HALLIBURTON

SPECTRAL DENSITY
DUAL SPACED NEUTRON
MICROLOG

COMPANY **WOOD ENERGY, INC**

WELL **GOETZ #22-1**

FIELD **UNNAMED**

COUNTY **MEADE** STATE **KANSAS**

COMPANY WOOD ENERGY, INC
WELL GOETZ #22-1
FIELD UNNAMED
COUNTY MEADE
STATE KANSAS

API No. 15-119-21290
Location 369' FSL & 2149' FWL
Sect. 22 Twp. 30S Rge. 26W

Other Services:
ACRT
BSAT

Permanent Datum	GROUND LEVEL	Elev. 2540.0 ft	Elev.: K.B. 2551.0 ft
Log measured from	KELLY BUSHING	11.0 ft above perm. Datum	D.F. 2550.0 ft
Drilling measured from	KELLY BUSHING		G.L. 2540.0 ft

Date		22-May-11					
Run No.		ONE					
Depth - Driller		5480.00 ft					
Depth - Logger		5476.0 ft					
Bottom - Logged Interval		5438.0 ft					
Top - Logged Interval		2500.0 ft					
Casing - Driller		8.625 in @ 1058.0 ft		@		@	
Casing - Logger		1060.0 ft					
Bit Size		7.875 in		@		@	
Type Fluid in Hole		WATER BASED MUD					
Density	Viscosity	9.4 ppg	65.00 s/qt				
PH	Fluid Loss	10.00 pH	8.8 cptm				
Source of Sample		MUD PIT					
Rm @ Meas. Temperature		0.480 ohmm @ 91.00 degF		@		@	
Rmf @ Meas. Temperature		0.47 ohmm @ 82.00 degF		@		@	
Rmc @ Meas. Temperature		0.590 ohmm @ 82.00 degF		@		@	
Source Rmf	Rmc	MEASURED	MEASURED				
Rm @ BHT		0.45 ohmm @ 122.0 degF		@		@	
Time Since Circulation		6.8 hr					
Time on Bottom		22-May-11 19:49					
Max. Rec. Temperature		122.0 degF @ 5476.0 ft		@		@	
Equipment	Location	10549592	LIBERAL				
Recorded By		C. HAVERKAMP					
Witnessed By		T. PRONOLD					

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Service Ticket No.: 8177183 API Serial No.: 15-119-21290 PGM Version: WL INSITE R3.3.2 (Build 2)

CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE

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

RESISTIVITY SCALE CHANGES

	Type Log	Depth	Scale Up Hole	Scale Down Hole

RESISTIVITY EQUIPMENT DATA

	Run No.	Tool Type & No.	Pad Type	Tool Pos.	Other
				ADJ.	N/A
	ONE	MICRO	N/A		

EQUIPMENT DATA

	GAMMA	ACOUSTIC		DENSITY	NEUTRON
Run No.	ONE	Run No.		ONE	ONE
Serial No.	10811258	Serial No.		1145_M73803_P90	10735145
Model No.	GTET	Model No.		SDLT	DSNT
Diameter	3.625"	No. of Cent.		4.5"	3.625"
Detector Model No.	T-102	Spacing		GAM-GAM	NEU-NEU
Type	SCINT			CS137	AM241BE
Length	8"	LSA [Y/N]		5073GW	DSN-436
Distance to Source	10'	FWDA [Y/N]		1.5 CI	15 CI
				Strength	Strength

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	5476'	2500'	REC	0	150				30	-10	2.71	30	-10	LIME

DIRECTIONAL INFORMATION

Maximum Deviation @ KOP @

Remarks: SP-GTET-DSNT-SDLT-BSAT-ACRT RAN IN COMBINATION.

ANNULAR HOLE VOLUME CALCULATED FOR 5.5 INCH CASING.

CHLORIDES REPORTED AT 4000 PPM.

LCM REPORTED AT 2 LB/BBL.

POST TOOL SURVEYS NOT PERFORMED PER CUSTOMER REQUEST.

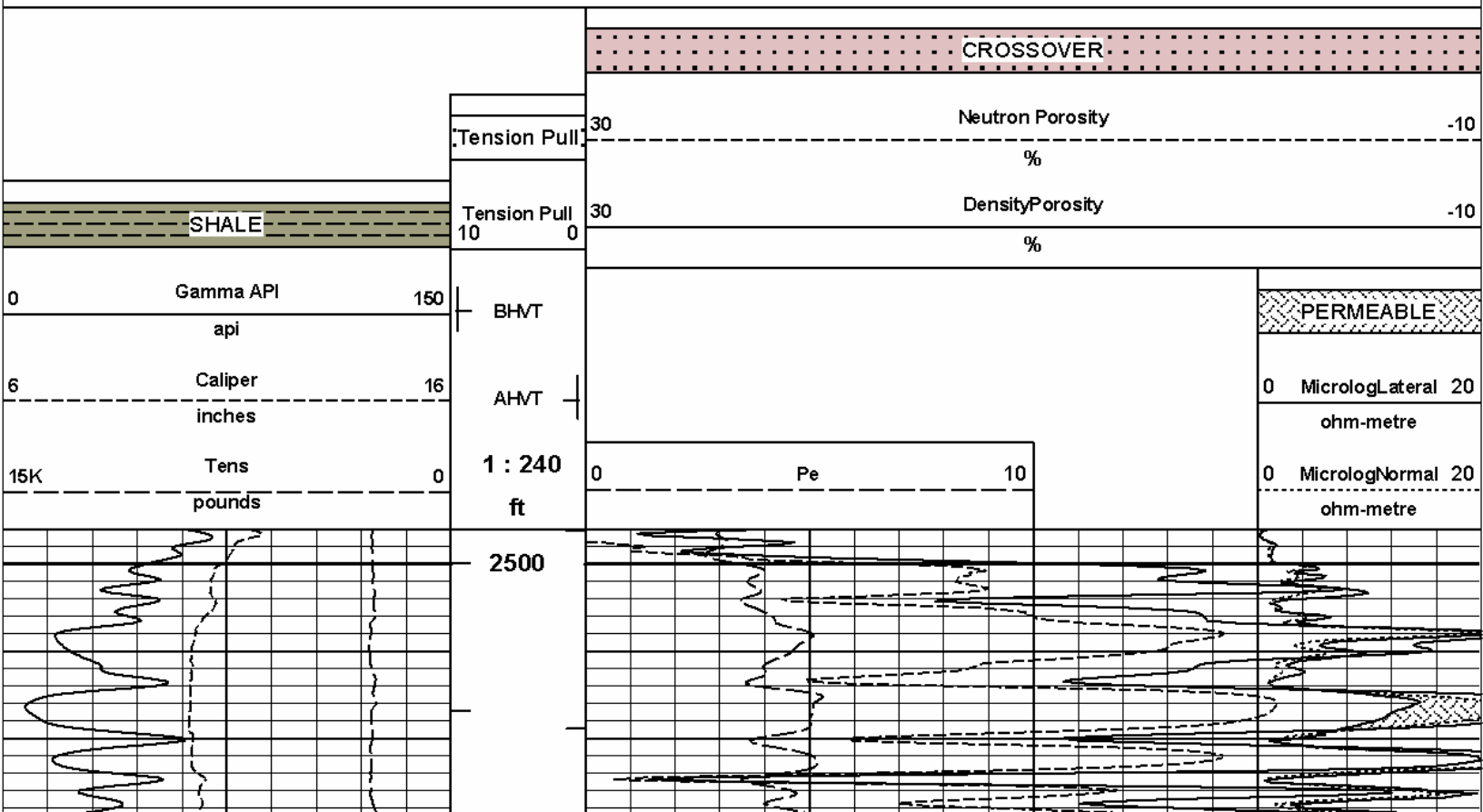
YOUR CREW: A. VAQUERA, P. COBLE

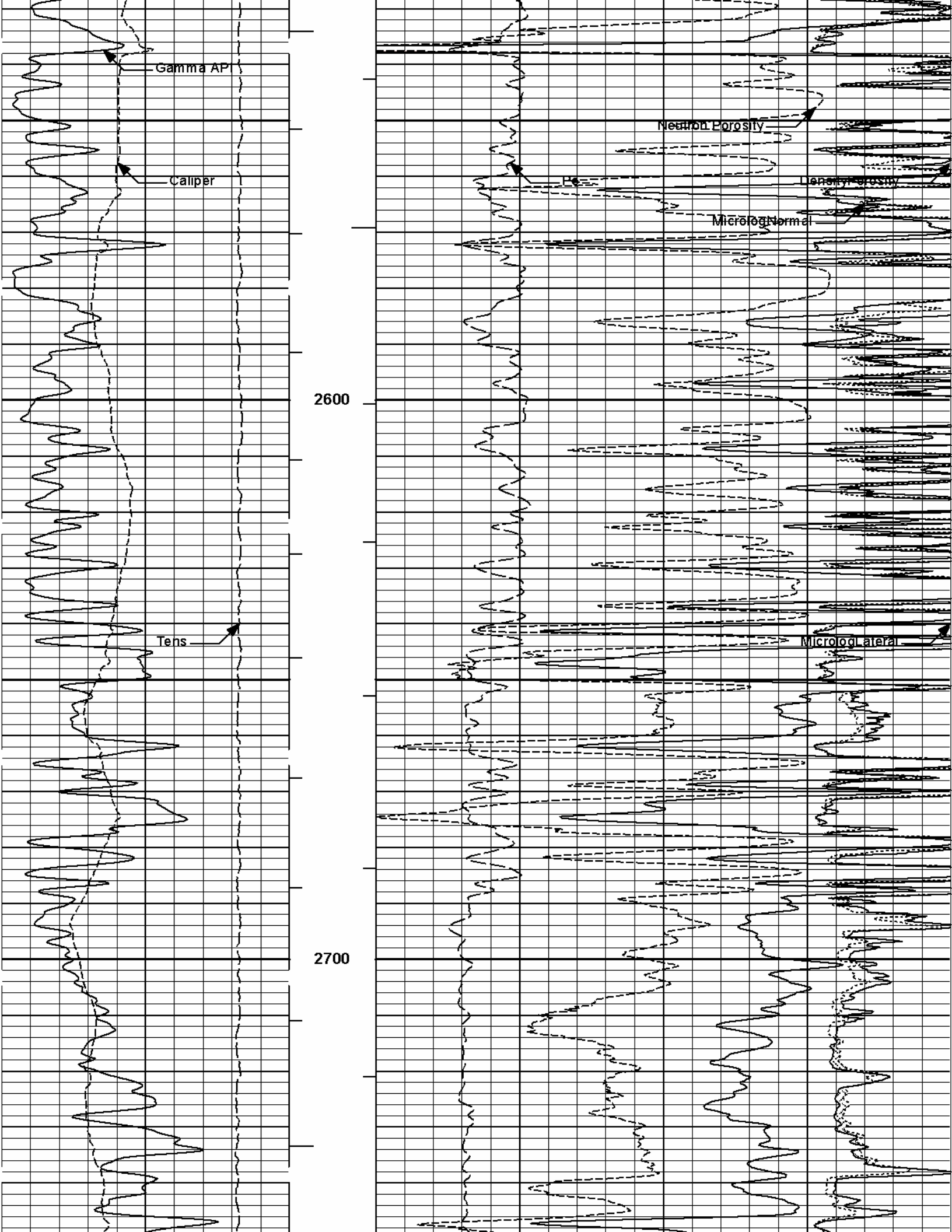
THANK YOU FOR USING HALLIBURTON ENERGY SERVICES. LIBERAL, KS 620-624-8123

HALLIBURTON

Plot Time: 22-May-11 21:52:00
Plot Range: 2496 ft to 5482 ft
Data: GOETZ_22_1\Well Based\DETAIL\
Plot File: \\POROML\PoroML_5_main_IQ_LIB

