

The 22nd Annual International Conference on

# Soils, Sediments and Water

**October 16-19, 2006**  
University of Massachusetts at Amherst

Analysis, Site Assessment, Fate,  
Environmental and Human Risk Assessment,  
Remediation and Regulation



**Conference Co-Directors**

**Paul T. Kostecki, Ph.D.**  
**Edward J. Calabrese, Ph.D.**  
Environmental Health Sciences  
School of Public Health  
University of Massachusetts  
Amherst, MA

**Clifford Bruell, Ph.D.**  
Center for Environmental Engineering  
Science & Technology  
University of Massachusetts  
Lowell, MA

- **153 Presenters**
- **109 Posters**
- **10 Workshops**
- **48 Exhibitors**

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- 8:30am – 5:00pm **1) Evaluating Monitored Natural Attenuation of MTBE and TBA** (804-08 Campus Center)
- 9:00am – 5:00pm **2) Getting to Closure at LNAPL Sites** (101 Campus Center)
- 10:00am – 5:00pm **3) In-Situ Chemical Oxidation Workshop** (904-08 Campus Center)
- 1:00pm – 5:00pm **4) The Role of Anaerobic Biodegradation Processes in Passive and Enhanced Monitored Natural Attenuation Programs** (917 Campus Center)
- 1:00pm – 5:00pm **5) The 2006 MCP Audit – A Case Study Approach** (Campus Center Auditorium)
- 1:00pm – 5:00pm **6) Integrating the Remediation Strategy into the Lifecycle of a Contaminated Sediments Project** (168C Campus Center)
- 1:00pm – 5:00pm **10) Environmental Fate of Hydrocarbons in Soils and Groundwater** (174 Campus Center)

## AM SESSIONS

# Tuesday

**8:30 am**

### Conference Welcome and Overview

Paul T. Kostecki, *Vice Provost for Research, University of Massachusetts, Amherst, MA* (Campus Center Auditorium)

### Session 1: RISK ASSESSMENT

*Campus Center Auditorium*

Moderator: **Philip Rury**, *AMEC Earth & Environmental, Westford, MA*

**9:00am**

#### Impact of Aging Time on the Risk from Dermal Exposure to Soil Contaminated with Phenanthrene

Mohamed S. Abdel-Rahman, Gloria A. Skowronski, *UMDNJ, New Jersey Medical School, Newark, NJ*

Rita M. Turkall, *UMDNJ, New Jersey Medical School, Newark, NJ and UMDNJ, School of Health Related Professions, Newark, NJ*

**9:30am**

#### What's The Matter With RBCA?

Roger C. Brewer, *Hawaii Department of Health, Honolulu, HI*

**10:00am Break**

**10:30am**

#### Reducing Uncertainty in Ecological Risk Assessment: Measured Tissue Residues in Fish and Aquatic and Terrestrial Insects and Derivation of Bioaccumulation Factors

Amy E. Nelson, Paul Anderson, *AMEC Earth & Environmental, Littleton, MA*

Jane Patarcity, *Beazer East, Inc. c/o Three Rivers Management, Inc., Pittsburgh, PA*

**11:00am**

#### Streamlining Ecological Risk Assessment Reporting With Interactive CD Technology

William E. Cort III, *Naval Facilities Engineering Command, Norfolk, VA*

**11:30am**

#### Environmental Effects of Hurricane Katrina

Alex M. Sherrin, Steven R. Novick, *United States Environmental Protection Agency, Boston, MA*

### Session 2: SITE ASSESSMENT

*101 Campus Center*

Moderator: **Kathy Creighton**, *Shaw Group, Stoughton, MA*

**9:00am**

#### Characterization of a Nitrate and Technetium Plume with Environmental Geophysics

Dale Rucker, Jim Fink, Chris Baldyga, Rob McGill, Marc Leviitt, *hydroGEOPHYSICS, Inc., Tucson, AZ*

**9:30am**

#### Investigating Coal Tar NAPL in Primary and Secondary Fractures in Bedrock

Andrew Jay Coleman, *Electric Power Research Institute, Palo Alto, CA*

**10:00am Break**

**10:30am**

#### Estimating UXO Spatial Density Using a Composite Index Technique

Ken Hnottavange-Telleen, Christopher Abate, Kim Groff, Herbert Colby, Joe Robb, *AMEC Earth & Environmental, Inc., Westford, MA*

William Gallagher, *U.S. Army, Camp Edwards, MA*

Scott Greene, *U.S. Army Corps of Engineers, Concord, MA*

**11:00am**

#### Concentrations of 170 Analytes in Rural New York State Surface Soils

Stephen J. Shost, Emily J. Shusas, Dean B. Briggs, *New York State Department of Health, Troy, NY*

**11:30am**

#### Vertical Delineation of BTEX Using Soil, Soil Gas, and Tree Core Sampling

Stephanie Fiorenza, *Atlantic Richfield Company, Houston, TX*

Frank Thomas, *KMA, Angleton, TX*

Joshua Fell, *URS Corporation, Morrisville, NC*

Jay W. Hodny, *W. L. Gore & Associates, Inc., Elkton, MD*

### Session 3: LEGAL/REGULATORY

*168C Campus Center*

Moderator: **Barbara Callahan**, *University Research, Grantham, NH*

**9:00am**

#### A Brownfield Model Collapses Under the Weight of Litigation: City of Wichita v. Trustees of the Apco Oil Corporation Liquidating Trust

Neal H. Weinfeld, *Greenberg Traurig, LLP, Chicago, IL*

**9:30am**

#### Evaluating Data Usability and Representativeness Under the New MCP Guidelines

Susan D. Chapnick, *New Environmental Horizons, Inc., Arlington, MA*

Ian M. Phillips, *Roux Associates, Inc., Burlington, MA*

Nancy C. Rothman, *New Environmental Horizons, Inc., Skillman, NJ*

**10:00am Break**

**10:30am**

#### EPA's New "All Appropriate Inquiry" Standards: When Have You Done Enough?

John G. Nevius, *Anderson Kill & Olick, PC, New York, NY*

**11:00am**

#### An Overview of DEP's Proposed Asbestos in Soil Regulations and the Implementation of Innovative Asbestos Impacted Soil Remediation Methods

