

HALLIBURTON

MICROLOG

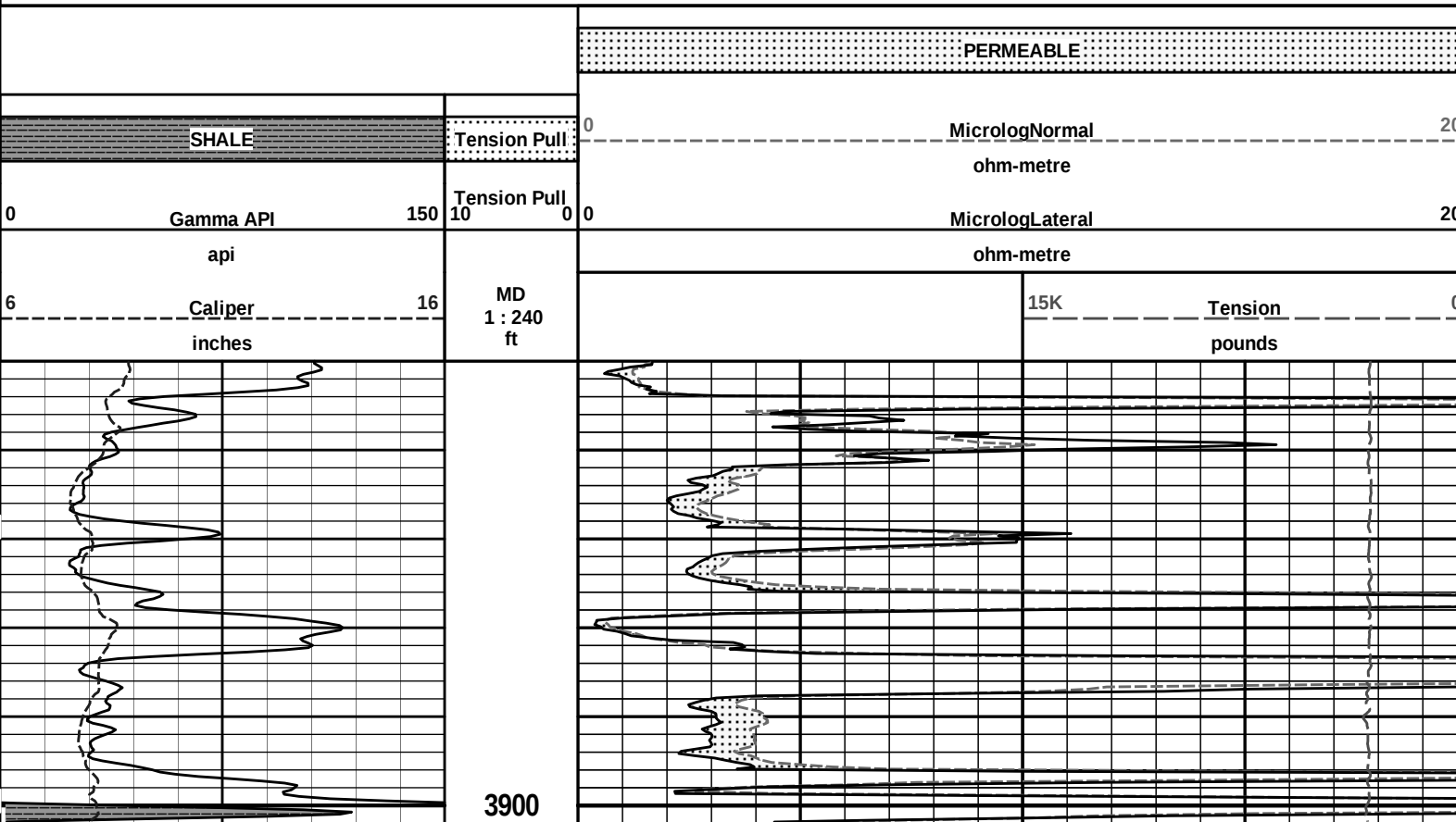
COMPANY		OXY USA INC.	
WELL		STRASSER A-2	
FIELD		CONGDON NORTH	
COUNTY		FINNEY	
STATE		KANSAS	
Permanent Datum		GL	Elev. 2842.5 ft
Log measured from		KB	D.F. 2852.5 ft
Drilling measured from		KB	G.L. 2842.5 ft
Date		02-Jan-13	
Run No.		ONE	
Depth - Driller		5045.00 ft	
Depth - Logger		5036.0 ft	
Bottom - Logged Interval		4992.0 ft	
Top - Logged Interval		3850.0 ft	
Casing - Driller		8.625 in @ 1820.0 ft	
Casing - Logger		1820.0 ft	
Bit Size		7.875 in	@
Type Fluid in Hole		WATER BASED MUD	
Density	Viscosity	9.1 ppq	34.00 s/qt
PH	Fluid Loss	9.90 pH	9.2 cpm
Source of Sample		MUD PIT	
Rm @ Meas. Temperature		0.300 ohmm @ 75.00 degF	@
Rmf @ Meas. Temperature		0.25 ohmm @ 75.00 degF	@
Rmc @ Meas. Temperature		0.380 ohmm @ 75.00 degF	@
Source Rmf	Rmc	MEASURED	MEASURED
Rm @ BHT		0.20 ohmm @ 115.0 degF	@
Time Since Circulation		7.0 hr	
Time on Bottom		02-Jan-13 20:05	
Max. Rec. Temperature		115.0 degF @ 5036.0 ft	@
Equipment	Location	10546696	LIBERAL
Recorded By		J. BOLLOW	
Witnessed By		G. BILBY	

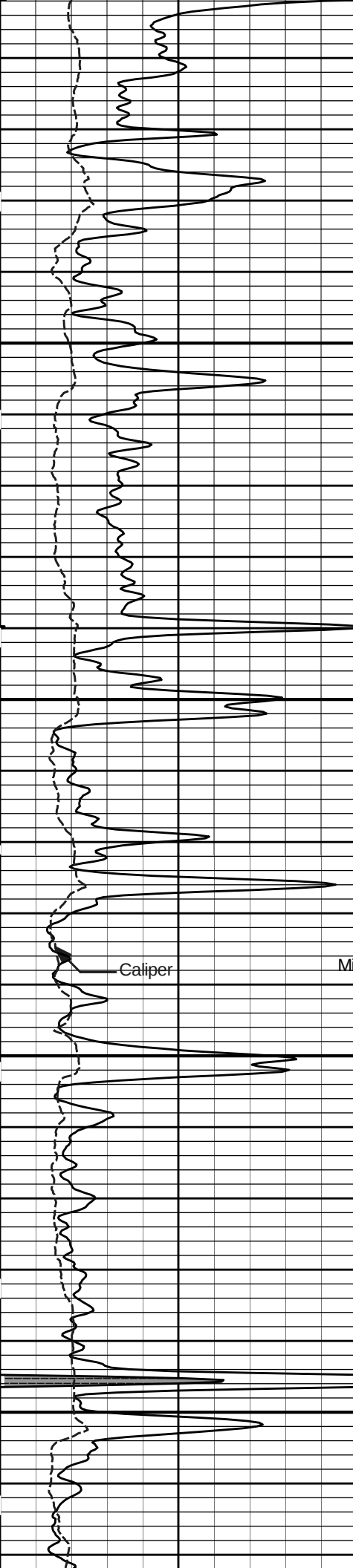
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Service Ticket No.: 900095886				API Serial No.: 15055221960000				PGM Version: WL INSITE R3.6.0 (Build 3)											
CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE						RESISTIVITY SCALE CHANGES													
Date	Sample No.					Type Log	Depth	Scale Up Hole	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.		@		@			10950489												
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.		11019627		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.		GTET		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			

