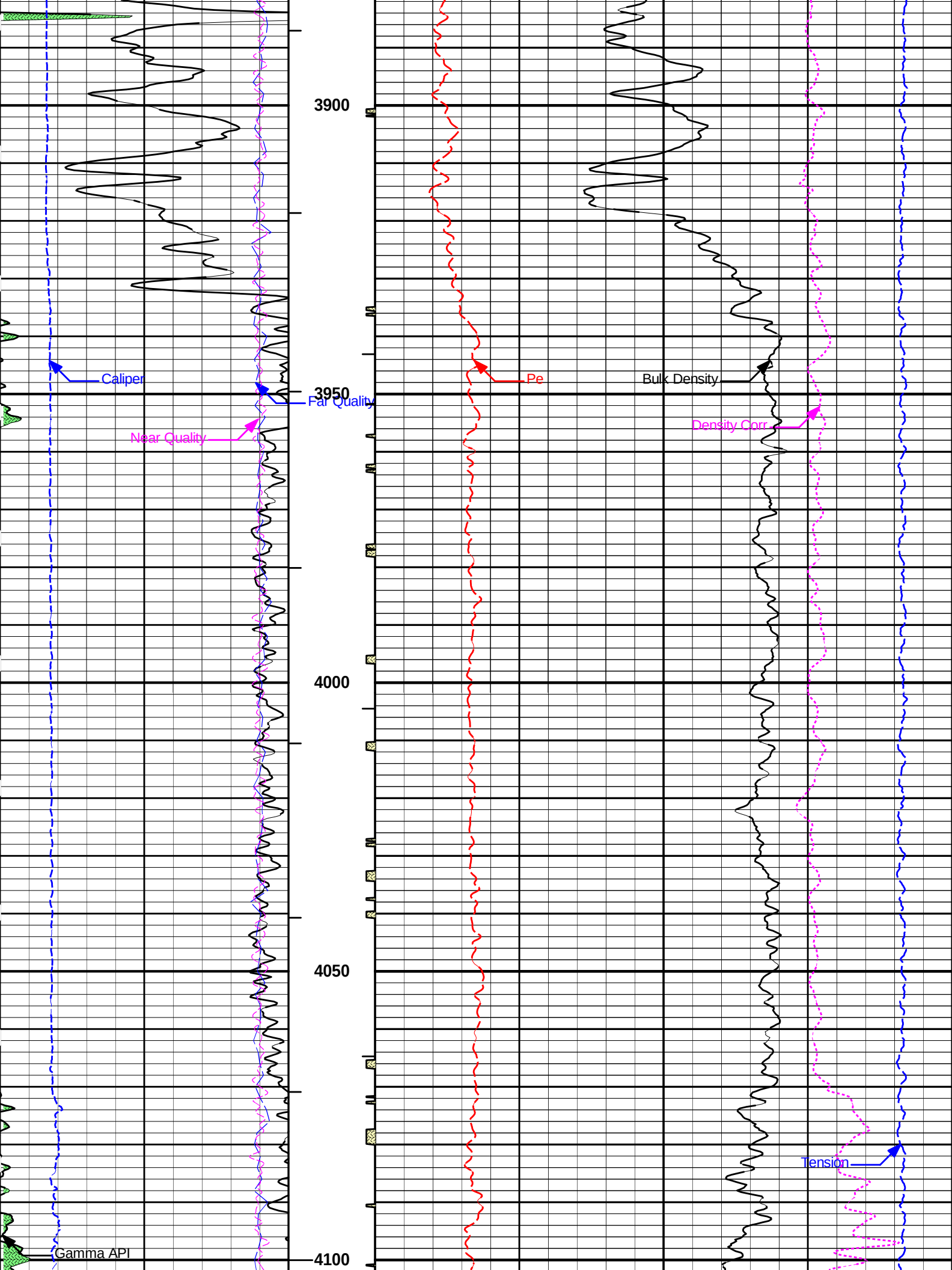

2800
2850
2900
2950
3000
Gamma API
Caliper
Near Quality
Far Quality
Pe
Tension
Bulk Density
Density Corr

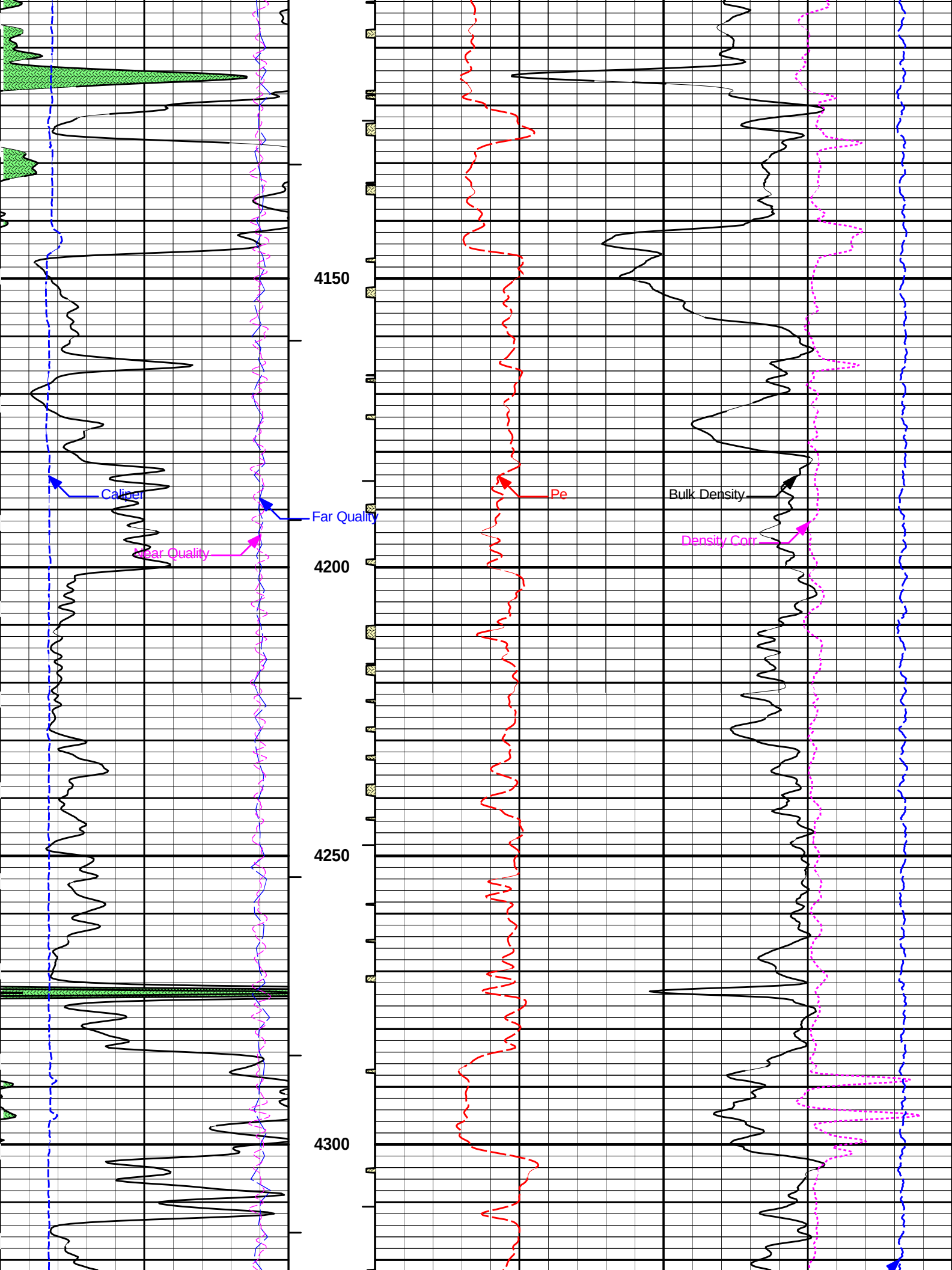

3050
3100
3150
3200
Gamma API
Tension

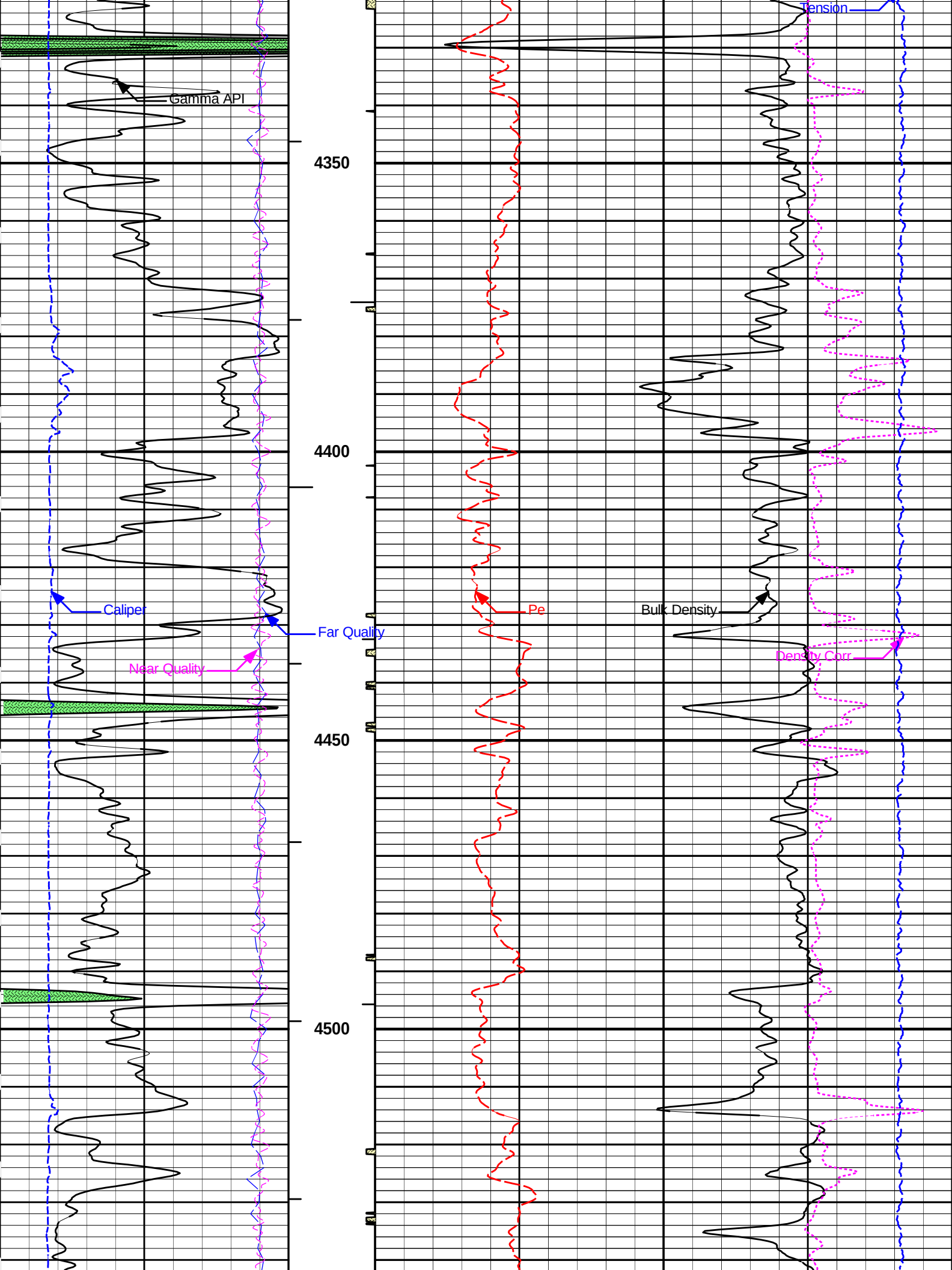

Caliper
Far Quality
Near Quality
Pe
Bulk Density
Density Corr
Tension
Gamma API
3250
3300
3350
3400

