

HALLIBURTON

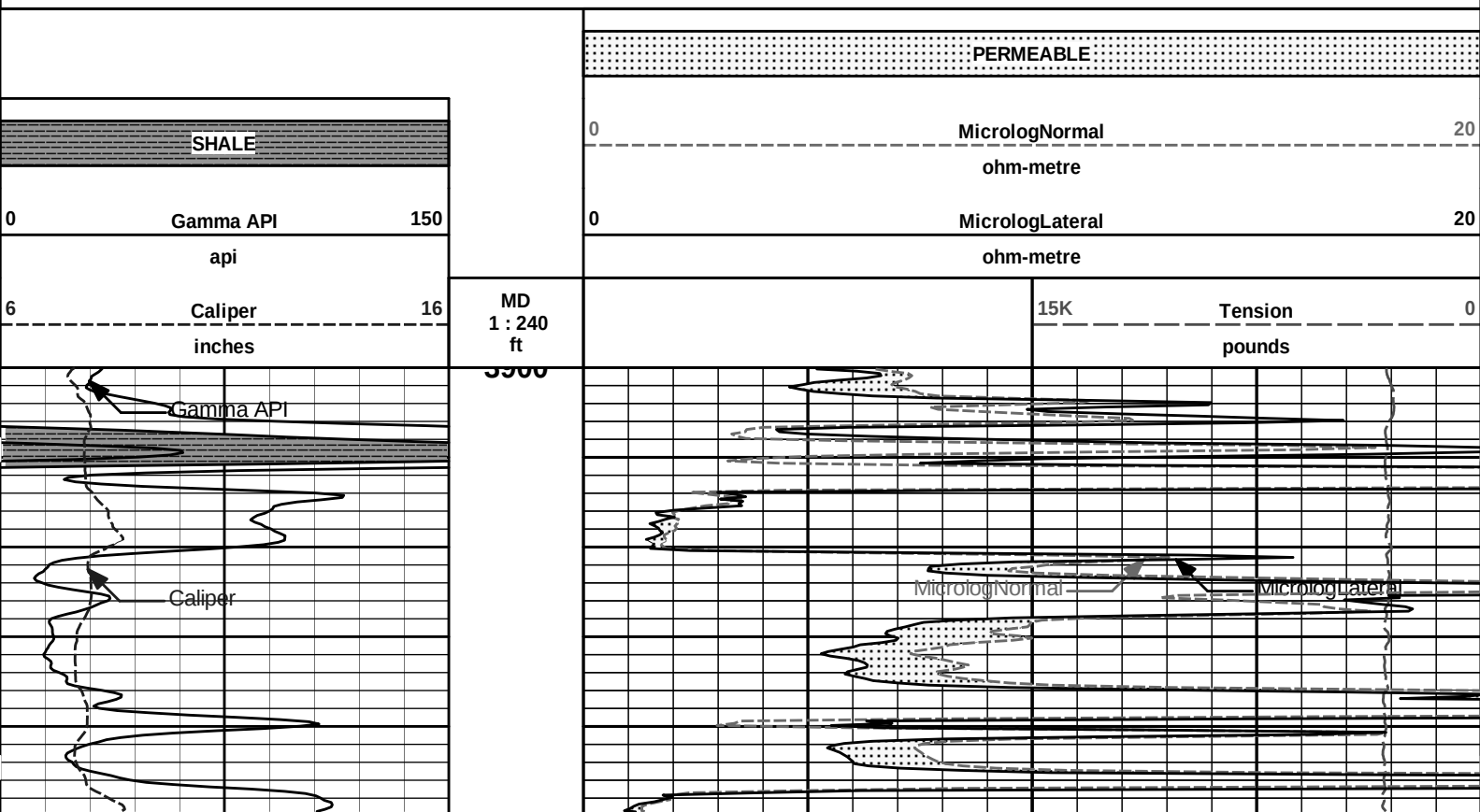
MICROLOG

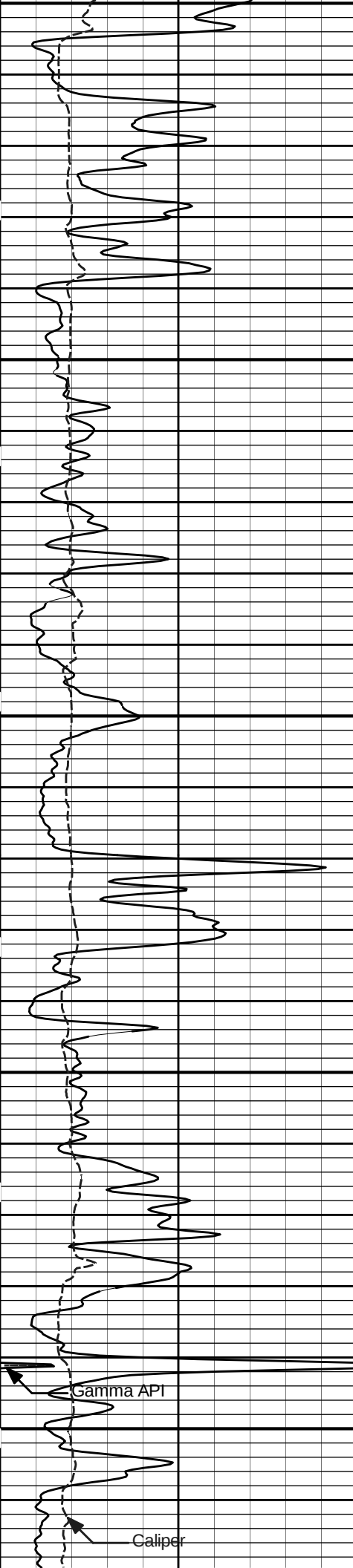
COMPANY		OXY USA INC.	
WELL		DRUSSEL E-2	
FIELD/BLOCK		HUGOTON GAS AREA	
COUNTY		FINNEY	
STATE		KANSAS	
Permanent Datum		GL	
Log measured from		KB	
Drilling measured from		KB	
Date		12-Jul-13	
Run No.		ONE	
Depth - Driller		5170.00 ft	
Depth - Logger		5162.0 ft	
Bottom - Logged Interval		5118.0 ft	
Top - Logged Interval		3900.0 ft	
Casing - Driller		8.625 in @ 1662.0 ft	
Casing - Logger		1662.0 ft	
Bit Size		7.875 in @	
Type Fluid in Hole		WATER BASED MUD	
Density		9.7 ppg	
Viscosity		53.00 s/qt	
PH		10.70 pH	
Fluid Loss		6.0 cpm	
Source of Sample		MUD PIT	
Rm @ Meas. Temperature		0.800 ohmm @ 122.00 degF	
Rmf @ Meas. Temperature		0.65 ohmm @ 75.00 degF	
Rmc @ Meas. Temperature		1.050 ohmm @ 75.00 degF	
Source Rmf		MEASURED	
Rmc		MEASURED	
Rm @ BHT		0.72 ohmm @ 137.0 degF	
Time Since Circulation		6.0 hr	
Time on Bottom		12-Jul-13 19:05	
Max. Rec. Temperature		137.0 degF @ 5162.0 ft	
Equipment		11230668 LIBERAL	
Recorded By		J. BOLLOW	
Witnessed By		G. BILBY	

Fold here

Service Ticket No.: 9005822238				API Serial No.: 15055222270000				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.	Other	
Rmf @ Meas. Temp.		@		@		ONE	MICROLOG	RUBBER	ADJ	N/A	
Rmc @ Meas. Temp.		@		@			10685803				
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.	10811258		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	Depth		Speed	Scale		Scale		Matrix	Scale		Matrix	Scale		Matrix
No.	From	To	ft/min	L	R	L	R		L	R		L	R	
ONE	5162	3900	REC	0	150									
DIRECTIONAL INFORMATION														
Maximum Deviation @								KOP @						
Remarks: ANNULAR HOLE VOLUME CALCULATED FOR 5.5-INCH CASING														
CHLORIDES REPORTED AT 4,000 MG/L														
GTET-DSNT-SDLT-BSAT-ACRT RUN IN COMBINATION														
TODAY'S CREW: V. JAIME & K. KING														
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														



