

BOREHOLE COMPENSATED SONIC LOG

MERIT ENERGY COMPANY				MERIT ENERGY COMPANY					
EENU 103				EENU 103					
EUBANK				EUBANK					
HASKELL				HASKELL					
KANSAS				KANSAS					
COMPANY	WELL	FIELD/BLOCK	COUNTY	STATE	COMPANY	WELL	FIELD/BLOCK	COUNTY	STATE
Permanent Datum Log measured from Drilling measured from					API No. 15-081-22179-01-00				
					Location (SHL) NW/4 NW/4 SE NW/ 1335 FWL & 1574 FNL				
Sect. 3 Twp. 28S Rge. 34W					Other Services: ACRT SDL-DSN MICLOG BSAT GEM-CSNG				
Elev. 3079.0 ft					Elev.: K.B. 3091.0 ft				
D.F. 3089.0 ft					D.F. 3089.0 ft				
G.L. 3079.0 ft					G.L. 3079.0 ft				
Date	17-Jul-18								
Run No.	1								
Depth - Driller	5650.0 ft								
Depth - Logger	5650.0 ft								
Bottom - Logged Interval	5640								
Top - Logged Interval	1779								
Casing - Driller	8.625 in @ 1779.0 ft				@				
Casing - Logger	1779.0 ft								
Bit Size	7.875 in				@				
Type Fluid in Hole	Water Based Mud								
Density	9.20 g/cc		65.00 slqt						
PH	11.00 pH		6.4 cplm						
FLOWLINE									
Source of Sample									
Rm @ Meas. Temperature	0.75 ohmm @ 88.00 degF				@				
Rinf @ Meas. Temperature	0.58 ohmm @ 85.00 degF				@				
Rmc @ Meas. Temperature	0.91 ohmm @ 85.00 degF				@				
Source Rinf	Rmc		MEAS						
Rm @ BHT	0.44 ohmm		@ 155.0 degF		@				
Time Since Circulation					06:00 hr				
Time on Bottom					17-Jul-18 12:57				
Max. Rec. Temperature	155.00 degF		@ 5650.0 ft		@				
Equipment	Location		12156883 EL RENO, OK						
Recorded By	WHITLOCK								
Witnessed By	MATTHEW GARVIN								

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Service Ticket No.: 904998330				API No.: 15-081-22179-01-00				PGM Version: WL INSITE R5.6.3 (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.		@		@										
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		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	

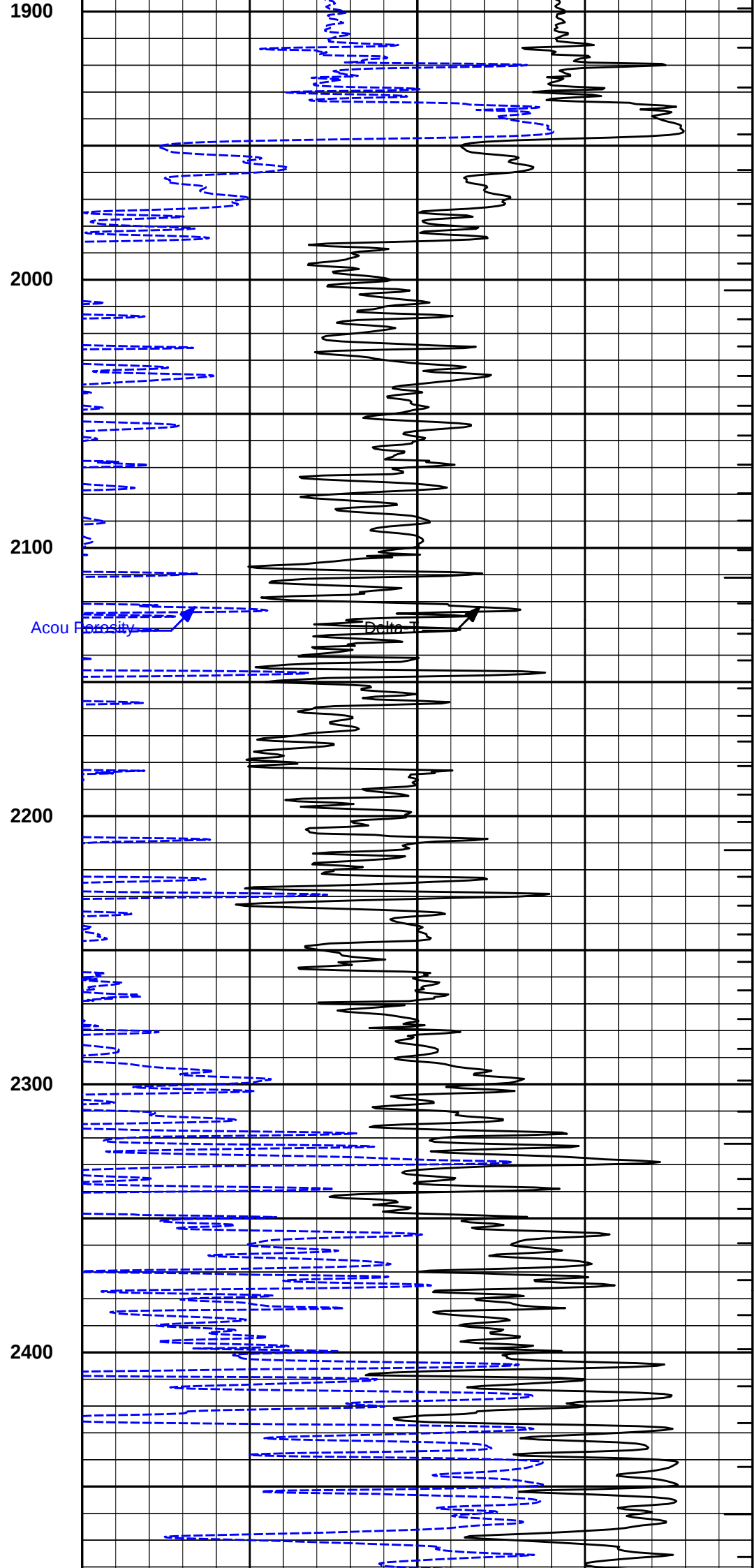
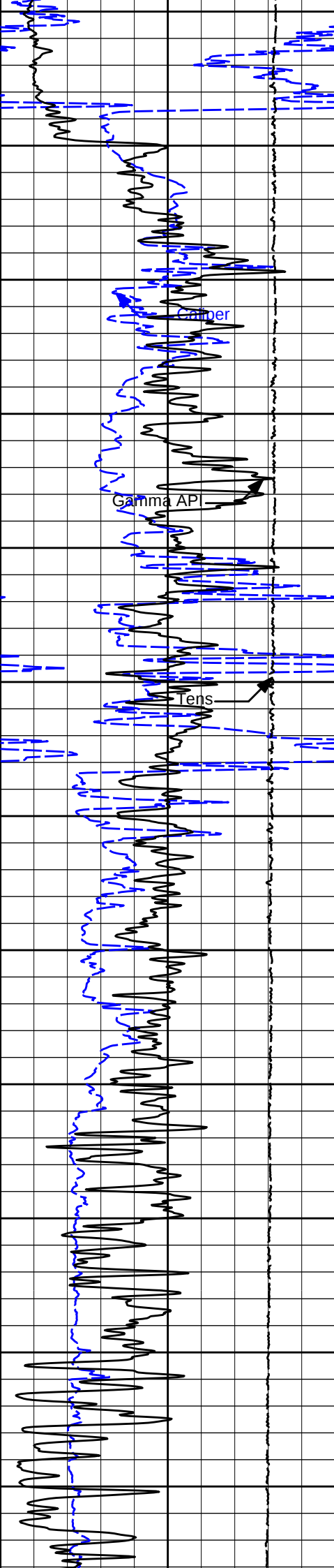
HALLIBURTON

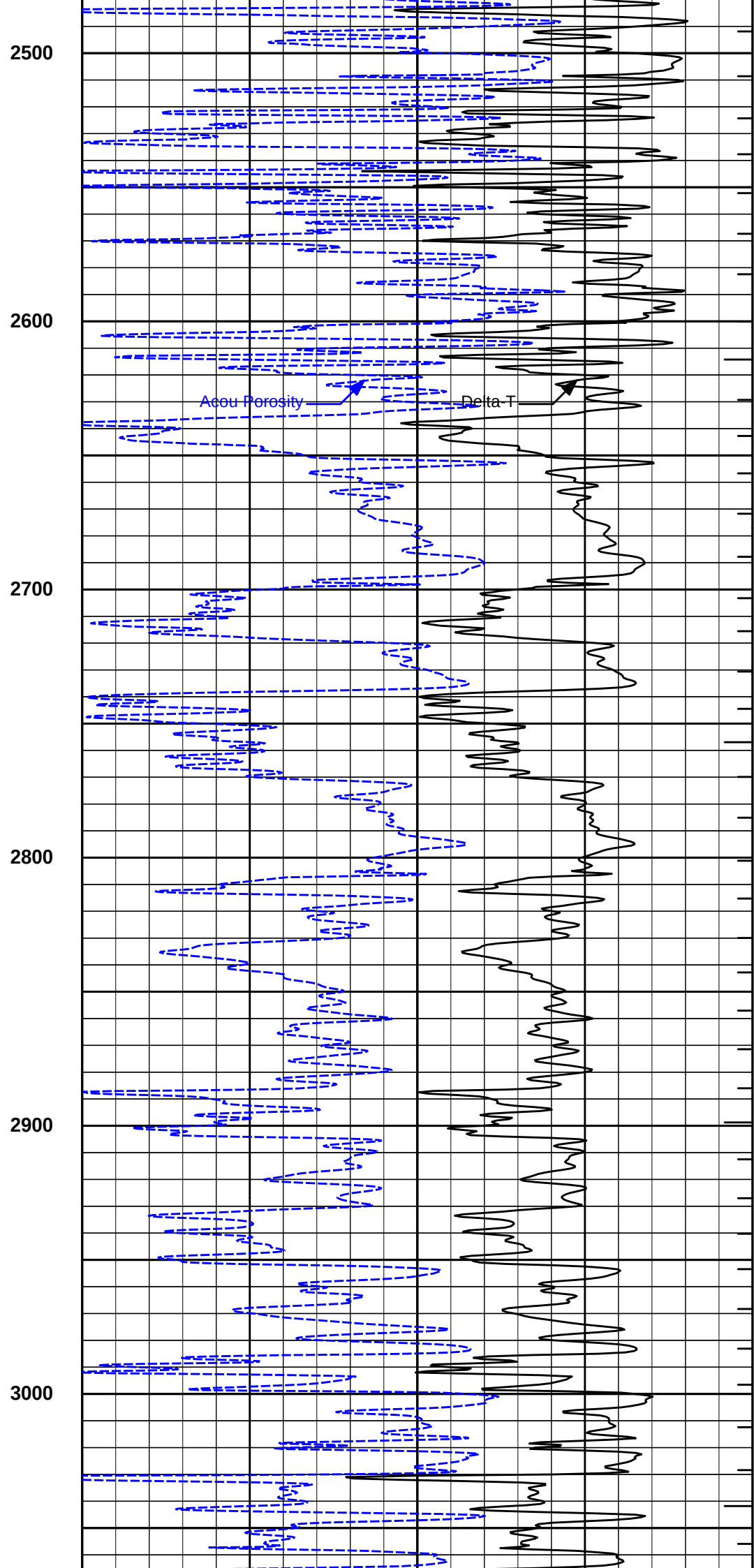
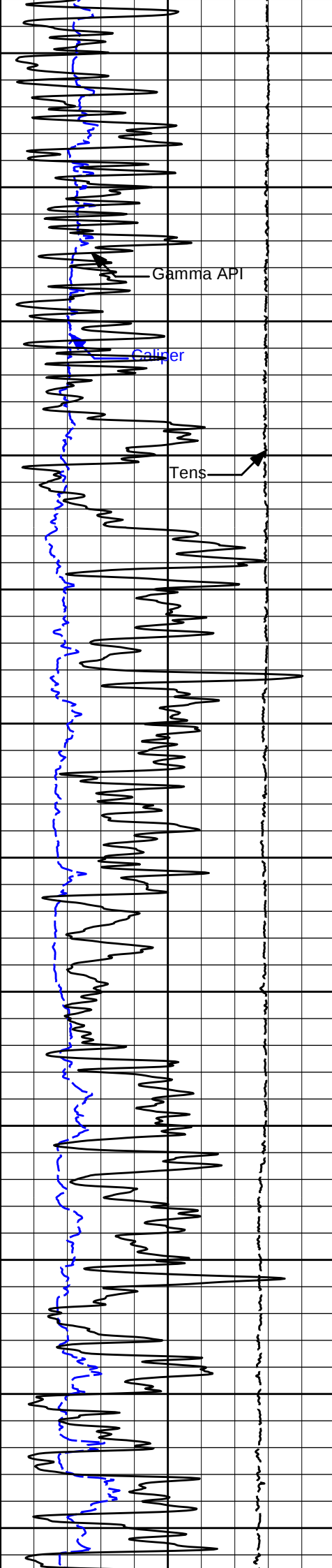
Plot Time: 17-Jul-18 18:14:44
Plot Range: 1750 ft to 5656.83 ft
Data: MERIT_EENU_103\Well Based\MAIN_LOG\
Plot File: \\BSAT\BSAT_2inch

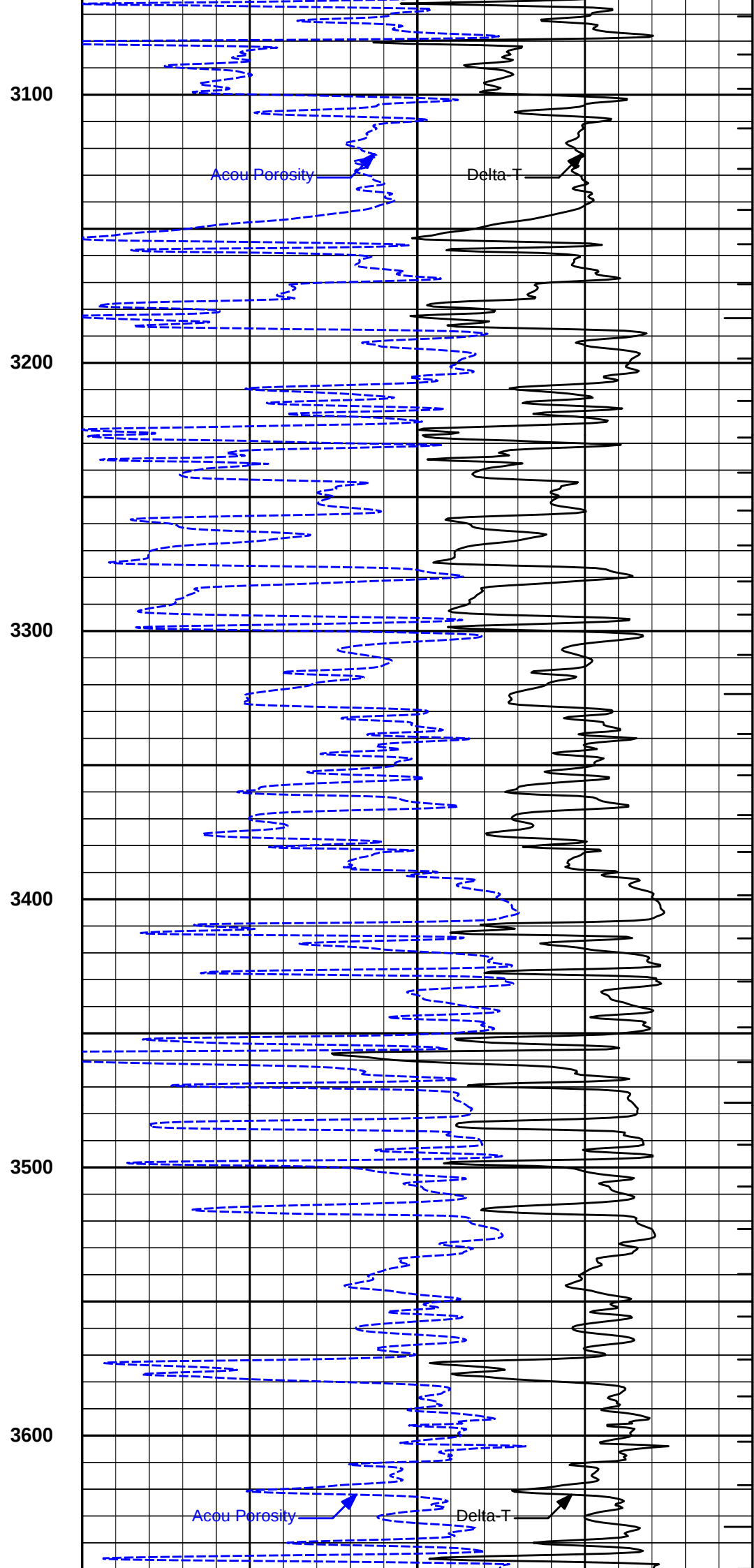
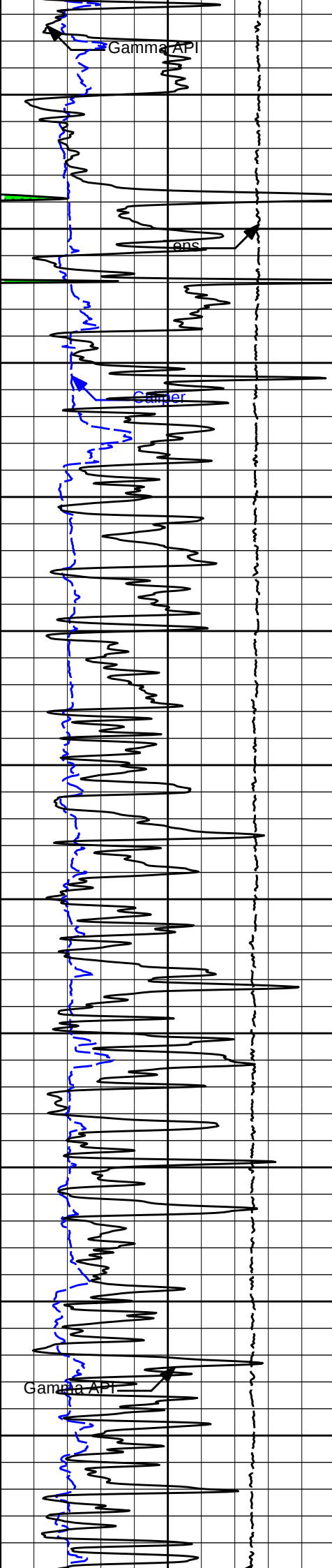
2 INCH MAIN LOG

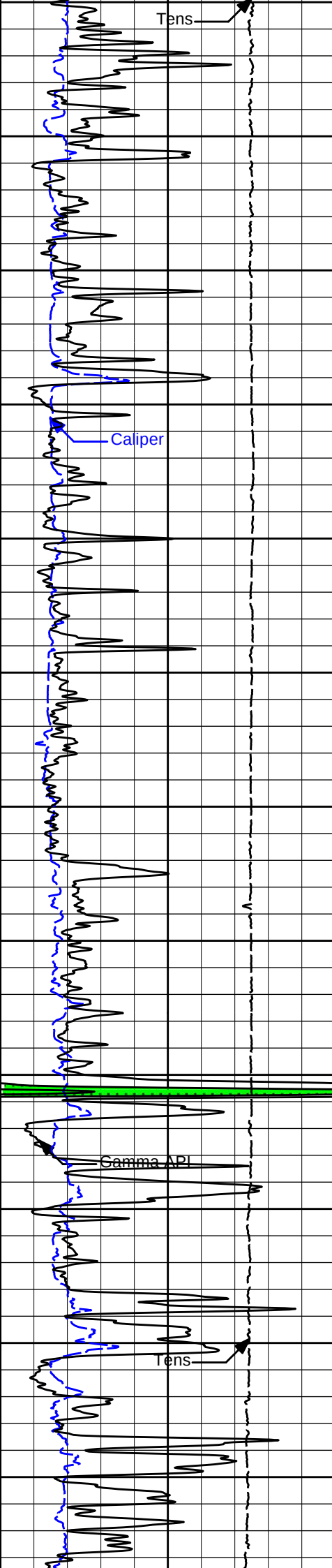
2" MAIN LOG SECTION

CALI		1 : 600 ft	Delta-T	
6	16		140	400
inches			microsec per ft	
Tens		15K	Acou Porosity	
pounds			30	-10
percent				
Gamma API		150	ITTT	
api				









