HALLIBURTON

SPECTRAL DENSITY DUAL SPACED NEUTRON LOG

COMPANY **EOG RESOURCES**

WELL **GILLESPIE 21 #1**

FIELD **WILLIS**

COUNTY **STEVENS** STATE **KANSAS**

EOG RESOURCES
GILLESPIE 21 #1
WILLIS
STEVENS
KANSAS
COMPANY
WELL
FIELD
COUNTY
STATE

API No. 15-189-22771

Location 1780' FNL & 1890' FWL

Sect. 21 Twp. 32S Rge. 37W

Other Services:
ACRT
BSAT
MICRO

Permanent Datum	GROUND LEVEL		Elev. 3146.0 ft	Elev.: K.B.	3158.0 ft
Log measured from	KELLY BUSHING		12.0 ft above perm. Datum	D.F.	3157.0 ft
Drilling measured from	KELLY BUSHING			G.L.	3146.0 ft

Date		12-Jul-11							
Run No.		ONE							
Depth - Driller		6550.00 ft							
Depth - Logger		6554.0 ft							
Bottom - Logged Interval		6516.0 ft							
Top - Logged Interval		3300.0 ft							
Casing - Driller		8.625 in	@ 1742.0 ft	@		@			
Casing - Logger		1742.0 ft							
Bit Size		7.875 in		@		@			
Type Fluid in Hole		WATER BASED MUD							
Density	Viscosity	9.2 ppg	55.00 s/qt						
PH	Fluid Loss	10.50 pH	8.0 cptm						
Source of Sample		FLOWLINE							
Rm @ Meas. Temperature		1.060 ohmm	@ 86.00 degF	@		@			
Rmf @ Meas. Temperature		0.90 ohmm	@ 85.00 degF	@		@			
Rmc @ Meas. Temperature		1.220 ohmm	@ 85.00 degF	@		@			
Source Rmf	Rmc	MEASURED	MEASURED						
Rm @ BHT		0.70 ohmm	@ 140.0 degF	@		@			
Time Since Circulation		4.0 hr							
Time on Bottom		12-Jul-11 07:07							
Max. Rec. Temperature		140.0 degF	@ 6554.0 ft	@		@			
Equipment	Location	10782954	LIBERAL						
Recorded By		S. JUNG							
Witnessed By		S. MUELLER							

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PGM Version: WL INSITE R3.2.5 (Build 2)

Service Ticket No.: 8308171 API Serial No.: 15-189-22771

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
	@	@			
	@	@			
	@	@			

EQUIPMENT DATA

	GAMMA		ACOUSTIC		DENSITY		NEUTRON	
	Run No.	ONE	Run No.		Run No.	ONE	Run No.	ONE
Serial No.	10811258		Serial No.		Serial No.	I066_M85803_P45	Serial No.	10755066
Model No.	GTET		Model No.		Model No.	SDLT	Model No.	DSNT
Diameter	3.625"		No. of Cent.		Diameter	4.75"	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.	5073GW	Serial No.	DSN-436
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	TD	3300'	REC	0	150				30	-10	2.71	30	-10	LIME

DIRECTIONAL INFORMATION

Maximum Deviation @ KOP @

Remarks: ANNULAR HOLE VOLUME CALCULATED FOR 4.5 & 5.5 INCH CASINGS

GPS COORDINATES: LAT: 37.25 N & LONG: 101.35 W

CHLORIDES REPORTED AT 2800 MG/L LCM REPORTED AT 10 PPB

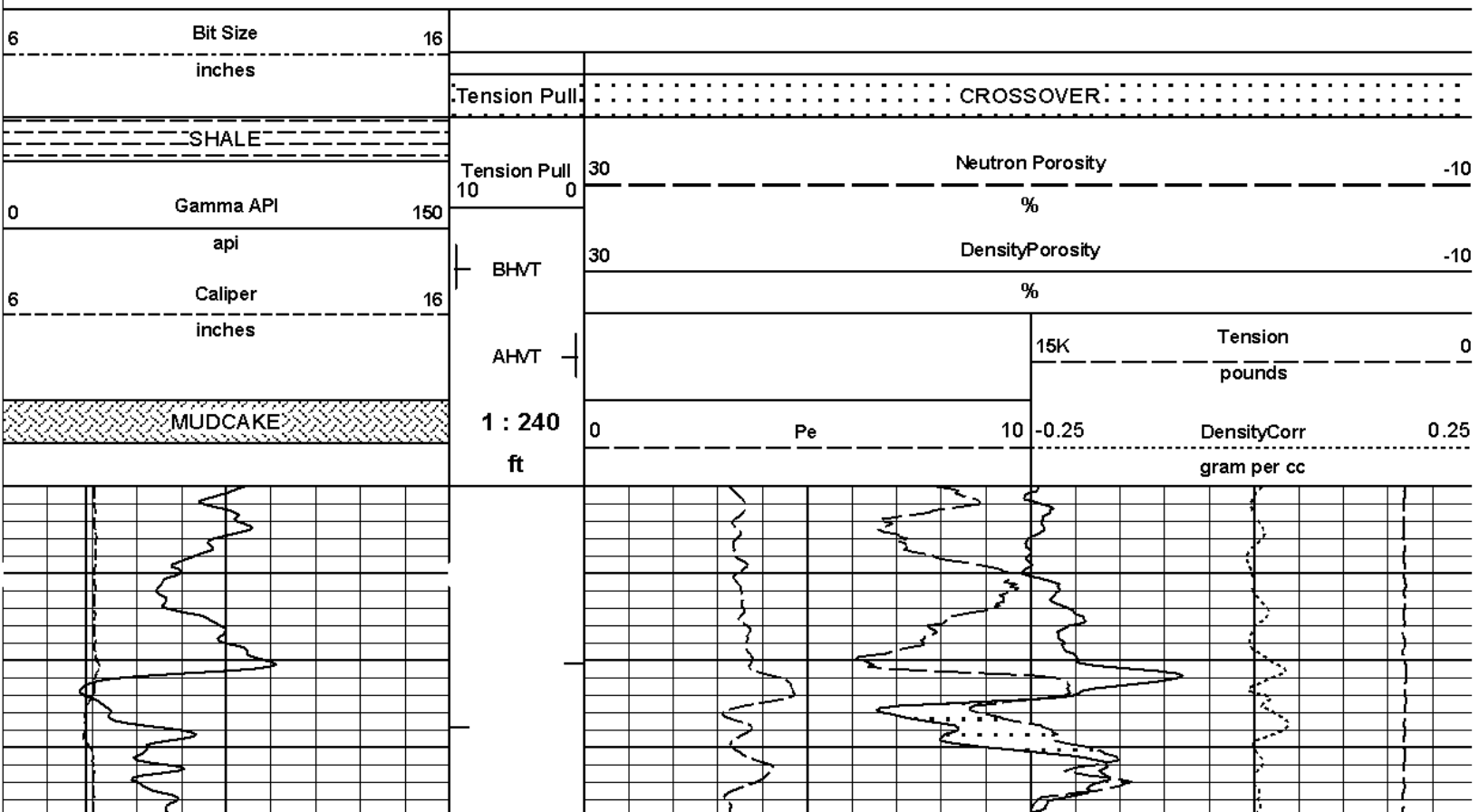
TODAY'S CREW: A. VAQUERA, P. COBLE

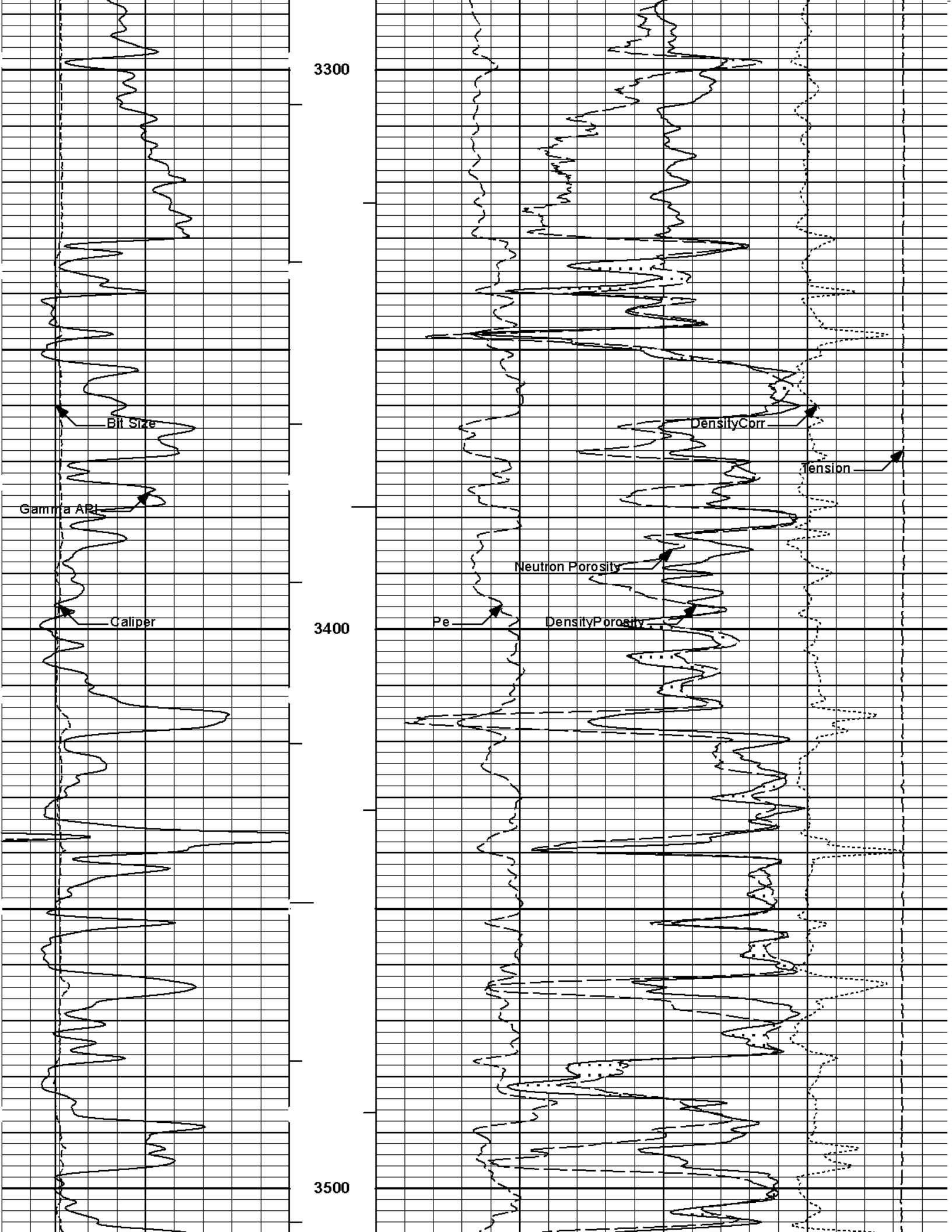
THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES - LIBERAL, KS (620-624-8123)

HALLIBURTON

Plot Time: 12-Jul-11 10:33:17
Plot Range: 3250 ft to 6558.42 ft
Data: GILLESPIE_21_1\Well Based\DAQ-0001-DETAIL\
Plot File: \\PORO\EOG_Poro_IQ_5_MAIN_LIB

5 INCH MAIN LOG




3300
3400
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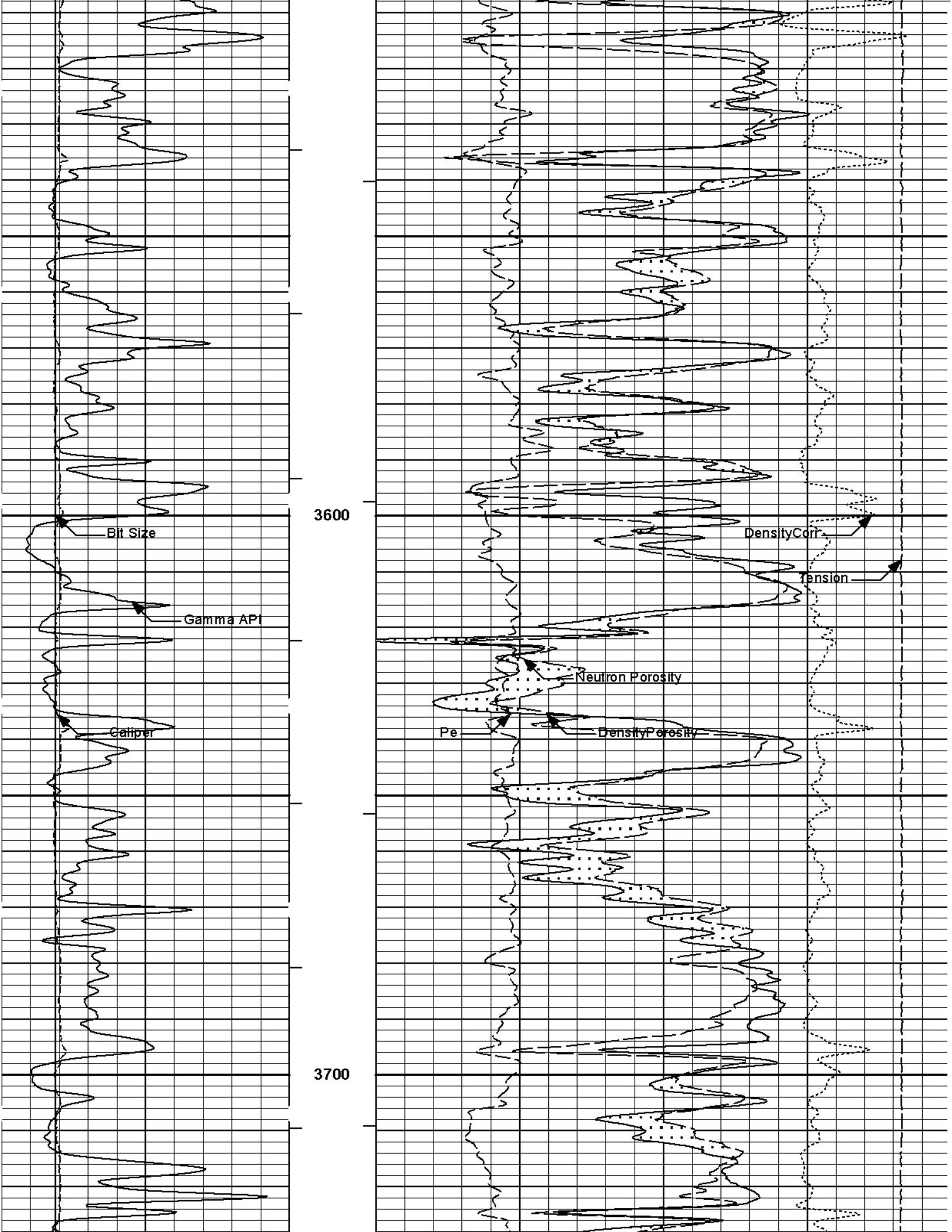
Gamma API
Caliper
DensityCorr
Tension
Neutron Porosity
Pe
DensityPorosity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Tension
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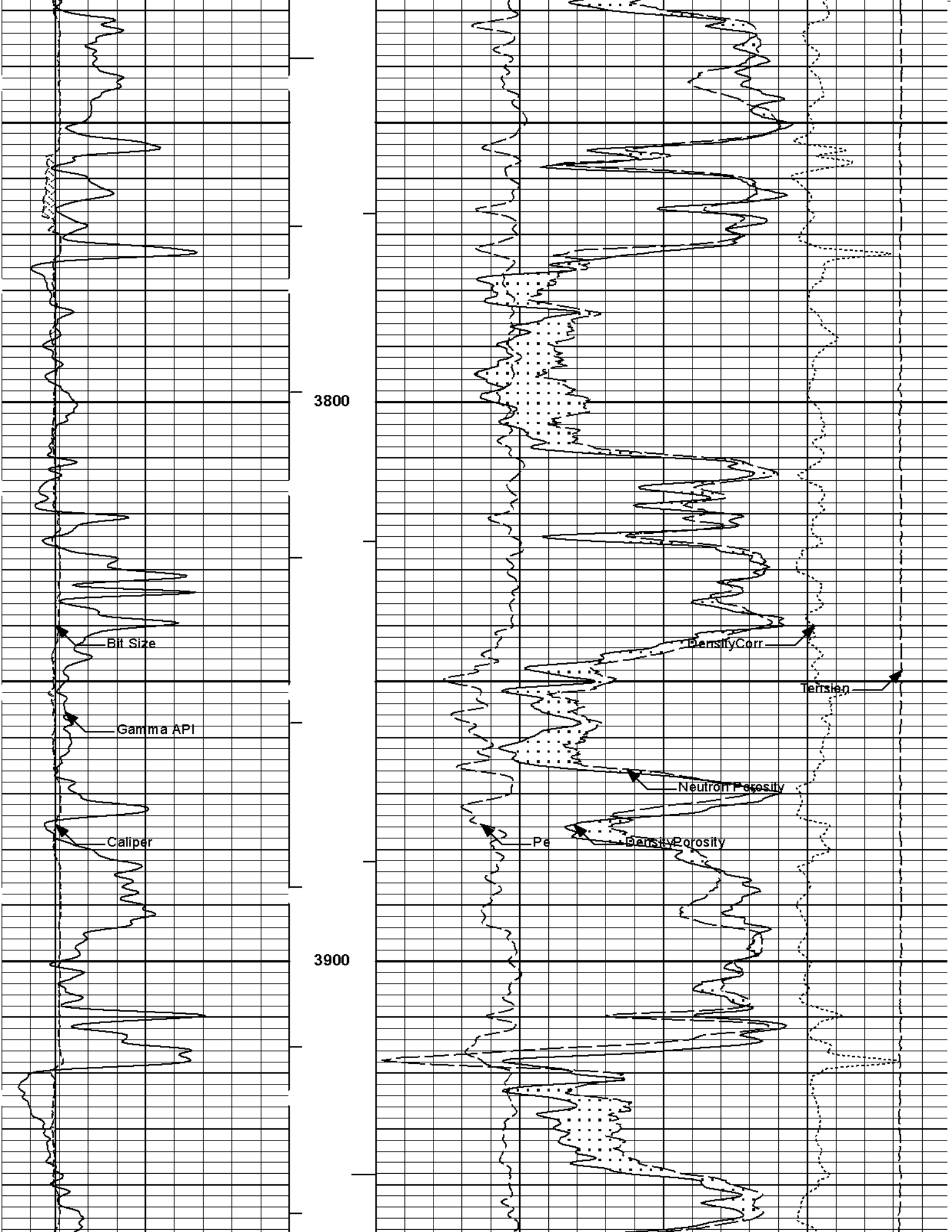
Pe
DensityPorosity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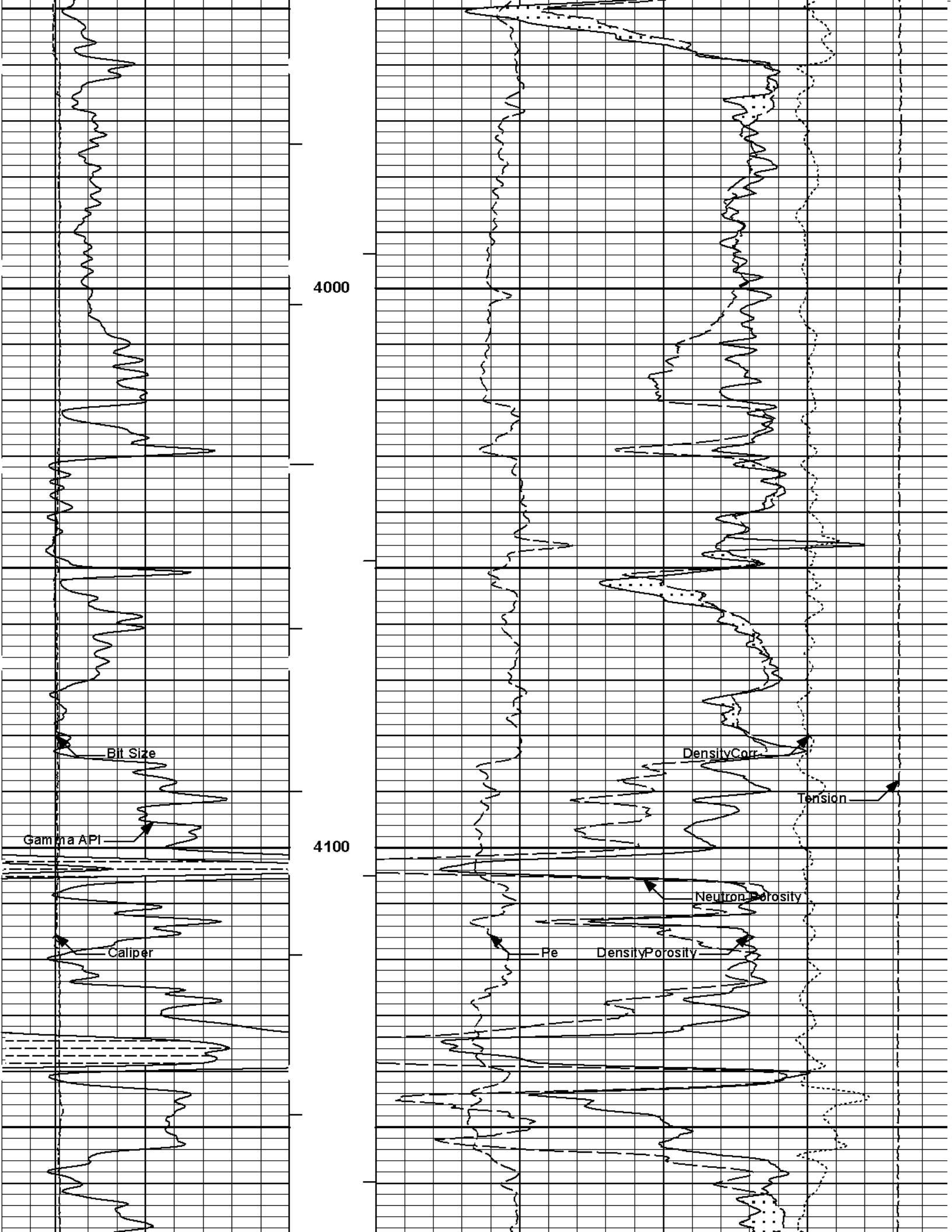
DensityCorr
Tension
Neutron Porosity
Pe
Density Porosity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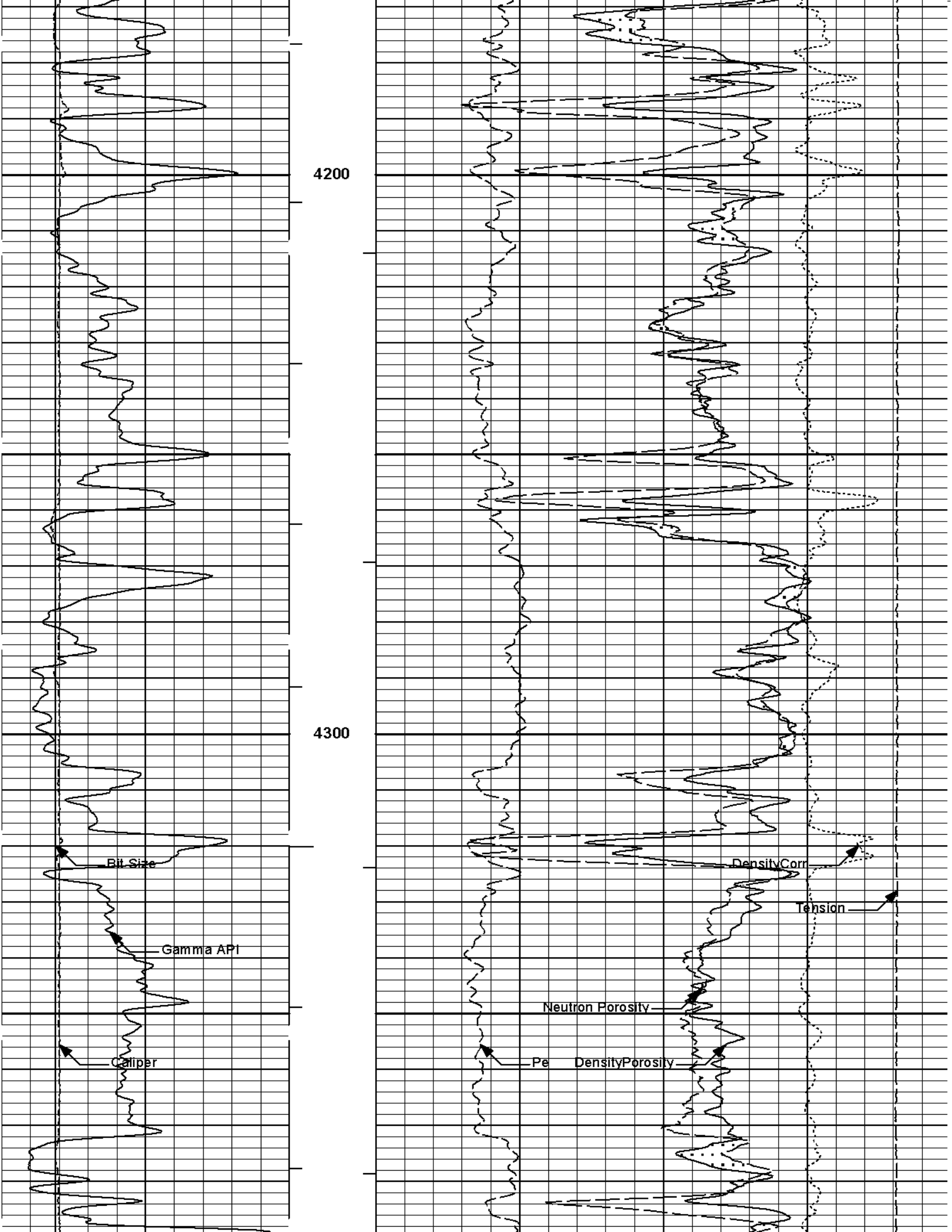
Caliper
DensityCorr
Tension
Neutron Porosity
Pe
DensityPorosity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Tension
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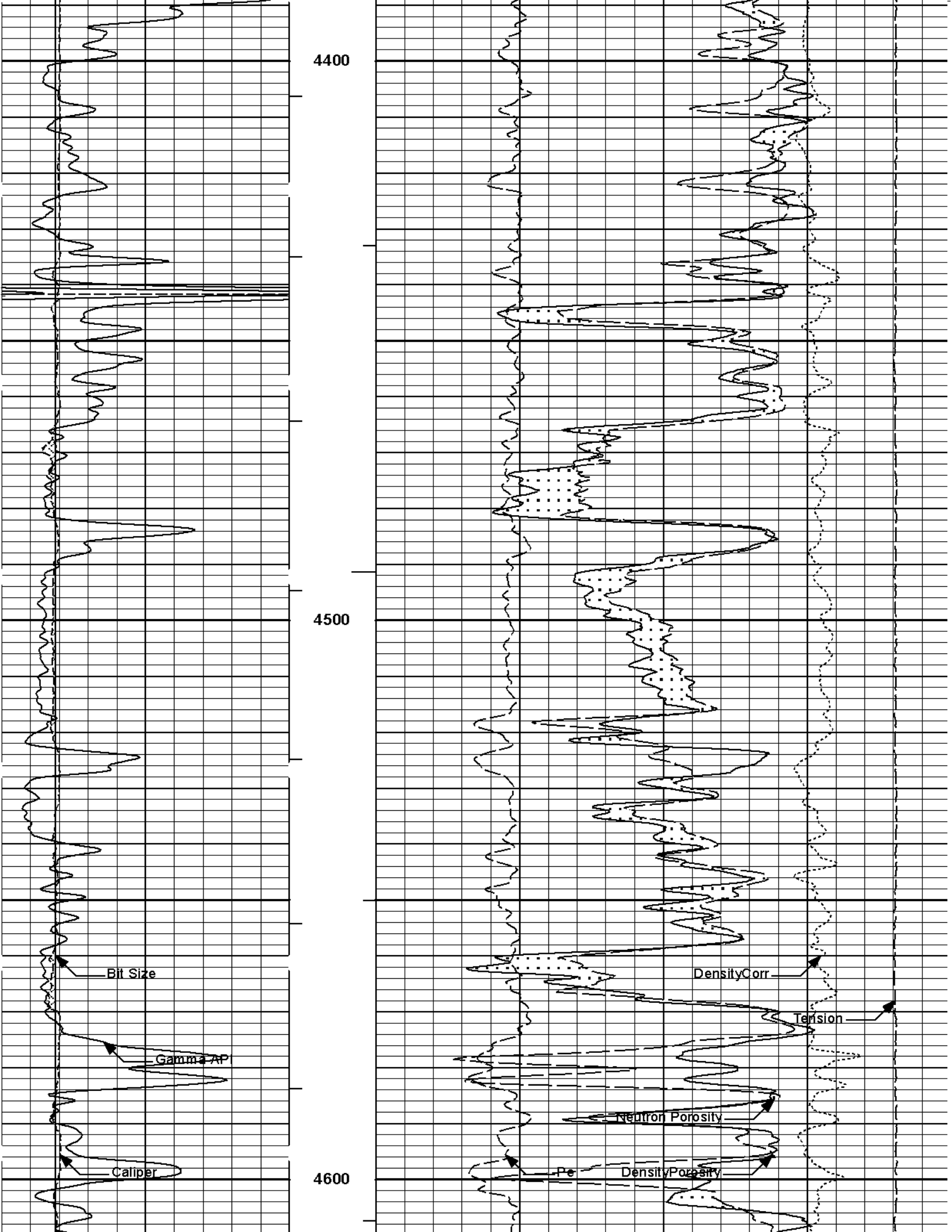
Pe
DensityPorosity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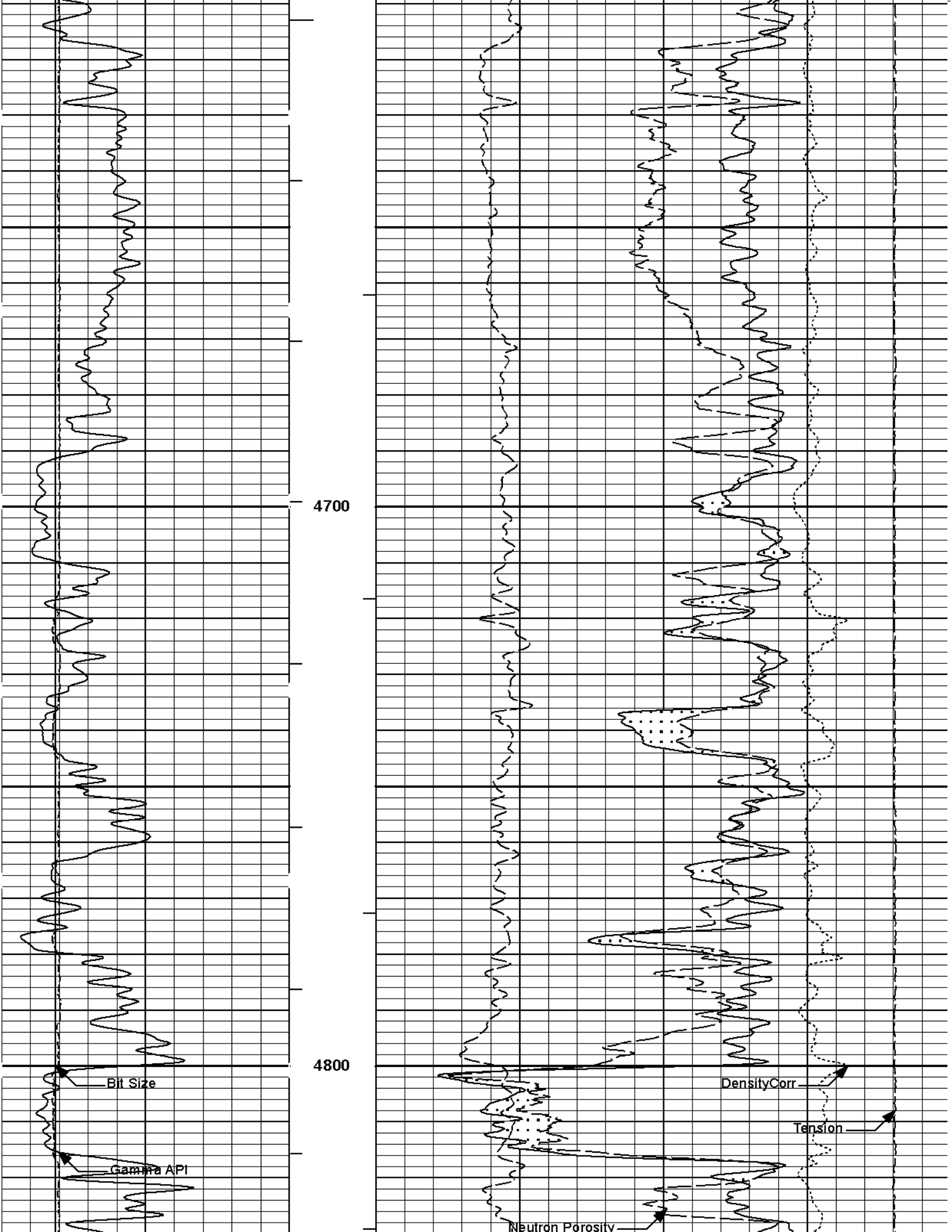
Gamma API
Caliper
DensityCorr
Tension
Neutron Porosity
Pe
DensityPorosity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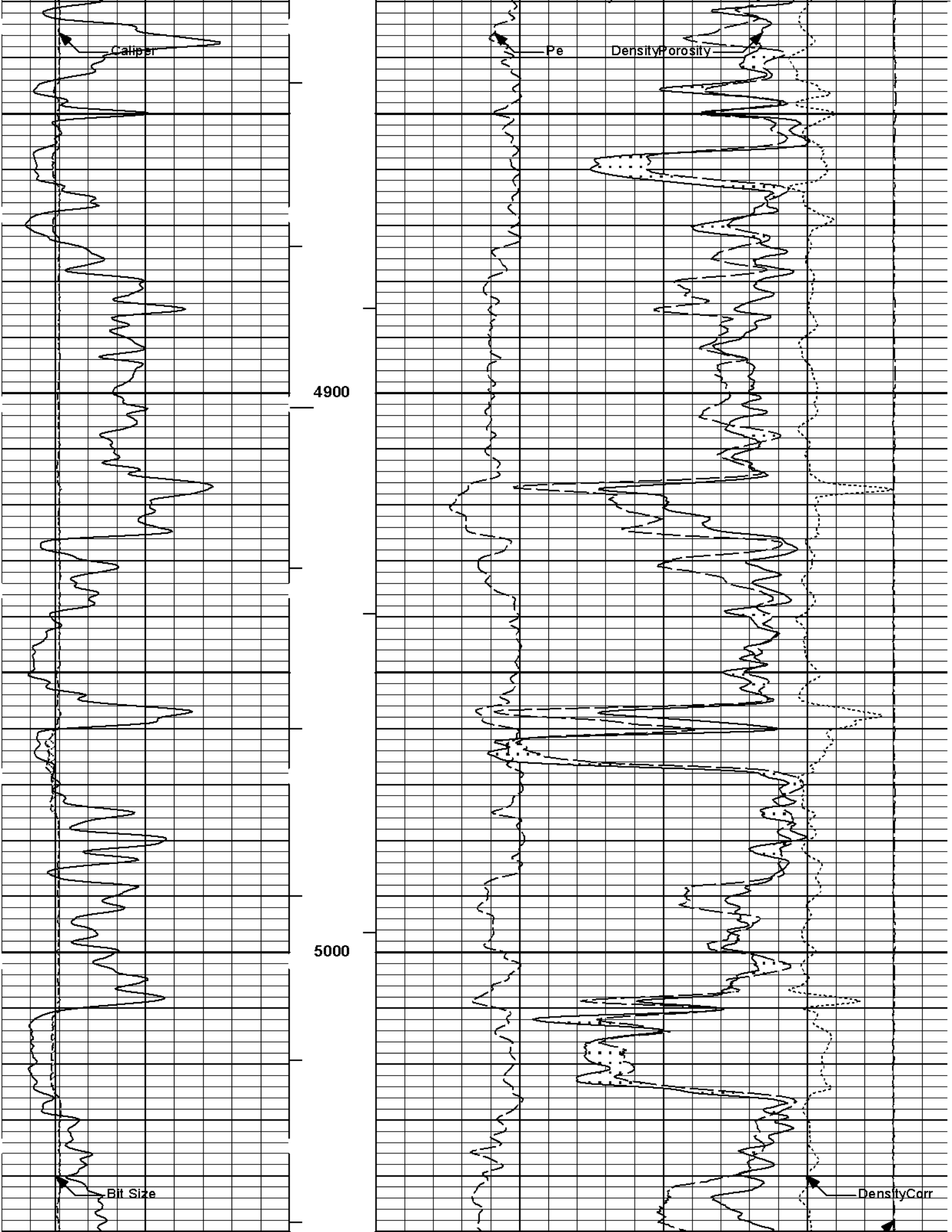
DensityCorr
Tension
Neutron Porosity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Pe
DensityPorosity
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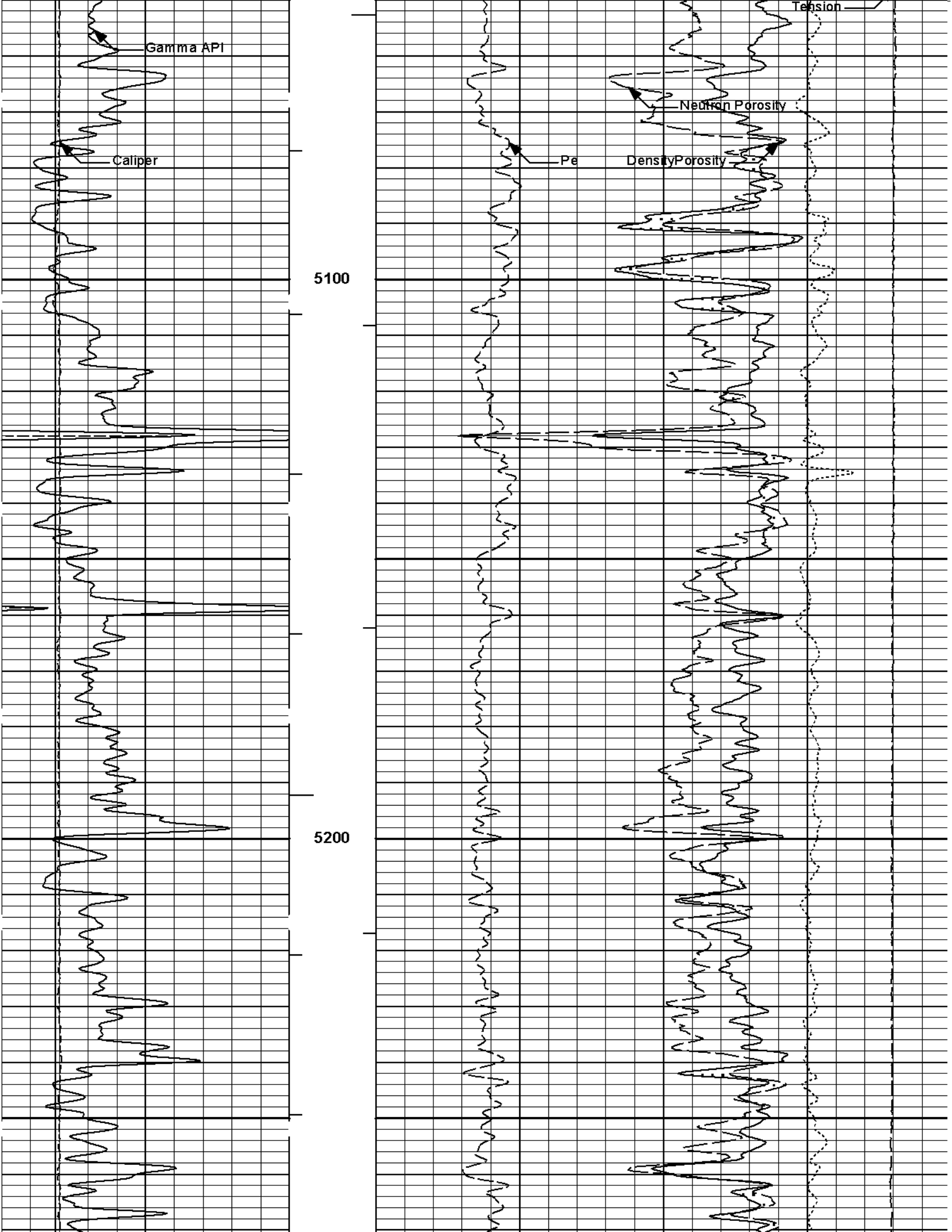
5000
Bit Size
DensityCorr


