Growing the Minnelusa Consortium
Glen Murrell

PRESENTATION TO THE TAB MEETING, JULY 26TH, 2012
Agenda

• Status and Work-plans
  • Field A
  • Field B
  • Field C

• Consortium Partner

• Consortium Expansion

• Technology Transfer
• PM: Reza
• Static Model: Complete
• Dynamic Sim: Complete
• Well X drilled and cored. Currently converting to injector
• Workover Scenarios ~75% complete
• Special Core Analysis ~75% complete
• ASP blend optimization ~50% complete
Work-plan – Field A

- Workover scenarios continue
  - Effects will need a period of monitoring
- SCA continues
- ASP blend optimization continues.
- Model will need to be re-visited soon and updated with observations.
Status – Field B

- PM: Reza
- Static Model: Complete
- Dynamic Sim: Complete
- Workover Scenarios: The workovers on the Field B XX-X and xx-xx were successful with the XX-X well injecting 450 BWPD under 1420 psi tubing pressure and the xx-xx well injecting 290 BWPD under 800 psi tubing pressure.

- Entering phase of monitoring and verification
Work-plan – Field B

• Now entering monitoring and validation phase following the completion of the XX-X and xx-xx injector workovers. Production wells and fluid levels in injection wells. This may or may not be completed before the end of the year.

• Evaluate increase in XX-X injection. Re-visit model in early 2013 with a view to considering re-drilling xx-xx and evaluating Chem-EOR options.
Status – Field C

- PM: Shuiquan
- Seismic interpretation: Complete
- Static Model: Complete
- Dynamic Sim: Commenced
Priority 1 is to move on to development of dynamic model.
Priority 2 is for Shuiquan to pursue further seismic analysis and interpretation.
Report back in winter 2013.
Supplier A expressed interest in being a consortium partner providing analytical support to the consortium to address obvious Minnelusa/ChemEOR challenges.

Specially, they are interested in working on the anhydrite problem by developing a non-alkaline SP flood using ultra-low IFT, non-ionic surfactants.

They require reservoir fluids and core samples.

There would be no cost involved.

Timeline is 12 months for stage 1 (surfactant development and core analysis).

Consequent phases, should phase 1 prove successful, would move toward field applications.

Would prefer fields with ‘easy’ characteristics except for the presence of anhydrite (cited desired T range, minimum K, maximum TDS and Ca++ concentration, and desired crude weight and viscosity for initial field screening).

Discussion within consortium was positive. Win-win for everyone. Some concern regarding sourcing core, but the Field A core would probably suffice.

Decision was made for each operator to provide 1-2 examples for analysis. Glen will coordinate.
Consortium Expansion

- **New operators?**
  - How to incorporate new operators without diluting contribution of original members
  - New members will need to contribute something new and substantial

- **New fields?**
  - Current members have nominated new fields for analysis
  - Resources!!

- **New partners?**
  - The arrangement with Supplier A is a test case for how partners may contribute to the consortium
  - Leveraging Supplier A’s expertise and resources should help considerably with reaching consortiums objectives
  - Other potential partners?
Technology Transfer

- Fast approaching point where field pilots will need to be designed and implemented.
- Need to consolidate what we have learned in the last 3 years.
  - Data collection
    - What is critical? What is superfluous?
  - Minnelusa characteristics
  - Minnelusa challenges
    - Optimization, Development, Anhydrite
  - Solutions
    - Description and Effectiveness
Technology Transfer

• Transfer
  • Publications will be useful but workshop series most efficient means of transferring knowledge to operators in Wyoming.
  • 12 to 18 months away.
Questions?

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