

HALLIBURTON

MICROLOG

COMPANY	OXY USA INC.		
WELL	SHELL B-2		
FIELD	AMAZON DITCH		
COUNTY	FINNEY		
STATE	KANSAS		
COMPANY	OXY USA INC.	WELL	SHELL B-2
FIELD	AMAZON DITCH	COUNTY	FINNEY
STATE	KANSAS		
API No.	15-055-22131	Location	(SHL) 2310' FNL & 330' FWL
Other Services:	BSAT DSN/SDL ACRT		
Secl.	17	Twp.	22S
Rge.	34W		
Elev.	2977.2 ft	Elev.:	K.B. 2988.2 ft
D.F.	11.0 ft above perm. Datum	D.F.	2987.2 ft
G.L.		G.L.	2977.2 ft

Date	01-Apr-12
Run No.	ONE
Depth - Driller	5065.00 ft
Depth - Logger	5067.0 ft
Bottom - Logged Interval	5057
Top - Logged Interval	3600
Casing - Driller	8.625 in @ 1820.0 ft
Casing - Logger	1818.0 ft @
Bit Size	8.875 in @
Type Fluid in Hole	W/BM @
Density	9.2 ppg 47.00 s/qt
PH	9.00 pH 8.0 cp/m
Source of Sample	MUDPT
Rm @ Meas. Temperature	1.230 ohmm @ 88.00 degF @
Rmf @ Meas. Temperature	1.04 ohmm @ 85.00 degF @
Rmc @ Meas. Temperature	1.410 ohmm @ 88.00 degF @
Source Rmf	MEAS Rmc MEAS @
Rm @ BHT	0.88 ohmm @ 125.0 degF @
Time Since Circulation	12.0 hr
Time on Bottom	01-Apr-12 15:06
Max. Rec. Temperature	125.0 degF @ 5067.0 ft @
Equipment	10975786 FTSM
Recorded By	WHITLOCK
Witnessed By	ANDREA HOWSON
	INGERSOLL
	AUSTIN GARNER

Fold here

Service Ticket No.: 9405509 API Serial No.: 15-055-22131 PGM Version: WL INSITE R3.4.2 (Build 2)

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	ACRT	N/A	1.5" S.O.
Rmc @ Meas. Temp.	@	@			I816S708		
Source Rmf	Rmc						
Rm @ BHT	@	@					
Rmf @ BHT	@	@					
Rmc @ BHT	@	@					
EQUIPMENT DATA							
GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Run No.	ONE	Run No.	ONE	Run No.	ONE	Run No.	ONE
Serial No.	10971172	Serial No.	11014316	Serial No.	I378M477P870	Serial No.	10951378
Model No.	GTET	Model No.	BSAT	Model No.	SDLT	Model No.	DSNT
Diameter	3.625	No. of Cent.	2	Diameter	4.5	Diameter	3.625
Detector Model No.	GTET	Spacing	.5	Log Type	GAM-GAM.	Log Type	NEU-NEU
Type	SCINT			Source Type	CS-137	Source Type	AM241BE
Length	8"	LSA [Y/N]	YES	Serial No.	20784B	Serial No.	373
Distance to Source	N/A	FWDA [Y/N]	YES	Strength	1.5 CI	Strength	15 CI

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	TD	CSG	REC	0	150	30	-10	47.6	30	-10	2.71	30	-10	LIME

DIRECTIONAL INFORMATION

Maximum Deviation @ _____ KOP @ _____

Remarks: ANNULAR HOLE VOLUME CALCULATED FOR 5.5 INCH CASING.
 REPEAT PULLED FROM 4200-3600 AT CUSTOMERS REQUEST.

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.

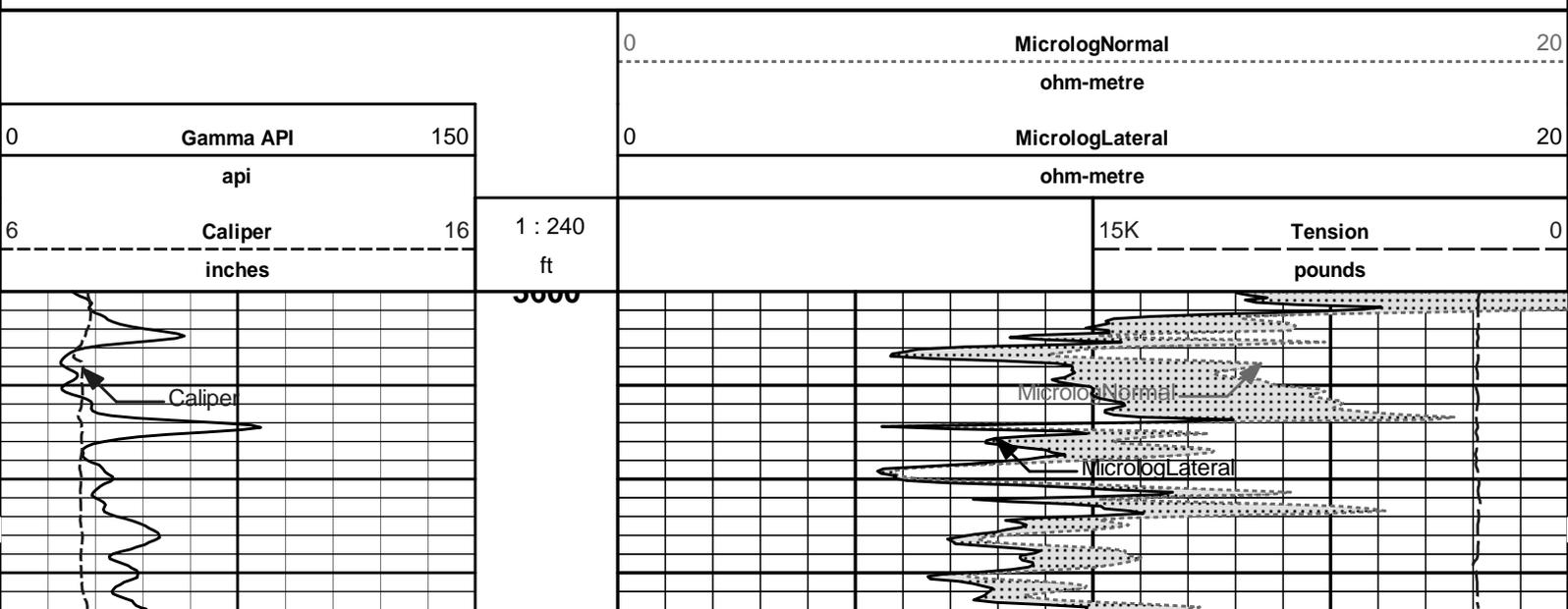
HALLIBURTON

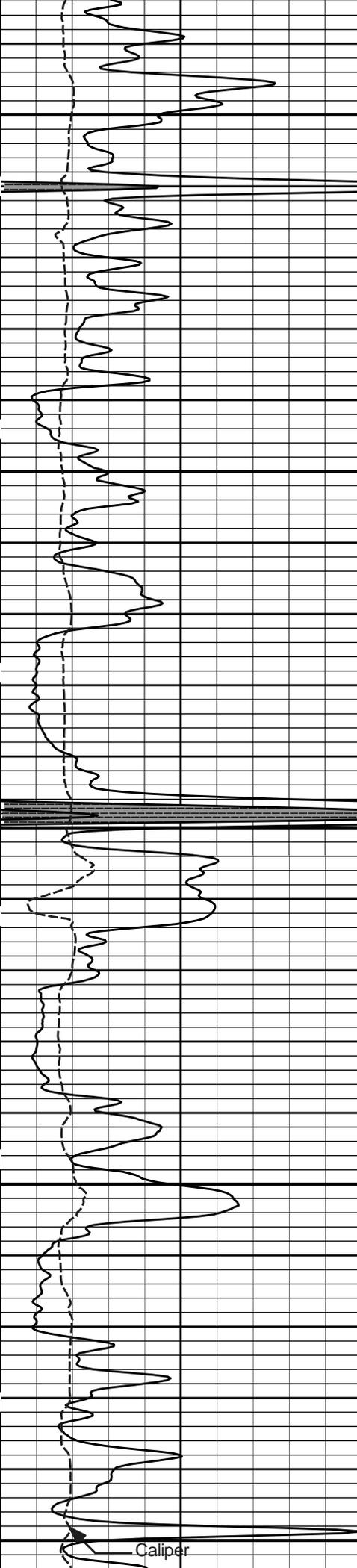
HALLIBURTON

Plot Time: 01-Apr-12 17:30:11
 Plot Range: 3600 ft to 5071 ft
 Data: OXY_SHELL_B-2\Well Based\DAQ-0001-004 MAIN
 Plot File: \\LOCAL\OXY_SHELL_B-2\0001 GTET-BSAT-FLEX-DSN-SDL-ACRT-CBG\MICROLOG\Microlog_IQ_5_main

