

From: Emergency_Management – Trans Mountain <Emergency_Management@transmountain.com>
Sent: Thursday, June 16, 2022 12:05 PM
To: information <information@islandstrust.bc.ca>
Subject: BC EAO Condition 35 – Fate & Behaviour Bitumen Research

Good afternoon,

Emergency Management engagement continues to be a priority for Trans Mountain and an important component of the Emergency Management (EM) Program. We value the input received from stakeholders, as your feedback is integral to the ongoing enhancements of many aspects of the EM Program.

As you may be aware, arising from the provincial reconsideration process, in addition to the addition of two new Conditions, the BC EAO amended the scope of consultation for Condition 35 - Fate and Behaviour of Bitumen Research to include potentially affected coastal local governments.

Condition 35 – Fate and Behaviour of Bitumen Research states that Trans Mountain is to prepare a report on the current and future research programs that Trans Mountain is leading, jointly leading, supporting, or is otherwise involved in regarding the behaviour and recovery of heavy oils spilled in freshwater and marine aquatic environments.

Trans Mountain must provide the report to Indigenous groups, the BC Environment Assessment Office (BC EAO), Environment and Climate Change Canada (ECCC), Canada Energy Regulator (CER), Canadian Coast Guard (CCG), BC Ministry of Environment and Climate Change Strategy (MOE), BC Ministry of Natural Gas Development (MNGD), the Oil and Gas Commission (OGC), and Potentially Affected Coastal Local Governments prior to the commencement of Project operations and must provide progress updates one year and every five years after commencement of operations.

We are pleased to provide you with the attached research summary, which includes updates on a number of research initiatives and provides information on a new research initiative Trans Mountain is supporting.

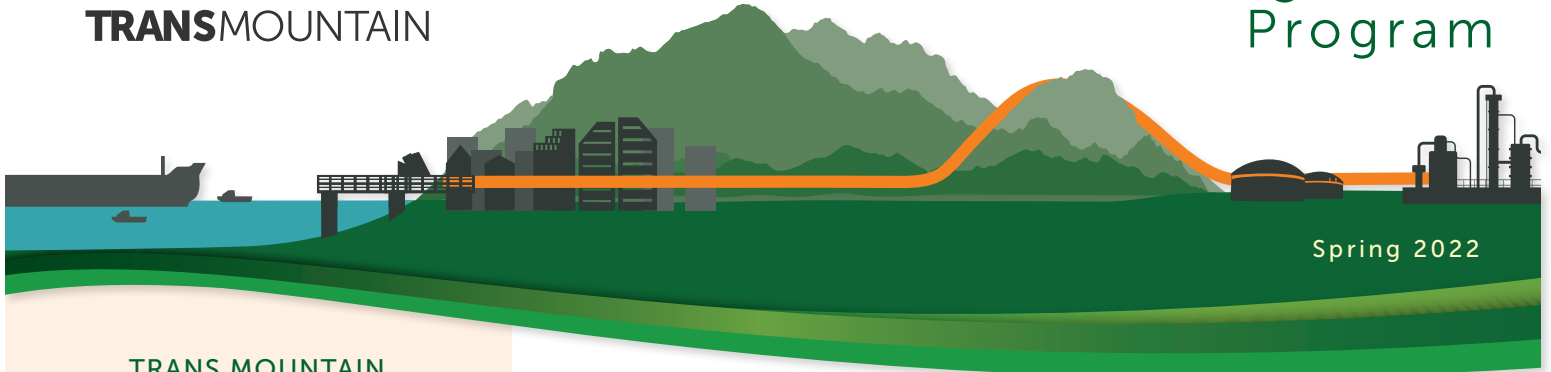
Trans Mountain values and encourages input for consideration into its Emergency Management Program. If you would like to provide feedback or wish to discuss potential research initiatives, I am available at Kelly_Malinoski@transmountain.com or 403.514.6538.

Thank you for your consideration and we look forward to sharing the next update with you in 2023.

