

**BOREHOLE
COMPENSATED
SONIC
LOG**

Fold here

Service Ticket No.: 905442430				API No.: 15-081-22186-00-00				PGM Version: WL INSITE R5.8.9 (Build 6)						
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.				Run No.				Run No.						
Serial No.				Serial No.				Serial No.						
Model No.				Model No.				Model No.						
Diameter				No. of Cent.				Diameter						
Detector Model No.				Spacing				Log Type						
Type								Source Type						
Length				LSA [Y/N]				Serial No.						
Distance to Source				FWDA [Y/N]				Strength						
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	

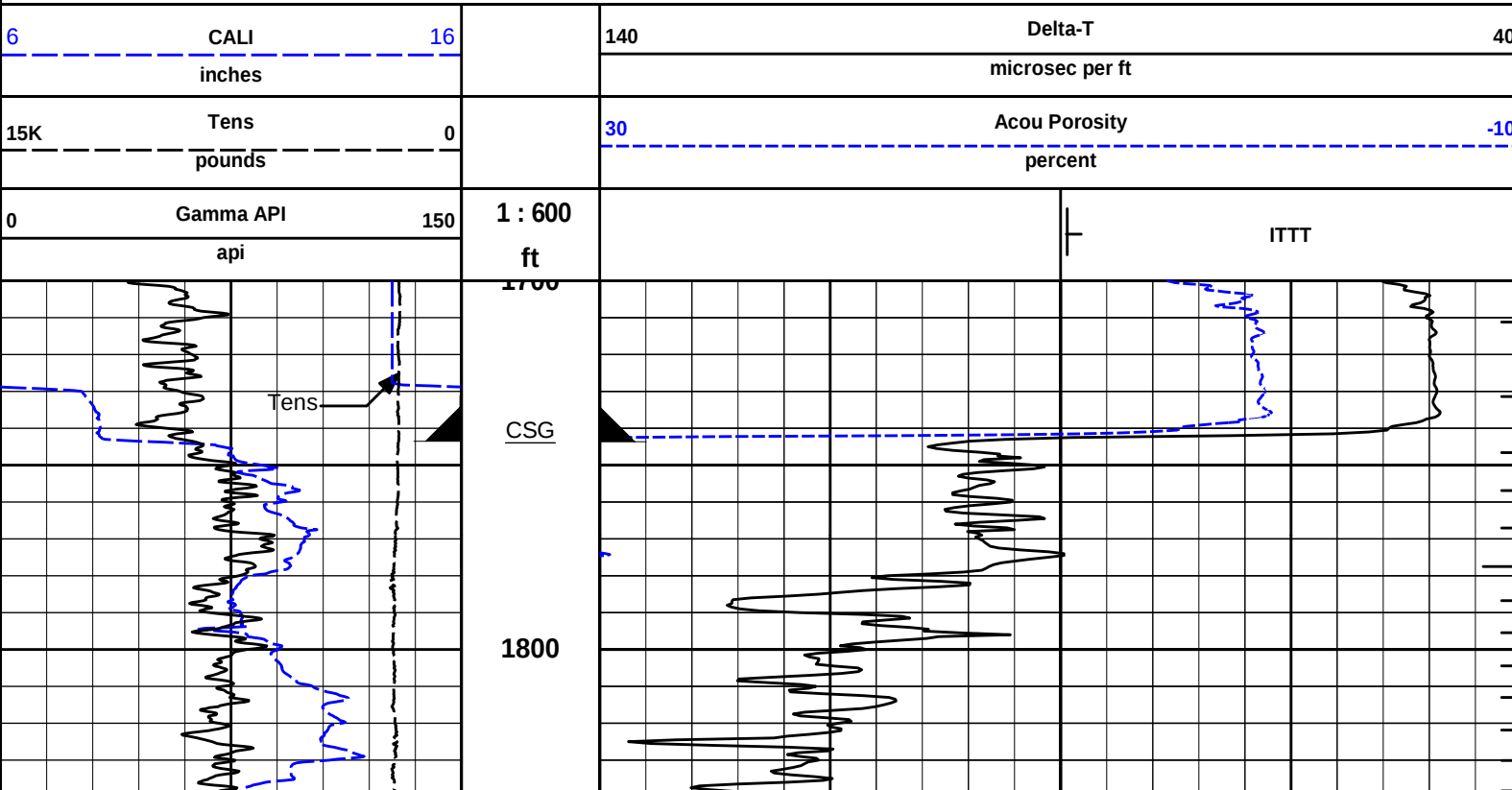
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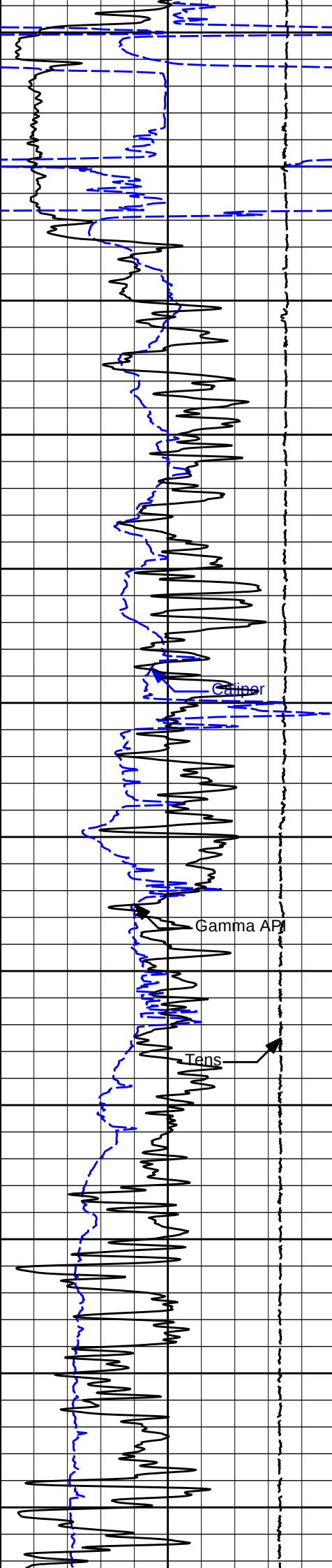
HALLIBURTON

Plot Time: 15-Feb-19 14:06:26
Plot Range: 1700 ft to 5734.5 ft
Data: MERIT_BOCK\Well Based\MAIN_MERGE\
Plot File: \\BSAT\BSAT_2inch

2 INCH MAIN LOG

2" MAIN LOG SECTION





1900

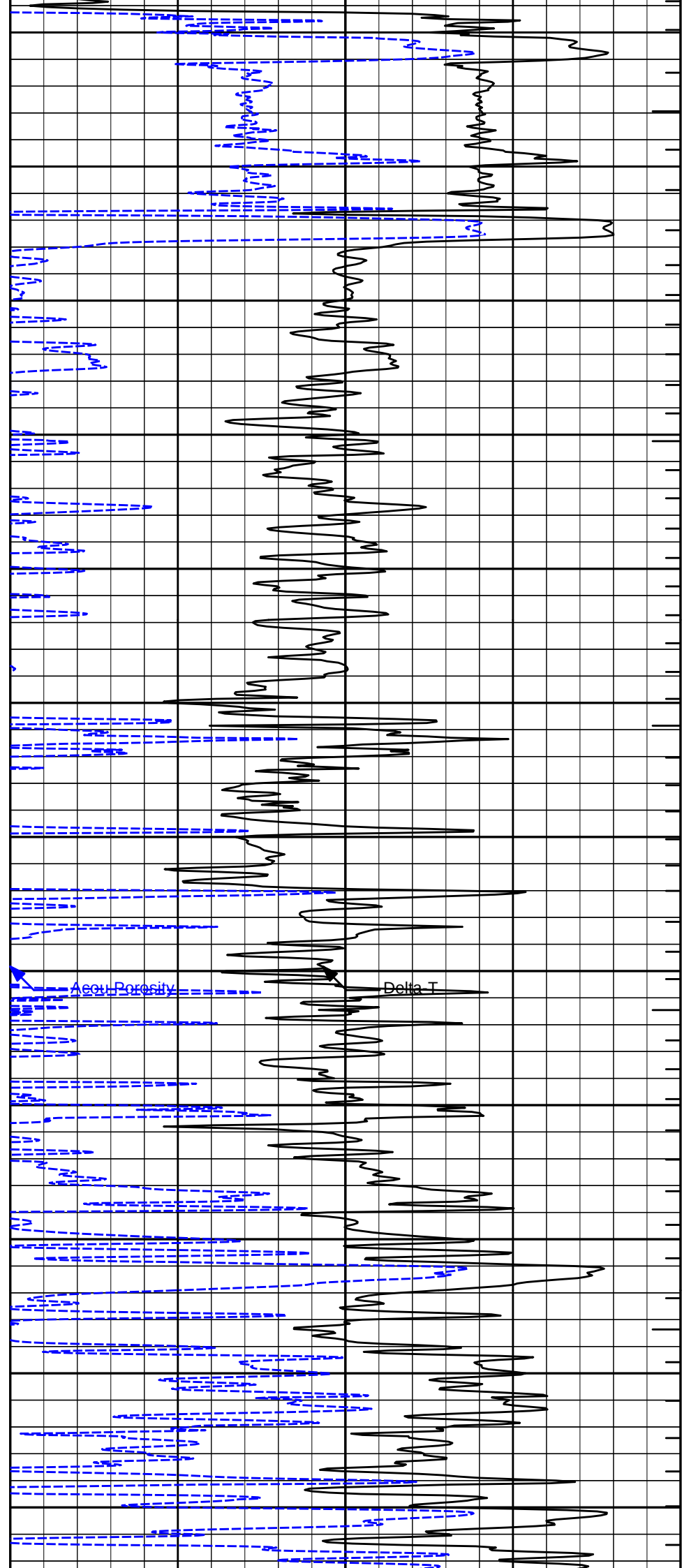
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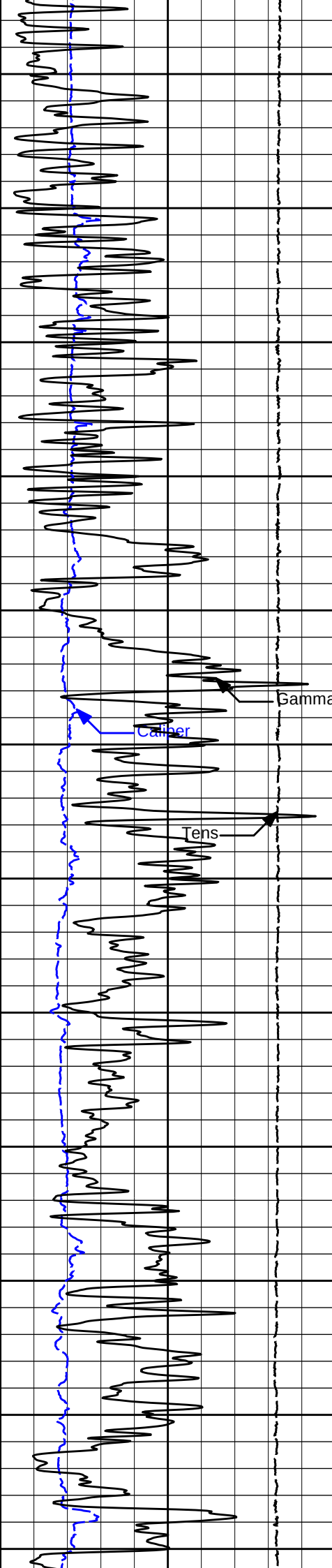
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2200