3700

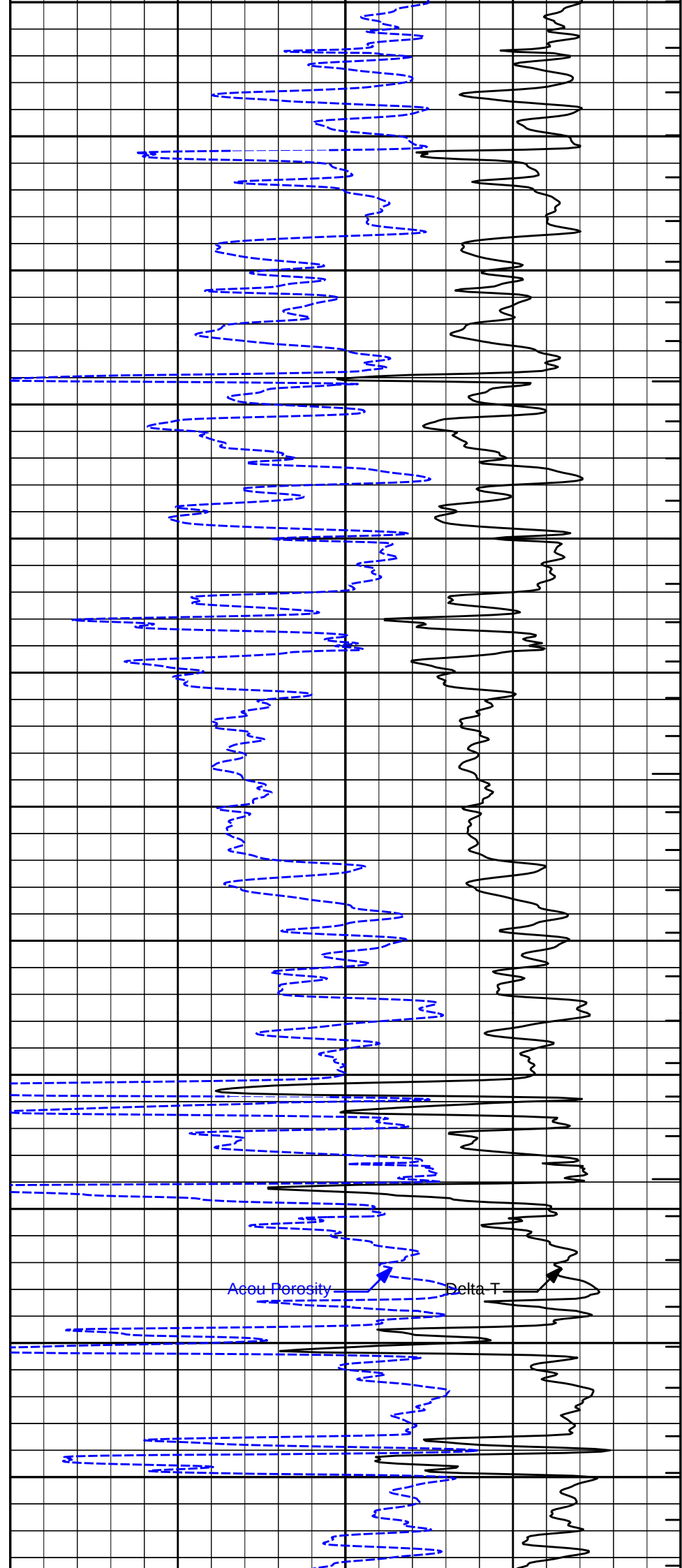
3800

3900

4000

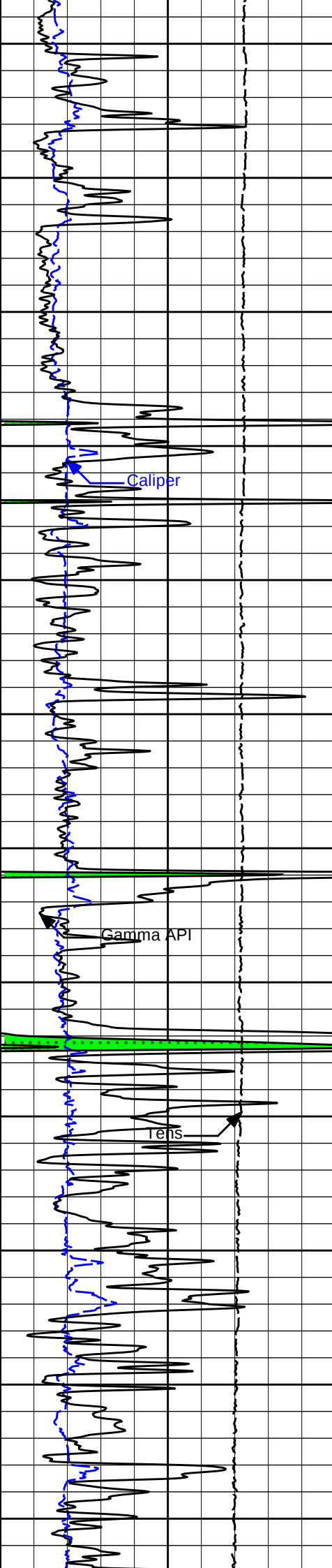
4100

4200



Acou Porosity

Delta T



4300

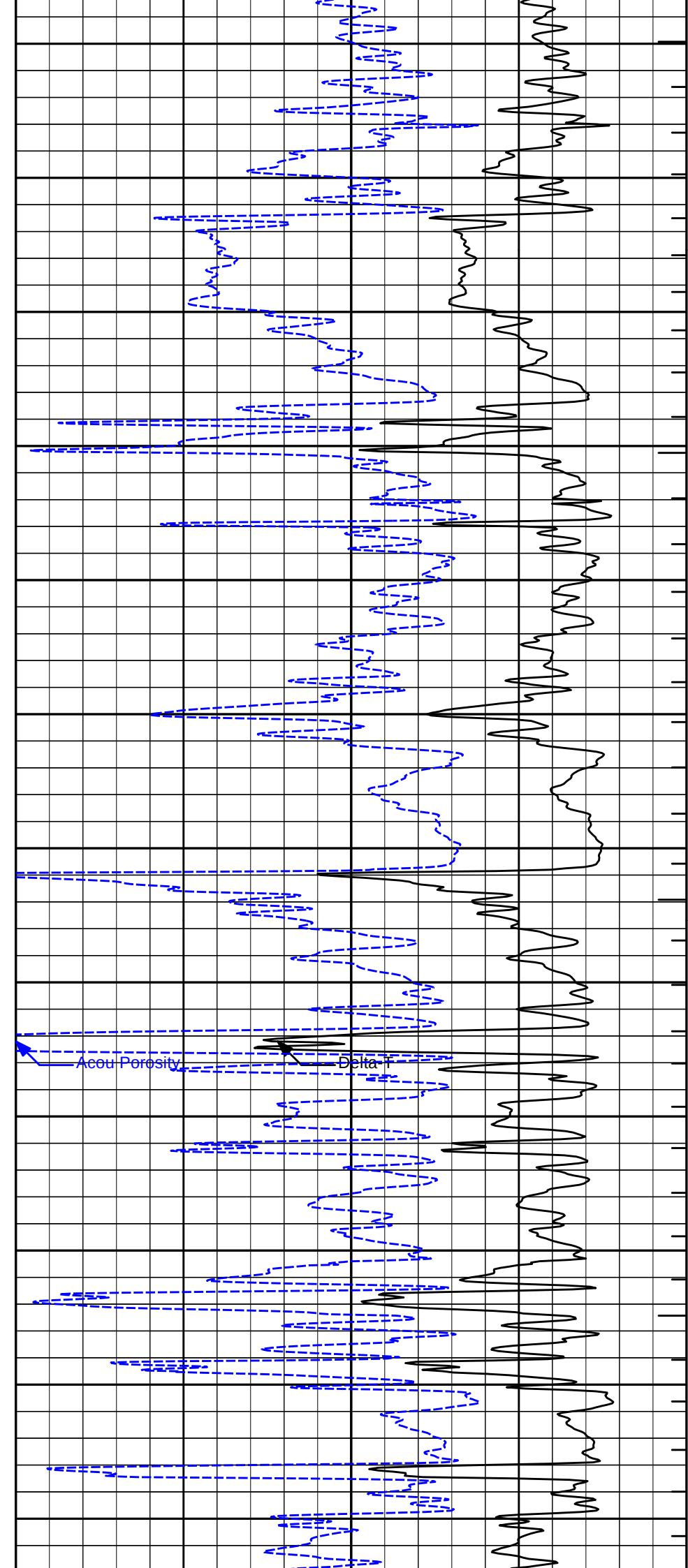
4400

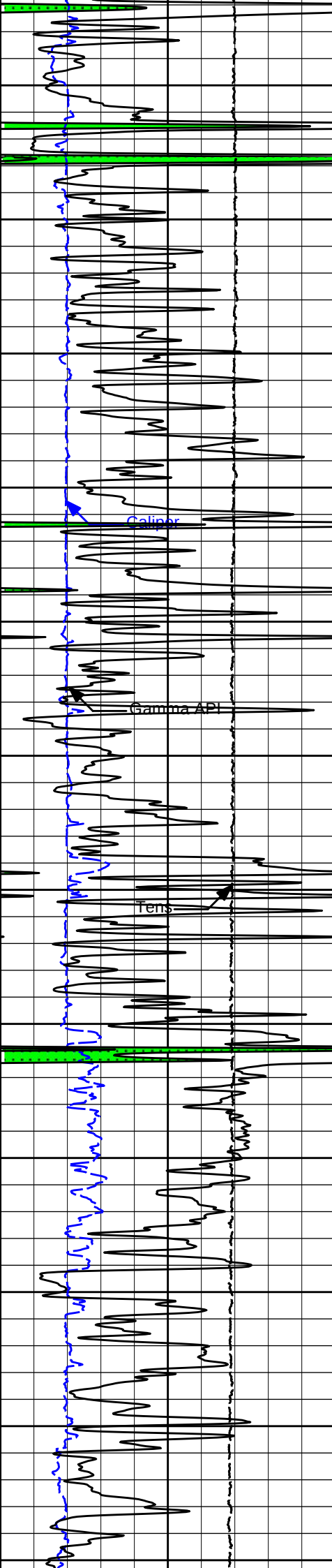
4500

4600

4700

4800





4900

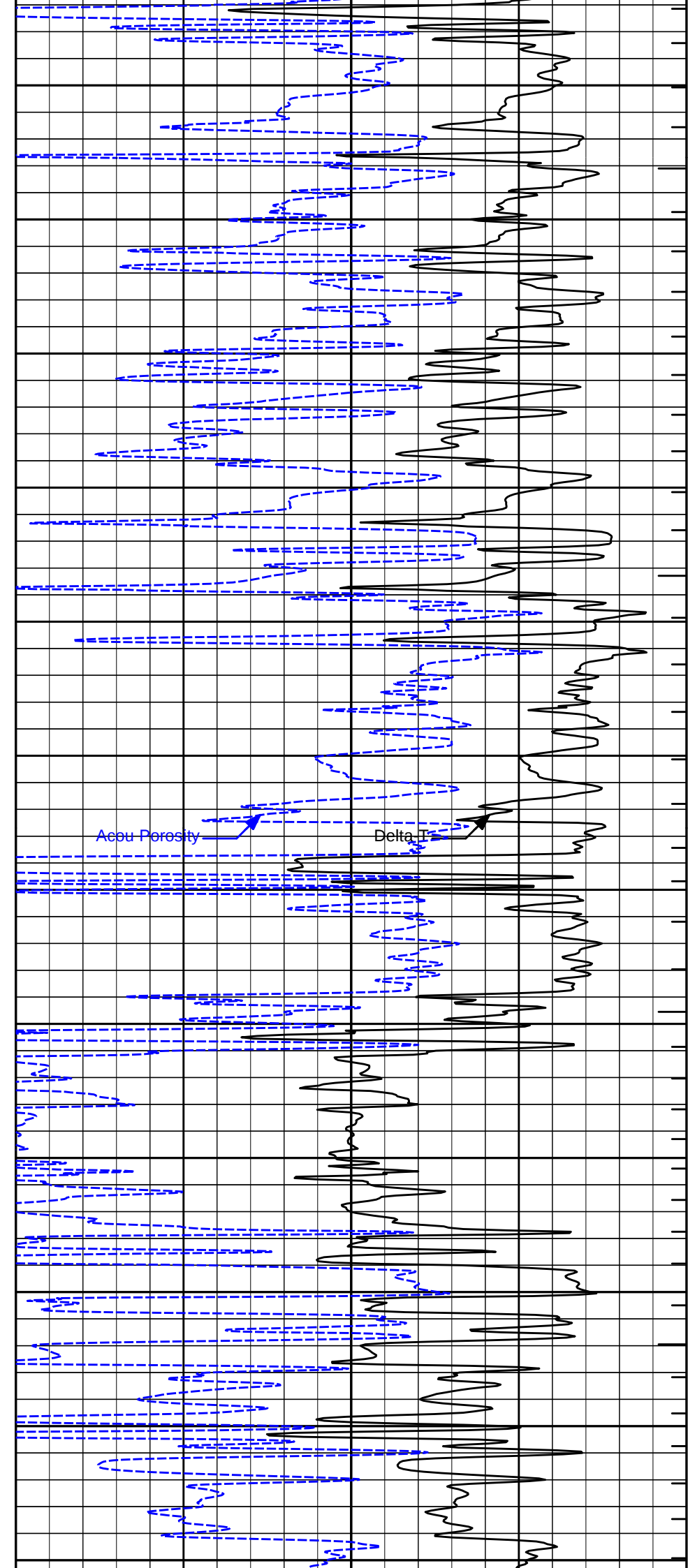
5000

5100

5200

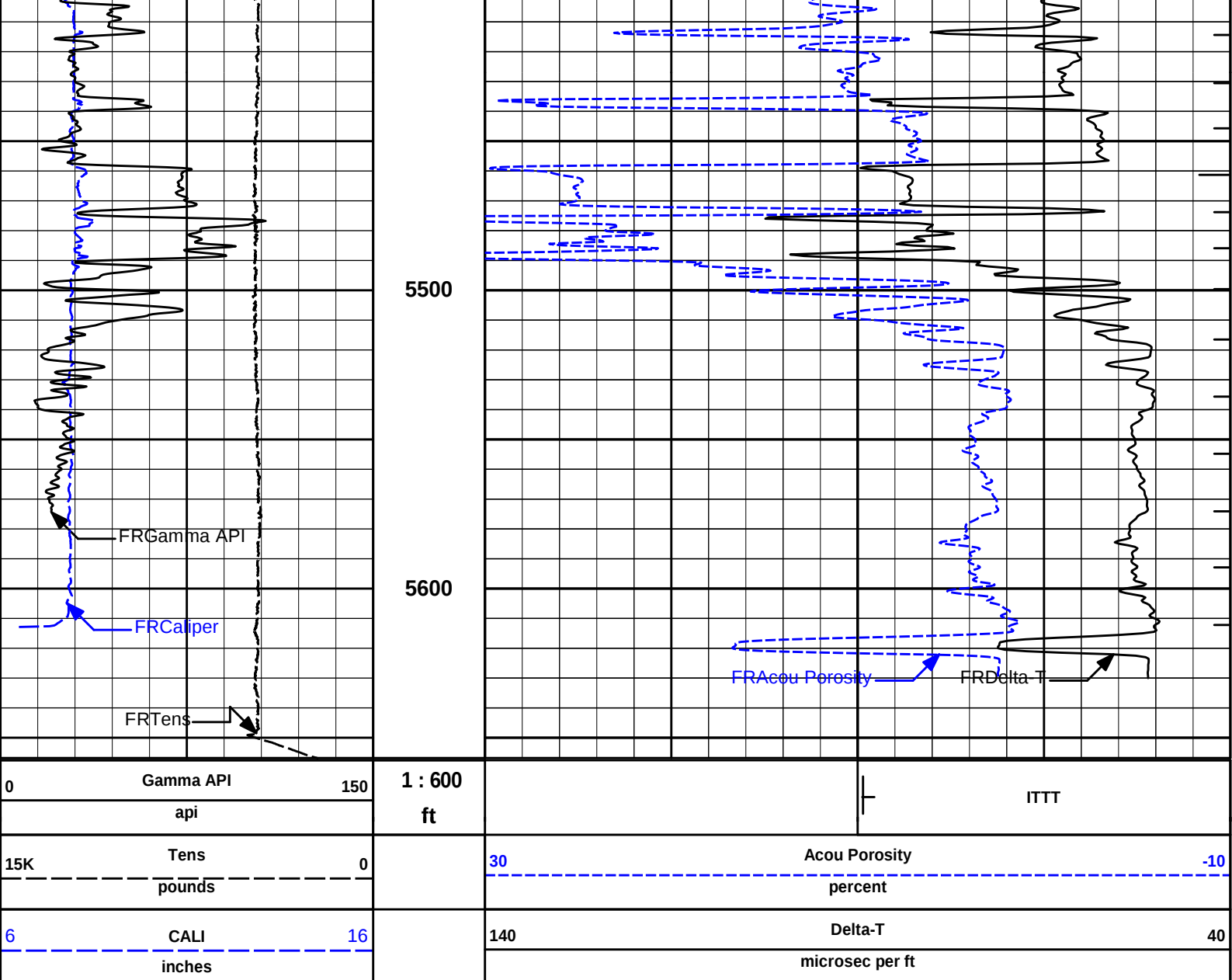
5300

5400



Acou Porosity

Delta T



HALLIBURTON Plot Time: 17-Jul-18 18:14:47
Plot Range: 1750 ft to 5656.83 ft
Data: MERIT_EENU_103\Well Based\MAIN_LOG\
Plot File: \IBSAT\IBSAT_2inch

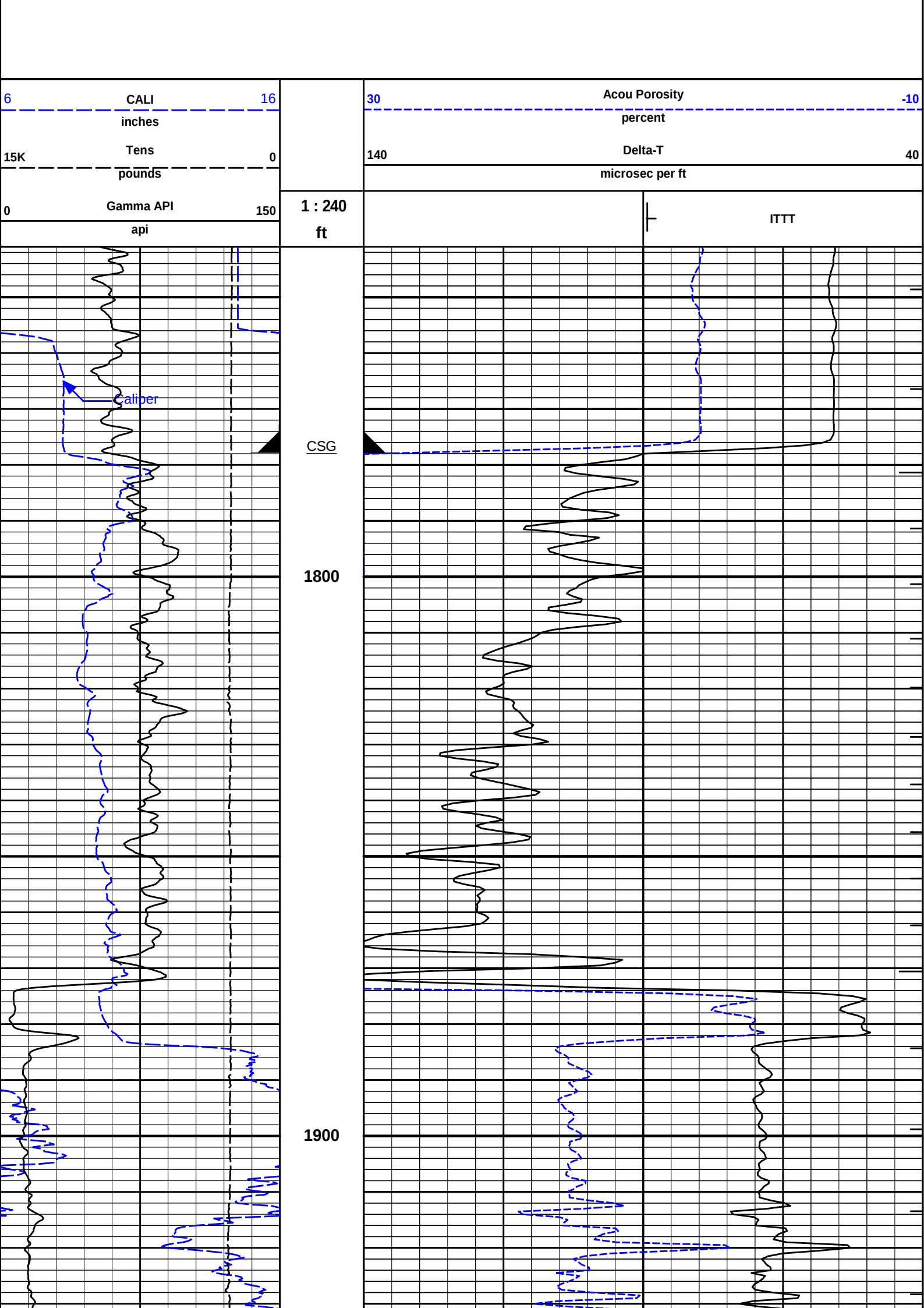
2 INCH MAIN LOG

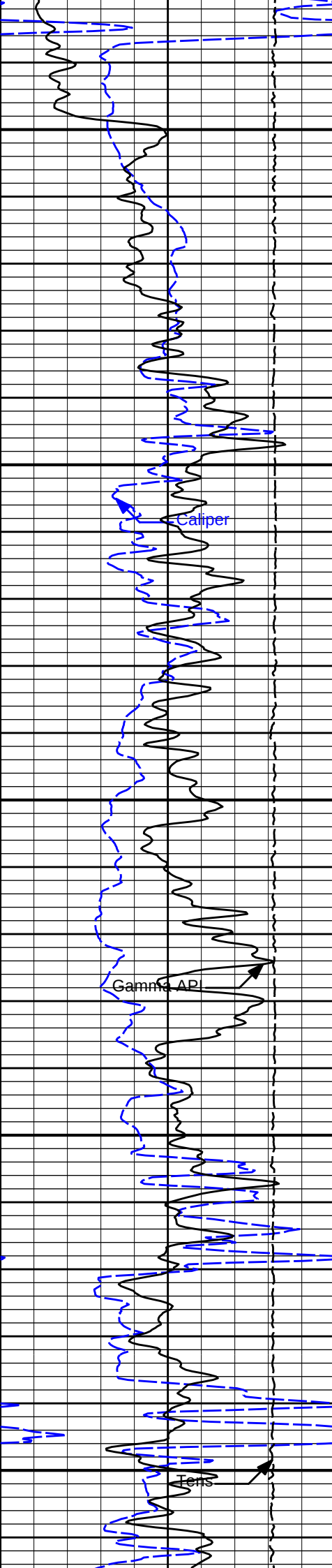
2" MAIN LOG SECTION

HALLIBURTON Plot Time: 17-Jul-18 18:14:47
Plot Range: 1741 ft to 5656.83 ft
Data: MERIT_EENU_103\Well Based\MAIN_LOG\
Plot File: \IBSAT\IBSAT_5inch

