

HALLIBURTON

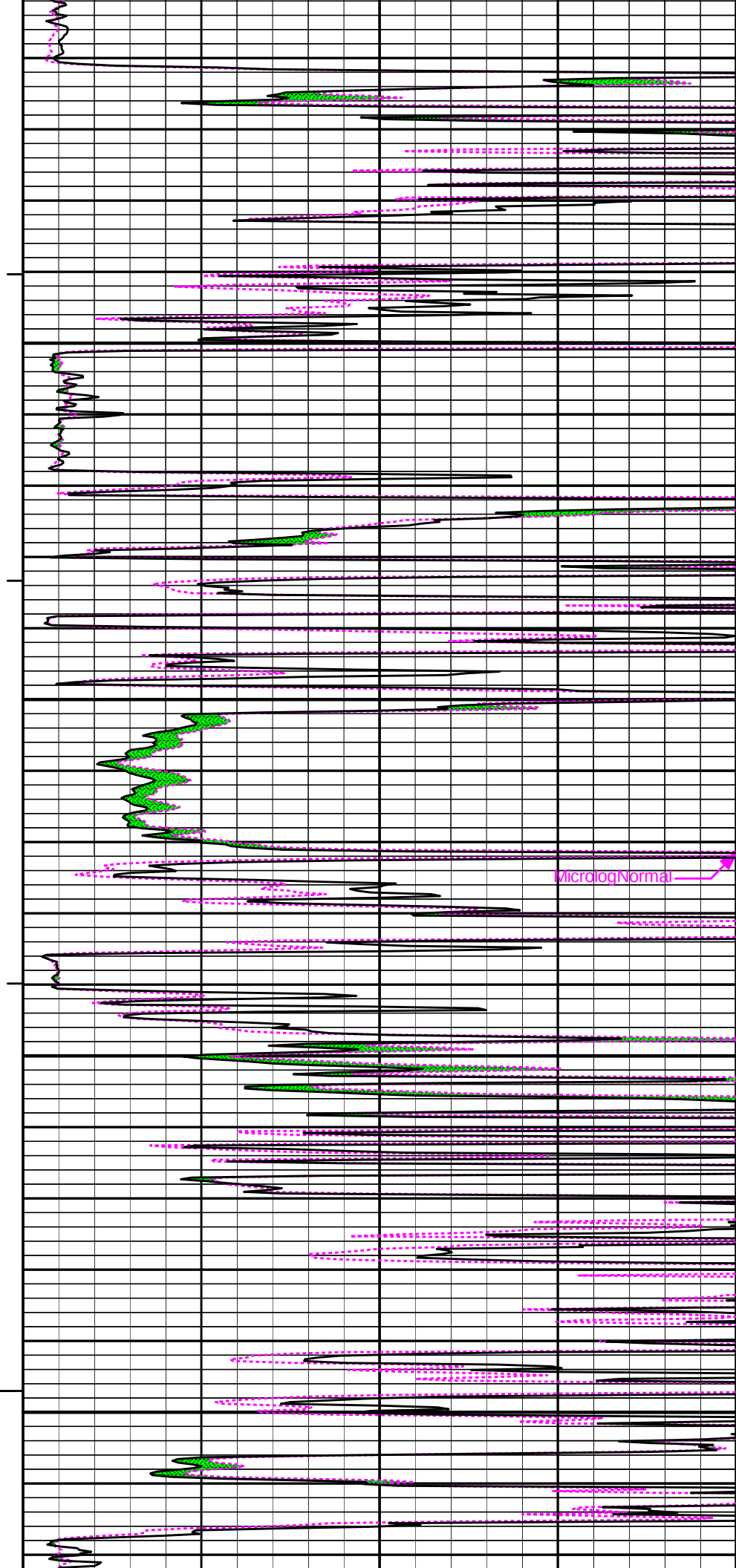
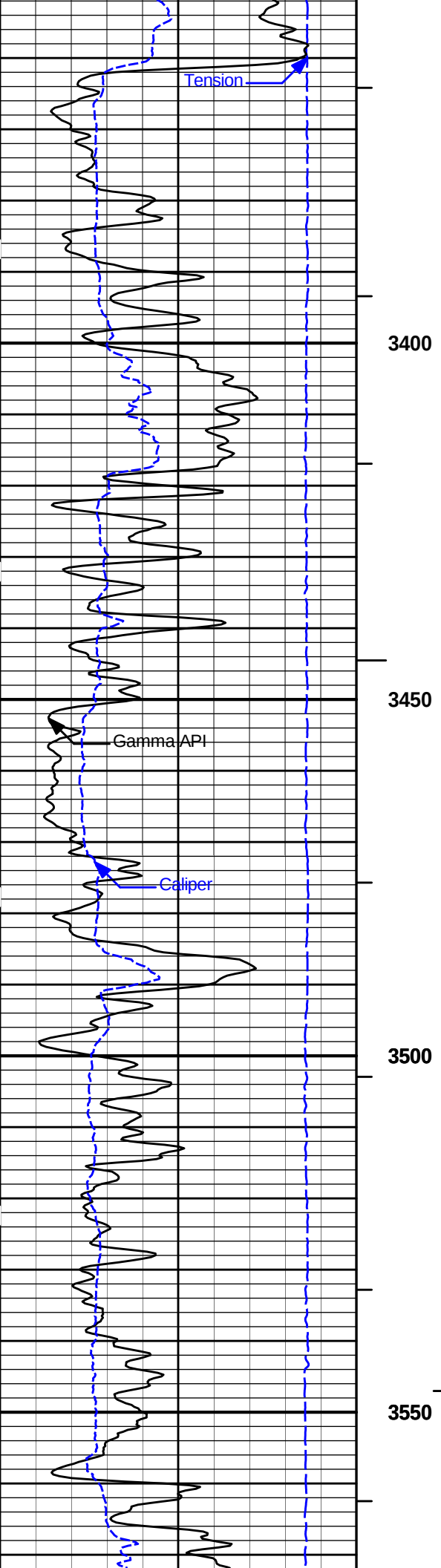
MICROLOG

