

HALLIBURTON

BOREHOLE COMPENSATED SONIC ARRAY LOG

COMPANY		EOG RESOURCES	
WELL		CYNTHIA 35-3	
FIELD		WILDCAT	
COUNTY		STEVENS	
STATE		KANSAS	
Permanent Datum	GL		Elev. 3191.0 ft
Log measured from	KB		D.F. 3202.0 ft
Drilling measured from	KB	12.0 ft above perm. Datum	GL. 3191.0 ft
Date	19-Nov-10		
Run No.	1		
Depth - Driller	6200.00 ft		
Depth - Logger	6203.0 ft		
Bottom - Logged Interval	6176.0 ft		
Top - Logged Interval	1736.0 ft		
Casing - Driller	8.625 in	@ 1736.0 ft	@
Casing - Logger	1736.0 ft		@
Bit Size	7.875 in		@
Type Fluid in Hole	WATER BASED MUD		
Density	8.9 ppg	51.00 s/cf	
PH	9.60 pH	6.4 qpm	
Source of Sample	MUD PIT		
Rm @ Meas. Temperature	1.250 ohmm	@ 70.00 degF	@
Rmf @ Meas. Temperature	1.06 ohmm	@ 70.00 degF	@
Rmc @ Meas. Temperature	1.500 ohmm	@ 70.00 degF	@
Source Rmf	Rmc	MEAS.	
Rm @ BHT	0.81 ohmm	@ 135.0 degF	@
Time Since Circulation	4.0 hr		
Time on Bottom	19-Nov-10 09:11		
Max. Rec. Temperature	135.0 degF	@ 6203.0 ft	@
Equipment	10546896	LIBERAL	
Recorded By	J. BOSCH		
Witnessed By	J. SESSIONS		S. MUELLER

COMPANY EOG RESOURCES
WELL CYNTHIA 35-3
FIELD WILDCAT
COUNTY STEVENS
STATE KANSAS

API No. 15-189-22759
Location 1225' FNL & 2130' FEL

Other Services:
SDL/D/SNT
MICRO
ACRT

Fold here

Service Ticket No.: 7780058 API Serial No.: 15-189-22759 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	Tool Pos.	Other
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.		Run No.	
Serial No.	1103960	Serial No.	10747684	Serial No.		Serial No.	
Model No.	GTET	Model No.	BSAT	Model No.		Model No.	
Diameter	3.625	No. of Cent.	2	Diameter		Diameter	
Detector Model No.	T-102	Spacing	.5'	Log Type		Log Type	
Type	SCINT			Source Type		Source Type	
Length	8"	LSA [Y/N]	Y	Serial No.		Serial No.	
Distance to Source	10'	FWDA [Y/N]	N	Strength		Strength	

LOGGING DATA

GENERAL				GAMMA		ACOUSTIC			DENSITY			NEUTRON		
Run No.	Depth		Speed	Scale		Scale		Matrix	Scale		Matrix	Scale		Matrix
	From	To	ft/min	L	R	L	R		L	R		L	R	
ONE	1736	6176	REC	0	150	30%	-10%	47.6						

DIRECTIONAL INFORMATION

Maximum Deviation @ KOP @

Remarks: ANNULAR HOLE VOLUME CALCULATED FOR 5.5 AND 4.5 INCH CASING

CHLORIDES: 800 MG/L LCM: 12

GPS COORDINATES: LAT: 37°18 N LONG: 101° 31 W

TODAY'S CREW: K. KELLY, C. PARKER

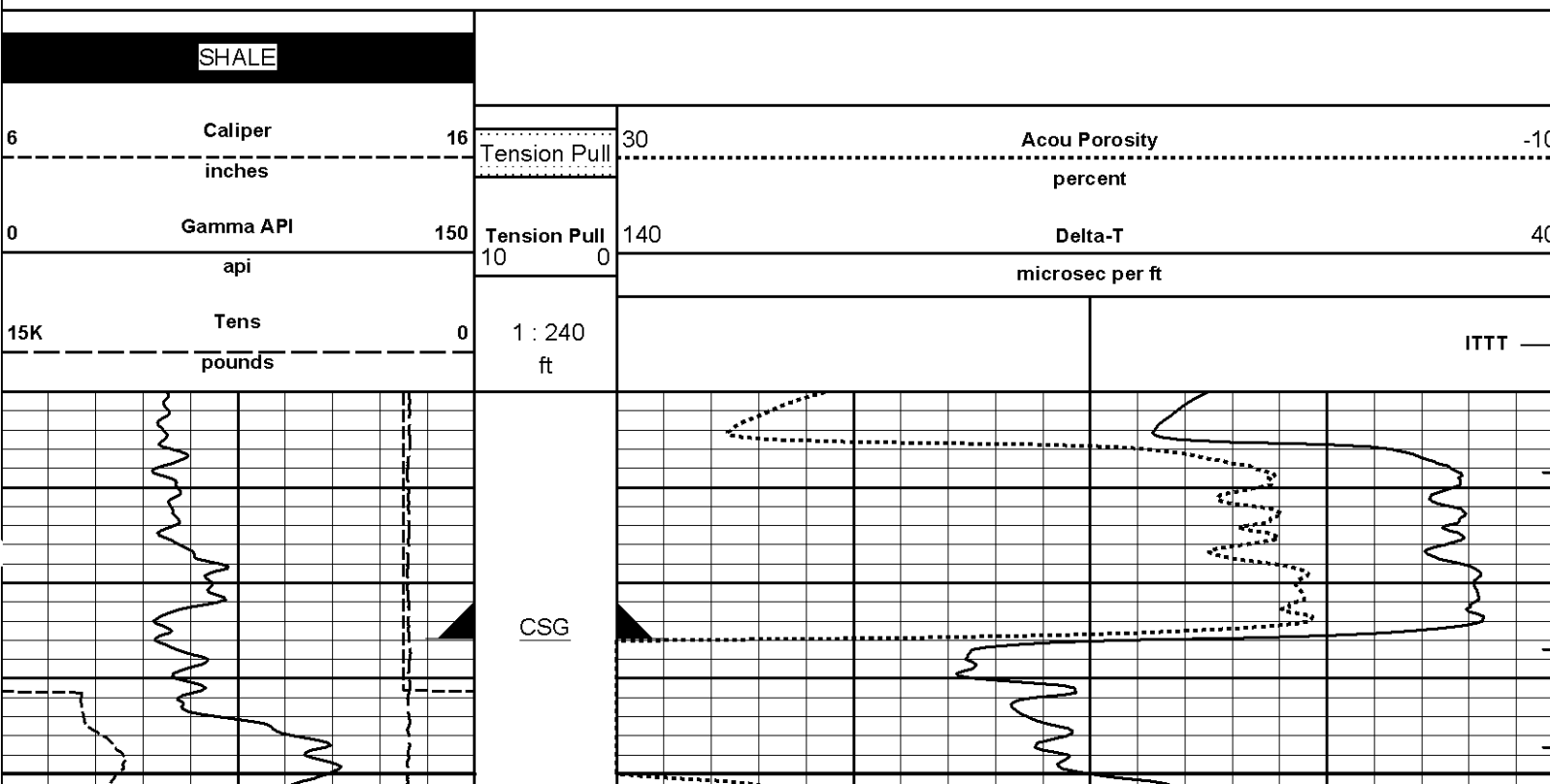
THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES, LIBERAL, KS 620-624-8123

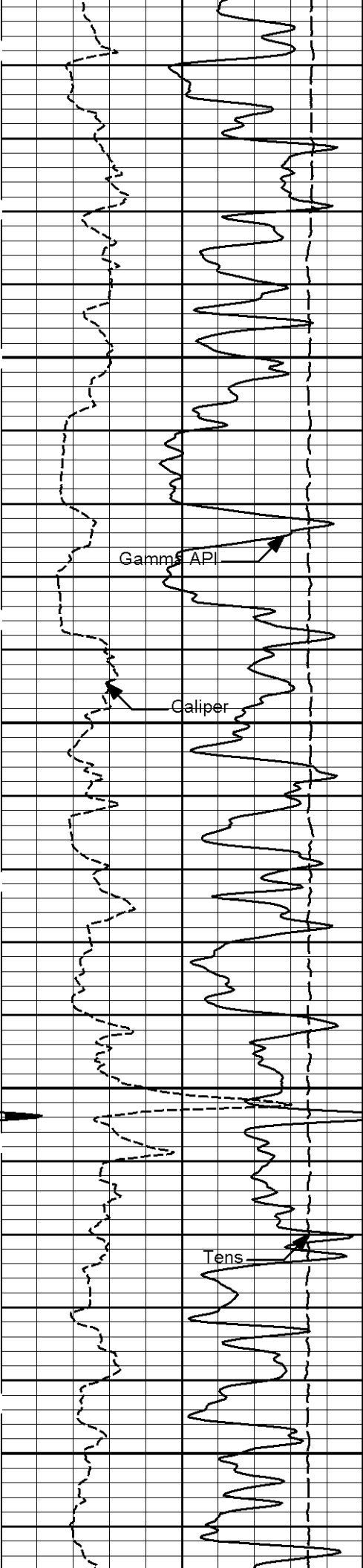
HALLIBURTON DOES NOT GUARANTEE THE ACCURACY OF ANY INTERPRETATION OF THE LOG DATA, CONVERSION OF LOG DATA TO PHYSICAL ROCK PARAMETERS OR RECOMMENDATIONS WHICH MAY BE GIVEN BY HALLIBURTON PERSONNEL OR WHICH APPEAR ON THE LOG OR IN ANY OTHER FORM. ANY USER OF SUCH DATA, INTERPRETATIONS, CONVERSIONS, OR 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

Plot Time: 19-Nov-10 18:24:49
 Plot Range: 1710 ft to 6207.5 ft
 Data: CYNTHIA_35_3\Well Based\DAQ-0001-003\
 Plot File: \\SONIC\BSAT_5_MAIN_LIB

