

HALLIBURTON

BOREHOLE COMPENSATED
SONIC ARRAY
LOG

RITCHIE EXPLORATION INC										COMPANY				RITCHIE EXPLORATION INC			
SEYMOUR-MORRILL 1										WELL				SEYMOUR-MORRILL 1			
EDDY NORTHWEST										FIELD/BLOCK				EDDY NORTHWEST			
PAWNEE										COUNTY				PAWNEE			
KANSAS										STATE				STATE KANSAS			
COMPANY										API No. 15-145-21826				Other Services: DSNT/SDLT MICRO BSAT ACRT			
WELL										Location E2 W2 E2 2570' FNL & 1805' FEL							
FIELD/BLOCK										Sect. 2				Twp. 22S			
COUNTY										PAWNEE				Rge. 18W			
Elev. 2041.0 ft										11.0 ft above perm. Datum				Elev.: K.B. 2052.0 ft D.F. 2052.0 ft G.L. 2041.0 ft			
Permanent Datum										GL							
Log measured from										KB							
Drilling measured from										KB							
Date										14-Sep-17							
Run No.										ONE							
Depth - Driller										4386.0 ft							
Depth - Logger										4385.0 ft							
Bottom - Logged Interval										4358.0 ft							
Top - Logged Interval										1113.0 ft							
Casing - Driller										8.625 in @ 1113.0 ft				@			
Casing - Logger										1113.0 ft							
Bit Size										7.875 in				@			
Type Fluid in Hole										Water Based Mud							
Density										9.3 ppg				50.00 s/qt			
PH										10.50 pH				9.6 cpm			
Source of Sample										MUD PIT							
Rm @ Meas. Temperature										0.74 ohmm @ 75.00 degF				@			
Rmf @ Meas. Temperature										0.63 ohmm @ 75.00 degF				@			
Rmc @ Meas. Temperature										0.85 ohmm @ 75.00 degF				@			
Source Rmf										MEASURED				MEASURED			
Rm @ BHT										0.47 ohmm @ 121.0 degF				@			
Time Since Circulation										02:00 hr							
Time on Bottom										14-Sep-17 10:06							
Max. Rec. Temperature										121.00 degF @ 4385.0 ft				@			
Equipment										11230668				EL RENO, OK			
Recorded By										T. HYDE							
Witnessed By										J. GOLDSMITH							

Fold here

Service Ticket No.: 904302659						API No.: 15-145-21826						PGM Version: WL INSITE R5.0.5 (Build 8)					
CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE									RESISTIVITY SCALE CHANGES								
Date	Sample No.						Type Log	Depth		Scale Up Hole			Scale Down Hole				
Depth-Driller																	
Type Fluid in Hole																	
Density	Viscosity																
Ph	Fluid Loss																
Source of Sample									RESISTIVITY EQUIPMENT DATA								
Rm @ Meas. Temp			@			@			Run No.	Tool Type & No.		Pad Type		Tool Pos.		Other	
Rmf @ Meas. Temp.			@			@			ONE	ACRT		N/A		CENT.		N/A	
Rmc @ Meas. Temp.			@			@				I-11026094							
Source Rmf	Rmc							S-11024142									
Rm @ BHT			@			@											
Rmf @ BHT			@			@											
Rmc @ BHT			@			@											
EQUIPMENT DATA																	
GAMMA				ACOUSTIC				DENSITY				NEUTRON					
Run No.		ONE		Run No.		ONE		Run No.		ONE		Run No.		ONE			
Serial No.		10971172		Serial No.		10939050		Serial No.		12153520		Serial No.		11019643			
Model No.		GTET		Model No.		BSAT		Model No.		SDLT		Model No.		DSNT			
Diameter		3.625"		No. of Cent.		2		Diameter		5.5"		Diameter		3.625"			
Detector Model No.		T-102		Spacing		EVEN		Log Type		GAM-GAM		Log Type		NEU-NEU			
Type		SCINT						Source Type		Cs137		Source Type		Am241Be			
Length		8"		LSA [Y/N]				Serial No.		20791B		Serial No.		DSN-438			
Distance to Source		10'		FWDA [Y/N]				Strength		1.5 Ci		Strength		15 Ci			
LOGGING DATA																	
GENERAL				GAMMA		ACOUSTIC			DENSITY			NEUTRON					
Run	Depth		Speed	Scale		Scale		Matrix	Scale		Matrix	Scale		Matrix			
No.	From	To	ft/min	L	R	L	R		L	R		L	R				
ONE	TD	CSG	REC	0	150	30	-10	47 µsec/ft	30	-10	2.71 g/cc	30	-10	LIME			

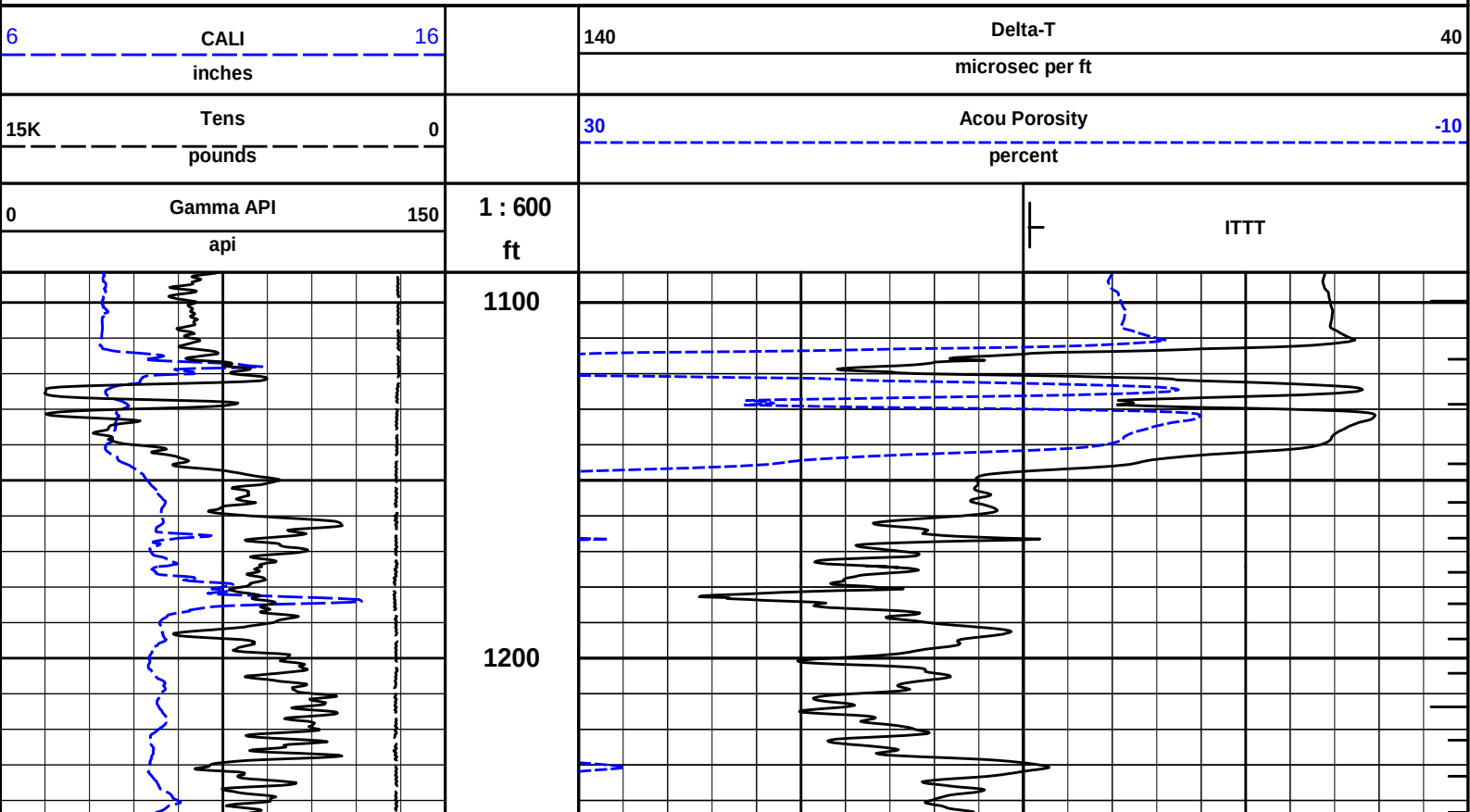
[illegible]

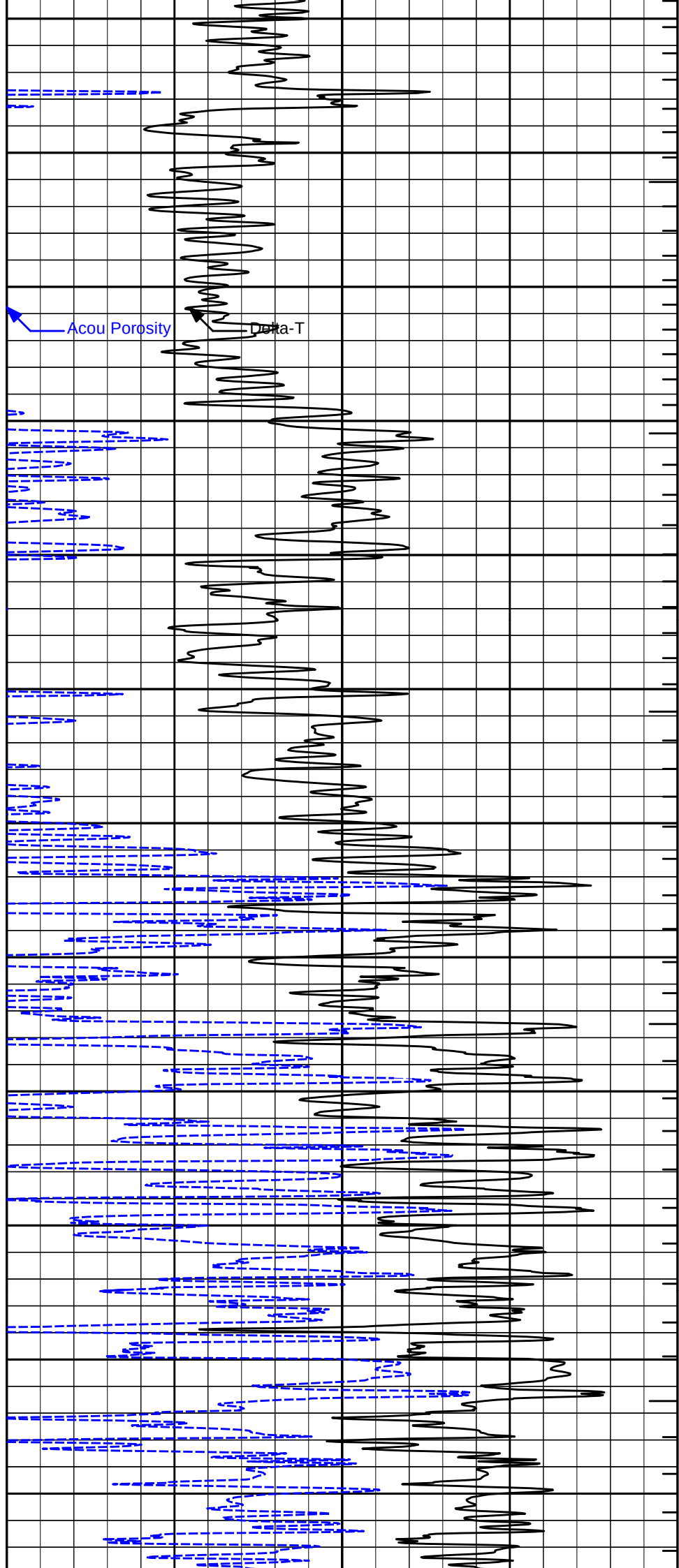
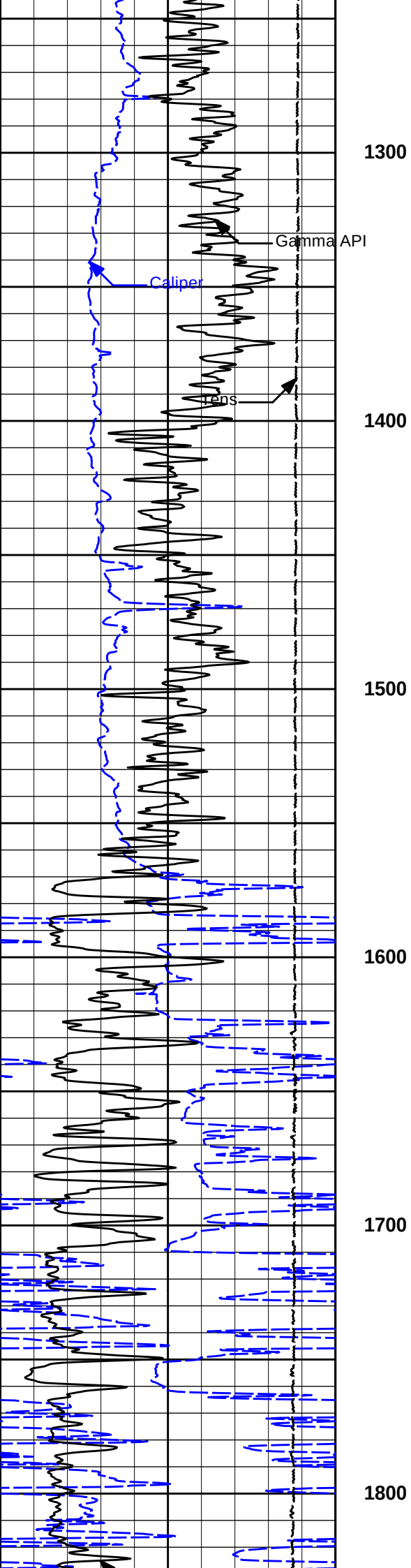
HALLIBURTON

