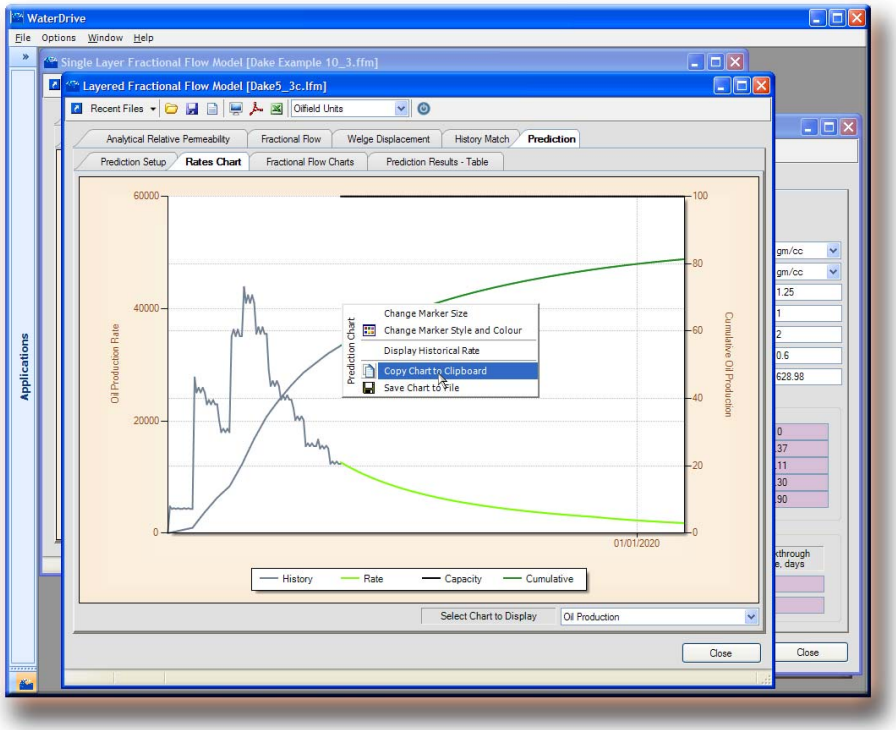
Introducing ..... *Waterdrive*

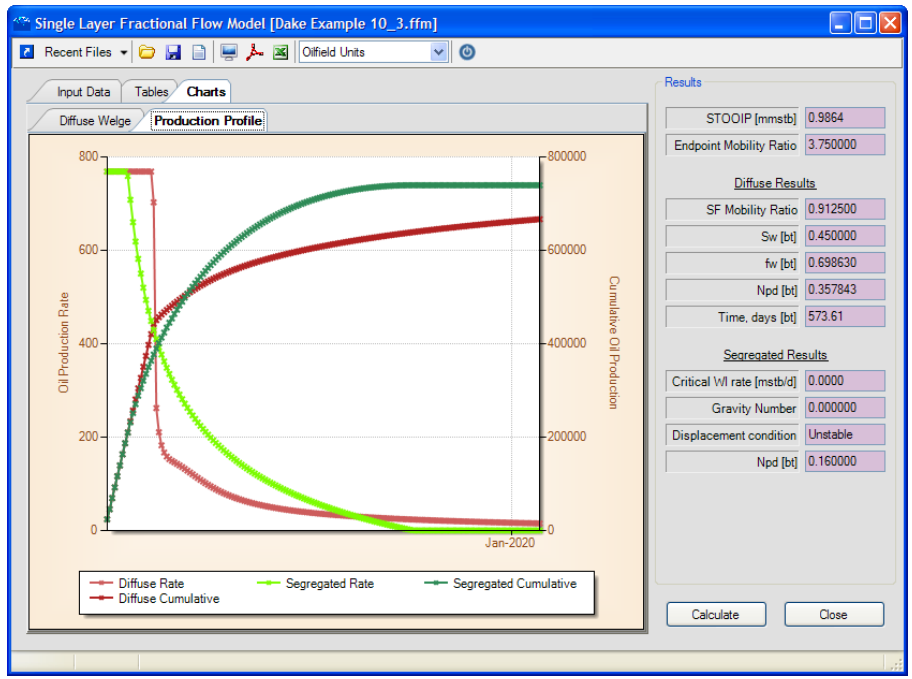


Waterdrive is a collection of classical calculations that .....

