

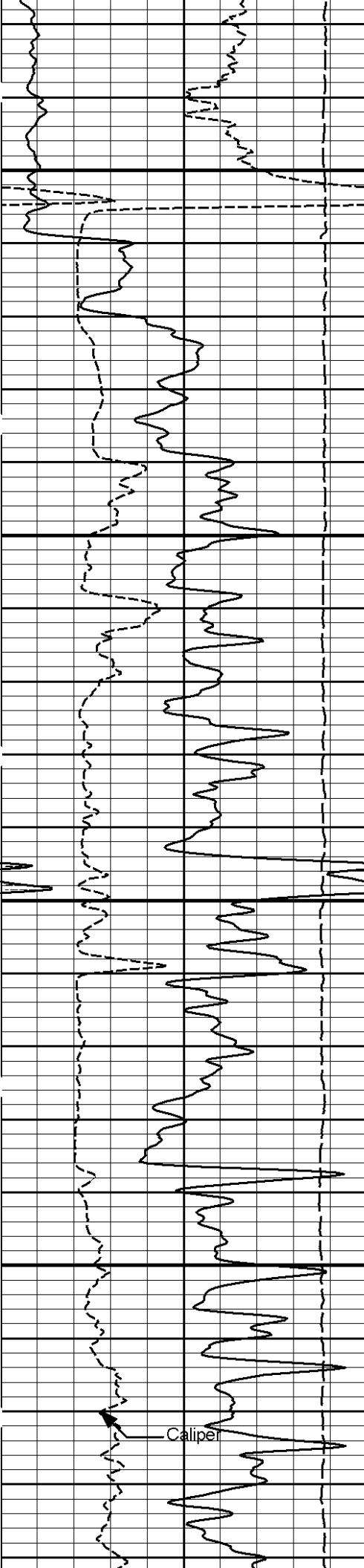
HALLIBURTON

BOREHOLE COMPENSATED ARRAY SONIC LOG

EOG RESOURCES										COMPANY		EOG RESOURCES					
LAURA 21#1										WELL		LAURA 21#1					
WILD CAT										FIELD		WILD CAT					
STEVENS										COUNTY		STEVENS					
KANSAS										STATE		KANSAS					
COMPANY										WELL		FIELD		COUNTY		STATE	
LAURA 21#1										WILD CAT		STEVENS		KANSAS			
API No. 15-189-22757										Location 780 FSL & 910 FEL		Other Services: SDL/DSN MICROLOG ACRT					
Permanent Datum										GL		Sect. 21		Twp. 32 S		Rge. 37 W	
Log measured from										KB		12.0 ft above perm. Datum		Elev.: K.B.		3151.0 ft	
Drilling measured from										KB				D.F.		3150.0 ft	
Date										11-Nov-10				G.L.		3139.0 ft	
Run No.										ONE							
Depth - Driller										6650.00 ft							
Depth - Logger										6651.0 ft							
Bottom - Logged Interval										6624.00 ft							
Top - Logged Interval										1713.00 ft							
Casing - Driller										8.625 in @ 1714.0 ft						@	
Casing - Logger										1713.0 ft							
Bit Size										7.875 in						@	
Type Fluid in Hole										WATER BASE MUD							
Density										9.0 ppq		52.00 s/qt					
PH										9.00 pH		8.4 cpm					
Source of Sample										FLOWLINE							
Rm @ Meas. Temperature										1.240 ohmm @ 75.00 degF				@			
Rmf @ Meas. Temperature										1.05 ohmm @ 75.00 degF				@			
Rmc @ Meas. Temperature										1.550 ohmm @ 75.00 degF				@			
Source Rmf										CALCULATED		CALCULATED					
Rm @ BHT										0.65 ohmm @ 150.0 degF				@			
Time Since Circulation										4.0 hr							
Time on Bottom										11-Nov-10 12:46							
Max. Rec. Temperature										150.0 degF @ 6651.0 ft				@			
Equipment										10549592		PV OK				@	
Recorded By										J.COTHREN				EDSON DA ROSA			
Witnessed By										SCOTT MUELLER							

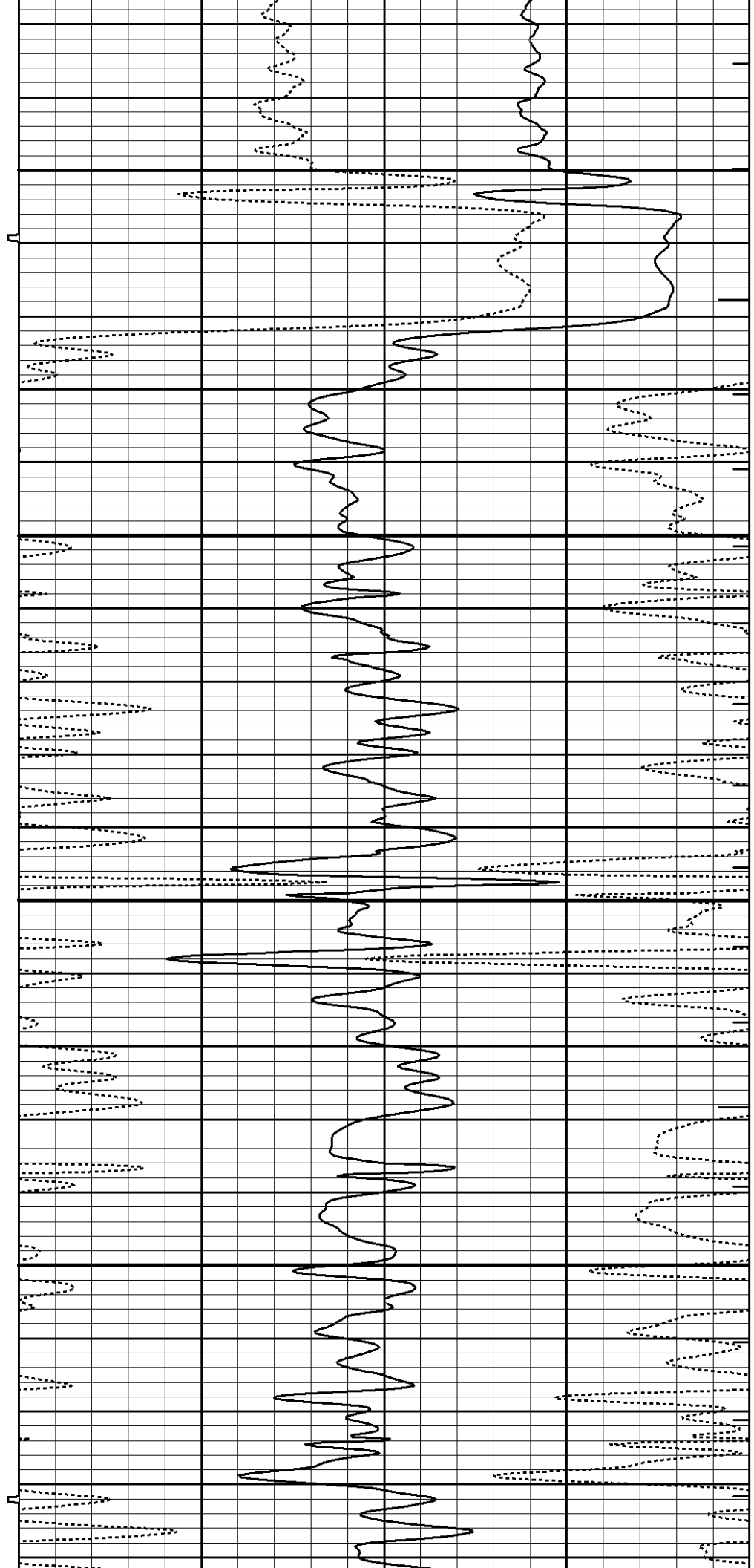
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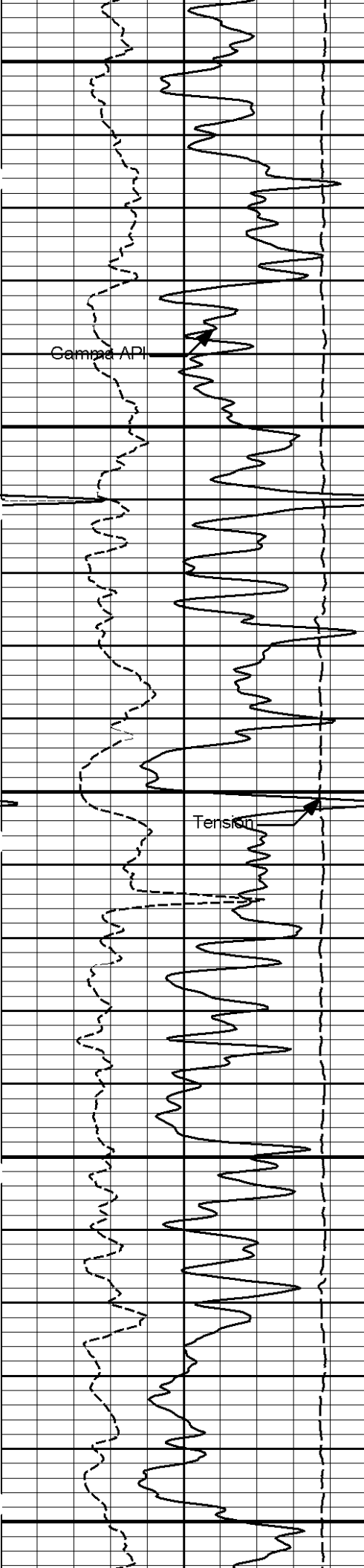
Service Ticket No.: 7763501						API Serial No.: 15-189-22757						PGM Version: WL INSITE R3.2.1 (Build 7)											
CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE												RESISTIVITY SCALE CHANGES											
Date		Sample No.										Type Log		Depth		Scale Up Hole		Scale Down Hole					
Depth-Driller																							
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.		11013113				Serial No.		10939049				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.		GTET				Spacing		0.5'				Log Type						Log Type					
Type		SCINT										Source Type						Source Type					
Length		8"				LSA [Y/N]		YES				Serial No.						Serial No.					
Distance to Source		10'				FWDA [Y/N]		YES				Strength						Strength					



1800

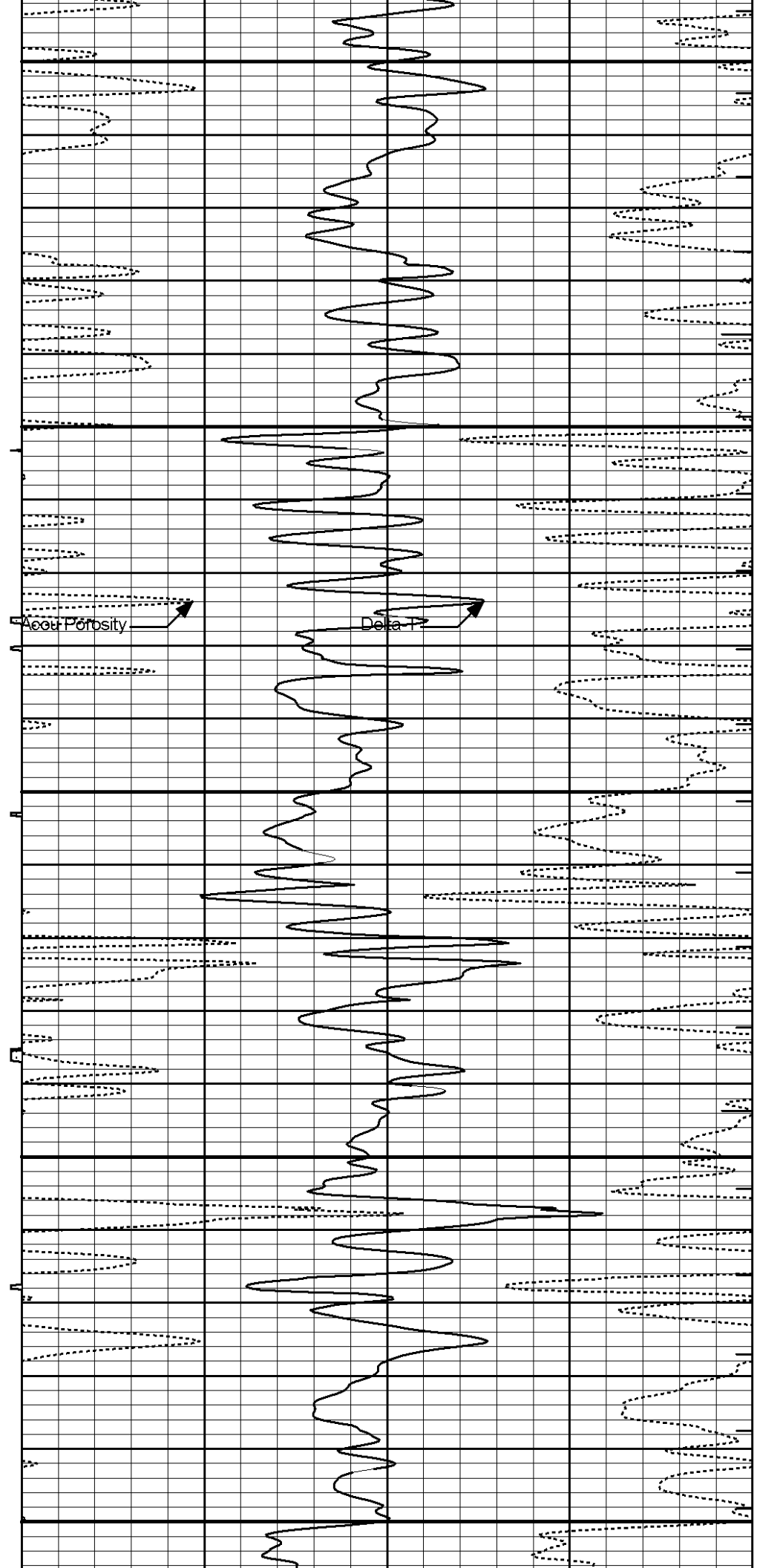
1900





2000

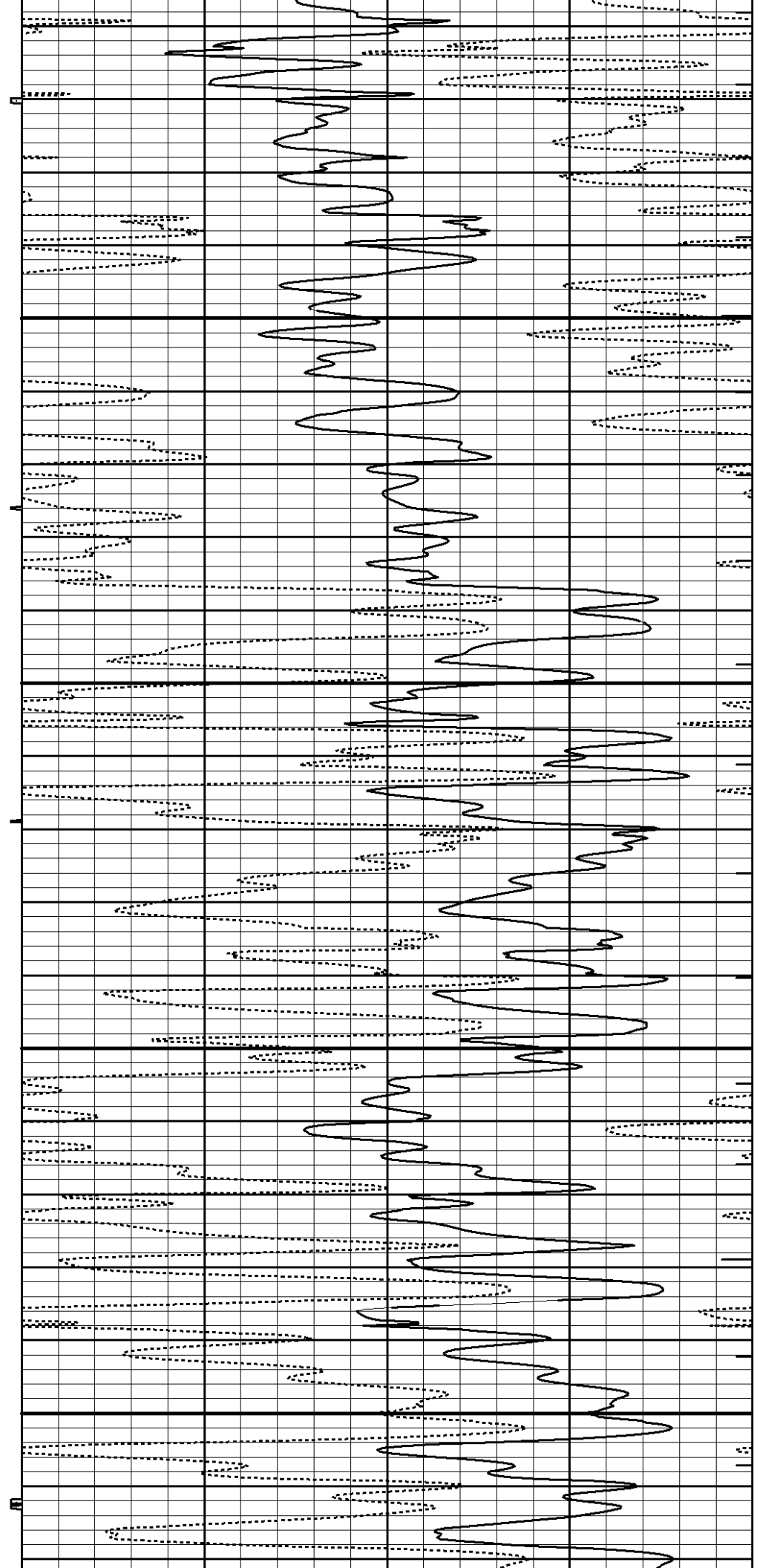
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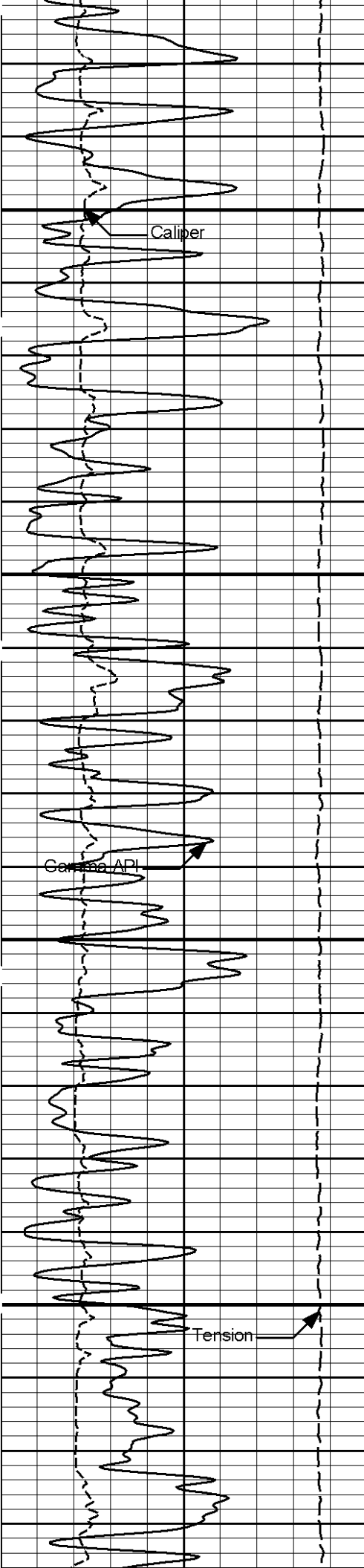




