

PROGRAM AND REGISTRATION FORM

DRINKING WATER SAFETY: A TOTAL QUALITY MANAGEMENT APPROACH

International Conference on Water and Health

**September 23-25, 2002
Fairmont Château Laurier
Ottawa, Ontario, Canada**



**Network for Environmental Risk
Assessment and Management
University of Waterloo**



**Centre for Population Health
Risk Assessment
University of Ottawa**

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**Centre for Water and
the Environment
Queen's University**

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Patricia Lachmaniuk – *Ontario Ministry of the Environment*
Don Lewis, *Canadian Water Network*
Will Robertson – *Health Canada*
John Shortreed – *Network for Environmental Risk Assessment and Management*

Conference Objective

The overall goal of the Conference is to assess the current international situation and based on **sound science** develop **practical guidelines** for **total quality of drinking water**. To achieve this the Conference will offer a mixture of plenary sessions, paper sessions, poster sessions and last but not least, forums for debate and consensus seeking on guidelines for safe and affordable drinking water, including issues such as needs in small and large systems, public trust, and effective use of management methods and technology.

The conference will result in a “**science informing policy**” report that provides principles and guidelines for an **integrated, total quality approach** to safe drinking water and also identifies critical research gaps. The document will provide agencies in Canada and international organizations with the **current best practice in assessing and managing risks** in drinking water systems and innovative ideas for the future.

Around the world, the design and implementation of reliable systems for ensuring safe drinking water is critically important to protecting public health. In Canada, events such as Walkerton, Ontario and North Battleford, Saskatchewan have raised concerns about the future of drinking water quality. Trends in urbanization and other pressures on water sources, emerging pathogens, agricultural sources, maintenance of distribution systems, and demands for more sophisticated treatment of water make the provision of safe, clean, and cost-effective drinking water a challenge for the future.

The issue of total quality from extraction of water, through treatment, use, and return of waste water to sources has emerged as an overarching objective, one that will require innovative approaches and careful and practical integration of existing knowledge in groundwater, hydrology, water treatment, scanning for pathogens, systems management, and oversight of operations. New methods of protecting water sources, treating water, quality control of operations, surveillance of all threats, public consultation, etc. will be needed to meet the challenge. There is a need for a “guideline for water quality” that provides a template for safe and efficient drinking water, especially for small communities.

The objective of the conference is to bring together experts in all the various and disparate elements of **Integrated Total Quality for Drinking Water** to provide a baseline and also to provide a forum for innovative new approaches. The Conference will focus on the following **Themes**:

1. **Walkerton, Ontario: Lessons learned**
2. **Ecosystem, health, and other indicators of water quality**
3. **Total quality management for safe drinking water**
4. **Science and policy guidelines for drinking water safety**

Who Should Attend

The conference should be of interest to regulatory personnel, environmental lawyers, drinking water practitioners, public health professionals, municipalities, conservation authorities, engineers, epidemiologists, toxicologists, microbiologists, and others concerned with the provision of safe drinking water and the impacts of contaminated water on human health. About 300 individuals from around the world in various disciplines are expected to attend this conference.

Keynote Speakers

Walkerton Inquiry

Harry Swain, *Chairman, Walkerton Inquiry Research Advisory Panel*

William Leiss, *Research Chair in Risk Communication, Faculty of Management, University of Calgary*

Water Quality Indicators

Judy Isaac-Renton, *Professor, Pathology and Laboratory Medicine, UBC, Director, BC CDC Laboratory*

TBA

Total Quality Management

Steve E. Hrudefy, *Professor, Environmental Health, Faculty of Medicine, University of Alberta*

Martha Sinclair, *Senior Research Fellow, Epidemiology and Preventive Medicine, Monash University & CRC for Water Quality and Treatment, Australia*

Science and Policy Guidelines

Peter Huck, *Professor and NSERC Chair in Water Treatment Civil Engineering, University of Waterloo*

Michèle Prévost, *NSERC Industrial Chair on Drinking Water, Professor, Department of Civil Engineering, École Polytechnique de Montréal*

Accommodation

Blocks of rooms have been booked for conference participants at the following downtown Ottawa hotels close to the conference venue. Participants are required to make their own reservations early. The block booking will be released after August 22, 2002 except for Novotel (August 1, 2002). **Note:** Please mention the Institute for Risk Research (IRR) and the conference name to receive conference rate.