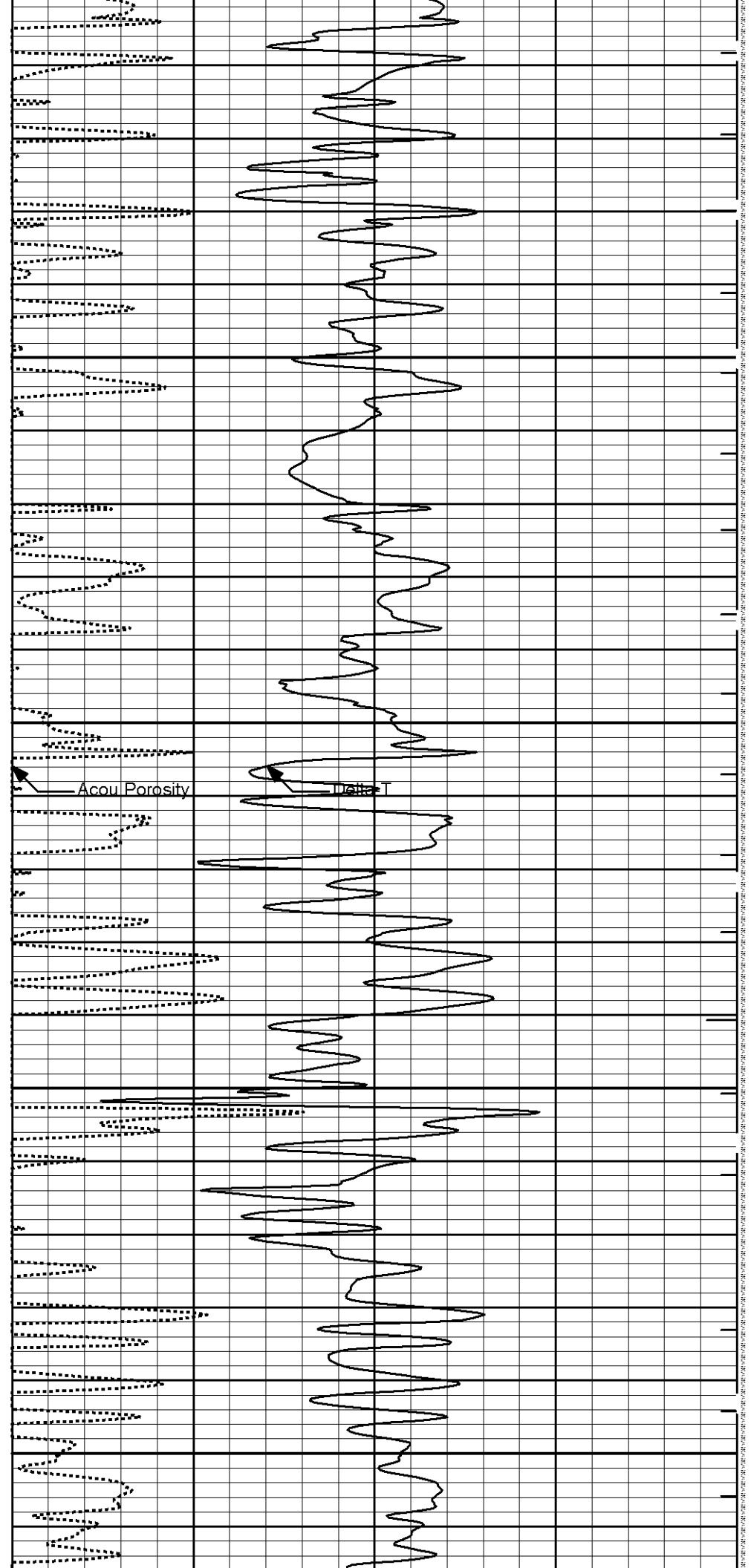
5 INCH MAIN LOG





1800

1900



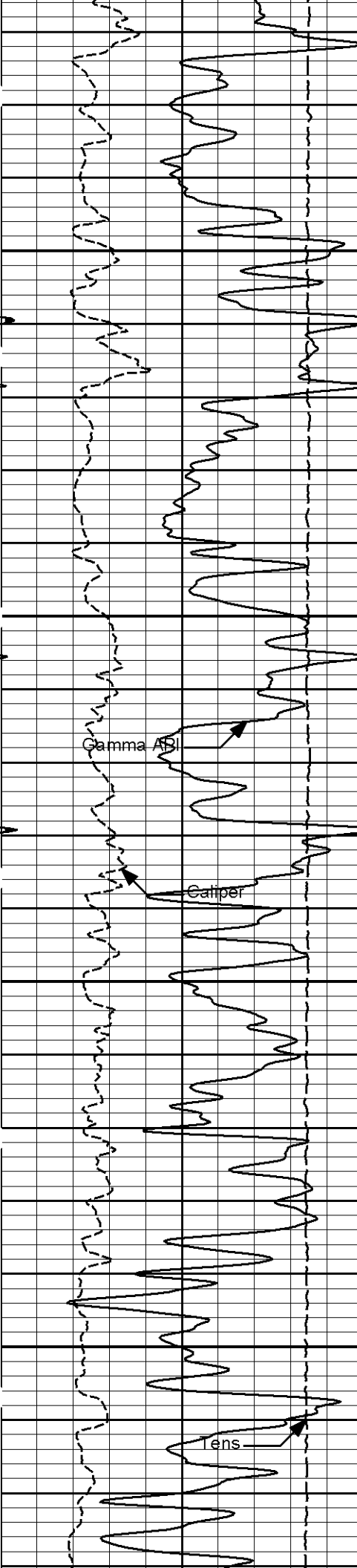
Gamma API

Caliper

Tens

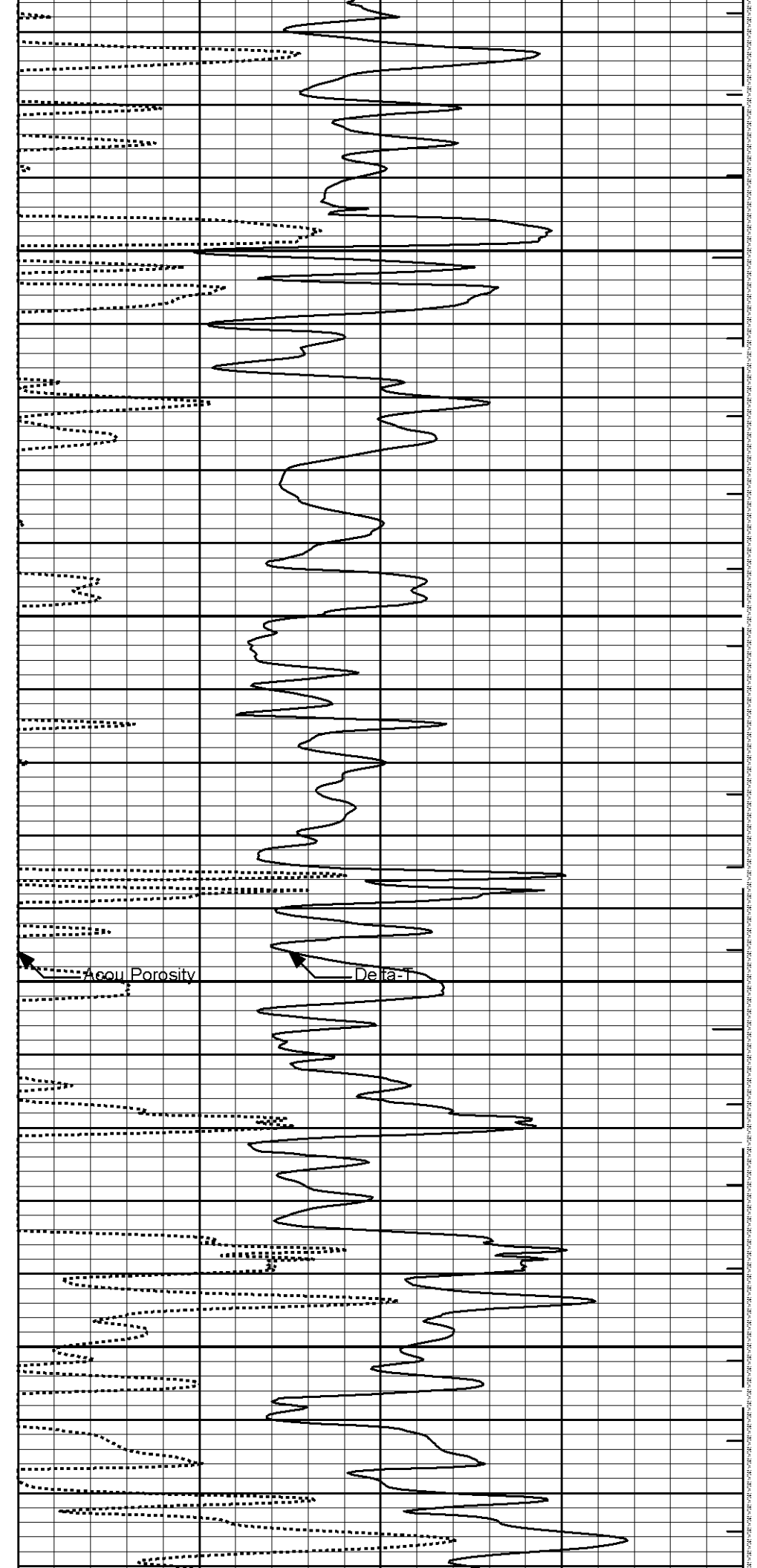
Acou Porosity

Density



2000

2100



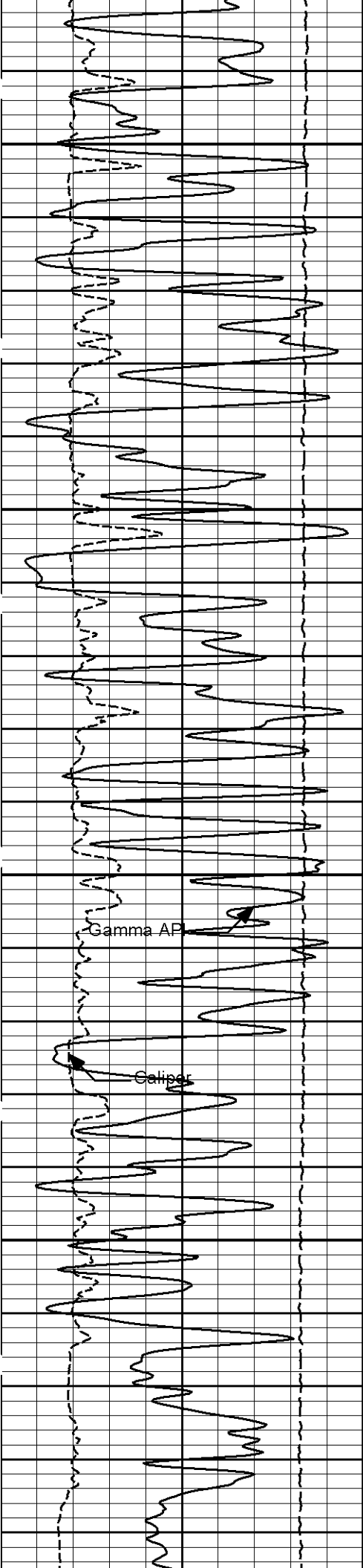
Gamma Ray

Caliper

Lens

Acou. Porosity

Delta-T

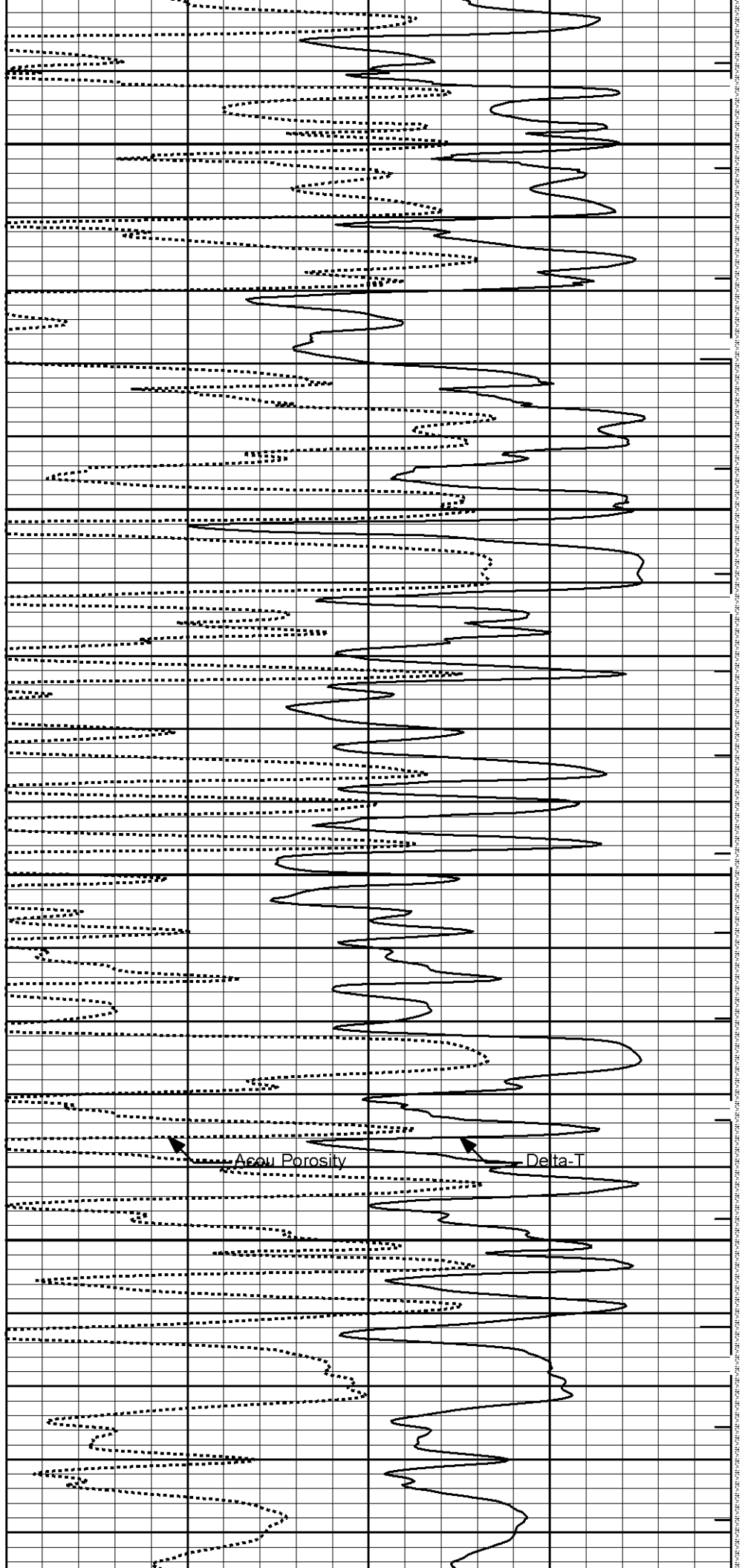


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2300

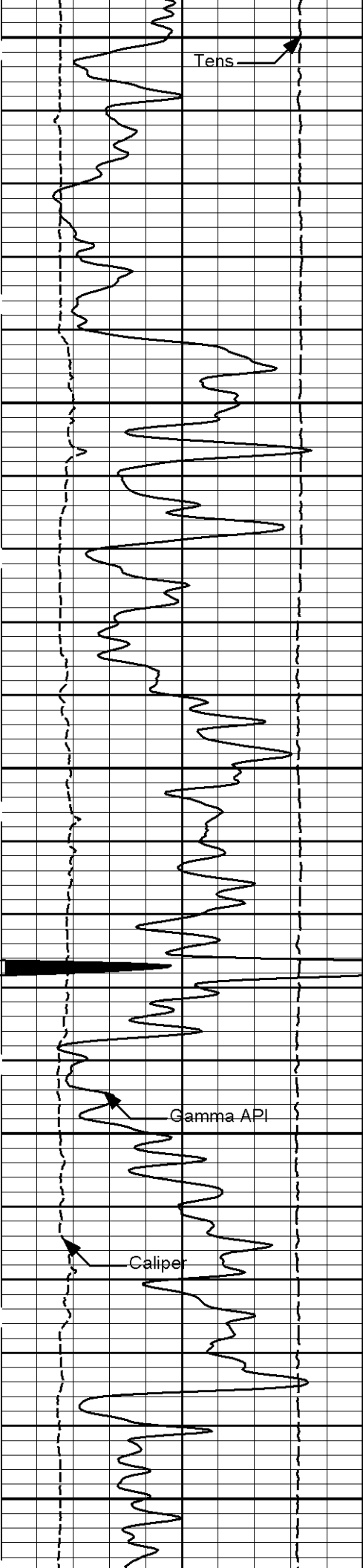
Gamma AP

Caliper



Acoustic Porosity

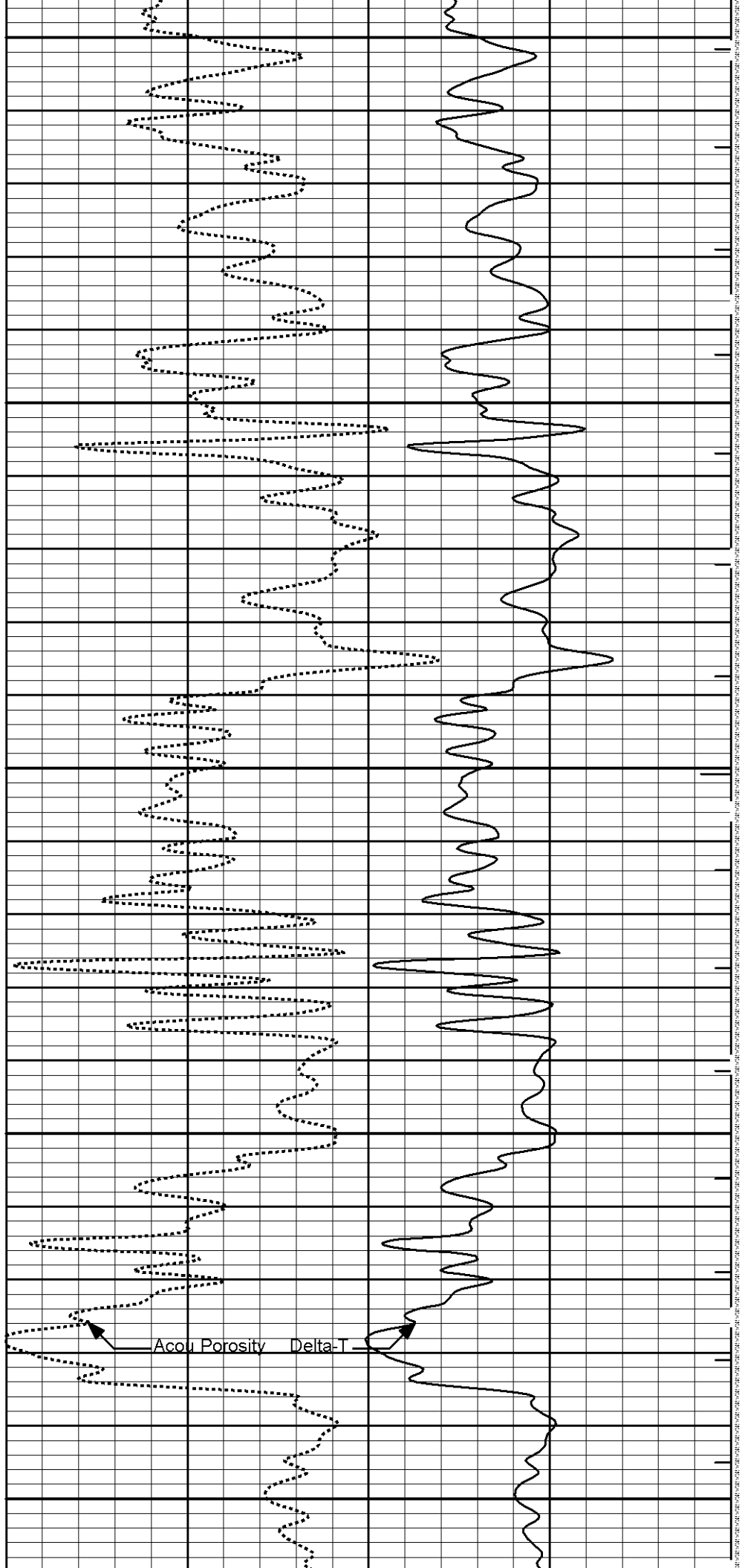
Delta-T

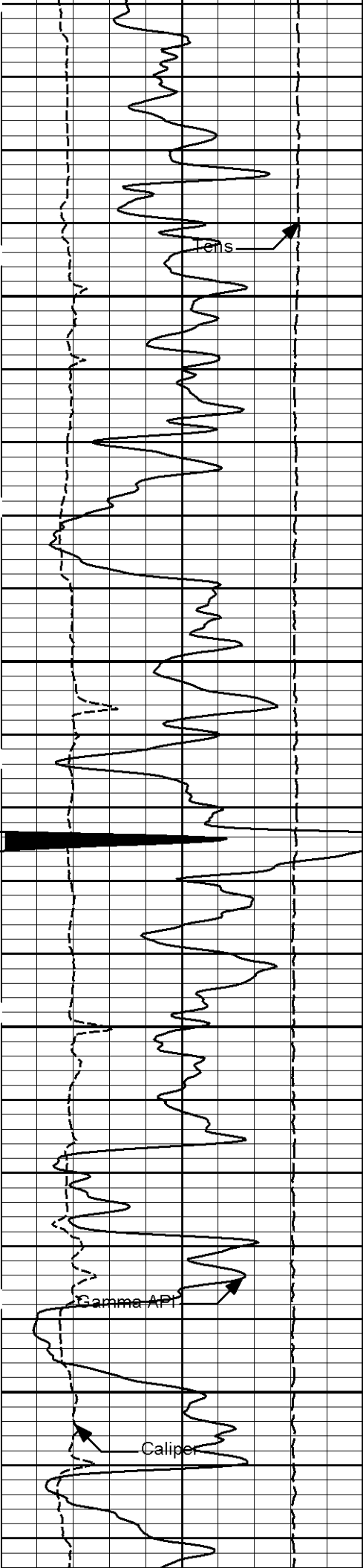


