

# HALLIBURTON

## MICRO LOG

COMPANY	<b>SANDRIDGE ENERGY</b>		
WELL	<b>PAMELA 2330 1-34 RE</b>		
FIELD/BLOCK			
COUNTY	<b>FINNEY</b>		
STATE	<b>KANSAS</b>		
COMPANY	<b>SANDRIDGE ENERGY</b>	API No.	15-055-21942-00-00
WELL	<b>PAMELA 2330 1-34 RE</b>	Location	880' FNL 2360' FWL
FIELD/BLOCK			
COUNTY	<b>FINNEY</b>	Other Services:	DSNT/SDLT ACRT CSNG WSTT MRIL
STATE	<b>KANSAS</b>		
Sect.	34	Twp.	23S
Rge.			30W
Elev.			2818.0 ft
			2816.0 ft
			2806.0 ft

Permanent Datum	GL	Elev.: K.B.	2818.0 ft
Log measured from	KB	D.F.	2816.0 ft
Drilling measured from	KB	G.L.	2806.0 ft
			12.0 ft above perm. Datum

Date	17-Apr-13		
Run No.	ONE		
Depth - Driller	5420.00 ft		
Depth - Logger	5374.0 ft		
Bottom - Logged Interval	5286.0 ft		
Top - Logged Interval	352.0 ft		
Casing - Driller	8.625 in @ 346.0 ft		
Casing - Logger	352.0 ft @		
Bit Size	7.875 in @		
Type Fluid in Hole	WATER BASED MUD		
Density	9.1 ppg	51.00 s/qt	
PH	11.00 pH	4.0 cp/m	
Source of Sample	FLOWLINE		
Rm @ Meas. Temperature	0.360 ohmm	@ 75.00 degF	@
Rmf @ Meas. Temperature	0.29 ohmm	@ 75.00 degF	@
Rmc @ Meas. Temperature	0.420 ohmm	@ 75.00 degF	@
Source Rmf	Rmc	MEASURED	MEASURED
Rm @ BHT	0.22 ohmm	@ 125.0 degF	@
Time Since Circulation	8.0 hr		
Time on Bottom	17-Apr-13 19:41		
Max. Rec. Temperature	125.0 degF	@ 5374.0 ft	@
Equipment	10546696	LIBERAL	
Recorded By	THOMAS HYDE		
Witnessed By	W. SCOTT		

Fold here

Service Ticket No.: 900366024      API Serial No.: 15-055-21942-00-00      PGM Version: WL INSITE R3.8.4 (Build 5)

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.
Rmf @ Meas. Temp.	@		@	ONE	MICRO	RUBBER	ADJ.
Rmc @ Meas. Temp.	@		@		11014296		
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.	11039640	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				
Run No.	Depth		Speed	Scale		Scale		Matrix	Scale		Matrix	Scale		Matrix
	From	To	ft/min	L	R	L	R		L	R		L	R	
ONE	5374	352	REC	0	150									

DIRECTIONAL INFORMATION

Maximum Deviation @ KOP @

Remarks: ANNULAR HOLE VOLUME CALCULATED FOR 5.5 INCH CASING  
 CHLORIDES REPORTED AT 8800 MG/L

TODAY'S CREW M. GRAHAM F. VILLA

THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES LIBERAL, KANSAS 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



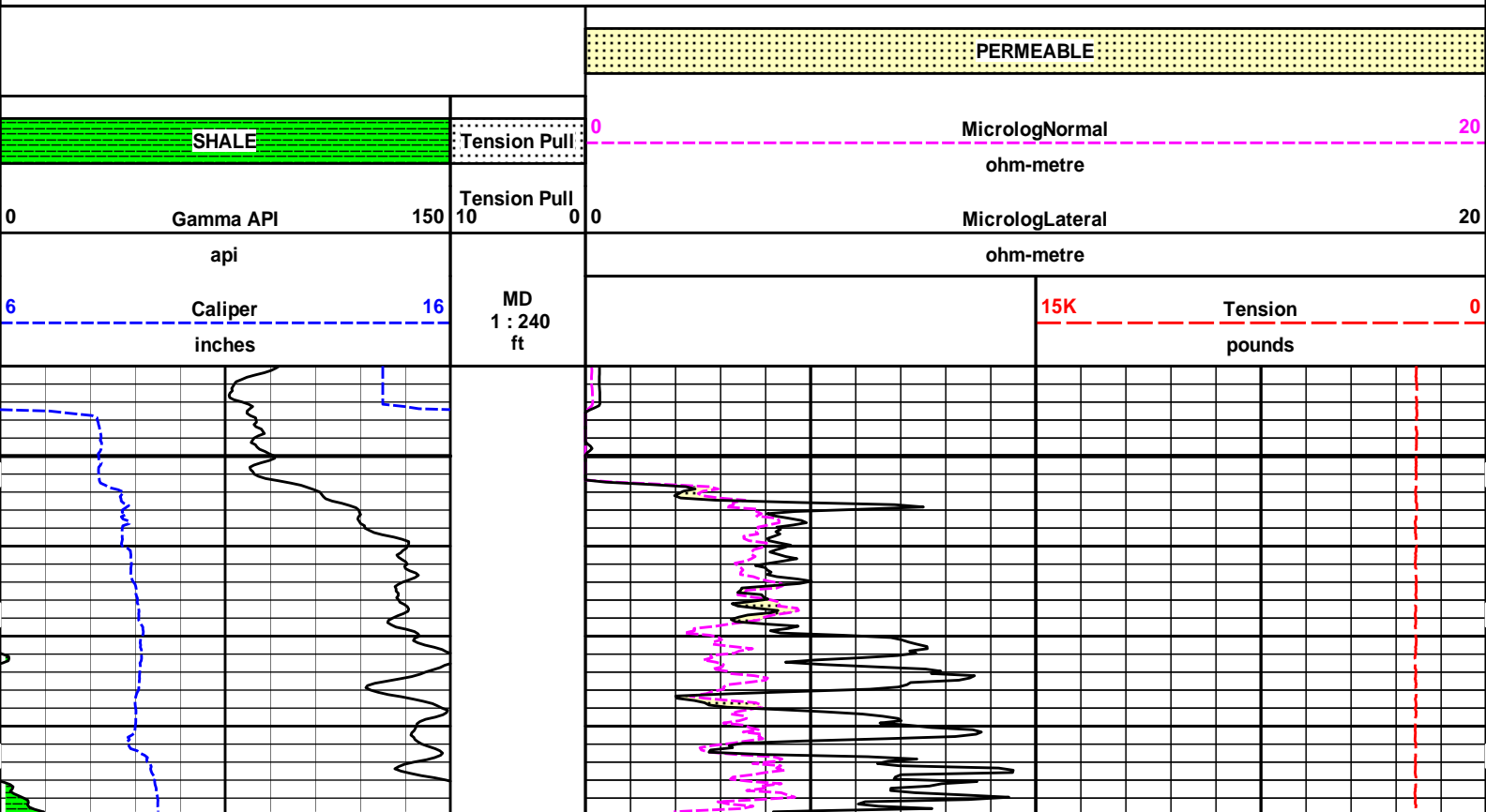
Plot Time: 18-Apr-13 03:51:32

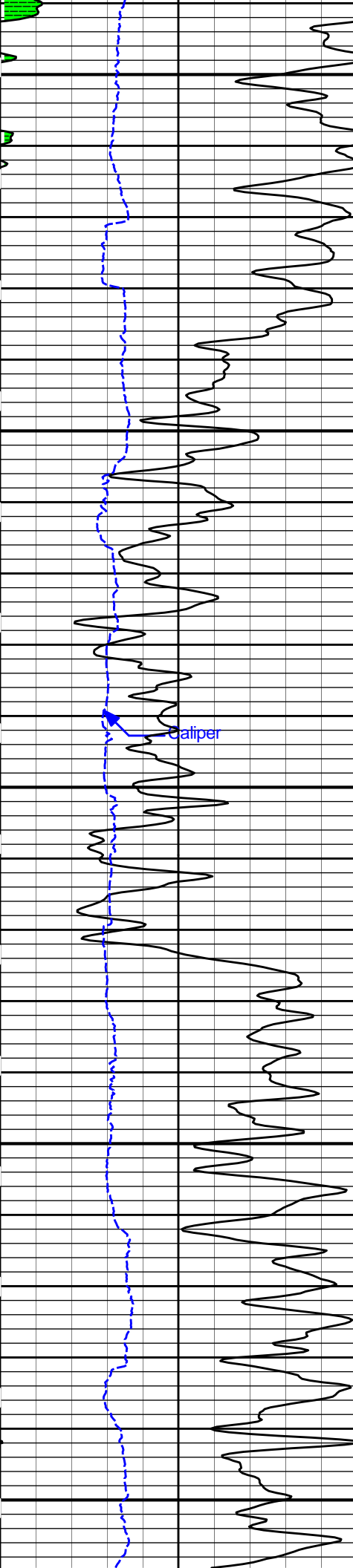
Plot Range: 340 ft to 5377.25 ft

Data: PAMELA\_2330\_1-3\Well Based\DAQ-0001-003\

Plot File: \\LOCAL-IPAMELA\_2330\_1-3\0001 SP-GTET-DSN-SDL-XRMI-WSTT-ACRT-BNMICRO\Microlog\_IQ\_5\_main\_lib

