

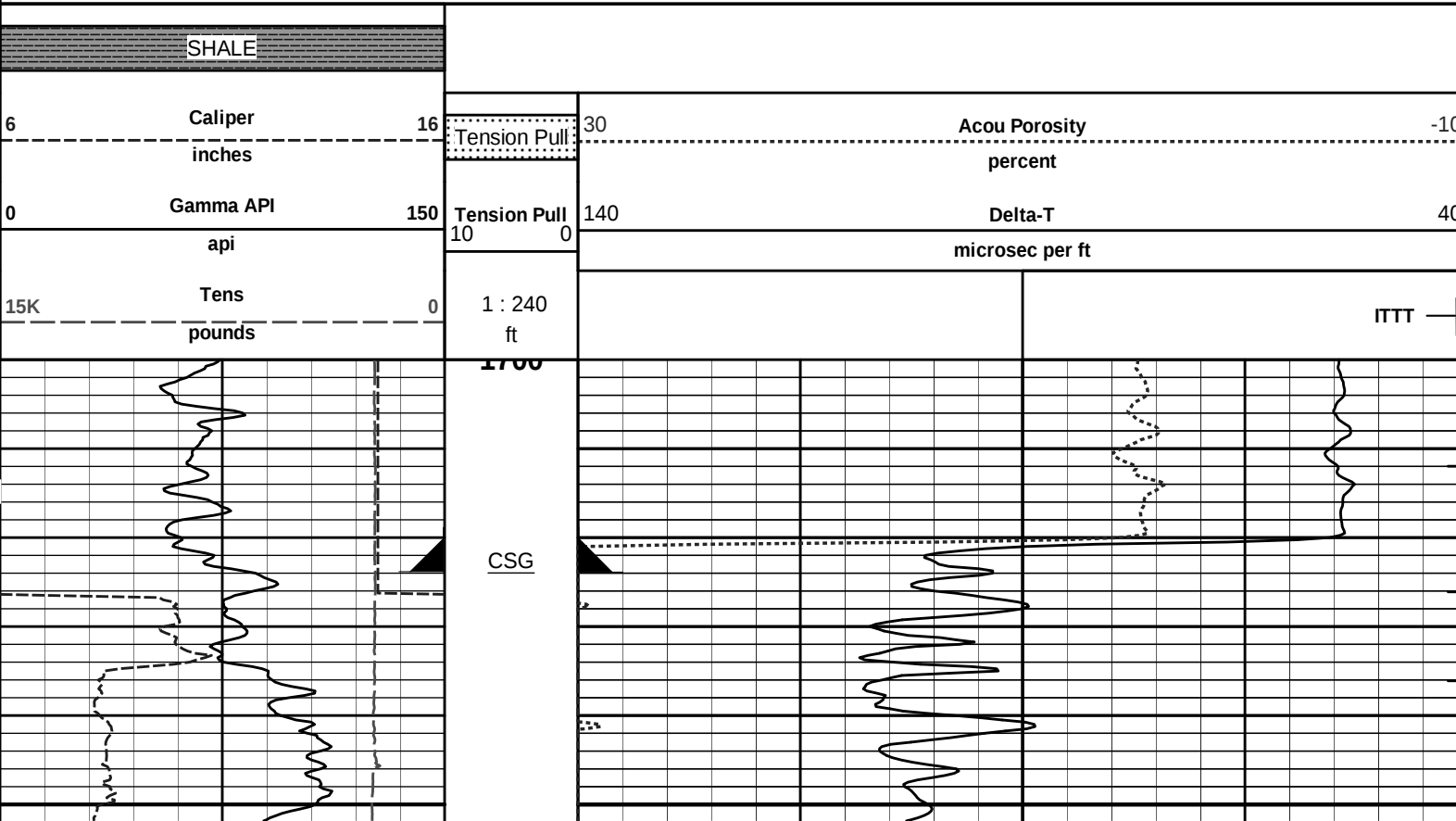
HALLIBURTON

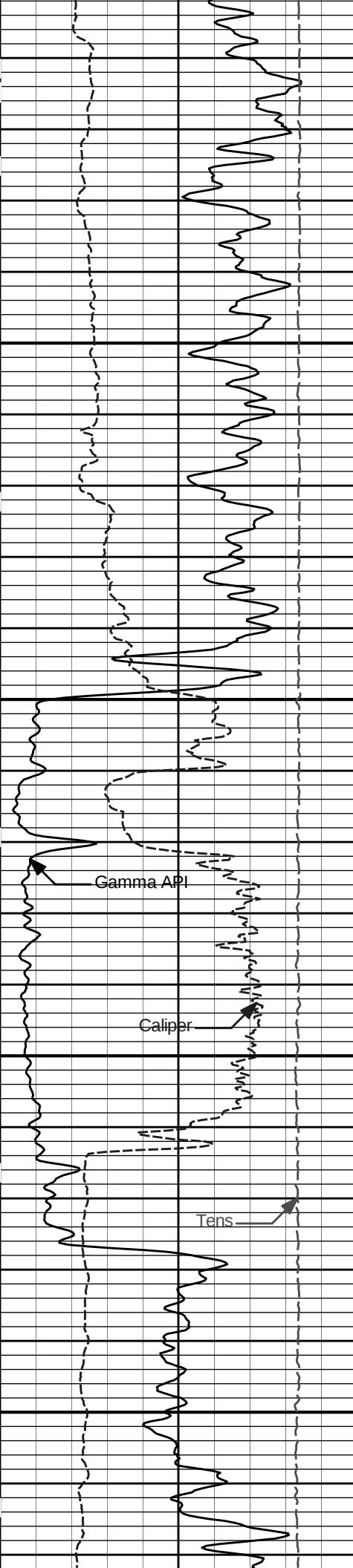
BOREHOLE COMPENSATED SONIC ARRAY LOG

COMPANY		EOG RESOURCES	
WELL		BROOKOVER 4 #4	
FIELD		BROOKOVER	
COUNTY		FINNEY	
STATE		KANSAS	
Permanent Datum		GL	
Log measured from		KB	
Drilling measured from		KB	
Date		10-Jun-11	
Run No.		1	
Depth - Driller		5050.00 ft	
Depth - Logger		5051.0 ft	
Bottom - Logged Interval		5024.0	
Top - Logged Interval		1724.0 ft	
Casing - Driller		8.625 in @ 1726.0 ft	
Casing - Logger		1724.0 ft	
Bit Size		7.875 in @	
Type Fluid in Hole		WATER BASED MUD	
Density		8.9 ppq 64.00 s/qt	
PH		10.00 pH 9.6 cp/m	
Source of Sample		FLOW LINE	
Rm @ Meas. Temperature		1.400 ohmm @ 95.00 degF	
Rmf @ Meas. Temperature		1.117 ohmm @ 90.00 degF	
Rmc @ Meas. Temperature		1.660 ohmm @ 90.00 degF	
Source Rmf		MEAS	
Rm @ BHT		1.23 ohmm @ 130.0 degF	
Time Since Circulation		4.0 hr	
Time on Bottom		10-Jun-11 19:25	
Max. Rec. Temperature		130.0 degF @ 5051.0 ft	
Equipment		10546696 LIBERAL	
Recorded By		J. BOSH	
Witnessed By		W. SHAFFER	

Service Ticket No.: 8233460				API Serial No.: 15-055-221050000				PGM Version: WL INSITE R3.2.0 (Build 7)			
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	
Rmf @ Meas. Temp.		@		@							
Rmc @ Meas. Temp.		@		@							
Source Rmf		Rmc									
Rm @ BHT		@		@							
Rmf @ BHT		@		@							
Rmc @ BHT		@		@							
EQUIPMENT DATA											
GAMMA		ACOUSTIC		DENSITY		NEUTRON					
Run No.		ONE		Run No.		ONE		Run No.			
Serial No.		11050378		Serial No.		10747684		Serial No.			
Model No.		GTET		Model No.		BSAT		Model No.			
Diameter		3.625		No. of Cent.		2		Diameter			
Detector Model No.		T-102		Spacing		.5'		Log Type			
Type		SCINT						Source Type			
Length		8"		LSA [Y/N]		Y		Serial No.			
Distance to Source		10'		FWDA [Y/N]		Y		Strength			

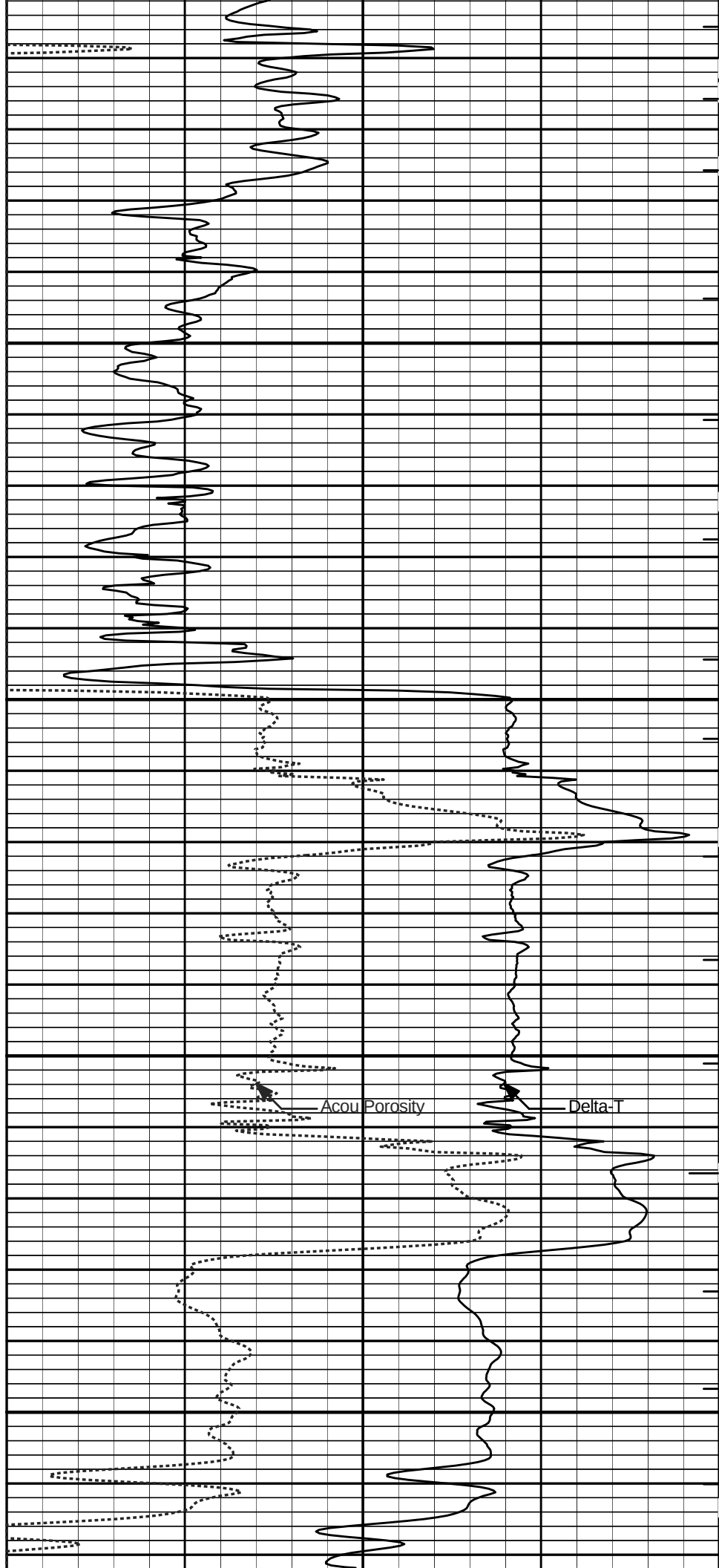
GENERAL				GAMMA				ACOUSTIC				DENSITY				NEUTRON			
Run	Depth		Speed	Scale		Scale		Matrix	Scale		Matrix	Scale		Matrix					
No.	From	To	ft/min	L	R	L	R		L	R		L	R						
ONE	TD	CSG	REC	0	150	30	-10	47.6											
DIRECTIONAL INFORMATION																			
Maximum Deviation @									KOP @										
Remarks: ANNULAR HOLE VOLUME CALCULATED FOR 4.5 AND 5.5 INCH CASING																			
CHLORIDES: 1000 MG/L LCM: 10 LB/BBL																			
GPS COORDINATES: LAT: 37.54 N LONG: 100.50 W																			
TODAY'S CREW: K. KING, V. JAIME																			
THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES, LIBERAL, KS 620-624-8123																			
HALLIBURTON DOES NOT GUARANTEE THE ACCURACY OF ANY INTERPRETATION OF THE LOG DATA, CONVERSION OF LOG DATA TO PHYSICAL ROCK PARAMETERS OR RECOMMENDATIONS WHICH MAY BE GIVEN BY HALLIBURTON PERSONNEL OR WHICH APPEAR ON THE LOG OR IN ANY OTHER FORM. ANY USER OF SUCH DATA, INTERPRETATIONS, CONVERSIONS, OR RECOMMENDATIONS AGREES THAT HALLIBURTON IS NOT RESPONSIBLE EXCEPT WHERE DUE TO GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, FOR ANY LOSS, DAMAGES, OR EXPENSES RESULTING FROM THE USE THEREOF.																			
HALLIBURTON																			