James R. Fair, George D. Naslas, *Weston & Sampson Engineers, Inc., Peabody, MA*

**11:30am**

#### Dams and Contaminated Sediments: Regulation, Removal and Liability

Kathy Robb, Andrew Skroback, *Hunton & Williams, New York, NY*

**Noon – Lunch** Luncheon Speaker, Tuesday, October 17, 2006  
*Amherst Room, 10th Floor Campus Center*

### The Tokyo Subway Incident of 20 March 1995: Lessons for Today

Annetta Watson, *Life Sciences Division, Oak Ridge National Laboratory, Oak Ridge, TN*

**Session 4: HEAVY METALS***Student Union Ballroom*

Moderator: **James Dragun**, *The Dragun Corporation, Farmington Hills, MI*

**9:00am****Site Assessment for the Presence of Mercury in Soil using Passive Soil Gas Sampling**

Michael Singer, *CH2M Hill, Oak Ridge, TN*  
James E. Whetzel, *W. L. Gore and Associates, Inc., Elkton, MD*

**9:30am****Comparison and Critique of Selective Sequential Extraction Methods for Metals in Soils and Sediments**

Deborah L. Cussen, Carl E. Hensman,  
*Frontier Geosciences, Seattle, WA*

**10:00am Break****10:30am****Chemical Speciation of Heavy Metals in Wetland Sediments Treating Urban Stormwater Runoff**

Swarna Muthukrishnan, Ariamalar  
Selvakumar, *U.S. EPA, Edison, NJ*

**11:00am****Assessment of Ferrous Sulfate for the Remediation of Chromite Ore Processing Residue (COPR) in an Oxygen Limited System**

Mahmoud Wazne, Sarath Chandra K. Jagupilla,  
Santhi S. Billapati, Christos Christodoulatos,  
*Stevens Institute of Technology, Hoboken, NJ*

**11:30am****Mineral Enriched Composts for the Remediation of Heavy Metal Contaminated Sites**

René van Herwijnen, Sabeha K. Ouki, Vishnu  
Priya Gadepalle, *University of Surrey,  
Surrey, UK*

Tony R. Hutchings, *Forest Research, Land  
Remediation and Urban Greening Group,  
Farnham Surrey, UK*

Abir Al-Tabbaa, *University of Cambridge,  
Cambridge, UK*

Any J. Moffat, *Forest Research, Land  
Remediation and Urban Greening Group,  
Farnham Surrey, UK*

Mike L. Johns, *University of Cambridge,  
Cambridge, UK*

**Session 5: COMBINING  
CHEMICAL AND BIOLOGICAL  
TECHNOLOGIES FOR SOIL  
AND GROUNDWATER  
REMEDATION***Bowker Auditorium, Stockbridge Hall***Sponsored by Regenesis**

Moderator: Robert Kelley, *Regenesis,  
Plainfield, IL*

**9:00am****Overview of Technical and Policy Developments in Combining In-Situ Remedies to Address Non-Aqueous Phase Liquid Contamination**

Jim Cummings, *USEPA, Washington, DC*

**9:30am****Impacts of Chemical Oxidation on Aquifer Conditions and Microbial Activities**

Robert Luhrs, *Raytheon, Waltham, MA*

**10:00am Break****10:30am****Sequential Application Of Chemical Oxidation Using Permanganate And Bioaugmentation**

David Major, Eric Hood, *GeoSyntec  
Consultants, Guelph, Ontario, Canada*  
Philip Dennis, *SIREM, Guelph, Ontario,  
Canada*

**11:00am****Tools for Designing and Monitoring the Performance of Combined Remediation**

Thomas M. Christy, *Geoprobe Systems,  
Salina, KS*

**11:30am****Round Table Discussion: Combining Chemical and Biological Technologies for Soil and Groundwater Remediation****ANNOUNCEMENT**

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**Session 1: ENVIRONMENTAL BIOTECHNOLOGY**

*Campus Center Auditorium*

**Sponsored by Geovation Technologies, Inc.**

Moderators: **Kevin T. Finneran**, *University of Illinois, Urbana, IL*; **Stephen S. Koenigsberg**, *Environmental Strategies Consulting, Irvine, CA*

**1:30pm**

**Obtaining Direct Evidence of Ongoing In Situ Reductive Dechlorination Using TCPE and RNA Analyses**

Glenn M. White, *Haley & Aldrich, Inc., Rochester, NY*

Greg Davis, *Dora Ogles, Microbial Insights, Inc., Rockford, TN*

Aaron Peacock, *Center for Biomarker Analysis, Knoxville, TN*

Jennifer Busch-Harris, *Eleanor Jennings, Kerry Sublette, University of Tulsa, Tulsa, OK*

Robert Pirkle, *Pat McLoughlin, Microseeps Inc., Pittsburgh, PA*

**2:00pm**

**Monitoring the Metabolic State of Geobacteraceae during in situ U(VI) Bioremediation**

Dawn E. Holmes, *Regina A. O'Neil, Derek R. Lovley, University of Massachusetts, Amherst, MA*

**2:30pm**

**A Molecular Diagnostics "Smoking Gun" for Natural Attenuation**

Aaron Peacock, *Site Logic, Oak Ridge, TN*

**3:00pm Break**

**3:30pm**

**Extracellular Electron Shuttling in Bioremediation and Biotechnology**

Kevin T. Finneran, *University of Illinois at Urbana-Champaign, Urbana, IL*

**4:00pm**

**Bio-Trap™ Samplers Document In-Situ Microbial Oxidation and Assimilation of 13C-labeled Benzene under Denitrifying Conditions**

Eric C. Hince, *Geovation Consultants, Inc., Florida, NY*

Greg Davis, *Dora Ogles, Aaron Peacock, Microbial Insights, Inc., Rockford, TN*

Kerry Sublette, *Jennifer Busch-Harris, Eleanor Jennings, University of Tulsa, Tulsa, OK*

