

ZAKUM DEVELOPMENT COMPANY



Carbonate Reservoir Rock Typing

Adding Value to Our Business

8th Abu Dhabi SPWLA Topical Conference, February 16-18, 2010.

ZADCO's Business Challenges

- Economically expand sustainable production capacity
 - Offshore Artificial Islands with ERD and MRC Wells
- Develop Entire Upper Zakum Resource
- Optimize Recovery
- Control Costs

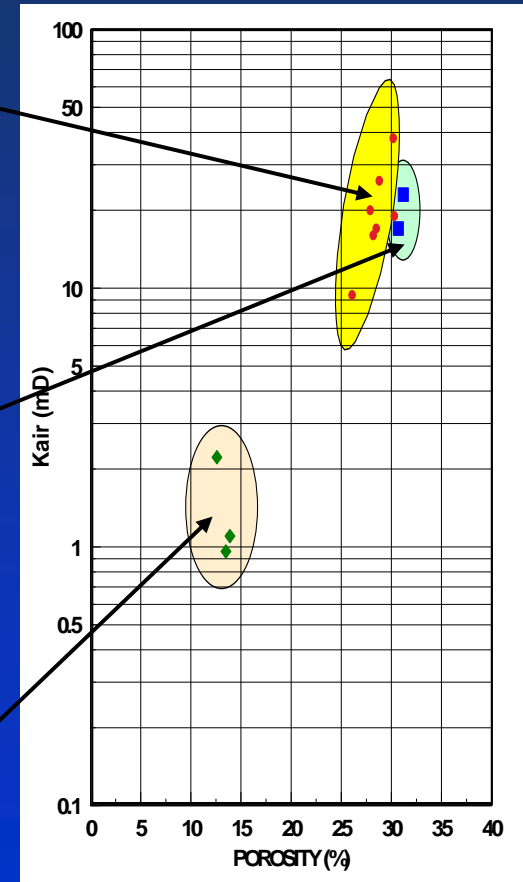
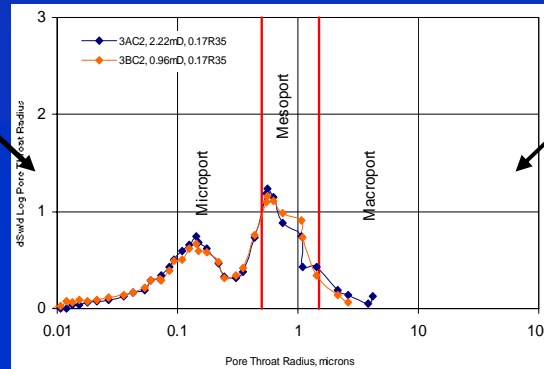
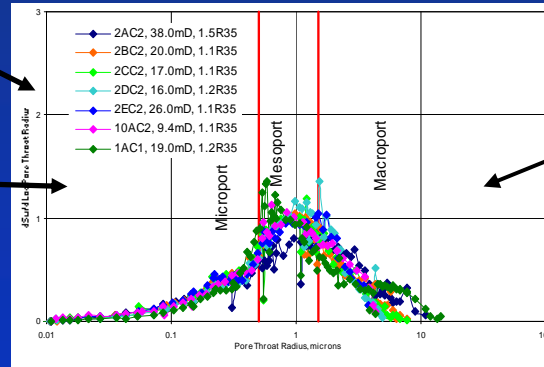
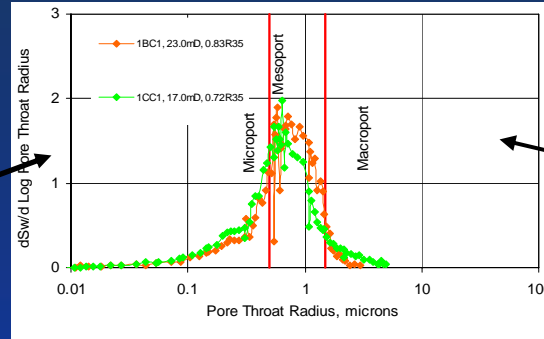
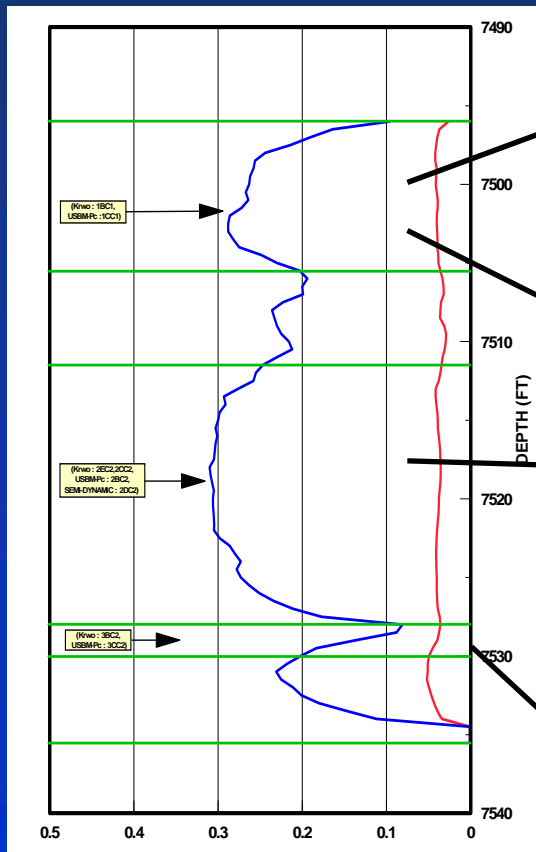
ZADCO's Technical Hurdles to Meet Business Challenge