2300

2400





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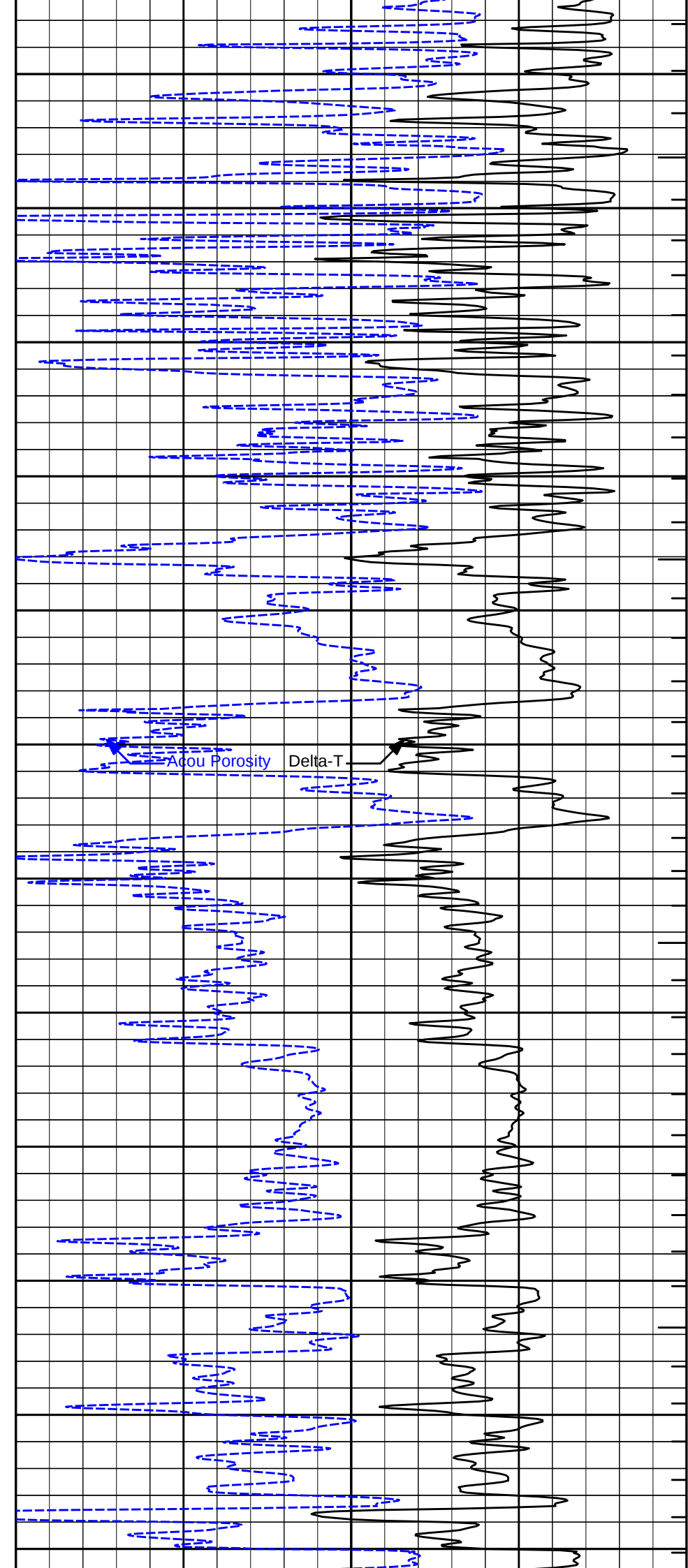
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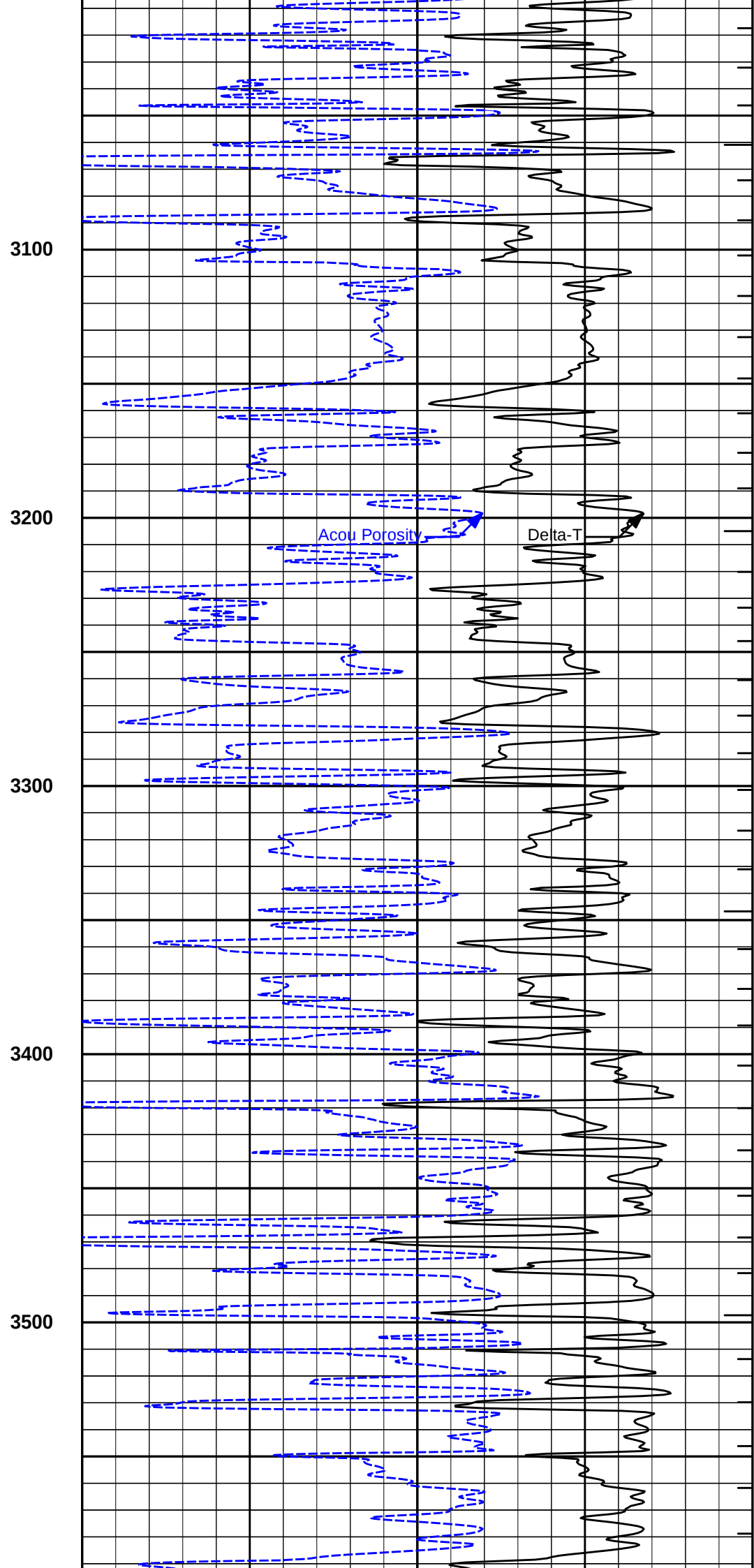
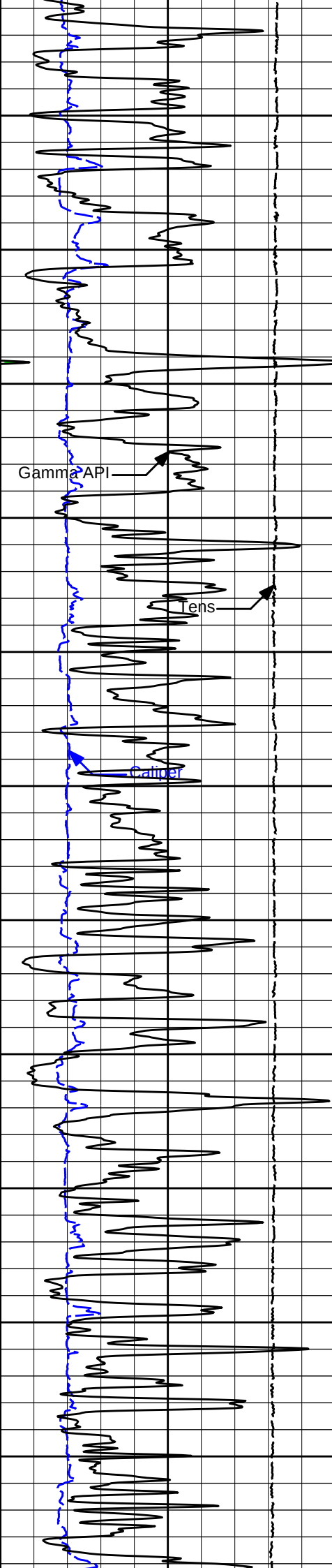
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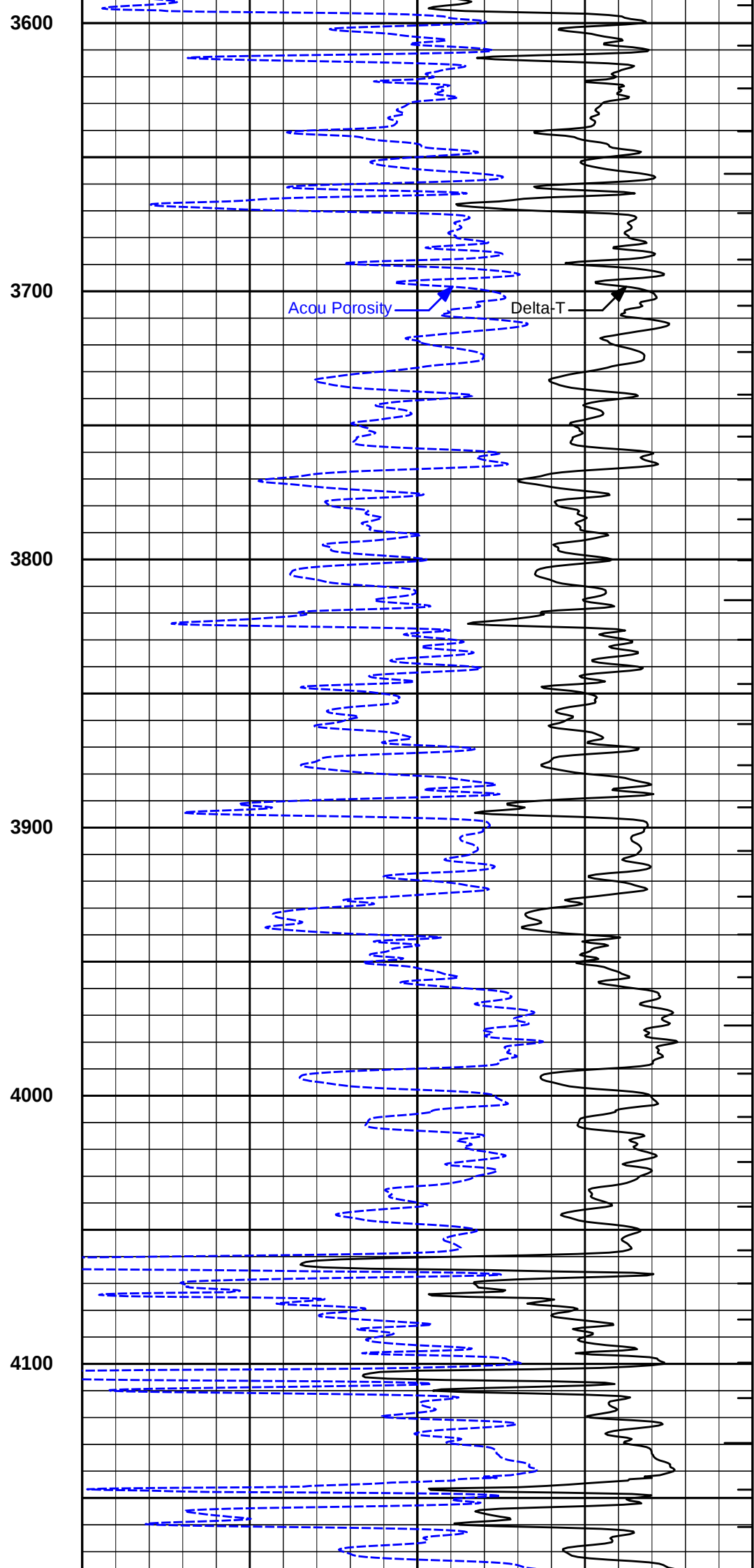
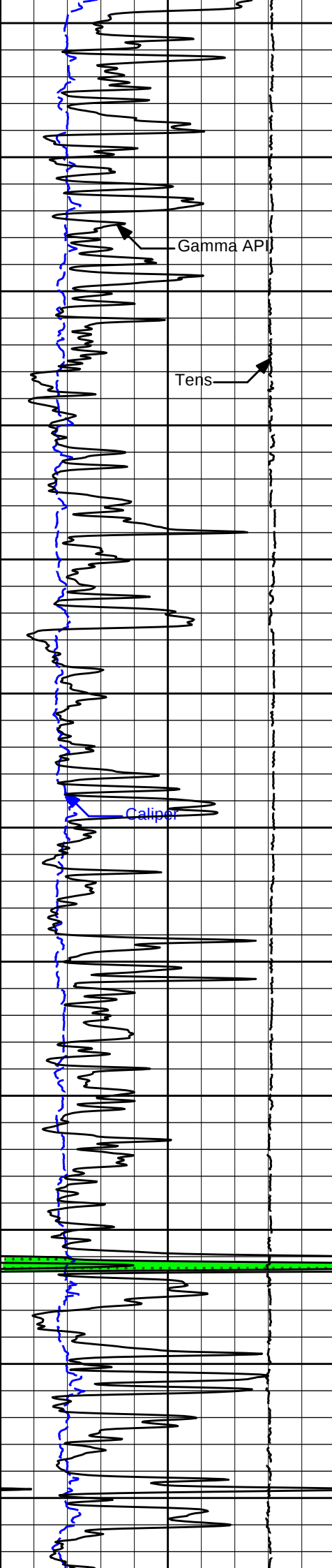
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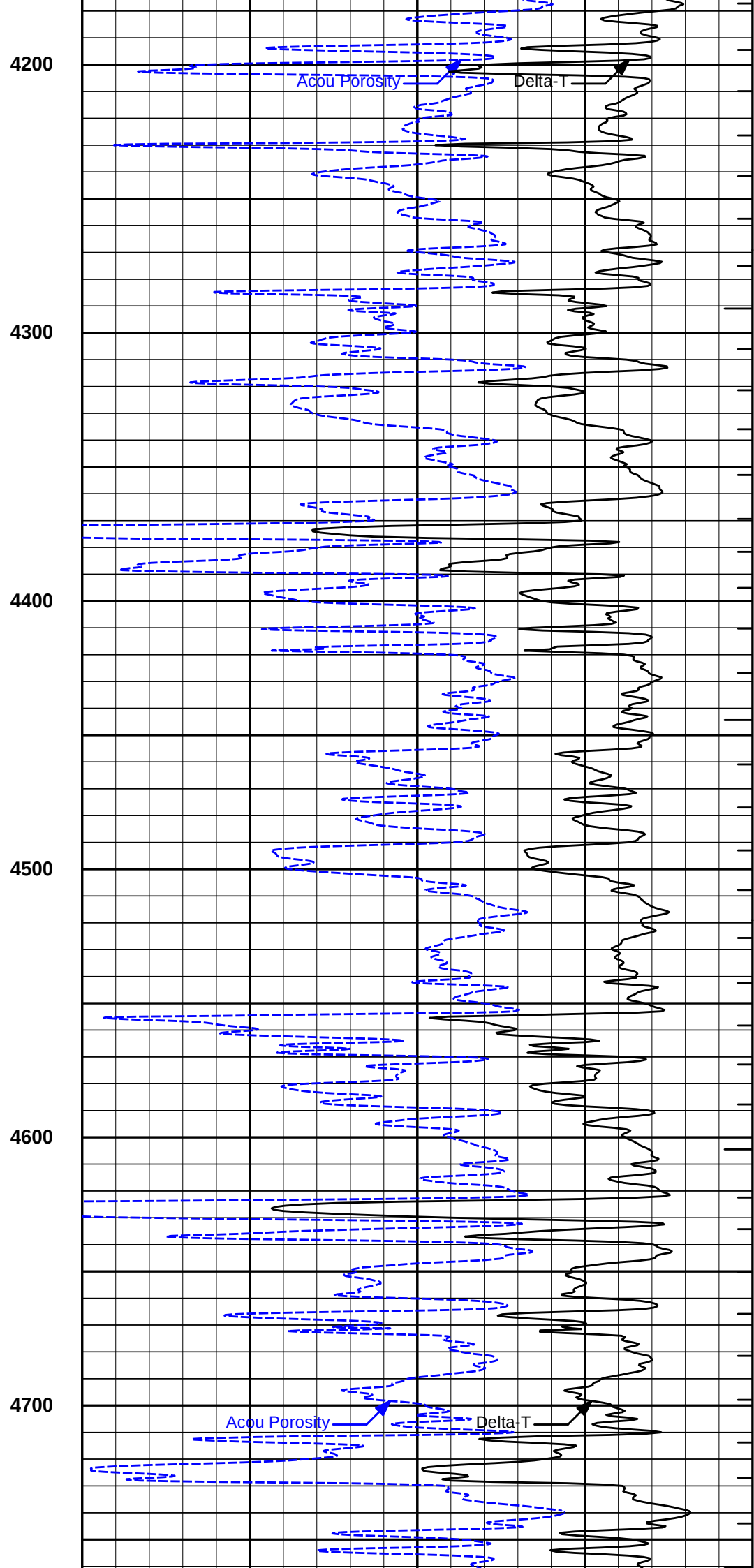
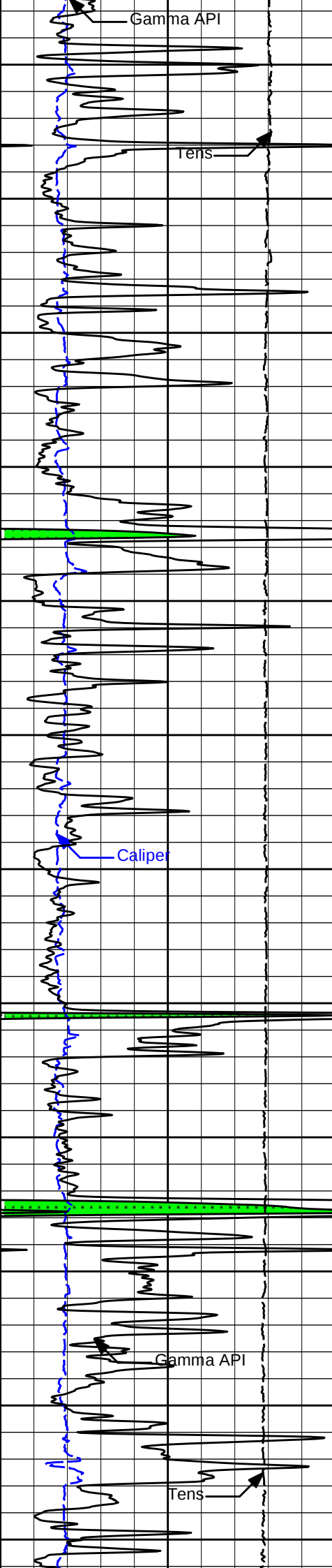
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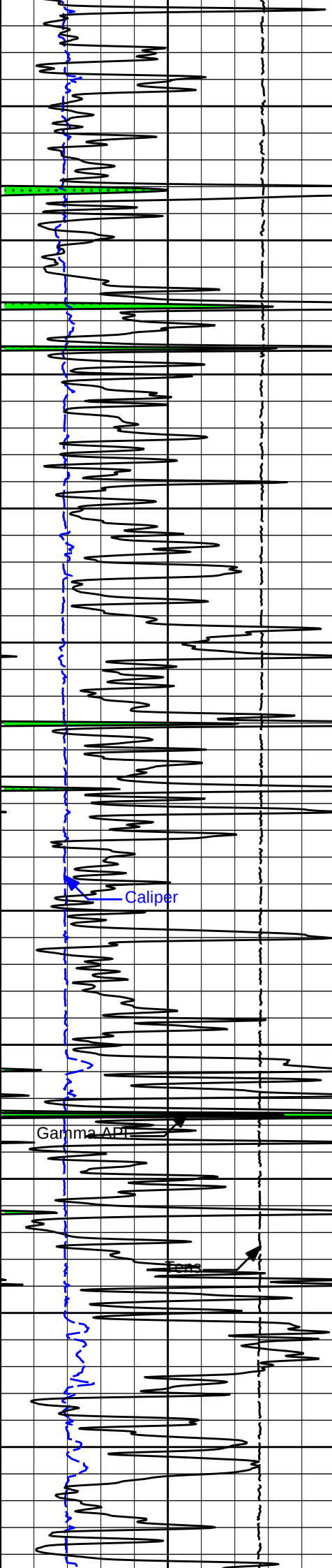
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4800

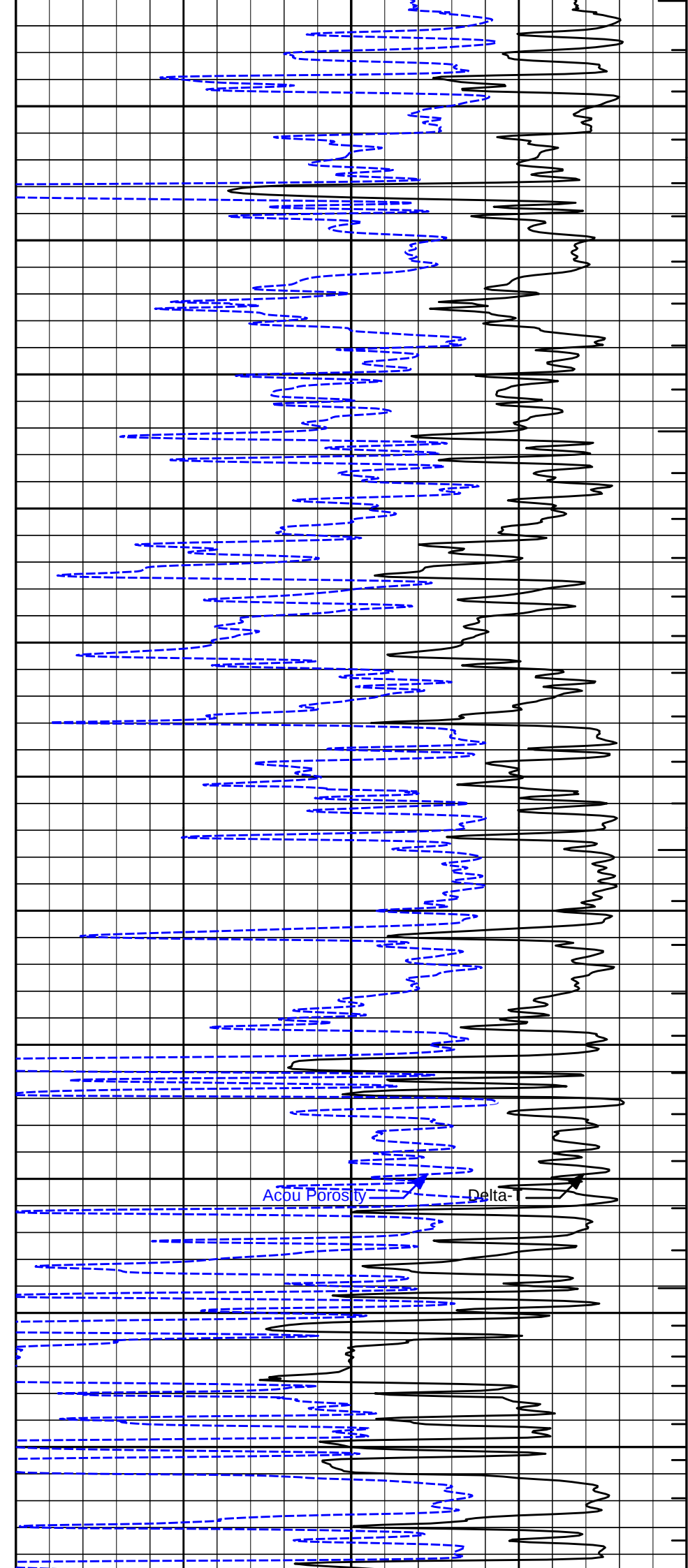
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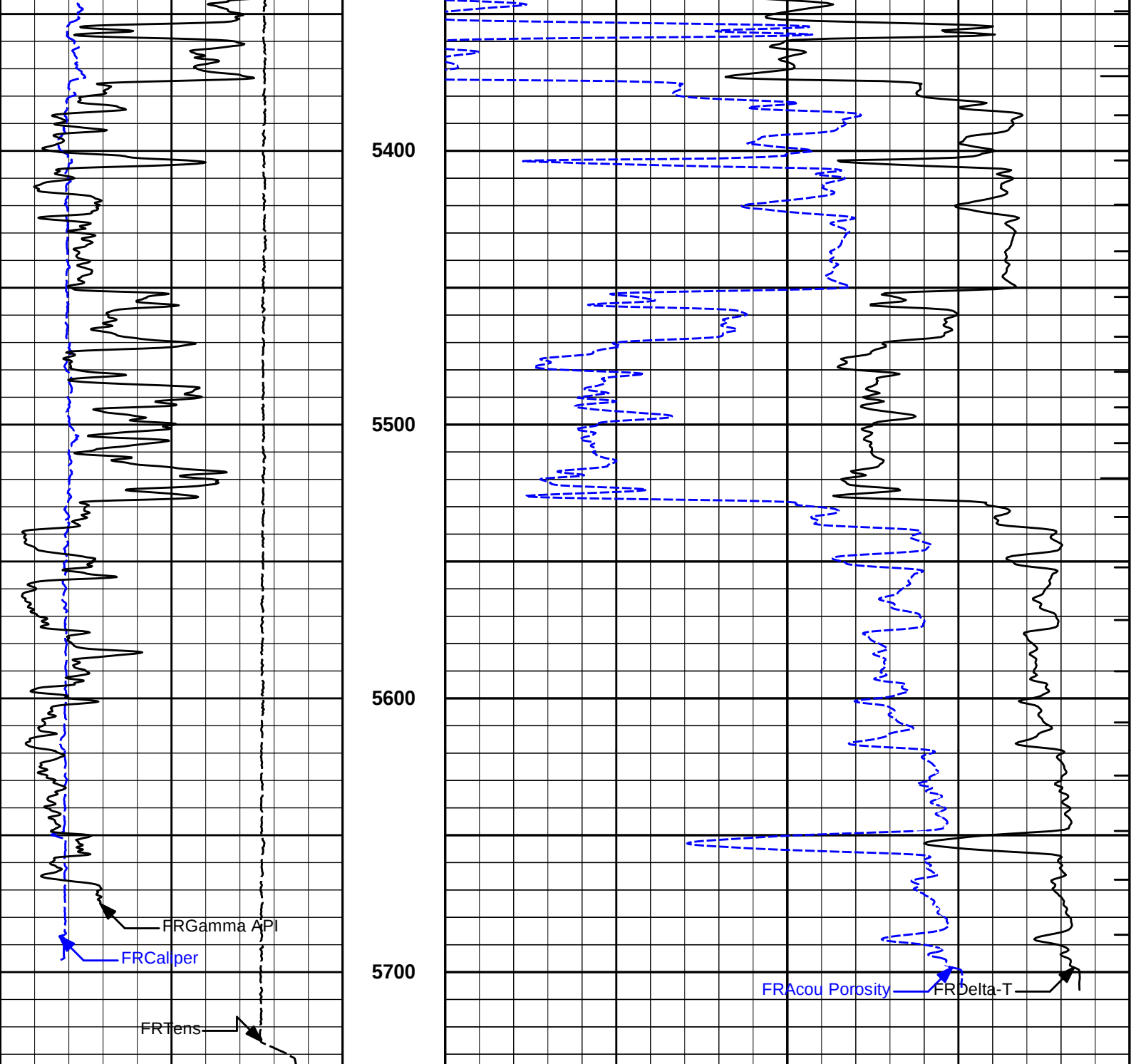
5200

5300



Acoustic Porosity

Delta



0 Gamma API 150		1 : 600 ft			ITTT
api					
15K	Tens 0		Acou Porosity		
pounds			percent		
6	CALI 16		Delta-T		
inches			microsec per ft		

HALLIBURTON

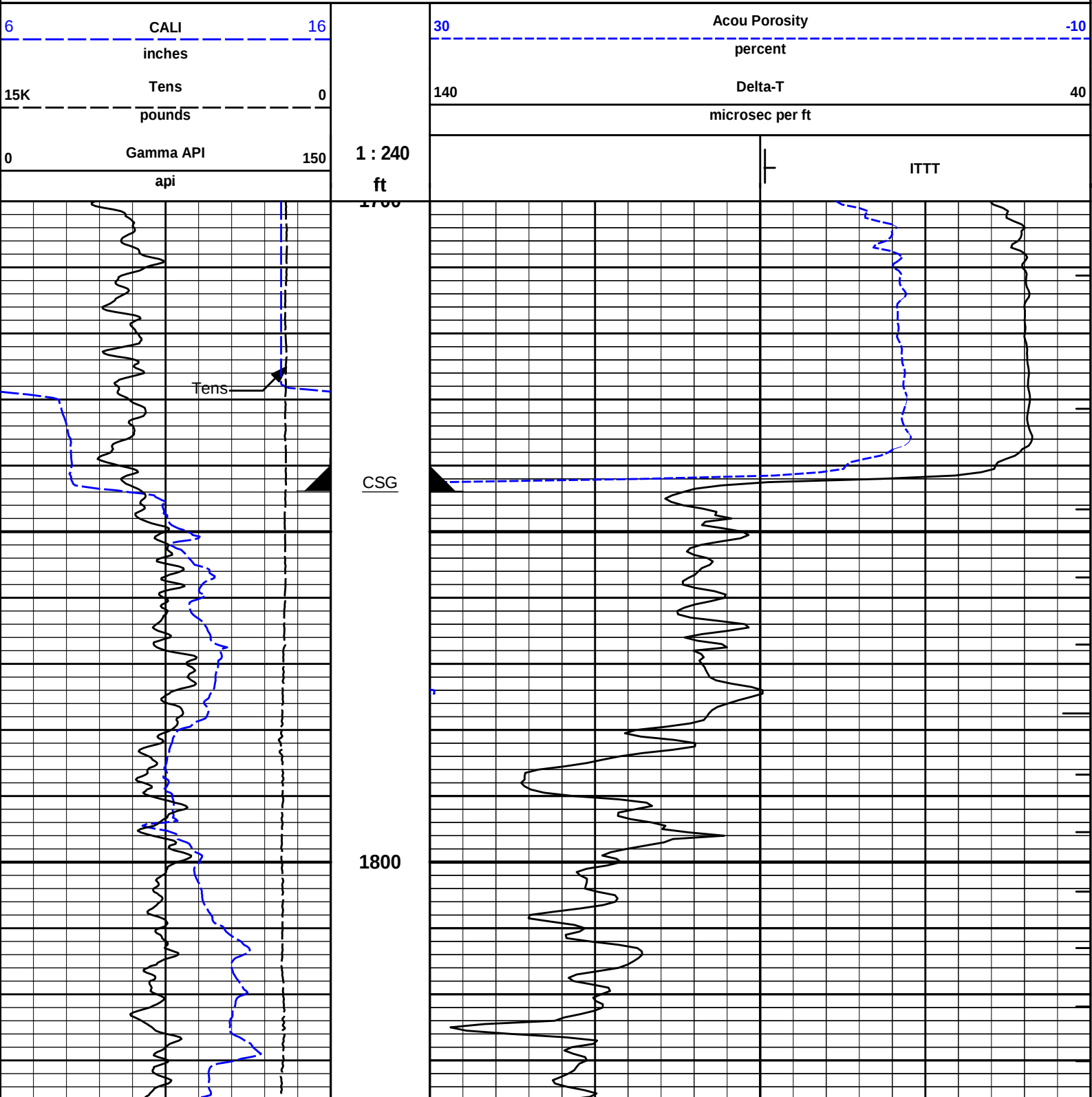
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Data: MERIT_BOCK\Well Based\MAIN_MERGE\
Plot File: \\BSAT\BSAT_2inch