Gamma API
Caliper
Pe
Neutron Porosity
DensityPorosity
Tension
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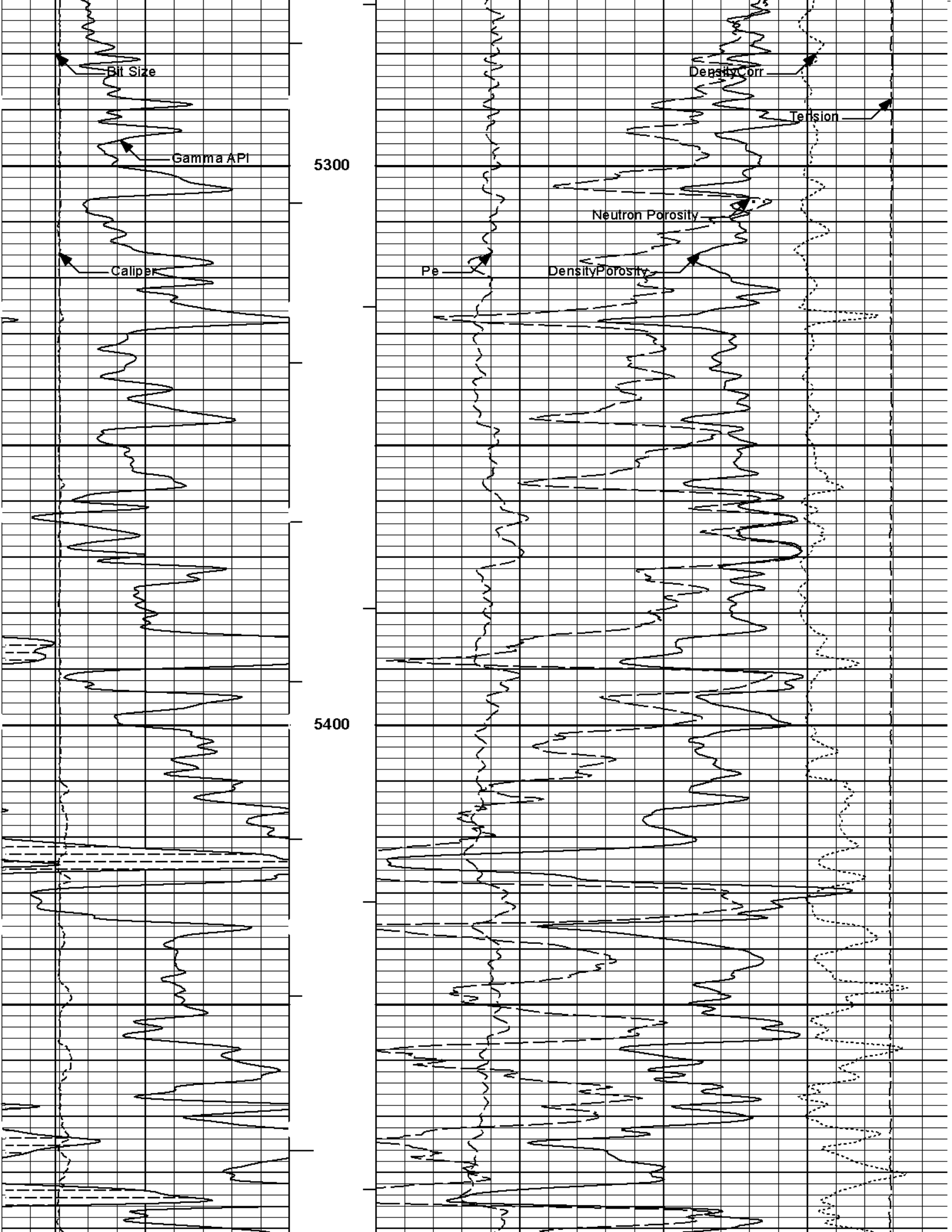
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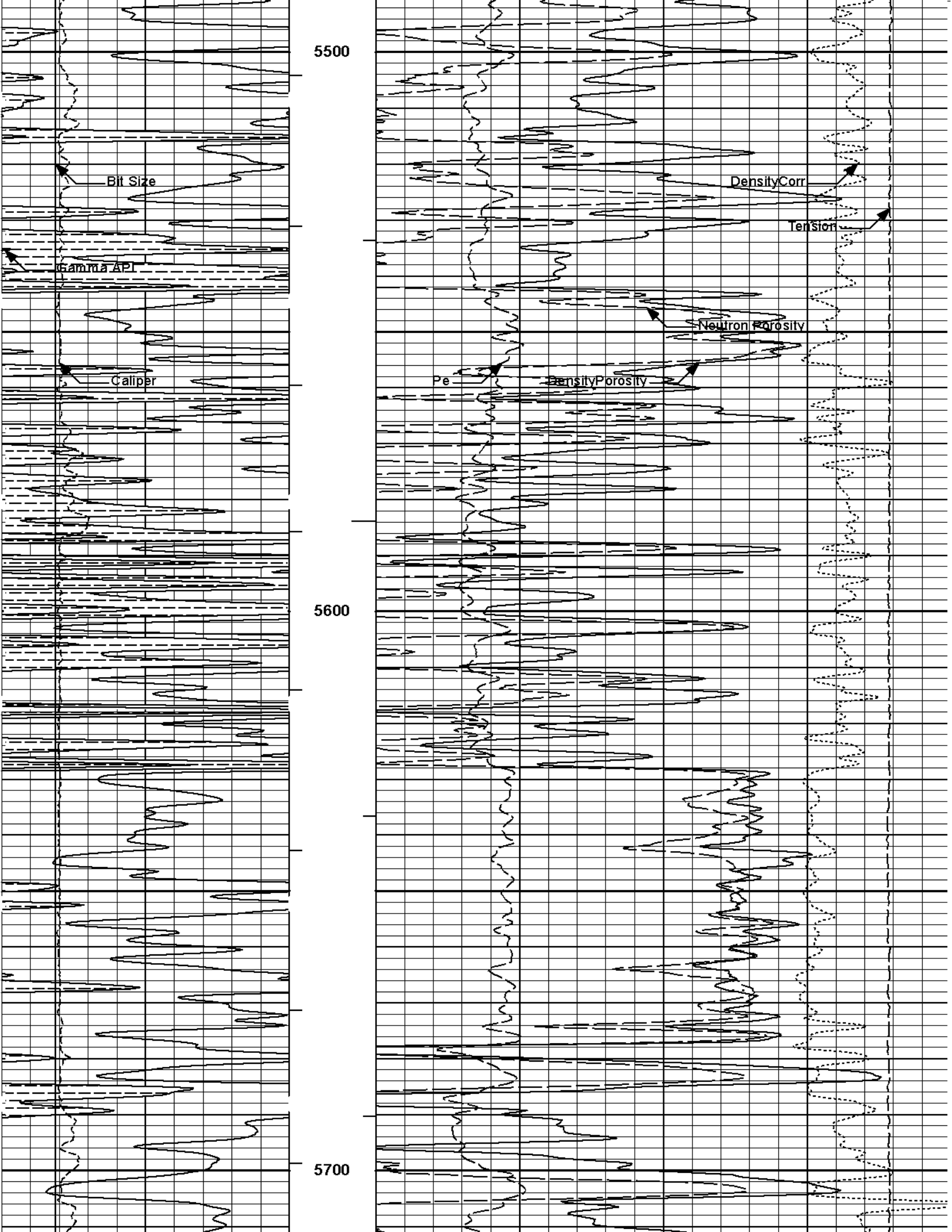
Pe
DensityCorr
Tension
Neutron Porosity
DensityPorosity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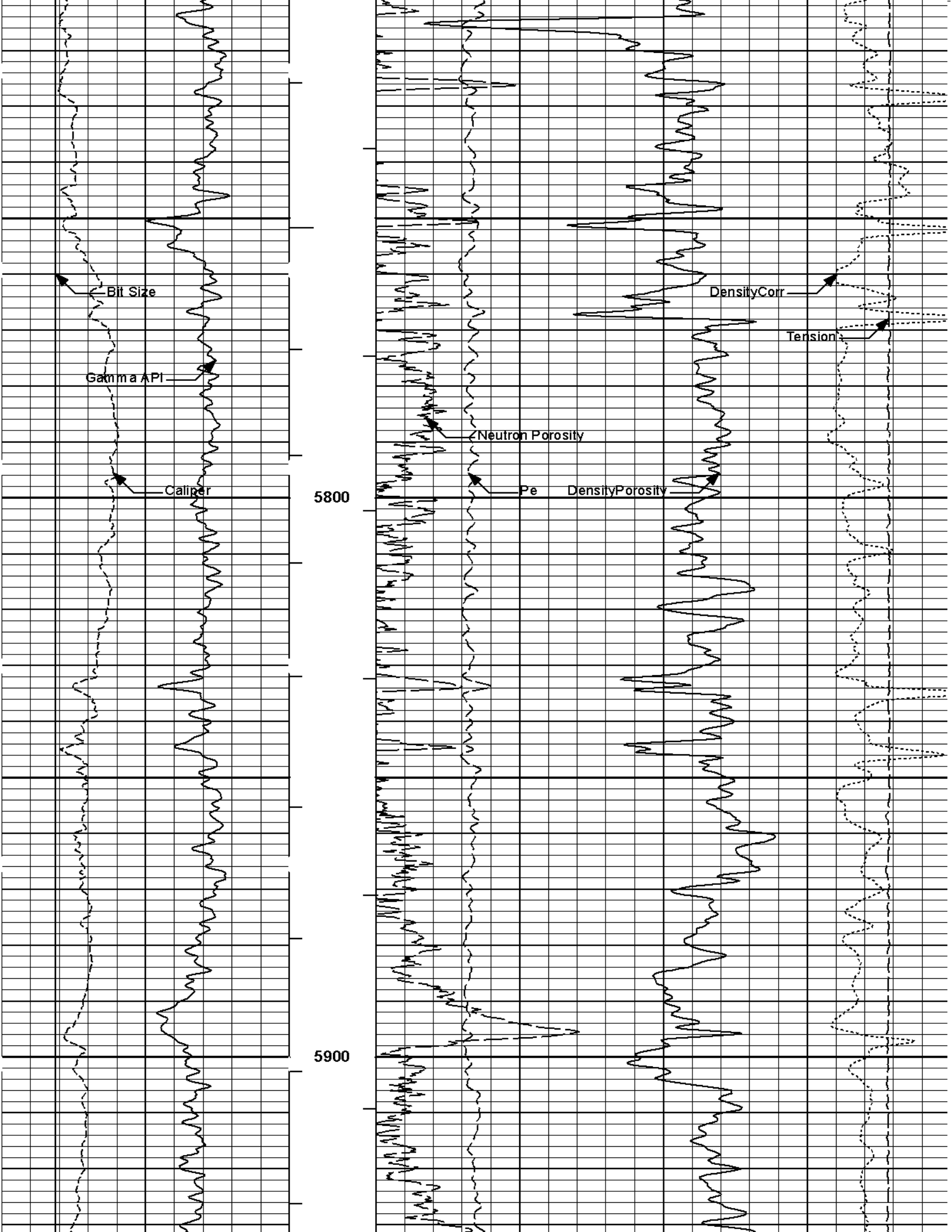
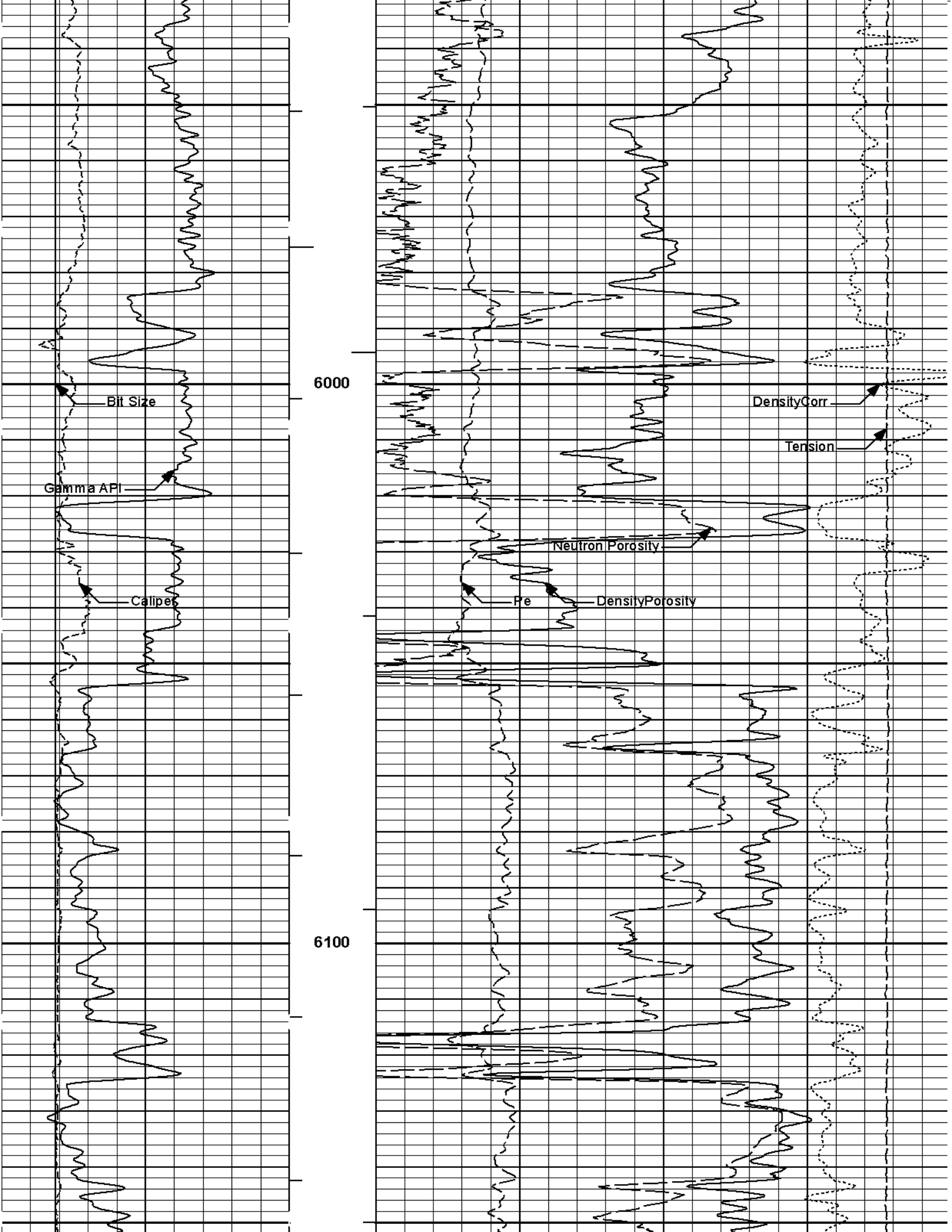
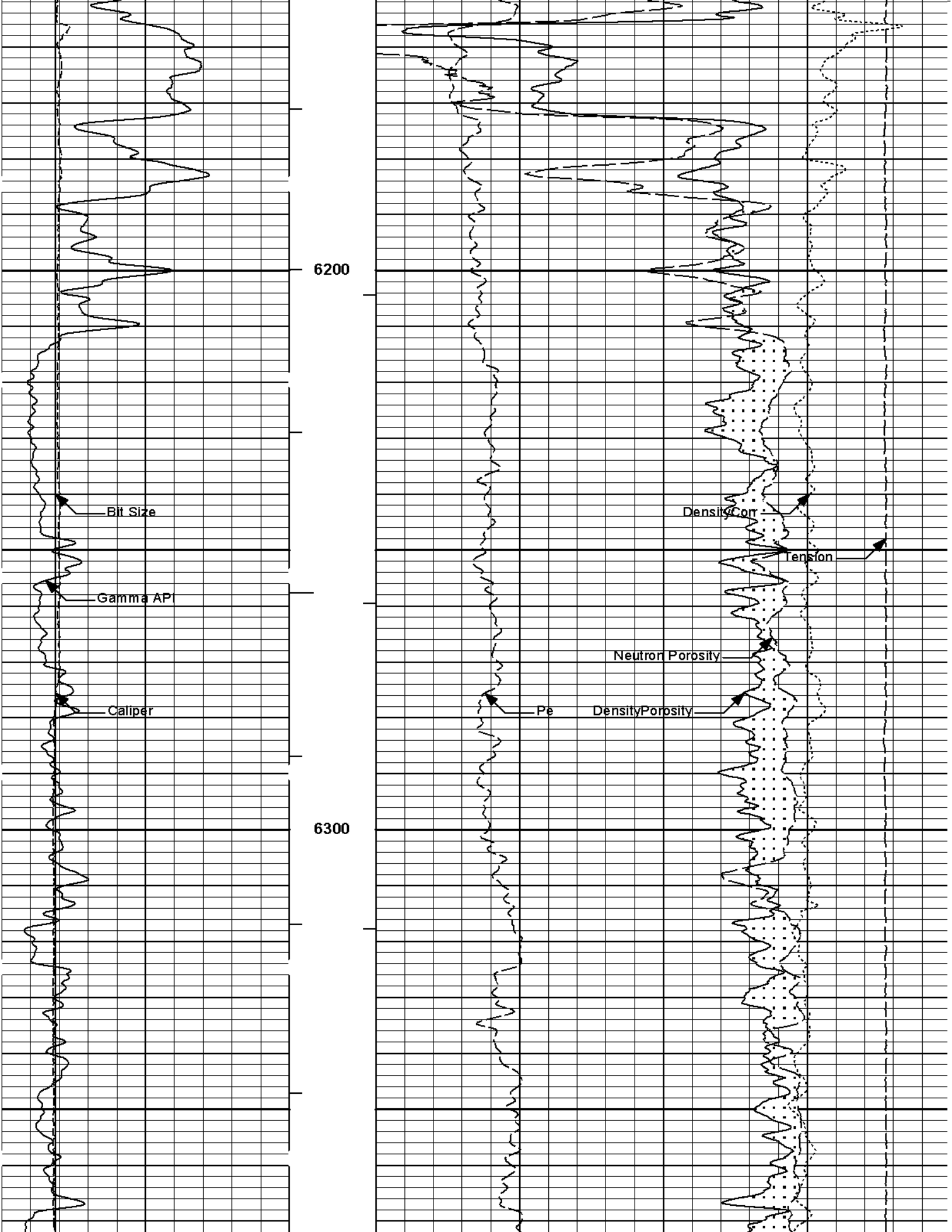
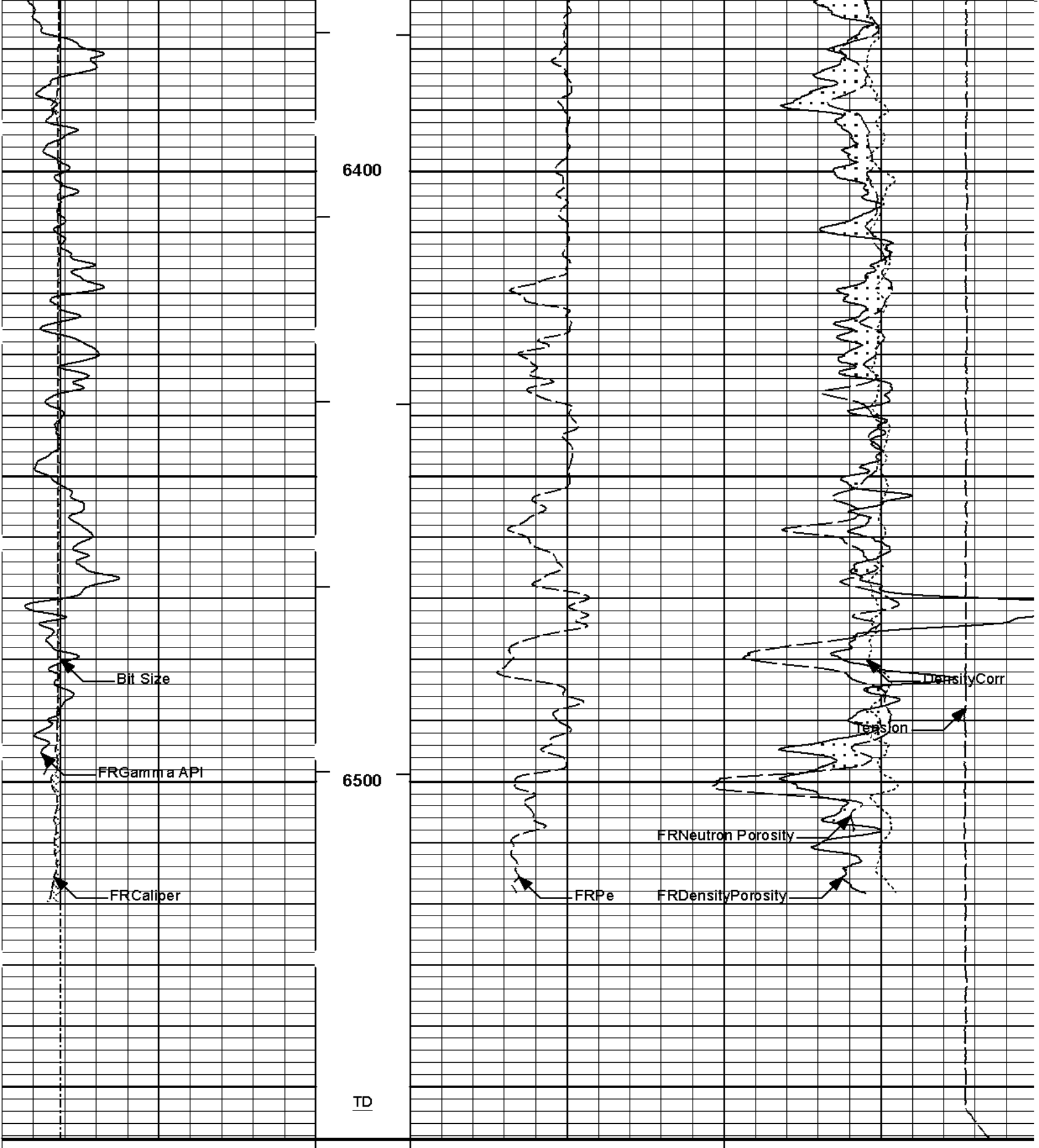
Gamma API
Caliper
Pe
DensityPorosity
Neutron Porosity
DensityCorr
Tension