Sincerely,

Kelly

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TRANSMOUNTAIN
VALUES and
ENCOURAGES INPUT
for CONSIDERATION
ON ITS EMERGENCY
MANAGEMENT PROGRAM.



Our emergency response plans are available online at transmountain.com/emergency-response-plans.

If you would like to provide feedback or discuss potential research initiatives, please contact:
Emergency_Management@transmountain.com

TRANSMOUNTAIN FINANCIAL CONTRIBUTIONS

More than **\$2 MILLION** has been allocated thus far **for research** on the fate and behaviour of bitumen.

RESEARCH INITIATIVES

Trans Mountain's Emergency Management (EM) Program comprises a comprehensive set of standards and procedures based on a system of continual improvement.

AVENUES TO IDENTIFY IMPROVEMENTS INCLUDE, but are not limited to:

- Inputs for consideration from Indigenous groups and stakeholders
- Canada Energy Regulator (CER) and British Columbia Environmental Assessment Office (BC EAO) condition requirements
- New technologies and research findings

The Certificate granted by the BC EAO for the Trans Mountain Expansion Project (TMEP) was accompanied by several Conditions. As part of the recent provincial reconsideration process, BC EAO amended the scope of consultation for Condition 35 - Fate and Behaviour of Bitumen Research, by broadening the list of stakeholders to include potentially affected coastal local governments.

Trans Mountain will work with spill responders to support the incorporation of the research results into its emergency preparedness plans.

The Condition requires Trans Mountain to report how it is incorporating any applicable research results into its emergency preparedness and response plans; and

that Trans Mountain will work with spill responders to support the incorporation of the research results into its emergency preparedness plans and programs.

The Condition includes

research topics on the different physical and chemical properties of the oil (including blends) and other products intended to be shipped from Westridge Marine Terminal, product weathering, dispersion and oil/sediment interactions, product submergence, product behaviour and cleanup following in-situ burning, and cleanup remediation options for sediments and shorelines.





TRANS MOUNTAIN IS SUPPORTING A
NEW RESEARCH PROGRAM
 to complement the **BC EAO Condition 35**
 and to **IMPROVE**
incident response.

**SUBMERGED OIL
 DETECTION**
Joint Industry Project

Trans Mountain is supporting a new, joint-industry project being managed by C-FER Technologies. The goal of the project is to minimize the environmental impact of hydrocarbon releases into waterways by understanding the factors that affect the performance of various leak detection technologies.

The project is being conducted in five phases with the first two already underway:

- Define technology requirements
- Review technologies
- Test facility design and setup
- Technology testing
- Analysis and reporting

A Steering Committee has been established to provide input on performance requirements and details on typical application environments in which these technologies may be deployed.

The results of this project have the potential to enhance non-floating oil monitoring and emergency response plans.



Trans Mountain will assess the findings from these studies to **IDENTIFY OPPORTUNITIES** to **IMPROVE** incident response strategies.

ONGOING Research

Sustainable Development – Experimental Lakes Area

Trans Mountain is supporting the International Institute for Sustainable Development – Experimental Lakes Area Program. This multi-year industry and government collaborative program is examining the fate and behaviour of diluted bitumen and conventional heavy crude oil in a freshwater environment.

This program is being conducted in three stages, with two already completed:

1. Establishment of land-based microcosms to examine the chemical and physical behaviour of diluted bitumen in freshwater
2. Re-creation of a controlled oil spill to determine if degradation is different for
3. Comparison of cleanup methods



Emergency and spill response booms specifically selected for water-based spill containment and recovery



Example of equipment deployed at large river Control Point

RECENTLY COMPLETED Research

Product Acceptance Standard

Trans Mountain supported an independent, science-based multimillion-dollar study commissioned by the Canadian Energy Pipeline Association (CEPA) and the Canadian Association of Petroleum Producers (CAPP). The study evaluated and compared the physical and chemical properties of various types of crude oil under different environmental conditions.

The findings of the study concluded that both conventional and oilsand-derived products tested remain floating in the marine environment for extended periods of time and diluted bitumens do not separate into their original bitumen and diluent after they spill because the hydrocarbons in both are infinitely soluble to each other.