5 INCH MAIN LOG

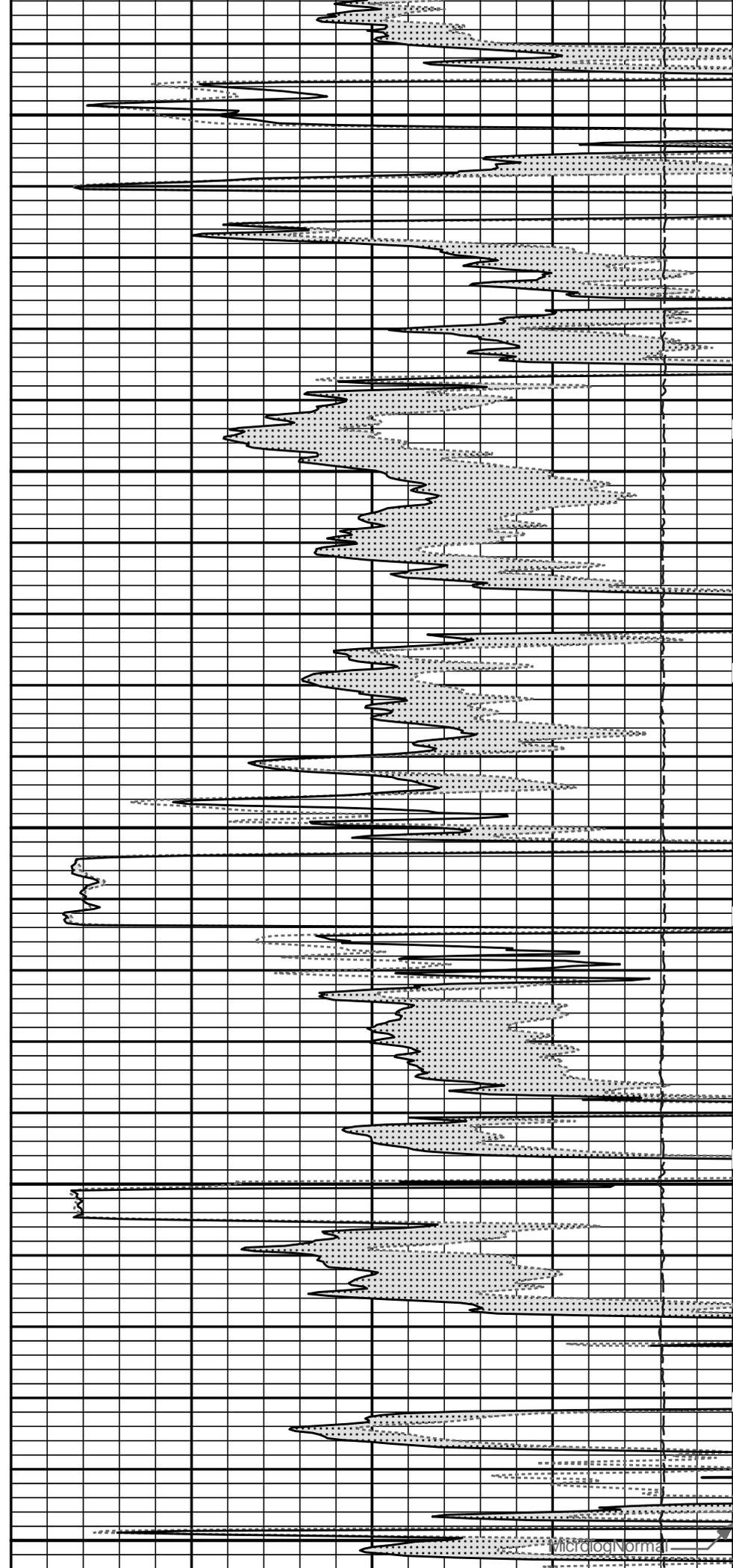
MAIN LOG 5" PER 100'



