HALLIBURTON

SPECTRAL DENSITY DUAL SPACED NEUTRON LOG

COMPANY **BEREXCO INC.**

WELL **WELLINGTON KGS #1-28**

FIELD **WELLINGTON**

COUNTY **SUMNER** STATE **KANSAS**

COMPANY BEREXCO INC.
WELL WELLINGTON KGS #1-28
FIELD WELLINGTON
COUNTY SUMNER
STATE KANSAS

API No. 15-191-22590
Location 560' FSL & 1700' FWL

Sect. 28 Twp. 31S Rge. 1W

Other Services:
ACRT
MICRO
CSNG
GEM
WSTT
XRMI
MRIL

Permanent Datum	GL	Elev. 1257.0 ft	Elev.: K.B. 1270.0 ft
Log measured from	KB	13.0 ft above perm. Datum	D.F. 1269.0 ft
Drilling measured from	KB		G.L. 1257.0 ft

Date		03-Mar-11					
Run No.		1					
Depth - Driller		5250.00 ft					
Depth - Logger		5250.0 ft					
Bottom - Logged Interval		5227.0 ft					
Top - Logged Interval		648.0 ft					
Casing - Driller		8.625 in @ 633.0 ft		@		@	
Casing - Logger		648.0 ft					
Bit Size		7.875 in		@		@	
Type Fluid in Hole		WATER BASED MUD					
Density	Viscosity	9.0 ppg	48.00 s/qt				
PH	Fluid Loss	9.00 pH	6.0 cptm				
Source of Sample		MUD PIT					
Rm @ Meas. Temperature		1.260 ohmm @ 70.00 degF		@		@	
Rmf @ Meas. Temperature		1.10 ohmm @ 70.00 degF		@		@	
Rmc @ Meas. Temperature		1.500 ohmm @ 70.00 degF		@		@	
Source Rmf	Rmc	MEAS	MEAS				
Rm @ BHT		0.85 ohmm @ 130.0 degF		@		@	
Time Since Circulation		4.0 hr					
Time on Bottom		03-Mar-11 23:12					
Max. Rec. Temperature		130.0 degF @ 5250.0 ft		@		@	
Equipment	Location	10546696	LIBERAL				
Recorded By		J. BOSH					
Witnessed By		L. WATNEY		K. CRISLER		G. KORALEGEDARA	

Fold here

Service Ticket No.: 7980390 API Serial No.: 15-191-22590 PGM Version: WL INSITE R3.2.0 (Build 7)

CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE

RESISTIVITY SCALE CHANGES

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

RESISTIVITY EQUIPMENT DATA

	Run No.	Tool Type & No.	Pad Type	Tool Pos.	Other
Run No.					
Serial No.					
Model No.					
Diameter					
Log Type					
Source Type					
Serial No.					
Strength					

EQUIPMENT DATA

GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Run No.	ONE	Run No.		Run No.	ONE	Run No.	ONE
Serial No.	11039640	Serial No.		Serial No.	I43_M69_81	Serial No.	11019643
Model No.	GTET	Model No.		Model No.	SDLT-I	Model No.	DSNT-I
Diameter	3.625	No. of Cent.		Diameter	4.5	Diameter	3.625
Detector Model No.	T-102	Spacing		Log Type	GAM-GAM	Log Type	NEU-NEU
Type	SCINT			Source Type	CS137	Source Type	AM241BE
Length	8"	LSA [Y/N]		Serial No.	5168 GW	Serial No.	DSN-424
Distance to Source	10'	FWDA [Y/N]		Strength	1.5 CI	Strength	15 CI

LOGGING DATA

GENERAL GAMMA DENSITY NEUTRON

GENERAL			GAMMA		ACOUSTIC			DENSITY			NEUTRON		
Run	Depth		Speed	Scale		Scale		Matrix	Scale		Matrix	Scale		Matrix
No.	From	To	ft/min	L	R	L	R		L	R		L	R	
ONE	648	5227	REC	0	150				30	-10	2.71	30	-10	LIME

DIRECTIONAL INFORMATION

Maximum Deviation @ KOP @

Remarks: ANNULAR HOLE VOLUME CALCULATED FOR 5.5 INCH CASING

CHLORIDES: 3000 PPM LCM: 13 LB/BBL

GPS COORDINATES: LAT: 37.19 N LONG: 97.26 W

GTET/CSNG/GEM/DSN/SDL/ACRT RAN IN COMBINATION

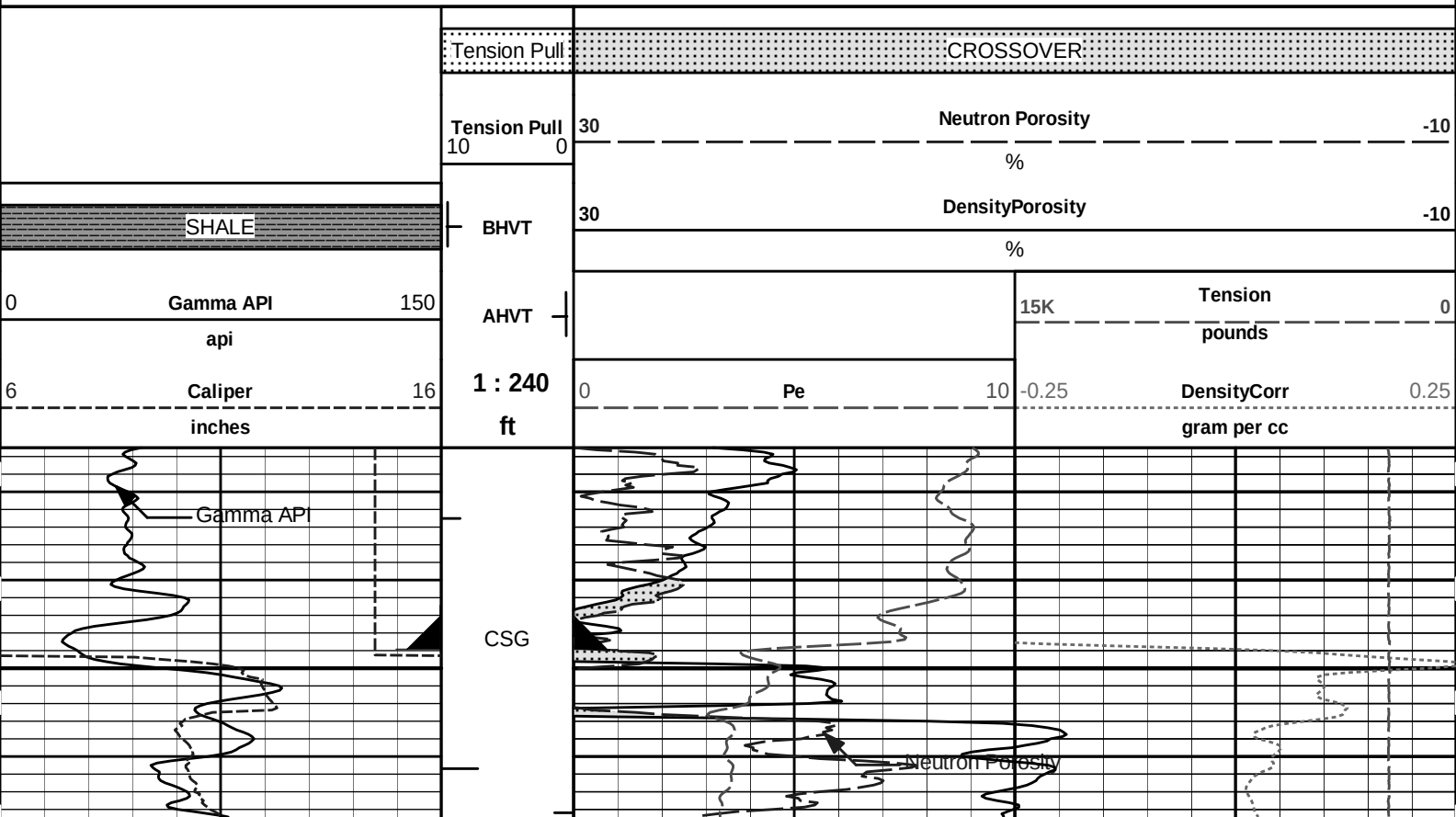
TODAY'S CREW: V. JAIME, K. KELLY

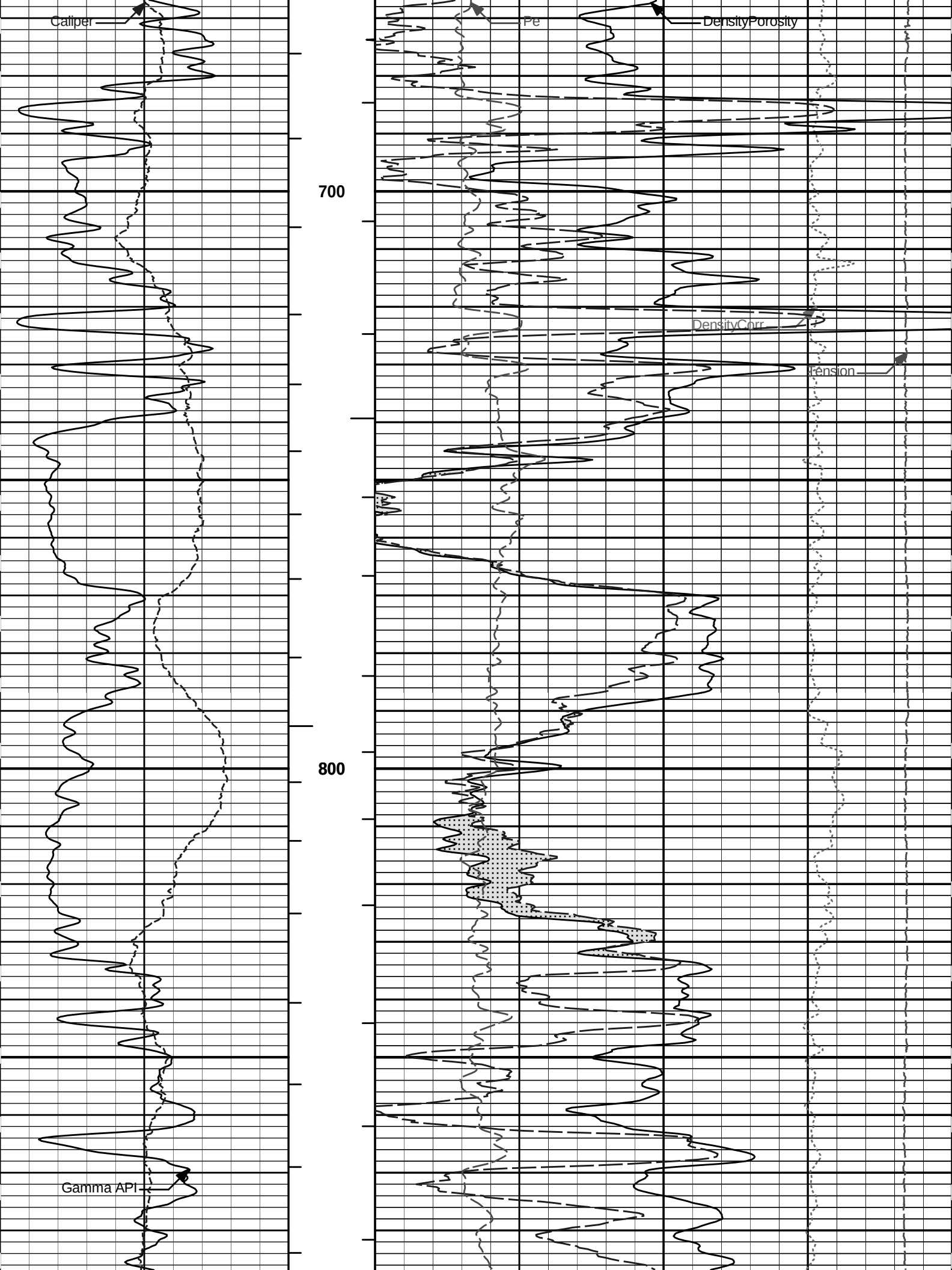
THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES, LIBERAL, KS 620-624-8123

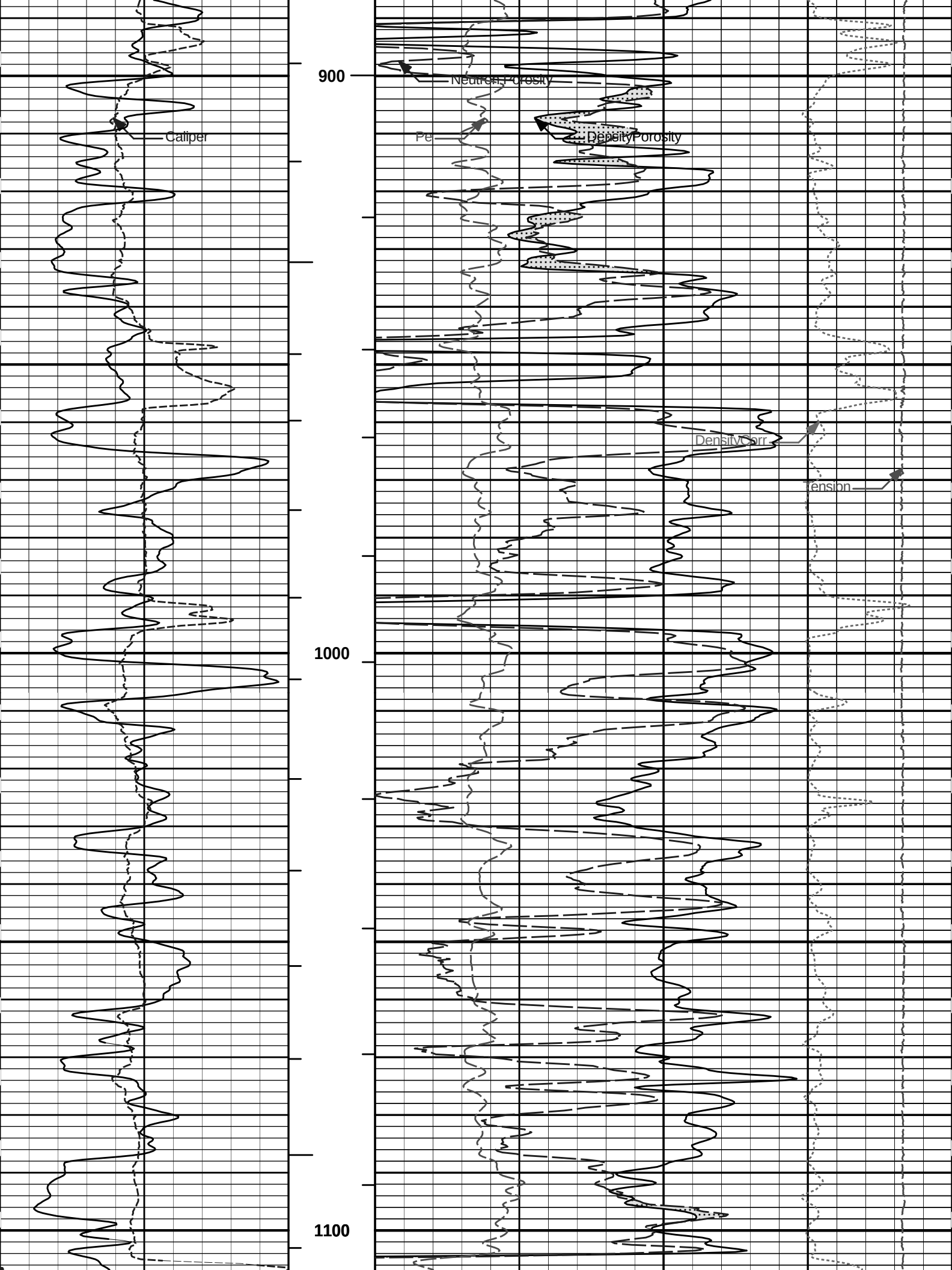
HALLIBURTON

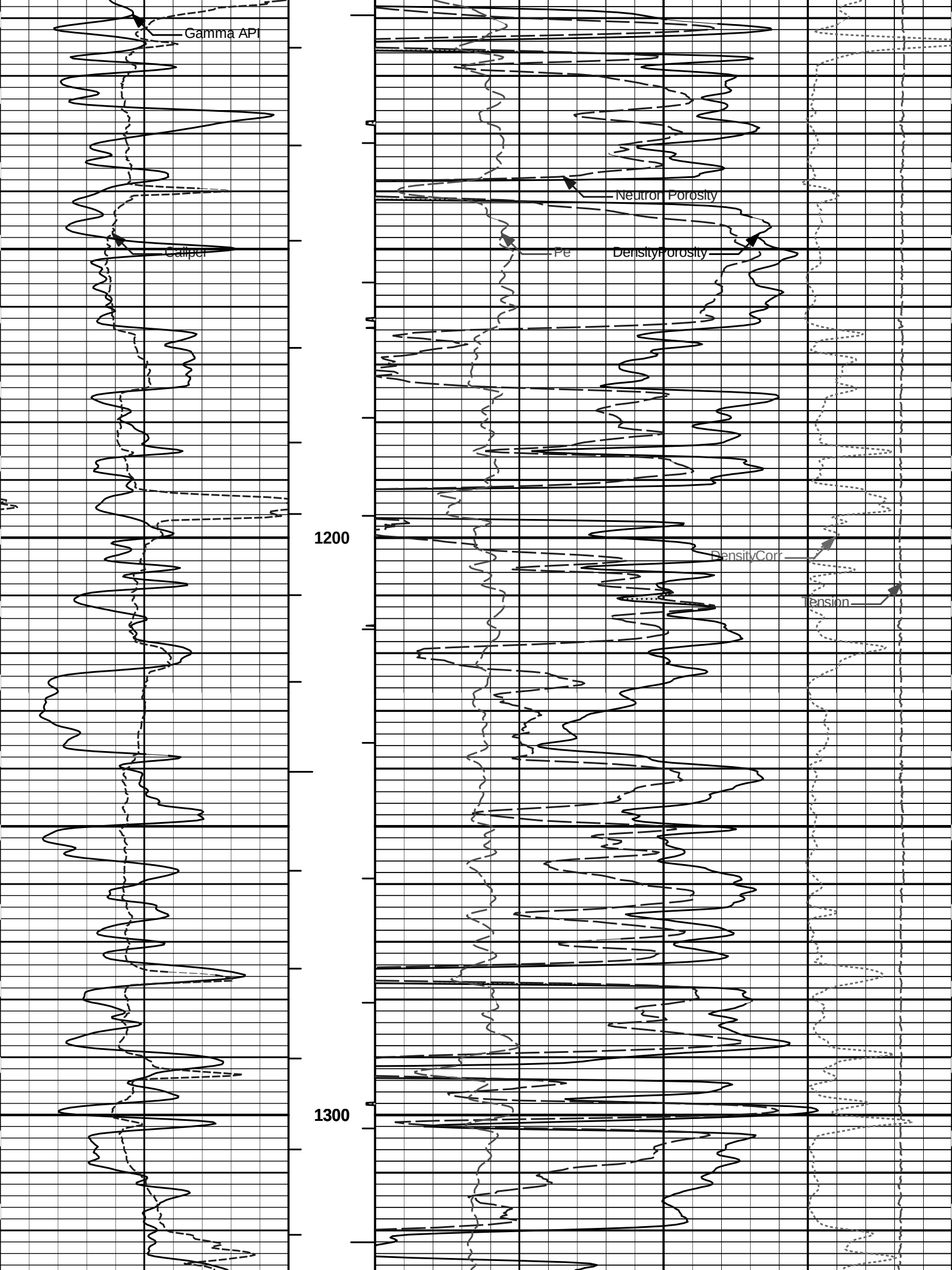
Plot Time: 04-Mar-11 08:16:26
Plot Range: 625 ft to 5254.33 ft
Data: WELLINGTON_1_28\Well Based\DAQ-0001-003
Plot File: \\PORO\Poro_IQ_5_MAIN_LIB

