Stable and Unstable Displacement: your influence in the Field Development Plan

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Reference: Hydrocarbon Exploration and Production book, Ch9

Gravity number (G)

\[ G = 0.49 \times 10^{-3} k_{rw}' \Delta y A \sin \alpha \]

Forces acting during displacement

- **Viscous**
  - Direction per wells / development concept
  - Stiles displacement

- **Gravity**
  - Segregated flow
  - 1D displacement

Viscous Oil \((M > 1)\)

- Unconditionally stable
- Conditionally stable

Light Oil \((M \leq 1)\)

FDP choices at Clashach Overview

- **SLOW**
  - 10 m/yr
  - 1 m/yr

- **FAST**
  - 100 m/yr
  - 10 m/yr

It’s not just what you do…
…it’s the way that you do it!

Stable displacement would take 1000 years

More wells, slow rate, less water handling ~ 100 yrs

More wells, fast rate, high water handling ~ 10 yrs

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Reference: Hydrocarbon Exploration and Production book, Ch9
http://store.elsevier.com; Reference to TRACS Training Courses