**4:30pm**

**Improved Site Assessment of a Landfill-Leachate Plume using Microbial Community Profiles**

Paula J. Mouser, *Donna M. Rizzo, University of Vermont, Burlington, VT*

Patrick O'Grady, *University of California, Berkeley, CA*

Greg Druschel, *Lori Stevens, University of Vermont, Burlington, VT*

**Session 2: ANALYSIS**

*101 Campus Center*

Moderator: **Ioana G. Petrisor**, *PDRA, Inc., San Diego, CA*

**1:30pm**

**Analytical Considerations for Applying EPA Method 1668A for PCB Analysis on Soil and Sediment Investigations**

David R. Blye, *Rock J. Vitale, Environmental Standards, Inc., Valley Forge, PA*

**2:00pm**

**Perfluorinated Compounds in Surface Waters of the Pacific Northwest by HPLC/MS/MS Detection**

Michael A. Erickson, *Thomas L. Fillmore, Columbia Analytical Services, Kelso, WA*

**2:30pm**

**Mass DEP's Evaluation of Laboratory Performance based on a Large VOC Double-Blind Study**

R. Kendall Marra, *John J. Fitzgerald, Massachusetts Department of Environmental Protection, Boston, MA*

**3:00 pm Break**

**3:30pm**

**Obtaining Representative PCB Site Data – Overcoming Common Field and Analytical Pitfalls**

Frank Ricciardi, *Weston & Sampson Engineers, Inc., Peabody, MA*

Thomas Veratti, Jr., *ConTest Analytical Laboratories, East Longmeadow, MA*

**4:00pm**

**Using Quadrupole ICP MS Generated Stable Lead Isotope Ratios in Environmental Risk and Forensic Studies**

Leonard C. Pitts, *Alpha Woods Hole Laboratories, Raynham, MA*

**4:30pm**

**Improved PAH Field Screening Method & Fluorescence Fingerprinting Hydrocarbon Sites**

Steve Greason, *Sitelab Corporation, West Newbury, MA*

**Session 3: OZONE REMEDIAL BARRIER AND CLEAN-UP SYSTEMS FOR FUEL AND SOLVENT SPILLS**

*168C Campus Center*

**Sponsored by Kerfoot Technologies, Inc.**

Moderators: **William Kerfoot**, *Kerfoot Technologies, Inc., Mashpee, MA*

**1:30pm**

**Ozone, Hydrogen Peroxide, and Air Injection Systems for Aggressive Remediation**

Charles B. Whisman, *Groundwater & Environmental Services, Inc., Exton, PA*

**2:00pm**

**An Innovative Approach to Protecting a Municipal Supply Well - Air/Ozone Sparge Curtain Results**

Kent Zenobia, *Ed Tarter, Vern Elarth, URS Corporation, Sacramento, CA*

Nicole Damin, *Stanislaus County Department of Environmental Resources, Modesto, CA*

**2:30pm**

**Superoxidation Ozone Systems for Aquifer Restoration – A Michigan State Superfund Site**

Andrew Brolowski, *William B. Kerfoot, Kerfoot Technologies, Inc., Mashpee, MA*

**3:00pm Break**

**3:30pm**

**Ozone Oxidation for Source Removal and a Prevention Barrier at a Fire Training Academy**

Thomas C. Cambareri, *Scott Michaud, Cape Cod Commission, Barnstable, MA*

**4:00pm**

**Successful Closure of an Industrial Site Adjacent to an Ohio Municipal Wellfield**

William B. Kerfoot, *Kerfoot Technologies, Inc., Mashpee, MA*

Bruce E. Ehleringer, *Washington Group International, Inc., Cleveland, OH*

John Muncy, *REM Investments, Enon, OH*

**4:30pm**

**In Situ Chemical Oxidation of Manufactured Gas Plant (MGP) using Ozone**

Jeffrey C. Dey and *Imtiyaz Kahn, The Resource Companies, Moorestown, NJ*



**Session 4a: HEAVY METALS**

*Student Union Ballroom*

Moderator: **James Dragun**, *The Dragun Corporation, Farmington Hills, MI*

**1:30pm**

**A Case Study of Arsenic Regulations by a Local Board of Health Regarding Redevelopment in a Former Orchard**

Jo Anne Shatkin, *The Cadmus Group, Inc., Watertown, MA*

Donald D. Cooper, *Nixon Peabody LLC, Boston, MA*

**Session 4b: EMERGING CONTAMINANTS**

*Student Union Ballroom*

Moderator: **Millie Garcie-Surette**, *MA DEP, South East Region, Lakeville, MA*

**2:00pm**

**Status of ECOS/DOD National Dialogue on Emerging Contaminants**

Gary S. Moran, *Massachusetts Department of Environmental Protection, Southeast Region, MA*

**2:30pm**

**Tungsten: Emerging Heavy Metal**

Mark J. Begley, *Massachusetts Environmental Management Commission, Camp Edwards, MA*

**3:00pm Break**

**3:30pm**

**Overview of Perfluorooctanoic Acid (PFOA)**

Brooke Moore, Cynthia Cogan, Arthur Taddeo, *ENSR Corporation, Westford, MA*

**4:00pm**

**Biodegradation and Bioremediation of N-Nitrosodimethylamine (NDMA) in Groundwater**

Paul B. Hatzinger, Sheryl Streger, *Shaw Environmental, Inc., Lawrenceville, NJ*

Jalal Hawari, Diane Fournier, *Biotechnology Research Institute, Montreal, QB, Canada*

**Wednesday Breakfast Forum**

7:30am - 8:30am

*Amherst Room, 10th Floor Campus Center*

**Using Environmental Informatics and Direct Sensing Technologies to Reduce the Cost of Remediation**

Discover the impact direct sensing tools such as the Membrane Interface Probe and optical methods (fluorescence) are having on site characterization and remedial optimization. These tools enable thousands of measurements on the geology, hydrology and nature and extent of the subsurface contaminants to be gathered in a relatively short period of time. The data can then be processed into high definition 2D and 3D images of the site, which providing much greater detail than has been traditionally available for designing a remediation approach. The impact of this environmental informatics approach is higher data confidence, fewer data gaps, and more successful site characterizations and cleanup. This seminar will review the various direct sensing tools in commercial use, the options for rapid data processing and visualization, and case studies that have employed these technologies.