Bit Size
Gamma API
Caliper
Neutron Porosity
Pe
DensityPorosity
DensityCorr
Tension
5800
5900


6000
6100
Bit Size
Gamma API
Caliper
Pe
DensityPorosity
Neutron Porosity
DensityCorr
Tension


6200
6300
Bit Size
Gamma API
Caliper
Pe
DensityCorr
Tension
Neutron Porosity
DensityPorosity



1 : 240

ft

MUDCAKE

6 Caliper 16

inches

0 Gamma API 150

api

AHVT

BHVT

Tension Pull

0 Pe 10

30 DensityPorosity -10

%

30 Neutron Porosity 10

-0.25 DensityCorr 0.25

gram per cc

15K Tension 0

pounds

Tension Pull
10 0
SHALE
Tension Pull
6 Bit Size 16
inches

%
CROSSOVER

HALLIBURTON

Plot Time: 12-Jul-11 10:33:21
Plot Range: 3250 ft to 6558.42 ft
Data: GILLESPIE_21_1\Well Based\DAQ-0001-DETAIL\
Plot File: \\PORO\EOG_Poro_IQ_5_MAIN_LIB

5 INCH MAIN LOG

HALLIBURTON

Plot Time: 12-Jul-11 10:33:21
Plot Range: 6170 ft to 6559.5 ft
Data: GILLESPIE_21_1\Well Based\DAQ-0001-REPEAT\
Plot File: \\PORO\EOG_Poro_IQ_5_REP_LIB

REPEAT SECTION

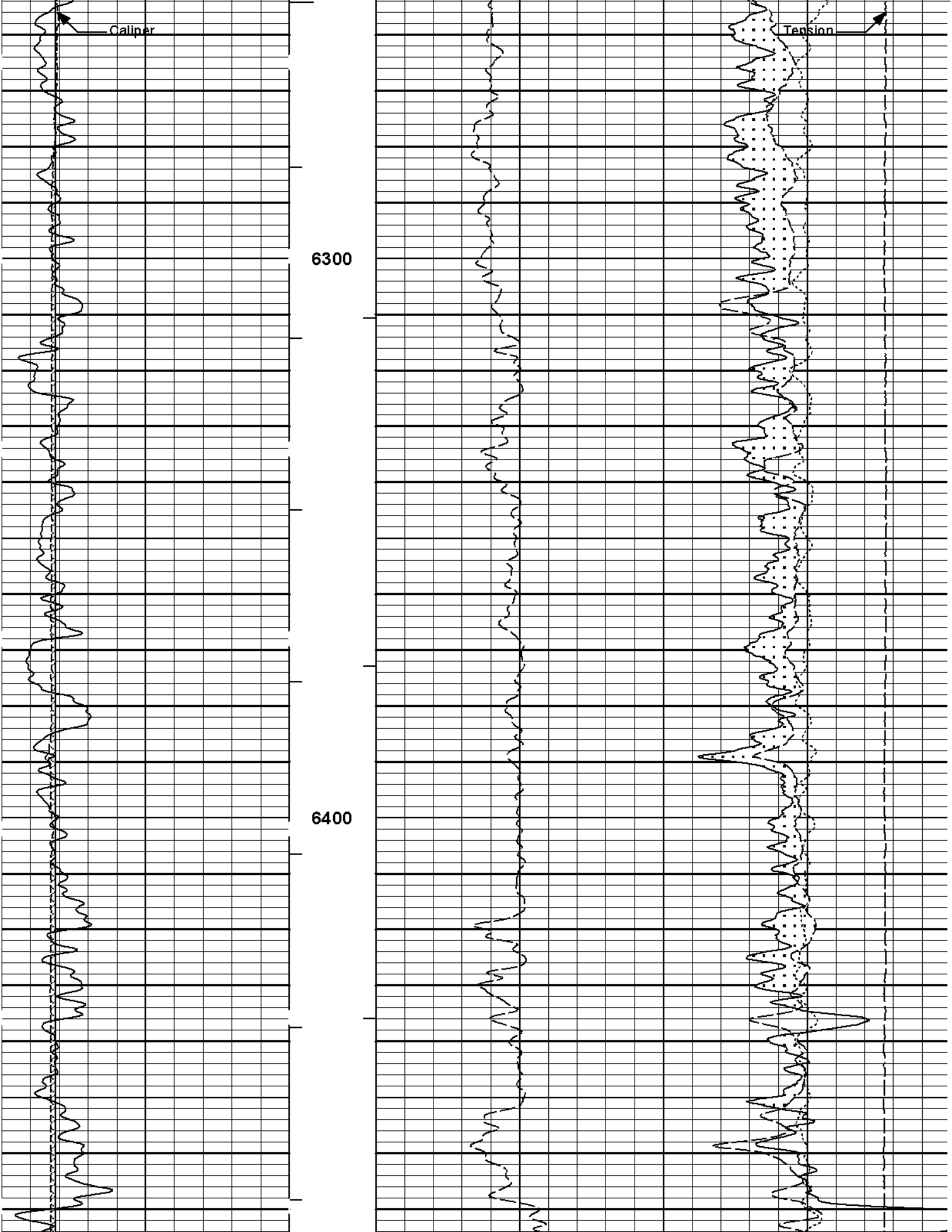
6 Bit Size 16
inches
SHALE
0 Gamma API 150
api
6 Caliper 16
inches
MUDCAKE
1 : 240
ft

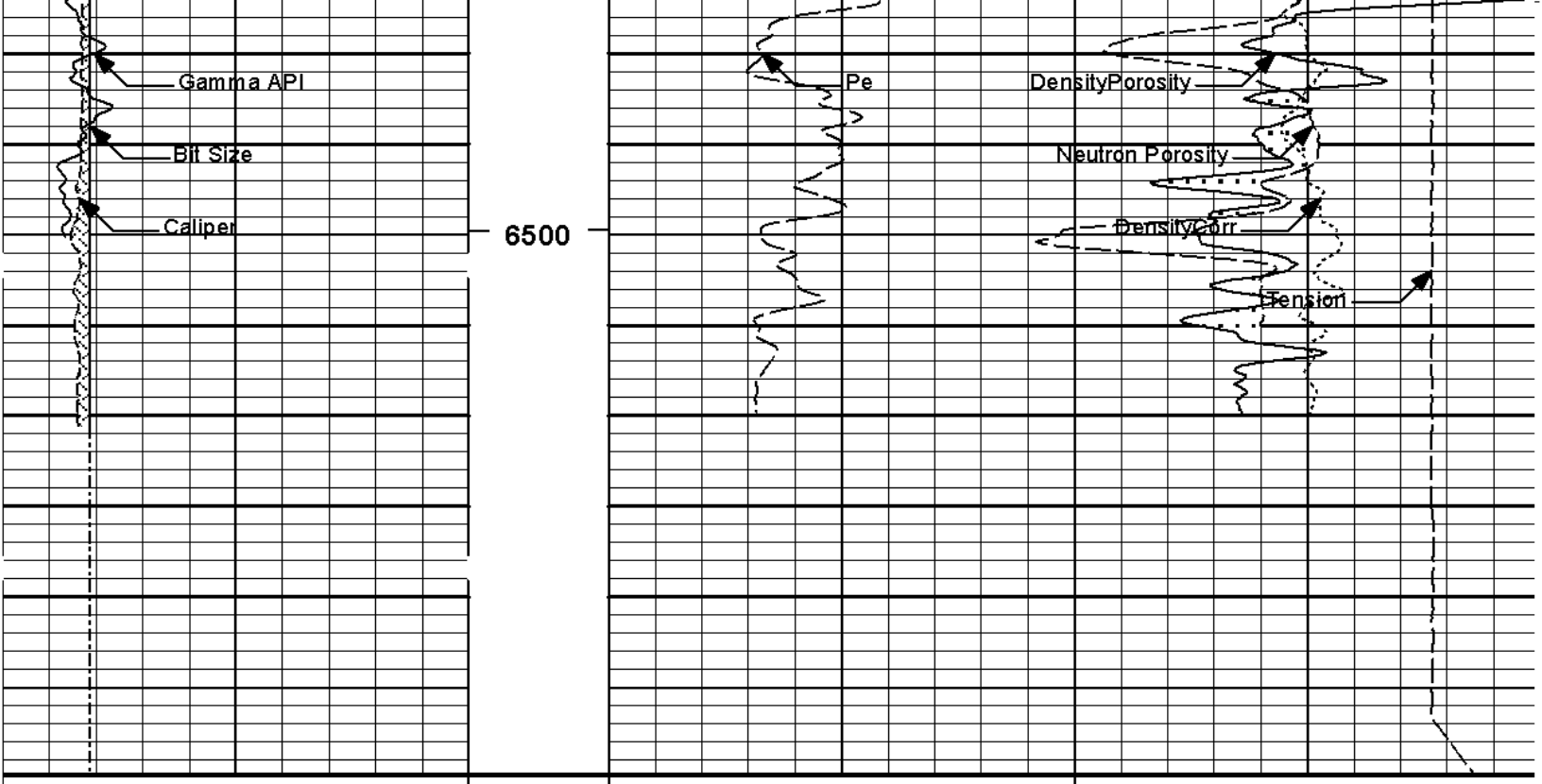
BHVT
AHVT

CROSSOVER
30 Neutron Porosity -10
%
30 DensityPorosity -10
%
15K Tension 0
pounds
0 Pe 10
-0.25 DensityCorr 0.25
gram per cc

6200

Gamma API
Bit Size
Pe
DensityPorosity
Neutron Porosity
DensityCorr


Caliper
Tension
6300
6400



1 : 240
ft

MUDCAKE

6 Caliper 16
inches

0 Gamma API 150
api

SHALE

6 Bit Size 16
inches

AHVT

BHVT

0 Pe 10
gram per cc

-0.25 DensityCorr 0.25

15K Tension 0
pounds

30 DensityPorosity -10
%

30 Neutron Porosity -10
%

CROSSOVER

HALLIBURTON

Plot Time: 12-Jul-11 10:33:23
Plot Range: 6170 ft to 6559.5 ft
Data: GILLESPIE_21_1\Well Based\DAQ-0001-REPEAT\
Plot File: \\PORO\EOG_Poro_IQ_5_REP_LIB

REPEAT SECTION

HALLIBURTON

Plot Time: 12-Jul-11 10:33:23
Plot Range: 3250 ft to 6558.42 ft
Data: GILLESPIE_21_1\Well Based\DAQ-0001-DETAIL\
Plot File: \\-LOCAL-\GILLESPIE_21_1\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\PORO\BULKD_5_MAIN_LIB

