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FIREBAG PROJECT

ENHANCED THERMAL SOLVENT PILOT PROJECT
(Approval No. 8683)
Annual AEUB Review Presentation

CONFIDENTIAL

Chris Fordham
Suncor Energy Inc.
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Firebag ETS Pilot Summary

- The ETS technology involves the injection of hydrocarbon solvents into a heated horizontal well
- The solvent comes in contact with the bitumen, diffuses into it reducing its viscosity allowing it to flow into the well
- A vapour chamber is formed within the oil swept sand region above the well
- The heat of the wellbore boils off the solvent entrained in the bitumen recycling it back to the reservoir.
- The oil that drains to the well bore is recovered using artificial lift
- Suncor has a patent pending for the ETS process

Firebag ETS Lessons Learned

- Uniform heat distribution is important for the process
- No apparent upgrading or asphaltene precipitation was evident
- No sand was produced from the wells
- Use of the same well bore for injection/circulation poses serious operational problems - ETS II project proposed to examine independent producer concept
- Diesel injection is very effective in mobilizing bitumen
- Excessive water production hampered the thermal solvent extraction process

ETS Current Status

- Operations have been suspended since April 10, 2004.
- The ETS Pilot project has provided Suncor with valuable information about the use of solvent based extraction processes
- Suncor is currently evaluating potential future uses for pilot

ETS II Pilot Summary

- In April 2004, Suncor received approval for an expanded thermal solvent pilot operation - ETS II
- The expanded operation was designed to test new well configurations - specifically, independent injection and producer wells
- Development of the ETS II pilot has been postponed

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Compliance Issues

- The Firebag ETS project has been operating within the terms and conditions of approval 8683