HALLIBURTON

MICROLOG

COMPANY	HARTMAN OIL COMPANY, INC
WELL	WARD #4 TWIN
FIELD/BLOCK	DAMME
COUNTY	FINNEY
STATE	KANSAS

API No. 15-055-22481-00-00
Location (SHL) 330' FSL & 1475' FEL
E2 SE SW SE

Other Services:
DSNT/SDLT
MICROLOG
ACRT

Sect. 16 Twp. 22S Rge. 33W

Permanent Datum	GL	Elev. 2889.0 ft	Elev.: K.B.	2897.0 ft
Log measured from	KB	, 8.0 ft above perm. Datum	D.F.	2897.0 ft
Drilling measured from	KB		G.L.	2889.0 ft

Date		21-Mar-18		
Run No.		ONE		
Depth - Driller		4800.0 ft		
Depth - Logger		4803.0 ft		
Bottom - Logged Interval		4781.00 ft		
Top - Logged Interval		3700.00 ft		
Casing - Driller		8.625 in @ 344.0 ft	@	@
Casing - Logger		342.0 ft		
Bit Size		7.875 in	@	@
Type Fluid in Hole		Water Based Mud		
Density	Viscosity	9.1 ppg / 51.00 s/qt		
PH	Fluid Loss	9.00 pH / 8.0 cptm		
Source of Sample		MUD PIT		
Rm @ Meas. Temperature		0.86 ohmm @ 75.00 degF	@	@
Rmf @ Meas. Temperature		0.86 ohmm @ 75.00 degF	@	@
Rmc @ Meas. Temperature		1.02 ohmm @ 75.00 degF	@	@
Source Rmf	Rmc	MEAS / MEAS		
Rm @ BHT		0.56 ohmm @ 118.0 degF	@	@
Time Since Circulation		5.0 hr		
Time on Bottom		21-Mar-18 12:25		
Max. Rec. Temperature		118.00 degF @ 4803.0 ft	@	@
Equipment	Location	12147634 / EL RENO		
Recorded By		JORGE ORLANDO PEREZ		
Witnessed By		KITT NOAH		

Fold here

Service Ticket No.: 904699315 API No.: 15-055-22481-00-00 PGM Version: WL INSITE R5.0.5 (Build 8)

CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE					
Date	Sample No.				
Depth-Driller					
Type Fluid in Hole					
Density	Viscosity				
Ph	Fluid Loss				
Source of Sample					
Rm @ Meas. Temp		@		@	
Rmf @ Meas. Temp.		@		@	
Rmc @ Meas. Temp.		@		@	
Source Rmf	Rmc				
Rm @ BHT		@		@	
Rmf @ BHT		@		@	
Rmc @ BHT		@		@	

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
ONE	ACRT	N/A	1.5 S.O.	N/A
	I-11026095			
	S-11005908			

EQUIPMENT DATA

GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Run No.	ONE	Run No.		Run No.	ONE	Run No.	ONE
Serial No.	11958947	Serial No.		Serial No.	10951315	Serial No.	11055304
Model No.	GTET	Model No.		Model No.	SDLT	Model No.	DSNT
Diameter	3.625"	No. of Cent.		Diameter	5.5"	Diameter	3.625"
Detector Model No.	T-102	Spacing		Log Type	GAM-GAM	Log Type	NEU-NEU
Type	SCINT			Source Type	CS137	Source Type	AM241BE
Length	8"	LSA [Y/N]		Serial No.	5168GW	Serial No.	DSN-424
Distance to Source	N/A	FWDA [Y/N]		Strength	1.5 Ci	Strength	15.0 Ci

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	
ONE	TD	CSG	REC	0	150				30	-10	2.71 gr/cc	30	-10	LIME