5 INCH MAIN LOG

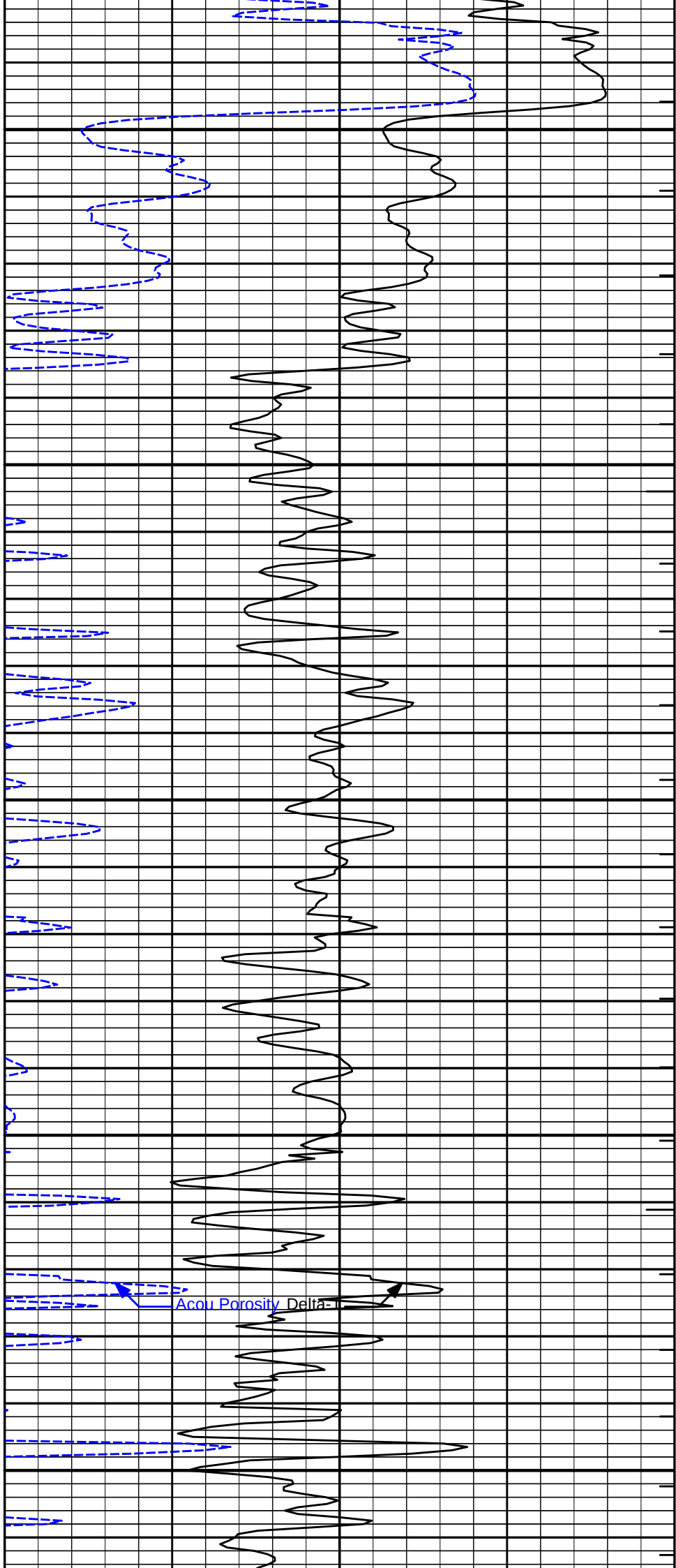
MAIN LOG SECTION



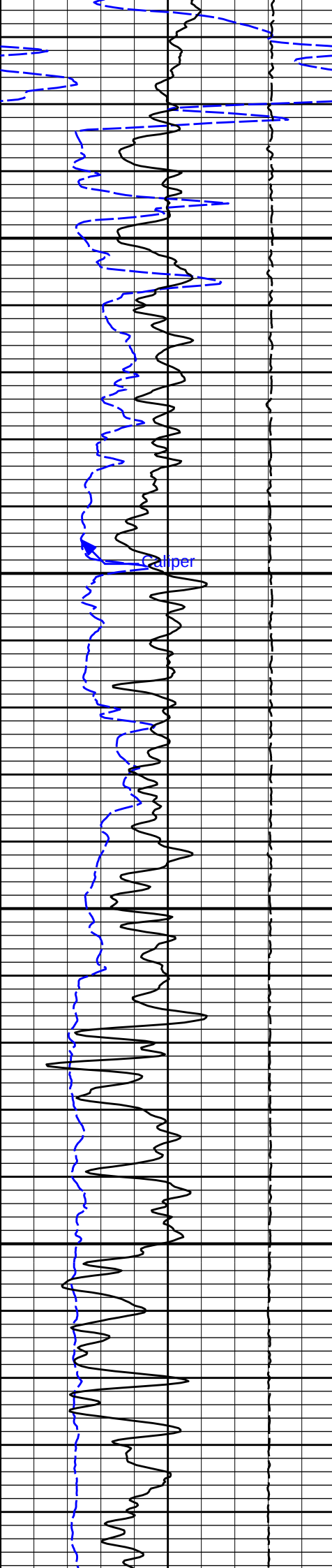


2000

2100

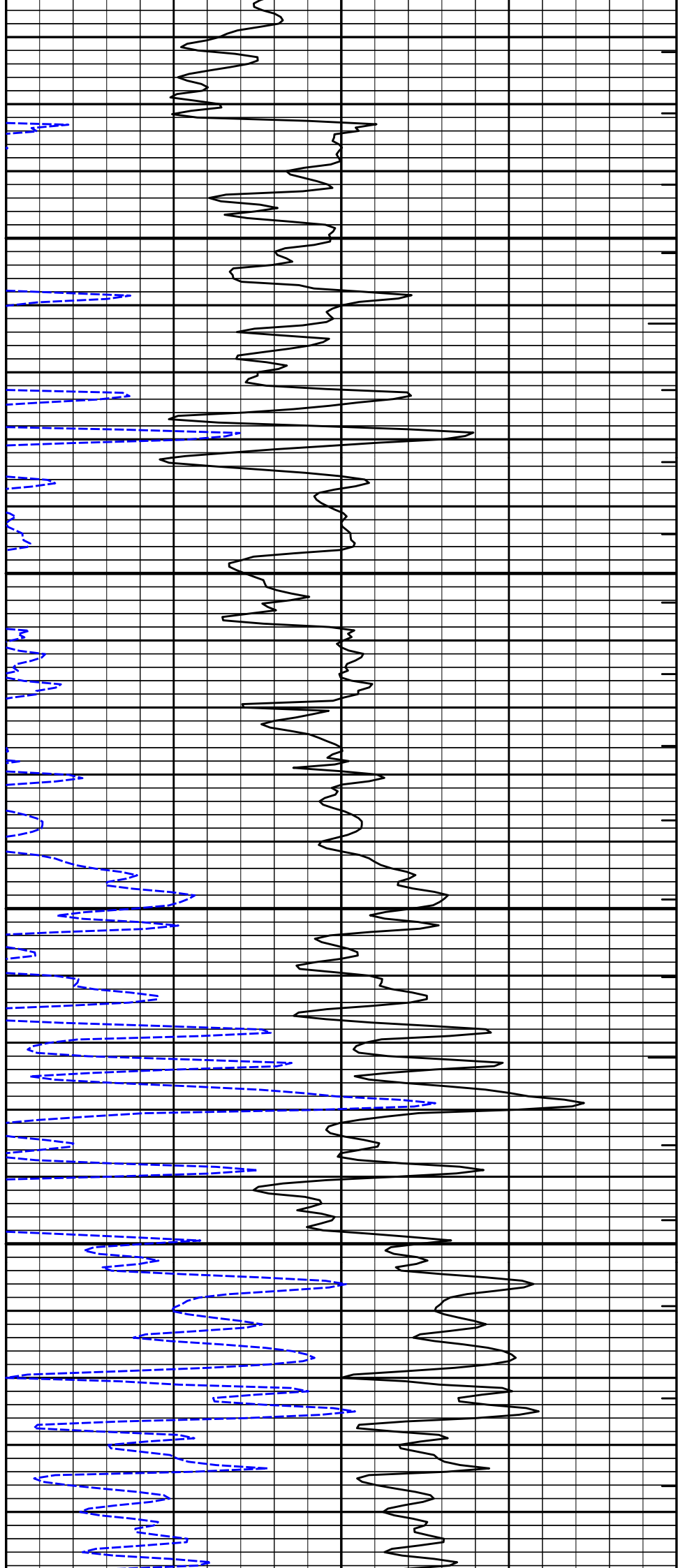


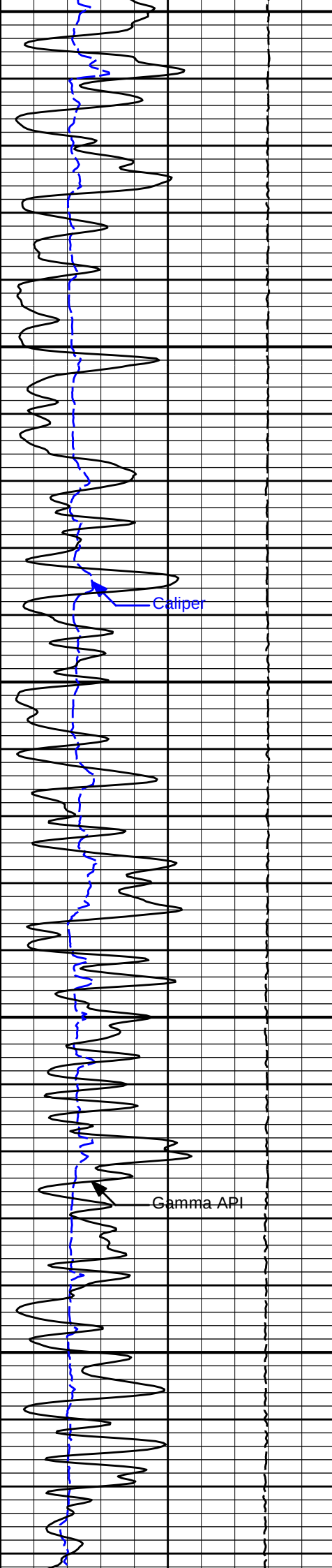
Acoustic Porosity Delta-T



2200

2300

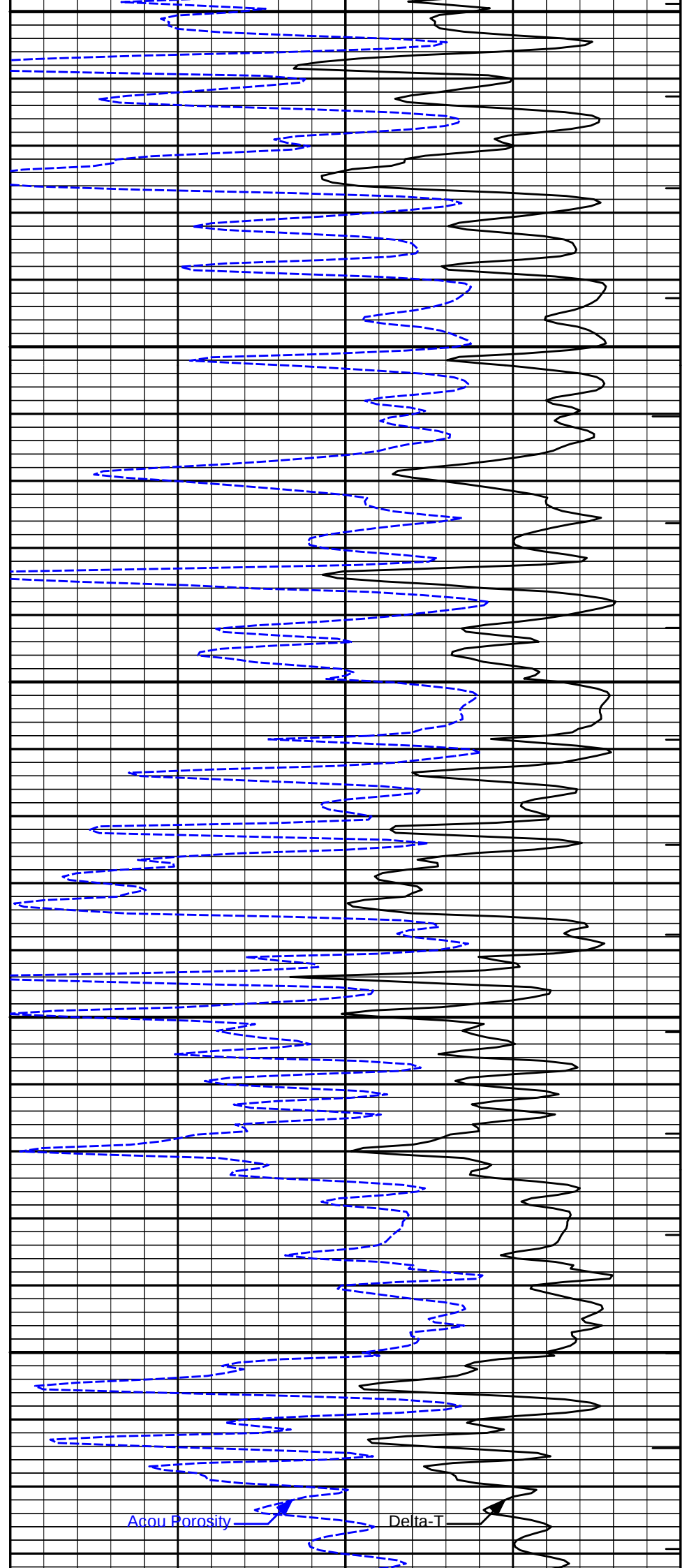


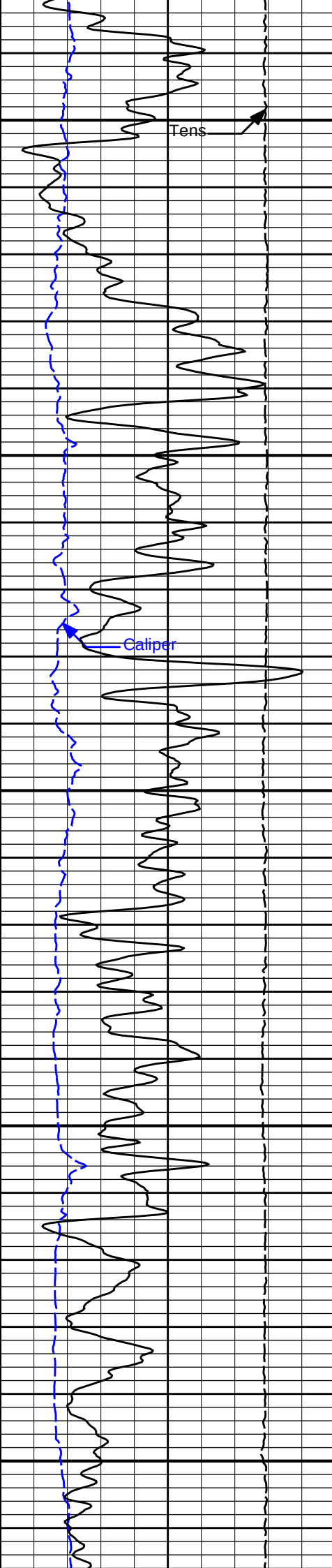


2400

2500

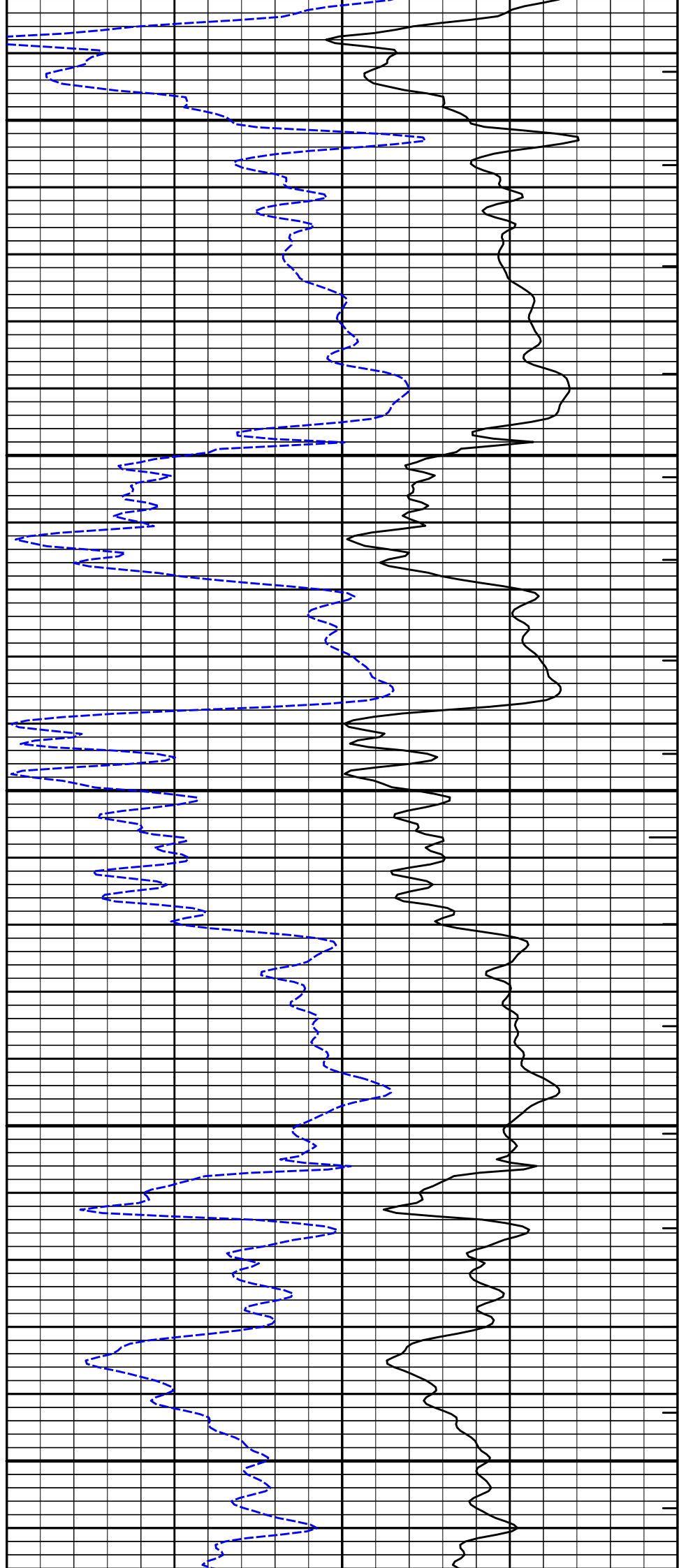
2600

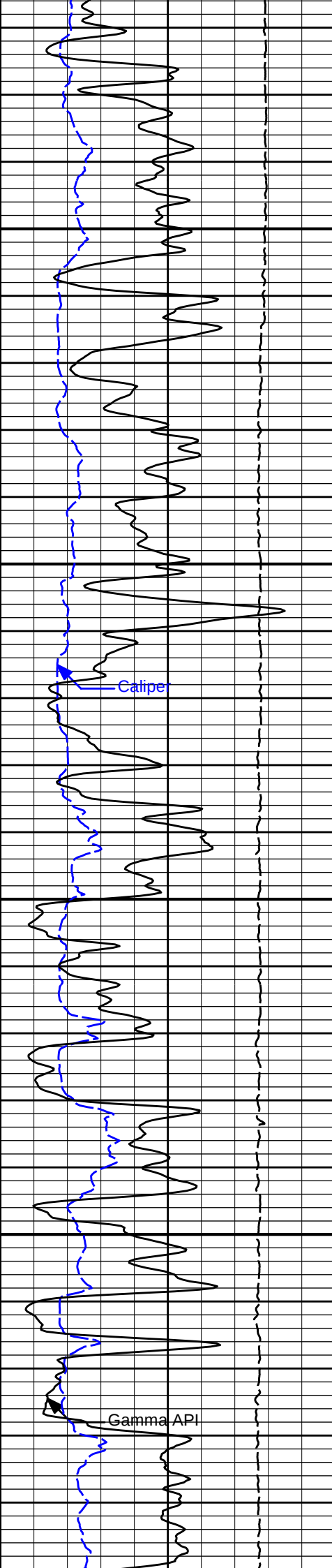