5 INCH MAIN LOG




Gamma API
Caliper
Tens
Neutron Porosity
Pe
Density Porosity
MicrologNormal
MicrologLateral
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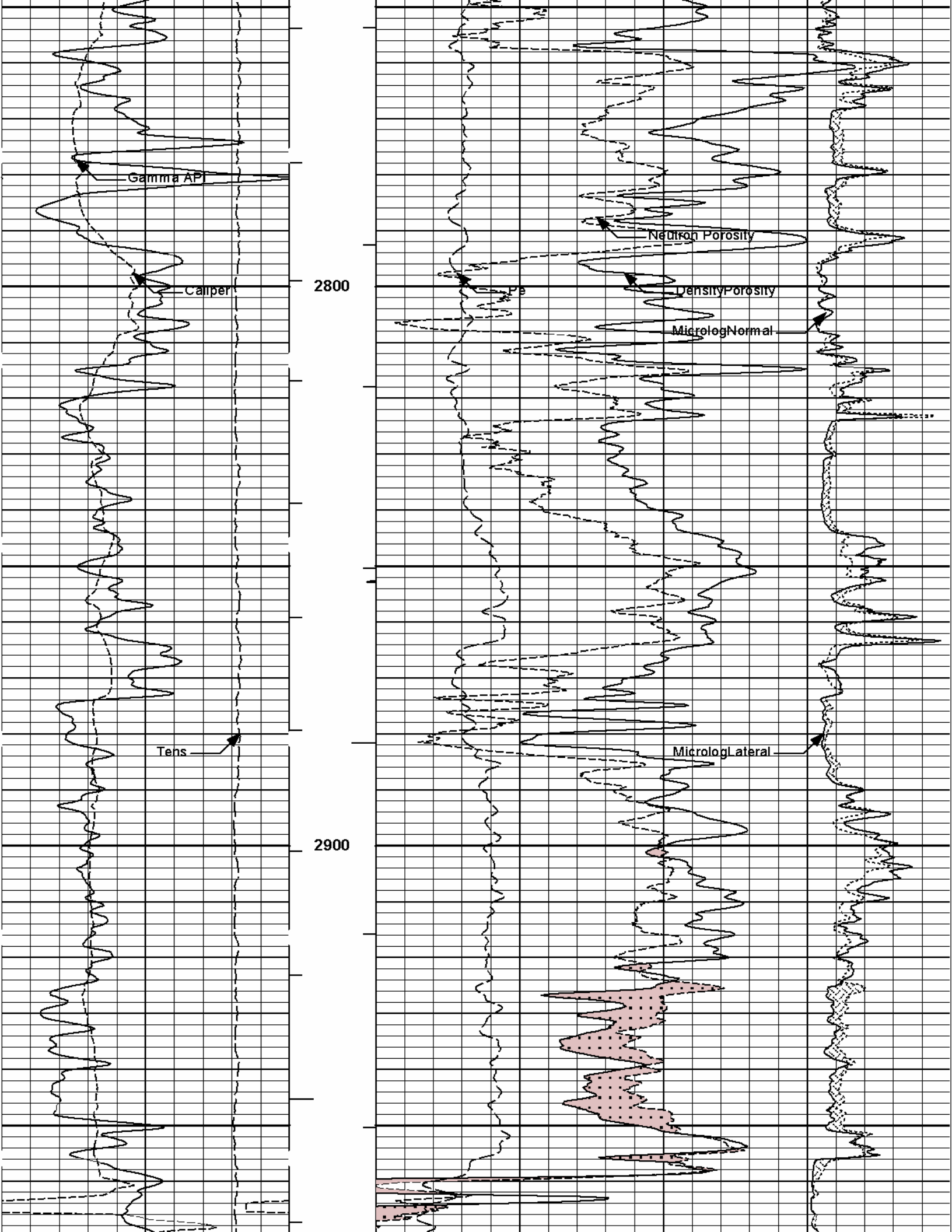
2700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Neutron Porosity
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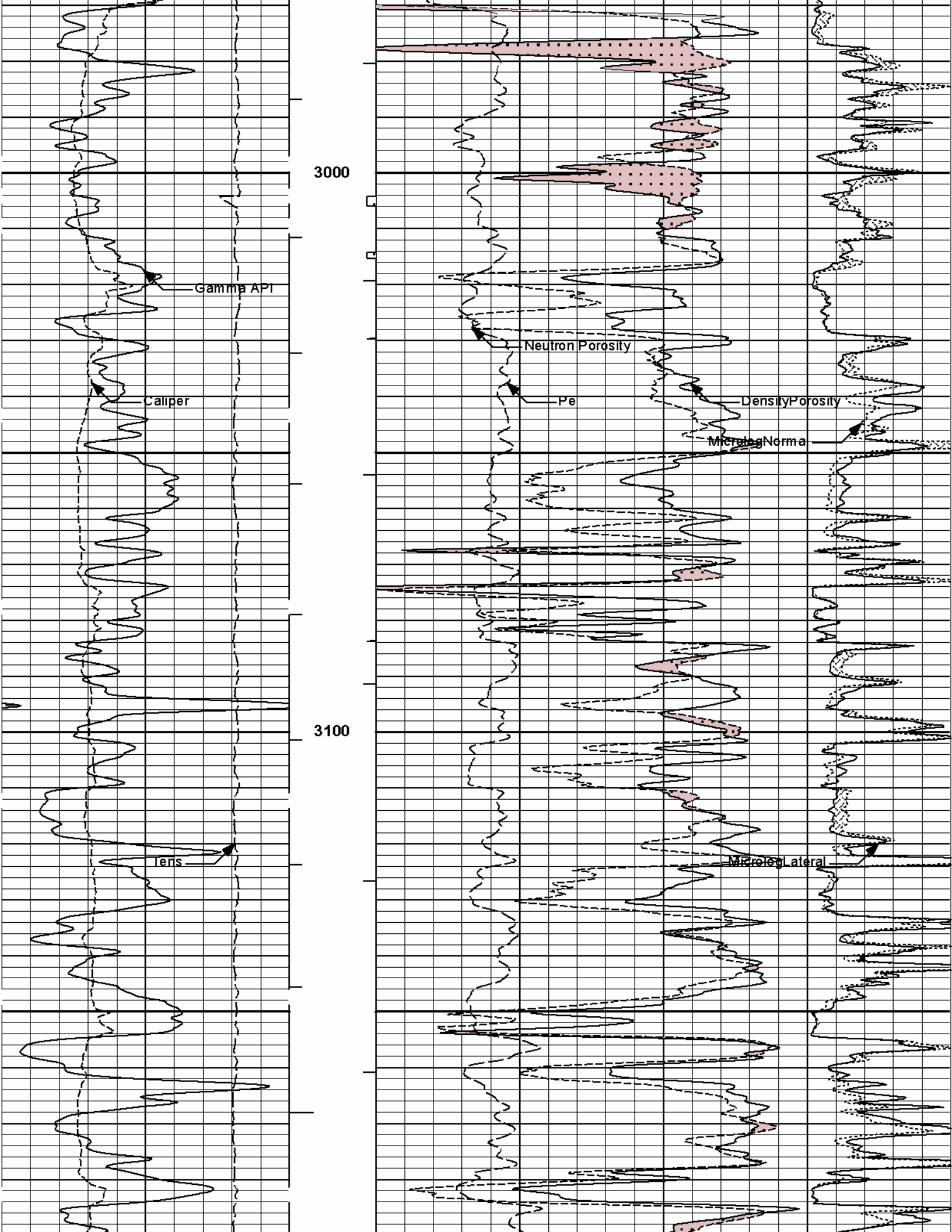
MicrologLateral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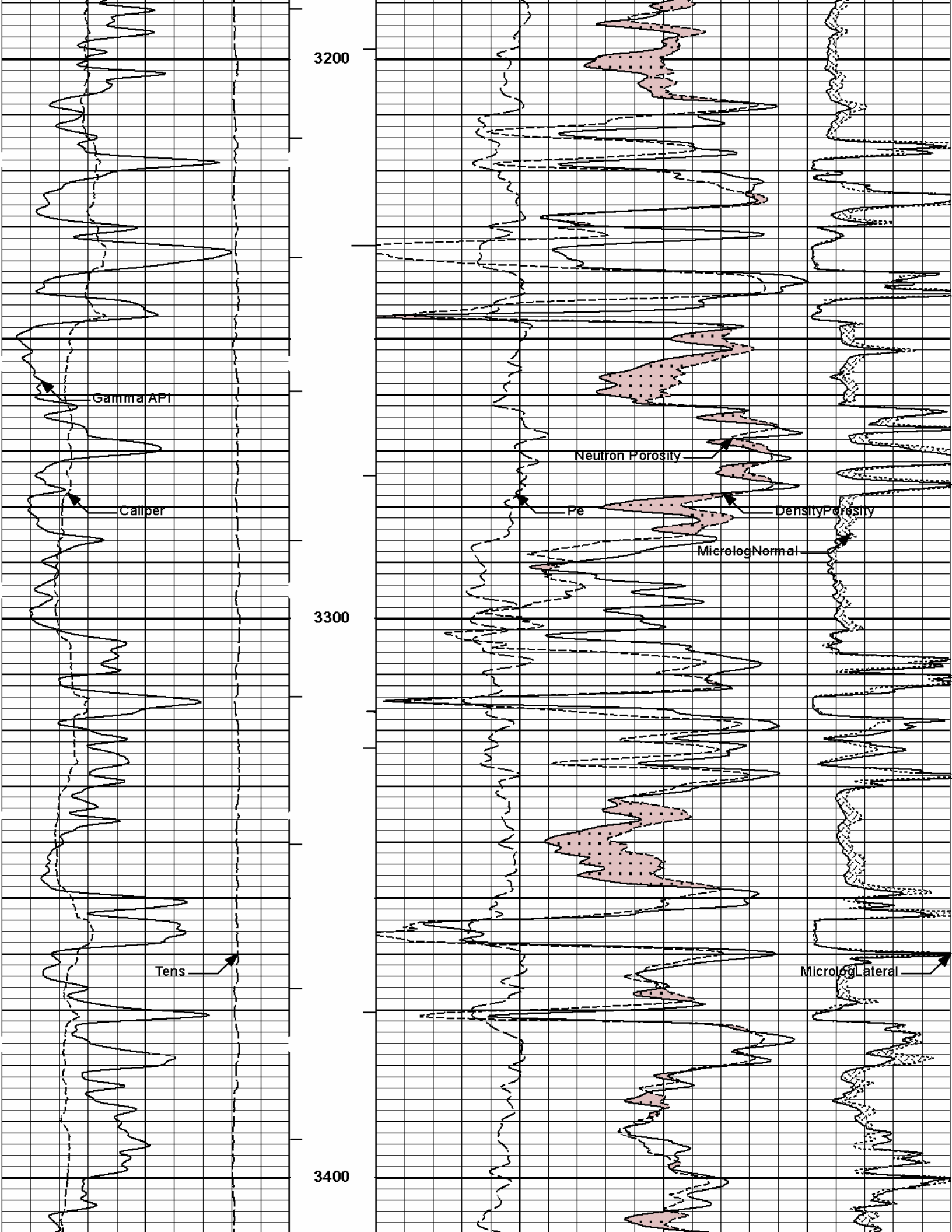
MicrologLateral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3300
3400
Gamma API
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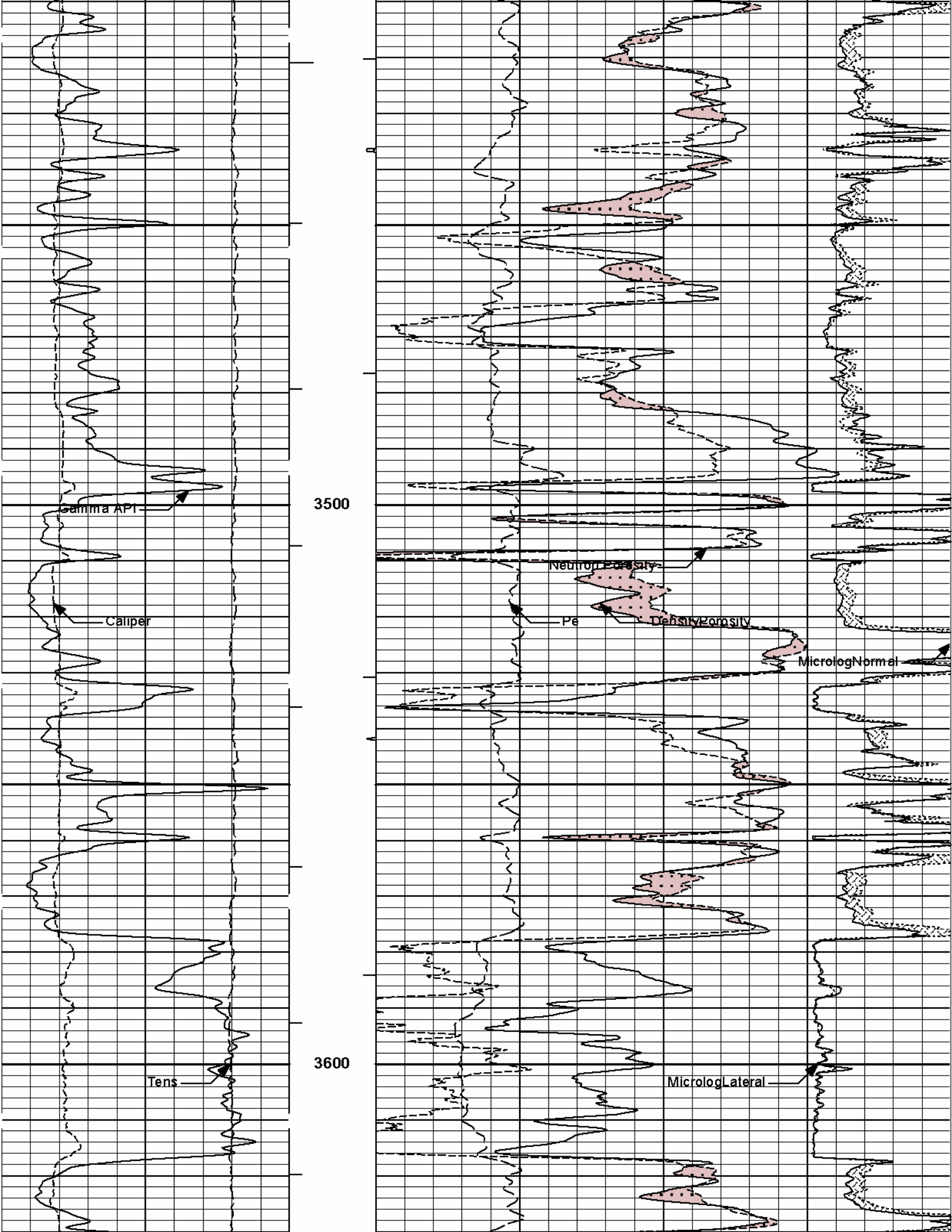
Tens
Neutron Porosity
Pe
DensityPorosity
MicrologNormal
MicrologLateral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Caliper
Tens
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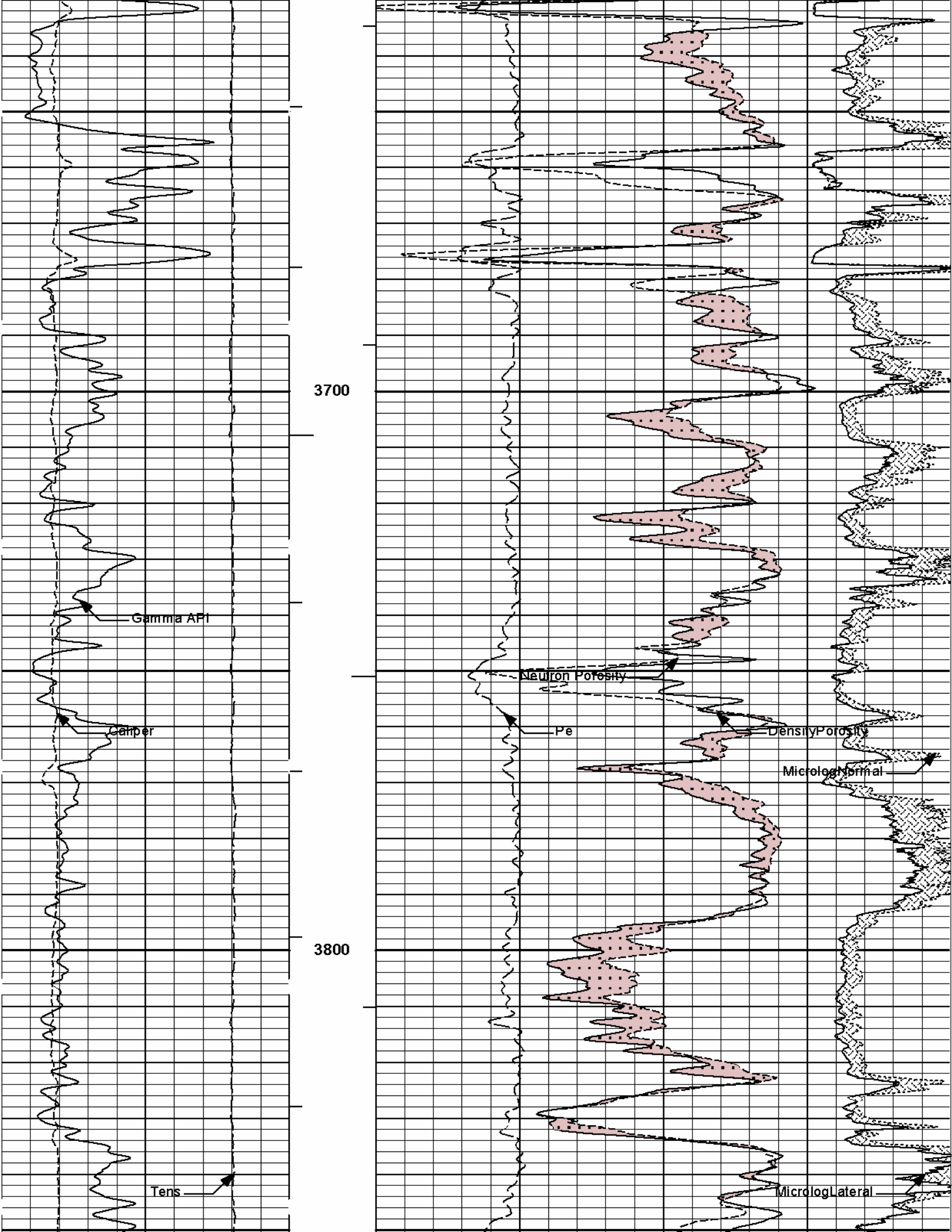
3600
Neutron Porosity
Pe
DensityPorosity
MicrologNormal
MicrologLateral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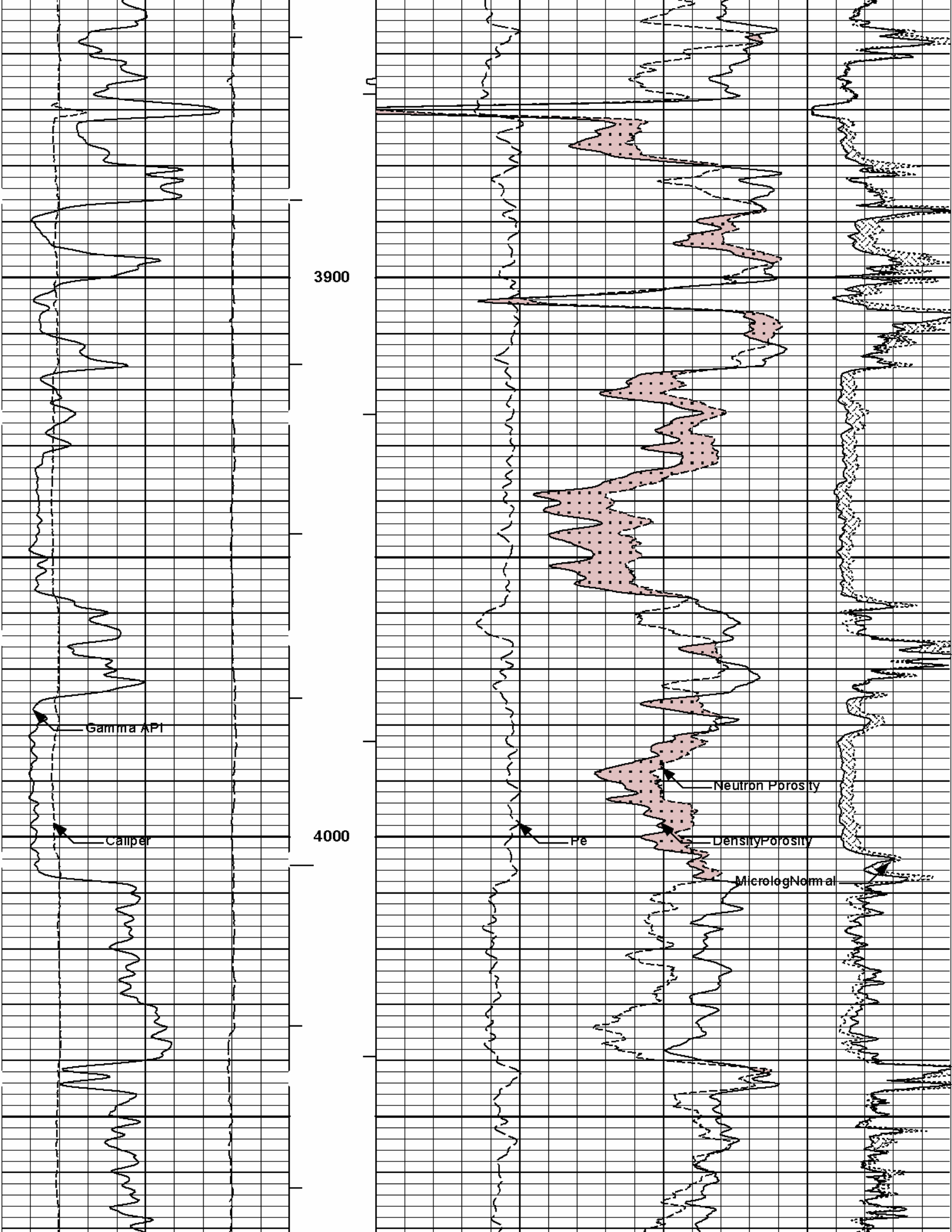
Caliper
Tens
Neutron Porosity
Pe
DensityPorosity
MicrologNormal
MicrologLateral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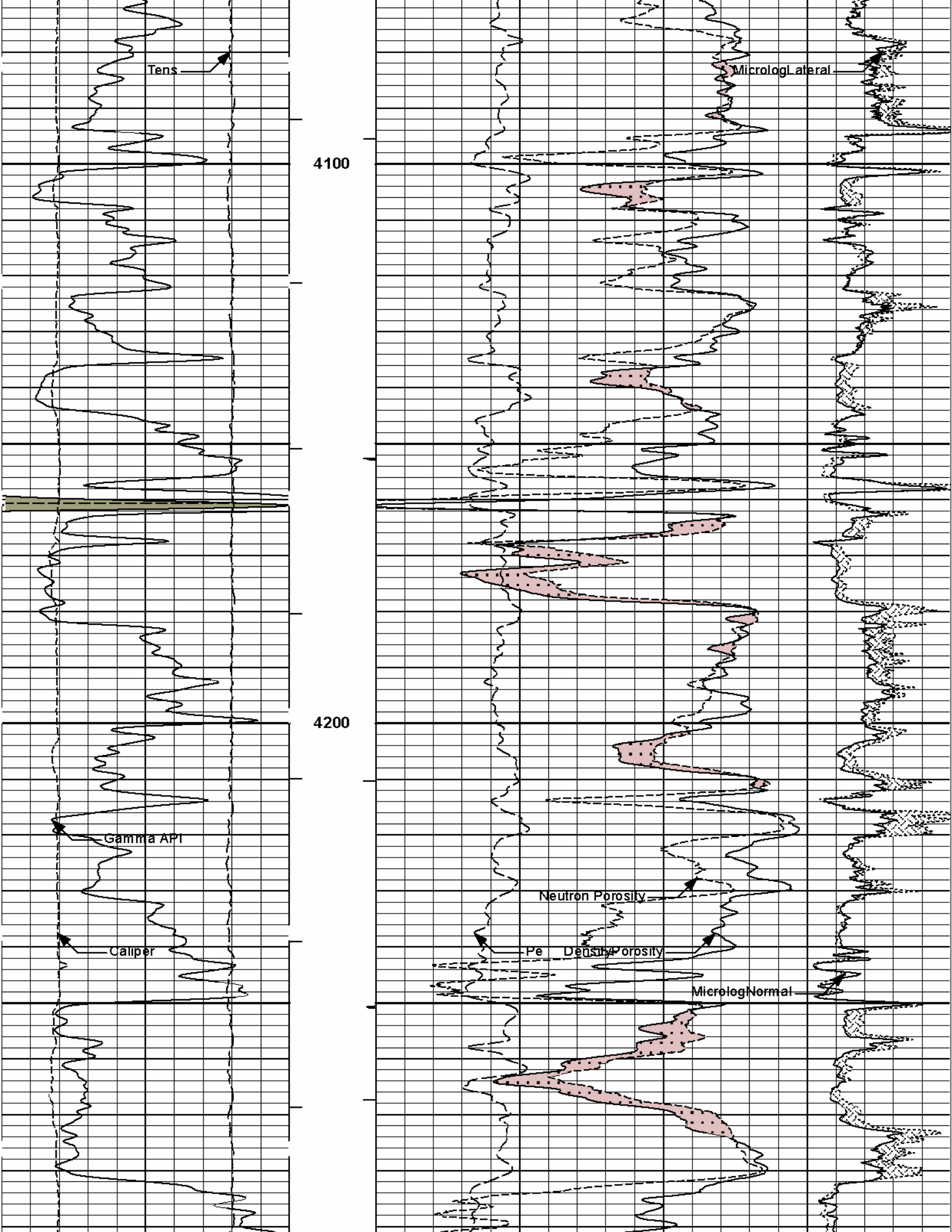
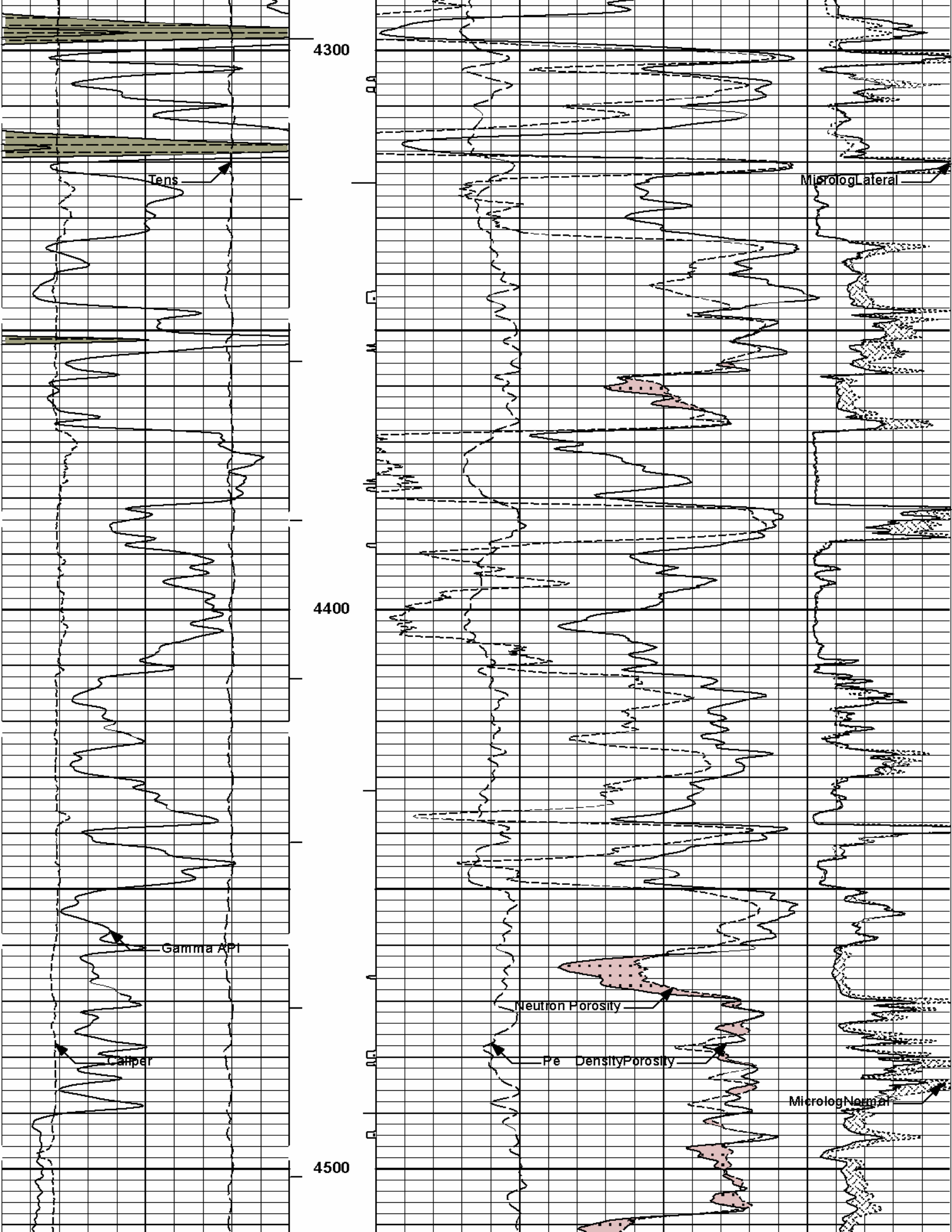
4000
Gamma API
Caliper
Pe
Neutron Porosity
DensityPorosity
MicrologNormal


