

HALLIBURTON										BOREHOLE COMPENSATED SONIC ARRAY LOG									
CMX INC MONEY SHOT #1-21 WILDCAT PRATT KANSAS					COMPANY CMX INC WELL MONEY SHOT #1-21 FIELD/BLOCK WILDCAT COUNTY PRATT STATE KANSAS														
Permanent Datum Log measured from Drilling measured from					GL KB KB 13.0 ft above perm. Datum					Elev.: K.B. D.F. G.L. 2004.0 ft 2002.0 ft 1991.0 ft									
COMPANY WELL FIELD/BLOCK COUNTY STATE					Sect. 21 Twp. 27S Rge. 14W					Other Services: DSNT/SDLT MICROLOG BSAT ACRT									
Date					12-May-16														
Run No.					ONE														
Depth - Driller					4780.0 ft														
Depth - Logger					4774.0 ft														
Bottom - Logged Interval					4767.00 ft														
Top - Logged Interval					391.00 ft														
Casing - Driller					8.625 in @ 395.0 ft					@									
Casing - Logger					391.0 ft														
Bit Size					7.875 in					@									
Type Fluid in Hole					Water Based Mud														
Density					9.3 ppg		43.00 s/qt												
PH					9.20 pH		9.6 cpm												
Source of Sample					MUDPIT														
Rm @ Meas. Temperature					0.47 ohmm @ 75.00 degF					@									
Rmf @ Meas. Temperature					0.29 ohmm @ 75.00 degF					@									
Rmc @ Meas. Temperature					0.62 ohmm @ 75.00 degF					@									
Source Rmf					Rmc		MEASURED			MEASURED									
Rm @ BHT					0.28 ohmm @ 129.0 degF					@									
Time Since Circulation					5.0 hr														
Time on Bottom					12-May-16 23:30														
Max. Rec. Temperature					129.00 degF @ 4774.0 ft					@									
Equipment					Location		12156883			EL RENO									
Recorded By					JORGE ORLANDO PEREZ														
Witnessed By					KEN LEBLANC														

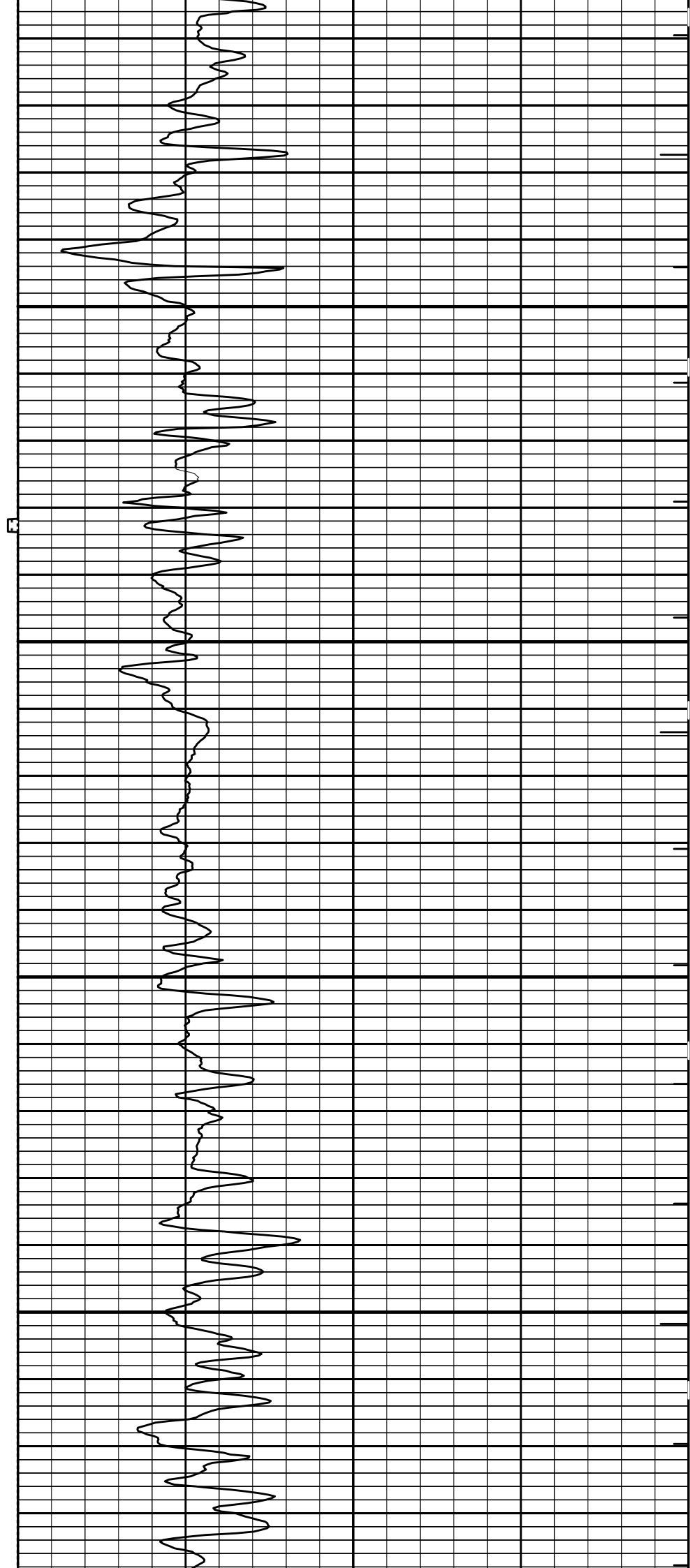
Service Ticket No.: 903288515										API No.: 15-151-22450-00-00										PGM Version: WL INSITE R5.0.0 (Build 4)									
CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE										RESISTIVITY SCALE CHANGES																			
Date	Sample No.							Type Log	Depth		Scale Up Hole				Scale Down Hole														
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		1.5 S.O.		N/A												
Rmc @ Meas. Temp.		@				@					I-11055059																		
Source Rmf	Rmc								S-11038385																				
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.		11021139			Serial No.		11014316			Serial No.		10951315			Serial No.		11019641												
Model No.		GTET			Model No.		BSAT			Model No.		SDLT			Model No.		DSNT												
Diameter		3.625"			No. of Cent.		2			Diameter		5.3"			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.		5577GW			Serial No.		DSN-424												
Distance to Source		N/A			FWDA [Y/N]					Strength		1.5 Ci			Strength		15.0 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	PEC	0	150	30	-10	47.6 uSec/ft	30	-10	2.71 gr/cc	30	-10	LIME															

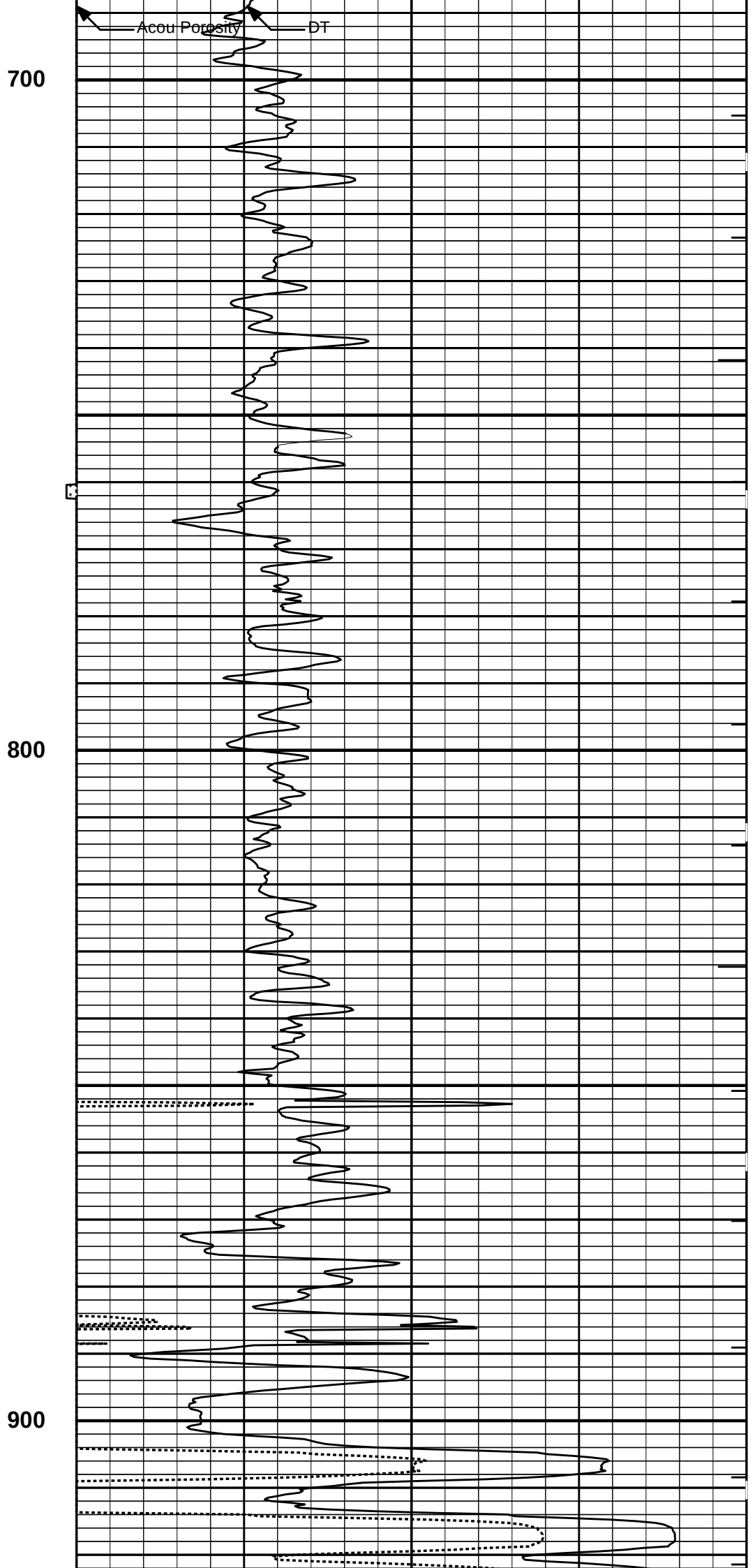
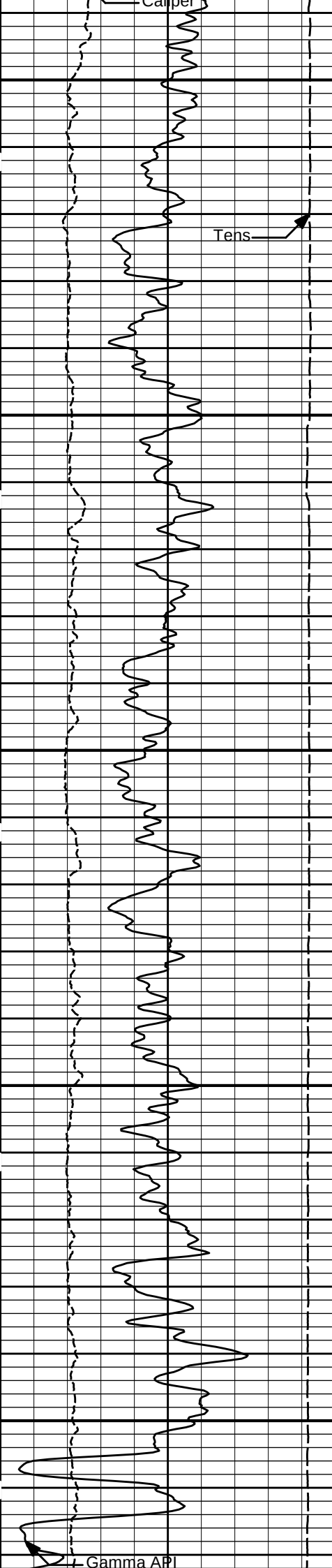
ONE	TD	CSG	REC	0	100	30	-10	47.0 uSec/ft	30	-10	2.71 g/cc	30	-10	TIME		
DIRECTIONAL INFORMATION																
Maximum Deviation								@	KOP							@
Remarks: ANNULAR HOLE VOLUME CALCULATED FOR 5.5 INCH CASING																
CHLORIDES REPORTED AT 4200 ppm																