1800

1900





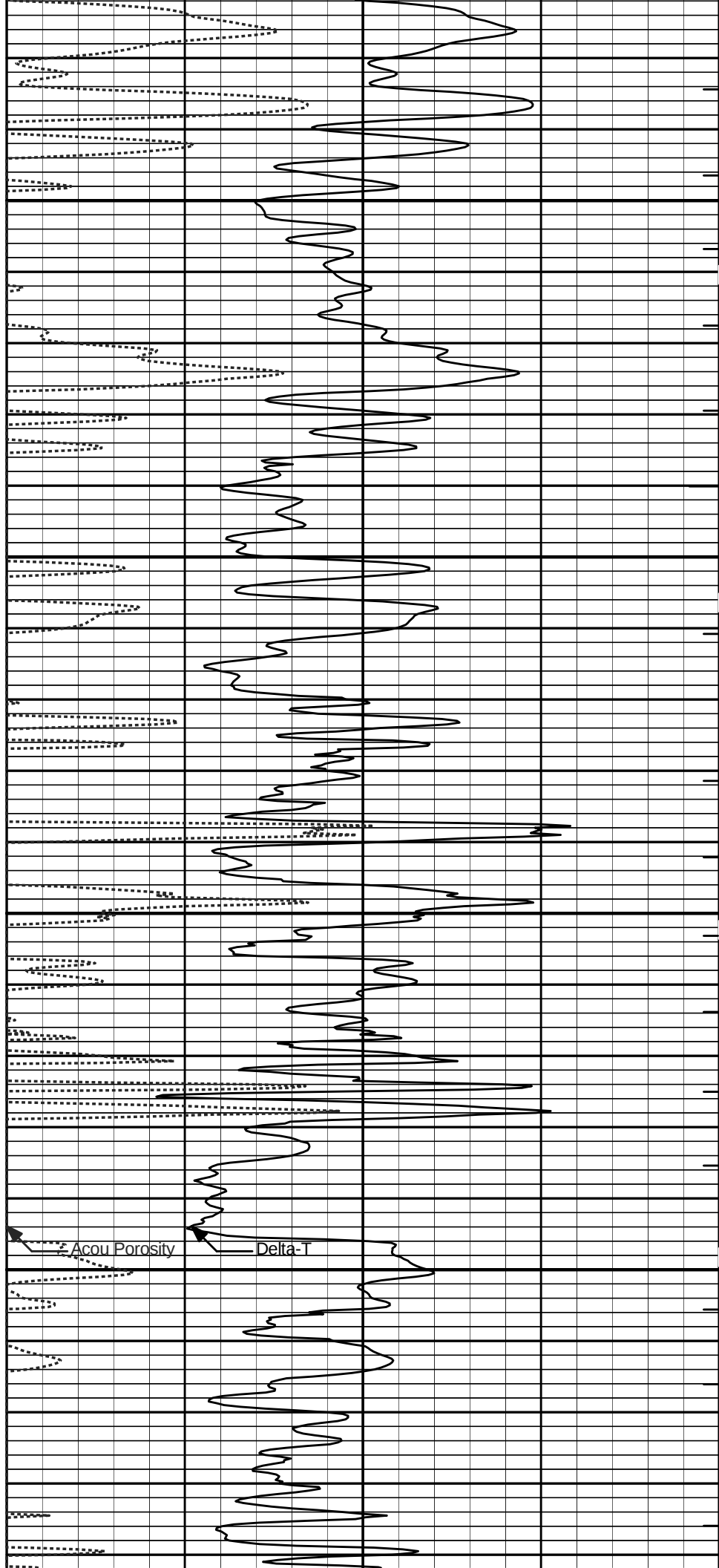
2000

2100

Gamma API

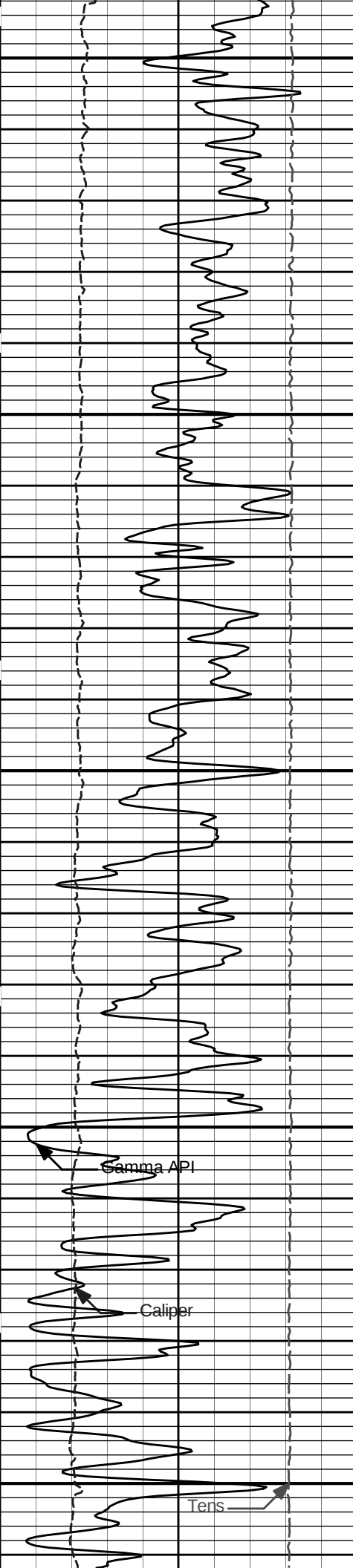
Caliper

Density



Acoustic Porosity

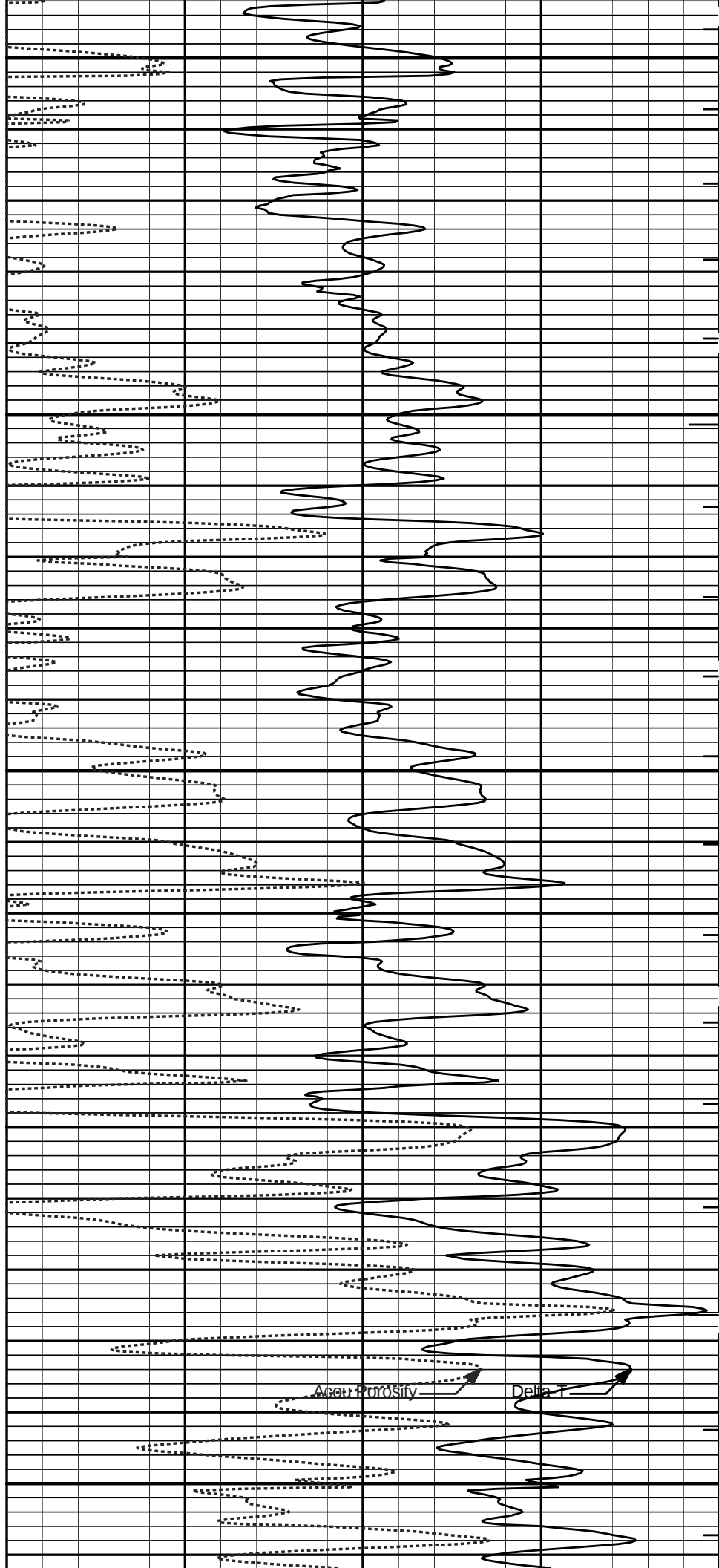
Delta-T

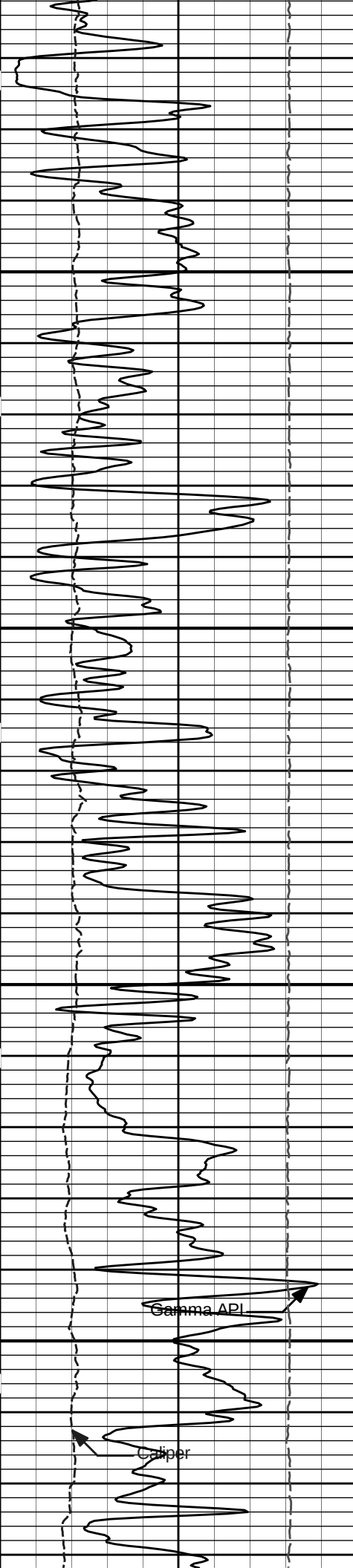