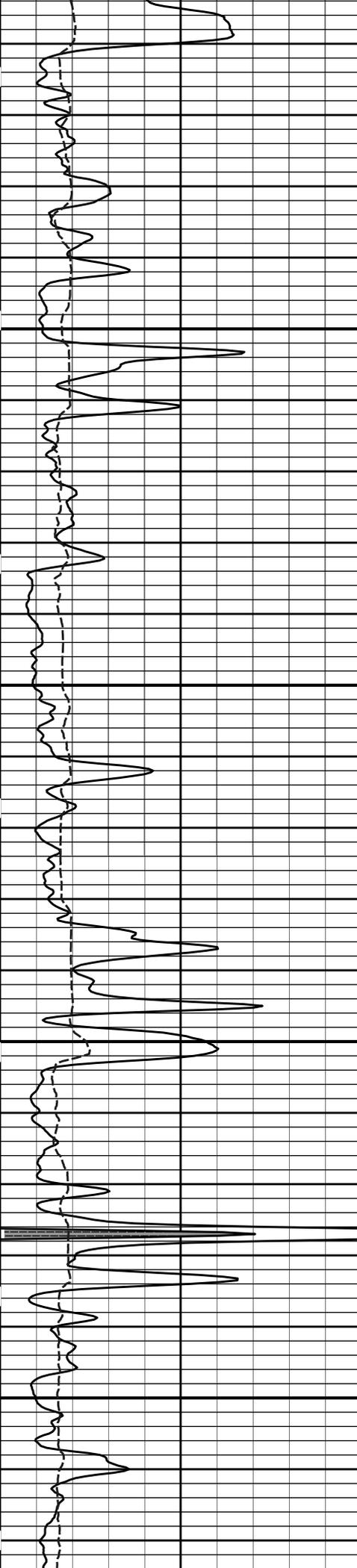


3700

3800

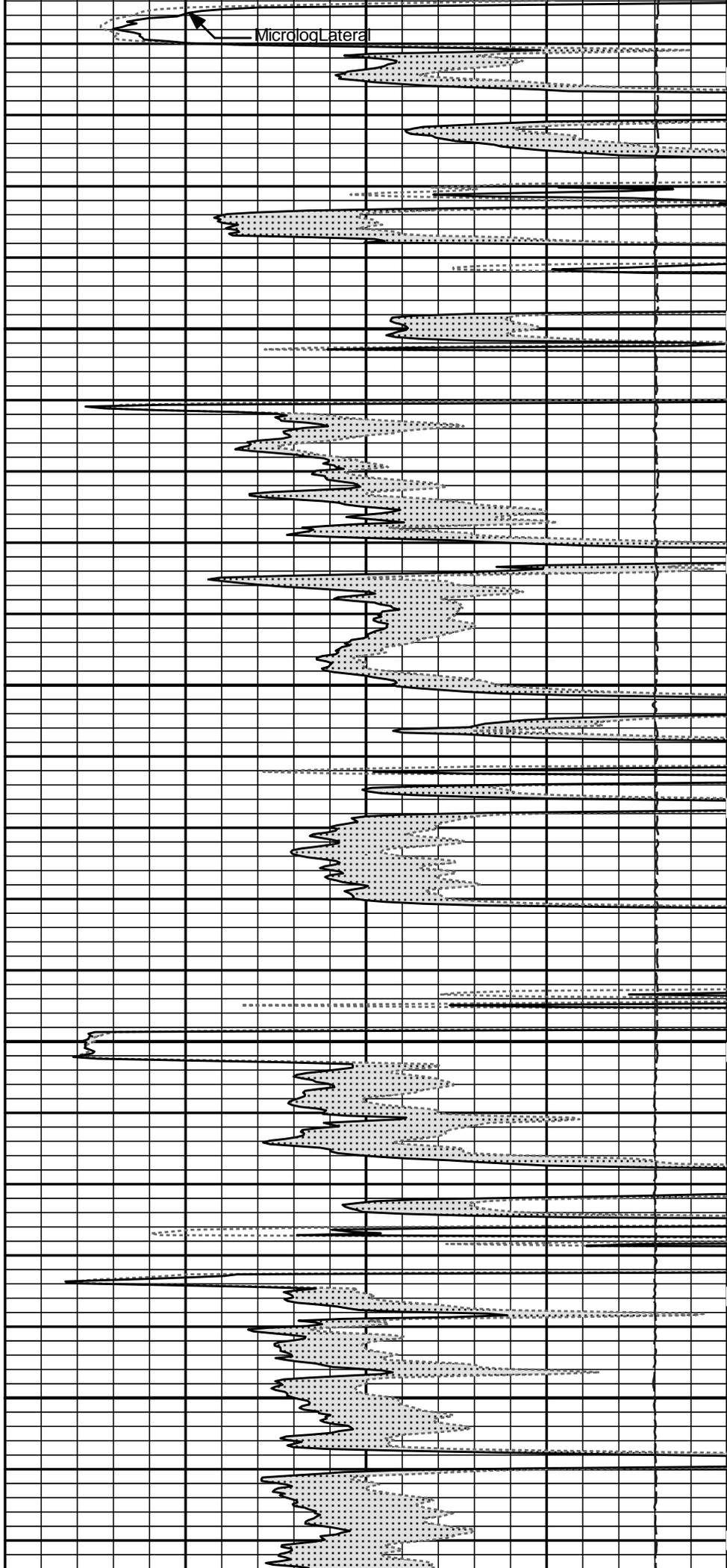


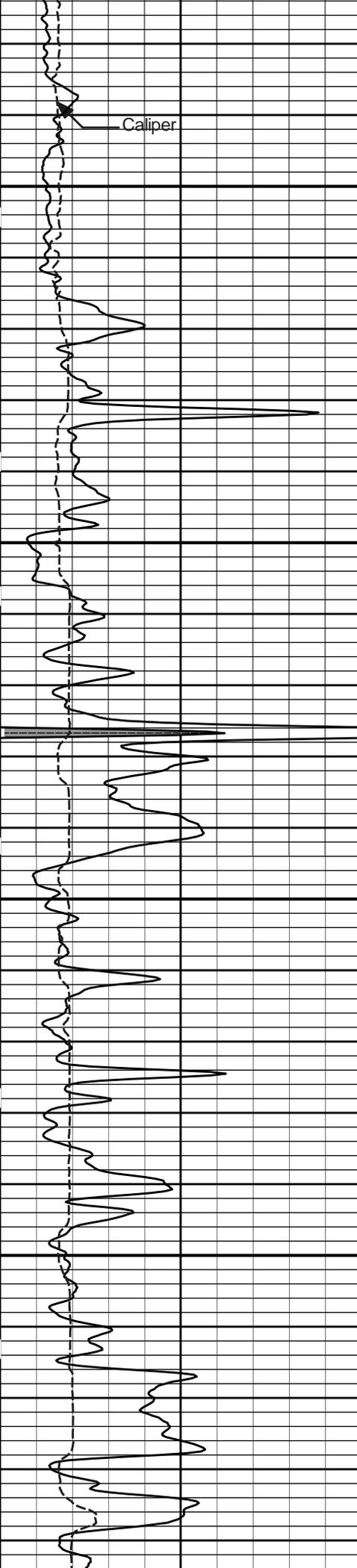
MicrologNormal



3900

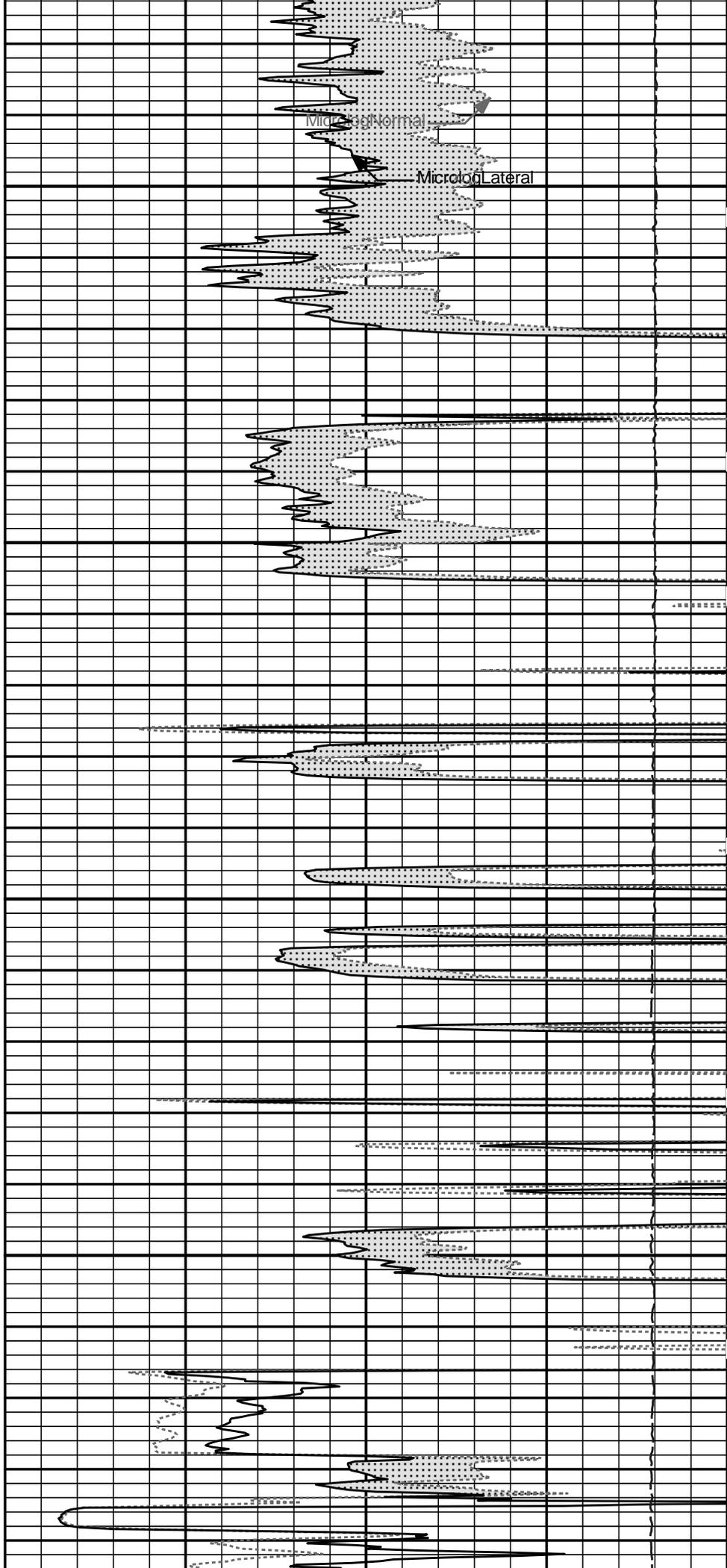
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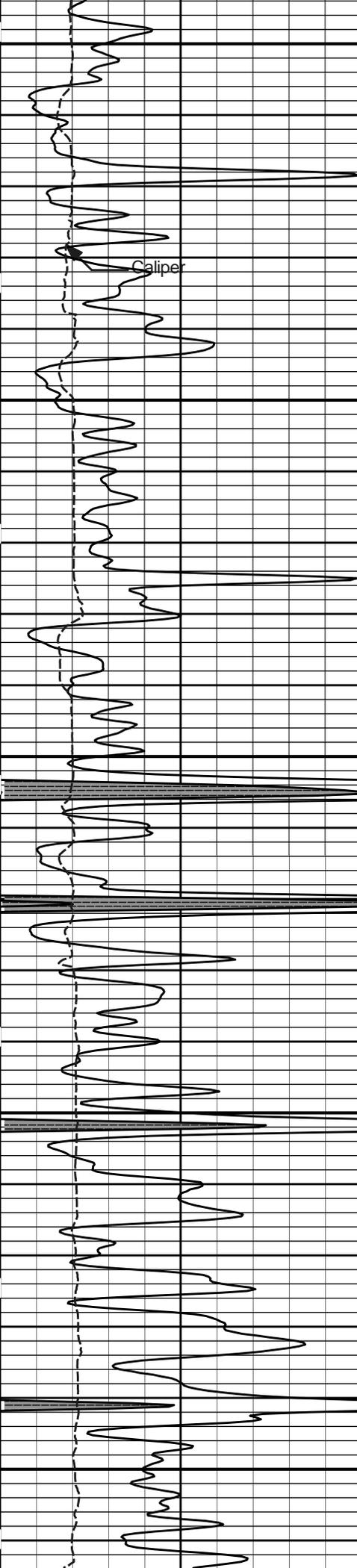