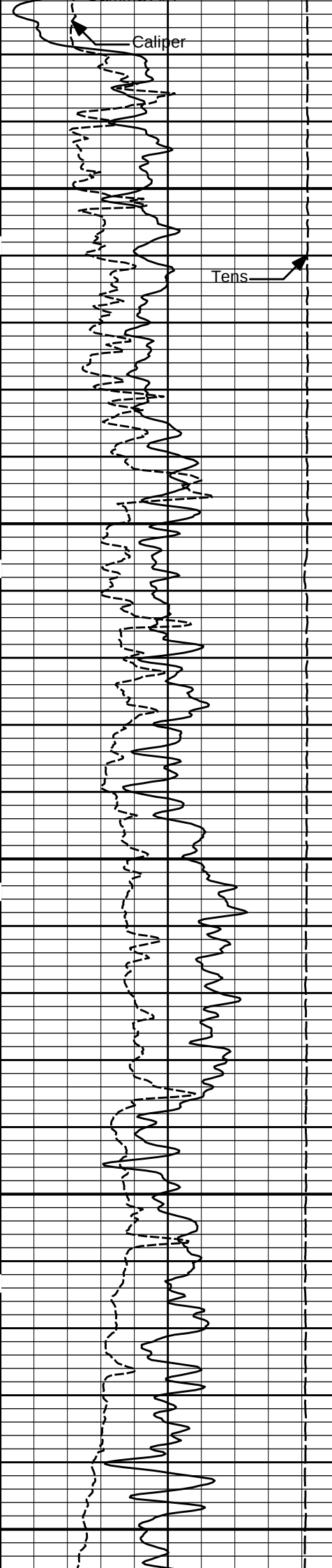


500

600

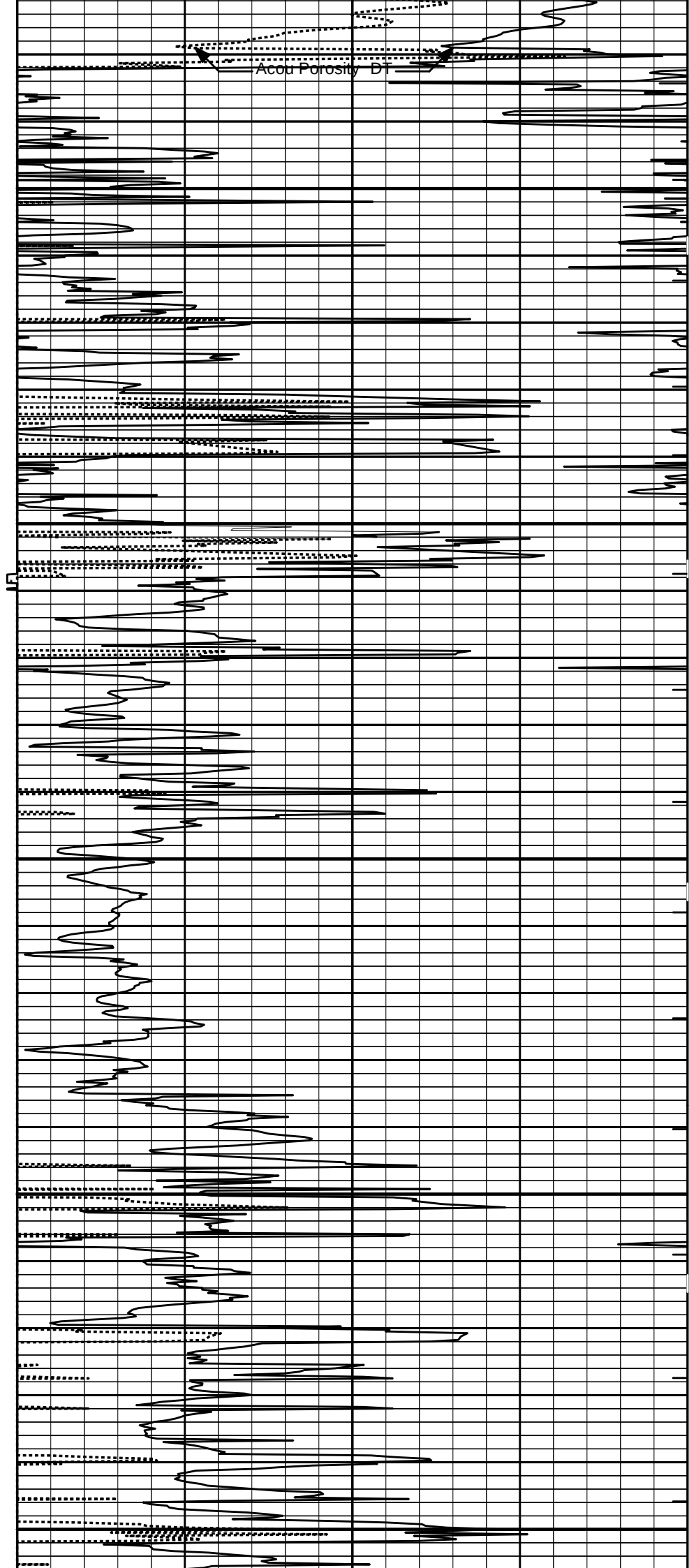


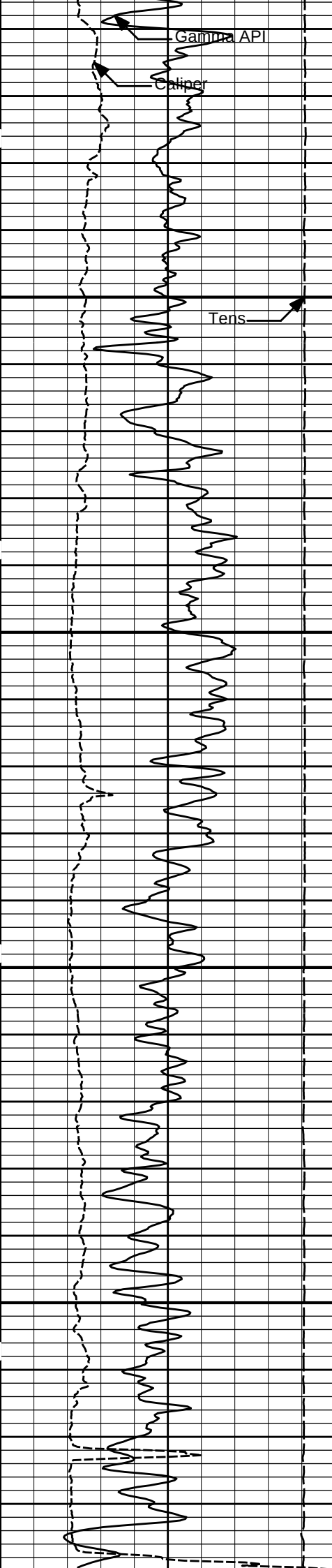




1000

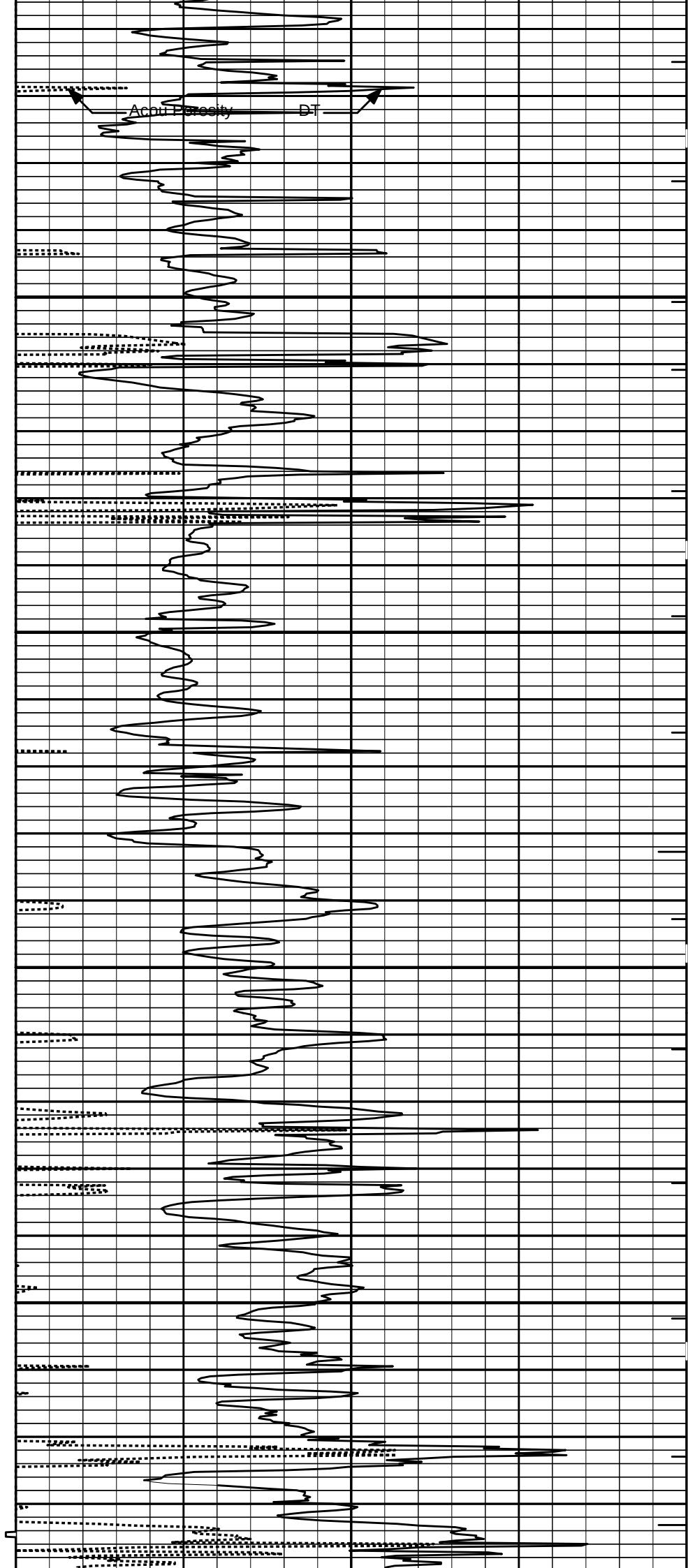
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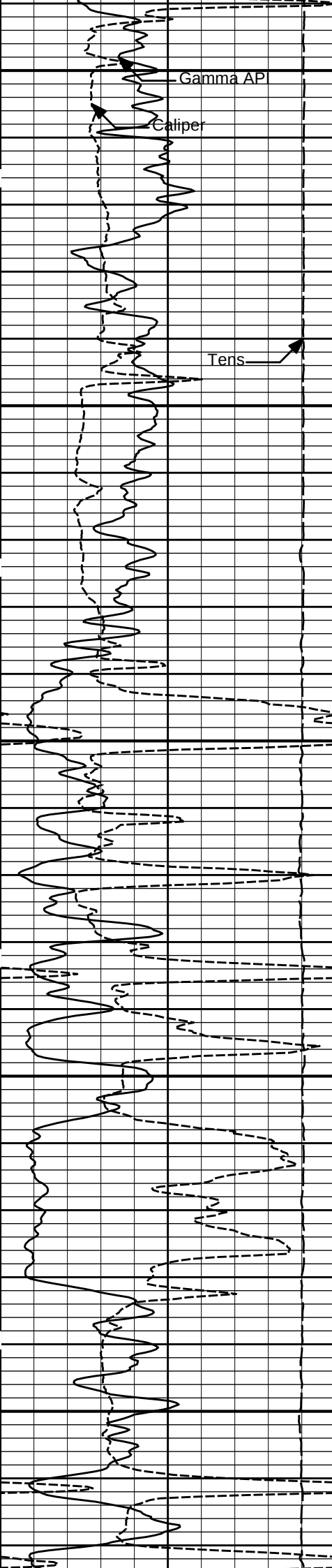




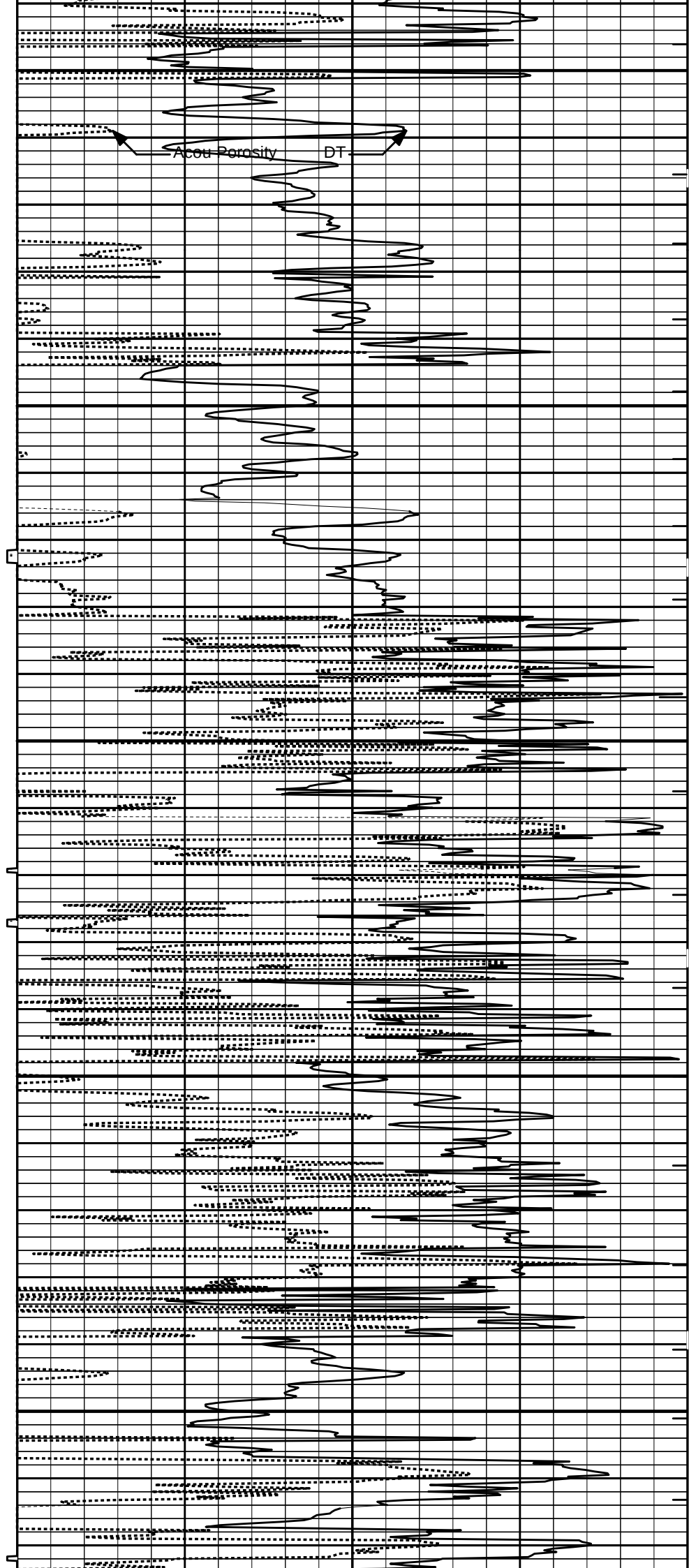
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1300