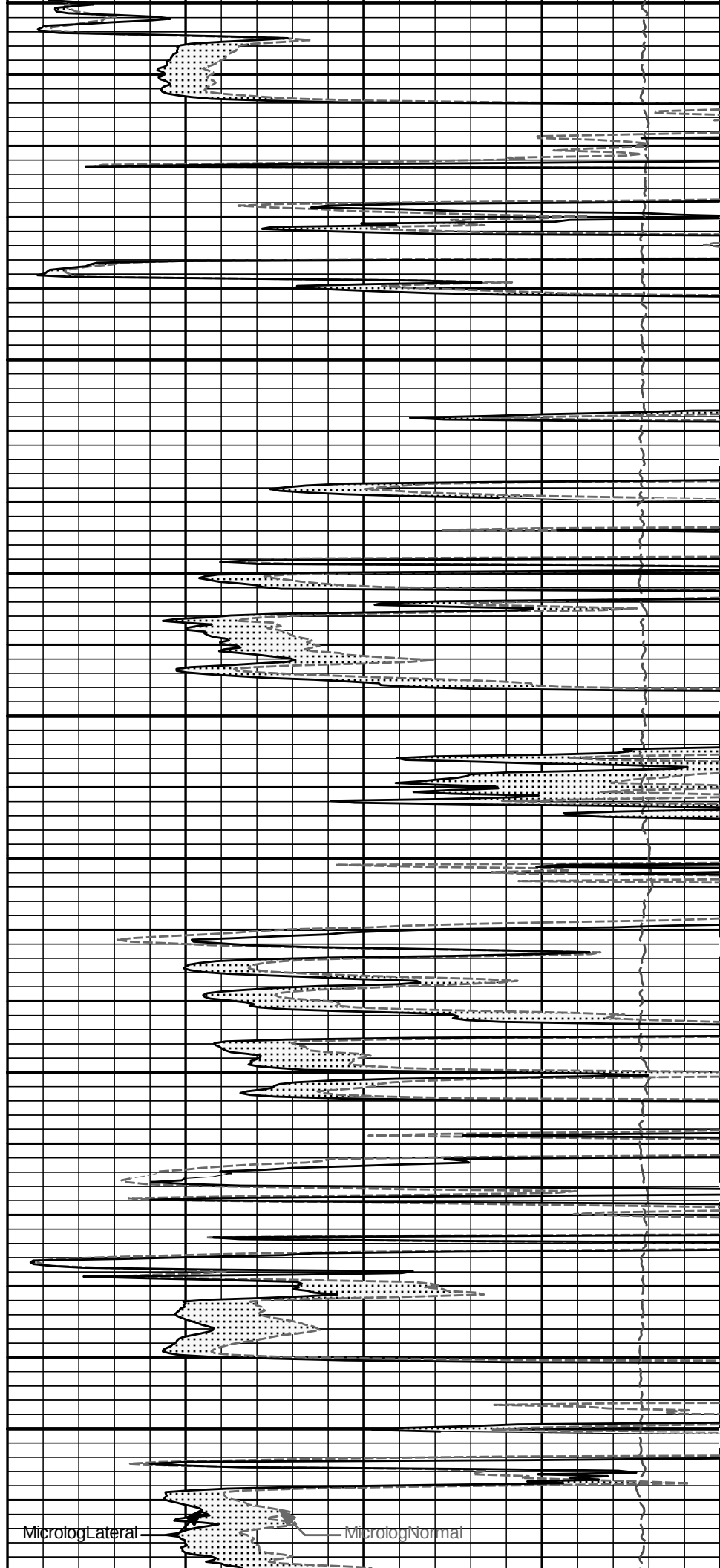


4000

4100

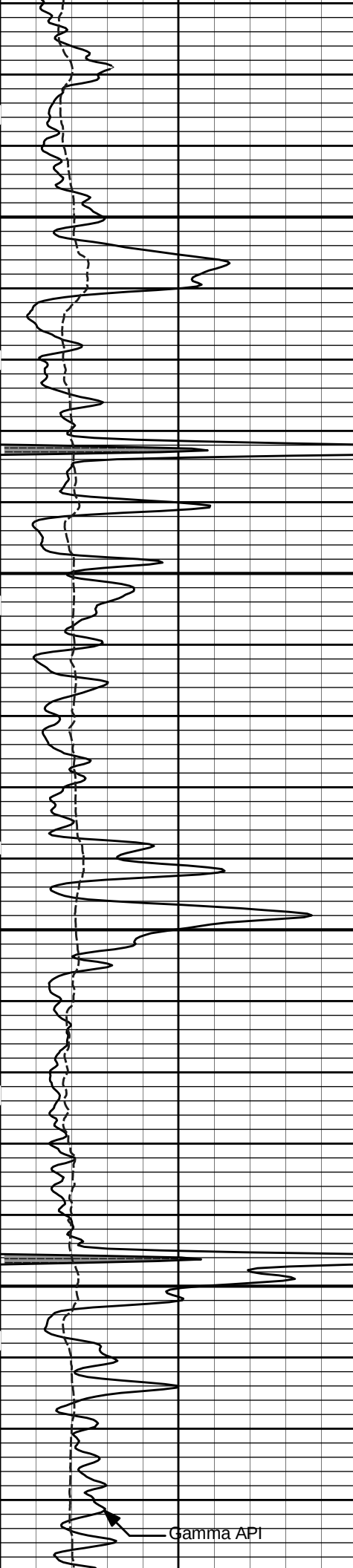
Gamma API

Caliper



Microlog Lateral

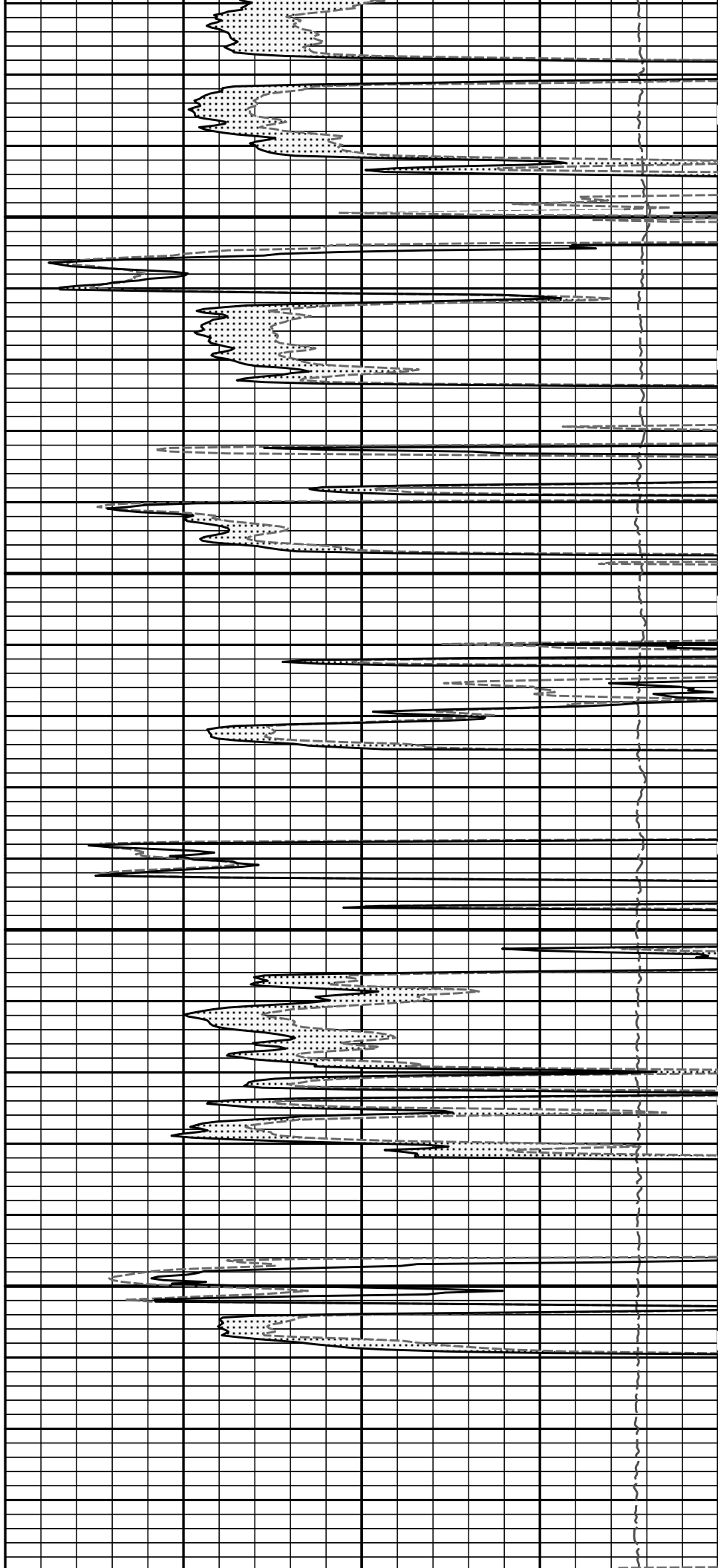
Microlog Normal

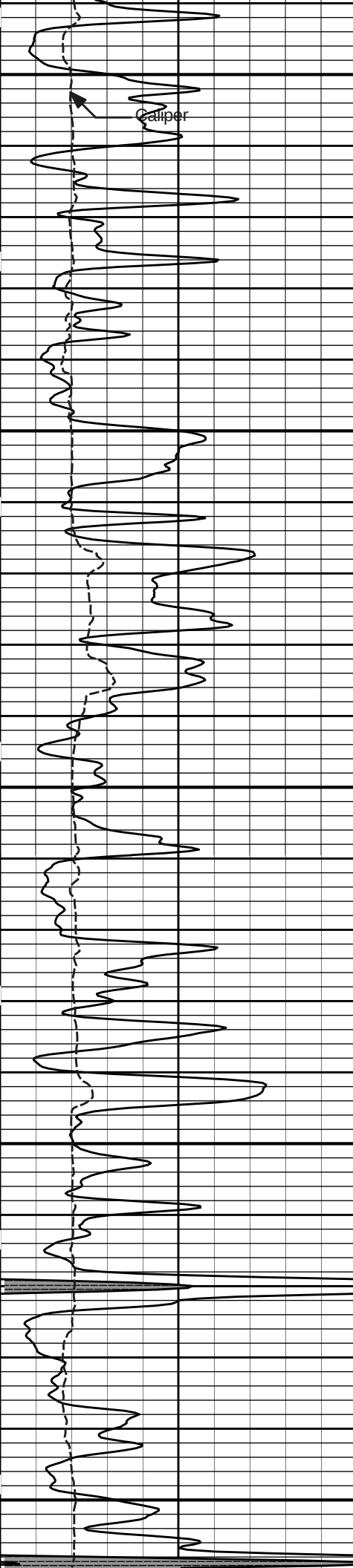


4200

4300

Gamma API

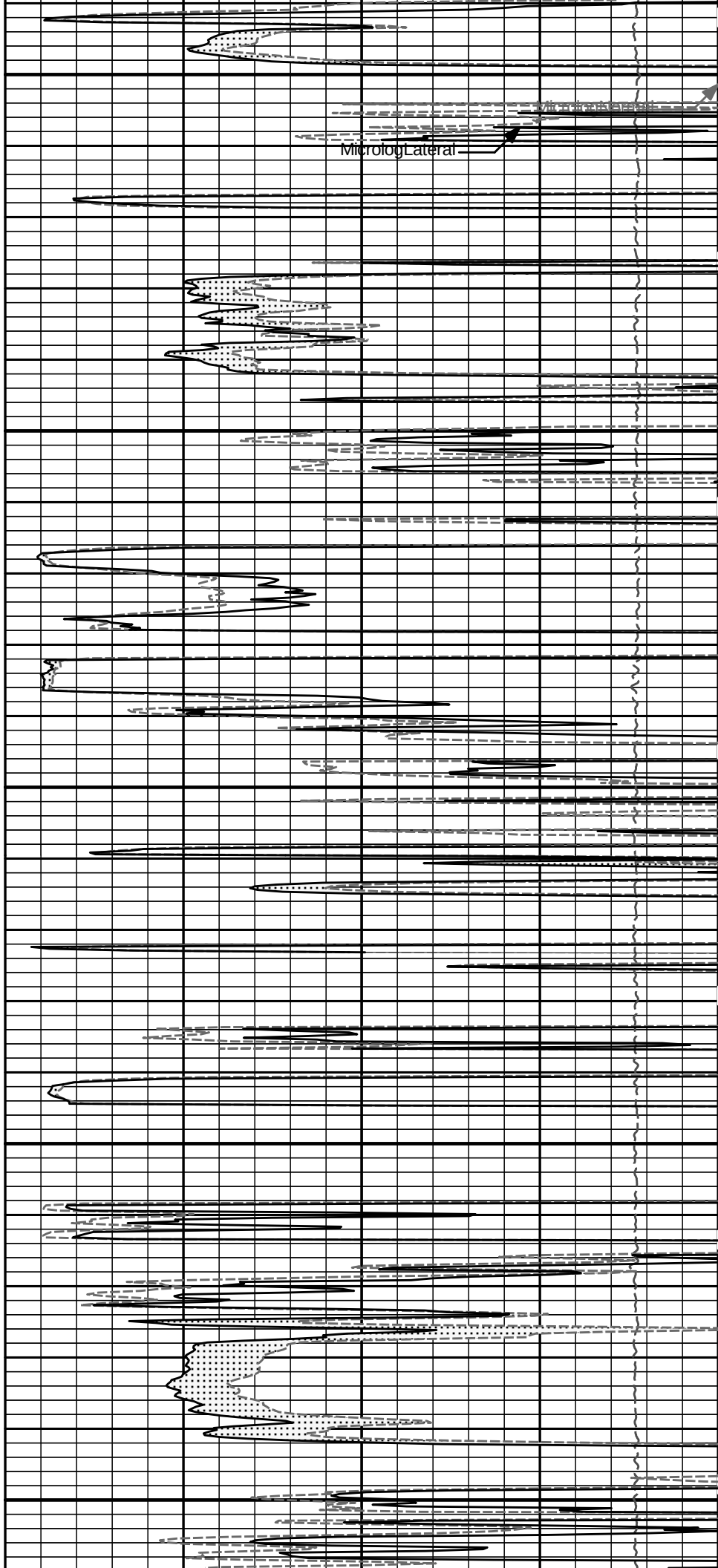




