

Monthly Progress Report – December 2002 and January 2003

Gas Over Bitumen Technical Solution

Industry & Government Collaboration

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.

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Artificial Lift

E-Lift

Rangewest Resources has been asked to prepare multiple designs for field testing and fully demonstrating the application of E-Lift in low pressure SAGD operating conditions. This will include the scope of the tests for each operating scenario including the wellbore and facility requirements, monitoring requirements, timing, and estimated capex and opex. Ideally, a field test will include testing E-Lift against other systems, side by side. The intent is to advance a Joint Industry Project for field testing E-Lift. It is expected that Rangewest will make a presentation to the Artificial Lift Sub Committee in April.

High Volume SAGD Gear Pump

EnCana has brought forward an opportunity to have a JIP to conduct bench and field testing of a high volume gear pump. EnCana will make a presentation with the pump supplier to the artificial lift sub committee in March.

Low Pressure SAGD Wellbore Architecture

Nothing new to report.

Fluid Injection Technology

Flue Gas Injection Project

Christina Lake flue gas injection project has the equipment set. Operations need to spot 10 more meters of cement in the wellbore to ensure cement top above the oil sands section. EUB G51 approval will be given once the workover is complete. Devon expects to start up during the first week of March. Devon will apply for amendment for miscible flood once injection operations are proceeding.

Re-pressuring Activities Outside of Canada

Nothing new to report.

Lateral and Vertical Pressure Communication

Piezometer data

The sub committee is investigating piezo stability and drift. This includes reviewing the Thurber documents from the Chard/Leismer hearing, reviewing each party installation, and having discussions with suppliers. Paramount has conducted a lab test and seen a 1 kPa/month drift in 8 out of 8 gauges.

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Injection Projects

Nothing new to report.

Data Interpretation

The Surmont shut-in data is an important and unique data set available for interpretation and may be suitable for a JIP or RFP to establish an engineering understanding of the reservoir. The Lateral and vertical pressure communication sub committee is considering the options for shut-in data interpretation.

Shut-in Data Gathering and Interpretation

Data Base Cleanup

The sub-committee continues with clean up of the pressure data on the wells shut-in from D2000-22 and D2001-64. This project completion is carrying over into March 2003.

Winter Static Gradient Survey

Calpine, CNRL, Devon, and Paramount are proceeding with the static gradient survey program.

Low Pressure SAGD Performance

Performance

The Low Pressure SAGD sub committee is establishing the parameters for modeling low pressure SAGD in order to improve its predictability. In addition, the group is investigating the potential for field pilot testing of Low Pressure SAGD and Low Pressure ES SAGD and artificial lift. The sub committee is also considering what needs to be done on Low Pressure ES SAGD prior to proceeding with a field test.

Outstanding

Press release

Press release is with the ADOE Department Communication Branch. Expect release in March.

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Artificial Lift

E-Lift

Rangewest Resources will make a presentation to the Artificial Lift Sub Committee on April 10, 2003 regarding multiple E-Lift designs to field test and fully demonstrate the application of E-Lift in low pressure SAGD operating conditions. This includes the scope of the tests for each operating scenario including the wellbore and facility requirements, monitoring requirements, timing, and estimated capex and opex. The intent is to advance a Joint Industry Project for field testing E-Lift.

High Volume SAGD Gear Pump

EnCana and SP Technologies made presentations to the artificial lift sub committee on March 13, 2003, regarding a high volume SAGD gear pump. Members believe that the pump has merit in SAGD applications across a broad range of operating pressures. Members, however, raised a number of concerns regarding the impact to overall capital and operating costs associated with the hydraulic drive system. The sub committee will address the scope of solving these concerns and potential bench scale testing before considering field testing of the system.

Low Pressure SAGD Wellbore Architecture

C-Fer is currently considering the merits of three wellbore architecture concepts and three wellbore operational concepts. 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.

CNRL has joined the JIP, increasing participation to 8 members.