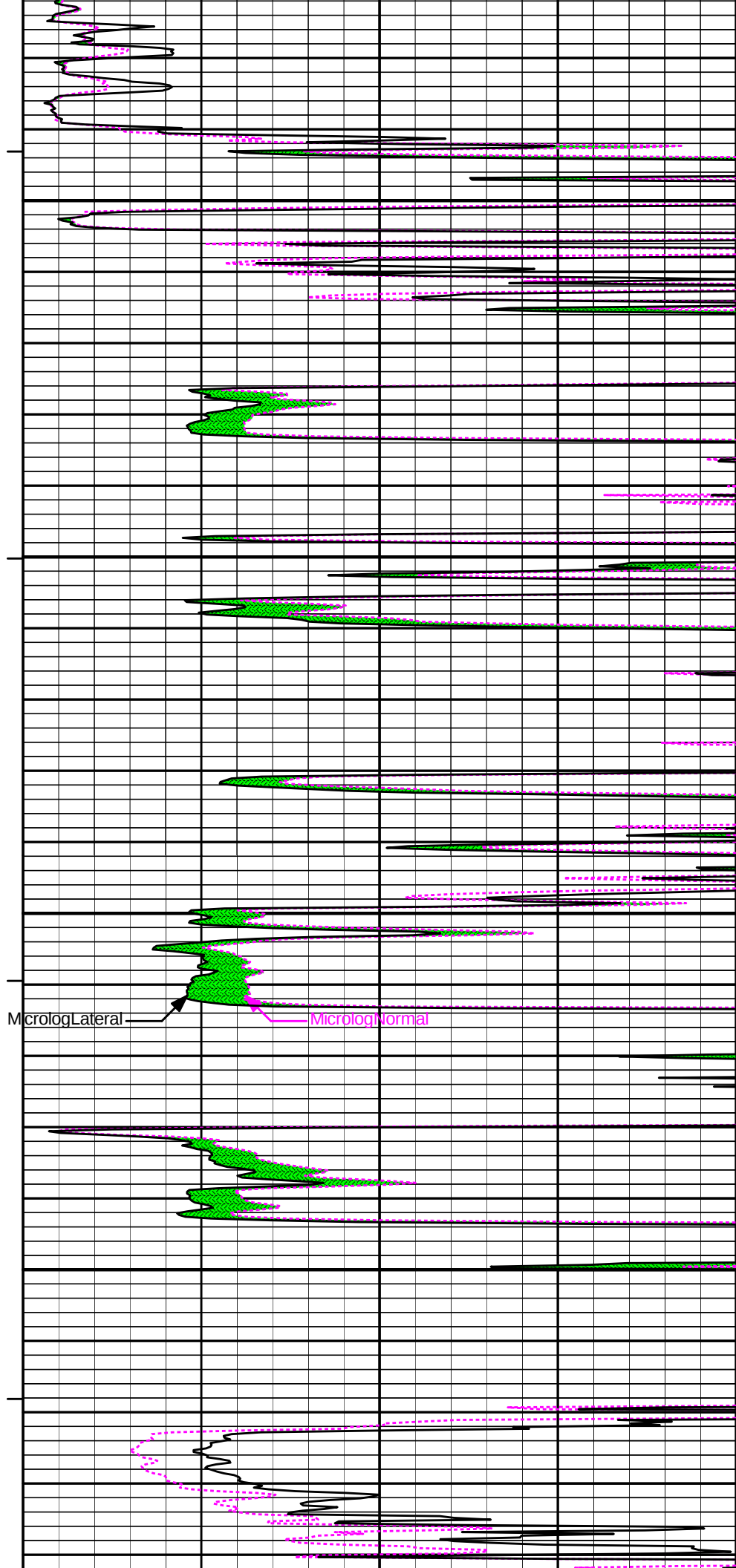
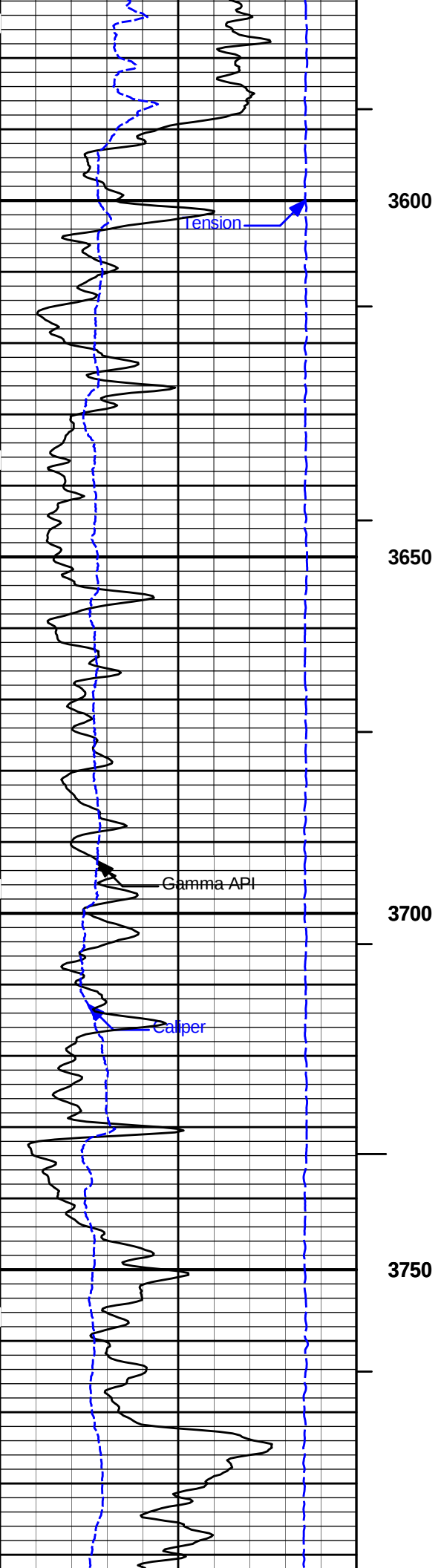
COMPANY		HERMAN L LOEB	
WELL		CANTON C #3-20	
FIELD		GLICK	
COUNTY		KIOWA	
STATE		KANSAS	
Permanent Datum		GL	Elev. 2038.0 ft
Log measured from		KB	Elev. 2049.0 ft
Drilling measured from		KB	D.F. 2049.0 ft
			G.L. 2038.0 ft
Date		08-May-12	
Run No.		ONE	
Depth - Driller		5180.00 ft	
Depth - Logger		5177.0 ft	
Bottom - Logged Interval		5152 ft	
Top - Logged Interval		565 ft	
Casing - Driller		8.625 in @ 568.0 ft	
Casing - Logger		565.0 ft	
Bit Size		7.785 in	@
Type Fluid in Hole		WATER BASED MUD	
Density	Viscosity	9.3 ppq	56.00 s/qt
PH	Fluid Loss	9.00 pH	9.0 cpm
Source of Sample		FLOWLINE	
Rm @ Meas. Temperature		0.300 ohmm @ 75.00 degF	@
Rmf @ Meas. Temperature		0.23 ohmm @ 75.00 degF	@
Rmc @ Meas. Temperature		0.400 ohmm @ 75.00 degF	@
Source Rmf	Rmc	CALC	CALC
Rm @ BHT		0.21 ohmm @ 111.0 degF	@
Time Since Circulation		8.0 hr	
Time on Bottom		08-May-12 19:53	
Max. Rec. Temperature		111.0 degF @ 5177.0 ft	@
Equipment	Location	592	PV OK
Recorded By		CORY HANSON	
Witnessed By		J. CHRISTENSEN	RAMIRO GONZALEZ

