MINING EXPOSED 2009: "Our Nuclear World"

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October 5th – 7th, 2009 | Pier 21, Halifax, Nova Scotia

Abstracts & Bios

MONDAY, OCTOBER 5th

7:00 pm to 9:00 pm

Nuclear – The Case for Sustainable Energy Production

Patrick Moore, Founding Member and Former President of Greenpeace

Abstract: As the world focuses on reducing CO2 emissions, the global search for alternative energy sources has never been more important. Though interest in solar, wind and geothermal energy is gaining ground, one power source is quietly earning a reputation as the only non-greenhouse gas-emitting energy source that can replace fossil fuels and satisfy global demand. That source is nuclear power.

In this presentation, Dr. Patrick Moore makes the case for nuclear energy and dispels the myths that have plagued nuclear power in the past. Audiences will learn the benefits of nuclear in reducing reliance on overseas oil, decreasing greenhouse gas emissions, paving the way for the new hydrogen economy and addressing the increasing shortage of fresh water around the world. Dr. Moore will also address concerns about nuclear weapons proliferation and safety. Get the facts on why nuclear energy is a crucial part of the energy mix.

Bio: *Dr. Patrick Moore, a founding member and former President of Greenpeace, believes it's time to move environmentalism away from confrontation and toward building consensus. A leader of the international environmental movement for more than 30 years, Dr. Moore reveals the myths and misinformation that distort current environmental debates. He calls for issues to be discussed on the basis of accurate scientific data, a search for consensus and the creation of sustainable solutions.*

An informed, provocative speaker, Dr. Moore's presentations inspire new ways of thinking about our environmental challenges. Business, professional and educational groups find his views refreshing, informative and relevant. Dr. Moore has played a prominent role in raising environmentalism to the forefront of public concern in Canada and throughout the world. Still a strong environmentalist, he is personally committed to collaborating with others in finding solutions to environmental conflicts.

TUESDAY, OCTOBER 6th

9:00 am to 10:00 am

Nuclear Industry – Canadian and World Overview
Claudia Lemieux, Director of Communications and Media Relations, Canadian Nuclear Association

Brief: Nuclear Energy is used around the world for electricity generation, medicine, research and development, manufacturing and agriculture. Find out what this technology is about and its' impacts on the lives of people around the world.

Abstract: As energy supply, security, cost, and environmental issues dominate government agendas and public consciousness, understanding how energy is produced, used and impacts our everyday lives becomes increasingly important for all of us to understand. Nuclear energy is the fourth largest electricity source among developed countries and is especially important today as governments around the world make critical decisions on their long-term plan for electricity generation.

Claudia Lemieux will present an overview on nuclear energy in Canada and in the world and describe the many applications of nuclear technology and the drivers that make nuclear power essential to reducing greenhouses gases and protecting the environment.

Bio: Claudia has over 15 years of communications, public relations and media experience and specializes in developing strategic communications programs. In her current role as Director of Communications and Media Relations, Claudia is a member of the senior management team at the Canadian Nuclear Association and serves as a media spokesperson for the industry. Her responsibilities include developing and implementing communications programs that promote the benefits of the nuclear industry to various stakeholders including political officials, members of the media and professional and educational organizations. Prior to Claudia's current tenure, she served as a Communications Director and Senior Advisor in several organizations, including the Canadian Commercial Corporation, Canada Mortgage and Housing Corporation, and Vanier Institute of the Family. While working for these organizations, Claudia was actively involved in an array of activities including market research, corporate positioning, brand management, and internal and external communications. She was also responsible for producing publications, marketing collaterals, annual reports, newsletters, press releases, corporate reports and educational materials. Claudia holds a Bachelor of Arts with a major in Psychology from the University of Ottawa and was the 2008 co-recipient of the Canadian Nuclear Society Education and Communications Award for improving the understanding of nuclear science and technology among educators, students and the public.

TUESDAY, OCTOBER 6th

10:00 am to 10:45 am

Nuclear Fundamentals: The Science Behind Nuclear Materials
Dr. William Cook, Ph.D, P.Eng, Associate Professor, Department of Chemical Engineering, University of New Brunswick

Brief: This presentation explores the science behind radiation and nuclear materials and their many uses for the benefit of society. Particular focus is on radioactive decay and nuclear fission of uranium in power reactors and includes a discussion on the relative risks of the use of nuclear materials in society.