**Session 5:**

**PHYTOREMEDIATION**

*Bowker Auditorium, Stockbridge Hall*

Moderators: **Lee Newman**, *University of South Carolina, Columbia, SC*; **Jason White**, *The Connecticut Agricultural Experiment Station, New Haven, CT*

**1:30pm**

**Phytoremediation of TPH-Contaminated Groundwater**

Ari M. Ferro, Jennifer Cassada, *ENSR/AECOM, Raleigh, NC*

Brett Berra, *URS Corporation - North Carolina, Morrisville, NC*

David Tsao, *Atlantic Richfield, BP Business Center, Warrenville, IL*

**2:00pm**

**Assessment of Arsenic Phytoextraction Performance in the Spring Valley Area of Washington, DC Using High Intensity Composite Soil Sampling**

Michael J. Blaylock, Mark P. Elless, *Edenspace Systems Corporation, Chantilly, VA*

**2:30pm**

**Does Metal Chelation Mobilize Aged PAHs in Vegetated and Non-Vegetated Contaminated Soils?**

Samuel T. Gregory III, *North Carolina State University, Raleigh, NC*

Zachary K. Eyley, *Withers & Ravenel, Cary, NC*

Thomas R. Crawford, *EG Nichols, North Carolina State University, Raleigh, NC*

**3:00pm Break**

**3:30pm**

**Engineering Transgenic Plants for in situ Treatment of Explosives**

Neil .C Bruce, *University of York, York, UK*

**4:00pm**

**Application of Endophytic Bacteria to Improve the Performances of Poplar for Phytoremediation and Biomass Production**

Safiyh Taghavi, Craig Garafola, Bill Greenberg, *Brookhaven National Laboratory (BNL), Upton, NY*

Tanja Barac, Hasselt Jaco Vangronsveld, *Universiteit Hasselt, Diepenbeek, Belgium*

Daniel van der Lelie, *Brookhaven National Laboratory (BNL), Upton, NY*

**4:30pm**

**Seaweed Uptake, Concentration and Detoxification of Organic Pollutants in Marine Waters: TNT and PAHs**

Donald Cheney, Yen-Chun Liu, *Northeastern University, Boston, MA*

Deana Aulisio, Kevin Gardner, *University of New Hampshire, Durham, NH*

Tavi Cruz-Urbe, Gregory Rorrer, *Oregon State University, Corvallis, OR*

Booth	Affiliation
B1	CL Solutions
B2	Microbial Insights
B3	Strategic Diagnostics Inc.
B4	Lancaster Laboratories
B5	Toda America, Inc.
B6	EA Engineering, Science, and Technology
B7	Alpha Woods Hole Labs
B8	Shaw Group
B9	Geovation Technologies, Inc.
B10	ENSR   AECOM
B11	Naval Facilities Engineering Command (FAVFAC)
B12	Licensed Site Professional Association
B13	AMEC Earth & Environmental
B14	W.L. Gore & Associates, Inc.
B15	Thermo Electron, Niton Analyzers
B16	Northeast Analytical NEA Labs
B17	ONSET Computer Corp
B18	ISOTEC
B19	FMC Corporation
B20	Environmental Express
B21	Groundwater Analytical
B22	CETCO Sediment Remediation Technologies
B23	Kerfoot Technologies, Inc.
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B27	Liquid Boot R - LBI Technologies, Inc.
B28	Columbia Analytical Services, Inc.
B29	Eastern Analytical, Inc.
B30	Accutest Laboratories
B31	Aztech Technologies
B32	Environmental Remediation and Financial Services, LLC
B33	TerraTherm, Inc.
B34	Microseeps, Inc.
B35	Groundwater & Environmental Services, Inc (GES)
B36	ATC Associates, Inc.
B37	Waterloo Barrier Inc.
B38	Maxymillian Technologies, Inc.
B39	The Adventus Group
T1	EnviroDirectory New England
T2	Environmental Sampling Supply
T3	ETEC, LLC
T4	Innov-X Systems
T5	Varian, Inc.
T7	Student Career Booth
T8	Stevens Water Monitoring Systems, Inc.
T9	USEPA/OSWER/OSRTI/ Technology Innovation and Field Services Division (TIFSD)

## Session 1: ENVIRONMENTAL BENEFITS AND RISKS OF NANOMATERIALS

Campus Center Auditorium  
Moderators: **Igor Linkov**, *Intertox, Inc., Brookline, MA*; **Jeffery A. Steevens**, *US Army Engineer Research and Development Center, Vicksburg, MS*

**8:30am**  
**A Very Brief History of Nanotechnology: Implications for the Environment**  
Jeffery A. Steevens, Alan Kennedy, Charles A. Weiss, Jr., *U.S. Army Engineer Research and Development Center, Vicksburg, MS*  
Igor Linkov, *Intertox Inc., Brookline, MA*

**9:00am**  
**Brave New World: Strategies for Navigating the Uncertainties**  
Melissa Hoffer, *WilmerHale, Boston, MA*

**9:30am**  
**Use of Nanoscale Zero-Valent Iron (NZVI) Particles for Groundwater Remediation: A Qualitative Risk Assessment**  
Barbara D. Beck, Noelle M. Cocoros, *Gradient Corporation, Cambridge, MA*

**10:00am Break**

**10:30am**  
**Impact of Nanoparticles on Aquatic Species: Invertebrates and Fish**  
Patricia McClellan-Green, *North Carolina State University, Morehead City, NC*

**11:00am**  
**Inhalation Exposure to Nanoparticles**  
Michael Ellenbecker, *Toxics Use Reduction Institute, University of Massachusetts, Lowell, MA*

**11:30am**  
**Multi-Criteria Decision Analysis and Environmental Risk Assessment for Nanomaterials**  
Igor Linkov, *Intertox Inc., Brookline, MA*  
F. Kyle Satterstrom, *Cambridge Environmental Inc., Cambridge, MA*  
Jeffery Steevens, Elizabeth Ferguson, Jongbum Kim, Burton Suedel, *US Army Corps of Engineers, Vicksburg, MS*

