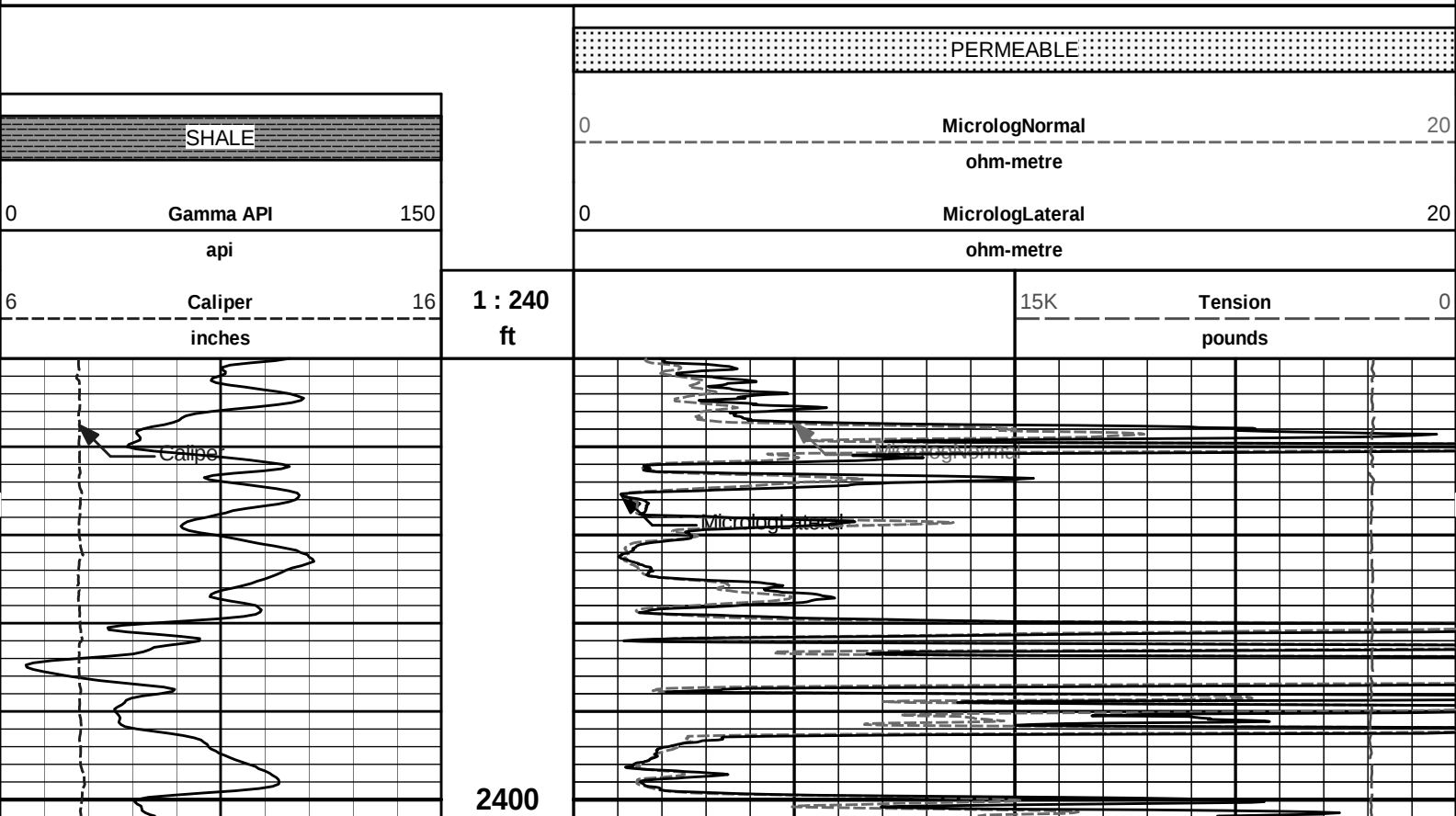


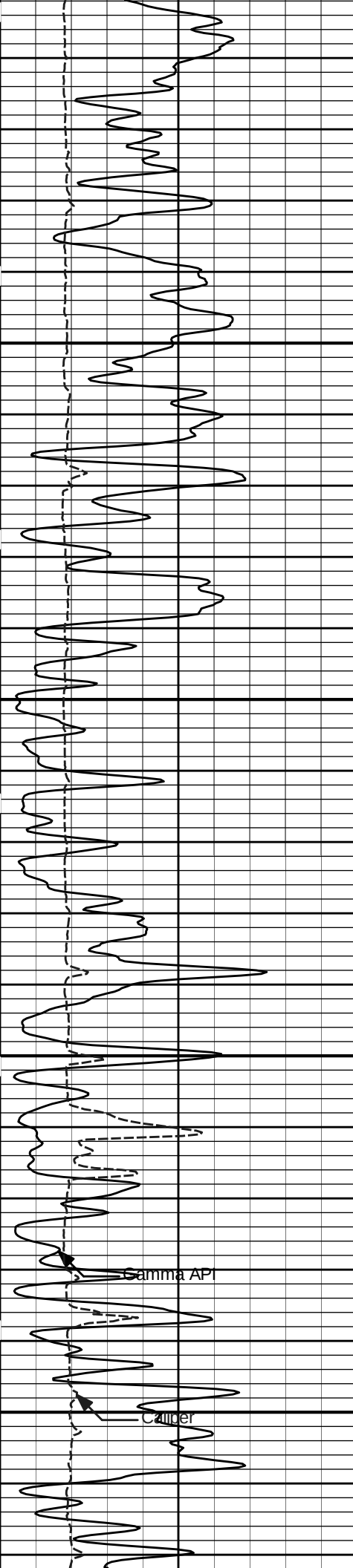
HALLIBURTON MICROLOG

COMPANY		EOG RESOURCES	
WELL		OBRATE 33 #1	
FIELD		NW SUBLETTE	
COUNTY		HASKELL	
STATE		KANSAS	
Permanent Datum	GL	Sect. 33 Twp. 27S Rge. 33W Elev. 2986.0 ft 12.0 ft above perm. Datum	Other Services: DSN/SDL ACRT DSN/SDL/MICRO BSAT
Log measured from	KB		
Drilling measured from	KB		
Date	24-May-11		
Run No.	1		
Depth - Driller	5756.00 ft		
Depth - Logger	5756.0 ft		
Bottom - Logged Interval	5718.0 ft		
Top - Logged Interval	2350.0 ft		
Casing - Driller	8.625 in @ 1729.0 ft		
Casing - Logger	1726.0 ft		
Bit Size	7.875 in		@
Type Fluid in Hole	WATER BASED MUD		
Density	8.9 ppq	60.00 s/qt	
PH	10.00 pH	8.0 cp/m	
Source of Sample	FLOW LINE		
Rm @ Meas. Temperature	1.310 ohmm @ 85.00 degF		@
Rmf @ Meas. Temperature	1.11 ohmm @ 82.00 degF		@
Rmc @ Meas. Temperature	1.590 ohmm @ 82.00 degF		@
Source Rmf	MEAS	MEAS	
Rm @ BHT	0.82 ohmm @ 140.0 degF		@
Time Since Circulation	5.0 hr		
Time on Bottom	24-May-11 10:33		
Max. Rec. Temperature	130.0 degF @ 5756.0 ft		@
Equipment	10546696	LIBERAL	
Recorded By	J. BOSH		
Witnessed By	W. SHAFFER	M. KNOX	

Fold here

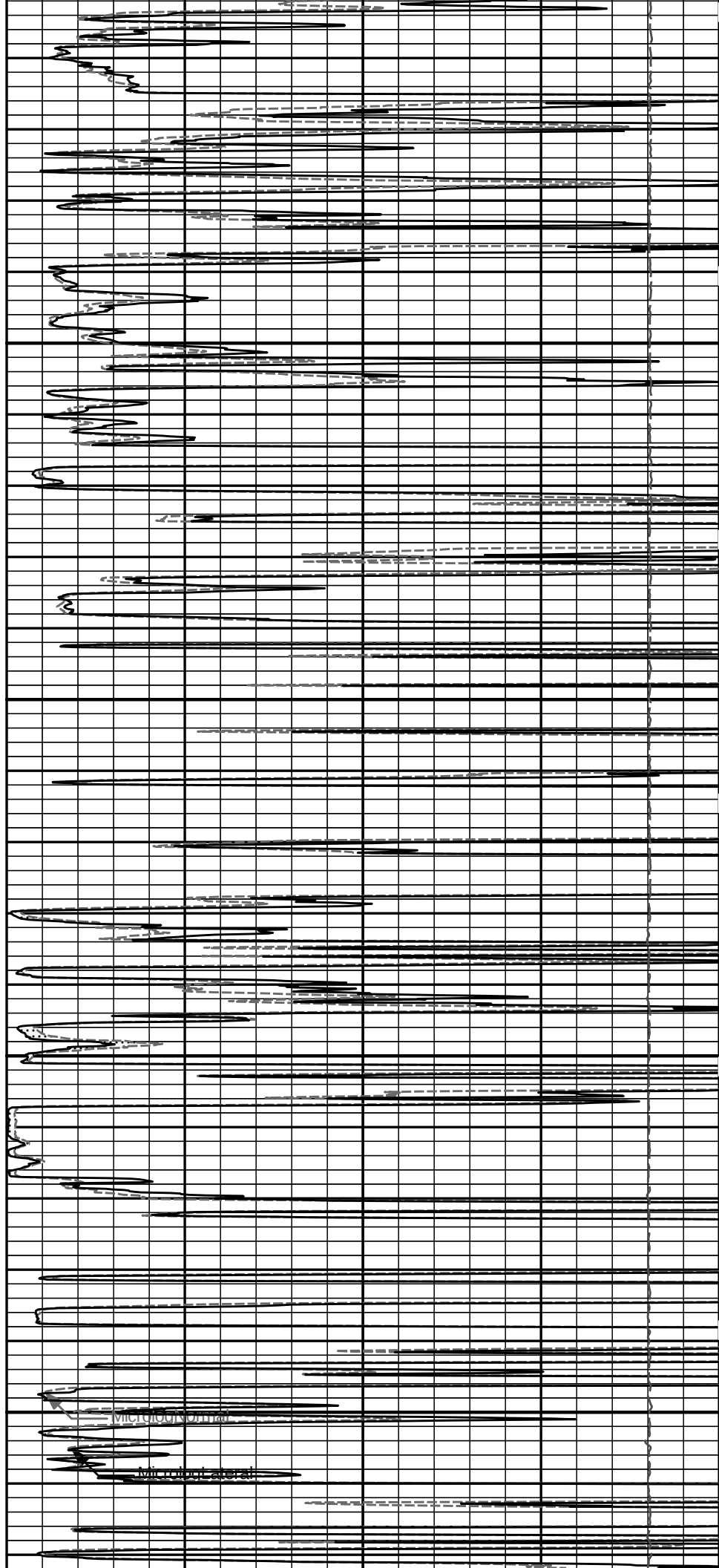
Service Ticket No.: 8167669				API Serial No.: 15-081-219360000				PGM Version: WL INSITE R3.2.0 (Build 7)						
CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE						RESISTIVITY SCALE CHANGES								
Date	Sample No.					Type Log	Depth	Scale Up Hole	Scale Down Hole					
Depth-Driller														
Type Fluid in Hole														
Density	Viscosity													
Ph	Fluid Loss													
Source of Sample						RESISTIVITY EQUIPMENT DATA								
Rm @ Meas. Temp		@		@		Run No.	Tool Type & No.	Pad Type	Tool Pos.	Other				
Rmf @ Meas. Temp.		@		@		ONE	MICRO P84	RUBBER	ADJ.	N/A				
Rmc @ Meas. Temp.		@		@										
Source Rmf	Rmc													
Rm @ BHT		@		@										
Rmf @ BHT		@		@										
Rmc @ BHT		@		@										
EQUIPMENT DATA														
GAMMA			ACOUSTIC			DENSITY			NEUTRON					
Run No.	ONE		Run No.			Run No.			Run No.					
Serial No.	11050378		Serial No.			Serial No.			Serial No.					
Model No.	GTET		Model No.			Model No.			Model No.					
Diameter	3.625		No. of Cent.			Diameter			Diameter					
Detector Model No.	T-102		Spacing			Log Type			Log Type					
Type	SCINT.					Source Type			Source Type					
Length	8"		LSA [Y/N]			Serial No.			Serial No.					
Distance to Source	10'		FWDA [Y/N]			Strength			Strength					
LOGGING DATA														
GENERAL			GAMMA			ACOUSTIC			DENSITY			NEUTRON		