Plot Time: 02-Jan-13 22:05:30
Plot Range: 3850 ft to 5039.17 ft
Data: STRASSER_A_2\Well Based\DETAIL\
Plot File: \\LOCAL-ISTRASSER_A_2\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\MICRO\Microlog_IQ_5_main.lib

5 INCH MAIN LOG



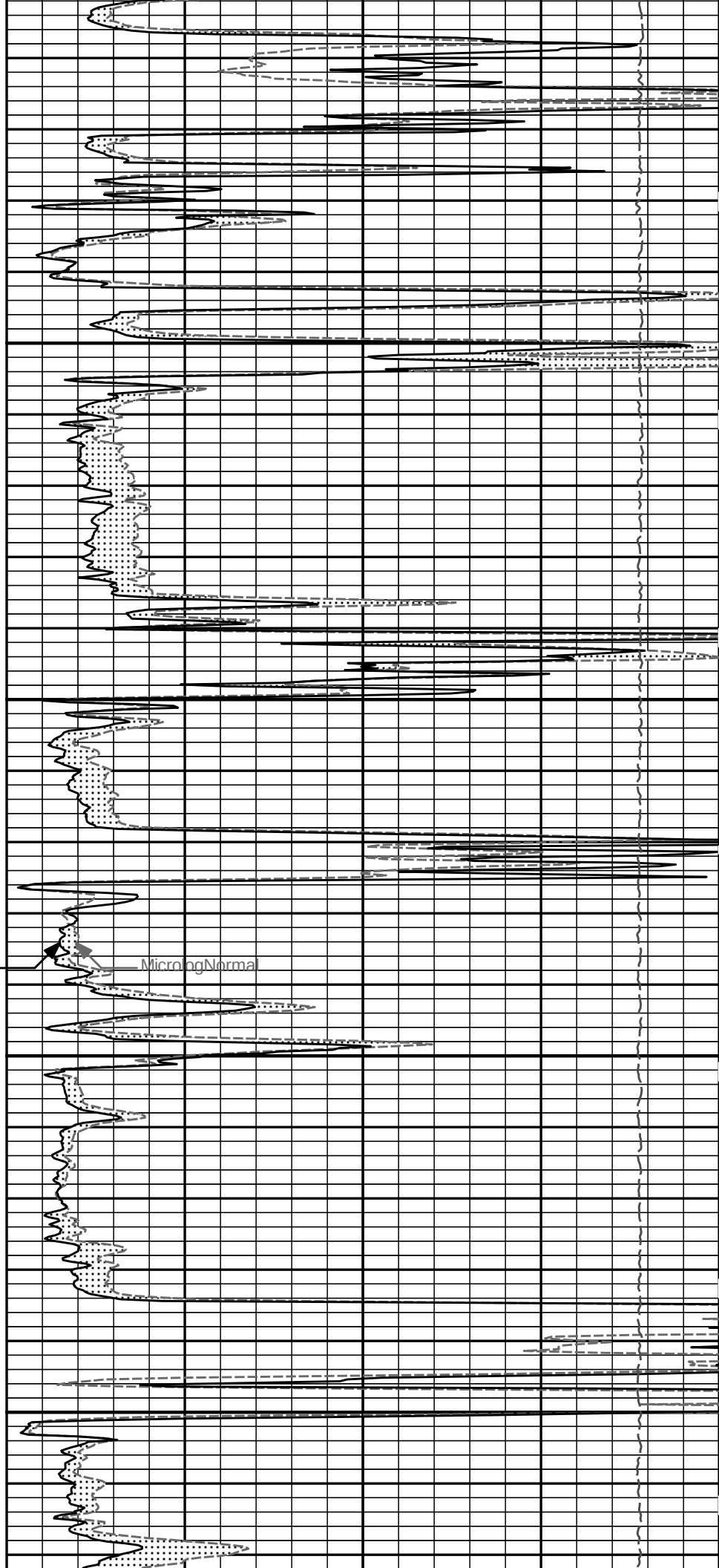


4000