2700

2800

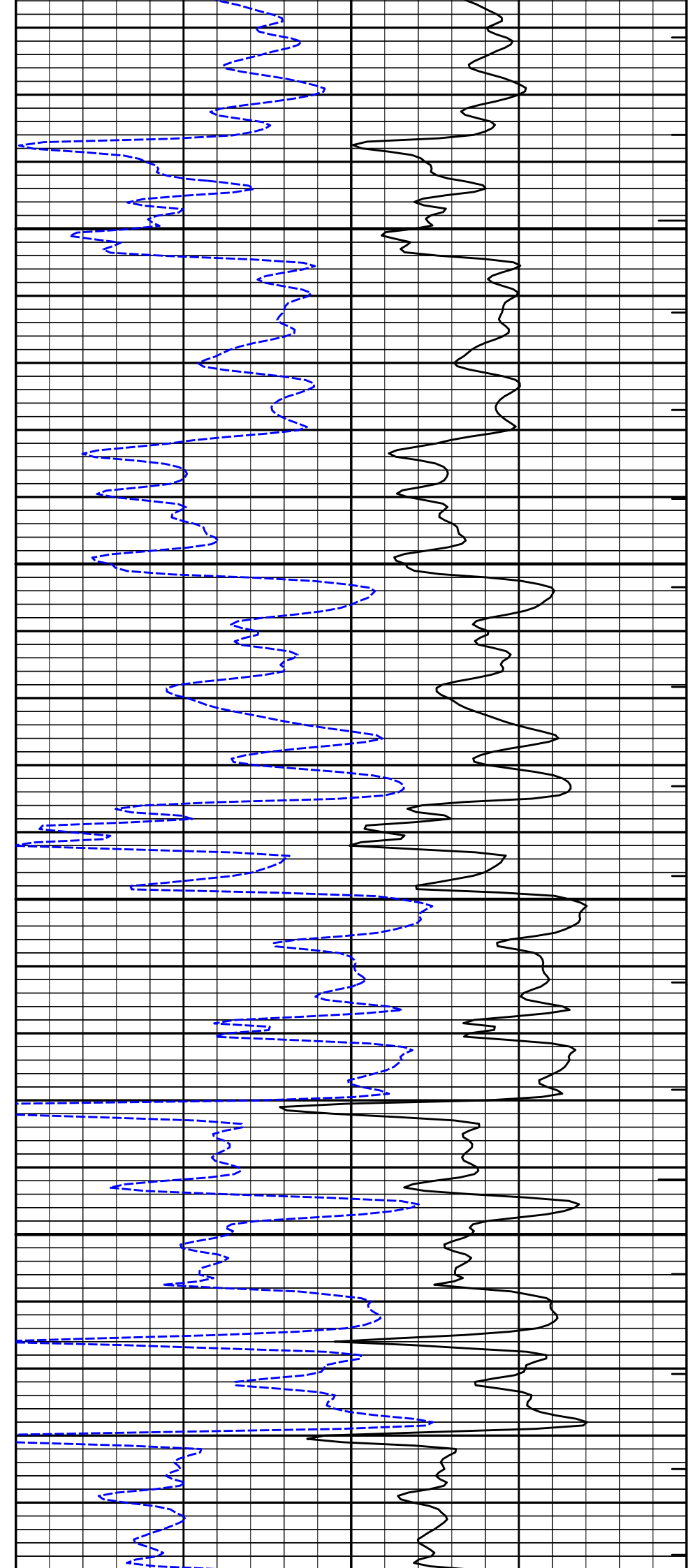


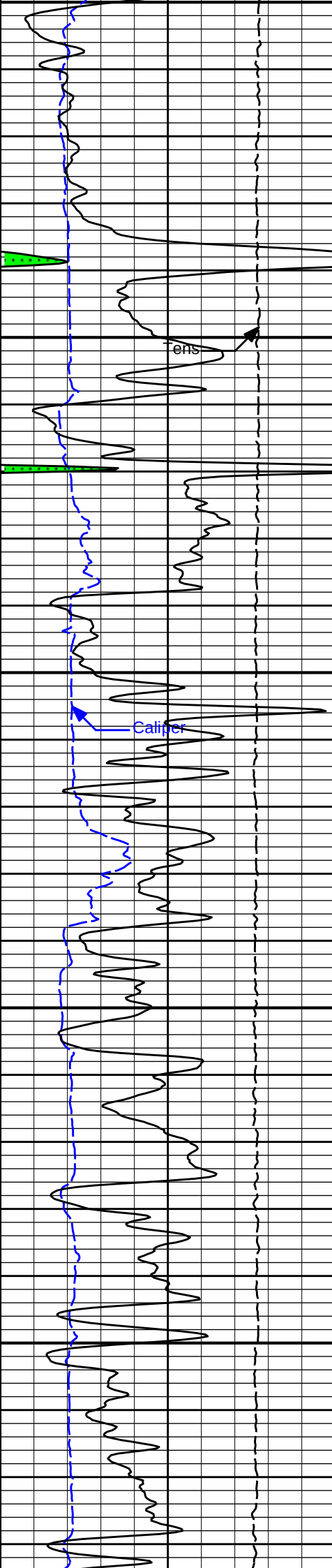


2900

3000

3100

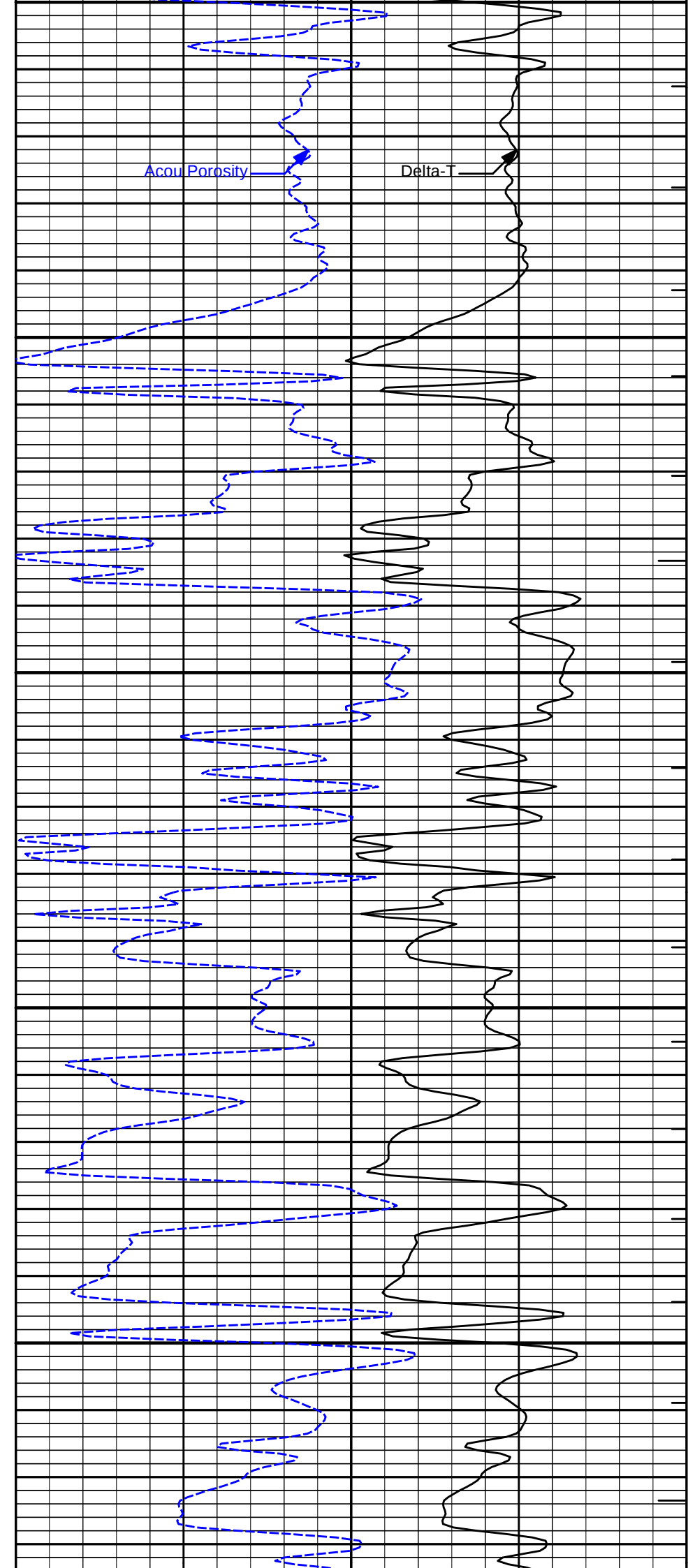




3100

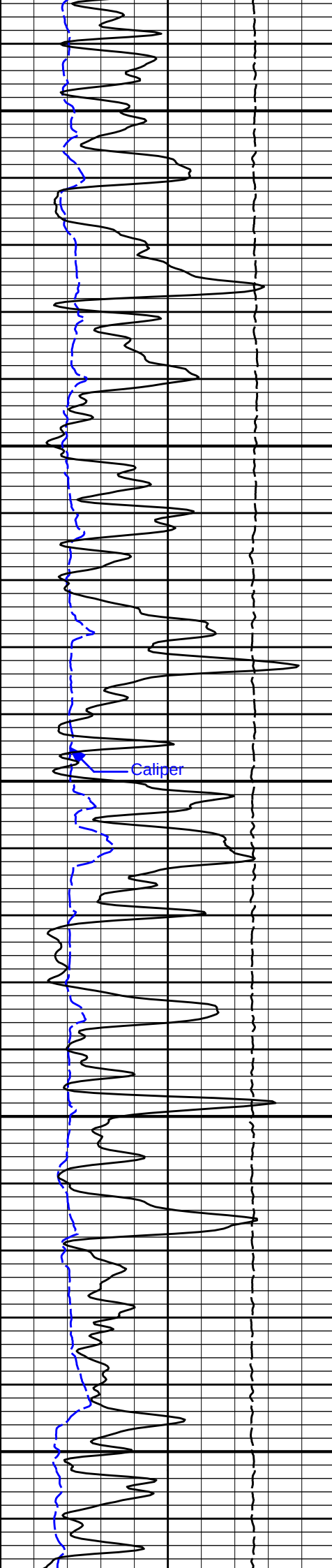
3200

3300



Acoustic Porosity

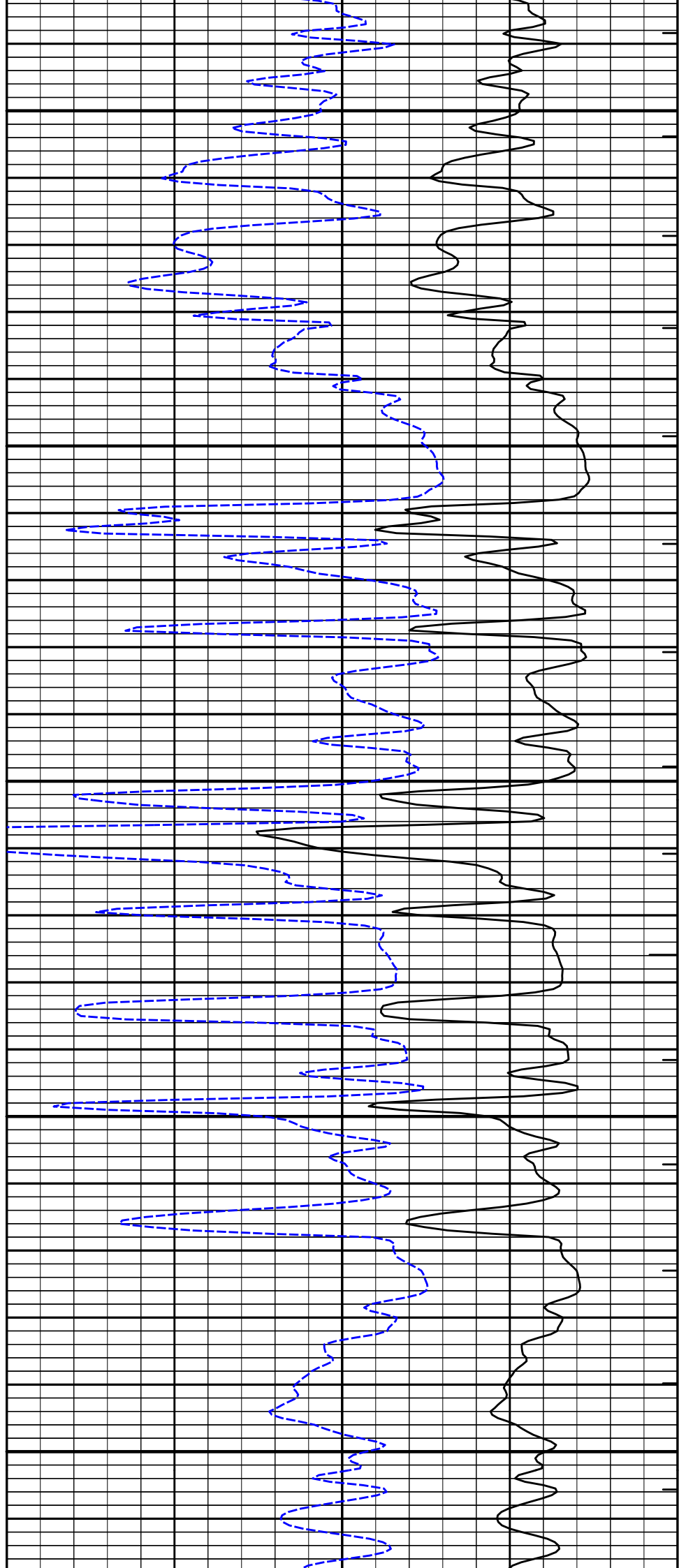
Delta-T

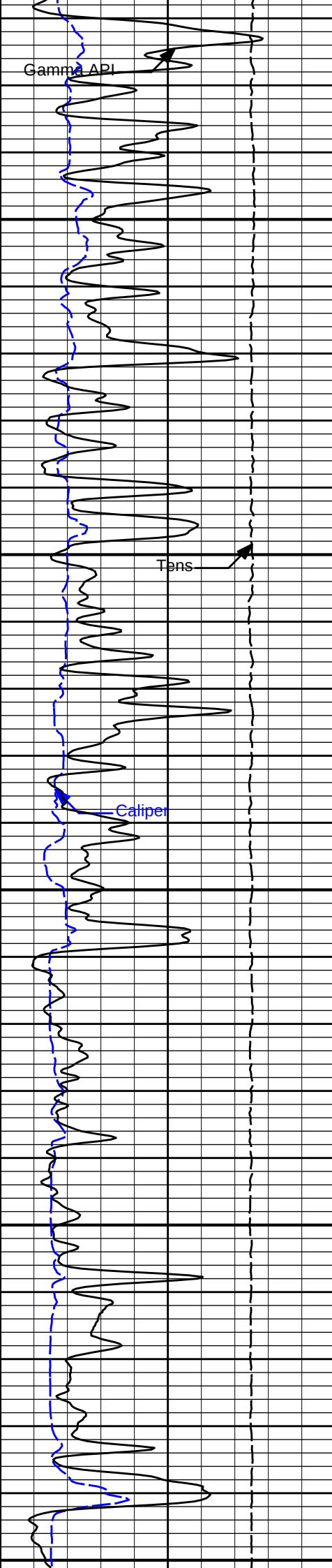


3400

3500

Caliper

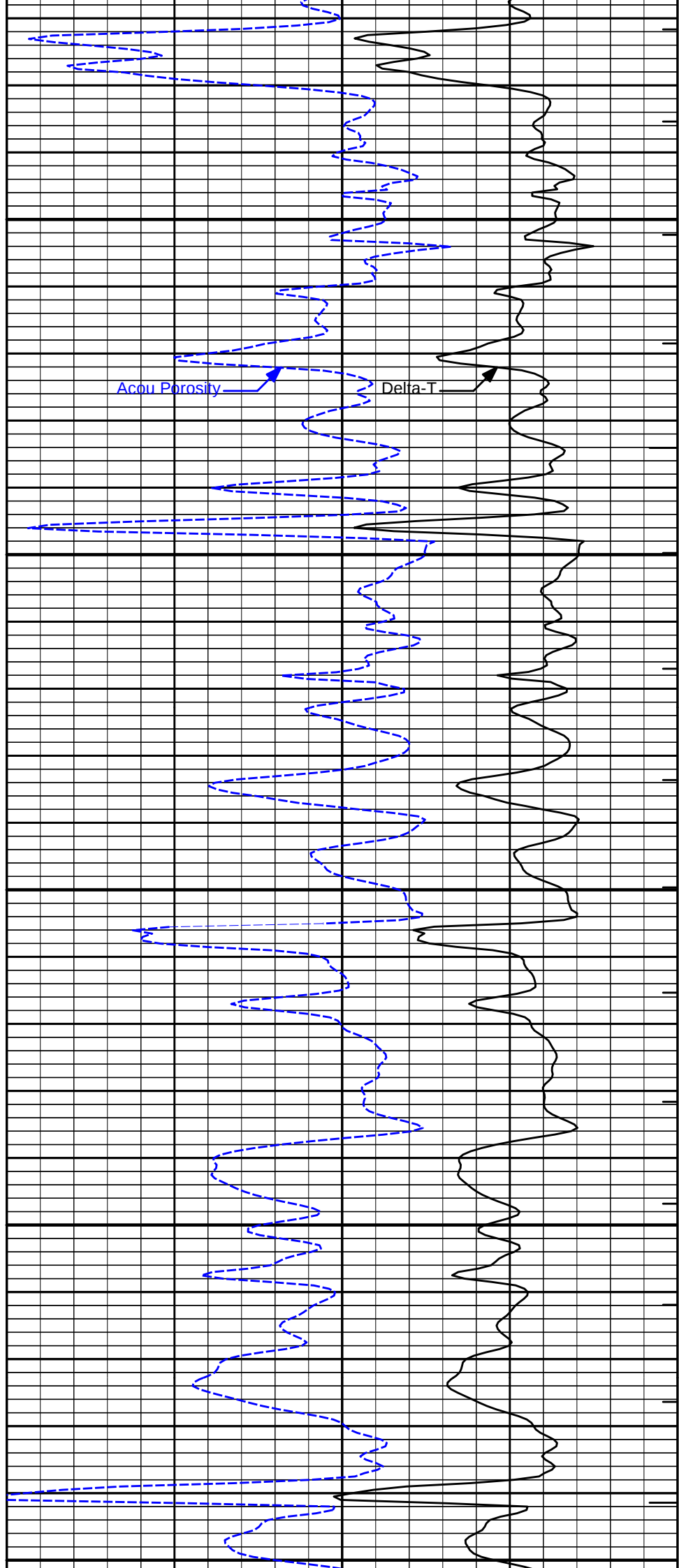


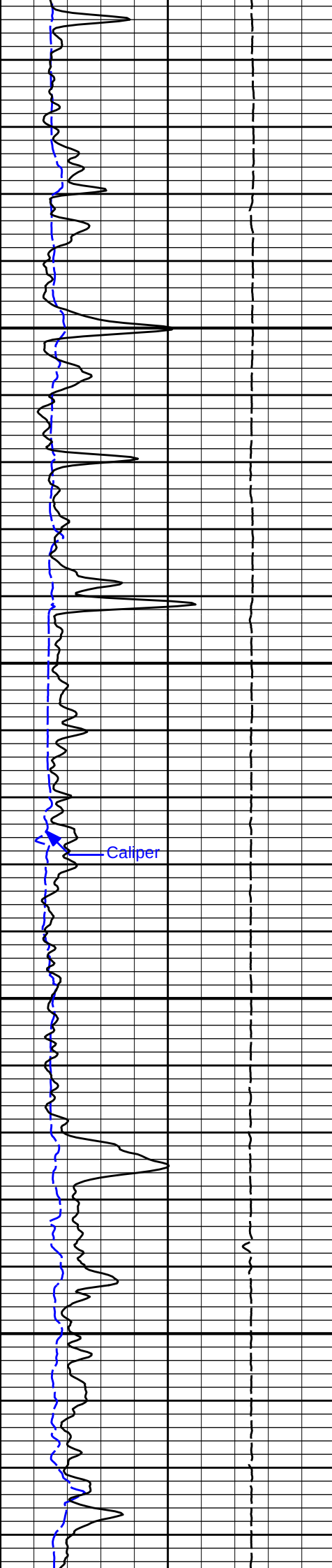


3600

3700