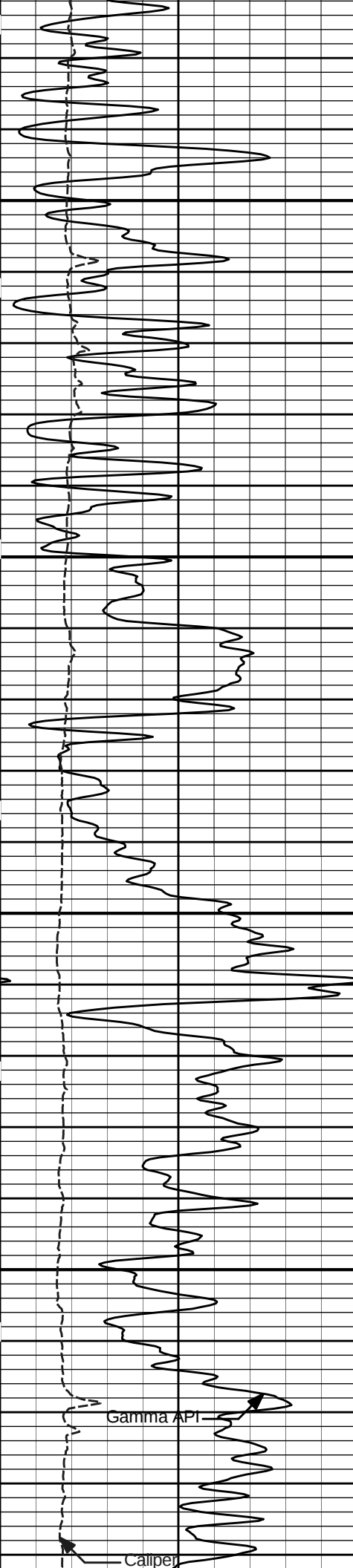




2500

2600



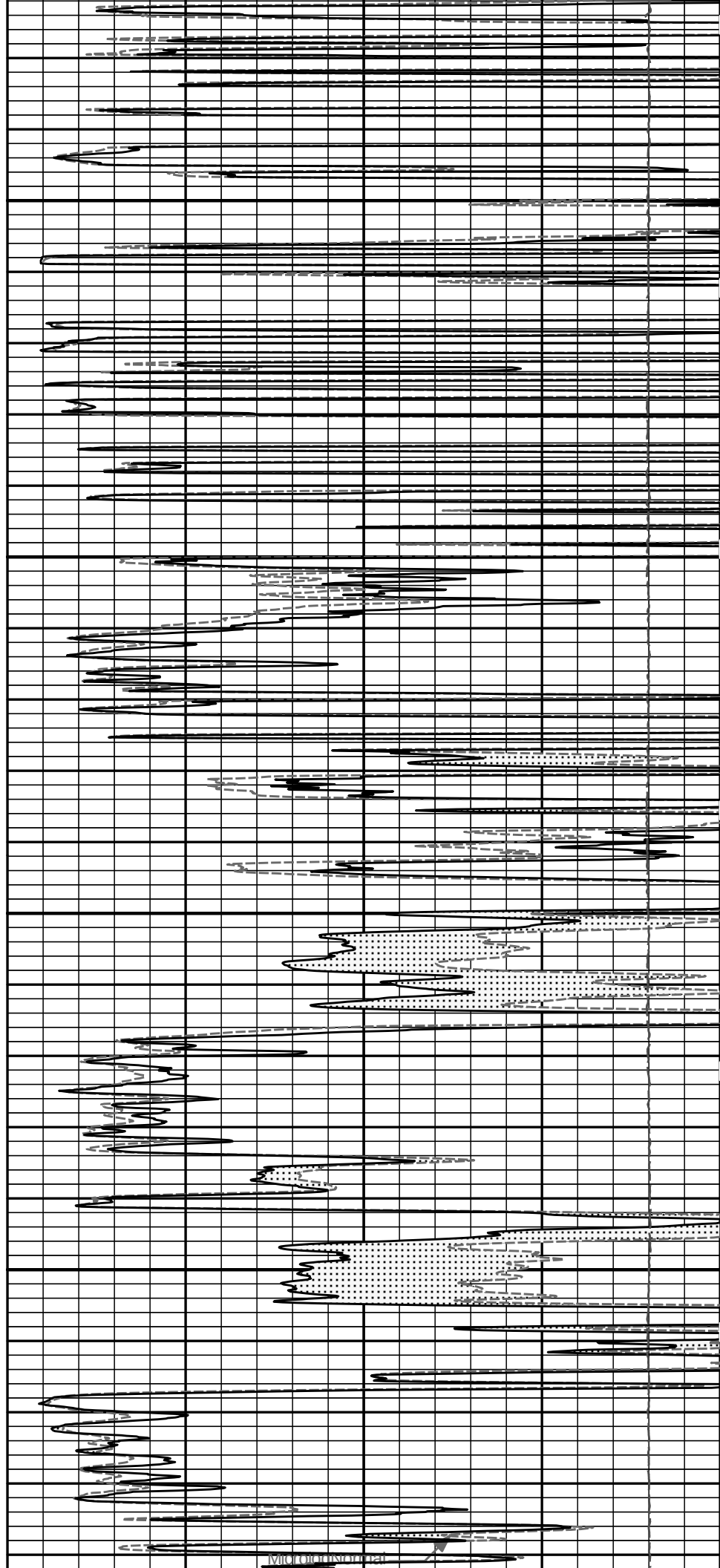


2700

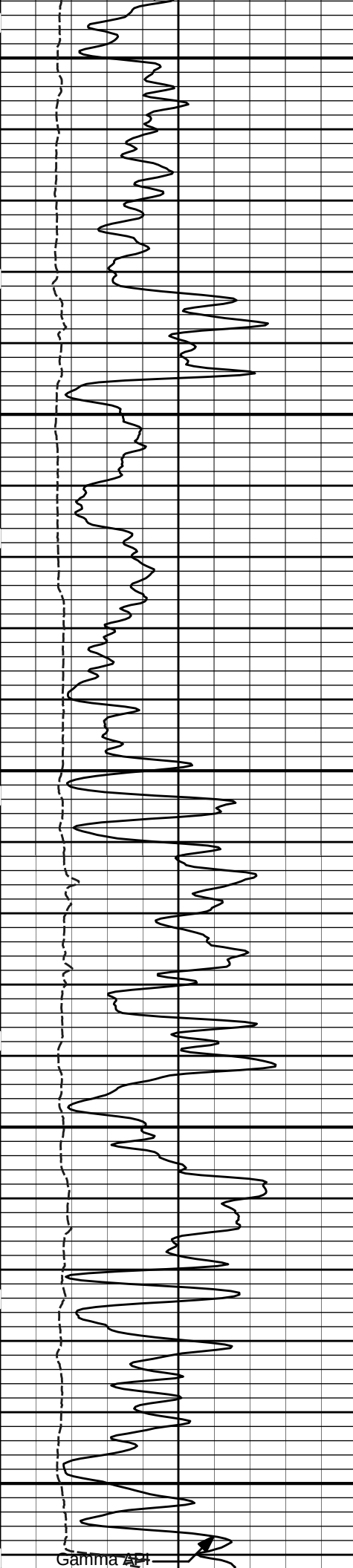
2800

Gamma API

Caliper

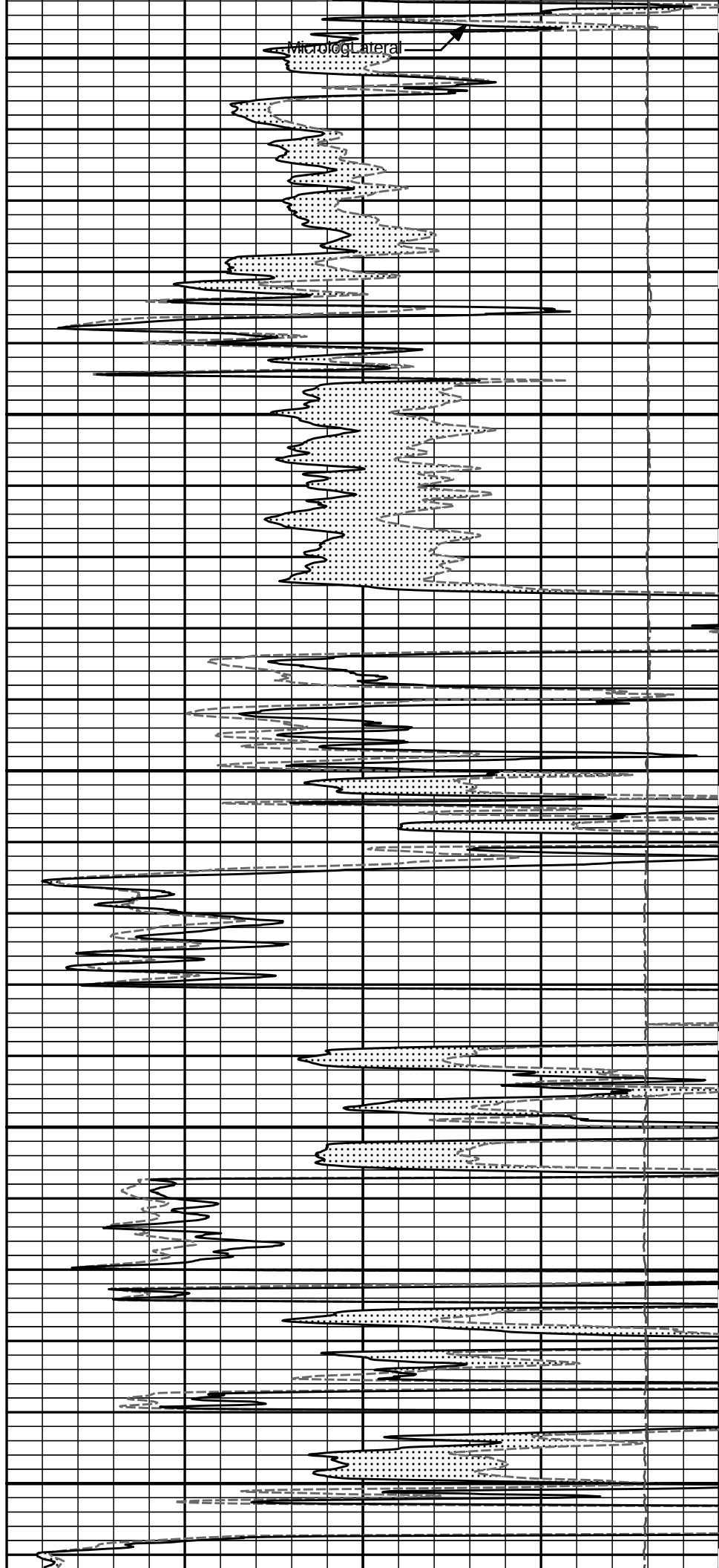


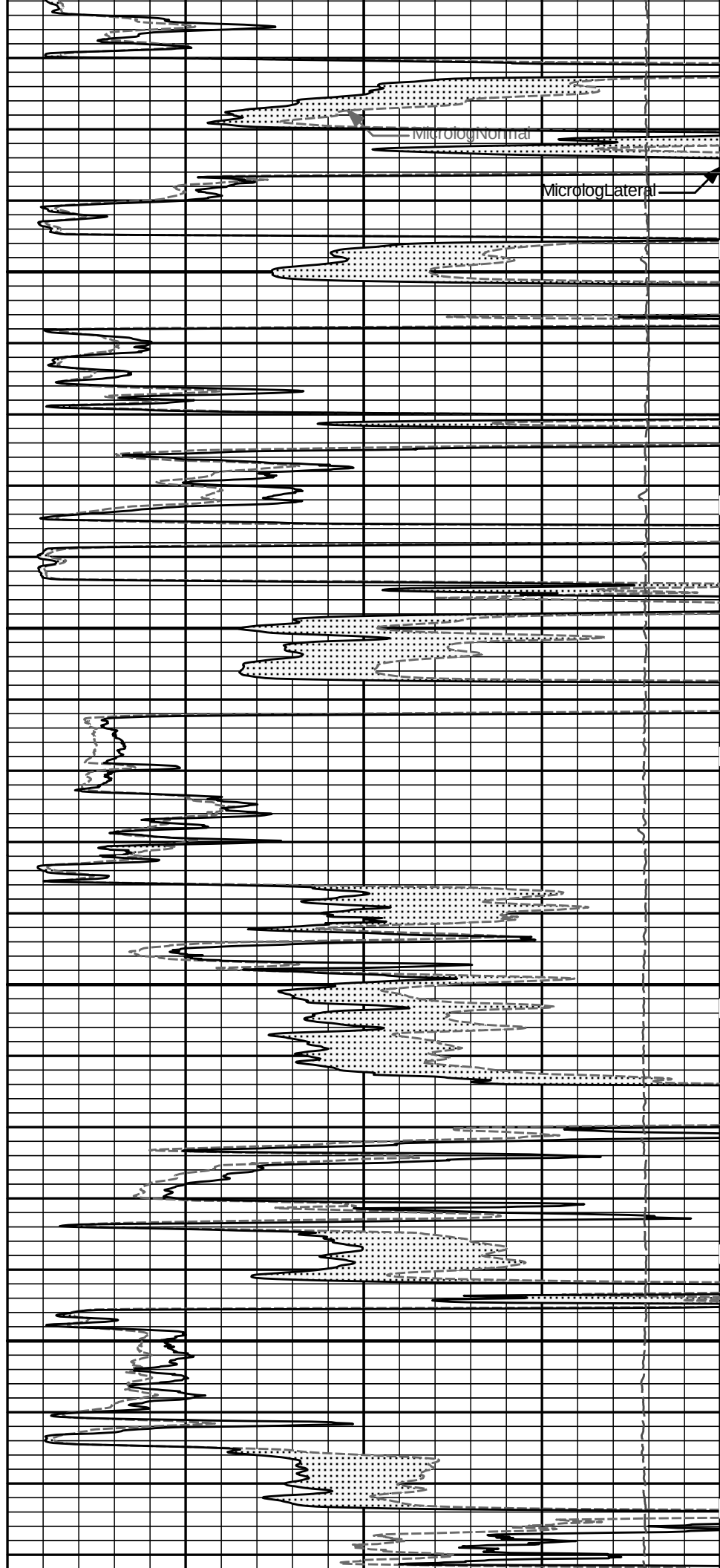
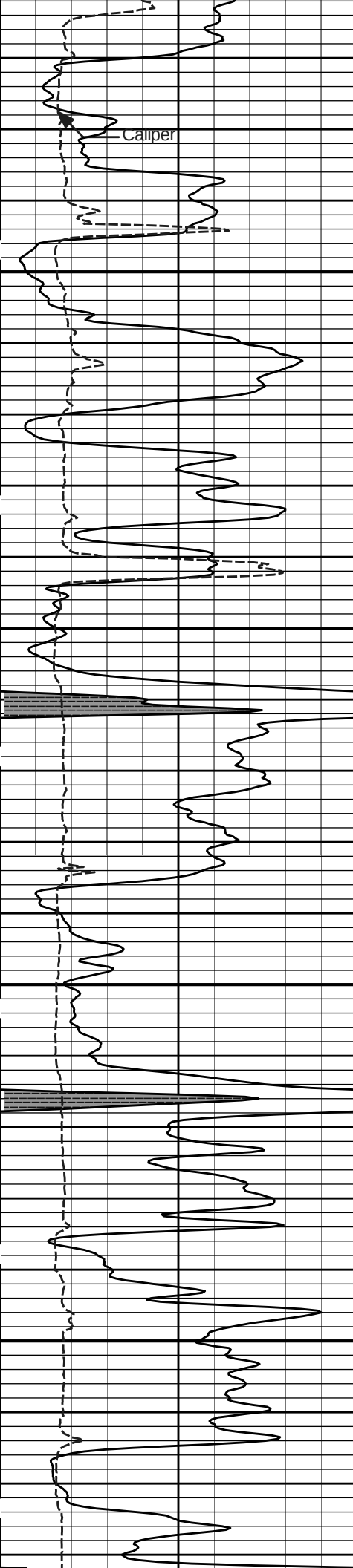
Microtonal