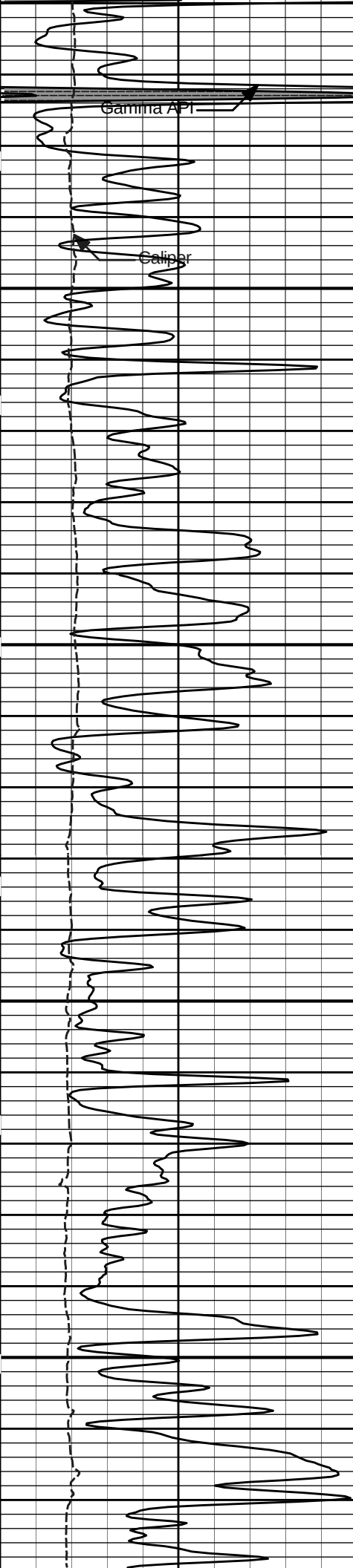
4400

4500

4600

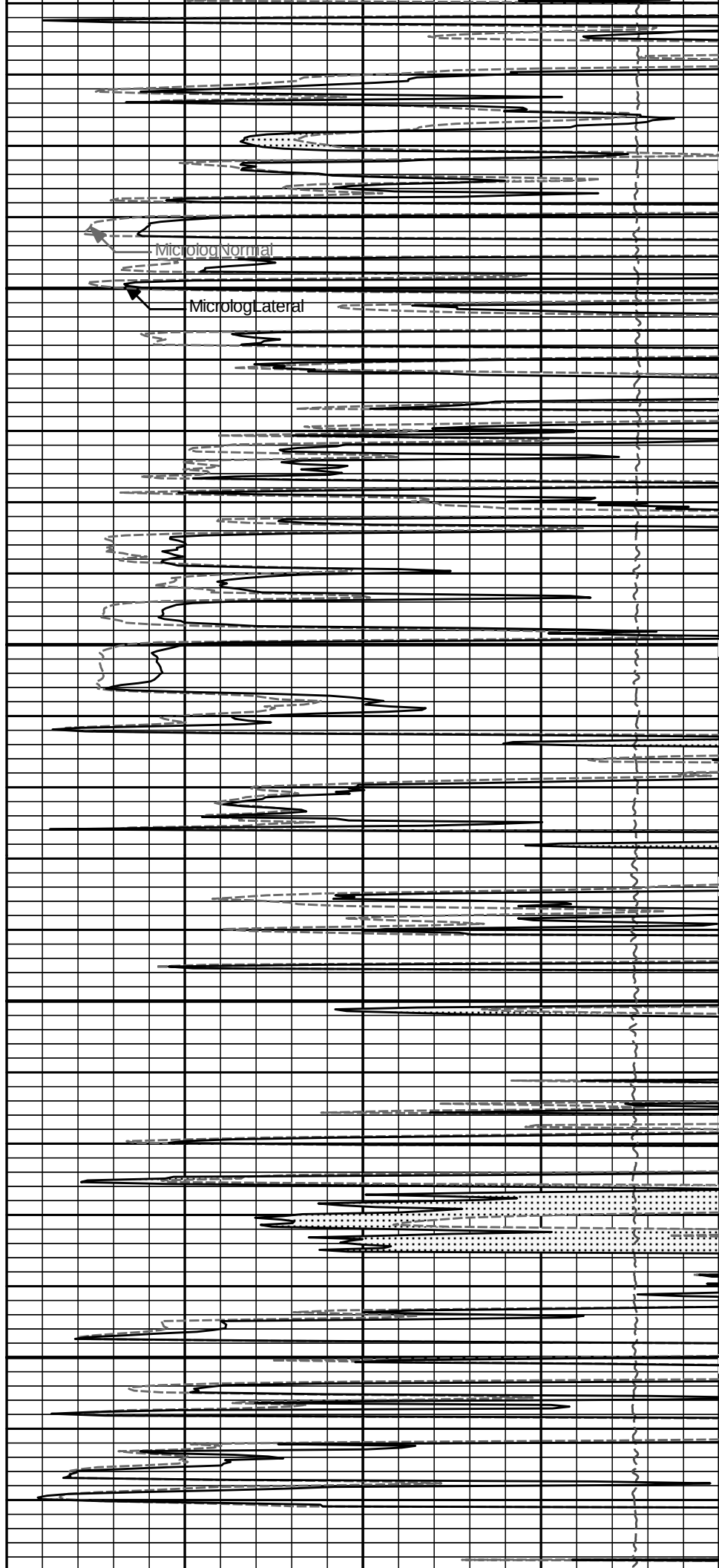


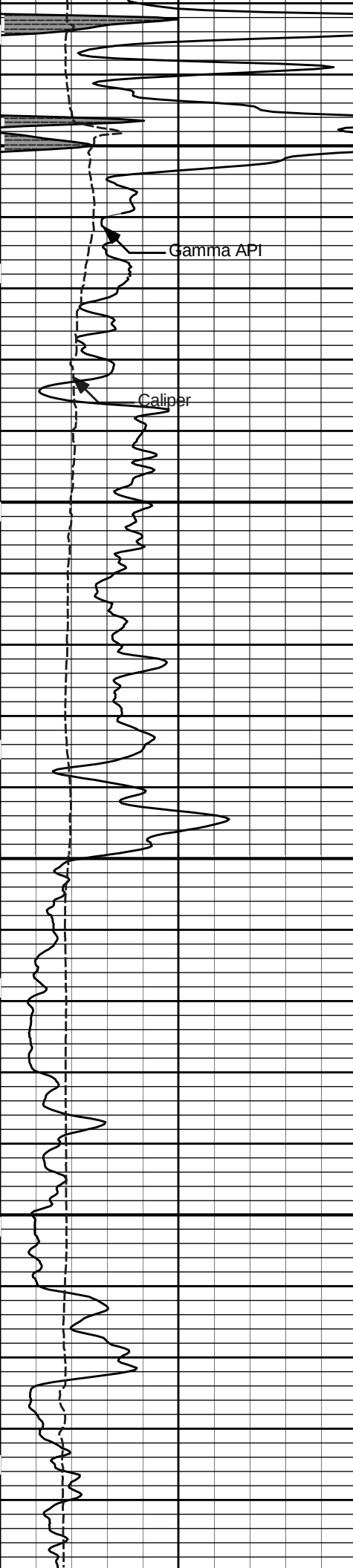
Microlog/Lateral



4700

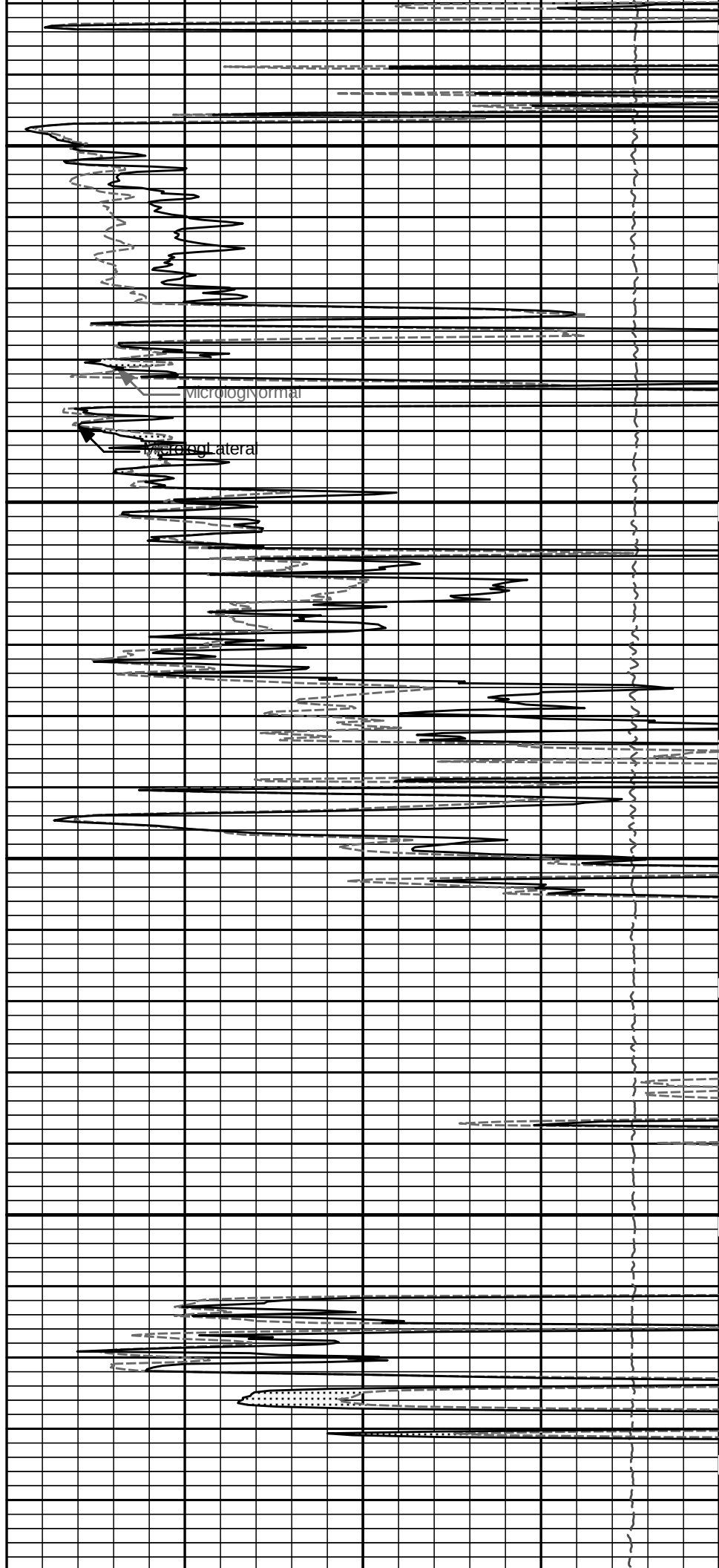
4800

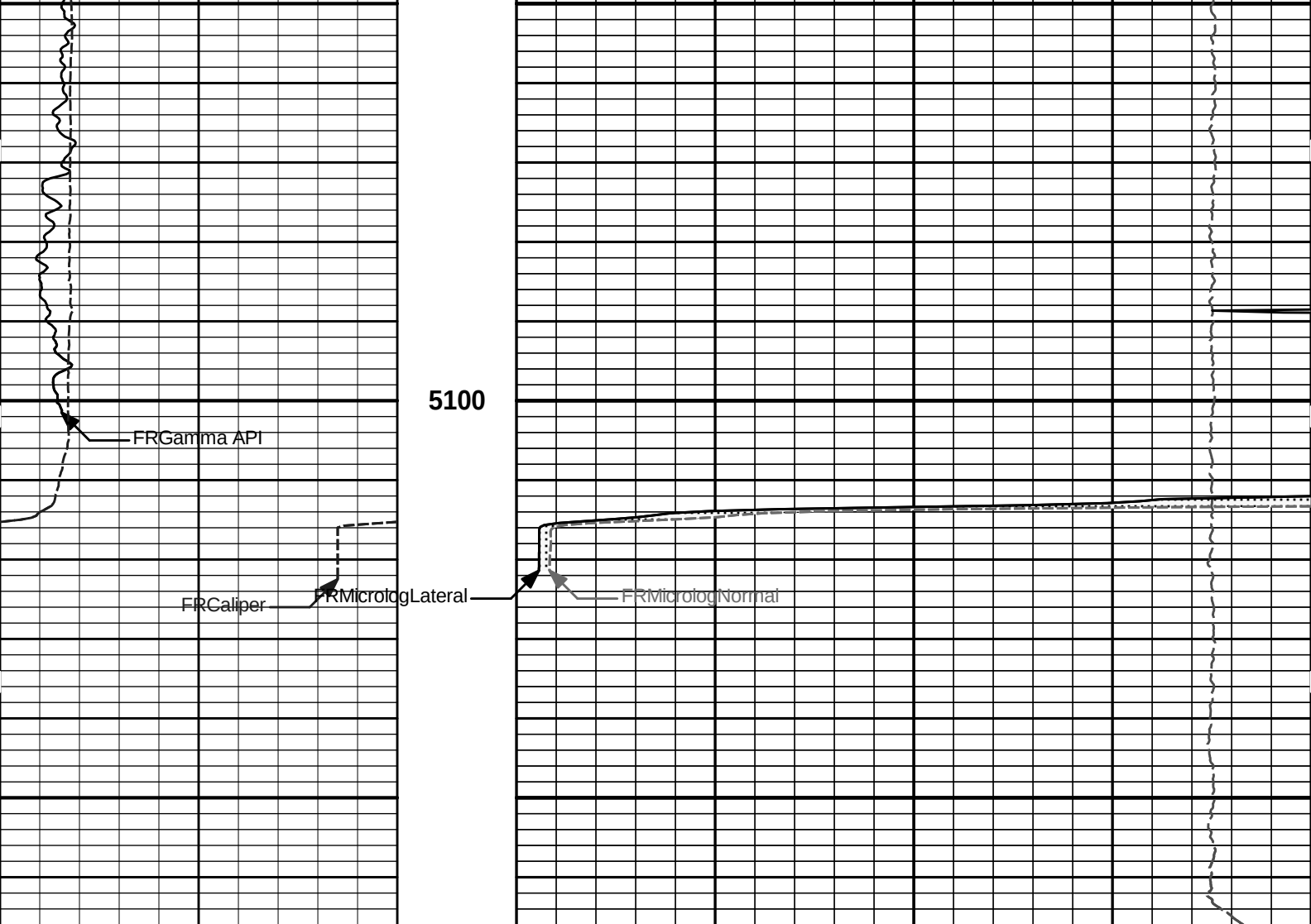




4900

5000