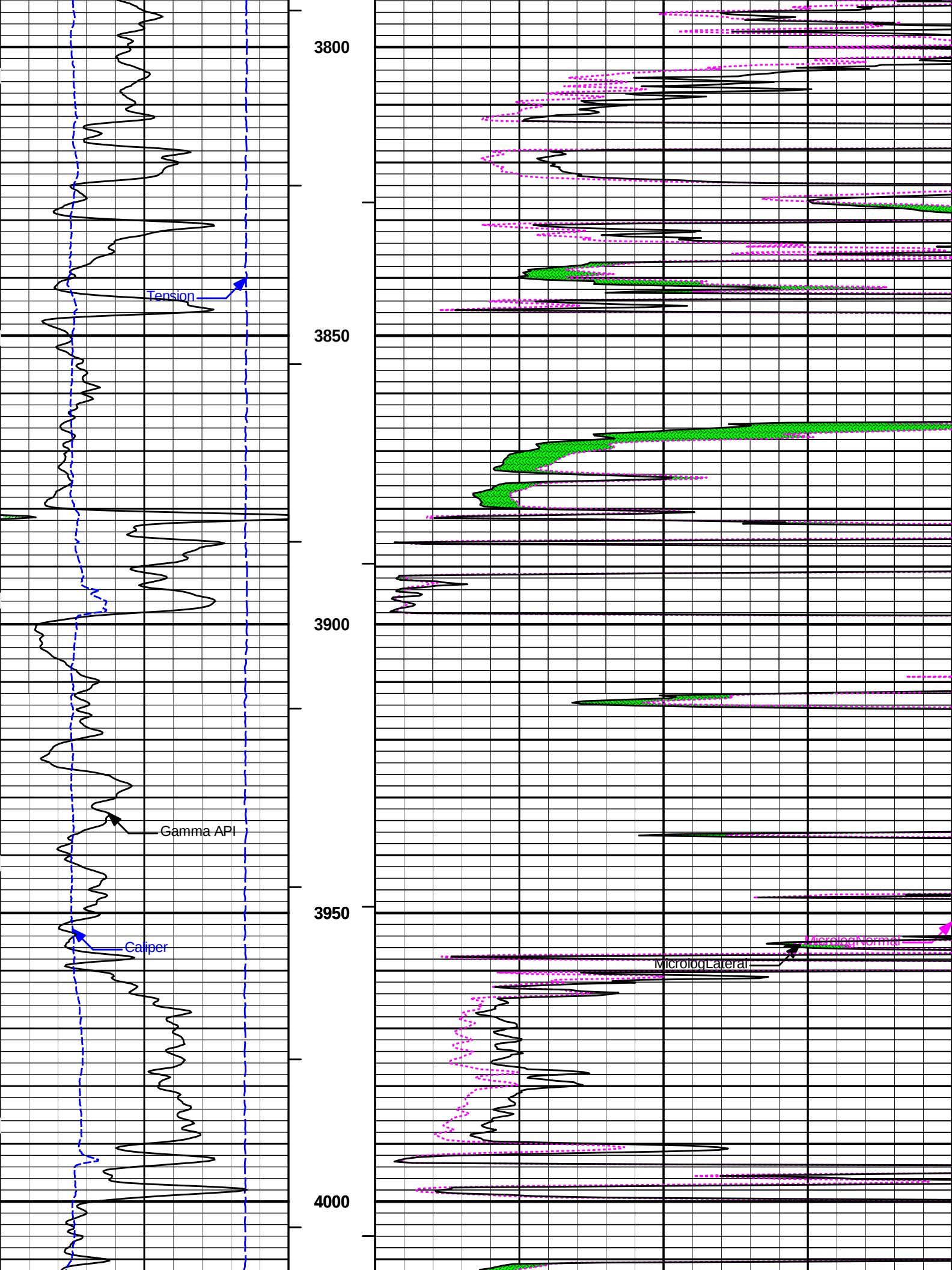
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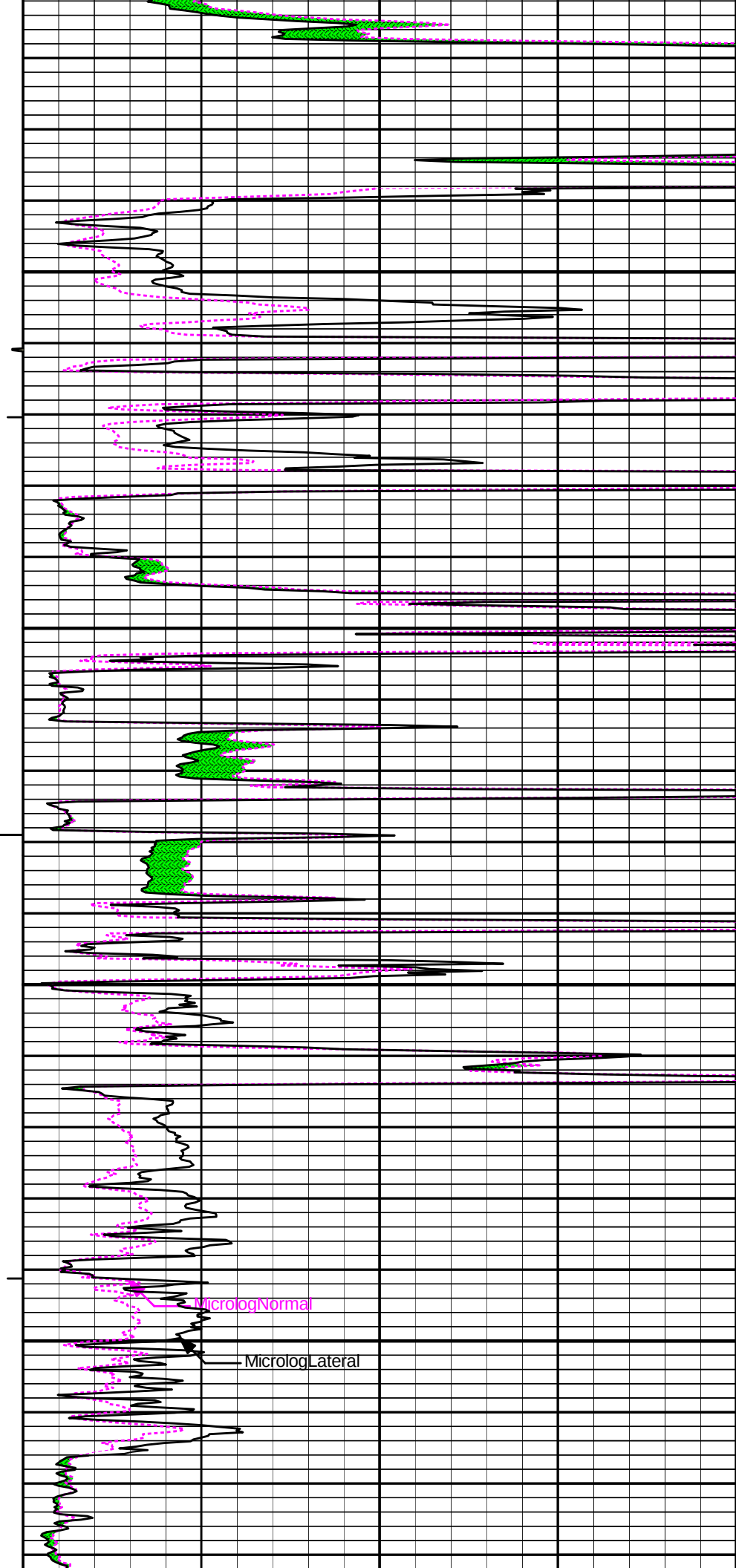
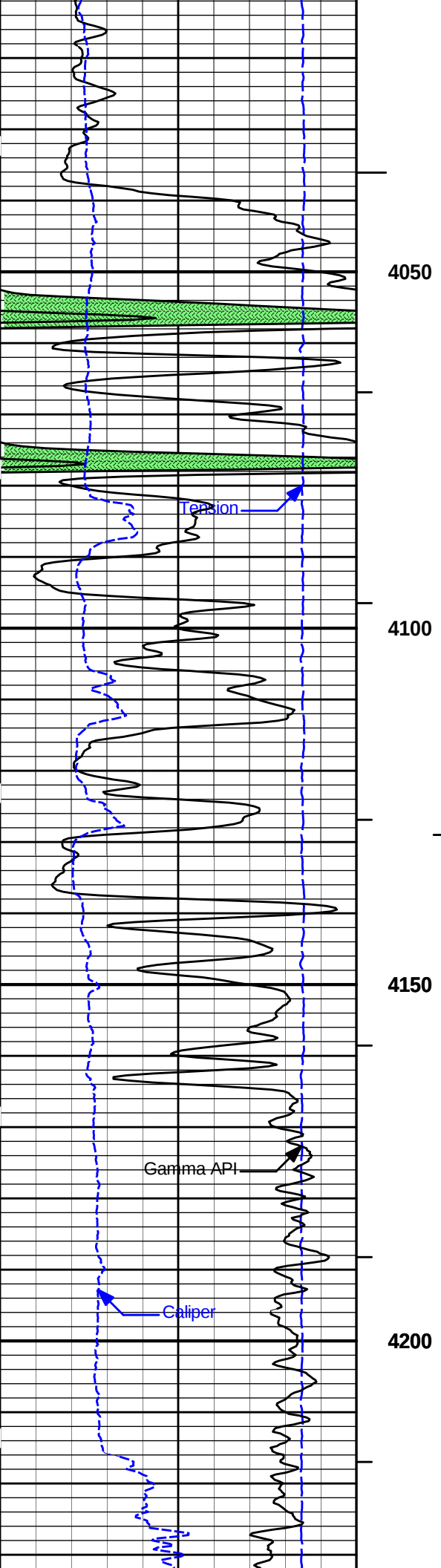
Service Ticket No.: 9499188				API Serial No.: 15-097-21724				PGM Version: WL INSITE R3.4.4 (Build 2)			
CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE						RESISTIVITY SCALE CHANGES					
Date	Sample No.					Type Log	Depth	Scale Up Hole	Scale Down Hole		
Depth-Driller											
Type Fluid in Hole											
Density	Viscosity										
Ph	Fluid Loss										
Source of Sample						RESISTIVITY EQUIPMENT DATA					
Rm @ Meas. Temp		@		@		Run No.	Tool Type & No.	Pad Type	Tool Pos.	Other	
Rmf @ Meas. Temp.		@		@							
Rmc @ Meas. Temp.		@		@							
Source Rmf	Rmc										
Rm @ BHT		@		@							
Rmf @ BHT		@		@							
Rmc @ BHT		@		@							
EQUIPMENT DATA											
GAMMA			ACOUSTIC			DENSITY			NEUTRON		
Run No.	ONE		Run No.			Run No.			Run No.		
Serial No.	11013114		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		

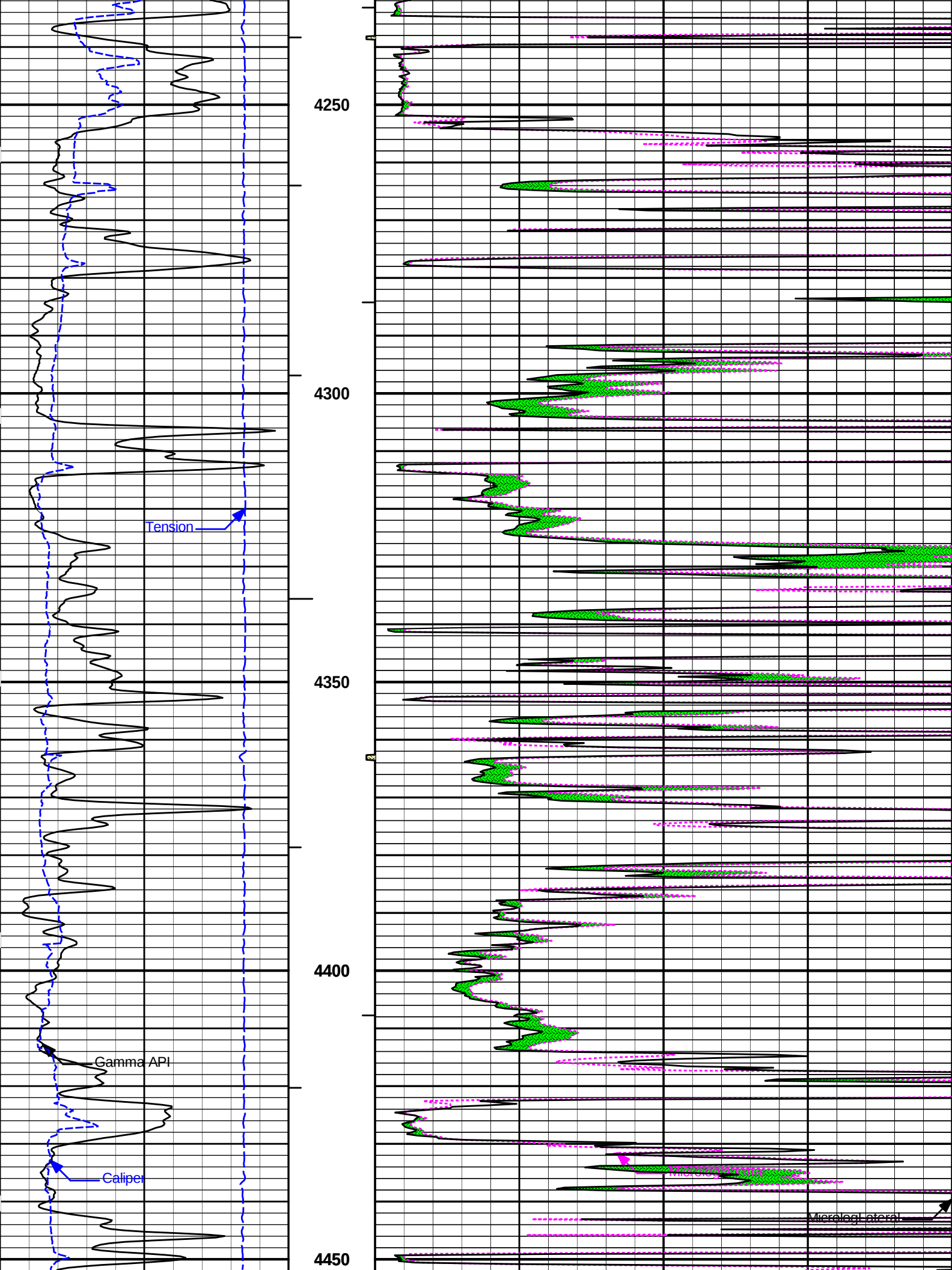
[illegible]