Tens
MicrologLateral
4100
4200
Gamma API
Caliper
Neutron Porosity
Pe
DensityPorosity
MicrologNormal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4400
4500
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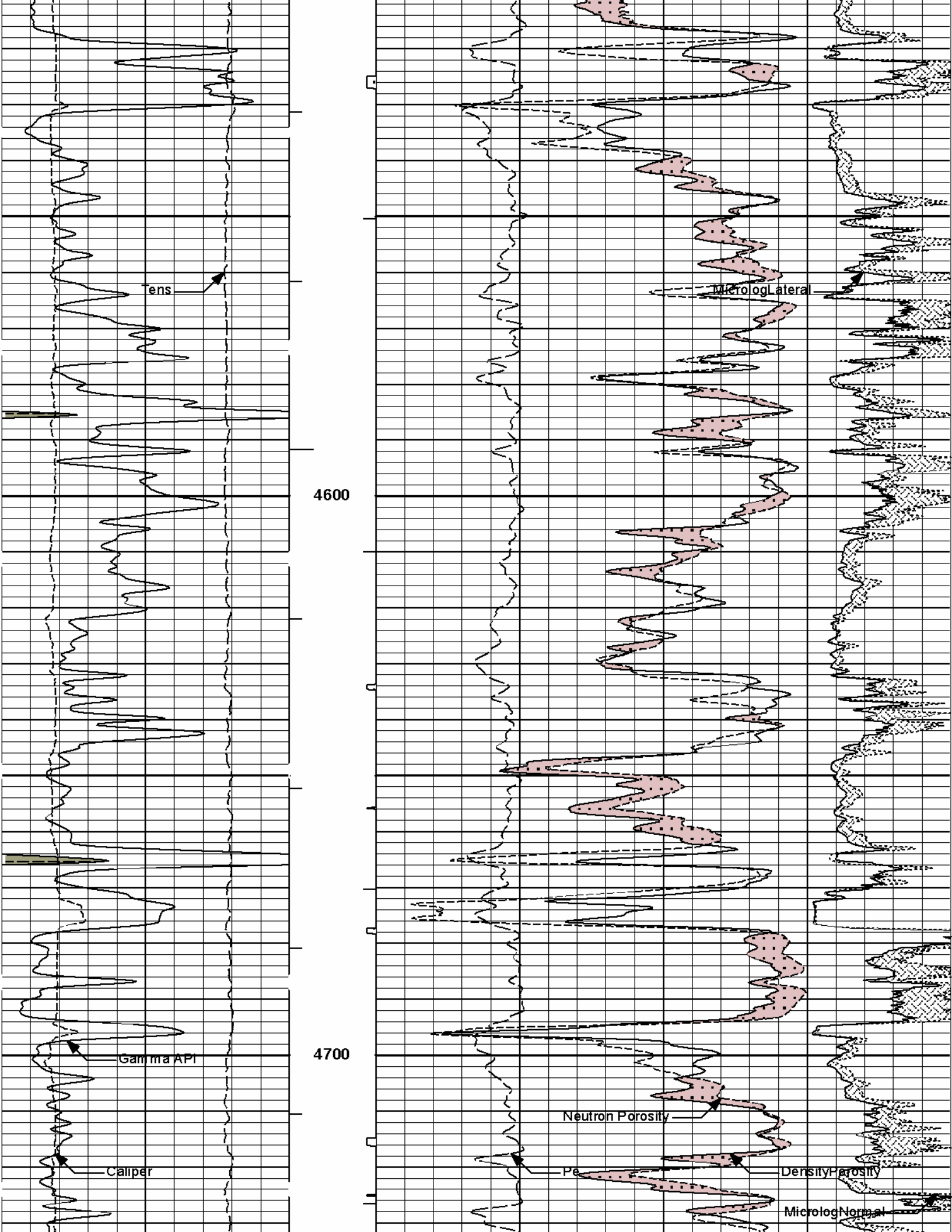
Gamma API
Caliper
Neutron Porosity
Pe
DensityPorosity
MicrologNormal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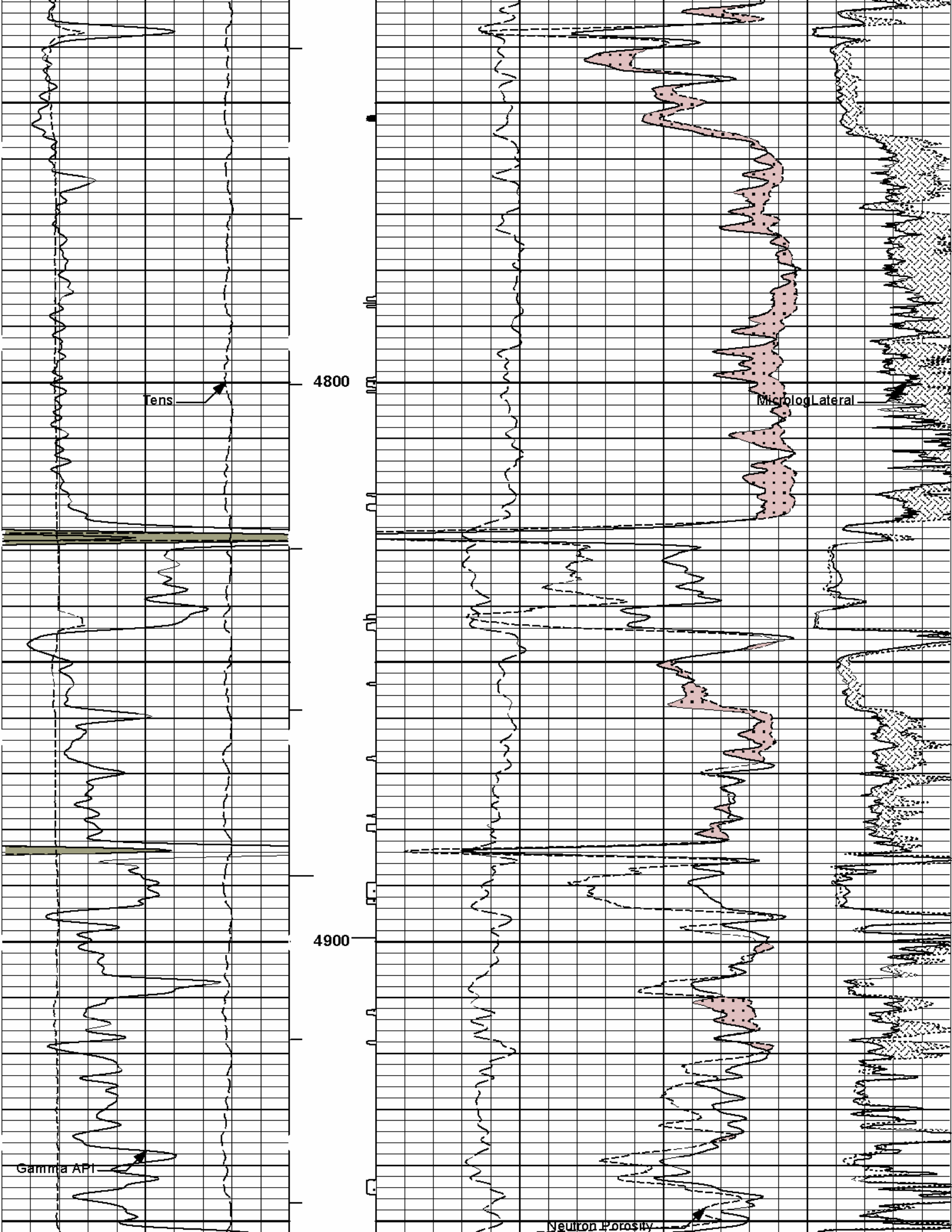
MicrologLateral
4600
Gamma API
4700
Neutron Porosity
Caliper
Pe
DensityPorosity
MicrologNormal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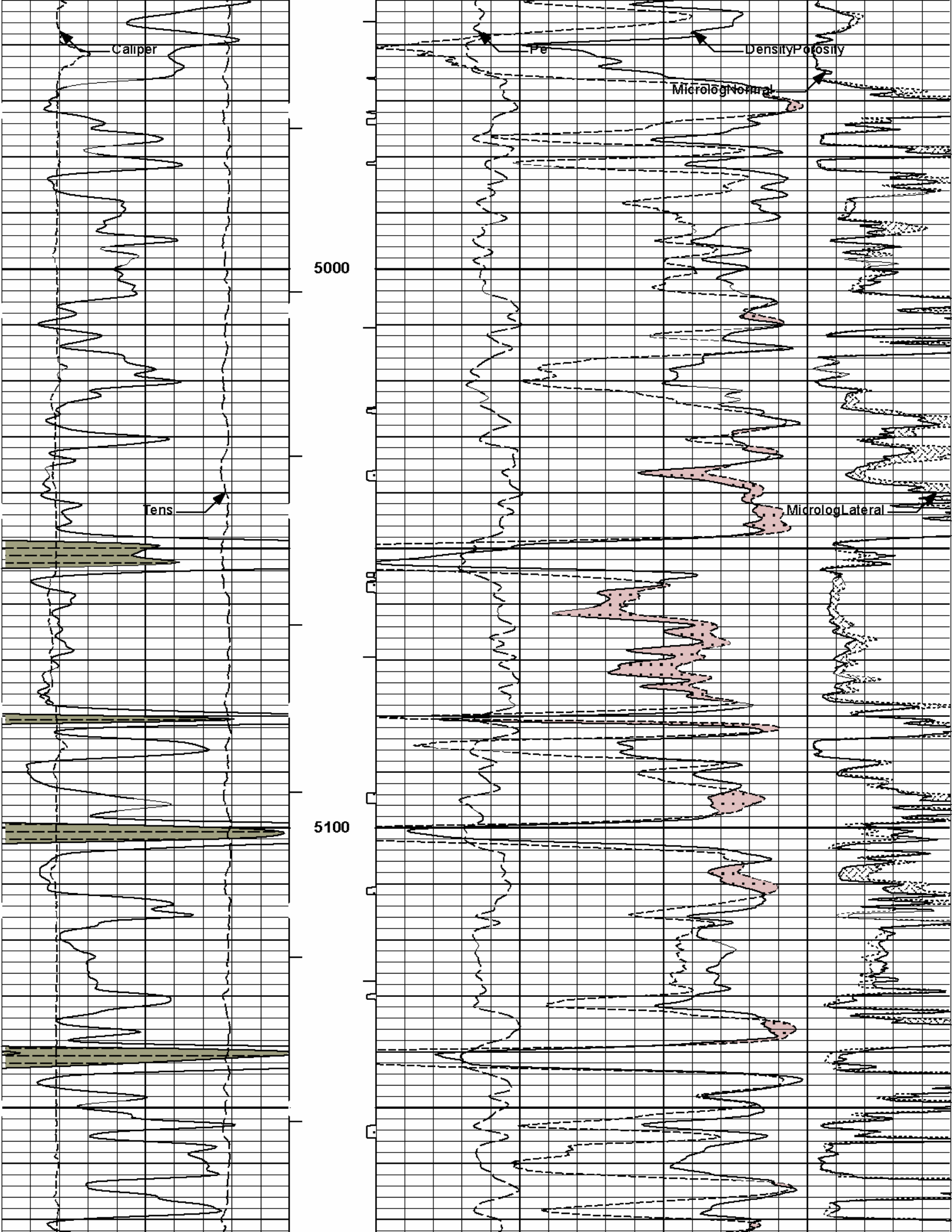
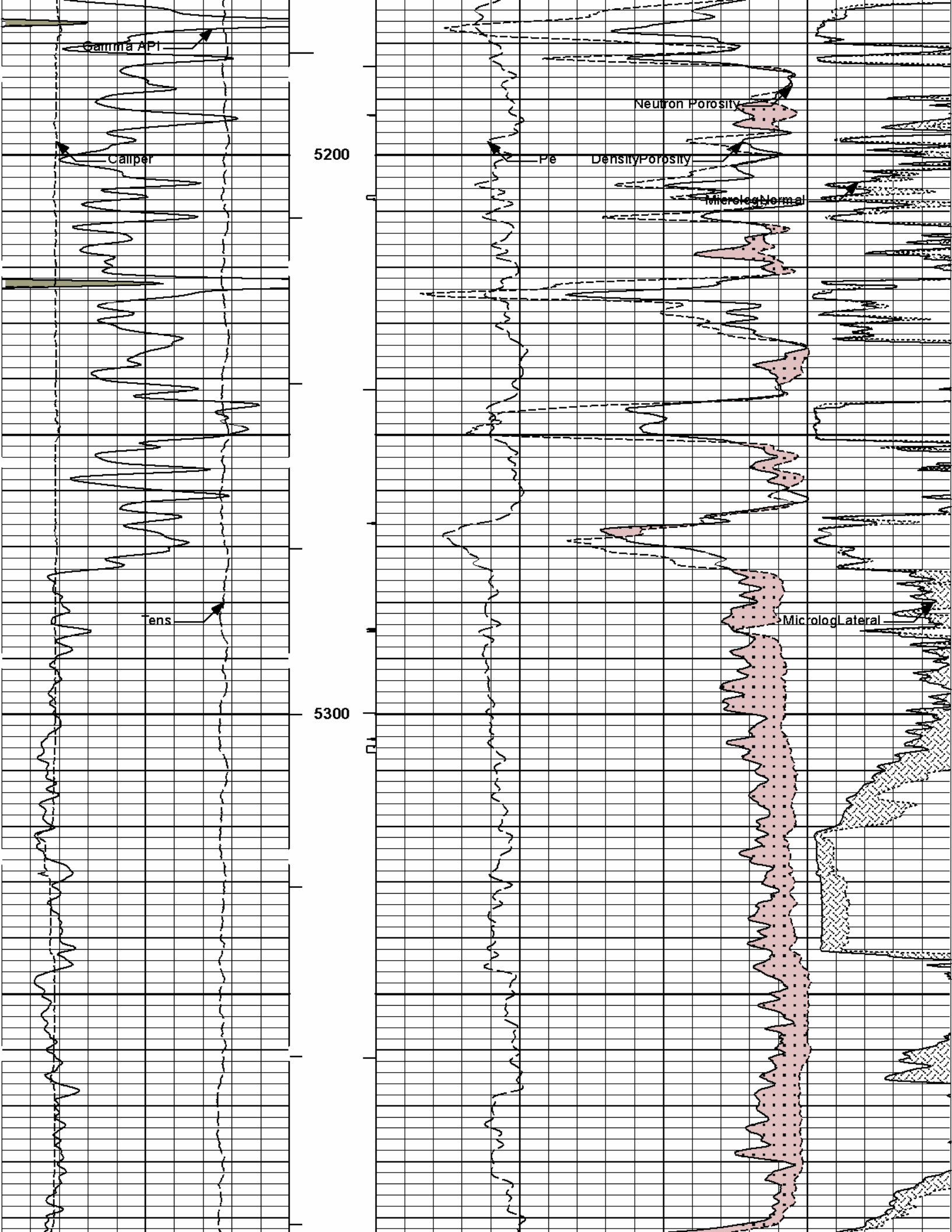
MicrologLateral
4900
Gamma API
Neutron Porosity


Caliper
Tens
Pe
DensityPorosity
MicrologNormal
MicrologLateral
5000
5100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Caliper
Tens
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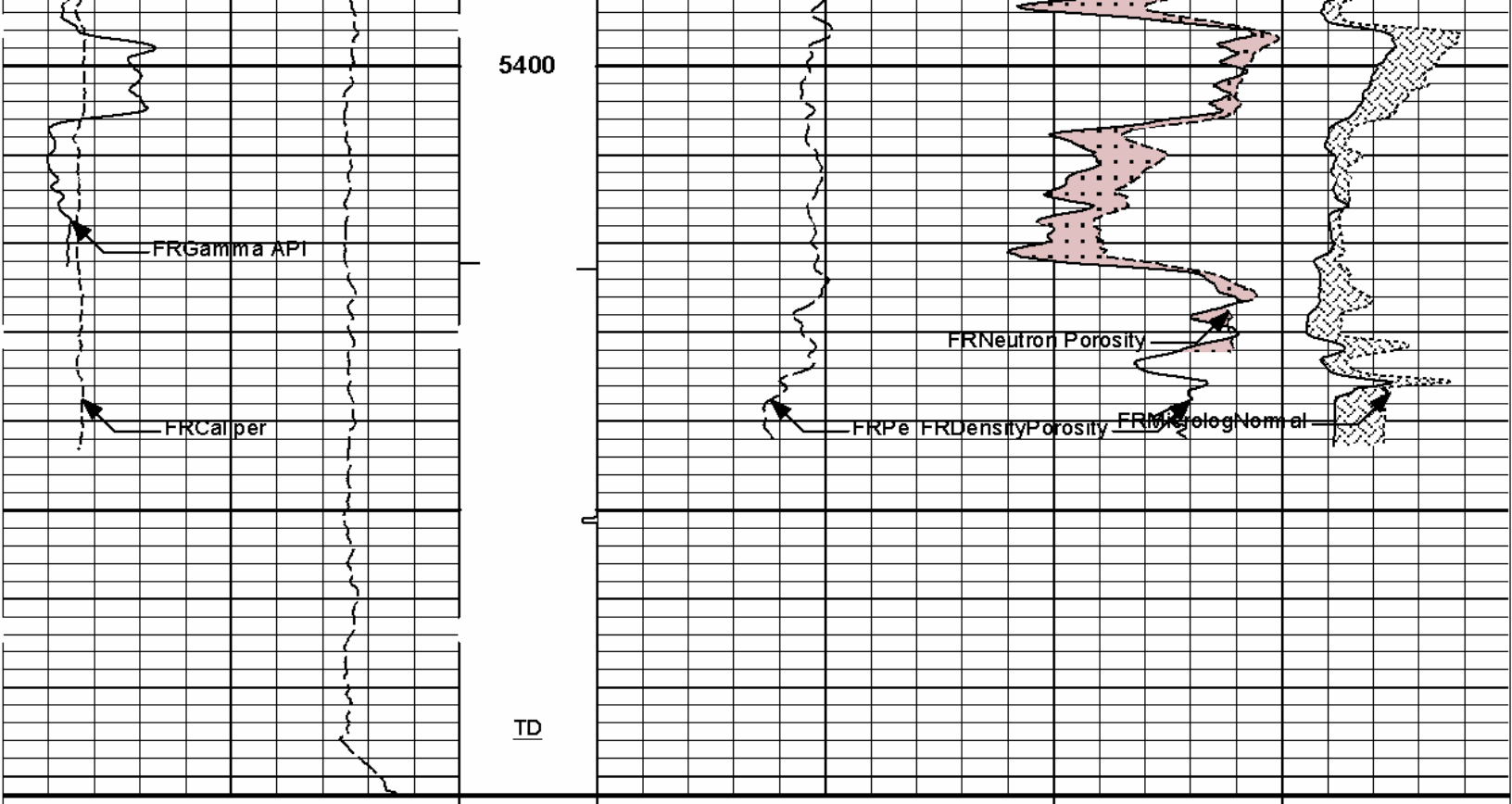
5300
Neutron Porosity
Pe
DensityPorosity
MicrologNormal
MicrologLateral



15K Tens 0
pounds
6 Caliper 16
inches
0 Gamma API 150
api
SHALE

1 : 240
ft
AHVT
BHVT
Tension Pull
10 0
Tension Pull

0 Pe 10

30 DensityPorosity -10
%
30 Neutron Porosity -10
%
CROSSOVER

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

HALLIBURTON

Plot Time: 22-May-11 21:52:04
Plot Range: 2496 ft to 5482 ft
Data: GOETZ_22_1\Well Based\DETAIL\
Plot File: \\POROML\PoroML_5_main_IQ_LIB