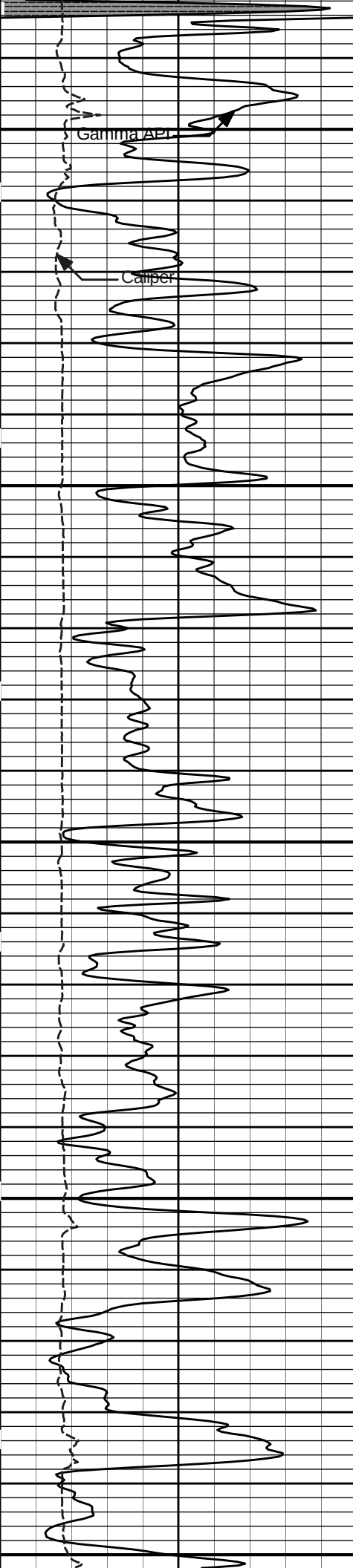


2900

3000



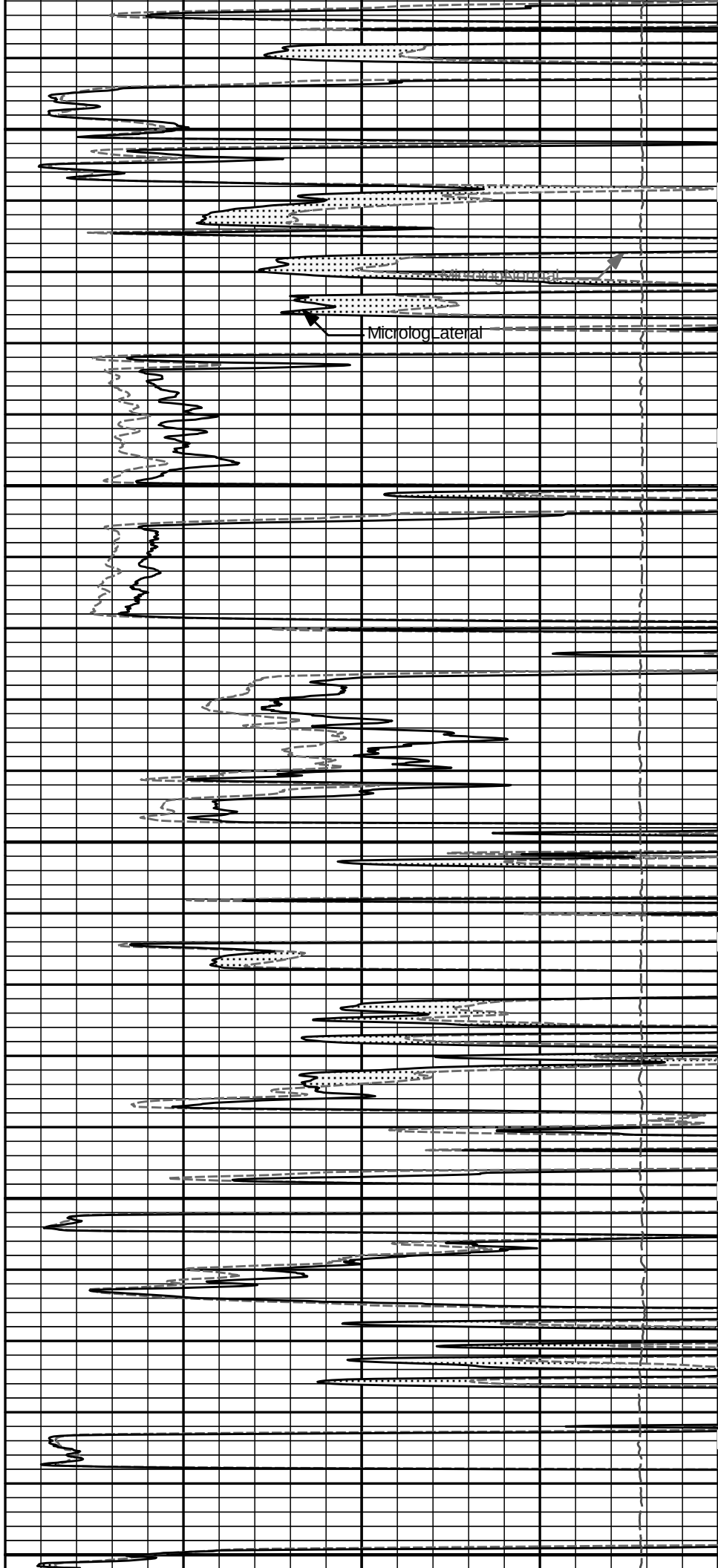


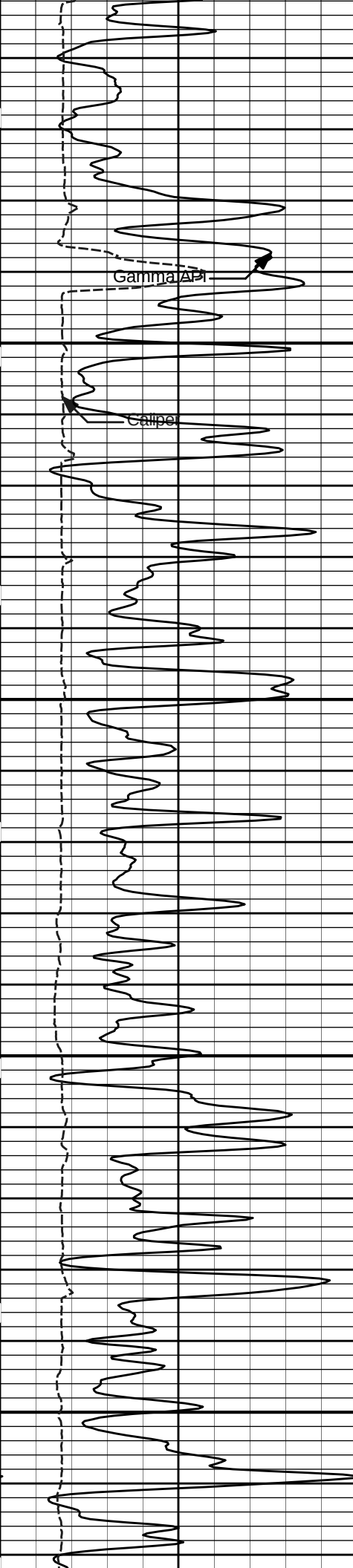


3300

3400

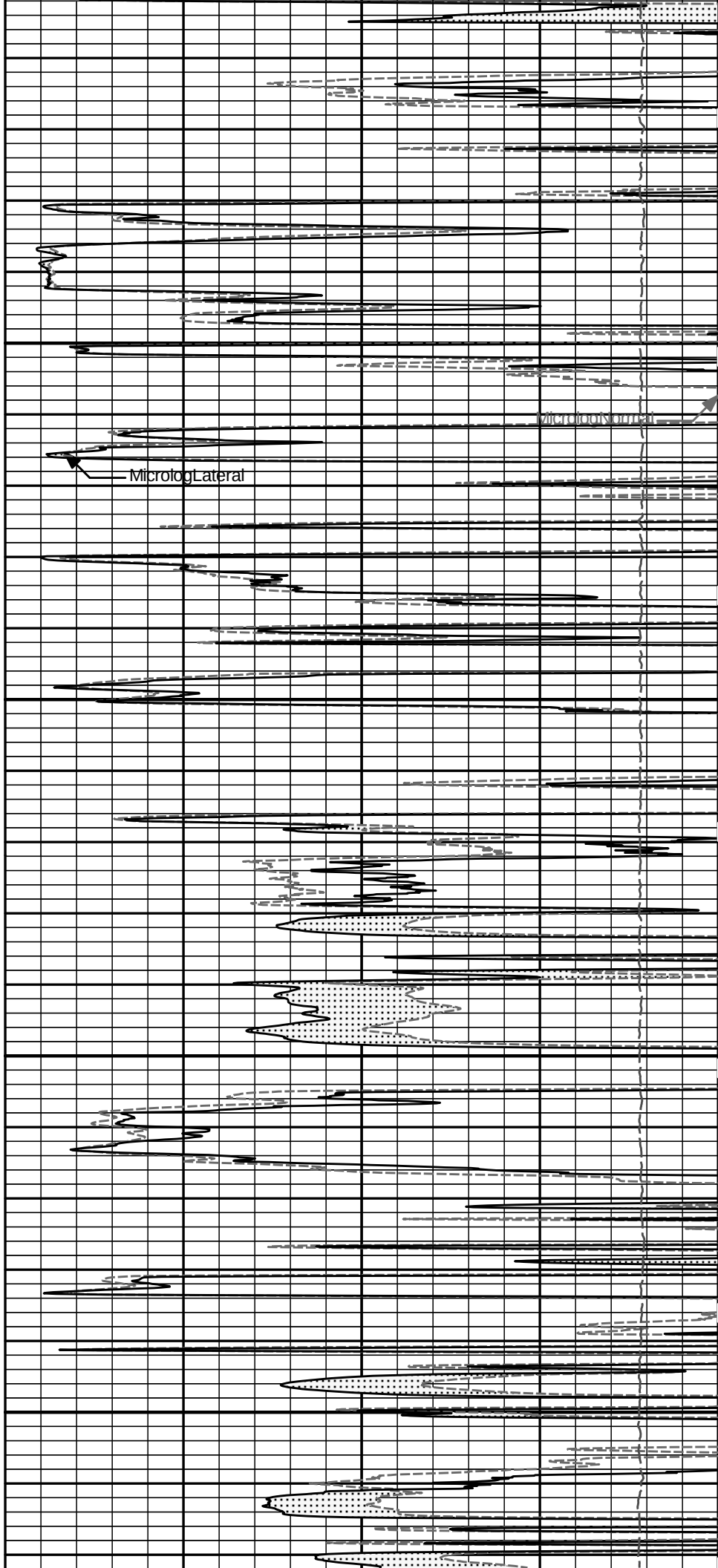
3500

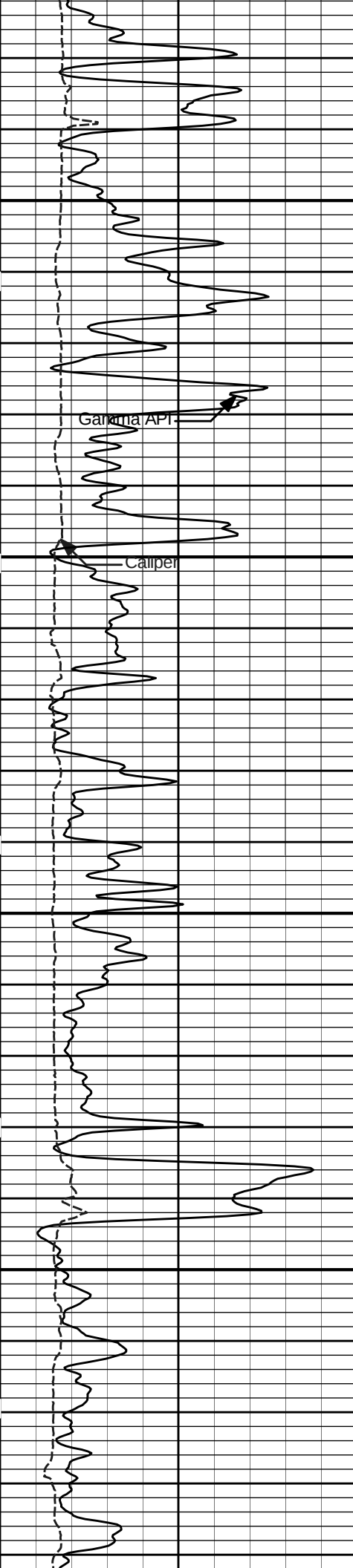




3600

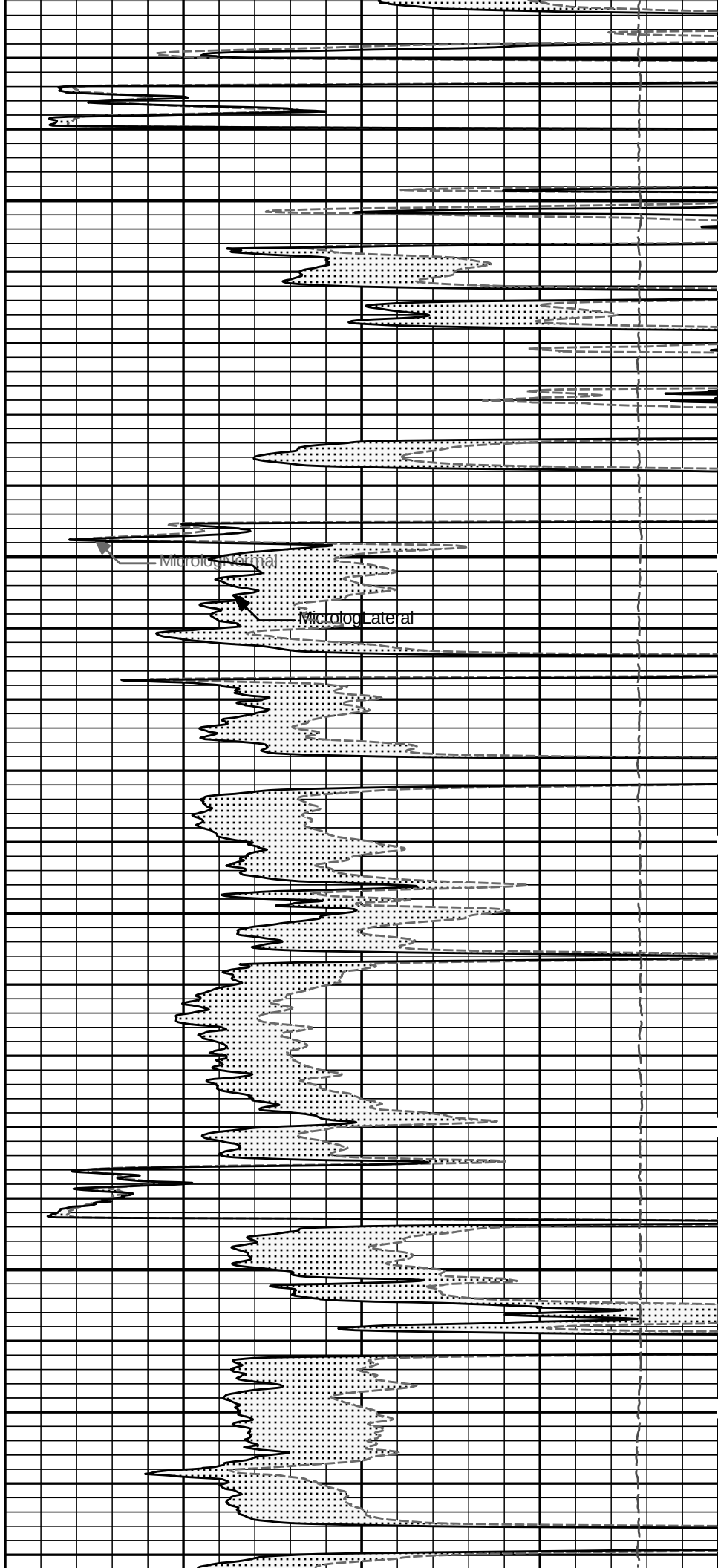
3700

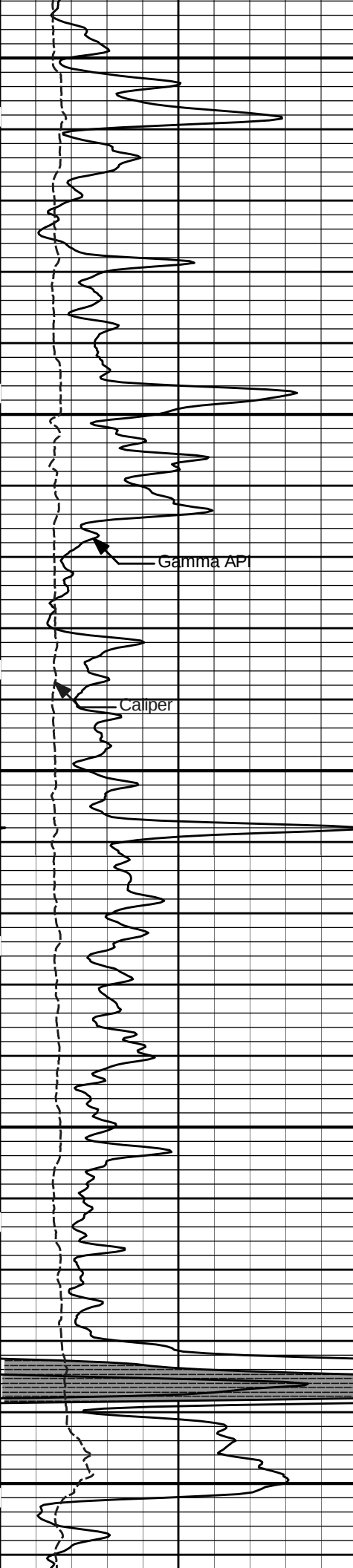




3800

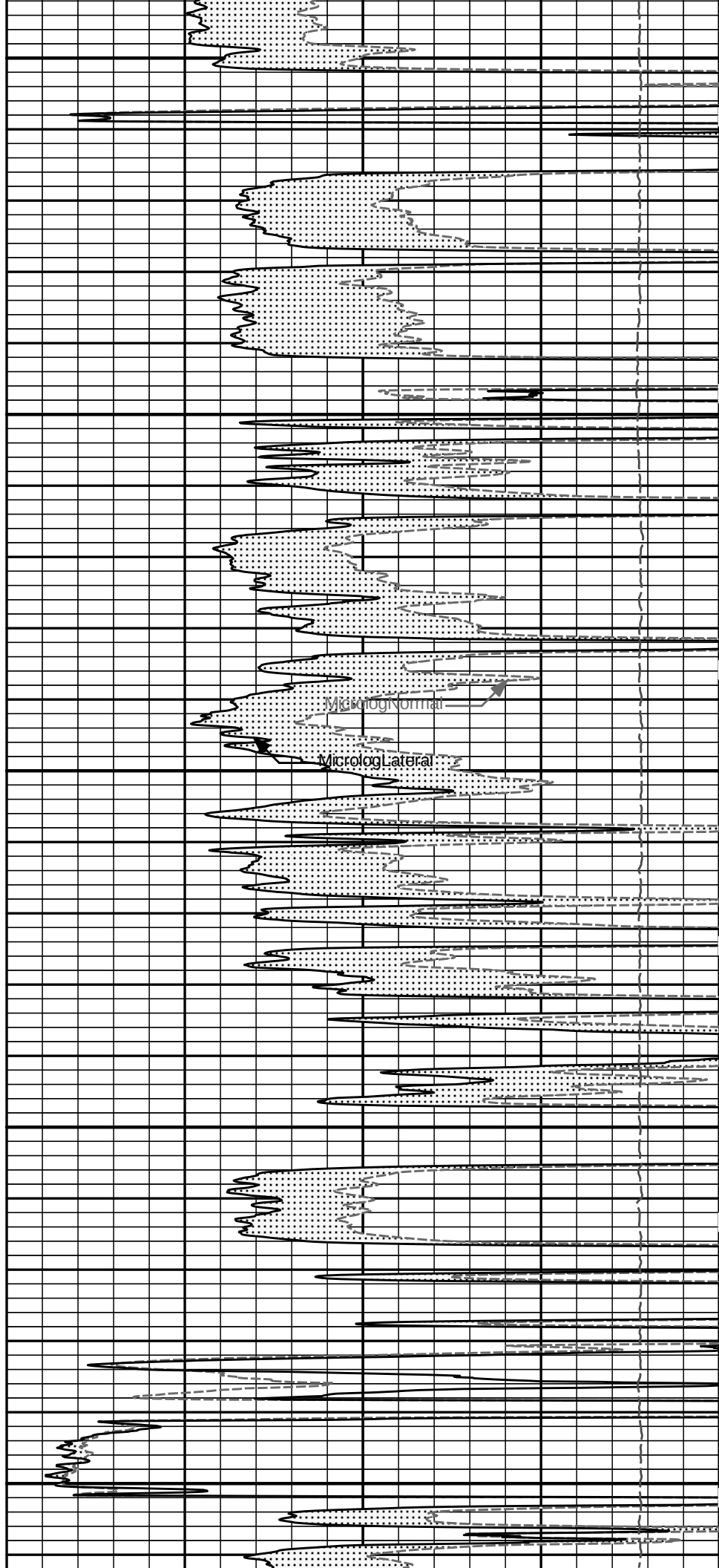
3900

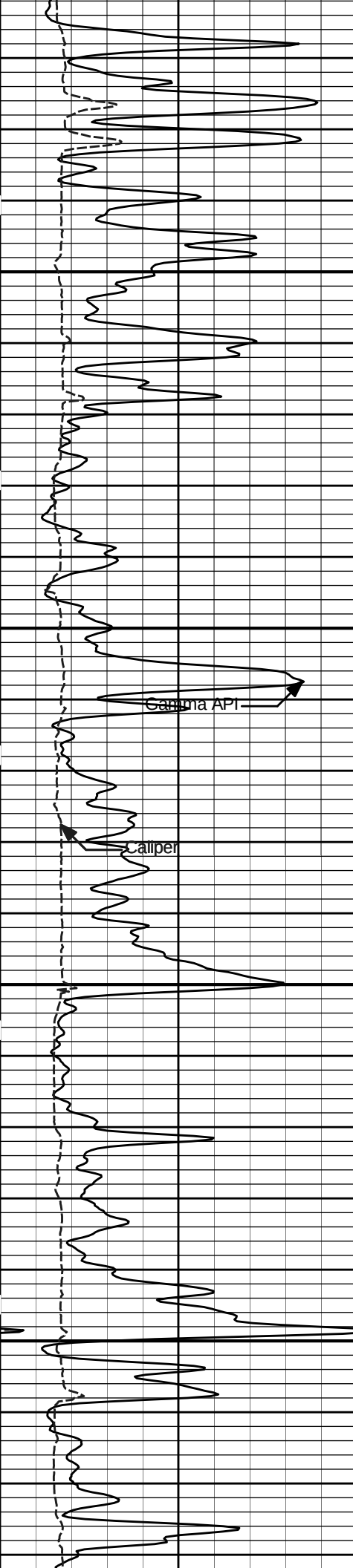




4000