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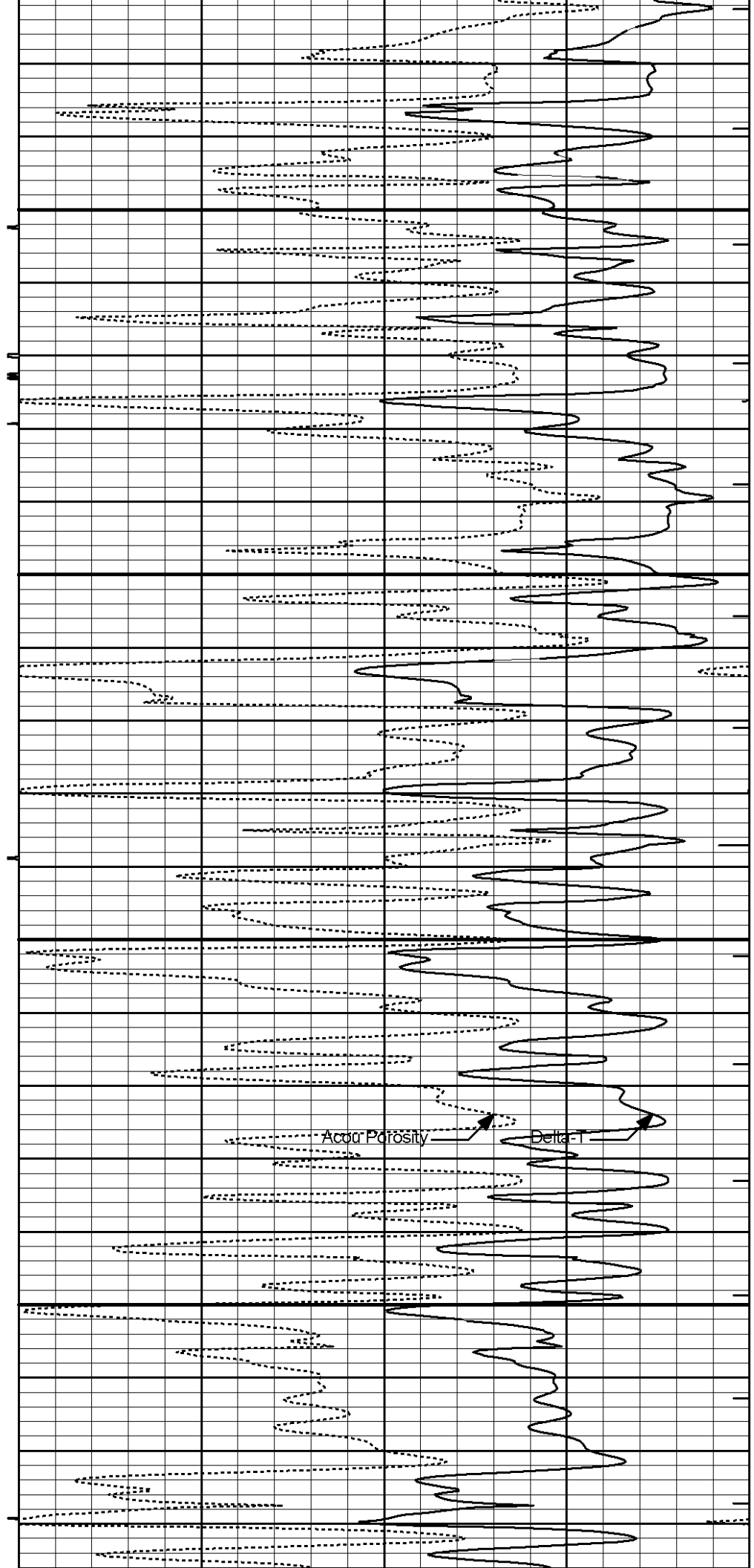
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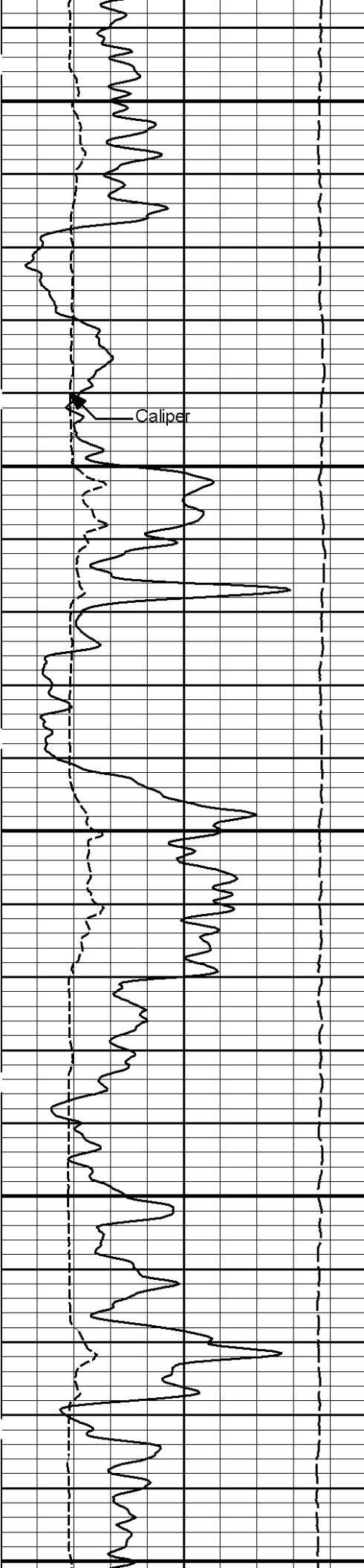




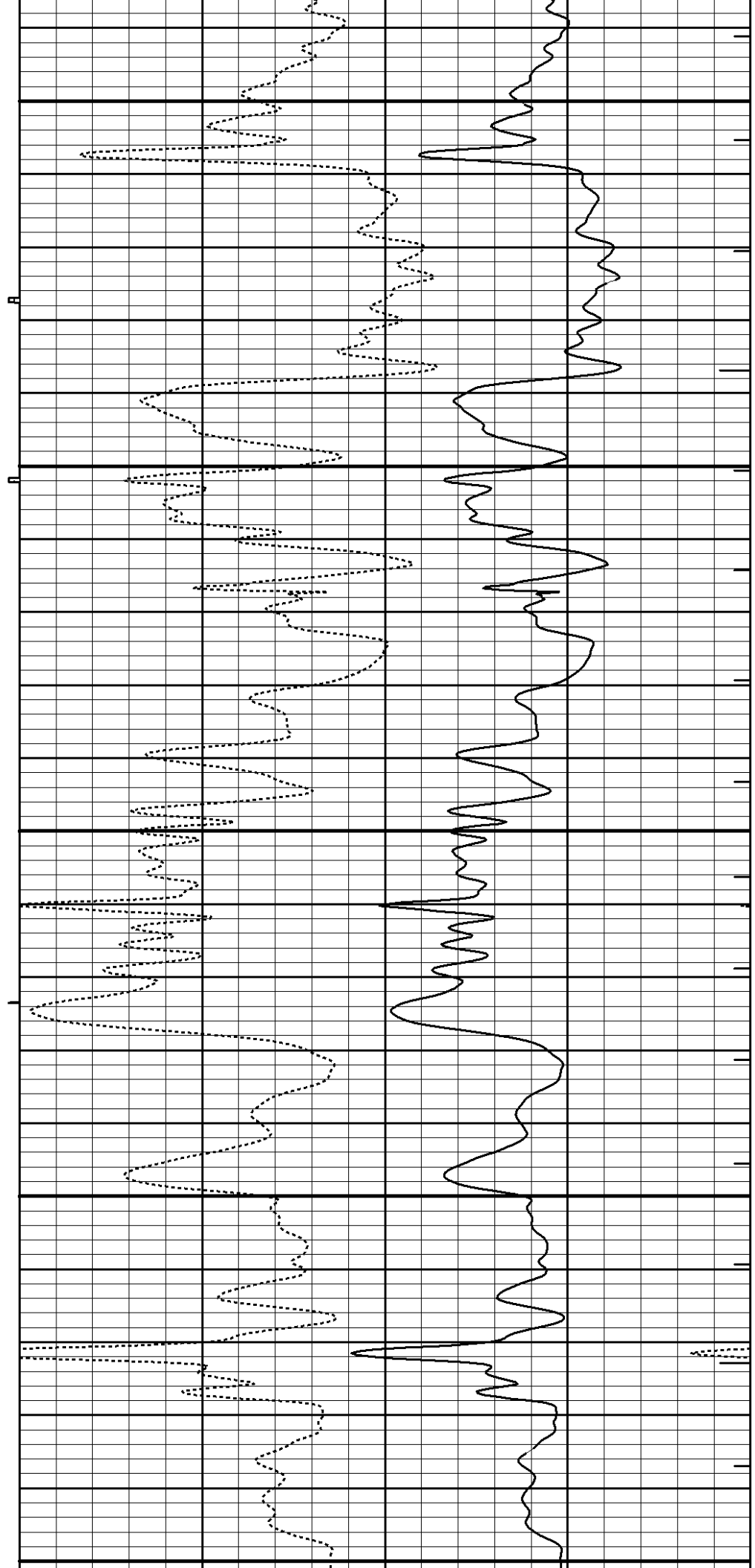
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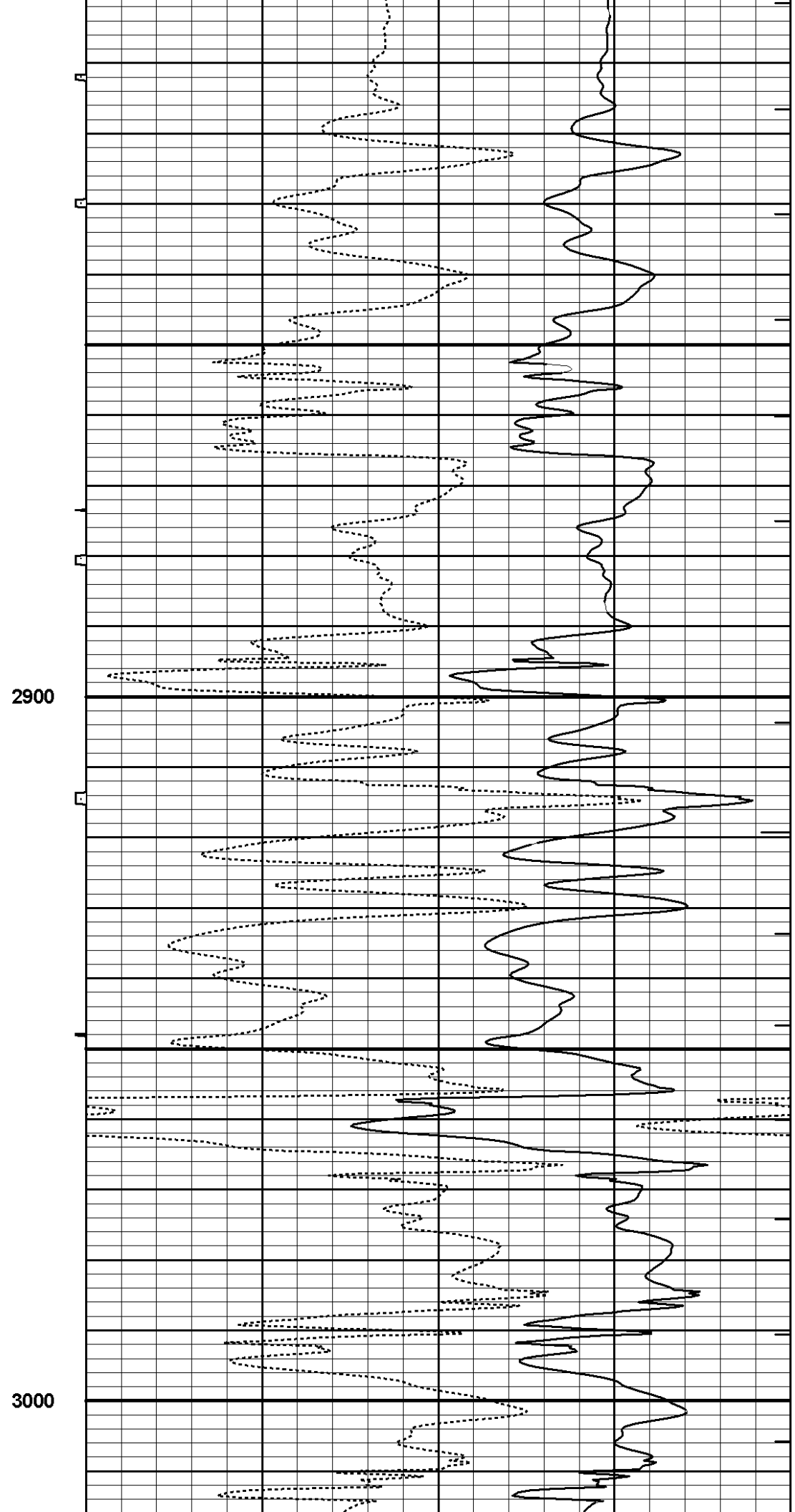
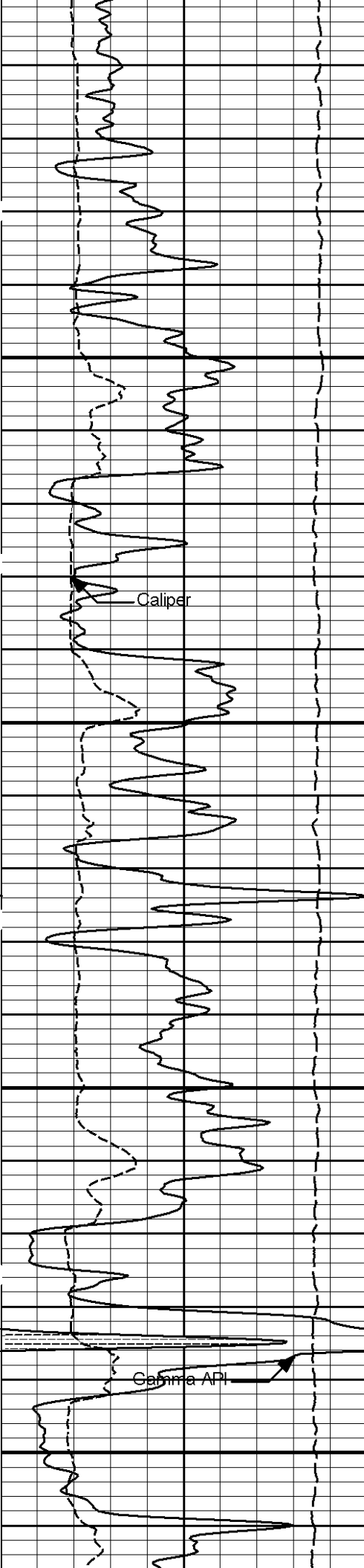