- Analyse the water-oil displacement processes for both single layer and multi-layered systems.
- Examine the waterdrive performance of reservoirs, or models, from an inspection of their production & injection history.
- Calculate performance with time for a five-spot pattern, using the approach of Craig, Geffen, and Morse.
- Calculate Dykstra-Parsons and Lorenz Heterogeneity coefficients
- Calculate performance with time, using two approaches based on the original work of Dykstra-Parsons, relating oil recovery and producing WOR to cumulative injected water
- Calculate water coning in vertical and horizontal wells, determine the critical flow rate, breakthrough time predictions and performance calculations after breakthrough
- Plus numerous other smaller routines.....

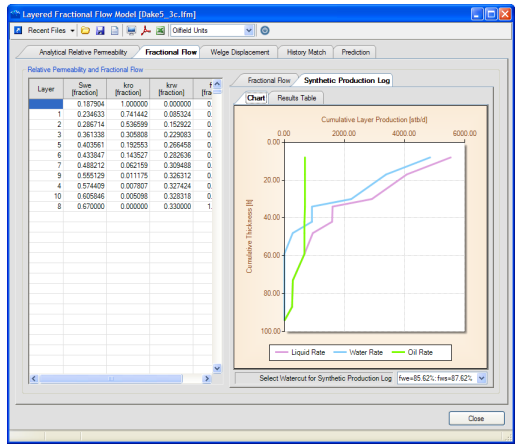
Dake – Welge Calculations

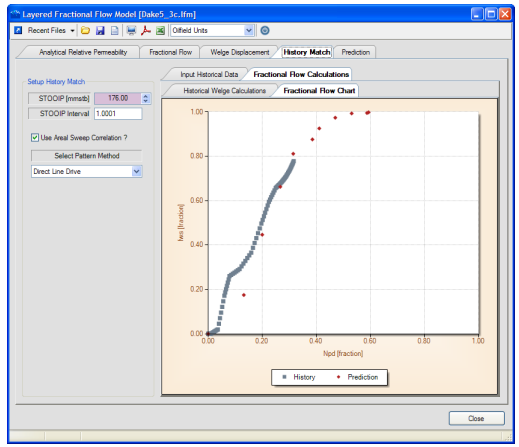
- Single layer diffuse and segregated flow analysis

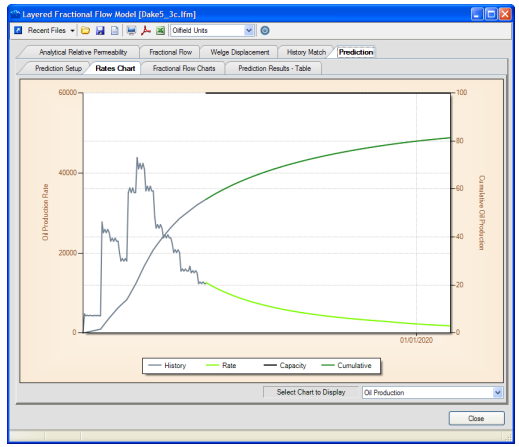


Dake – Welge Calculations

- Multiple layered analysis
  - Layer flooding
  - Pseudo production log prediction
  - History Matching
  - Life of field Prediction

