HALLIBURTON

MICROLOG

RUSSELL OIL, INC. | NEWMAN #32-1 | SHERIDAN | KANSAS

COMPANY / WELL / FIELD/BLOCK / COUNTY / STATE

COMPANY **RUSSELL OIL, INC.**

WELL **NEWMAN #32-1**

FIELD/BLOCK

COUNTY **SHERIDAN** STATE **KANSAS**

API No. 15-179-21464-00-00

Location (SHL) E2 NW NW SW
2310' FSL & 360' FWL

Sect. 32 Twp. 9S Rge. 26W

Other Services:
ACRT
SDL-DSN
MICROLOG

Permanent Datum	GL	Elev. 2665.0 ft	Elev.: K.B. 2670.0 ft
Log measured from	KB	5.0 ft above perm. Datum	D.F. 2668.0 ft
Drilling measured from	KB		G.L. 2665.0 ft

Date		09-Nov-19					
Run No.		1					
Depth - Driller		4400.0 ft					
Depth - Logger		4400.0 ft					
Bottom - Logged Interval		4390					
Top - Logged Interval		2200					
Casing - Driller		8.625 in	@ 286.0 ft	@		@	
Casing - Logger		286.0 ft					
Bit Size		7.875 in		@		@	
Type Fluid in Hole		Water Based Mud					
Density	Viscosity	9.20 g/cc	58.00 s/qt				
PH	Fluid Loss	10.00 pH	8.0 cptm				
Source of Sample		FLOWLINE					
Rm @ Meas. Temperature		1.08 ohmm	@ 72.00 degF	@		@	
Rmf @ Meas. Temperature		0.88 ohmm	@ 70.00 degF	@		@	
Rmc @ Meas. Temperature		1.27 ohmm	@ 70.00 degF	@		@	
Source Rmf	Rmc	MEAS	MEAS				
Rm @ BHT		0.63 ohmm	@ 128.0 degF	@		@	
Time Since Circulation		05:00 hr					
Time on Bottom		09-Nov-19 07:32					
Max. Rec. Temperature		128.00 degF	@ 4400.0 ft	@		@	
Equipment	Location	12156883	EL RENO, OK				
Recorded By		WHITLOCK					
Witnessed By		KITT NOAH					

Fold here

Service Ticket No.: 906098766

API No.: 15-179-21464-00-00

PGM Version: WL INSITE R6.2.7 (Build 7)

CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE

RESISTIVITY SCALE CHANGES

	Type Log	Depth	Scale Up Hole	Scale Down Hole

RESISTIVITY EQUIPMENT DATA

	Run No.	Tool Type & No.	Pad Type	Tool Pos.	Other
Source of Sample					
Rm @ Meas. Temp	@	@			
Rmf @ Meas. Temp.	@	@			
Rmc @ Meas. Temp.	@	@			
Source Rmf / Rmc					
Rm @ BHT	@	@			
Rmf @ BHT	@	@			
Rmc @ BHT	@	@			

EQUIPMENT DATA

	GAMMA	ACOUSTIC	DENSITY	NEUTRON
Run No.				
Serial No.				
Model No.				
Diameter				
Detector Model No.		No. of Cent.		
Type		Spacing	Log Type	
Length		LSA [Y/N]	Source Type	Source Type
Distance to Source		FWDA [Y/N]	Serial No.	Serial No.
			Strength	Strength

LOGGING DATA

	GENERAL				GAMMA		ACOUSTIC		DENSITY		NEUTRON	
	Run No.	Depth From	Depth To	Speed ft/min	Scale L	Scale R	Scale L	Scale R	Matrix	Scale L	Scale R	Matrix

DIRECTIONAL INFORMATION

Maximum Deviation	@	KOP	@

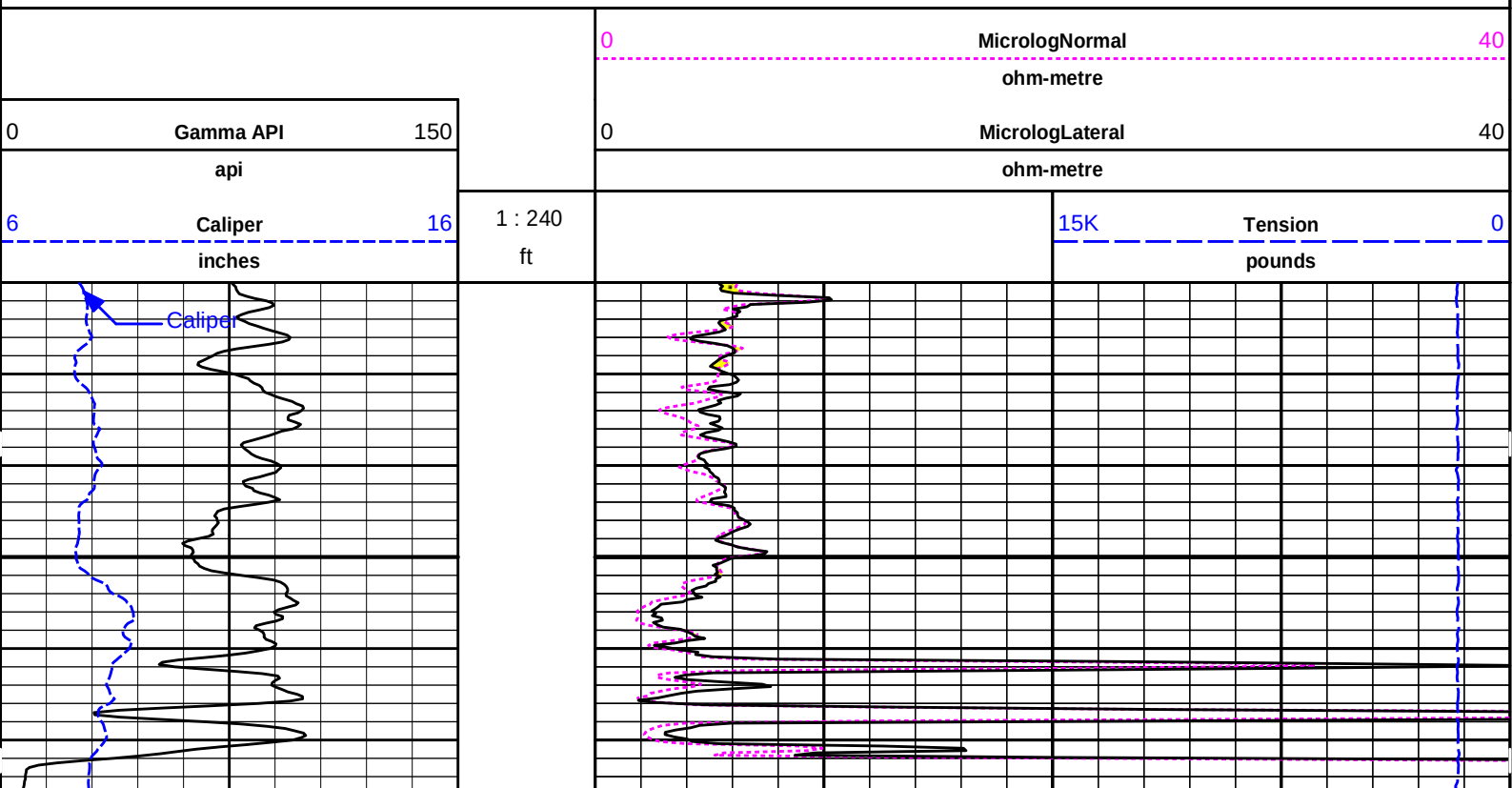
Remarks: 5 1/2" CASING USED FOR ANNULAR HOLE VOLUME