## Session 2: CHEMICAL OXIDATION

101 Campus Center  
Moderator: **Clifford J. Bruell**, *University of Massachusetts, Lowell, MA*

**8:30am**  
**Adaptive Remediation: Using a Membrane Interface Probe to Define Permanganate Distribution and CVOC Concentrations during a Pressure Pulse In-Situ Chemical Oxidation Application to Enhance Remedial Results**  
Michael R. Ravella, *ERM, Boston, MA*  
Louis J. Burkhardt, *Raytheon, Sudbury, MA*  
Joseph Fiacco, Timothy Pac, Rick Lewis, *ERM, Boston, MA*

**9:00am**  
**The Effects of In-Situ Oxidation of Organic Contaminants on Metals Mobility in Sediments**  
Deborah L. Cussen, Carl E. Hensman, Trevor Baker, *Frontier Geosciences, Seattle, WA*  
Diane Saber, Michael Samuel, *Gas Technology Institute, Des Plaines, IL*

**9:30am**  
**Successful Application of Activated Persulfate Chemical Oxidation Followed by Bioremediation in a Tight Soil Matrix**  
Richard Cartwright, *MECX, East Amherst, NY*  
Larry Rader, *MECX, Leland, IL*

**10:00am Break**

**10:30am**  
**Persulfate Decomposition Kinetics in Presence of Aquifer Materials**  
Kanwartej S. Sra, Jessica J. Whitney, Neil R. Thomson, Jim F. Barker, *University of Waterloo, Waterloo, Canada*

**11:00am**  
**Cyclodextrin Enhanced Iron Activated Persulfate Oxidation of TCE**  
Chenju Liang, Chiu-Fen Huang, *National Chung Hsing University, Taichung, Taiwan*  
Nihar Mohanty, *Massachusetts Department of Environmental Protection, Wilmington, MA*  
Clifford J. Bruell, *University of Massachusetts Lowell, Lowell, MA*

**11:30am**  
**Case Study: Bench, Pilot and Field Scale ISCO with Activated Persulfate of Chlorinated Benzenes**  
Ian T. Osgerby, Scott Acone, *U.S. Army Corps of Engineers, New England, Concord, MA*  
Brant Smith, Scott C. Crawford, Ken Sperry, *Xpert Design and Diagnostics, LLC, Stratham, NH*  
Andrew J. Boeckeler, Stefanie A. Getchell, *Nobis Engineering, Inc., Concord, NH*  
Ed Hathaway, *EPA New England, Chelmsford, MA*

## Session 3: ENVIRONMENTAL FORENSICS

168C Campus Center  
Moderators: **A. Dallas Wait**, *Gradient Corporation, Cambridge, MA*

**8:30am**  
**Perchlorate Forensics - Sources and Investigation Methods: Theory and Application for Identification of New Sources**  
Ioana G. Petrisor, Robert D. Morrison, *DPR, Inc., San Diego, CA*

**9:00am**  
**Environmental Forensic Characterization of Chlorinated Hydrocarbon Sources**  
Richard C. Bost, Robert Perry, *Environmental Resources Management, Houston, TX*

**9:30am**  
**Use of PCB Congener and Homolog Analysis in Source Apportionment at a Rail Yard Superfund Site**  
Eric L. Butler, *Gradient Corporation, Cambridge, MA*  
Tarek Saba, *Exponent®, Inc., Maynard, MA*

**10:00am Break**

**10:30am**  
**Assessing the Extent and Distribution of a Crude Oil Spill in Chalmette, Louisiana following Hurricane Katrina – The Role of Chemical Fingerprinting**  
Scott A. Stout, *NewFields, Rockland, MA*  
Glenn C. Millner, Dyron Hamlin, *Center for Toxicology and Environmental Health, LLC, Little Rock, AR*  
Bo Liu, *NewFields, Rockland, MA*

**11:00am**  
**Using the Abiotic Transformation Rate of 1,1,1-Trichloroethane to Estimate the Date of Discharge**  
Richard D. Britton, *The Whitman Companies, Inc., East Brunswick, NJ*

**11:30am**  
**Integrated PAH Profiles and Compound-Specific Stable Carbon Isotope Analysis for Identifying Sources of PAHs in Urban Background near Former MGP Sites**  
David Mauro, *META Environmental, Inc., Watertown, MA*  
Diane Saber, *Gas Technology Institute, Des Plaines, IL*

## Session 4a: OXYGENATES AND PUBLIC WATER SUPPLIES

Student Union Ballroom

**Sponsored by American Petroleum Institute**

Moderator: **Bruce Bauman**, *American Petroleum Institute, Washington, DC*

**8:30am**  
**Volatile Organic Compounds in the Nation's Ground Water and Drinking-Water Supply Wells**  
Mike Moran, *U.S. Geological Survey, Rapid City, SD*

**8:55am**  
**Time Trend Analysis of MtBE Detections in Public Water Systems in Connecticut**  
Maureen C. Leahy, *Environmental Resources Management, East Hartford, CT*

**9:20am**  
**Control and Closure of a Rapidly Moving and Diving MTBE/Benzene Plume in a Public Water Supply Area**  
Michael L. Scherer, *Massachusetts Department of Environmental Protection, Springfield, MA*

**9:45am**  
**PM-1 and Beyond: Assessment of Microbial Degradation of MTBE to Support Re-Injection into Drinking Water Aquifer**  
Sue Boyle, *Haley & Aldrich, Rochester, NY*

**10:10am Break**

## Session 4b: EVALUATING AND MANAGEMENT OF SMALL RELEASES FROM USTS

Student Union Ballroom

**Sponsored by American Petroleum Institute**

Moderator: **Joe Haas**, *New York State Department of Environmental Conservation, Stony Brook, NY*

**10:30am**  
**UST Vapor Leak Research**  
Gary S. Lynn, *New Hampshire Department of Environmental Services, Concord, NH*

**10:55am**  
**Monitoring Small Releases from USTs and Assessing Vadose Zone Infiltration**  
Gary A. Robbins, Judith C. Rondeau, *University of Connecticut, Storrs, CT*

