University of Victoria | Graduate Studies

Notice of the Final Oral Examination for the Degree of Master of Science

of

LEE A. S. BRITTON

BSc (University of Victoria, 2015)

"Predicting Retention of Diluted Bitumen in Marine Shoreline Sediments, Southeastern British Columbia, Canada"

Department of Geography

June 26, 2017
10:00am
David Turpin Building
A136

Supervisory Committee:
Dr. John R. Harper, Department of Geography, University of Victoria (Co-Supervisor)
Dr. Dan J. Smith, Department of Geography, UVic (Co-Supervisor)
Dr. James Gardner, Department of Geography, UVic (Outside Member)

External Examiner:
Dr. Audrey Dallimore, School of Environment and Sustainability, Royal Roads University

Chair of Oral Examination:
Dr. Julie Zhou, Department of Mathematics and Statistics, UVic

Dr. David Capson, Dean, Faculty of Graduate Studies

Abstract

Canada has become increasingly economically dependent on the exportation of bitumen to trans-oceanic international markets. As the export of Alberta bitumen from ports located in southeastern British Columbia increases, oil spill response and readiness measures become increasingly important. When marine spills do occur, great lengths of shoreline are at risk of being contaminated. Although the frequency of ship-source oil spills has dramatically declined over the past several decades, they remain environmentally devastating when they do occur. Once ashore, oil can persist for decades if shoreline hydraulic conditions are correct and remediation does not occur. Most commonly transported oils (e.g., fuel oils, Bunker C, crude oil, etc.) have been thoroughly studied, and their fate and behaviour in the event of a marine spill is well understood. In contrast, because bitumen has been historically traded in relatively low quantiles and has almost no spill history, there exists a sizable knowledge gap regarding its fate and behaviour in both the marine environment and on coastal shorelines.