6	Caliper	16	MD	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

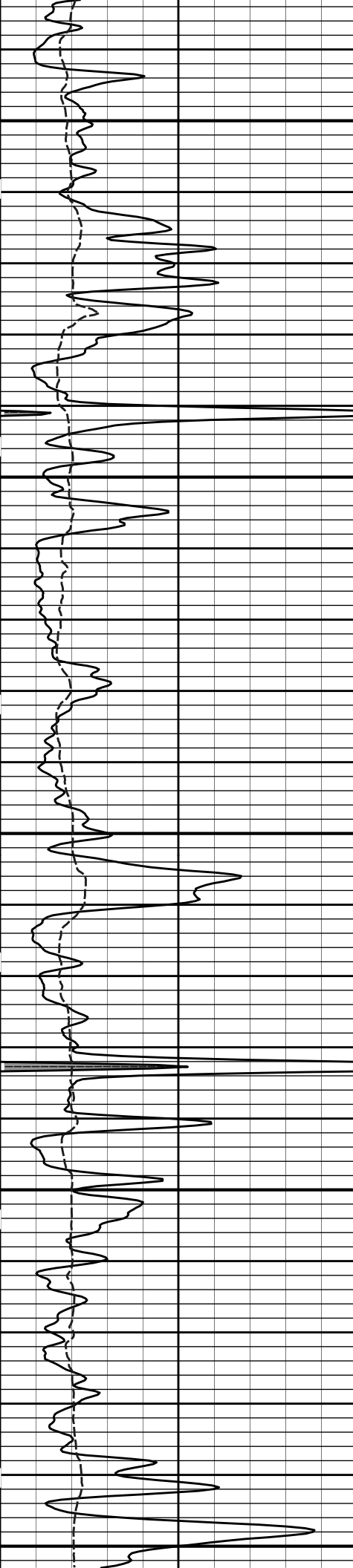
Plot Time: 12-Jul-13 20:28:25
Plot Range: 3900 ft to 5166.17 ft
Data: DRUSSEL_E-1\Well Based\DETAIL\
Plot File: \\LOCAL-IDRUSSEL_E-1\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\MICRO\Microlog_IQ_5_main.lib

