HALLIBURTON

DUAL SPACED NEUTRON SPECTRAL DENSITY LOG

COMPANY	OSAGE RESOURCES LLC
WELL	OSAGE 3314 13-09 SWD
FIELD	MEDICINE LODGE BOGGS
COUNTY	BARBER
STATE	KANSAS

COMPANY **OSAGE RESOURCES LLC**

WELL **OSAGE 3314 13-09 SWD**

FIELD **MEDICINE LODGE BOGGS**

COUNTY **BARBER** STATE **KANSAS**

API No. 15-007-23917-00-00

Location 1670' FSL 1450' FEL
LAT 37.17° N LONG 98.79° W

Other Services:
ACRT
BSAT
MICRO
XRMI

Sect. 13 Twp. 33S Rge. 14W

Permanent Datum	GL	Elev. 1875.0 ft	Elev.: K.B. 1892.0 ft
Log measured from	KB	17.0 ft above perm. Datum	D.F. 1890.0 ft
Drilling measured from	KB		G.L. 1875.0 ft

Date	30-Aug-12		
Run No.	ONE		
Depth - Driller	5832.00 ft		
Depth - Logger	5787.0 ft		
Bottom - Logged Interval	5717.0 ft		
Top - Logged Interval	204.0 ft		
Casing - Driller	13.375 in @ 205.0 ft	@	@
Casing - Logger	204.0 ft		
Bit Size	8.750 in	12.250 in @ 1200.00 ft	@
Type Fluid in Hole	WATER BASED MUD		
Density / Viscosity	9.3 ppg / 55.00 s/qt		
PH / Fluid Loss	10.50 pH / 9.6 cptm		
Source of Sample	FLOW LINE		
Rm @ Meas. Temperature	0.550 ohmm @ 75.00 degF	@	@
Rmf @ Meas. Temperature	0.45 ohmm @ 75.00 degF	@	@
Rmc @ Meas. Temperature	0.650 ohmm @ 75.00 degF	@	@
Source Rmf / Rmc	MEASURED / MEASURED		
Rm @ BHT	0.33 ohmm @ 129.0 degF	@	@
Time Since Circulation	8.0 hr		
Time on Bottom	31-Aug-12 00:37		
Max. Rec. Temperature	129.0 degF @ 5787.0 ft	@	@
Equipment / Location	10546696 / LIBERAL		
Recorded By	T. HYDE		
Witnessed By	J. DALE		

Fold here

Service Ticket No.: 9785632 API Serial No.: 15-007-23917-00-00 PGM Version: WL INSITE R3.6.0 (Build 3)

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.	11048627	Serial No.		Serial No.	I43_M489	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.	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.	5168GW	Serial No.	DSN-424
Distance to Source	10'	FWDA [Y/N]		Strength	1.5 Ci	Strength	15 Ci

LOGGING DATA

GENERAL	GAMMA	ACOUSTIC	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	5787	204	REC	0	150				30	-10	2.71	30	-10	LIME

DIRECTIONAL INFORMATION

Maximum Deviation	@	KOP	@

Remarks: ANNULAR HOLE VOLUME CALCULATED FOR 7 INCH CASING

CHLORIDES REPORTED AT 4500 MG/L

LCM REPORTED AT 6 PPB

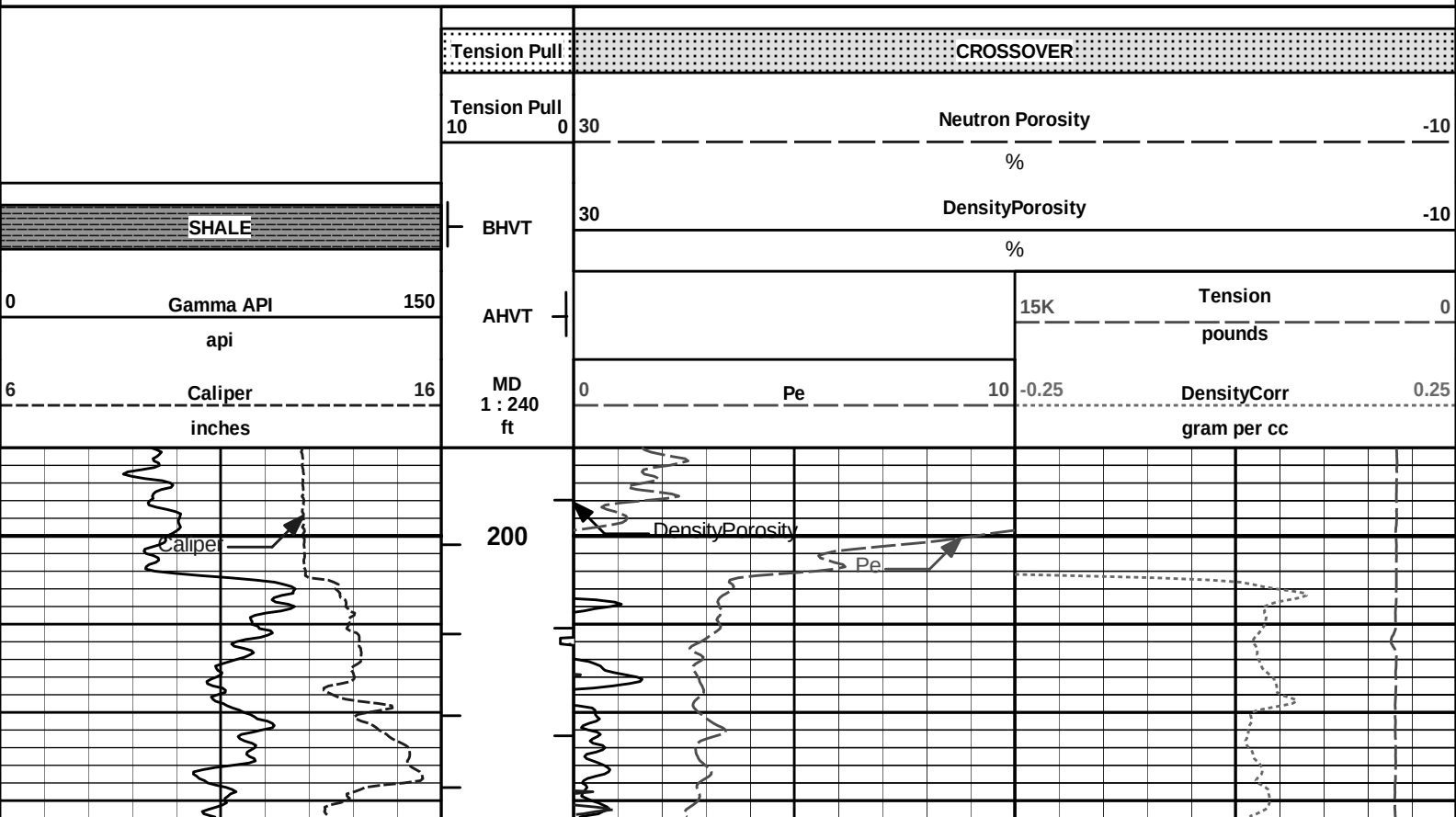
TODAY'S CREW V. JAIME K. KING

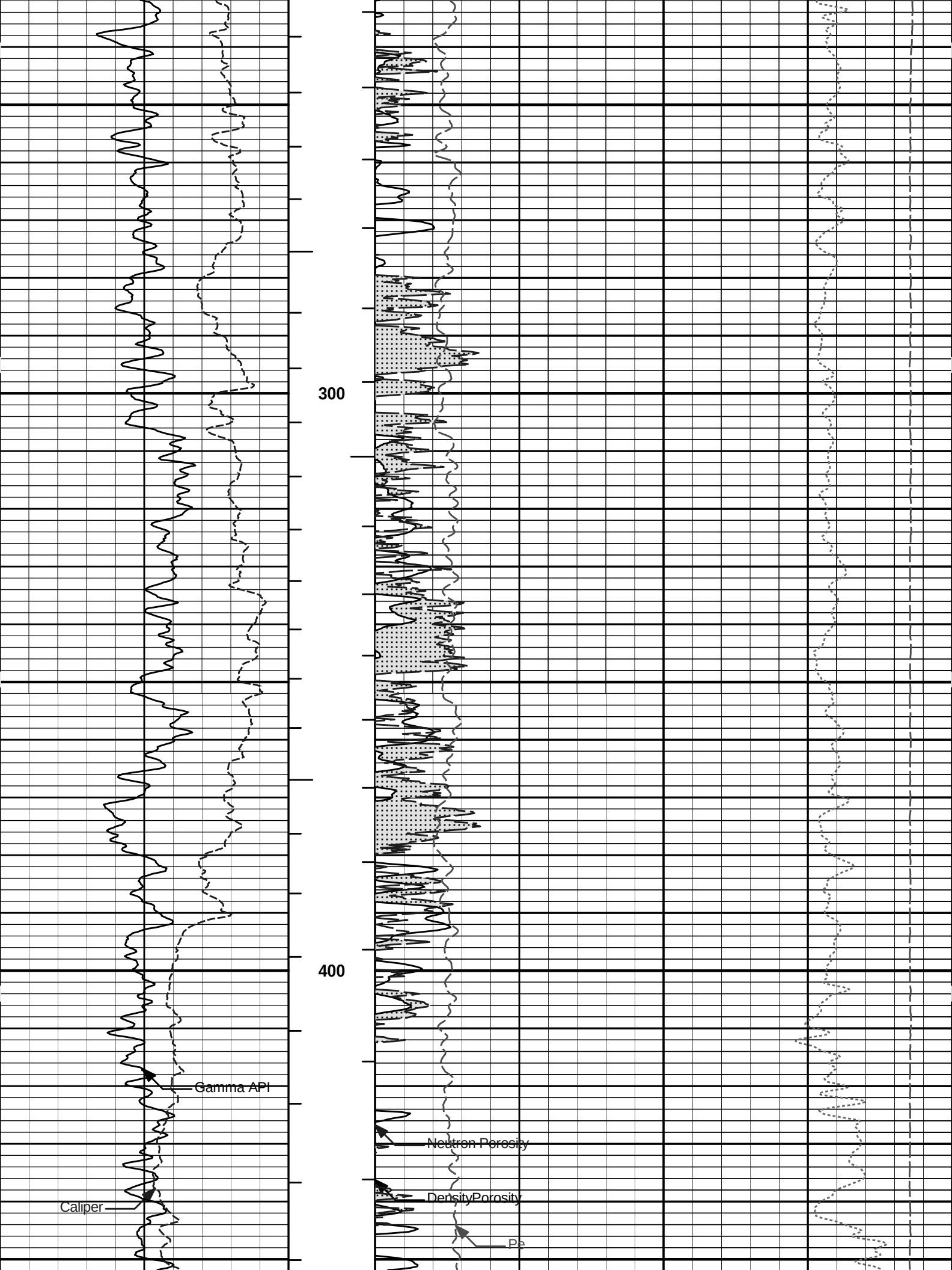
THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES LIBERAL, KANSAS 620-624-8123

HALLIBURTON

Plot Time: 31-Aug-12 02:57:48
Plot Range: 190 ft to 5787.25 ft
Data: OSAGE_3314_13_0\Well Based\DAQ-0001-006
Plot File: \\PORO\Poro_IQ_5_MAIN_LIB