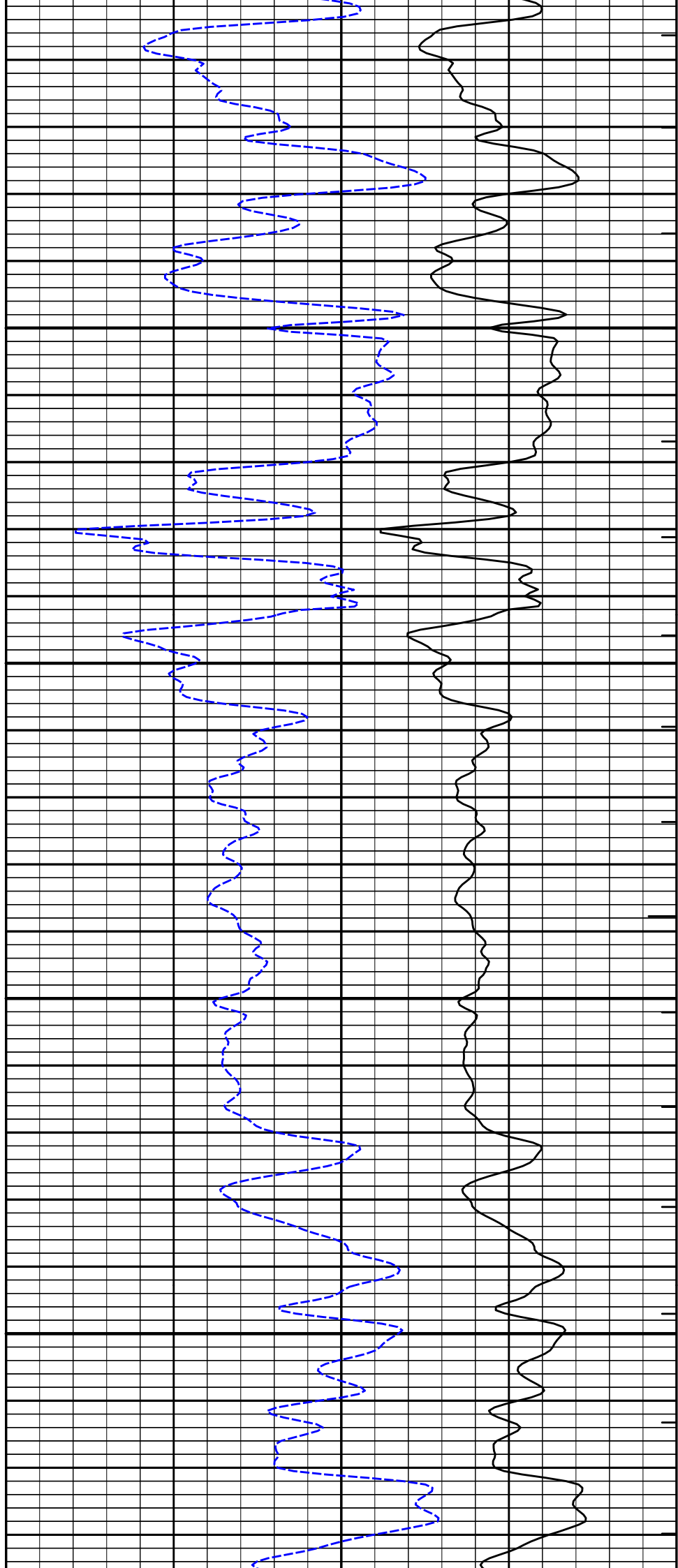
3800



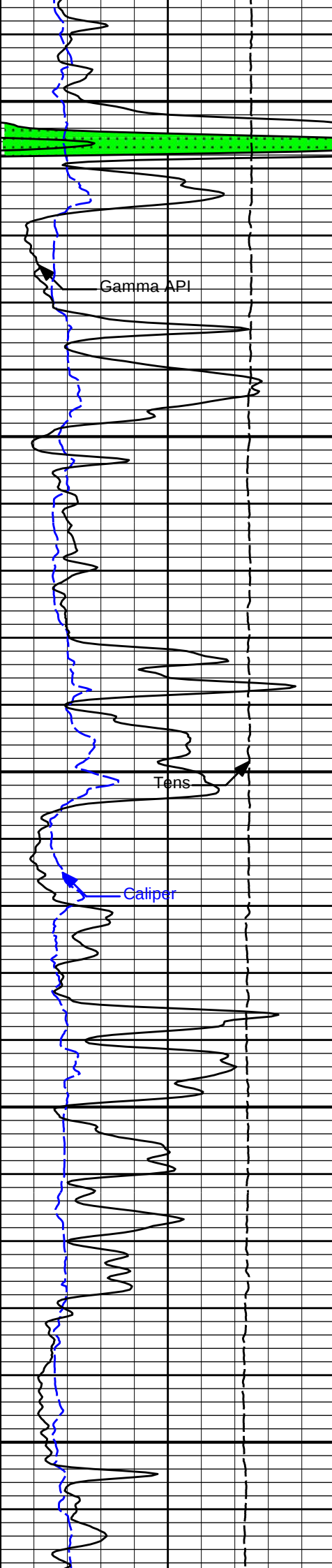


3900

4000

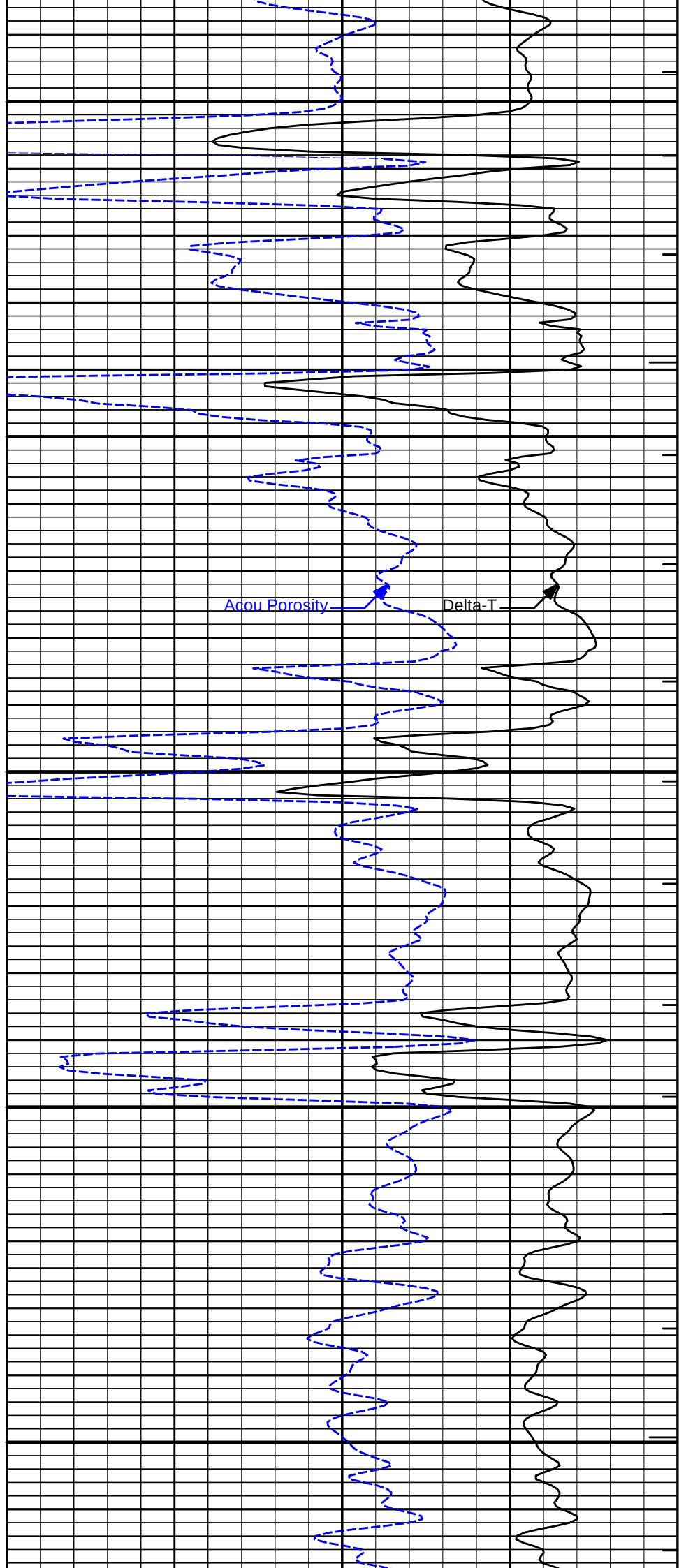


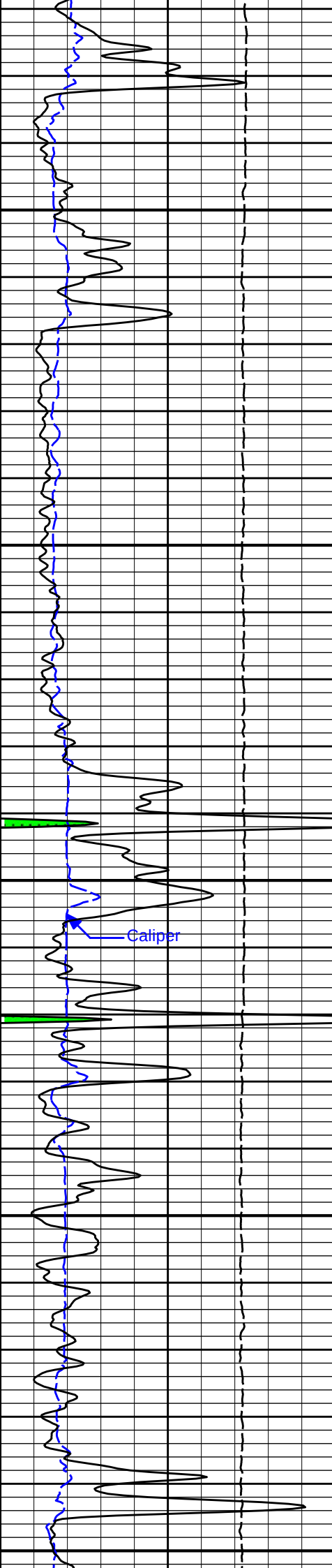
Caliper



4100

4200

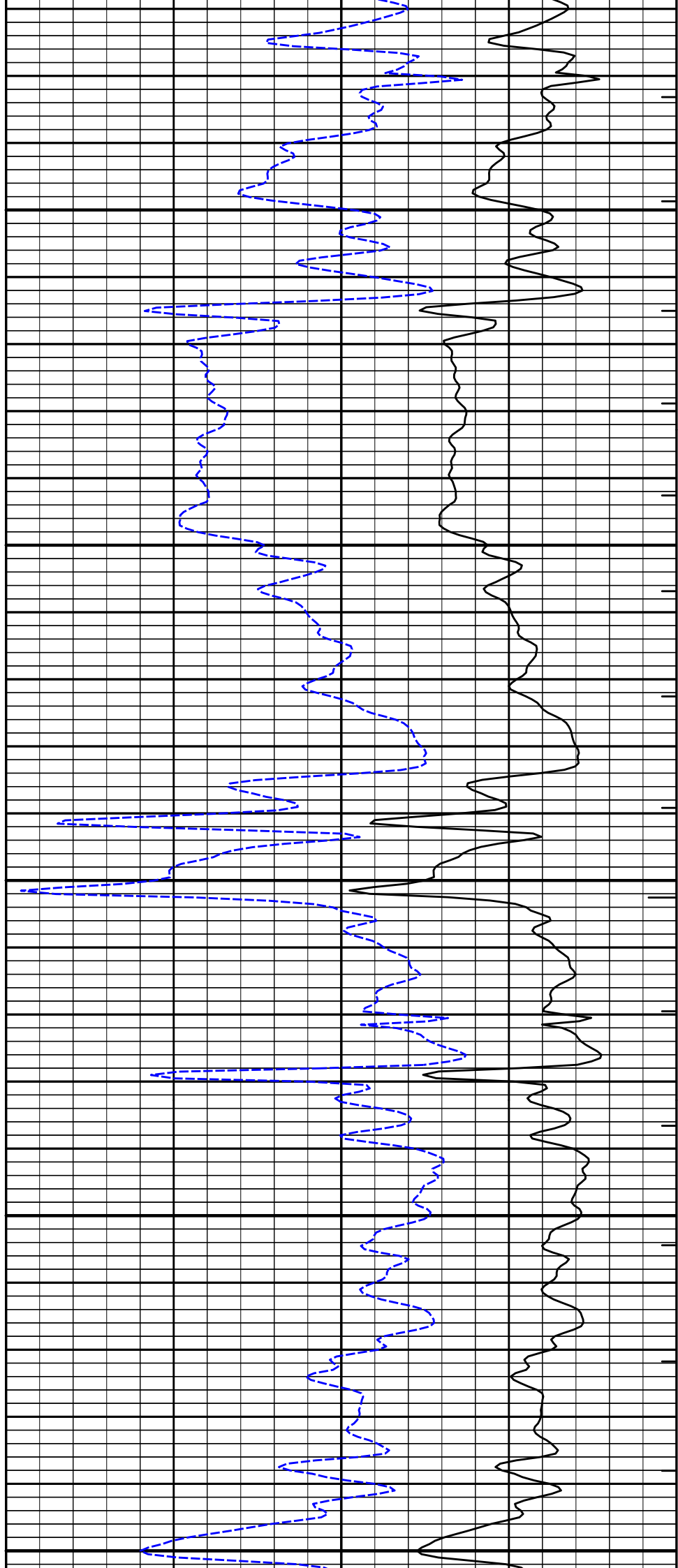


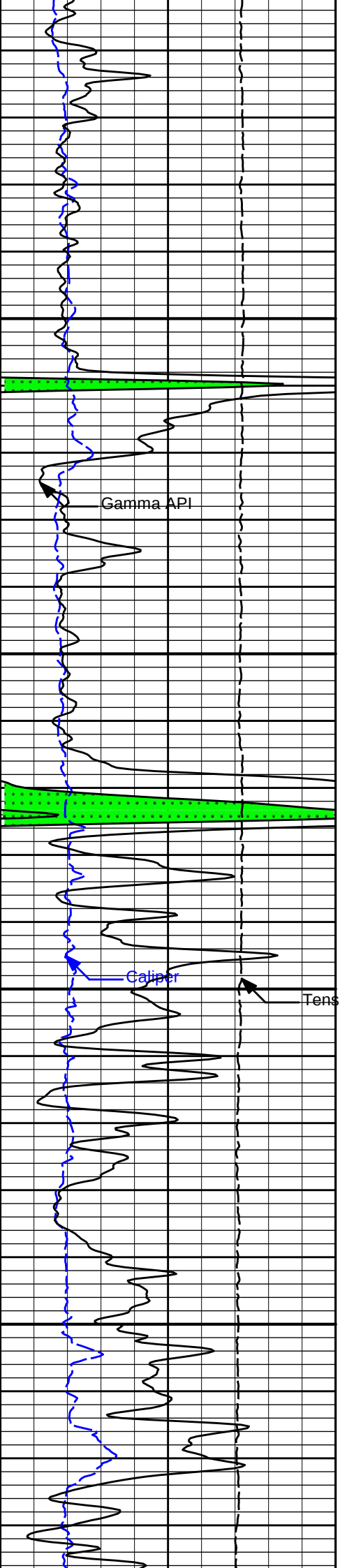


4300

4400

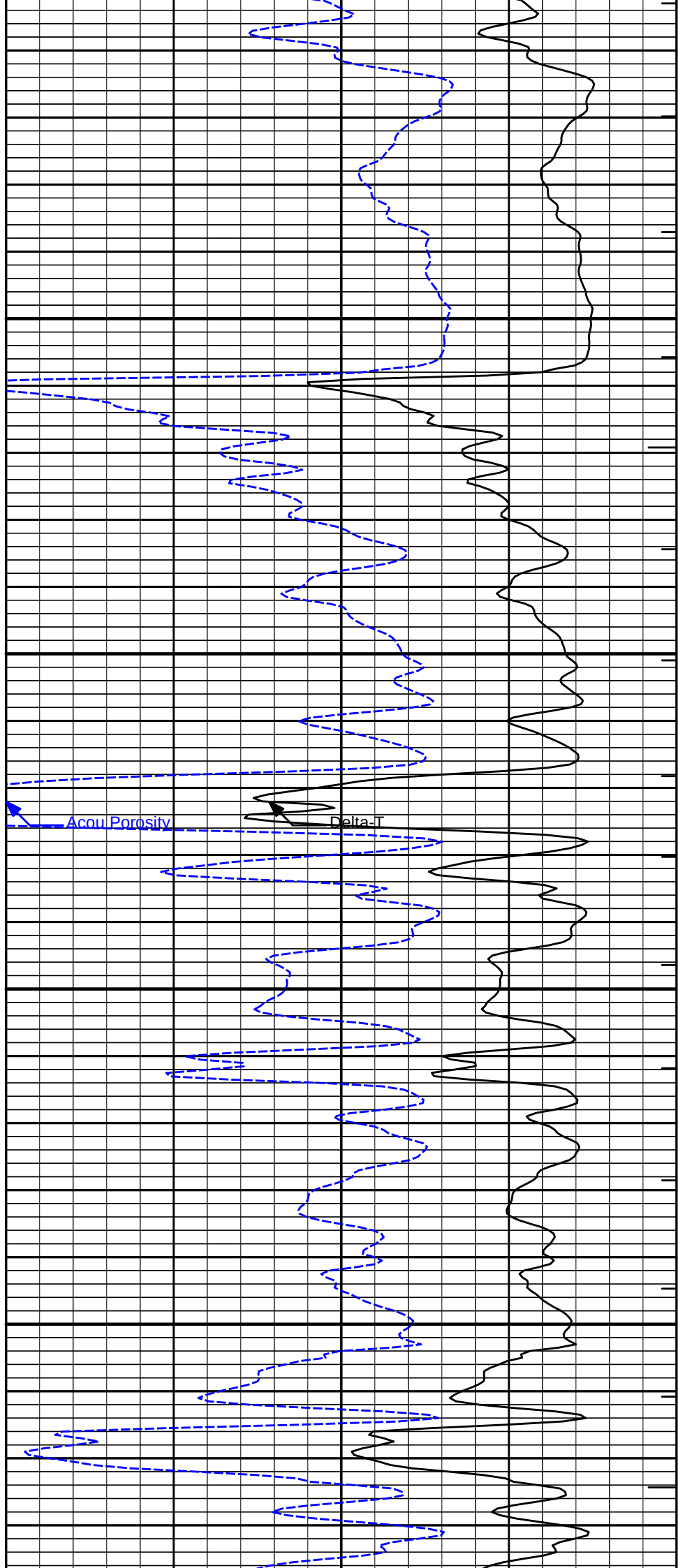
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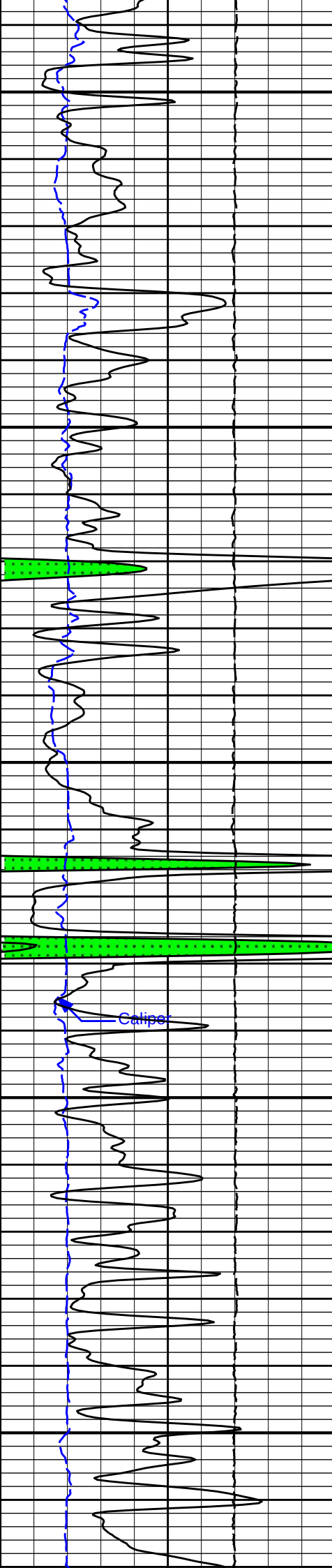