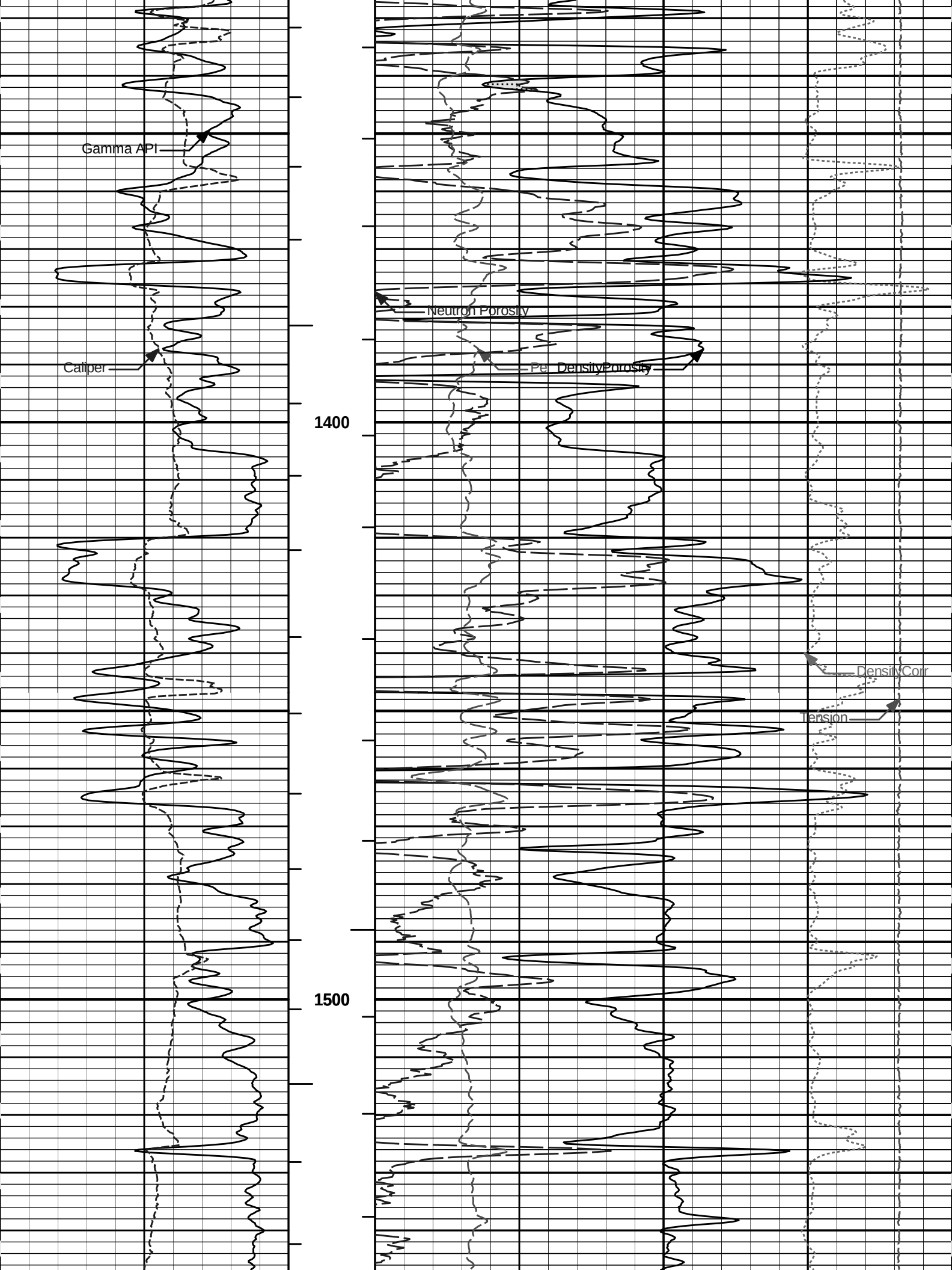
5 INCH MAIN LOG

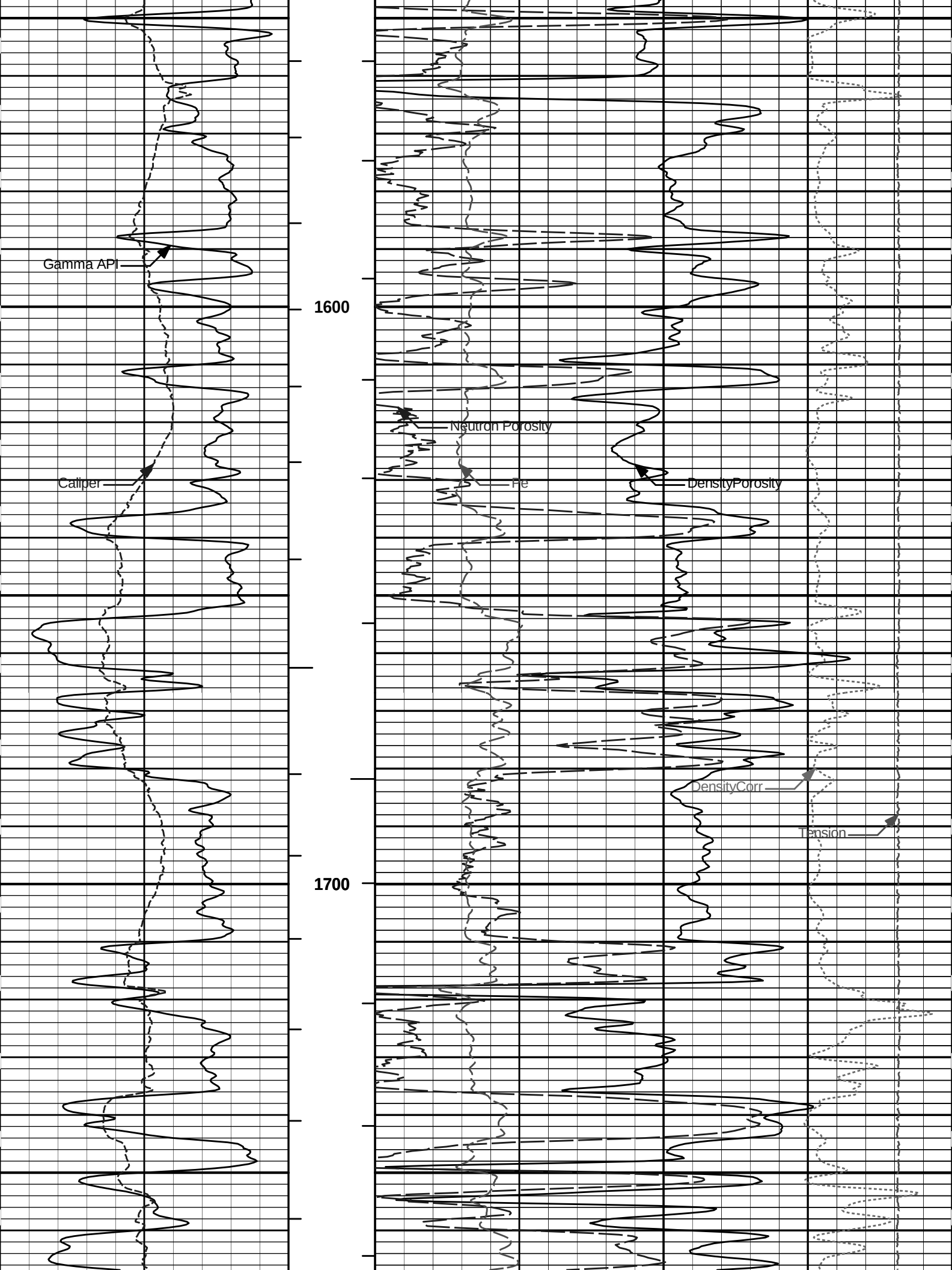


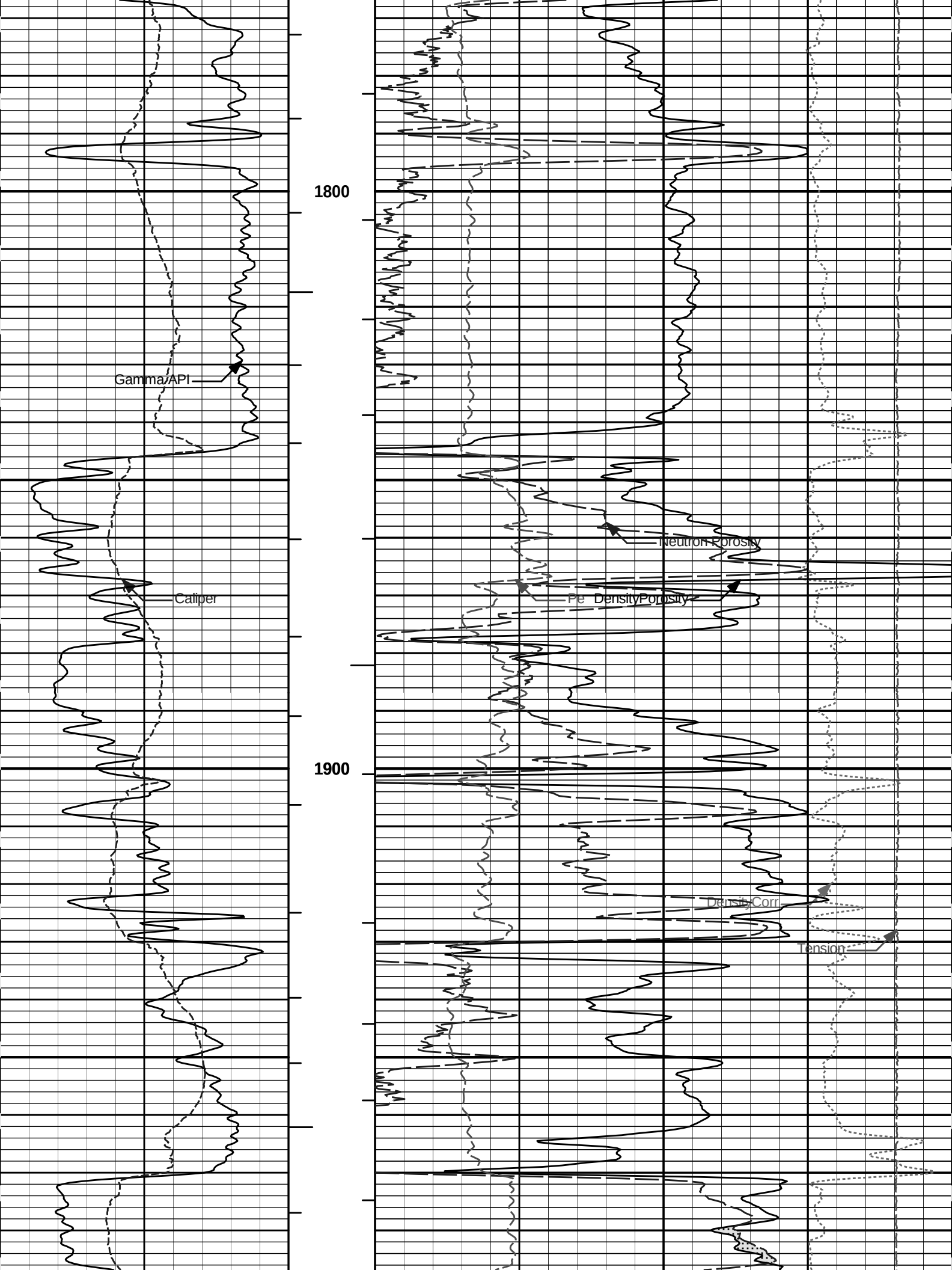

Caliper
Pe
DensityPorosity
700
DensityCorr
Tension
800
Gamma API

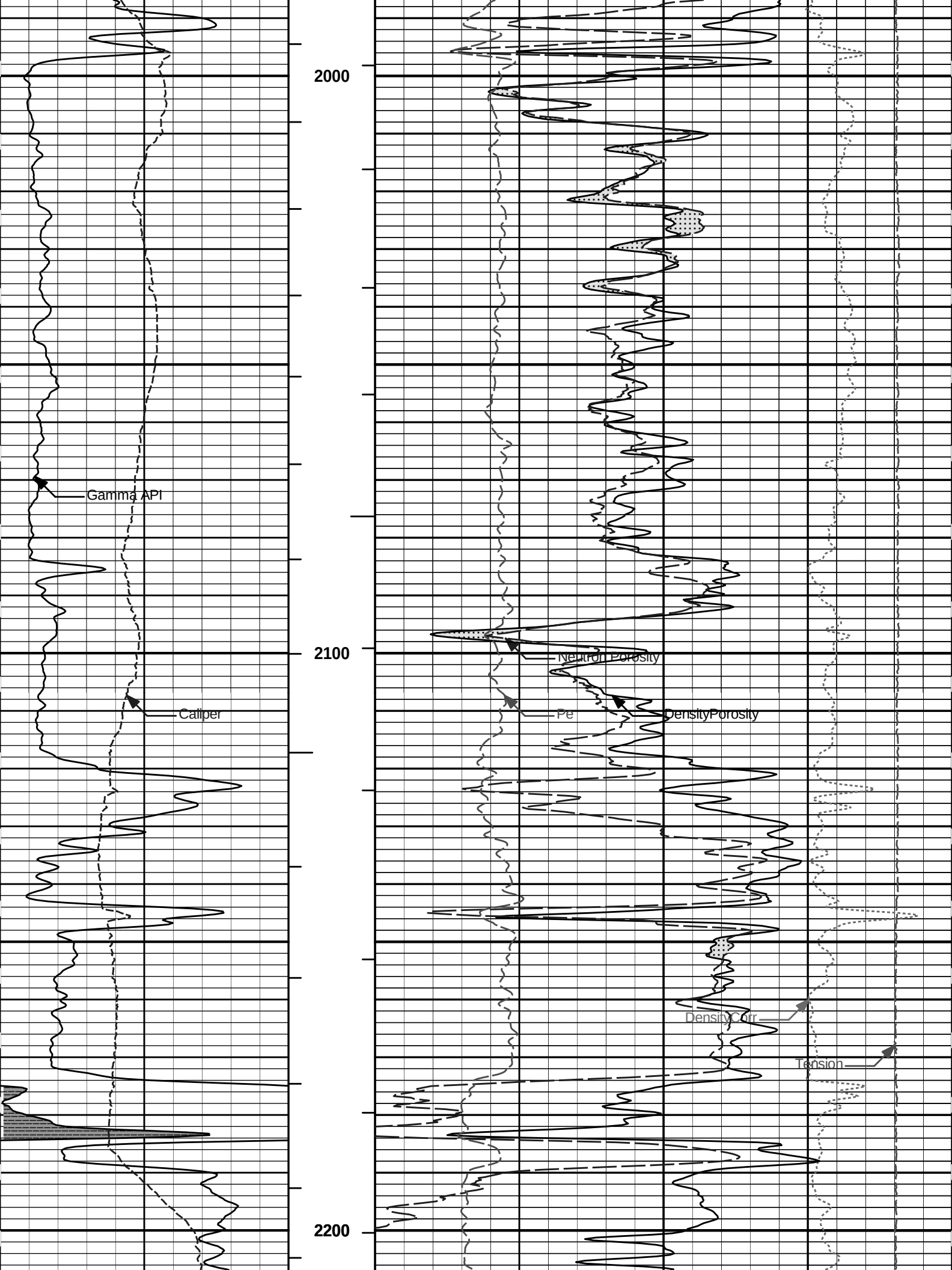

900
1000
1100
Caliper
Pe
NeutronPorosity
DensityPorosity
DensityCorr
Tension

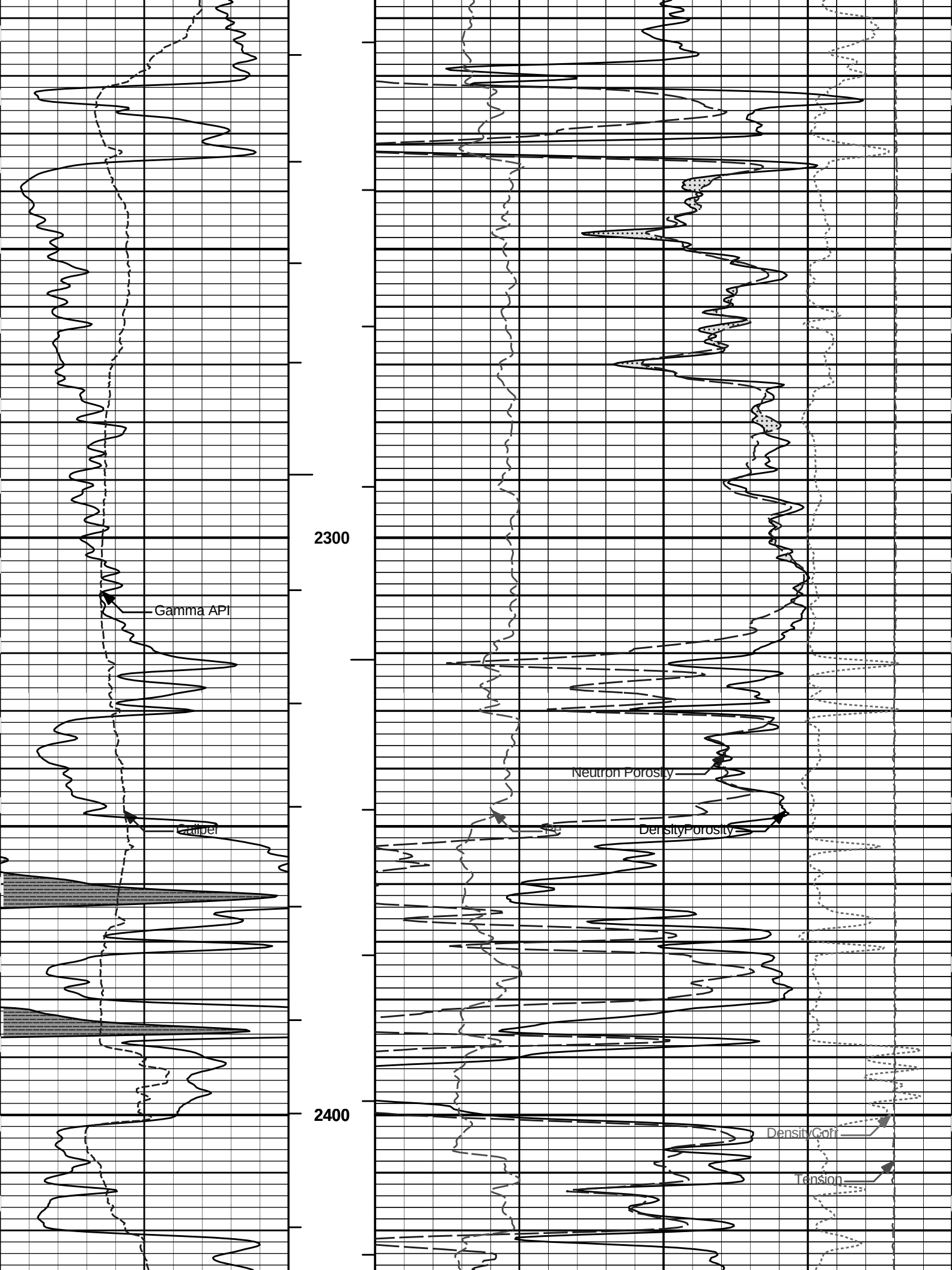

Gamma API
Caliper
Neutron Porosity
Pe
DensityPorosity
1200
DensityCorr
Tension
1300

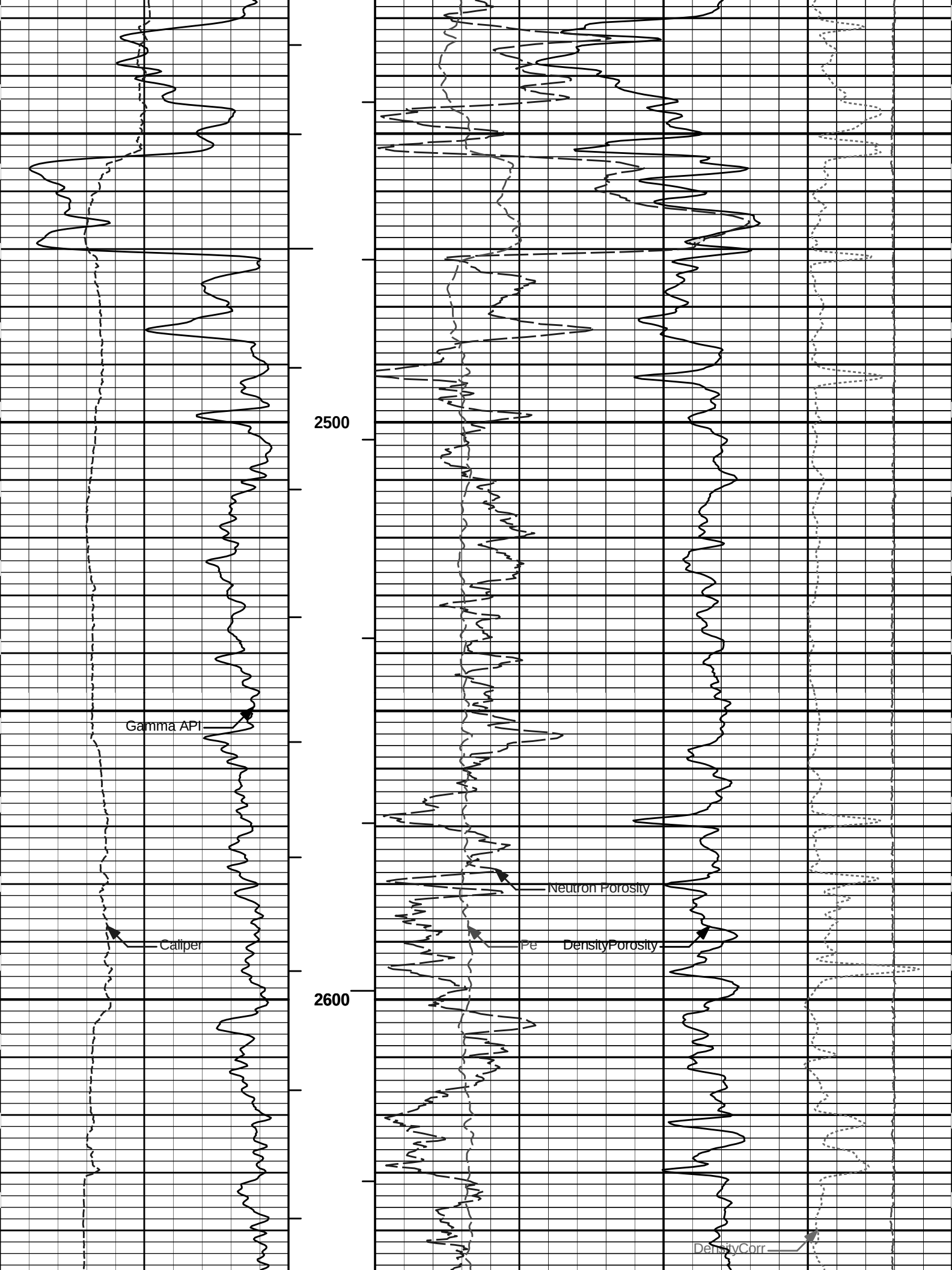

Gamma API
Caliper
Neutron Porosity
Pe
DensityPorosity
DensityCorr
Tension
1400
1500

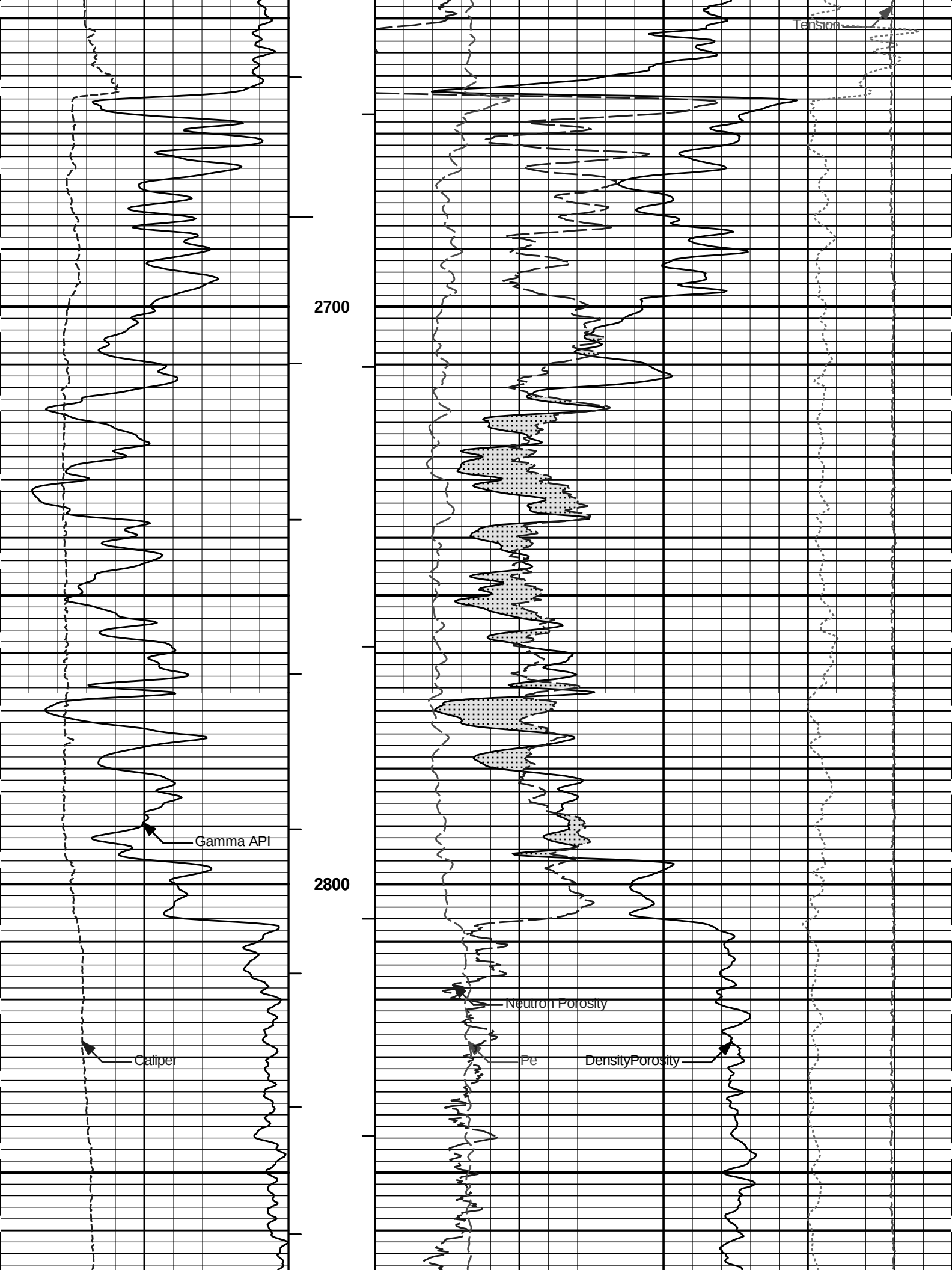

Gamma API
Caliper
1600
Neutron Porosity
Pe
DensityPorosity
DensityCorr
Tension
1700

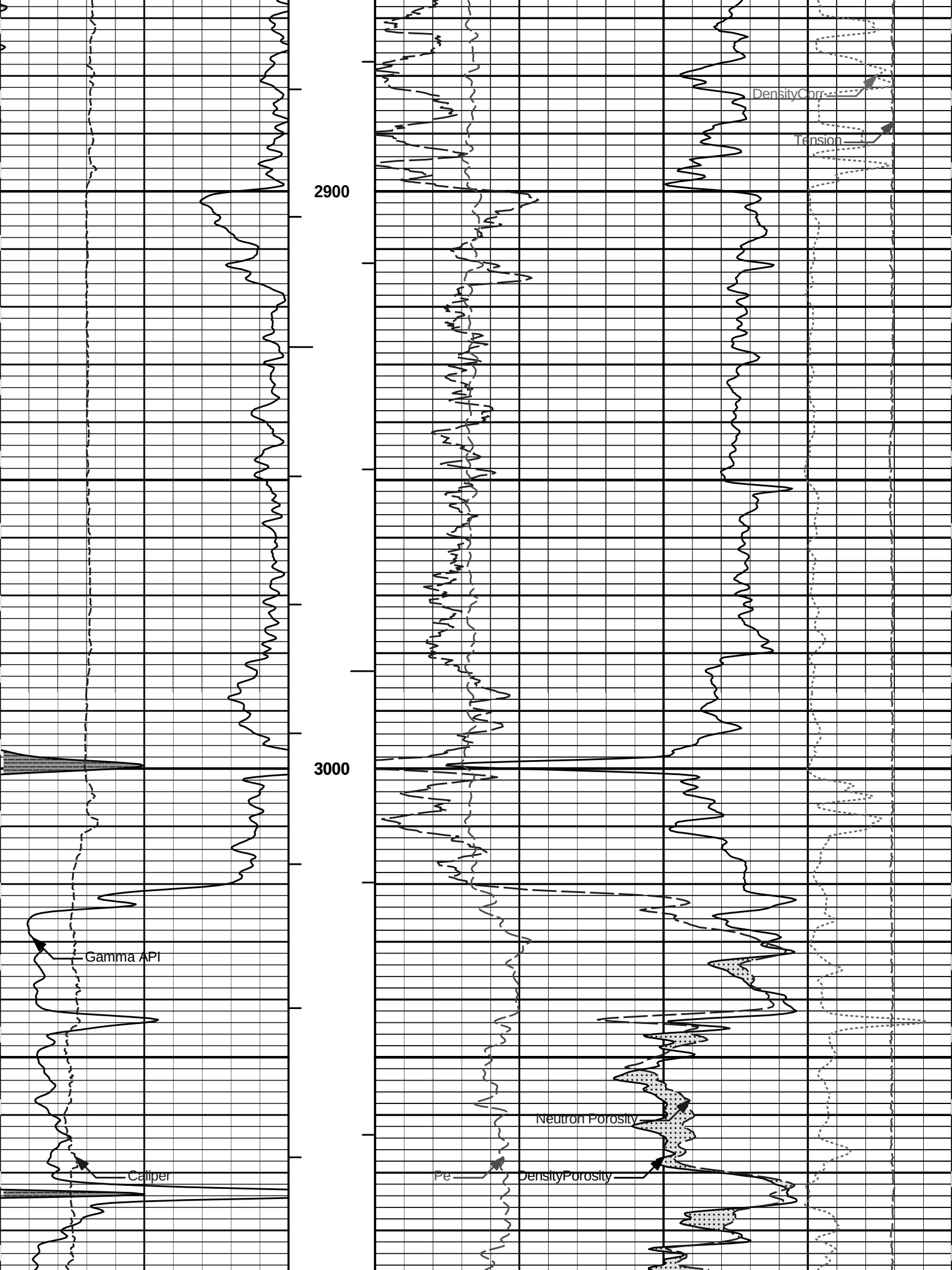

1800
1900
Gamma/API
Caliper
Neutron Porosity
Pe
DensityPorosity
DensityCorr
Tension

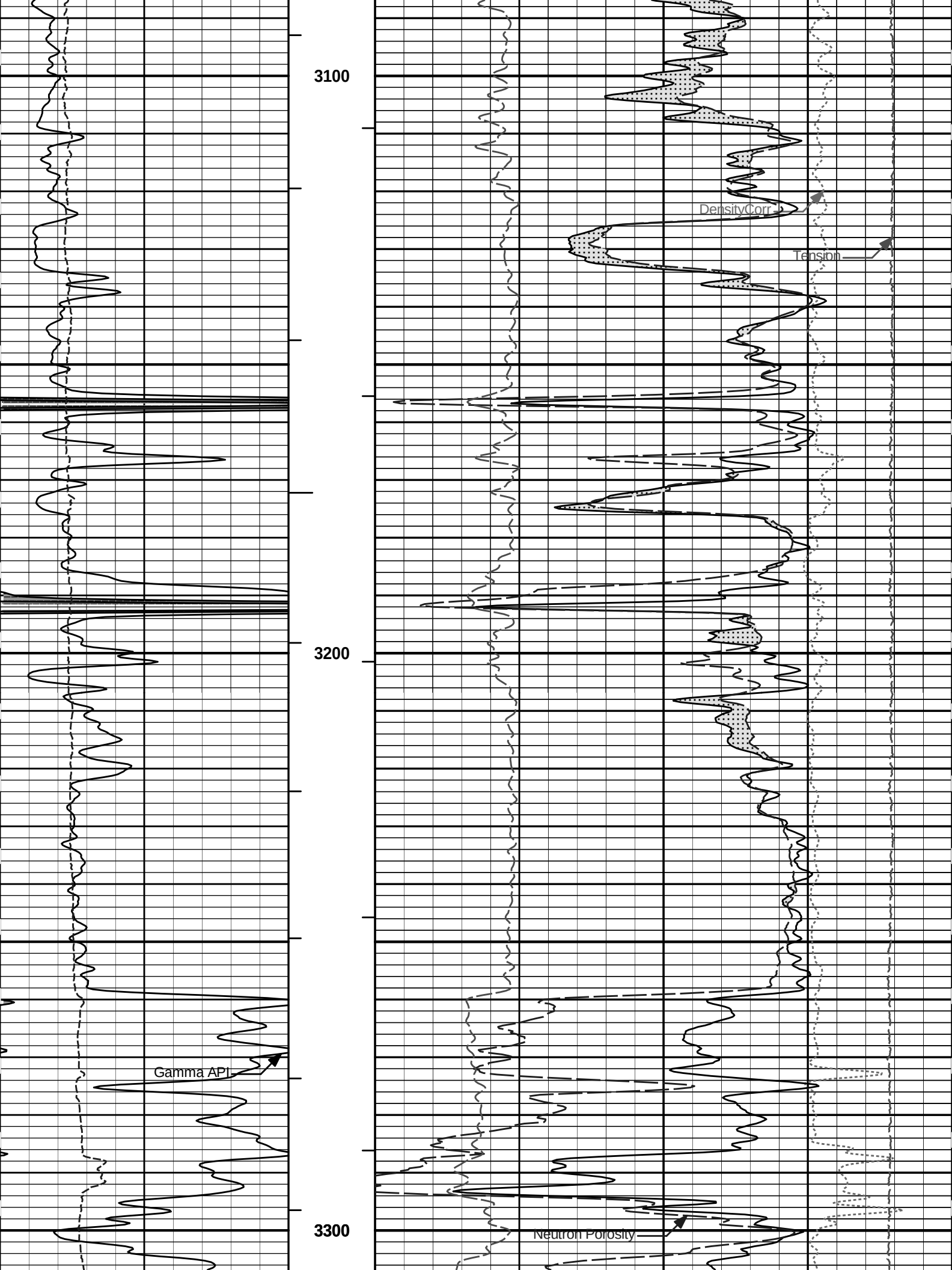

2000
2100
2200
Gamma API
Caliper
Neutron Porosity
Pe
DensityPorosity
DensityCorr
Tension

