HALLIBURTON

MICROLOG

COMPANY	RUSSELL OIL, INC.
WELL	ROHLEDER TRUST #28-1
FIELD/BLOCK	WILDCAT
COUNTY	LOGAN
STATE	KANSAS

API No. 15-109-21591-00-00

Location
(SHL) SE SE NW NW
1105' FNL & 1090' FWL

Sect. 28 Twp. 11S Rge. 32W

Other Services:
ACRT
SDL-DSN
MICLOG

Permanent Datum	GL	Elev. 3079.0 ft	Elev.: K.B. 3084.0 ft
Log measured from	KB	5.0 ft above perm. Datum	D.F. 3082.0 ft
Drilling measured from	KB		G.L. 3079.0 ft

Date		05-May-19					
Run No.		1					
Depth - Driller		4770.0 ft					
Depth - Logger		4770.0 ft					
Bottom - Logged Interval		4760					
Top - Logged Interval		2500					
Casing - Driller		8.625 in	@ 312.0 ft	@		@	
Casing - Logger		312.0 ft					
Bit Size		7.875 in		@		@	
Type Fluid in Hole		Water Based Mud					
Density	Viscosity	9.20 g/cc	65.00 s/qt				
PH	Fluid Loss	11.00 pH	6.2 cptm				
Source of Sample		FLOWLINE					
Rm @ Meas. Temperature		1.04 ohmm	@ 74.00 degF	@		@	
Rmf @ Meas. Temperature		0.83 ohmm	@ 72.00 degF	@		@	
Rmc @ Meas. Temperature		1.22 ohmm	@ 72.00 degF	@		@	
Source Rmf	Rmc	MEAS	MEAS				
Rm @ BHT		0.60 ohmm	@ 133.0 degF	@		@	
Time Since Circulation		22:00 hr					
Time on Bottom		05-May-19 01:46					
Max. Rec. Temperature		133.00 degF	@ 4770.0 ft	@		@	
Equipment	Location	12156883	EL RENO, OK				
Recorded By		WHITLOCK					
Witnessed By		KITT NOAH					

Fold here

Service Ticket No.: 905677175

API No.: 15-109-21591-00-00

PGM Version: WL INSITE R6.0.8 (Build 3)

CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE

RESISTIVITY SCALE CHANGES

	Type Log	Depth	Scale Up Hole	Scale Down Hole
Date				
Sample No.				
Depth-Driller				
Type Fluid in Hole				
Density				
Viscosity				
Ph				
Fluid Loss				

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.				
Type				
Length				
Distance to Source				

LOGGING DATA

	GENERAL				GAMMA			ACOUSTIC			DENSITY			NEUTRON		
	Run No.	Depth From	Depth To	Speed ft/min	Scale L	Scale R	Matrix	Scale L	Scale R	Matrix	Scale L	Scale R	Matrix	Scale L	Scale R	Matrix
Run No.																
Serial No.																
Model No.																
Diameter																
Detector Model No.					No. of Cent.											
Type					Spacing											
Length					LSA [Y/N]											
Distance to Source					FWDA [Y/N]											
Run No.																
Serial No.																
Model No.																
Diameter																
Log Type																
Source Type																
Serial No.																
Strength																

DIRECTIONAL INFORMATION

Maximum Deviation	@	KOP	@

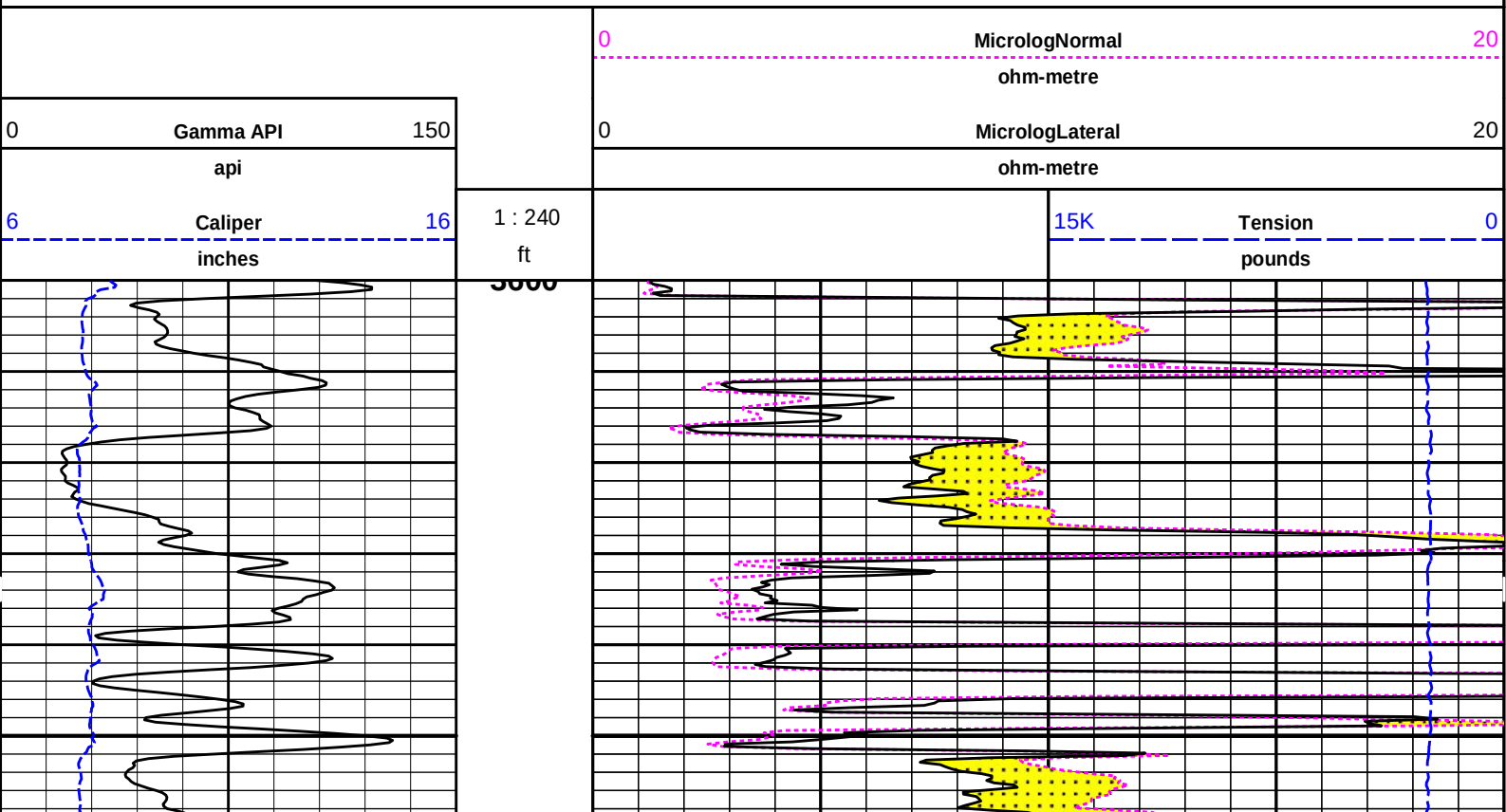
Remarks: 5 1/2" CASING USED FOR ANNULAR HOLE VOLUME