ONE	TD	CSG	REC	0	150				30	-10	2.71 gr/cc	30	-10	LIME

DIRECTIONAL INFORMATION

Maximum Deviation	@	KOP	@

Remarks: ANNULAR HOLE VOLUME CALCULATED FOR 5.5 INCH CASING

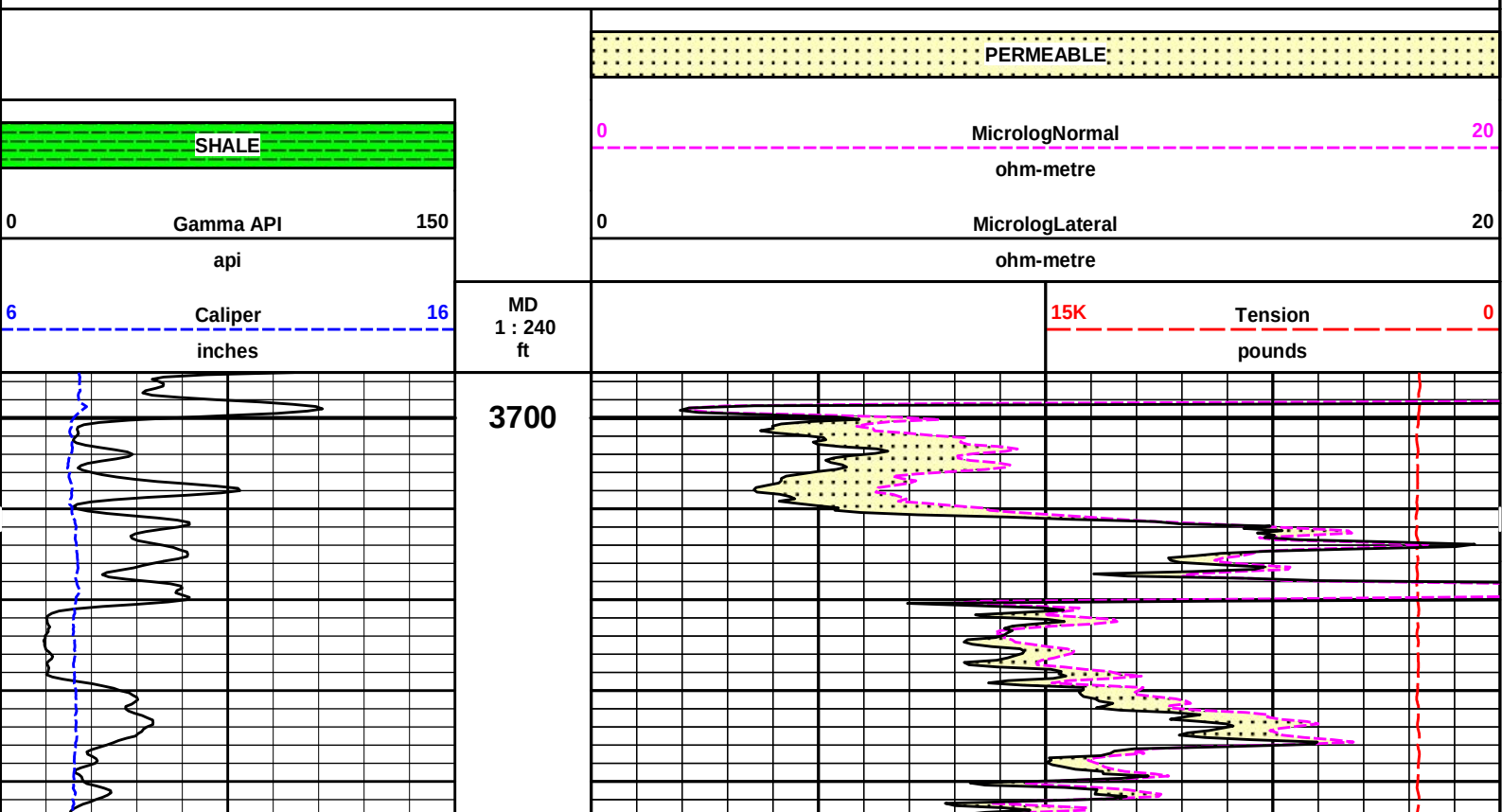
CHLORIDES REPORTED AT 2250 ppm

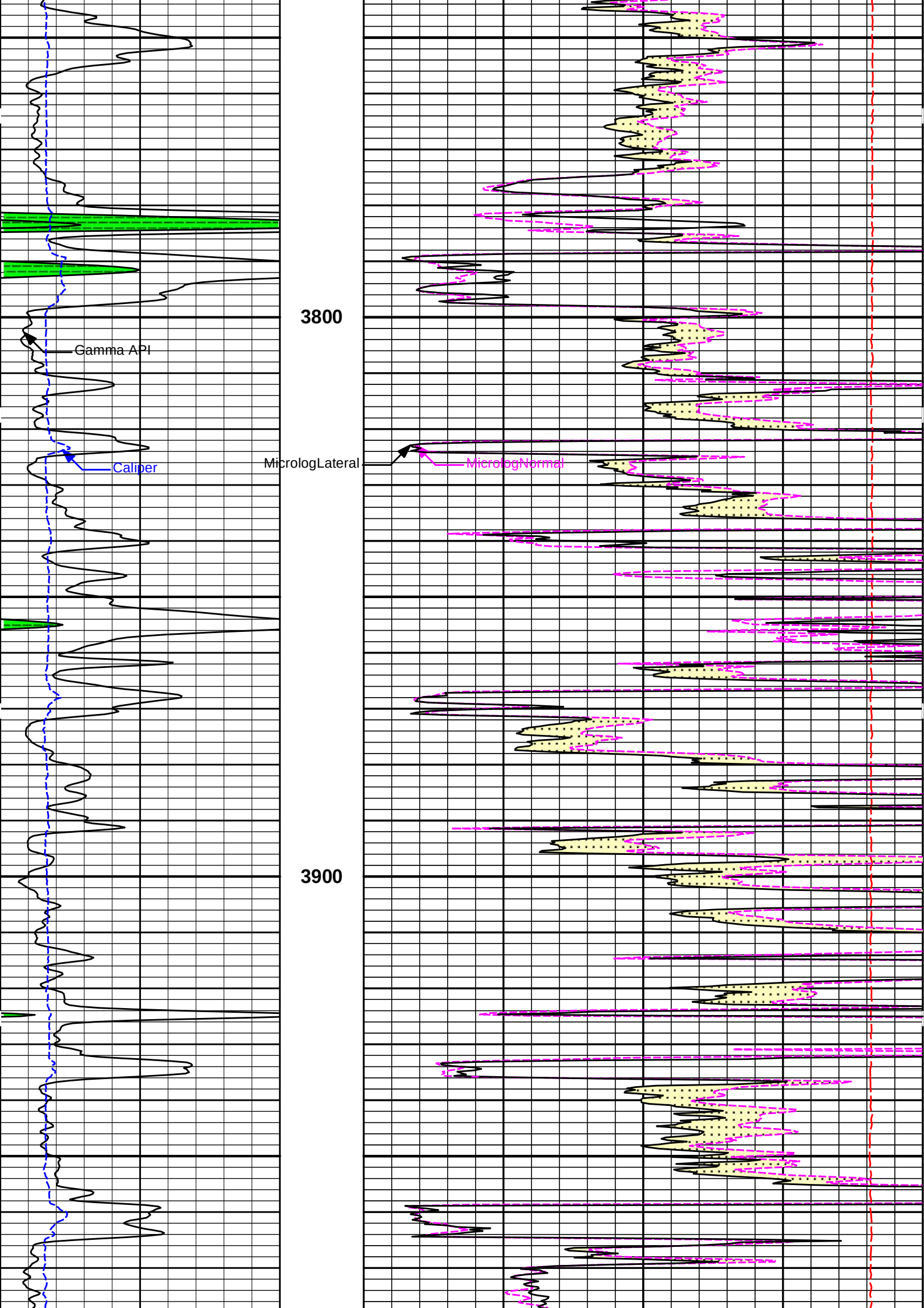
HALLIBURTON

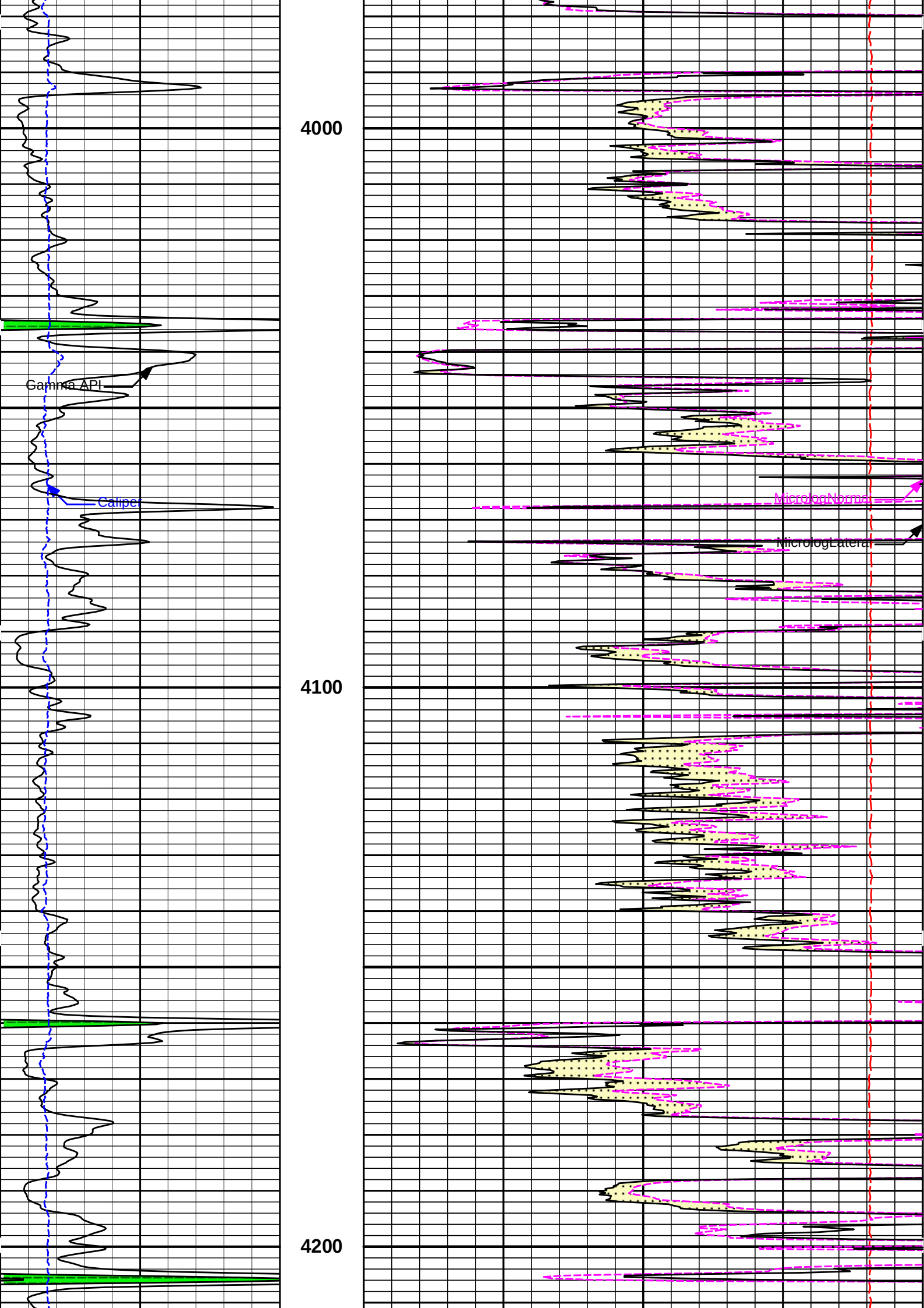
Plot Time: 21-Mar-18 15:03:12
Plot Range: 3695 ft to 4805.75 ft
Data: WARD_4-TWIN\Well Based\DETAILS
Plot File: \\-LOCAL-\WARD_4-TWIN\Well Based\MICROLOG\Microlog_IQ_5_main_lib