2200

2300

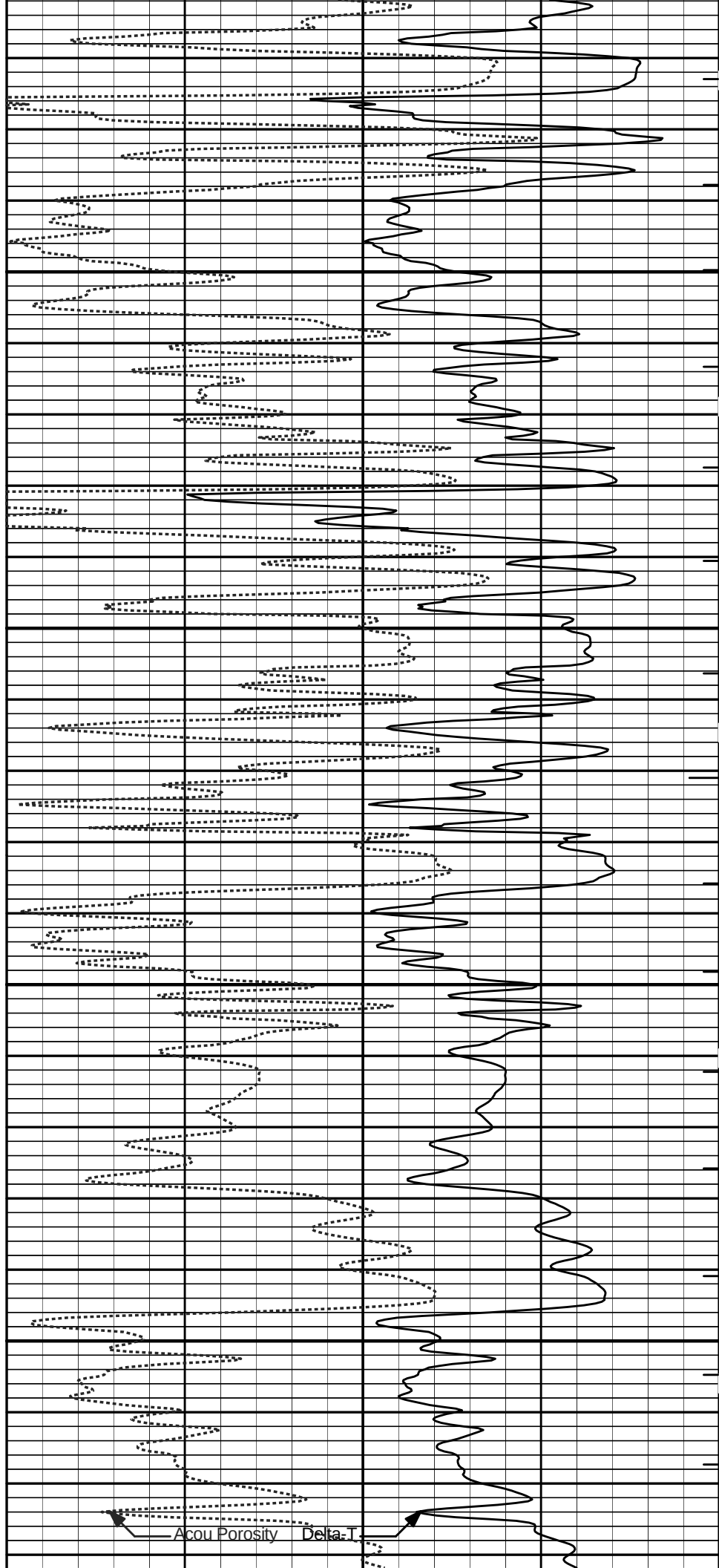
2400

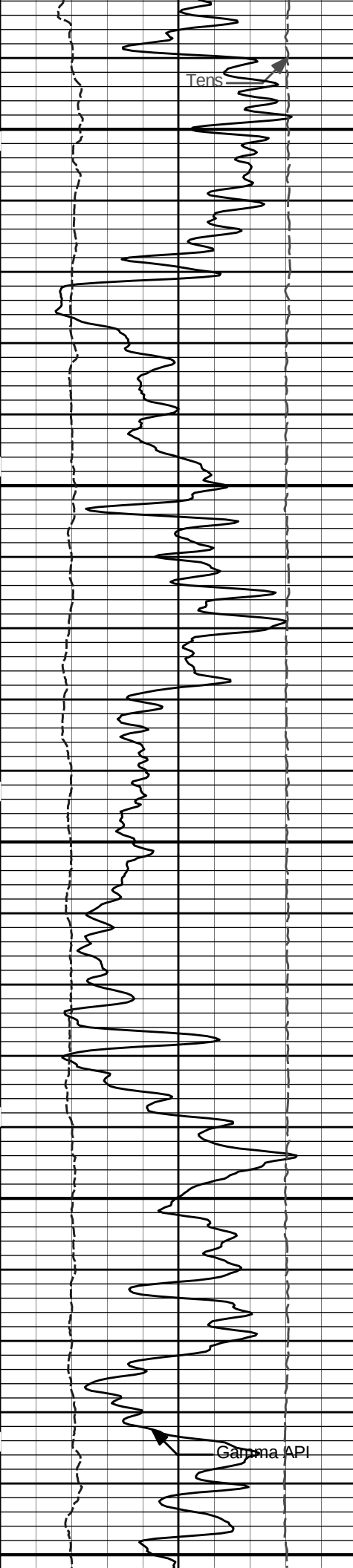




2500

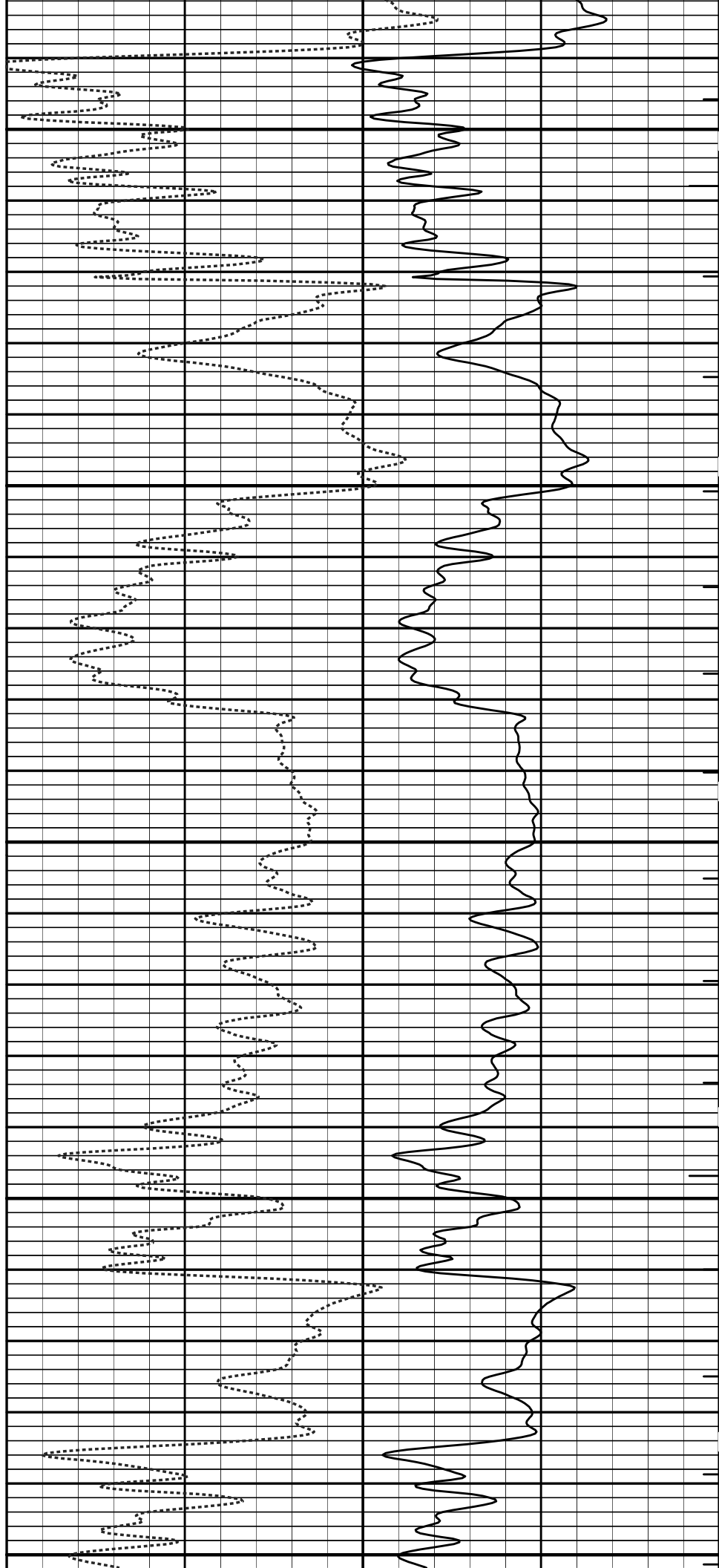
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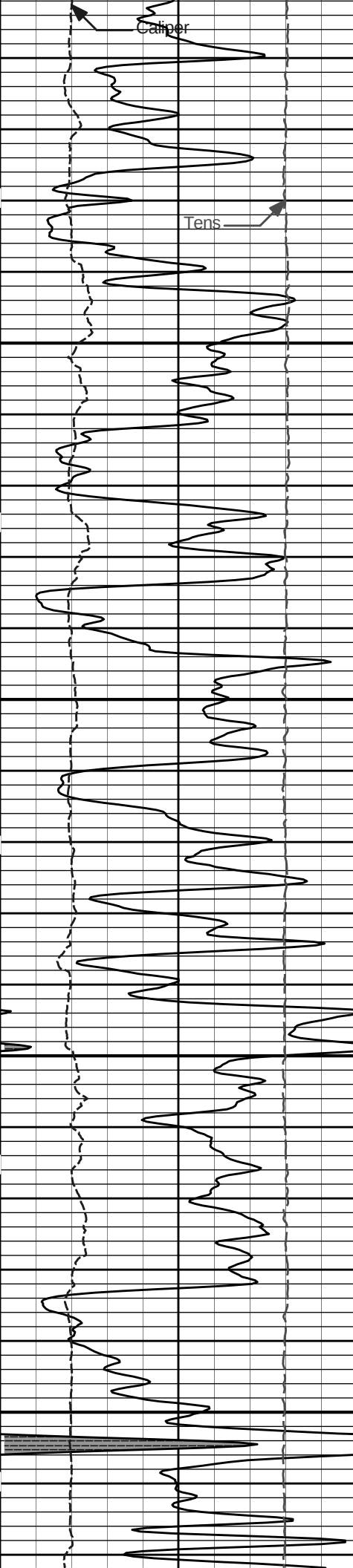




