

HALLIBURTON

ANNULAR HOLE VOLUME

COMPANY				BIRD DOG OIL, LLC			
WELL				HALL-GATES 2-5			
FIELD/BLOCK				GATES			
COUNTY				STAFFORD			
STATE				KANSAS			
Permanent Datum		GL		Elev. 1896.0 ft		Elev.: K.B. 1905.0 ft	
Log measured from		KB		9.0 ft above perm. Datum		D.F. 1905.0 ft	
Drilling measured from		KB				G.L. 1896.0 ft	
Date		18-Oct-19					
Run No.		ONE					
Depth - Driller		3850.0 ft					
Depth - Logger		3850.0 ft					
Bottom - Logged Interval		3828.00 ft					
Top - Logged Interval		432.00 ft					
Casing - Driller		8.625 in		@ 432.0 ft		@	
Casing - Logger		432.0 ft					
Bit Size		7.875 in		@		@	
Type Fluid in Hole		Water Based Mud					
Density		75.1 ppq		58.00 s/qt			
PH		10.50 pH		10.0 cpm			
Source of Sample		MUDPIT					
Rm @ Meas. Temperature		0.51 ohmm		@ 75.00 degF		@	
Rmf @ Meas. Temperature		0.47 ohmm		@ 75.00 degF		@	
Rmc @ Meas. Temperature		0.58 ohmm		@ 75.00 degF		@	
Source Rmf		MEAS		MEAS			
Rm @ BHT		0.35 ohmm		@ 111.0 degF		@	
Time Since Circulation		5.0 hr					
Time on Bottom		18-Oct-19 09:00					
Max. Rec. Temperature		111.00 degF		@ 3850.0 ft		@	
Equipment		12156883		EL RENO, OK			
Recorded By		JORGE ORLANDO PEREZ					
Witnessed By		JUSTIN CARTER					

Fold here

Service Ticket No.: 906051745						API No.: 15-185-24062-00-00						PGM Version: WL INSITE R6.2.7 (Build 7)															
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.				@				@				ONE		ACRT		N/A		1.5" S.O.		N/A							
Rmc @ Meas. Temp.				@				@						I-11830684													
Source Rmf		Rmc										S-11830728															
Rm @ BHT				@				@																			
Rmf @ BHT				@				@																			
Rmc @ BHT				@				@																			
EQUIPMENT DATA																											
GAMMA						ACOUSTIC						DENSITY						NEUTRON									
Run No.		ONE				Run No.						Run No.		ONE				Run No.		ONE							
Serial No.		11013113				Serial No.						Serial No.		10960494				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.		5475GW				Serial No.		DSN-436							
Distance to Source		N/A				FWDA [Y/N]						Strength		1.78 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					
ONE		TD		CSC		BEC		0		150						20		10		2.71 gr/cc		20		10		LIME	