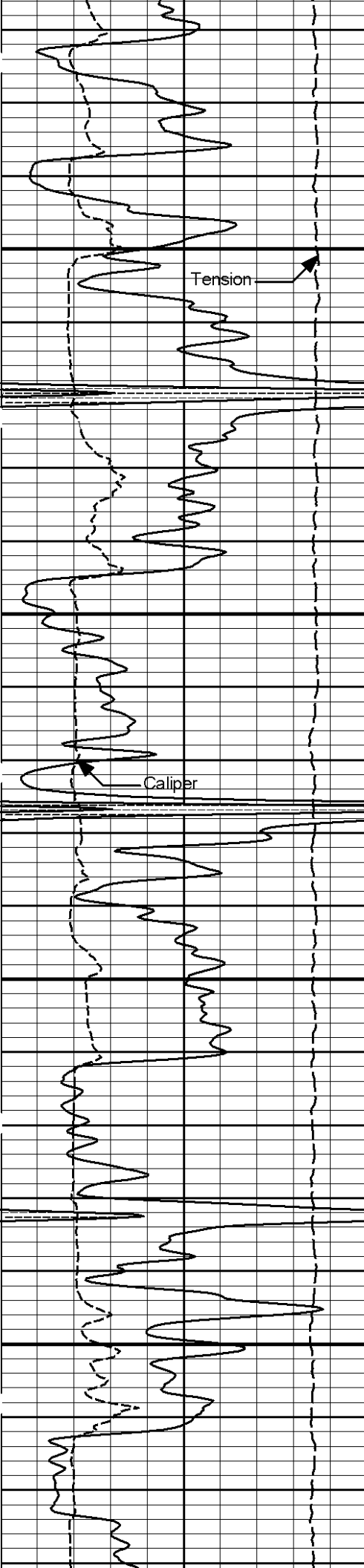
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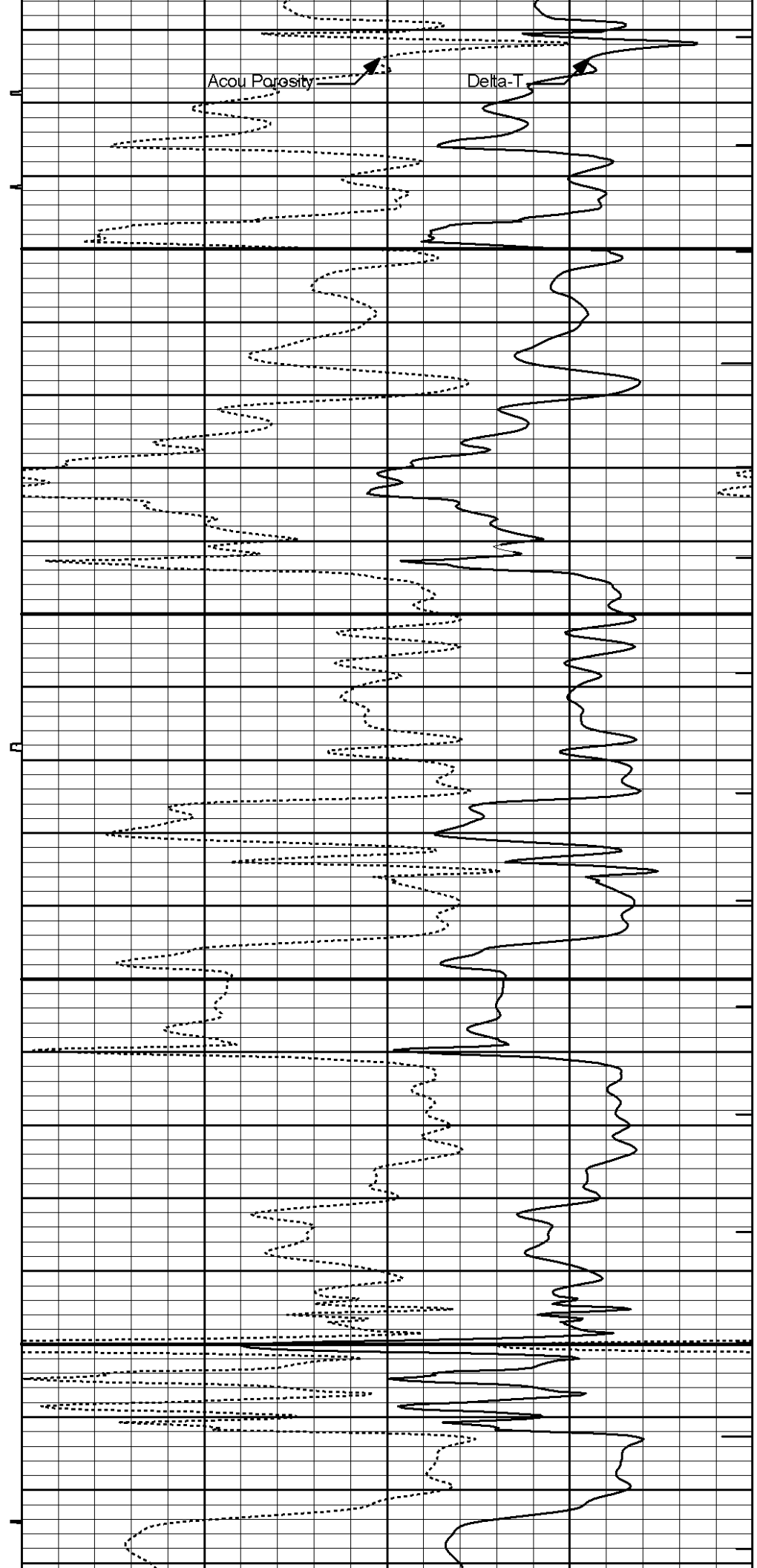
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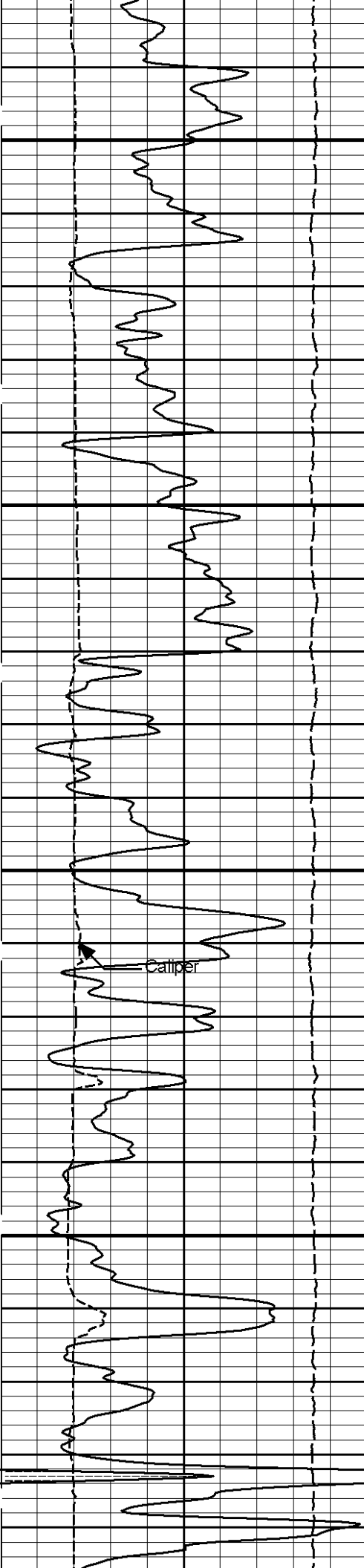




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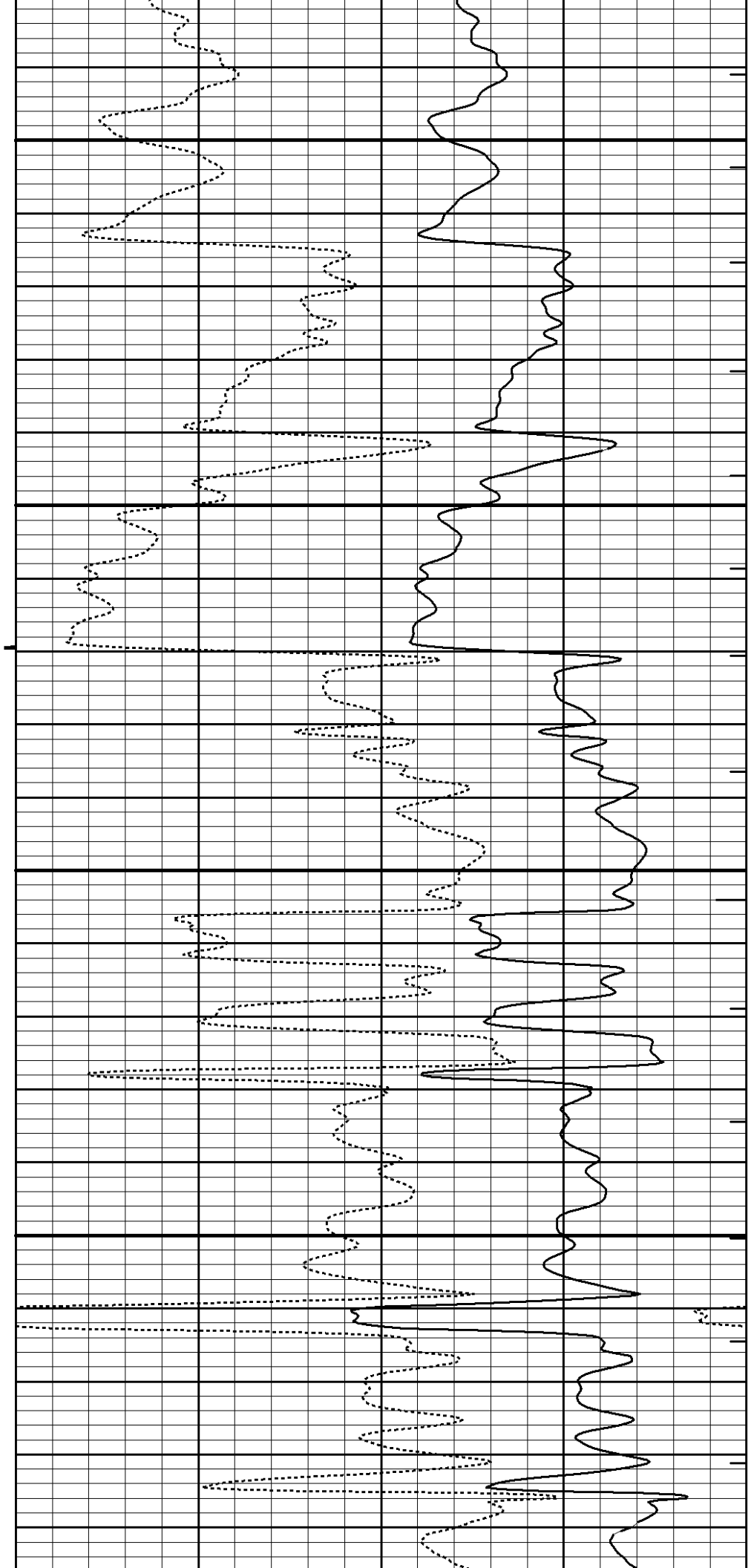
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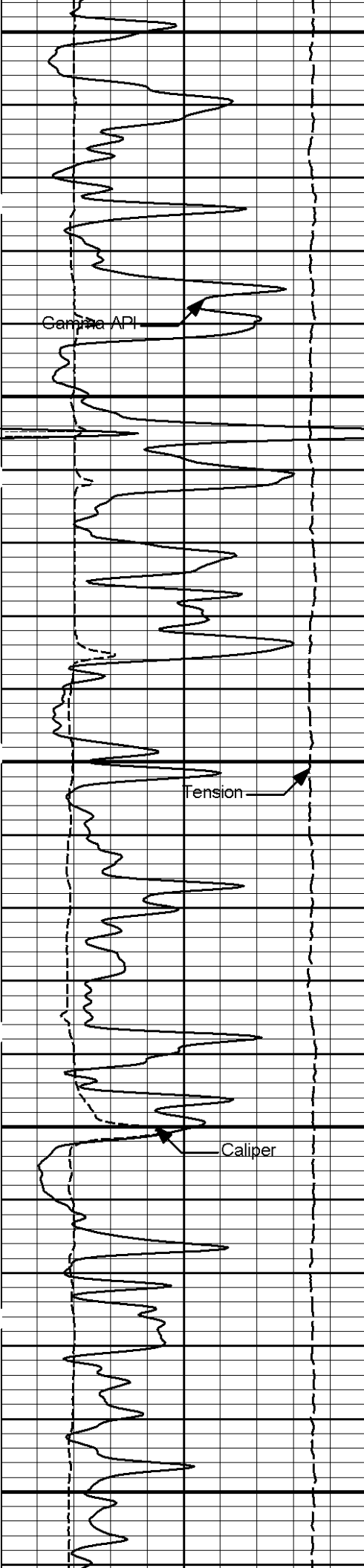




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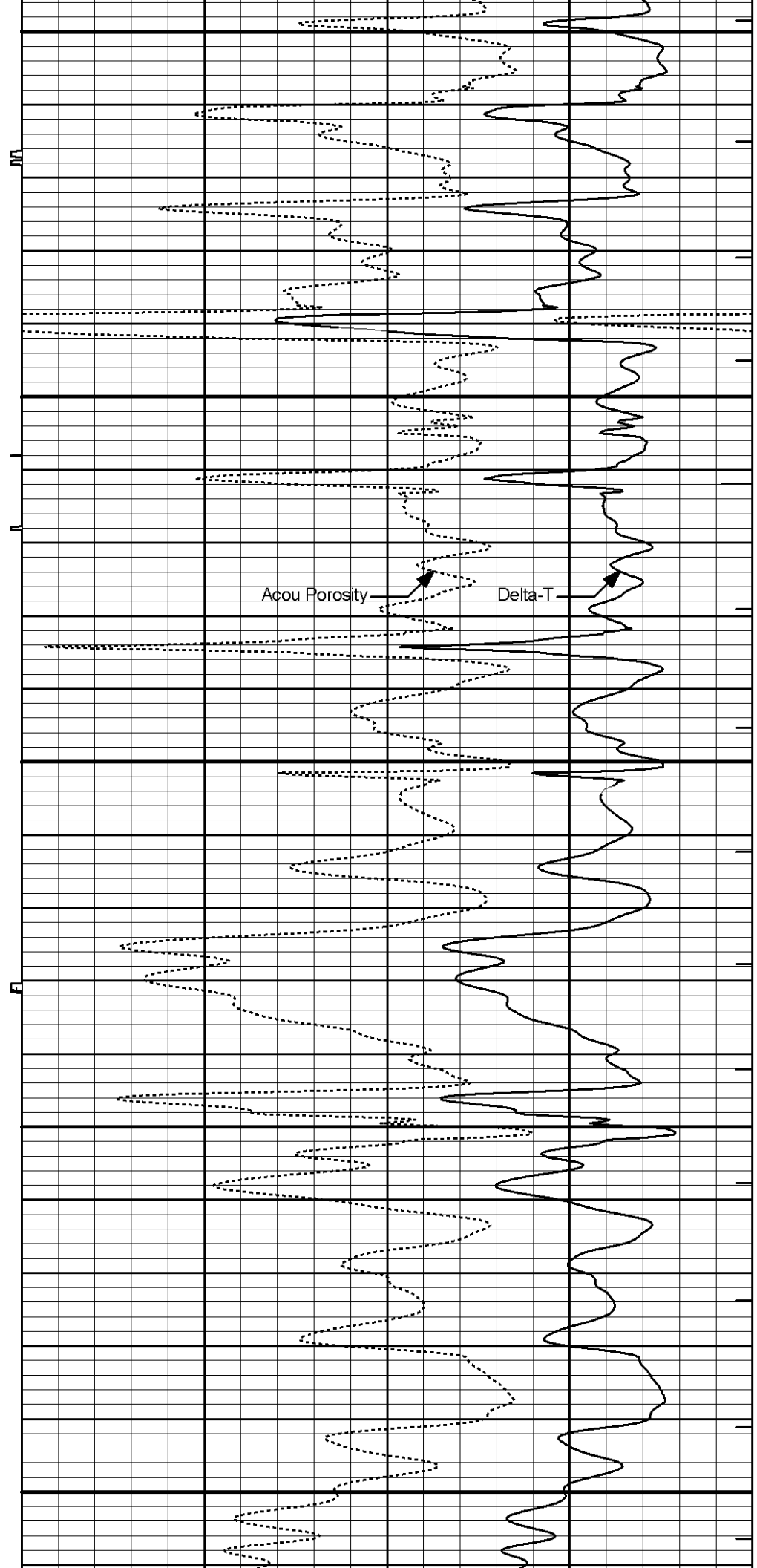
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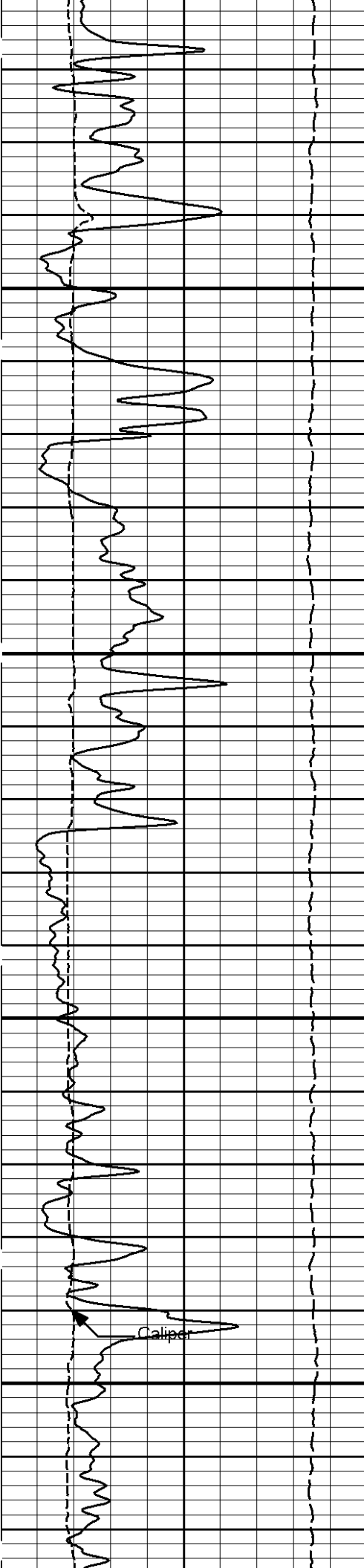