2700

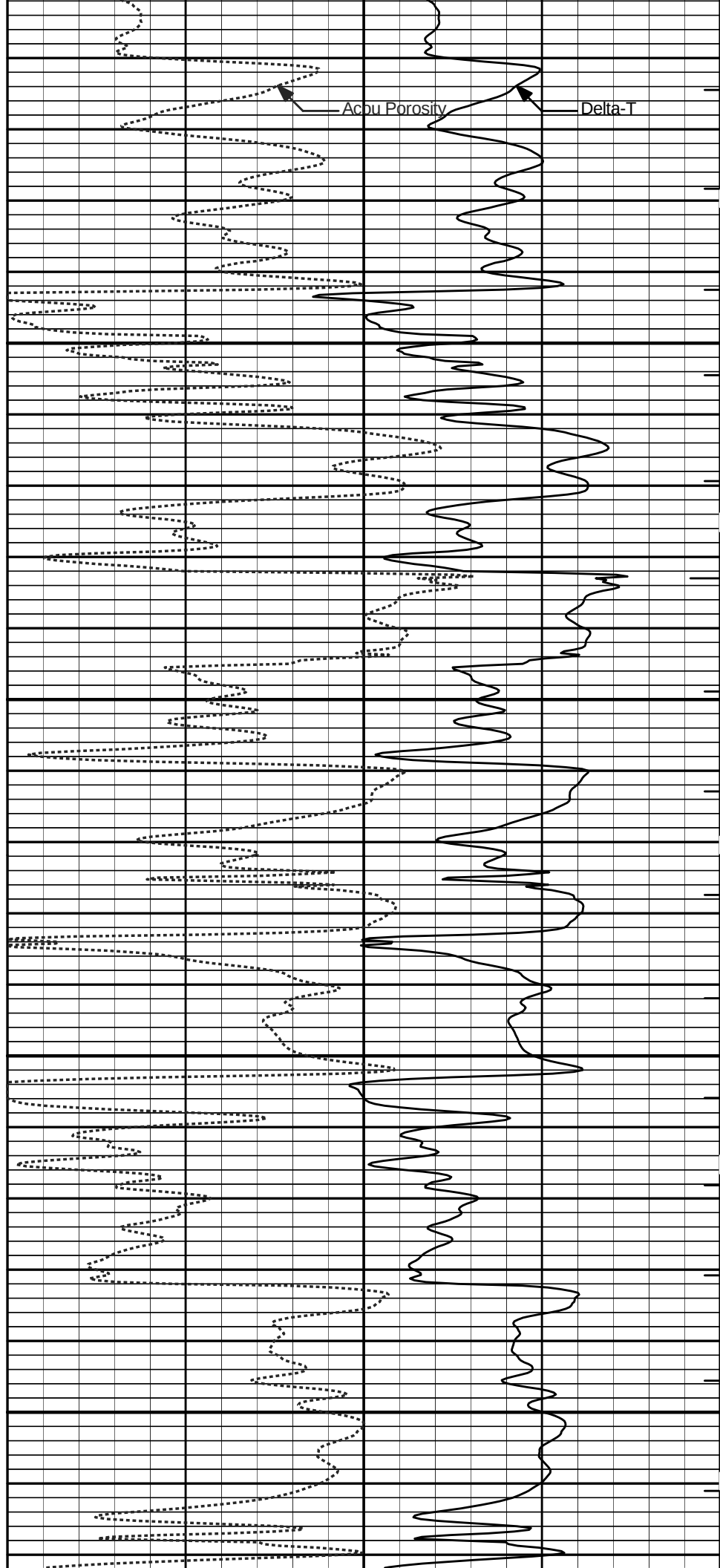
2800

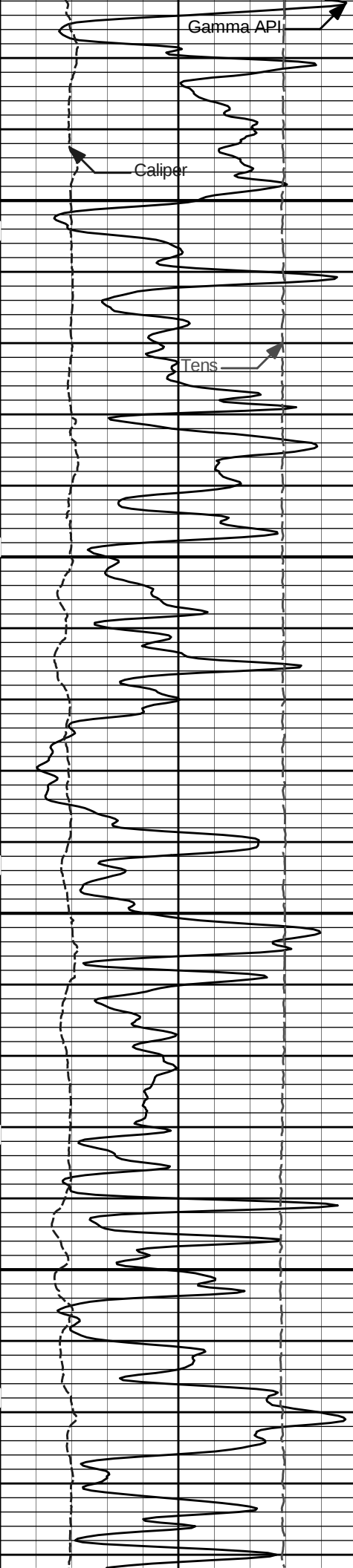




2900

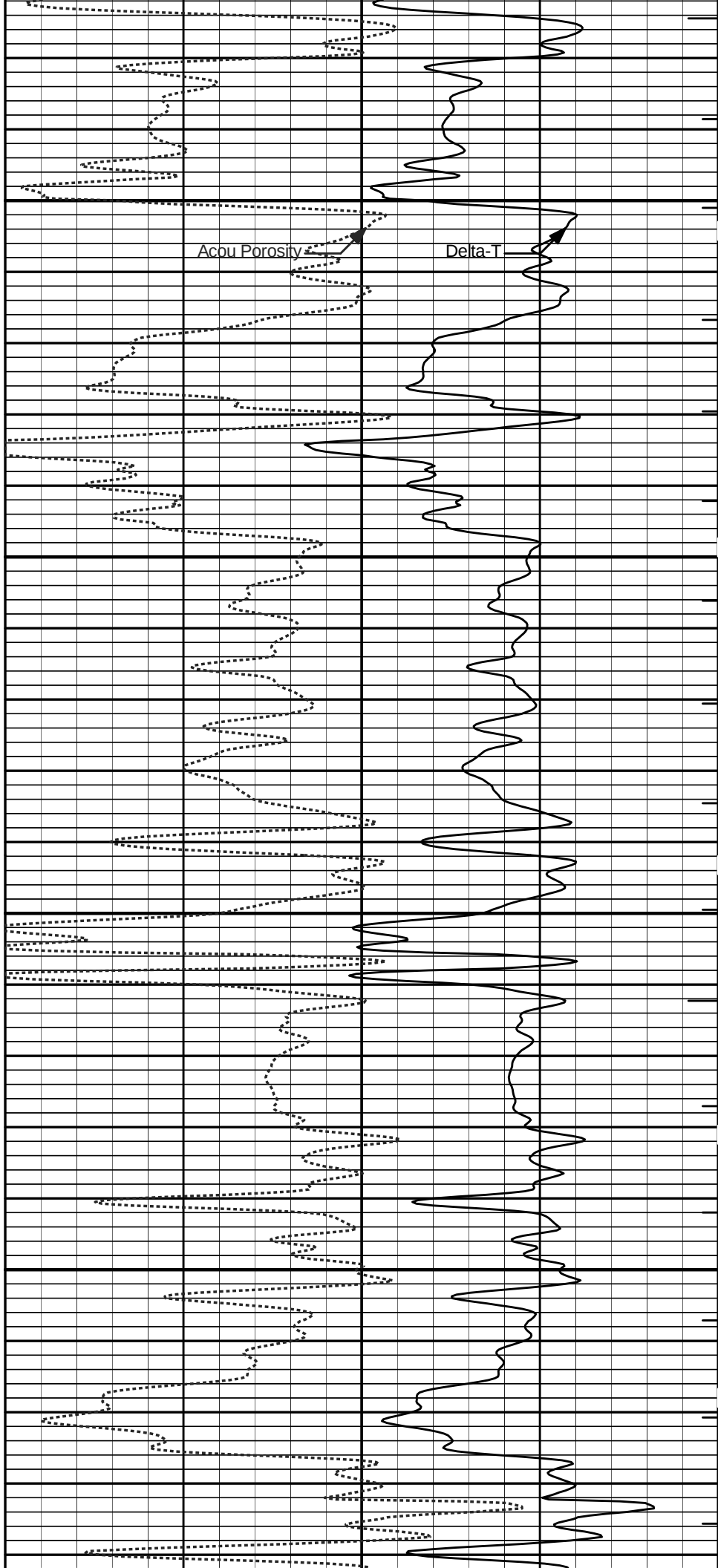
3000

