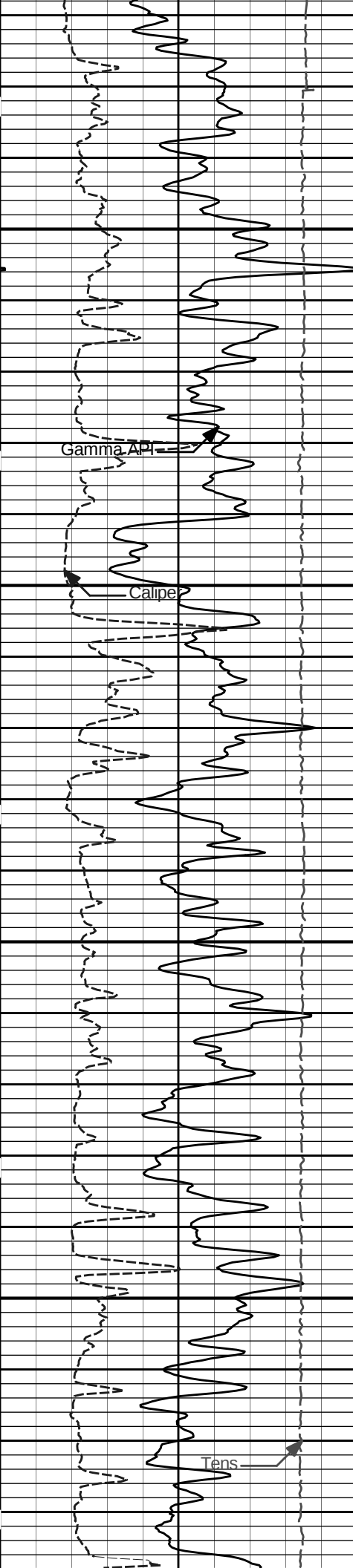


**BOREHOLE COMPENSATED
SONIC ARRAY
LOG**

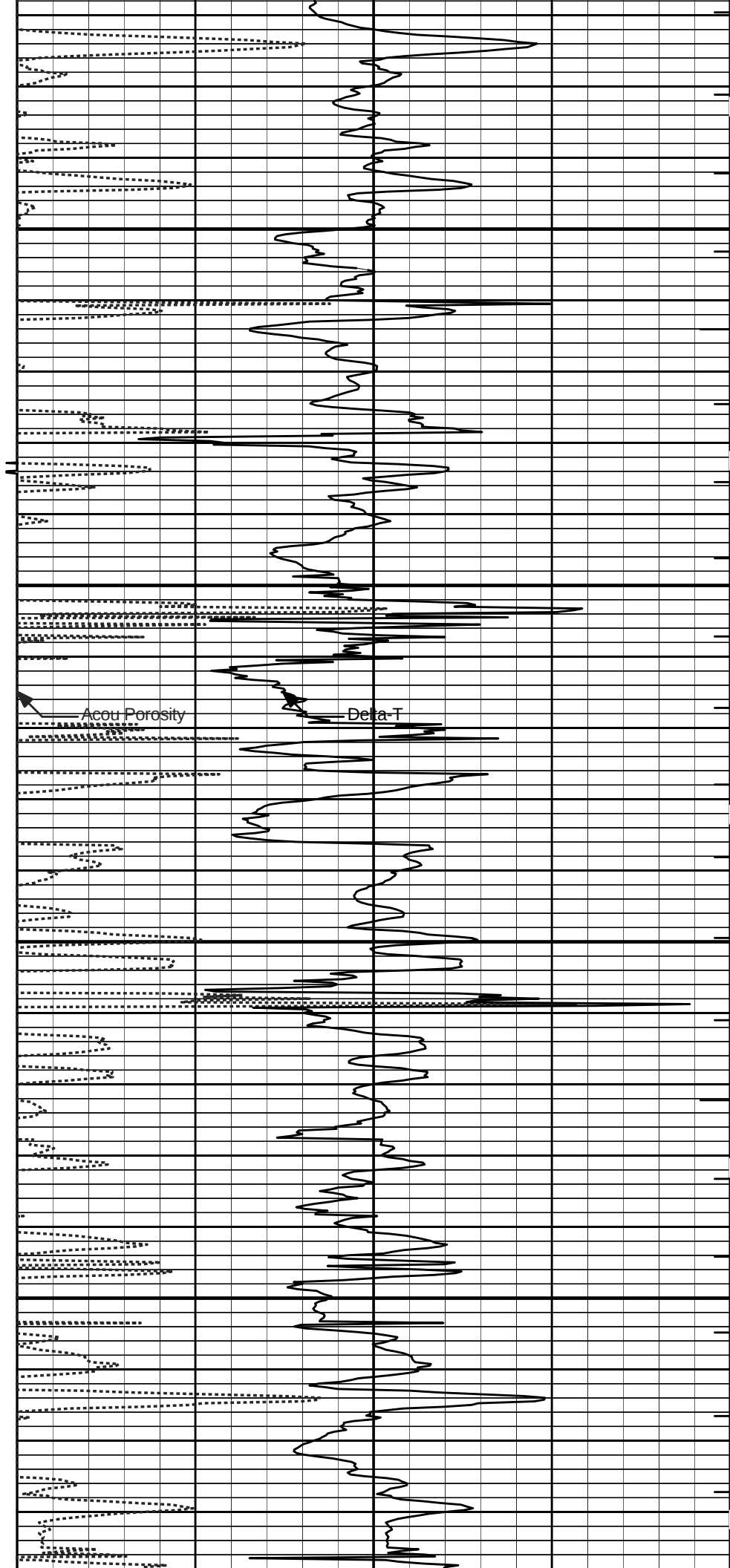
Fold here

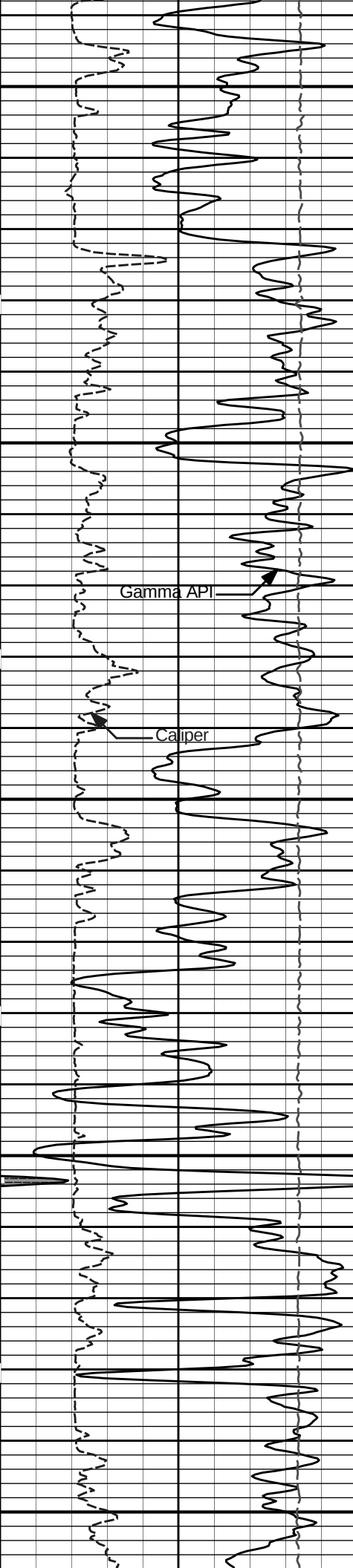
Service Ticket No.: 9465969						API Serial No.: 15-129-21939						PGM Version: WL INSITE R3.4.2 (Build 2)					
CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE						RESISTIVITY SCALE CHANGES											
Date	Sample No.					Type Log	Depth	Scale Up Hole	Scale Down Hole								
Depth-Driller																	
Type 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.	11021138	Serial No.	10747686	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	0.5'	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]	Y	Strength		Strength											
LOGGING DATA																	
GENERAL		GAMMA		ACOUSTIC		DENSITY		NEUTRON									



1800

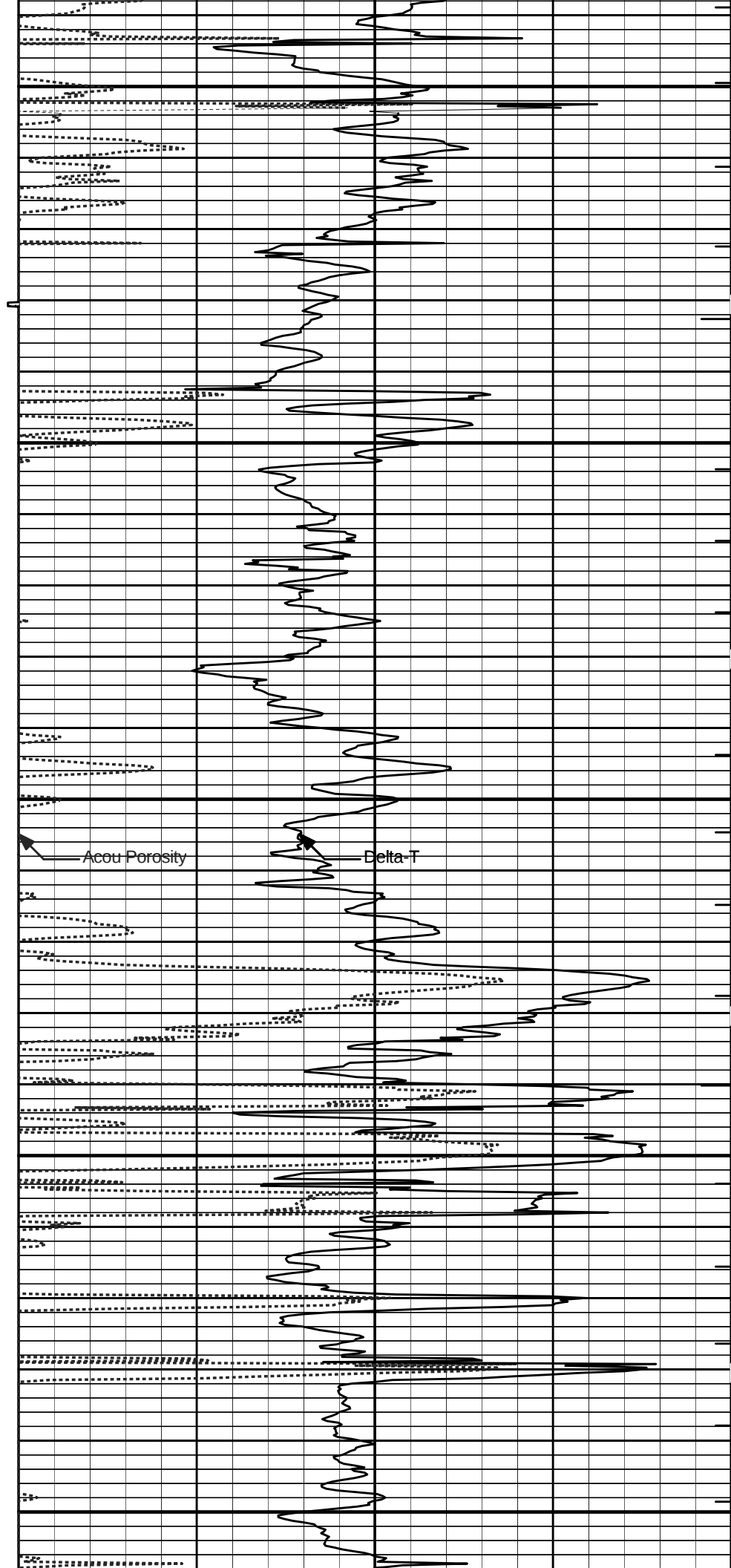
1900

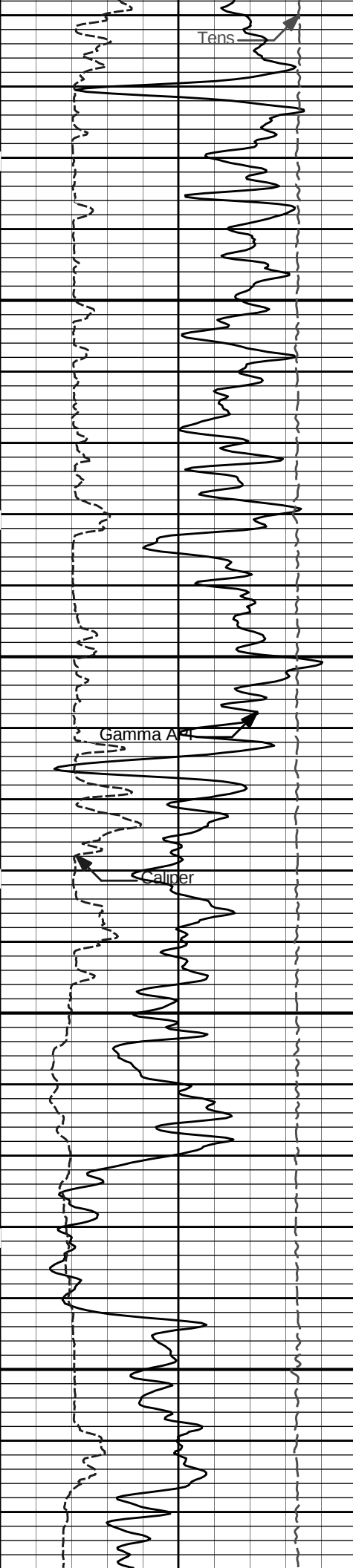




2000

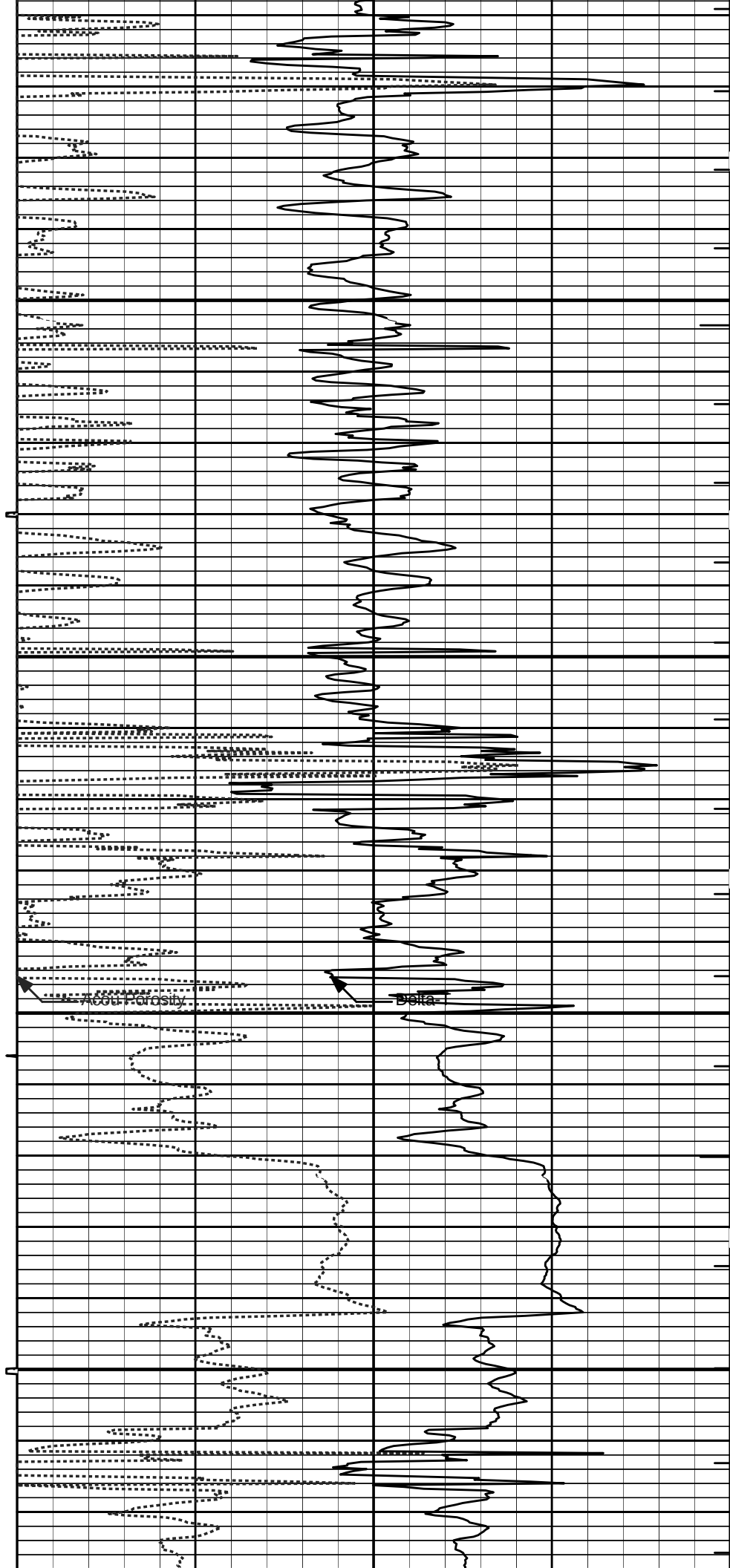
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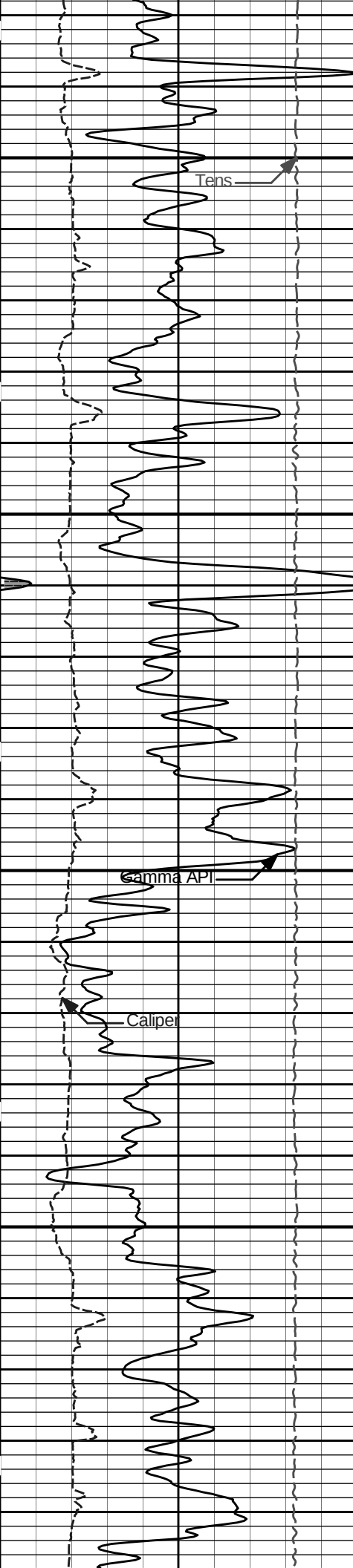