## 5 INCH MAIN LOG

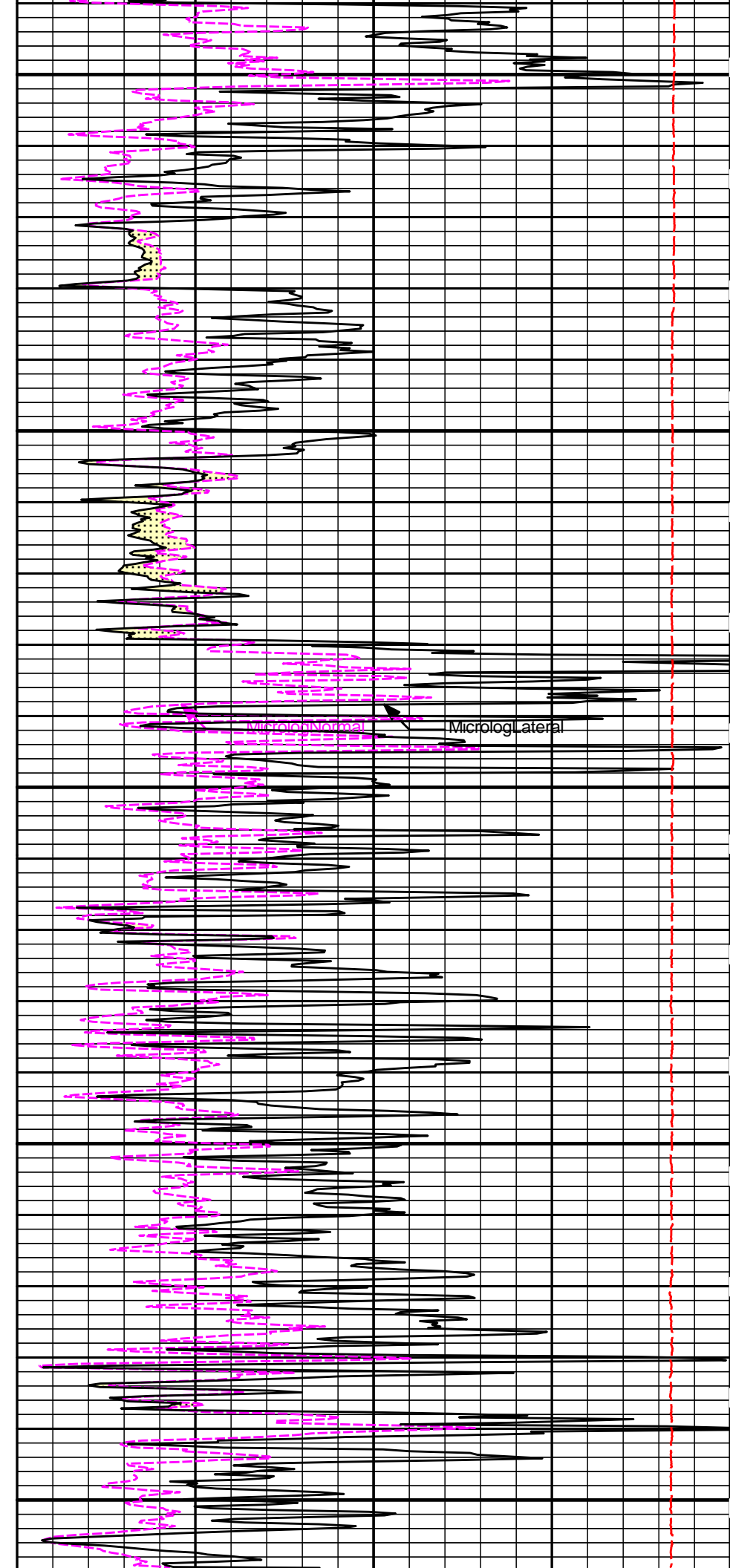




400

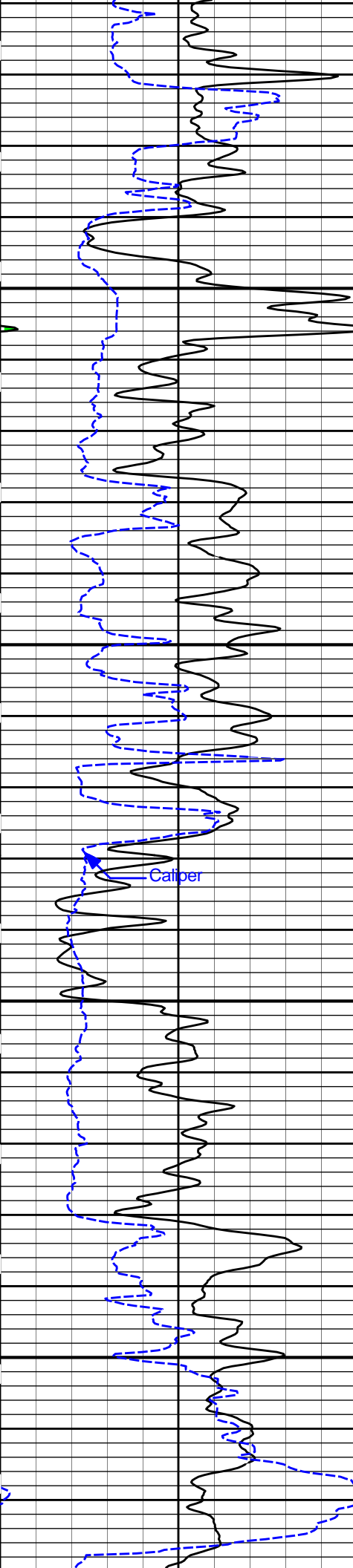
500

600



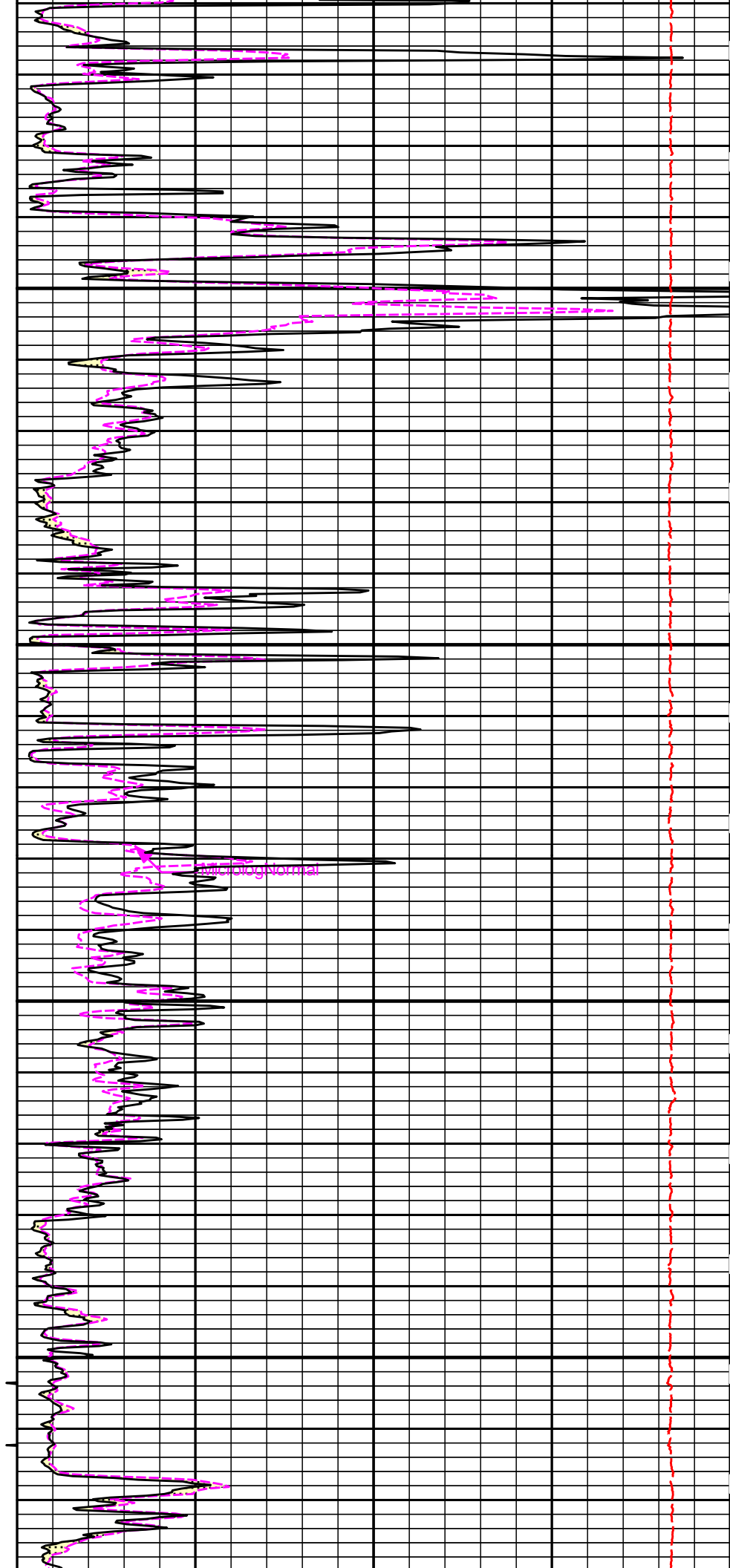
MicrologVertical

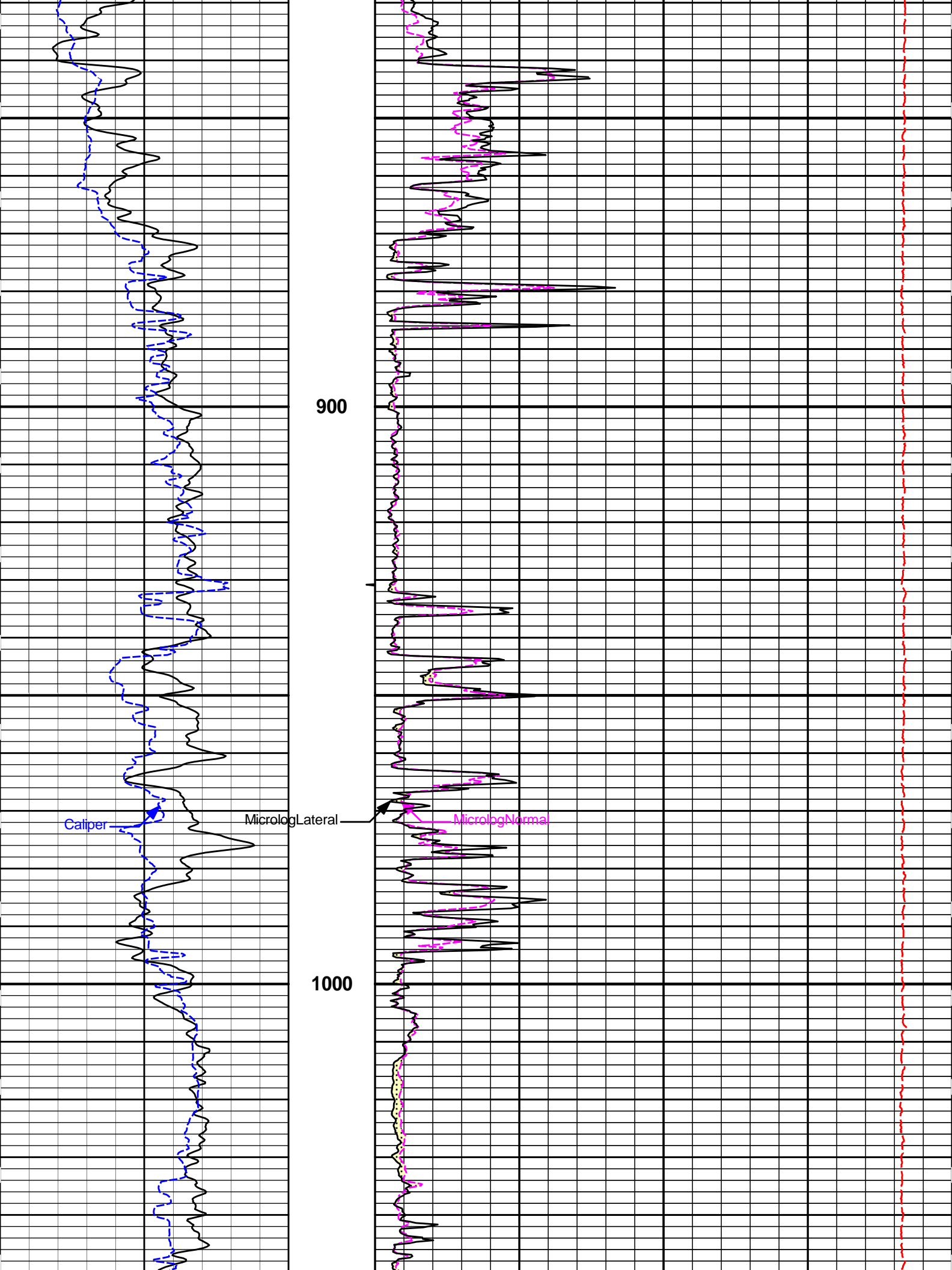
MicrologLateral

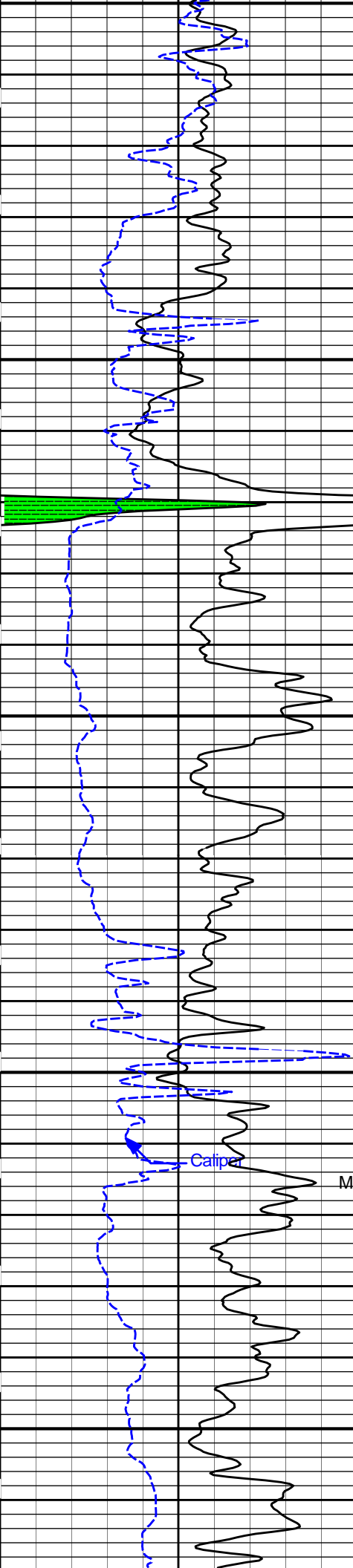


700

800





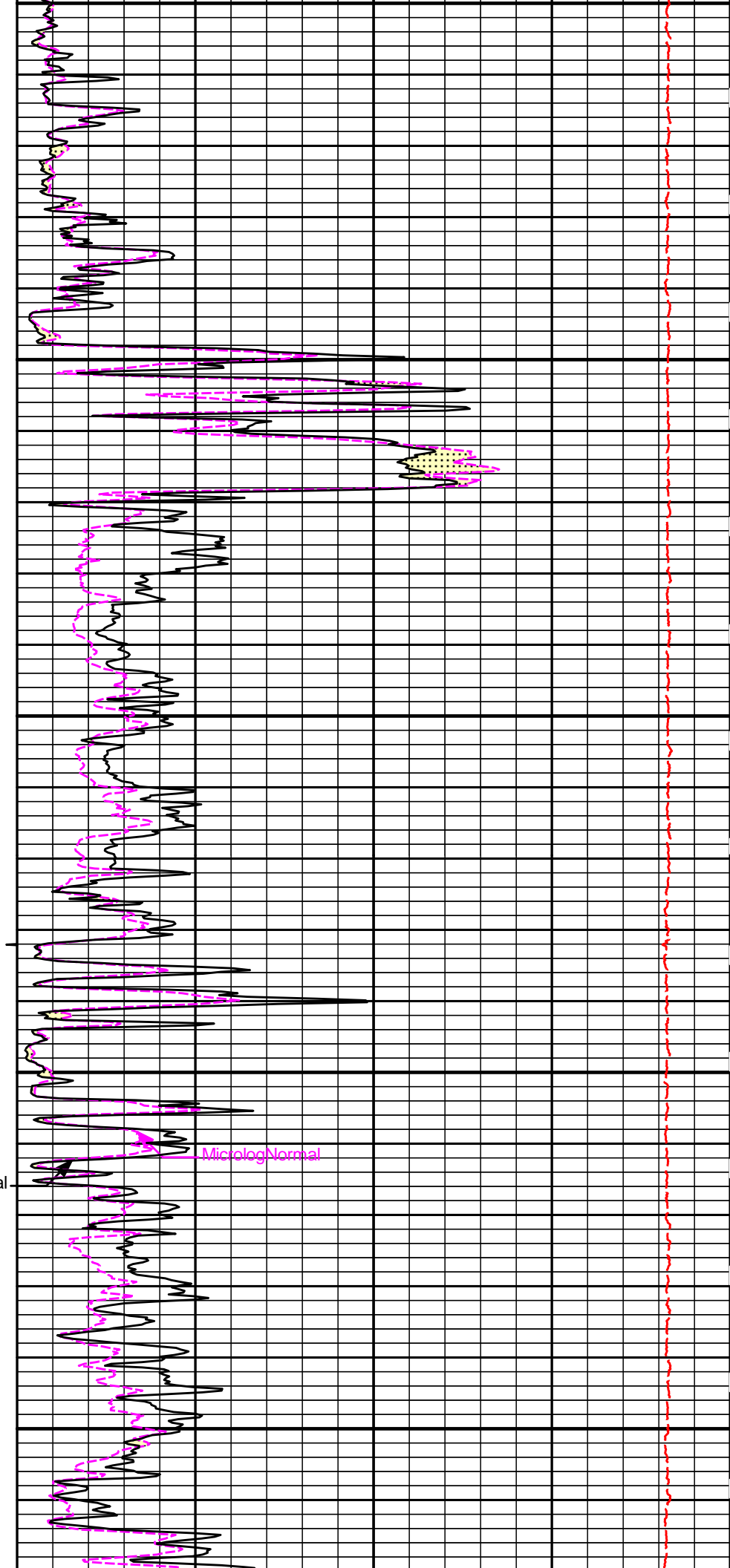


1100

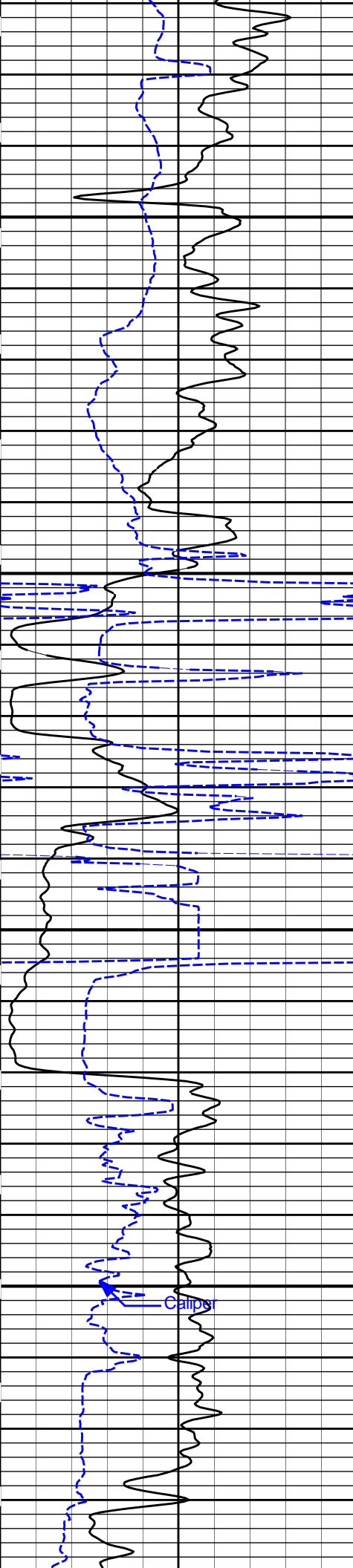
1200

Caliper

MicrologLateral

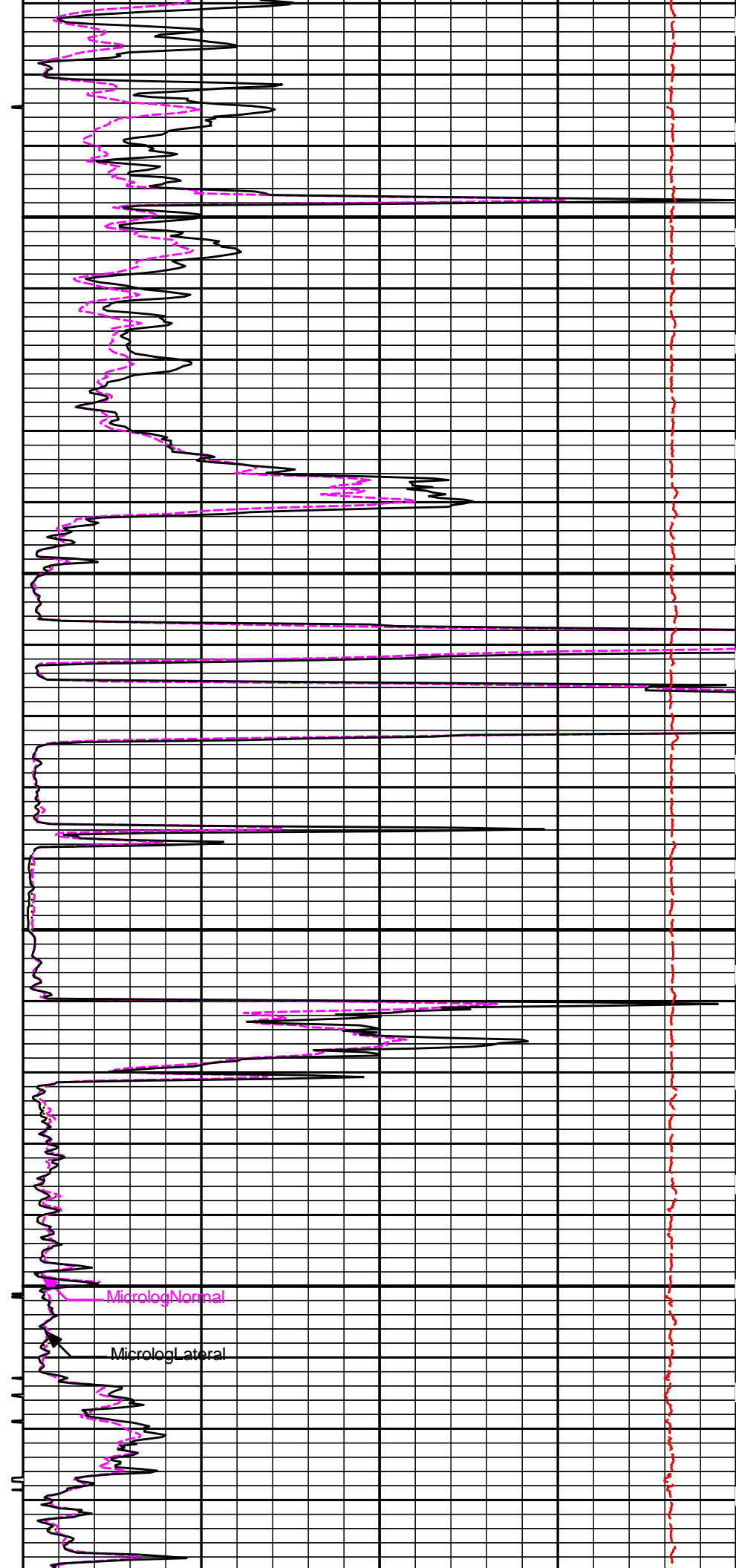


MicrologNormal



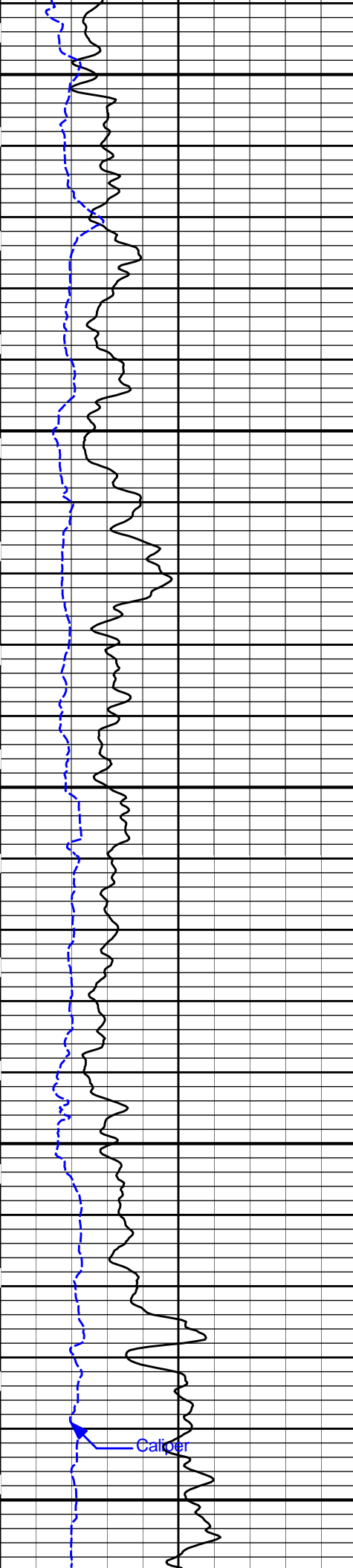
1300

1400