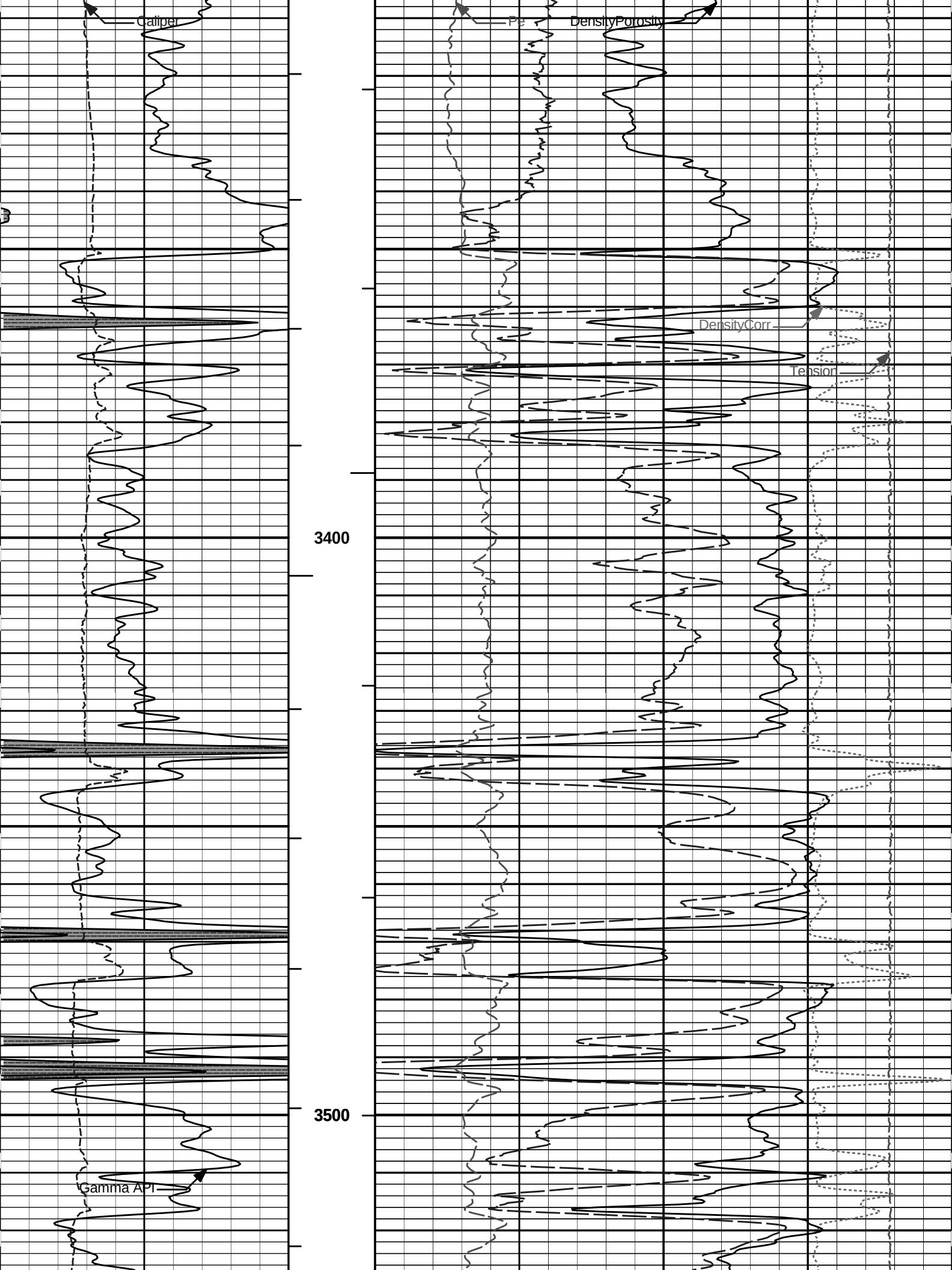

2300
2400
Gamma API
Caliper
Neutron Porosity
DensityPorosity
DensityCorr
Tension

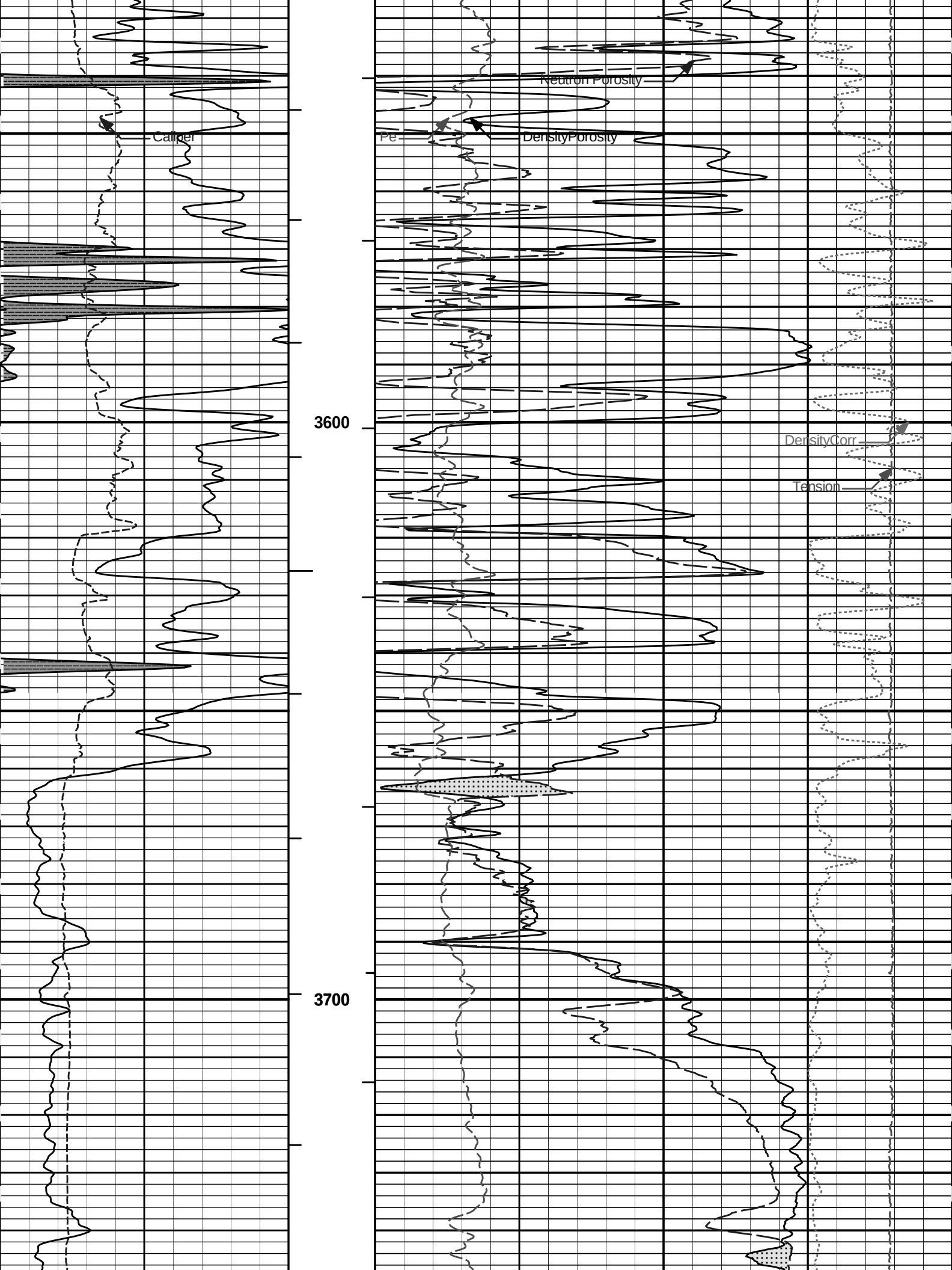

2500
2600
Gamma API
Caliper
Neutron Porosity
Pe
DensityPorosity
DensityCorr

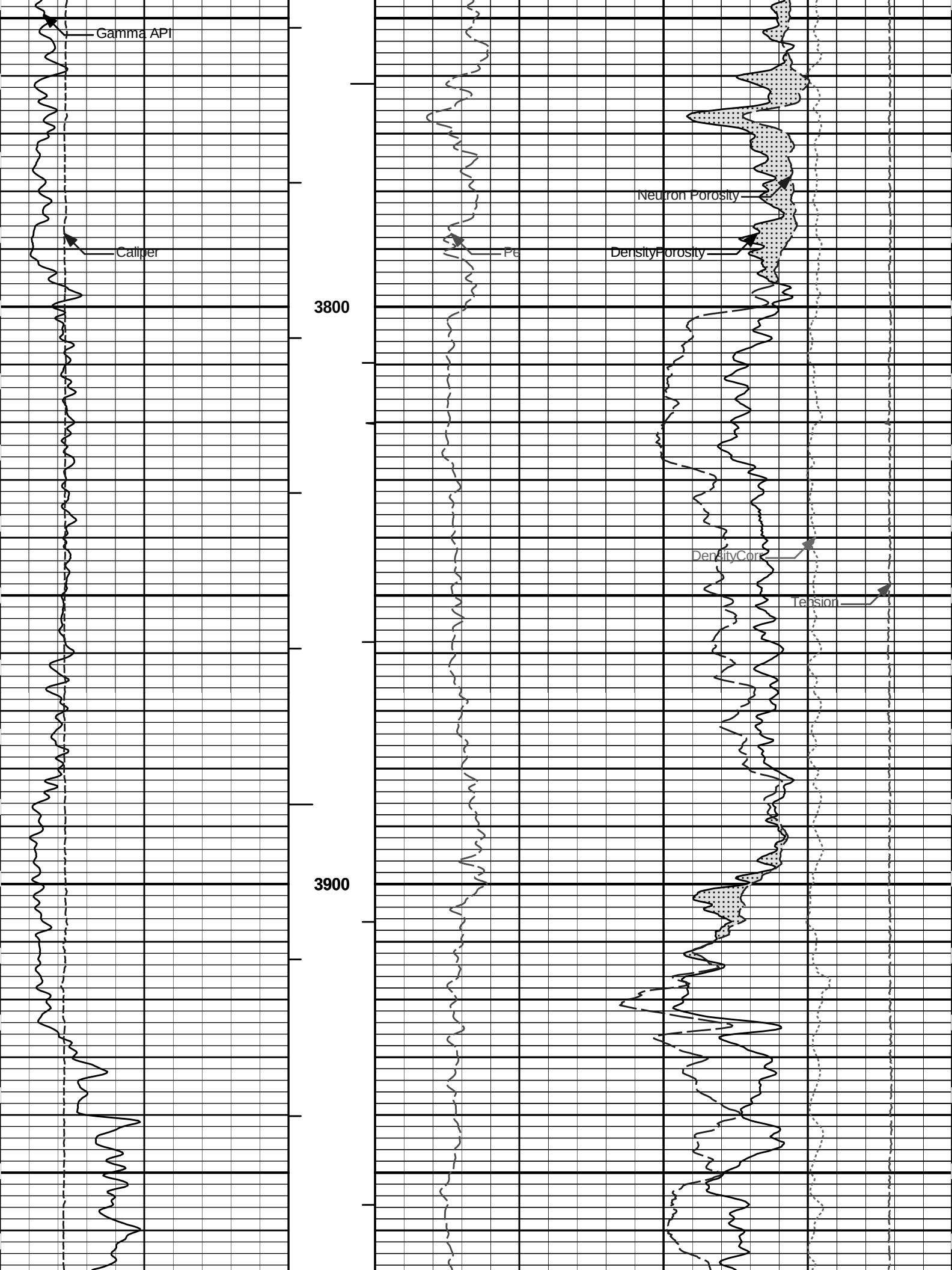

Tension
2700
Gamma API
2800
Neutron Porosity
Caliper
Pe
DensityPorosity

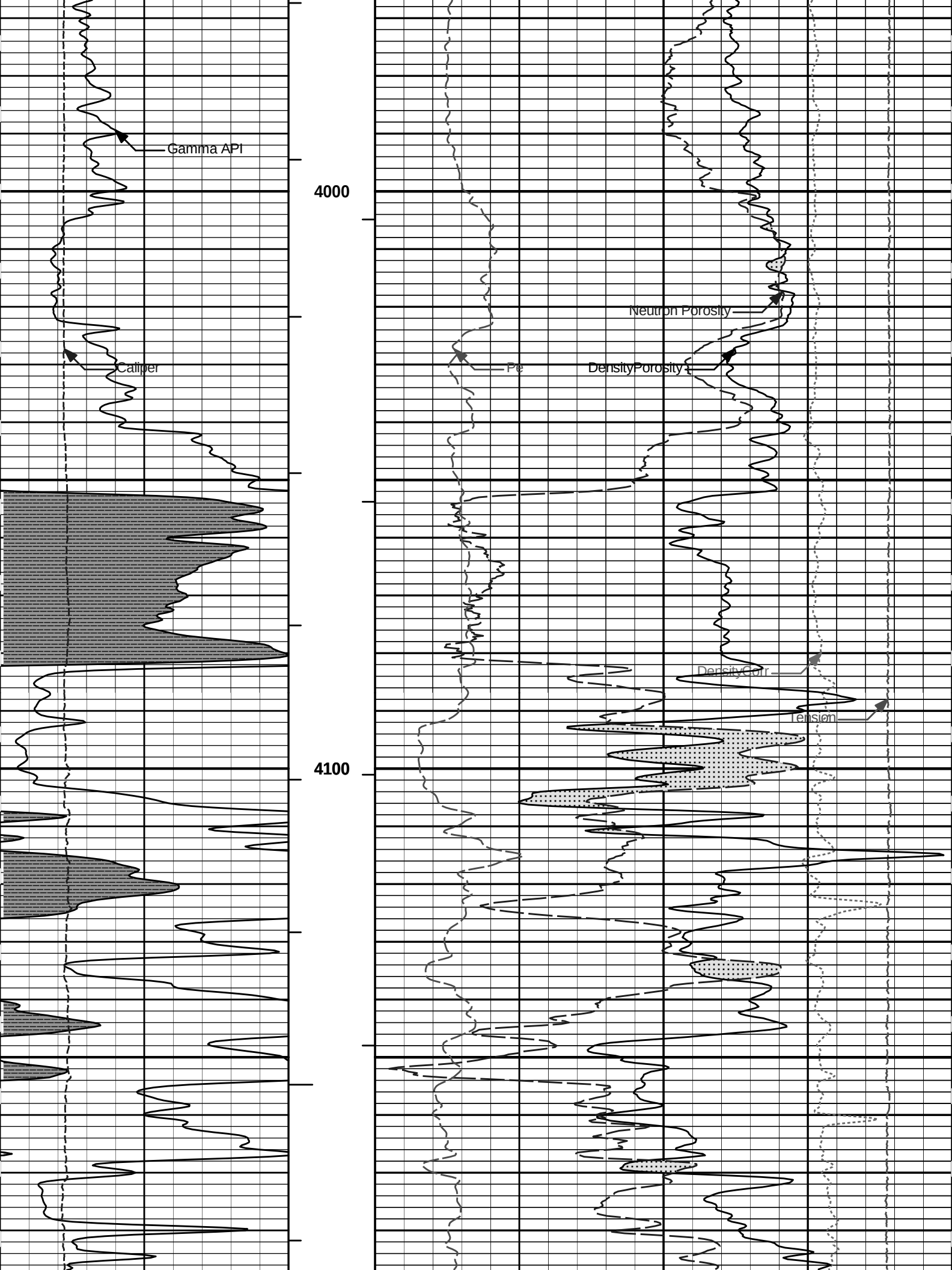

2900
3000
DensityCorr
Tension
Gamma API
Caliper
Neutron Porosity
Pe
DensityPorosity

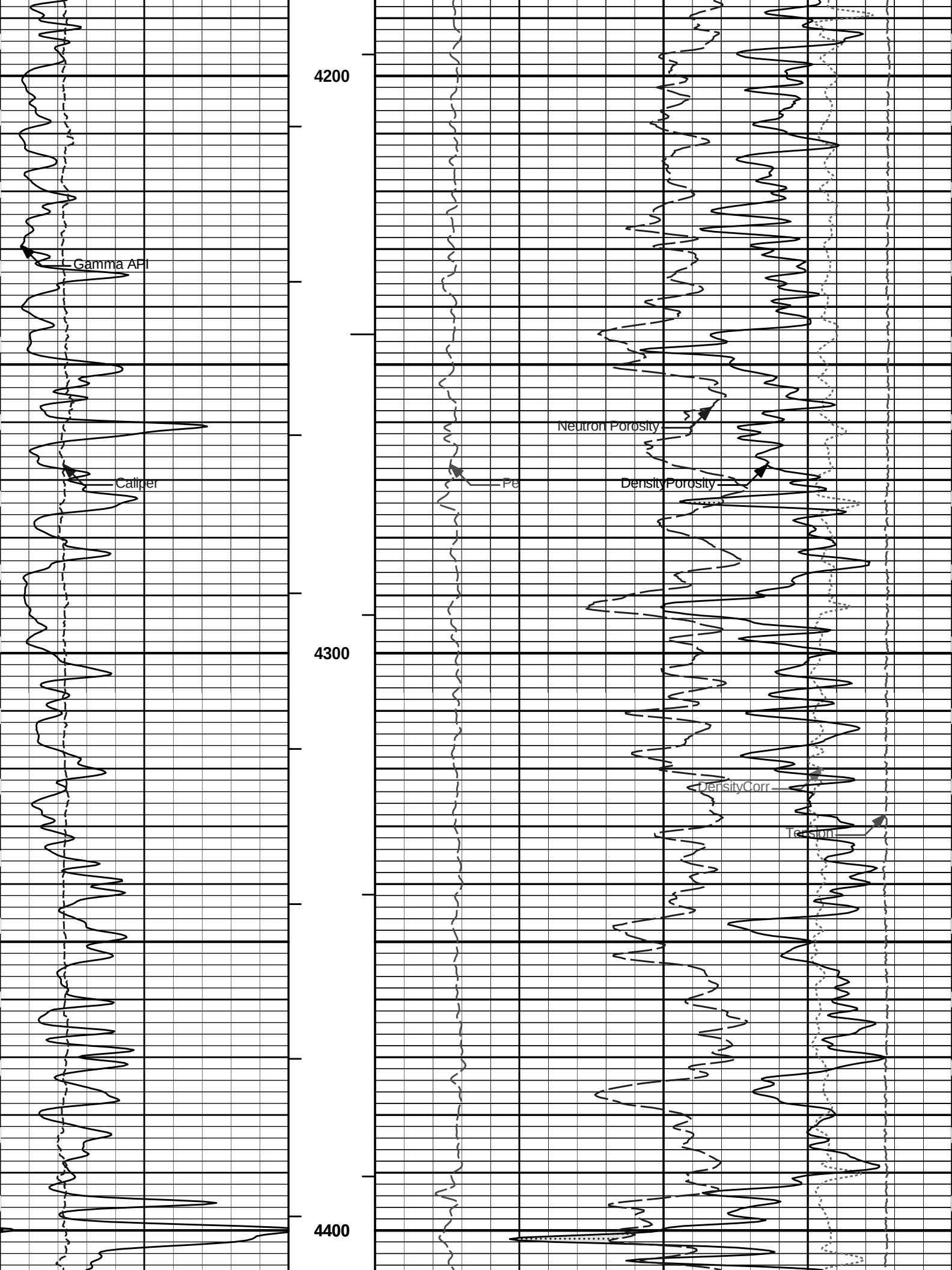

3100
3200
3300
DensityCorr
Tension
Gamma API
Neutron Porosity

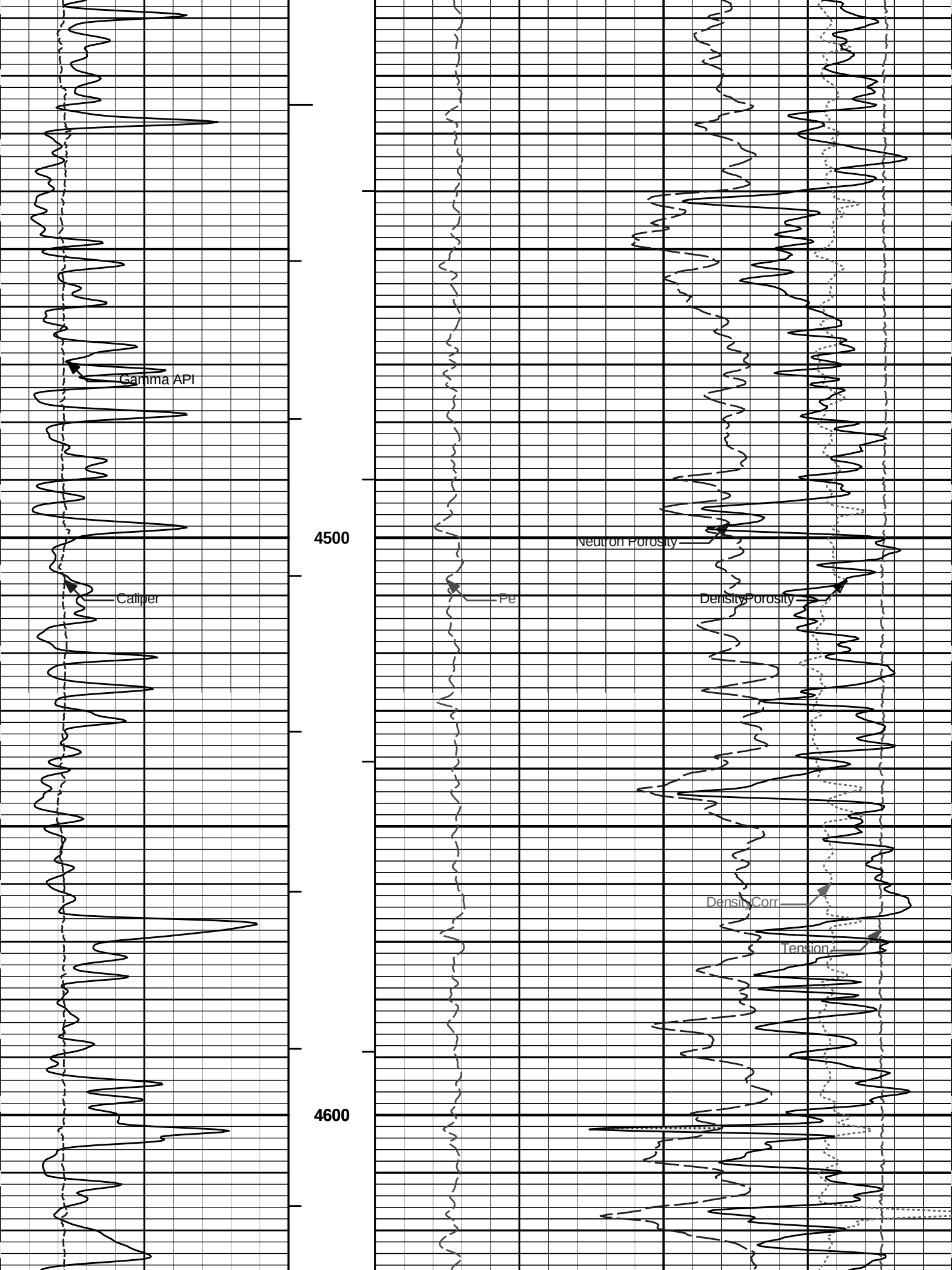

Caliper
Pe
DensityPorosity
DensityCorr
Tension
3400
3500
Gamma API

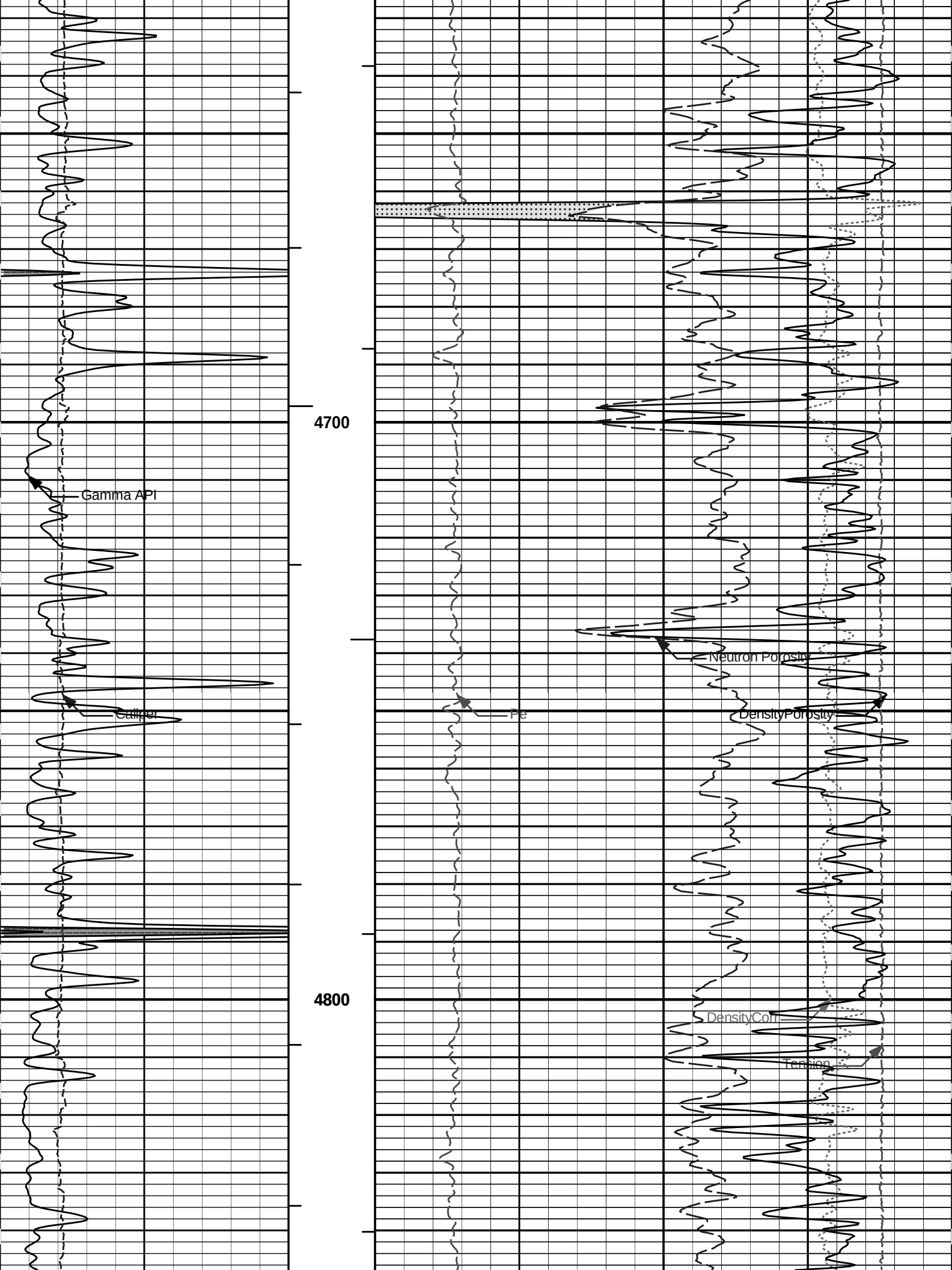

Caliper
Pe
DensityPorosity
Neutron Porosity
DensityCorr
Tension
3600
3700

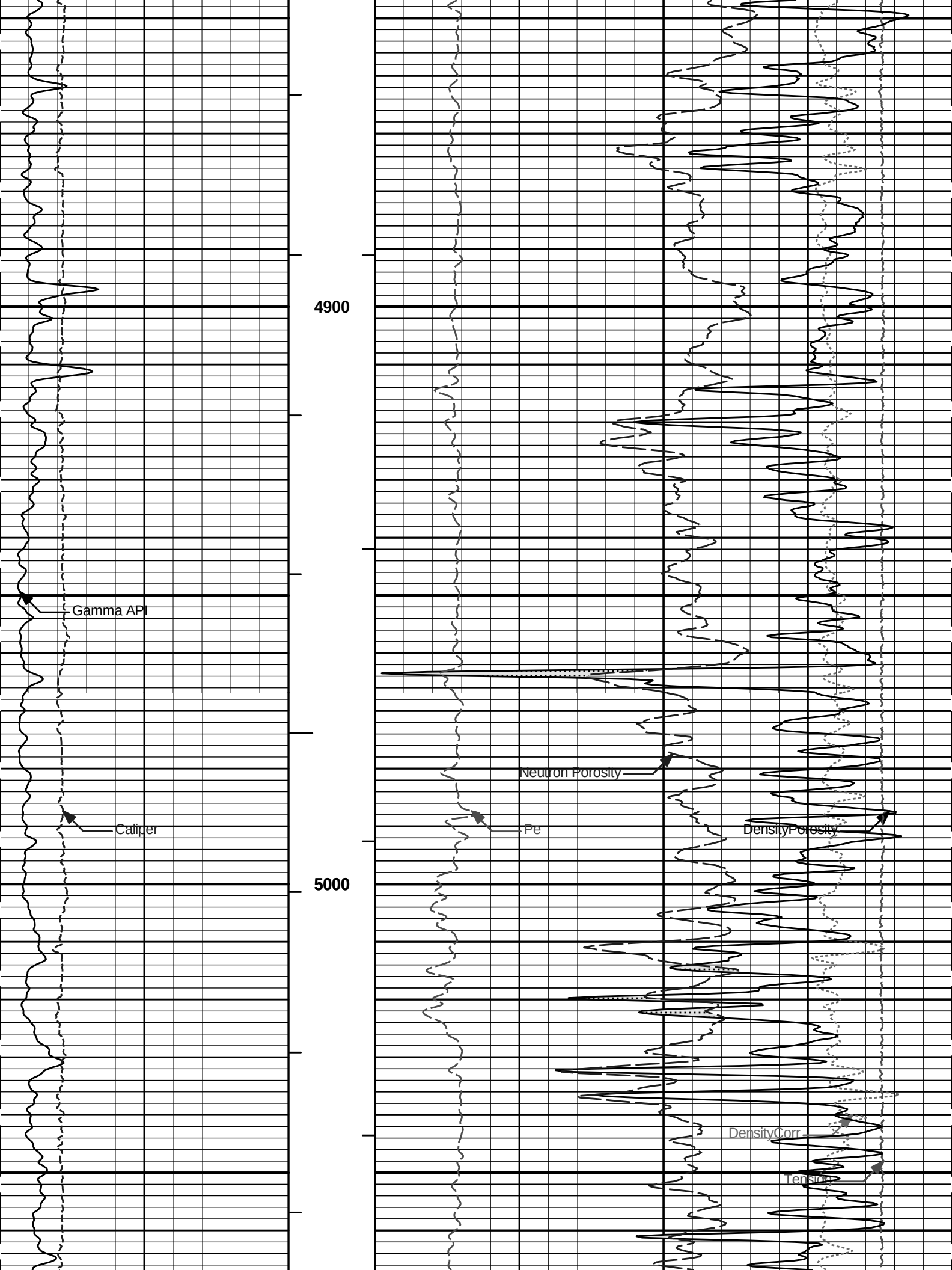

Gamma API
Caliper
Pe
Neutron Porosity
DensityPorosity
DensityCorr
Tension
3800
3900

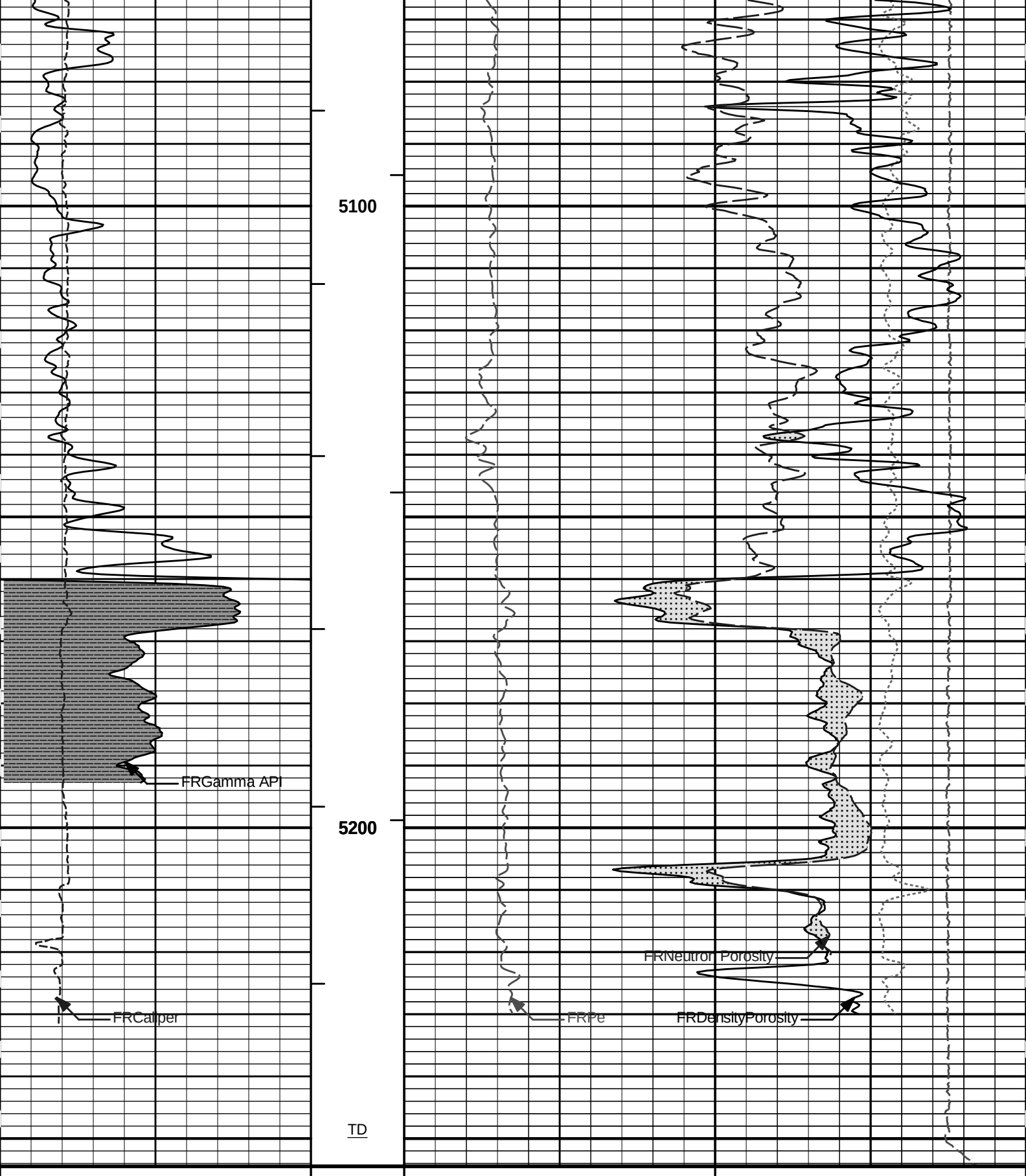

Gamma API
4000
Caliper
Pe
Neutron Porosity
DensityPorosity
DensityCorr
Tension
4100


4200
Gamma API
Caliper
Neutron Porosity
Pe
DensityPorosity
4300
DensityCorr
Tension
4400


Gamma API
Caliper
4500
Pe
Neutron Porosity
DensityPorosity
DensityCorr
Tension
4600


4700
4800
Gamma API
Caliper
Pe
Neutron Porosity
DensityPorosity
DensityCorr
Tension


4900
5000
Gamma API
Caliper
Neutron Porosity
Pe
DensityPorosity
DensityCorr
Tension



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

Tension Pull
10 0

30 Neutron Porosity -10
%

Tension Pull

CROSSOVER

HALLIBURTON

Plot Time: 04-Mar-11 08:17:29
Plot Range: 625 ft to 5254.33 ft
Data: WELLINGTON_1_28\Well Based\DAQ-0001-003\
Plot File: \\PORO\Poro_IQ_5_MAIN_LIB

5 INCH MAIN LOG

HALLIBURTON

Plot Time: 04-Mar-11 08:17:30
Plot Range: 4750 ft to 5254.25 ft
Data: WELLINGTON_1_28\Well Based\DAQ-0001-002\
Plot File: \\PORO\Poro_IQ_5_REP_LIB

REPEAT SECTION

CROSSOVER

30 Neutron Porosity -10
%

30 DensityPorosity -10
%

SHALE

BHVT

0 Gamma API 150
api

AHVT

15K Tension 0
pounds

6 Caliper 16
inches

1 : 240
ft

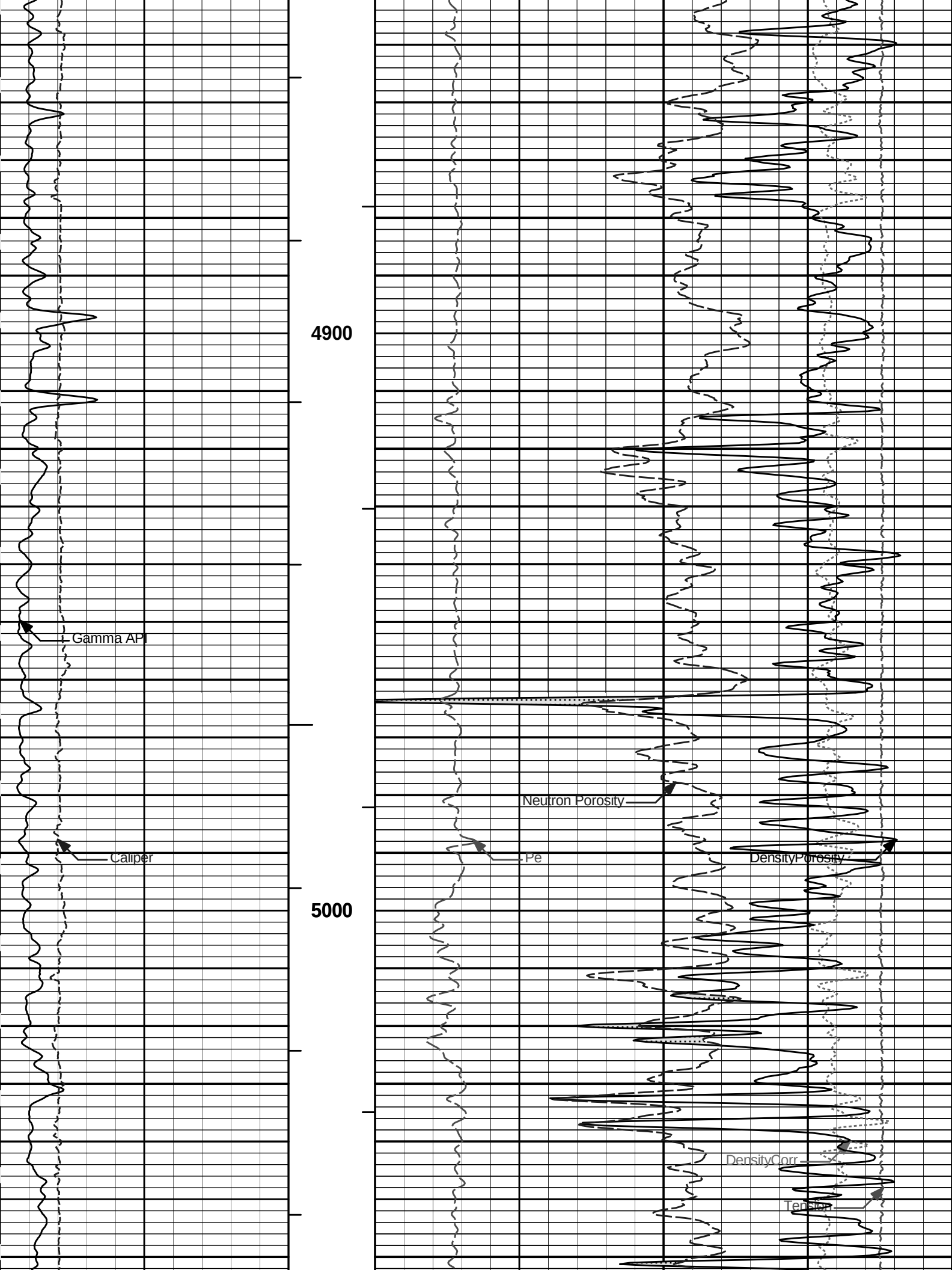
0 Pe 10

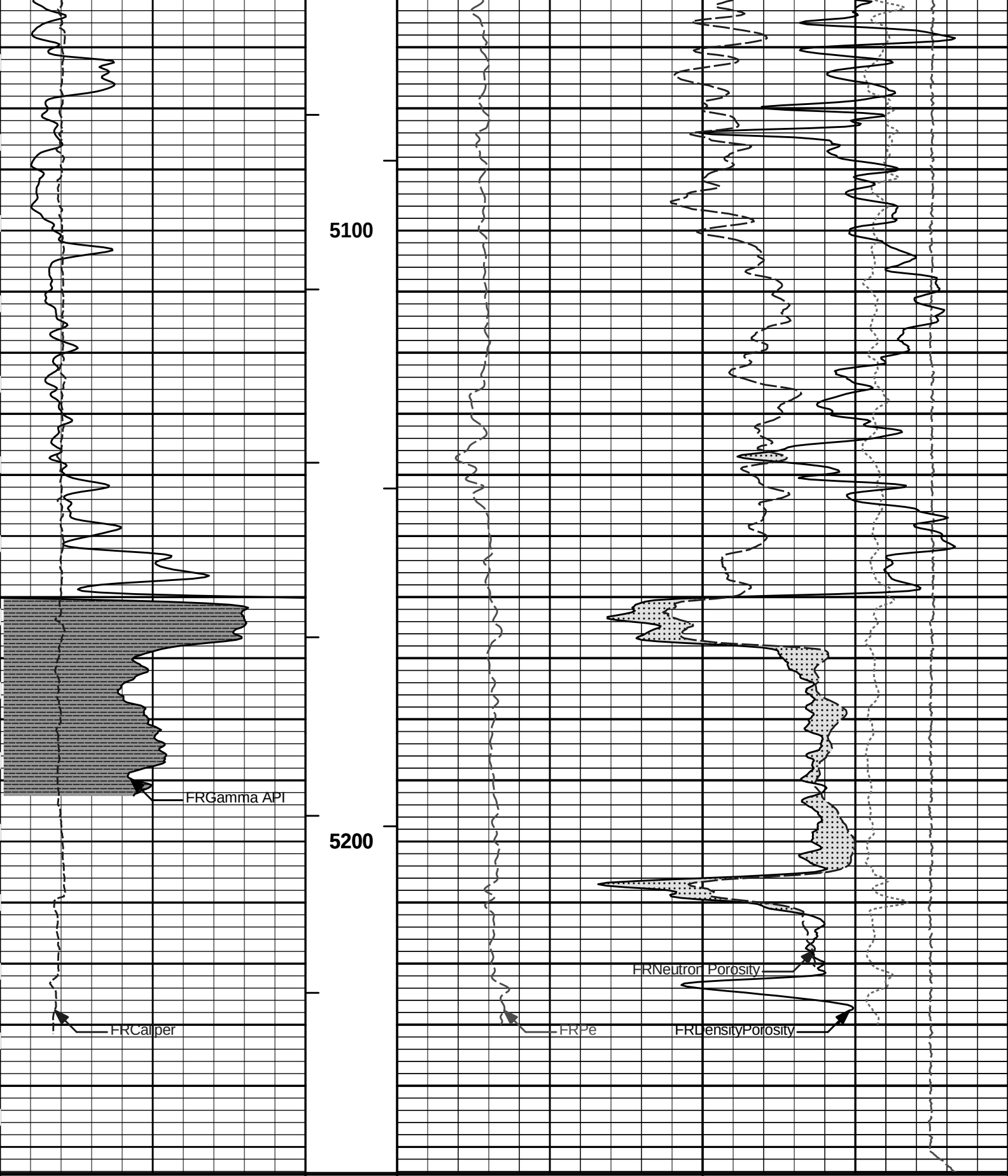
-0.25 DensityCorr 0.25
gram per cc

4800

DensityCorr

Tension


4900
5000
Gamma API
Caliper
Neutron Porosity
Pe
DensityPorosity
DensityCorr
Tension



