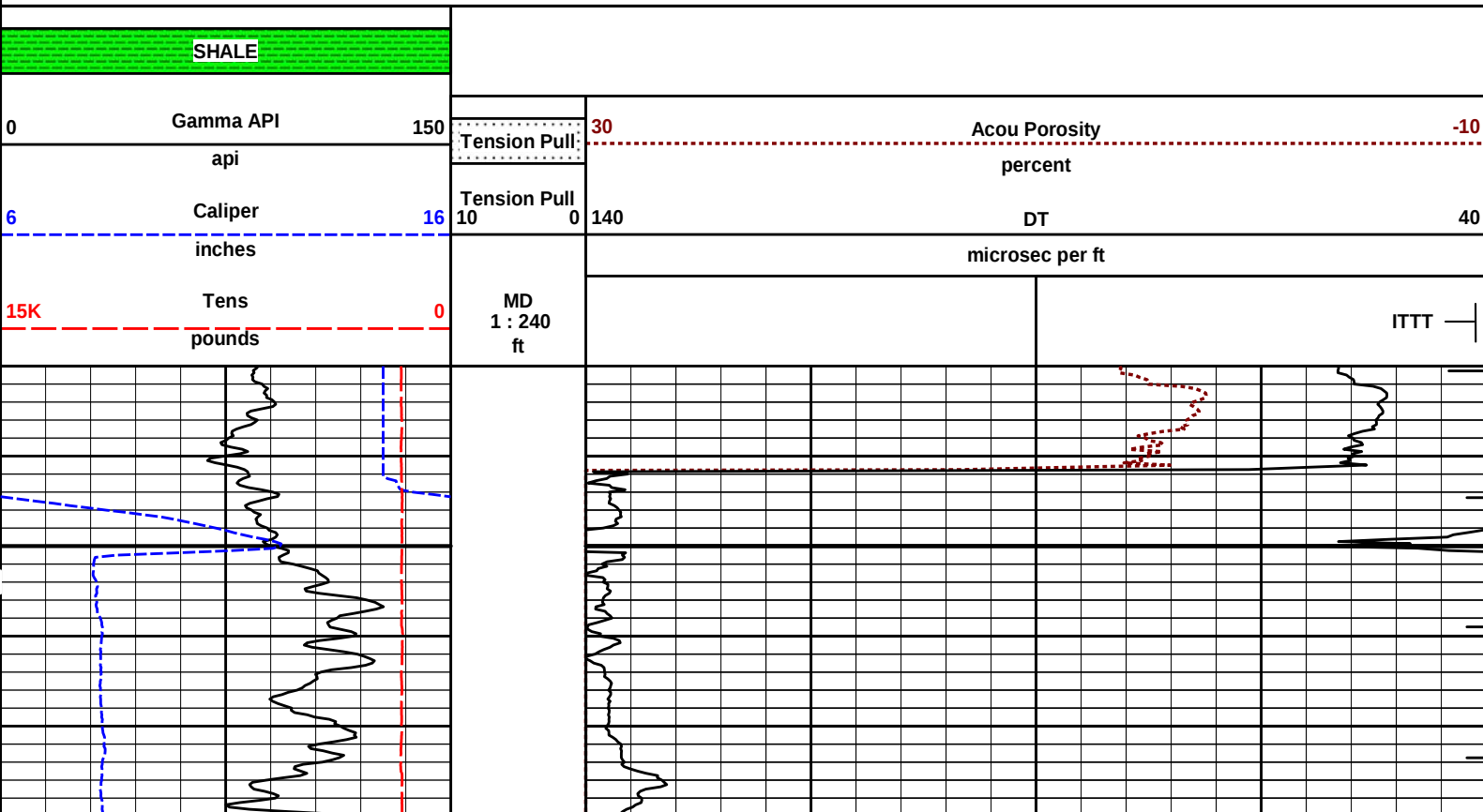


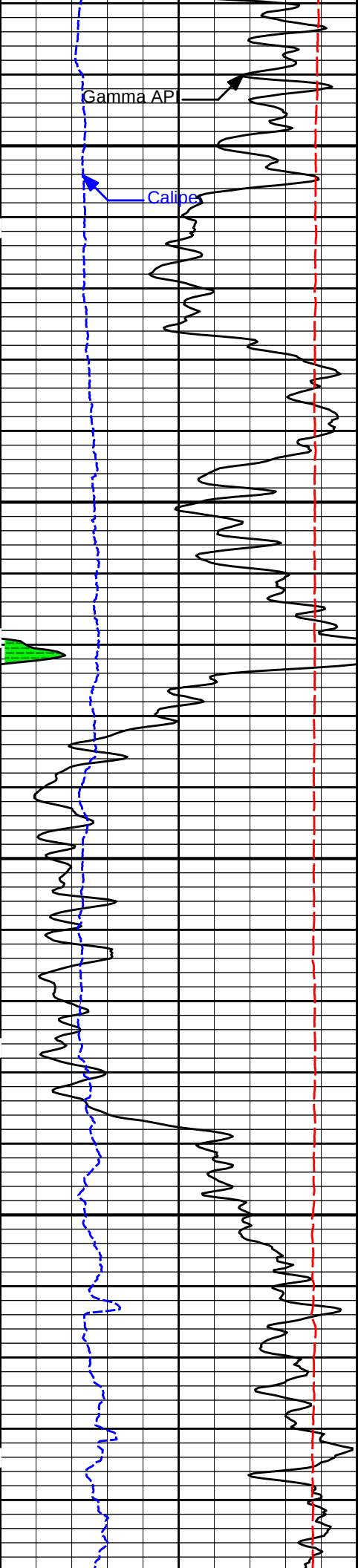
**BOREHOLE COMPENSATED
SONIC ARRAY
LOG**

----- Fold here -----

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	4768	342	REC	0	150	30	-10	47.6							
DIRECTIONAL INFORMATION															
Maximum Deviation								@	KOP @						
Remarks: ANNULAR HOLE VOLUME CALCULATED FOR 5.5-INCH CASING															
CHLORIDES REPORTED AT 7,400 PPM															
LCM REPORTED AT 4 LB/BBL															
GTET-DSNT-SDLT-BSAT-ACRT RUN IN COMBINATION															
TODAY'S CREW: F. VILLA & M. GRAHAM															
THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES LIBERAL, KS. 620-624-8123															
HALLIBURTON DOES NOT GUARANTEE THE ACCURACY OF ANY INTERPRETATION OF THE LOG DATA, CONVERSION OF LOG DATA TO PHYSICAL ROCK PARAMETERS OR RECOMMENDATIONS WHICH MAY BE GIVEN BY HALLIBURTON PERSONNEL OR WHICH APPEAR ON THE LOG OR IN ANY OTHER FORM. ANY USER OF SUCH DATA, INTERPRETATIONS, CONVERSIONS, OR RECOMMENDATIONS AGREES THAT HALLIBURTON IS NOT RESPONSIBLE EXCEPT WHERE DUE TO GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, FOR ANY LOSS, DAMAGES, OR EXPENSES RESULTING FROM THE USE THEREOF.															
HALLIBURTON															

