

Monthly Progress Report – December 2002 and January 2003

Gas Over Bitumen Technical Solution

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Artificial Lift

E-Lift

Deer Creek Energy, Petro-Canada, and Devon are investigating the technical uniqueness of the Rangewest patent for E-Lift. The intent is to understand the potential application in low pressure SAGD operations. The group wishes to determine if there is merit in conducting a joint field test to conclusively demonstrate E-Lift's application.

Deer Creek has shared a legal review of unique attributes of the technology and the patent. Devon is proceeding with a second opinion to more fully understand the patent.

Additionally, the group will conduct a hydraulic and heat loss evaluation of the application of E-Lift in low pressure SAGD operations. This may include understanding the performance of the insulated tubing in the flowing section of the lift system, and the impact from a hot SAGD chamber adjacent to the intermediate casing on the liquid phase at the intake of the pumping section of the lift system.

Low Pressure SAGD Wellbore Architecture

The C-FER JIP is signed with a initiation date of December 16, 2002. Parties include; ConocoPhillips, Devon, Petro-Canada, Nexen, Suncor, Deer Creek, and Husky. Additional parties still reviewing are; CNRL and EnCana. A project kick off meeting was held January 31, 2003. The intent of this project is to develop new SAGD wellbore architectures that will guarantee a liquid interface at the pump intake for existing artificial lift systems.

Fluid Injection Technology

Flue Gas Injection Project

Devon is proceeding with its Flue Gas Injection Project at Christina Lake and expects start-up March 1, 2003. The 11-16 injection well was completed and the flue gas skid installation started. The intent of this project is to determine if injection activities will follow the reverse path of the gas pool production P/Z versus cumulative production performance, and get a sense for the behavior of the gas pool as a tank. In addition, the project will assess the miscible flood performance of a gas to gas displacement process, and the potential for re-pressurization of the gas pool.

Re-pressuring Activities Outside of Canada

Mexico is conducting re-pressuring with air with the oxygen cryogenically removed, and another party is looking at a membrane process to remove oxygen.

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The sub-committee will continue to monitor the learning's for application in the GOB initiative.

Additionally, Venezuela is interested in the re-pressuring technology that Devon is conducting for future use. Again, there may be learning's applicable to the GOB initiative.

Lateral and Vertical Pressure Communication

Piezometer data

The sub-committee is addressing piezo data quality for long term pressure monitoring; stability, drift, and accuracy. This is an issue that has been debated in the Surmont and Chard/Leismer Hearings. Petro-Canada is installing dual piezo's at the same location in a gas or water zone at Meadow Creek in an attempt to understand piezo data quality. This data will be in the public domain.

Mike Kennedy of the EUB has indicated that the piezo data must be inputted using Code and as a TRG file. The subcommittee is considering ways to make this happen.

Injection Projects

The sub-committee is also be addressing injection projects at Surmont and Chard. Funding may be an issue.

A natural gas re-injection pilot to re-pressure a small as pool is a worthwhile initiative. The sub-committee is preparing a list of pilot candidate locations

Shut-in Data Gathering and Interpretation

Data Base Cleanup

The sub-committee is proceeding with a clean up of the pressure data on the wells shut-in from D2000-22 and D2001-63. The intent is to have the data in standard format so that parties can focus on the interpretation of the data, rather than the quality of the data. To date 79 Paramount and CNRL wells have been cleaned up. Moving on to Devon wells. Project completion is likely the end of February 2003.

The sub-committee is also working with all parties impacted by D200-22 and D2001-63 to ensure that all parties participate in shut-in data interpretation. Parties were requested on January 8, 2003 to conduct their own interpretation; waiting on response. ConocoPhillips and Paramount are analysing the data.

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Winter Static Gradient Survey

ConocoPhillips, Petro-Canada, Calpine, CNRL, Devon, and Paramount have agreed on a standard static gradient survey program. Well lists are being finalized for field implementation.

Low Pressure SAGD Performance

Performance

The sub-committee is preparing low pressure SAGD performance expectations. The operating criteria will include CDOR, SOR, WOR, SCOR, and vapor liquid ratio. The goal is to have sufficient operating environment information to pass on to the artificial lift sub-committee and ultimately pump vendors for lift system designs and/or for request for proposal (RFP).

An issue being discussed is the predictability of reservoir modeling at low pressure. Reservoir models have not been calibrated at low pressure since field data is not yet available.

Surmont Pilot

A review of Surmont pilot data has indicated that there is not any useful data at this time. As a result field testing of low pressure SAGD performance, low pressure ES-SAGD, and low pressure artificial lift was passed on to the Artificial Lift Sub Committee for review. One of the challenges is to determine which comes first; the lift advances or reservoir performance. It is not possible to lift the fluids at low pressure yet.

ES SAGD

ARC has conducted simulation modeling, analytical modeling, and physical modeling. The tests are investigating novel ways of solvent addition to improve drainage rates.

Low Pressure Solvent SAGD is an attractive alternative. It offers a viscosity reduction, lower SOR, and higher CDOR. Conventional artificial lift may be able to handle the production characteristics better than low pressure SAGD on its own.

A feasibility study on the economic benefits of Low Pressure Solvent SAGD may be a first step prior to a field test. There may also be some learning's from Suncor Firebag, EnCana Senlac, and Baytex Marwayne.

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Outstanding

Press release

Press release is with the ADOE Department Communication Branch. Waiting on timing of release.