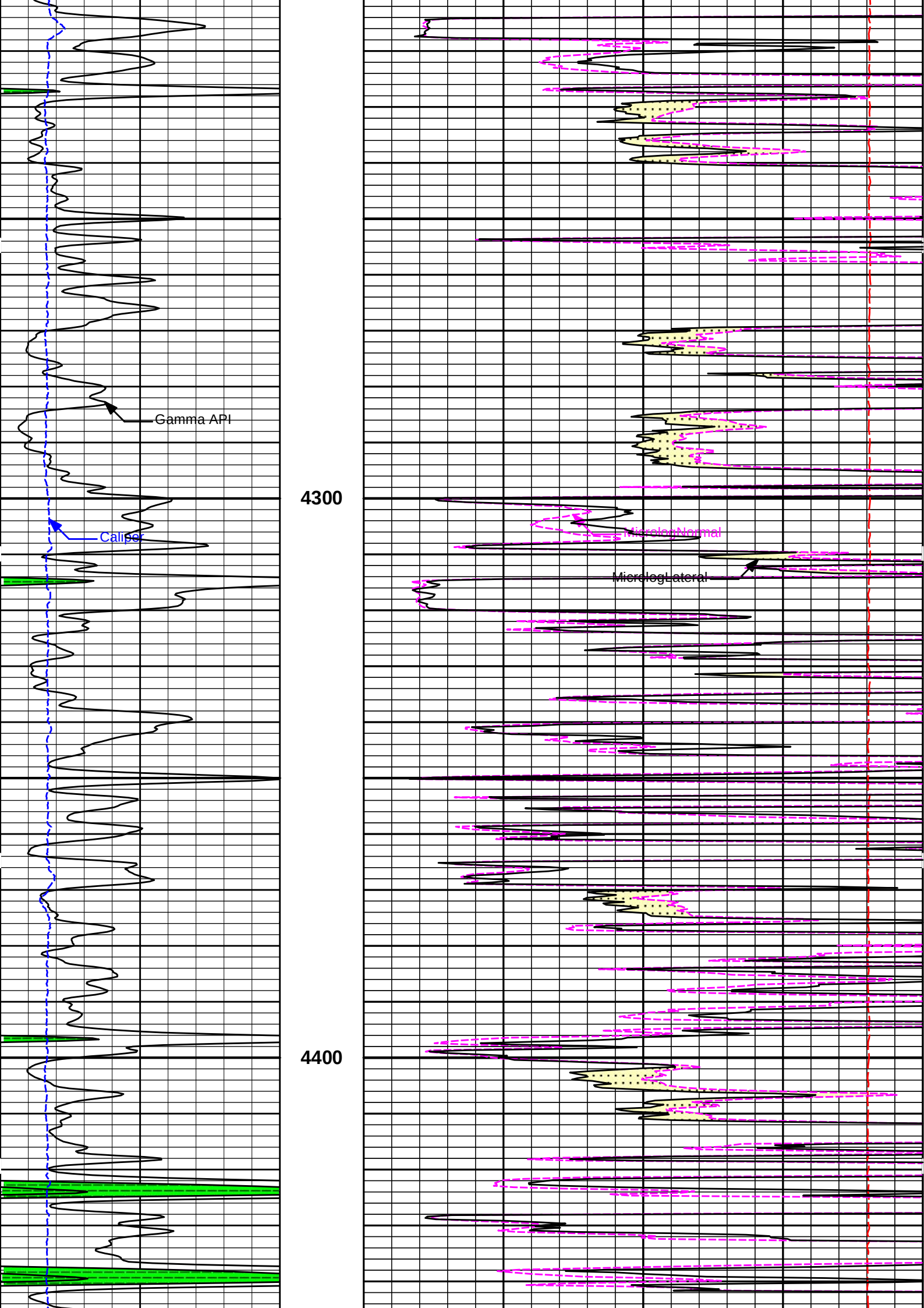
5 INCH MAIN LOG

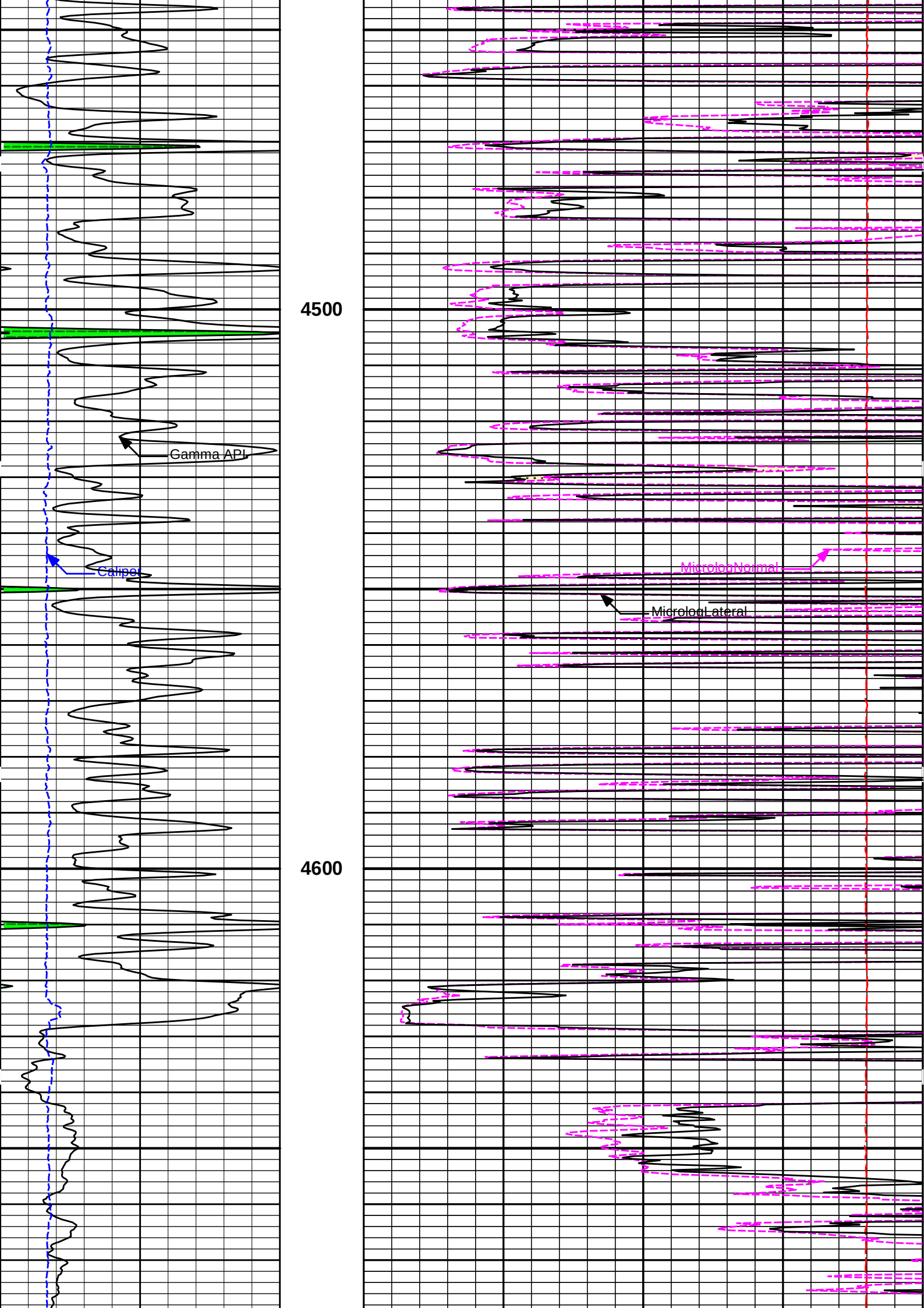
MEASURED DEPTH
MAIN LOG 5" PER 100'

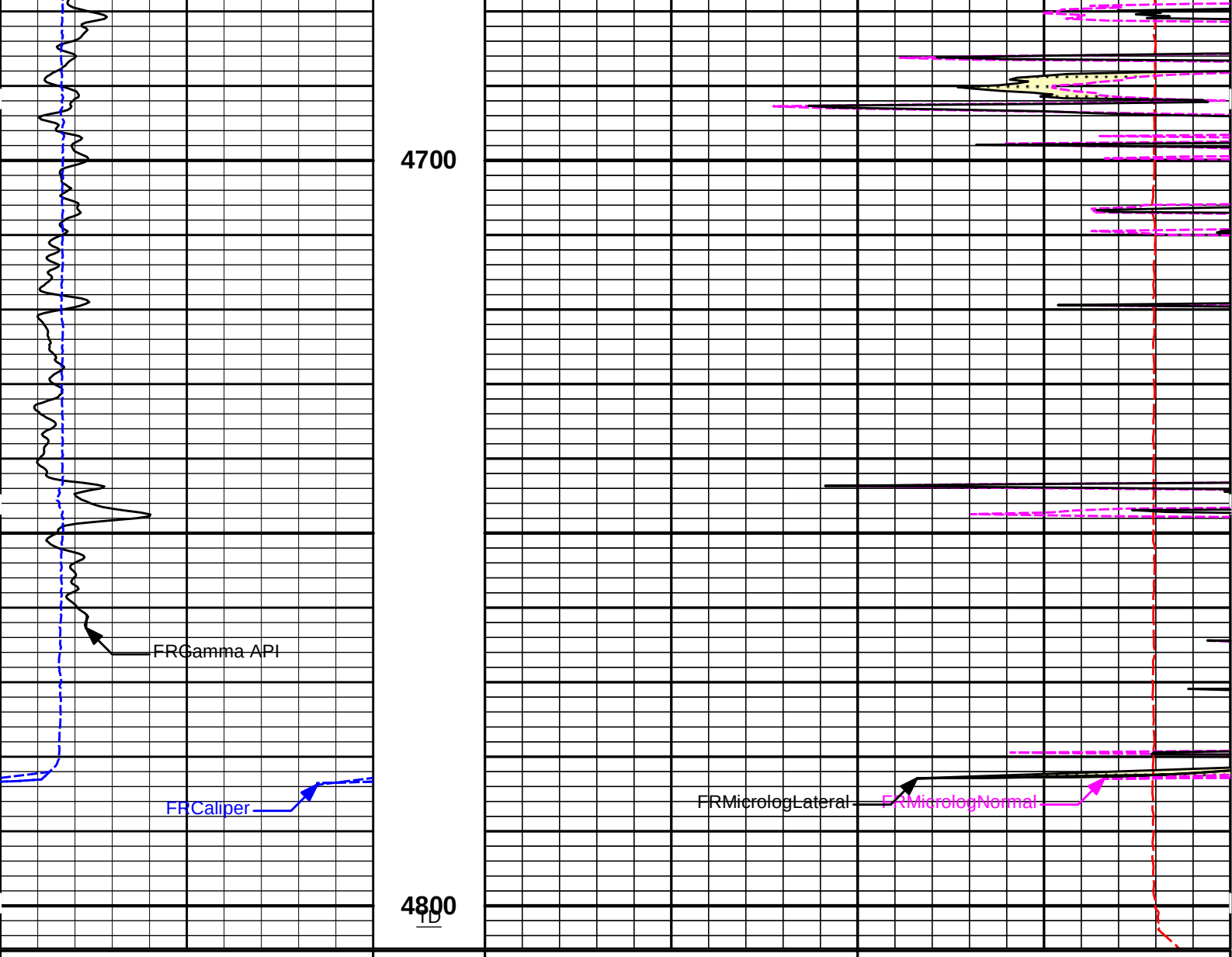



3800
Gamma API
Caliper
MicrologLateral
MicrologNormal
3900


4000
Gamma API
Caliper
MicrologNormal
MicrologLateral
4100
4200


Gamma API
Caliper
4300
MicrologNormal
MicrologLateral
4400


4500
4600
Gamma API
Caliper
MicrologNormal
MicrologLateral



6 Caliper 16
inches

0 Gamma API 150
api

SHALE

MD
1 : 240
ft

15K Tension 0
pounds

0 MicrologLateral 20
ohm-metre

0 MicrologNormal 20
ohm-metre

PERMEABLE

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Plot Time: 21-Mar-18 15:03:17
Plot Range: 3695 ft to 4805.75 ft
Data: WARD_4-TWIN\Well Based\DETAILS\
Plot File: \\-LOCAL-\WARD_4-TWIN\Well Based\MICROLOG\Microlog_IQ_5_main_lib