6 Caliper 16 inches	1 : 240 ft	0 Pe 10
0 Gamma API 150 api	AHVT	
SHALE	BHVT	30 DensityPorosity -10 %

-0.25 DensityCorr 0.25 gram per cc	
15K Tension 0 pounds	

%

30 Neutron Porosity -10

%

CROSSOVER

HALLIBURTON

Plot Time: 04-Mar-11 08:17:38
Plot Range: 4750 ft to 5254.25 ft
Data: WELLINGTON_1_28\Well Based\DAQ-0001-002\
Plot File: \\PORO\Poro_IQ_5_REP_LIB

REPEAT SECTION

HALLIBURTON

Plot Time: 04-Mar-11 08:17:38
Plot Range: 625 ft to 5254.33 ft
Data: WELLINGTON_1_28\Well Based\DAQ-0001-003\
Plot File: \\-LOCAL-\WELLINGTON_1_28\Well Based\PORO\BULKD_5_MAIN_LIB

5 INCH MAIN LOG

SHALE

Tension Pull

0 Gamma Ray 150
api

18 FarQuality -2

-18 NearQuality 2

6 Caliper 16
inches

Tension Pull
10 0

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

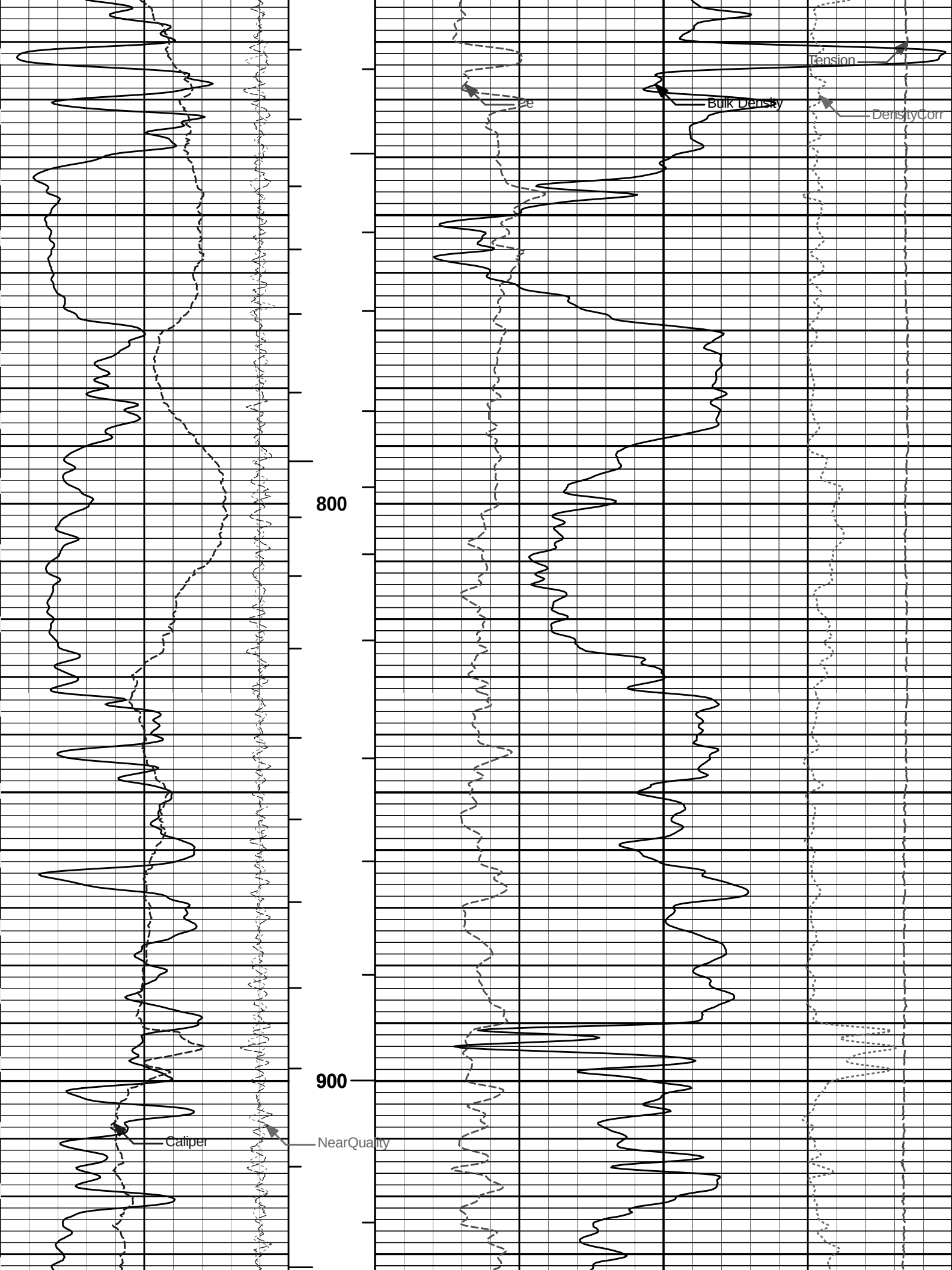
CSG

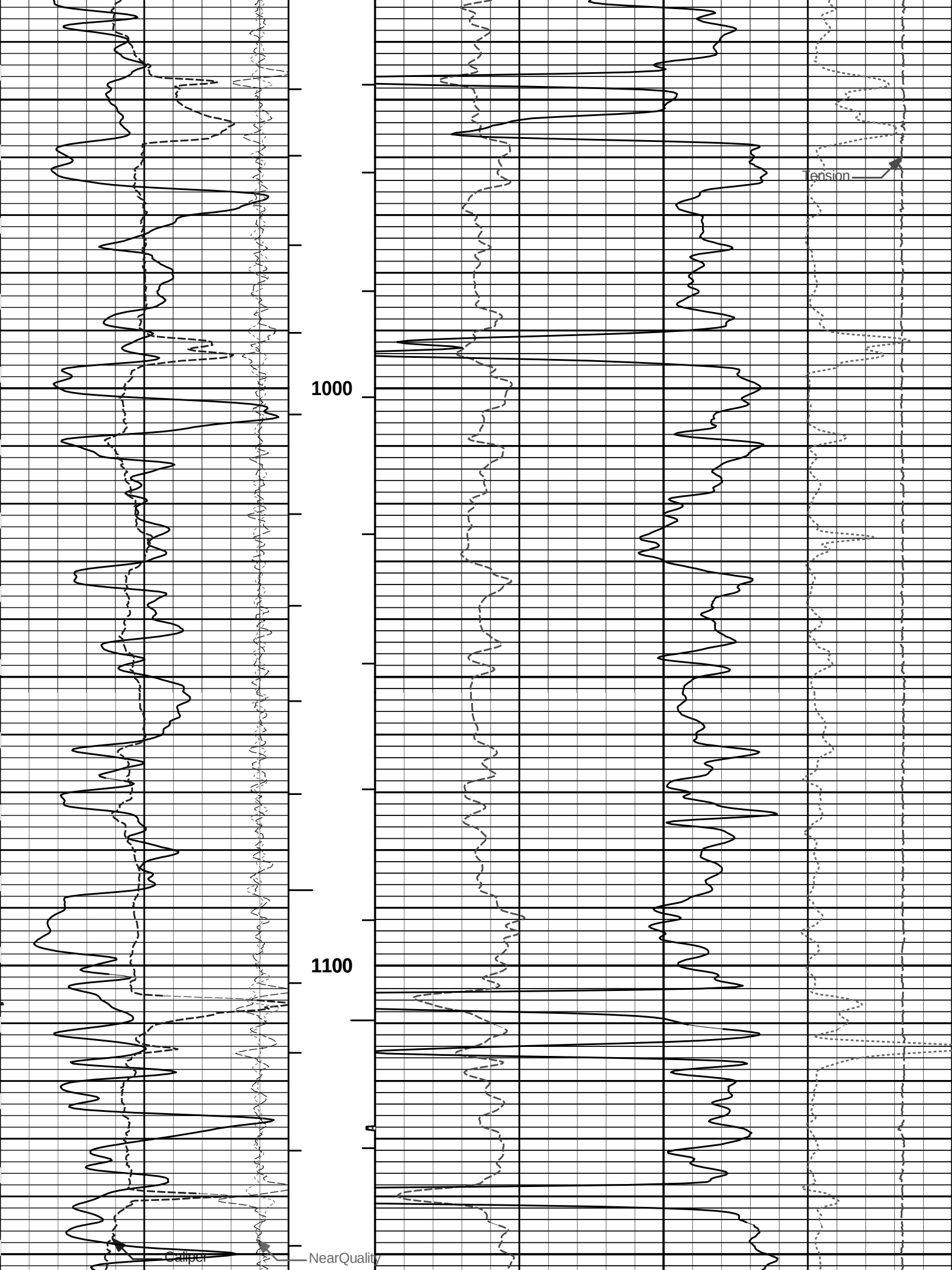
Caliper

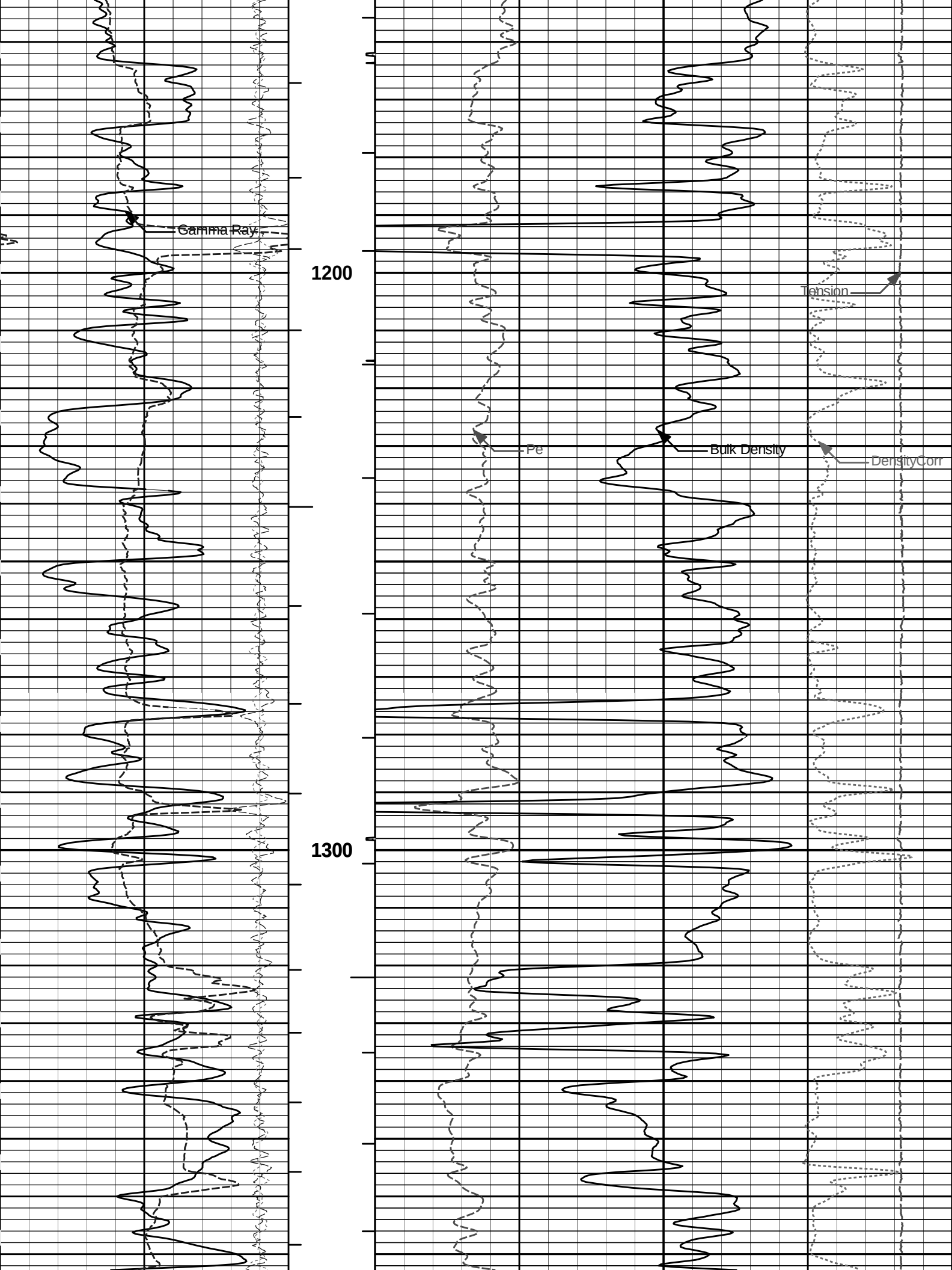
NearQuality

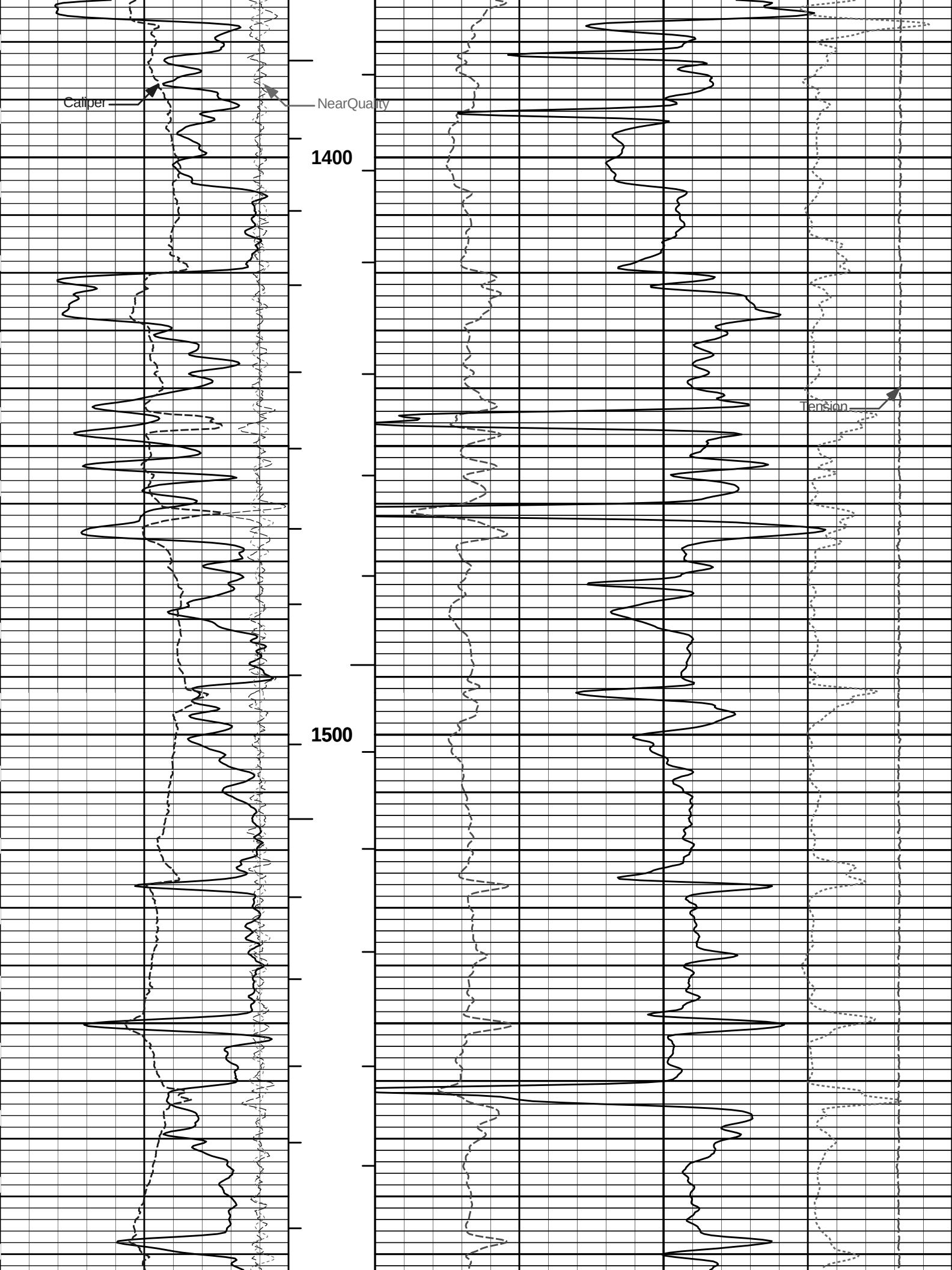
Gamma Ray

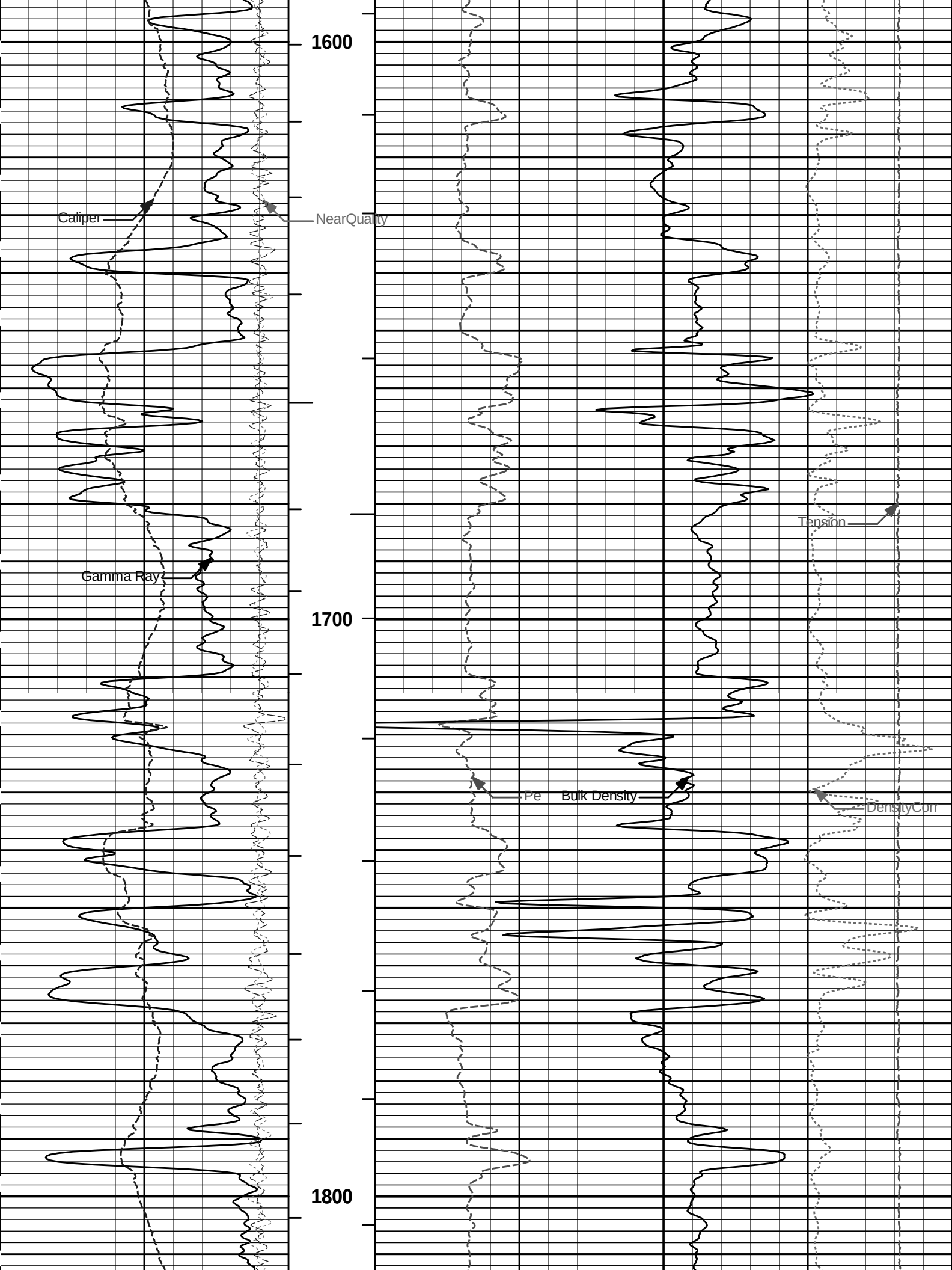
700

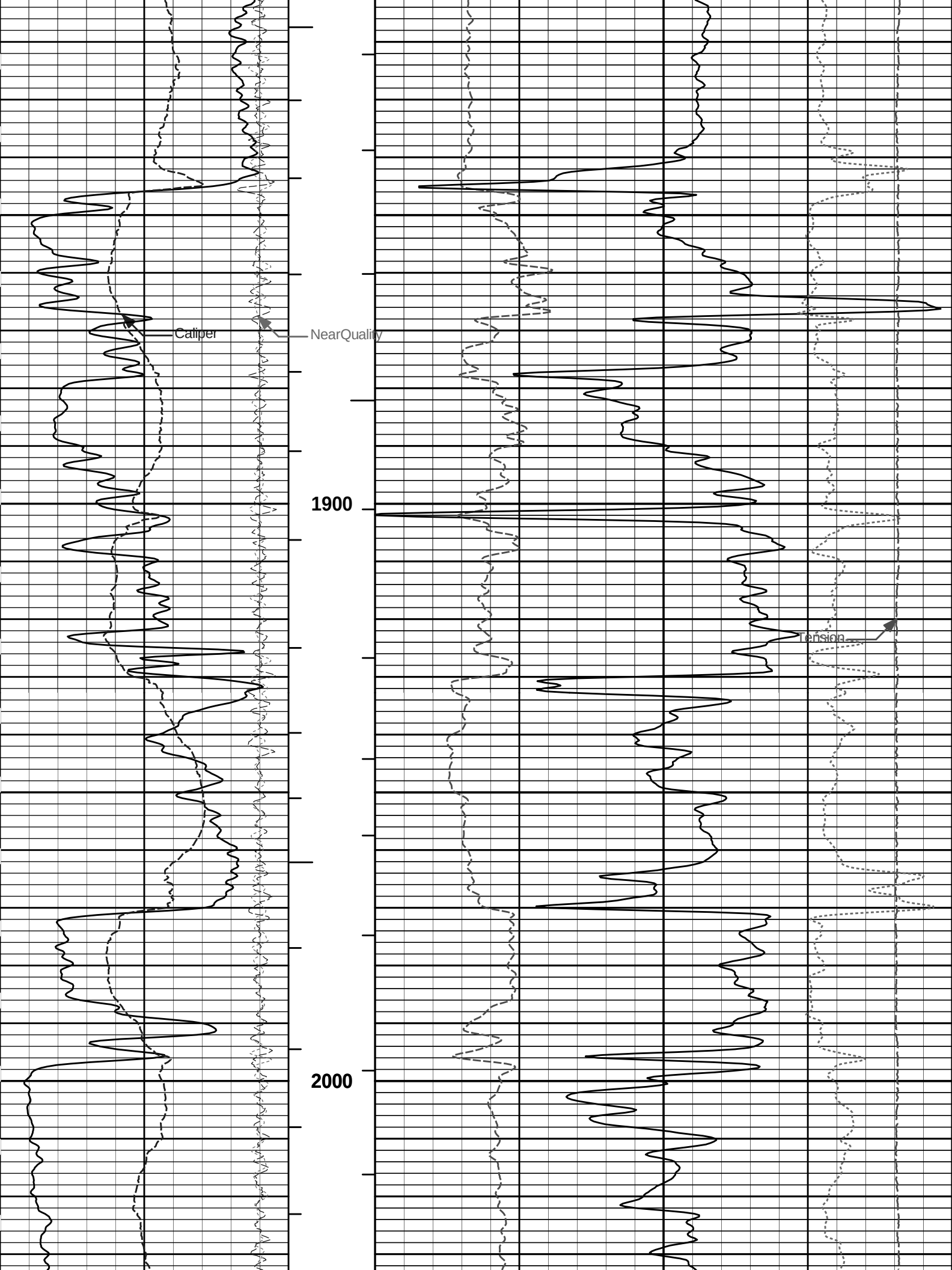

Tension
Bulk Density
DensityCorr
800
900
Caliper
NearQuality

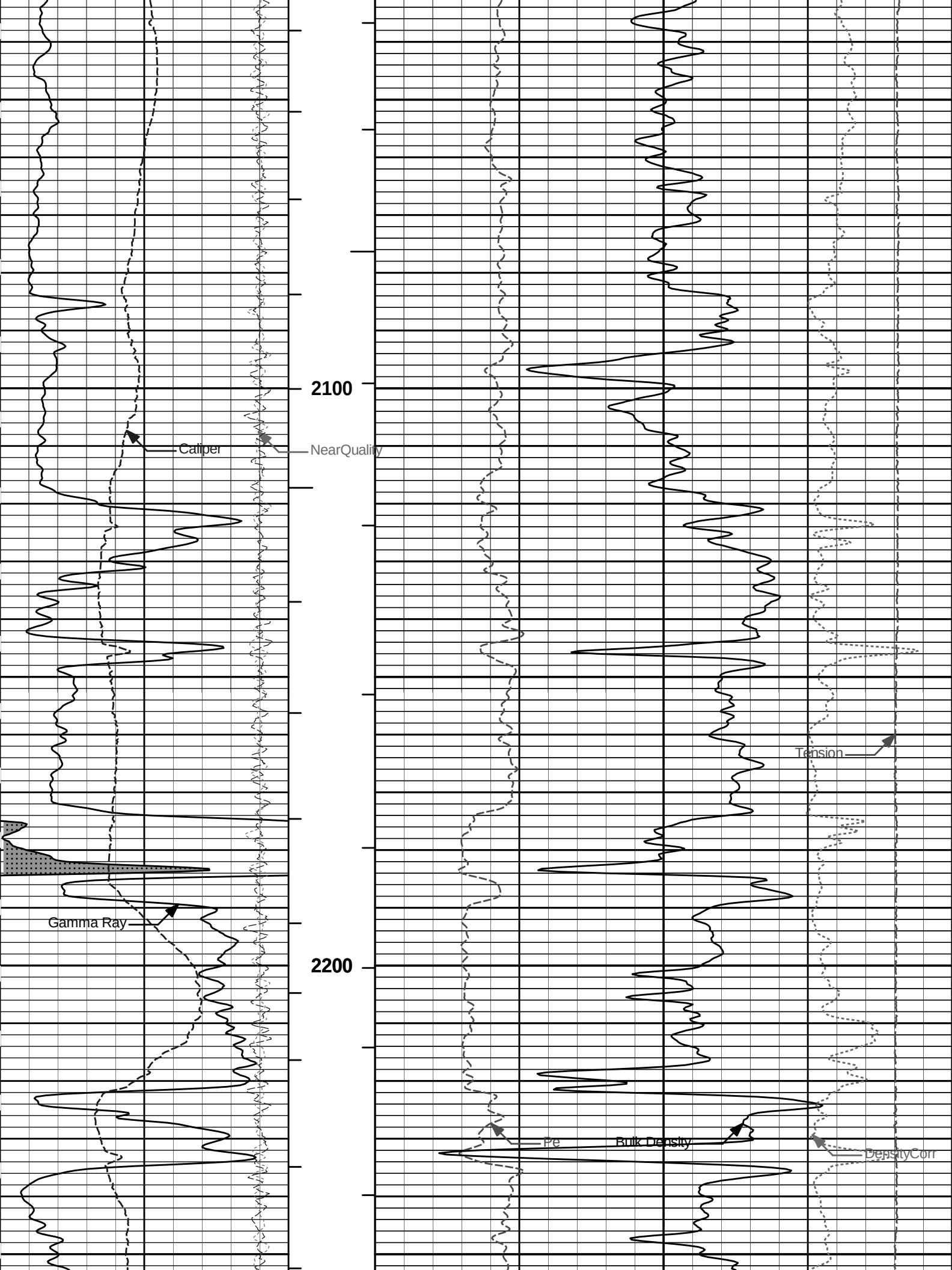

1000
1100
Tension
Caliper
NearQuality

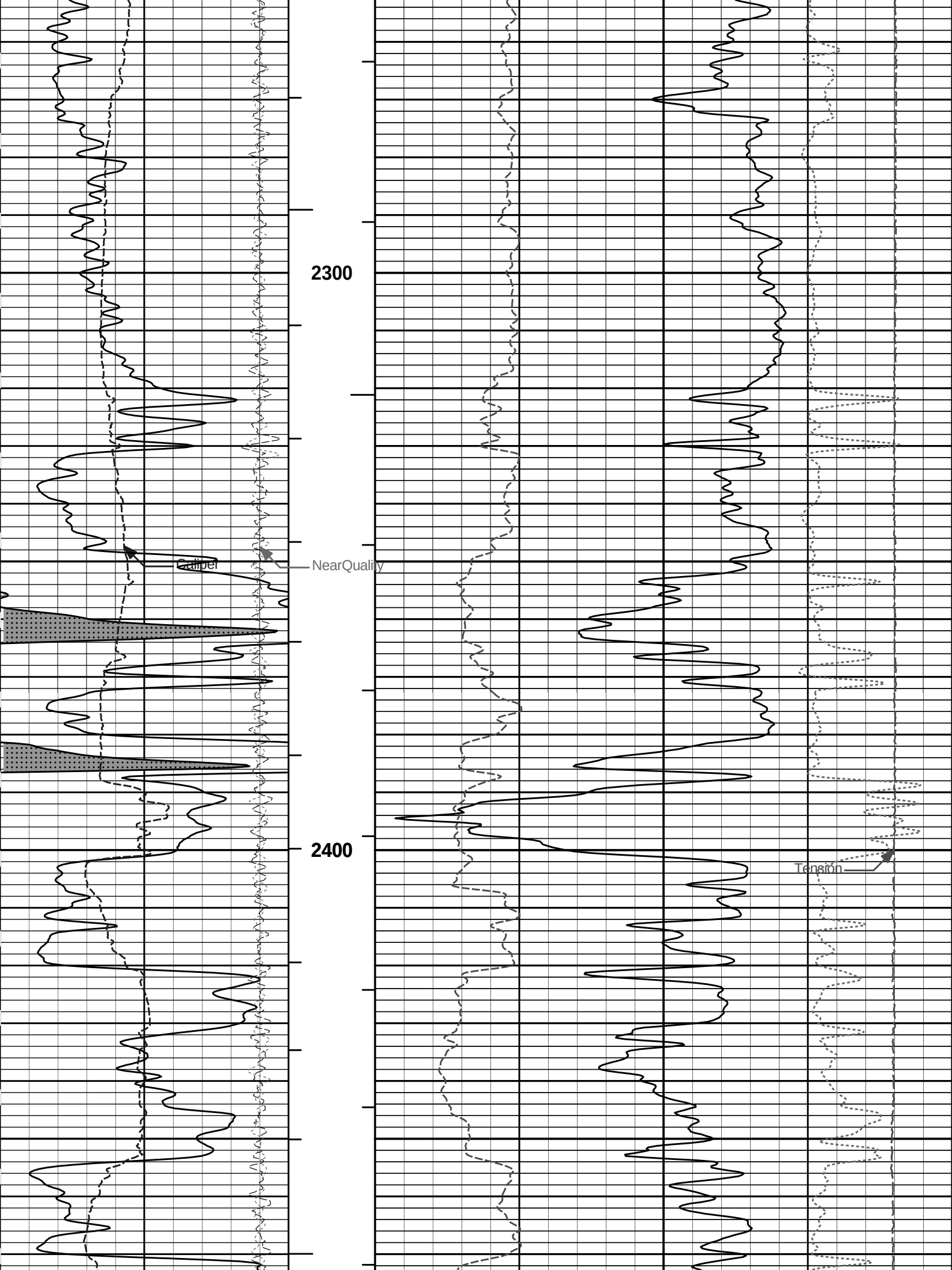

Gamma Ray
1200
Tension
Pe
Bulk Density
DensityCorr
1300


Caliper
NearQuality
1400
Tension
1500

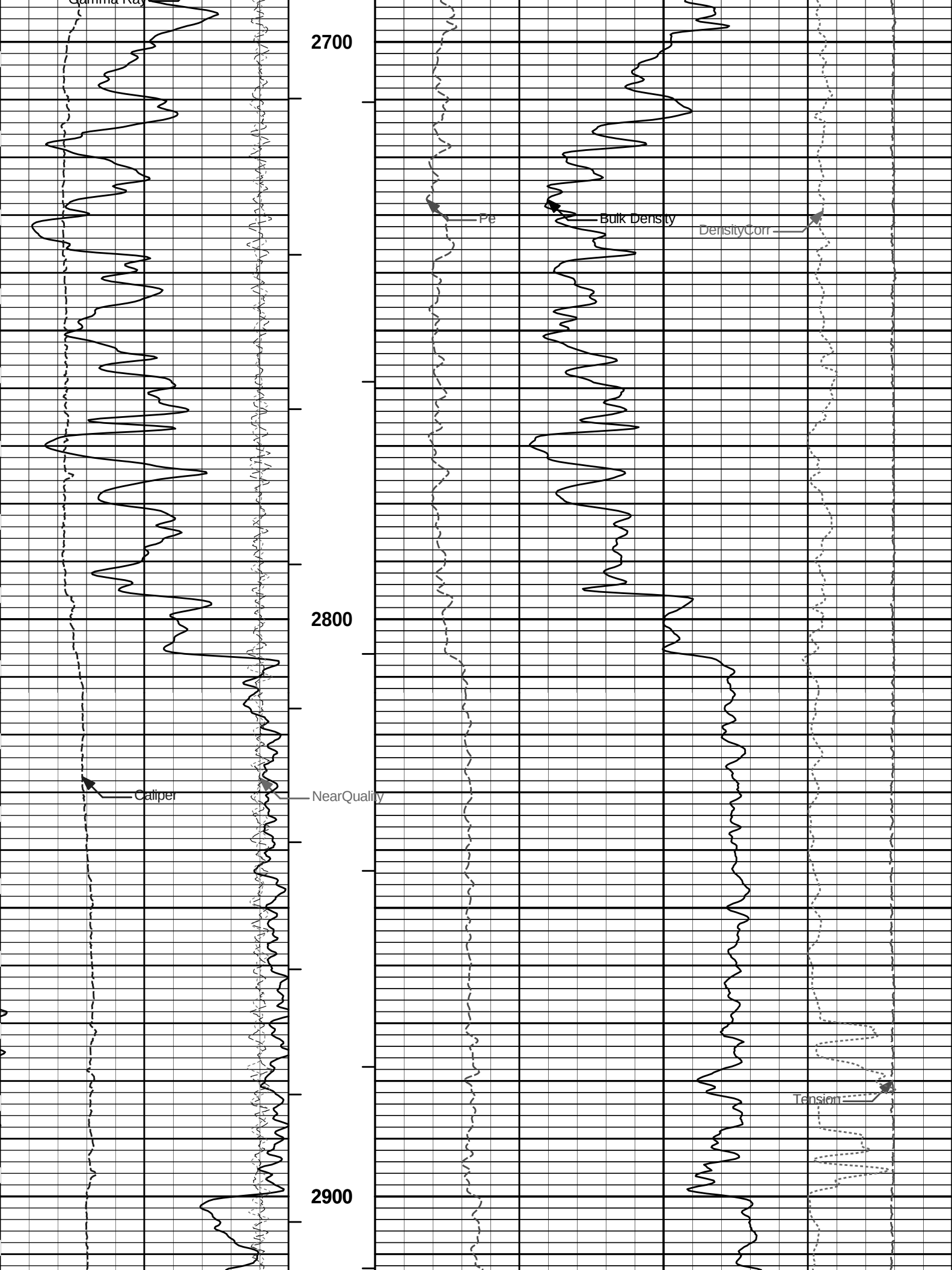

1600
1700
1800
Caliper
NearQuality
Gamma Ray
Tension
Pe
Bulk Density
DensityCorr

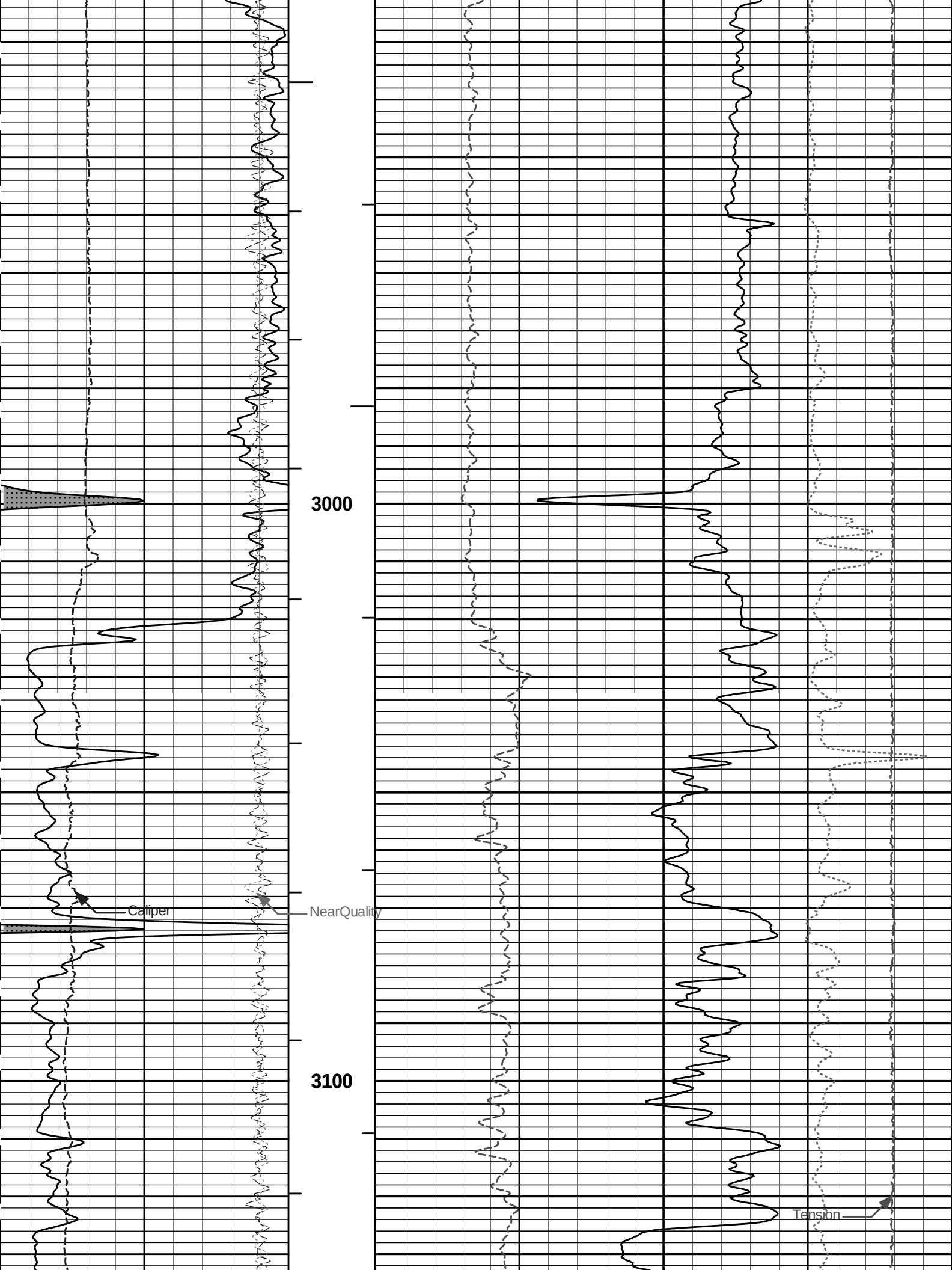

Caliper
NearQuality
1900
Tension
2000

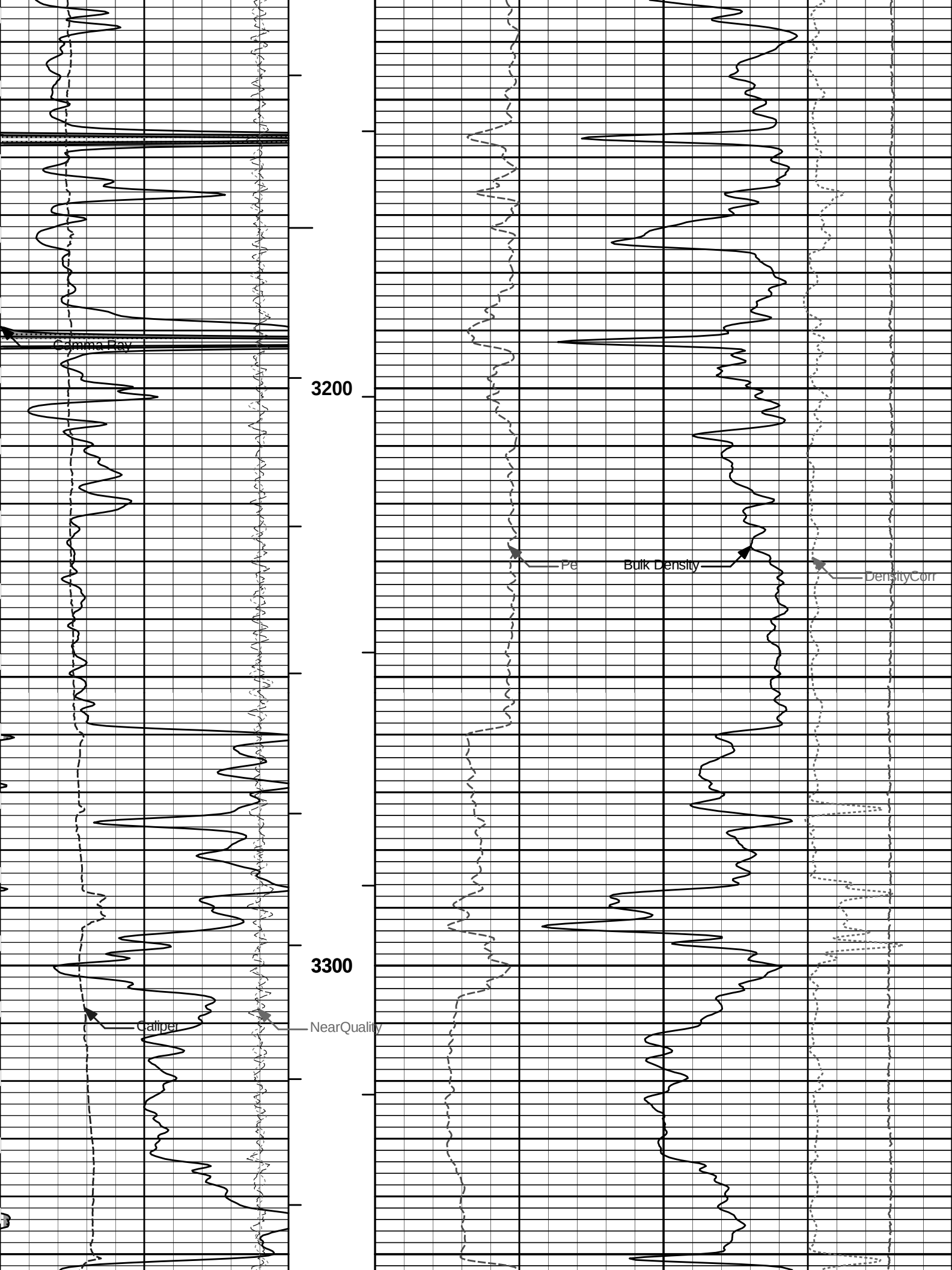

2100
2200
Caliper
NearQuality
Gamma Ray
Tension
Pe
Bulk Density
DensityCorr

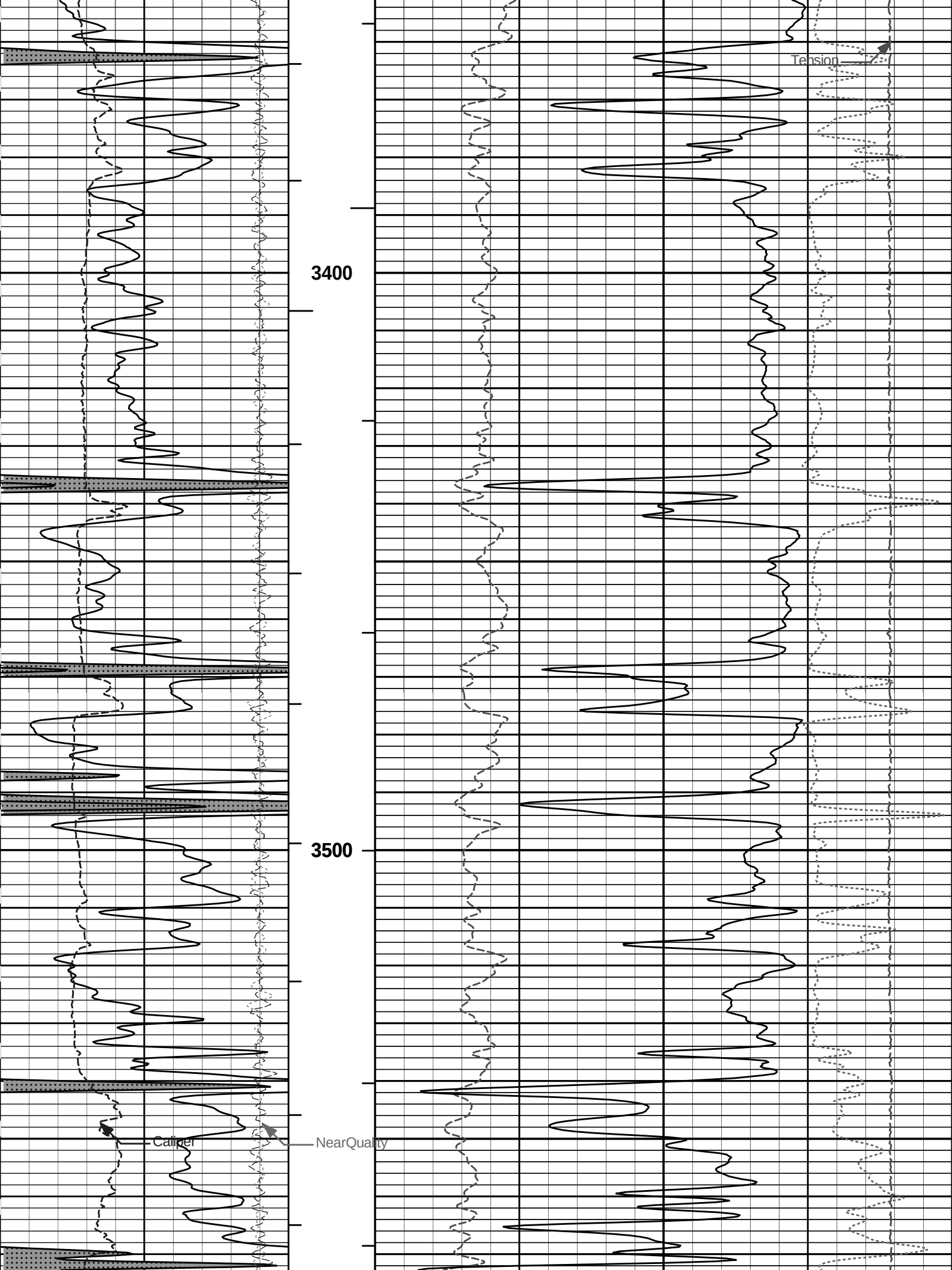

2300
2400
Caliper
NearQuality
Tension

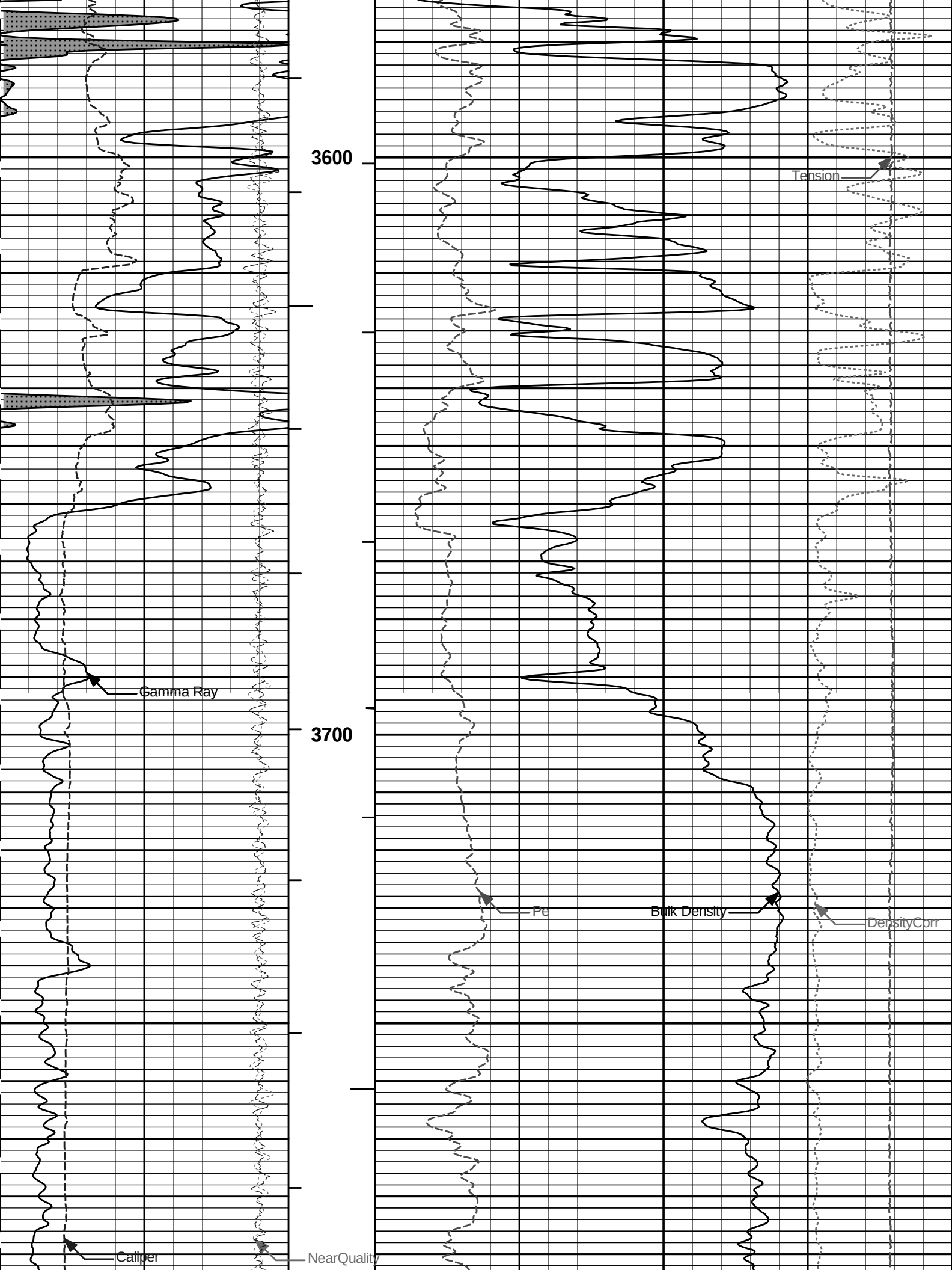

2500
2600
Caliper
NearQuality
Tension
Gamma Ray

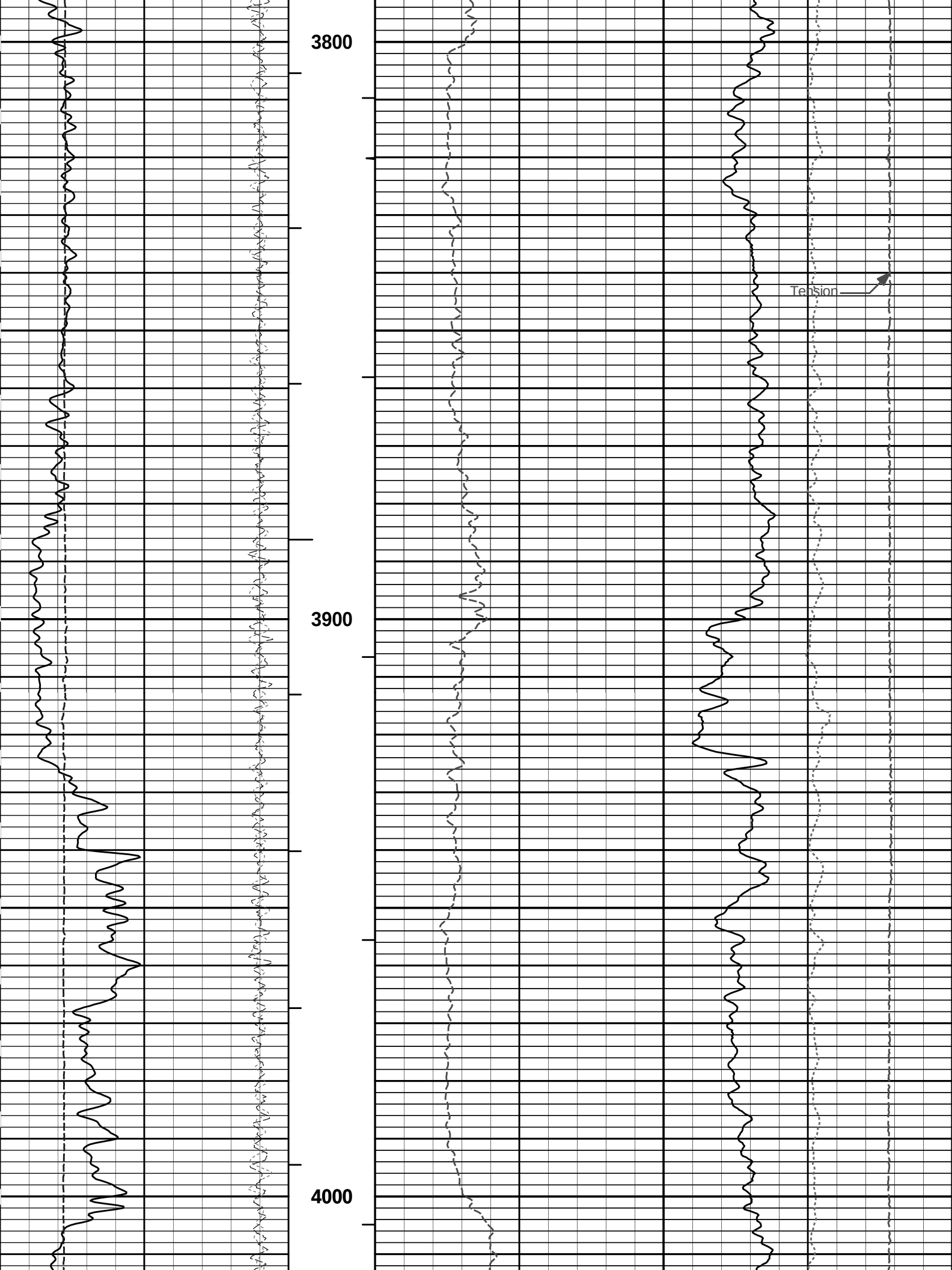

Gamma Ray
2700
Pe
Bulk Density