4100

4200

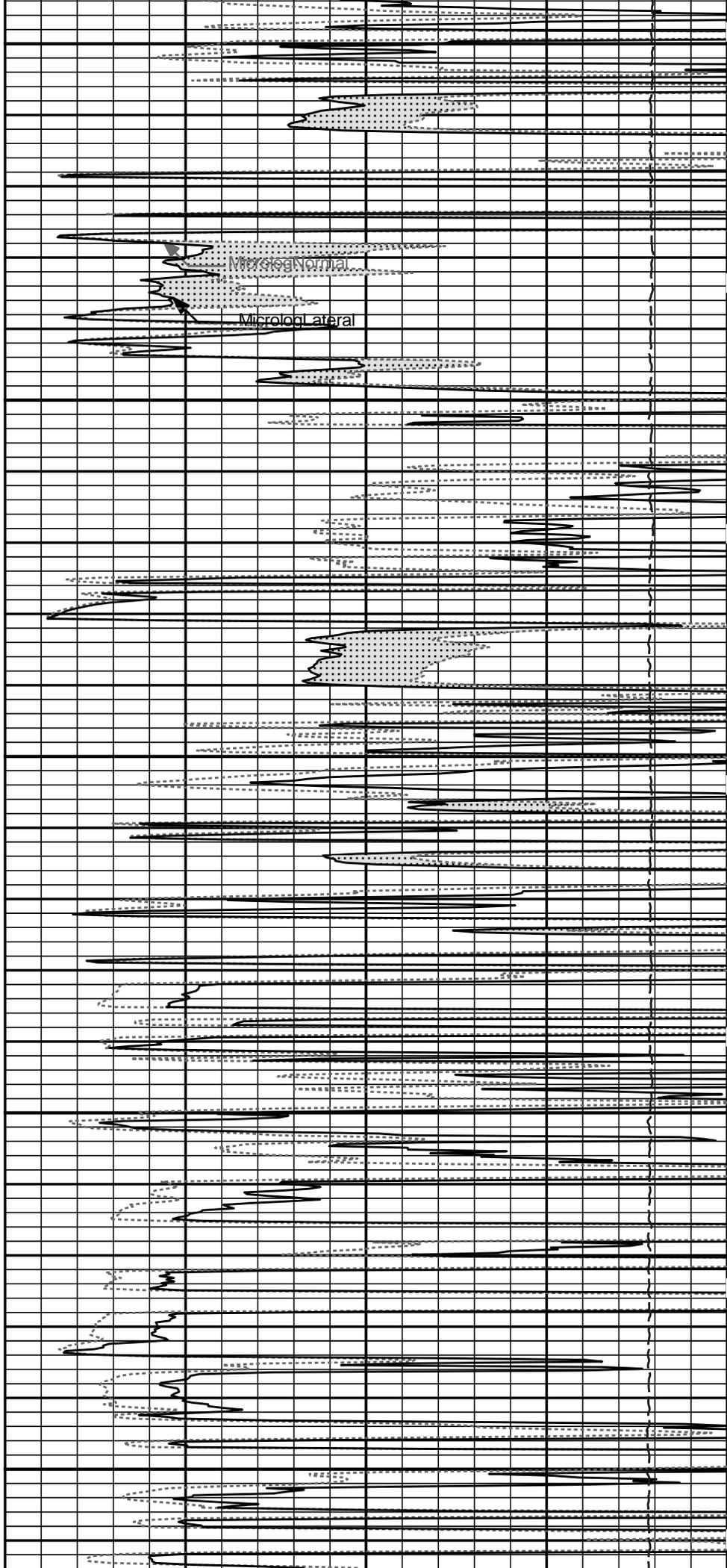


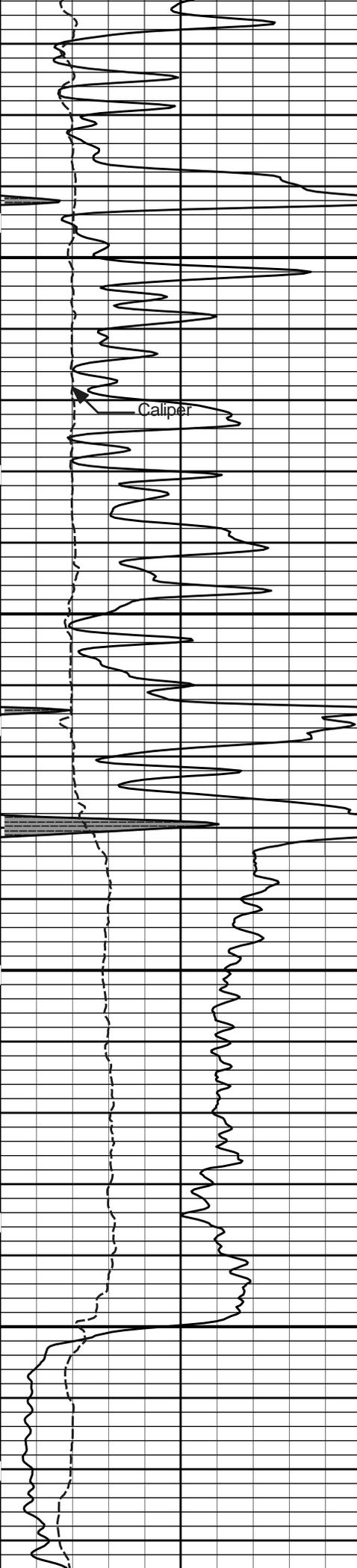


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4400

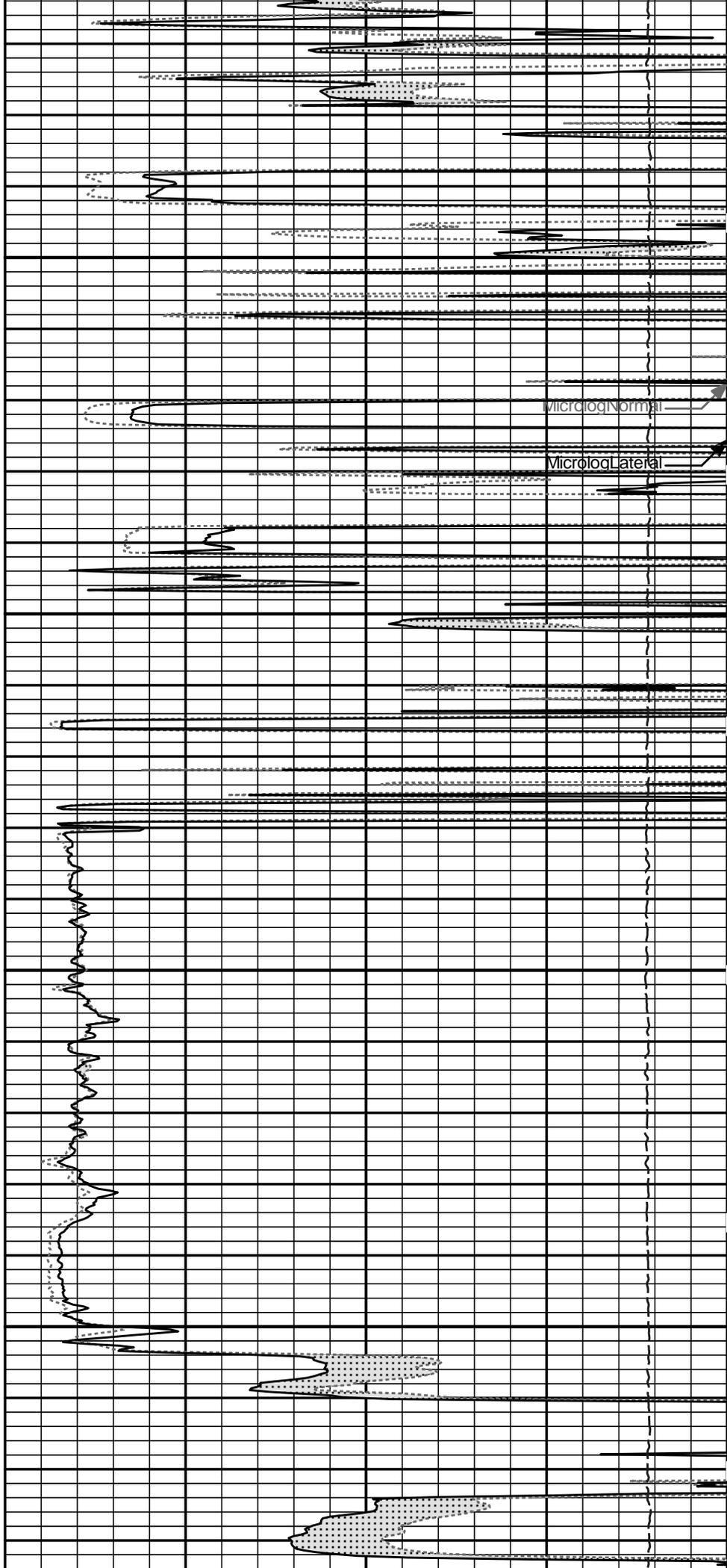
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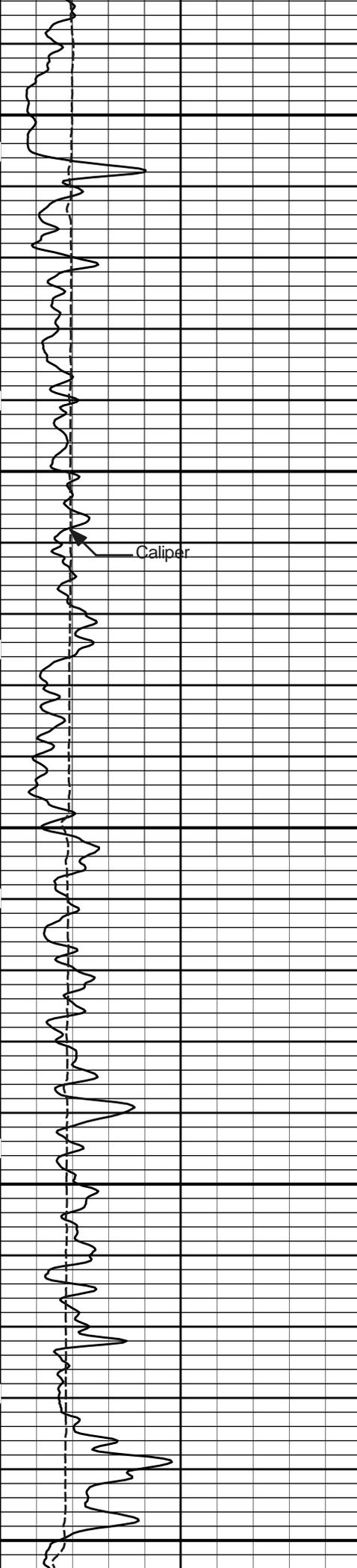




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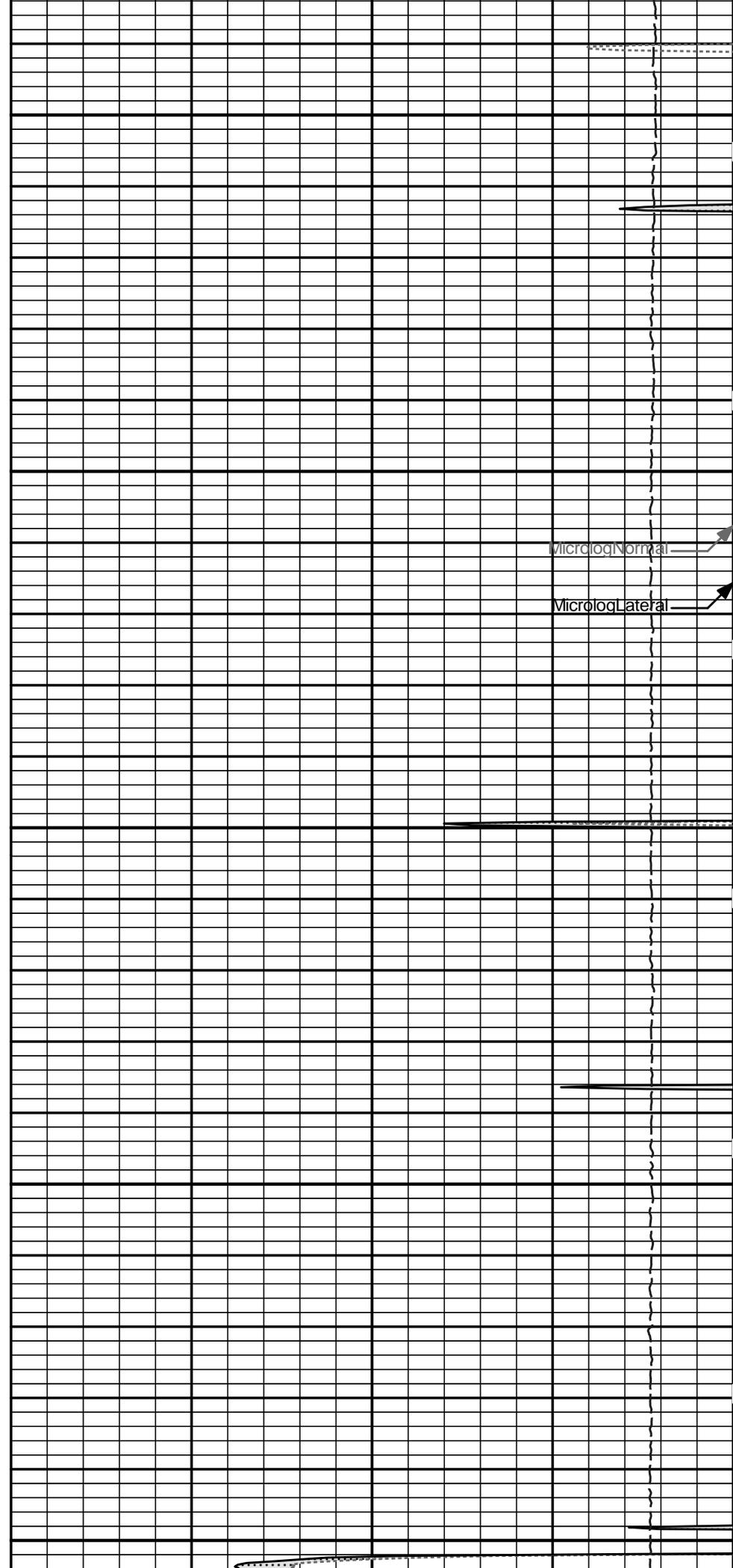
4800

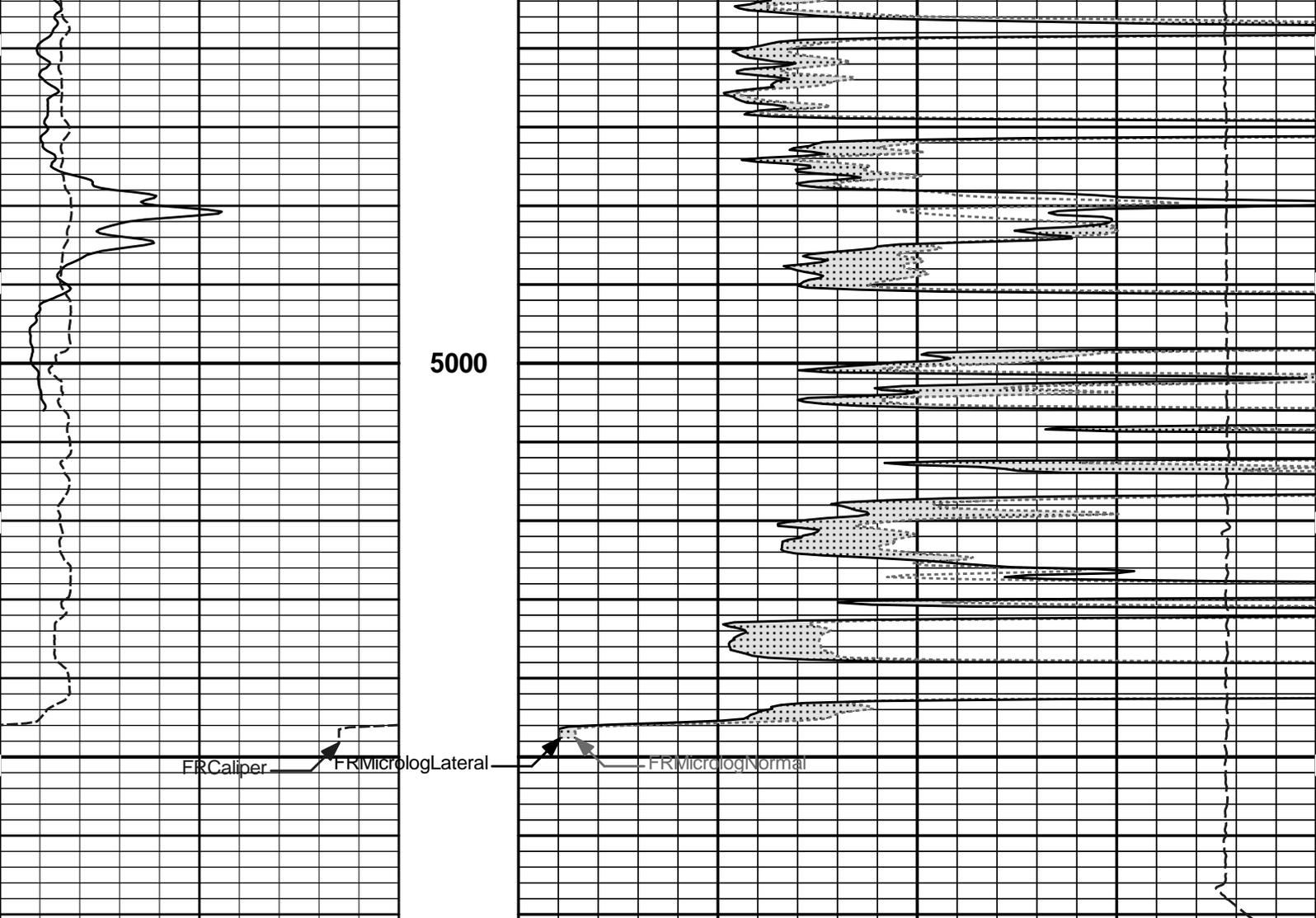
Caliper

4900

MicrologNormal

MicrologLateral





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

HALLIBURTON

Plot Time: 01-Apr-12 17:30:23
 Plot Range: 3600 ft to 5071 ft
 Data: OXY_SHELL_B-2\Well Based\DAQ-0001-004_MAIN
 Plot File: \\LOCAL-OXY_SHELL_B-2\0001 GTET-BSAT-FLEX-DSN-SDL-ACRT-CBG\MICROLOG\Microlog_IQ_5_main