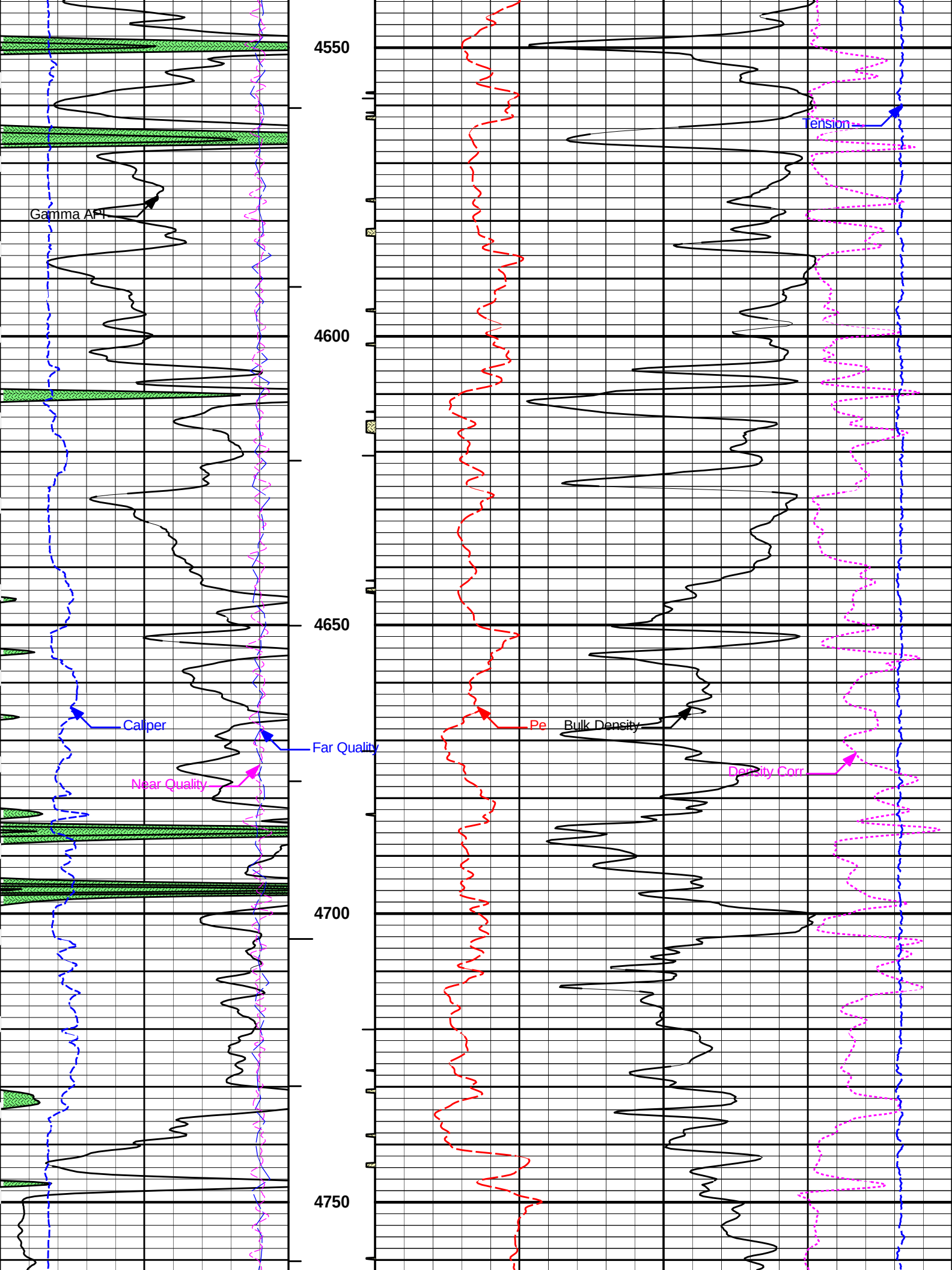

3450
3500
3550
3600
3650
Caliper
Far Quality
Near Quality
Gamma API
Pe
Bulk Density
Density Corr
Tension

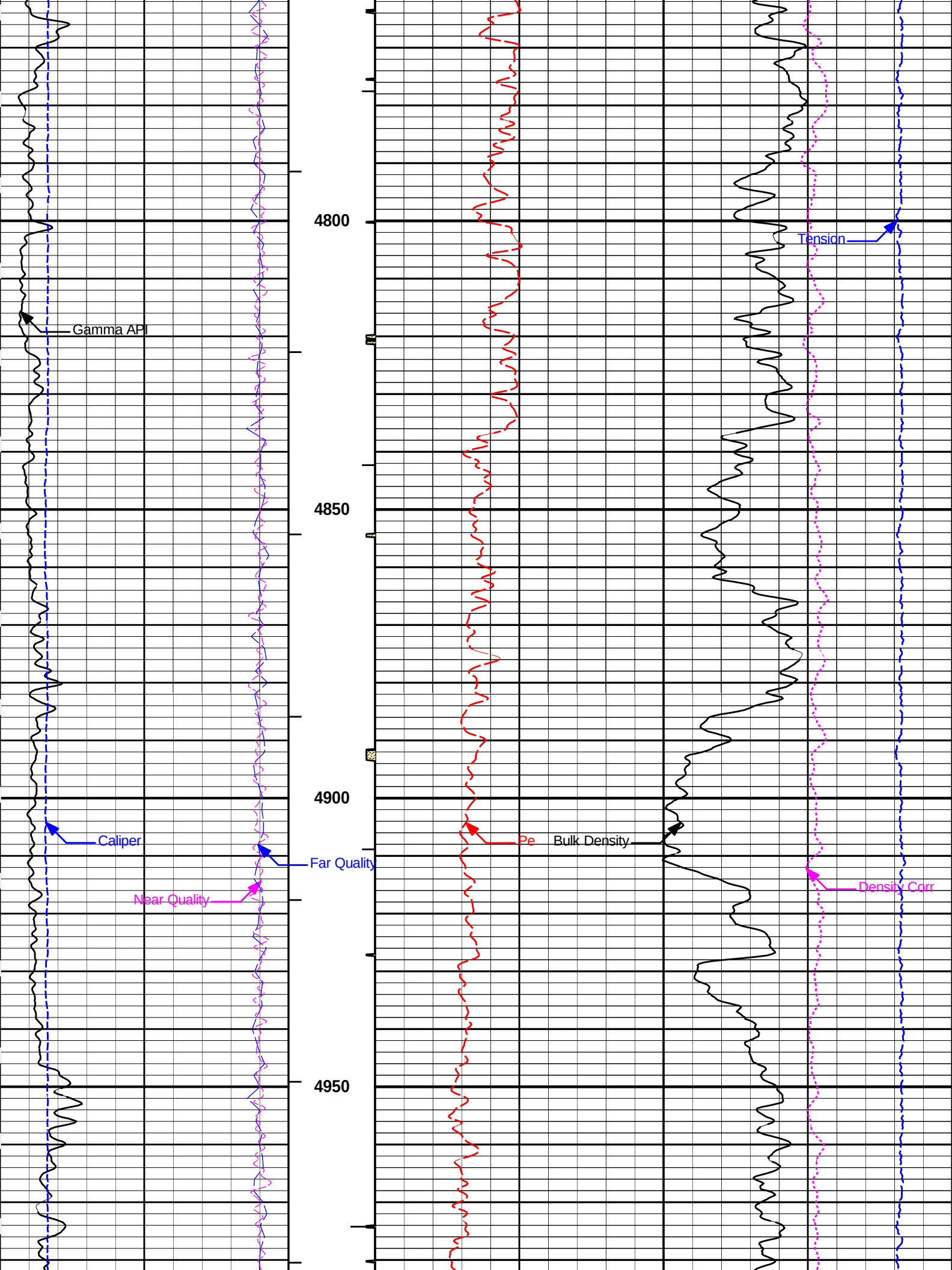

3700
3750
3800
3850
Caliper
Far Quality
Near Quality
Pe
Bulk Density
Density Cor
Tension
Gamma API

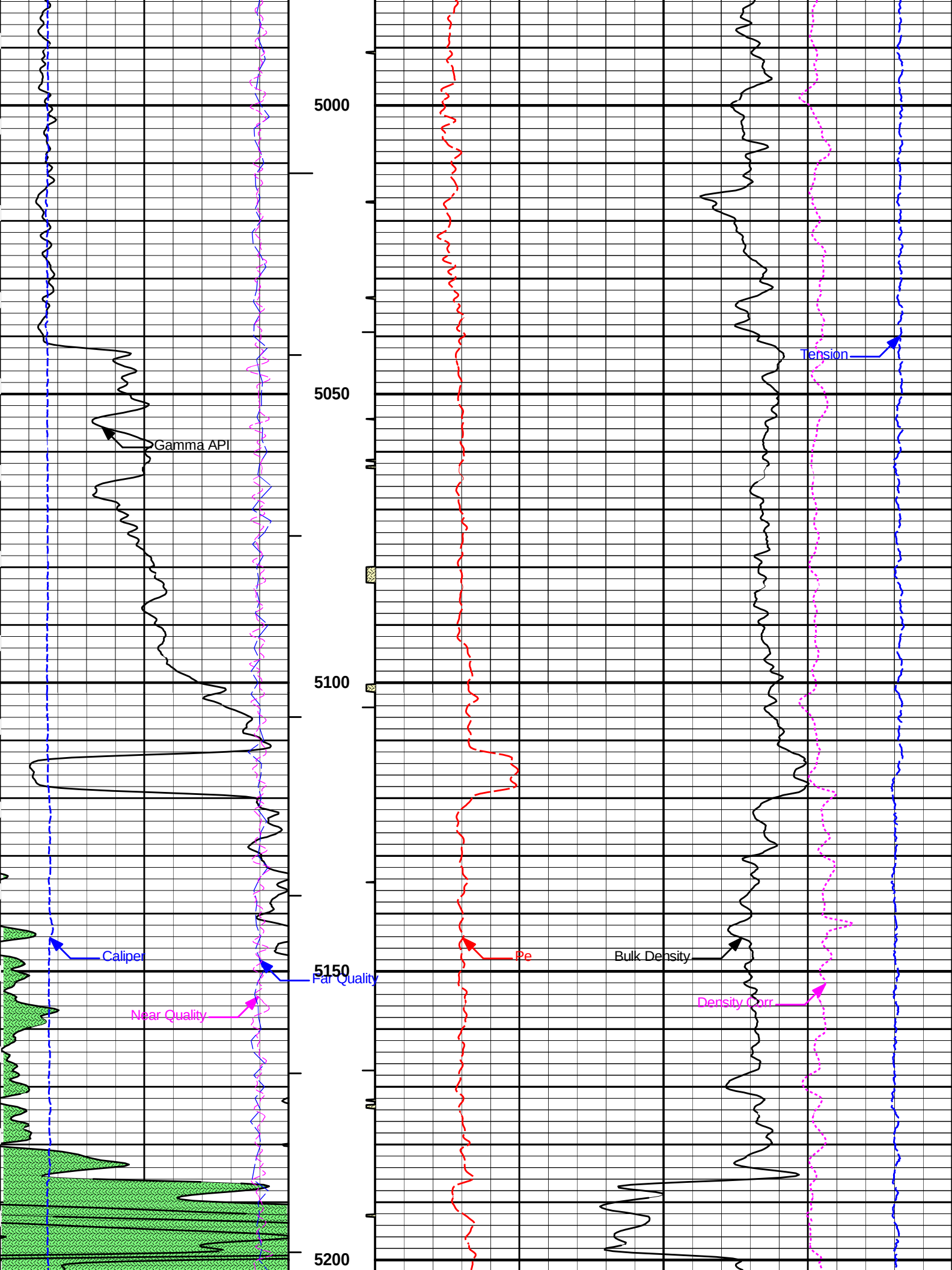

3900
3950
4000
4050
4100
Caliper
Far Quality
Near Quality
Pe
Bulk Density
Density Corr
Tension
Gamma API

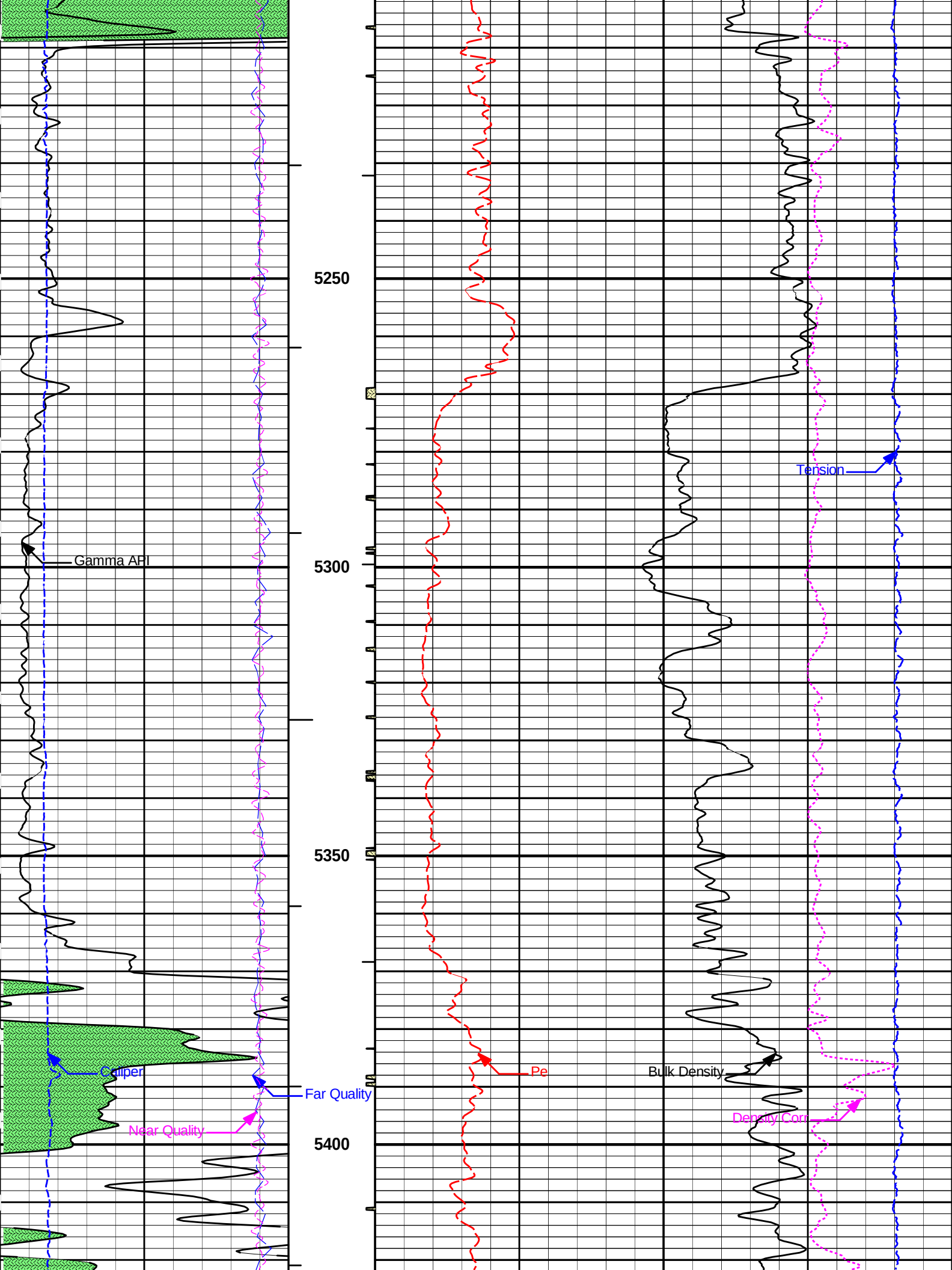

4150
4200
4250
4300
Caliper
Far Quality
Near Quality
Pe
Bulk Density
Density Corr