Abstract: Radiation from "nuclear" materials is a part of everyday life. Much knowledge has been gained over the past century about the science behind the atom and radioactivity and how nuclear materials play a crucial role to society. This presentation explains the scientific basis of why nuclear materials are radioactive and how we take advantage of the natural and spontaneous radioactive decay for the betterment of mankind. Sources of natural background radiation are explored as well as the process of nuclear fission, the basis of nuclear energy, and how a nuclear power reactor uses fission to produce electricity. The risks associated with radioactivity and used nuclear fuel and how they are managed are illustrated.

Bio: William Cook is an Associate Professor in the Department of Chemical Engineering at UNB and a registered professional engineer in the Province of New Brunswick. He obtained his PhD in 2005 and has over 15 years of experience in water chemistry and corrosion in nuclear power reactors. He was previously the New Brunswick branch chair for the North American Young Generation in Nuclear (NA-YGN), a professional society of young (< 35 years old) nuclear industry professionals who focus on professional development and public education on the facts about nuclear energy. He is an avid educator of nuclear topics and the use of energy in society and was recently awarded the "Golden Apple" as the department's best professor, as selected by the graduating class of 2009.

TUESDAY, OCTOBER 6th

11:15 am to 12:00 pm

Canada's Nuclear Regulator – A Focus on Safety
Kevin Scissons, Director, Uranium Mines and Mills Division, Canadian Nuclear Safety Commission (Saskatoon)

Brief: The presentation will describe the mandate of the CNSC, the very broad scope of areas that the CNSC regulates and what is involved in carrying out its regulatory work to protect the health, safety, and security of Canadians and the environment. Some of the challenges that the CNSC faces will also be highlighted as the nuclear industry goes forward safely with renewed vigour.

Abstract: The regulation of all facets and aspects of the nuclear industry in Canada is a federal responsibility and the Canadian Nuclear Safety Commission (CNSC) is the federal agency that has the legislated mandate to regulate the industry to protect the health, safety and security of Canadians and the environment. The nuclear industry in Canada is much more extensive in scope than in most countries, from mining to nuclear energy, the production of nuclear substances, research, waste management and much more. There are advantages to having one regulatory agency and there are also challenges when the industry in general undergoes significant growth and/or change over a short period of time. At the same time, the CNSC must interface with the stakeholders, and other federal, provincial or territorial jurisdictions that have a vested interest. This presentation will highlight the realities of nuclear regulation in Canada and will address some of the common perceptions about the nuclear industry in Canada. Further details or information about Canada's Nuclear Regulator can be obtained at CNSC's bilingual website: www.nuclearsafety.gc.ca

Bio: Mr. Kevin Scissons is the Director of the Uranium Mines and Mills Division of the Canadian Nuclear Safety Commission (CNSC). His regional office is located in Saskatoon, Saskatchewan. His Division of 14 staff currently delivers all CNSC compliance and licensing activities for existing operating or decommissioned uranium mines in Saskatchewan, and technically assesses the proposals for any other new uranium mines throughout Canada. Mr. Scissons worked sixteen years for the provincial ministry of Saskatchewan Environment (1974–1990), prior to joining the federal nuclear regulatory agency in Ottawa in 1990. In 1995, Mr. Scissons relocated to the Saskatoon office of the CNSC, and has been the Director since 2003.

He has had the opportunity to participate in number of national and international symposiums and workshops on uranium mines or other nuclear facilities concerning health, safety and the environment. Among the current demands facing Mr. Scissons and the CNSC are ongoing public and Aboriginal consultations; and the increasing efforts on the cooperative regulatory approach used with the other federal, provincial or territorial agencies, on assessing the safe siting of new nuclear facilities in Canada.

TUESDAY, OCTOBER 6th

12:00 pm to 12:45 pm

Turning Rocks into Gold – Electric Gold
Dan Meneley, Ph.D, P.Eng, FCAE, Engineer Emeritus, Atomic Energy of Canada Ltd.

Brief: This paper will illustrate the basic principles of energy conversion, and will outline current and future technology options for using Uranium to produce clean energy.