4600

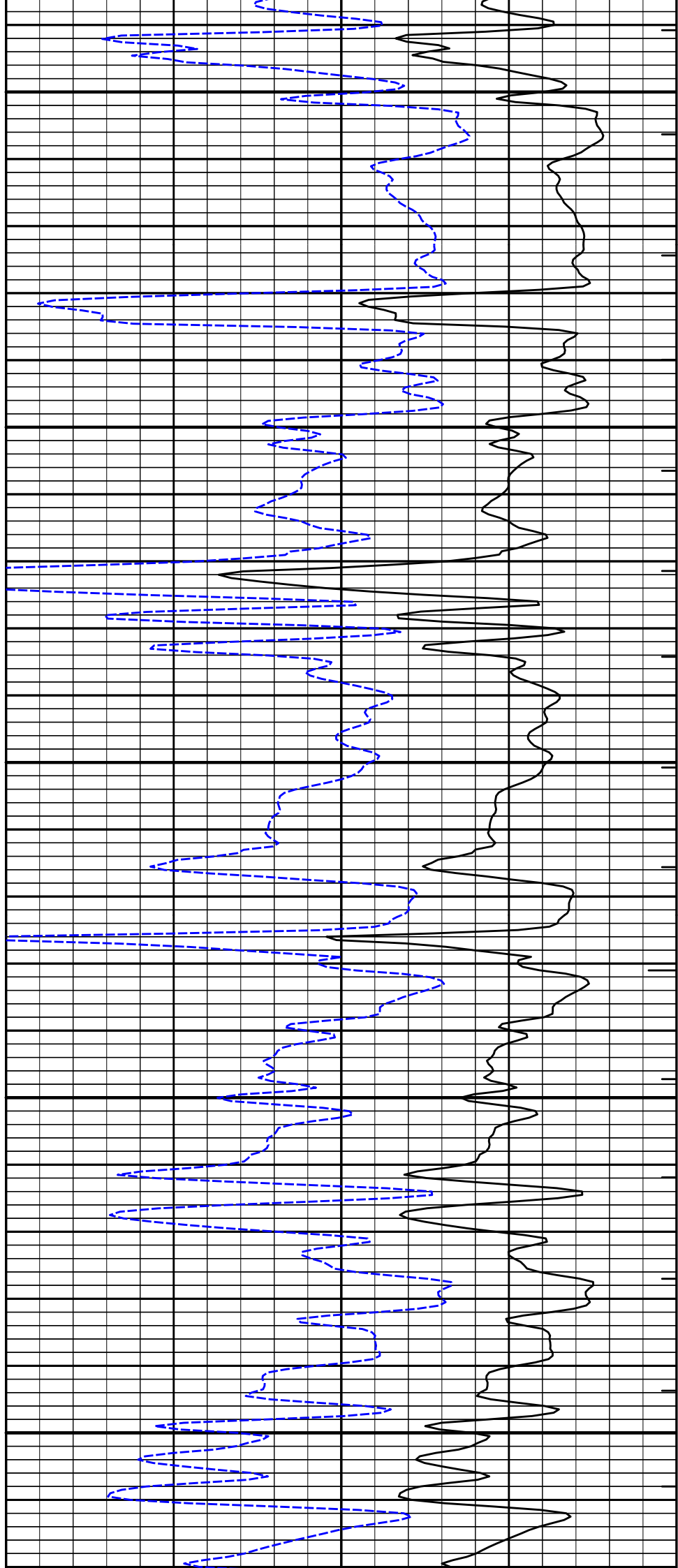
4700

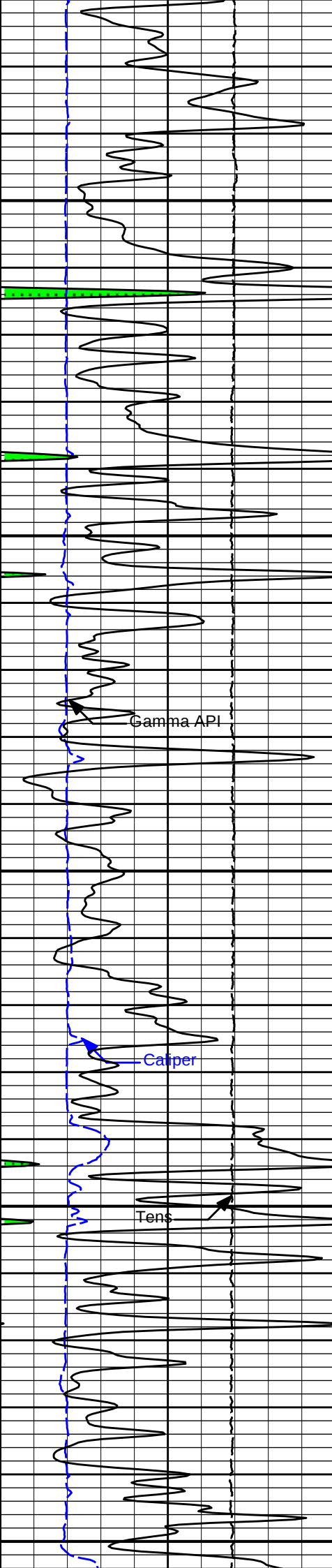




4800

4900

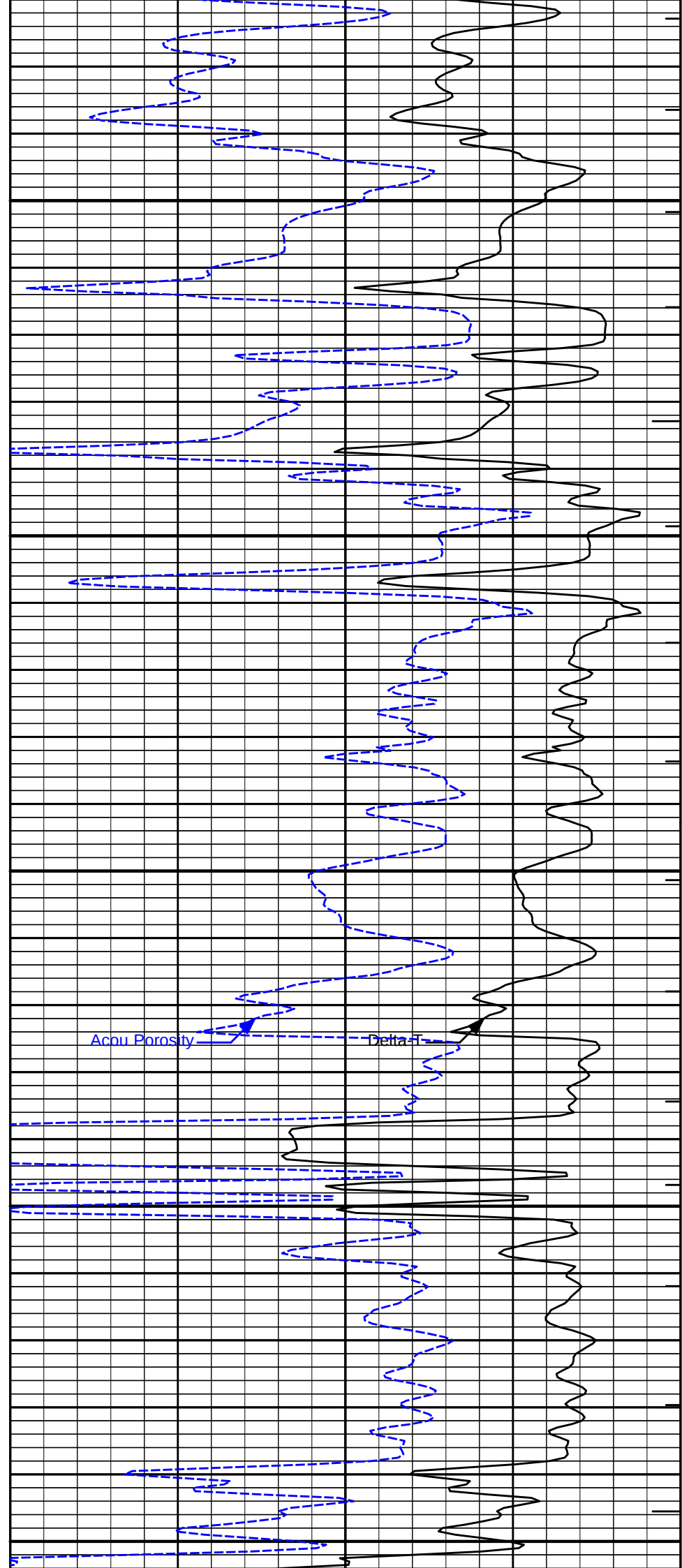


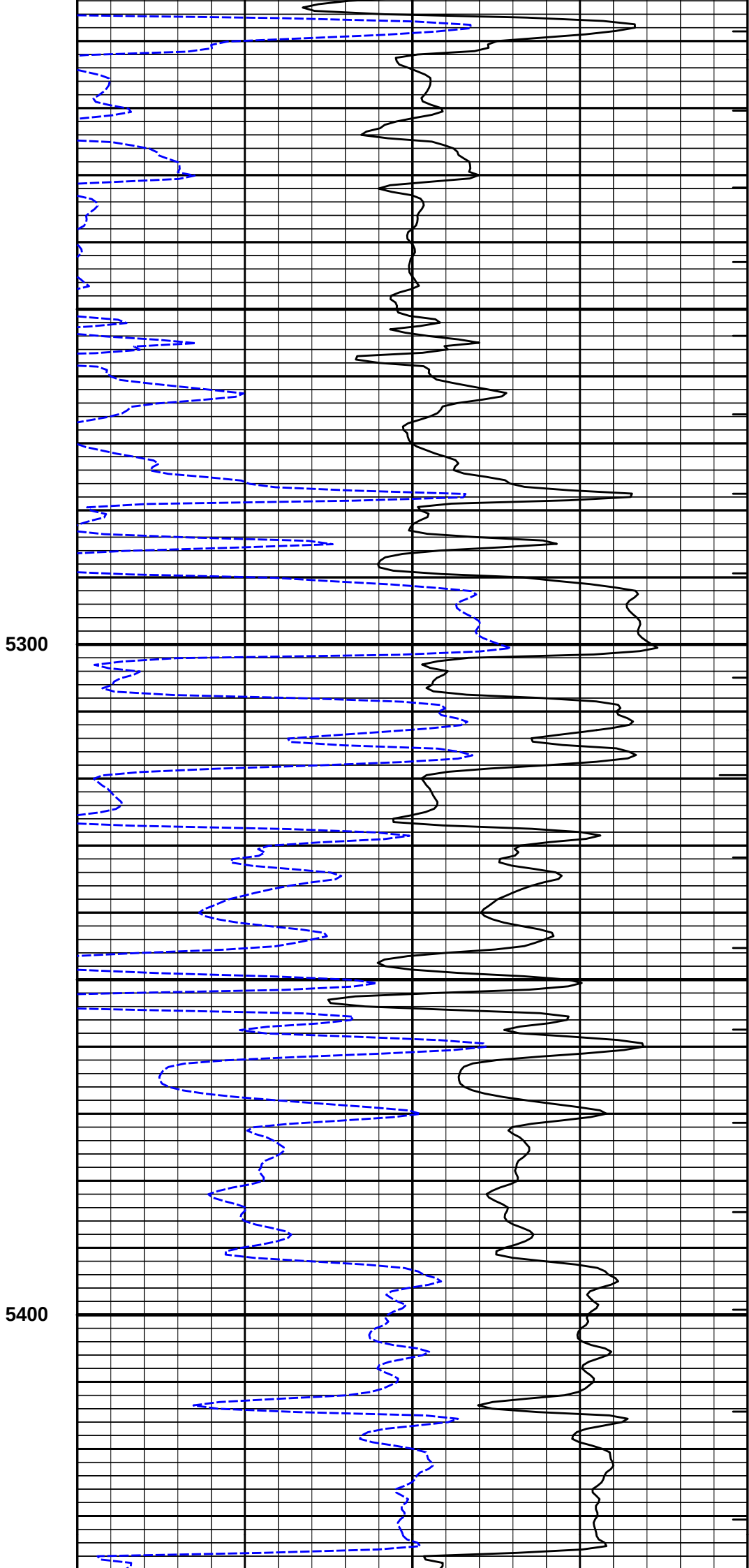


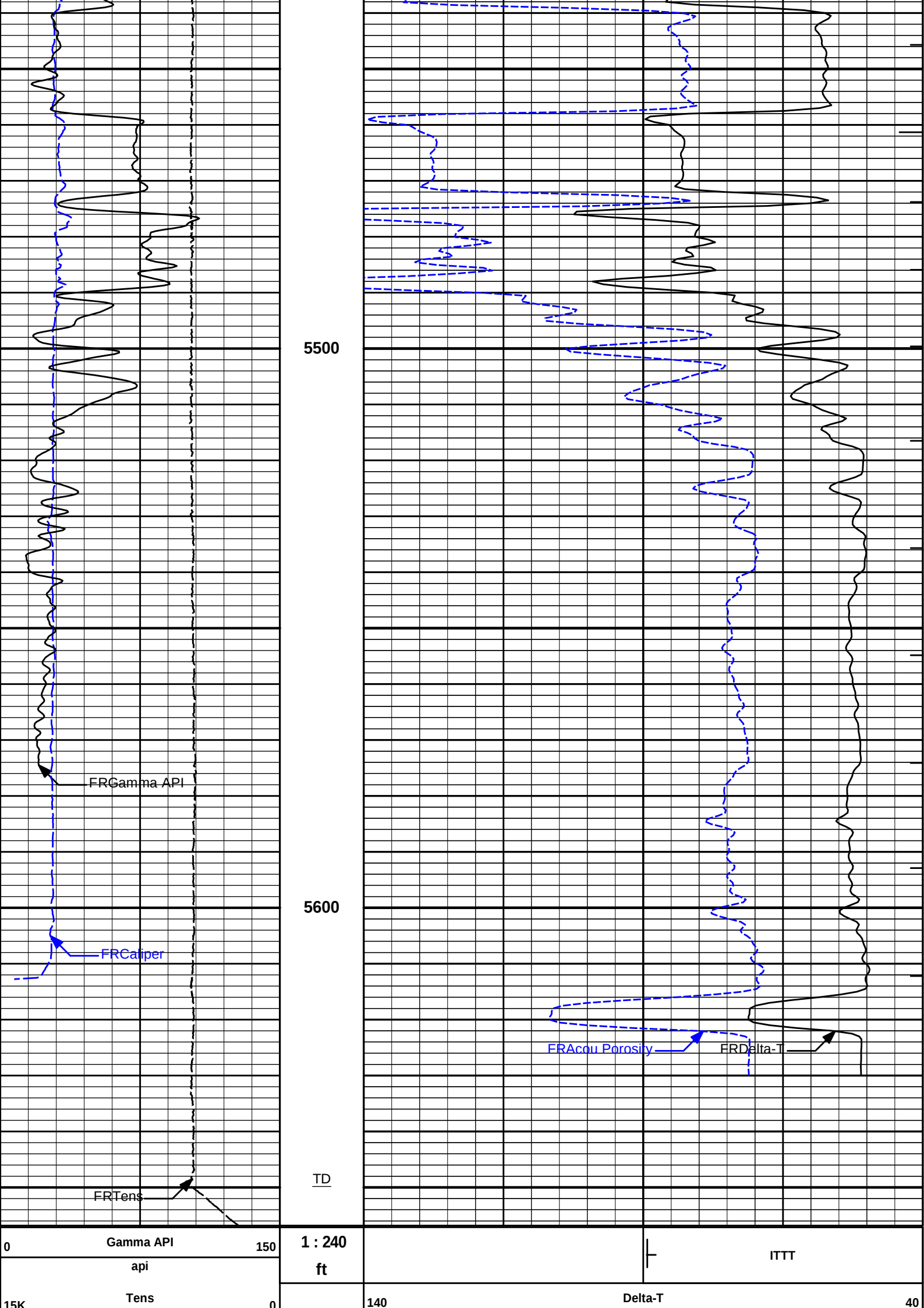
5000

5100

5200







0	pounds		microsec per ft
6	CALI	16	Acou Porosity
	inches		percent
			-10

HALLIBURTON

Plot Time: 17-Jul-18 18:14:51
Plot Range: 1741 ft to 5656.83 ft
Data: MERIT_EENU_103\Well Based\MAIN_LOG\
Plot File: \\BSAT\BSAT_5inch

5 INCH MAIN LOG

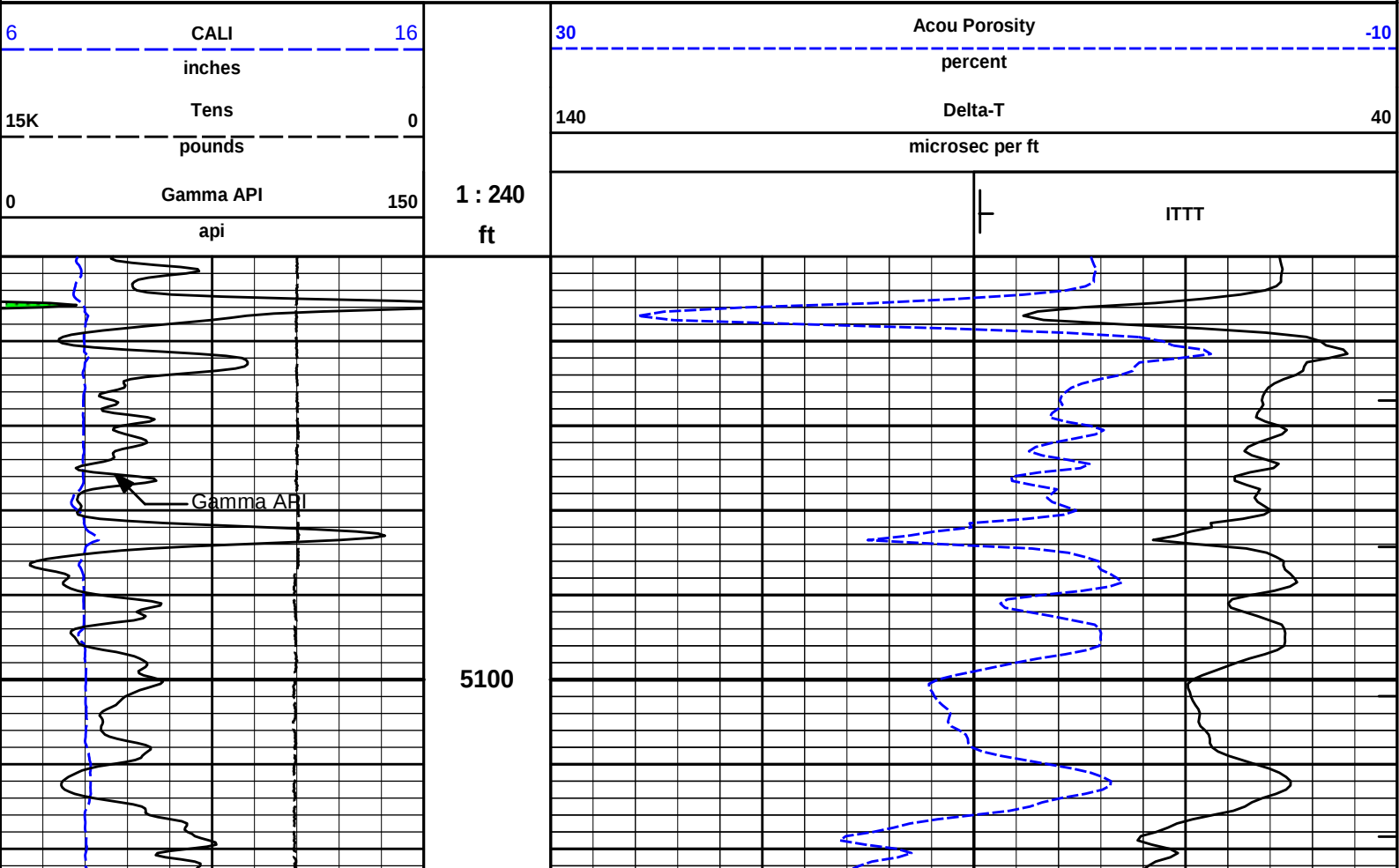
MAIN LOG SECTION

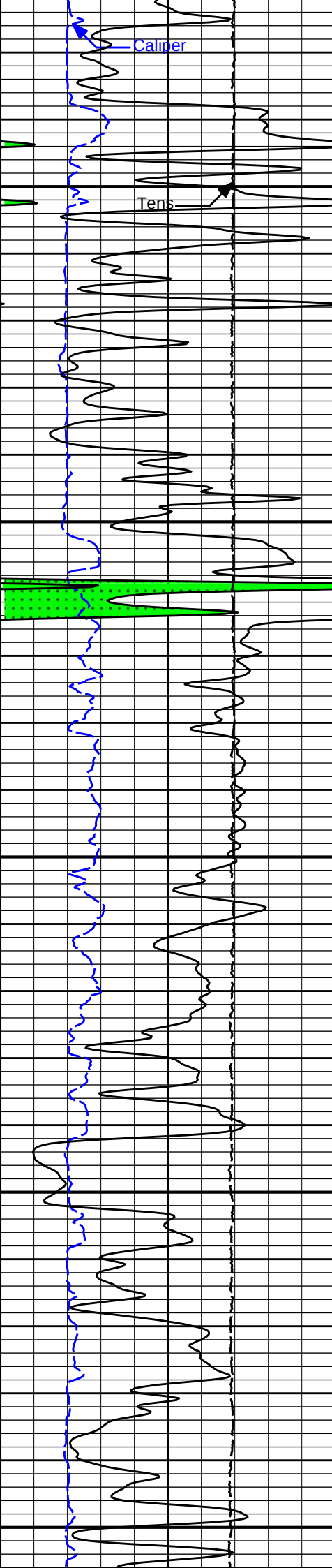
HALLIBURTON

Plot Time: 17-Jul-18 18:14:52
Plot Range: 5050 ft to 5658.58 ft
Data: MERIT_EENU_103\Well Based\DAQ-0001-002\
Plot File: \\BSAT\BSAT_5inch