5 INCH MAIN LOG




300
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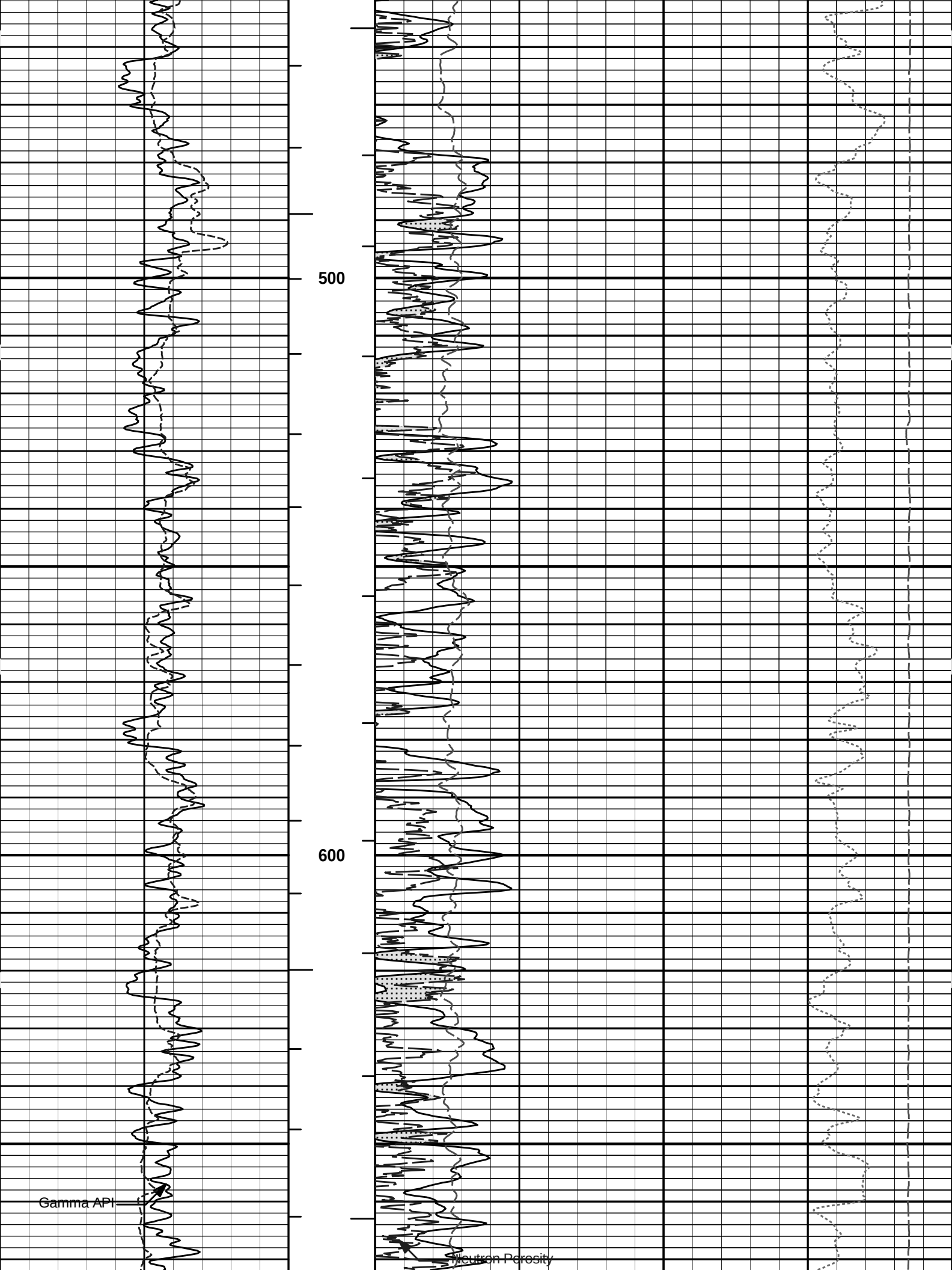
Gamma API
Caliper
Neutron Porosity
DensityPorosity
Pe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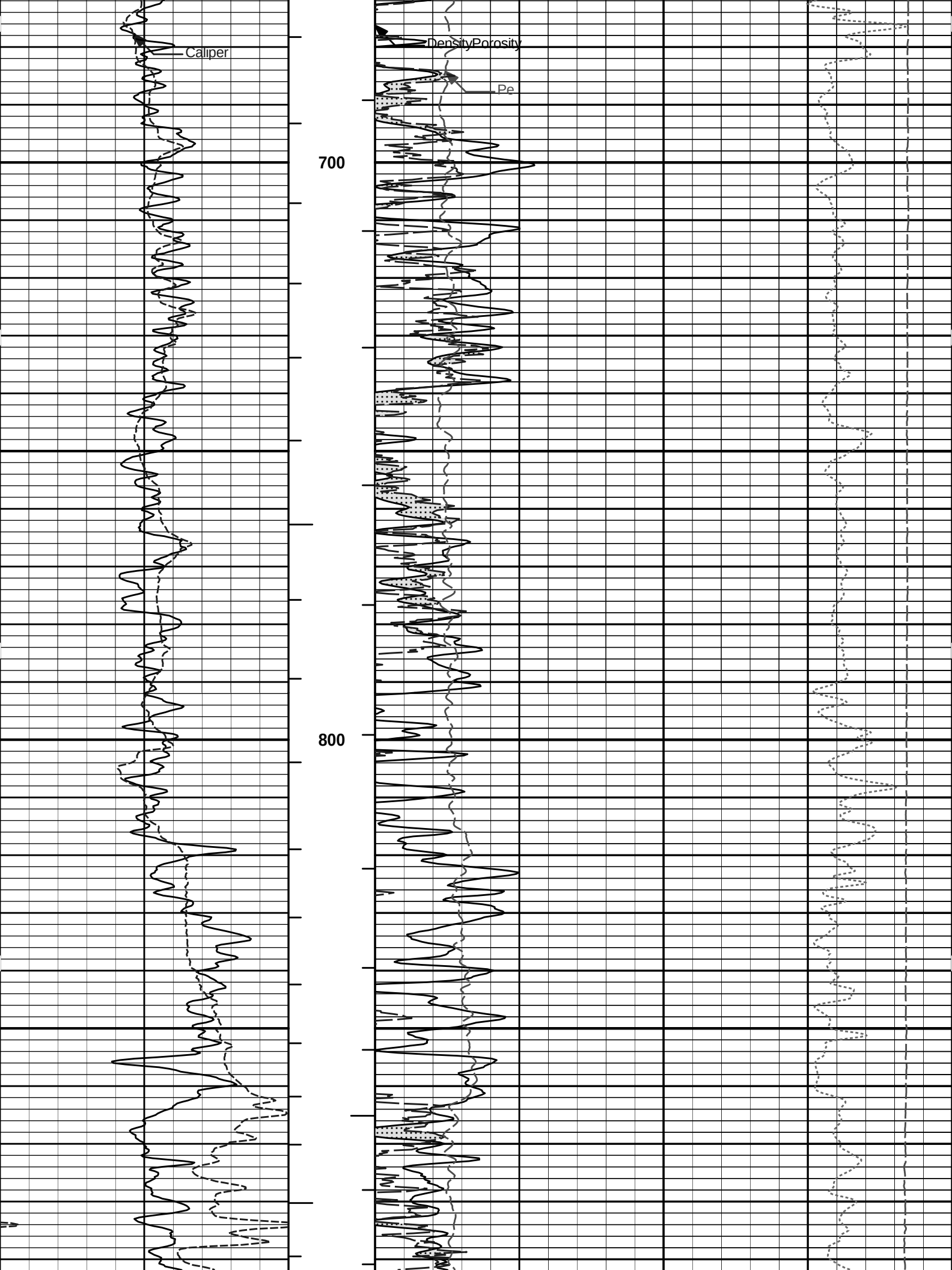
Caliper
DensityPorosity
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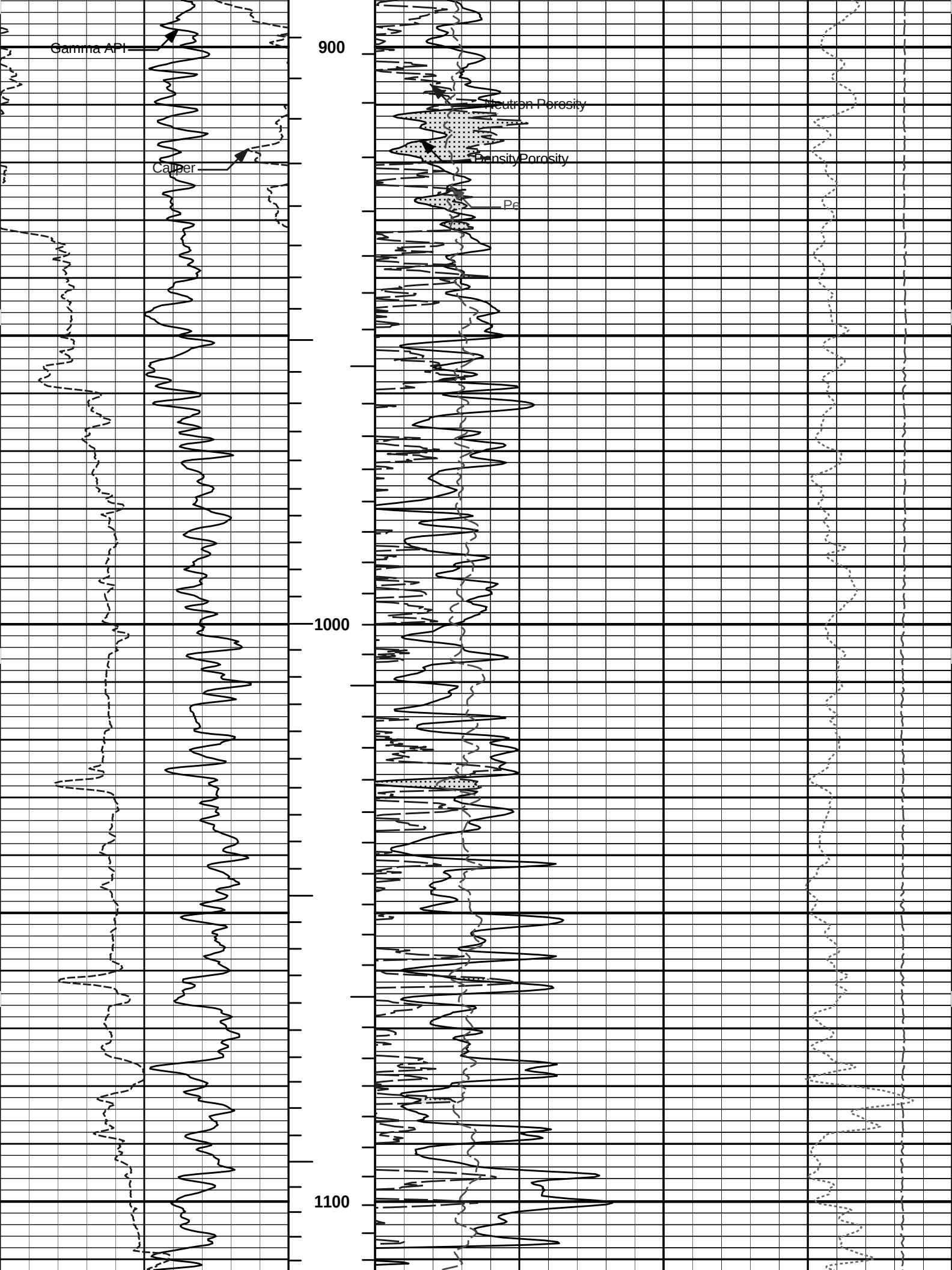
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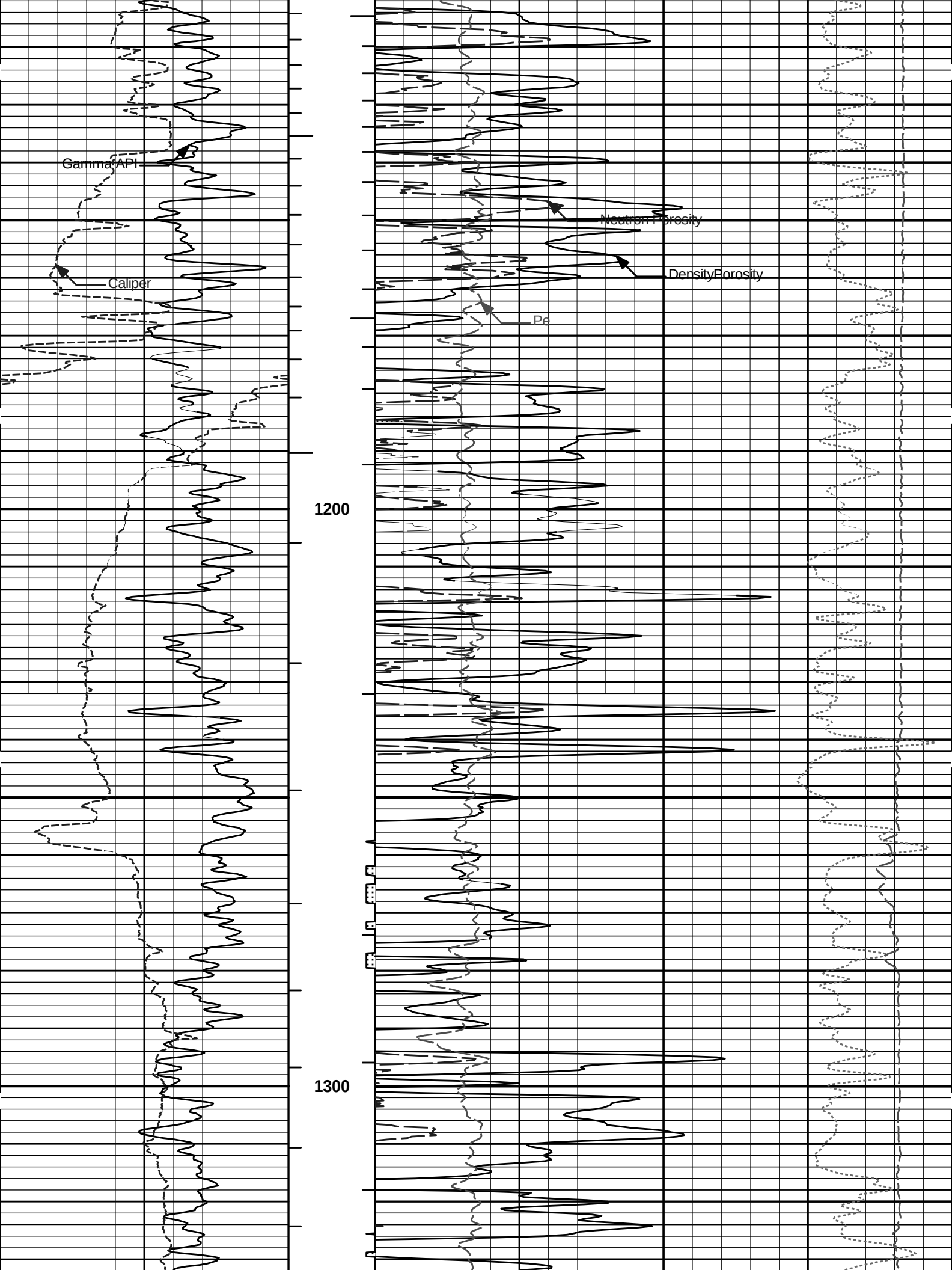
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Caliper
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Density Porosity
Pe
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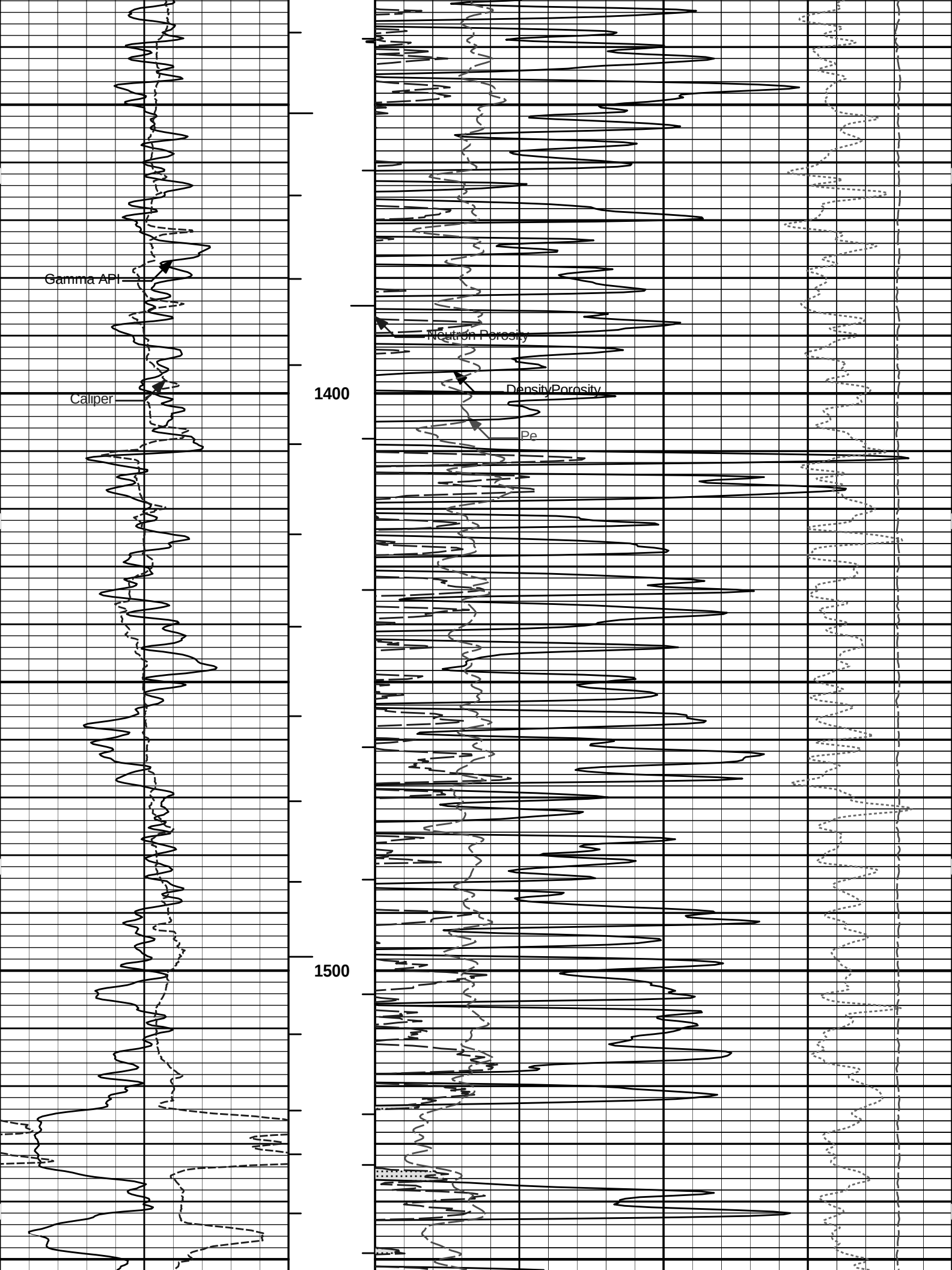
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Caliper
Neutron Porosity
DensityPorosity
Pe
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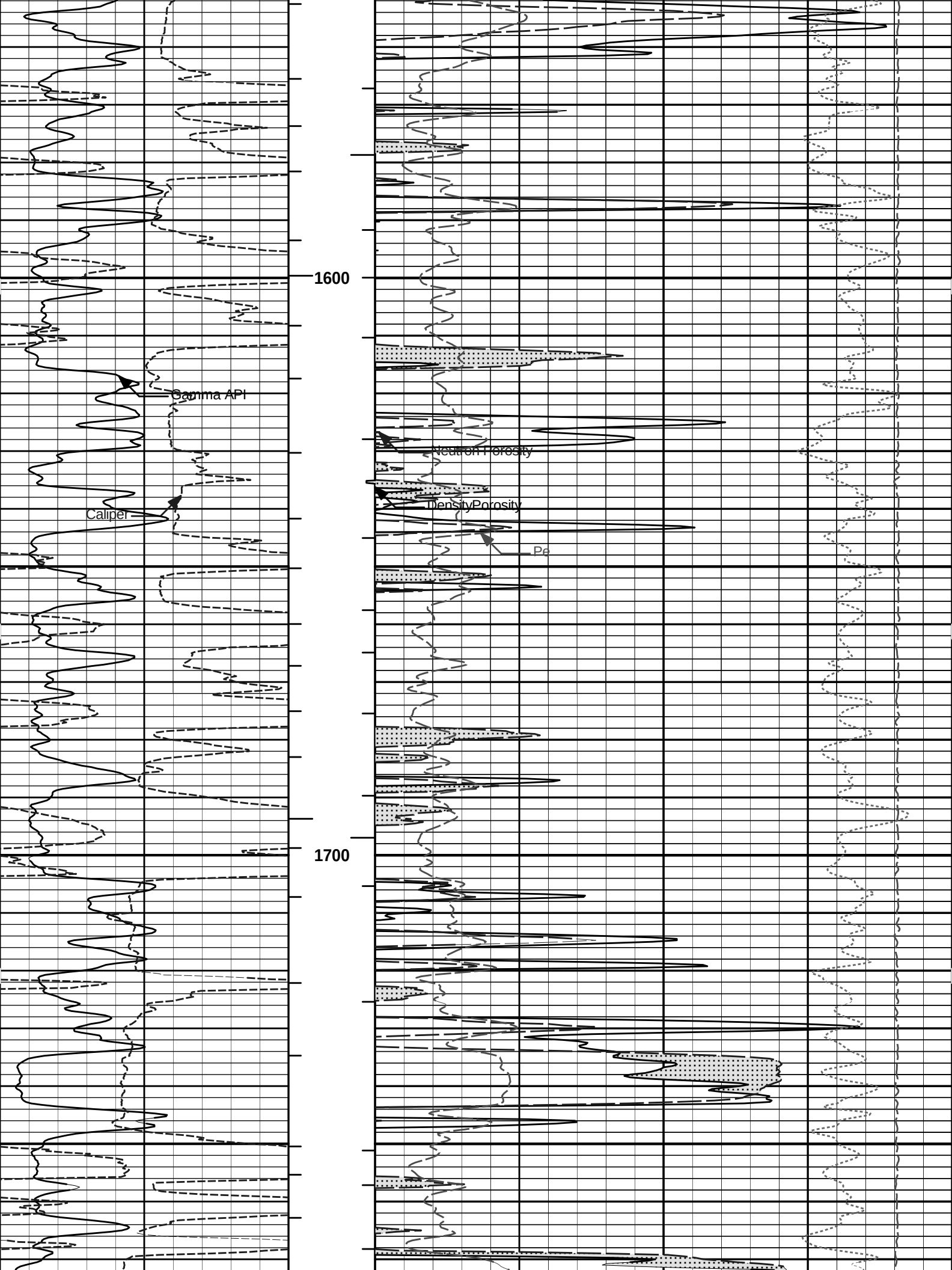
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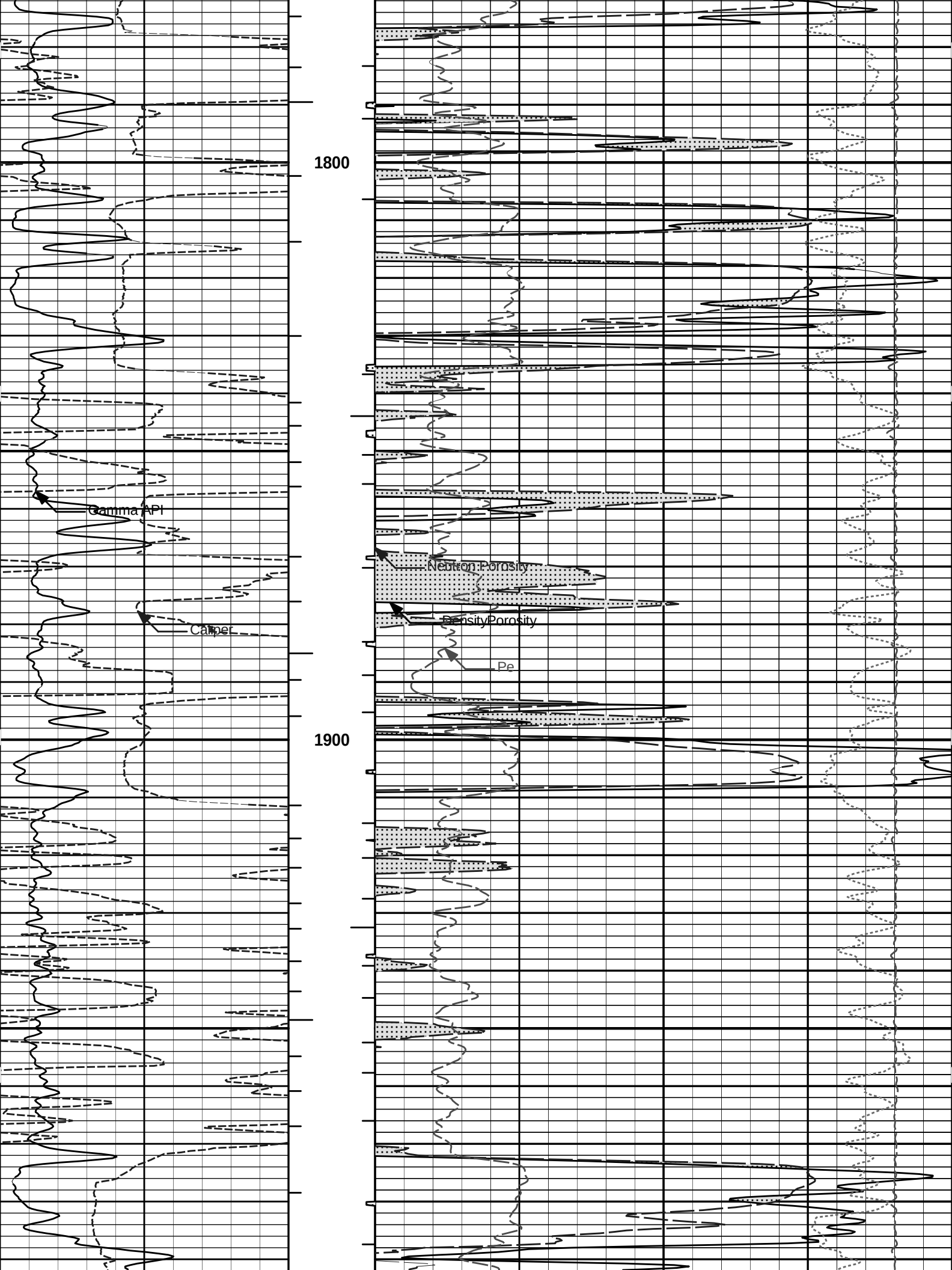
1700
Gamma API
Caliper
Neutron Porosity
DensityPorosity
Pe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Caliper
DensityPorosity
Pe
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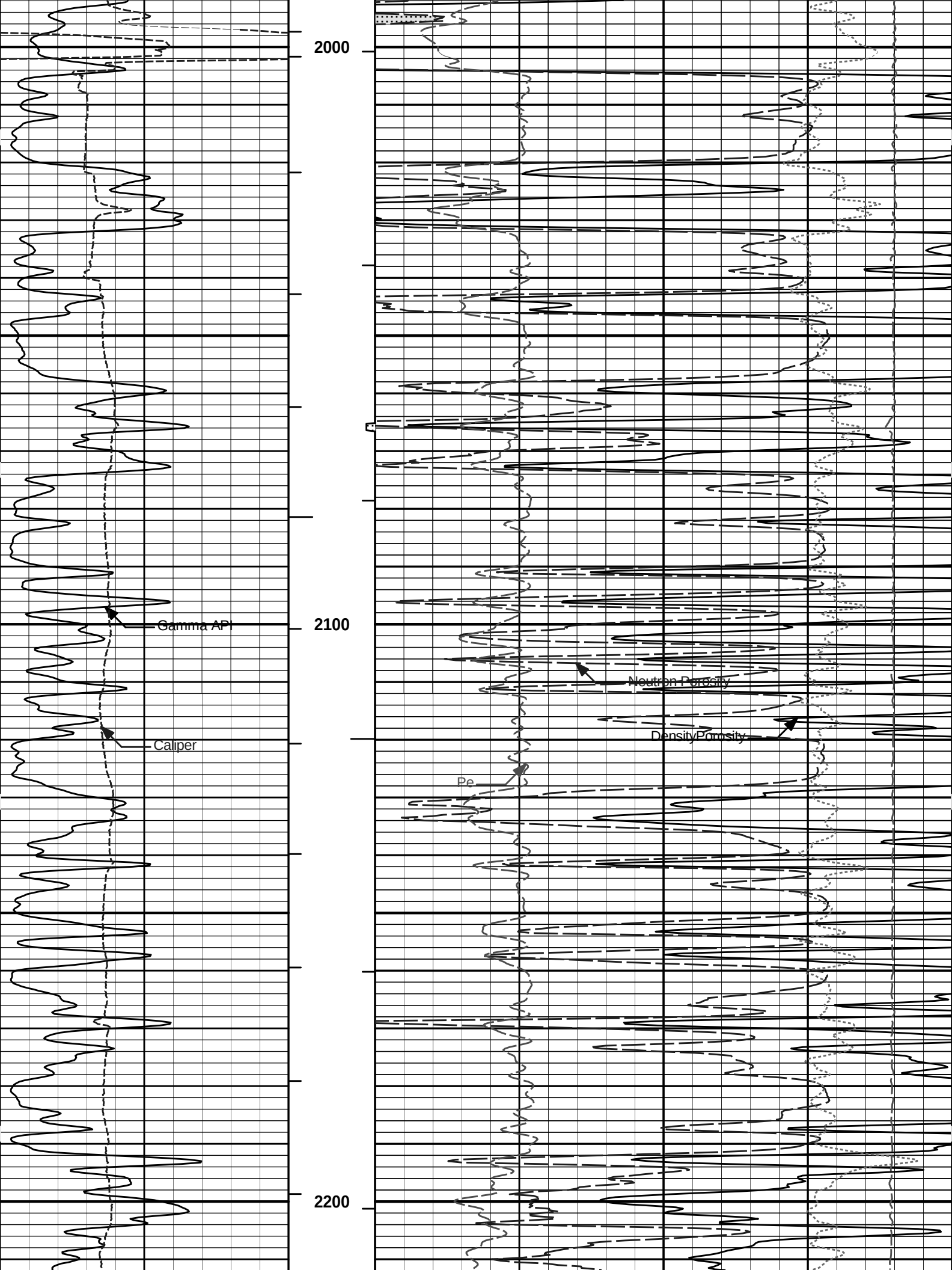
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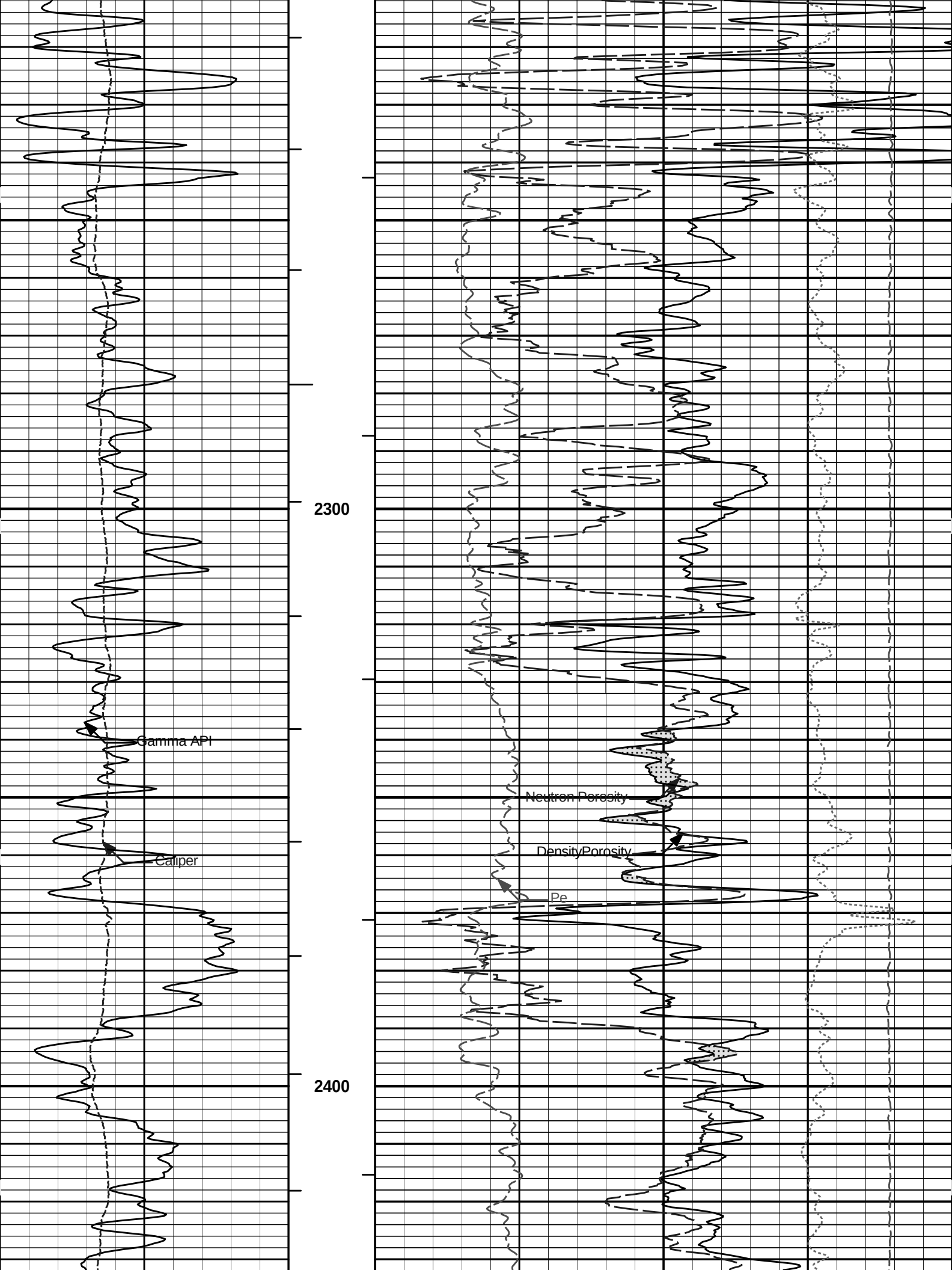
Caliper
Neutron Porosity
Density Porosity
Pe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Caliper
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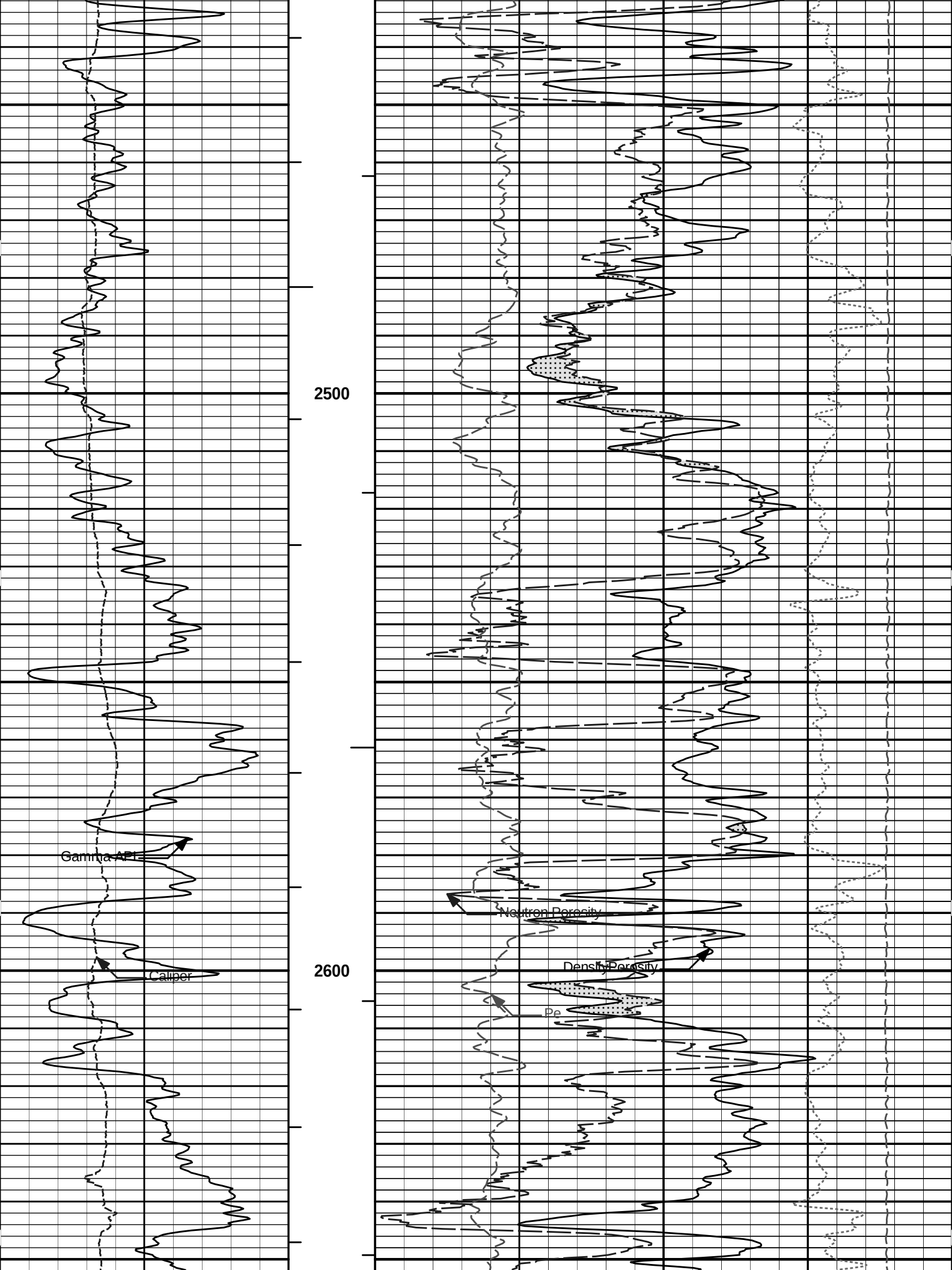
DensityPorosity
Pe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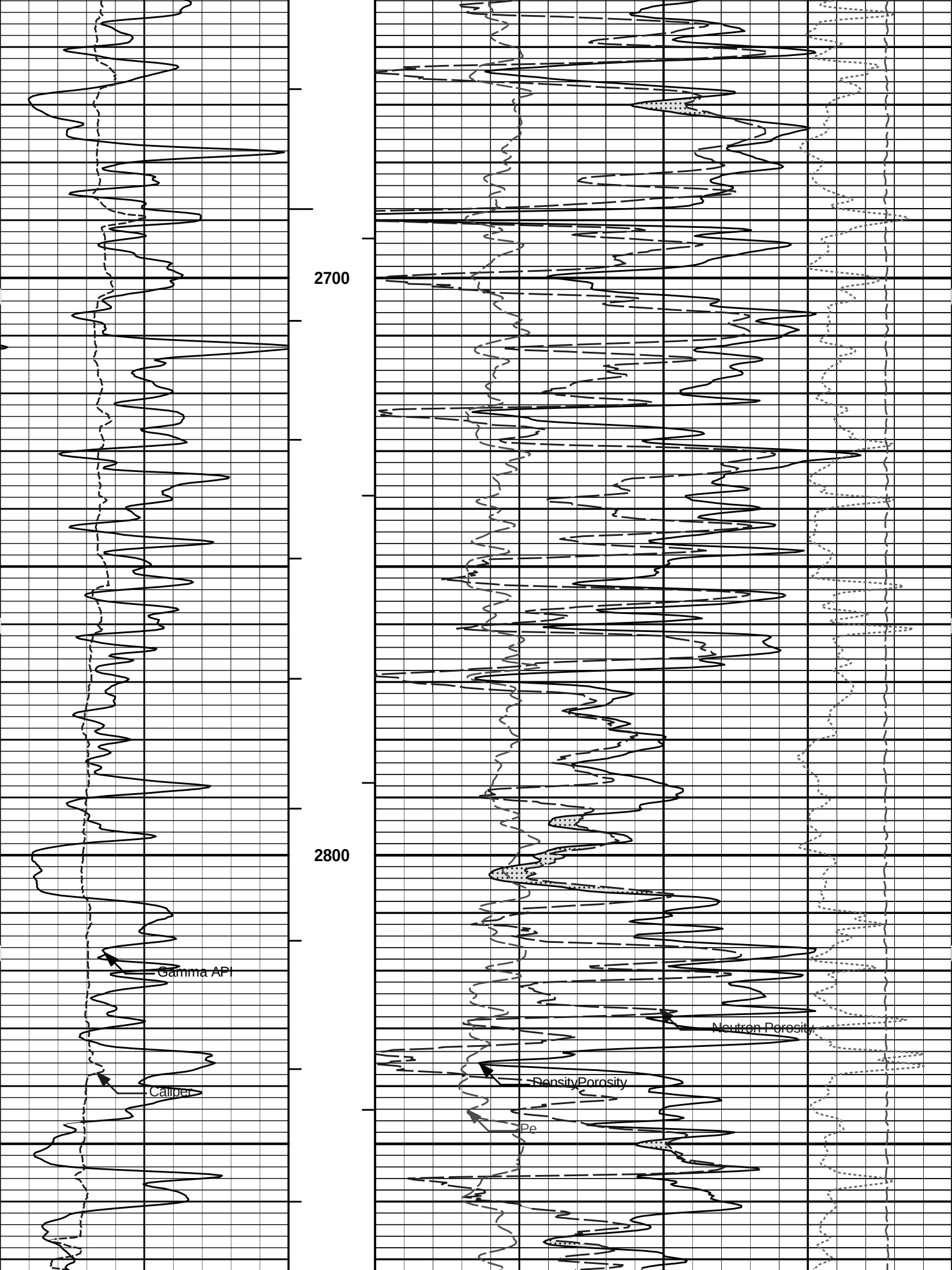
Caliper
Neutron Porosity
Density Porosity
Pe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Caliber
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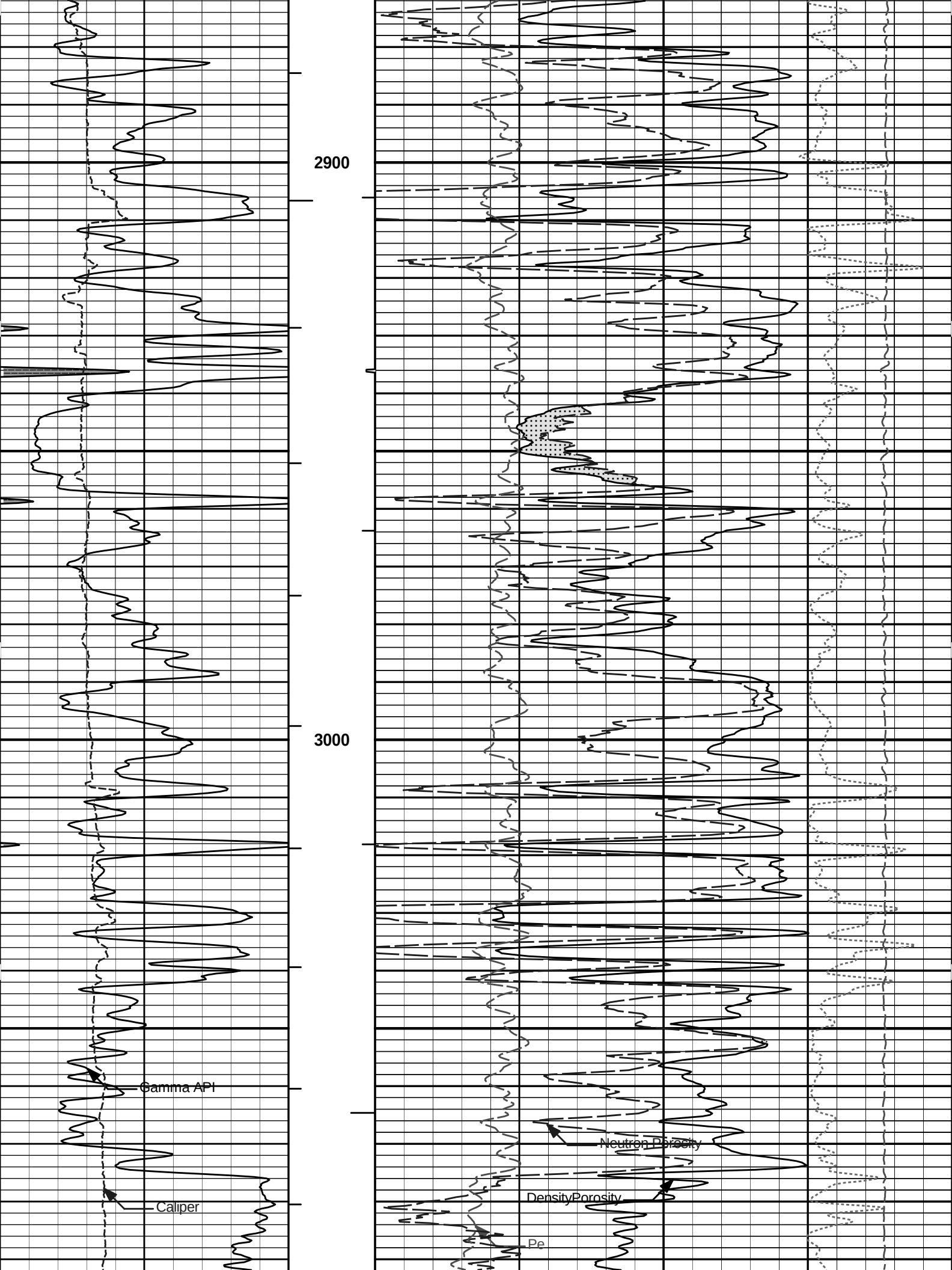
DensityPorosity
Pe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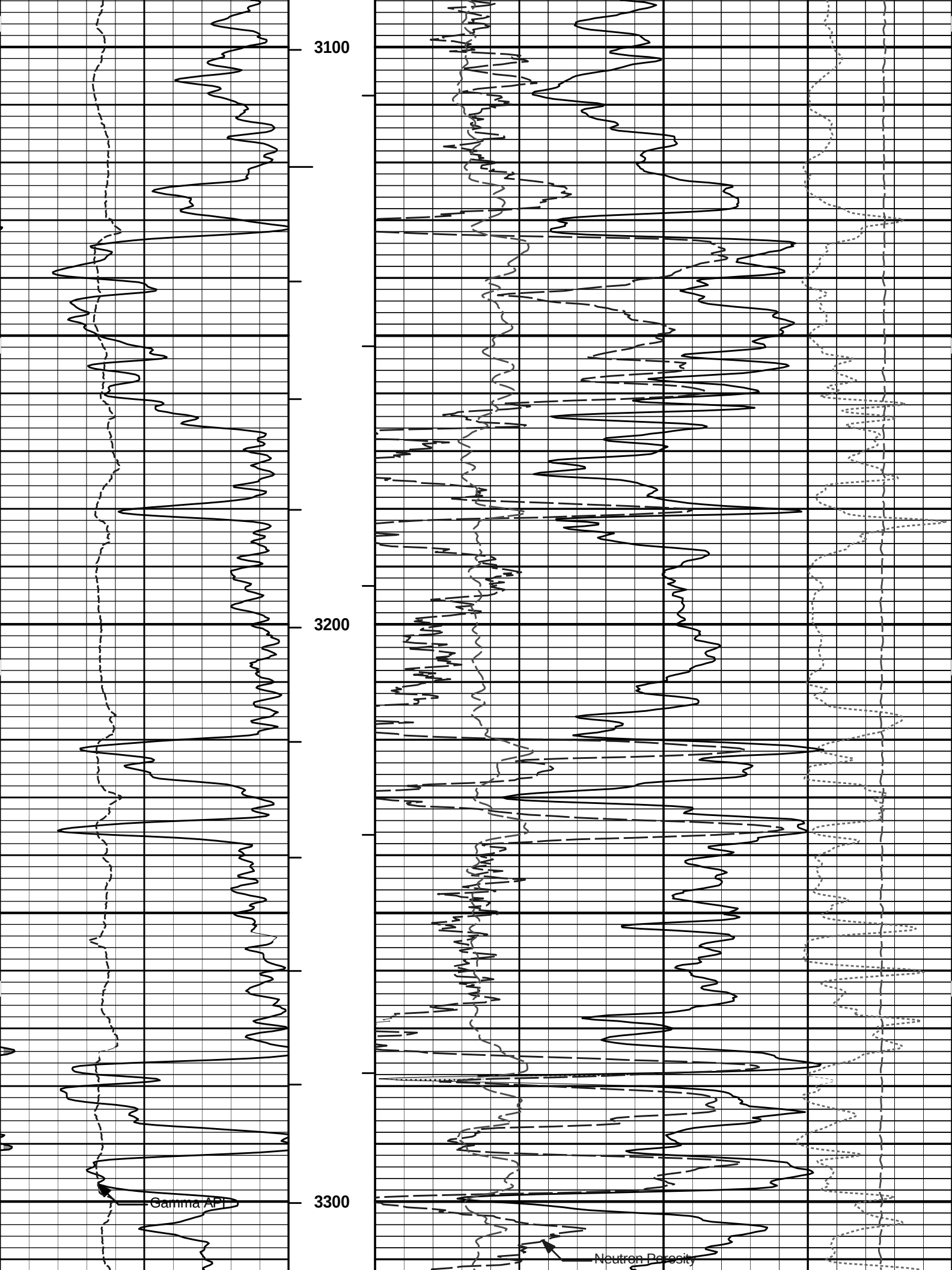
Caliper
Neutron Porosity
DensityPorosity
Pe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3200
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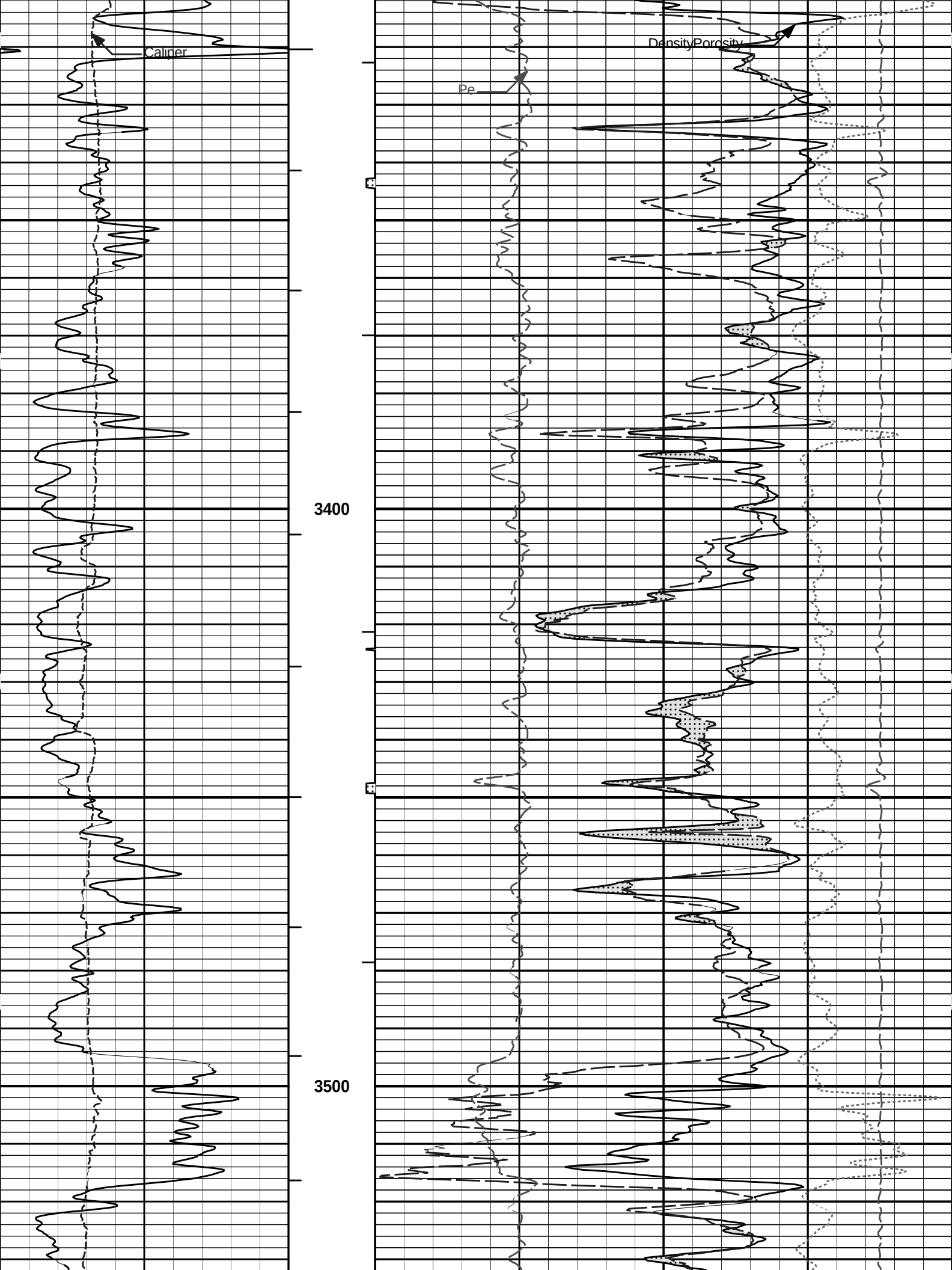
Neutron Porosity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Pe
DensityPorosity
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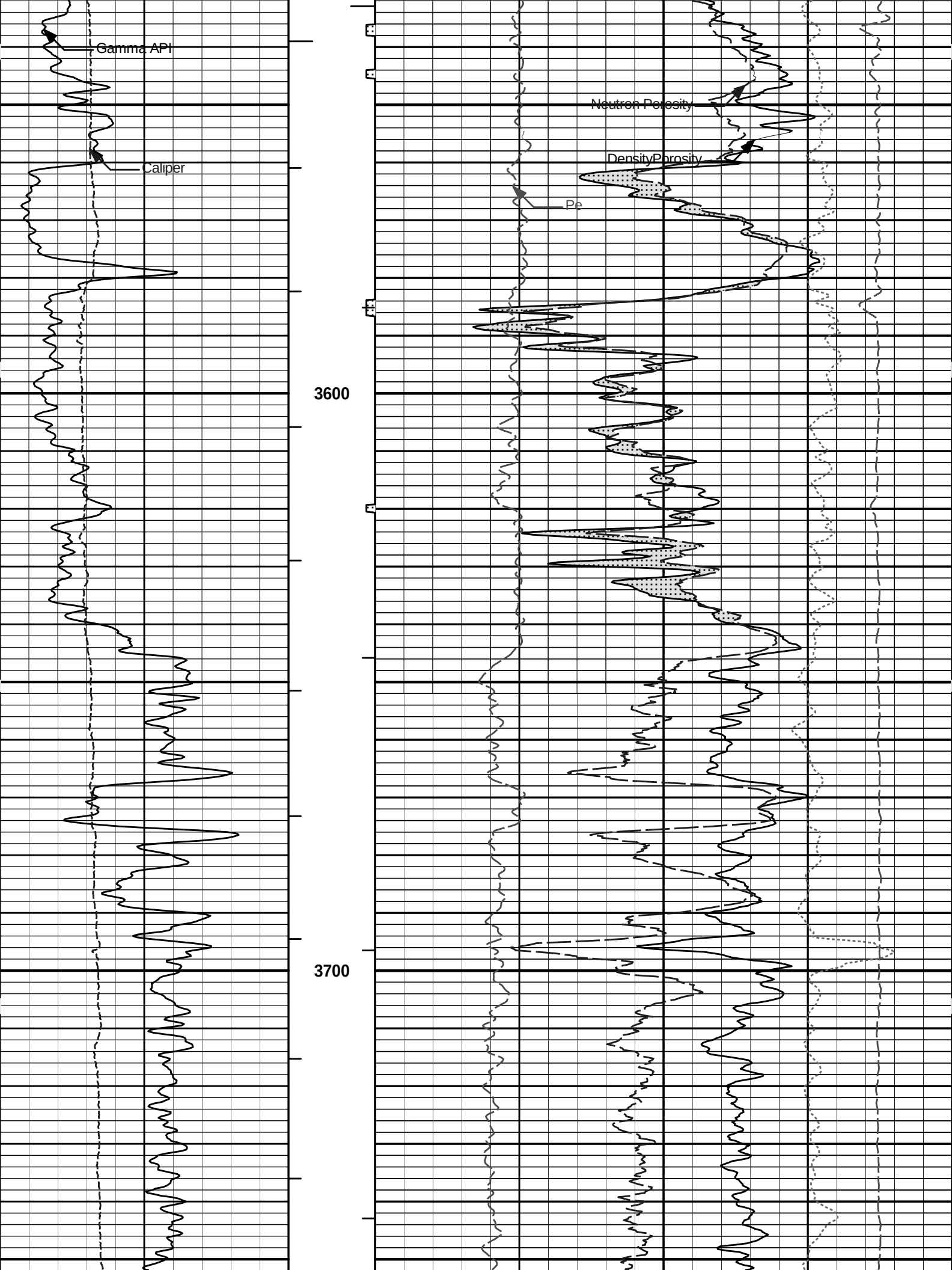
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Neutron Porosity
DensityPorosity
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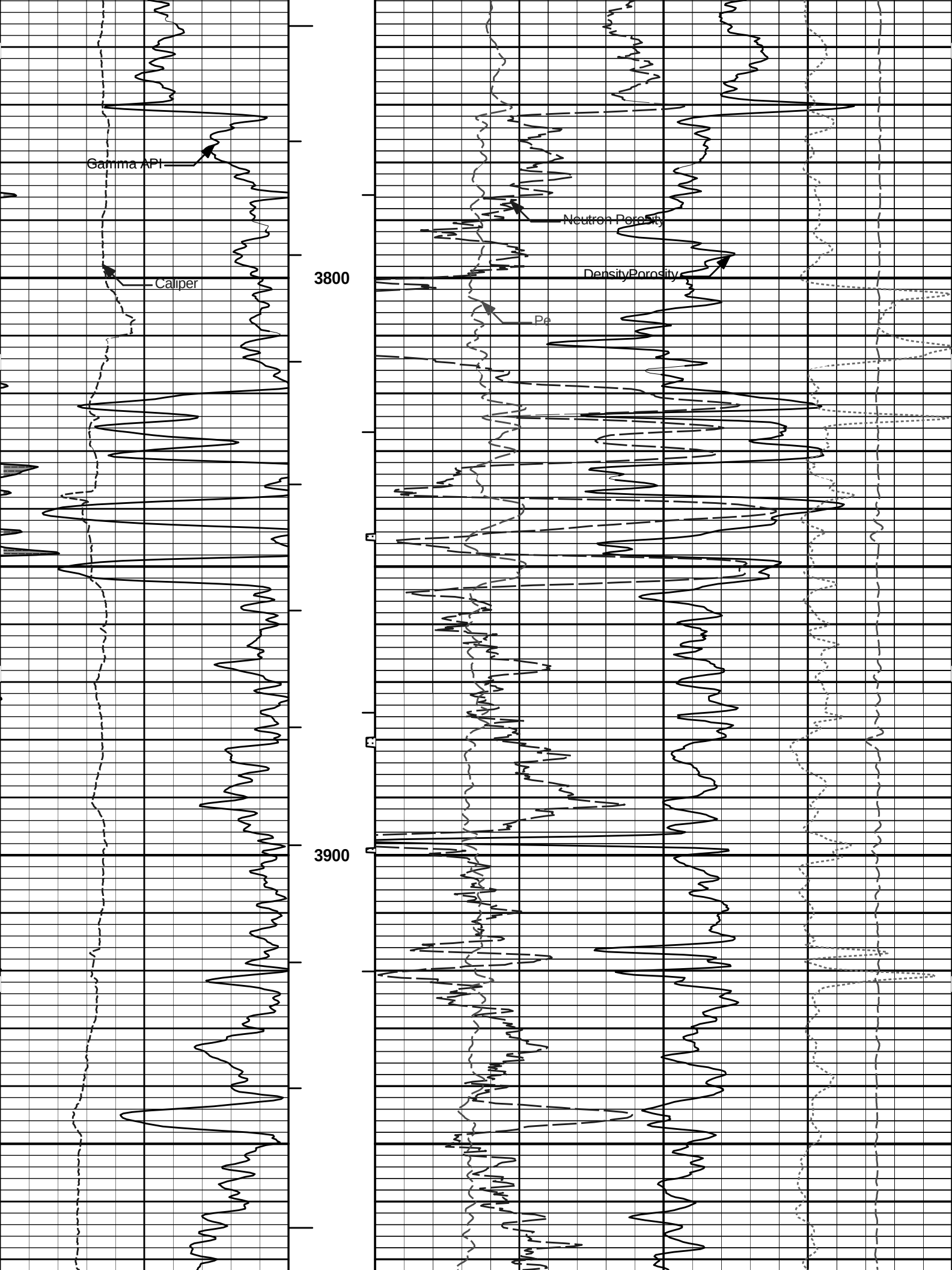
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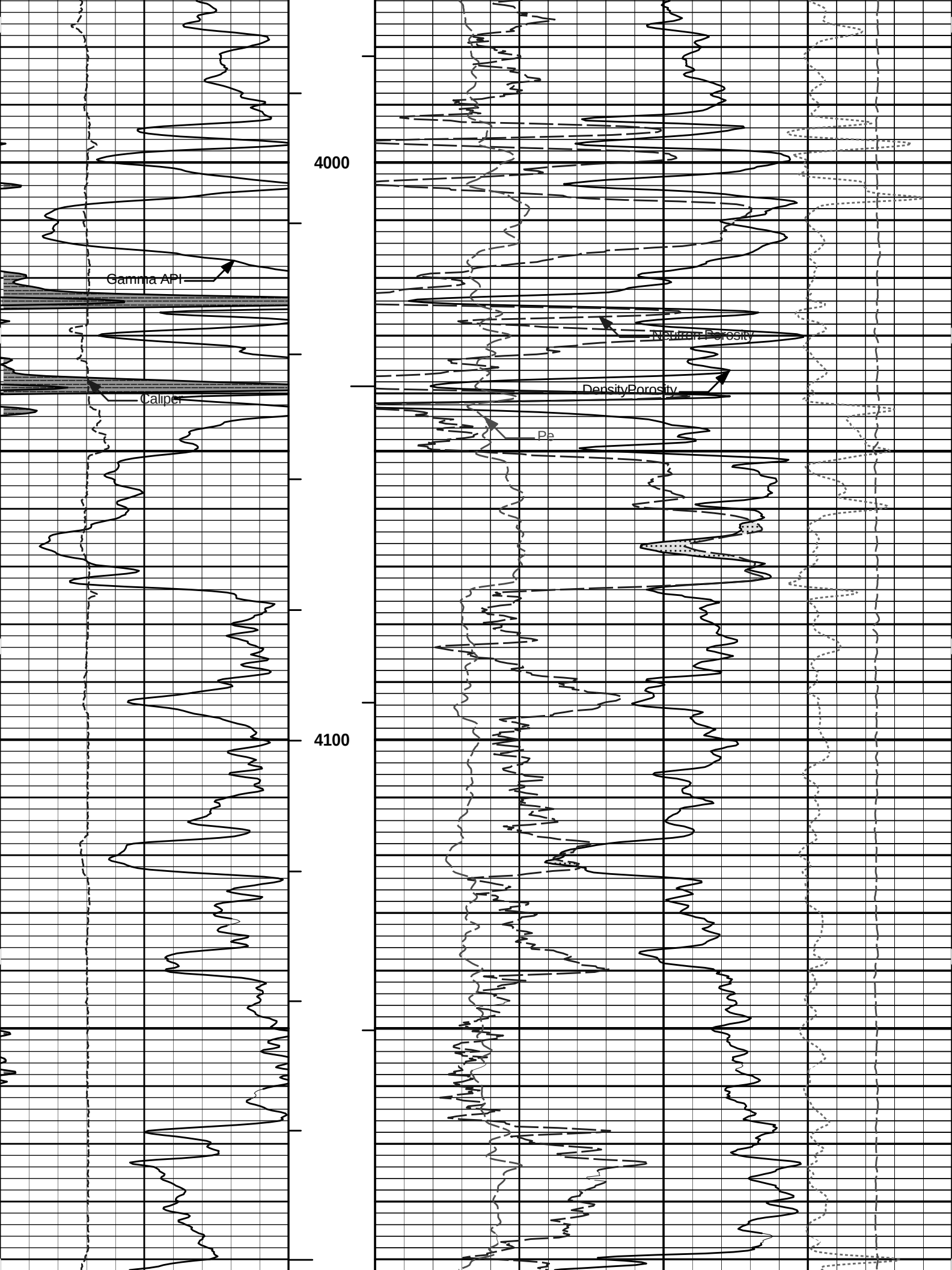
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Caliper
DensityPorosity
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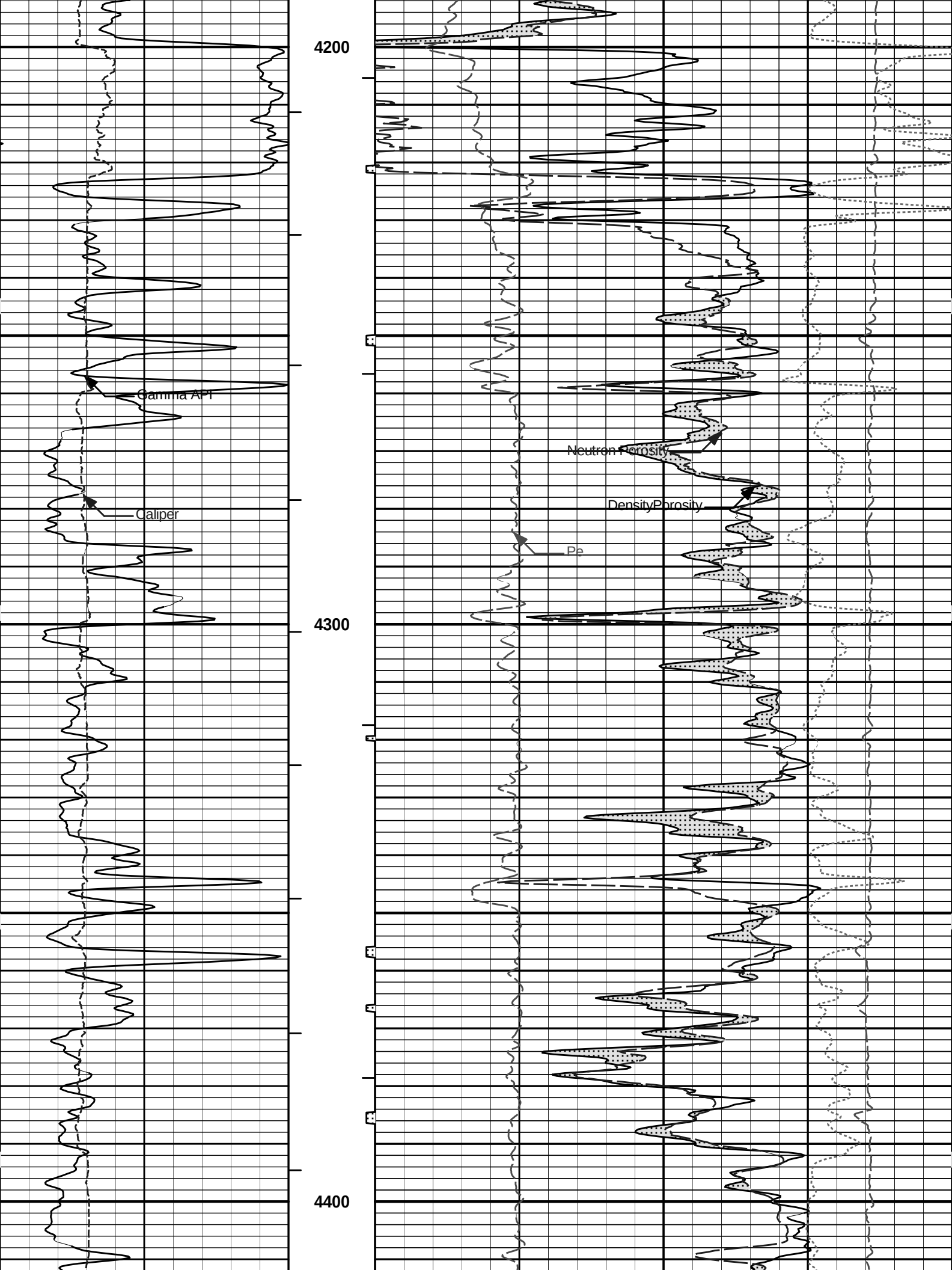
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4300
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Caliper
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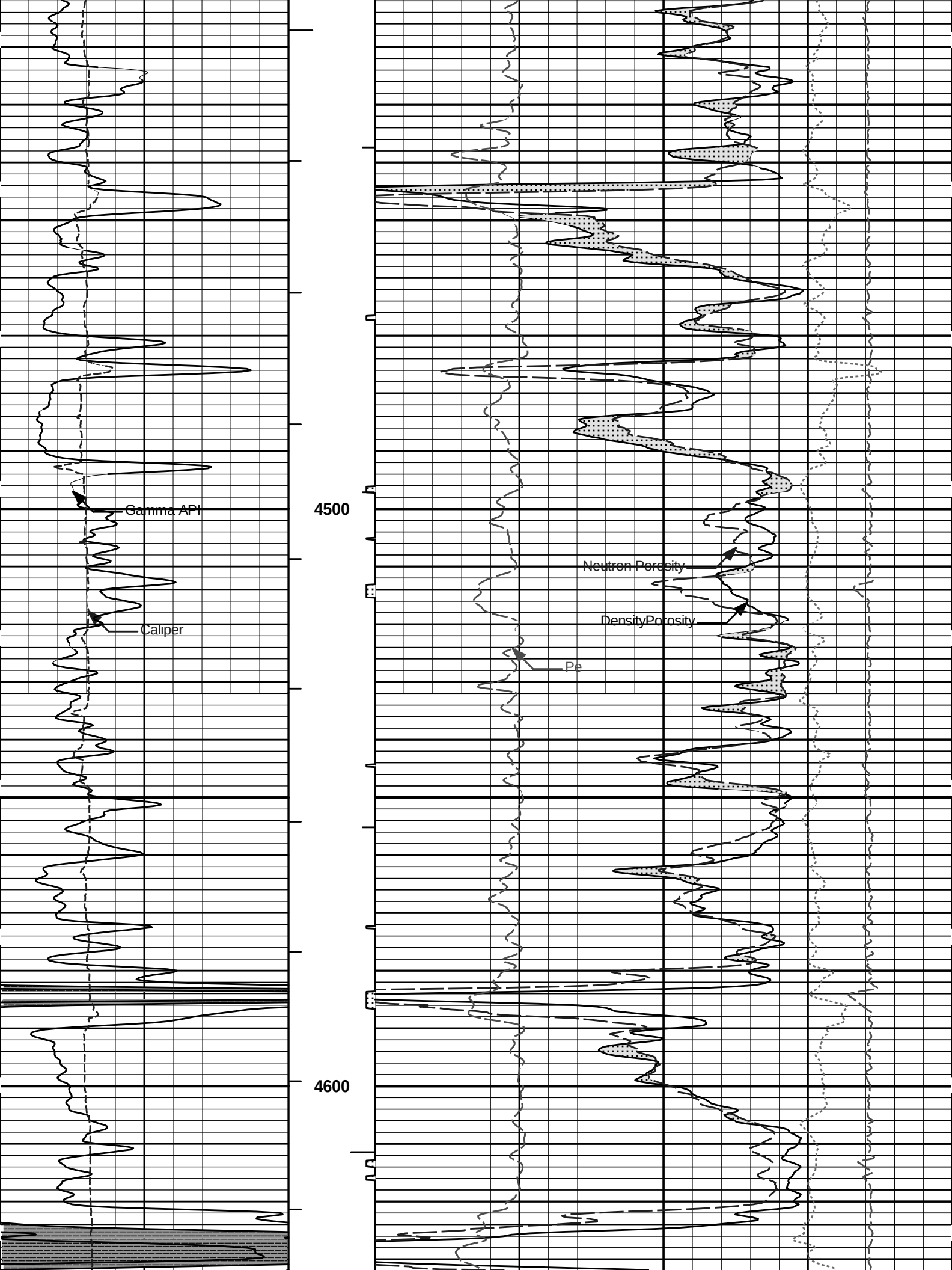
DensityPorosity
Pe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Pe
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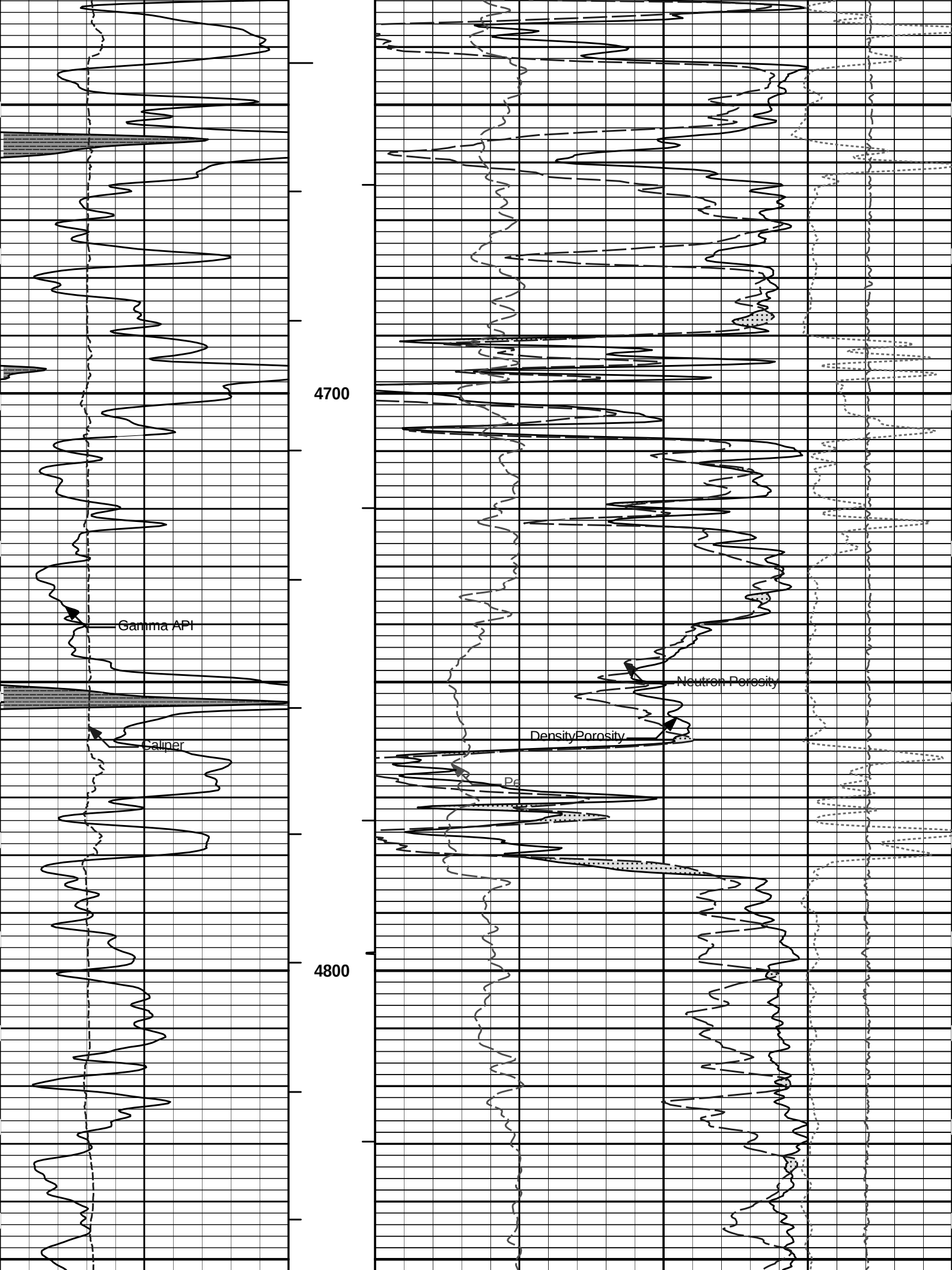
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Caliper
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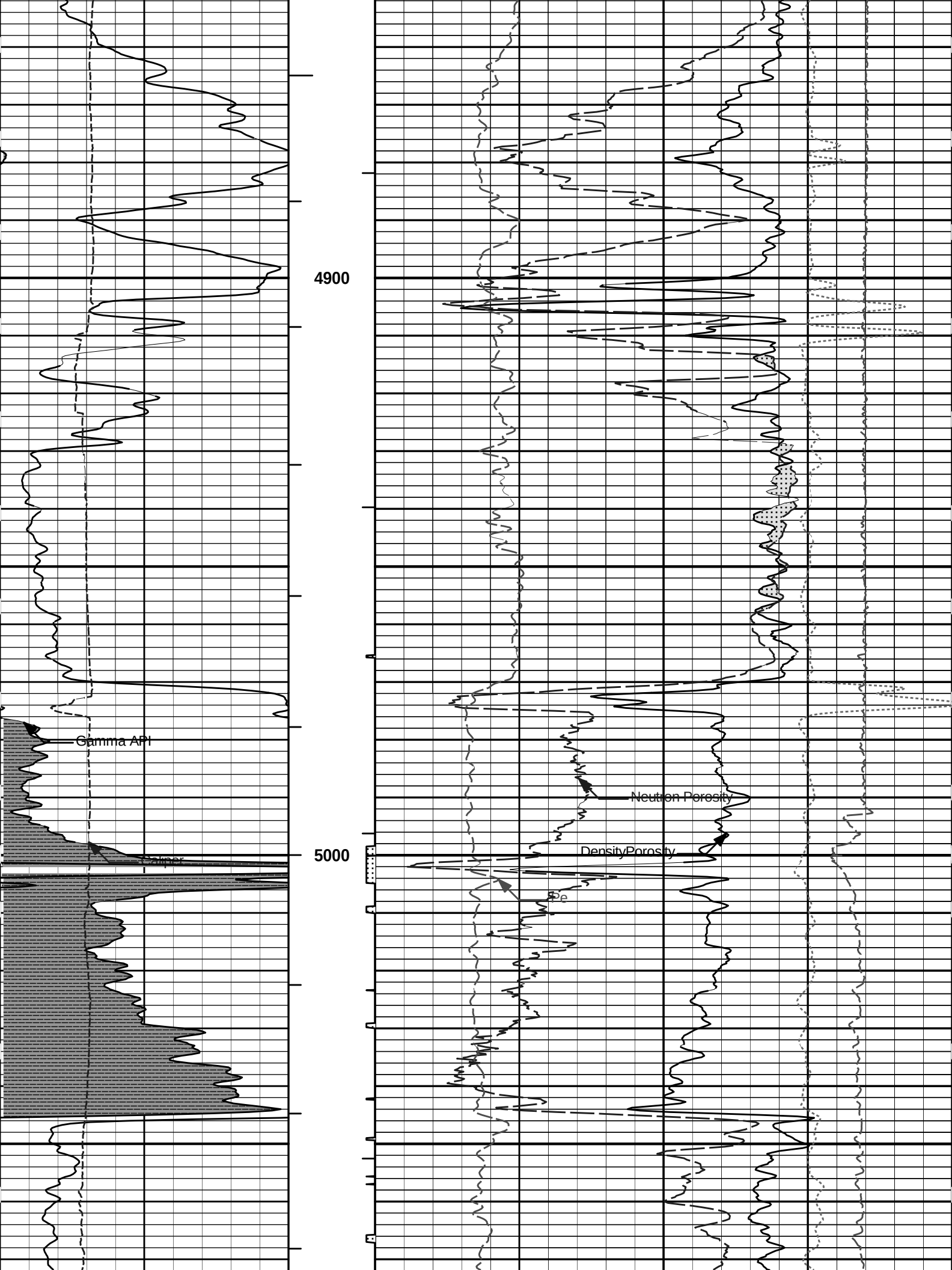
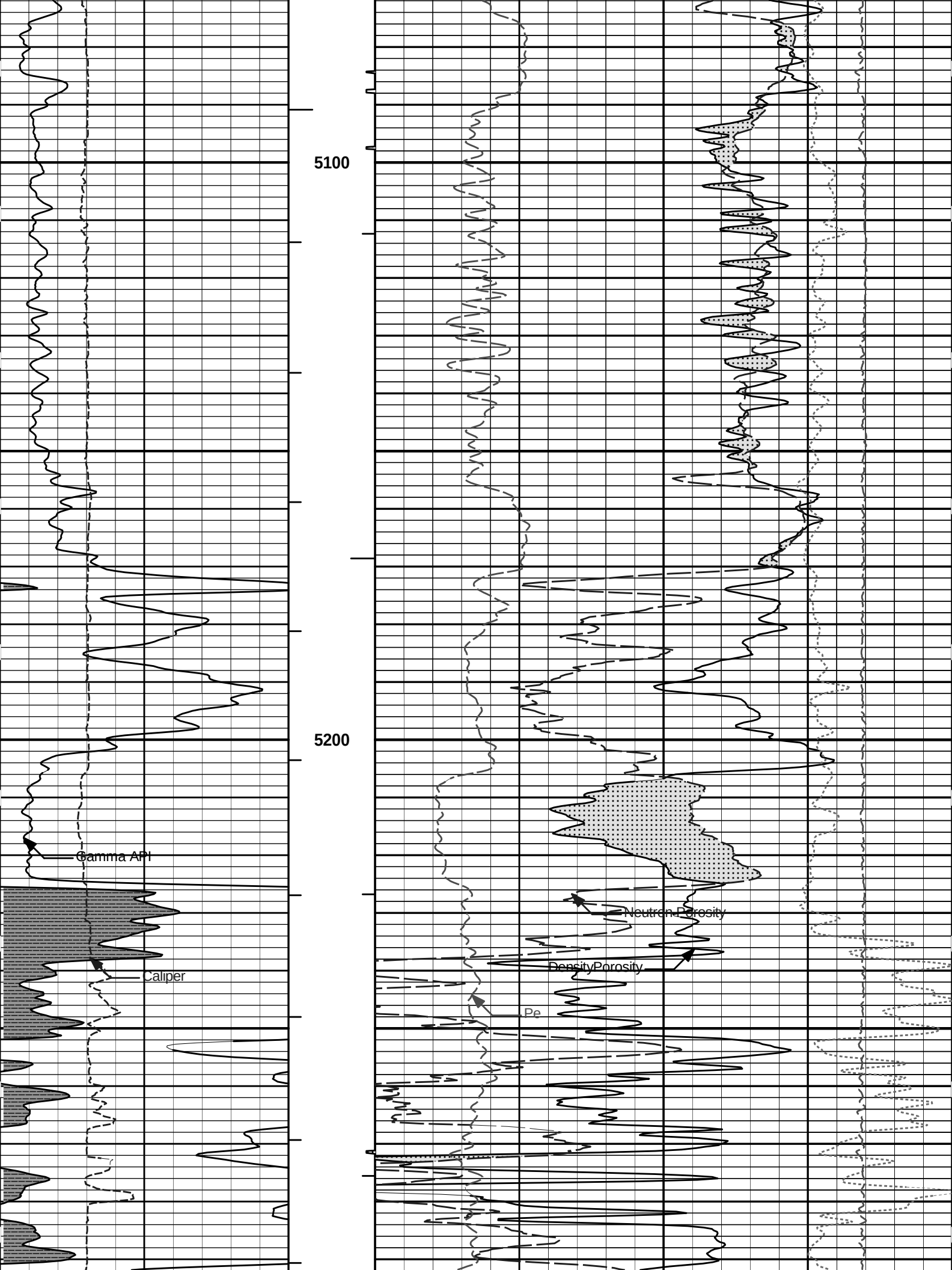
DensityPorosity