MicrologNormal

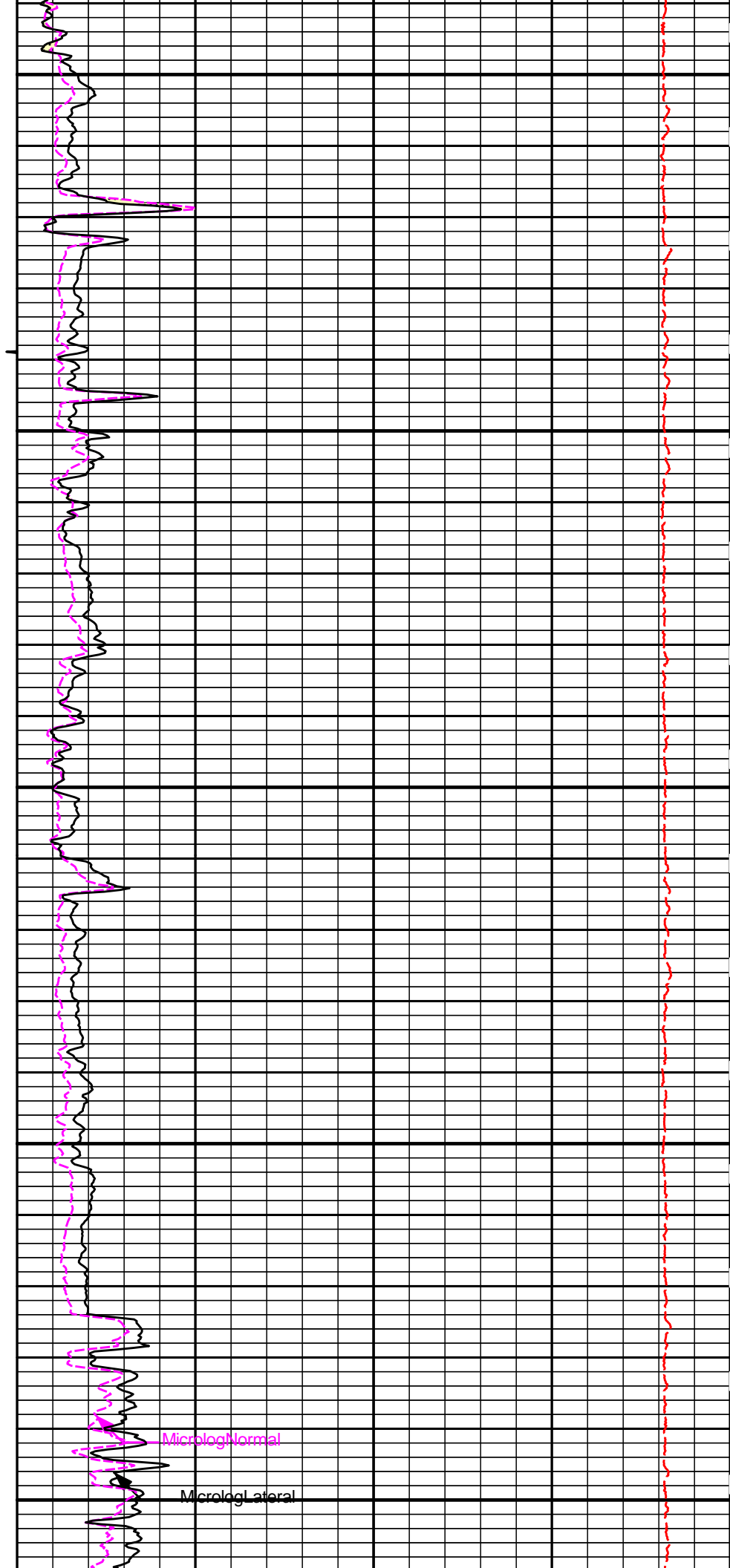
MicrologLateral



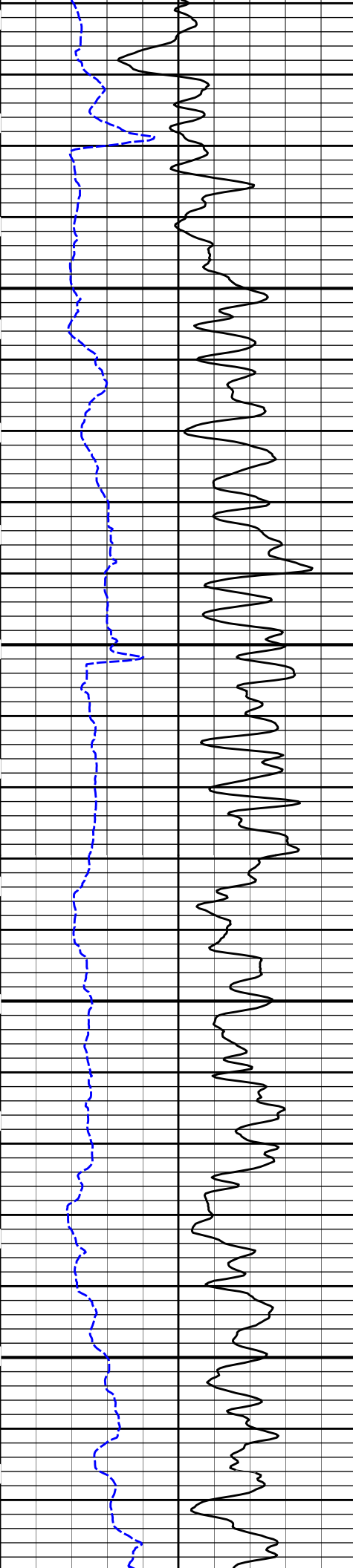
1500

1600

1700

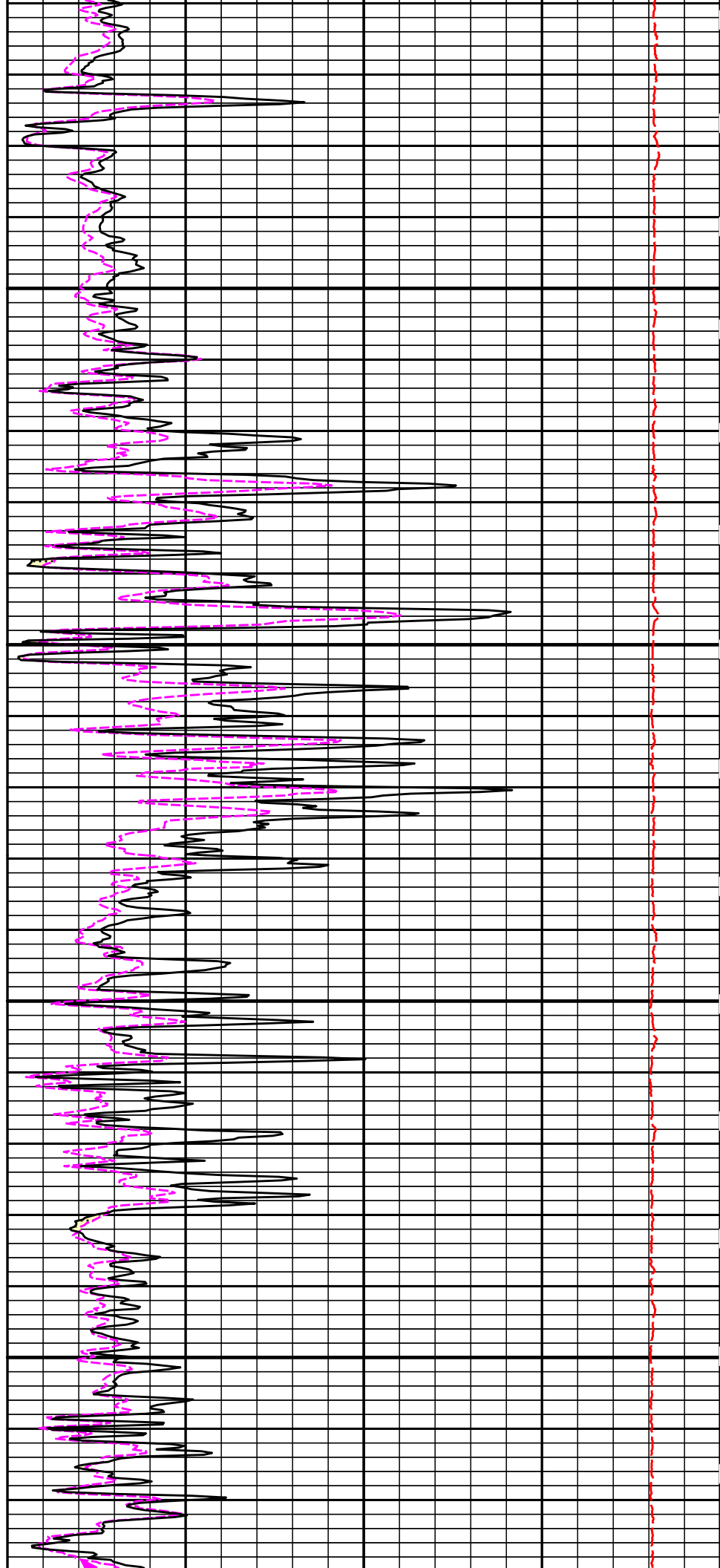


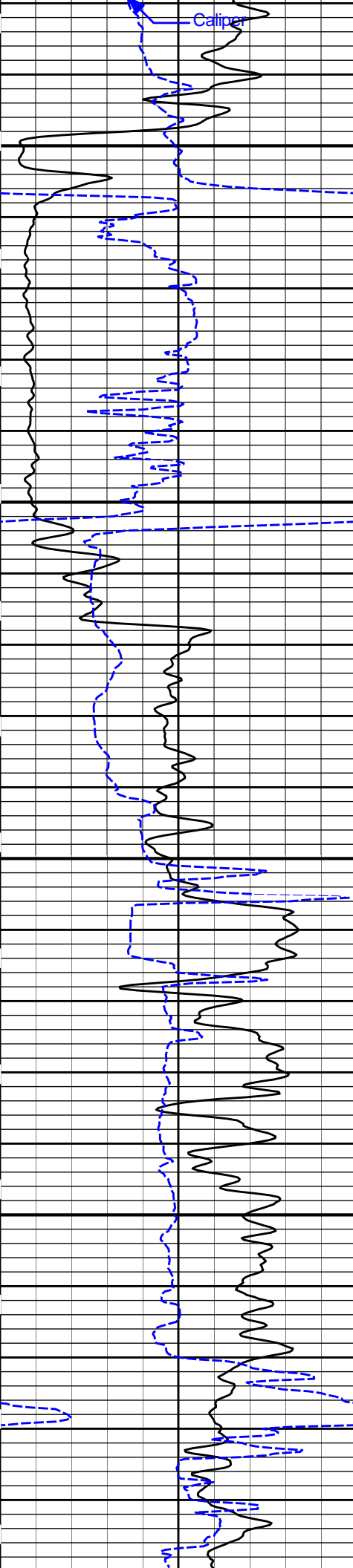




1800

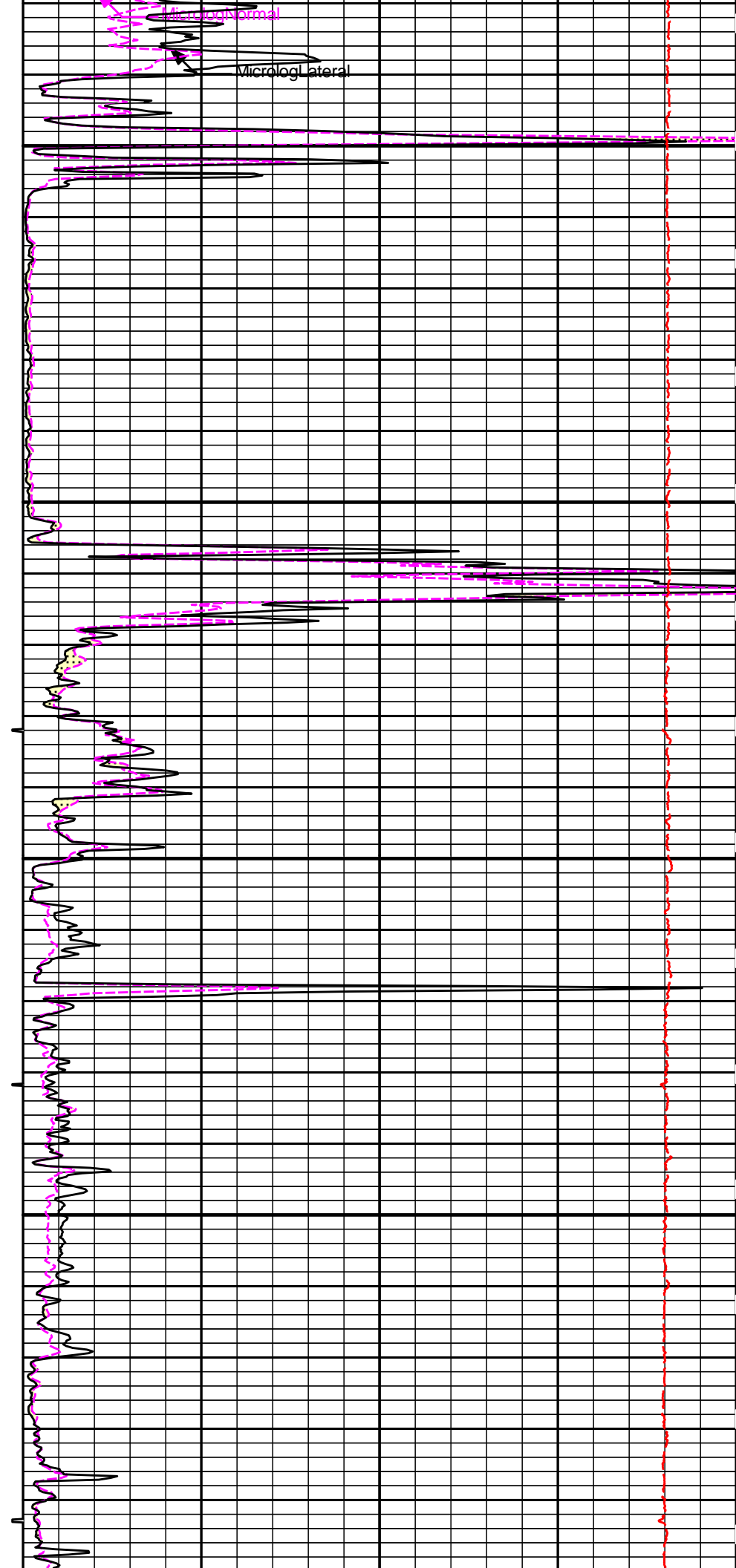
1900

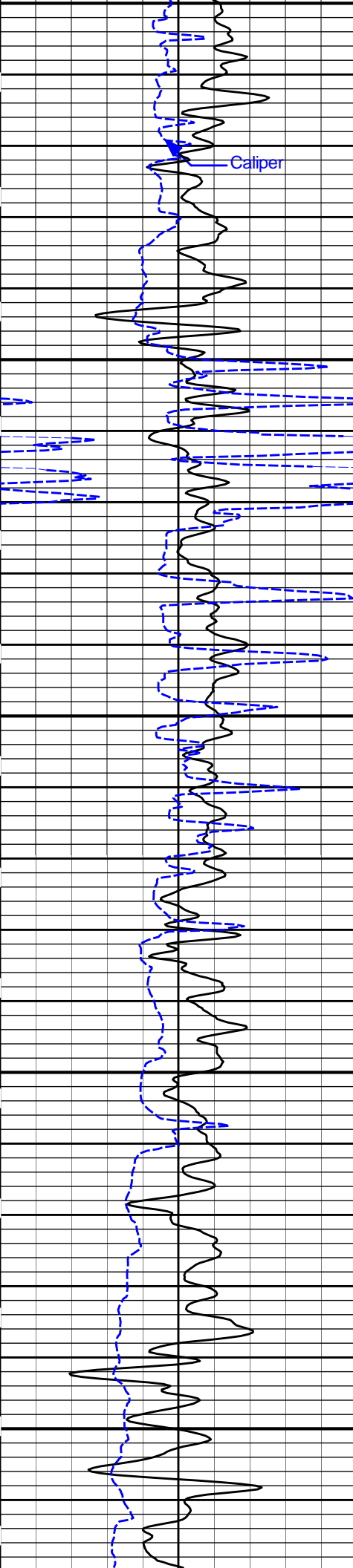




2000

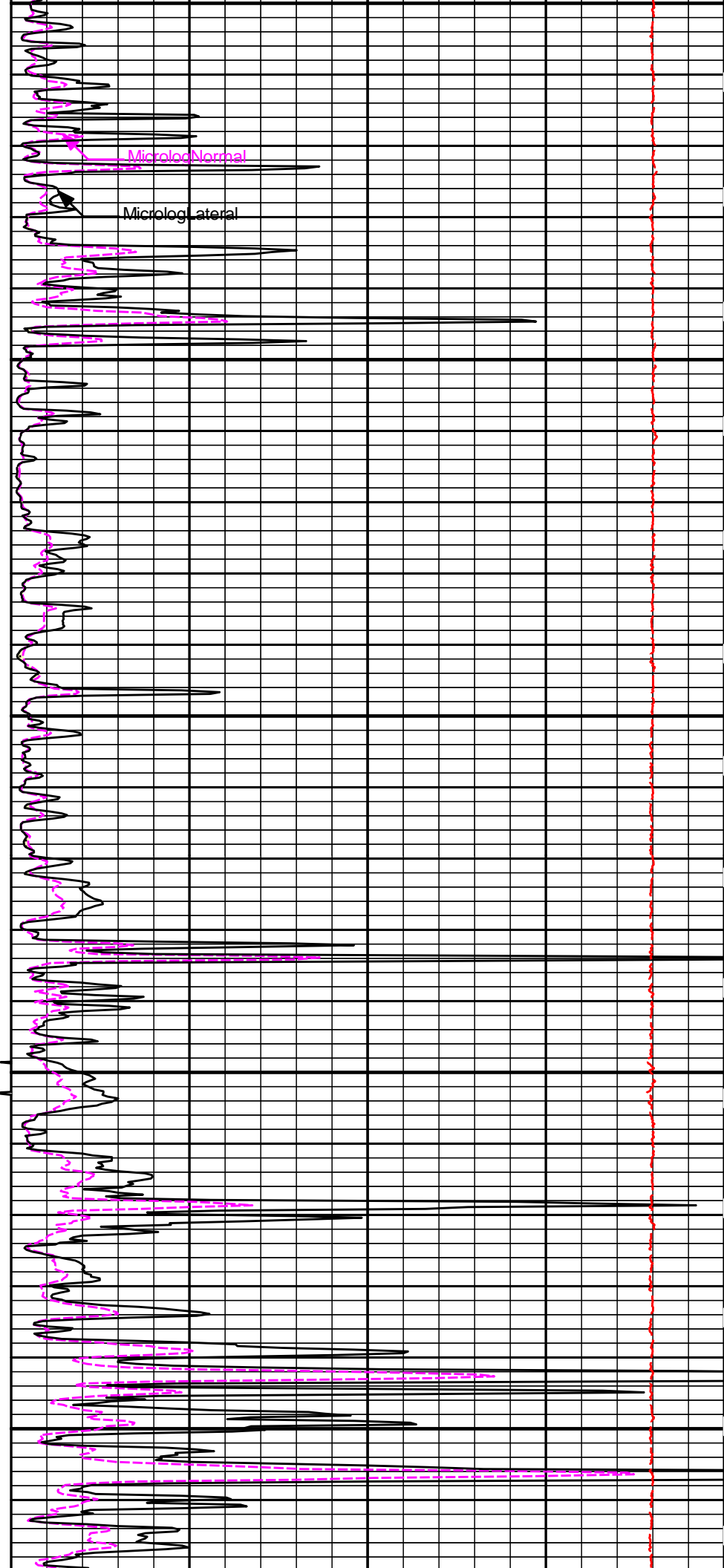
2100

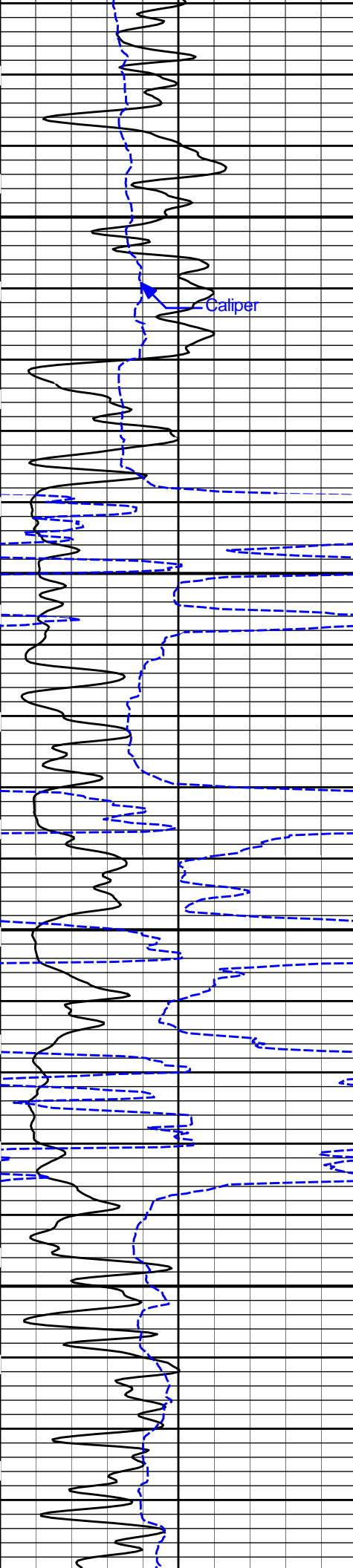




2200

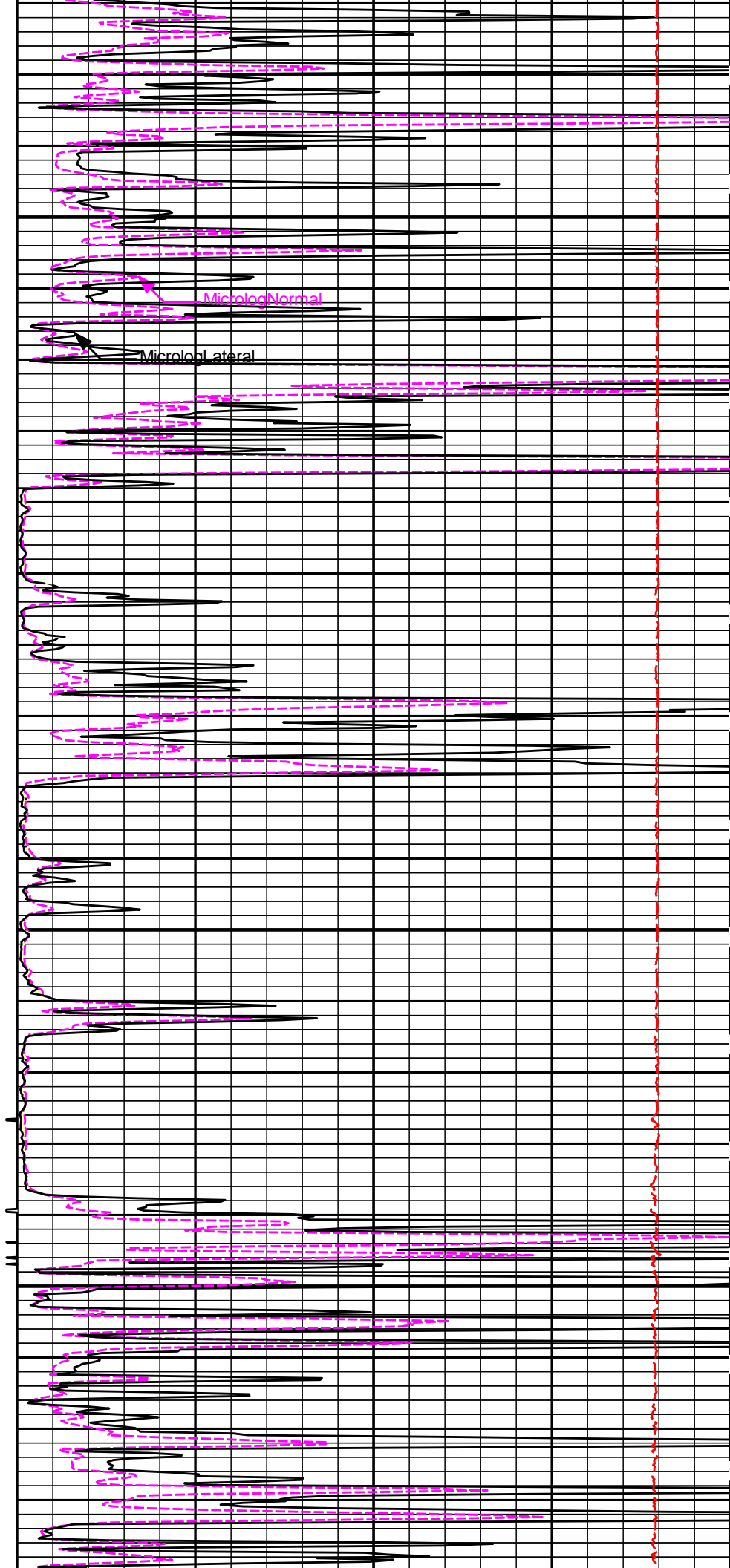
2300

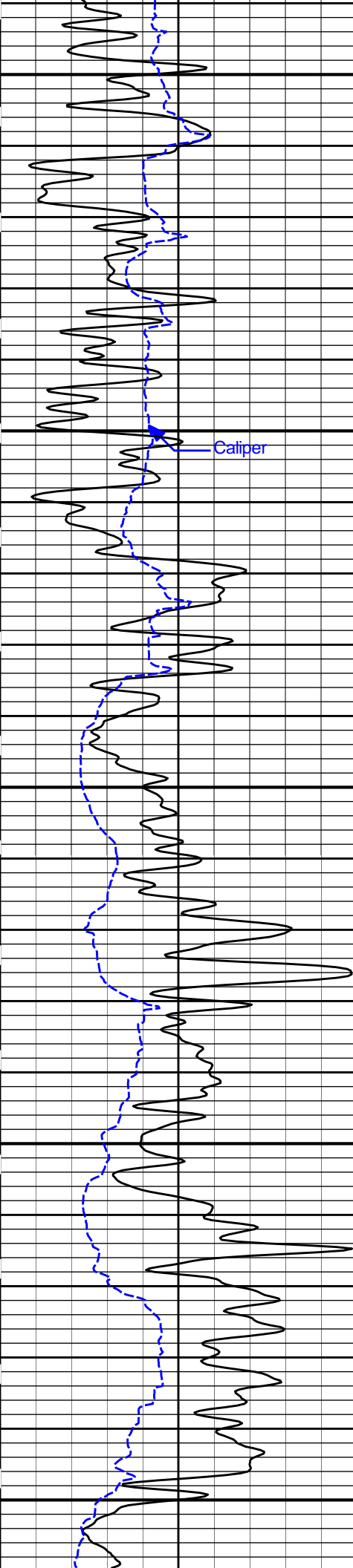




2400

2500