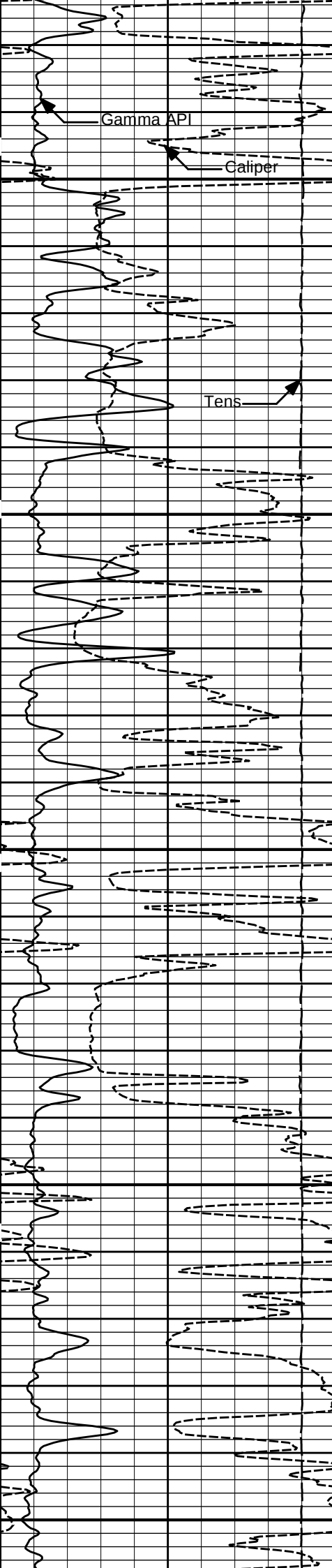


1400



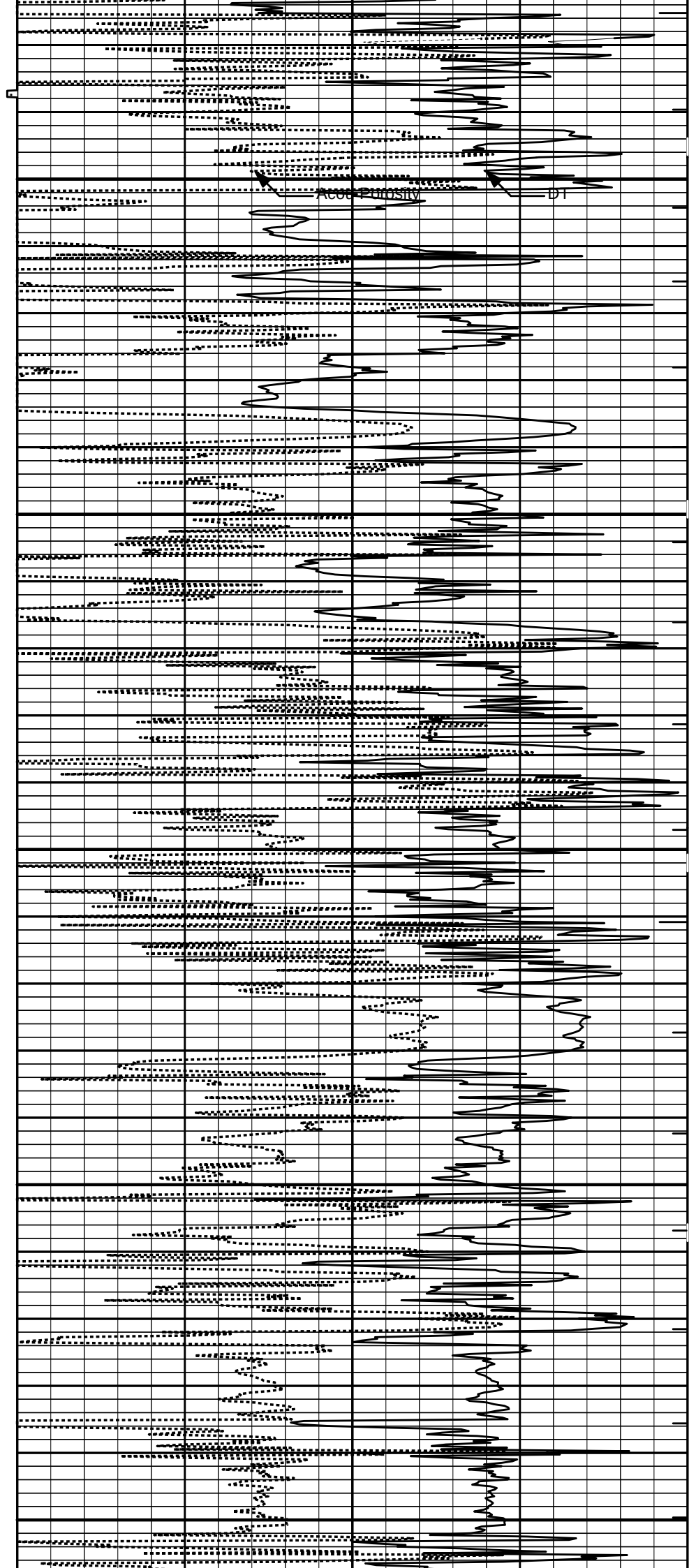
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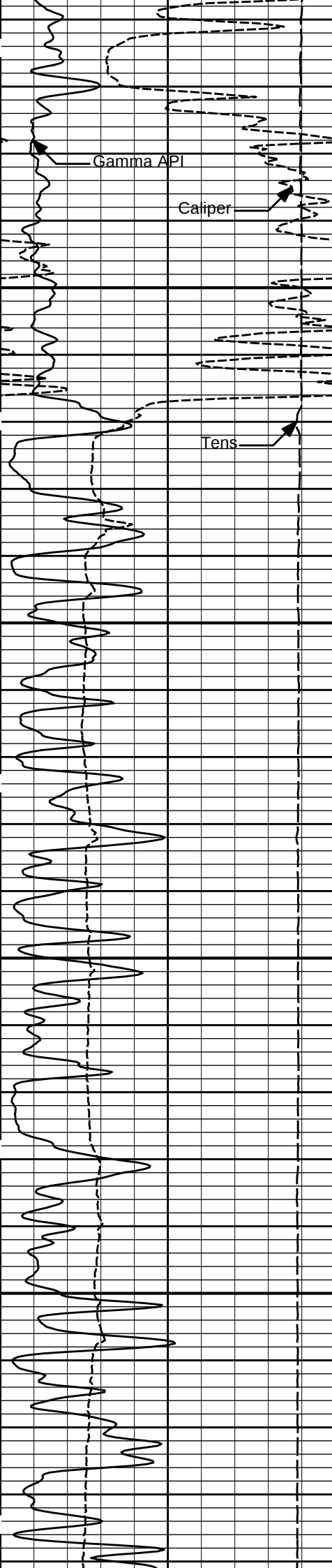
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1700

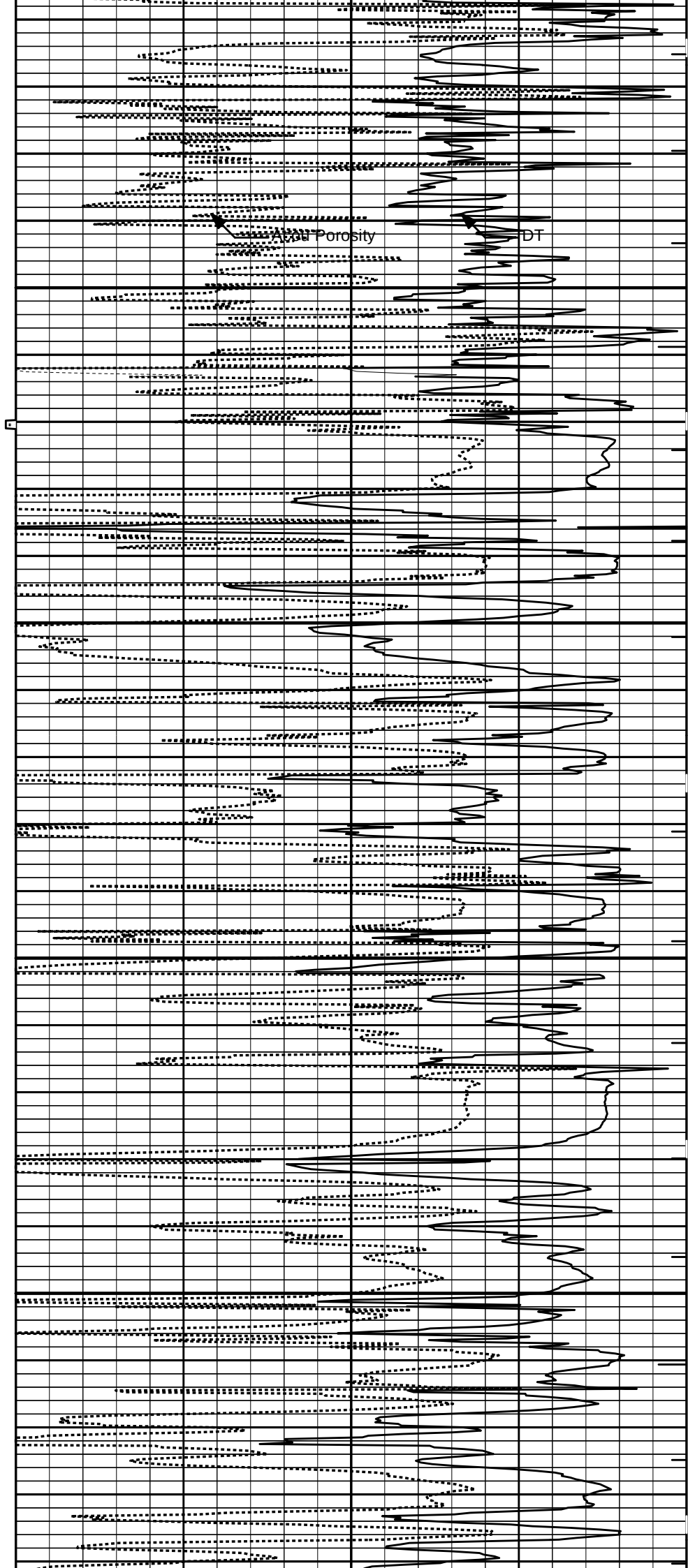
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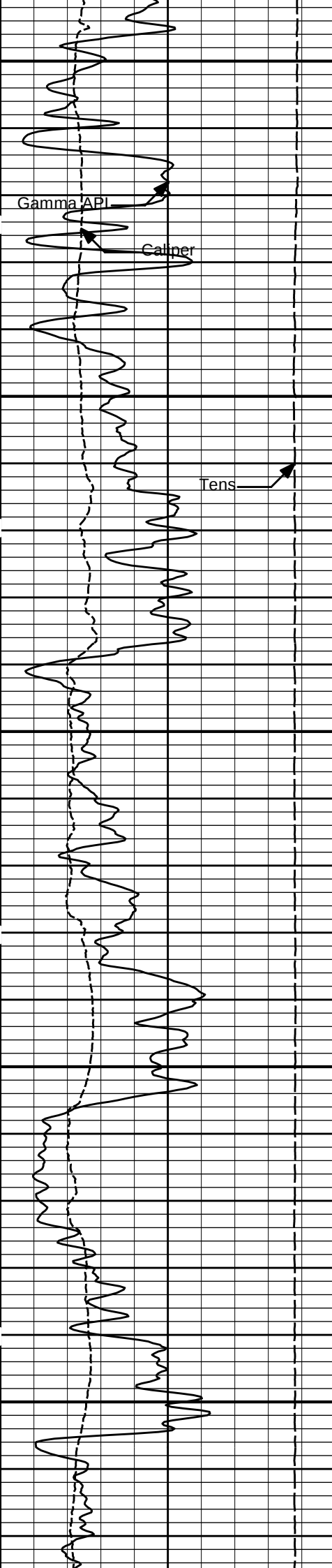




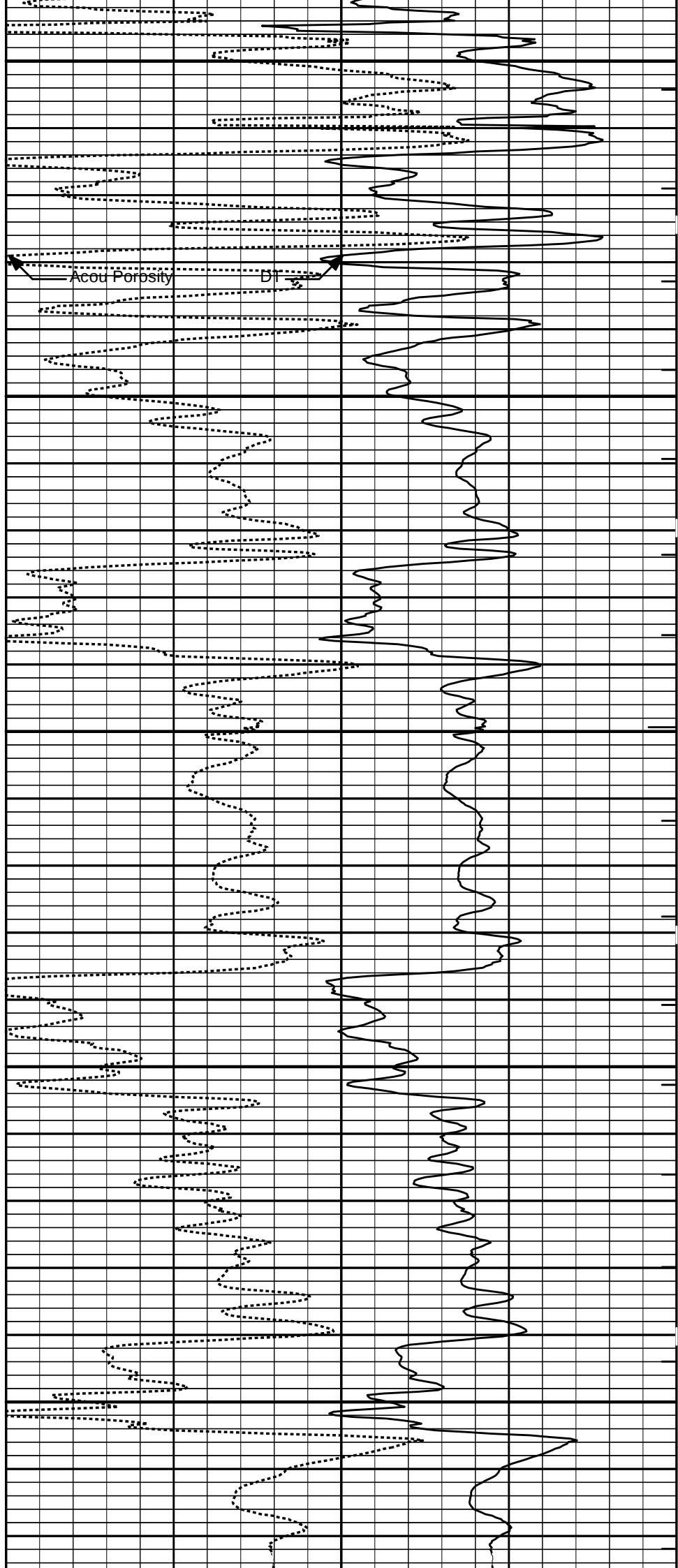
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2000