4900
5000
Gamma API
Caliper
Neutron Porosity
DensityPorosity
S_{pe}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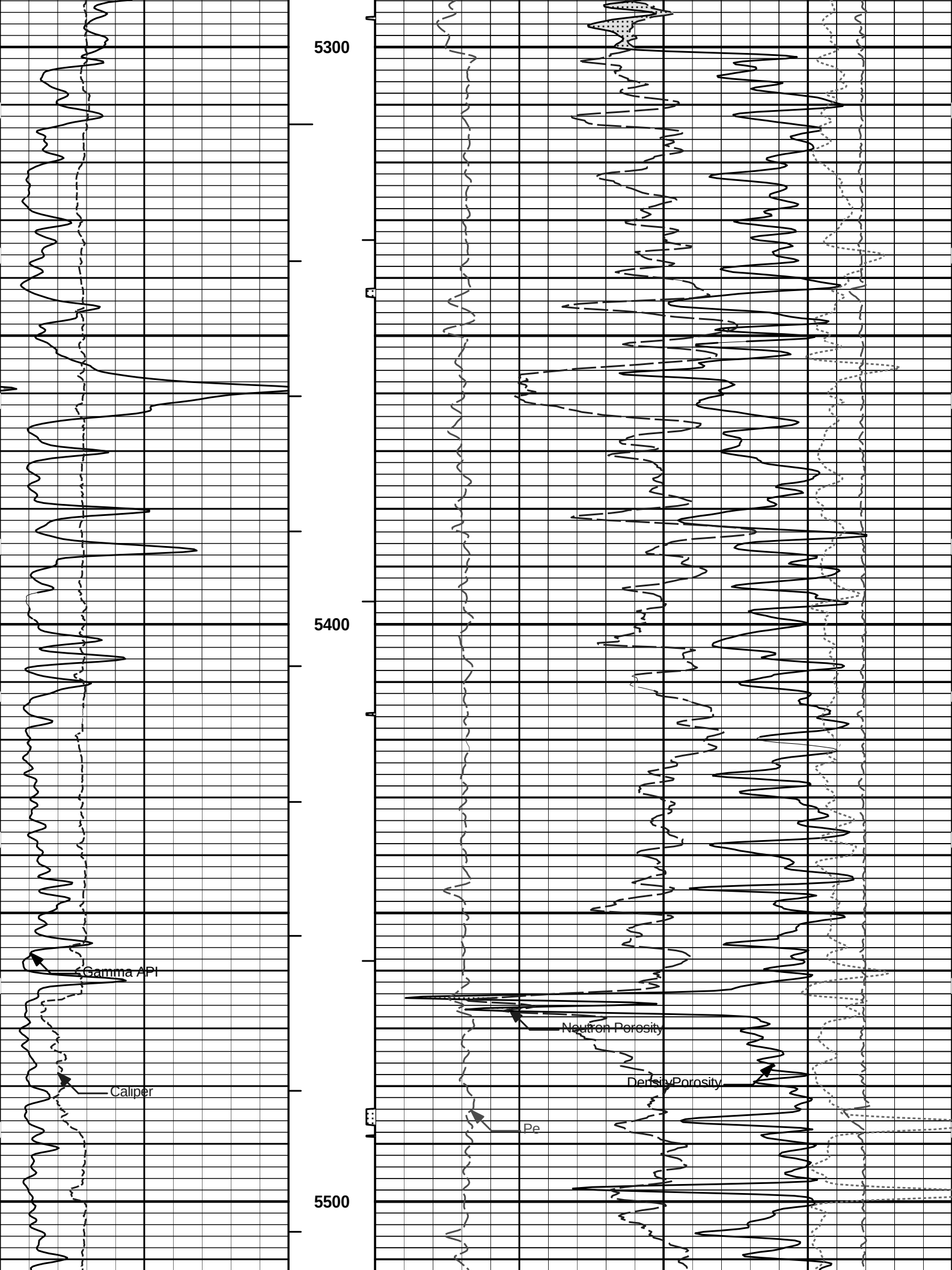
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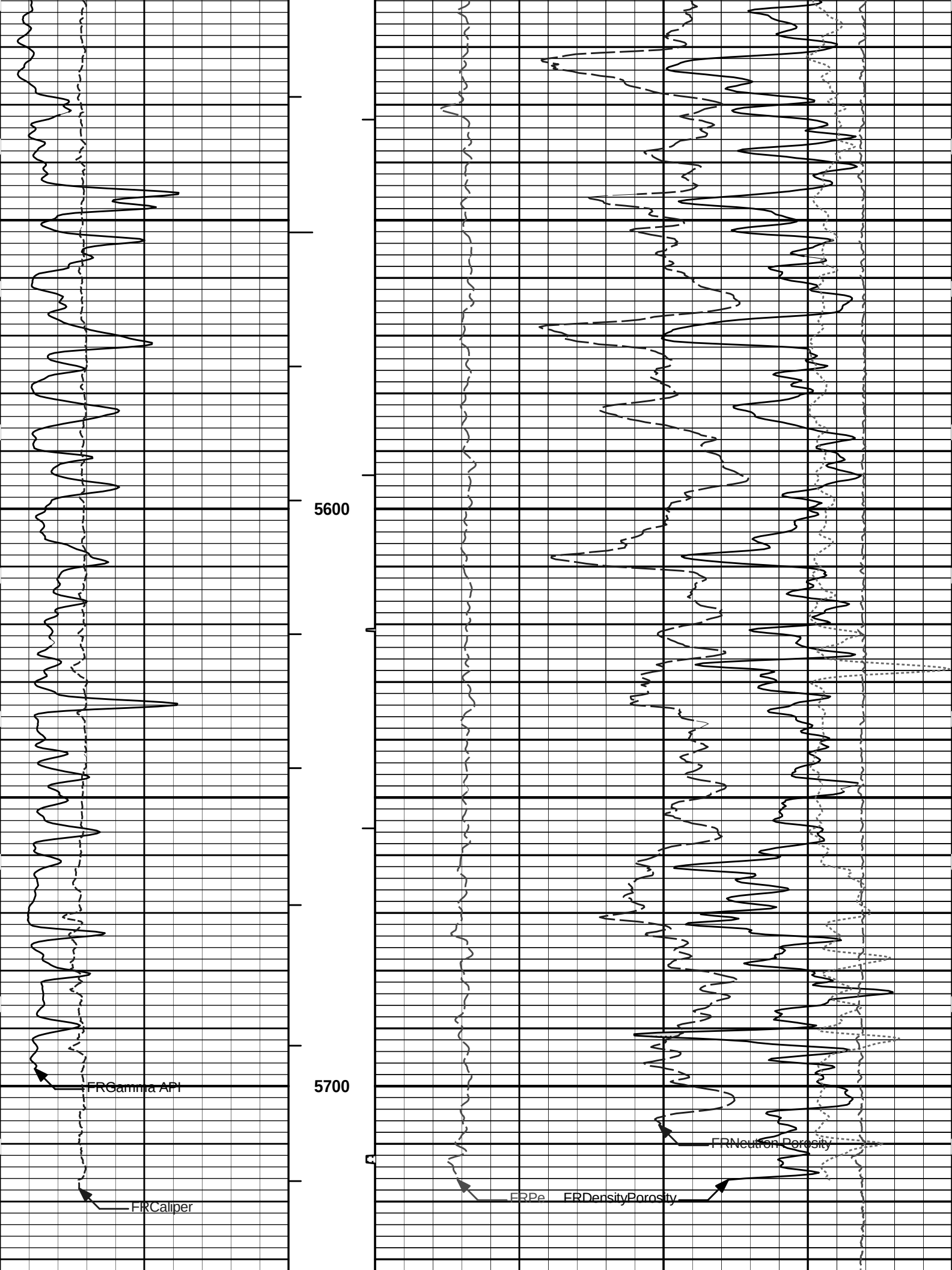
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FRGamma API
FRCaliper
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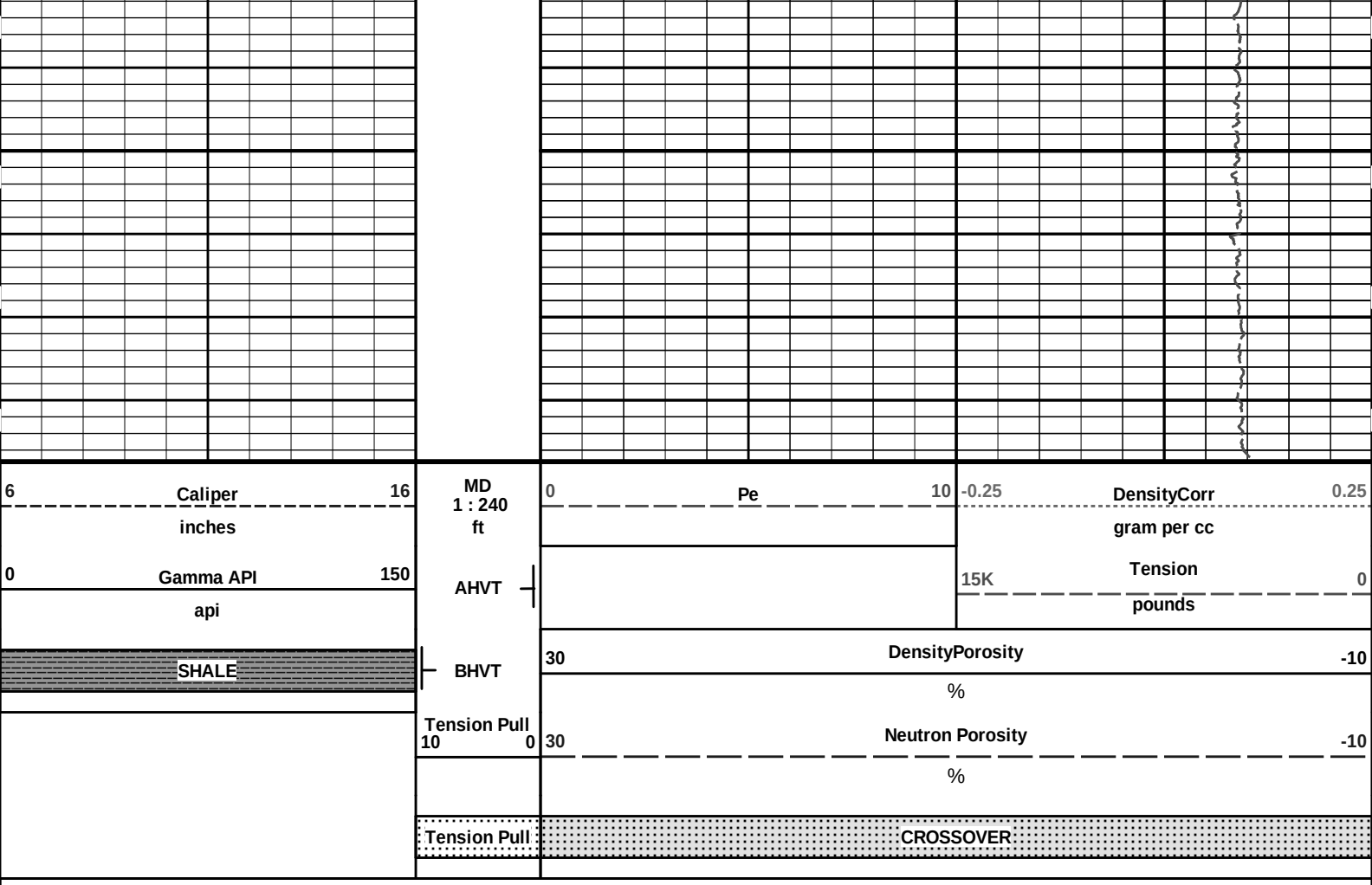

HALLIBURTON

Plot Time: 31-Aug-12 02:57:59
Plot Range: 190 ft to 5787.25 ft
Data: OSAGE_3314_13_0\Well Based\DAQ-0001-006\
Plot File: \\PORO\Poro_IQ_5_MAIN_LIB

5 INCH MAIN LOG

HALLIBURTON

Plot Time: 31-Aug-12 02:57:59
Plot Range: 5435 ft to 5793 ft
Data: OSAGE_3314_13_0\Well Based\DAQ-0001-005\
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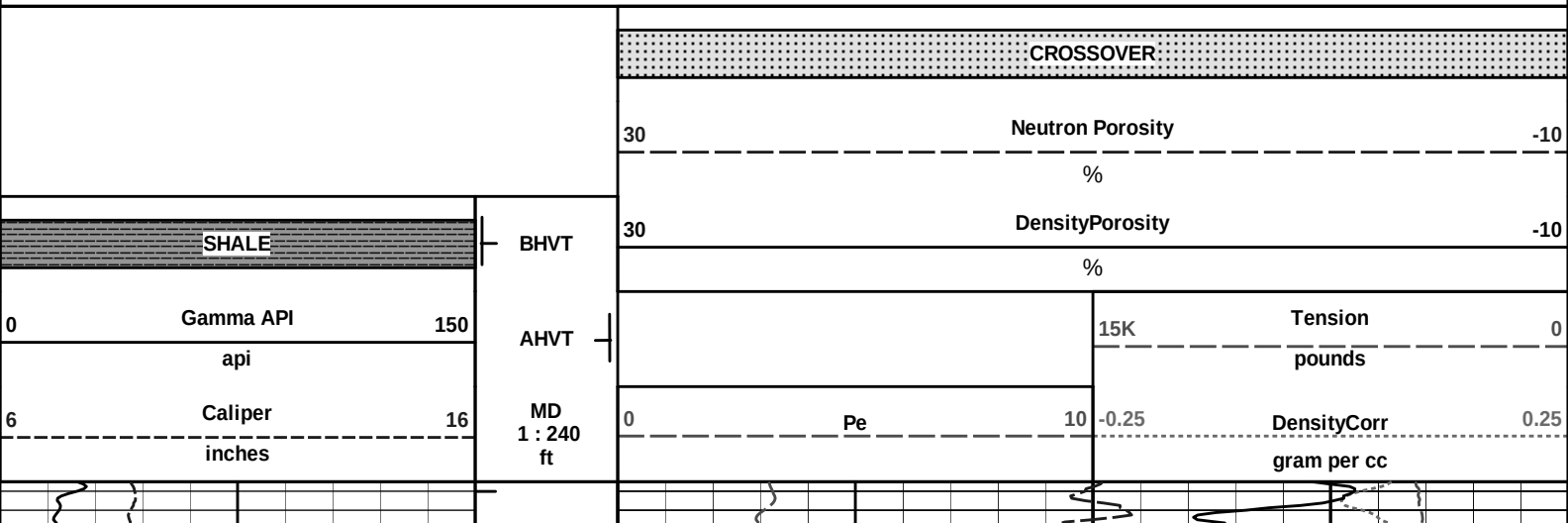
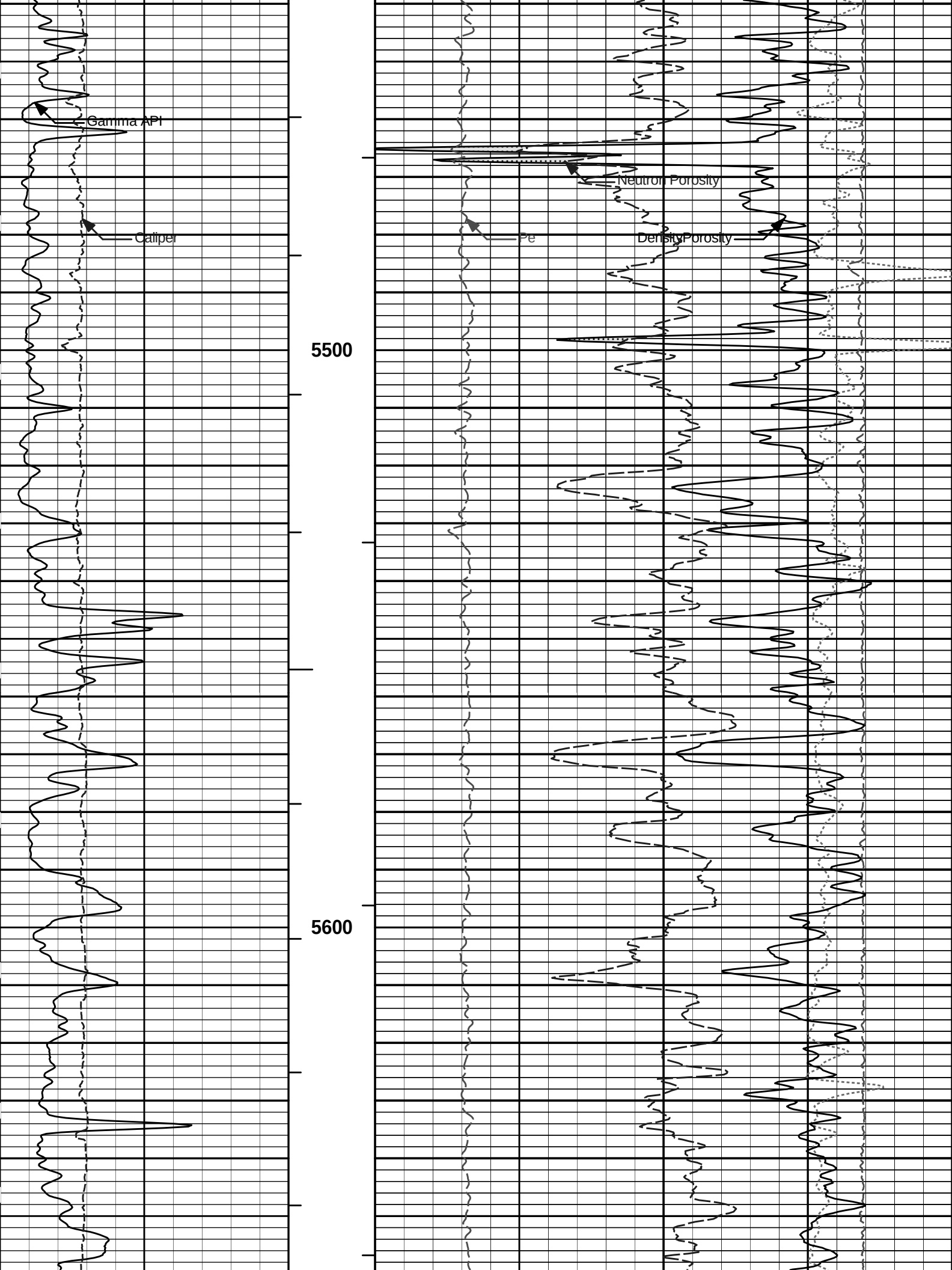
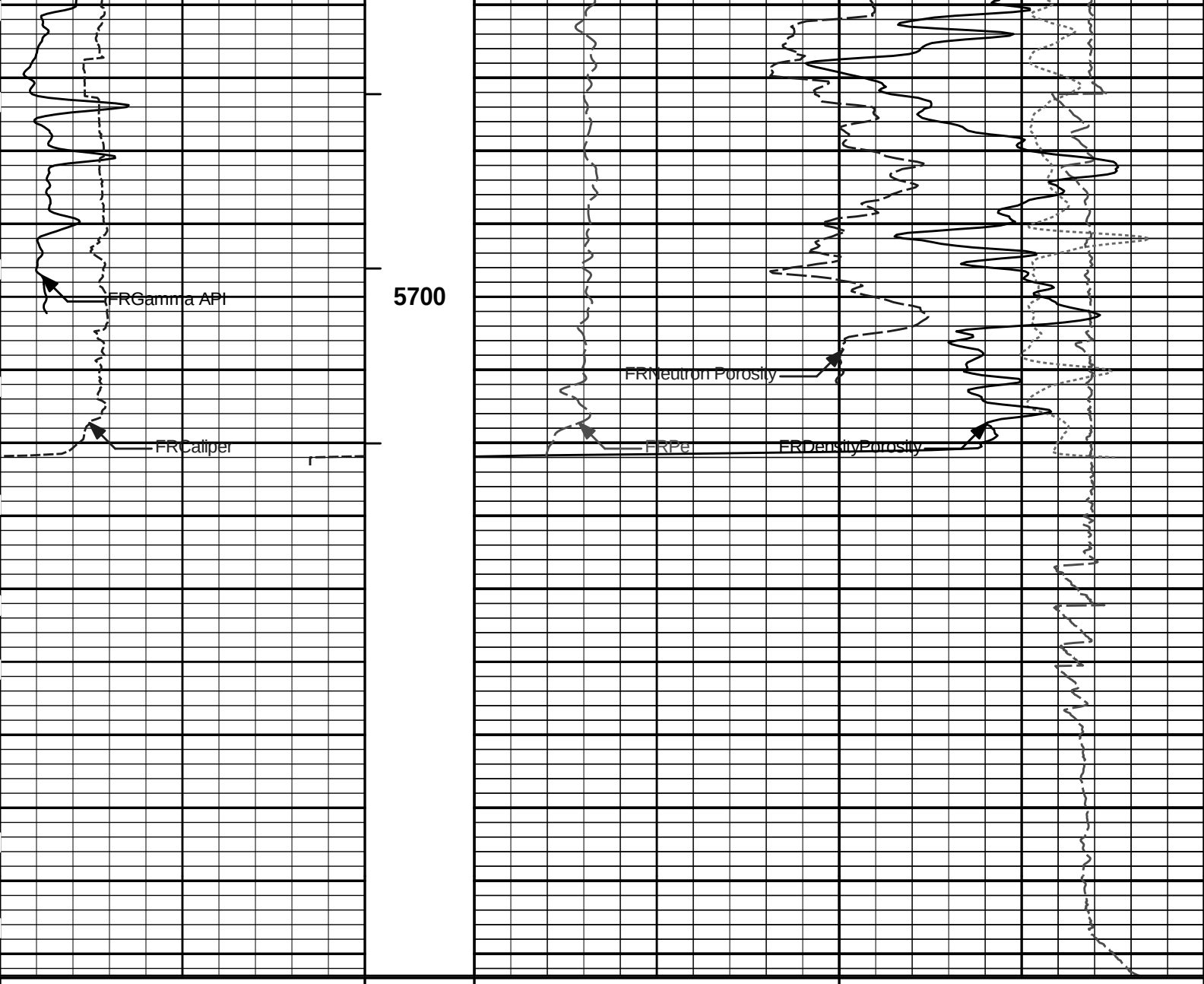
REPEAT SECTION




