Agenda

EPA Symposium on Groundwater-Borne Infectious Disease, Etiologic Agents and Indicators

Carnegie Institute of Washington
1530 P St., NW
Washington, DC

December 2 – December 4, 2008

Tuesday, December 2, 2008

Groundwater Epidemiology

8:30 – 8:35 a.m. **Welcome**
Audrey Levine, U.S. Environmental Protection Agency (EPA), Office of Research and Development (ORD)

8:35 – 8:40 a.m. **Introduction**
Pam Barr, EPA, Office of Water

8:40 – 9:10 a.m. **High-Throughput High-Volume Virus Testing of Drinking Water: Protocols and Issues**
Susan K. Spencer, Marshfield Clinic Research Foundation, Marshfield, WI

9:10 – 9:30 a.m. **Discussion on "New" Virus Methods (e.g., glass wool, NanoCeram filter, hollow-fiber ultrafiltration, etc.)**

9:30 – 10:30 a.m. **Community-Wide Intervention With UV Disinfection for Estimating Risk of Viral Illness From Groundwater Consumption**
Mark A. Borchardt, Marshfield Clinic Research Foundation, Marshfield, WI

10:30 – 11:00 a.m. **Discussion on Epidemiology Studies (e.g., the influence of "blinding" in intervention studies, cost and severity of illness, population immunity, etc.)**

11:00 – 11:45 a.m. **Risk Assessment of Acute Illness From Virus Intrusions Into Distribution Systems**
Frank Loge and Elisabetta Lambertini, University of California at Davis, Davis, CA

11:45 – 12:00 p.m. **Discussion on Recontamination of Distribution Systems (e.g., implications for the forthcoming TCR/Distribution System Rule)**

12:00 – 1:00 p.m. **Lunch (on your own)**

1:00 – 1:15 p.m. **Discussion of the WAHTER Study Results (e.g., societal implications)**

1:15 – 2:00 p.m. **The Epidemiology and Microbial Risk Assessment (EMIRA) Study, 1998-1999, France**
Pierre Le Cann, France School of Public Health, Rennes, France

2:00 – 2:15 p.m. **Discussion on EMIRA (e.g., French public health policy as the result of the EMIRA study)**

2:15 – 3:00 p.m. **Seven-Year Longitudinal Study at Walkerton Ontario — The Walkerton Health Study**
William Clark, University of Western Ontario, Ontario, Canada

3:00 – 3:30 p.m. **Discussion on Walkerton (e.g., outbreak cost of illness for acute phase versus chronic sequellae disease, serendipitous findings?)**

3:30 – 4:00 p.m. **A Population-Based Study of Health Outcomes in American Indian Communities Using Groundwater**
Yvonne Yuen, Public Health Fellow at EPA

4:00 – 4:30 p.m. **Characterization and Modeling of Pathogen Risks in Groundwater of First Nations Communities**
Asit Mazumder, University of Victoria, British Columbia, Canada

4:30 – 5:00 p.m. **Discussion on First Nation, AmerIndian, Ontario, Wisconsin, and French Alpine Groundwater Infectious Disease Epidemiology (e.g., evaluation of current results, extrapolation to other locales, future prospects, etc.)**

5:00 – 7:00 p.m. **Dinner (on your own)**

7:00 – 10:00 p.m. **Discussion Forum Followed by Presentation**
Location: DoubleTree Hotel, 1515 Rhode Island Avenue, NW, in the Terrace Ballroom (2 blocks south)

Does Arsenic Mitigation in Bangladesh Raise Exposure to Microbial and Viral Pathogens?
Alex van Geen, Columbia University, New York, NY, and Brian Mailloux, Barnard College, New York, NY

Wednesday, December 3, 2008

Infectious Disease Transmission and Occurrence Models

8:30 – 9:00 a.m. **The Potential Implications of Person-to-Person Transmission of Viral Infection to EPA's Groundwater Rule**
Jeff Soller, Soller Environmental, Berkeley, CA

9:00 – 9:15 a.m. **Discussion on Population Dynamic Infectious Disease Transmission Models (e.g., dynamic model results compared with microbial risk assessment results)**

9:15 – 9:45 a.m. **Enteric Virus and Fecal Indicator Occurrence in Groundwater Sources of Public Drinking Water**
Mike Messner, EPA, Office of Water

9:45 – 10:00 a.m. **Discussion on Statistical Models (e.g., how to turn microbial occurrence data into information)**

10:00 – 10:30 a.m. **Microscopical Indicators Used for Warning of Contamination in Drinking Water (two case studies of outbreaks)**
Andrea Torok, National Institute for Environmental Health, Budapest, Hungary