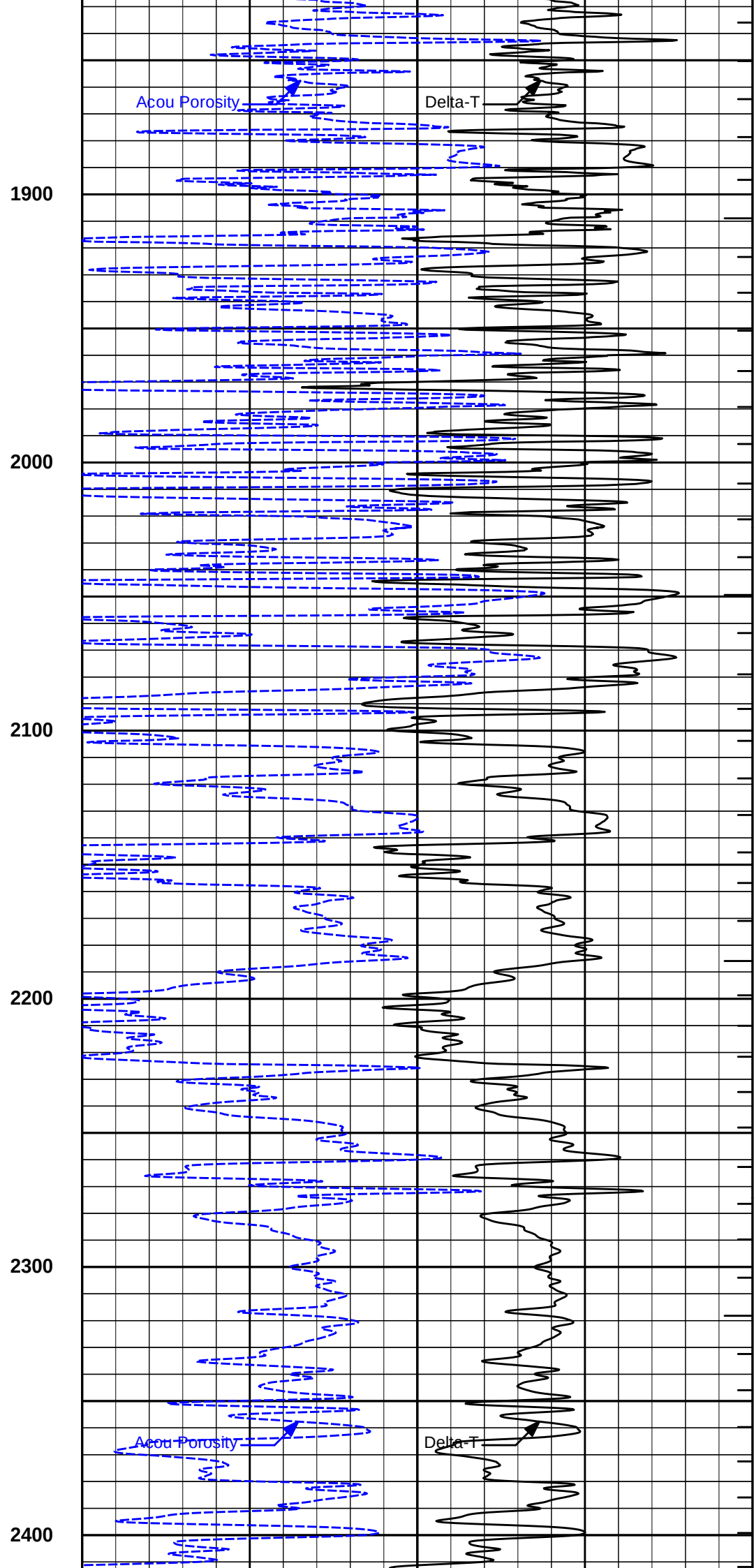
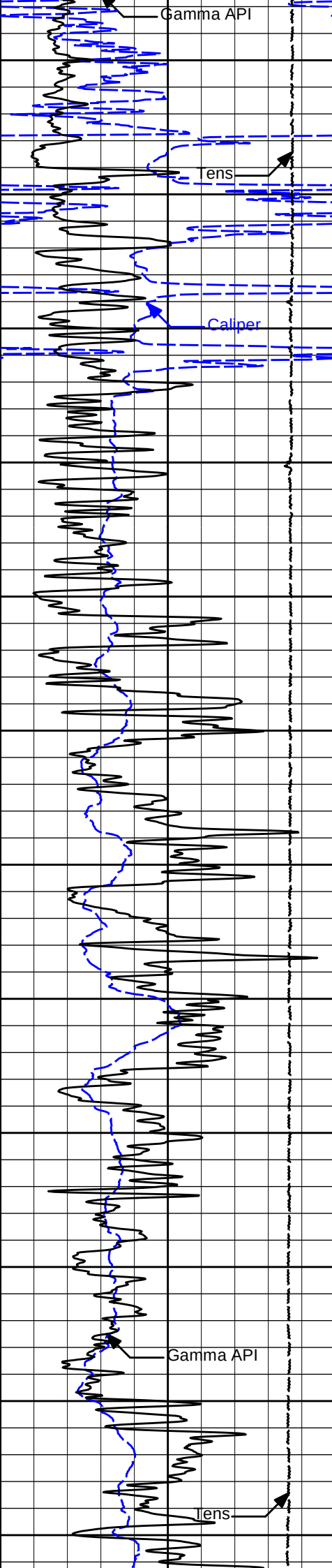
Plot Time: 14-Sep-17 14:06:44
Plot Range: 1091.5 ft to 4390 ft
Data: RITCHIE_SEYMOUR\Well Based\MAIN\
Plot File: \\BSAT\BSAT_2inch

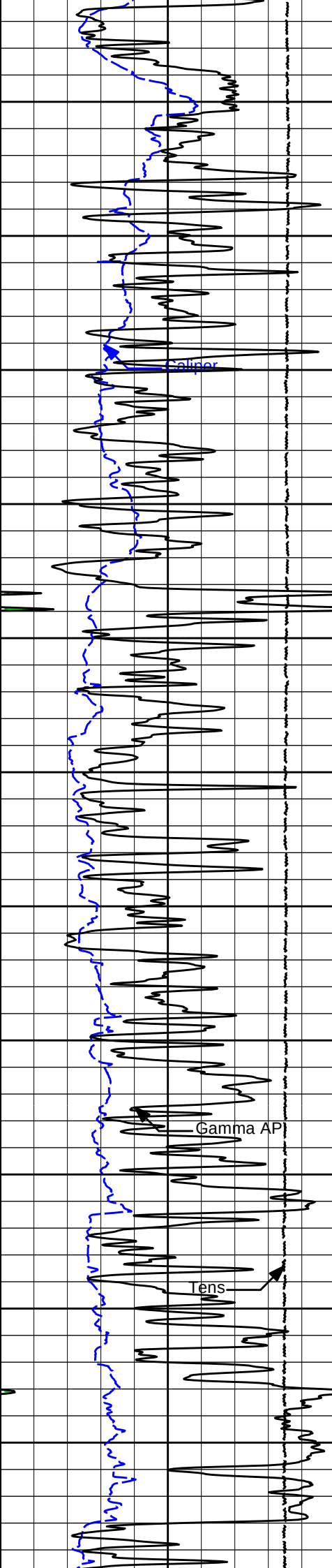
2 INCH MAIN LOG

2" MAIN LOG SECTION









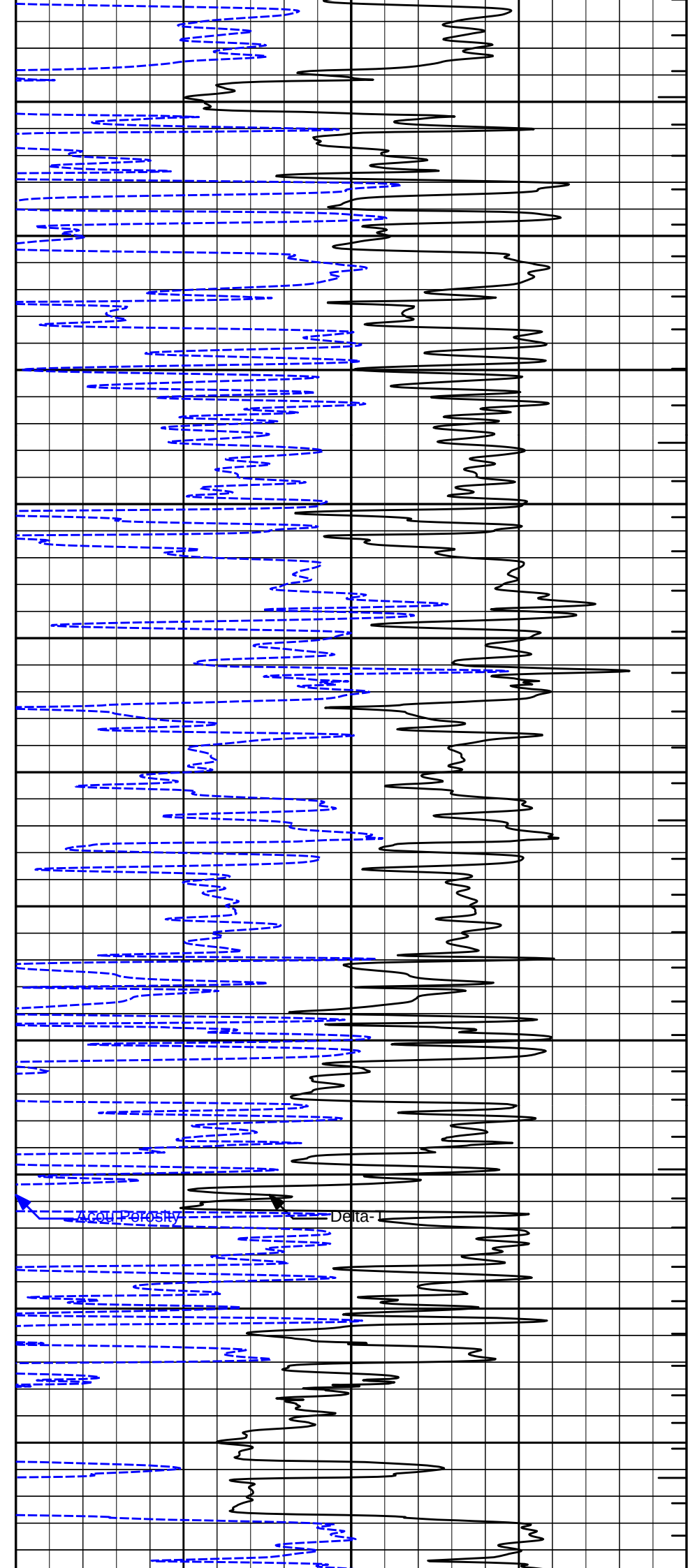
2500

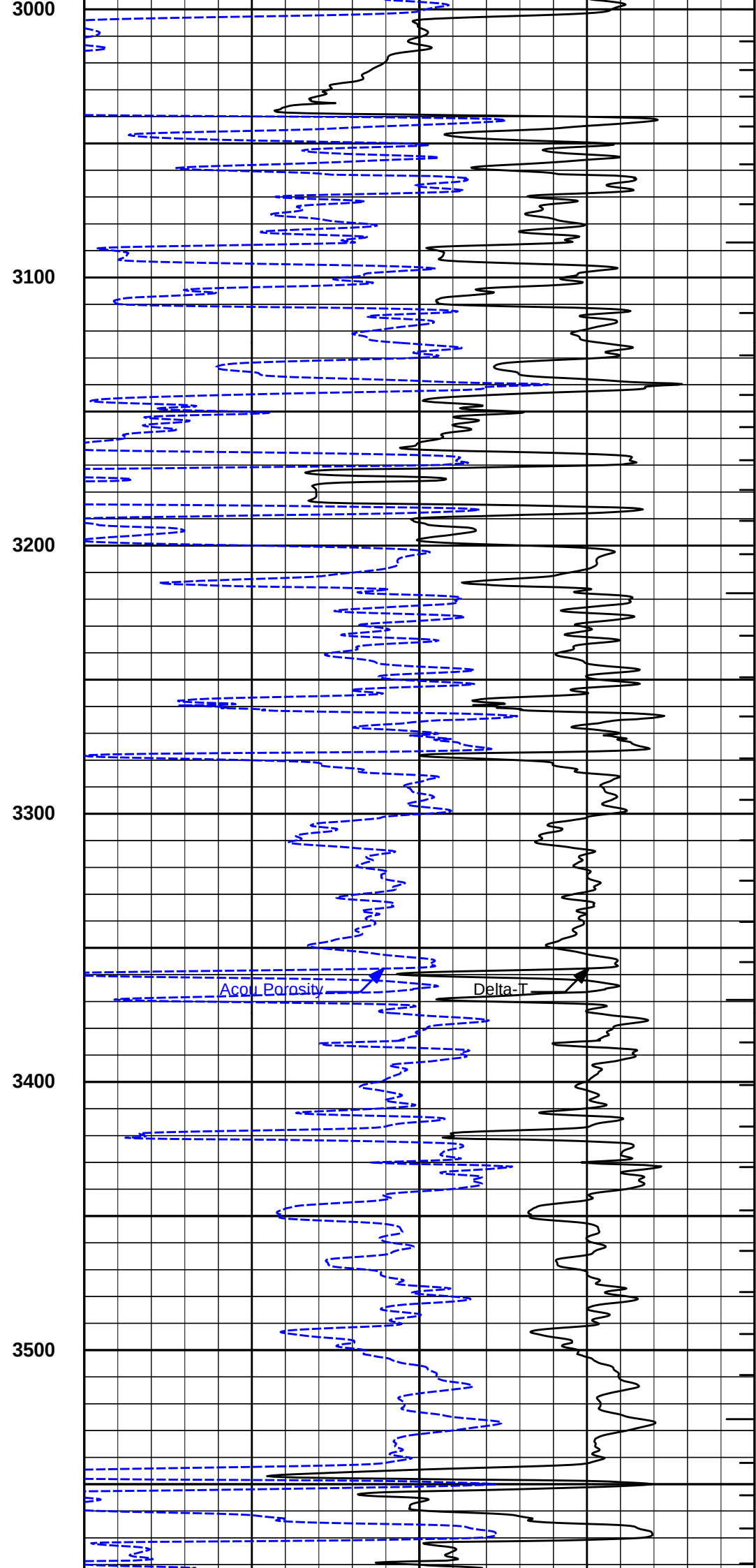
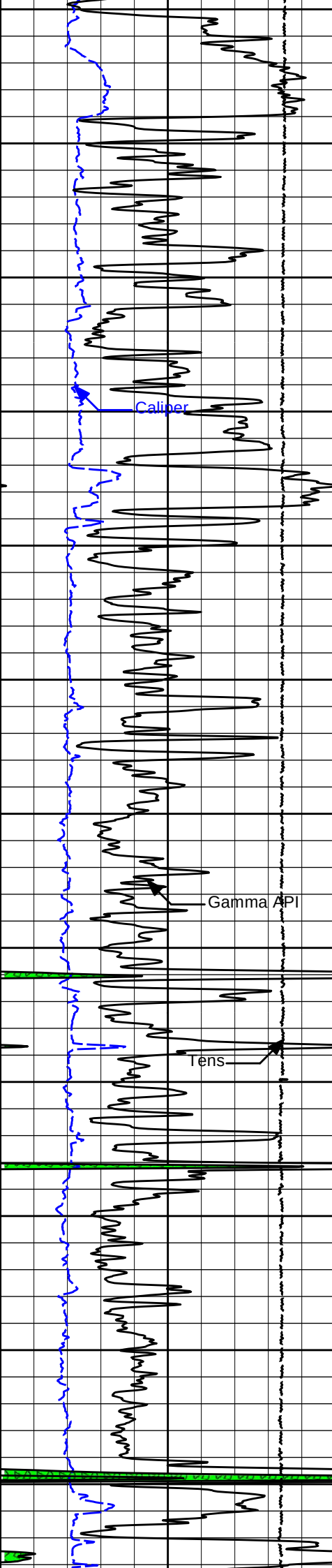
2600