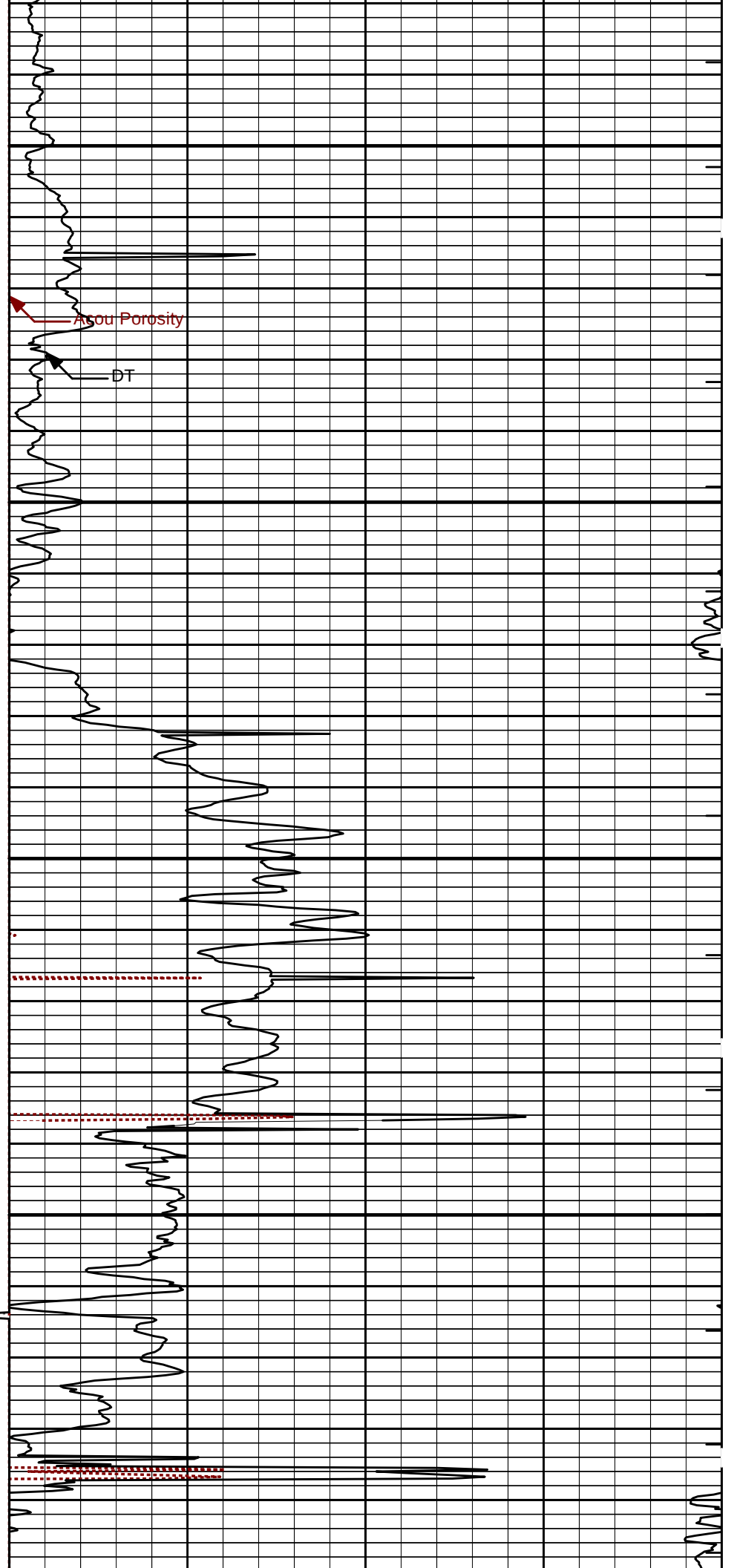


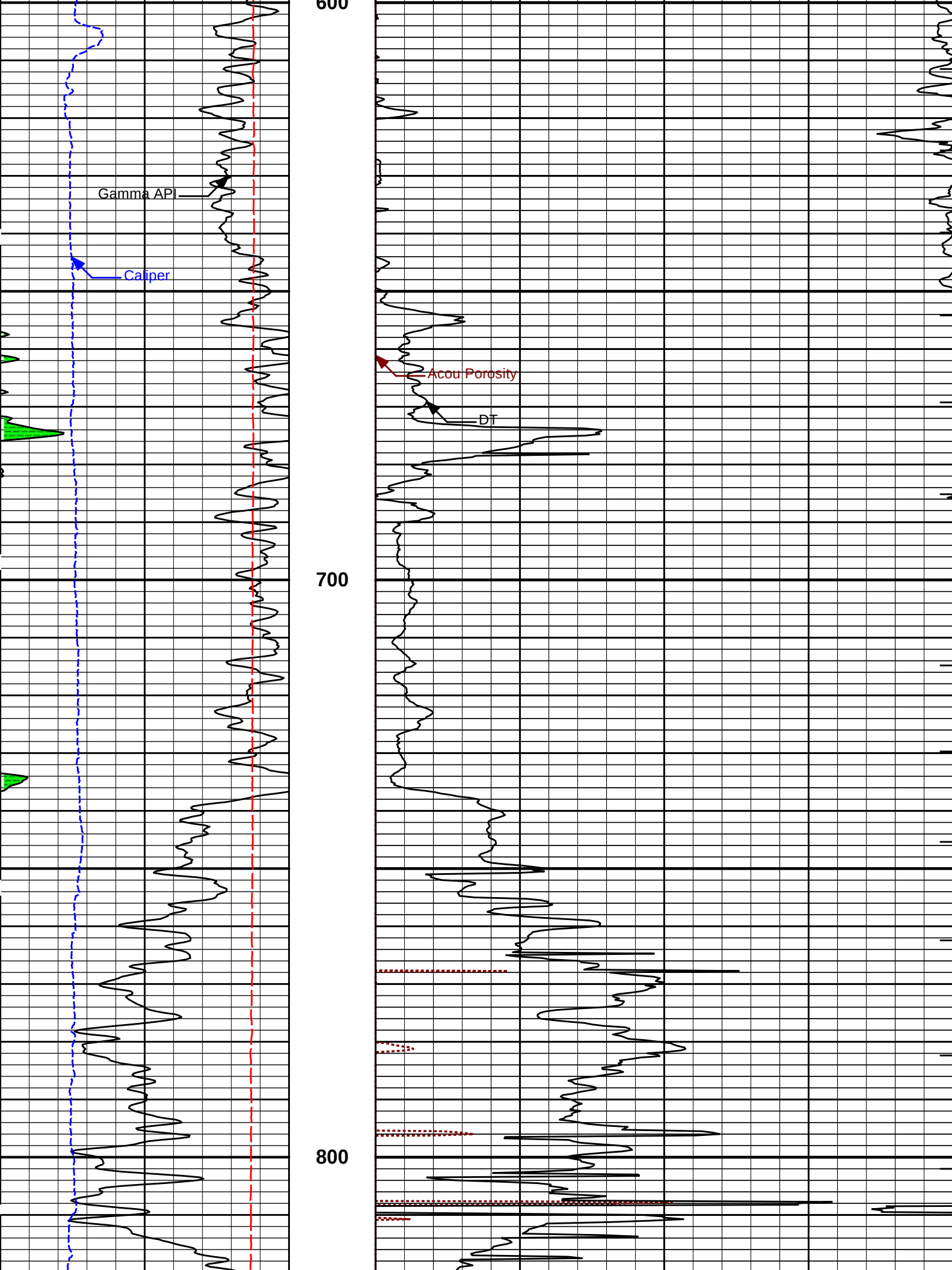


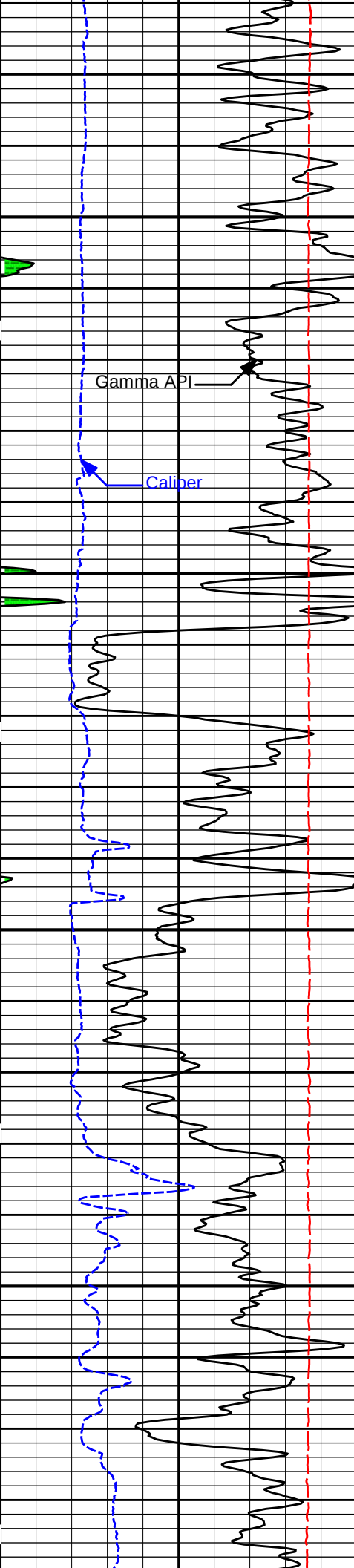
400

500

600

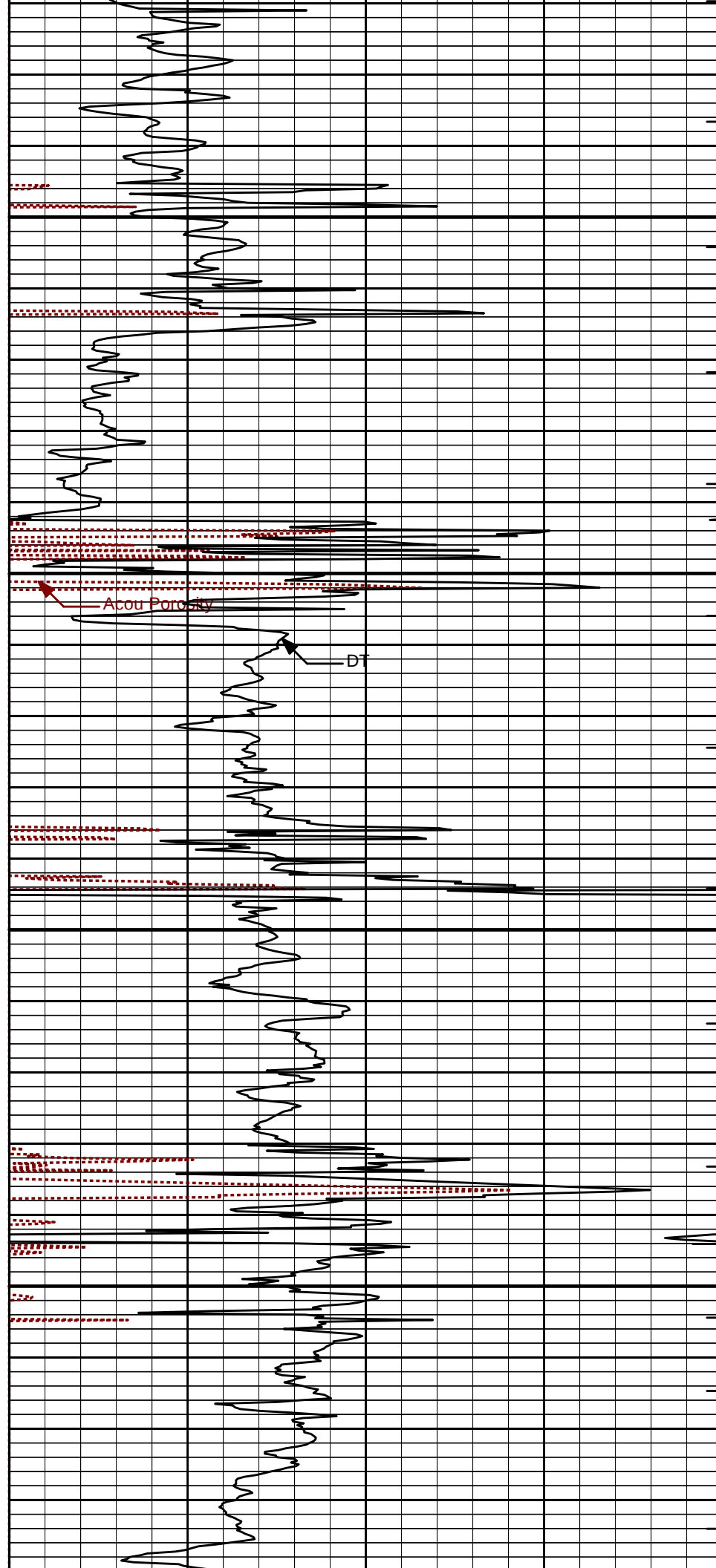


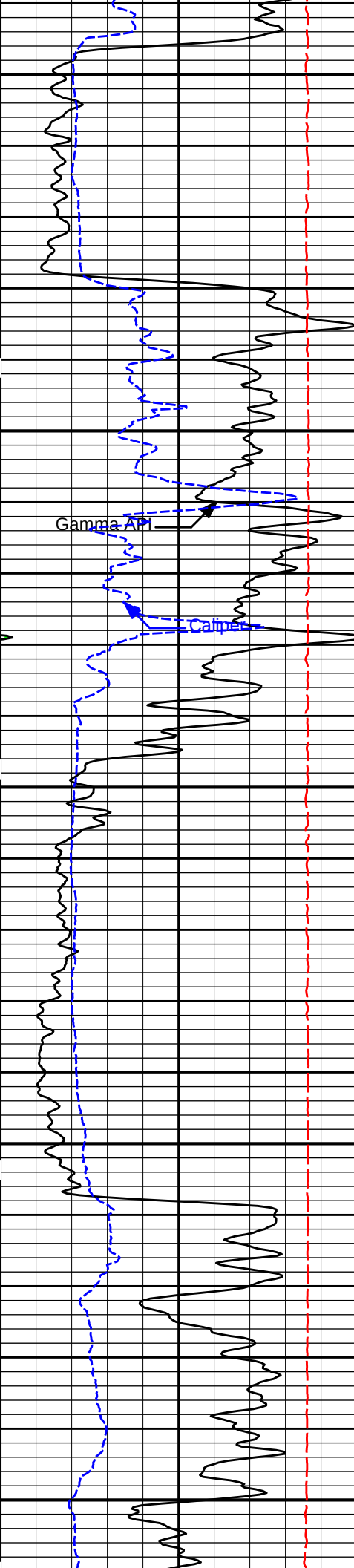




900

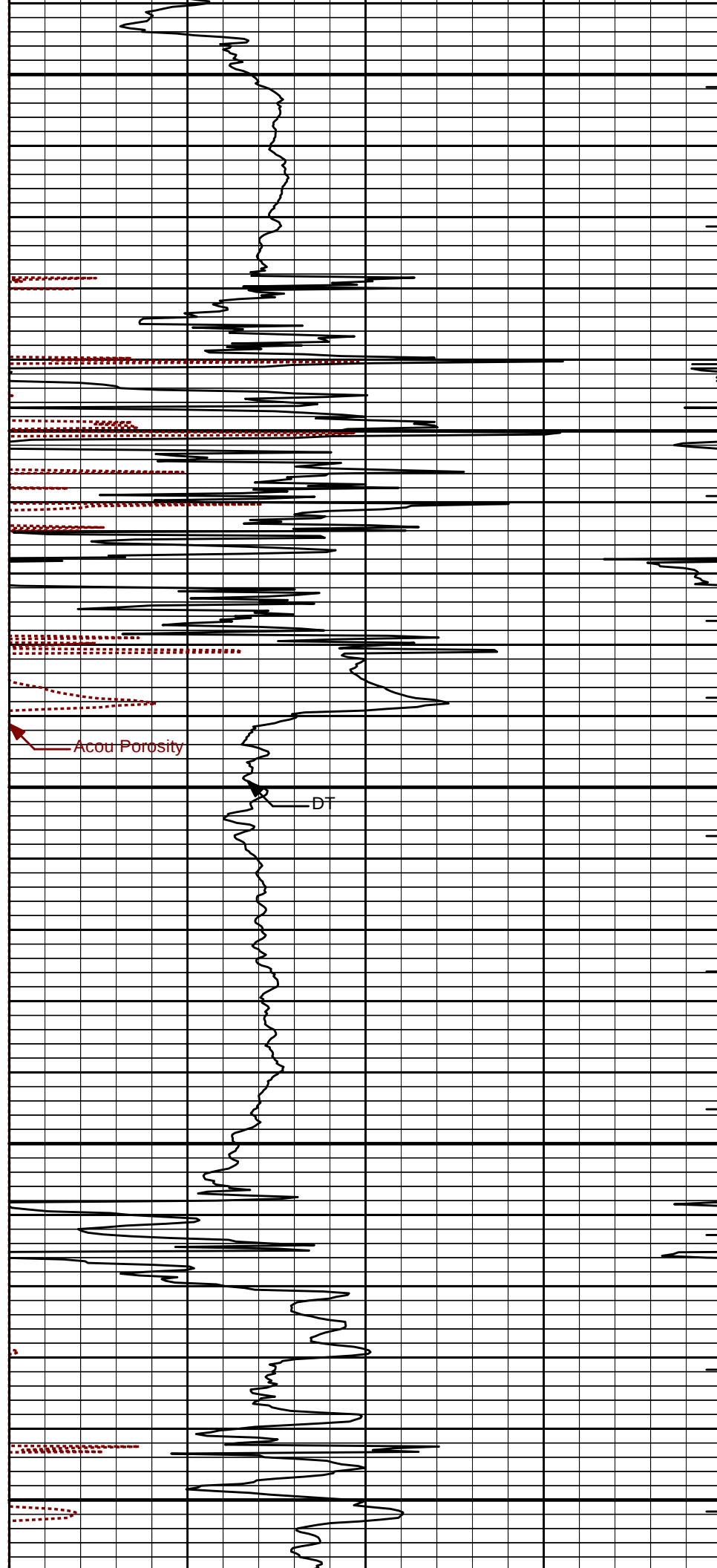
1000

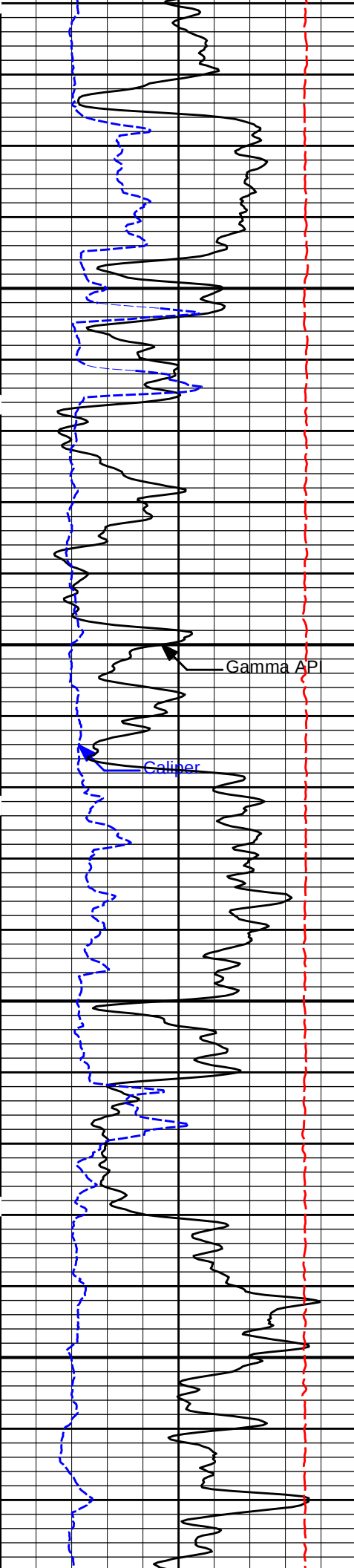