Abstract: Almost all of the energy we use and enjoy is derived from nuclear processes of one kind or the other. The sun is our primary nuclear fusion source. Energy released in the sun continually produces oil, gas, coal, biomass, wind, warm air, and life itself. Natural fission and radioactive decay processes heat our planet internally, giving us geothermal energy and helping to convert biomass into fossil fuels. Man rediscovered an old natural process in December 1942. The fission chain reaction that took place during the earth's early history was discovered by scientists and implemented by engineers to serve the needs of mankind. Canada was in the very forefront of this discovery process. Applications of this fission process have now resulted in a significant new world energy source to serve humanity. The future looks even brighter. We now know that supplies of both uranium and thorium on the earth are inexhaustible.

Bio: Mr. Meleney is an Engineer Emeritus with the Atomic Energy of Canada Ltd. in Mississauga, Ontario. He has been the Chair of the AECL Products & Services Safety Review Committee since 1991, and is Adjunct Professor in the Faculty of Energy Systems and Nuclear Science at UOIT. He was the Director of General Nuclear Safety on the Canadian Submarine Acquisition Program, the review team NRU Severe Accident Assessment in 2005, and a Technical Expert on NRU Safety for the Canadian Parliament in 2007. Dan has served as Chair of the International Nuclear Energy Acadamy and the Defence Science Advisory Board. He has worked as a Physicist on fast reactor physics and safety, and was the Manager of the Nuclear Studies & Safety Department for Ontario Hydro and was the Nuclear Group Manager during the building of 12 CANDU units. He was a Professor of Nuclear Engineering, at the University of New Brunswick from 1984-1991, and served as Chief Engineer with the Atomic Energy of Canada Ltd. from 1991-19999 during the building of Wolsong 3-4 and Qinshan projects. Mr. Meleney received his Ph.D. from the University of London in 1963. Dan has sixteen refereed journal publications and over 100 other conference papers and reports.

TUESDAY, OCTOBER 6th

2:00 pm to 2:45 pm

Canadian Public Perceptions of Nuclear Power
John Wright, Senior Vice-President, Canadian Public Affairs Division, Ipsos Reid Corporation

Brief: Understanding the dynamics of public opinion and nuclear power in Canada, the US, UK and Europe is something Ipsos has studied and advised on for many years. John Wright manages the Canadian Nuclear Energy public opinion research account and will make a presentation based on recent soundings of the public.

Abstract: Public opinion research provides insights into how the body politic of communities and countries deal with prominent societal issues. Whether as citizens or consumers, energy will become an ever increasing issue for development and application. Where does nuclear fit in the energy equation? What are the dimensions of awareness, acceptability and new applications for energy sufficiency and reliability? New soundings of the Canadian public provide some answers.

Bio: John Wright is Senior Vice President and Managing Director of Ipsos Reid's North American Public Opinion Polling Division and has been their Media Polling Partner architect and spokesperson since he arrived at the company in 1989. At $1.6 Billion, Ipsos is the second largest opinion and market research company in the world. For the decade before that he was Vice President with an advertising and public relations firm and served in both the political and corporate worlds in government relations. In all, he's worked for almost 30 years on Public Affairs assignments for clients of every dimension.

John has had his own radio show on CFRB for almost 15 years with one of the top political commentary panels in the country, and regularly co-hosts and anchors Canada's business news network's (BNN's) daily market closing show *SqueezePlay*. He's also appeared on every major news channel—from CNN to Al Jazeera—and been quoted, literally, everywhere in print around the world.

His "outside of work" activities are diverse and extensive: he holds an Honourary Appointment with the Canadian Forces as Honourary Lieutenant-Colonel of The Ontario Regiment, Royal Canadian Armoured Corps, and is on the boards of the Hincks Dellcrest Children's Mental Health Centre, the Canadian Journalism Foundation, The Canada Institute at the Woodrow Wilson Center for Scholars in Washington, Canada Company and Cancer Care Ontario.

An Arbor award recipient from the University of Toronto, and former Ontario Legislature Intern, he's previously been a founder and now lifetime member of the Public Affairs Association of Canada, Vice Chair of the Institute for Clinical Evaluative Studies, and member of the board for a diverse range of organizations -- from Clarica Life Insurance to Alzheimer's, from Heart & Stroke to the Empire Club of Canada, and from the Dominion Institute to the Global Business and Economic Roundtable on Addiction and Mental Health, and the Association for the Defence of the Wrongly Convicted.