5 INCH MAIN LOG

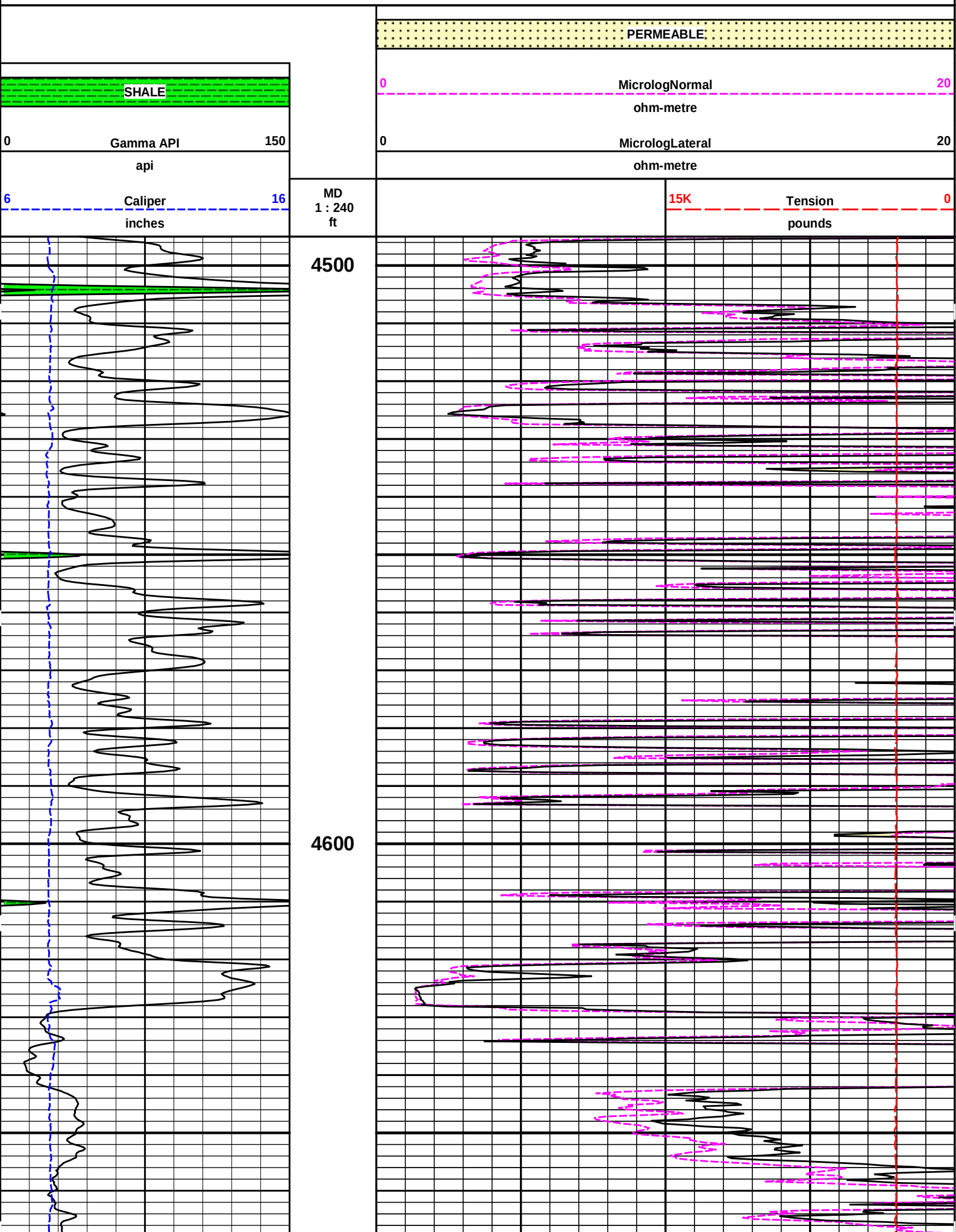
MEASURED DEPTH
MAIN LOG 5" PER 100'

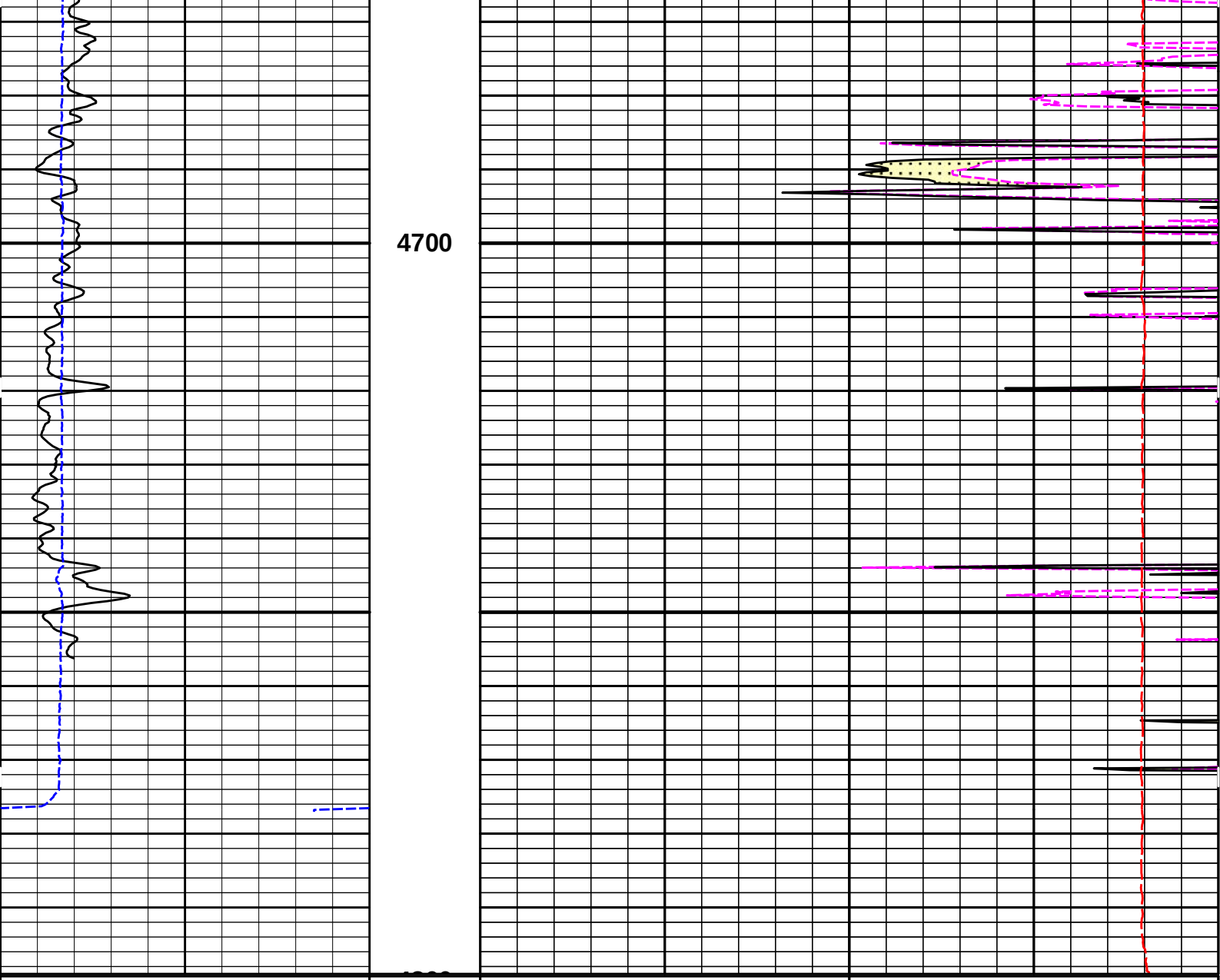
HALLIBURTON

Plot Time: 21-Mar-18 15:03:17
Plot Range: 4495 ft to 4799 ft

Data: WARD_4-TWIN\Well Based\REPEAT\
Plot File: \\-LOCAL-\WARD_4-TWIN\Well Based\MICROLOG\Microlog_IQ_5_rep_lib