DIRECTIONAL INFORMATION

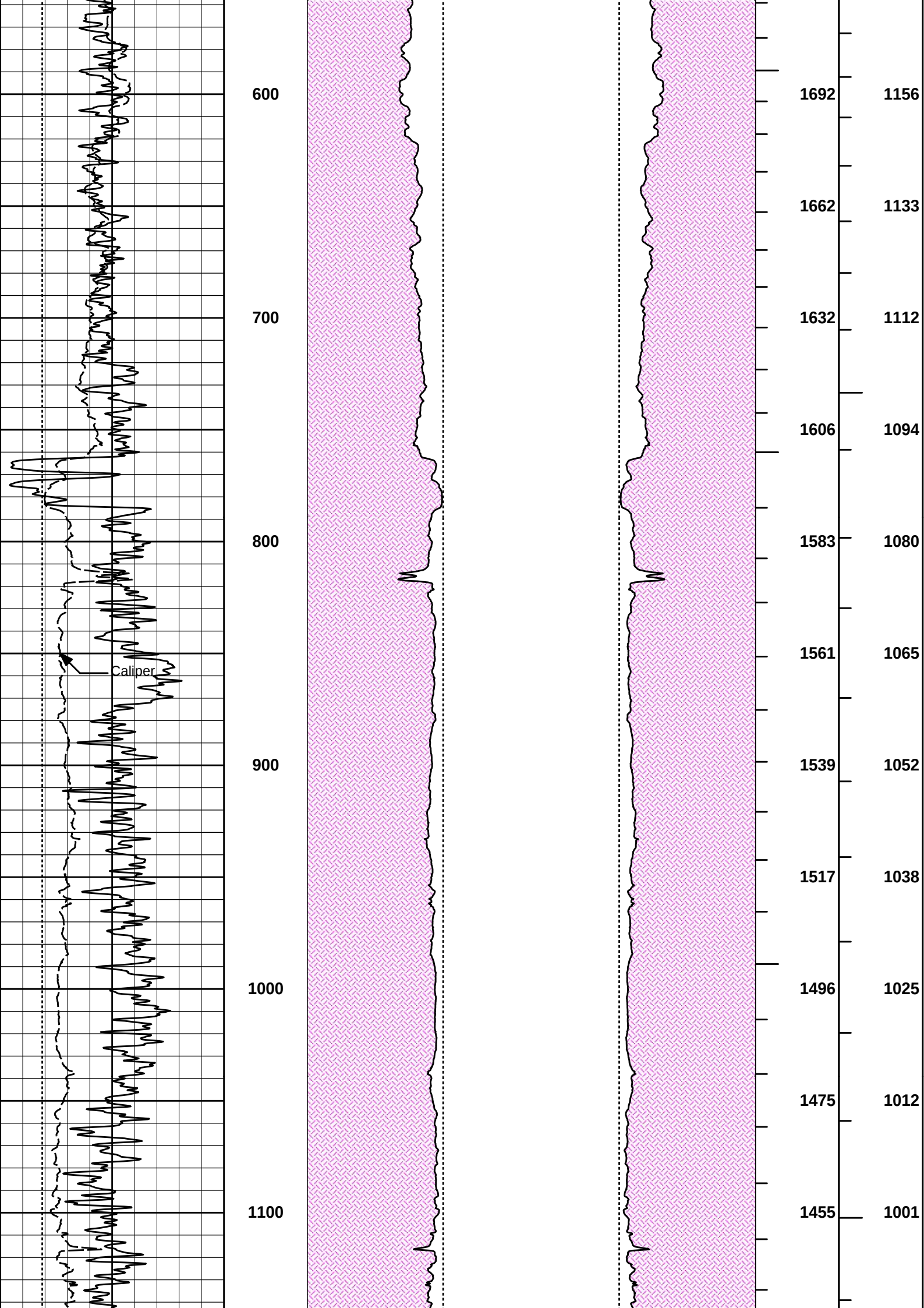
Maximum Deviation @ KOP @