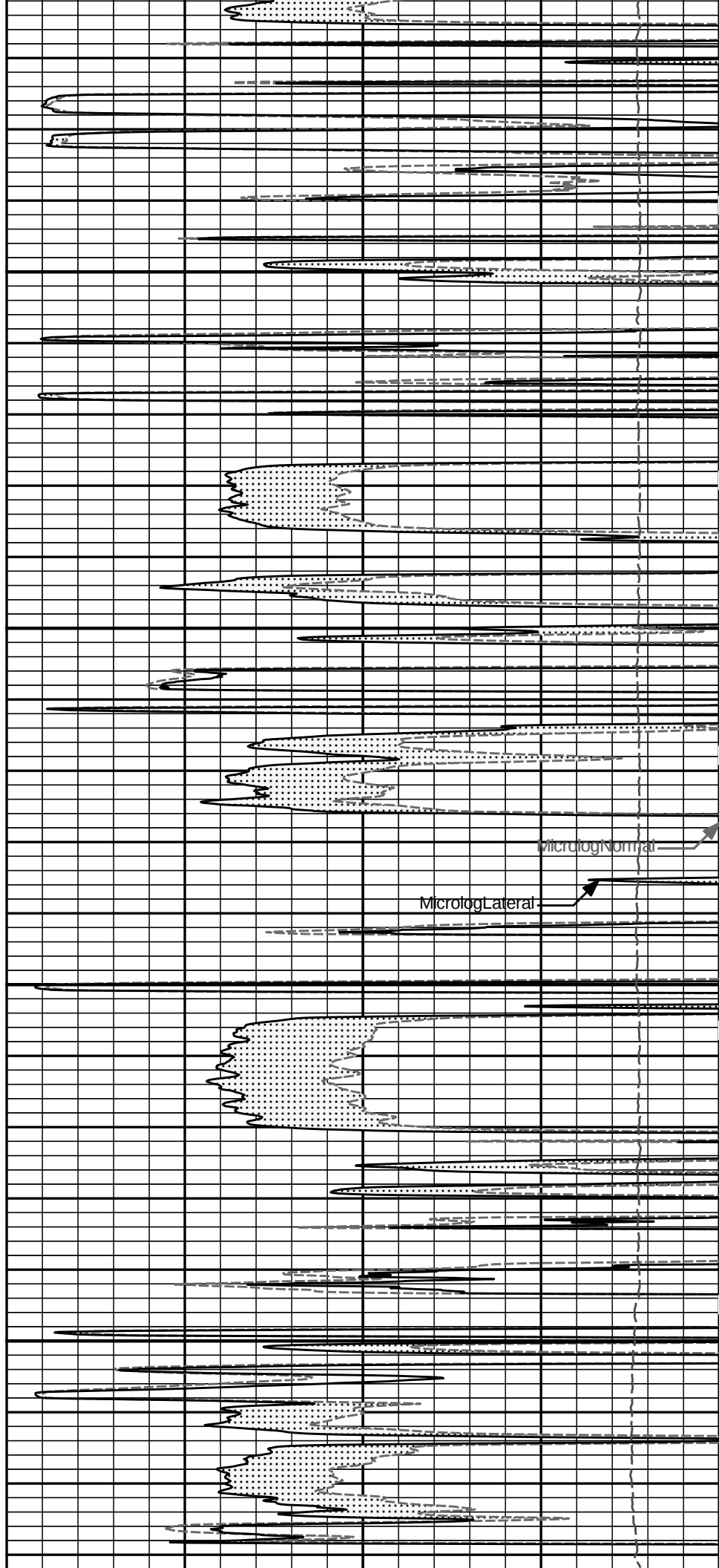
4100

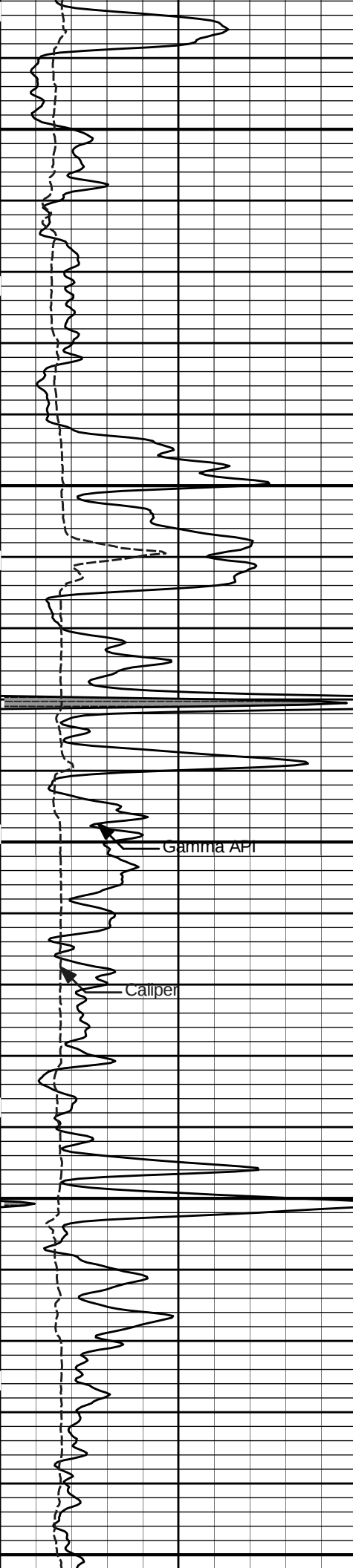




4200

4300

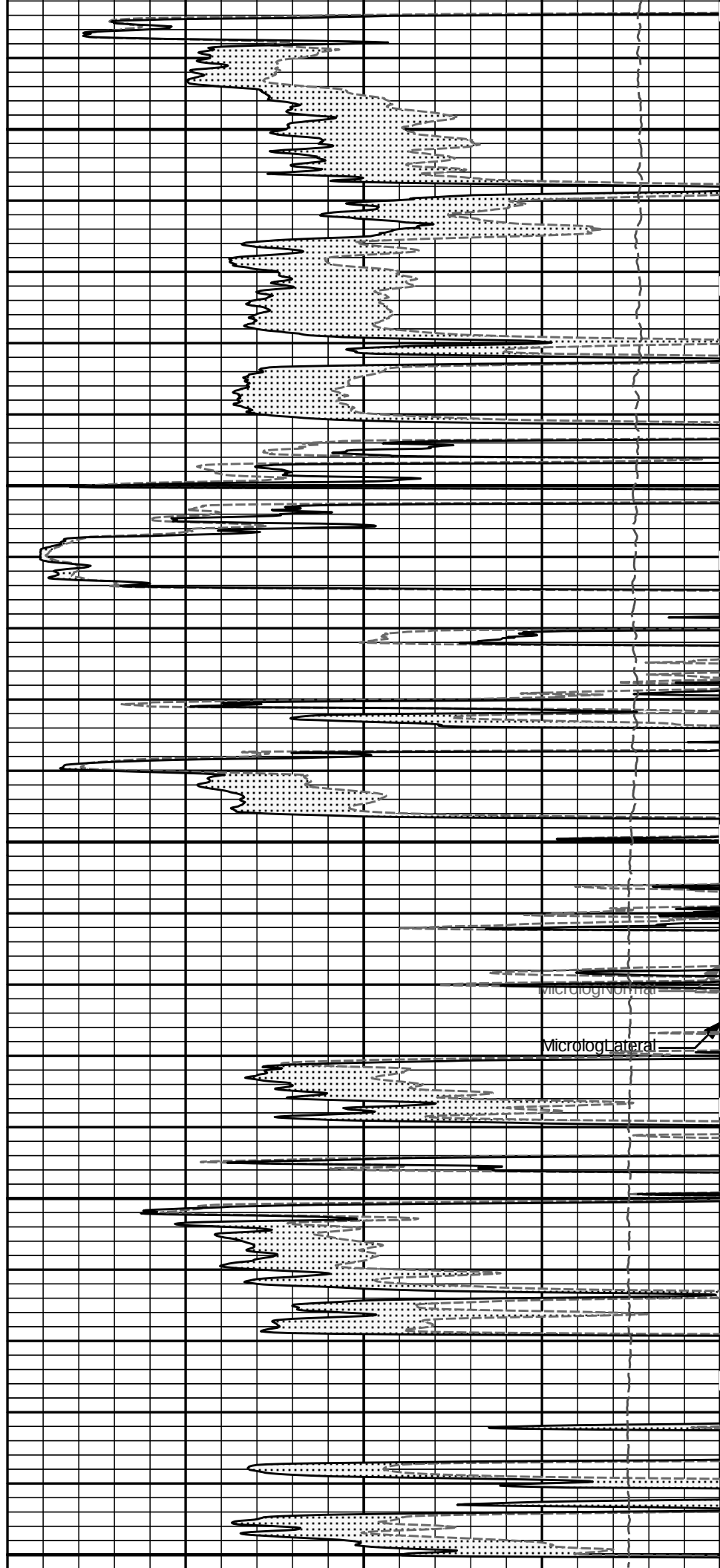




4400

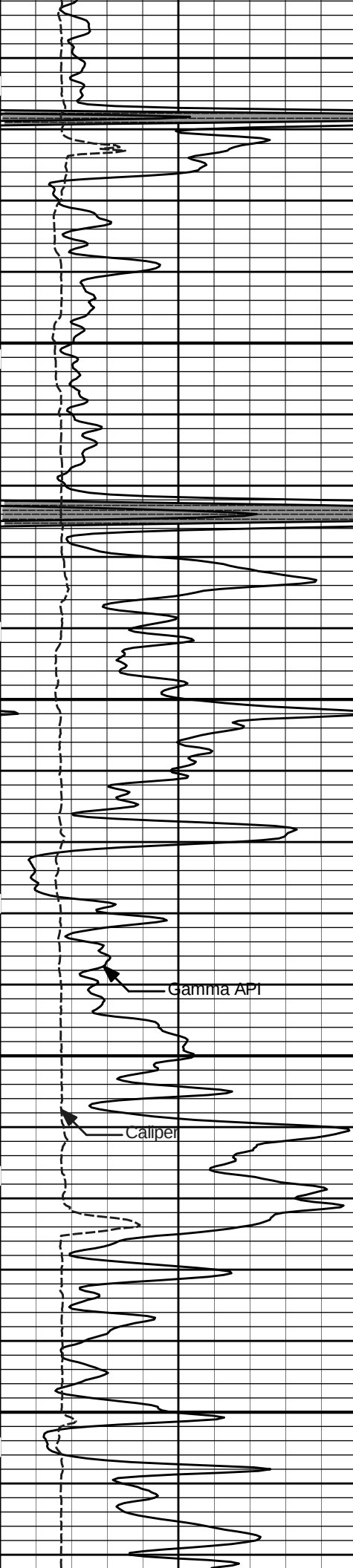
4500

4600



Microlog Normal

Microlog Lateral

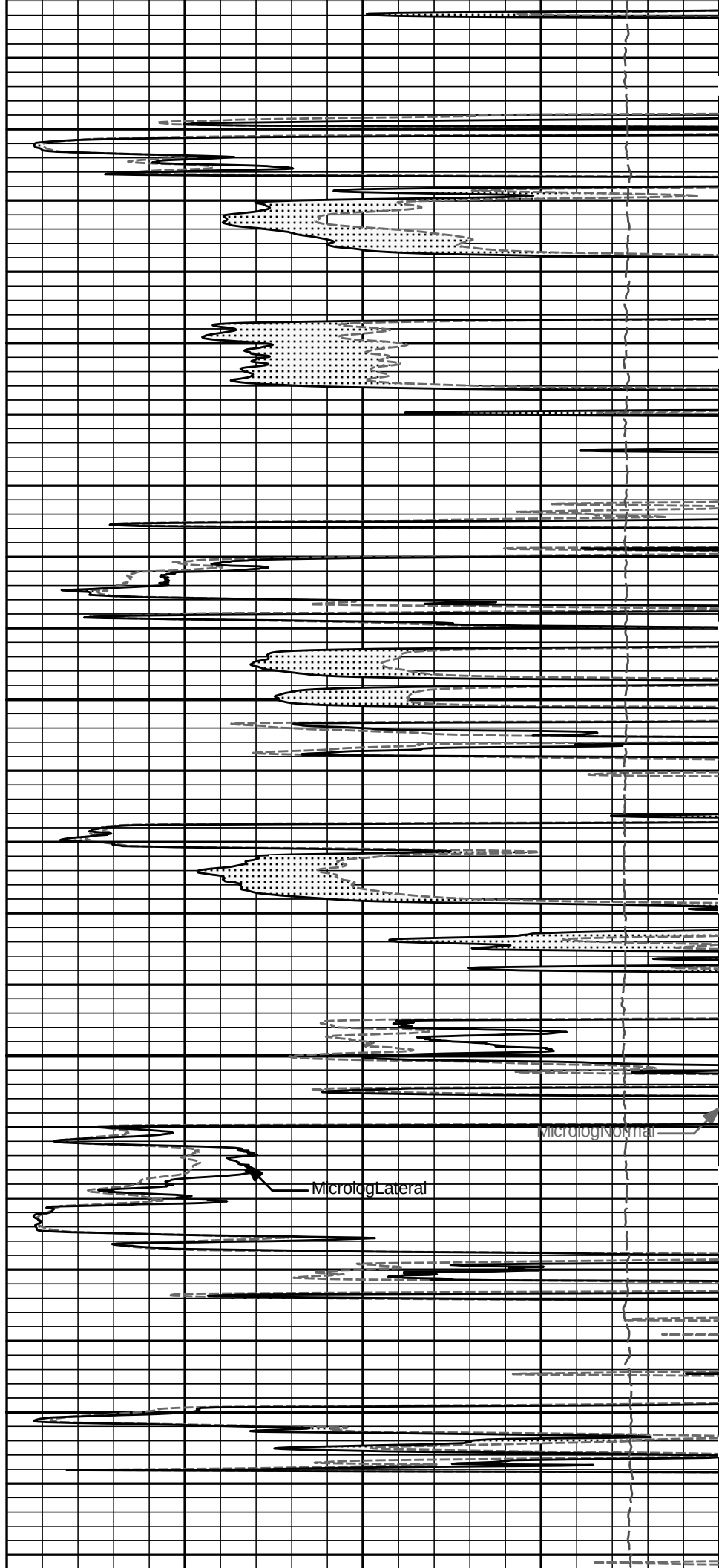


4700

Gamma API

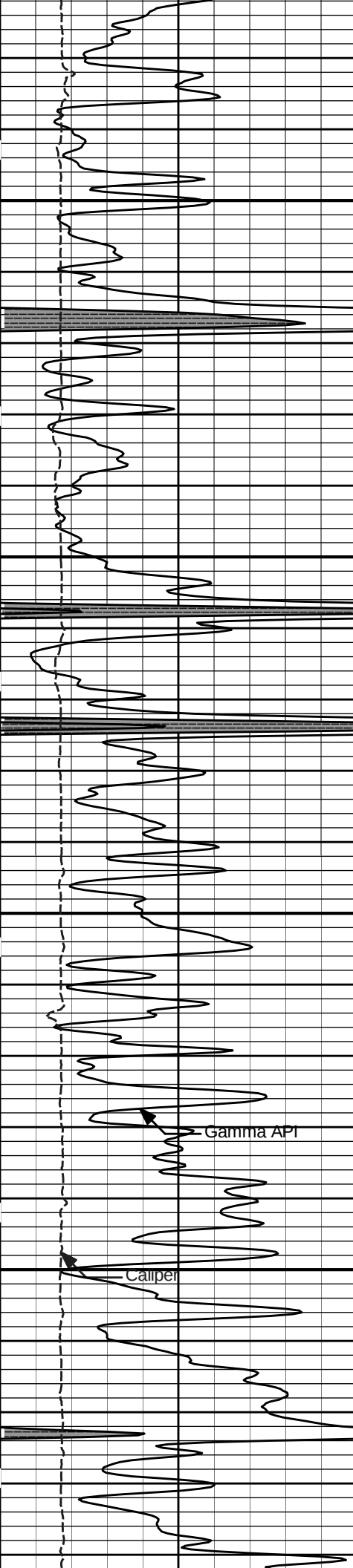
Caliper

4800



Microlog Lateral

Microlog Normal

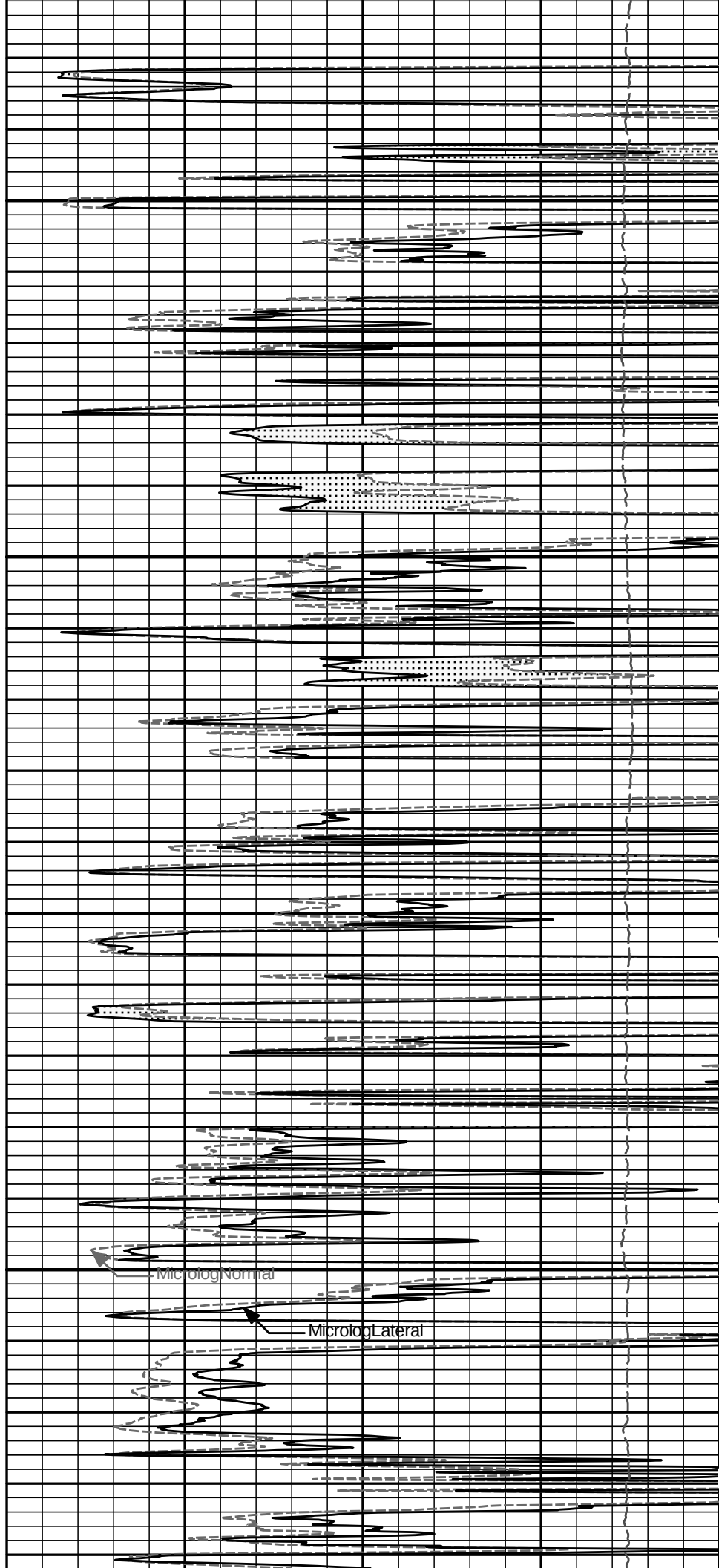


4900

5000