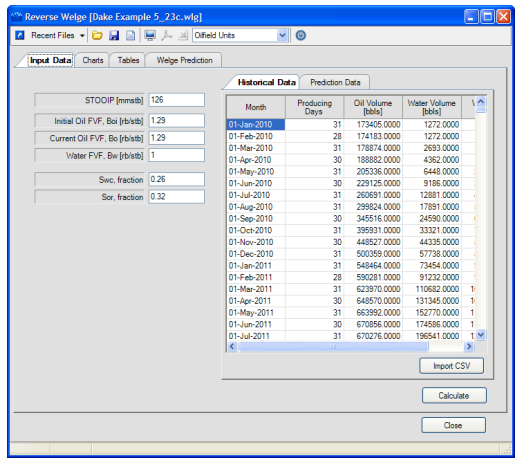


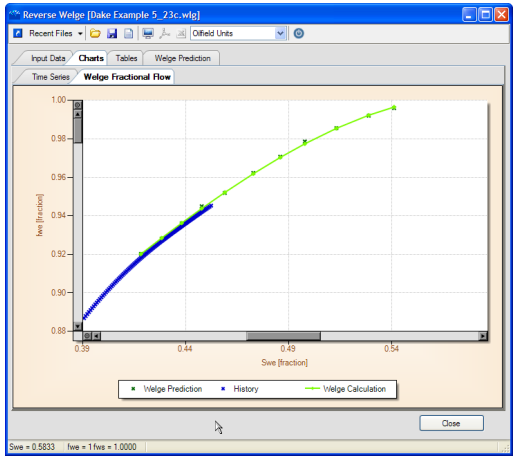


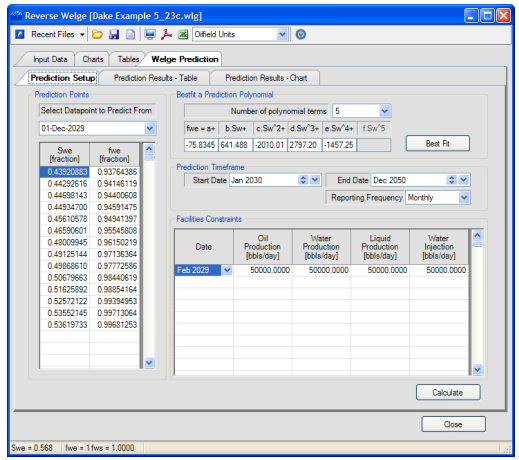


Dake – Welge Calculations

- Examine Waterdrive Performance
  - Historical data & model predictions
  - Solves Welge's equation in reverse
  - Life of field Prediction

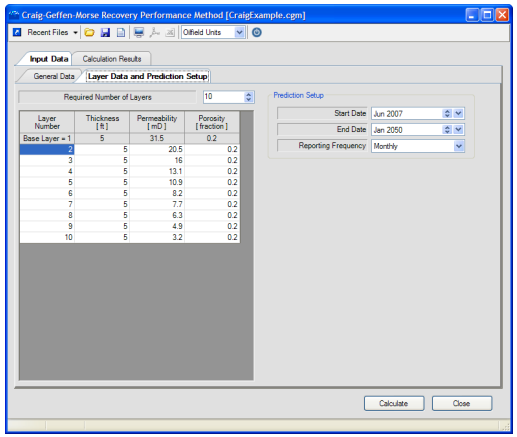


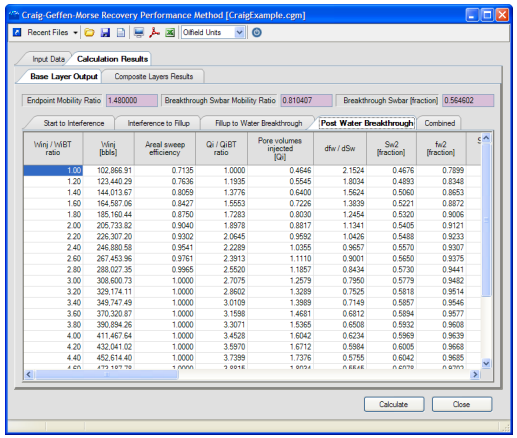


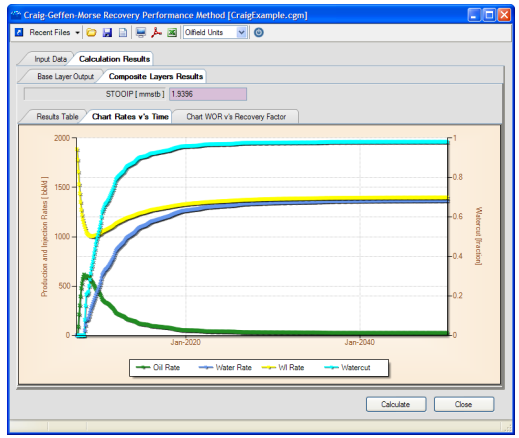


Craig-Geffen-Morse Calculations

- Waterflood performance with time for a five-spot pattern
  - Relates oil recovery and producing WOR to cumulative injected water