5 INCH MAIN LOG

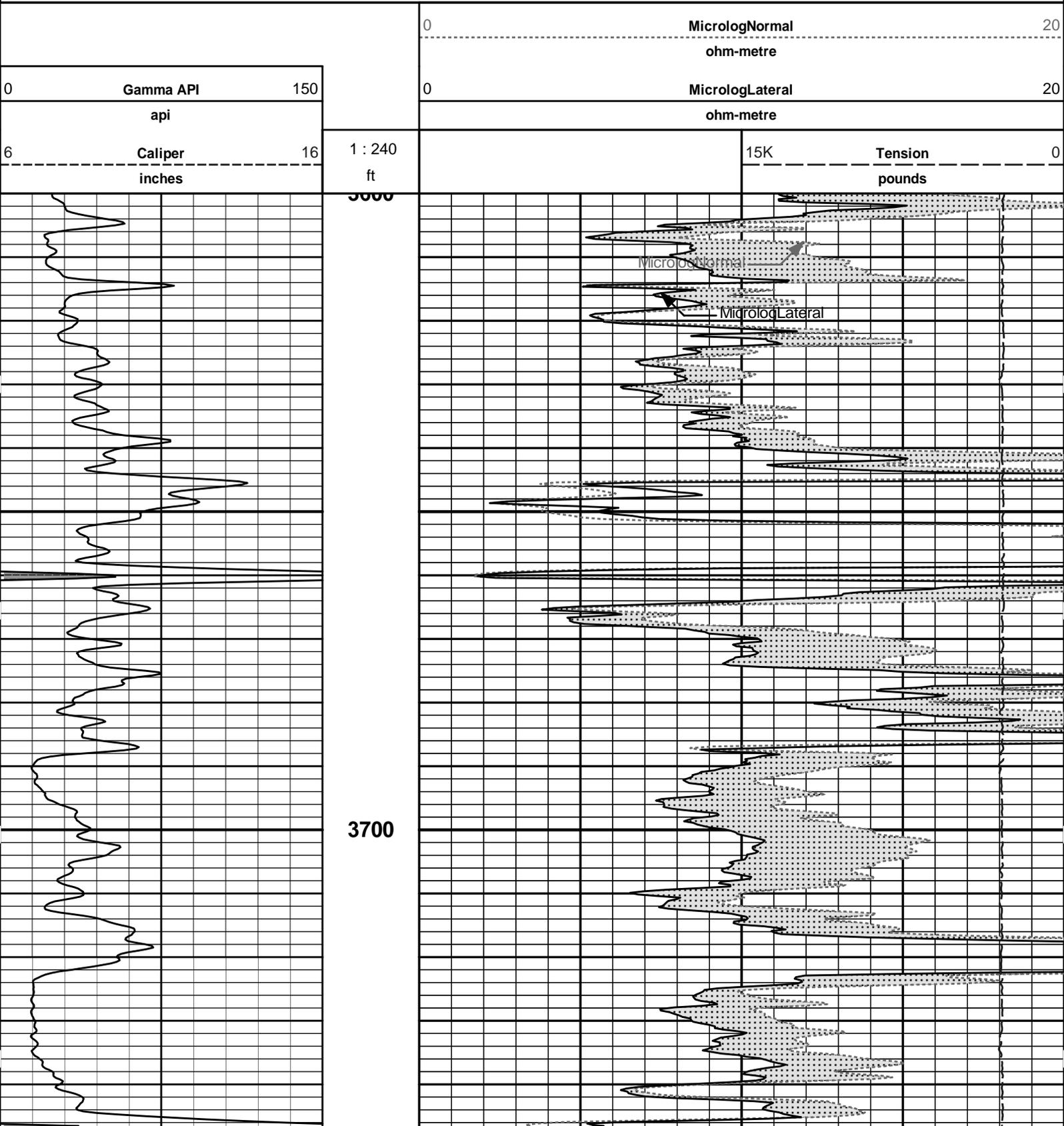
MAIN LOG 5" PER 100'

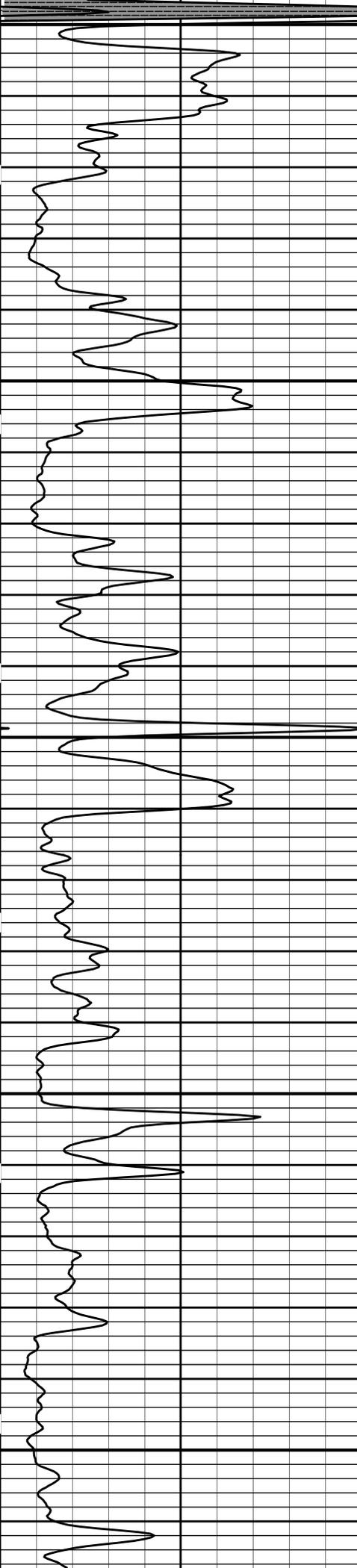
HALLIBURTON

Plot Time: 01-Apr-12 17:30:24
 Plot Range: 3600 ft to 4200 ft
 Data: OXY_SHELL_B-2\Well Based\DAQ-0001-003\
 Plot File: \\LOCAL-OXY_SHELL_B-2\0001 GTET-BSAT-FLEX-DSN-SDL-ACRT-CBG\MICROLOG\Microlog_IQ_5_main