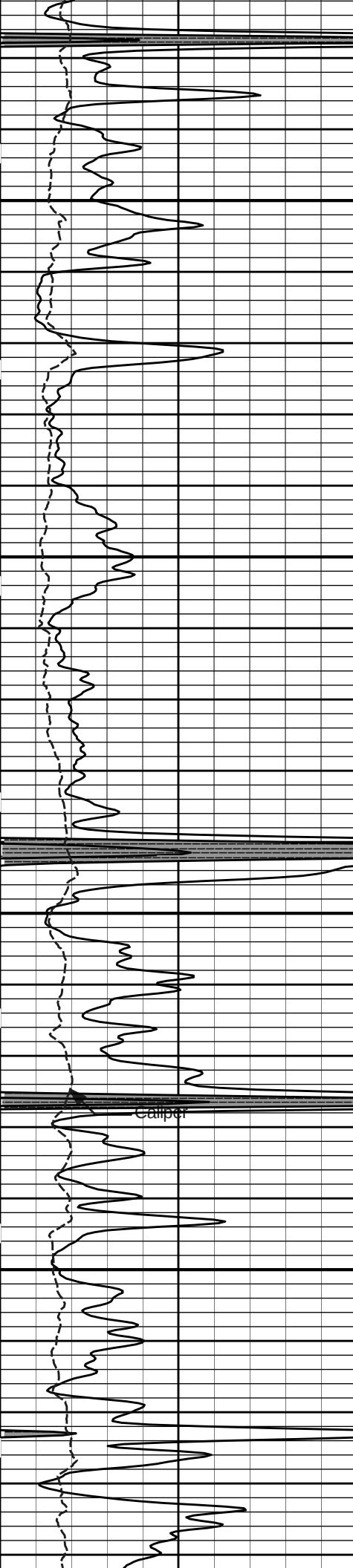
Caliper

MicrologLateral

4100

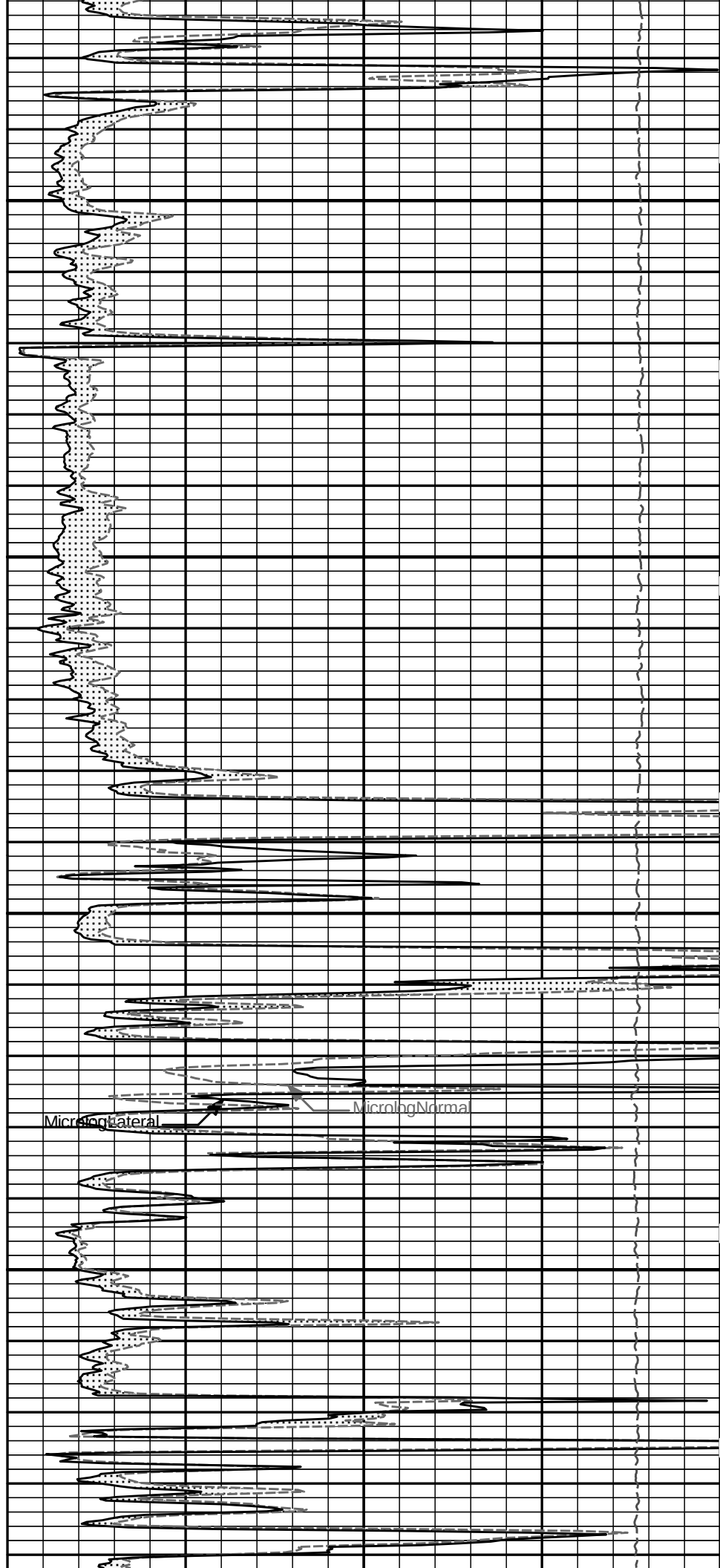


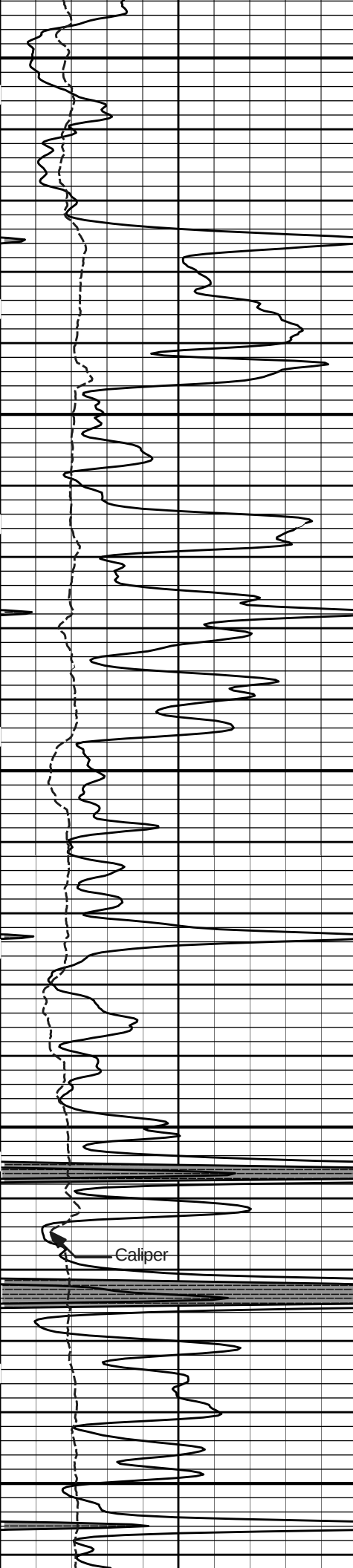
MicrologNormal



4200

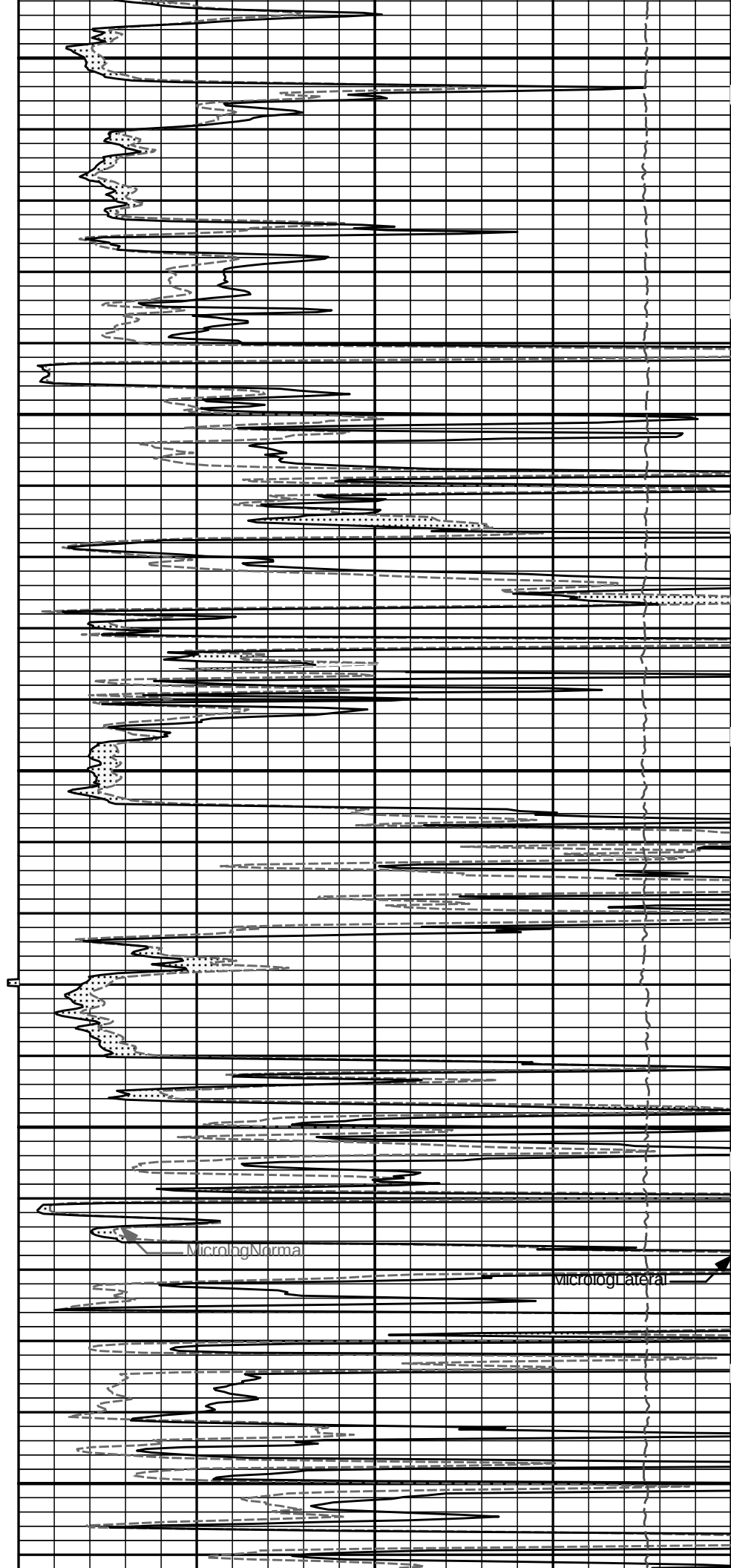
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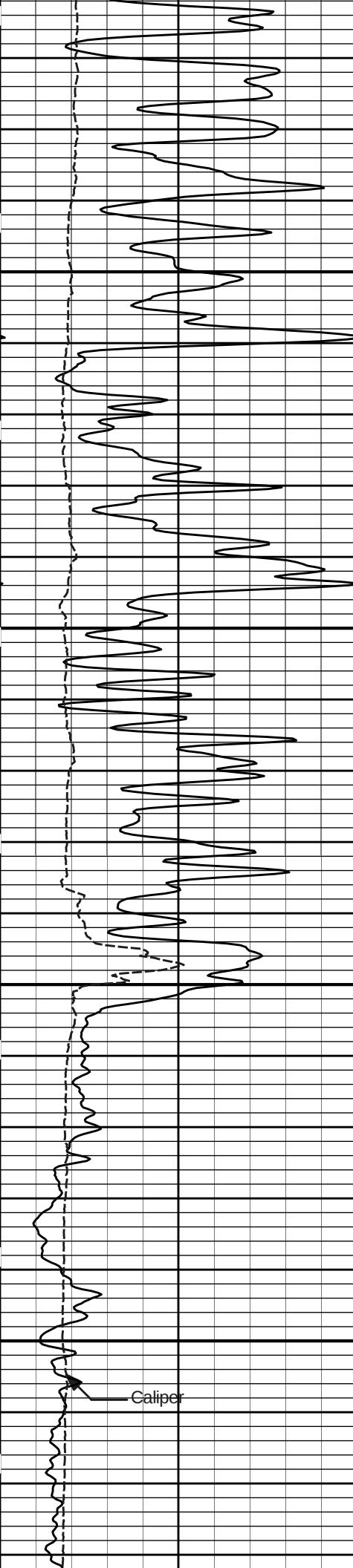
4400