- Understanding Subsurface Uncertainty and Complexity
 - Variations in Reservoir Quality (ϕ / Permeability)
 - Reservoir Connectivity
 - Fractures and Faults
 - Diagenesis (Impact)
- Quality and Accuracy of Our Predictive Tools
 - Reservoir Models
- Ability to Drill the Right Well Right

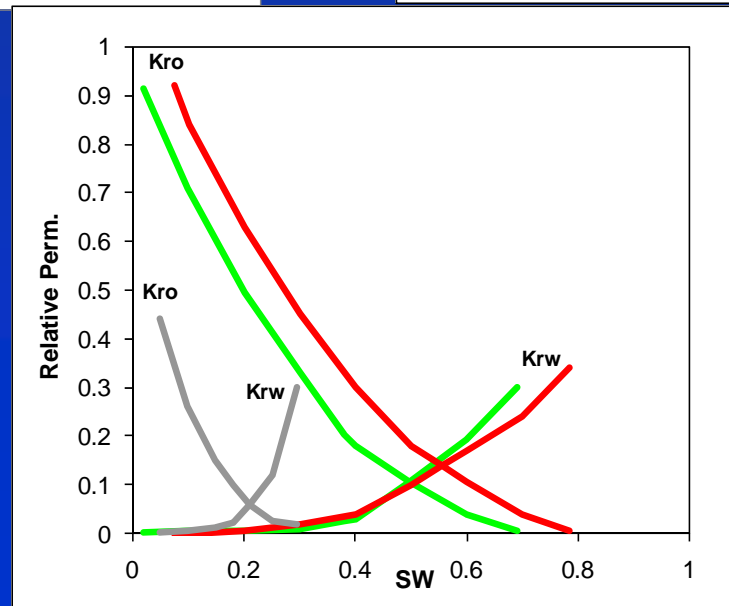
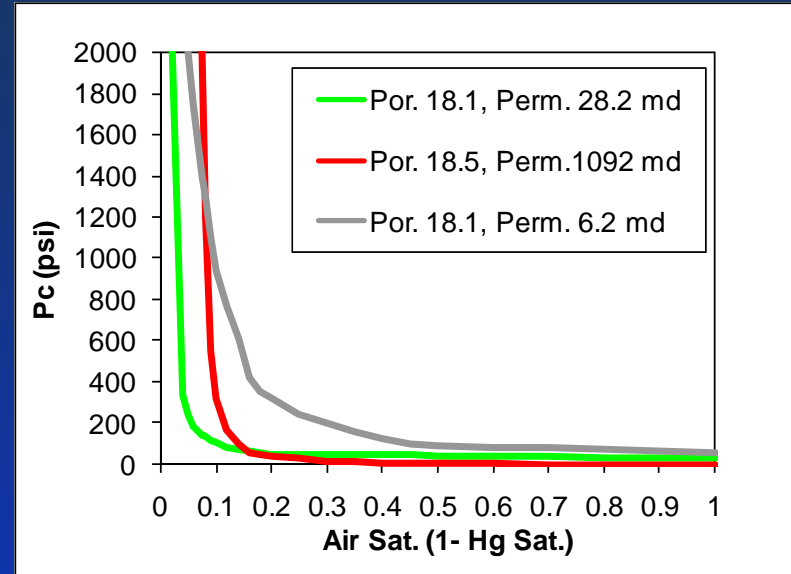
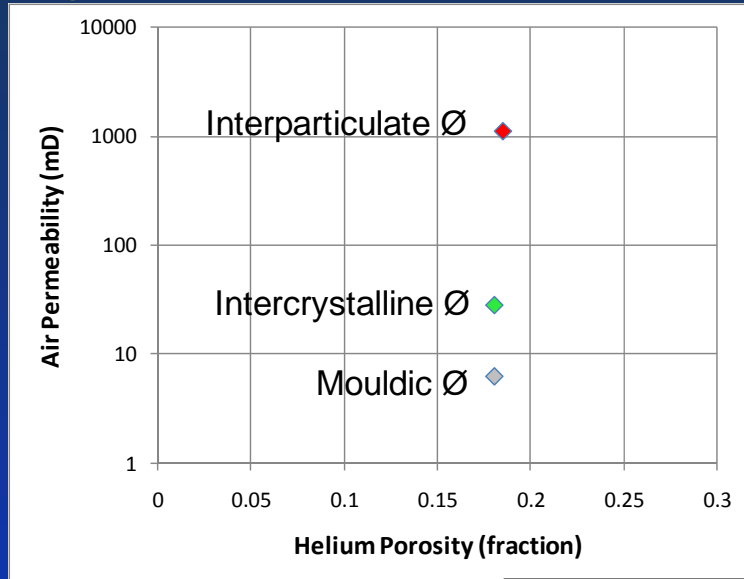
How Can Better Rock Typing Help?