Fairmont Chateau Laurier (\$209/269)

1 Rideau St., Ottawa Tel: 613-241-1414 Email: chateaulaurier@fairmont.com

Novotel Ottawa (\$159)

33 Nicholas Street, Ottawa Tel: 613-232-2000 Email: Novokay@aol.com

Courtyard by Marriott Ottawa Downtown (\$130 – Group Code IRR)

350 Dalhousie Street, Ottawa Tel: 613-241-1000 Website: www.courtyard.com

Further Information

For the latest progress and information regarding the conference, please visit the Conference Secretariat website at www.neram.ca.

NERAM/Institute for Risk Research

University of Waterloo

Waterloo, Ontario, Canada N2L 3G1

Tel: 519-888-4567 ext. 5900 Email: neram@uwaterloo.ca.

REGISTRATION FORM

Drinking Water Safety: A Total Quality Management Approach

September 23 - 25, 2002 Ottawa, Ontario, Canada

Mr. Mrs. Ms. Dr. (please circle) First Name: _____ Last Name: _____

Department _____

Organization: _____

Address: _____

City: _____ Province/State: _____ Postal Code: _____

Country: _____

Telephone: _____ E-Mail: _____

REGISTRATION (Lunch included)

The three-day registration fee covers lunches, refreshment breaks, attendance at all platform and poster sessions, a book of abstracts and a CD of the Conference Proceedings.

3 Day Registration (**Before September 9, 2002**) \$460 _____ (Canadian)

3 Day Registration (**After September 9, 2002**) \$560 _____

Monday, September 23 \$200 _____

Tuesday, September 24 \$200 _____

Wednesday, September 25 (half day) \$100 _____

TOTAL \$ _____

Please return this form by mail or fax (519-725-4834)

NERAM Secretariat (CPH 3381)
Institute for Risk Research
University of Waterloo
Waterloo, Ontario CANADA N2L 3G1

On-line pre-registration is available at www.neram.ca

Indicate Method of Payment – Please check one:

☐ Cheque (made out to **University of Waterloo – IRR**)

☐ Mastercard ☐ VISA

Card Number _____ Expiration Date _____

Name of Cardholder _____ Signature _____

Cancellations: Registration fees are refundable less \$50 administration fee upon written request. There will be no refunds granted after September 9, 2002.

ICWH Conference September 23-25, 2002

PROGRAM

MONDAY SEPTEMBER 23, 2002 Morning Session

8:00 – 8:40	Conference Registration	<i>Drawing Room Foyer</i>
8:40 – 8:45	Chair: Moe Hussain , <i>Queen's University</i> Opening Remarks	<i>Drawing Room</i>
	THE WALKERTON, ONTARIO INCIDENT: LESSONS LEARNED	
8:45 – 9:25	Keynote Speaker: Harry Swain , <i>Chairman, Walkerton Inquiry Research Advisory Panel</i> "A Strategy for Safe Drinking Water" Discussion	
9:25 – 10:05	Keynote Speaker: William Leiss , <i>Research Chair in Risk Communication Faculty of Management, University of Calgary</i> "The Multi-Barrier Solution for Risk Management of Drinking Water" Discussion	
10:05 – 10:15	General Discussion – Conference Objectives	
10:15 – 10:40	Coffee Break and Posters	
10:40 – 12:15	<i>Drawing Room</i> Paper Session 1: Risk Management, Drinking Water Issues Dominique Charron , <i>Health Canada</i> - impacts of global climate change on the incidence of waterborne diseases in Canada Bruce Pardy , <i>Queen's University</i> - Few rights, few responsibilities: seven deadly sins of Canadian water law Narelle Martin - Corporatisation as a means of improving water quality – the experience in Victoria, Australia Kwabena Nyarko , <i>Kwame Nkrumah University</i> - Delays and challenges: public private partnership (PPP) in Ghana water sector Diane Dupont , <i>Brock University</i> - Do changes in ownership improve the performance of municipal water utilities?	<i>MacDonald Room</i> Paper Session 2: Walkerton and Other Case Studies Diane Dupont , <i>Brock University</i> - The value of good quality drinking water to Canadians and the role of risk perceptions Jeffery Aramini , <i>Health Canada</i> - Temporal-spatial analyses of a waterborne disease event: Walkerton, Ontario – May 2000 Hugh Simpson , <i>Ontario Ministry of Agriculture and Food</i> - Promoting the management and protection of private water wells Rob Stirling , <i>Health Canada</i> – Waterborne cryptosporidiosis outbreak, North Battleford, Saskatchewan, April 2001
12:15– 13:30	Lunch	<i>Canadian Room</i>