Fluid Injection Technology

Flue Gas Injection Project

Draft EUB approval is in place for the Christina Lake flue gas injection project operated by Devon. Operations still need to spot 10 more meters of cement in the wellbore to ensure cement top above the oil sands section. EUB G51 approval will be given once this workover is complete and details regarding monitoring of down hole corrosion are finalized. Devon expects start up by April 15, 2003. Devon expects to apply for amendment for miscible flood once injection operations are proceeding.

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Lateral and Vertical Pressure Communication

Piezometer data

EnCana and Petro-Canada will be presenting instrument installation and data interpretations at the sub committee's April meeting.

Injection Projects

The sub committee is meeting in April to prioritize re-injection pilots in order to focus on the best projects. This will include possible interference tests prior to conducting the pilot.

Shut-in Data Gathering and Interpretation

Data Base Cleanup

The clean up of the pressure data on the wells shut-in from D2000-22 and D2001-64 was completed March 27, 2003.

Interpretation

The sub committee continues to discuss 3rd party analysis and interpretation. The group will first develop an understanding of what issues and interpretations all parties agree on, and which they don't agree on. This will develop the potential scope of 3rd party analysis and interpretation

Low Pressure SAGD Performance

Performance

Bob King from Petro-Canada is now the Chair of the Low Pressure SAGD sub committee.

The sub committee is preparing digital data from simulation work presented by N. Edmunds on low pressure SAGD performance, including, CDOR and SOR, over operating pressures of 500, 1000, and 1500 kPa.

Field Testing

The sub committee has developed a list of opportunities to conduct a field test of steam-solvent low pressure SAGD. The group has agreed that this initiative requires aggressive action.

Outstanding

Press release

Press release is with the ADOE Department Communication Branch.

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Artificial Lift

E-Lift

Rangewest Resources made a presentation to the Artificial Lift Sub Committee on April 10, 2003 regarding the application of E-Lift in low pressure SAGD operating conditions. The sub committee members are considering their interest, objectives, and the scope of a potential field test. The sub committee will meet on May 15, 2003 to scope out the details of a potential field test of E-Lift to assist in determining the viability of a Joint Industry Project.

High Volume SAGD Gear Pump

The sub committee continues to address the scope of solving the concerns regarding the overall capital and operating costs associated with the hydraulic drive system, and the potential for bench scale testing before considering field testing of the system. The sub committee will move this issue forward at its May 15, 2003 meeting.

Low Pressure SAGD Wellbore Architecture

The project has slipped behind schedule. As a result, C-Fer has added another team member to accelerate the evaluations of the drilling and completion concepts. First level evaluations were unable to effectively prioritize the concepts causing the evaluation to go into more detail.

Fluid Injection Technology

Flue Gas Injection Project

Flue gas injection has not yet been continuous due to mechanical problems with the compressor. Operational problems are expected to be corrected by mid May.

Lateral and Vertical Pressure Communication

Piezometer data

Promore will be presenting instrument drift and accuracy at the sub committee meeting May 7, 2003.

Injection Projects

The sub committee is evaluating three potential re-injection pilots. One option is to move gas from one pool to another for re-pressurization. A second option is to conduct flue gas miscible flood after gas production. A third option is to inject water. The sub committee is working on defining the scope and objectives of pilot options.

Shut-in Data Gathering and Interpretation

Interpretation

The sub committee continues to discuss 3rd party analysis and interpretation. The group will first develop an understanding of what issues and interpretations all parties agree on, and which they don't agree on. This will develop the potential scope of 3rd party analysis and interpretation. This will be an ongoing process that will include presentations from operators and instrument suppliers.

Additionally, the sub committee is advancing the ability to get the shut-in data into academic and research organizations for potential evaluation as research projects or Phd. Studies.

Low Pressure SAGD Performance

Doug Komery has replaced Eddy Isaacs representing AERI on the Steering Committee. Bob King, Petro-Canada, now chairs the Low Pressure SAGD sub committee.