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2500

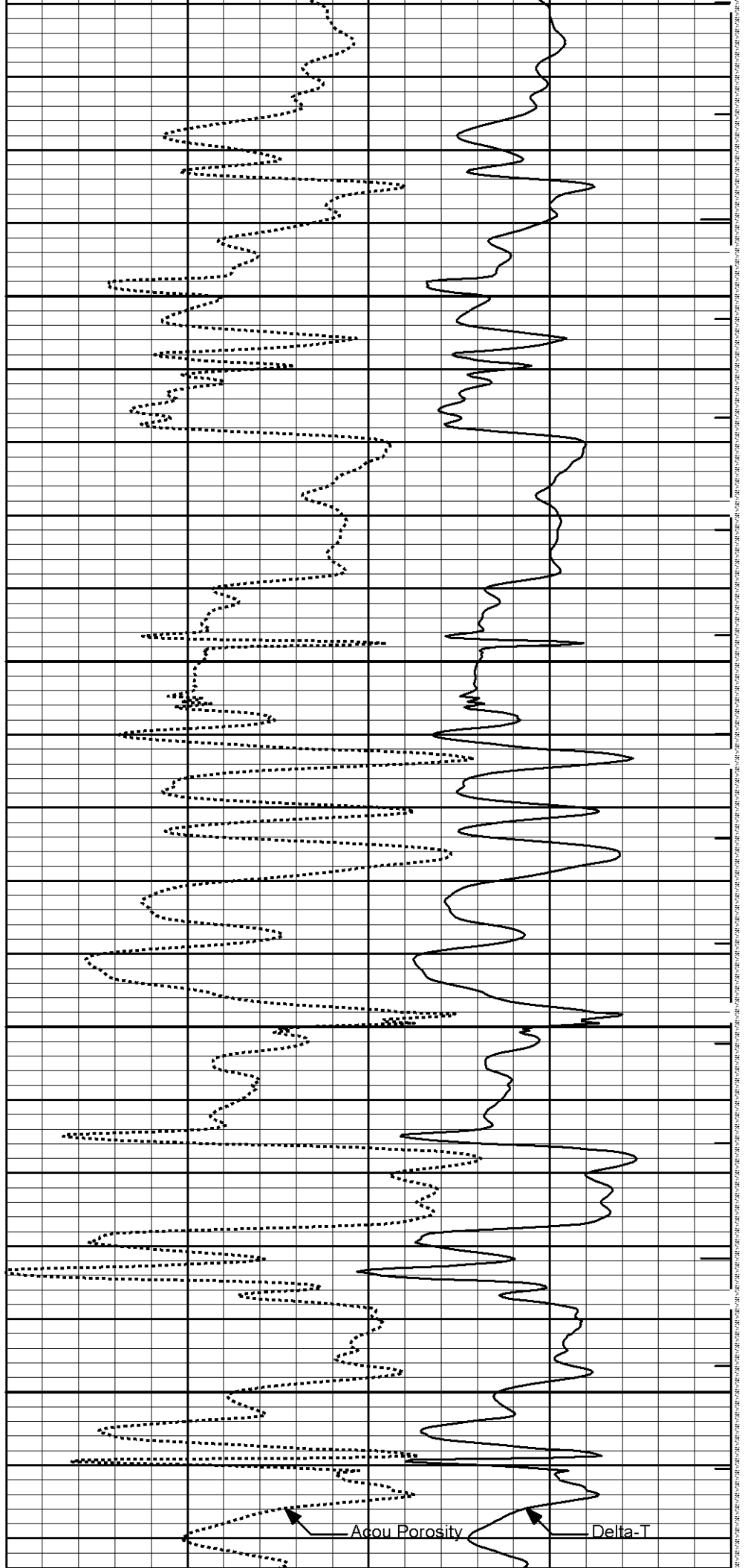
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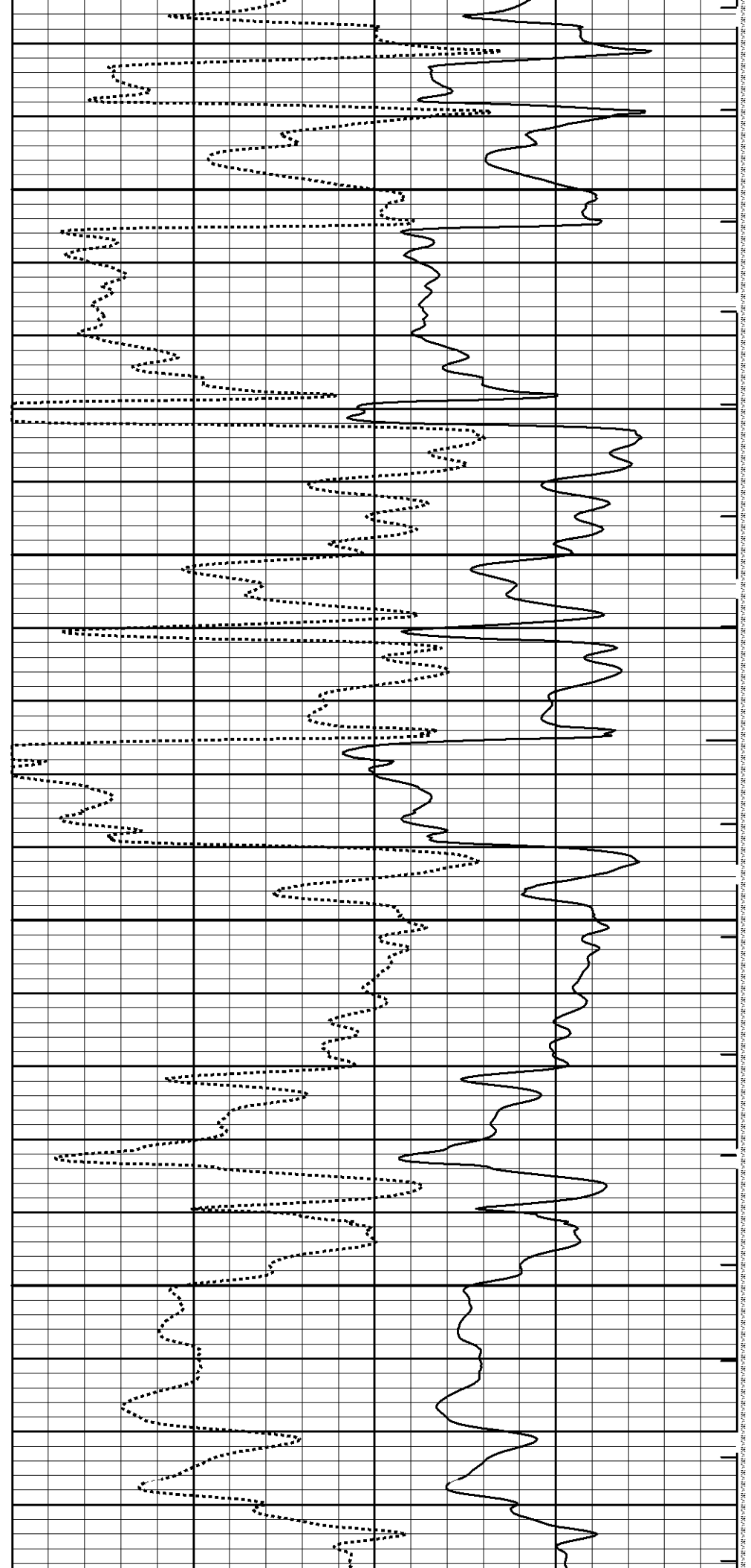
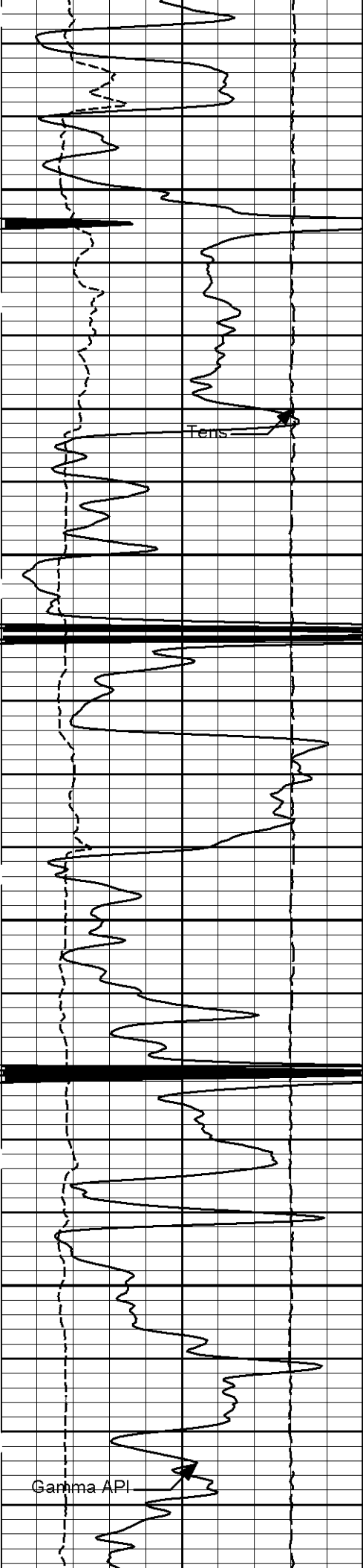


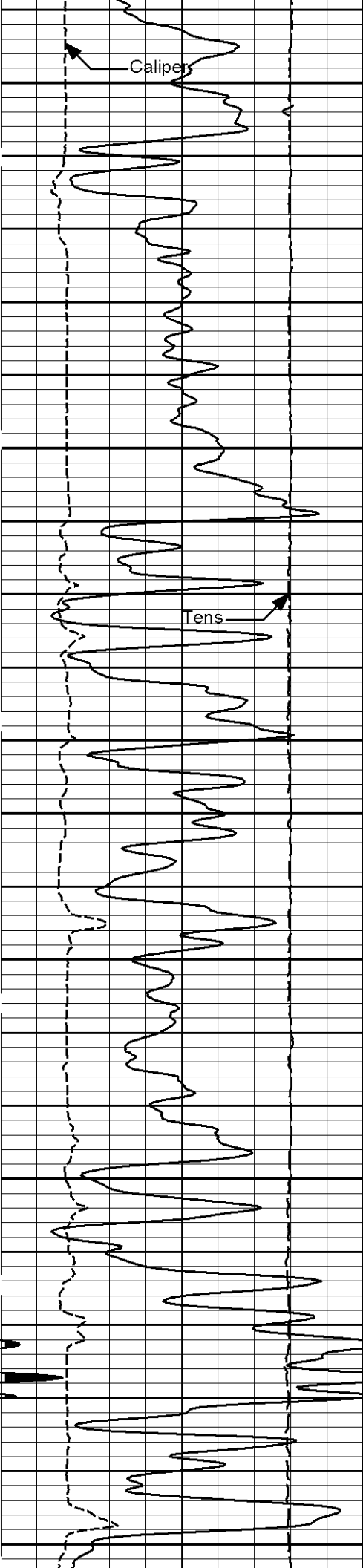


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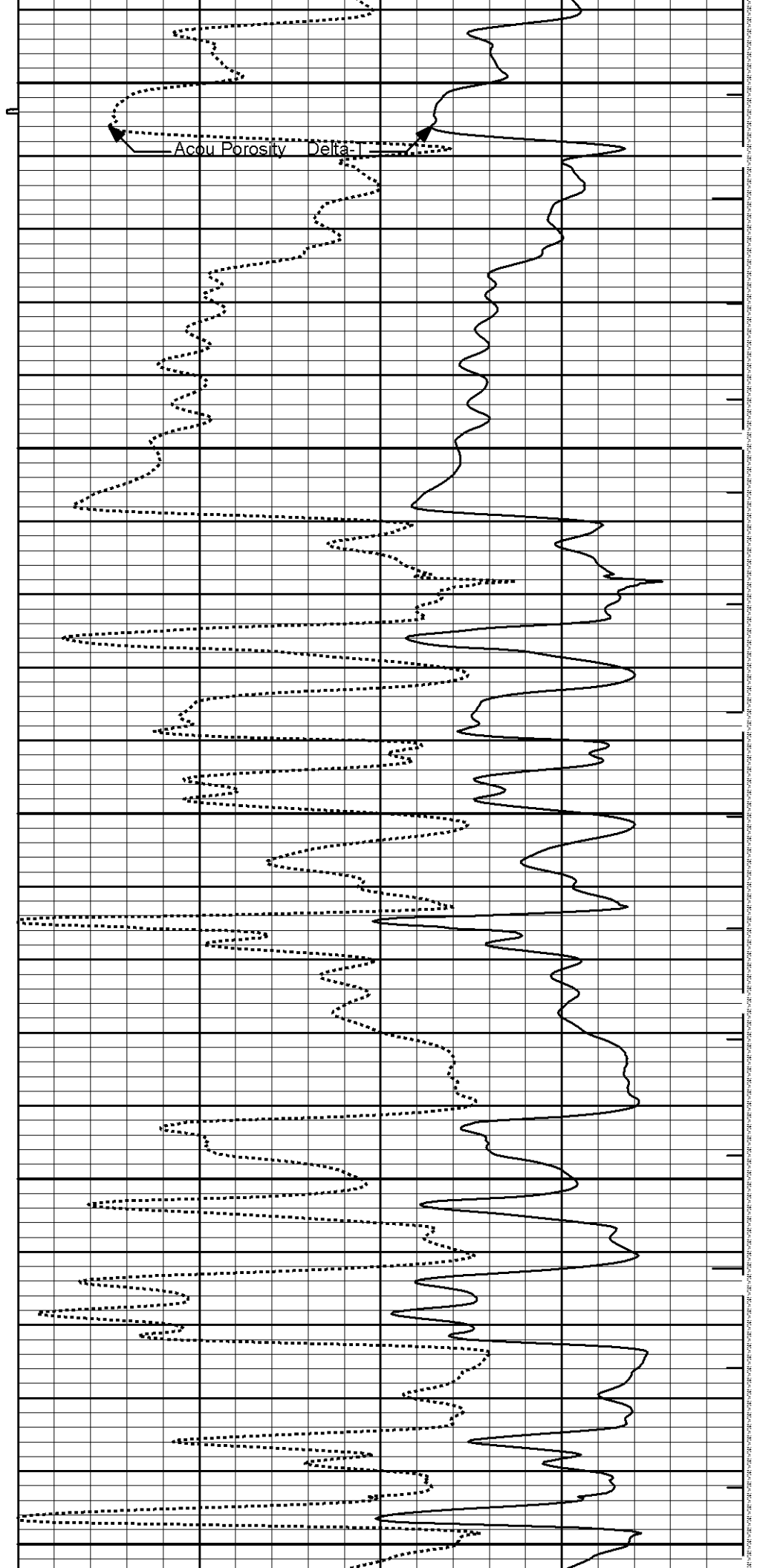






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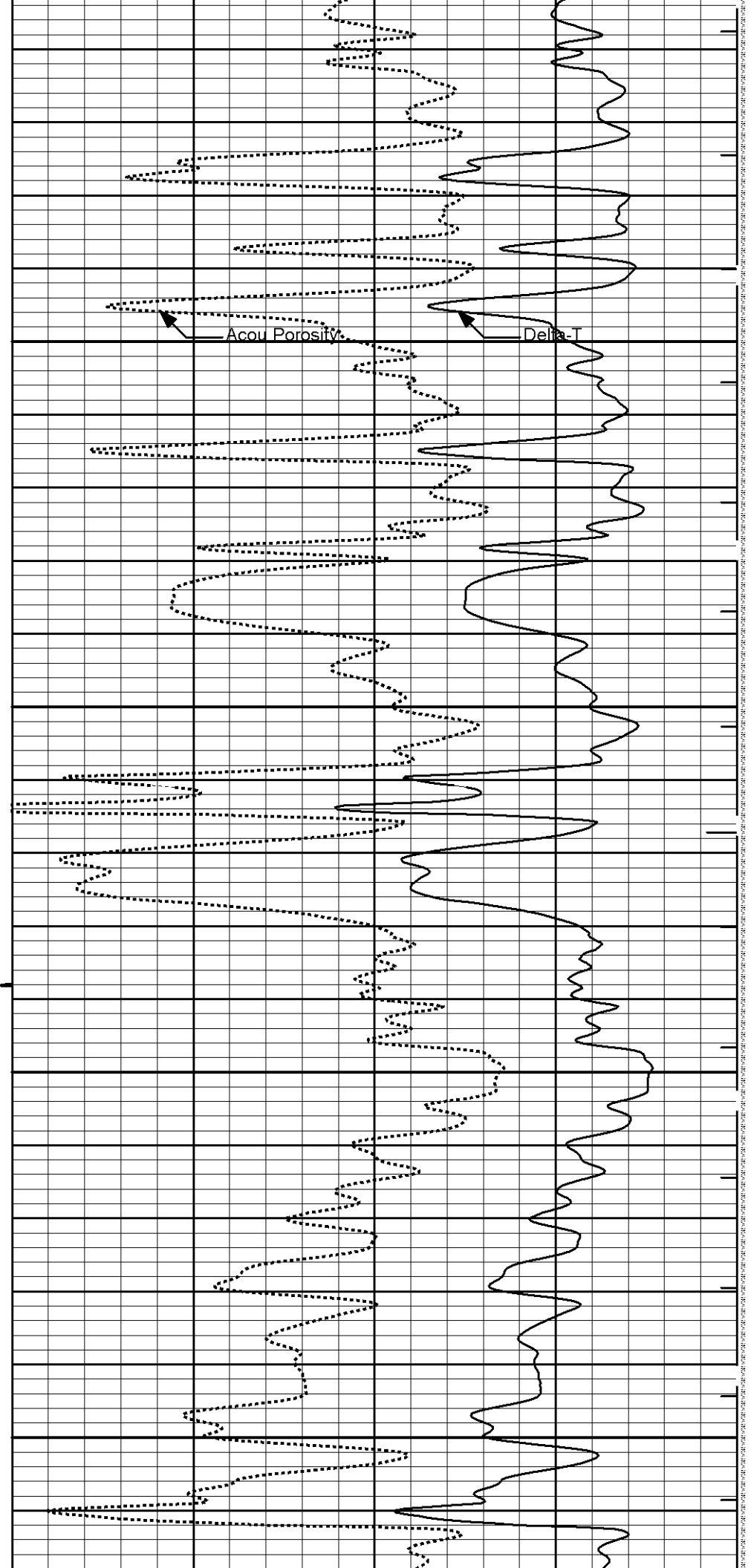
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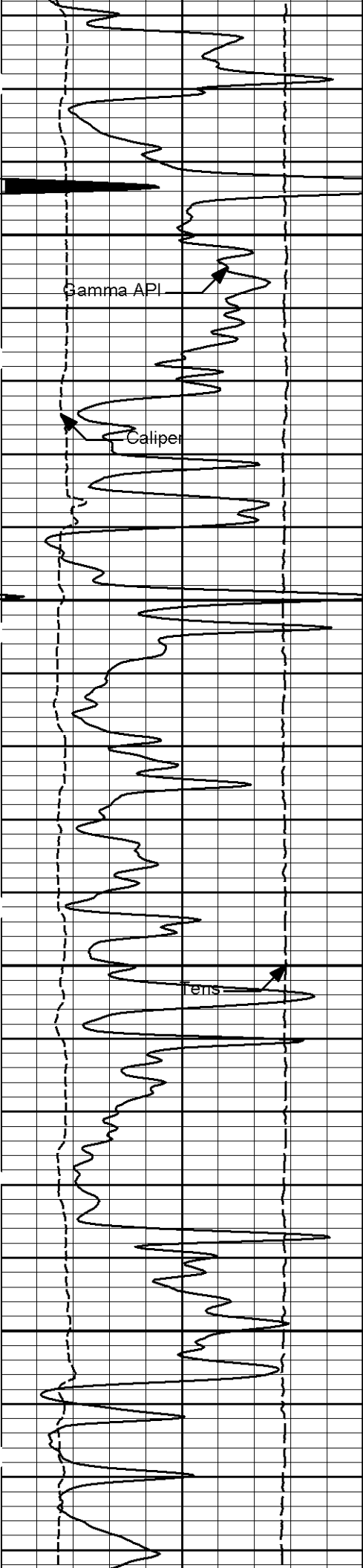




