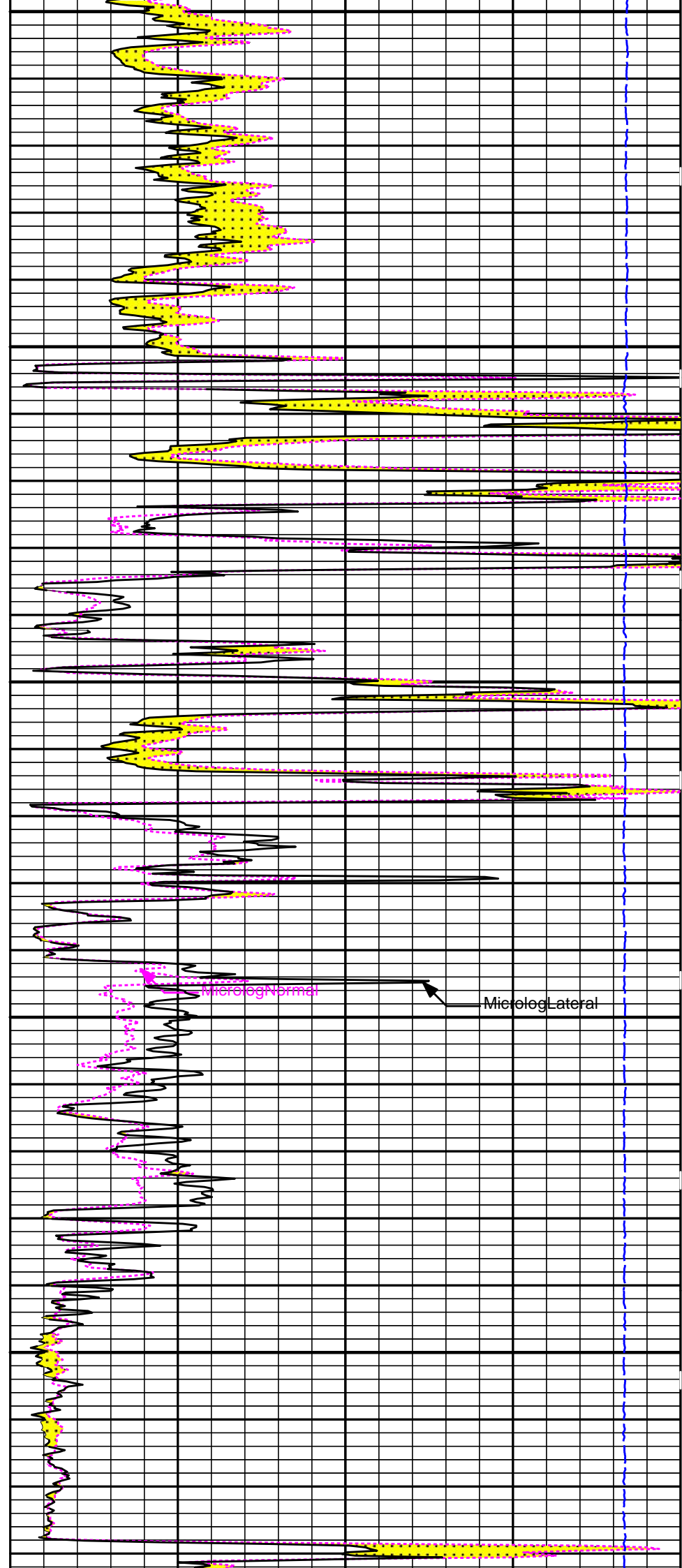


4000

Gamma API

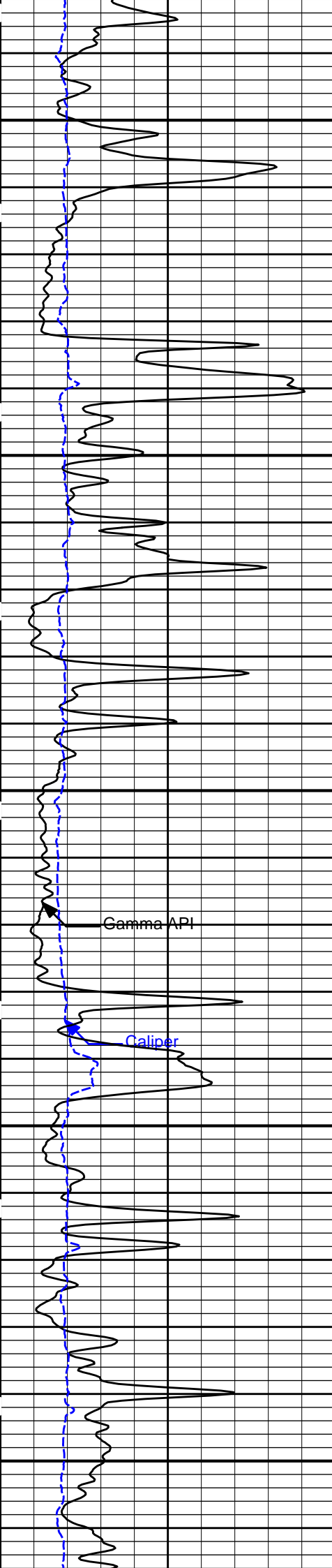
Caliper

4100



MicrologNormal

MicrologLateral



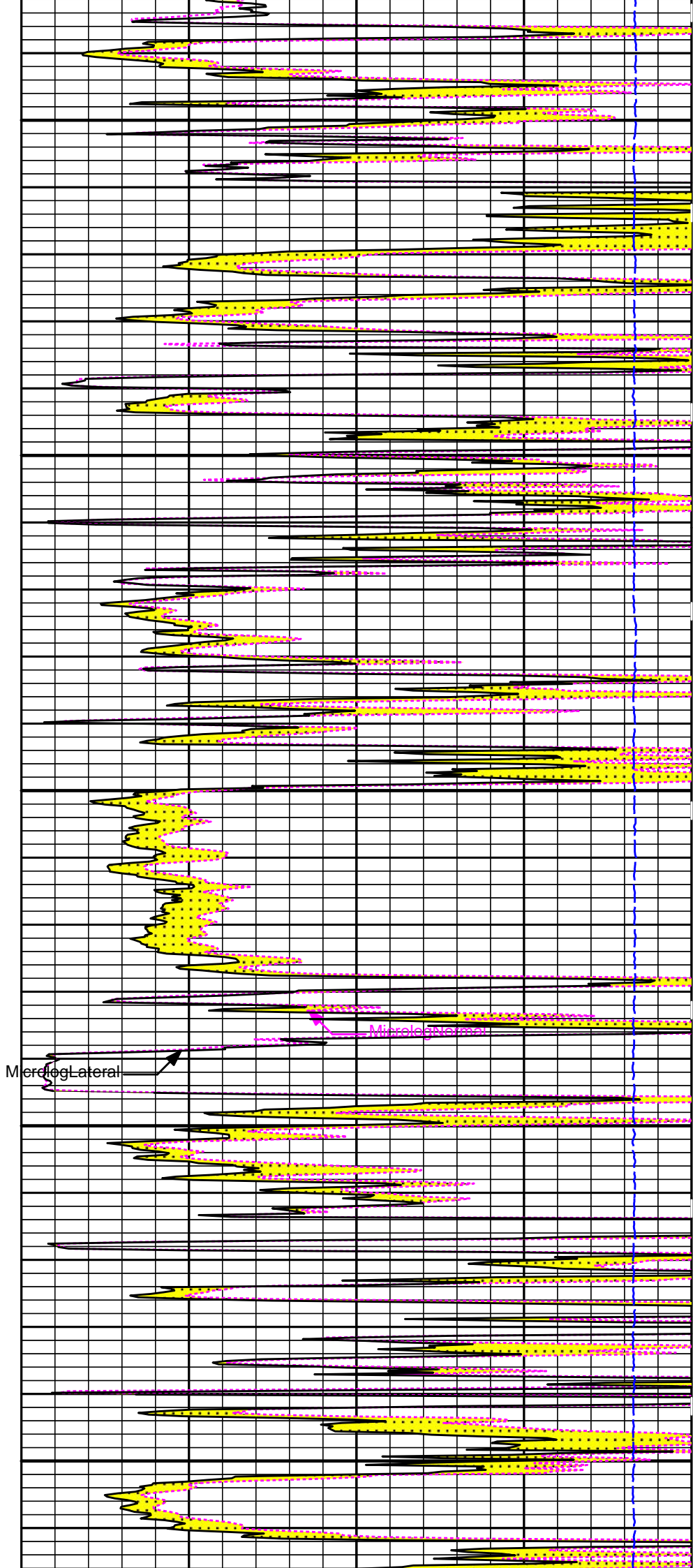
4200

4300

4400

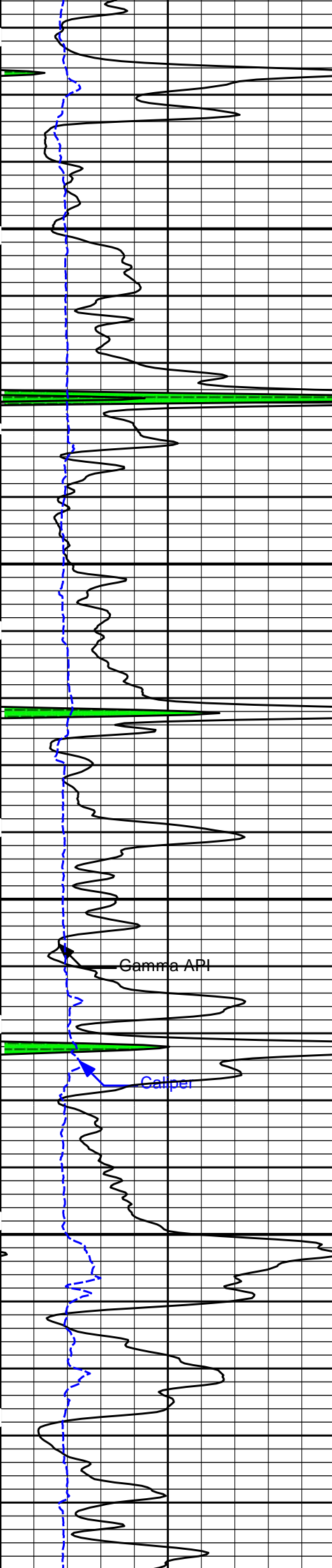
Gamma API

Caliper



Microlog Lateral

Microlog Lateral

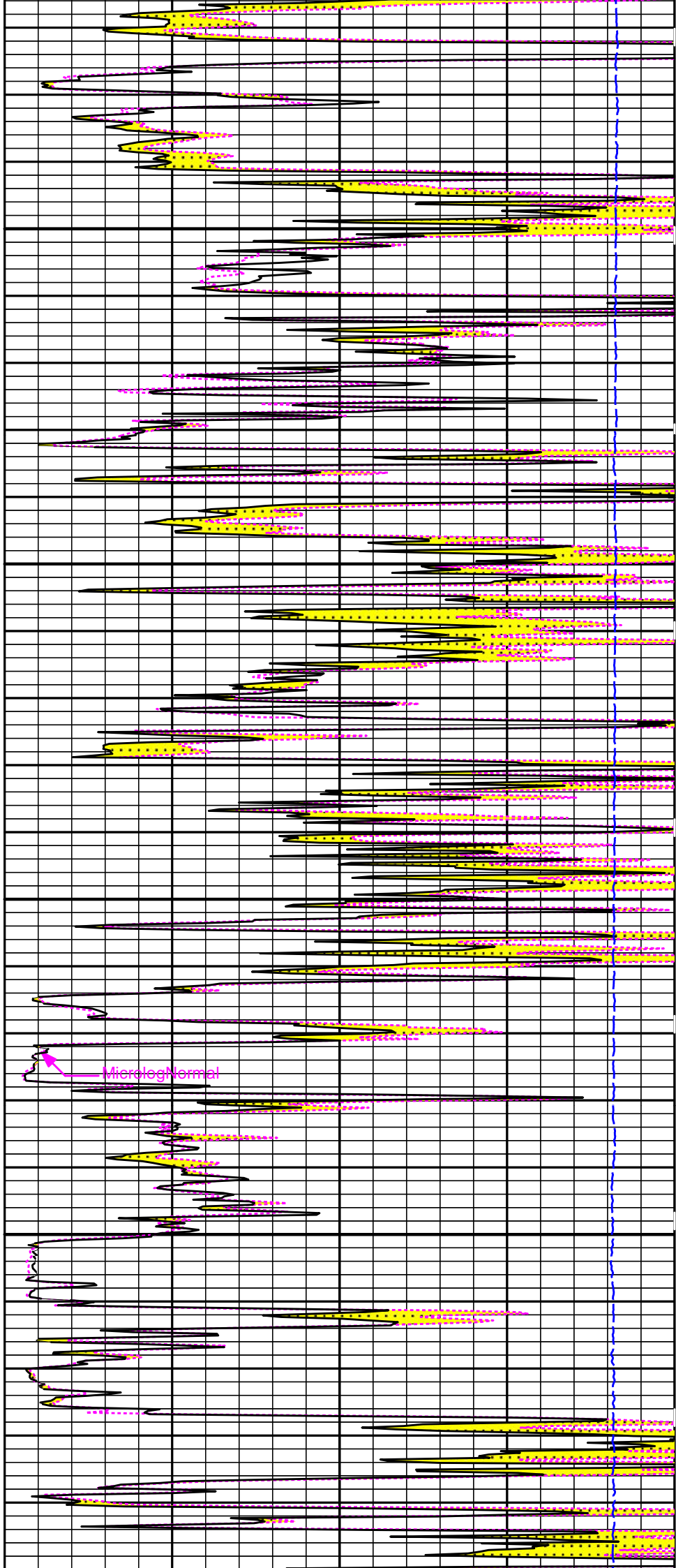


4500

Gamma API

Caliper

4600



MicrologNormal

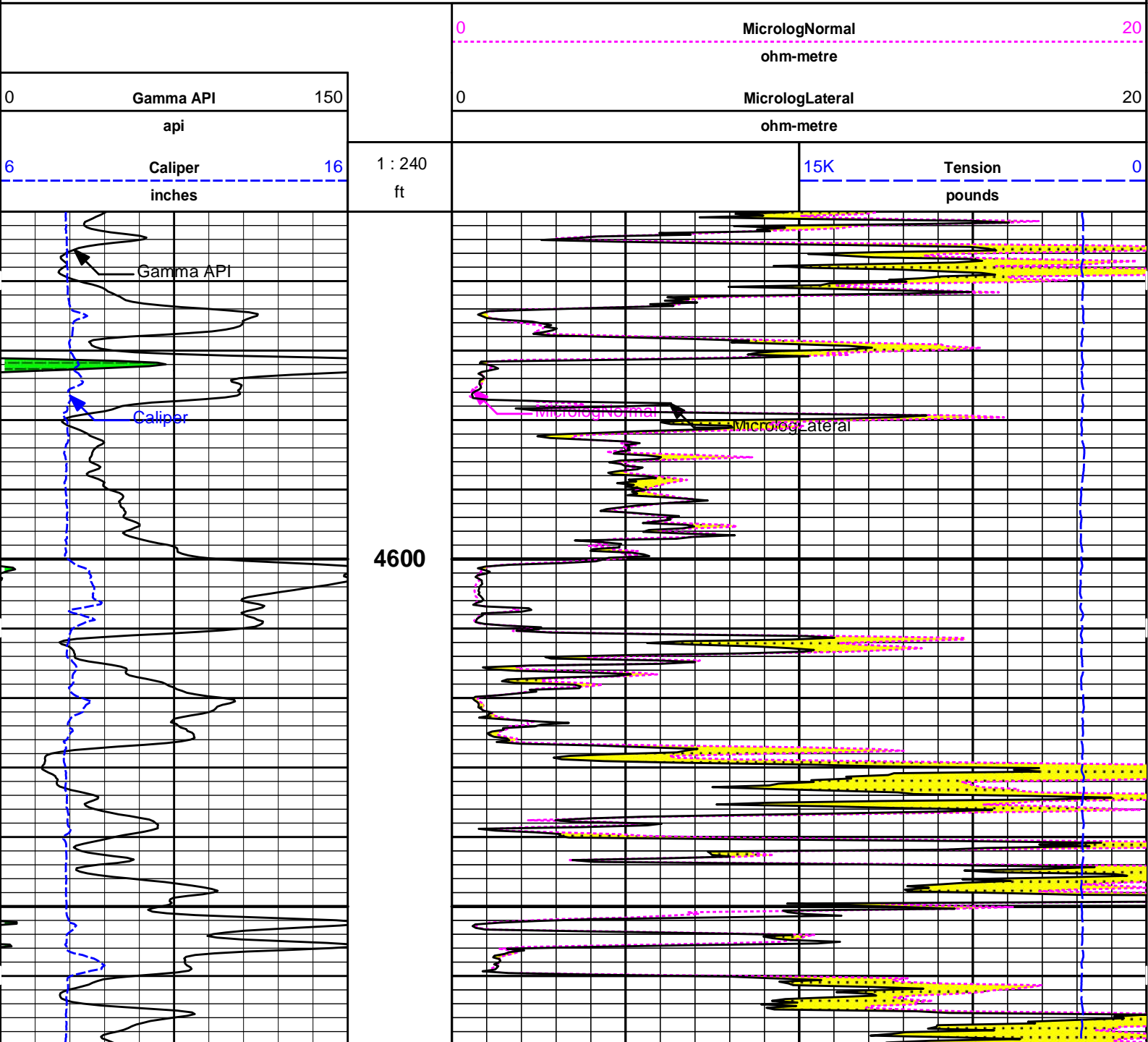
5 IN = 100 FT MD MAIN PASS

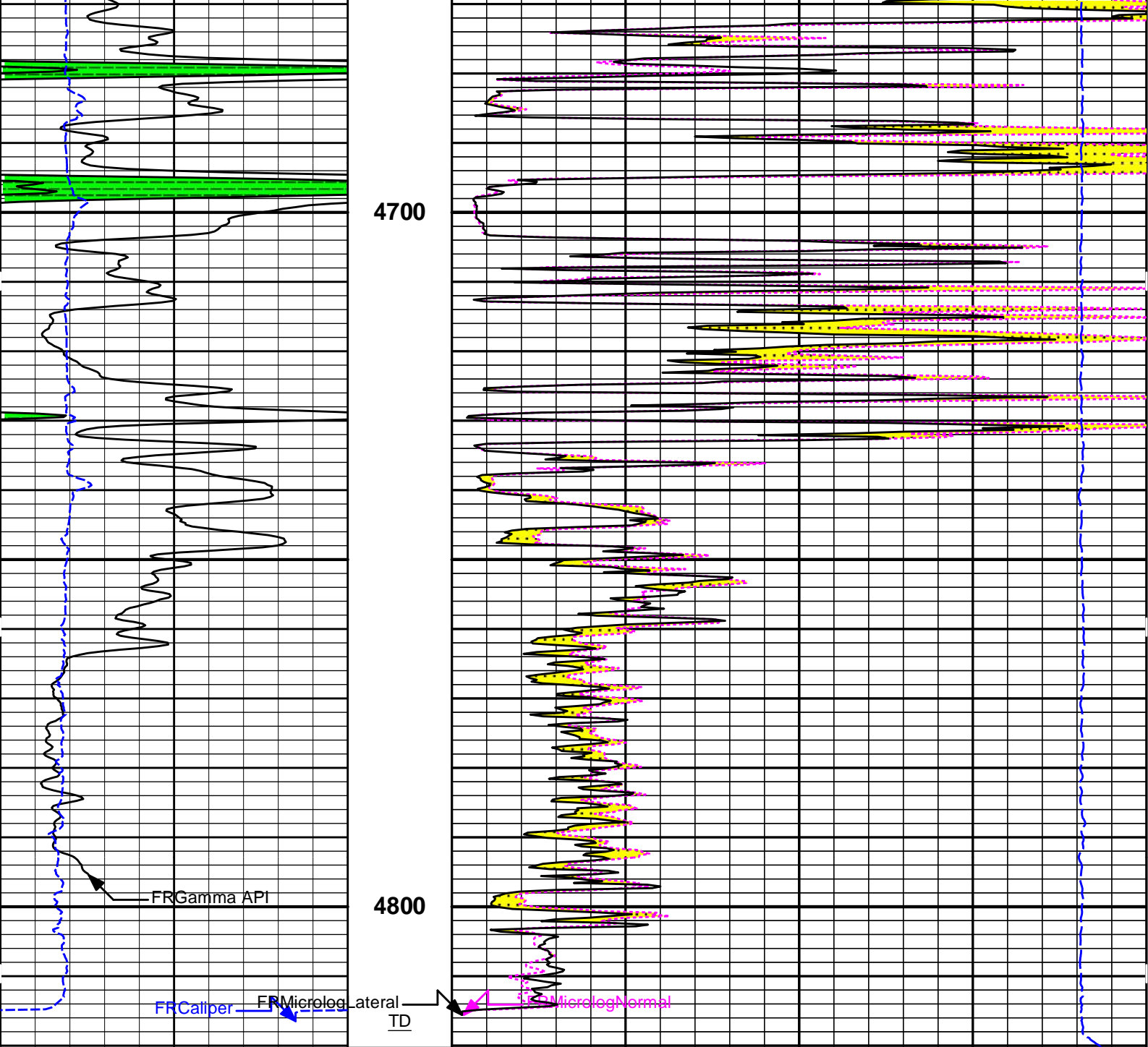
HALLIBURTON

Plot Time: 17-Jun-18 19:48:34
Plot Range: 4550 ft to 4820.33 ft
Data: HERMAN_LILSPICYWell Based\REPEAT\
Plot File: \\-LOCAL-HERMAN_LILSPICYWell Based\MICROLOG\ELR_MICROLOG_5_REPEAT

5 INCH REPEAT PASS