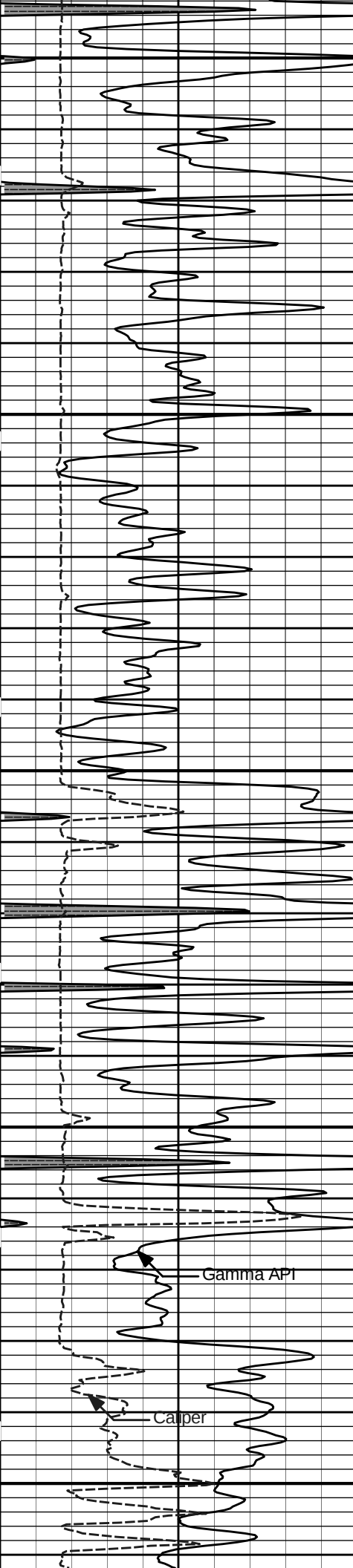
Gamma API

Caliper



Microlog Normal

Microlog Lateral

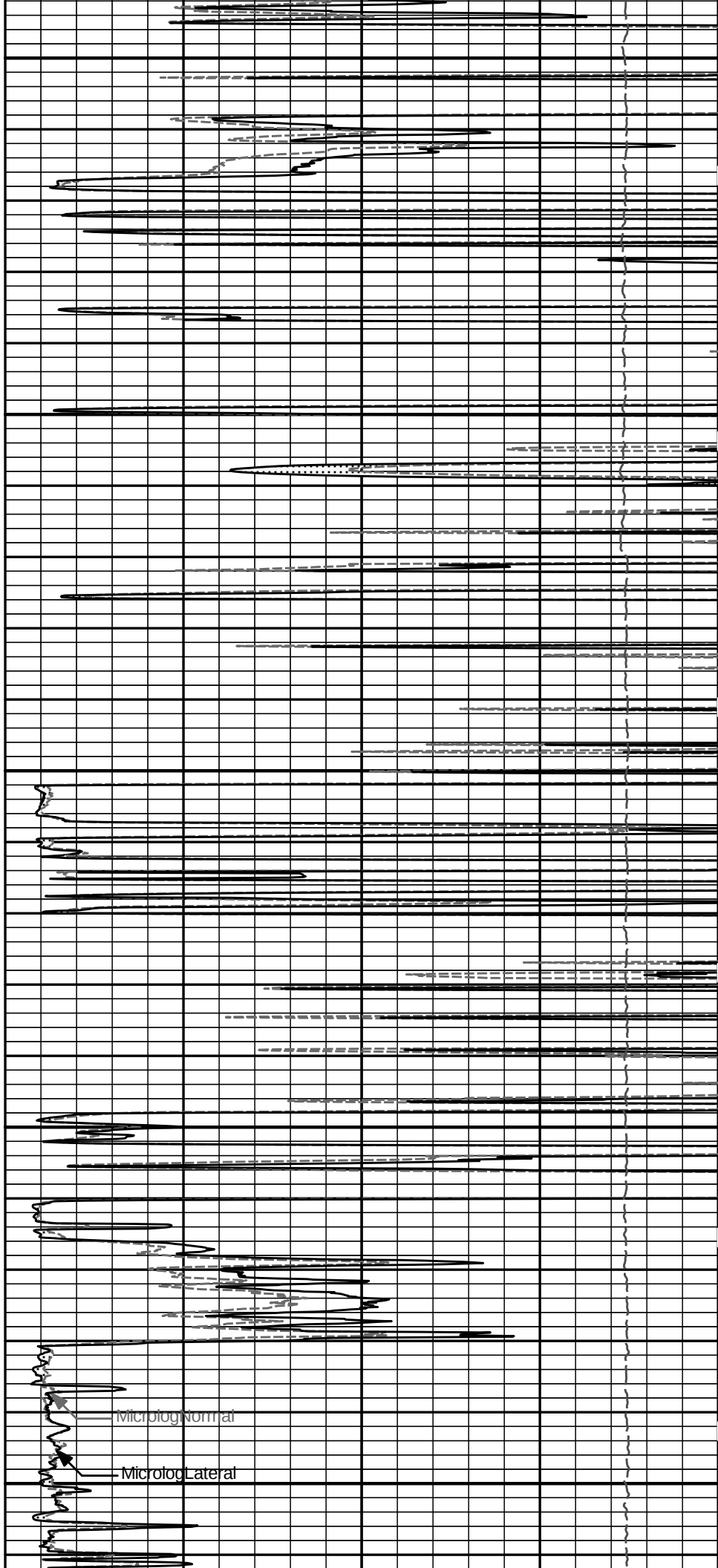


5100

5200

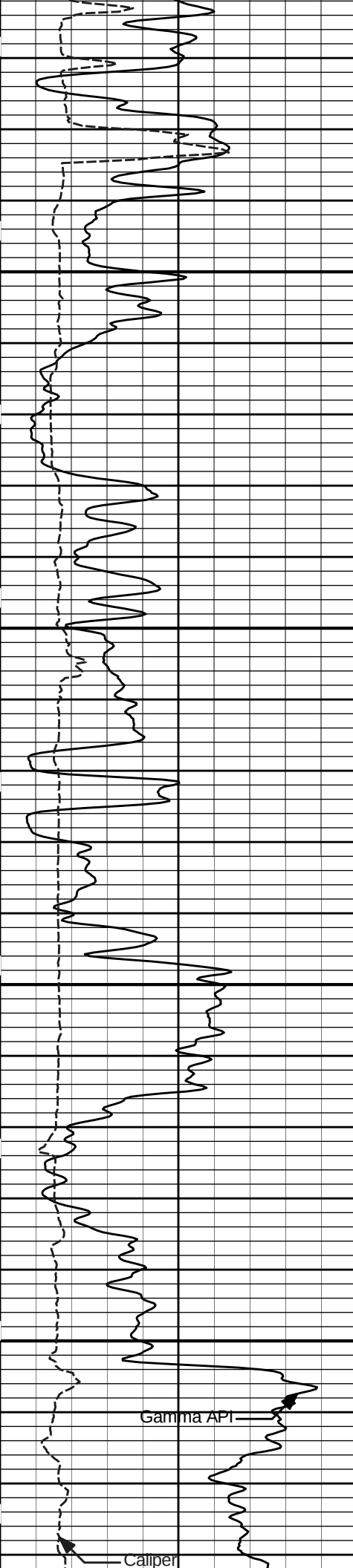
Gamma API

Caliper



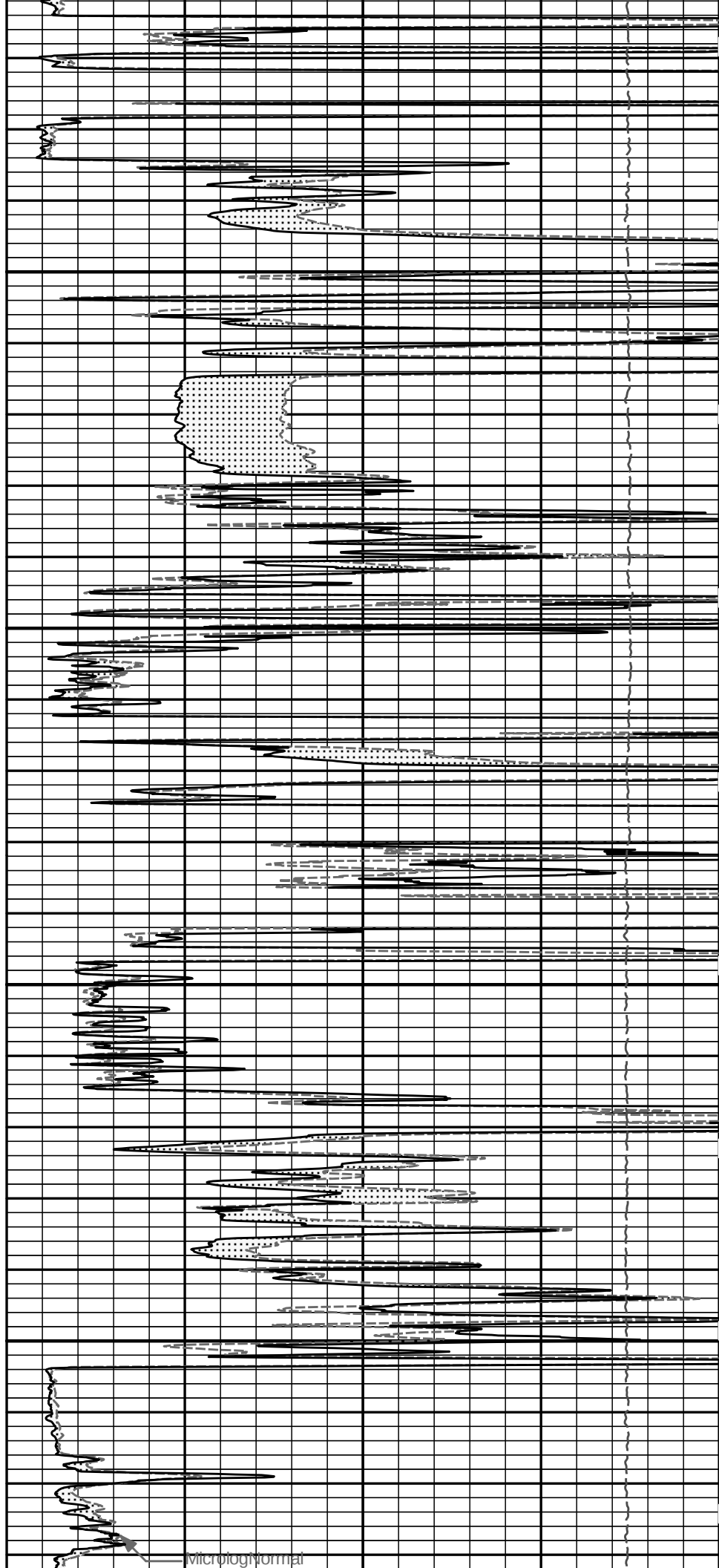
Microlog Normal

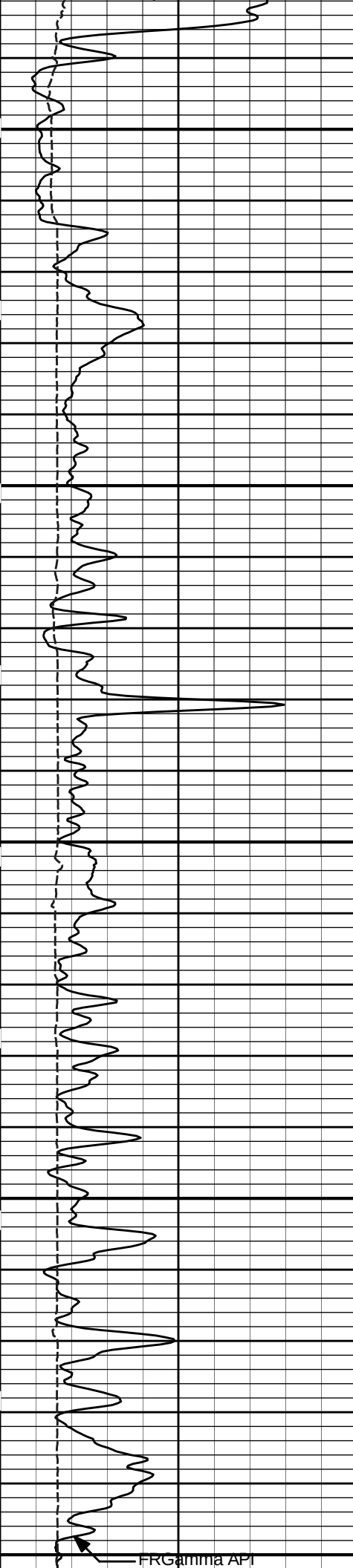
Microlog Lateral



5300

5400

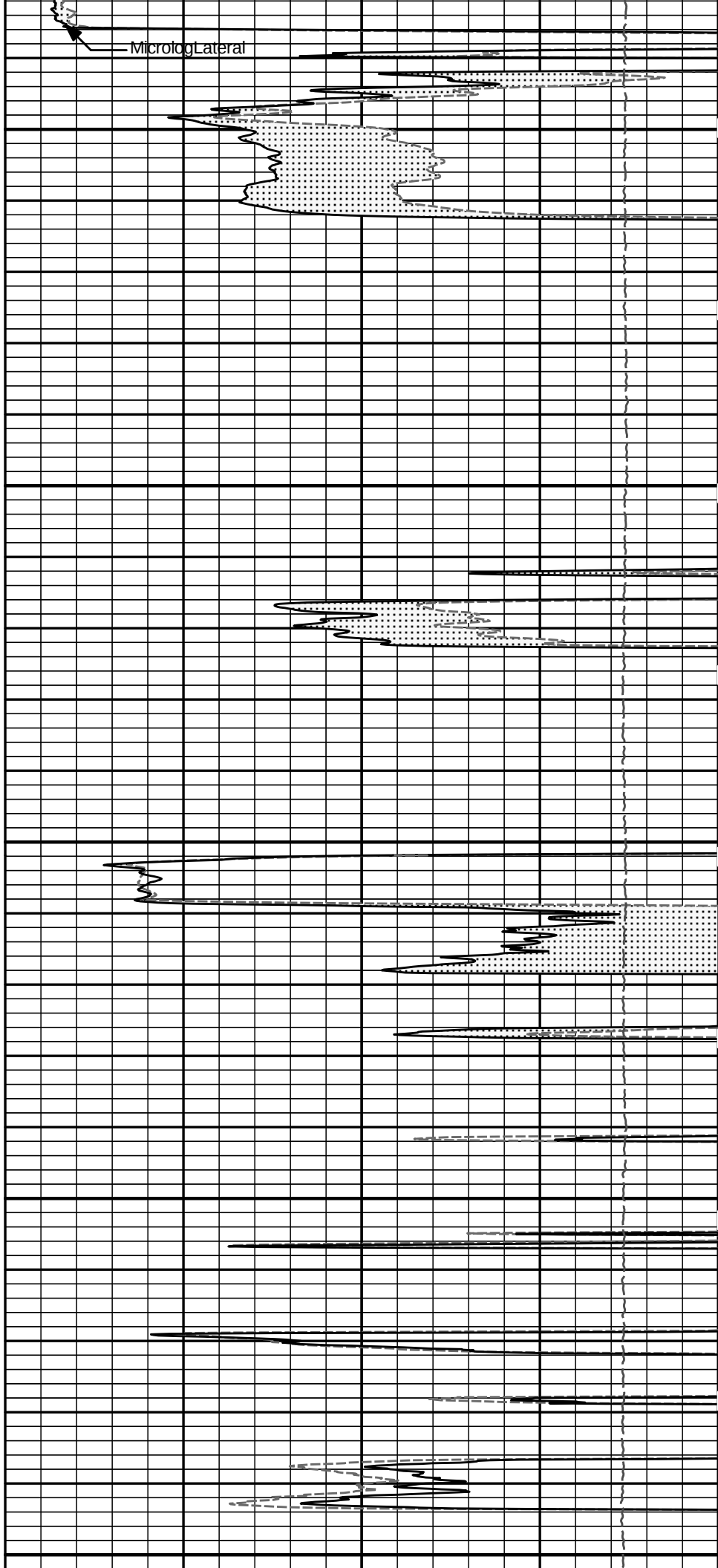




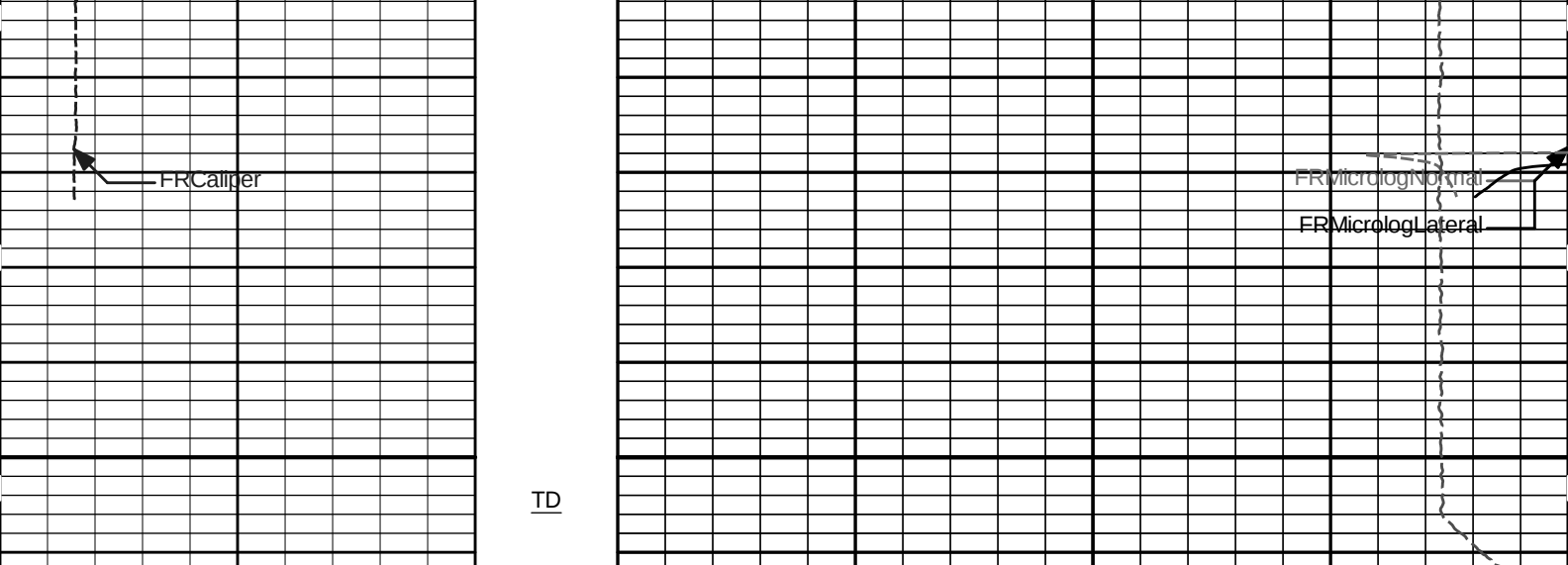
5500

5600

5700



Microlog Lateral