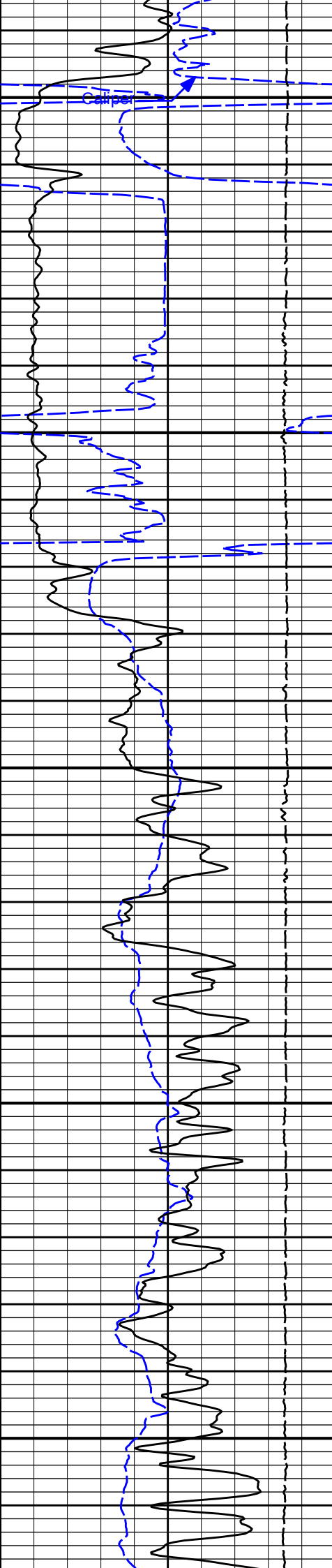
2 INCH MAIN LOG

2" MAIN LOG SECTION

5 INCH MAIN LOG

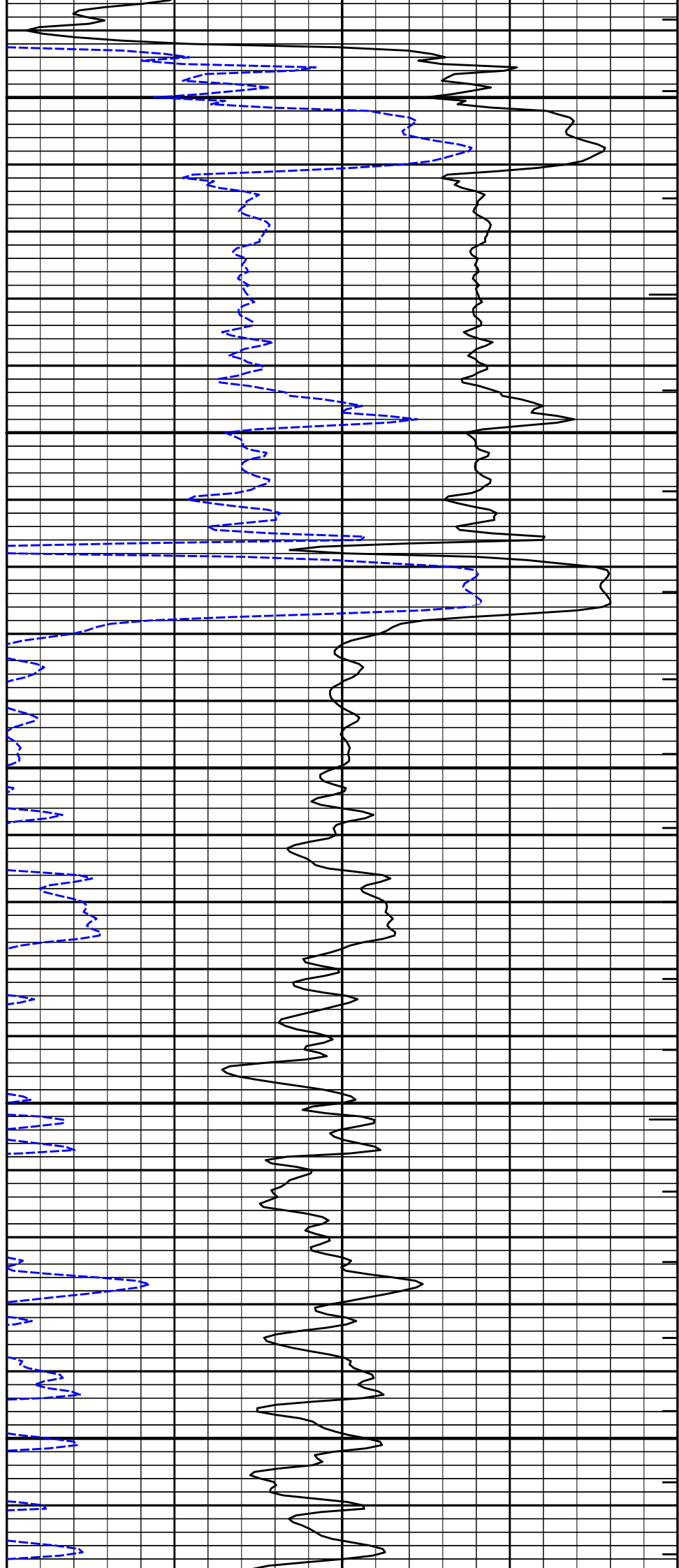
MAIN LOG SECTION

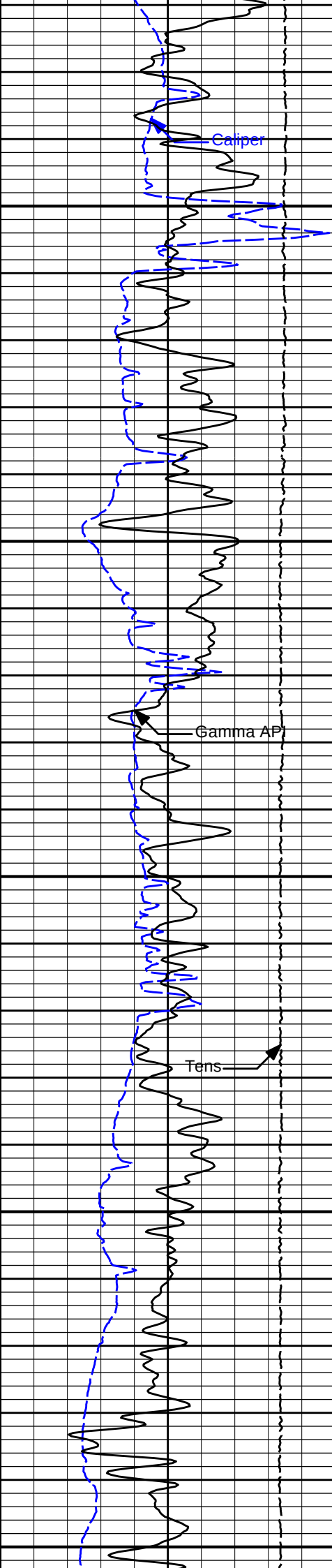




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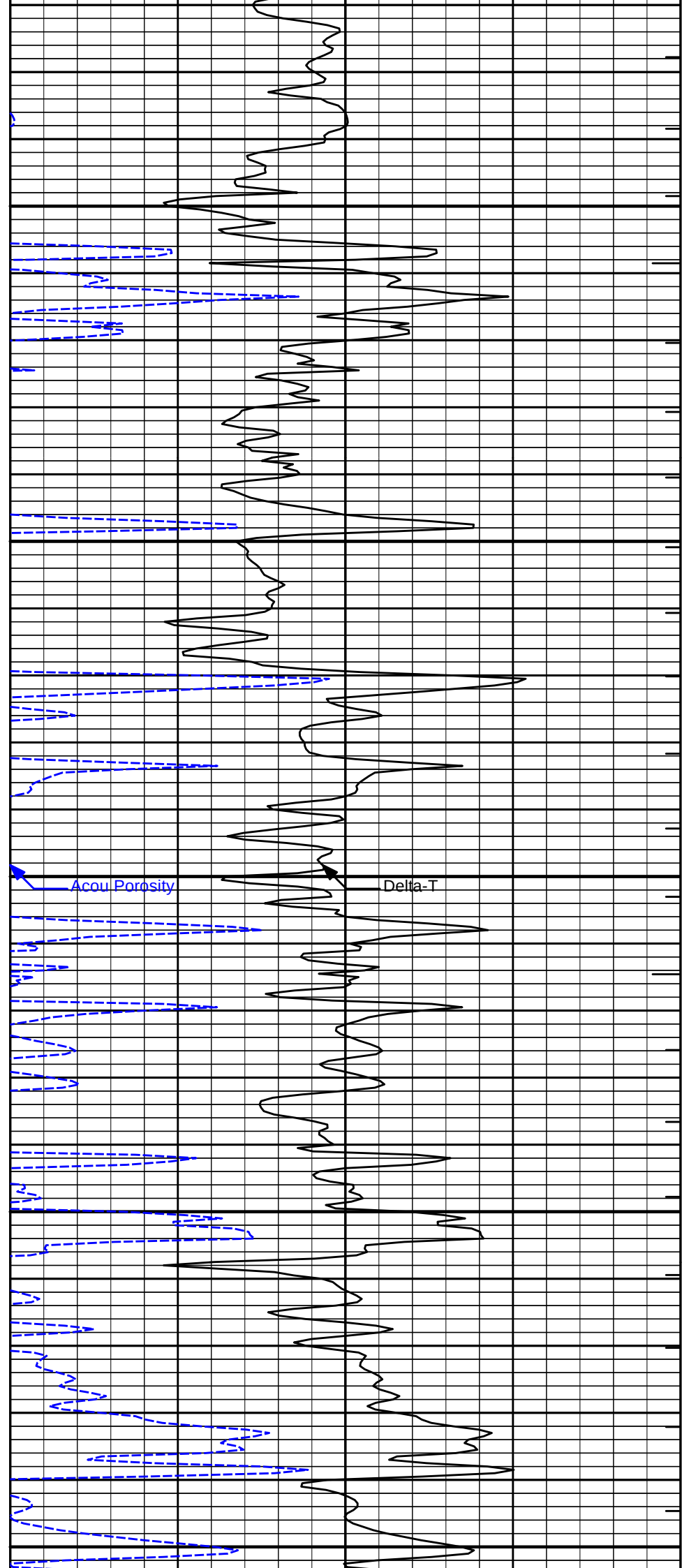


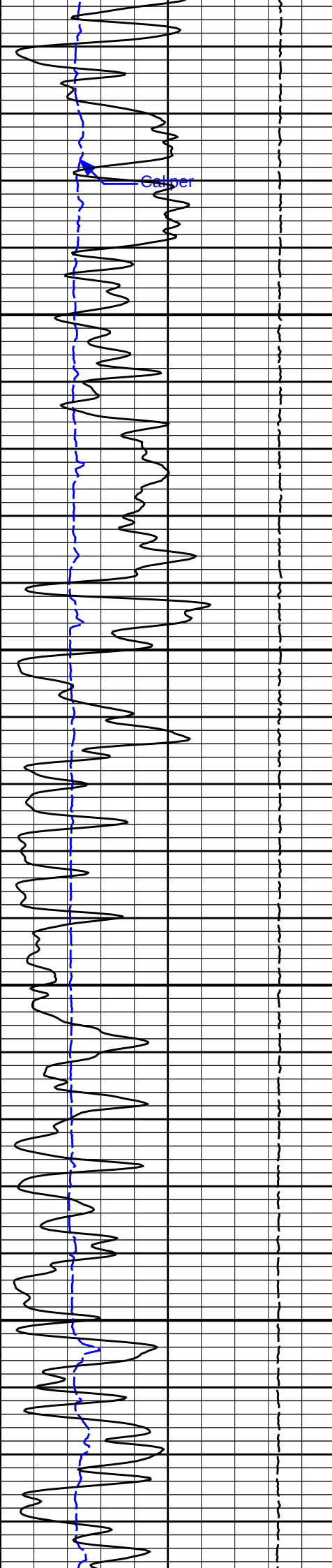


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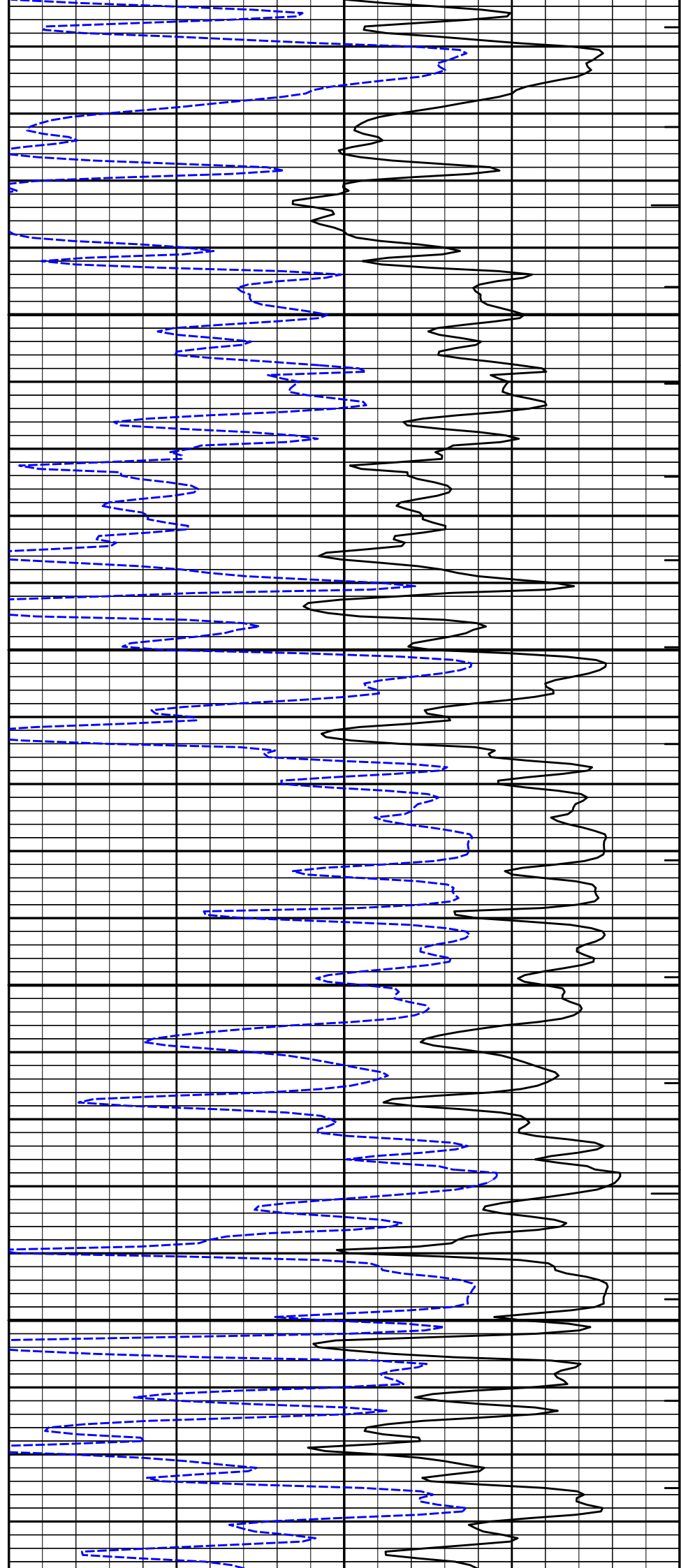
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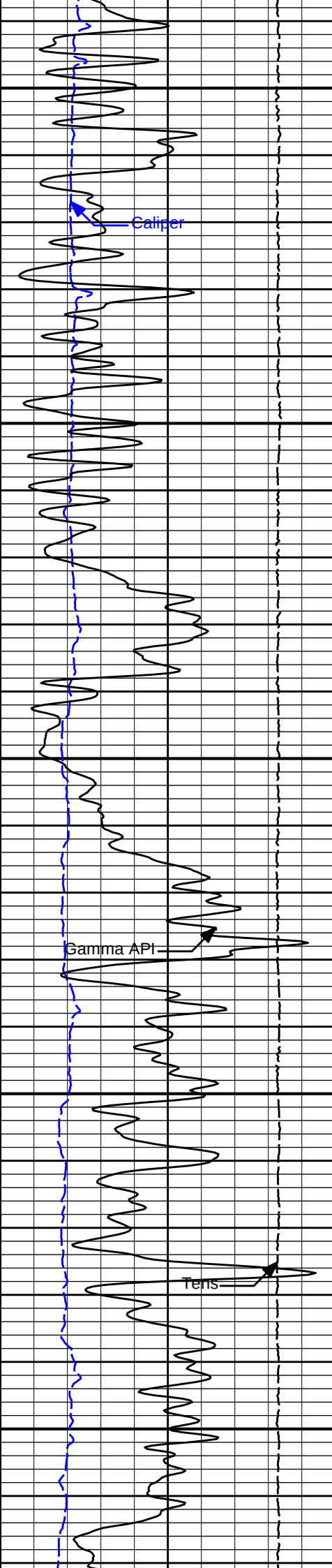




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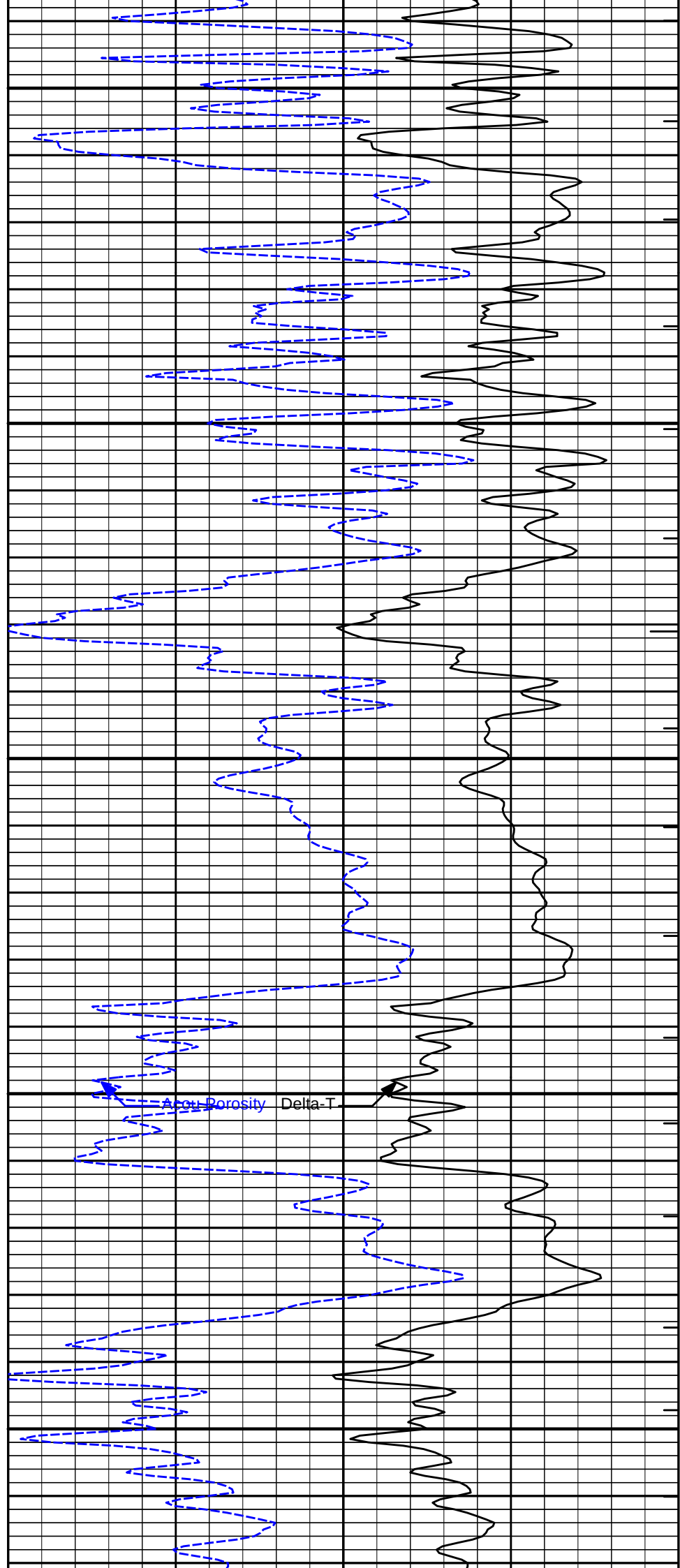
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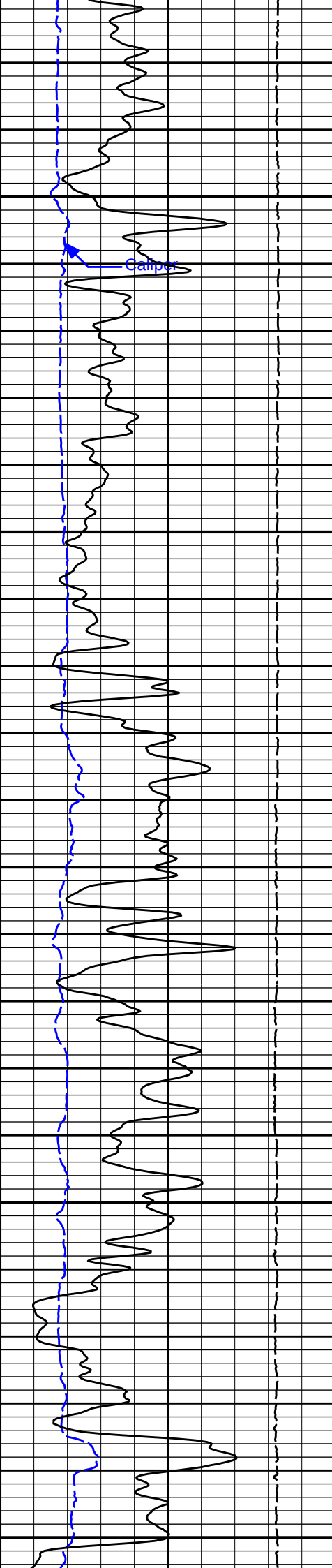