REPEAT SECTION





HALLIBURTON

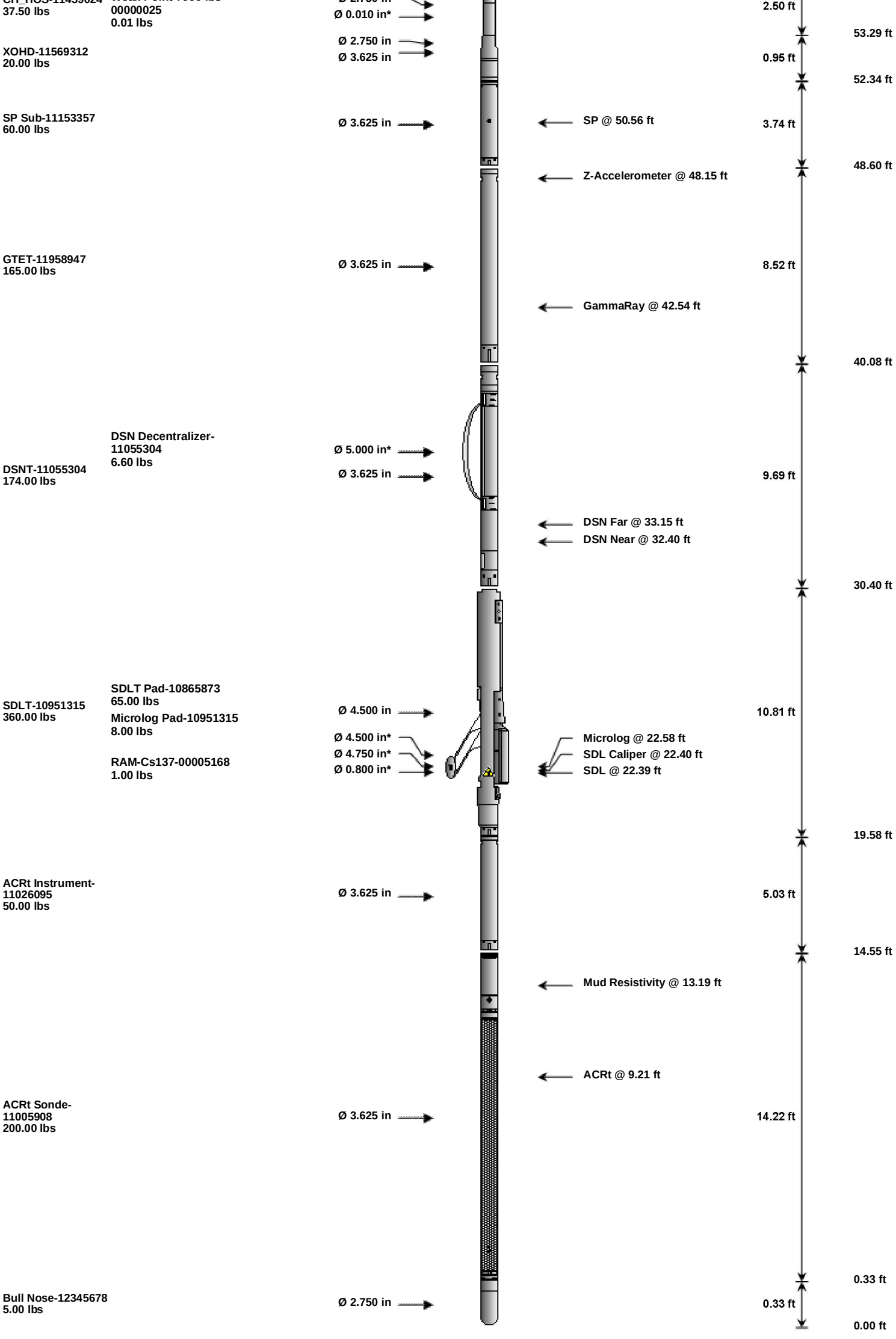
Plot Time: 21-Mar-18 15:03:19
Plot Range: 4495 ft to 4799 ft
Data: WARD_4-TWIN\Well Based\REPEAT\
Plot File: \\-LOCAL-\WARD_4-TWIN\Well Based\MICROLOG\Microlog_IQ_5_rep_lib

REPEAT SECTION

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
CH_HQS-11459024	Weak Point 7000 lbs-	Ø 2.750 in		Temperature @ 55.29 ft		55.79 ft


37.50 lbs
00000025
0.01 lbs
Ø 0.010 in*
Ø 2.750 in
Ø 3.625 in
XOHD-11569312
20.00 lbs
SP Sub-11153357
60.00 lbs
Ø 3.625 in
SP @ 50.56 ft
Z-Accelerometer @ 48.15 ft
GTET-11958947
165.00 lbs
Ø 3.625 in
GammaRay @ 42.54 ft
DSN Decentralizer-
11055304
6.60 lbs
Ø 5.000 in*
DSNT-11055304
174.00 lbs
Ø 3.625 in
DSN Far @ 33.15 ft
DSN Near @ 32.40 ft
SDLT Pad-10865873
65.00 lbs
Microlog Pad-10951315
8.00 lbs
SDLT-10951315
360.00 lbs
Ø 4.500 in
Ø 4.500 in*
Ø 4.750 in*
Ø 0.800 in*
RAM-Cs137-00005168
1.00 lbs
Microlog @ 22.58 ft
SDL Caliper @ 22.40 ft
SDL @ 22.39 ft
ACRt Instrument-
11026095
50.00 lbs
Ø 3.625 in
Mud Resistivity @ 13.19 ft
ACRt @ 9.21 ft
ACRt Sonde-
11005908
200.00 lbs
Ø 3.625 in
Bull Nose-12345678
5.00 lbs
Ø 2.750 in
2.50 ft
53.29 ft
0.95 ft
52.34 ft
3.74 ft
48.60 ft
8.52 ft
40.08 ft
9.69 ft
30.40 ft
10.81 ft
19.58 ft
5.03 ft
14.55 ft
14.22 ft
0.33 ft
0.33 ft
0.00 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	11459024	37.50	2.50		53.29	300.00
WP7K	Weak Point 7000 lbs	00000025	0.01	0.01	*	54.09	300.00
XOHD	Hostile to Dits Cross Over	11569312	20.00	0.95		52.34	300.00
SP	SP Sub	11153357	60.00	3.74		48.60	300.00
GTET	Gamma Telemetry Tool	11958947	165.00	8.52		40.08	60.00
DSNT	Dual Spaced Neutron	11055304	174.00	9.69		30.40	60.00
DCNT	DSN Decentralizer	11055304	6.60	5.13	*	33.73	300.00
SDLT	Spectral Density Tool	10951315	360.00	10.81		19.58	60.00
SDLP	Density Insite Pad	10865873	65.00	2.55	*	21.79	60.00
Cs137	Logging Source, SDLT-I, 1.78 Ci - Cs137	00005168	1.00	0.80	*	22.02	300.00
MICP	Microlog Pad	10951315	8.00	1.00	*	22.08	60.00
ACRt	Array Compensated True Resistivity Instrument Section	11026095	50.00	5.03		14.55	120.00
ACRt	Array Compensated True Resistivity Sonde Section	11005908	200.00	14.22		0.33	120.00
BLNS	Bull Nose	12345678	5.00	0.33		0.00	300.00
Total			**1,152.11**	**55.79**			

* Not included in Total Length and Length Accumulation.

