Petroleum College International Killsheet — Bullhead Method

Name: | Well Information | Well name:

1	2		Pump output	3	Well depth			
Formation pressure	Max allowable fluid weight	Casing fluid weight		bbls per stroke			MD	TVD
Surface line volume barrels		=		Packer set at MD	Packer set at TVD	Circulating port MD	Circulating port TVD	
Tubing cap								
Surface to EOT	bbls/ft X	length MD =	bbls in tubing	Top Perforations		Bottom Perforations		
Casing cap EOT				8				
to top perfs	bbls/ft X	length MD =	bbls in casing	TVD	MD	TVD	MD	
Casing cap top				Tubing burst		X (70 % or less) =		
to bottom perfs	bbls/ft X	length MD =	bbls in casing	Casing burst		X (70 % or less) =		
Over displacement barrels (if required)		=		Tubing collapse		X (70 % or less) =		
Total Barrels to Bullhead			4	X 42 =	5	**Total Gallons to Bullhead**		
Total Strokes to Bullhead								
4	3	=	6		7	**Total Minutes to Bullhead**		
Total barrels to bullhead	÷ Pump output bbls per stk	=	Total strokes to bullhead	÷ Pump *rate* stks per min	= Total minutes to bullhead	Formula: Desired bbls/min to kill well ÷ pump output bbls/stk = stks/min		

Well Kill Calculations & Pressure Considerations

Shut in Tubing Pressure SITP 11 | **Shut in Casing Pressure SICP**

Kill Weight Fluid: 1 | 0.052 | 8 | 9
Formation pressure ÷ 0.052 ÷ Top perf TVD = Kill weight fluid

Maximum Allowable Formation Fracture Pressure: 2 | 0.052 | 8 | 10
Max wt fluid X 0.052 X Top perf TVD = Maximum allowable pressure on formation

Estimated HP in Well before Kill: 1 | 11 | 12
Formation pressure - SITP = Estimated hydrostatic pressure in well before kill

Kill Fluid HP in Well after Bullhead: 9 | 0.052 | 8 | 13
Kill weight fluid X 0.052 X Top perf TVD = Kill fluid hydrostatic pressure after bullhead

Bullhead Well Kill

Bullhead pressure must not exceed Max. allowable static pressure on well before breakover point is reached & kill fluid reaches perfs.

Maximum Initial Static Pressure on Tubing			14	0	0	0	0	
10	12	14						
Maximum allowable pressure on formation	- Estimate HP in well before kill	= Max. initial static pressure on well/tubing Beginning psi						
Maximum Final Static Pressure on Tubing								
10	13	15						
Maximum allowable pressure on formation	- Kill fluid HP in well after bullhead	= Max. final static pressure on well/tubing End psi	15	6	4	5	7	
			Max pressure	Strokes	Barrels	Gallons	Minutes	
To prevent damage slow pump down before kill fluid/ perfs			Initial - Final ÷ 10	Stks/bullhead ÷ 10	Bbls/bullhead ÷ 10	Gals/bullhead ÷ 10	Mins/bullhead ÷ 10	

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