2200

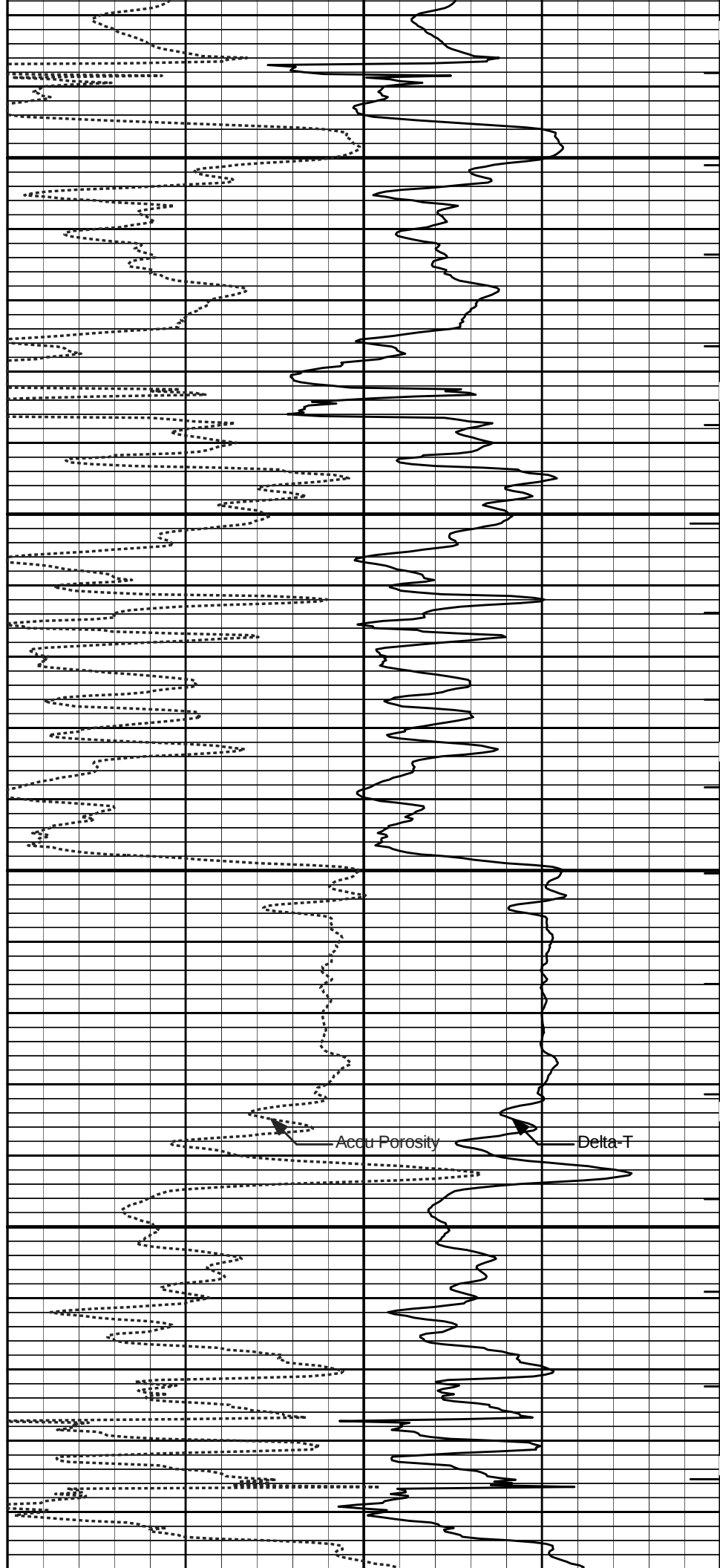
2300

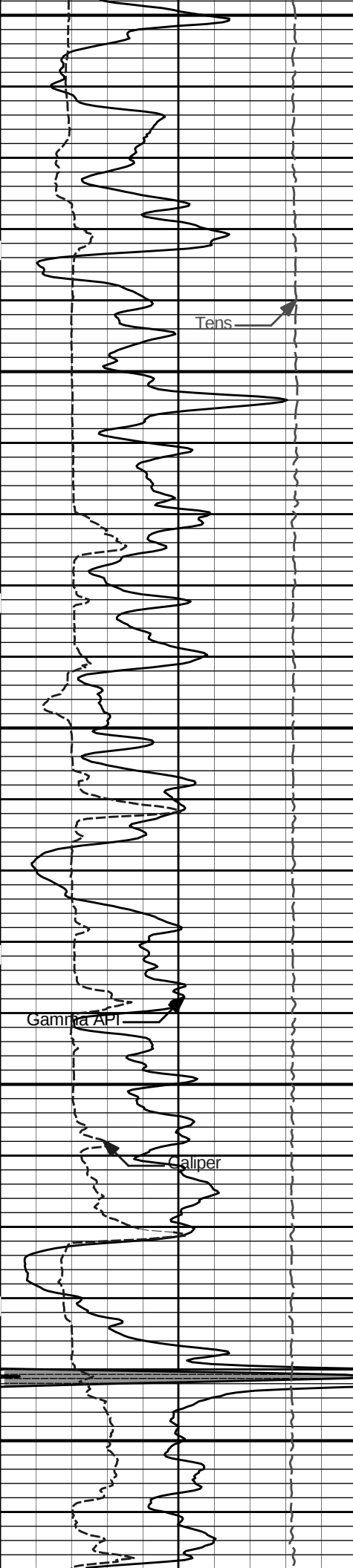




2400

2500

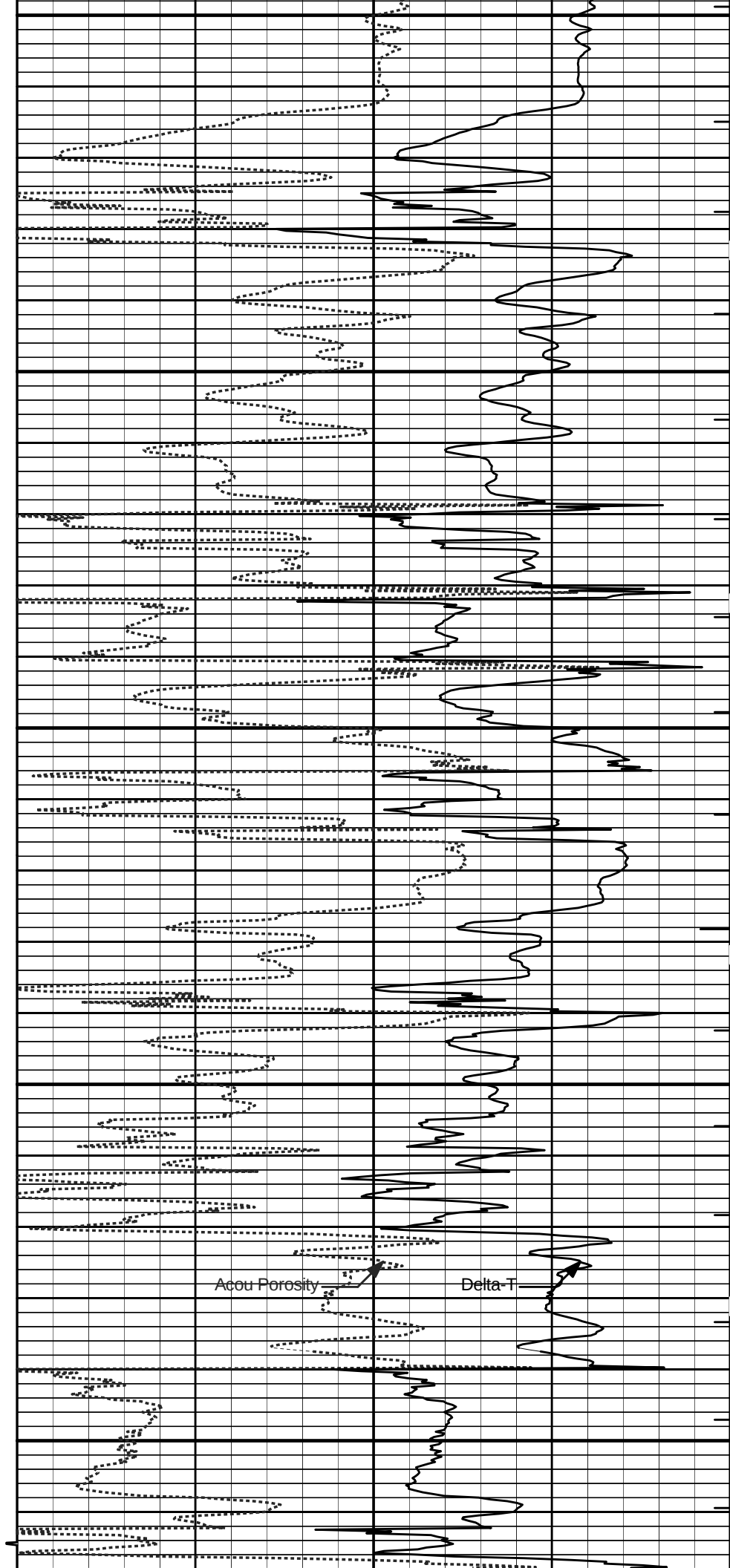




2600

2700

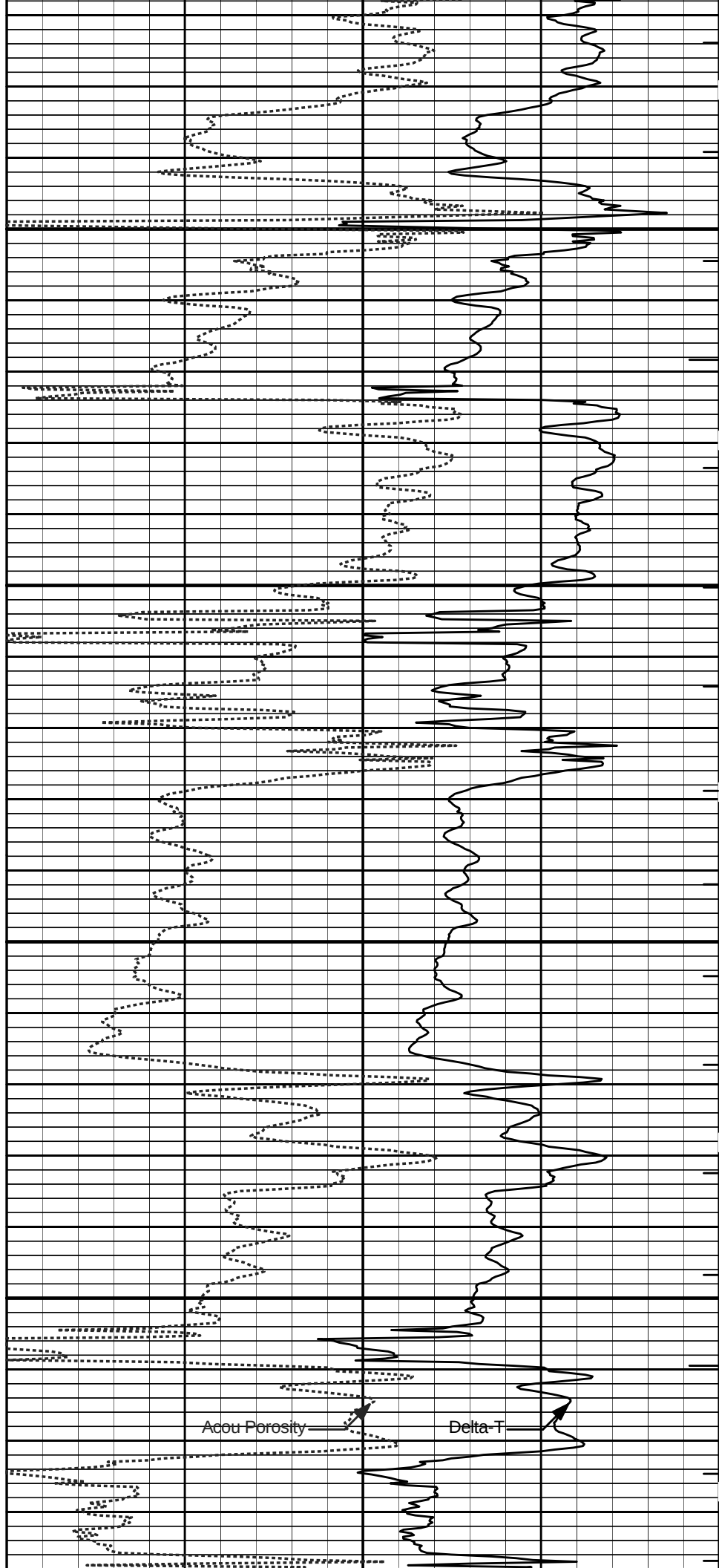
2800

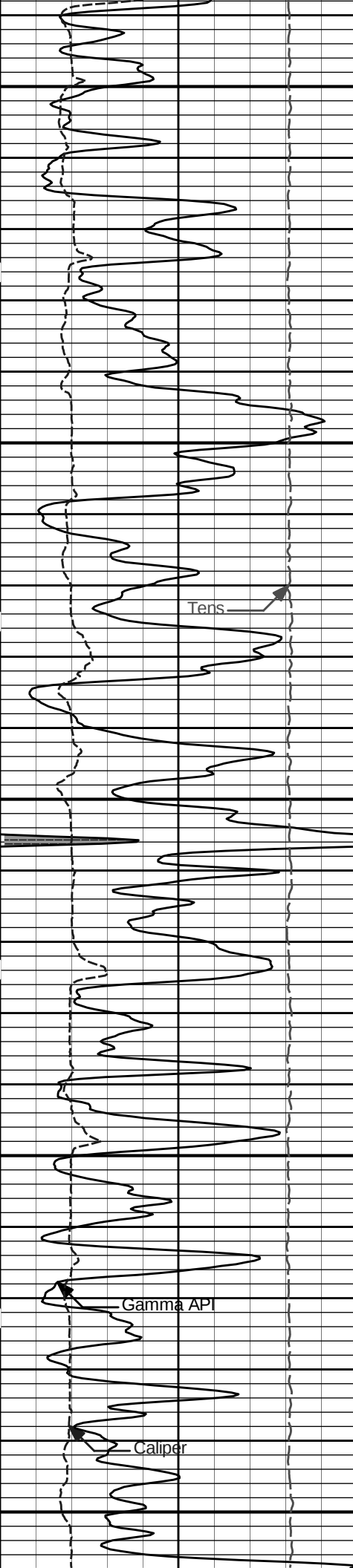




2900

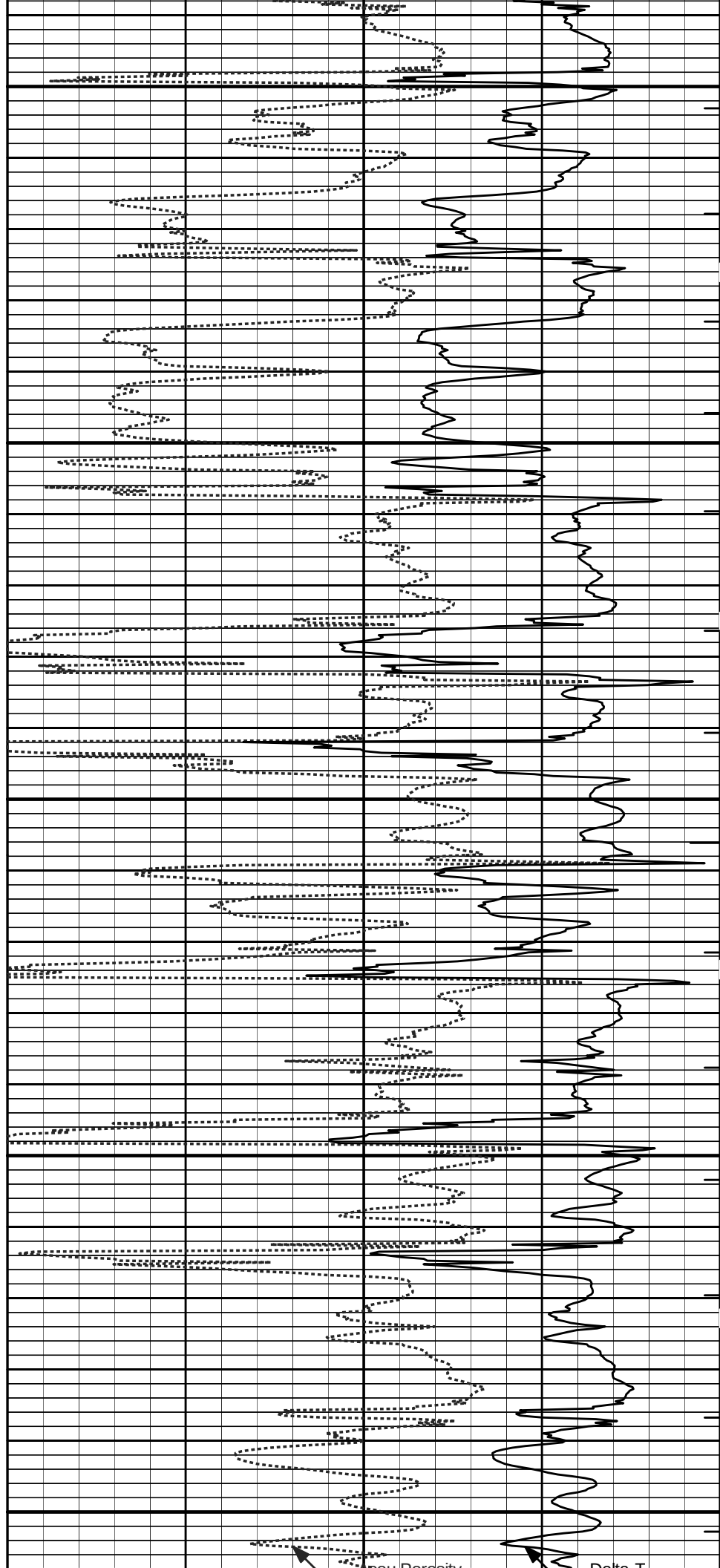
3000

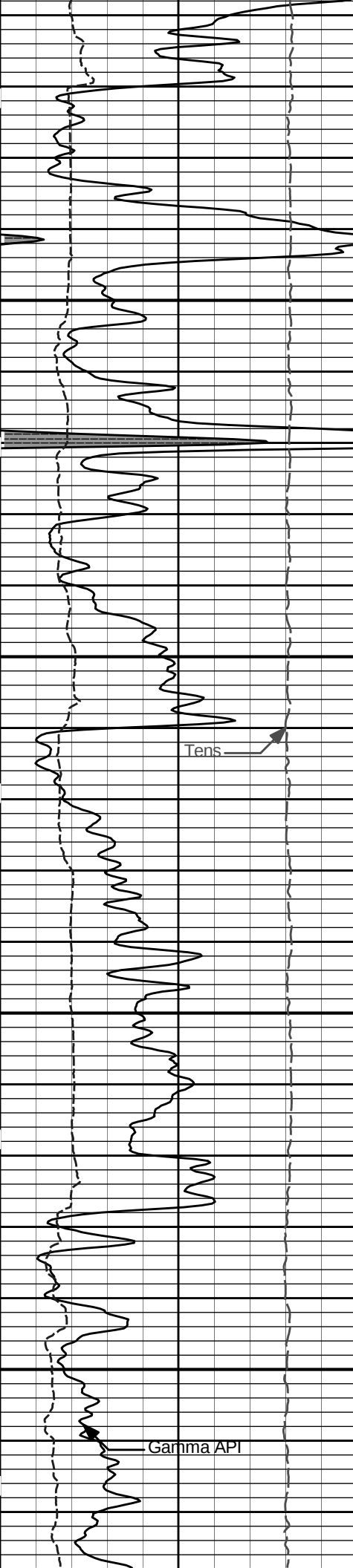