5 INCH MAIN LOG

HALLIBURTON

Plot Time: 12-Jul-13 20:28:25
Plot Range: 3900 ft to 5165.33 ft
Data: DRUSSEL_E-1\Well Based\REPEAT\
Plot File: \\LOCAL-IDRUSSEL_E-1\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\MICRO\Microlog_IQ_5_rep.lib

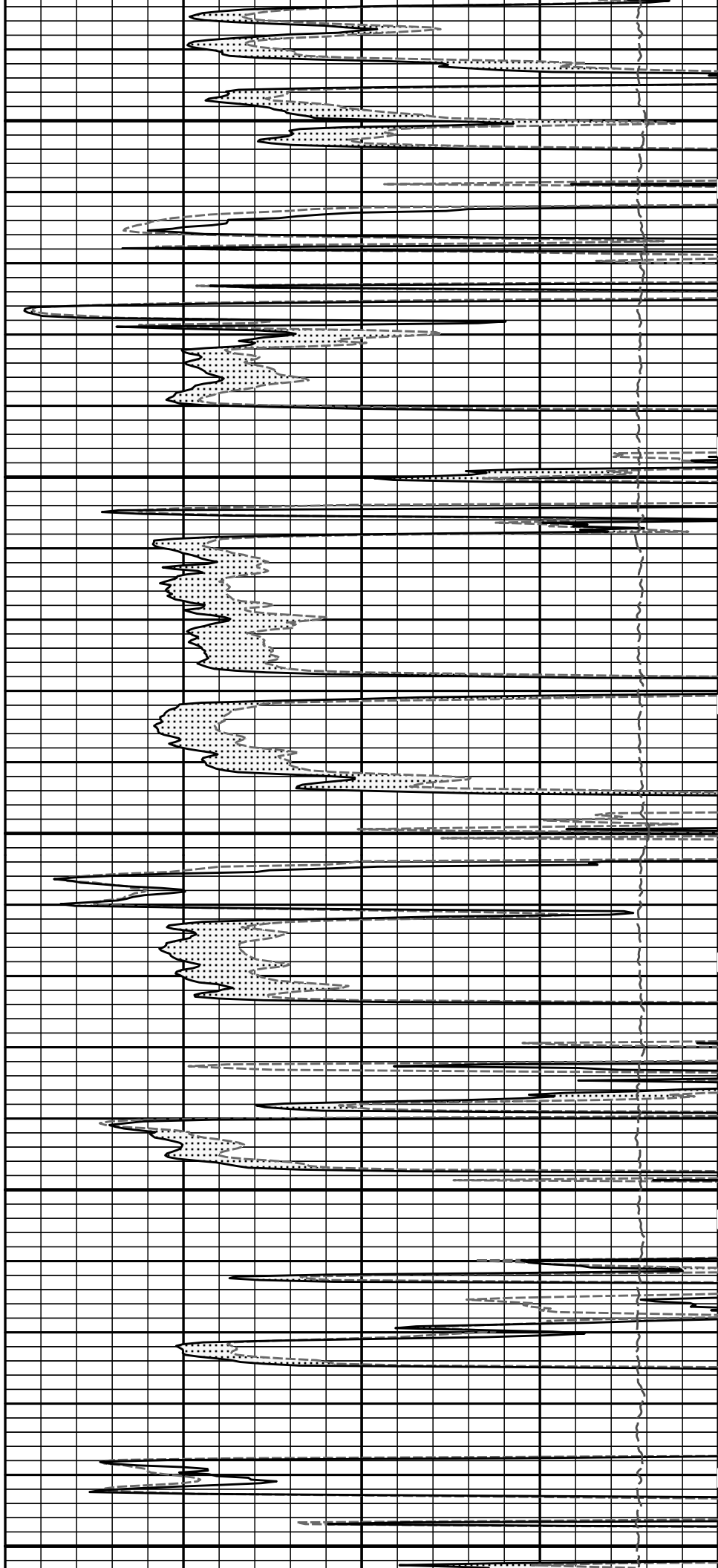
REPEAT SECTION

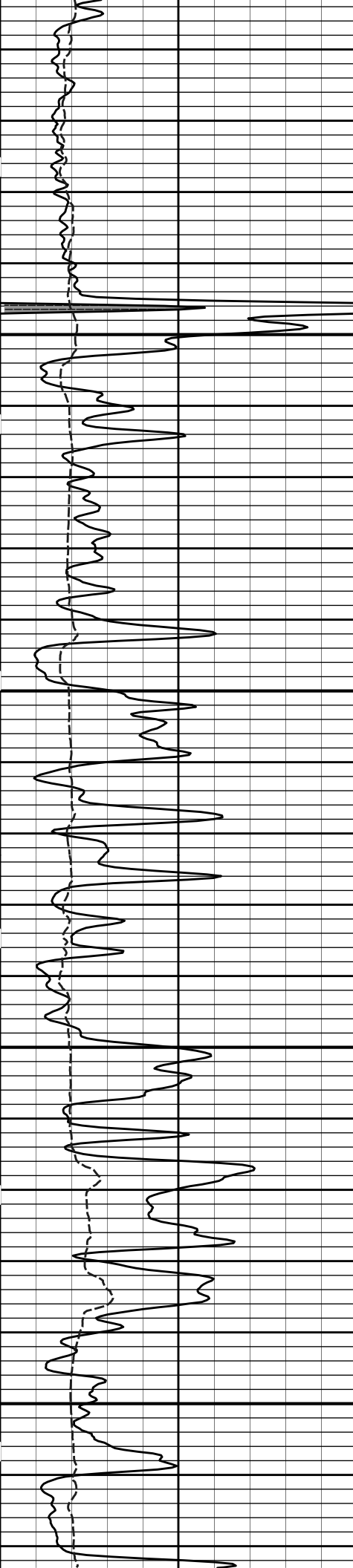


4100

4200

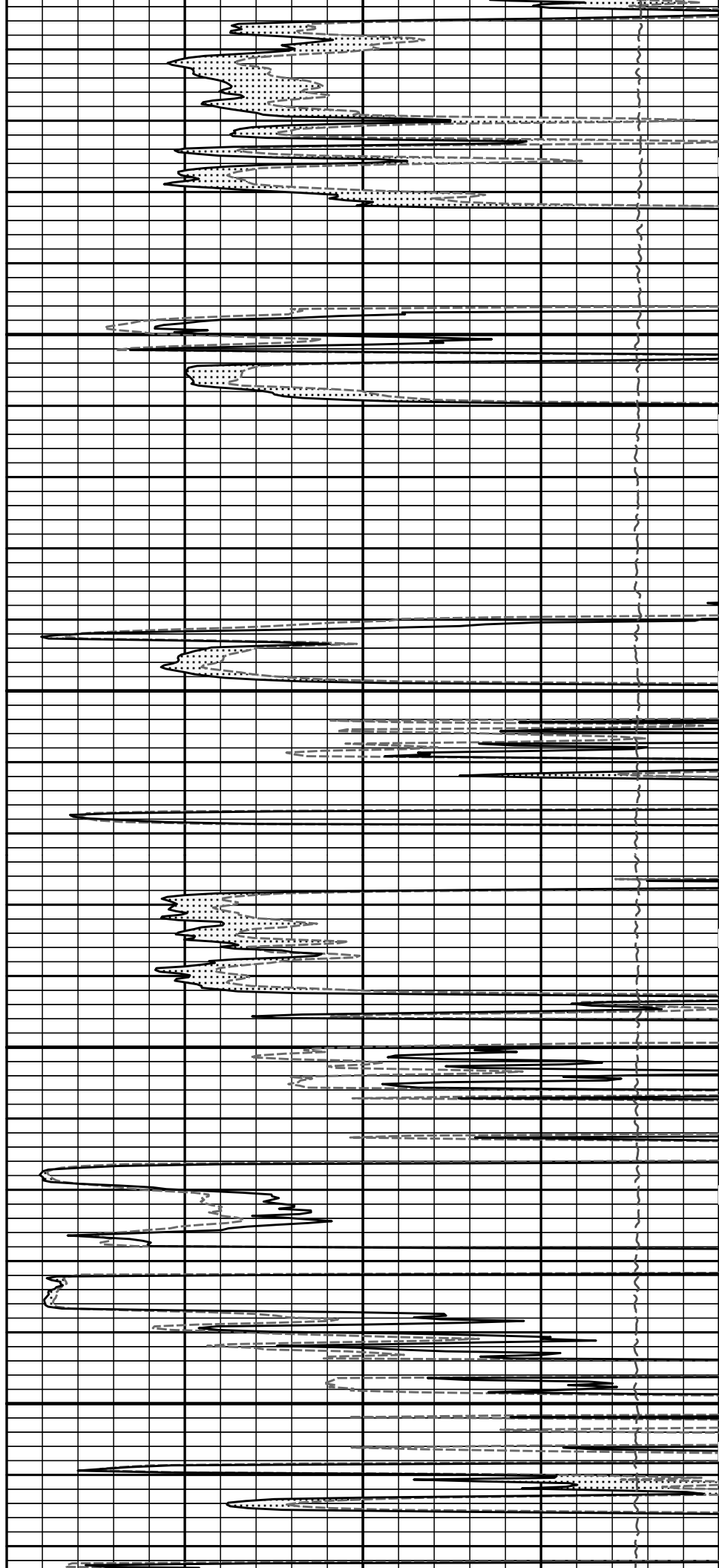
4300

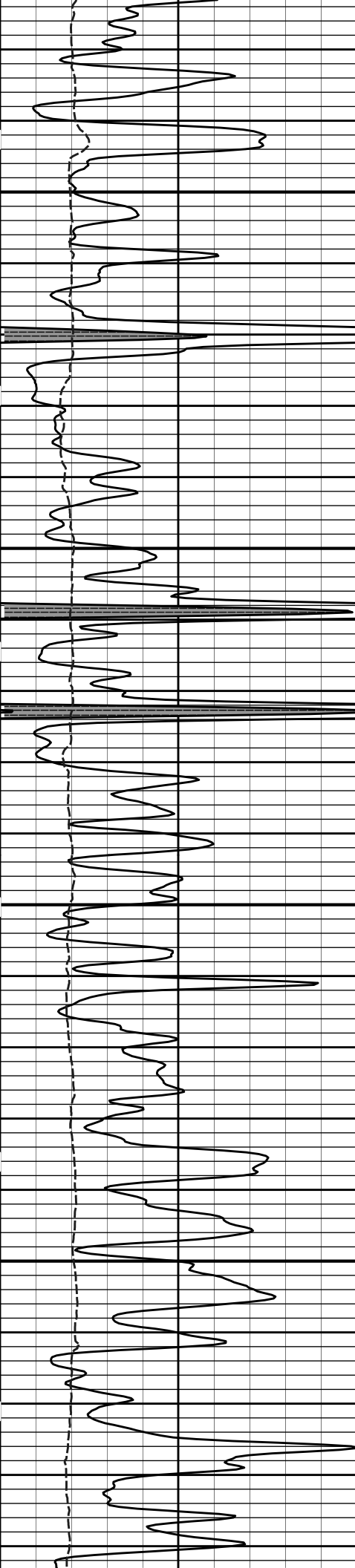




4400

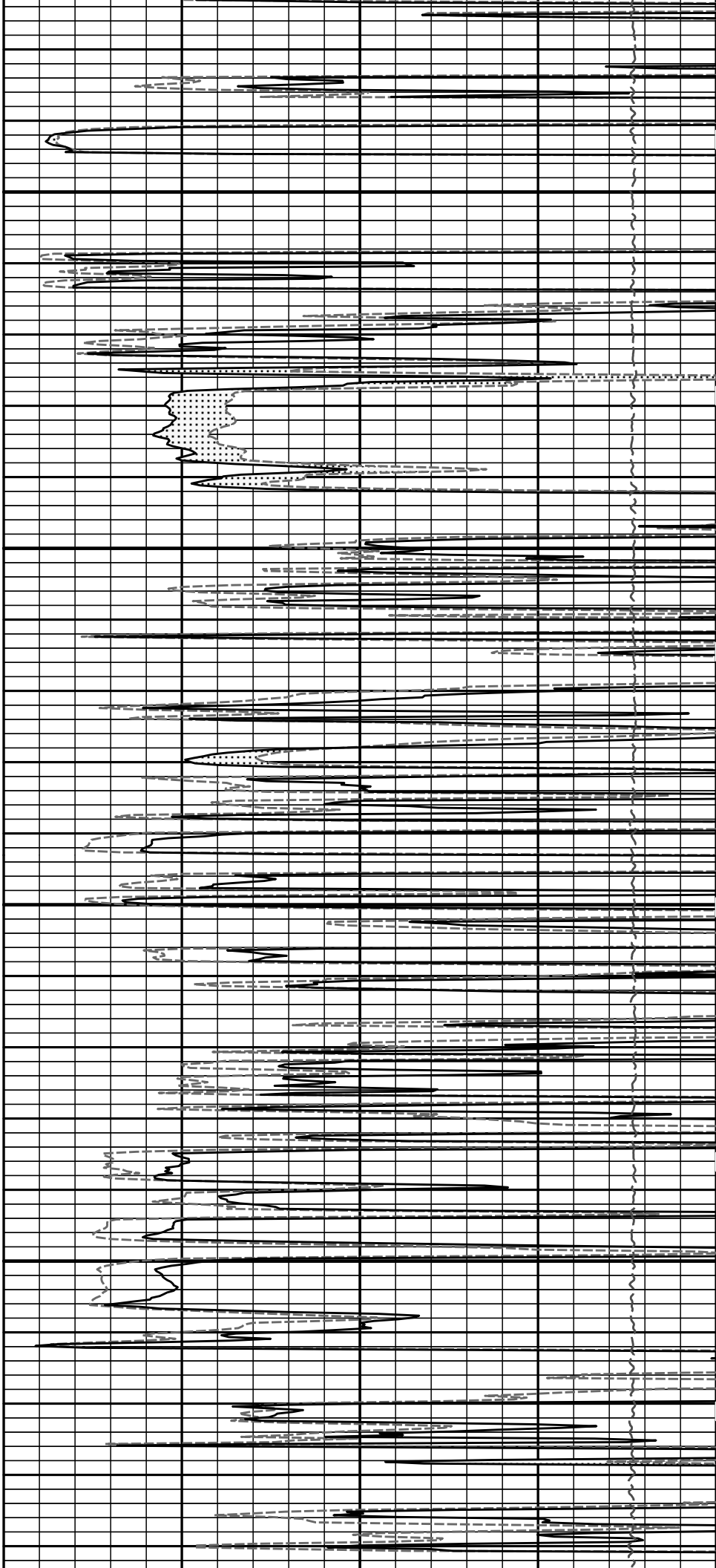
4500

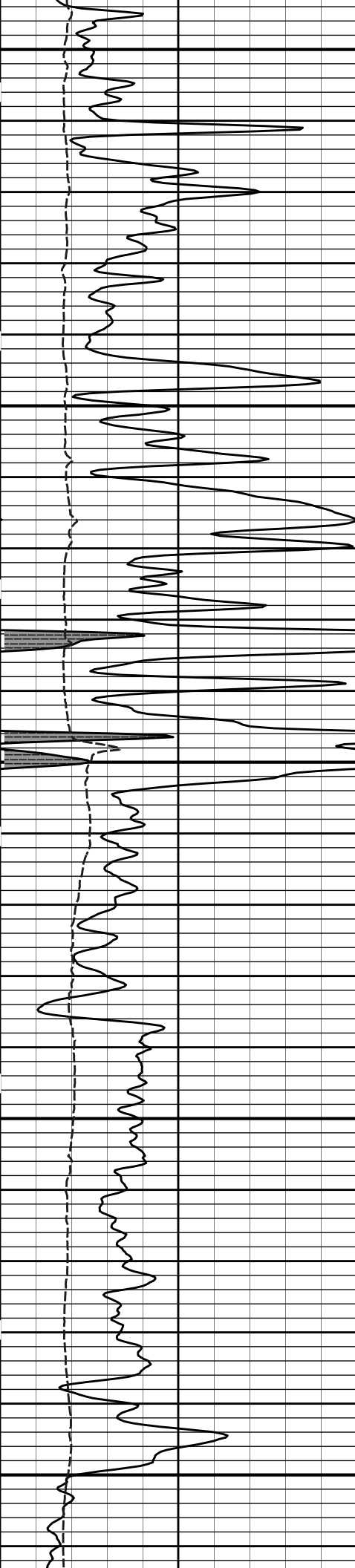




4600

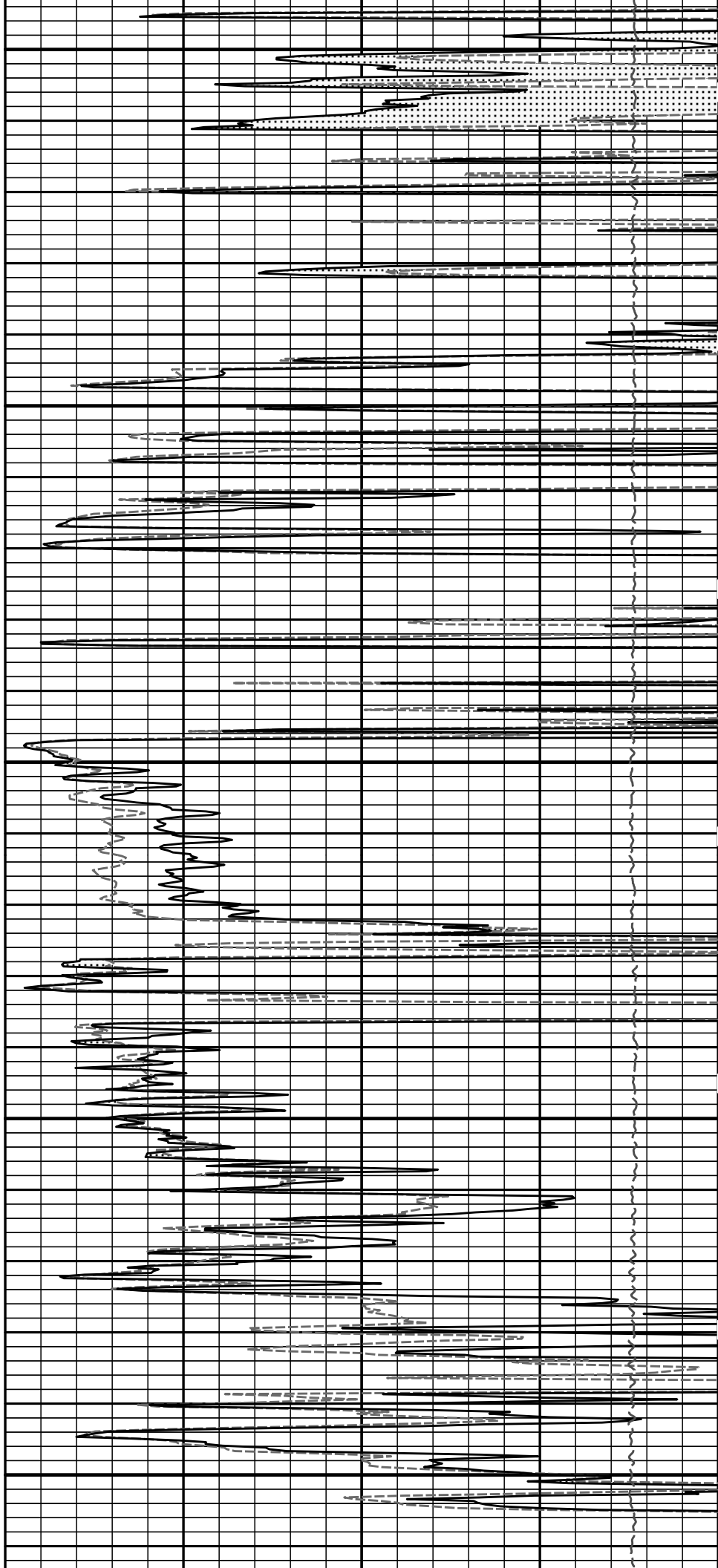
4700

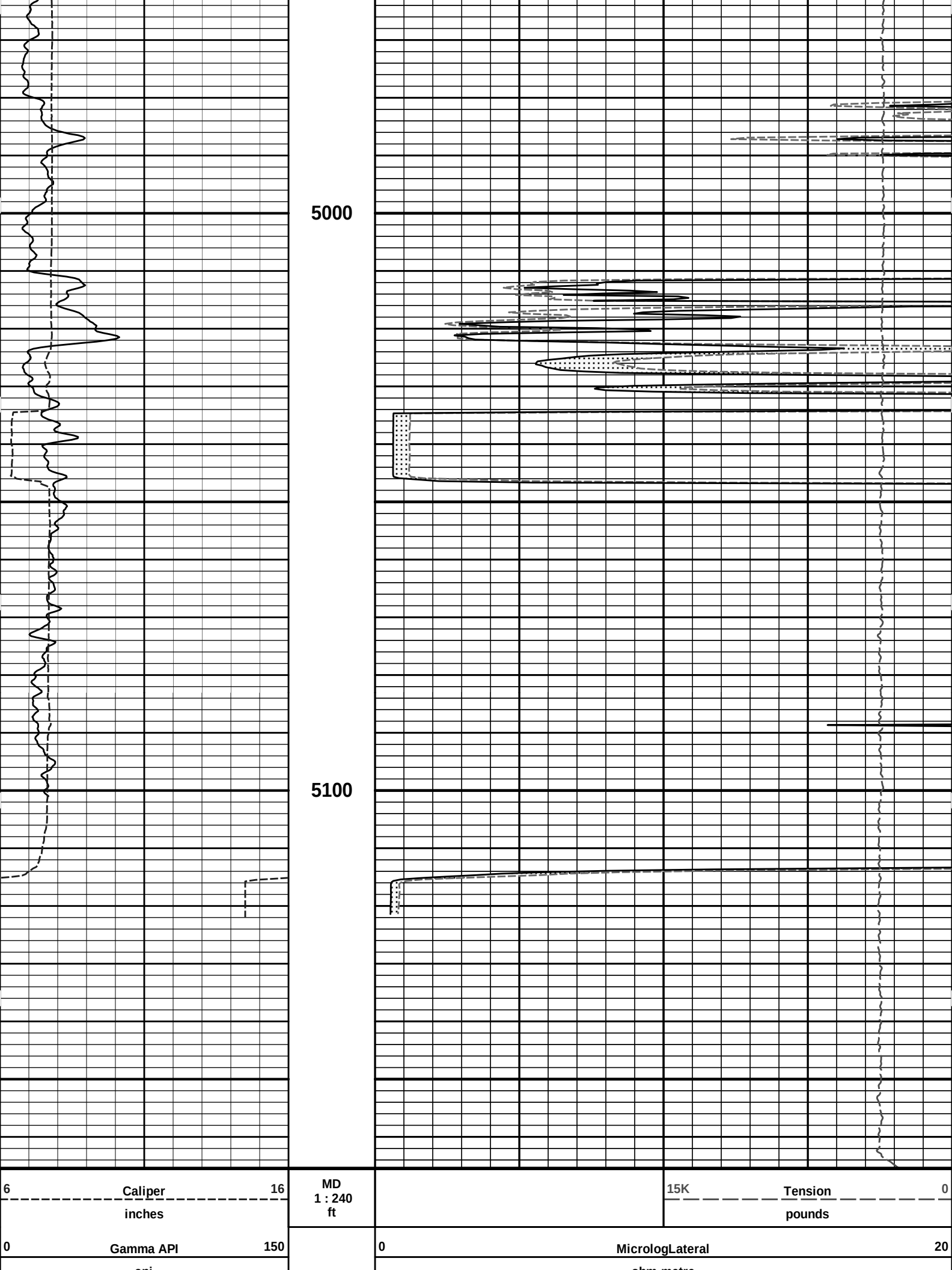




4800

4900





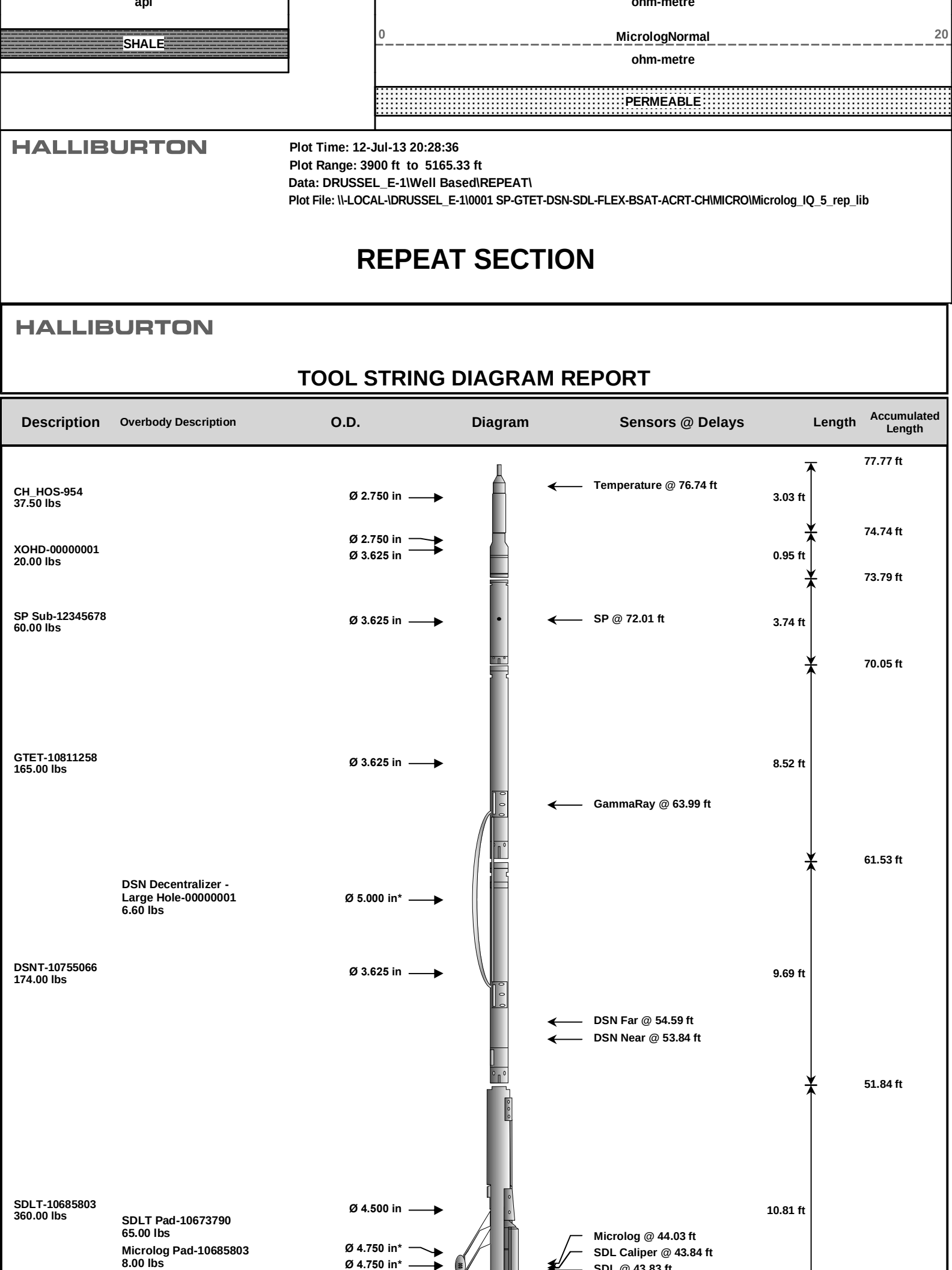
6 Caliper 16
inches

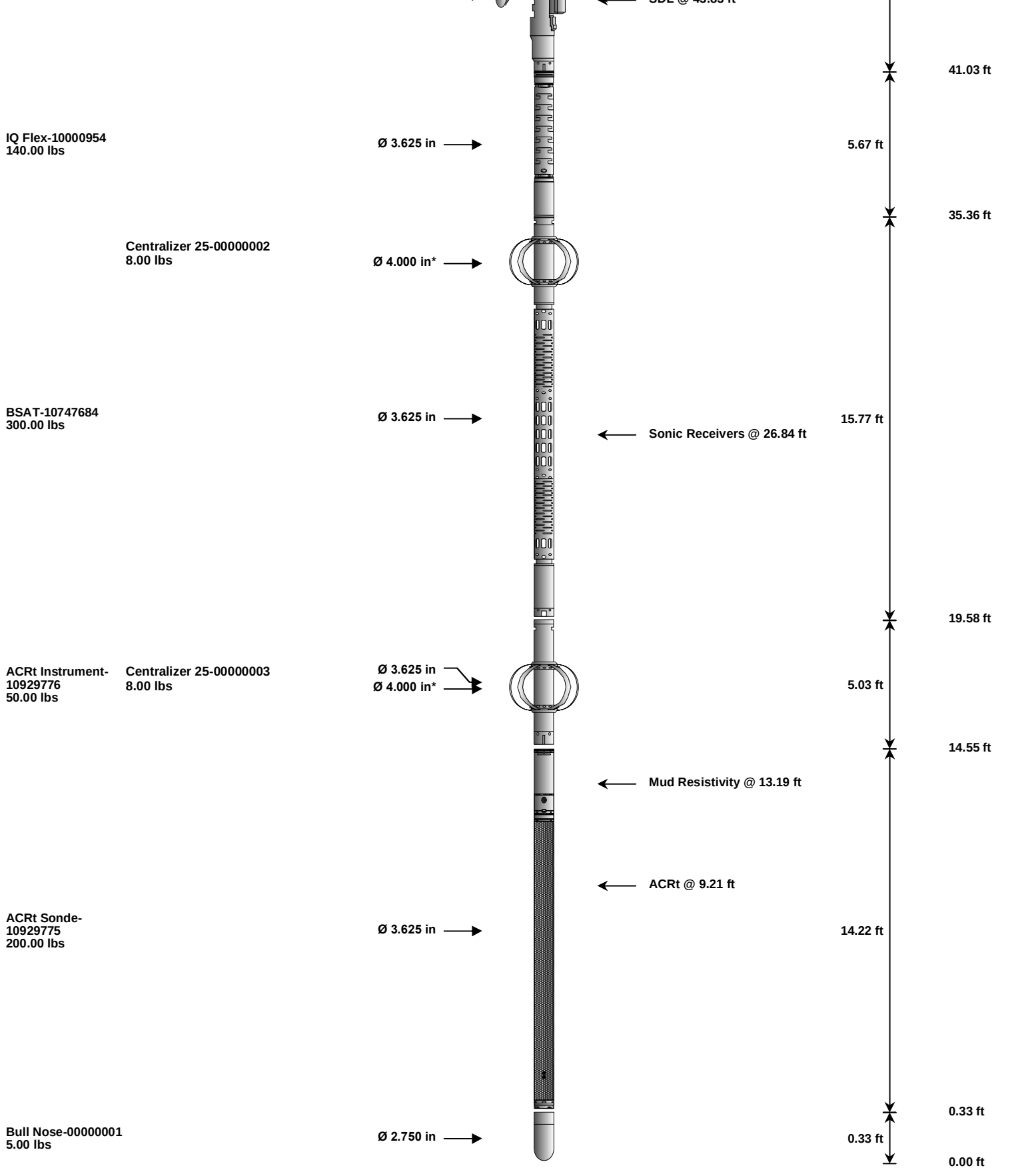
0 Gamma API 150

MD
1 : 240
ft

0 MicrologLateral 20

15K Tension 0
pounds





Mnemonic		Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max.Log. Speed (fpm)
CH_HOS	Hostile Cable Head with Load Cell		954	37.50	3.03	74.74	300.00
XOHD	Hostile to Dits Cross Over		00000001	20.00	0.95	73.79	300.00
SP	SP Sub		12345678	60.00	3.74	70.05	300.00
GTET	Gamma Telemetry Tool		10811258	165.00	8.52	61.53	60.00
DSNT	Dual Spaced Neutron		10755066	174.00	9.69	51.84	60.00
DCNT	DSN Decentralizer Large Hole		00000001	6.60	9.42	* 55.17	300.00