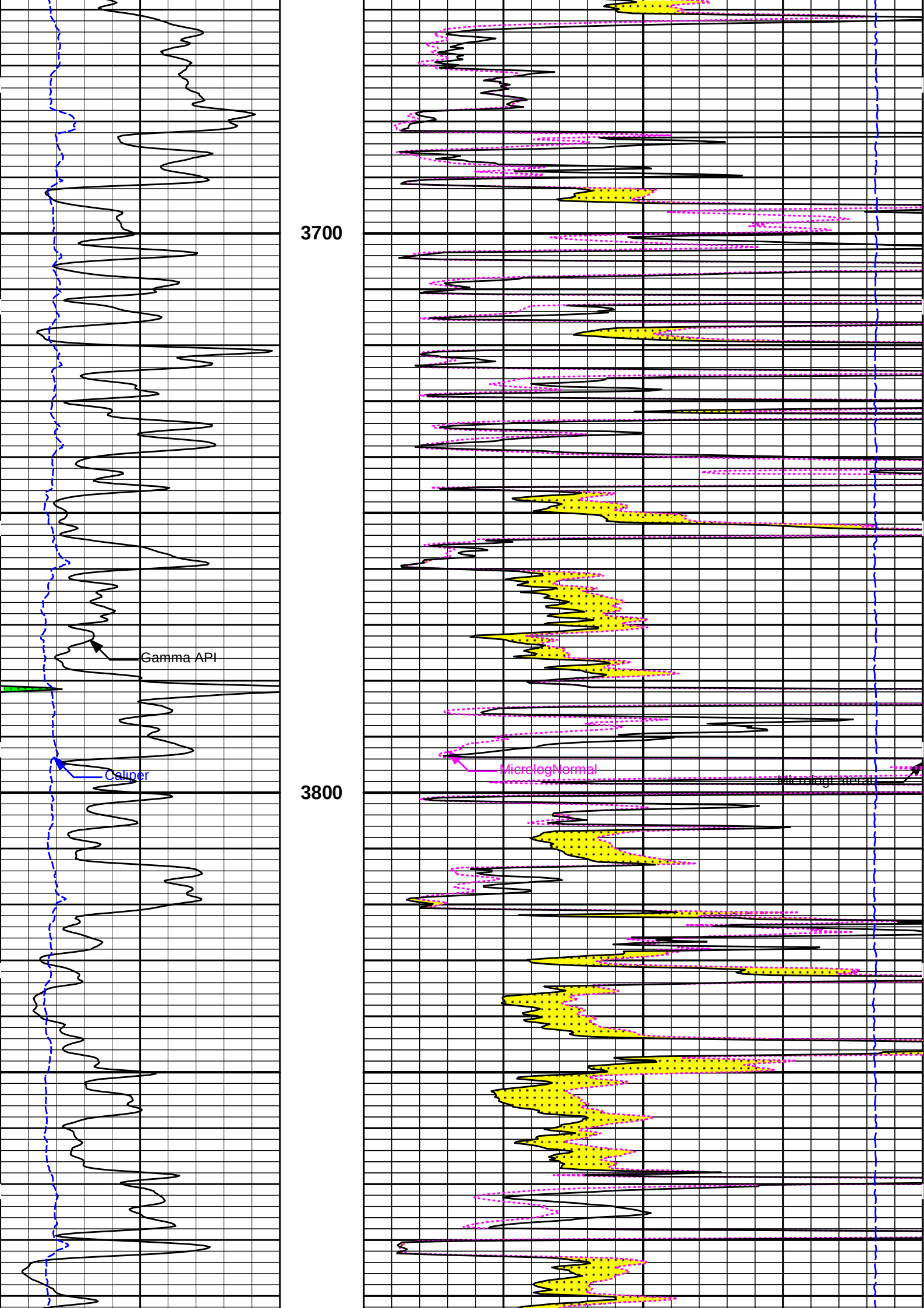
HALLIBURTON

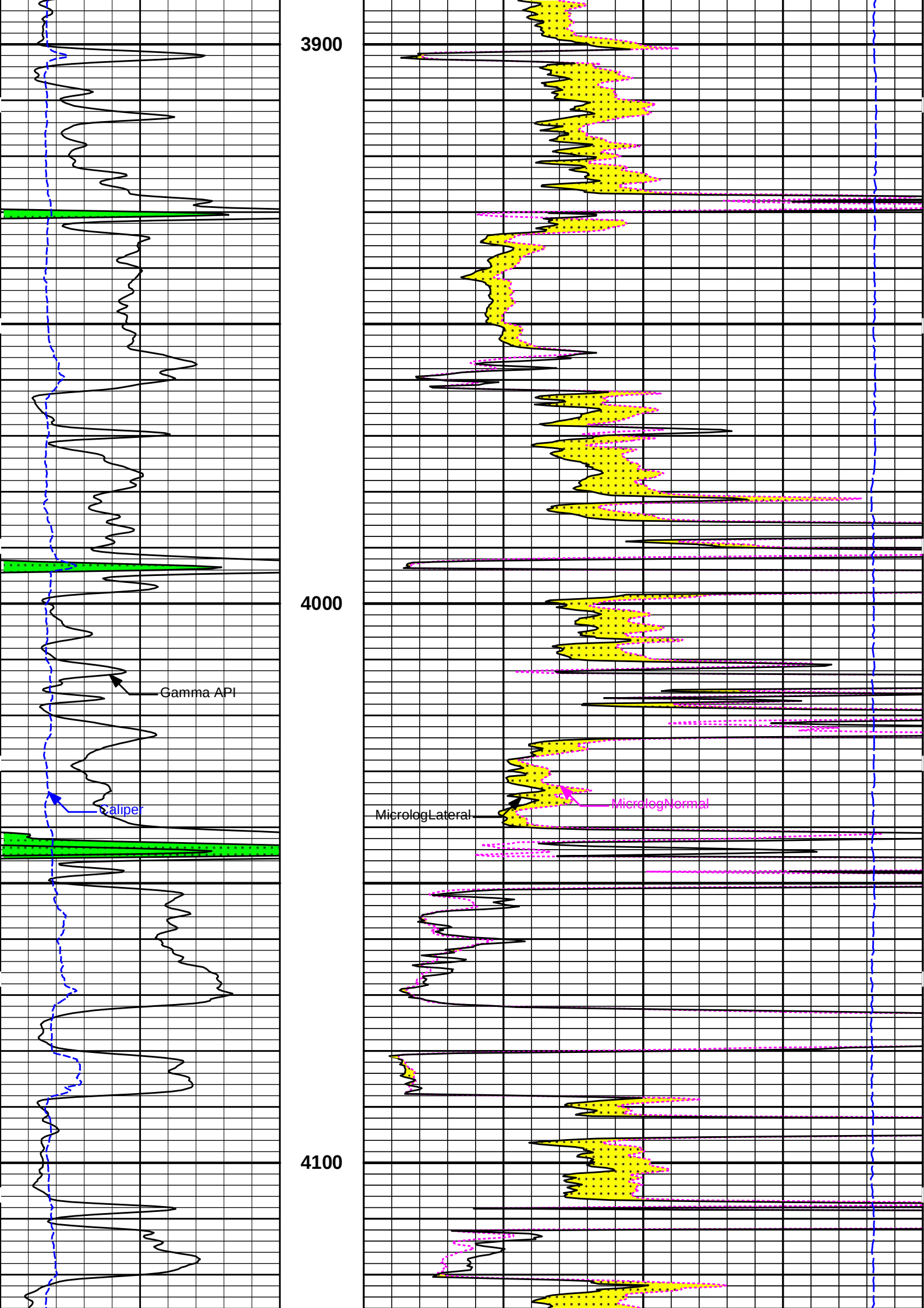
Plot Time: 05-May-19 03:16:37
Plot Range: 3600 ft to 4776.5 ft
Data: RUSSEL_ROHLEDER\Well Based\DAQ-0001-004
Plot File: \\-LOCAL-\RUSSEL_ROHLEDER\0001 SP_GTET-DSN-SDL-ACRT\MLOG\Microlog_IQ_5_main