3100

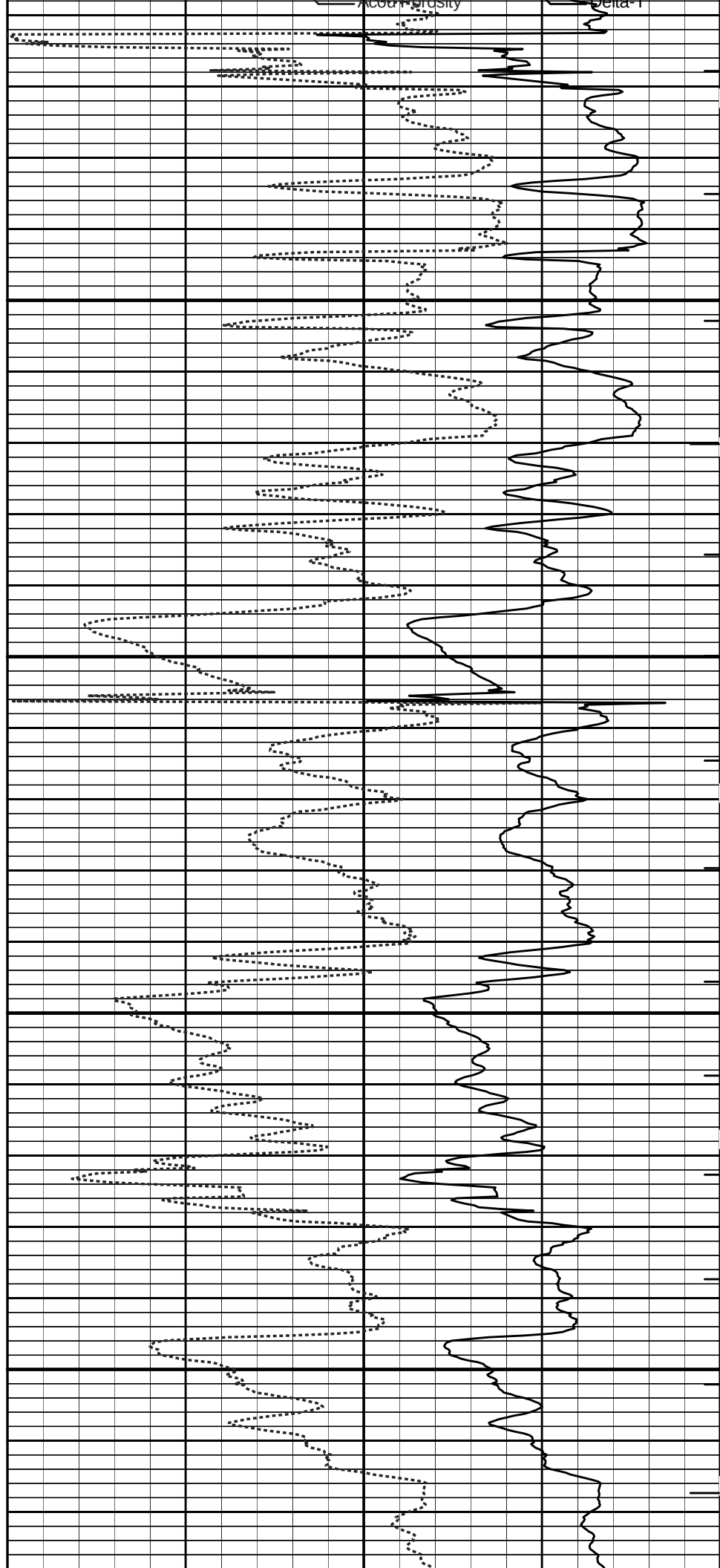
3200





3300

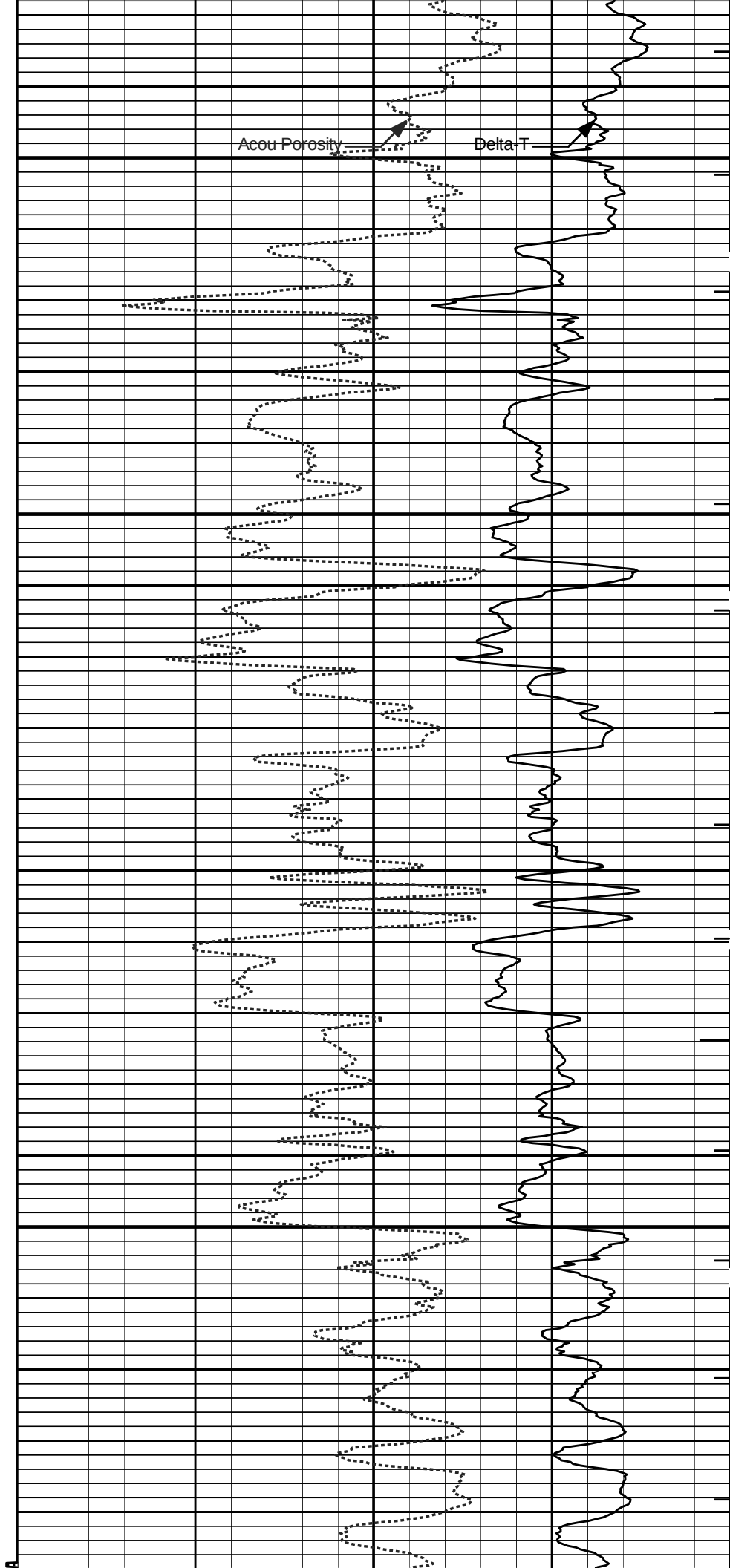
3400





3500

3600

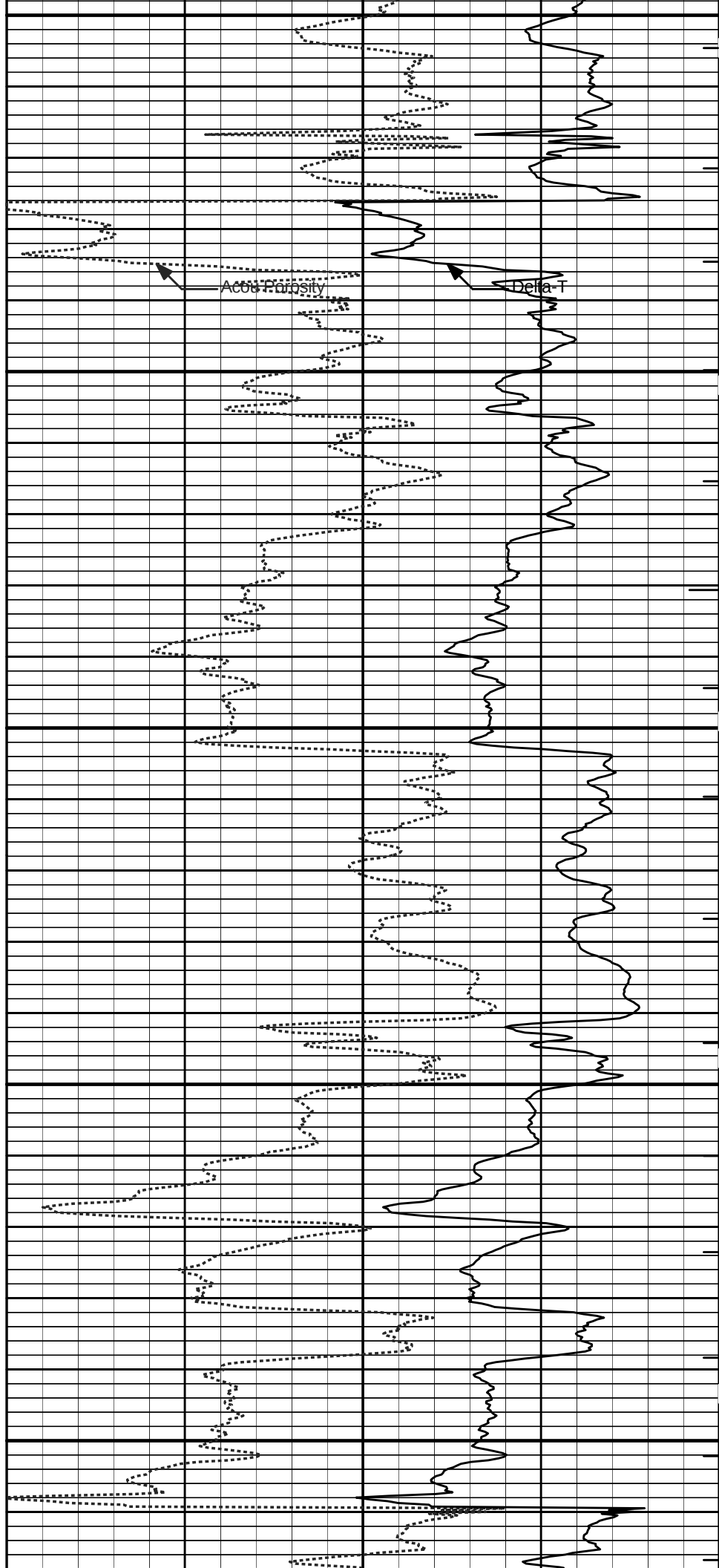


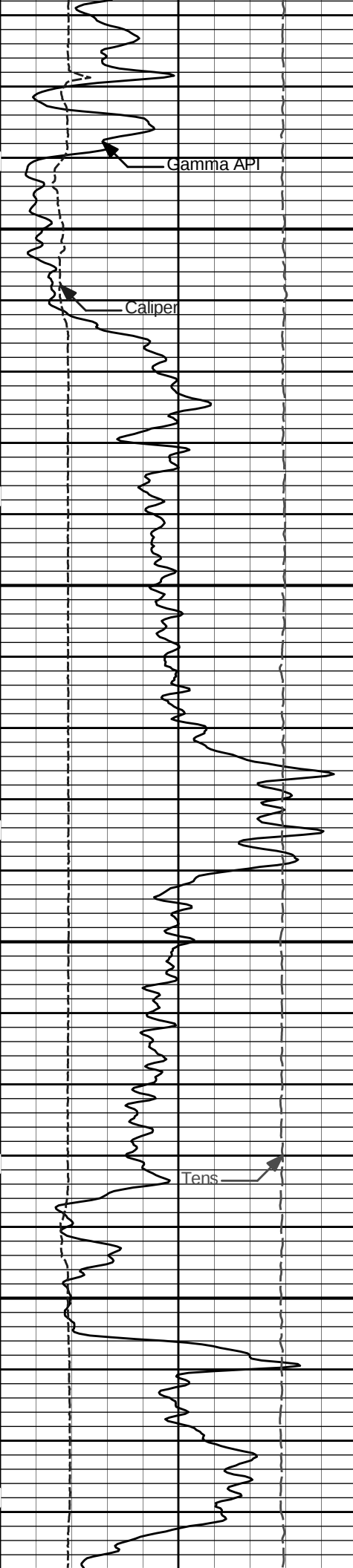


3700

3800

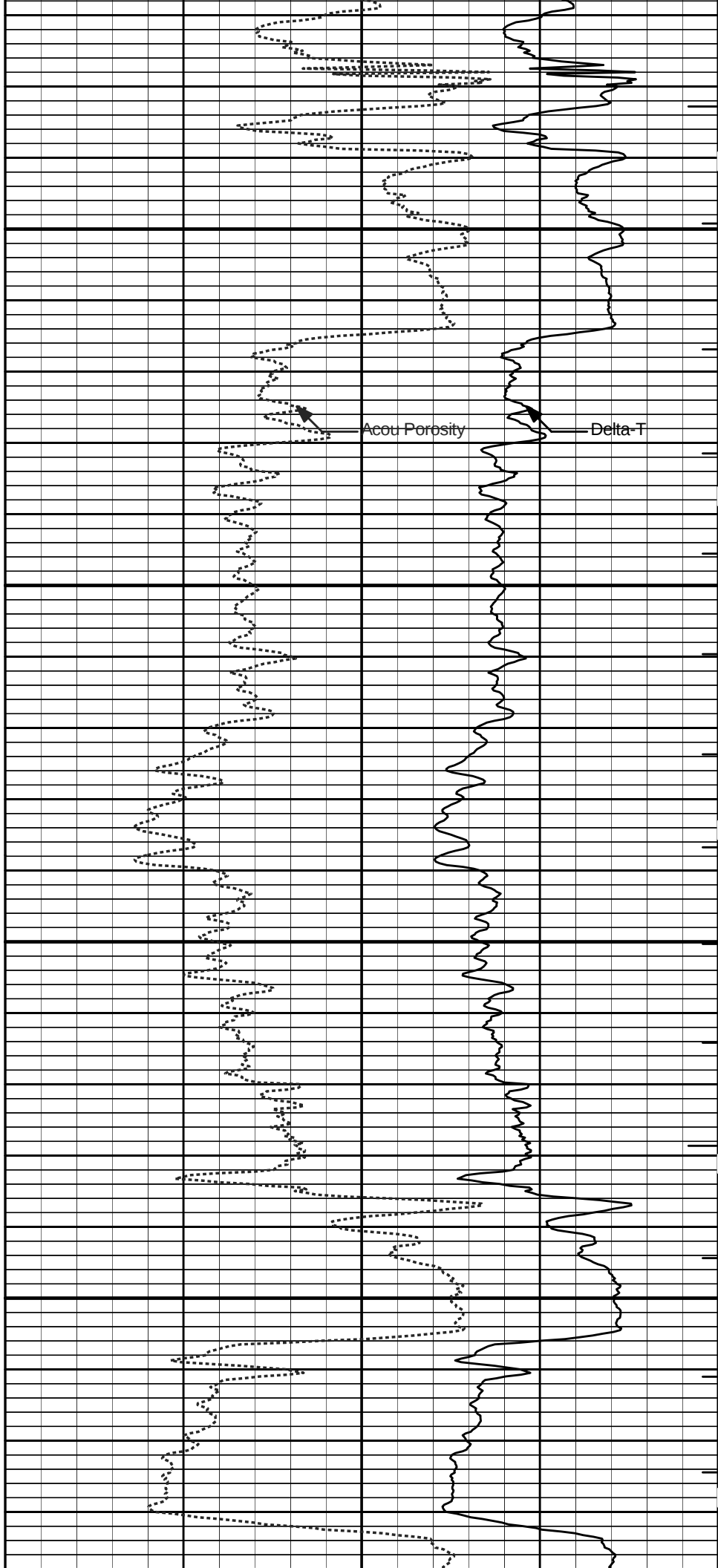
3900





4000

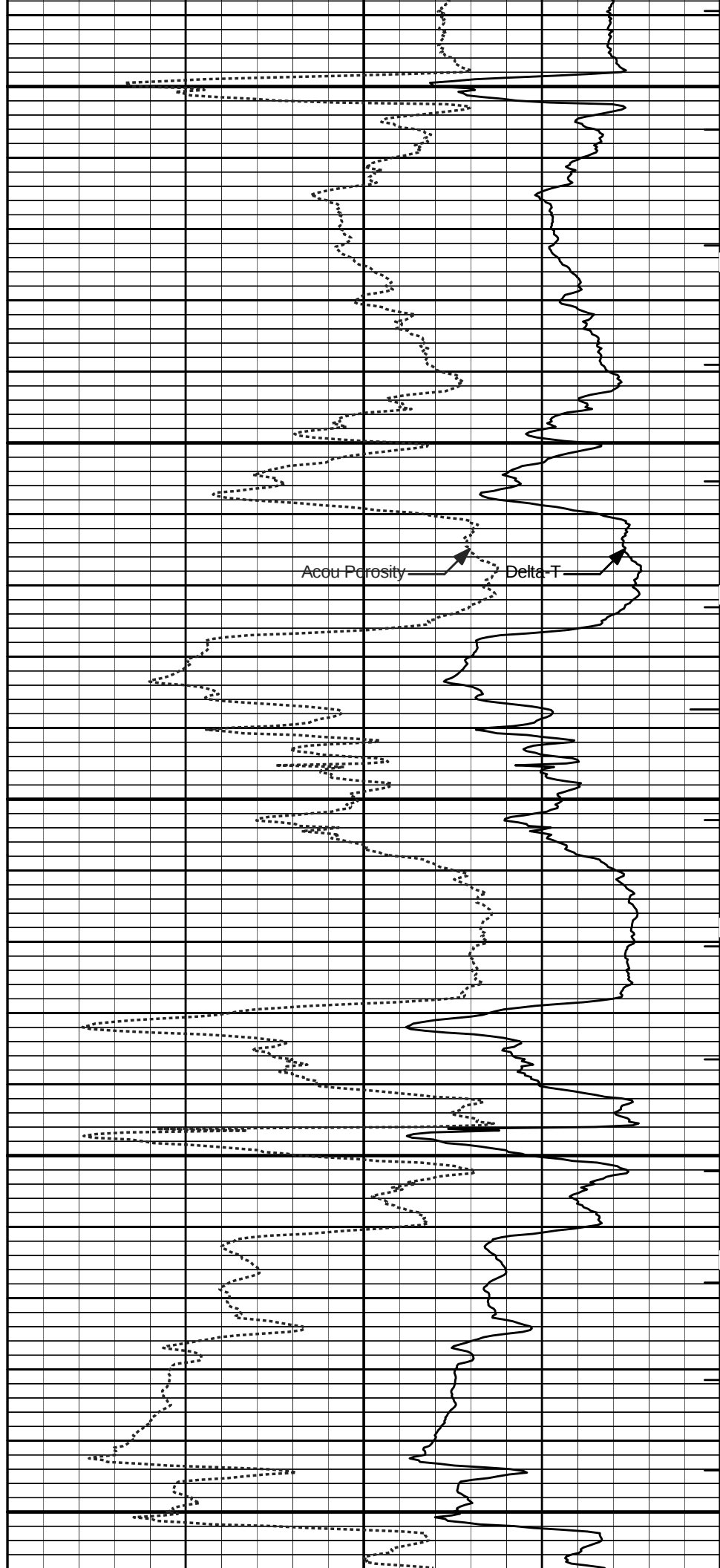
4100