SDLT	Spectral Density Tool		10685803	360.00	10.81	41.03	60.00
MICP	Microlog Pad		10685803	8.00	1.00	* 43.53	60.00

SDLP	Density Insite Pad	10673790	65.00	2.55	*	43.24	60.00
IQF	IQ Flex tool	10000954	140.00	5.67		35.36	300.00
BSAT	Borehole Sonic Array Tool	10747684	300.00	15.77		19.58	60.00
OBCEN	Centralizer - 25 in. Overbody	00000002	8.00	2.08	*	32.51	300.00
ACRt	Array Compensated True Resistivity Instrument Section	10929776	50.00	5.03		14.55	300.00
OBCEN	Centralizer - 25 in. Overbody	00000003	8.00	2.08	*	15.87	300.00
ACRt	Array Compensated True Resistivity Sonde Section	10929775	200.00	14.22		0.33	300.00
BLNS	Bull Nose	00000001	5.00	0.33		0.00	300.00
Total			1,607.10	77.77			
* Not included in Total Length and Length Accumulation.							
Data: DRUSSEL_E-1\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CHMIDLE							Date: 12-Jul-13 17:47:52

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION			
Tool Name:	GTET - 10811258	Reference Calibration Date:	05-Jun-13 10:17:04
Engineer:	S. INGERSOLL	Calibration Date:	01-Jul-13 12:19:31
Software Version:	WL INSITE R3.8.4 (Build 5)	Calibration Version:	1
Calibrator Source S/N: TB-185			
Calibrator API Reference:228.00 api			
Equivalent Calibrator API Reference:232.0 api			
Measurement	Measured	Calibrated	Units
Background	35.8	34.7	api
Background + Calibrator	274.6	266.7	api