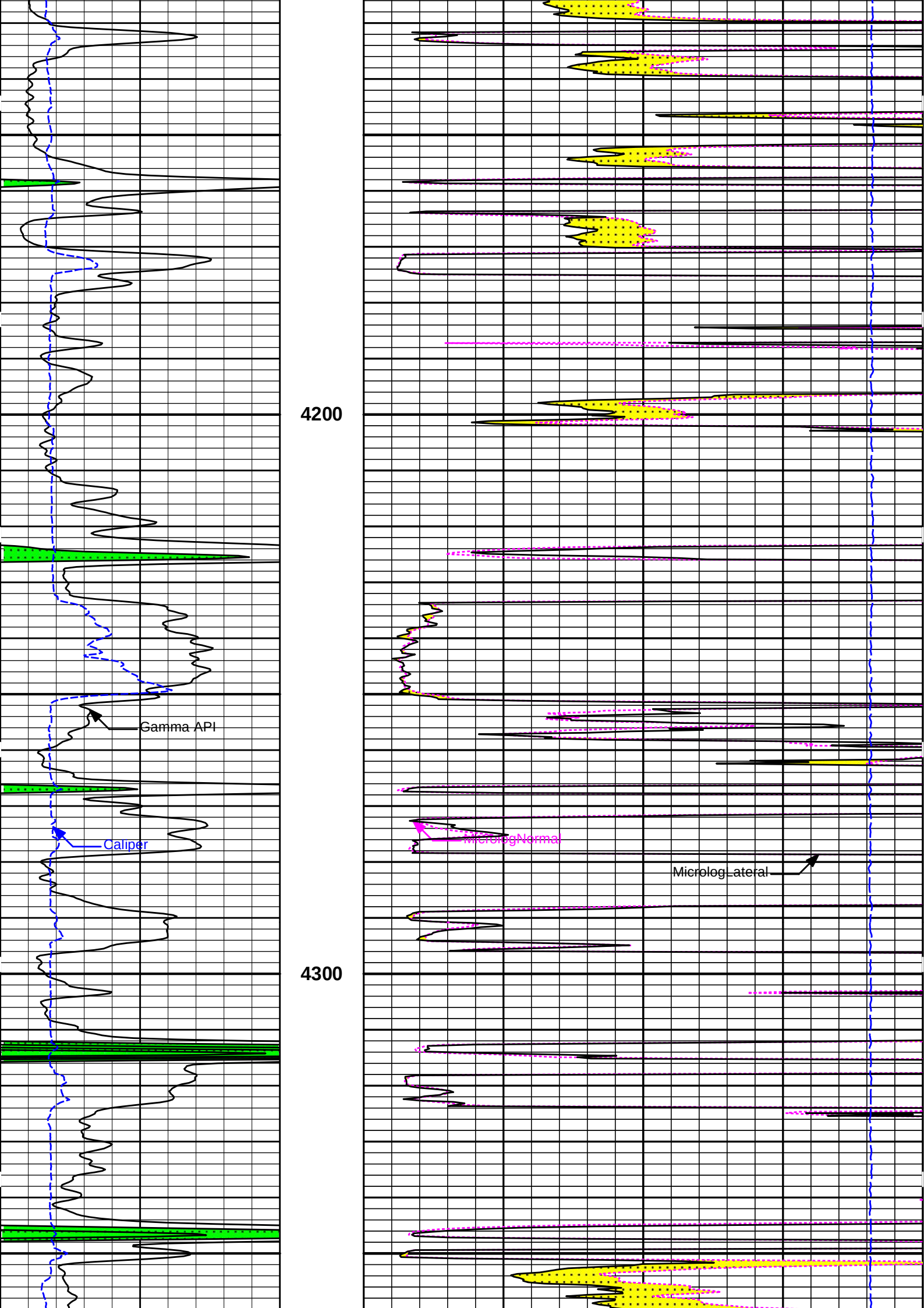
5 INCH MAIN LOG

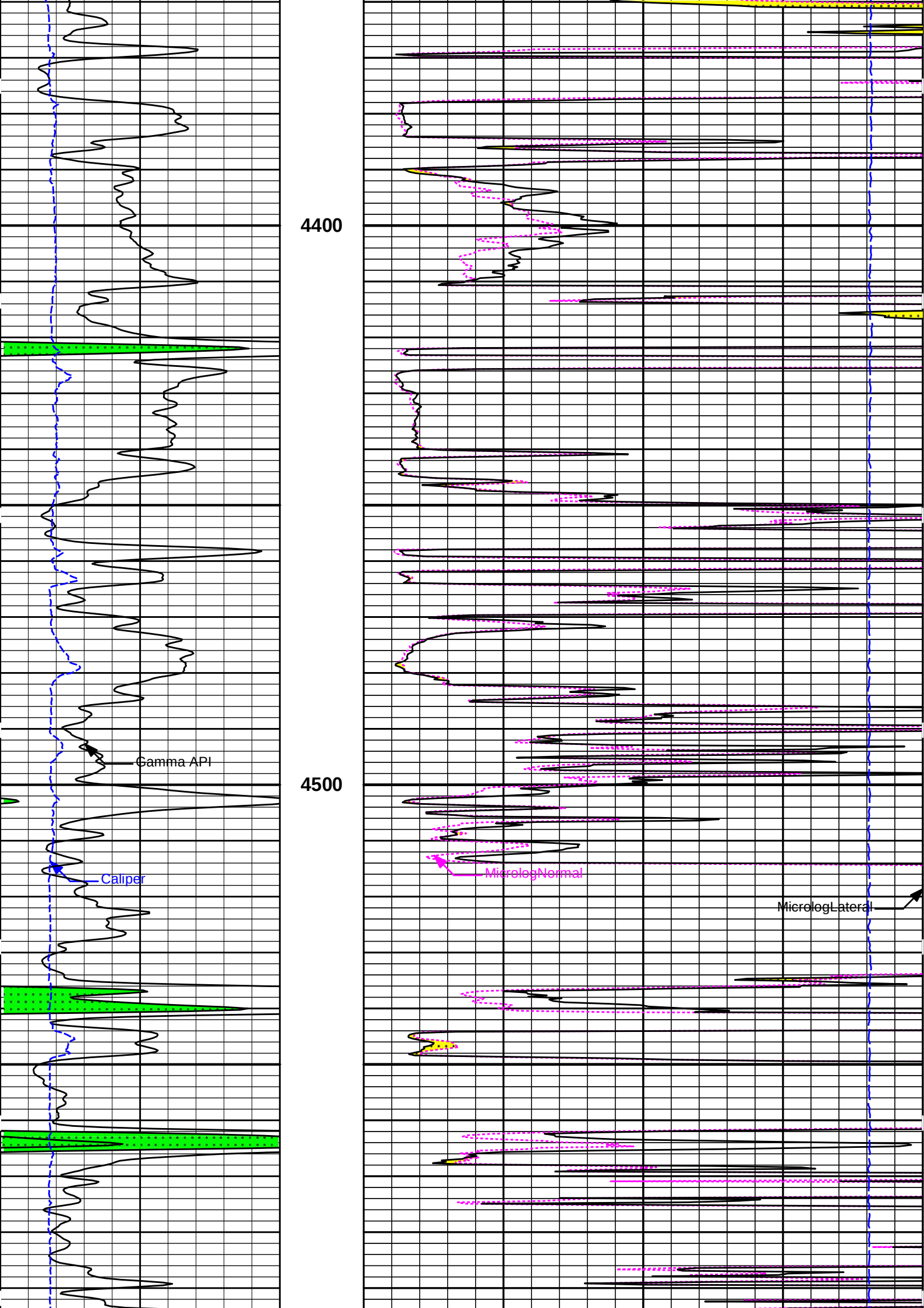
MAIN LOG 5" PER 100'