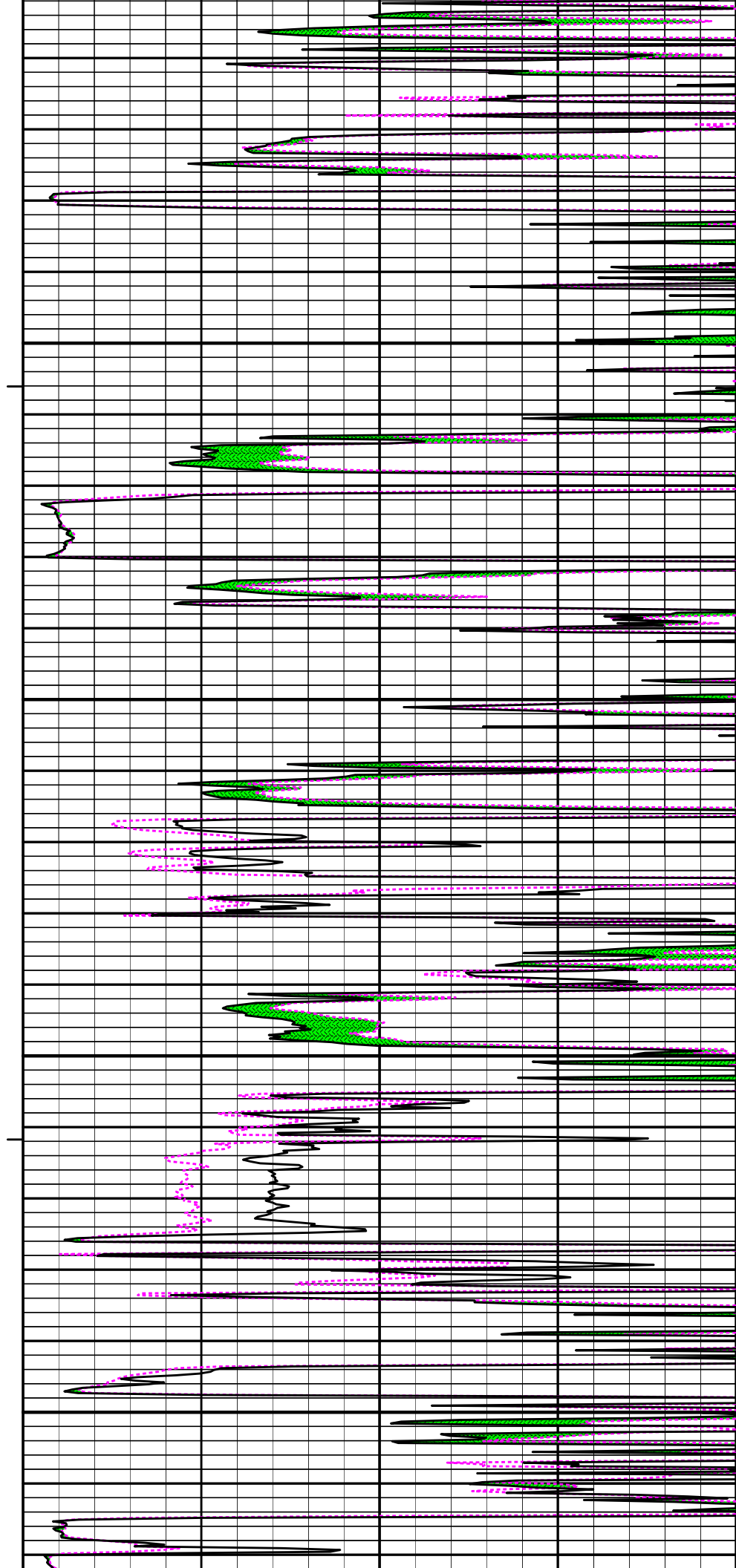
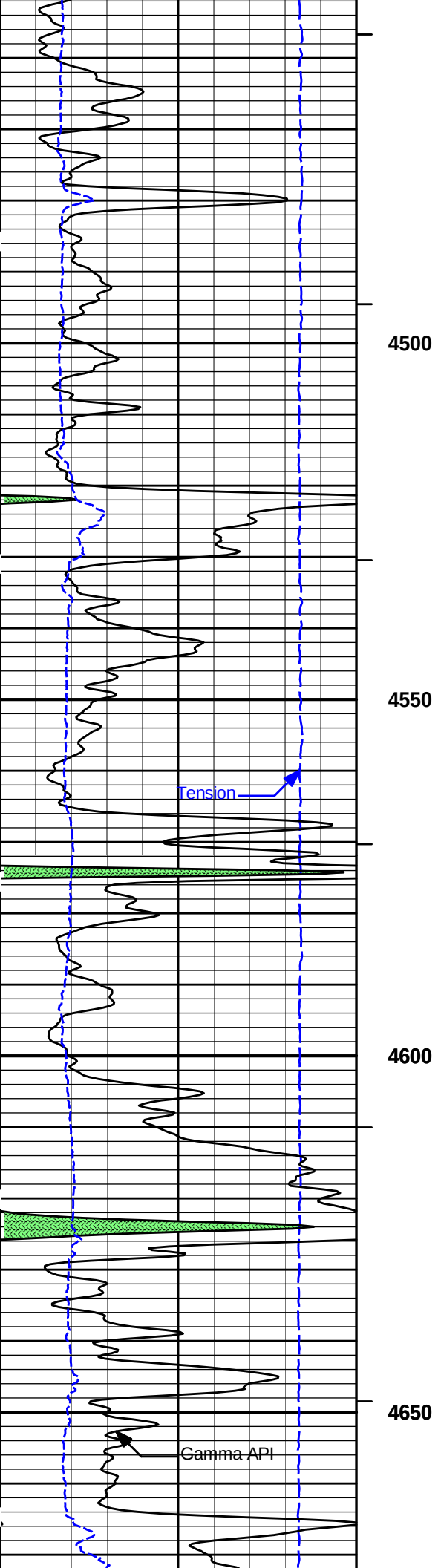