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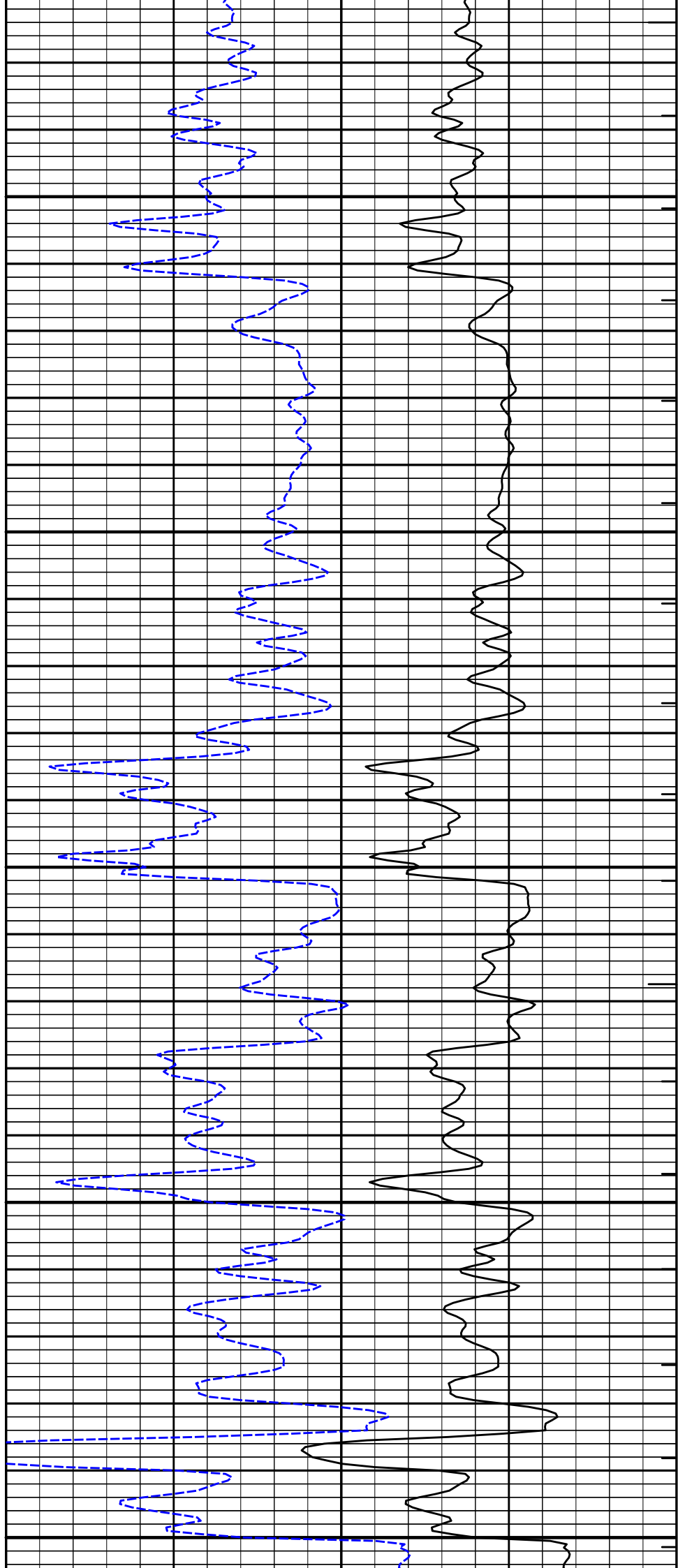


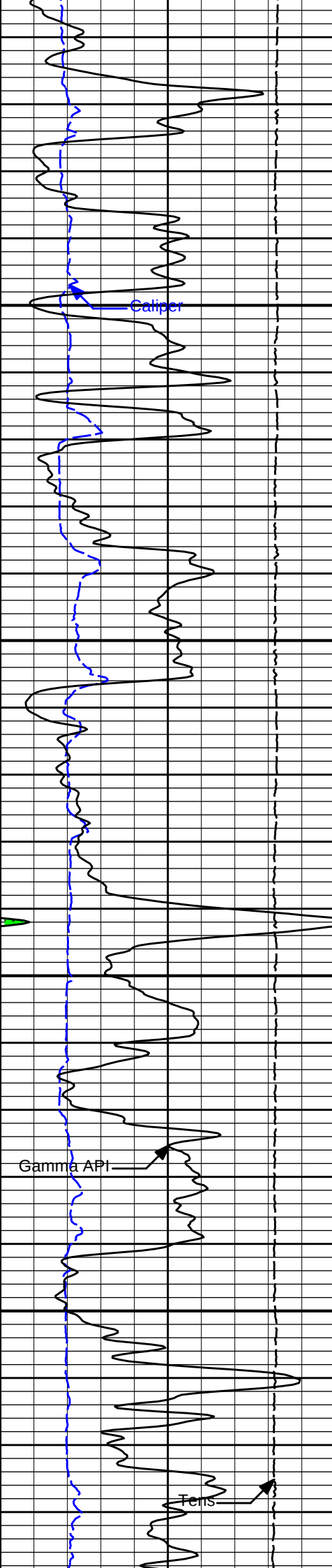
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2800

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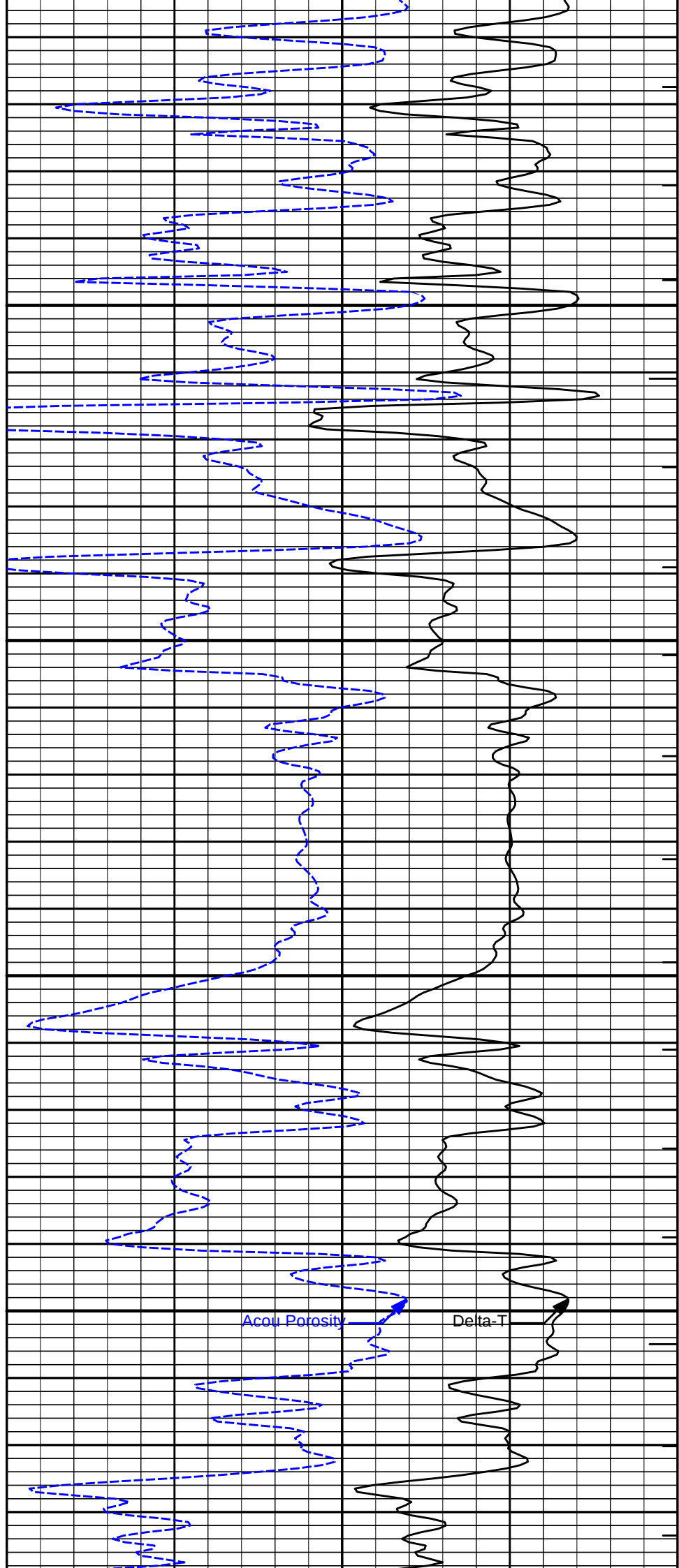
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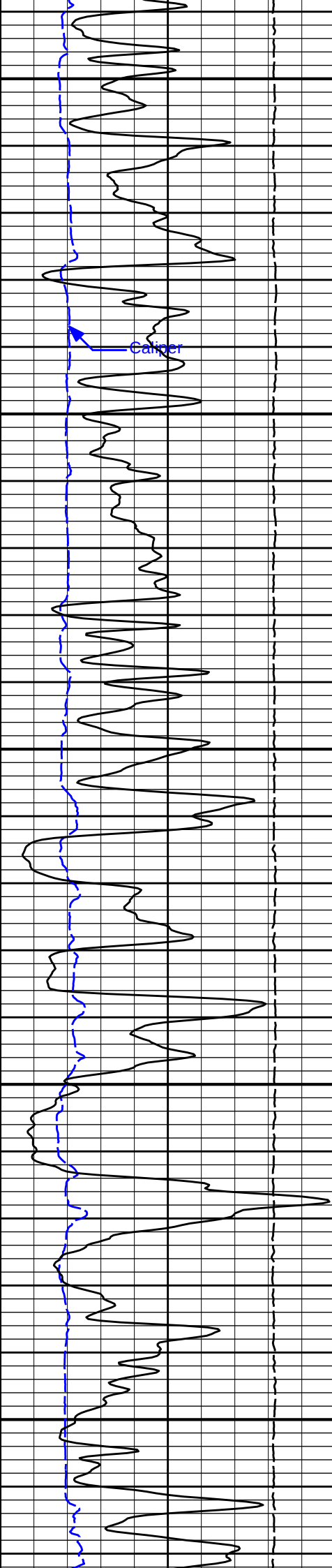




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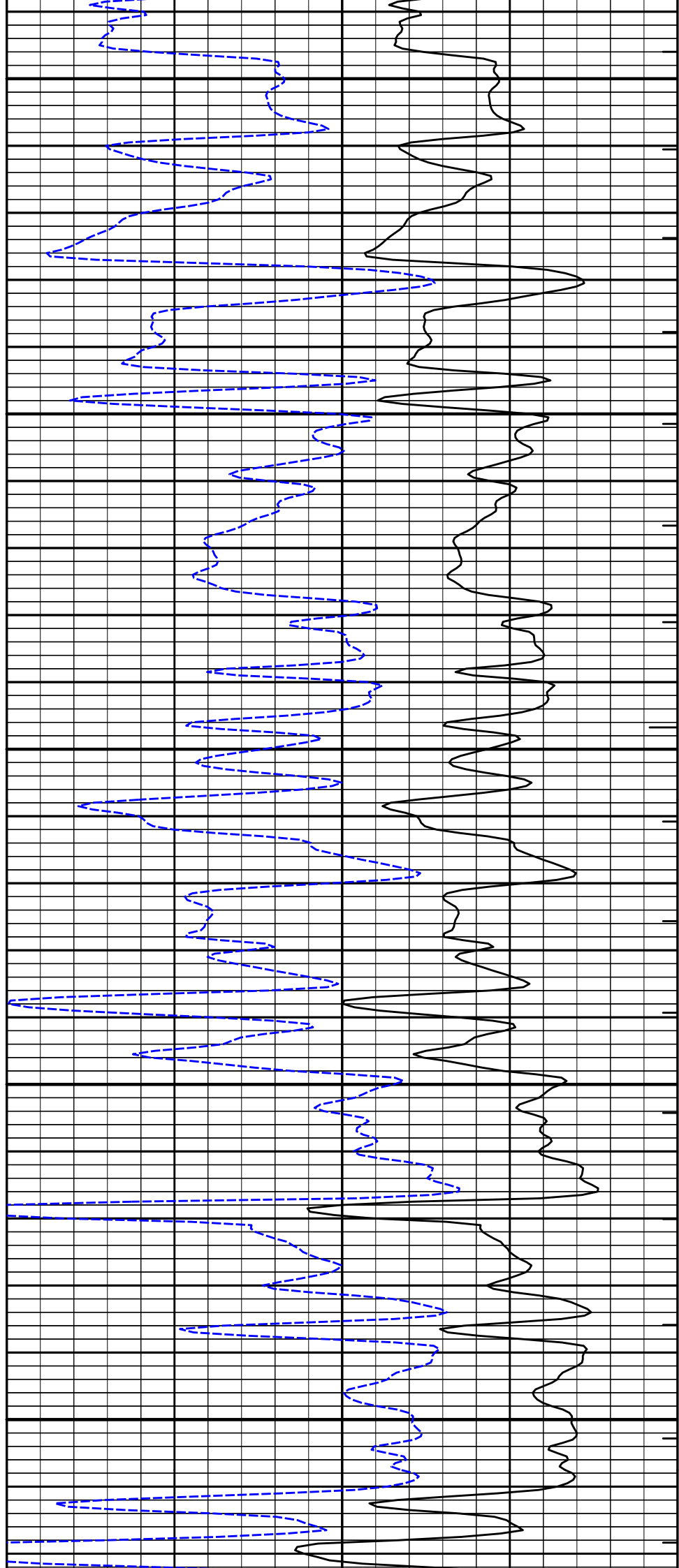
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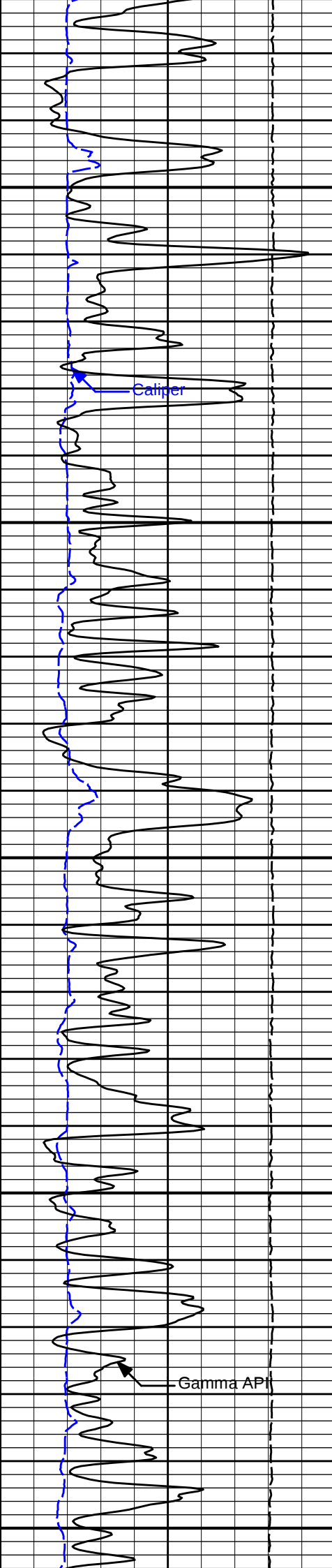




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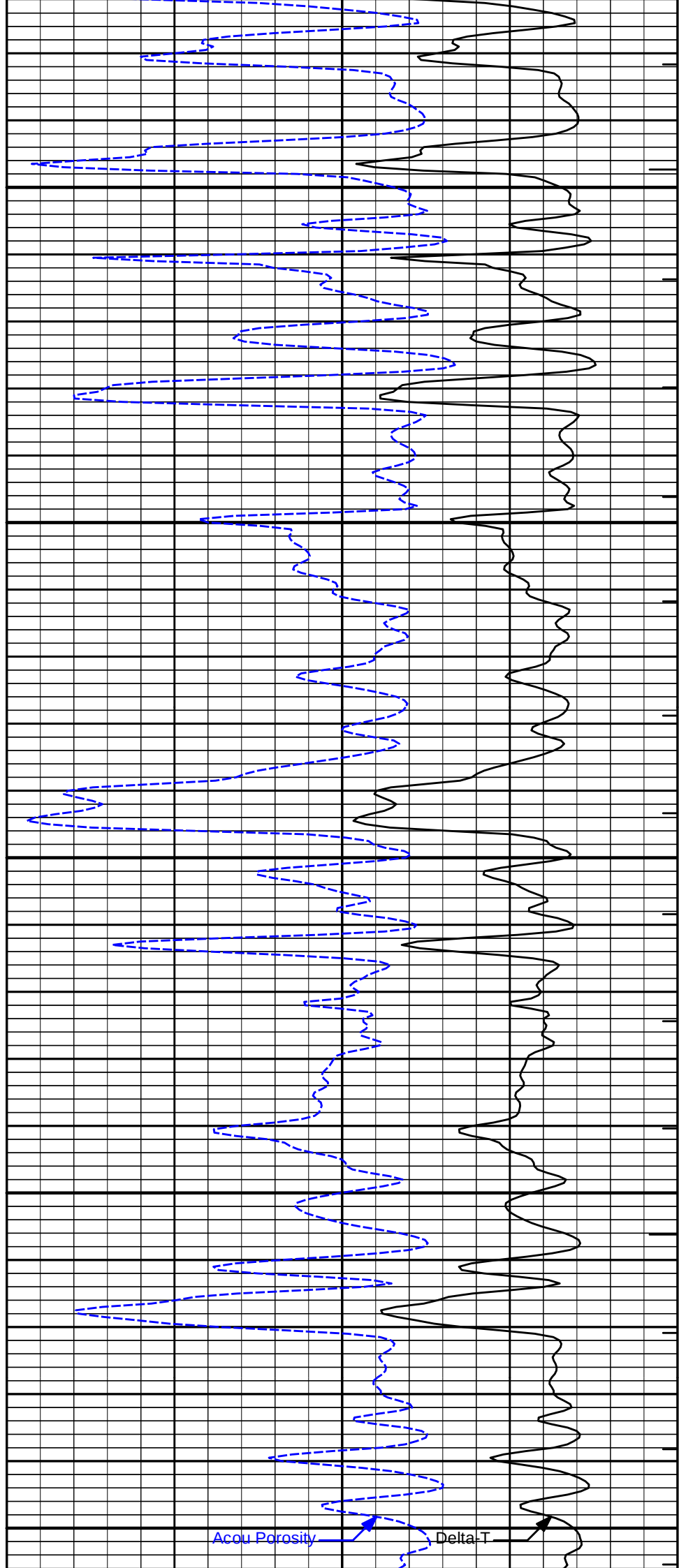




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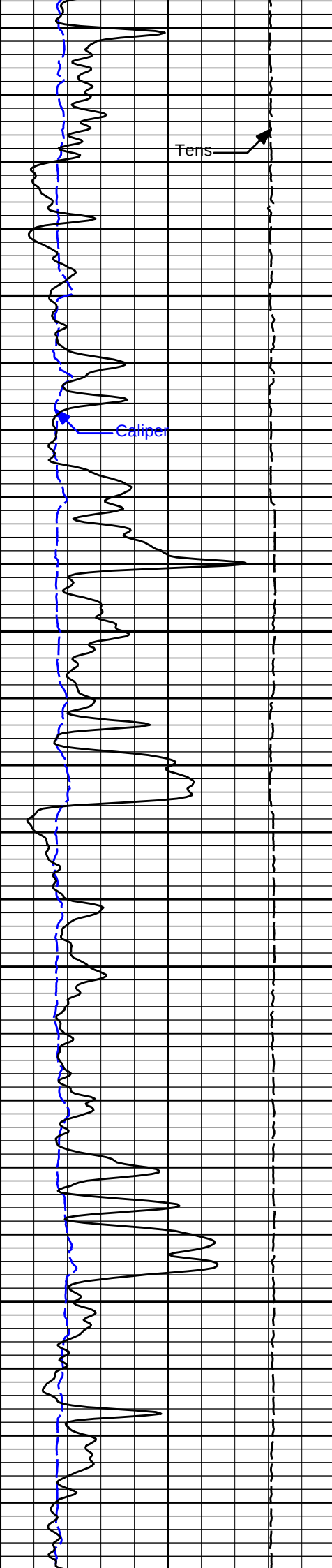
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3700