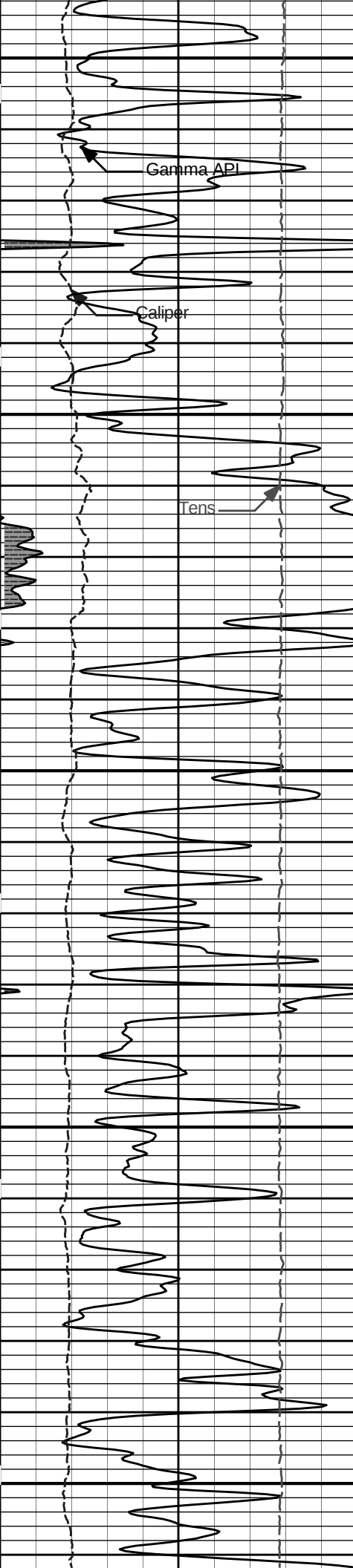




3100

3200

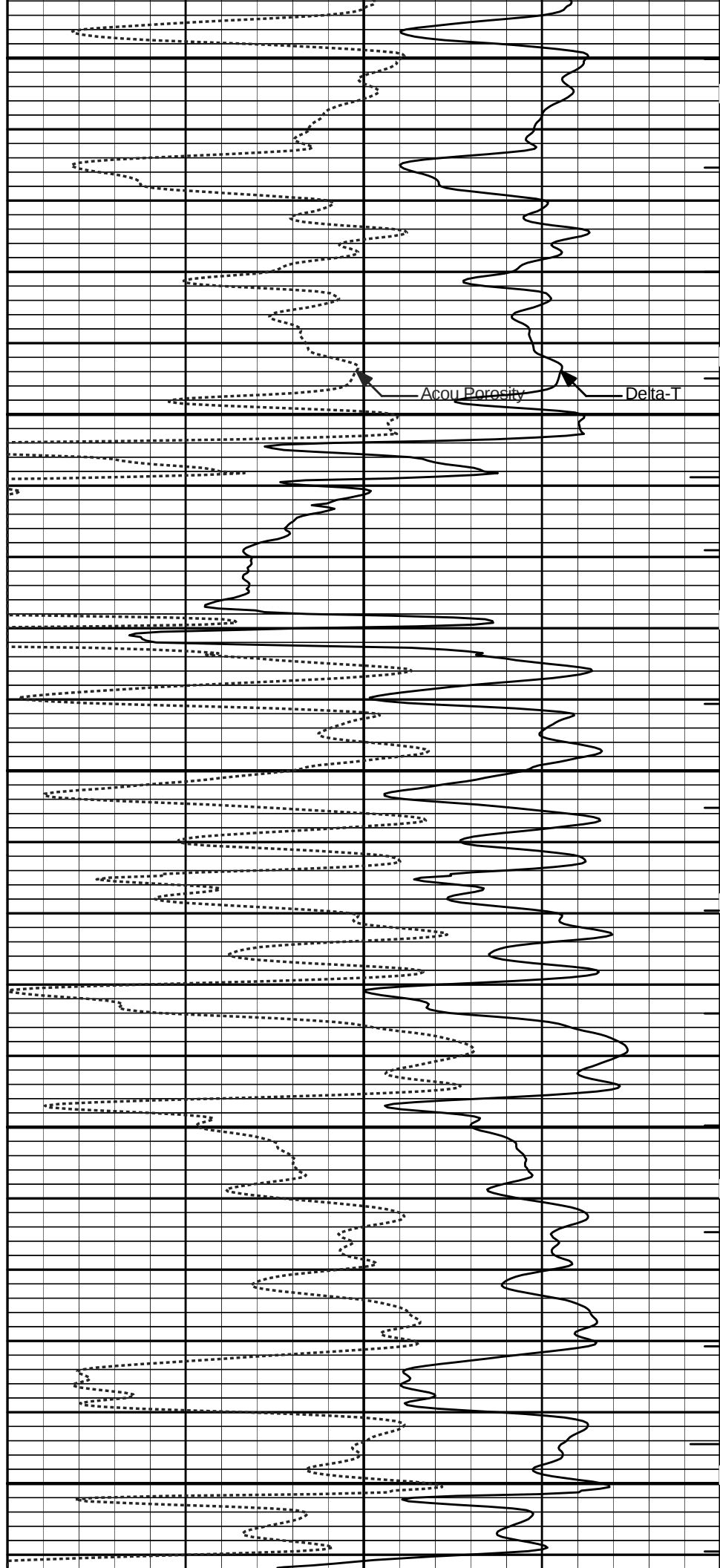


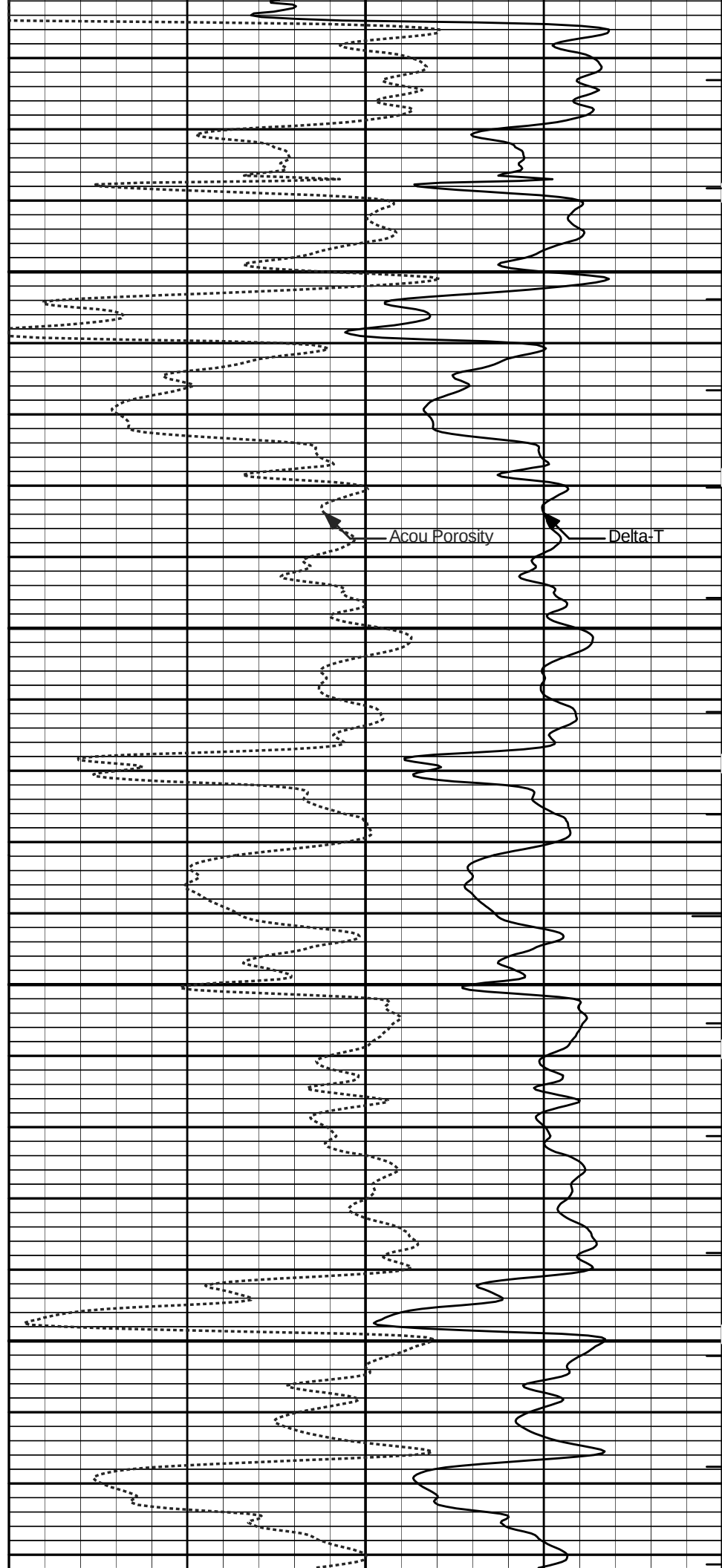
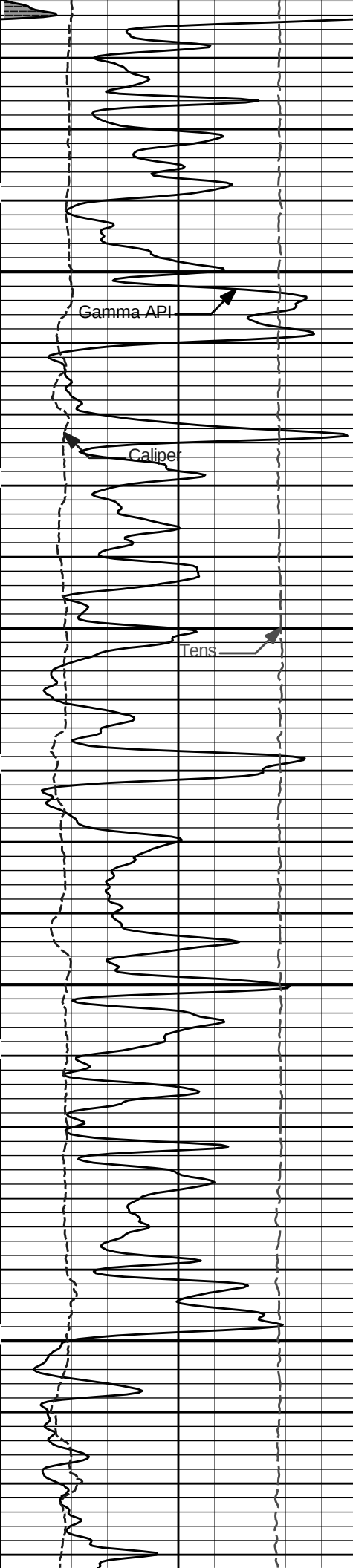