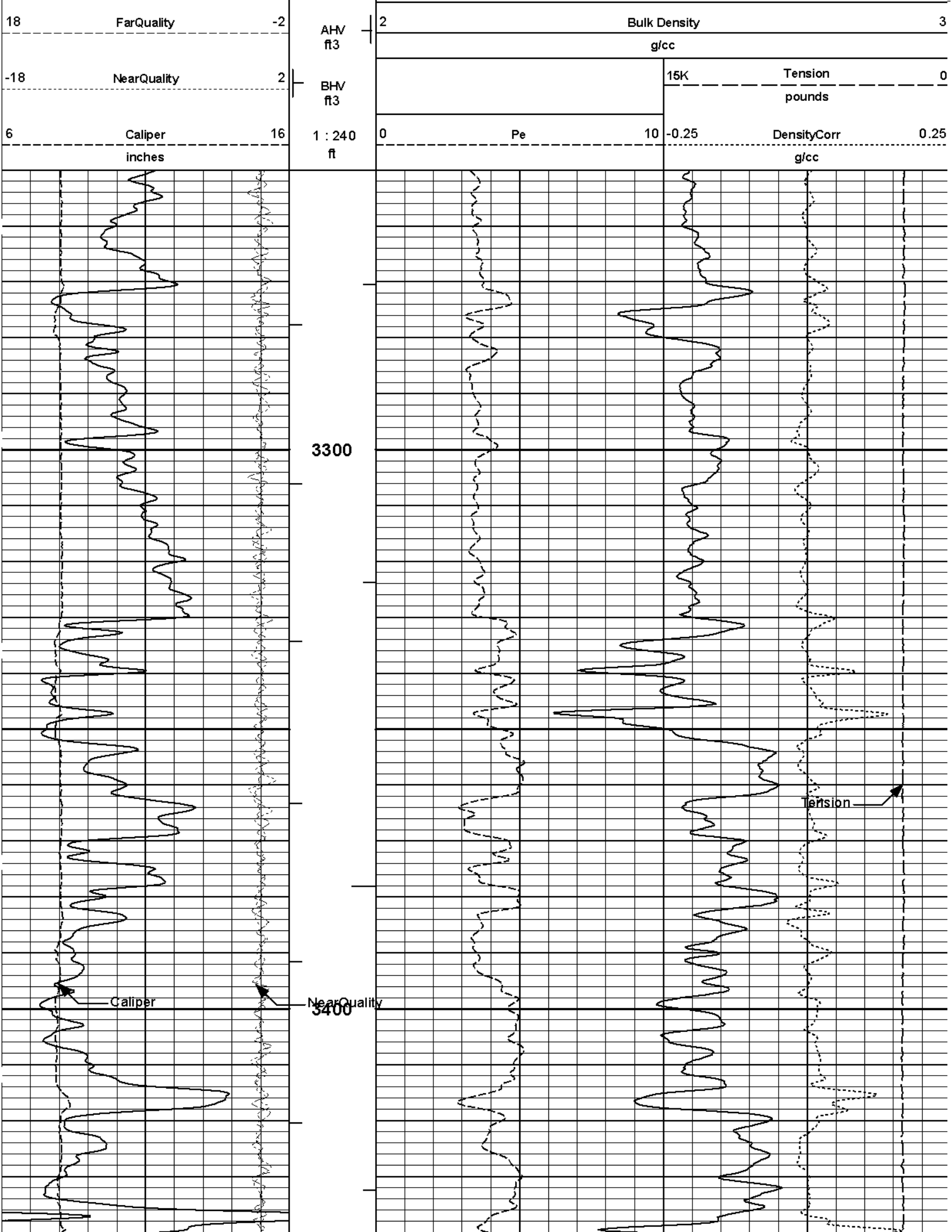
5 INCH MAIN LOG

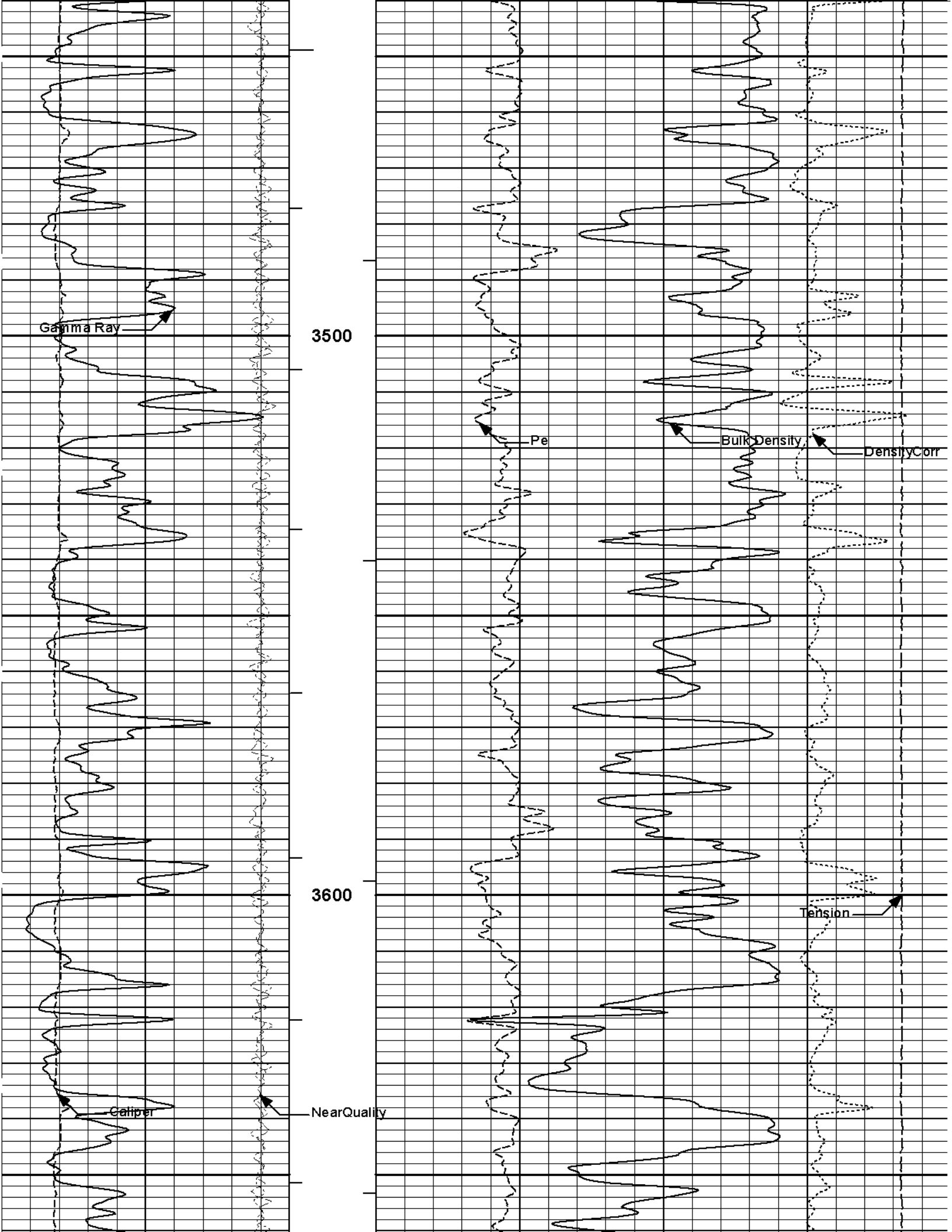
SHALE

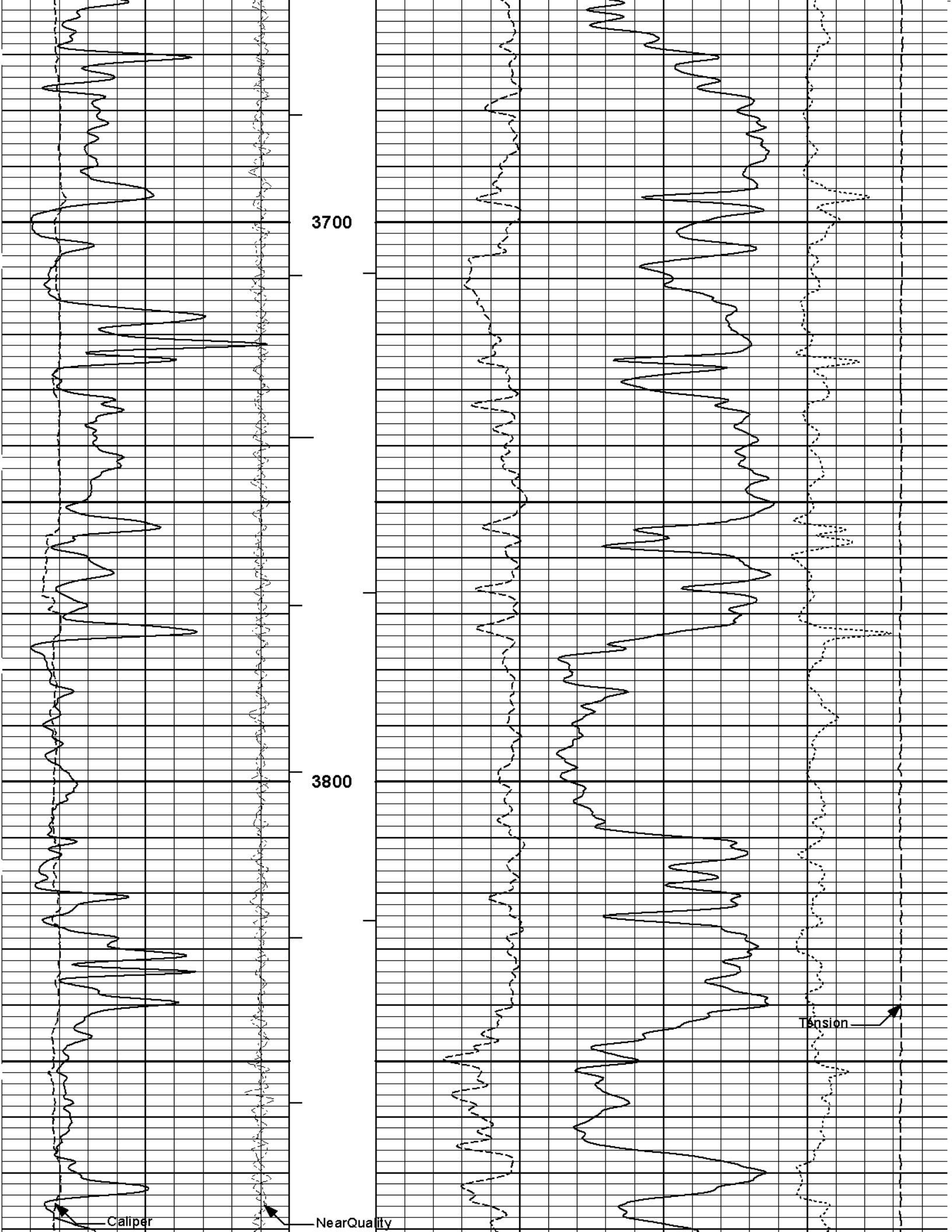
Tension Pull

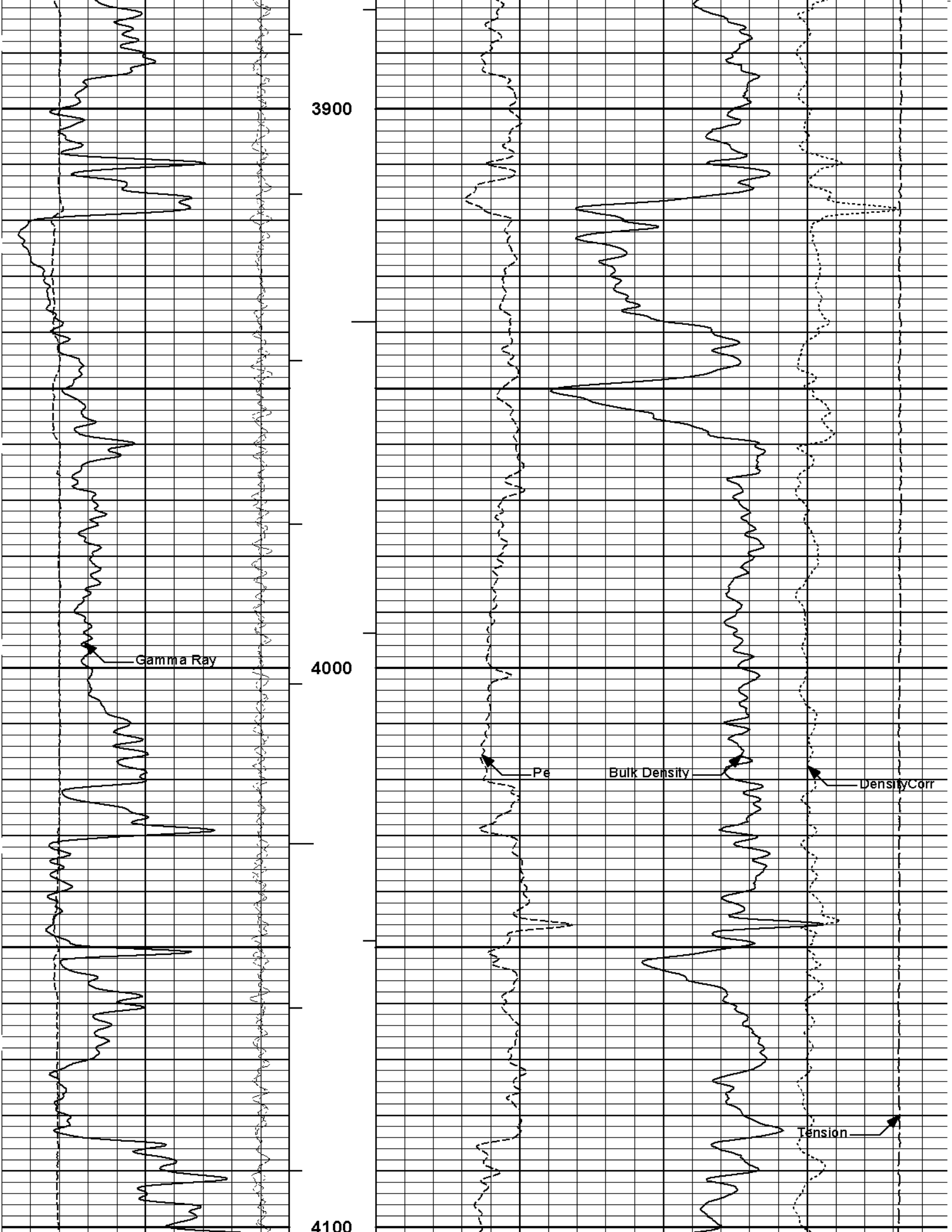
0 Gamma Ray 150
api

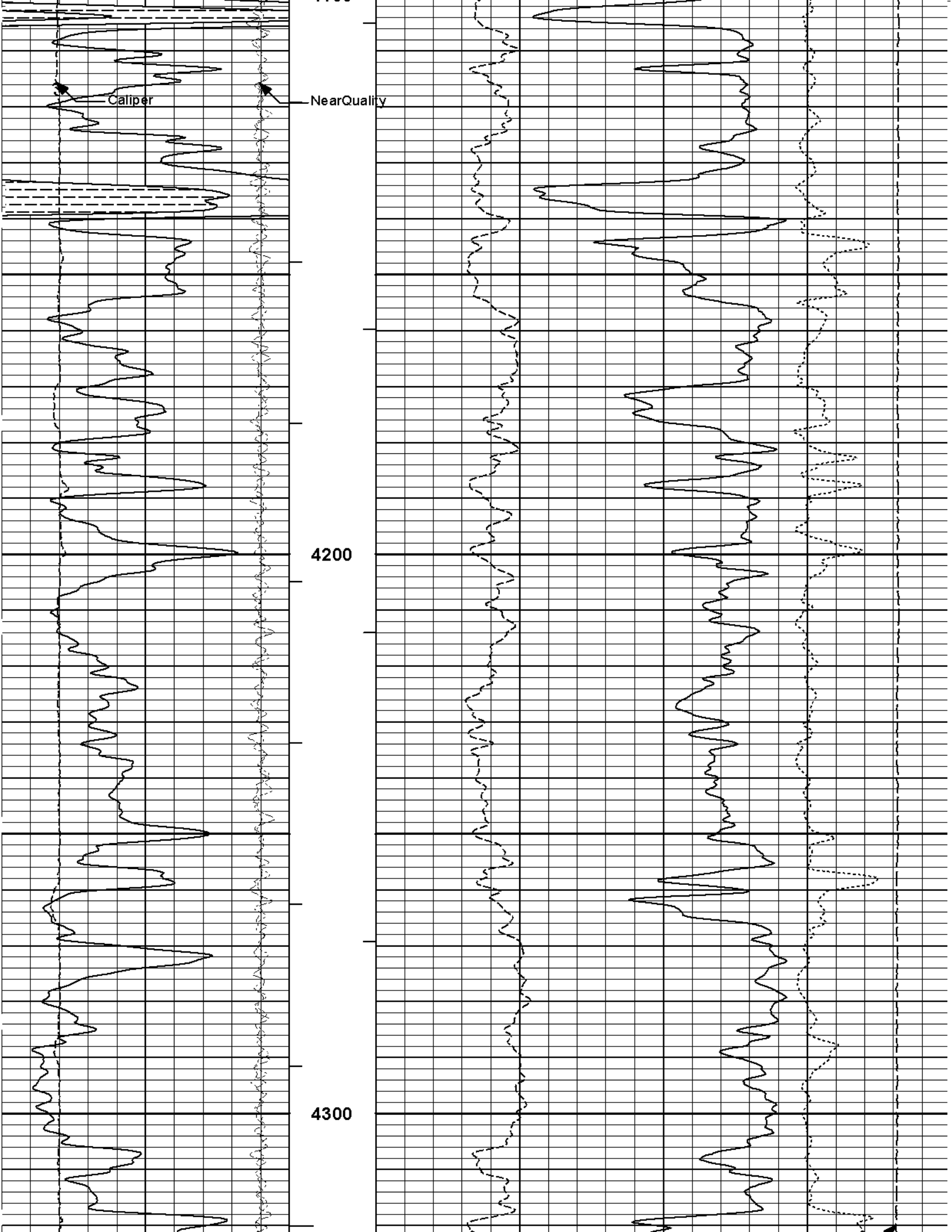
Tension Pull
10 0

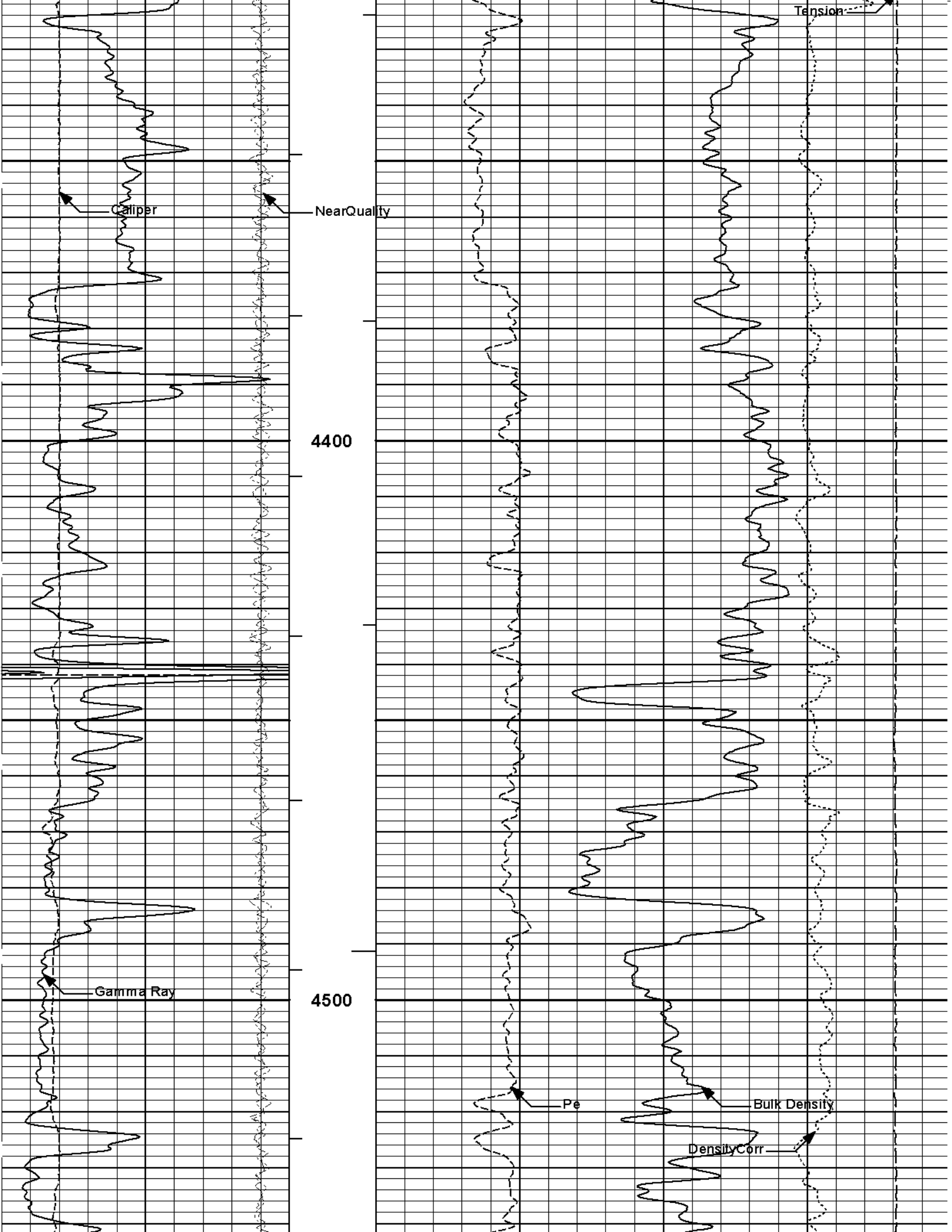

18
FarQuality
-2
-18
NearQuality
2
6
Caliper
16
inches
AHV
ft3
BHV
ft3
1 : 240
ft
2
Bulk Density
3
g/cc
15K
Tension
0
pounds
0
Pe
10
-0.25
DensityCorr
0.25
g/cc
3300
3400
Caliper
NearQuality
Tension

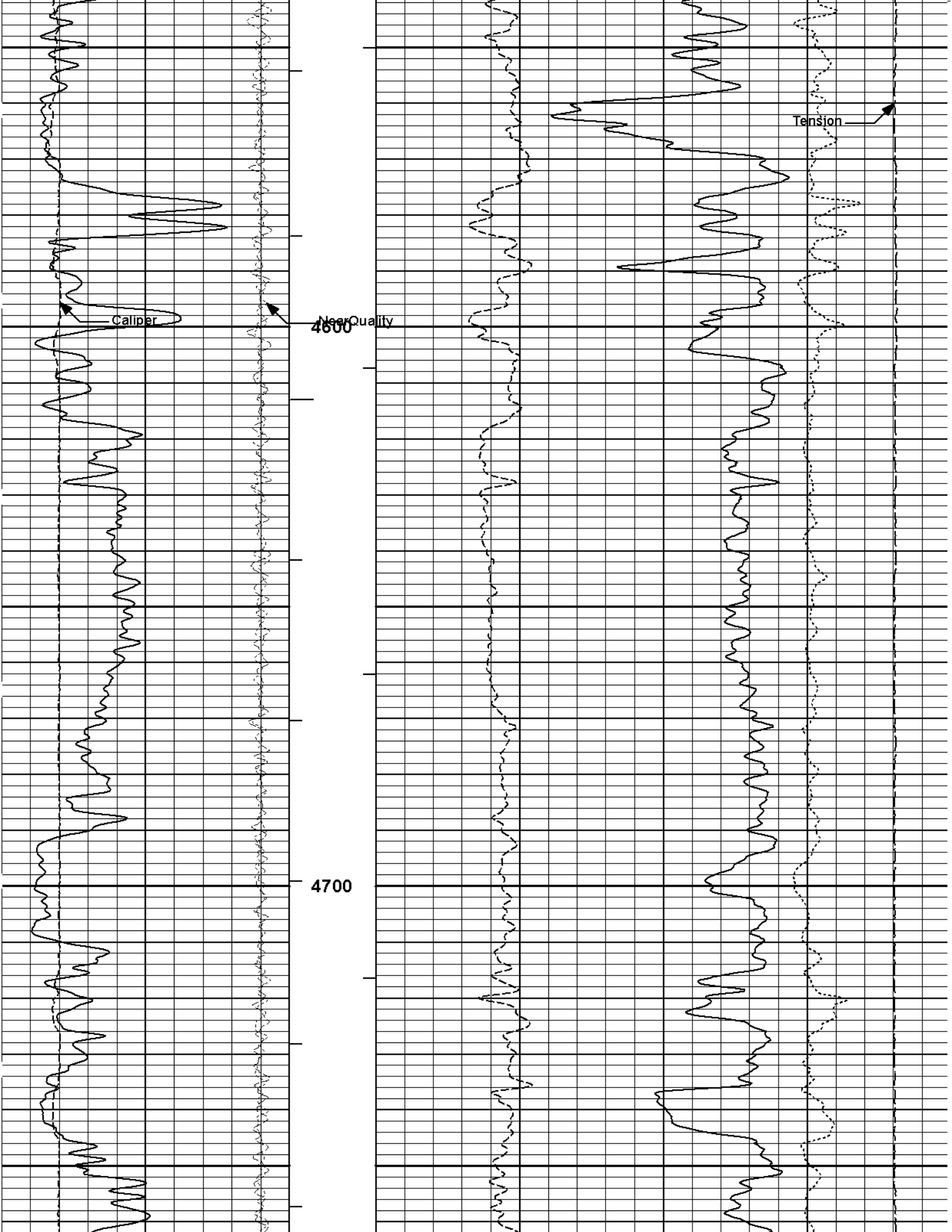

Gamma Ray
3500
Pe
Bulk Density
DensityCorr
3600
Tension
Caliper
NearQuality


3700
3800
Caliper
NearQuality
Tension


3900
4000
4100
Gamma Ray
Pe
Bulk Density
DensityCorr
Tension


Caliper
NearQuality
4200
4300


Tension
Caliper
NearQuality
4400
Gamma Ray
4500
Pe
Bulk Density
DensityCorr


Caliper
NearQuality
Tension
4600
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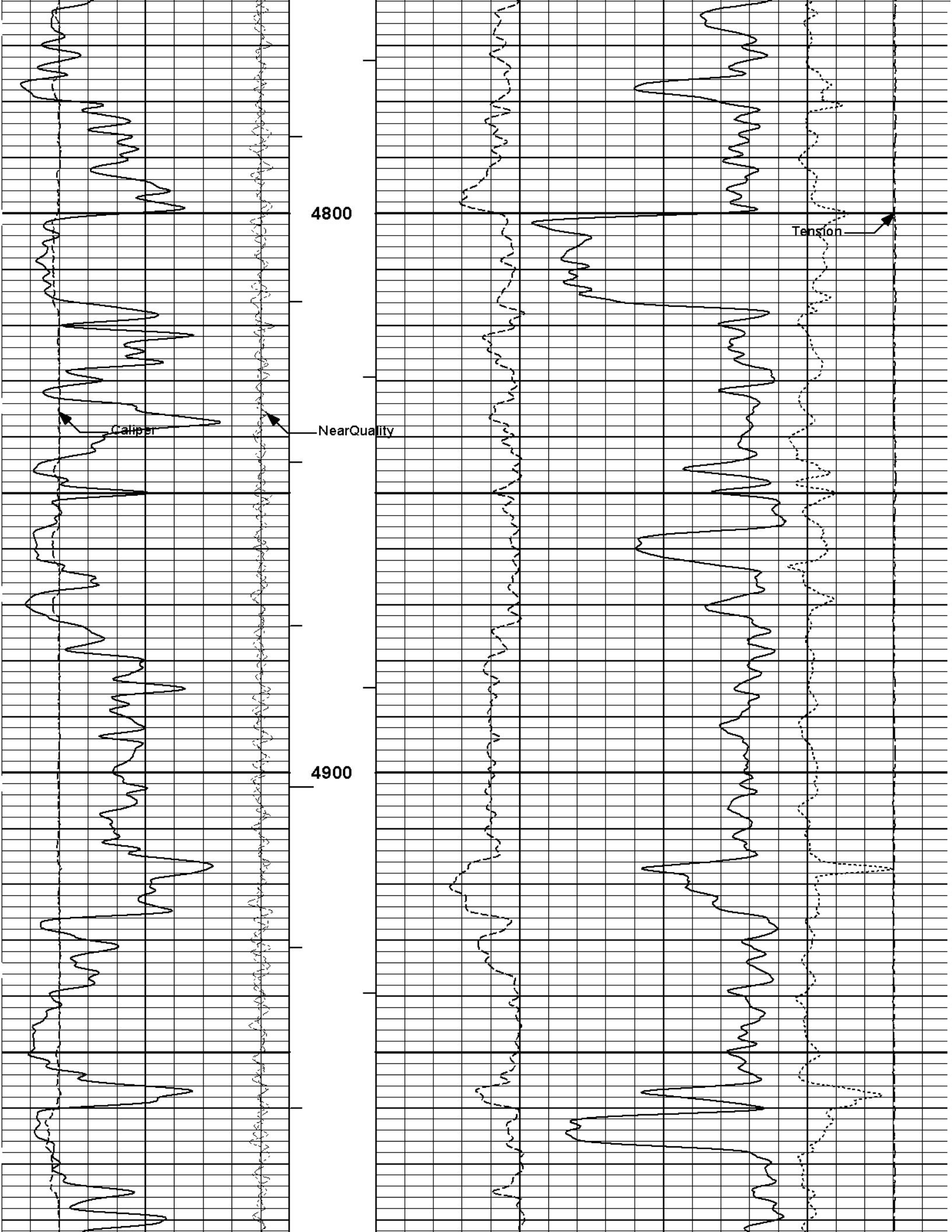
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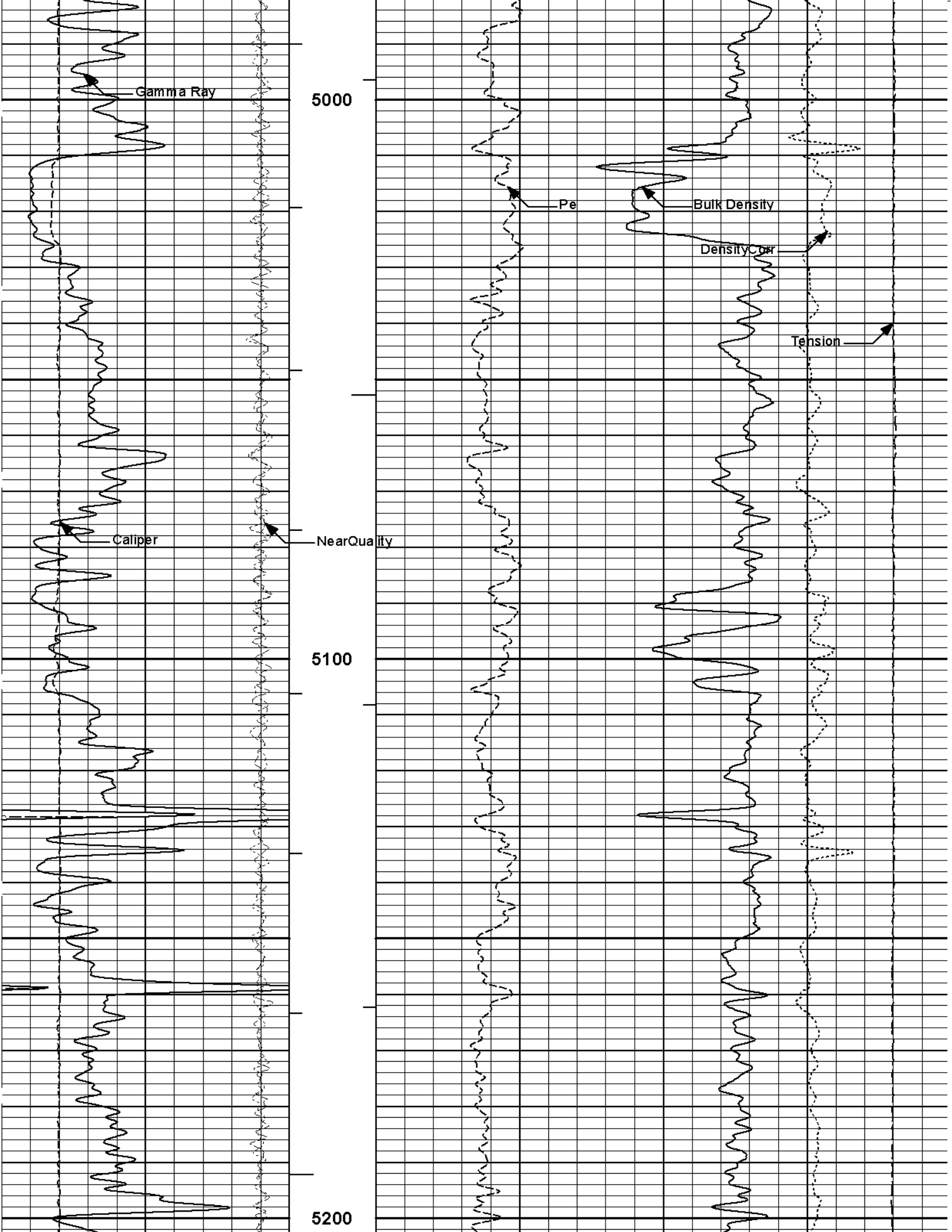
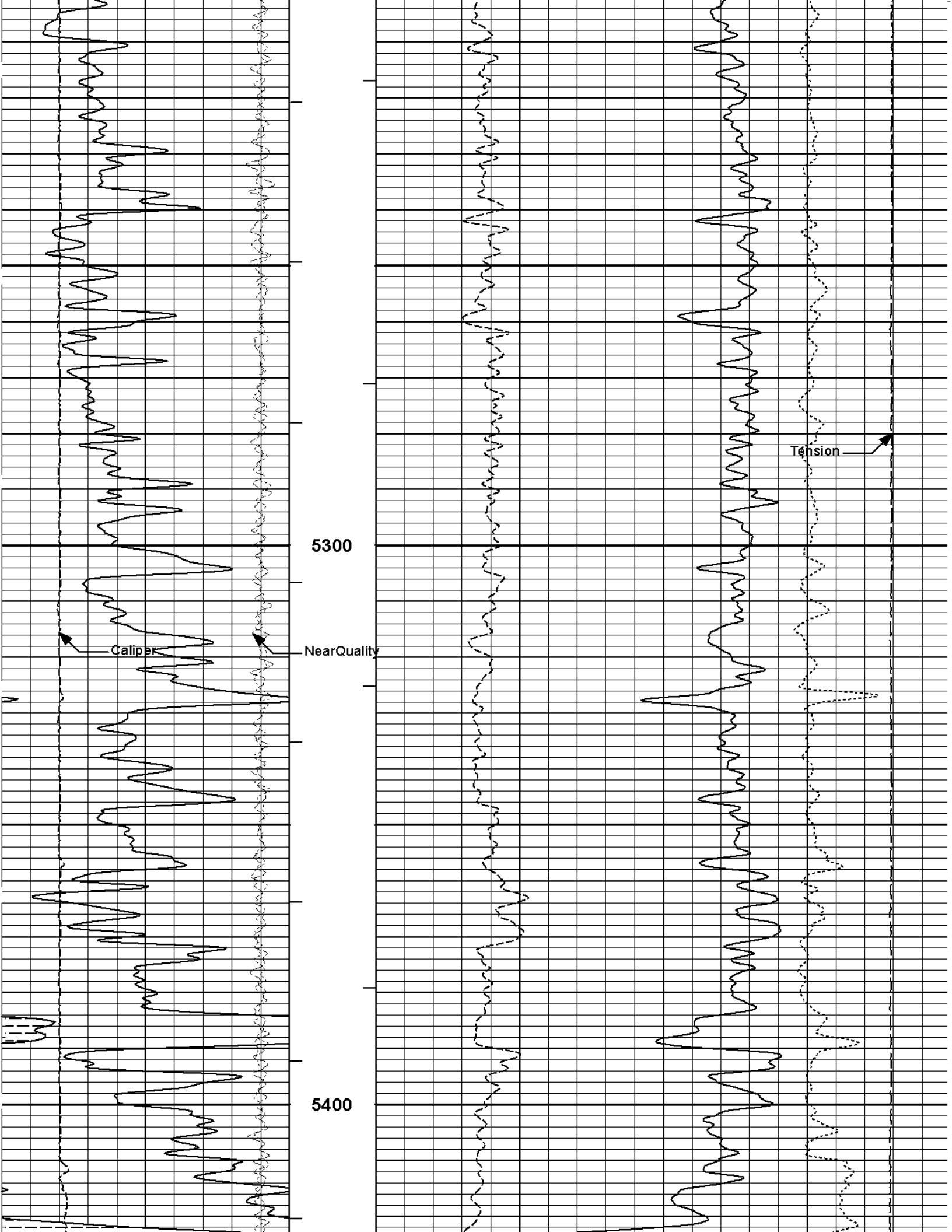
4900
Caliper
NearQuality
Tension