Gamma API
Caliper
Neutron Porosity
Pe
DensityPorosity
5500
5600



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

HALLIBURTON

Plot Time: 31-Aug-12 02:58:02
Plot Range: 5435 ft to 5793 ft
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Plot File: \\PORO\Poro_IQ_5_REP_LIB

REPEAT SECTION

HALLIBURTON

Plot Time: 31-Aug-12 02:58:02
Plot Range: 190 ft to 5787.25 ft

Plot Range: 190 ft to 5787.25 ft
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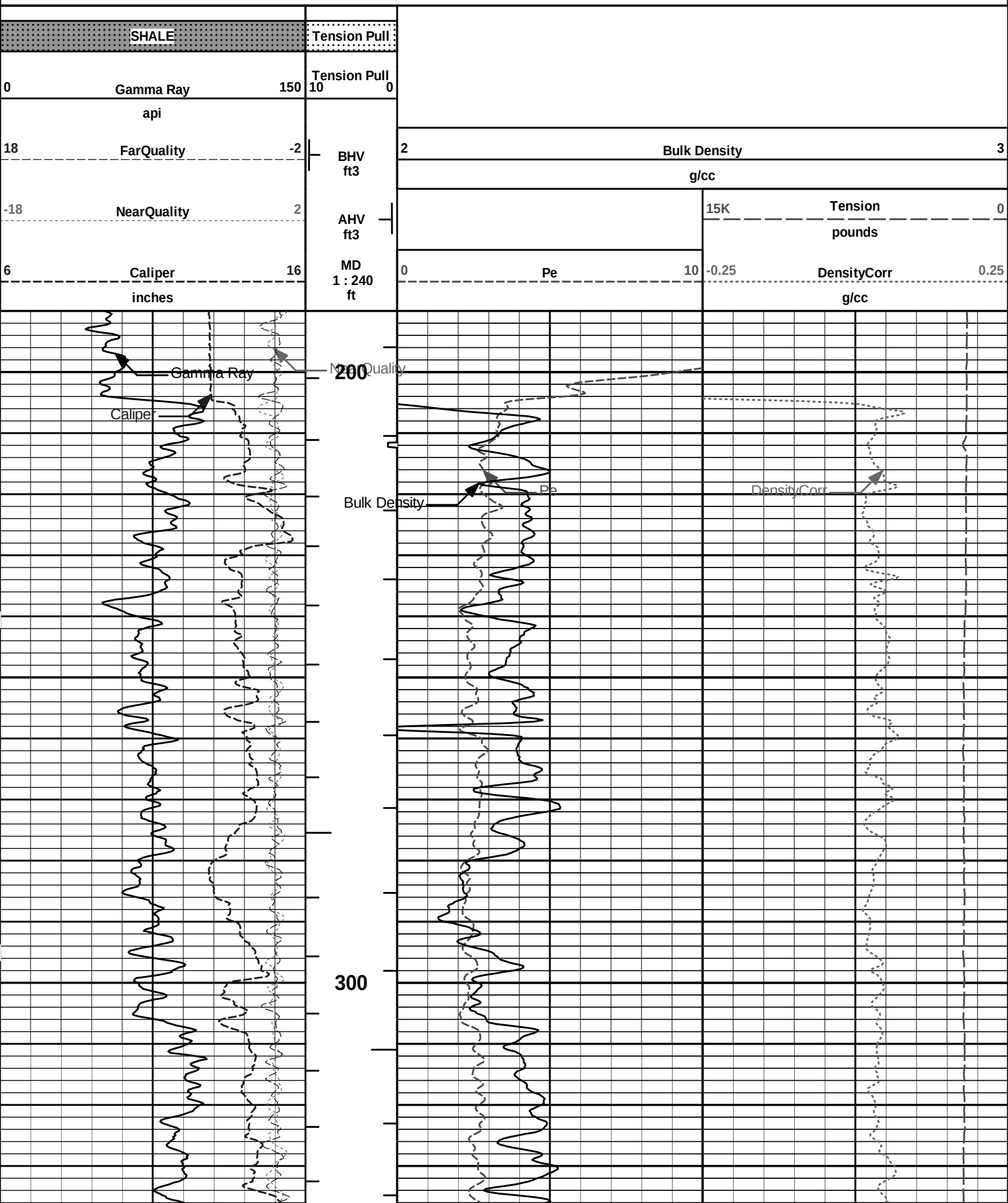
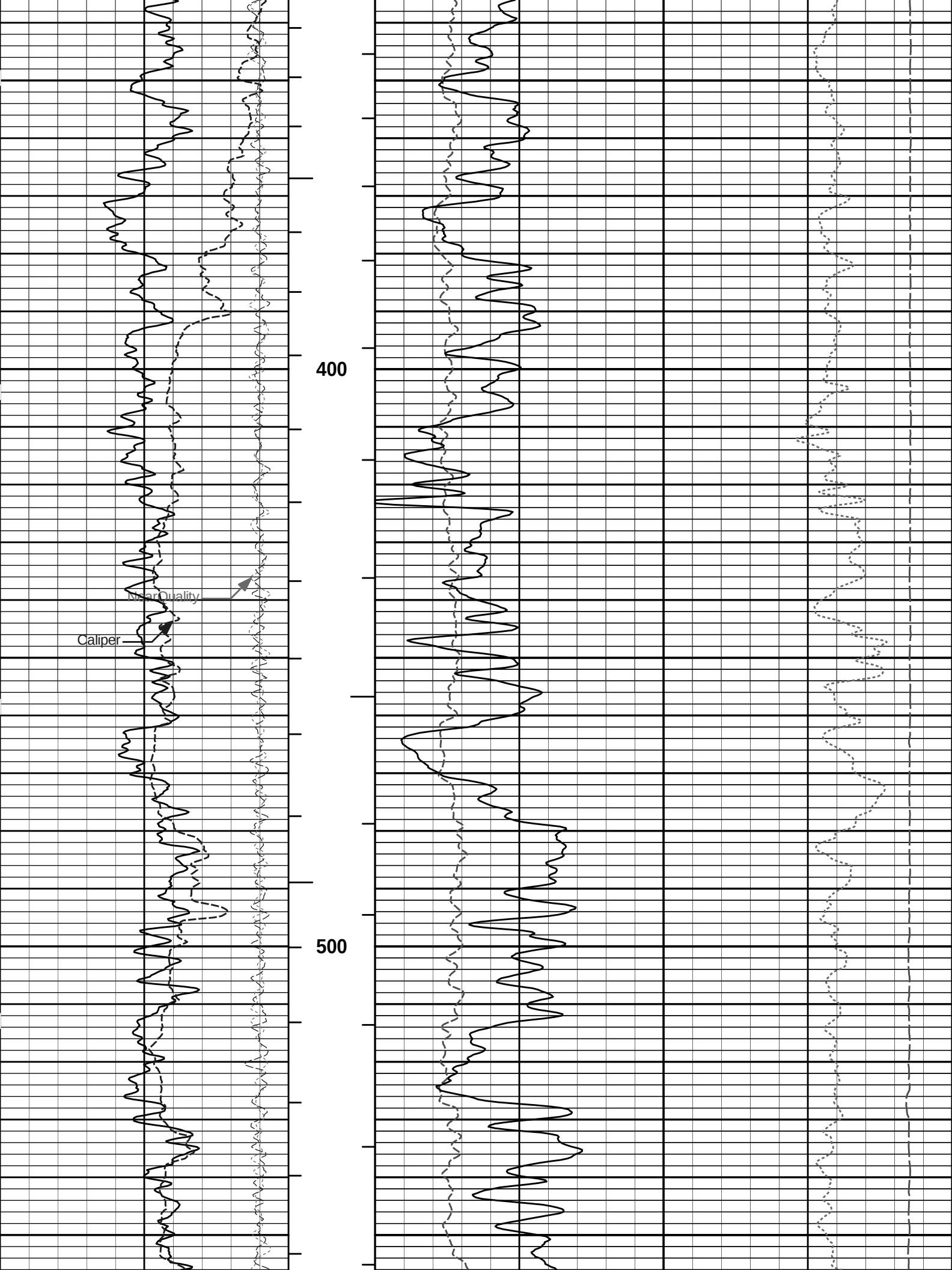
5 INCH MAIN LOG

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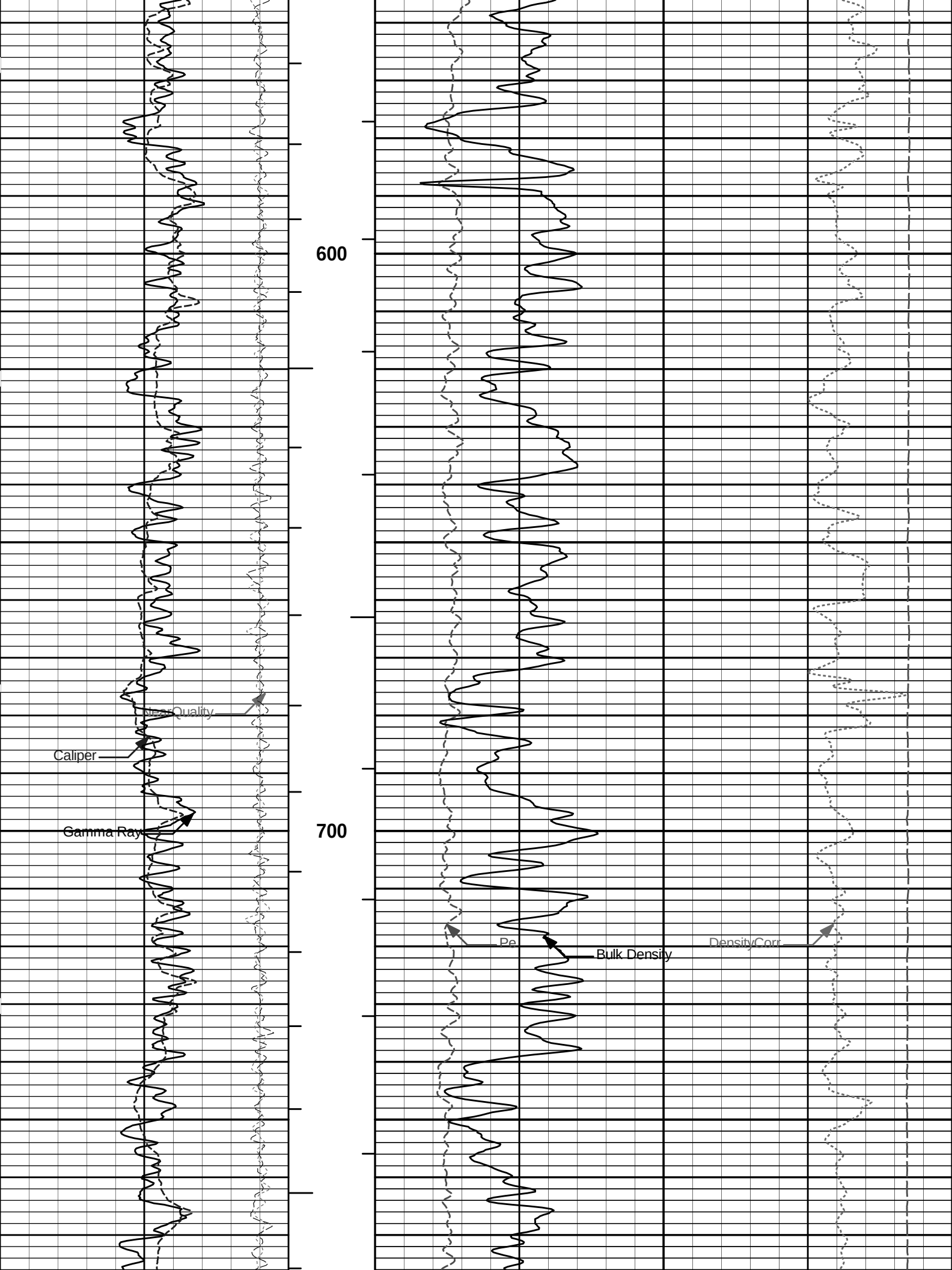
MeanQuality
Caliper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NearQuality
Caliper
Gamma Ray
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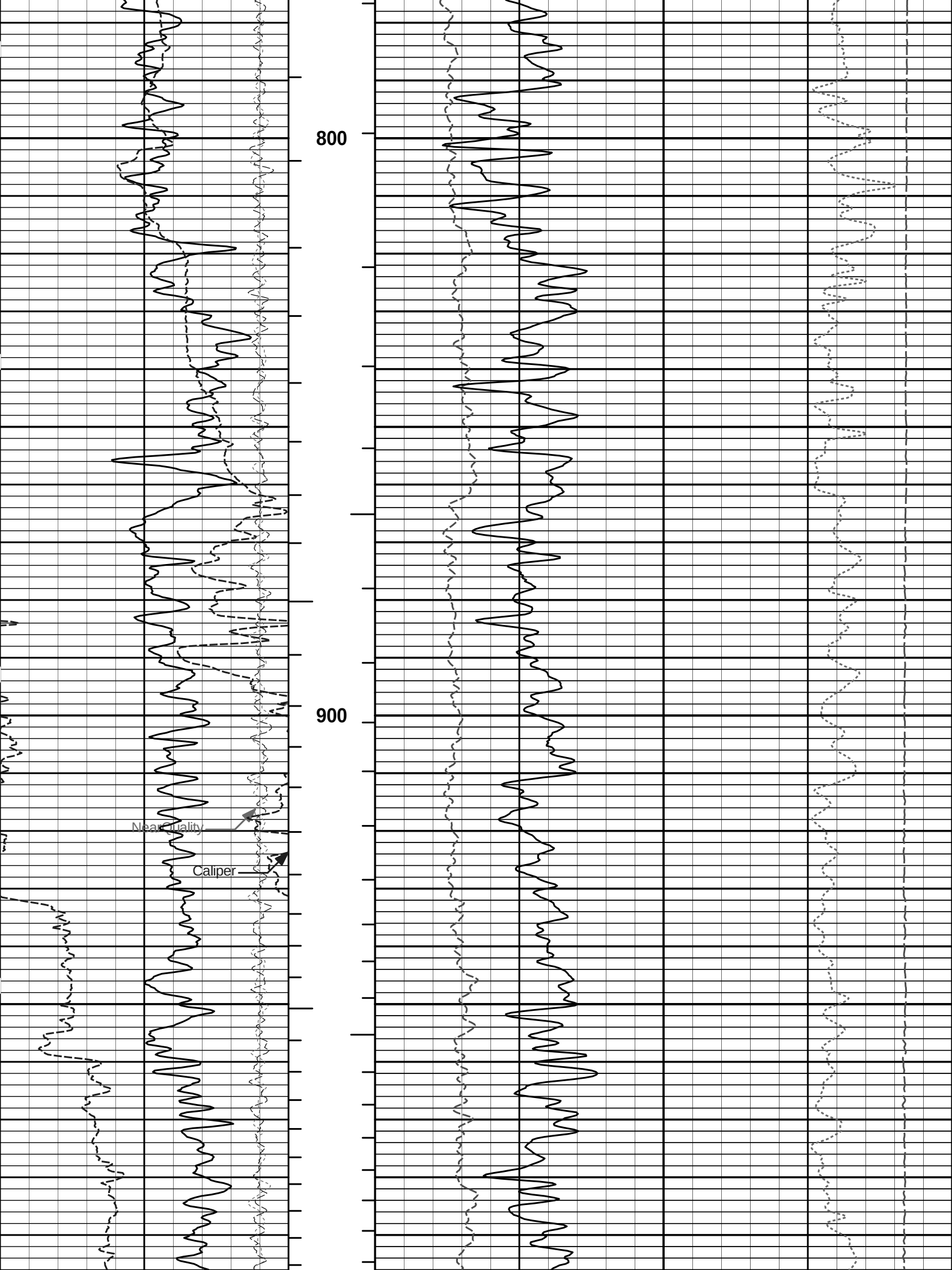
Bulk Density
DensityCorr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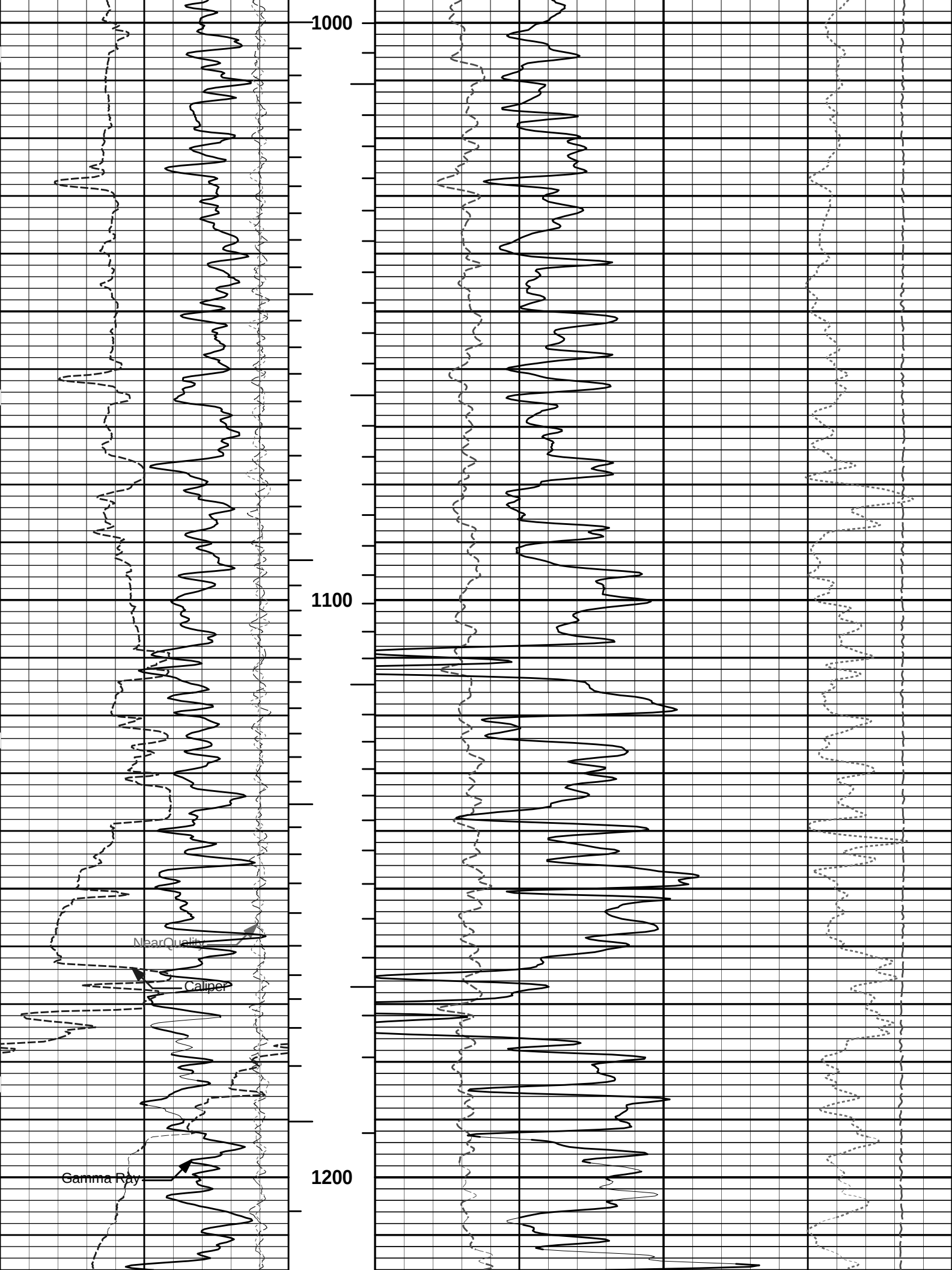
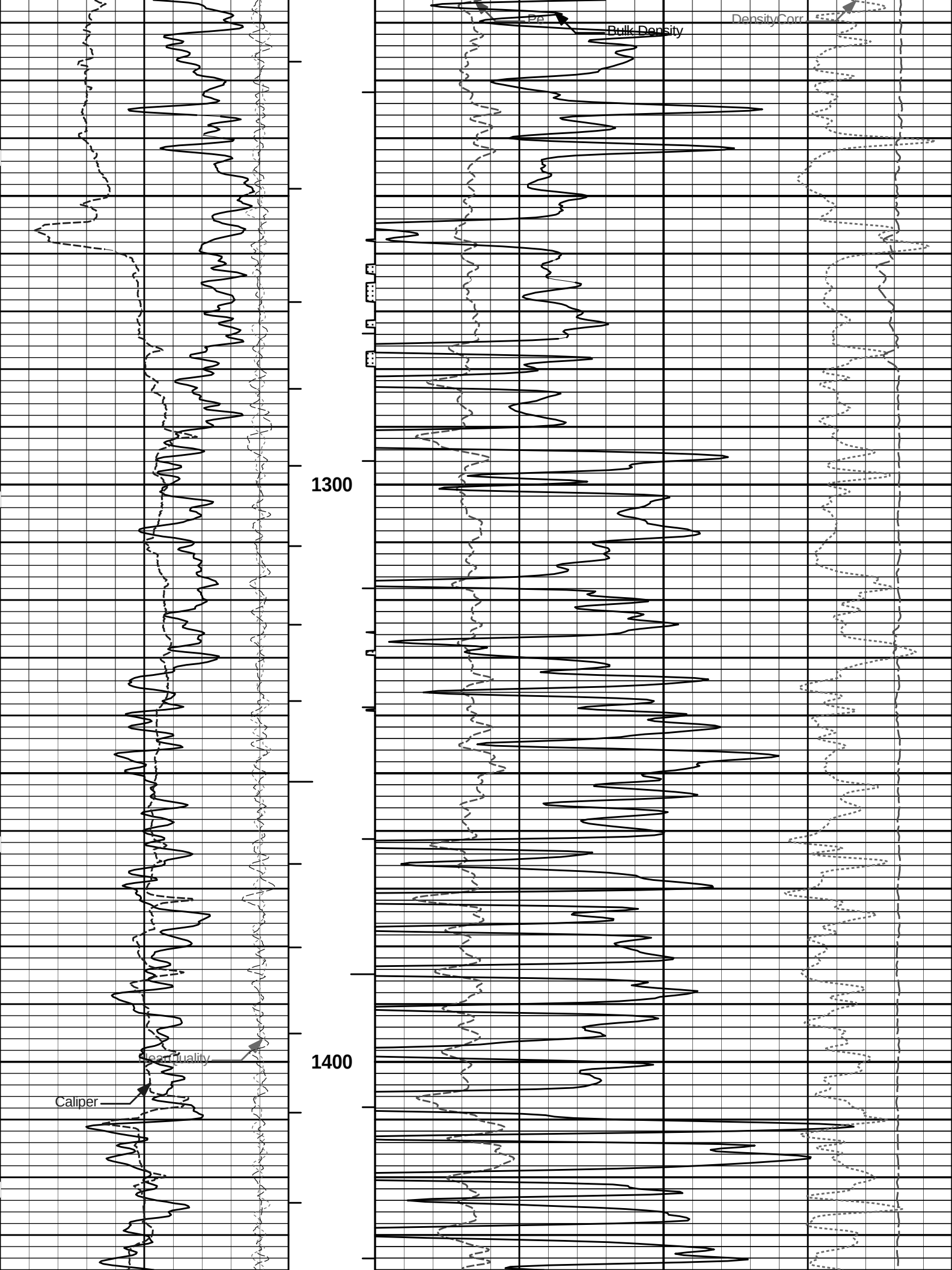
Near Quality
Caliper


1000
1100
1200
NearQuality
Caliper
Gamma Ray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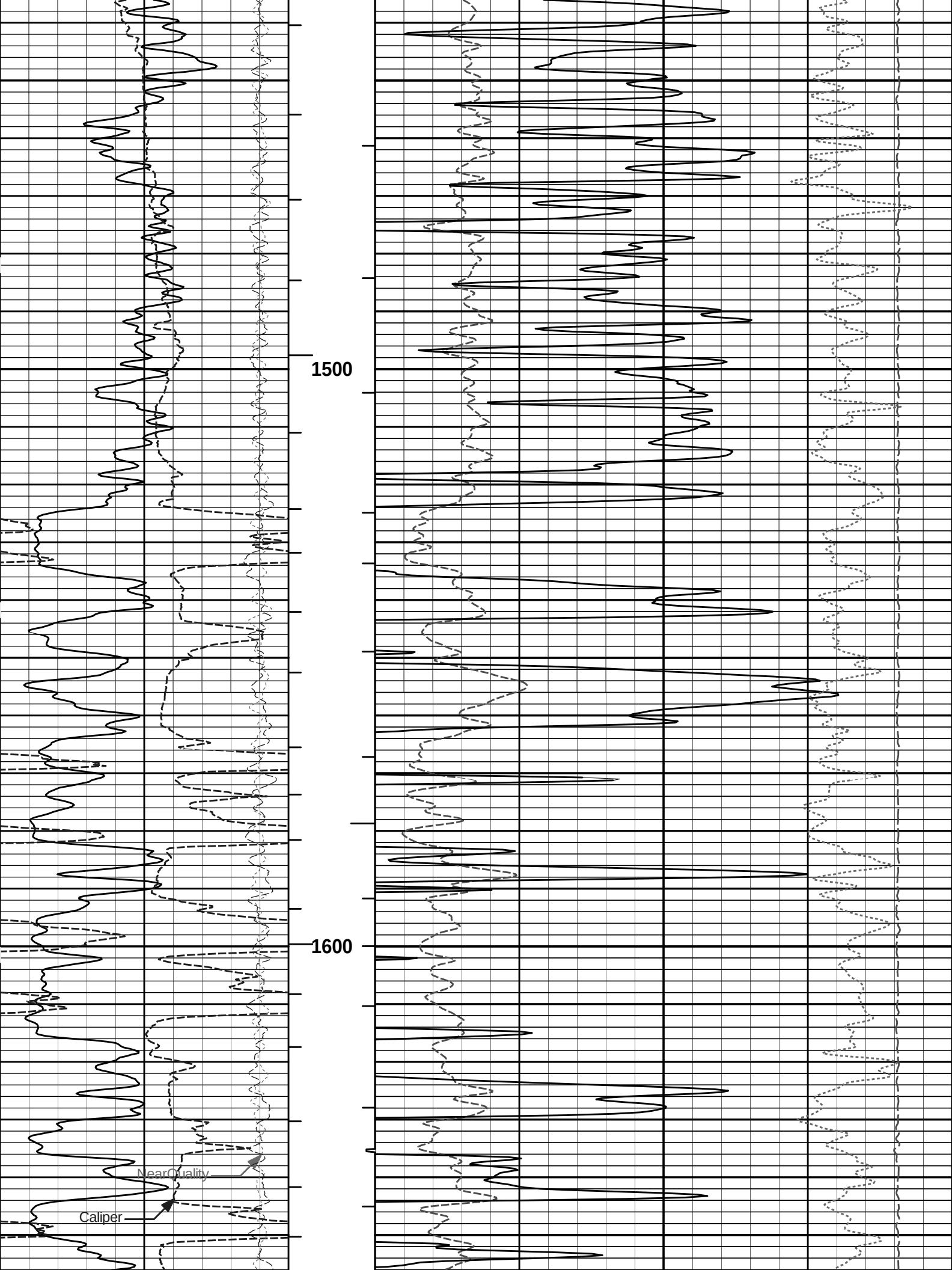
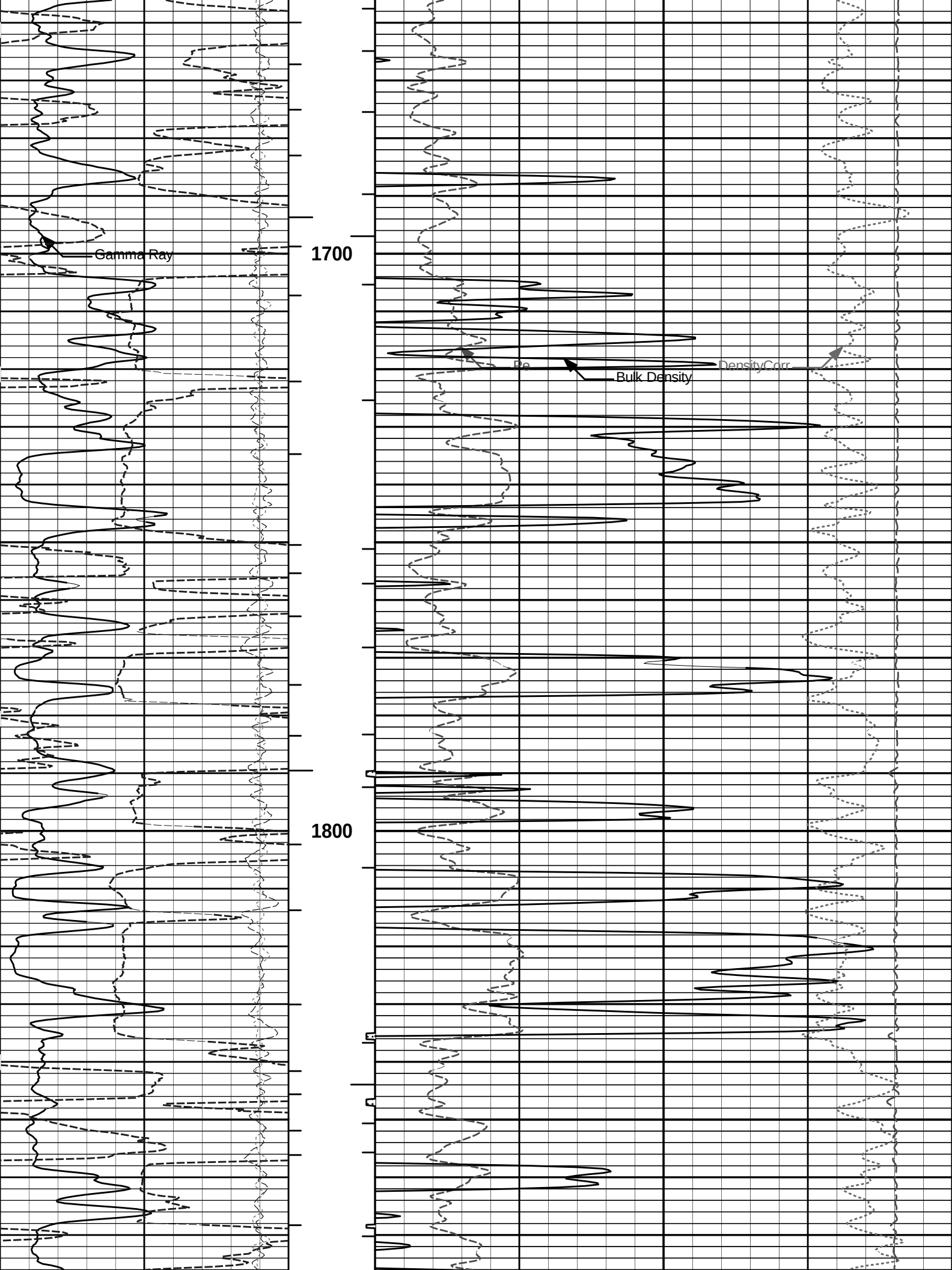
Bulk Density
DensityCorr
1300
1400
MeanQuality
Caliper


