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WCWC Bulletin

WCWC Walkerton Clean Water Centre
An agency of the Government of Ontario
CWAE Centre de Walkerton pour l'assainissement de l'eau
Un organisme du gouvernement de l'Ontario

Inside this issue:

Rui De Carvalho appointed as Chair, Walkerton Clean Water Centre Board of Directors

Rui De Carvalho has been appointed as the new Chair of the Walkerton Clean Water Centre Board of Directors. Mr. De Carvalho has been a member of the Board of Directors since 2004 and previously served as Vice-Chair.

Mr. De Carvalho is Senior Vice-President of R.J. Burnside & Associates Limited and President of R.J. Burnside International Limited. Among his current responsibilities is the development and management of Burnside's international projects. He has over 30 years of experience in the water supply sector.

Mr. De Carvalho is a member of the American Water Works Association and the Water Environment Federation. He is an environmental engineer certified by the American Academy of Environmental Engineers.

Mr. De Carvalho succeeds Murray Elston who served with distinction as Chair of the Board of Directors over the past six years, leading the Centre since its formation in 2004.

Chair De Carvalho presenting a plaque to past Chair Murray Elston in appreciation of his work on the Board of Directors

University co-operative education funding

The Walkerton Clean Water Centre is committed to supporting human resources needs by providing financial assistance to university co-operative education students who have secured unpaid co-op placements in the drinking water industry.

The Centre will award financial support to full time undergraduate students who are enrolled in an engineering or science program at an Ontario university and are completing a co-op placement at a drinking water facility or a company in the drinking water industry. The funding is paid over the duration of the co-op placement, up to a maximum of four months.

To view the application form and details, please visit http://www.wcwc.ca/en/applications/Applications.asp.

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The Walkerton Clean Water Centre hosted a seminar,

Safe Drinking Water: Lessons from Outbreaks

on October 15, 2009 at the Toscana Banquet and Convention Centre in Vaughan,Ontario.

The seminar was delivered by Dr. Steve Hrudey, Professor Emeritus at the University of Alberta. Dr. Hrudey's areas of expertise include drinking water safety, environmental contaminant exposure assessment, approaches for health risk assessment, risk management and risk communication. Dr. Hrudey has served on several expert panels, including the Research Advisory Panel to the Walkerton Inquiry from 2000 to 2002. He has authored or co-authored more than 150 refereed journal articles and over 100 other publications in the environmental sciences.

The technical and scientific content of the seminar drew on Hrudey's 2004 book, co-authored with Elizabeth J. Hrudey, Safe Drinking Water – Lessons from Recent Outbreaks in Affluent Nations, a best seller with International Water Association Publishing. The book began as a small scale analysis of recurring themes in documented outbreaks in affluent countries and eventually grew into a comprehensive analysis of over 70 case studies from 15 industrialized nations around the world. Seminar participants can purchase the book at the reduced student price online at http://www.iwapublishing.com/template.cfm?name=isbn1843390426 or by telephone at 1-800-247-6553.

The seminar was very informative for drinking water professionals, including managers, consultants, engineers, operators and government and municipal officials. There were 87 people in attendance and certificates were issued for 0.6 Continuing Education Units (CEUs.)