Performance

The sub committee has prepared digital data from simulation work presented by N. Edmunds on low pressure SAGD performance, including, CDOR and SOR, over operating pressures of 500, 1000, and 1500 kPa. This included correlating the impact of sub cool. The correlations predict constant CDOR and SOR up to a sub cool of 25 degrees C. Sub committee members are reviewing their own modeling to see if this is the case in their work. The sub committee is cautious about drawing conclusions since the modeling has not been calibrated with field data at low pressures and low sub cools. This will be debated further at the May 15, 2003 meeting.

Field Testing

The sub committee has developed a list of opportunities to conduct a field test of steam-solvent low pressure SAGD. The group will scope out the details of a potential field test at the May 15, 2003 meeting.

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Artificial Lift

E-Lift

The sub committee met on May 15, 2003 to scope out the details of a potential field test of E-Lift to assist in determining the viability of a Joint Industry Project. A draft scope was prepared and distributed to the sub committee members for review, and will be discussed at the June 17, 2003 meeting.

High Volume SAGD Gear Pump

EnCana presented results of a field test of a Weir Hydraulic Submersible Pump system at Senlac, including the impacts of hydraulic drive systems on artificial lift performance and cost implications. Aspects still to be tested include; surface recycle, low sub cool, and high vapor/liquid ratios. The sub committee will utilize this information to advance the potential testing of the gear pump.

Low Pressure SAGD Wellbore Architecture

The project continues to be behind schedule. A participants meeting is scheduled for June 11, 2003 to review progress to-date, outstanding items, and next steps.

Fluid Injection Technology

Flue Gas Injection Project

Operations has still not been able to obtain continuous injection due to mechanical problems with the compressor. Operational problems are expected to be corrected.

Lateral and Vertical Pressure Communication

Piezometer data

Promore made a presentation describing instrument drift and accuracy at the sub committee meeting May 7, 2003. During the first month of service, a low range gauge typically demonstrates an elastic downward drift of 1 kPa, then remain stable. Higher range gauges have a lower magnitude of drift. This elastic drift may be managed by including a correction in the data gathering system. Sub committee members are interested in understanding the entire system prior to accepting the correction as a solution.

Injection Projects

The sub committee continues to evaluate three potential re-injection pilots. One option is to move gas from one pool to another for re-pressurization. A second option is to conduct flue gas miscible flood after gas production. A third option is

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to inject water. The sub committee continues to define the scope and objectives of pilot options.

Shut-in Data Gathering and Interpretation

Interpretation

Nothing new to report.

Low Pressure SAGD Performance

Performance

Members reported back to the subcommittee regarding impact of sub cool. Generally, reservoir modeling of SAGD to date has been conducted at low sub cools and is unstable at low pressures and low sub cool. Coupling the wellbore effects with reservoir performance is problematic with questionable accuracy. Attempts are usually unsuccessful and unstable due to the lack of detail to describe the multiphase conditions in the wellbore; especially considering the changing conditions from the horizontal to vertical sections.

Field Testing

The sub committee has prepared a draft scope for a field test of LP SAGD that incorporates understanding performance at low sub cools. Additionally, Deer Creek Energy has proposed a test at its Joslyn pilot between 900 and 1400 kPa. Operating groups are to check with their management and express their willingness to participate at the June 17, 2003 meeting.

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Artificial Lift

E-Lift

The draft scope was reviewed at a high level at the June 17, 2003 meeting. The group is assessing the need to conduct a field test in conjunction with a LP SAGD field test, in light of the fact that other artificial lift systems are not likely to allow testing LP SAGD at low sub cools.

High Volume SAGD Gear Pump

The sub committee has prepared a scope for bench testing multiple systems. This will be considered further in conjunction with the LP SAGD Wellbore Architecture results.

Low Pressure SAGD Wellbore Architecture

The participants met June 11, 2003 to review progress to-date, outstanding items, and next steps. There were some surprises regarding the cost implications of some of the alternatives. The producer group will meet within the next two weeks to review results to-date, and to discuss the potential scope of phase B. C-Fer will distribute a question sheet to prioritize the outstanding items to address.

Fluid Injection Technology

Flue Gas Injection Project

Flue gas injection has still not able to obtain continuous injection due to mechanical problems with the compressor. Operational problems are expected to be corrected.