1500
1600
NearQuality
Caliper


Gamma Ray
1700
Pe
Bulk Density
DensityCorr
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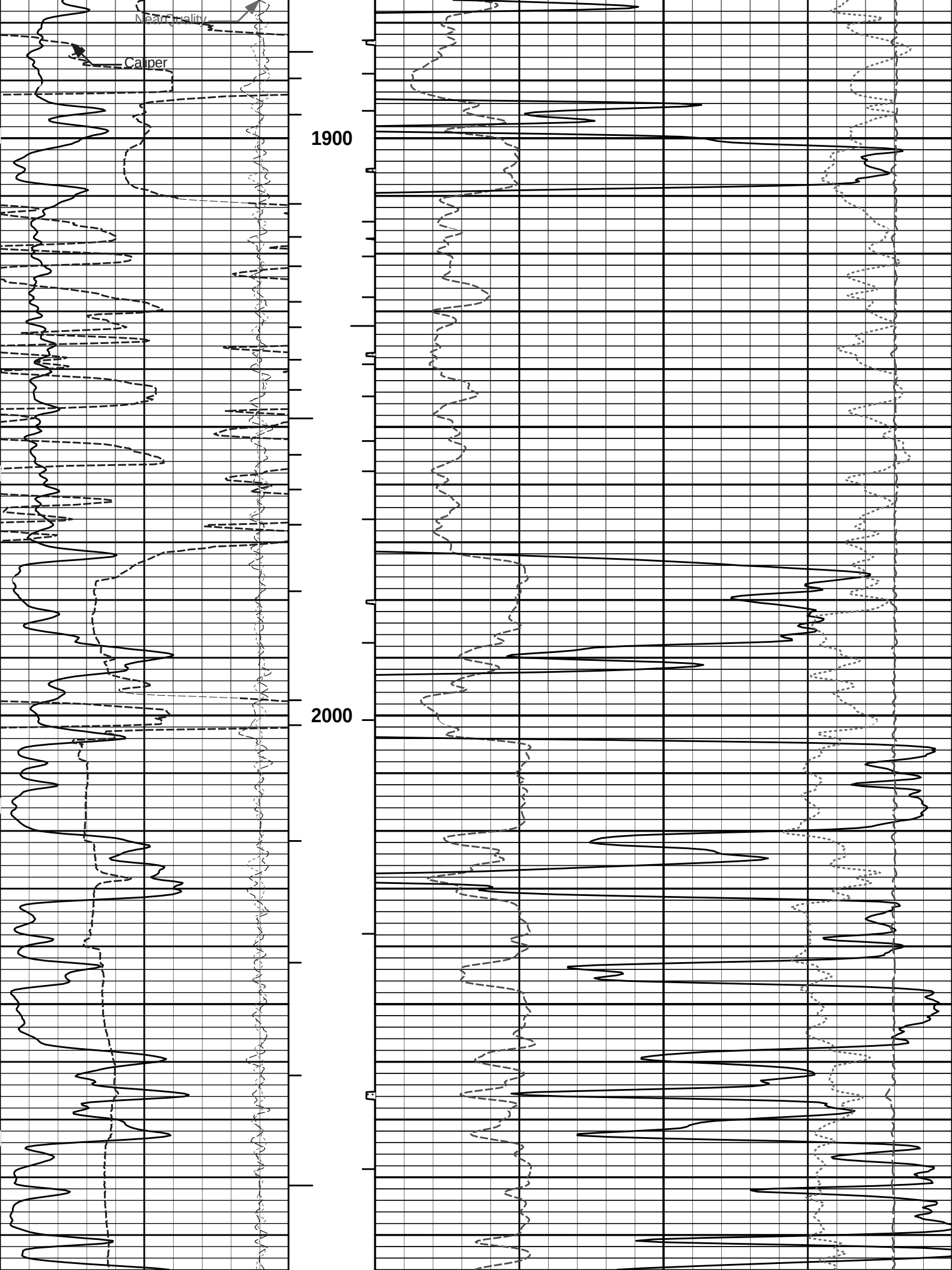
Near Quality
Caliper
1900
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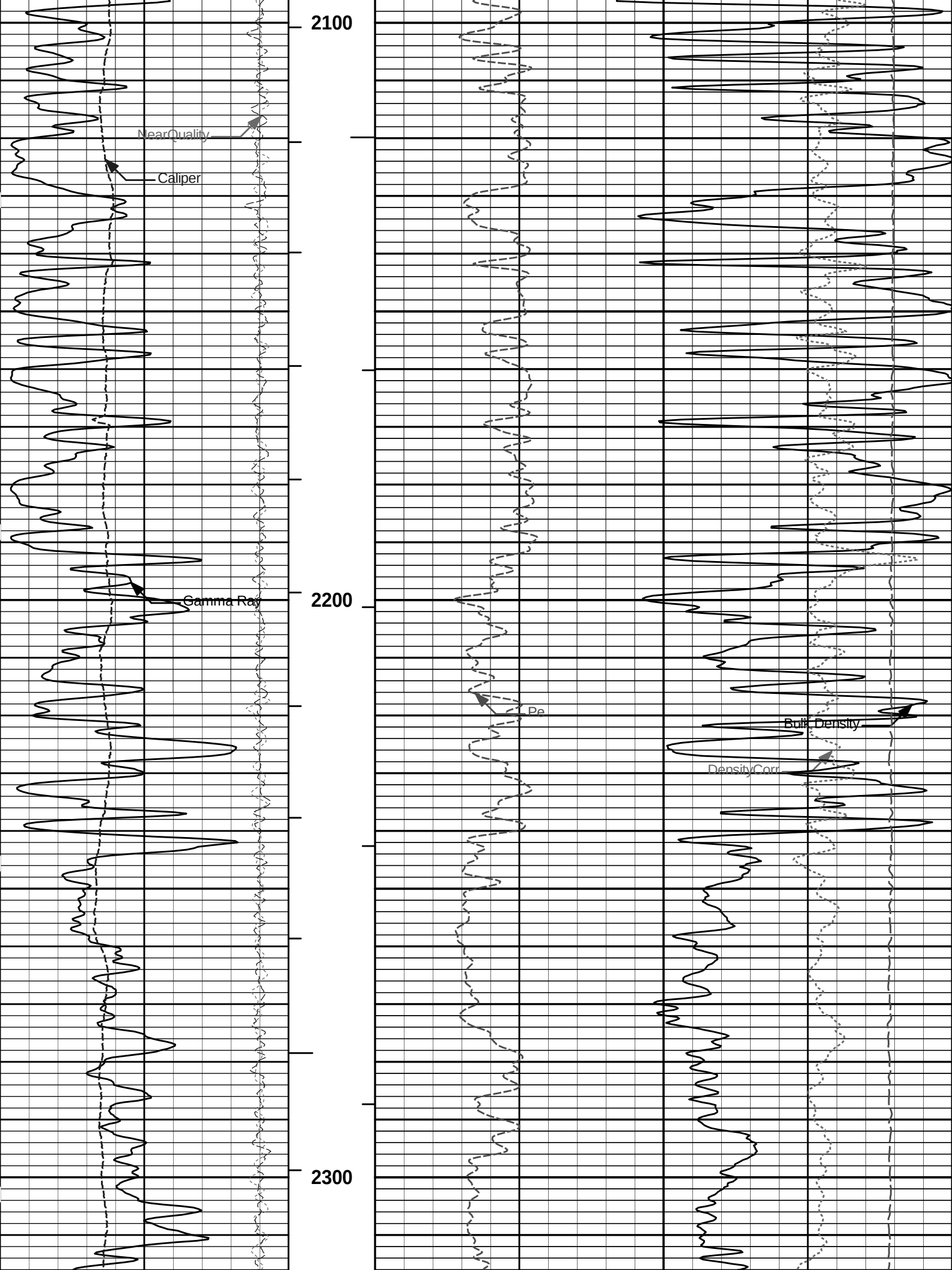
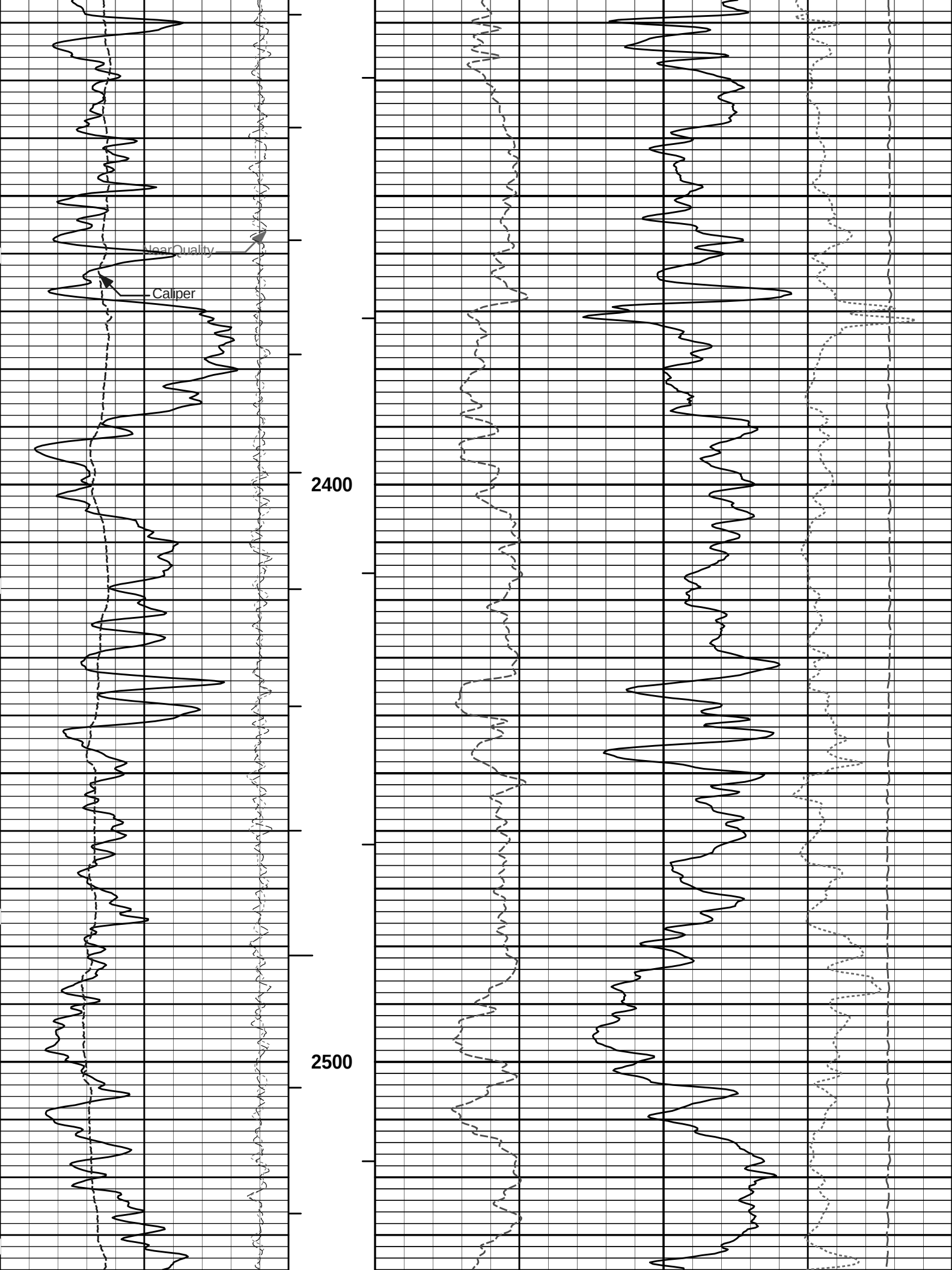
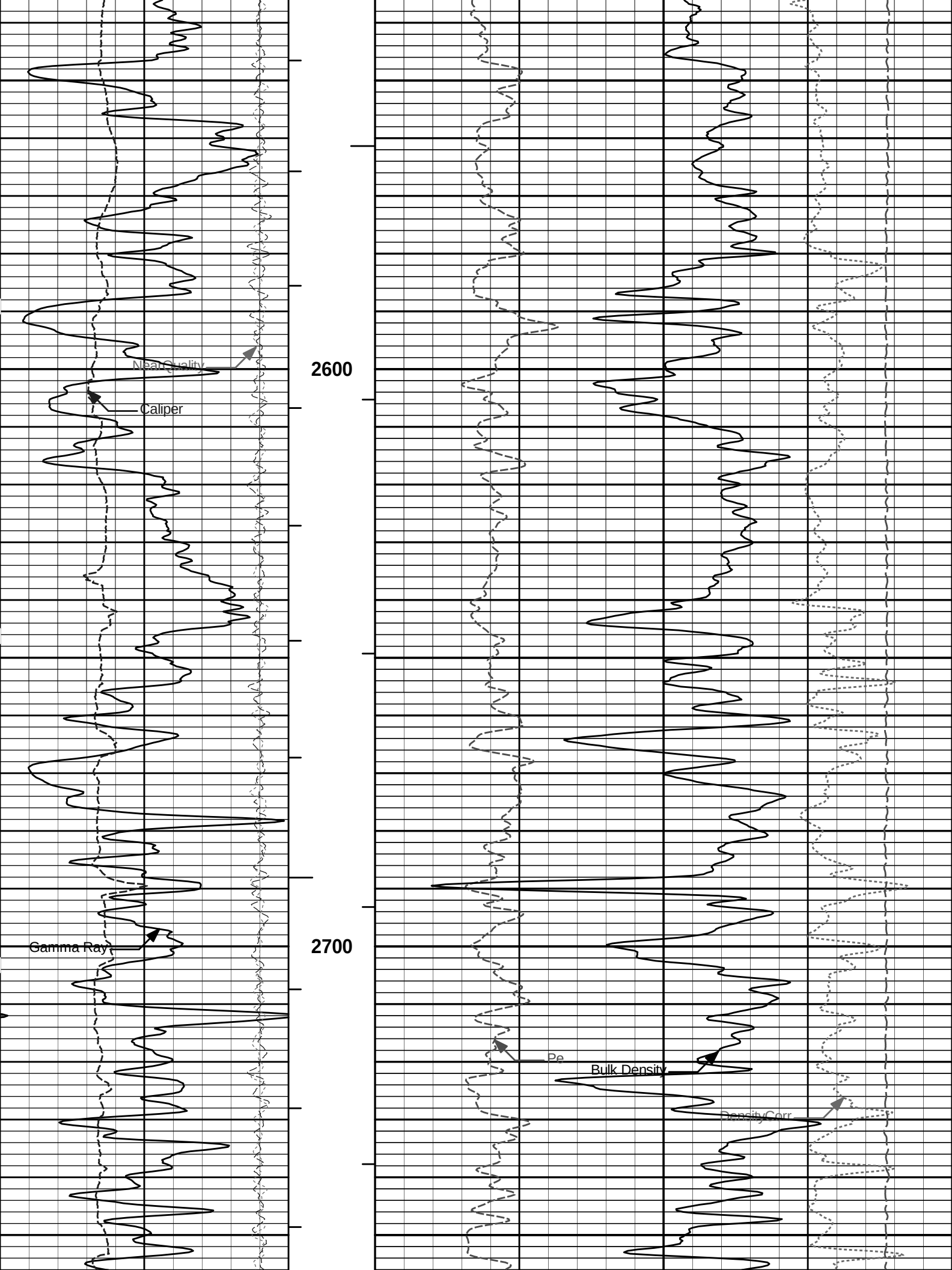
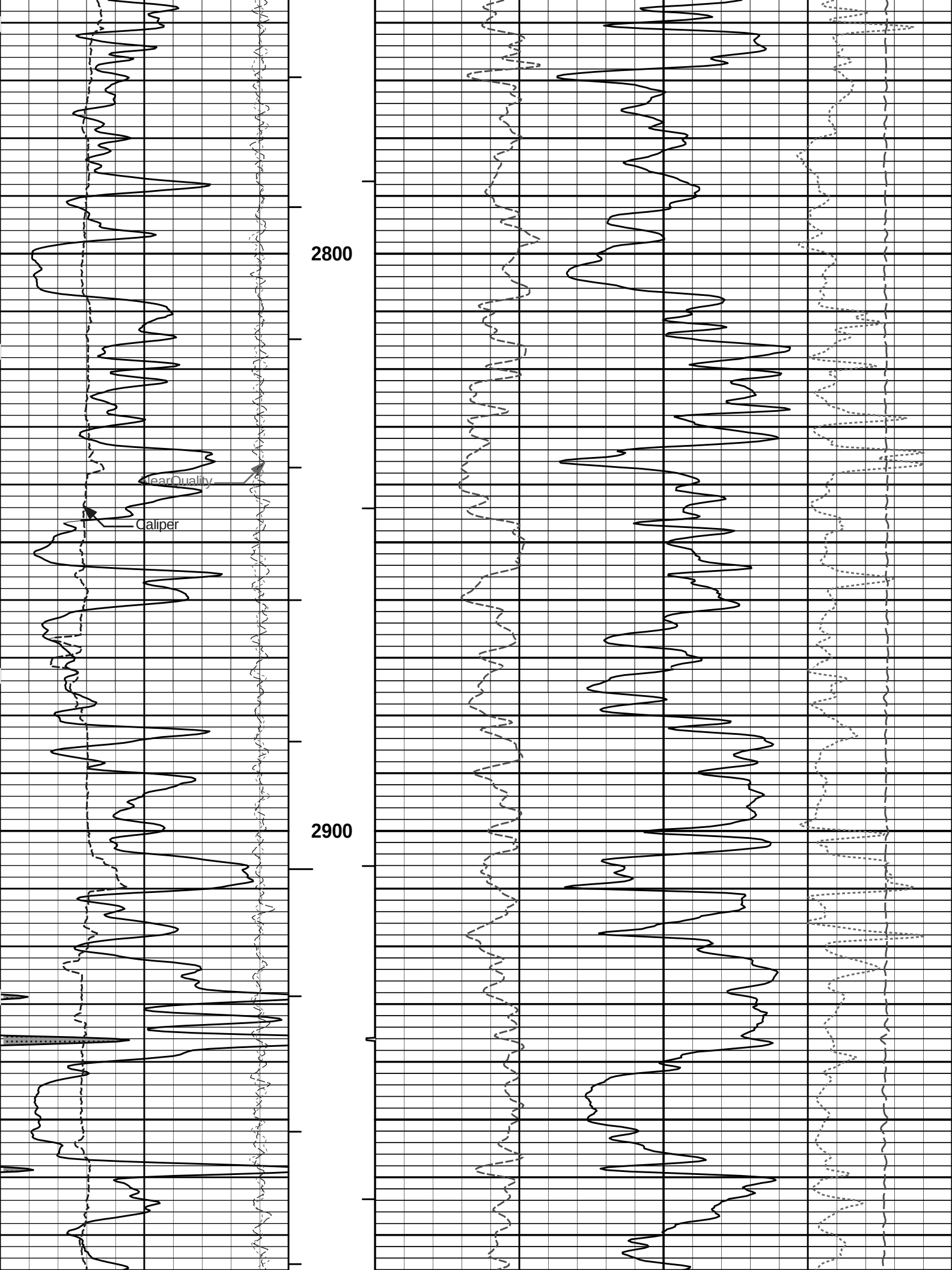
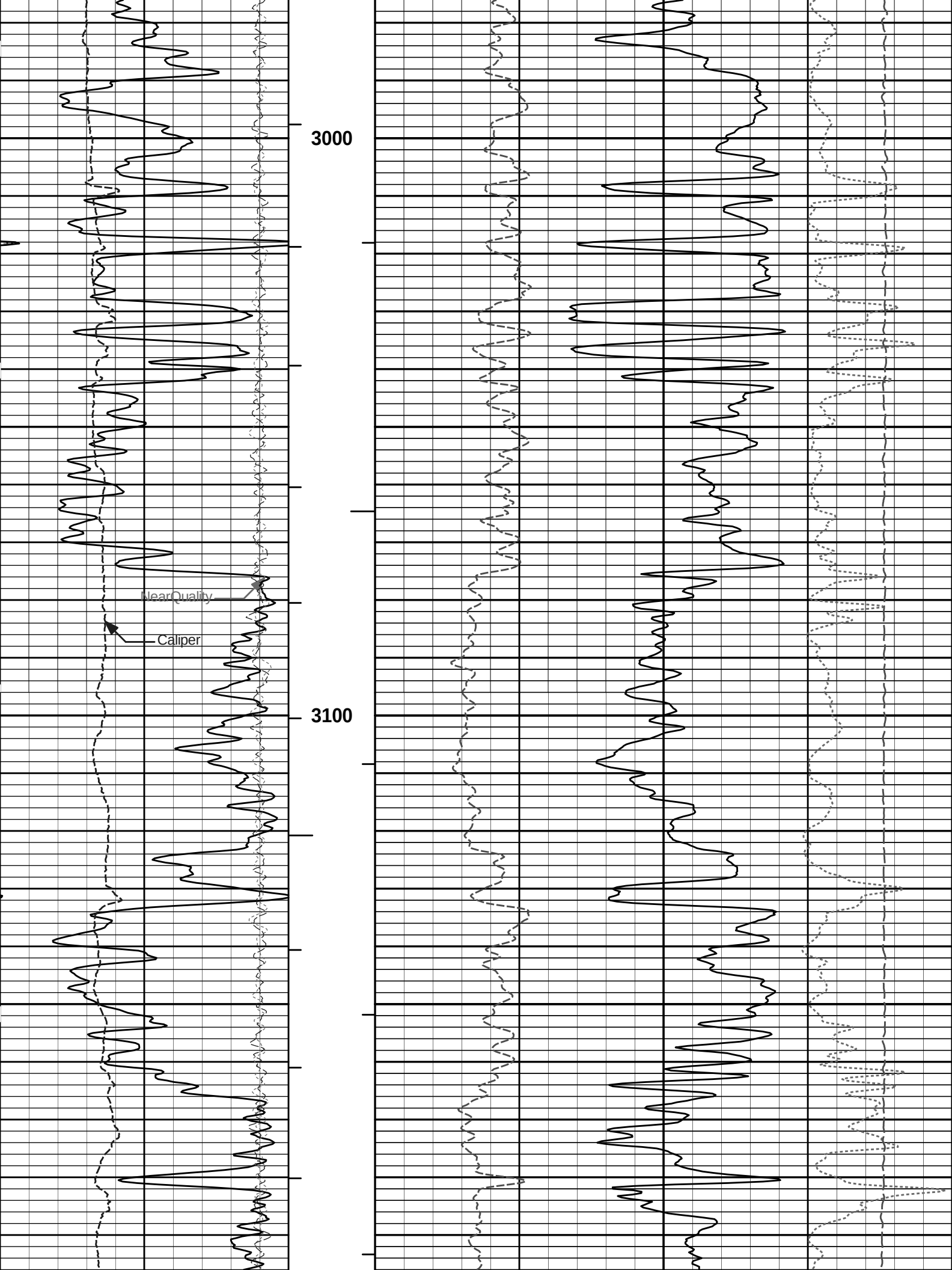
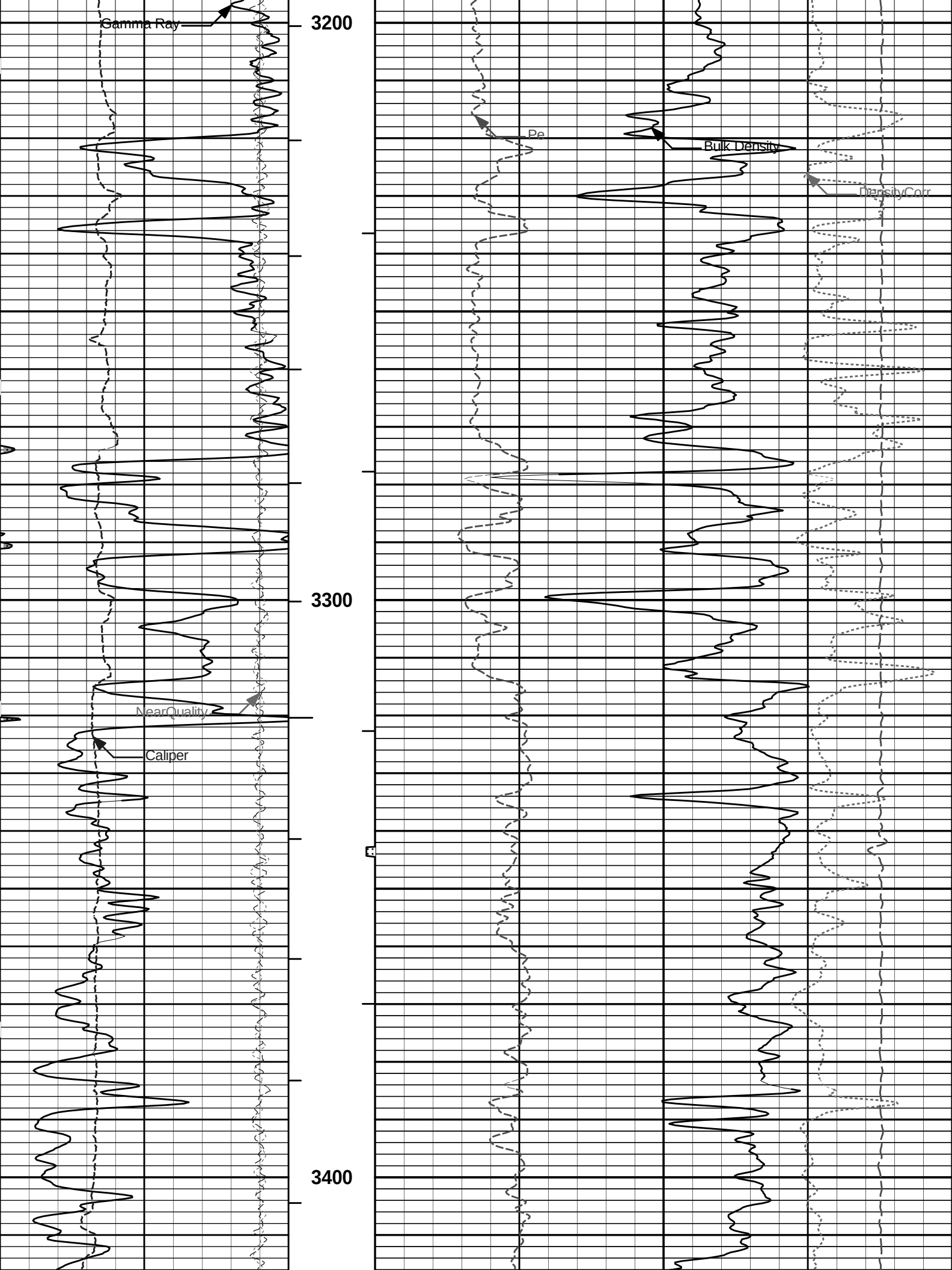