1100

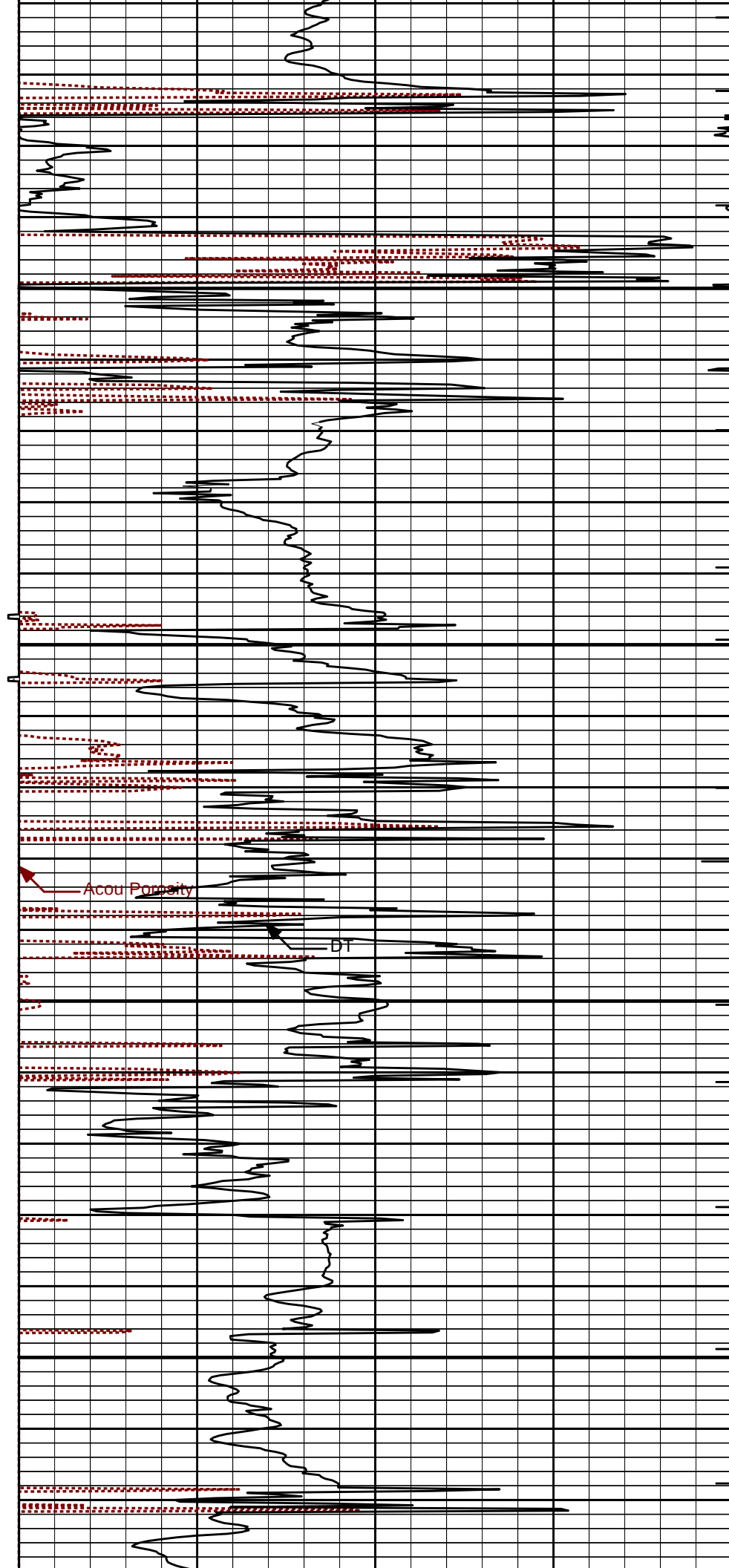
1200

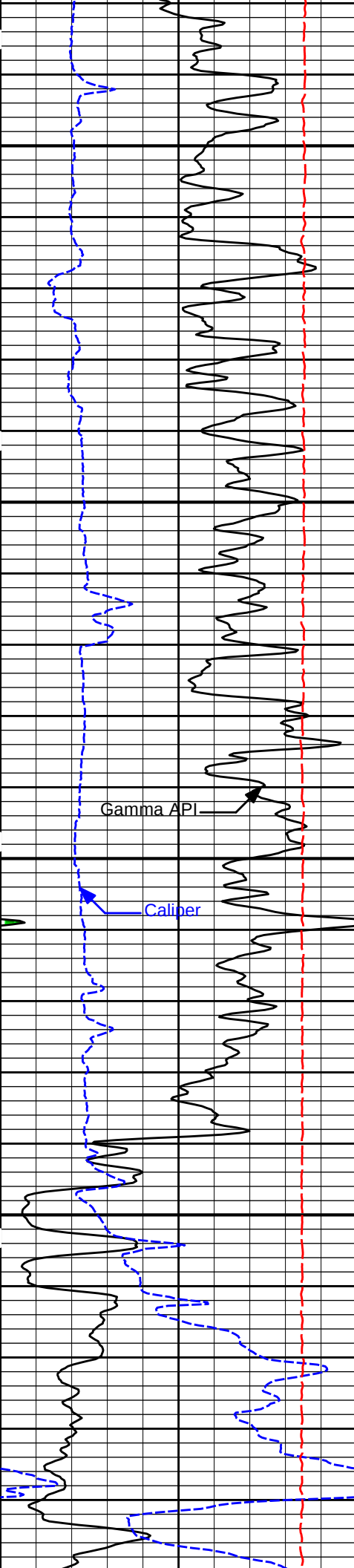




1300

1400

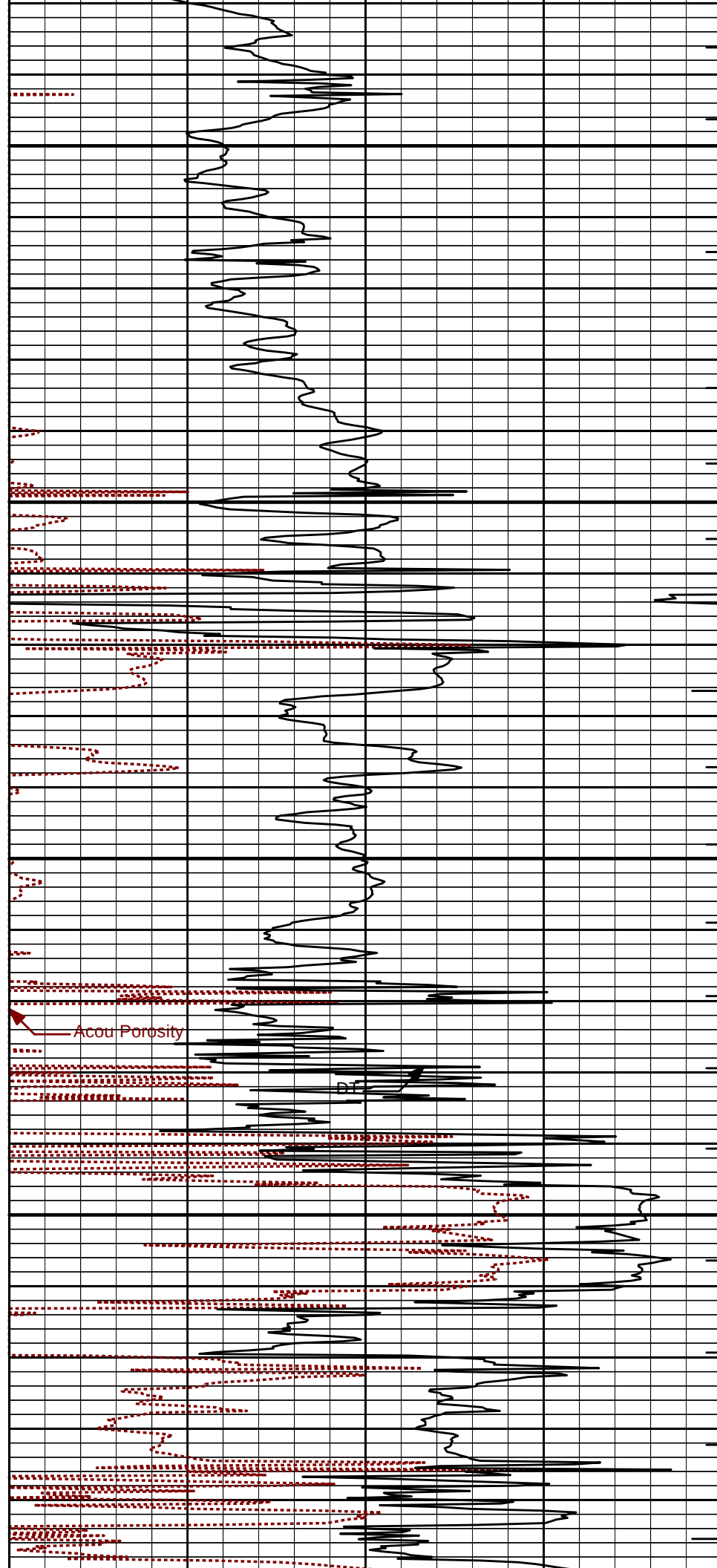


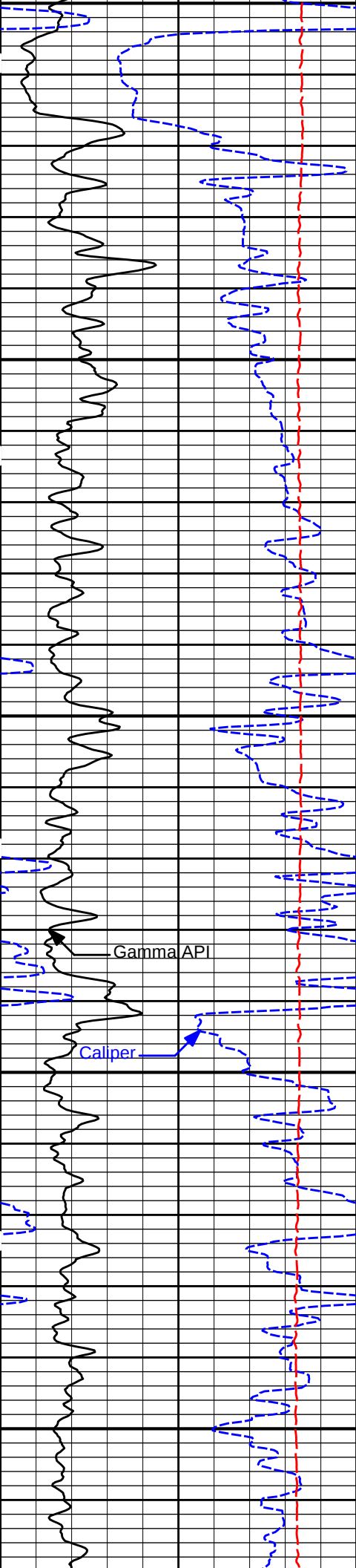


1500

1600

1700

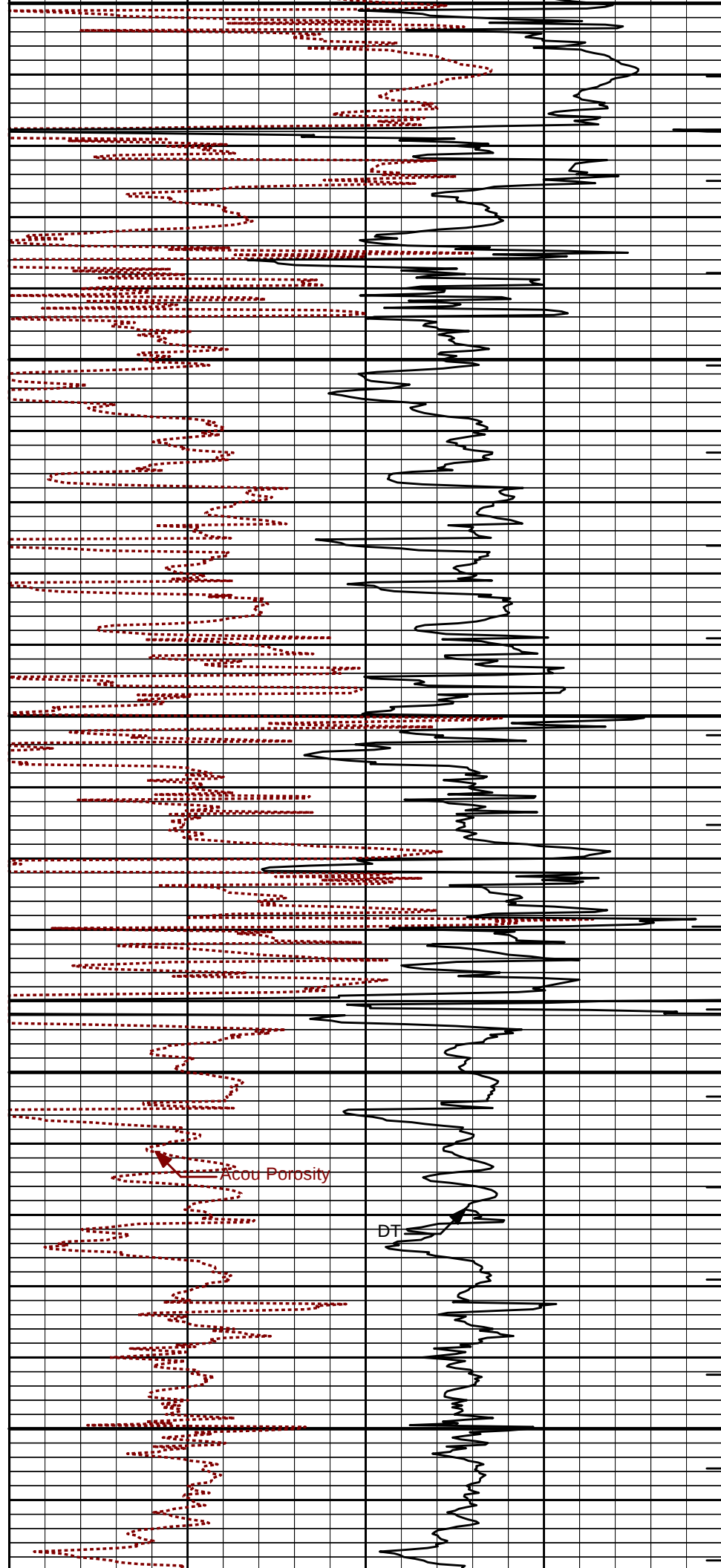


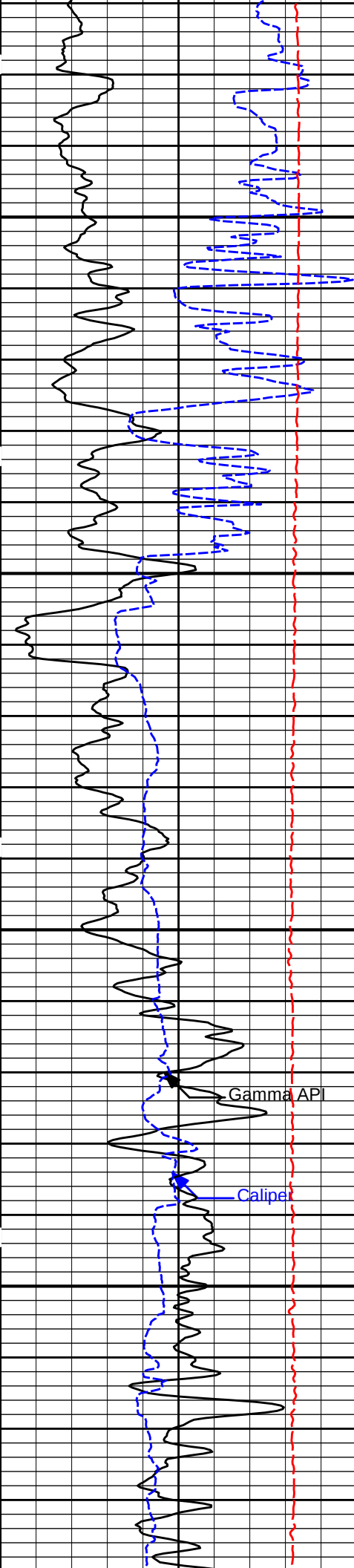


1700

1800