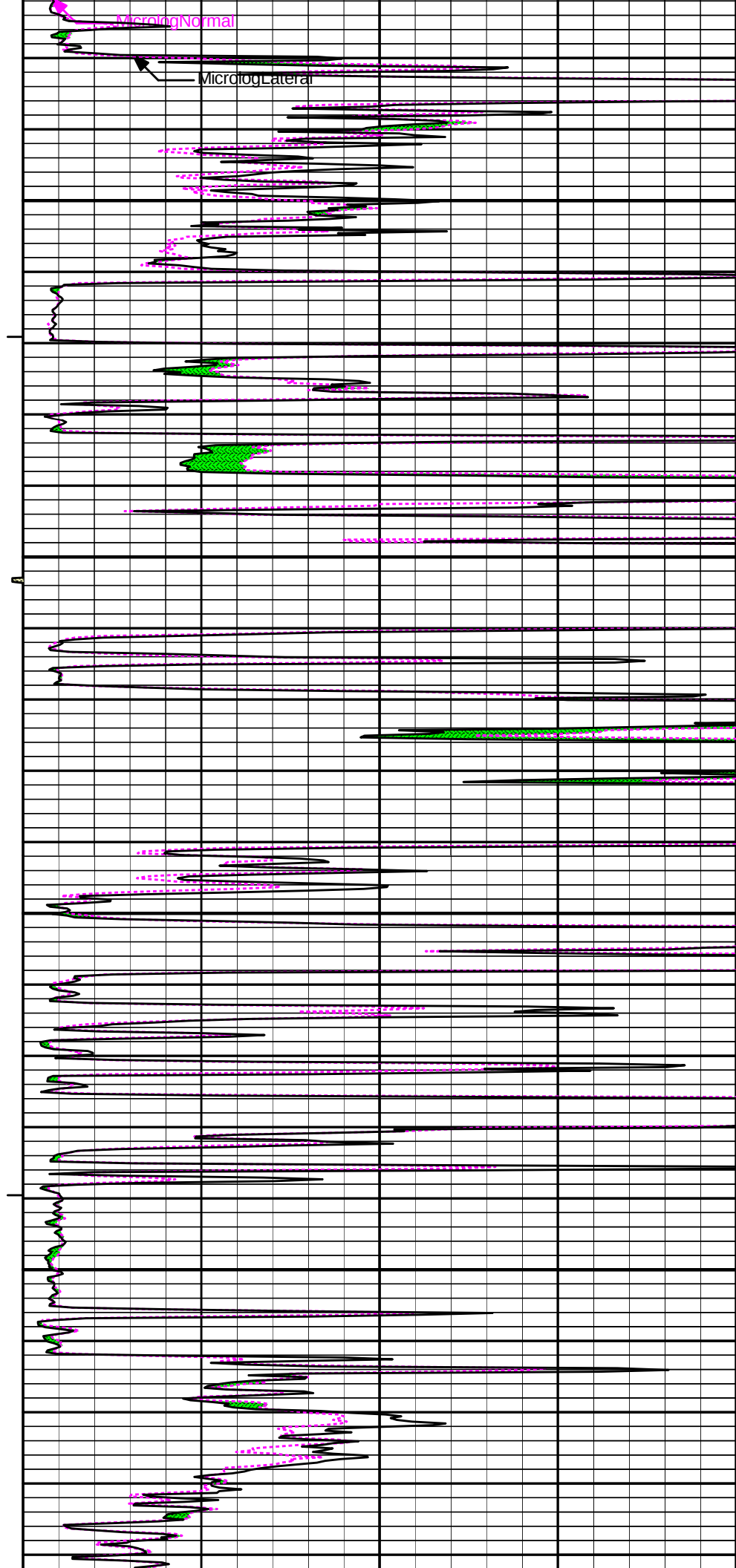
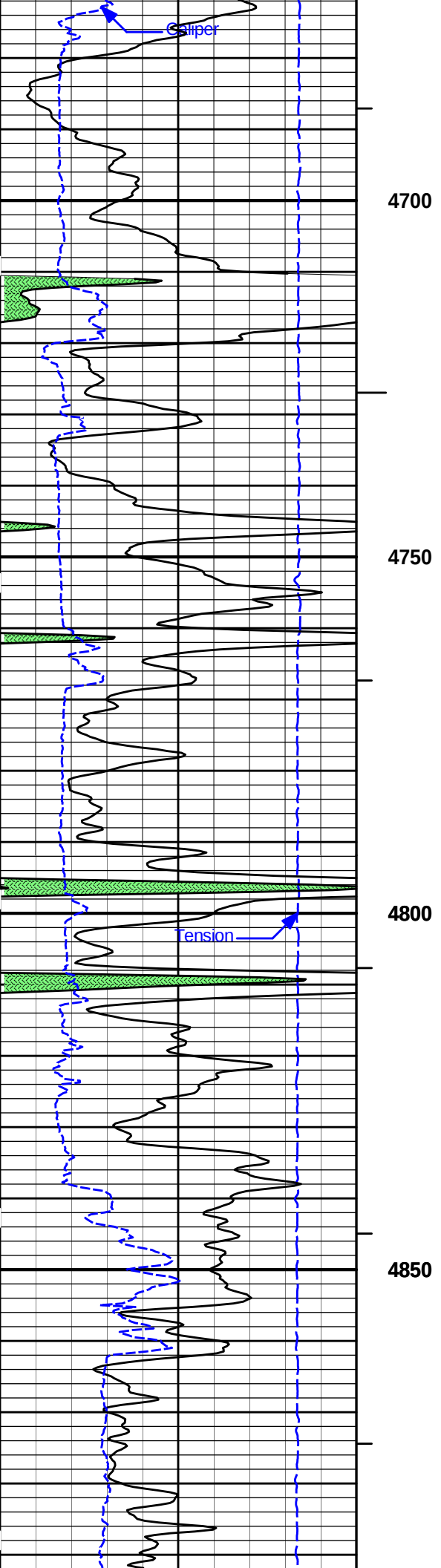


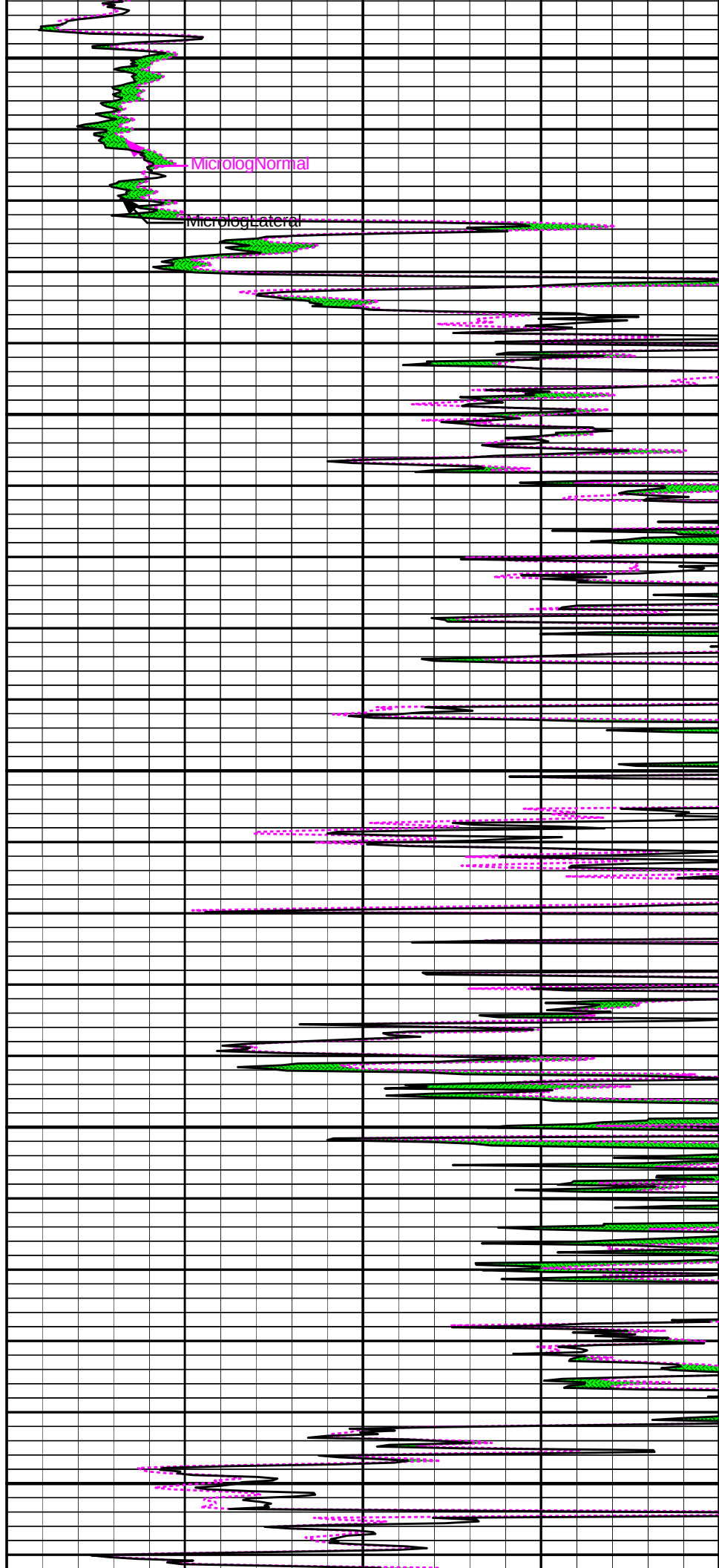
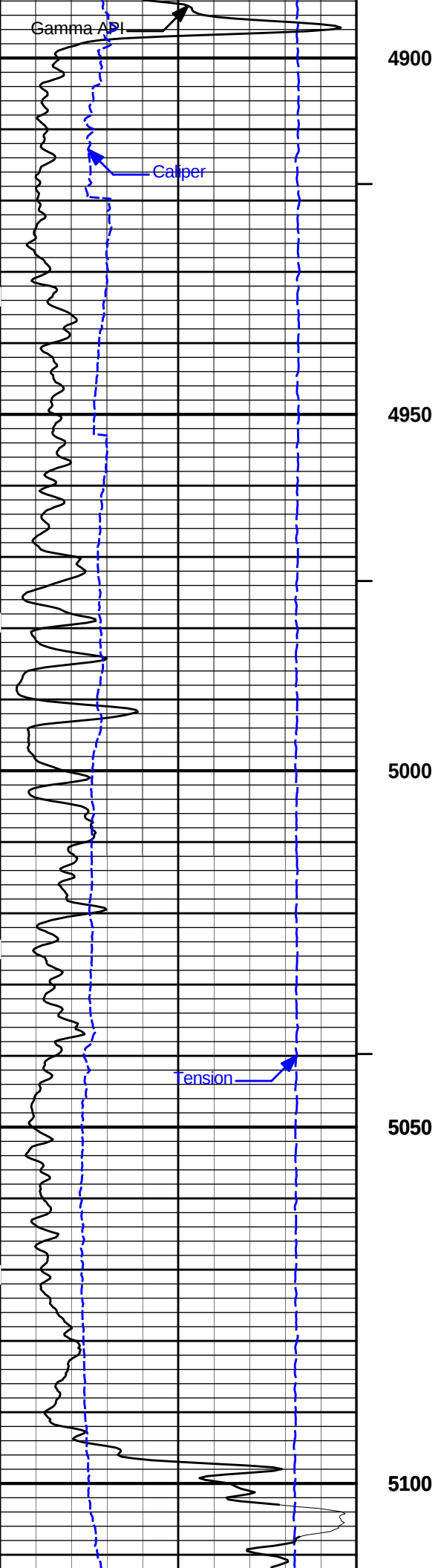