3300

3400

3500

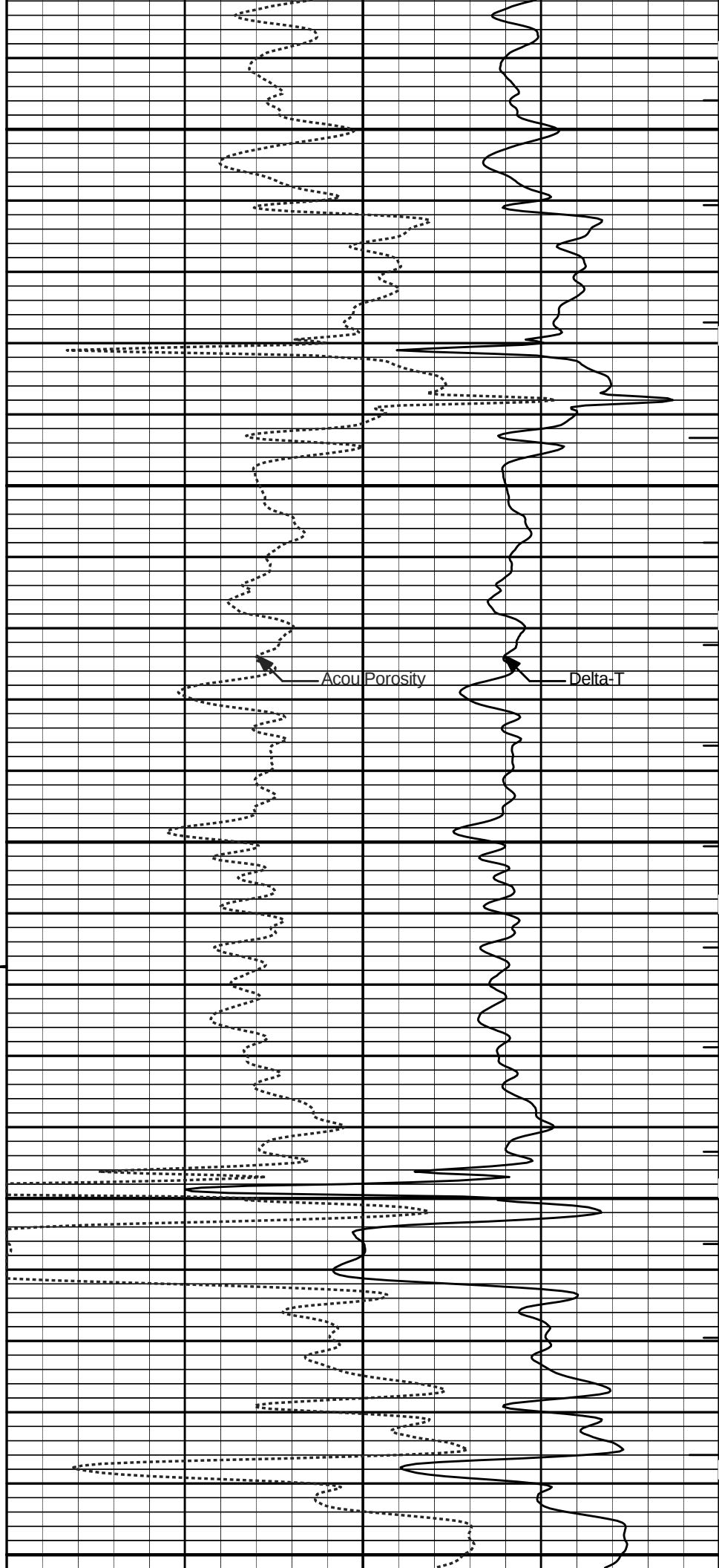


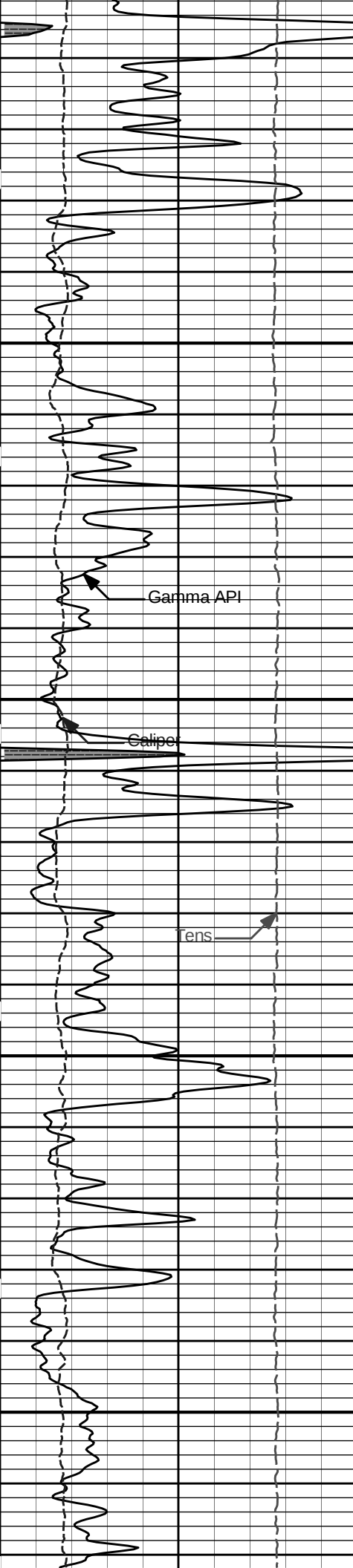




3800

3900





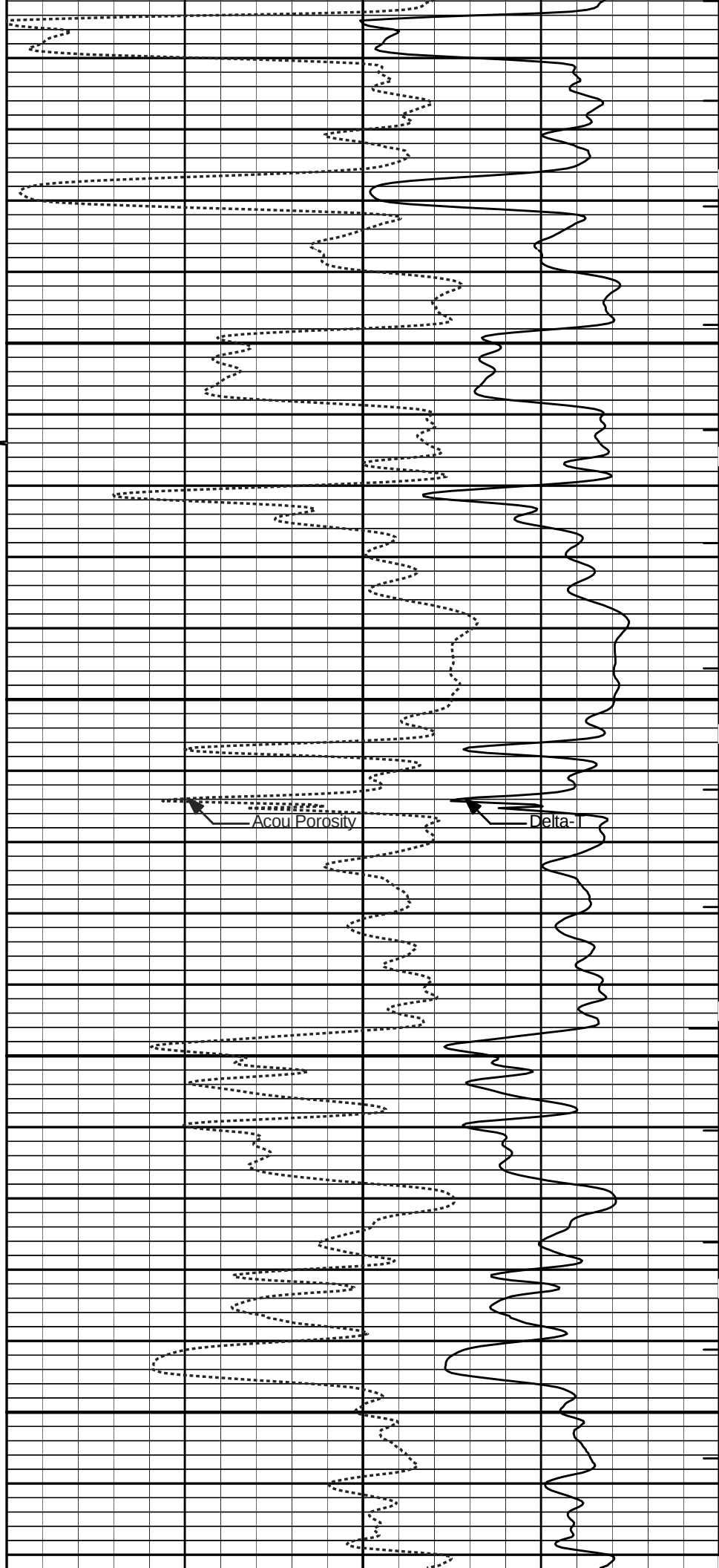
4000

Gamma API

Caliper

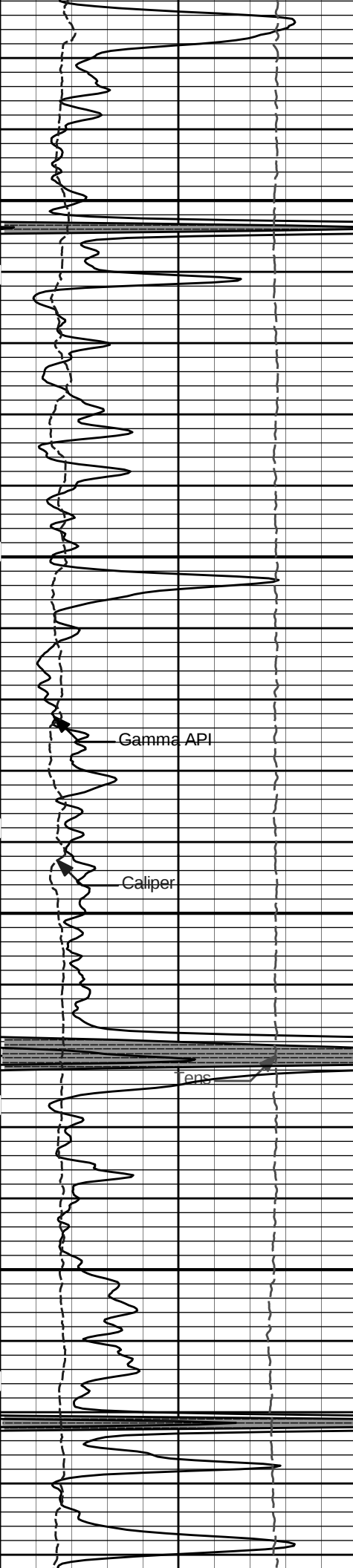
Tens

4100



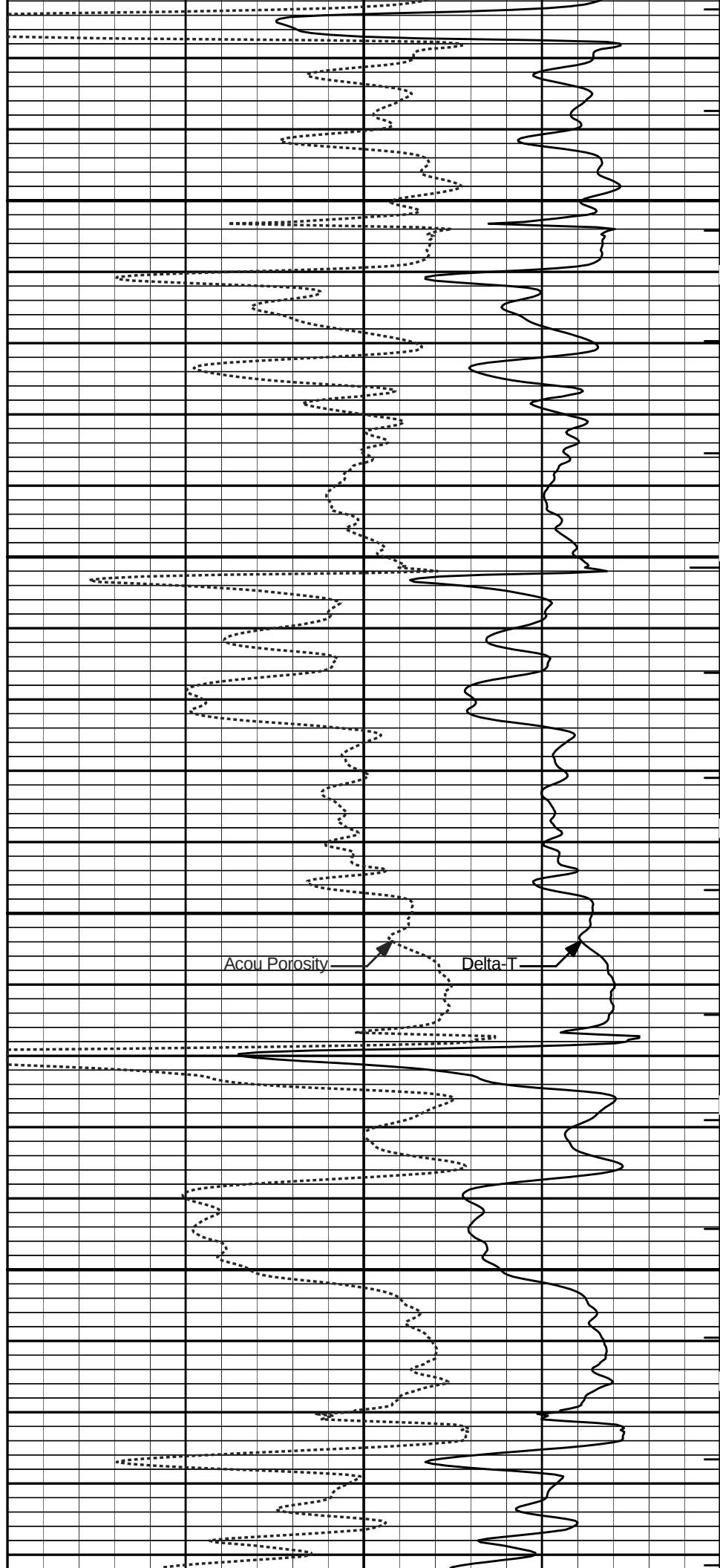
Acou Porosity

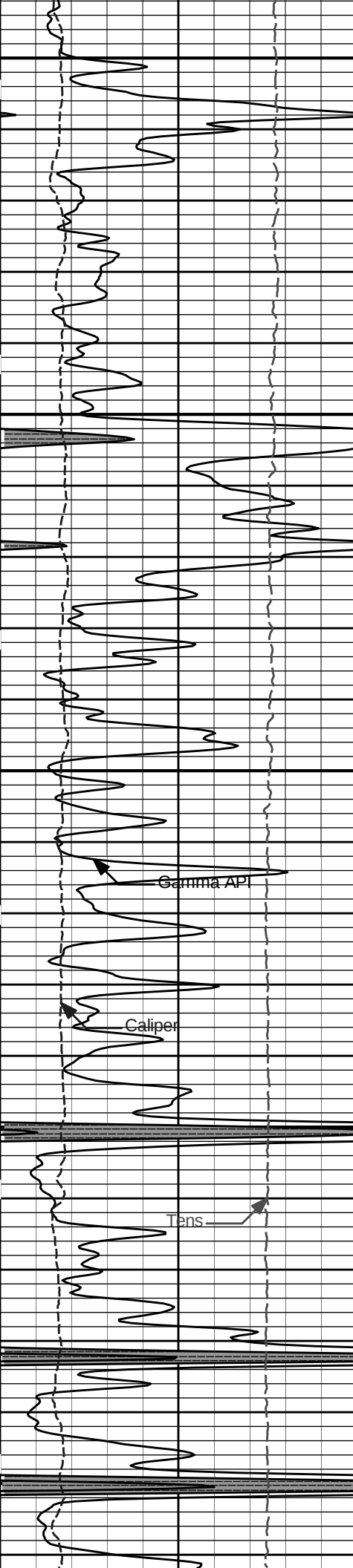