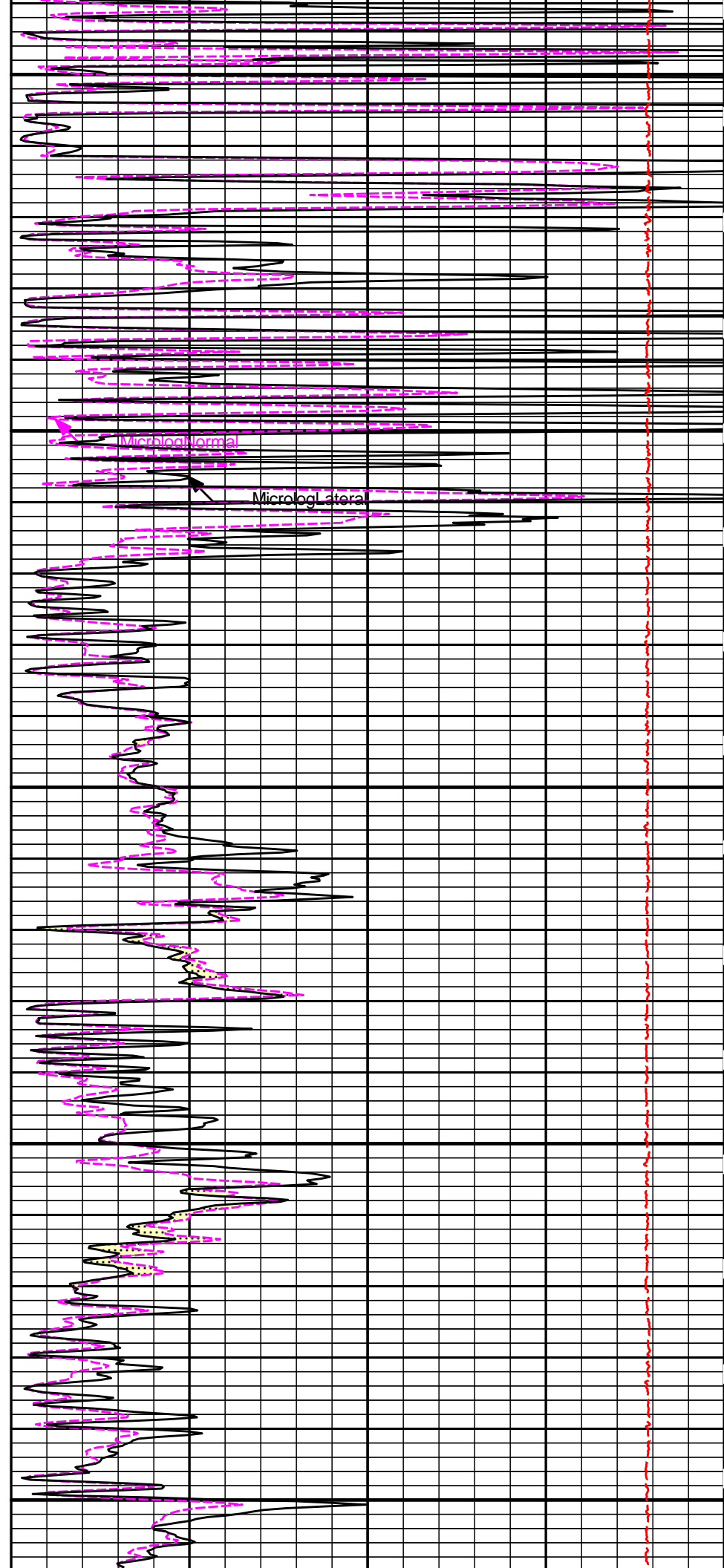




2600

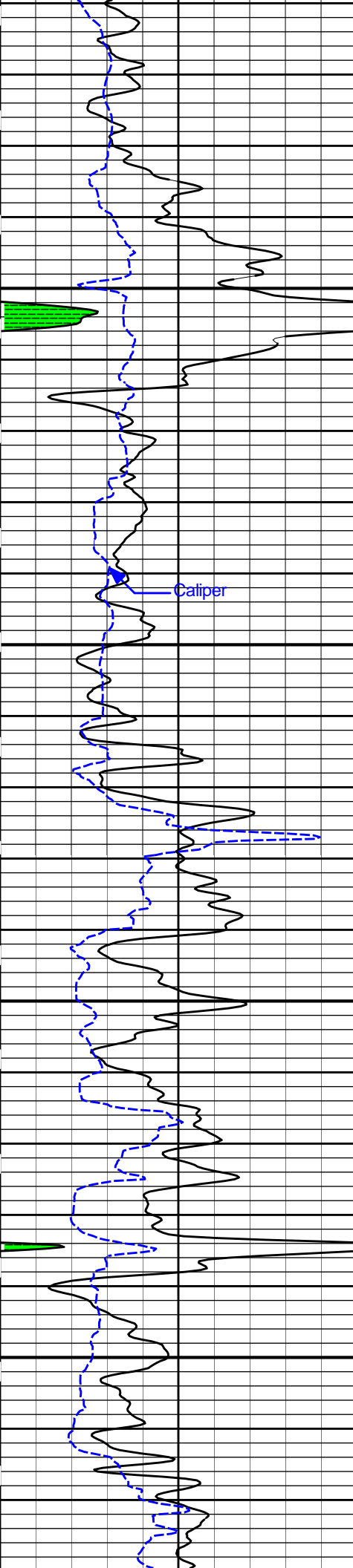
2700

2800



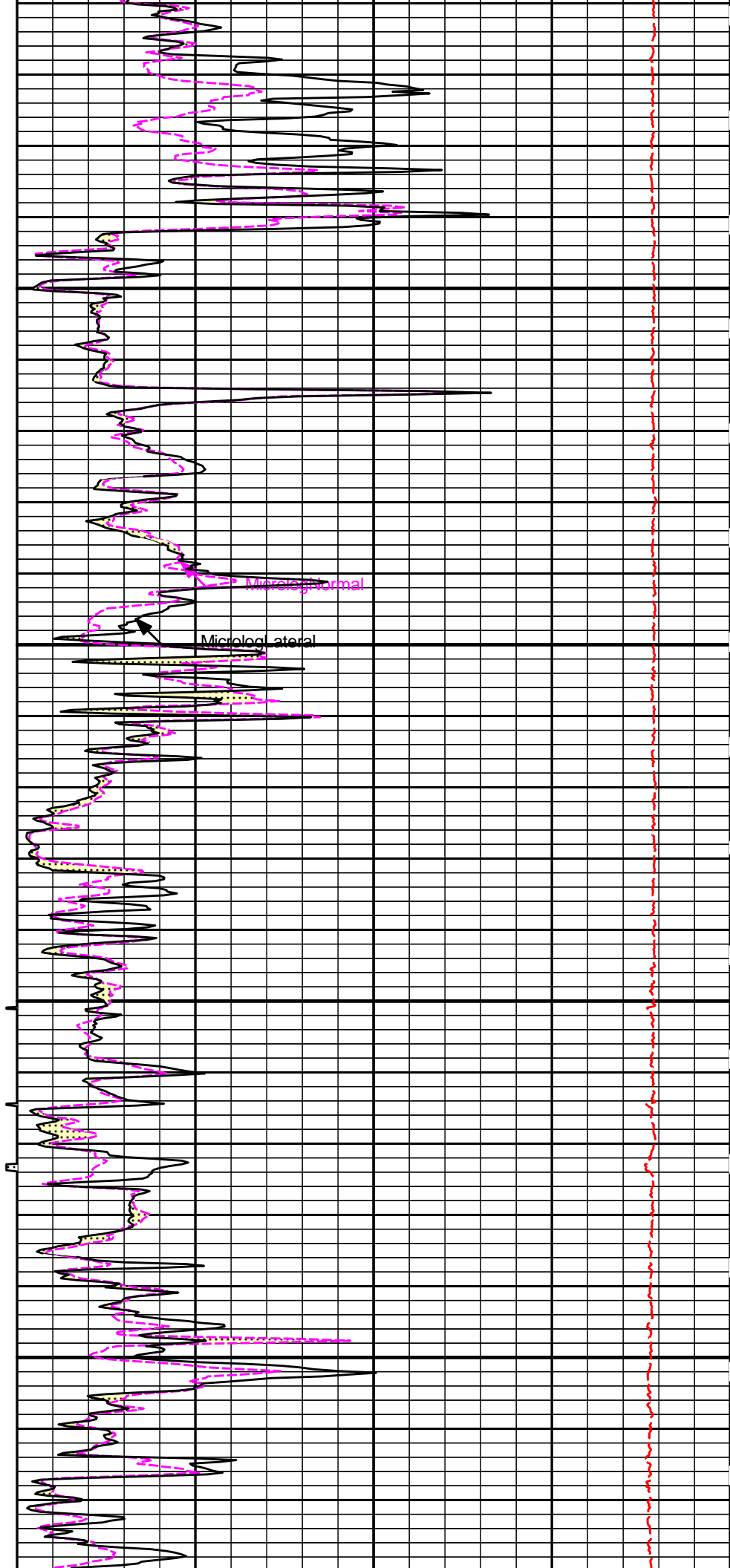
Microlog Normal

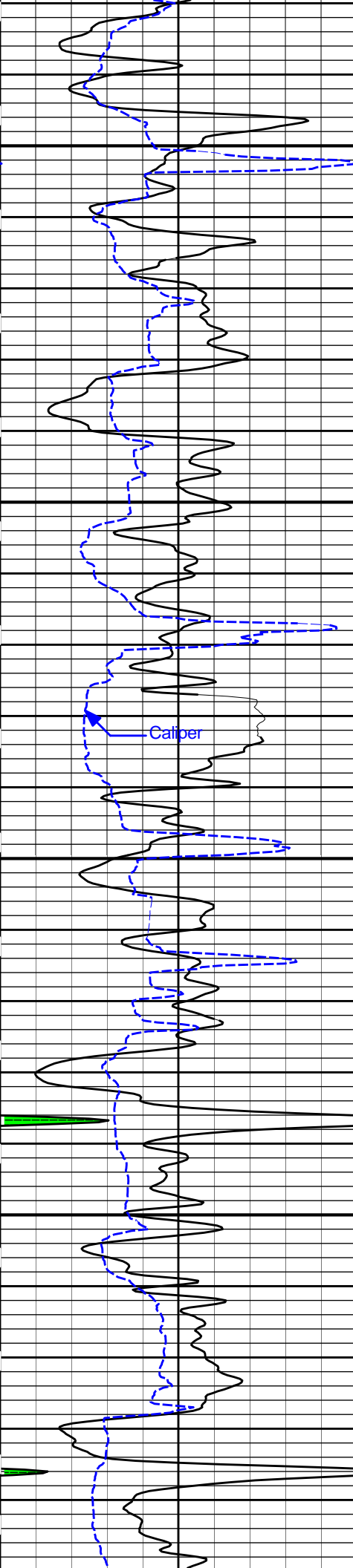
Microlog Lateral



2900

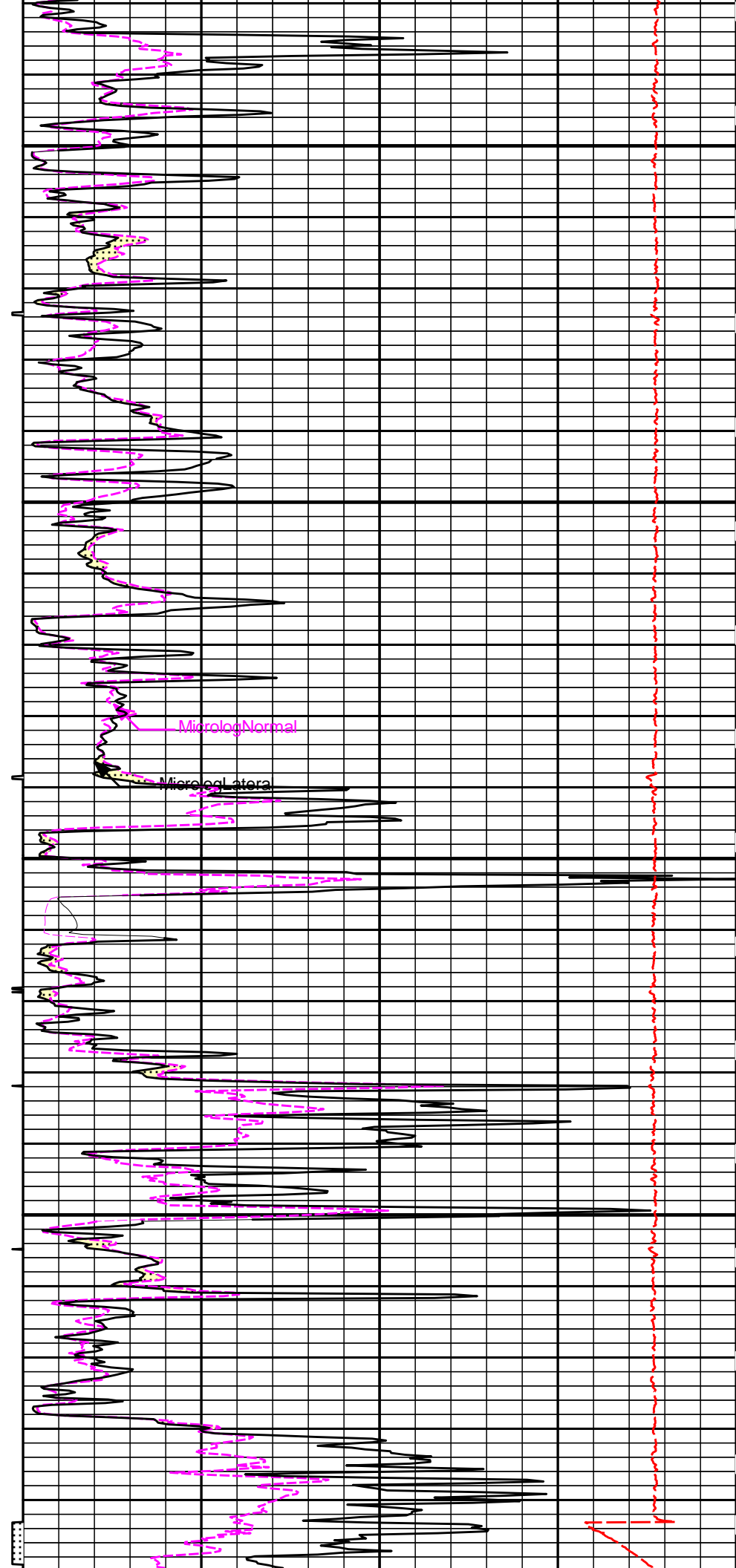
3000

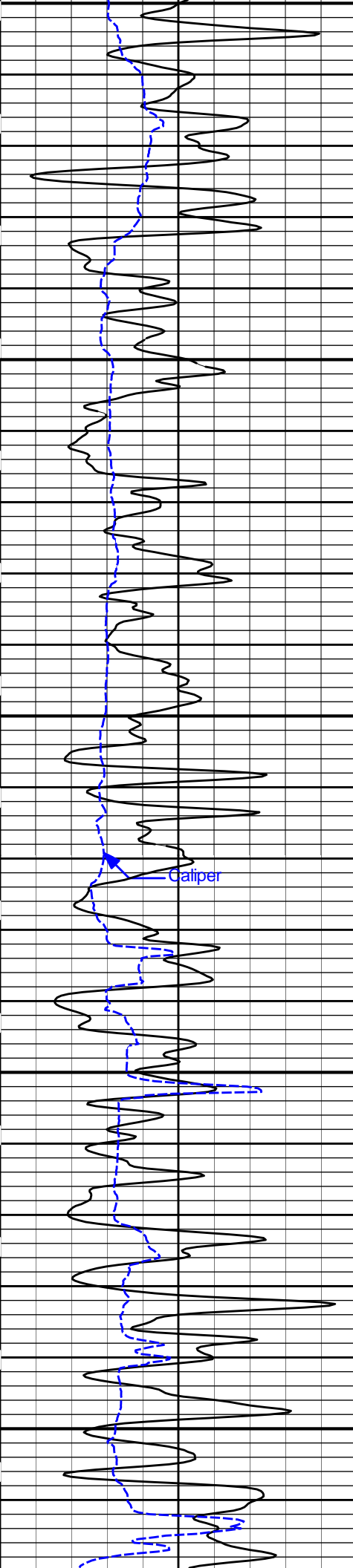




3100

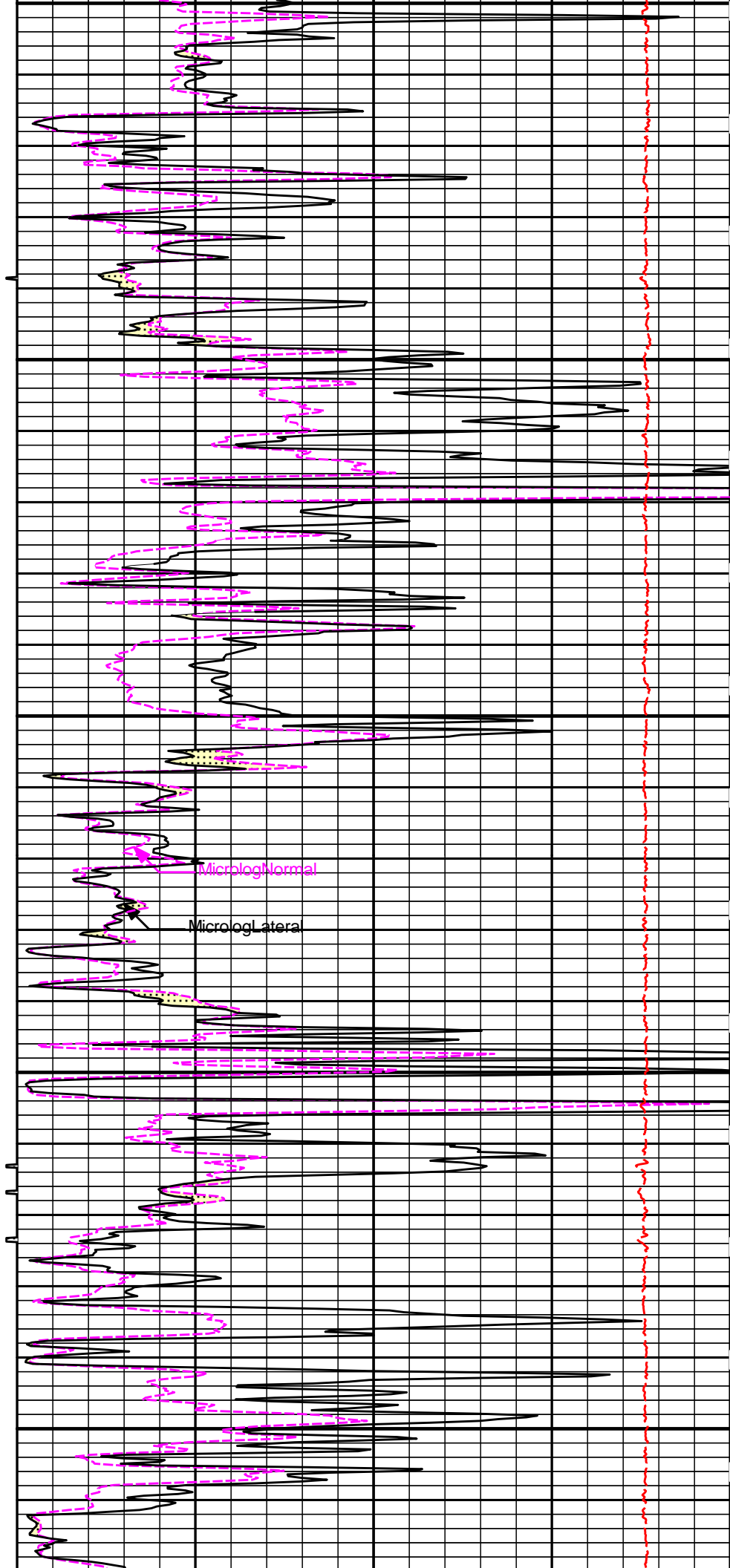
3200



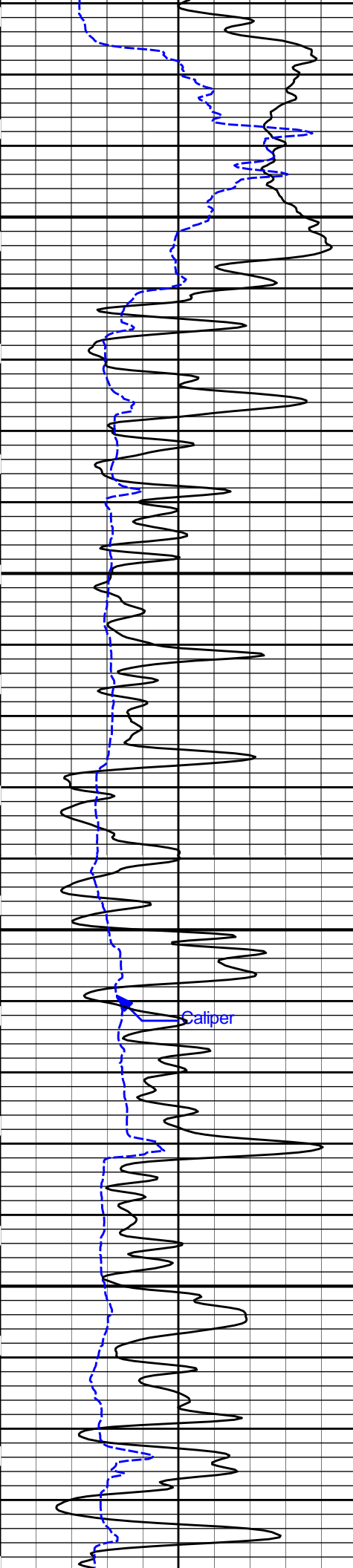


3300

3400



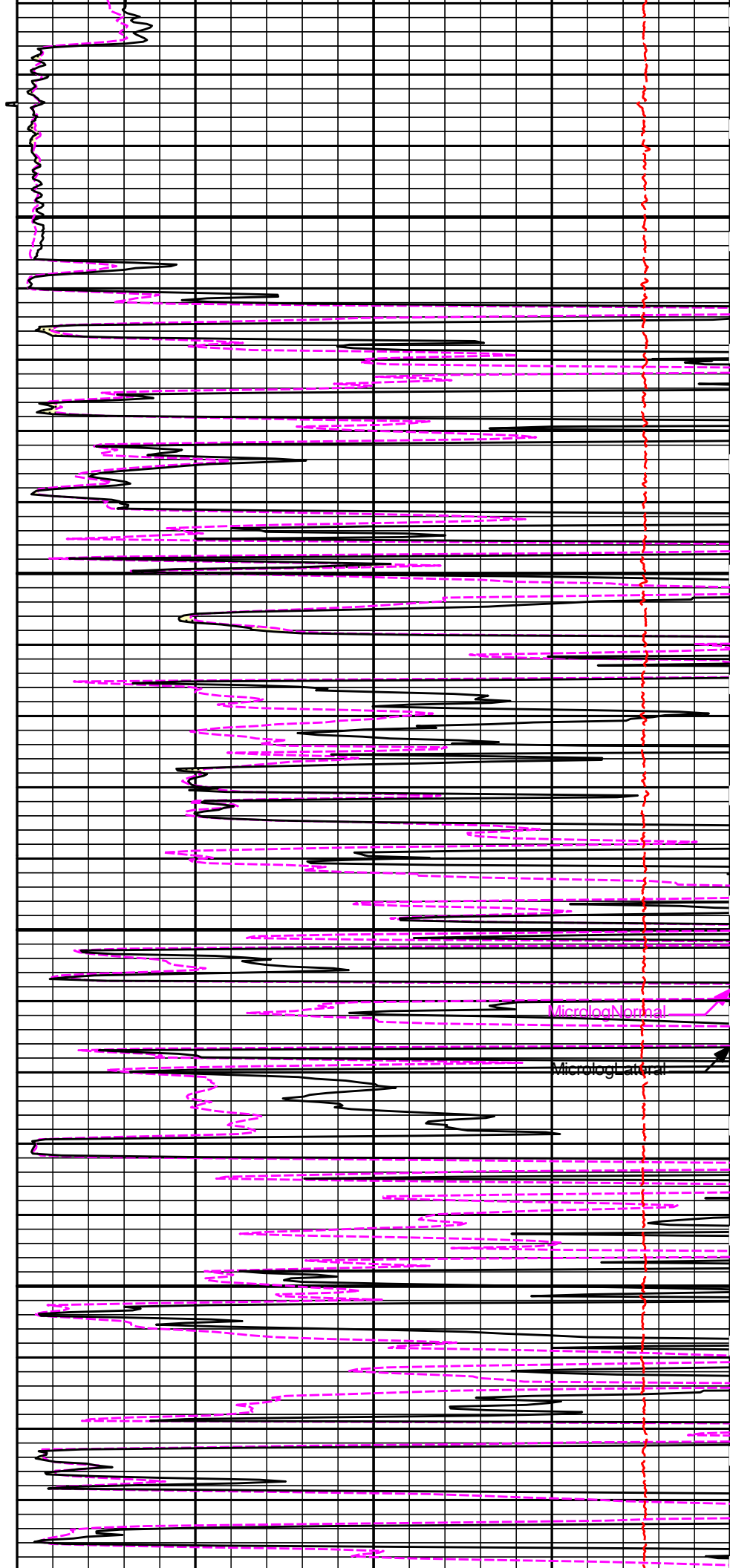




3500

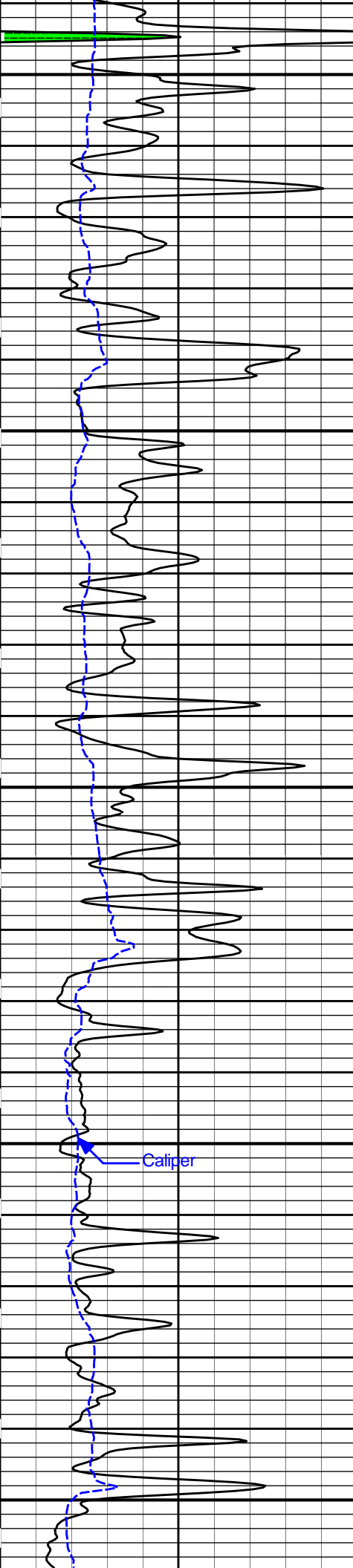
3600

Caliper



MicrologNormal