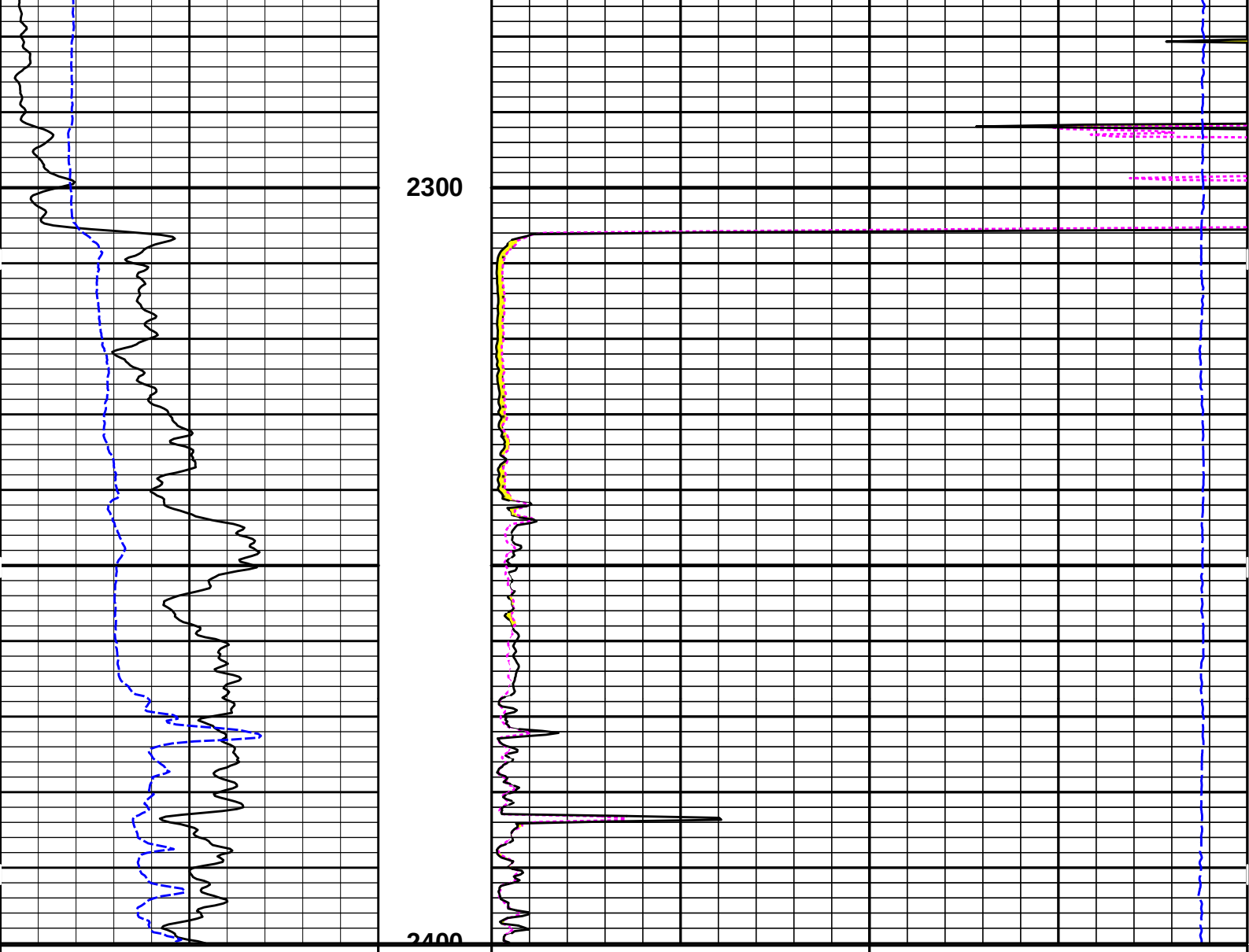
HALLIBURTON

Plot Time: 09-Nov-19 09:57:43
Plot Range: 2220 ft to 2400 ft
Data: RUSSELL_NEWMAN\Well Based\DAQ-0001-003
Plot File: \\-LOCAL-\RUSSELL_NEWMAN\0001 GTET-DSN-SDL-ACRT\MLOG\Microlog_IQ_5_main

5 INCH MAIN LOG

MAIN LOG 5" PER 100'





HALLIBURTON

Plot Time: 09-Nov-19 09:57:44
Plot Range: 2220 ft to 2400 ft
Data: RUSSELL_NEWMAN\Well Based\DAQ-0001-003\
Plot File: \\-LOCAL-\RUSSELL_NEWMAN\0001 GTET-DSN-SDL-ACRT\MLOG\Microlog_IQ_5_main

5 INCH MAIN LOG

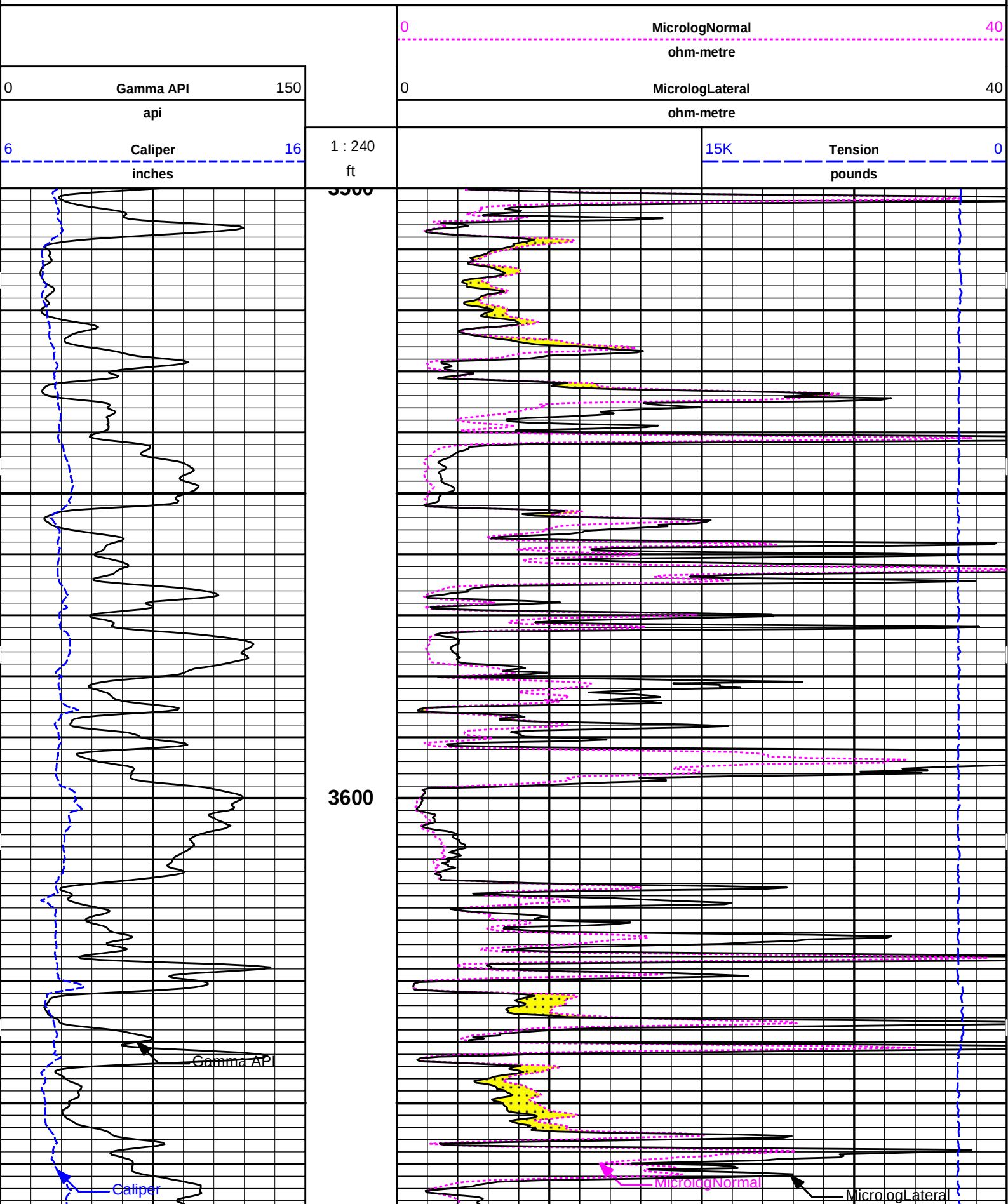
MAIN LOG 5" PER 100'