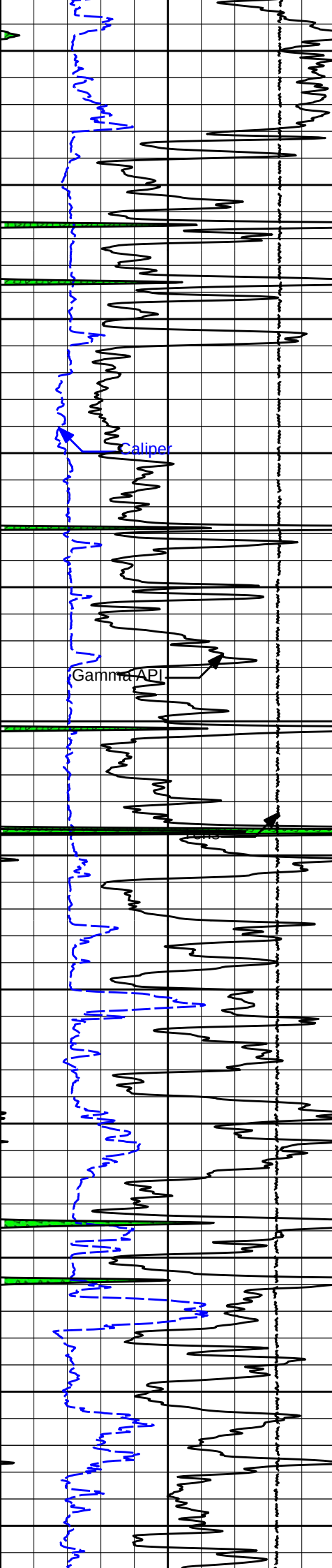
2700

2800

2900







3600

3700

3800

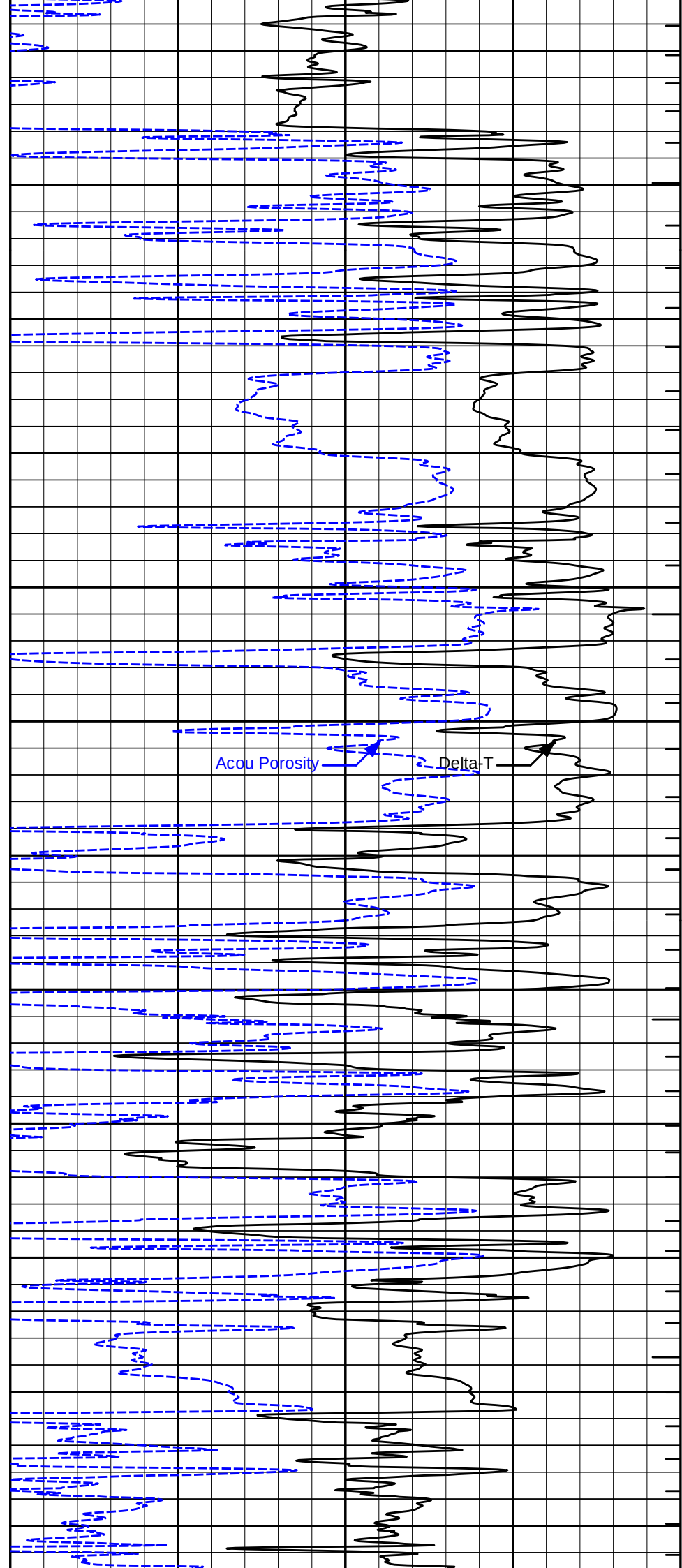
3900

4000

4100

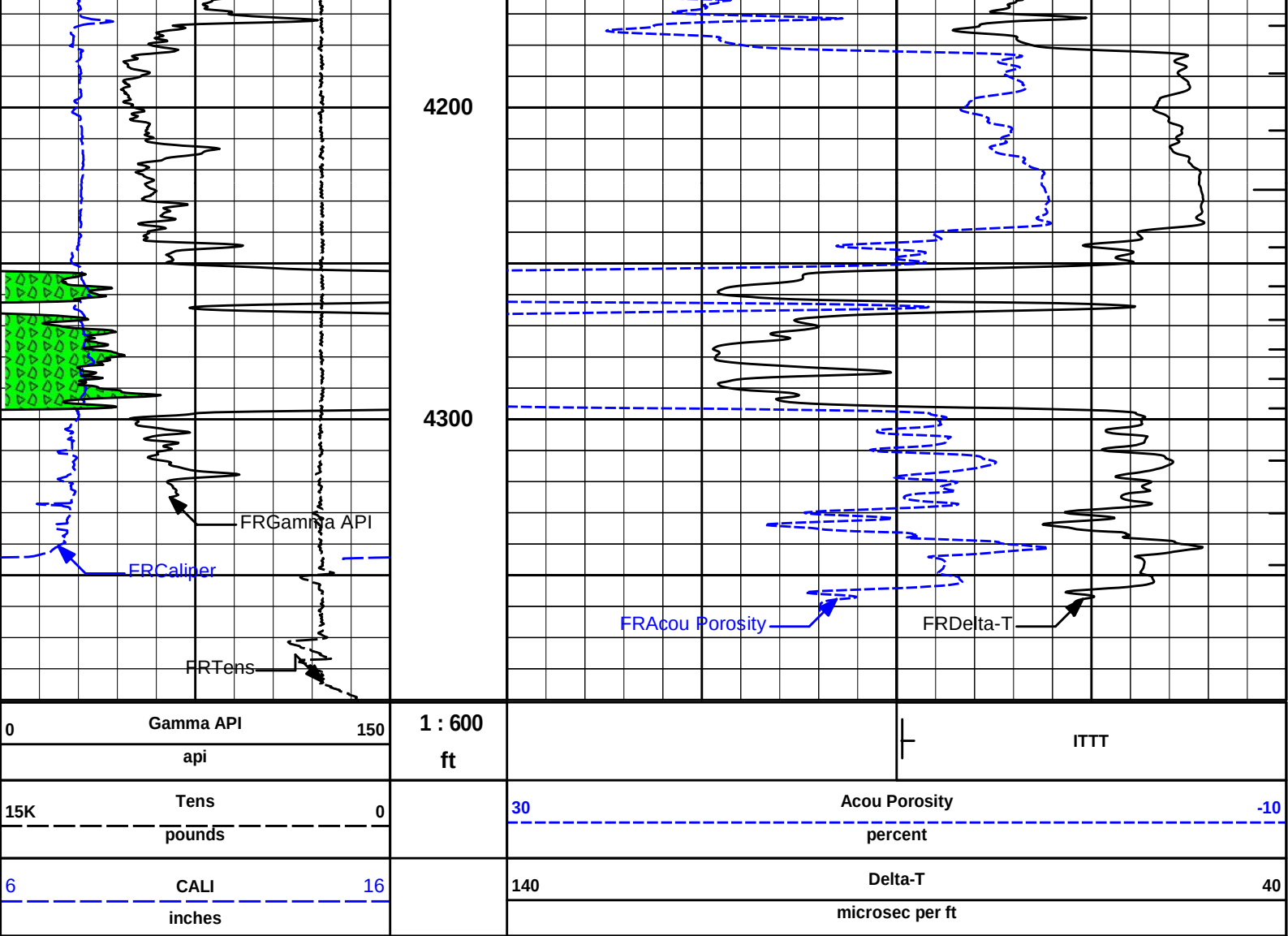
Caliper

Gamma-API



Acou Porosity

Delta-T



HALLIBURTON

Plot Time: 14-Sep-17 14:06:47
Plot Range: 1091.5 ft to 4390 ft
Data: RITCHIE_SEYMOUR\Well Based\MAIN\
Plot File: \BSAT\BSAT_2inch

2 INCH MAIN LOG

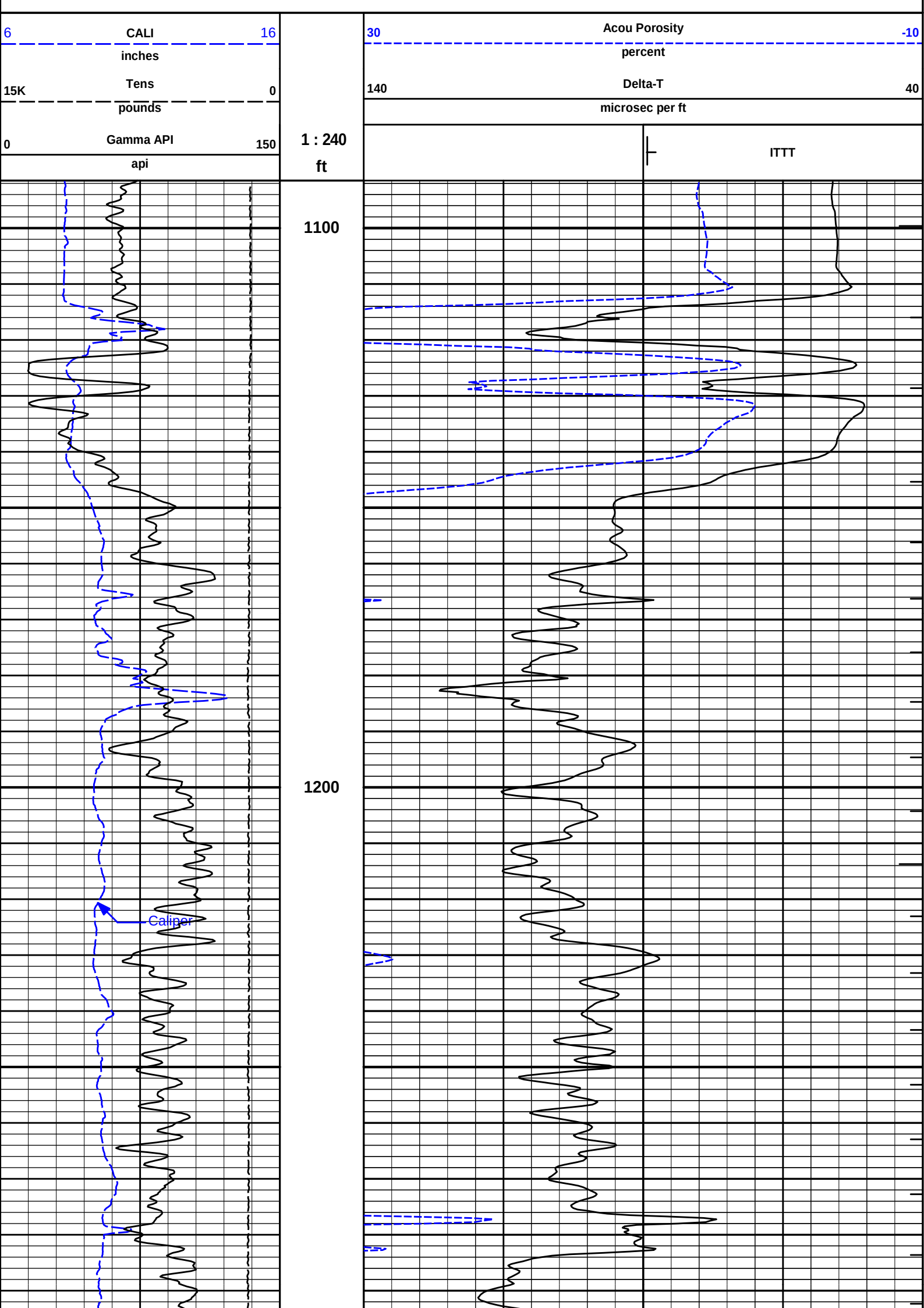
2" MAIN LOG SECTION

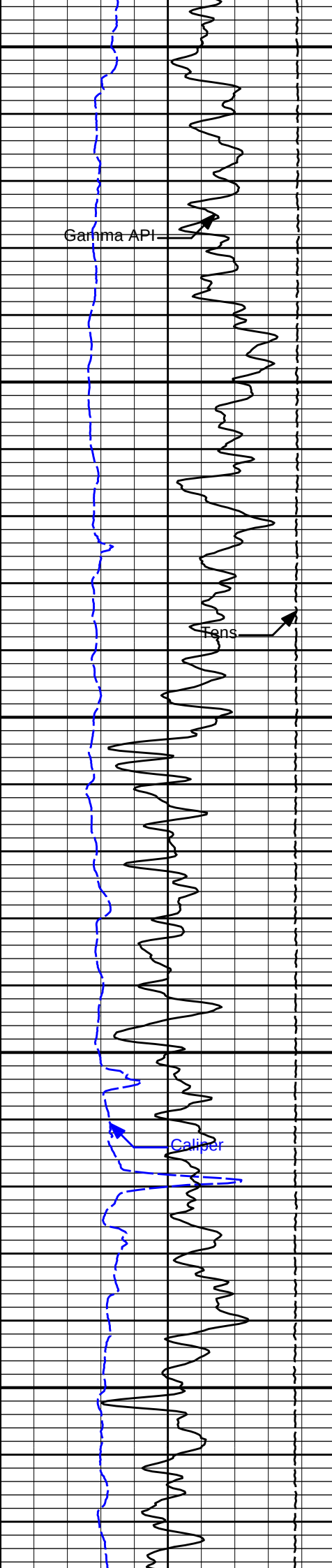
HALLIBURTON

Plot Time: 14-Sep-17 14:06:47
Plot Range: 1091.5 ft to 4390 ft
Data: RITCHIE_SEYMOUR\Well Based\MAIN\
Plot File: \BSAT\BSAT_5inch