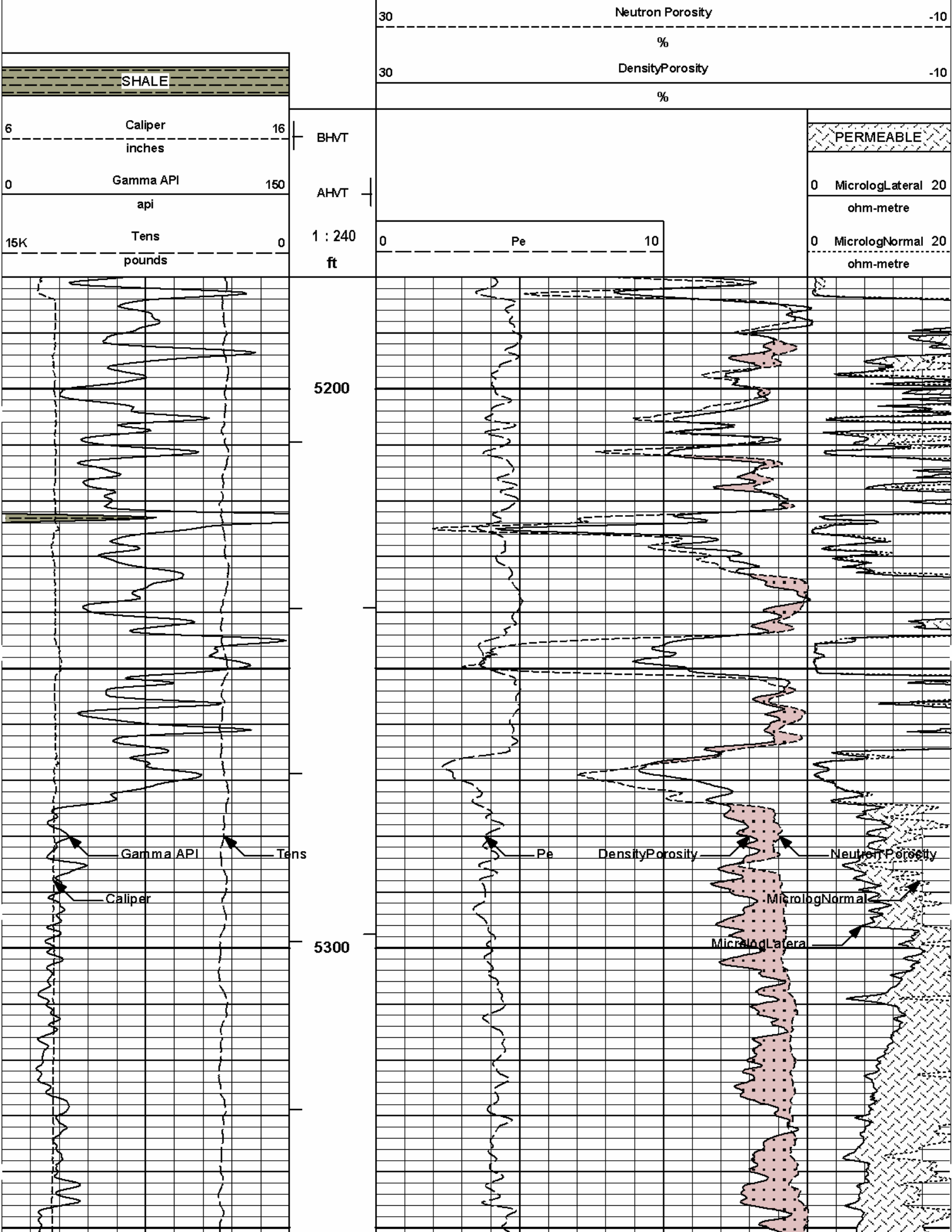
5 INCH MAIN LOG

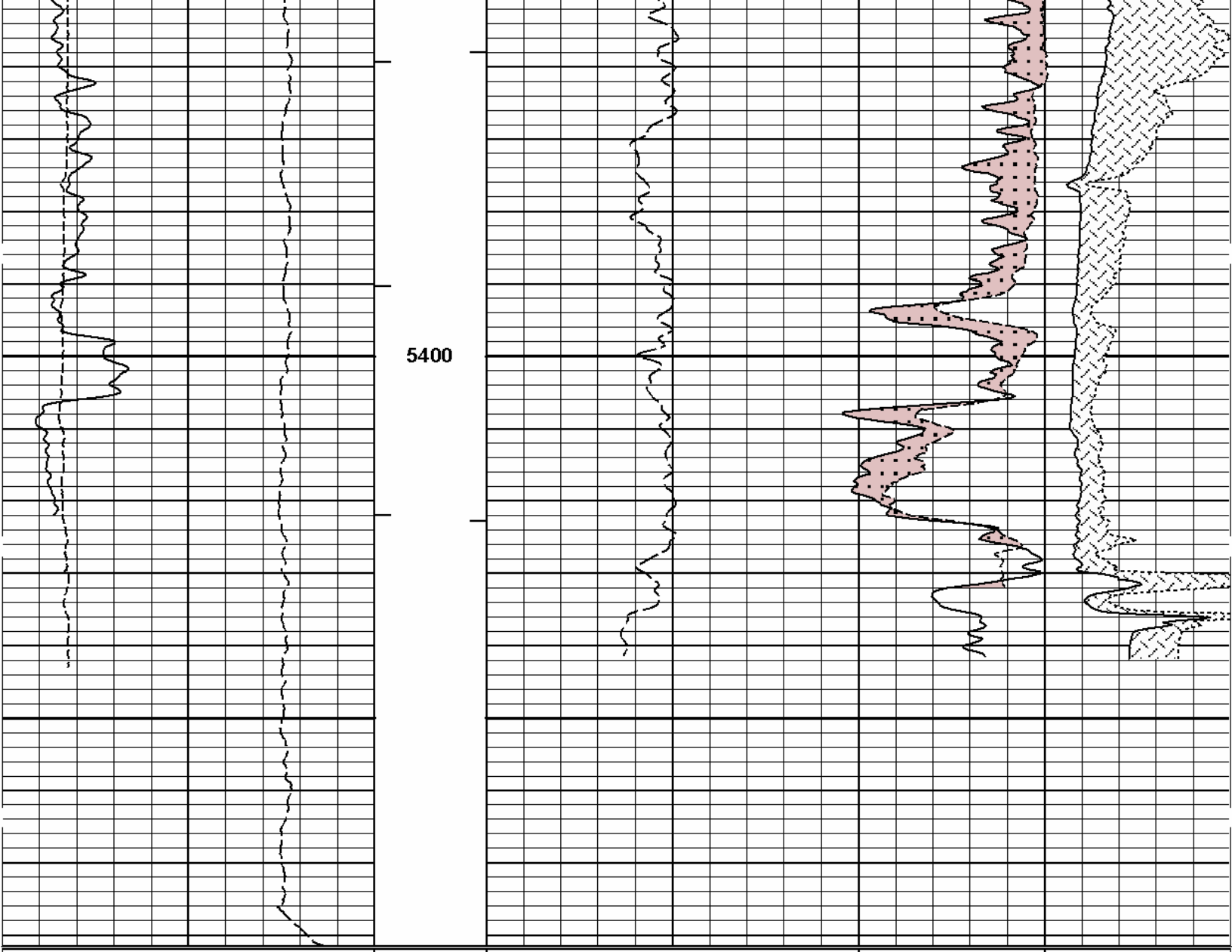
HALLIBURTON

Plot Time: 22-May-11 21:52:04
Plot Range: 5180 ft to 5481.58 ft
Data: GOETZ_22_1\Well Based\REPEAT\
Plot File: \\POROML\PoroML_IQ_5_REPEAT_LIB

REPEAT SECTION

CROSSOVER


SHALE
6
Caliper
16
inches
0
Gamma API
150
api
15K
Tens
0
pounds
BHVT
AHVT
1 : 240
ft
30
Neutron Porosity
-10
%
30
DensityPorosity
-10
%
PERMEABLE
0
MicrologLateral
20
ohm-metre
0
MicrologNormal
20
ohm-metre
0
Pe
10
5200
5300
Gamma API
Tens
Caliper
Pe
DensityPorosity
NeutronPorosity
MicrologNormal
MicrologLatera



15K Tens 0
pounds
0 Gamma API 150
api
6 Caliper 16
inches
SHALE

1 : 240
ft
AHVT
BHVT

0 Pe 10

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

30 DensityPorosity -10
%
30 Neutron Porosity -10
%
CROSSOVER

HALLIBURTON

Plot Time: 22-May-11 21:52:05
Plot Range: 5180 ft to 5481.58 ft
Data: GOETZ_22_1\Well Based\REPEAT\
Plot File: \\POROML\PoroML_IQ_5_REPEAT_LIB

REPEAT SECTION

HALLIBURTON

Plot Time: 22-May-11 21:52:06
Plot Range: 2496 ft to 5482 ft
Data: GOETZ_22_1\Well Based\DETAIL\
Plot File: \\-LOCAL-\GOETZ_22_1\0001 QUAD COMBO\POROML\BULKD_5_MAIN_LIB