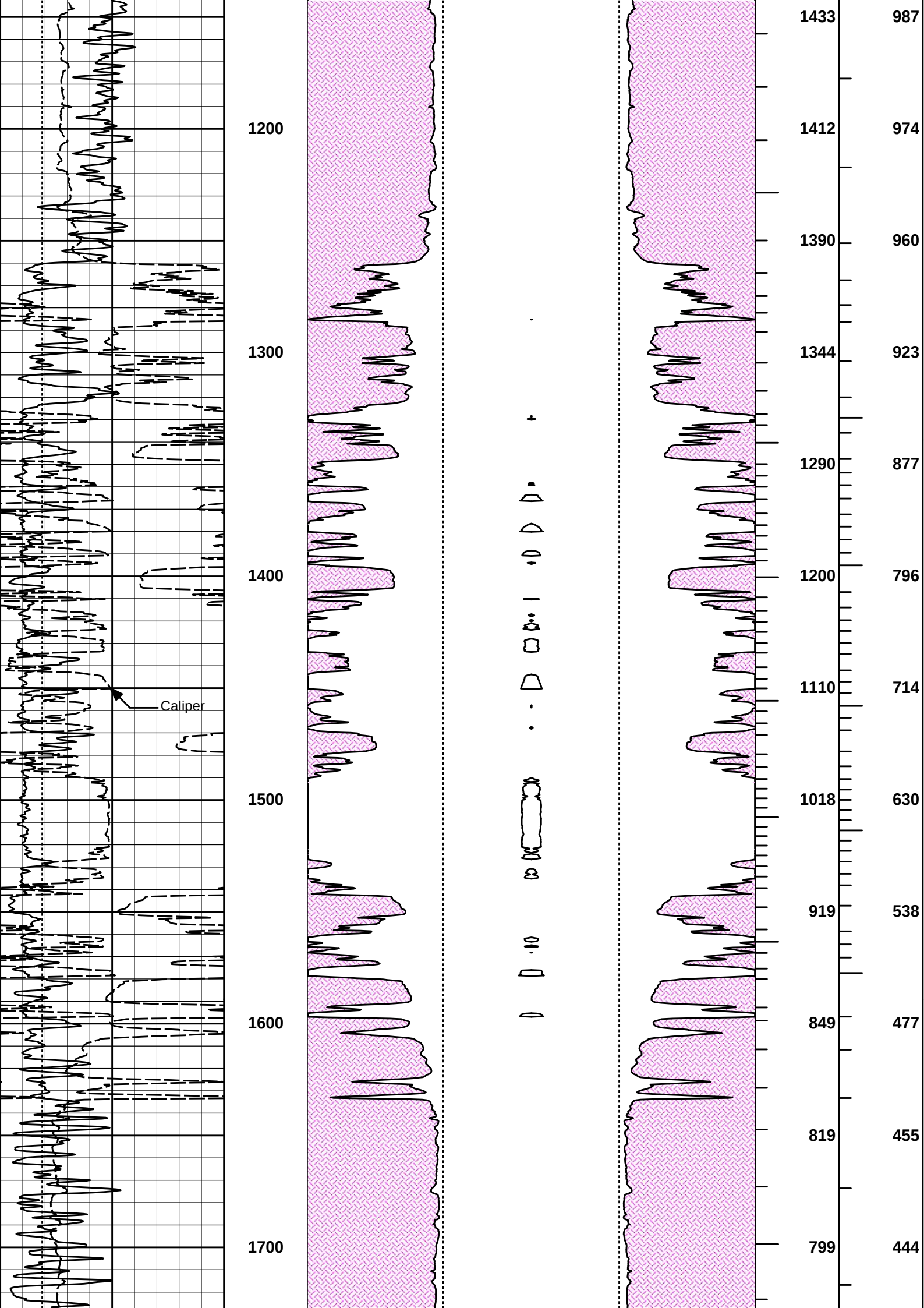
Remarks: ANNULAR HOLE VOLUME CALCULATED FOR 5.5 INCH CASING
CHLORIDES REPORTED AT 9000 ppm