5 IN = 100 FT MD REPEAT PASS





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: 17-Jun-18 19:48:35
 Plot Range: 4550 ft to 4820.33 ft
 Data: HERMAN_LILSPICYWell Based\REPEAT\
 Plot File: \\LOCAL-HERMAN_LILSPICYWell Based\MICROLOG\ELR_MICROLOG_5_REPEAT

5 INCH REPEAT PASS

**5 IN = 100 FT MD
 REPEAT PASS**

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	CSTR	Compressive Strength	1000.00	psia
	SHARED	ST	Surface Temperature	75.0	degF
	SHARED	TD	Total Well Depth	4820.00	ft
	SHARED	BHT	Bottom Hole Temperature	140.0	degF
	SHARED	SVTM	Navigation and Survey Master Tool	NONE	
	SHARED	AZTM	High Res Z Accelerometer Master Tool	GTET	
	SHARED	TEMM	CBM Temperature Master Tool	GTET	
	SHARED	SOCI	Source of Casing Information	Parameters	
	SHARED	MSAL	Water-base mud filtrate salinity	0.00	ppm
	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	
	Rwa / CrossPlot	BHSM	Borehole Size Source Tool	SDLT2	
	Rwa / CrossPlot	ROIN	Input for RO Calculation	Rwa	
	GTET	GROK	Process Gamma Ray?	Yes	
	GTET	GEOK	Process Gamma Ray EVR?	No	
	GTET	TPOS	Tool Position for Gamma Ray Tools.	Eccentered	
	GTET	BHSM	Borehole Size Source Tool	SDLT2	
	DSNT2	DNOK	Process DSN?	Yes	
	DSNT2	DEOK	Process DSN EVR?	No	
	DSNT2	NLIT	Neutron Lithology	Limestone	
	DSNT2	DNSO	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.250	in
	DSNT2	DNTT	Temperature Correction Type	None	
	DSNT2	DPRS	DSN Pressure Correction Type	None	
	DSNT2	SHCO	View More Correction Options	No	
	DSNT2	UTVD	Use TVD for Gradient Corrections?	No	