5 INCH MAIN LOG

MAIN LOG SECTION

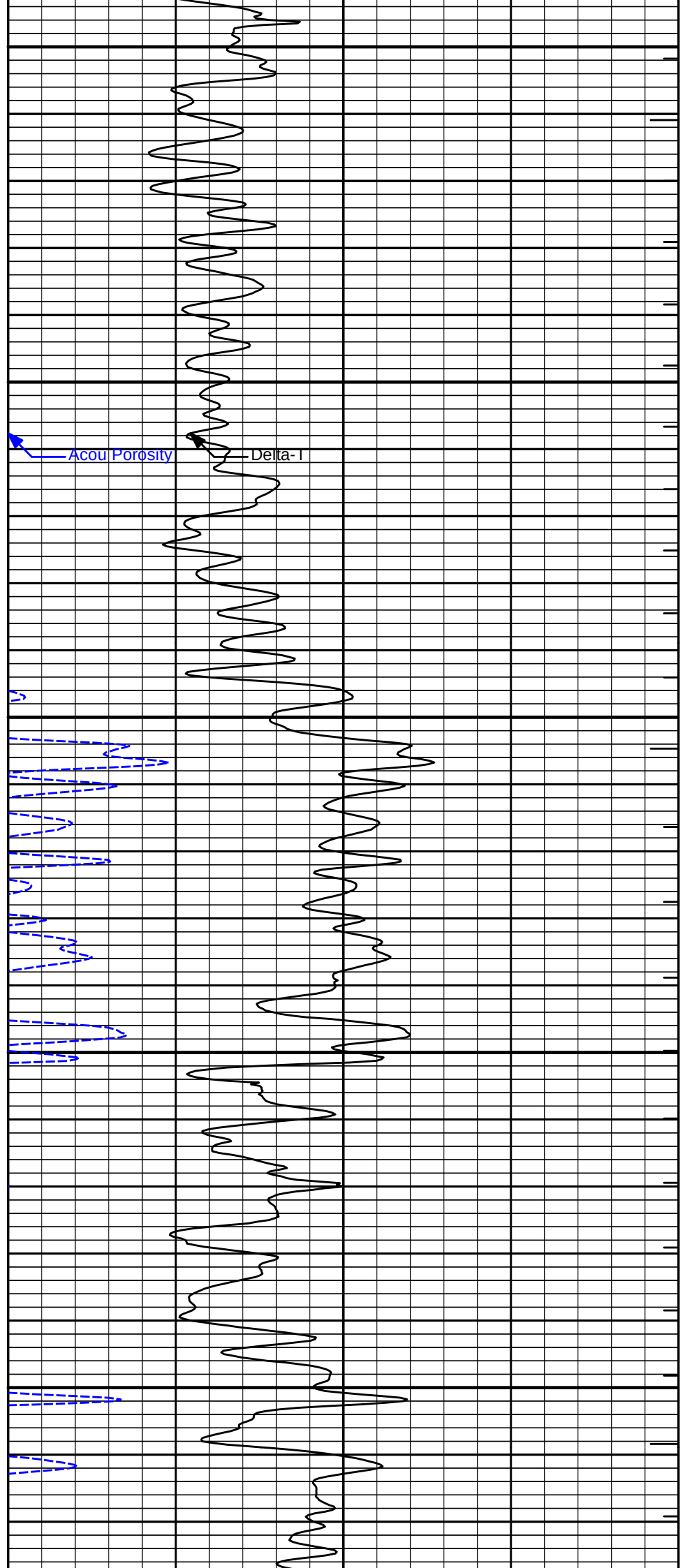


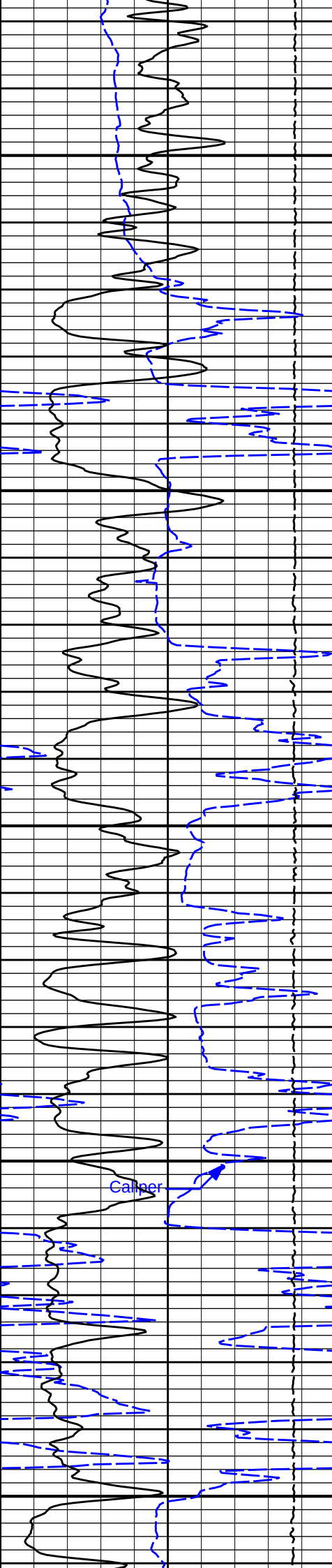


1300

1400

1500

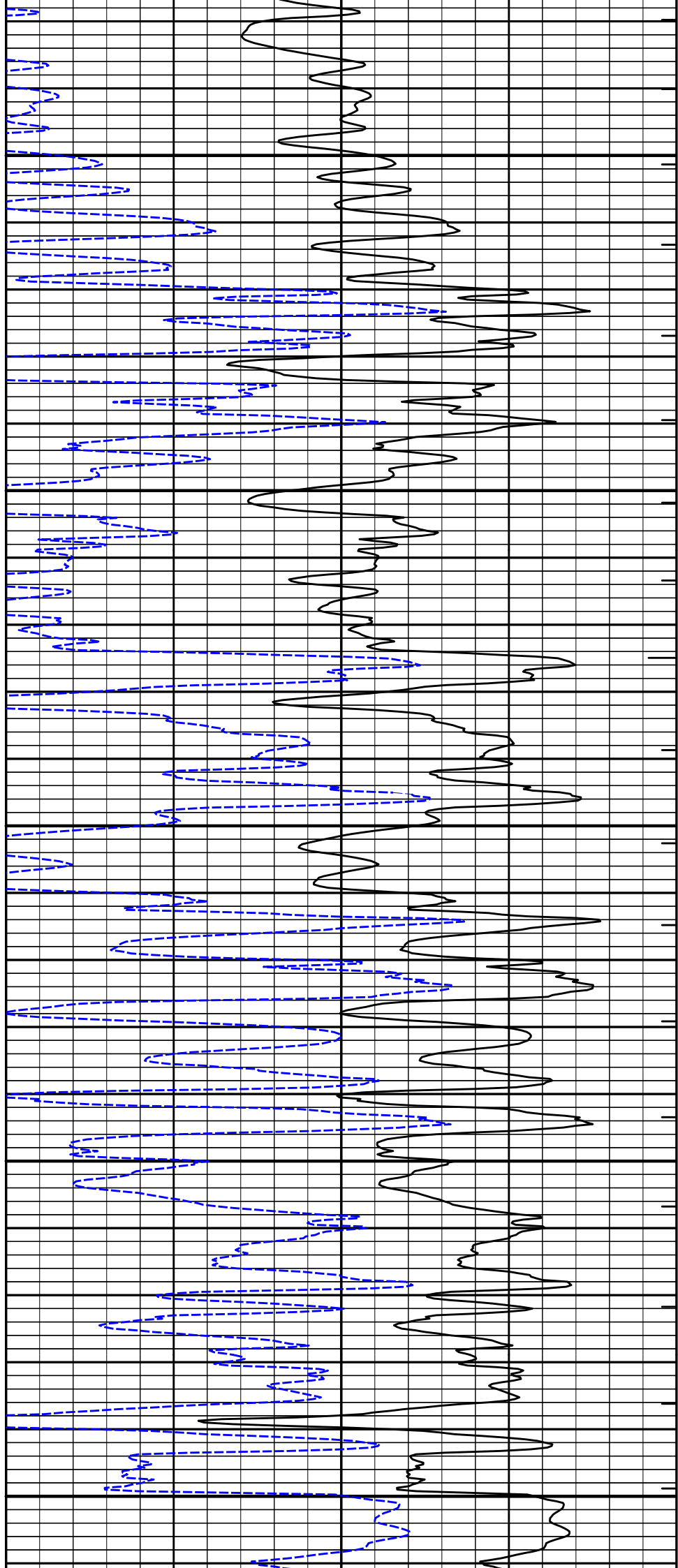


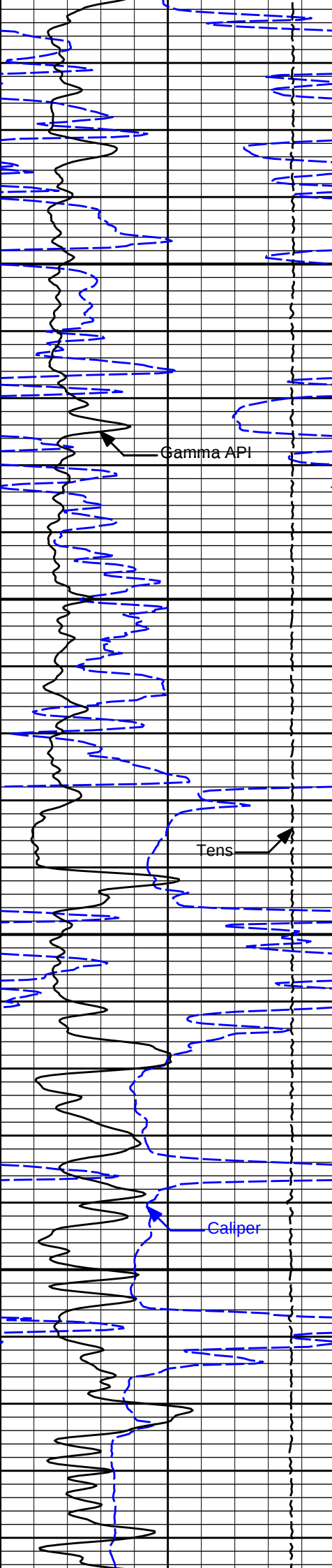


1600

1700

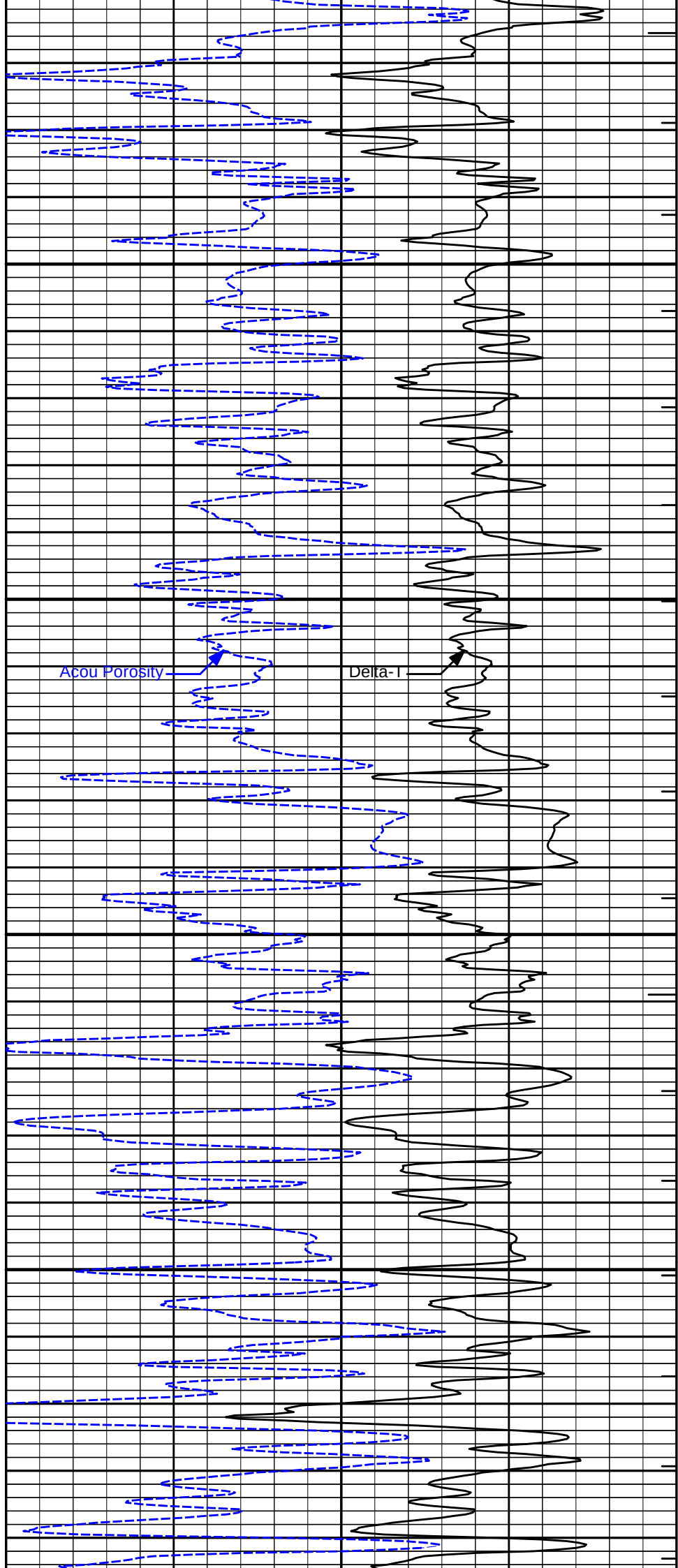
Caliper