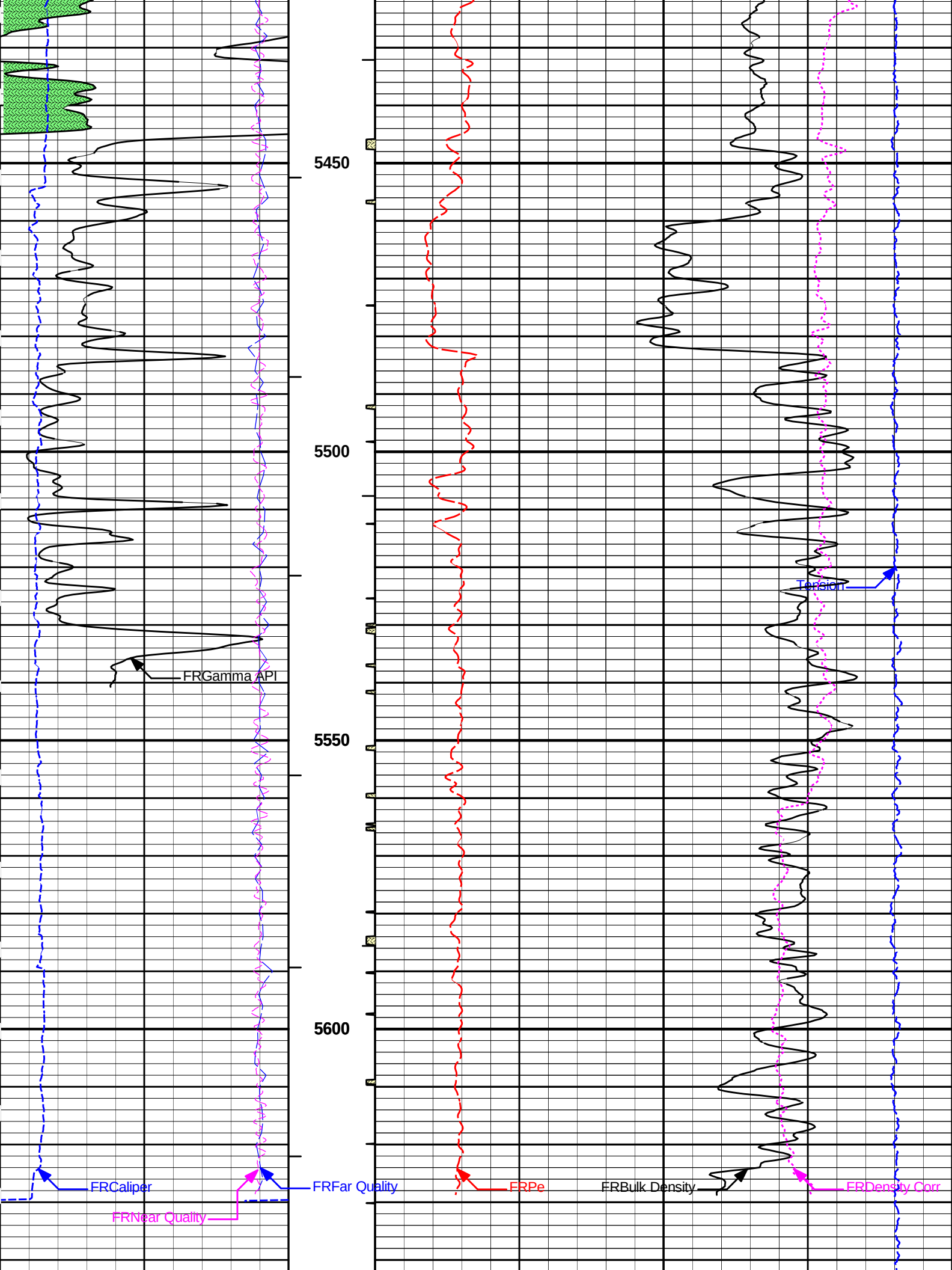

Tension
Gamma API
4350
4400
Caliper
Far Quality
Near Quality
Pe
Bulk Density
Density Corr
4450
4500

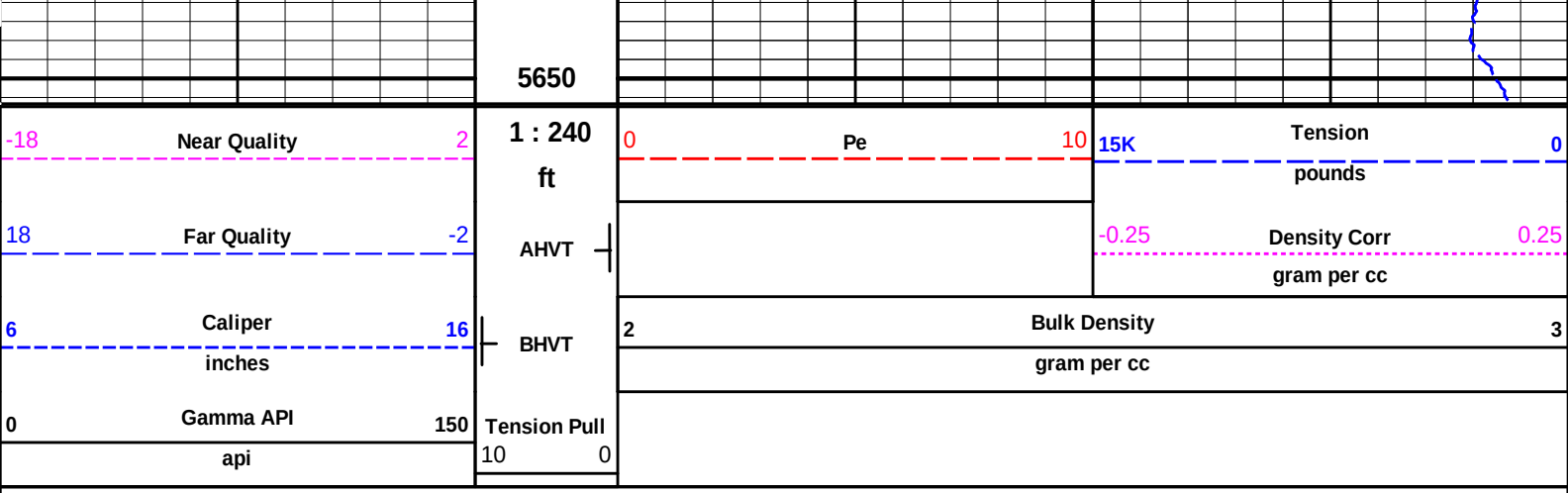

4550
4600
4650
4700
4750
Gamma API
Caliper
Near Quality
Far Quality
Tension
Pe
Bulk Density
Density Corr


4800
4850
4900
4950
Gamma API
Caliper
Near Quality
Far Quality
Pe
Bulk Density
Tension
Density Corr


5000
5050
5100
5150
5200
Gamma API
Caliper
Near Quality
Far Quality
Pe
Tension
Bulk Density
Density Corr


5250
5300
5350
5400
Gamma API
Caliper
Near Quality
Far Quality
Pe
Tension
Bulk Density
Density Corr


5450
5500
5550
5600
FRGamma API
Tension
FRCaliper
FRNear Quality
FRFar Quality
FRPe
FRBulk Density
FRDensity Corr



HALLIBURTON

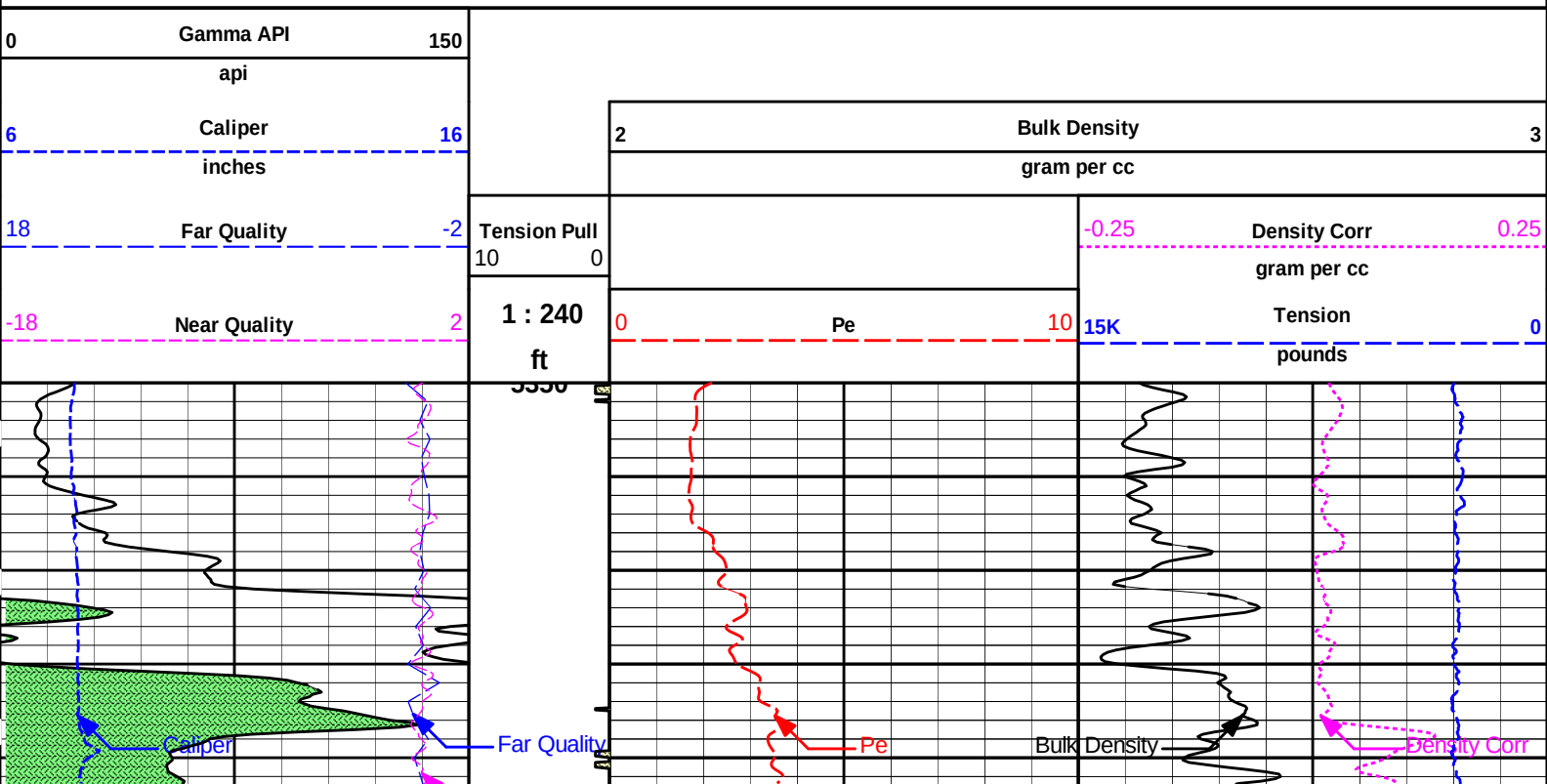
Plot Time: 17-Mar-14 08:13:23
Plot Range: 750 ft to 5652.67 ft
Data: {ActiveWell}\Well Based\MAIN_PASS\
Plot File: \\(not saved)\1_Bulk_5_mainx