	DSNT2	LHWT	Logging Horizontal Water Tank?	No	
	DSNT2	UCLA	Classic Neutron Parameter utilized?	No	

DSNT2	BHSM	Borehole Size Source Tool	SDLT2	
SDLT2	CLOK	Process Caliper Outputs?	Yes	
Microlog Pad2	MLOK	Process MicroLog Outputs?	Yes	
SDLT Pad2	DNOK	Process Density?	Yes	
SDLT Pad2	DNOK	Process Density EVR?	No	
SDLT Pad2	CB	Logging Calibration Blocks?	No	
SDLT Pad2	SPVT	SDLT Pad Temperature Valid?	Yes	
SDLT Pad2	DTWN	Disable temperature warning	No	
SDLT Pad2	DMA	Formation Density Matrix	2.710	g/cc
SDLT Pad2	DFL	Formation Density Fluid	1.000	g/cc
SDLT Pad2	BHSM	Borehole Size Source Tool	SDLT2	

BOTTOM

Data: HERMAN_LILSPICY\0001 GTET-DSNT2-SDLT2\004 17-Jun-18 18:39 Up @4821.8f

Date: 17-Jun-18 19:09:05

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name: GTET - 11013114 **Reference Calibration Date:** 20-May-18 14:50:21
Engineer: JORGE ORLANDO PEREZ **Calibration Date:** 05-Jun-18 11:57:37
Software Version: WL INSITE R5.6.0 (Build 2) **Calibration Version:** 1

Calibrator Source S/N: TB-146

Calibrator API Reference:225.00 api

Equivalent Calibrator API Reference:228.9 api

Measurement	Measured	Calibrated	Units
Background	35.2	35.7	api
Background + Calibrator	260.9	264.7	api
Calibrator	225.7	228.9	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name: GTET - 11013114 **Reference Calibration Date:** 05-Jun-18 11:57:37
Engineer: JORGE ORLANDO PEREZ **Calibration Date:** 05-Jun-18 12:00:58
Software Version: WL INSITE R5.6.0 (Build 2) **Calibration Version:** 1