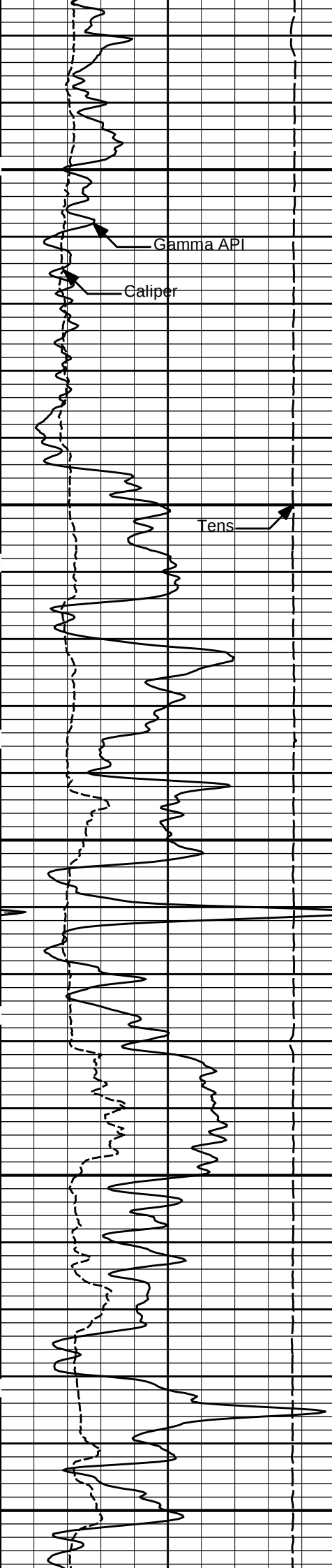


2100



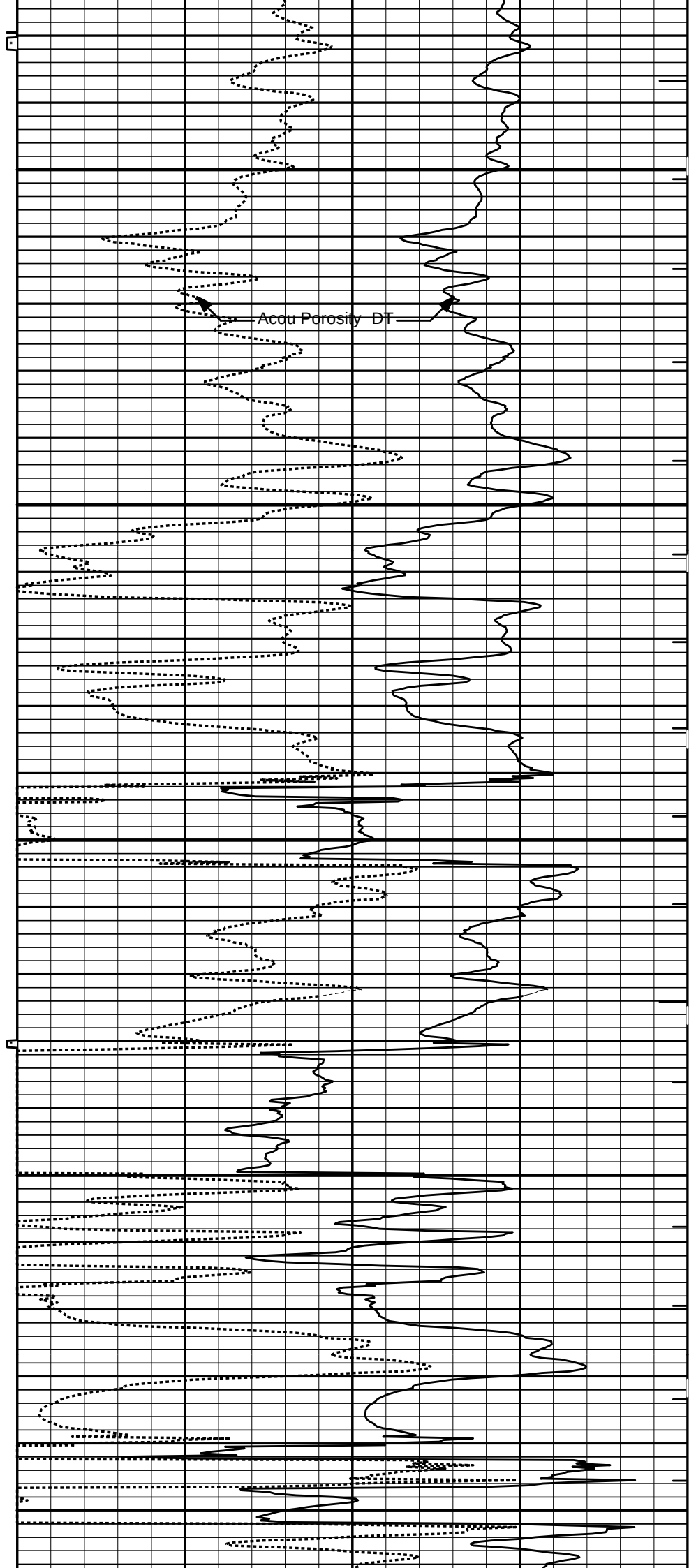
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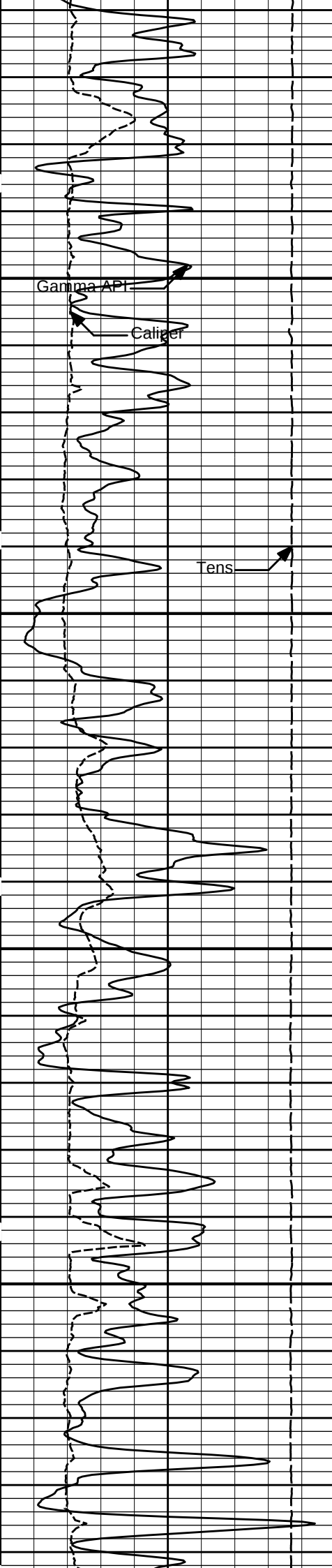
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2400

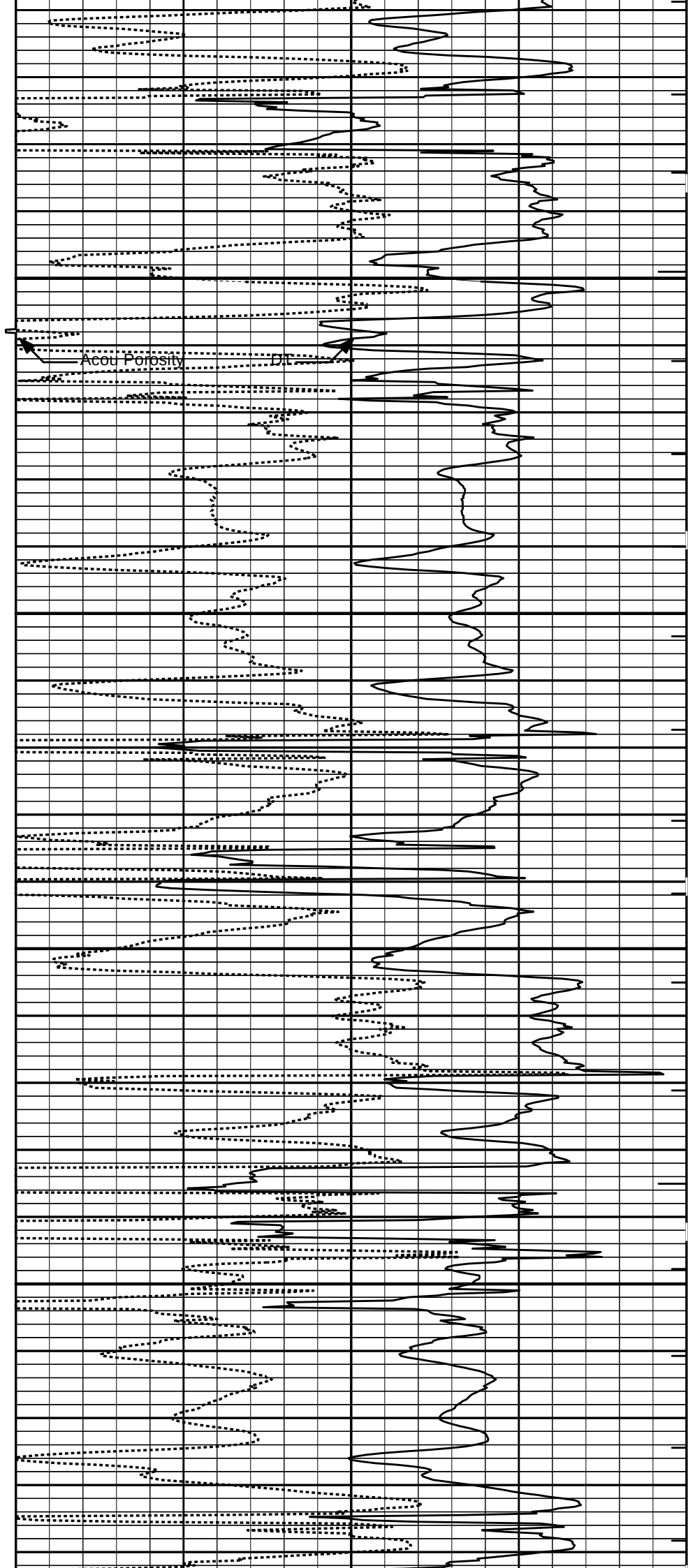
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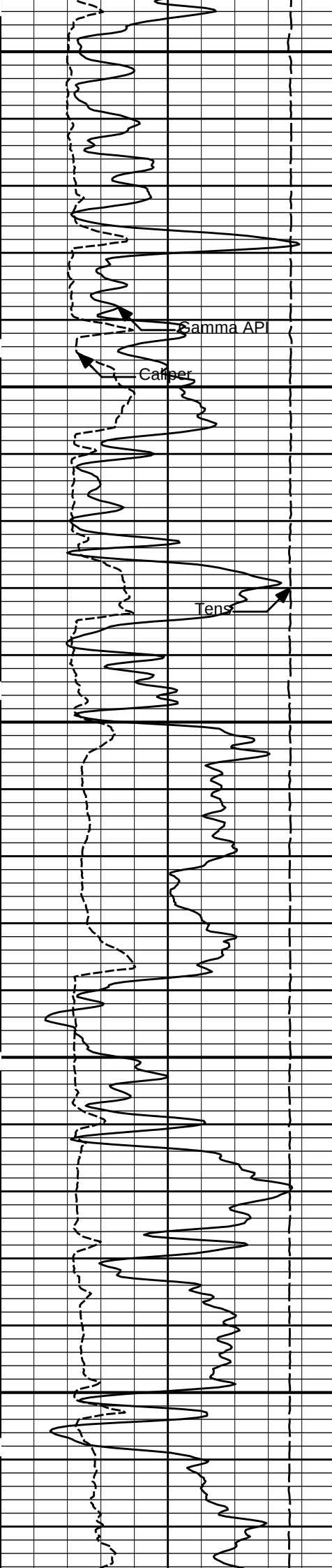