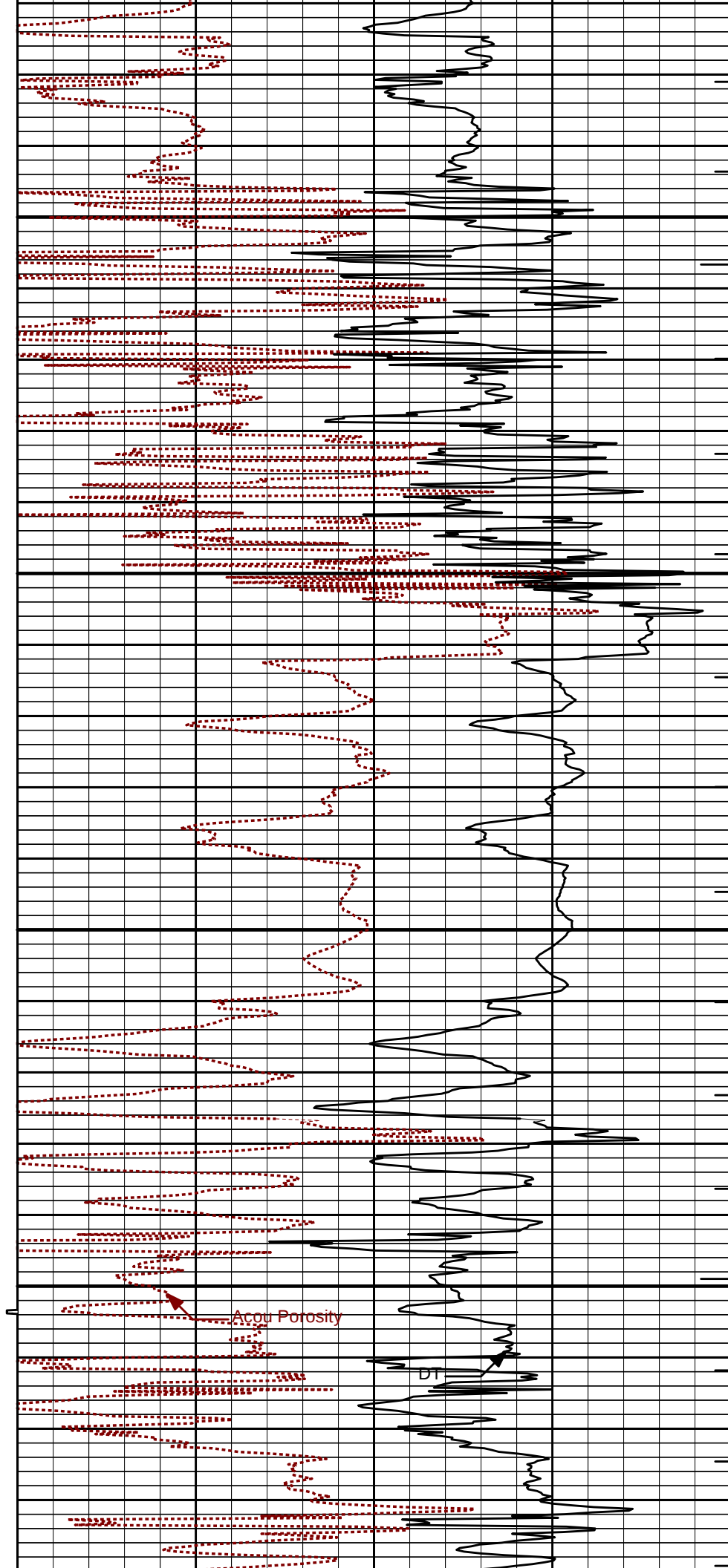
1900

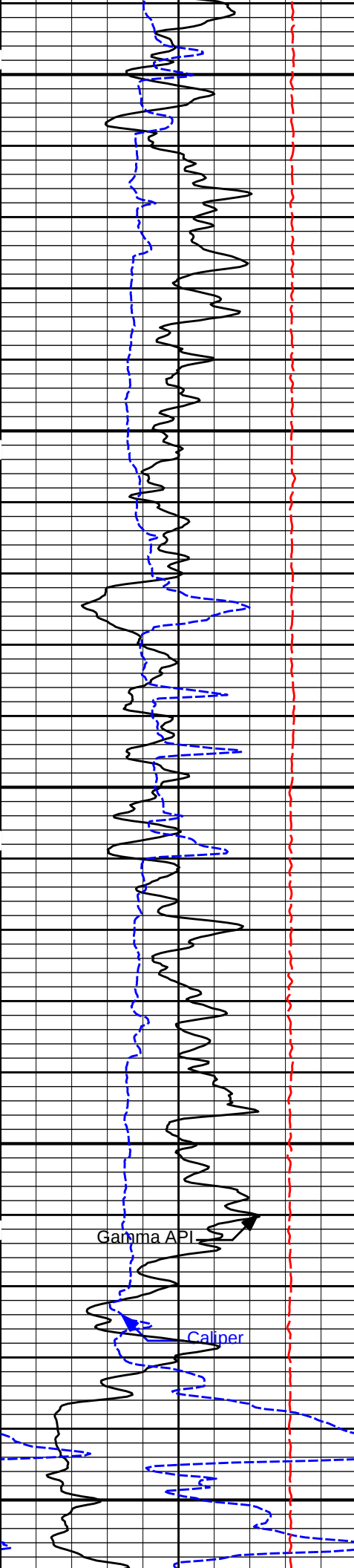




2000

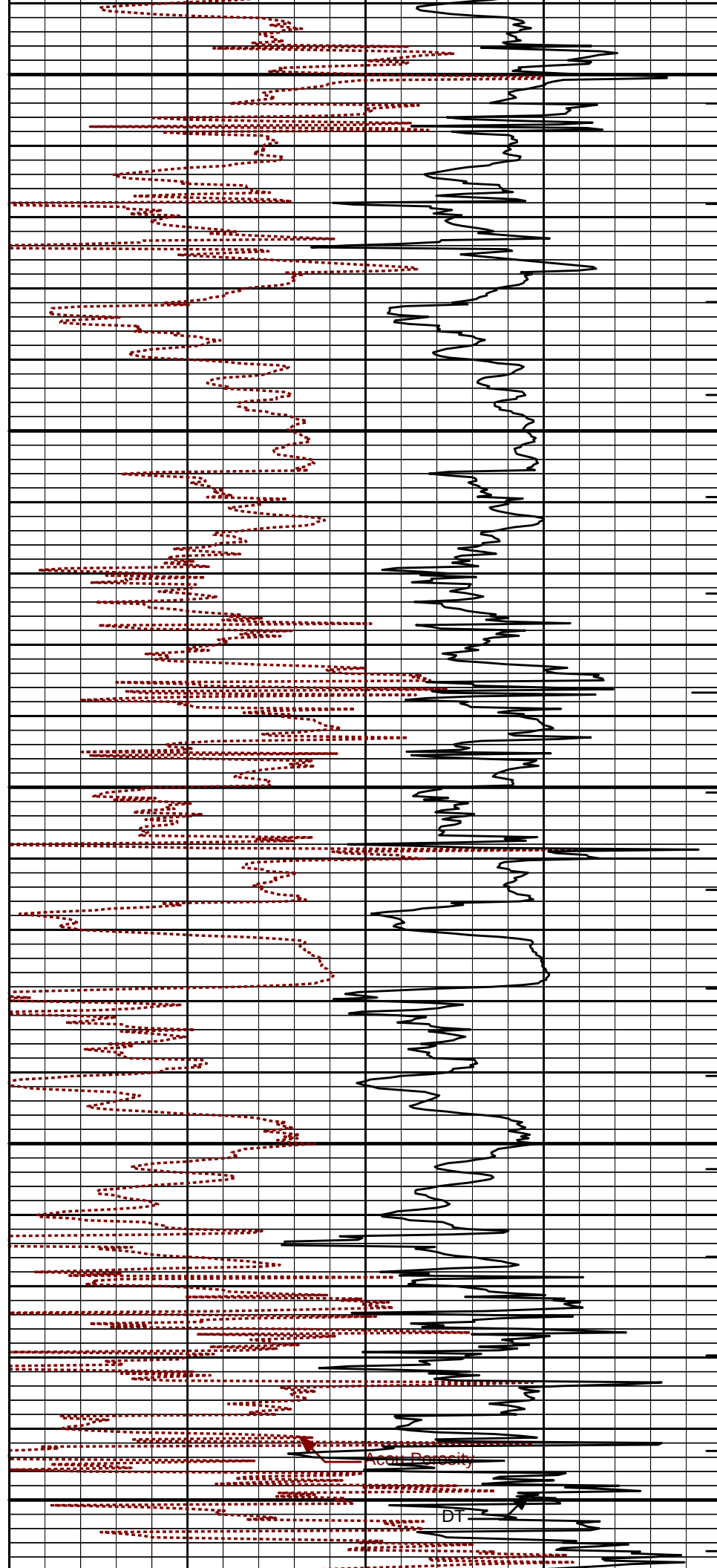
2100

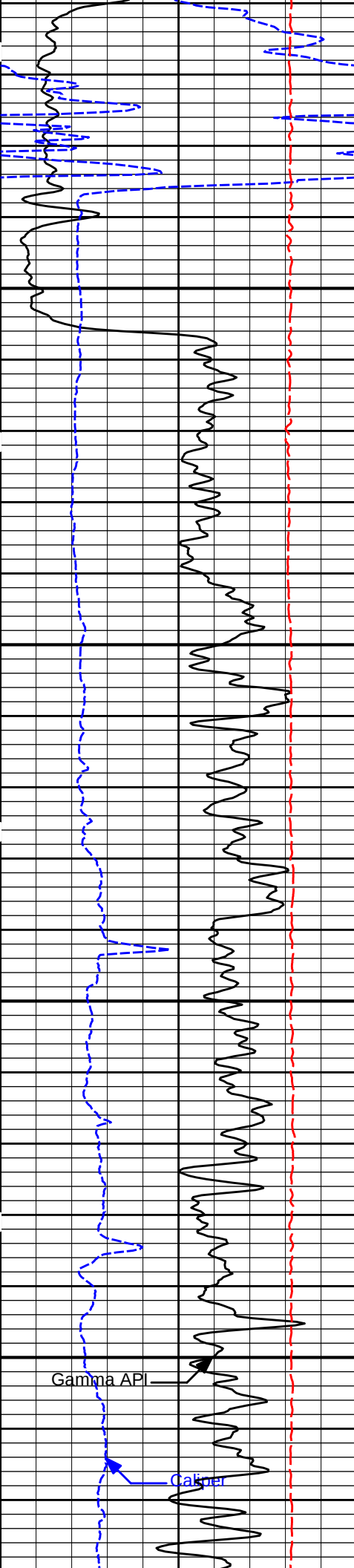




2200

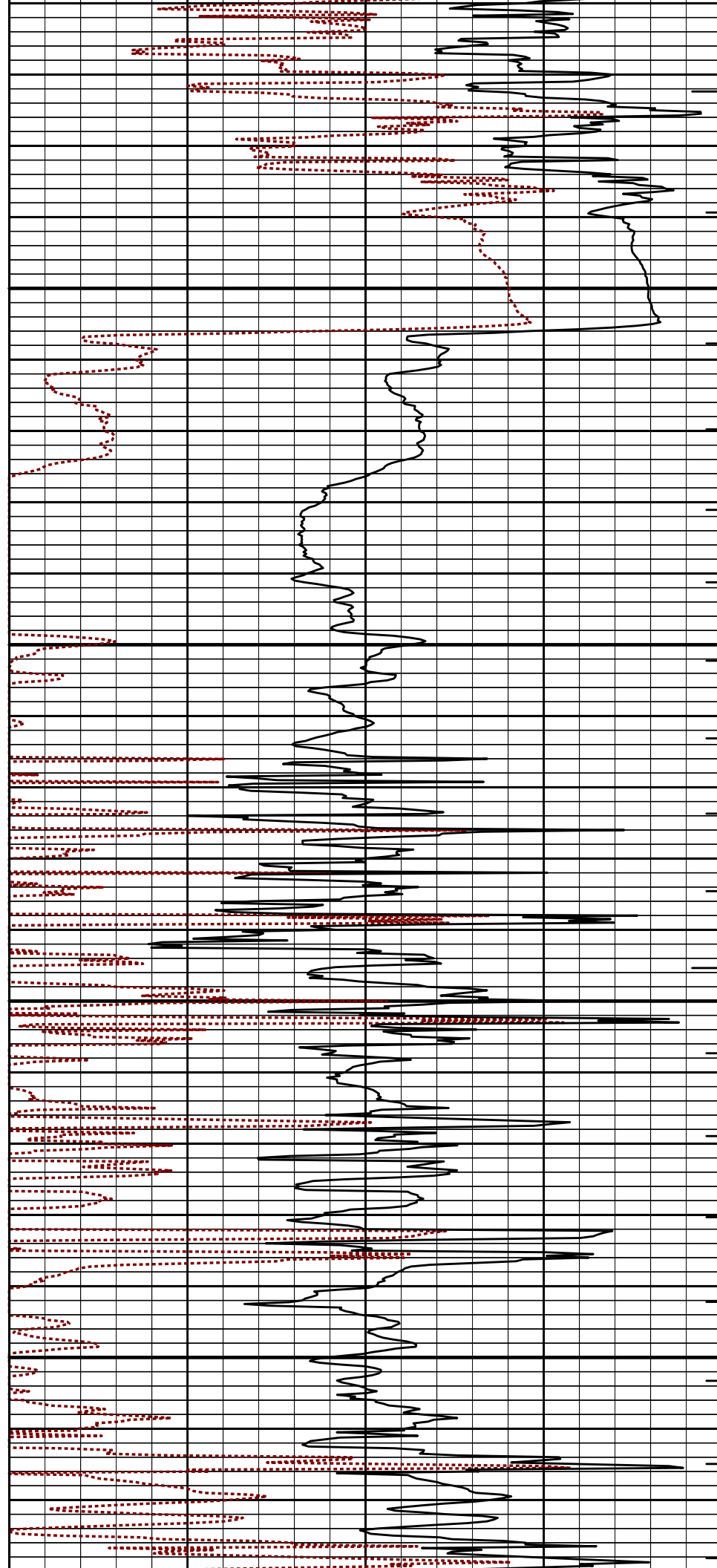
2300

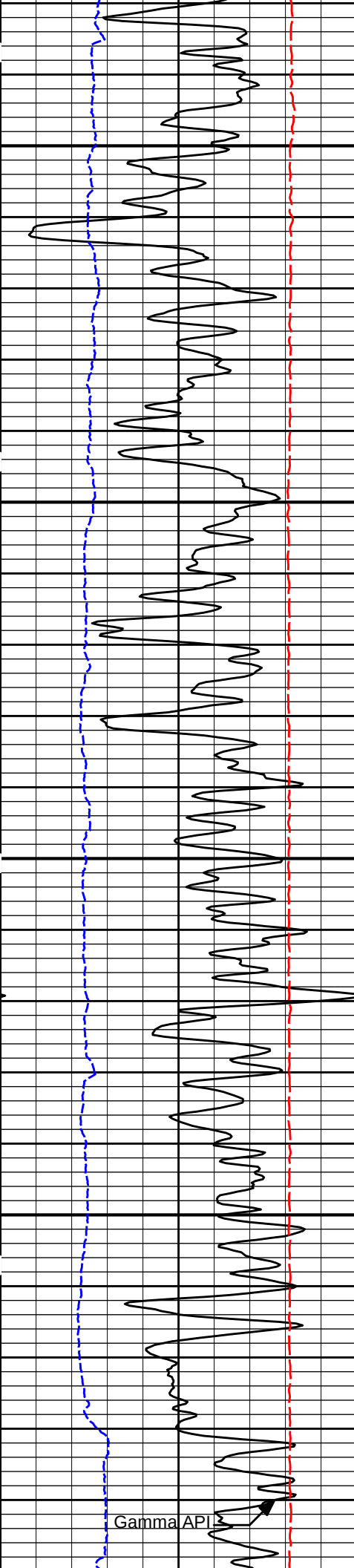




2400

2500

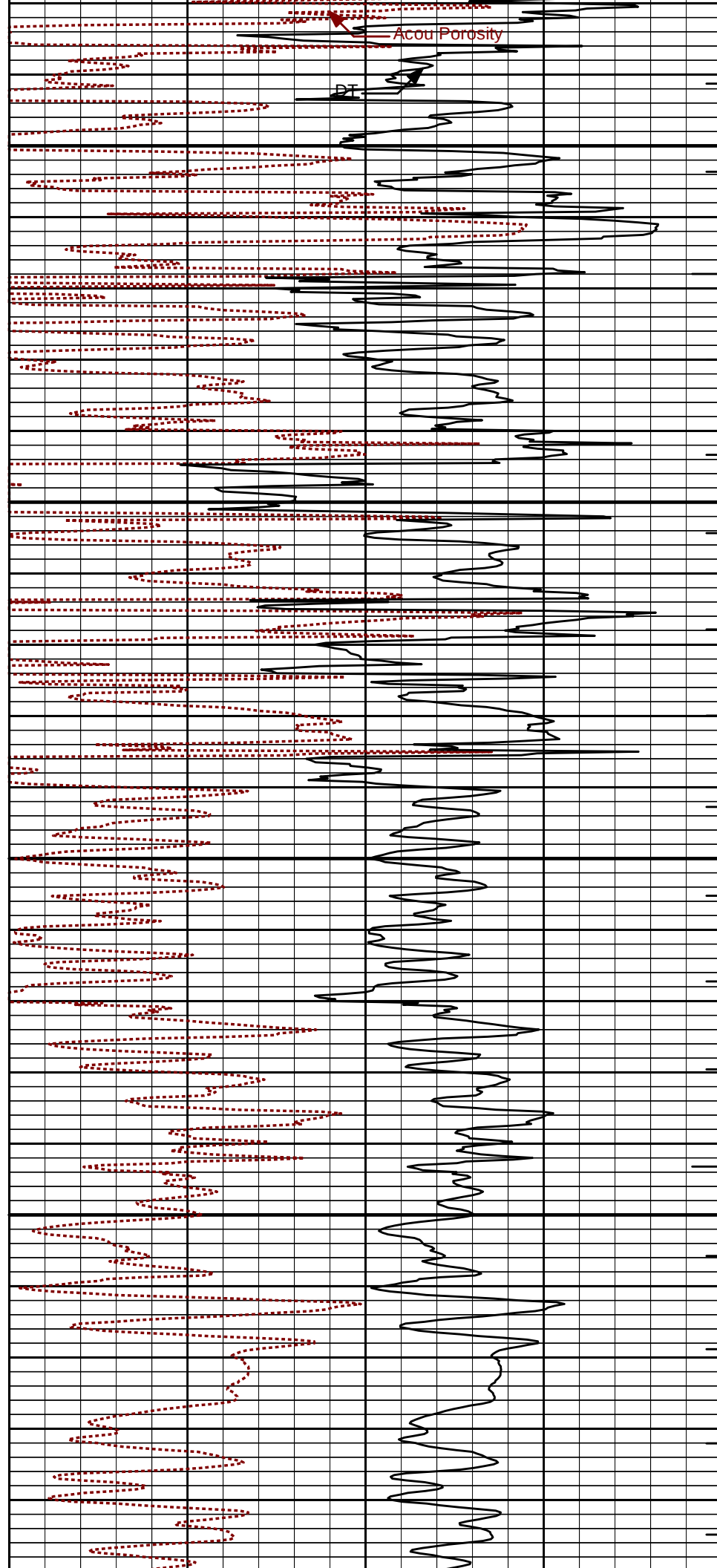