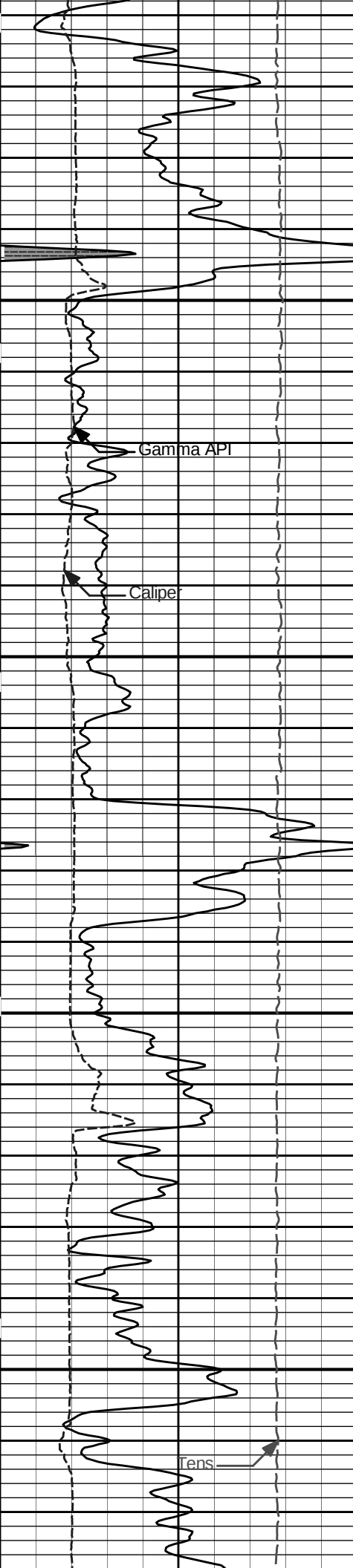




4200

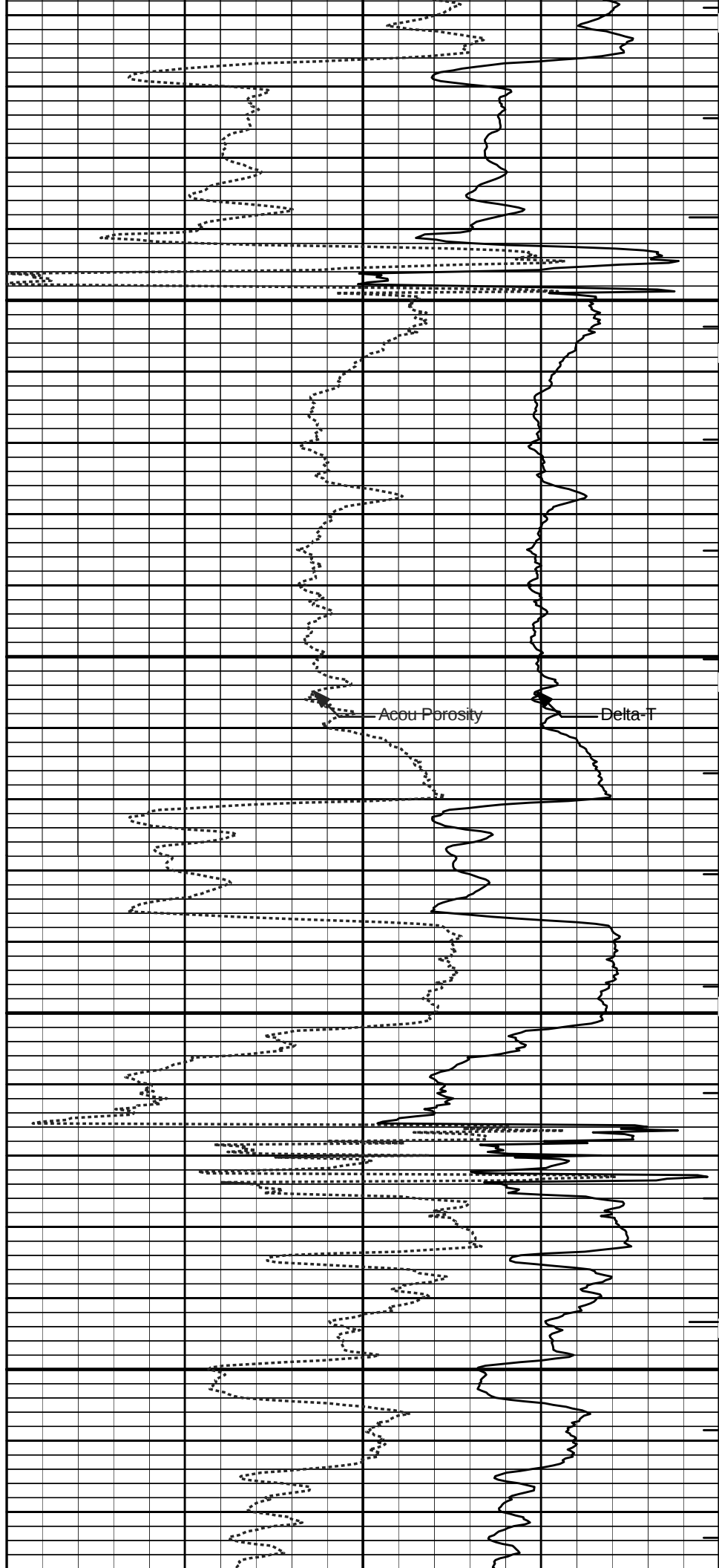
4300

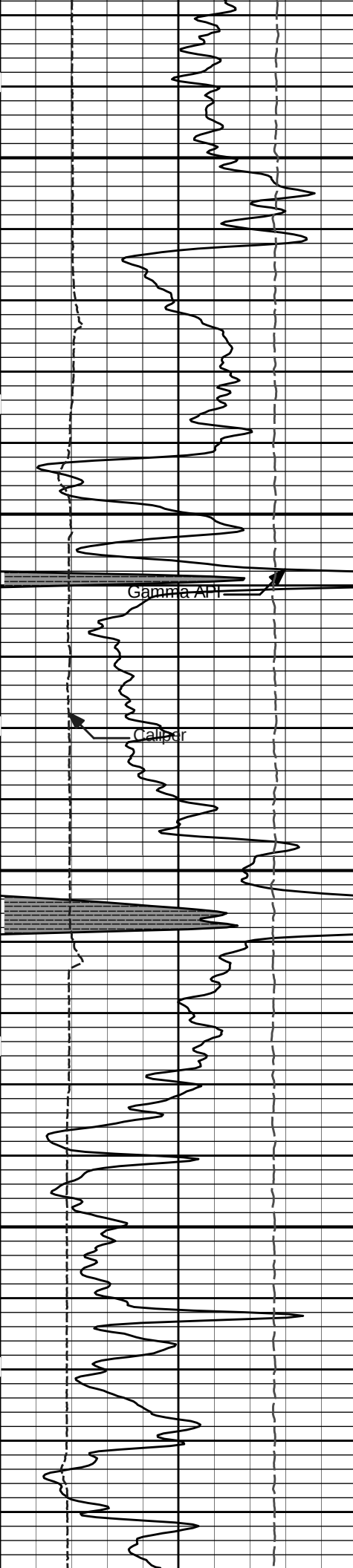




4400

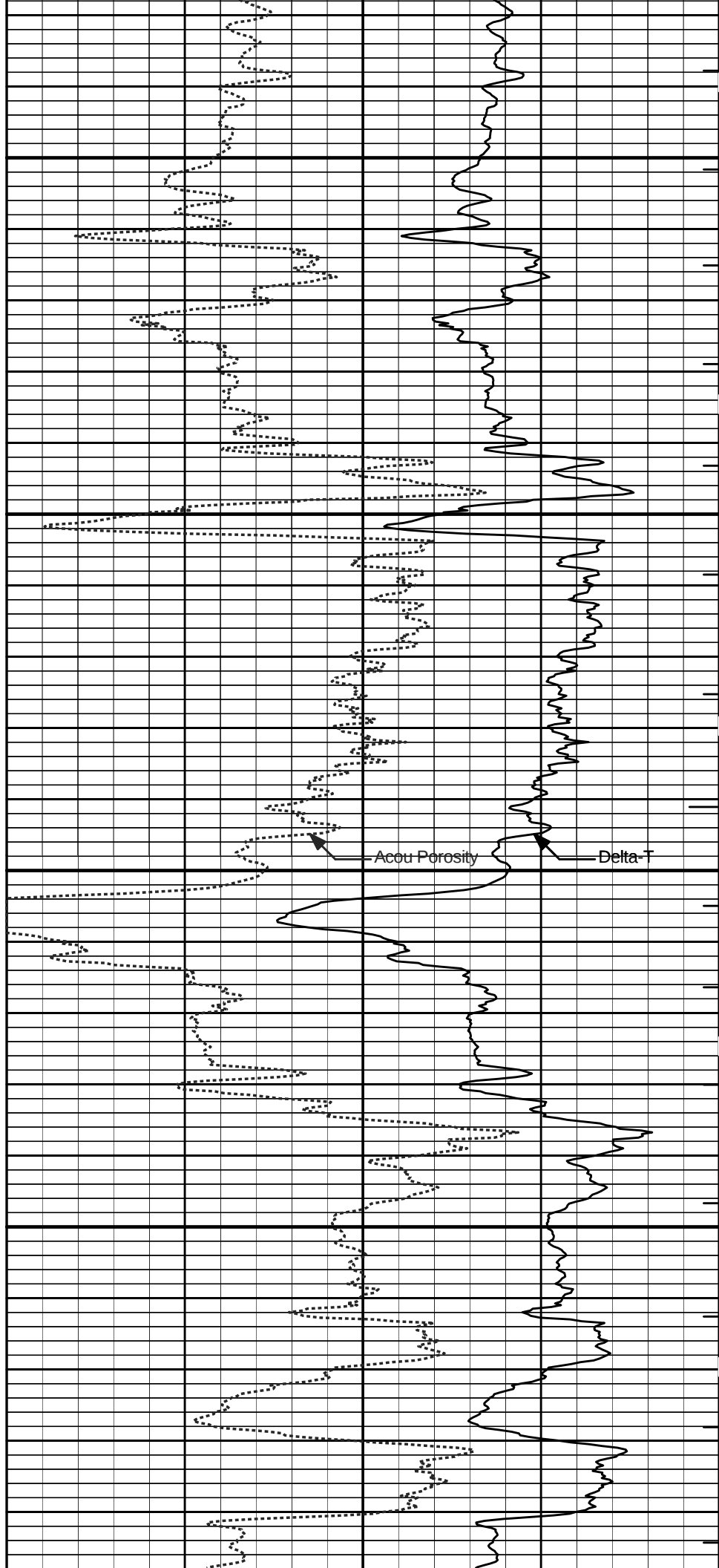
4500

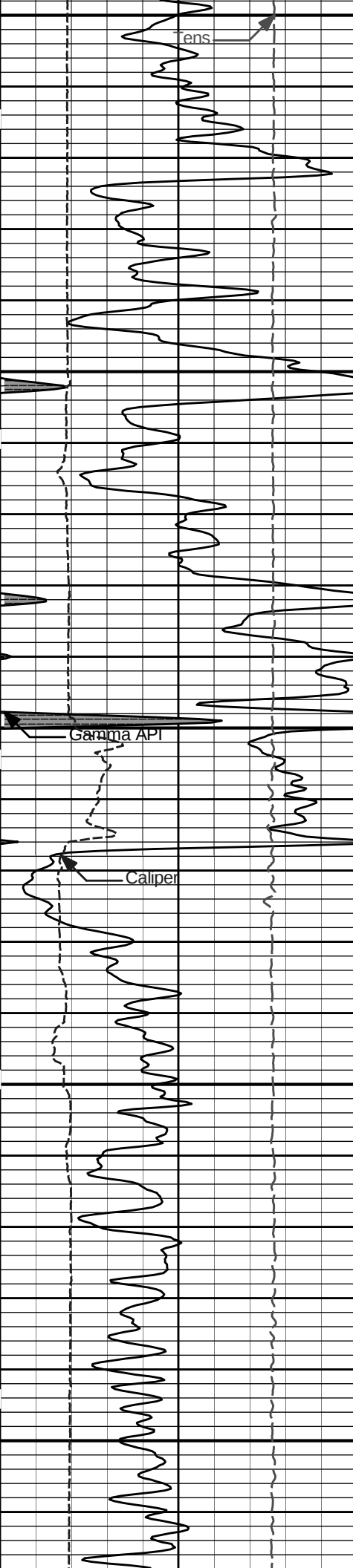




4600

4700

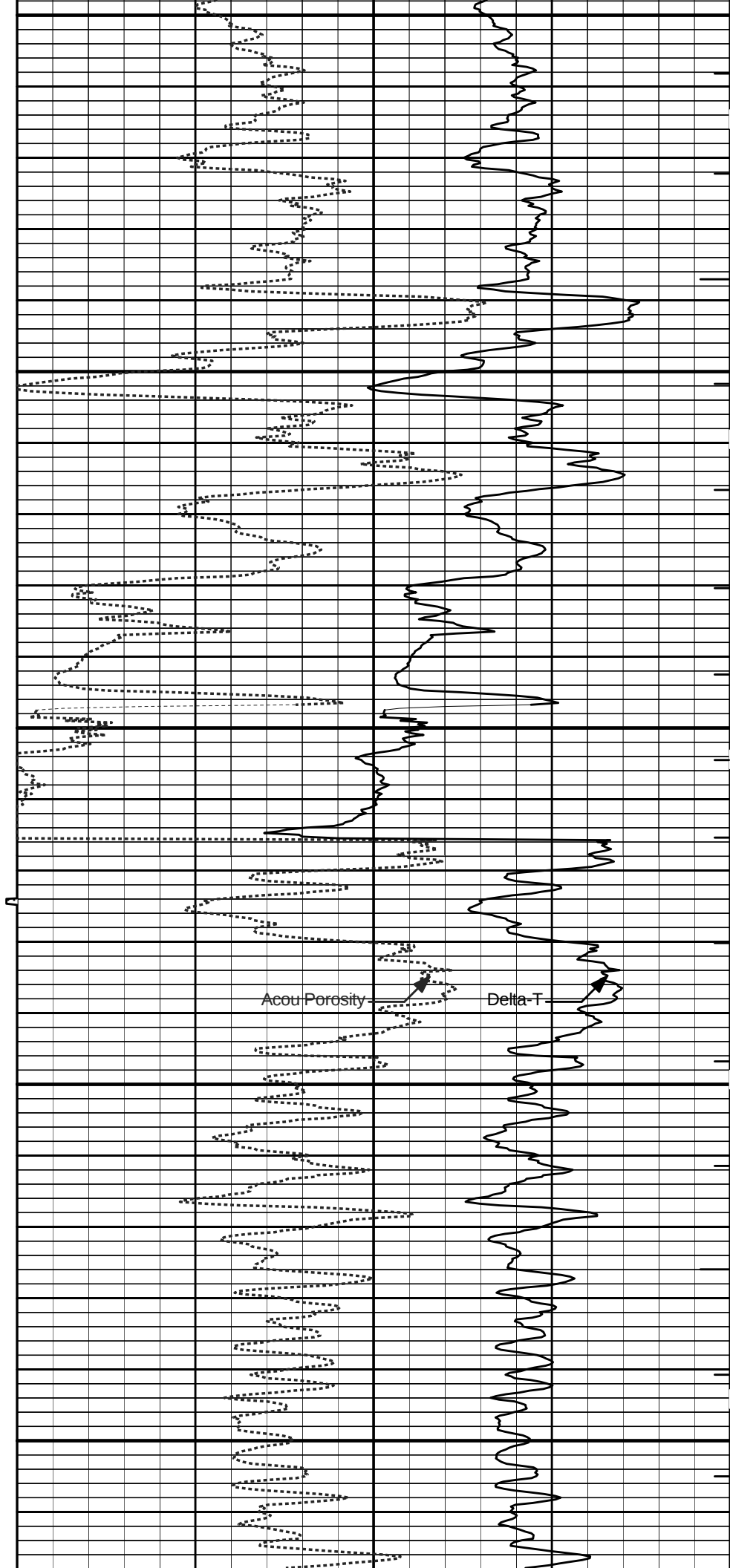


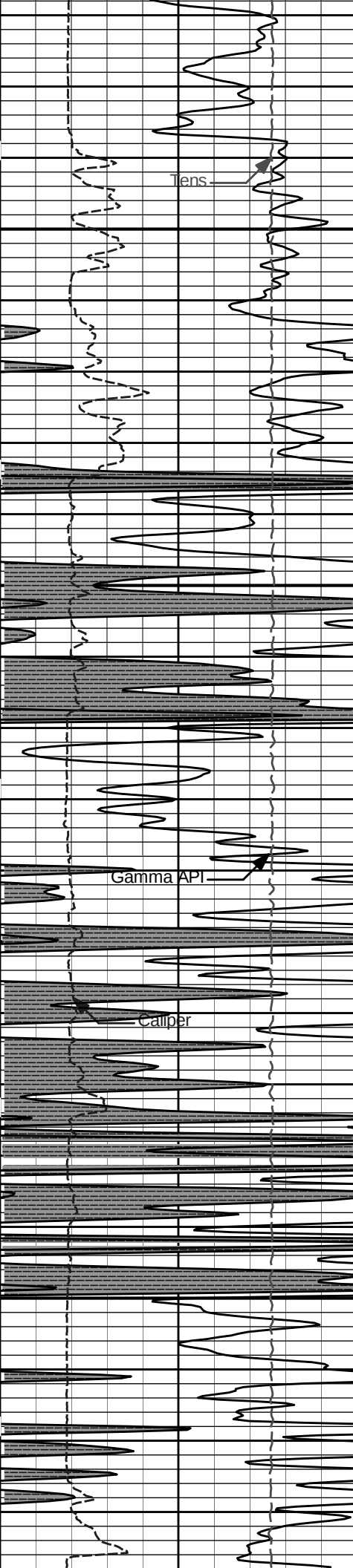


4800

4900