5 INCH REPEAT SECTION

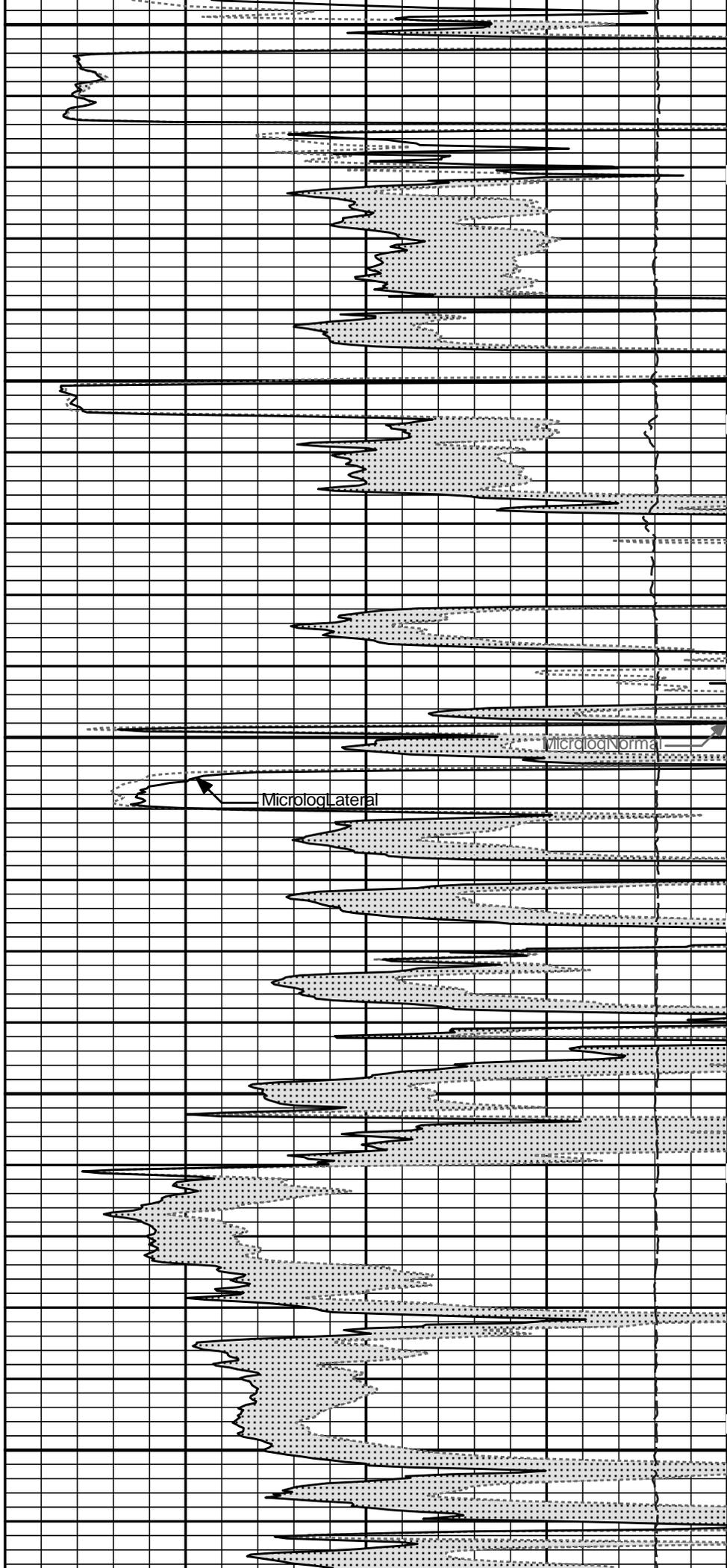
5 INCH REPEAT SECTION

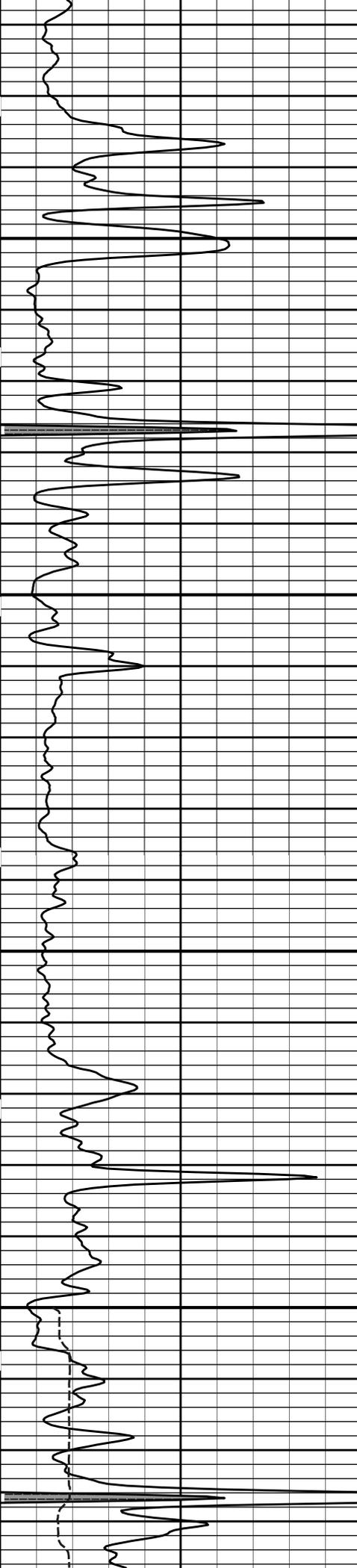




3800

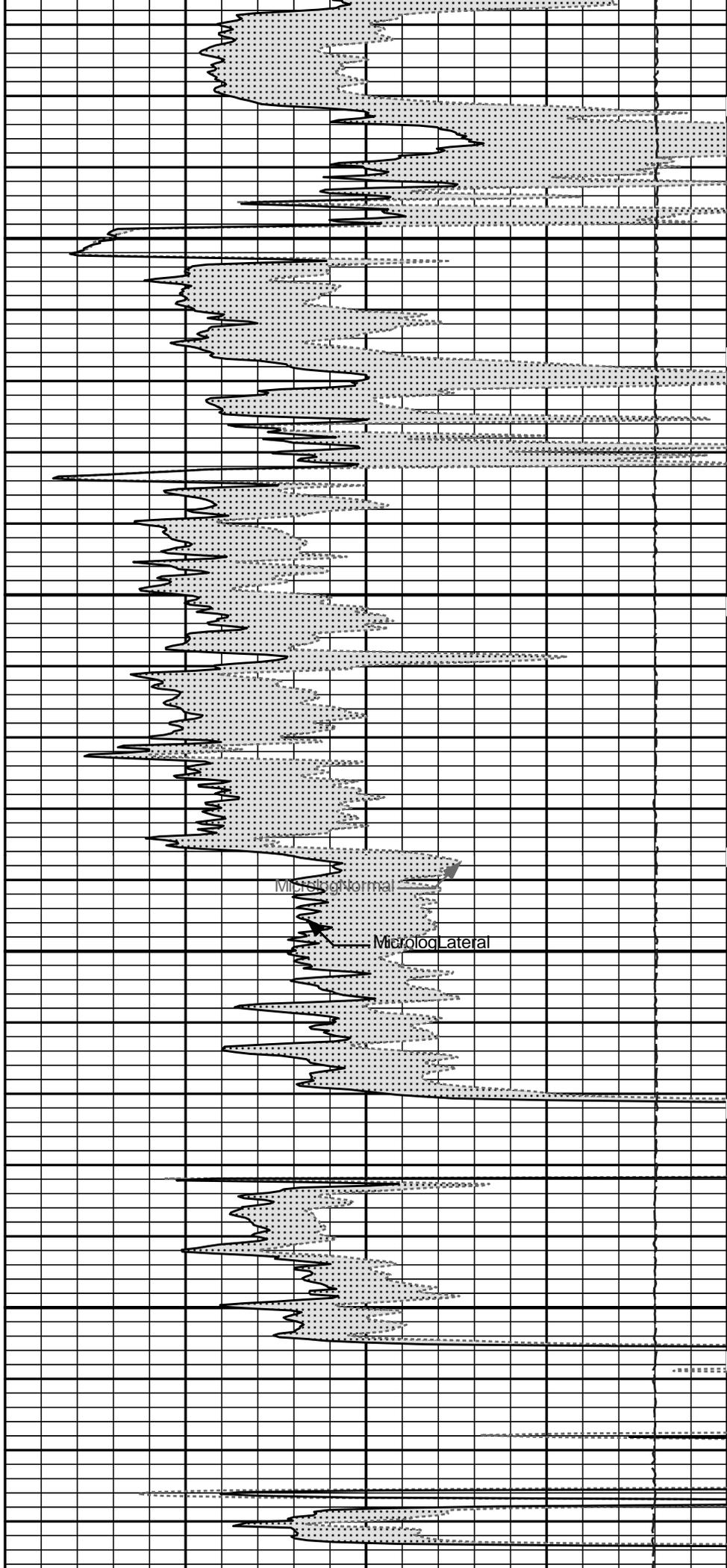
3900





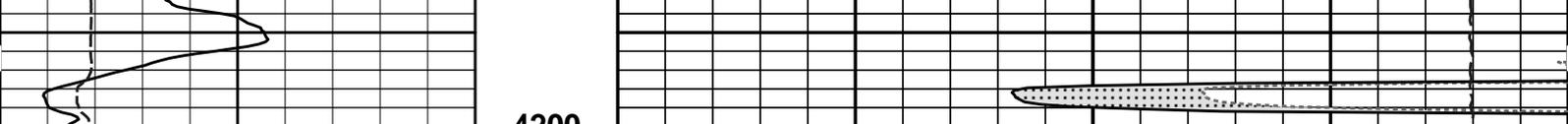
4000

4100



MicrologNormal

MicrologLateral



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

HALLIBURTON

Plot Time: 01-Apr-12 17:30:26
 Plot Range: 3600 ft to 4200 ft
 Data: OXY_SHELL_B-2\Well Based\DAQ-0001-003\
 Plot File: \\LOCAL\OXY_SHELL_B-2\0001 GTET-BSAT-FLEX-DSN-SDL-ACRT-CBG\MICROLOG\Microlog_IQ_5_main

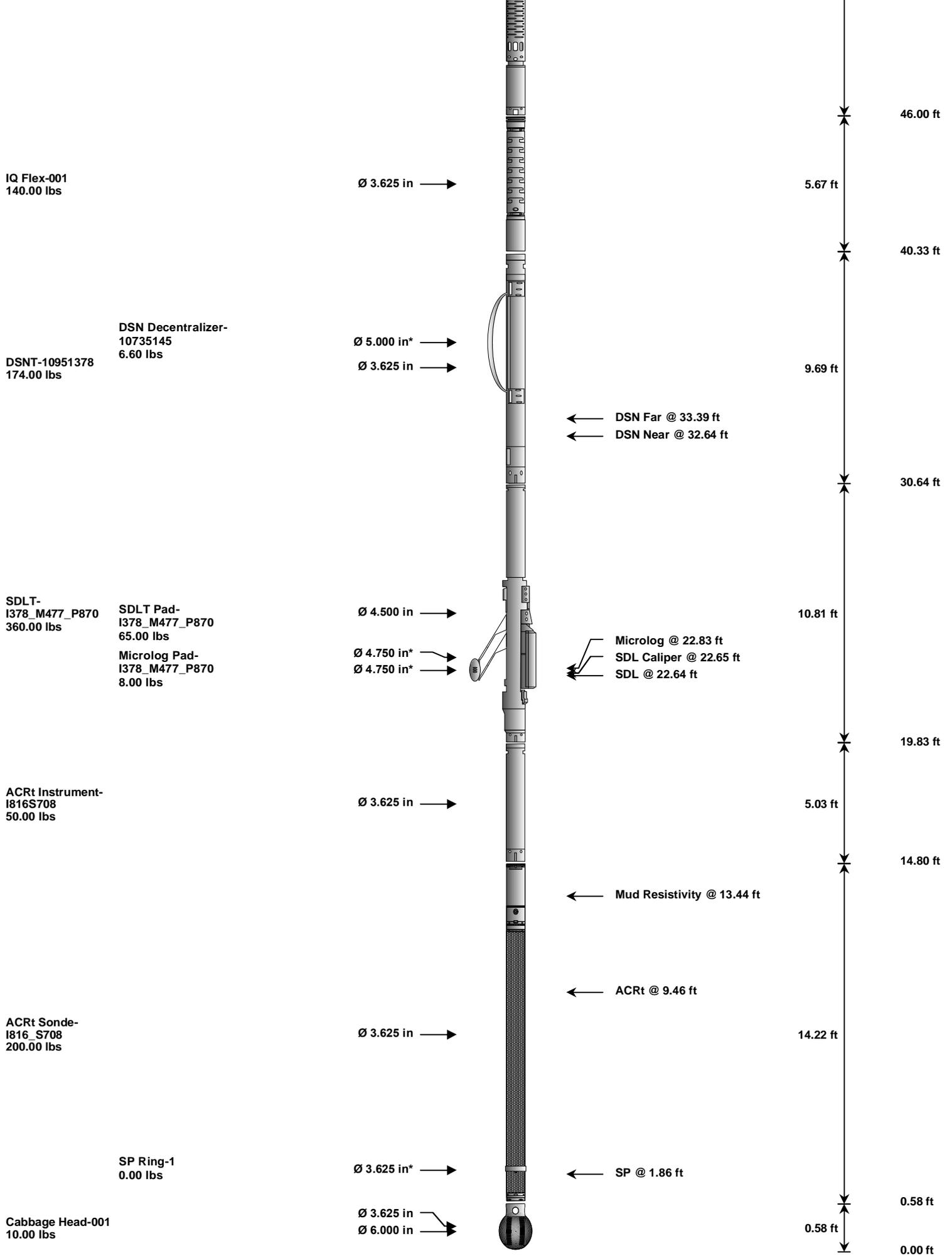
5 INCH REPEAT SECTION

5 INCH REPEAT SECTION

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
CH_HOS_I 37.50 lbs		Ø 2.750 in →		← Temperature @ 72.30 ft	3.25 ft	73.55 ft
GTET-10971172 165.00 lbs		Ø 3.625 in →		← GammaRay @ 64.23 ft	8.52 ft	70.30 ft
BSAT-11014316 300.00 lbs		Ø 3.625 in →		← Sonic Receivers @ 53.26 ft	15.77 ft	61.78 ft