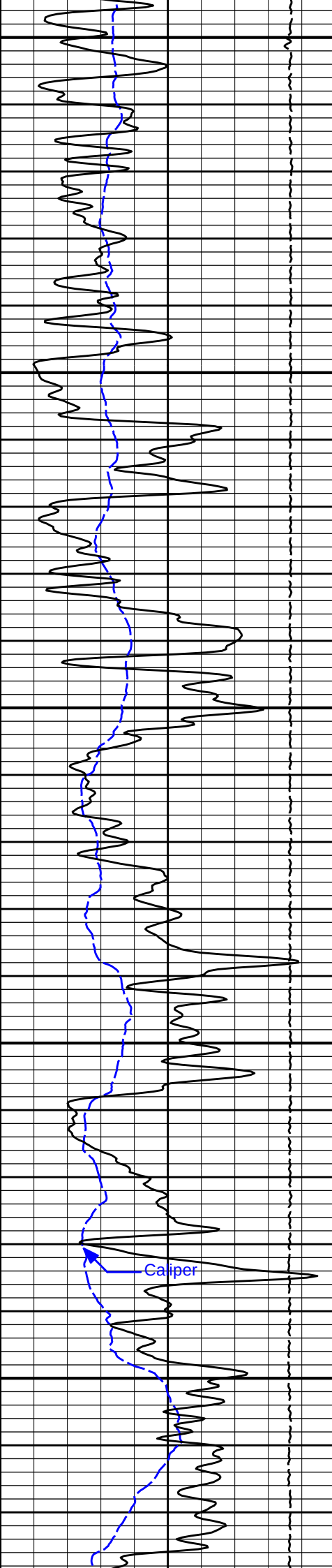




1800

1900

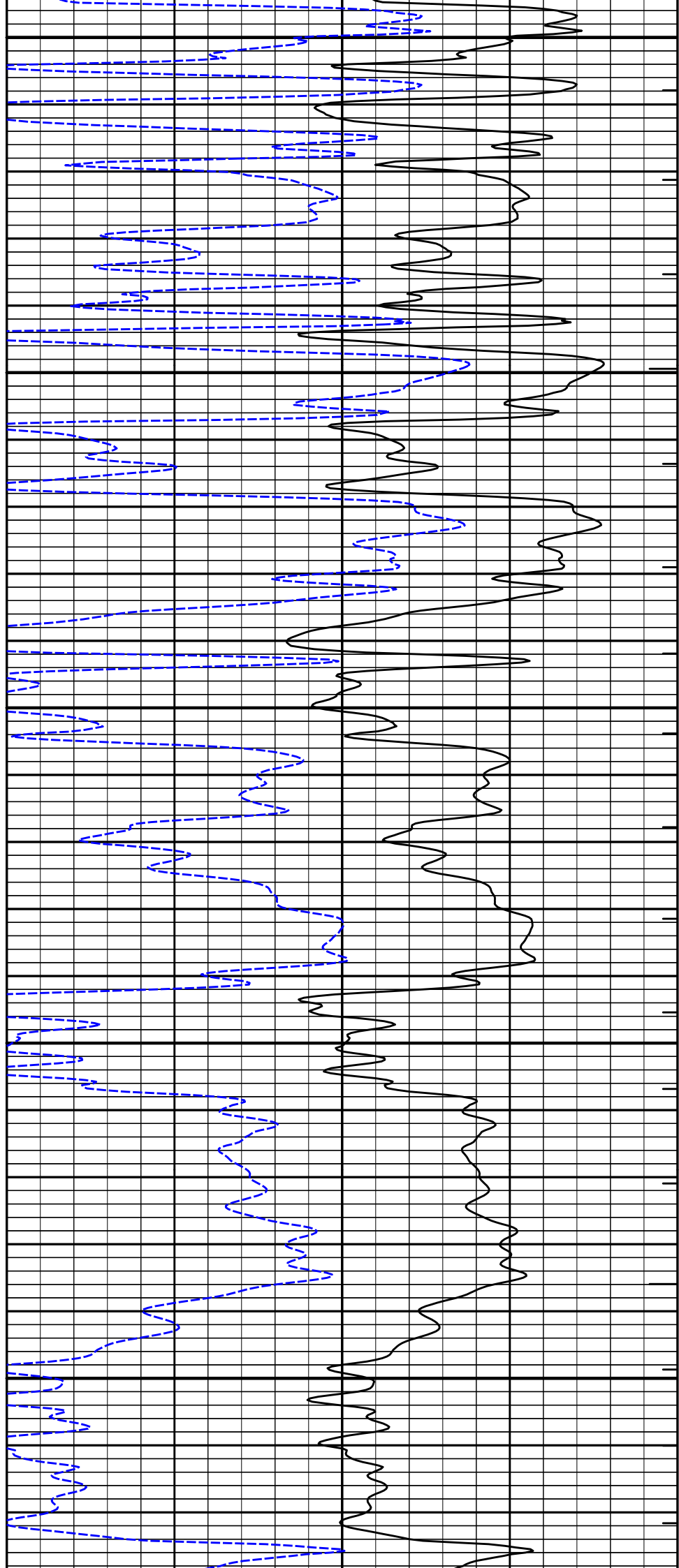


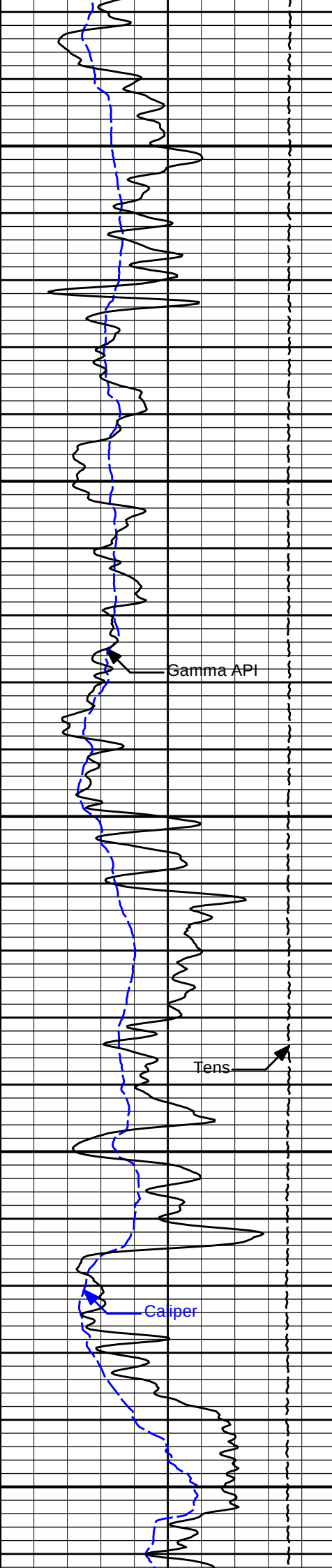


2000

2100

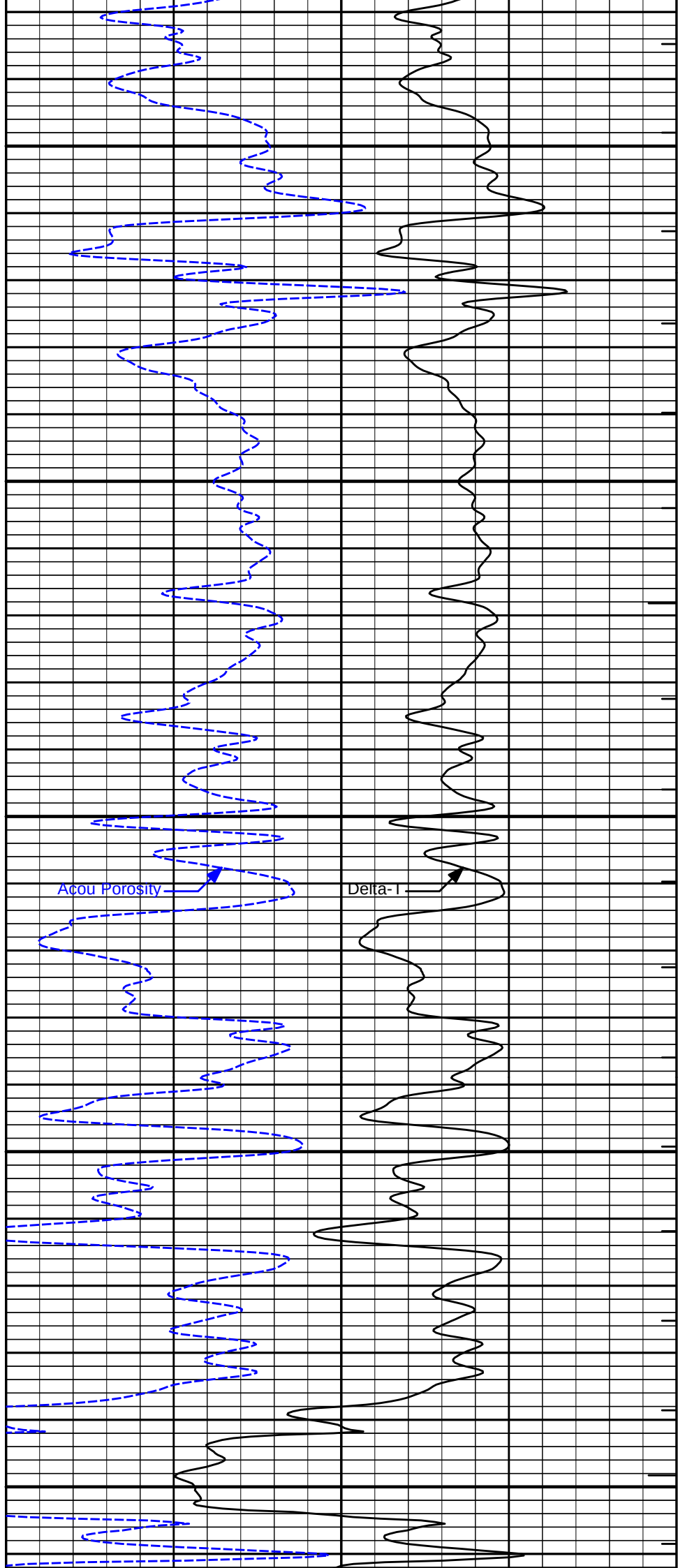
2200

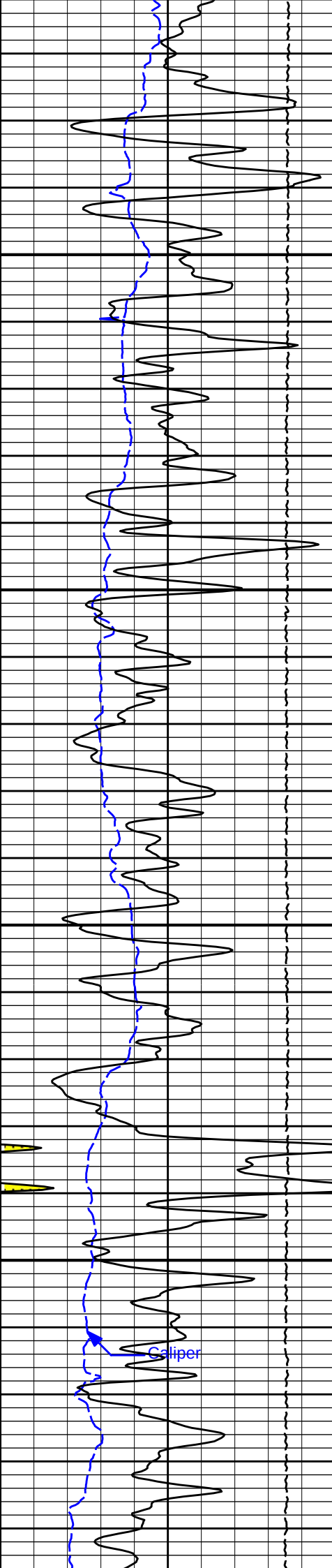




2300

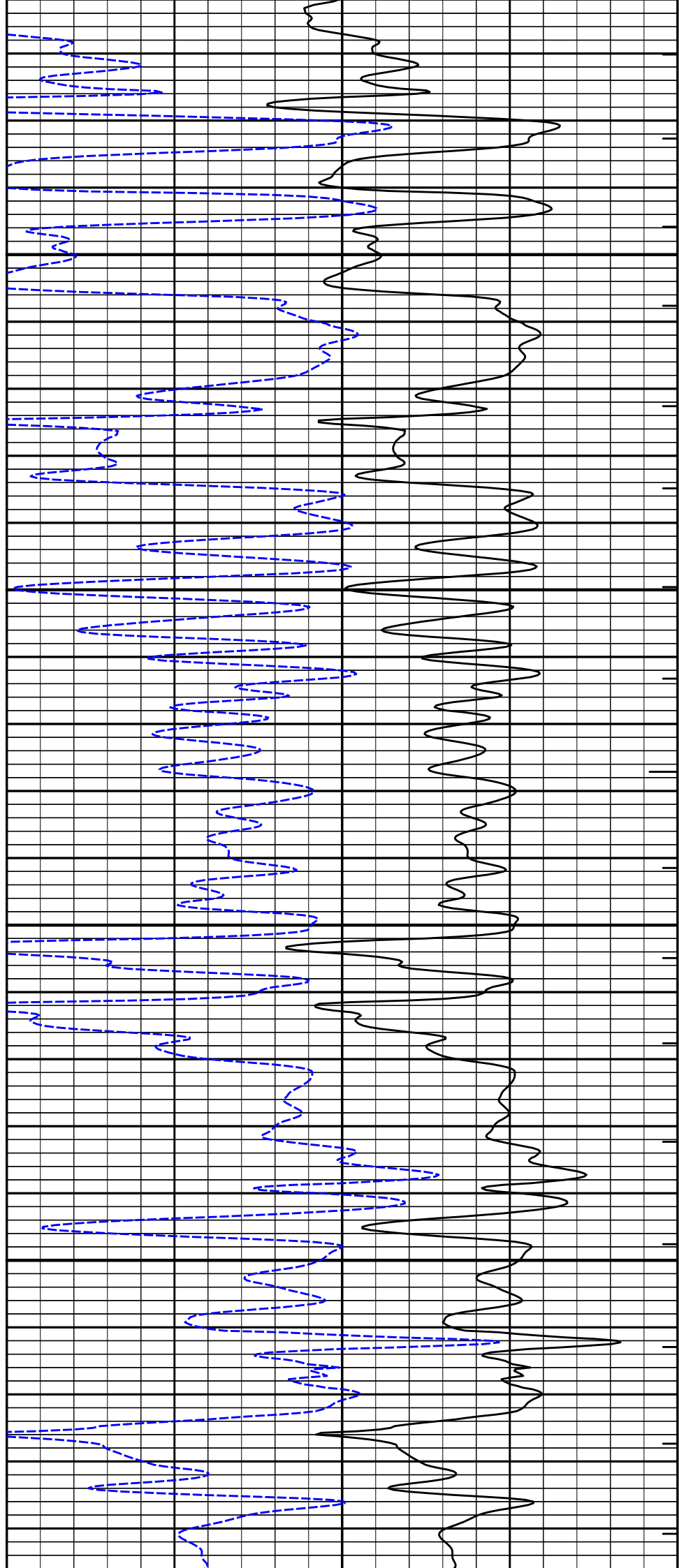