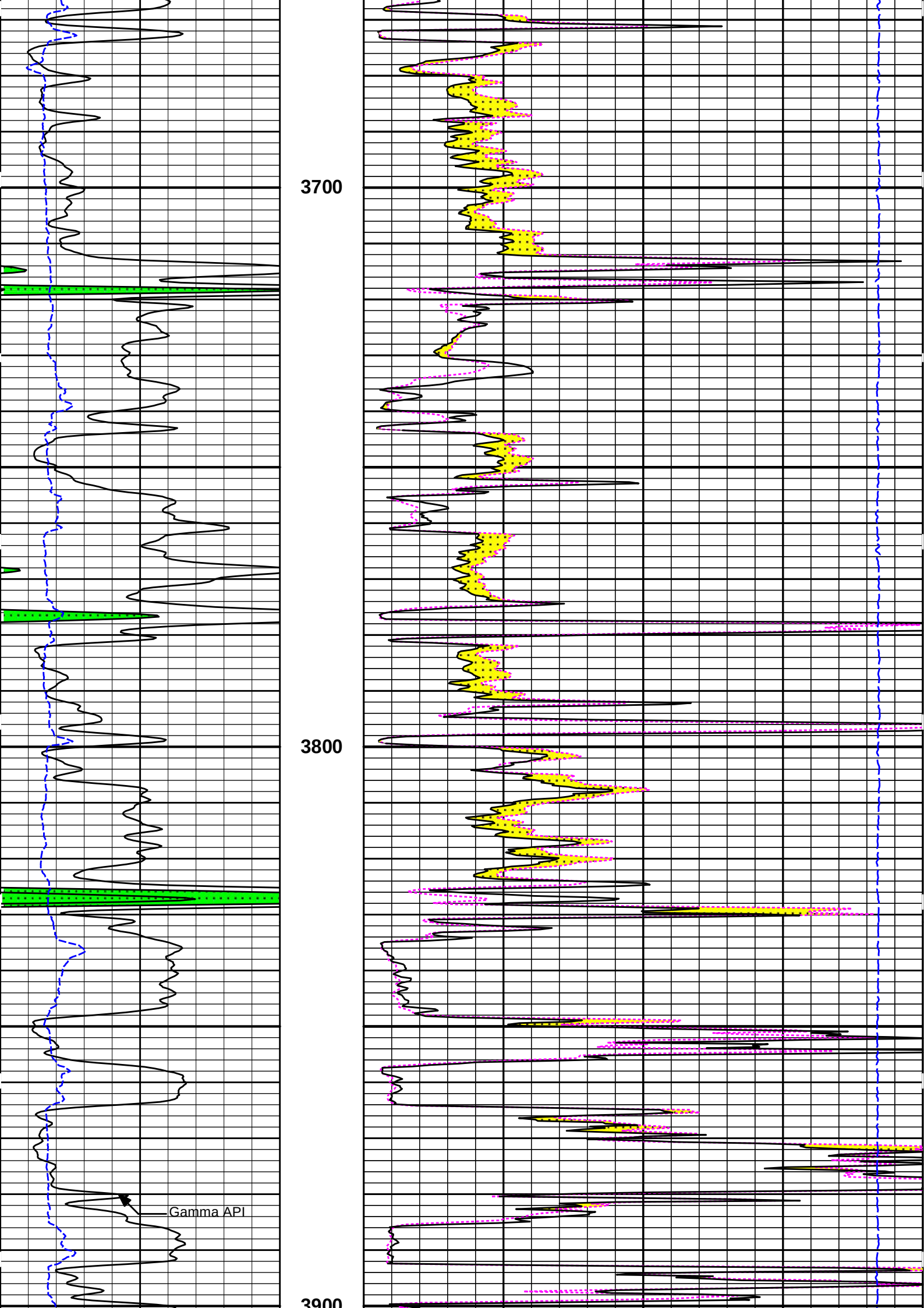
HALLIBURTON

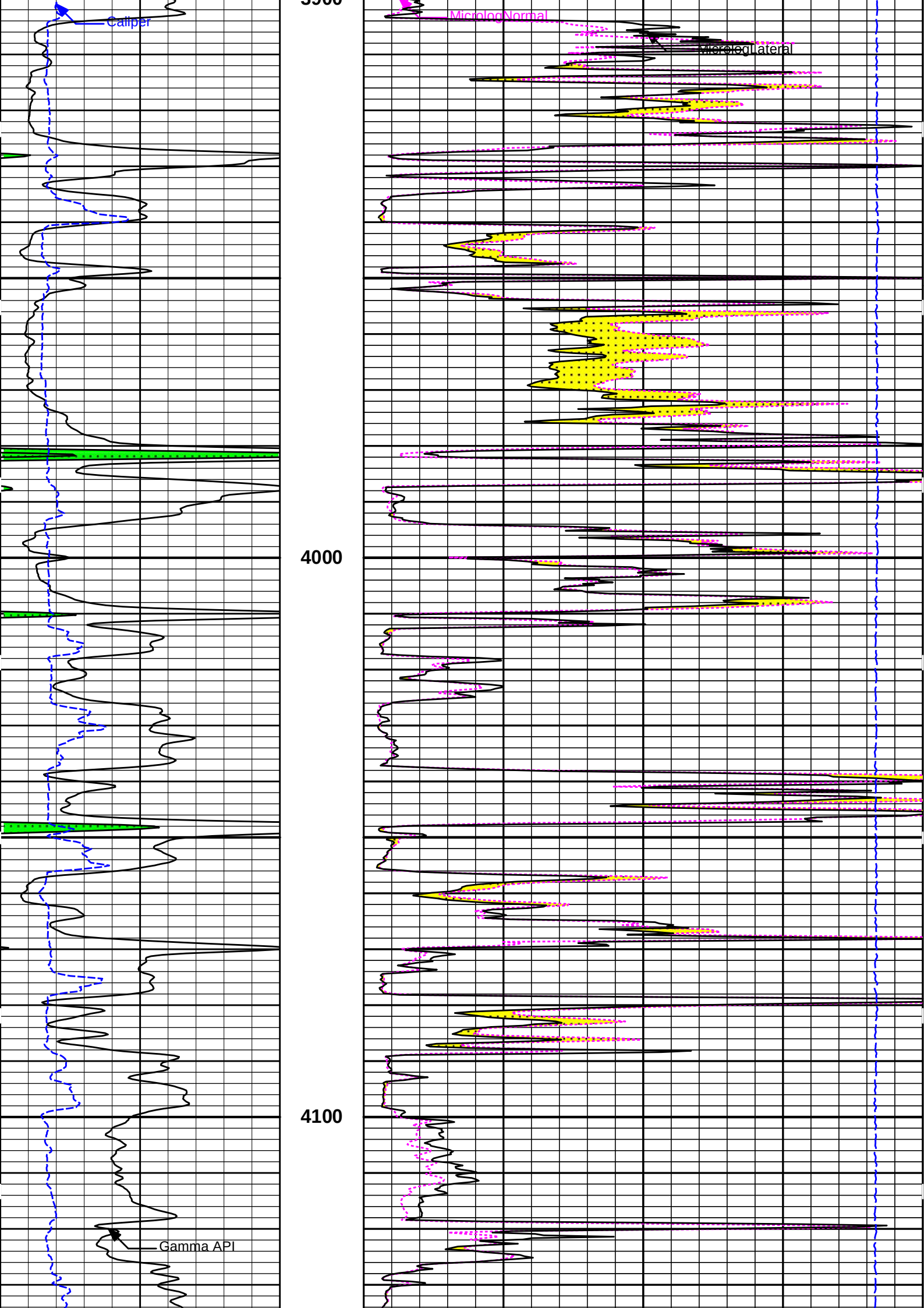
Plot Time: 09-Nov-19 09:57:44
Plot Range: 3500 ft to 4403.67 ft
Data: RUSSELL_NEWMAN\Well Based*\
Plot File: \\-LOCAL-\RUSSELL_NEWMAN\0001 GTET-DSN-SDL-ACRT\MLOG\Microlog_IQ_5_main