2100
2200
2300
NearQuality
Caliper
Gamma Ray
Pe
Bulk Density
DensityCorr

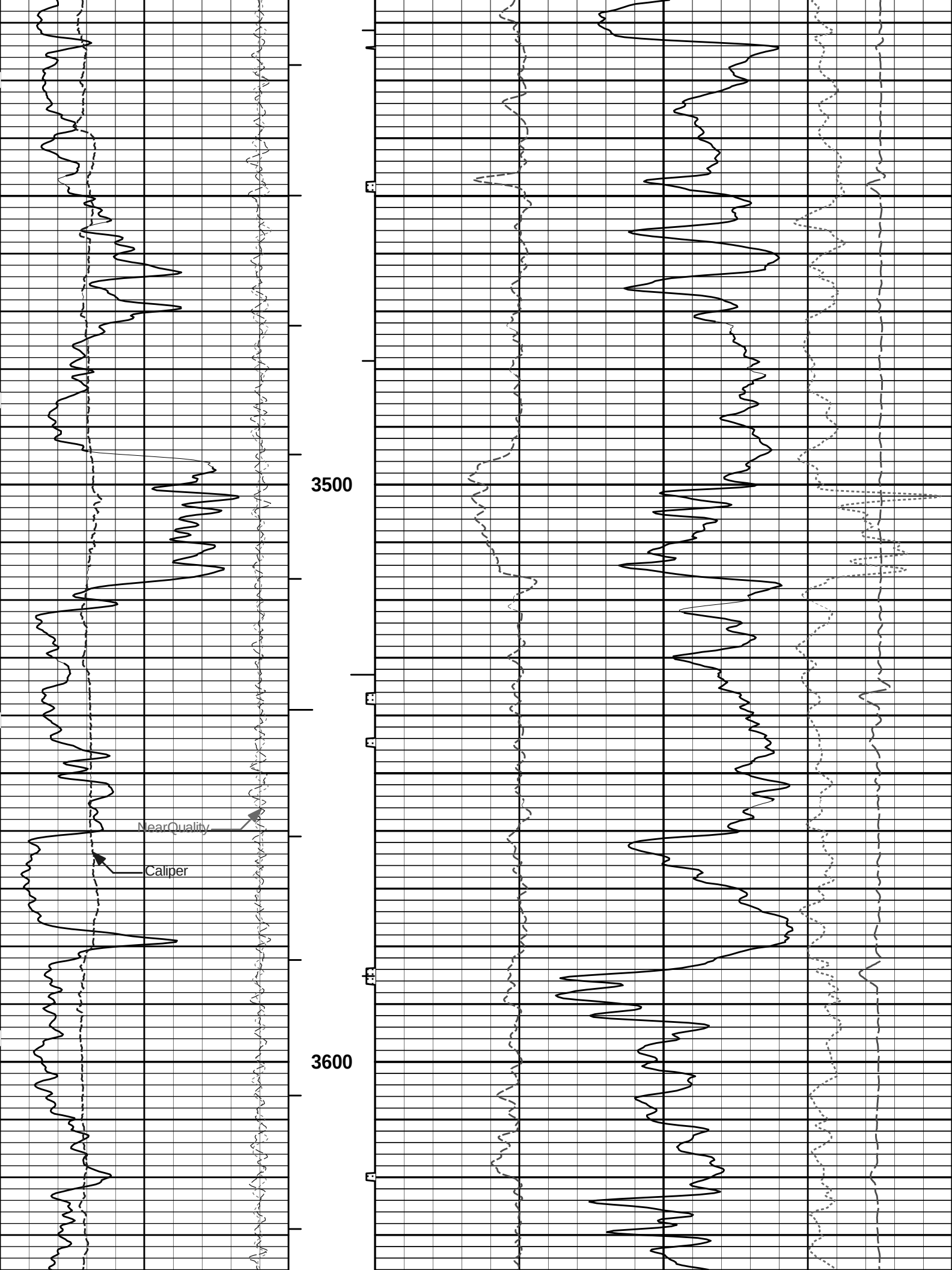

NearQuality
Caliper
2400
2500

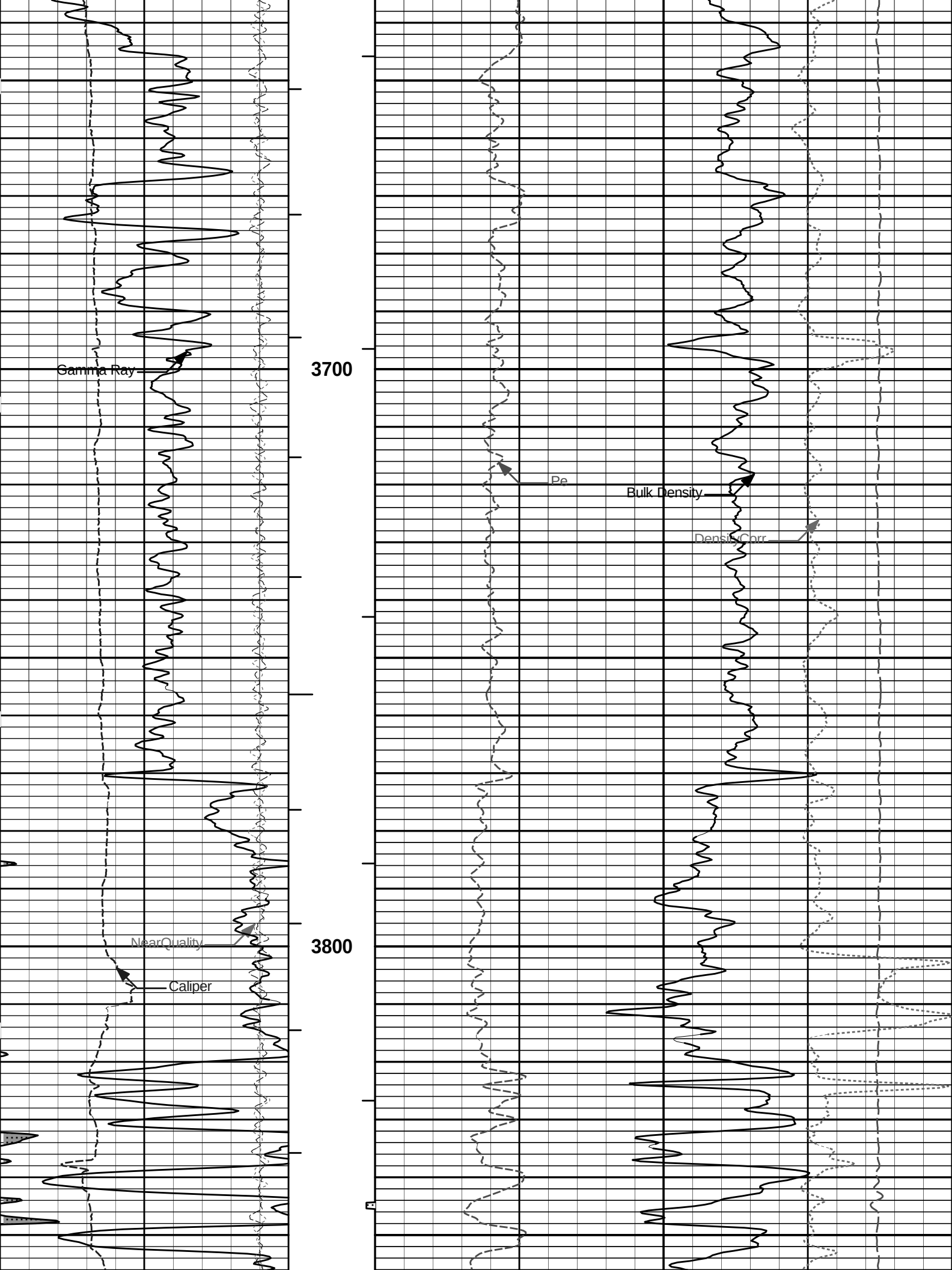

NearQuality
Caliper
2600
Gamma Ray
2700
Pe
Bulk Density
DensityCorr


2800
2900
NearQuality
Caliper


3000
NearQuality
Caliper
3100


Gamma Ray
3200
Pe
Bulk Density
DensityCorr
3300
NearQuality
Caliper
3400


3500
3600
NearQuality
Caliper


Gamma Ray
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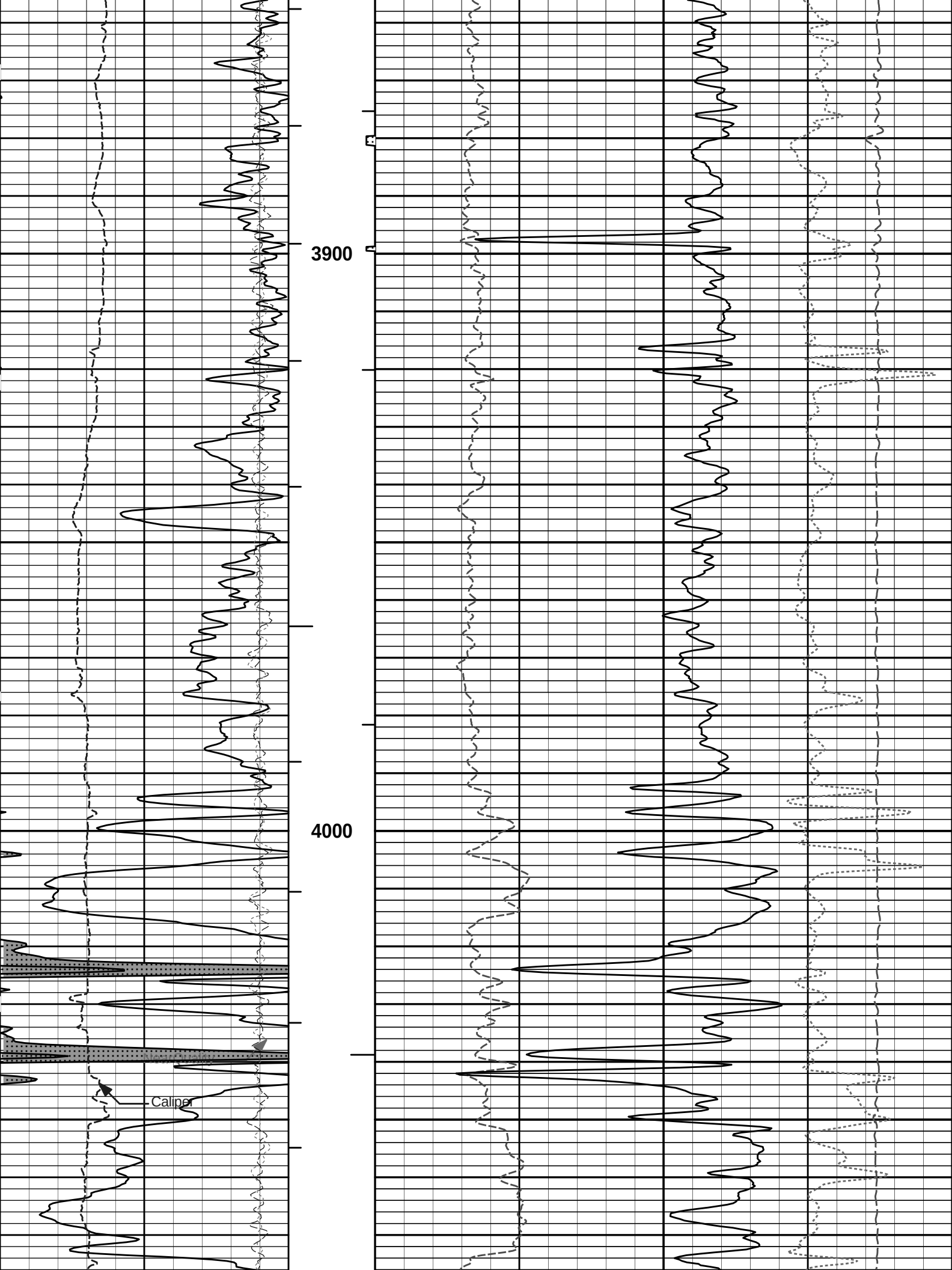
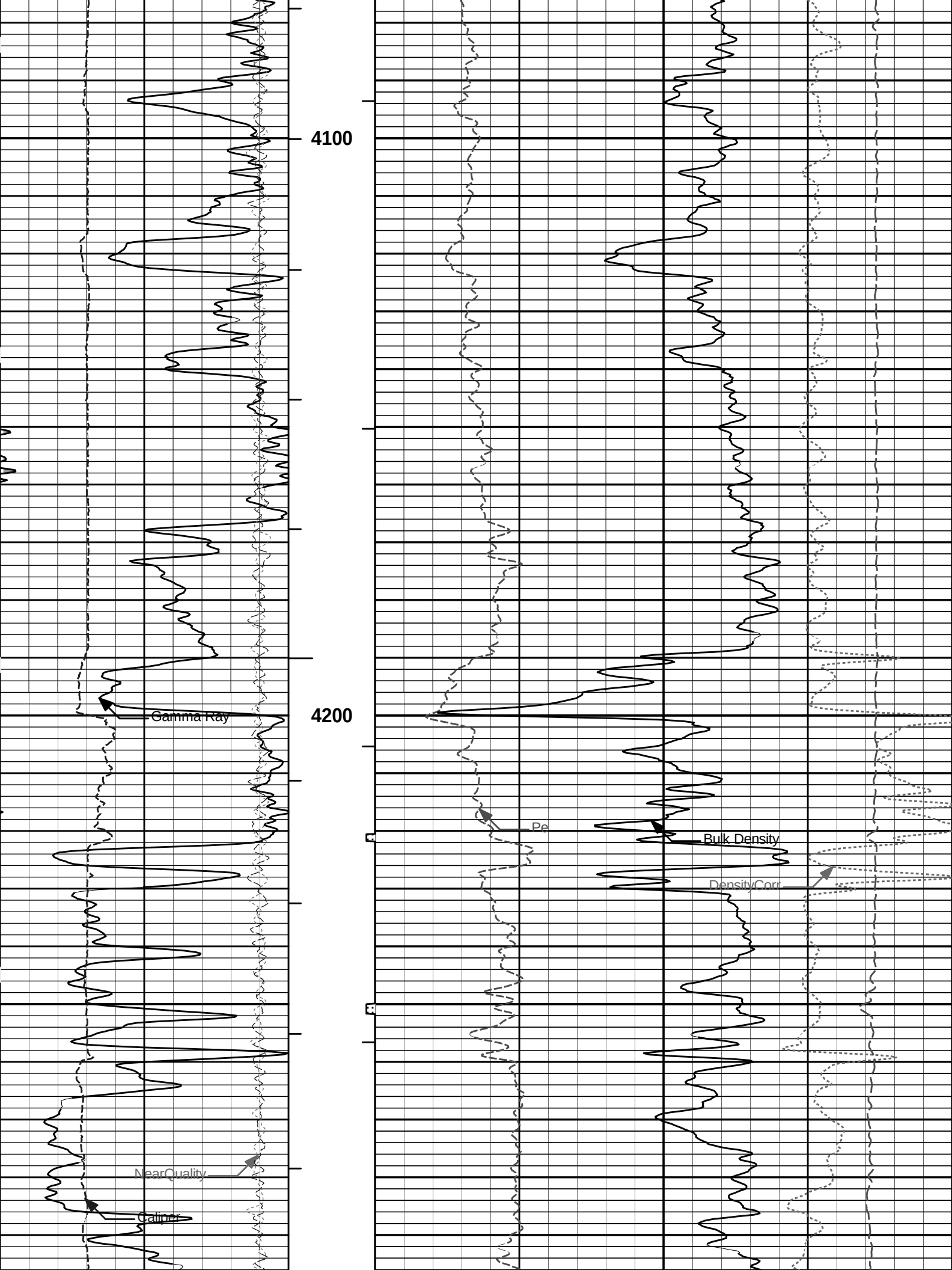
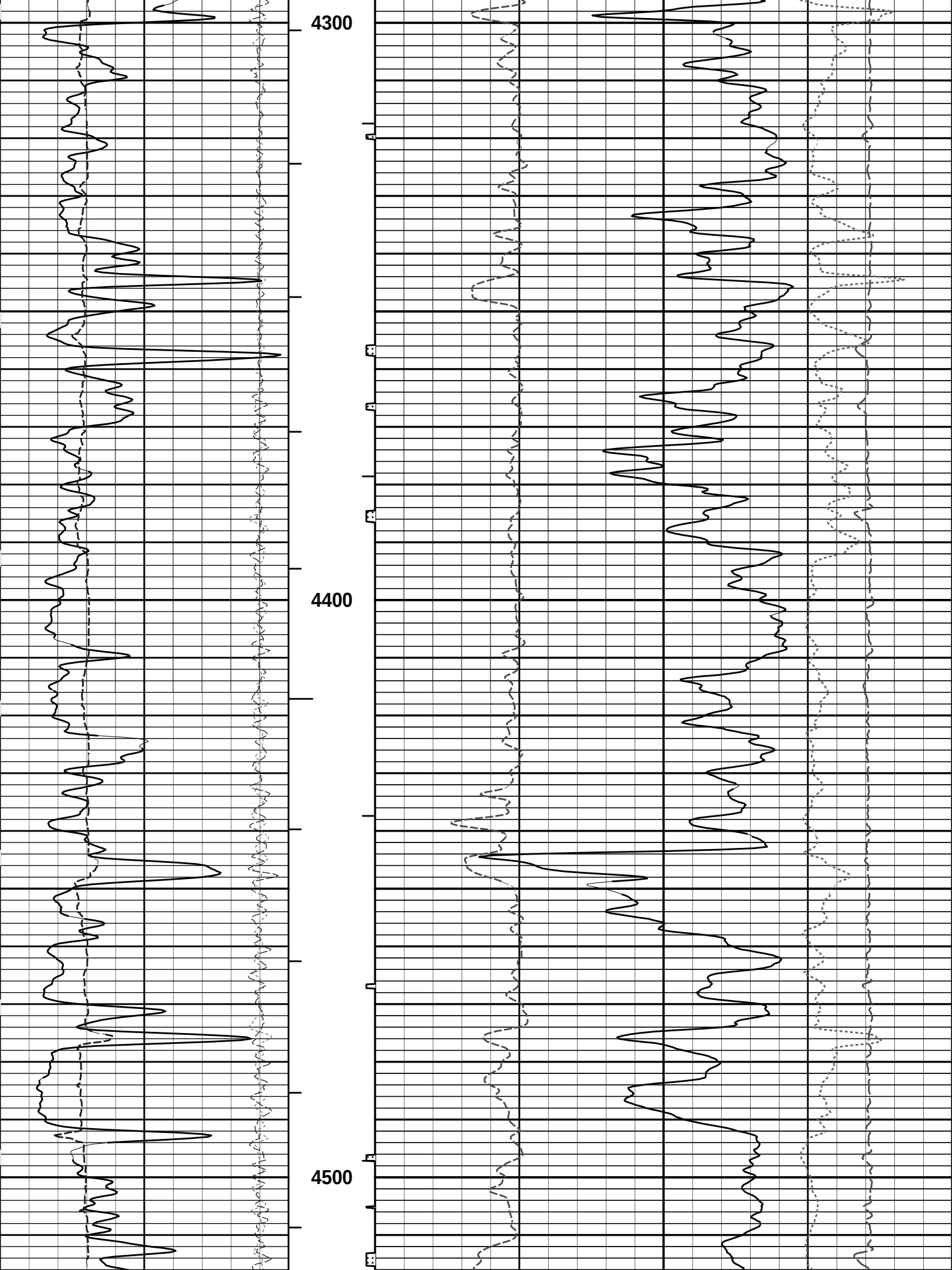
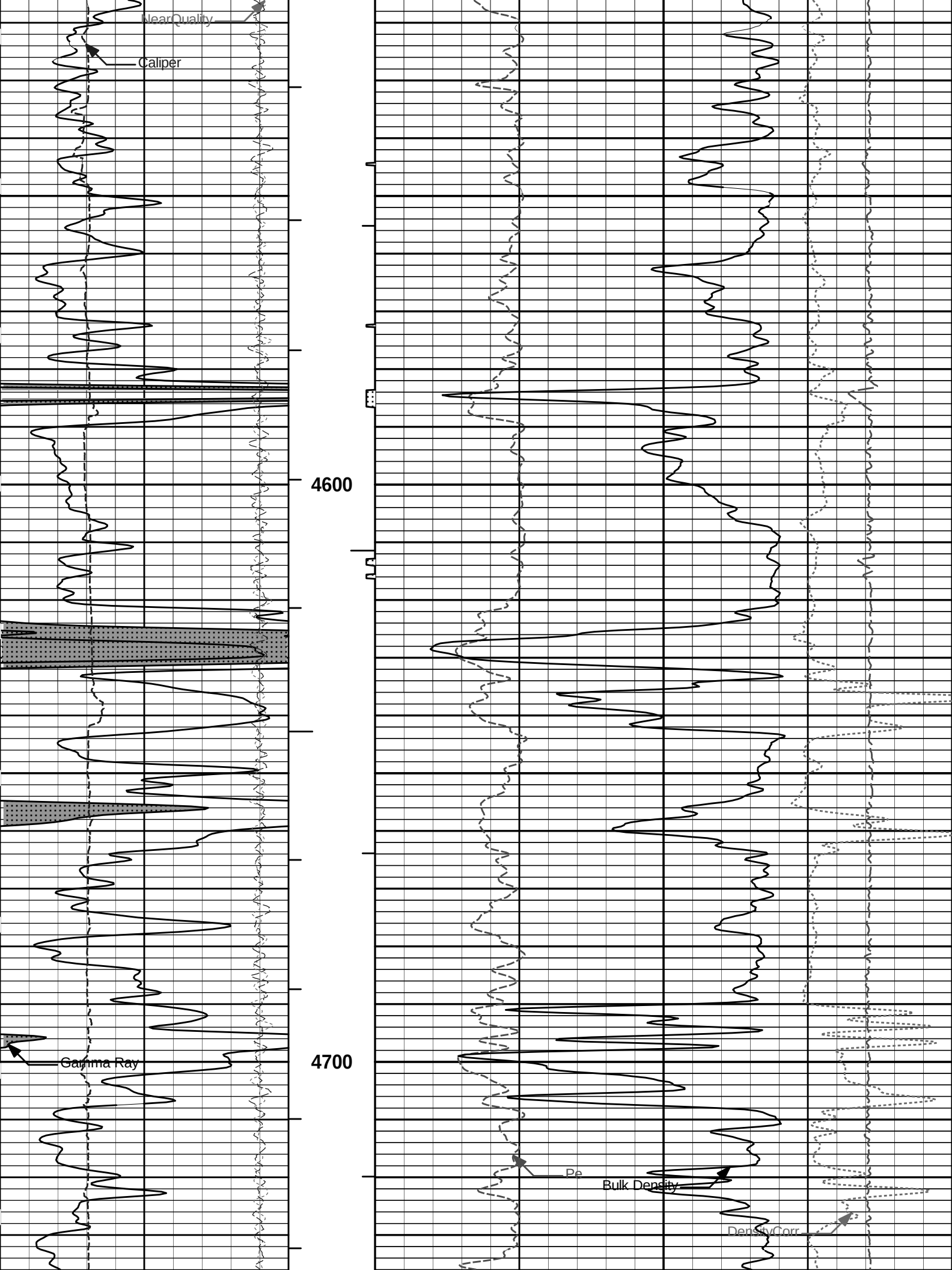
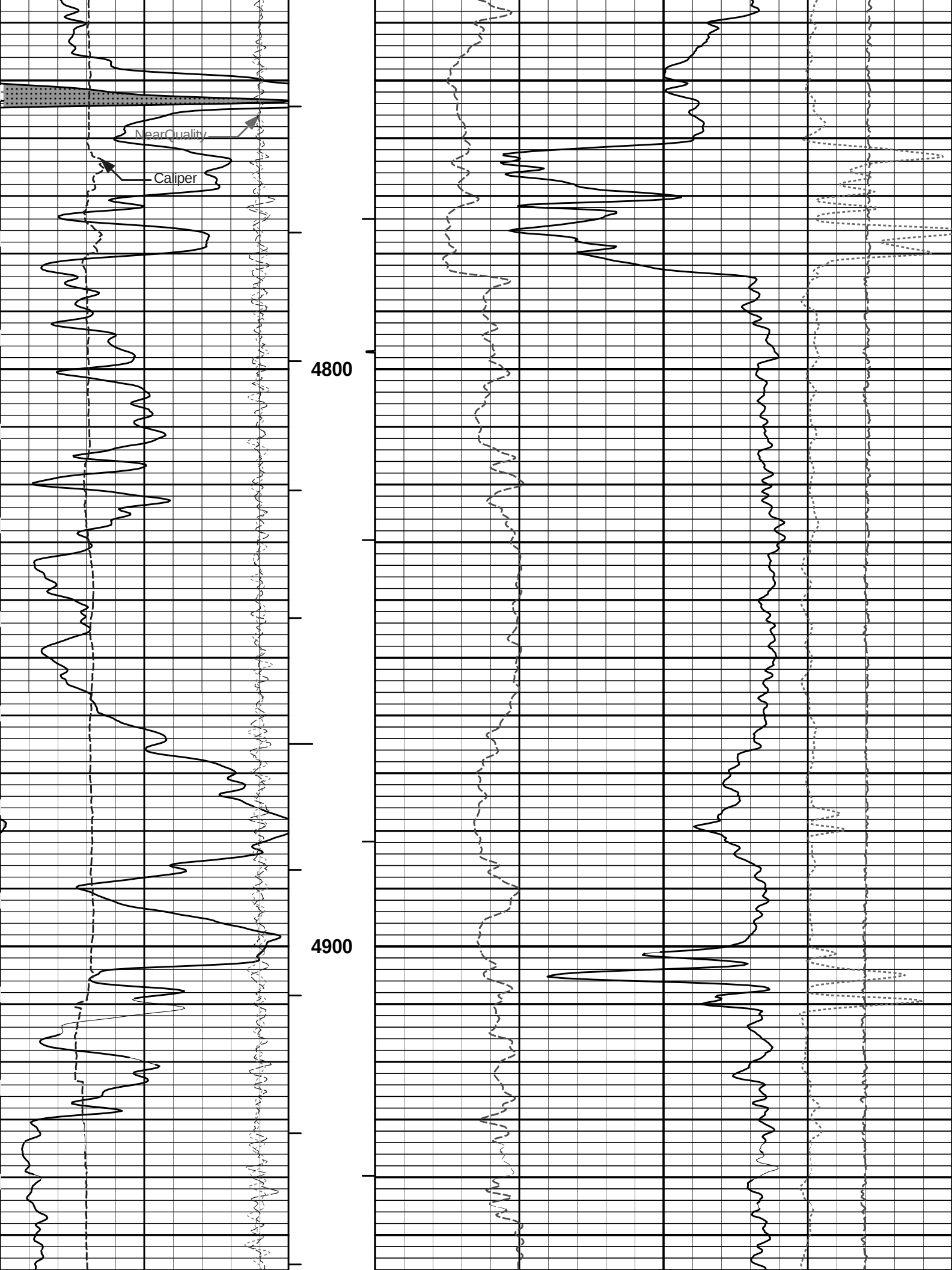
Pe
Bulk Density
DensityCorr
NearQuality
3800
Caliper

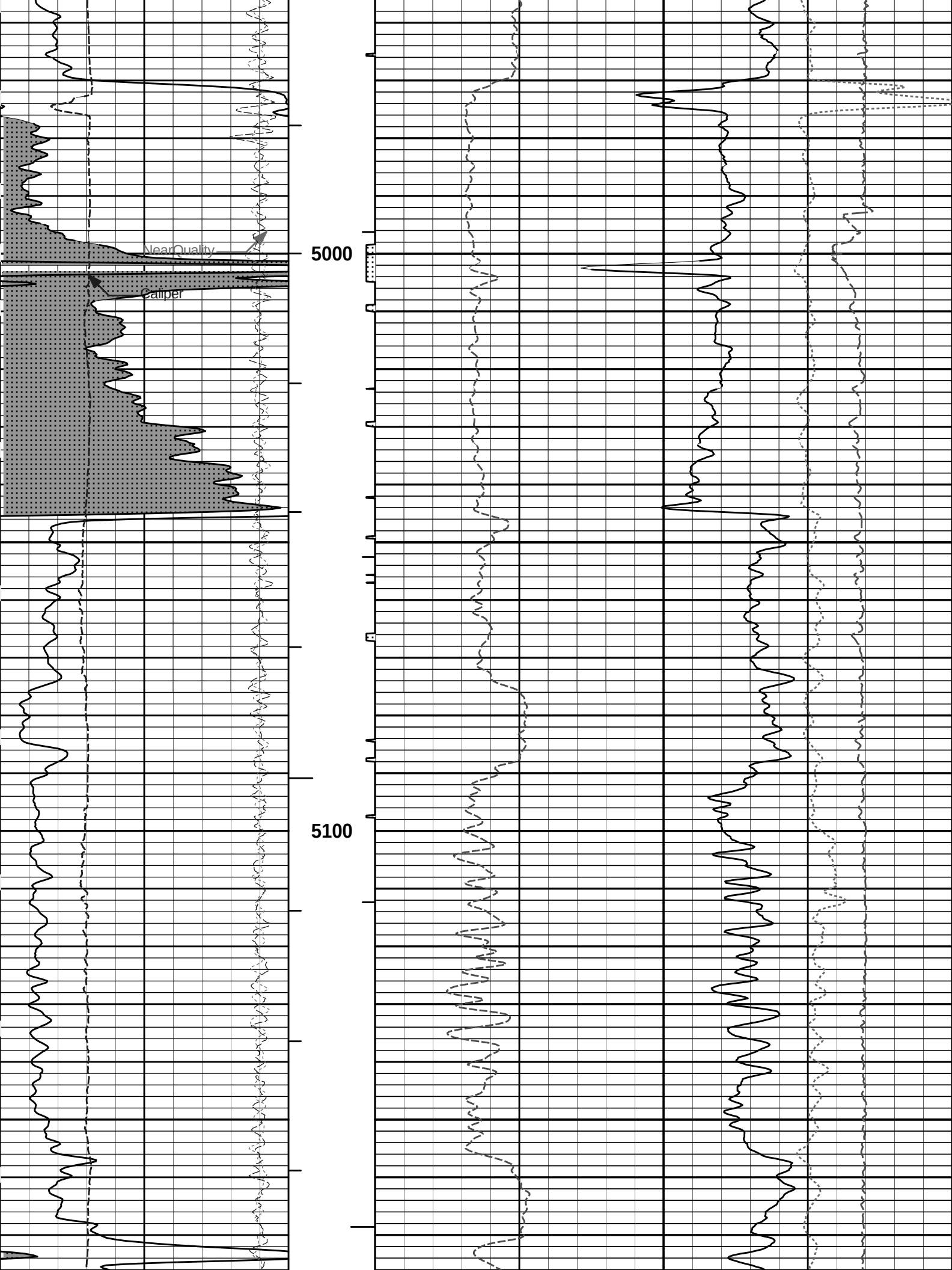

3900
4000
Caliper


4100
4200
Gamma Ray
Caliper
NearQuality
Pe
Bulk Density
DensityCorr


4300
4400
4500


NearQuality
Caliper
4600
Gamma Ray
4700
Pe
Bulk Density
DensityCorr


NearQuality
Caliper
4800
4900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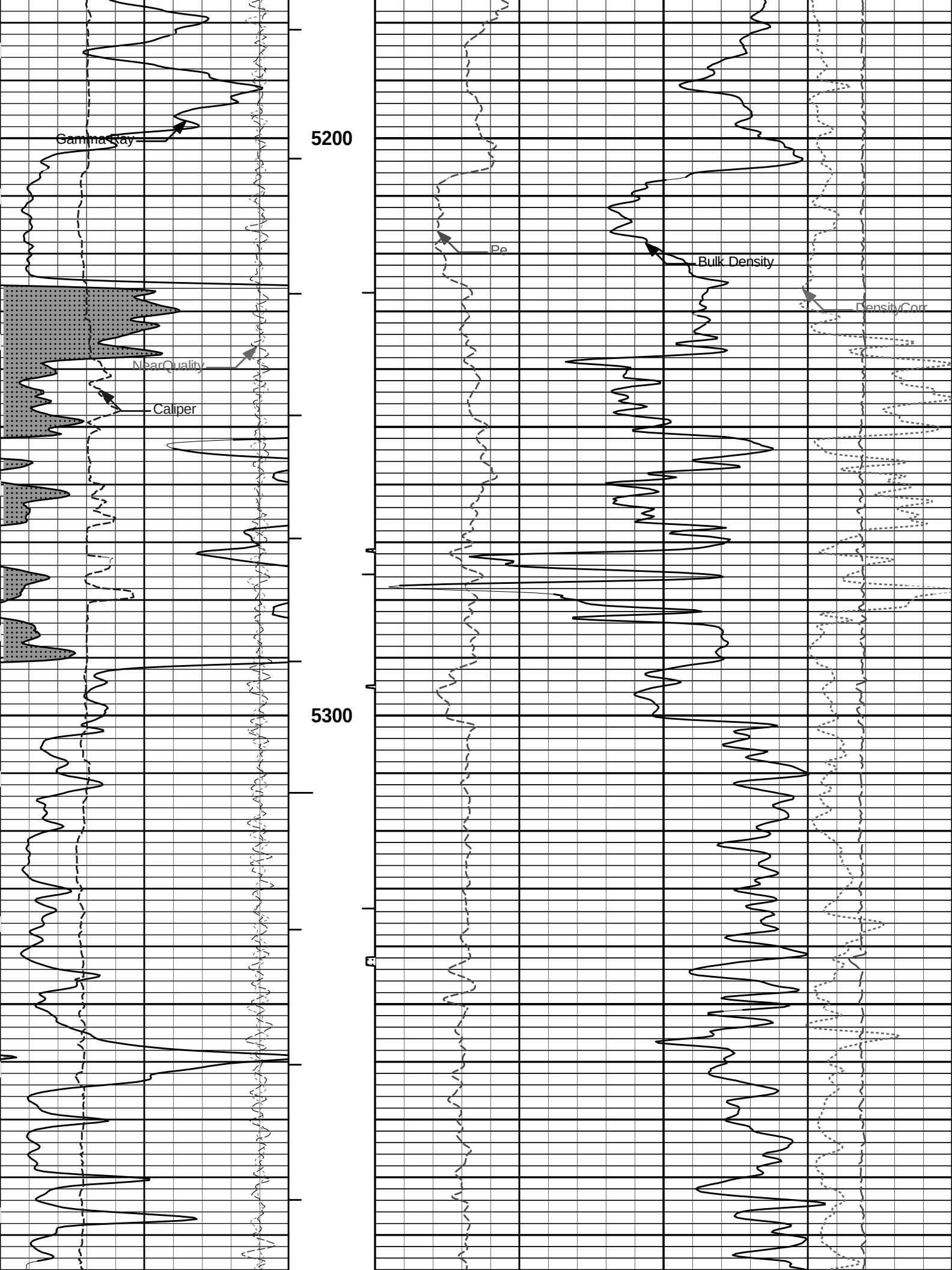
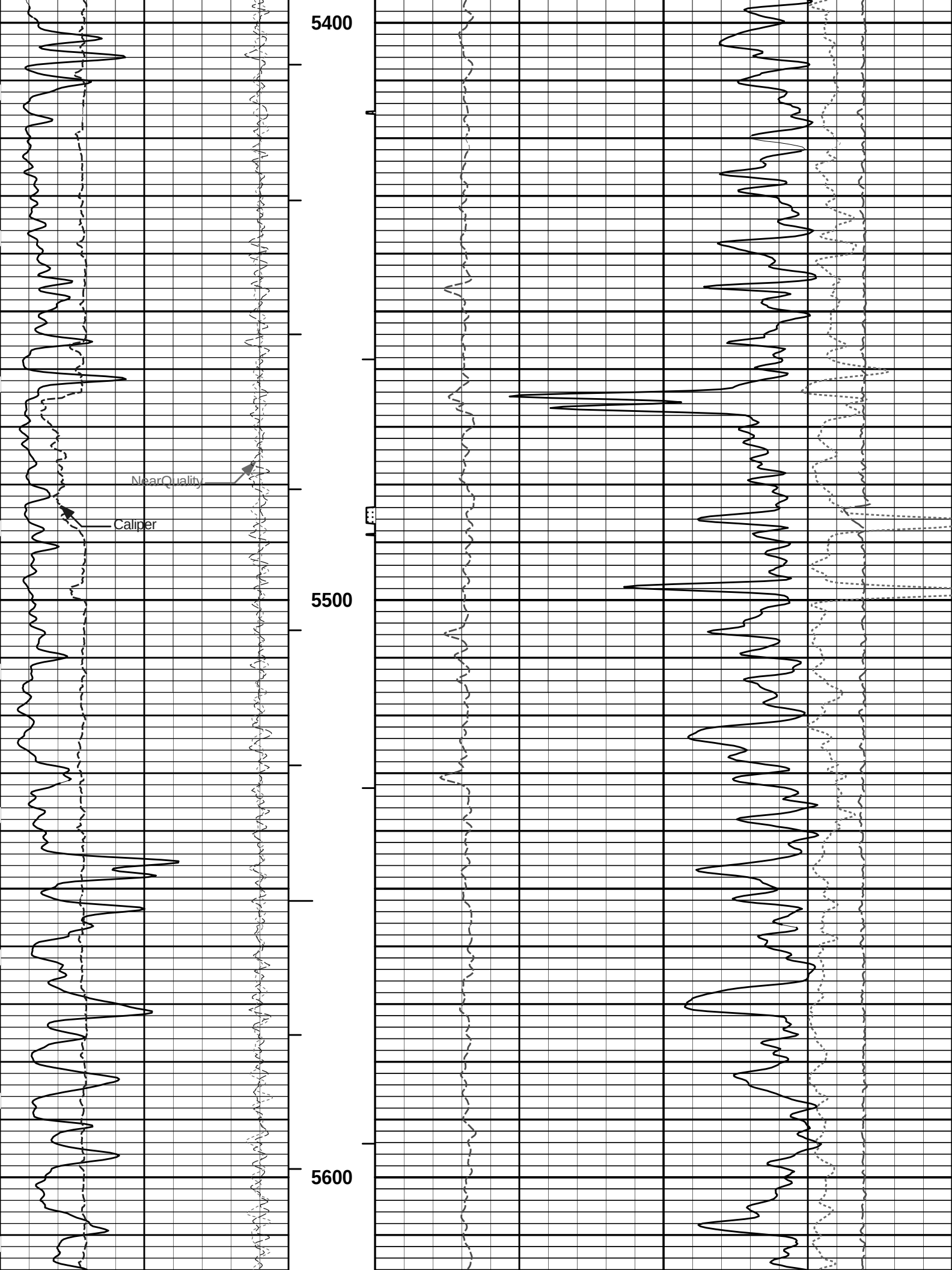
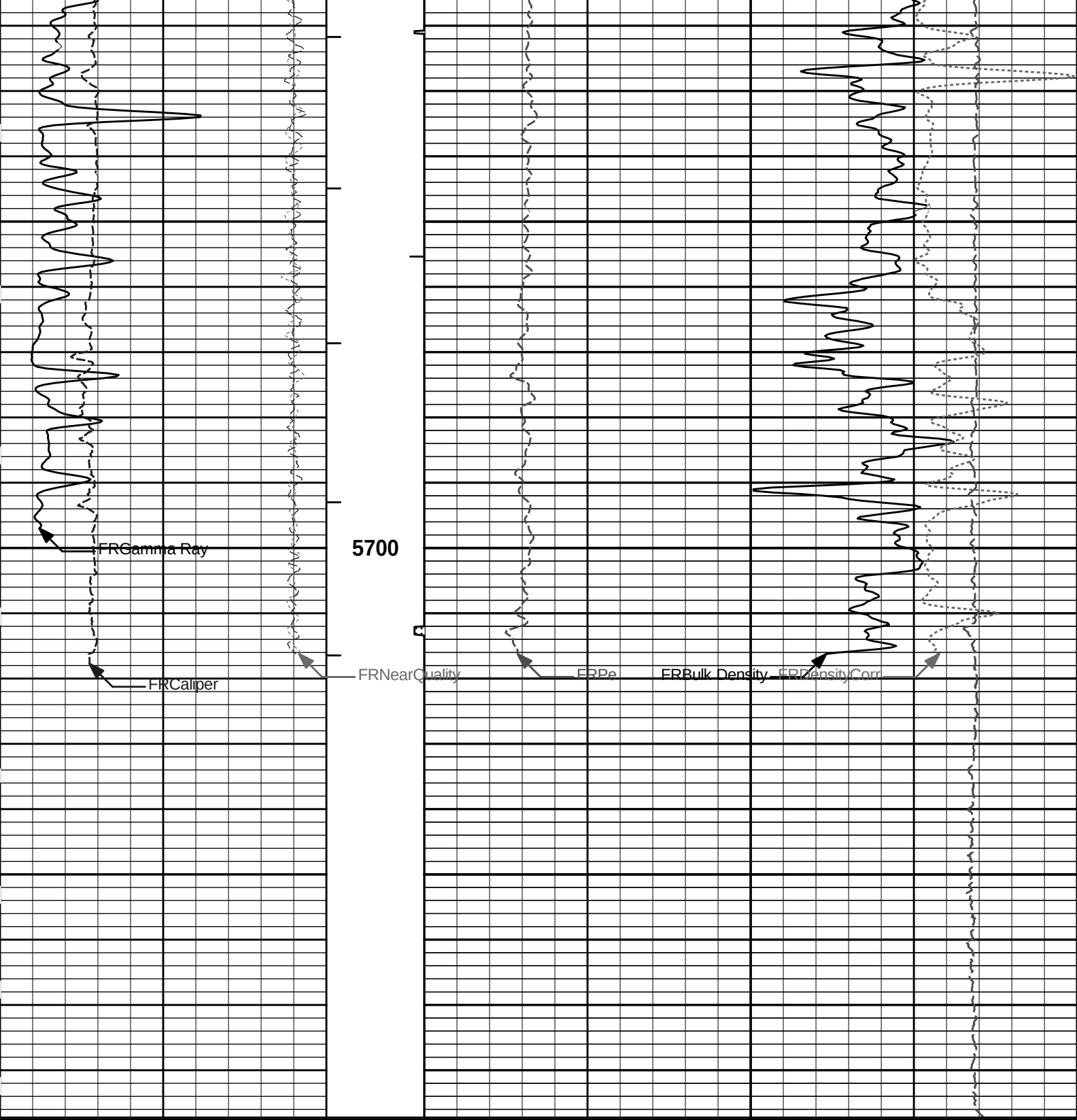
Caliper
5000
5100


Gamma Ray
5200
Pe
Bulk Density
DensityCorr
NearQuality
Caliper
5300


5400
5500
5600
NearQuality
Caliper



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

HALLIBURTON

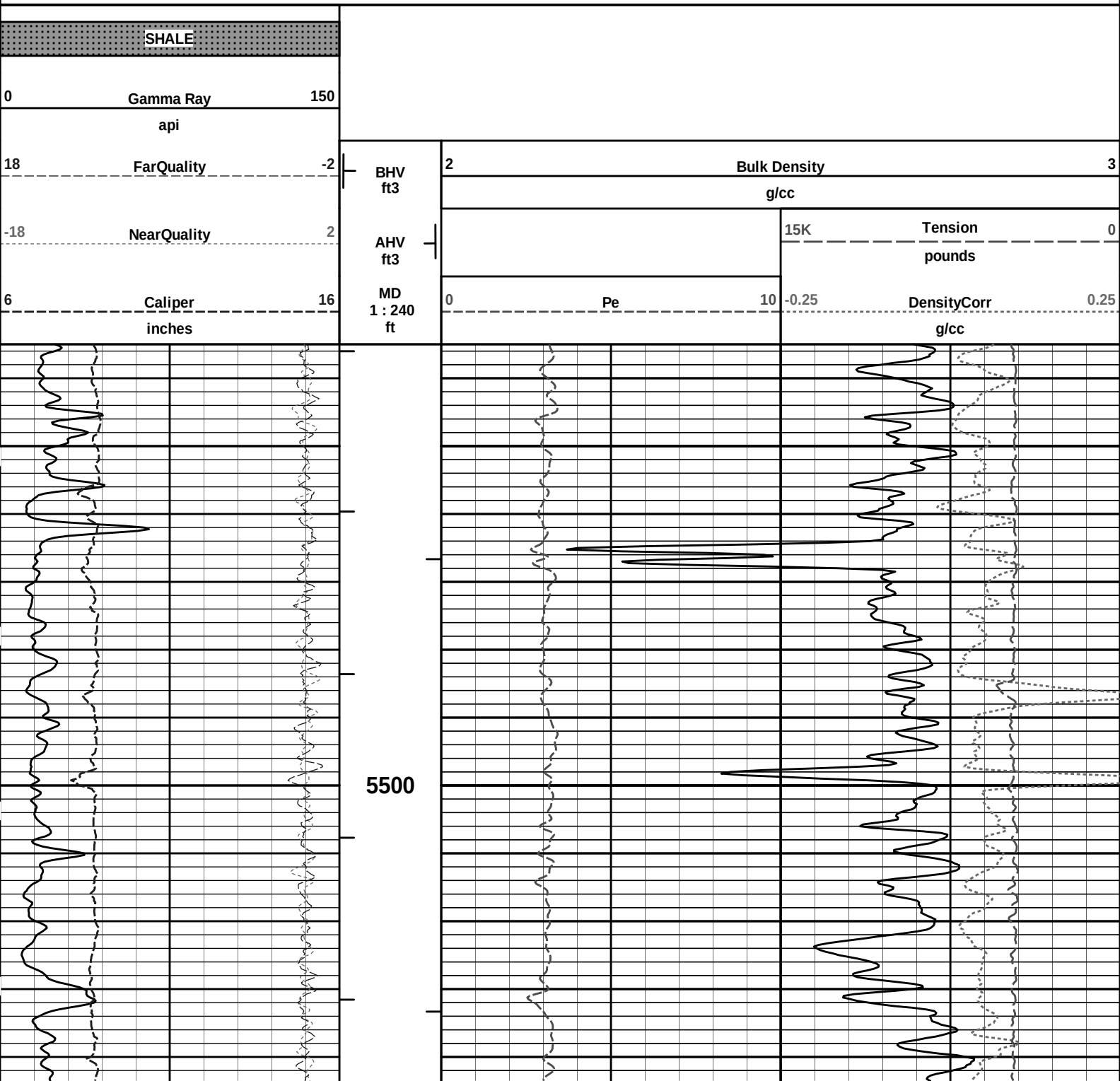
Plot Time: 31-Aug-12 02:58:12
Plot Range: 190 ft to 5787.25 ft
Data: OSAGE_3314_13_0\Well Based\DAQ-0001-006\
Plot File: \\-LOCAL-\OSAGE_3314_13_0\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\PORO\BULKD_5_MAIN_LIB

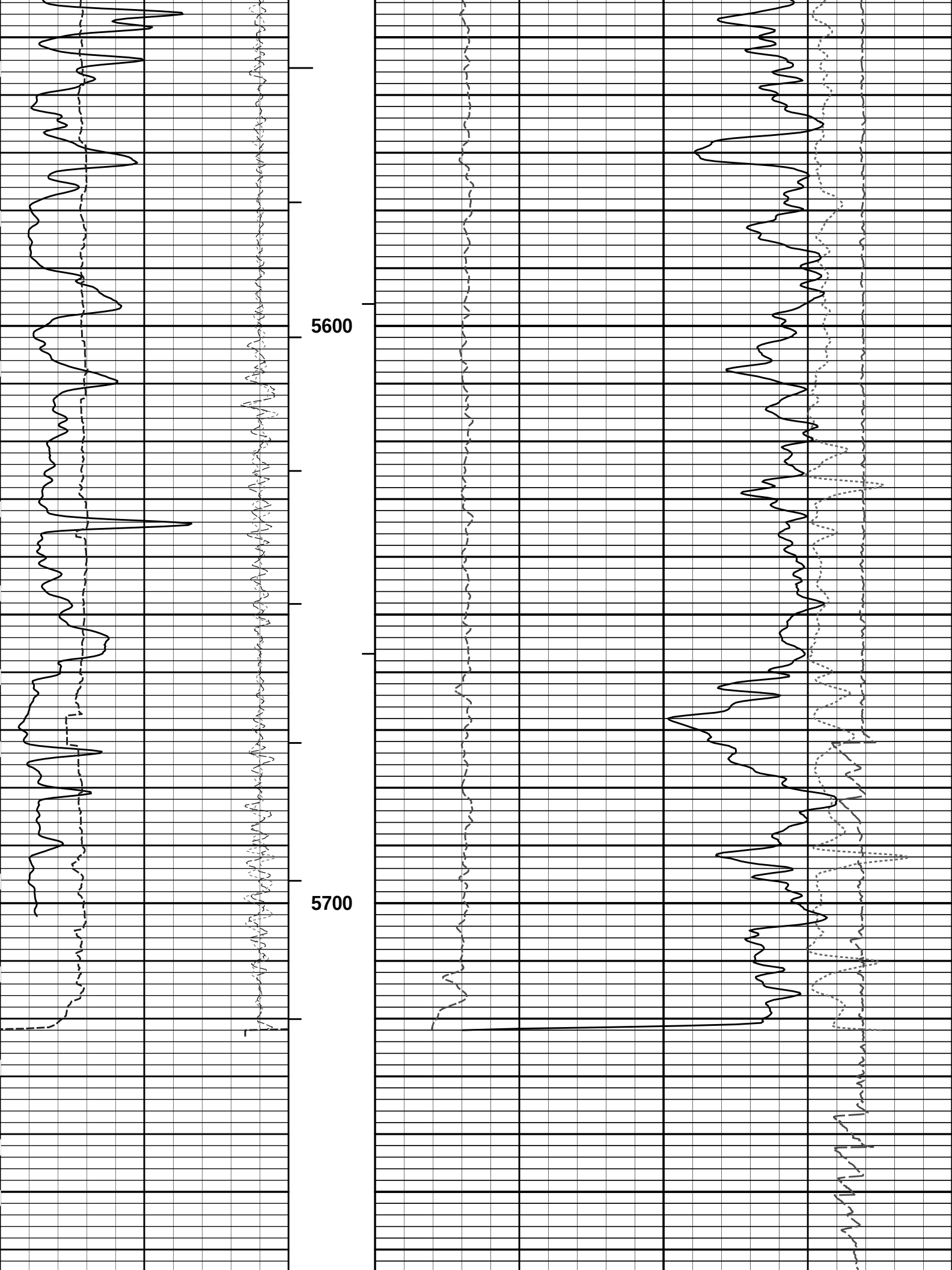
5 INCH MAIN LOG

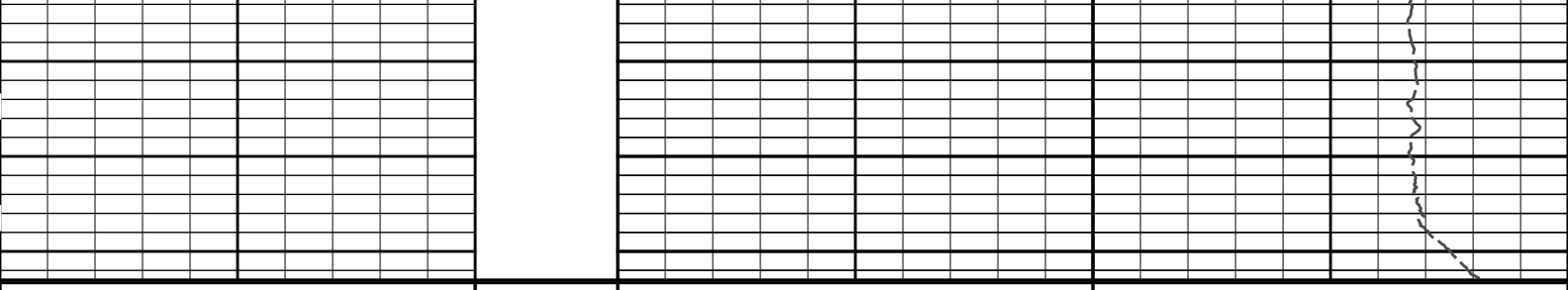
HALLIBURTON

Plot Time: 31-Aug-12 02:58:12
Plot Range: 5435 ft to 5793 ft
Data: OSAGE_3314_13_0\Well Based\DAQ-0001-005\
Plot File: \\-LOCAL-\OSAGE_3314_13_0\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\PORO\BULKD_5_REP_LIB