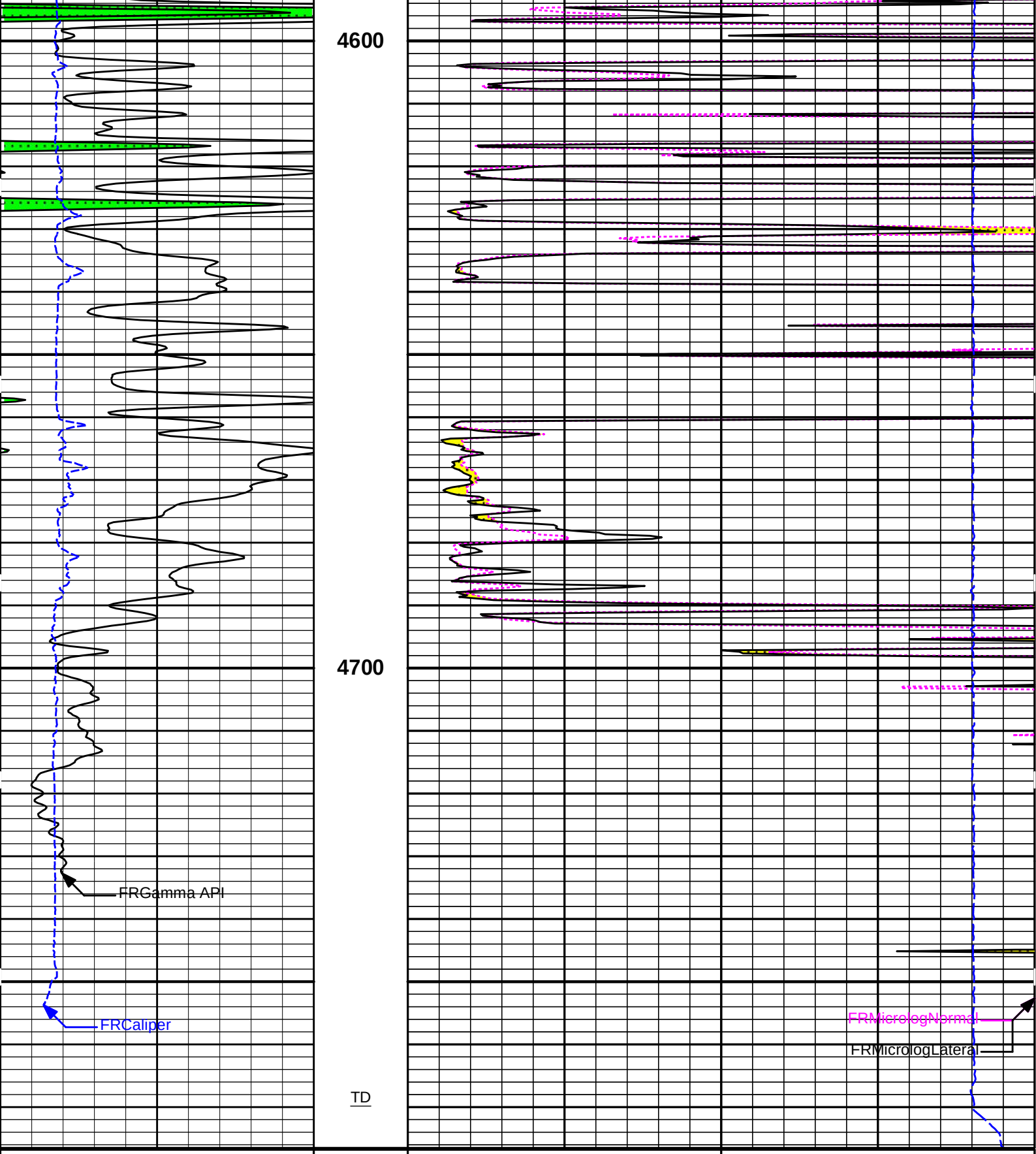



3700
Gamma API
Caliper
3800
MicrologNormal


3900
4000
4100
Gamma API
Caliper
MicrologLateral
MicrologNormal


4200
Gamma API
Caliper
MicrologNormal
Microloglateral
4300


4400
4500
Gamma API
Caliper
MicrologNormal
MicrologLateral



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

HALLIBURTON

Plot Time: 05-May-19 03:16:40
Plot Range: 3600 ft to 4776.5 ft
Data: RUSSEL_ROHLEDER\Well Based\DAQ-0001-004\
Plot File: \\-LOCAL-\RUSSEL_ROHLEDER\0001 SP_GTET-DSN-SDL-ACRT\MLOG\Microlog_IQ_5_main

5 INCH MAIN LOG

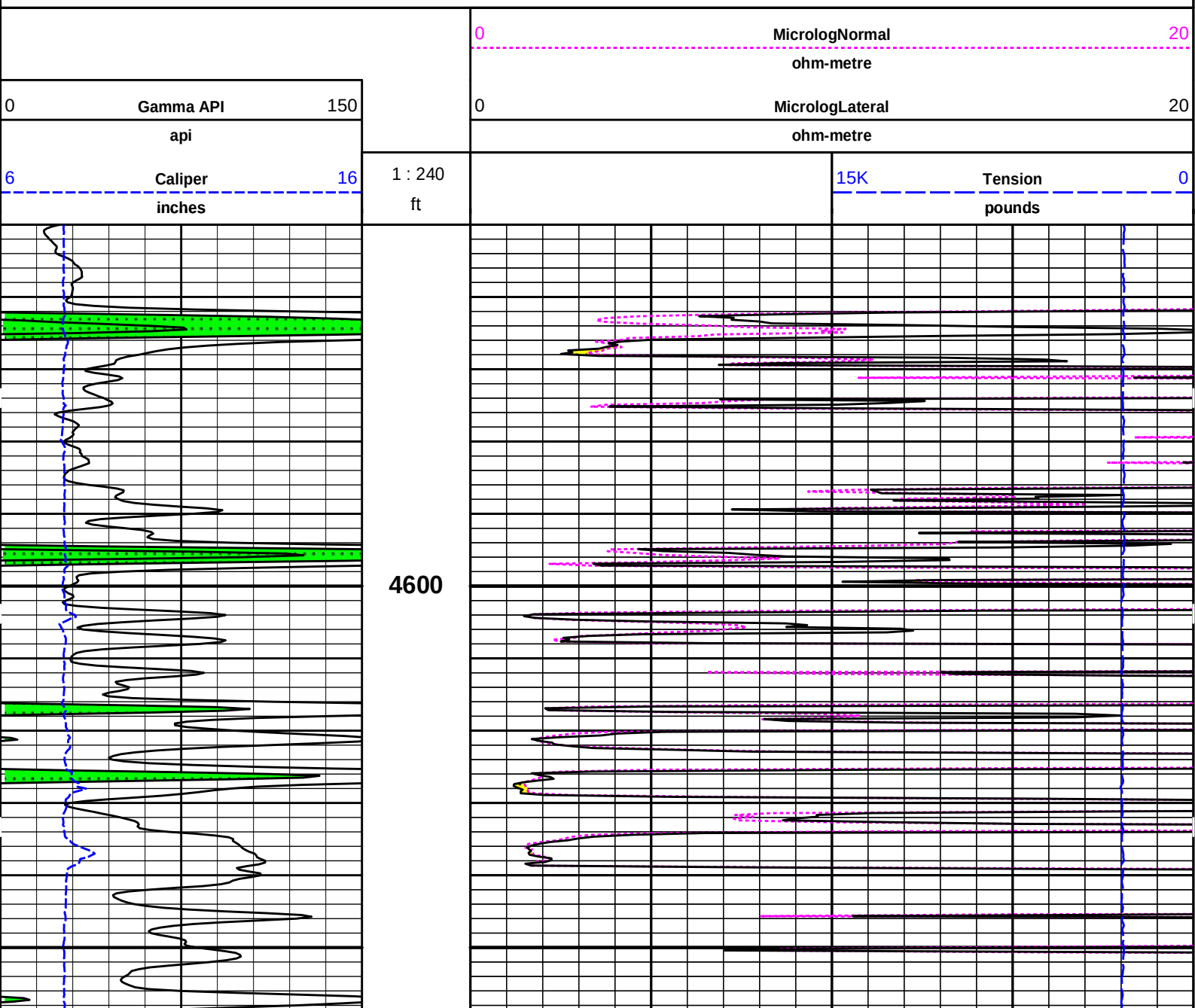
MAIN LOG 5" PER 100'