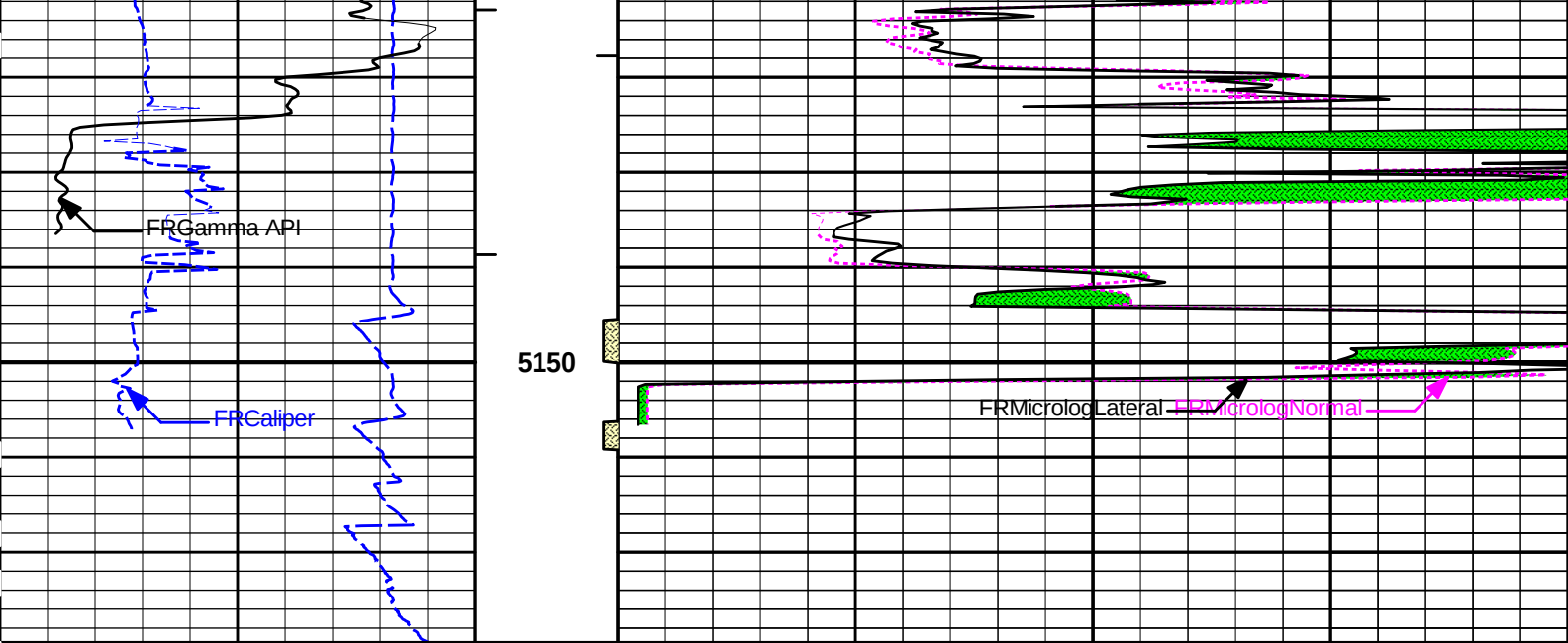












6	Caliper	16	1 : 240	0	MicrologNormal	20
	inches		ft		ohm-metre	
0	Gamma API	150	AHVT	0	MicrologLateral	20
	api				ohm-metre	
15K	Tension	0	BHVT			
	pounds					
			Tension Pull			
			10 0			

HALLIBURTON

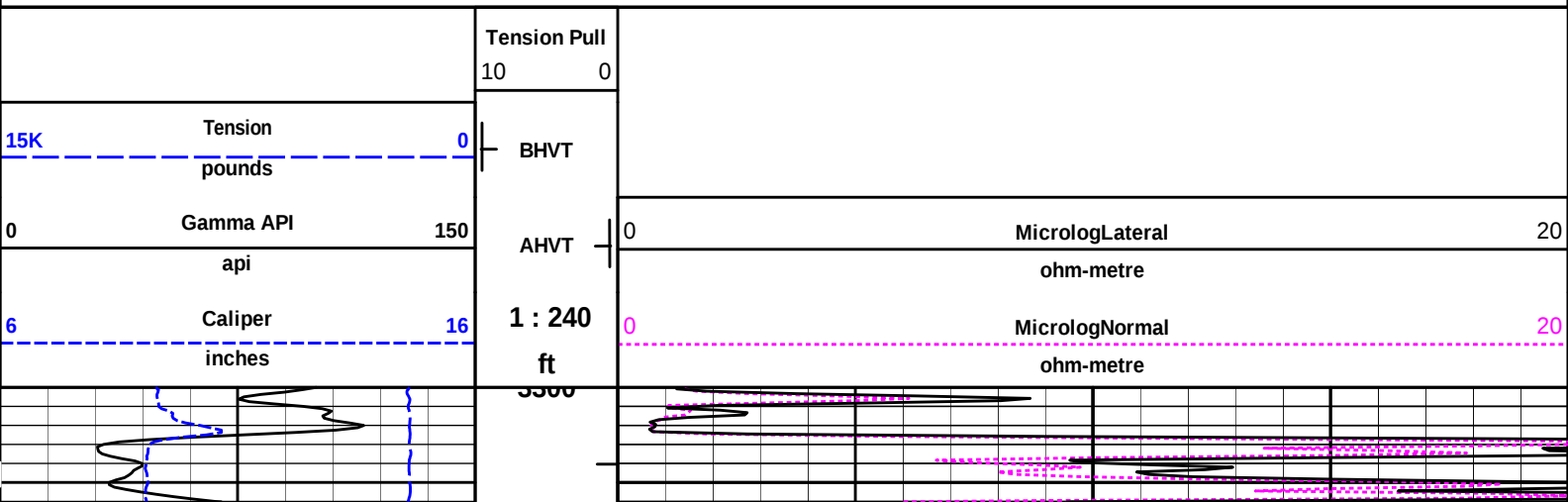
Plot Time: 09-May-12 00:24:09
Plot Range: 3300 ft to 5179.5 ft
Data: CANTON_C_3_20\Well Based\POROSITY MAIN\
Plot File: \\MICROLOG\1_Micro_5_MAIN