2600

2700

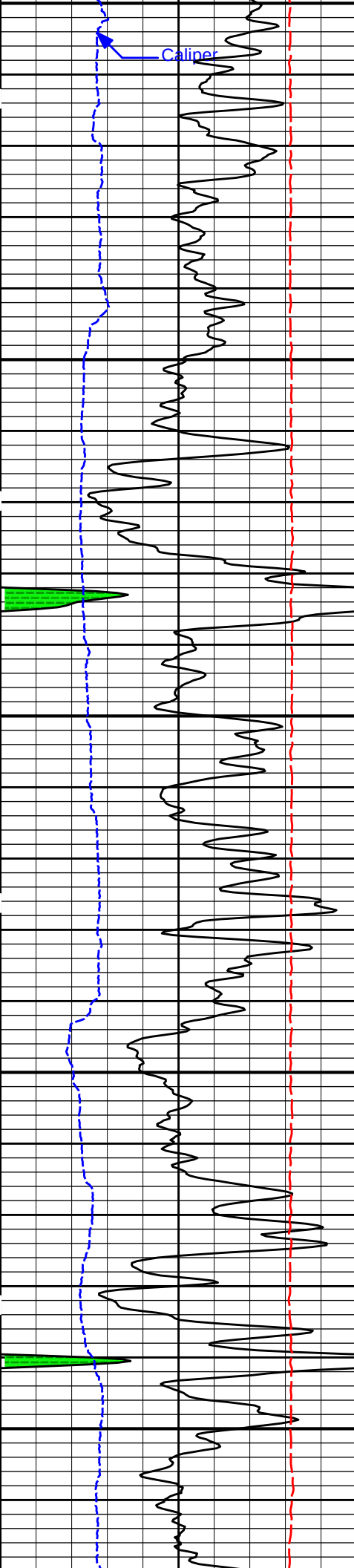
2800



Acoustic Porosity

DT

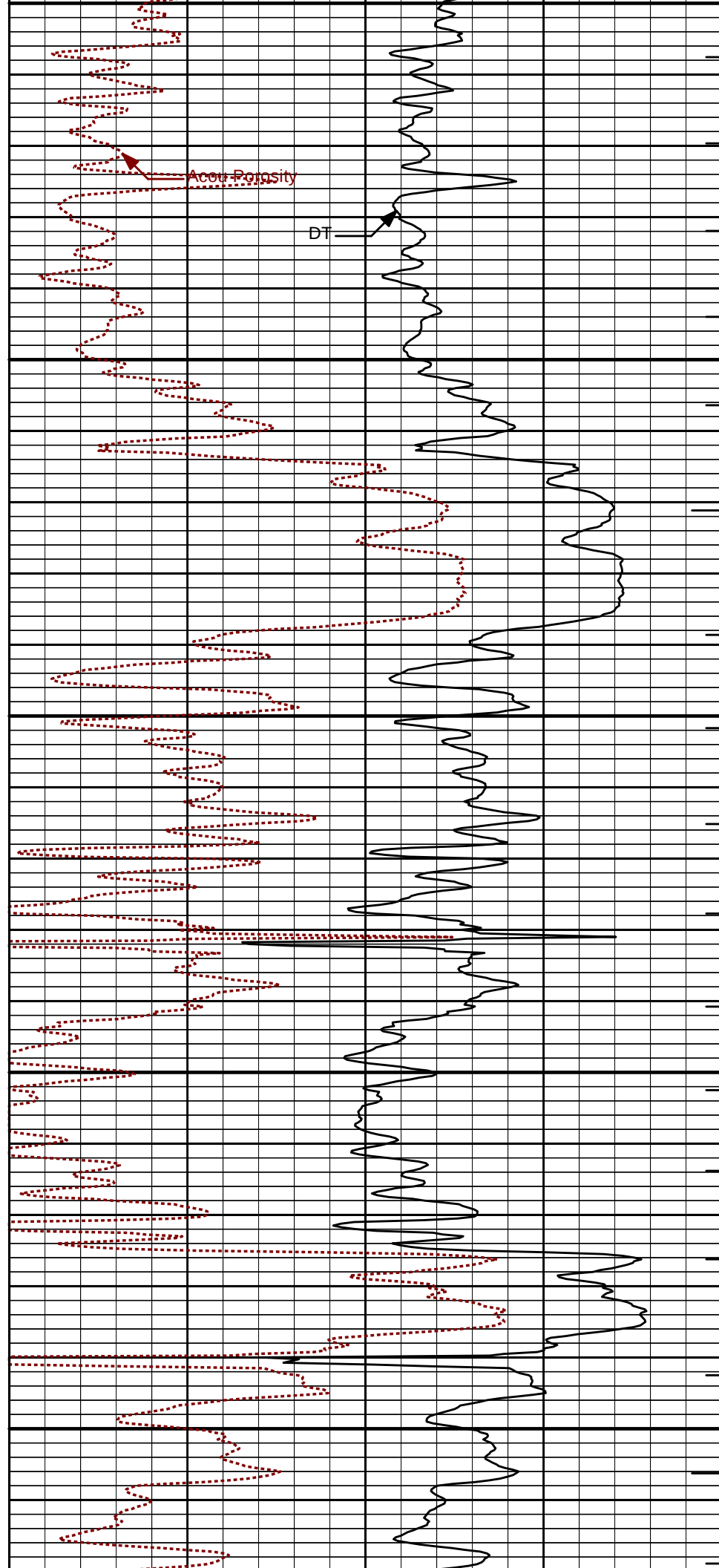
Gamma API

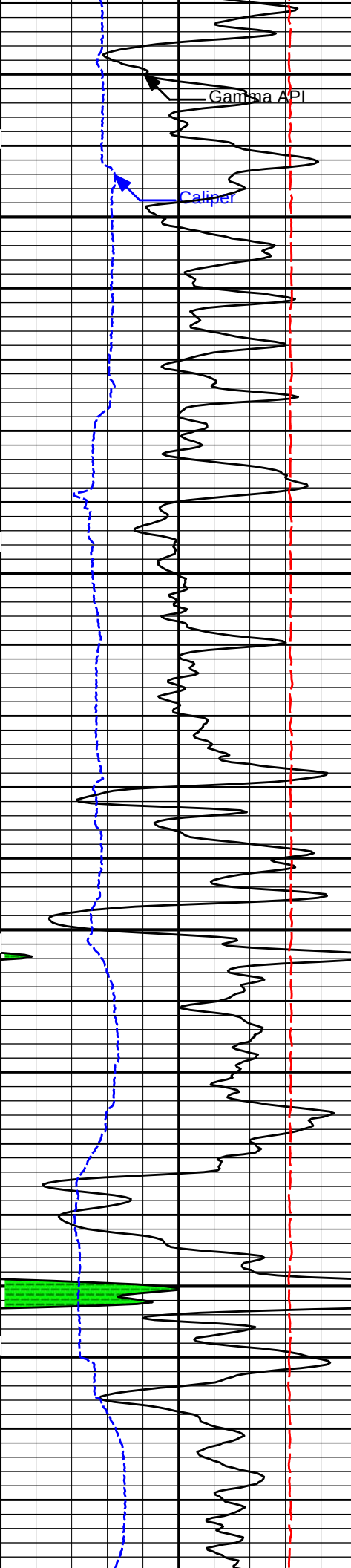


2800

2900

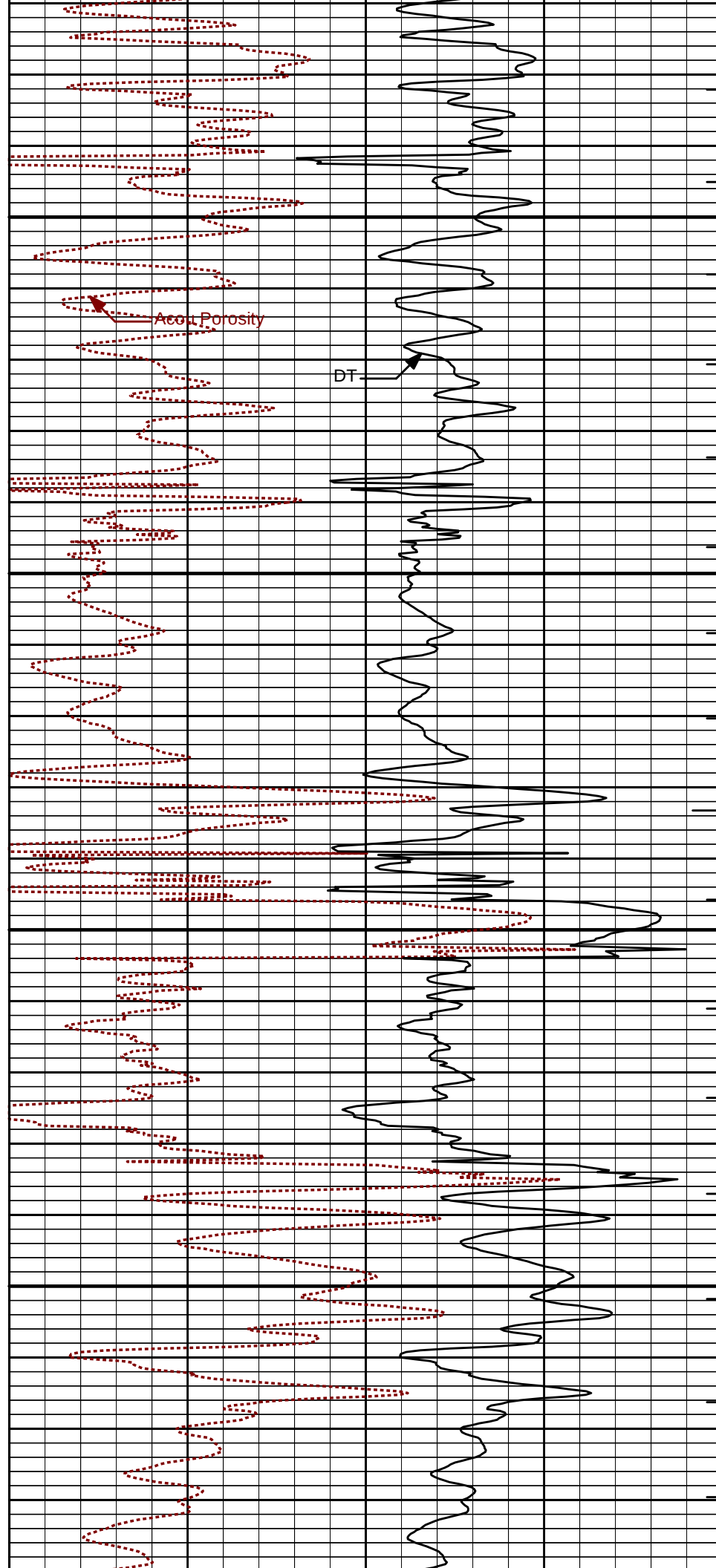
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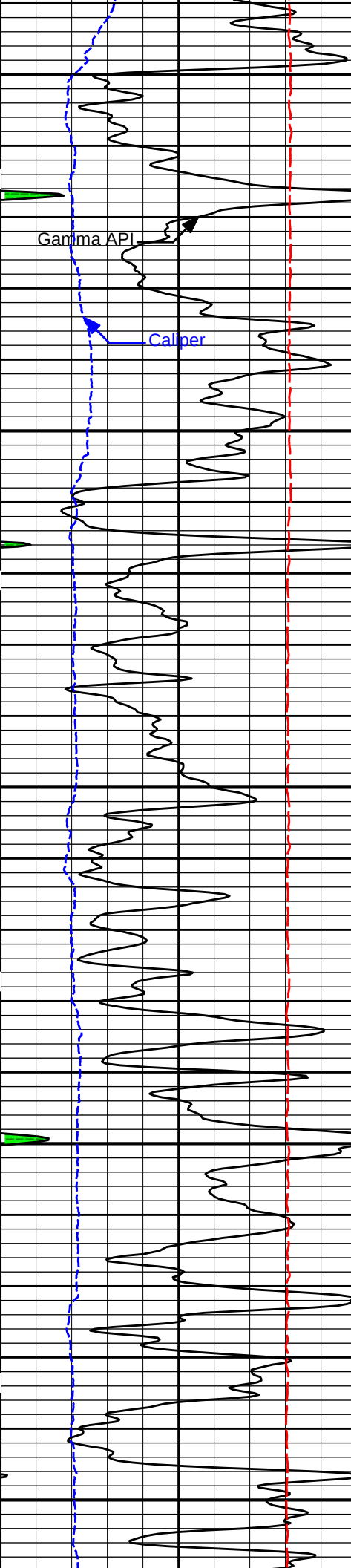