**11:20am**  
**Evaluation of Maryland's Enhanced UST Regulations for Mitigating Groundwater Contamination Risk from Small Gasoline Leaks**  
Cynthia L. Cogan, Maya Desai, Elizabeth Perry, *ENSR, Westford, MA*

**Noon – Lunch** Luncheon Speaker, Wednesday, October 18, 2006

Amherst Room, 10th Floor Campus Center

## A Treatise on the Link between Subsurface Contaminant Vapors and People Intrusion into Buildings

Paul C. Johnson, *Professor and Executive Dean, Ira A. Fulton School of Engineering, Arizona State University, Tempe, AZ*

# Life Achievement Award

This year, the Annual International Conference on Soils, Sediments and Water is pleased to announce the premier of the Life Achievement Award. This award is given to individuals in the areas of industry, academia and government who have made significant contributions to the understanding and solution of soil, sediment or groundwater pollution problems. This year's winners are Dr. Paul C. Johnson, University of Arizona, Dr. George M. Rusch, Honeywell International and Dr. Annetta Watson, Oak Ridge National Laboratory.

## Paul C. Johnson, Ph.D.



Dr. Johnson is a Professor in the Department of Civil and Environmental Engineering, where he also serves as the Executive Dean of the Ira A. Fulton School of Engineering at Arizona State University (ASU). He has been a member of the ASU faculty since 1994, and has previously served as the Associate Vice President for Research for the University, and the Associate Dean for Research in the Ira A. Fulton School of Engineering. Prior to joining ASU he was a Senior Research Engineer at the Shell Oil/Shell Chemical Westhollow Technology Center in Houston, TX (1987 – 1994).

Dr. Johnson has B.S. and Ph.D. degrees in chemical engineering from the University of California at Davis and Princeton University, respectively.

Dr. Johnson is also the editor-in-chief for the National Ground Water Association's journal Ground Water Monitoring and Remediation, and he serves as a peer reviewer and consultant to USEPA, state regulatory agencies, DoD, and industry.

Dr. Johnson's research interests include modeling and measurement of chemical mass transfer and reaction phenomena in natural settings, with emphasis on the subsurface, and application to risk assessment and soil and groundwater remediation problems. Design and optimization of in situ remediation systems employing combinations of physical, chemical, and biological processes. His current research projects focus on source zone natural attenuation, subsurface vapor migration to enclosed spaces, thermally-enhanced remediation technologies, and MTBE bioremediation.

Many of Dr. Johnson's publications have directly impacted practice and research. For example, the ASTM RBCA guidance document on which he was the lead author is the underlying basis for most regulatory cleanup programs today; the Johnson and Ettinger vapor transport model is widely used by regulators and environmental professionals for risk assessment purposes and Dr. Johnson's work is credited with raising the awareness of this exposure pathway; publications on the design, monitoring, and optimization of in situ soil vapor extraction and in situ air sparging systems form the basis for practice today; and his research team recently was the first to implement a successful full-scale engineered MTBE bioremediation system.

Examples of the recognition that Dr. Johnson has received include: the CERF Charles Pankow Award for Innovation Finalist (2003, 2005); the White House Closing the Circle Award Winner (2003); the National Pollution Prevention Roundtable Most Valuable Pollution Prevention Project Award (2003); The Environmental Security Technology Certification Program (ESTCP) Project of the Year (2002); ASU College of Engineering Teaching Excellence Award (1998, 2002); National Ground Water Association (NGWA) Outstanding Ground Water Remediation Project Award (2001); AWPCA Quentin Mees Research Award (1995, 2000)

Dr. Johnson has authored or co-authored over 80 journal articles, conference papers, and reports related to his research activities. He is also the inventor or co-inventor on 12 U.S. Patents.

## George M. Rusch, Ph.D.



Dr. Rusch has been a toxicologist for over 30 years. After receiving his Ph.D. in 1971 in organic chemistry, he was on the research staff at New York University Medical Center's Institute of Environmental Medicine. His research was in inhalation toxicology and chemical carcinogenesis. After 5 years at NYU, he accepted a position as the Director of Inhalation Toxicology for Bio/dynamics, where he was responsible for the start-up of the largest inhalation toxicology facility in the country. After 3 years, he moved to Allied Chemical, now known as Honeywell International. Initially, he was responsible for their inhalation toxicology program. In 1989, he was promoted to Director of Toxicology and Risk Assessment, a position he still holds.

As chair of the toxicology committee for the Program for Alternative Fluorocarbon Toxicity testing, he was responsible for the toxicology evaluation of the new generation of fluorocarbons that replaced the ozone depleting CFC's. He is recognized as one of the world's experts in fluorocarbon toxicity and has testified or made presentations to officials in the U.S. EPA, the United Nations Environmental Program, The E. U. directorate for new chemical development and the German Government. Additionally he has chaired and participated in numerous committees in Europe and the U.S. that have evaluated fluorocarbon toxicity. These included the ECETOC Task Force on Fluorocarbons, the ASHRAE Refrigerant Safety Classification committee, the ISO 817 Refrigerant Safety committee, and several National Research Council committees on various topics related to fluorocarbon toxicology.

Dr. Rusch is also recognized as a leader in risk assessment and in 2000 was given the ACGIH's Herbert Stockinger Award for career achievement in industrial toxicology. He has served as member and chair of the AIHA's Workplace Environmental Exposure Level Committee. He was the founding chair of both the AIHA's Emergency Response Planning committee and the National Advisory Committee for Acute Exposure Guideline Levels for Hazardous Chemicals. In this capacity he has received awards from both the AIHA and U.S. EPA.

Dr. Rusch is a Diplomat of the American Board of Toxicology, a Fellow of the Academy of Toxicological Sciences and a Eurotox Registered Toxicologist. He has authored or coauthored over 60 articles in the peer reviewed literature, several monographs and two book chapters.