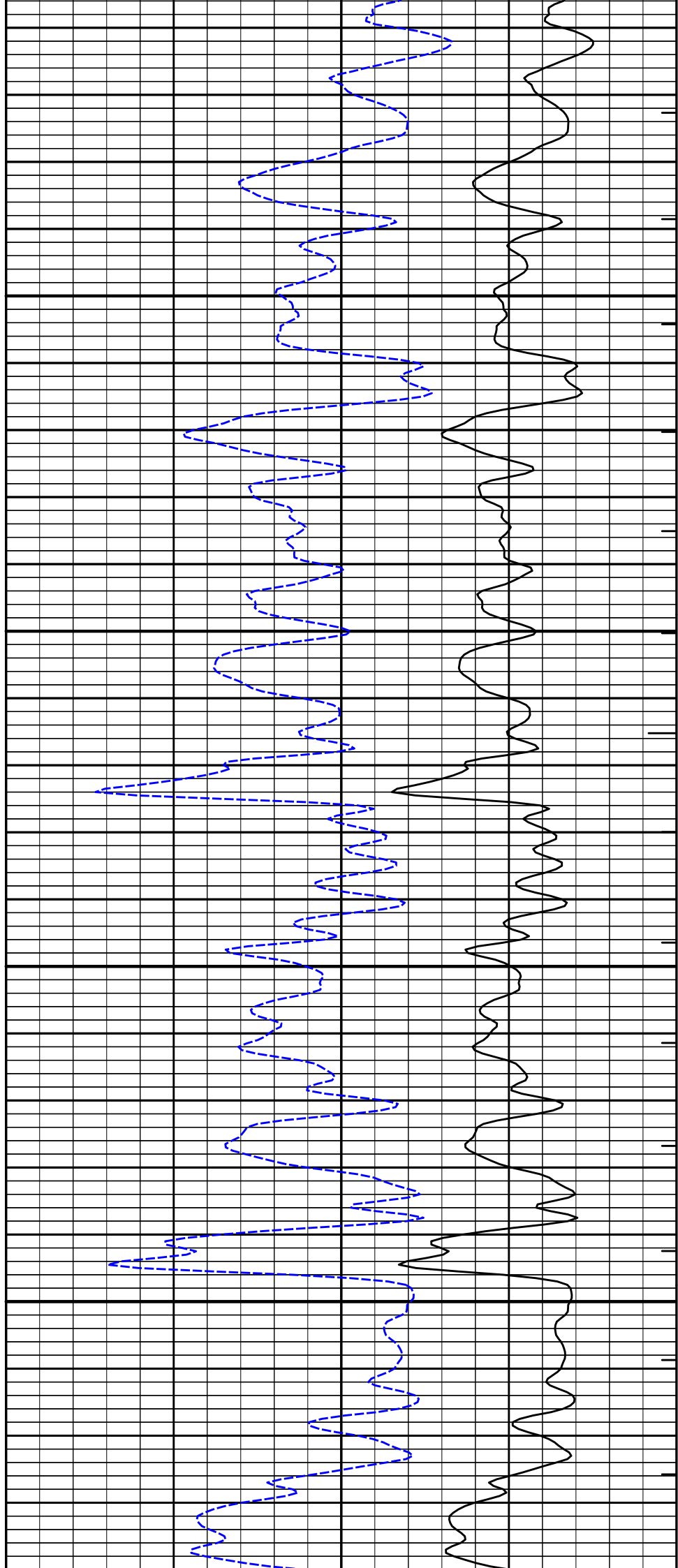
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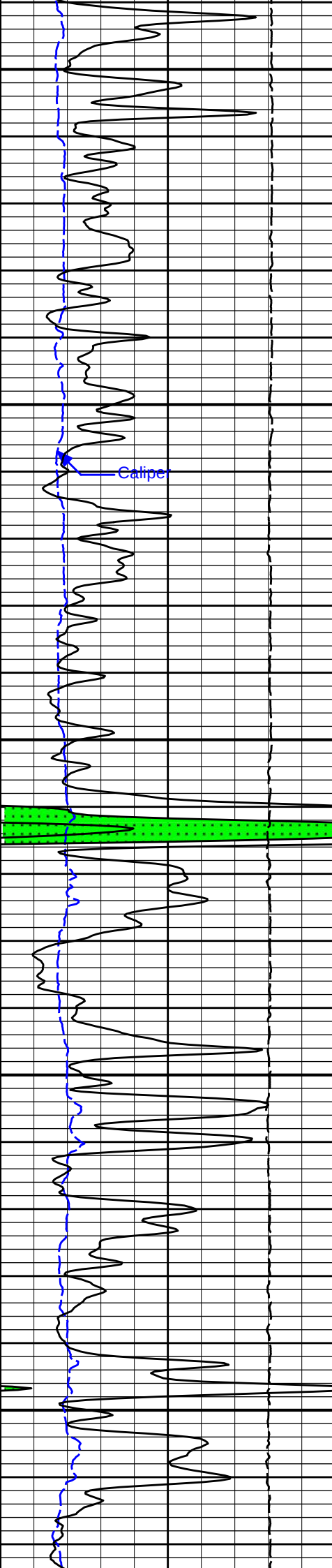
Delta-T



3800

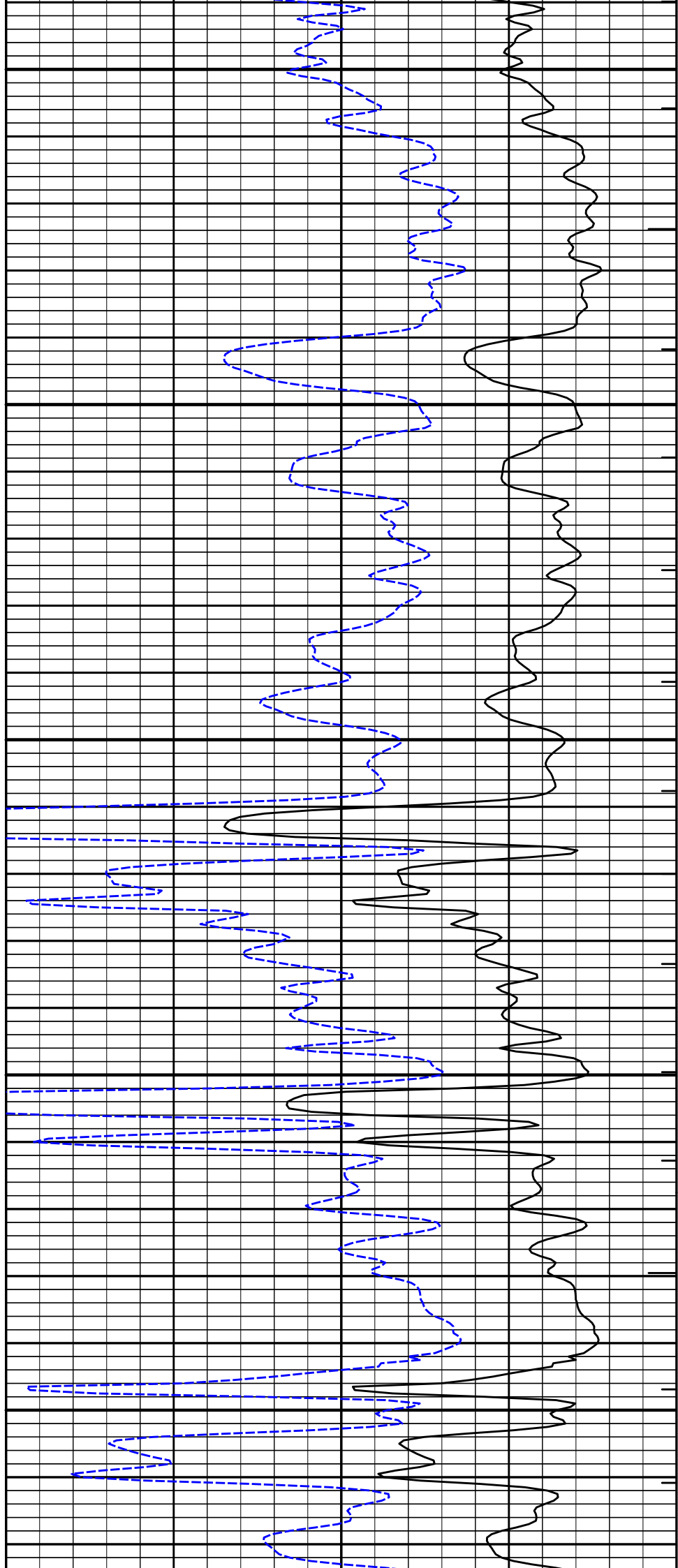
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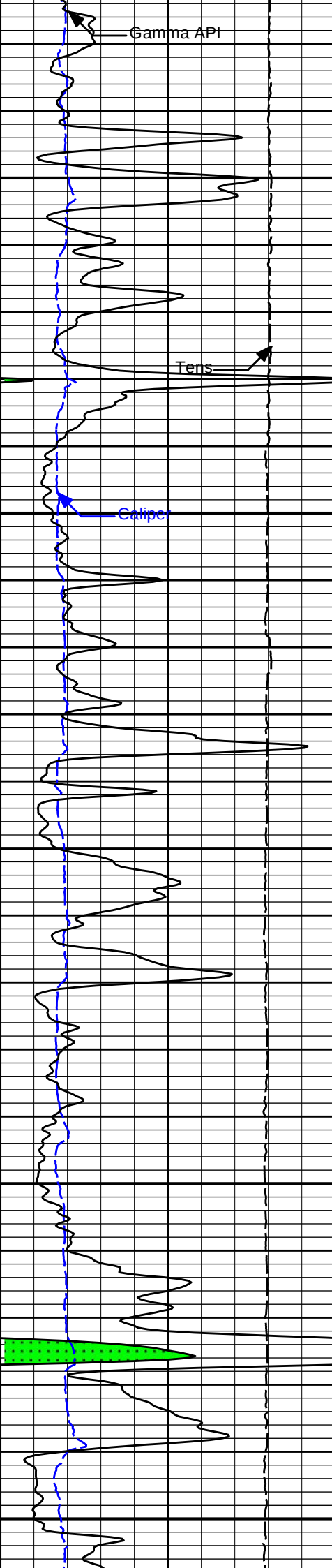




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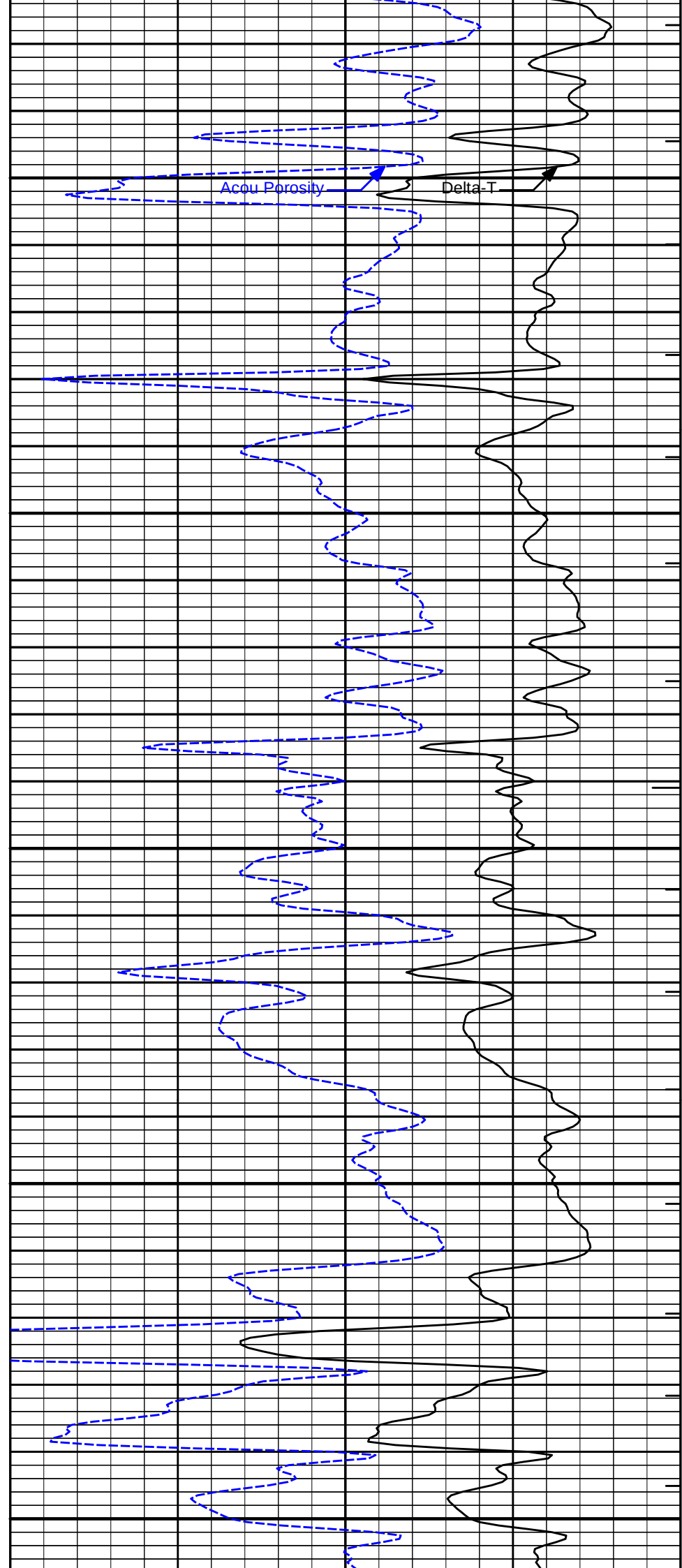


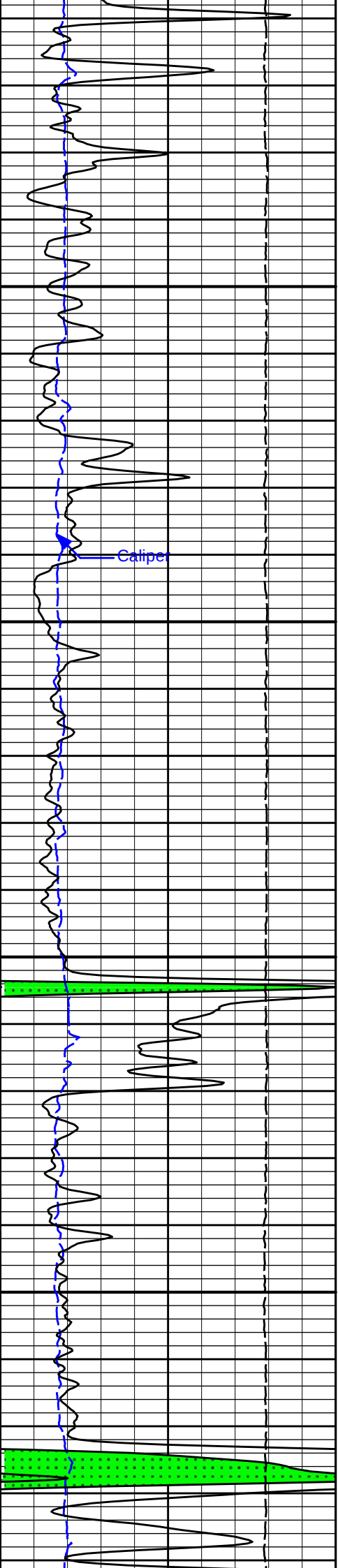


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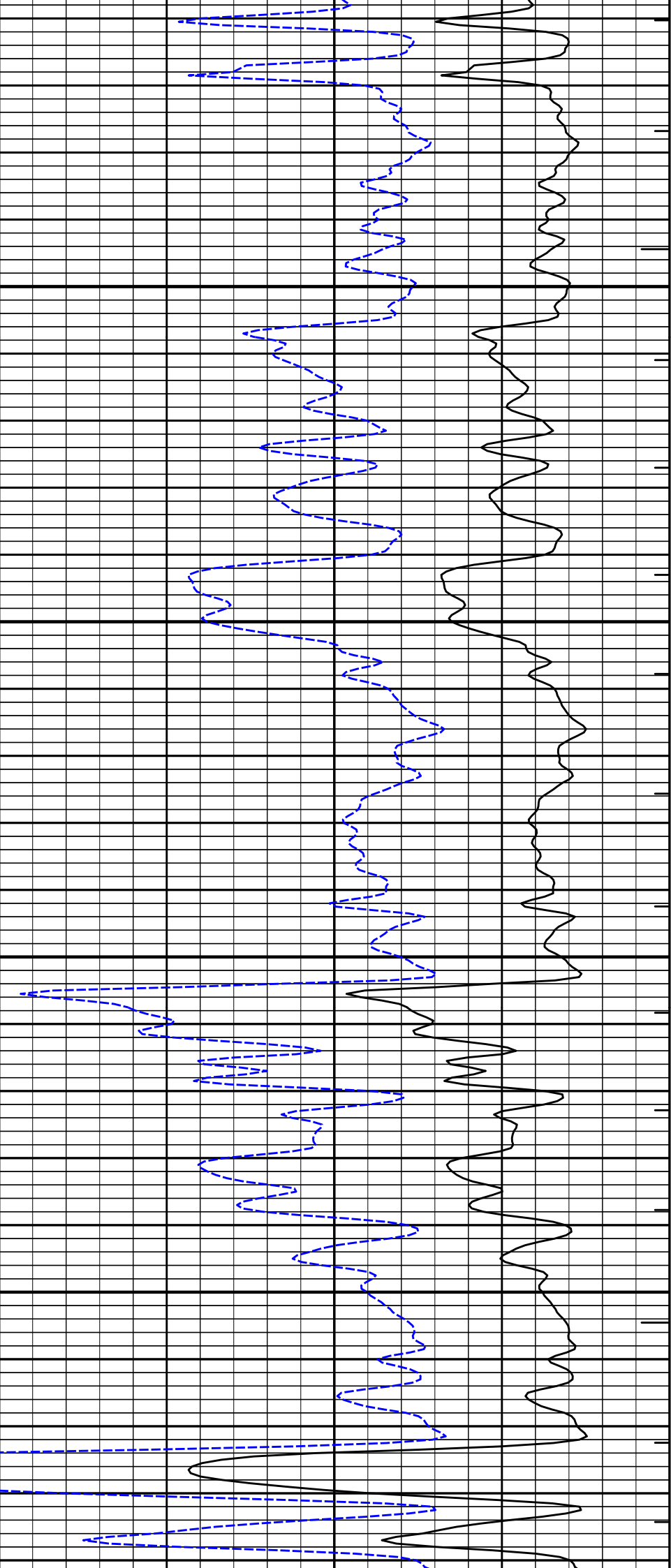
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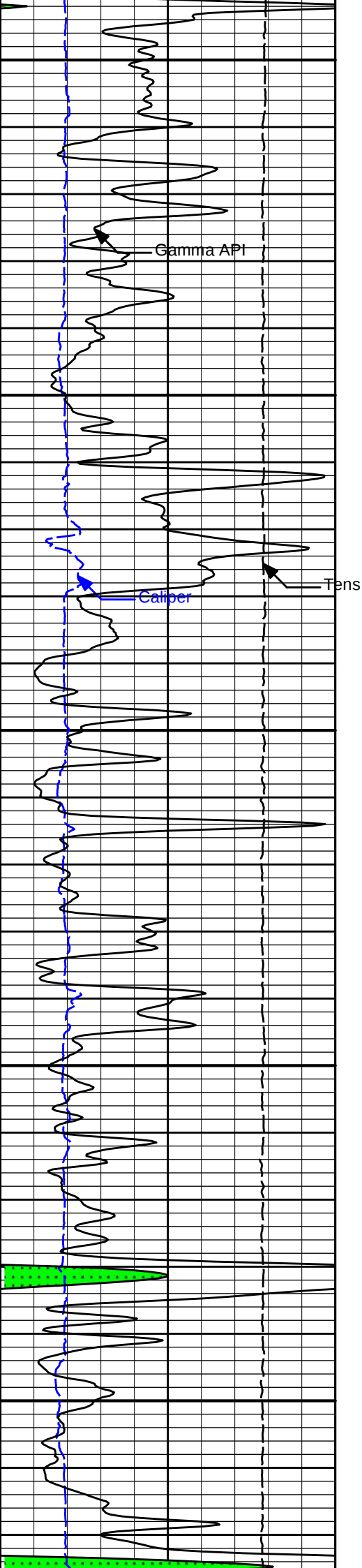