Calibrator	238.8	232.0	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION			
Tool Name:	GTET - 10811258	Reference Calibration Date:	01-Jul-13 12:19:31
Engineer:	S. INGERSOLL	Calibration Date:	11-Jul-13 11:27:35
Software Version:	WL INSITE R3.8.4 (Build 5)	Calibration Version:	1
Calibrator Source S/N: TB-185			
Calibrator API Reference:228.00 api			
Equivalent Calibrator API Reference:232.0 api			
Field Verification	Shop	Field	Units
Background	34.7	43.7	api
Background + Calibrator	266.7	268.3	api
Calibrator	232.0	224.6	api
Shop	Field	Difference	Tolerance
232.0	224.6	7.4	+/- 9.00

MICRO LOG SHOP CALIBRATION			
Tool Name:	Microlog Pad - 10685803	Reference Calibration Date:	20-Jun-13 16:00:09
Engineer:	S. INGERSOLL	Calibration Date:	01-Jul-13 15:35:47
Software Version:	WL INSITE R3.8.4 (Build 5)	Calibration Version:	1
Host Tool Name:	DSNT - 10755066		

CALIBRATION COEFFICIENT SUMMARY					
Measurement	Micro Log Normal		Micro Log Lateral		
	Measured	Calibrated	Measured	Calibrated	Units

	Tool Zero	-0.06	-0.06	-0.01	-0.01	ohmm
	Calibration Point #1	-0.00	0.00	0.00	0.00	ohmm
	Calibration Point #2	20.03	20.00	20.01	20.00	ohmm
	Internal Reference	19.94	19.91	20.01	20.00	ohmm

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	5170.00	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	
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	
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	
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
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	RMOR	Rmud Source	Mud Cell	

	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: DRUSSEL_E-110001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\IDLE				Date: 12-Jul-13 17:49:25	

HALLIBURTON					
INPUTS, DELAYS AND FILTERS TABLE					
Mnemonic		Input Description	Delay (ft)	Filter Type	Filter Length (ft)
Depth Panel					
TENS	Tension		0.00	NO	
CH_HOS					
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
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	
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	
ERMC	Tool Frame Count		26.84	NO	

ACRt	ACRT Frame Count	19.58	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 Current Raw 12K X Receiver	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	

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
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	
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: DRUSSEL_E-1\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\IDLE			Date: 12-Jul-13 17:49:07	

COMPANY	OXY USA INC.		
WELL	DRUSSEL E-2		
FIELD	HUGOTON GAS AREA		
COUNTY	FINNEY	STATE	KANSAS
HALLIBURTON		MICROLOG	