ALBERTA INNOVATES

CLEAN RESOURCES

ENVIRONMENTAL INNOVATION

WATER INNOVATION PROGRAM

Improving Technologies for Detecting Submerged Oil

Methods for detecting floating oil are well established, but few have addressed the complexities in detecting submerged oil. The intent of this project is to validate the performance of existing technologies for detecting submerged oil in inland and marine environments. The project will modify C-FER's full-scale pipeline leak simulation apparatus (ELDER) to simulate leaks with submerged oil at a scale sufficient to evaluate the performance of a variety of sensing technologies. A critical component of this will be the use of a variety of crude oil products, including heavy oil and diluted bitumen.

FUNDING DETAILS

RECIPIENT:
C-FER Technologies

PARTNERS:
Western Diversification, BC Oil & Gas Commission, Enbridge, TC Energy, TransMountain

TOTAL BUDGET:
$940,000

AI FUNDING:
$297,000

PROJECT DATES:
JANUARY 2020 – MAY 2021

PROJECT TRL:
Start: 5-7
End: 8

APPLICATION

The results from this project can be used to improve the design, deployment and operation of technologies to detect submerged oil in inland waterways and marine environments. The technologies being evaluated can be used to monitor for submerged oil at critical locations to rapidly detect leaks and activate emergency response procedures. These technologies can also be used after leaks have been identified to locate spilled products that have become submerged or settled to the bottom of waterways.

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PROJECT GOALS

The key goals of the project include the following:

- Establish new capacity to evaluate submerged oil detection technologies;
- Support technology vendors in demonstrating and commercializing new solutions;
- Assist pipeline operating companies in selecting the best available technologies for their application; and
- Reduce the impact of leaks through rapid and reliable detection of submerged crude oil products

BENEFITS TO ALBERTA

- Minimize the impact of liquid hydrocarbon spills in aquatic environments by providing earlier detection of leaks.
- Address public challenges to building pipelines to tidewater to improve market access for oil products.
- Create a new Innovation Platform where equipment vendors, operators, regulators and academia can test new concepts and refine the performance of commercial technologies.
- Allow for increased value to end users of submerged oil detection technologies. The industry representatives involved can use the results obtained to improve upon their existing emergency response plans and reduce the cost of spill cleanups.
- Inform new regulations or legislation to support Alberta's leadership position in responsible energy development.
- Facilitate opportunities for collaboration amongst vendors, academia and industry from around the world that could lead to establishing new companies in Alberta.

5 New Products/Services

2 Publications

3 Project Jobs

30 Future Jobs

CURRENT STATUS

APRIL 2020

Project work was initiated in February 2020 with a review of commercial technologies that might be capable of detecting submerged oil. So far, a total of 23 technologies were identified and interviews with those technology vendors are proceeding. This information will be used to select candidates for testing as well as to inform the requirements of the test system that will be designed.