DensityCorr
2800
Caliper
NearQuality
Tension
2900

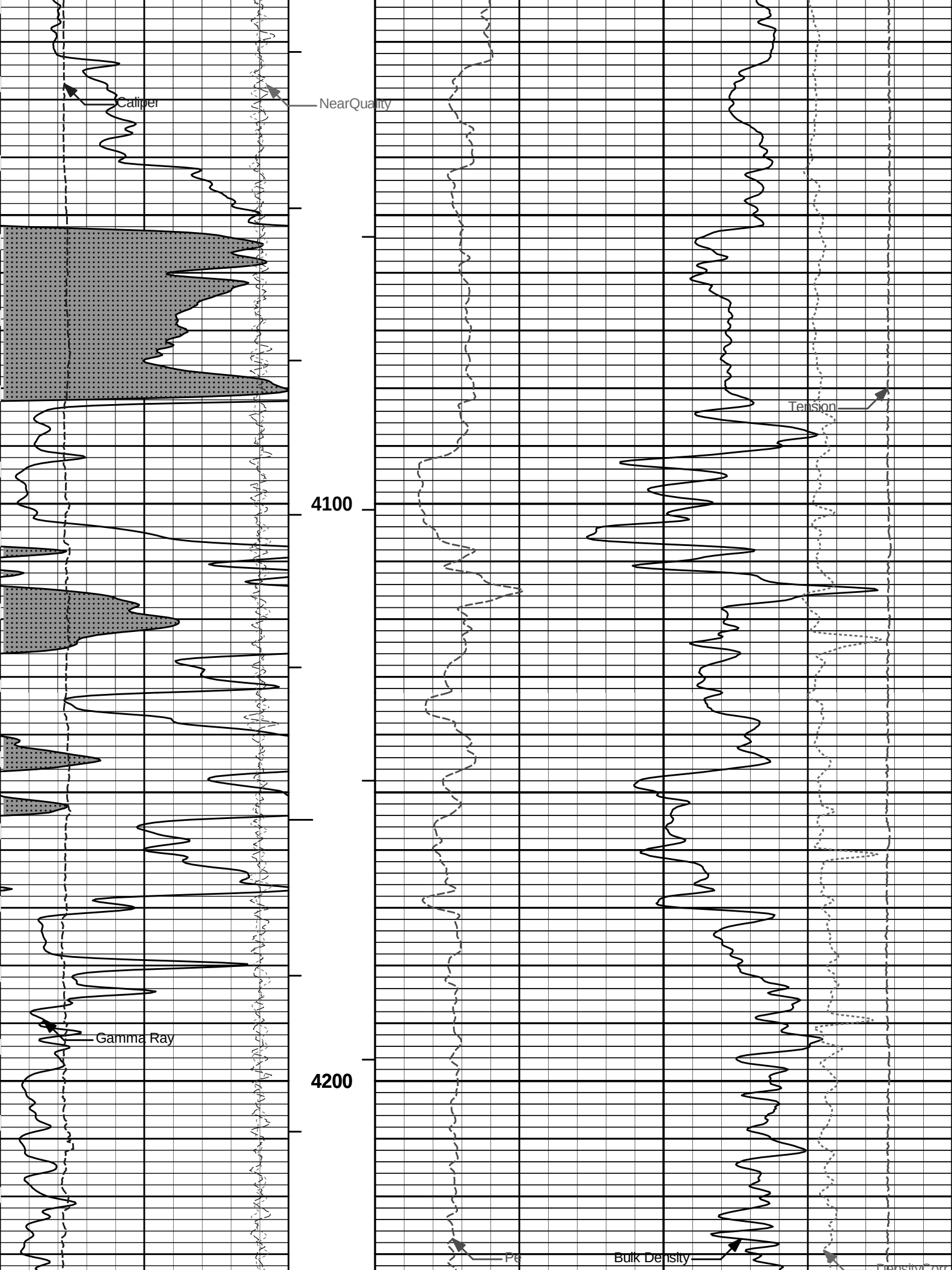

3000
3100
Caliper
NearQuality
Tension

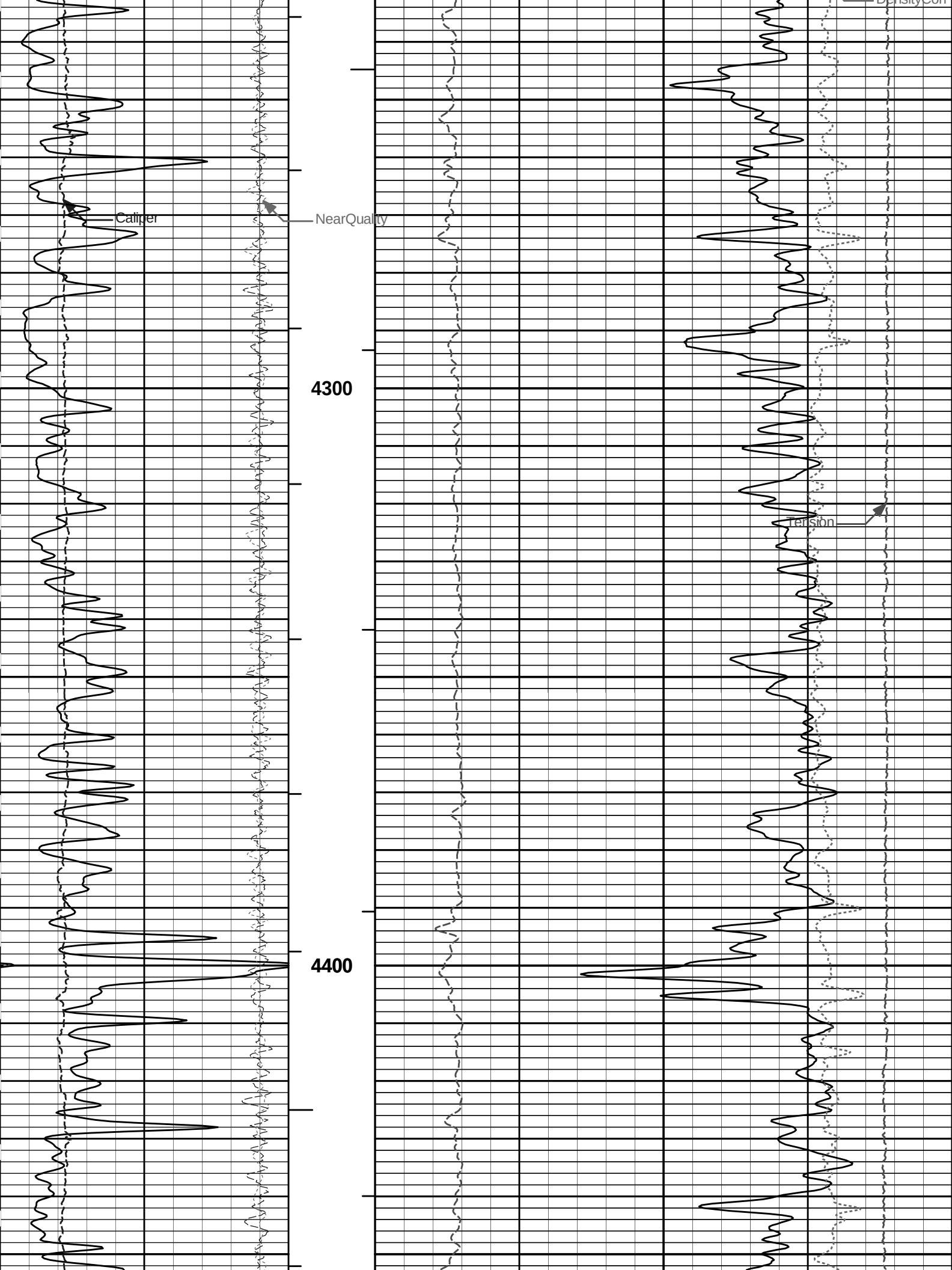

Gamma Ray
3200
Pe
Bulk Density
DensityCorr
3300
Caliper
NearQuality

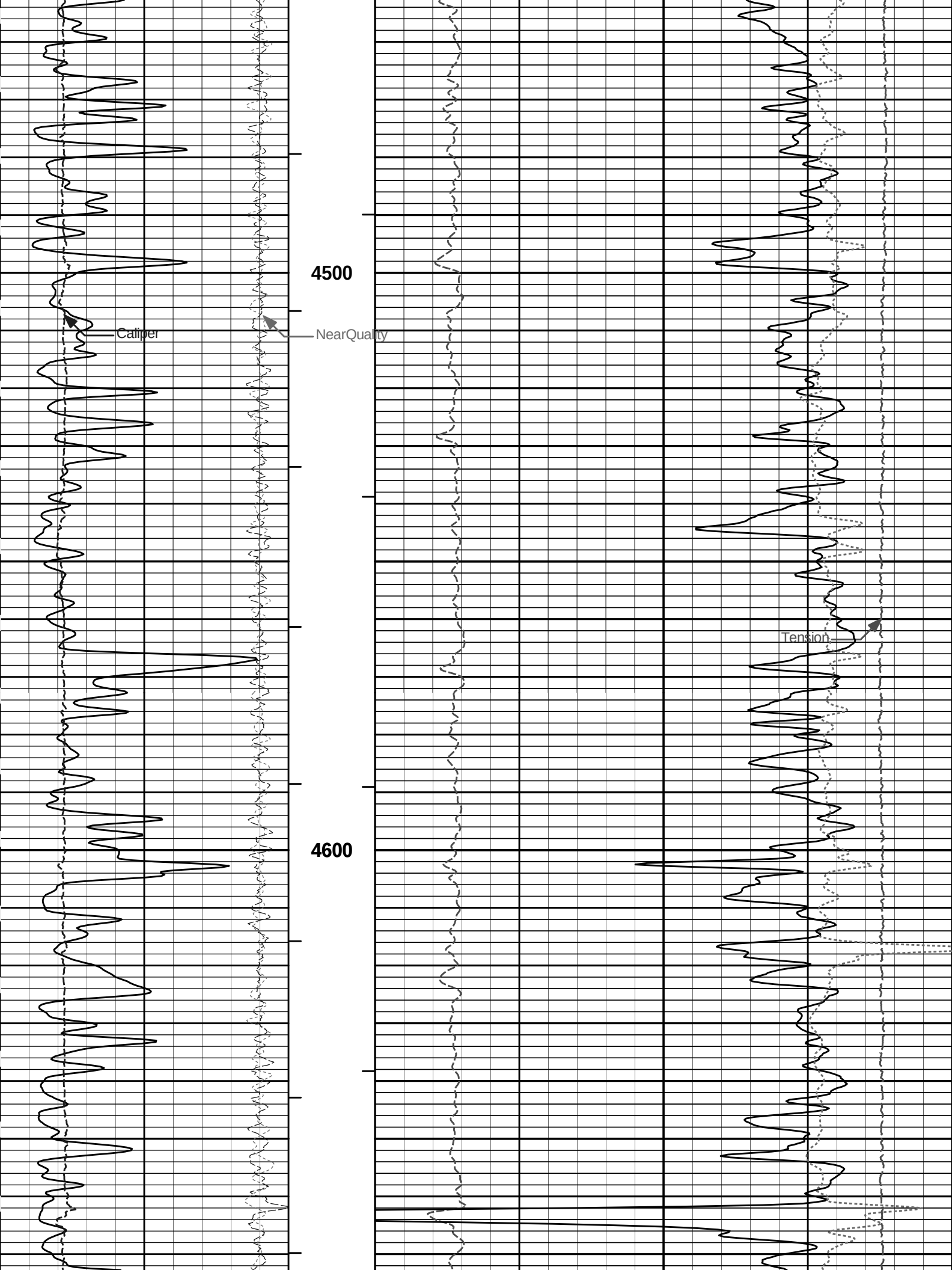

3400
3500
Tension
Caliper
NearQuality

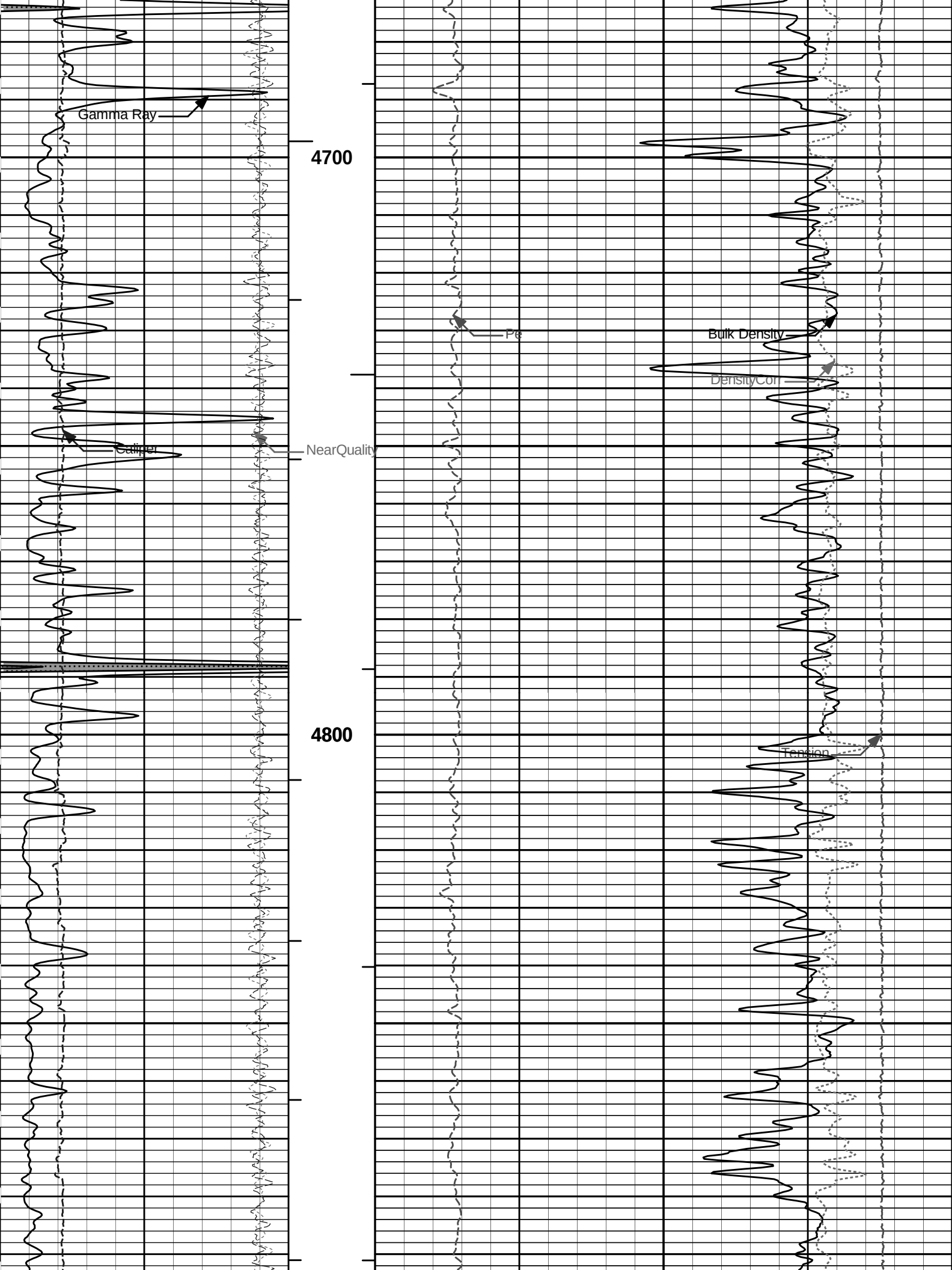

3600
3700
Gamma Ray
Caliper
NearQuality
Pe
Bulk Density
DensityCorr
Tension

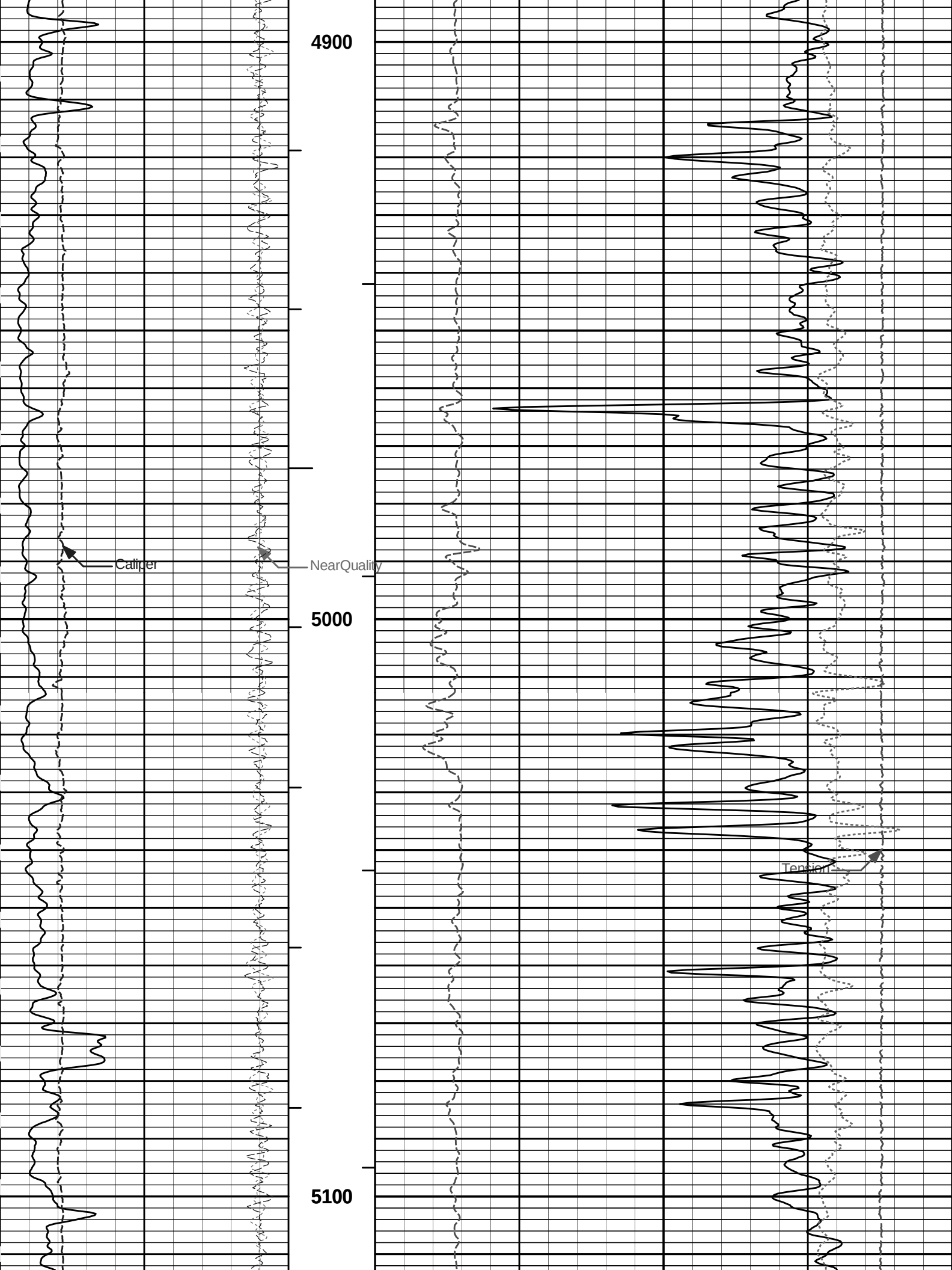

3800
3900
4000
Tension

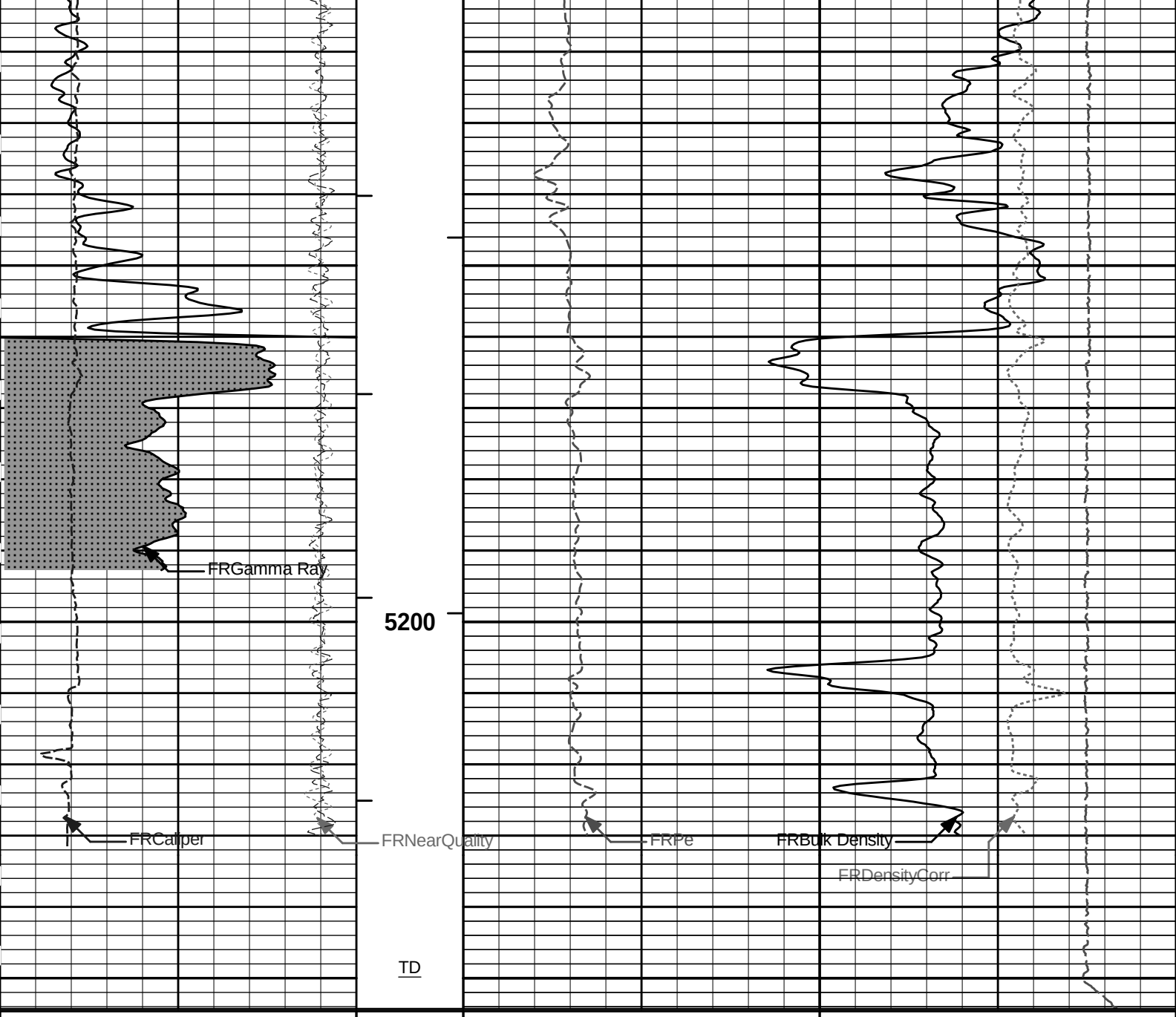

Caliper
NearQuality
4100
Tension
Gamma Ray
4200
Pe
Bulk Density


Caliper
NearQuality
4300
Tension
DensityCon
4400


4500
4600
Caliper
NearQuality
Tension


Gamma Ray
4700
Caliper
NearQuality
Pe
Bulk Density
DensityCorr
4800
Tension


4900
5000
5100
Caliper
NearQuality
Tension



6 Caliper 16	1 : 240 ft	0 Pe 10	-0.25 DensityCorr 0.25		
inches			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	Tension Pull 10 0				
api					
SHALE	Tension Pull				

HALLIBURTON

Plot Time: 04-Mar-11 08:17:54
Plot Range: 625 ft to 5254.33 ft
Data: WELLINGTON_1_28\Well Based\DAQ-0001-003
Plot File: \\-LOCAL-\WELLINGTON_1_28\Well Based\PORO\BULKD_5_MAIN_LIB

5 INCH MAIN LOG

HALLIBURTON

Plot Time: 04-Mar-11 08:17:54
Plot Range: 4750 ft to 5254.25 ft
Data: WELLINGTON_1_28\Well Based\DAQ-0001-002\
Plot File: \\-LOCAL-\WELLINGTON_1_28\Well Based\PORO\BULKD_5_REP_LIB

REPEAT SECTION

SHALE

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

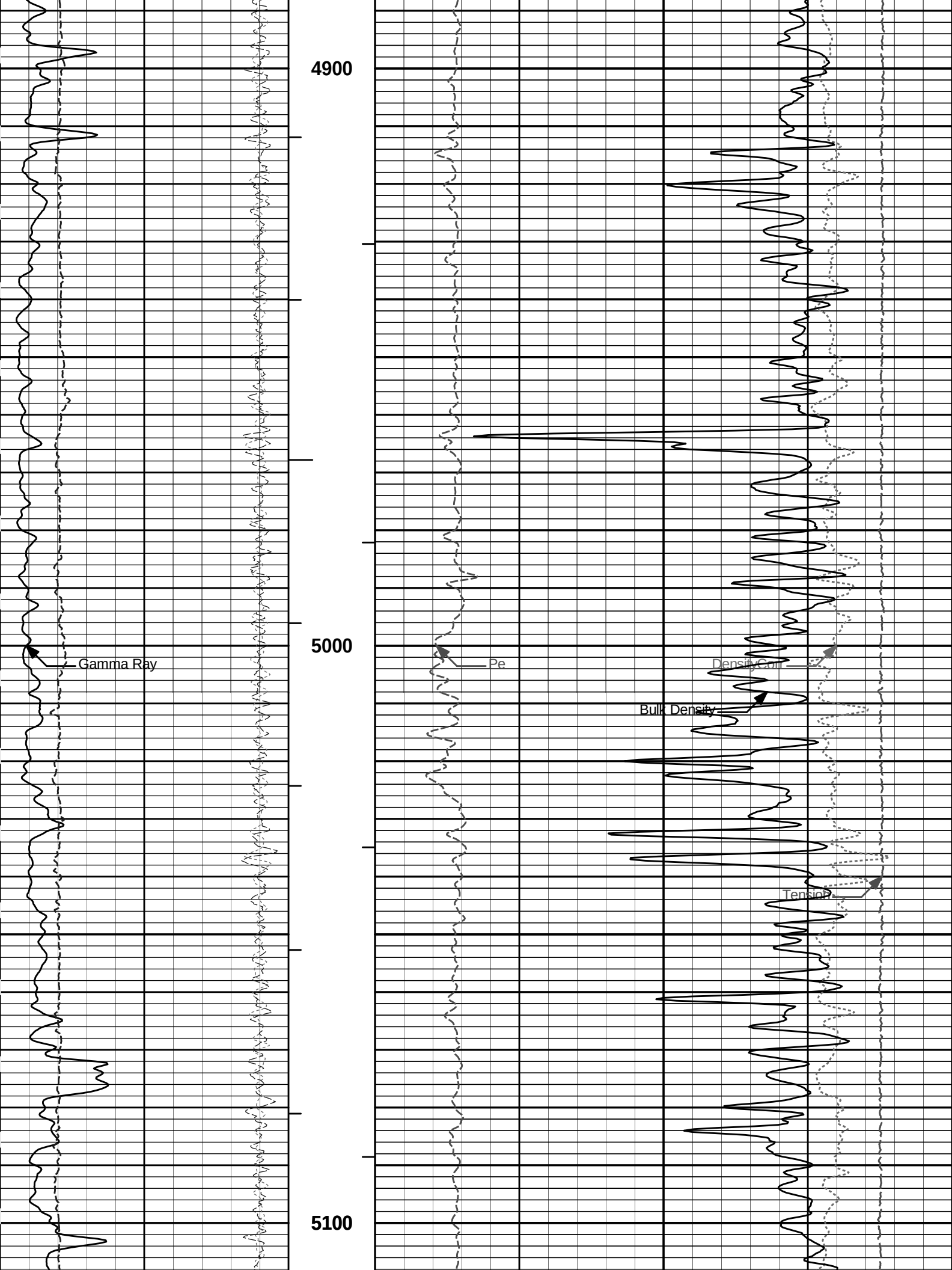
0 **Pe** 10

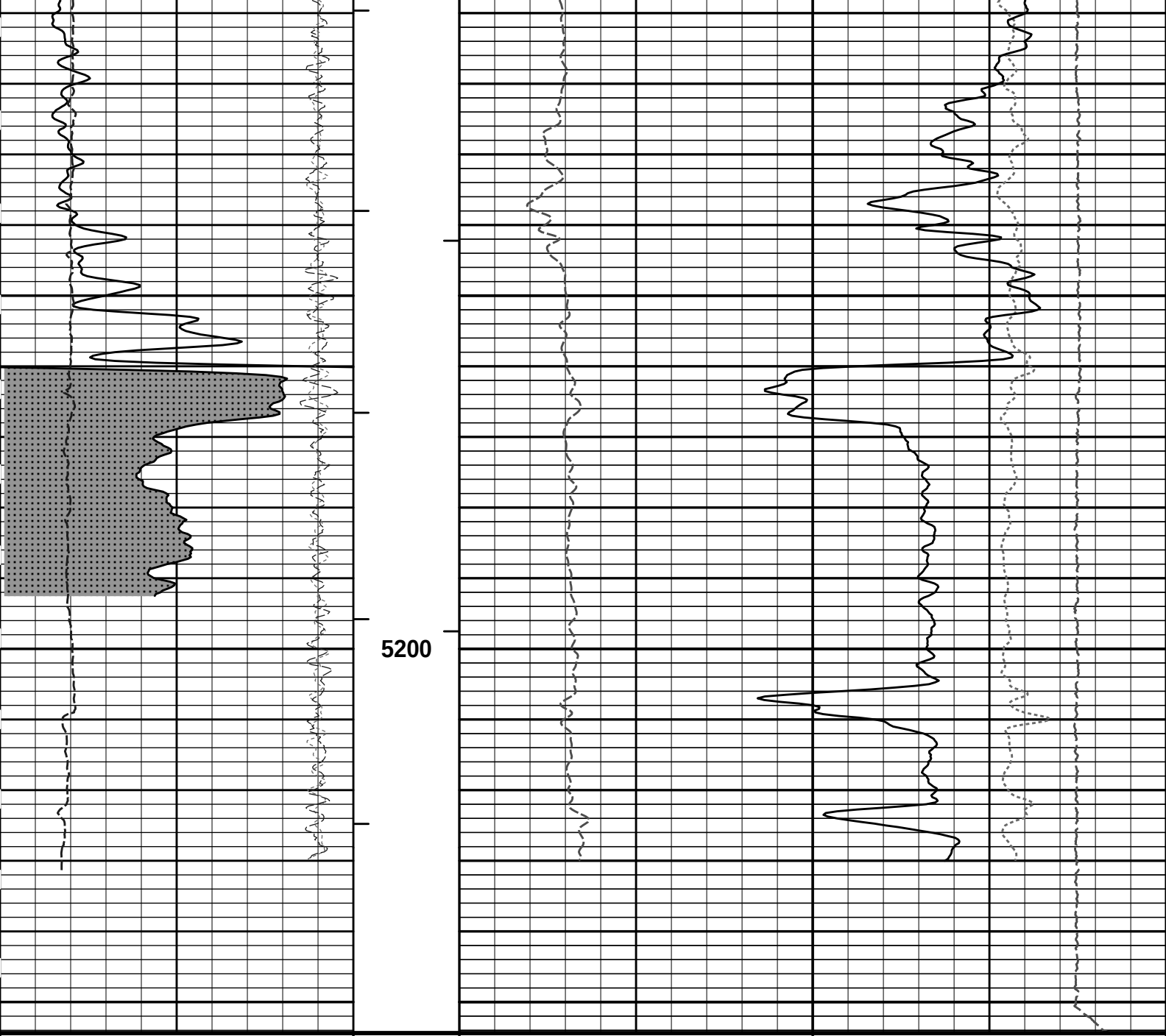
15K **Tension** **0**
pounds

-0.25 **DensityCorr** 0.25
g/cc

4800

Tension


4900
5000
5100
Gamma Ray
Pe
DensityCorr
Bulk Density
TensionP



6	Caliper	16	1 : 240 ft	0 Pe 10	-0.25 DensityCorr 0.25
	inches				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				
	SHALE				

HALLIBURTON

Plot Time: 04-Mar-11 08:17:57