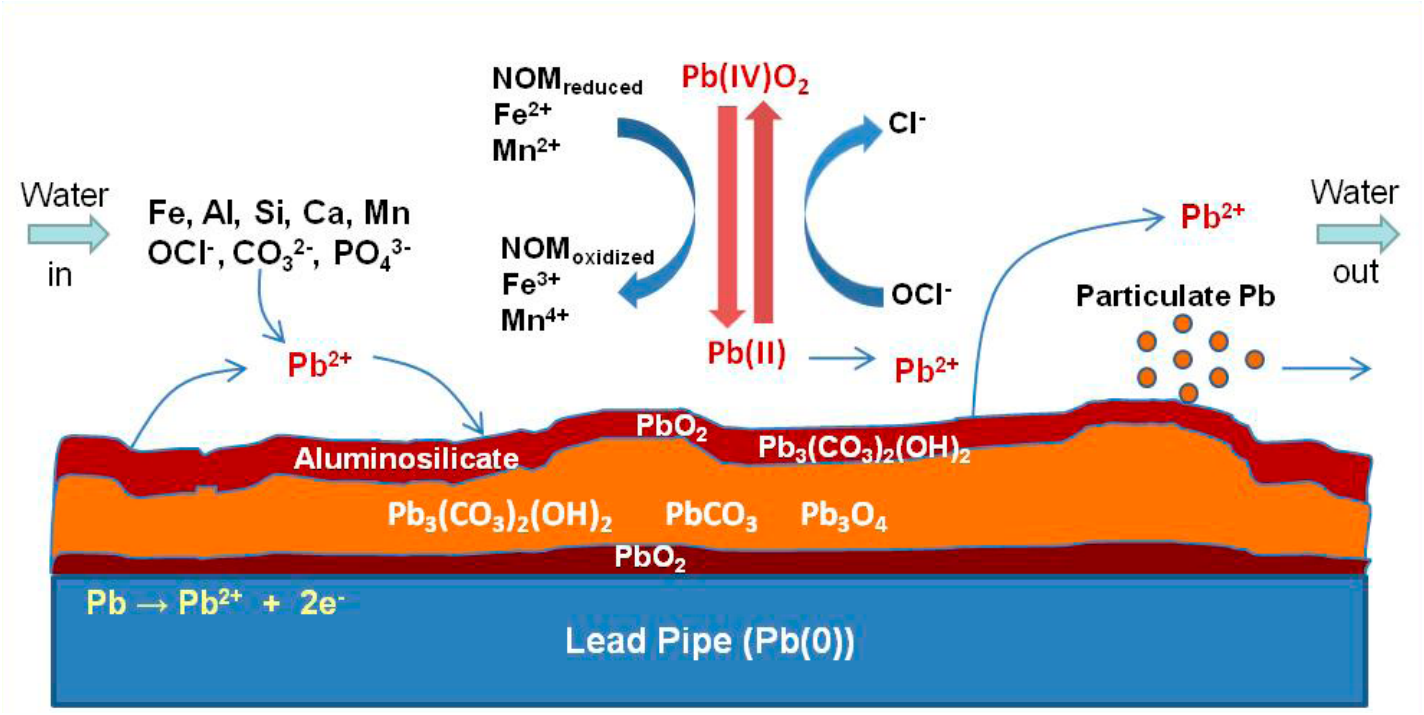
Walkerton Clean Water Centre sponsored research project

The Walkerton Clean Water Centre has sponsored a two-year research project being conducted at the University of Western Ontario, titled *Development and validation of a model to forecast lead levels in drinking water*.

In 2007, lead concentrations in about 25 per cent of sampled tap water in the City of London, Ontario exceeded the water quality standard (10 µg/L) up to 65 µg/L. Lead is a toxic heavy metal and human exposure to elevated concentrations of lead in drinking water poses significant health risks such as adverse impact on nervous and reproductive systems. Destabilization of the corrosion scale present in lead pipes used in drinking water distribution systems is currently considered a foremost problem for municipalities serviced in part by lead pipes. The objectives of this project are to characterize the corrosion products present in the scale and to investigate the effect of water parameters on the stability of corrosion scale. This information will then be used to develop an effective lead control program and forecast the effects that future changes in water treatment may have on lead levels.