REPEAT SECTION

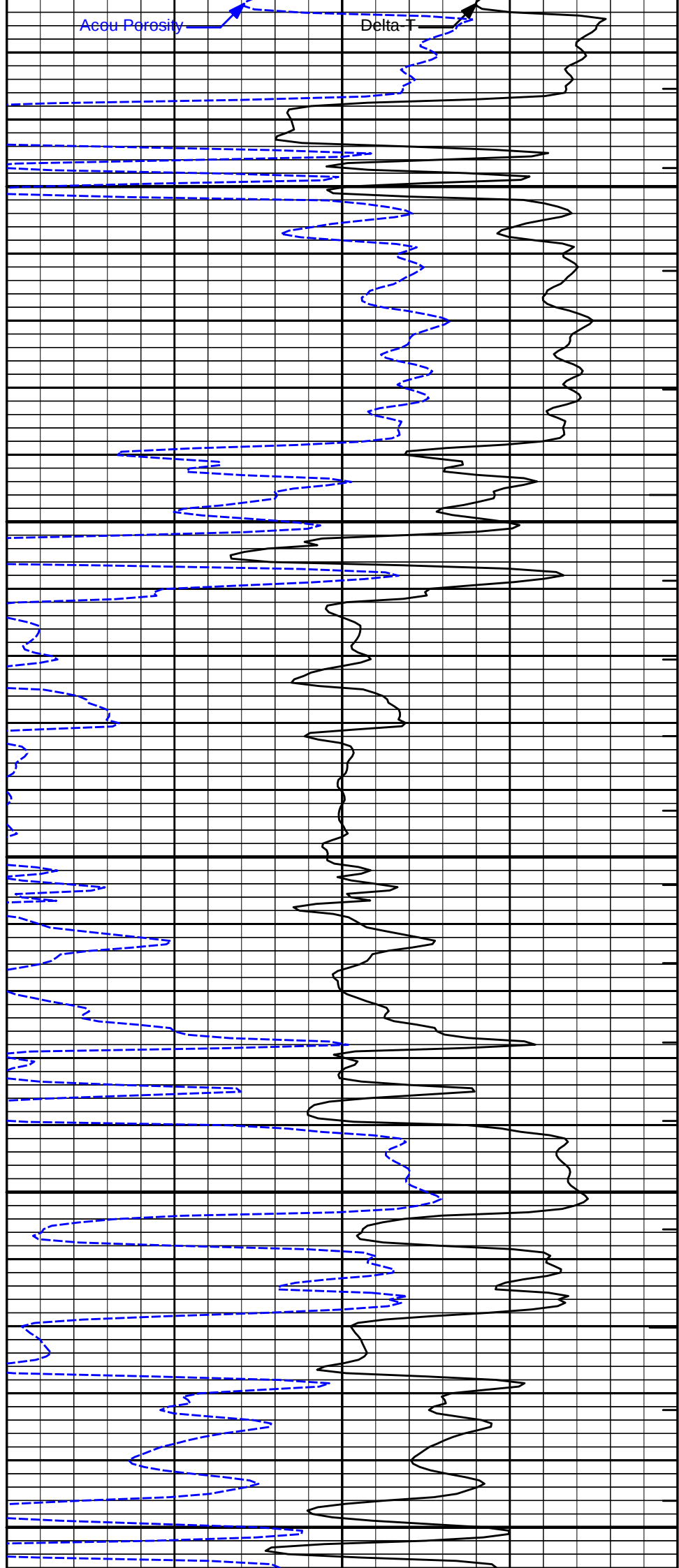
REPEAT SECTION

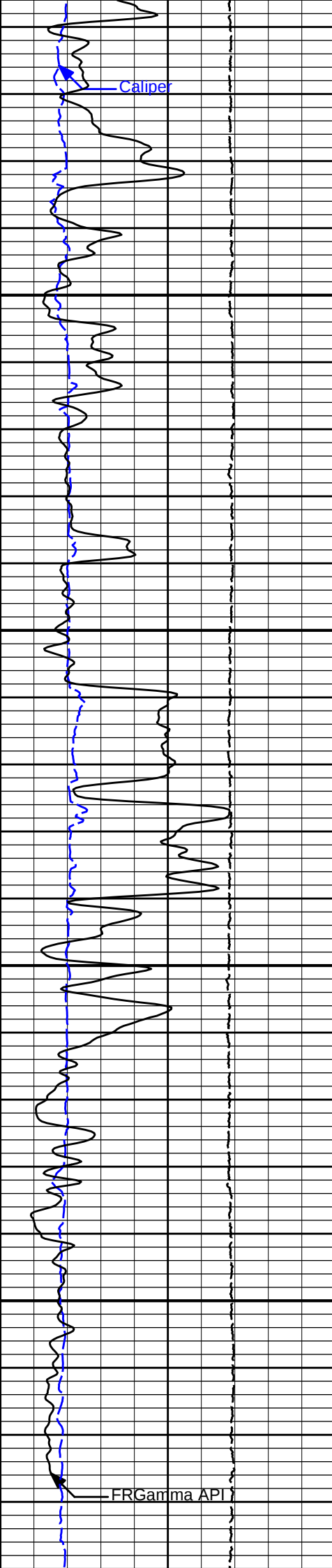




5200

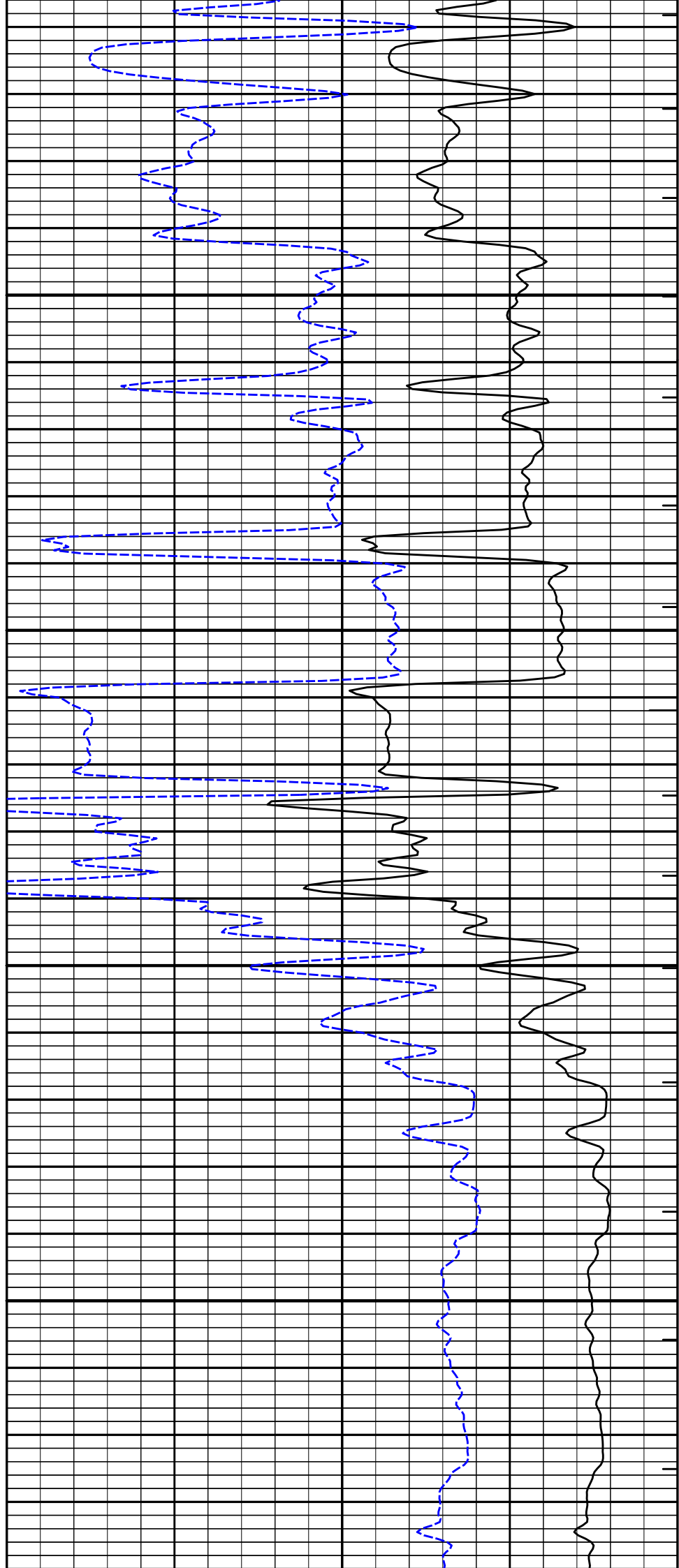
5300

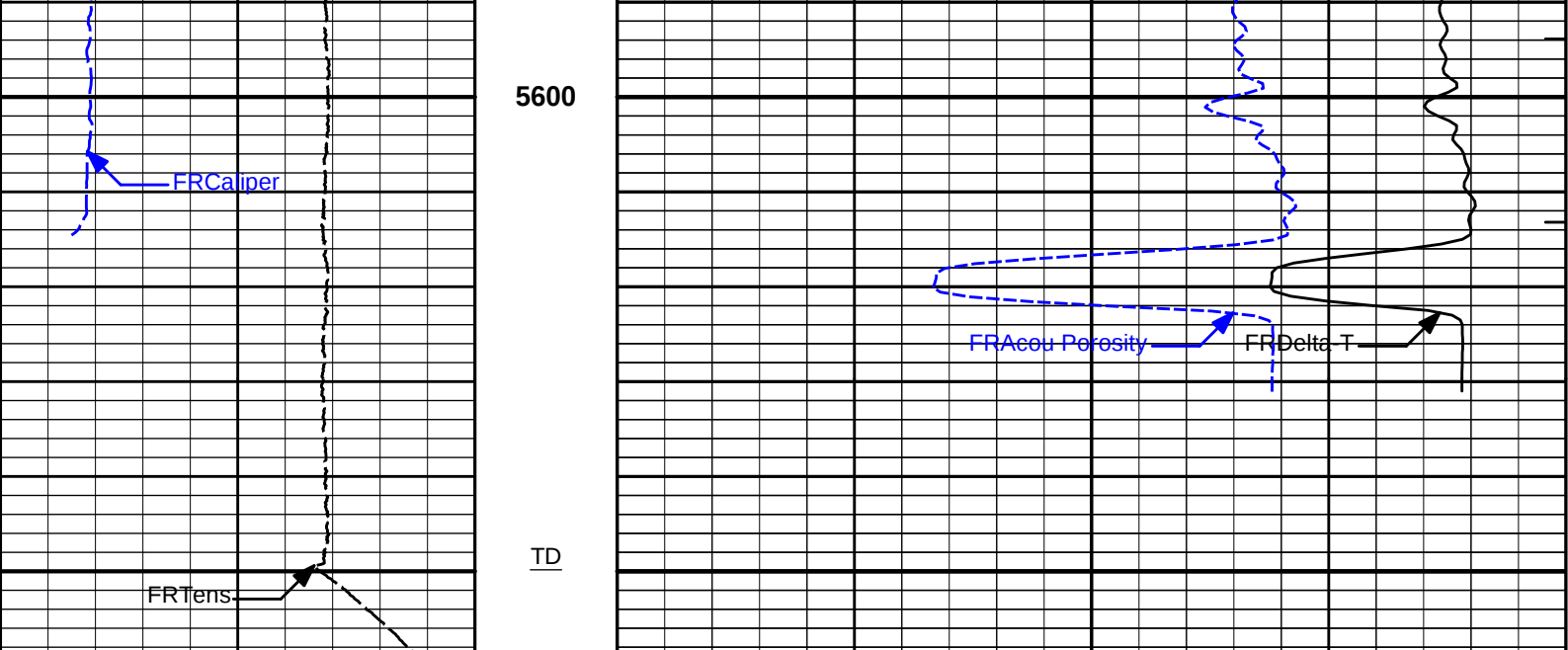




5400

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: 17-Jul-18 18:14:54
Plot Range: 5050 ft to 5658.58 ft
Data: MERIT_EENU_103\Well Based\DAQ-0001-002\
Plot File: \\BSAT\BSAT_5inch

REPEAT SECTION

REPEAT SECTION

HALLIBURTON
CALIBRATION REPORT

SURFACE TENSION SHOP CALIBRATION					
Tool Name:	Depth Panel - 12345678			Reference Calibration Date:	27-Jun-18 03:39:14
Engineer:	SEAN WOLTEMATH			Calibration Date:	12-Jul-18 23:44:31
Software Version:	WL INSITE R5.6.3 (Build 4)			Calibration Version:	1
	SURFACE TENSION LOAD CELL				
	Measurement	Load Cell Value	Measurement	Calibrated	Units
	Low	10207.56	-52.96	0.00	lbs
	High	17510.65	7775.56	7830.00	lbs

DOWNHOLE TENSION SHOP CALIBRATION					
Tool Name:	CH_HOS - CH_HOS_I			Reference Calibration Date:	02-Jul-18 07:44:16
Engineer:	SEAN WOLTEMATH			Calibration Date:	12-Jul-18 23:49:46
Software Version:	WL INSITE R5.6.3 (Build 4)			Calibration Version:	1

		DOWNHOLE LOAD CELL				
		Measurement	Tool Value	Measurement	Calibrated	Units
		Low	-2112.64	-241.59	0.00	lbs
		High	14866.47	3732.34	1808.10	lbs

NATURAL GAMMA RAY TOOL SHOP CALIBRATION					
Tool Name:	GTET - 11013113		Reference Calibration Date:	02-Apr-18 09:34:23	
Engineer:	WHITLOCK		Calibration Date:	02-May-18 11:20:36	
Software Version:	WL INSITE R5.6.3 (Build 4)		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	20.8	20.8	api
		Background + Calibrator	246.4	246.7	api
		Calibrator	225.6	225.9	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION					
Tool Name:	GTET - 11013113		Reference Calibration Date:	02-May-18 11:20:36	
Engineer:	WHITLOCK		Calibration Date:	15-Jul-18 11:44:38	
Software Version:	WL INSITE R5.6.3 (Build 4)		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	20.8	24.2	api
		Background + Calibrator	246.7	246.9	api
		Calibrator	225.9	222.7	api
		Shop	Field	Difference	Tolerance
		225.9	222.7	3.2	+/- 9.00

CSNG-FS SHOP CALIBRATION					
Tool Name:	CSNG - 11328129		Reference Calibration Date:	16-Jul-18 11:31:26	
Engineer:	WHITLOCK		Calibration Date:	16-Jul-18 11:53:19	
Software Version:	WL INSITE R5.6.3 (Build 4)		Calibration Version:	1	
Source SN:	TB-79				

		TITANIUM CASE		Measured	Calibrated	Units
		60 KEV Peak Channel #		48.0	48.0	Channel #
		239 KEV Peak Channel #		22.7	22.7	Channel #
		583 KEV Peak Channel #		50.6	50.3	Channel #
		2614 KEV Peak Channel #		206.9	206.4	Channel #
		Calibrate Temperature		103.3	108.6	degF
		Pass/Fail Summary		Centroid		
		239 KEV Peak		Passed		
		583 KEV Peak		Passed		
		2614 KEV Peak		Passed		
Blanket Reference Value: 222.00 API						
Calibrator Value: 252.1 API						
		Counts	Units	Measured	Calibrated	Units

	Thorium Blanket	1396.5	CPS	269.0	269.4	API																																																		
	Background	89.5	CPS	16.9	17.3	API																																																		
	Gamma Ray Gain: 0.97																																																							
	Expected Gain Range: 0.85 - 1.15																																																							
	Gamma Gain Check: Passed																																																							
CSNG-FS FIELD CALIBRATION																																																								
Tool Name:	CSNG - 11328129			Reference Calibration Date:	16-Jul-18 11:53:19																																																			
Engineer:	WHITLOCK			Calibration Date:	16-Jul-18 12:04:51																																																			
Software Version:	WL INSITE R5.6.3 (Build 4)			Calibration Version:	1																																																			
Source SN:																																																								
	<table><thead><tr><th>TITANIUM CASE</th><th>Shop</th><th>Field</th><th>Units</th></tr></thead><tbody><tr><td>60 KEV Peak Channel #</td><td>48.0</td><td>48.0</td><td>Channel #</td></tr><tr><td>239 KEV Peak Channel #</td><td>22.7</td><td>22.9</td><td>Channel #</td></tr><tr><td>583 KEV Peak Channel #</td><td>50.3</td><td>50.8</td><td>Channel #</td></tr><tr><td>2614 KEV Peak Channel #</td><td>206.4</td><td>207.7</td><td>Channel #</td></tr><tr><td>Calibrate Temperature</td><td>108.6</td><td>111.5</td><td>degF</td></tr></tbody></table> <table><thead><tr><th>Pass/Fail Summary</th><th>Centroid</th></tr></thead><tbody><tr><td>239 KEV Peak</td><td>Passed</td></tr><tr><td>583 KEV Peak</td><td>Passed</td></tr><tr><td>2614 KEV Peak</td><td>Passed</td></tr></tbody></table> Blanket Reference Value: 222.00 API Calibrator Value: 252.1 API <table><thead><tr><th></th><th>Counts</th><th>Units</th><th>Measured</th><th>Calibrated</th><th>Units</th></tr></thead><tbody><tr><td>Thorium Blanket</td><td>1384.5</td><td>CPS</td><td>269.4</td><td>269.3</td><td>API</td></tr><tr><td>Background</td><td>88.4</td><td>CPS</td><td>17.3</td><td>17.2</td><td>API</td></tr></tbody></table> Gamma Ray Gain: 0.98 Expected Gain Range: 0.85 - 1.15 Gamma Gain Check: Passed						TITANIUM CASE	Shop	Field	Units	60 KEV Peak Channel #	48.0	48.0	Channel #	239 KEV Peak Channel #	22.7	22.9	Channel #	583 KEV Peak Channel #	50.3	50.8	Channel #	2614 KEV Peak Channel #	206.4	207.7	Channel #	Calibrate Temperature	108.6	111.5	degF	Pass/Fail Summary	Centroid	239 KEV Peak	Passed	583 KEV Peak	Passed	2614 KEV Peak	Passed		Counts	Units	Measured	Calibrated	Units	Thorium Blanket	1384.5	CPS	269.4	269.3	API	Background	88.4	CPS	17.3	17.2	API
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DUAL SPACED NEUTRON SHOP CALIBRATION																																																								
Tool Name:	DSNT - 11019641			Reference Calibration Date:	23-Feb-18 10:39:09																																																			
Engineer:	WHITLOCK			Calibration Date:	01-Apr-18 11:42:15																																																			
Software Version:	WL INSITE R5.6.3 (Build 4)			Calibration Version:	1																																																			
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Tank Serial Number: EL RENO HWT																																																								
Reference value assigned to Tank: 56.100																																																								
Snow Block S/N: 12156883																																																								
Calibration Tank Water Temperature: 72 degF																																																								
Min. Tool Housing Outside Diameter: 3.625 in																																																								
	<table><thead><tr><th colspan="4">CALIBRATION CONSTANTS</th></tr><tr><th>Measurement</th><th>Prev. Value</th><th>New Value</th><th>Control Limit On New Value</th></tr></thead><tbody><tr><td>Gain:</td><td>0.98237</td><td>0.98197</td><td>0.900 - 1.100</td></tr></tbody></table> <table><thead><tr><th colspan="5">WATER TANK SUMMARY (Horizontal Water Tank)</th></tr><tr><th>Measurement</th><th>Current Reading (Previous Coef.)</th><th>Calibrated (New Coef.)</th><th>Change</th><th>Control Limit On Change</th></tr></thead><tbody><tr><td>Porosity (decp):</td><td>0.2359</td><td>0.2358</td><td>0.0001</td><td>+/- 0.0020</td></tr><tr><td>Calibrated Ratio:</td><td>10.5640</td><td>10.5596</td><td>0.004</td><td>+/- 0.050</td></tr></tbody></table>						CALIBRATION CONSTANTS				Measurement	Prev. Value	New Value	Control Limit On New Value	Gain:	0.98237	0.98197	0.900 - 1.100	WATER TANK SUMMARY (Horizontal Water Tank)					Measurement	Current Reading (Previous Coef.)	Calibrated (New Coef.)	Change	Control Limit On Change	Porosity (decp):	0.2359	0.2358	0.0001	+/- 0.0020	Calibrated Ratio:	10.5640	10.5596	0.004	+/- 0.050																		
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Background Check:	Passed
Gain-Range Check:	Passed
Snow-Block Check:	Passed

Calibration Version: 1

Passed

-0.000010000 - 0.000010000

+/- 0.20

Passed

Calibration-Coefficients Range Check: Passed

Tool Name:	SDLT - 10960494	Reference Calibration Date:	08-Jun-18 16:19:27
Engineer:	WHITLOCK	Calibration Date:	15-Jul-18 11:48:30
are Version:	WL INSITE R5.6.3 (Build 4)	Calibration Version:	1

PASS/FAIL SUMMARY	
Pad Extension Check:	Passed
Diameter Check:	Passed

Tool Name:	ACRt Sonde - 11830728	Reference Calibration Date:	23-Feb-18 10:15:37
Engineer:	WHITLOCK	Calibration Date:	06-Jun-18 13:24:46
Software Version:	WL INSITE R5.6.3 (Build 4)	Calibration Version:	1
Host Tool Name:	ACRt Instrument - 11830684		

Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	0.95	1.0279	1.05	0.95	1.0076	1.05	0.95	0.9997	1.05
A2 (50")	0.95	1.0334	1.05	0.95	1.0139	1.05	0.95	1.0097	1.05
A3 (29")	0.95	1.0346	1.05	0.95	1.0146	1.05	0.95	1.0081	1.05
A4 (17")	0.95	1.0279	1.05	0.95	1.0063	1.05	0.95	1.0018	1.05
A5 (10")	N/A	N/A	N/A	0.95	1.0001	1.05	0.95	0.9950	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.9869	1.05	0.95	0.9818	1.05

Subarray	R12KHz	R36KHz	R72KHz
	(mmho/m)	(mmho/m)	(mmho/m)
A1 (80")	0.315	-4.964	-5.711
A2 (50")	0.409	-3.450	-5.485
A3 (29")	-11.648	-3.720	-3.783
A4 (17")	-90.980	-28.724	-23.707
A5 (10")	N/A	-76.200	-37.537
A6 (6")	N/A	280.488	149.005

GAIN RANGE CHK	PASS
SONDE OFFSET CHK	PASS

TOOL OK TO LOG

QUALITY CHECK SHOP CALIBRATION

Tool Name: ACRt Sonde - 11830728				Reference Calibration Date: 23-Feb-18 10:21:17					
Engineer: WHITLOCK				Calibration Date: 06-Jun-18 14:01:20					
Software Version: WL INSITE R5.6.3 (Build 4)				Calibration Version: 1					
Host Tool Name: ACRt Instrument - 11830684									
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	-0.006	> -0.500	Pass
A2 (50")	0.000	< 0.500	Pass	-0.001	> -0.500	Pass	-0.005	> -0.500	Pass
A3 (29")	-0.000	< 0.500	Pass	-0.001	> -0.500	Pass	-0.003	> -0.500	Pass
A4 (17")	-0.002	> -0.500	Pass	-0.006	> -0.500	Pass	-0.022	> -0.500	Pass
A5 (10")	-0.010	> -0.500	Pass	-0.017	> -0.500	Pass	-0.036	> -0.500	Pass
A6 (6")	0.014	< 0.500	Pass	0.063	< 0.500	Pass	0.138	< 0.500	Pass
GAIN TOLERANCE									
R12KHz									
	Measured (mmho/m)	Last Month (mmho/m)	Difference (mmho/m)	Tolerance (mmho/m)	Pass/Fail				
A1 (80")	-213173456.000	-213653808.000	480352.000	10682690.400	Pass				
A2 (50")	-205651744.000	-206143280.000	491536.000	10307164.000	Pass				
A3 (29")	-200817664.000	-201197776.000	380112.000	10059888.800	Pass				
A4 (17")	-200193568.000	-200629872.000	436304.000	10031493.600	Pass				
A5 (10")	-200252336.000	-200678960.000	426624.000	10033948.000	Pass				
A6 (6")	-199820688.000	-200219344.000	398656.000	10010967.200	Pass				
R36KHz									
	Measured (mmho/m)	Last Month (mmho/m)	Difference (mmho/m)	Tolerance (mmho/m)	Pass/Fail				
A1 (80")	48114080.000	48477272.000	363192.000	2423863.600	Pass				
A2 (50")	33966292.000	34324412.000	358120.000	1716220.600	Pass				
A3 (29")	28032378.000	28346680.000	314302.000	1417334.000	Pass				
A4 (17")	27853682.000	28207516.000	353834.000	1410375.800	Pass				
A5 (10")	27373208.000	27716930.000	343722.000	1385846.500	Pass				
A6 (6")	26035236.000	26360300.000	325064.000	1318015.000	Pass				
R72KHz									
	Measured (mmho/m)	Last Month (mmho/m)	Difference (mmho/m)	Tolerance (mmho/m)	Pass/Fail				
A1 (80")	-92927656.000	-93022904.000	95248.000	4651145.200	Pass				
A2 (50")	-90501024.000	-90617752.000	116728.000	4530887.600	Pass				
A3 (29")	-88192472.000	-88292832.000	100360.000	4414641.600	Pass				
A4 (17")	-88397088.000	-88515880.000	118792.000	4425794.000	Pass				
A5 (10")	-86957704.000	-87076952.000	119248.000	4353847.600	Pass				
A6 (6")	-87976216.000	-88080696.000	104480.000	4404034.800	Pass				