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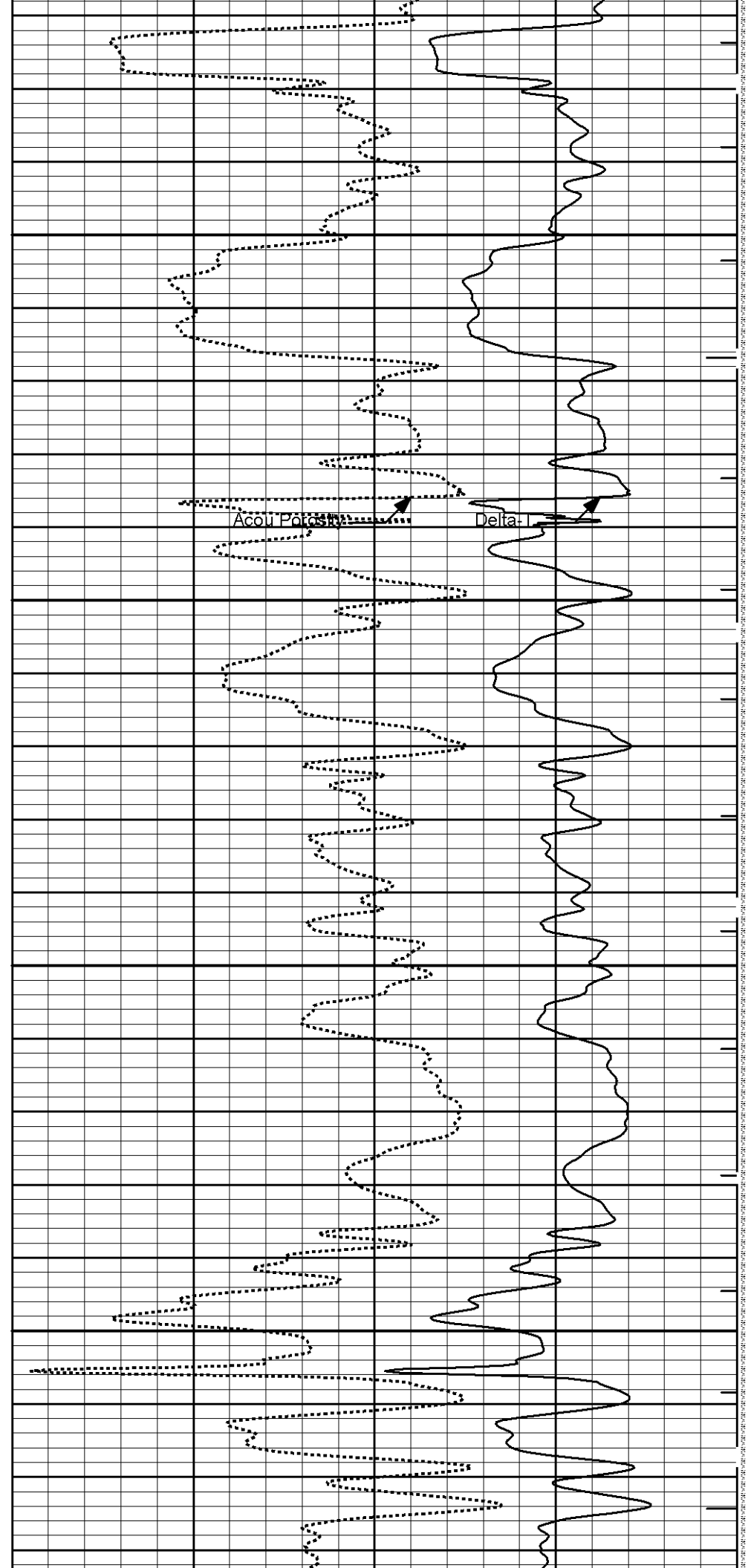
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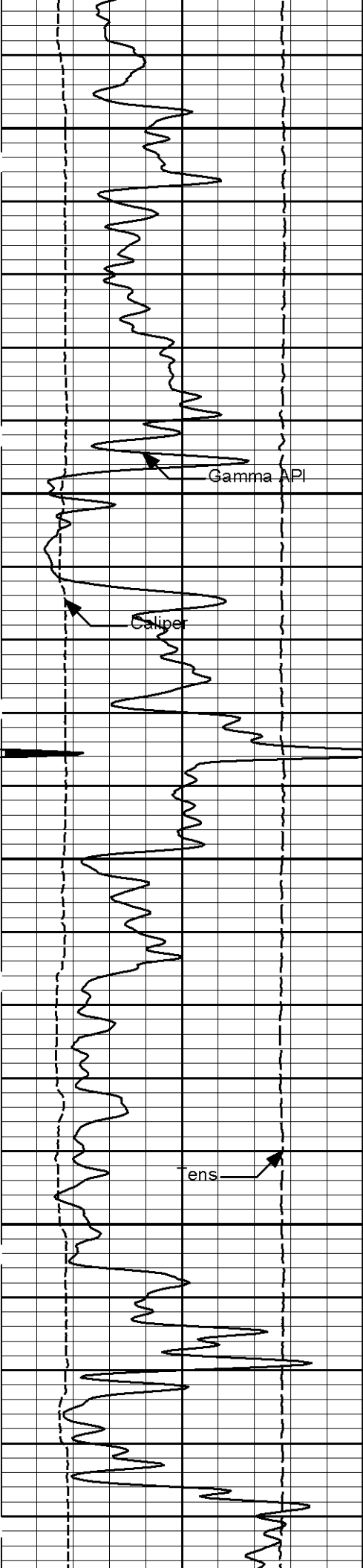




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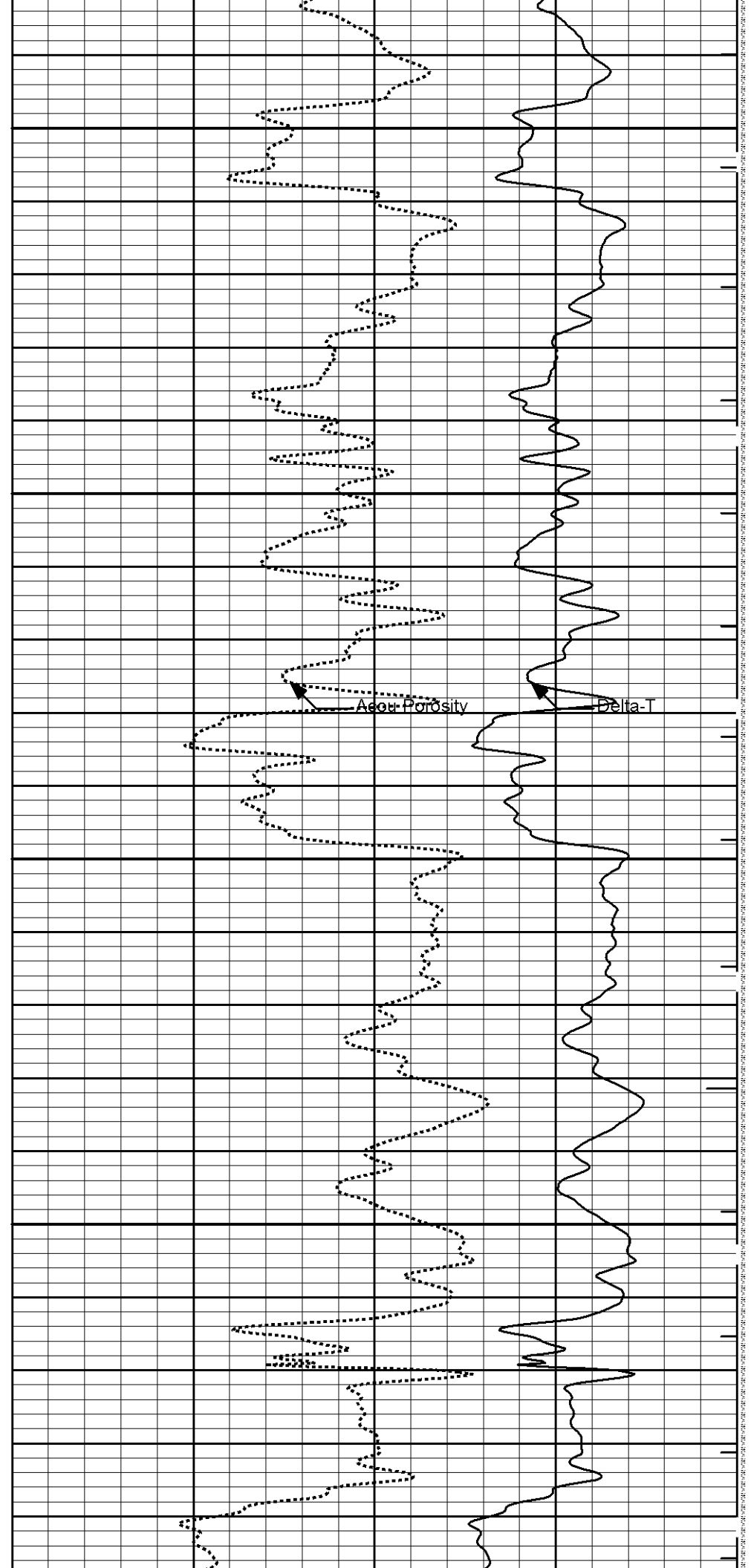
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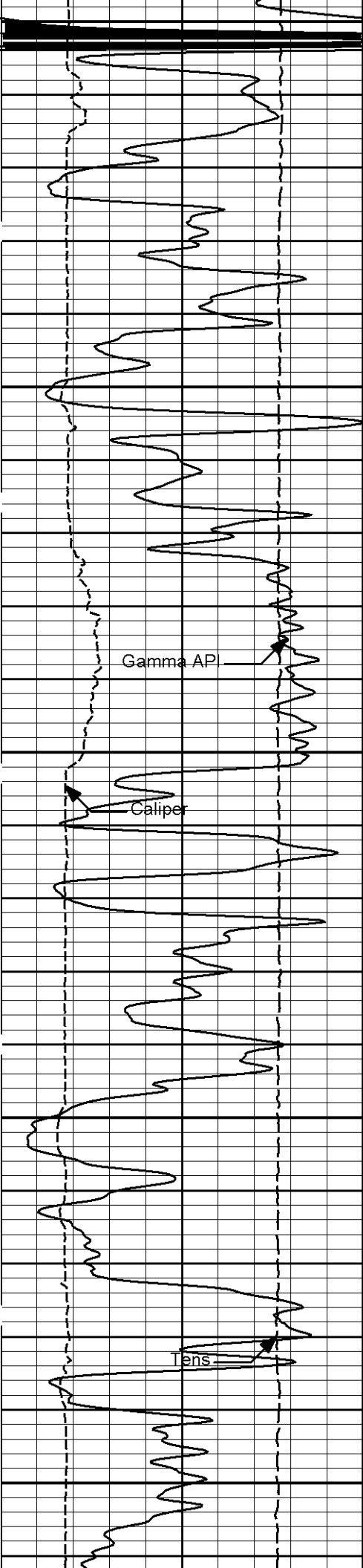




