

Technology Demonstration

Tiny Bubbles Lead to Increased Profits and Reduced Water Usage in the Upstream Oil and Gas Sector



CETAC-WEST

Total Fluid Solutions Inc.



Total Fluid Solutions (TFS), a division of Wescorp Energy Inc, has developed a safe, effective and economical process for cleaning and separating oil from produced water.

The TFS process involves saturating contaminated water with tiny microscopic gas bubbles. These bubbles attach to the oil droplets in the water, which break the oil water interface and enable the oil to be safely removed. The result is clean, hydrocarbon-free water that can be recycled in operations.

Total Fluid's oil-water separation technology is significantly decreasing operating costs and bringing the 3 R's to oil field production: Reduce Water, Reuse Water and Recycle Water

To validate the merits of the technology, TFS recently installed a demonstration unit with an industry partner at an oil battery near Drayton Valley. This was an ideal site for testing, as the water being produced at this facility was contaminated to the extent that a large percentage was being discarded through disposal wells (at considerable cost). Results of the demonstration have been extremely positive. Total Fluid's technology has been shown to consistently reduce the oil content in water to fewer than 0.005% or 50 parts per million and its partner is now able to reuse and recycle its produced water in operations more effectively.

Depending on the oil-water ratio, the technology also has the added benefit of recovering more oil and reducing lifting costs. It is estimated that by operating TFS technology on a 2,000 barrels of water / day stream an additional 5 to 30 bbls of oil will be recovered.



Before

After

HIGHLIGHTS

■
Effective treatment to clean oil contaminated water

■
Successful demonstration of a 2,000 bbl/day treatment unit

■
Receiving commercial orders for additional units

Technology Demonstration

Total Fluid's technology innovation has the potential for significant economic and environmental impact on virtually all oil producing fields.

To introduce this new technology to the market, TFS is working with more than 25 Alberta-based suppliers and has partnered with two post secondary schools, the Schulich School of Engineering at the University of Calgary and the Digital School in Edmonton. Further, independent verification of the demonstration results will be conducted by the Alberta Research Council and other independent laboratories.

In Western Canada there are hundreds of oil producers, ranging from companies with a single well to those with thousands of wells. In Alberta, there are thousands of storage facilities for contaminated water requiring remediation prior to reinjection – these facilities, at any given time, are holding hundreds of thousands of barrels of hydrocarbon contaminated water.



Water storage tanks and Total Fluid's treatment skid near Drayton Valley

CETAC-WEST Support

TFS's founder Jim Bowhay credits his attendance at CETAC-WEST's Entrepreneur to CEO workshop with providing the tools to support Total Fluids successful acquisition by Wescorp Energy Inc. Moreover, Total Fluid's participation in CETAC-WEST-hosted Industry Round Tables and Water Cluster meetings also helped to provide the focus required to turn its oil field water treatment technology into reality.

Funded in part by CETAC-WEST through the Unleashing Innovation Program provided by Alberta Finance and Enterprise and Alberta Advanced Education and Technology, Total Fluid's recent demonstration project has generated substantial interest within the industry and has led to several commercial orders.



CETAC-WEST

Unleashing Technology Innovation