

March 23, 2022

RISK ASSESSMENT WORKSHOP

1:00 - 1:05 pm	Welcome and Introduction to Workshop
1:05 - 1:30 pm	Presentation 1: Budget Friendly Risk Assessment, Louise Burden, M.Sc., P.Geol. QPTier3
1:35 - 1:40 pm	Post-it Note Questions
1:40 - 2:05 pm	Presentation 2: Calculating Site-specific Ecological Contact Guidelines for PHC in Soil Using Organic Carbon Normalization and Species Sensitivity Distribution, Karl Bresee, B.Sc., PBD, P.Biol., QPTier3
2:05 - 2:10 pm	Post-it Note Questions
2:10 - 2:40 pm	Small Group Discussions
2:40 - 2:50 pm	BREAK
2:50 - 3:15 pm	Presentation 3: Risk Assessment of Mixtures, Steven Siciliano, NSERC/COOP Industrial Research Chair in In Situ Remediation and Risk Assessment
3:15 - 3:20 pm	Post-it Note Questions
3:20 - 3:45 pm	Presentation 4: Managing Complex Sites in Changing Urban Environments, Rachel Peters, Ph.D., QPTier3
3:45 - 4:15 pm	Small Group Discussions
4:15 - 5:00 pm	Post-it Notes Q&A
5:00 - 6:00 pm	Mixer

PRESENTER BIO'S

Louise Burden M.Sc. P.Geol, QPTIER3
 Principal Hydrogeologist /Risk Assessor, Ashwell Consulting Inc.

Louise has over 23 years of experience as an environmental consultant within Canada, Ireland and the UK. She has a Bachelors degree in geology from Imperial College, London UK and a Masters degree in Hydrogeology from the University of Birmingham, UK. She has been in Canada for over 10 years and is a Professional Geologist with APEGA and APEGS and a Qualified Professional for Tier 3 Endpoints.

Louise specializes in risk based assessment of contaminated sites with a particular focus on the "pathway" component of the risk paradigm, utilizing her skills as a contaminant hydrogeologist to conceptualize contaminant fate and transport. Louise is an expert in manipulation of published risk based Guidelines from various jurisdictions and has considerable experience in undertaking risk assessments and developing risk management plans for municipal, industrial and upstream oil and gas clients. She is experienced in every level of risk assessment from screening through to detailed quantitative assessment particularly with regard to human health and groundwater quality. Louise has worked for a number of international environmental and engineering consultancy firms and is now an independent consultant.

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**Karl Bresee, B.Sc., PBD, P.Biol., QPTIER3
Senior Scientist, Intrinsic**

Mr. Bresee specializes in human and ecological risk assessment with extensive experience in exposure modelling and risk assessments associated with contaminated sites and environmental impact assessments. Mr. Bresee has been an environmental consultant for 20 years managing environmental impact assessments for the private and public sector including oil and gas, power generation, agricultural, smelting, coal mining, hard rock mining, brown field sites and various real-estate or property developments. He has been the technical lead on both human and ecological risk assessments of contaminated sites for Provincial and Federal sites across Canada. Mr. Bresee's role in these projects was project management, multiple pathway exposure assessment, toxicity assessment, risk characterization and public/stakeholder consultation. Mr. Bresee holds a Minor in Geology, a B.Sc. in Biology, a Post Bachelor's Diploma in Ecotoxicology, is a member of the Alberta Society of Professional Biologists and Qualified Professional in Saskatchewan for Risk Assessment.

**Professor Steven Siciliano,
NSERC/COOP Industrial Research Chair in In Situ Remediation and Risk Assessment,
University of Saskatchewan**

Professor Steven Siciliano is a soil microbiologist and toxicologist with 25 years of experience in industrial innovation and academic research. Academically, Steven is one of the most highly cited soil scientists in Canada with more than 170 publications that have been cited over 12,000 times, and a h-index of 57, and a i-10 index of 135. He was also the director of the NSERC CREATE Human and Ecological Risk Assessment program which was a national program developed to train advanced risk assessment techniques to graduate students. He is currently the director of the NSERC CREATE Sustainable Applied Fertilizer Ecological Restoration program which is an international program designed to train students in the assessment and remediation of fertilizer impacts.