2600

2700

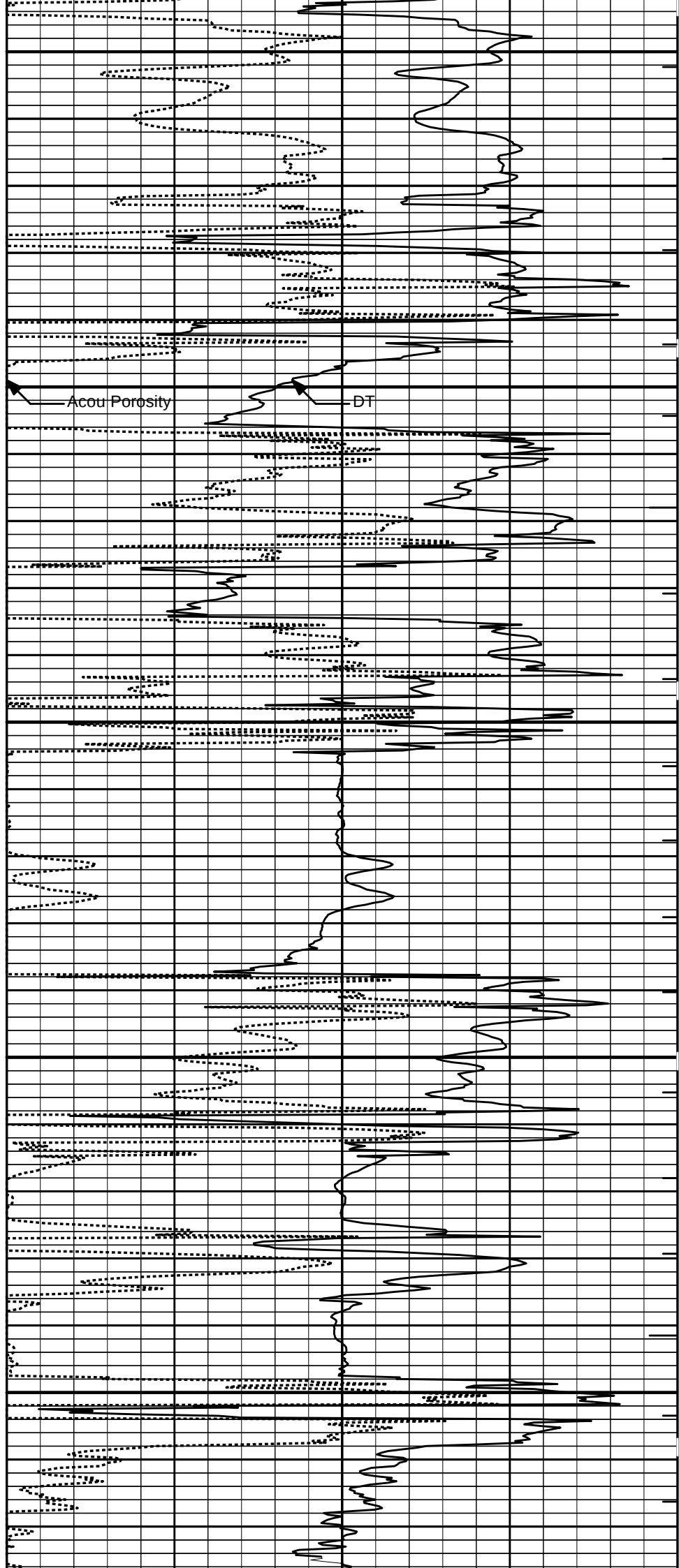


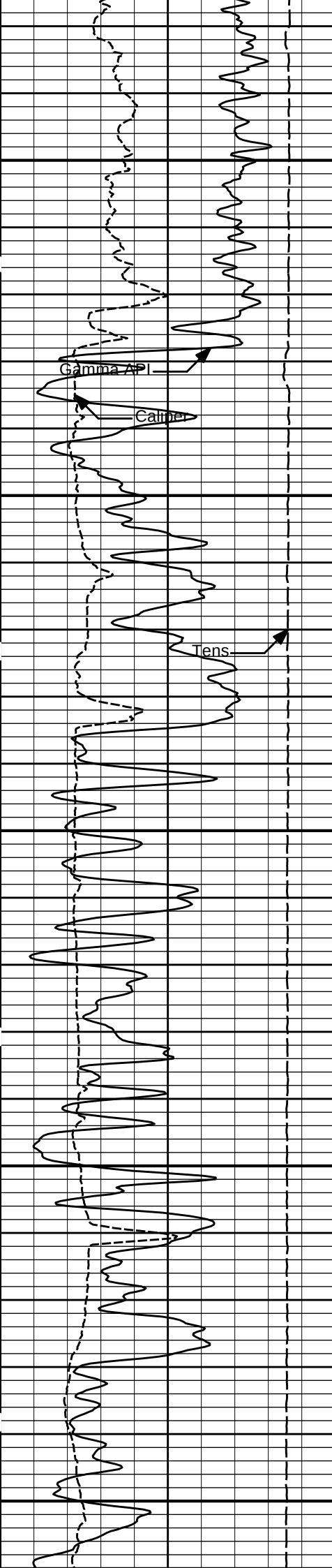


2800

2900

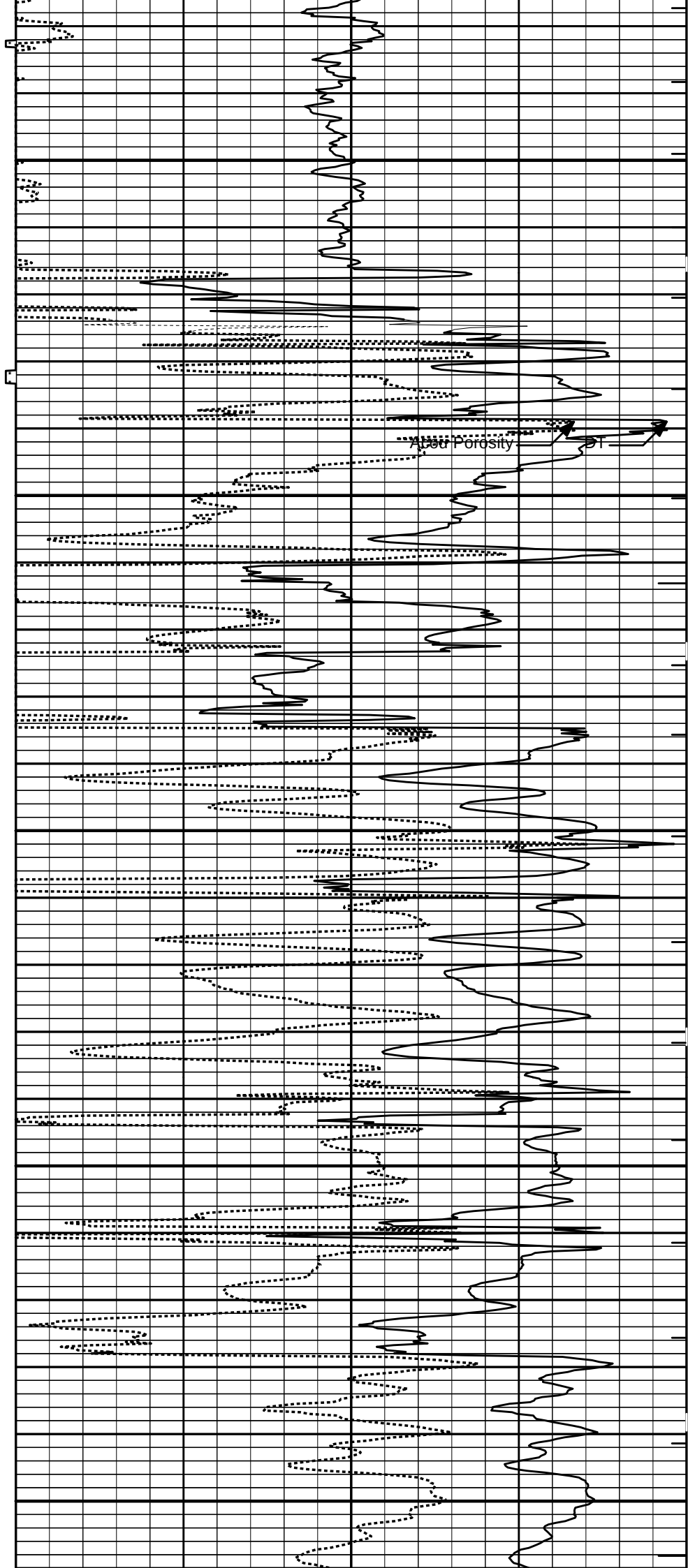
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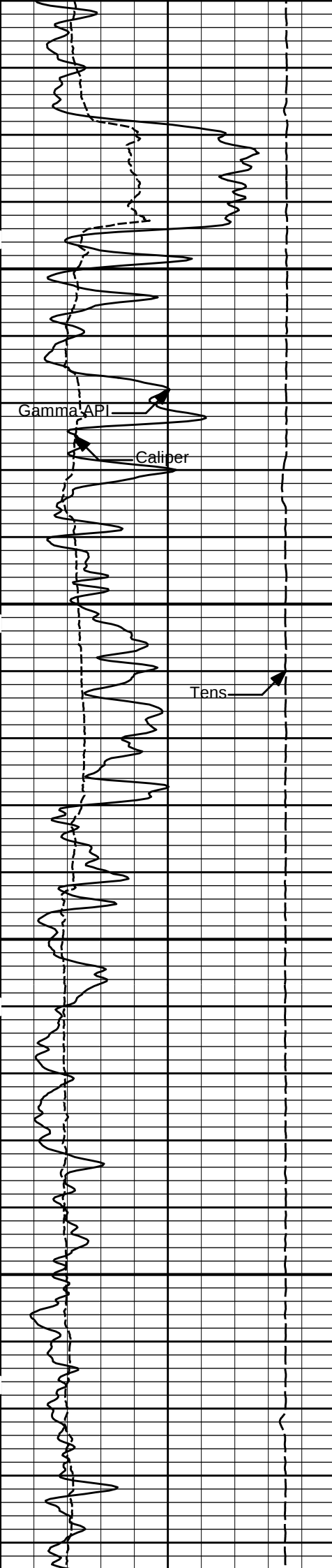




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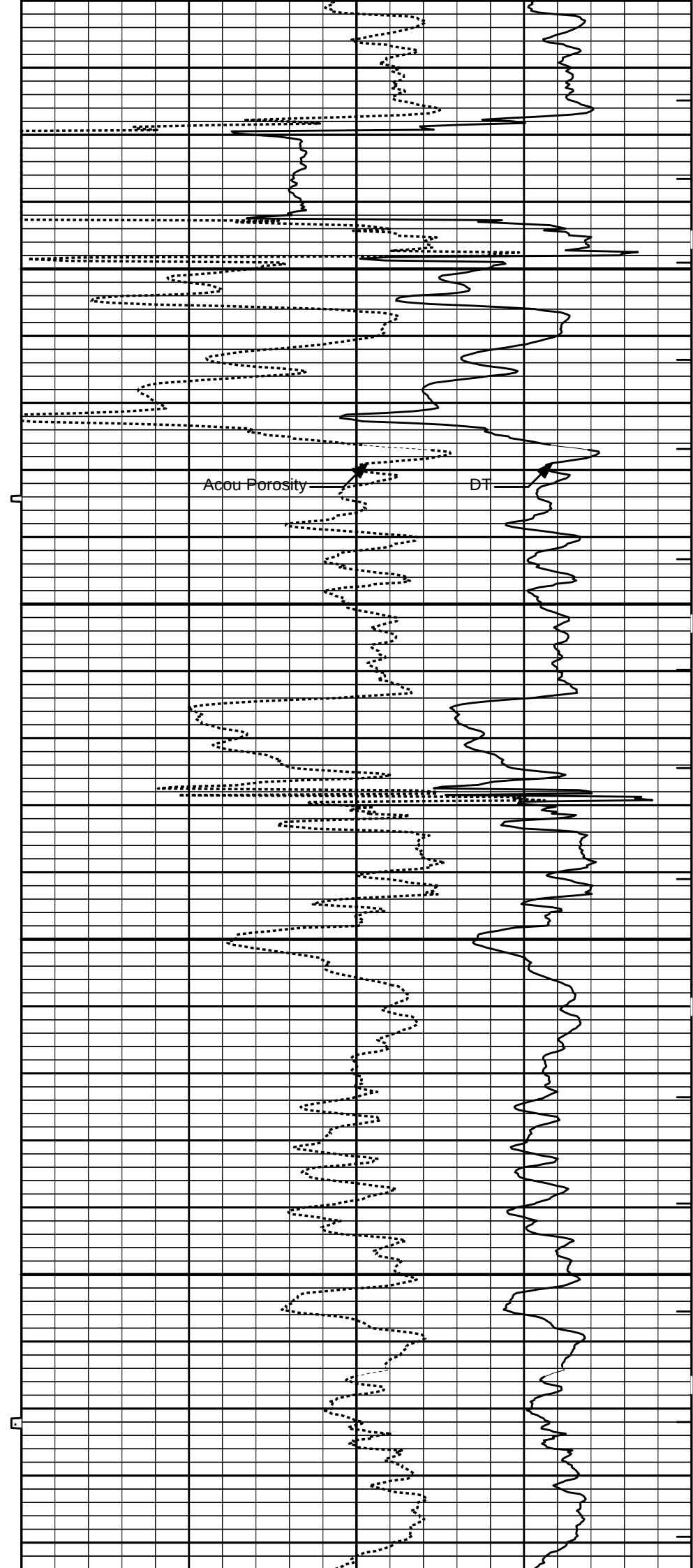
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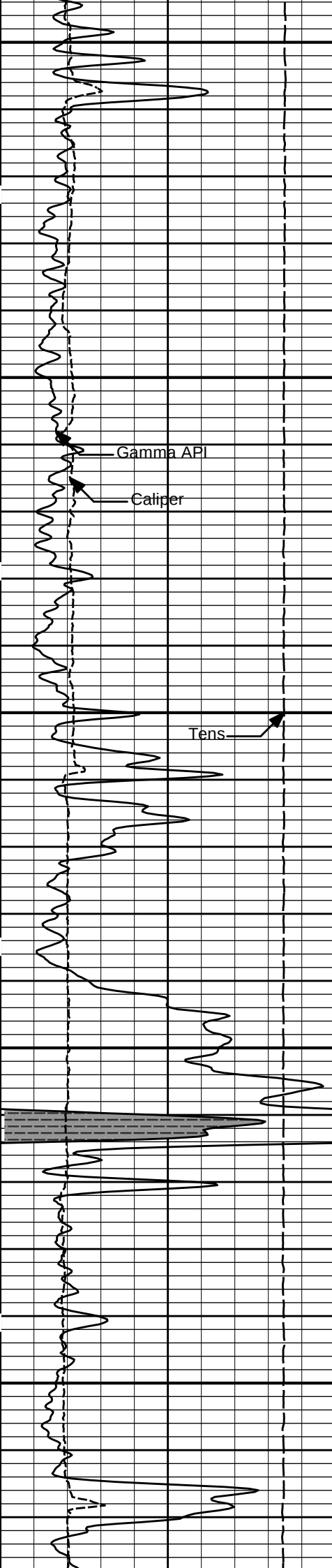