IQ Flex-001
140.00 lbs

DSN Decentralizer-10735145
6.60 lbs
DSNT-10951378
174.00 lbs

SDLT-I378_M477_P870
360.00 lbs
SDLT Pad-I378_M477_P870
65.00 lbs
Microlog Pad-I378_M477_P870
8.00 lbs

ACRt Instrument-I816S708
50.00 lbs

ACRt Sonde-I816_S708
200.00 lbs

SP Ring-1
0.00 lbs

Cabbage Head-001
10.00 lbs

Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max.Log. Speed (fpm)
				46.00	46.00	
				5.67	51.67	
				40.33	92.00	
				9.69	101.69	
				30.64	132.33	
				10.81	143.14	
				19.83	162.97	
				5.03	168.00	
				14.80	182.80	
				14.22	197.02	
				0.58	197.60	
				0.58	198.18	

Code	Description	CH_HOS_I	Value 1	Value 2	Value 3	Value 4
CH_HOS	Hostile Cable Head with Load Cell		37.50	3.25	70.30	300.00
GTET	Gamma Telemetry Tool	10971172	165.00	8.52	61.78	60.00
BSAT	Borehole Sonic Array Tool	11014316	300.00	15.77	46.00	60.00
IQF	IQ Flex tool	001	140.00	5.67	40.33	300.00
DSNT	Dual Spaced Neutron	10951378	174.00	9.69	30.64	60.00
DCNT	DSN Decentralizer	10735145	6.60	5.13 *	33.97	300.00
SDLT	Spectral Density Tool	I378_M477_P870	360.00	10.81	19.83	60.00
SDLP	Density Insite Pad	I378_M477_P870	65.00	2.55 *	22.04	60.00
MICP	Microlog Pad	I378_M477_P870	8.00	1.00 *	22.33	60.00
ACRt	Array Compensated True Resistivity Instrument Section	I816S708	50.00	5.03	14.80	300.00
ACRt	Array Compensated True Resistivity	I816_S708	200.00	14.22	0.58	300.00
SP	SP Ring	1	0.00	0.25 *	1.86	300.00
CBHD	Cabbage Head	001	10.00	0.58	0.00	300.00
Total			1,516.10	73.55		

* Not included in Total Length and Length Accumulation.

Data: OXY_SHELL_B-2\0001 GTET-BSAT-FLEX-DSN-SDL-ACRT-CBG\IDLE **Date: 01-Apr-12 13:27:04**

HALLIBURTON

PARAMETERS REPORT

Depth ((ft))	Tool Name	Mnemonic	Description	Value	Units
TOP					
	SHARED	BS	Bit Size	7.875	in
	SHARED	UBS	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	MDBS	Mud Base	Water	
	SHARED	MDWT	Borehole Fluid Weight	9.200	ppg
	SHARED	WAGT	Weighting Agent	Barite	
	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	1.000	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	5085.00	ft
	SHARED	BHT	Bottom Hole Temperature	135.0	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 for Gamma Ray Tools.	Centered	
	BSAT	MBOK	Compute BCAS Results?	Yes	
	BSAT	FLLO	Frequency Filter Low Pass Value?	5000	Hz
	BSAT	FLHI	Frequency Filter High Pass Value?	15000	Hz
	BSAT	DTFL	Delta -T Fluid	189.00	uspf
	BSAT	DTMT	Delta -T Matrix Type	Limestone 47.5	
	BSAT	DTSH	Delta -T Shale	100.00	uspf
	BSAT	SPEQ	Acoustic Porosity Equation	Wylie	
	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	0.200	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	
ACRt Sonde	RTOK	Process ACRt?	Yes	
ACRt Sonde	MNSO	Minimum Tool Standoff	1.50	in
ACRt Sonde	TCS1	Temperature Correction Source	FP Lwr & FP Up	
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	

BOTTOM

Data: OXY_SHELL_B-2\0001 GTET-BSAT-FLEX-DSN-SDL-ACRT-CBGIDLE

Date: 01-Apr-12 13:31:46

HALLIBURTON

CALIBRATION REPORT

SURFACE TENSION SHOP CALIBRATION

Tool Name:	Depth Panel - 10842695	Reference Calibration Date:	28-Dec-07 12:33:23
Engineer:	GUTHMUELLER	Calibration Date:	07-Jan-08 09:52:53
Software Version:	WL INSITE R2.0 (Build 22)	Calibration Version:	1

SURFACE TENSION LOAD CELL

Measurement	Load Cell Value	Measurement	Calibrated	Units
Low	10285.21	-35.81	0.00	lbs
High	17061.79	6736.91	6770.00	lbs

DOWNHOLE TENSION SHOP CALIBRATION

Tool Name:	CH_HOS - CH_HOS_I	Reference Calibration Date:	07-Nov-11 21:53:28
Engineer:	WHITLOCK	Calibration Date:	10-Feb-12 05:29:34
Software Version:	WL INSITE R3.4.2 (Build 2)	Calibration Version:	1

DOWNHOLE LOAD CELL

Measurement	Tool Value	Measurement	Calibrated	Units
Low	1695.54	-190.76	0.00	lbs
High	9060.32	856.01	1076.00	lbs

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name:	GTET - 10971172	Reference Calibration Date:	07-Feb-12 10:09:50
Engineer:	WHITLOCK	Calibration Date:	27-Feb-12 09:55:44

Software Version: WL INSITE R3.4.2 (Build 2)

Calibration Version: 1

Calibrator Source S/N: TB-79

Calibrator API Reference:222.00 api

Equivalent Calibrator API Reference:225.9 api

Measurement	Measured	Calibrated	Units
Background	34.1	34.3	api
Background + Calibrator	258.2	260.2	api
Calibrator	224.1	225.9	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name: GTET - 10971172

Reference Calibration Date: 27-Feb-12 09:55:44

Engineer: WHITLOCK

Calibration Date: 30-Mar-12 10:13:47

Software Version: WL INSITE R3.4.2 (Build 2)

Calibration Version: 1

Calibrator Source S/N: TB-79

Calibrator API Reference:222.00 api

Equivalent Calibrator API Reference:225.9 api

Field Verification	Shop	Field	Units
Background	34.3	22.9	api
Background + Calibrator	260.2	247.2	api
Calibrator	225.9	224.3	api

Shop	Field	Difference	Tolerance
225.9	224.3	1.6	+/- 9.00

ACCELEROMETER SHOP CALIBRATION

Tool Name: GTET - 10971172

Reference Calibration Date: 01-Jan-70 00:00:00

Engineer: WHITLOCK

Calibration Date: 20-Oct-08 14:40:55

Software Version: WL INSITE R2.2 (Build 2)

Calibration Version: 1

Horizontal-1 Telemetry	Horizontal-2 Telemetry	Vertical Telemetry	Units
-85.64	-67.18	-16422.00	cnts

Coefficient	Coefficient Value	Tolerance
Gain	-0.000061	----
Offset	-0.005	----
Noise	0.0000	0.0000 - 0.0000

Orientation	Measured	Tolerance	Calibrated	Tolerance
Horizontal	-76.41	-0.10 - 0.10	0.00	-0.10 - 0.10
Vertical	-16422.00	0.90 - 1.10	1.00	0.90 - 1.10

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name: DSNT - 10951378

Reference Calibration Date: 07-Feb-12 13:10:35

Engineer: WHITLOCK

Calibration Date: 05-Mar-12 12:23:01

Software Version: WL INSITE R3.4.2 (Build 2)

Calibration Version: 1

Logging Source S/N: DSN-373

Tank Serial Number: FTSM HWT

Reference value assigned to Tank: 56.100

Snow Block S/N: 10975786

Calibration Tank Water Temperature: 75 degF

Min. Tool Housing Outside Diameter: 3.625 in

CALIBRATION CONSTANTS

Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	1.009	1.006	0.900 - 1.100

WATER TANK SUMMARY (Horizontal Water Tank)

Measurement	Current Reading (Previous Coef.)	Calibrated (New Coef.)	Change	Control Limit On Change
Porosity (decp):	0.2365	0.2358	0.0008	+/- 0.0020
Calibrated Ratio:	10.58	10.56	0.025	+/- 0.050

VERIFIER

Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0803	0.02000 - 0.09000

PASS/FAIL SUMMARY

Background Check:	Passed
Gain-Range Check:	Passed
Snow-Block Check:	Passed

DUAL SPACED NEUTRON FIELD CALIBRATION

Tool Name: DSNT - 10951378	Reference Calibration Date: 05-Mar-12 12:23:01
Engineer: WHITLOCK	Calibration Date: 30-Mar-12 10:18:20
Software Version: WL INSITE R3.4.2 (Build 2)	Calibration Version: 1

Logging Source S/N: DSN-373
Snow Block S/N: 10975786

NEUTRON FIELD-CHECK SUMMARY

	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0803	0.0811	0.0007	+/- 0.0150

PASS/FAIL SUMMARY

Block Change Check:	Passed
Snow Block Stat Check:	Passed
Temperature Check:	Passed

DENSITY CALIPER SHOP CALIBRATION

Tool Name: SDLT - I378_M477_P870	Reference Calibration Date: 01-Jan-70 00:00:00
Engineer: WHITLOCK	Calibration Date: 30-Mar-12 10:30:06
Software Version: WL INSITE R3.4.2 (Build 2)	Calibration Version: 1

CALIBRATION COEFFICIENTS

Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-2823.93	-2823.93	-7000.00 - -1000.00
Pad Gain	0.0003704	0.0003704	0.000200 - 0.000600
Arm Offset	-2190.19	-2190.19	-5000.00 - 3000.00
Arm Gain	0.0005308	0.0005308	0.000300 - 0.000700
Arm Power	-0.000005823	-0.000005823	-0.000010 - 0.000010