PASS/FAIL SUMMARY					
Std Deviation Verification			Pass		
Average Verification			Pass		
Gain Tolerance Verification			Pass		

MICRO LOG SHOP CALIBRATION					
Tool Name:	Microlog Pad - 10960494		Reference Calibration Date:	01-Jan-70 00:00:00	
Engineer:	WHITLOCK		Calibration Date:	08-Jun-18 16:08:54	
Software Version:	WL INSITE R5.6.3 (Build 4)		Calibration Version:	1	
Host Tool Name:	DSNT - 11019641				

	CALIBRATION COEFFICIENT SUMMARY					
	Measurement	Micro Log Normal		Micro Log Lateral		
		Measured	Calibrated	Measured	Calibrated	Units
	Tool Zero	-0.07	-0.07	-0.01	-0.01	
	Calibration Point #1	0.00	0.00	0.00	0.00	ohmm
	Calibration Point #2	20.00	20.00	20.00	20.00	ohmm
	Internal Reference	19.92	19.92	19.98	19.98	ohmm
	Measurement	Micro Log Normal Tool Value		Micro Log Lateral Tool Value		Units
	Tool Zero	-0.11		0.18		V
	Calibration Point #1	18.42		2.03		V
	Calibration Point #2	5354.08		6974.83		V
	Internal Reference	5331.77		6967.38		V

MICRO LOG FIELD CHECK					
Tool Name:	Microlog Pad - 10960494		Reference Calibration Date:	08-Jun-18 16:08:54	
Engineer:	WHITLOCK		Calibration Date:	15-Jul-18 11:58:10	
Software Version:	WL INSITE R5.6.3 (Build 4)		Calibration Version:	1	

	Measurement	Micro Log Normal		Micro Log Lateral		
		Shop	Field	Shop	Field	Units
	Tool Zero	-0.07	-0.07	-0.01	-0.00	
	Internal Reference	19.92	19.89	19.98	19.96	ohmm
	Summary					
	Signal	Shop	Field	Difference	Tolerance	
	Microlog Normal	19.92	19.89	0.03	+/- 0.80	
	Microlog Lateral	19.98	19.96	0.02	+/- 0.80	

SPECTRAL DENSITY SHOP CALIBRATION					
Tool Name:	SDLT Pad - 11213308		Reference Calibration Date:	08-Jun-18 10:39:59	
Engineer:	WHITLOCK		Calibration Date:	08-Jun-18 11:01:29	
Software Version:	WL INSITE R5.6.3 (Build 4)		Calibration Version:	1	

Logging Source S/N: 5475GW					
Aluminum Block S/N: EL RENO			Density: 2.581g/cc	Pe: 3.170	
Magnesium Block S/N: EL RENO			Density: 1.687g/cc	Pe: 2.594	

	DENSITY CALIBRATION SUMMARY					
	Measurement	Previous Value		New Value		Control Limit
	Near Bar Gain	1.0041		1.0112		0.90 - 1.10
	Near Dens Gain	0.9869		0.9898		0.90 - 1.10
	Near Peak Gain	0.9943		0.9998		0.90 - 1.10
	Near Lith Gain	1.0181		1.0093		0.90 - 1.10
	Far Bar Gain	1.0040		1.0066		0.90 - 1.10

Far Dens Gain	0.9932	0.9944	0.90 - 1.10
Far Peak Gain	0.9916	0.9923	0.90 - 1.10
Far Lith Gain	0.9744	0.9710	0.90 - 1.10
Near Bar Offset	0.0934	0.0300	NONE
Near Dens Offset	0.2485	0.2218	NONE
Near Peak Offset	0.1593	0.1112	NONE
Near Lith Offset	-0.0690	0.0007	NONE
Far Bar Offset	0.0165	-0.0022	NONE
Far Dens Offset	0.1281	0.1192	NONE
Far Peak Offset	0.1238	0.1182	NONE
Far Lith Offset	0.2190	0.2467	NONE
Near Bar Background	955.07	955.02	700 - 1450
Near Dens Background	316.53	316.75	230 - 480
Near Peak Background	138.87	138.74	100 - 210
Near Lith Background	168.67	169.41	125 - 260
Far Bar Background	482.41	482.24	450 - 900
Far Dens Background	194.46	191.91	175 - 345
Far Peak Background	77.48	77.25	70 - 140
Far Lith Background	79.35	80.04	75 - 145

CALIBRATION BLOCK SUMMARY				
Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.688	1.687	-0.001	+/- 0.015
Pe	2.517	2.559	0.042	+/- 0.150
ALUMINUM				
Density (g/cc)	2.582	2.581	-0.001	+/- 0.01500
Pe	3.106	3.132	0.026	+/- 0.150

TOOL SUMMARY				
Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	0.0017	+/- 0.0110	0.0006	+/- 0.0140
Magnesium Block	-0.0008	+/- 0.0110	-0.0008	+/- 0.0140
Aluminum Block	-0.0005	+/- 0.0110	-0.0001	+/- 0.0140
Resolution	9.21	6.00 - 11.50	9.21	6.00 - 11.50
Internal Verifier(B+D+P+L)	1580	1200 - 2700	831	800 - 1700

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

SPECTRAL DENSITY FIELD CHECK

Tool Name:	SDLT Pad - 11213308	Reference Calibration Date:	08-Jun-18 11:01:29
Engineer:	WHITLOCK	Calibration Date:	15-Jul-18 12:01:32
Software Version:	WL INSITE R5.6.3 (Build 4)	Calibration Version:	1

Pad Temperature: 89.3 degF

DENSITY FIELD CALIBRATION SUMMARY				
Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1579.927	1572.370	-7.557	15.990
Far (B+D+P+L) cps	831.441	831.354	-0.087	15.874
Near Resolution	9.21	9.15	-0.060	0.50
Far Resolution	9.21	9.21	0.000	1.00

PASS/FAIL SUMMARY	
Bkg Quality Check:	Passed
Bkg Resolution Check:	Passed
Bkg Verification Check:	Passed

CALIBRATION SUMMARY						
Sensor	Shop	Field	Post	Difference	Tolerance	Units
Depth Panel-12345678						
Tension Zero	0.00	-----	-----	0.00	-----	lbs
Tension Cal	7830.00	-----	-----	0.00	-----	lbs
CH_HOS-CH_HOS_I						
DH Tension Zero	0.00	-----	-----	0.00	-----	lbs
DH Tension Cal	1808.10	-----	-----	0.00	-----	lbs
GTET-11013113						
Gamma Ray Calibrator	225.9	222.7	-----	3.2	+/- 9.00	api
CSNG-11328129						
60 KEV Peak Channel #	48.0	48.0	-----	0.0	-----	Channel #
239 KEV Peak Channel #	22.7	22.9	-----	-0.2	-----	Channel #
583 KEV Peak Channel #	50.3	50.8	-----	-0.5	-----	Channel #
2614 KEV Peak Channel #	206.4	207.7	-----	-1.3	-----	Channel #
DSNT-11019641						
Snow-Block Porosity	0.0770	0.0754	-----	0.0016	+/- 0.0150	decp
SDLT-10960494						
Pad Extension	3.75	3.79	-----	-0.04	+/-0.10	in
Ring Diameter	8.25	8.25	-----	0.00	+/-0.15	in
ACRt Sonde-11830728						
Mud Cell	0.99	-----	-----	0	-----	ohm-m
Microlog Pad-10960494						
MicroLog Normal	19.92	19.89	-----	0.03	+/-0.80	ohmm
MicroLog Lateral	19.98	19.96	-----	0.02	+/-0.80	ohmm
SDLT Pad-11213308						
Near(B+D+P+L)	1579.927	1572.370	-----	7.557	+/-15.990	cps
Far(B+D+P+L)	831.441	831.354	-----	0.087	+/-15.874	cps
Data: MERIT_EENU_103\0001 GTET-CSNG-GEM-DSNT-SDLT-FLEX-BSAT-ACRT\IDLE					Date: 17-Jul-18 11:24:06	

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	Barite	
	SHARED	BSAI	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	2.000	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	5650.00	ft
SHARED	BHT	Bottom Hole Temperature	128.0	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	
CSNG	CGOK	Process CSNG Data?	Yes	
CSNG	CENT	Is Tool Centralized?	No	
CSNG	GBOK	Gamma Enviromental Corrections?	Yes	
CSNG	BARF	Barite Correction Factor	1.00	
CSNG	ORDG	Use Fixed Gain	No	
CSNG	ORDO	Use Fixed Offset	No	
CSNG	ORDR	Use Fixed Resolution Degradation Factor	No	
CSNG	BHSM	Borehole Size Source Tool	SDLT	
GEMT Mandrel	GMOK	Compute GEMT Results?	Yes	
GEMT Mandrel	FTAL	Fit Chemical Element Al	Yes	
GEMT Mandrel	FTBA	Fit Chemical Element Ba	No	
GEMT Mandrel	FITC	Fit Chemical Element C	Yes	
GEMT Mandrel	FTCA	Fit Chemical Element Ca	Yes	
GEMT Mandrel	FTCL	Fit Chemical Element Cl	Yes	
GEMT Mandrel	FTFE	Fit Chemical Element Fe	Yes	
GEMT Mandrel	FTGD	Fit Chemical Element Gd	Yes	
GEMT Mandrel	FITH	Fit Chemical Element H	Yes	
GEMT Mandrel	FTK	Fit Chemical Element K	Yes	
GEMT Mandrel	FTMG	Fit Chemical Element Mg	Yes	
GEMT Mandrel	FTMN	Fit Chemical Element Mn	Yes	
GEMT Mandrel	FTNA	Fit Chemical Element Na	No	
GEMT Mandrel	FITO	Fit Chemical Element O	Yes	
GEMT Mandrel	FTS	Fit Chemical Element S	Yes	
GEMT Mandrel	FTSI	Fit Chemical Element SI	Yes	

GEMT Mandrel	FTTI	Fit Chemical Element Ti	Yes	
GEMT Mandrel	KFIT	Potassium constraint flag (No = don't fit, Yes = fit)	Yes	
GEMT Mandrel	UFDF	Use Fix Resolution Degradation Factor	No	
GEMT Mandrel	EBCA	Apply estimated Ca bias correction	No	
GEMT Mandrel	EBSU	Apply estimated Su bias correction	No	
GEMT Mandrel	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 Type	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

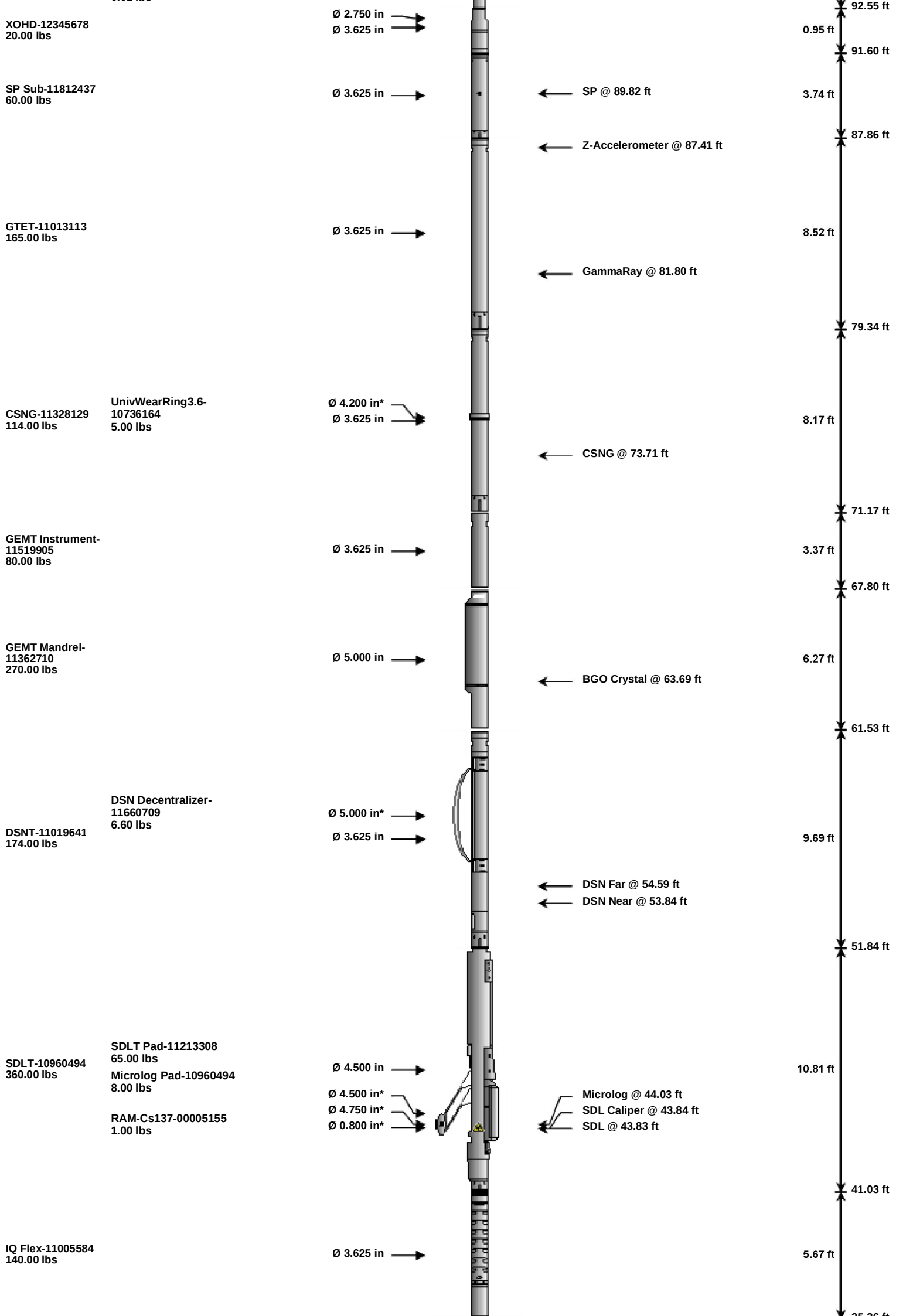
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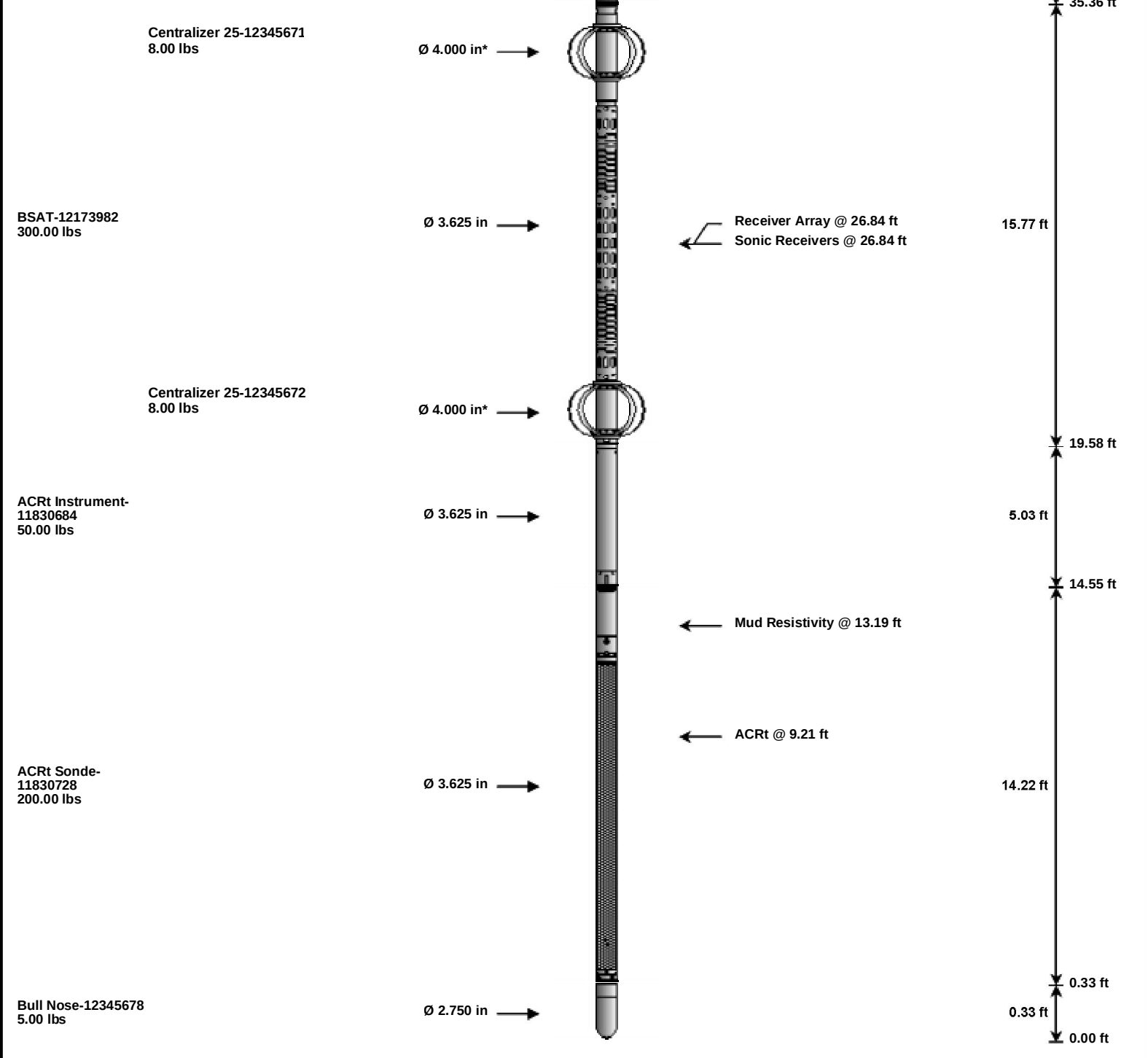
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HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
CH_HOS_I 37.50 lbs	Weak Point 7000 lbs- CH_HOS_I 0.01 lbs	Ø 2.750 in Ø 0.010 in*		Temperature @ 94.55 ft	3.03 ft	95.58 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	92.55	300.00
WP7K	Weak Point 7000 lbs	CH_HOS_I	0.01	0.01	* 93.35	300.00
XOHD	Hostile to Dits Cross Over	12345678	20.00	0.95	91.60	300.00
SP	SP Sub	11812437	60.00	3.74	87.86	300.00
GTET	Gamma Telemetry Tool	11013113	165.00	8.52	79.34	60.00
CSNG	Compensated Spectral Natural Gamma	11328129	114.00	8.17	71.17	15.00
UWR3P6	Universal Wear Ring 3 5-8 inch	10736164	5.00	0.35	* 75.25	300.00
GEMT	Gamma, Elements and Minerals Tool-Instrument	11519905	80.00	3.37	67.80	15.00
GEMT	Gamma, Elements and Minerals Tool-Mandrel	11362710	270.00	6.27	61.53	15.00
DSNT	Dual Spaced Neutron	11019641	174.00	9.69	51.84	60.00
DCNT	DSN Decentralizer	11660709	6.60	5.13	* 55.17	300.00
SDLT	Spectral Density Tool	10960494	360.00	10.81	41.03	60.00
SDLP	Density Insite Pad	11213308	65.00	2.55	* 43.24	60.00
Cs137	Logging Source, SDLT-I, 1.78 Ci - Cs137	00005155	1.00	0.80	* 43.47	300.00
MICP	Microlog Pad	10960494	8.00	1.00	* 43.53	60.00
IQF	IQ Flex tool	11005584	140.00	5.67	35.36	300.00
BSAT	Borehole Sonic Array Tool	12173982	300.00	15.77	19.58	60.00
OBCEN	Centralizer - 25 in. Overbody	12345672	8.00	2.08	* 19.75	300.00
OBCEN	Centralizer - 25 in. Overbody	12345671	8.00	2.08	* 32.62	300.00
ACRt	Array Compensated True Resistivity Instrument Section	11830684	50.00	5.03	14.55	120.00
ACRt	Array Compensated True Resistivity Sonde Section	11830728	200.00	14.22	0.33	120.00
BLNS	Bull Nose	12345678	5.00	0.33	0.00	300.00

Total	2,077.11	95.58
* Not included in Total Length and Length Accumulation.		
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