6	Caliper	16	1 : 240	15K	Tension	0
	inches		ft		pounds	
0	Gamma API	150		0	MicrologLateral	20
	api				ohm-metre	
	SHALE			0	MicrologNormal	20
					ohm-metre	
					PERMEABLE	

HALLIBURTON

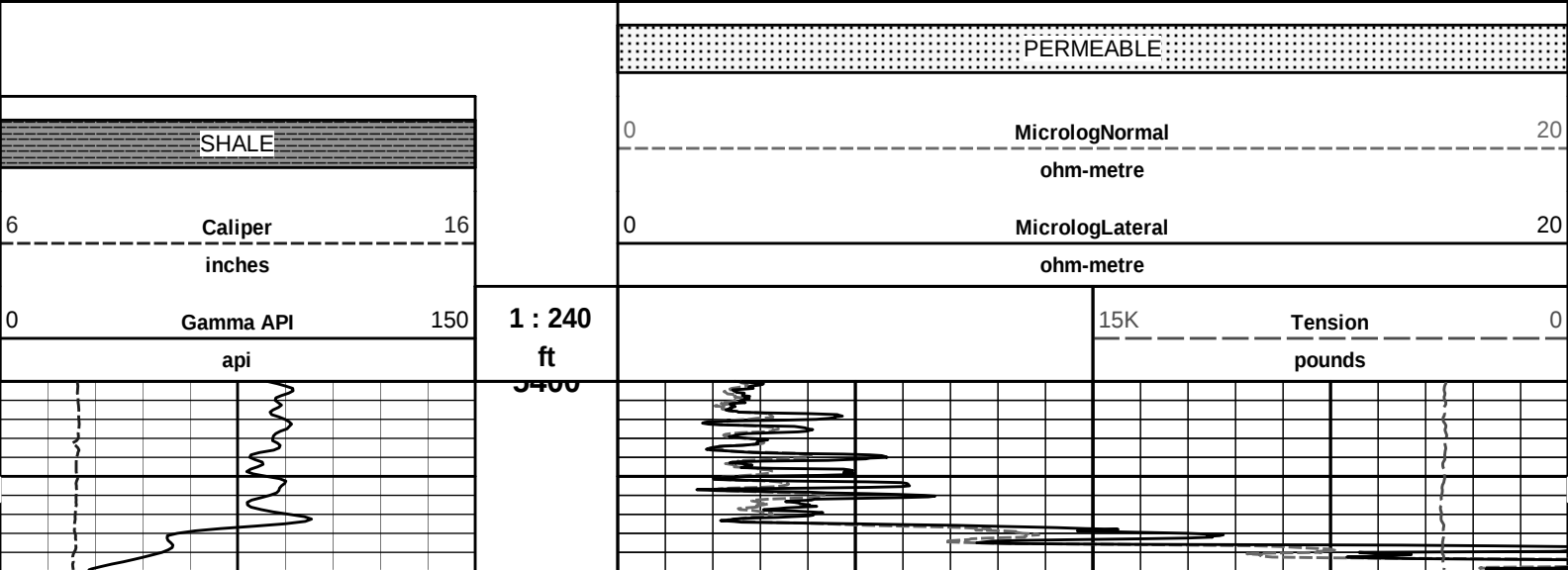
Plot Time: 24-May-11 14:38:11
Plot Range: 2350 ft to 5761.67 ft
Data: OBRATE_33_1\Well Based\DAQ-0001-003\
Plot File: \\LOCAL-IOBRATE_33_1\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\MICRO\EOG_Microlog_5_MAIN_IQ