REPEAT SECTION




5600
5700



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

HALLIBURTON

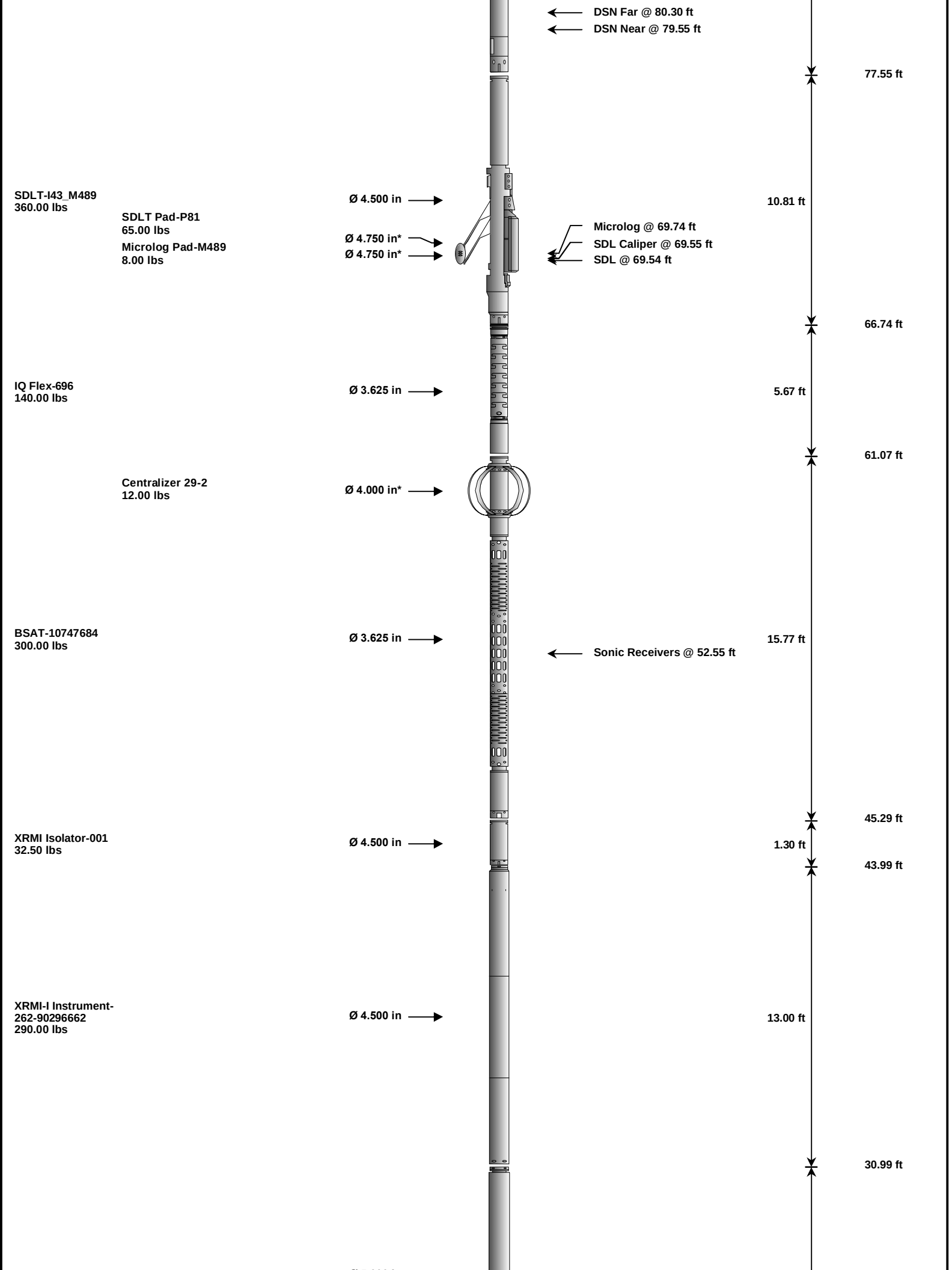
Plot Time: 31-Aug-12 02:58:14
Plot Range: 5435 ft to 5793 ft
Data: OSAGE_3314_13_0\Well Based\DAQ-0001-005\
Plot File: \\-LOCAL-\OSAGE_3314_13_0\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\PORO\BULKD_5_REP_LIB

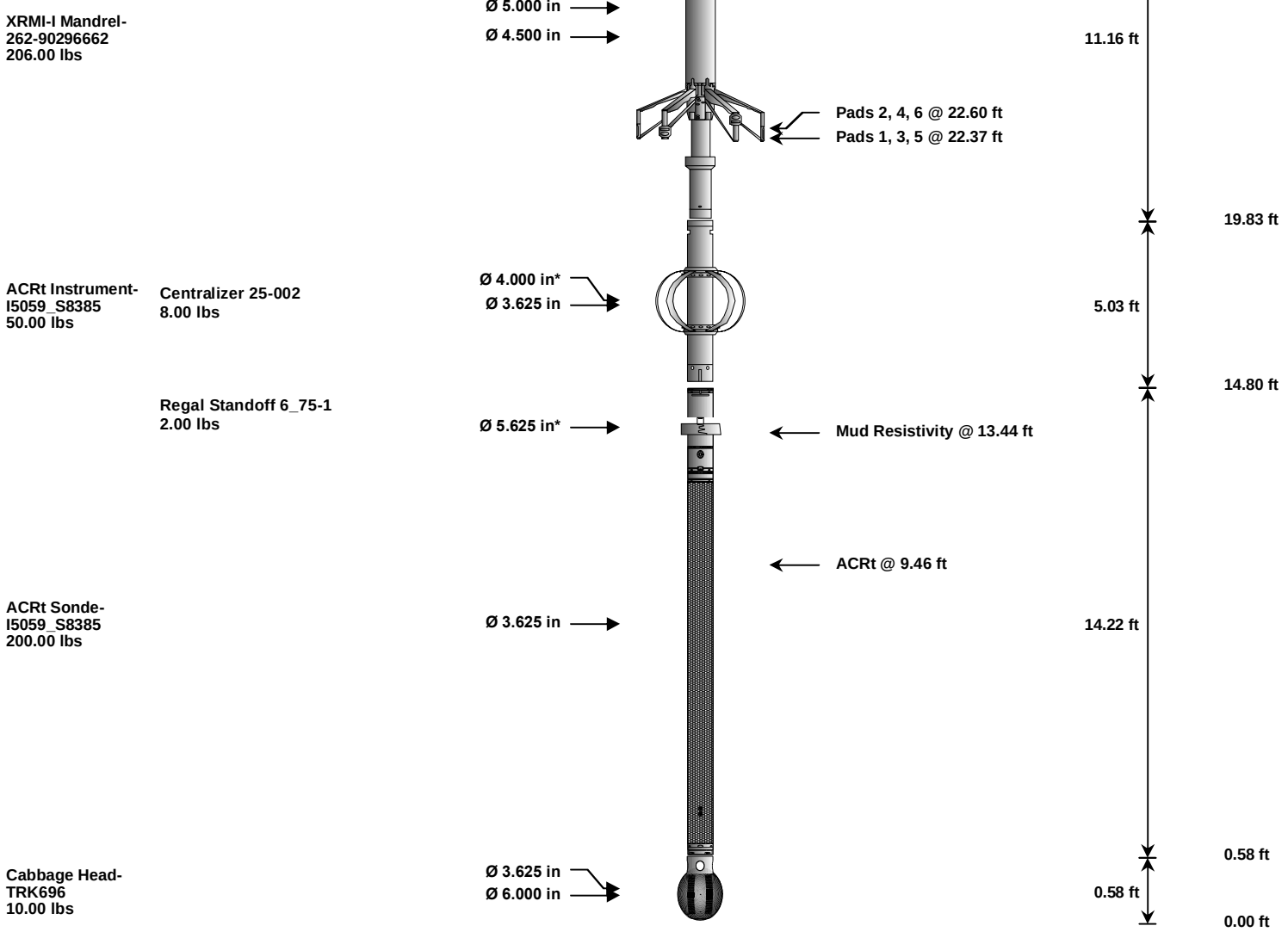
REPEAT SECTION

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
						101.42 ft
Cable Head-PROT01 30.00 lbs		Ø 3.625 in			1.92 ft	
						99.50 ft
SP Sub-001 60.00 lbs		Ø 3.625 in		SP @ 97.72 ft	3.74 ft	
						95.76 ft
GTET-11048627 165.00 lbs		Ø 3.625 in		GammaRay @ 89.70 ft	8.52 ft	
						87.24 ft
	DSN Decentralizer-11005605 6.60 lbs	Ø 5.000 in*				
DSNT-11019643 174.00 lbs		Ø 3.625 in			9.69 ft	


DSN Far @ 80.30 ft
DSN Near @ 79.55 ft
77.55 ft
SDLT-I43_M489
360.00 lbs
Ø 4.500 in
10.81 ft
SDLT Pad-P81
65.00 lbs
Microlog Pad-M489
8.00 lbs
Ø 4.750 in*
Ø 4.750 in*
Microlog @ 69.74 ft
SDL Caliper @ 69.55 ft
SDL @ 69.54 ft
66.74 ft
IQ Flex-696
140.00 lbs
Ø 3.625 in
5.67 ft
61.07 ft
Centralizer 29-2
12.00 lbs
Ø 4.000 in*
BSAT-10747684
300.00 lbs
Ø 3.625 in
15.77 ft
Sonic Receivers @ 52.55 ft
45.29 ft
XRMI Isolator-001
32.50 lbs
Ø 4.500 in
1.30 ft
43.99 ft
XRMI-I Instrument-
262-90296662
290.00 lbs
Ø 4.500 in
13.00 ft
30.99 ft



Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)		Accumulated Length (ft)	Max.Log. Speed (fpm)
CH	Standard OH Cable Head	PROT01	30.00	1.92		99.50	300.00
SP	SP Sub	001	60.00	3.74		95.76	300.00
GTET	Gamma Telemetry Tool	11048627	165.00	8.52		87.24	60.00
DSNT	Dual Spaced Neutron	11019643	174.00	9.69		77.55	60.00
DCNT	DSN Decentralizer	11005605	6.60	5.13	*	80.88	300.00
SDLT	Spectral Density Tool	I43_M489	360.00	10.81		66.74	60.00
SDLP	Density Insite Pad	P81	65.00	2.55	*	68.95	60.00
MICP	Microlog Pad	M489	8.00	1.00	*	69.24	60.00
IQF	IQ Flex tool	696	140.00	5.67		61.07	300.00
BSAT	Borehole Sonic Array Tool	10747684	300.00	15.77		45.29	60.00
OBCEN	Centralizer - 29 in.Overbody	2	12.00	2.42	*	58.34	300.00
	Isolator for the XRMI tool	001	32.50	1.30		43.99	300.00
XRMI	XRMI Navigation - Insite	262-90296662	290.00	13.00		30.99	30.00
XRMI-I	XRMI Imager - Insite	262-90296662	206.00	11.16		19.83	30.00
ACRt	Array Compensated True Resistivity Instrument Section	I5059_S8385	50.00	5.03		14.80	300.00
OBCEN	Centralizer - 25 in. Overbody	002	8.00	2.08	*	16.30	300.00
ACRt	Array Compensated True Resistivity Sonde Section	I5059_S8385	200.00	14.22		0.58	300.00
RSOF	Regal Standoff 6.75in	1	2.00	0.52	*	13.38	300.00
CBHD	Cabbage Head	TRK696	10.00	0.58		0.00	300.00
Total			**2,119.10**	**101.42**			

* Not included in Total Length and Length Accumulation.

Data: OSAGE_3314_13_0\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\IDLE **Date: 30-Aug-12 21:54:38**

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name: GTET - 11048627 | **Reference Calibration Date:** 09-Aug-12 10:44:30

Engineer: T. HYDE | **Calibration Date:** 09-Aug-12 10:50:33

Software Version: WL INSITE R3.6.0 (Build 3) | **Calibration Version:** 1

Calibrator Source S/N: TB146

Calibrator API Reference:265.00 api

Equivalent Calibrator API Reference:269.6 api

Measurement	Measured	Calibrated	Units
Background	57.5	57.1	api
Background + Calibrator	328.7	326.8	api
Calibrator	271.3	269.6	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name: GTET - 11048627 | **Reference Calibration Date:** 09-Aug-12 10:50:33

Engineer: T. HYDE | **Calibration Date:** 30-Aug-12 22:01:40

Software Version: WL INSITE R3.6.0 (Build 3) | **Calibration Version:** 1

Calibrator Source S/N: TB146

Calibrator API Reference:265.00 api

Equivalent Calibrator API Reference:269.6 api

Field Verification	Shop	Field	Units
Background	57.1	41.6	api
Background + Calibrator	326.8	316.1	api
Calibrator	269.6	274.5	api

Shop	Field	Difference	Tolerance
269.6	274.5	-4.9	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name: DSNT - 11019643 | **Reference Calibration Date:** 10-Aug-12 09:44:57

Engineer: T. HYDE | **Calibration Date:** 10-Aug-12 09:57:43

Software Version: WL INSITE R3.6.0 (Build 3) | **Calibration Version:** 1

Logging Source S/N: 696

Tank Serial Number: LIBERAL_NEUTRON

Reference value assigned to Tank: 51.680

Snow Block S/N: 696

Calibration Tank Water Temperature: 78 degF

Min. Tool Housing Outside Diameter: 3.620 in

CALIBRATION CONSTANTS

Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	0.952	0.952	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):	0.2107	0.2107	0.0000	+/- 0.0020
Calibrated Ratio:	9.72	9.72	0.002	+/- 0.050

VERIFIER

Measurement	Value	Control Limit

Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0647	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:**	**10-Aug-12 09:57:43**
Engineer:	**T. HYDE**	**Calibration Date:**	**30-Aug-12 22:04:10**
Software Version:	**WL INSITE R3.6.0 (Build 3)**	**Calibration Version:**	**1**

Logging Source S/N: 696

Snow Block S/N: 696

NEUTRON FIELD-CHECK SUMMARY				
	Shop	**Field**	**Difference**	**Control Limit On Change**
Snow-Block Porosity (decp):	0.0647	0.0754	0.0107	+/- 0.0150

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

DENSITY CALIPER SHOP CALIBRATION

Tool Name:	**SDLT - I43_M489**	**Reference Calibration Date:**	**12-Jul-12 11:56:20**
Engineer:	**T. HYDE**	**Calibration Date:**	**10-Aug-12 13:20:46**
Software Version:	**WL INSITE R3.6.0 (Build 3)**	**Calibration Version:**	**1**
Host Tool Name:	**DSNT - 11019643**		

CALIBRATION COEFFICIENTS			
Measurement	**Previous Value**	**New Value**	**Control Limit On New Value**
Pad Offset	-2130.51	-2529.58	-7000.00 - -1000.00
Pad Gain	0.0004016	0.0004215	0.000200 - 0.000600
Arm Offset	-714.63	1187.04	-5000.00 - 3000.00
Arm Gain	0.0005524	0.0004034	0.000300 - 0.000700
Arm Power	-0.000007671	0.000002094	-0.000010000 - 0.000010000

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

Tool Diameter: 4.50 in

CALIBRATION RINGS				
Measurement	**Current Reading (Previous Coeff.)**	**Calibrated (New Coeff.)**	**Change**	**Control Limit On New Value**
PAD EXTENSION:				
Small Ring (in)	2.07	2.00	-0.07	+/- 0.20
Medium Ring (in)	3.73	3.75	0.02	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.38	6.50	0.12	+/- 0.20
Medium Ring (in)	8.44	8.25	-0.19	+/- 0.20
Large Ring (in)	15.08	15.00	-0.08	+/- 0.20

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

PASS/FAIL SUMMARY

Calibration-Coefficients Range Check: Passed

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name: SDLT Pad - P81 **Reference Calibration Date:** 10-Aug-12 11:31:26

Engineer: T. HYDE **Calibration Date:** 10-Aug-12 11:49:11

Software Version: WL INSITE R3.6.0 (Build 3) **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: 2.598

DENSITY CALIBRATION SUMMARY

Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0481	1.0562	0.90 - 1.10
Near Dens Gain	1.0278	1.0364	0.90 - 1.10
Near Peak Gain	1.0245	1.0524	0.90 - 1.10
Near Lith Gain	1.0006	1.0234	0.90 - 1.10
Far Bar Gain	1.0186	1.0128	0.90 - 1.10
Far Dens Gain	1.0024	1.0012	0.90 - 1.10
Far Peak Gain	0.9960	0.9928	0.90 - 1.10
Far Lith Gain	0.9724	0.9721	0.90 - 1.10
Near Bar Offset	-0.2447	-0.3186	NONE
Near Dens Offset	-0.0693	-0.1422	NONE
Near Peak Offset	-0.0351	-0.2659	NONE
Near Lith Offset	0.1493	-0.0358	NONE
Far Bar Offset	-0.0284	0.0226	NONE
Far Dens Offset	0.1035	0.1123	NONE
Far Peak Offset	0.1312	0.1570	NONE
Far Lith Offset	0.2924	0.2917	NONE
Near Bar Background	816.13	814.50	700 - 1450
Near Dens Background	266.21	267.82	230 - 480
Near Peak Background	117.08	115.74	100 - 210
Near Lith Background	143.90	144.47	125 - 260
Far Bar Background	532.29	535.49	450 - 900
Far Dens Background	209.58	211.26	175 - 345
Far Peak Background	84.04	84.43	70 - 140
Far Lith Background	86.02	87.66	75 - 145

CALIBRATION BLOCK SUMMARY

Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.679	1.684	0.005	+/- 0.015
Pe	2.603	2.564	-0.039	+/- 0.150
ALUMINUM				
Density (g/cc)	2.599	2.598	-0.001	+/- 0.01500
Pe	3.142	3.133	-0.009	+/- 0.150

TOOL SUMMARY

Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits

QUALITY				
Background	0.0014	+/- 0.0110	0.0016	+/- 0.0140
Magnesium Block	-0.0003	+/- 0.0110	-0.0021	+/- 0.0140
Aluminum Block	0.0000	+/- 0.0110	-0.0003	+/- 0.0140
Resolution	9.31	6.00 - 11.50	8.82	6.00 - 11.50
Internal Verifier(B+D+P+L)	1343	1200 - 2700	919	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 - P81 **Reference Calibration Date:** 10-Aug-12 11:49:11

Engineer: T. HYDE **Calibration Date:** 30-Aug-12 22:01:09

Software Version: WL INSITE R3.6.0 (Build 3) **Calibration Version:** 1

Pad Temperature: 98.5 degF

DENSITY FIELD CALIBRATION SUMMARY				
Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1342.531	1352.188	9.657	14.818
Far (B+D+P+L) cps	918.840	922.144	3.304	16.432
Near Resolution	9.31	9.62	0.310	0.50
Far Resolution	8.82	9.59	0.770	1.00

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

SDLT CALIPER FIELD CALIBRATION

Tool Name: SDLT - I43_M489 **Reference Calibration Date:** 10-Aug-12 13:20:46

Engineer: T. HYDE **Calibration Date:** 30-Aug-12 22:06:52

Software Version: WL INSITE R3.6.0 (Build 3) **Calibration Version:** 1

MEASURED CALIPER VALUES				
Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.66	-0.09	+/- 0.10
Ring Diameter	8.25	8.19	-0.06	+/- 0.15

PASS/FAIL SUMMARY	
Pad Extension Check:	Passed
Diameter Check:	Passed

CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units

GTET-11048627						
Gamma Ray Calibrator	269.6	274.5	----------	-4.9	+/- 9.00	api
DSNT-11019643						
Snow-Block Porosity	0.0647	0.0754	----------	-0.0107	+/- 0.0150	decp
SDLT-I43_M489						
Pad Extension	3.75	3.66	----------	0.09	+/-0.10	in
Ring Diameter	8.25	8.19	----------	0.06	+/-0.15	in
SDLT Pad-P81						
Near(B+D+P+L)	1342.531	1352.188	----------	-9.657	+/-14.818	cps
Far(B+D+P+L)	918.840	922.144	----------	-3.304	+/-16.432	cps

Data: OSAGE_3314_13_0\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\IDLE **Date: 30-Aug-12 23:26:29**

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PARAMETERS REPORT

Depth ((ft))	Tool Name	Mnemonic	Description	Value	Units
TOP					
	XRMI-I Mandrel	DIMG	Process XRMI?	No	
4200.00					
	SHARED	BS	Bit Size	8.750	in
	SHARED	UBS	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	MDBS	Mud Base	Water	
	SHARED	MDWT	Borehole Fluid Weight	9.300	ppg
	SHARED	WAGT	Weighting Agent	Natural	
	SHARED	BSAL	Borehole salinity	0.00	ppm
	SHARED	FSAL	Formation Salinity NaCl	0.00	ppm
	SHARED	KPCT	Percent K in Mud by Weight?	0.00	%
	SHARED	RMUD	Mud Resistivity	2.000	ohmm
	SHARED	TRM	Temperature of Mud	75.0	degF
	SHARED	CSD	Logging Interval is Cased?	No	
	SHARED	ICOD	AHV Casing OD	7.000	in
	SHARED	ST	Surface Temperature	75.0	degF
	SHARED	TD	Total Well Depth	5832.00	ft
	SHARED	BHT	Bottom Hole Temperature	200.0	degF
	SHARED	SVTM	Navigation and Survey Master Tool	XRMI-I Instrument	
	SHARED	AZTM	High Res Z Accelerometer Master Tool	XRMI-I Instrument	
	SHARED	TEMM	Temperature Master Tool	NONE	
	SHARED	BHSM	Borehole Size Master Tool	NONE	
	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?	No	
GTET	TPOS	Tool Position for Gamma Ray Tools.	Eccentered	
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	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	
Microlog Pad	MLOK	Process MicroLog Outputs?	Yes	
SDLT Pad	DNOK	Process Density?	Yes	
SDLT Pad	DNOK	Process Density EVR?	No	
SDLT Pad	CB	Logging Calibration Blocks?	No	
SDLT Pad	SPVT	SDLT Pad Temperature Valid?	Yes	
SDLT Pad	DTWN	Disable temperature warning	No	
SDLT Pad	DMA	Formation Density Matrix	2.710	g/cc
SDLT Pad	DFL	Formation Density Fluid	1.000	g/cc
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 Fluid	189.00	uspf
BSAT	DTMT	Delta -T Matrix Type	User define	
BSAT	DTMA	Delta -T Matrix	47.60	uspf
BSAT	DTSH	Delta -T Shale	100.00	uspf
BSAT	SPEQ	Acoustic Porosity Equation	Wylie	
XRMI-I Instrument	WRTI	Survey Writing Interval	30	ft
XRMI-I Instrument	SOPT	Smoothing Option	None	
XRMI-I Mandrel	DIMG	Process XRMI?	Yes	
XRMI-I Mandrel	ROTI	Rotate Image (N-E-S-W-N)?	Yes	
XRMI-I Mandrel	AGN	Use Button Auto Gain?	Yes	
XRMI-I Mandrel	BCLR	Button Auto Gain Color	127	
XRMI-I Mandrel	BFIL	Button Auto Gain Filter	0.020	
XRMI-I Mandrel	BGAN	Button Gain Value	0.001	
XRMI-I Mandrel	BOFF	Button Offset	0	
XRMI-I Mandrel	DIPE	Process Dipmeter Calculations?	Yes	
XRMI-I Mandrel	BHCS	Process Borehole Corrections?	Yes	
XRMI-I Mandrel	CLOK	Process Caliper Outputs?	Yes	
XRMI-I Mandrel	CMAX	Caliper Maximum Limit	100.0	in
XRMI-I Mandrel	CMIN	Caliper Mimimum Limit	3.5	in
XRMI-I Mandrel	NAVS	Navigation Source Tool	XRMI-I Instrument	
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

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INPUTS, DELAYS AND FILTERS TABLE

Mnemonic	Input Description	Delay (ft)	Filter Type	Filter Length (ft)
	Depth Panel			
TENS	Tension	0.00	NO	
	SP Sub			
PLTC	Plot Control Mask	97.72	NO	
SP	Spontaneous Potential	97.72	BLK	1.250
SPR	Raw Spontaneous Potential	97.72	NO	
SPO	Spontaneous Potential Offset	97.72	NO	
	GTET			
TPUL	Tension Pull	89.70	NO	
GR	Natural Gamma Ray API	89.70	TRI	1.750
GRU	Unfiltered Natural Gamma Ray API	89.70	NO	
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution	89.70	W	1.416 , 0.750
ACCZ	Accelerometer Z	0.00	BLK	0.083
DEVI	Inclination	0.00	NO	
	DSNT			
TPUL	Tension Pull	79.45	NO	
RNDS	Near Detector Telemetry Counts	79.55	BLK	1.417
RFDS	Far Detector Telemetry Counts	80.30	TRI	0.583
DNTT	DSN Tool Temperature	79.55	NO	
DSNS	DSN Tool Status	79.45	NO	
ERND	Near Detector Telemetry Counts EVR	79.55	BLK	0.000
ERFD	Far Detector Telemetry Counts EVR	80.30	BLK	0.000
ENTM	DSN Tool Temperature EVR	79.55	NO	
	SDLT			
TPUL	Tension Pull	69.55	NO	
PCAL	Pad Caliper	69.55	TRI	0.250
ACAL	Arm Caliper	69.55	TRI	0.250
	BSAT			
TPUL	Tension Pull	52.55	NO	
STAT	Status	52.55	NO	
DLYT	Delay Time	52.55	NO	
SI	Sample Interval	52.55	NO	
TXRX	Raw Telemetry 10 Receivers	52.55	NO	
FRMC	Tool Frame Count	52.55	NO	
GMOD	Gain processing mode	45.29	NO	
	XRMI-I Mandrel			
TPUL	Tension Pull	22.60	NO	
PAD1	XRMI Pad 1 values	22.36	NO	
PAD2	XRMI Pad 2 values	22.36	NO	
PAD3	XRMI Pad 3 values	22.36	NO	
PAD4	XRMI Pad 4 values	22.36	NO	
PAD5	XRMI Pad 5 values	22.36	NO	
PAD6	XRMI Pad 6 values	22.36	NO	

OD1	EMI Odd Button Values Pad 1	22.36	NO	
OD2	EMI Odd Button Values Pad 2	22.60	NO	
OD3	EMI Odd Button Values Pad 3	22.36	NO	
OD4	EMI Odd Button Values Pad 4	22.60	NO	
OD5	EMI Odd Button Values Pad 5	22.36	NO	
OD6	EMI Odd Button Values Pad 6	22.60	NO	
EV1	EMI Even Button Values Pad 1	22.39	NO	
EV2	EMI Even Button Values Pad 2	22.57	NO	
EV3	EMI Even Button Values Pad 3	22.39	NO	
EV4	EMI Even Button Values Pad 4	22.57	NO	
EV5	EMI Even Button Values Pad 5	22.39	NO	
EV6	EMI Even Button Values Pad 6	22.57	NO	
ITMP	Instrument Temperature	19.83	NO	
EMIM	Tool Mode	19.83	NO	
HAZI	Hole Azimuth	22.11	NO	
HAZI	Hole Azimuth - Down Delay	22.61	NO	
ZACC	Accelerometer Z	22.36	NO	
TPUL	Tension Pull	22.60	NO	
FIR1	Current Button R - Pad 1	22.36	NO	
FIR2	Current Button R - Pad 2	22.60	NO	
FIR3	Current Button R - Pad 3	22.36	NO	
FIR4	Current Button R - Pad 4	22.60	NO	
FIR5	Current Button R - Pad 5	22.36	NO	
FIR6	Current Button R - Pad 6	22.60	NO	
FIX1	Current Button X - Pad 1	22.36	NO	
FIX2	Current Button X - Pad 2	22.60	NO	
FIX3	Current Button X - Pad 3	22.36	NO	
FIX4	Current Button X - Pad 4	22.60	NO	
FIX5	Current Button X - Pad 5	22.36	NO	
FIX6	Current Button X - Pad 6	22.60	NO	
SIR1	Current Slow Button R - Pad 1	22.36	BLK	3.000
SIR2	Current Slow Button R - Pad 2	22.60	BLK	3.000
SIR3	Current Slow Button R - Pad 3	22.36	BLK	3.000
SIR4	Current Slow Button R - Pad 4	22.60	BLK	3.000
SIR5	Current Slow Button R - Pad 5	22.36	BLK	3.000
SIR6	Current Slow Button R - Pad 6	22.60	BLK	3.000
SIX1	Current Slow Button X - Pad 1	22.36	BLK	3.000
SIX2	Current Slow Button X - Pad 2	22.60	BLK	3.000
SIX3	Current Slow Button X - Pad 3	22.36	BLK	3.000
SIX4	Current Slow Button X - Pad 4	22.60	BLK	3.000
SIX5	Current Slow Button X - Pad 5	22.36	BLK	3.000
SIX6	Current Slow Button X - Pad 6	22.60	BLK	3.000
EMMR	Phasor Voltage - Real Part	22.36	NO	
EMMX	Phasor Voltage - Imaginary Part	22.36	NO	
PADV	Pad Voltage	19.83	BLK	0.250
ITMP	Instrument Temperature	19.83	BLK	0.000
CON1	Conductivity Pad 1	22.36	BLK	3.000
CON2	Conductivity Pad 2	22.60	BLK	3.000
CON3	Conductivity Pad 3	22.36	BLK	3.000
CON4	Conductivity Pad 4	22.60	BLK	3.000
CON5	Conductivity Pad 5	22.36	BLK	3.000
CON6	Conductivity Pad 6	22.60	BLK	3.000
UIR2	Current Button R No Delay - Pad 2	22.36	NO	
UIR4	Current Button R No Delay - Pad 4	22.36	NO	
UIR6	Current Button R No Delay - Pad 6	22.36	NO	
UIX2	Current Button X No Delay - Pad 2	22.36	NO	

UIX2	Current Button X No Delay - Pad 2	22.36	NO	
UIX4	Current Button X No Delay - Pad 4	22.36	NO	
UIX6	Current Button X No Delay - Pad 6	22.36	NO	
TPUL	Tension Pull	22.60	NO	
ARM1	Caliper 1 measurement	22.36	BLK	0.000
ARM2	Caliper 2 measurement	22.36	BLK	0.000
ARM3	Caliper 3 measurement	22.36	BLK	0.000
ARM4	Caliper 4 measurement	22.36	BLK	0.000
ARM5	Caliper 5 measurement	22.36	BLK	0.000
ARM6	Caliper 6 measurement	22.36	BLK	0.000
MOTV	Motor Voltage Monitor 1	22.36	BLK	0.000
PRES	Caliper percentage of total compression of the spring	19.83	BLK	0.000
HAZI	Hole Azimuth	22.36	NO	
RB	Relative Bearing	22.36	NO	
AZI1	PAD1 Azimuth	22.36	NO	
DEVI	Inclination	22.36	NO	

ACRt Sonde				
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	

Microlog Pad				
TPUL	Tension Pull	69.74	NO	
MINV	Microlog Lateral	69.74	BLK	0.750
MNOR	Microlog Normal	69.74	BLK	0.750

SDLT Pad				
TPUL	Tension Pull	69.54	NO	
NAB	Near Above	69.37	BLK	0.920
NHI	Near Cesium High	69.37	BLK	0.920
NLO	Near Cesium Low	69.37	BLK	0.920
NVA	Near Valley	69.37	BLK	0.920
NBA	Near Barite	69.37	BLK	0.920
NDE	Near Density	69.37	BLK	0.920
NPK	Near Peak	69.37	BLK	0.920
NLI	Near Lithology	69.37	BLK	0.920
NBAU	Near Barite Unfiltered	69.37	BLK	0.250
NLIU	Near Lithology Unfiltered	69.37	BLK	0.250
FAB	Far Above	69.72	BLK	0.250
FHI	Far Cesium High	69.72	BLK	0.250
FLO	Far Cesium Low	69.72	BLK	0.250
FVA	Far Valley	69.72	BLK	0.250
FBA	Far Barite	69.72	BLK	0.250
FDE	Far Density	69.72	BLK	0.250
FPK	Far Peak	69.72	BLK	0.250
FLI	Far Lithology	69.72	BLK	0.250
PTMP	Pad Temperature	69.55	BLK	0.920
NHV	Near Detector High Voltage	68.95	NO	
FHV	Far Detector High Voltage	68.95	NO	
ITMP	Instrument Temperature	68.95	NO	
DDHV	Detector High Voltage	68.95	NO	

Data: OSAGE_3314_13_0\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\IDLE **Date: 30-Aug-12 23:27:40**

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Plot Time: 31-Aug-12 02:58:15
Plot Range: 190 ft to 5787.25 ft
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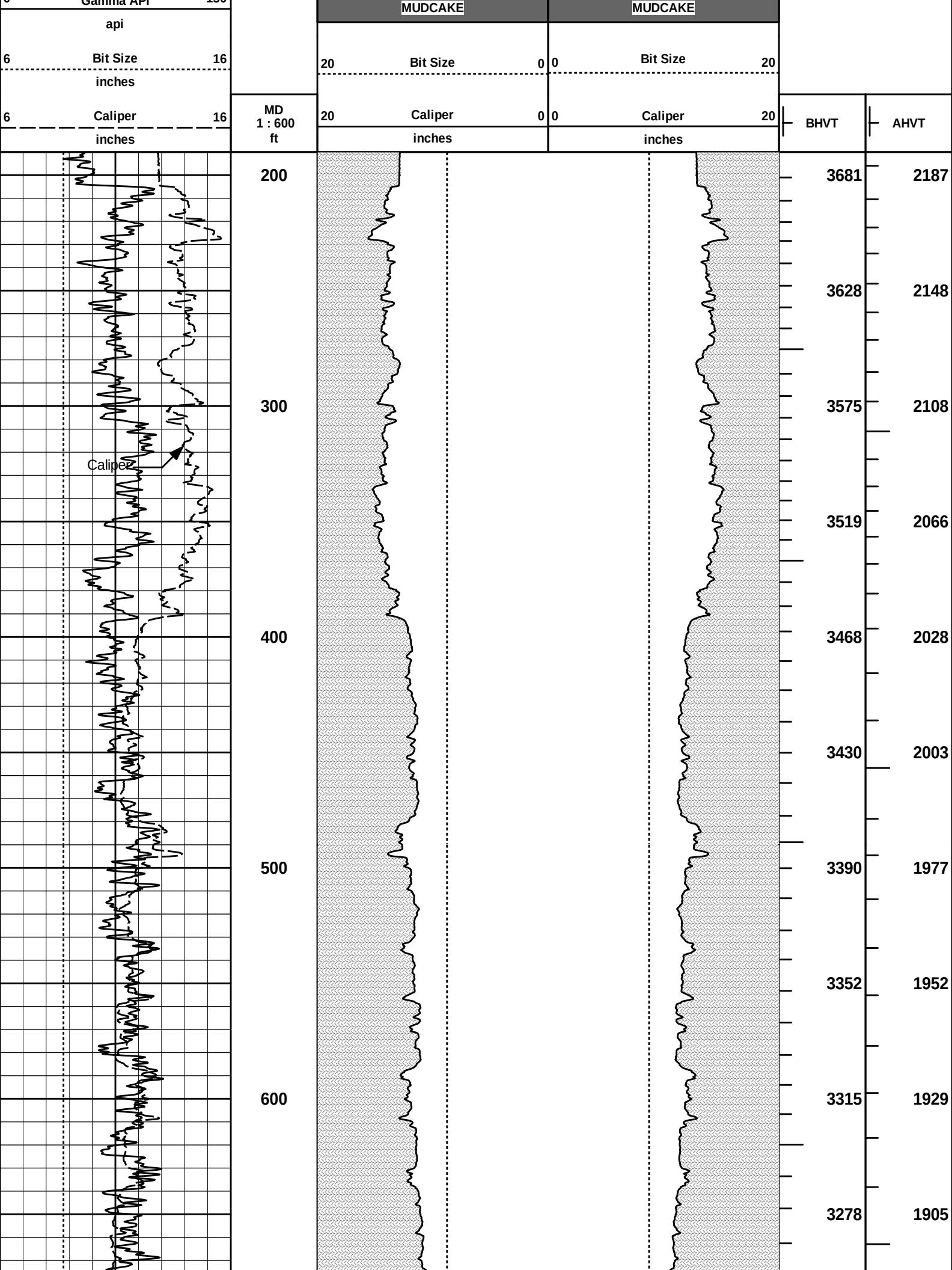
Plot File: \\-LOCAL-\OSAGE_3314_13_0\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\PORO\AHV_2_IQ_LIB