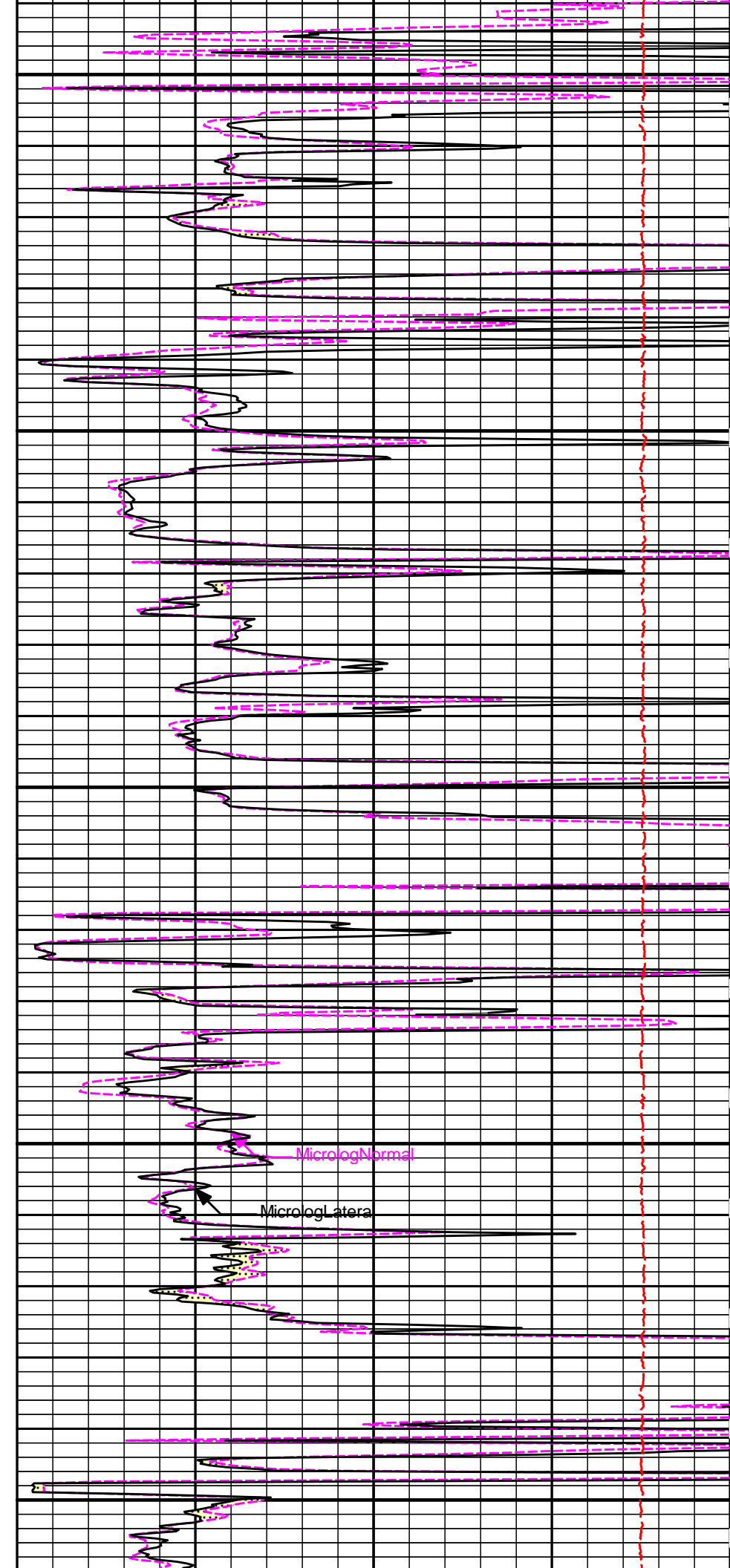
MicrologLateral



3700

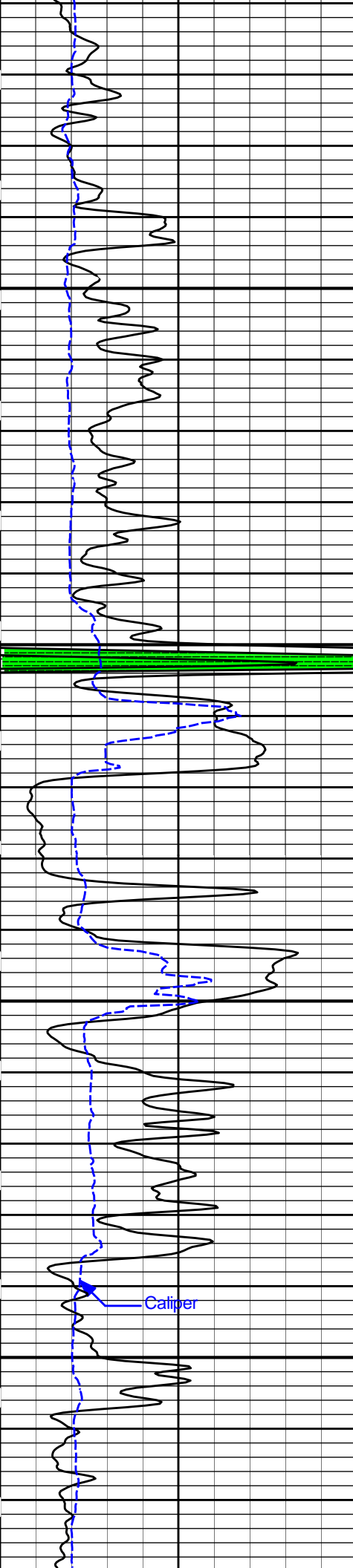
3800

3900



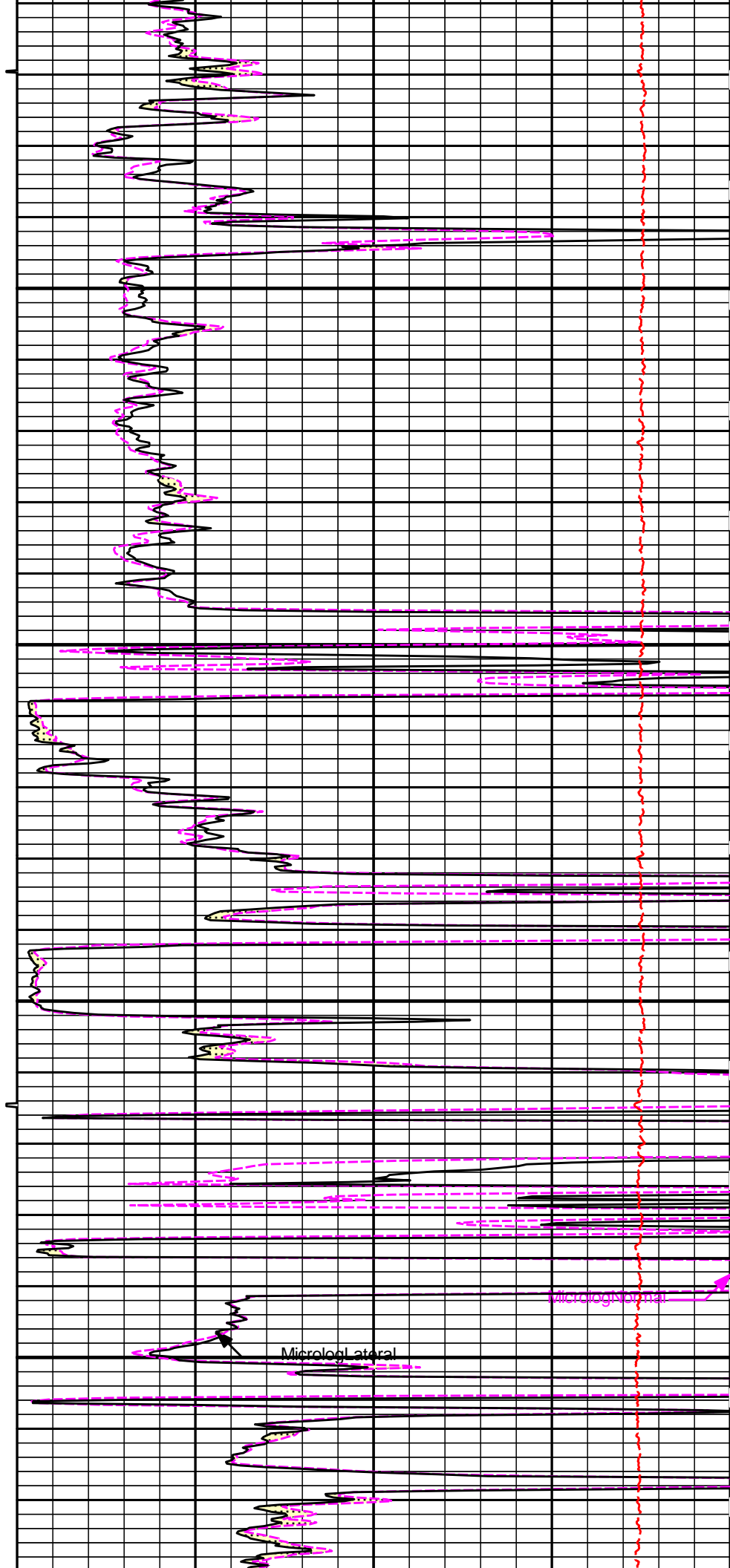
MicrologNormal

MicrologLateral



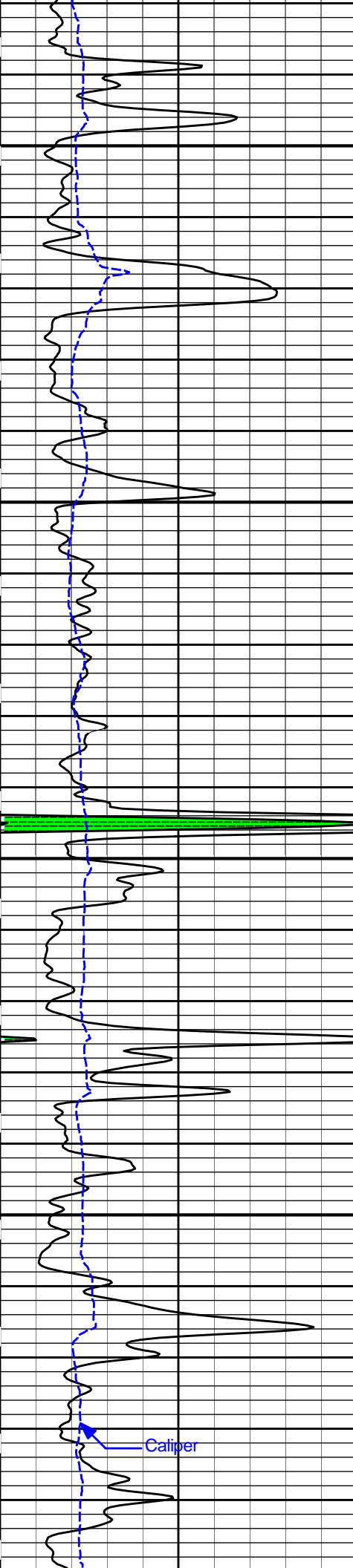
4000

4100



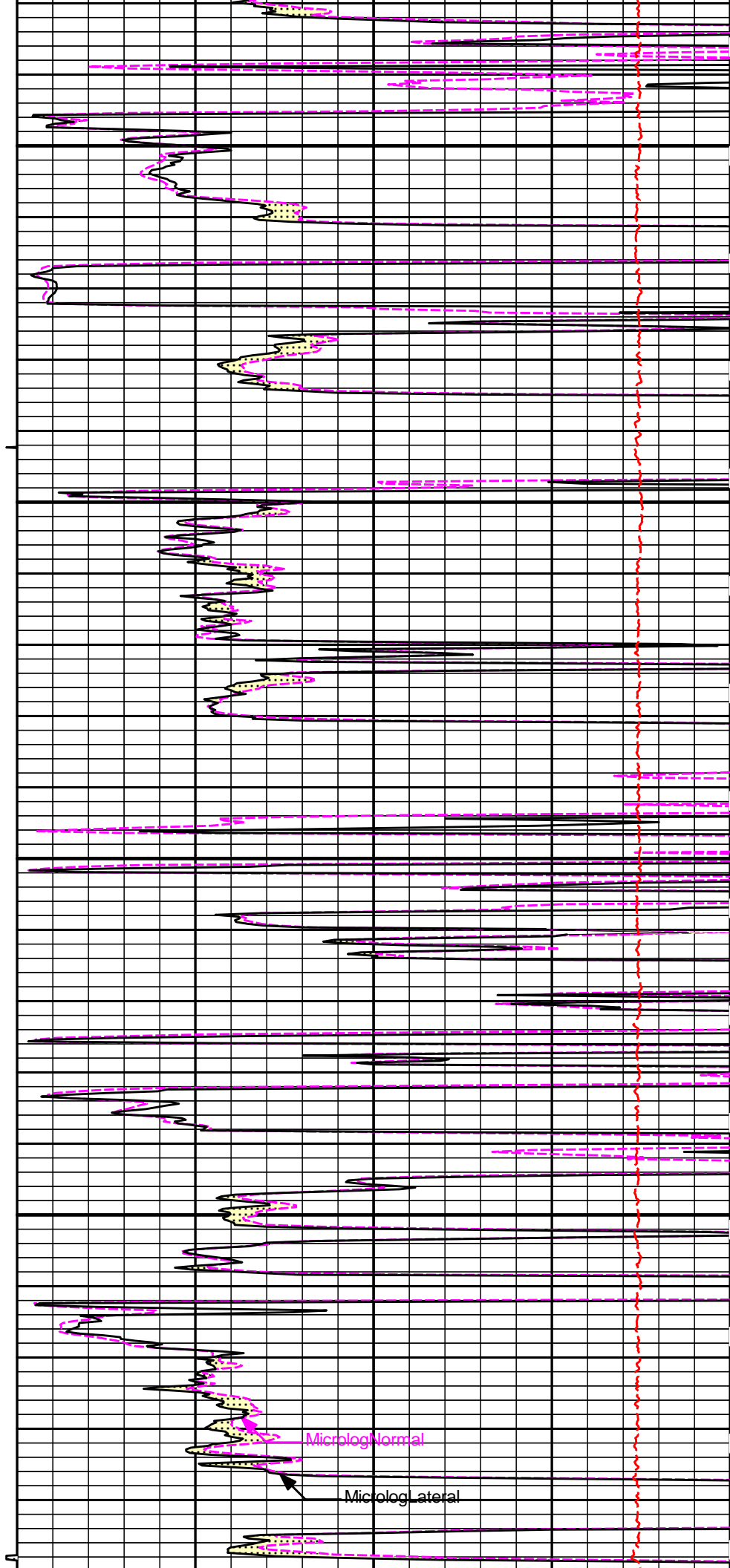
Microlog lateral

Microlog normal



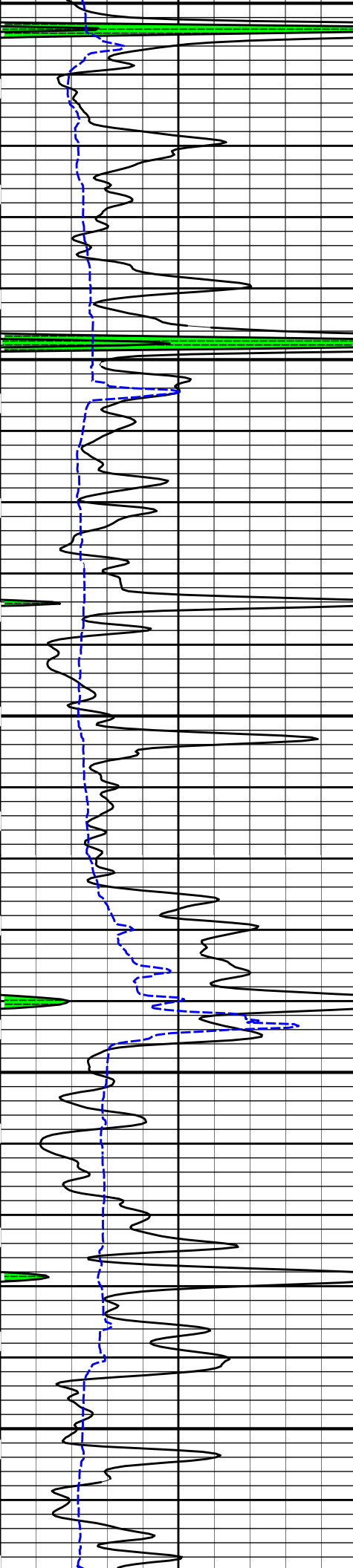
4200

4300



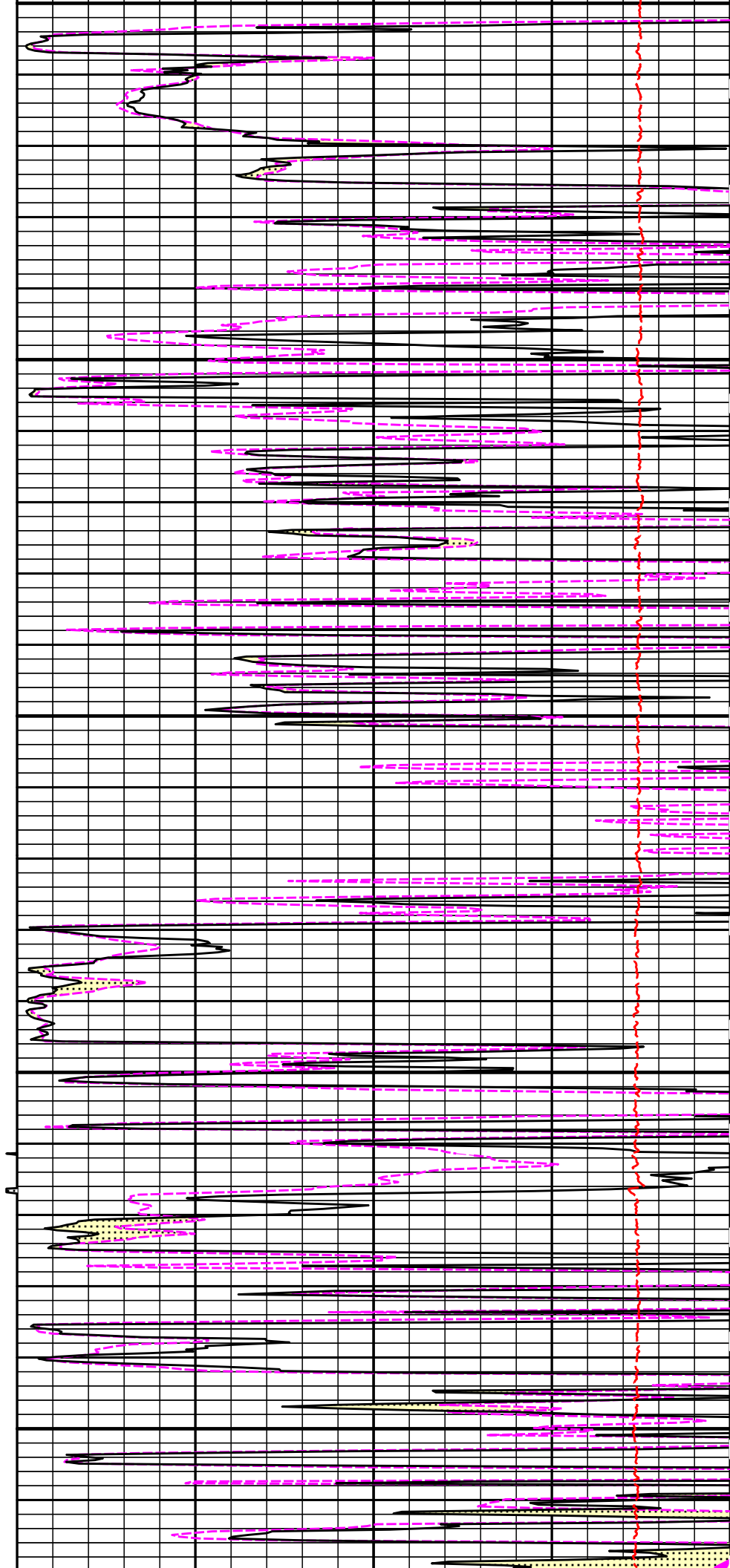
MicrologNormal

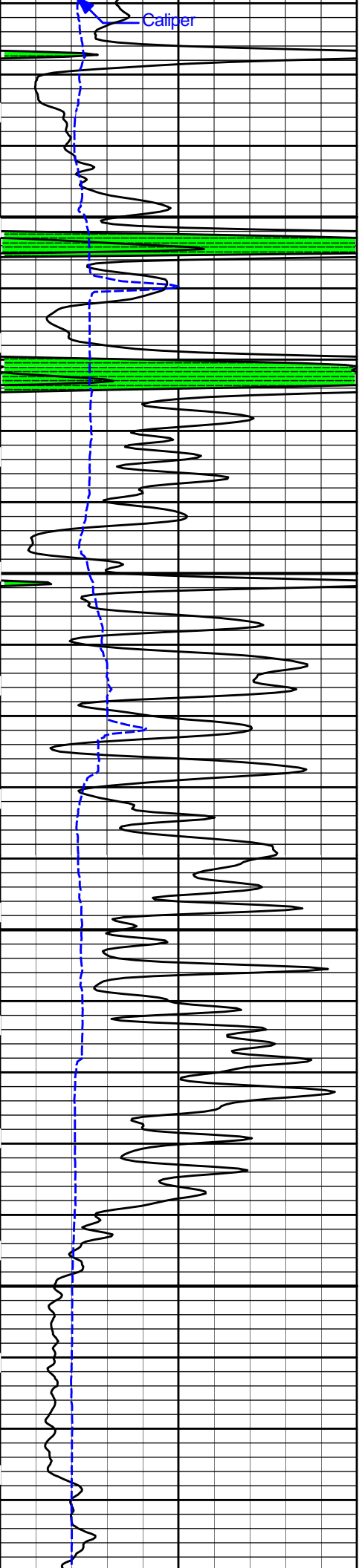
MicrologLateral



4400

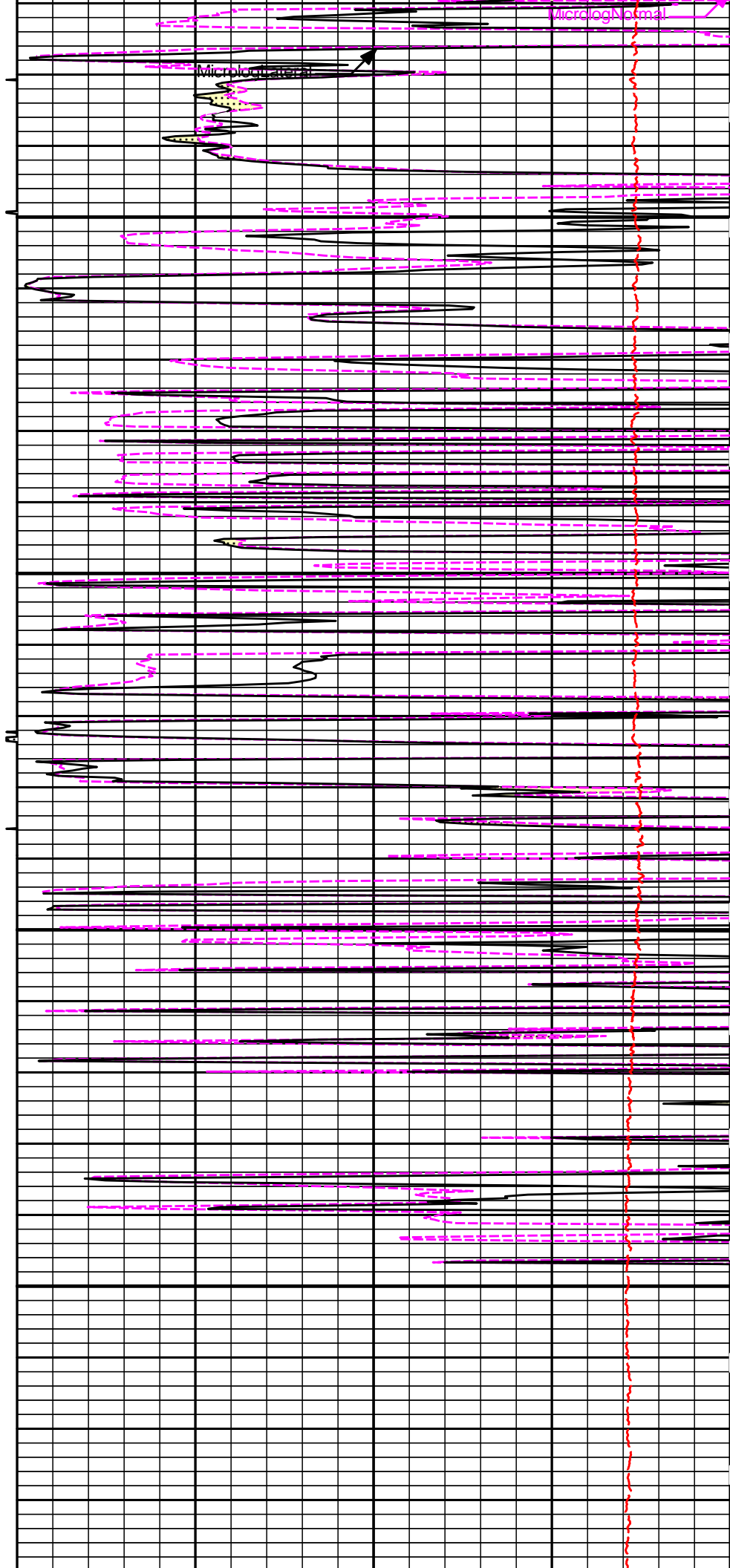