And in his free time, he's co-authored two national best-selling books with colleague Darrell Bricker: *"What Canadians Think About Almost Everything"* (2005) and *"We Know What You're Thinking"* (2009).

TUESDAY, OCTOBER 6th

3:00 pm to 3:45 pm

Health Care: Radionuclides and Isotopes - Uses, Supply, and Demand
Jill Chitra, Vice-President, Strategic Technologies, MDS Nordion

Brief: An overview of the Canadian medical isotope supply chain and the role of MDS and MDS Nordion plays in this supply chain is provided, along with key aspects of this supply chain and isotope supply management and assurance.

Abstract: The need for nuclear medicine and its applications globally and in Canada is discussed, as well as examples of important medical procedures that rely on medical isotopes. The global and North American isotope supply chain is reviewed, showing the "just in time" nature of the medical isotope business and the key role that Canada and MDS Nordion plays in this streamlined supply chain. MDS Nordion supplies over half of the world's medical isotopes from Canada and is the main supplier of isotopes into the U.S. market. The integrated Canada-U.S. isotope supply chain is reviewed, showing Canada's reliance on U.S. or foreign pharmaceutical companies to provide "finished product" for patient use. Finally, an overview is provided of the current status of the global isotope supply chain. Over recent months there have been some disruptions to this global supply chain, and Canada's role as a leader in isotope supply has been even more crucial to ensuring that key medical procedures can be performed around the world.

Bio: Jill joined MDS in 1989 and has 20 years experience in the process development, process design, construction and project management of radio-chemical and pharmaceutical processes and facilities. During her career Jill has had senior management/management and business roles that cover foreign commercial postings, senior corporate (staff) positions, business unit line positions, general and technical management.

TUESDAY, OCTOBER 6th

3:45 pm to 4:30 pm

Life-Cycle Analysis of Base Load Electricity in Ontario (Nuclear, Coal, and Natural Gas)
Dr. Afshin Honarvar, Senior Economist, Canadian Energy Research Institute

Brief: To identify and analyze current and potential life-cycle environmental impacts (GHG emissions, other air pollutants, water pollution, and radiation) of electricity generation from nuclear, coal, and natural gas. All of these fuel sources are important contributors to Canadian electricity generation and have implications for the environment.

Abstract: All forms of electricity generation produce some greenhouse gas emissions (GHG) whether from mining or milling fuel, building electrical plants, transportation, releases of gases or pollutants during the burning of fuel and/or in the disposal of by-products or wastes. The Canadian Energy Research Institute (CERI) conducted a Life-Cycle Analysis (LCA) to identify and analyze current and potential life-cycle environmental impacts (GHG emissions, other air pollutants, water pollutants and radiation) of base load electricity generation from nuclear, coal and natural gas in Ontario. LCA is a systematic approach used to evaluate environmental impacts associated with electricity generation from different sources over their life-cycle (cradle to grave).

Bio: Dr. Afshin Honarvar was granted a PhD in Economics at the University of Calgary in July 2007. He joined CERI in August, 2006 as an economist with extensive energy background. Afshin has a diversified international background with BA and MA degrees in Energy Economics from Shiraz and Tehran Universities in Iran. Afshin has seven years of experience in the international energy scene including experience in the Oil industry and research and teaching positions in reputable organizations in Iran and Canada. He is also an expert in linear programming techniques, Life Cycle Analysis, economic Input-Output analysis and Time Series Econometrics.

Having participated in several studies dealing with versatile topics of oil, renewables, electricity and energy balance, Afshin is currently working on two CERI projects that examine economic and social impacts of oil industry in Canada and Alberta. Some of his earlier research experiences include a work for CERI on "Comparative Life Cycle Assessment (LCA) of Electricity Generation in Ontario", "Economics of an East-West Electricity Grid" and "Crude Oil Price Impact of Using Fuel Efficient Cars and Alternative Fuels in Asian Countries". Afshin has also attended workshops and seminars on LCA and its modeling approaches. He also worked for the Energy Office of the Energy Ministry in Tehran, Iran where he focused for two years on Iran's energy demand and supply. As well, he worked for the Renewable Energy Department of the Ministry of Energy in Iran as an Economist for two years. He also served as an international oil marketing expert for the National Iranian Oil Company, where he followed up oil market developments for three years. In that capacity, he produced singly and in collaboration a set of reports and articles. Dr. Honarvar is currently teaching "Applied Energy Economics II" at University of Calgary.