Gamma Ray
5000
Pe
Bulk Density
Density cor
Tension
Caliper
NearQuality
5100
5200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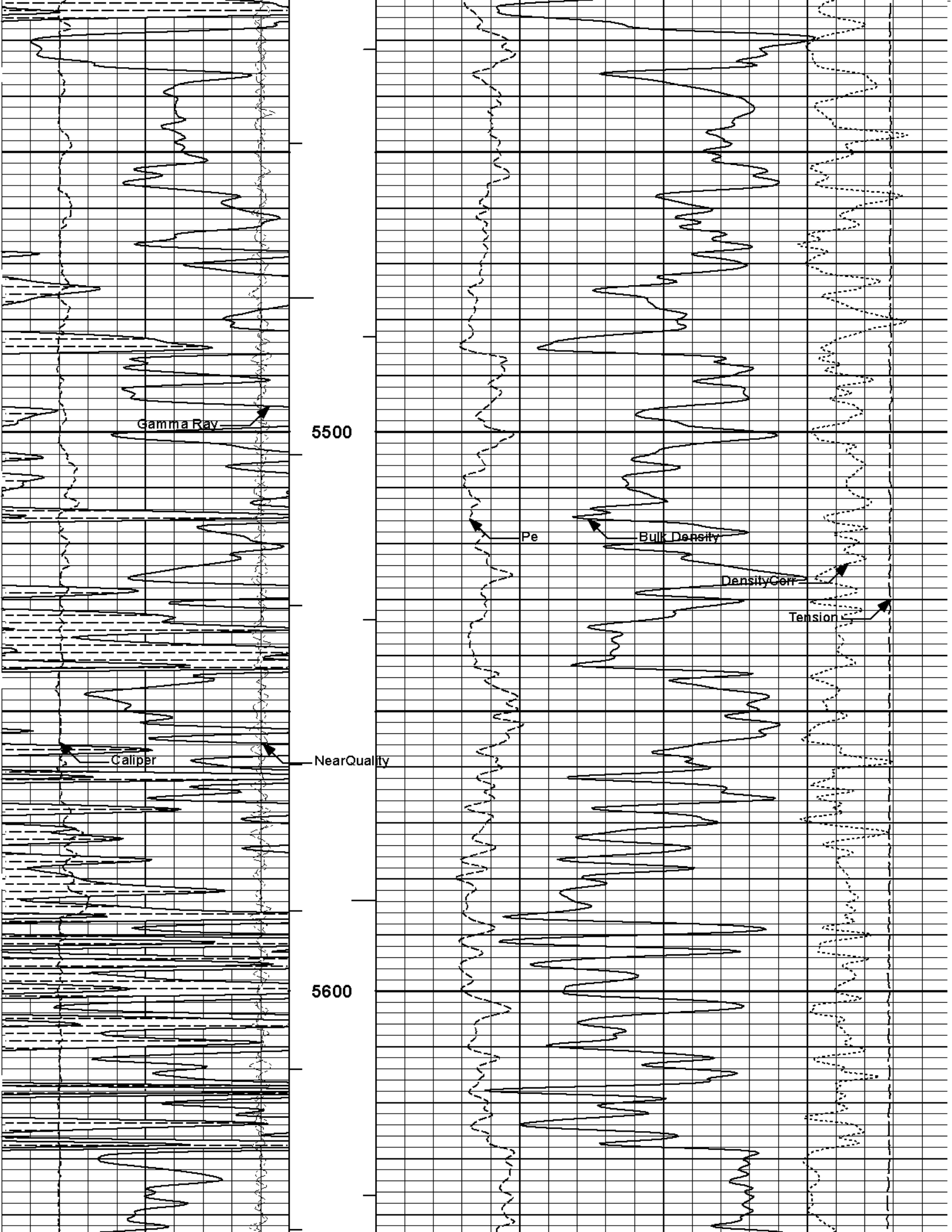
5300
Caliper
NearQuality
5400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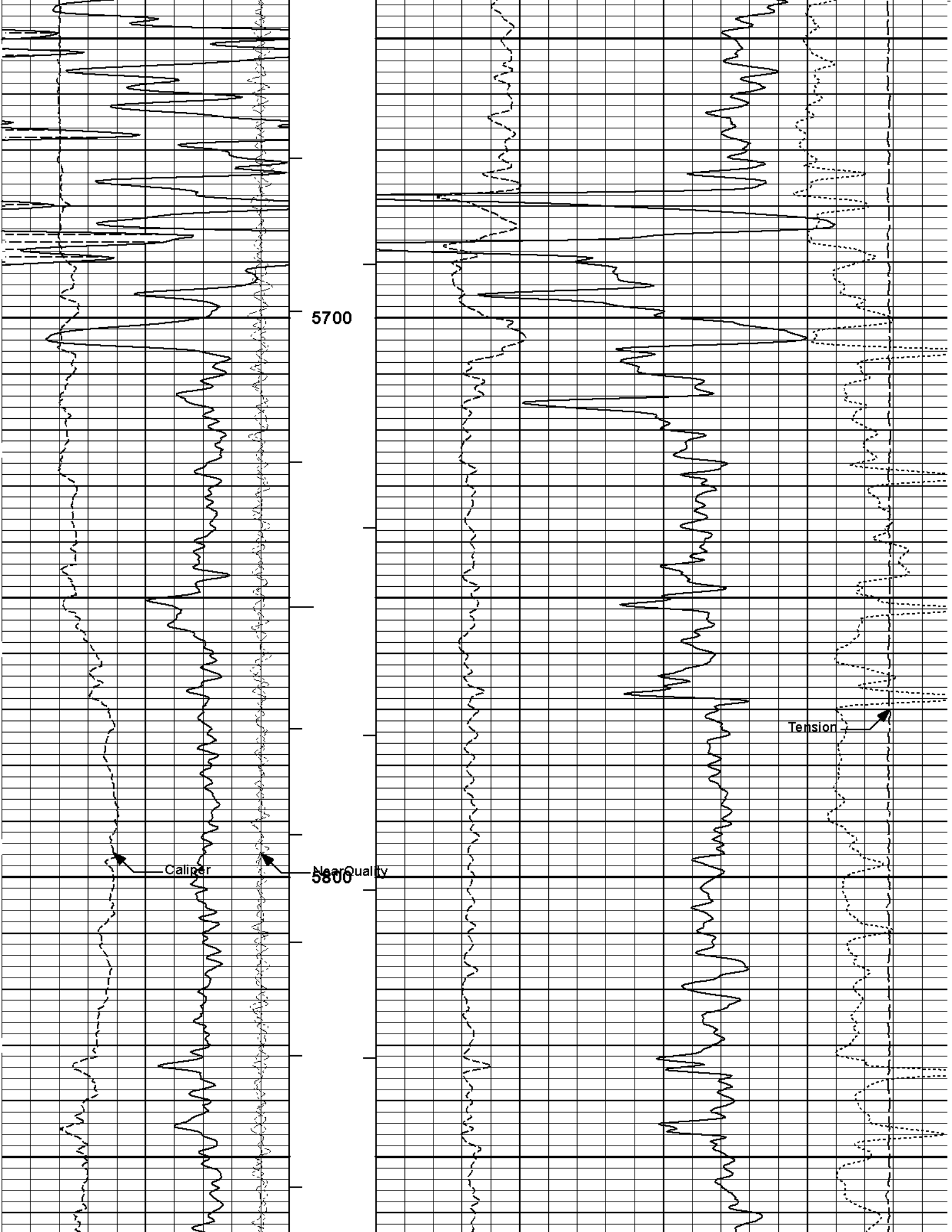
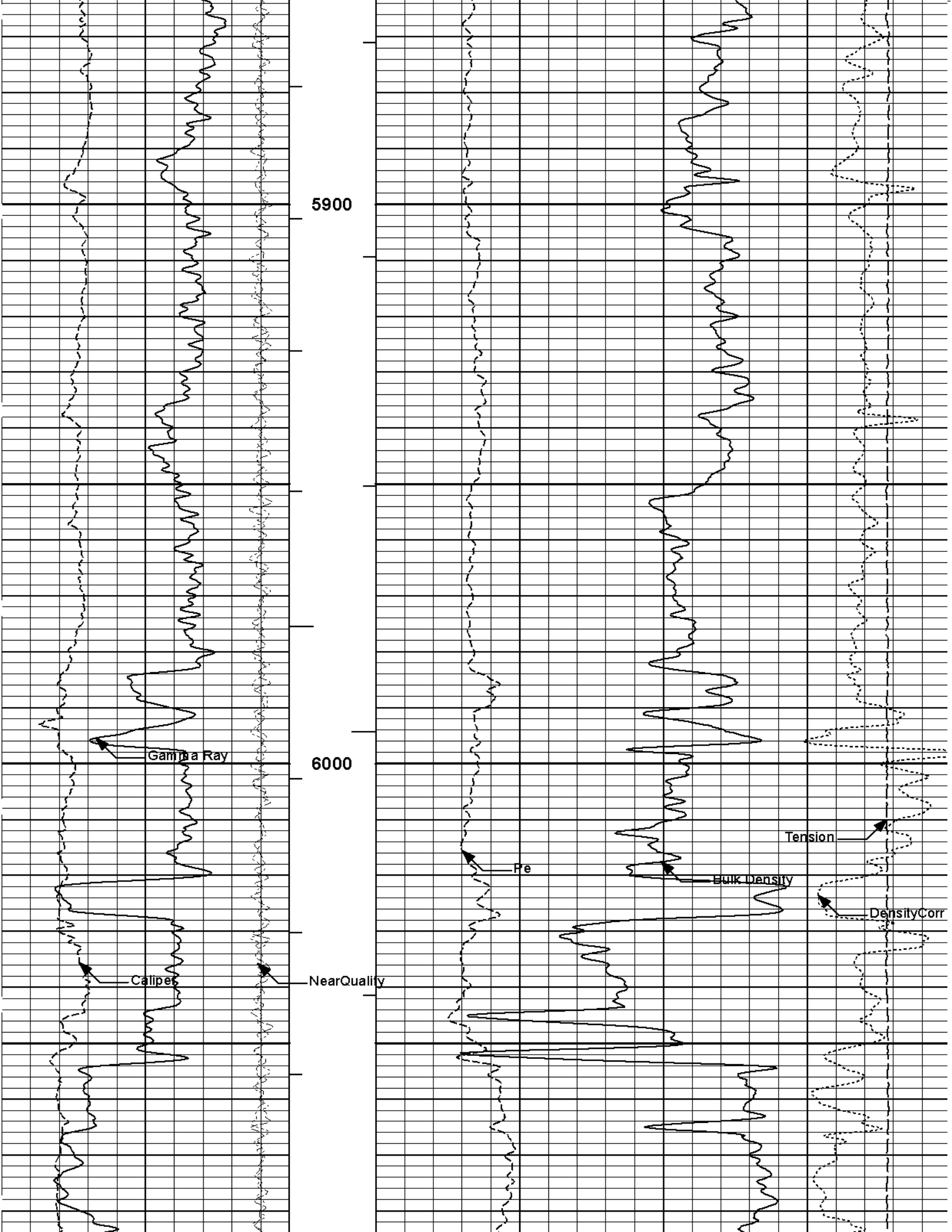
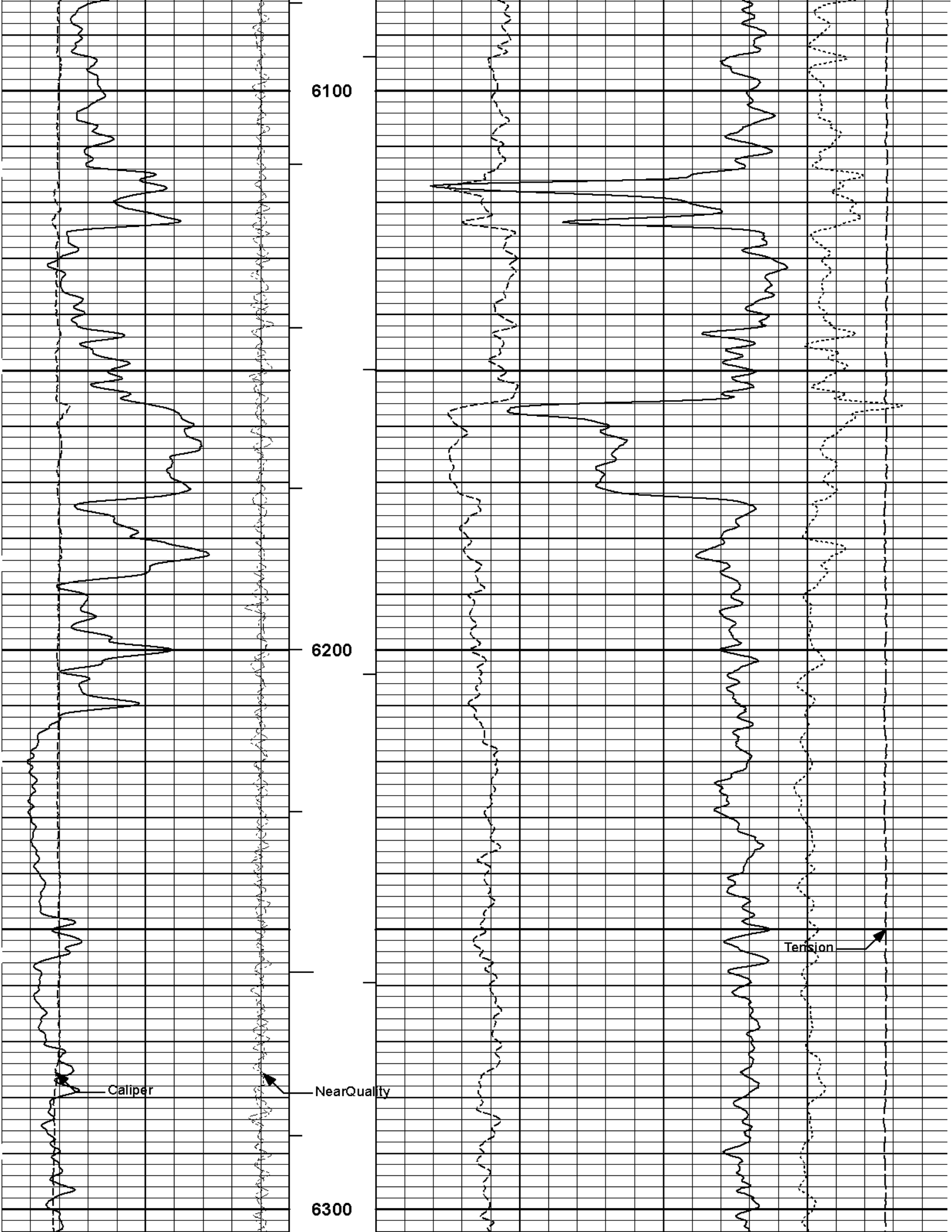
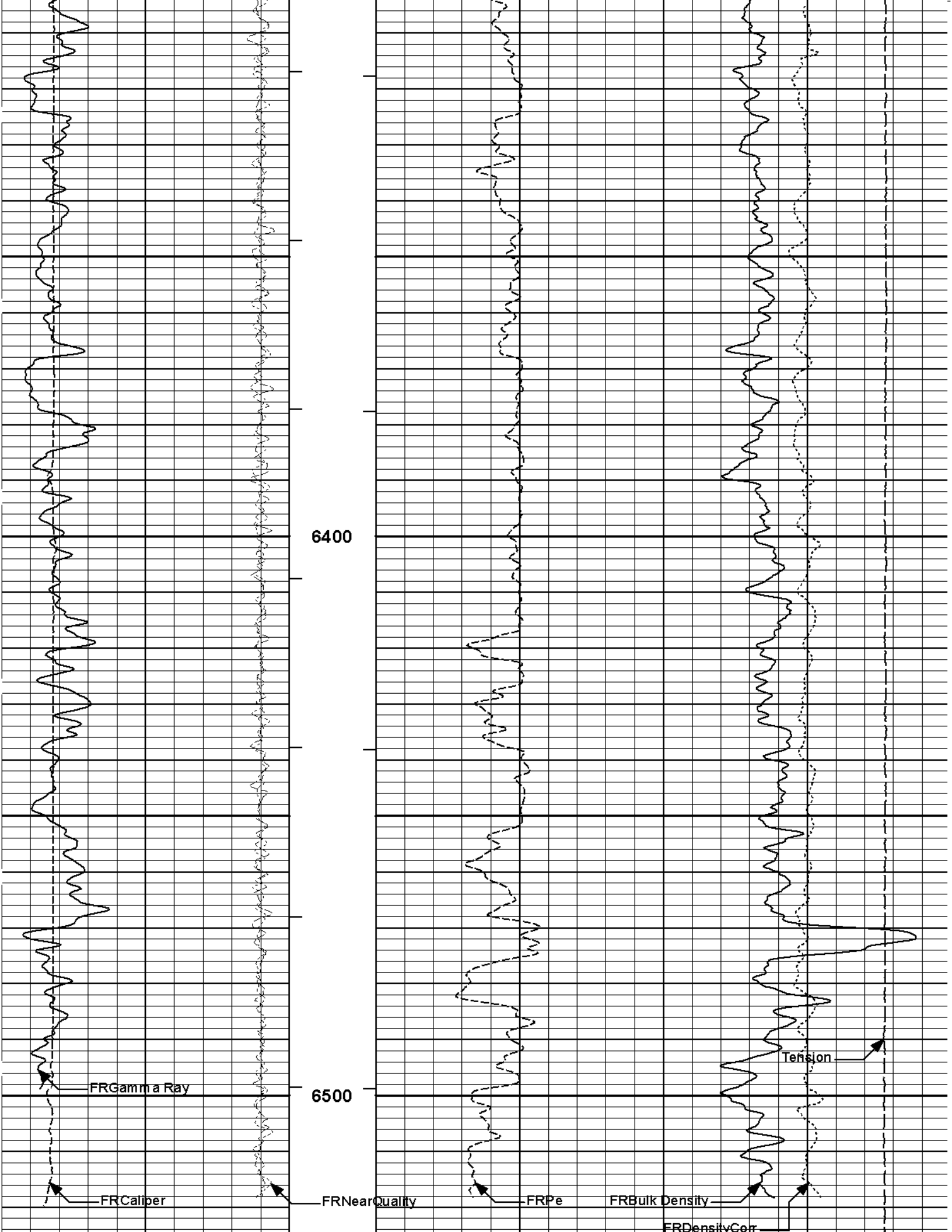
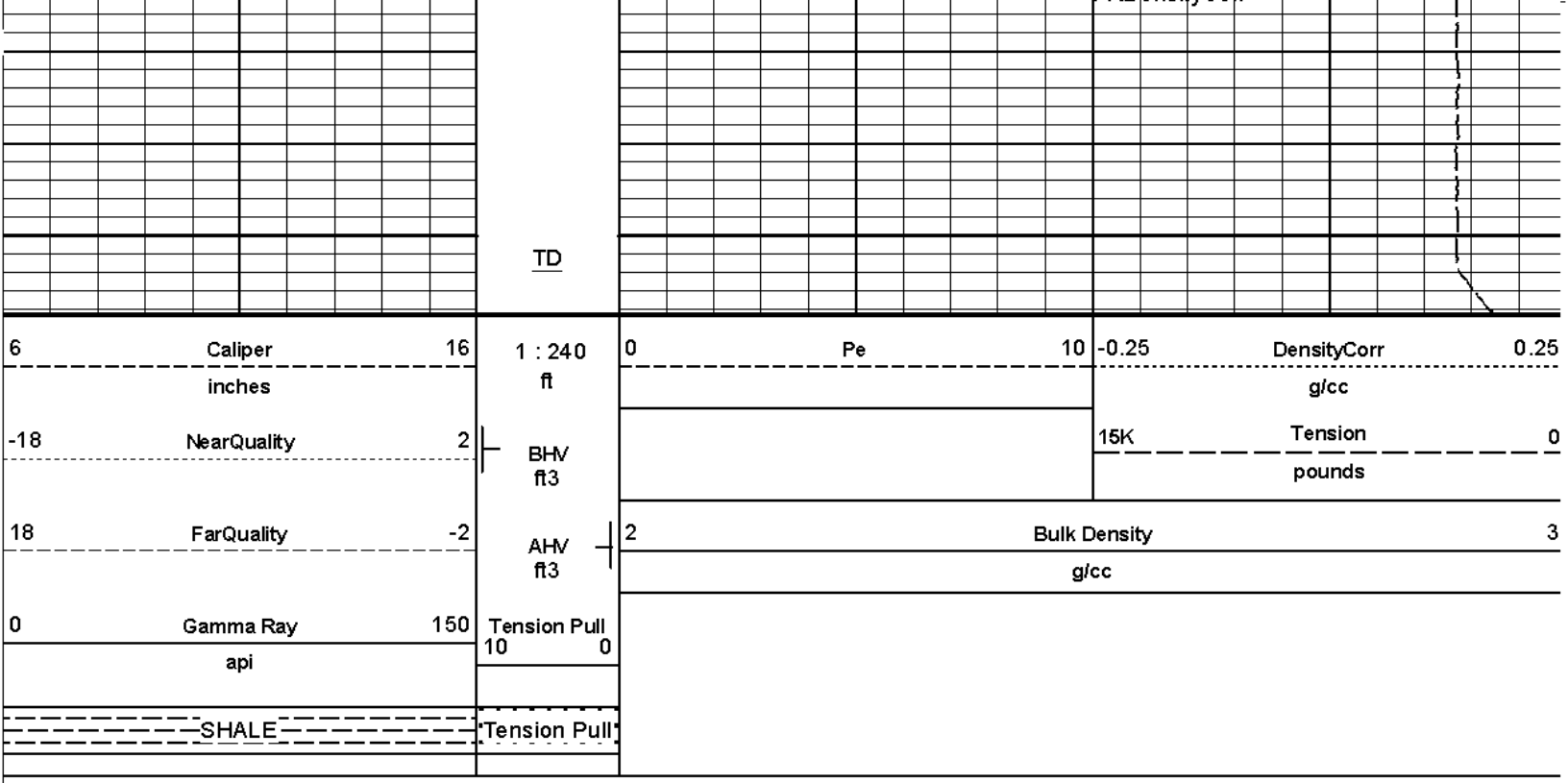
5500
Pe
Bulk Density
DensityCorr
Tension
Caliper
NearQuality
5600


5700
5800
Caliper
NearQuality
Tension


5900
6000
Gamma Ray
Caliper
NearQuality
Pe
Bulk Density
Tension
DensityCorr


6100
6200
6300
Caliper
NearQuality
Tension


6400
6500
FRGamma Ray
FRCaliper
FRNearQuality
FRPe
FRBulk Density
FRDensityCorr
Tension



HALLIBURTON

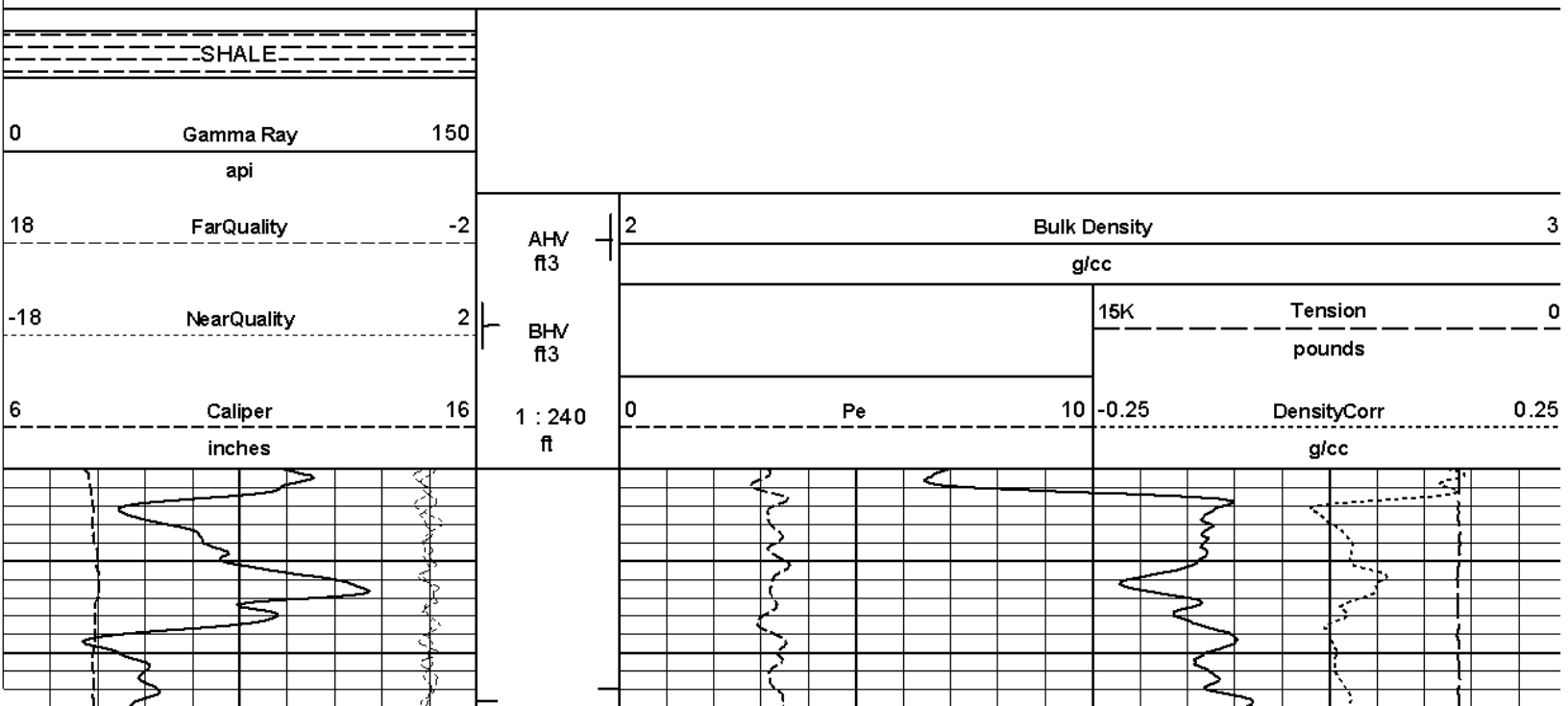
Plot Time: 12-Jul-11 10:33:26
Plot Range: 3250 ft to 6558.42 ft
Data: GILLESPIE_21_1\Well Based\DAQ-0001-DETAIL\
Plot File: \\-LOCAL-\GILLESPIE_21_1\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\PORO\BULKD_5_MAIN_LIB

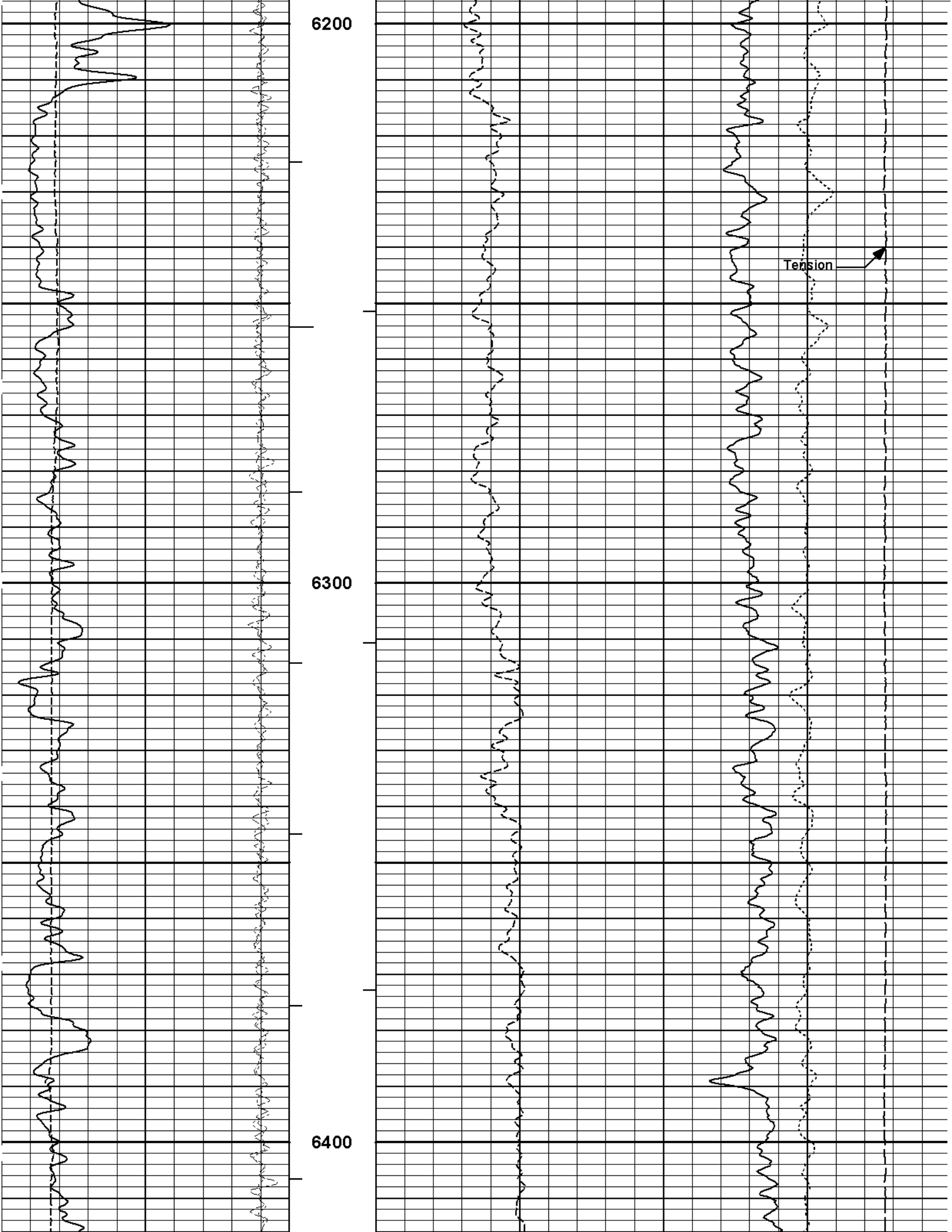
5 INCH MAIN LOG

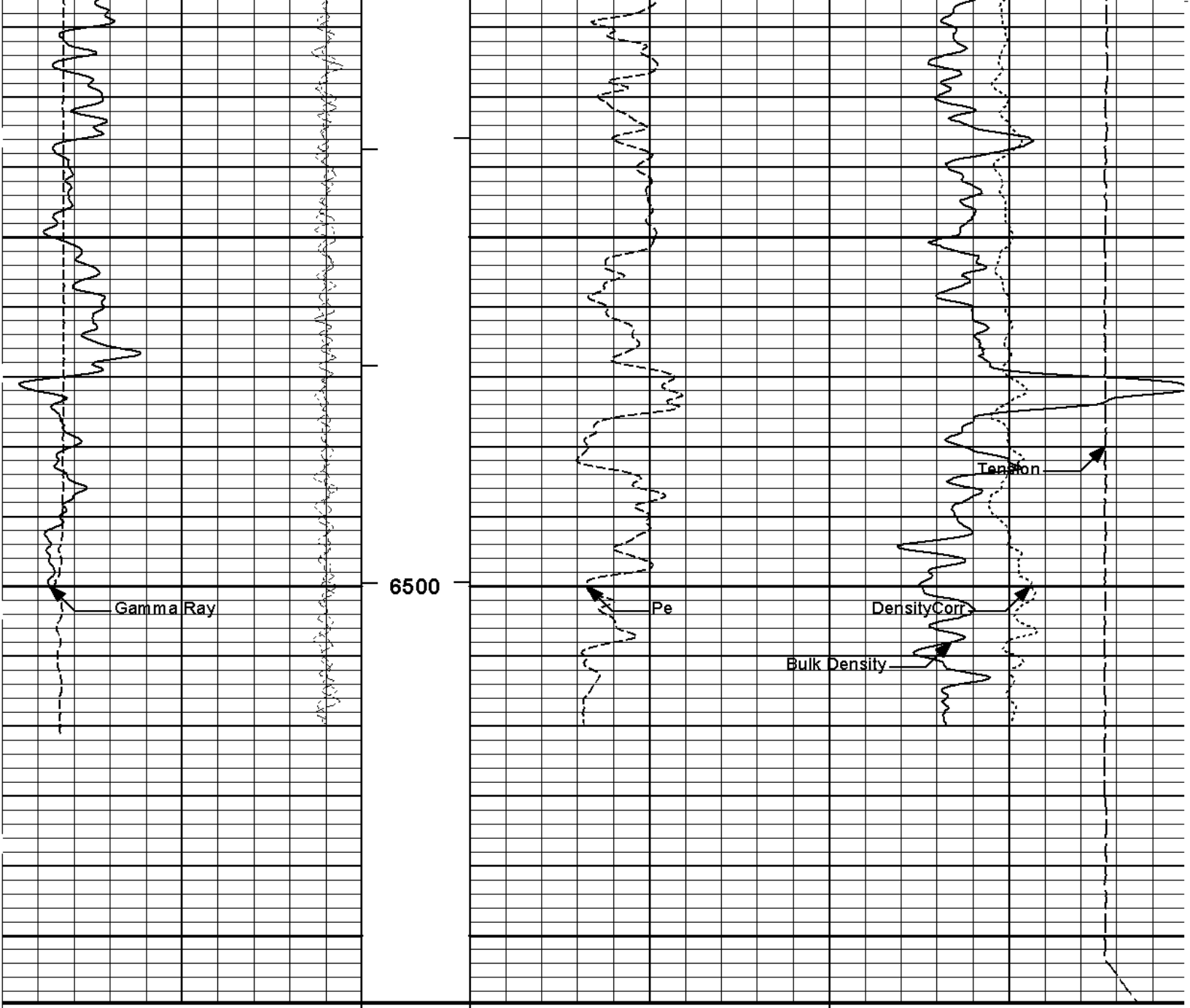
HALLIBURTON

Plot Time: 12-Jul-11 10:33:26
Plot Range: 6170 ft to 6559.5 ft
Data: GILLESPIE_21_1\Well Based\DAQ-0001-REPEAT\
Plot File: \\-LOCAL-\GILLESPIE_21_1\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\PORO\BULKD_5_REP_LIB

REPEAT SECTION




6200
6300
6400
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					
	api						
	SHALE						

HALLIBURTON

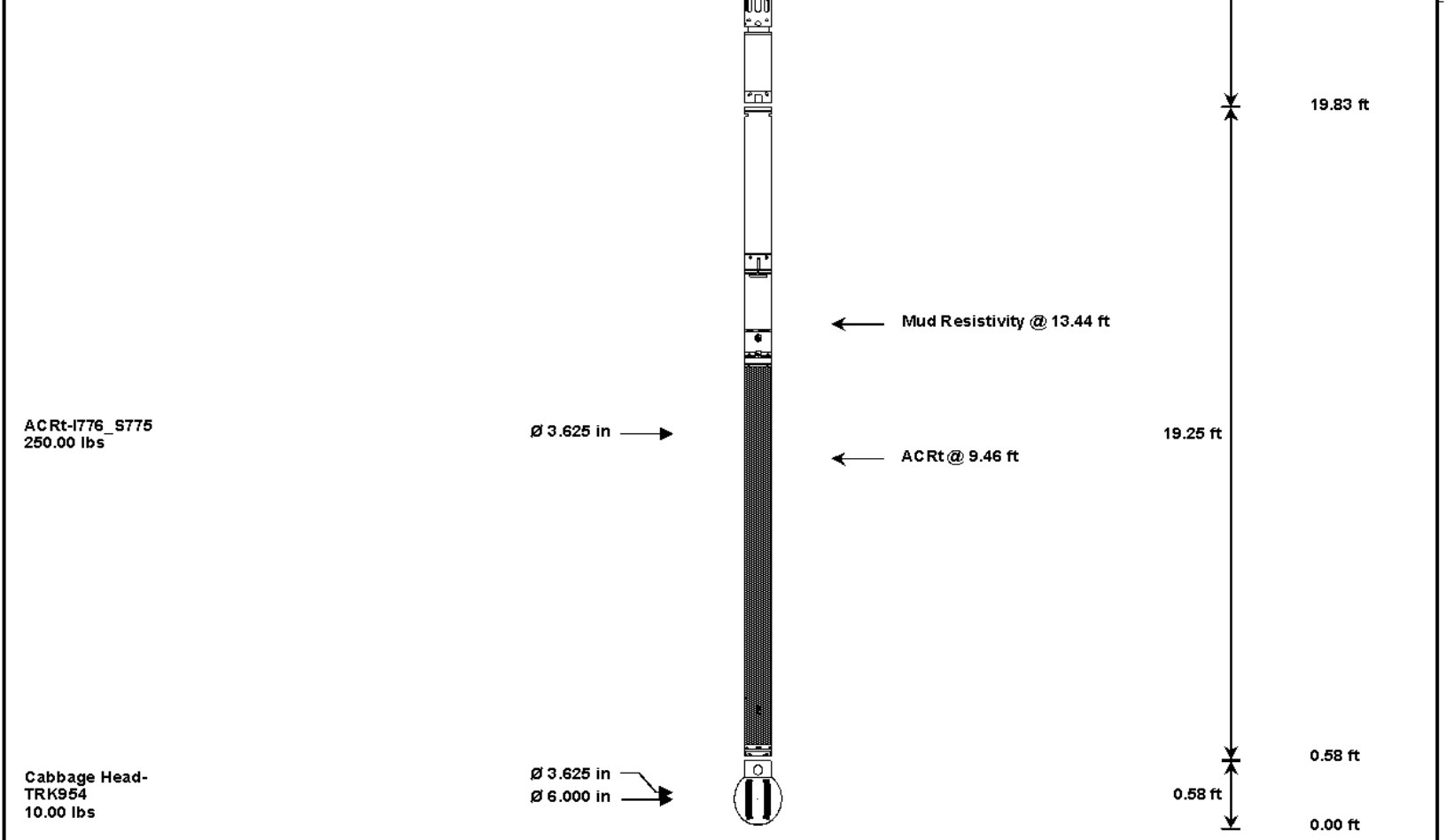
Plot Time: 12-Jul-11 10:33:28
Plot Range: 6170 ft to 6559.5 ft
Data: GILLESPIE_21_1\Well Based\DAQ-0001-REPEAT\
Plot File: \\-LOCAL-\GILLESPIE_21_1\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\PORO\BULKD_5_REP_LIB

REPEAT SECTION

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
						70.28 ft
Cable Head-PROT01 30.00 lbs		Ø 3.625 in			1.92 ft	
						68.36 ft
SP Sub-TRK954 60.00 lbs		Ø 3.625 in		SP @ 66.59 ft	3.74 ft	
						64.63 ft
GTET-10811258 165.00 lbs		Ø 3.625 in			8.52 ft	
				GammaRay @ 58.56 ft		
						56.10 ft
	DSN Decentralizer-11005605 6.60 lbs	Ø 3.625 in*				
DSNT-10755066 174.00 lbs		Ø 3.625 in			9.69 ft	
				DSN Far @ 49.17 ft DSN Near @ 48.42 ft		
						46.42 ft
SDLT-I066_M85803_P45 360.00 lbs		Ø 4.500 in			10.81 ft	
		Ø 4.750 in		SDL Microlog @ 38.60 ft SDL Caliper @ 38.42 ft SDL @ 38.41 ft		
						35.60 ft
BSAT-10747683 300.00 lbs		Ø 3.625 in		Sonic Receivers @ 27.09 ft	15.77 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		68.36	300.00
SP	SP Sub	TRK954	60.00	3.74		64.63	300.00
GTET	Gamma Telemetry Tool	10811258	165.00	8.52		56.10	60.00
DSNT	Dual Spaced Neutron	10755066	174.00	9.69		46.42	60.00
DCNT	DSN Decentralizer	11005605	6.60	5.13	*	49.75	300.00
SDLT	Spectral Density Tool	I066_M85803_P45	360.00	10.81		35.60	60.00
BSAT	Borehole Sonic Array Tool	10747683	300.00	15.77		19.83	60.00
ACRt	Array Compensated True Resistivity	I776_S775	250.00	19.25		0.58	300.00
CBHD	Cabbage Head	TRK954	10.00	0.58		0.00	300.00
Total			**1,355.60**	**70.28**			

* Not included in Total Length and Length Accumulation.