4500





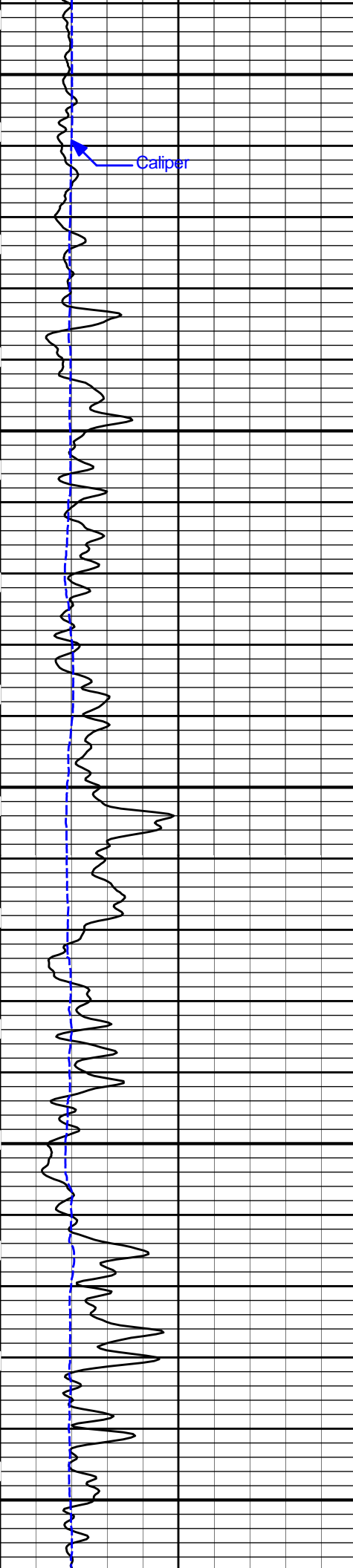
4600

4700



Microlog lateral

MicrologNormal

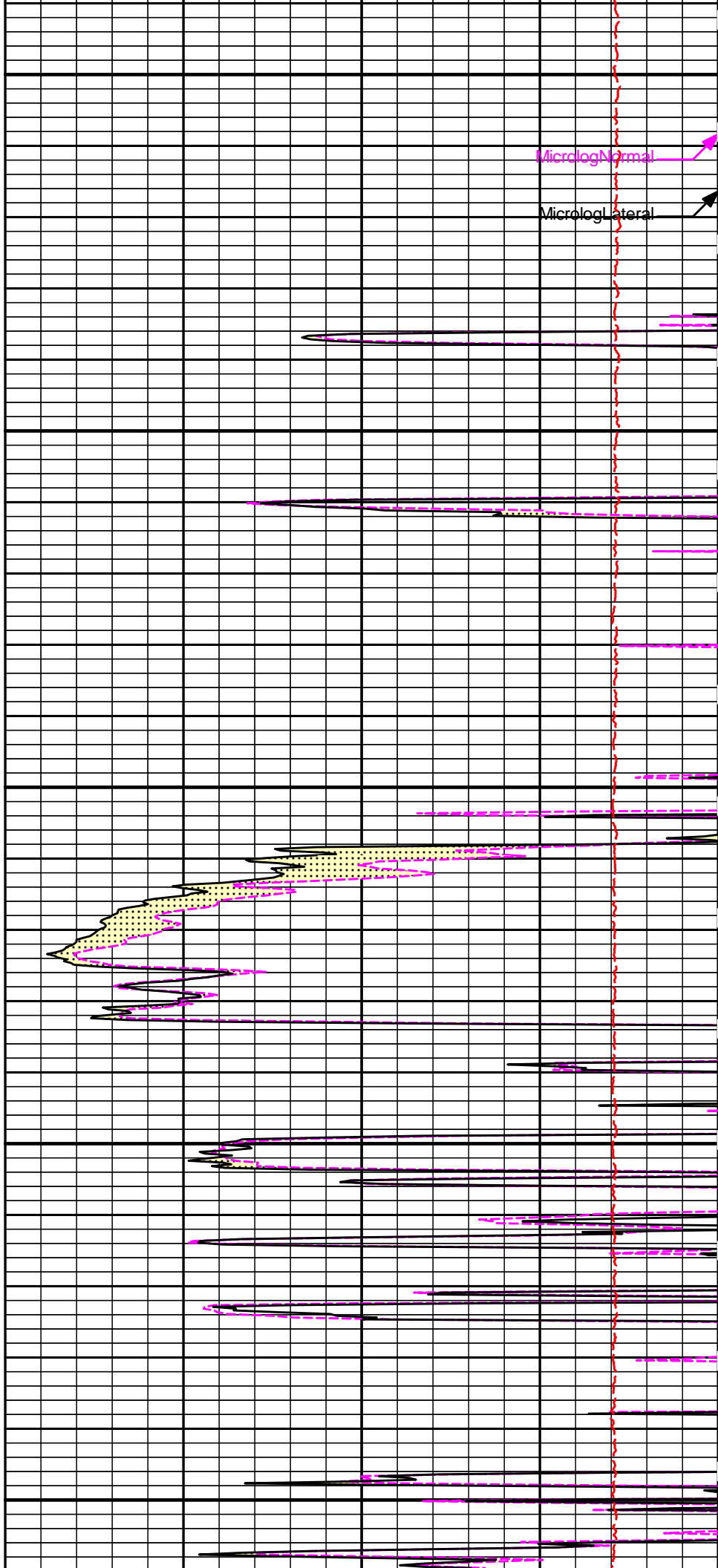


Caliper

4800

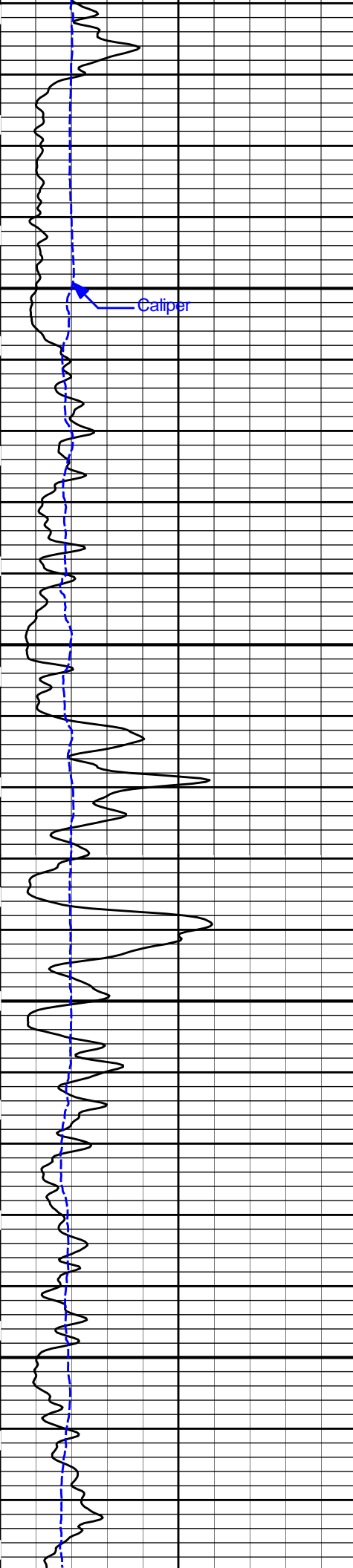
4900

5000



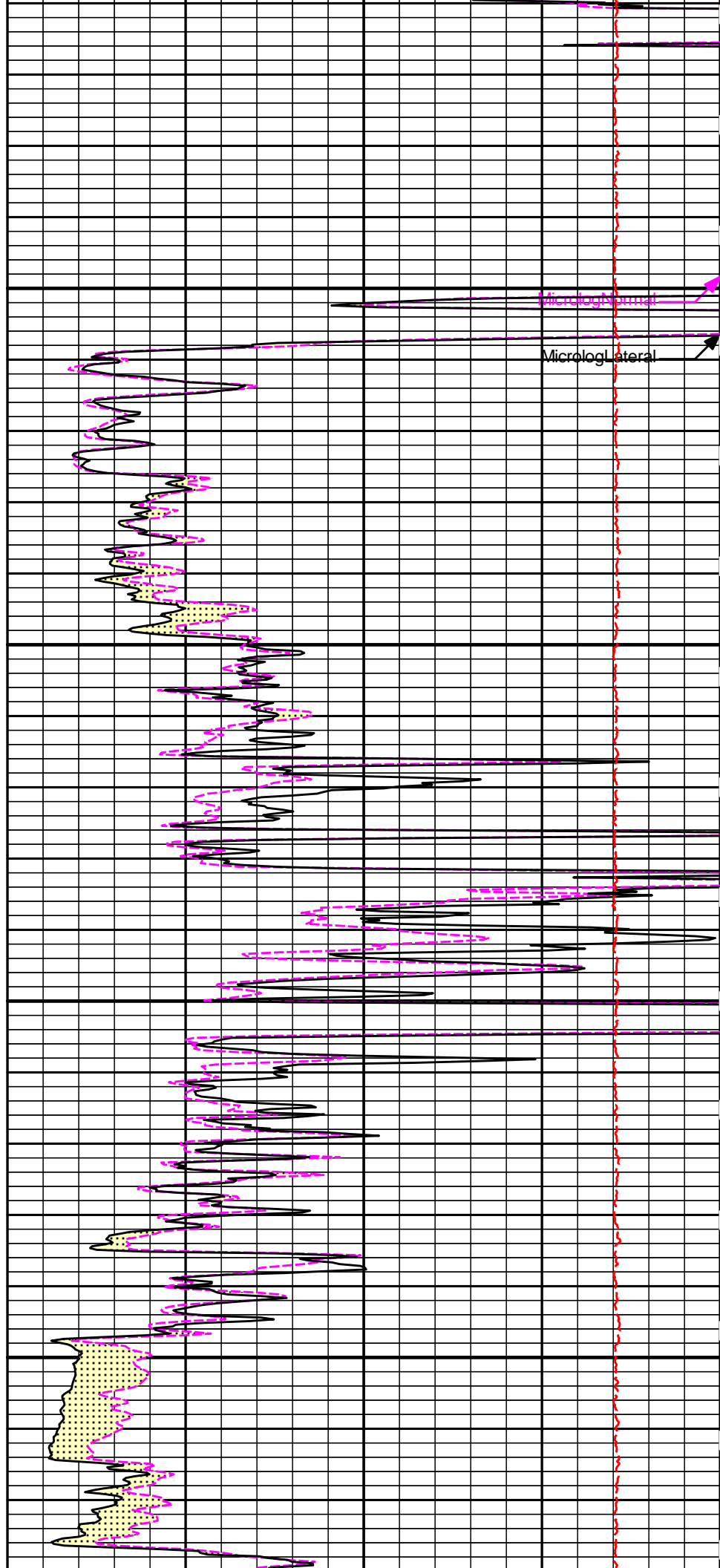
MicrologNormal

MicrologLateral

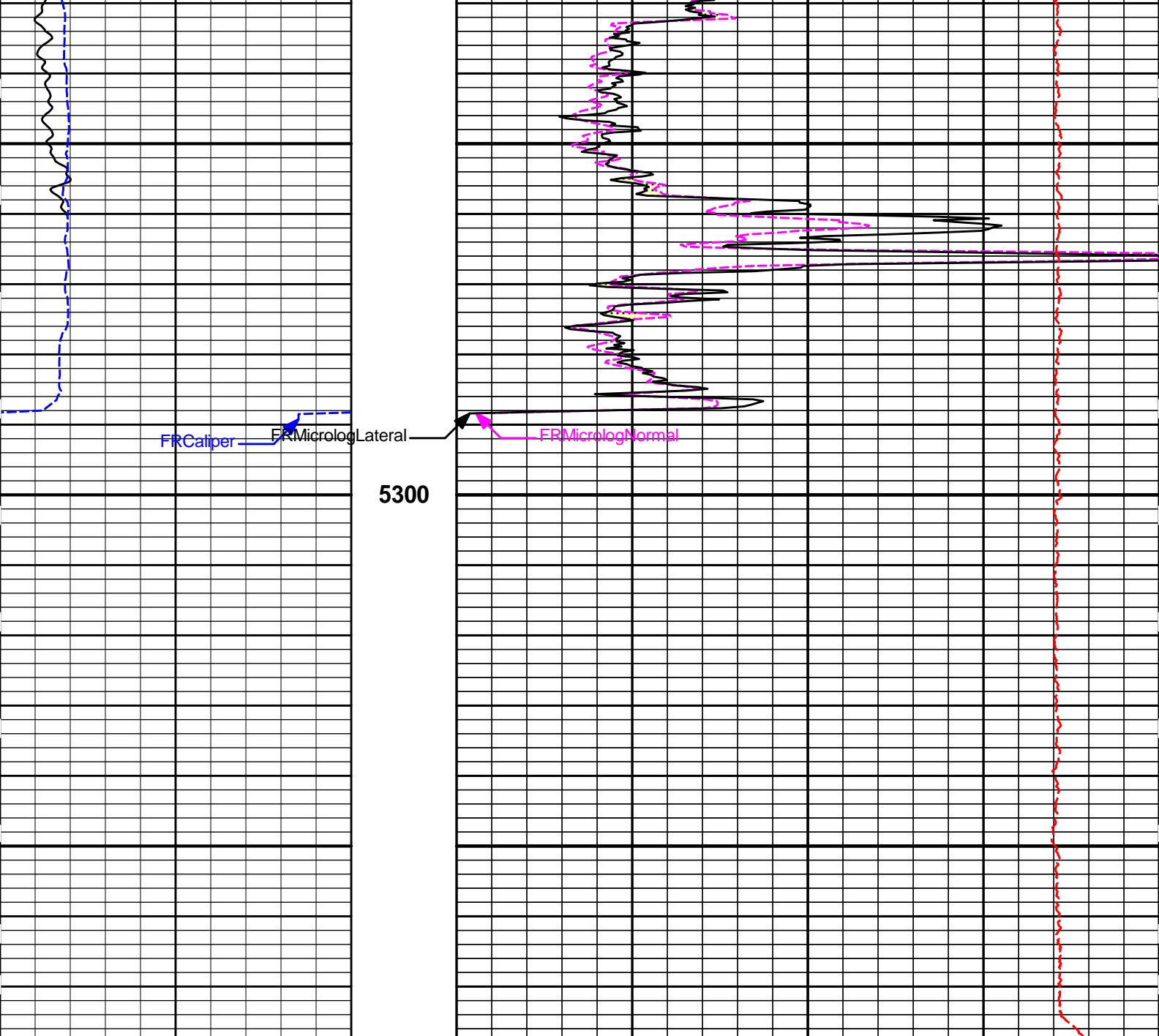


5100

5200







6	Caliper inches	16	MD 1 : 240 ft	15K	Tension pounds	0
0	Gamma API api	150	Tension Pull 10	0	MicrologLateral ohm-metre	20
	SHALE		Tension Pull	0	MicrologNormal ohm-metre	20
					PERMEABLE	