Data: WARD_4-TWIN\0001 GTET-DSNT-SDLT-ACRT-634-DRIVERS\IDLE **Date: 21-Mar-18 13:31:38**

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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	0.865	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	4800.00	ft
	SHARED	BHT	Bottom Hole Temperature	118.0	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	
	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	0.71	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	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

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name:	**GTET - 11958947**	**Reference Calibration Date:**	**20-Feb-18 09:19:12**
Engineer:	**JORGE ORLANDO PEREZ**	**Calibration Date:**	**20-Feb-18 09:23:22**
Software Version:	**WL INSITE R5.0.5 (Build 8)**	**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	29.2	29.5	api
Background + Calibrator	256.0	258.4	api
Calibrator	226.8	228.9	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name:	**GTET - 11958947**	**Reference Calibration Date:**	**20-Feb-18 09:23:22**
Engineer:	**JORGE ORLANDO PEREZ**	**Calibration Date:**	**07-Mar-18 09:29:45**
Software Version:	**WL INSITE R5.0.5 (Build 8)**	**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	29.5	23.3	api
Background + Calibrator	258.4	253.5	api
Calibrator	228.9	230.1	api

Shop	Field	Difference	Tolerance
228.9	230.1	-1.2	+/- 9.00

DENSITY CALIPER SHOP CALIBRATION

Tool Name:	**SDLT - 10951315**	**Reference Calibration Date:**	**07-Mar-18 09:39:58**
Engineer:	**JORGE ORLANDO PEREZ**	**Calibration Date:**	**07-Mar-18 09:48:53**
Software Version:	**WL INSITE R5.0.5 (Build 8)**	**Calibration Version:**	**1**
Host Tool Name:	**DSNT - 11055304**		

CALIBRATION COEFFICIENTS

Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-3522.85	-3549.59	-7000.00 - -1000.00
Pad Gain	0.0003722	0.0003749	0.0002000 - 0.0006000
Arm Offset	-3023.66	-2454.88	-5000.00 - 3000.00
Arm Gain	0.0005295	0.0004796	0.000300 - 0.000700
Arm Power	-0.000006101	-0.000003067	-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)	3.73	3.75	0.02	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.40	6.50	0.10	+/- 0.20
Medium Ring (in)	8.27	8.25	-0.02	+/- 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 - 10951315**	**Reference Calibration Date:**	**07-Mar-18 09:48:53**
Engineer:	**JORGE ORLANDO PEREZ**	**Calibration Date:**	**07-Mar-18 09:51:03**
Software Version:	**WL INSITE R5.0.5 (Build 8)**	**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

MICRO LOG SHOP CALIBRATION

Tool Name: Microlog Pad - 10951315
Reference Calibration Date: 13-Mar-18 17:22:52
Engineer: JORGE ORLANDO PEREZ
Calibration Date: 21-Mar-18 12:30:09
Software Version: WL INSITE R5.0.5 (Build 8)
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	-0.11	-0.12	-0.00	-0.00	ohmm
Calibration Point #1	0.00	0.00	0.00	0.00	ohmm
Calibration Point #2	19.76	20.00	19.93	20.00	ohmm
Internal Reference	19.83	20.07	19.91	19.98	ohmm

Measurement	Micro Log Normal Tool Value	Micro Log Lateral Tool Value	Units
Tool Zero	-2.57	0.53	V
Calibration Point #1	27.78	2.13	V
Calibration Point #2	5286.93	6884.80	V
Internal Reference	5306.57	6879.42	V

MICRO LOG FIELD CHECK

Tool Name: Microlog Pad - 10951315
Reference Calibration Date: 21-Mar-18 12:30:09
Engineer: JORGE ORLANDO PEREZ
Calibration Date: 21-Mar-18 12:30:48
Software Version: WL INSITE R5.0.5 (Build 8)
Calibration Version: 1

Measurement	Micro Log Normal		Micro Log Lateral		
	Shop	Field	Shop	Field	Units
Tool Zero	-0.12	-0.11	-0.00	-0.01	ohmm
Internal Reference	20.07	20.08	19.98	19.99	ohmm

Summary

Signal	Shop	Field	Difference	Tolerence
Microlog Normal	20.07	20.08	-0.01	+/- 0.80
Microlog Lateral	19.98	19.99	-0.01	+/- 0.80

CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-11958947						
Gamma Ray Calibrator	228.9	230.1	----------	-1.2	+/- 9.00	api
SDLT-10951315						
Pad Extension	3.75	3.75	----------	0.00	+/-0.10	in
Ring Diameter	8.25	8.25	----------	0.00	+/-0.15	in
Microlog Pad-10951315						
MicroLog Normal	20.07	20.08	----------	-0.01	+/-0.80	ohmm
MicroLog Lateral	19.98	19.99	----------	-0.01	+/-0.80	ohmm

Data: WARD_4-TWIN\0001 GTET-DSNT-SDLT-ACRT-634-DRIVERS\IDLE **Date: 21-Mar-18 14:53:03**

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INPUTS, DELAYS AND FILTERS TABLE

