Drainage Radius Calculation

\[ G_i = 1546.2 \phi (1 - S_w) p_i A h/(z_i T) \]

- **Initial gas-in-place at standard conditions, MCF**
- **Porosity**
- **Initial water saturation**
- **Initial reservoir pressure, psia**
- **Area, acres**
- **Reservoir height, ft**
- **Gas compressibility at initial reservoir condition, dimensionless**
- **Reservoir temperature, Rankin**

### Standard Gas-in-Place formula

- Rearranged the formula to solve for area, \( A \)
- Substituted \( G_i \) as \( \text{UltG}_p / RF \)

Where \( \text{UltG}_p \) is ultimate gas produced and RF is recovery factor

### Formula Inputs – calculated per well

- **Ultimate recovery per well**
  - Forecasted individual well remaining gas reserves using exponential decline method
  - Ultimate gas production calculated from gas produced plus forecasted remaining gas reserves
- **Porosity – height \((\phi h)\) calculated from Whiting's net pay map**
- **Recovery factor, initial water saturation, and temperature from Oxy's August 2010 Exhibit**
- **Initial reservoir pressure from Broadhead's published pressure regions for Bravo Dome Area**
- **\( z \)-factor from SPE Monograph, "Practical Aspects of CO2 Flooding"**

### Formula Output

- Calculate Area in acres
- Convert acres to feet assuming circular drainage radius

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