Calibrator Source S/N: TB-146

Calibrator API Reference:225.00 api

Equivalent Calibrator API Reference:228.9 api

Field Verification	Shop	Field	Units
Background	35.7	34.1	api
Background + Calibrator	264.7	265.7	api
Calibrator	228.9	231.6	api

Shop	Field	Difference	Tolerance
228.9	231.6	-2.7	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name: DSNT2 - 10993115 **Reference Calibration Date:** 13-Mar-18 16:36:23
Engineer: JORGE ORLANDO PEREZ **Calibration Date:** 05-Jun-18 11:51:00
Software Version: WL INSITE R5.6.0 (Build 2) **Calibration Version:** 1

Logging Source S/N: DSN-424

Tank Serial Number: 12345678

Reference value assigned to Tank: 56.100

Snow Block S/N: 12345678

Calibration Tank Water Temperature: 68 degF

CALIBRATION CONSTANTS			
Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	0.99503	0.99632	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):	0.2354	0.2358	0.0004	+/- 0.0020
Calibrated Ratio:	10.5458	10.5595	0.014	+/- 0.050

VERIFIER		
Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0626	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:	DSNT2 - 10993115	Reference Calibration Date:	05-Jun-18 11:51:00
Engineer:	JORGE ORLANDO PEREZ	Calibration Date:	05-Jun-18 11:52:12
Software Version:	WL INSITE R5.6.0 (Build 2)	Calibration Version:	1

Logging Source S/N: DSN-424
 Snow Block S/N: 12345678

NEUTRON FIELD-CHECK SUMMARY				
	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0626	0.0622	-0.0004	+/- 0.0150

PASS/FAIL SUMMARY	
Block Change Check:	Passed
Snow Block Stat Check:	Passed
Temperature Check:	Passed

DENSITY CALIPER SHOP CALIBRATION			
Tool Name:	SDLT2 - 12153520	Reference Calibration Date:	05-Jun-18 10:31:07
Engineer:	JORGE ORLANDO PEREZ	Calibration Date:	05-Jun-18 10:38:49
Software Version:	WL INSITE R5.6.0 (Build 2)	Calibration Version:	1
Host Tool Name:	DSNT - 10993115		

CALIBRATION COEFFICIENTS			
Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-4928.64	-5107.21	-7000.00 - -1000.00
Pad Gain	0.0003765	0.0003757	0.0002000 - 0.0006000
Arm Offset	-3652.41	-3183.13	-5000.00 - 3000.00
Arm Gain	0.0005508	0.0005255	0.000300 - 0.000700
Arm Power	-0.000006501	-0.000005130	-0.000010000 - 0.000010000

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 Coef.)	Calibrated (New Coef.)	Change	Control Limit On New Value

PAD EXTENSION:

Small Ring (in)	2.07	2.00	-0.07	+/- 0.20
Medium Ring (in)	3.83	3.75	-0.08	+/- 0.20

RING DIAMETER:

Small Ring (in)	6.41	6.50	0.09	+/- 0.20
Medium Ring (in)	8.22	8.25	0.03	+/- 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: SDLT2 - 12153520	Reference Calibration Date: 05-Jun-18 10:38:49
Engineer: JORGE ORLANDO PEREZ	Calibration Date: 05-Jun-18 10:41:06
Software Version: WL INSITE R5.6.0 (Build 2)	Calibration Version: 1

MEASURED CALIPER VALUES

Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.83	3.75	-0.08	+/- 0.10
Ring Diameter	8.25	8.30	0.05	+/- 0.15

PASS/FAIL SUMMARY

Pad Extension Check:	Passed
Diameter Check:	Passed

MICRO LOG SHOP CALIBRATION

Tool Name: Microlog Pad2 - 12153520	Reference Calibration Date: 15-Mar-18 10:04:39
Engineer: JORGE ORLANDO PEREZ	Calibration Date: 05-Jun-18 10:45:37
Software Version: WL INSITE R5.6.0 (Build 2)	Calibration Version: 1
Host Tool Name: DSNT - 10993115	

CALIBRATION COEFFICIENT SUMMARY

Measurement	Micro Log Normal		Micro Log Lateral		Units
	Measured	Calibrated	Measured	Calibrated	
Tool Zero	-0.12	-0.13	0.00	0.00	ohmm
Calibration Point #1	0.02	0.00	0.00	0.00	ohmm
Calibration Point #2	20.09	20.00	20.04	20.00	ohmm
Internal Reference	19.95	19.86	20.05	20.01	ohmm

Measurement	Micro Log Normal Tool Value		Micro Log Lateral Tool Value		Units
Tool Zero		-0.47		0.42	V
Calibration Point #1		35.56		0.39	V
Calibration Point #2		5395.57		6946.36	V
Internal Reference		5358.24		6950.67	V

MICRO LOG FIELD CHECK

Tool Name: Microlog Pad2 - 12153520	Reference Calibration Date: 05-Jun-18 10:45:37
Engineer: JORGE ORLANDO PEREZ	Calibration Date: 05-Jun-18 10:46:09
Software Version: WL INSITE R5.6.0 (Build 2)	Calibration Version: 1