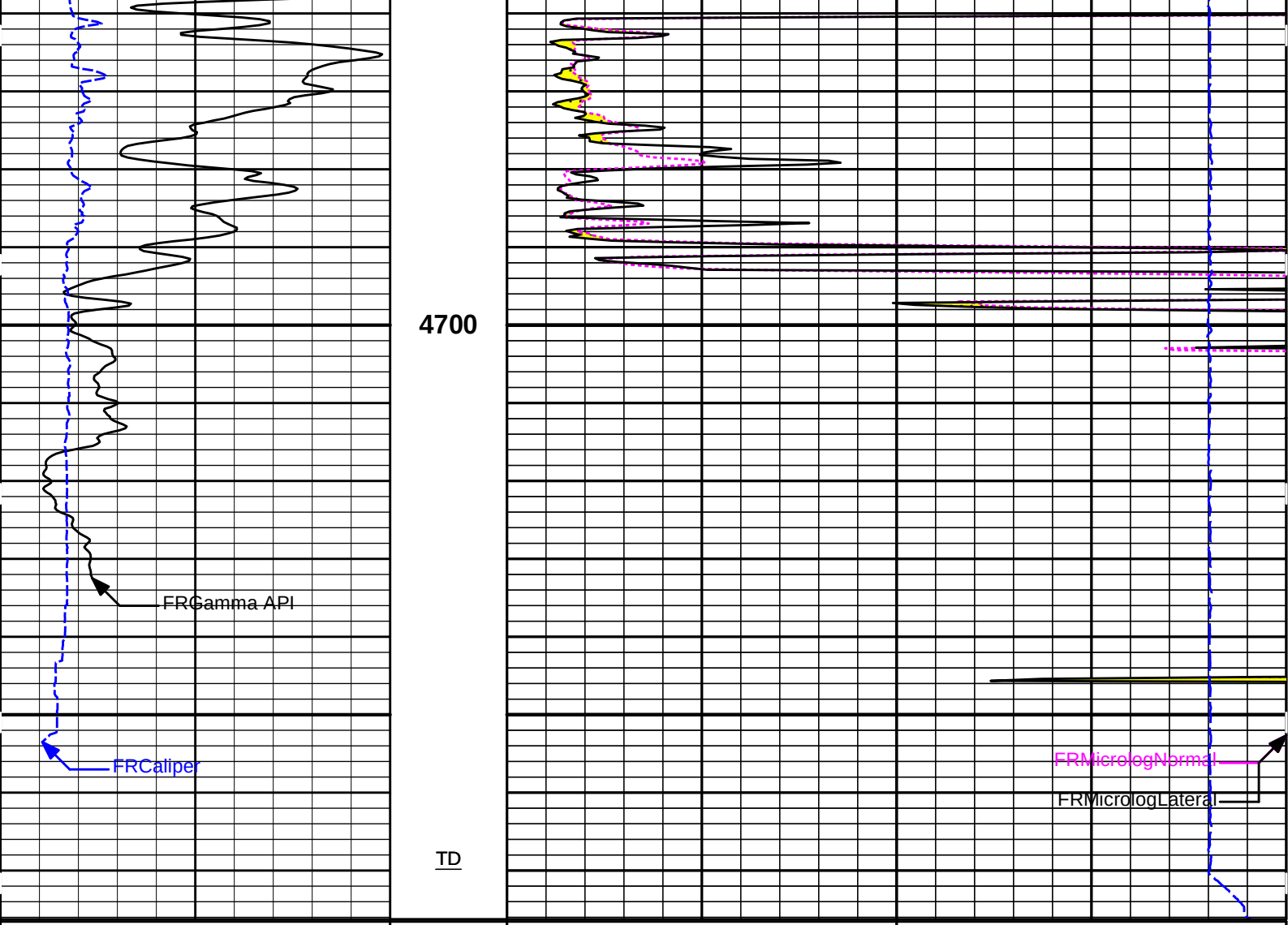
HALLIBURTON

Plot Time: 05-May-19 03:16:40
Plot Range: 4550 ft to 4776.25 ft
Data: RUSSEL_ROHLEDER\Well Based\DAQ-0001-003\
Plot File: \\-LOCAL-\RUSSEL_ROHLEDER\0001 SP_GTET-DSN-SDL-ACRT\MLOG\Microlog_IQ_5_main

REPEAT SECTION

REPEAT SECTION





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: 05-May-19 03:16:42
Plot Range: 4550 ft to 4776.25 ft
Data: RUSSEL_ROHLEDER\Well Based\DAQ-0001-003\
Plot File: \\-LOCAL-\RUSSEL_ROHLEDER\0001 SP_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: 16-Mar-16 11:27:47

Engineer:	**WOLTEMATH**	**Calibration Date:**	**23-Apr-19 21:27:33**
Software Version:	**WL INSITE R6.0.8 (Build 3)**	**Calibration Version:**	**1**

SURFACE TENSION LOAD CELL

Measurement	Load Cell Value	Measurement	Calibrated	Units
Low	10072.80	-778.11	0.00	lbs
High	17464.09	7985.85	7830.00	lbs

DOWNHOLE TENSION SHOP CALIBRATION

Tool Name:	**RWCH - 12345678**	**Reference Calibration Date:**	**02-May-19 23:19:11**
Engineer:	**WHITLOCK**	**Calibration Date:**	**03-May-19 13:30:37**
Software Version:	**WL INSITE R6.0.8 (Build 3)**	**Calibration Version:**	**1**

DOWNHOLE LOAD CELL

Measurement	Tool Value	Measurement	Calibrated	Units
Low	20474.45	6958.47	0.00	lbs
High	22151.95	7513.40	1380.00	lbs

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name:	**GTET - 11013113**	**Reference Calibration Date:**	**25-Feb-19 14:17:44**
Engineer:	**WHITLOCK**	**Calibration Date:**	**17-Apr-19 14:54:48**
Software Version:	**WL INSITE R6.0.8 (Build 3)**	**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	25.4	25.1	api
Background + Calibrator	254.2	251.0	api
Calibrator	228.8	225.9	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name:	**GTET - 11013113**	**Reference Calibration Date:**	**17-Apr-19 14:54:48**
Engineer:	**WHITLOCK**	**Calibration Date:**	**26-Apr-19 10:24:46**
Software Version:	**WL INSITE R6.0.8 (Build 3)**	**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	25.1	25.2	api
Background + Calibrator	251.0	249.4	api
Calibrator	225.9	224.2	api