4500



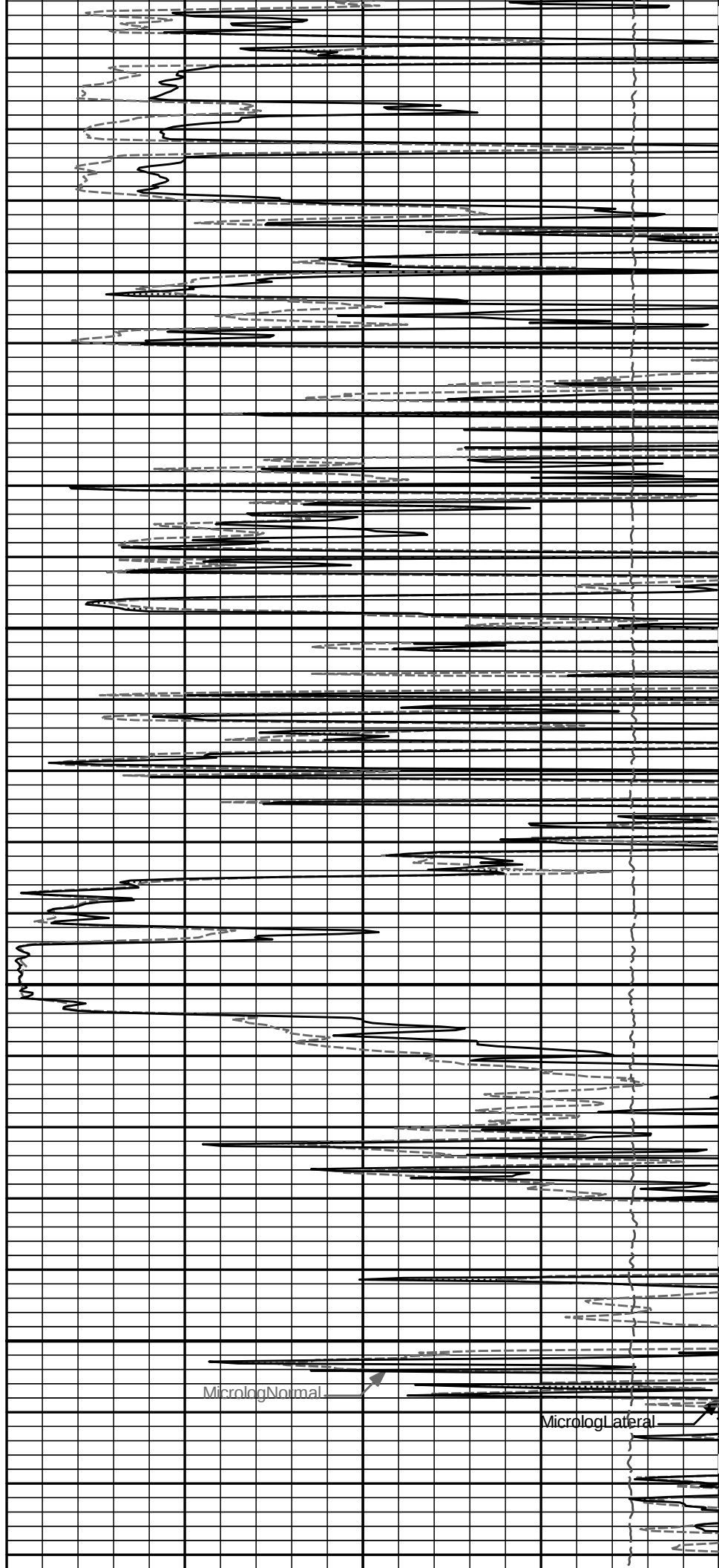
MicrologNormal

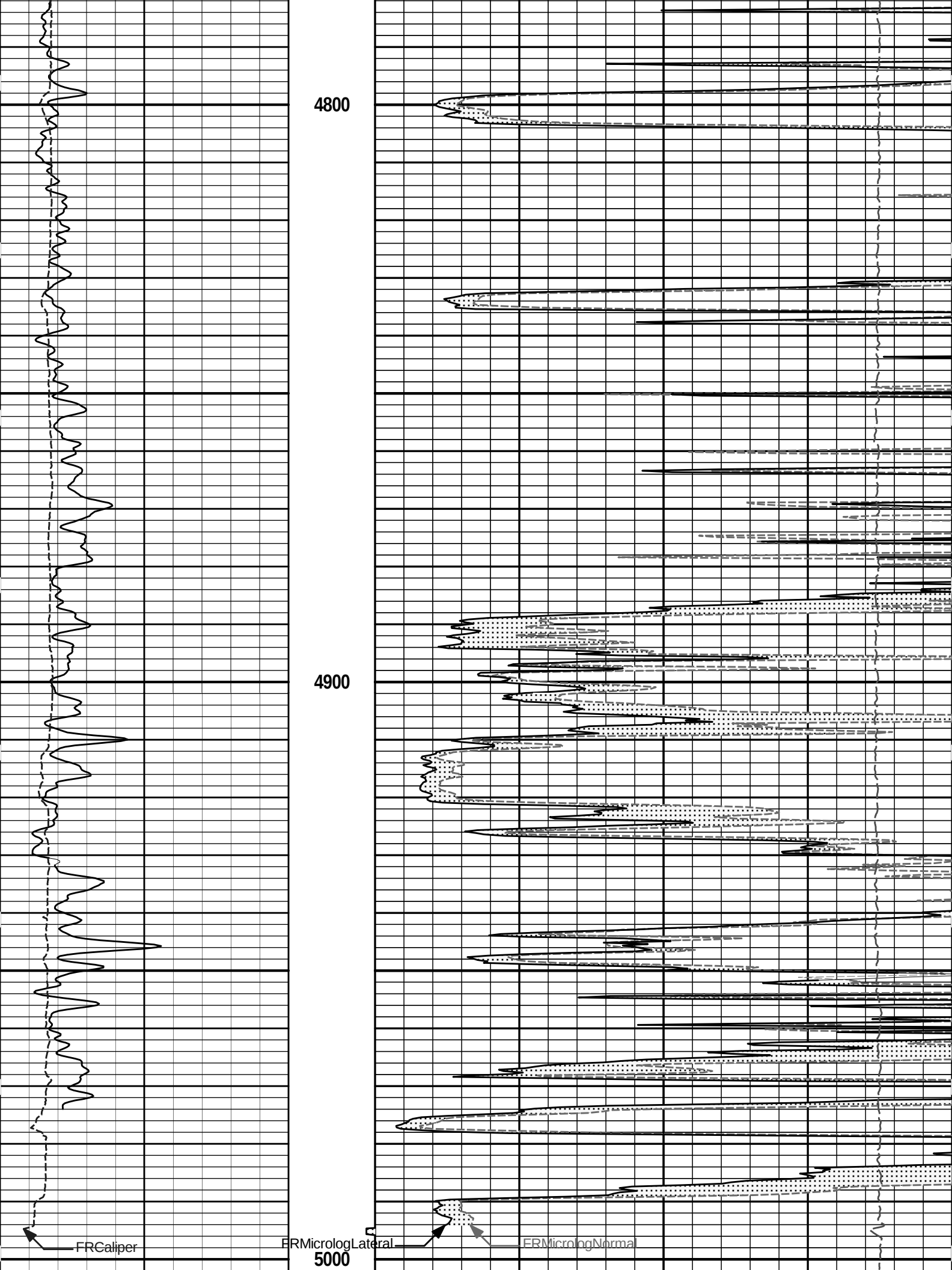
MicrologLateral

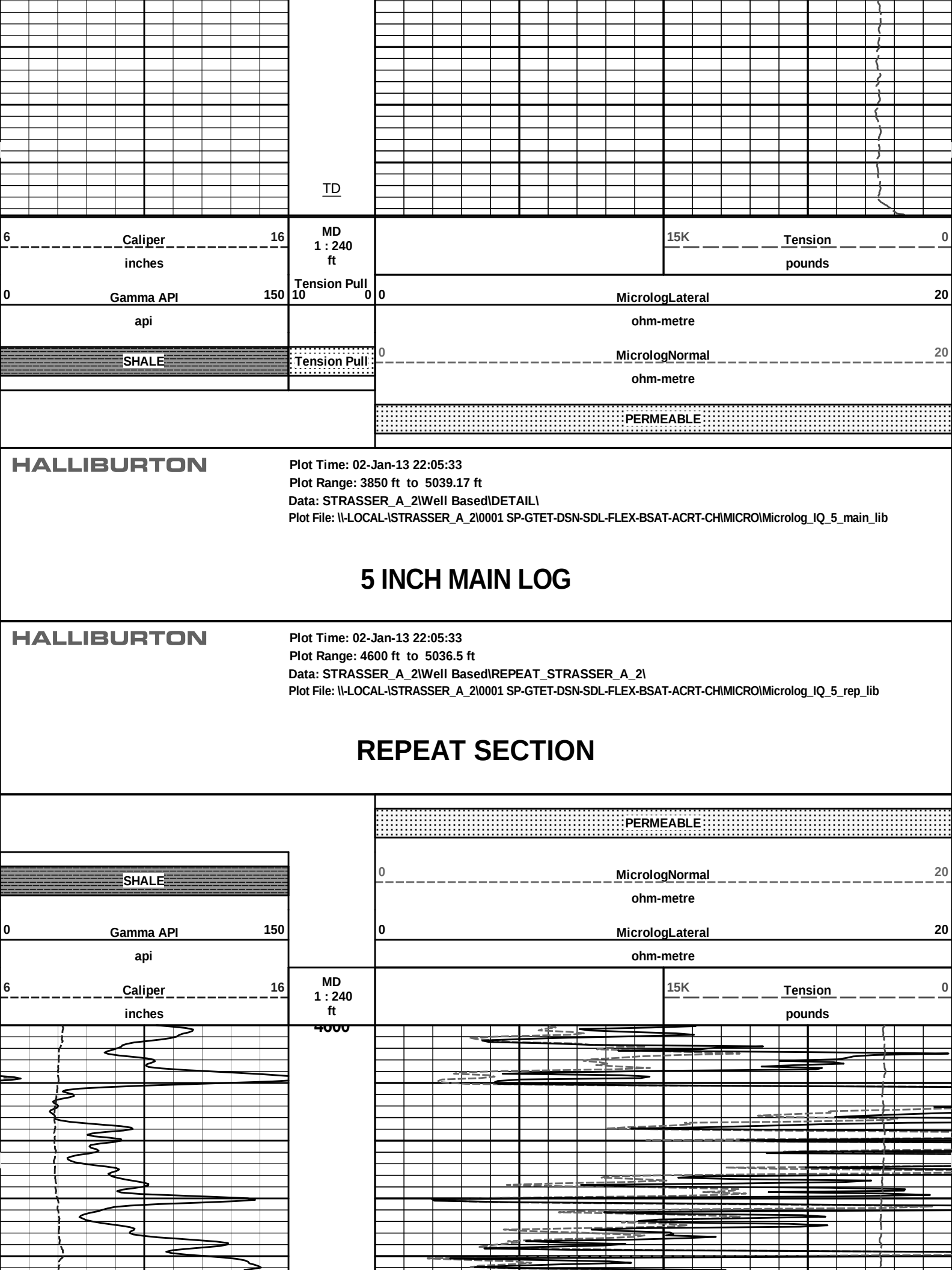