Data: GILLESPIE_21_1\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\IDLE **Date: 12-Jul-11 05:17:56**

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name:	**GTET - 10811258**	**Reference Calibration Date:**	**20-May-11 16:40:55**
Engineer:	**C. MARLOWE**	**Calibration Date:**	**15-Jun-11 10:17:57**
Software Version:	**WL INSITE R3.2.5 (Build 2)**	**Calibration Version:**	**1**

Calibrator Source S/N: TB-185

Calibrator API Reference:228.00 api

Equivalent Calibrator API Reference:232.0 api

Measurement	Measured	Calibrated	Units
Background	55.8	56.4	api
Background + Calibrator	285.5	288.4	api

Calibrator	232.5	232.0	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name: GTET - 10811258 **Reference Calibration Date:** 15-Jun-11 10:17:57

Engineer: S. JUNG **Calibration Date:** 12-Jul-11 04:07:40

Software Version: WL INSITE R3.2.5 (Build 2) **Calibration Version:** 1

Calibrator Source S/N: TB-185

Calibrator API Reference:228.00 api

Equivalent Calibrator API Reference:232.0 api

Field Verification	Shop	Field	Units
Background	56.4	31.1	api
Background + Calibrator	288.4	264.5	api
Calibrator	232.0	233.4	api

Shop	Field	Difference	Tolerance
232.0	233.4	-1.4	+/- 9.00

NATURAL GAMMA RAY TOOL POST CALIBRATION

Tool Name: GTET - 10811258 **Reference Calibration Date:** 12-Jul-11 04:07:40

Engineer: S. JUNG **Calibration Date:** 12-Jul-11 10:13:57

Software Version: WL INSITE R3.2.5 (Build 2) **Calibration Version:** 1

Calibrator Source S/N: TB-185

Calibrator API Reference:228.00 api

Calibrator API Reference:232.0 api

Post Verification	Field	Post	Units
Background	31.1	60.9	api
Background + Calibrator	264.5	288.8	api
Calibrator	233.4	228.0	api

Shop	Field	Post	Difference	Tolerance
232.0	233.4	228.0	5.4	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name: DSNT - 10755066 **Reference Calibration Date:** 18-May-11 20:25:37

Engineer: C. HAVERKAMP **Calibration Date:** 18-Jun-11 10:14:15

Software Version: WL INSITE R3.2.5 (Build 2) **Calibration Version:** 1

Logging Source S/N: DSN-436

Tank Serial Number: 105060

Reference value assigned to Tank: 51.680

Snow Block S/N: TRK_10782954

Calibration Tank Water Temperature: 84 degF

Min. Tool Housing Outside Diameter: 3.615 in

CALIBRATION CONSTANTS

Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	0.950	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):	0.2097	0.2103	0.0006	+/- 0.0020

Calibrated Ratio:	9.68	9.70	0.021	+/- 0.050

VERIFIER

Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0590	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 - 10755066**	**Reference Calibration Date:**	**18-Jun-11 10:14:15**
Engineer:	**S. JUNG**	**Calibration Date:**	**12-Jul-11 04:10:29**
Software Version:	**WL INSITE R3.2.5 (Build 2)**	**Calibration Version:**	**1**

Logging Source S/N: DSN-436

Snow Block S/N: TRK_10782954

NEUTRON FIELD-CHECK SUMMARY

	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0590	0.0585	-0.0006	+/- 0.0150

PASS/FAIL SUMMARY

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

DUAL SPACED NEUTRON POST CALIBRATION

Tool Name:	**DSNT - 10755066**	**Reference Calibration Date:**	**12-Jul-11 04:10:29**
Engineer:	**S. JUNG**	**Calibration Date:**	**12-Jul-11 10:28:13**
Software Version:	**WL INSITE R3.2.5 (Build 2)**	**Calibration Version:**	**1**

Logging Source S/N: DSN-436

Snow Block S/N: TRK_10782954

NEUTRON POST-CHECK SUMMARY

	Field Value	Post Value	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0585	0.0550	-0.0035	+/- 0.0150

PASS/FAIL SUMMARY

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

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name:	**SDLT - I066_M85803_P45**	**Reference Calibration Date:**	**18-May-11 19:53:14**
Engineer:	**C. MARLOWE**	**Calibration Date:**	**15-Jun-11 13:49:07**
Software Version:	**WL INSITE R3.2.5 (Build 2)**	**Calibration Version:**	**1**

Logging Source S/N: 5073GW

Aluminum Block S/N: 63061	Density: 2.591g/cc	Pe: 3.170
Magnesium Block S/N: 63393	Density: 1.690g/cc	Pe: 2.594

DENSITY CALIBRATION SUMMARY

Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	0.9719	0.9833	0.90 - 1.10
Near Dens Gain	0.9728	0.9718	0.90 - 1.10
Near Peak Gain	0.9701	0.9666	0.90 - 1.10
Near Lith Gain	0.9477	0.9589	0.90 - 1.10
Far Bar Gain	0.9870	0.9891	0.90 - 1.10
Far Dens Gain	0.9794	0.9804	0.90 - 1.10
Far Peak Gain	0.9739	0.9761	0.90 - 1.10
Far Lith Gain	0.9509	0.9511	0.90 - 1.10
Near Bar Offset	0.4697	0.3728	NONE
Near Dens Offset	0.4334	0.4435	NONE
Near Peak Offset	0.4302	0.4554	NONE
Near Lith Offset	0.5827	0.4791	NONE
Far Bar Offset	0.2256	0.2144	NONE
Far Dens Offset	0.2760	0.2716	NONE
Far Peak Offset	0.2893	0.2759	NONE
Far Lith Offset	0.4060	0.4034	NONE
Near Bar Background	1019.61	1017.14	700 - 1450
Near Dens Background	337.91	336.72	230 - 480
Near Peak Background	147.10	147.16	100 - 210
Near Lith Background	179.77	180.00	125 - 260
Far Bar Background	522.42	524.89	450 - 900
Far Dens Background	203.37	201.71	175 - 345
Far Peak Background	78.36	79.21	70 - 140
Far Lith Background	84.72	83.74	75 - 145

CALIBRATION BLOCK SUMMARY

Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.693	1.690	-0.003	+/- 0.015
Pe	2.465	2.558	0.093	+/- 0.150
ALUMINUM				
Density (g/cc)	2.591	2.591	0.000	+/- 0.01500
Pe	3.028	3.133	0.105	+/- 0.150

TOOL SUMMARY

Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	-0.0013	+/- 0.0110	0.0002	+/- 0.0140
Magnesium Block	-0.0006	+/- 0.0110	-0.0017	+/- 0.0140
Aluminum Block	0.0013	+/- 0.0110	0.0012	+/- 0.0140
Resolution	9.93	6.00 - 11.50	9.25	6.00 - 11.50
Internal Verifier(B+D+P+L)	1681	1200 - 2700	890	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 - I066_M85803_P45 **Reference Calibration Date:** 15-Jun-11 13:49:07

Engineer: S. JUNG **Calibration Date:** 12-Jul-11 04:07:29

Software Version: WL INSITE R3.2.5 (Build 2) **Calibration Version:** 1

Pad Temperature: 89.3 degF

DENSITY FIELD CALIBRATION SUMMARY

Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1681.017	1686.193	5.176	16.462
Far (B+D+P+L) cps	889.552	896.168	6.616	16.248
Near Resolution	9.93	9.95	0.020	0.50
Far Resolution	9.25	10.04	0.790	1.00

PASS/FAIL SUMMARY

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

SPECTRAL DENSITY POST CHECK

Tool Name: SDLT - I066_M85803_P45 **Reference Calibration Date:** 12-Jul-11 04:07:29

Engineer: S. JUNG **Calibration Date:** 12-Jul-11 10:13:11

Software Version: WL INSITE R3.2.5 (Build 2) **Calibration Version:** 1

Pad Temperature: 89.3 degF

DENSITY POST CALIBRATION SUMMARY

Measurement	Field	Post	Change	Control Limit +/-
Near (B+D+P+L) cps	1686.193	1688.490	2.297	16.462
Far (B+D+P+L) cps	896.168	896.234	0.066	16.248
Near Resolution	9.95	10.30	0.350	0.50
Far Resolution	10.04	10.24	0.200	1.00

PASS/FAIL SUMMARY

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

DENSITY CALIPER SHOP CALIBRATION

Tool Name: SDLT - I066_M85803_P45 **Reference Calibration Date:** 02-May-11 16:13:44

Engineer: S. JUNG **Calibration Date:** 12-Jul-11 04:19:15

Software Version: WL INSITE R3.2.5 (Build 2) **Calibration Version:** 1

CALIBRATION COEFFICIENTS

Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-5183.32	-5270.37	-7000.00 - -1000.00
Pad Gain	0.0003697	0.0003721	0.000200 - 0.000600
Arm Offset	-44.48	-579.04	-5000.00 - 3000.00
Arm Gain	0.0003987	0.0004414	0.000300 - 0.000700
Arm Power	0.000002658	-0.000000209	-0.000010 - 0.000010

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

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)	6.57	6.50	-0.07	+/- 0.20
Medium Ring (in)	8.23	8.25	0.02	+/- 0.20
Large Ring (in)	14.91	15.00	0.09	+/- 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 - I066_M85803_P45**	**Reference Calibration Date:**	**12-Jul-11 04:19:15**
Engineer:	**S. JUNG**	**Calibration Date:**	**12-Jul-11 04:21:29**
Software Version:	**WL INSITE R3.2.5 (Build 2)**	**Calibration Version:**	**1**

MEASURED CALIPER VALUES

Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.74	-0.01	+/- 0.10
Ring Diameter	8.25	8.31	0.06	+/- 0.15

PASS/FAIL SUMMARY

Pad Extension Check:	Passed
Diameter Check:	Passed

SDLT CALIPER POST CALIBRATION

Tool Name:	**SDLT - I066_M85803_P45**	**Reference Calibration Date:**	**12-Jul-11 04:21:29**
Engineer:	**S. JUNG**	**Calibration Date:**	**12-Jul-11 10:30:13**
Software Version:	**WL INSITE R3.2.5 (Build 2)**	**Calibration Version:**	**1**

MEASURED CALIPER VALUES

Measurement	Field	Post	Change	Control Limit On New Value
Pad Extension	3.74	3.74	-0.00	+/- 0.10
Ring Diameter	8.31	8.32	0.02	+/- 0.15

PASS/FAIL SUMMARY

Pad Extension Check:	Passed
Diameter Check:	Passed

CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-10811258						
Gamma Ray Calibrator	232.0	233.4	228.0	5.4	+/- 9.00	api
DSNT-10755066						

Show-Block Porosity	0.0590	0.0585	0.0550	0.0035	+/- 0.0150	decp
SDLT-I066_M85803_P45						
Near(B+D+P+L)	1681.017	1686.193	1688.490	-2.297	+/-16.462	cps
Far(B+D+P+L)	889.552	896.168	896.234	-0.066	+/-16.248	cps
Pad Extension	3.75	3.74	3.74	0.00	+/-0.10	in
Ring Diameter	8.25	8.31	8.32	-0.010	+/-0.15	in

Data: GILLESPIE_21_1\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\IDLE Date: 12-Jul-11 10:30:48

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PARAMETERS REPORT

Depth (ft)	Tool Name	Mnemonic	Description	Value	Units
TOP					
	SHARED	BS	Bit Size	7.875	in
	SHARED	UBS	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	MDBS	Mud Base	Water	
	SHARED	MDWT	Borehole Fluid Weight	9.200	ppg
	SHARED	WAGT	Weighting Agent	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	1.060	ohmm
	SHARED	TRM	Temperature of Mud	86.0	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	6550.00	ft
	SHARED	BHT	Bottom Hole Temperature	140.0	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	
	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	0.90	ohmm
	Rwa / CrossPlot	TMFR	Rmf Ref Temp	85.00	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	Centered	
	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	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	
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	
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: GILLESPIE_21_1\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\IDLE

Date: 12-Jul-11 08:13:25

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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	66.58	NO	
SP	Spontaneous Potential	66.58	BLK	1.250
SPR	Raw Spontaneous Potential	66.58	NO	
SPO	Spontaneous Potential Offset	66.58	NO	
	GTET			
TPUL	Tension Pull	58.56	NO	
GR	Natural Gamma Ray API	58.56	TRI	1.750
GRU	Unfiltered Natural Gamma Ray API	58.56	NO	
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution	58.56	W	1.416 , 0.750
ACCZ	Accelerometer Z	0.00	BLK	0.083
DEVI	Inclination	0.00	NO	

	DSNT			
TPUL	Tension Pull	48.32	NO	
RNDS	Near Detector Telemetry Counts	48.42	BLK	1.417
RFDS	Far Detector Telemetry Counts	49.17	TRI	0.583
DNTT	DSN Tool Temperature	48.42	NO	
DSNS	DSN Tool Status	48.32	NO	
ERND	Near Detector Telemetry Counts EVR	48.42	BLK	0.000
ERFD	Far Detector Telemetry Counts EVR	49.17	BLK	0.000
ENTM	DSN Tool Temperature EVR	48.42	NO	
	SDLT			
TPUL	Tension Pull	38.41	NO	
NAB	Near Above	38.24	BLK	0.920
NHI	Near Cesium High	38.24	BLK	0.920
NLO	Near Cesium Low	38.24	BLK	0.920
NVA	Near Valley	38.24	BLK	0.920
NBA	Near Barite	38.24	BLK	0.920
NDE	Near Density	38.24	BLK	0.920
NPK	Near Peak	38.24	BLK	0.920
NLI	Near Lithology	38.24	BLK	0.920
NBAU	Near Barite Unfiltered	38.24	BLK	0.250
NLIU	Near Lithology Unfiltered	38.24	BLK	0.250
FAB	Far Above	38.58	BLK	0.250
FHI	Far Cesium High	38.58	BLK	0.250
FLO	Far Cesium Low	38.58	BLK	0.250
FVA	Far Valley	38.58	BLK	0.250
FBA	Far Barite	38.58	BLK	0.250
FDE	Far Density	38.58	BLK	0.250
FPK	Far Peak	38.58	BLK	0.250
FLI	Far Lithology	38.58	BLK	0.250
PTMP	Pad Temperature	38.42	BLK	0.920
NHV	Near Detector High Voltage	35.60	NO	
FHV	Far Detector High Voltage	35.60	NO	
ITMP	Instrument Temperature	35.60	NO	
DDHV	Detector High Voltage	35.60	NO	
TPUL	Tension Pull	38.42	NO	
PCAL	Pad Caliper	38.42	TRI	0.250
ACAL	Arm Caliper	38.42	TRI	0.250
TPUL	Tension Pull	38.60	NO	
MINV	Microlog Lateral	38.60	BLK	0.750
MNOR	Microlog Normal	38.60	BLK	0.750
	BSAT			
TPUL	Tension Pull	27.09	NO	
STAT	Status	27.09	NO	
DLYT	Delay Time	27.09	NO	
SI	Sample Interval	27.09	NO	
TXRX	Raw Telemetry 10 Receivers	27.09	NO	
FRMC	Tool Frame Count	27.09	NO	
	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: GILLESPIE_21_1\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\IDLE

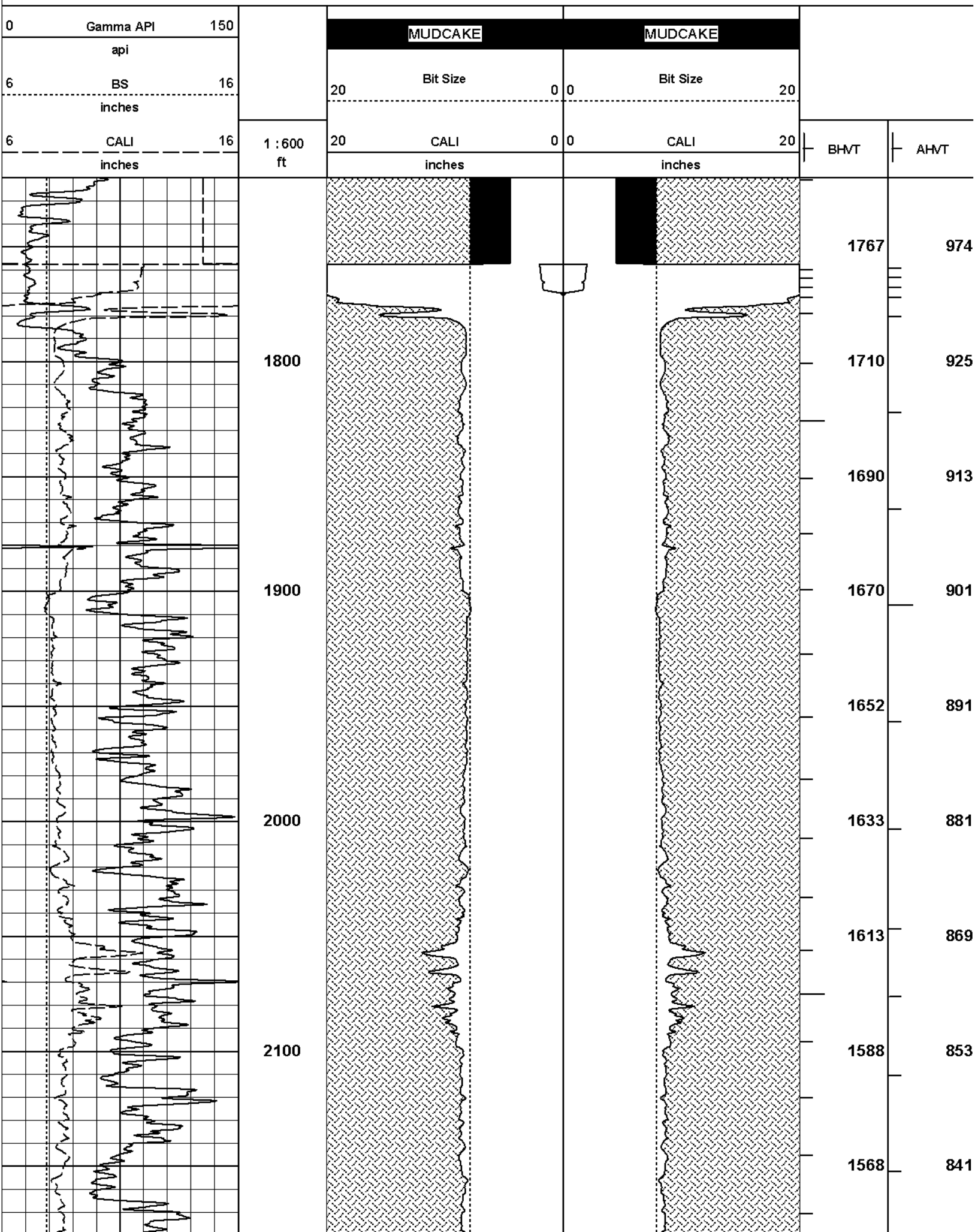
Date: 12-Jul-11 08:13:38

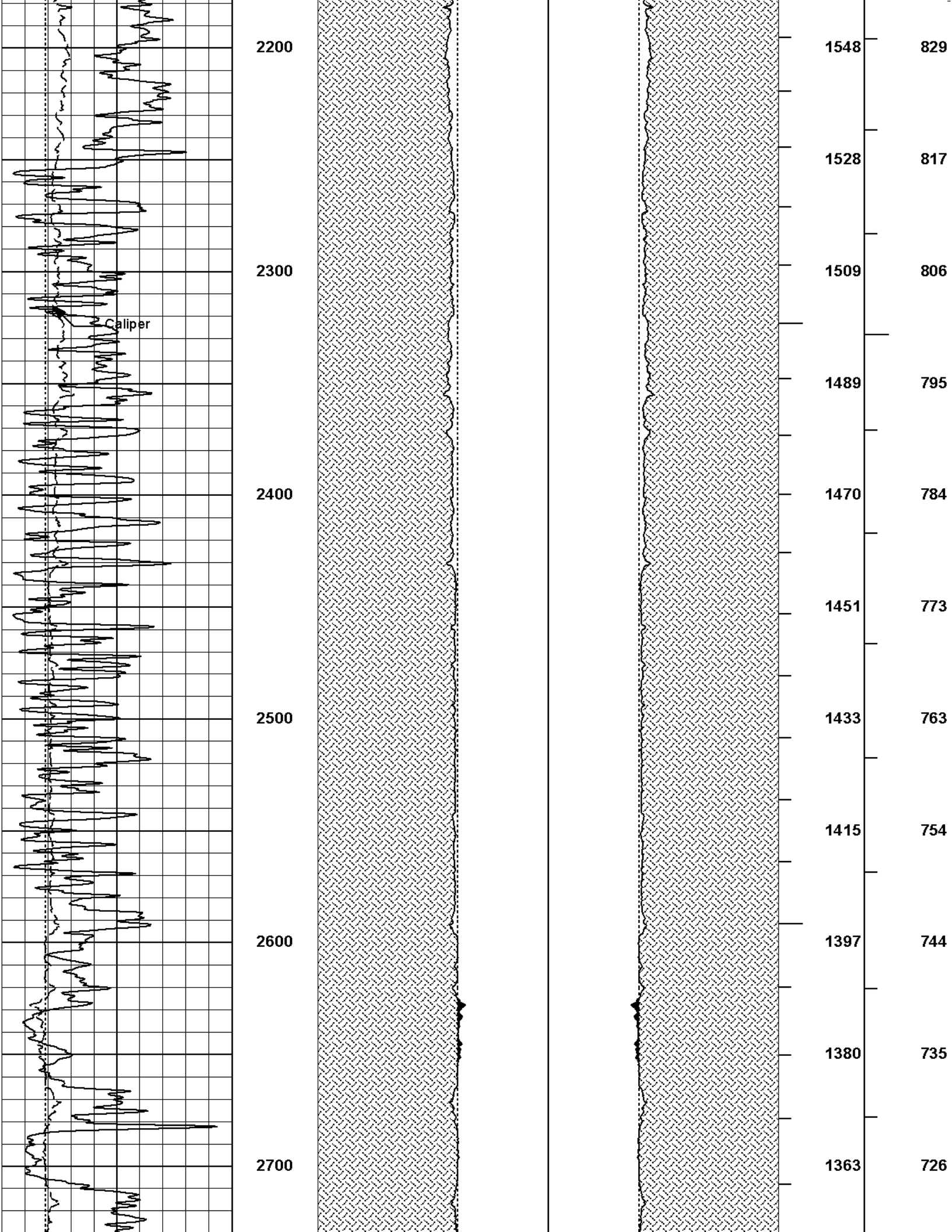
HALLIBURTON

Plot Time: 12-Jul-11 10:33:28
Plot Range: 1720 ft to 6558.33 ft
Data: GILLESPIE_21_1\Well Based\DAQ-0001-CSG_5_5\
Plot File: \\-LOCAL-\GILLESPIE_21_1\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\PORO\EOG_AHV_5_5_INCH_2_IQ_LIB

ANNULAR HOLE VOLUME PLOT (5.5 INCH)

ANNULAR HOLE VOLUME TEST (8.5 INCH)

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2300
Caliper
2400
2500
2600
2700
1548
829
1528
817
1509
806
1489
795
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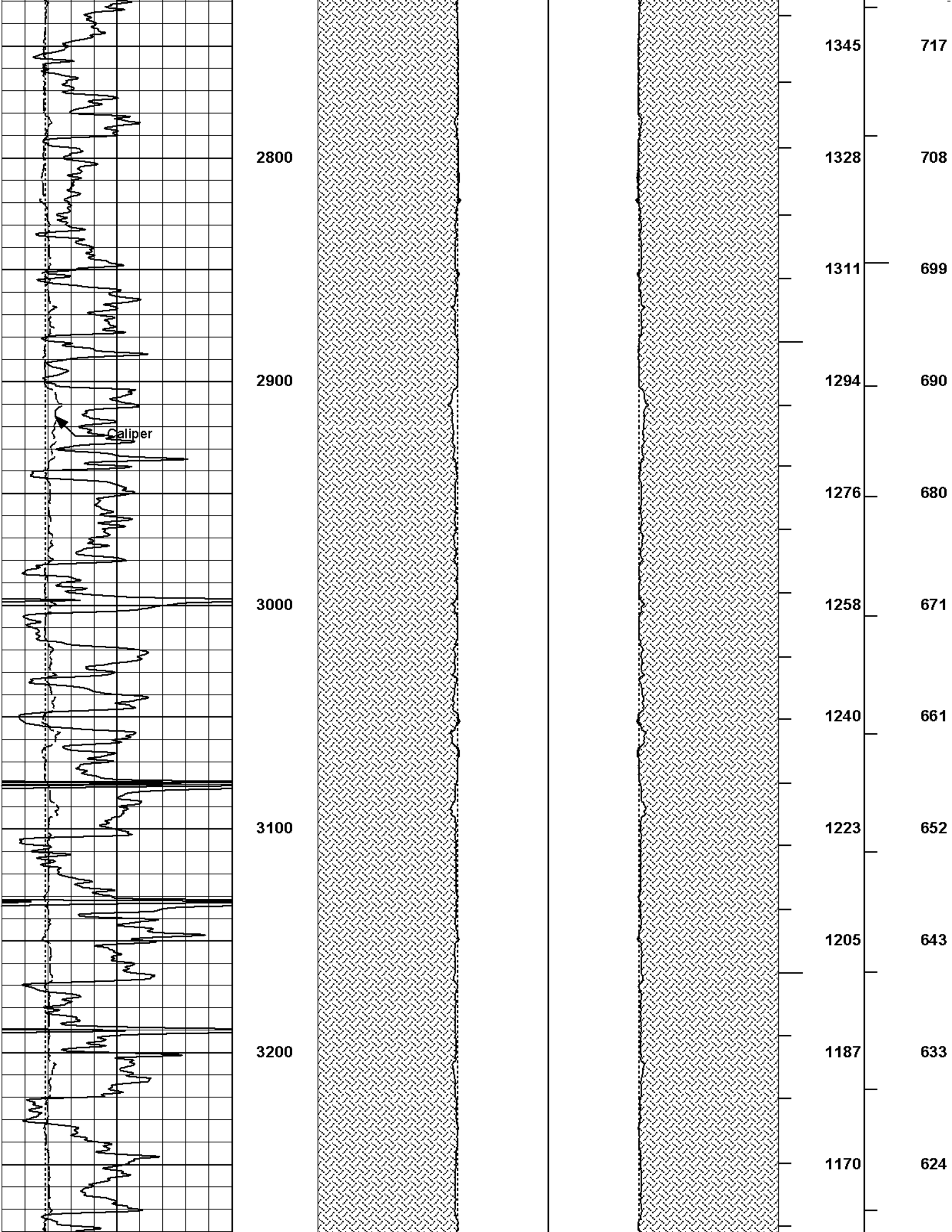
1415
754
1397
744
1380
735
1363
726


2800
2900
3000
3100
3200
Caliper
1345
717
1328
708
1311
699
1294
690
1276
680
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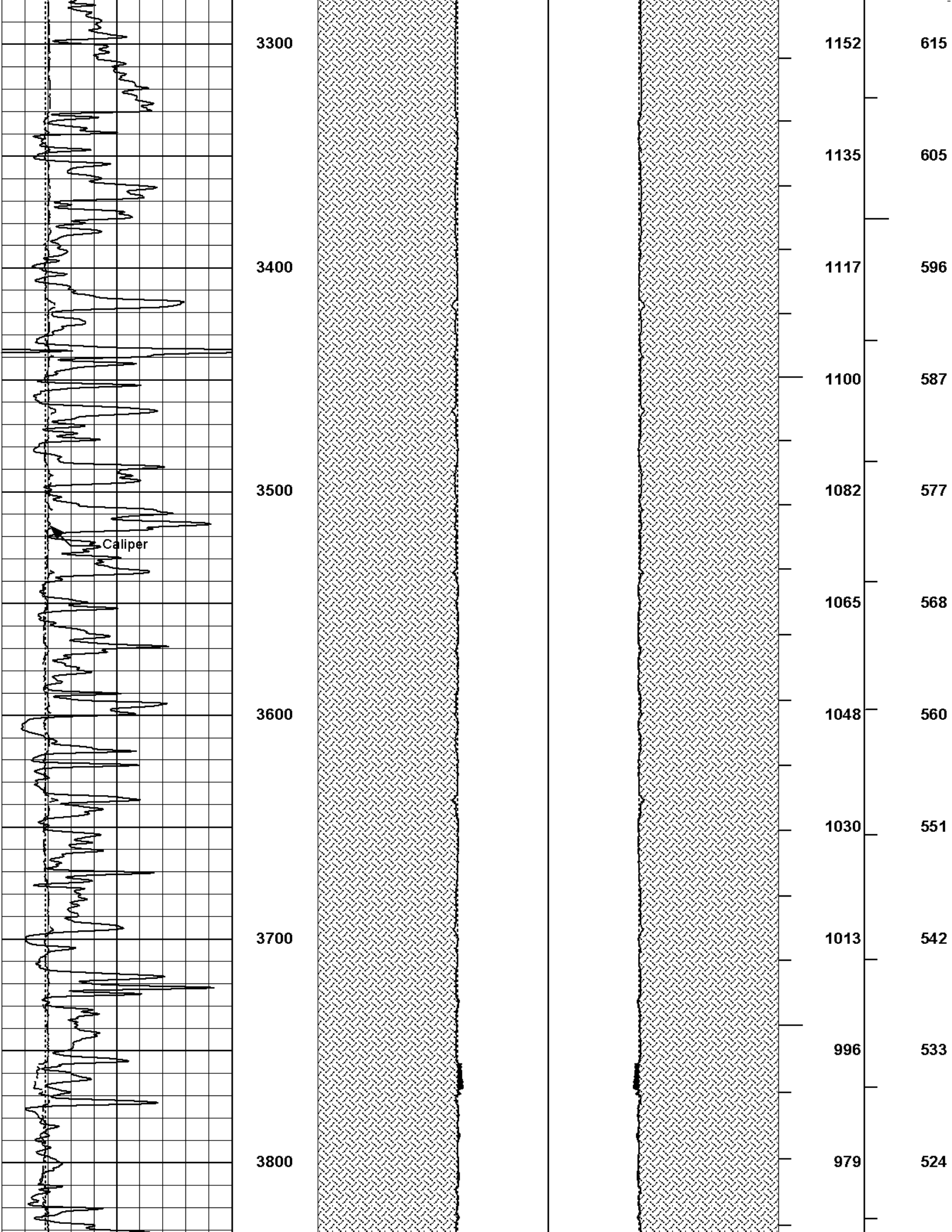
1223
652
1205
643
1187
633
1170
624