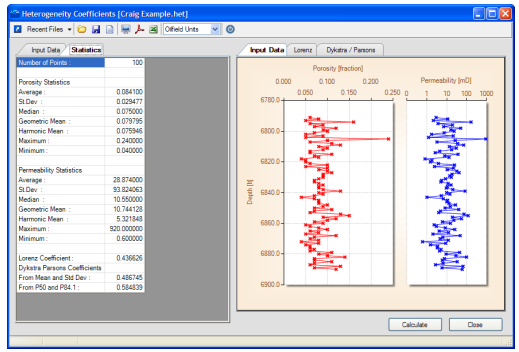


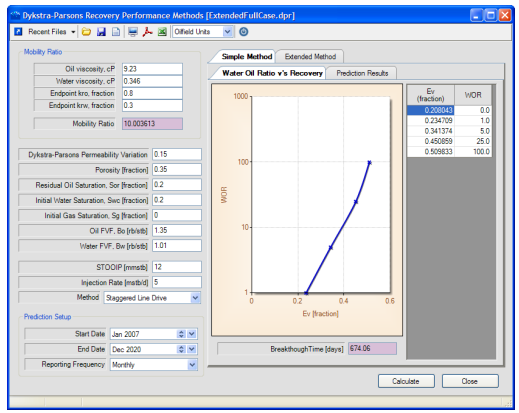


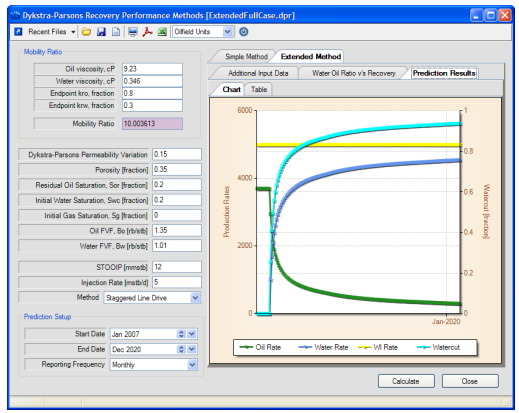


Dykstra-Parsons Calculations

- Heterogeneity coefficients
- Waterflood performance with time
  - Relates oil recovery and producing WOR to cumulative injected water

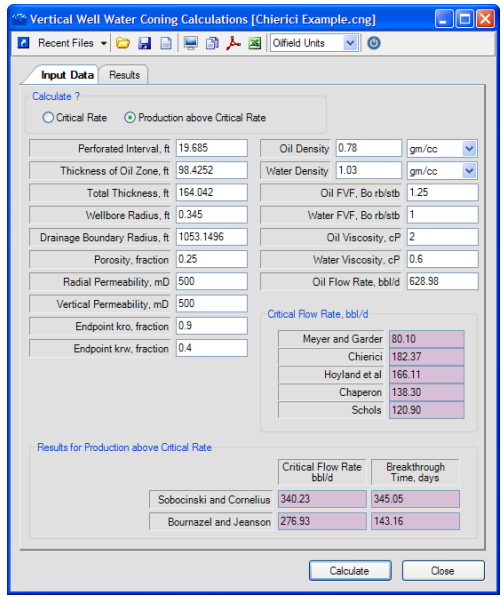


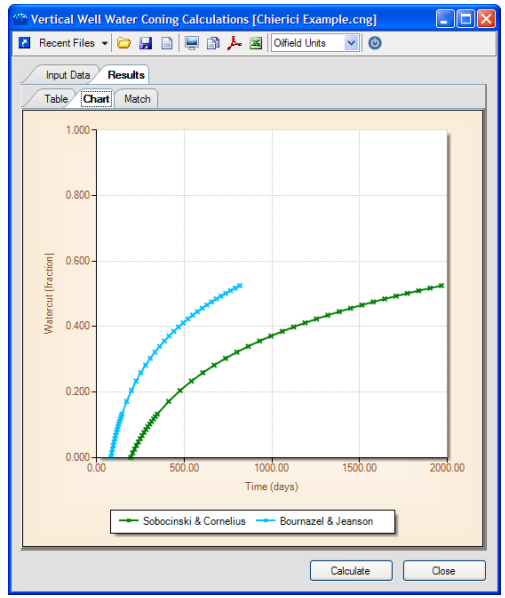




Water Coning – Vertical Well

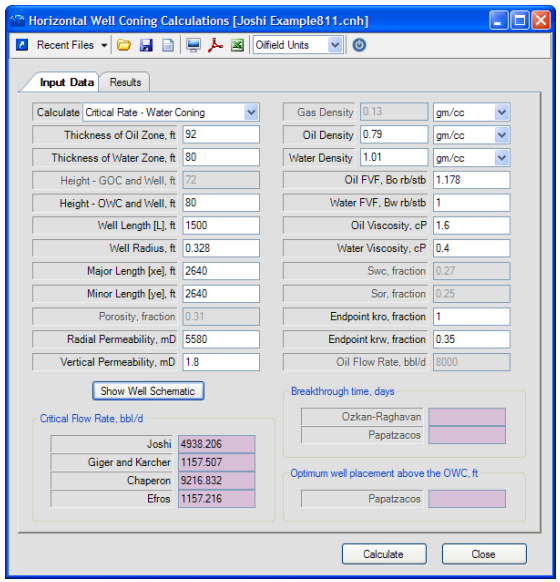
- Critical rate
- Breakthrough time
- Post breakthrough performance