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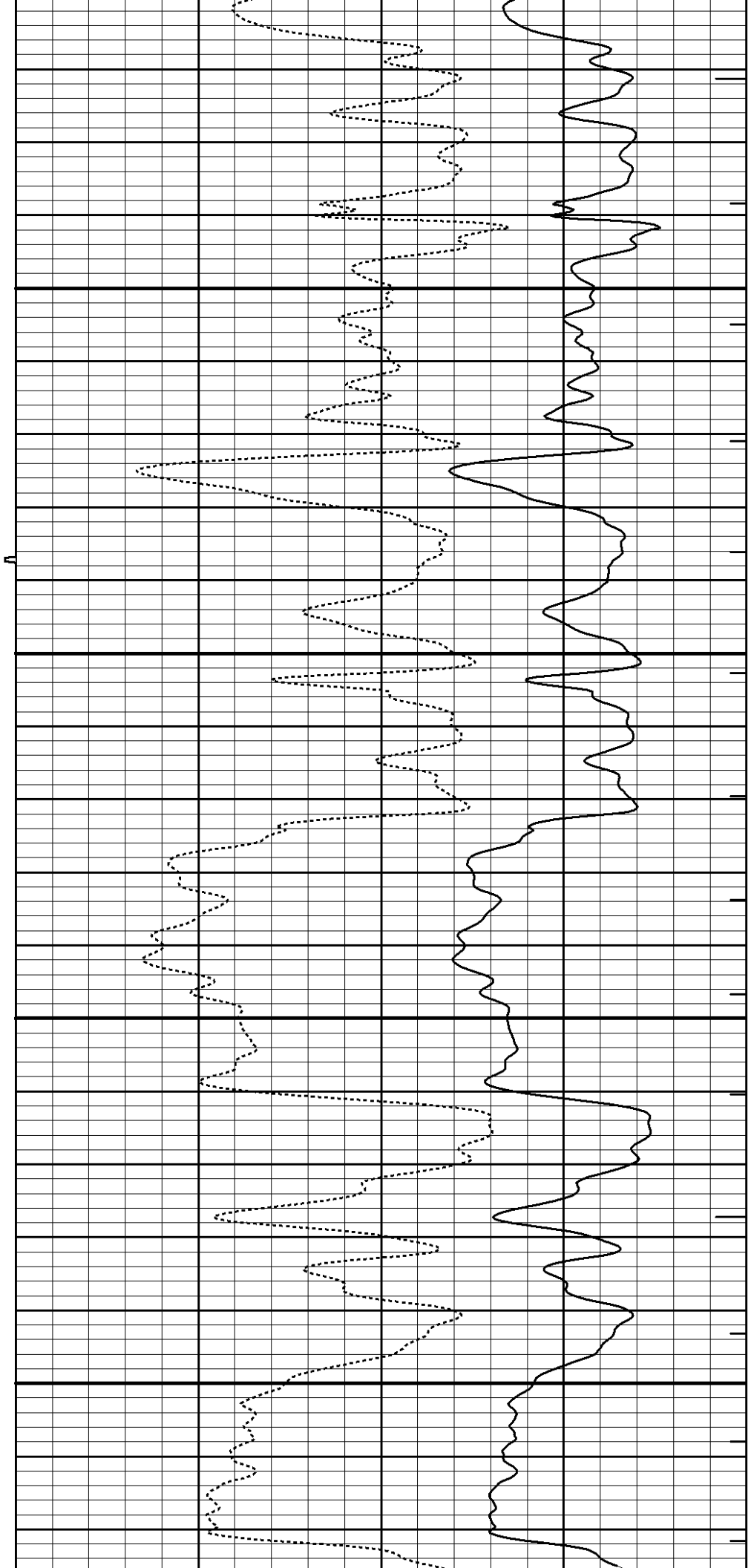


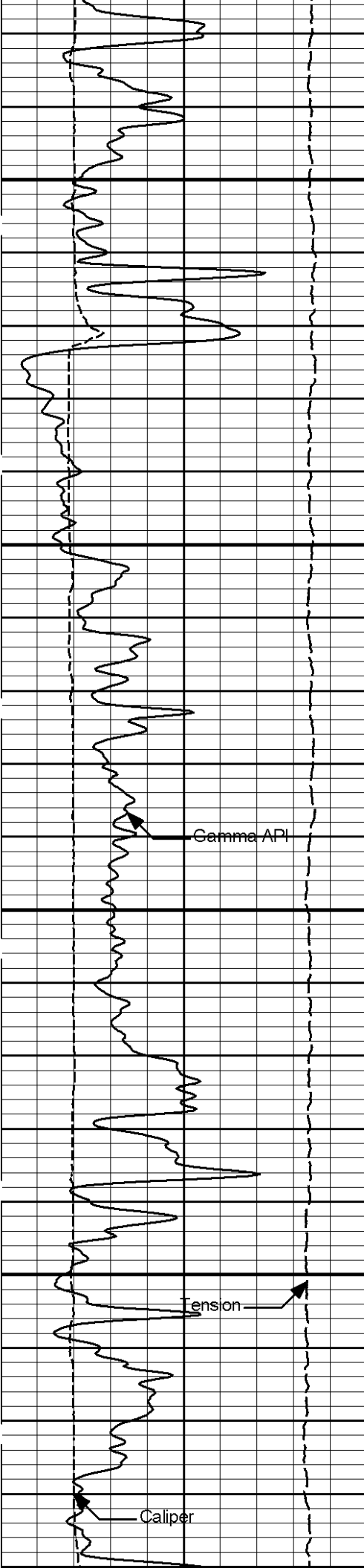


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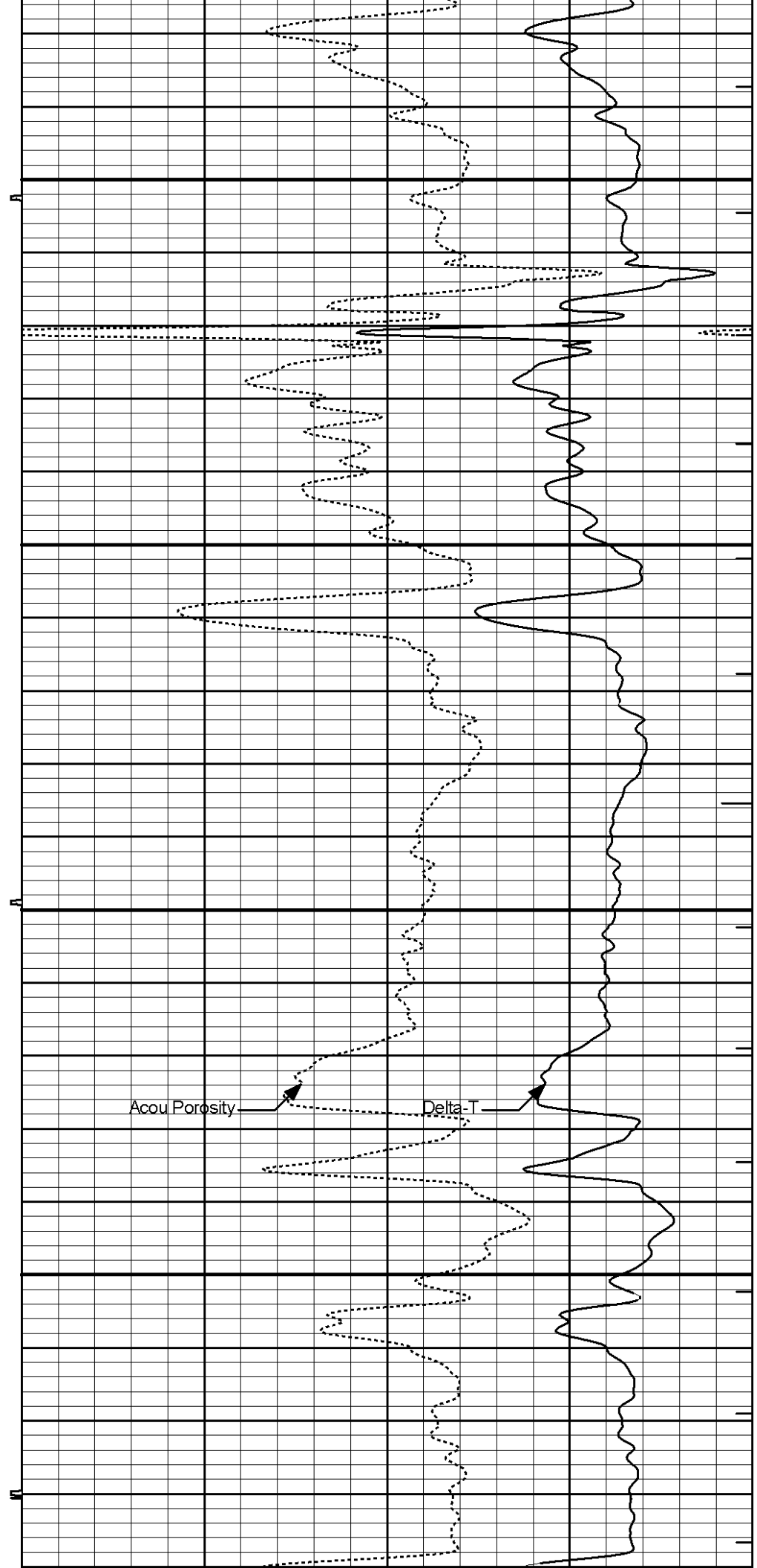
Caliper

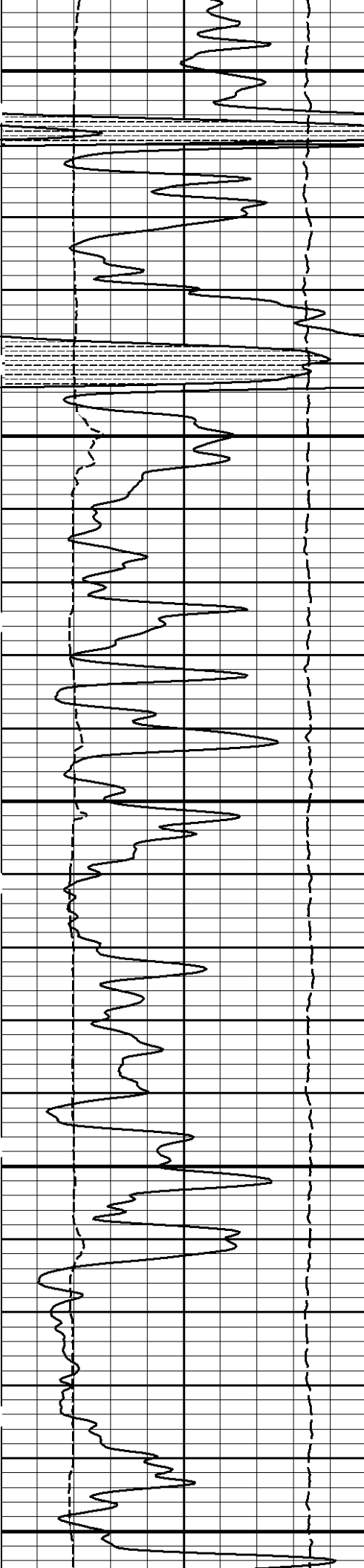




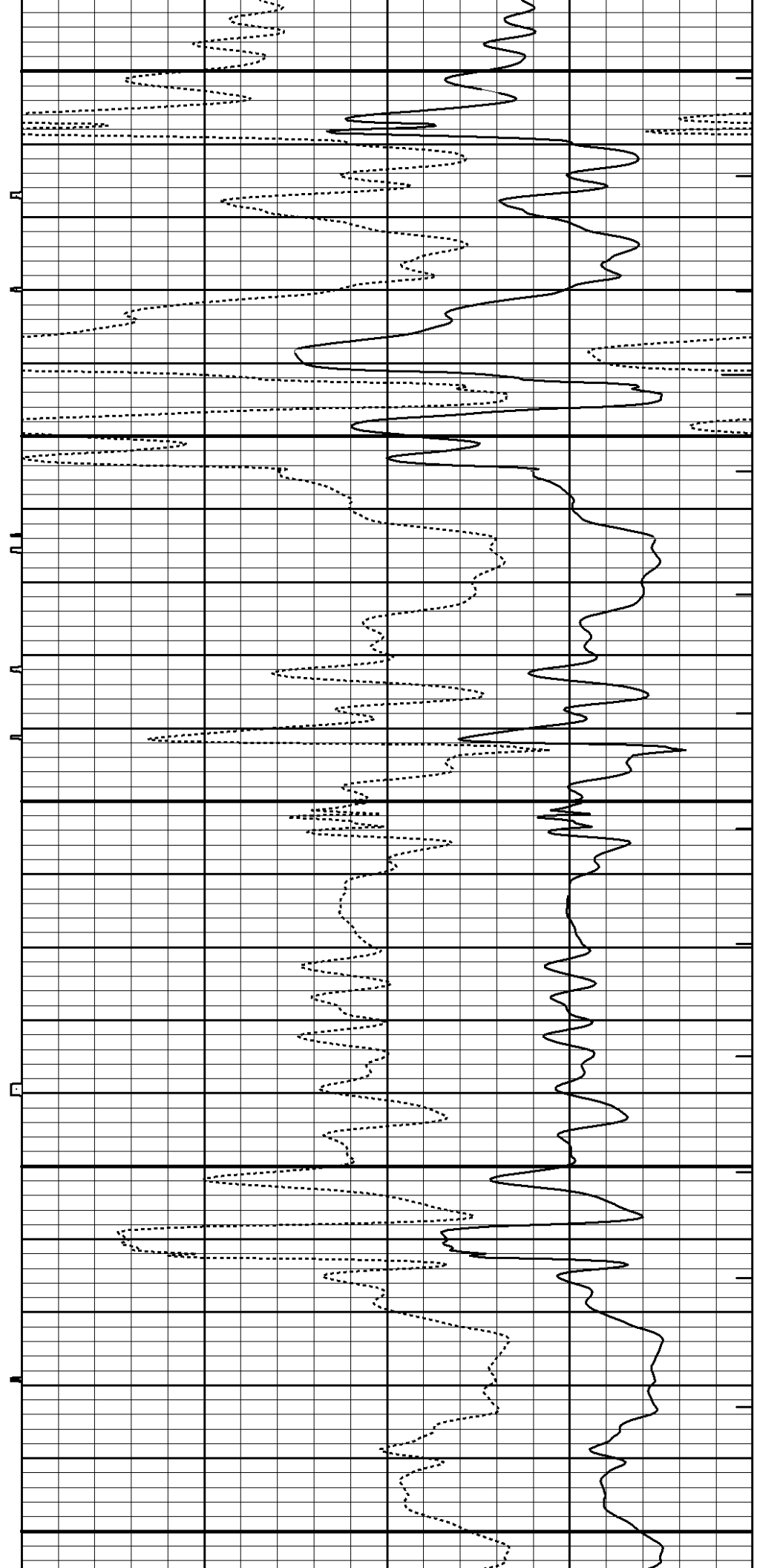
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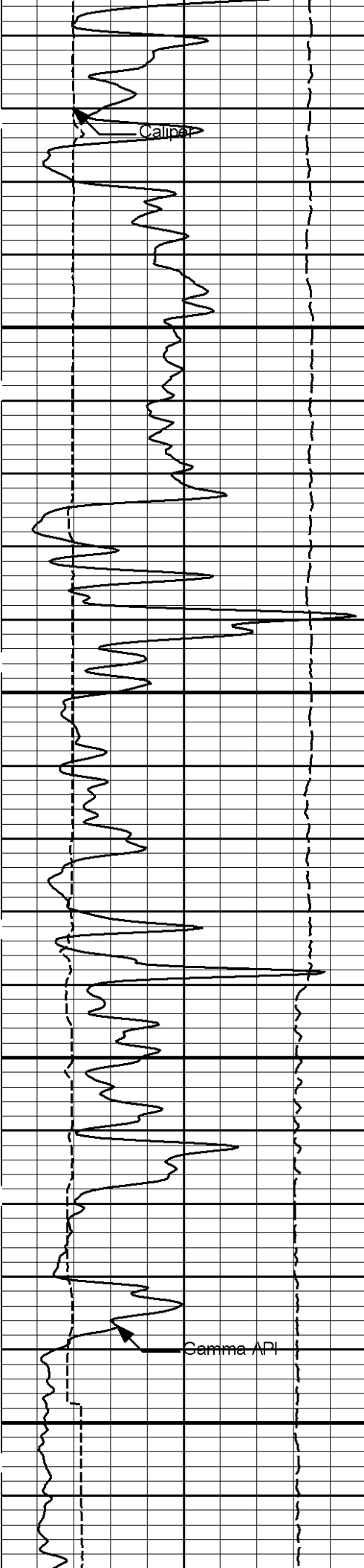