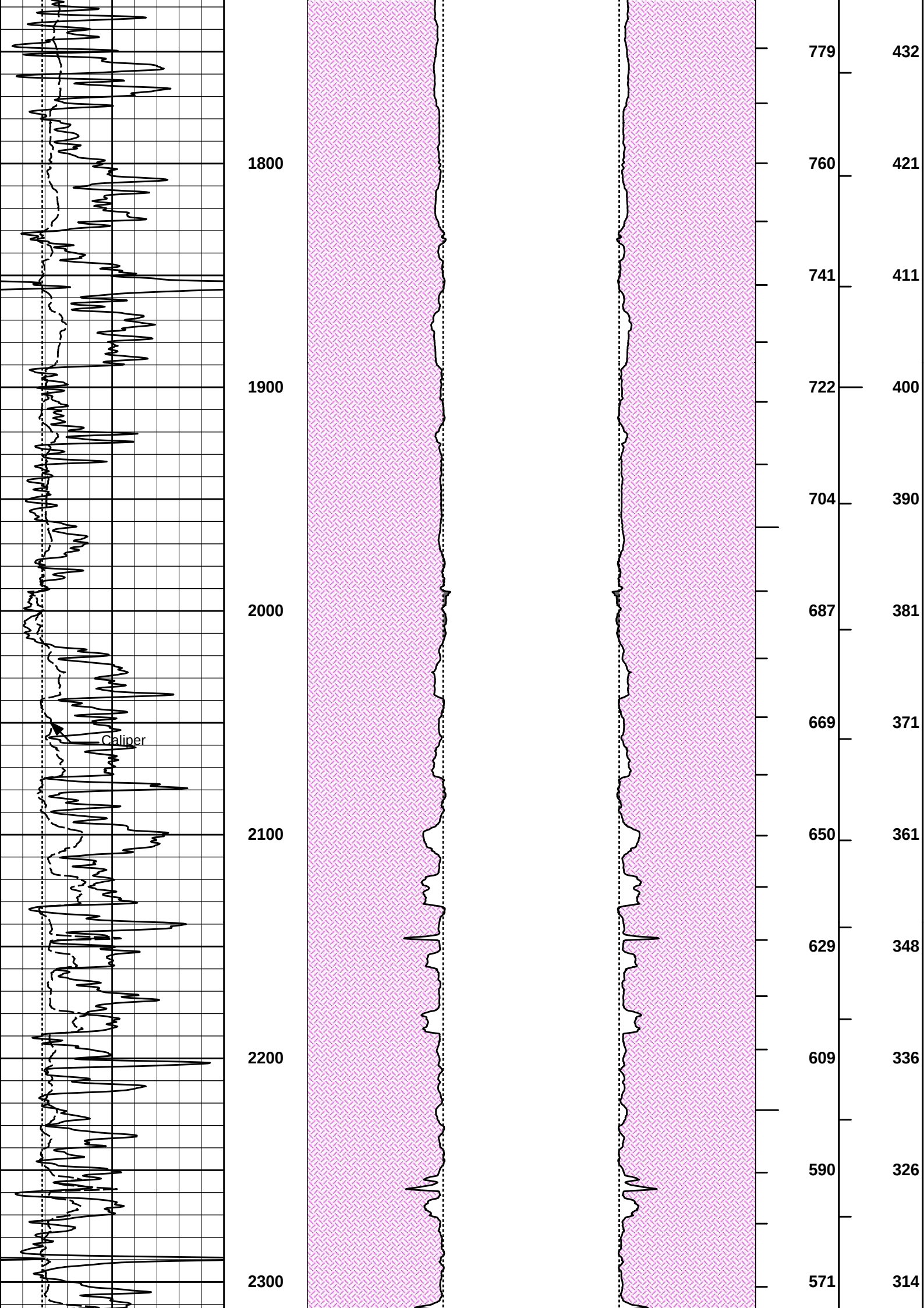
HALLIBURTON DOES NOT GUARANTEE THE ACCURACY OF ANY INTERPRETATION OF THE LOG DATA, CONVERSION OF LOG DATA TO PHYSICAL ROCK PARAMETERS OR RECOMMENDATIONS WHICH MAY BE GIVEN BY HALLIBURTON PERSONNEL OR WHICH APPEAR ON THE LOG OR IN ANY OTHER FORM. ANY USER OF SUCH DATA, INTERPRETATIONS, CONVERSIONS, OR RECOMMENDATIONS AGREES THAT HALLIBURTON IS NOT RESPONSIBLE EXCEPT WHERE DUE TO GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, FOR ANY LOSS, DAMAGES, OR EXPENSES RESULTING FROM THE USE THEREOF.