3100

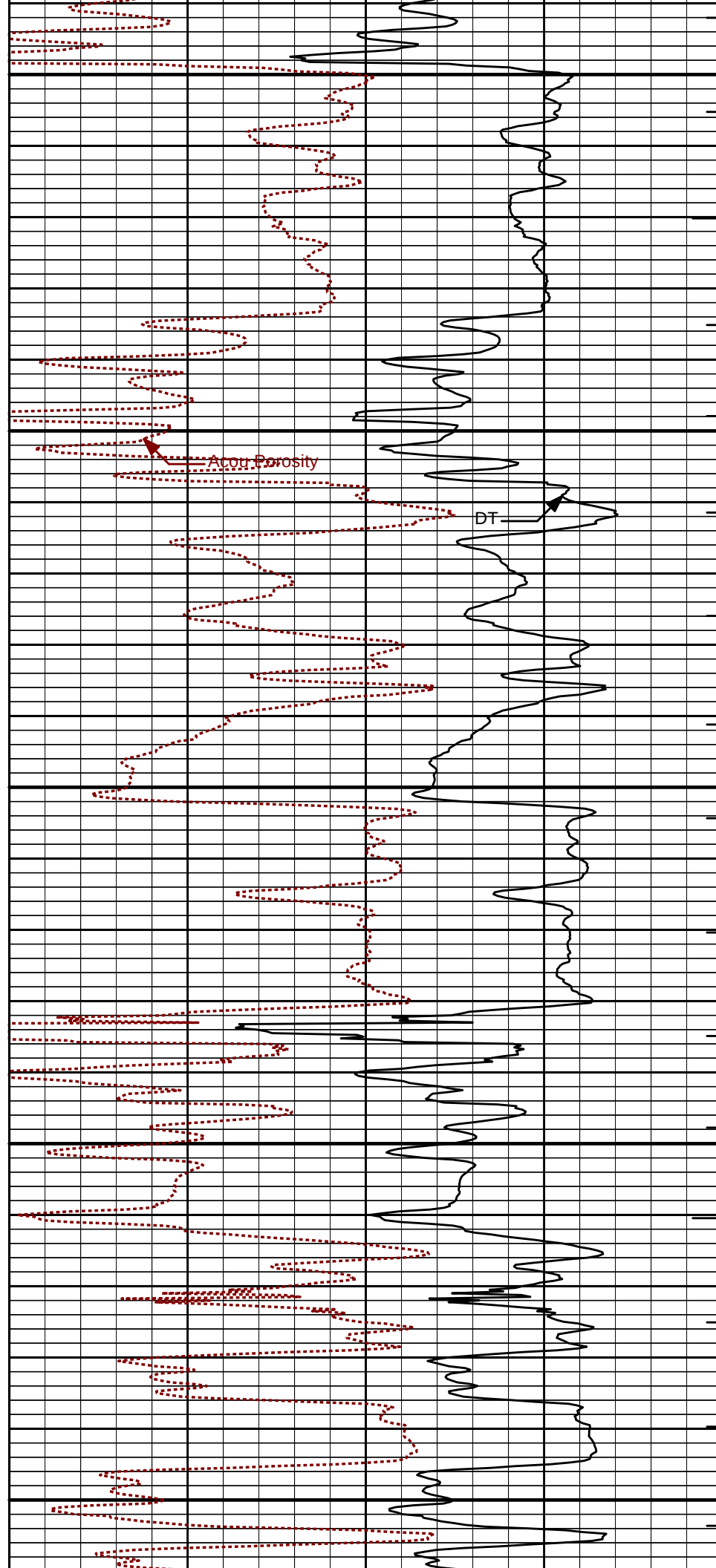
3200

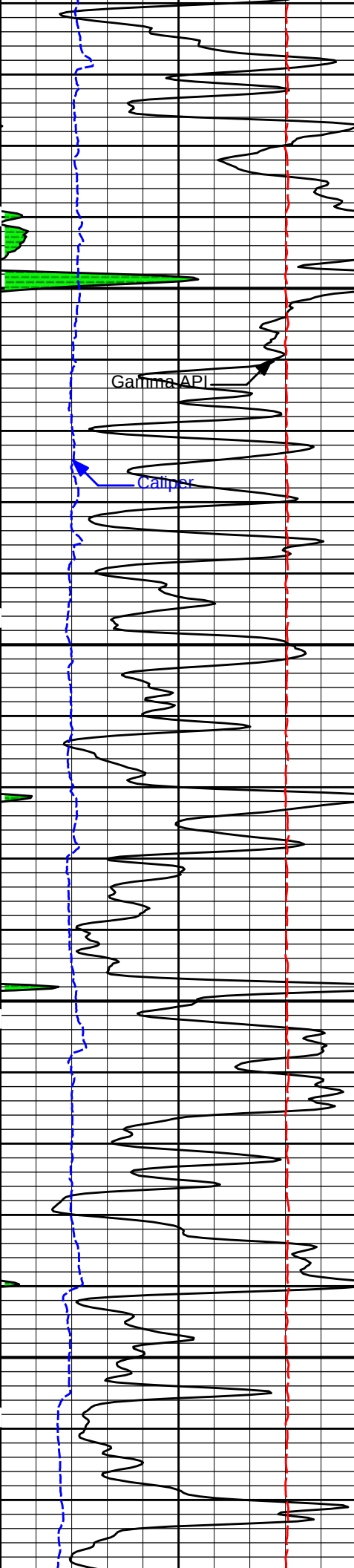




3300

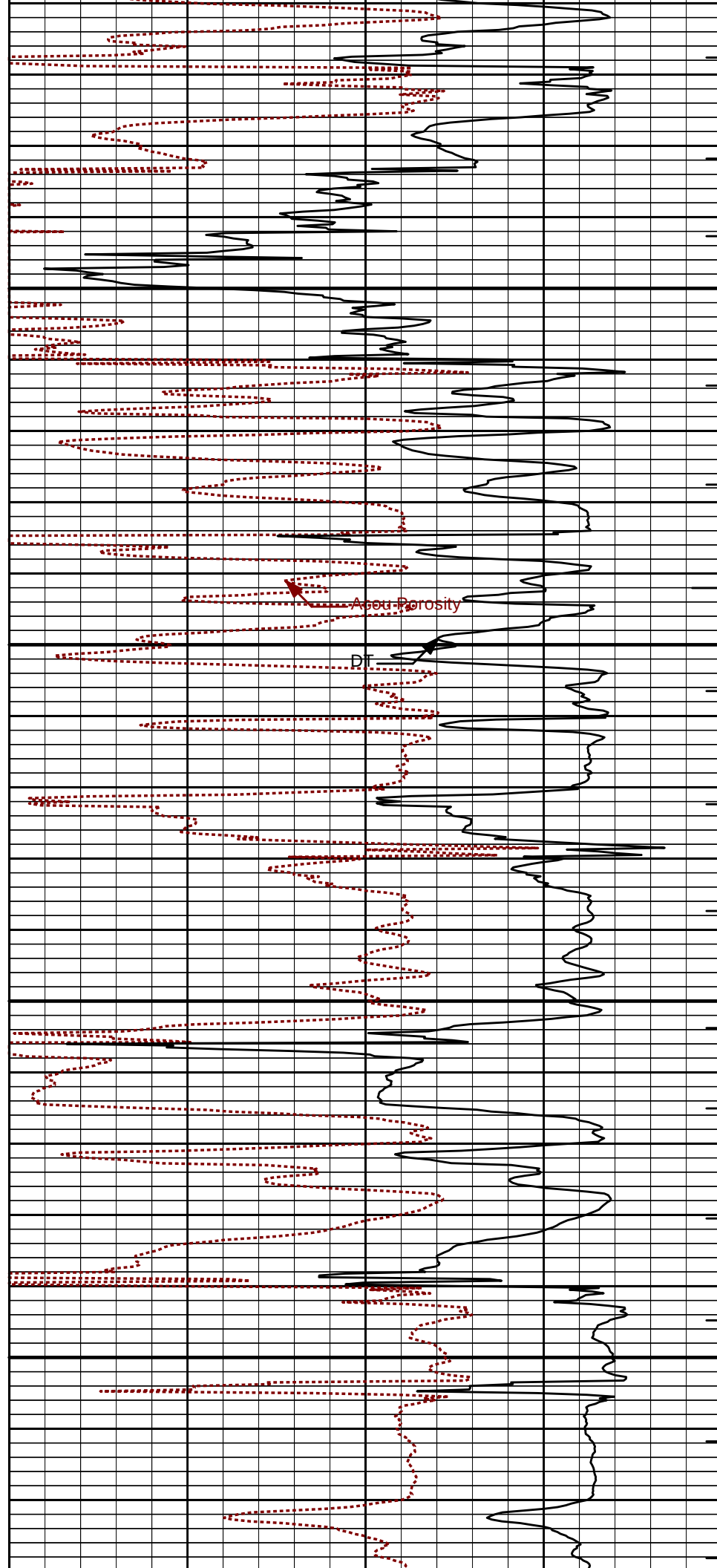
3400

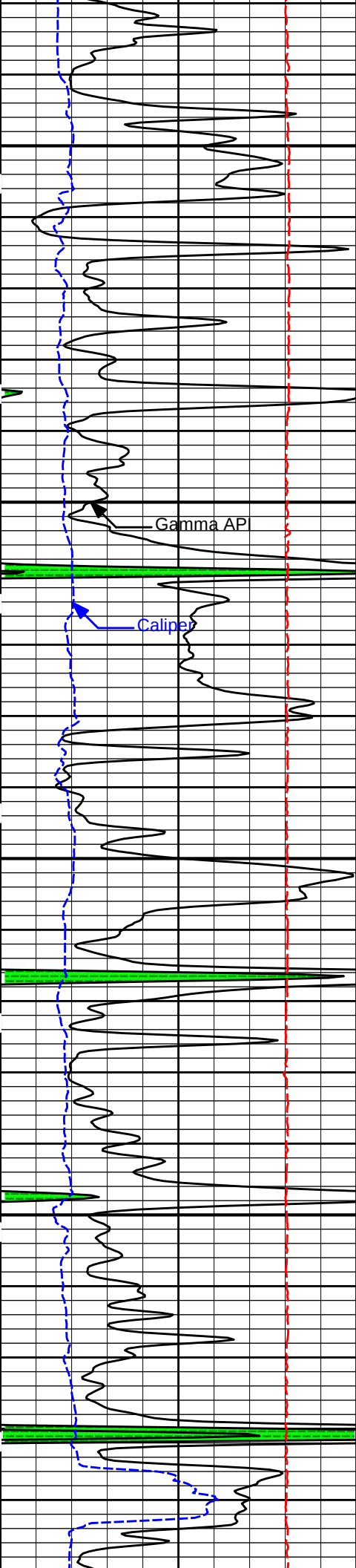




3500

3600

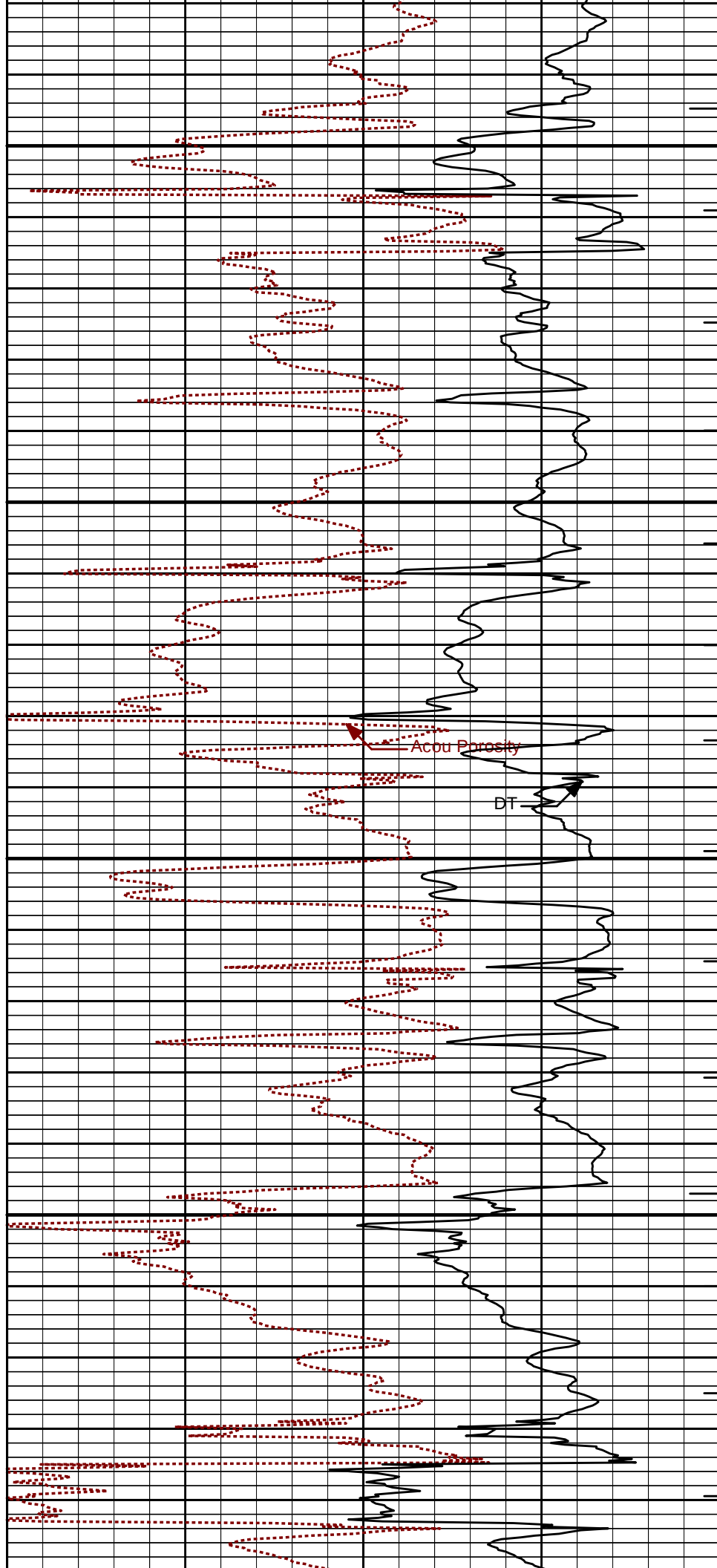


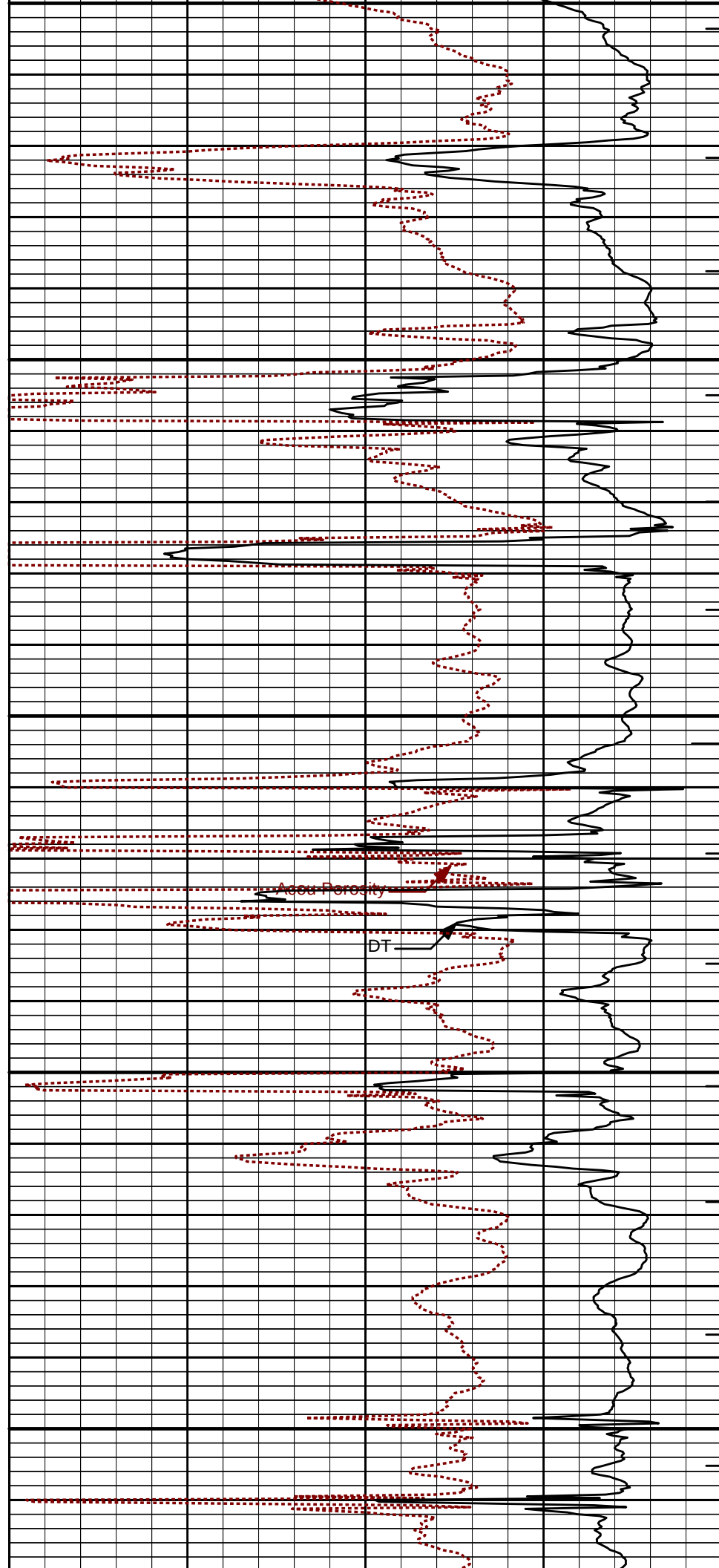
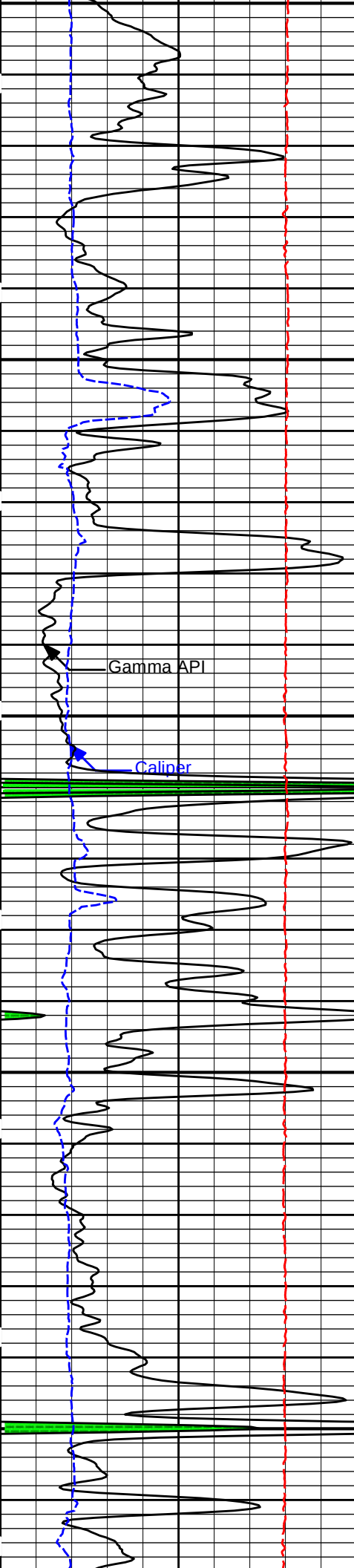