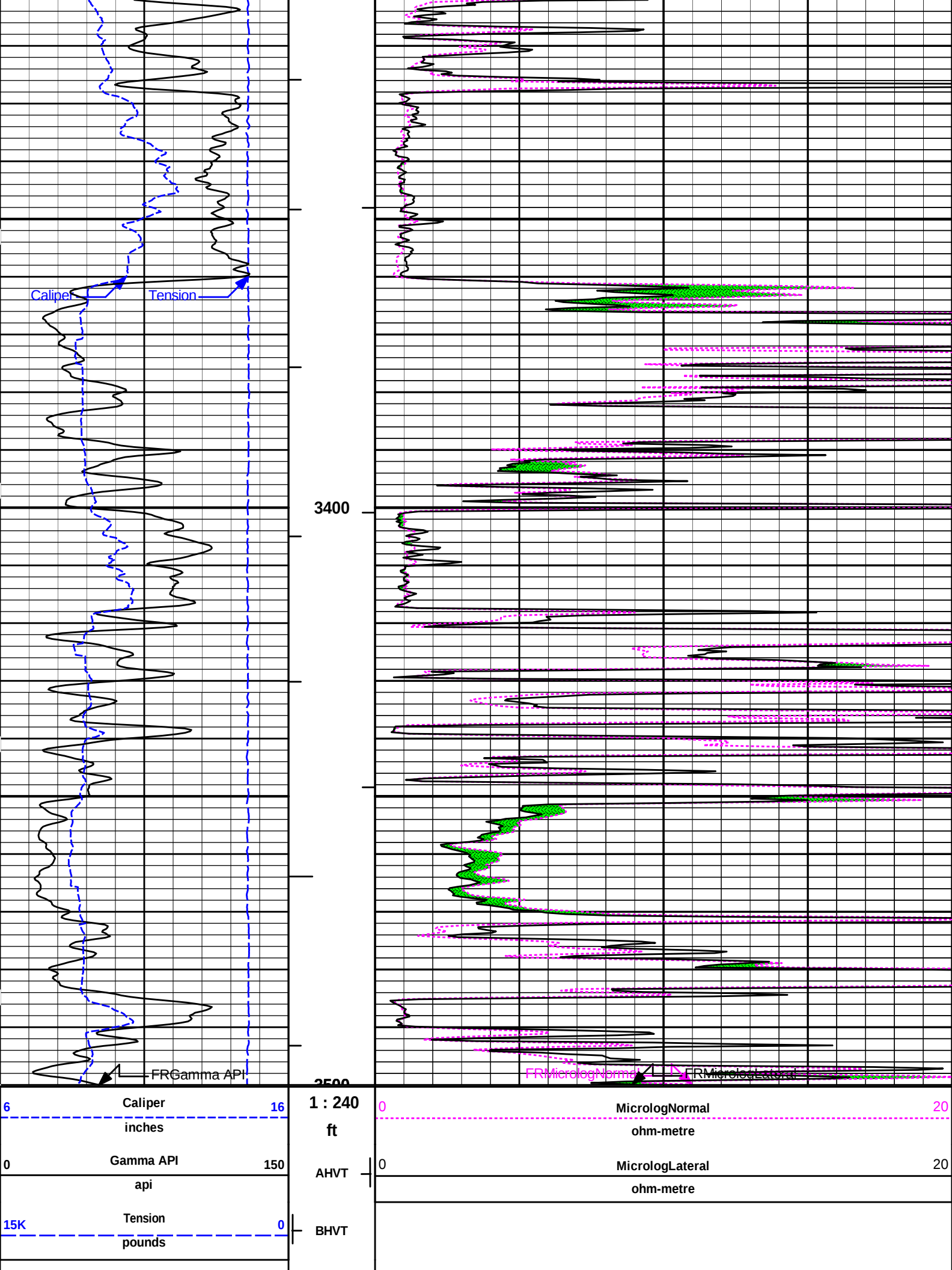
5 INCH MAIN LOG

HALLIBURTON

Plot Time: 09-May-12 00:24:10
Plot Range: 3300 ft to 3500 ft
Data: {ActiveWell}\Well Based\
Plot File: \\MICROLOG\1_Micro_5_RPT

REPEAT SECTION





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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	
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: CANTON_C_3_20\0002 RED_BLACK_SDL\003 08-May-12 20:02 Up @5180.5f				Date: 08-May-12 22:50:48

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name:GTET - 11013113

Engineer:RAMIRO GONZALEZ

Software Version:WL INSITE R3.4.4 (Build 2)

Reference Calibration Date:17-Nov-11 17:56:53

Calibration Date:27-Apr-12 07:01:57

Calibration Version:1

Calibrator Source S/N: TB 150

Calibrator API Reference:225.00 api

Equivalent Calibrator API Reference:228.9 api

Measurement	Measured	Calibrated	Units
Background	15.3	15.4	api
Background + Calibrator	242.6	244.4	api
Calibrator	227.3	228.9	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name:GTET - 11013113

Engineer:CORY HANSON

Software Version:WL INSITE R3.4.4 (Build 2)

Reference Calibration Date:27-Apr-12 07:01:57

Calibration Date:08-May-12 18:10:33

Calibration Version:1

Calibrator Source S/N: TB 150

Calibrator API Reference:225.00 api

Equivalent Calibrator API Reference:228.9 api

Field Verification	Shop	Field	Units
Background	15.4	32.9	api
Background + Calibrator	244.4	253.8	api

Shop	Field	Difference	Tolerance
228.9	220.8	8.1	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name:	DSNT - 10993115	Reference Calibration Date:	03-Nov-11 15:14:03
Engineer:	RAMIRO GONZALEZ	Calibration Date:	11-Jan-12 11:59:51
Software Version:	WL INSITE R3.4.4 (Build 2)	Calibration Version:	1

Logging Source S/N: DSN_382
Tank Serial Number: PV_TANK
Reference value assigned to Tank: 56.100
Snow Block S/N: 01
Calibration Tank Water Temperature: 45 degF
Min. Tool Housing Outside Diameter: 3.625 in

CALIBRATION CONSTANTS			
Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	1.001	1.000	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):	0.2363	0.2358	0.0006	+/- 0.0020
Calibrated Ratio:	10.58	10.56	0.019	+/- 0.050

VERIFIER		
Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0524	0.02000 - 0.09000

PASS/FAIL SUMMARY	
Background Check:	Passed
Gain-Range Check:	Passed
Snow-Block Check:	Passed

DENSITY CALIPER SHOP CALIBRATION

Tool Name:	SDLT - I15M94P73	Reference Calibration Date:	07-Dec-11 13:40:36
Engineer:	RAMIRO GONZALEZ	Calibration Date:	12-Jan-12 12:18:47
Software Version:	WL INSITE R3.4.4 (Build 2)	Calibration Version:	1

CALIBRATION COEFFICIENTS			
Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-3032.47	-2970.52	-7000.00 - -1000.00
Pad Gain	0.0003825	0.0003711	0.000200 - 0.000600
Arm Offset	-570.33	-141.91	-5000.00 - 3000.00
Arm Gain	0.0005102	0.0004732	0.000300 - 0.000700
Arm Power	-0.000005115	-0.000002773	-0.000010 - 0.000010

The ring diameter is computed from: DIAMETER = PAD EXTENSION + ARM EXTENSION + TOOL DIAMETER
Tool Diameter: 4.50 in

CALIBRATION RINGS				
Measurement	Current Reading (Previous Coeff.)	Calibrated (New Coeff.)	Change	Control Limit On New Value

	(Previous Coeff.)	(New Coeff.)	Change	New value
PAD EXTENSION:				
Small Ring (in)	2.04	2.00	-0.04	+/- 0.20
Medium Ring (in)	3.84	3.75	-0.09	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.41	6.50	0.09	+/- 0.20
Medium Ring (in)	8.24	8.25	0.01	+/- 0.20
Large Ring (in)	14.95	15.00	0.05	+/- 0.20

PASS/FAIL SUMMARY	
Calibration-Coefficients Range Check:	Passed
Ring-Measurement Check:	Passed
PASS/FAIL SUMMARY	
Calibration-Coefficients Range Check:	Passed

SPECTRAL DENSITY SHOP CALIBRATION			
Tool Name:	SDLT Pad - I87M06P72	Reference Calibration Date:	20-Feb-12 12:44:22
Engineer:	CORY HANSON	Calibration Date:	20-Feb-12 13:03:33
Software Version:	WL INSITE R3.4.4 (Build 2)	Calibration Version:	1

Logging Source S/N: PV_20791B		
Aluminum Block S/N: PV_63074	Density: 2.589g/cc	Pe: 3.140
Magnesium Block S/N: PV_63386	Density: 1.683g/cc	Pe: 2.594

DENSITY CALIBRATION SUMMARY			
Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0817	1.0027	0.90 - 1.10
Near Dens Gain	1.0632	1.0068	0.90 - 1.10
Near Peak Gain	1.0746	0.9942	0.90 - 1.10
Near Lith Gain	1.0545	0.9802	0.90 - 1.10
Far Bar Gain	1.0114	1.0067	0.90 - 1.10
Far Dens Gain	0.9994	0.9944	0.90 - 1.10
Far Peak Gain	0.9949	0.9893	0.90 - 1.10
Far Lith Gain	0.9794	0.9745	0.90 - 1.10
Near Bar Offset	-0.6323	0.1044	NONE
Near Dens Offset	-0.4623	0.0453	NONE
Near Peak Offset	-0.5325	0.1505	NONE
Near Lith Offset	-0.3766	0.2543	NONE
Far Bar Offset	-0.0242	0.0204	NONE
Far Dens Offset	0.0762	0.1212	NONE
Far Peak Offset	0.1101	0.1579	NONE
Far Lith Offset	0.1984	0.2391	NONE
Near Bar Background	911.58	911.01	700 - 1450
Near Dens Background	298.23	297.49	230 - 480
Near Peak Background	128.45	128.19	100 - 210
Near Lith Background	160.14	160.02	125 - 260
Far Bar Background	545.05	544.11	450 - 900
Far Dens Background	214.04	212.30	175 - 345
Far Peak Background	83.73	82.75	70 - 140
Far Lith Background	86.48	87.96	75 - 145

CALIBRATION BLOCK SUMMARY			
Measurement	Current Value	Calibrated Value	Control Limit

Measurement	Reading (Previous Coef)	(New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.684	1.683	-0.001	+/- 0.015
Pe	2.541	2.547	0.006	+/- 0.150
ALUMINUM				
Density (g/cc)	2.575	2.589	0.015	+/- 0.01500
Pe	3.082	3.091	0.009	+/- 0.150

TOOL SUMMARY				
Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	0.0007	+/- 0.0110	0.0005	+/- 0.0140
Magnesium Block	-0.0003	+/- 0.0110	-0.0004	+/- 0.0140
Aluminum Block	-0.0007	+/- 0.0110	0.0007	+/- 0.0140
Resolution	9.61	6.00 - 11.50	9.83	6.00 - 11.50
Internal Verifier(B+D+P+L)	1497	1200 - 2700	927	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 - I87M06P72	Reference Calibration Date:	20-Feb-12 13:03:33
Engineer:	CORY HANSON	Calibration Date:	08-May-12 18:08:57
Software Version:	WL INSITE R3.4.4 (Build 2)	Calibration Version:	1