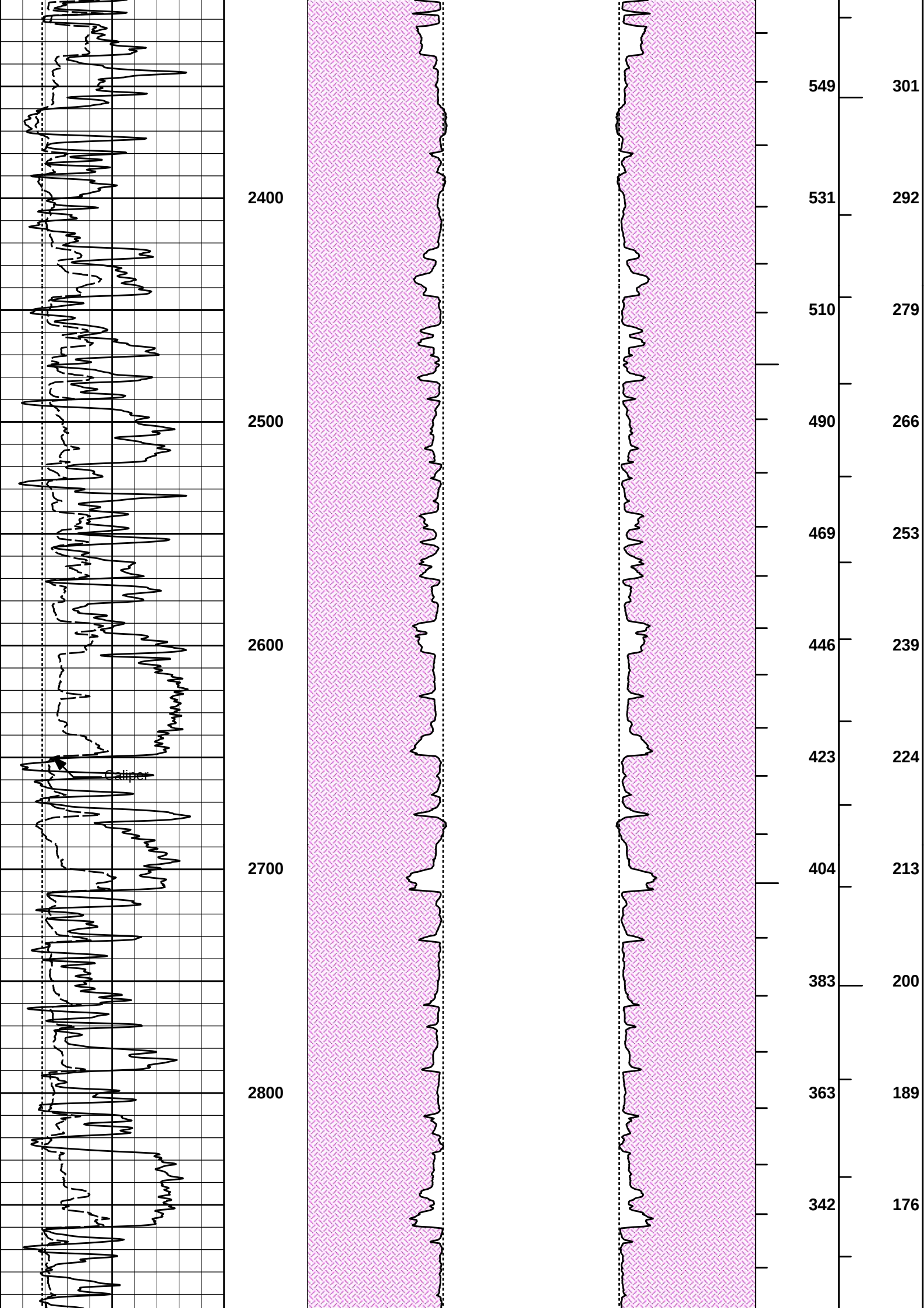
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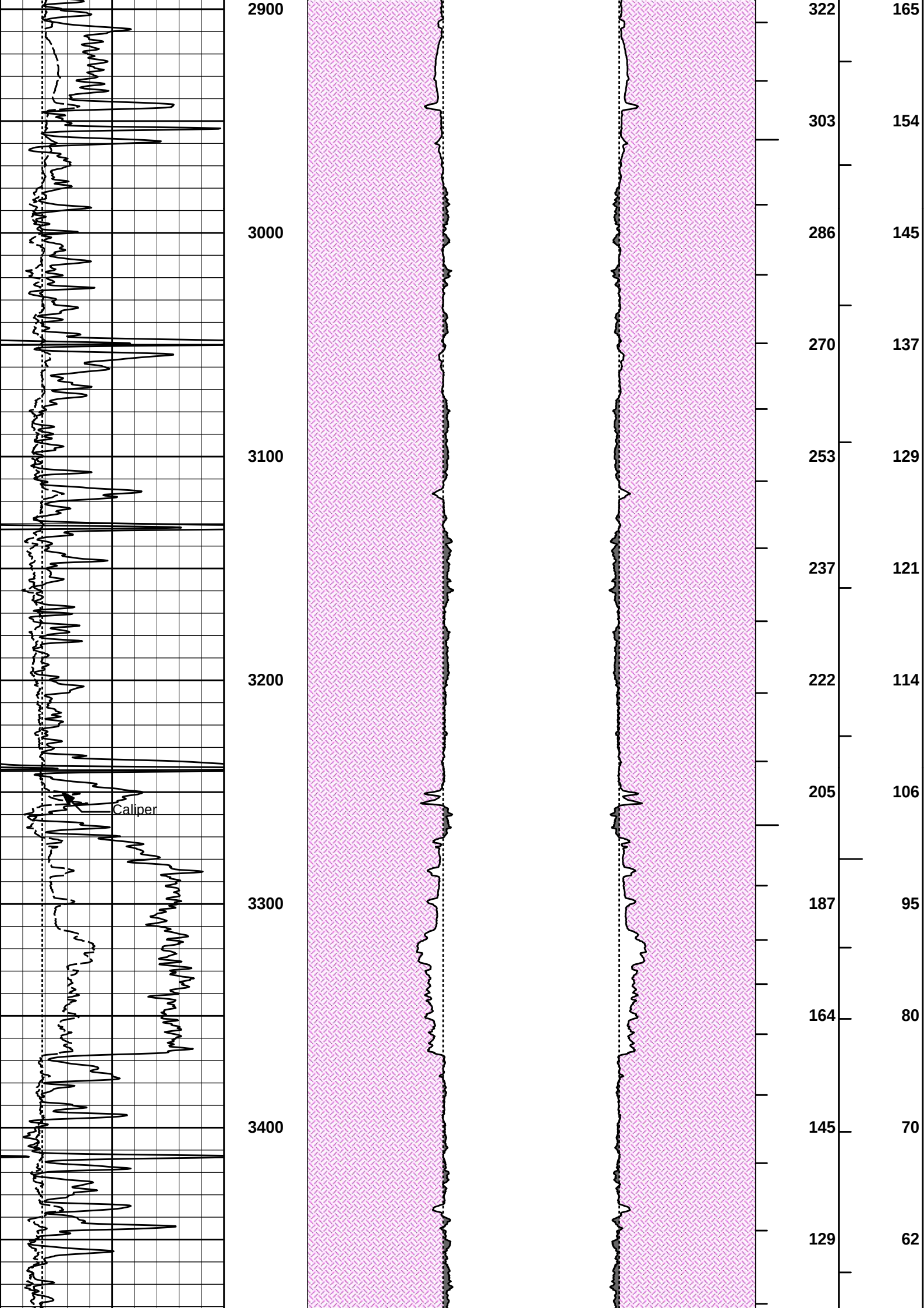
ANNULAR HOLE VOLUME PLOT					
AHV PLOT CALCULATED FOR 5.5" CASING					
Plot Time: 18-Oct-19 19:20:07 Plot Range: 420 ft to 3853.25 ft Data: HALL-GATES_2-5\Well Based*\ Plot File: \\LOCAL-HALL-GATES_2-5\Well Based\AHV\AHV_2_IQ_LIB					
0	Gamma API	150			
	api		MUDCAKE	MUDCAKE	
6	Bit Size	16	20	Bit Size	20
	inches				
6	Caliper	16	20	Caliper	20
	inches				
		MD 1 : 600 ft			BHVT AHVT
		500			