Measurement	Micro Log Normal		Micro Log Lateral		Units
	Shop	Field	Shop	Field	
Tool Zero	-0.13	-0.15	0.00	0.00	ohmm

Internal Reference	19.86	19.87	20.01	20.02	ohmm
Summary					
Signal	Shop	Field	Difference	Tolerance	
Microlog Normal	19.86	19.87	-0.01	+/- 0.80	
Microlog Lateral	20.01	20.02	-0.01	+/- 0.80	

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name: SDLT Pad2 - 10809130	Reference Calibration Date: 07-Jun-18 10:44:05
Engineer: JORGE ORLANDO PEREZ	Calibration Date: 07-Jun-18 11:05:54
Software Version: WL INSITE R5.6.0 (Build 2)	Calibration Version: 1

Logging Source S/N: 5471GW
 Aluminum Block S/N: EL RENO STD ALUMINUM Density: 2.581g/cc Pe: 3.170
 Magnesium Block S/N: EL RENO Density: 1.687g/cc Pe: 2.594

DENSITY CALIBRATION SUMMARY			
Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0433	1.0481	0.90 - 1.10
Near Dens Gain	1.0146	1.0272	0.90 - 1.10
Near Peak Gain	1.0349	1.0557	0.90 - 1.10
Near Lith Gain	1.0501	1.0457	0.90 - 1.10
Far Bar Gain	1.0059	1.0078	0.90 - 1.10
Far Dens Gain	0.9982	0.9997	0.90 - 1.10
Far Peak Gain	0.9938	0.9979	0.90 - 1.10
Far Lith Gain	0.9753	0.9775	0.90 - 1.10

Near Bar Offset	-0.3213	-0.3667	NONE
Near Dens Offset	-0.0548	-0.1665	NONE
Near Peak Offset	-0.2185	-0.3946	NONE
Near Lith Offset	-0.4067	-0.3700	NONE
Far Bar Offset	-0.0635	-0.0805	NONE
Far Dens Offset	-0.0133	-0.0260	NONE
Far Peak Offset	-0.0225	-0.0562	NONE
Far Lith Offset	0.0490	0.0335	NONE

Near Bar Background	880.73	882.81	700 - 1450
Near Dens Background	290.88	290.05	230 - 480
Near Peak Background	126.80	125.98	100 - 210
Near Lith Background	156.87	157.45	125 - 260
Far Bar Background	609.52	609.12	450 - 900
Far Dens Background	234.72	235.06	175 - 345
Far Peak Background	92.66	92.87	70 - 140
Far Lith Background	94.94	97.17	75 - 145

CALIBRATION BLOCK SUMMARY				
Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.687	1.687	0.000	+/- 0.015
Pe	2.552	2.561	0.009	+/- 0.150
ALUMINUM				
Density (g/cc)	2.580	2.580	-0.000	+/- 0.01500
Pe	3.135	3.134	-0.001	+/- 0.150

TOOL SUMMARY				
Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits

QUALITY				
Background	-0.0003	+/- 0.0110	0.0020	+/- 0.0140
Magnesium Block	-0.0001	+/- 0.0110	-0.0017	+/- 0.0140
Aluminum Block	-0.0004	+/- 0.0110	0.0010	+/- 0.0140
Resolution	8.91	6.00 - 11.50	9.36	6.00 - 11.50
Internal Verifier(B+D+P+L)	1456	1200 - 2700	1034	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 Pad2 - 10809130	Reference Calibration Date: 07-Jun-18 11:05:54
Engineer: JORGE ORLANDO PEREZ	Calibration Date: 07-Jun-18 11:09:06
Software Version: WL INSITE R5.6.0 (Build 2)	Calibration Version: 1

Pad Temperature: 89.3 degF

DENSITY FIELD CALIBRATION SUMMARY				
Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1456.282	1452.072	-4.210	15.392
Far (B+D+P+L) cps	1034.223	1035.923	1.700	17.128
Near Resolution	8.91	8.95	0.040	0.50
Far Resolution	9.36	9.27	-0.090	1.00