Over the last 25 years, Steven has initiated and executed privately and publicly sponsored large-scale projects, accumulating experience in assembling and leading research and development teams specializing in the execution of projects spanning from the laboratory to the field scale. Steven has led soil remediation work of hydrocarbons, metal and fertilizers across the globe, spanning both Antarctica and the Arctic, with a strong emphasis on the remediation of hydrocarbons in difficult northern soils that have complex below ground infrastructure. As part of these efforts, Steven has developed new soil site specific risk assessment approaches to allow stakeholders to develop remedial objectives. Steven Siciliano currently holds the NSERC/COOP Industrial Research Chair in In Situ Remediation and Risk Assessment at the University of Saskatchewan.

**Rachel Peters, PhD., QPTIER3
Environmental Risk Advisor, Federated Co-operatives Limited**

Rachel Peters is an Environmental Risk Advisor with Federated Co-operatives Limited with 10 years of experience in the environmental and risk assessment fields. At FCL, she manages research opportunities and risk assessments at complex sites, and has directed assessment and remediation work at sites across western Canada. Rachel has a PhD in toxicology, focussing on determining bioavailability of PAHs from soil to better understand exposure as part of risk assessment.

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SUSTAINTECH AT A GLANCE

7:30 - 8:30 am	Registration
8:30 - 8:40 am	Welcome
8:40 - 9:30 am	Keynote Address: Navigating the Global Energy Transition, Chris Turner Sponsored by: SRC
9:30 - 10:30 am	Environmental Protection Branch Update - Saskatchewan Ministry of Environment
10:30 - 10:45 am	Coffee Break Sponsored by GeoTactical
10:45 - 11:20 am	An Overview of Saskatchewan's Institutional Control Program
11:20 - 11:50 am	Ministry of Energy and Resources Regulatory Update/Discussion on Risk-Based Closures
12:00 - 12:30 pm	Block 2 - Technical Sessions
12:30 - 1:30 pm	Lunch Sponsored by SEiMA
1:30 - 2:30 pm	Block 3 - Technical Sessions
2:30 - 2:45 pm	Coffee Break Sponsored by ALS
2:45 - 3:45 pm	Block 4 - Technical Sessions
3:45 - 4:00 pm	Closing Remarks
4:00 - 5:00 pm	Closing Reception Networking Exhibit Hall Sponsored by Trace Associates

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REGULATORY SESSIONS

REGULATORY SESSION #1 - 9:30 10:30 AM

Environmental Protection Branch Update by Saskatchewan Ministry of Environment

- Impacted Sites Guidance and Public Mapping - Brian Cowan
 - The Ministry of Environment is planning to publish a Geographic Information System (GIS) data set illustrating the environmentally impacted sites in the province in a map format. A demonstration of the public Geo Hub map will be provided during the Regulatory Update - Impacted Sites Guidance and Public Mapping Session by Brian Cowan. The launch of the Impacted sites data site to the GeoHub is planned for end of March 2022.
- Saskatchewan Environmental Code Red Tape Review - Hillary Prodahl and Michelle Heggstrom
 - The Government of Saskatchewan has a vision for business-related regulations to be effective, efficient, and relevant in addressing their public policy objectives. This is done by minimizing the undue burden of regulatory red tape and maximizing opportunities for innovation and economic competitiveness while maintaining necessary protections for public health safety, consumers, workers, and the environment. The Ministry of Environment is undergoing the process of a Red Tape Review for the Air and the Impacted Sites Environmental Code Chapters. The Red Tape Review project was initiated in August 2021 and will conclude in February 2023. Public consultation is currently underway for the Impacted Sites Environmental Code Chapters through an online survey. Specific details about the Red Tape Review process will be provided in Hillary Prodahl and Michelle Heggstrom's presentation.
- Update: Air Quality Related Programming - Jenna Boyko
 - Have you ever wondered which air quality standard you should use in Saskatchewan? Join us for an overview of the applicability of the Saskatchewan Ambient Air Quality Standards and the Canadian Ambient Air Quality Standards as well as other air quality related updates.

REGULATORY SESSION #2 - 10:45 - 11:20 AM

An Overview of Saskatchewan's Institutional Control Program by Dustin Zmetana, Saskatchewan Ministry of Energy and Resources

- The presentation will demonstrate the opportunity, process and administration of the Institutional Control Program in Saskatchewan.

REGULATORY SESSION #3 - 11:20 - 11:50 AM

Ministry of Energy and Resources Regulatory Update and Discussion on Risk Based Closures by Jonas Fenn, Saskatchewan Ministry of Energy and Resources.