5 INCH MAIN LOG

SHALE

Tension Pull

0 Gamma Ray 150
api

Tension Pull
10 0

18 FarQuality -2

AHV
ft3

2 Bulk Density 3
g/cc

-18 NearQuality 2

BHV
ft3

15K Tension 0
pounds

6 Caliper 16
inches

1 : 240
ft

0 Pe 10

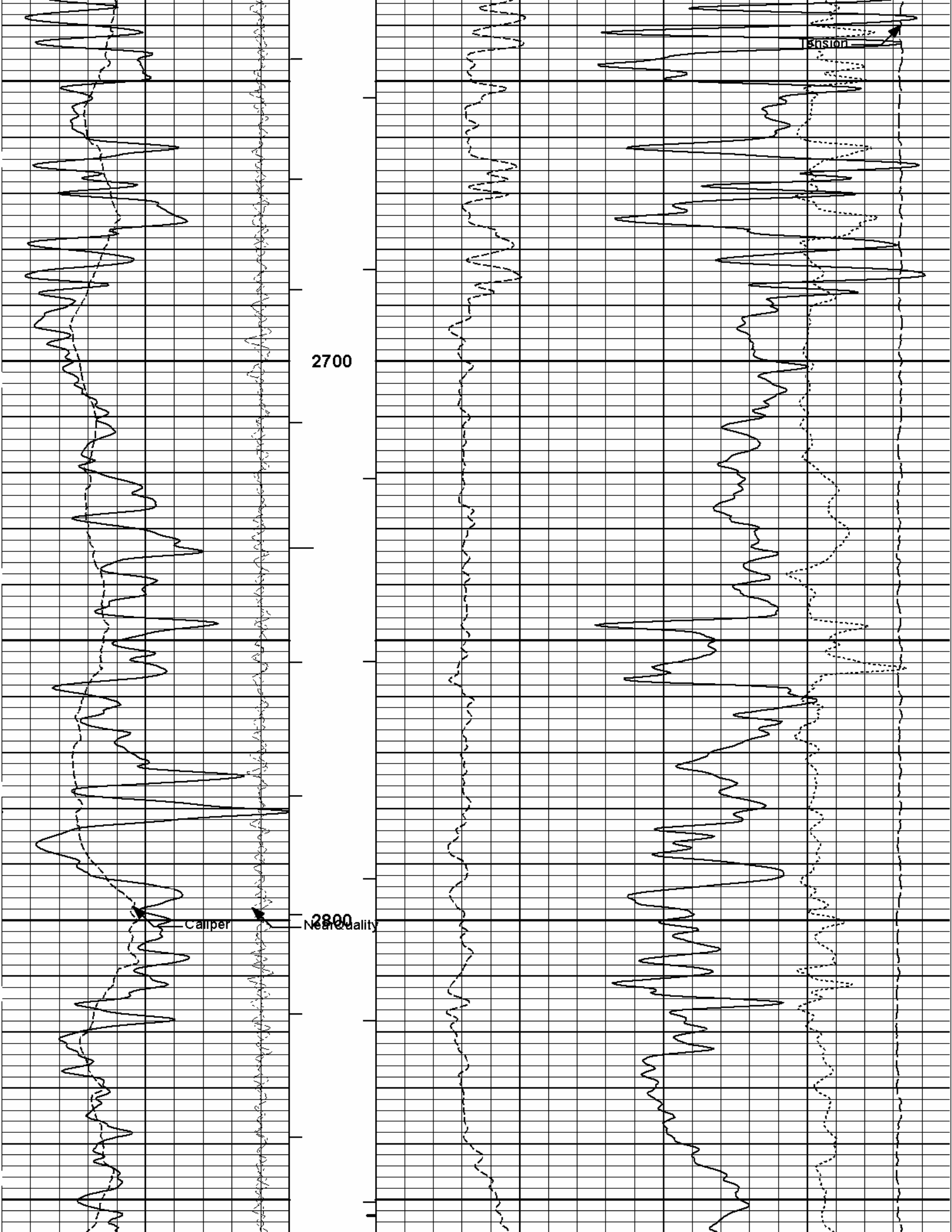
-0.25 DensityCorr 0.25
g/cc

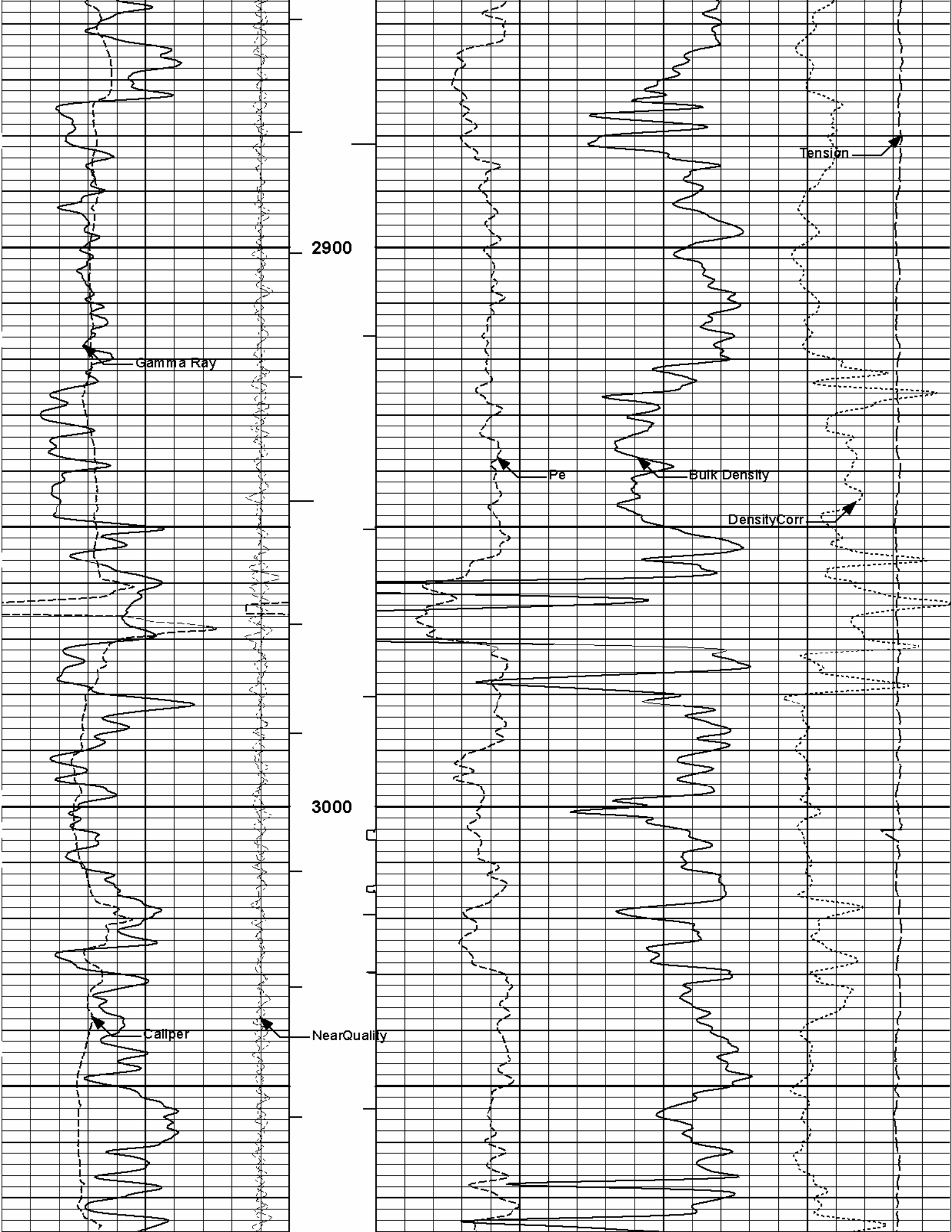
2500

Caliper

NearQuality

2600


Tension
2700
2800
Caliper
Near Quality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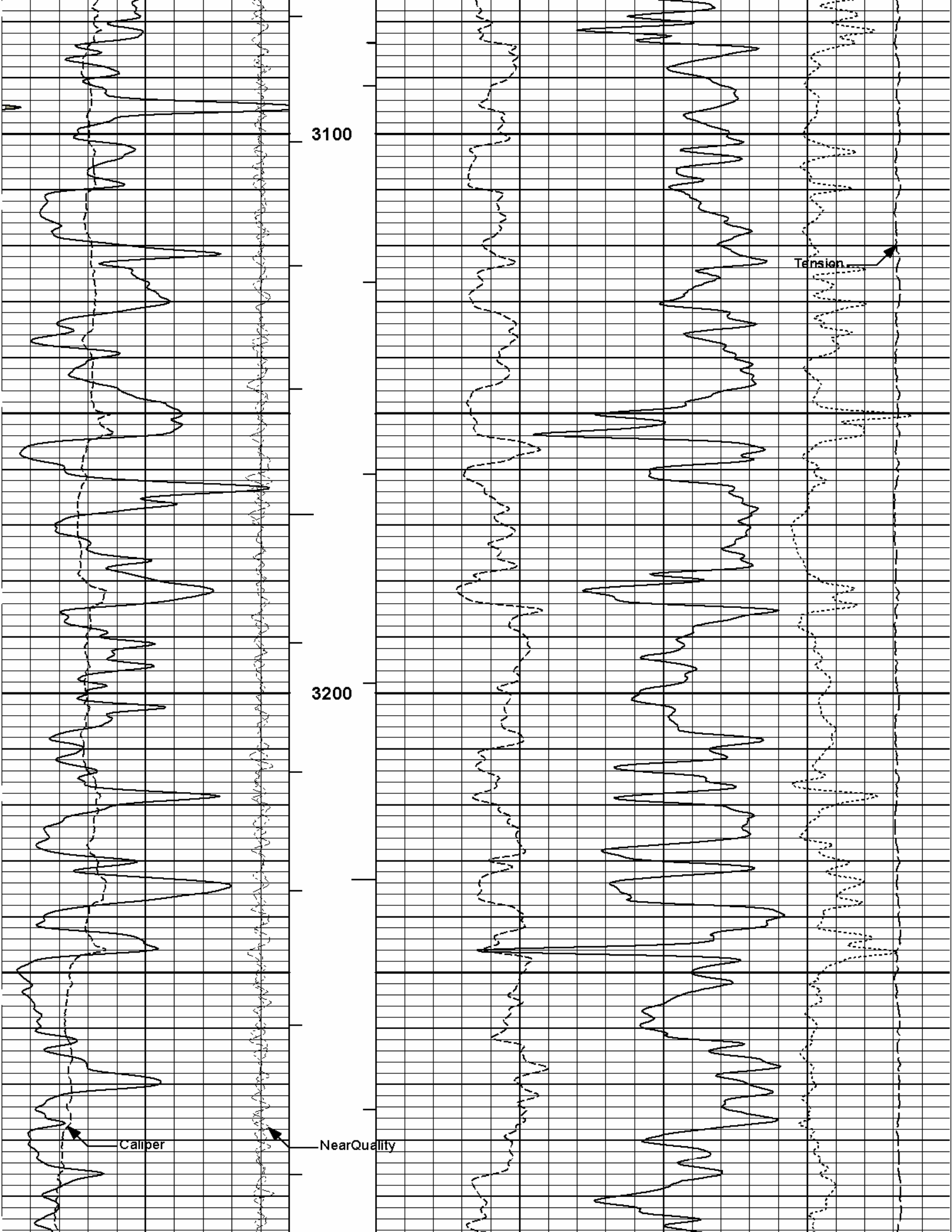
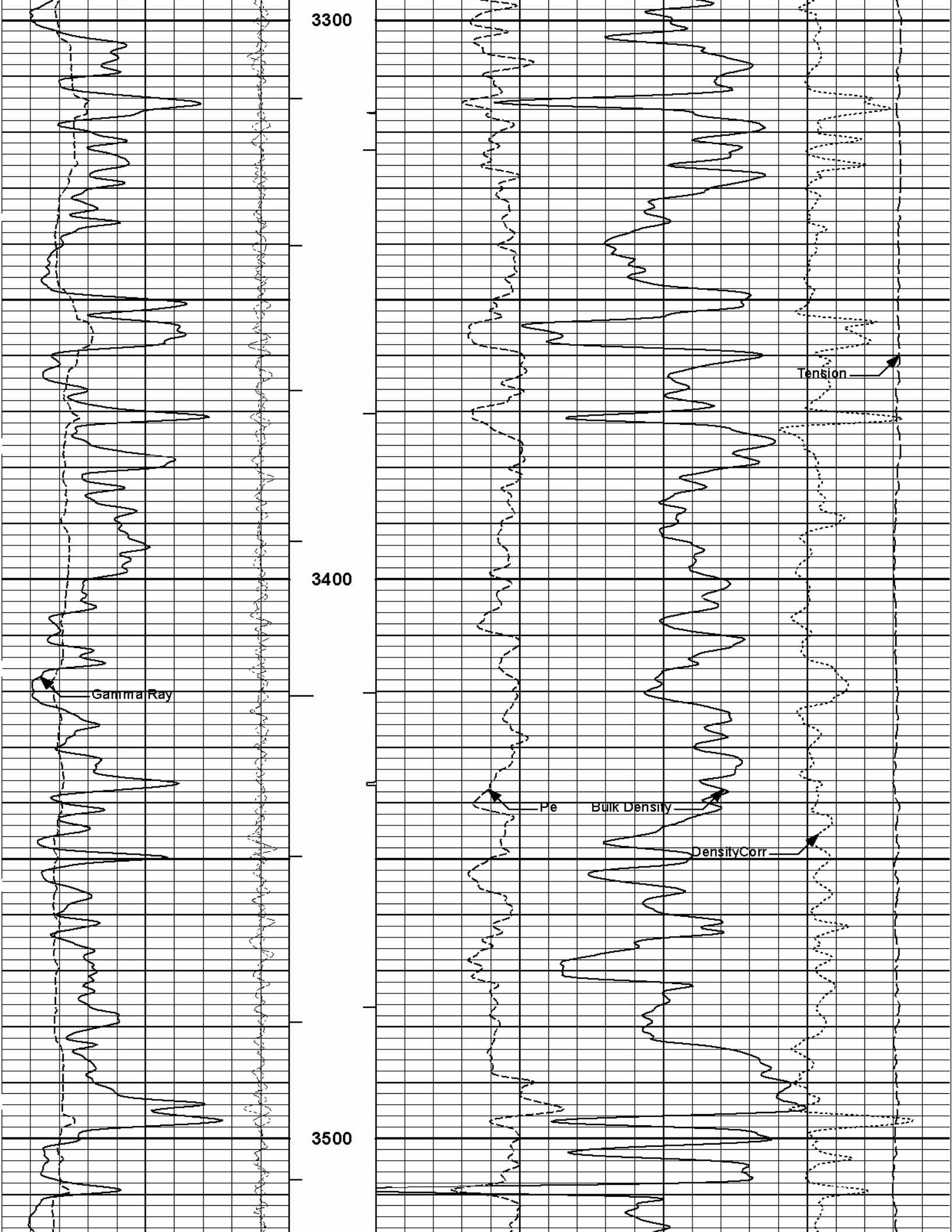
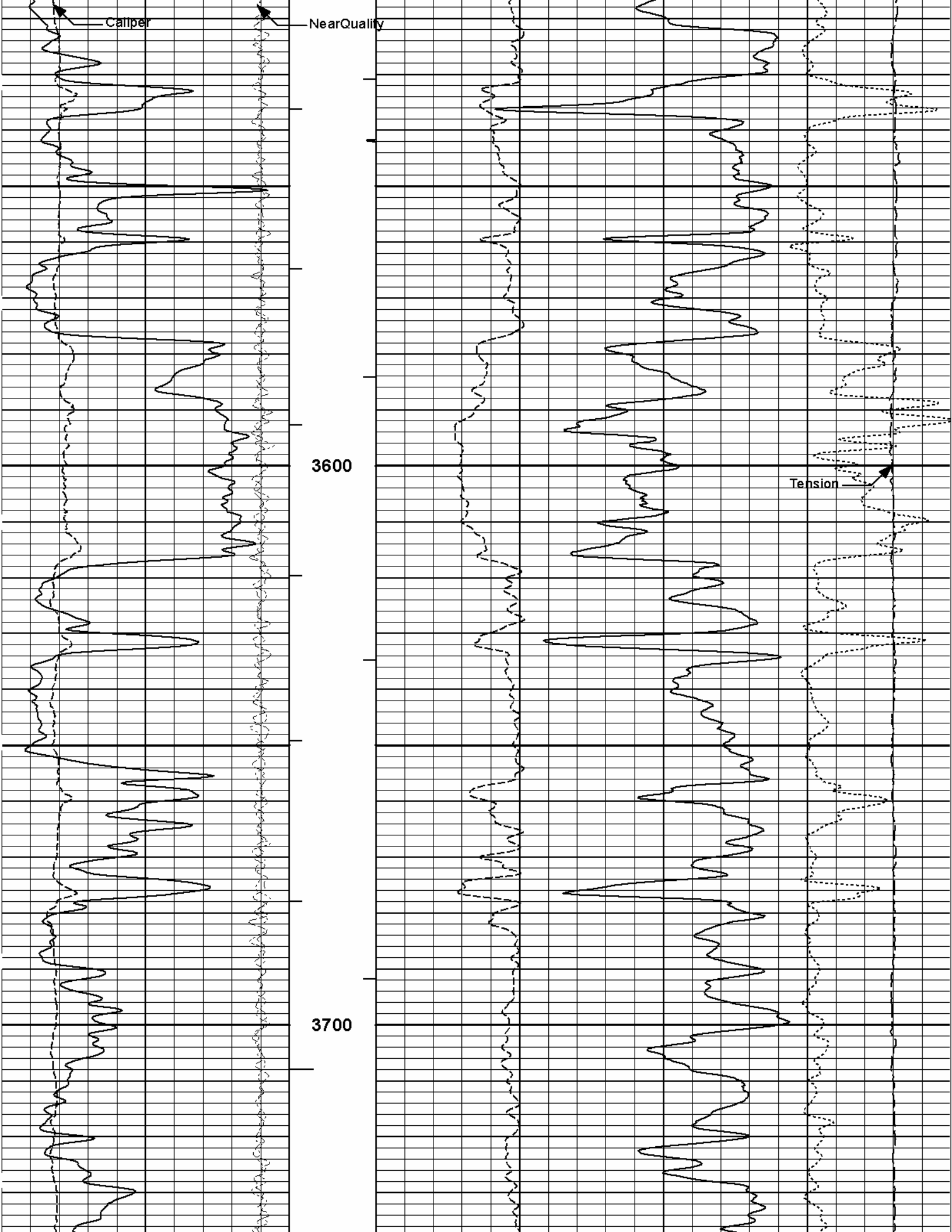
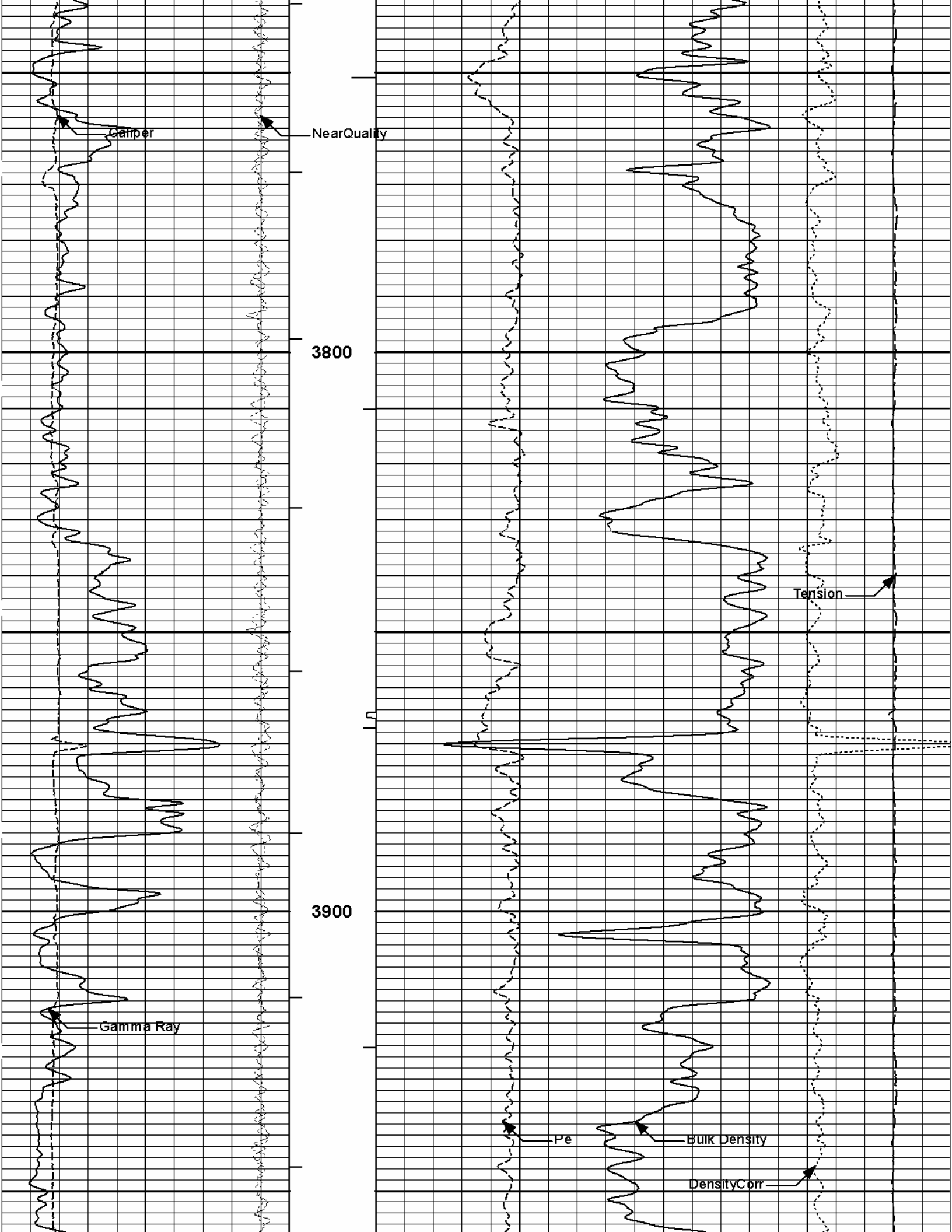
3000
Gamma Ray
Caliper
NearQuality
Pe
Bulk Density
DensityCorr
Tension


3100
3200
Tension
Caliper
NearQuality


3300
3400
3500
Gamma Ray
Pe
Bulk Density
DensityCorr
Tension


Caliper
NearQuality
3600
Tension
3700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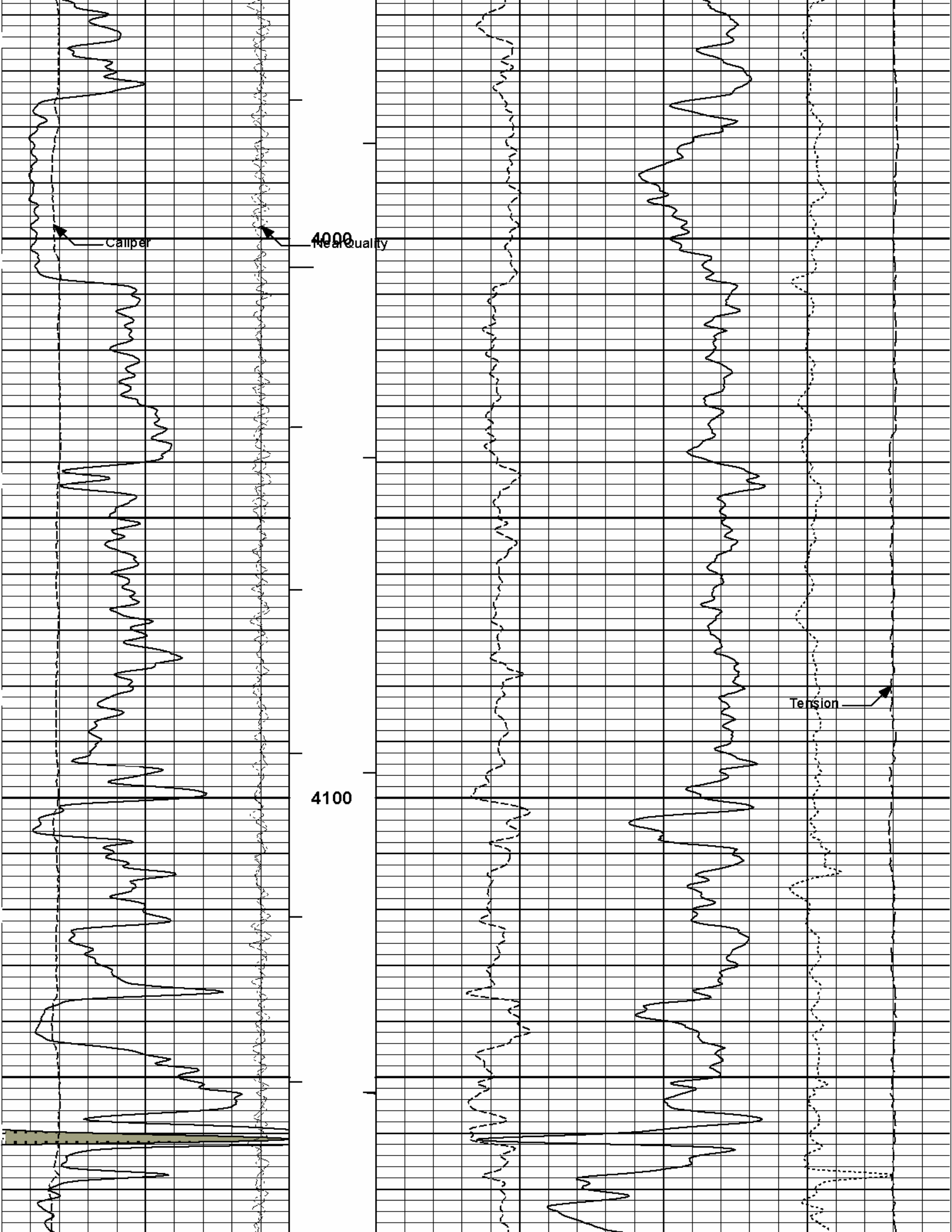
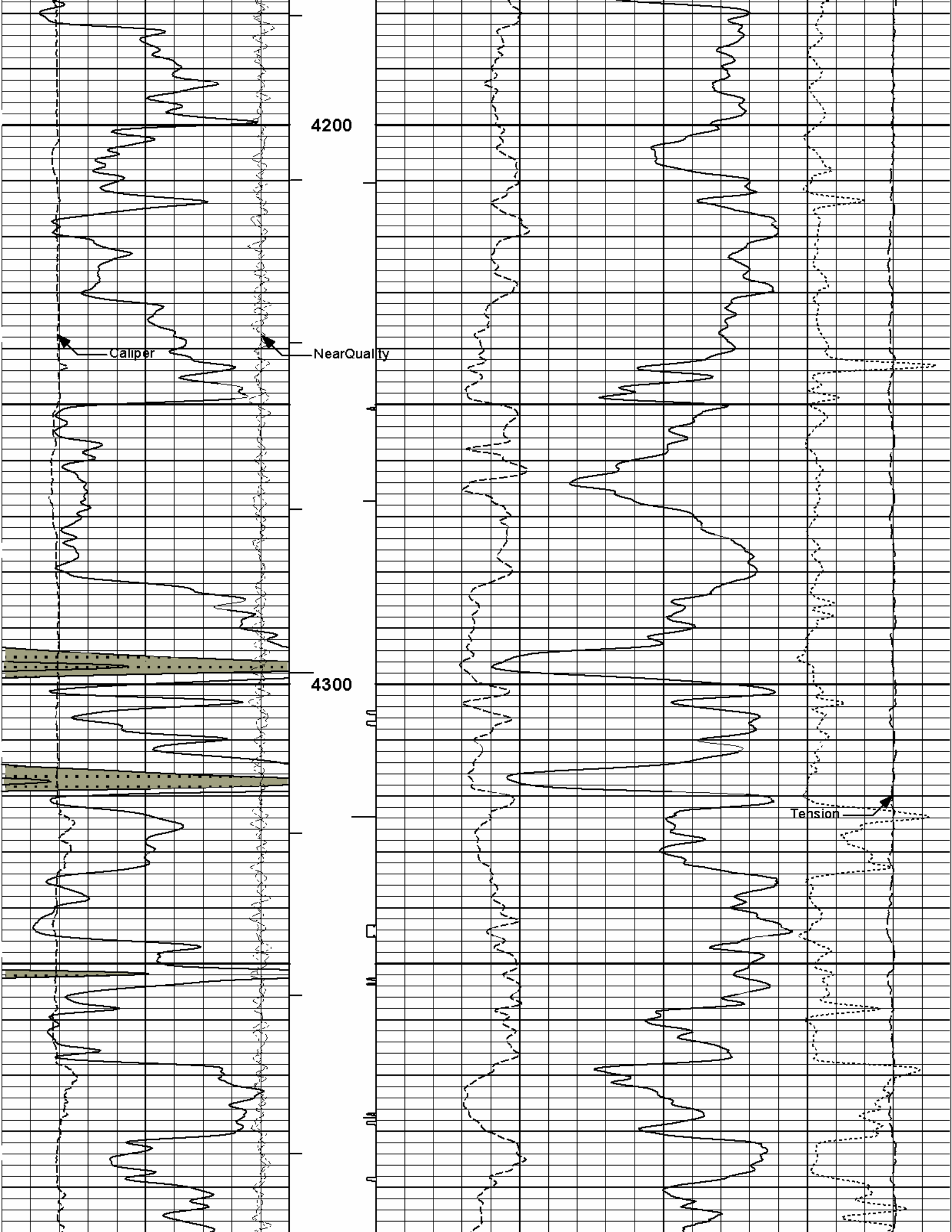
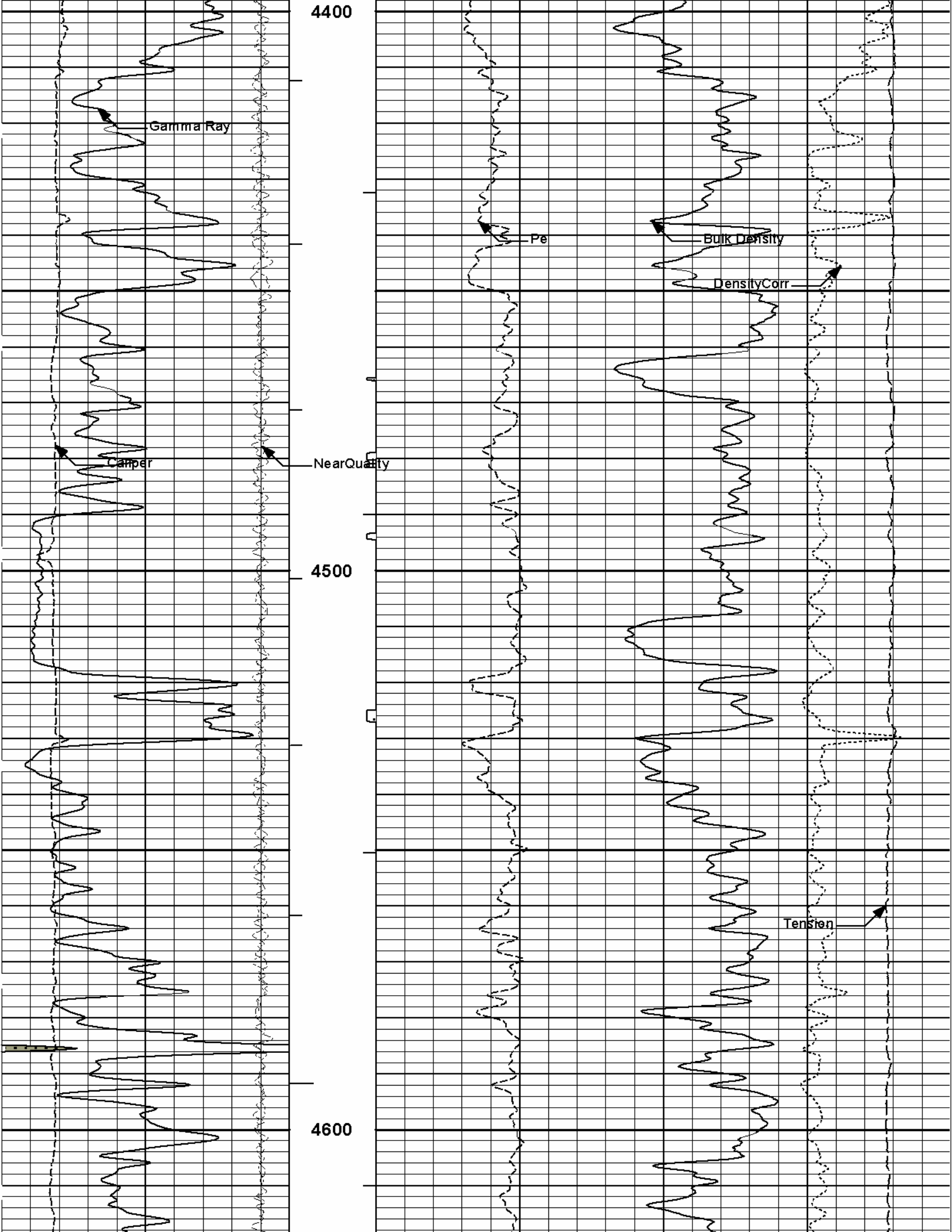
NearQuality
3800
Tension
3900
Gamma Ray
Pe
Bulk Density
DensityCorr