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3800

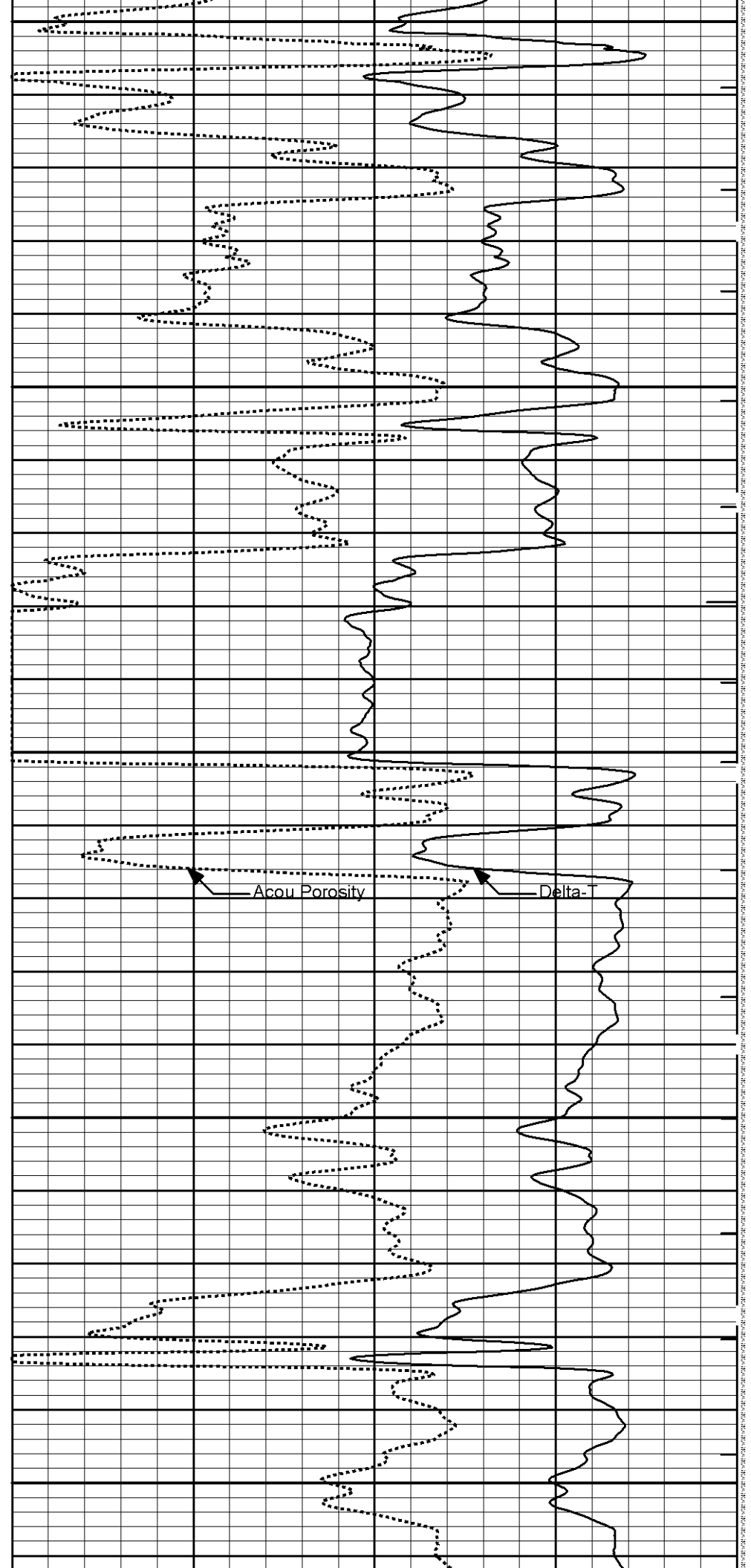


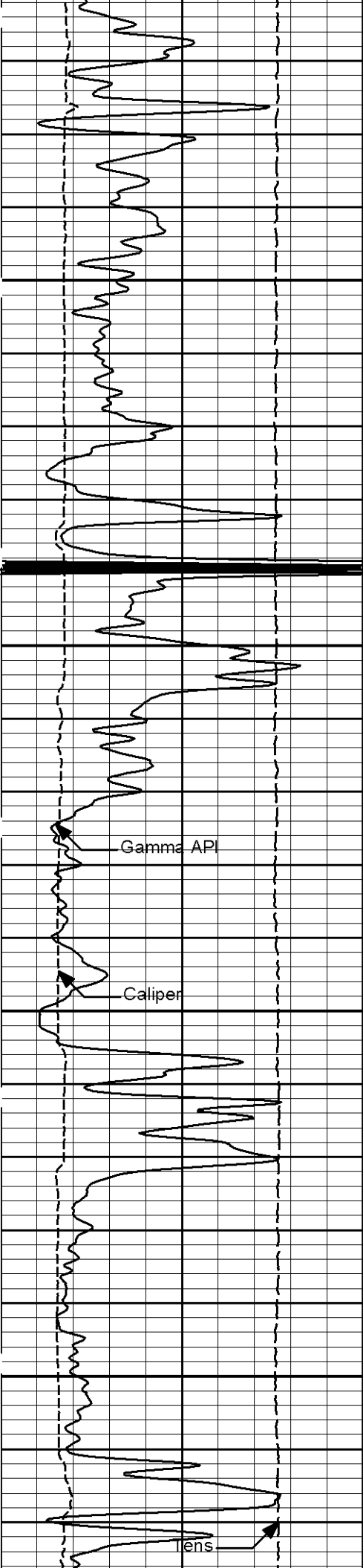


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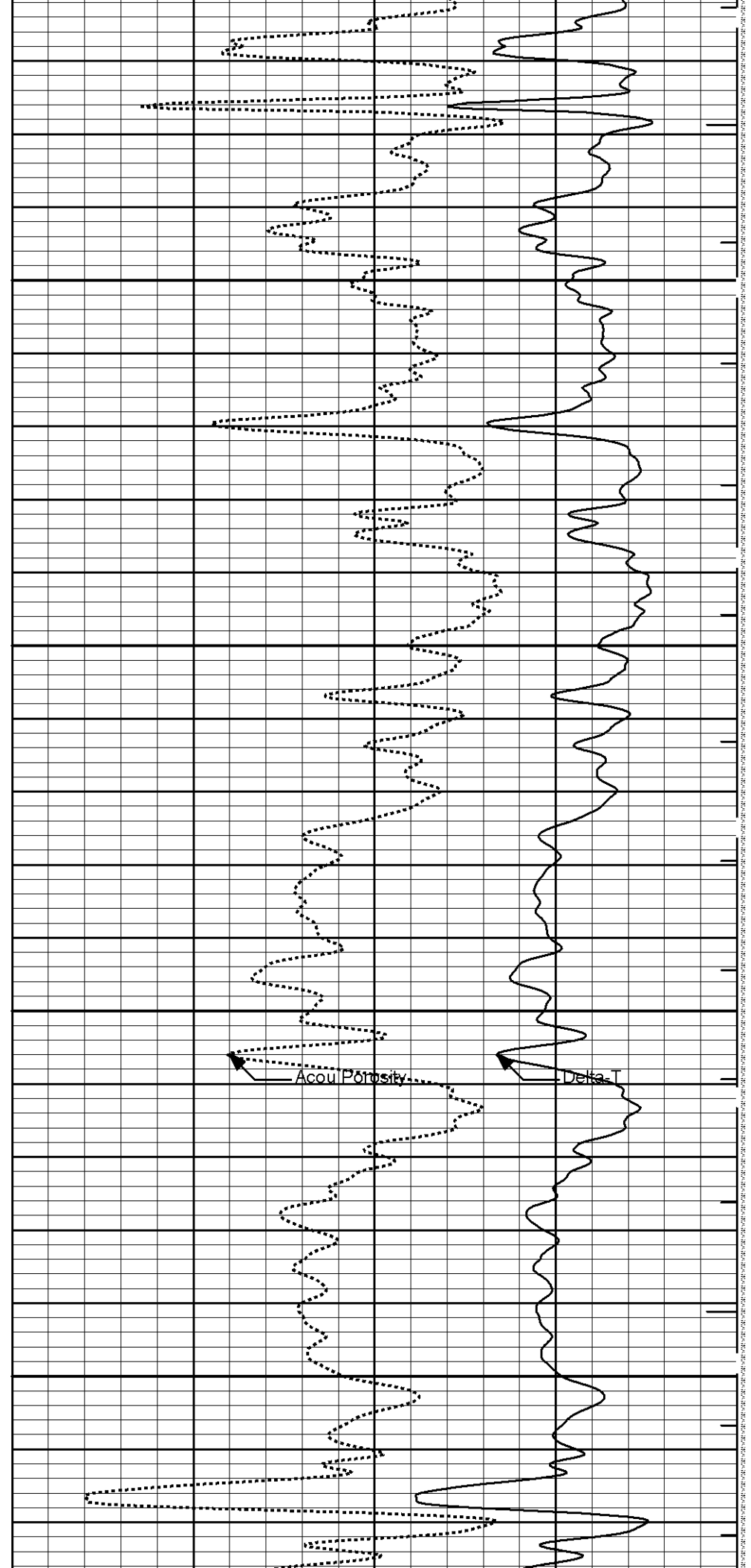
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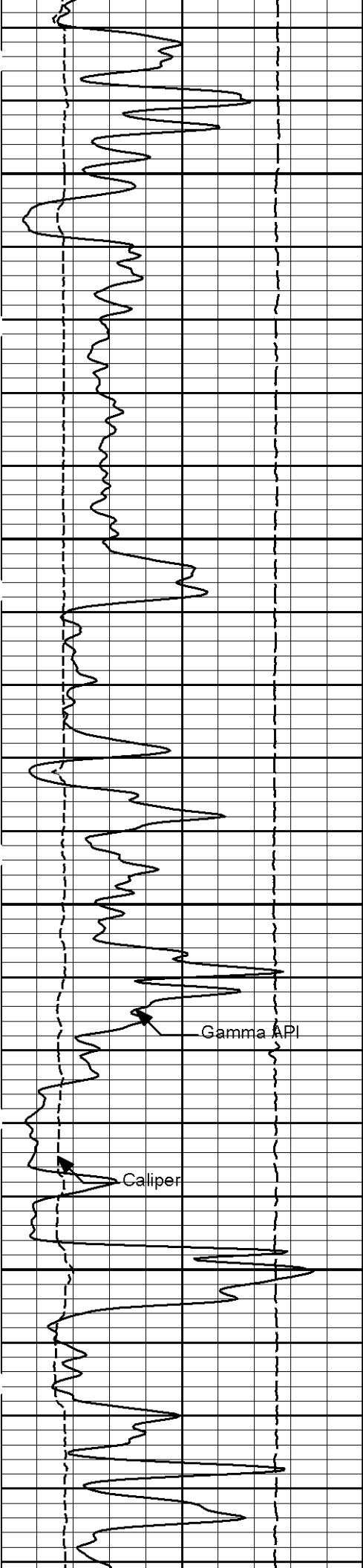




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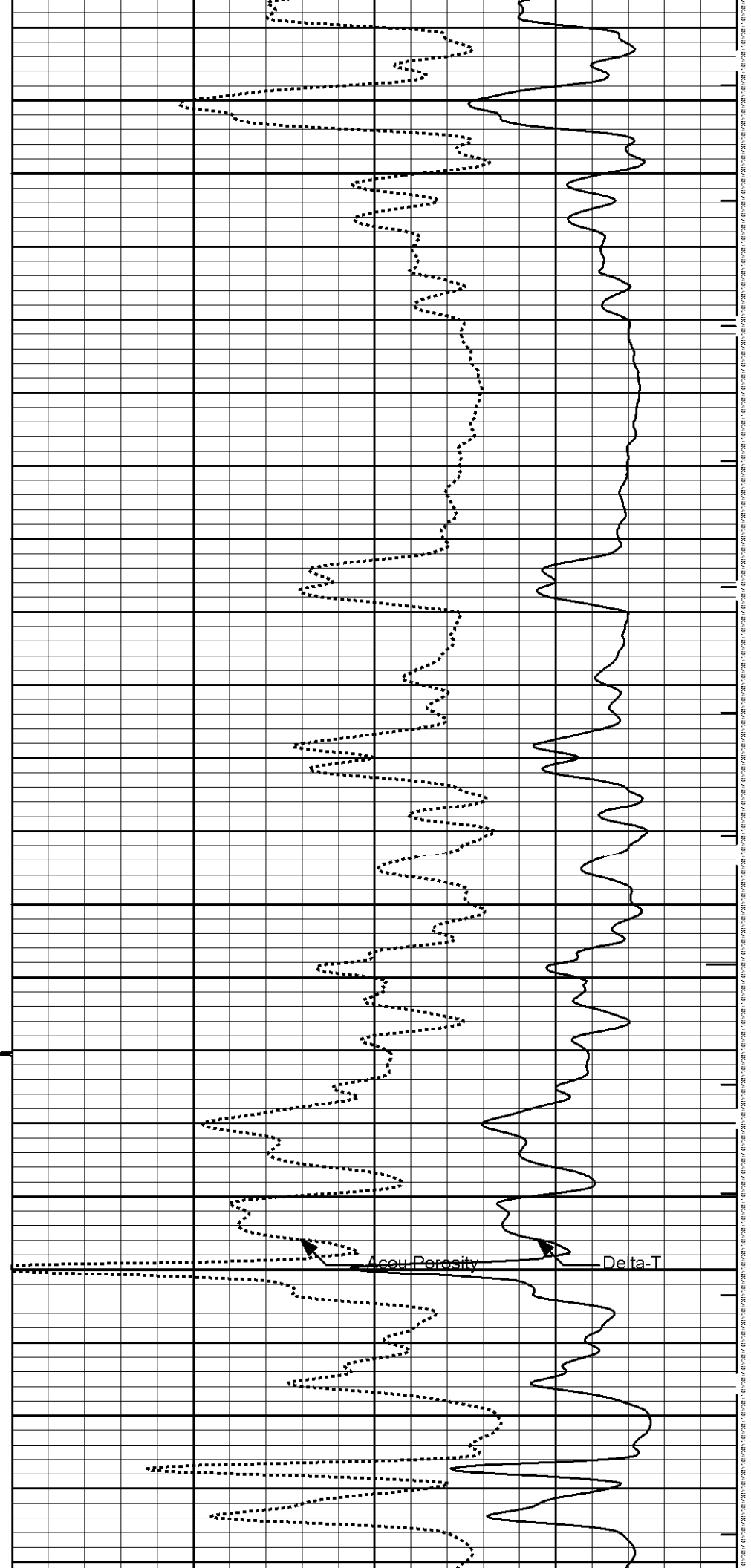
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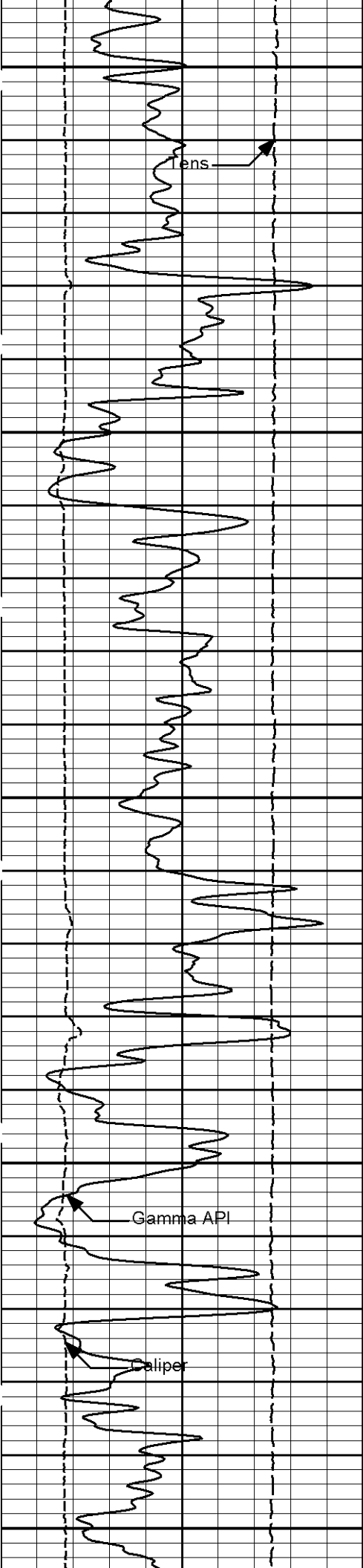




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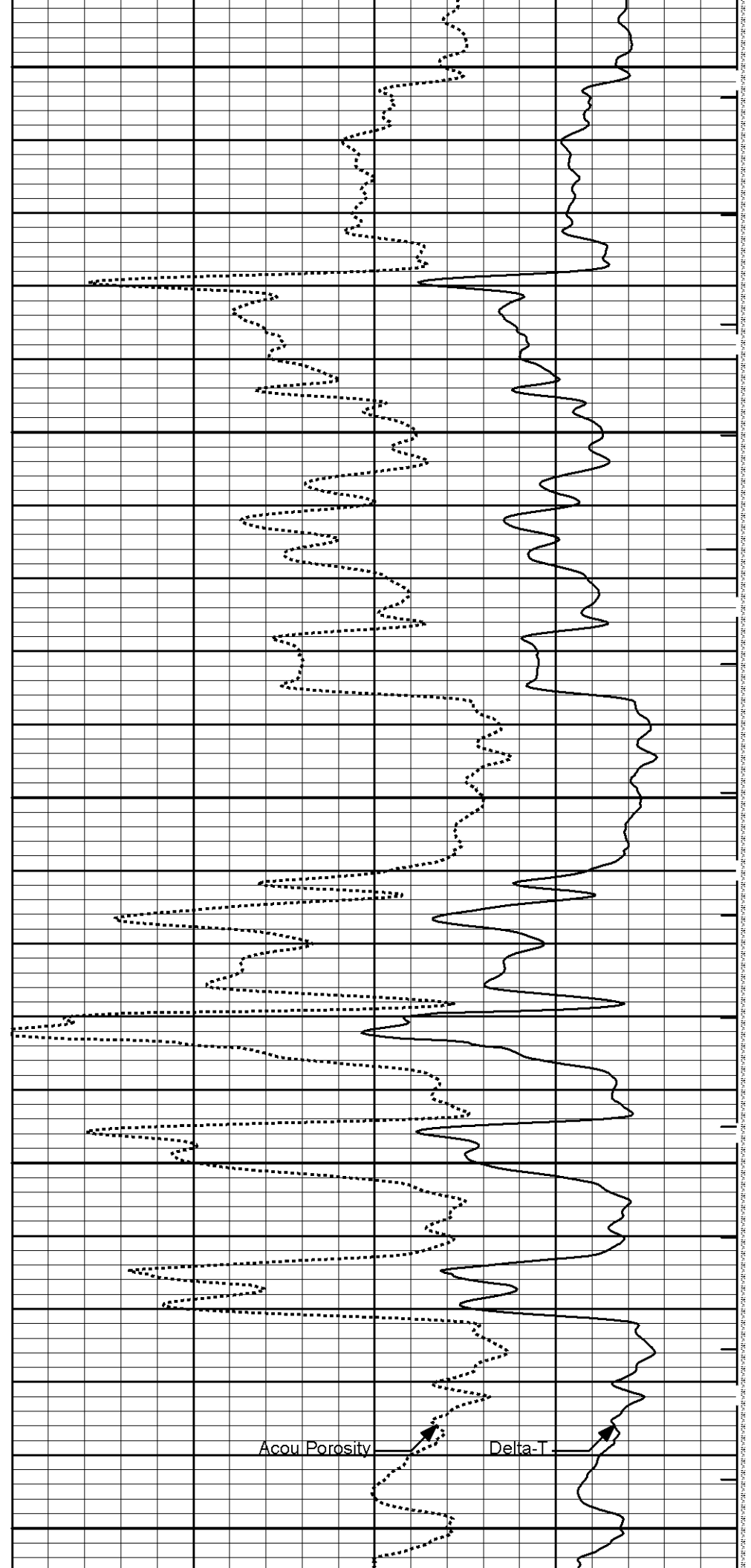
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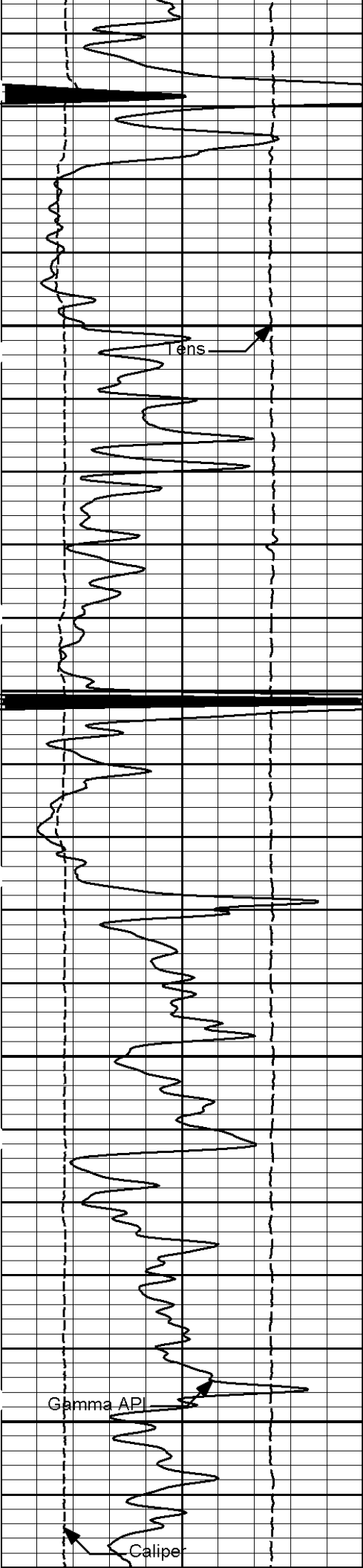