WEDNESDAY, OCTOBER 7th

9:10 am to 9:55 am

Environment & Human Health Focus Part I: Environmental Effects from Uranium Mining at the McClean Lake Operation in Northern Saskatchewan

Dr. John Rowson, Ph.D, Vice-President, Safety, Health, Environment, & Quality, AREVA Resources Canada Inc.

Brief: An overview of short term effects to the aquatic receiving environment and long term post-decommissioning effects from tailings and waste rock disposal is presented.

Abstract: The McClean Lake Operation is a modern uranium mine and mill complex located in the eastern Athabasca region of northern Saskatchewan. An overview of the environmental assessment and licensing requirements and their application at this remote mine site is provided. Environmental interactions of the site are generally discussed. The presentation focuses on the quantification of effects from treated effluent released to the receiving aquatic environment during the expected operating period, and long term post-decommissioning effects from tailings and waste rock disposal.

Bio: John Rowson has spent almost his entire career in the uranium mining industry. He began working 39 years ago in the Beaverlodge mill, owned by Eldorado Nuclear Ltd., in Uranium City. In 1979, he joined Amok Ltée (now AREVA) for the start-up and operation of the Cluff Lake mill. He continued to work at the Cluff Lake site for nearly 14 years in the capacity of mill superintendent. In 1993, he relocated to the United States for COGEMA Mining Inc. (now AREVA) based in Casper Wyoming. As General Manager, ISL Operations, he was responsible for the development and operation of ISL projects in Wyoming and south Texas. In 1997, he transferred back to Canada as General Manager for the start-up and operation of COGEMA Resources Inc.'s (now AREVA) McClean Lake Operation. For the past 7 years he has worked at AREVA's Saskatoon head office and is currently Vice President of Safety, Health, Environment and Quality. Dr. Rowson possesses a Ph.D. in nuclear chemistry.

WEDNESDAY, OCTOBER 7th

9:55 am to 10:40 am

Environment & Human Health Focus Part II: Long-Term Management of Used Nuclear Fuel in Canada
Jamie Robinson, Director Strategic Communications, Nuclear Waste Management Organization

Brief: Canada has accumulated just over 2 million used nuclear fuel bundles for more than 40 years of electricity generation from nuclear energy. Those fuel bundles are currently safely stored at licensed facilities on an interim basis. The NWMO is responsible for the long-term management of Canada's used nuclear fuel.

Abstract: The Nuclear Waste Management Organization (NWMO) was established in 2002 by Ontario Power Generation Inc., Hydro-Québec and New Brunswick Power Corporation, in accordance with the *Nuclear Fuel Waste Act*, to assume responsibility for the long-term management of Canada's used nuclear fuel.
On June 14, 2007, the Government of Canada selected the NWMO's recommendation for Adaptive Phased Management, which moves towards a goal that Canadians themselves identified – safe and secure long-term containment and isolation of Canada's used nuclear fuel, with flexibility for future generations to act in their own best interests. The NWMO now has the mandate to implement the recommendation.
In 2008, the NWMO initiated a dialogue with Canadians on important principles and elements for a fair process to identify an informed and willing host community for a deep geological repository. Guided by this public input, the NWMO has published in May 2009 a *Proposed Process for Selecting a Site*.

Bio: Jamie Robinson is responsible for identifying issues and key relationships, managing and promoting internal and external communication processes and programs, and providing advice and coaching to the management team on communication matters, corporate positioning, government relations and corporate citizenship.

Prior to joining the NWMO, Mr. Robinson ran a consulting practice where he developed, implemented and directed strategic communications and public affairs activities on behalf of many high profile public, private and non-profit organizations, across many sectors. He has also served as the Director of Government Relations and Communications at Enbridge Gas Distribution Inc. and as a Policy Advisor to the Ministers of Energy and Transportation for the Government of Ontario.

