Well Intervention Pressure Control

Abbreviations used in this document

1. PRESSURE GRADIENT (psi/ft)
   Fluid Density (ppg) x 0.052

2. FLUID DENSITY (ppg)
   Pressure (psi) ÷ TVD (ft) ÷ 0.052
   or
   Pressure (psi) ÷ TVD (ft) x 0.052

3. HYDROSTATIC PRESSURE (psi)
   Fluid Density (ppg) x 0.052 x TVD (ft)
   or
   Pressure Gradient (psi/ft) x TVD (ft)

4. FORMATION PRESSURE (PSI)
   Hydrostatic Pressure (psi) + SIWHP (psi)

5. TOTAL PRESSURE AT A GIVEN DEPTH IN A SHUT IN WELLBORE (psi)
   (WHERE BHP = FORMATION PRESSURE)
   Hydrostatic Pressure of Gas (psi) + Hydrostatic Pressure of Oil (psi) + SIWHP (psi)
6. **TIME TO PUMP (minutes)**

   a. **Tubing**
      \[
      \text{Time} = \frac{\text{Tubing Capacity (bbl/ft) \times MD (ft)}}{\text{Pump Rate (bbl/min)}}
      \]

   b. **Annulus**
      \[
      \text{Time} = \frac{\text{Annulus Capacity (bbl/ft) \times MD (ft)}}{\text{Pump Rate (bbl/min)}}
      \]

7. **STROKES TO DISPLACE (Strokes)**

   a. **Tubing**
      \[
      \text{Strokes} = \frac{\text{Tubing Capacity (bbl/ft) \times MD (ft)}}{\text{Pump Displacement (bbl/stroke)}}
      \]

   b. **Annulus**
      \[
      \text{Strokes} = \frac{\text{Annulus Capacity (bbl/ft) \times MD (ft)}}{\text{Pump Displacement (bbl/stroke)}}
      \]