**Critical Annular Velocity & Critical Flow Rate**

1. Determine n

2. Determine K:

3. Determine x :

4. Determine critical annular velocity :

5. Determine critical flow rate :

Nomenclature :

n = dimensionless  
K = dimensionless  
x = dimensionless  
Ɵ600 = 600 viscometer dial reading  
Ɵ300 = 300 viscometer dial reading  
Dh = hole diameter (inch)  
Dp = pipe or collar OD (inch)   
MW = mud weight (ppg)  
AVc = critical annular velocity (ft/min)  
GPMc = Critical flow rate (gpm)

Sample Case : Mud weight = 14.0 ppg  
 Ɵ600 = 64  
 Ɵ300 = 37  
 Hole diameter = 8.5 inch  
 Pipe OD = 7.O inch

1. Determine n :

2. Determine K :

3. Determine x :

4. Determine critical annular velocity :

5. Determine critical flow rate :