

Lakes Environmental Research Inc., Receives Landmark Patent

Lakes Environmental Research announced today the issuance of patent number 9,605,212 B2 by the US Patent Office that covers a revolutionary oil sands recovery process. The "Novel Ultra-Low Water Oil-Sands Recovery Process" (**NUWORP**) significantly reduces, with the potential to eliminate, three of the greatest barriers to wider adoption of oil sands production. NUWORP is designed to

- 1. Avoid entirely the emission of greenhouse gases (GHG),
- 2. Eliminate the need for waste ponds, and
- 3. Eliminate the need for diluted bitumen (dilbit) pipelines by directly outputting value added products such as gasoline.

Presently, the vast oil sands reserves in Western Canada have their market restricted by global warming and climate change concerns associated with the current high carbon dioxide (CO₂) intensity of oil sands oil extraction. Extraction is also restricted by environmental impact concerns from waste ponds leaking toxics into local waterways or killing birds that landing on them. Furthermore, there are resistance to new pipelines carrying diluted bitumen, which leave behind a hard to clean molasses like residue, once the diluent evaporates after a leakage.



Current Oil Sands - Bitumen - Process

NUWORP Dry Oil Sands Process



Prof. Roydon Fraser, from the University of Waterloo and NUWORP's coauthor explains that "a dry oil sands process is mandatory to gurantee the elimination of the large tail waste ponds that exist in current practice." Prof. Jesse Thé, further explains that "These tail ponds have a large visual impact, and contain minor amounts of residual hydrocarbons. The current approach eliminates the need for water and places the extraction process very close to the mines."

NUWORP combines existing technology to evolve oil sands processing to achieve a lower environmental footprint. Two key shifts in thinking inspired NUWORP. As Fraser explains, "we took a thermal-mechanical point of view and resisted the chemical process view thus chemical or hot water solvents are avoided, and we freed ourselves from the constraint that extraction precedes upgrading by allowing them to occur simultaneously." Further, both researchers believe as stated by Prof. Thé that, "If oil sands are going to be exploited, better to minimize environmental impact by doing it as cleanly and efficiently as possible."

Prof. Thé closed his opinion on the subject by comparing oil to diamonds: "If we rightfully do not acquire diamonds from areas of conflict, why are we still buying oil from similar areas? As consumers, we should realize that filling your tank of gas is subsidizing convolutions in the world. With this NUWORP technology, Canada will have cleaner sustainable oil to serve as a bridge to the carbon free planet."

To learn more about this landmark patent and to acquire access to this revolutionary technology, contact Lakes Environmental Research Inc., at <u>NUWORP@webLakes.com</u>.