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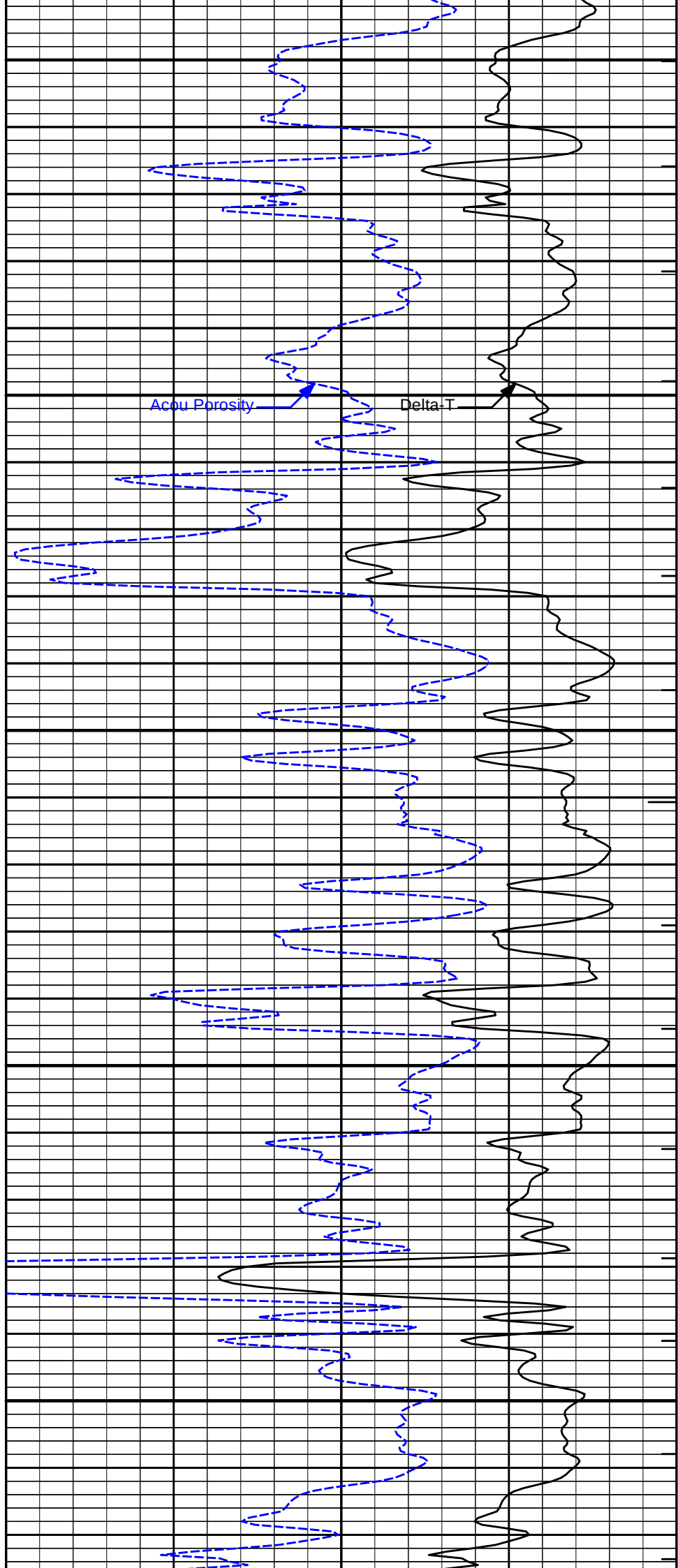
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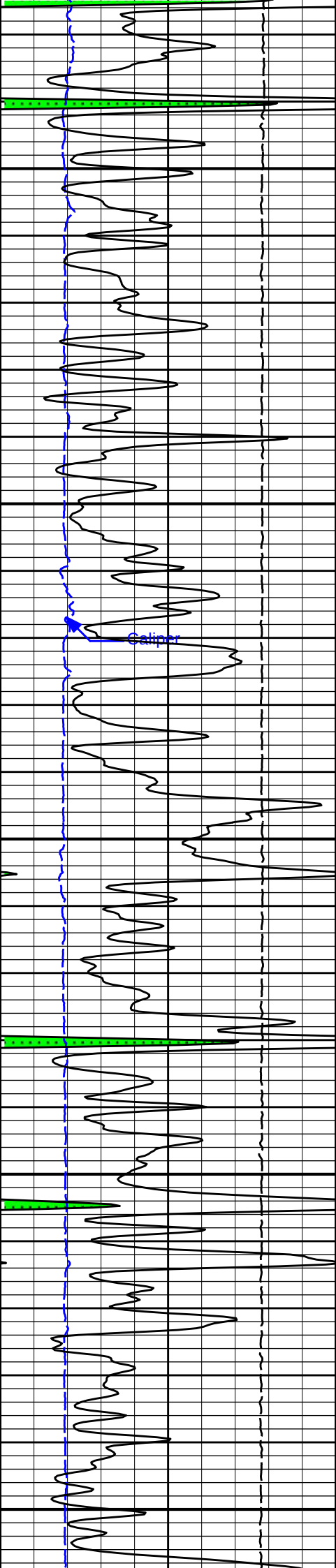




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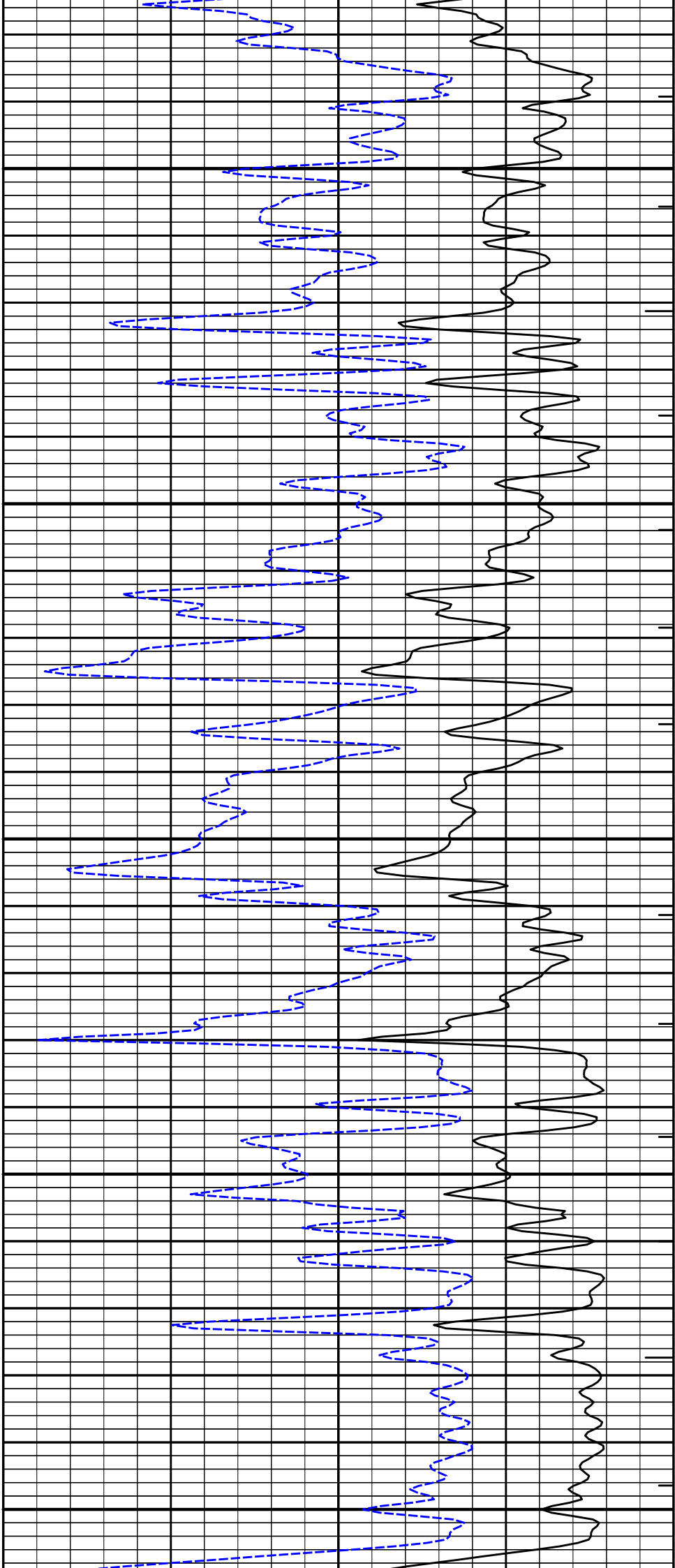


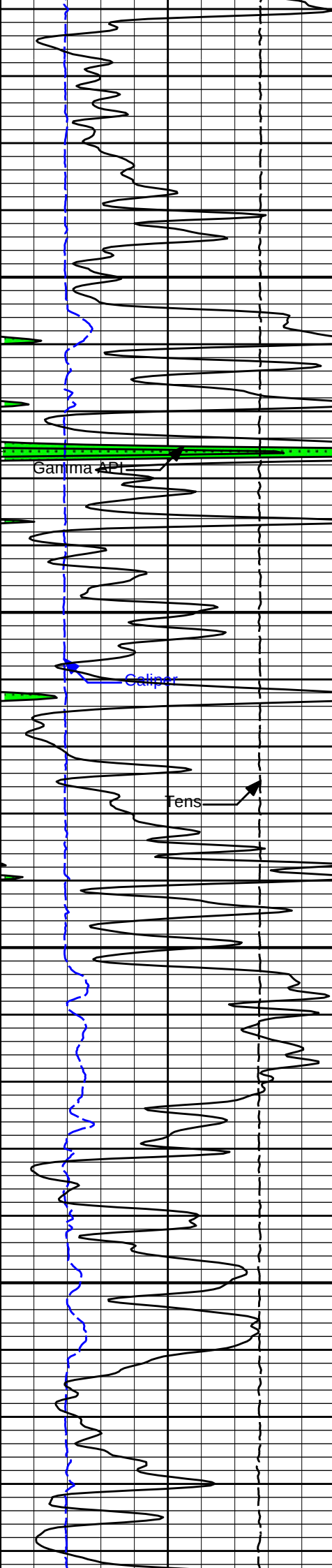


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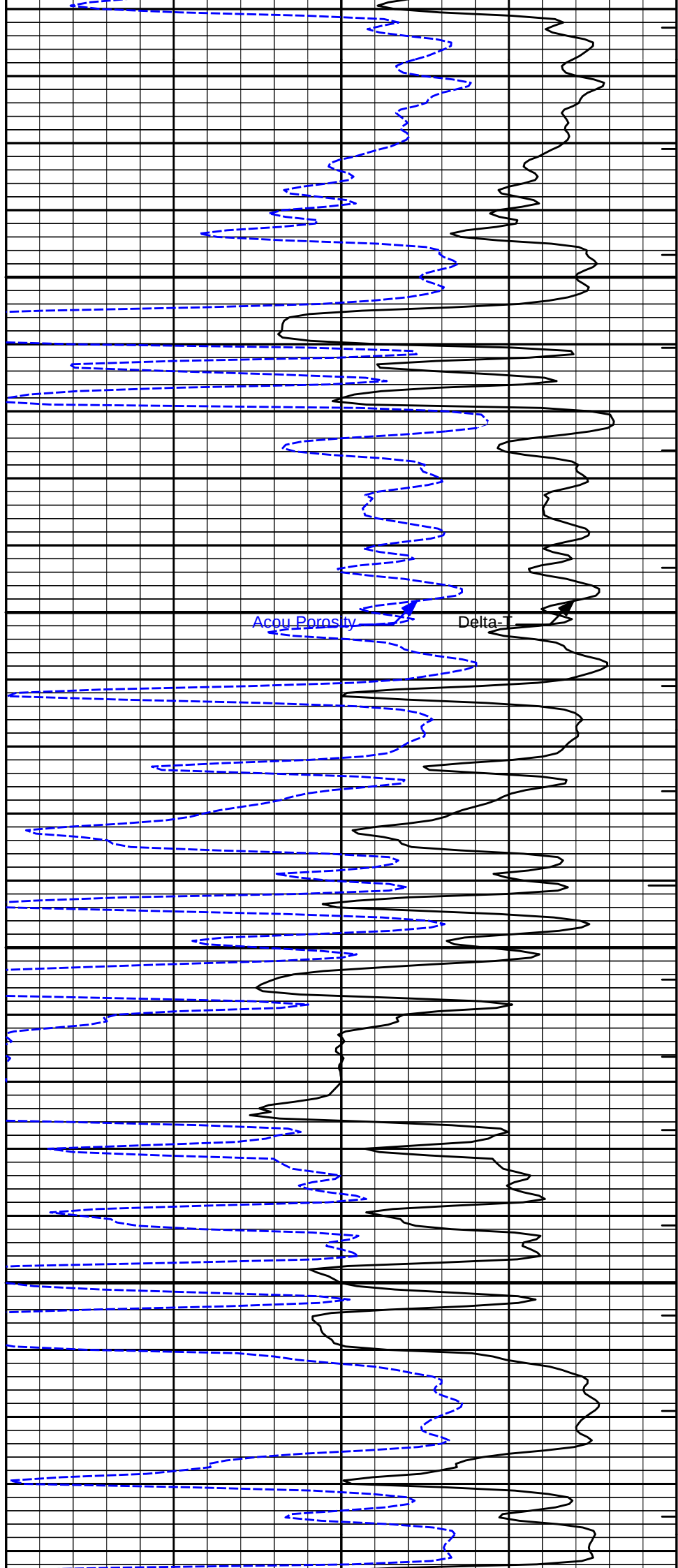
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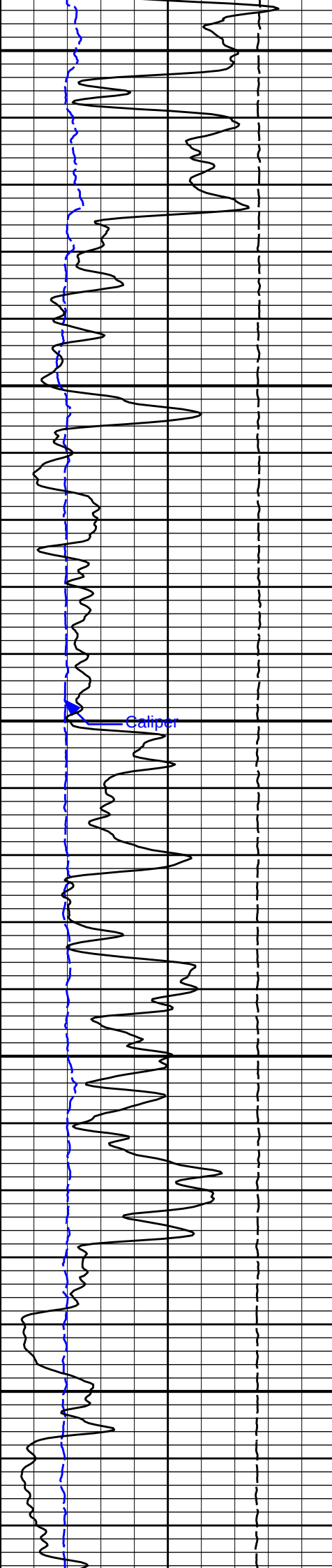




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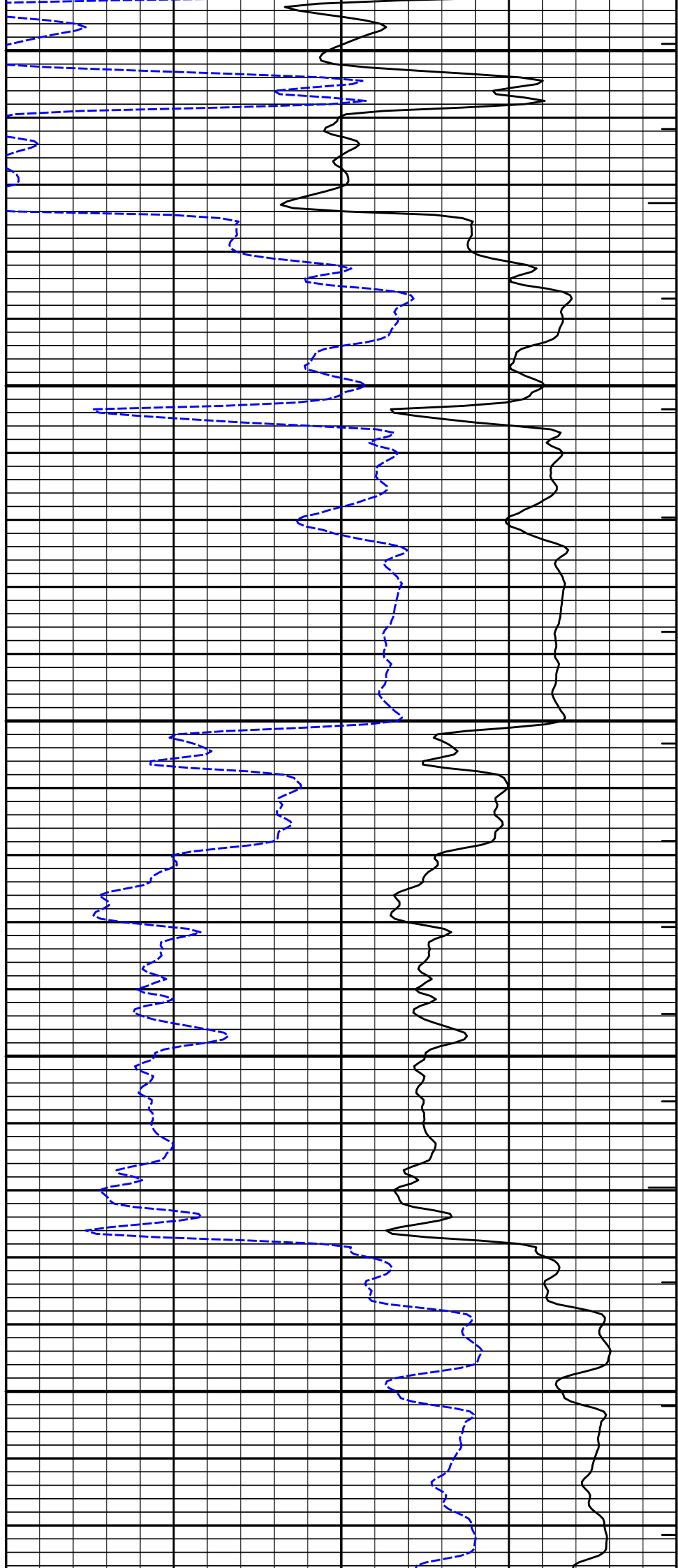
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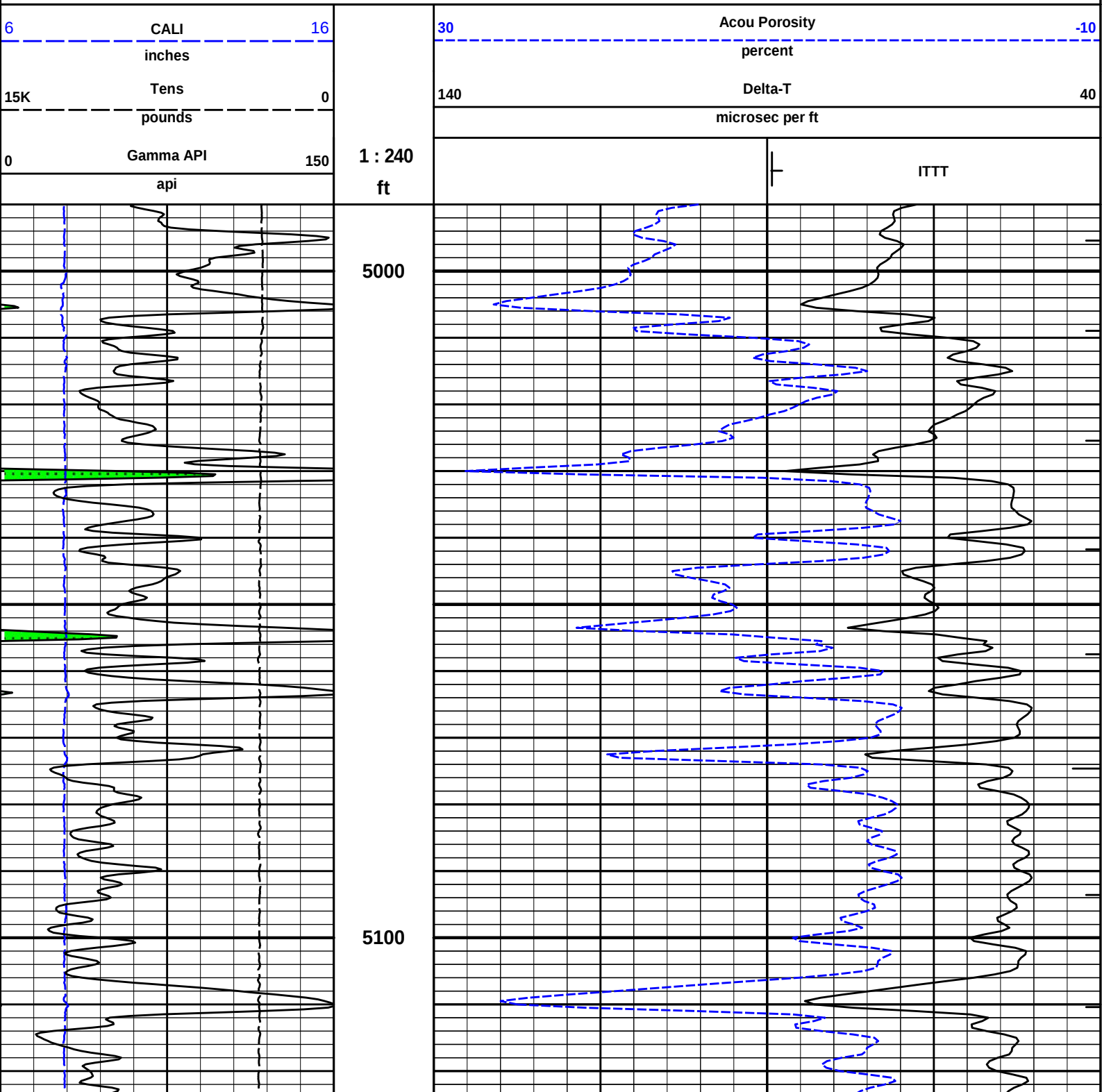
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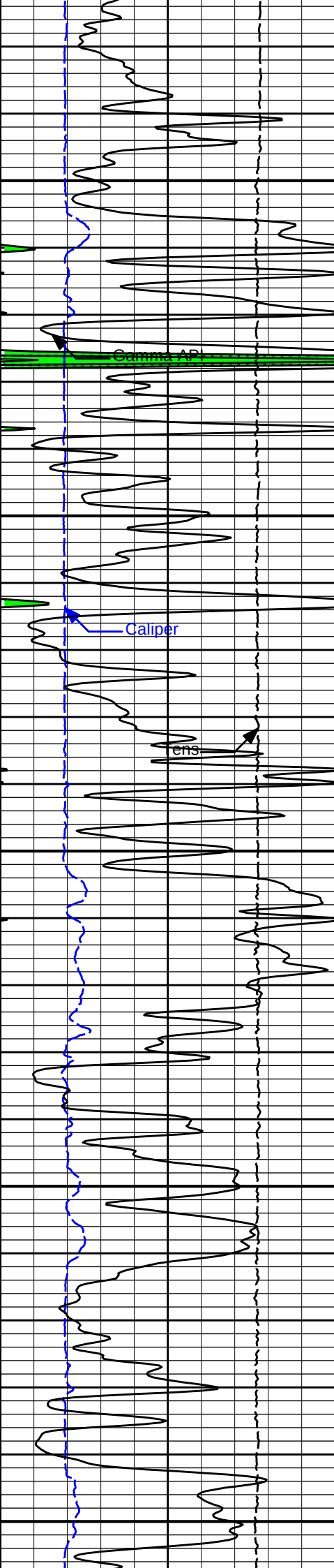
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REPEAT SECTION