(continued on next page)



**Session 1: REMEDIATION**

Campus Center Auditorium

Moderator: **Ralph S. Baker**, TerraTherm, Inc., Fitchburg, MA**1:30pm****How Low do you Want to Go? In-Situ Thermal Desorption Consistently Achieves Low Cleanup Standards**  
Ralph S. Baker, TerraTherm, Inc., Fitchburg, MA  
Gorm Heron, TerraTherm, Inc., Keene, CA  
John C. LaChance, John M. Bierschenk, TerraTherm, Inc., Fitchburg, MA**2:00pm****Design and Performance Evaluation of Air Sparging Trench for the Treatment of VOCs and Arsenic**  
Omer J. Uppal, Michael C. Marley, Dennis Keane, Xpert Design and Diagnostics, LLC, Stratham, NH  
Dean Peschel, Project Manager, City of Dover, Dover, NH**2:30pm****Electrochemical Generated Alkaline Barrier for In-situ Treatment of Hexahydro-1,3,5-trinitro-1,3,5 triazine (RDX) Contaminated Groundwater**  
David B. Gent, US Army Engineer Research and Development Center, Vicksburg, MS  
Altaf H. Wani, Applied Research Associates, Inc., Vicksburg, MS  
Akram Alshawabkeh, Northeastern University, Boston, MA  
Jeffrey L. Davis, US Army Engineer Research and Development Center, Vicksburg, MS**3:00pm Break****3:30pm****Chlorinated Soils Remediation Using Steam Injection Into Fractured Bedrock**  
Ian T. Osgerby, U.S. Army Corps of Engineers, Concord, MA  
Jim Shulz, EA Engineering, Southborough, MA  
Greg Crisp, Crisp Environmental Services, Merced, CA  
Ken Mancheste, Steve Antonioli, MSE Technology Applications, Inc., Butte, MT**4:00pm****Treatment of Trichloroethene with Reactive Nanoscale Iron Particles**  
Andreas D. Jazdanian, Toda America Inc., Schaumburg, IL  
M. Amine Dahmani, Spectrum Analytical, Inc., Agawam, MA  
Kenji Okinaka, Toda Kogyo Corporation, Yamaguchi, Japan  
Michael E. Miller, Camp Dresser & McKee, Inc., Cambridge, MA**4:30pm****Use of High Concentration Magnesium Sulfate Solution to Remediate Petroleum Impacted Groundwater**  
James F. Cuthbertson, Delta Environmental Consultants, Inc., Novi, MI  
Jeffrey A. Kaestner, Delta Environmental Consultants, Inc., Indianapolis, IN  
Lyle G. Bruce, BP Products North America Inc., Warrenville, IL**5:00pm****Completion of In-Situ Thermal Remediation of PAHs, PCP and Dioxins at a Former Wood Treatment Facility**  
John M. Bierschenk, Ralph S. Baker, James P. Galligan, Ronald Young, TerraTherm, Inc., Fitchburg, MA**Session 2: NATURAL RESOURCE DAMAGE ASSESSMENTS: INTEGRATING REMEDIATION AND RESTORATION**

101 Campus Center

**Sponsored by ENVIRON International Corporation**  
Moderator: **Jen Lawton**, ENVIRON International Corporation**1:30pm****Overview of Integrated Natural Resource Damage Assessment Process**  
Jen Lawton, Tim Barber, Mark Travers, ENVIRON International Corporation, Burton, OH**2:00pm****NOAA's Approach to Cooperatively Resolving Natural Resource Liability**  
Kenneth Finkelstein, National Oceanic and Atmospheric Administration, Boston, MA**2:30pm****Myths, Incentives and Challenges of Natural Resource Damage Assessments: A State Trustee Perspective**  
Dale C. Young, Massachusetts Executive Office of Environmental Affairs, Boston, MA**3:00pm Break****3:30pm****Natural Resource Damage Assessment: Lessons Learned from a Legal Perspective**  
Michael Daneker, Arnold & Porter, LLP, Washington, DC**4:00pm****Estimation of Natural Resource Damages for 23 Florida Cases Using Modeling of Physical Fates and Biological Injuries**  
Jill Rowe, Deborah French McCay, Nicole Whittier, Applied Science Associates, Inc., Narragansett, RI**4:30pm****Application of a Restoration Inventory to Natural Resource Damage Assessments**  
Sarah C. Watts, David J. Santillo, Northern Ecological Associates, Inc., Portland, ME  
Derek Pelletier, Miranda Henning, ENVIRON International Corporation, Portland, ME**5:00pm****Using DOJ's Database of Natural Resource Damage Settlements to Look Forwards and Backwards**  
Tim Barber, Jen Lawton, ENVIRON International Corporation, Burton, OH**Session 3: PERCHLORATE**

168C Campus Center

Moderators: Carol Bois, Bois Consulting Company, Framingham, MA

**1:30pm****Distinguishing Natural from Anthropogenic Perchlorate**  
Paul B. Hatzinger, Shaw Environmental, Inc., Lawrenceville, NJ  
Neil C. Sturchio, University of Illinois at Chicago, Chicago, IL  
J. K. Böhlke, US Geological Survey, Reston, VA  
W. Andrew Jackson, Texas Tech University, Lubbock, TX  
Baohua Gu, Oak Ridge National Laboratory, Oak Ridge, TN**2:00pm****Column Studies on Perchlorate Reduction by Autotrophic Bacteria in the Presence of Zero-Valent Iron**  
Xueyuan Yu, Christopher Amrhein, Marc A. Deshusses, Mark R. Matsumoto, University of California, Riverside, Riverside, CA**2:30pm****Perchlorate Reduction in a Packed Bed Bioreactor Using Elemental Sulfur**  
Ashish K Sahu, Sarina J. Ergas, University of Massachusetts, Amherst, MA**3:00pm Break****3:30pm****Demonstration of Active and Semi-Passive Approaches to In Situ Bioremediation of Perchlorate in Groundwater**  
Thomas Krug, Evan E. Cox, David M. Bertrand, GeoSyntec Consultants, Guelph, ON, Canada  
John D. Coates, University of California, Berkeley, CA  
Bryan Harre, Navel Facilities Engineering Service Center, Port Hueneme, CA**4:00pm****Removal of Perchlorate from Drinking Water and Ion Exchange Regenerant Brines**  
Brian Dougherty, Stephen Harrison, Chulheung Bae, Electrochemical Design Associates, Emeryville, CA**4:30pm****Lessons Learned for Future Designs from Thermal Treatment of Perchlorate in Soil**  
Shouvik Gangopadhyay, ECC, Camp Edwards, MA  
Paul Nixon, Impact Area Groundwater Study Program, Camp Edwards, MA  
Scott Michalak, United States Army Corps of Engineers, Concord MA