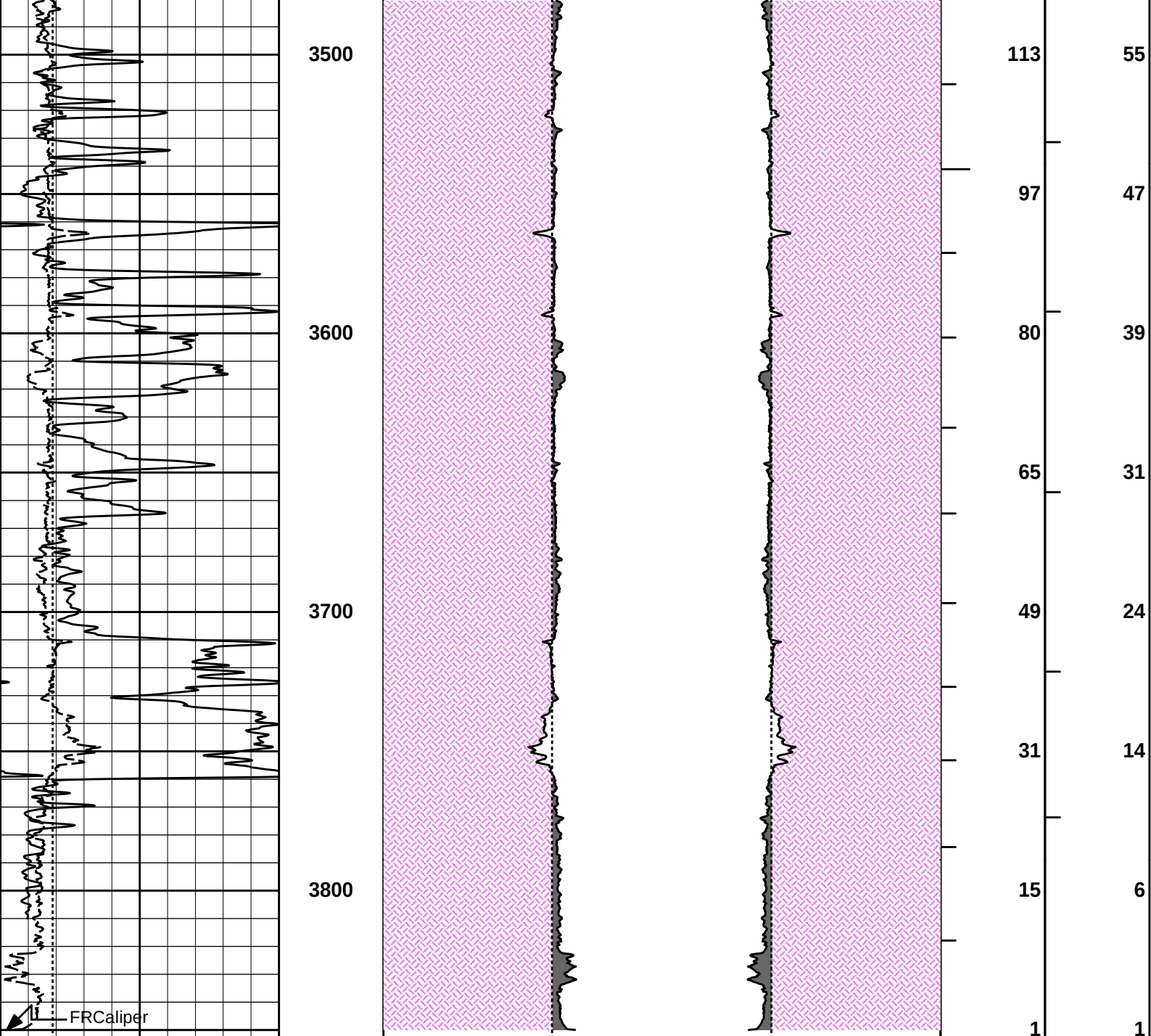












6	Caliper	16	MD 1 : 600 ft	20	Caliper	0 0	20	BHVT	AHVT
	inches				inches				
6	Bit Size	16		20	Bit Size	0 0	20		
	inches								
0	Gamma API	150							
	api								

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Plot Time: 18-Oct-19 19:20:12
Plot Range: 420 ft to 3853.25 ft
Data: HALL-GATES_2-5Well Based*\nPlot File: \\-LOCAL-HALL-GATES_2-5Well Based\\AHV\\AHV_2_IQ_LIB

ANNULAR HOLE VOLUME PLOT

AHV PLOT CALCULATED FOR 5.5" CASING

COMPANY	BIRD DOG OIL, LLC		
WELL	HALL-GATES 2-5		
FIELD	GATES		
COUNTY	STAFFORD	STATE	KANSAS

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ANNULAR HOLE VOLUME