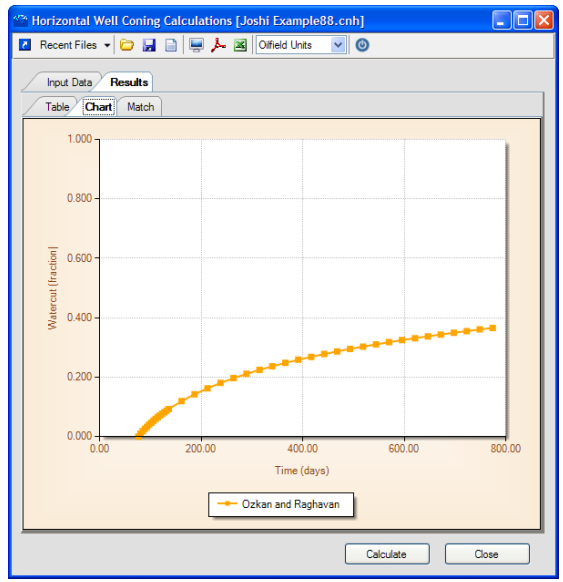




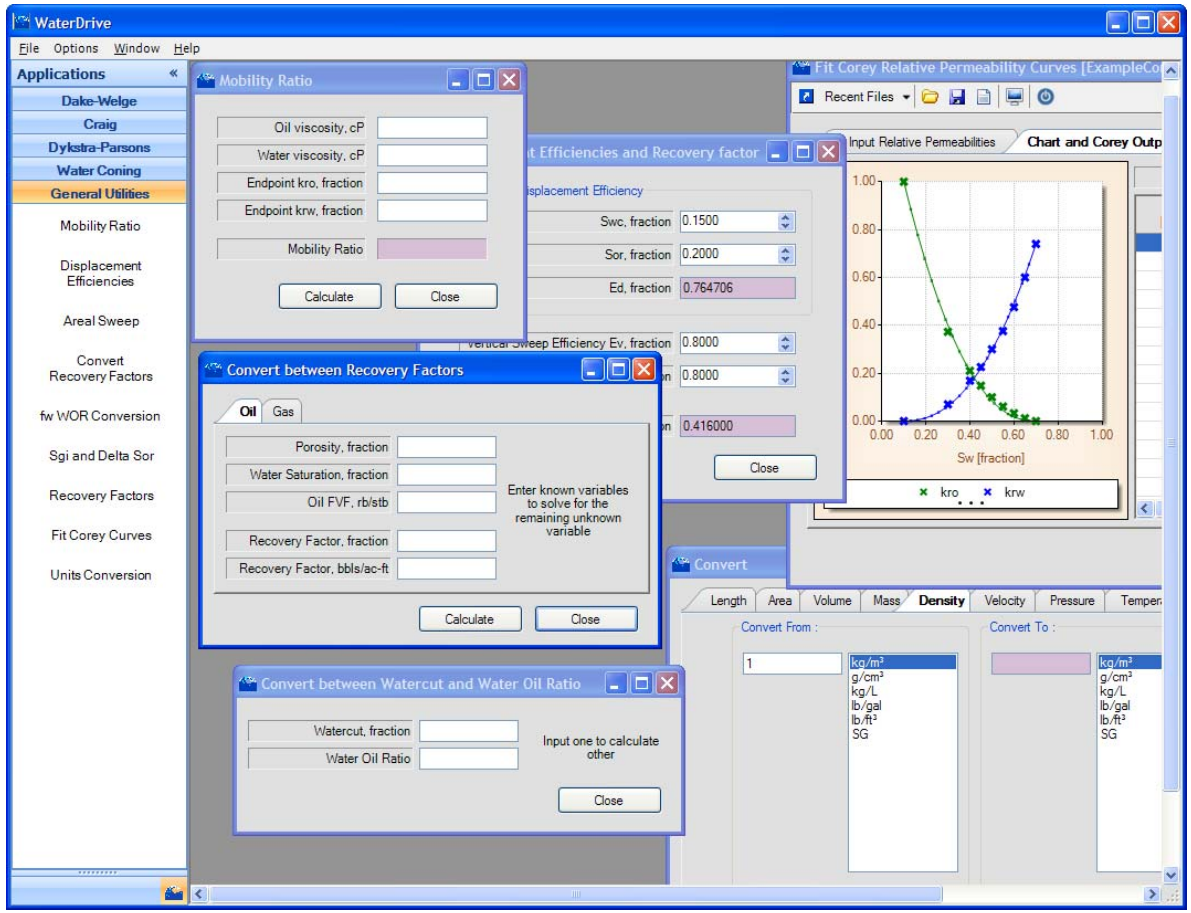
Water Coning – Horizontal Well

- Gas and Water Critical rate
- Breakthrough time
- Post breakthrough performance





plus numerous other tools.....



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