3300
3400
3500
3600
3700
3800
Caliper
1152
615
1135
605
1117
596
1100
587
1082
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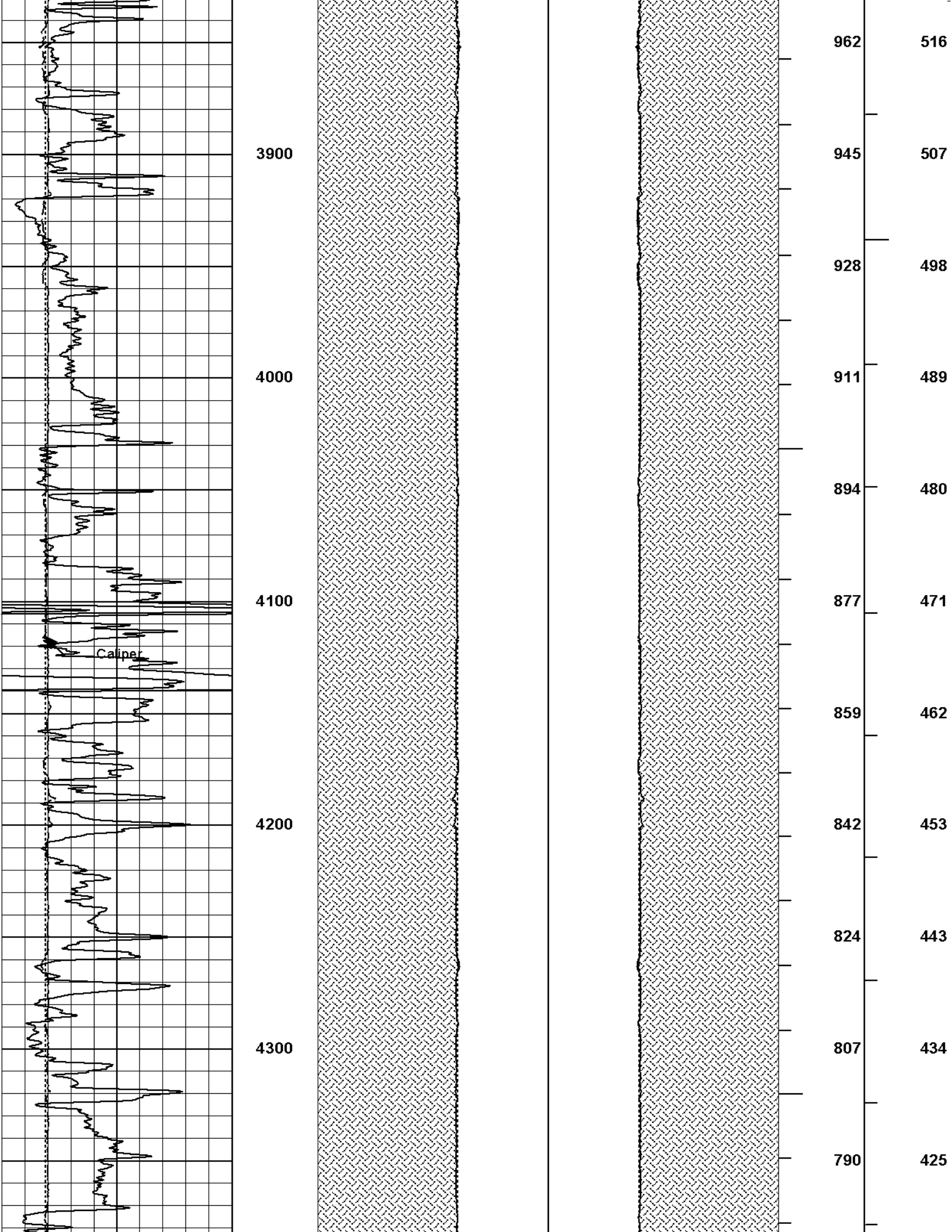
560
1030
551
1013
542
996
533
979
524


3900
4000
4100
4200
4300
Caliper
962
945
928
911
894
877
859
842
824
807
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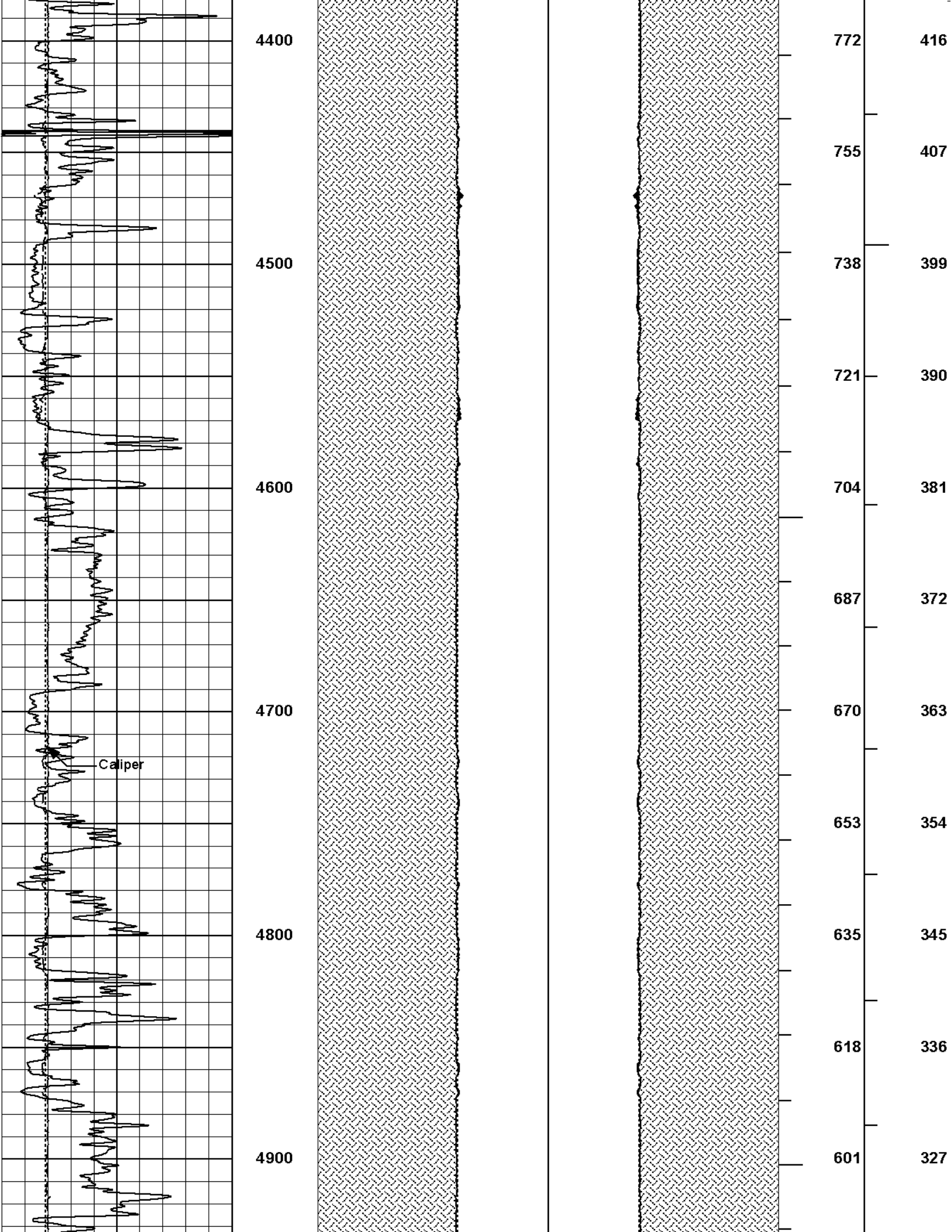
507
498
489
480
471
462
453
443
434
425


4400
4500
4600
4700
4800
4900
Caliper
772
755
738
721
704
687
670
653
635
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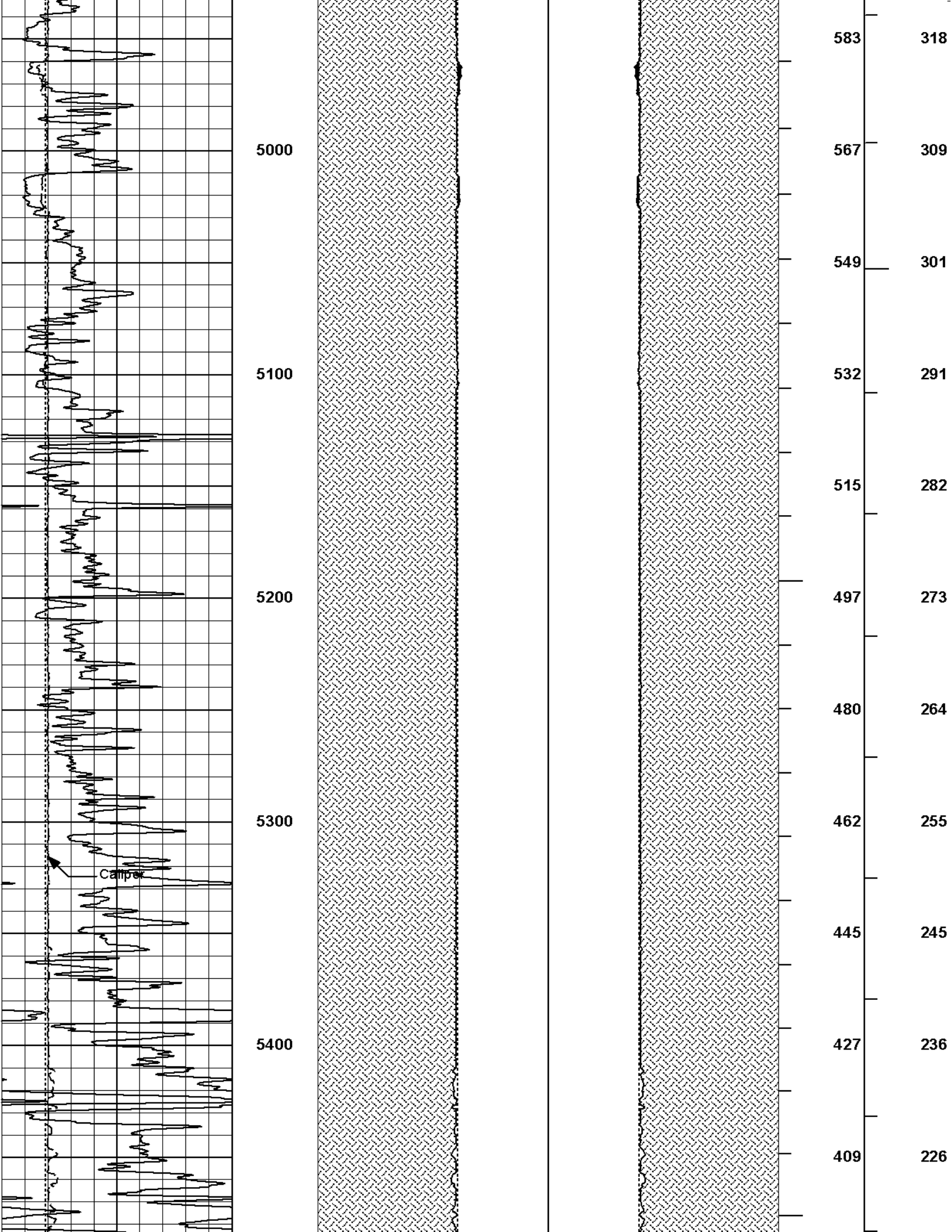
407
399
390
381
372
363
354
345
336
327


5000
5100
5200
5300
5400
Caliper
583
567
549
532
515
497
480
462
445
427
409
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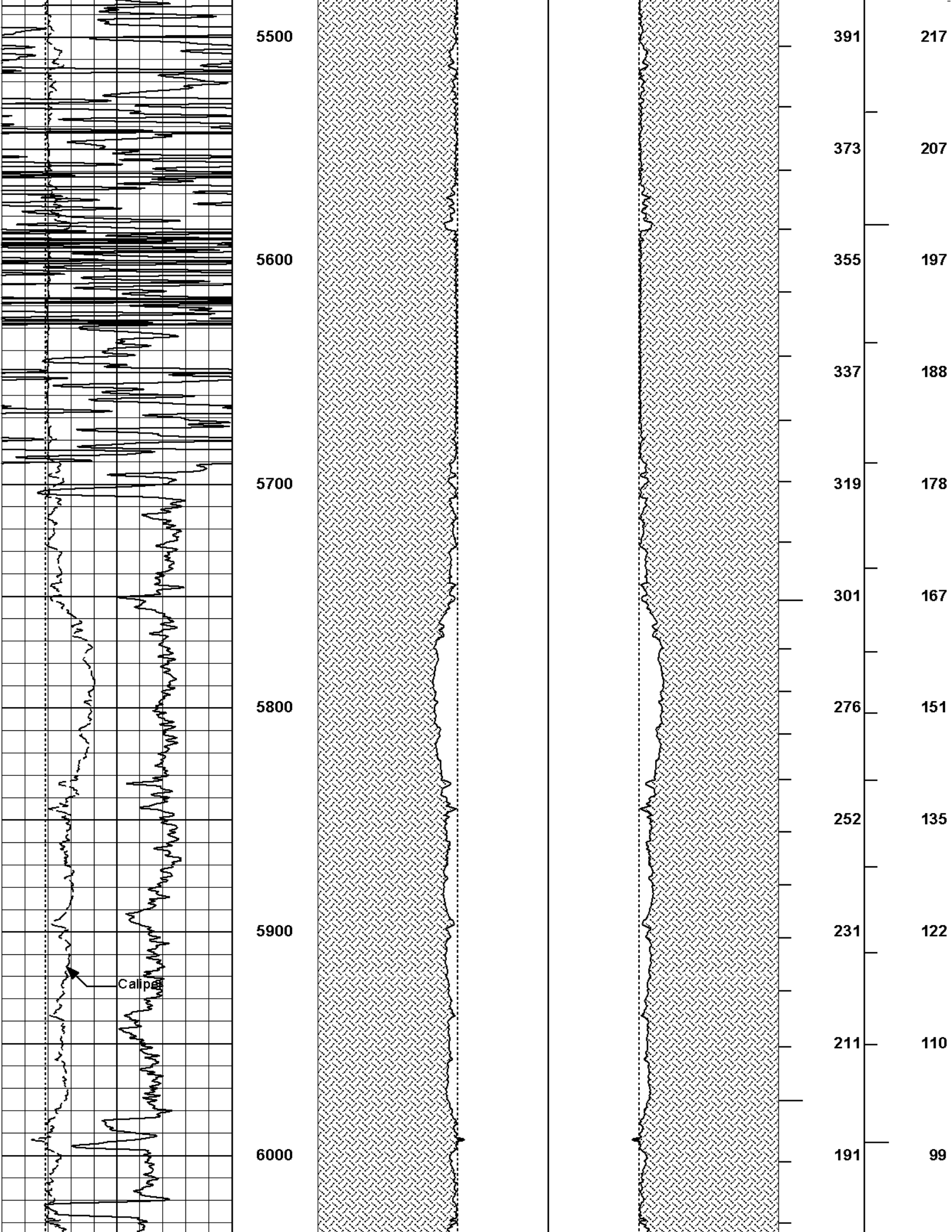
309
301
291
282
273
264
255
245
236
226


5500
5600
5700
5800
5900
6000
Caliper
391
373
355
337
319
301
276
252
231
211
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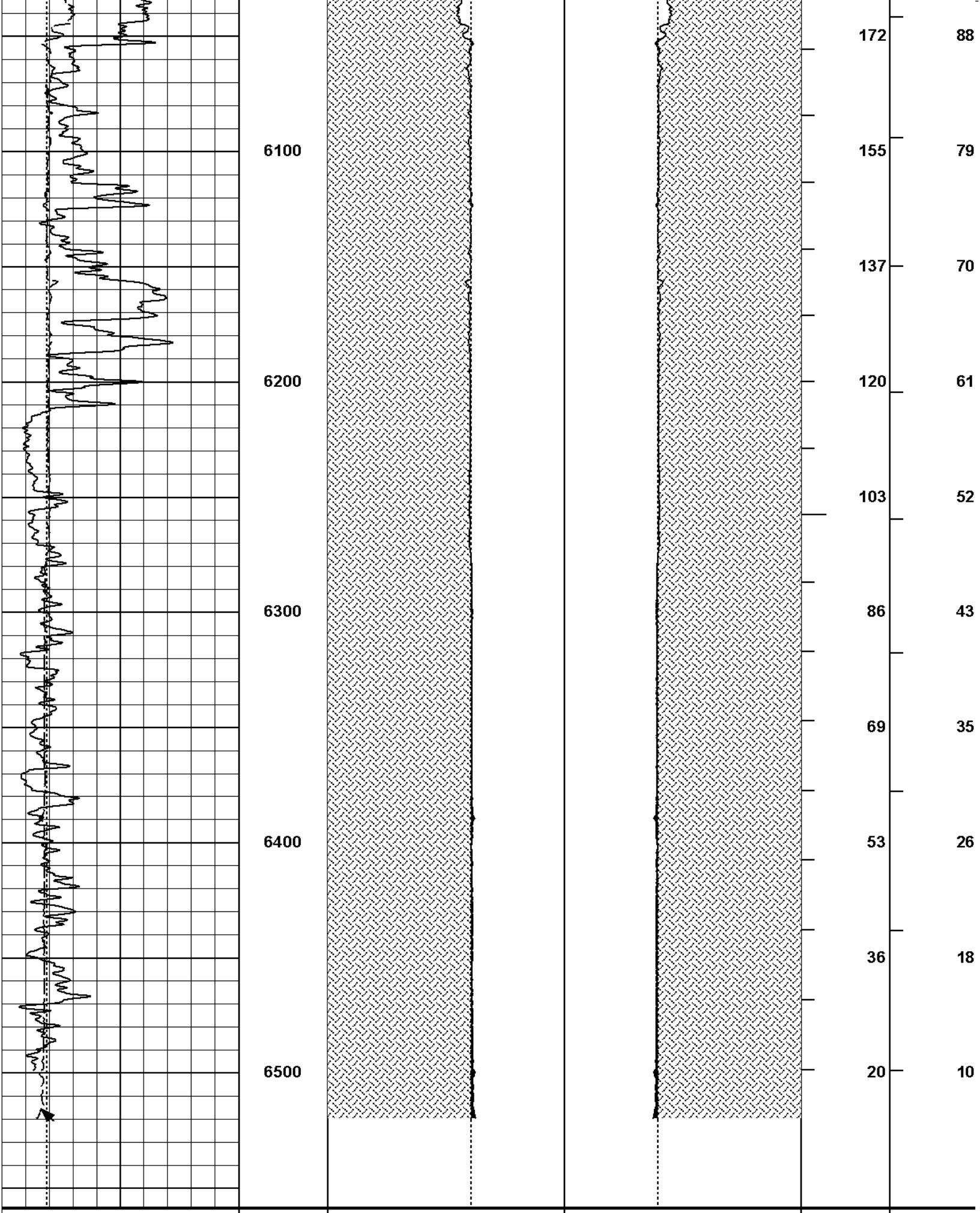
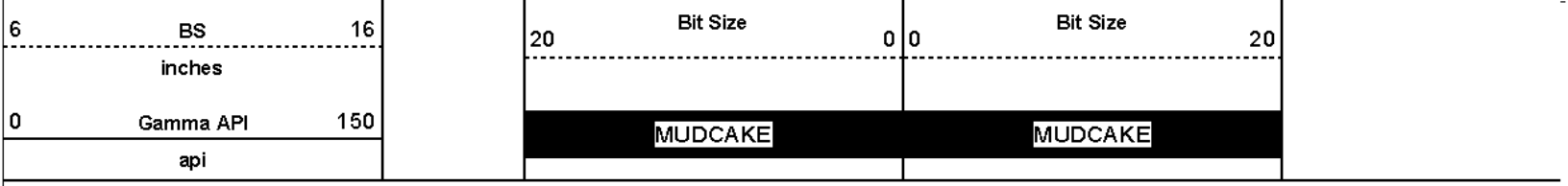
207
197
188
178
167
151
135
122
110
99


6100
6200
6300
6400
6500
172
155
137
120
103
86
69
53
36
20
88
79
70
61
52
43
35
26
18
10
6
CALI
16
inches
1 : 600
ft
20
CALI
0
inches
0
CALI
20
inches
BHVT
AHVT



HALLIBURTON

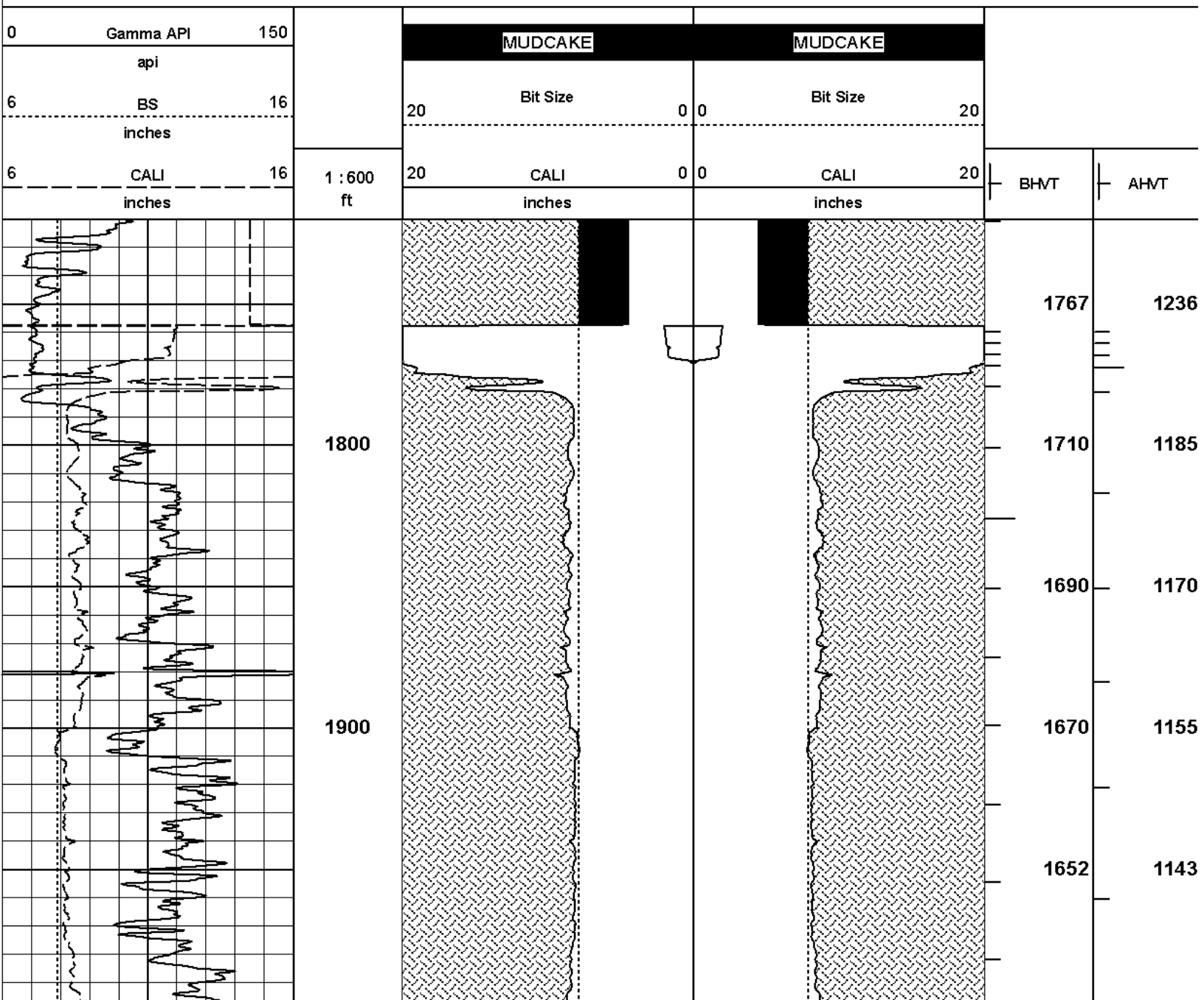
Plot Time: 12-Jul-11 10:33:31
Plot Range: 1720 ft to 6558.33 ft
Data: GILLESPIE_21_1\Well Based\DAQ-0001-CSG_5_5\
Plot File: \\-LOCAL-\GILLESPIE_21_1\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\PORO\EOG_AHV_5_5_INCH_2_IQ_LIB

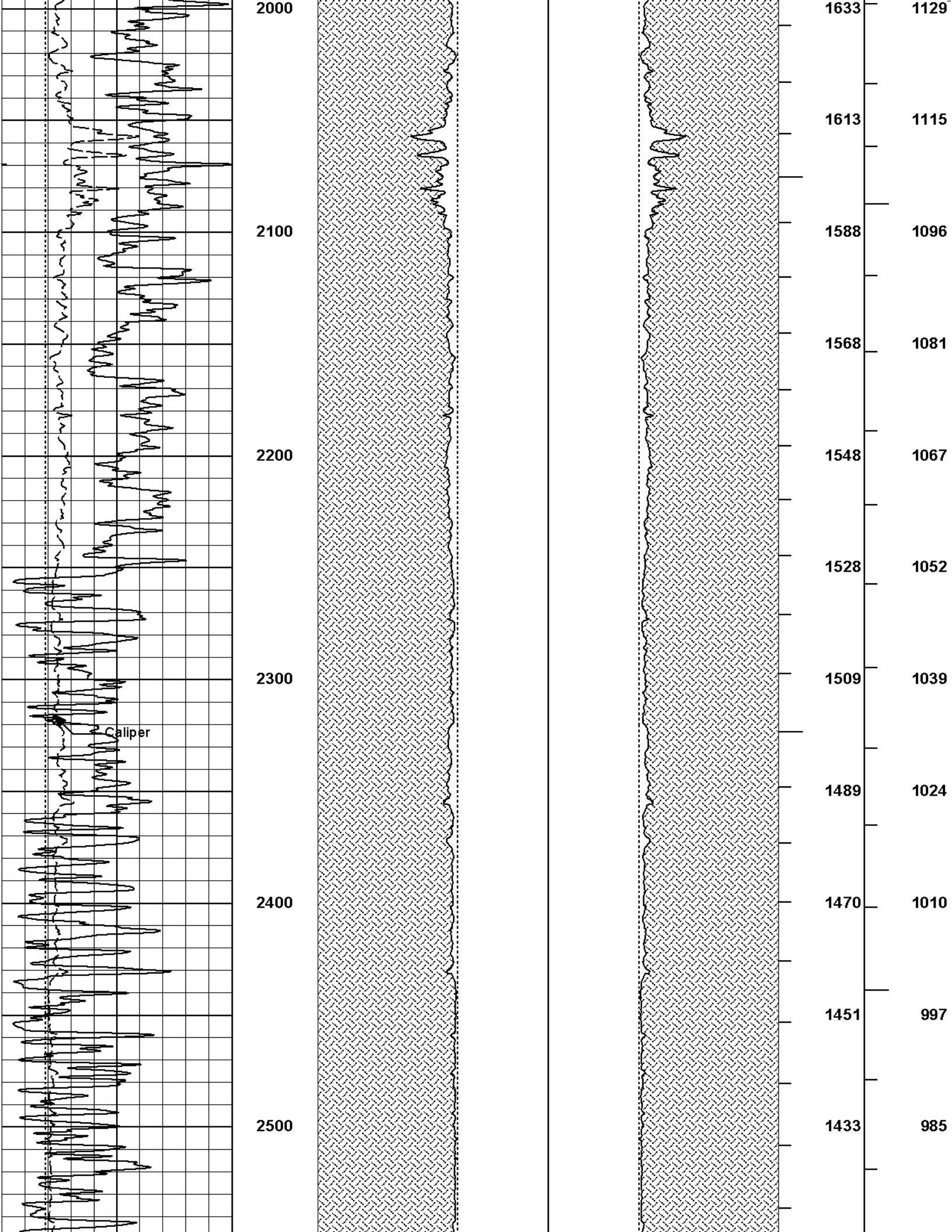
ANNULAR HOLE VOLUME PLOT (5.5 INCH)

HALLIBURTON

Plot Time: 12-Jul-11 10:33:31
Plot Range: 1720 ft to 6558.33 ft
Data: GILLESPIE_21_1\Well Based\DAQ-0001-CSG_4_5\
Plot File: \\-LOCAL-\GILLESPIE_21_1\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\PORO\EOG_AHV_4_5_INCH_2_IQ_LIB

ANNULAR HOLE VOLUME PLOT (4.5 INCH)