The findings of the study led to the development of fact sheets on oil properties and behaviour under a range of environmental conditions. Trans Mountain has enhanced its Non-Floating Oil Assessment and Response Plan (Plan) by incorporating these fact sheets to help guide initial response actions and assist responders to determine the most effective countermeasure.

The Plan can be found on the Trans Mountain website at transmountain.com/emergency-response-plans.

Underwater Seabed Cleanup and Assessment Technique Guide

Trans Mountain, together with Western Canada Marine Response Organization (WCMRC), Canadian Coast Guard (CCG), Natural Resources Canada (NRCan) and Fisheries and Oceans Canada (DFO), supported the development of an Underwater Seabed Cleanup and Assessment Technique (uSCAT) Guide.

The uSCAT Guide identifies standardized strategies for the detection and assessment of nearshore non-floating oil in varying environments. In addition, the uSCAT Guide provides methods for recording, storing and processing response data.

Trans Mountain has enhanced its Non-Floating Oil Assessment and Response Plan by referencing the uSCAT Guide to support planning, decision-making and operational response to nearshore non-floating oil. The uSCAT Guide is accessible via Trans Mountain's Non-Floating Oil Assessment and Response Plan at transmountain.com/emergency-response-plans. Alternatively, it can be found online at uscat.ca.

Trans Mountain has enhanced its Non-Floating Oil Assessment and Response Plan by incorporating fact sheets to help guide initial response.



Responders testing water-based spill containment and recovery techniques



Responders testing water-based spill containment and recovery techniques for oil at risk of becoming non-floating



Responders verifying the contents of Trans Mountain's emergency response trailers

Other COMPLETED Research

As a proponent of advancing spill response and recovery technology, Trans Mountain has supported a number of research studies to better understand the behaviour of oil and the performance of oil recovery technology.

In 2012, Trans Mountain, together with WCMRC, completed field-scale research that evaluated the fate and behaviour of representative samples of diluted bitumen discharged into a water environment and subjected to various conditions of weathering. Referred to as the Gainford Studies, the project also assessed the performance of various types of oil spill recovery equipment and found that spilled diluted bitumen can be successfully removed from the surface of the water using traditional mechanical equipment.

Trans Mountain added a non-floating oil trailer to its inventory of spill response equipment.

Trans Mountain supported an investigation in 2016 to better understand the potential interaction between oil and sediment in the Lower Fraser River and the Salish Sea. The conclusions demonstrated a low potential for oil and sediment particles to interact and then aggregate together as oil mineral aggregate (OMA) due to the natural conditions in the Lower Fraser River and Salish Sea. This aligns with recent work conducted by other researchers, indicating the unlikelihood for OMAs to form in coastal BC waters.

In 2016, Trans Mountain also supported an evaluation that performed modelling of spilled

hydrocarbon fate and behaviour, and the associated effects at five representative sites along the shipping route in the Salish Sea. The findings concluded that due to variables, including wind and tides, at modelled sites, hydrocarbon does not migrate in a uniform pattern and a single model cannot be predictive of a real outcome at a particular site.

The results of these studies were considered during the development of the Trans Mountain Non-Floating Oil Assessment and Response Plan, which is designed to provide guidance for the initial spill assessment and

response actions to spilled oil that is at risk of or has become non-floating in an inland water environment. The Plan is available online at transmountain.com/emergency-response-plans.

In addition, Trans Mountain added a non-floating oil trailer to its inventory of spill response equipment. The trailer contains emergency and spill response equipment specifically selected for water-based spill containment and recovery, including dewatering bags, underwater viewing boxes, silt fencing and an aqua dam.

TRANS MOUNTAIN VALUES and ENCOURAGES INPUT for CONSIDERATION ON ITS EMERGENCY MANAGEMENT PROGRAM.

If you would like to provide feedback or discuss research initiatives, please email:

Emergency_Management@transmountain.com

We welcome and encourage your feedback about our Emergency Management newsletter:



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transmountain.com