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# CANADA'S CLEANTECH INDUSTRY: BRINGING INNOVATIVE WATER TECHNOLOGIES TO THE OIL AND GAS SECTOR



Canadian companies are developing groundbreaking technologies that address water challenges facing the energy sector in Canada.

From reducing the cost and improving the reliability and efficiency of water recycling to technologies that could reduce the footprint of in situ oil sands facilities, Canada's innovation is cutting edge. Supporting this work is the Clean Resource Innovation Network (CRIN), a network that connects innovators, vendors and end users to water specialists, government collaborators and funders; Canada's Oil Sands Innovation Alliance (COSIA), an alliance of oil sands companies that have invested \$1.4 billion in technologies to improve environmental performance; the Petroleum Technology Alliance Canada (PTAC), a hydrocarbon industry association that facilitates technology development to enhance environmental stewardship; and the CleanTech Alliance, a national alliance for clean technology.

## MEMBRANE TECHNOLOGY ASSESSMENT PROGRAM (MTAP)

Located at Northern Alberta Institute of Technology's Centre for Oil Sands Sustainability, in Edmonton, Alberta, the Membrane Technology Assessment Program (MTAP) enables Canadian oil companies to test ideas and apply cutting-edge solutions to create environmental and economic benefits and reinforce Canada's global competitive advantage in clean technology. MTAP houses a high-temperature, high-pressure testing unit to help implement water technologies in the oil sands. The unique unit can test up to 12 water treatment technologies in conditions that simulate oil sands in situ operations.

## WATER TECHNOLOGY DEVELOPMENT CENTRE (WTDC)

The Water Technology Development Centre is a \$143-million joint industry project convened under Canada's Oil Sands Innovation Alliance. Located at Suncor's Firebag steam-assisted gravity drainage facility, the 5,000 m<sup>2</sup> test facility provides convenient, continual access to live process fluids for field pilot testing of in situ surface technologies. The centre allows operators to speed the development and implementation of new technologies, share expertise and risk, and shorten the time frame required to move technologies to commercial application.

## NOTEWORTHY FIRMS OFFERING WATER TECHNOLOGIES FOR THE OIL AND GAS SECTOR

### > Aqua Pure Technologies

Develop, manufacture and operate water filtration solutions for industrial applications

### > ClearBakk Water Solutions

Bringing together clean technology and advanced process engineering

### > Metabolik Technologies

Bioremediation platform developer

### > SOLVAQUA

Water recovery and waste reduction solution

### > Innocorps Research Corporation

Clean water solution developer

### > WaterSMART Solutions

Water management solutions

### > Baleen International

Specializes in separating fine suspended solids from water-based streams

### > Swirltex

Custom waste-water treatment system provider

### > PurLucid Treatment Solutions

Specializes in industrial fluids treatment and lithium extraction

### > E2Metrix

Eliminates contaminants using electrochemistry from process and waste water



WATER TECHNOLOGIES FOR THE OIL AND GAS SECTOR

## CANADIAN COMPANIES WORKING GLOBALLY



### **FREDSense TECHNOLOGIES** > [fredsense.com](http://fredsense.com)

**FREDsense** has developed a custom field kit that combines biology and engineering to detect chemicals in industrial process water (down to 1 ug/L - ppb). The kits are designed to make process decisions faster, detect chemicals in the water through custom sensors, get data to busy operators while on-site and require no training to use.



### **MANGROVE WATER TECHNOLOGIES** > [mangrovewater.com](http://mangrovewater.com)

**Mangrove Water Technologies**, based in Vancouver, British Columbia, is currently commercializing a technology for the conversion of brines to desalinated water and chemicals for on-site use. The technology applies an electric current to a novel electrochemical process that combines aspects of fuel cells with electrodialysis to separate the salts into different compounds. Along with water, it produces industrial-strength hydrochloric acid, commonly used for in situ extraction, and caustic acid, used in the bitumen mining process. Canadian Natural is currently conducting a small-scale pilot to determine its economic and technological feasibility, and its ability to advance the targeted environmental outcomes.



### **H2NANO** > [h2nano.ca](http://h2nano.ca)

**H2nanO**, a Canadian water treatment company, has created a new approach to advanced oxidation process treatment through an easy to recover and reuse nano-engineered catalyst. This treatment, called SolarPass, uses tiny particles that, when mixed with water and activated by sunlight, continuously treat and eliminate organics. **H2nanO** is situated in the Toronto-Waterloo entrepreneurial corridor, with access to the top talent from the University of Waterloo, Canada's leading university for nanotechnology and water research.



### **SALTWORKS** > [saltworkstech.com](http://saltworkstech.com)

**Saltworks** has an established history in designing, building and operating full-scale industrial wastewater treatment systems. The company has developed robust systems that treat oil-and-gas-produced water to reduce waste volumes and reuse produced fresh water. Some of the technologies currently deployed include a zero-contact atmospheric evaporator crystallizer for shale waters and an advanced membrane system for enhanced oil-recovery-produced waters.

**CANADA'S  
CLEANTECH  
OIL AND GAS  
SUPPLIERS ARE  
GLOBAL INNOVATORS**

- ✓ Experience working in remote locations
- ✓ Strong knowledge and understanding of the resource sector
- ✓ Experience working with Indigenous communities
- ✓ Multilingual and multicultural
- ✓ Robust research and development community
- ✓ National network of highly successful industrial and regional resources, capital and talent

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