ECOSYSTEM, HEALTH AND OTHER INDICATORS OF WATER QUALITY

13:30 – 14:10 Keynote Speaker: **TBA**

Discussion

14:10 – 14:45 Keynote Speaker: **Judy Isaac-Renton**, *Professor, Pathology & Laboratory Medicine, UBC, Director, BC CDC Laboratory*

“Quality Indicators for Multiple Barriers: Protecting Public Health”

Discussion

14:45 – 15:10 Coffee Break and Posters

15:10 – 17:10 *Drawing Room*

Paper Session 3: Water Quality Indicators

Susan Springthorpe, *University of Ottawa* - Detection and identification of legionella species from groundwaters

Stephen Brown, *Queen's University* - Development of a rapid bacterial test to monitor drinking water in distribution systems

Sarah Dorner, *University of Waterloo* - Assessing levels of pathogenic contamination in a drinking water source

Jiri Marsalek, *Environment Canada* - Urban wet weather flows: sources of fecal contamination impacting on recreational waters, threatening drinking water sources

Joanne Parrott, *Environment Canada* - Changes in growth, secondary sex characteristics and reproduction of fathead minnows exposed for a lifecycle to bleached sulphite mill effluent

Sophie Verhille, *University of Toronto* - Searching for indigenous bacterial spores as indicators of cryptosporidium inactivation when chlorine dioxide is used

MacDonald Room

Paper Session 4: Treatment Issues

Denis Bérubé, *Health Canada* - Aluminum speciation analysis and the occurrence of aluminum turbidity

Basil Fernandez, *Water Resources Authority* -

Reduction of contamination from the bauxite/alumina operations and improvement of water resources quality in Jamaica

Steve Hruday, *University of Alberta* - Disinfection by-products in small Alberta community drinking water supplies

Sarah Hackman, *KNUST* - Comparative study of the performance of alum and activated asokwa clay as coagulants in surface water treatment

Ron Hofmann, *University of Toronto* - Guidelines for ultraviolet disinfection of drinking water: considerations for Ontario

Roberto Hurtado, *University of Texas* - Fluoride in drinking water at “Los Altos de Jalisco,” in the Central Mexico Region

Guenadi Rabinski, *Brightwell Technologies* - Beyond Turbidity – a quantifiable analysis of solids in drinking water

Shuzo Tokunaga, *AIST* - Evaluation of adsorbents for removal of arsenic from drinking water

17:10 – 17:30 Poster Session

Evening Session INTERNATIONAL SESSION ON DRINKING WATER MANAGEMENT

MacDonald Room

19:00 – 21:00 **Mark Gnanasigamony**, *SHED* – Ecosystem, health and other indicators of water quality

Shriparna Saxena, *Barkatullah University* – Ground water quality as a potential health hazard of human health: a case study of a developing country

A. Akpan, *TIES* - Training of motivators for health education campaign: experiences from Abeokuta-Nigeria

Esi Awuah, *KNUST* - Characterization & management of domestic wastewater in two suburbs of Kumasi Ghana

Rosemary Enie, *Pan African Vision for the Environment* - Drinking water quality problems and health implications in Lagos Area, Nigeria

Uwem Otu - Grassroot participation and management for rural water-related environmental problems in Ebo Itumbonuso, Ini Local Government Area, Akwa Ibom State

G. Rama Rao, *Institute For Population Sciences* - Access to safe drinking water: effects on human health

Kunjappy Roy, *Centre for Community Health Research* - Environmental impact of drinking water quality and health implications: a case study in India