Solid corrosion scales formed on the inner surfaces of lead pipes used in the drinking water distribution system in the City of London are characterized using X-ray diffraction (XRD), Raman spectroscopy, Fourier transform infrared (FTIR) spectroscopy, and X-ray photoelectron spectroscopy (XPS). Toxic elements accumulated in the corrosion scale are also characterized by inductively coupled plasma (ICP) spectrometry after acid digestion. Lead carbonates (hydrocerussite ($Pb_3(CO_3)_2(OH)_2$) and cerussite ($PbCO_3$)) are found to be the major lead corrosion products, while lead oxides such as plattnerite (PbO_2), litharge (PbO), and minium (Pb_3O_4) are observed in some cases. In addition to lead corrosion products, an aluminosilicate phase is also observed in the corrosion scale. Preliminary data seems to indicate that this aluminosilicate phase accumulates arsenic in the pipe inner scale. Effects of water parameters such as pH, alkalinity, disinfectants, and corrosion inhibitors on the stability of corrosion scale are currently being investigated.

This research project is ongoing.



Chemistry of lead corrosion scale in lead pipes

The International Joint Commission 2009 Biennial Meeting

On October 7-8, 2009 the Walkerton Clean Water Centre attended the 2009 Great Lakes Water Quality Agreement Biennial Meeting, hosted by the International Joint Commission in Windsor, Ontario.

The original Great Lakes Water Quality Agreement was signed by Prime Minister Pierre Trudeau and President Richard Nixon in 1972. A new Agreement was signed in 1978 and amended in 1987; however, it has not been updated even though scientific knowledge and technology have increased and new threats to the Great Lakes ecosystem have been identified. In response, on June 13, 2009, U.S. Secretary of State Hillary Clinton and Canadian Foreign Affairs Minister Lawrence Cannon committed to updating the Agreement.

The biennial meeting focused on the six Great Lakes priority issues that are being investigated by the International Joint Commission advisory bodies: the nearshore; eutrophication; beach and recreational water quality; binational rapid-response to aquatic invasive species; the benefits and risks of Great Lakes fish consumption; and chemicals of emerging concern.

The meeting provided an excellent opportunity to learn about the Great Lakes ecosystem. Keynote speakers were Mr. Cameron Davis, President Obama's appointee to oversee the $475 million Great Lakes Restoration Initiative and Dr. Peter Gleick, world renowned water expert and President of the Pacific Institute for Studies in Development, Environment, and Security.

RES'EAU WaterNET Knowledge Transfer Workshop

The Walkerton Clean Water Centre launched the newest Mobile Training Unit (MTU) on October 1, 2009 at the RES'EAU WaterNET Knowledge Transfer Workshop in Toronto, Ontario. This workshop served as an opportunity for Canadian experts to discuss the scientific and technological challenges of delivering safe drinking water, and for small system operators, utility managers and stakeholders to provide input and identify barriers to the adoption of best practices in water treatment and management. Keynote speakers included John Stager, Chief Drinking Water Inspector/Assistant Deputy Minister, Ministry of the Environment, and Phil Fontaine, former National Chief of the Assembly of First Nations.

Workshop participants toured the newest MTU and learned about the course offered on board. This MTU will allow the Centre to offer mobile hands-on training in Southern Ontario.

Phil Fontaine, former National Chief of the Assembly of First Nations, touring the newest Mobile Training Unit

1st Conference on Water Chemistry and Health: Quality Water for Health

This past November, Walkerton Clean Water Centre CEO Dr. Saad Jasim visited Universiti Kebangsaan Malaysia (UKM) to participate as a Plenary Speaker at the 1st Conference on Water Chemistry and Health: Quality Water for Health, and discuss potential future collaboration in the fields of training and research.

The conference - organized by the Centre for Water Research & Analysis, United Nations University International Institute for Global Health (UNU-IIGH), and the School of Chemical Sciences and Food Technology, Faculty of Science & Technology, UKM - addressed the United Nations Millennium Development Goals, launched in 2000. There are eight goals targeted to be achieved by 2015, including the seventh goal, Ensure Environmental Sustainability. Under this goal the United Nations has set target three "halve, by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation." This conference explored the importance of quality water for health and addressed four themes: advances in water treatment technology; analytical methods development for water analysis; health impact of water quality; and development in water treatment chemicals.