Delta-I



4200

4300





4400

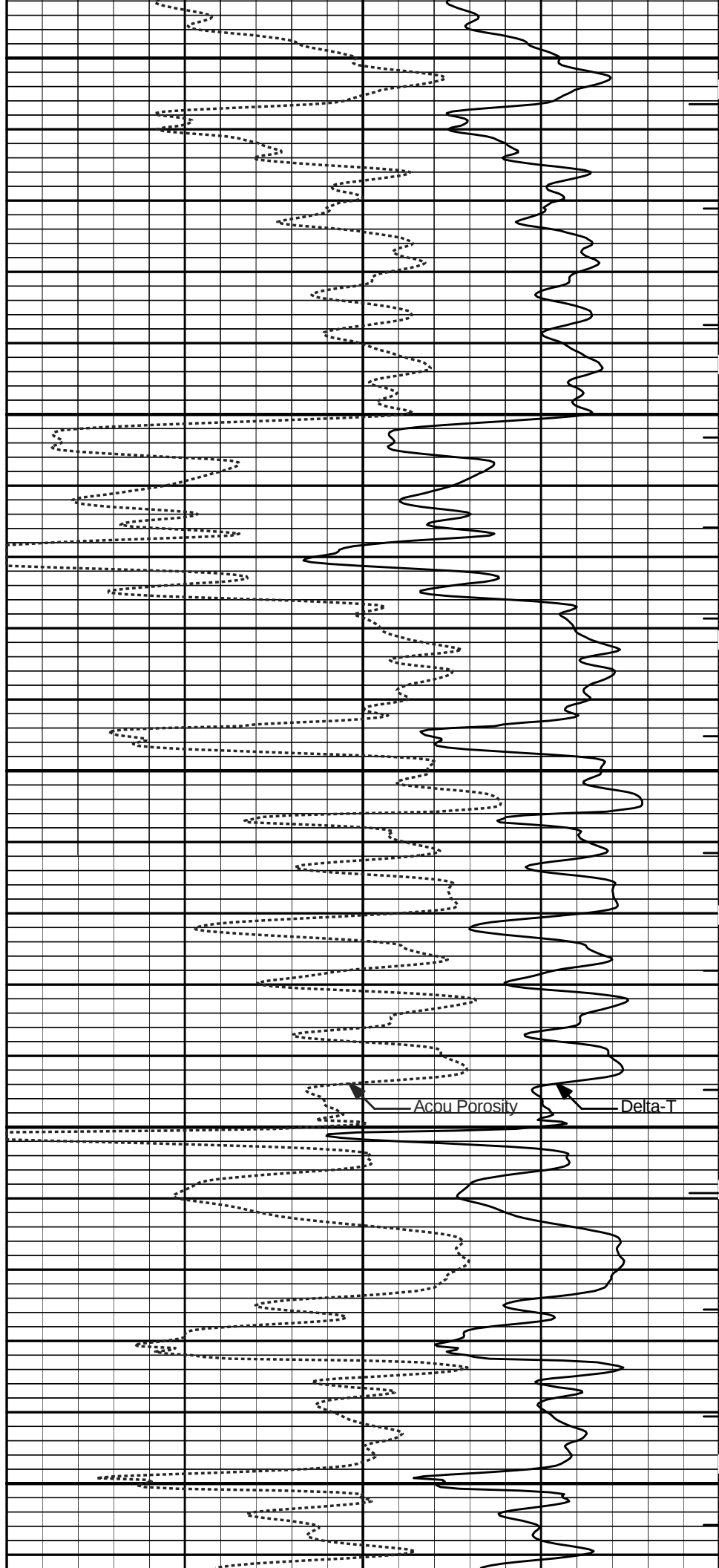
4500

4600

Gamma API

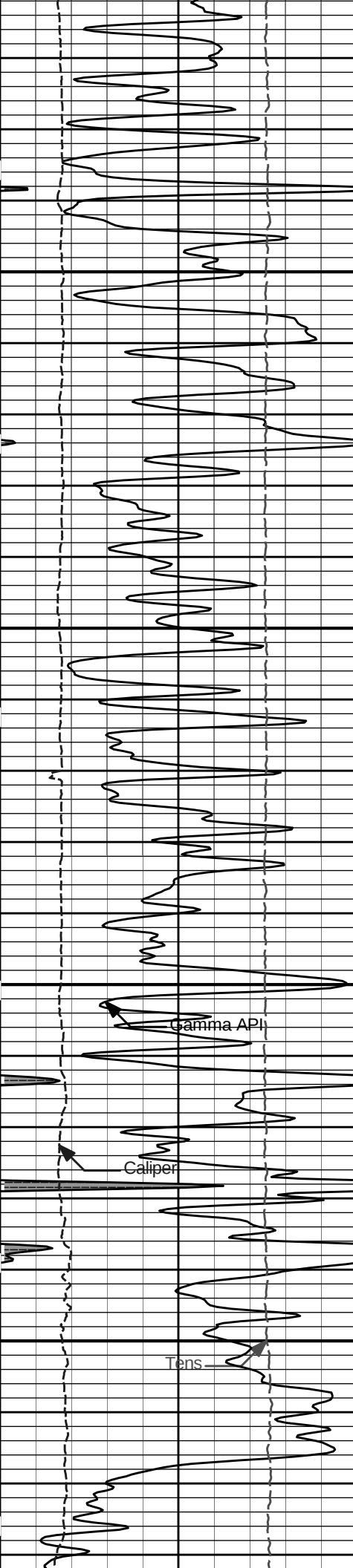
Caliper

Tens



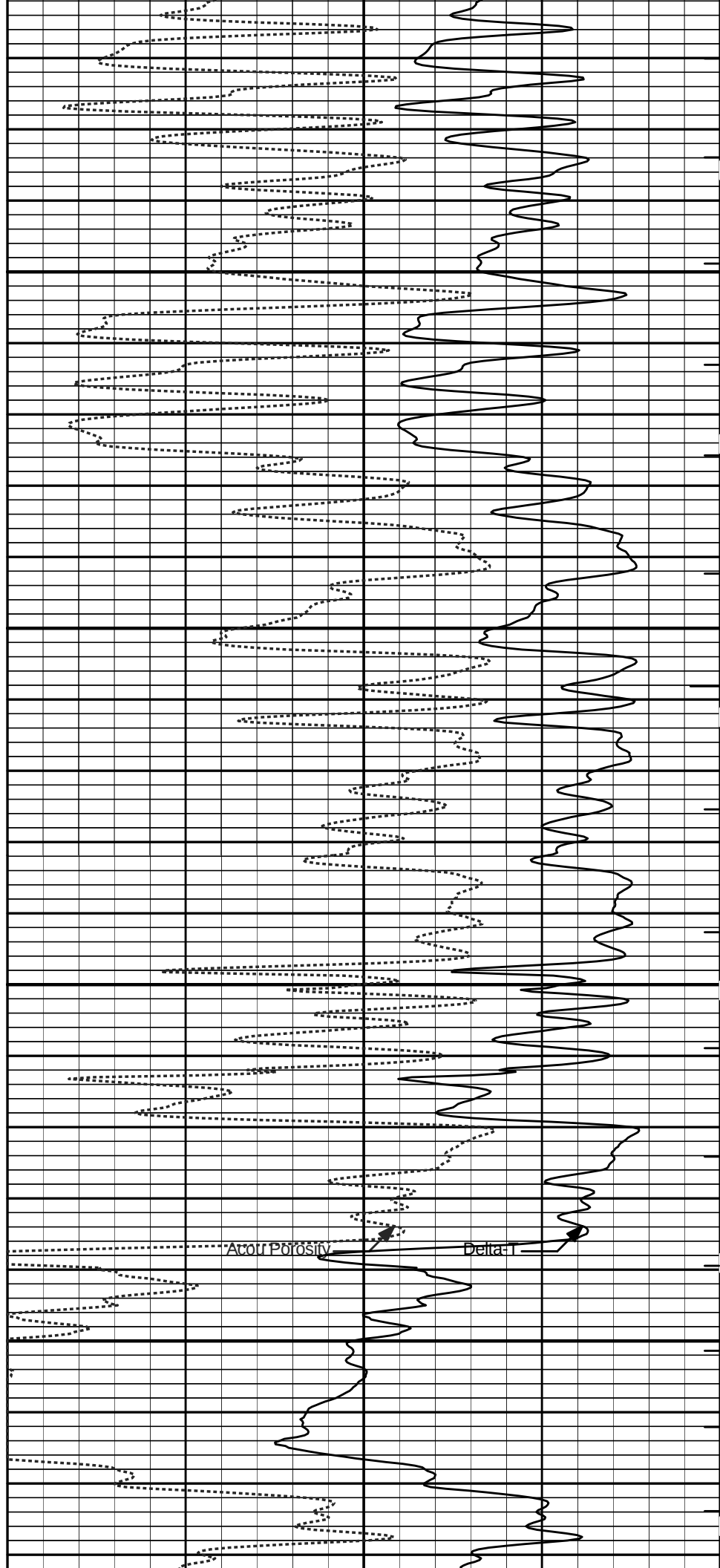
Acou Porosity

Delta-T



4700

4800

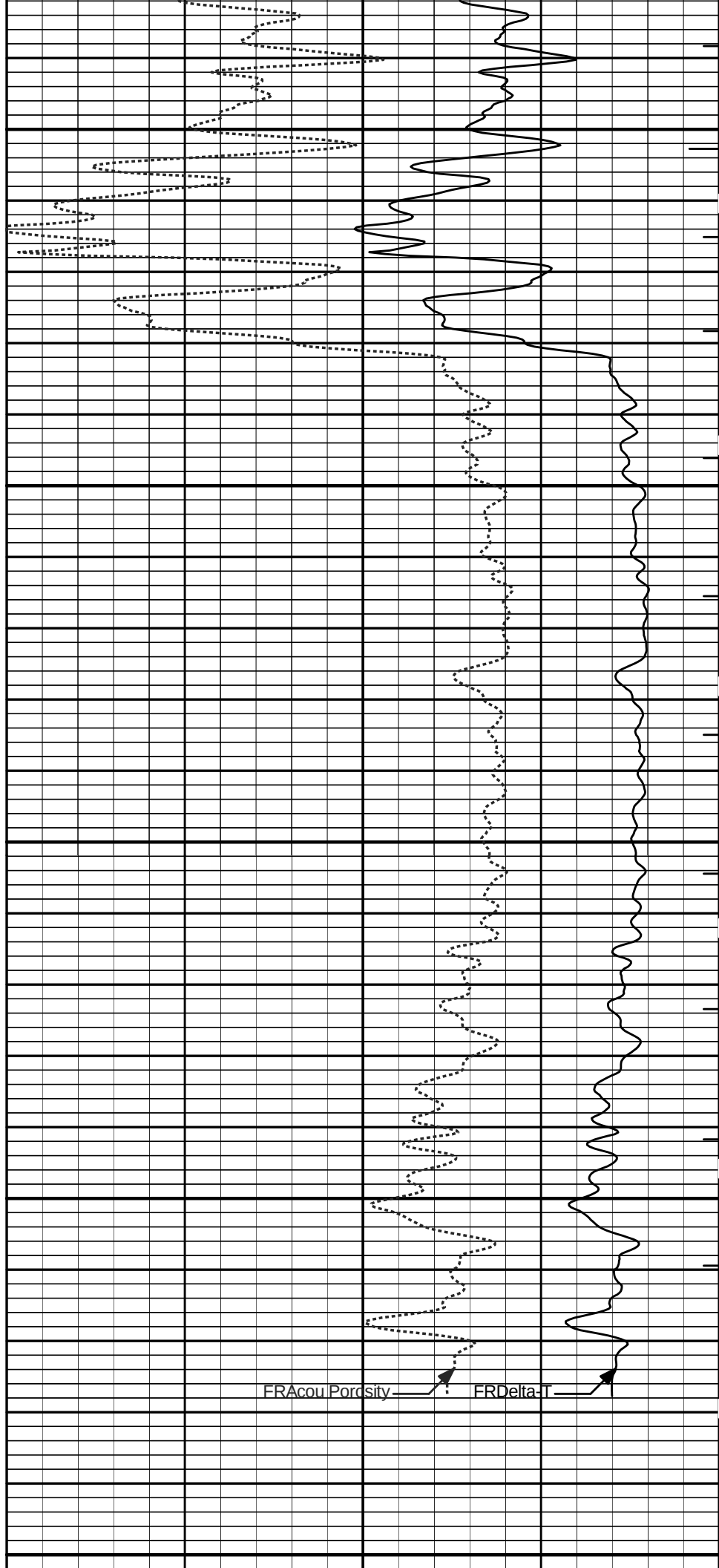




4900

5000

TD



[illegible]