- Must be Able to Link What Matters to What We can Measure (Direct => Indirect)
 - Link micro scale to the macro scale using concepts or models
- Industry Ideally Needs Direct Measurements

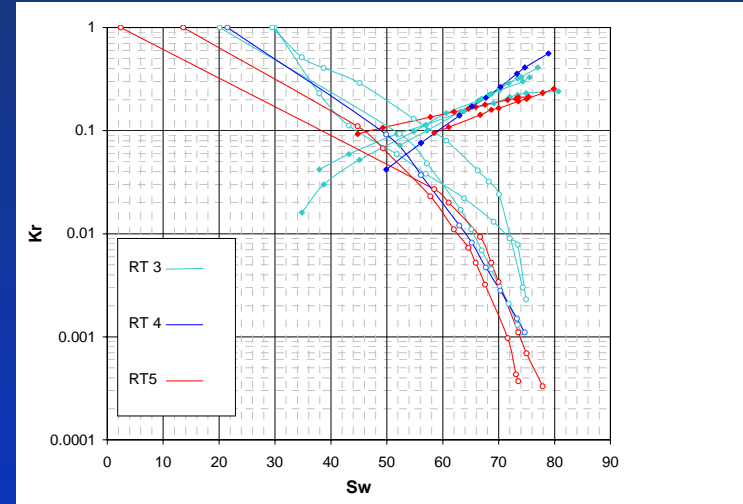
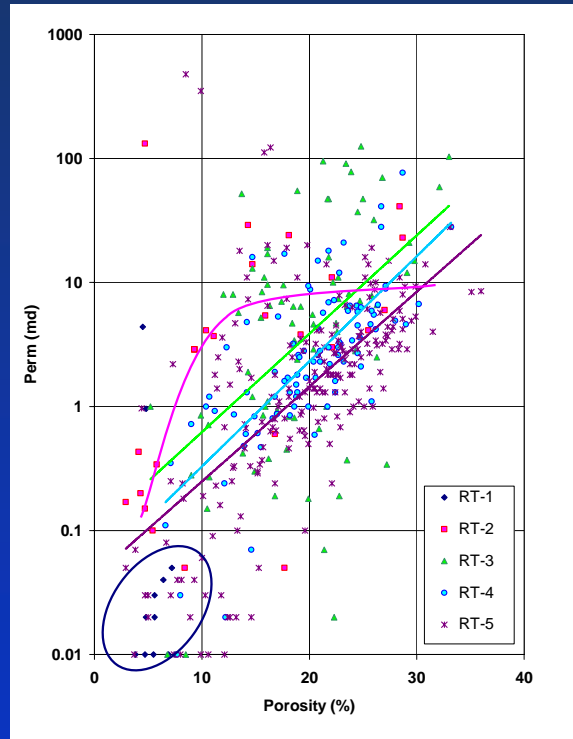
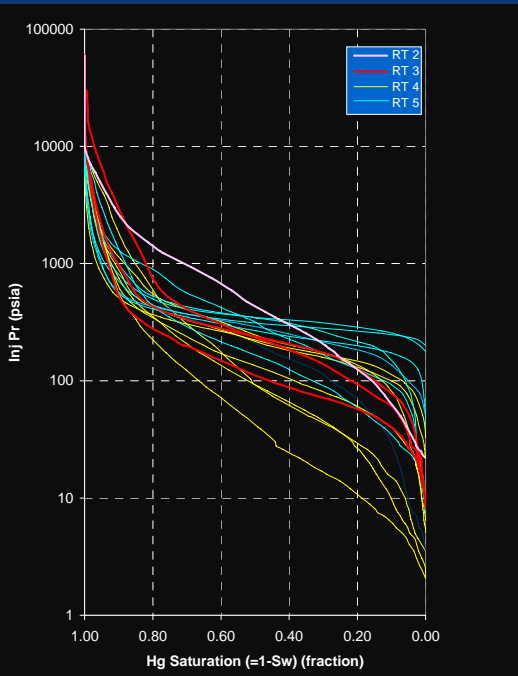
Rock Types (Static) Often Defined by Lithology, Visual Description, Pore Throat Size Distribution, \emptyset , Permeability



Static Rock Typing Must Show a Link with Dynamic Properties to Deliver Value



If the Link is Weak, the Business Value of Rock Typing is Called Into Question



Similar Hg Pc Shape

Weak \emptyset /Perm Relationship

Scattered Relative Permeability Curves

SPWLA RRT Topical Conference

- ZADCO Supports the Efforts of the Abu Dhabi Chapter of the SPWLA to Improve the Industry's Carbonate Reservoir Rock Typing Schemes.
- The Technical Community Must Not Lose Sight the Mission is to Improve Industry Economics

Thank You