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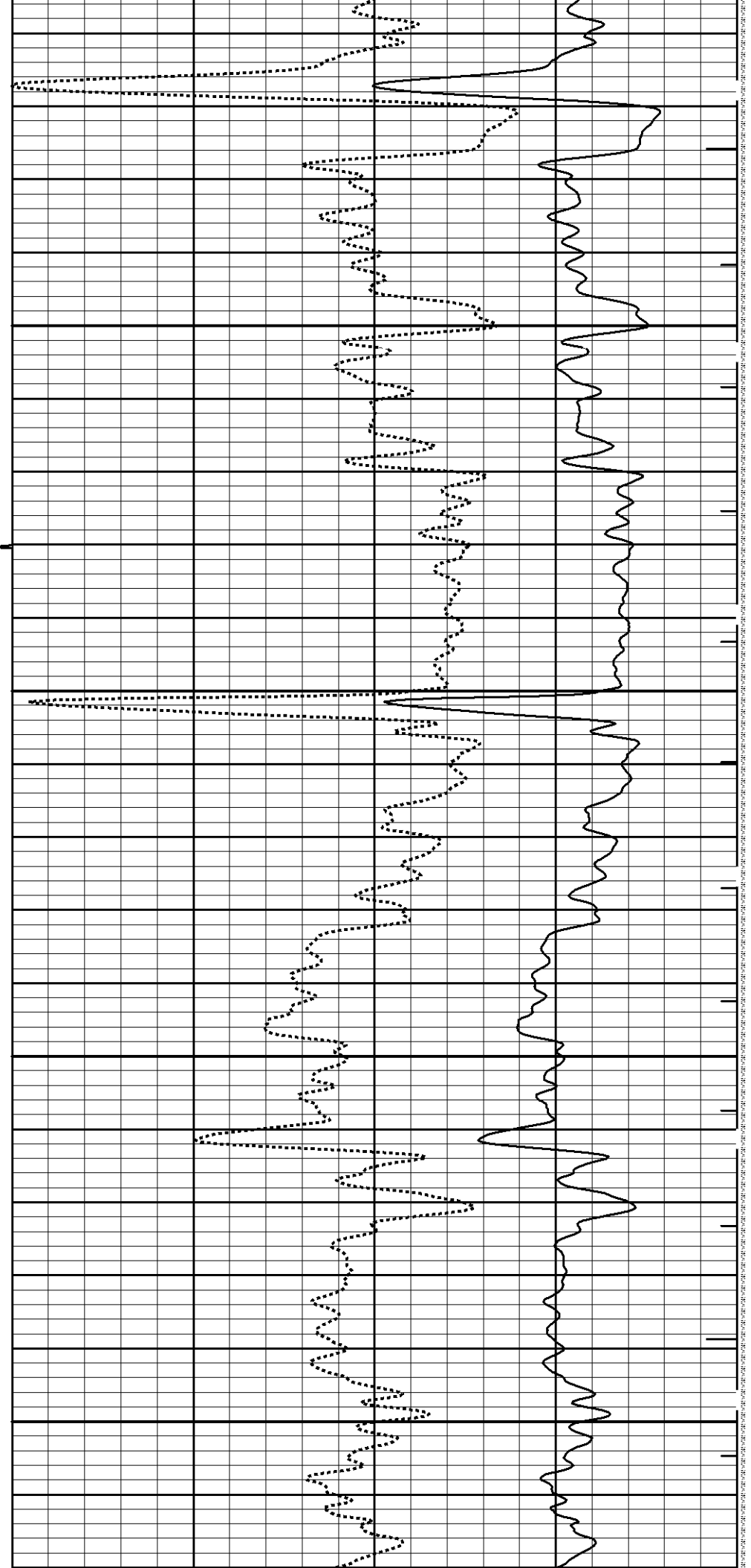
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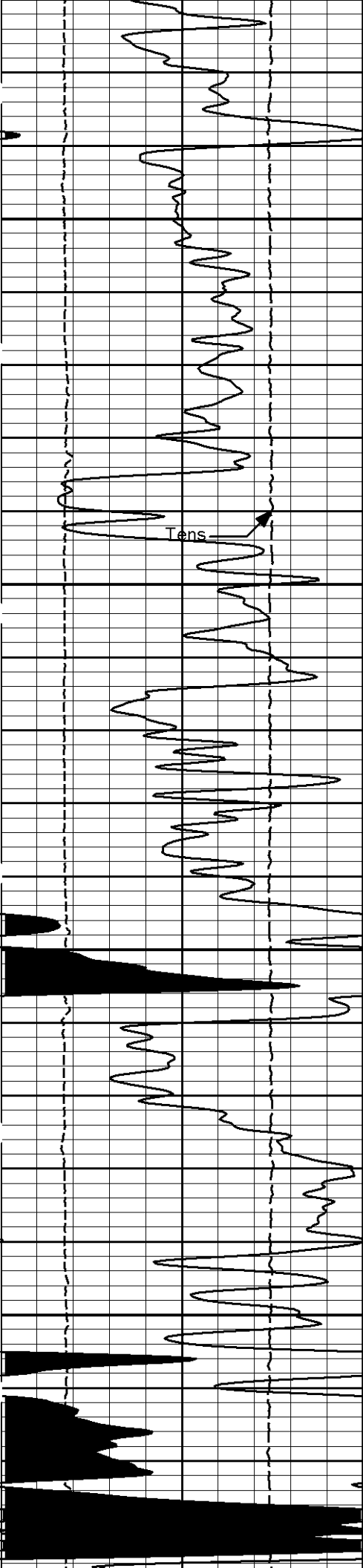




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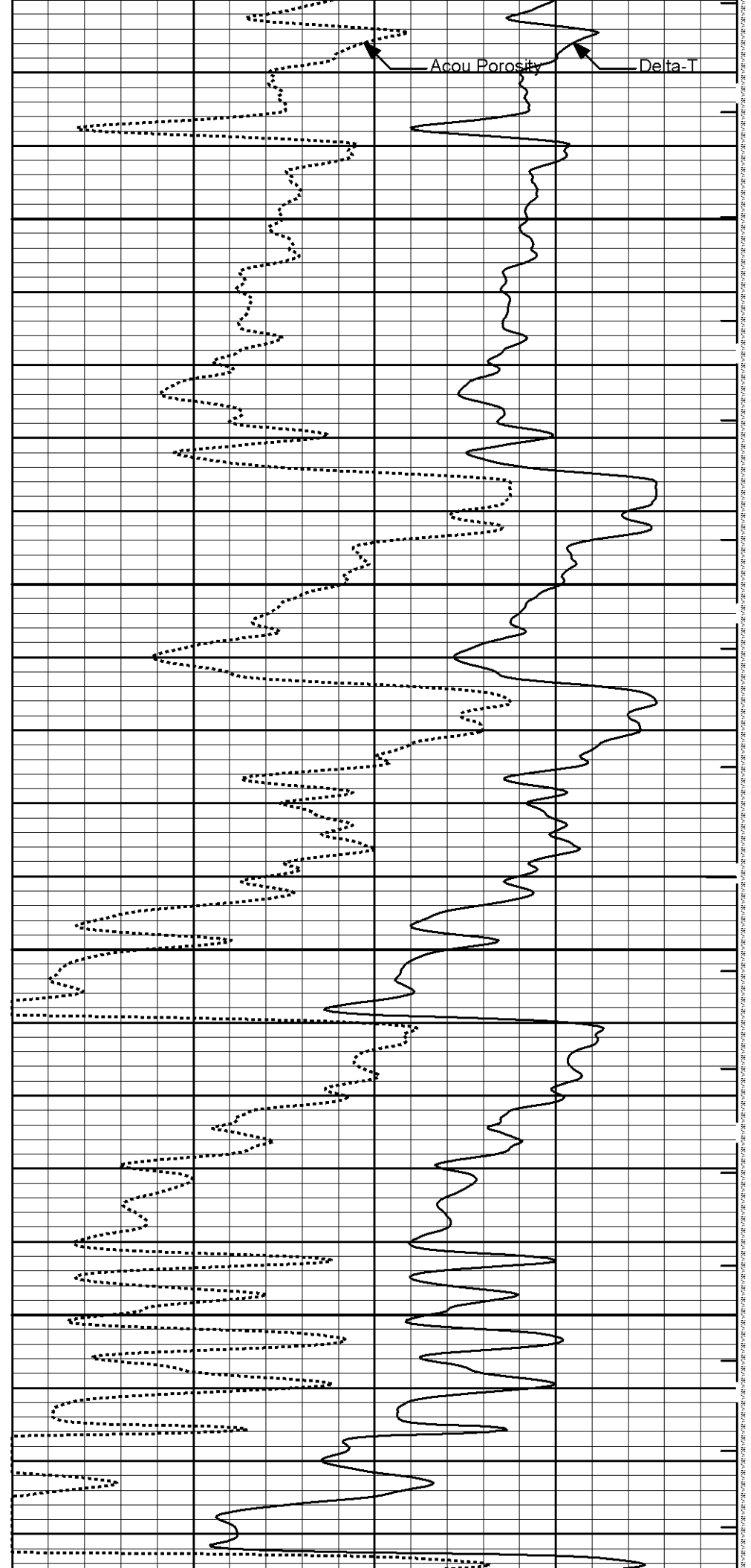
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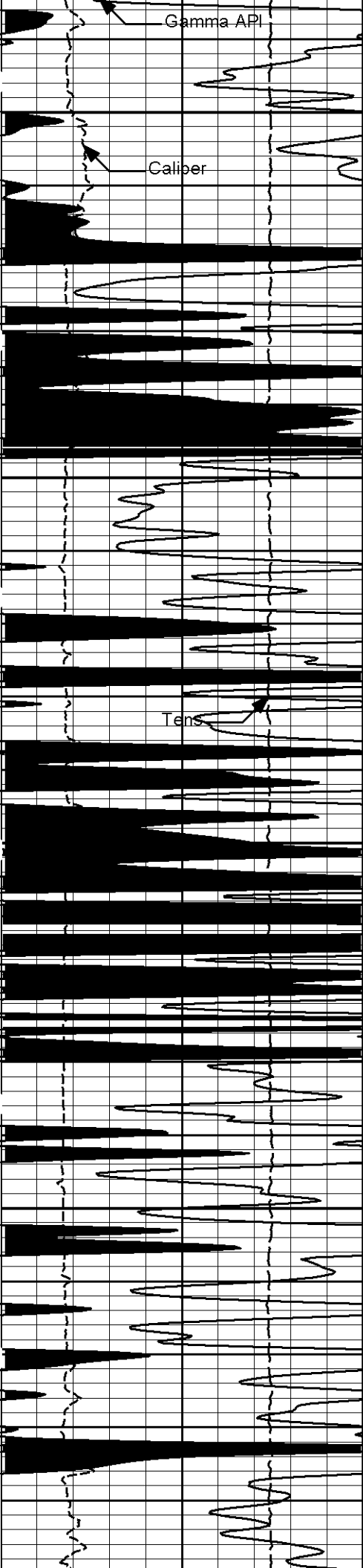




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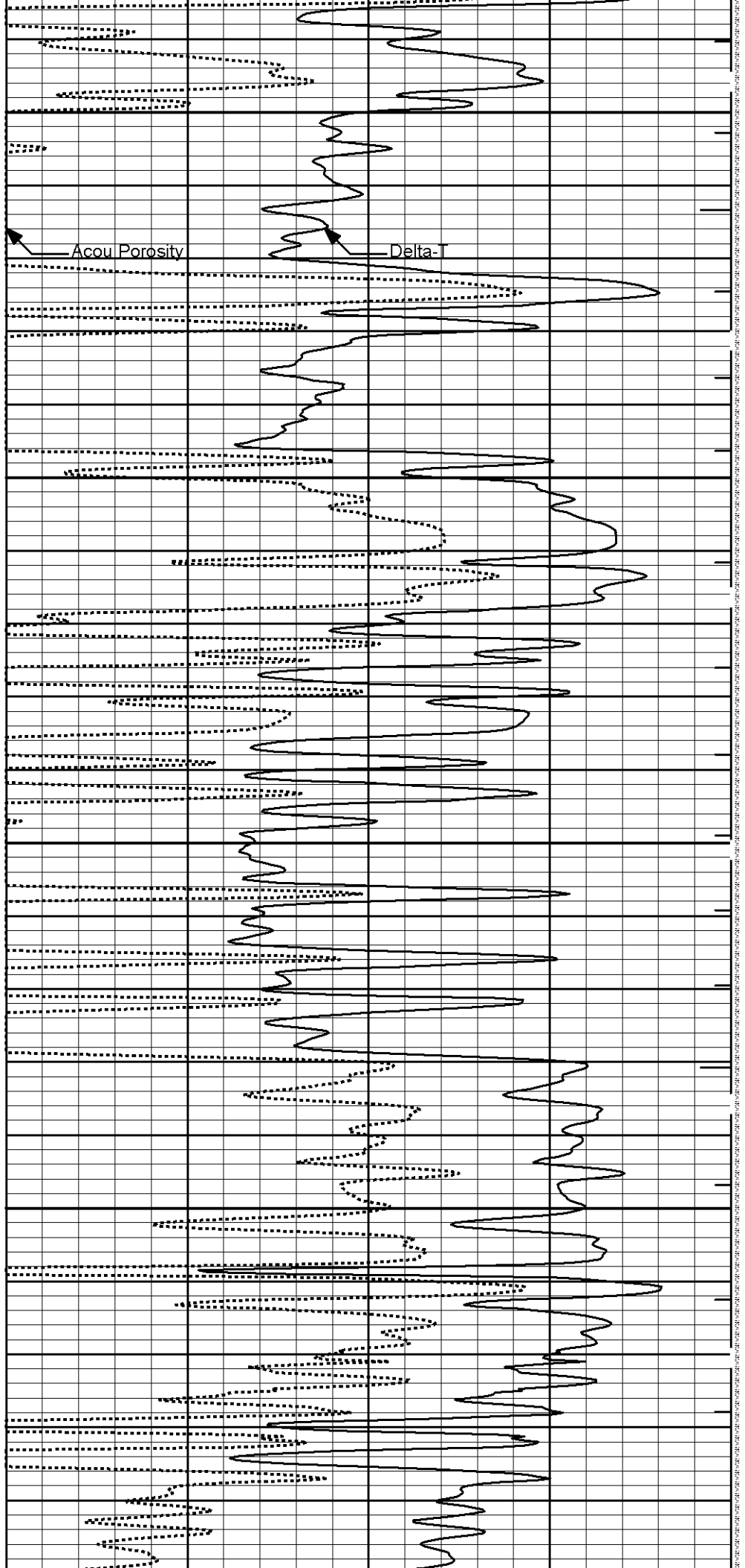
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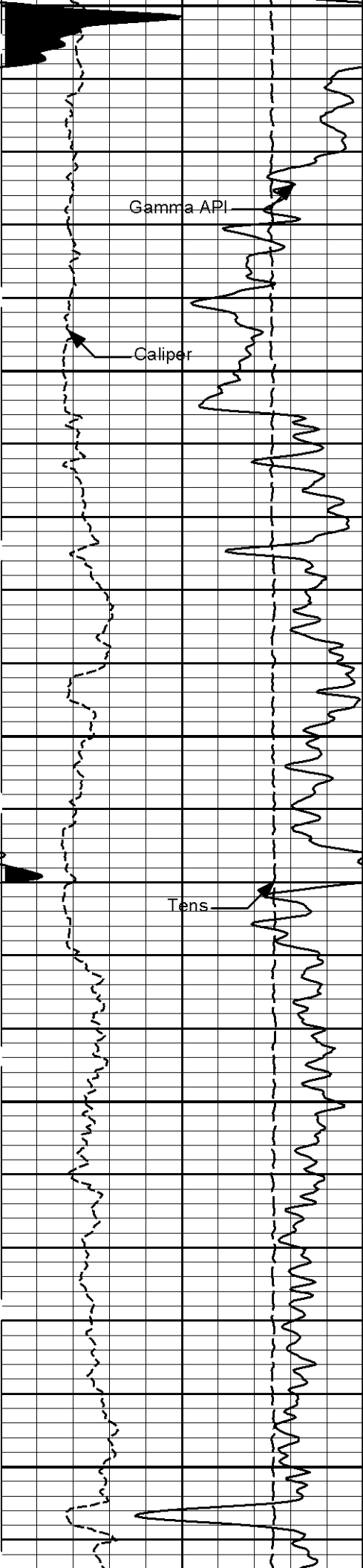