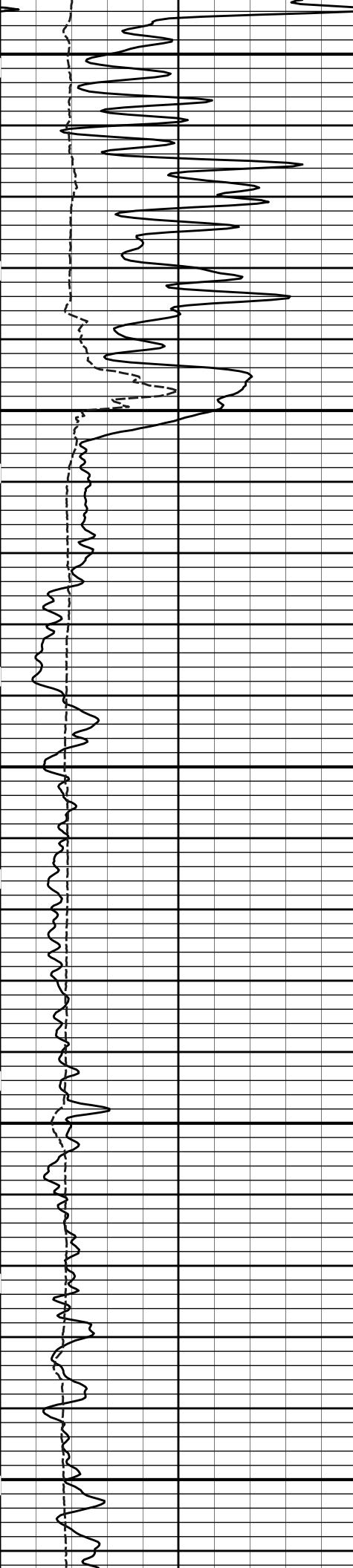
4600

4700



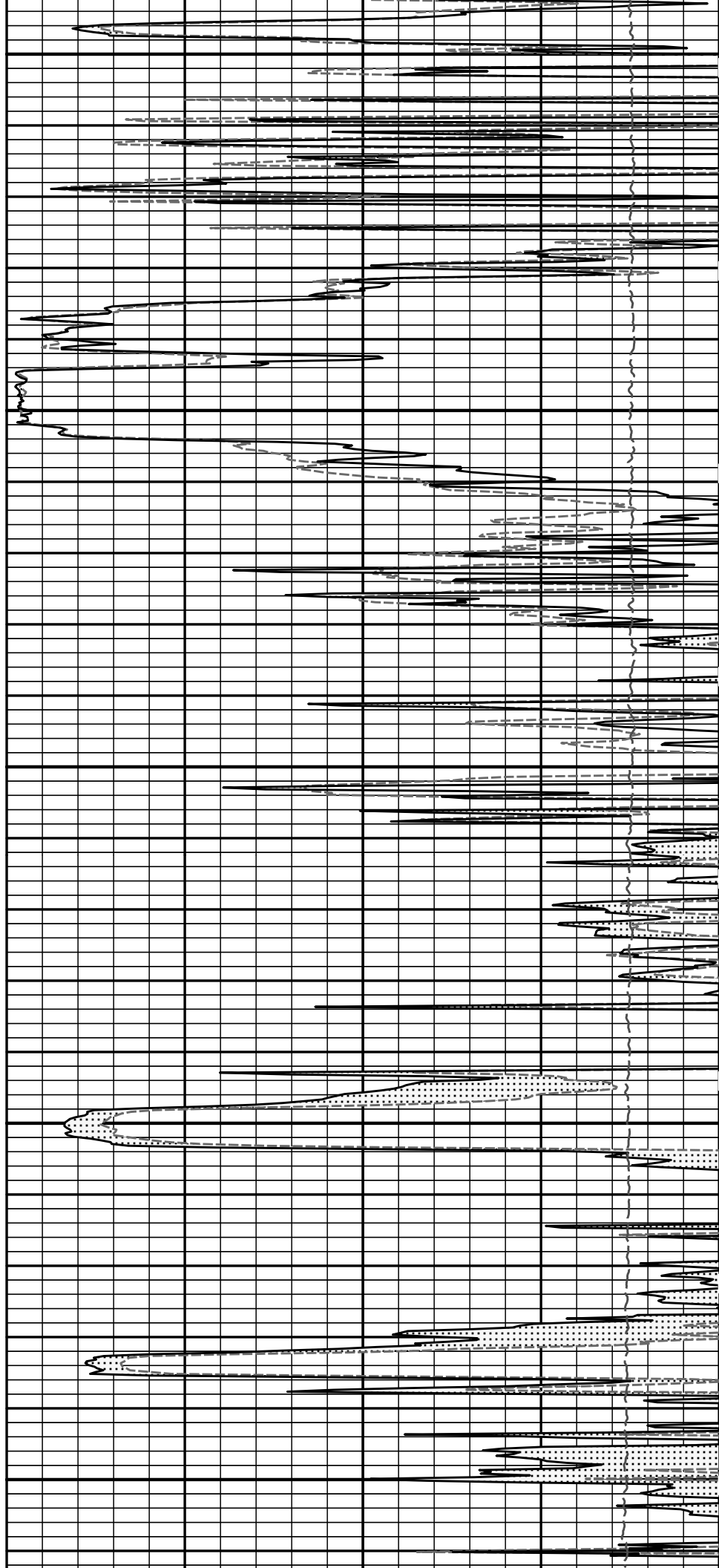






4700

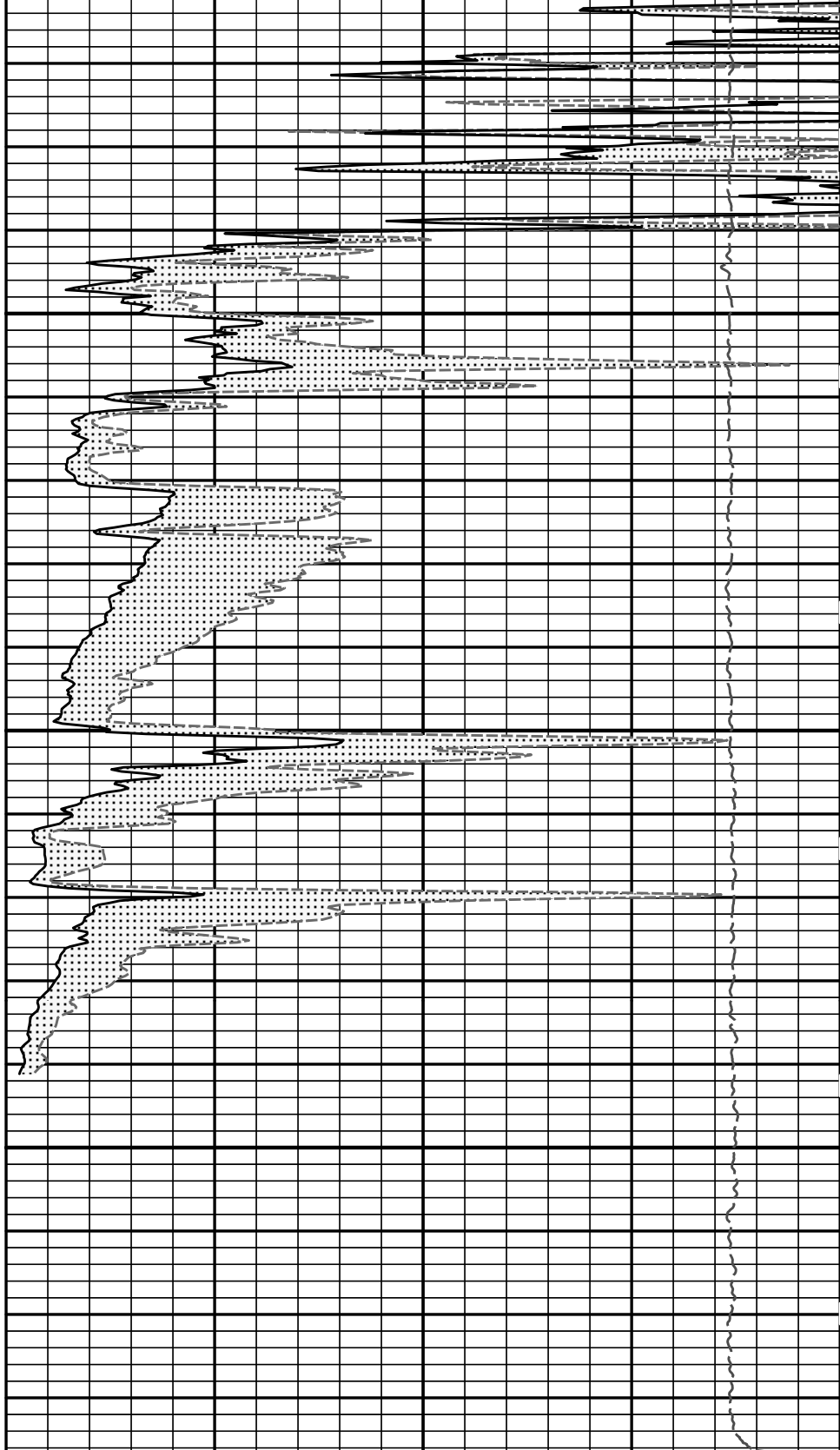