Pad Temperature: 81.9 degF

DENSITY FIELD CALIBRATION SUMMARY				
Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1496.704	1494.856	-1.848	15.590
Far (B+D+P+L) cps	927.120	929.436	2.316	16.483
Near Resolution	9.61	9.77	0.160	0.50
Far Resolution	9.83	10.46	0.630	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 - I15M94P73	Reference Calibration Date:	07-Dec-11 13:57:35
Engineer:	RAMIRO GONZALEZ	Calibration Date:	18-Jan-12 11:12:23
Software Version:	WL INSITE R3.4.4 (Build 2)	Calibration Version:	1

CALIBRATION COEFFICIENT SUMMARY

Measurement	Micro Log Normal		Micro Log Lateral		Units
	Measured	Calibrated	Measured	Calibrated	
Tool Zero	0.01	-0.08	-0.47	0.00	ohmm
Calibration Point #1	0.09	0.00	-0.47	0.00	ohmm
Calibration Point #2	19.99	20.00	20.04	20.00	ohmm
Internal Reference	19.92	19.93	19.99	19.95	ohmm

Measurement	Micro Log Normal Tool Value		Micro Log Lateral Tool Value		Units
Tool Zero	0.05		0.04		V
Calibration Point #1	21.79		0.03		V
Calibration Point #2	5297.60		6889.98		V
Internal Reference	5279.03		6873.94		V

MICRO LOG FIELD CHECK						
Tool Name:	Microlog Pad - I15M94P73			Reference Calibration Date:	18-Jan-12 11:12:23	
Engineer:	CORY HANSON			Calibration Date:	08-May-12 18:07:19	
Software Version:	WL INSITE R3.4.4 (Build 2)			Calibration Version:	1	

Measurement	Micro Log Normal		Micro Log Lateral		Units
	Shop	Field	Shop	Field	
Tool Zero	-0.08	-0.08	0.00	-0.00	ohmm
Internal Reference	19.93	20.01	19.95	20.05	ohmm

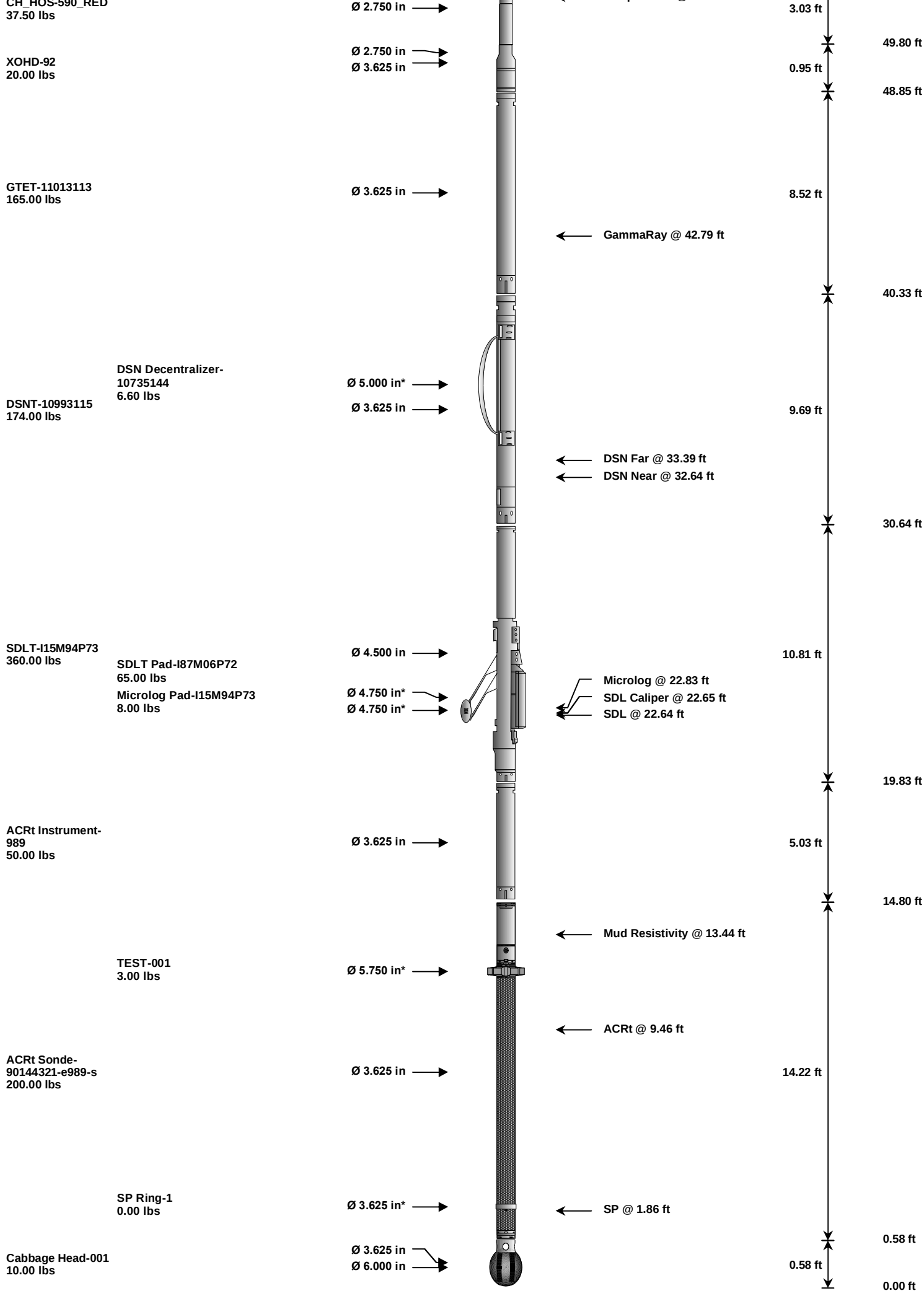
Summary				
Signal	Shop	Field	Difference	Tolerance
Microlog Normal	19.93	20.01	-0.08	+/- 0.80
Microlog Lateral	19.95	20.05	-0.10	+/- 0.80

CALIBRATION SUMMARY						
Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-11013113						
Gamma Ray Calibrator	228.9	220.8	-----	8.1	+/- 9.00	api
DSNT-10993115						
Snow-Block Porosity	0.0524	-----	-----	0.0000	+/- -.--	decg
SDLT-I15M94P73						
Pad Extension	3.75	-----	-----	0.00	+/-0.20	in
Ring Diameter	8.25	-----	-----	0.00	+/-0.20	in
SDLT Pad-I87M06P72						
Near(B+D+P+L)	1496.704	1494.856	-----	1.848	+/-15.590	cps
Far(B+D+P+L)	927.120	929.436	-----	-2.316	+/-16.483	cps
Microlog Pad-I15M94P73						
MicroLog Normal	19.93	20.01	-----	-0.08	+/-0.80	ohmm
MicroLog Lateral	19.95	20.05	-----	-0.10	+/-0.80	ohmm

Data: CANTON_C_3_20\0002 RED_BLACK_SDL\003 08-May-12 20:02 Up @5180.5f	Date: 09-May-12 00:11:01
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HALLIBURTON	
TOOL STRING DIAGRAM REPORT	

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
				Temperature @ 51.80 ft	52.83 ft	



Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max.Log. Speed (fpm)
CH_HOS	Hostile Cable Head with Load Cell	590_RED	37.50	3.03	49.80	300.00
XOHD	Hostile to Dits Cross Over	92	20.00	0.95	48.85	300.00
GTET	Gamma Telemetry Tool	11013113	165.00	8.52	40.33	60.00
DSNT	Dual Spaced Neutron	10993115	174.00	9.69	30.64	60.00
DCNT	DSN Decentralizer	10735144	6.60	5.13	*	33.97
SDLT	Spectral Density Tool	I15M94P73	360.00	10.81	19.83	60.00
SDLP	Density Insite Pad	I87M06P72	65.00	2.55	*	22.04
MICP	Microlog Pad	I15M94P73	8.00	1.00	*	22.33
ACRt	Array Compensated True Resistivity Instrument Section	989	50.00	5.03	14.80	300.00
ACRt	Array Compensated True Resistivity	90144321-e989-s	200.00	14.22	0.58	300.00
SP	SP Ring	1	0.00	0.25	*	1.86
SO	STANDOFF	001	3.00	0.59	*	11.58
CBHD	Cabbage Head	001	10.00	0.58	0.00	300.00
Total			1,099.10	52.83		
						* Not included in Total Length and Length Accumulation.
Data: CANTON_C_3_20\0002 RED_BLACK_SDL\001 08-May-12 19:22 Up @712.5f					Date: 08-May-12 23:03:13	

COMPANY	HERMAN L LOEB		
WELL	CANTON C #3-20		
FIELD	GLICK		
COUNTY	KIOWA	STATE	KANSAS
HALLIBURTON		MICROLOG	