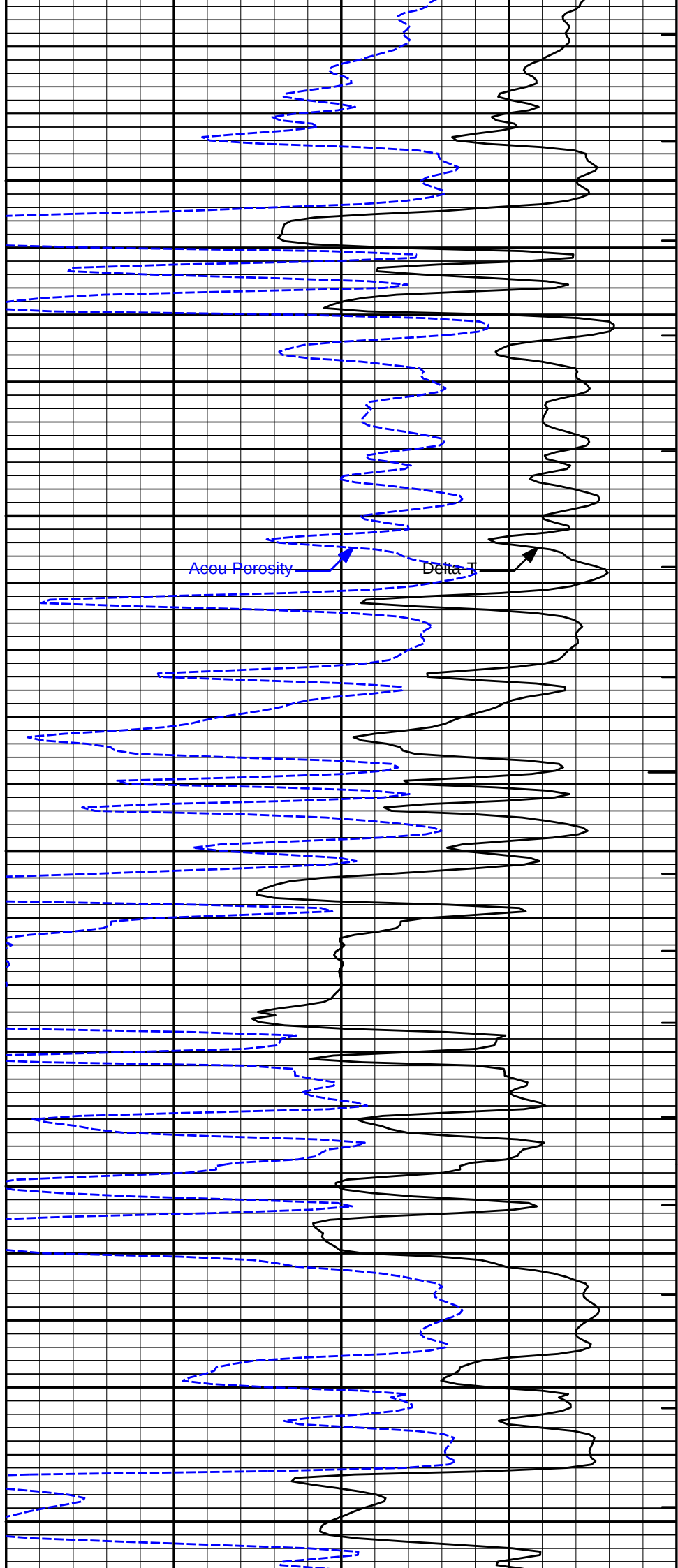
REPEAT SECTION

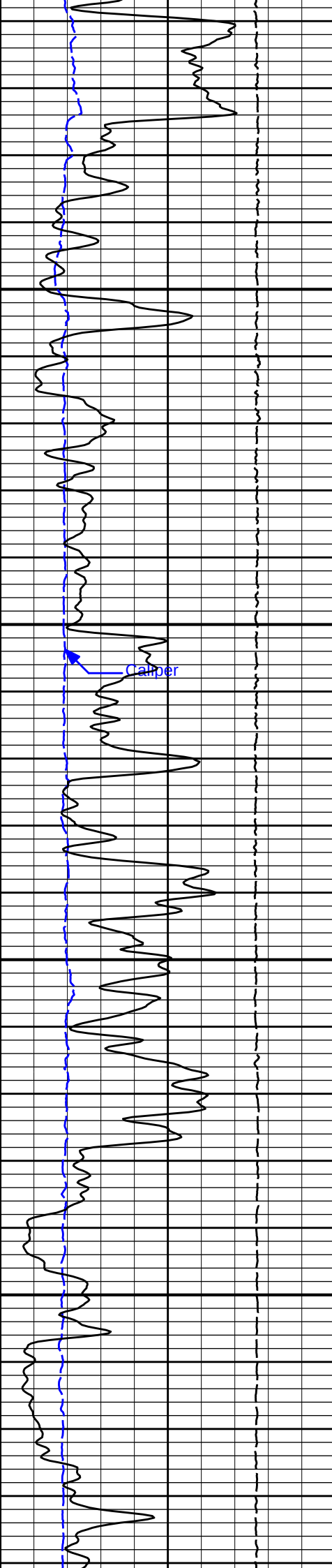




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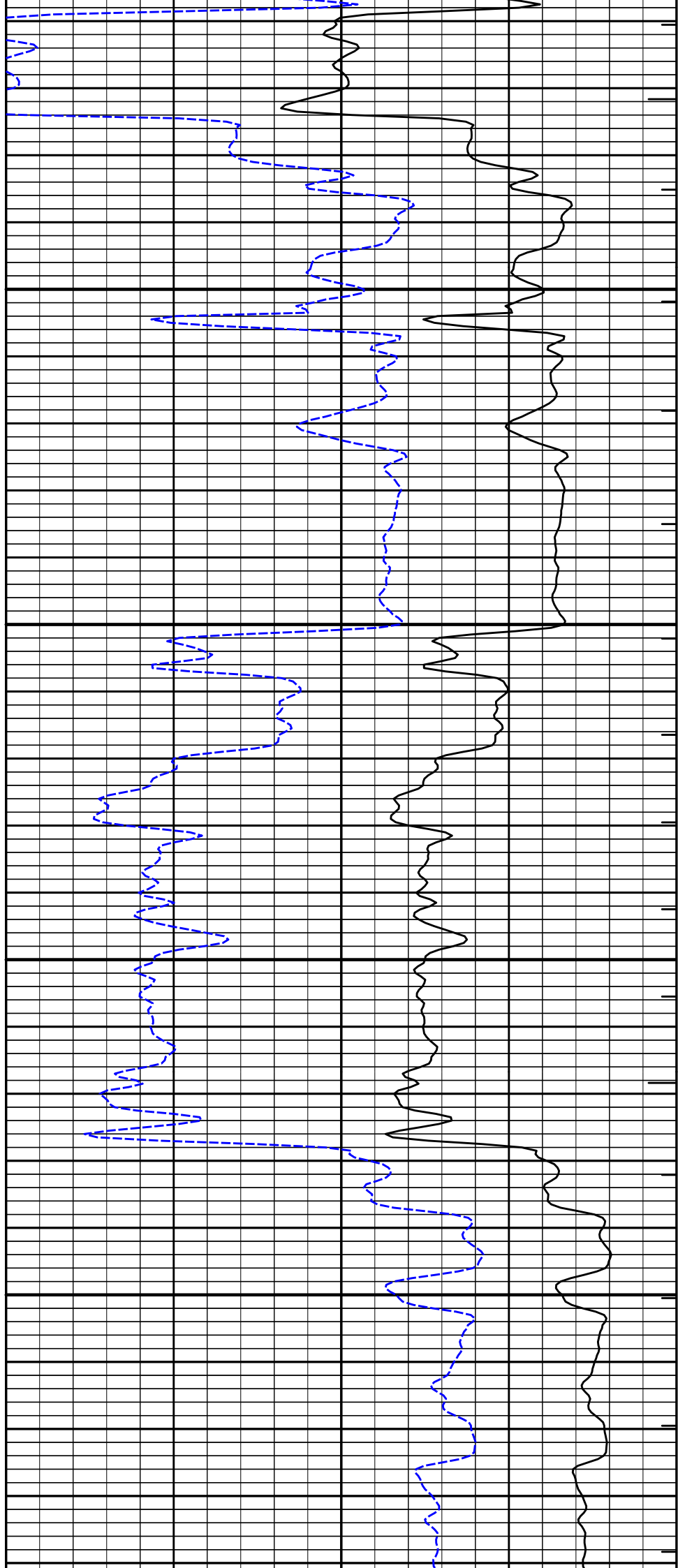
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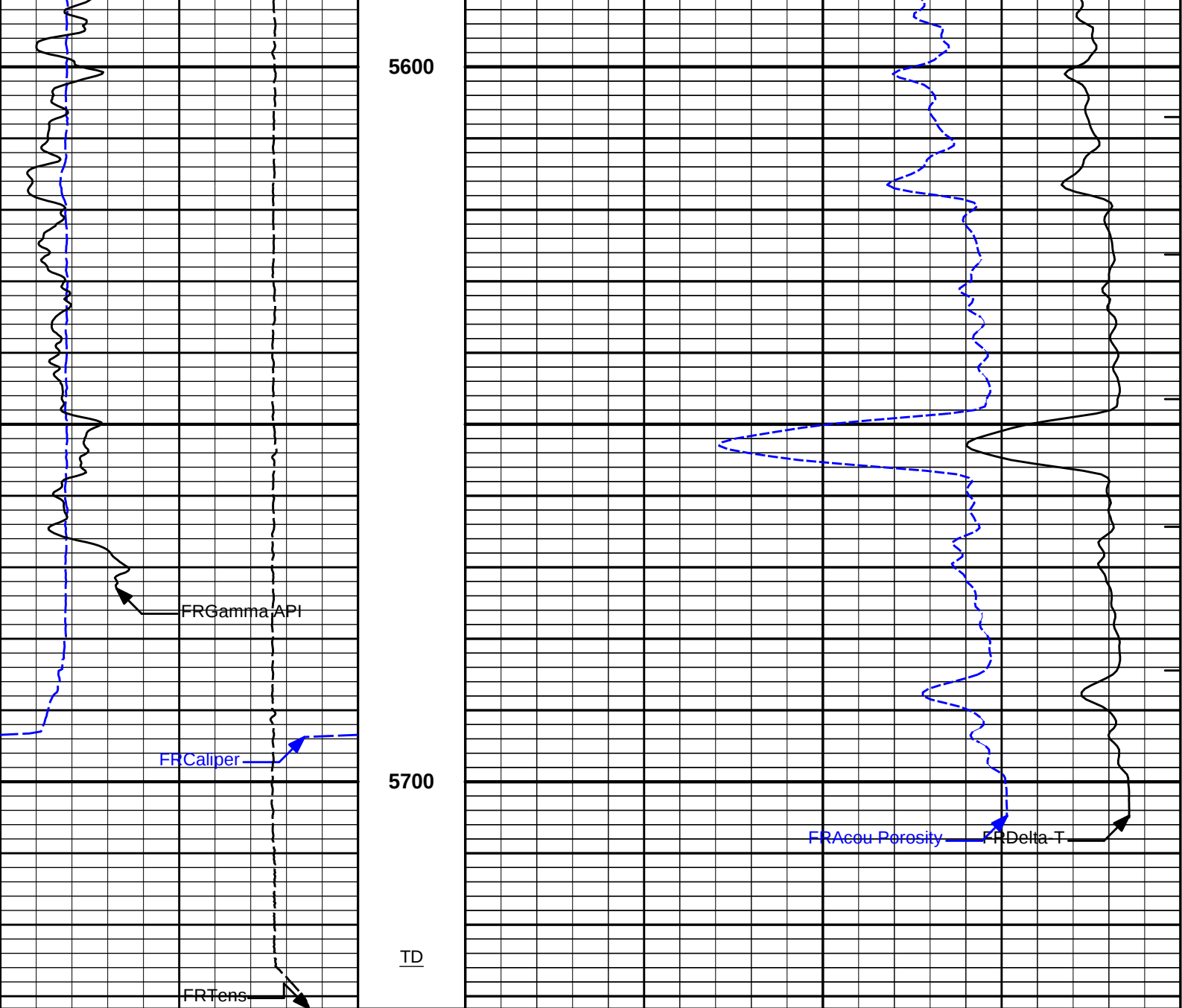




5400

5500





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

HALLIBURTON
Plot Time: 15-Feb-19 14:06:35
Plot Range: 4990 ft to 5731.75 ft
Data: MERIT_BOCK\Well Based\REPEAT\
Plot File: \\BSAT\BSAT_5inch

REPEAT SECTION

REPEAT SECTION

CALIBRATION REPORT

SURFACE TENSION SHOP CALIBRATION

Tool Name: Depth Panel - 12345678

Reference Calibration Date: 08-Feb-19 14:23:35

Engineer: SEAN WOLTEMATH

Calibration Date: 09-Feb-19 14:35:03

Software Version: WL INSITE R5.8.9 (Build 6)

Calibration Version: 1

SURFACE TENSION LOAD CELL

Measurement	Load Cell Value	Measurement	Calibrated	Units
Low	10112.01	-99.95	0.00	lbs
High	17473.17	7809.11	7830.00	lbs

DOWNHOLE TENSION SHOP CALIBRATION

Tool Name: RWCH - 12345678

Reference Calibration Date: 12-Feb-19 14:08:00

Engineer: WHITLOCK

Calibration Date: 15-Feb-19 09:39:17

Software Version: WL INSITE R5.8.9 (Build 6)

Calibration Version: 1

DOWNHOLE LOAD CELL

Measurement	Tool Value	Measurement	Calibrated	Units
Low	-285.40	0.50	0.00	lbs
High	1497.30	226.73	1280.00	lbs

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name: GTET - 11021139

Reference Calibration Date: 27-Nov-18 10:00:48

Engineer: WHITLOCK

Calibration Date: 13-Dec-18 10:39:52

Software Version: WL INSITE R5.8.9 (Build 6)

Calibration Version: 1

Calibrator Source S/N: TB-79

Calibrator API Reference:222.00 api

Equivalent Calibrator API Reference:225.9 api

Measurement	Measured	Calibrated	Units
Background	28.6	28.7	api
Background + Calibrator	253.1	254.6	api
Calibrator	224.5	225.9	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name: GTET - 11021139

Reference Calibration Date: 13-Dec-18 10:39:52

Engineer: WHITLOCK

Calibration Date: 13-Feb-19 14:02:14

Software Version: WL INSITE R5.8.9 (Build 6)

Calibration Version: 1

Calibrator Source S/N: TB-79

Calibrator API Reference:222.00 api

Equivalent Calibrator API Reference:225.9 api

Field Verification	Shop	Field	Units
Background	28.7	18.6	api
Background + Calibrator	254.6	249.8	api
Calibrator	225.9	231.3	api

Shop	Field	Difference	Tolerance
225.9	231.3	-5.4	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name: DSNT - 11660709

Reference Calibration Date: 07-Nov-18 10:35:18

Engineer: WHITLOCK

Calibration Date: 14-Feb-19 11:05:14

Software Version: WL INSITE R5.8.9 (Build 6)

Calibration Version: 1

Logging Source S/N: DSN-436

Tank Serial Number: EL RENO HWT

Reference value assigned to Tank: 56.100
Snow Block S/N: 12156883
Calibration Tank Water Temperature: 63 degF
Min. Tool Housing Outside Diameter: 3.625 in

CALIBRATION CONSTANTS			
Measurement	Prev. Value	New Value	Control Limit On New Value

Gain:	1.01226	1.01152	0.900 - 1.100
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WATER TANK SUMMARY (Horizontal Water Tank)				
Measurement	Current Reading (Previous Coef.)	Calibrated (New Coef.)	Change	Control Limit On Change

Porosity (decp):	0.2360	0.2358	0.0002	+/- 0.0020
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Calibrated Ratio:	10.5672	10.5594	0.008	+/- 0.050
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VERIFIER		
Measurement	Value	Control Limit

Snow-Block Porosity (decp):	0.0792	0.02000 - 0.09000
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PASS/FAIL SUMMARY	
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Background Check:	Passed
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Gain-Range Check:	Passed
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Snow-Block Check:	Passed
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DUAL SPACED NEUTRON FIELD CALIBRATION

Tool Name:	DSNT - 11660709	Reference Calibration Date:	14-Feb-19 11:05:14
Engineer:	WHITLOCK	Calibration Date:	14-Feb-19 11:07:53
Software Version:	WL INSITE R5.8.9 (Build 6)	Calibration Version:	1

Logging Source S/N: DSN-436
Snow Block S/N: 12156883

NEUTRON FIELD-CHECK SUMMARY				
	Shop	Field	Difference	Control Limit On Change

Snow-Block Porosity (decp):	0.0792	0.0794	0.0002	+/- 0.0150
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PASS/FAIL SUMMARY	
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Block Change Check:	Passed
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Snow Block Stat Check:	Passed
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Temperature Check:	Passed
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DENSITY CALIPER SHOP CALIBRATION

Tool Name:	SDLT - 12153526	Reference Calibration Date:	24-Oct-18 11:09:45
Engineer:	SEAN WOLTEMATH	Calibration Date:	28-Dec-18 09:26:10
Software Version:	WL INSITE R5.8.9 (Build 6)	Calibration Version:	1
Host Tool Name:	DSNT - 11660709		

CALIBRATION COEFFICIENTS			
Measurement	Previous Value	New Value	Control Limit On New Value

Pad Offset	-3492.51	-3374.19	-7000.00 - -1000.00
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Pad Gain	0.0003970	0.0003815	0.0002000 - 0.0006000
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Arm Offset	-2428.73	-2472.47	-5000.00 - 3000.00
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Arm Gain	0.0005326	0.0005273	0.000300 - 0.000700
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Arm Power	-0.000005484	-0.000005178	-0.000010000 - 0.000010000
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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)	2.03	2.00	-0.03	+/- 0.20	
Medium Ring (in)	3.85	3.75	-0.10	+/- 0.20	
RING DIAMETER:					
Small Ring (in)	6.49	6.50	0.01	+/- 0.20	
Medium Ring (in)	8.25	8.25	0.00	+/- 0.20	
Large Ring (in)	14.99	15.00	0.01	+/- 0.20	
PASS/FAIL SUMMARY					
Calibration-Coefficients Range Check:			Passed		
Ring-Measurement Check:			Passed		
PASS/FAIL SUMMARY					
Calibration-Coefficients Range Check:			Passed		

SDLT CALIPER FIELD CALIBRATION					
Tool Name:	SDLT - 12153526		Reference Calibration Date:	28-Dec-18 09:26:10	
Engineer:	WHITLOCK		Calibration Date:	13-Feb-19 12:30:32	
Software Version:	WL INSITE R5.8.9 (Build 6)		Calibration Version:	1	

MEASURED CALIPER VALUES				
Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.79	0.04	+/- 0.10
Ring Diameter	8.25	8.37	0.12	+/- 0.15
PASS/FAIL SUMMARY				
Pad Extension Check:			Passed	
Diameter Check:			Passed	

BSAT FIELD CASING CHECK					
Tool Name:	BSAT - 10939049		Calibration Date:	30-Mar-17 10:01:32	
Engineer:	HARRIS		Calibration Date:	12-Jan-19 10:07:51	
Software Version:	WL INSITE R5.0.5 (Build 8)		Calibration Version:	1	