Mnemonic	Input Description	Delay (ft)	Filter Type	Filter Length (ft)
	Depth Panel			
TENS	Tension	0.00	NO	
	Rwa / CrossPlot			
TPUL	Tension Pull	55.79	NO	
BS	Bit Size	55.79	NO	
HDIA	Measured Hole Diameter	0.00	NO	
	CH_HOS			
DHTN	DownholeTension	0.00	BLK	0.000
	SP Sub			
PLTC	Plot Control Mask	50.56	NO	
SP	Spontaneous Potential	50.56	BLK	1.250
SPR	Raw Spontaneous Potential	50.56	NO	
SPO	Spontaneous Potential Offset	50.56	NO	
	GTET			
TPUL	Tension Pull	42.54	NO	
GR	Natural Gamma Ray API	42.54	TRI	1.750
GRU	Unfiltered Natural Gamma Ray API	42.54	NO	
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution	42.54	W	1.416 , 0.750
HDIA	Measured Hole Diameter	0.00	NO	
ACCZ	Accelerometer Z	0.00	BLK	0.083
DEVI	Inclination	0.00	NO	
	DSNT			
TPUL	Tension Pull	32.30	NO	
RNDS	Near Detector Telemetry Counts	32.40	BLK	1.417
RFDS	Far Detector Telemetry Counts	33.15	TRI	0.583
DNTT	DSN Tool Temperature	32.40	NO	
DSNS	DSN Tool Status	32.30	NO	
ERND	Near Detector Telemetry Counts EVR	32.40	BLK	0.000
ERFD	Far Detector Telemetry Counts EVR	33.15	BLK	0.000
ENTM	DSN Tool Temperature EVR	32.40	NO	
HDIA	Measured Hole Diameter	0.00	NO	
	SDLT			
TPUL	Tension Pull	22.40	NO	
PCAL	Pad Caliper	22.40	TRI	0.250
ACAL	Arm Caliper	22.40	TRI	0.250
	ACRt Sonde			
TPUL	Tension Pull	2.73	NO	
F1R1	ACRT 12KHz - 80in R value	8.98	BLK	0.000
F1X1	ACRT 12KHz - 80in X value	8.98	BLK	0.000
F1R2	ACRT 12KHz - 50in R value	6.48	BLK	0.000
F1X2	ACRT 12KHz - 50in X value	6.48	BLK	0.000
F1R3	ACRT 12KHz - 29in R value	4.98	BLK	0.000
F1X3	ACRT 12KHz - 29in X value	4.98	BLK	0.000
F1R4	ACRT 12KHz - 17in R value	3.98	BLK	0.000
F1X4	ACRT 12KHz - 17in X value	3.98	BLK	0.000
F1R5	ACRT 12KHz - 10in R value	3.48	BLK	0.000
F1X5	ACRT 12KHz - 10in X value	3.48	BLK	0.000
F1R6	ACRT 12KHz - 6in R value	3.23	BLK	0.000
F1X6	ACRT 12KHz - 6in X value	3.23	BLK	0.000
F2R1	ACRT 36KHz - 80in R value	8.98	BLK	0.000

F2X1	ACRT 36KHz - 80in X value	8.98	BLK	0.000
F2R2	ACRT 36KHz - 50in R value	6.48	BLK	0.000
F2X2	ACRT 36KHz - 50in X value	6.48	BLK	0.000
F2R3	ACRT 36KHz - 29in R value	4.98	BLK	0.000
F2X3	ACRT 36KHz - 29in X value	4.98	BLK	0.000
F2R4	ACRT 36KHz - 17in R value	3.98	BLK	0.000
F2X4	ACRT 36KHz - 17in X value	3.98	BLK	0.000
F2R5	ACRT 36KHz - 10in R value	3.48	BLK	0.000
F2X5	ACRT 36KHz - 10in X value	3.48	BLK	0.000
F2R6	ACRT 36KHz - 6in R value	3.23	BLK	0.000
F2X6	ACRT 36KHz - 6in X value	3.23	BLK	0.000
F3R1	ACRT 72KHz - 80in R value	8.98	BLK	0.000
F3X1	ACRT 72KHz - 80in X value	8.98	BLK	0.000
F3R2	ACRT 72KHz - 50in R value	6.48	BLK	0.000
F3X2	ACRT 72KHz - 50in X value	6.48	BLK	0.000
F3R3	ACRT 72KHz - 29in R value	4.98	BLK	0.000
F3X3	ACRT 72KHz - 29in X value	4.98	BLK	0.000
F3R4	ACRT 72KHz - 17in R value	3.98	BLK	0.000
F3X4	ACRT 72KHz - 17in X value	3.98	BLK	0.000
F3R5	ACRT 72KHz - 10in R value	3.48	BLK	0.000
F3X5	ACRT 72KHz - 10in X value	3.48	BLK	0.000
F3R6	ACRT 72KHz - 6in R value	3.23	BLK	0.000
F3X6	ACRT 72KHz - 6in X value	3.23	BLK	0.000
RMUD	Mud Resistivity	12.52	BLK	0.000
F1RT	Transmitter Reference 12 KHz Real Signal	2.73	BLK	0.000
F1XT	Transmitter Reference 12 KHz Imaginary Signal	2.73	BLK	0.000
F2RT	Transmitter Reference 36 KHz Real Signal	2.73	BLK	0.000
F2XT	Transmitter Reference 36 KHz Imaginary Signal	2.73	BLK	0.000
F3RT	Transmitter Reference 72 KHz Real Signal	2.73	BLK	0.000
F3XT	Transmitter Reference 72 KHz Imaginary Signal	2.73	BLK	0.000
TFPU	Upper Feedpipe Temperature Calculated	2.73	BLK	0.000
TFPL	Lower Feedpipe Temperature Calculated	2.73	BLK	0.000
ITMP	Instrument Temperature	2.73	BLK	0.000
TCVA	Temperature Correction Values Loop Off	2.73	NO	
TIDV	Instrument Temperature Derivative	2.73	NO	
TUDV	Upper Temperature Derivative	2.73	NO	
TLDV	Lower Temperature Derivative	2.73	NO	
TRBD	Receiver Board Temperature	2.73	NO	
HDIA	Measured Hole Diameter	0.00	NO	
	Microlog Pad			
TPUL	Tension Pull	22.58	NO	
MINV	Microlog Lateral	22.58	BLK	0.750
MNOR	Microlog Normal	22.58	BLK	0.750
	SDLT Pad			
TPUL	Tension Pull	22.39	NO	
NAB	Near Above	22.21	BLK	0.920
NHI	Near Cesium High	22.21	BLK	0.920
NLO	Near Cesium Low	22.21	BLK	0.920
NVA	Near Valley	22.21	BLK	0.920
NBA	Near Barite	22.21	BLK	0.920
NDE	Near Density	22.21	BLK	0.920
NPK	Near Peak	22.21	BLK	0.920
NLI	Near Lithology	22.21	BLK	0.920
NBAU	Near Barite Unfiltered	22.21	BLK	0.250
NLIU	Near Lithology Unfiltered	22.21	BLK	0.250
FAB	Far Above	22.56	BLK	0.250
FHI	Far Cesium High	22.56	BLK	0.250

FLO	Far Cesium Low	22.56	BLK	0.250
FVA	**Far Valley**	**22.56**	**BLK**	**0.250**
FBA	Far Barite	22.56	BLK	0.250
FDE	**Far Density**	**22.56**	**BLK**	**0.250**
FPK	Far Peak	22.56	BLK	0.250
FLI	**Far Lithology**	**22.56**	**BLK**	**0.250**
PTMP	Pad Temperature	22.40	BLK	0.920
NHV	**Near Detector High Voltage**	**21.79**	**NO**	
FHV	Far Detector High Voltage	21.79	NO	
ITMP	**Instrument Temperature**	**21.79**	**NO**	
DDHV	Detector High Voltage	21.79	NO	
HDIA	**Measured Hole Diameter**	**0.00**	**NO**	

Data: WARD_4-TWIN\0001 GTET-DSNT-SDLT-ACRT-634-DRIVERS\IDLE **Date: 21-Mar-18 14:54:03**

COMPANY	**HARTMAN OIL COMPANY, INC**		
WELL	**WARD #4 TWIN**		
FIELD	**DAMME**		
COUNTY	**FINNEY**	STATE	**KANSAS**

HALLIBURTON

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