Shop	Field	Difference	Tolerance
225.9	224.2	1.7	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name:	**DSNT - 11055304**	**Reference Calibration Date:**	**19-Apr-19 12:59:35**
Engineer:	**WHITLOCK**	**Calibration Date:**	**19-Apr-19 13:31:18**
Software Version:	**WL INSITE R6.0.8 (Build 3)**	**Calibration Version:**	**1**

Logging Source S/N: DSN-436
Tank Serial Number: EL RENO
Reference value assigned to Tank: 56.100
Snow Block S/N: 12156883
Calibration Tank Water Temperature: 71 degF
Min. Tool Housing Outside Diameter: 3.625 in

CALIBRATION CONSTANTS

CALIBRATION CONSTANTS

Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	1.04550	1.04715	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):	0.2353	0.2358	0.0005	+/- 0.0020
Calibrated Ratio:	10.5429	10.5596	0.017	+/- 0.050

VERIFIER

Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0694	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:**	**19-Apr-19 13:31:18**
Engineer:	**WHITLOCK**	**Calibration Date:**	**26-Apr-19 10:34:06**
Software Version:	**WL INSITE R6.0.8 (Build 3)**	**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):	0.0694	0.0707	0.0012	+/- 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:**	**01-Jan-70 00:00:00**
Engineer:	**WHITLOCK**	**Calibration Date:**	**19-Apr-19 15:10:24**
Software Version:	**WL INSITE R6.0.8 (Build 3)**	**Calibration Version:**	**1**
Host Tool Name:	**DSNT - 11055304**		

CALIBRATION COEFFICIENTS

Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-4116.41	-4116.41	-7000.00 - -1000.00
Pad Gain	0.0003782	0.0003782	0.0002000 - 0.0006000
Arm Offset	-2612.76	-2612.76	-5000.00 - 3000.00
Arm Gain	0.0005131	0.0005131	0.000300 - 0.000700
Arm Power	-0.000004627	-0.000004627	-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)	2.00	2.00	0.00	+/- 0.20
Medium Ring (in)	3.75	3.75	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

SDLT CALIPER FIELD CALIBRATION

Tool Name:	**SDLT - 10960494**	**Reference Calibration Date:**	**19-Apr-19 15:10:24**
Engineer:	**WHITLOCK**	**Calibration Date:**	**19-Apr-19 15:12:12**
Software Version:	**WL INSITE R6.0.8 (Build 3)**	**Calibration Version:**	**1**

MEASURED CALIPER VALUES

Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.75	0.00	+/- 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 - 11830728**	**Reference Calibration Date:**	**31-Oct-18 14:22:50**
Engineer:	**WHITLOCK**	**Calibration Date:**	**27-Mar-19 11:06:32**
Software Version:	**WL INSITE R6.0.2 (Build 8)**	**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	1.0408	1.05	0.95	1.0181	1.05	0.95	1.0095	1.05
A2 (50")	0.95	1.0367	1.05	0.95	1.0155	1.05	0.95	1.0105	1.05
A3 (29")	0.95	1.0317	1.05	0.95	1.0098	1.05	0.95	1.0024	1.05
A4 (17")	0.95	1.0385	1.05	0.95	1.0148	1.05	0.95	1.0094	1.05
A5 (10")	N/A	N/A	N/A	0.95	1.0181	1.05	0.95	1.0119	1.05
A6 (6")	N/A	N/A	N/A	0.95	1.0267	1.05	0.95	1.0201	1.05

SONDE OFFSET

Subarray	R12KHz	R36KHz	R72KHz
	(mmho/m)	(mmho/m)	(mmho/m)
A1 (80")	-0.236	-5.186	-5.852
A2 (50")	0.946	-3.552	-5.481
A3 (29")	-12.619	-4.085	-3.872
A4 (17")	-94.869	-29.774	-24.286
A5 (10")	N/A	-74.930	-36.896
A6 (6")	N/A	293.687	156.113

TRANSMITTER CURRENT GAIN

Signal	Lower	R	Upper
12K	0.6	0.84	1.3
36K	1.0	1.81	2.0

R-MUD VERIFICATION

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

36K	1.0	1.81	2.0
72K	1.0	1.08	2.0

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:**	**27-Mar-19 11:08:08**
Engineer:	**WHITLOCK**	**Calibration Date:**	**27-Mar-19 11:09:33**
Software Version:	**WL INSITE R6.0.2 (Build 8)**	**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	-0.024	> -0.500	Pass
A5 (10")	-0.010	> -0.500	Pass	-0.017	> -0.500	Pass	-0.036	> -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")	-214207680.000	-214179520.000	28160.000	10708976.000	Pass
A2 (50")	-206708368.000	-206673776.000	34592.000	10333688.800	Pass
A3 (29")	-201738432.000	-201708688.000	29744.000	10085434.400	Pass
A4 (17")	-201131136.000	-201103920.000	27216.000	10055196.000	Pass
A5 (10")	-201166688.000	-201139392.000	27296.000	10056969.600	Pass
A6 (6")	-200820928.000	-200790224.000	30704.000	10039511.200	Pass

R36KHz

	Measured (mmho/m)	Last Month (mmho/m)	Difference (mmho/m)	Tolerance (mmho/m)	Pass/Fail
A1 (80")	49716636.000	49685420.000	31216.000	2484271.000	Pass
A2 (50")	35654644.000	35621340.000	33304.000	1781067.000	Pass
A3 (29")	29652460.000	29621220.000	31240.000	1481061.000	Pass
A4 (17")	29377682.000	29345894.000	31788.000	1467294.700	Pass
A5 (10")	28976940.000	28946928.000	30012.000	1447346.400	Pass
A6 (6")	27667190.000	27635410.000	31780.000	1381770.500	Pass

R72KHz

	Measured (mmho/m)	Last Month (mmho/m)	Difference (mmho/m)	Tolerance (mmho/m)	Pass/Fail
A1 (80")	-93174168.000	-93165432.000	8736.000	4658271.600	Pass
A2 (50")	-90798624.000	-90786864.000	11760.000	4539343.200	Pass
A3 (29")	-88522848.000	-88513168.000	9680.000	4425658.400	Pass
A4 (17")	-88712168.000	-88700376.000	11792.000	4435018.800	Pass
A5 (10")	-87283416.000	-87271512.000	11904.000	4363575.600	Pass
A6 (6")	-88347128.000	-88335576.000	11552.000	4416778.800	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: 09-Jan-16 16:38:49
Engineer: WHITLOCK
Calibration Date: 19-Apr-19 15:03:30
Software Version: WL INSITE R6.0.8 (Build 3)
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	0.00	-0.11	0.00	-0.01	ohmm
Calibration Point #1	0.11	0.00	0.01	0.00	ohmm
Calibration Point #2	20.61	20.00	23.36	20.00	ohmm
Internal Reference	20.50	19.89	23.34	19.98	ohmm

Measurement	Micro Log Normal Tool Value	Micro Log Lateral Tool Value	Units
Tool Zero	-1.03	1.14	V
Calibration Point #1	27.13	4.08	V
Calibration Point #2	5346.13	6899.88	V
Internal Reference	5316.31	6893.17	V