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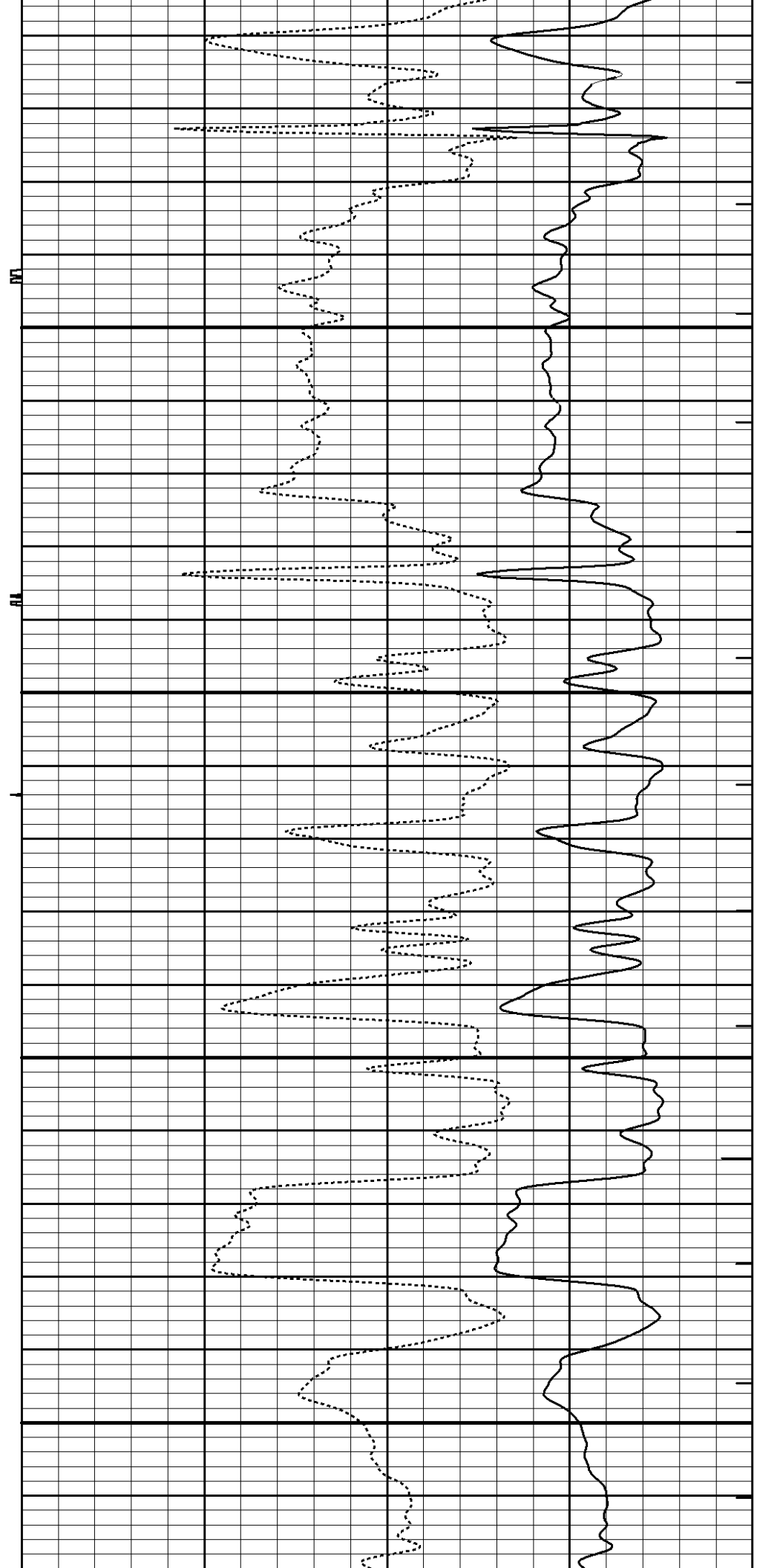
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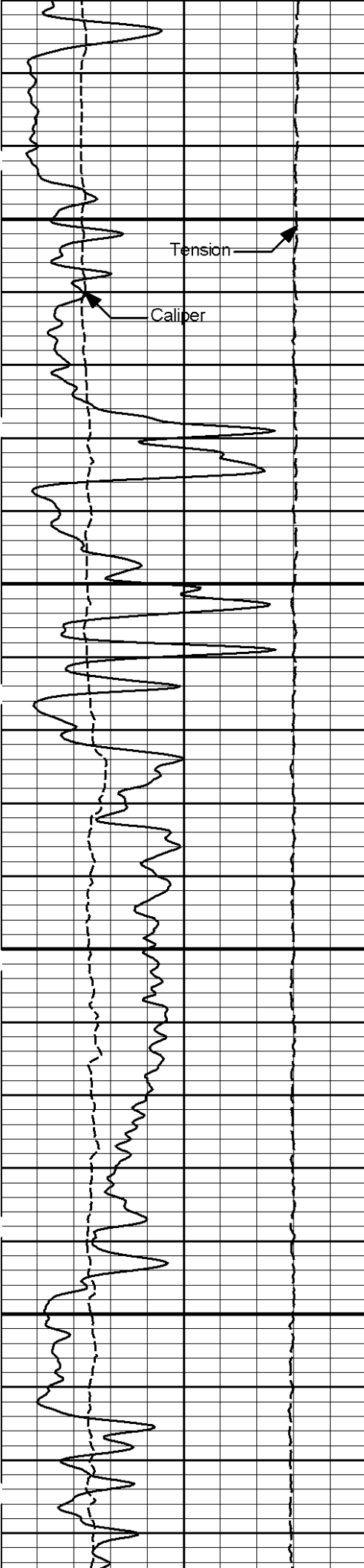
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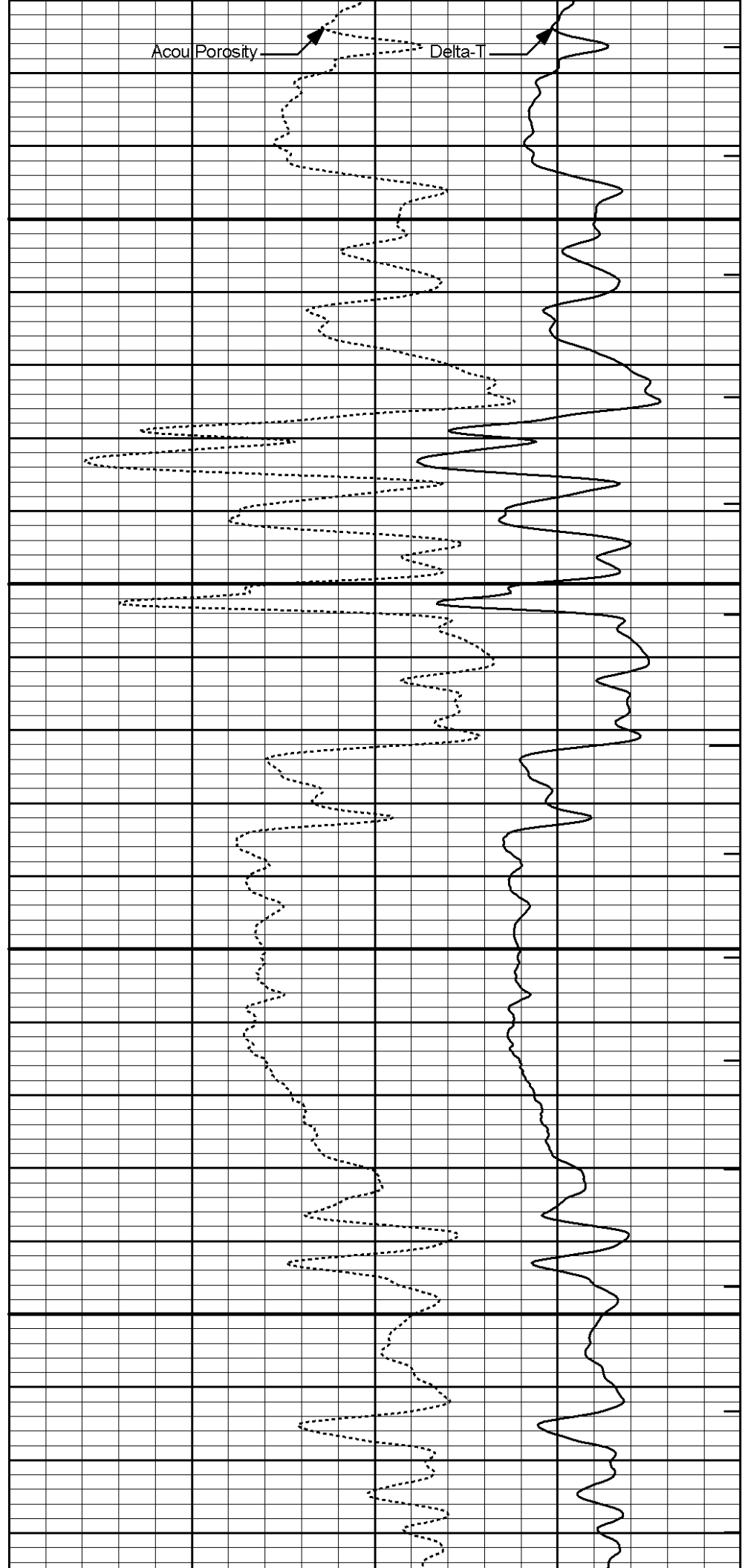
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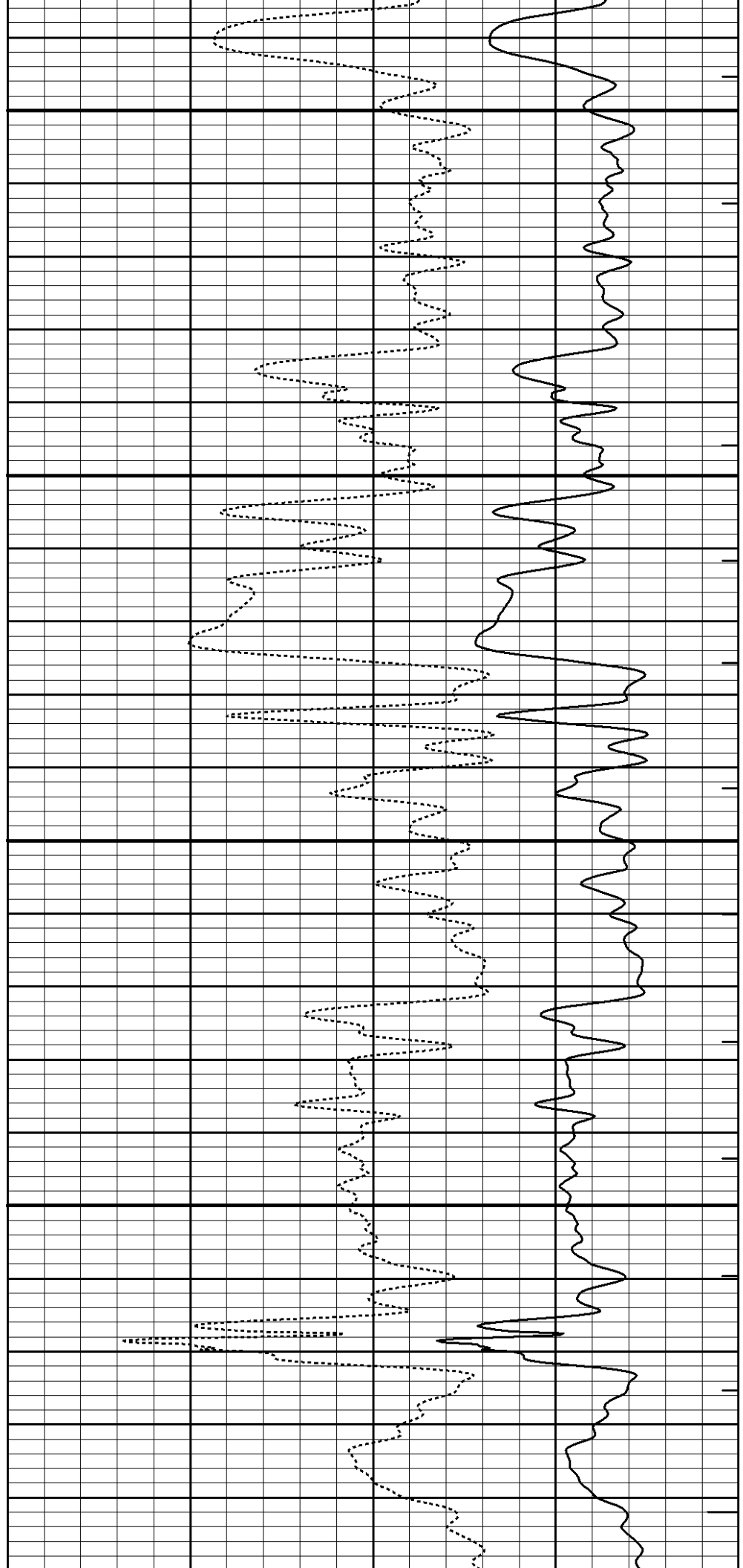
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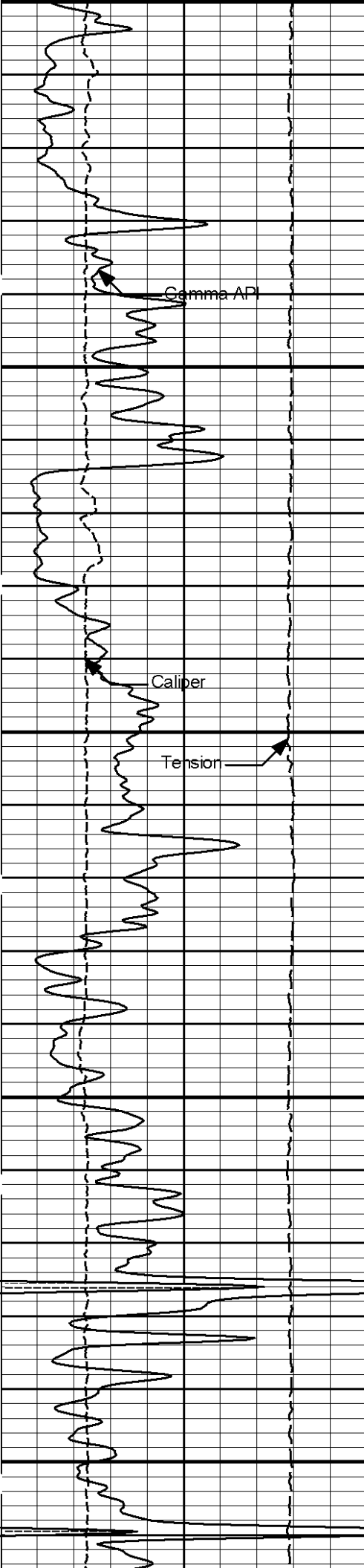