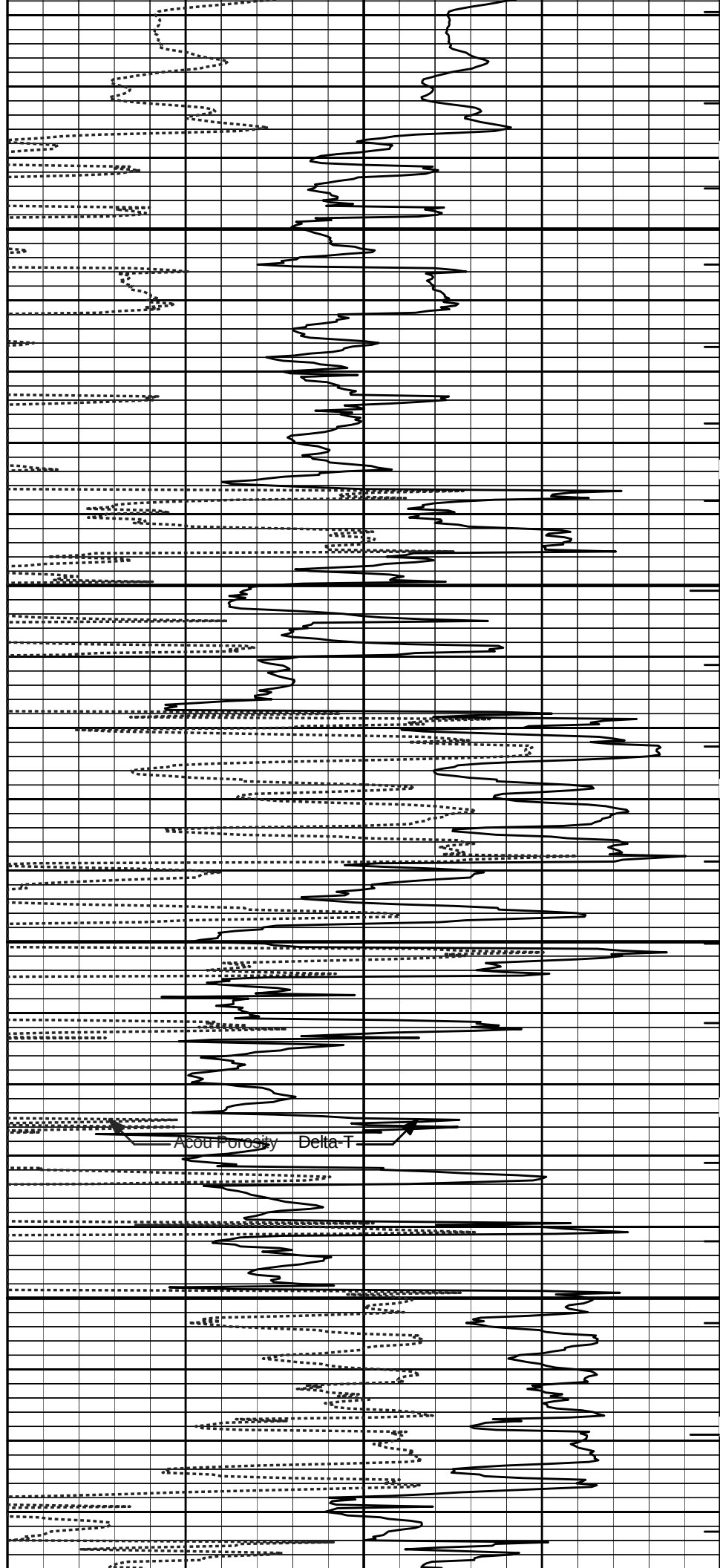
5000

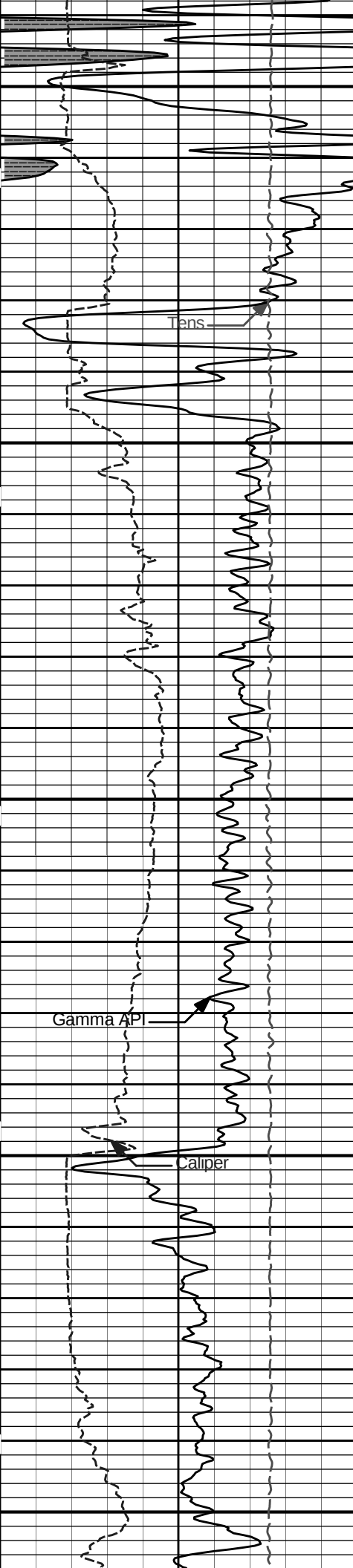




5100

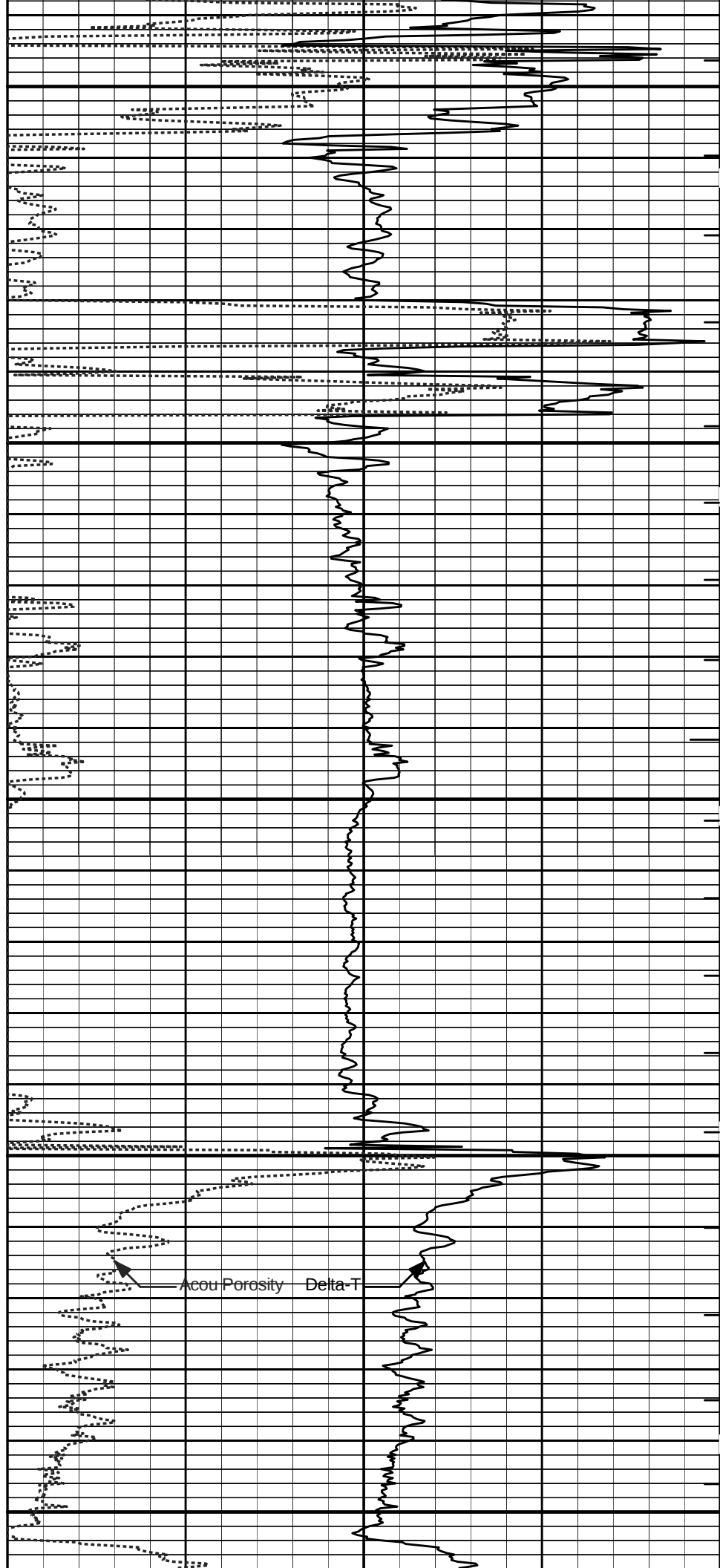
5200





5300

5400



5700

5800

Gamma API

Caliper

Acoustic

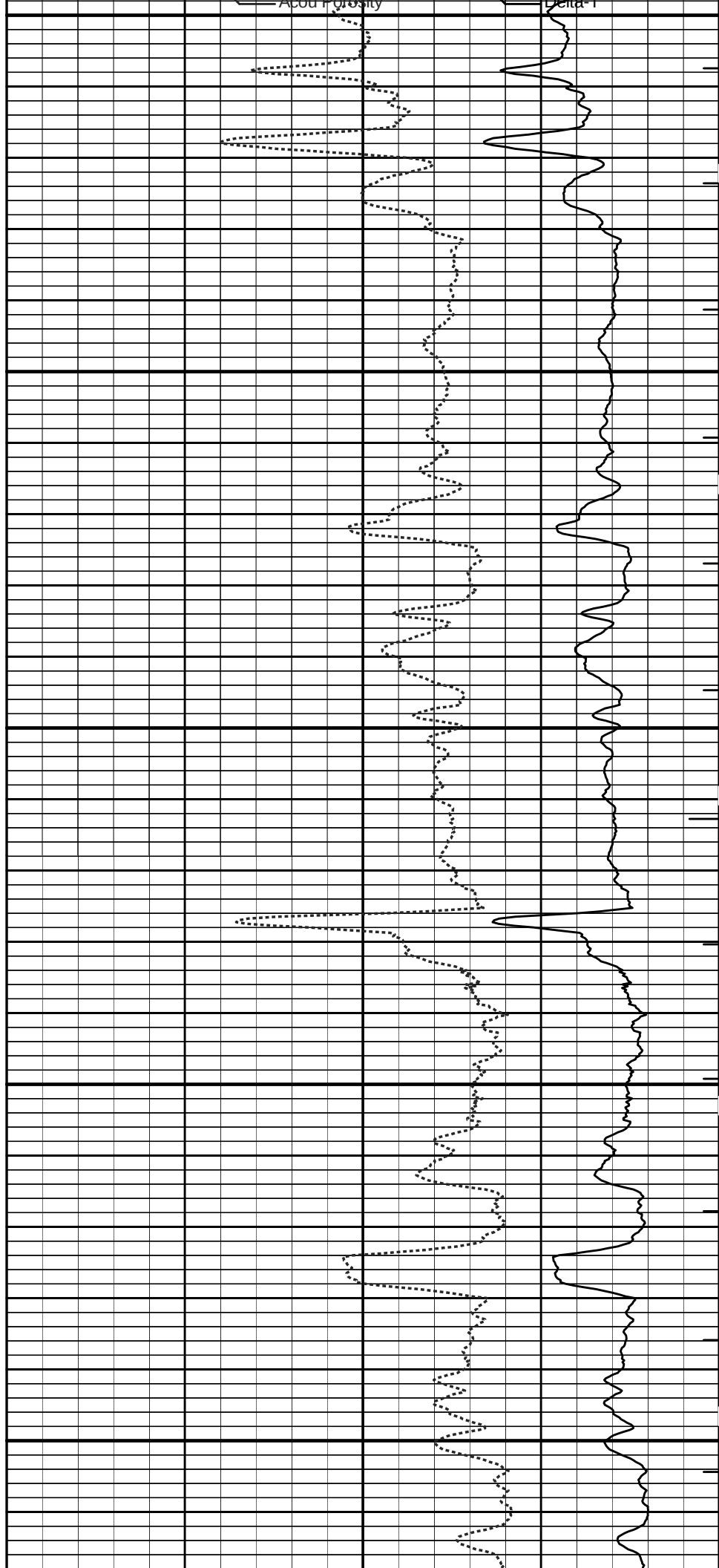
Depth

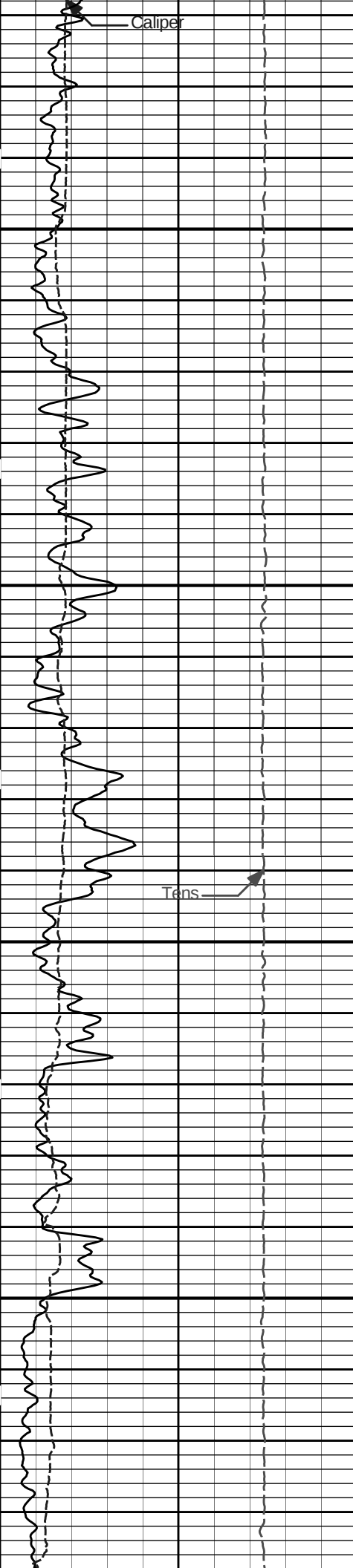


5900

6000

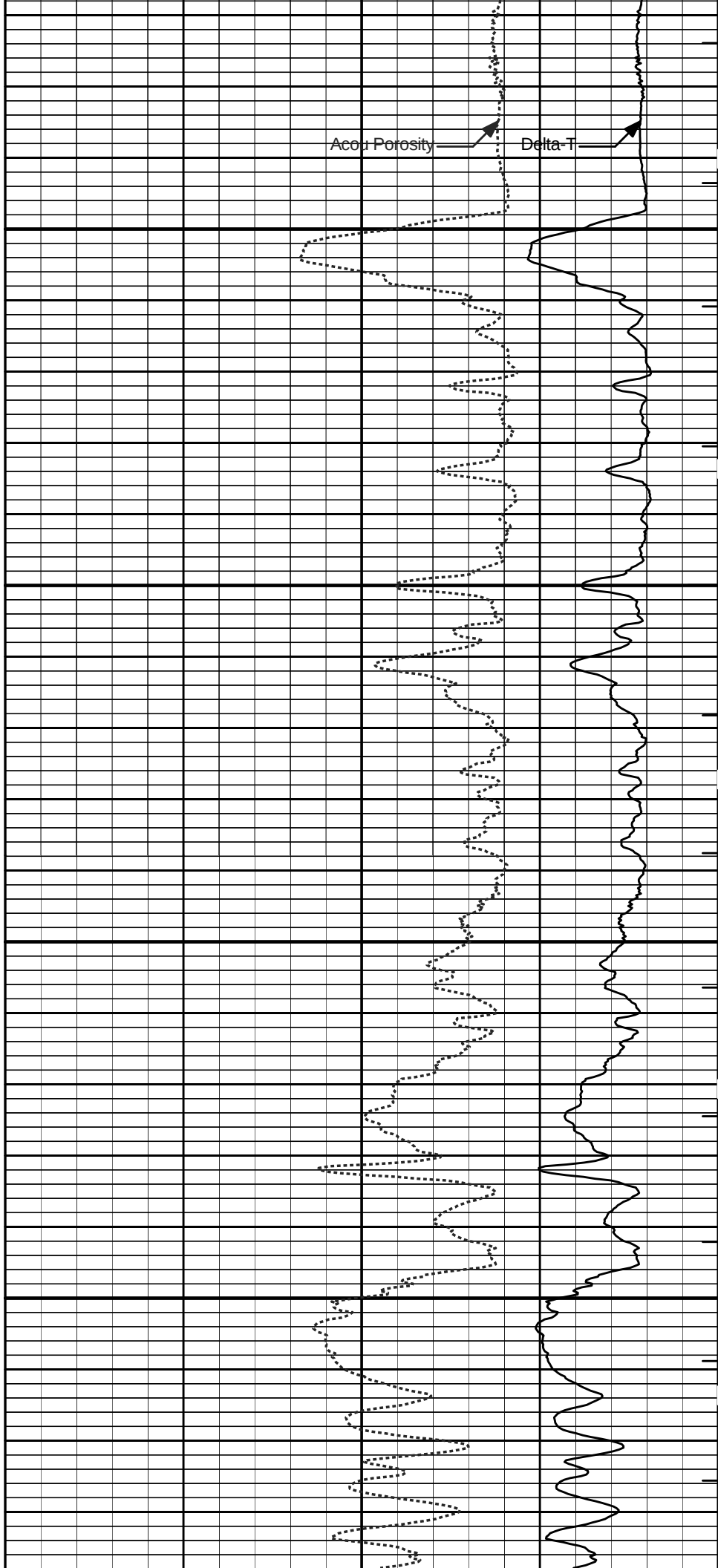
6100