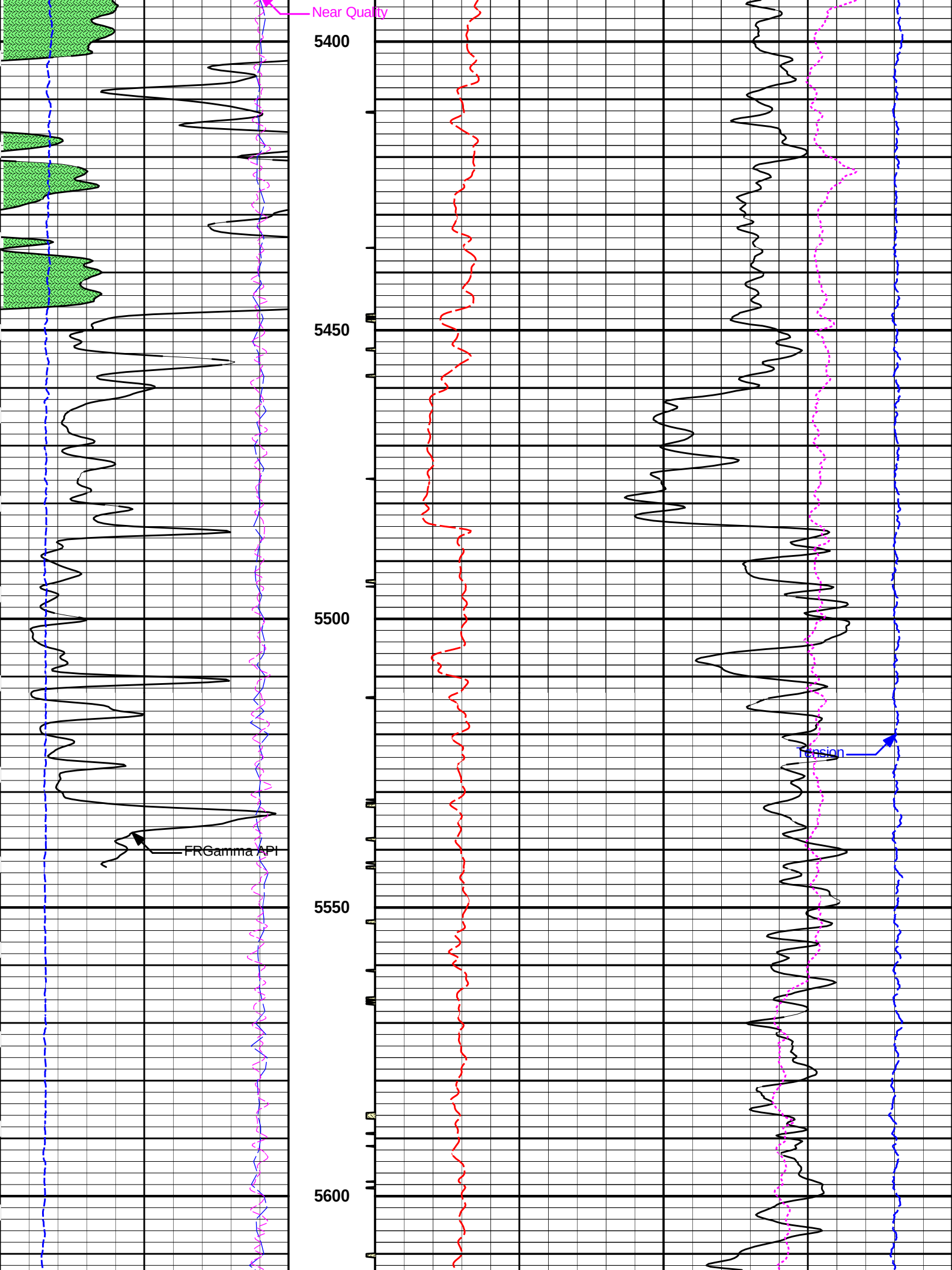
5 INCH MAIN LOG

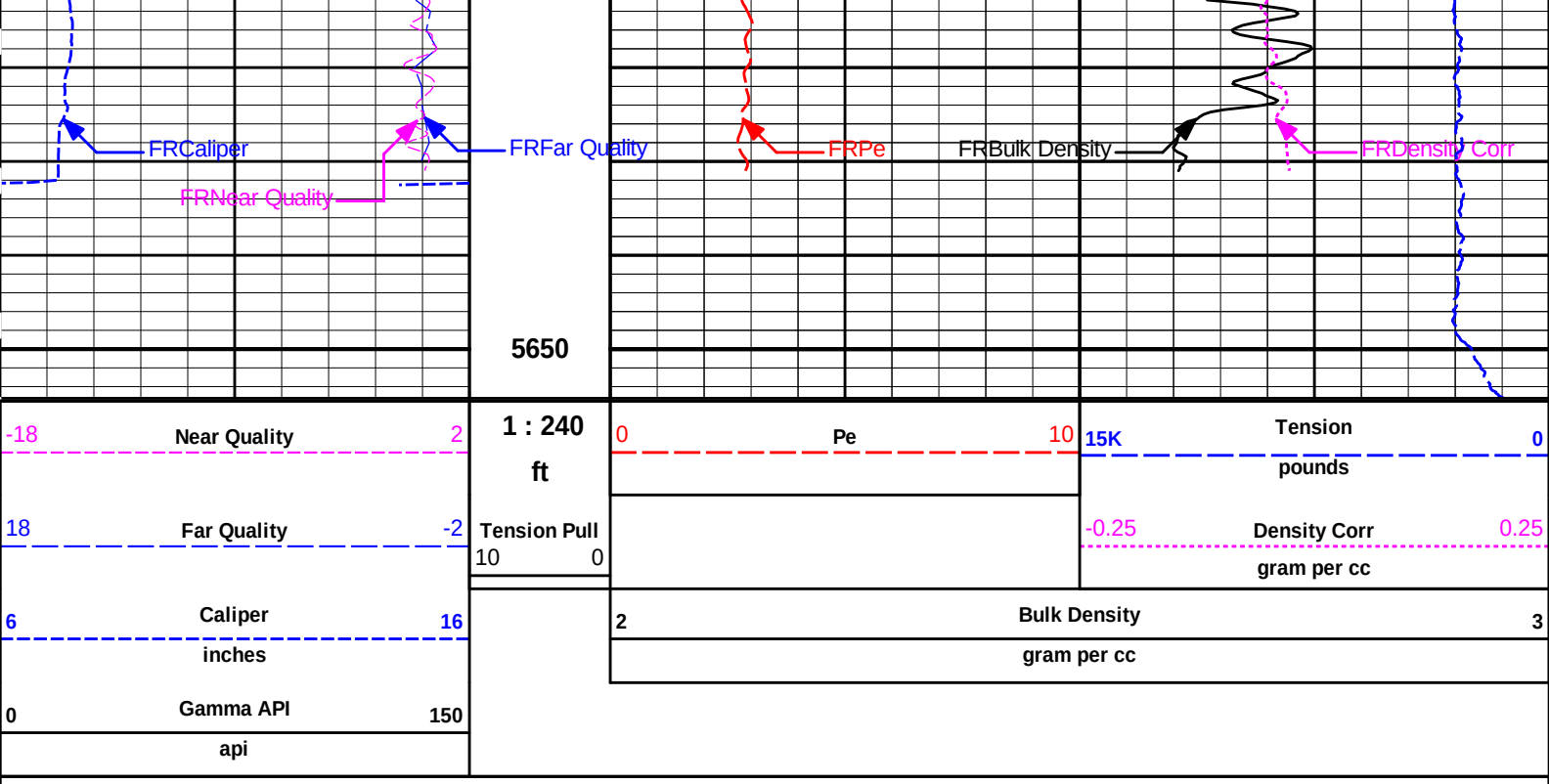
HALLIBURTON

Plot Time: 17-Mar-14 08:13:23
Plot Range: 5350 ft to 5655.25 ft
Data: {ActiveWell}\Well Based\REPEAT_SECTION\
Plot File: \\(not saved)\1_Bulk_5_rptx

REPEAT SECTION




Near Quality
5400
5450
5500
Tension
FRGamma API
5550
5600



HALLIBURTON

Plot Time: 17-Mar-14 08:13:24
Plot Range: 5350 ft to 5655.25 ft
Data: {ActiveWell}\Well Based\REPEAT_SECTION\
Plot File: \\(not saved)\1_Bulk_5_rptx

REPEAT SECTION

HALLIBURTON

PARAMETERS REPORT

Depth (ft)	Tool Name	Mnemonic	Description	Value	Units
TOP					
	SHARED	BS	Bit Size	7.875	in
	SHARED	UBS	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	MDBS	Mud Base	Water	
	SHARED	MDWT	Borehole Fluid Weight	9.500	ppg
	SHARED	WAGT	Weighting Agent	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	ST	Surface Temperature	75.0	degF
	SHARED	TD	Total Well Depth	5655.00	ft
	SHARED	BHT	Bottom Hole Temperature	140.0	degF
	SHARED	SVTM	Navigation and Survey Master Tool	IDT	

SHARED	AZTM	High Res Z Accelerometer Master Tool	IDT	
SHARED	TEMM	Temperature Master Tool	NONE	
SHARED	BHSM	Borehole Size Master Tool	ICT	
Rwa / CrossPlot	XPOK	Process Crossplot?	Yes	
Rwa / CrossPlot	FCHO	Select Source of F	Automatic	
Rwa / CrossPlot	AFAC	Archie A factor	0.6200	
Rwa / CrossPlot	MFAC	Archie M factor	2.1500	
Rwa / CrossPlot	RMFR	Rmf Reference	0.10	ohmm
Rwa / CrossPlot	TMFR	Rmf Ref Temp	75.00	degF
Rwa / CrossPlot	RWA	Resistivity of Formation Water	0.05	ohmm
Rwa / CrossPlot	ADP	Use Air Porosity to calculate CrossplotPhi	No	
GTET	GROK	Process Gamma Ray?	Yes	
GTET	GRSO	Gamma Tool Standoff	0.000	in
GTET	GEOK	Process Gamma Ray EVR?	Yes	
GTET	TPOS	Tool Position for Gamma Ray Tools.	Eccentered	
CSNG	CGOK	Process CSNG Data?	Yes	
CSNG	CENT	Is Tool Centralized?	No	
CSNG	GBOK	Gamma Enviromental Corrections?	Yes	
CSNG	BARF	Barite Correction Factor	1.00	
CSNG	ORDG	Use Fixed Gain	No	
CSNG	ORDO	Use Fixed Offset	No	
CSNG	ORDR	Use Fixed Resolution Degradation Factor	No	
ICT	CLOK	Process Caliper Outputs?	Yes	
ICT	DARM	Disable Caliper Arm	No	
ICT	ATDS	Arm To Disable	0	
ICT	REPM	Method to replace arm?	Caliper Average	
ICT	ARMV	Diameter to use for disabled arm	0.00	in
ICT	DARM	Disable Second Caliper Arm	No	
ICT	ATDS	Second Arm To Disable	0	
ICT	REPM	Method to replace second arm?	Caliper Average	
ICT	ARMV	Diameter to use for second disabled arm	0.00	in
ICT	NAVS	Navigation Source Tool	IDT	
ICT	CL1O	Radius 1 Offset	0.0	in
ICT	CL2O	Radius 2 Offset	0.0	in
ICT	CL3O	Radius 3 Offset	0.0	in
ICT	CL4O	Radius 4 Offset	0.0	in
ICT	CL5O	Radius 5 Offset	0.0	in
ICT	CL6O	Radius 6 Offset	0.0	in
ICT	BHVC	Radius type for borehole volume calcuations	Elliptical	
IDT	WRTI	Survey Writing Interval	30	ft
IDT	SOPT	Smoothing Option	None	
WAVE Receivers	WSOK	Process WSTT?	Yes	
WAVE Receivers	AFIL	Adaptive Filtering?	No	
WAVE Receivers	PINT	Process 1 Sample and Skip	0	
WAVE Receivers	PROM	Process Mode: M=1,MX=2,MY=3,MXY=4	4	
WAVE Receivers	DTSH	Delta -T Shale	100.00	uspf
WAVE Receivers	DTMT	Delta -T Matrix Type	Limestone 47.5	
WAVE Receivers	DTFL	Delta -T Fluid	189.00	uspf

	WAVE Receivers	RHOM	Matrix Density	2.7100	g/cc
	WAVE Receivers	RHOF	Fluid Density	1.0000	g/cc
	WAVE Receivers	SMTH	Semblance Threshold	0.25	
	WAVE Receivers	VPVS	VPVS Ratio for Porosity	1.40	
	WAVE Receivers	APEQ	Acoustic Porosity Equation	Wylie	
	WAVE Receivers	NAVS	Navigation Source Tool	IDT	
	DSNT	DNOK	Process DSN?	Yes	
	DSNT	DEOK	Process DSN EVR?	Yes	
	DSNT	NLIT	Neutron Lithology	Limestone	
	DSNT	DNSO	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.250	in
	DSNT	DNTP	Temperature Correction Type	None	
	DSNT	DPRS	DSN Pressure Correction Type	None	
	DSNT	SHCO	View More Correction Options	No	
	DSNT	UTVD	Use TVD for Gradient Corrections?	No	
	DSNT	LHWT	Logging Horizontal Water Tank?	No	
	SDLT	CLOK	Process Caliper Outputs?	Yes	
	SDLT Pad	DNOK	Process Density?	Yes	
	SDLT Pad	DNOK	Process Density EVR?	Yes	
	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
	Microlog Pad	MLOK	Process MicroLog Outputs?	Yes	
	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	RMIN	Maximum Resistivity for MAP	200.00	ohmm
	ACRt Sonde	THQY	Threshold Quality	0.50	
	ACRt Sonde	MRFX	Fixed mud resistivity	2000	ohmm
BOTTOM					

Data: BLUE_SWD_1_35\0003 TRIPLE_CSNG\002 17-Mar-14 01:46 Up @5653.0f **Date: 17-Mar-14 03:51:31**

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name:	**GTET - 11013114**	**Reference Calibration Date:**	**12-Mar-14 09:20:13**
Engineer:	**Jeremy Cothren**	**Calibration Date:**	**17-Mar-14 06:39:24**
Software Version:	**WL INSITE R3.8.12 (Build 3)**	**Calibration Version:**	**1**

Calibrator Source S/N: 150

Calibrator API Reference:264.00 api

Equivalent Calibrator API Reference:268.6 api

Measurement	Measured	Calibrated	Units
Background	22.8	21.5	api
Background + Calibrator	302.6	285.5	api
Calibrator	262.7	264.0	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name: GTET - 11013114 **Reference Calibration Date:** 17-Mar-14 06:39:24

Engineer: Jeremy Cothren **Calibration Date:** 17-Mar-14 06:42:09

Software Version: WL INSITE R3.8.12 (Build 3) **Calibration Version:** 1

Calibrator Source S/N: 150

Calibrator API Reference:264.00 api

Equivalent Calibrator API Reference:268.6 api

Field Verification	Shop	Field	Units
Background	21.5	21.3	api
Background + Calibrator	285.5	285.1	api
Calibrator	264.0	263.8	api

