

Short Course

Name of Short Course:	Health and Environmental Risk Assessment Fundamentals in Mine Closure
Date:	Saturday, September 17, 2011
Time:	8:30 am – 4:30 pm
Location:	Fairmont Chateau Lake Louise / Plains of Six Room
# of participants:	30
Registration Fee:	\$500 (CDN)
Facilitated by:	<i>Sue Robinson, Theresa Repaso-Sebang, Dr. Adrian de Bruyn and Dr. Bill Adams</i>
Language:	English

Short Course Description:

Regulatory agencies commonly require risk assessments for operating or legacy mine sites to identify and assess potential risk to human health and the environment. Risk assessment involves establishing the nature and magnitude of health risk, typically from chemicals, to people (workers, residents, visitors) and ecological receptors (vegetation, aquatic life, wildlife), that may occur now or in the future. Risk assessment is a necessary first step in risk management, where methods are established on how to protect human and environmental health. Those attending this one day course will receive a primer on health and environmental risk assessment including an overview of key concepts, methods and application (case study examples). The course will include a discussion from the mining industry perspective of key risk “driver” issues with important implications to mine closure.

Short Course Objectives:

The key objectives of the course are to provide a foundation for understanding the basic building blocks comprising a risk assessment and to gain an appreciation of the importance of risk assessment in environmental decision-making (including mine closure).

Target audience:

This course will benefit professionals (mining, government and consultant) involved in the planning and conduct of environmental risk assessment associated with mine investigation and closure activities. The course will provide a primer on the risk assessment process with illustration of key concepts from case study examples. A background in environmental or natural sciences or engineering will provide the greatest benefit to course participants.

About the Instructors:

Sue Robinson is a Toxicology Program Leader and risk assessment professional at Golder Associates. Her Bachelor's degree is in marine biology and her Masters degree is in Environmental and Wildlife Toxicology. Sue specializes in human health and ecotoxicology, investigating and managing impacts of chemicals, developing site investigation strategies, supporting regulatory compliance activities, and designing, conducting risk assessments (ecological, human health). She has significant experience in evaluating impacts from legacy and operating mine sites globally including within the United States, South America, Australia and Indonesia. She has been consulting with private and public sector clients for over 26 years in numerous technical areas including soil, sediment, water, and air quality; human and ecotoxicology and risk assessment; mine tailings and acid mine drainage impacts from historical and active mine sites; risk communication, and litigation technical support. Sue is a highly experienced toxicologist with significant expertise in designing, conducting, and managing multi-media field investigations to support remedial investigation/feasibility studies (RI/FSs) and CERCLA/RCRA site cleanups; developing risk-based standards; and designing specialized studies to assess chemical-specific toxicity, mobility, and bioavailability given the key role that risk assessment plays in site investigation and cleanup. She has managed both small and large-scale investigations and routinely works with regulatory agencies on site investigation and cleanup strategies on behalf of clients.

Theresa Repaso-Subang is an Associate and Senior Toxicologist/Risk Assessment Specialist at Golder Associates (Mississauga, Canada). Ms. Repaso-Subang specializes in biomedical toxicology and has 20 years of professional experience in the field of human health toxicology and in the practice of risk assessment. She is one of 40 Canadian toxicologists who are board-certified with the American Board of Toxicology. Ms. Repaso-Subang has extensive experience in the planning and conduct of human health and environmental risk assessments having conducted numerous assessments within Canada and the United States under a variety of regulatory programs, including CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act or Superfund), RCRA (Resource Conservation and Recovery Act), state-lead and voluntary agency programs. Mine site risk evaluations include proposed mining operations in Tanzania, former Lorado Uranium Mine site (Saskatchewan), Discovery Gold Mine site (Yellowknife, Northwest Territories); Caland Mine (Atikokan, Ontario); and several sites within northern Ontario and Nova Scotia's gold mining districts. She has provided expert opinion and recommendations to Health Canada and the Nova Scotia Department of Health and Protection (NSDOHP) regarding the assessment and management of four sites within the Nova Scotia's gold mining districts where the chemicals of concern included arsenic and mercury in tailing deposits.

Dr. Bill Adams is currently General Manager of Remediation for Rio Tinto. He received his Masters and Ph.D. degrees from Michigan State University in ecotoxicology. His current responsibility is to manage a corporate global program for site remediation. This includes 9 hardrock mine sites and 50 other non-mining sites where soil or groundwater remediation is required. Dr Adams has worked on Superfund sites since the mid 1980s. Recent research interests include developing ecotoxicology risk assessment methods for metals, site-specific methodologies for water quality criteria for metals, and development of approaches for assessing hazard of metals. Dr. Adams was a member of the US EPA Science Advisory Board for 10 years and previously served on the EPA Superfund National Advisory Committee for Environmental Policy and Technology. Additionally, he chairs several technical workgroups for the metals industry. Dr. Adams has published 100 papers including 25 papers on metals related to ecological effects and exposure for birds and aquatic life. Bill has also published papers on methodologies for assessing sediment contaminants. Recent

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publications have dealt with approaches for setting site specific water quality standards for copper and selenium. He is currently working on developing biotic ligand models for establishing water quality criteria for aluminium and iron.

Dr. Adrian de Bruyn is a Senior Environmental Scientist specializing in the investigation and assessment of contaminant fate, bioaccumulation and risk to biota. His professional skills include quantitative risk analysis, design and implementation of field studies and monitoring programs, multivariate statistical analysis and interpretation of data, and numerical modelling of contaminant fate and effects. He has managed and participated in multi-disciplinary risk assessment and impact assessment studies to evaluate sources, distribution and effects of contaminants from historical activities, catastrophic releases (e.g., oil spills), and planned activities (e.g., dredging contaminated sediments). Dr. deBruyn has published over 20 peer-reviewed articles and book chapters on topics including risk assessment, toxicology, statistical techniques, contaminant fate, bioaccumulation modelling, and aquatic ecology. He has been a sessional instructor and guest lecturer at Simon Fraser University since 2002, and an Adjunct Professor in the School of Resource & Environmental Management since 2005.

Materials provided: Hardcopies of training materials (power point slides, other handouts) will be provided to course registrants.