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2100
2200
2300
2400
2500
Caliper
1633
1613
1588
1568
1548
1528
1509
1489
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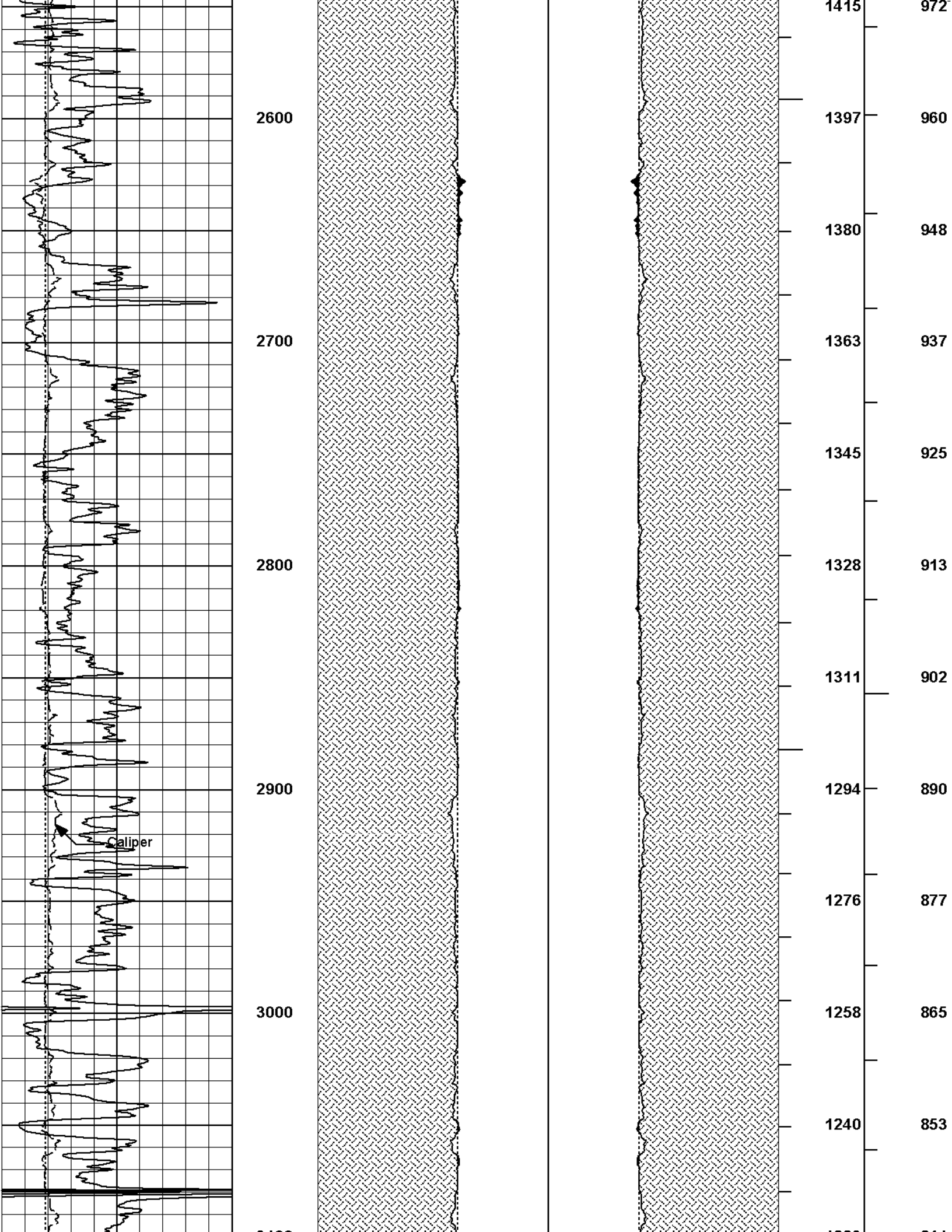
1451
1433
1129
1115
1096
1081
1067
1052
1039
1024
1010
997
985


2600
2700
2800
2900
3000
Caliper
1415
1397
1380
1363
1345
1328
1311
1294
1276
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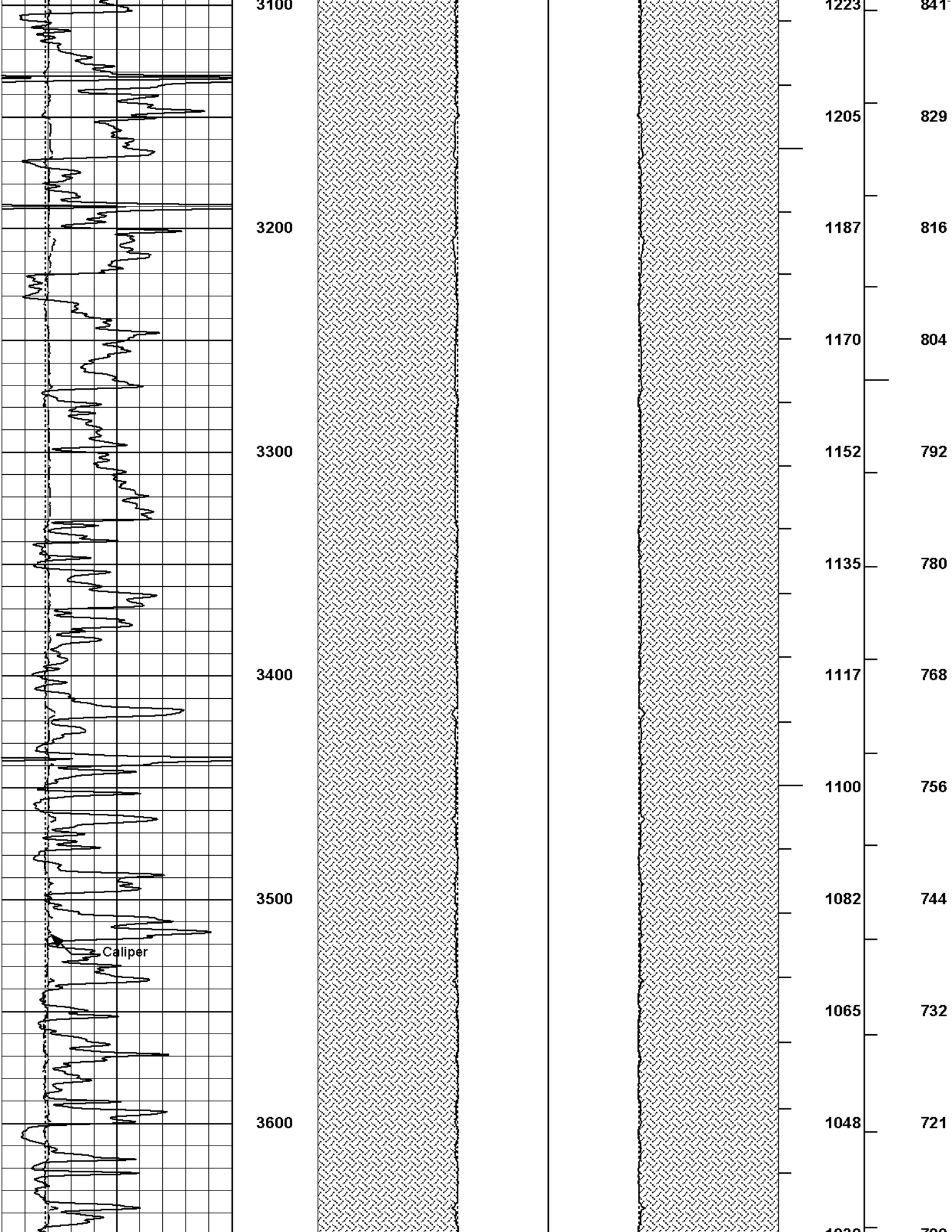
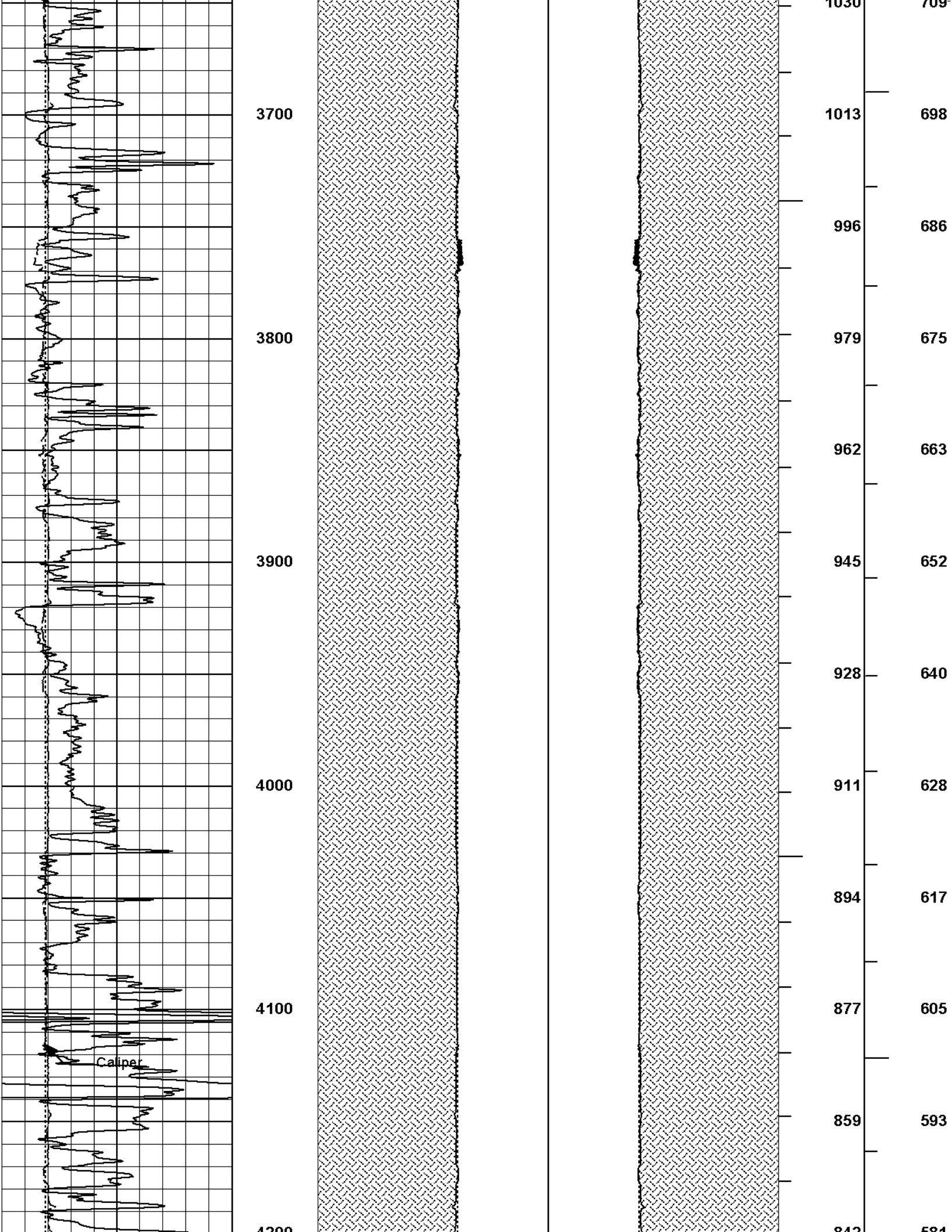
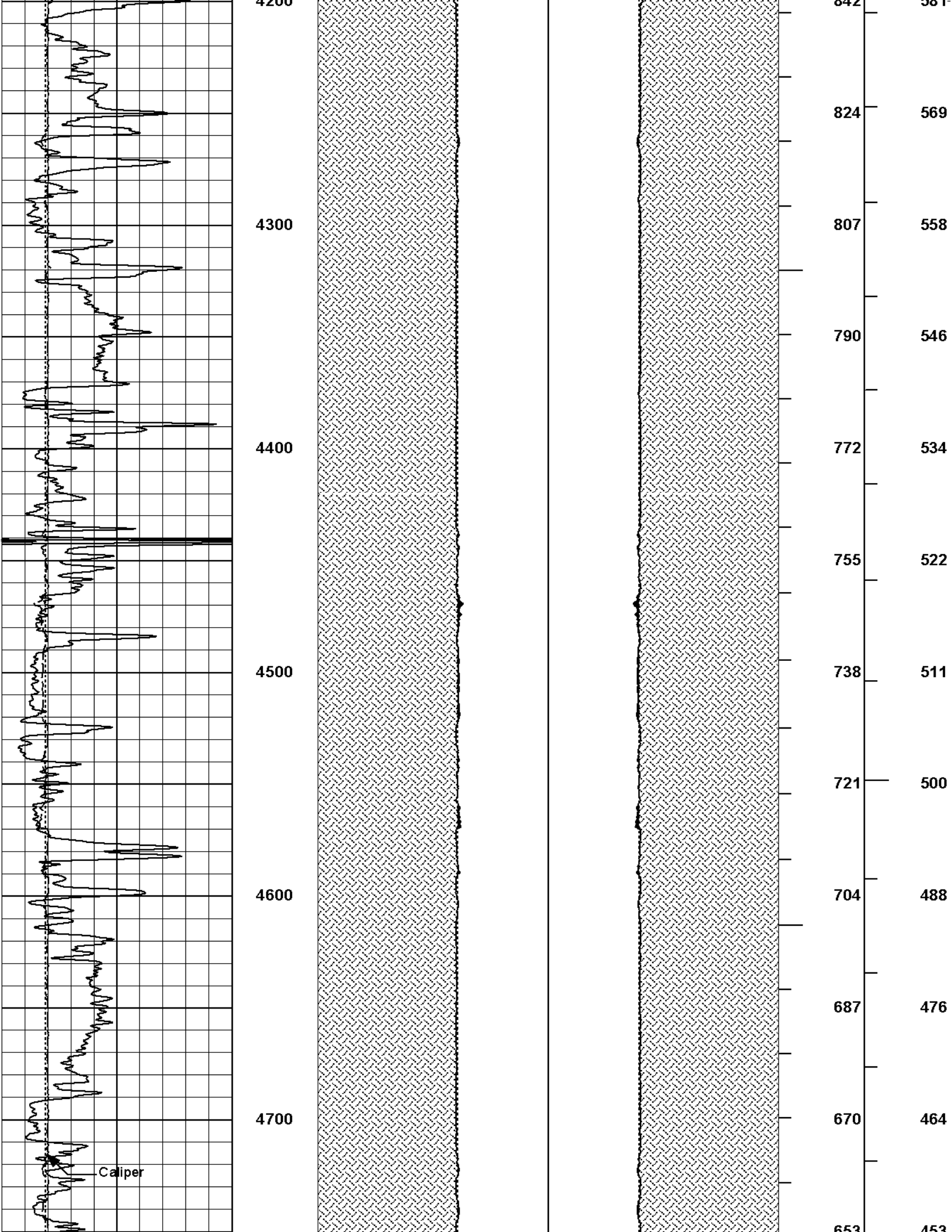
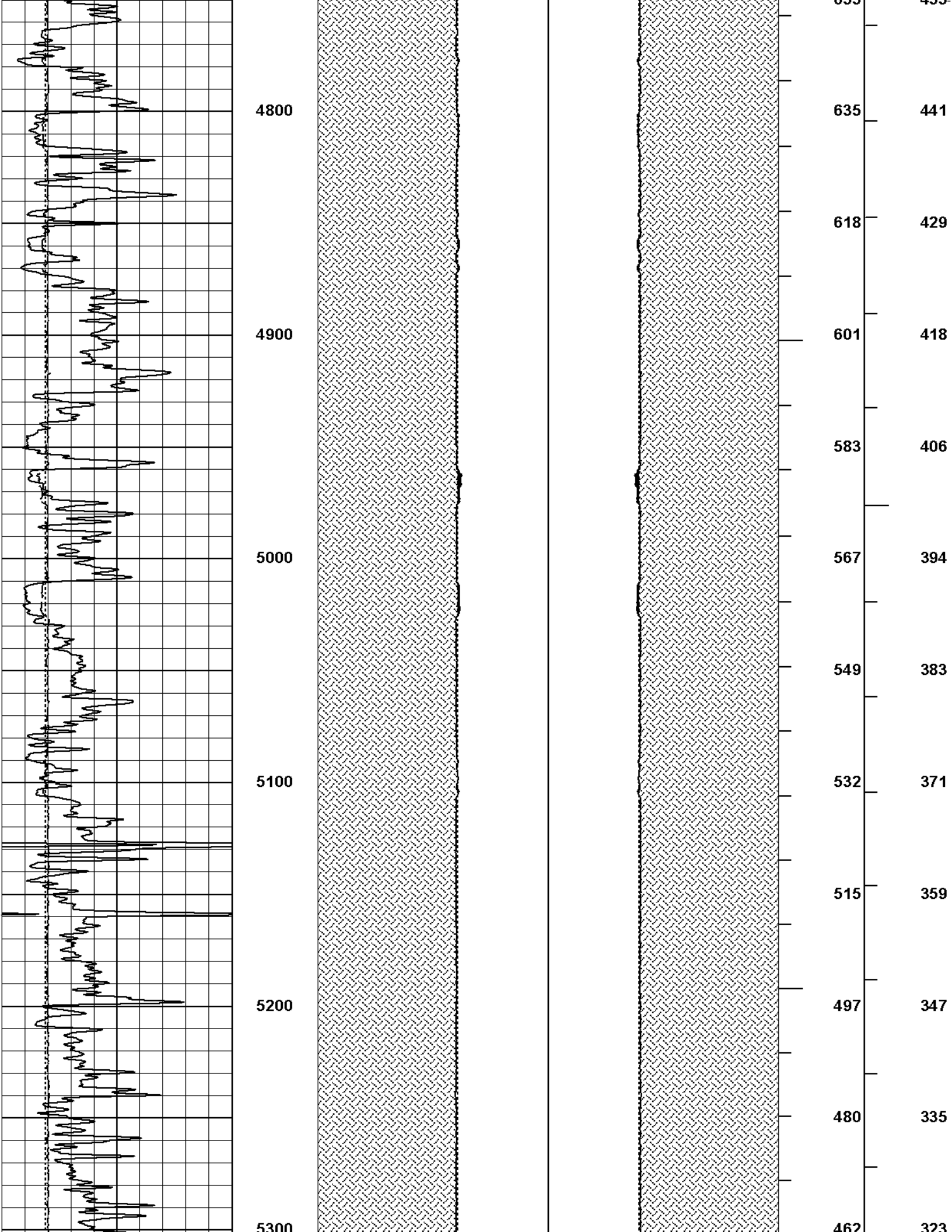
937
925
913
902
890
877
865
853


3100
3200
3300
3400
3500
3600
Caliper
1223
841
1205
829
1187
816
1170
804
1152
792
1135
780
1117
768
1100
756
1082
744
1065
732
1048
721


3700
3800
3900
4000
4100
Caliper
1030
709
1013
698
996
686
979
675
962
663
945
652
928
640
911
628
894
617
877
605
859
593


4200
4300
4400
4500
4600
4700
Caliper
842
824
807
790
772
755
738
721
704
687
670
653
581
569
558
546
534
522
511
500
488
476
464
453


4800
4900
5000
5100
5200
5300
635
618
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583
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549
532
515
497
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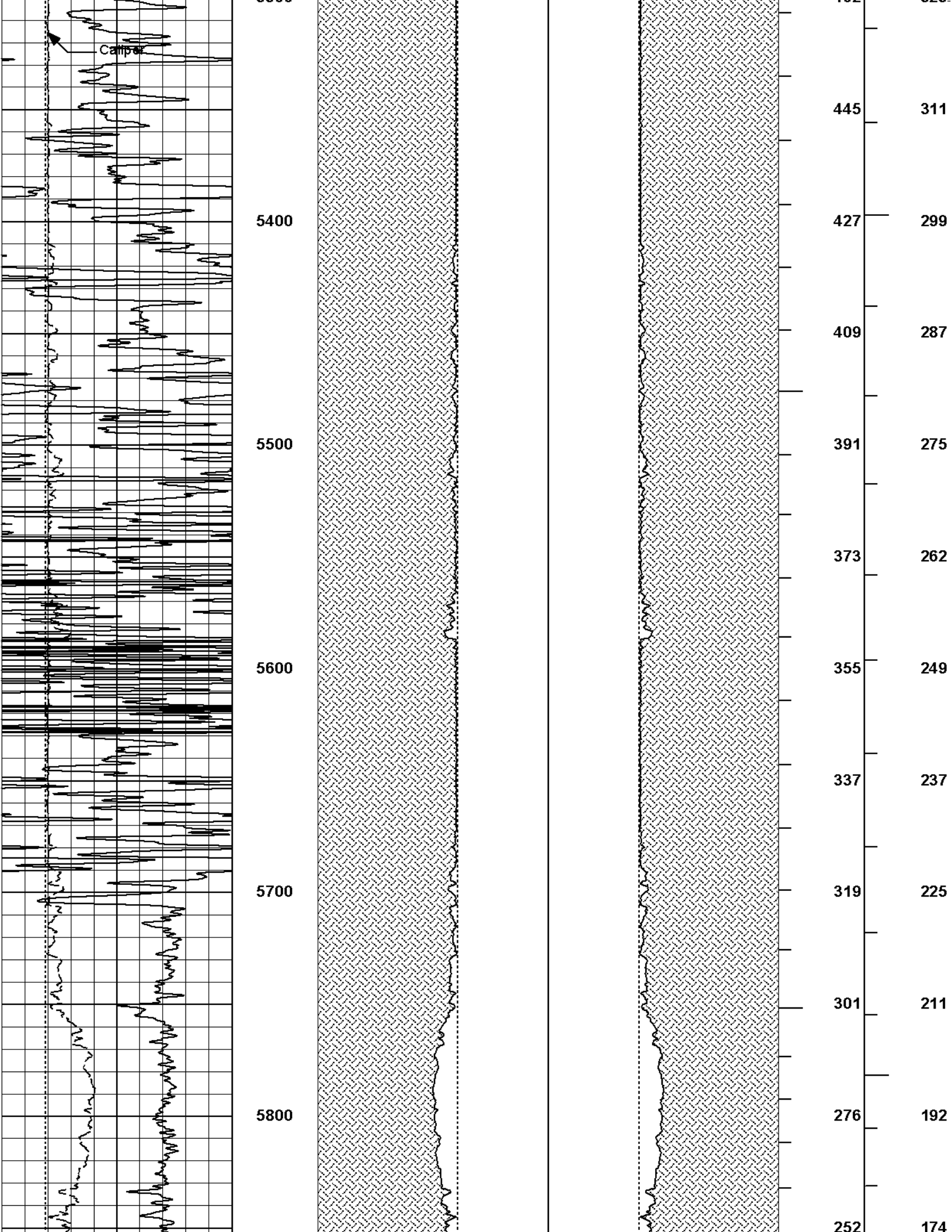
429
418
406
394
383
371
359
347
335
323


Caliper
5400
5500
5600
5700
5800
445
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299
409
287
391
275
373
262
355
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337
237
319
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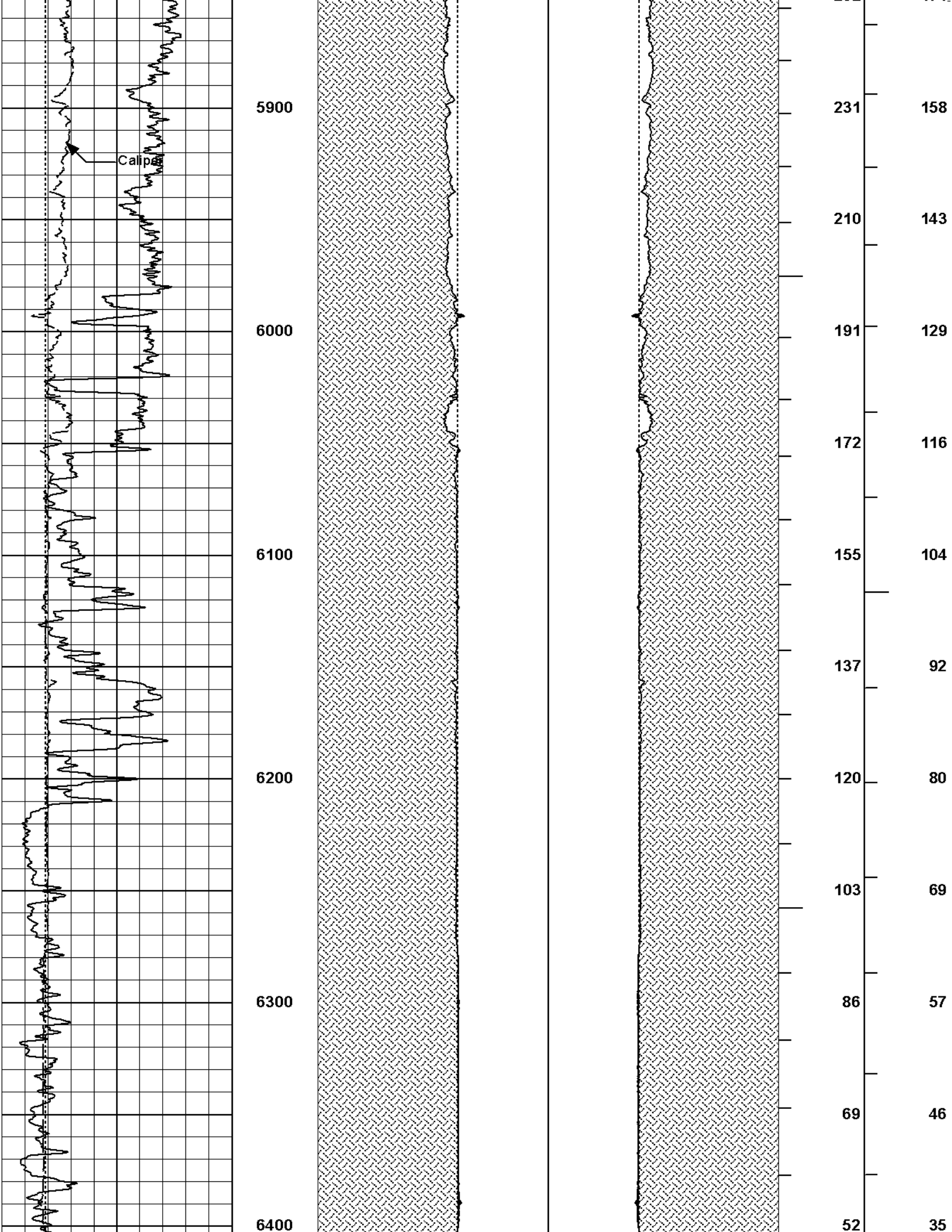
301
211
276
192
252
174


Caliper
5900
6000
6100
6200
6300
6400
231
158
210
143
191
129
172
116
155
104
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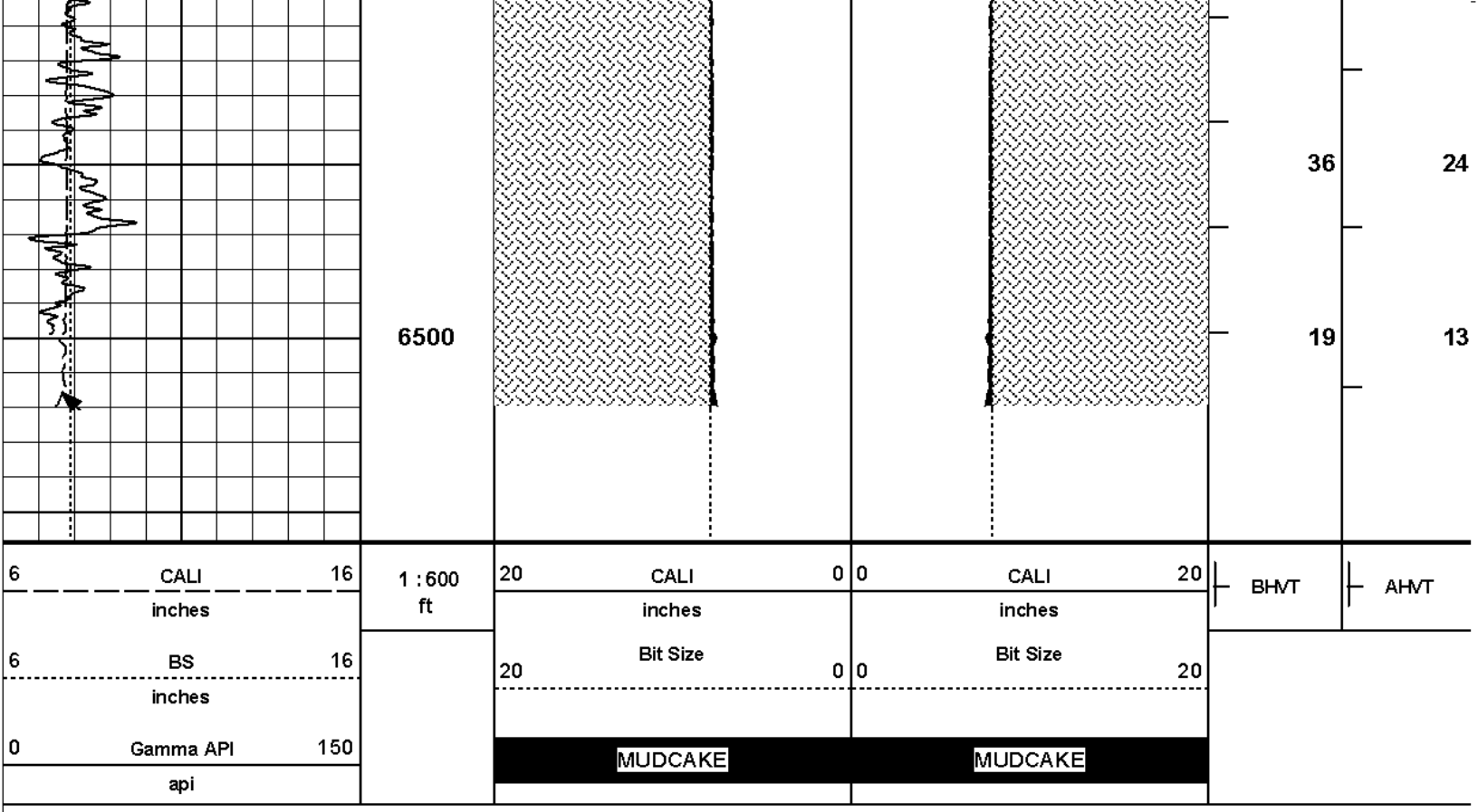
120
80
103
69
86
57
69
46
52
35



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

HALLIBURTON

Plot Time: 12-Jul-11 10:33:34
Plot Range: 1720 ft to 6558.33 ft
Data: GILLESPIE_21_1\Well Based\DAQ-0001-CSG_4_5\
Plot File: \\-LOCAL-\GILLESPIE_21_1\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\PORO\EOG_AHV_4_5_INCH_2_IQ_LIB

ANNULAR HOLE VOLUME PLOT (4.5 INCH)

COMPANY	**EOG RESOURCES**		
WELL	**GILLESPIE 21 #1**		
FIELD	**WILLIS**		
COUNTY	**STEVENS**	STATE	**KANSAS**

HALLIBURTON

SPECTRAL DENSITY DUAL SPACED NEUTRON LOG