Shop	Field	Difference	Tolerance
264.0	263.8	0.2	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name: DSNT - 11020487 **Reference Calibration Date:** 29-Jan-14 11:17:00

Engineer: Jeremy Cothren **Calibration Date:** 13-Mar-14 12:38:28

Software Version: WL INSITE R3.8.12 (Build 3) **Calibration Version:** 1

Logging Source S/N: DSN382

Tank Serial Number: 10730320

Reference value assigned to Tank: 56.100

Snow Block S/N: 1001324790

Calibration Tank Water Temperature: 47 degF

Min. Tool Housing Outside Diameter: 3.625 in

CALIBRATION CONSTANTS			
Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	1.000	0.996	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):	0.2370	0.2358	0.0013	+/- 0.0020
Calibrated Ratio:	10.60	10.56	0.043	+/- 0.050

VERIFIER		
Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0783	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 - 11020487 **Reference Calibration Date:** 13-Mar-14 12:38:28

Engineer:	**Jeremy Cothren**	**Calibration Date:**	**17-Mar-14 06:50:05**
Software Version:	**WL INSITE R3.8.12 (Build 3)**	**Calibration Version:**	**1**

Logging Source S/N: DSN382

Snow Block S/N: 1001324790

NEUTRON FIELD-CHECK SUMMARY

	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0783	0.0783	-0.0000	+/- 0.0150

PASS/FAIL SUMMARY

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

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name:	**SDLT Pad - 10844772**	**Reference Calibration Date:**	**29-Jan-14 15:48:22**
Engineer:	**Jeremy Cothren**	**Calibration Date:**	**13-Mar-14 11:53:17**
Software Version:	**WL INSITE R3.8.12 (Build 3)**	**Calibration Version:**	**1**

Logging Source S/N: 5155GW

Aluminum Block S/N: 63074 Density: 2.585g/cc Pe: 3.140

Magnesium Block S/N: 63386 Density: 1.683g/cc Pe: 2.594

DENSITY CALIBRATION SUMMARY

Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0033	1.0025	0.90 - 1.10
Near Dens Gain	1.0039	1.0043	0.90 - 1.10
Near Peak Gain	0.9966	0.9965	0.90 - 1.10
Near Lith Gain	0.9830	0.9822	0.90 - 1.10
Far Bar Gain	0.9979	0.9981	0.90 - 1.10
Far Dens Gain	0.9862	0.9861	0.90 - 1.10
Far Peak Gain	0.9801	0.9801	0.90 - 1.10
Far Lith Gain	0.9606	0.9605	0.90 - 1.10
Near Bar Offset	0.1493	0.1561	NONE
Near Dens Offset	0.1249	0.1213	NONE
Near Peak Offset	0.1867	0.1868	NONE
Near Lith Offset	0.2856	0.2922	NONE
Far Bar Offset	0.1417	0.1400	NONE
Far Dens Offset	0.2293	0.2295	NONE
Far Peak Offset	0.2550	0.2549	NONE
Far Lith Offset	0.3479	0.3481	NONE
Near Bar Background	873.06	873.28	700 - 1450
Near Dens Background	283.59	283.48	230 - 480
Near Peak Background	121.59	121.59	100 - 210
Near Lith Background	152.50	152.43	125 - 260
Far Bar Background	520.57	520.63	450 - 900
Far Dens Background	203.88	204.02	175 - 345
Far Peak Background	79.45	79.40	70 - 140
Far Lith Background	83.53	83.51	75 - 145

CALIBRATION BLOCK SUMMARY

	Current	Calibrated	Control Limit

Measurement	Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.683	1.683	-0.000	+/- 0.015
Pe	2.546	2.547	0.001	+/- 0.150
ALUMINUM				
Density (g/cc)	2.585	2.585	0.000	+/- 0.01500
Pe	3.090	3.091	0.001	+/- 0.150

TOOL SUMMARY

Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	-0.0001	+/- 0.0110	-0.0013	+/- 0.0140
Magnesium Block	-0.0027	+/- 0.0110	-0.0040	+/- 0.0140
Aluminum Block	-0.0009	+/- 0.0110	0.0006	+/- 0.0140
Resolution	9.55	6.00 - 11.50	9.71	6.00 - 11.50
Internal Verifier(B+D+P+L)	1431	1200 - 2700	888	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 - 10844772 **Reference Calibration Date:** 13-Mar-14 11:53:17

Engineer: Jeremy Cothren **Calibration Date:** 17-Mar-14 06:48:11

Software Version: WL INSITE R3.8.12 (Build 3) **Calibration Version:** 1

Pad Temperature: 75.2 degF

DENSITY FIELD CALIBRATION SUMMARY

Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1430.784	1434.706	3.922	15.265
Far (B+D+P+L) cps	887.550	892.921	5.371	16.235
Near Resolution	9.55	9.57	0.020	0.50
Far Resolution	9.71	10.33	0.620	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-11013114						
Gamma Ray Calibrator	264.0	263.8	----------	0.2	+/- 9.00	api
DSNT-11030487						

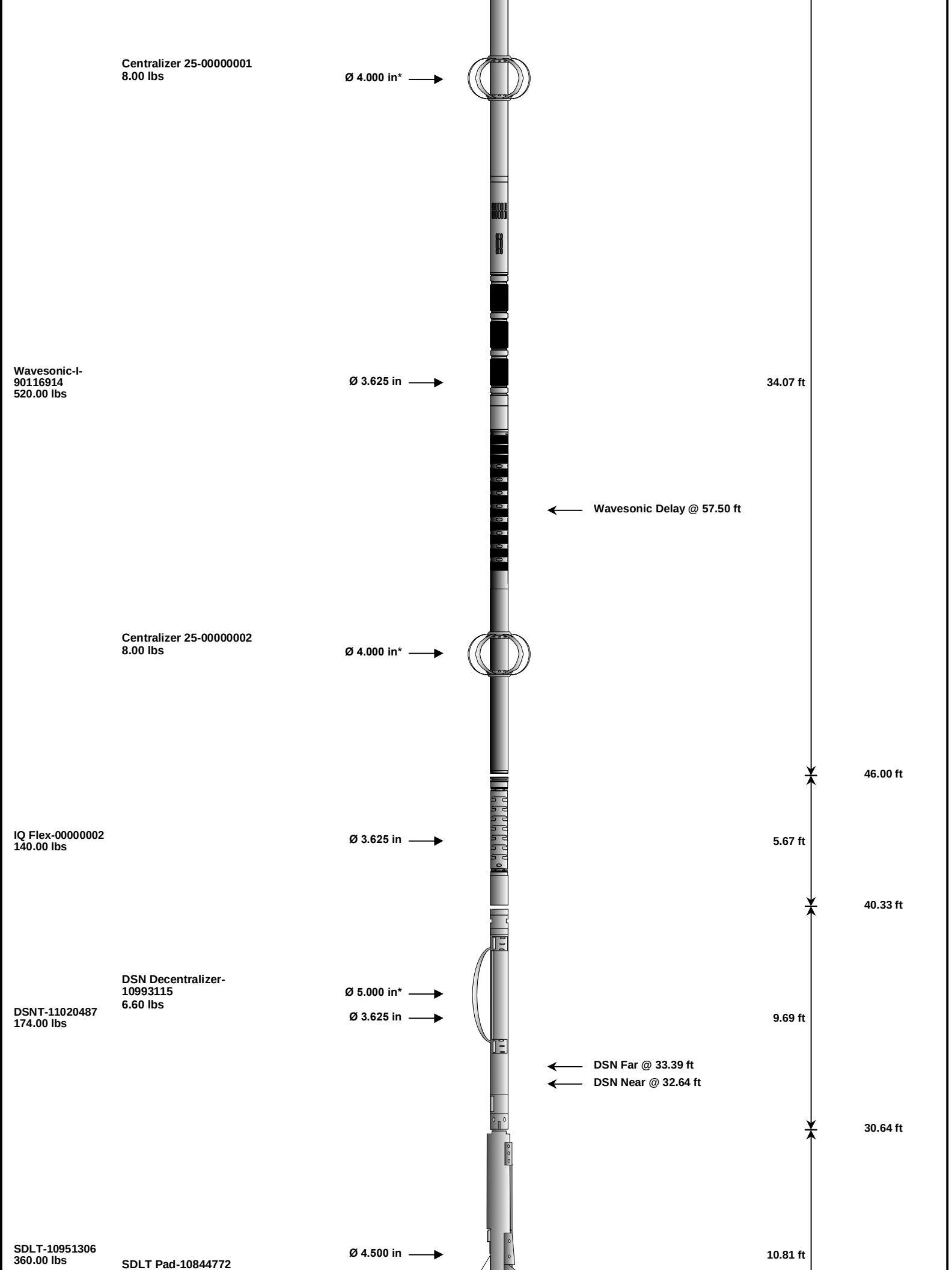
DSNT-11020487						
Snow-Block Porosity	0.0783	0.0783	----------	0.0000	+/- 0.0150	decp
SDLT Pad-10844772						
Near(B+D+P+L)	1430.784	1434.706	----------	-3.922	+/-15.265	cps
Far(B+D+P+L)	887.550	892.921	----------	-5.371	+/-16.235	cps

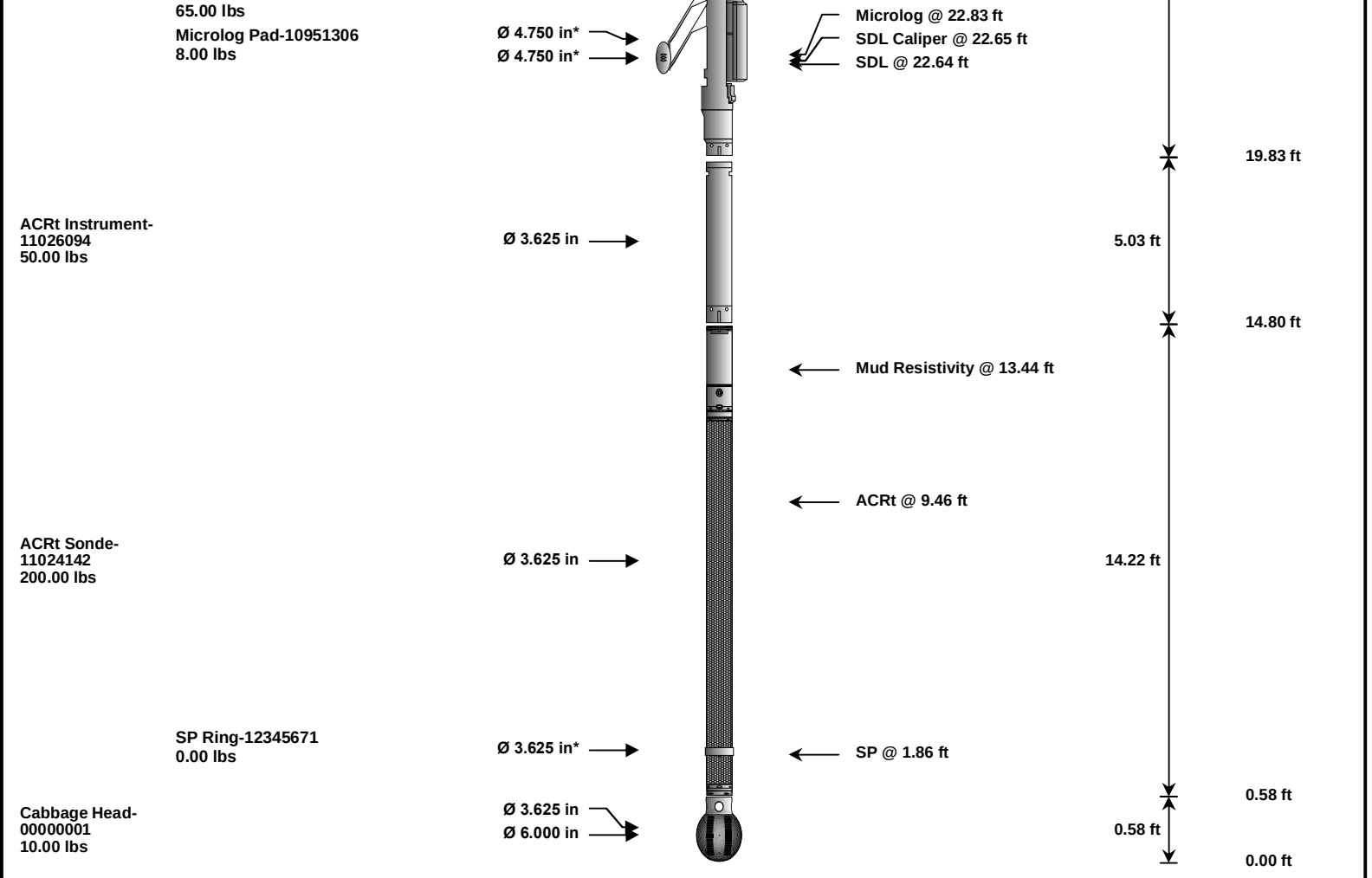
Data: BLUE_SWD_1_35\0003 TRIPLE_CSNG\IDLE **Date: 17-Mar-14 06:52:42**

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
						121.15 ft
CH_HOS-RED 37.50 lbs		Ø 2.750 in		Temperature @ 120.12 ft	3.03 ft	
						118.12 ft
XOHD-00000001 20.00 lbs		Ø 2.750 in Ø 3.625 in			0.95 ft	
						117.17 ft
GTET-11013114 165.00 lbs		Ø 3.625 in			8.52 ft	
				GammaRay @ 111.11 ft		
						108.65 ft
CSNG-10736164 114.00 lbs	UnivWearRing3.6-10736164 5.00 lbs	Ø 4.200 in* Ø 3.625 in			8.17 ft	
				CSNG @ 103.02 ft		
						100.48 ft
ICT-10978621 330.00 lbs		Ø 3.625 in			12.83 ft	
				ICT Caliper @ 90.44 ft		
						87.65 ft
IDT-10886210 150.00 lbs		Ø 3.625 in			7.58 ft	
						80.07 ft