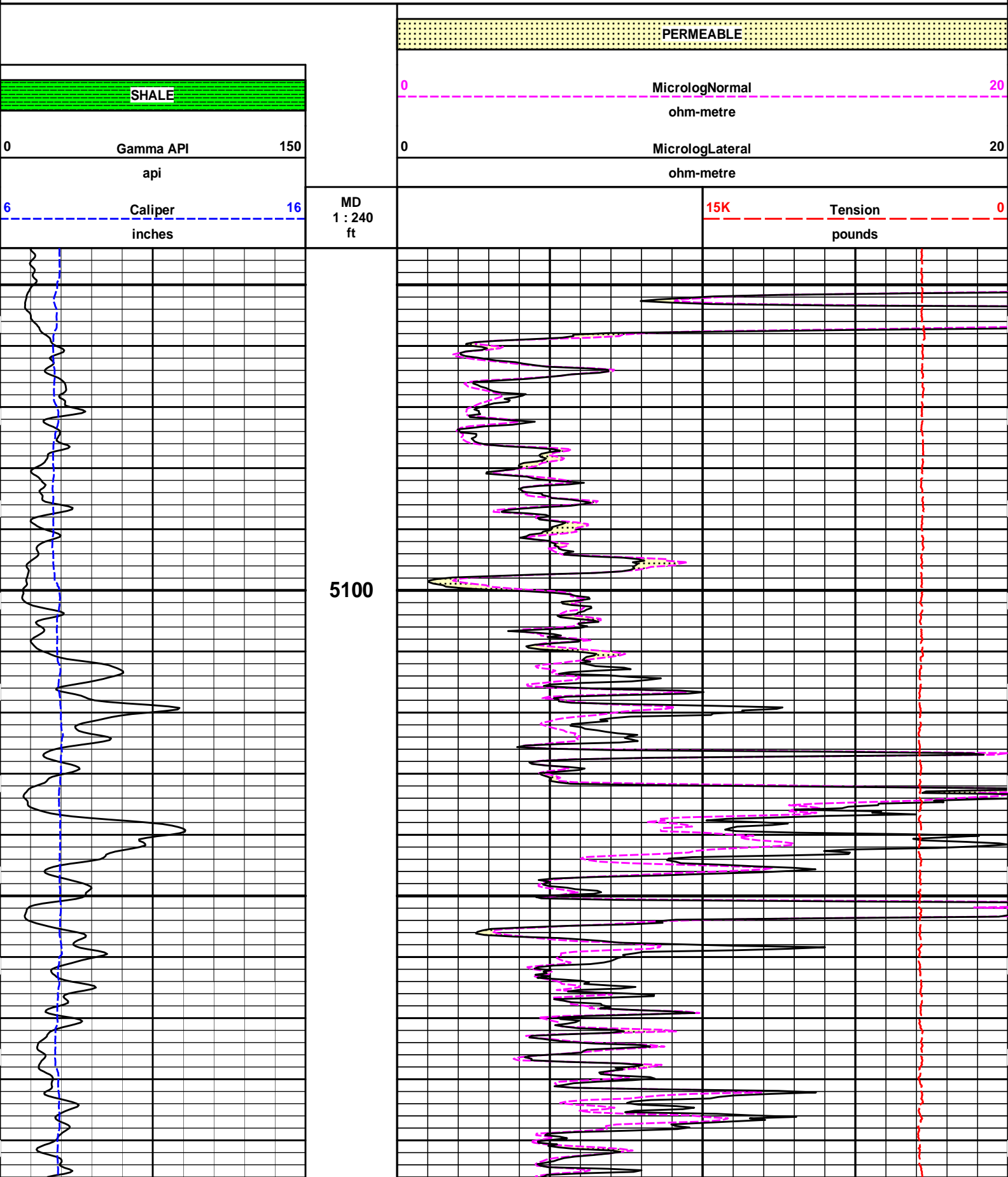
**HALLIBURTON**

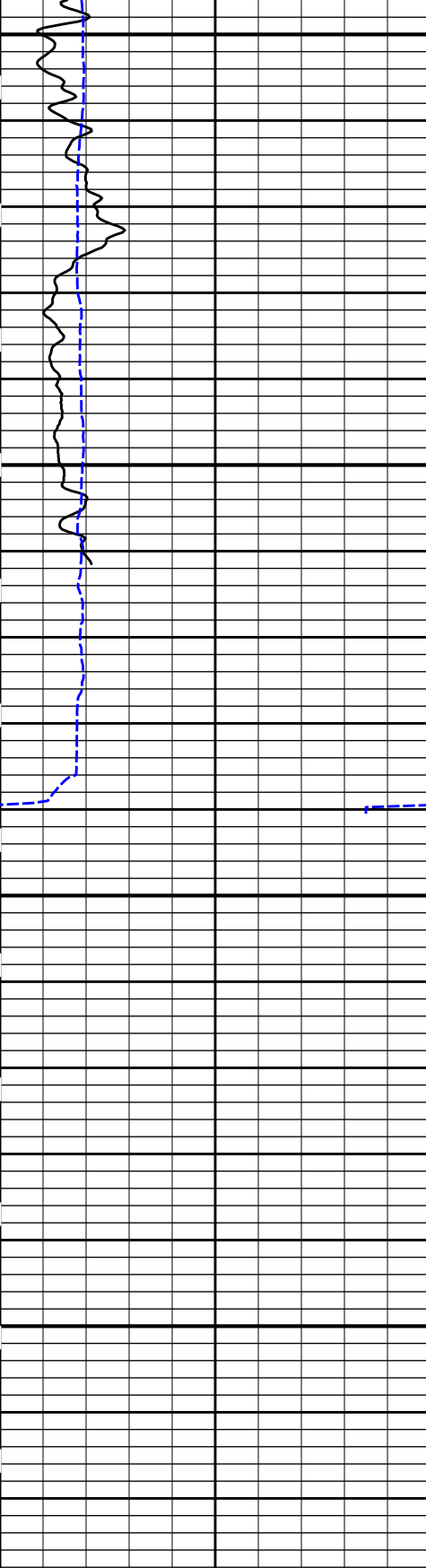
Plot Time: 18-Apr-13 03:51:41  
 Plot Range: 340 ft to 5377.25 ft  
 Data: PAMELA\_2330\_1-3\Well Based\DAQ-0001-003\  
 Plot File: \\-LOCAL-IPAMELA\_2330\_1-3\0001 SP-GTET-DSN-SDL-XRMI-WSTT-ACRT-BNMICRO\Microlog\_IQ\_5\_main\_lib

# 5 INCH MAIN LOG

**HALLIBURTON**

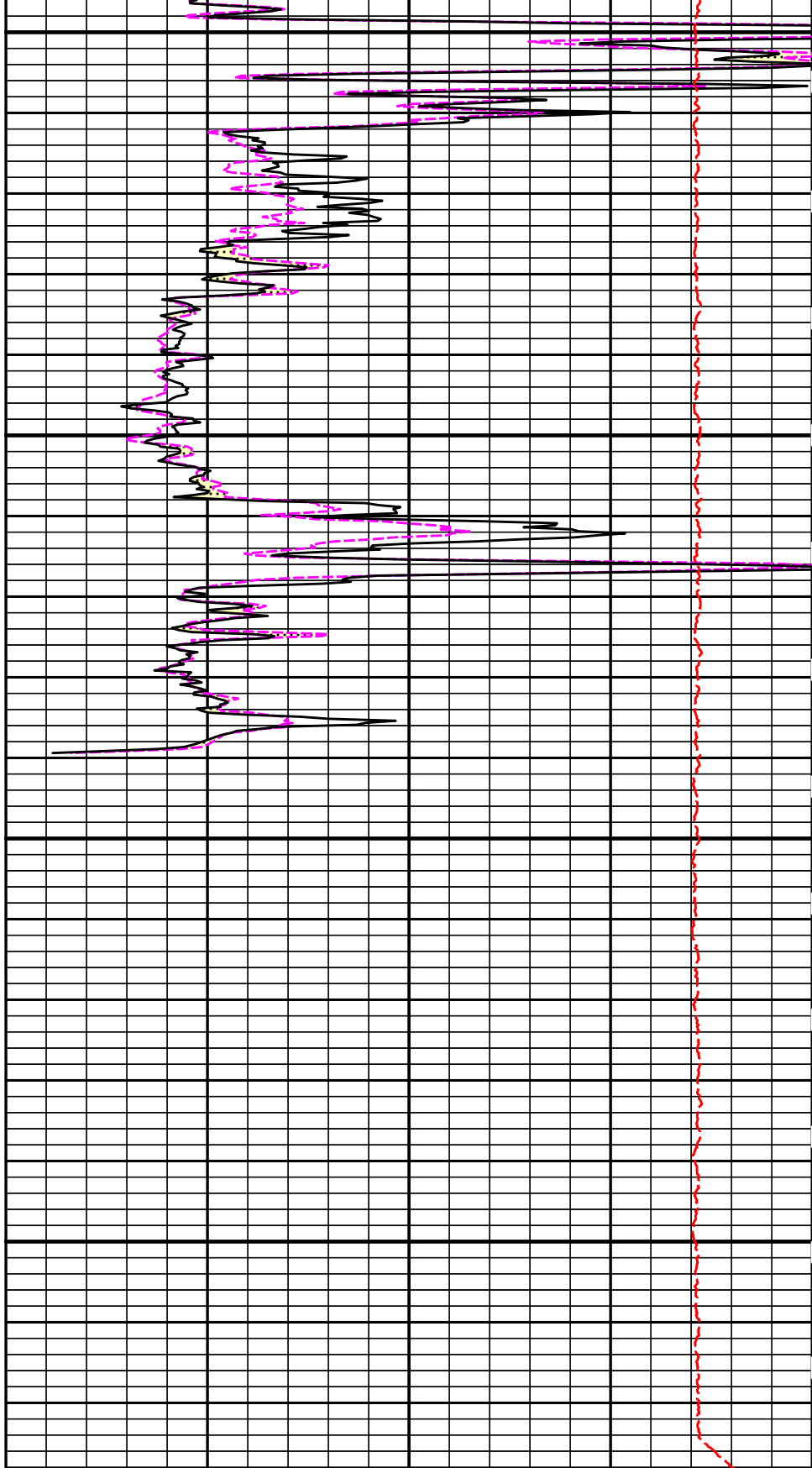
# REPEAT SECTION





5200

5300



6 Caliper 16  
inches

0 Gamma API 150  
api

SHALE

MD  
1 : 240  
ft

15K Tension 0  
pounds

0 MicrologLateral 20  
ohm-metre

0 MicrologNormal 20  
ohm-metre

PERMEABLE

# REPEAT SECTION

## TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
Cable Head-00000021 30.00 lbs		Ø 3.625 in →			1.92 ft	127.88 ft
SP Sub-11441455 60.00 lbs		Ø 3.625 in →		← SP @ 124.18 ft	3.74 ft	125.96 ft
GTET-11039640 165.00 lbs		Ø 3.625 in →		← GammaRay @ 116.16 ft	8.52 ft	122.22 ft
CSNG-10965402 114.00 lbs		Ø 3.625 in →		← CSNG @ 108.07 ft	8.17 ft	113.70 ft
DSN Decentralizer-11005605 6.60 lbs	DSN Decentralizer-11005605	Ø 5.000 in* →		← DSN Far @ 98.60 ft ← DSN Near @ 97.85 ft	9.69 ft	105.53 ft
DSNT-11055304 174.00 lbs		Ø 3.625 in →				95.85 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 @ 88.03 ft SDL Caliper @ 87.85 ft	10.81 ft	

**IQ Flex-696**  
140.00 lbs

Ø 3.625 in →

5.67 ft

85.03 ft

**Centralizer 25-00000027**  
8.00 lbs

Ø 4.000 in\* →

79.36 ft

**Wavesonic-I-10753396**  
520.00 lbs

Ø 3.625 in →

34.07 ft

← **Wavesonic Delay @ 56.79 ft**

**Centralizer 25-00000029**  
8.00 lbs

Ø 4.000 in\* →

45.29 ft

**XRMI Isolator-00000029**  
32.50 lbs

Ø 4.500 in →

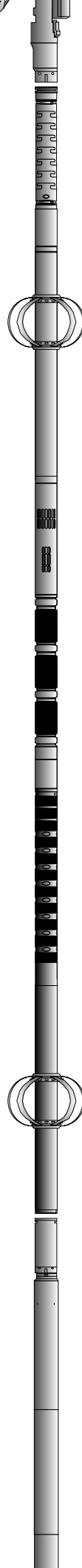
1.30 ft

43.99 ft

**XRMI-I Instrument-11355217**  
290.00 lbs

Ø 4.500 in →

13.00 ft



← **SDL @ 87.84 ft**

XRMI-I Mandrel-  
11355218  
206.00 lbs

Ø 5.000 in →  
Ø 4.500 in →

30.99 ft  
11.16 ft

Pads 2, 4, 6 @ 22.60 ft  
Pads 1, 3, 5 @ 22.37 ft

ACRt Instrument-  
I962  
50.00 lbs

Regal Standoff 6\_75-  
00000044  
20.00 lbs

Ø 6.750 in\* →  
Ø 3.625 in →

19.83 ft  
5.03 ft

ACRt Sonde-  
11005909  
200.00 lbs

Ø 3.625 in →

← Mud Resistivity @ 13.44 ft

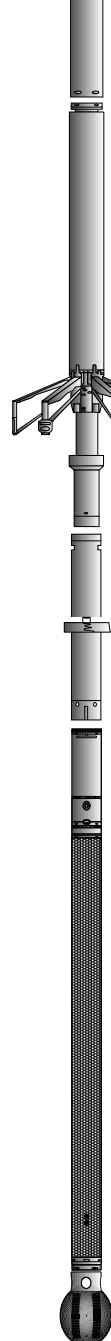
← ACRt @ 9.46 ft

14.80 ft  
14.22 ft

Cabbage Head-  
TRK696  
10.00 lbs

Ø 3.625 in →  
Ø 6.000 in →

0.58 ft  
0.58 ft  
0.00 ft



Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max.Log. Speed (fpm)
CH	Standard OH Cable Head	00000021	30.00	1.92	125.96	300.00
SP	SP Sub	11441455	60.00	3.74	122.22	300.00
GTET	Gamma Telemetry Tool	11039640	165.00	8.52	113.70	60.00
CSNG	Compensated Spectral Natural Gamma	10965402	114.00	8.17	105.53	15.00
DSNT	Dual Spaced Neutron	11055304	174.00	9.69	95.85	60.00
DCNT	DSN Decentralizer	11005605	6.60	5.13	* 99.18	300.00
SDLT	Spectral Density Tool	11014296	360.00	10.81	85.03	60.00
SDLP	Density Insite Pad	10865884	65.00	2.55	* 87.24	60.00
MICP	Microlog Pad	11014296	8.00	1.00	* 87.53	60.00
IQF	IQ Flex tool	696	140.00	5.67	79.36	300.00
WSTT	WaveSonic Insite	10753396	520.00	34.07	45.29	30.00
OBCEN	Centralizer - 25 in. Overbody	00000029	8.00	2.08	* 48.27	300.00
OBCEN	Centralizer - 25 in. Overbody	00000027	8.00	2.08	* 75.63	300.00
	Isolator for the XRMI tool	00000029	32.50	1.30	43.99	300.00
XRMI	XRMI Navigation - Insite	11355217	290.00	13.00	30.99	30.00
XRMI-I	XRMI Imager - Insite	11355218	206.00	11.16	19.83	30.00
ACRt	Array Compensated True Resistivity Instrument Section	I962	50.00	5.03	14.80	300.00
RSOF	Regal Standoff 6.75in	00000044	20.00	0.52	* 17.17	300.00
ACRt	Array Compensated True Resistivity Sonde Section	11005909	200.00	14.22	0.58	300.00
CBHD	Cabbage Head	TRK696	10.00	0.58	0.00	300.00

**HALLIBURTON****CALIBRATION REPORT****NATURAL GAMMA RAY TOOL SHOP CALIBRATION**

Tool Name: GTET - 11039640

Reference Calibration Date: 13-Feb-13 13:51:32

Engineer: J. BOLLUM

Calibration Date: 09-Apr-13 14:30:02

Software Version: WL INSITE R3.8.4 (Build 5)

Calibration Version: 1

Calibrator Source S/N: TB146

Calibrator API Reference:265.00 api

Equivalent Calibrator API Reference:269.6 api

Measurement	Measured	Calibrated	Units
Background	60.1	60.0	api
Background + Calibrator	330.0	329.7	api
Calibrator	269.9	269.6	api

**NATURAL GAMMA RAY TOOL FIELD CALIBRATION**

Tool Name: GTET - 11039640

Reference Calibration Date: 09-Apr-13 14:30:02

Engineer: THOMAS HYDE

Calibration Date: 17-Apr-13 19:58:13

Software Version: WL INSITE R3.8.4 (Build 5)

Calibration Version: 1

Calibrator Source S/N: TB146

Calibrator API Reference:265.00 api

Equivalent Calibrator API Reference:269.6 api

Field Verification	Shop	Field	Units
Background	60.0	55.0	api
Background + Calibrator	329.7	332.6	api
Calibrator	269.6	277.6	api

Shop	Field	Difference	Tolerance
269.6	277.6	-8.0	+/- 9.00

**MICRO LOG SHOP CALIBRATION**

Tool Name: Microlog Pad - 11014296

Reference Calibration Date: 09-Apr-13 11:54:57

Engineer: THOMAS HYDE

Calibration Date: 16-Apr-13 13:32:35

Software Version: WL INSITE R3.8.4 (Build 5)

Calibration Version: 1

Host Tool Name: DSNT - 11055304

**CALIBRATION COEFFICIENT SUMMARY**

Measurement	Micro Log Normal		Micro Log Lateral		Units
	Measured	Calibrated	Measured	Calibrated	
Tool Zero	-0.07	-0.06	-0.01	-0.01	ohmm
Calibration Point #1	-0.01	0.00	-0.00	0.00	ohmm
Calibration Point #2	20.08	20.00	19.97	20.00	ohmm
Internal Reference	20.01	19.93	19.95	19.98	ohmm

Measurement	Micro Log Normal Tool Value	Micro Log Lateral Tool Value	Units
-------------	-----------------------------	------------------------------	-------

Tool Zero	-0.57	0.18	V
Calibration Point #1	15.74	2.02	V
Calibration Point #2	5293.58	6877.03	V
Internal Reference	5274.46	6870.02	V

### MICRO LOG FIELD CHECK

**Tool Name:** Microlog Pad - 11014296      **Reference Calibration Date:** 16-Apr-13 13:32:35  
**Engineer:** THOMAS HYDE      **Calibration Date:** 16-Apr-13 13:34:05  
**Software Version:** WL INSITE R3.8.4 (Build 5)      **Calibration Version:** 1

