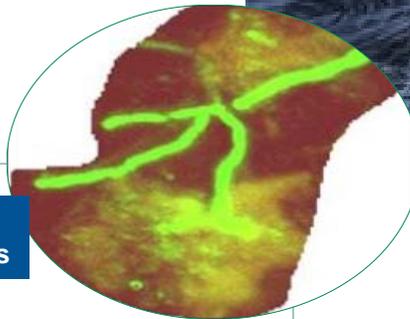


BioTiger™ (Biological Enhancement of Hydrocarbon Extraction)

Scientists at the Savannah River National Laboratory (SRNL) have discovered a new environmental biocatalyst for improving the recovery of hydrocarbons entrained in sediments utilizing a patented consortium of microbes known as BioTiger™. The action of the BioTiger™ organisms on the oily portions of the sand increases the amount of recoverable bitumen. Tests have shown the microbial activity increases extraction efficiency by 50% after four hours and over 80% after 24 hours.



**BioTiger™ increases
oil yield from oil sands**

**at a
glance**

Background

State of Development

SRNL has conducted testing with the BioTiger™ environmental biocatalyst on coarse tailings from an oil sands project. The tailings contained 14.5% bitumen and represented one of three process streams evaluated by SRNL. These tests demonstrated that the enzymes, surfactants and micelles produced by the BioTiger™ bacteria can mobilize trapped oil-sand deposits. Tests also confirmed BioTiger's production of biosurfactants using the hydrocarbons as a carbon source and showed survivability in the oil sands at temperatures from 20-65° C.

- uses naturally occurring microorganisms
- negligible toxicity
- promotes rapid hydrocarbon breakdown
- provides for oil recovery from existing waste products
- minimizes environmental impact
- survives in harsh environments
- U. S. patent 7,472,747 B1



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SRNL is managed and operated for the U.S. Department of Energy
by Savannah River Nuclear Solutions, LLC

We Put Science To Work™



Additional Benefits

BioTiger™ exhibits properties that could be instrumental in the rapid reclamation of existing tailing ponds and potential recovery of significant amounts of bitumen currently discarded to the tailing ponds. The breakdown, recovery, and processing of these “waste” products, could provide the capability to recover an estimated equivalent of 30 million barrels of oil housed in the tailing ponds. Given the potential amount of oil entrapped within what is currently considered a waste product from the oil sands process, the successful recovery of a nominal 1 % of useful product could produce an additional revenue stream of \$15 million per year.

Technology transfer

The Savannah River National Laboratory (SRNL) is the U.S. Department of Energy’s (DOE) applied research and development laboratory at the Savannah River Site (SRS). With its wide spectrum and expertise in areas such as homeland security, hydrogen technology, materials, sensors, and environmental science, SRNL’s cutting edge technology delivers high dividends to its customers.

The management and operating contractor for SRS and SRNL is Savannah River Nuclear Solutions, LLC. SRNS is responsible for transferring its technologies to the private sector so that these technologies may have the collateral benefit of enhancing U.S. economic competitiveness.

Partnering opportunities

SRNS invites interested companies with proven capabilities in this area of expertise to develop commercial applications for this process or product under a cooperative research and development agreement or licensing agreement. Interested companies will be requested to submit a business plan setting forth company qualifications, strategies, activities, and milestones for commercializing this invention. Qualifications should include past experience at bringing similar products to market, reasonable schedule for product launch, sufficient manufacturing capacity, established distribution networks, and evidence of sufficient financial resources for product development and launch.

for more information

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