ANNULAR HOLE VOLUME PLOT

0 Gamma API 150


Gamma API
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150
api
Bit Size
6
16
inches
Caliper
6
16
inches
MD
1 : 600
ft
MUDCAKE
MUDCAKE
20
Bit Size
0
0
Bit Size
20
20
Caliper
0
0
Caliper
20
inches
inches
BHVT
AHVT
Caliper
200
300
400
500
600
3681
2187
3628
2148
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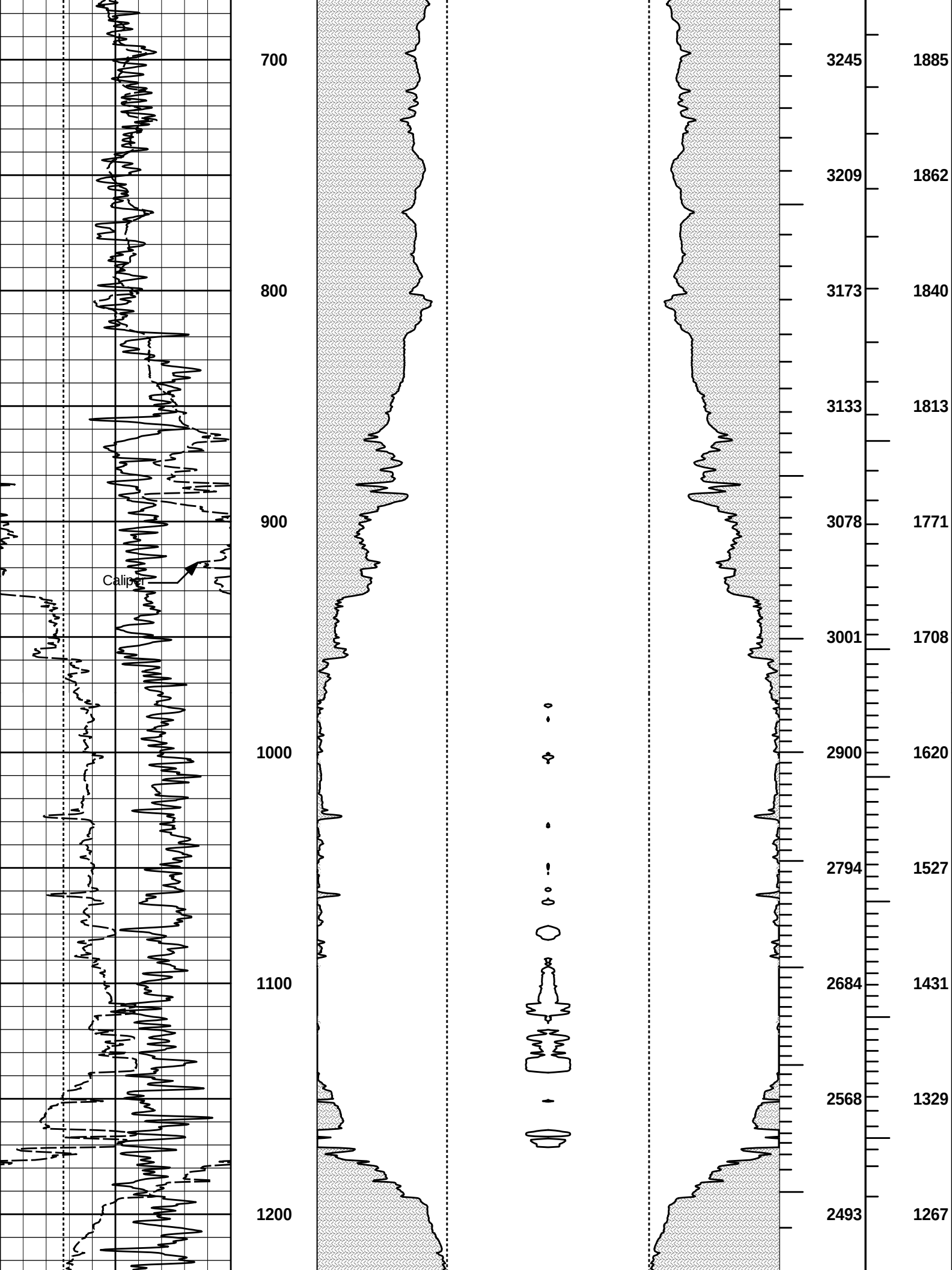
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900
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1100
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Caliper
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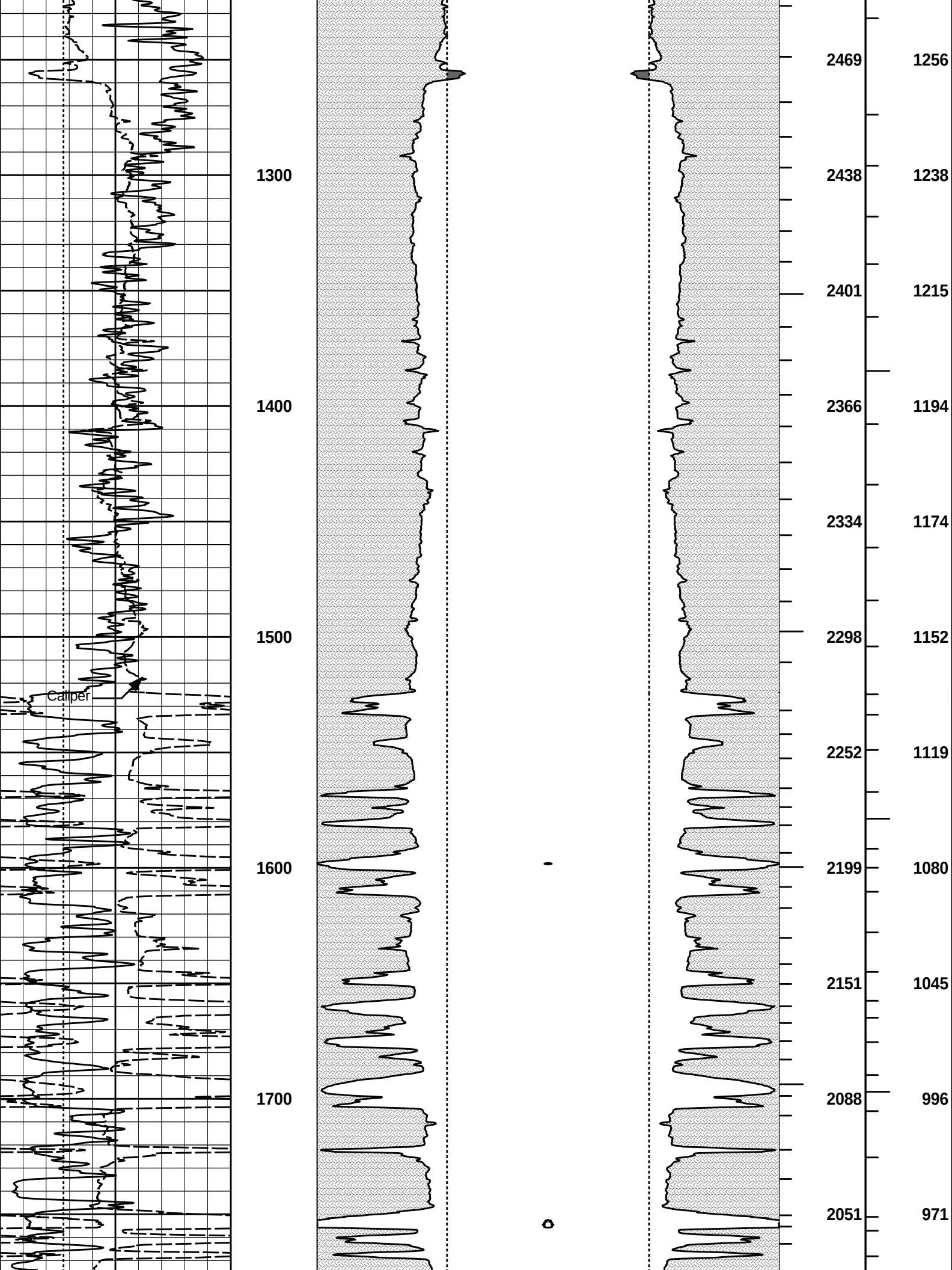
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1500
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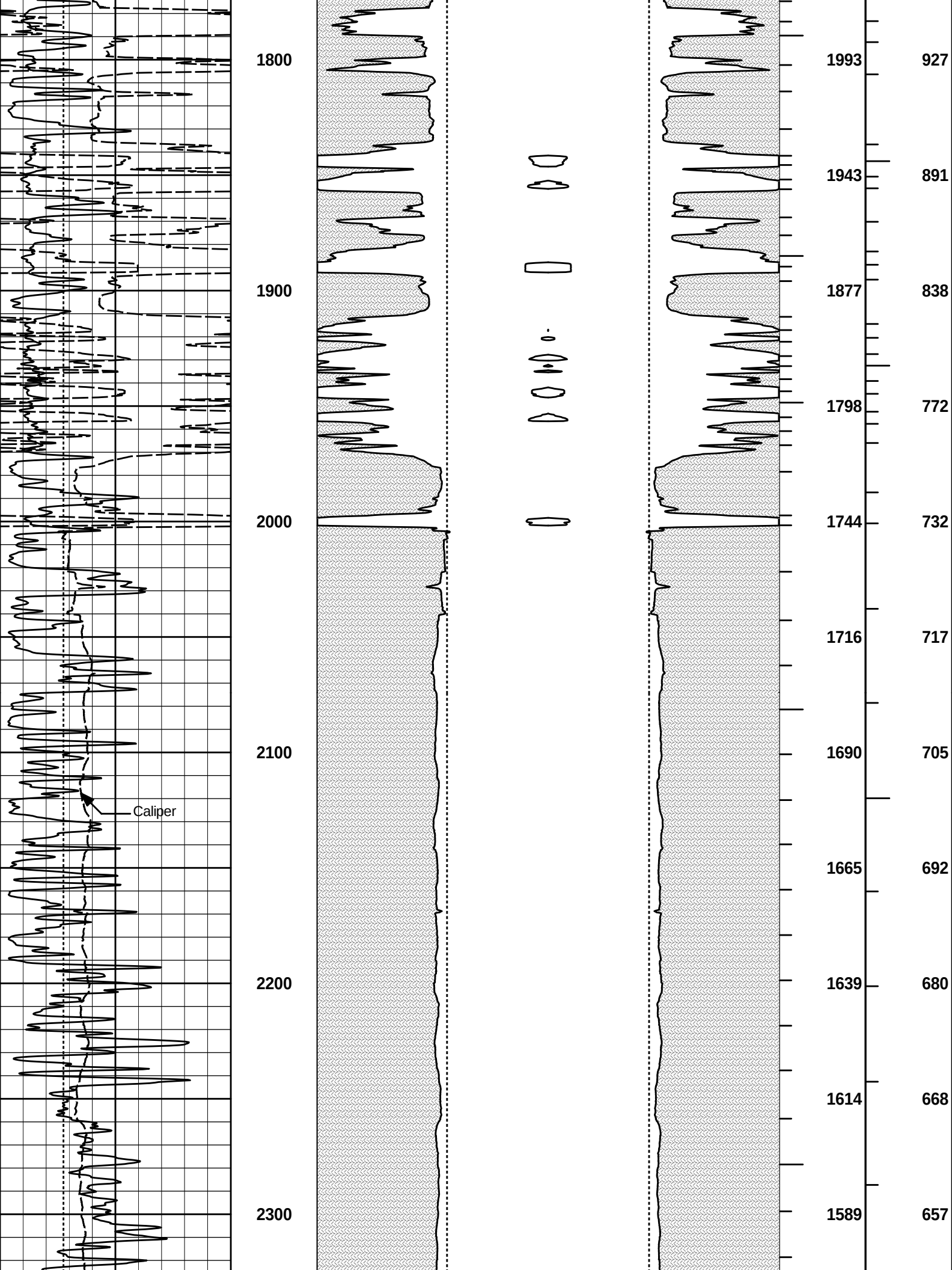
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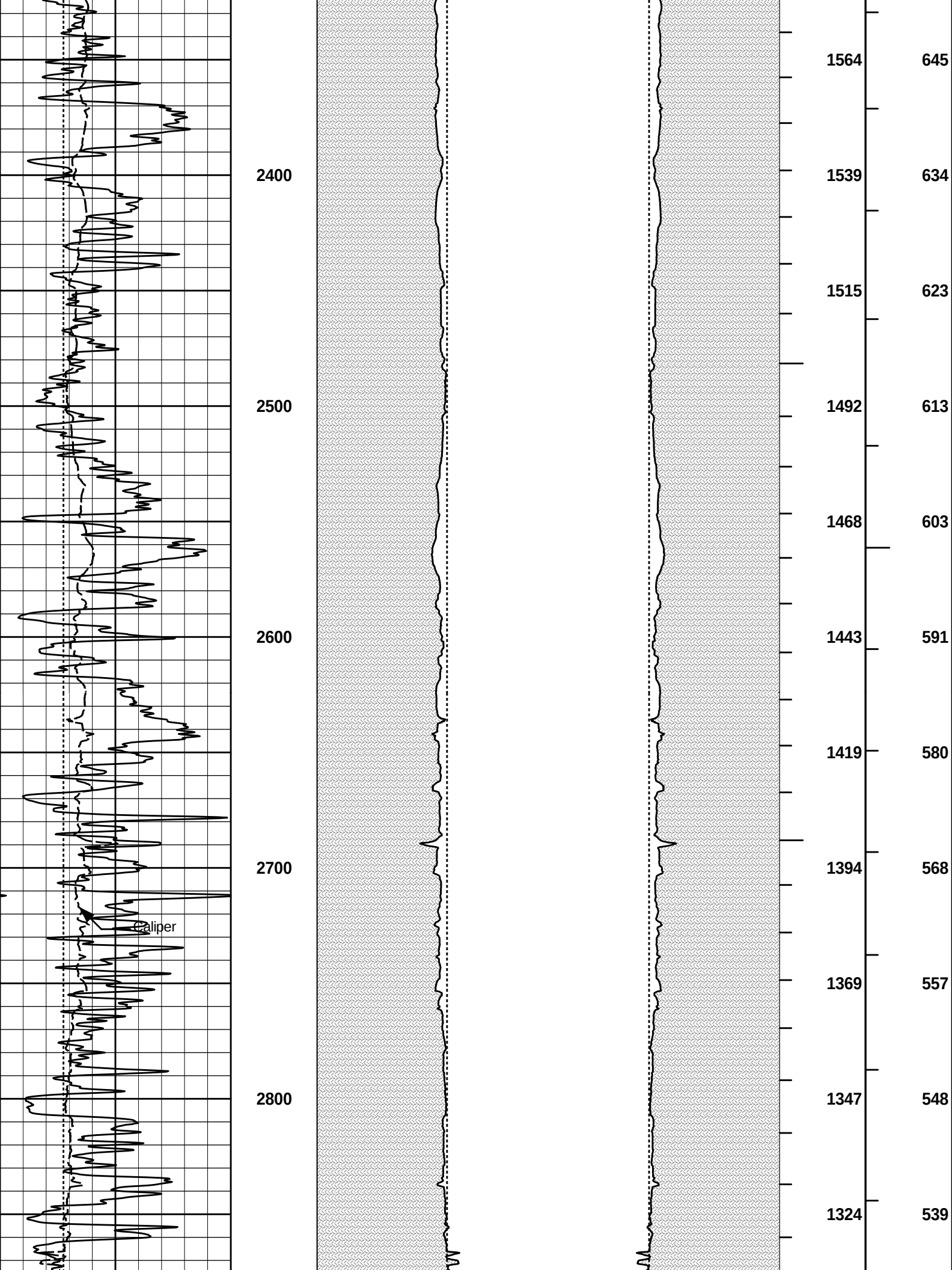
668
657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2700
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Caliper
1564
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645
634
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613
603
591
580
568
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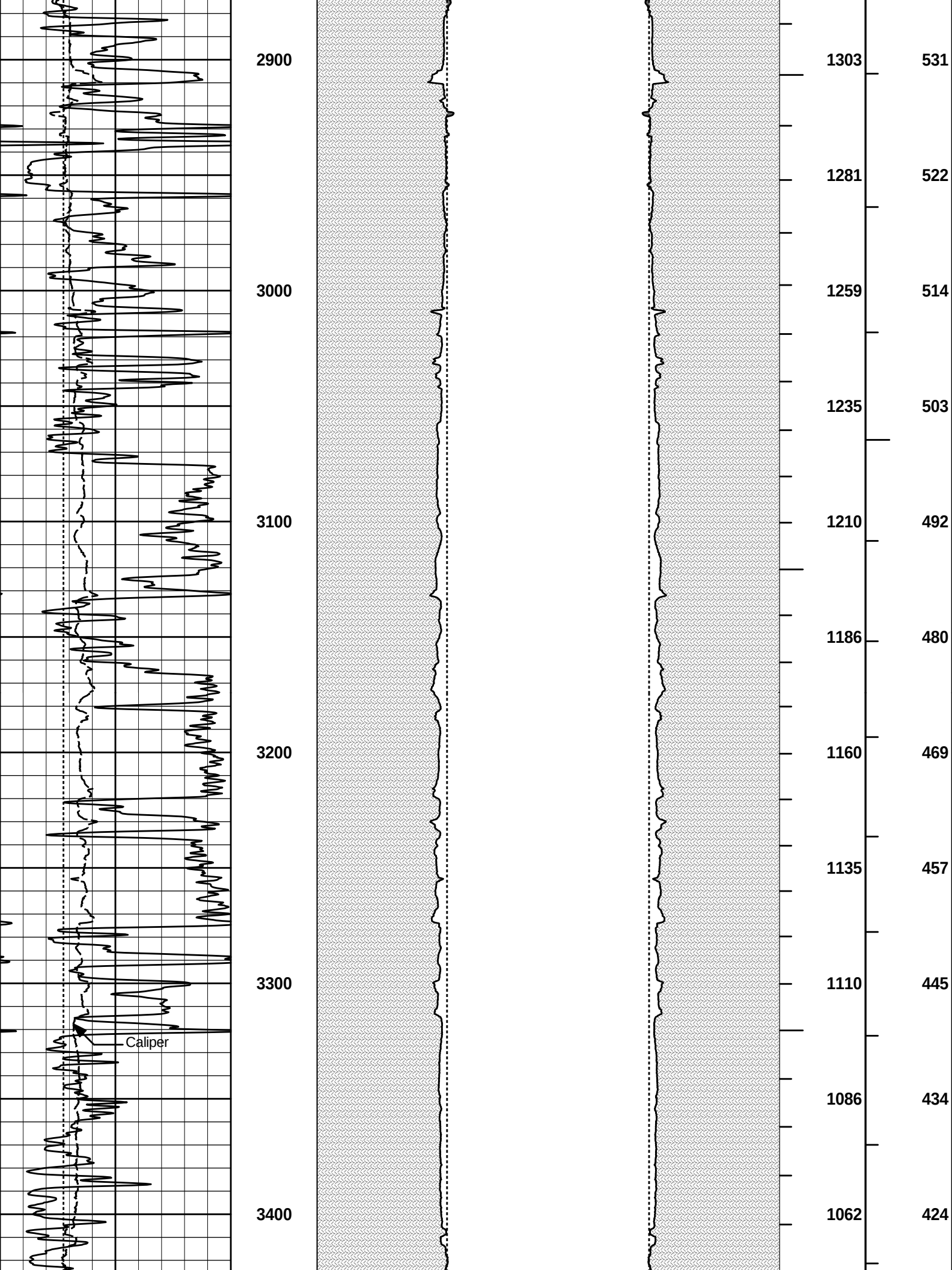
548
539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3100
3200
3300
3400
Caliper
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1281
1259
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434
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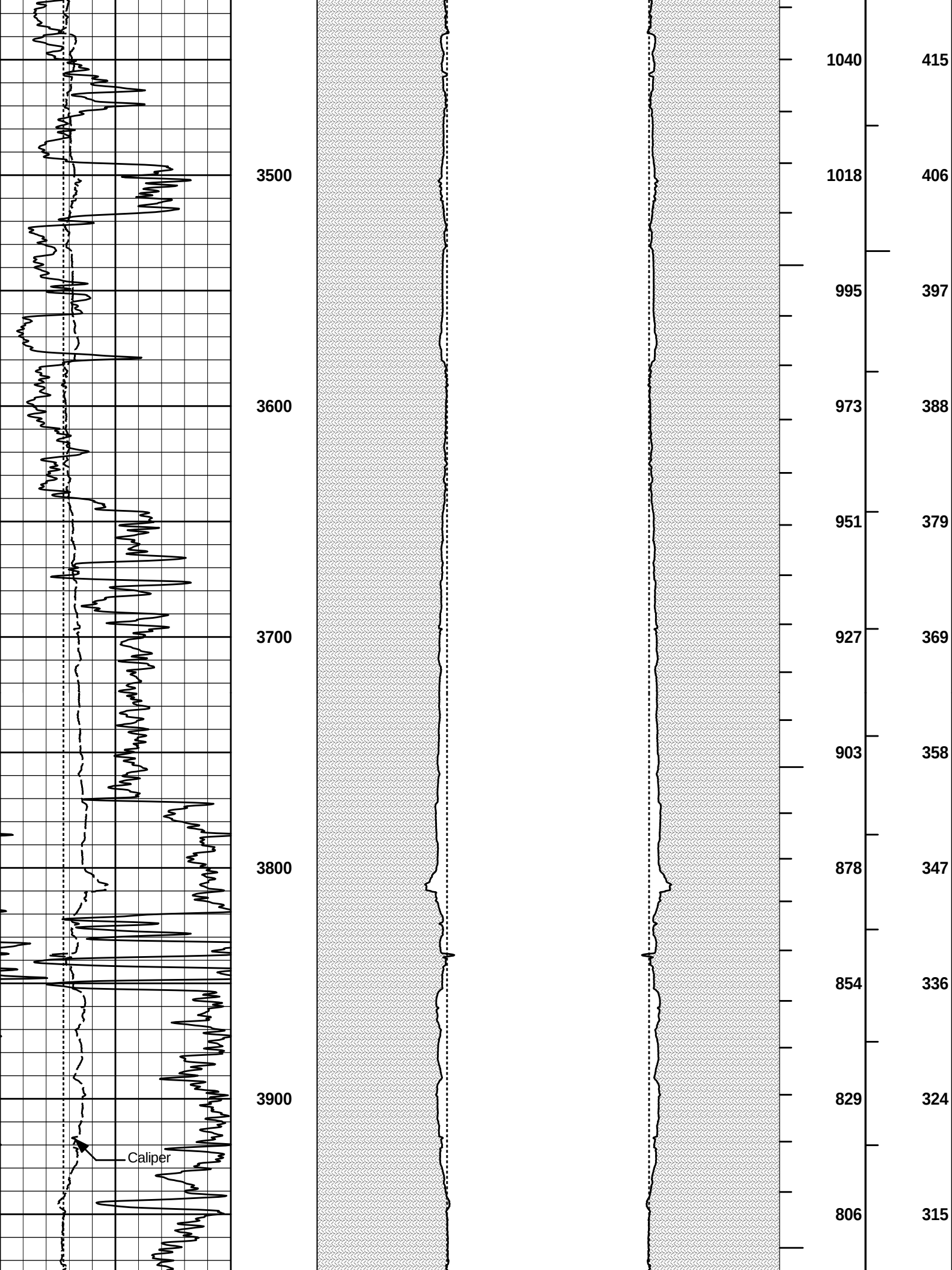
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Caliper
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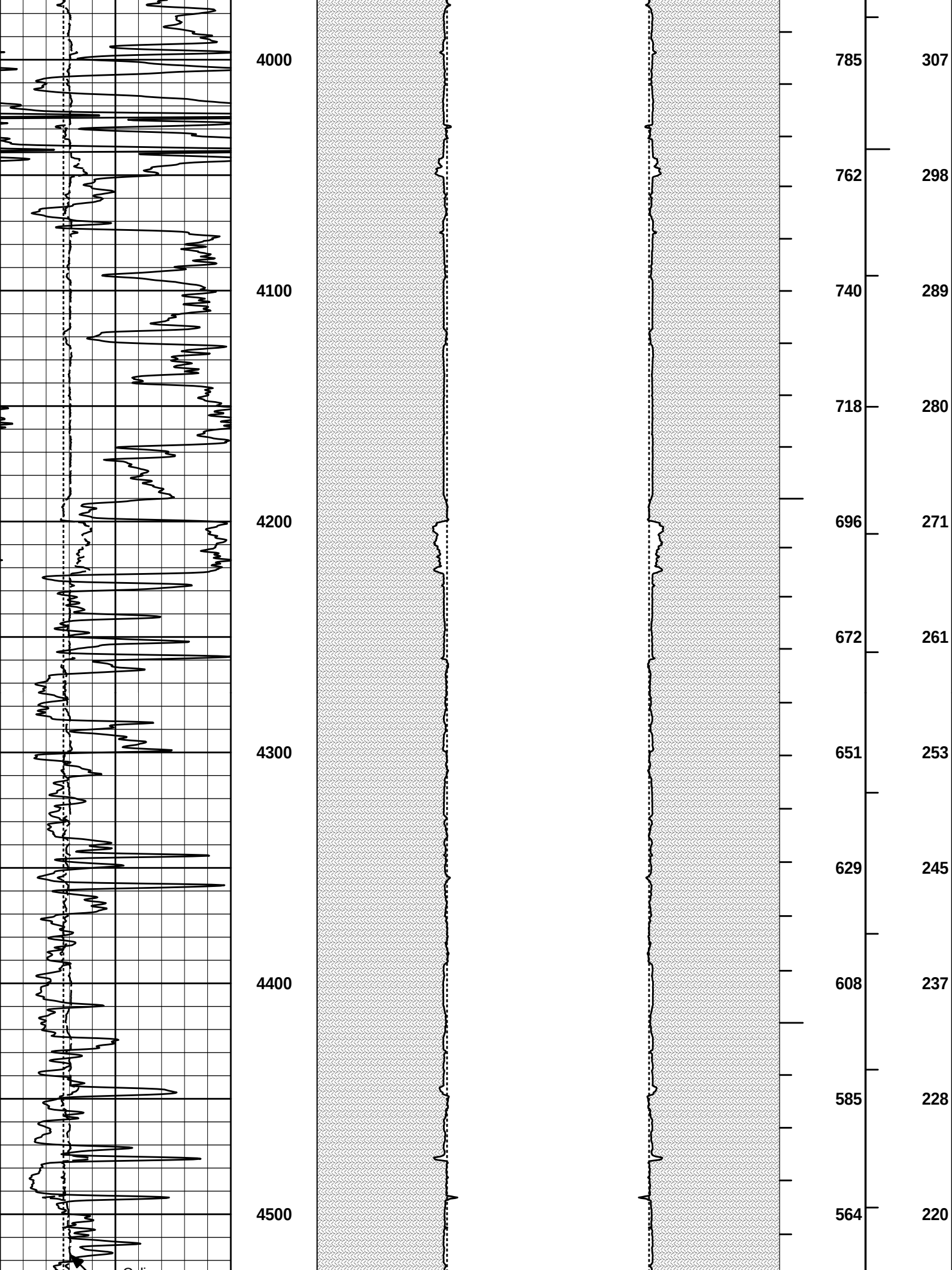
315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4300
4400
4500
785
762
740
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651
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608
585
564
307
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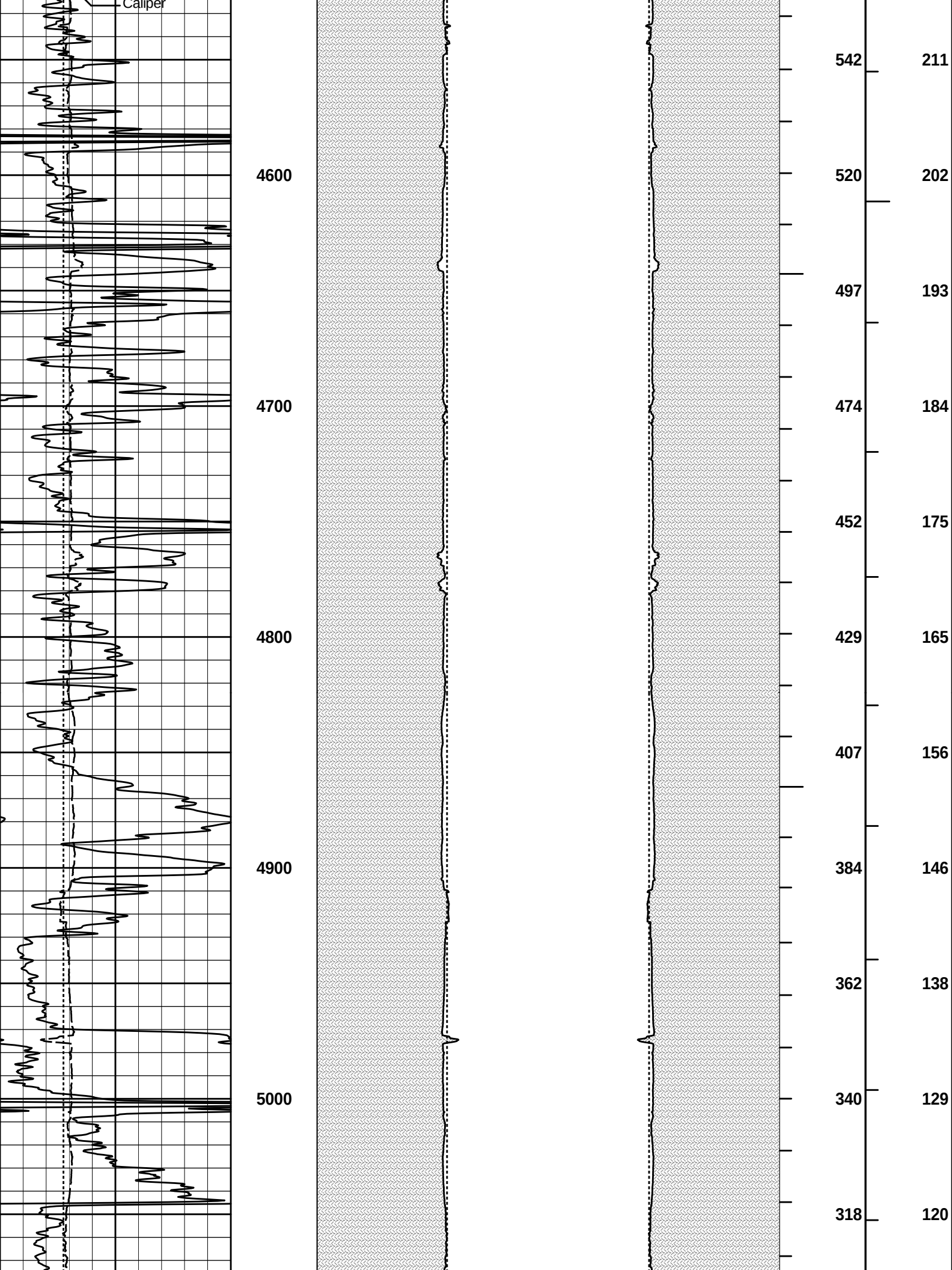
280
271
261
253
245
237
228
220


Caliper
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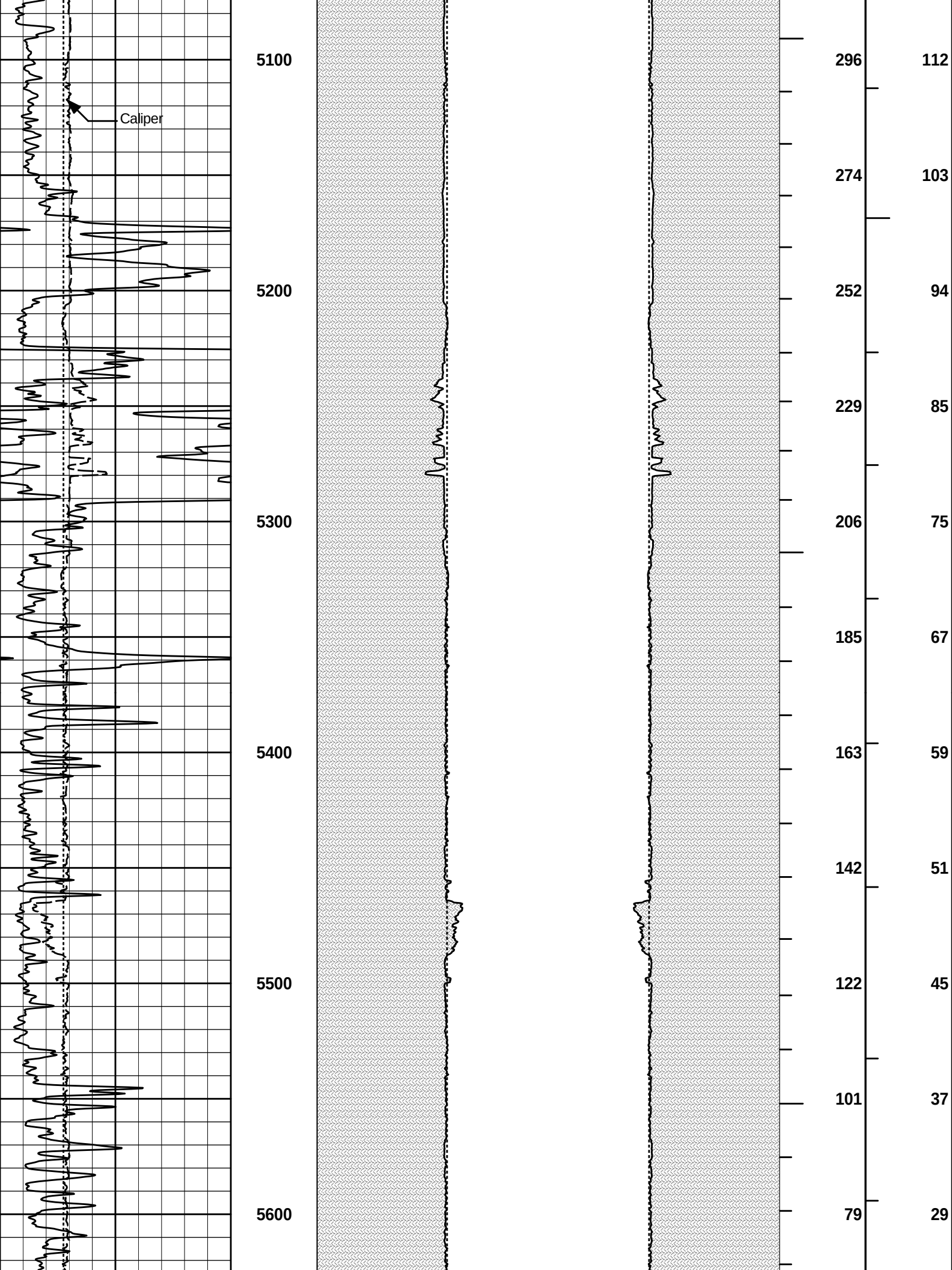
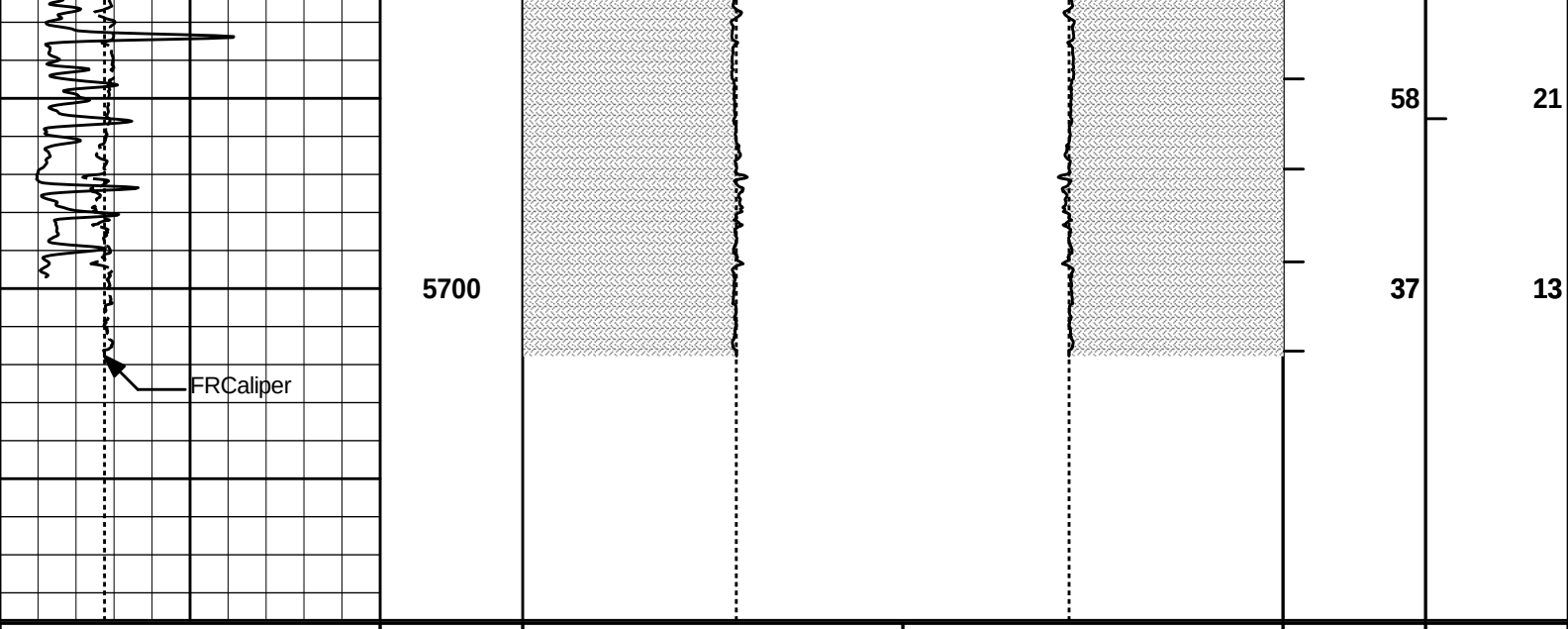
4700
4800
4900
5000
542
520
497
474
452
429
407
384
362
340
318
211
202
193
184
175
165
156
146
138
129
120


Caliper
5100
5200
5300
5400
5500
5600
296
274
252
229
206
185
163
142
122
101
79
112
103
94
85
75
67
59
51
45
37
29



6 Caliper 16 inches	MD 1 : 600 ft	20 Caliper 0 inches	0 Caliper 20 inches	BHVT	AHVT
6 Bit Size 16 inches		20 Bit Size 0	0 Bit Size 20		
0 Gamma API 150 api		MUDCAKE	MUDCAKE		

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Plot Time: 31-Aug-12 02:58:24
Plot Range: 190 ft to 5787.25 ft
Data: OSAGE_3314_13_0\Well Based\DAQ-0001-006
Plot File: \\-LOCAL-\OSAGE_3314_13_0\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\PORO\AHV_2_IQ_LIB

ANNULAR HOLE VOLUME PLOT

COMPANY	**OSAGE RESOURCES LLC**		
WELL	**OSAGE 3314 13-09 SWD**		
FIELD	**MEDICINE LODGE BOGGS**		
COUNTY	**BARBER**	STATE	**KANSAS**

HALLIBURTON

DUAL SPACED NEUTRON
SPECTRAL DENSITY
LOG