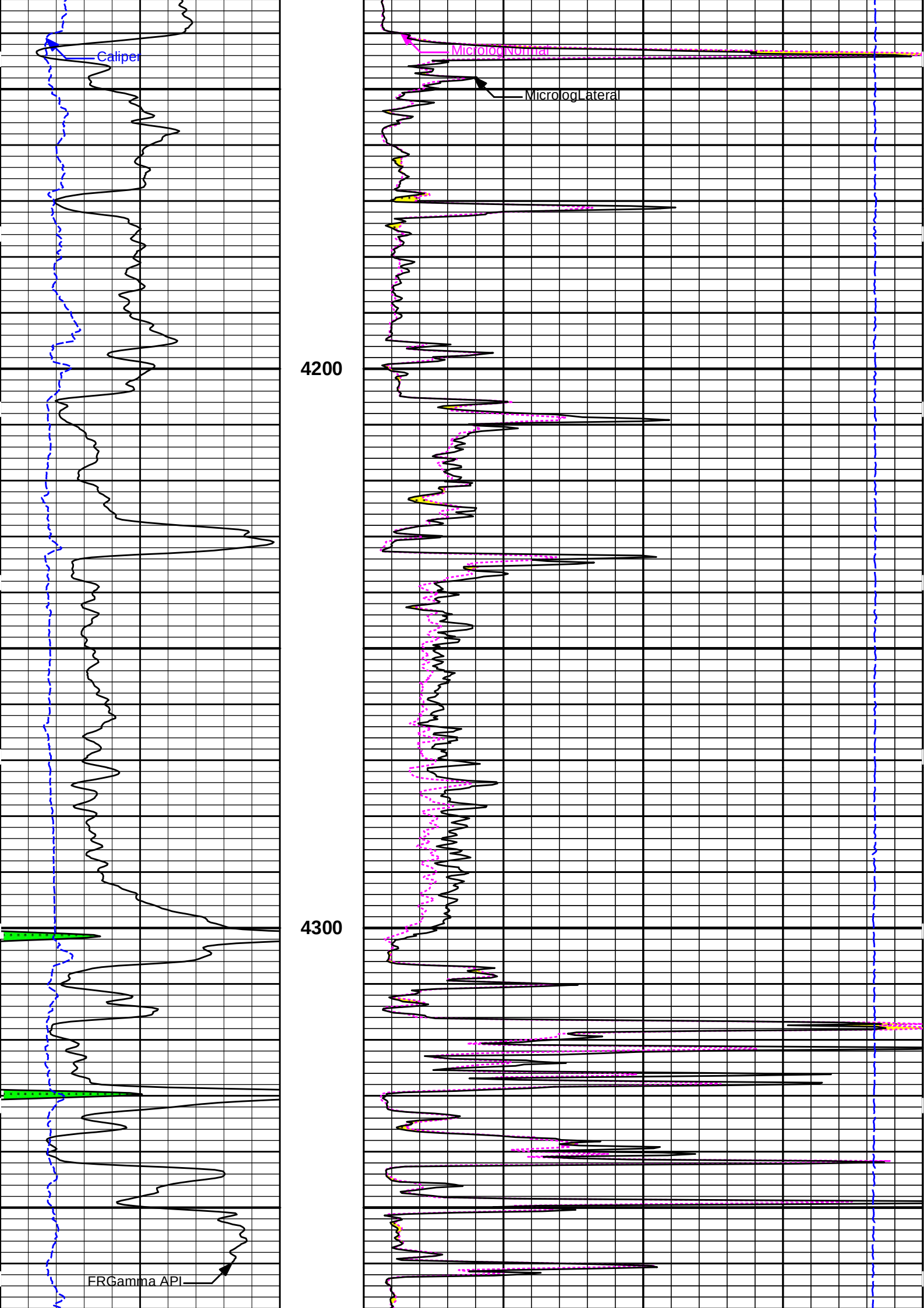
5 INCH MAIN LOG

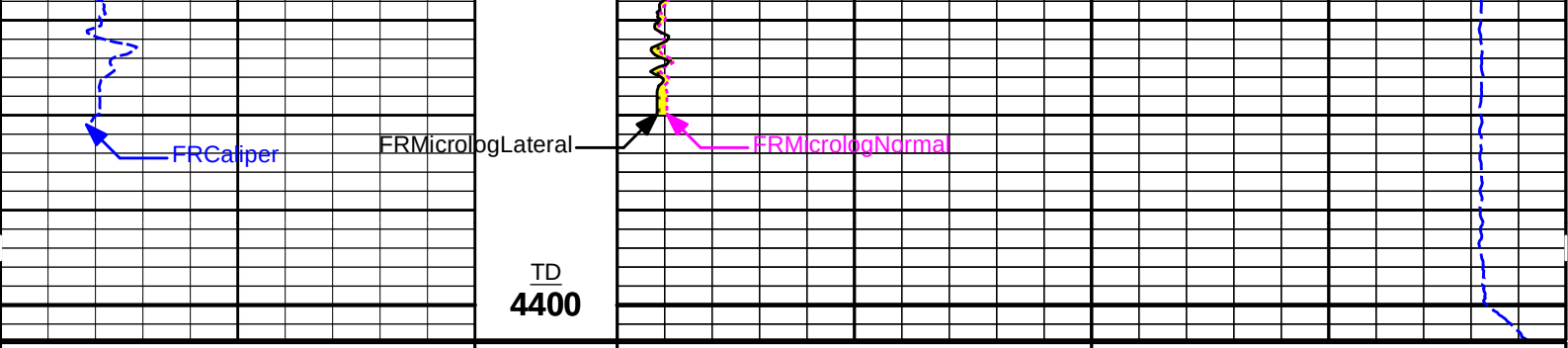
MAIN LOG 5" PER 100'




3700
3800
Gamma API


Caliper
MicrologNormal
MicrologLateral
4000
4100
Gamma API


Caliper
MicrologNormal
MicrologLateral
4200
4300
FRGamma API



6 Caliper 16
inches

1 : 240
ft

15K Tension 0
pounds

0 Gamma API 150
api

0 MicrologLateral 40
ohm-metre

0 MicrologNormal 40
ohm-metre

HALLIBURTON

Plot Time: 09-Nov-19 09:57:47
Plot Range: 3500 ft to 4403.67 ft
Data: RUSSELL_NEWMAN\Well Based*\
Plot File: \\-LOCAL-\RUSSELL_NEWMAN\0001 GTET-DSN-SDL-ACRT\MLOG\Microlog_IQ_5_main

5 INCH MAIN LOG

MAIN LOG 5" PER 100'

HALLIBURTON

Plot Time: 09-Nov-19 09:57:47
Plot Range: 3900 ft to 4403.25 ft
Data: RUSSELL_NEWMAN\Well Based\DAQ-0001-002\
Plot File: \\-LOCAL-\RUSSELL_NEWMAN\0001 GTET-DSN-SDL-ACRT\MLOG\Microlog_IQ_5_main