Caliper
Near Quality
4000
4100
Tension


4200
4300
Caliper
NearQuality
Tension


4400
Gamma Ray
Pe
Bulk Density
DensityCorr
Caliper
NearQuality
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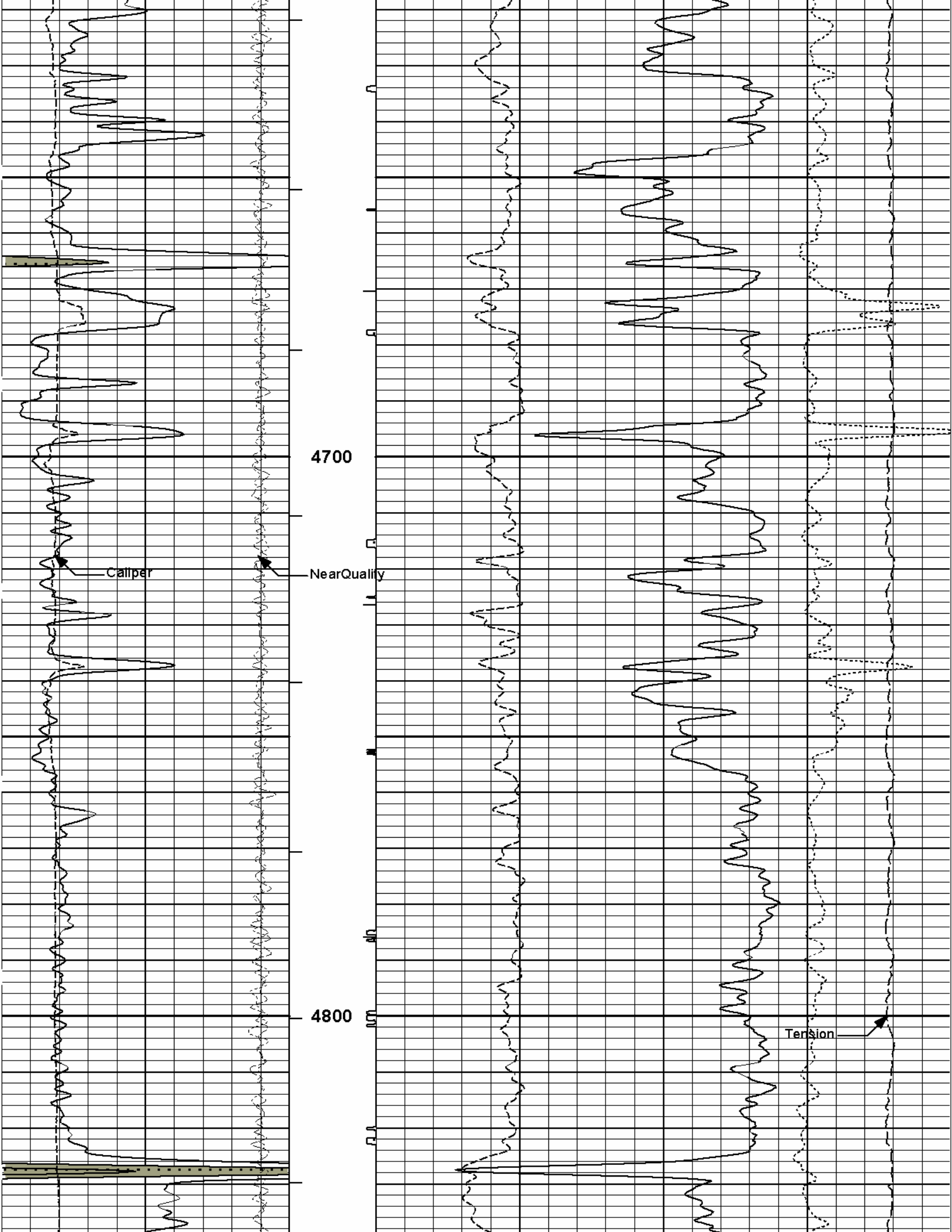
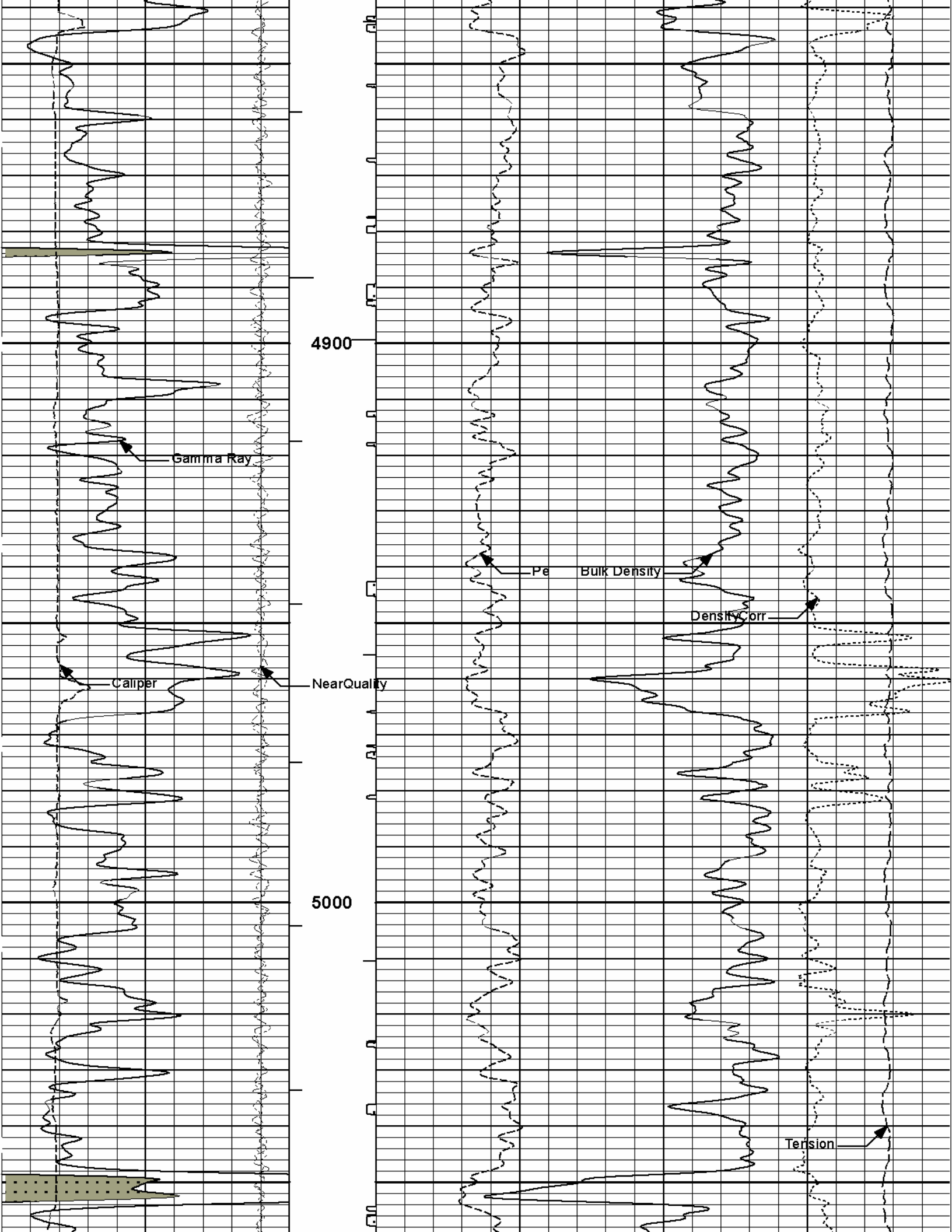
Tension
4600


4700
4800
Caliper
NearQuality
Tension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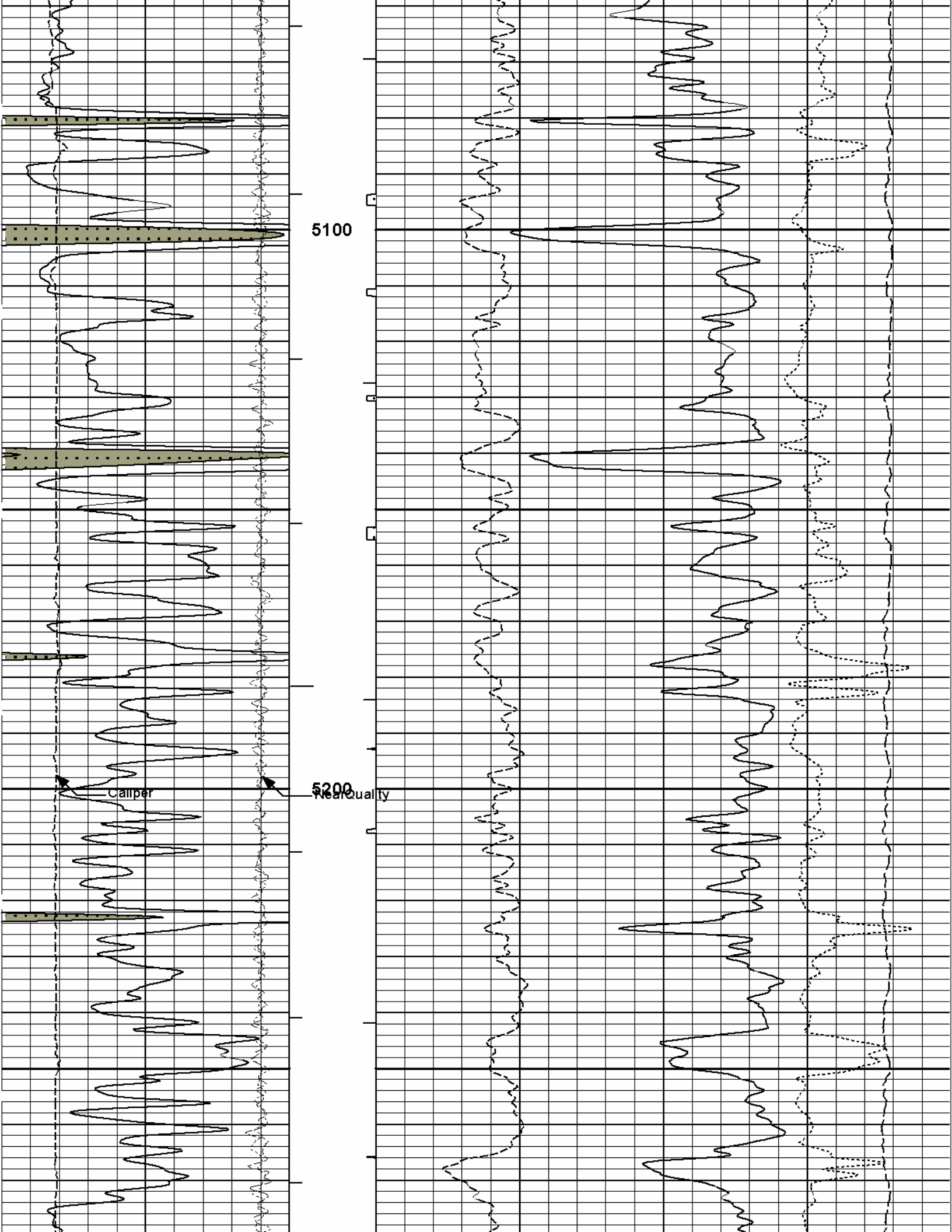
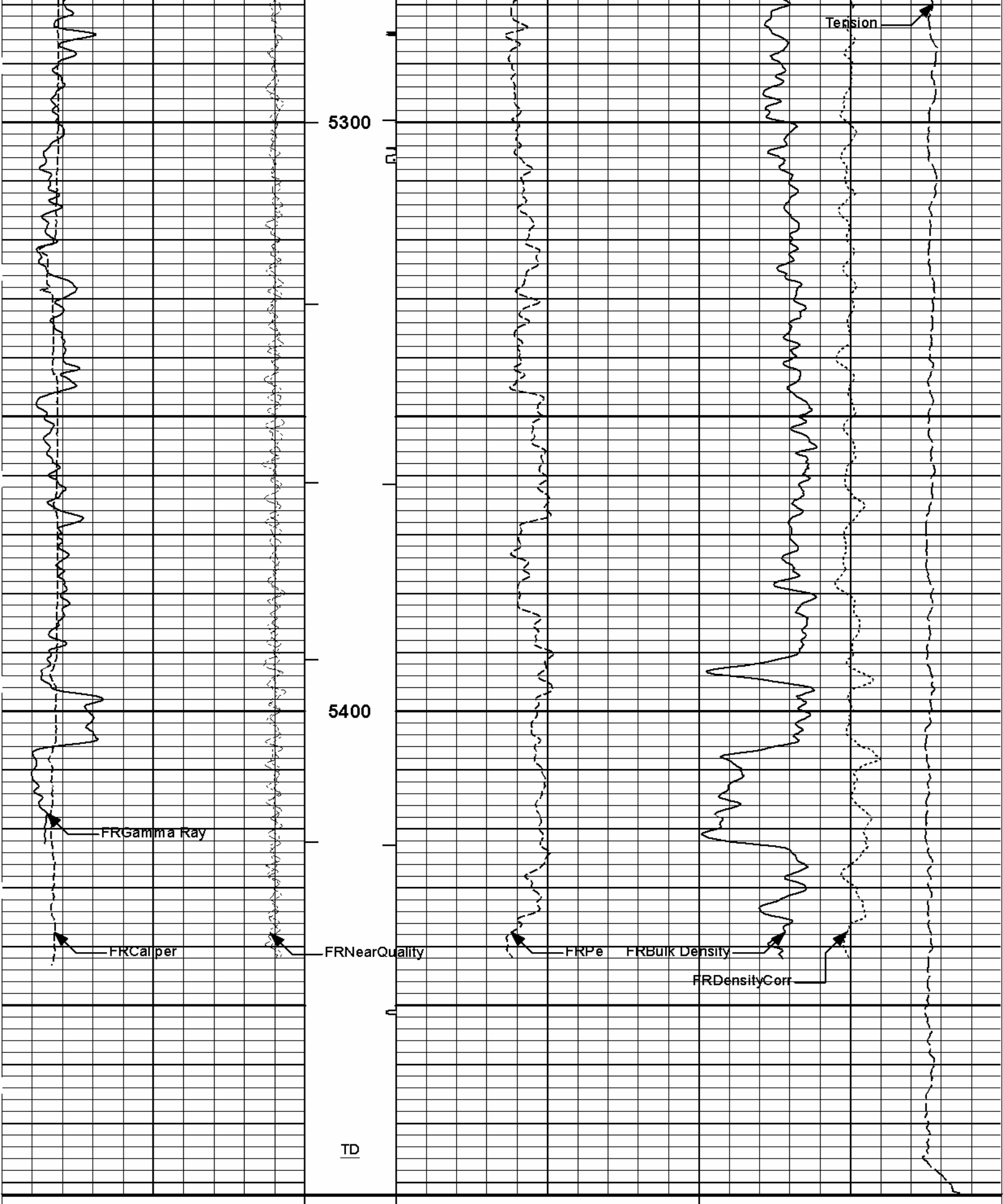
NearQuality
Pe
Bulk Density
DensityCorr
Tension


5100
5200
Caliper
NearQuality


Tension
5300
5400
FRGamma Ray
FRCaliper
FRNearQuality
FRPe
FRBulk Density
FRDensityCorr
TD
6
Caliper
16
inches
-18
NearQuality
2
1 : 240
ft
BHV
0
Pe
10
-0.25
DensityCorr
0.25
g/cc
15K
Tension
0
pounds

ft3

18 FarQuality -2

AHV ft3

2 Bulk Density 3

g/cc

0 Gamma Ray 150

api

Tension Pull 10 0

SHALE

Tension Pull

HALLIBURTON

Plot Time: 22-May-11 21:52:09
Plot Range: 2496 ft to 5482 ft
Data: GOETZ_22_1\Well Based\DETAIL\
Plot File: \\-LOCAL-\GOETZ_22_1\0001 QUAD COMBO\POROML\BULKD_5_MAIN_LIB

5 INCH MAIN LOG

HALLIBURTON

Plot Time: 22-May-11 21:52:09
Plot Range: 5180 ft to 5481.58 ft
Data: GOETZ_22_1\Well Based\REPEAT\
Plot File: \\-LOCAL-\GOETZ_22_1\0001 QUAD COMBO\POROML\BULKD_5_REP_LIB