Measurement	Micro Log Normal		Micro Log Lateral		Units
	Shop	Field	Shop	Field	
Tool Zero	-0.06	-0.06	-0.01	-0.00	ohmm
Internal Reference	19.93	19.94	19.98	19.99	ohmm
Summary					
Signal	Shop	Field	Difference	Tolerance	
Microlog Normal	19.93	19.94	-0.01	+/- 0.80	
Microlog Lateral	19.98	19.99	-0.01	+/- 0.80	

### CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
<b>GTET-11039640</b>						
Gamma Ray Calibrator	269.6	277.6	-----	-8.0	+/- 9.00	api
<b>Microlog Pad-11014296</b>						
MicroLog Normal	19.93	19.94	-----	-0.01	+/-0.80	ohmm
MicroLog Lateral	19.98	19.99	-----	-0.01	+/-0.80	ohmm

Data: PAMELA\_2330\_1-3W0001 SP-GTET-DSN-SDL-XRMI-WSTT-ACRT-BNIDLE      Date: 17-Apr-13 20:27:42



### 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	9.100	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	5420.00	ft
	SHARED	BHT	Bottom Hole Temperature	200.0	degF
	SHARED	SVTM	Navigation and Survey Master Tool	XRMI-I Instrument	
	SHARED	AZTM	High Res Z Accelerometer Master Tool	XRMI-I Instrument	
	SHARED	TRM	Temperature of Mud	75.0	degF



SHARED	TEMM	Temperature Master Tool	NONE	
SHARED	BHSM	Borehole Size 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	
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 for Gamma Ray Tools.	Eccentered	
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	
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	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
Wavesonic-I	WSOK	Process WSTT?	Yes	
Wavesonic-I	AFIL	Adaptive Filtering?	No	
Wavesonic-I	PINT	Process 1 Sample and Skip	0	
Wavesonic-I	PROM	Process Mode: M=1,MX=2,MY=3,MXY=4	4	
Wavesonic-I	DTSH	Delta -T Shale	100.00	uspf
Wavesonic-I	DTMT	Delta -T Matrix Type	User define	
Wavesonic-I	DTMA	Delta -T Matrix	47.60	uspf
Wavesonic-I	DTFL	Delta -T Fluid	189.00	uspf
Wavesonic-I	RHOM	Matrix Density	2.7100	g/cc
Wavesonic-I	RHOF	Fluid Density	1.0000	g/cc
Wavesonic-I	SMTH	Semblance Threshold	0.25	
Wavesonic-I	VPVS	VPVS Ratio for Porosity	1.40	
Wavesonic-I	APFC	Apply Formation Factor	1.00	

Wavesonic-I	APEQ	Acoustic Porosity Equation	Wylie	
XRMI-I Instrument	NAVS	Navigation Source Tool	XRMI-I Instrument	
XRMI-I Instrument	WRTI	Survey Writing Interval	30	ft
XRMI-I Instrument	SOPT	Smoothing Option	None	
XRMI-I Mandrel	DIMG	Process XRMI?	No	
XRMI-I Mandrel	DIPE	Process Dipmeter Calculations?	Yes	
XRMI-I Mandrel	BHCS	Process Borehole Corrections?	Yes	
XRMI-I Mandrel	CLOK	Process Caliper Outputs?	Yes	
XRMI-I Mandrel	CMAX	Caliper Maximum Limit	100.0	in
XRMI-I Mandrel	CMIN	Caliper Mimimum Limit	3.5	in
XRMI-I Mandrel	NAVS	Navigation Source Tool	XRMI-I Instrument	
XRMI-I Mandrel	BHVC	Radius type for borehole volume calcuations	Elliptical	
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

BOTTOM

Data: PAMELA\_2330\_1-3\0001 SP-GTET-DSN-SDL-XRMI-WSTT-ACRT-BNIDLE

Date: 17-Apr-13 20:28:55

**HALLIBURTON**

## INPUTS, DELAYS AND FILTERS TABLE

Mnemonic	Input Description	Delay (ft)	Filter Type	Filter Length (ft)
<b>Depth Panel</b>				
TENS	Tension	0.00	NO	
<b>SP Sub</b>				
PLTC	Plot Control Mask	124.18	NO	
SP	Spontaneous Potential	124.18	BLK	1.250
SPR	Raw Spontaneous Potential	124.18	NO	
SPO	Spontaneous Potential Offset	124.18	NO	
<b>GTET</b>				
TPUL	Tension Pull	116.16	NO	
GR	Natural Gamma Ray API	116.16	TRI	1.750
GRU	Unfiltered Natural Gamma Ray API	116.16	NO	
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution	116.16	W	1.416 , 0.750
ACCZ	Accelerometer Z	0.00	BLK	0.083
DEVI	Inclination	0.00	NO	
<b>CSNG</b>				
TPUL	Tension Pull	108.07	NO	
STAT	Status	108.07	NO	
FRMC	Tool Frame Count	108.07	BLK	0.250
TFRM	Total Frames	108.07	NO	
LSPD	Line Speed	108.07	BLK	0.250
CTIM	Accumulation time for sample	108.07	BLK	0.250

NOIS	Spectral Noise	108.07	BLK	0.250
STAB	Stabilizer Voltage in mv	108.07	BLK	0.250
STBP	Stabilizer 60 KEV Peak	108.07	BLK	0.250
AMER	Americium	108.07	BLK	0.250
FTMP	Flask PCB Temperature	108.07	BLK	0.250
SPEL	Low Energy Spectrum	108.07	BLK	0.250
SPEH	High Energy Spectrum	108.07	BLK	0.250
SSP	Stabilization Energy Spectrum	108.07	BLK	0.250
CSPC	CSNG Lo Hi Spectrum Data	108.07	NO	
<b>DSNT</b>				
TPUL	Tension Pull	97.75	NO	
RNDS	Near Detector Telemetry Counts	97.85	BLK	1.417
RFDS	Far Detector Telemetry Counts	98.60	TRI	0.583
DNTT	DSN Tool Temperature	97.85	NO	
DSNS	DSN Tool Status	97.75	NO	
ERND	Near Detector Telemetry Counts EVR	97.85	BLK	0.000
ERFD	Far Detector Telemetry Counts EVR	98.60	BLK	0.000
ENTM	DSN Tool Temperature EVR	97.85	NO	
<b>SDLT</b>				
TPUL	Tension Pull	87.85	NO	
PCAL	Pad Caliper	87.85	TRI	0.250
ACAL	Arm Caliper	87.85	TRI	0.250
<b>Wavesonic-I</b>				
TPUL	Tension Pull	56.79	NO	
DPSX	Dipole Source X StructureI	45.29	NO	
DPSY	Dipole Source Y StructureI	45.29	NO	
DPSM	Monopole Source Structure	45.29	NO	
WVST	Wavesonic Compressed Data	56.79	NO	
TPUL	Tension Pull	56.79	NO	
XMS1	Wave Sonic Status Word 1	45.29	NO	
XMS2	Wave Sonic Status Word 2	45.29	NO	
XMS1	Wave Sonic XMITStatus Word 1	45.29	NO	
XMS1	Wave Sonic XMITStatus Word 2	45.29	NO	
F1HA	Dipole 1 HV After	45.29	NO	
F1HB	Dipole 1 HV Before	45.29	NO	
F2HA	Dipole 2 HV After	45.29	NO	
F2HB	Dipole 2 HV Before	45.29	NO	
F3HA	Monopole HV After	45.29	NO	
F3HB	Monopole HV Before	45.29	NO	
INVT	Input Voltage	45.29	NO	
5VOL	5 Volts	45.29	NO	
MI5A	Minus 5 Volts Analog	45.29	NO	
ITMP	Instrument Temperature	45.29	NO	
PL5A	Plus 5 Volts Analog	45.29	NO	
5VD	Plus 5 Volts Digital	45.29	NO	
TCUR	Tool Current	45.29	NO	
SUPV	Supply Voltage	45.29	NO	
PRVT	Preregulated voltage	45.29	NO	
PRVT	Pre-regulated voltage Xmter	45.29	NO	
TEMP	Temperature	45.29	NO	
ACQN	Acquisition Number	45.29	NO	
XDP	Delay Reference	56.79	NO	
MITM	MIT Mode	56.79	NO	

MITM	MIT Mode	56.79	NO
VERS	Version	45.29	NO
D1CT	Dipole 1 Compressed Word Count	56.79	NO
D2CT	Dipole 2 Compressed Word Count	56.79	NO
MCNT	Monopole Compressed Word Count	56.79	NO
SEQN	Sequence Number	45.29	NO
FREV	Firmware Revision	45.29	NO
MSMP	Monopole Sample Rate	45.29	NO
MSMP	Dipole Sample Rate	45.29	NO
MFWF	Monopole Firing Waveform	45.29	NO
MFRQ	Monopole Frequency	45.29	NO
MDLY	Monopole Delay	45.29	NO
DXWF	Dipole X Firing Waveform	45.29	NO
XFRQ	Dipole X Frequency	45.29	NO
XDLY	Dipole X Delay	45.29	NO
DYWF	Dipole Y Firing Waveform	45.29	NO
YFRQ	Dipole Y Frequency	45.29	NO
YDLY	Dipole Y Delay	45.29	NO
DPSX	Dipole Source X Structurel	45.29	NO
DPSY	Dipole Source Y Structurel	45.29	NO
DPSM	Monopole Source Structure	45.29	NO
WVST	Wavesonic Compressed Data	56.79	NO
AUTM	Auto Mode	45.29	NO
SONM	tool mode for sonic - 0 for normal or 3 for calibration	45.29	NO
MSL	Monopole Lower Travel Time	56.79	NO
MSH	Monopole Upper Travel Time	56.79	NO
MLFC	Monopole-1 Lower Filter Bandpass Frequency Cut-off	45.29	NO
MUFC	Monopole-1 Upper Filter Bandpass Frequency Cut-off	45.29	NO
DLTT	Dipole Lower Travel Time	45.29	NO
DUTT	Dipole Upper Travel Time	45.29	NO
DLFC	Dipole Lower Filter Bandpass Frequency Cut-off	45.29	NO
DUFC	Dipole Upper Filter Bandpass Frequency Cut-off	45.29	NO
MUTE	WaveSonic Mute/Enable Channels and Sides map	45.29	NO
MUTS	Mute/Enable Sides	45.29	NO
WSRB	Relative Bearing	56.79	NO
WSAZ	WSX Azimuth Pad 1	56.79	NO
TPUL	Tension Pull	56.79	NO
WMP	Summed array of Monopole for SIDES - A,B,C,D	56.79	NO
WXX	Dipole X for SIDES - A-C	56.79	NO
WYY	Dipole Y for SIDES - B-D	56.79	NO
WXY	Dipole X for SIDES - B-D	56.79	NO
WYX	Dipole Y for SIDES - A-C	56.79	NO
TPUL	Tension Pull	56.79	NO
WMA	Monopole Waveform Side A - Channel 1 to Channel 8 Receivers	56.79	NO
WMB	Monopole Waveform Side B - Channel 1 to Channel 8 Receivers	56.79	NO
WMC	Monopole Waveform Side C - Channel 1 to Channel 8 Receivers	56.79	NO
WMD	Monopole Waveform Side D - Channel 1 to Channel 8 Receivers	56.79	NO
WXA	Dipole X Waveform Side A - Channel 1 to Channel 8 Receivers	56.79	NO
WXB	Dipole X Waveform Side B - Channel 1 to Channel 8 Receivers	56.79	NO
WXC	Dipole X Waveform Side C - Channel 1 to Channel 8 Receivers	56.79	NO
WXD	Dipole X Waveform Side D - Channel 1 to Channel 8 Receivers	56.79	NO
	Dipole Y Waveform Side A - Channel 1 to Channel 8		

WYA	Dipole Y Waveform Side A - Channel 1 to Channel 8 Receivers	56.79	NO
WYB	Dipole Y Waveform Side B - Channel 1 to Channel 8 Receivers	56.79	NO
WYC	Dipole Y Waveform Side C - Channel 1 to Channel 8 Receivers	56.79	NO
WYD	Dipole Y Waveform Side D - Channel 1 to Channel 8 Receivers	56.79	NO
GAR1	Gain Side A Receiver 1	45.29	NO
GAR2	Gain Side A Receiver 2	45.29	NO
GAR3	Gain Side A Receiver 3	45.29	NO
GAR4	Gain Side A Receiver 4	45.29	NO
GAR5	Gain Side A Receiver 5	45.29	NO
GAR6	Gain Side A Receiver 6	45.29	NO
GAR7	Gain Side A Receiver 7	45.29	NO
GAR8	Gain Side A Receiver 8	45.29	NO
GBR1	Gain Side B Receiver 1	45.29	NO
GBR2	Gain Side B Receiver 2	45.29	NO
GBR3	Gain Side B Receiver 3	45.29	NO
GBR4	Gain Side B Receiver 4	45.29	NO
GBR5	Gain Side B Receiver 5	45.29	NO
GBR6	Gain Side B Receiver 6	45.29	NO
GBR7	Gain Side B Receiver 7	45.29	NO
GBR8	Gain Side B Receiver 8	45.29	NO
GCR1	Gain Side C Receiver 1	45.29	NO
GCR2	Gain Side C Receiver 2	45.29	NO
GCR3	Gain Side C Receiver 3	45.29	NO
GCR4	Gain Side C Receiver 4	45.29	NO
GCR5	Gain Side C Receiver 5	45.29	NO
GCR6	Gain Side C Receiver 6	45.29	NO
GCR7	Gain Side C Receiver 7	45.29	NO
GCR8	Gain Side C Receiver 8	45.29	NO
GDR1	Gain Side D Receiver 1	45.29	NO
GDR2	Gain Side D Receiver 2	45.29	NO
GDR3	Gain Side D Receiver 3	45.29	NO
GDR4	Gain Side D Receiver 4	45.29	NO
GDR5	Gain Side D Receiver 5	45.29	NO
GDR6	Gain Side D Receiver 6	45.29	NO
GDR7	Gain Side D Receiver 7	45.29	NO
GDR8	Gain Side D Receiver 8	45.29	NO
<b>XRMI-I Mandrel</b>			
TPUL	Tension Pull	22.60	NO
PAD1	XRMI Pad 1 values	22.36	NO
PAD2	XRMI Pad 2 values	22.36	NO
PAD3	XRMI Pad 3 values	22.36	NO
PAD4	XRMI Pad 4 values	22.36	NO
PAD5	XRMI Pad 5 values	22.36	NO
PAD6	XRMI Pad 6 values	22.36	NO
OD1	EMI Odd Button Values Pad 1	22.36	NO
OD2	EMI Odd Button Values Pad 2	22.60	NO
OD3	EMI Odd Button Values Pad 3	22.36	NO
OD4	EMI Odd Button Values Pad 4	22.60	NO
OD5	EMI Odd Button Values Pad 5	22.36	NO
OD6	EMI Odd Button Values Pad 6	22.60	NO
EV1	EMI Even Button Values Pad 1	22.39	NO
EV2	EMI Even Button Values Pad 2	22.57	NO
EV3	EMI Even Button Values Pad 3	22.39	NO

EV4	EMI Even Button Values Pad 4	22.57	NO	
EV5	EMI Even Button Values Pad 5	22.39	NO	
EV6	EMI Even Button Values Pad 6	22.57	NO	
ITMP	Instrument Temperature	19.83	NO	
EMIM	Tool Mode	19.83	NO	
HAZI	Hole Azimuth	22.11	NO	
HAZI	Hole Azimuth - Down Delay	22.61	NO	
ZACC	Accelerometer Z	22.36	NO	
TPUL	Tension Pull	22.60	NO	
FIR1	Current Button R - Pad 1	22.36	NO	
FIR2	Current Button R - Pad 2	22.60	NO	
FIR3	Current Button R - Pad 3	22.36	NO	
FIR4	Current Button R - Pad 4	22.60	NO	
FIR5	Current Button R - Pad 5	22.36	NO	
FIR6	Current Button R - Pad 6	22.60	NO	
FIX1	Current Button X - Pad 1	22.36	NO	
FIX2	Current Button X - Pad 2	22.60	NO	
FIX3	Current Button X - Pad 3	22.36	NO	
FIX4	Current Button X - Pad 4	22.60	NO	
FIX5	Current Button X - Pad 5	22.36	NO	
FIX6	Current Button X - Pad 6	22.60	NO	
SIR1	Current Slow Button R - Pad 1	22.36	BLK	3.000
SIR2	Current Slow Button R - Pad 2	22.60	BLK	3.000
SIR3	Current Slow Button R - Pad 3	22.36	BLK	3.000
SIR4	Current Slow Button R - Pad 4	22.60	BLK	3.000
SIR5	Current Slow Button R - Pad 5	22.36	BLK	3.000
SIR6	Current Slow Button R - Pad 6	22.60	BLK	3.000
SIX1	Current Slow Button X - Pad 1	22.36	BLK	3.000
SIX2	Current Slow Button X - Pad 2	22.60	BLK	3.000
SIX3	Current Slow Button X - Pad 3	22.36	BLK	3.000
SIX4	Current Slow Button X - Pad 4	22.60	BLK	3.000
SIX5	Current Slow Button X - Pad 5	22.36	BLK	3.000
SIX6	Current Slow Button X - Pad 6	22.60	BLK	3.000
EMMR	Phasor Voltage - Real Part	22.36	NO	
EMMX	Phasor Voltage - Imaginary Part	22.36	NO	
PADV	Pad Voltage	19.83	BLK	0.250
ITMP	Instrument Temperature	19.83	BLK	0.000
CON1	Conductivity Pad 1	22.36	BLK	3.000
CON2	Conductivity Pad 2	22.60	BLK	3.000
CON3	Conductivity Pad 3	22.36	BLK	3.000
CON4	Conductivity Pad 4	22.60	BLK	3.000
CON5	Conductivity Pad 5	22.36	BLK	3.000
CON6	Conductivity Pad 6	22.60	BLK	3.000
UIR2	Current Button R No Delay - Pad 2	22.36	NO	
UIR4	Current Button R No Delay - Pad 4	22.36	NO	
UIR6	Current Button R No Delay - Pad 6	22.36	NO	
UIX2	Current Button X No Delay - Pad 2	22.36	NO	
UIX4	Current Button X No Delay - Pad 4	22.36	NO	
UIX6	Current Button X No Delay - Pad 6	22.36	NO	
TPUL	Tension Pull	22.60	NO	
ARM1	Caliper 1 measurement	22.36	BLK	0.000
ARM2	Caliper 2 measurement	22.36	BLK	0.000
ARM3	Caliper 3 measurement	22.36	BLK	0.000
ARM4	Caliper 4 measurement	22.36	BLK	0.000
ARM5	Caliper 5 measurement	22.36	BLK	0.000

ARM6	Caliper 6 measurement	22.36	BLK	0.000
MOTV	Motor Voltage Monitor 1	22.36	BLK	0.000
PRES	Caliper percentage of total compression of the spring	19.83	BLK	0.000
HAZI	Hole Azimuth	22.36	NO	
RB	Relative Bearing	22.36	NO	
AZI1	PAD1 Azimuth	22.36	NO	
DEVI	Inclination	22.36	NO	
<b>ACRt Sonde</b>				
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 Current Raw 12K X Receiver	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
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	

**Microlog Pad**

TPUL	Tension Pull	88.03	NO	
MINV	Microlog Lateral	88.03	BLK	0.750
MNOR	Microlog Normal	88.03	BLK	0.750

**SDLT Pad**

TPUL	Tension Pull	87.84	NO	
NAB	Near Above	87.66	BLK	0.920
NHI	Near Cesium High	87.66	BLK	0.920
NLO	Near Cesium Low	87.66	BLK	0.920
NVA	Near Valley	87.66	BLK	0.920
NBA	Near Barite	87.66	BLK	0.920
NDE	Near Density	87.66	BLK	0.920
NPK	Near Peak	87.66	BLK	0.920
NLI	Near Lithology	87.66	BLK	0.920
NBAU	Near Barite Unfiltered	87.66	BLK	0.250
NLIU	Near Lithology Unfiltered	87.66	BLK	0.250
FAB	Far Above	88.01	BLK	0.250
FHI	Far Cesium High	88.01	BLK	0.250
FLO	Far Cesium Low	88.01	BLK	0.250
FVA	Far Valley	88.01	BLK	0.250
FBA	Far Barite	88.01	BLK	0.250
FDE	Far Density	88.01	BLK	0.250
FPK	Far Peak	88.01	BLK	0.250
FLI	Far Lithology	88.01	BLK	0.250
PTMP	Pad Temperature	87.85	BLK	0.920
NHV	Near Detector High Voltage	87.24	NO	
FHV	Far Detector High Voltage	87.24	NO	
ITMP	Instrument Temperature	87.24	NO	
DDHV	Detector High Voltage	87.24	NO	

Data: PAMELA\_2330\_1-3\0001 SP-GTET-DSN-SDL-XRMI-WS TT-ACRT-BNIDLE

Date: 17-Apr-13 20:29:09

COMPANY	<b>SANDRIDGE ENERGY</b>		
WELL	<b>PAMELA 2330 1-34 RE</b>		
FIELD			
COUNTY	<b>FINNEY</b>	STATE	<b>KANSAS</b>

**HALLIBURTON**

**MICRO  
LOG**