4800





4900

5000



6	Caliper	16
	inches	
0	Gamma API	150
	api	
	SHALE	

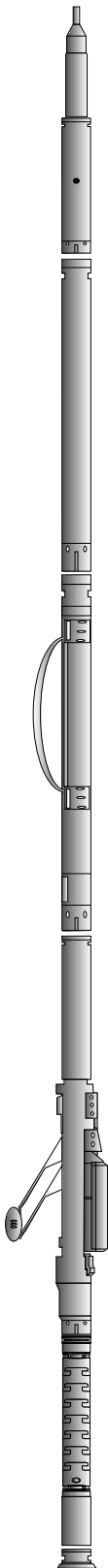
MD 1 : 240 ft

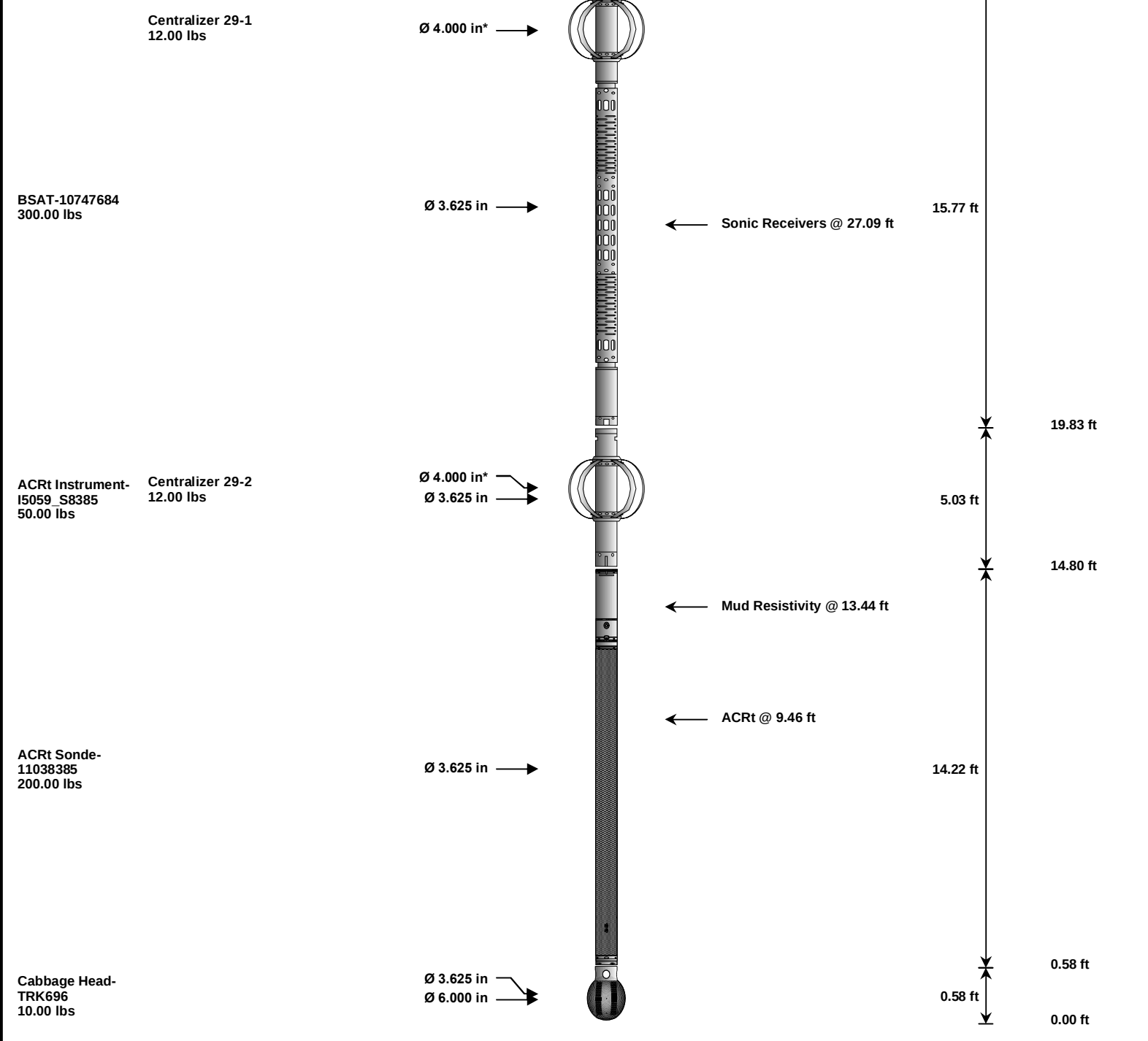
15K	Tension	0
	pounds	
0	MicrologLateral	20
	ohm-metre	
0	MicrologNormal	20
	ohm-metre	
	PERMEABLE	