Lateral and Vertical Pressure Communication

Piezometer data

The sub committee met on June 18, 2003 to discuss the outstanding questions to be sent to Thurber/Geokon to prepare its presentation regarding piezometer drift scheduled for the July meeting. The intent is to have a description of what operators need for pressure data gathering in this environment.

Injection Projects

The sub committee continues to evaluate three potential re-injection pilots. One option is to move gas from one pool to another for re-pressurization. A second option is to conduct flue gas miscible flood after gas production. A third option is to inject water. The sub committee continues to define the scope and objectives of pilot options.

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Giant Grossmount presented a discussion paper for a methane re-injection pilot at Surmont, including the potential costs and financial alternatives. The sub committee members will consider the proposal and advance to preparing draft EUB applications.

Shut-in Data Gathering and Interpretation

Interpretation

Nothing new to report.

Low Pressure SAGD Performance

Performance

Ken Kisman made an informative presentation regarding the impact and importance of SAGD Steam Trap Sub Cool Issues at the June 17, 2003 meeting. Modeling of SAGD at low sub cools generally result in improved performance; especially considering that the producing wellbore will not have a uniform sub cool distribution. This needs to be demonstrated in a field test.

Field Testing

Discussion of the draft scope for a LP SAGD field test at the June 17, 2003 meeting, resulted in a revision to consider a two step test. Possible locations are; Deer Creek Joslyn, Petro-Canada MacKay, Nexen Long Lake, and Devon Dover. These operators will report back at the July 24, 2003 meeting.

Additionally, members reported back on the potential to participate in the Deer Creek Joslyn proposal presented at the May 15, 2003 meeting. Conoco and Devon are interested. Petro-Canada is still considering. EnCana, Nexen, and CNRL will likely test on their own. Suncor's participation is dependent on its growth strategy, and if it include resources that depend on LP SAGD.

Artificial Lift

E-Lift

Conoco has proposed a field test of E-lift in conjunction with its proposal to test LP SAGD at Surmont. Parties are advancing a potential JIP.

Bench Scale Testing of Lift Systems

EnCana is sponsoring a potential JIP to bench scale test six artificial lift systems; a twin screw pump, two gear pumps, an ESP, a progressive cavity pump, and a hydraulic gas pump. AERI, Nexen, Conoco, Paramount, Devon, Deer Creek, Suncor, CNRL, and Total plan to meet to advance this potential JIP.

The group is working with C-FER to provide testing facilities, lead the project, and to work with equipment manufactures to provide pumps for testing. C-FER is currently preparing the work scope, activities list, and JIP agreements for review by the parties with the expectation that this project can commence in November 2003.

Low Pressure SAGD Wellbore Architecture

The Phase A wrap-up meeting was held on September 10, 2003. The participants are now ranking potential wellbore architectures to take to a potential Phase B. The group will meet on later in October to discuss future actions.

Fluid Injection Technology

Flue Gas Injection Project

Flue gas injection averages 1 MMscf/d. Surface facilities continue to have mechanical problems.

Lateral and Vertical Pressure Communication

Piezometer data

Nothing new to report.

Injection Projects

Nothing new to report.

Shut-in Data Gathering and Interpretation

Interpretation

Exploitation Technologies Inc. will be awarded the contract to conduct a study of the Surmont shut in data to improve the understanding of the nature of Wabiskaw-McMurray gas pools with respect to inter-pool communication while producing or potentially re-pressuring. Contracts and an AFE are being prepared for signatures with the expectation that the project will be awarded during the 3rd week of October. The project is expected to take 5 months. Paramount will manage this project and steward the costs. Participants to date are; Petro-Canada, Paramount, ConocoPhillips, Devon, and ADOE. CNRL yet to make a commitment.

Low Pressure SAGD Performance

Performance

Nothing new to report.

Field Testing

Conoco offered a proposal to conduct a LP SAGD field test with E-Lift incorporated. Interested parties met to advance project definition. A technical workshop was held to define the potential scope. A business planning meeting will be held in October to discuss business arrangements and next steps.