3300

3400

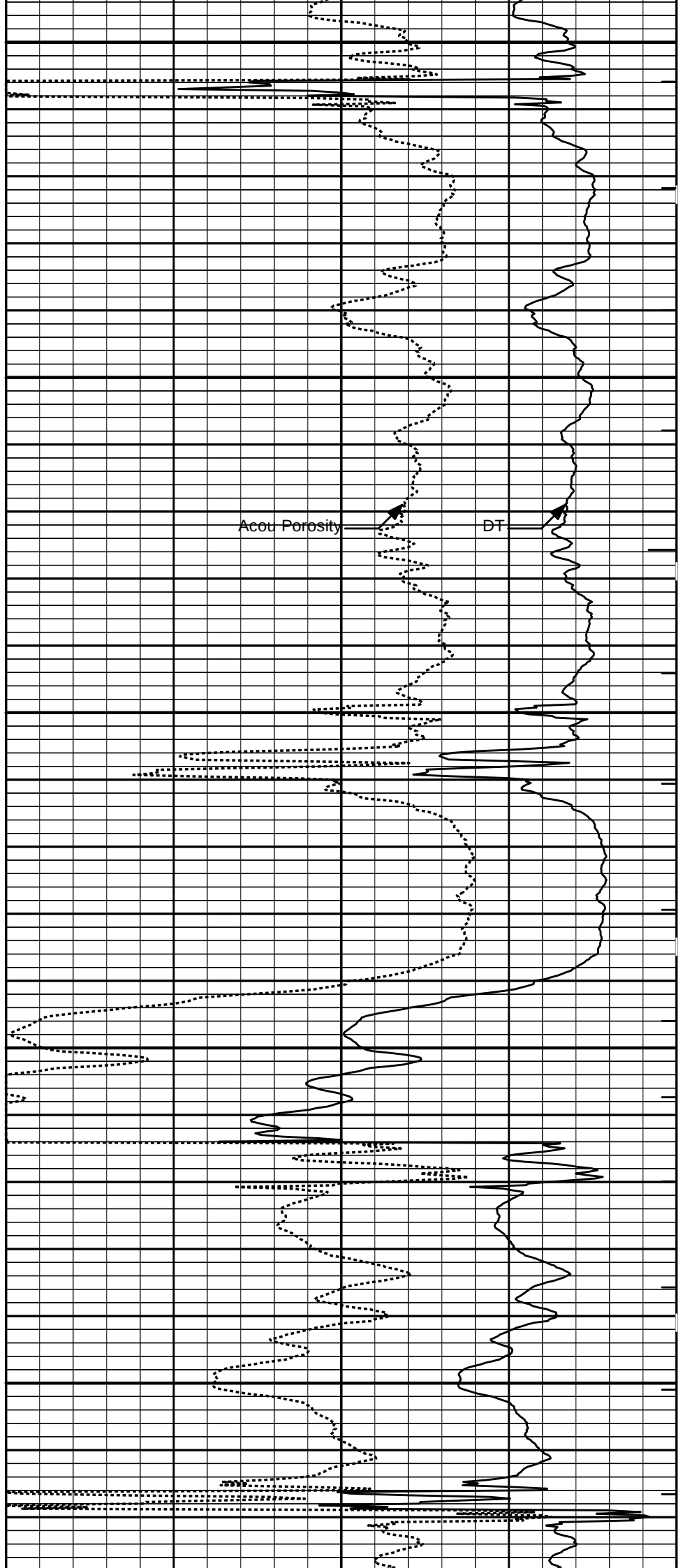


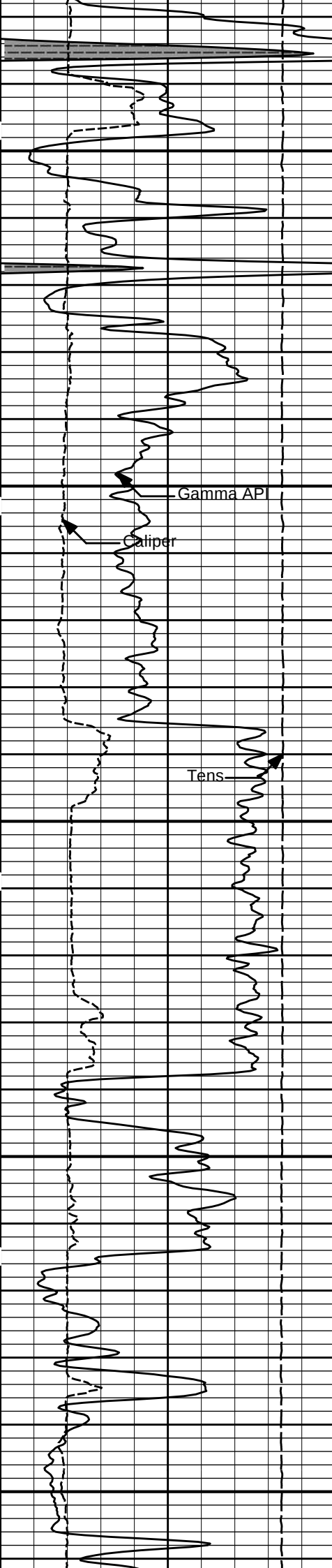


3500

3600

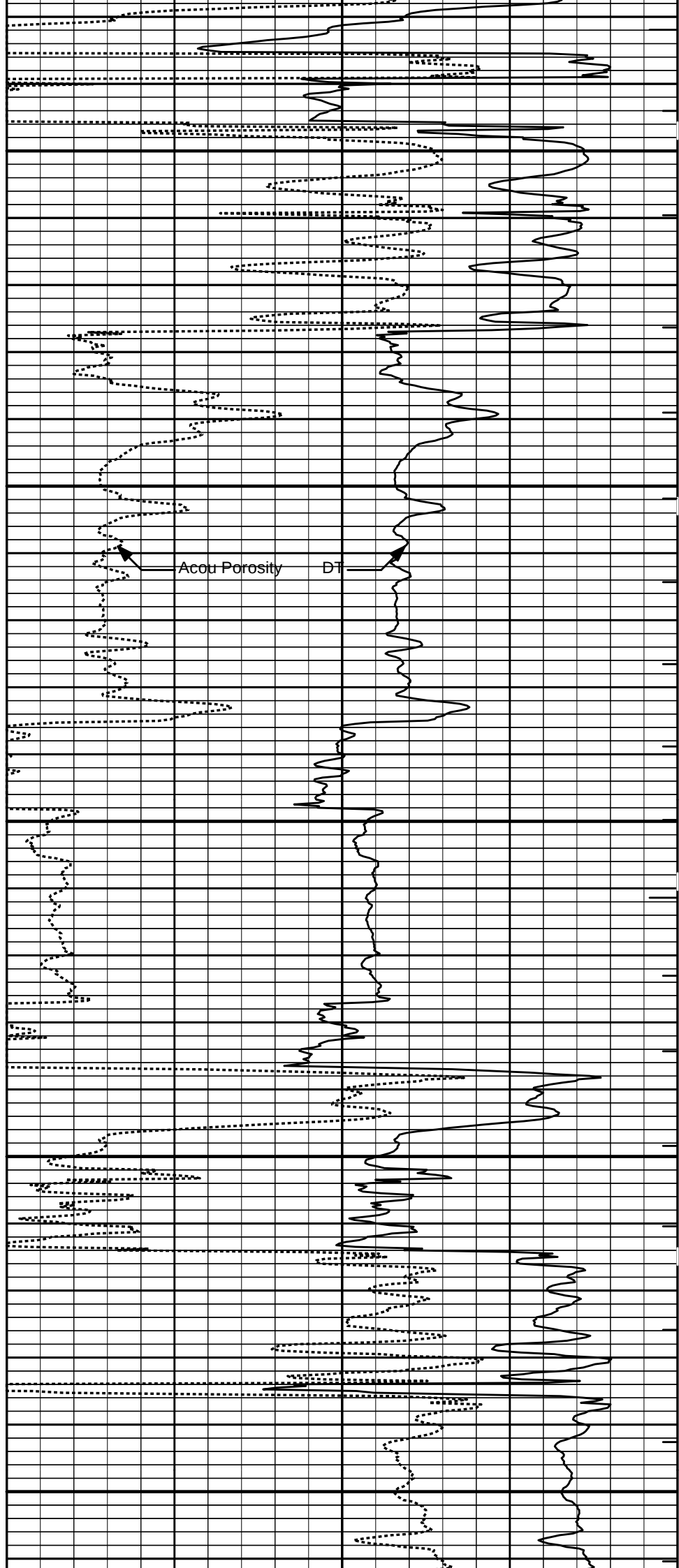
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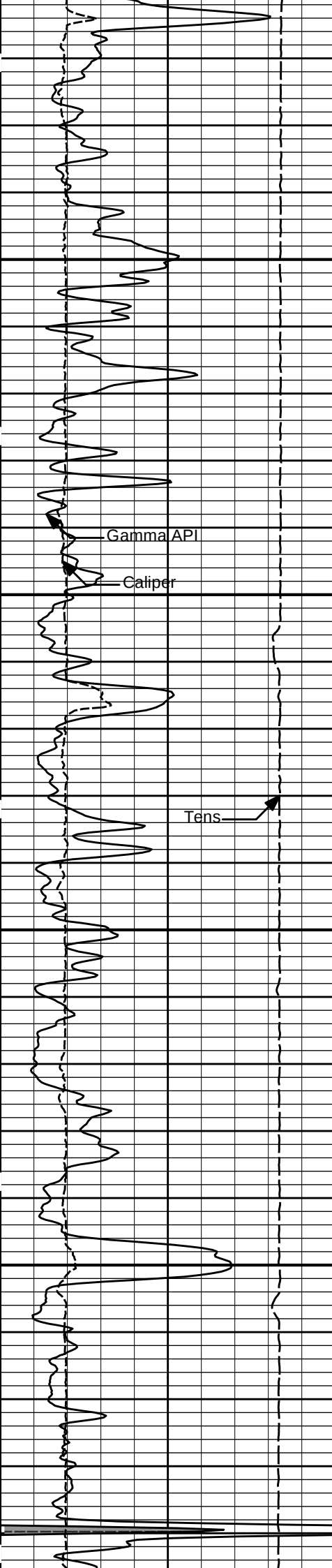




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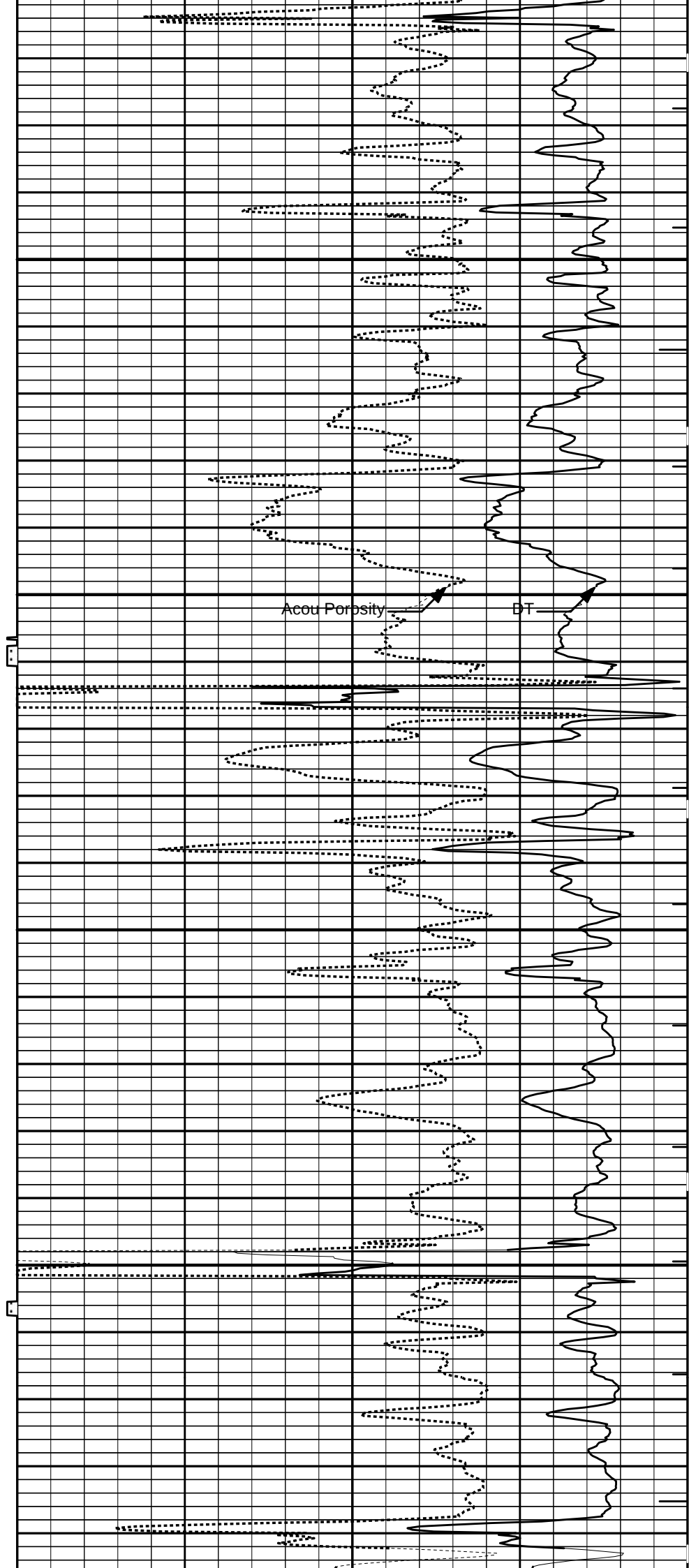
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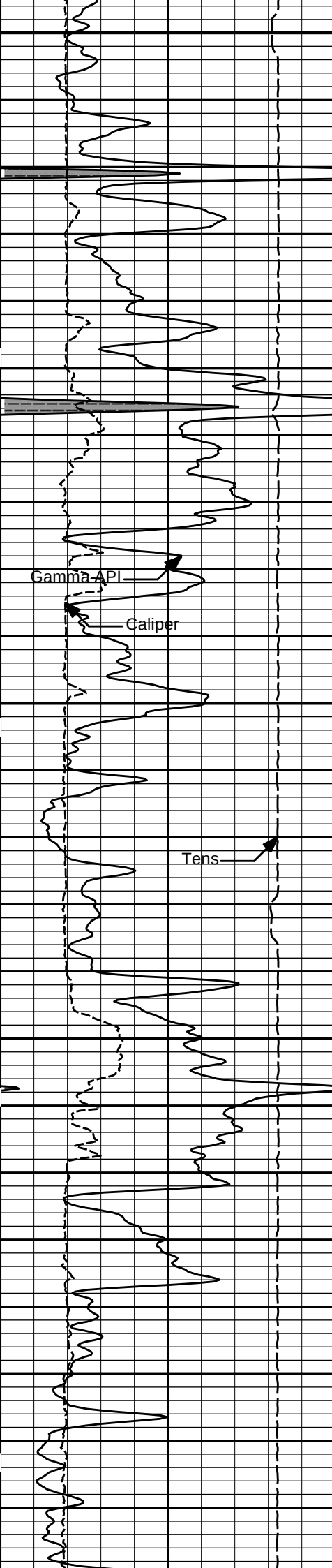