Centralizer 25-00000001
8.00 lbs
Ø 4.000 in*
Wavesonic-I-
90116914
520.00 lbs
Ø 3.625 in
34.07 ft
Wavesonic Delay @ 57.50 ft
Centralizer 25-00000002
8.00 lbs
Ø 4.000 in*
46.00 ft
IQ Flex-00000002
140.00 lbs
Ø 3.625 in
5.67 ft
40.33 ft
DSN Decentralizer-
10993115
6.60 lbs
Ø 5.000 in*
DSNT-11020487
174.00 lbs
Ø 3.625 in
9.69 ft
DSN Far @ 33.39 ft
DSN Near @ 32.64 ft
30.64 ft
SDLT-10951306
360.00 lbs
Ø 4.500 in
10.81 ft
SDLT Pad-10844772



Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)		Accumulated Length (ft)	Max.Log. Speed (fpm)
CH_HOS	Hostile Cable Head with Load Cell	RED	37.50	3.03		118.12	300.00
XOHD	Hostile to Dits Cross Over	00000001	20.00	0.95		117.17	300.00
GTET	Gamma Telemetry Tool	11013114	165.00	8.52		108.65	60.00
CSNG	Compensated Spectral Natural Gamma	10736164	114.00	8.17		100.48	15.00
UWR3P6	Universal Wear Ring 3 5-8 inch	10736164	5.00	0.35	*	104.56	300.00
ICT	Six Independent Arm Caliper	10978621	330.00	12.83		87.65	30.00
IDT	Insite Directional Tool	10886210	150.00	7.58		80.07	30.00
WSTT	WaveSonic Insite	90116914	520.00	34.07		46.00	30.00
OBCEN	Centralizer - 25 in. Overbody	00000002	8.00	2.08	*	50.26	300.00
OBCEN	Centralizer - 25 in. Overbody	00000001	8.00	2.08	*	75.16	300.00
IQF	IQ Flex tool	00000002	140.00	5.67		40.33	300.00
DSNT	Dual Spaced Neutron	11020487	174.00	9.69		30.64	60.00
DCNT	DSN Decentralizer	10993115	6.60	5.13	*	33.97	300.00
SDLT	Spectral Density Tool	10951306	360.00	10.81		19.83	60.00
MICP	Microlog Pad	10951306	8.00	1.00	*	22.33	60.00
SDLP	Density Insite Pad	10844772	65.00	2.55	*	22.04	60.00
ACRt	Array Compensated True Resistivity Instrument Section	11026094	50.00	5.03		14.80	300.00
ACRt	Array Compensated True Resistivity Sonde Section	11024142	200.00	14.22		0.58	300.00
SP	SP Ring	12345671	0.00	0.25	*	1.86	300.00
CBHD	Cabbage Head	00000001	10.00	0.58		0.00	300.00
Total			**2,371.10**	**121.15**			

* Not included in Total Length and Length Accumulation.

Data: BLUE_SWD_1_35\0001 TRIPLE_CSNG\IDLE

Date: 16-Mar-14 22:06:52

HALLIBURTON

Plot Time: 17-Mar-14 08:13:25
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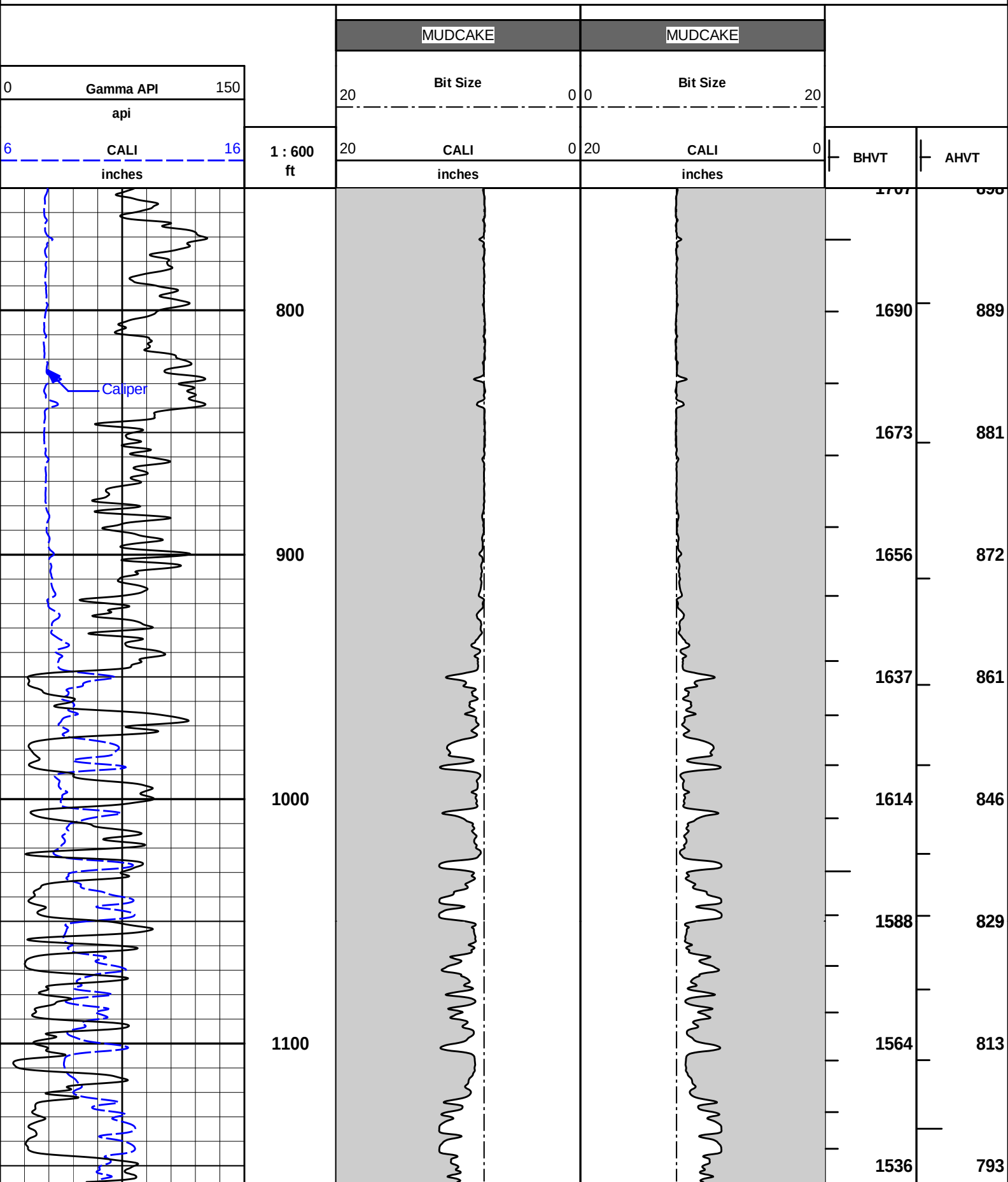
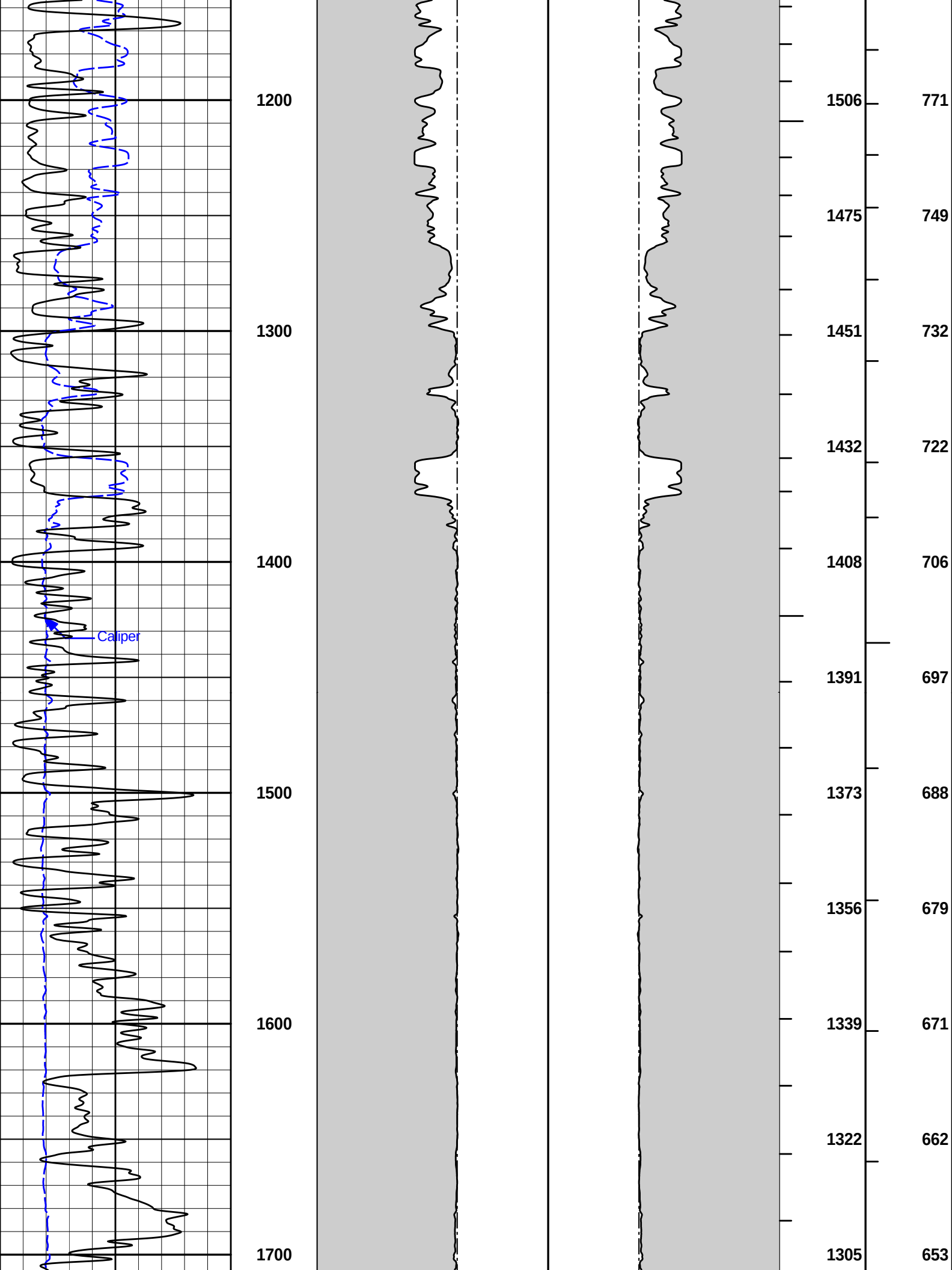
Plot File: \\-LOCAL-\(not saved)\1_AHV Plot_x