2400

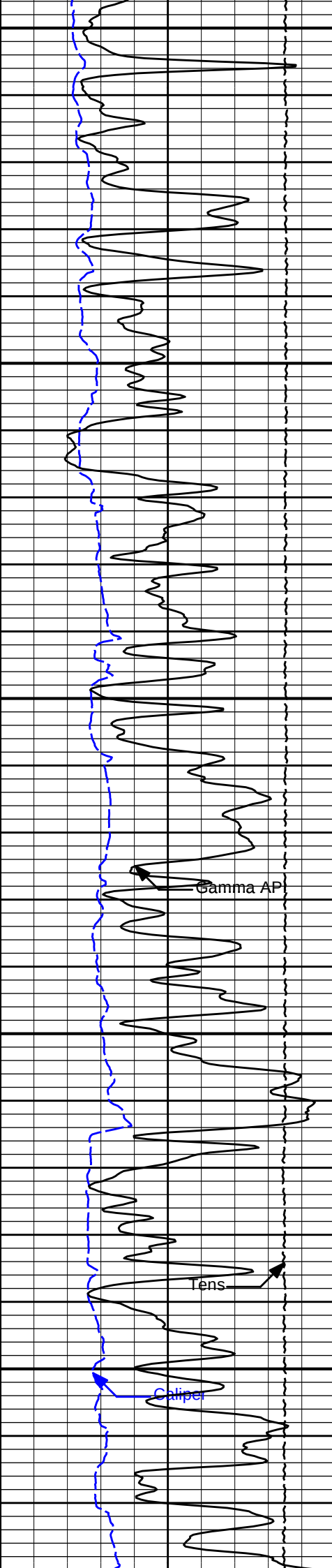




2500

2600

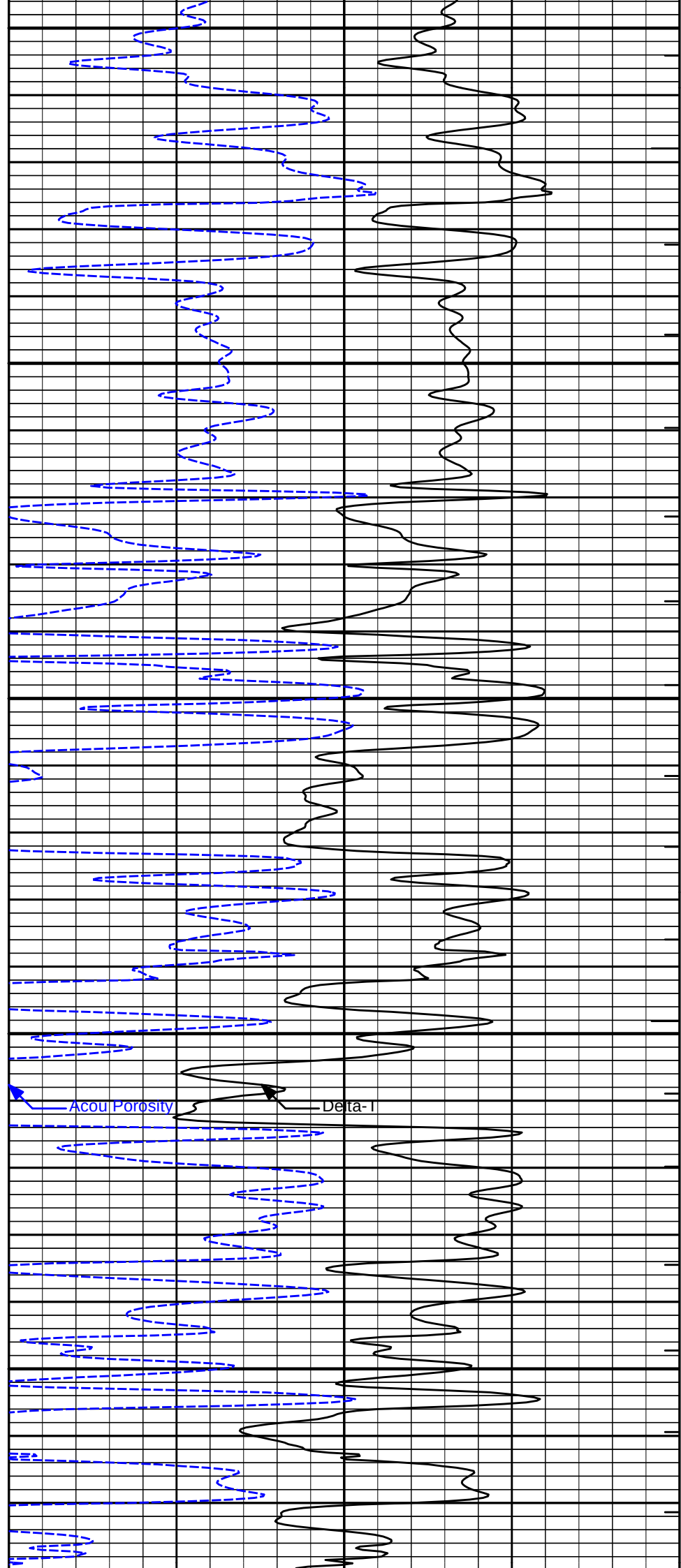


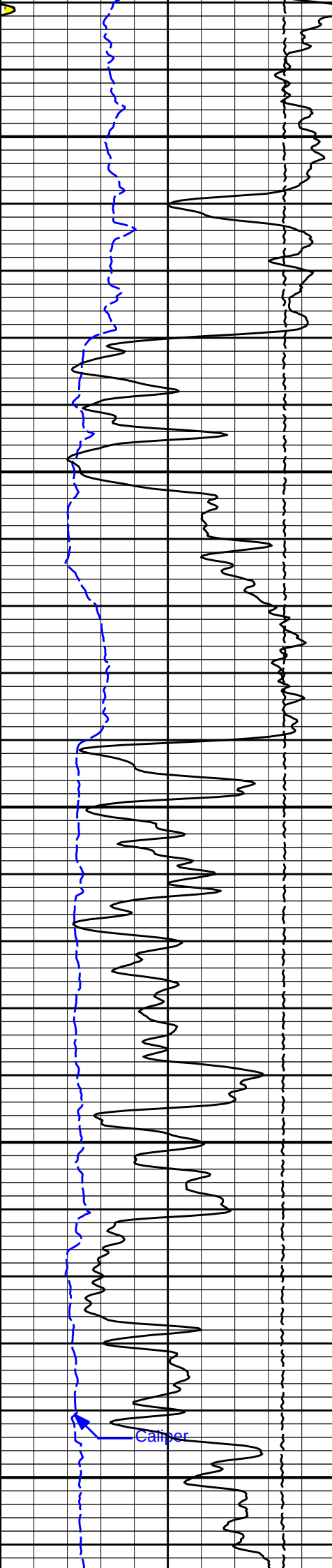


2700

2800

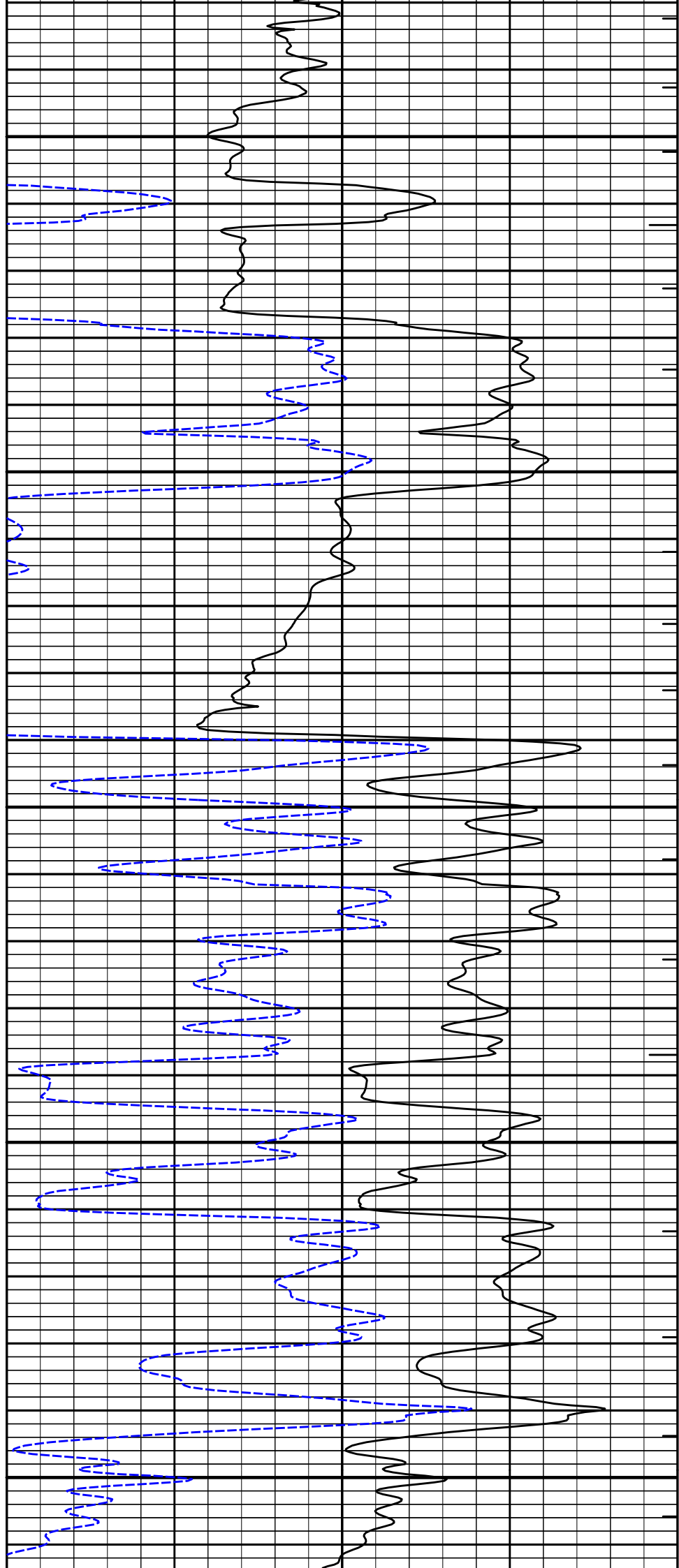
2900

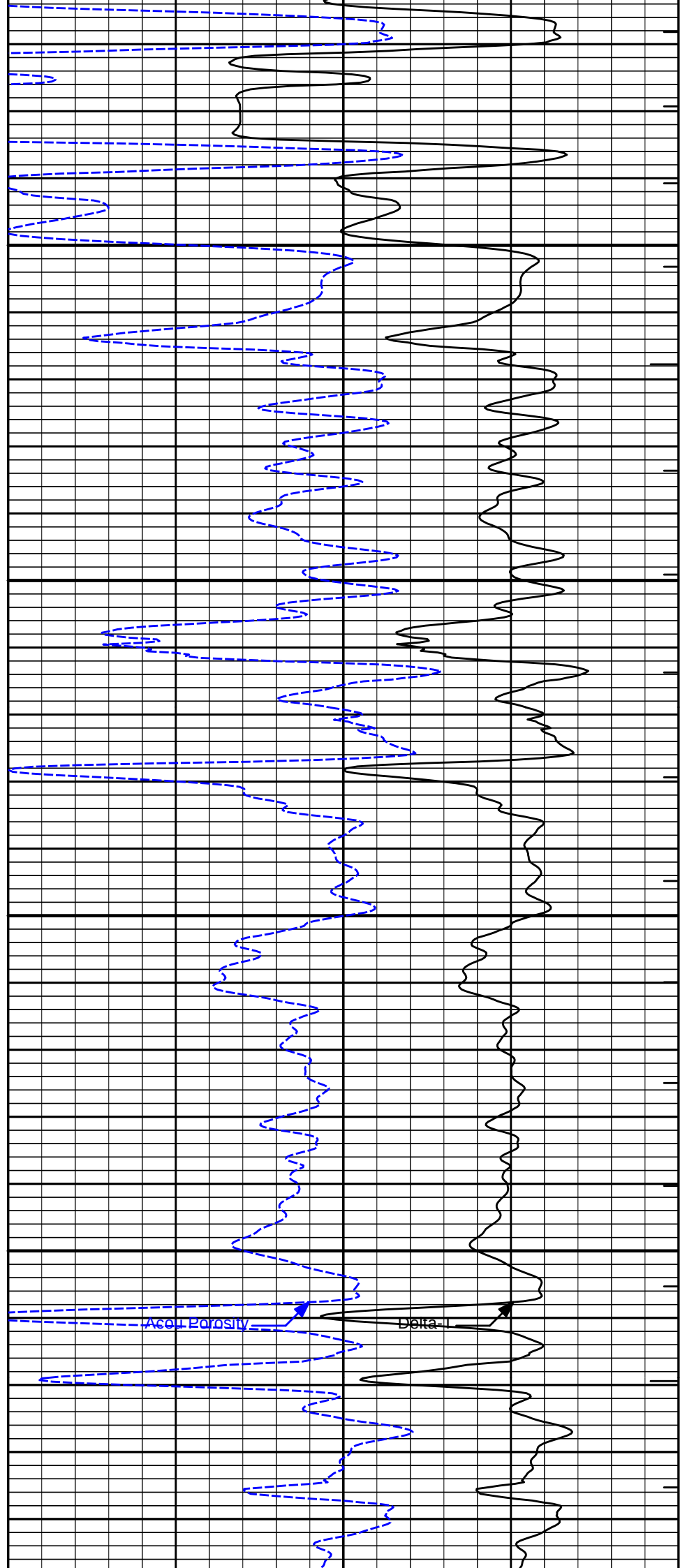
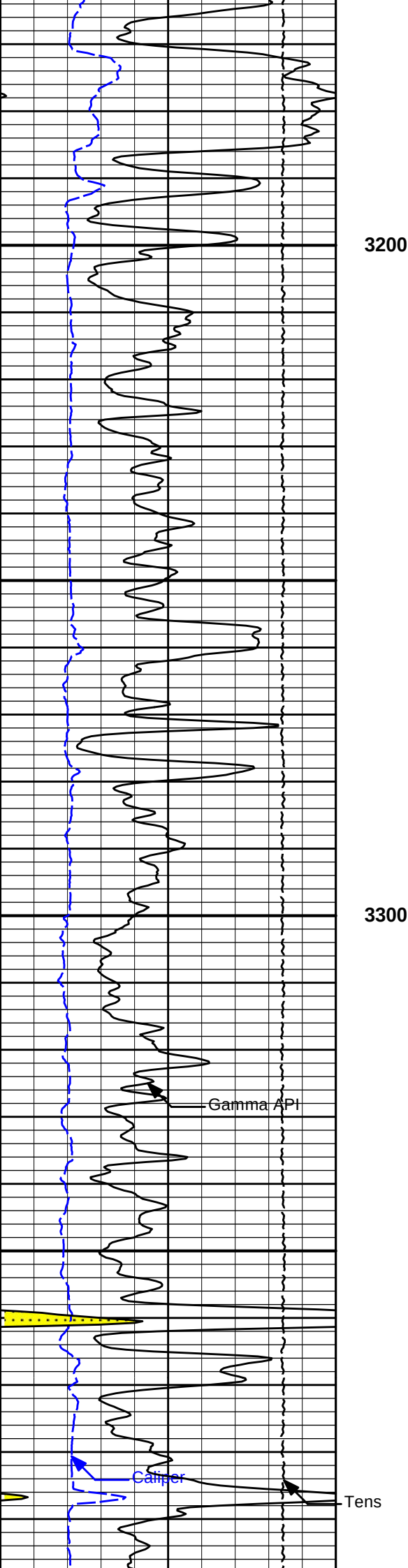