HALLIBURTON

Plot Time: 11-Jun-11 00:53:30
Plot Range: 1700 ft to 5055.42 ft
Data: BROOKOVER_4_4\Well Based\DAQ-0001-0031
Plot File: \\SONIC\BSAT 5 MAIN LIB

5 INCH MAIN LOG

HALLIBURTON

Plot Time: 11-Jun-11 00:53:31
Plot Range: 4750 ft to 5056.17 ft
Data: BROOKOVER_4_4\Well Based\DAQ-0001-002\
Plot File: \\SONIC\BSAT_5_REP_LIB

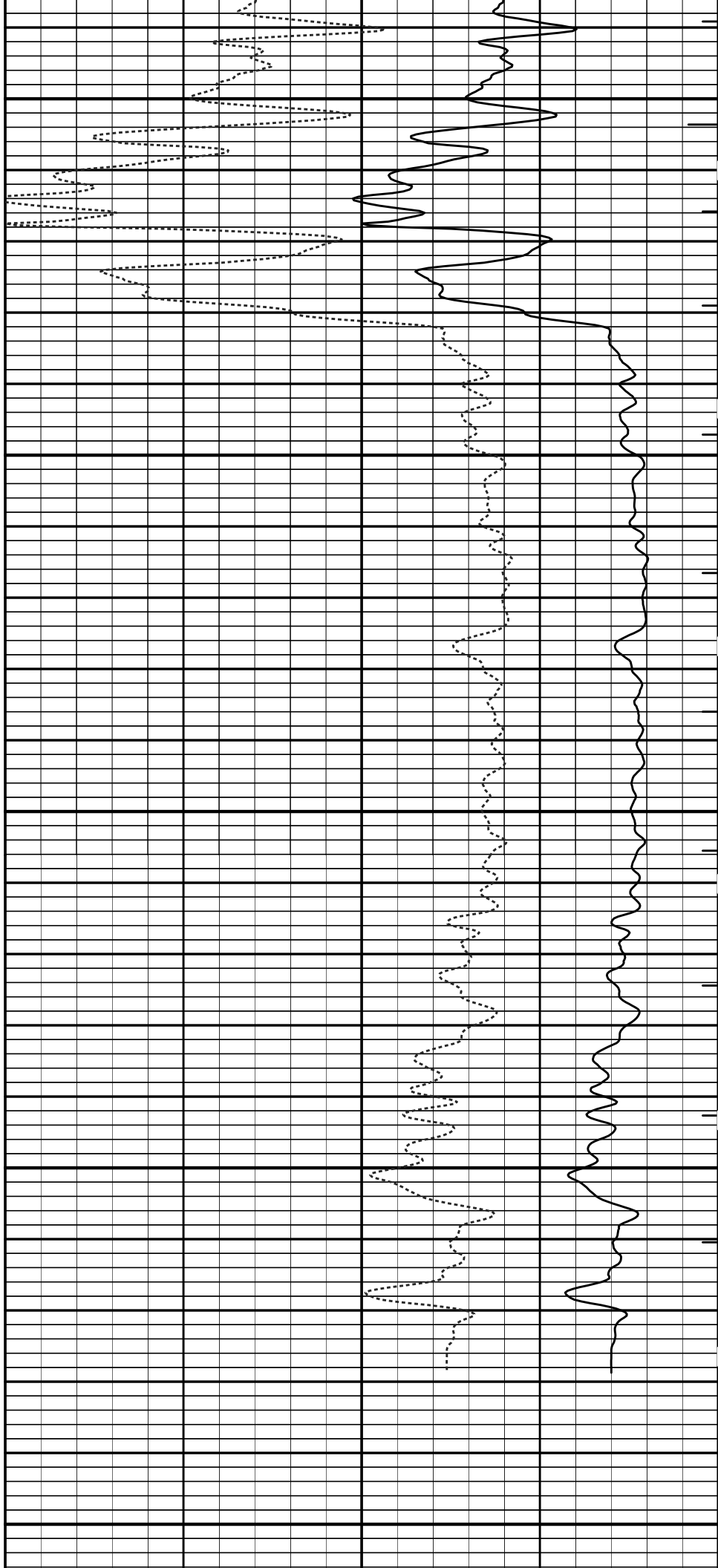
REPEAT SECTION

6	Caliper	16	30	Acou Porosity	-10
	inches			percent	
15K	Tension	0	140	Delta-T	40
	pounds			microsec per ft	
0	Gamma API	150			ITTT
	api				
1 : 240 ft					
4800					



4900

5000



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

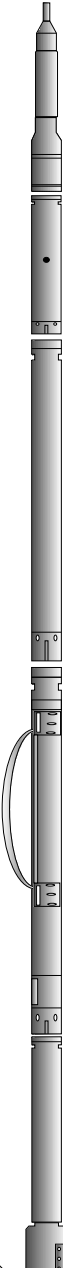
HALLIBURTON

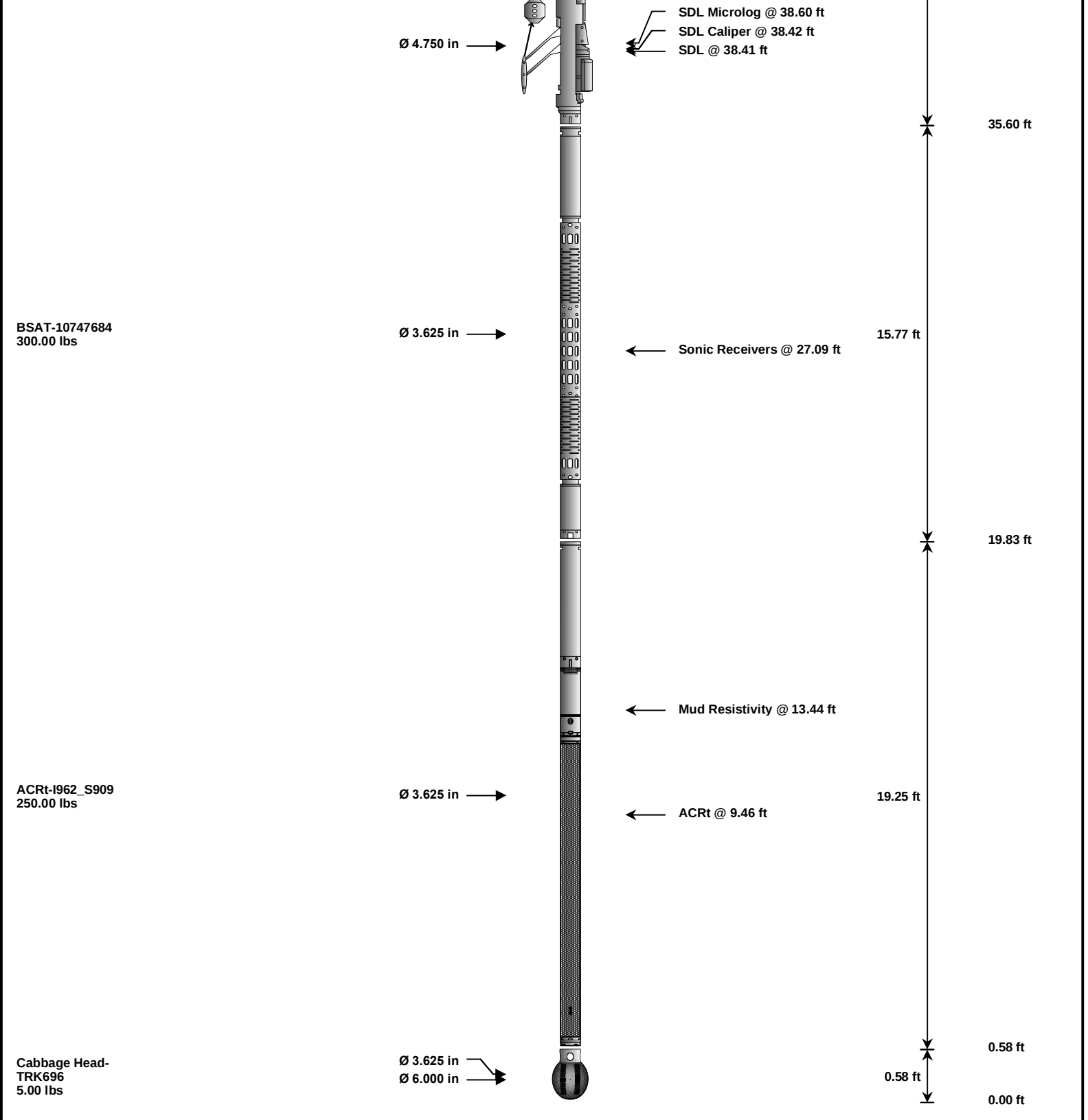
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Plot Range: 4750 ft to 5056.17 ft
Data: BROOKOVER_4_4\Well Based\DAQ-0001-002\
Plot File: \\SONIC\BSAT_5_REP_LIB

REPEAT SECTION

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
CH_HOS-CH_696 37.50 lbs		Ø 2.750 in →		← Temperature @ 71.31 ft	3.03 ft	72.34 ft
XOHD-TRK696 20.00 lbs		Ø 2.750 in → Ø 3.625 in →			0.95 ft	69.31 ft
SP Sub-PROT01 60.00 lbs		Ø 3.625 in →		← SP @ 66.59 ft	3.74 ft	68.36 ft
						64.63 ft
GTET-11050378 165.00 lbs		Ø 3.625 in →		← GammaRay @ 58.56 ft	8.52 ft	
						56.10 ft
DSN Decentralizer-10755066 6.60 lbs		Ø 3.625 in* → Ø 3.625 in →		← DSN Far @ 49.17 ft ← DSN Near @ 48.42 ft	9.69 ft	
DSNT-11055304 174.00 lbs						46.42 ft
SDLT-I04_P84 360.00 lbs		Ø 4.500 in →			10.81 ft	



Mnemonic		Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max.Log. Speed (fpm)
CH_HOS	Hostile Cable Head with Load Cell	CH_696	37.50	3.03	69.31	300.00	
XOHD	Hostile to Dits Cross Over	TRK696	20.00	0.95	68.36	300.00	
SP	SP Sub	PROT01	60.00	3.74	64.63	300.00	
GTET	Gamma Telemetry Tool	11050378	165.00	8.52	56.10	60.00	
DSNT	Dual Spaced Neutron	11055304	174.00	9.69	46.42	60.00	
DCNT	DSN Decentralizer	10755066	6.60	5.13	* 49.75	300.00	
SDLT	Spectral Density Tool	I04_P84	360.00	10.81	35.60	60.00	
BSAT	Borehole Sonic Array Tool	10747684	300.00	15.77	19.83	60.00	
ACRt	Array Compensated True Resistivity	I962_S909	250.00	19.25	0.58	300.00	
CBHD	Cabbage Head	TRK696	5.00	0.58	0.00	300.00	
Total			1,378.10	72.34			
* Not included in Total Length and Length Accumulation.							

* Not included in Total Length and Length Accumulation.

HALLIBURTON

INPUTS, DELAYS AND FILTERS TABLE

Mnemonic	Input Description	Delay (ft)	Filter Type	Filter Length (ft)
Depth Panel				
TENS	Tension	0.00	NO	
CH_HOS				
DHTN	Downhole Tension	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	38.41	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: BROOKOVER_4_4\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CHIDLE				Date: 10-Jun-11 19:50:05

COMPANY	EOG RESOURCES		
WELL	BROOKOVER 4 #4		
FIELD	BROOKOVER		
COUNTY	FINNEY	STATE	KANSAS
HALLIBURTON		BOREHOLE COMPENSATED SONIC ARRAY LOG	