



ASSOCIATION  
OF THE  
CHEMICAL PROFESSION  
OF  
BRITISH COLUMBIA

and



The Chemical Institute of Canada  
L'Institut de chimie du Canada

are pleased to present a short symposium on

## Hydrocarbons in the Environment

Friday, June 8<sup>th</sup>, 2012

Nanaimo Campus, Vancouver Island University

Library Boardroom (B305, Rm507)

9:30 – 11:30 am

Followed by lunch in the *Discovery Room*

and a tour of the

*Applied Environmental Research Laboratories*

### ***Identification of Hydrocarbons and Alternative Fuels in Ground and Water***

Dr. Andy Pickard, PChem, Consultant, Fuels & Technology Support, Qualicum, B.C.

### ***New Approaches for Vapour Intrusion Assessment at Petroleum Hydrocarbon***

***Impacted Sites***, Dr. Ian Hers, Principal, Vapour Intrusion Practice Leader, Golder Associates Ltd., Burnaby, B.C.

### ***Advances in Mobile Mass Spectrometry for On-the-Fly Hydrocarbon***

***Measurements***, Nicholas Davey, PhD Candidate, University of Victoria and the Applied Environmental Research Laboratories, Vancouver Island University, Nanaimo, B.C.

Please pre-register for this event via an email to [Erik.Krogh@viu.ca](mailto:Erik.Krogh@viu.ca)

\$15 for members of the ACPBC or CIC, \$25 for non-members  
(includes lunch in the *Discovery Room*)

*The ACPBC is committed to free exchange of scientific ideas and*

*their vigorous discussion and debate as a vital part of the professional lives of chemists. The purpose of ACPBC professional development events (presentations/workshops/seminars) is to provide information for the benefit of its members. While every effort has been made to invite knowledgeable speakers who will provide the best available science and technology, material presented at these events should be used solely as scientific and technical review and commentary for personal use by the attendee and should be applied in practice solely at the attendees discretion and responsibility.*

## ABSTRACTS AND SPEAKER BIOGRAPHIES

### **Dr. Andy Pickard**

#### ***Identification of Hydrocarbons and Alternative Fuels in Ground and Water***

**Abstract:** The differences between common fuels, including new alternative fuels, will be discussed, along with basic analytical techniques used to identify these materials. Additional ‘unique compounds’ that have been used in fuels and lubricating oils will be reviewed, with comments on pipelining fuels and crude oils and potential impacts on the environment.

**Biography:** Andy Pickard has over 40 years experience in fuels, lubricants, petroleum products, and new alternative fuels, including 10 years in Sarnia with Imperial Oil and Esso Chemical followed by 24 years with Petro-Canada in Calgary. He now consults from home near Qualicum Beach and is very involved with Canadian and ASTM International fuel standards and test methods. Andy received his Ph.D. in chemistry at the University of Western Ontario and is now an active member of the Association of the Chemical Profession of B.C.

### **Dr. Ian Hers**

#### ***New Approaches for Vapour Intrusion Assessment at Petroleum Hydrocarbon Impacted Sites***

**Abstract:** The possibility of harmful vapours from volatile contaminants in groundwater or soil being released and entering below-grade portions of buildings is an important consideration when new development is planned at contaminated or brownfield sites. A growing body of science indicates that even relatively low-level exposure to some contaminants may pose chronic health risks. We have seen that vapour intrusion is a highly site-specific process, but the potential exists for a range of sites. This presentation will provide some background, new assessment approaches that incorporate aerobic biodegradation and solutions when vapour intrusion is an issue.

**Biography:** Ian Hers holds a PhD in Civil Engineering and is a Principal at Golder Associates Ltd and a senior environmental engineer. Ian is an internationally recognized leader on vapour intrusion.

### **Nicholas Davey**

#### ***Advances in Mobile Mass Spectrometry for On-the-Fly Hydrocarbon Measurements***

**Abstract:** The release of hydrocarbons into the environment can have significant environmental and economic consequences. Traditional sampling/monitoring programs are time consuming, costly and often fail to provide sufficient information to make timely decisions. The evolution of smaller, more portable mass spectrometers to the field can provide quantitative information for rapid detection, adaptive sampling and decision support. We have deployed a mobile platform membrane introduction mass spectrometer for in-field measurements of ten volatile and semi-volatile organic compounds. In this work, we report advances in data handling capabilities using Labview™ and Matlab™ to produce geographically referenced MS data in real-time and interactive Google Earth files for data rich presentations.

**Biography:** Nick Davey is a PhD candidate at the University of Victoria. His project has involved the modification of a commercial ion trap mass spectrometer with a membrane introduction interface to provide real-time high precision measurements of hydrocarbons in air and water samples. Nick completed his Bachelor of Science degree at Vancouver Island University and is conducting his PhD research in the Applied Environmental Research Laboratories at Vancouver Island University.