5200

5300





6400

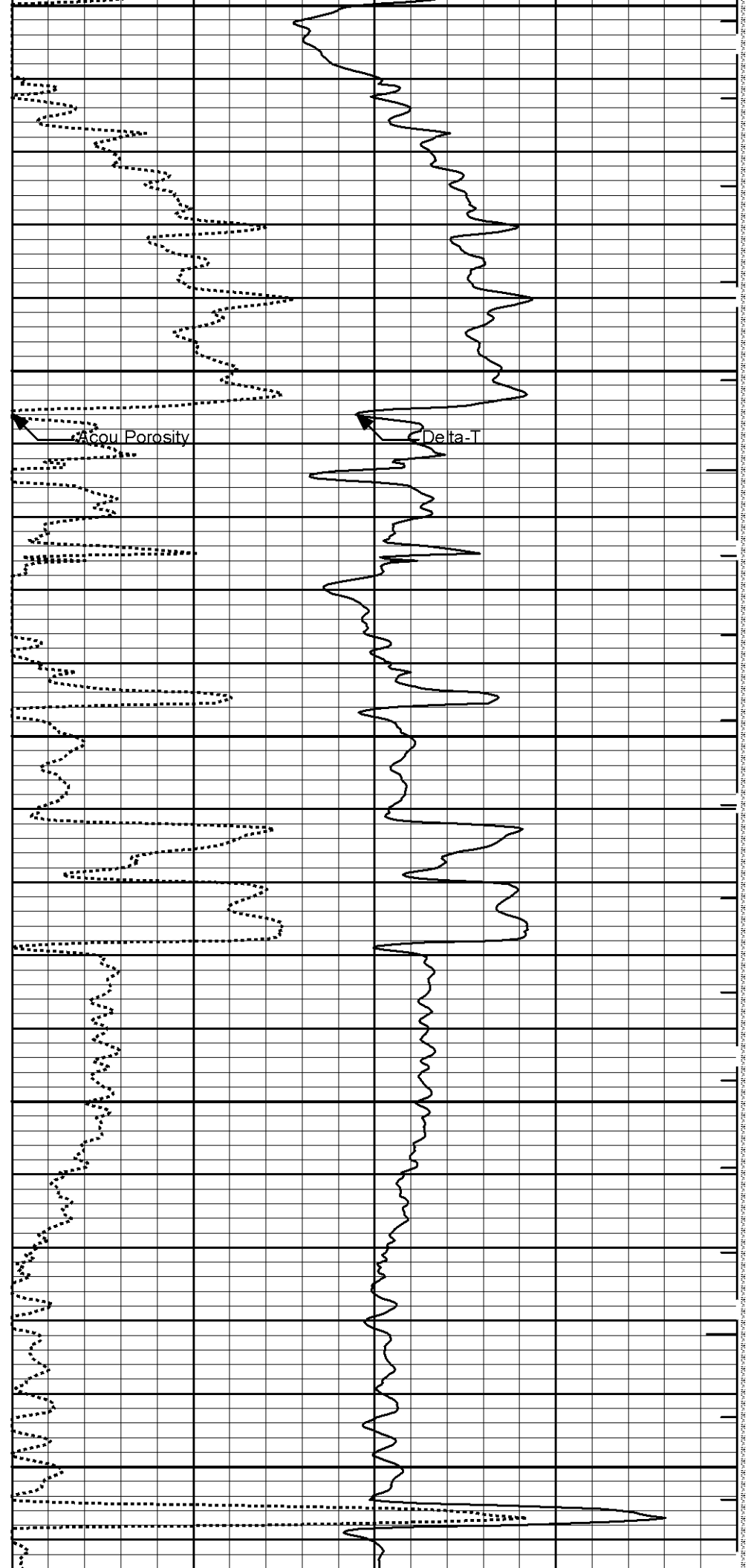
Gamma API

Caliper

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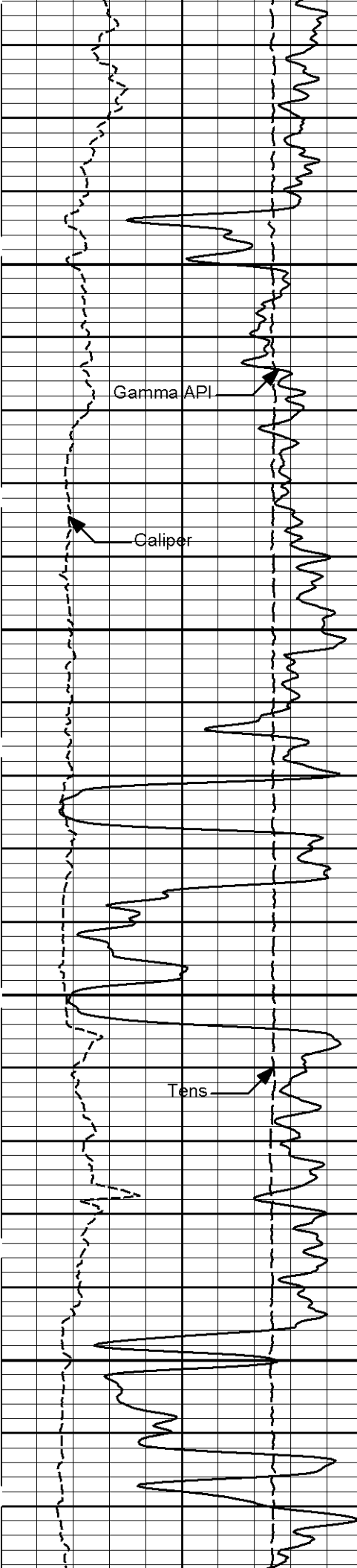
Tens

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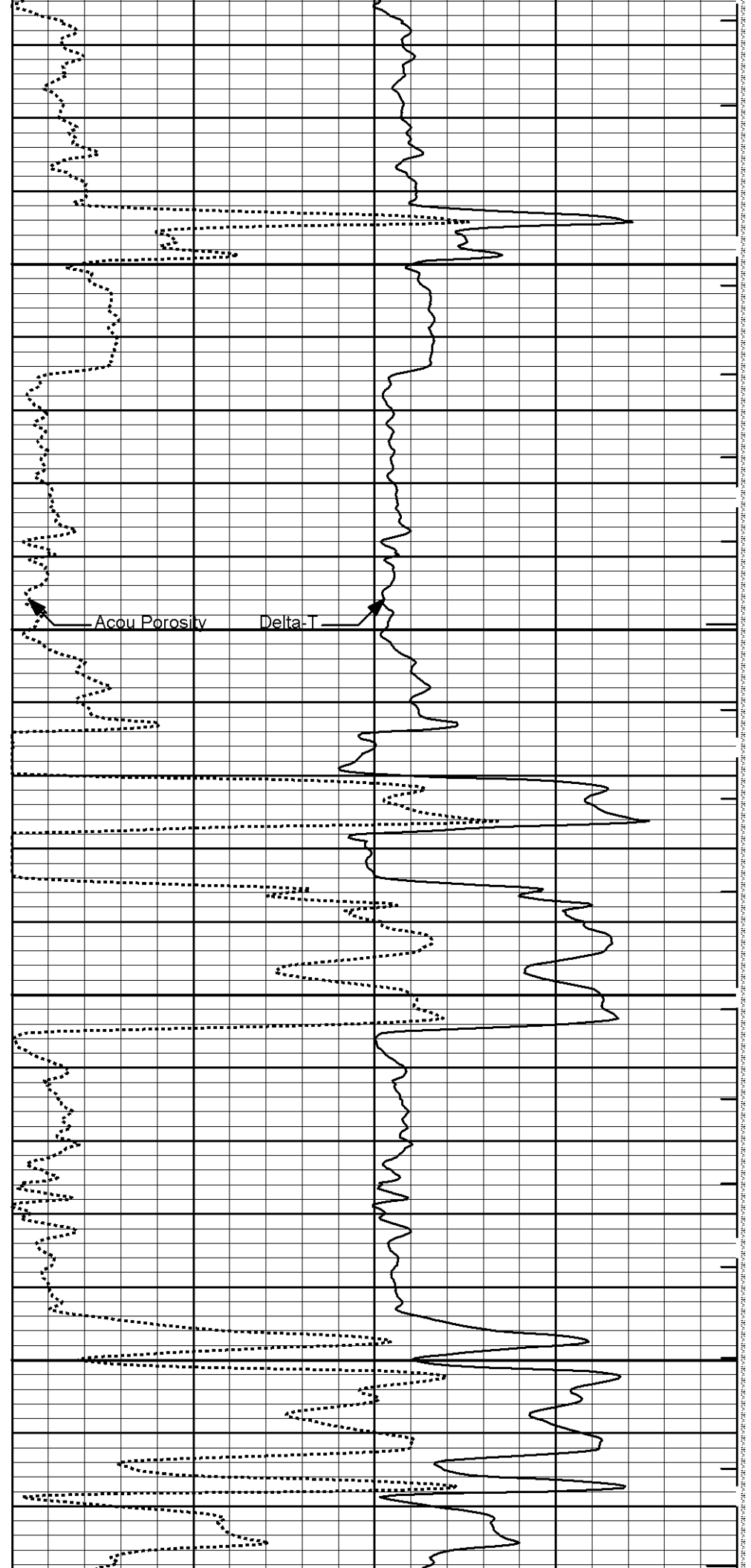
Acou Porosity

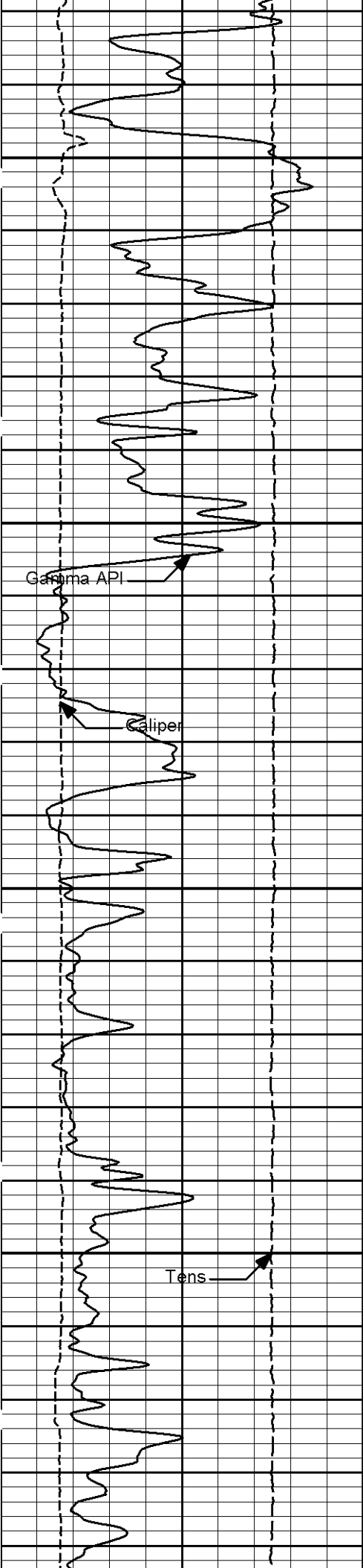
Delta-T



5700

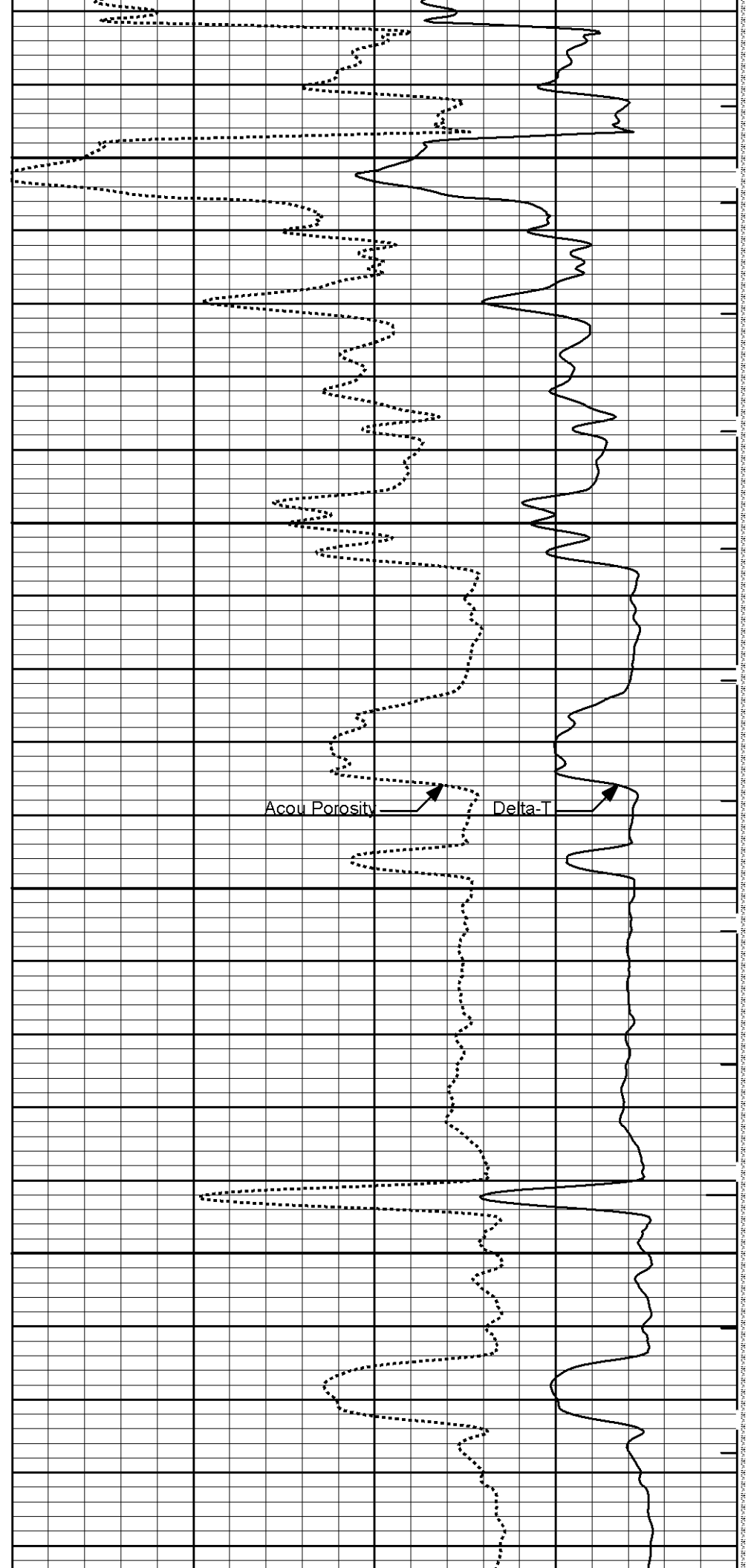
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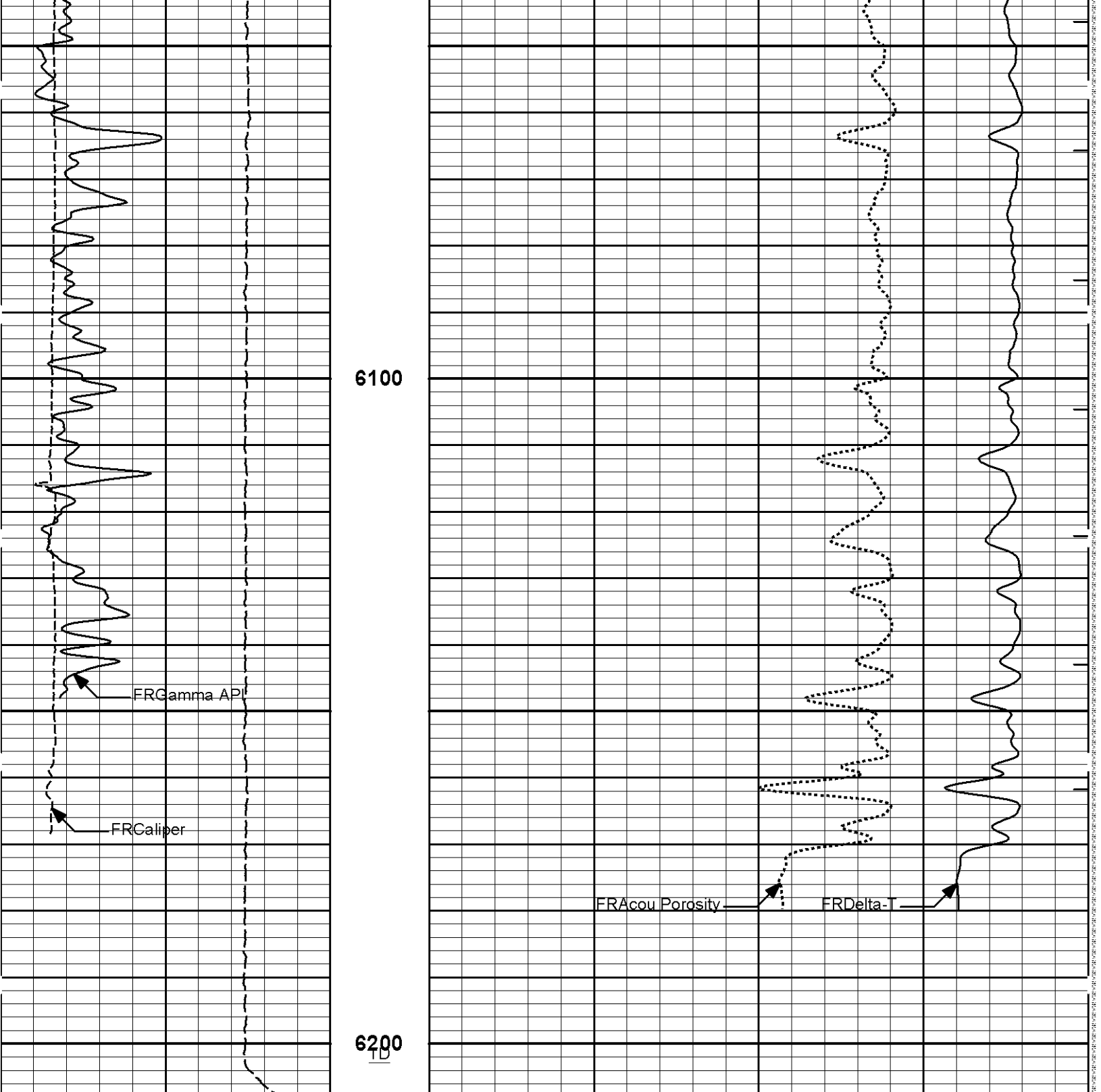