REPEAT SECTION

REPEAT SECTION

0 MicrologNormal 40
ohm-metre

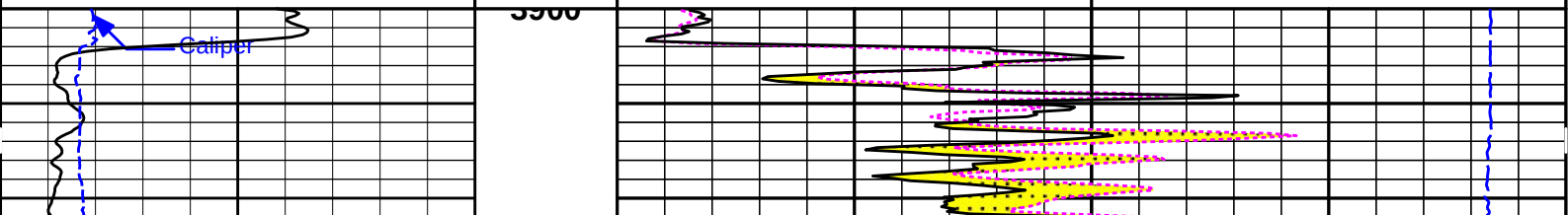
0 MicrologLateral 40
ohm-metre

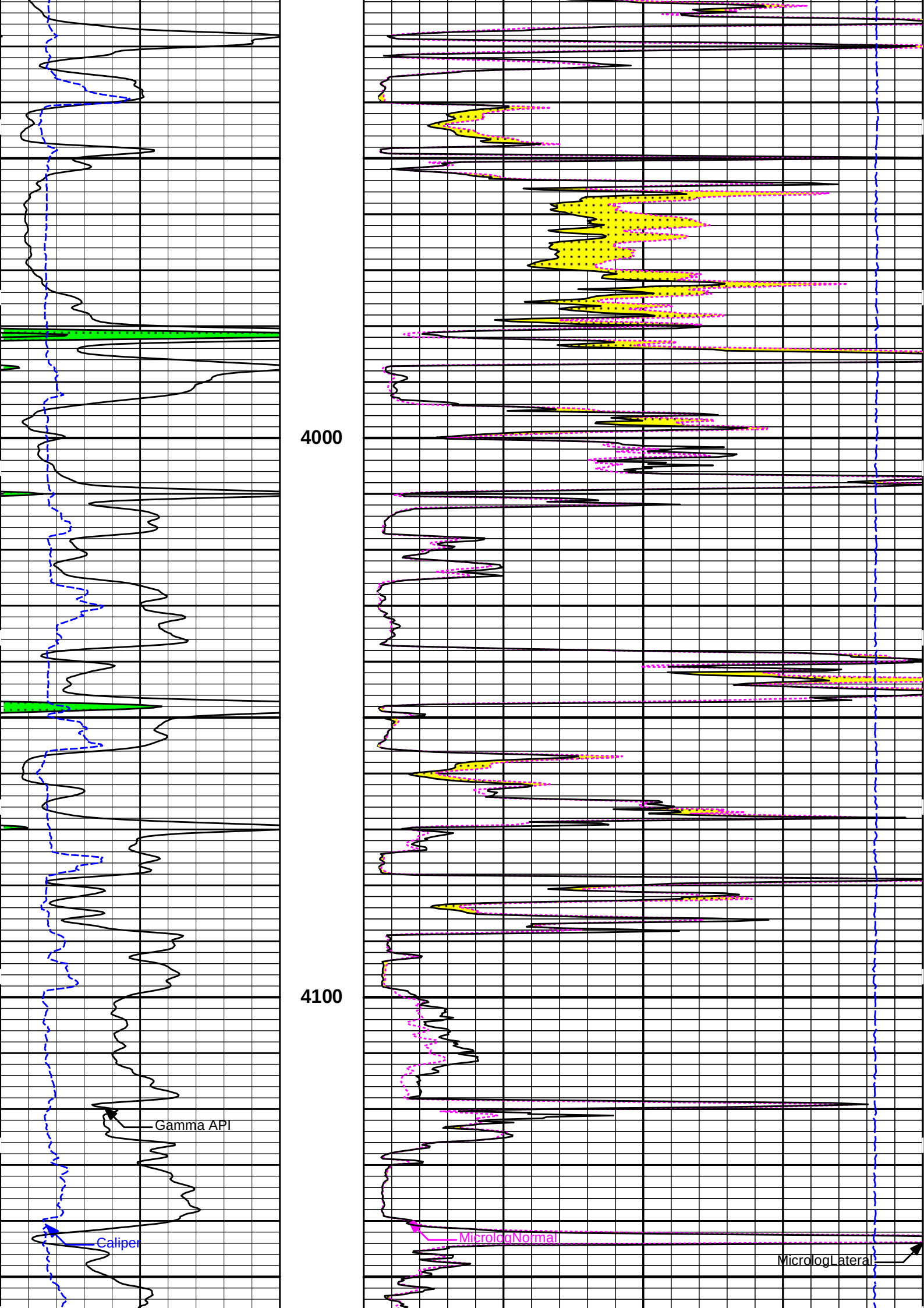
0 Gamma API 150
api

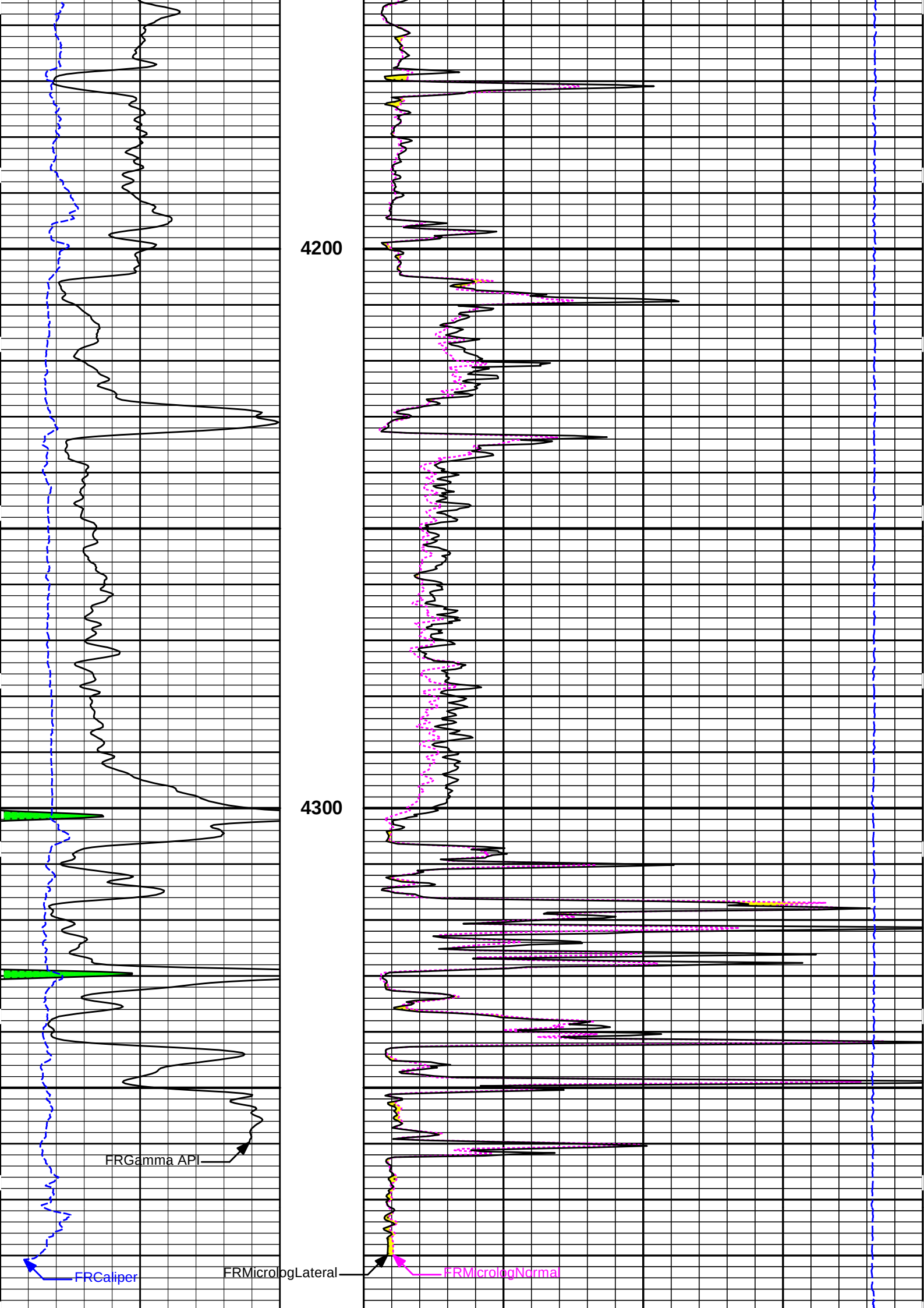
6 Caliper 16
inches

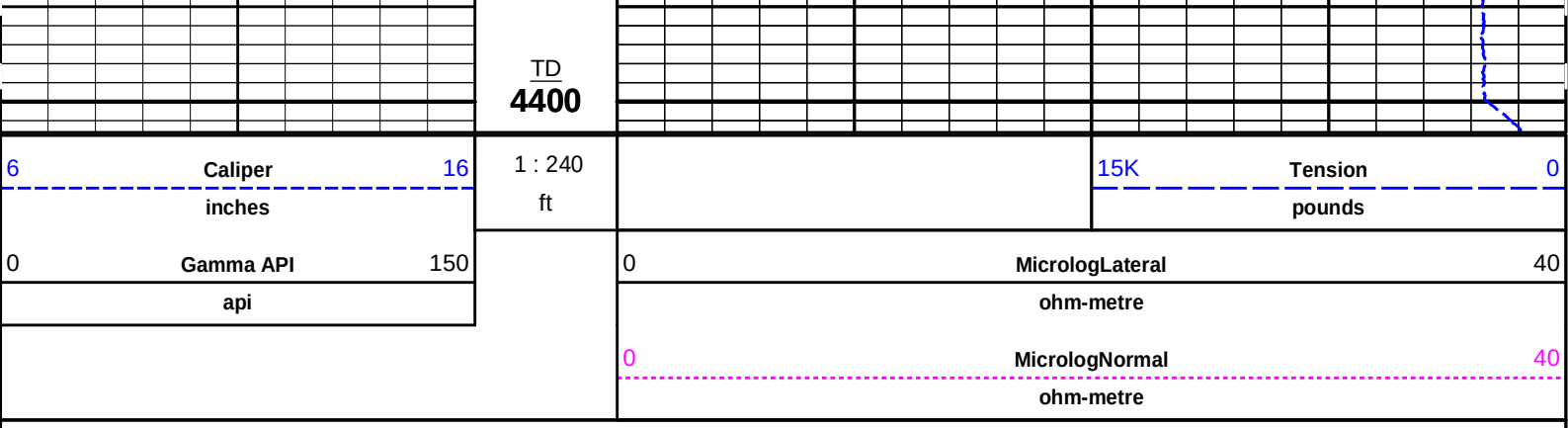
1 : 240
ft

15K Tension 0
pounds




4000
4100
Gamma API
Caliper
MicrologNormal
MicrologLateral


4200
4300
FRGamma API
FRCaliper
FRMicrologLateral
FRMicrologNormal



HALLIBURTON

Plot Time: 09-Nov-19 09:57:49
Plot Range: 3900 ft to 4403.25 ft
Data: RUSSELL_NEWMAN\Well Based\DAQ-0001-002\
Plot File: \\-LOCAL-\RUSSELL_NEWMAN\0001 GTET-DSN-SDL-ACRT\MLOG\Microlog_IQ_5_main

REPEAT SECTION

REPEAT SECTION

HALLIBURTON

CALIBRATION REPORT

SURFACE TENSION SHOP CALIBRATION

Tool Name:	**Depth Panel - 00000032**	**Reference Calibration Date:**	**18-Oct-19 08:14:38**
Engineer:	**JORGE ORLANDO PEREZ**	**Calibration Date:**	**02-Nov-19 07:11:44**
Software Version:	**WL INSITE R6.2.7 (Build 7)**	**Calibration Version:**	**1**

SURFACE TENSION LOAD CELL

Measurement	Load Cell Value	Measurement	Calibrated	Units
Low	10002.34	-20.40	0.00	lbs
High	17218.88	7839.56	7830.00	lbs