REPEAT SECTION

SHALE

0 Gamma Ray 150

api

18 FarQuality -2

AHV ft3

2 Bulk Density 3

g/cc

-18 NearQuality 2

BHV ft3

15K Tension 0

pounds

6 Caliper 16

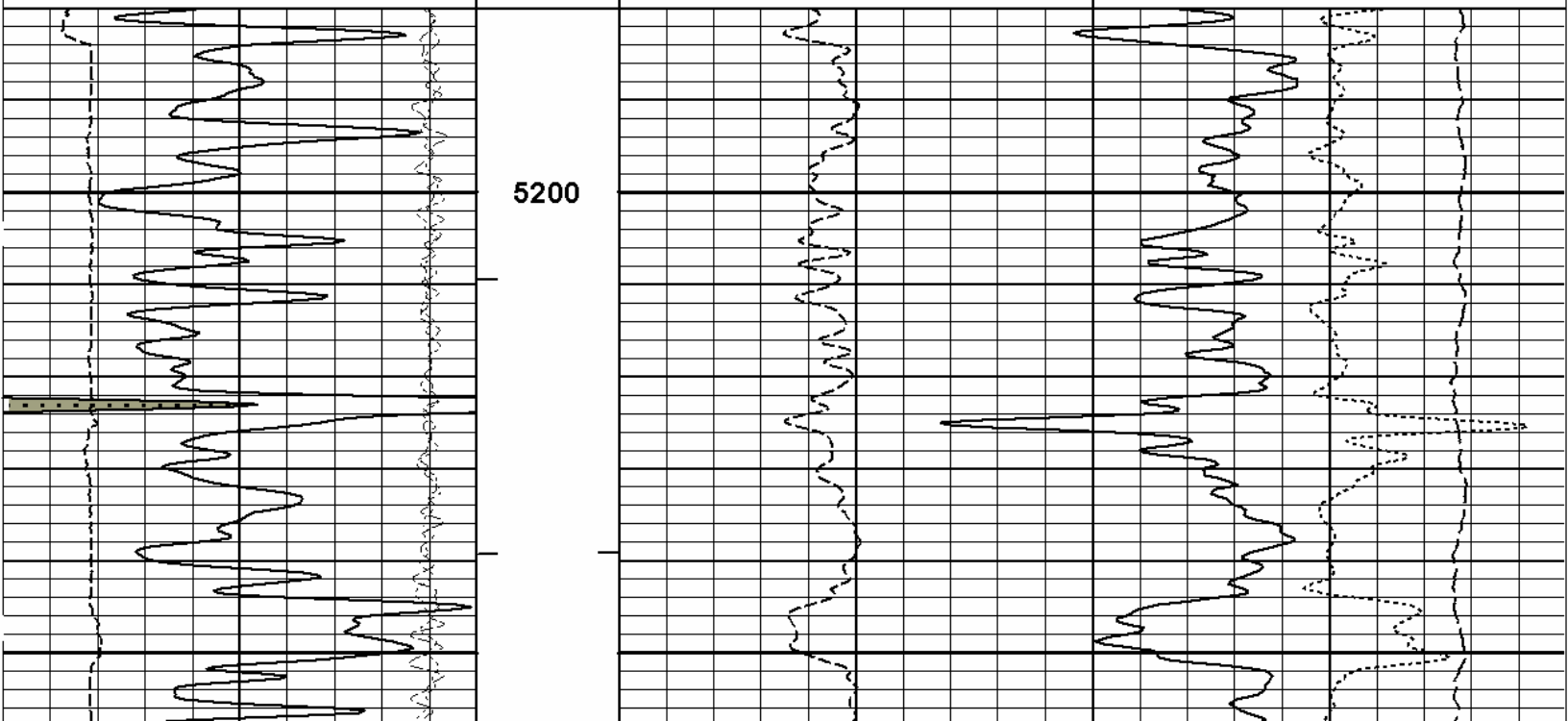
inches

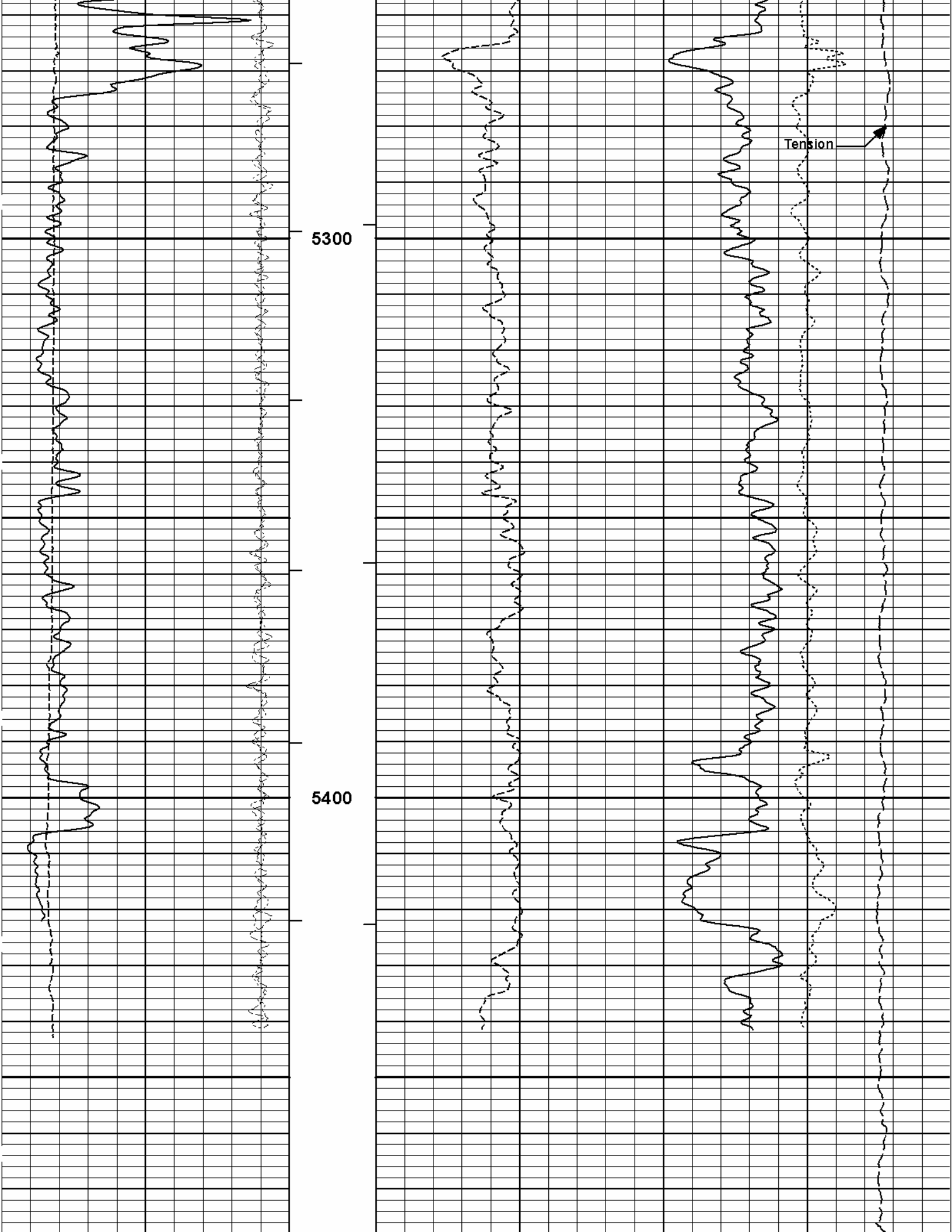
1 : 240 ft

0 Pe 10

-0.25 DensityCorr 0.25

g/cc




Tension
5300
5400

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

-0.25	DensityCorr	0.25		
	g/cc			
15K	Tension	0		
	pounds			

HALLIBURTON

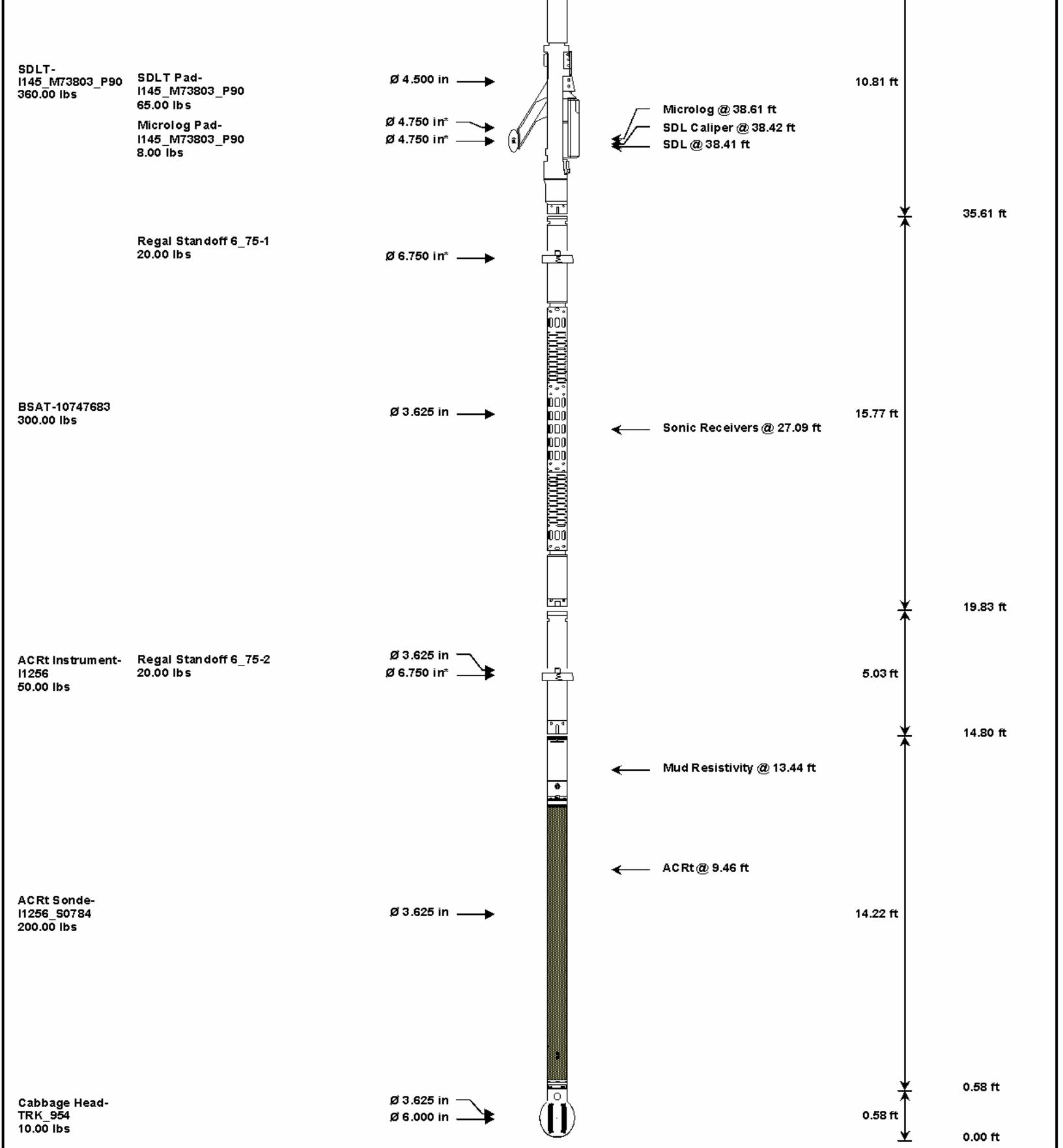
Plot Time: 22-May-11 21:52:10
Plot Range: 5180 ft to 5481.58 ft
Data: GOETZ_22_1\Well Based\REPEAT\
Plot File: \\-LOCAL-\GOETZ_22_1\0001 QUAD COMBO\POROML\BULKD_5_REP_LIB

REPEAT SECTION

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
						71.39 ft
CH_HOS-954 37.50 lbs		Ø 2.750 in		Temperature @ 70.36 ft	3.03 ft	
						68.36 ft
SP Sub-TRK_954 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		
						56.11 ft
	DSN Decentralizer-10735145 6.60 lbs	Ø 5.000 in*				
DSNT-10735145 174.00 lbs		Ø 3.625 in			9.69 ft	
				DSN Far @ 49.17 ft		
				DSN Near @ 48.42 ft		
						46.42 ft



Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)		Accumulated Length (ft)	Max.Log. Speed (fpm)
CH_HOS	Hostile Cable Head with Load Cell	954	37.50	3.03		68.36	300.00
SP	SP Sub	TRK_954	60.00	3.74		64.63	300.00
GTET	Gamma Telemetry Tool	10811258	165.00	8.52		56.11	60.00
DSNT	Dual Spaced Neutron	10735145	174.00	9.69		46.42	60.00
DCNT	DSN Decentralizer	10735145	6.60	5.13	*	49.75	300.00
SDLT	Spectral Density Tool	I145_M73803_P90	360.00	10.81		35.61	60.00
SDLP	Density Insite Pad	I145_M73803_P90	65.00	2.55	*	37.82	60.00
MICP	Microlog Pad	I145_M73803_P90	8.00	1.00	*	38.11	60.00

BSAT	Borehole Sonic Array Tool	10747683	300.00	15.77		19.83	60.00
RSOF	Regal Standoff 6.75in	1	20.00	0.52	*	33.69	300.00
ACRt	Array Compensated True Resistivity Instrument Section	I1256	50.00	5.03		14.80	300.00
RSOF	Regal Standoff 6.75in	2	20.00	0.52	*	16.99	300.00
ACRt	Array Compensated True Resistivity	I1256_S0784	200.00	14.22		0.58	300.00
CBHD	Cabbage Head	TRK_954	10.00	0.58		0.00	300.00
Total			**1,476.10**	**71.39**			

* Not included in Total Length and Length Accumulation.

Data: GOETZ_22_1\0001 QUAD COMBO\IDLE **Date: 22-May-11 18:35:13**

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name: **GTET - 10811258** **Reference Calibration Date:** **07-Feb-11 20:34:22**

Engineer: **C. MARLOWE** **Calibration Date:** **20-May-11 16:40:55**

Software Version: **WL INSITE R3.3.2 (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	29.6	29.3	api
Background + Calibrator	264.3	261.2	api
Calibrator	234.7	232.0	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name: **GTET - 10811258** **Reference Calibration Date:** **20-May-11 16:40:55**

Engineer: **C. HAVERKAMP** **Calibration Date:** **22-May-11 17:24:22**

Software Version: **WL INSITE R3.3.2 (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	29.3	32.7	api
Background + Calibrator	261.2	267.0	api
Calibrator	232.0	234.2	api

Shop	Field	Difference	Tolerance
232.0	234.2	-2.2	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name: **DSNT - 10735145** **Reference Calibration Date:** **27-Apr-11 15:28:18**

Engineer: **S. JUNG** **Calibration Date:** **18-May-11 21:10:57**

Software Version: **WL INSITE R3.3.2 (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_954

Calibration Tank Water Temperature: 70 degF

Min. Tool Housing Outside Diameter: 3.615 in

CALIBRATION CONSTANTS

Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	0.940	0.938	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):	0.2109	0.2103	0.0006	+/- 0.0020
Calibrated Ratio:	9.73	9.70	0.021	+/- 0.050

VERIFIER

Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0534	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 - 10735145
Reference Calibration Date: 18-May-11 21:10:57
Engineer: C. HAVERKAMP
Calibration Date: 22-May-11 17:31:16
Software Version: WL INSITE R3.3.2 (Build 2)
Calibration Version: 1

Logging Source S/N: DSN-436
Snow Block S/N: TRK_954

NEUTRON FIELD-CHECK SUMMARY

	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0534	0.0643	0.0109	+/- 0.0150

PASS/FAIL SUMMARY

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

DENSITY CALIPER SHOP CALIBRATION

Tool Name: SDLT - I145_M73803_P90
Reference Calibration Date: 02-May-11 15:41:59
Engineer: C. MARLOWE
Calibration Date: 20-May-11 16:52:52
Software Version: WL INSITE R3.3.2 (Build 2)
Calibration Version: 1

CALIBRATION COEFFICIENTS

Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-2768.27	-2676.44	-7000.00 - -1000.00
Pad Gain	0.0003975	0.0003965	0.000200 - 0.000600
Arm Offset	-1369.12	-1687.08	-5000.00 - 3000.00
Arm Gain	0.0005355	0.0005317	0.000300 - 0.000700
Arm Power	-0.000006321	-0.000006112	-0.000010 - 0.000010

The ring diameter is computed from: DIAMETER = PAD EXTENSION + ARM EXTENSION + TOOL DIAMETER
Tool Diameter: 4.50 in

CALIBRATION RINGS

Measurement	Current Reading	Calibrated	Change	Control Limit On

Measurement	(Previous Coeff.)	(New Coeff.)	Change	New Value
PAD EXTENSION:				
Small Ring (in)	1.97	2.00	0.03	+/- 0.20
Medium Ring (in)	3.72	3.75	0.03	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.64	6.50	-0.14	+/- 0.20
Medium Ring (in)	8.39	8.25	-0.14	+/- 0.20
Large Ring (in)	15.10	15.00	-0.10	+/- 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 - I145_M73803_P90**	**Reference Calibration Date:**	**20-May-11 16:52:52**
Engineer:	**C. HAVERKAMP**	**Calibration Date:**	**22-May-11 17:35:35**
Software Version:	**WL INSITE R3.3.2 (Build 2)**	**Calibration Version:**	**1**

MEASURED CALIPER VALUES

Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.79	0.04	+/- 0.10
Ring Diameter	8.25	8.21	-0.04	+/- 0.15

PASS/FAIL SUMMARY

Pad Extension Check:	Passed
Diameter Check:	Passed

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name:	**SDLT Pad - I145_M73803_P90**	**Reference Calibration Date:**	**18-Apr-11 16:16:34**
Engineer:	**S. JUNG**	**Calibration Date:**	**18-May-11 17:44:44**
Software Version:	**WL INSITE R3.3.2 (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	1.0353	1.0080	0.90 - 1.10
Near Dens Gain	1.0190	1.0081	0.90 - 1.10
Near Peak Gain	1.0375	1.0056	0.90 - 1.10
Near Lith Gain	1.0104	0.9844	0.90 - 1.10
Far Bar Gain	0.9985	0.9923	0.90 - 1.10
Far Dens Gain	0.9857	0.9826	0.90 - 1.10
Far Peak Gain	0.9787	0.9743	0.90 - 1.10
Far Lith Gain	0.9483	0.9481	0.90 - 1.10
Near Bar Offset	-0.1619	0.0954	NONE
Near Dens Offset	-0.0185	0.0893	NONE
Near Peak Offset	-0.1666	0.1119	NONE
Near Lith Offset	0.0392	0.2668	NONE
Far Bar Offset	0.0968	0.1571	NONE
Far Dens Offset	0.1808	0.2226	NONE

Far Dens Offset	0.1909	0.2226	NONE
Far Peak Offset	0.1991	0.2358	NONE
Far Lith Offset	0.3455	0.3443	NONE
Near Bar Background	906.37	902.15	700 - 1450
Near Dens Background	299.38	299.70	230 - 480
Near Peak Background	131.43	131.63	100 - 210
Near Lith Background	160.58	160.75	125 - 260
Far Bar Background	606.95	604.55	450 - 900
Far Dens Background	238.34	237.94	175 - 345
Far Peak Background	95.49	94.36	70 - 140
Far Lith Background	98.93	98.09	75 - 145

CALIBRATION BLOCK SUMMARY

Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.683	1.690	0.007	+/- 0.015
Pe	2.585	2.557	-0.028	+/- 0.150
ALUMINUM				
Density (g/cc)	2.581	2.591	0.010	+/- 0.01500
Pe	3.147	3.131	-0.016	+/- 0.150

TOOL SUMMARY

Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	-0.0012	+/- 0.0110	-0.0012	+/- 0.0140
Magnesium Block	0.0005	+/- 0.0110	-0.0014	+/- 0.0140
Aluminum Block	-0.0003	+/- 0.0110	0.0007	+/- 0.0140
Resolution	8.83	6.00 - 11.50	9.03	6.00 - 11.50
Internal Verifier(B+D+P+L)	1494	1200 - 2700	1035	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 - I145_M73803_P90 **Reference Calibration Date:** 18-May-11 17:44:44

Engineer: C. HAVERKAMP **Calibration Date:** 22-May-11 17:27:32

Software Version: WL INSITE R3.3.2 (Build 2) **Calibration Version:** 1

Pad Temperature: 96.4 degF

DENSITY FIELD CALIBRATION SUMMARY

Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1494.227	1495.188	0.961	15.578
Far (B+D+P+L) cps	1034.943	1032.774	-2.169	17.132

Near Resolution	8.83	9.05	0.220	0.50
Far Resolution	9.03	9.50	0.470	1.00

PASS/FAIL SUMMARY

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

MICRO LOG SHOP CALIBRATION

Tool Name: Microlog Pad - I145_M73803_P90 **Reference Calibration Date:** 02-May-11 15:44:47

Engineer: S. JUNG **Calibration Date:** 18-May-11 17:54:56

Software Version: WL INSITE R3.3.2 (Build 2) **Calibration Version:** 1

CALIBRATION COEFFICIENT SUMMARY

Measurement	Micro Log Normal		Micro Log Lateral		
	Measured	Calibrated	Measured	Calibrated	Units
Tool Zero	-0.07	-0.06	-0.01	-0.00	ohmm
Calibration Point #1	-0.01	0.00	-0.01	0.00	ohmm
Calibration Point #2	20.13	20.00	20.21	20.00	ohmm
Internal Reference	20.08	19.95	20.22	20.02	ohmm

Measurement	Micro Log Normal Tool Value	Micro Log Lateral Tool Value	Units
Tool Zero	0.00	-0.32	V
Calibration Point #1	17.26	0.32	V
Calibration Point #2	5399.42	7020.42	V
Internal Reference	5386.49	7026.02	V

MICRO LOG FIELD CHECK

Tool Name: Microlog Pad - I145_M73803_P90 **Reference Calibration Date:** 18-May-11 17:54:56

Engineer: C. HAVERKAMP **Calibration Date:** 22-May-11 17:28:14

Software Version: WL INSITE R3.3.2 (Build 2) **Calibration Version:** 1

Measurement	Micro Log Normal		Micro Log Lateral		
	Shop	Field	Shop	Field	Units
Tool Zero	-0.06	-0.07	-0.00	-0.00	ohmm
Internal Reference	19.95	20.00	20.02	20.06	ohmm

Summary

Signal	Shop	Field	Difference	Tolerence
Microlog Normal	19.95	20.00	-0.05	+/- 0.80
Microlog Lateral	20.02	20.06	-0.04	+/- 0.80

CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-10811258						
Gamma Ray Calibrator	232.0	234.2	----------	-2.2	+/- 9.00	api
DSNT-10735145						
Snow-Block Porosity	0.0534	0.0643	----------	-0.0109	+/- 0.0150	decp
SDLT-I145_M73803_P90						
Pad Extension	3.75	3.79	----------	-0.04	+/-0.10	in
Ring Diameter	8.25	8.21	----------	0.040	+/-0.15	in
SDLT Pad-I145_M73803_P90						

Near(B+D+P+L)	1494.227	1495.188	----------	-0.961	+/-15.578	cps
Far(B+D+P+L)	1034.943	1032.774	----------	2.169	+/-17.132	cps
Microlog Pad-I145_M73803_P90						
MicroLog Normal	19.95	20.00	----------	-0.05	+/-0.80	ohmm
MicroLog Lateral	20.02	20.06	----------	-0.04	+/-0.80	ohmm

Data: GOETZ_22_1\0001 QUAD COMBO\IDLE Date: 22-May-11 21:27:02

HALLIBURTON

PARAMETERS REPORT

Depth ((ft))	Tool Name	Mnemonic	Description	Value	Units
TOP					
	SHARED	BS	Bit Size	7.875	in
	SHARED	UBS	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	MDBS	Mud Base	Water	
	SHARED	MDWT	Borehole Fluid Weight	9.400	ppg
	SHARED	WAGT	Weighting Agent	Natural	
	SHARED	BSAL	Borehole salinity	4000.00	ppm
	SHARED	FSAL	Formation Salinity NaCl	0.00	ppm
	SHARED	KPCT	Percent K in Mud by Weight?	0.00	%
	SHARED	RMUD	Mud Resistivity	0.480	ohmm
	SHARED	TRM	Temperature of Mud	91.0	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	5480.00	ft
	SHARED	BHT	Bottom Hole Temperature	125.0	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	0.10	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	
	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
	Microlog Pad	MLOK	Process MicroLog Outputs?	Yes	
	BSAT	MBOK	Compute BCAS Results?	Yes	
	BSAT	FLLO	Frequency Filter Low Pass Value?	5000	Hz
	BSAT	FLHI	Frequency Filter High Pass Value?	27000	Hz
	BSAT	DTFL	Delta -T 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 Sonde	RTOK	Process ACRt?	Yes	
	ACRt Sonde	MNSO	Minimum Tool Standoff	1.50	in
	ACRt Sonde	TCS1	Temperature Correction Source	FP Lwr & FP Upr	
	ACRt Sonde	TPOS	Tool Position	Free Hanging	
	ACRt Sonde	RMOP	Rmud Source	Mud Cell	
	ACRt Sonde	RMIN	Minimum Resistivity for MAP	0.20	ohmm
	ACRt Sonde	RMIN	Maximum Resistivity for MAP	200.00	ohmm
	ACRt Sonde	THQY	Threshold Quality	0.50	
BOTTOM					

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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	
	CH_HOS			
DHTN	DownholeTension	0.00	BLK	0.000
	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	38.42	NO	
PCAL	Pad Caliper	38.42	TRI	0.250
ACAL	Arm Caliper	38.42	TRI	0.250

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 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	

SDLT Pad

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	37.81	NO	
FHV	Far Detector High Voltage	37.81	NO	
ITMP	Instrument Temperature	37.81	NO	
DDHV	Detector High Voltage	37.81	NO	