The ring diameter is computed from: $\text{DIAMETER} = \text{PAD EXTENSION} + \text{ARM EXTENSION} + \text{TOOL DIAMETER}$

Tool Diameter: 4.50 in

CALIBRATION RINGS

Measurement	Current Reading (Previous Coeff.)	Calibrated (New Coeff.)	Change	Control Limit On New Value
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PAD EXTENSION:

Small Ring (in)	2.00	2.00	0.00	+/- 0.20
Medium Ring (in)	3.75	3.75	0.00	+/- 0.20

RING DIAMETER:

Small Ring (in)	6.50	6.50	0.00	+/- 0.20
Medium Ring (in)	8.25	8.25	0.00	+/- 0.20
Large Ring (in)	15.00	15.00	0.00	+/- 0.20

PASS/FAIL SUMMARY

Calibration-Coefficients Range Check:	Passed
Ring-Measurement Check:	Passed

PASS/FAIL SUMMARY

Calibration-Coefficients Range Check:	Passed
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SDLT CALIPER FIELD CALIBRATION

Tool Name:	SDLT - I378_M477_P870	Reference Calibration Date:	30-Mar-12 10:30:06
Engineer:	WHITLOCK	Calibration Date:	30-Mar-12 10:32:19
Software Version:	WL INSITE R3.4.2 (Build 2)	Calibration Version:	1

MEASURED CALIPER VALUES

Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.76	0.01	+/- 0.10
Ring Diameter	8.25	8.25	0.00	+/- 0.15

PASS/FAIL SUMMARY

Pad Extension Check:	Passed
Diameter Check:	Passed

ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION

Tool Name:	ACRt Sonde - I816_S708	Reference Calibration Date:	21-Sep-11 13:58:42
Engineer:	HOFKAMP	Calibration Date:	03-Jan-12 09:45:28
Software Version:	WL INSITE R3.4.2 (Build 2)	Calibration Version:	1

TYPICAL GAIN RANGE

Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	0.95	1.0353	1.05	0.95	1.0124	1.05	0.95	1.0031	1.05
A2 (50")	0.95	1.0437	1.05	0.95	1.0210	1.05	0.95	1.0094	1.05
A3 (29")	0.95	1.0354	1.05	0.95	1.0124	1.05	0.95	1.0009	1.05
A4 (17")	0.95	1.0255	1.05	0.95	1.0019	1.05	0.95	0.9959	1.05
A5 (10")	N/A	N/A	N/A	0.95	0.9971	1.05	0.95	0.9892	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.9959	1.05	0.95	0.9887	1.05

TYPICAL SONDE OFFSET RANGE

Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	-5	0.928	2	-6	-4.573	-2	-8	-5.812	-2
A2 (50")	-7	0.314	-1	-6	-3.738	-2	-7	-5.333	-2
A3 (29")	-27	-12.244	-9	-9	-4.322	-3	-7	-4.343	-1
A4 (17")	-180	-99.972	-60	-45	-31.306	-15	-39	-24.956	-13
A5 (10")	N/A	N/A	N/A	-150	-99.875	-50	-80	-47.603	-10
A6 (6")	N/A	N/A	N/A	175	327.313	525	90	166.084	270

TRANSMITTER CURRENT GAIN

R-MUD VERIFICATION

Signal	Lower	R	Upper	Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
12K	0.6	0.8154	1.3	Mud Cell	0.95	1.004	1.05
36K	1.0	1.1504	2.0				
72K	1.0	1.3123	2.0				

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name: SDLT Pad - I378_M477_P870	Reference Calibration Date: 07-Feb-12 10:44:34
Engineer: WHITLOCK	Calibration Date: 05-Mar-12 10:04:59
Software Version: WL INSITE R3.4.2 (Build 2)	Calibration Version: 1

Logging Source S/N: 20784B		
Aluminum Block S/N: FTSM AL BLOCK	Density: 2.581g/cc	Pe: 3.170
Magnesium Block S/N: FTSM MG BLOCK	Density: 1.687g/cc	Pe: 2.594

DENSITY CALIBRATION SUMMARY

Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0295	1.0402	0.90 - 1.10
Near Dens Gain	1.0210	1.0433	0.90 - 1.10
Near Peak Gain	1.0285	1.0808	0.90 - 1.10
Near Lith Gain	1.0504	1.0861	0.90 - 1.10
Far Bar Gain	1.0096	1.0107	0.90 - 1.10
Far Dens Gain	1.0022	1.0030	0.90 - 1.10
Far Peak Gain	0.9978	0.9996	0.90 - 1.10
Far Lith Gain	0.9872	0.9798	0.90 - 1.10
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Near Bar Offset	-0.0854	-0.1837	NONE
Near Dens Offset	-0.0149	-0.2146	NONE
Near Peak Offset	-0.0798	-0.5189	NONE
Near Lith Offset	-0.2768	-0.5818	NONE
Far Bar Offset	0.0320	0.0197	NONE
Far Dens Offset	0.0782	0.0658	NONE
Far Peak Offset	0.0898	0.0656	NONE
Far Lith Offset	0.1440	0.1823	NONE
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Near Bar Background	901.39	900.68	700 - 1450
Near Dens Background	295.56	293.31	230 - 480
Near Peak Background	128.95	128.47	100 - 210
Near Lith Background	158.39	157.51	125 - 260
Far Bar Background	543.29	546.24	450 - 900
Far Dens Background	211.48	212.31	175 - 345
Far Peak Background	83.59	84.47	70 - 140
Far Lith Background	87.68	87.24	75 - 145

CALIBRATION BLOCK SUMMARY

Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.682	1.687	0.005	+/- 0.015
Pe	2.541	2.554	0.013	+/- 0.150
ALUMINUM				
Density (g/cc)	2.579	2.581	0.002	+/- 0.01500
Pe	3.069	3.127	0.058	+/- 0.150

TOOL SUMMARY				
Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	-0.0015	+/- 0.0110	-0.0027	+/- 0.0140
Magnesium Block	-0.0015	+/- 0.0110	0.0002	+/- 0.0140
Aluminum Block	-0.0007	+/- 0.0110	0.0002	+/- 0.0140
Resolution	9.12	6.00 - 11.50	8.62	6.00 - 11.50
Internal Verifier(B+D+P+L)	1480	1200 - 2700	930	800 - 1700

PASS/FAIL SUMMARY	
Background Quality Check:	Passed
Background Range Check:	Passed
Background Resolution Check:	Passed
Background Verification Check:	Passed
Magnesium Quality Check:	Passed
Aluminum Quality Check:	Passed
Gains Check:	Passed
Changes in Calibration Blocks:	Passed

SPECTRAL DENSITY FIELD CHECK			
Tool Name:	SDLT Pad - I378_M477_P870	Reference Calibration Date:	05-Mar-12 10:04:59
Engineer:	WHITLOCK	Calibration Date:	30-Mar-12 10:12:50
Software Version:	WL INSITE R3.4.2 (Build 2)	Calibration Version:	1

Pad Temperature: 72.8 degF

DENSITY FIELD CALIBRATION SUMMARY				
Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1479.967	1477.817	-2.150	15.508
Far (B+D+P+L) cps	930.256	927.659	-2.597	16.502
Near Resolution	9.12	9.01	-0.110	0.50
Far Resolution	8.62	8.65	0.030	1.00

PASS/FAIL SUMMARY	
Bkg Quality Check:	Passed
Bkg Resolution Check:	Passed
Bkg Verification Check:	Passed

MICRO LOG SHOP CALIBRATION			
Tool Name:	Microlog Pad - I378_M477_P870	Reference Calibration Date:	15-Dec-11 10:52:18
Engineer:	WHITLOCK	Calibration Date:	16-Feb-12 13:59:17
Software Version:	WL INSITE R3.4.2 (Build 2)	Calibration Version:	1

CALIBRATION COEFFICIENT SUMMARY					
Measurement	Micro Log Normal		Micro Log Lateral		Units
	Measured	Calibrated	Measured	Calibrated	
Tool Zero	-0.18	-0.14	-0.00	-0.00	ohmm
Calibration Point #1	-0.04	0.00	-0.00	0.00	ohmm
Calibration Point #2	19.96	20.00	19.99	20.00	ohmm
Internal Reference	19.81	19.86	19.99	20.00	ohmm

Micro Log Normal Micro Log Lateral

Measurement	Micro Log Normal Tool Value	Micro Log Lateral Tool Value	Units
Tool Zero	0.43	0.82	V
Calibration Point #1	37.45	1.94	V
Calibration Point #2	5295.78	6863.62	V
Internal Reference	5257.79	6861.95	V

MICRO LOG FIELD CHECK

Tool Name: Microlog Pad - I378_M477_P870

Reference Calibration Date: 16-Feb-12 13:59:17

Engineer: WHITLOCK

Calibration Date: 12-Mar-12 09:38:40

Software Version: WL INSITE R3.4.2 (Build 2)

Calibration Version: 1

Measurement	Micro Log Normal		Micro Log Lateral		Units
	Shop	Field	Shop	Field	
Tool Zero	-0.14	-0.14	-0.00	-0.00	ohmm
Internal Reference	19.86	19.81	20.00	19.95	ohmm

Summary					
Signal	Shop	Field	Difference	Tolerance	
Microlog Normal	19.86	19.81	0.05	+/- 0.80	
Microlog Lateral	20.00	19.95	0.05	+/- 0.80	

CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
Depth Panel-10842695						
Tension Zero	0.00	-----	-----	0.00	-----	lbs
Tension Cal	6770.00	-----	-----	0.00	-----	lbs
CH_HOS-CH_HOS_I						
DH Tension Zero	0.00	-----	-----	0.00	-----	lbs
DH Tension Cal	1076.00	-----	-----	0.00	-----	lbs
GTET-10971172						
Gamma Ray Calibrator	225.9	224.3	-----	1.6	+/- 9.00	api
DSNT-10951378						
Snow-Block Porosity	0.0803	0.0811	-----	-0.0008	+/- 0.0150	decp
SDLT-I378_M477_P870						
Pad Extension	3.75	3.76	-----	-0.01	+/-0.10	in
Ring Diameter	8.25	8.25	-----	0.000	+/-0.15	in
ACRt Sonde-I816_S708						
Mud Cell	1.004	-----	-----	0.000	-----	ohm-m
SDLT Pad-I378_M477_P870						
Near(B+D+P+L)	1479.967	1477.817	-----	2.150	+/-15.508	cps
Far(B+D+P+L)	930.256	927.659	-----	2.597	+/-16.502	cps
Microlog Pad-I378_M477_P870						
MicroLog Normal	19.86	19.81	-----	0.05	+/-0.80	ohmm
MicroLog Lateral	20.00	19.95	-----	0.05	+/-0.80	ohmm