DOWNHOLE TENSION SHOP CALIBRATION

Tool Name:	**RWCH - 11830866**	**Reference Calibration Date:**	**30-Oct-19 11:42:39**
Engineer:	**JORGE ORLANDO PEREZ**	**Calibration Date:**	**02-Nov-19 07:14:22**
Software Version:	**WL INSITE R6.2.7 (Build 7)**	**Calibration Version:**	**1**

DOWNHOLE LOAD CELL

Measurement	Tool Value	Measurement	Calibrated	Units
Low	-415.80	-20444.99	0.00	lbs
High	1076.38	115004.76	764.10	lbs

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name:	**GTET - 11013113**	**Reference Calibration Date:**	**06-Sep-19 13:50:19**
Engineer:	**WHITLOCK**	**Calibration Date:**	**23-Oct-19 10:38:45**
Software Version:	**WL INSITE R6.2.7 (Build 7)**	**Calibration Version:**	**1**

Calibrator Source S/N: TB79
Calibrator API Reference:222.00 api
Equivalent Calibrator API Reference:225.9 api

Measurement	Measured	Calibrated	Units

Measurement	Measured	Calibrated	Units
Background	25.3	25.6	api
Background + Calibrator	248.3	251.5	api
Calibrator	223.0	225.9	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name: GTET - 11013113 **Reference Calibration Date:** 23-Oct-19 10:38:45

Engineer: WHITLOCK **Calibration Date:** 07-Nov-19 10:11:25

Software Version: WL INSITE R6.2.7 (Build 7) **Calibration Version:** 1

Calibrator Source S/N: TB79

Calibrator API Reference:222.00 api

Equivalent Calibrator API Reference:225.9 api

Field Verification	Shop	Field	Units
Background	25.6	22.1	api
Background + Calibrator	251.5	249.2	api
Calibrator	225.9	227.1	api

Shop	Field	Difference	Tolerance
225.9	227.1	-1.2	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name: DSNT - 11055304 **Reference Calibration Date:** 22-Aug-19 14:12:28

Engineer: WOLTEMATH **Calibration Date:** 22-Aug-19 14:39:04

Software Version: WL INSITE R6.2.7 (Build 7) **Calibration Version:** 1

Logging Source S/N: DSN-436

Tank Serial Number: 10730320

Reference value assigned to Tank: 56.100

Snow Block S/N: 12156883

Calibration Tank Water Temperature: 80 degF

Min. Tool Housing Outside Diameter: 3.625 in

CALIBRATION CONSTANTS			
Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	1.04178	1.04096	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):	0.2360	0.2358	0.0002	+/- 0.0020
Calibrated Ratio:	10.5680	10.5597	0.008	+/- 0.050

VERIFIER		
Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0796	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 - 11055304 **Reference Calibration Date:** 22-Aug-19 14:39:04

Engineer: WHITLOCK **Calibration Date:** 07-Nov-19 10:31:22

Software Version: WL INSITE R6.2.7 (Build 7) **Calibration Version:** 1

Logging Source S/N: DSN-436

Snow Block S/N: 12156883

NEUTRON FIELD-CHECK SUMMARY				
	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0796	0.0841	0.0045	+/- 0.0150

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

DENSITY CALIPER SHOP CALIBRATION

Tool Name: SDLT - 10960494 **Reference Calibration Date:** 04-Nov-19 15:23:08

Engineer: M. RICHTER **Calibration Date:** 04-Nov-19 15:28:51

Software Version: WL INSITE R6.2.7 (Build 7) **Calibration Version:** 1

Host Tool Name: DSNT - 11055304

CALIBRATION COEFFICIENTS			
Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-4776.57	-4909.59	-7000.00 - -1000.00
Pad Gain	0.0003889	0.0003957	0.0002000 - 0.0006000
Arm Offset	-3625.30	-3353.87	-5000.00 - 3000.00
Arm Gain	0.0005621	0.0005296	0.000300 - 0.000700
Arm Power	-0.000006720	-0.000004566	-0.000010000 - 0.000010000

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
PAD EXTENSION:				
Small Ring (in)	2.02	2.00	-0.02	+/- 0.20
Medium Ring (in)	3.74	3.75	0.01	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.51	6.50	-0.01	+/- 0.20
Medium Ring (in)	8.33	8.25	-0.08	+/- 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

SDLT CALIPER FIELD CALIBRATION

Tool Name: SDLT - 10960494 **Reference Calibration Date:** 04-Nov-19 15:28:51

Engineer: M. RICHTER **Calibration Date:** 04-Nov-19 15:31:16

Software Version: WL INSITE R6.2.7 (Build 7) **Calibration Version:** 1

MEASURED CALIPER VALUES				
Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.80	0.05	+/- 0.10
Ring Diameter	8.25	8.26	0.01	+/- 0.15

PASS/FAIL SUMMARY	
Pad Extension Check:	Passed
Diameter Check:	Passed

ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION

Tool Name:	**ACRt Sonde - 11830728**	**Reference Calibration Date:**	**13-Sep-19 20:21:53**
Engineer:	**JORGE ORLANDO PEREZ**	**Calibration Date:**	**05-Nov-19 10:54:27**
Software Version:	**WL INSITE R6.2.7 (Build 7)**	**Calibration Version:**	**1**
Host Tool Name:	**ACRt Instrument - 11830684**		

TYPICAL GAIN RANGE

Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	0.95	1.0307	1.05	0.95	1.0095	1.05	0.95	1.0014	1.05
A2 (50")	0.95	1.0359	1.05	0.95	1.0171	1.05	0.95	1.0115	1.05
A3 (29")	0.95	1.0310	1.05	0.95	1.0100	1.05	0.95	1.0035	1.05
A4 (17")	0.95	1.0328	1.05	0.95	1.0101	1.05	0.95	1.0052	1.05
A5 (10")	N/A	N/A	N/A	0.95	1.0034	1.05	0.95	0.9977	1.05
A6 (6")	N/A	N/A	N/A	0.95	1.0043	1.05	0.95	0.9978	1.05

SONDE OFFSET

Subarray	R12KHz	R36KHz	R72KHz
	(mmho/m)	(mmho/m)	(mmho/m)
A1 (80")	-0.808	-5.207	-5.601
A2 (50")	0.511	-3.609	-5.279
A3 (29")	-12.434	-3.950	-3.771
A4 (17")	-94.775	-29.778	-24.358
A5 (10")	N/A	-73.178	-36.258
A6 (6")	N/A	286.240	152.126

TRANSMITTER CURRENT GAIN

Signal	Lower	R	Upper
12K	0.6	0.83	1.3
36K	1.0	1.81	2.0
72K	1.0	1.07	2.0

R-MUD VERIFICATION

Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
Mud Cell	0.95	0.99	1.05

PASS/FAIL SUMMARY

GAIN RANGE CHK	PASS
SONDE OFFSET CHK	PASS

TOOL OK TO LOG

QUALITY CHECK SHOP CALIBRATION

Tool Name:	**ACRt Sonde - 11830728**	**Reference Calibration Date:**	**05-Nov-19 10:56:55**
Engineer:	**JORGE ORLANDO PEREZ**	**Calibration Date:**	**05-Nov-19 10:58:40**
Software Version:	**WL INSITE R6.2.7 (Build 7)**	**Calibration Version:**	**1**
Host Tool Name:	**ACRt Instrument - 11830684**		

STANDARD DEVIATIONS

	R12KHz			R36KHz			R72KHz		
	Measured (mmho/m)	Expected (mmho/m)	Pass/Fail	Measured (mmho/m)	Expected (mmho/m)	Pass/Fail	Measured (mmho/m)	Expected (mmho/m)	Pass/Fail
A1 (80")	0.000	< 0.750	Pass	0.000	< 0.750	Pass	0.000	< 0.750	Pass
A2 (50")	0.000	< 0.750	Pass	0.000	< 0.750	Pass	0.000	< 0.750	Pass
A3 (29")	0.000	< 0.750	Pass	0.000	< 0.750	Pass	0.000	< 0.750	Pass
A4 (17")	0.000	< 0.750	Pass	0.000	< 0.750	Pass	0.000	< 0.750	Pass
A5 (10")	0.000	< 0.750	Pass	0.000	< 0.750	Pass	0.000	< 0.750	Pass
A6 (6")	0.000	< 0.750	Pass	0.000	< 0.750	Pass	0.000	< 0.750	Pass

AVERAGES

	R12KHz			R36KHz			R72KHz		
	Measured (mmho/m)	Expected (mmho/m)	Pass/Fail	Measured (mmho/m)	Expected (mmho/m)	Pass/Fail	Measured (mmho/m)	Expected (mmho/m)	Pass/Fail
A1 (80")	0.000	< 0.500	Pass	-0.001	> -0.500	Pass	-0.006	> -0.500	Pass
A2 (50")	0.000	< 0.500	Pass	-0.001	> -0.500	Pass	-0.005	> -0.500	Pass
A3 (29")	-0.000	< 0.500	Pass	-0.001	> -0.500	Pass	-0.003	> -0.500	Pass
A4 (17")	-0.002	> -0.500	Pass	-0.007	> -0.500	Pass	-0.023	> -0.500	Pass
A5 (10")	-0.010	> -0.500	Pass	-0.016	> -0.500	Pass	-0.035	> -0.500	Pass
A6 (6")	0.014	< 0.500	Pass	0.063	< 0.500	Pass	0.138	< 0.500	Pass