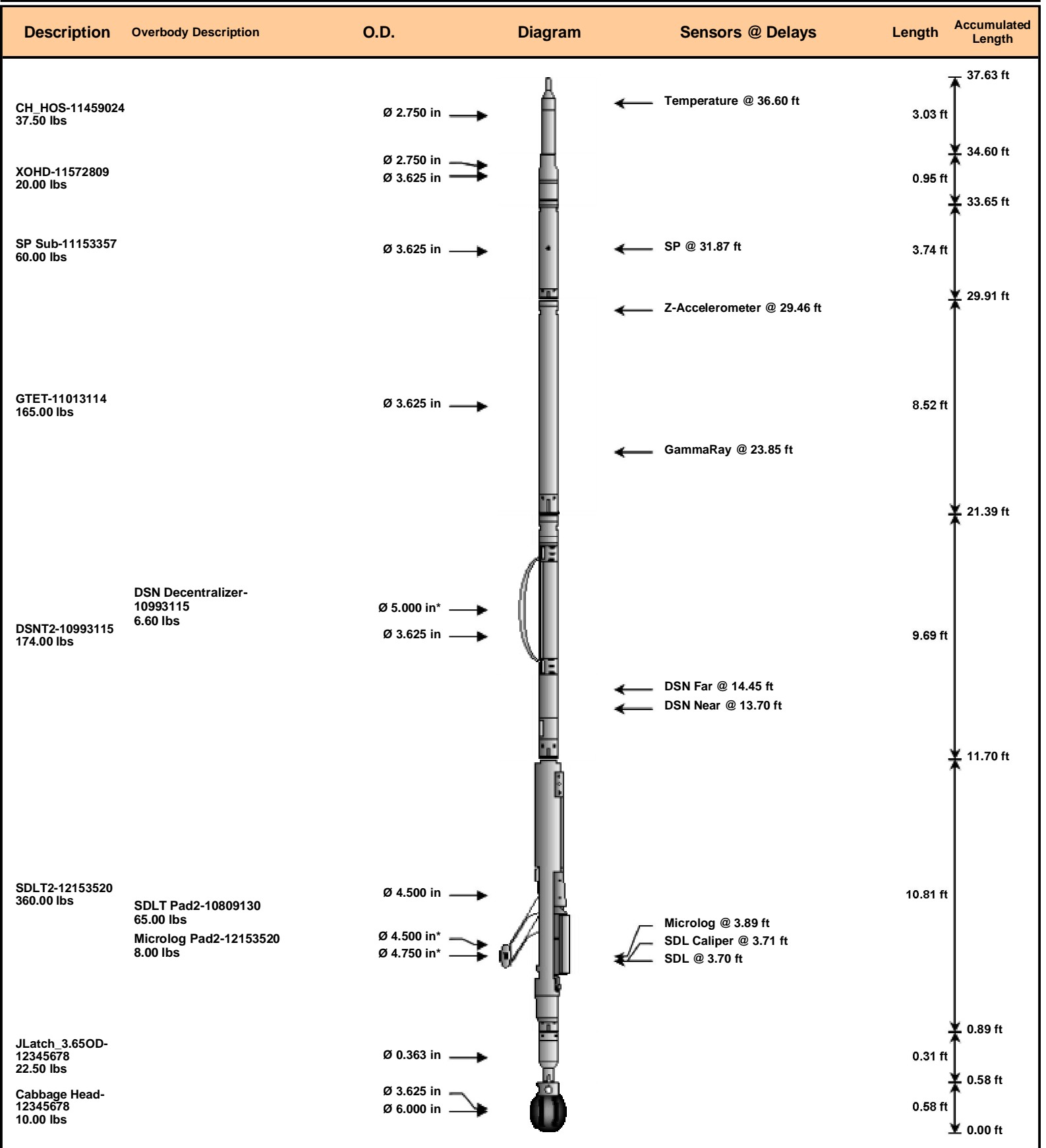
PASS/FAIL SUMMARY	
Bkg Quality Check:	Passed
Bkg Resolution Check:	Passed
Bkg Verification Check:	Passed

CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-11013114						
Gamma Ray Calibrator	228.9	231.6	-----	-2.7	+/- 9.00	api
DSNT2-10993115						
Snow-Block Porosity	0.0626	0.0622	-----	0.0004	+/- 0.0150	decp
SDLT2-12153520						
Pad Extension	3.75	3.75	-----	0.00	+/-0.10	in
Ring Diameter	8.25	8.30	-----	-0.05	+/-0.15	in
Microlog Pad2-12153520						
MicroLog Normal	19.86	19.87	-----	-0.01	+/-0.80	ohmm
MicroLog Lateral	20.01	20.02	-----	-0.01	+/-0.80	ohmm
SDLT Pad2-10809130						
Near(B+D+P+L)	1456.282	1452.072	-----	4.210	+/-15.392	cps
Far(B+D+P+L)	1034.223	1035.923	-----	-1.700	+/-17.128	cps

Data: HERMAN_LILSPICY\0001 GTET-DSNT2-SDLT2\IDLE Date: 17-Jun-18 19:10:44

TOOL STRING DIAGRAM REPORT



Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max.Log. Speed (fpm)
CH_HOS	Hostile Cable Head with Load Cell	11459024	37.50	3.03	34.60	300.00
XOHD	Hostile to Dits Cross Over	11572809	20.00	0.95	33.65	300.00
SP	SP Sub	11153357	60.00	3.74	29.91	300.00
GTET	Gamma Telemetry Tool	11013114	165.00	8.52	21.39	60.00
DSNT	Dual Spaced Neutron	10993115	174.00	9.69	11.70	60.00
DCNT	DSN Decentralizer	10993115	6.60	5.13 *	15.03	300.00
SDLT	Spectral Density Tool	12153520	360.00	10.81	0.89	60.00
SDLP	Density Insite Pad	10809130	65.00	2.55 *	3.10	60.00
MICP	Microlog Pad	12153520	8.00	1.00 *	3.39	60.00
J Latch	J Latch 3.65 O.D.	12345678	22.50	0.31	0.58	300.00
CBHD	Cabbage Head	12345678	10.00	0.58	0.00	300.00
Total			928.60	37.63		

COMPANY	HERMAN L. LOEB LLC		
WELL	LIL SPICY 1-16		
FIELD	WILDCAT		
COUNTY	KIOWA	STATE	KANSAS
HALLIBURTON		MICRO LOG	