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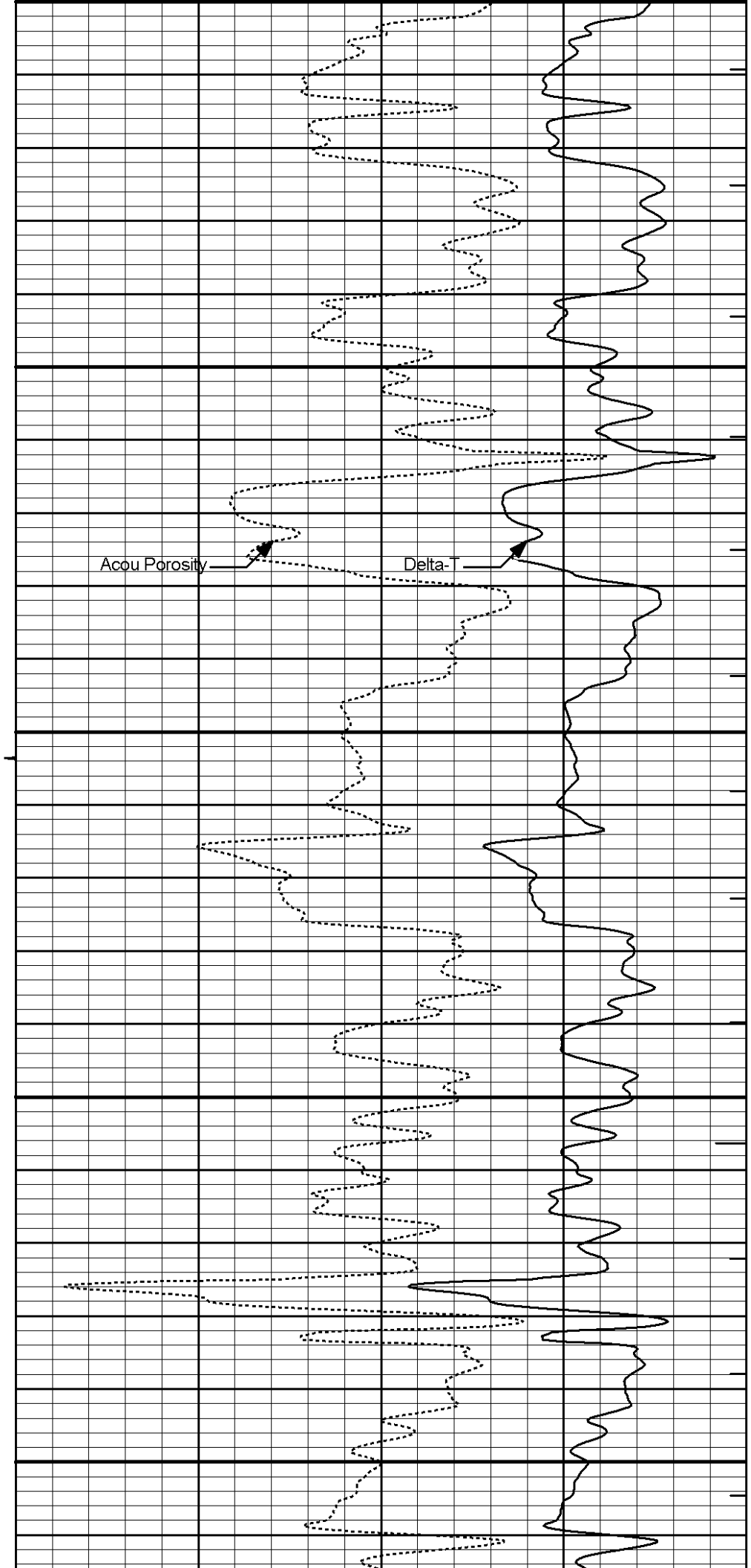
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5000

5100

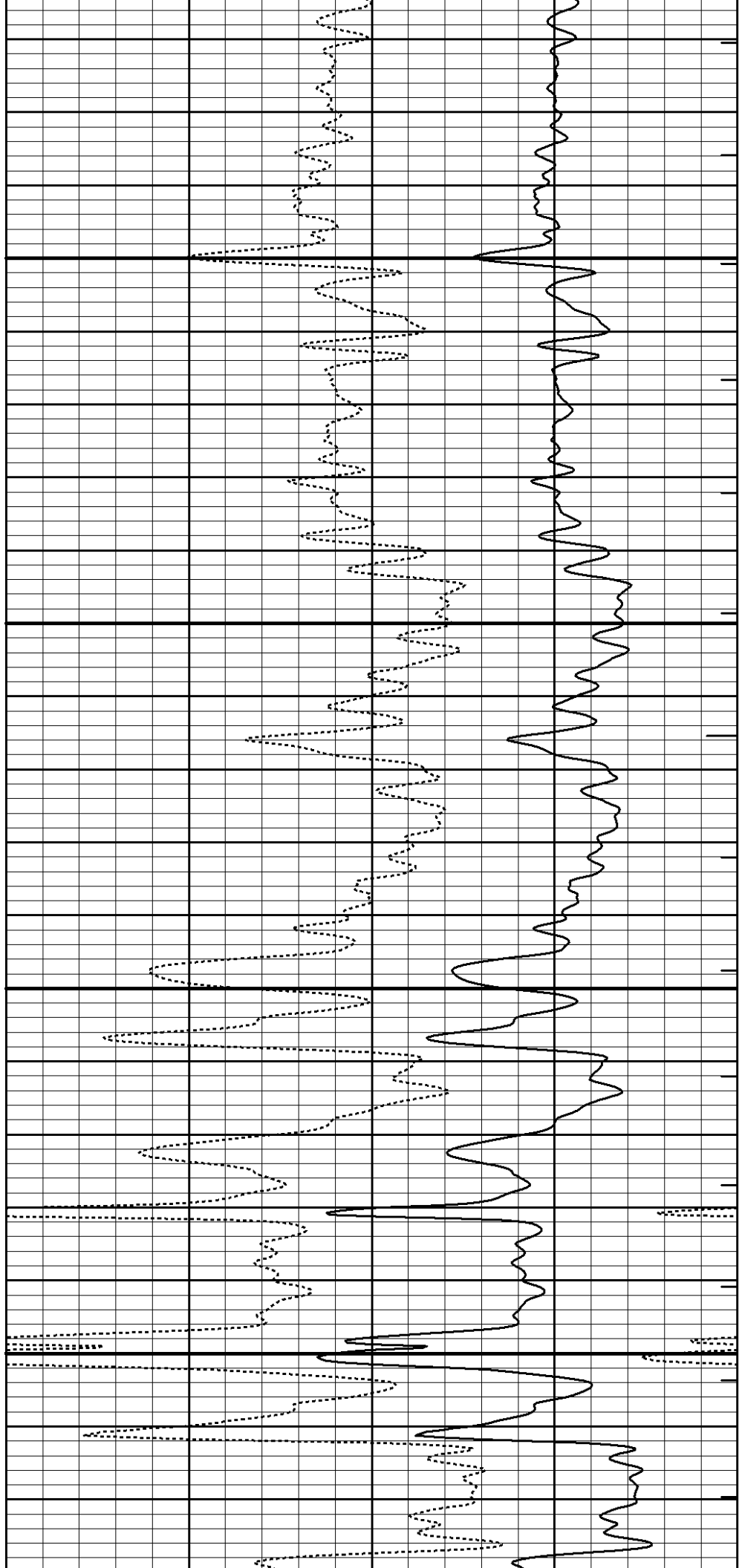


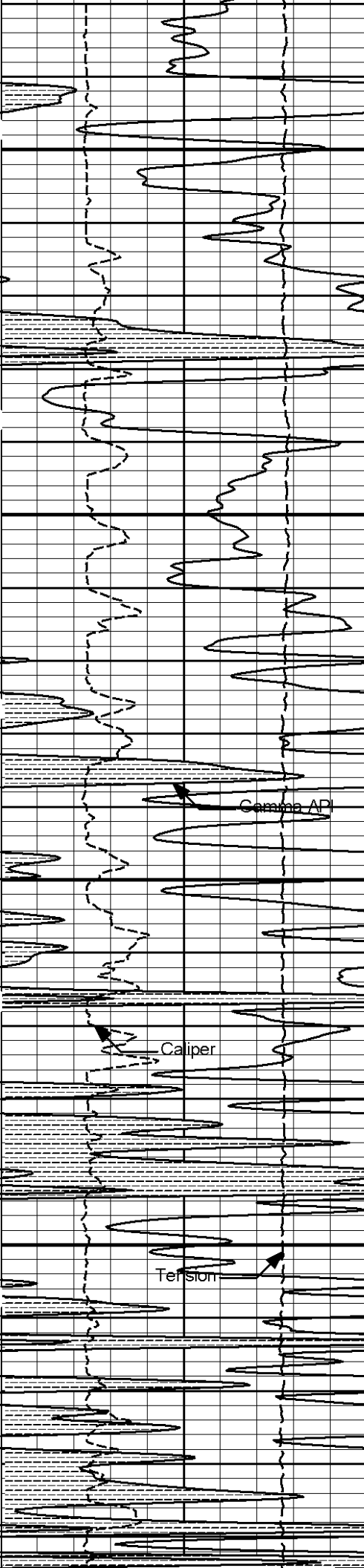


5200

Caliper

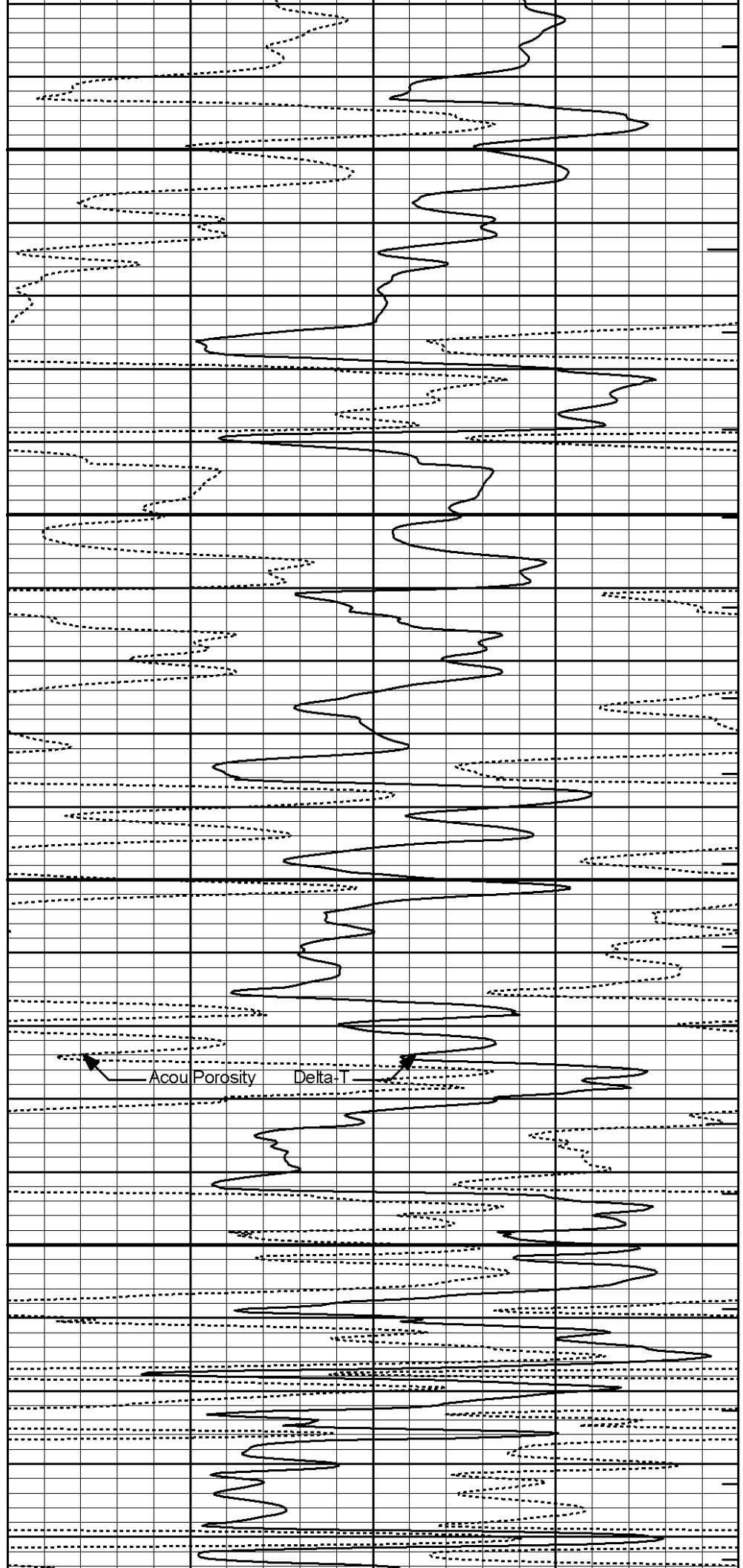
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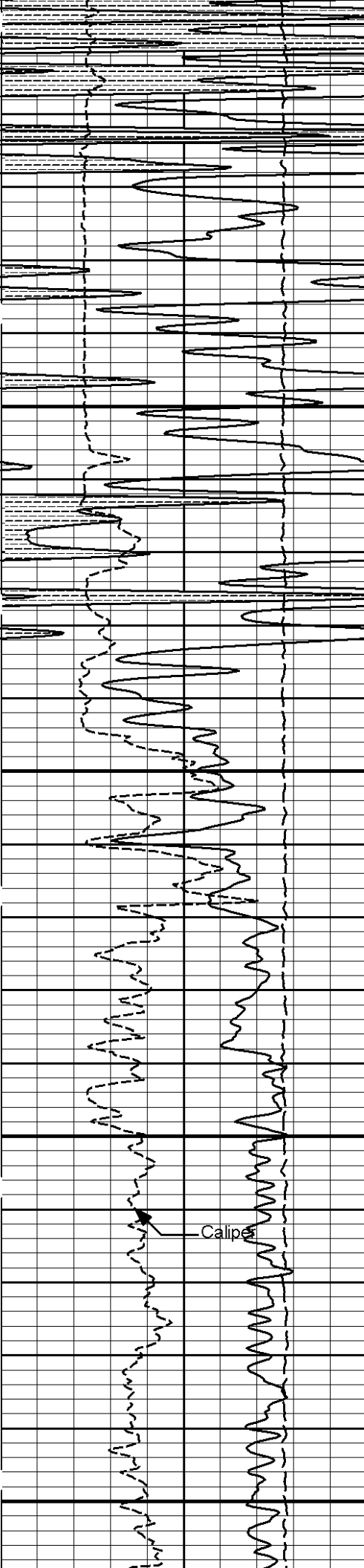




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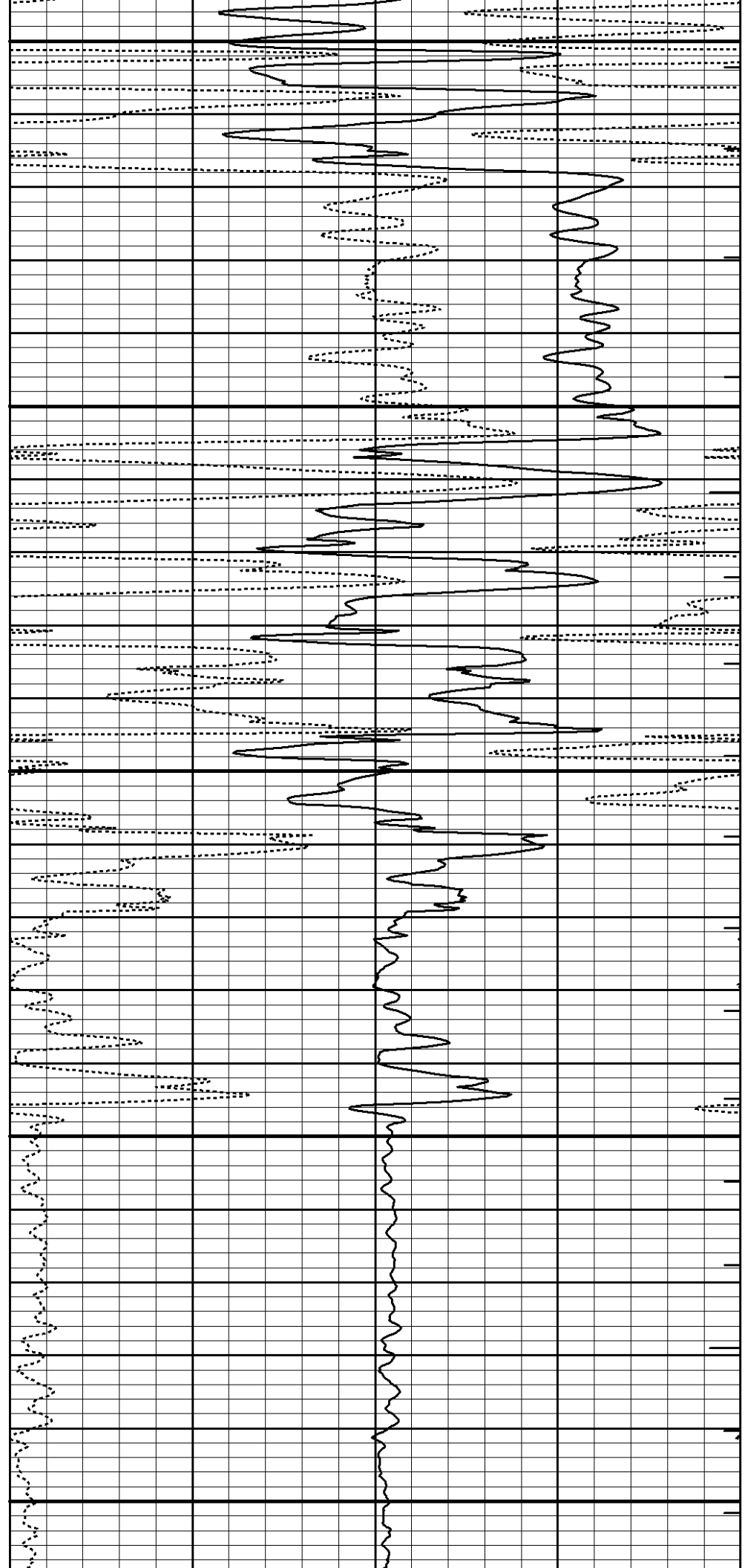