Regarding the Deer Creek LP SAGD proposal; Conoco, Paramount, Petro-Canada, Nexen, Devon, Suncor, and CNRL are scheduled to meet on October 8, 2003 to further discuss the potential for a JIP, the potential scope, business arrangement, and next steps.

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Artificial Lift**Bench Scale Testing of Lift Systems**

C-FER has prepared a draft agreement that potential participants are considering. C-FER is also providing a cost estimate to include testing at high Vapor Liquid Ratio's and temperatures. The group agreed to test a twin screw pump, a gear pump if a different drive system is possible, an Electrical Submersible Pump, a Progressive Cavity Pump test only at low temperature, and a Hydraulic Gear Pump. The schedule expects completion of the test loop by end of 2003, test startup January 2004, and test completion by April 30, 2004.

Low Pressure SAGD Wellbore Architecture

The C-FER well bore architecture JIP has identified 2 potential options to advance to Phase 2. C-FER is preparing the draft scope and deliverable for consideration by the participants in November 2003.

Fluid Injection Technology**Flue Gas Injection Project**

Nothing new to report.

Lateral and Vertical Pressure Communication**Injection Projects**

The technical sub committee has agreed to defer the Giant Grossmount proposal. Although the proposal looks good from a technical perspective, some members feel the business model does not work.

As a result, the technical sub committee is advancing a flue gas re-injection pilot for the Surmont area, as it would demonstrate the same learning's that the Giant Grossmount proposal offered. Conoco and Paramount are advancing the details, including the location, candidate selection criteria, and gas recovery/displacement issues. Current plans include a draft EUB application by November 30, 2003, management approval by December 31, 2003, and file EUB application in Q1 2004. Once details are in place, the pilot will be proposed to others for participation.

Shut-in Data Gathering and Interpretation**Interpretation**

Participants to date are; Petro-Canada, Paramount, ConocoPhillips, Devon, and ADOE/AERI. Nexen is not in. CNRL yet to make a commitment. Conoco and

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Paramount are carrying the costs up to \$20,000 until the contract and AFE are signed. The contract currently contemplates a 2 year confidentiality period. This would mean that the EUB would not be able to use the results in its decision making process during this period. Participants are reconsidering confidentiality.

Low Pressure SAGD Performance**Field Testing**

The Deer Creek LP SAGD letter of intent is out for signatures. Plans are to have the letter of intent signed by November 15, 2003.

Conoco is advancing its LP SAGD/E-lift proposal. Technical details are substantially in place. A business workshop has been rescheduled for November 21, 2003, to advance the potential business terms.

Draft “Road Map”

A Draft “Road Map” has been prepared. The Draft Road Map is designed for use as a communication tool. It is also useful to ensure that decisions made are consistent with the mandate and goals of the Steering Committee. Company logo’s will be included by those who want it on the Draft Road Map, as recognition of contributions to preparing the document. Plans are to present this tool to the Executive Steering Committee at its next meeting.

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Artificial Lift

Bench Scale Testing of Lift Systems

Bench scale testing agreements have been circulated for comment. A meeting to finalize the work scope will be called in the near future. Potential participants are; AERI, CNRL, Conoco, Deer Creek, Devon, EnCana, Husky, Nexen, Petro-Canada, and Total. The test is expected to commence January 2004.

Facility Capital and Operating Cost Study

Petro-Canada, Suncor, and IMV are advancing an evaluation of the impact on capital and operating costs with different lift scenarios against a base case of gas lift. Each party is providing expertise and information at their own cost. The group plans to make a presentation to the technical sub committee for review and comment by Jan 31, 2004. The results will then be presented to the CHOA for broader discussion.

Low Pressure SAGD Wellbore Architecture

Nothing new to report this month.

Fluid Injection Technology

Flue Gas Injection

Three candidate pools have been identified in the Surmont area for potential flue gas injection, methane displacement, and re-pressuring pilot. APA is conducting reservoir modeling that will assist in final pool selection. Cost estimating and development of business terms are being advanced. Expect to file EUB application Q1 2003 with start up during summer 2004.