Plot Range: 4750 ft to 5254.25 ft
Data: WELLINGTON_1_28\Well Based\DAQ-0001-002
Plot File: \\-LOCAL-\WELLINGTON_1_28\Well Based\PORO\BULKD_5_REP_LIB

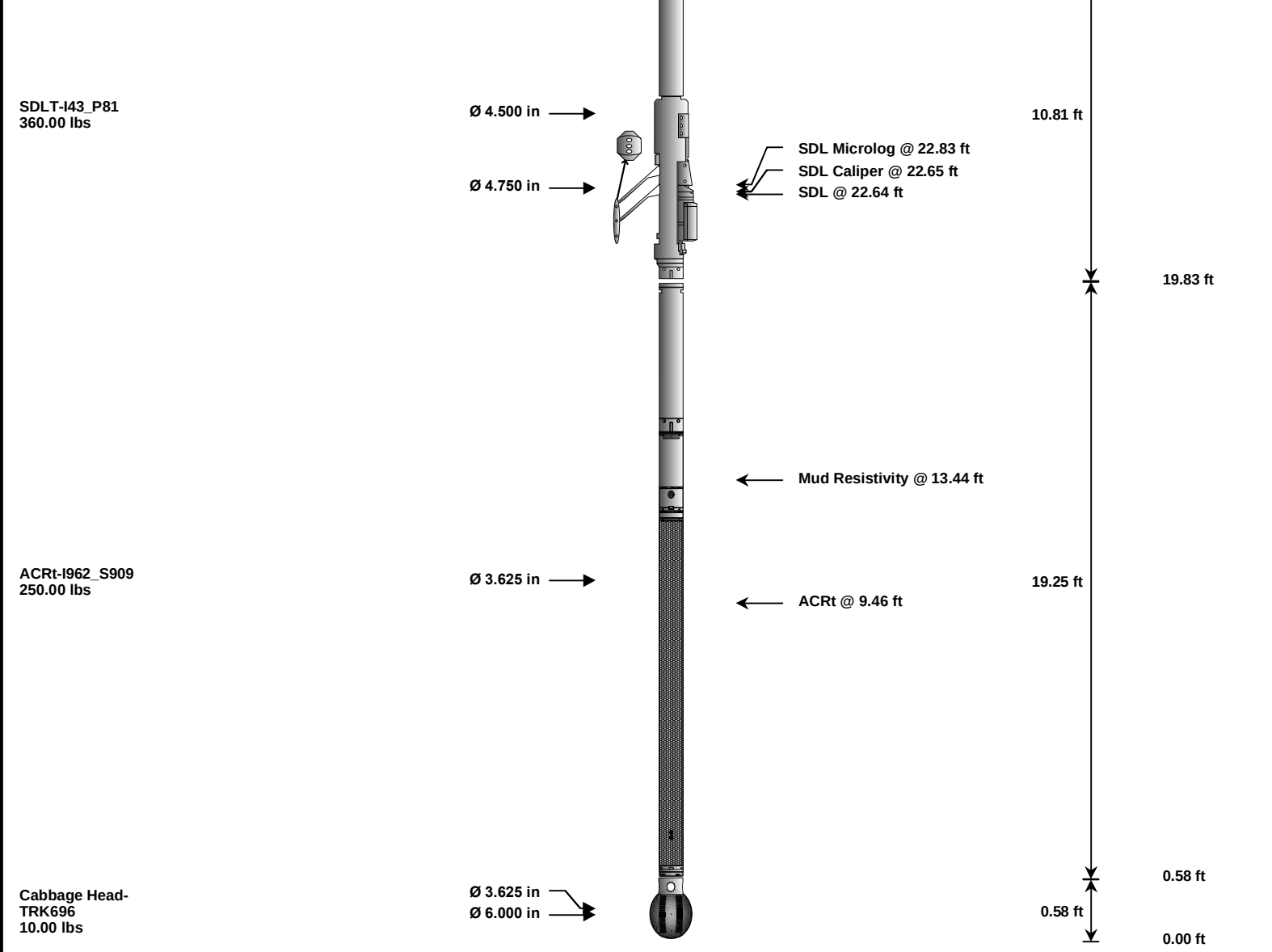
REPEAT SECTION

REPEAT SECTION

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Sensors @ Delays	Length	Accumulated Length
					74.37 ft
CH_HOS-CH_696 37.50 lbs		Ø 2.750 in →	← Temperature @ 73.35 ft	3.03 ft	
		Ø 2.750 in →			71.35 ft
XOHD-TRK696 20.00 lbs		Ø 3.625 in →		0.95 ft	
					70.40 ft
SP Sub-PROT01 60.00 lbs		Ø 3.625 in →	← SP @ 68.62 ft	3.74 ft	
					66.66 ft
GTET-11039640 165.00 lbs		Ø 3.625 in →		8.52 ft	
			← GammaRay @ 60.59 ft		
					58.14 ft
CSNG-10727964 114.00 lbs		Ø 3.625 in →		8.17 ft	
			← CSNG @ 52.51 ft		
		Ø 3.625 in →			49.97 ft
GEMT-I921_S893 300.00 lbs		Ø 4.900 in →		9.64 ft	
			← BGO Crystal @ 42.49 ft		
					40.33 ft
	DSN Decentralizer-10755066 6.60 lbs	Ø 3.625 in* →			
DSNT-11019643 174.00 lbs		Ø 3.625 in →		9.69 ft	
			← DSN Far @ 33.39 ft ← DSN Near @ 32.64 ft		
					30.64 ft



Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)		Accumulated Length (ft)	Max.Log. Speed (fpm)
CH HOS	Hostile Cable Head with Load Cell	CH 696	37.50	3.03		71.35	300.00
XOHD	Hostile to Dits Cross Over	TRK696	20.00	0.95		70.40	300.00
SP	SP Sub	PROT01	60.00	3.74		66.66	300.00
GTET	Gamma Telemetry Tool	11039640	165.00	8.52		58.14	60.00
CSNG	Compensated Spectral Natural Gamma	10727964	114.00	8.17		49.97	15.00
GEMT	Gamma, Elements and Minerals Tool	I921_S893	300.00	9.64		40.33	15.00
DSNT	Dual Spaced Neutron	11019643	174.00	9.69		30.64	60.00
DCNT	DSN Decentralizer	10755066	6.60	5.13	*	33.97	300.00
SDLT	Spectral Density Tool	I43_P81	360.00	10.81		19.83	60.00
ACRt	Array Compensated True Resistivity	I962_S909	250.00	19.25		0.58	300.00
CBHD	Cabbage Head	TRK696	10.00	0.58		0.00	300.00
Total			**1,497.10**	**74.37**			

* Not included in Total Length and Length Accumulation.