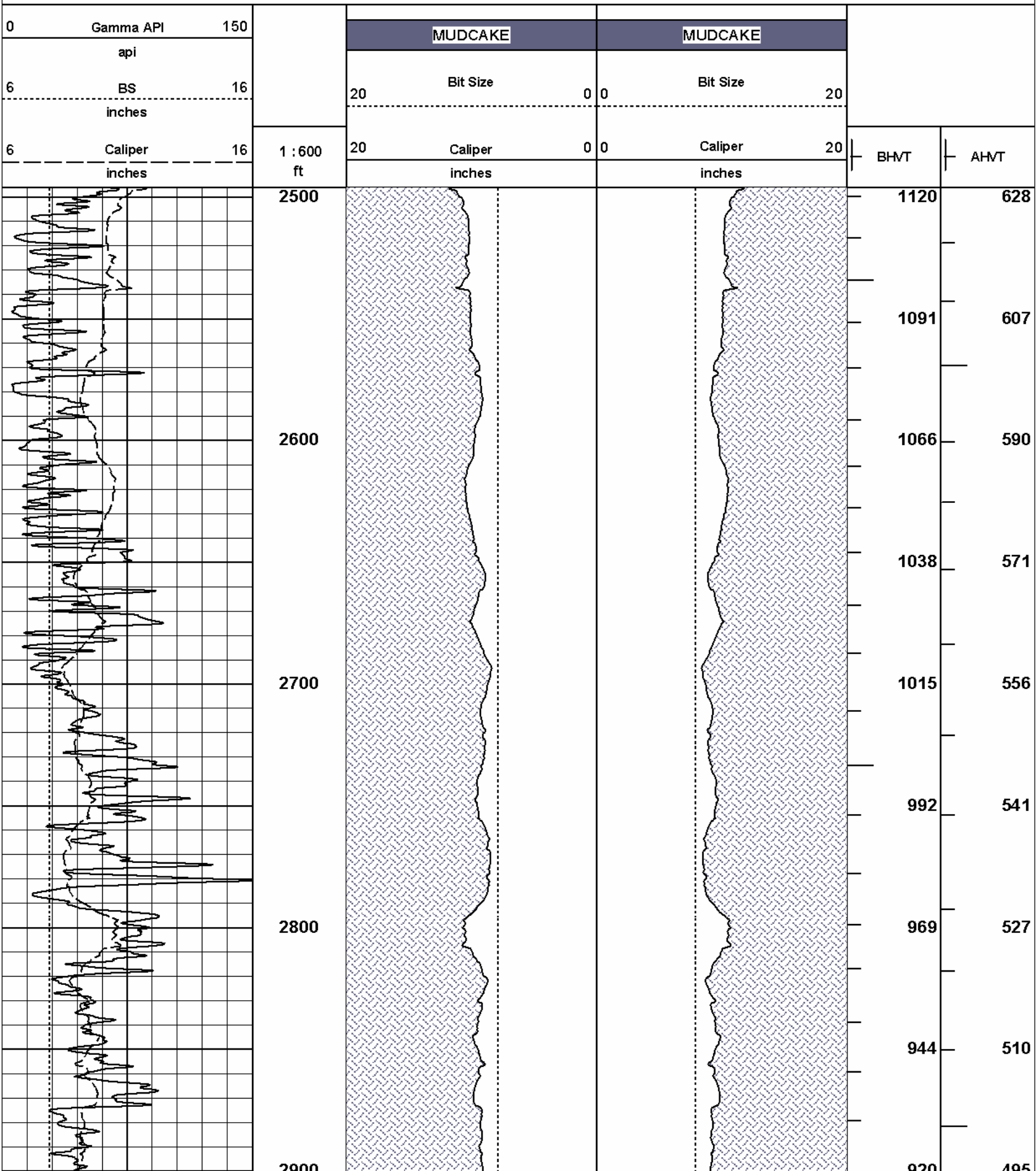
Microlog Pad

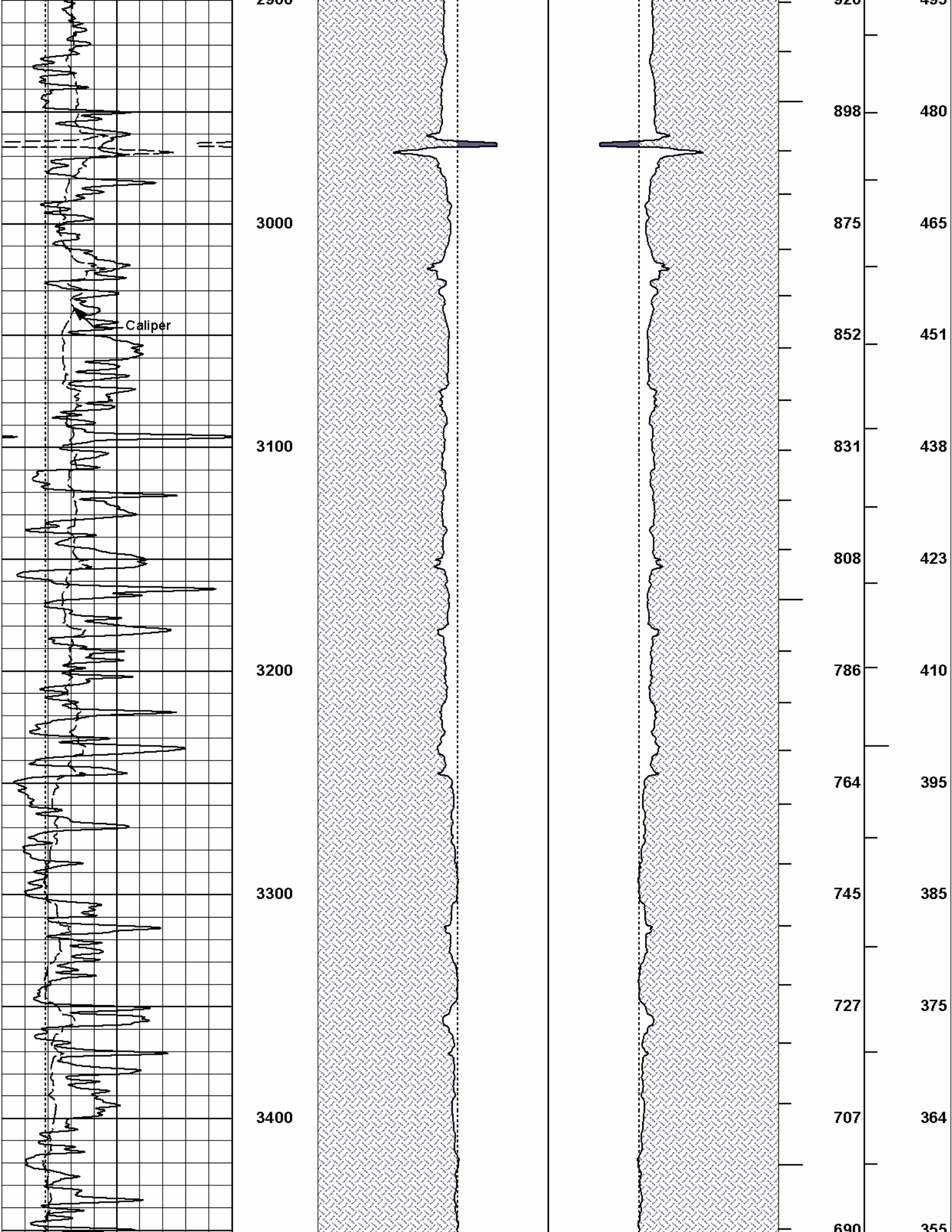
TPUL	Tension Pull	38.60	NO	
MINV	Microlog Lateral	38.60	BLK	0.750
MNOR	Microlog Normal	38.60	BLK	0.750

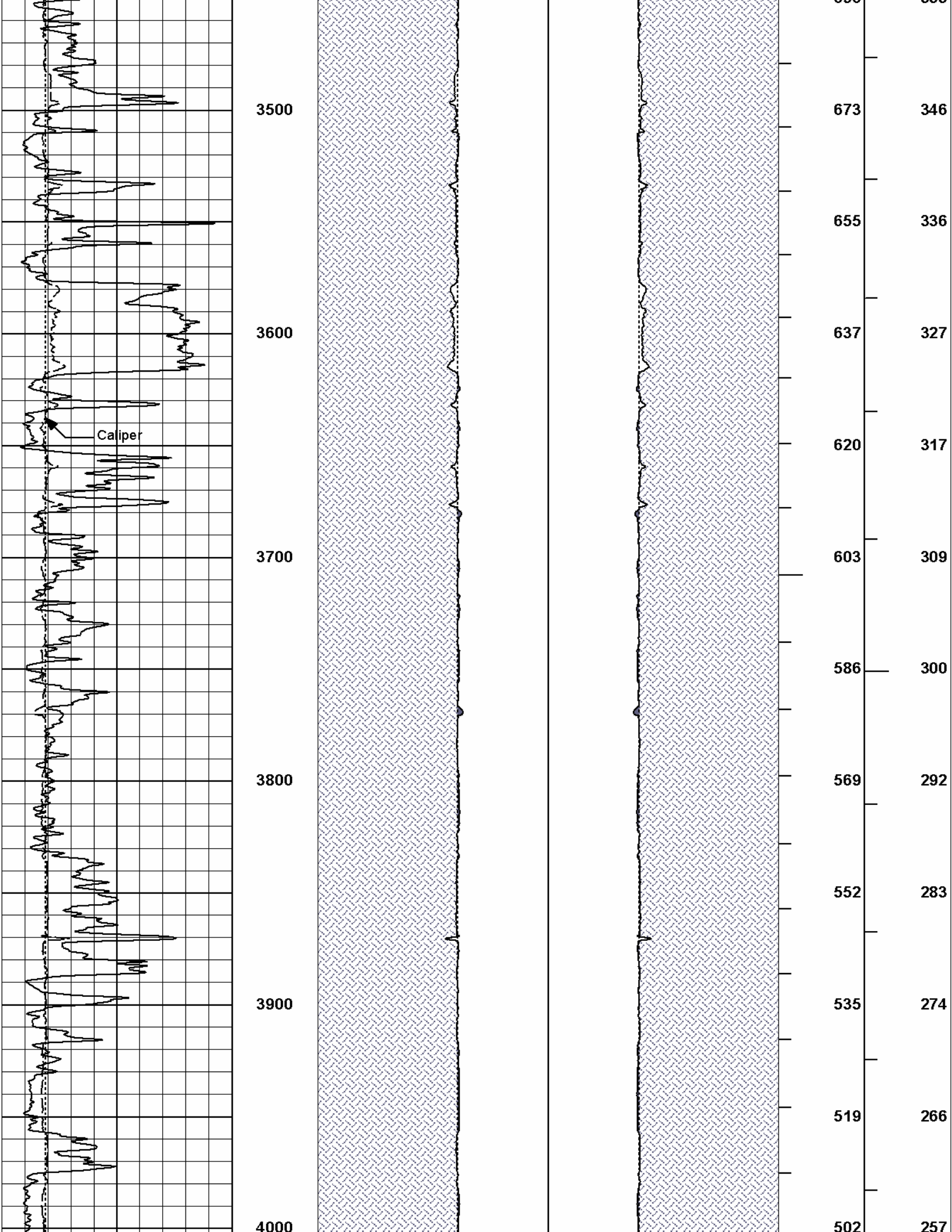
HALLIBURTON

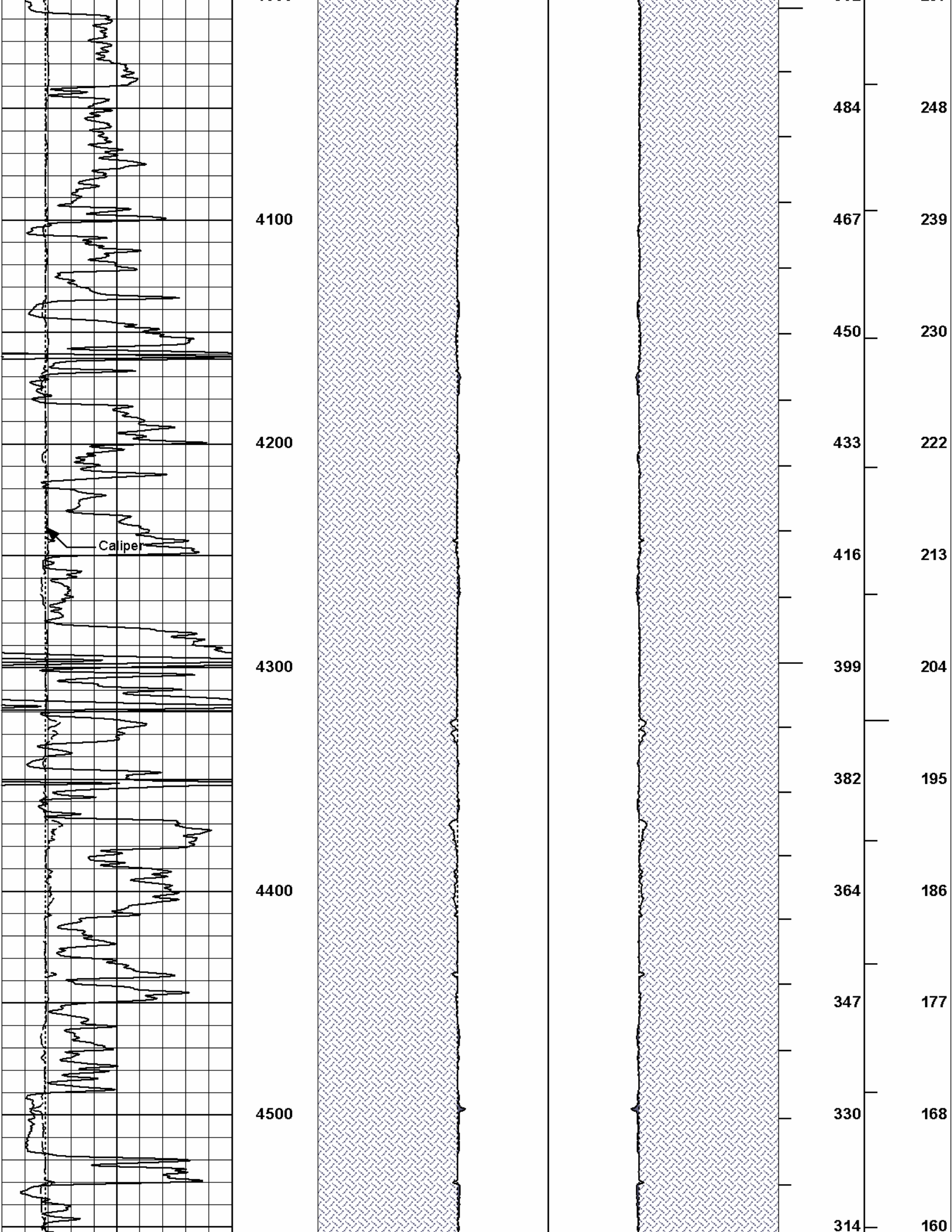
Plot Time: 22-May-11 21:52:11
Plot Range: 2496 ft to 5482 ft
Data: GOETZ_22_1\Well Based\DETAIL\
Plot File: \\-LOCAL-\GOETZ_22_1\0001 QUAD COMBO\POROML\AHV_5_5_INCH_2_IQ_LIB

ANNULAR HOLE VOLUME PLOT (5.5 INCH)




Caliper
3000
3100
3200
3300
3400
898
875
852
831
808
786
764
745
727
707
690
480
465
451
438
423
410
395
385
375
364
355


3500
3600
3700
3800
3900
4000
Caliper
673
655
637
620
603
586
569
552
535
519
502
346
336
327
317
309
300
292
283
274
266
257


4100
4200
4300
4400
4500
Caliper
484
467
450
433
416
399
382
364
347
330
314
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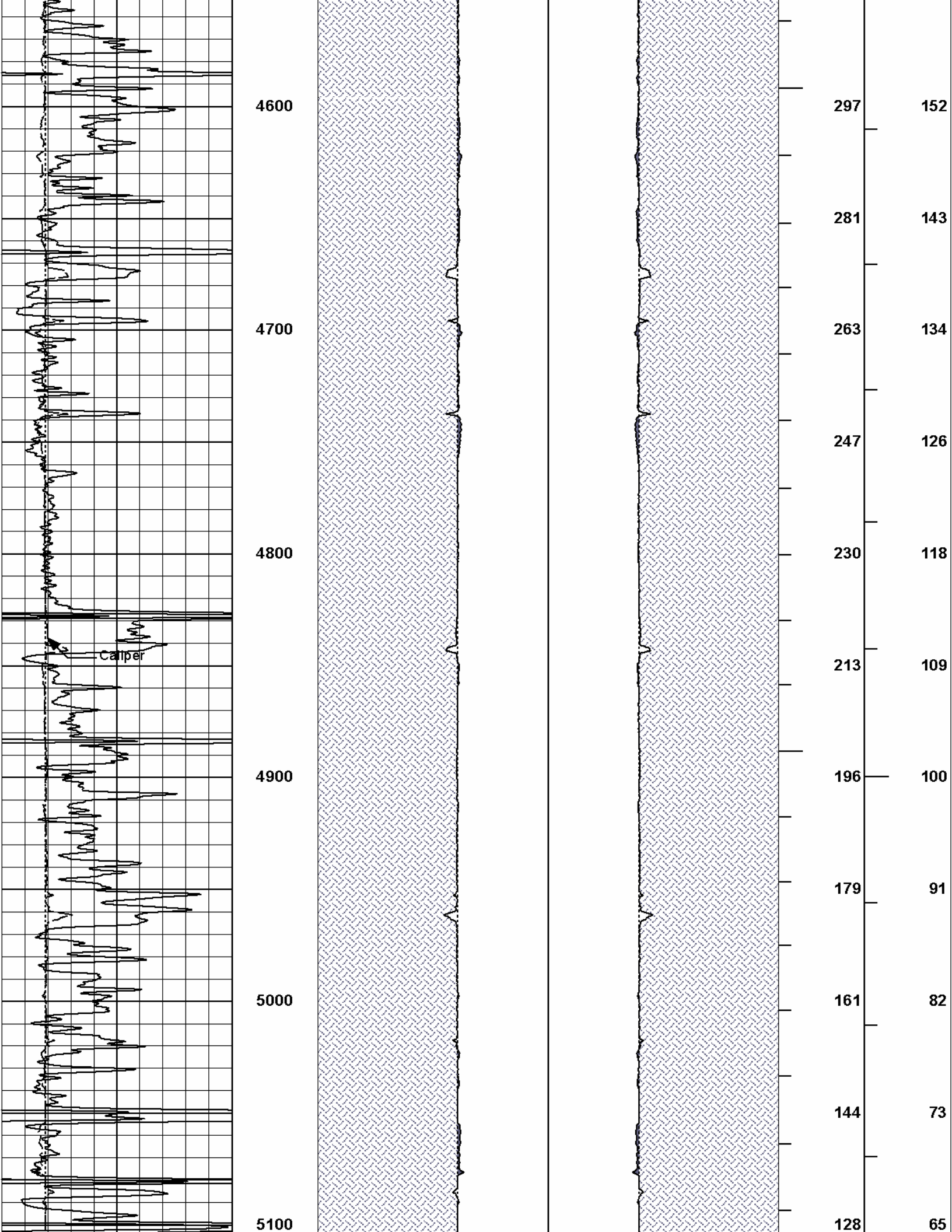
239
230
222
213
204
195
186
177
168
160


4600
4700
4800
Caliper
4900
5000
5100
297
152
281
143
263
134
247
126
230
118
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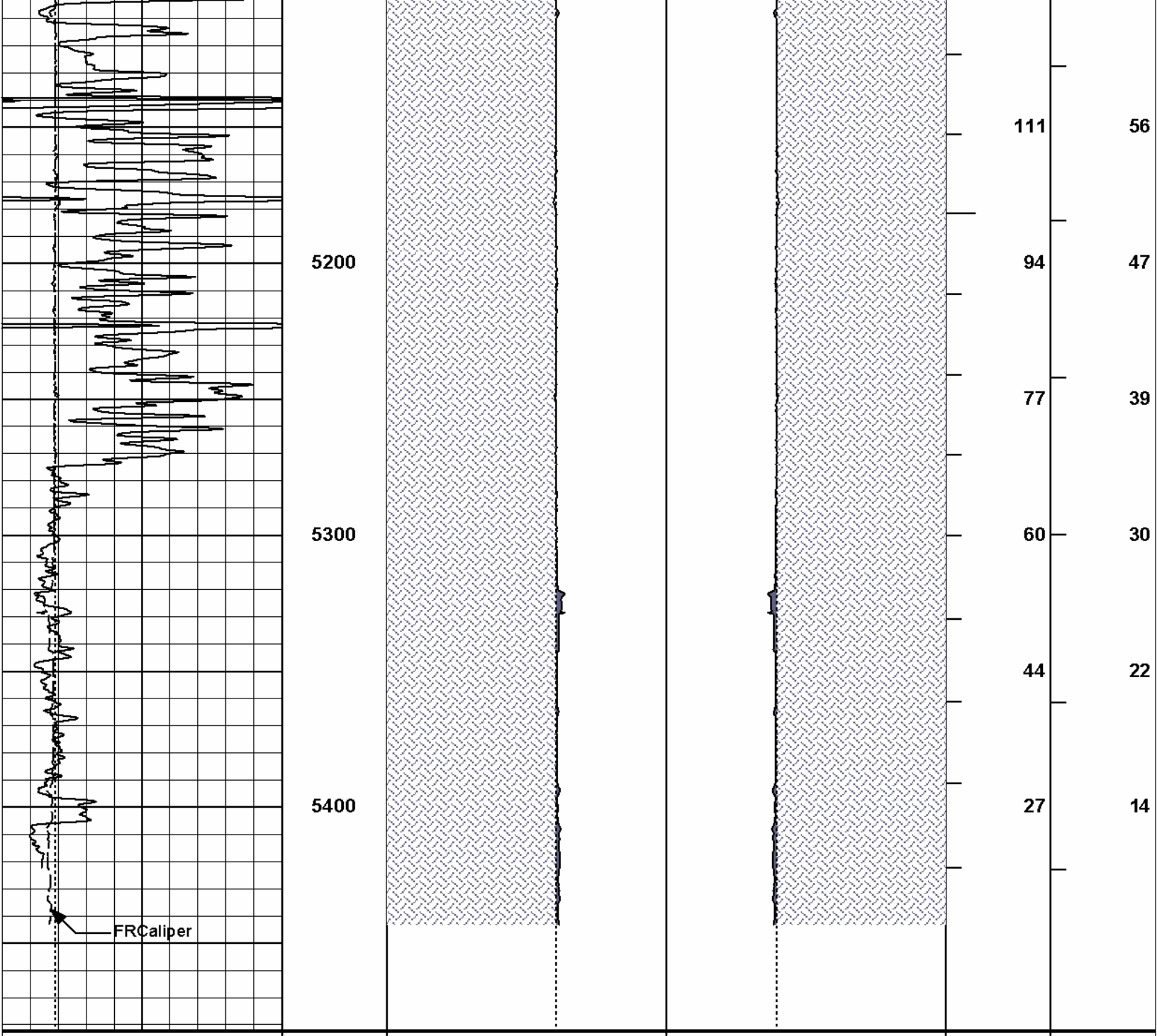
196
100
179
91
161
82
144
73
128
65



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

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Plot Time: 22-May-11 21:52:13
Plot Range: 2496 ft to 5482 ft
Data: GOETZ_22_1\Well Based\DETAIL\
Plot File: \\-LOCAL-\GOETZ_22_1\0001 QUAD COMBO\POROML\AHV_5_5_INCH_2_IQ_LIB

ANNULAR HOLE VOLUME PLOT (5.5 INCH)

COMPANY **WOOD ENERGY, INC**

WELL	**GOETZ #22-1**		
FIELD	**UNNAMED**		
COUNTY	**MEADE**	STATE	**KANSAS**

HALLIBURTON

SPECTRAL DENSITY
DUAL SPACED NEUTRON
MICROLOG