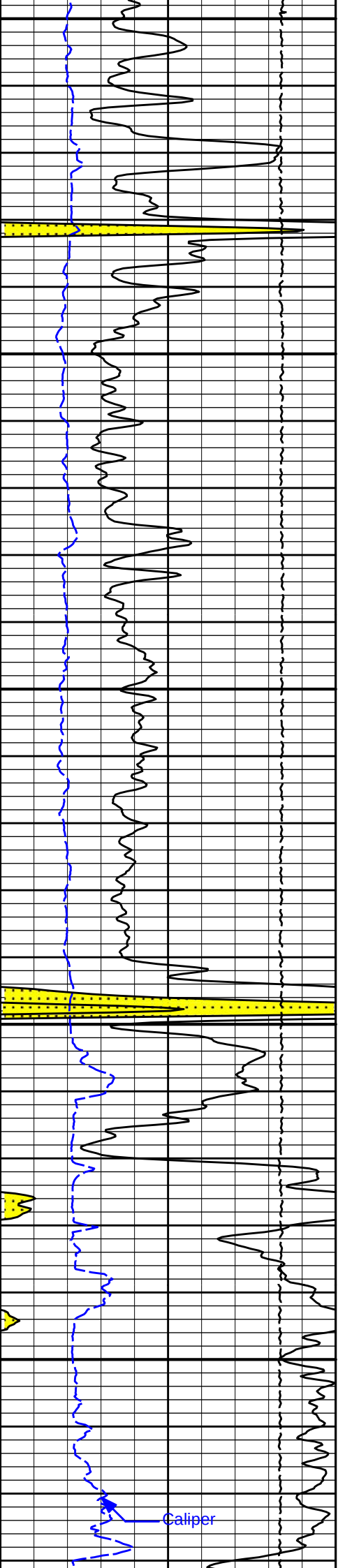


3000

3100



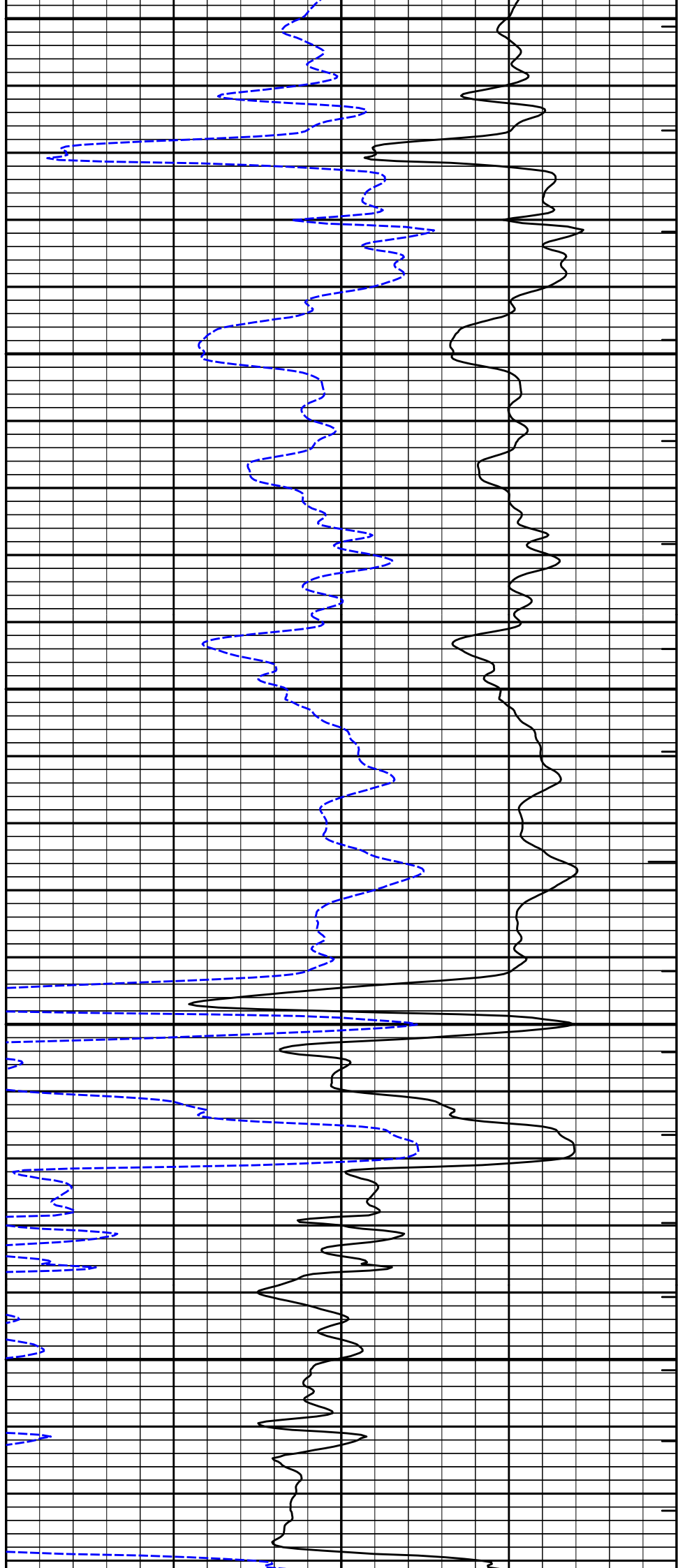


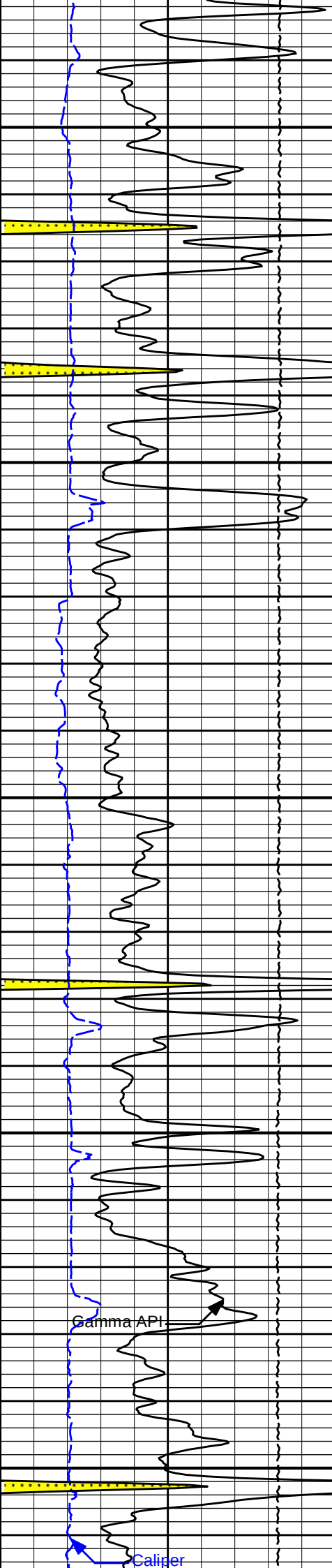


3400

3500

3600



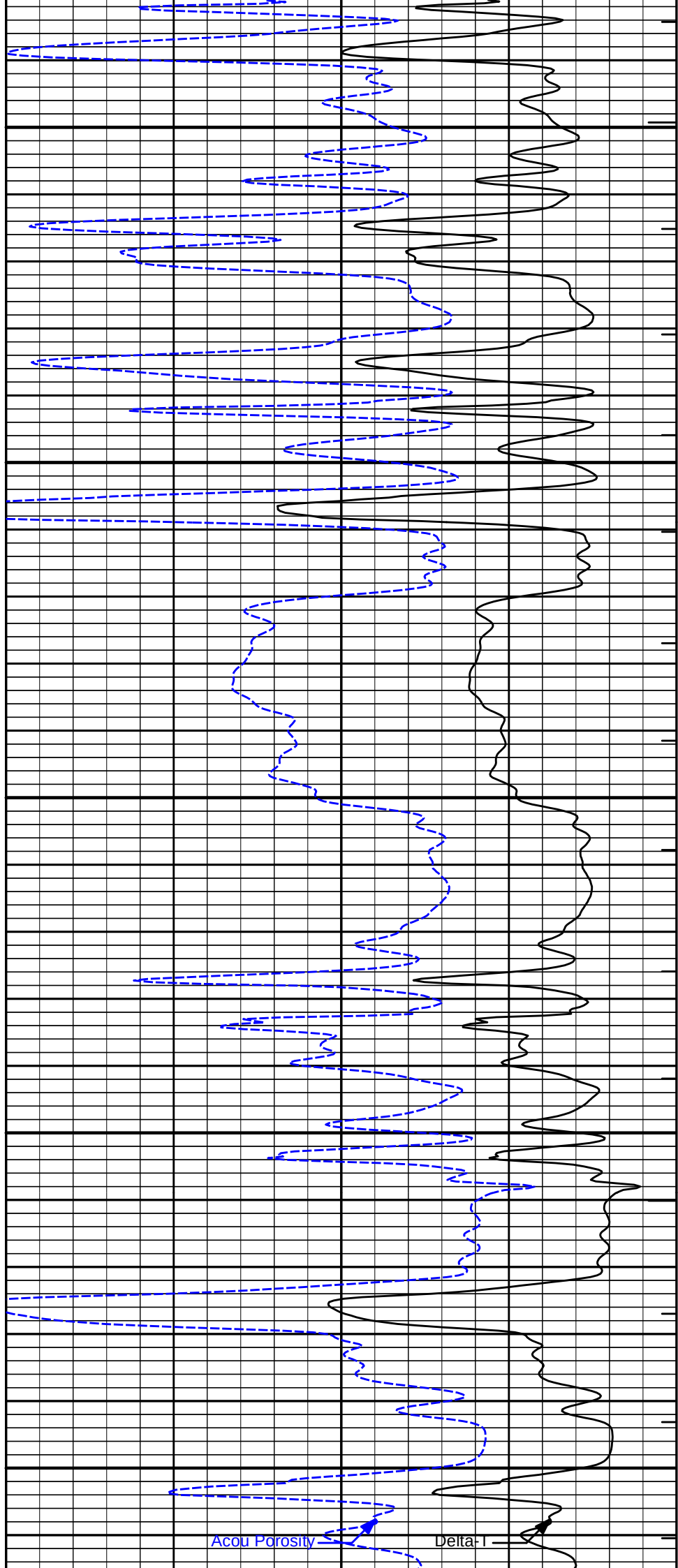


3700

3800

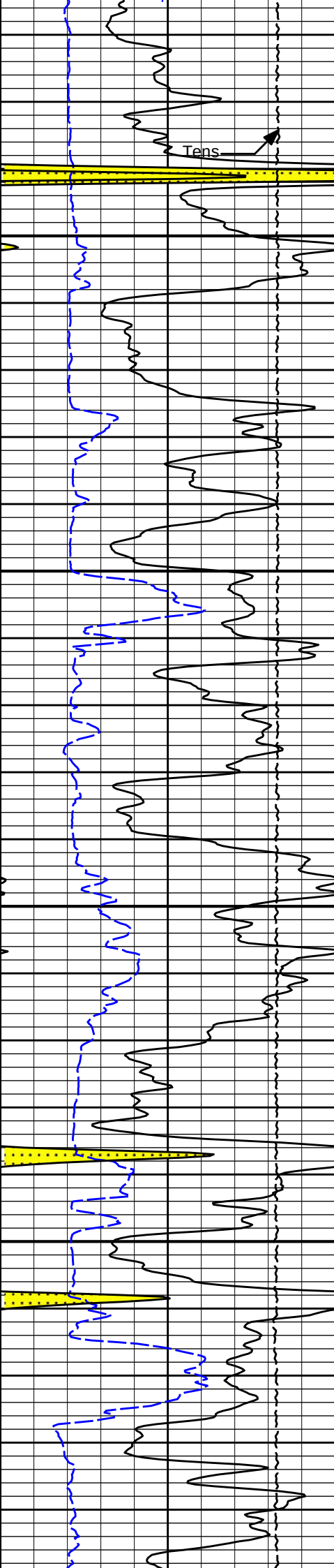
Gamma API

Caliper



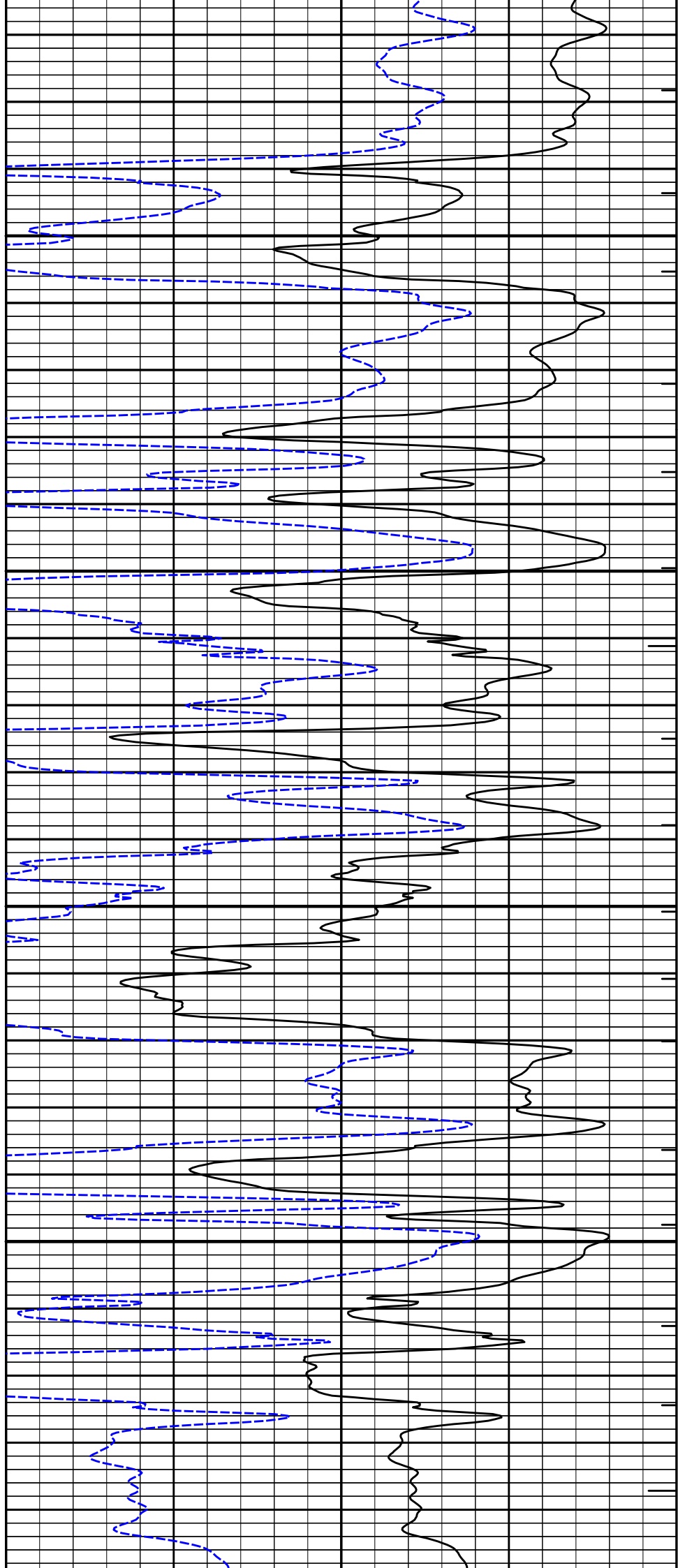
Acou Porosity

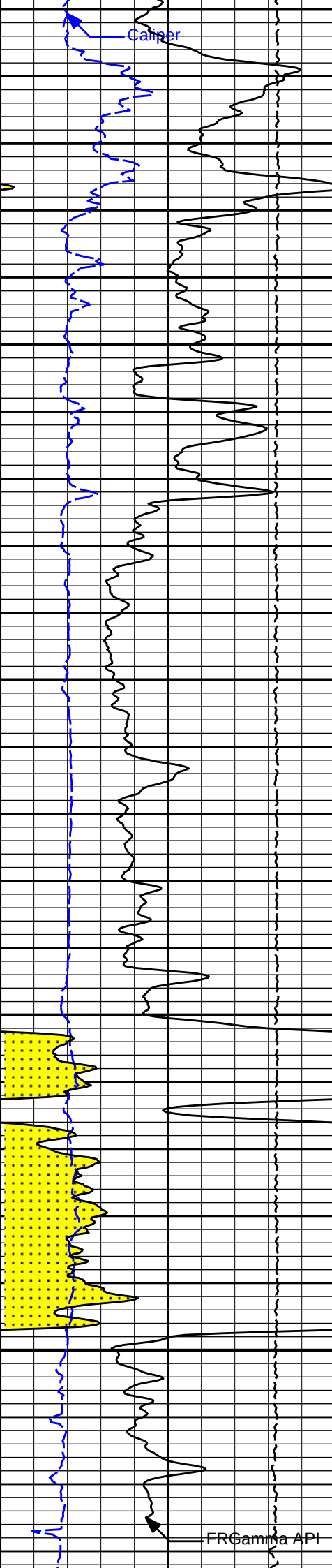
Delta T



3900

4000

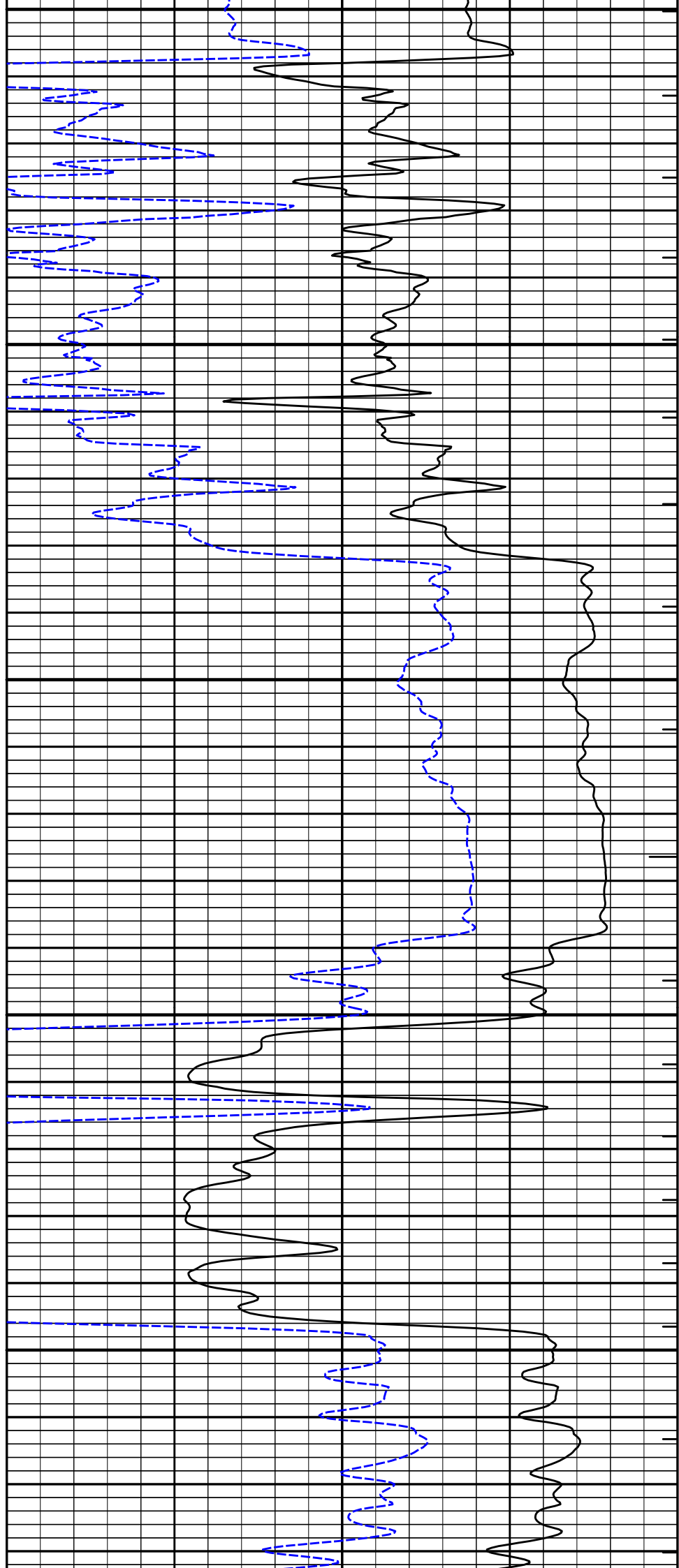


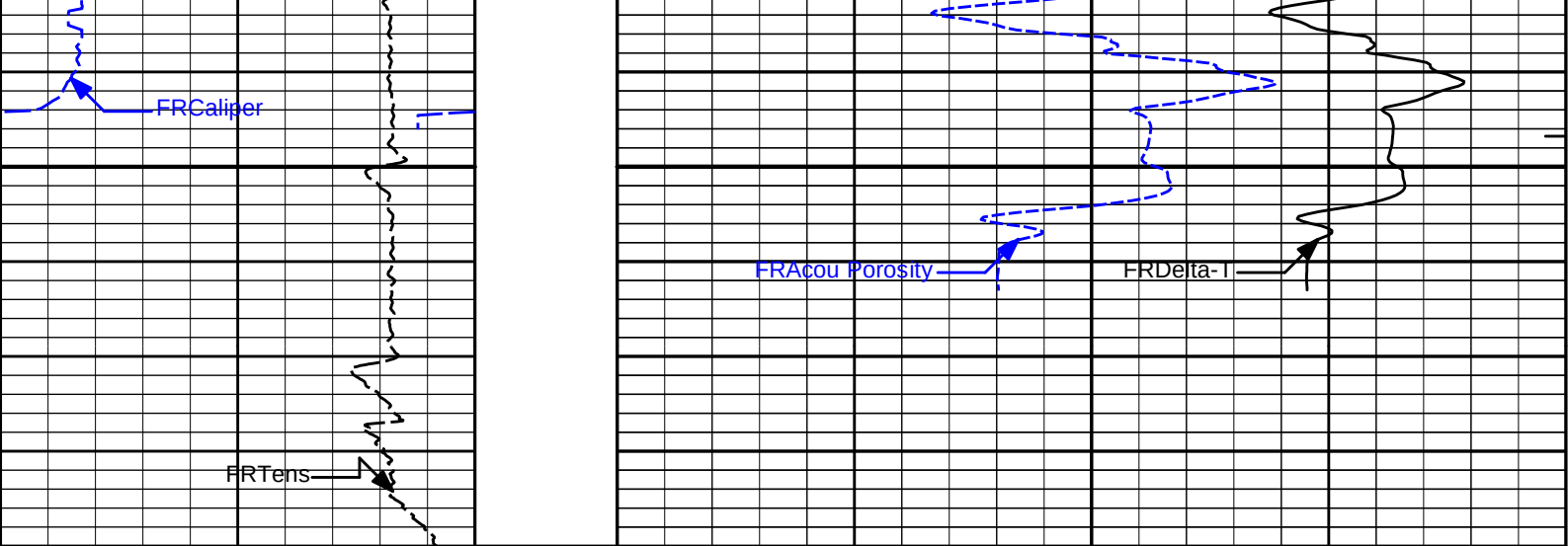


4100

4200

4300





0	Gamma API	150	1 : 240		ITTT
	api		ft		
15K	Tens	0		140	Delta-T
	pounds				microsec per ft
6	CALI	16	30		Acou Porosity
	inches				percent

HALLIBURTON

Plot Time: 14-Sep-17 14:06:51
Plot Range: 1091.5 ft to 4390 ft
Data: RITCHIE_SEYMOUR\Well Based\MAIN\
Plot File: \\BSAT\BSAT_5inch

5 INCH MAIN LOG

MAIN LOG SECTION

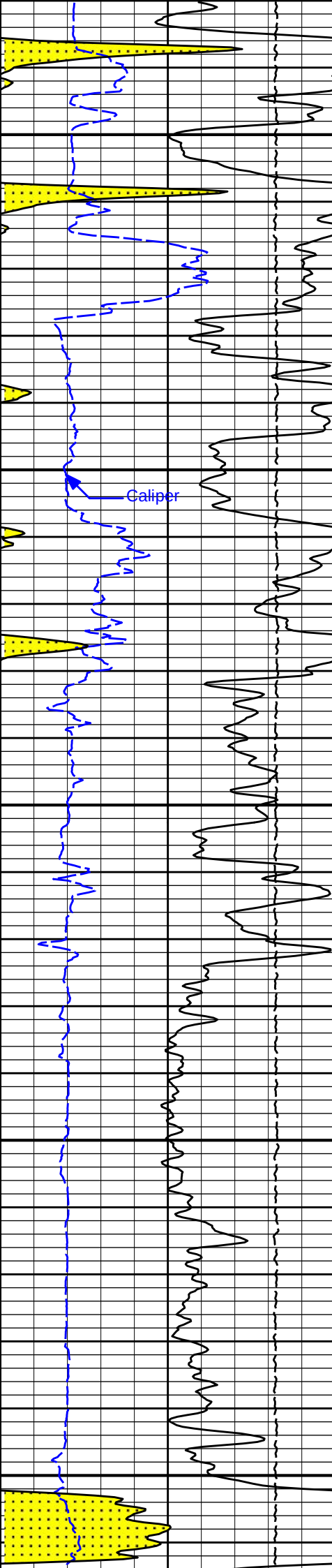
HALLIBURTON

Plot Time: 14-Sep-17 14:06:52