ANNULAR HOLE VOLUME PLOT

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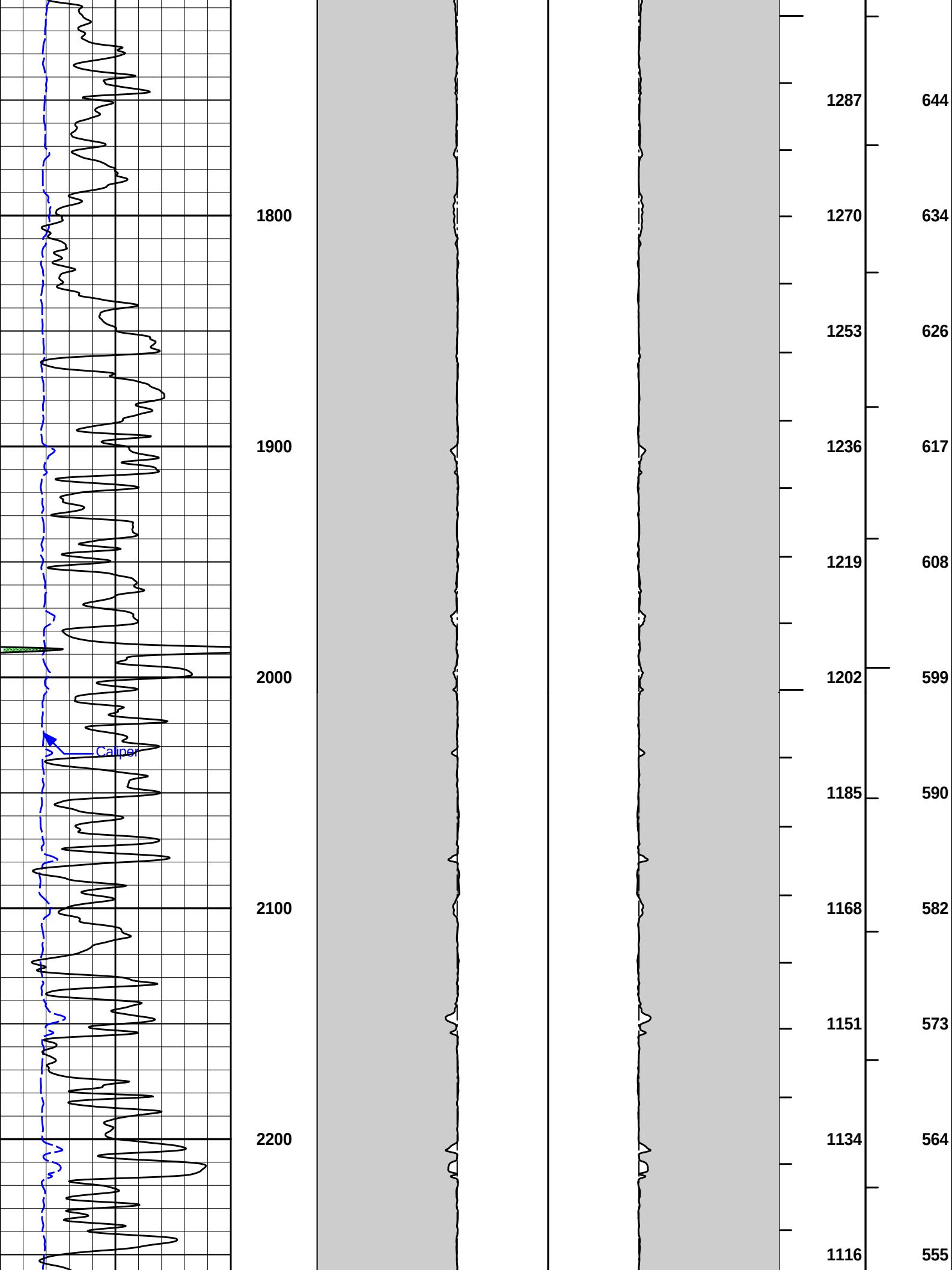
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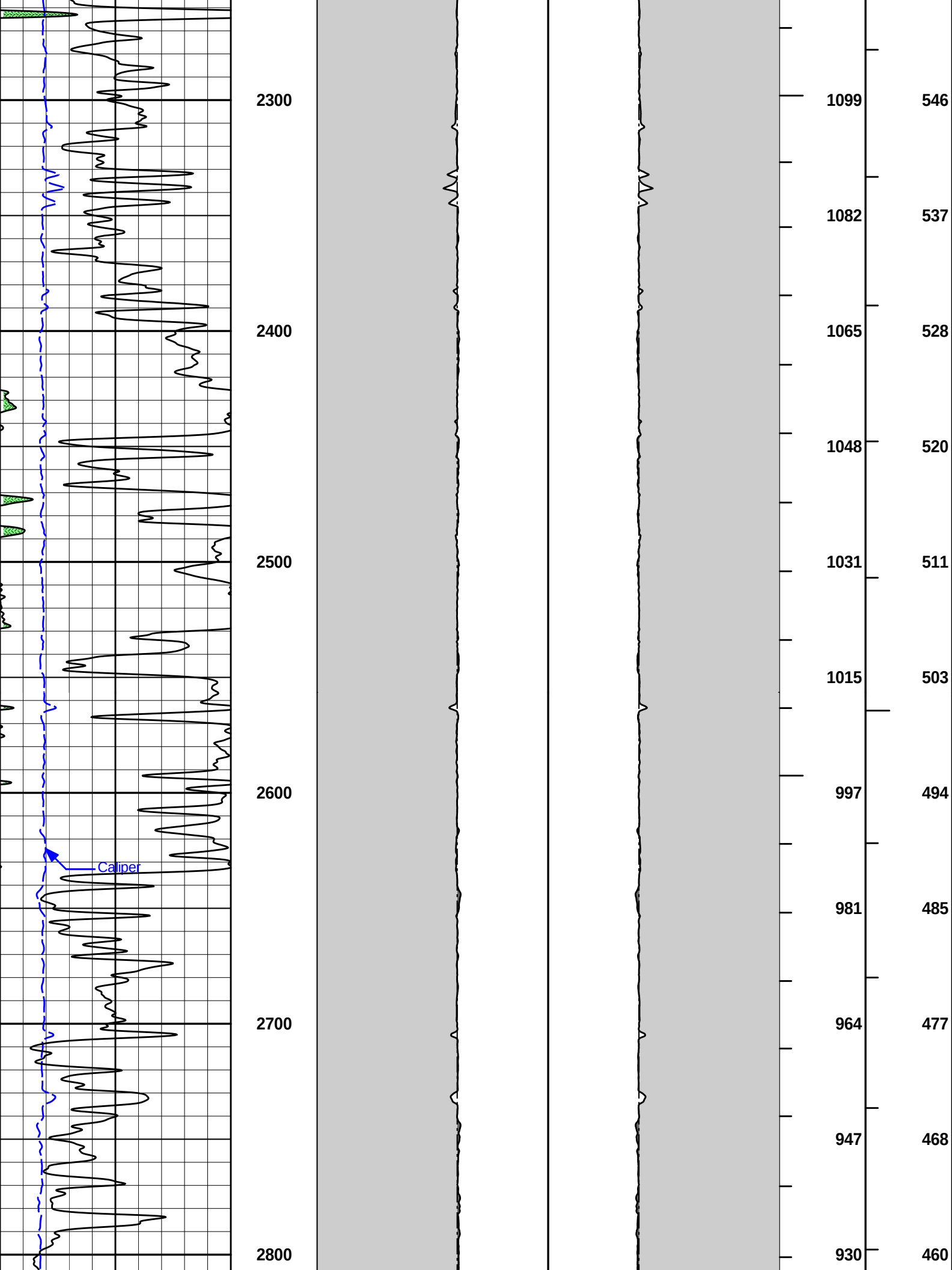
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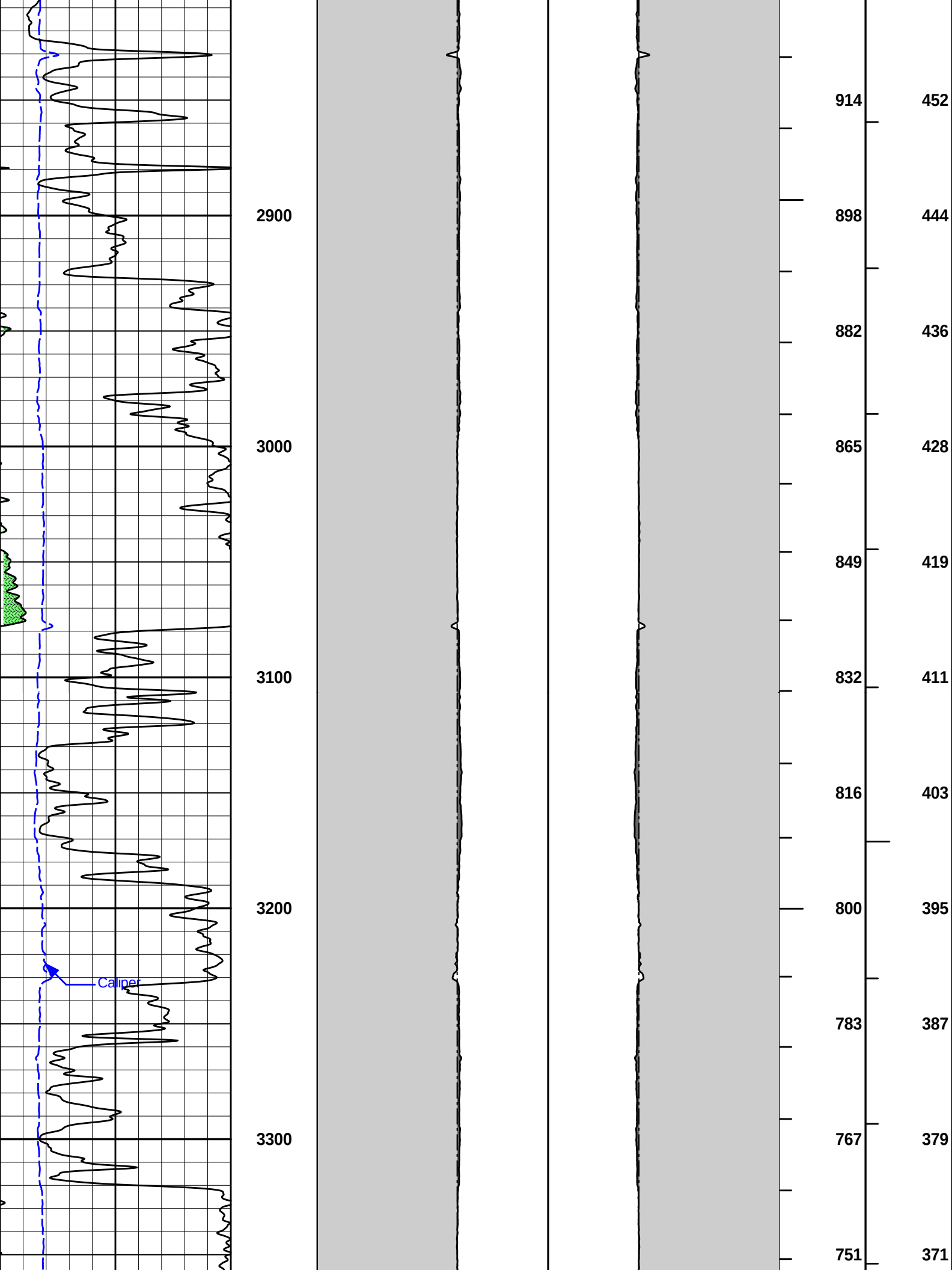
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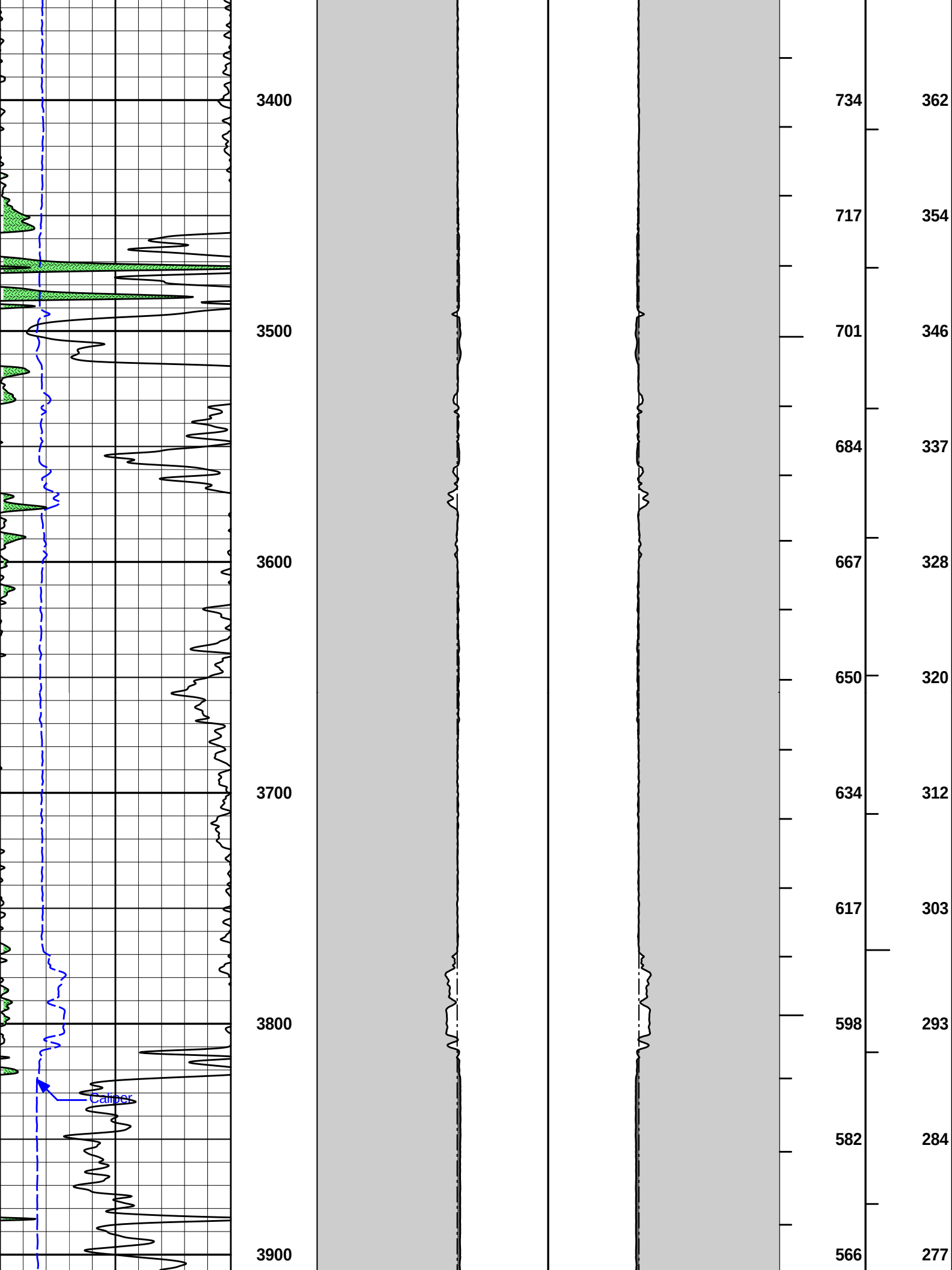
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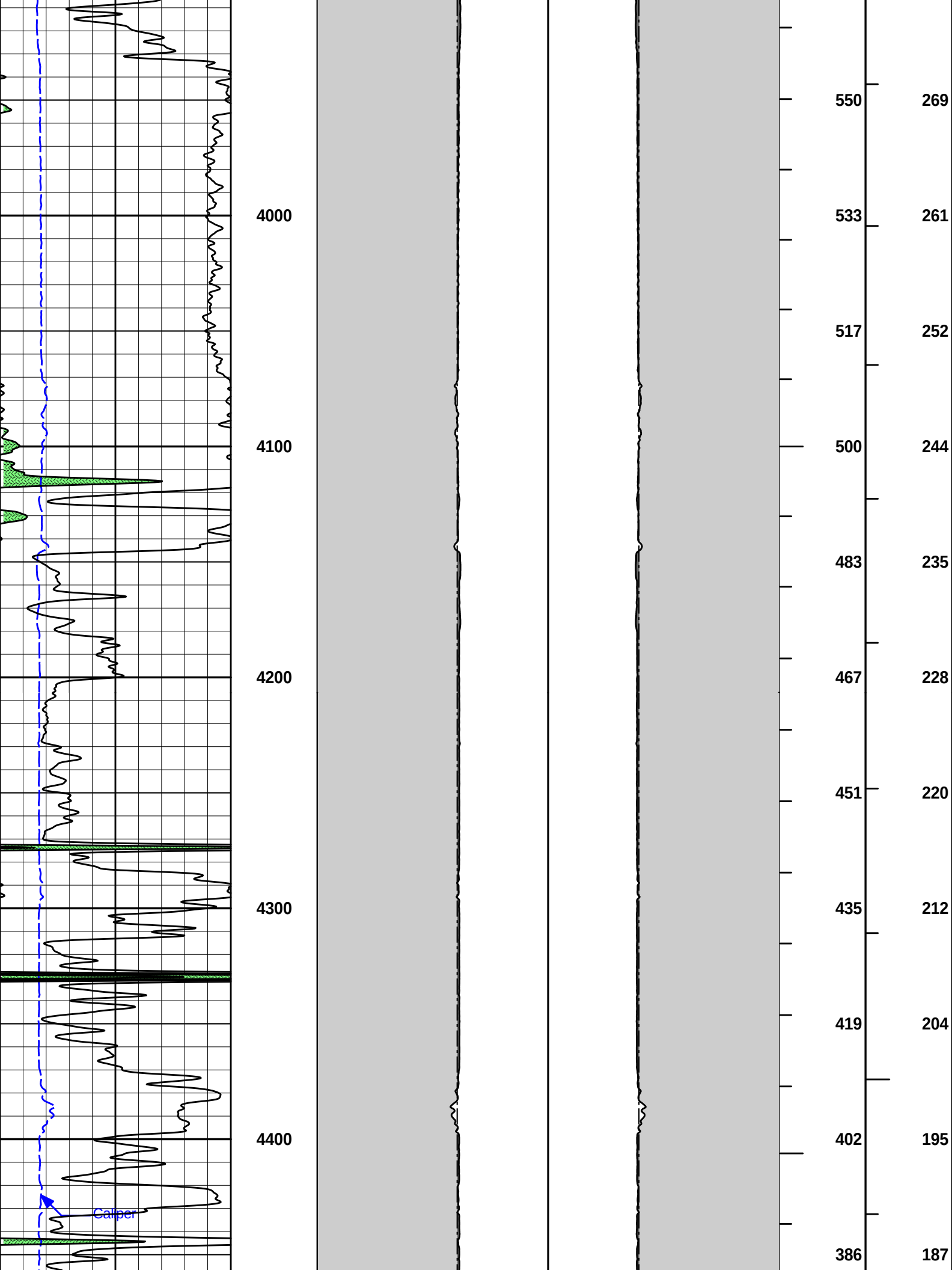
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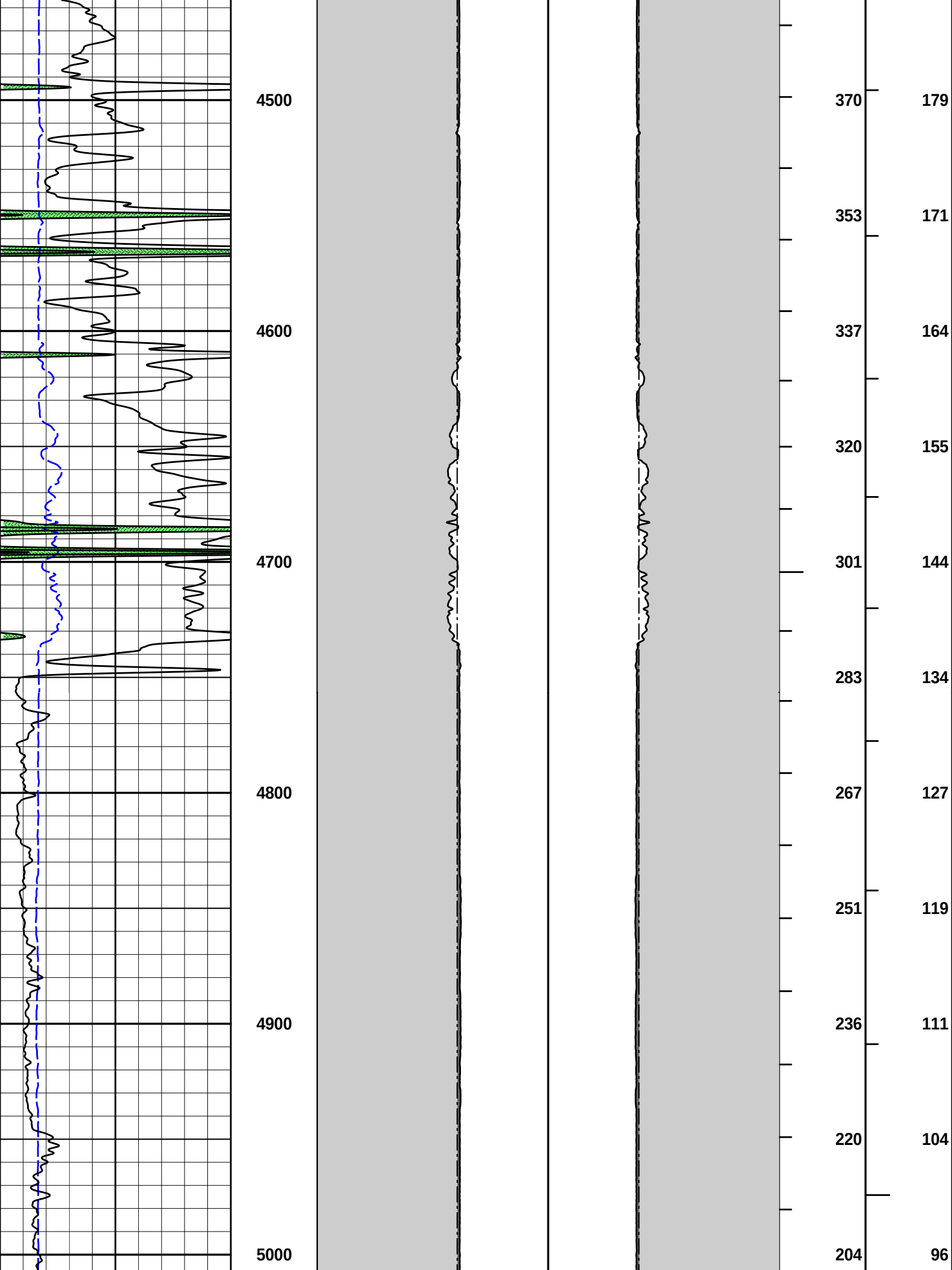
