

CLEAN RESOURCES

ADVANCED HYDROCARBONS

CLEANER HYDROCARBON PRODUCTION – RECOVERY TECHNOLOGIES

FUNDING DETAILS

Bitumen Froth Treatment at Transition Region for Improved Process Efficiency

CanmetENERGY at Devon has proposed a series of experiments that will provide a deeper understanding of oil-water separation mechanisms during bitumen froth treatment and provide opportunities for improving bitumen product recovery and other water-oil separation processes.

Understanding the behavior of solvents and asphaltenes in the transition region may allow for process improvements which can reduce the amount of solvent and chemicals used in froth treatment, reduce the amount of solvent and hydrocarbons that end up in tailings streams, and improve recovery by reducing asphaltene rejection.



RECIPIENT:
CanmetENERGY



PARTNERS:
Suncor



TOTAL BUDGET:
\$200,000



AI FUNDING:
\$50,000



PROJECT DATES:
OCT 2018 –
DEC 2019



PROJECT TRL:
Start: 2
End: 4

APPLICATION

This study provides the basis for the development of an alternative bitumen froth treatment process in the transition region that can deliver increased recovery of high quality oil product. It highlights the need to develop strategies to prevent random agglomeration, rather than continue using the current remediation approaches. The findings are important not only for froth treatment but also for in situ recovery and suggests that technology developers consider taking advantage of spontaneous agglomeration instead of suppressing it.

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PROJECT GOALS

- The tailings reduction goal at lab scale is set to 90% or better; decreasing the hydrocarbon content of the tailings will facilitate treatment and have a significant positive environmental impact
- Reduction of the residual solvent content in the tailings, would have additional positive environmental benefits; the hydrocarbon-free tailings can be treated similar to the NFT tailings and safely deposited back to the environment.
- Reduction in tailings volumes would also reduce the process costs and energy use while delivering enhanced bitumen product recovery
- Removal of fine water droplets and overall reduction of residual water content, targeting less than 0.5% (vol.) of water in the bitumen product

BENEFITS TO ALBERTA

- Improve the efficiency of both *in situ* and surface mining of bitumen
- Increase the competitiveness of the oil sands industry
- Provide deeper understanding of the oil-water separation mechanism and assist industry
- Help industry to improve bitumen product quality, pipeline corrosion prevention, and pipeline safety, while decreasing GHG emissions and hydrocarbon content in tailings



1 Publication



2 Students
Trained



1 Patent

CURRENT STATUS

March 2020

The project is complete, the Final Report will become available to the public in Dec 2021. In the meantime CANMET is actively working toward a successor to this project to further this technology development.