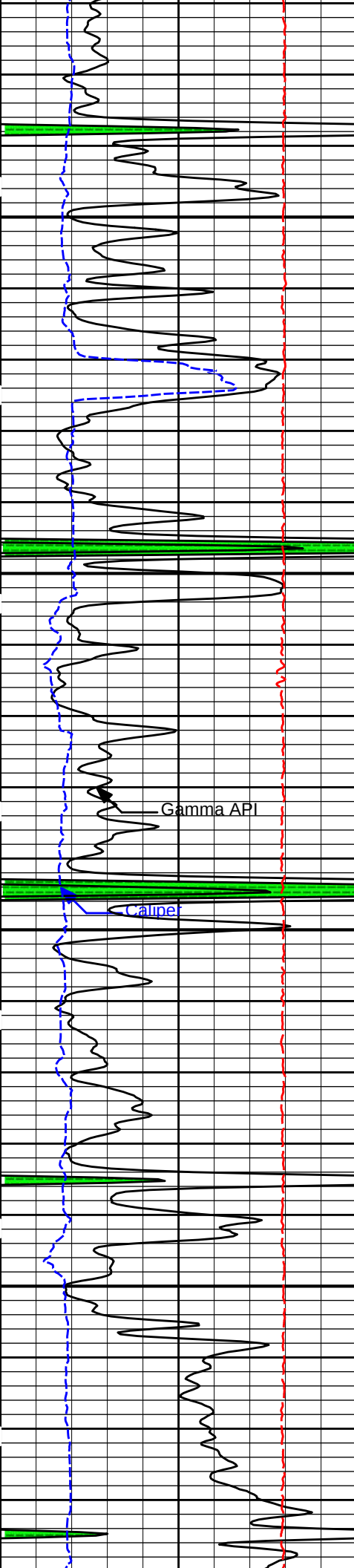
3700

3800

3900

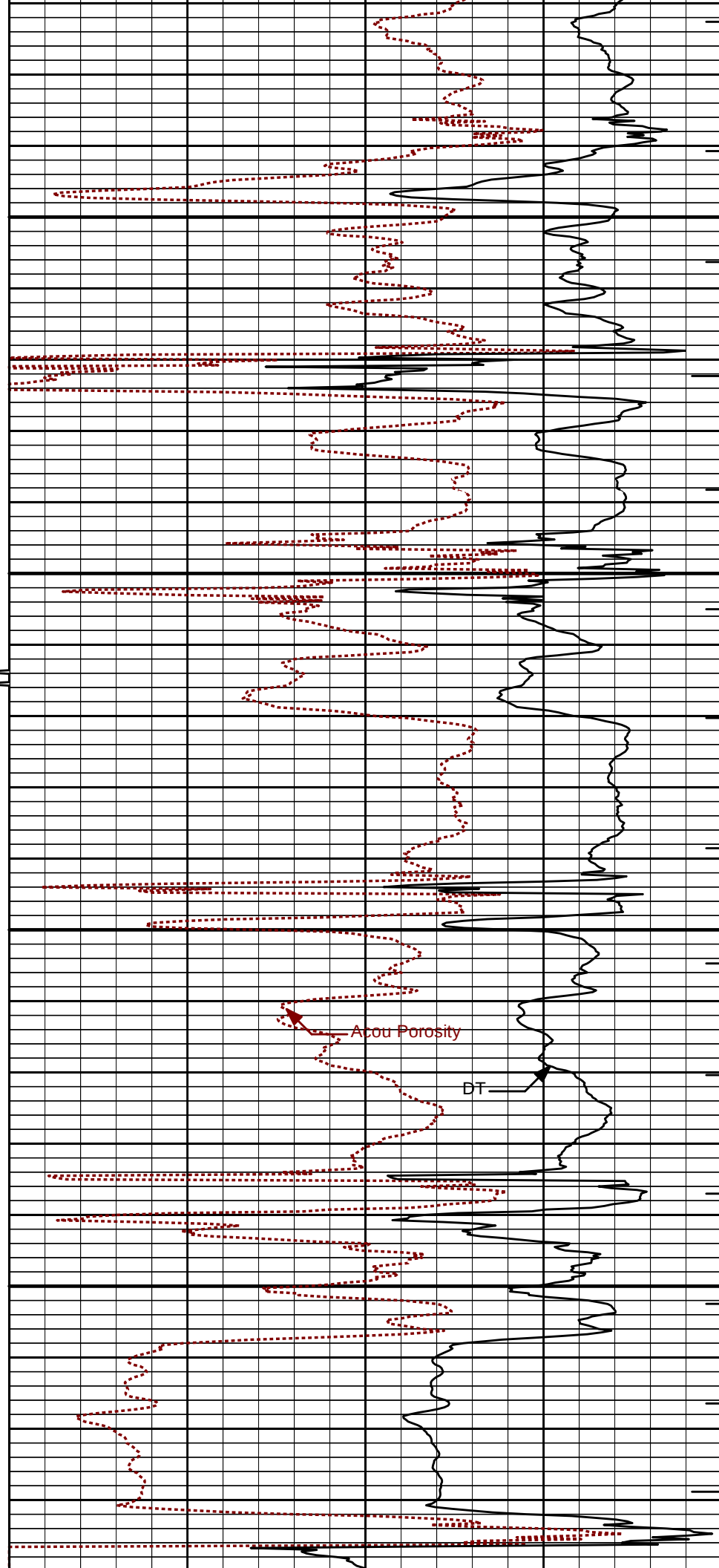


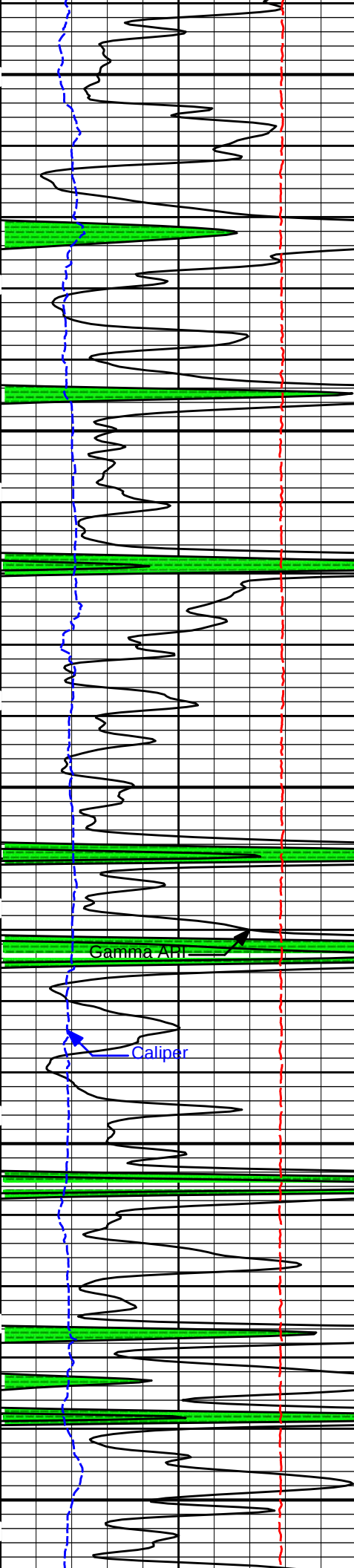




4200

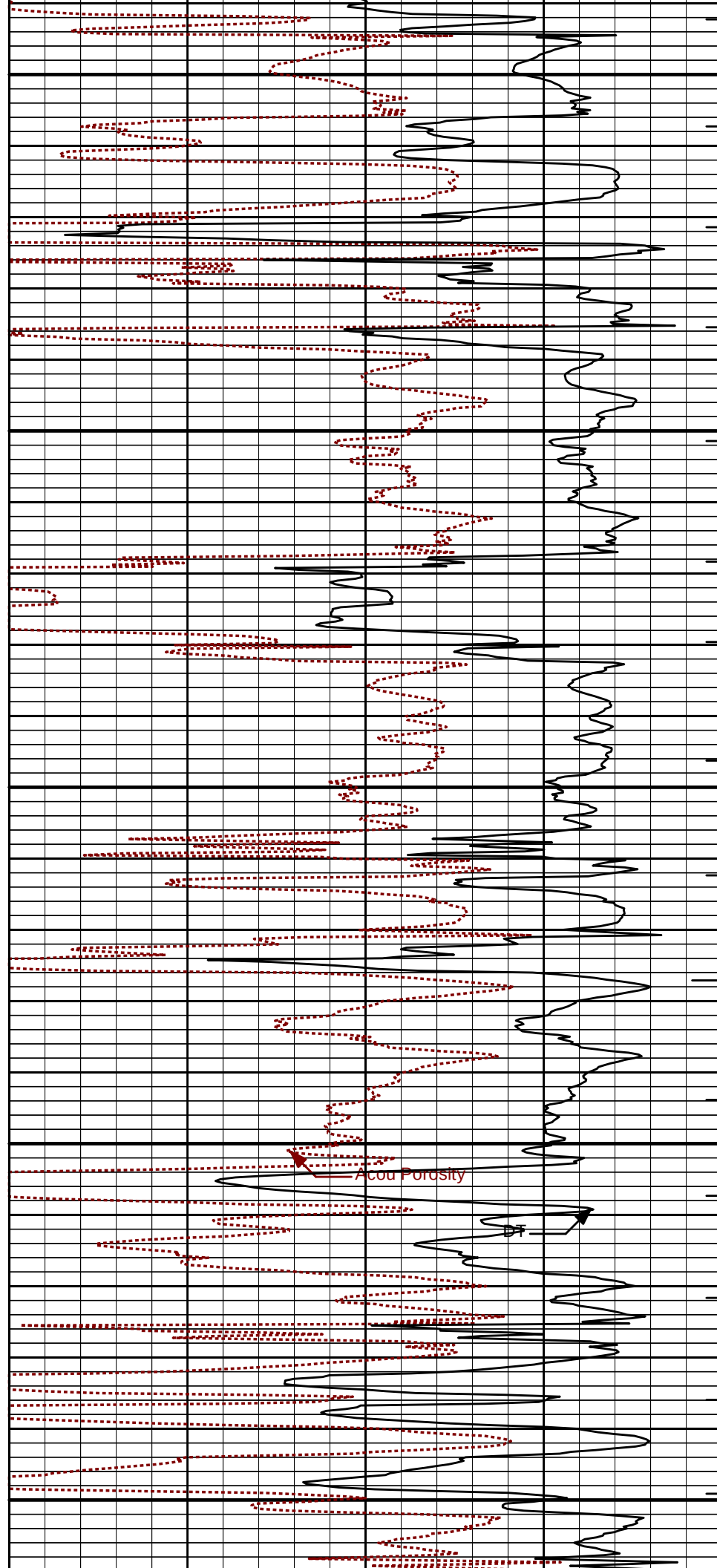
4300

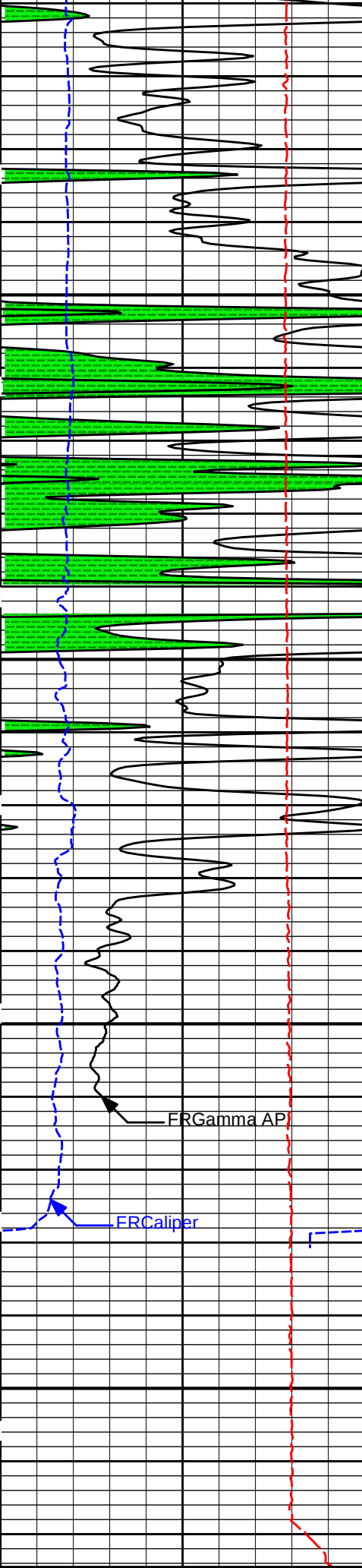




4400

4500





4600

4700

FRGamma AP

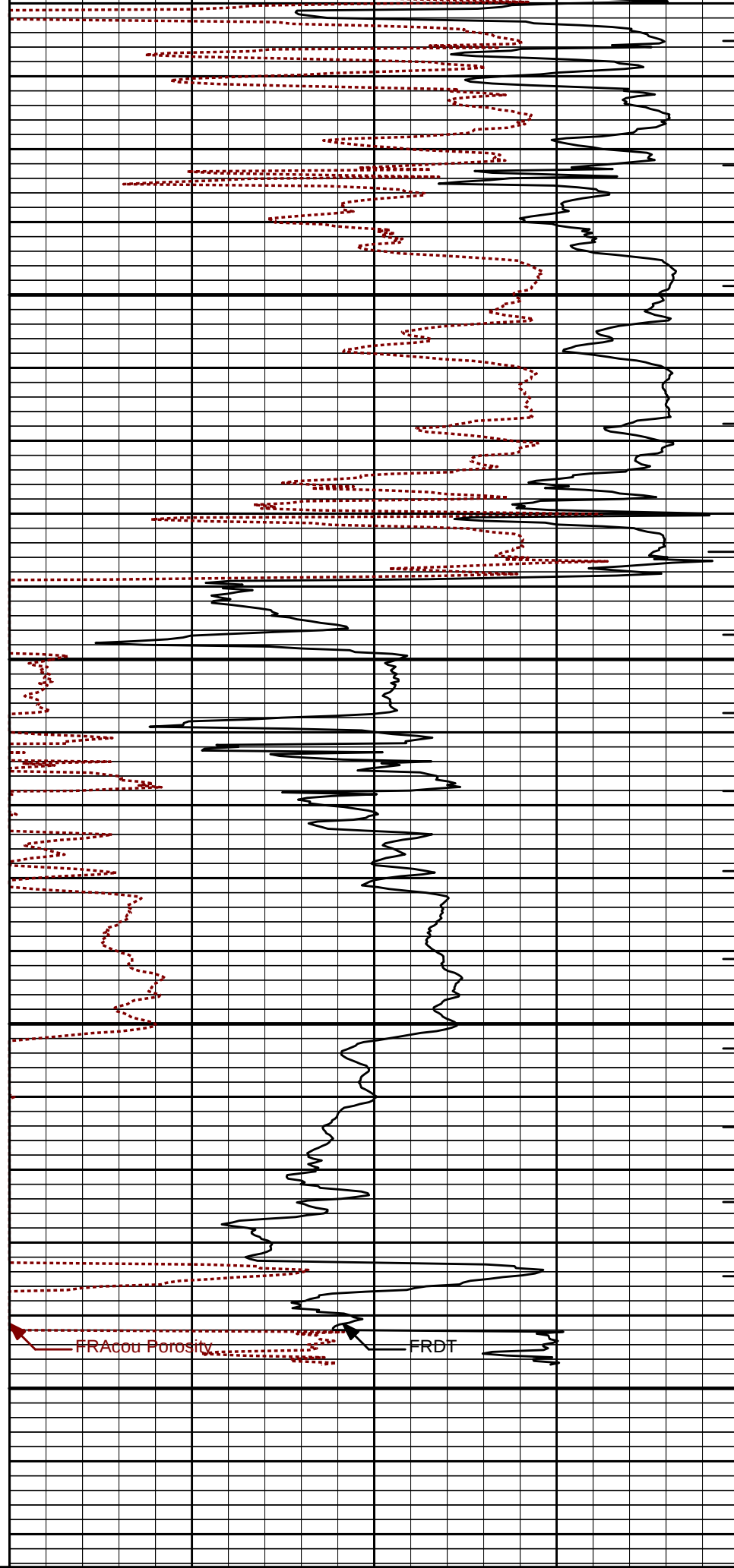
FERCaliper

15K

Tens

0

MD
1-240



FRGamma AP

FERCaliper

FRDT

15K

Tens

0

MD
1-240

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

HALLIBURTON

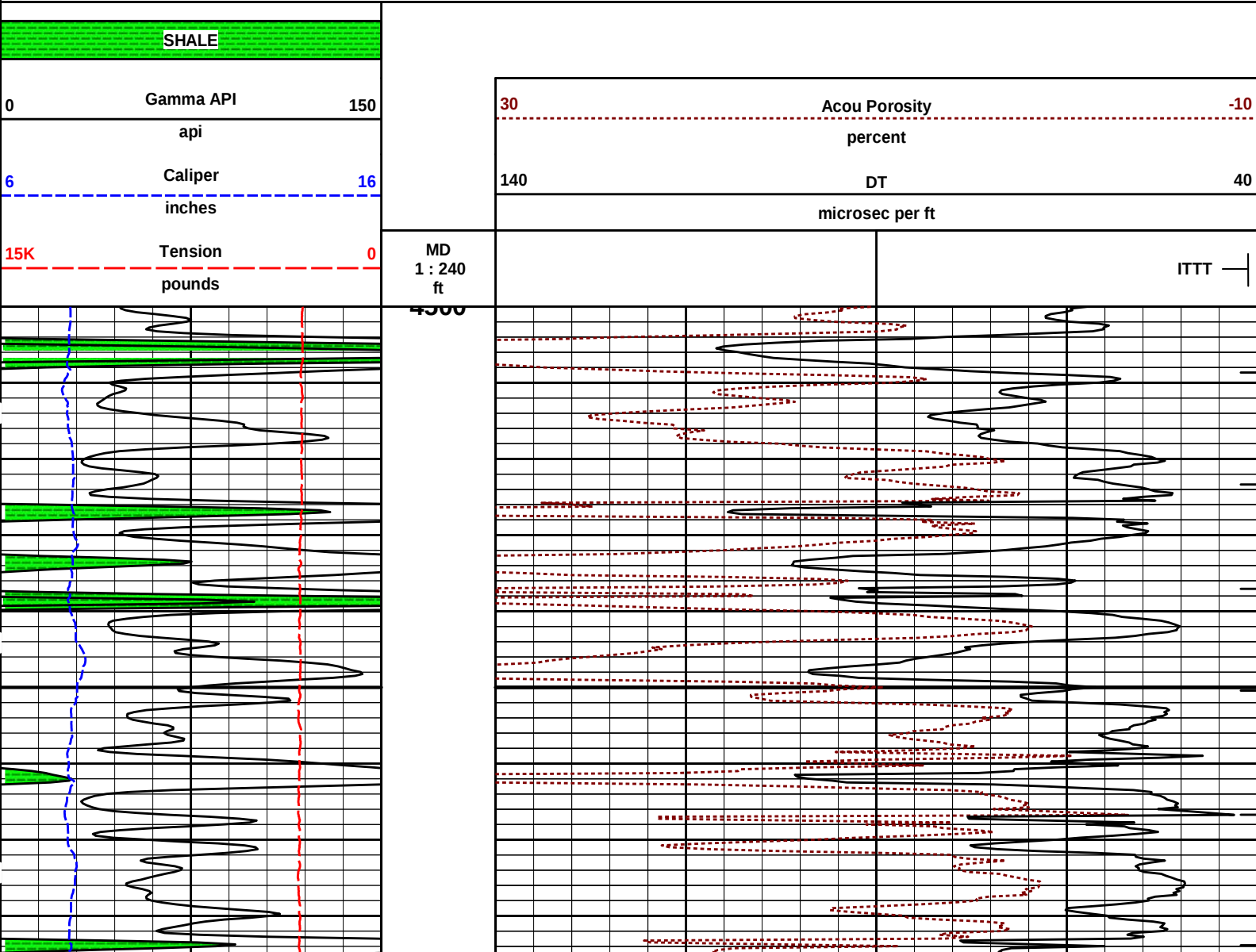
Plot Time: 18-Aug-14 10:48:28
Plot Range: 330 ft to 4774.5 ft
Data: ROSE_4-1\Well Based\CASING\
Plot File: \\BSAT\BSAT_5_MAIN_LIB

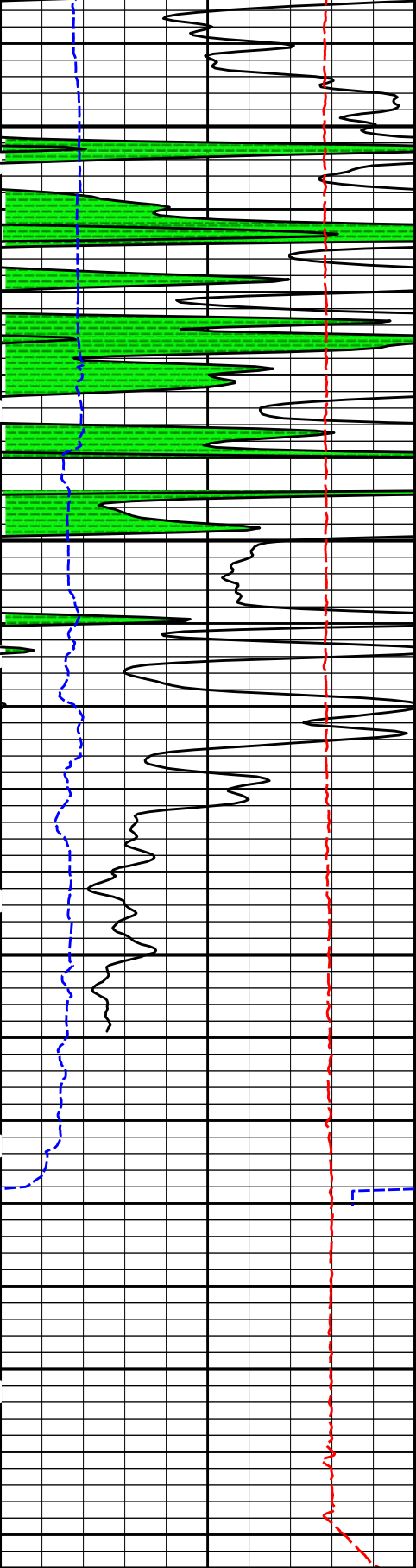
5 INCH MAIN LOG

HALLIBURTON

Plot Time: 18-Aug-14 10:48:28
Plot Range: 4500 ft to 4774 ft
Data: ROSE_4-1\Well Based\REPEAT\
Plot File: \\BSAT\BSAT_5_REP_LIB