Pre-Log Check	Check Depth	Shop	Field	Difference	Tolerance	Units
Delta-T Compensated	147.01	57.00	56.56	0.4400	1.00	uspf

ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION			
Tool Name:	ACRt Sonde - 11038385	Reference Calibration Date:	31-Oct-18 12:10:38
Engineer:	WHITLOCK	Calibration Date:	12-Jan-19 10:07:51
Software Version:	WL INSITE R5.8.9 (Build 6)	Calibration Version:	1
Host Tool Name:	ACRt Instrument - 11055059		

TYPICAL GAIN RANGE									
Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	0.95	1.0400	1.05	0.95	1.0183	1.05	0.95	1.0031	1.05
A2 (50")	0.95	1.0420	1.05	0.95	1.0212	1.05	0.95	1.0085	1.05
A3 (29")	0.95	1.0318	1.05	0.95	1.0117	1.05	0.95	0.9986	1.05
A4 (17")	0.95	1.0313	1.05	0.95	1.0081	1.05	0.95	0.9961	1.05
A5 (10")	N/A	N/A	N/A	0.95	1.0024	1.05	0.95	0.9884	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.9948	1.05	0.95	0.9826	1.05

SONDE OFFSET									
Subarray	R12KHz			R36KHz			R72KHz		

Subarray	R12KHz	R36KHz	R72KHz
	(mmho/m)	(mmho/m)	(mmho/m)
A1 (80")	0.117	-5.018	-6.004
A2 (50")	-1.579	-4.487	-5.691
A3 (29")	-14.343	-4.019	-3.381
A4 (17")	-112.821	-33.348	-24.902
A5 (10")	N/A	-76.809	-30.650
A6 (6")	N/A	365.582	214.646

TRANSMITTER CURRENT GAIN				R-MUD VERIFICATION			
Signal	Lower	R	Upper	Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
12K	0.6	0.92	1.3	Mud Cell	0.95	1.00	1.05
36K	1.0	1.38	2.0				
72K	1.0	1.68	2.0				
PASS/FAIL SUMMARY							
GAIN RANGE CHK				PASS			
SONDE OFFSET CHK				PASS			
TOOL OK TO LOG							

QUALITY CHECK SHOP CALIBRATION			
Tool Name:	ACRt Sonde - 11038385	Reference Calibration Date:	31-Oct-18 12:20:05
Engineer:	WHITLOCK	Calibration Date:	12-Jan-19 10:19:11
Software Version:	WL INSITE R5.8.9 (Build 6)	Calibration Version:	1
Host Tool Name:	ACRt Instrument - 11055059		

STANDARD DEVIATIONS									
	R12KHz			R36KHz			R72KHz		
	Measured (mmho/m)	Expected (mmho/m)	Pass/Fail	Measured (mmho/m)	Expected (mmho/m)	Pass/Fail	Measured (mmho/m)	Expected (mmho/m)	Pass/Fail
A1 (80")	0.000	< 0.750	Pass	0.000	< 0.750	Pass	0.000	< 0.750	Pass
A2 (50")	0.000	< 0.750	Pass	0.000	< 0.750	Pass	0.000	< 0.750	Pass
A3 (29")	0.000	< 0.750	Pass	0.000	< 0.750	Pass	0.000	< 0.750	Pass
A4 (17")	0.000	< 0.750	Pass	0.000	< 0.750	Pass	0.000	< 0.750	Pass
A5 (10")	0.000	< 0.750	Pass	0.000	< 0.750	Pass	0.000	< 0.750	Pass
A6 (6")	0.000	< 0.750	Pass	0.000	< 0.750	Pass	0.000	< 0.750	Pass

AVERAGES									
	R12KHz			R36KHz			R72KHz		
	Measured (mmho/m)	Expected (mmho/m)	Pass/Fail	Measured (mmho/m)	Expected (mmho/m)	Pass/Fail	Measured (mmho/m)	Expected (mmho/m)	Pass/Fail
A1 (80")	0.000	< 0.500	Pass	-0.001	> -0.500	Pass	-0.008	> -0.500	Pass
A2 (50")	0.000	< 0.500	Pass	-0.001	> -0.500	Pass	-0.006	> -0.500	Pass
A3 (29")	-0.000	< 0.500	Pass	-0.001	> -0.500	Pass	-0.004	> -0.500	Pass
A4 (17")	-0.003	> -0.500	Pass	-0.008	> -0.500	Pass	-0.027	> -0.500	Pass
A5 (10")	-0.012	> -0.500	Pass	-0.019	> -0.500	Pass	-0.033	> -0.500	Pass
A6 (6")	0.016	< 0.500	Pass	0.081	< 0.500	Pass	0.202	< 0.500	Pass

GAIN TOLERANCE					
R12KHz					
	Measured (mmho/m)	Last Month (mmho/m)	Difference (mmho/m)	Tolerance (mmho/m)	Pass/Fail
A1 (80")	-222509424.000	-220721488.000	1787936.000	11036074.400	Pass
A2 (50")	-219908656.000	-218488224.000	1420432.000	10924411.200	Pass

A3 (29")	-216209600.000	-214911568.000	1298032.000	10745578.400	Pass
A4 (17")	-212696560.000	-211434368.000	1262192.000	10571718.400	Pass
A5 (10")	-213283264.000	-211949376.000	1333888.000	10597468.800	Pass
A6 (6")	-215232944.000	-213895760.000	1337184.000	10694788.000	Pass
R36KHz					
	Measured (mmho/m)	Last Month (mmho/m)	Difference (mmho/m)	Tolerance (mmho/m)	Pass/Fail
A1 (80")	61900852.000	59105928.000	2794924.000	2955296.400	Pass
A2 (50")	62955192.000	60252356.000	2702836.000	3012617.800	Pass
A3 (29")	54982472.000	52147940.000	2834532.000	2607397.000	Fail
A4 (17")	51255188.000	48569380.000	2685808.000	2428469.000	Fail
A5 (10")	53424152.000	50672468.000	2751684.000	2533623.400	Fail
A6 (6")	52141620.000	49458680.000	2682940.000	2472934.000	Fail
R72KHz					
	Measured (mmho/m)	Last Month (mmho/m)	Difference (mmho/m)	Tolerance (mmho/m)	Pass/Fail
A1 (80")	-92355888.000	-92108696.000	247192.000	4605434.800	Pass
A2 (50")	-89283712.000	-89118672.000	165040.000	4455933.600	Pass
A3 (29")	-89064904.000	-88812376.000	252528.000	4440618.800	Pass
A4 (17")	-84179000.000	-83501792.000	677208.000	4175089.600	Pass
A5 (10")	-82827992.000	-82094160.000	733832.000	4104708.000	Pass
A6 (6")	-84975976.000	-84269728.000	706248.000	4213486.400	Pass
PASS/FAIL SUMMARY Std Deviation Verification Pass Average Verification Pass Gain Tolerance Verification Fail					

MICRO LOG SHOP CALIBRATION			
Tool Name:	Microlog Pad - 12153526	Reference Calibration Date:	13-Dec-18 15:14:27
Engineer:	WHITLOCK	Calibration Date:	13-Feb-19 13:48:43
Software Version:	WL INSITE R5.8.9 (Build 6)	Calibration Version:	1
Host Tool Name:	DSNT - 11660709		

Measurement	CALIBRATION COEFFICIENT SUMMARY				
	Micro Log Normal		Micro Log Lateral		Units
	Measured	Calibrated	Measured	Calibrated	
Tool Zero	-0.07	-0.13	-0.01	-0.01	ohmm
Calibration Point #1	0.06	0.00	0.00	0.00	ohmm
Calibration Point #2	20.11	20.00	20.05	20.00	ohmm
Internal Reference	19.98	19.87	20.05	20.00	ohmm
Measurement	Micro Log Normal Tool Value		Micro Log Lateral Tool Value		Units
Tool Zero	-0.08		0.17		V
Calibration Point #1	33.66		2.09		V
Calibration Point #2	5318.45		6943.78		V
Internal Reference	5284.01		6943.77		V

MICRO LOG FIELD CHECK					
Tool Name:	Microlog Pad - 12153526		Reference Calibration Date:	13-Feb-19 13:48:43	
Engineer:	WHITLOCK		Calibration Date:	13-Feb-19 13:49:27	
Software Version:	WL INSITE R5.8.9 (Build 6)		Calibration Version:	1	

	Measurement	Micro Log Normal		Micro Log Lateral	
		Shop	Field	Shop	Field
	Tool Zero	-0.13	-0.13	-0.01	-0.01
	Internal Reference	19.87	19.86	20.00	19.99

Internal Reference				
Summary				
Signal	Shop	Field	Difference	Tolerance
Microlog Normal	19.87	19.86	0.01	+/- 0.80
Microlog Lateral	20.00	19.99	0.01	+/- 0.80

SPECTRAL DENSITY SHOP CALIBRATION				
Tool Name:	SDLT Pad - 11284007		Reference Calibration Date:	13-Feb-19 13:38:19
Engineer:	WHITLOCK		Calibration Date:	13-Feb-19 14:03:16
Software Version:	WL INSITE R5.8.9 (Build 6)		Calibration Version:	1

Logging Source S/N: 5475GW

Aluminum Block S/N: El Reno Aluminum Block

Magnesium Block S/N: El Reno Magnesium Block

Density: 2.581g/cc

Density: 1.687g/cc

Pe: 3.170

Pe: 2.594

DENSITY CALIBRATION SUMMARY				
Measurement	Previous Value	New Value	Control Limit	
Near Bar Gain	1.0301	1.0322	0.90 - 1.10	
Near Dens Gain	1.0075	1.0134	0.90 - 1.10	
Near Peak Gain	1.0124	1.0177	0.90 - 1.10	
Near Lith Gain	1.0115	1.0231	0.90 - 1.10	
Far Bar Gain	1.0080	1.0077	0.90 - 1.10	
Far Dens Gain	0.9971	0.9974	0.90 - 1.10	
Far Peak Gain	0.9937	0.9921	0.90 - 1.10	
Far Lith Gain	0.9787	0.9803	0.90 - 1.10	
Near Bar Offset	-0.1191	-0.1365	NONE	
Near Dens Offset	0.1235	0.0725	NONE	
Near Peak Offset	0.0699	0.0275	NONE	
Near Lith Offset	0.0328	-0.0619	NONE	
Far Bar Offset	-0.0208	-0.0182	NONE	
Far Dens Offset	0.0960	0.0966	NONE	
Far Peak Offset	0.1075	0.1237	NONE	
Far Lith Offset	0.2016	0.1930	NONE	
Near Bar Background	996.75	998.34	700 - 1450	
Near Dens Background	328.89	329.74	230 - 480	
Near Peak Background	147.22	146.65	100 - 210	
Near Lith Background	179.13	180.46	125 - 260	
Far Bar Background	586.76	589.10	450 - 900	
Far Dens Background	228.48	227.44	175 - 345	
Far Peak Background	91.74	91.42	70 - 140	
Far Lith Background	94.99	94.87	75 - 145	

CALIBRATION BLOCK SUMMARY				
Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.686	1.687	0.001	+/- 0.015
Pe	2.559	2.553	-0.006	+/- 0.150
ALUMINUM				
Density (g/cc)	2.581	2.581	0.000	+/- 0.01500
Pe	3.115	3.125	0.010	+/- 0.150

TOOL SUMMARY				
Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				

PASS/FAIL SUMMARY	
Background Quality Check:	Passed
Background Range Check:	Passed
Background Resolution Check:	Passed
Background Verification Check:	Passed
Magnesium Quality Check:	Passed
Aluminum Quality Check:	Passed
Gains Check:	Passed
Changes in Calibration Blocks:	Passed

Tool Name:	SDLT Pad - 11284007	Reference Calibration Date:	13-Feb-19 14:03:16
Engineer:	WHITLOCK	Calibration Date:	13-Feb-19 14:11:31
are Version:	WL INSITE R5.8.9 (Build 6)	Calibration Version:	1

Density Field Calibration Summary				
Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1655.193	1654.825	-0.368	16.343
Far (B+D+P+L) cps	1002.827	1000.179	-2.648	16.943
Near Resolution	8.93	8.99	0.060	0.50
Far Resolution	9.23	9.11	-0.120	1.00

Bkg Quality Check:	Passed
Bkg Resolution Check:	Passed
Bkg Verification Check:	Passed

Sensor	Shop	Field	Post	Difference	Tolerance	Units
Depth Panel-12345678						
Tension Zero	0.00	-----	-----	0.00	-----	lbs
Tension Cal	7830.00	-----	-----	0.00	-----	lbs
RWCH-12345678						
DH Tension Zero	0.00	-----	-----	0.00	-----	lbs
DH Tension Cal	1280.00	-----	-----	0.00	-----	lbs
GTET-11021139						
Gamma Ray Calibrator	225.9	231.3	-----	-5.4	+/- 9.00	api
DSNT-11660709						
Snow-Block Porosity	0.0792	0.0794	-----	-0.0002	+/- 0.0150	decip
SDLT-12153526						
Pad Extension	3.75	3.79	-----	-0.04	+/-0.10	in
Ring Diameter	8.25	8.37	-----	-0.12	+/-0.15	in
ACRt Sonde-11038385						
Mud Cell	1.00	-----	-----	0	-----	ohm-m
Microlog Pad-12153526						
MicroLog Normal	19.87	19.86	-----	0.01	+/-0.80	ohmm
MicroLog Lateral	20.00	19.99	-----	0.01	+/-0.80	ohmm
SDLT Pad-11284007						

Near(B+D+P+L)	1655.193	1654.825	-----	0.368	+/-16.343	cps
Far(B+D+P+L)	1002.827	1000.179	-----	2.648	+/-16.943	cps
Data: MERIT_BOCKI0001 RWCH-SP-GTET-DSNT-SDLT-BSAT-ACRTI001 15-Feb-19 09:43 Dn @128.8f						Date: 15-Feb-19 09:51:48



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	9.300	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	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	CSTR	Compressive Strength	1000.00	psia
	SHARED	ST	Surface Temperature	75.0	degF
	SHARED	TD	Total Well Depth	5729.00	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	CBM Temperature Master Tool	GTET	
	SHARED	SOCI	Source of Casing Information	Parameters	
	SHARED	MSAL	Water-base mud filtrate salinity	0.00	ppm
	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	
	Rwa / CrossPlot	BHSM	Borehole Size Source Tool	SDLT	
	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	SDLT	
	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	DNTT	Temperature Correction Type	None	
	DSNT	DPRS	DSN Pressure Correction Tyoe	None	

DSNT	SHCO	View More Correction Options	No	
DSNT	UTVD	Use TVD for Gradient Corrections?	No	
DSNT	LHWT	Logging Horizontal Water Tank?	No	
DSNT	UCLA	Classic Neutron Parameter utilized?	No	
DSNT	BHSM	Borehole Size Source Tool	SDLT	
SDLT	CLOK	Process Caliper Outputs?	Yes	
Microlog Pad	MLOK	Process MicroLog 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
SDLT Pad	BHSM	Borehole Size Source Tool	SDLT	
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 Pore Fluid	189.00	uspf
BSAT	DTMT	Delta -T Matrix Type	Limestone 47.6	
BSAT	DTSH	Delta -T Shale	100.00	uspf
BSAT	SPEQ	Acoustic Porosity Equation	Wylie	
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	RMAX	Maximum Resistivity for MAP	200.00	ohmm
ACRt Sonde	THQY	Threshold Quality	0.50	
ACRt Sonde	MRFX	Fixed mud resistivity	2000	ohmm
ACRt Sonde	BHSM	Borehole Size Source Tool	SDLT	
ACRt Sonde	MBFL	Apply Corkscrew Effect?	No	

BOTTOM_____

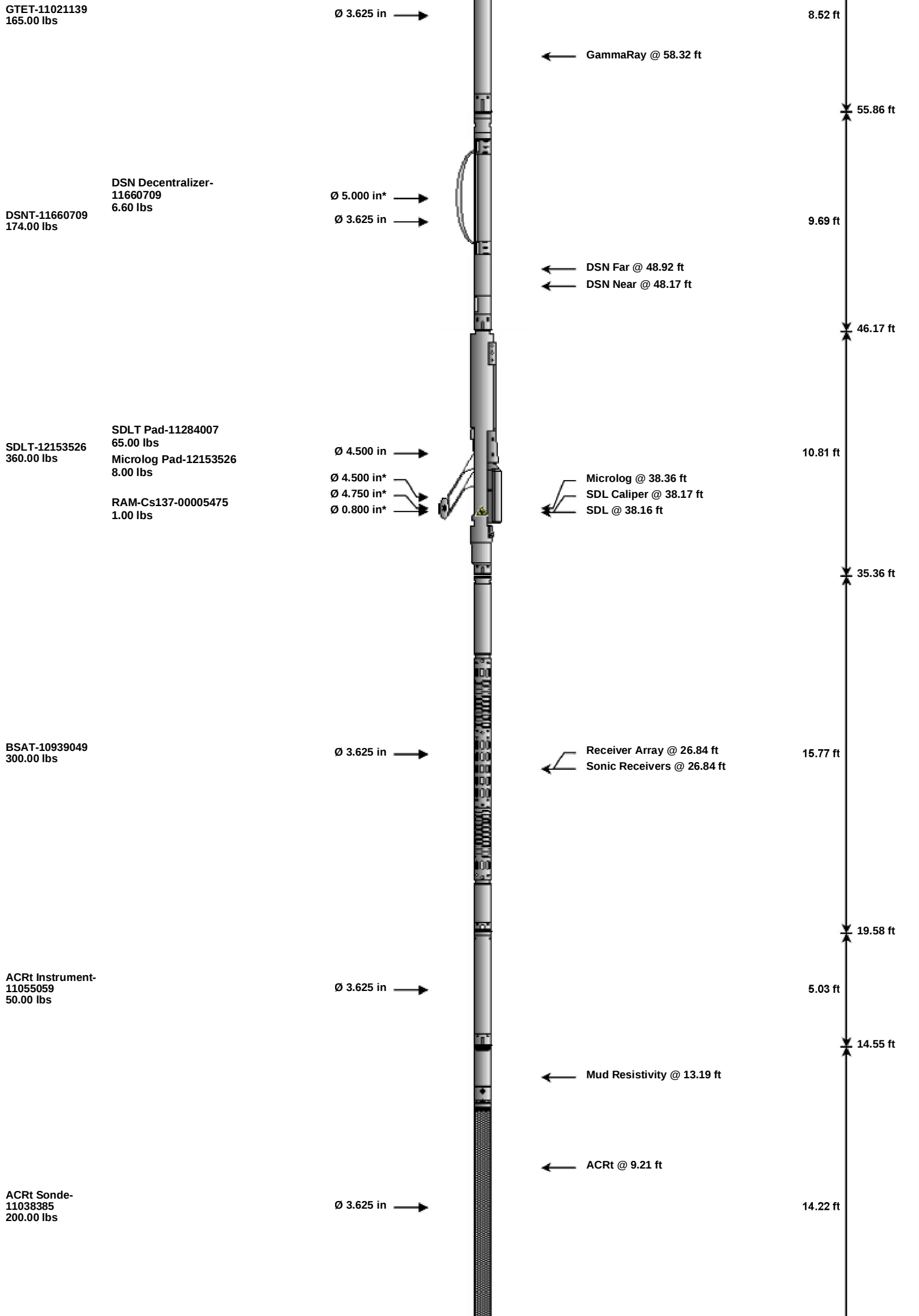
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Date: 15-Feb-19 09:52:45

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
RWCH-12345678 135.00 lbs Weak Point Solid-00000025 0.01 lbs		Ø 2.310 in →		← Fishing Neck @ 73.49 ft		74.37 ft
		Ø 3.625 in →		← Load Cell @ 70.68 ft ← BH Temperature @ 70.12 ft	6.25 ft	
		Ø 0.010 in* →				68.12 ft
SP Sub-10904995 60.00 lbs		Ø 3.625 in →		← SP @ 66.34 ft	3.74 ft	
				← Z-Accelerometer @ 63.93 ft		64.38 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)
RWCH	Releasable Wireline Cable Head	12345678	135.00	6.25	68.12	300.00
WPSS	Weak Point Solid	00000025	0.01	0.01	*	68.12
SP	SP Sub	10904995	60.00	3.74	64.38	300.00
GTET	Gamma Telemetry Tool	11021139	165.00	8.52	55.86	60.00
DSNT	Dual Spaced Neutron	11660709	174.00	9.69	46.17	60.00
DCNT	DSN Decentralizer	11660709	6.60	5.13	*	49.50
SDLT	Spectral Density Tool	12153526	360.00	10.81	35.36	60.00
SDLP	Density Insite Pad	11284007	65.00	2.55	*	37.57
Cs137	Logging Source, SDLT-I, 1.78 Ci - Cs137	00005475	1.00	0.80	*	37.80
MICP	Microlog Pad	12153526	8.00	1.00	*	37.86
BSAT	Borehole Sonic Array Tool	10939049	300.00	15.77	19.58	60.00
ACRt	Array Compensated True Resistivity Instrument Section	11055059	50.00	5.03	14.55	120.00
ACRt	Array Compensated True Resistivity Sonde Section	11038385	200.00	14.22	0.33	120.00
BLNS	Bull Nose	00000001	5.00	0.33	0.00	300.00
Total			1,529.61	74.37		
* Not included in Total Length and Length Accumulation.						
Data: MERIT_BOCK\0001 RWCH-SP-GTET-DSNT-SDLT-BSAT-ACRT\0001 15-Feb-19 09:43 Dn @128.8f					Date: 15-Feb-19 09:53:01	