5900

6000





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

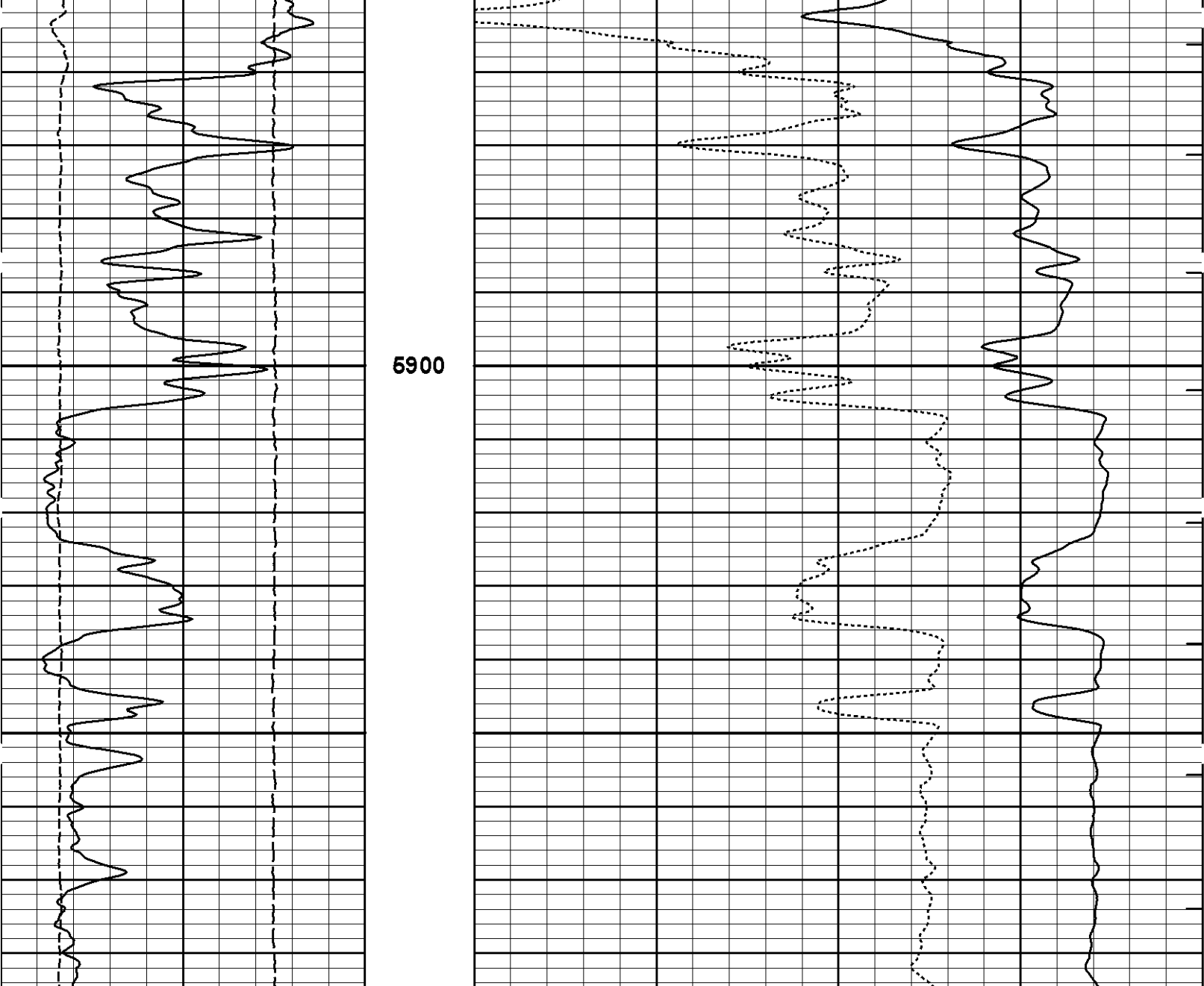
Plot Time: 19-Nov-10 18:25:07
 Plot Range: 1710 ft to 6207.5 ft
 Data: CYNTHIA_35_3\Well Based\DAQ-0001-003\

5 INCH MAIN LOG

Plot Time: 19-Nov-10 18:25:07
 Plot Range: 5850 ft to 6207.58 ft
 Data: CYNTHIA_35_3\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	1 : 240		ITTT
	api		ft		





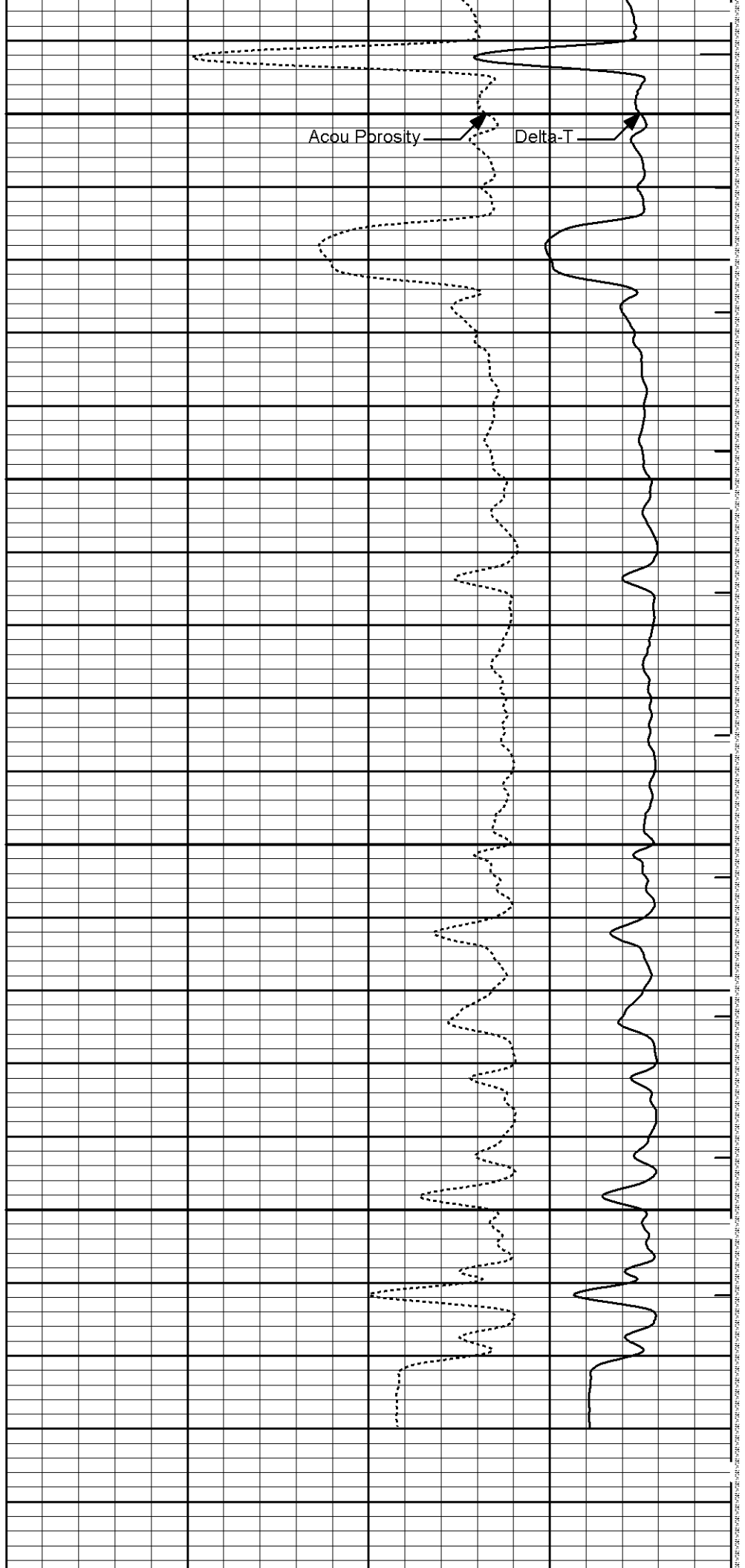
6000

Gamma API

Tension

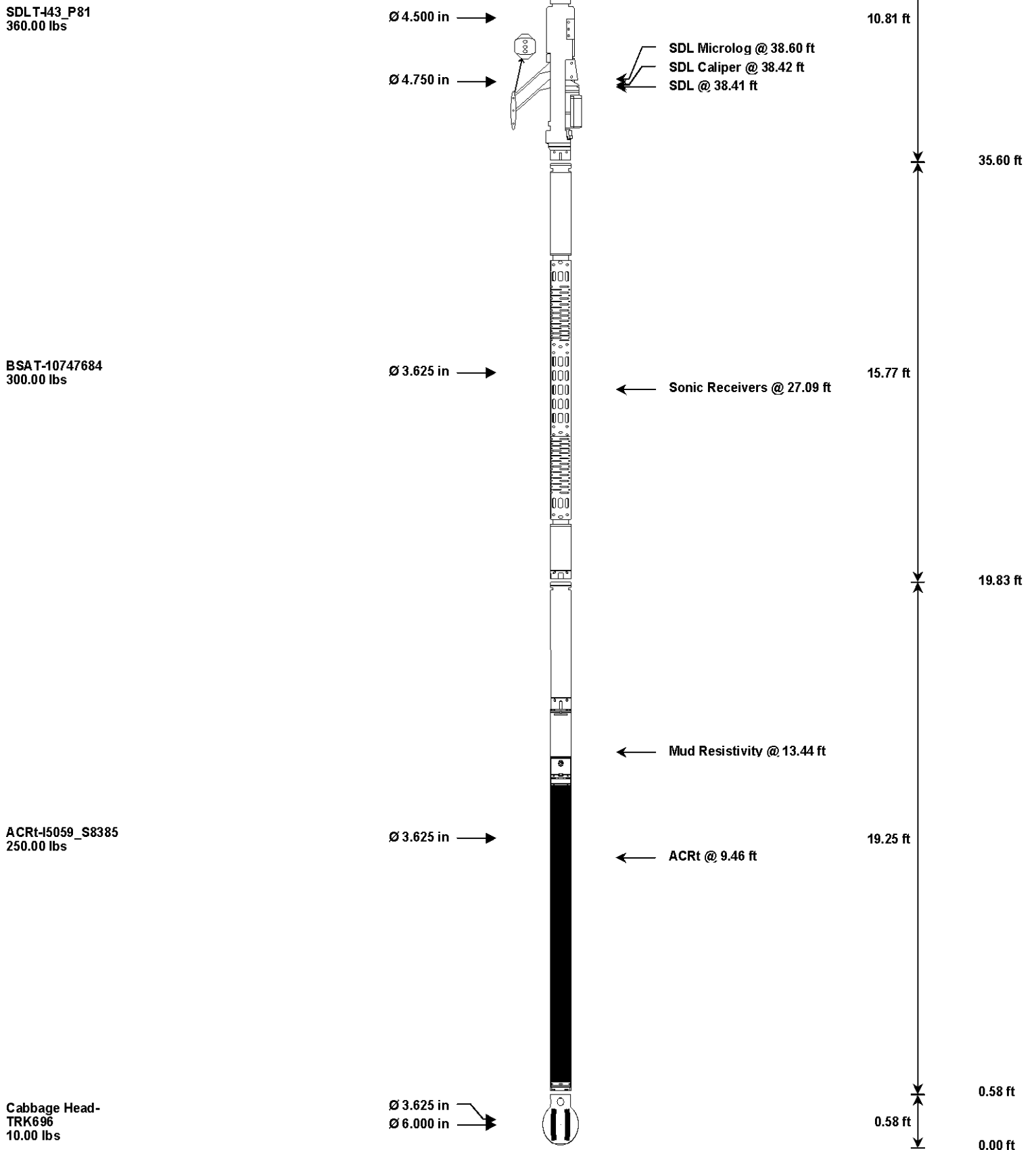
Calliper

6100



Acou Pporosity

Delta-T



SDLT-443_P81
360.00 lbs

Ø 4.500 in →

Ø 4.750 in →

10.81 ft

← SDL Microlog @ 38.60 ft
← SDL Caliper @ 38.42 ft
← SDL @ 38.41 ft

35.60 ft

BSAT-10747684
300.00 lbs

Ø 3.625 in →

15.77 ft

← Sonic Receivers @ 27.09 ft

19.83 ft

← Mud Resistivity @ 13.44 ft

ACRT-I5059_S8385
250.00 lbs

Ø 3.625 in →

19.25 ft

← ACRT @ 9.46 ft

0.58 ft

Cabbage Head-TRK696
10.00 lbs

Ø 3.625 in →

0.58 ft

Ø 6.000 in →

0.00 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	11039640	165.00	8.52	56.10	60.00
DSNT	Dual Spaced Neutron	11019643	174.00	9.69	46.42	60.00
DCNT	DSN Decentralizer	10755066	6.60	5.13	* 49.75	300.00
SDLT	Spectral Density Tool	I43_P81	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	I5059_S8385	250.00	19.25	0.58	300.00
CBHD	Cabbage Head	TRK696	10.00	0.58	0.00	300.00

Total **1,383.10** **72.34**

* Not included in Total Length and Length Accumulation.

Data: CYNTHIA_35_3\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CHIDLE Date: 19-Nov-10 10:09:09

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PARAMETERS REPORT

Depth (ft)	Tool Name	Mnemonic	Description	Value	Units
TOP					
	DSNT	DNOK	Process DSN?	No	
	SDLT	DNOK	Process Density?	No	
	SDLT	MLOK	Process MicroLog Outputs?	No	
2990.00					
	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	8.900	ppg
	SHARED	WAGT	Weighting Agent	Barite	
	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	1.250	ohmm
	SHARED	TRM	Temperature of Mud	75.0	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	6200.00	ft
	SHARED	BHT	Bottom Hole Temperature	135.0	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	
	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	0.300	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	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?	7000	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 Up	
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: CYNTHIA_35_3\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\IDLE

Date: 19-Nov-10 10:47:26

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	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	38.41	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

	ACRT 12KHz - 29in R value	9.22	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: CYNTHIA_35_3\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CHIDLE

Date: 19-Nov-10 10:47:43

COMPANY **EOG RESOURCES**

WELL **CYNTHIA 35-3**

FIELD **WILDCAT**

COUNTY

STEVENS

STATE

KANSAS

HALLIBURTON

**BOREHOLE COMPENSATED
SONIC ARRAY
LOG**