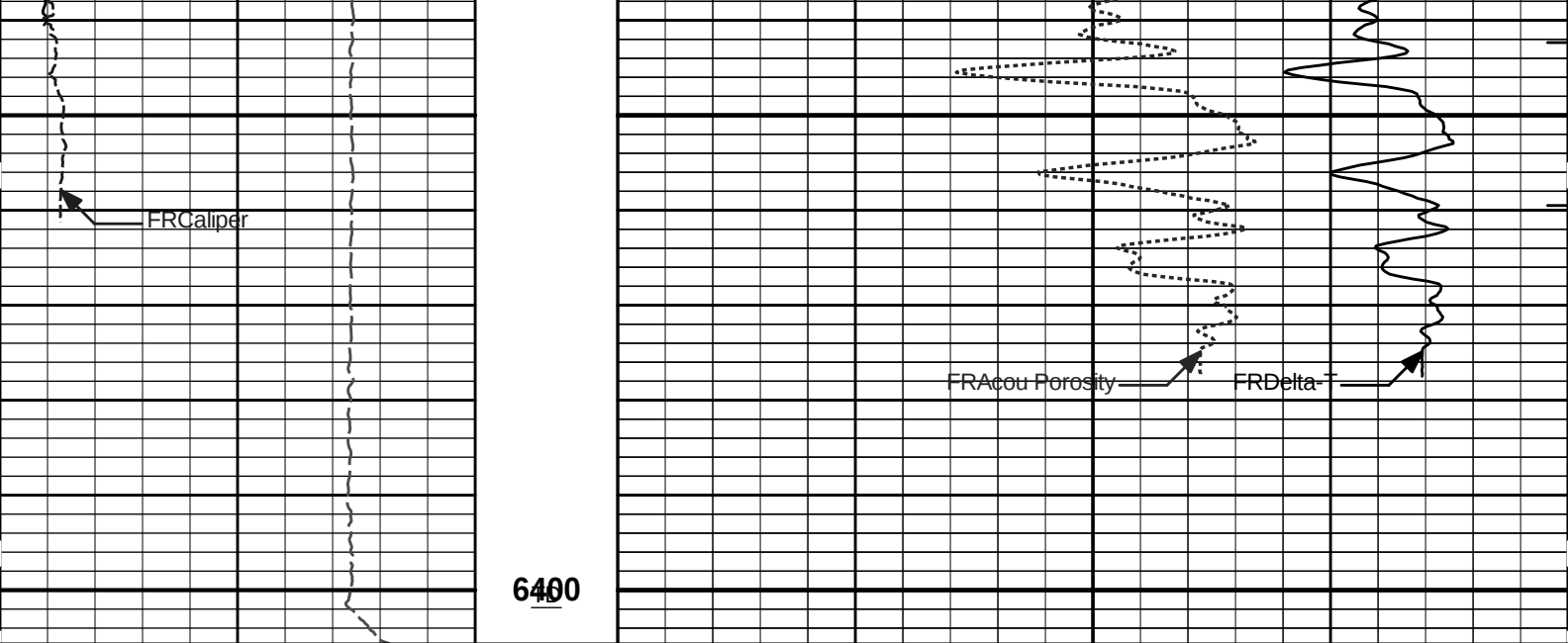




6200

6300





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				

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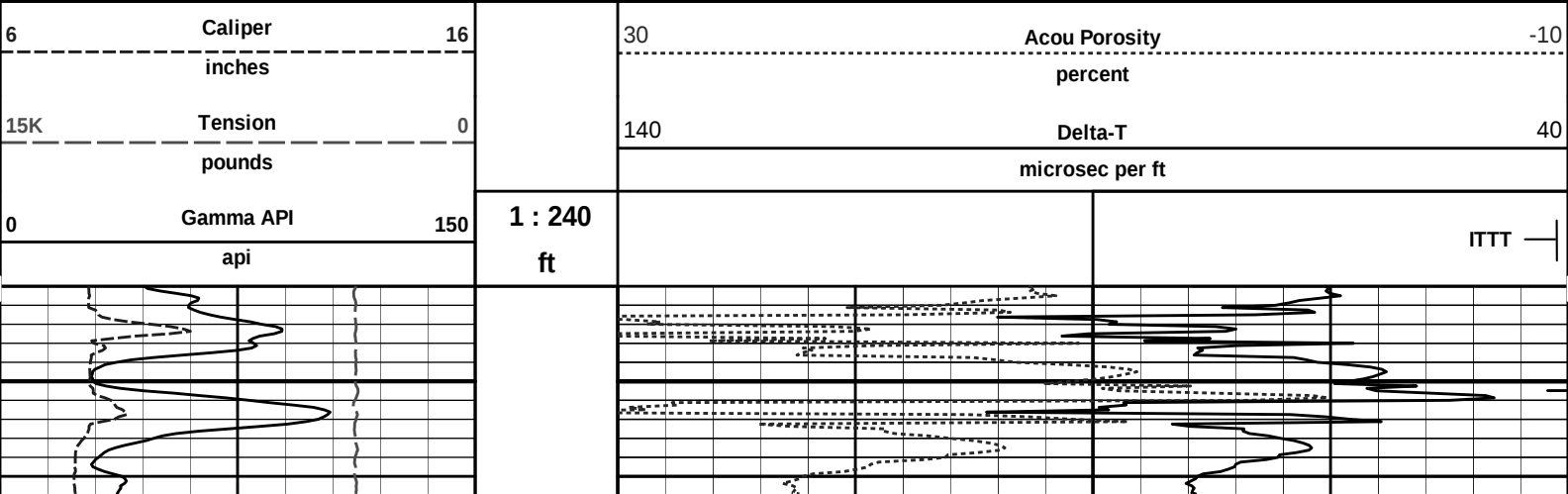
Plot Time: 01-May-12 16:58:11
Plot Range: 1666 ft to 6405.67 ft
Data: STANFORD_C_2\Well Based\CASING\
Plot File: \\BSAT\BSAT_5_MAIN_LIB