Data: WELLINGTON_1_28\0001 SP-GTET-CSNG-GEM-DSN-SDL-ACRT-CH\IDLE **Date: 04-Mar-11 02:17:13**

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name: GTET - 11039640 **Reference Calibration Date:** 02-Jan-11 11:57:38

Engineer: C. HAVERKAMP **Calibration Date:** 15-Feb-11 06:08:03

Software Version:	**WL INSITE R3.2.0 (Build 7)**	**Calibration Version:**	**1**

Calibrator Source S/N: TB 146

Calibrator API Reference:265.00 api

Equivalent Calibrator API Reference:269.6 api

Measurement	Measured	Calibrated	Units
Background	47.2	47.7	api
Background + Calibrator	314.0	317.3	api
Calibrator	270.1	269.6	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name:	**GTET - 11039640**	**Reference Calibration Date:**	**15-Feb-11 06:08:03**
Engineer:	**J. BOSH**	**Calibration Date:**	**03-Mar-11 22:18:35**
Software Version:	**WL INSITE R3.2.0 (Build 7)**	**Calibration Version:**	**1**

Calibrator Source S/N: TB 146

Calibrator API Reference:265.00 api

Equivalent Calibrator API Reference:269.6 api

Field Verification	Shop	Field	Units
Background	47.7	45.8	api
Background + Calibrator	317.3	310.0	api
Calibrator	269.6	264.2	api

Shop	Field	Difference	Tolerance
269.6	264.2	5.4	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name:	**DSNT - 11019643**	**Reference Calibration Date:**	**20-Jan-11 15:50:05**
Engineer:	**C. HAVERKAMP**	**Calibration Date:**	**27-Feb-11 15:45:52**
Software Version:	**WL INSITE R3.2.0 (Build 7)**	**Calibration Version:**	**1**

Logging Source S/N: DSN-424

Tank Serial Number: LIB-105060

Reference value assigned to Tank: 51.680

Snow Block S/N: 696 BLOCK

Calibration Tank Water Temperature: 69 degF

Min. Tool Housing Outside Diameter: 3.620 in

CALIBRATION CONSTANTS			
Measurement	**Prev. Value**	**New Value**	**Control Limit On New Value**
Gain:	0.944	0.944	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):	0.2106	0.2107	0.0001	+/- 0.0020
Calibrated Ratio:	9.71	9.72	0.003	+/- 0.050

VERIFIER		
Measurement	**Value**	**Control Limit**
Snow-Block Porosity (decp):	0.0603	0.02000 - 0.09000

PASS/FAIL SUMMARY	
Background Check:	Passed

Background Check:	Passed
Gain-Range Check:	Passed
Snow-Block Check:	Passed

DUAL SPACED NEUTRON FIELD CALIBRATION

Tool Name:	**DSNT - 11019643**	**Reference Calibration Date:**	**27-Feb-11 15:45:52**
Engineer:	**J. BOSH**	**Calibration Date:**	**03-Mar-11 22:44:45**
Software Version:	**WL INSITE R3.2.0 (Build 7)**	**Calibration Version:**	**1**

Logging Source S/N: DSN-424

Snow Block S/N: 696 BLOCK

NEUTRON FIELD-CHECK SUMMARY

	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0603	0.0635	0.0033	+/- 0.0150

PASS/FAIL SUMMARY

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

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name:	**SDLT - I43_P81**	**Reference Calibration Date:**	**21-Dec-10 15:10:55**
Engineer:	**J. BOSH**	**Calibration Date:**	**20-Jan-11 14:12:19**
Software Version:	**WL INSITE R3.2.0 (Build 7)**	**Calibration Version:**	**1**

Logging Source S/N: 5168GW

Aluminum Block S/N: LIBERAL Density: 2.598g/cc Pe: 3.170

Magnesium Block S/N: LIBERAL Density: 1.684g/cc Pe: 2.594

DENSITY CALIBRATION SUMMARY

Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0171	1.0689	0.90 - 1.10
Near Dens Gain	1.0159	1.0363	0.90 - 1.10
Near Peak Gain	1.0166	1.0351	0.90 - 1.10
Near Lith Gain	0.9947	1.0202	0.90 - 1.10
Far Bar Gain	1.0156	1.0170	0.90 - 1.10
Far Dens Gain	1.0057	1.0059	0.90 - 1.10
Far Peak Gain	1.0010	0.9992	0.90 - 1.10
Far Lith Gain	0.9815	0.9859	0.90 - 1.10
Near Bar Offset	-0.0061	-0.4849	NONE
Near Dens Offset	-0.0093	-0.1904	NONE
Near Peak Offset	-0.0109	-0.1651	NONE
Near Lith Offset	0.1744	-0.0352	NONE
Far Bar Offset	-0.0576	-0.0709	NONE
Far Dens Offset	0.0264	0.0218	NONE
Far Peak Offset	0.0515	0.0641	NONE
Far Lith Offset	0.2022	0.1651	NONE
Near Bar Background	847.55	844.59	700 - 1450
Near Dens Background	277.60	277.38	230 - 480
Near Peak Background	121.10	120.71	100 - 210
Near Lith Background	148.87	148.64	125 - 260
Far Bar Background	551.60	549.97	450 - 900
Far Dens Background	216.71	215.77	175 - 345

Far Peak Background	87.46	86.26	70 - 140
Far Lith Background	89.43	89.02	75 - 145

CALIBRATION BLOCK SUMMARY

Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.680	1.684	0.004	+/- 0.015
Pe	2.579	2.547	-0.032	+/- 0.150
ALUMINUM				
Density (g/cc)	2.599	2.598	-0.001	+/- 0.01500
Pe	3.170	3.118	-0.052	+/- 0.150

TOOL SUMMARY

Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	0.0000	+/- 0.0110	-0.0019	+/- 0.0140
Magnesium Block	-0.0005	+/- 0.0110	-0.0009	+/- 0.0140
Aluminum Block	0.0000	+/- 0.0110	-0.0000	+/- 0.0140
Resolution	9.36	6.00 - 11.50	8.89	6.00 - 11.50
Internal Verifier(B+D+P+L)	1391	1200 - 2700	941	800 - 1700

PASS/FAIL SUMMARY

Background Quality Check:	Passed
Background Range Check:	Passed
Background Resolution Check:	Passed
Background Verification Check:	Passed
Magnesium Quality Check:	Passed
Aluminum Quality Check:	Passed
Gains Check:	Passed
Changes in Calibration Blocks:	Passed

SPECTRAL DENSITY FIELD CHECK

Tool Name: SDLT - I43_P81 **Reference Calibration Date:** 20-Jan-11 14:12:19

Engineer: J. BOSH **Calibration Date:** 03-Mar-11 22:23:45

Software Version: WL INSITE R3.2.0 (Build 7) **Calibration Version:** 1

Pad Temperature: 57.6 degF

DENSITY FIELD CALIBRATION SUMMARY

Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1391.322	1399.387	8.065	15.067
Far (B+D+P+L) cps	941.013	947.543	6.530	16.569
Near Resolution	9.36	9.65	0.290	0.50
Far Resolution	8.89	9.50	0.610	1.00

PASS/FAIL SUMMARY

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

DENSITY CALIPER SHOP CALIBRATION

Tool Name:	**SDLT - I43_P81**	**Reference Calibration Date:**	**20-Jan-11 14:50:50**
Engineer:	**J. BOSH**	**Calibration Date:**	**20-Jan-11 14:56:29**
Software Version:	**WL INSITE R3.2.0 (Build 7)**	**Calibration Version:**	**1**

CALIBRATION COEFFICIENTS

Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-1741.53	-1826.97	-7000.00 - -1000.00
Pad Gain	0.0003895	0.0003917	0.000200 - 0.000600
Arm Offset	-502.76	169.01	-5000.00 - 3000.00
Arm Gain	0.0005636	0.0004929	0.000300 - 0.000700
Arm Power	-0.000008569	-0.000004363	-0.000010 - 0.000010

The ring diameter is computed from: DIAMETER = PAD EXTENSION + ARM EXTENSION + TOOL DIAMETER

Tool Diameter: 4.50 in

CALIBRATION RINGS

Measurement	Current Reading (Previous Coeff.)	Calibrated (New Coeff.)	Change	Control Limit On New Value
PAD EXTENSION:				
Small Ring (in)	2.02	2.00	-0.02	+/- 0.20
Medium Ring (in)	3.76	3.75	-0.01	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.42	6.50	0.08	+/- 0.20
Medium Ring (in)	8.34	8.25	-0.09	+/- 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 - I43_P81**	**Reference Calibration Date:**	**20-Jan-11 14:56:29**
Engineer:	**J. BOSH**	**Calibration Date:**	**03-Mar-11 22:35:35**
Software Version:	**WL INSITE R3.2.0 (Build 7)**	**Calibration Version:**	**1**

MEASURED CALIPER VALUES

Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.84	0.09	+/- 0.10
Ring Diameter	8.25	8.36	0.11	+/- 0.15

PASS/FAIL SUMMARY

Pad Extension Check:	Passed
Diameter Check:	Passed

CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-11039640						
Gamma Ray Calibrator	269.6	264.2	----------	5.4	+/- 9.00	api
DSNT-11019643						
Snow-Block Porosity	0.0603	0.0635	----------	-0.0032	+/- 0.0150	decp
SDLT-I43_P81						
Near(B+D+P+L)	1391.322	1399.387	----------	-8.065	+/-15.067	cps

Far(B+D+P+L)	941.013	947.543	----------	-6.530	+/-16.569	cps
Pad Extension	3.75	3.84	----------	-0.09	+/-0.10	in
Ring Diameter	8.25	8.36	----------	-0.110	+/-0.15	in

Data: WELLINGTON_1_28\0001 SP-GTET-CSNG-GEM-DSN-SDL-ACRT-CH\IDLE **Date: 04-Mar-11 02:18:36**

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	9.000	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	1.260	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	5250.00	ft
	SHARED	BHT	Bottom Hole Temperature	130.0	degF
	SHARED	SVTM	Navigation and Survey Master Tool	NONE	
	SHARED	AZTM	High Res Z Accelerometer Master Tool	GTET	
	SHARED	TEMM	Temperature Master Tool	NONE	
	SHARED	BHSM	Borehole Size Master Tool	NONE	
	GTET	GROK	Process Gamma Ray?	Yes	
	GTET	GRSO	Gamma Tool Standoff	0.000	in
	GTET	GEOK	Process Gamma Ray EVR?	No	
	GTET	TPOS	Tool Position	Centered	
	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	
	GEMT	GMOK	Compute GEMT Results?	Yes	
	GEMT	FTAL	Fit Chemical Element Al	Yes	
	GEMT	FTBA	Fit Chemical Element Ba	No	
	GEMT	FITC	Fit Chemical Element C	Yes	
	GEMT	FTCA	Fit Chemical Element Ca	Yes	
	GEMT	FTCL	Fit Chemical Element Cl	Yes	
	GEMT	FTFE	Fit Chemical Element Fe	Yes	
	GEMT	FTGD	Fit Chemical Element Gd	Yes	
	GEMT	FITH	Fit Chemical Element H	Yes	
	GEMT	FTK	Fit Chemical Element K	Yes	
	GEMT	FTMG	Fit Chemical Element Mg	Yes	
	GEMT	FTMN	Fit Chemical Element Mn	Yes	
	GEMT	FTNA	Fit Chemical Element Na	No	
	GEMT	FITO	Fit Chemical Element O	Yes	
	GEMT	FTS	Fit Chemical Element S	Yes	
	GEMT	FTSI	Fit Chemical Element SI	Yes	

	GEMT	FTTI	Fit Chemical Element Ti	Yes	
	GEMT	KFIT	Potassium constraint flag (No = don't fit,Yes = fit)	Yes	
	GEMT	UFDF	Use Fix Resolution Degradation Factor	No	
	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	0.300	in
	DSNT	DNTP	Temperature Correction Type	None	
	DSNT	DPRS	DSN Pressure Correction Type	None	
	DSNT	SHCO	View More Correction Options	No	
	DSNT	UTVD	Use TVD for Gradient Corrections?	No	
	DSNT	LHWT	Logging Horizontal Water Tank?	No	
	SDLT	DNOK	Process Density?	Yes	
	SDLT	DNOK	Process Density EVR?	No	
	SDLT	CB	Logging Calibration Blocks?	No	
	SDLT	SPVT	SDLT Pad Temperature Valid?	Yes	
	SDLT	DTWN	Disable temperature warning	No	
	SDLT	DMA	Formation Density Matrix	2.710	g/cc
	SDLT	DFL	Formation Density Fluid	1.000	g/cc
	SDLT	CLOK	Process Caliper Outputs?	Yes	
	SDLT	MLOK	Process MicroLog Outputs?	Yes	
	ACRt	RTOK	Process ACRt?	Yes	
	ACRt	MNSO	Minimum Tool Standoff	1.50	in
	ACRt	TCS1	Temperature Correction Source	FP Lwr & FP Upr	
	ACRt	TPOS	Tool Position	Free Hanging	
	ACRt	RMOP	Rmud Source	Mud Cell	
	ACRt	RMIN	Minimum Resistivity for MAP	0.20	ohmm
	ACRt	RMIN	Maximum Resistivity for MAP	200.00	ohmm
	ACRt	THQY	Threshold Quality	0.50	
BOTTOM					

Data: WELLINGTON_1_28\0001 SP-GTET-CSNG-GEM-DSN-SDL-ACRT-CH\IDLE **Date: 04-Mar-11 02:20:28**

HALLIBURTON

INPUTS, DELAYS AND FILTERS TABLE

Mnemonic	Input Description	Delay (ft)	Filter Type	Filter Length (ft)
	Depth Panel			
TENS	Tension	0.00	NO	
	CH_HOS			
DHTN	DownholeTension	0.00	BLK	0.000
	SP Sub			
PLTC	Plot Control Mask	68.62	NO	
SP	Spontaneous Potential	68.62	BLK	1.250
SPR	Raw Spontaneous Potential	68.62	NO	
SPO	Spontaneous Potential Offset	68.62	NO	
	GTET			
TPUL	Tension Pull	60.59	NO	
GR	Natural Gamma Ray API	60.59	TRI	1.750
GRU	Unfiltered Natural Gamma Ray API	60.59	NO	
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution	60.59	W	1.416 , 0.750
ACCZ	Accelerometer Z	0.00	BLK	0.083

DEVI	Inclination	0.00	NO	
	CSNG			
TPUL	Tension Pull	52.51	NO	
STAT	Status	52.51	NO	
FRMC	Tool Frame Count	52.51	BLK	0.250
TFRM	Total Frames	52.51	NO	
LSPD	Line Speed	52.51	BLK	0.250
CTIM	Accumulation time for sample	52.51	BLK	0.250
NOIS	Spectral Noise	52.51	BLK	0.250
STAB	Stabilizer Voltage in mv	52.51	BLK	0.250
STBP	Stabilizer 60 KEV Peak	52.51	BLK	0.250
AMER	Americium	52.51	BLK	0.250
FTMP	Flask PCB Temperature	52.51	BLK	0.250
SPEL	Low Energy Spectrum	52.51	BLK	0.250
SPEH	High Energy Spectrum	52.51	BLK	0.250
SSP	Stabilization Energy Spectrum	52.51	BLK	0.250
CSPC	CSNG Lo Hi Spectrum Data	52.51	NO	
	GEMT			
TPUL	Tension Pull	42.49	NO	
FRMC	Tool Frame Count	42.49	NO	
TFRM	Total Frames	42.49	NO	
LSPD	Line Speed	42.49	NO	
ATIM	Accumulation time for sample	42.49	NO	
CTIM	Accumulation time for single frame	42.49	NO	
STAT	Status	42.49	NO	
PHMI	Photomultiplier Current	42.49	NO	
PHVT	Photomultiplier Voltage	42.49	NO	
FTMP	Flask PCB Temperature	42.49	NO	
GSP	GEMT Spectrum	42.49	NO	
	DSNT			
TPUL	Tension Pull	32.54	NO	
RNDS	Near Detector Telemetry Counts	32.64	BLK	1.417
RFDS	Far Detector Telemetry Counts	33.39	TRI	0.583
DNTT	DSN Tool Temperature	32.64	NO	
DSNS	DSN Tool Status	32.54	NO	
ERND	Near Detector Telemetry Counts EVR	32.64	BLK	0.000
ERFD	Far Detector Telemetry Counts EVR	33.39	BLK	0.000
ENTM	DSN Tool Temperature EVR	32.64	NO	
	SDLT			
TPUL	Tension Pull	22.64	NO	
NAB	Near Above	22.46	BLK	0.920
NHI	Near Cesium High	22.46	BLK	0.920
NLO	Near Cesium Low	22.46	BLK	0.920
NVA	Near Valley	22.46	BLK	0.920
NBA	Near Barite	22.46	BLK	0.920
NDE	Near Density	22.46	BLK	0.920
NPK	Near Peak	22.46	BLK	0.920
NLI	Near Lithology	22.46	BLK	0.920
NBAU	Near Barite Unfiltered	22.46	BLK	0.250
NLIU	Near Lithology Unfiltered	22.46	BLK	0.250
FAB	Far Above	22.81	BLK	0.250
FHI	Far Cesium High	22.81	BLK	0.250

FLO	Far Cesium Low	22.81	BLK	0.250
FVA	Far Valley	22.81	BLK	0.250
FBA	Far Barite	22.81	BLK	0.250
FDE	Far Density	22.81	BLK	0.250
FPK	Far Peak	22.81	BLK	0.250
FLI	Far Lithology	22.81	BLK	0.250
PTMP	Pad Temperature	22.65	BLK	0.920
NHV	Near Detector High Voltage	19.83	NO	
FHV	Far Detector High Voltage	19.83	NO	
ITMP	Instrument Temperature	19.83	NO	
DDHV	Detector High Voltage	19.83	NO	
TPUL	Tension Pull	22.65	NO	
PCAL	Pad Caliper	22.65	TRI	0.250
ACAL	Arm Caliper	22.65	TRI	0.250
TPUL	Tension Pull	22.83	NO	
MINV	Microlog Lateral	22.83	BLK	0.750
MNOR	Microlog Normal	22.83	BLK	0.750

ACRt				
TPUL	Tension Pull	2.97	NO	
F1R1	ACRT 12KHz - 80in R value	9.22	BLK	0.000
F1X1	ACRT 12KHz - 80in X value	9.22	BLK	0.000
F1R2	ACRT 12KHz - 50in R value	6.72	BLK	0.000
F1X2	ACRT 12KHz - 50in X value	6.72	BLK	0.000
F1R3	ACRT 12KHz - 29in R value	5.22	BLK	0.000
F1X3	ACRT 12KHz - 29in X value	5.22	BLK	0.000
F1R4	ACRT 12KHz - 17in R value	4.22	BLK	0.000
F1X4	ACRT 12KHz - 17in X value	4.22	BLK	0.000
F1R5	ACRT 12KHz - 10in R value	3.72	BLK	0.000
F1X5	ACRT 12KHz - 10in X value	3.72	BLK	0.000
F1R6	ACRT 12KHz - 6in R value	3.47	BLK	0.000
F1X6	ACRT 12KHz - 6in X value	3.47	BLK	0.000
F2R1	ACRT 36KHz - 80in R value	9.22	BLK	0.000
F2X1	ACRT 36KHz - 80in X value	9.22	BLK	0.000
F2R2	ACRT 36KHz - 50in R value	6.72	BLK	0.000
F2X2	ACRT 36KHz - 50in X value	6.72	BLK	0.000
F2R3	ACRT 36KHz - 29in R value	5.22	BLK	0.000
F2X3	ACRT 36KHz - 29in X value	5.22	BLK	0.000
F2R4	ACRT 36KHz - 17in R value	4.22	BLK	0.000
F2X4	ACRT 36KHz - 17in X value	4.22	BLK	0.000
F2R5	ACRT 36KHz - 10in R value	3.72	BLK	0.000
F2X5	ACRT 36KHz - 10in X value	3.72	BLK	0.000
F2R6	ACRT 36KHz - 6in R value	3.47	BLK	0.000
F2X6	ACRT 36KHz - 6in X value	3.47	BLK	0.000
F3R1	ACRT 72KHz - 80in R value	9.22	BLK	0.000
F3X1	ACRT 72KHz - 80in X value	9.22	BLK	0.000
F3R2	ACRT 72KHz - 50in R value	6.72	BLK	0.000
F3X2	ACRT 72KHz - 50in X value	6.72	BLK	0.000
F3R3	ACRT 72KHz - 29in R value	5.22	BLK	0.000
F3X3	ACRT 72KHz - 29in X value	5.22	BLK	0.000
F3R4	ACRT 72KHz - 17in R value	4.22	BLK	0.000
F3X4	ACRT 72KHz - 17in X value	4.22	BLK	0.000
F3R5	ACRT 72KHz - 10in R value	3.72	BLK	0.000
F3X5	ACRT 72KHz - 10in X value	3.72	BLK	0.000
F3R6	ACRT 72KHz - 6in R value	3.47	BLK	0.000
F3X6	ACRT 72KHz - 6in X value	3.47	BLK	0.000

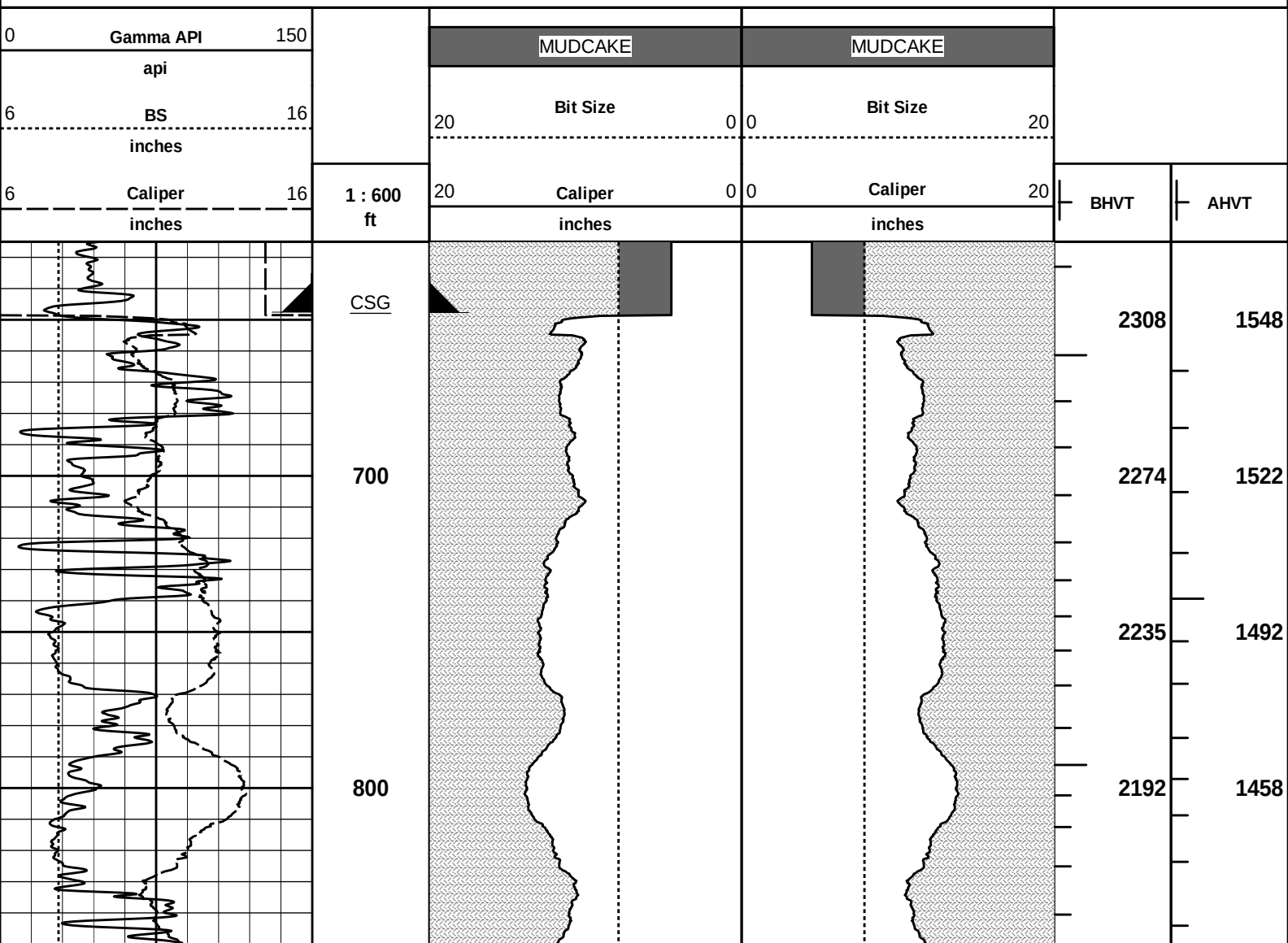
RMUD	Mud Resistivity	12.76	BLK	0.000
F1RT	Transmitter Reference 12 KHz Real Signal	2.97	BLK	0.000
F1XT	Transmitter Reference 12 KHz Imaginary Signal	2.97	BLK	0.000
F2RT	Transmitter Reference 36 KHz Real Signal	2.97	BLK	0.000
F2XT	Transmitter Reference 36 KHz Imaginary Signal	2.97	BLK	0.000
F3RT	Transmitter Reference 72 KHz Real Signal	2.97	BLK	0.000
F3XT	Transmitter Reference 72 KHz Imaginary Signal	2.97	BLK	0.000
TFPU	Upper Feedpipe Temperature Calculated	2.97	BLK	0.000
TFPL	Lower Feedpipe Temperature Calculated	2.97	BLK	0.000
ITMP	Instrument Temperature	2.97	BLK	0.000
TCVA	Temperature Correction Values Loop Off	2.97	NO	
TIDV	Instrument Temperature Derivative	2.97	NO	
TUDV	Upper Temperature Derivative	2.97	NO	
TLDV	Lower Temperature Derivative	2.97	NO	
TRBD	Receiver Board Temperature	2.97	NO	

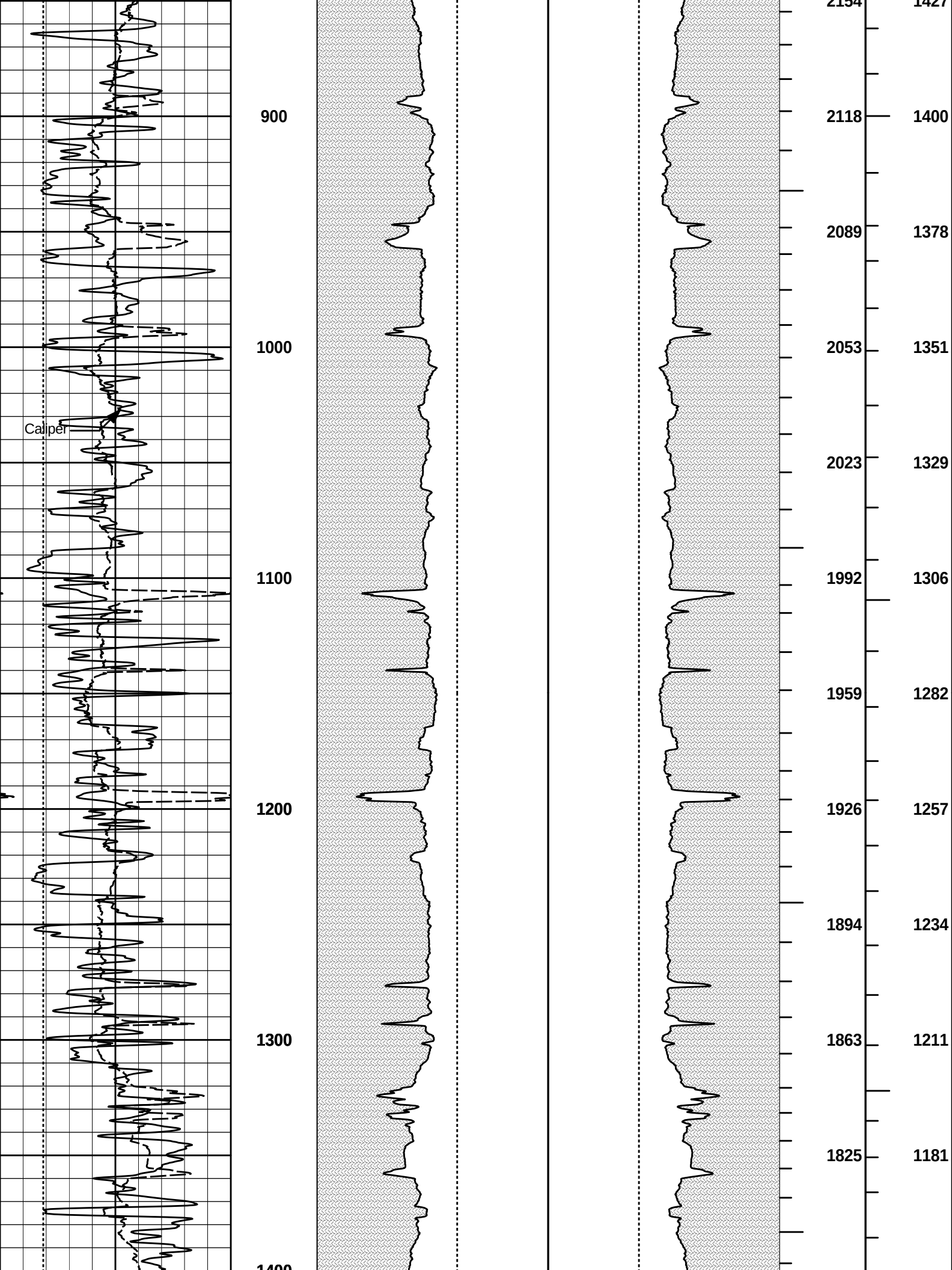
Data: WELLINGTON_1_28\0001 SP-GTET-CSNG-GEM-DSN-SDL-ACRT-CH\IDLE **Date: 04-Mar-11 02:20:52**