The conference featured three Plenary Speakers, Dr. Jasim, Tan Sri Dato' Dr. Mohamed Salleh Mohamed Yasin, Director of UNU-IIGH, and Kyoung Woong Kim, Professor of Environmental Science and Engineering Gwangju Institute of Science and Technology, Korea. The conference also included a poster session.

While at UKM, Dr. Jasim provided a background of the Centre's research activities and the support offered to municipalities and universities. He also gave a detailed background regarding the training developed and delivered by the Centre, and the importance of training in providing safe drinking water.

Dr. Jasim also delivered a seminar titled *Disinfection Requirements for Drinking Water*, attended by professors, staff and graduate students. The seminar discussed how selection of an appropriate disinfection process depends upon site-specific conditions and raw water characterization that is unique to each drinking water system. Dr. Jasim explained that process selection decisions must consider and balance the need to inactivate human pathogens while minimizing the production of disinfection by-products. Commonly accepted chemical disinfectants are free chlorine, monochloramine, chlorine dioxide and ozone.

Dr. Jasim also visited SUNGAI LINGGI Water Treatment Plant where he was able to assist in providing information regarding an abandoned ozone system and educational materials regarding ozone applications in drinking water.

Dr. Yang Farina, Professor, UKM, and Dr. Saad Jasim speaking at the 1st Conference on Water Chemistry and Health: Quality Water for Health

Upcoming courses

Achieving Drinking Water Quality Regulatory Requirements
February 18, 2010, Vaughan, Ontario

Basic Coagulation & Flocculation
March 24-25, 2010, Walkerton, Ontario

Cross Connection & Backflow Prevention
March 4, 2010, London, Ontario

CT Requirements for Chlorine Disinfection
March 11, 2010, Baden, Ontario
March 30, 2010, Ottawa, Ontario

Drinking Water Quality Management Standard
February 22, 2010, Elliot Lake, Ontario
March 2, 2010, Barrie, Ontario
March 23, 2010, Timmins, Ontario

Energy Management in Drinking Water Systems
March 31, 2010, Barrie, Ontario

Entry-Level Drinking Water Operator Course For Operators-in-Training
February 22-26, 2010, London, Ontario
March 8-12, 2010, Red Lake, Ontario
March 22-26, 2010, Ottawa, Ontario

Internal Auditing for the Drinking Water Quality Management Standard
March 3-4, 2010, Barrie, Ontario
March 24-25, 2010, Timmins, Ontario

Safe Drinking Water Act & Related Regulations
March 4, 2010, Ottawa, Ontario
March 25, 2010, London, Ontario

Safeguarding Drinking Water Quality (Certificate Renewal Course)
February 16, 2010, Markham, Ontario
February 23, 2010, Hamilton, Ontario
February 25, 2010, Sudbury, Ontario
March 9, 2010, Ottawa, Ontario
March 10, 2010, London, Ontario
March 11, 2010, Barrie, Ontario
March 23, 2010, Kingston, Ontario
March 25, 2010, Thunder Bay, Ontario
March 25, 2010, Etobicoke, Ontario
March 30, 2010, Kitchener, Ontario
March 31, 2010, Sudbury, Ontario

Water Quality Analyst
March 2-4, 2010, Pembroke, Ontario

Watermain Breaks and Repairs
March 3, 2010, London, Ontario

Please check our website for course details and the most up-to-date course schedule

Contact information

For more information on the WCWC Bulletin, please contact Katherine Campbell, Education & Outreach Coordinator kcampbell@wcwc.ca 519-881-2003 or 1-866-515-0550 ext. 321

To inquire about bringing any of our courses to your location, please contact Corinne Louther, Drinking Water Training Coordinator clouther@wcwc.ca 519-881-2003 or 1-866-515-0550 ext. 312