TUESDAY SEPTEMBER 24, 2002 Morning Session

8:00 – 8:30	Conference Registration Chair: John Shortreed , <i>NERAM</i>	<i>Drawing Room Foyer</i> <i>Drawing Room</i>
TOTAL WATER QUALITY PROTECTION -- FROM SOURCE TO TAP		
8:30 – 9:10	Keynote Speaker: Martha Sinclair , <i>Senior Research Fellow, Epidemiology & Preventive Medicine, Monash University & CRC for Water Quality and Treatment</i> “Drinking Water Quality Management: The Australian Framework” Discussion	
9:10 – 9:50	Keynote Speaker: Steve E. Hrudey , <i>Professor, Environmental Health, Faculty of Medicine, University of Alberta</i> “Achieving Drinking Water Risk Management Through a Quality Management Framework” Discussion	
9:50 – 10:15	Coffee Break and Posters	
10:15 – 12:15	<i>Drawing Room</i> Paper Session 5: Total Quality for Drinking Water Ian Bailey , <i>Umgeni Water</i> - Evaluating the impact of a rural water supply scheme on community health in Vulindlela, South Africa Ameer Chowdhury , <i>Friends of the Earth</i> - Drinking water: source of mass poisoning in Bangladesh Shane Gabor , <i>Ducks Unlimited</i> - The importance of wetlands and upland conservation practices for source water protection Victor Gannon , <i>Health Canada</i> – Bacterial pathogens in rural water supplies in Southern Alberta Kim Hughes , <i>NB Environment & Local Government</i> - New Brunswick's drinking water protection programs Adel Shalaby , <i>Health Canada</i> – Towards a new frontier in the protection of drinking water	<i>Renaissance Room</i> Paper Session 6: Emerging Issues for Science and Policy Integration Darrell Corkal , <i>Agriculture and Agri-Food Canada</i> – Rural water safety: from the source to the on-farm tap Michele Giddings , <i>Health Canada</i> - Managing Canada's drinking water supplies from source to tap John Graham , <i>Institute On Governance</i> - Rethinking self-government agreements: the case of potable water Ruwan Liyanage - The Menik Ganga (Rivers) Catchment: an example of the need for an integrated approach to water resource management in Sri Lanka for drinking water sources Lawrence Maisela , <i>Institute For Water Quality Studies</i> – The physical and chemical quality of borehole water used for domestic purposes in rural areas of the Northern Province, South Africa Inderjeet Sodhi , <i>University of Rajasthan</i> - Water quality in developing countries - need, strategies and approach for better management in India Susan Watson , <i>Environment Canada</i> - Surface water taste and odour: chemistry, biology and socio-economic impacts
12:15 – 13:30	Lunch	<i>Canadian Room</i>

TUESDAY SEPTEMBER 24, 2002 Afternoon Session

13:30 – 15:00 **Plenary Session**

Drawing Room

Canadian Water and Wastewater Association Panel: Pan-Canadian Implications of Walkerton

Four Panelists representing the media, municipalities, regulator, and private water suppliers will discuss insights and perspectives on gaps and challenges in meeting new regulatory requirements and the associated costs and benefits to Canadians.

15:00 – 17:30 **Practical Guidelines for Total Quality of Drinking Water**

Group 1 *Drawing Room*

Governance and Oversight – Governance, auditing, monitoring, etc. to ensure low risk, continuous improvement, and adequate resources. This includes the requirement to be transparent and to communicate with the users and public.
Human Resources – Training needs, accreditation, licensing and so forth.
Quality Control and Assurance – Quality control and assurance to public on the quality of their drinking water, including; laboratory testing, performance measures, and third party validation.

Group 2 *Quebec Suite*

Emerging Threats – What threats and new risks will drinking water systems have to cope with? How can these risk issues best be managed?
Water Sources – Risks to drinking water safety posed by the adequacy and quality of sources of drinking water.

Group 3 *Renaissance Room*

Best Practice – Best practice for design and operation of drinking water systems recognizing the diversity in: sources of water, size of system, available technology, and local user characteristics.
New Approaches – Dramatic improvements in safety are usually linked to new technology, new processes or other new ideas. Where should we look for innovative new approaches and how can it be encouraged?

17:30 – 18:30 Wine and Cheese Reception

WEDNESDAY SEPTEMBER 25, 2002

Chair: **Steve Hrudey**, *University of Alberta*

Drawing Room

8:30 – 9:10 Break Out Group Reports

SCIENCE AND POLICY GUIDELINES FOR DRINKING WATER SAFETY

9:10 – 9:50 Keynote Speaker: **Peter Huck**, *Professor and NSERC Chair in Water Treatment, Department of Civil Engineering, University of Waterloo*

"Robustness in Drinking Water System"

Discussion

9:50– 10:30 Keynote Speaker: **Michèle Prévost**, *NSERC Industrial Chair on Drinking Water Professor, Dept. of Civil Engineering, École Polytechnique de Montréal,*

Discussion

10:30 – 11:45 **Practical Guidelines for Total Quality of Drinking Water (Continued)**

Group 1 *Drawing Room*

Governance and Oversight
Human Resources
Quality Control and Assurance

Group 2 *MacDonald Room*

Emerging Threats
Water Sources

Group 3 *Renaissance Room*

Best Practice
New Technology

11:45 – 12:30 Chair: **Steve Hrudey**, *University of Alberta*

Drawing Room

Plenary Formulation of Conference Recommendations