GAIN TOLERANCE

R12KHz

	Measured (mmho/m)	Last Month (mmho/m)	Difference (mmho/m)	Tolerance (mmho/m)	Pass/Fail
A1 (80")	-211017504.000	-210963520.000	53984.000	10548176.000	Pass
A2 (50")	-201063376.000	-201001456.000	61920.000	10050072.800	Pass
A3 (29")	-202298688.000	-202236272.000	62416.000	10111813.600	Pass
A4 (17")	-196769472.000	-196710160.000	59312.000	9835508.000	Pass
A5 (10")	-197638496.000	-197576928.000	61568.000	9878846.400	Pass
A6 (6")	-195283936.000	-195215792.000	68144.000	9760789.600	Pass

R36KHz

	Measured (mmho/m)	Last Month (mmho/m)	Difference (mmho/m)	Tolerance (mmho/m)	Pass/Fail
A1 (80")	45235592.000	45171552.000	64040.000	2258577.600	Pass
A2 (50")	31200082.000	31135516.000	64566.000	1556775.800	Pass
A3 (29")	26374304.000	26310728.000	63576.000	1315536.400	Pass
A4 (17")	25347108.000	25294182.000	52926.000	1264709.100	Pass
A5 (10")	25069158.000	25011902.000	57256.000	1250595.100	Pass
A6 (6")	23372746.000	23316728.000	56018.000	1165836.400	Pass

R72KHz

	Measured (mmho/m)	Last Month (mmho/m)	Difference (mmho/m)	Tolerance (mmho/m)	Pass/Fail
A1 (80")	-91706976.000	-91683616.000	23360.000	4584180.800	Pass
A2 (50")	-88067264.000	-88037528.000	29736.000	4401876.400	Pass
A3 (29")	-88500760.000	-88474728.000	26032.000	4423736.400	Pass
A4 (17")	-86378136.000	-86351184.000	26952.000	4317559.200	Pass
A5 (10")	-85383264.000	-85355336.000	27928.000	4267766.800	Pass
A6 (6")	-85585888.000	-85556056.000	29832.000	4277802.800	Pass

PASS/FAIL SUMMARY

Std Deviation Verification	Pass
Average Verification	Pass
Gain Tolerance Verification	Pass

MICRO LOG SHOP CALIBRATION

Tool Name:	**Microlog Pad - 10960494**	**Reference Calibration Date:**	**31-Oct-19 14:33:51**
Engineer:	**WHITLOCK**	**Calibration Date:**	**07-Nov-19 10:19:23**
Software Version:	**WL INSITE R6.2.7 (Build 7)**	**Calibration Version:**	**1**
Host Tool Name:	**DSNT - 11055304**		

CALIBRATION COEFFICIENT SUMMARY

Measurement	Micro Log Normal		Micro Log Lateral		
	Measured	Calibrated	Measured	Calibrated	Units
Tool Zero	-0.10	-0.14	-0.01	-0.01	ohmm

Calibration Point #1	0.04	0.00	-0.01	0.00	ohmm
Calibration Point #2	20.09	20.00	20.01	20.00	ohmm
Internal Reference	19.95	19.86	20.04	20.02	ohmm

Measurement	Micro Log Normal Tool Value	Micro Log Lateral Tool Value	Units
Tool Zero	-5.49	-0.73	V
Calibration Point #1	32.76	1.11	V
Calibration Point #2	5354.31	6888.30	V
Internal Reference	5317.63	6895.72	V

MICRO LOG FIELD CHECK

Tool Name: Microlog Pad - 10960494
Engineer: WHITLOCK
Software Version: WL INSITE R6.2.7 (Build 7)
Reference Calibration Date: 07-Nov-19 10:19:23
Calibration Date: 07-Nov-19 10:20:13
Calibration Version: 1

Measurement	Micro Log Normal		Micro Log Lateral		
	Shop	Field	Shop	Field	Units
Tool Zero	-0.14	-0.12	-0.01	-0.00	ohmm
Internal Reference	19.86	19.87	20.02	20.03	ohmm

Summary				
Signal	Shop	Field	Difference	Tolerence
Microlog Normal	19.86	19.87	-0.01	+/- 0.80
Microlog Lateral	20.02	20.03	-0.01	+/- 0.80

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name: SDLT Pad - 11213308
Engineer: WOLTEMATH
Software Version: WL INSITE R6.2.7 (Build 7)
Reference Calibration Date: 23-Aug-19 13:54:16
Calibration Date: 23-Aug-19 14:21:32
Calibration Version: 1

Logging Source S/N: 5475GW
Aluminum Block S/N: 63067 Density: 2.581g/cc Pe: 3.170
Magnesium Block S/N: 63358 Density: 1.687g/cc Pe: 2.594

DENSITY CALIBRATION SUMMARY			
Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0035	1.0251	0.90 - 1.10
Near Dens Gain	0.9864	1.0119	0.90 - 1.10
Near Peak Gain	0.9964	1.0219	0.90 - 1.10
Near Lith Gain	0.9980	1.0302	0.90 - 1.10
Far Bar Gain	1.0048	1.0058	0.90 - 1.10
Far Dens Gain	0.9927	0.9950	0.90 - 1.10
Far Peak Gain	0.9899	0.9927	0.90 - 1.10
Far Lith Gain	0.9731	0.9727	0.90 - 1.10
Near Bar Offset	0.1179	-0.0816	NONE
Near Dens Offset	0.2714	0.0443	NONE
Near Peak Offset	0.1602	-0.0546	NONE
Near Lith Offset	0.1146	-0.1575	NONE
Far Bar Offset	0.0293	0.0219	NONE
Far Dens Offset	0.1505	0.1307	NONE
Far Peak Offset	0.1477	0.1245	NONE
Far Lith Offset	0.2309	0.2352	NONE
Near Bar Background	928.16	927.86	700 - 1450
Near Dens Background	309.39	308.18	230 - 480
Near Peak Background	135.94	135.97	100 - 210
Near Lith Background	164.35	163.99	125 - 260

Far Bar Background	470.03	472.28	450 - 900
Far Dens Background	188.64	187.22	175 - 345
Far Peak Background	75.92	76.21	70 - 140
Far Lith Background	76.82	77.51	75 - 145

CALIBRATION BLOCK SUMMARY

Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.686	1.687	0.001	+/- 0.015
Pe	2.567	2.561	-0.006	+/- 0.150
ALUMINUM				
Density (g/cc)	2.582	2.580	-0.002	+/- 0.01500
Pe	3.117	3.134	0.017	+/- 0.150

TOOL SUMMARY

Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	-0.0002	+/- 0.0110	-0.0008	+/- 0.0140
Magnesium Block	0.0001	+/- 0.0110	-0.0002	+/- 0.0140
Aluminum Block	-0.0003	+/- 0.0110	0.0010	+/- 0.0140
Resolution	9.31	6.00 - 11.50	9.26	6.00 - 11.50
Internal Verifier(B+D+P+L)	1536	1200 - 2700	813	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 - 11213308 **Reference Calibration Date:** 23-Aug-19 14:21:32

Engineer: WHITLOCK **Calibration Date:** 07-Nov-19 10:09:54

Software Version: WL INSITE R6.2.7 (Build 7) **Calibration Version:** 1

Pad Temperature: 71.7 degF

DENSITY FIELD CALIBRATION SUMMARY

Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1535.997	1527.229	-8.768	15.780
Far (B+D+P+L) cps	813.216	803.660	-9.556	15.754
Near Resolution	9.31	9.30	-0.010	0.50
Far Resolution	9.26	9.42	0.160	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

Depth Panel-00000032						
Tension Zero	0.00	----------	----------	0.00	----------	lbs
Tension Cal	7830.00	----------	----------	0.00	----------	lbs
RWCH-11830866						
DH Tension Zero	0.00	----------	----------	0.00	----------	lbs
DH Tension Cal	764.10	----------	----------	0.00	----------	lbs
GTET-11013113						
Gamma Ray Calibrator	225.9	227.1	----------	-1.2	+/- 9.00	api
DSNT-11055304						
Snow-Block Porosity	0.0796	0.0841	----------	-0.0045	+/- 0.0150	decp
SDLT-10960494						
Pad Extension	3.75	3.80	----------	-0.05	+/-0.10	in
Ring Diameter	8.25	8.26	----------	-0.01	+/-0.15	in
ACRt Sonde-11830728						
Mud Cell	0.99	----------	----------	0	----------	ohm-m
Microlog Pad-10960494						
MicroLog Normal	19.86	19.87	----------	-0.01	+/-0.80	ohmm
MicroLog Lateral	20.02	20.03	----------	-0.01	+/-0.80	ohmm
SDLT Pad-11213308						
Near(B+D+P+L)	1535.997	1527.229	----------	8.768	+/-15.780	cps
Far(B+D+P+L)	813.216	803.660	----------	9.556	+/-15.754	cps