MICRO LOG FIELD CHECK

Tool Name: Microlog Pad - 10960494
Reference Calibration Date: 19-Apr-19 15:03:30
Engineer: WHITLOCK
Calibration Date: 29-Apr-19 09:51:09
Software Version: WL INSITE R6.0.8 (Build 3)
Calibration Version: 1

Measurement	Micro Log Normal		Micro Log Lateral		
	Shop	Field	Shop	Field	Units
Tool Zero	-0.11	-0.10	-0.01	-0.01	ohmm
Internal Reference	19.89	19.91	19.98	20.00	ohmm

Summary

Signal	Shop	Field	Difference	Tolerence
Microlog Normal	19.89	19.91	-0.02	+/- 0.80
Microlog Lateral	19.98	20.00	-0.02	+/- 0.80

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name: SDLT Pad - 11213308
Reference Calibration Date: 14-Dec-18 11:15:00
Engineer: WHITLOCK
Calibration Date: 20-Feb-19 12:17:03
Software Version: WL INSITE R5.8.9 (Build 6)
Calibration Version: 1

Logging Source S/N: 5475GW

Aluminum Block S/N: El Reno Aluminum Block	Density: 2.581g/cc	Pe: 3.170
Magnesium Block S/N: El Reno Magnesium Block	Density: 1.687g/cc	Pe: 2.594

DENSITY CALIBRATION SUMMARY

Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	0.9935	0.9902	0.90 - 1.10
Near Dens Gain	0.9891	0.9881	0.90 - 1.10
Near Peak Gain	1.0020	1.0148	0.90 - 1.10
Near Lith Gain	1.0071	1.0175	0.90 - 1.10
Far Bar Gain	1.0015	1.0048	0.90 - 1.10
Far Dens Gain	0.9919	0.9938	0.90 - 1.10
Far Peak Gain	0.9878	0.9921	0.90 - 1.10
Far Lith Gain	0.9743	0.9808	0.90 - 1.10
Near Bar Offset	0.1918	0.2246	NONE
Near Dens Offset	0.2308	0.2401	NONE
Near Peak Offset	0.0959	-0.0122	NONE
Near Lith Offset	0.0296	-0.0574	NONE
Far Bar Offset	0.0411	0.0135	NONE
Far Dens Offset	0.1442	0.1314	NONE
Far Peak Offset	0.1660	0.1305	NONE
Far Lith Offset	0.2364	0.1860	NONE
Near Bar Background	937.48	939.15	700 - 1450
Near Dens Background	311.57	312.43	230 - 480
Near Peak Background	135.23	136.70	100 - 210
Near Lith Background	166.58	166.31	125 - 260
Far Bar Background	479.15	478.16	450 - 900
Far Dens Background	191.75	190.12	175 - 345
Far Peak Background	77.50	76.92	70 - 140
Far Lith Background	79.00	78.81	75 - 145

CALIBRATION BLOCK SUMMARY

Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.689	1.687	-0.002	+/- 0.015
Pe	2.556	2.551	-0.005	+/- 0.150
ALUMINUM				
Density (g/cc)	2.580	2.581	0.001	+/- 0.01500
Pe	3.107	3.123	0.016	+/- 0.150

TOOL SUMMARY

Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	-0.0000	+/- 0.0110	-0.0004	+/- 0.0140
Magnesium Block	-0.0005	+/- 0.0110	-0.0010	+/- 0.0140
Aluminum Block	-0.0013	+/- 0.0110	0.0004	+/- 0.0140
Resolution	9.27	6.00 - 11.50	9.45	6.00 - 11.50
Internal Verifier(B+D+P+L)	1555	1200 - 2700	824	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

Aluminum Quality Check:	Passed
Gains Check:	Passed
Changes in Calibration Blocks:	Passed

SPECTRAL DENSITY FIELD CHECK

Tool Name:	**SDLT Pad - 11213308**	**Reference Calibration Date:**	**20-Feb-19 12:17:03**
Engineer:	**WHITLOCK**	**Calibration Date:**	**29-Apr-19 09:53:55**
Software Version:	**WL INSITE R6.0.8 (Build 3)**	**Calibration Version:**	**1**

Pad Temperature: 78.8 degF

DENSITY FIELD CALIBRATION SUMMARY

Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1554.595	1544.138	-10.457	15.869
Far (B+D+P+L) cps	824.007	811.331	-12.676	15.826
Near Resolution	9.27	9.15	-0.120	0.50
Far Resolution	9.45	9.35	-0.100	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-12345678						
DH Tension Zero	0.00	----------	----------	0.00	----------	lbs
DH Tension Cal	1380.00	----------	----------	0.00	----------	lbs
GTET-11013113						
Gamma Ray Calibrator	225.9	224.2	----------	1.7	+/- 9.00	api
DSNT-11055304						
Snow-Block Porosity	0.0694	0.0707	----------	-0.0013	+/- 0.0150	decp
SDLT-10960494						
Pad Extension	3.75	3.75	----------	0.00	+/-0.10	in
Ring Diameter	8.25	8.25	----------	0.00	+/-0.15	in
ACRt Sonde-11830728						
Mud Cell	0.99	----------	----------	0	----------	ohm-m
Microlog Pad-10960494						
MicroLog Normal	19.89	19.91	----------	-0.02	+/-0.80	ohmm
MicroLog Lateral	19.98	20.00	----------	-0.02	+/-0.80	ohmm
SDLT Pad-11213308						
Near(B+D+P+L)	1554.595	1544.138	----------	10.457	+/-15.869	cps
Far(B+D+P+L)	824.007	811.331	----------	12.676	+/-15.826	cps

Data: RUSSEL_ROHLEDER\0001 SP_GTET-DSN-SDL-ACRT\IDLE **Date: 05-May-19 01:06:18**

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	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	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	4770.00	ft
SHARED	BHT	Bottom Hole Temperature	120.0	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	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	