REPEAT SECTION



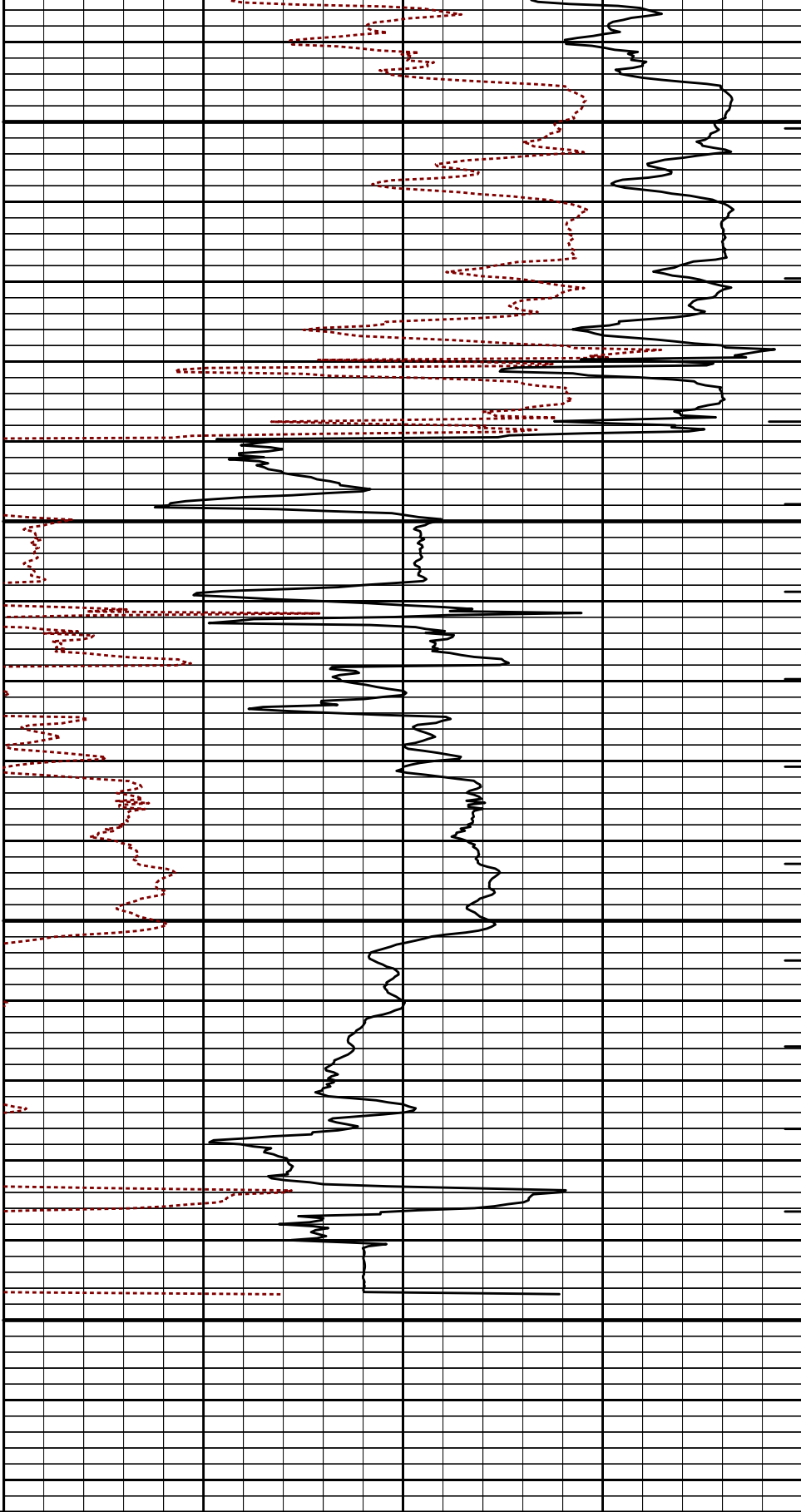


4600

4700

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

MD
1 : 240
ft



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

ITTT

SHALE

HALLIBURTON

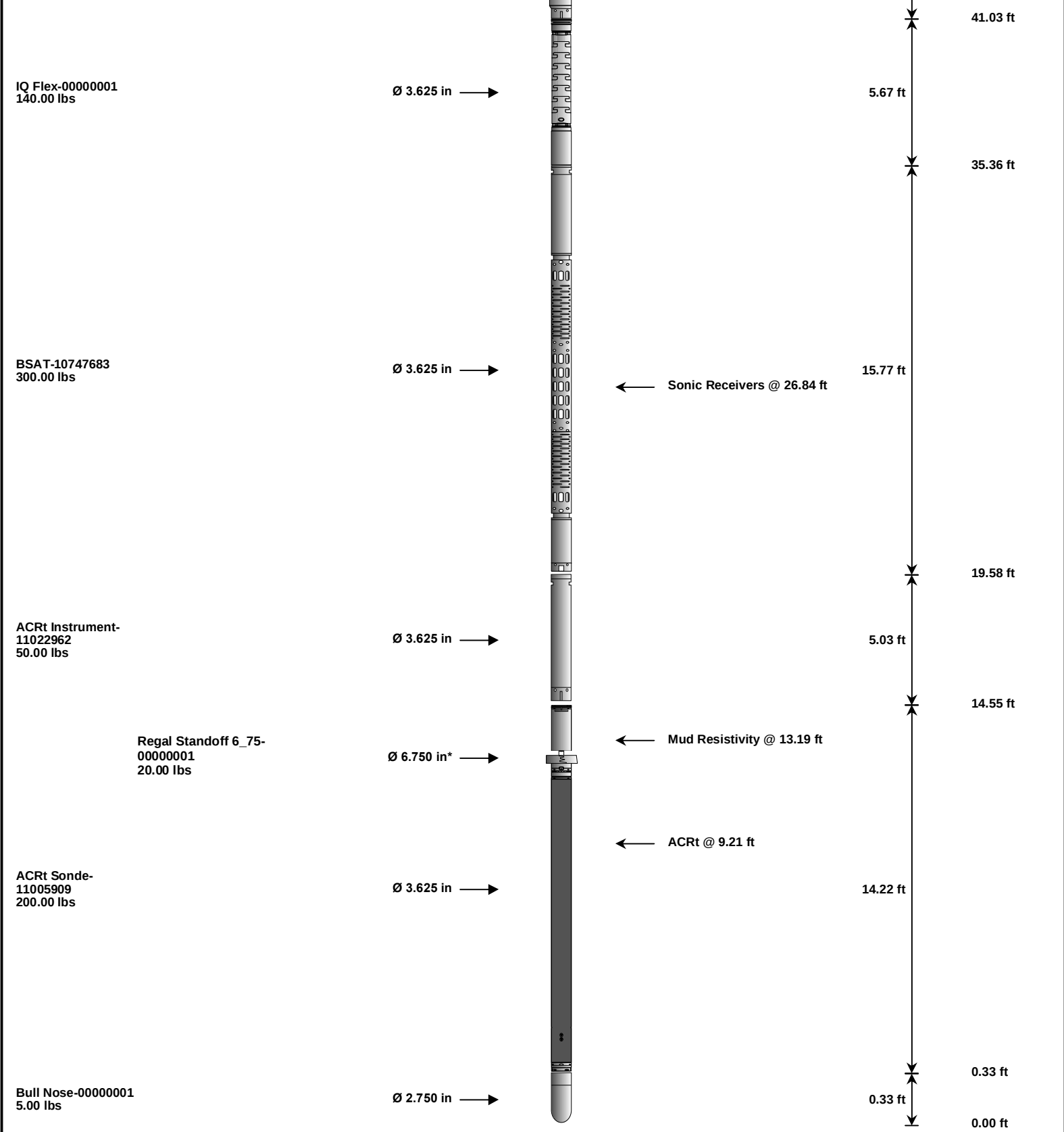
Plot Time: 18-Aug-14 10:48:29
Plot Range: 4500 ft to 4774 ft
Data: ROSE_4-1\Well Based\REPEAT\
Plot File: \\BSAT\BSAT_5_REP_LIB

REPEAT SECTION

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
						80.04 ft
RWCH-12156658 135.00 lbs		Ø 3.625 in →		← Load Cell @ 76.35 ft ← BH Temperature @ 75.79 ft	6.25 ft	73.79 ft
SP Sub-12345678 60.00 lbs		Ø 3.625 in →		← SP @ 72.01 ft	3.74 ft	70.05 ft
GTET-11048627 165.00 lbs		Ø 3.625 in →		← GammaRay @ 63.99 ft	8.52 ft	61.53 ft
DSNT-11055304 174.00 lbs		Ø 3.625 in →		← DSN Far @ 54.59 ft ← DSN Near @ 53.84 ft	9.69 ft	51.84 ft
SDLT-11014296 360.00 lbs	SDLT Pad-10865884 65.00 lbs Microlog Pad-11014296 8.00 lbs	Ø 4.500 in → Ø 4.750 in* → Ø 4.750 in* →		← Microlog @ 44.03 ft ← SDL Caliper @ 43.84 ft ← SDL @ 43.83 ft	10.81 ft	



Mnemonic		Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max.Log. Speed (fpm)
RWCH		Releasable Wireline Cable Head	12156658	135.00	6.25	73.79	300.00
SP		SP Sub	12345678	60.00	3.74	70.05	300.00
GTET		Gamma Telemetry Tool	11048627	165.00	8.52	61.53	60.00
DSNT		Dual Spaced Neutron	11055304	174.00	9.69	51.84	60.00
SDLT		Spectral Density Tool	11014296	360.00	10.81	41.03	60.00
SDLP		Density Insite Pad	10865884	65.00	2.55 *	43.24	60.00
MICP		Microlog Pad	11014296	8.00	1.00 *	43.53	60.00
IQF		IQ Flex tool	00000001	140.00	5.67	35.36	300.00
BSAT		Borehole Sonic Array Tool	10747683	300.00	15.77	19.58	60.00
ACRt		Array Compensated True Resistivity Instrument Section	11022962	50.00	5.03	14.55	120.00
ACRt		Array Compensated True Resistivity Sonde Section	11005909	200.00	14.22	0.33	120.00

RSOF	Regal Standoff 6.75in	00000001	20.00	0.52	*	12.25	300.00
BLNS	Bull Nose	00000001	5.00	0.33		0.00	300.00
Total			1,682.00	80.04	* Not included in Total Length and Length Accumulation.		
Data: ROSE_4-110001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-BN1001 18-Aug-14 08:28 Dn @-6.3f						Date: 18-Aug-14 08:28:22	

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	9.400	ppg
	SHARED	WAGT	Weighting Agent	Natural	
	SHARED	BSAL	Borehole salinity	0.00	ppm
	SHARED	FSAL	Formation Salinity NaCl	0.00	ppm
	SHARED	KPCT	Percent K in Mud by Weight?	0.00	%
	SHARED	RMUD	Mud Resistivity	2.000	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	ST	Surface Temperature	75.0	degF
	SHARED	TD	Total Well Depth	4770.00	ft
	SHARED	BHT	Bottom Hole Temperature	200.0	degF
	SHARED	SVTM	Navigation and Survey Master Tool	NONE	
	SHARED	AZTM	High Res Z Accelerometer Master Tool	GTET	
	SHARED	TEMM	Temperature Master Tool	NONE	
	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	
	GTET	GROK	Process Gamma Ray?	Yes	
	GTET	GRSO	Gamma Tool Standoff	0.000	in
	GTET	GEOK	Process Gamma Ray EVR?	Yes	
	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?	Yes	
	DSNT	NLIT	Neutron Lithology	Limestone	
	DSNT	DSNO	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.250	in

DSNT	DNTP	Temperature Correction Type	None	
DSNT	DPRS	DSN Pressure Correction Type	None	
DSNT	SHCO	View More Correction Options	No	
DSNT	UTVD	Use TVD for Gradient Corrections?	No	
DSNT	LHWT	Logging Horizontal Water Tank?	No	
DSNT	BHSM	Borehole Size Source Tool	SDLT	
SDLT	CLOK	Process Caliper Outputs?	Yes	
SDLT Pad	DNOK	Process Density?	Yes	
SDLT Pad	DNOK	Process Density EVR?	Yes	
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	
Microlog Pad	MLOK	Process MicroLog Outputs?	Yes	
BSAT	MBOK	Compute BCAS Results?	Yes	
BSAT	FLLO	Frequency Filter Low Pass Value?	5000	Hz
BSAT	FLHI	Frequency Filter High Pass Value?	27000	Hz
BSAT	DTFL	Delta -T Fluid	189.00	uspf
BSAT	DTMT	Delta -T Matrix Type	User define	
BSAT	DTMA	Delta -T Matrix	47.60	uspf
BSAT	DTSH	Delta -T Shale	100.00	uspf
BSAT	SPEQ	Acoustic Porosity Equation	Wylie	
ACRt Sonde	RTOK	Process ACRT?	Yes	
ACRt Sonde	MNSO	Minimum Tool Standoff	1.50	in
ACRt Sonde	TCS1	Temperature Correction Source	FP Lwr & FP Upr	
ACRt Sonde	TPOS	Tool Position	Free Hanging	
ACRt Sonde	RMOP	Rmud Source	Mud Cell	
ACRt Sonde	RMIN	Minimum Resistivity for MAP	0.20	ohmm
ACRt Sonde	RMIN	Maximum Resistivity for MAP	200.00	ohmm
ACRt Sonde	THQY	Threshold Quality	0.50	
ACRt Sonde	MRFX	Fixed mud resistivity	2000	ohmm
ACRt Sonde	BHSM	Borehole Size Source Tool	SDLT	
BOTTOM				
Data: ROSE_4-1\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-BN\001 18-Aug-14 08:28 Dn @-6.3f				Date: 18-Aug-14 08:28:48

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	80.04	NO	
BS	Bit Size	80.04	NO	
HDIA	Measured Hole Diameter	0.00	NO	
RWCH				
DHTN	DownholeTension	0.00	BLK	0.000

SP Sub				
PLTC	Plot Control Mask	72.01	NO	
SP	Spontaneous Potential	72.01	BLK	1.250
SPR	Raw Spontaneous Potential	72.01	NO	
SPO	Spontaneous Potential Offset	72.01	NO	
GTET				
TPUL	Tension Pull	63.99	NO	
GR	Natural Gamma Ray API	63.99	TRI	1.750
GRU	Unfiltered Natural Gamma Ray API	63.99	NO	
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution	63.99	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	
DSNT				
TPUL	Tension Pull	53.74	NO	
RNDS	Near Detector Telemetry Counts	53.84	BLK	1.417
RFDS	Far Detector Telemetry Counts	54.59	TRI	0.583
DNTT	DSN Tool Temperature	53.84	NO	
DSNS	DSN Tool Status	53.74	NO	
ERND	Near Detector Telemetry Counts EVR	53.84	BLK	0.000
ERFD	Far Detector Telemetry Counts EVR	54.59	BLK	0.000
ENTM	DSN Tool Temperature EVR	53.84	NO	
HDIA	Measured Hole Diameter	0.00	NO	
SDLT				
TPUL	Tension Pull	43.84	NO	
PCAL	Pad Caliper	43.84	TRI	0.250
ACAL	Arm Caliper	43.84	TRI	0.250
BSAT				
TPUL	Tension Pull	26.84	NO	
STAT	Status	26.84	NO	
DLYT	Delay Time	26.84	NO	
SI	Sample Interval	26.84	NO	
TXRX	Raw Telemetry 10 Receivers	26.84	NO	
FRMC	Tool Frame Count	26.84	NO	
GMOD	Gain processing mode	19.58	NO	
ACRt Sonde				
TPUL	Tension Pull	2.73	NO	
F1R1	ACRT 12KHz - 80in R value	8.98	BLK	0.000
F1X1	ACRT 12KHz - 80in X value	8.98	BLK	0.000
F1R2	ACRT 12KHz - 50in R value	6.48	BLK	0.000
F1X2	ACRT 12KHz - 50in X value	6.48	BLK	0.000
F1R3	ACRT 12KHz - 29in R value	4.98	BLK	0.000
F1X3	ACRT 12KHz - 29in X value	4.98	BLK	0.000
F1R4	ACRT 12KHz - 17in R value	3.98	BLK	0.000
F1X4	ACRT 12KHz - 17in X value	3.98	BLK	0.000
F1R5	ACRT 12KHz - 10in R value	3.48	BLK	0.000
F1X5	ACRT 12KHz - 10in X value	3.48	BLK	0.000
F1R6	ACRT 12KHz - 6in R value	3.23	BLK	0.000
F1X6	ACRT 12KHz - 6in X value	3.23	BLK	0.000
F2R1	ACRT 36KHz - 80in R value	8.98	BLK	0.000
F2X1	ACRT 36KHz - 80in X value	8.98	BLK	0.000

F2R2	ACRT 36KHz - 50in R value	6.48	BLK	0.000
F2X2	ACRT 36KHz - 50in X value	6.48	BLK	0.000
F2R3	ACRT 36KHz - 29in R value	4.98	BLK	0.000
F2X3	ACRT 36KHz - 29in X value	4.98	BLK	0.000
F2R4	ACRT 36KHz - 17in R value	3.98	BLK	0.000
F2X4	ACRT 36KHz - 17in X value	3.98	BLK	0.000
F2R5	ACRT 36KHz - 10in R value	3.48	BLK	0.000
F2X5	ACRT 36KHz - 10in X value	3.48	BLK	0.000
F2R6	ACRT 36KHz - 6in R value	3.23	BLK	0.000
F2X6	ACRT 36KHz - 6in X value	3.23	BLK	0.000
F3R1	ACRT 72KHz - 80in R value	8.98	BLK	0.000
F3X1	ACRT 72KHz - 80in X value	8.98	BLK	0.000
F3R2	ACRT 72KHz - 50in R value	6.48	BLK	0.000
F3X2	ACRT 72KHz - 50in X value	6.48	BLK	0.000
F3R3	ACRT 72KHz - 29in R value	4.98	BLK	0.000
F3X3	ACRT 72KHz - 29in X value	4.98	BLK	0.000
F3R4	ACRT 72KHz - 17in R value	3.98	BLK	0.000
F3X4	ACRT 72KHz - 17in X value	3.98	BLK	0.000
F3R5	ACRT 72KHz - 10in R value	3.48	BLK	0.000
F3X5	ACRT 72KHz - 10in X value	3.48	BLK	0.000
F3R6	ACRT 72KHz - 6in R value	3.23	BLK	0.000
F3X6	ACRT 72KHz - 6in X value	3.23	BLK	0.000
RMUD	Mud Resistivity	12.52	BLK	0.000
F1RT	Transmitter Reference 12 KHz Real Signal	2.73	BLK	0.000
F1XT	Transmitter Reference 12 KHz Imaginary Signal	2.73	BLK	0.000
F2RT	Transmitter Reference 36 KHz Real Signal	2.73	BLK	0.000
F2XT	Transmitter Reference 36 KHz Imaginary Signal	2.73	BLK	0.000
F3RT	Transmitter Reference 72 KHz Real Signal	2.73	BLK	0.000
F3XT	Transmitter Reference 72 KHz Imaginary Signal	2.73	BLK	0.000
TFPU	Upper Feedpipe Temperature Calculated	2.73	BLK	0.000
TFPL	Lower Feedpipe Temperature Calculated	2.73	BLK	0.000
ITMP	Instrument Temperature	2.73	BLK	0.000
TCVA	Temperature Correction Values Loop Off	2.73	NO	
TIDV	Instrument Temperature Derivative	2.73	NO	
TUDV	Upper Temperature Derivative	2.73	NO	
TLDV	Lower Temperature Derivative	2.73	NO	
TRBD	Receiver Board Temperature	2.73	NO	
HDIA	Measured Hole Diameter	0.00	NO	
SDLT Pad				
TPUL	Tension Pull	43.83	NO	
NAB	Near Above	43.66	BLK	0.920
NHI	Near Cesium High	43.66	BLK	0.920
NLO	Near Cesium Low	43.66	BLK	0.920
NVA	Near Valley	43.66	BLK	0.920
NBA	Near Barite	43.66	BLK	0.920
NDE	Near Density	43.66	BLK	0.920
NPK	Near Peak	43.66	BLK	0.920
NLI	Near Lithology	43.66	BLK	0.920
NBAU	Near Barite Unfiltered	43.66	BLK	0.250
NLIU	Near Lithology Unfiltered	43.66	BLK	0.250
FAB	Far Above	44.01	BLK	0.250
FHI	Far Cesium High	44.01	BLK	0.250
FLO	Far Cesium Low	44.01	BLK	0.250
FVA	Far Valley	44.01	BLK	0.250
FBA	Far Barite	44.01	BLK	0.250

FBA	Far Barite	44.01	BLK	0.250
FDE	Far Density	44.01	BLK	0.250
FPK	Far Peak	44.01	BLK	0.250
FLI	Far Lithology	44.01	BLK	0.250
PTMP	Pad Temperature	43.84	BLK	0.920
NHV	Near Detector High Voltage	43.24	NO	
FHV	Far Detector High Voltage	43.24	NO	
ITMP	Instrument Temperature	43.24	NO	
DDHV	Detector High Voltage	43.24	NO	
HDIA	Measured Hole Diameter	0.00	NO	

Microlog Pad				
TPUL	Tension Pull	44.03	NO	
MINV	Microlog Lateral	44.03	BLK	0.750
MNOR	Microlog Normal	44.03	BLK	0.750
Data: ROSE_4-1\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-BN\001 18-Aug-14 08:28 Dn @-6.3f			Date: 18-Aug-14 08:28:55	

COMPANY	HARTMAN OIL CO., INC.		
WELL	ROSE 4-1		
FIELD	AMERICAN BEAUTY		
COUNTY	WICHITA	STATE	KANSAS
HALLIBURTON		BOREHOLE COMPENSATED SONIC ARRAY LOG	