Plot Range: 4030 ft to 4390.08 ft
Data: RITCHIE_SEYMOUR\Well Based\RP1\
Plot File: \\BSAT\BSAT_5inch

5 INCH REPEAT LOG

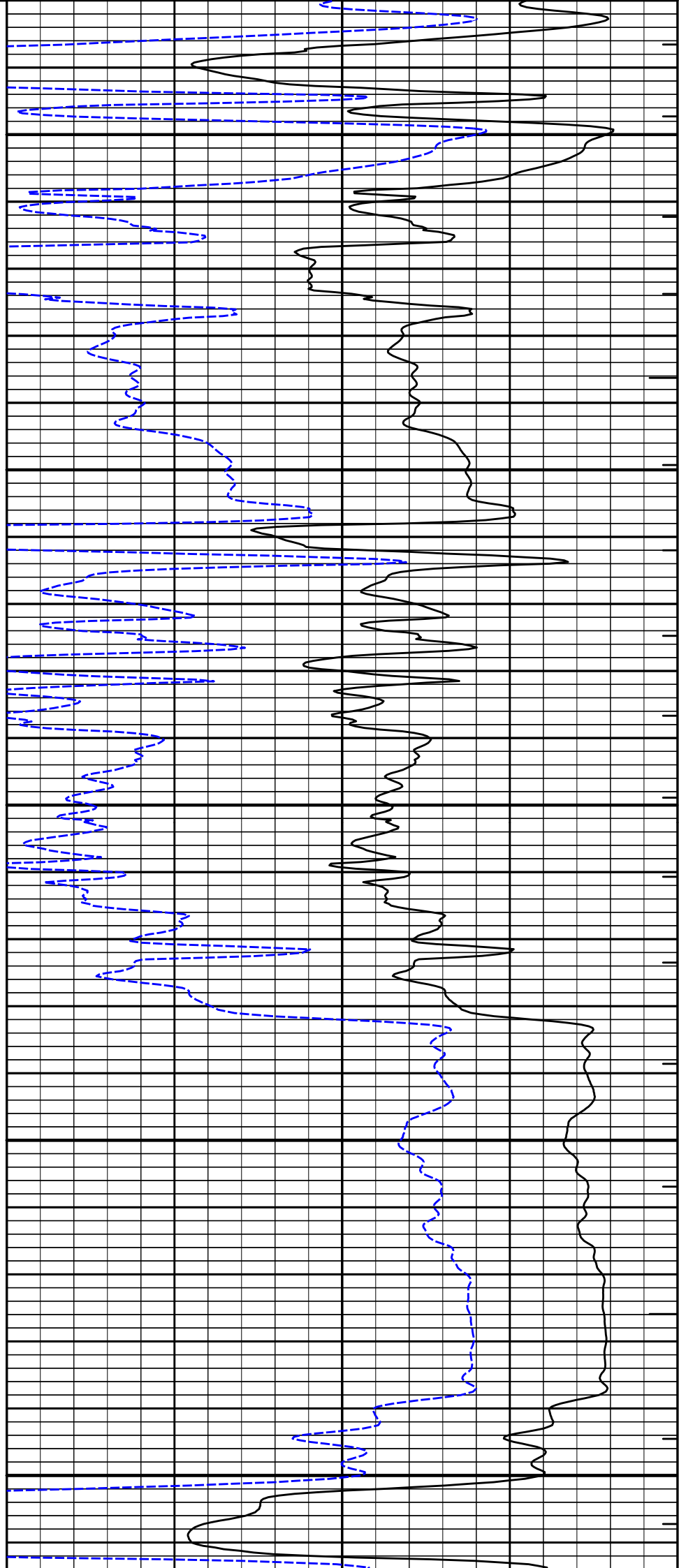
REPEAT LOG SECTION

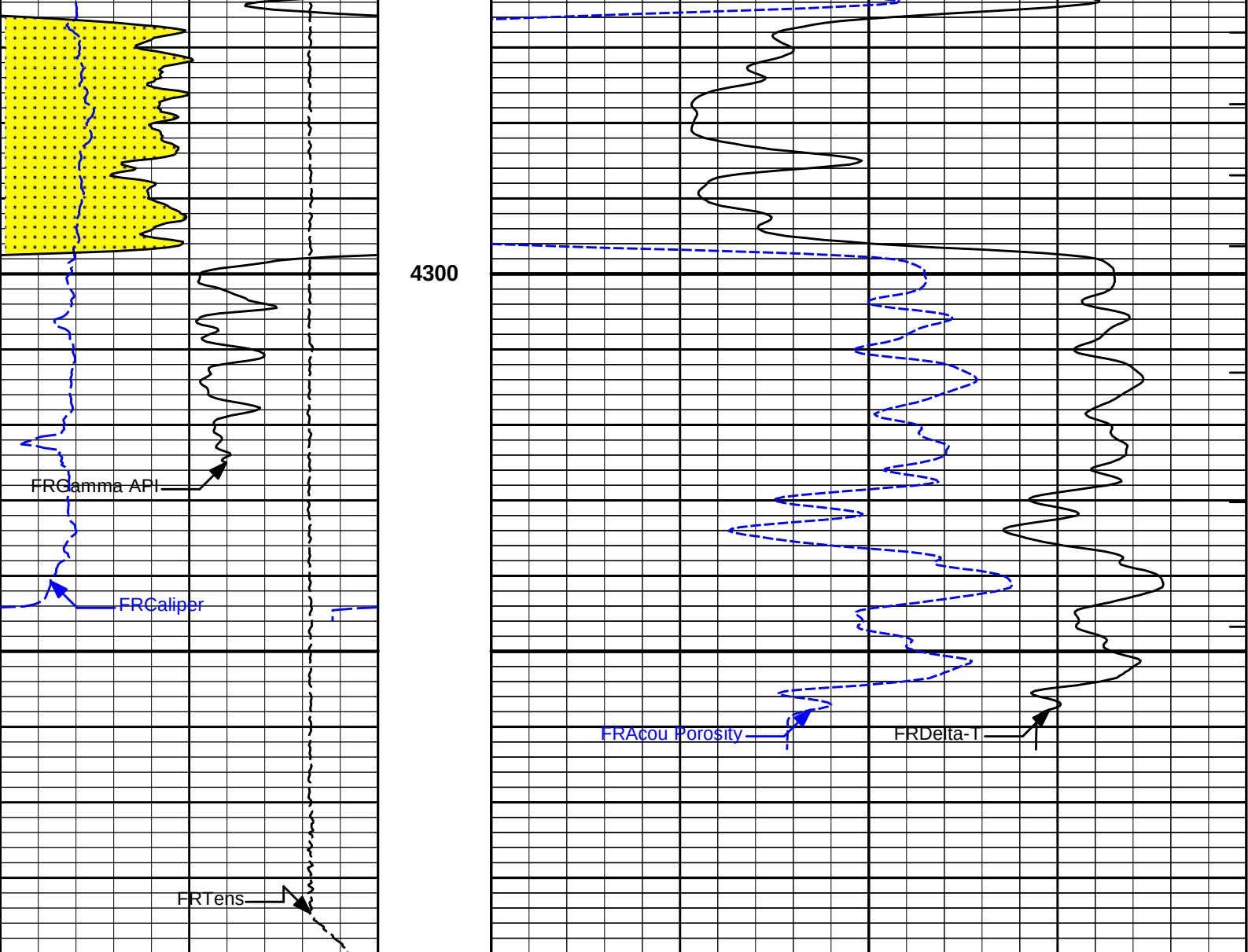
6	CALI	16	30	Acou Porosity	-10
	inches			percent	
15K	Tens	0	140	Delta-T	40
	pounds			microsec per ft	
0	Gamma API	150	1 : 240		ITTT
	api		ft		



4100

4200





0	Gamma API	150	1 : 240		ITTT
	api		ft		
15K	Tens	0		140	Delta-T
	pounds				microsec per ft
6	CALI	16		30	Acou Porosity
	inches				percent

HALLIBURTON

Plot Time: 14-Sep-17 14:06:53
Plot Range: 4030 ft to 4390.08 ft
Data: RITCHIE_SEYMOUR\Well Based\RP1\
Plot File: \\BSAT\BSAT_5inch

5 INCH REPEAT LOG

REPEAT LOG SECTION

COMPANY RITCHIE EXPLORATION INC

WELL SEYMOUR-MORRILL 1

FIELD EDDY NORTHWEST

FIELD	EDDY NORTHWEST		
COUNTY	PAWNEE	STATE	KANSAS
HALLIBURTON		BOREHOLE COMPENSATED SONIC ARRAY LOG	