10:30 – 11:00 a.m. **Noroviruses in Groundwater: Outbreak Investigations and Risk Characterization**
Kellogg Schwab, The Johns Hopkins University Bloomberg School of Public Health, Baltimore, MD

11:00 – 11:15 a.m. **Discussion on Norovirus (e.g., secondary transmission after drinking water exposure)**

Pathogen Occurrence and Transport

11:15 – 11:45 a.m. ***Cryptosporidium* Infection and Onsite Wastewater Disposal Systems in the Arid Southwest**
Kristine Tollestrup, University of New Mexico, Albuquerque, NM

11:45 – 12:45 p.m. **Lunch (on your own)**

12:45 – 1:00 p.m. **Discussion on Bangladesh (e.g., untreated latrine sewage blocks microbial attachment and mobilizes arsenic?)**

1:00 – 1:30 p.m. **Challenges to Predicting Microbial Transport Distances in Porous Media Under the Simplest Environmental Conditions: Crawling Before We Walk**
William P. Johnson, University of Utah, Salt Lake City, UT

1:30 – 2:00 p.m. **Determination of Protection Zones for Dutch Groundwater Wells Against Virus Contamination—Uncertainty and Sensitivity Analysis**
Jack Schijven, RIVM, Bilthoven, The Netherlands

2:00 – 2:30 p.m. **Transport and Retention of Selected Bacterial Pathogens in Model Groundwater Environments**
Nathalie Tufenkji, McGill University, Montreal, Canada

2:30 – 3:00 p.m. **Microbial Groundwater Quality and its Health Implications for**

Border-Strip and Spray Irrigated Dairy Farm Catchments in South Island, New Zealand
Murray Close, Christchurch Science Center, Ilam, New Zealand

3:00 – 3:30 p.m. **Discussion on Coliphage and *E. coli* Transport in Sand Aquifers Compared With Gravel Aquifers (e.g., enterovirus and *E. coli* O157:H7 hazards)**

3:30 – 4:00 p.m. ***Arcobacter* spp., a Poorly Known Group of Bacteria Already Associated With Two Well-Water Outbreaks in the USA**
Maria Jose Figueras, Univ. Rov. Virg., Reus, Spain

4:00 – 4:30 p.m. **Groundwater Microbiological Quality in Canadian Drinking Water Municipal Wells**
Annie Locas, Institut National de la Recherche Scientifique, Quebec, Canada

4:30 – 5:00 p.m. **Discussion on Pathogen Occurrence (e.g., is E. coli a good pathogen indicator for groundwater?)**

5:00 – 7:00 p.m. **Dinner (on your own)**

7:00 – 10:00 p.m. **U.S. Geological Survey Pathogens in Groundwater Forum**
Location: DoubleTree Hotel, 1515 Rhode Island Avenue, NW, in the Terrace Ballroom (2 blocks south)

Pathogen Transport in Karst Groundwater: An Overview of Research Advances
Barbara Mahler, U.S. Geological Survey, Austin, TX

Groundwater Quality Impacts in Two Large Karstic Spring Basins Using Microbiological Indicators
Dale Griffiths, U.S. Geological Survey, Tallahassee, FL

Subsurface Attenuation of Microorganisms Beneath Septic Tank Drainfields in the Woodville Karst Plain, Florida
Brian Katz, U.S. Geological Survey, Tallahassee, FL

Rapid Molecular Methods for Detection of Bacterial Contamination in Karst
Bane Schill, U.S. Geological Survey, Kearneystown, WV

Discussion

Thursday, December 4, 2008

Pathogen Occurrence and Trans

8:30 – 9:00 a.m. **Viruses in U.S. Groundwater: Hydrogeological and Methodological Data Gaps**
Shay Fout, EPA, ORD

9:00 – 9:15 a.m. **Discussion on Virus Occurrence (e.g., is Enterovirus occurrence**

more likely in karst and fractured bedrock aquifers?)

9:15 – 9:45 a.m. **Determination of Enteric Pathogen Survival in Aquifers**
Simon Toze, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Wembley WA, Australia

9:45 – 10:00 a.m. **Discussion on the Use of Native Groundwater and Predation Effects on Enteric Virus Survival**

10:00 – 10:30 a.m. **Gastrointestinal Pathogens in Patients With AGI and Controls From Maryland, Connecticut, and Minnesota**
Jon Mark Hirshon, University of Maryland School of Medicine, Baltimore, MD

10:30 – 10:45 a.m. **Discussion on Emergency Room Data (e.g., how to assess sources of exposure?)**

10:45 – 11:15 a.m. **Virus Survival in Groundwater**
J. Scott Meschke, University of Washington, Seattle, WA

11:15 – 12:00 p.m. **Discussion on Inactivation and Groundwater Travel Times (e.g., Is a 1-year protection zone adequate?)**

12:00 p.m. **Adjourn**