4000

4100

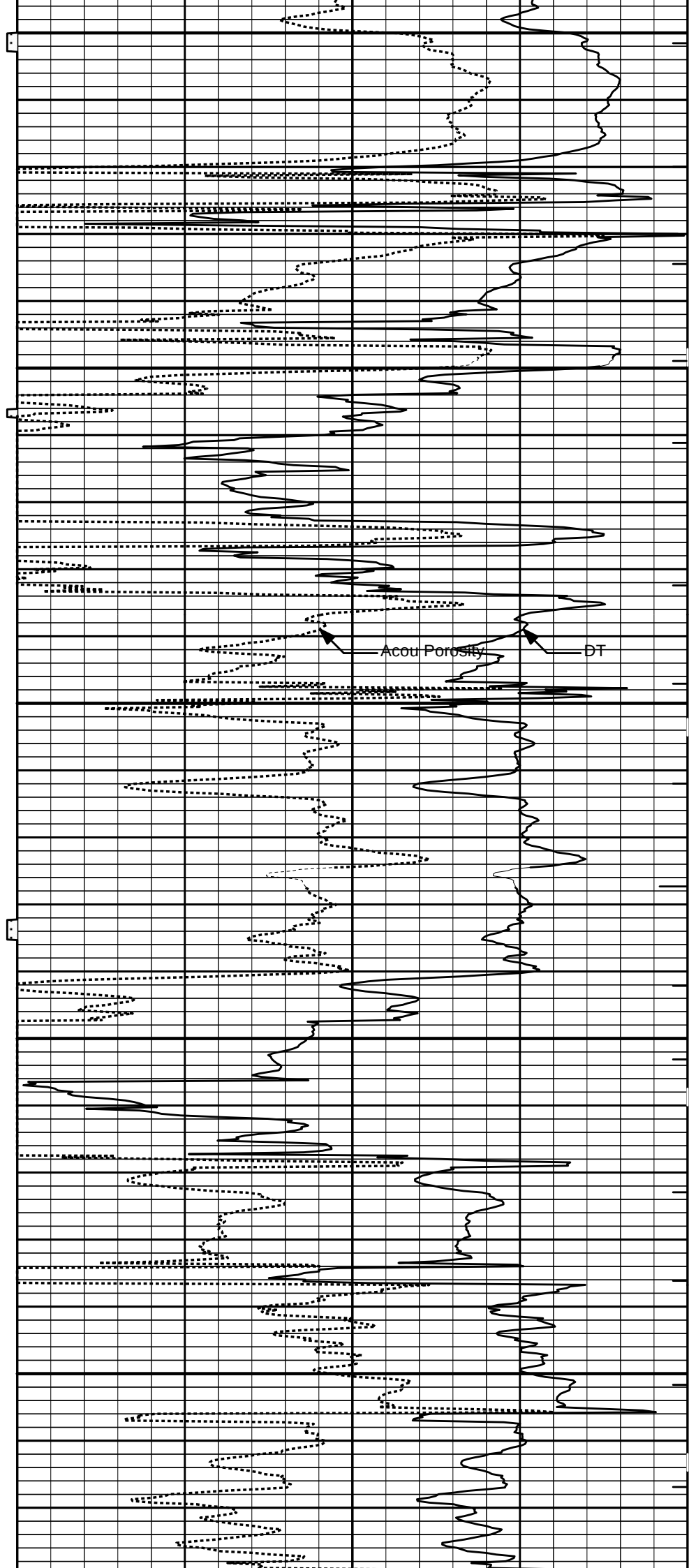


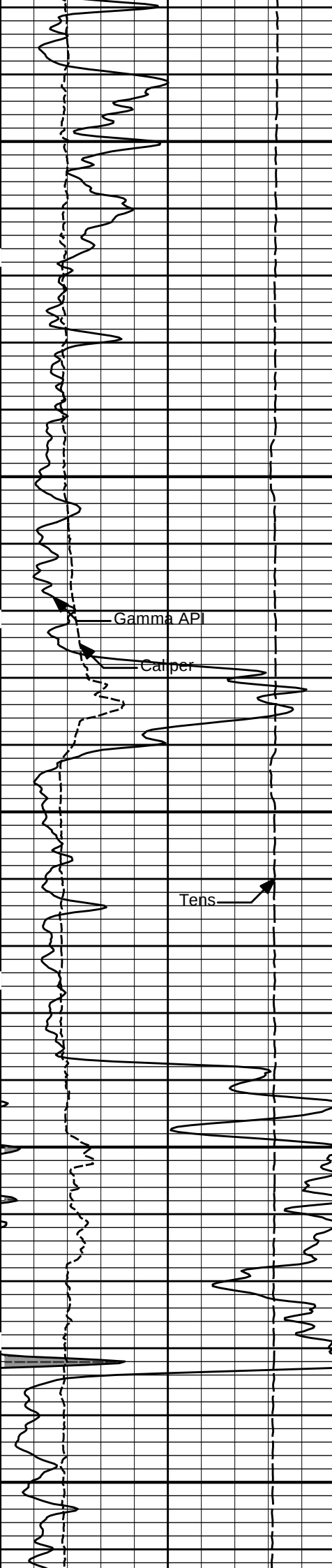


4200

4300

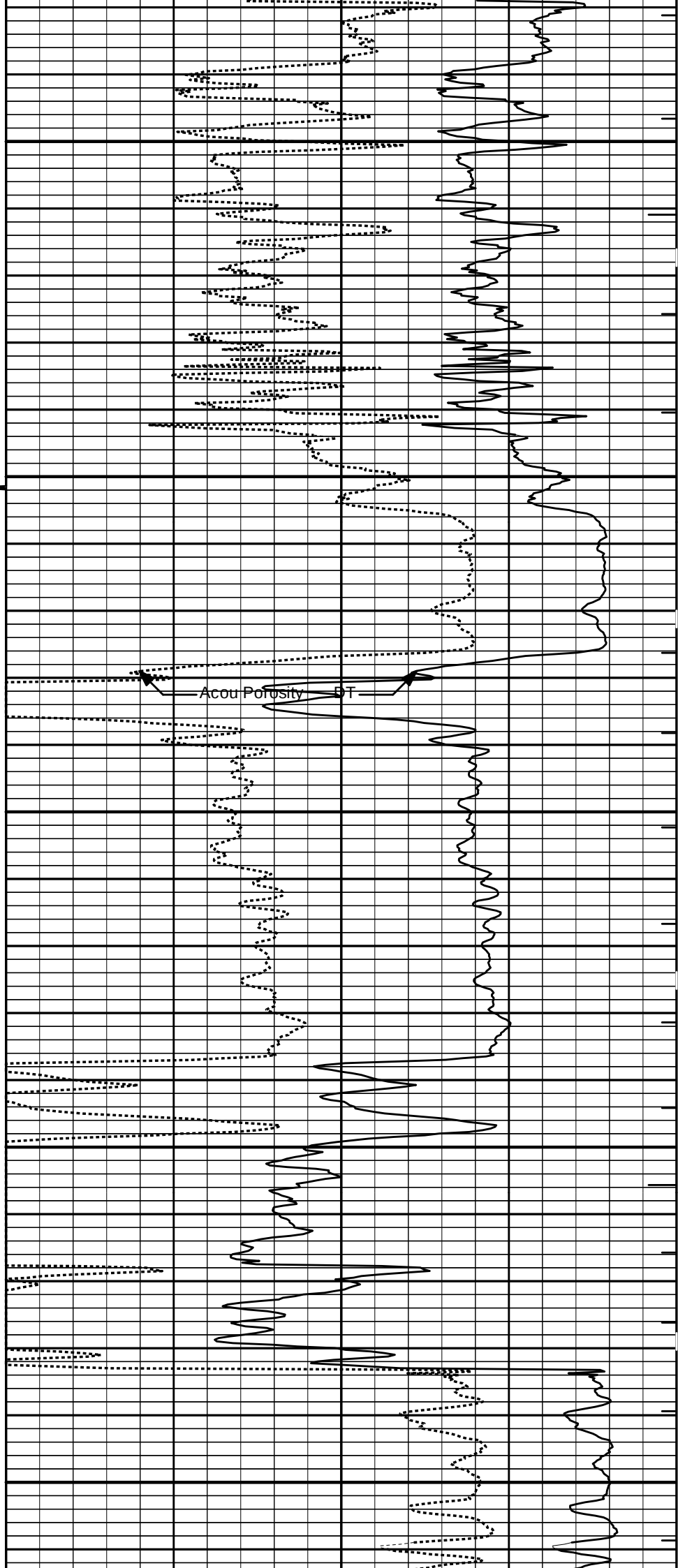
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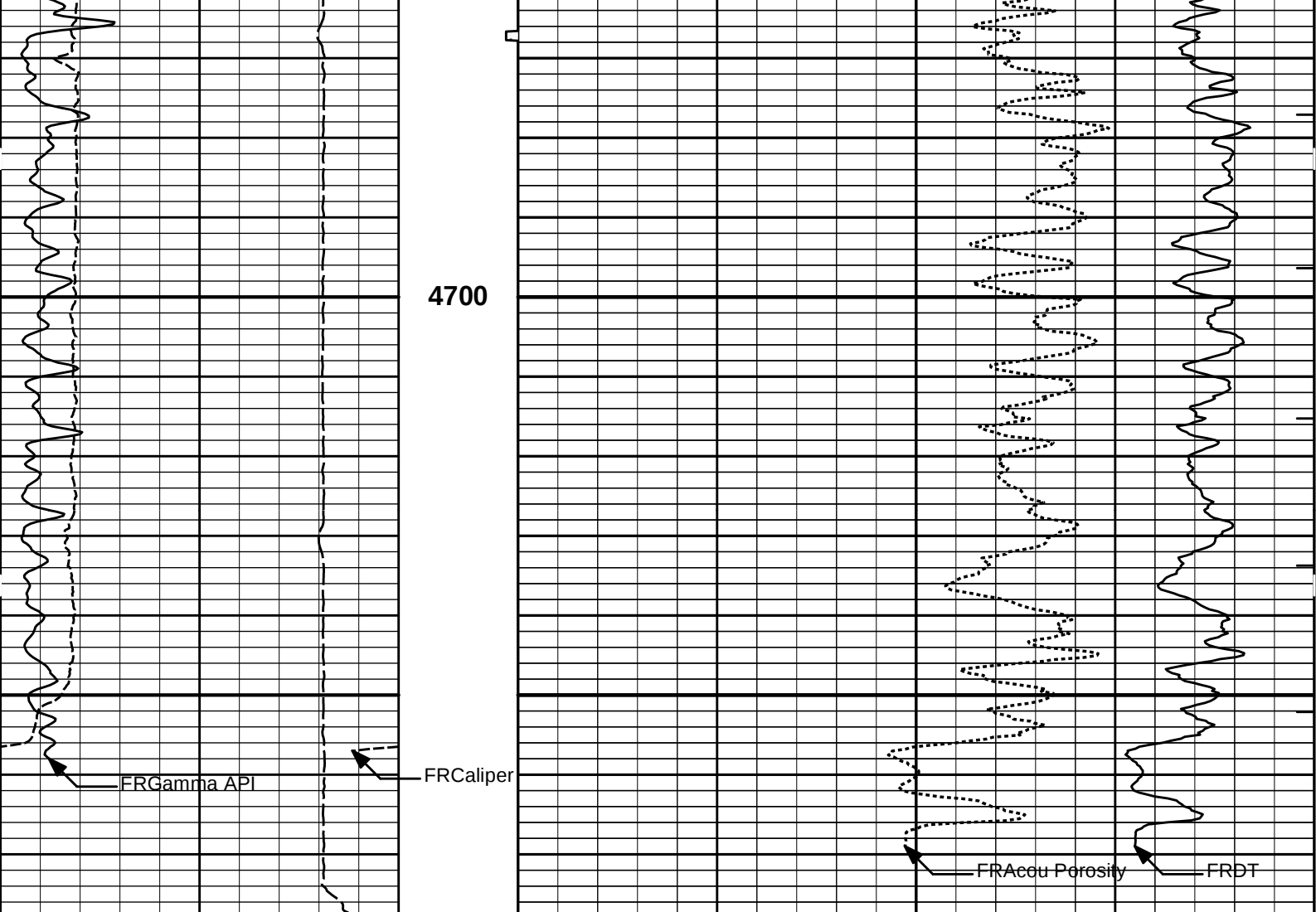




4500

4600





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

HALLIBURTON

Plot Time: 13-May-16 04:18:16
Plot Range: 378 ft to 4777.42 ft
Data: MONEY-SHOT_1-21\Well Based*1
Plot File: \IBSAT\IBSAT_5_MAIN_LIB

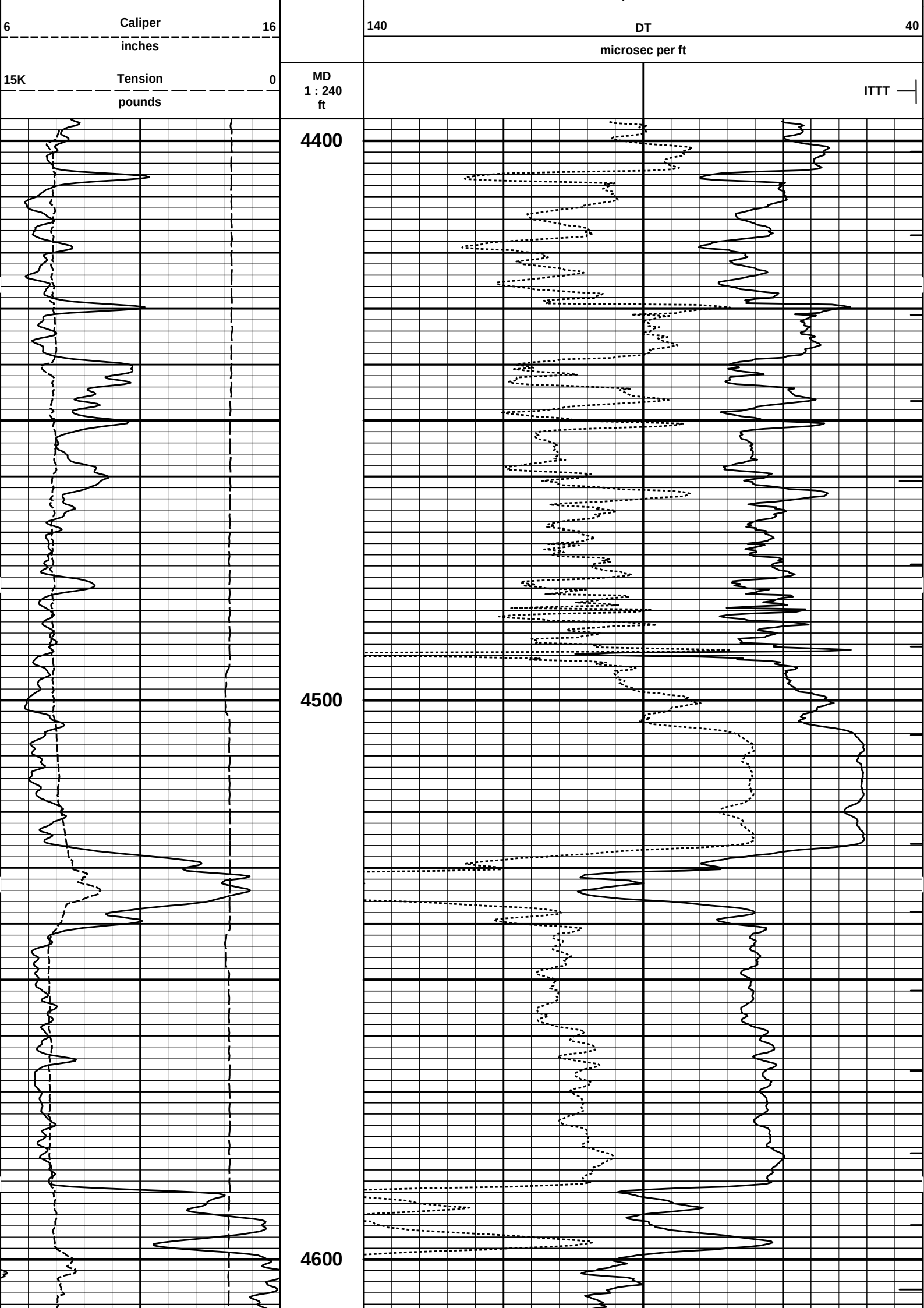
5 INCH MAIN LOG

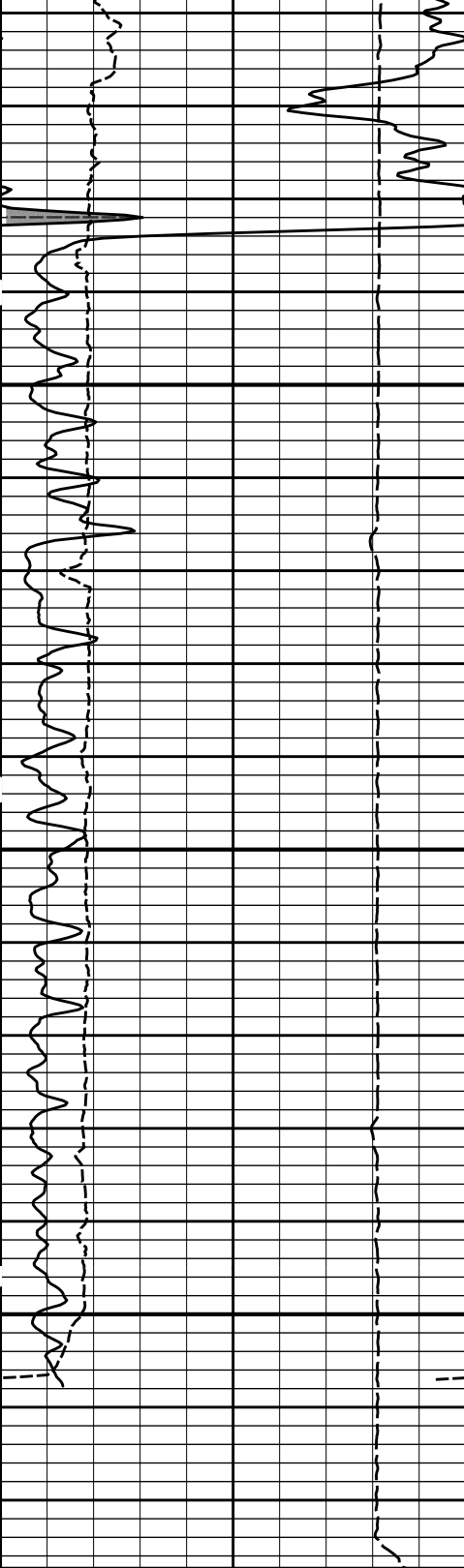
HALLIBURTON

Plot Time: 13-May-16 04:18:16
Plot Range: 4396 ft to 4777.33 ft
Data: MONEY-SHOT_1-21\Well Based*1
Plot File: \IBSAT\IBSAT_5_REP_LIB