Lateral and Vertical Pressure Communication

See next section

Shut-in Data Gathering and Interpretation

Interpretation

This area is essentially complete now that the ETI contract is awarded and proceeding. This is a great piece of work and is an important step towards advancing the understanding of the vertical and lateral interconnection between the top gas, top water, and oil sands in the Surmont area. Thanks to Deepa Thomas, Gary Bunio, David Monroe, Steve Hogan, Bill McFarlane, John Pearce, and Doug Komery for advancing this important project.

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Nexen, Paramount, Petro-Canada, Conoco, Devon, and AERI are participating. The JV agreement and the AFE are out for final signatures. The agreement includes a confidentiality period that is not longer than two years. The parties can agree to release data and/or results earlier.

Low Pressure SAGD Performance

Deer Creek LP SAGD Field Testing

Deer Creek has offered to fix the costs to participate in its LP SAGD data sharing project at \$300,000 per participant. AERI, Conoco and Petro-Canada are working on the letter of intent wording. Nexen and Devon are reconsidering now that the costs are fixed.

The well pair drilling commenced this month.

Conoco LP SAGD E-Lift Field Testing Proposal

Conoco made a proposal to conduct a conceptual engineering and scope study for its LP SAGD pilot, at its own cost. This will include; down hole, lift, and surface design, PFD's, cost estimate (+/- 40%), and schedule. The study will consider three options; tie into existing pilot, stand alone pilot, and integration into its commercial project. It will also consider two other layers; ES SAGD and re-pressuring. Conoco will present the findings to the group by February 28, 2004. The parties accepted this proposal.

Conoco is advancing a draft agreement that is based on the Dovap model.

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Artificial Lift

Bench Scale Testing of Lift Systems

Bench scale testing agreements continue to be advanced. Paramount, Husky and Total have signed the contract. Devon and Suncor have signed a letter of intent. Petro-Canada, AERI, and EnCana have given verbal approval. A kick off meeting was held December 18, 2003. CFER is proceeding with flow loop construction. EnCana has distributed an invitation to vendors to supply the systems for testing.

Facility Capital and Operating Cost Study

Petro-Canada, Suncor, and IMV continue to advance the evaluation of different lift scenarios against gas lift. The well bore operating conditions have been established for all scenarios. IMV is now making the first pass at surface facility sizing and cost estimating.

Low Pressure SAGD Wellbore Architecture

Conoco and Husky have signed the contract for Phase 2. Waiting on other participants.

Fluid Injection Technology

Christina Lake

Flue gas injection continues. Surface facilities continue to be problematic. Devon is preparing a report on progress to date that will be reviewed by EnCana prior to distribution to the EUB and the Technical Steering Committee.

Flue Gas Injection

Conoco and Paramount have agreed on two locations for flue gas injection pilots. The EUB application will be prepared and submitted in Q1 2004. Project start-up is expected in Q1 2005.

Lateral and Vertical Pressure Communication

Paramount has signed the ETI contract on behalf of participants. AERI, Conoco, Paramount, Petro-Canada, and Devon have signed the AFE. Nexen has sent a letter indicating its participation. The Joint Operating Agreement is being advanced.

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Low Pressure SAGD Performance

Deer Creek LP SAGD Field Testing

Deer Creek has drilled its well pair for the LP SAGD project. AERI, Conoco, Nexen, and Petro-Canada are participating and are finalizing agreements. Devon, Husky, and Paramount continue to consider participating.

Conoco LP SAGD E-Lift Field Testing Proposal

Conoco continues to advance the conceptual engineering and scope for its LP SAGD pilot, at its own cost.

Reservoir Lab Testing

The sub committee is reviewing 3 lab proposals from ARC. The scope and costs for de-methanization proposal are being refined. MacKay and Surmont oil will be used for this lab work.

Executive Steering Committee

The Executive Steering Committee has reviewed the “Technology Road Map” and find it useful for decision making. They are interested in the project priorities and are pleased with the work progressed to date. The Technical Steering Committee will remain focused on technical solutions.

A list of technology projects and priorities has been prepared. Capital and operating cost estimates and timing are being prepared. This package will be presented to the Executive Steering Committee in January 2004.