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TECHNICAL SESSIONS BLOCK 2 - 12:00 - 12:30 PM

Michelangelo A&B	Risk-Based Approach Supporting the Redevelopment of an Urban Lead Impacted Site Presented by: Sylvain Bordenave, Trace Associates & Karl Bresee Intrinsik Corp
Venice	Sodium Fluorescein as a Tracer to Assess the Radius of Influence for Remediation Presented by: Janaya Brown & Mathew Resendes University of Saskatchewan
Florence	Collaboration for Closure of Salt Affected Well Sites in Saskatchewan Using Tier 2 Pathway Modification Presented by: Trevor Burgers & Jonas Fenn, Millenium EMS Solutions
Naples	Saskatchewan Air Quality - The relationships of EPP's, Modelling and Emission Sampling Presented by: Jason Wilkinson Golder Associates, A division of WSP.
Michelangelo C	2021 Year in Review: The Environmental Legal Landscape Presented by: Jessica Buhler MLT Aikins LLP

TECHNICAL SESSIONS BLOCK 3 - 1:30 - 2:00 PM

Michelangelo A&B	Challenges with risk assessment and risk management of large area sites. Presented by: Karl Bresee Intrinsik Corp
Venice	Assessment of in situ bioremediation technology across petroleum hydrocarbon impacted sites in Saskatchewan Presented by: Steven Siciliano University of Saskatchewan
Florence	Pathway to Closure for a Heavy Oil Release into the North Saskatchewan River Presented by: Tara Murfitt & Shaun Toner Matrix Solutions
Naples	Remediation as Reconciliation: Applying Truth and Reconciliation Commission Call to Action #92 to Canadian Brownfields Presented by: Kear Portriss & Jeremy Robinson GM Environmental
Michelangelo C	ESG: The Way of the Future and What it Means for You and Your Clients Presented by: Jacquelyn Stevens Willms & Shier Environmental Lawyers LLP

TECHNICAL SESSIONS BLOCK 3 - 2:00 - 2:30 PM

Michelangelo A&B	A Comparison of Soil Treatments and Amendments for Forest Re-Establishment on Sandy Soils Presented by: Deanne Van Muyen
Venice	Mayenite Pellets for Rapid Chloride Removal from Hydrocarbon and Salt-Impacted Groundwater Through Natural Mineral Phase Change Presented by: Stephanie Lipoth & Wonjae Chang University of Saskatchewan
Florence	Lessons Learned from Decommissioning the Cluff Lake Uranium Mine Presented by: Kebbi Hughes Orano Canada
Naples	The MOST Facility: A Test Site for Environmental Reclamation Presented by: Cody Millar University of Saskatchewan
Michelangelo C	Sustainability for Small- and Medium-Sized Enterprises - A Saskatchewan Case Study Presented by: Jacqueline Gorman Trace Associates Inc

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TECHNICAL SESSIONS BLOCK 4 - 2:45 - 3:15 PM

Michelangelo A&B	Forest Species Inventory, Satellite Remote Sensing Presented by: Navdeep Toor Axiom Group
Venice	Assessing Source of Trace Metals at a Wellsite to Support Remediation and Reclamation Planning Presented by: Sheila Luther, Steven Creighton & Melissa Pitz Matrix Solutions
Florence	Traditional knowledge in the assessment and remediation of abandoned mines Presented by: Jeff Zimmer Saskatchewan Research Council
Naples	Reclamation Certification Achieved using Remote Sensing Technology Presented by: Chrissie Smith & Meisan Amanil Wood PLC
Michelangelo C	HR Solutions to Support Corporate Growth Presented by: Emily Peden ECO Canada

TECHNICAL SESSIONS BLOCK 4 - 3:15 - 3:45 PM

Michelangelo A&B	Conferring Abiotic Stress Tolerance in Plants Presented by: Susan , Kaminskyj & Zakia Boubakir GreenSTEM Technology
Venice	Hydrochar As A Stimulant For Benzene Degradation Under Anaerobic Conditions Presented by: Amy Jimmo University of Saskatchewan
Florence	Application of Administrative Controls under the DRAFT Directive: Acknowledgement of Reclamation of Sodium Chloride Impacted Sites Presented by: Jim Purves, North Shore Environmental Consultants Inc
Naples	The Saskatchewan Energy Storage Advantage: Compressed Air Energy Storage (CAES) Presented by: Brian Brunskill