Reynolds Number

Reynolds Number is a convenient parameter for predicting if a flow condition of a moving fluid

Laminar Flow < 2,300

Turbulent Flow > 11,500

Plug Drillout Application

For hole cleaning purposes we would like to stay in turbulent flow is possible

We can control the annular velocity, fluid density, and viscosity of the fluid

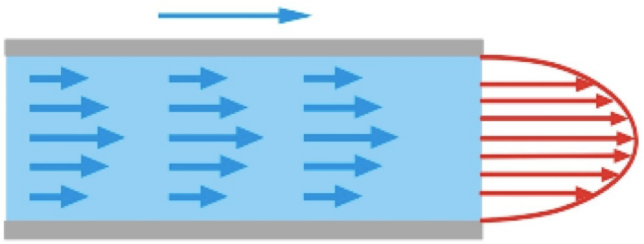
Influencing Factors

↑ Viscosity = ↓ Reynolds Number

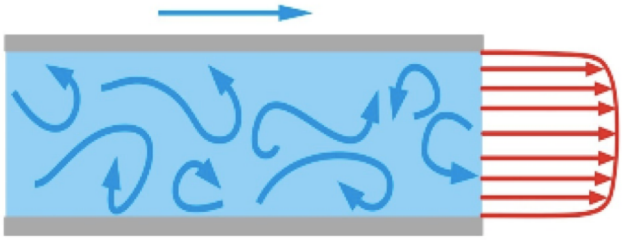
↑ Velocity = ↑ Reynolds Number

↑ Density = ↑ Reynolds Number

Laminar Flow



Turbulent Flow



Formula

$$Re = \frac{928 * \rho * \upsilon * (d_2 - d_1)}{60 * \mu}$$

Re =Reynolds Number
ρ = Fluid Density (ppg)
υ = Annular Velocity (ft/min)
d_2 = Casing ID (inches)
d_1 = Workstring OD (inches)
μ = Viscosity (cp)