Data: RUSSELL_NEWMAN\0001 GTET-DSN-SDL-ACRT\IDLE **Date: 09-Nov-19 06:56:00**

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	1.800	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	4400.00	ft
	SHARED	BHT	Bottom Hole Temperature	125.0	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	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	SDLT	
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	SDLT	
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	DNTT	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	
DSNT	UCLA	Classic Neutron Parameter utilized?	No	
DSNT	BHSM	Borehole Size Source Tool	SDLT	
SDLT	CLOK	Process Caliper Outputs?	Yes	
Microlog Pad	MLOK	Process MicroLog 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
SDLT Pad	BHSM	Borehole Size Source Tool	SDLT	
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	RMAX	Maximum Resistivity for MAP	200.00	ohmm
ACRt Sonde	THQY	Threshold Quality	0.50	
ACRt Sonde	MRFX	Fixed mud resistivity	2000	ohmm
ACRt Sonde	BHSM	Borehole Size Source Tool	SDLT	
ACRt Sonde	MBFL	Apply Corkscrew Effect?	No	

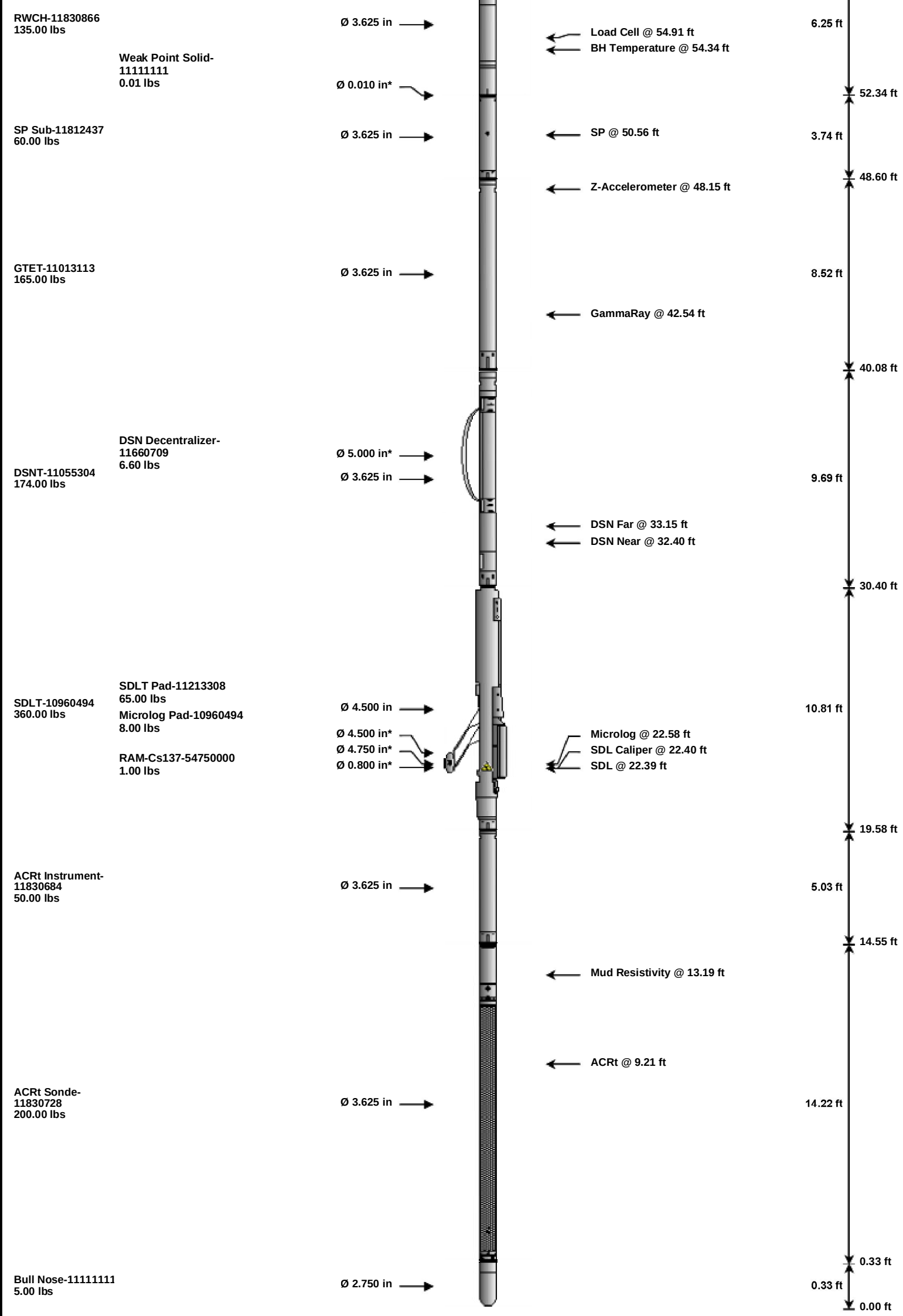
BOTTOM

Data: RUSSELL_NEWMAN\0001 GTET-DSN-SDL-ACRT\IDLE **Date: 09-Nov-19 06:56:54**

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
		Ø 2.310 in		Fishing Neck @ 57.71 ft		58.59 ft


RWCH-11830866
135.00 lbs
Ø 3.625 in
Load Cell @ 54.91 ft
BH Temperature @ 54.34 ft
6.25 ft
Weak Point Solid-11111111
0.01 lbs
Ø 0.010 in*
52.34 ft
SP Sub-11812437
60.00 lbs
Ø 3.625 in
SP @ 50.56 ft
3.74 ft
48.60 ft
Z-Accelerometer @ 48.15 ft
GTET-11013113
165.00 lbs
Ø 3.625 in
8.52 ft
GammaRay @ 42.54 ft
40.08 ft
DSN Decentralizer-11660709
6.60 lbs
Ø 5.000 in*
DSNT-11055304
174.00 lbs
Ø 3.625 in
9.69 ft
DSN Far @ 33.15 ft
DSN Near @ 32.40 ft
30.40 ft
SDLT Pad-11213308
65.00 lbs
SDLT-10960494
360.00 lbs
Microlog Pad-10960494
8.00 lbs
Ø 4.500 in
10.81 ft
Ø 4.500 in*
Ø 4.750 in*
Ø 0.800 in*
RAM-Cs137-54750000
1.00 lbs
Microlog @ 22.58 ft
SDL Caliper @ 22.40 ft
SDL @ 22.39 ft
19.58 ft
ACRt Instrument-11830684
50.00 lbs
Ø 3.625 in
5.03 ft
14.55 ft
Mud Resistivity @ 13.19 ft
ACRt @ 9.21 ft
ACRt Sonde-11830728
200.00 lbs
Ø 3.625 in
14.22 ft
0.33 ft
Bull Nose-11111111
5.00 lbs
Ø 2.750 in
0.33 ft
0.00 ft

Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)		Accumulated Length (ft)	Max.Log. Speed (fpm)
RWCH	Releasable Wireline Cable Head	11830866	135.00	6.25		52.34	300.00
WPSS	Weak Point Solid	11111111	0.01	0.01	*	52.34	300.00
SP	SP Sub	11812437	60.00	3.74		48.60	300.00
GTET	Gamma Telemetry Tool	11013113	165.00	8.52		40.08	60.00
DSNT	Dual Spaced Neutron	11055304	174.00	9.69		30.40	60.00
DCNT	DSN Decentralizer	11660709	6.60	5.13	*	33.73	300.00
SDLT	Spectral Density Tool	10960494	360.00	10.81		19.58	60.00
SDLP	Density Insite Pad	11213308	65.00	2.55	*	21.79	60.00
Cs137	Logging Source, SDLT-I, 1.78 Ci - Cs137	54750000	1.00	0.80	*	22.02	300.00
MICP	Microlog Pad	10960494	8.00	1.00	*	22.08	60.00
ACRt	Array Compensated True Resistivity Instrument Section	11830684	50.00	5.03		14.55	120.00
ACRt	Array Compensated True Resistivity Sonde Section	11830728	200.00	14.22		0.33	120.00
BLNS	Bull Nose	11111111	5.00	0.33		0.00	300.00
Total			**1,229.61**	**58.59**			

* Not included in Total Length and Length Accumulation.

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