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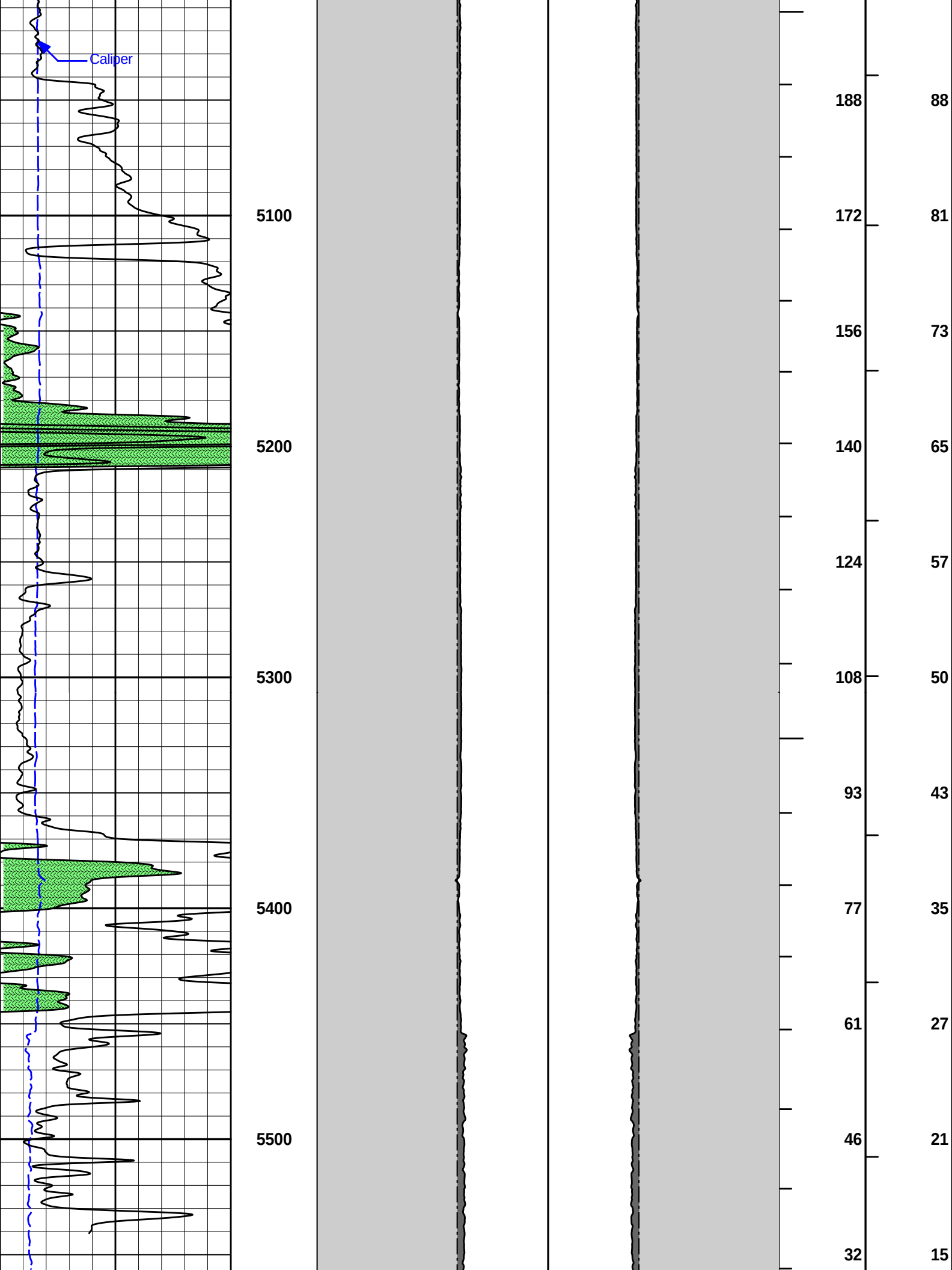
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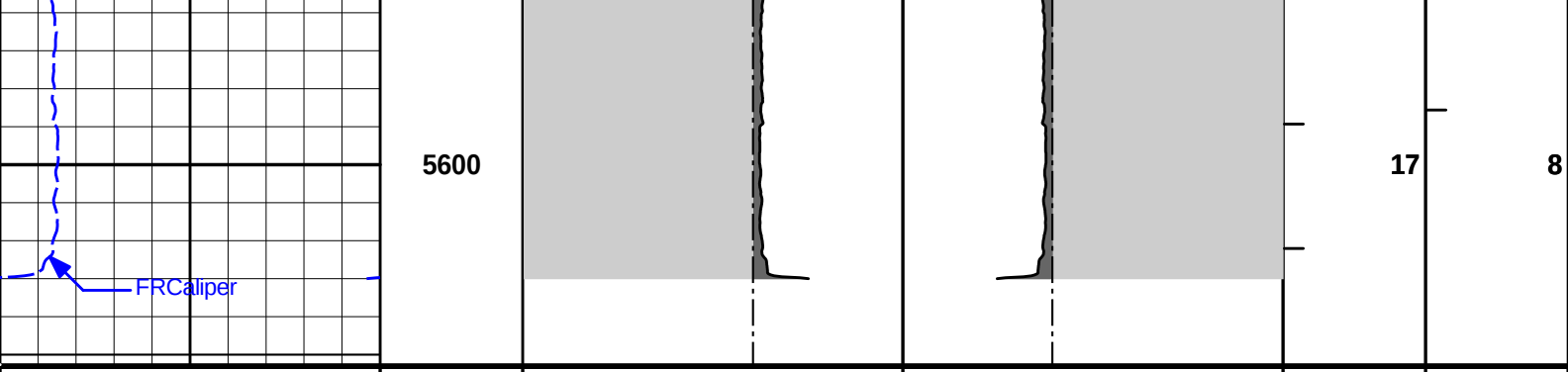

HALLIBURTON

Plot Time: 17-Mar-14 08:13:28
Plot Range: 750 ft to 5652.67 ft
Data: {ActiveWell}\Well Based\MAIN_PASS\
Plot File: \\-LOCAL-\(not saved)\1_AHV Plot_x

ANNULAR HOLE VOLUME PLOT

COMPANY	**SANDRIDGE**		
WELL	**BLUE 3408 1-35**		
FIELD	**NE WALDRON**		
COUNTY	**HARPER**	STATE	**KANSAS**

HALLIBURTON

SPECTRAL DENSITY
DUAL SPACED NEUTRON
LOG