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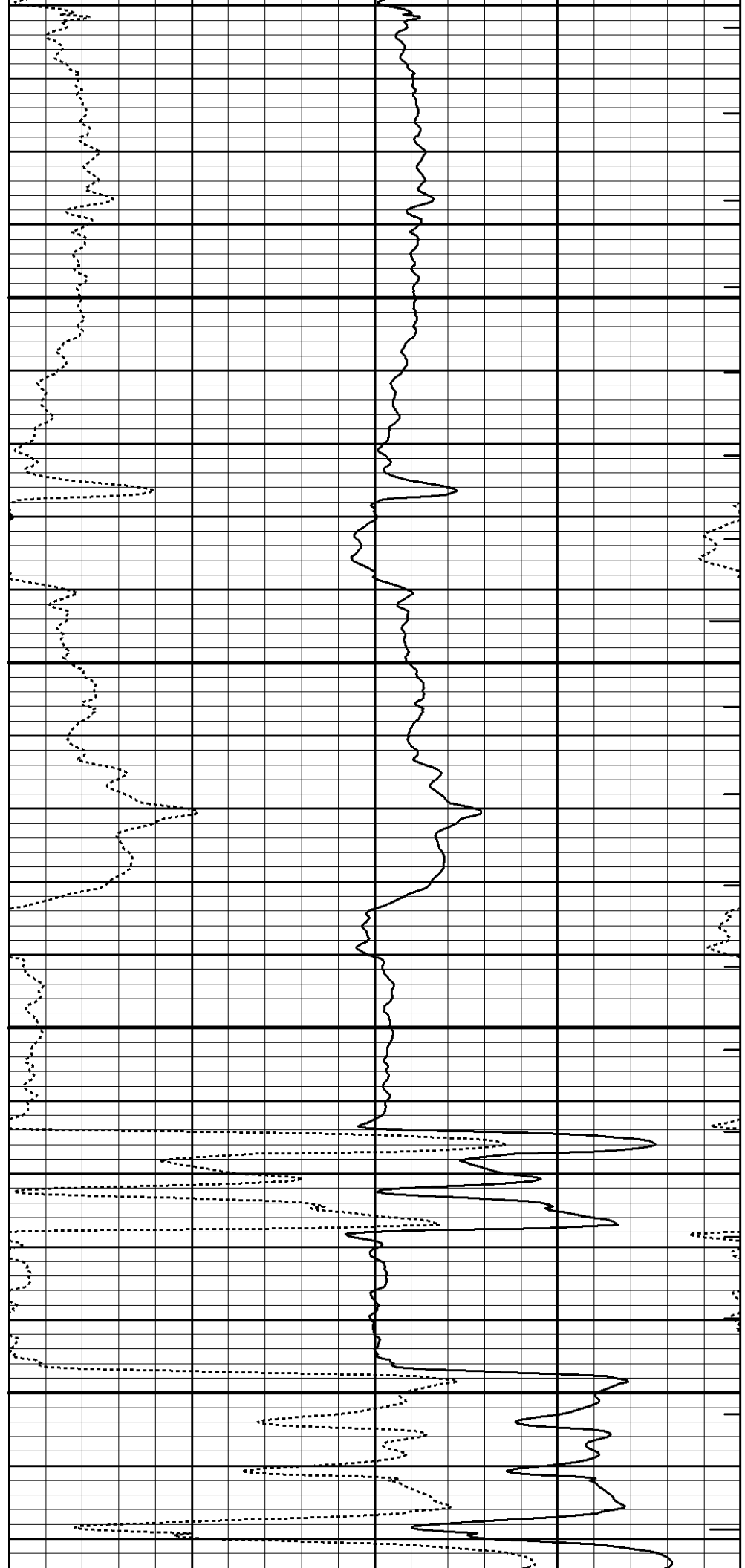
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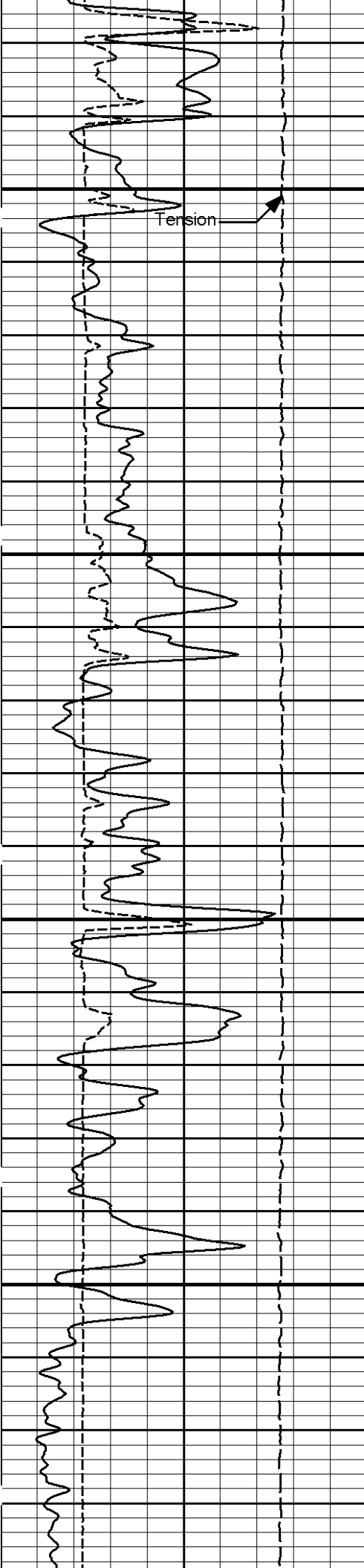




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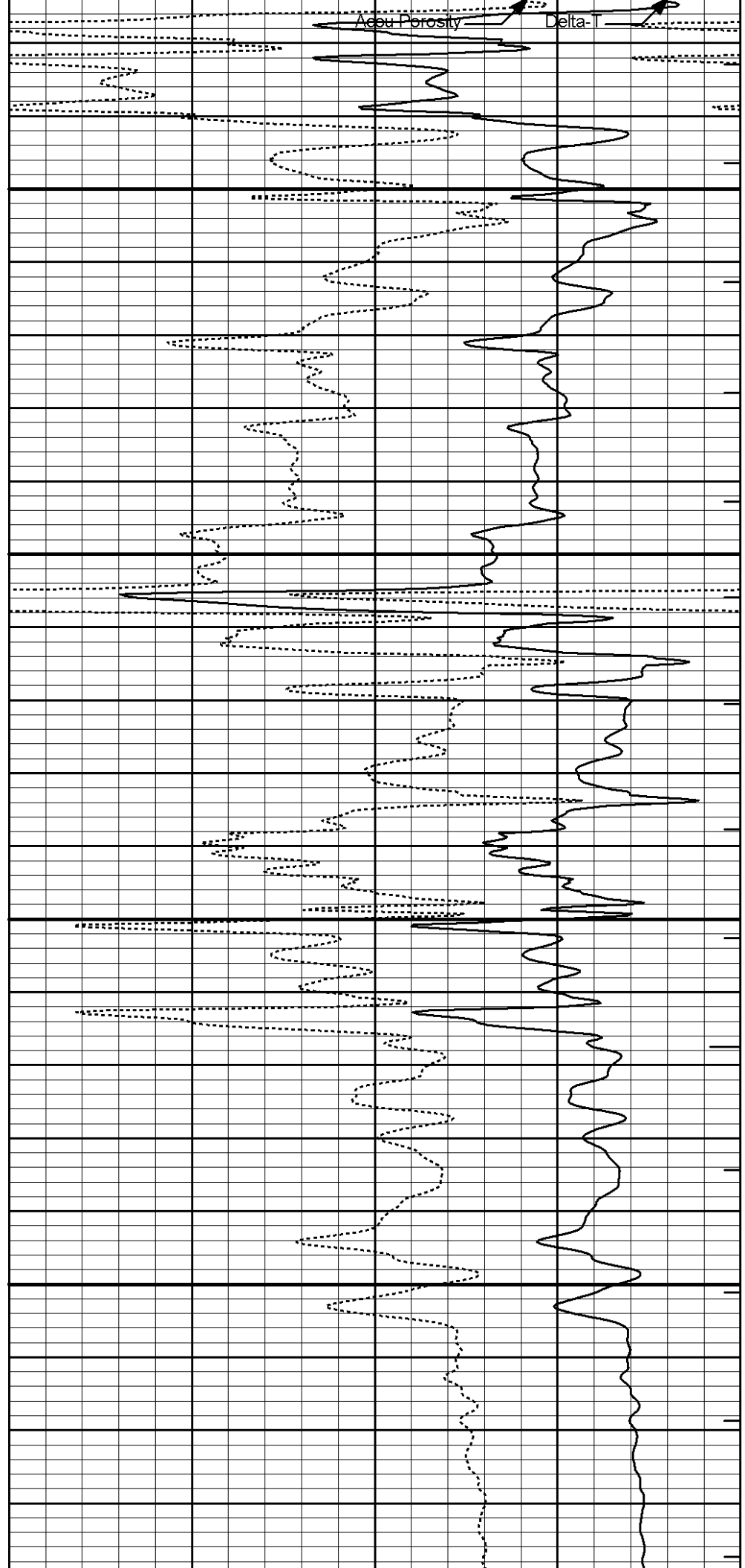
6000





6100

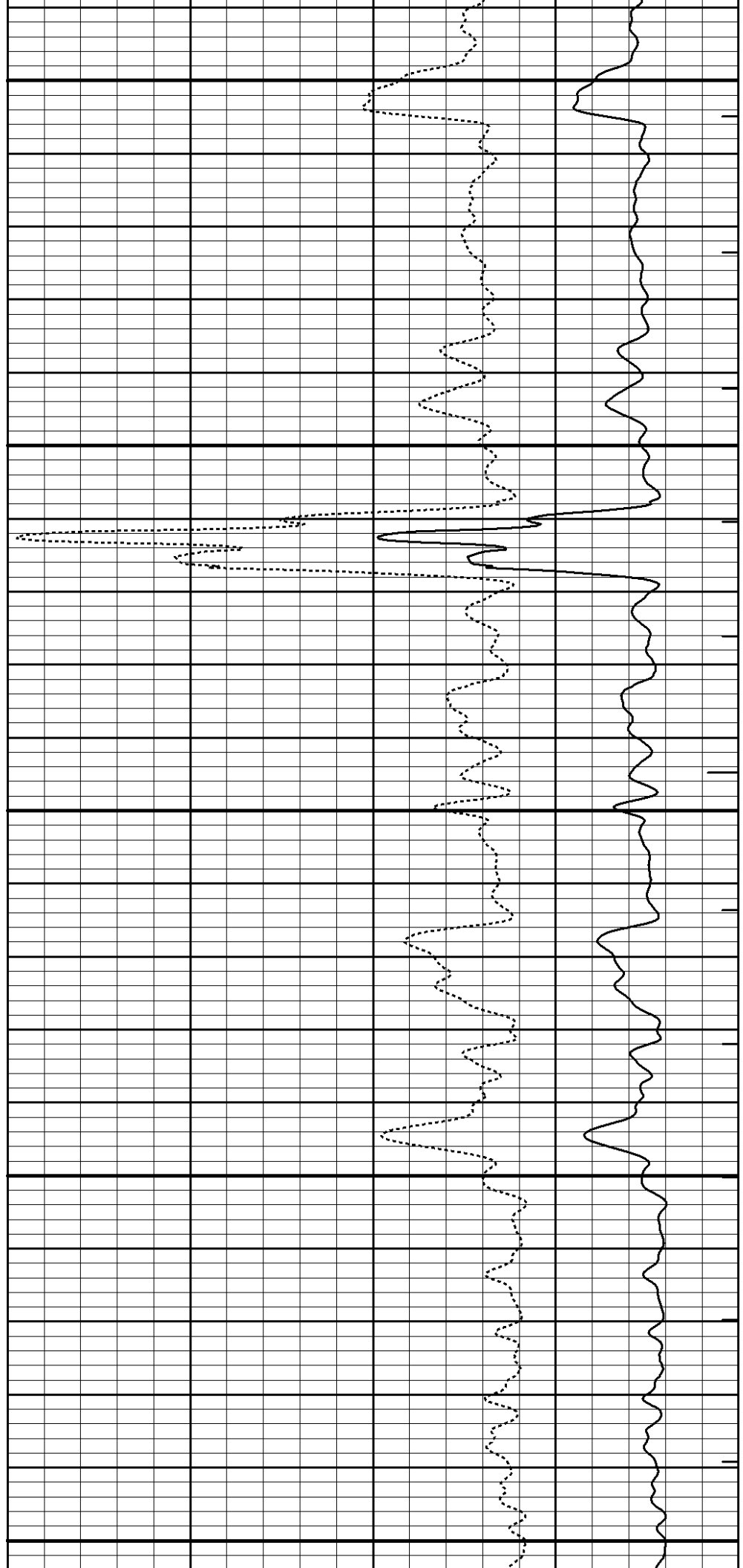
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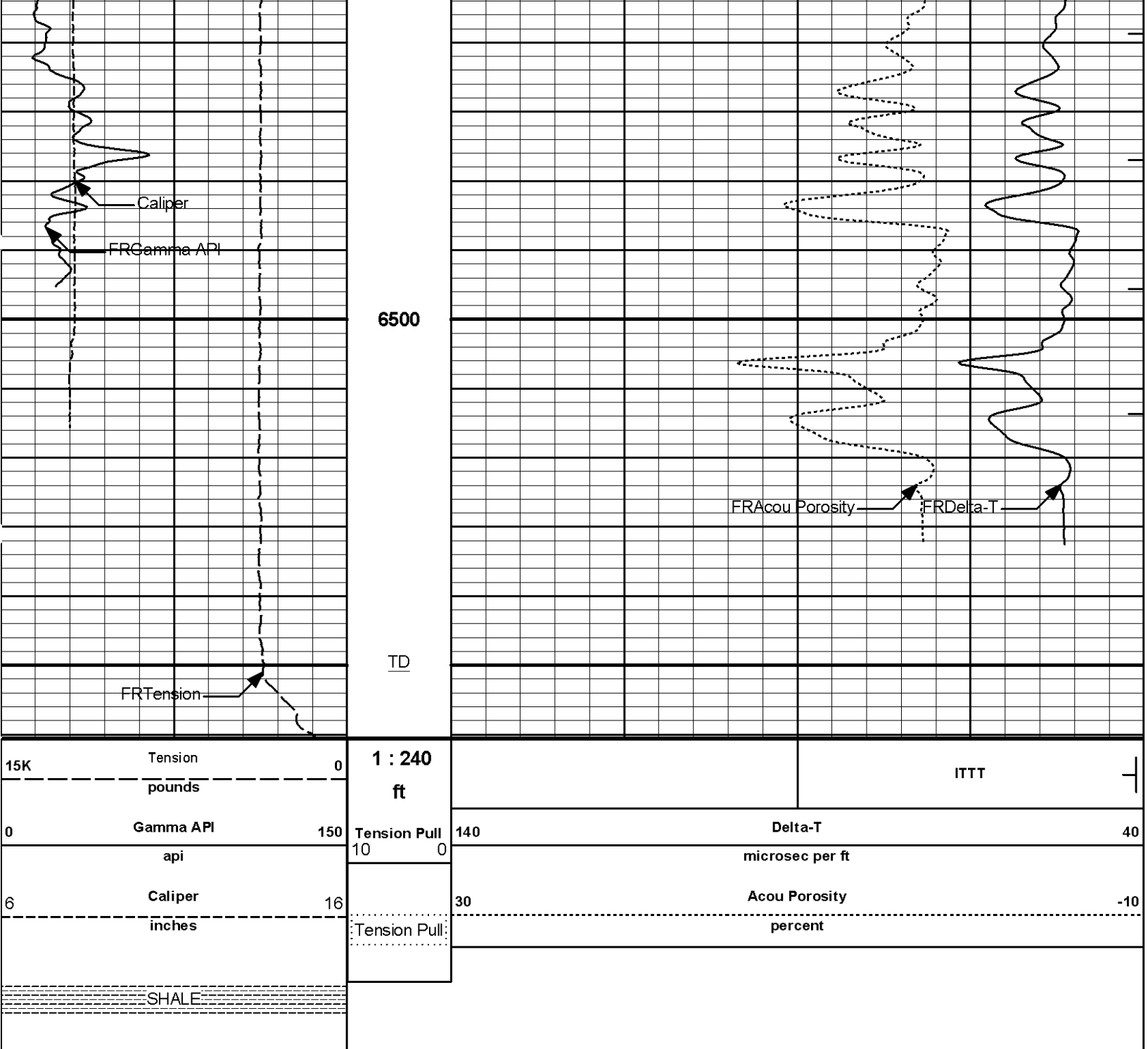