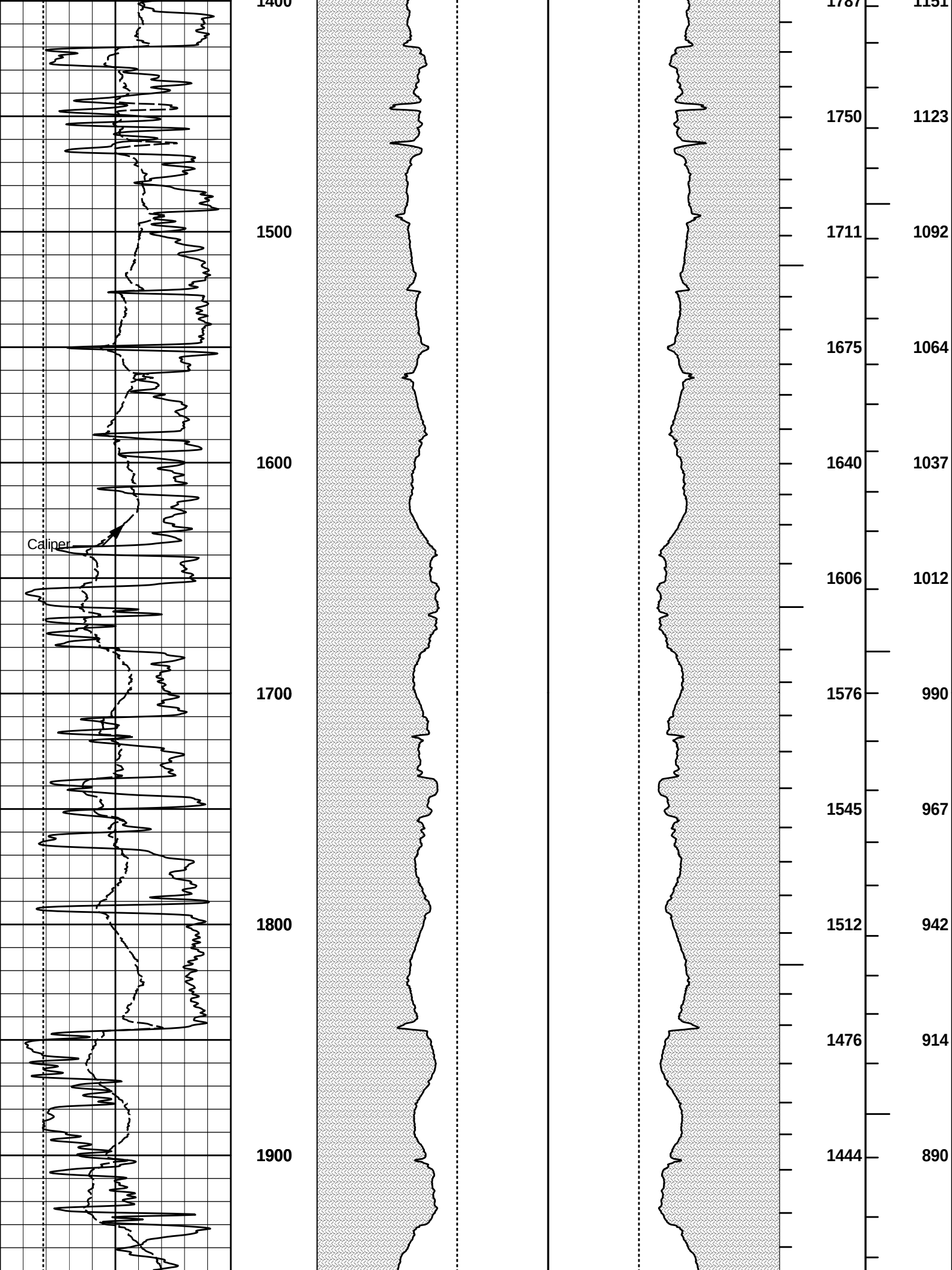
HALLIBURTON

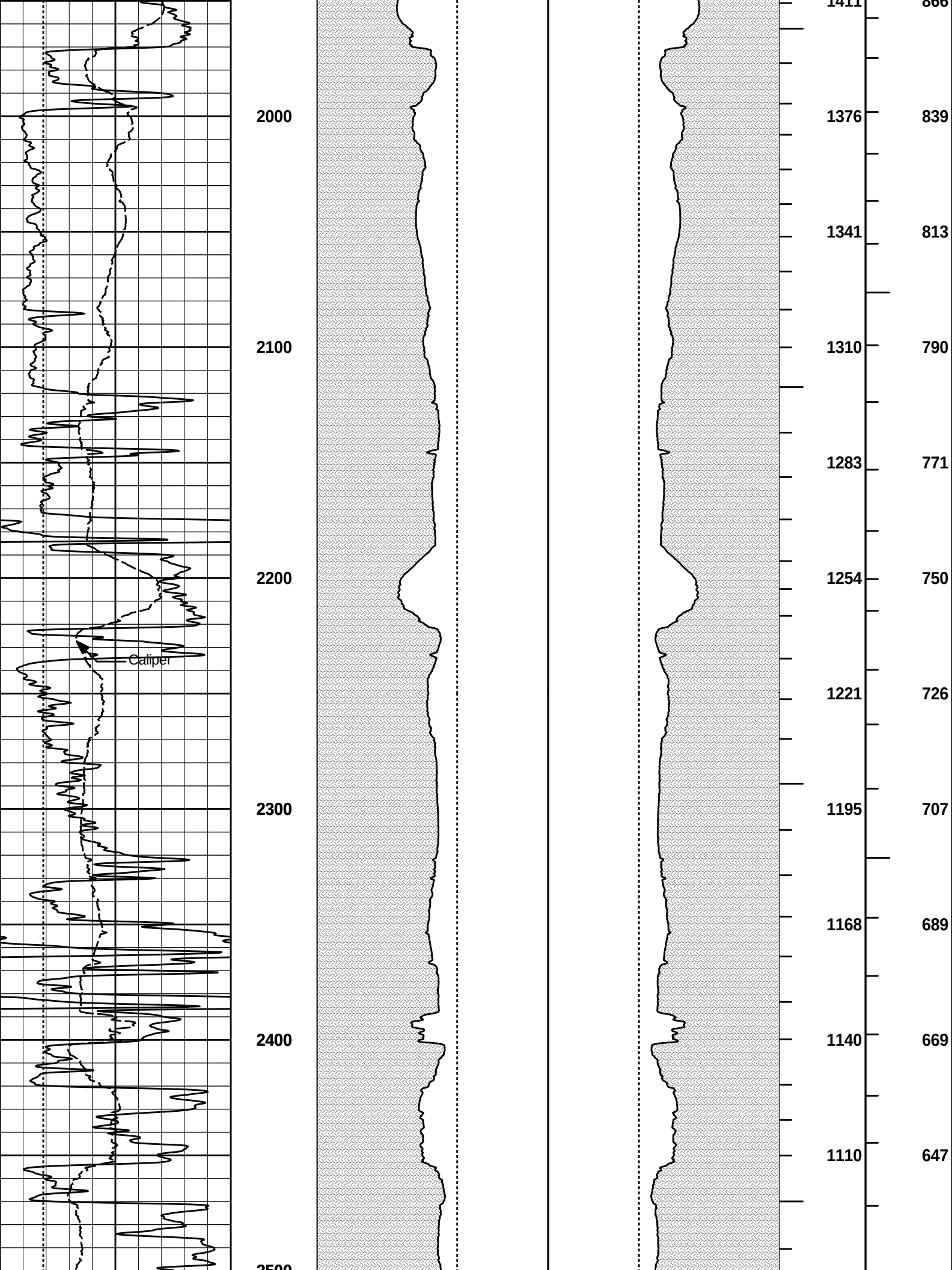
Plot Time: 04-Mar-11 08:18:01
Plot Range: 625 ft to 5254.33 ft
Data: WELLINGTON_1_28\Well Based\DAQ-0001-003
Plot File: \\-LOCAL-\WELLINGTON_1_28\Well Based\PORO\AHV_5_5_INCH_2_IQ_LIB

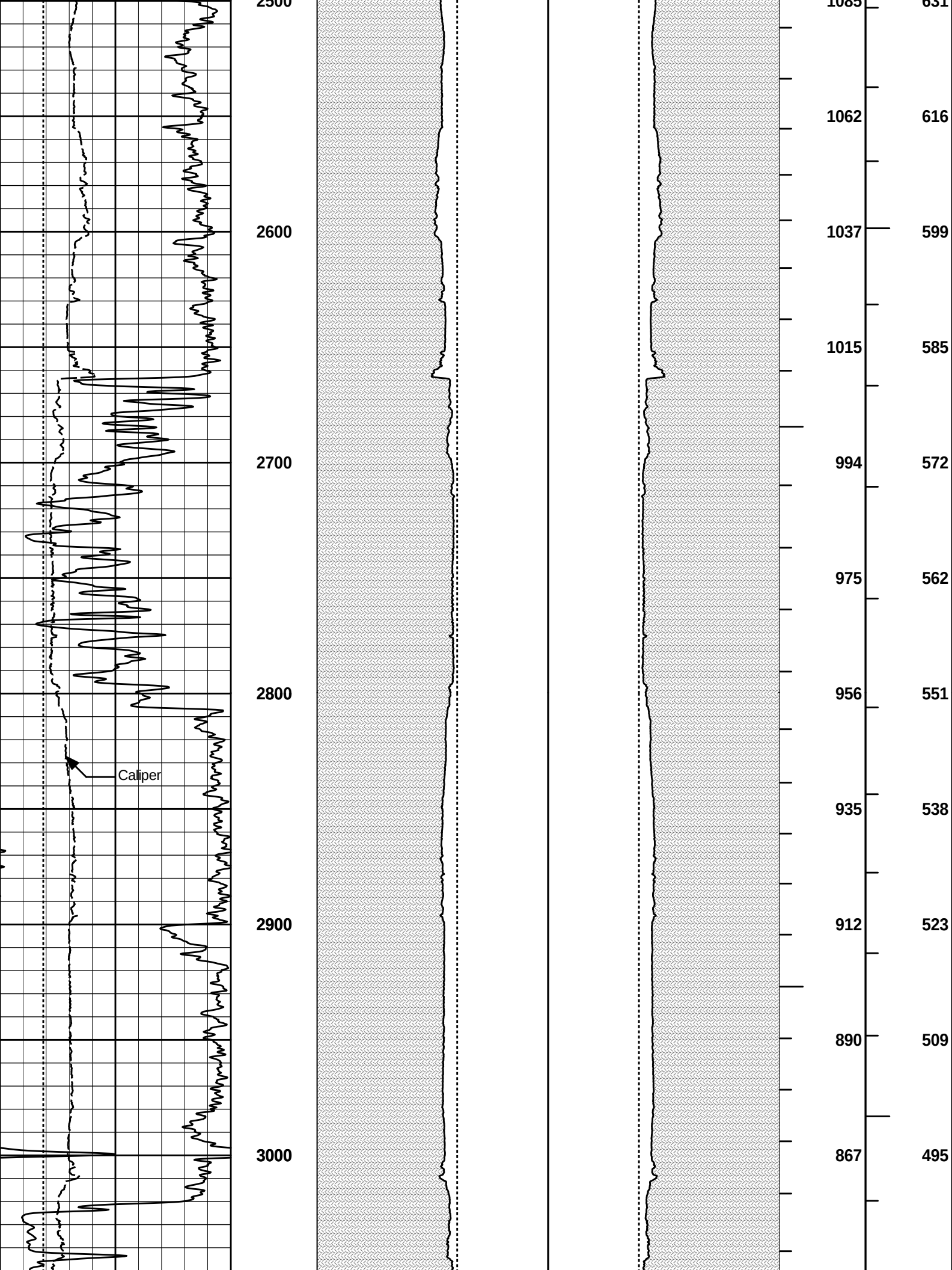
ANNULAR HOLE VOLUME PLOT (5.5 INCH)

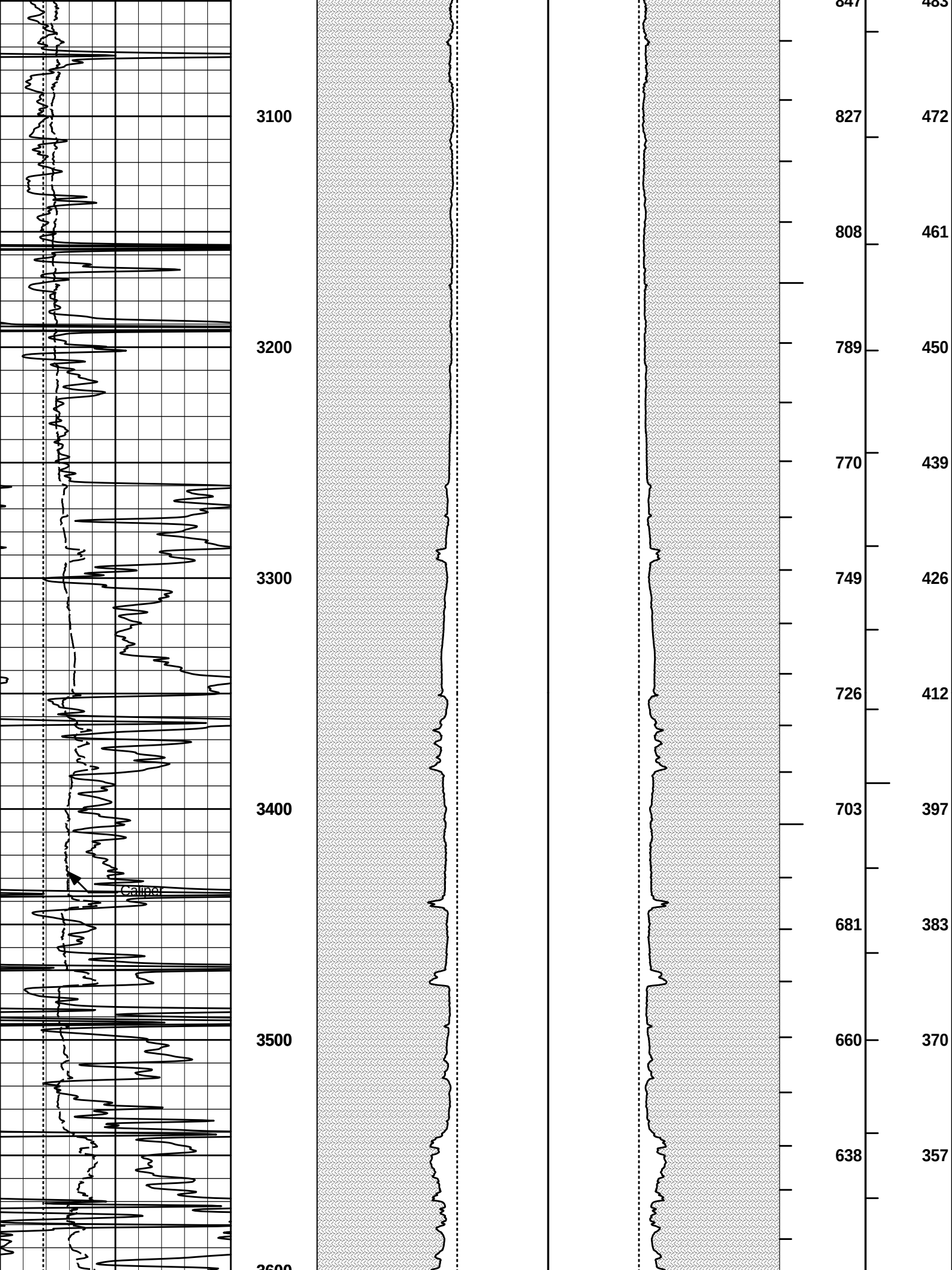


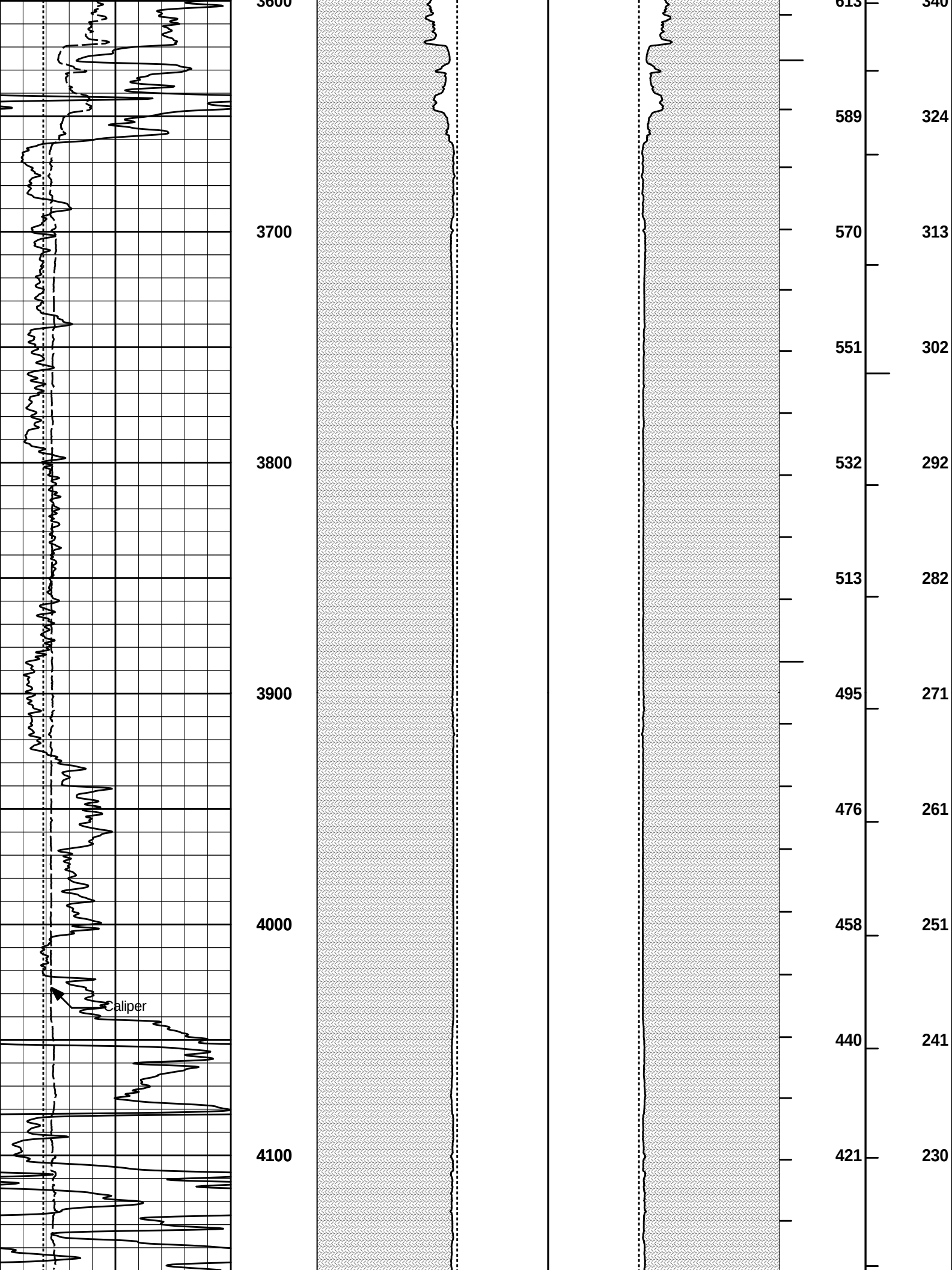

900
1000
1100
1200
1300
1400
Caliper
2154
1427
2118
1400
2089
1378
2053
1351
2023
1329
1992
1306
1959
1282
1926
1257
1894
1234
1863
1211
1825
1181

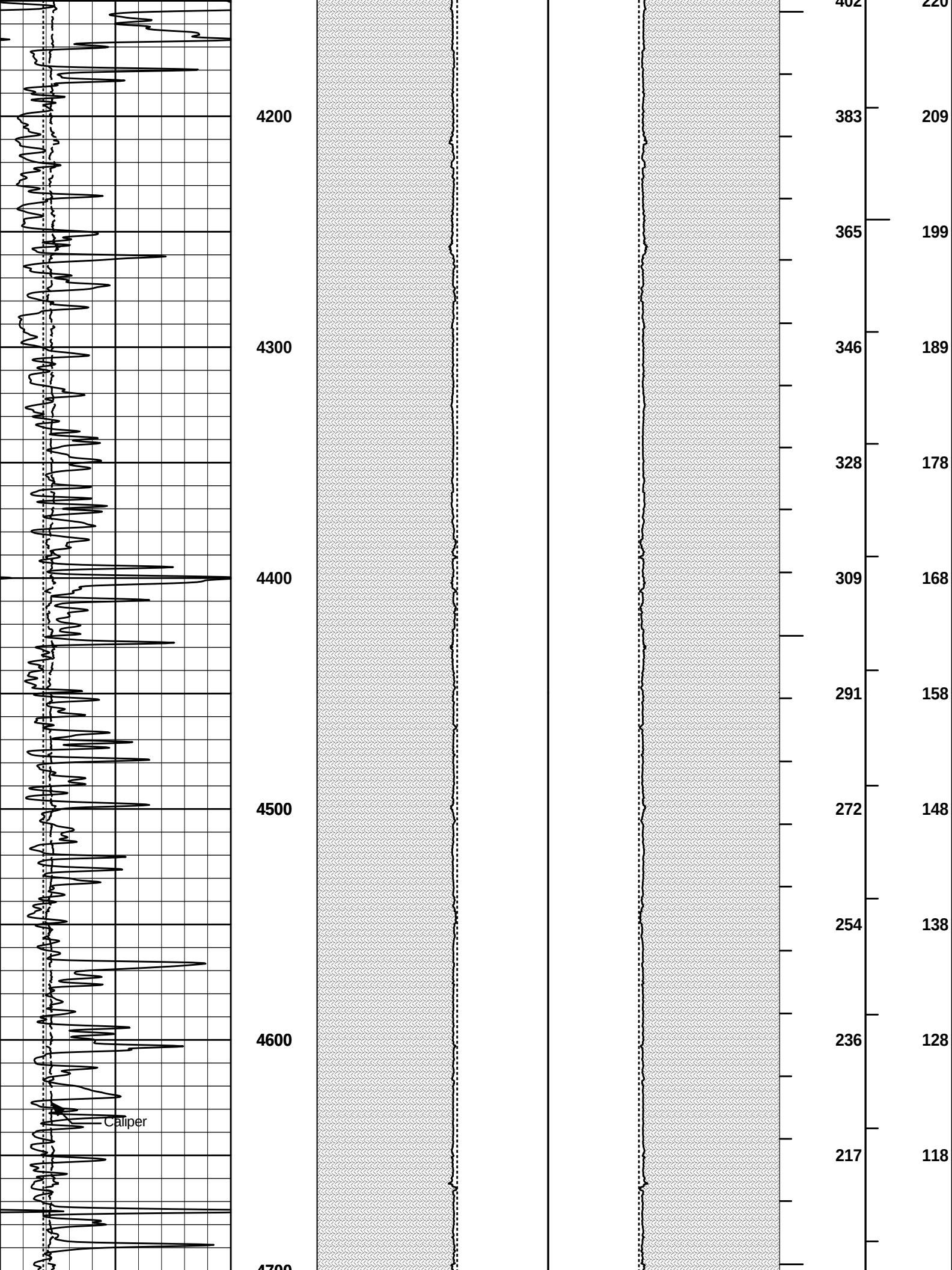

1400
1500
1600
1700
1800
1900
Caliper
1787
1750
1711
1675
1640
1606
1576
1545
1512
1476
1444
1151
1123
1092
1064
1037
1012
990
967
942
914
890

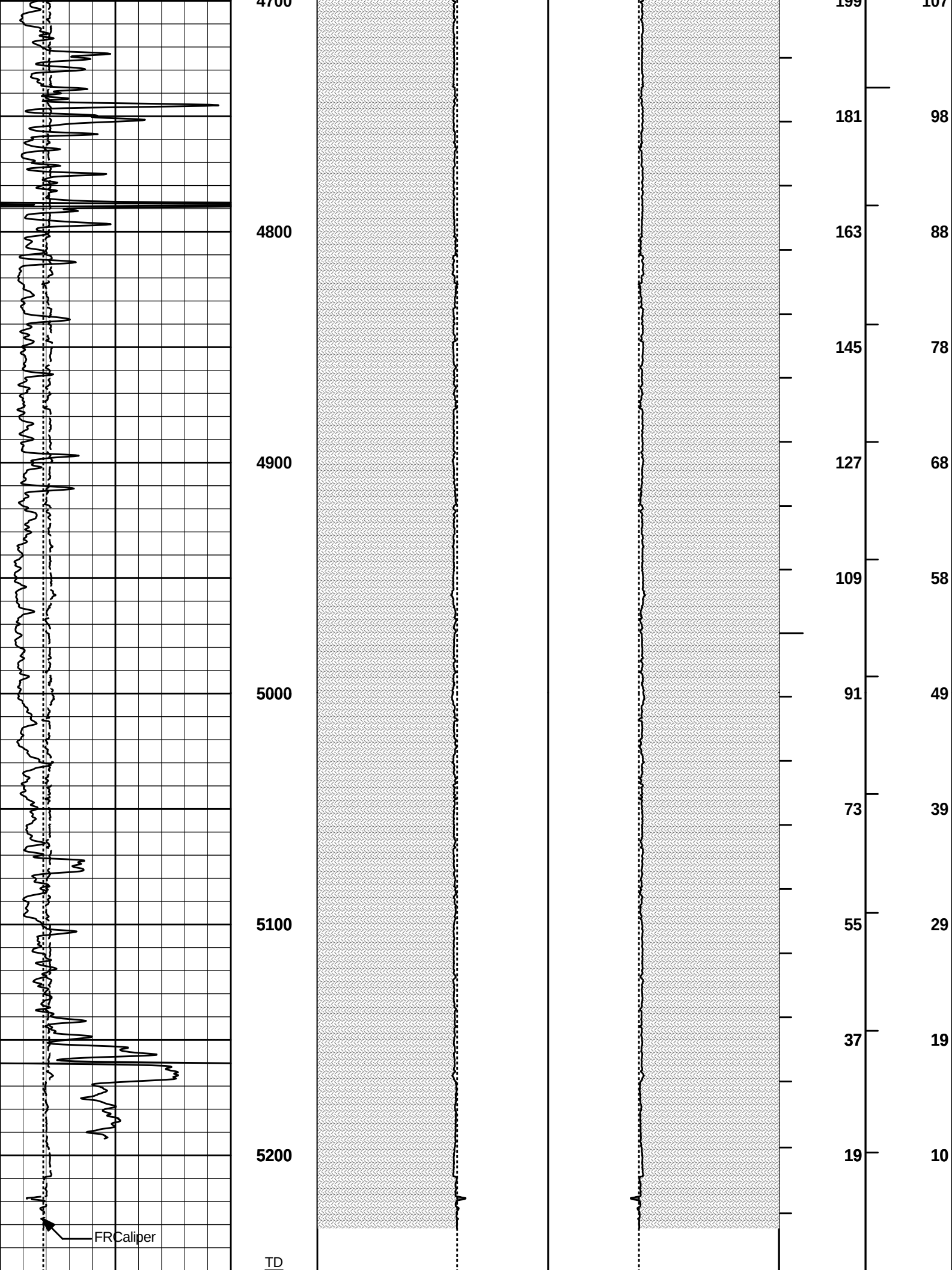

2000
2100
2200
2300
2400
2500
Caliper
1411
1376
1341
1310
1283
1254
1221
1195
1168
1140
1110
866
839
813
790
771
750
726
707
689
669
647

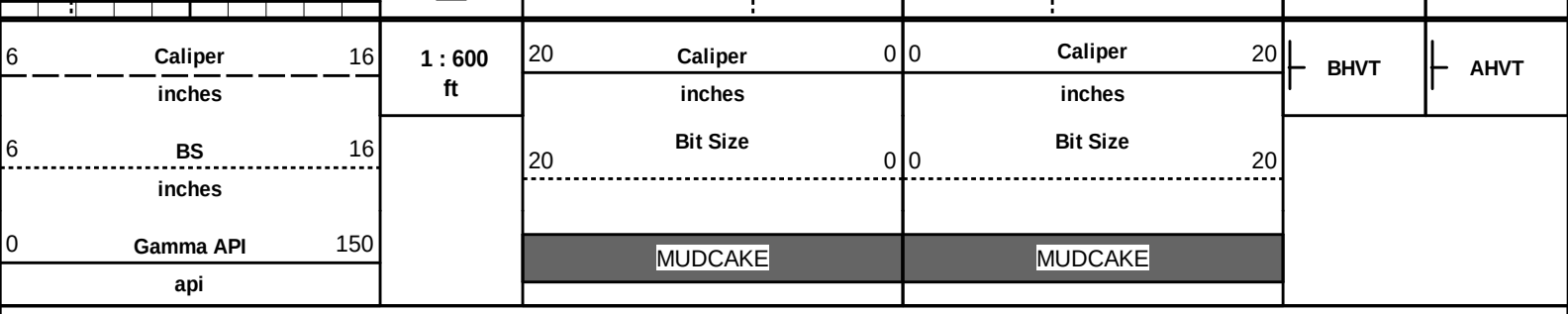

2500
2600
2700
2800
2900
3000
Caliper
1085
631
1062
616
1037
599
1015
585
994
572
975
562
956
551
935
538
912
523
890
509
867
495


3100
3200
3300
3400
3500
3600
Caliper
847
827
808
789
770
749
726
703
681
660
638
483
472
461
450
439
426
412
397
383
370
357


3600
3700
3800
3900
4000
4100
Caliper
613
589
570
551
532
513
495
476
458
440
421
340
324
313
302
292
282
271
261
251
241
230


4200
4300
4400
4500
4600
4700
Caliper
402
383
365
346
328
309
291
272
254
236
217
220
209
199
189
178
168
158
148
138
128
118


4700
4800
4900
5000
5100
5200
199
181
163
145
127
109
91
73
55
37
19
107
98
88
78
68
58
49
39
29
19
10
FRCaliper
TD



HALLIBURTON

Plot Time: 04-Mar-11 08:18:11
Plot Range: 625 ft to 5254.33 ft
Data: WELLINGTON_1_28\Well Based\DAQ-0001-003
Plot File: \\-LOCAL-\WELLINGTON_1_28\Well Based\PORO\AHV_5_5_INCH_2_IQ_LIB

ANNULAR HOLE VOLUME PLOT (5.5 INCH)

COMPANY	**BEREXCO INC.**
WELL	**WELLINGTON KGS #1-28**
FIELD	**WELLINGTON**
COUNTY	**SUMNER** STATE **KANSAS**

HALLIBURTON

SPECTRAL DENSITY
DUAL SPACED NEUTRON
LOG