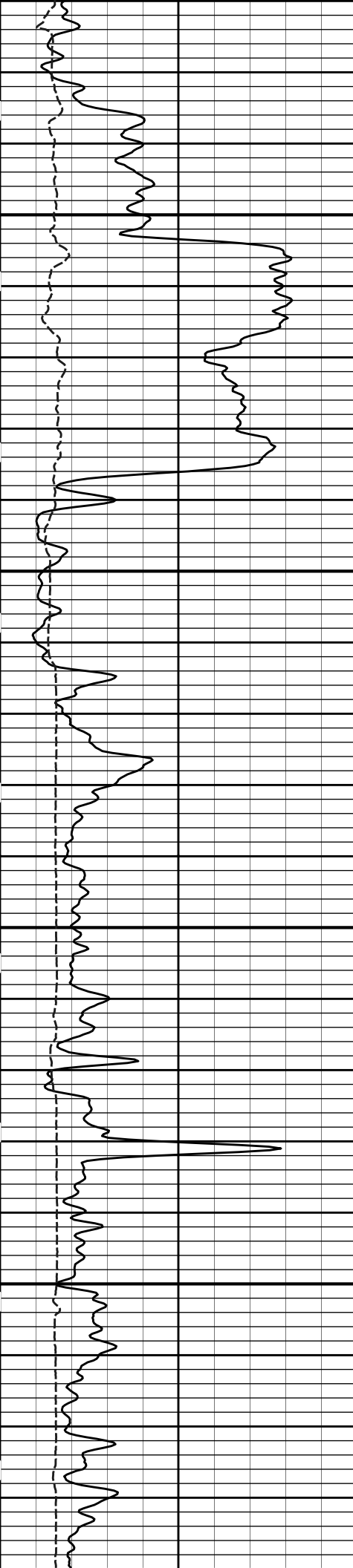
5 INCH MAIN LOG

HALLIBURTON

Plot Time: 24-May-11 14:38:11
Plot Range: 5400 ft to 5761.92 ft
Data: OBRATE_33_1\Well Based\DAQ-0001-002\
Plot File: \\LOCAL-IOBRATE_33_1\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\MICRO\EOG_Microlog_5_REPEAT_IQ

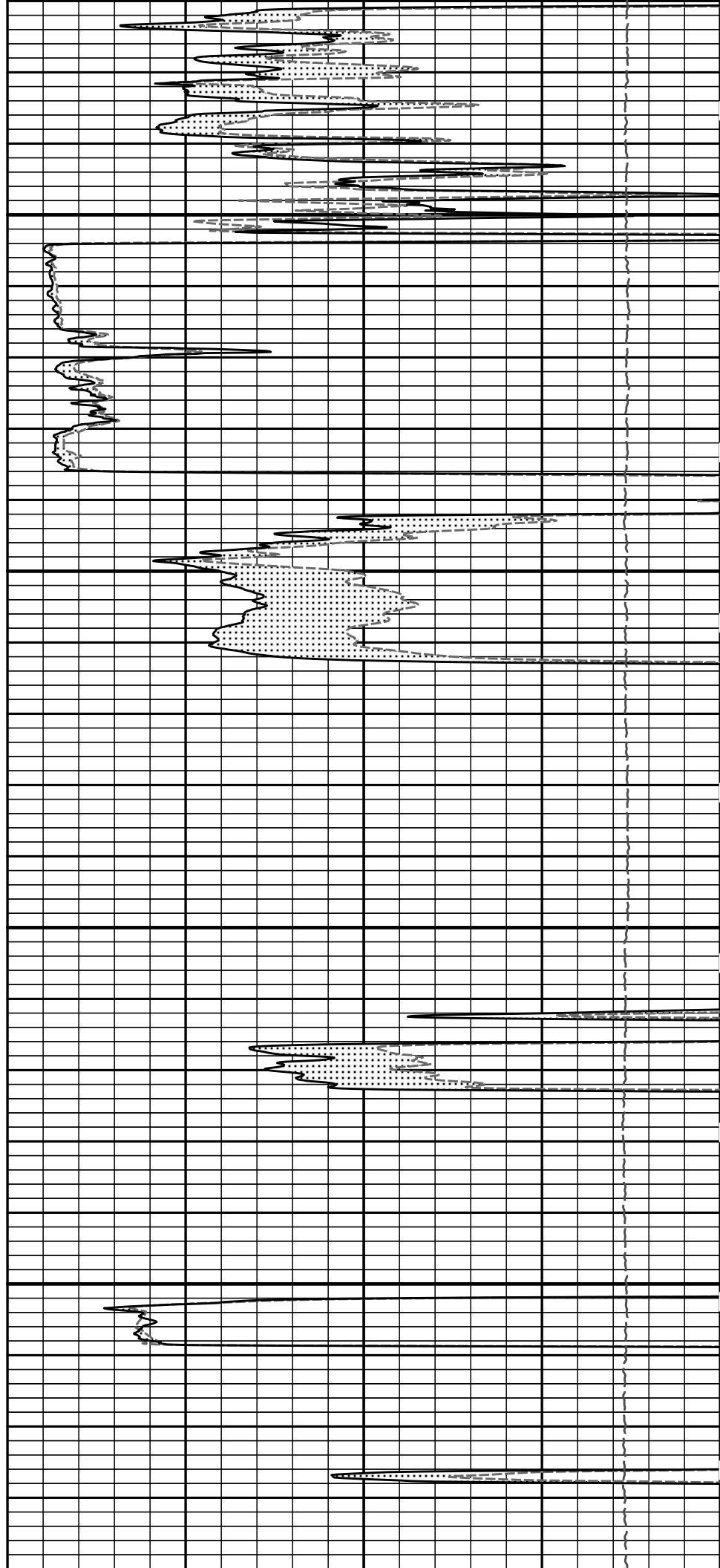
REPEAT SECTION

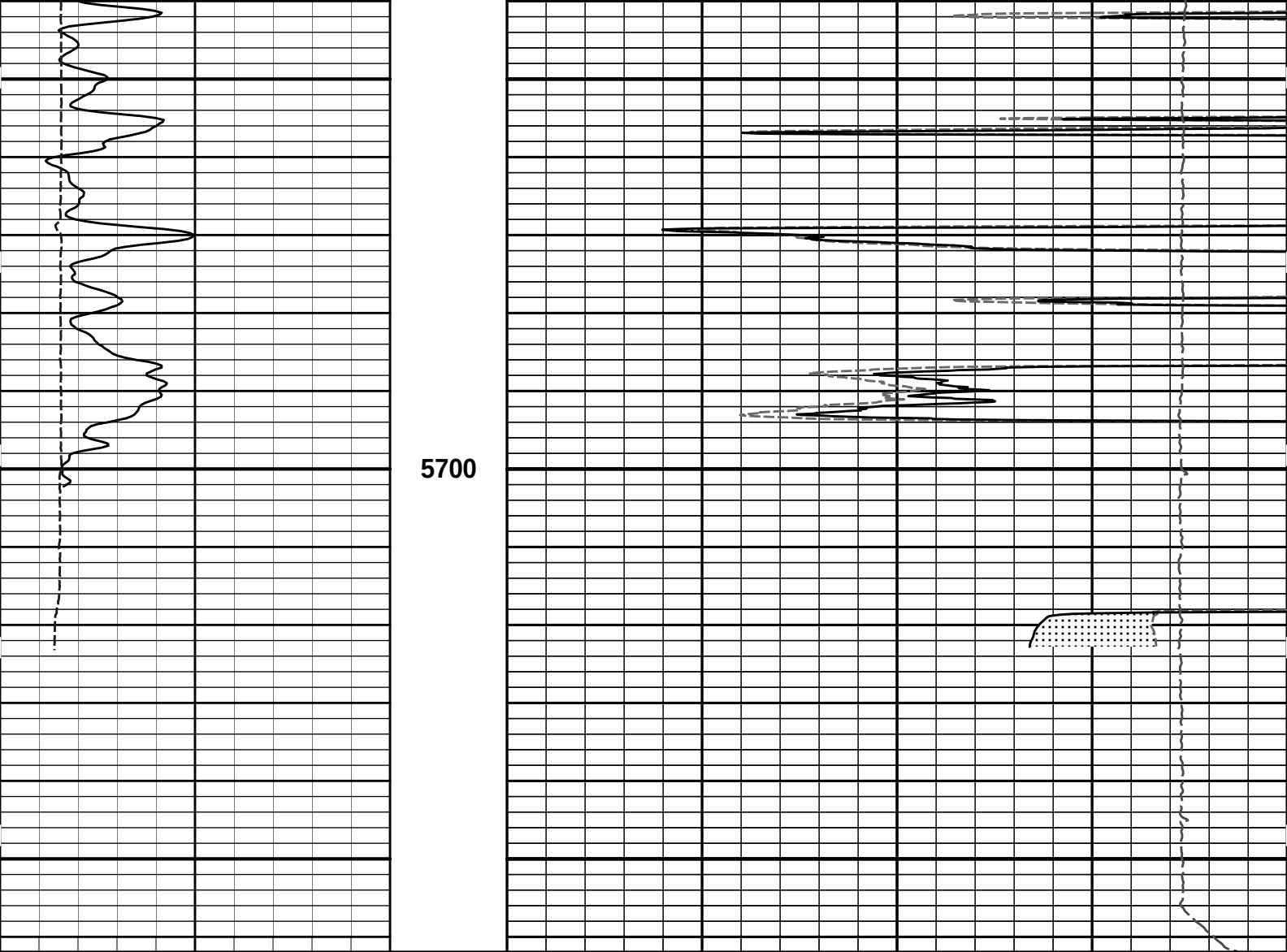




5500

5600





0	Gamma API	150	1 : 240	ft	15K	Tension	0
	api					pounds	
6	Caliper	16			0	MicrologLateral	20
	inches					ohm-metre	
	SHALE				0	MicrologNormal	20
						ohm-metre	
						PERMEABLE	

HALLIBURTON

Plot Time: 24-May-11 14:38:16
Plot Range: 5400 ft to 5761.92 ft
Data: OBRATE_33_1\Well Based\DAQ-0001-002\
Plot File: \\LOCAL\OBRATE_33_1\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\MICRO\EOG_Microlog_5_REPEAT_IQ

REPEAT SECTION

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
						72 34 ft

CH_HOS-CH_696
37.50 lbs

Ø 2.750 in →

← Temperature @ 71.31 ft

3.03 ft

XOHD-TRK696
20.00 lbs

Ø 2.750 in →
Ø 3.625 in →

0.95 ft

69.31 ft

SP Sub-PROT01
60.00 lbs

Ø 3.625 in →

← SP @ 66.59 ft

3.74 ft

64.63 ft

GTET-11050378
165.00 lbs

Ø 3.625 in →

← GammaRay @ 58.56 ft

8.52 ft

56.10 ft

DSN Decentralizer-
10755066
6.60 lbs

DSNT-11055304
174.00 lbs

Ø 3.625 in* →
Ø 3.625 in →

← DSN Far @ 49.17 ft
← DSN Near @ 48.42 ft

9.69 ft

46.42 ft

SDLT-I04_P84
360.00 lbs

Ø 4.500 in →
Ø 4.750 in →

SDL Microlog @ 38.60 ft
SDL Caliper @ 38.42 ft
SDL @ 38.41 ft

10.81 ft

35.60 ft

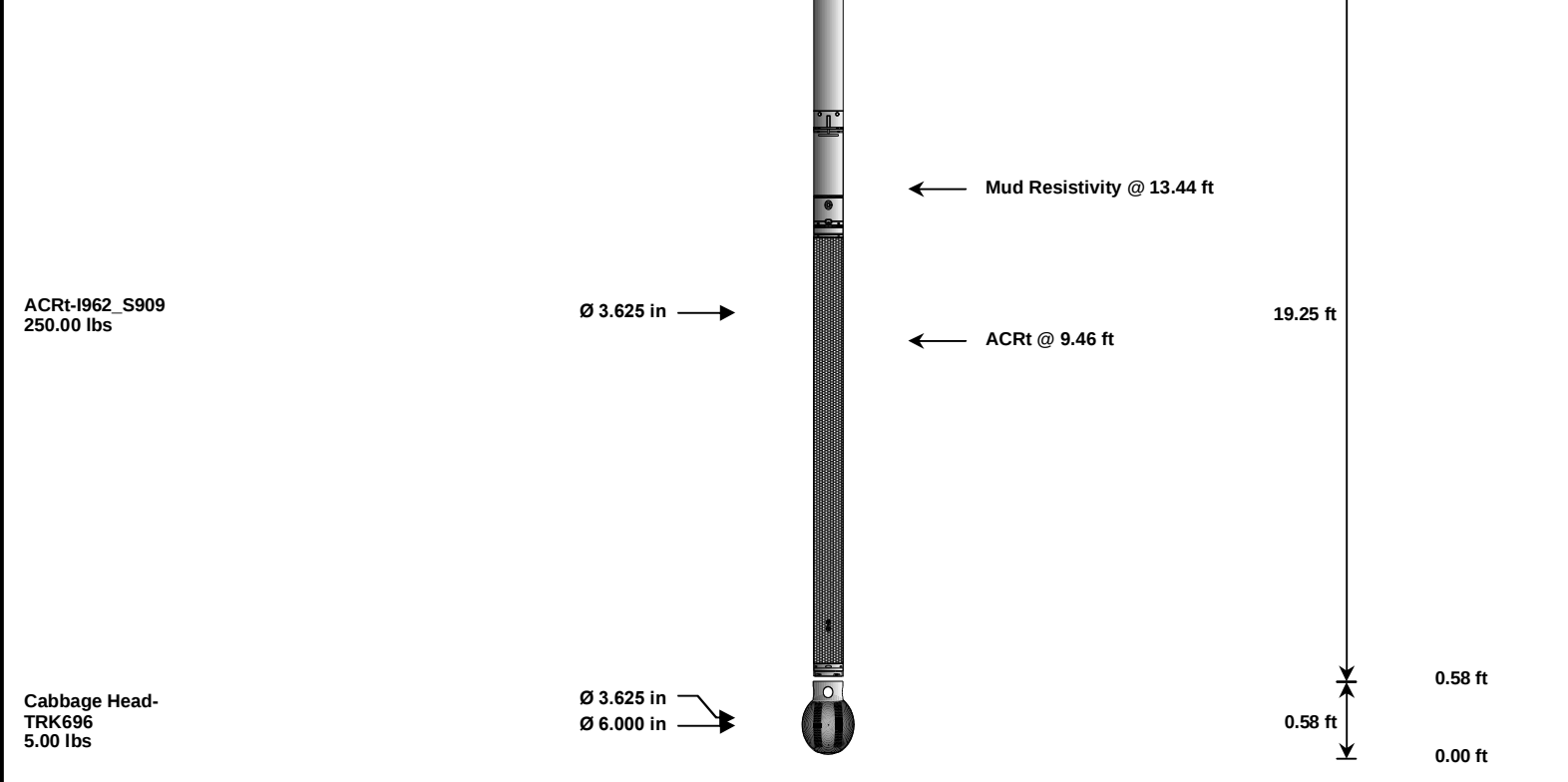
BSAT-10747684
300.00 lbs

Ø 3.625 in →

← Sonic Receivers @ 27.09 ft

15.77 ft

19.83 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_696		37.50	3.03	69.31	300.00
XOHD	Hostile to Dits Cross Over	TRK696		20.00	0.95	68.36	300.00
SP	SP Sub	PROT01		60.00	3.74	64.63	300.00
GTET	Gamma Telemetry Tool	11050378		165.00	8.52	56.10	60.00
DSNT	Dual Spaced Neutron	11055304		174.00	9.69	46.42	60.00
DCNT	DSN Decentralizer	10755066		6.60	5.13	* 49.75	300.00
SDLT	Spectral Density Tool	I04_P84		360.00	10.81	35.60	60.00
BSAT	Borehole Sonic Array Tool	10747684		300.00	15.77	19.83	60.00
ACRT	Array Compensated True Resistivity	I962_S909		250.00	19.25	0.58	300.00
CBHD	Cabbage Head	TRK696		5.00	0.58	0.00	300.00
Total				1,378.10	72.34		
Data: OBRATE_33_110001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\IDLE				* Not included in Total Length and Length Accumulation. Date: 24-May-11 10:50:38			