6300

6400





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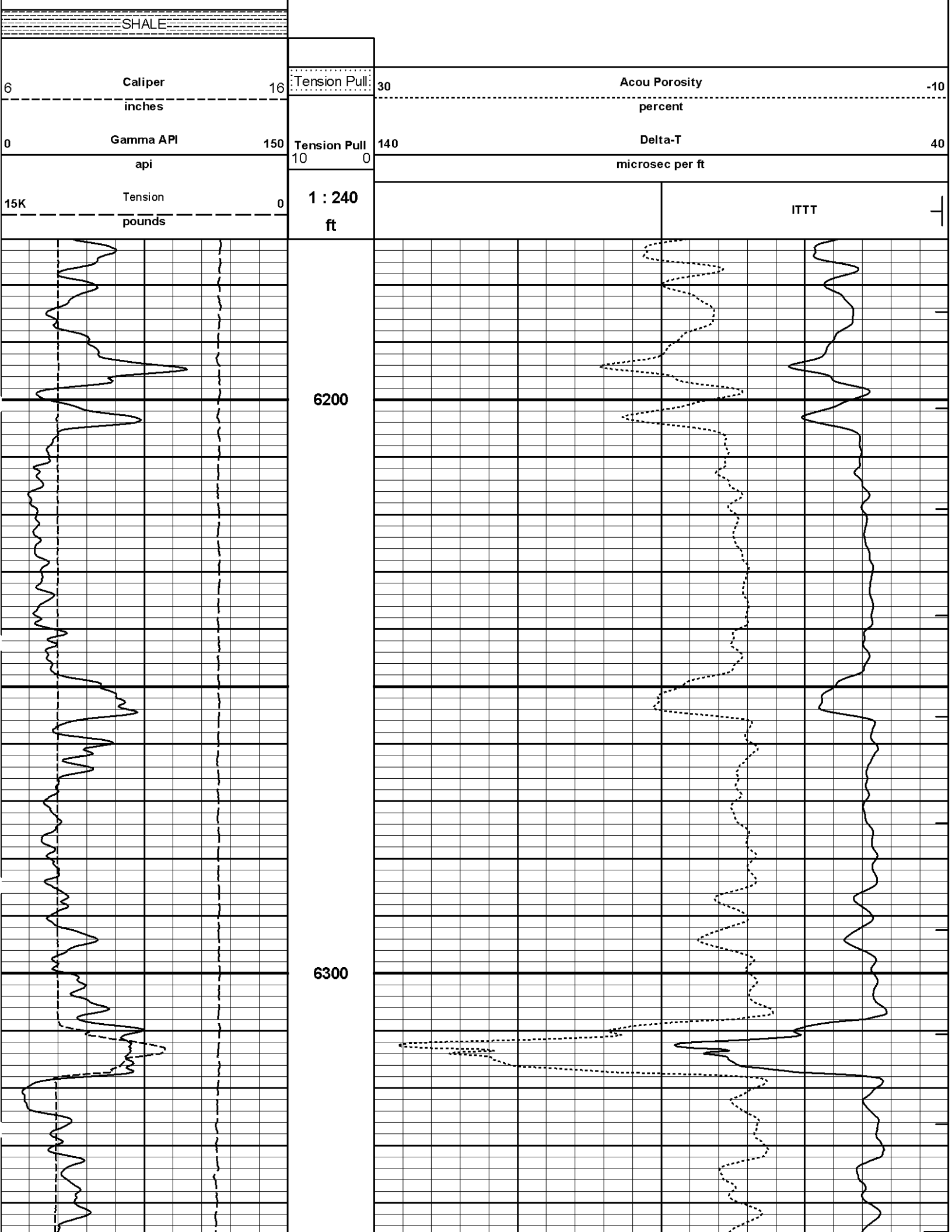
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Data: LAURA_21-1\Well Based\DAQ-0001-004\
Plot File: \\BSAT\1_BSAT_5_mainx

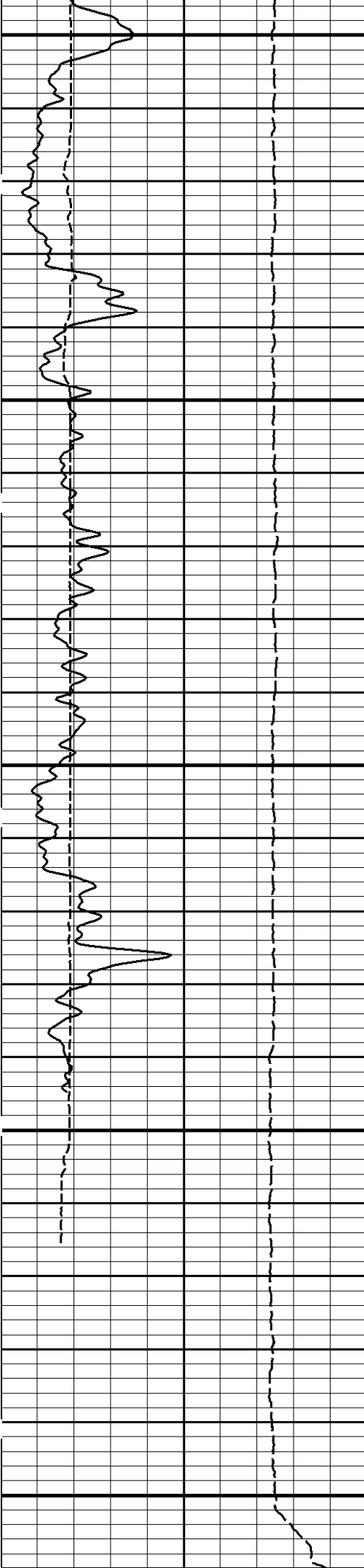
5 INCH MAIN LOG

HALLIBURTON

Plot Time: 11-Nov-10 15:49:08
Plot Range: 6172 ft to 6560 ft
Data: LAURA_21-1\Well Based\DAQ-0001-003\
Plot File: \\BSAT\1_BSAT_5_mainx

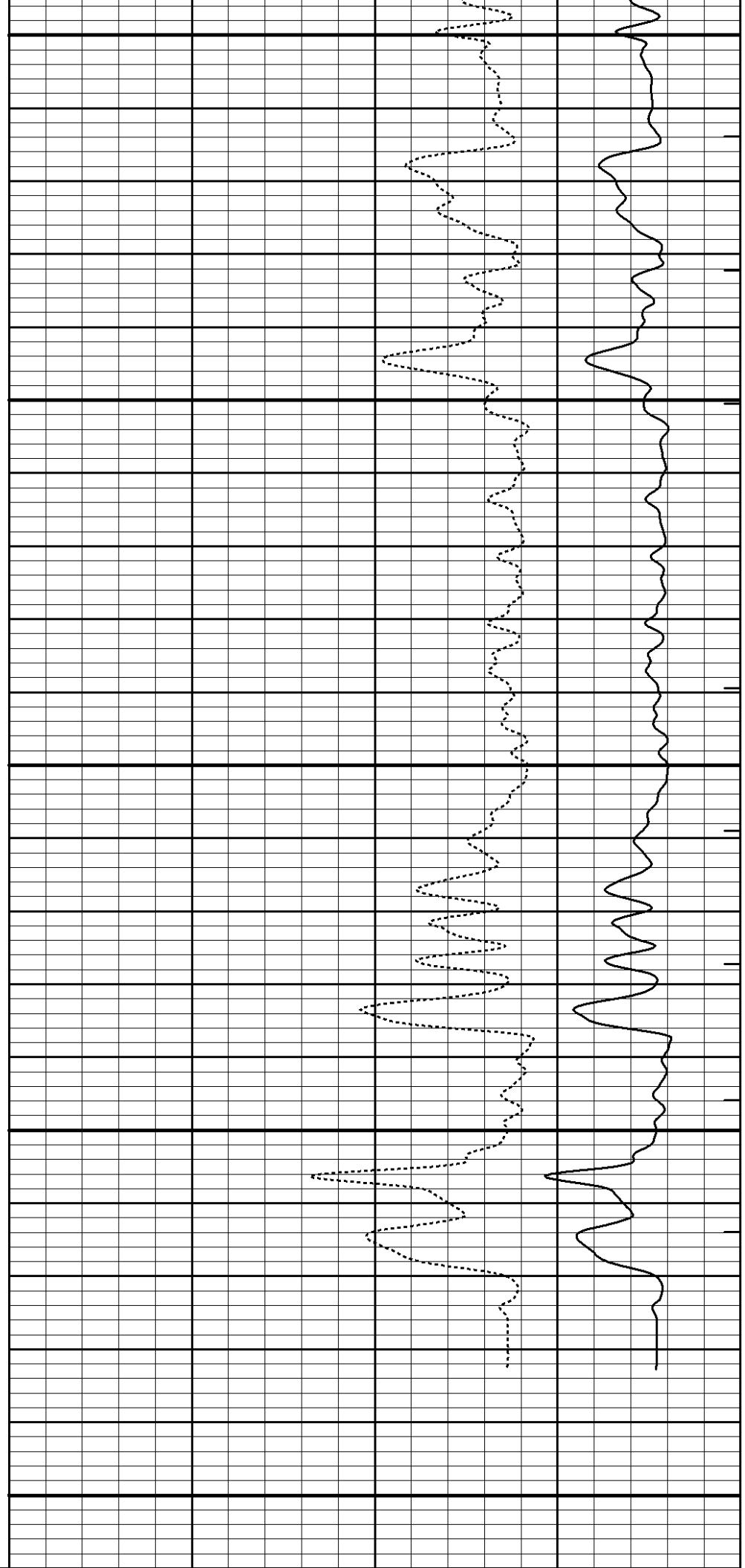
REPEAT SECTION





6400

6500



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

HALLIBURTON

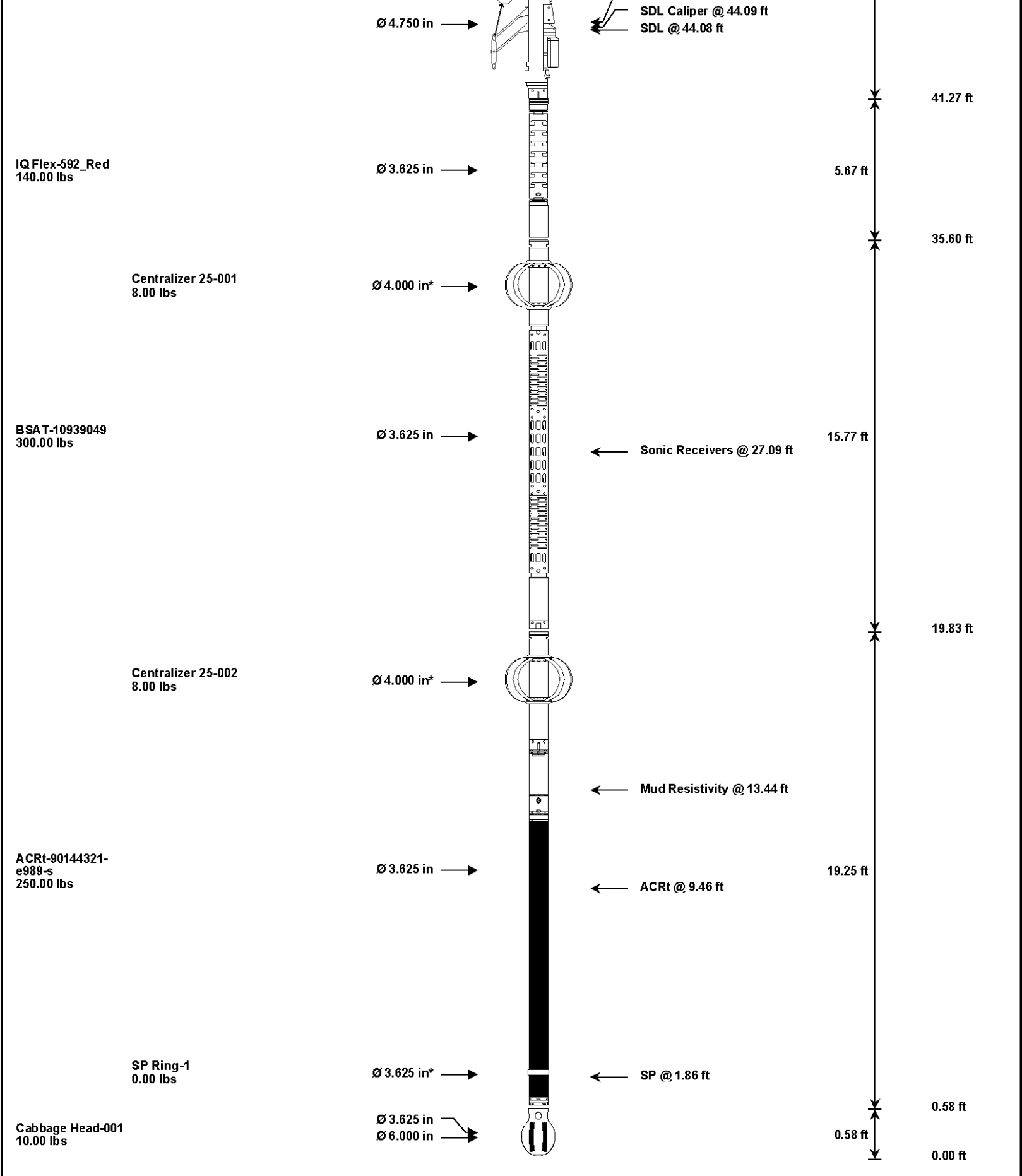
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Plot Range: 6172 ft to 6560 ft
Data: LAURA_21-1\Well Based\DAQ-0001-003\
Plot File: \\BSAT\1_BSAT_5_mainx

REPEAT SECTION

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
CH_HOS-590_BLK 37.50 lbs		Ø 2.750 in →		← Temperature @ 72.30 ft	3.03 ft	73.32 ft
GTET-11013113 165.00 lbs		Ø 3.625 in →		← GammaRay @ 64.23 ft	8.52 ft	70.30 ft
DSN Decentralizer-10735144 6.60 lbs		Ø 3.625 in* →				61.77 ft
DSNT-11020487 174.00 lbs		Ø 3.625 in →		← DSN Far @ 54.84 ft ← DSN Near @ 54.09 ft	9.69 ft	
SDL T-487M06P72 360.00 lbs		Ø 4.500 in →		SDL Microlog @ 44.27 ft	10.81 ft	52.09 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	590_BLK	37.50	3.03	70.30	300.00
GTET	Gamma Telemetry Tool	11013113	165.00	8.52	61.77	60.00
DSNT	Dual Spaced Neutron	11020487	174.00	9.69	52.09	60.00
DCNT	DSN Decentralizer	10735144	6.60	5.13	* 55.42	300.00
SDLT	Spectral Density Tool	187M06P72	360.00	10.81	41.27	60.00
IQ_F	IQ Flex-592_Red	590_BLK	140.00	5.05	35.60	300.00

IQF	IQ Flex tool	592_Red	140.00	5.67	35.60	300.00
BSAT	Borehole Sonic Array Tool	10939049	300.00	15.77	19.83	60.00
OBCEN	Centralizer - 25 in. Overbody	001	8.00	2.08	*	32.68 300.00
ACRt	Array Compensated True Resistivity	90144321-e989-s	250.00	19.25	0.58	300.00
SP	SP Ring	1	0.00	0.25	*	1.86 300.00
OBCEN	Centralizer - 25 in. Overbody	002	8.00	2.08	*	16.78 300.00
CBHD	Cabbage Head	001	10.00	0.58	0.00	300.00
Total			1,459.10	73.32		
* Not included in Total Length and Length Accumulation.						
Data: LAURA_21-1\0001 QUAD_RED\IDLE					Date: 11-Nov-10 11:13:43	

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	9.000	ppg
	SHARED	WAGT	Weighting Agent	Natural	
	SHARED	BSAL	Borehole salinity	1200.00	ppm
	SHARED	FSAL	Formation Salinity NaCl	0.00	ppm
	SHARED	KPCT	Percent K in Mud by Weight?	0.00	%
	SHARED	RMUD	Mud Resistivity	2.000	ohmm
	SHARED	TRM	Temperature of Mud	75.0	degF
	SHARED	CSD	Logging Interval is Cased?	No	
	SHARED	ICOD	AHV Casing OD	4.500	in
	SHARED	ST	Surface Temperature	75.0	degF
	SHARED	TD	Total Well Depth	6551.00	ft
	SHARED	BHT	Bottom Hole Temperature	200.0	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	Centered	
	DSNT	DNOK	Process DSN?	Yes	

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	DNOK	Process Density?	Yes	
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?	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	RTOK	Process ACRt?	Yes	
ACRt	MNSO	Minimum Tool Standoff	1.50	in
ACRt	TCS1	Temperature Correction Source	FP Lwr & FP Upr	
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: LAURA_21-1\0001 QUAD_RED\IDLE			Date: 11-Nov-10 13:25:32	

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	
ECR	Natural Gamma Ray API with Enhanced Vertical Resolution	64.23	W	1.416 0.750

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	44.08	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	41.28	NO	
FHV	Far Detector High Voltage	41.28	NO	
ITMP	Instrument Temperature	41.28	NO	
DDHV	Detector High Voltage	41.28	NO	
TPUL	Tension Pull	44.09	NO	
PCAL	Pad Caliper	44.09	TRI	0.250
ACAL	Arm Caliper	44.09	TRI	0.250
TPUL	Tension Pull	44.28	NO	
MINV	Microlog Lateral	44.28	BLK	0.750
MNOR	Microlog Normal	44.28	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	2.07	NO	

FPOL	Version 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	
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	
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COMPANY	EOG RESOURCES		
WELL	LAURA 21#1		
FIELD	WILD CAT		
COUNTY	STEVENS	STATE	KANSAS
HALLIBURTON		BOREHOLE COMPENSATED ARRAY SONIC LOG	