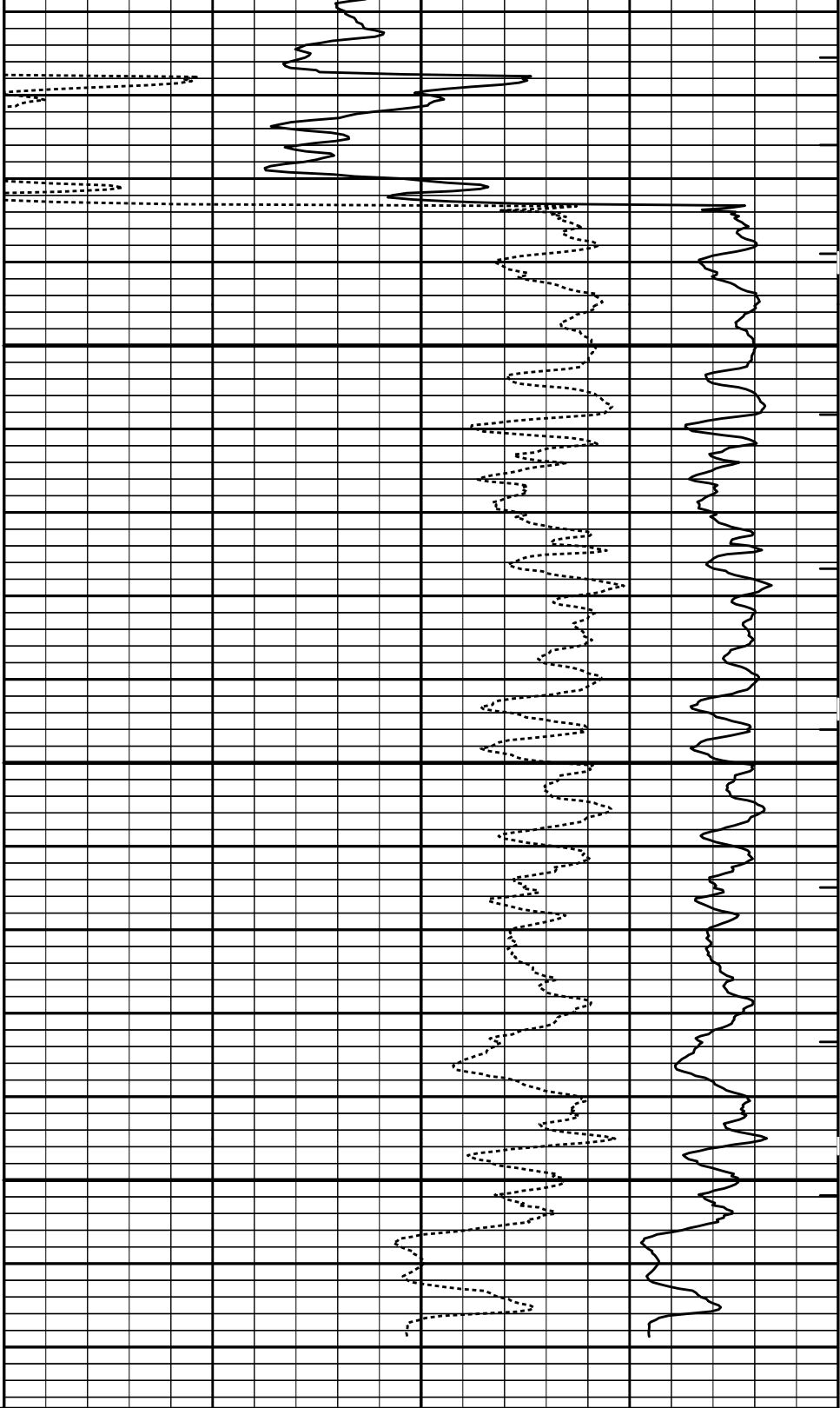
REPEAT SECTION

	SHALE				
0	Gamma API	150	30	Acou Porosity	-10
	api			percent	





4700



15K	Tension	0
	pounds	
6	Caliper	16
	inches	
0	Gamma API	150
	api	
SHALE		

MD
1 : 240
ft

		ITTT —
140	DT	40
	microsec per ft	
30	Acou Porosity	-10
	percent	

HALLIBURTON

Plot Time: 13-May-16 04:18:17
Plot Range: 4396 ft to 4777.33 ft
Data: MONEY-SHOT_1-21\Well Based*
Plot File: \IBSAT\IBSAT_5_REP_LIB

REPEAT SECTION

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
CH_HOS_I 37.50 lbs		Ø 2.750 in		Temperature @ 31.32 ft	3.03 ft	32.35 ft
XOHD-12345678 20.00 lbs		Ø 2.750 in Ø 3.625 in			0.95 ft	29.32 ft
SP Sub-12345678 60.00 lbs		Ø 3.625 in		SP @ 26.59 ft	3.74 ft	28.37 ft
				Z-Accelerometer @ 24.18 ft		24.63 ft
GTET-11021139 165.00 lbs		Ø 3.625 in		GammaRay @ 18.57 ft	8.52 ft	
						16.11 ft
BSAT-11014316 300.00 lbs		Ø 3.625 in		Receiver Array @ 7.59 ft Sonic Receivers @ 7.59 ft	15.77 ft	
Bull Nose-12345678 5.00 lbs		Ø 2.750 in			0.33 ft	0.33 ft
					0.33 ft	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_HOS_I	37.50	3.03	29.32	300.00
XOHD	Hostile to Dits Cross Over	12345678	20.00	0.95	28.37	300.00
SP	SP Sub	12345678	60.00	3.74	24.63	300.00
GTET	Gamma Telemetry Tool	11021139	165.00	8.52	16.11	60.00
BSAT	Borehole Sonic Array Tool	11014316	300.00	15.77	0.33	60.00
BLNS	Bull Nose	12345678	5.00	0.33	0.00	300.00
Total			587.50	32.35		
Data: MONEY-SHOT_1-2110002 GTET-BSATIDLE					Date: 13-May-16 02:05:16	

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	9.350	ppg
	SHARED	WAGT	Weighting Agent	Natural	
	SHARED	BSAL	Borehole salinity	4200.00	ppm
	SHARED	FSAL	Formation Salinity NaCl	0.00	ppm
	SHARED	KPCT	Percent K in Mud by Weight?	0.00	%
	SHARED	RMUD	Mud Resistivity	0.472	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	CSTR	Compressive Strength	1000.00	psia
	SHARED	ST	Surface Temperature	75.0	degF
	SHARED	TD	Total Well Depth	4780.00	ft
	SHARED	BHT	Bottom Hole Temperature	130.0	degF
	SHARED	SVTM	Navigation and Survey Master Tool	NONE	
	SHARED	AZTM	High Res Z Accelerometer Master Tool	GTET	
	SHARED	TEMM	CBM Temperature Master Tool	GTET	
	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	0.29	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	
	Rwa / CrossPlot	BHSM	Borehole Size Source Tool	Bit Size	
	Rwa / CrossPlot	ROIN	Input for RO Calculation	Rwa	
	GTET	GROK	Process Gamma Ray?	Yes	
	GTET	GEOK	Process Gamma Ray EVR?	No	
	GTET	TPOS	Tool Position for Gamma Ray Tools.	Eccentered	
	GTET	BHSM	Borehole Size Source Tool	Bit Size	
	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	
BOTTOM					
Data: MONEY-SHOT_1-21\0002 GTET-BSAT\001 13-May-16 02:14 Dn @1282.5f				Date: 13-May-16 02:36:15	

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION				
Tool Name:	GTET - 11021139		Reference Calibration Date:	24-Apr-16 10:32:03
Engineer:	WHITLOCK		Calibration Date:	09-May-16 10:20:40
Software Version:	WL INSITE R5.0.0 (Build 4)		Calibration Version:	1
Calibrator Source S/N: TB79				
Calibrator API Reference:222.00 api				
Equivalent Calibrator API Reference:225.9 api				
Measurement	Measured	Calibrated	Units	
Background	21.6	21.5	api	
Background + Calibrator	248.8	247.4	api	
Calibrator	227.2	225.9	api	

NATURAL GAMMA RAY TOOL FIELD CALIBRATION				
Tool Name:	GTET - 11021139		Reference Calibration Date:	09-May-16 10:20:40
Engineer:	WHITLOCK		Calibration Date:	09-May-16 10:24:07
Software Version:	WL INSITE R5.0.0 (Build 4)		Calibration Version:	1
Calibrator Source S/N: TB79				
Calibrator API Reference:222.00 api				
Equivalent Calibrator API Reference:225.9 api				
Field Verification	Shop	Field	Units	
Background	21.5	22.4	api	
Background + Calibrator	247.4	246.3	api	
Calibrator	225.9	224.0	api	
Shop	Field	Difference	Tolerance	
225.9	224.0	1.9	+/- 9.00	

DENSITY CALIPER SHOP CALIBRATION				
Tool Name:	SDLT - 10951315		Reference Calibration Date:	18-Jan-16 11:11:04
Engineer:	WHITLOCK		Calibration Date:	18-Feb-16 11:56:22
Software Version:	WL INSITE R4.6.3 (Build 5)		Calibration Version:	1
Host Tool Name:	DSNT - 11019641			

CALIBRATION COEFFICIENTS				
Measurement	Previous Value	New Value	Control Limit On New Value	
Pad Offset	-2649.25	-2649.25	-7000.00 - -1000.00	
Pad Gain	0.0003773	0.0003773	0.0002000 - 0.0006000	
Arm Offset	480.90	480.90	-5000.00 - 3000.00	
Arm Gain	0.0004044	0.0004044	0.000300 - 0.000700	
Arm Power	0.000001870	0.000001870	-0.000010000 - 0.000010000	
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)	2.00	2.00	0.00	+/- 0.20
Medium Ring (in)	3.75	3.75	0.00	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.50	6.50	0.00	+/- 0.20
Medium Ring (in)	8.25	8.25	0.00	+/- 0.20
Large Ring (in)	15.00	15.00	0.00	+/- 0.20
PASS/FAIL SUMMARY				
Calibration Coefficients Range Check:		Passed		

Calibration-Coefficients Range Check:		Passed	
PASS/FAIL SUMMARY			
Calibration-Coefficients Range Check:		Passed	

SDLT CALIPER FIELD CALIBRATION			
Tool Name:	SDLT - 10951315	Reference Calibration Date:	18-Feb-16 11:56:22
Engineer:	WHITLOCK	Calibration Date:	09-May-16 10:11:55
Software Version:	WL INSITE R5.0.0 (Build 4)	Calibration Version:	1

MEASURED CALIPER VALUES				
Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.77	0.02	+/- 0.10
Ring Diameter	8.25	8.25	0.00	+/- 0.15
PASS/FAIL SUMMARY				
Pad Extension Check:			Passed	
Diameter Check:			Passed	

CALIBRATION SUMMARY						
Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-11021139						
Gamma Ray Calibrator	225.9	224.0	-----	1.9	+/- 9.00	api
SDLT-10951315						
Pad Extension	3.75	3.77	-----	-0.02	+/-0.10	in
Ring Diameter	8.25	8.25	-----	0.00	+/-0.15	in

Data: MONEY-SHOT_1-21\0001 GTET-DSN-SDL-ACRT\IDLE		Date: 13-May-16 02:37:32	
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HALLIBURTON			
INPUTS, DELAYS AND FILTERS TABLE			

Mnemonic	Input Description	Delay (ft)	Filter Type	Filter Length (ft)
Depth Panel				
TENS	Tension	0.00	NO	
Rwa / CrossPlot				
TPUL	Tension Pull	32.35	NO	
BS	Bit Size	32.35	NO	
HDIA	Measured Hole Diameter	0.00	NO	
CH_HOS				
DHTN	DownholeTension	0.00	BLK	0.000
SP Sub				
PLTC	Plot Control Mask	26.59	NO	
SP	Spontaneous Potential	26.59	BLK	1.250
SPR	Raw Spontaneous Potential	26.59	NO	
SPO	Spontaneous Potential Offset	26.59	NO	
GTET				
TPUL	Tension Pull	18.57	NO	
GR	Natural Gamma Ray API	18.57	TRI	1.750
GRU	Unfiltered Natural Gamma Ray API	18.57	NO	
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution	18.57	W	1.416 , 0.750
HDIA	Measured Hole Diameter	0.00	NO	
ACCZ	Accelerometer Z	0.00	BLK	0.083

DEVI	Inclination	0.00	NO
BSAT			
TPUL	Tension Pull	7.59	NO
STAT	Status	7.59	NO
DLYT	Delay Time	7.59	NO
SI	Sample Interval	7.59	NO
TXRX	Raw Telemetry 10 Receivers	7.59	NO
FRMC	Tool Frame Count	7.59	NO
GMOD	Gain processing mode	0.33	NO
Data: MONEY-SHOT_1-21\0002 GTET-BSAT\IDLE			Date: 13-May-16 02:36:34

COMPANY	CMX INC		
WELL	MONEY SHOT #1-21		
FIELD	WILDCAT		
COUNTY	PRATT	STATE	KANSAS
HALLIBURTON		BOREHOLE COMPENSATED SONIC ARRAY LOG	