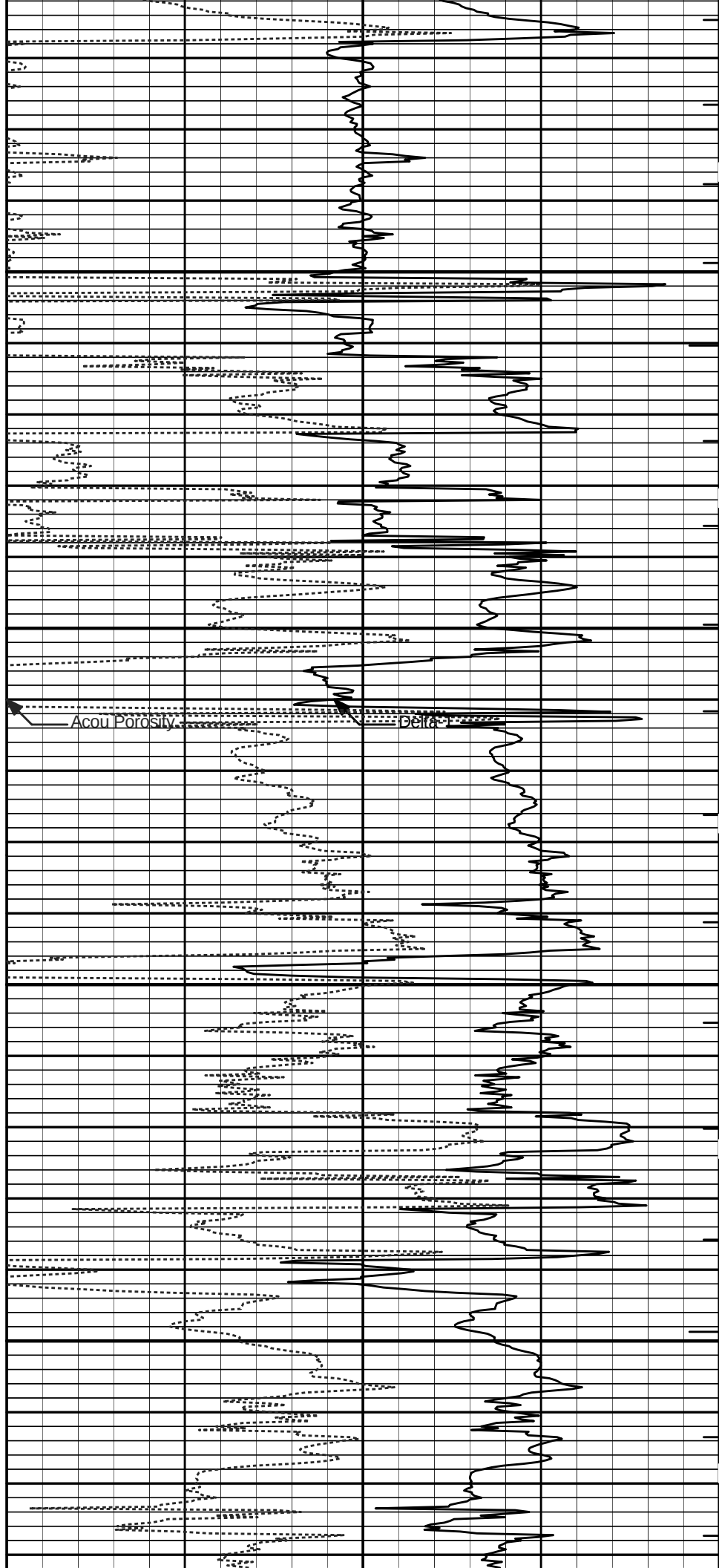
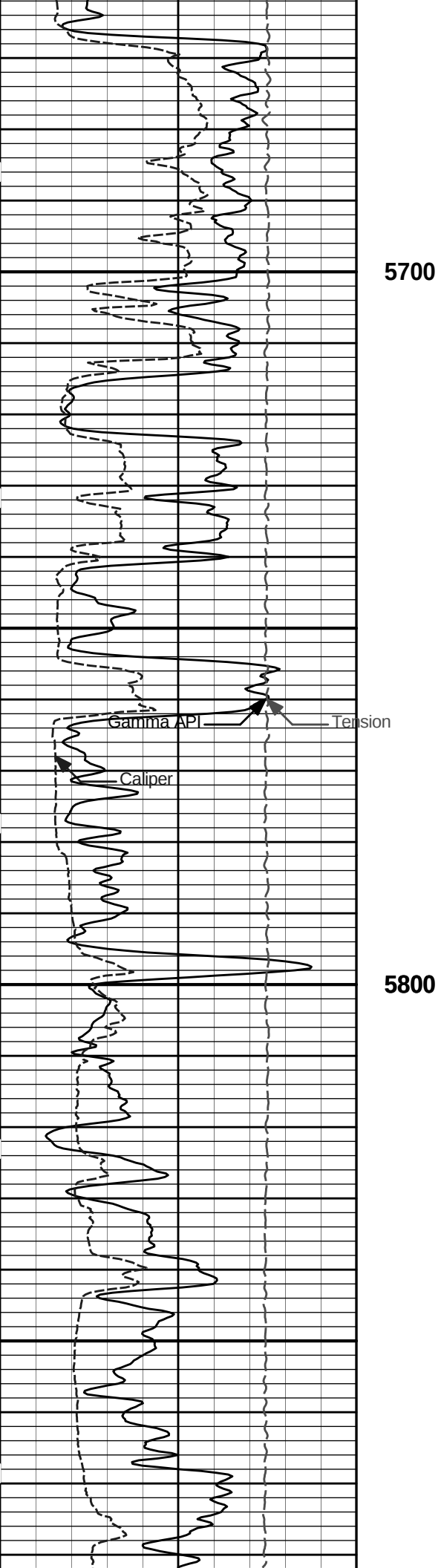
5 INCH MAIN LOG

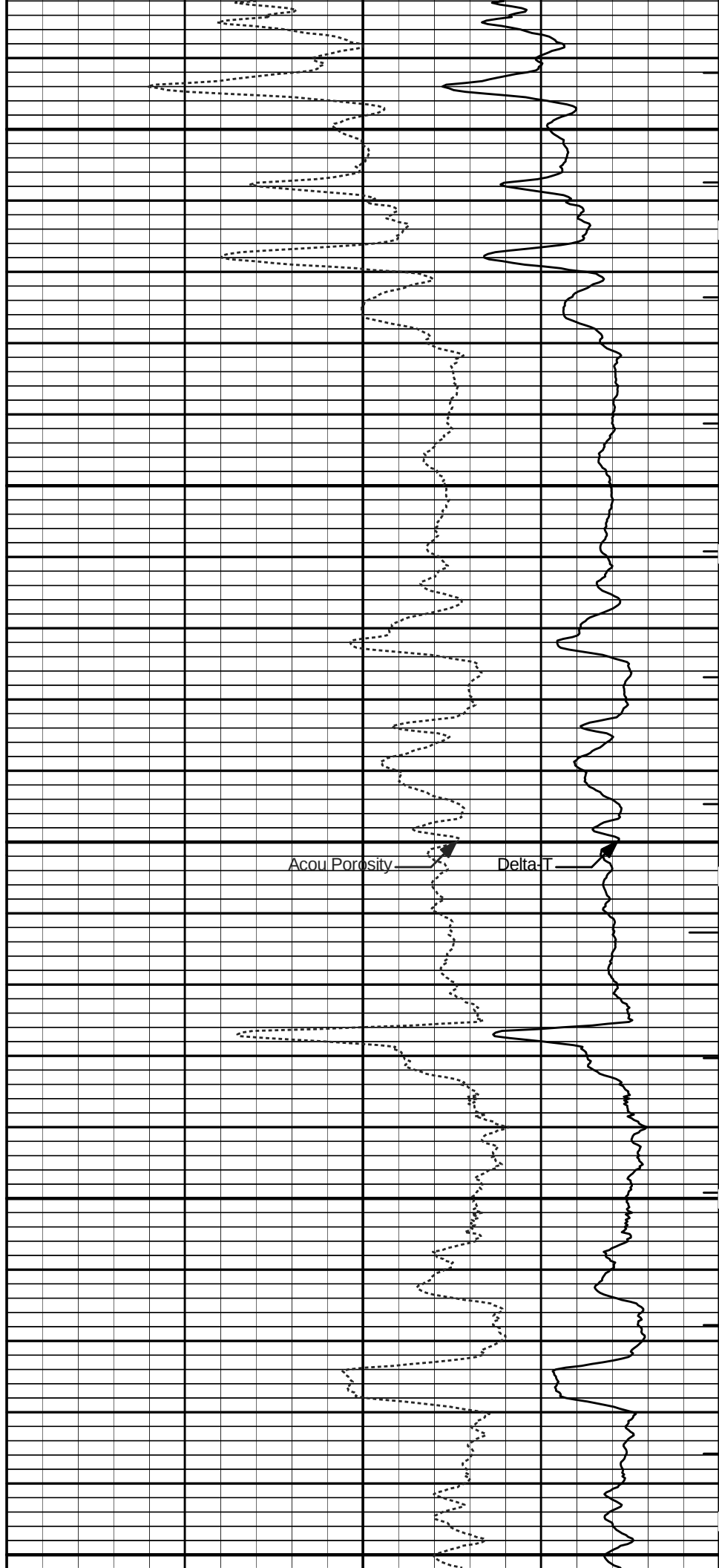
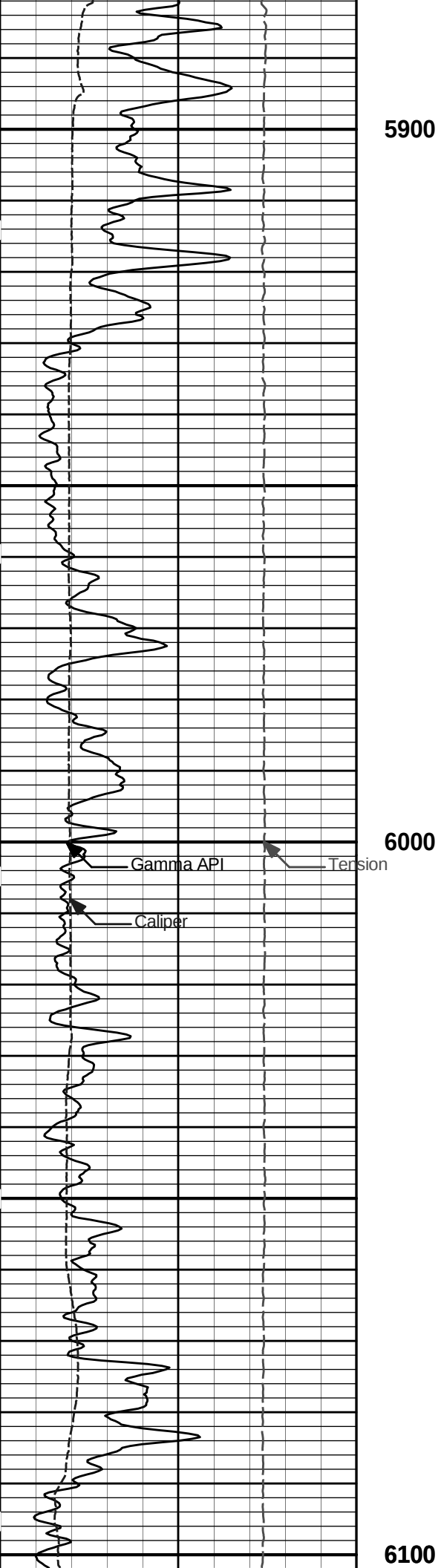
HALLIBURTON

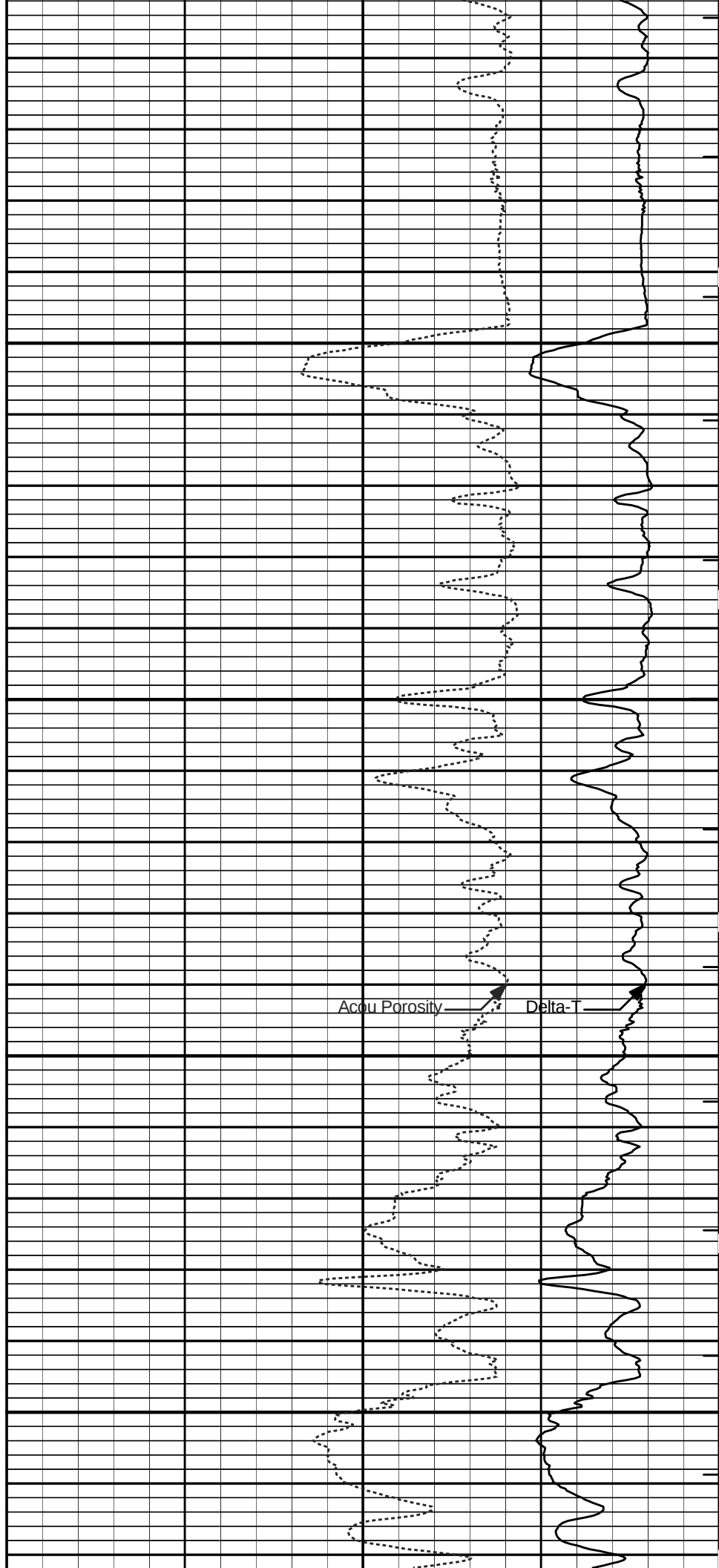
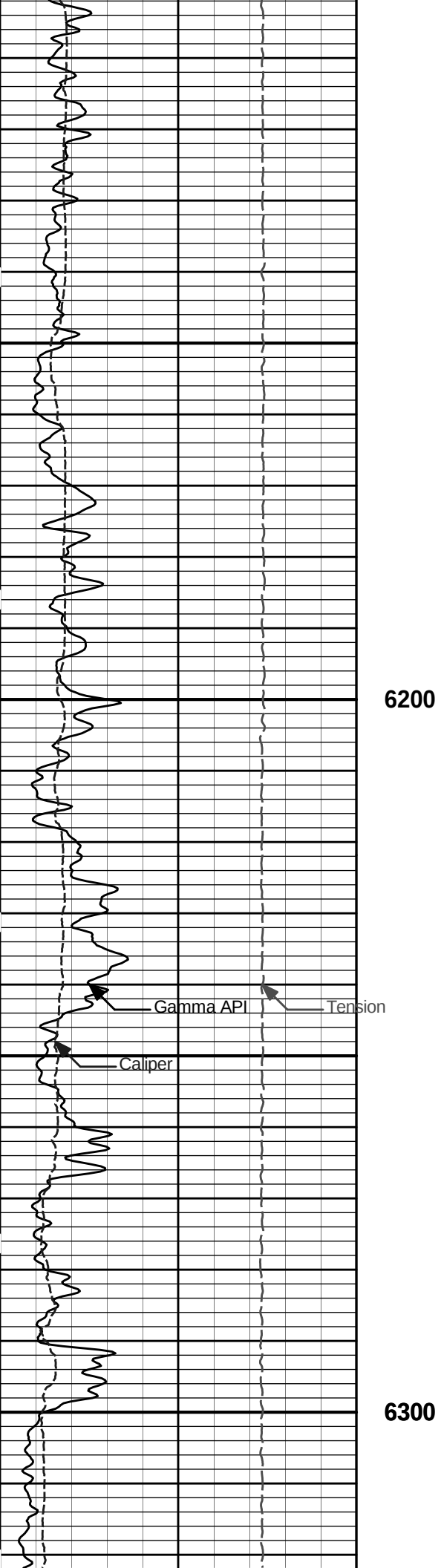
Plot Time: 01-May-12 16:58:11
Plot Range: 5640 ft to 6405.67 ft
Data: STANFORD_C_2\Well Based\REPEAT\
Plot File: \\BSAT\BSAT_5_REP_LIB