REPEAT SECTION

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
CH_HOS-CH_696 37.50 lbs		Ø 2.750 in →		← Temperature @ 76.03 ft	3.03 ft	77.06 ft
SP Sub-11441455 60.00 lbs		Ø 3.625 in →		← SP @ 72.26 ft	3.74 ft	74.03 ft
						70.30 ft
GTET-11048627 165.00 lbs		Ø 3.625 in →		← GammaRay @ 64.23 ft	8.52 ft	
						61.78 ft
DSNT-11019643 174.00 lbs	DSN Decentralizer- 11019643 6.60 lbs	Ø 5.000 in* → Ø 3.625 in →		← DSN Far @ 54.84 ft ← DSN Near @ 54.09 ft	9.69 ft	
						52.09 ft
SDLT-10950489 360.00 lbs	SDLT Pad-10844781 65.00 lbs Microlog Pad-10950489 8.00 lbs	Ø 4.500 in → Ø 4.750 in* → Ø 4.750 in* →		Microlog @ 44.28 ft SDL Caliper @ 44.09 ft SDL @ 44.08 ft	10.81 ft	
						41.28 ft
Flex Joint-001 140.00 lbs		Ø 3.625 in →			5.67 ft	
						35.61 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	74.03	300.00	
SP	SP Sub		11441455	60.00	3.74	70.30	300.00	
GTET	Gamma Telemetry Tool		11048627	165.00	8.52	61.78	60.00	
DSNT	Dual Spaced Neutron		11019643	174.00	9.69	52.09	60.00	
DCNT	DSN Decentralizer		11019643	6.60	5.13	*	55.42	300.00
SDLT	Spectral Density Tool		10950489	360.00	10.81		41.28	60.00
MICP	Microlog Pad		10950489	8.00	1.00	*	43.78	60.00
SDLP	Density Insite Pad		10844781	65.00	2.55	*	43.49	60.00
FLEX	Flex Joint		001	140.00	5.67		35.61	300.00
BSAT	Borehole Sonic Array Tool		10747684	300.00	15.77		19.83	60.00
OBCEN	Centralizer - 29 in.Overbody		1	12.00	2.42	*	32.77	300.00
ACRt	Array Compensated True Resistivity Instrument Section		I5059_S8385	50.00	5.03		14.80	300.00
OBCEN	Centralizer - 29 in.Overbody		2	12.00	2.42	*	16.39	300.00
ACRt	Array Compensated True Resistivity Sonde Section		11038385	200.00	14.22		0.58	300.00
CBHD	Cabbage Head		TRK696	10.00	0.58		0.00	300.00
Total				1,600.10	77.06			
* Not included in Total Length and Length Accumulation.								
Data: STRASSER_A_210001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\IDLE								
Date: 02-Jan-13 18:00:16								

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name:	GTET - 11048627	Reference Calibration Date:	15-Oct-12 10:58:20
Engineer:	S. INGERSOLL	Calibration Date:	20-Dec-12 17:00:35
Software Version:	WL INSITE R3.6.0 (Build 3)	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	51.6	51.2	api
Background + Calibrator	323.1	320.9	api
Calibrator	271.5	269.6	api

MICRO LOG SHOP CALIBRATION

Tool Name:	Microlog Pad - 10950489	Reference Calibration Date:	19-Nov-12 16:23:01
Engineer:	J. BOLLUM	Calibration Date:	12-Dec-12 14:27:29
Software Version:	WL INSITE R3.6.0 (Build 3)	Calibration Version:	1
Host Tool Name:	DSNT - 11019643		

CALIBRATION COEFFICIENT SUMMARY					
Measurement	Micro Log Normal		Micro Log Lateral		Units
	Measured	Calibrated	Measured	Calibrated	
Tool Zero	-0.08	-0.07	-0.00	-0.00	ohmm
Calibration Point #1	-0.01	0.00	0.00	0.00	ohmm
Calibration Point #2	19.93	20.00	19.94	20.00	ohmm
Internal Reference	19.86	19.94	19.92	19.98	ohmm

Measurement	Micro Log Normal Tool Value	Micro Log Lateral Tool Value	Units
Tool Zero	0.68	0.38	V
Calibration Point #1	20.03	2.10	V
Calibration Point #2	5347.86	7001.74	V
Internal Reference	5331.27	6996.12	V

CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-11048627						
Gamma Ray Calibrator	269.6	-----	-----	0.0	+/- 9.00	api
Microlog Pad-10950489						
MicroLog Normal	19.94	-----	-----	0.00	-----	ohmm
MicroLog Lateral	19.98	-----	-----	0.00	-----	ohmm

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	5045.00	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	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: STRASSER_A_2I0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CHIIDLE			Date: 02-Jan-13 18:01:17	

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	72.25	NO	
SP	Spontaneous Potential	72.25	BLK	1.250
SPR	Raw Spontaneous Potential	72.25	NO	
SPO	Spontaneous Potential Offset	72.25	NO	
GTET				
TPUL	Tension Pull	64.23	NO	
GR	Natural Gamma Ray API	64.23	TRI	1.750
GRU	Unfiltered Natural Gamma Ray API	64.23	NO	
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution	64.23	W	1.416 , 0.750
ACCZ	Accelerometer Z	0.00	BLK	0.083
DEVI	Inclination	0.00	NO	
DSNT				
TPUL	Tension Pull	53.99	NO	
RNDS	Near Detector Telemetry Counts	54.09	BLK	1.417
RFDS	Far Detector Telemetry Counts	54.84	TRI	0.583
DNTT	DSN Tool Temperature	54.09	NO	
DSNS	DSN Tool Status	53.99	NO	
ERND	Near Detector Telemetry Counts EVR	54.09	BLK	0.000
ERFD	Far Detector Telemetry Counts EVR	54.84	BLK	0.000

ERPD	Fat Detector Telemetry Counts EVR	54.84	BLK	0.000
ENTM	DSN Tool Temperature EVR	54.09	NO	
SDLT				
TPUL	Tension Pull	44.09	NO	
PCAL	Pad Caliper	44.09	TRI	0.250
ACAL	Arm Caliper	44.09	TRI	0.250
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	
GMOD	Gain processing mode	19.83	NO	
ACRt Sonde				
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
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	

SDLT Pad				
TPUL	Tension Pull	44.08	NO	
NAB	Near Above	43.90	BLK	0.920
NHI	Near Cesium High	43.90	BLK	0.920
NLO	Near Cesium Low	43.90	BLK	0.920
NVA	Near Valley	43.90	BLK	0.920
NBA	Near Barite	43.90	BLK	0.920
NDE	Near Density	43.90	BLK	0.920
NPK	Near Peak	43.90	BLK	0.920
NLI	Near Lithology	43.90	BLK	0.920
NBAU	Near Barite Unfiltered	43.90	BLK	0.250
NLIU	Near Lithology Unfiltered	43.90	BLK	0.250
FAB	Far Above	44.26	BLK	0.250
FHI	Far Cesium High	44.26	BLK	0.250
FLO	Far Cesium Low	44.26	BLK	0.250
FVA	Far Valley	44.26	BLK	0.250
FBA	Far Barite	44.26	BLK	0.250
FDE	Far Density	44.26	BLK	0.250
FPK	Far Peak	44.26	BLK	0.250
FLI	Far Lithology	44.26	BLK	0.250
PTMP	Pad Temperature	44.09	BLK	0.920
NHV	Near Detector High Voltage	43.49	NO	
FHV	Far Detector High Voltage	43.49	NO	
ITMP	Instrument Temperature	43.49	NO	
DDHV	Detector High Voltage	43.49	NO	

Microlog Pad				
TPUL	Tension Pull	44.28	NO	
MINV	Microlog Lateral	44.28	BLK	0.750
MNOR	Microlog Normal	44.28	BLK	0.750
Data: STRASSER_A_2I0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CHIDLE				Date: 02-Jan-13 18:00:57

COMPANY	OXY USA INC.			
WELL	STRASSER A-2			
FIELD	CONGDON NORTH			
COUNTY	FINNEY	STATE	KANSAS	