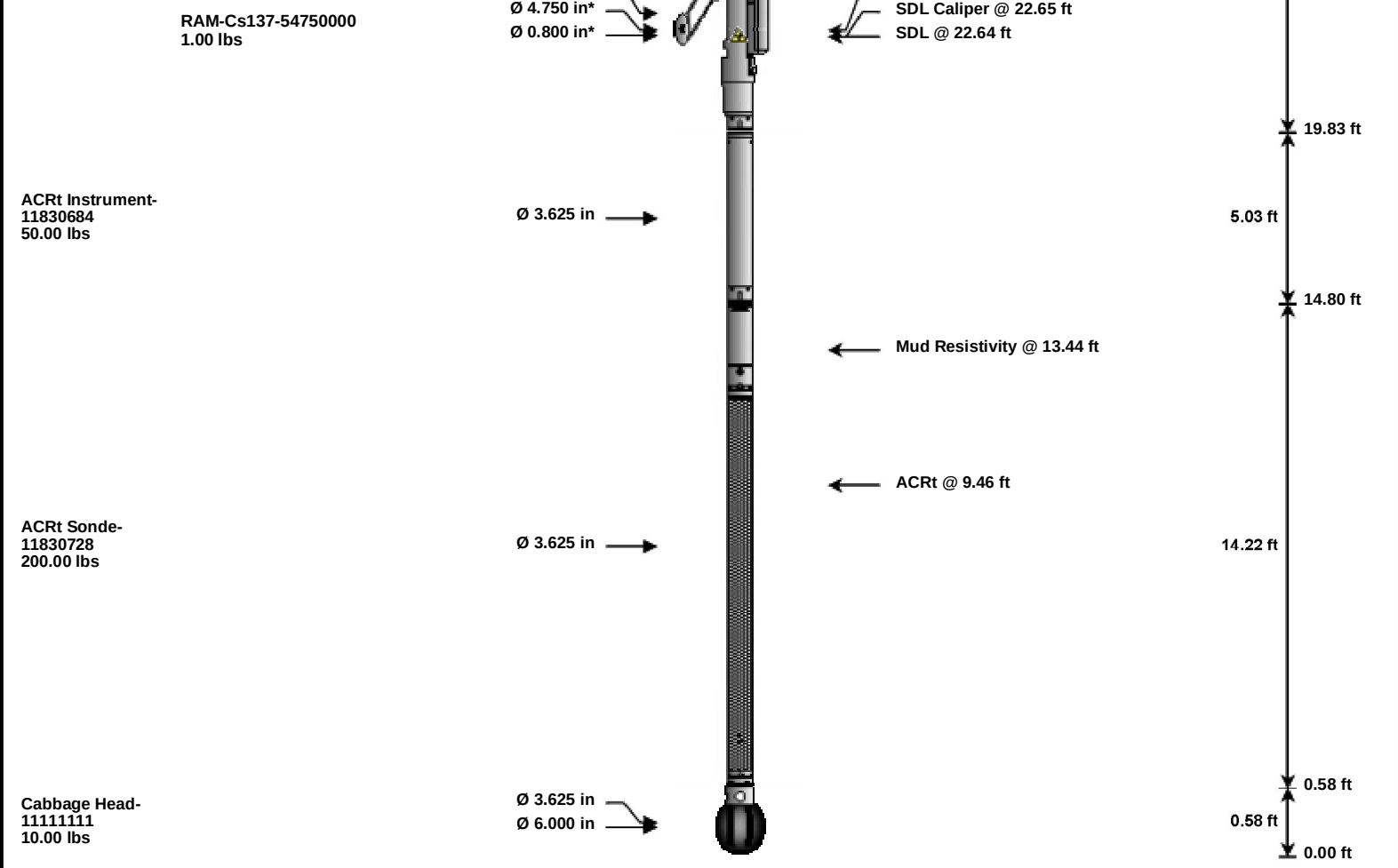
BOTTOM

Data: RUSSEL_ROHLEDER\0001 SP_GTET-DSN-SDL-ACRT\IDLE **Date: 05-May-19 01:07:11**

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
		Ø 2.310 in		Fishing Neck @ 57.96 ft		58.84 ft
RWCH-12345678 135.00 lbs		Ø 3.625 in		Load Cell @ 55.16 ft BH Temperature @ 54.59 ft	6.25 ft	
	Weak Point Solid-11111111 0.01 lbs	Ø 0.010 in*				52.59 ft
SP Sub-11812437 60.00 lbs		Ø 3.625 in		SP @ 50.81 ft	3.74 ft	
				Z-Accelerometer @ 48.40 ft		48.85 ft
GTET-11013113 165.00 lbs		Ø 3.625 in			8.52 ft	
				GammaRay @ 42.79 ft		40.33 ft
	DSN Decentralizer-11055304 6.60 lbs	Ø 5.000 in*				
DSNT-11055304 174.00 lbs		Ø 3.625 in			9.69 ft	
				DSN Far @ 33.39 ft DSN Near @ 32.64 ft		30.64 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*		Microlog @ 22.83 ft		



Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)		Accumulated Length (ft)	Max.Log. Speed (fpm)
RWCH	Releasable Wireline Cable Head	12345678	135.00	6.25		52.59	300.00
WPSS	Weak Point Solid	11111111	0.01	0.01	*	52.59	300.00
SP	SP Sub	11812437	60.00	3.74		48.85	300.00
GTET	Gamma Telemetry Tool	11013113	165.00	8.52		40.33	60.00
DSNT	Dual Spaced Neutron	11055304	174.00	9.69		30.64	60.00
DCNT	DSN Decentralizer	11055304	6.60	5.13	*	33.97	300.00
SDLT	Spectral Density Tool	10960494	360.00	10.81		19.83	60.00
SDLP	Density Insite Pad	11213308	65.00	2.55	*	22.04	60.00
Cs137	Logging Source, SDLT-I, 1.78 Ci - Cs137	54750000	1.00	0.80	*	22.27	300.00
MICP	Microlog Pad	10960494	8.00	1.00	*	22.33	60.00
ACRt	Array Compensated True Resistivity Instrument Section	11830684	50.00	5.03		14.80	120.00
ACRt	Array Compensated True Resistivity Sonde Section	11830728	200.00	14.22		0.58	120.00
CBHD	Cabbage Head	11111111	10.00	0.58		0.00	300.00
Total			**1,234.61**	**58.84**			

* Not included in Total Length and Length Accumulation.

Data: RUSSEL_ROHLEDER\0001 SP_GTET-DSN-SDL-ACRT\IDLE **Date: 05-May-19 01:07:28**

COMPANY	RUSSELL OIL, INC.
WELL	ROHLEDER TRUST #28-1
FIELD/BLOCK	WILDCAT
COUNTY	LOGAN
STATE	KANSAS

HALLIBURTON

COMPANY RUSSELL OIL, INC.
WELL ROHLEDER TRUST #28-1
FIELD/BLOCK WILDCAT
COUNTY LOGAN
API No. 15-109-21591-00-00
Location (SHL) SE SE NW NW
1105' FNL & 1090' FWL
Sect. 28 Twp.

Permanent Datum	GL
Log measured from	KB
Drilling measured from	KB
Date	05-May-19
Run No.	1
Depth - Driller	4770.0 ft
Depth - Logger	4770.0 ft
Bottom - Logged Interval	4760
Top - Logged Interval	2500
Casing - Driller	8.625 in @ 312.0 ft
Casing - Logger	312.0 ft
Bit Size	7.875 in
Type Fluid in Hole	Water Based Mud
Density / Viscosity	9.20 g/cc / 65.00 s/qt
PH / Fluid Loss	11.00 pH / 6.2 cptm
Source of Sample	FLOWLINE
Rm @ Meas. Temperature	1.04 ohmm @ 74.00 degF
Rmf @ Meas. Temperature	0.83 ohmm @ 72.00 degF
Rmc @ Meas. Temperature	1.22 ohmm @ 72.00 degF
Source Rmf / Rmc	MEAS / MEAS
Rm @ BHT	0.60 ohmm @ 133.0 degF
Time Since Circulation	22:00 hr
Time on Bottom	05-May-19 01:46
Max. Rec. Temperature	133.00 degF @ 4770.0 ft
Equipment / Location	12156883 / EL RENO, O
Recorded By	WHITLOCK
Witnessed By	KITT NOAH

MICROLOG

RUSSELL OIL, INC.

HLEDER TRUST #28-1

LDCAT

GAN STATE **KANSAS**

Other Services:
ACRT
SDL-DSN
MICLOG

Elev.: K.B. 3084.0 ft
D.F. 3082.0 ft
G.L. 3079.0 ft

Elev. 3079.0 ft
5.0 ft above perm. Datum

11S Rge. 32W

0
NW
FWL

OK

Fold here

Service Ticket No.: 905677175 API No.: 15-109-21591-00-00 PGM Version: WL INSITE R6.0.8 (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.		@		@						
Rmc @ Meas. Temp.		@		@						
Source Rmf	Rmc									
Rm @ BHT		@		@						
Rmf @ BHT		@		@						
Rmc @ BHT		@		@						

EQUIPMENT DATA

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

LOGGING DATA

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

DIRECTIONAL INFORMATION

Maximum Deviation @ KOP @

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

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