HALLIBURTON

CALIBRATION REPORT

MICRO LOG SHOP CALIBRATION			
Tool Name:	SDLT - I04_P84	Reference Calibration Date:	10-May-11 16:37:31
Engineer:	C. HAVERKAMP	Calibration Date:	10-May-11 16:39:32
Software Version:	WL INSITE R3.2.0 (Build 7)	Calibration Version:	1

CALIBRATION COEFFICIENT SUMMARY					
Measurement	Micro Log Normal		Micro Log Lateral		Units
	Measured	Calibrated	Measured	Calibrated	
Tool Zero	-0.09	-0.09	-0.01	-0.08	ohmm
Calibration Point #1	-0.00	0.00	0.07	0.00	ohmm
Calibration Point #2	20.00	20.00	19.99	20.00	ohmm
Internal Reference	19.92	19.92	19.98	19.99	ohmm
Micro Log Normal			Micro Log Lateral		

	Measurement	Micro Log Normal Tool Value	Micro Log Lateral Tool Value	Units
	Tool Zero	0.72	-2.09	V
	Calibration Point #1	24.47	24.32	V
	Calibration Point #2	5394.26	7059.24	V
	Internal Reference	5372.51	7056.02	V

MICRO LOG FIELD CHECK				
Tool Name:	SDLT - I04_P84	Reference Calibration Date:	10-May-11 16:39:32	
Engineer:	C. PARKER	Calibration Date:	24-May-11 10:14:20	
Software Version:	WL INSITE R3.2.0 (Build 7)	Calibration Version:	1	

	Measurement	Micro Log Normal		Micro Log Lateral		Units
		Shop	Field	Shop	Field	
	Tool Zero	-0.09	-0.09	-0.08	-0.07	ohmm
	Internal Reference	19.92	19.80	19.99	19.85	ohmm
Summary						
	Signal	Shop	Field	Difference		Tolerance
	Microlog Normal	19.92	19.80	0.12		+/- 0.80
	Microlog Lateral	19.99	19.85	0.14		+/- 0.80

CALIBRATION SUMMARY						
Sensor	Shop	Field	Post	Difference	Tolerance	Units
SDLT-I04_P84						
MicroLog Normal	19.92	19.80	-----	0.12	+/-0.80	ohmm
MicroLog Lateral	19.99	19.85	-----	0.14	+/-0.80	ohmm
Data: OBRATE_33_1\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\IDLE					Date: 24-May-11 14:18:19	

HALLIBURTON						
PARAMETERS REPORT						

Depth (ft)	Tool Name	Mnemonic	Description	Value	Units
TOP					
	DSNT	DNOK	Process DSN?	No	
	SDLT	DNOK	Process Density?	No	
	SDLT	MLOK	Process MicroLog Outputs?	No	
2340.00					
	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	8.900	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	1.310	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	5756.00	ft

	SHARED	BHT	Bottom Hole Temperature	140.0	degF
	SHARED	SVTM	Navigation and Survey Master Tool	NONE	
	SHARED	AZTM	High Res Z Accelerometer Master Tool	GTET	
	SHARED	TEMM	Temperature Master Tool	NONE	
	SHARED	BHSM	Borehole Size Master Tool	NONE	
	GTET	GROK	Process Gamma Ray?	Yes	
	GTET	GRSO	Gamma Tool Standoff	0.000	in
	GTET	GEOK	Process Gamma Ray EVR?	No	
	GTET	TPOS	Tool Position	Eccentered	
	DSNT	DNOK	Process DSN?	Yes	
	DSNT	DEOK	Process DSN EVR?	No	
	DSNT	NLIT	Neutron Lithology	Limestone	
	DSNT	DNSO	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.250	in
	DSNT	DNTP	Temperature Correction Type	None	
	DSNT	DPRS	DSN Pressure Correction Type	None	
	DSNT	SHCO	View More Correction Options	No	
	DSNT	UTVD	Use TVD for Gradient Corrections?	No	
	DSNT	LHWT	Logging Horizontal Water Tank?	No	
	SDLT	DNOK	Process Density?	Yes	
	SDLT	DNOK	Process Density EVR?	No	
	SDLT	CB	Logging Calibration Blocks?	No	
	SDLT	SPVT	SDLT Pad Temperature Valid?	Yes	
	SDLT	DTWN	Disable temperature warning	No	
	SDLT	DMA	Formation Density Matrix	2.710	g/cc
	SDLT	DFL	Formation Density Fluid	1.000	g/cc
	SDLT	CLOK	Process Caliper Outputs?	Yes	
	SDLT	MLOK	Process MicroLog Outputs?	Yes	
	BSAT	MBOK	Compute BCAS Results?	Yes	
	BSAT	FLLO	Frequency Filter Low Pass Value?	7000	Hz
	BSAT	FLHI	Frequency Filter High Pass Value?	27000	Hz
	BSAT	DTFL	Delta -T Fluid	189.00	uspf
	BSAT	DTMT	Delta -T Matrix Type	User define	
	BSAT	DTMA	Delta -T Matrix	47.60	uspf
	BSAT	DTSH	Delta -T Shale	100.00	uspf
	BSAT	SPEQ	Acoustic Porosity Equation	Wylie	
	ACRt	RTOK	Process ACRT?	Yes	
	ACRt	MNSO	Minimum Tool Standoff	1.50	in
	ACRt	TCS1	Temperature Correction Source	FP Lwr & FP Upr	
	ACRt	TPOS	Tool Position	Free Hanging	
	ACRt	RMOP	Rmud Source	Mud Cell	
	ACRt	RMIN	Minimum Resistivity for MAP	0.20	ohmm
	ACRt	RMIN	Maximum Resistivity for MAP	200.00	ohmm
	ACRt	THQY	Threshold Quality	0.50	
BOTTOM_____					
Data: OBRATE_33_110001 SP-GTET-DSN-SDL-BSAT-ACRT-CHIIDLE				Date: 24-May-11 12:54:40	

HALLIBURTON					
INPUTS, DELAYS AND FILTERS TABLE					
Mnemonic		Input Description		Delay (ft)	Filter Type
		Depth Panel			Filter Length (ft)
TENS	Tension			0.00	NO

CH_HOS				
DHTN	Downhole Tension	0.00	BLK	0.000
SP Sub				
PLTC	Plot Control Mask	66.58	NO	
SP	Spontaneous Potential	66.58	BLK	1.250
SPR	Raw Spontaneous Potential	66.58	NO	
SPO	Spontaneous Potential Offset	66.58	NO	
GTET				
TPUL	Tension Pull	58.56	NO	
GR	Natural Gamma Ray API	58.56	TRI	1.750
GRU	Unfiltered Natural Gamma Ray API	58.56	NO	
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution	58.56	W	1.416 , 0.750
ACCZ	Accelerometer Z	0.00	BLK	0.083
DEVI	Inclination	0.00	NO	
DSNT				
TPUL	Tension Pull	48.32	NO	
RNDS	Near Detector Telemetry Counts	48.42	BLK	1.417
RFDS	Far Detector Telemetry Counts	49.17	TRI	0.583
DNTT	DSN Tool Temperature	48.42	NO	
DSNS	DSN Tool Status	48.32	NO	
ERND	Near Detector Telemetry Counts EVR	48.42	BLK	0.000
ERFD	Far Detector Telemetry Counts EVR	49.17	BLK	0.000
ENTM	DSN Tool Temperature EVR	48.42	NO	
SDLT				
TPUL	Tension Pull	38.41	NO	
NAB	Near Above	38.24	BLK	0.920
NHI	Near Cesium High	38.24	BLK	0.920
NLO	Near Cesium Low	38.24	BLK	0.920
NVA	Near Valley	38.24	BLK	0.920
NBA	Near Barite	38.24	BLK	0.920
NDE	Near Density	38.24	BLK	0.920
NPK	Near Peak	38.24	BLK	0.920
NLI	Near Lithology	38.24	BLK	0.920
NBAU	Near Barite Unfiltered	38.24	BLK	0.250
NLIU	Near Lithology Unfiltered	38.24	BLK	0.250
FAB	Far Above	38.58	BLK	0.250
FHI	Far Cesium High	38.58	BLK	0.250
FLO	Far Cesium Low	38.58	BLK	0.250
FVA	Far Valley	38.58	BLK	0.250
FBA	Far Barite	38.58	BLK	0.250
FDE	Far Density	38.58	BLK	0.250
FPK	Far Peak	38.58	BLK	0.250
FLI	Far Lithology	38.58	BLK	0.250
PTMP	Pad Temperature	38.42	BLK	0.920
NHV	Near Detector High Voltage	35.60	NO	
FHV	Far Detector High Voltage	35.60	NO	
ITMP	Instrument Temperature	35.60	NO	
DDHV	Detector High Voltage	35.60	NO	
TPUL	Tension Pull	38.42	NO	
PCAL	Pad Caliper	38.42	TRI	0.250
ACAL	Arm Caliper	38.42	TRI	0.250
TPUL	Tension Pull	38.60	NO	
MINV	Microlog Lateral	38.60	BLK	0.750

MINV	Microlog Lateral	38.60	BLK	0.750
MNOR	Microlog Normal	38.60	BLK	0.750
BSAT				
TPUL	Tension Pull	27.09	NO	
STAT	Status	27.09	NO	
DLYT	Delay Time	27.09	NO	
SI	Sample Interval	27.09	NO	
TXRX	Raw Telemetry 10 Receivers	27.09	NO	
FRMC	Tool Frame Count	27.09	NO	
ACRt				
TPUL	Tension Pull	2.97	NO	
F1R1	ACRT 12KHz - 80in R value	9.22	BLK	0.000
F1X1	ACRT 12KHz - 80in X value	9.22	BLK	0.000
F1R2	ACRT 12KHz - 50in R value	6.72	BLK	0.000
F1X2	ACRT 12KHz - 50in X value	6.72	BLK	0.000
F1R3	ACRT 12KHz - 29in R value	5.22	BLK	0.000
F1X3	ACRT 12KHz - 29in X value	5.22	BLK	0.000
F1R4	ACRT 12KHz - 17in R value	4.22	BLK	0.000
F1X4	ACRT 12KHz - 17in X value	4.22	BLK	0.000
F1R5	ACRT 12KHz - 10in R value	3.72	BLK	0.000
F1X5	ACRT 12KHz - 10in X value	3.72	BLK	0.000
F1R6	ACRT 12KHz - 6in R value	3.47	BLK	0.000
F1X6	ACRT 12KHz - 6in X value	3.47	BLK	0.000
F2R1	ACRT 36KHz - 80in R value	9.22	BLK	0.000
F2X1	ACRT 36KHz - 80in X value	9.22	BLK	0.000
F2R2	ACRT 36KHz - 50in R value	6.72	BLK	0.000
F2X2	ACRT 36KHz - 50in X value	6.72	BLK	0.000
F2R3	ACRT 36KHz - 29in R value	5.22	BLK	0.000
F2X3	ACRT 36KHz - 29in X value	5.22	BLK	0.000
F2R4	ACRT 36KHz - 17in R value	4.22	BLK	0.000
F2X4	ACRT 36KHz - 17in X value	4.22	BLK	0.000
F2R5	ACRT 36KHz - 10in R value	3.72	BLK	0.000
F2X5	ACRT 36KHz - 10in X value	3.72	BLK	0.000
F2R6	ACRT 36KHz - 6in R value	3.47	BLK	0.000
F2X6	ACRT 36KHz - 6in X value	3.47	BLK	0.000
F3R1	ACRT 72KHz - 80in R value	9.22	BLK	0.000
F3X1	ACRT 72KHz - 80in X value	9.22	BLK	0.000
F3R2	ACRT 72KHz - 50in R value	6.72	BLK	0.000
F3X2	ACRT 72KHz - 50in X value	6.72	BLK	0.000
F3R3	ACRT 72KHz - 29in R value	5.22	BLK	0.000
F3X3	ACRT 72KHz - 29in X value	5.22	BLK	0.000
F3R4	ACRT 72KHz - 17in R value	4.22	BLK	0.000
F3X4	ACRT 72KHz - 17in X value	4.22	BLK	0.000
F3R5	ACRT 72KHz - 10in R value	3.72	BLK	0.000
F3X5	ACRT 72KHz - 10in X value	3.72	BLK	0.000
F3R6	ACRT 72KHz - 6in R value	3.47	BLK	0.000
F3X6	ACRT 72KHz - 6in X value	3.47	BLK	0.000
RMUD	Mud Resistivity	12.76	BLK	0.000
F1RT	Transmitter Reference 12 KHz Real Signal	2.97	BLK	0.000
F1XT	Transmitter Reference 12 KHz Imaginary Signal	2.97	BLK	0.000
F2RT	Transmitter Reference 36 KHz Real Signal	2.97	BLK	0.000
F2XT	Transmitter Reference 36 KHz Imaginary Signal	2.97	BLK	0.000
F3RT	Transmitter Reference 72 KHz Real Signal	2.97	BLK	0.000
F3XT	Transmitter Reference 72 KHz Imaginary Signal	2.97	BLK	0.000
TEMP	Upper Feedpipe Temperature Calculated	2.97	BLK	0.000

TFPU	Upper Feedpipe Temperature Calculated	2.97	BLK	0.000
TFPL	Lower Feedpipe Temperature Calculated	2.97	BLK	0.000
ITMP	Instrument Temperature	2.97	BLK	0.000
TCVA	Temperature Correction Values Loop Off	2.97	NO	
TIDV	Instrument Temperature Derivative	2.97	NO	
TUDV	Upper Temperature Derivative	2.97	NO	
TLDV	Lower Temperature Derivative	2.97	NO	
TRBD	Receiver Board Temperature	2.97	NO	
Data: OBRATE_33_110001 SP-GTET-DSN-SDL-BSAT-ACRT-CHIDLE				Date: 24-May-11 10:52:43

COMPANY	EOG RESOURCES		
WELL	OBRATE 33 #1		
FIELD	NW SUBLETTE		
COUNTY	HASKELL	STATE	KANSAS
HALLIBURTON		MICROLOG	