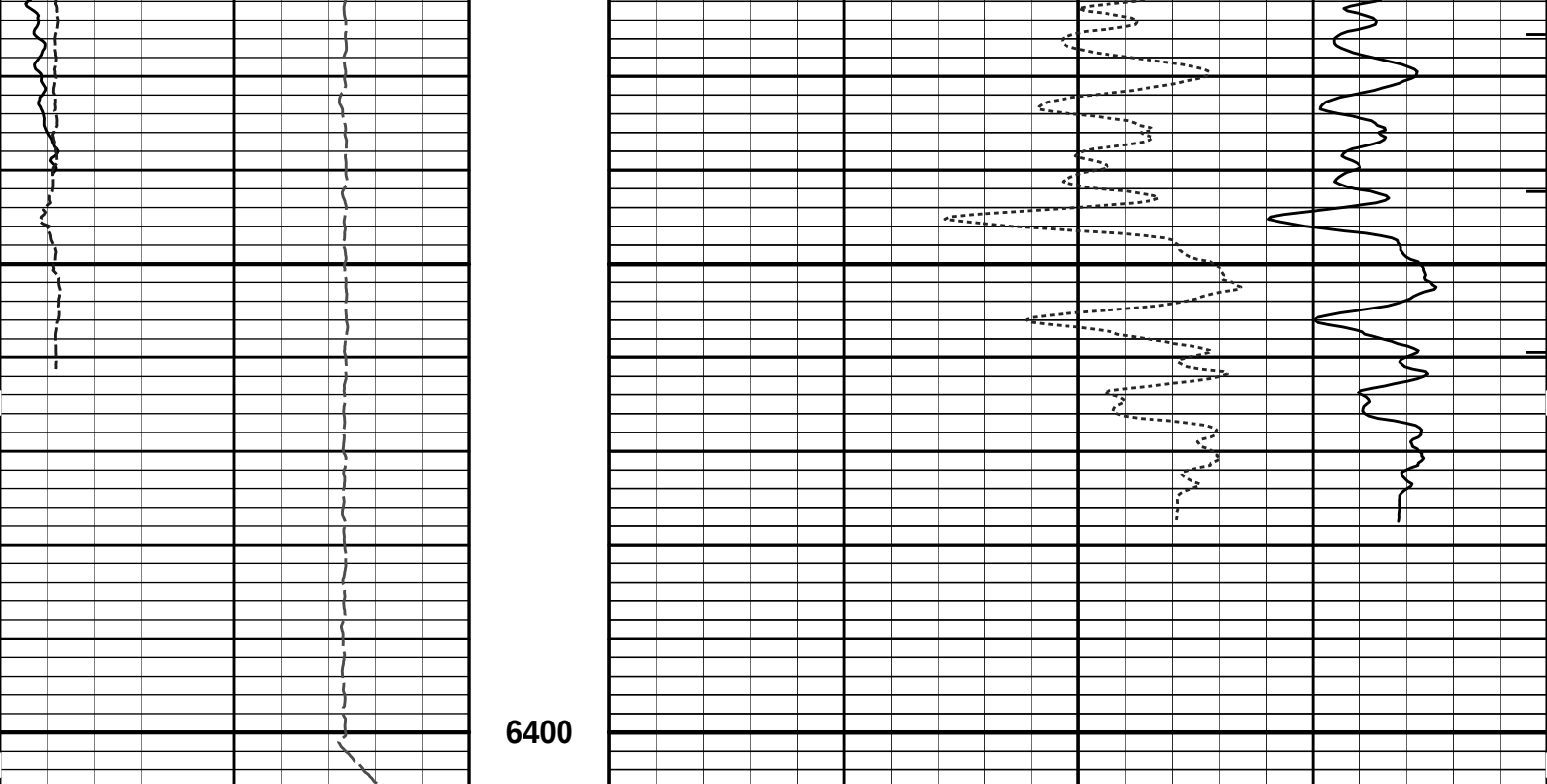
REPEAT SECTION











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

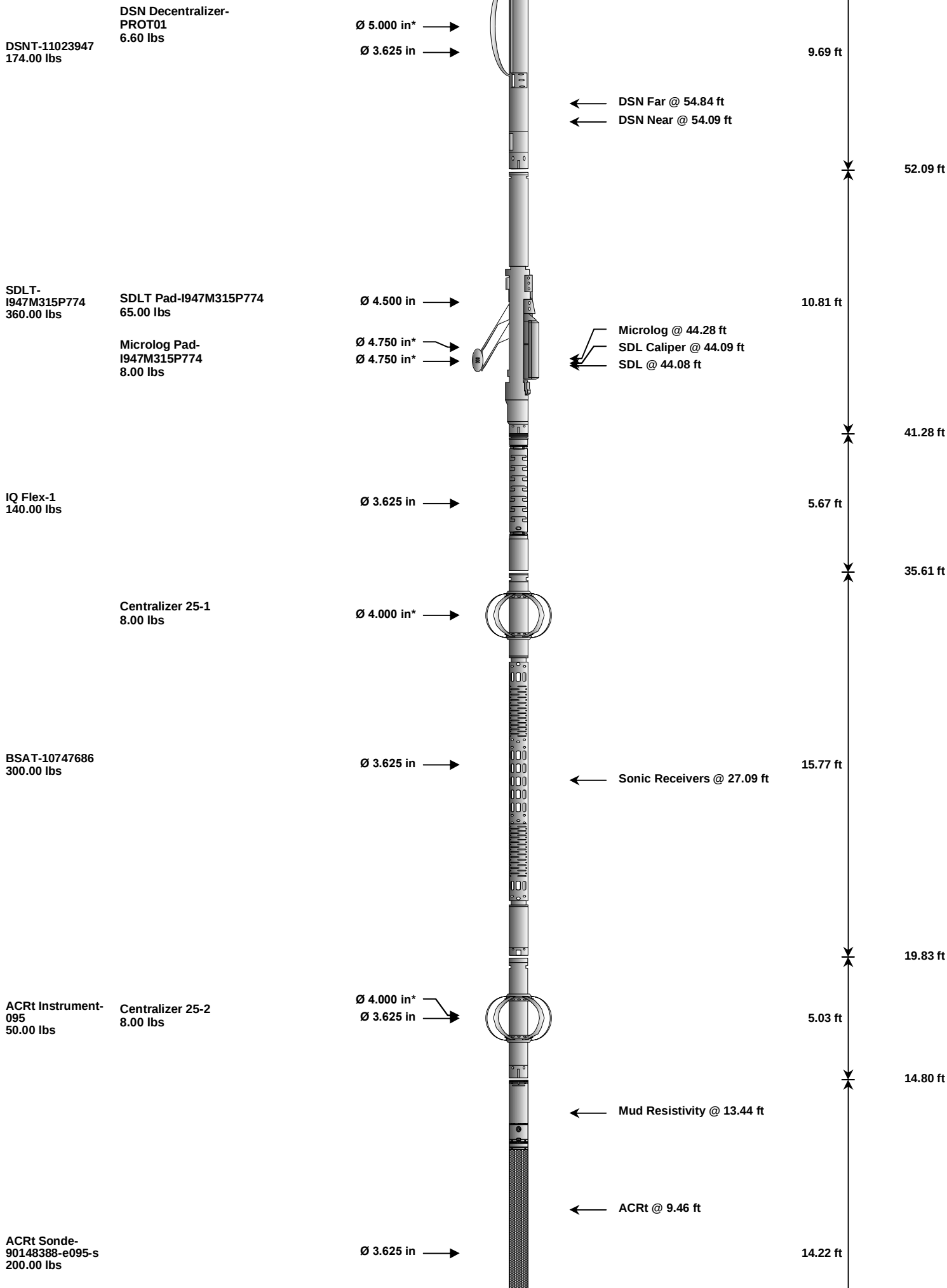
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Data: STANFORD_C_2\Well Based\REPEAT\
Plot File: \\BSAT\BSAT_5_REP_LIB

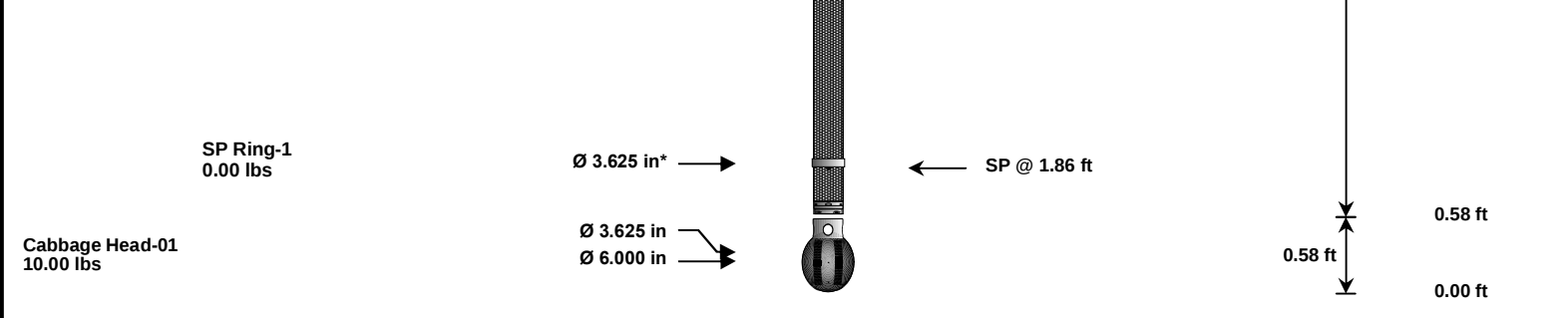
REPEAT SECTION

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
CH_HOS-336-I 37.50 lbs		Ø 2.750 in		← Temperature @ 72.30 ft	3.03 ft	73.32 ft
						70.30 ft
GTET-11021138 165.00 lbs		Ø 3.625 in		← GammaRay @ 64.23 ft	8.52 ft	61.78 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	336-I	37.50	3.03	70.30	300.00
GTET	Gamma Telemetry Tool	11021138	165.00	8.52	61.78	60.00
DSNT	Dual Spaced Neutron	11023947	174.00	9.69	52.09	60.00
DCNT	DSN Decentralizer	PROT01	6.60	5.13	*	55.42
SDLT	Spectral Density Tool	I947M315P774	360.00	10.81	41.28	60.00
SDLP	Density Insite Pad	I947M315P774	65.00	2.55	*	43.49
MICP	Microlog Pad	I947M315P774	8.00	1.00	*	43.78
IQF	IQ Flex tool	1	140.00	5.67	35.61	300.00
BSAT	Borehole Sonic Array Tool	10747686	300.00	15.77	19.83	60.00
OBCEN	Centralizer - 25 in. Overbody	1	8.00	2.08	*	32.82
ACRt	Array Compensated True Resistivity Instrument Section	095	50.00	5.03	14.80	300.00
OBCEN	Centralizer - 25 in. Overbody	2	8.00	2.08	*	16.30
ACRt	Array Compensated True Resistivity	90148388-e095-s	200.00	14.22	0.58	300.00
SP	SP Ring	1	0.00	0.25	*	1.86
CBHD	Cabbage Head	01	10.00	0.58	0.00	300.00
Total			1,532.10	73.32		
* Not included in Total Length and Length Accumulation.						
Data: STANFORD_C_2I0001 GTET-BSAT-FLEX-DSNT-SDLT-ACRT-CBGHD					IDLE Date: 01-May-12 13:21:38	

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION			
Tool Name:	GTET - 11021138	Reference Calibration Date:	22-Apr-12 21:03:46
Engineer:	BOMAR	Calibration Date:	22-Apr-12 21:06:30
Software Version:	WL INSITE R3.4.2 (Build 2)	Calibration Version:	1
Calibrator Source S/N: MP051807-02			
Calibrator API Reference:234.00 api			
Equivalent Calibrator API Reference:238.1 api			
Measurement	Measured	Calibrated	Units
Background	73.1	73.3	api
Background + Calibrator	310.4	311.4	api
Calibrator	237.3	238.1	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION			
Tool Name:	GTET - 11021138	Reference Calibration Date:	22-Apr-12 21:06:30
Engineer:	C. MARLOWE	Calibration Date:	01-May-12 13:00:32
Software Version:	WL INSITE R3.4.2 (Build 2)	Calibration Version:	1
Calibrator Source S/N: MP051807-02			
Calibrator API Reference:234.00 api			
Equivalent Calibrator API Reference:238.1 api			
Field Verification	Shop	Field	Units
Background	73.3	73.3	api

	Background	73.3	72.9	api		
	Background + Calibrator	311.4	307.5	api		
	Calibrator	238.1	234.5	api		
	Shop	Field	Difference	Tolerance		
	238.1	234.5	3.6	+/- 9.00		
DENSITY CALIPER SHOP CALIBRATION						
Tool Name:	SDLT - I947M315P774		Reference Calibration Date:	22-Apr-12 22:04:02		
Engineer:	BOMAR		Calibration Date:	22-Apr-12 22:09:21		
Software Version:	WL INSITE R3.4.2 (Build 2)		Calibration Version:	1		
	CALIBRATION COEFFICIENTS					
	Measurement	Previous Value	New Value	Control Limit On New Value		
	Pad Offset	-1841.81	-1782.38	-7000.00 - -1000.00		
	Pad Gain	0.0003752	0.0003738	0.000200 - 0.000600		
	Arm Offset	-801.46	-810.35	-5000.00 - 3000.00		
	Arm Gain	0.0005124	0.0005071	0.000300 - 0.000700		
	Arm Power	-0.000004895	-0.000004564	-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 (Previous Coeff.)	Calibrated (New Coeff.)	Change Control Limit On New Value		
	PAD EXTENSION:					
	Small Ring (in)	1.99	2.00	0.01 +/- 0.20		
	Medium Ring (in)	3.74	3.75	0.01 +/- 0.20		
	RING DIAMETER:					
	Small Ring (in)	6.50	6.50	0.00 +/- 0.20		
	Medium Ring (in)	8.26	8.25	-0.01 +/- 0.20		
	Large Ring (in)	15.00	15.00	0.00 +/- 0.20		
	PASS/FAIL SUMMARY					
	Calibration-Coefficients Range Check:		Passed			
	Ring-Measurement Check:		Passed			
	PASS/FAIL SUMMARY					
	Calibration-Coefficients Range Check:		Passed			
CALIBRATION SUMMARY						
Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-11021138						
Gamma Ray Calibrator	238.1	234.5	-----	3.6	+/- 9.00	api
SDLT-I947M315P774						
Pad Extension	3.75	-----	-----	0.00	+/-0.20	in
Ring Diameter	8.25	-----	-----	0.00	+/-0.20	in
Data: STANFORD_C_2I0001 GTET-BSAT-FLEX-DSNT-SDLT-ACRT-CBGHD					IDLE Date: 01-May-12 15:24:49	
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	9.200	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	2.200	ohmm
	SHARED	TRM	Temperature of Mud	110.0	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	6428.00	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	1.80	ohmm
	Rwa / CrossPlot	TMFR	Rmf Ref Temp	100.00	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	
	Microlog Pad	MDOK	Process MicroLog Density?	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	Wyllie	
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_____				
Data: STANFORD_C_2I0001 GTET-BSAT-FLEX-DSNT-SDLT-ACRT-CBGHDIDLE			Date: 01-May-12 15:23:37	

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
GTET				
TPUL	Tension Pull	64.23	NO	
GR	Natural Gamma Ray API	64.23	TRI	1.750
GRU	Unfiltered Natural Gamma Ray API	64.23	NO	
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution	64.23	W	1.416 , 0.750
ACCZ	Accelerometer Z	0.00	BLK	0.083
DEVI	Inclination	0.00	NO	
DSNT				
TPUL	Tension Pull	53.99	NO	
RNDS	Near Detector Telemetry Counts	54.09	BLK	1.417
RFDS	Far Detector Telemetry Counts	54.84	TRI	0.583
DNTT	DSN Tool Temperature	54.09	NO	
DSNS	DSN Tool Status	53.99	NO	
ERND	Near Detector Telemetry Counts EVR	54.09	BLK	0.000
ERFD	Far Detector Telemetry Counts EVR	54.84	BLK	0.000
ENTM	DSN Tool Temperature EVR	54.09	NO	
SDLT				
TPUL	Tension Pull	44.09	NO	
PCAL	Pad Caliper	44.09	TRI	0.250
ACAL	Arm Caliper	44.09	TRI	0.250
BSAT				
TPUL	Tension Pull	67.23	NO	

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	

TOVA	Temperature Correction Values Loop On	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	44.08	NO	
NAB	Near Above	43.90	BLK	0.920
NHI	Near Cesium High	43.90	BLK	0.920
NLO	Near Cesium Low	43.90	BLK	0.920
NVA	Near Valley	43.90	BLK	0.920
NBA	Near Barite	43.90	BLK	0.920
NDE	Near Density	43.90	BLK	0.920
NPK	Near Peak	43.90	BLK	0.920
NLI	Near Lithology	43.90	BLK	0.920
NBAU	Near Barite Unfiltered	43.90	BLK	0.250
NLIU	Near Lithology Unfiltered	43.90	BLK	0.250
FAB	Far Above	44.26	BLK	0.250
FHI	Far Cesium High	44.26	BLK	0.250
FLO	Far Cesium Low	44.26	BLK	0.250
FVA	Far Valley	44.26	BLK	0.250
FBA	Far Barite	44.26	BLK	0.250
FDE	Far Density	44.26	BLK	0.250
FPK	Far Peak	44.26	BLK	0.250
FLI	Far Lithology	44.26	BLK	0.250
PTMP	Pad Temperature	44.09	BLK	0.920
NHV	Near Detector High Voltage	43.49	NO	
FHV	Far Detector High Voltage	43.49	NO	
ITMP	Instrument Temperature	43.49	NO	
DDHV	Detector High Voltage	43.49	NO	
Microlog Pad				
TPUL	Tension Pull	44.28	NO	
MINV	Microlog Lateral	44.28	BLK	0.750
MNOR	Microlog Normal	44.28	BLK	0.750
SP Ring				
PLTC	Plot Control Mask	1.86	NO	
SP	Spontaneous Potential	1.86	BLK	1.250
SPR	Raw Spontaneous Potential	1.86	NO	
SPO	Spontaneous Potential Offset	1.86	NO	
Data: STANFORD_C_210001 GTET-BSAT-FLEX-DSNT-SDLT-ACRT-CBGHD			IDLE	
			Date: 01-May-12 15:23:51	
COMPANY	OXY USA, INC.			
WELL	STANFORD C-2			
FIELD	WILBURTON EAST			
COUNTY	MORTON	STATE	KANSAS	
HALLIBURTON		BOREHOLE COMPENSATED SONIC ARRAY LOG		