He is a past vice-president and director for the Canadian Centre for Public Affairs Advancement, the Ontario Chamber of Commerce, the Dora Mavor Moore Awards and the Petroleum Communication Foundation, as well as past Chair of the Board of Directors for Touchstone Youth Centre. He is currently Chair of the Board of Directors for the Durham Youth Housing and Support Services, and a director for the York University Alumni Association and The Scarborough Hospital. Mr. Robinson holds a bachelor's degree in Arts and Sciences from the University of Toronto and master's degree in Environmental Studies from York University.

WEDNESDAY, OCTOBER 7th

11:10 am to 11:55 am

Underground Milling of High Grade Uranium Ore
Dr. Chuck Edwards, Incoming President-Elect, Canadian Institute of Mining, Metallurgy, and Petroleum

Brief: This paper presents and analyzes the new concept of underground milling of high-grade uranium ore. Compared to conventional milling on surface, the underground milling scheme appears to offer significant cost savings and a lower environmental impact.

Abstract: The presentation describes the underground milling scheme, presents process flowsheets and plant layouts, and provides an assessment of potential benefits. Grinding, leaching, solid/liquid separation and tailings deposition are all carried out underground. Leach liquor is pumped to surface for impurity removal, precipitation and drying. The impurities, removed as chemical precipitates, are moved back underground for disposal. Expected environmental benefits are significant and include reduction of surface visual impact, leach residues remain underground, and no tailings management facility on surface. Contaminant transport from the stored tailings to surface waters is extremely slow. Application of membrane technology to water treatment for the underground milling scheme is expected to provide an aqueous effluent with minimal loading to the environment.

Bio: Chuck Edwards is Director, Metallurgy at AMEC's office in Saskatoon. He is a Qualified Person for uranium metallurgy. He is a Professional Engineer registered with the Association of Professional Engineers and Geoscientists of Saskatchewan. Chuck's background includes experience in R&D, operations, government service, consulting and engineering management. He first worked in the uranium industry with Eldorado Nuclear in 1978.

Chuck has been involved in the engineering design of all of the currently operating uranium facilities in Saskatchewan, including the Cigar Lake project. He has been a Technical Consultant to the International Atomic Energy Agency, Vienna, Austria since 1999. Long active in the Canadian Institute of Mining, Metallurgy and Petroleum (CIM), he served as Chairman of the Canadian Mineral Processors (CMP) Division in 1999 and as Chairman of the successful URANIUM 2000 international symposium in Saskatoon. Chuck was a CIM Distinguished Lecturer in 2003 - 2004, and was awarded a CIM Fellowship in 2004. He served as CIM District 4 Vice-President in 2004 – 2006, and is currently CIM Incoming President-Elect.

Chuck was awarded the American Institute of Mining, Metallurgical and Petroleum Engineers gold medal for Extractive Metallurgy Technology in 1987, the Canadian Mineral Processors Best Presentation Award in 1997 and 2007, and he was the CMP Mineral Processor of the Year in 2001. Chuck is a Professional Affiliate of the College of Graduate Studies and Research at the University of Saskatchewan and serves as a member of the Advisory Committee for the Saskatchewan Mineral Research Centre. He was Engineer-in-Residence for the Department of Chemical Engineering for 2009 - 2009. In 2007 - 2008 Chuck served on Canada's National Advisory Board on Minerals and Metals, with specific responsibility to the CANMET Mining and Mineral Sciences Laboratories. He also served on the Board of Directors of Junior Achievement of Saskatchewan from 1999 through 2007.

WEDNESDAY, OCTOBER 7th

11:55 am to 12:40 pm

The Role Individuals Play in Forming Public Policy
Frank Schwartz, former Executive Director of Canadian Centre for Ethics in Public Affairs

Brief: Individuals can have a role in influencing public policy development. This presentation will present the case for why public policy development benefits from informed input and how individuals can provide such input.

Bio: Frank Schwartz is former Executive Director, CCEPA (2005-2008). He has over 30 years experience as a management consultant, with a focus on organization development, strategic planning and facilitation. He has worked with many organizations in the private, not-for-profit and public sectors developing mission, vision and value statements; in Canada, and in over 20 countries across North America, Asia, Africa and the Caribbean.

Prior to joining CCEPA, Frank was a Managing Partner at BearingPoint (formerly KPMG Consulting), a Partner with KPMG LLP, a Partner with the ARA Consulting Group Inc. and President of the DPA Group (International) Inc.