**Session 4a: OXYGENATE  
BIODEGRADATION**

*Student Union Ballroom*

**Sponsored by American  
Petroleum Institute**

Moderator: Pedro Alvarez, *Rice University, Houston, TX*

**1:30pm**

**To Degrade or Not To Degrade: Isotopic and Microcosm Evidence for Anaerobic Biodegradation of TBA**

Eric M. Nichols, *LFR Inc., Braintree, MA*

**1:55pm**

**The Utility of Stable Isotope Analysis: Lessons Learned from Numerous Practical Applications to the Management of Fuel Oxygenate Contamination**

Joseph E. Haas II, *New York State Department of Environmental Conservation, Stony Brook, NY*

**2:20pm**

**Biodegradation of Tert-Butyl Alcohol by Mixed Culture KR1**

Kimberly M. Reinauer, *University of Illinois-Urbana Champaign, Urbana, IL*  
Xiaomin Yang, *Atlantic Richfield Company, BP, Warrenville, IL*  
Kevin T. Finneran, *University of Illinois-Urbana Champaign, Urbana, IL*

**2:45pm**

**U.S. Operating Experience with Biologically-Active GAC Systems for MTBE and TBA Treatment**

Tatsuji Ebihara, *LFR Inc., Elgin, IL*

**3:10 Break**

**3:30pm**

**Ex Situ Bioreactor Treatment of Tertiary Butyl Alcohol at a New Hampshire Site**

Joseph E. O'Connell, *Environmental Resolutions, Inc., Lake Forest, CA*

**3:55pm**

**Pulsed Air Sparging for MTBE and TBA Source Zone Remediation**

Xiaomin Yang, *Atlantic Richfield Company, A BP affiliated company, Warrenville, IL*  
Shankar Subramanian, Timothy Dull, *URS Corporation, Chicago, IL*  
Thomas Tunnicliff, Greg Jevyak, *Atlantic Richfield Company, A BP affiliated company*

**Session 4b: ETHANOL FUELS**

*Student Union Ballroom*

**Sponsored by American  
Petroleum Institute**

Moderator: Eric Nichols, *LFR Inc., Braintree, MA*

**4:20pm**

**Ethanol Fate and Transport: An Updated Review of its Impact on Subsurface Gasoline Contamination**

Brooke Redding, *Exponent Inc., Boulder, CO*  
James M. Davidson, *Exponent Inc., Boulder, CO*

**4:45pm**

**The Fate of Oxygenates and BTEX from Gasolines Containing MTBE, TBA and Ethanol: Initial Findings from a Controlled Field Experiment, Borden, Canada**

Erika Williams, Marian Mocanu, Jim Barker, John Molson, *University of Waterloo, Waterloo, ON, Canada*  
José Luiz Gomes Zoby, *University of São Paulo, São Paulo, Brazil*

**5:10pm**

**The Impact of Fuel Ethanol on Groundwater: Source Behavior**

Brent P. Stafford, *University of Houston, Houston, TX*  
Natalie L. Cápiro, *Rice University, Houston, TX*  
William G. Rixey, *University of Houston, Houston, TX*  
Pedro J.J. Alvarez, *Rice University, Houston, TX*

**5:25pm**

**The Impact of Fuel Ethanol on Groundwater: Microbial Response**

Natalie L. Cápiro, Marcio L. B. Da Silva, Pedro J.J. Alvarez, *Rice University, Houston, TX*  
Brent P. Stafford, William G. Rixey, *University of Houston, TX*

**Life Achievement Award** (continued)

**Annetta P. Watson, Ph.D.**



Dr. Annetta Watson is a Distinguished Research Staff Scientist in the Life Sciences Division, Oak Ridge National Laboratory, Oak Ridge, TN, where she has been employed as a

researcher since 1977. In 1970, she earned a B.S. from the Purdue University College of Agriculture, followed by a Ph.D. from the University of Kentucky College of Agriculture in 1976.

She has performed or managed health assessments for numerous federal agencies, where she has expertise in the toxicology of chemical warfare agents, development of agent exposure guidelines for civilian and military populations, and the application of this information to emergency preparedness planning. In recent years, her team developed chemical warfare agent reference doses (RfDs), acute exposure guideline levels (AEGs) for sulfur mustard and nerve agents, provisional advisory levels (PALs) for nerve agents, and other decision criteria for use in certifying sites, developing emergency response plans, and protection of deployed military personnel.

Dr. Watson is presently a member of the Peer Review Board on Toxicology of the U.S. Army Center for Health Promotion and Preventive Medicine (Aberdeen Proving Ground, MD). She completed several terms as a member of the Army Science Board and the Committee on Toxicology of the National Research Council. In addition, Dr. Watson has served on review panels for the National Academy's Institute of Medicine, the National Research Council's Board on Army Science and Technology, the DoD Office of Defense Research and Engineering, and the DoD Office of the Assistant Secretary of Defense (Nuclear, Chemical and Biological Defense Programs). Editorial responsibilities include current membership on the Editorial Board of the journal *Human and Ecological Risk Assessment*. She has authored or co-authored over 100 articles and reports.

Dr. Watson is a fellow of The Academy of Toxicological Sciences, and a member of Sigma XI and AAAS.

## Session 1: VAPOR INTRUSION

Campus Center Auditorium  
Moderator: **Frank Peduto**, *Spectra Environmental Group, Latham, NY*

**8:30am**

**Near-Building and Structure Sampling Results from Vapor Intrusion Sites in New York, Implications for Site Screening Approaches**

William E. Wertz, *New York State Department of Environmental Conservation, Albany NY*

**9:00am**

**Using a Weight of Evidence Approach to Show no Indoor Air Impacts at Homes Located at a Site Impacted with Chlorinated VOCs**

Raymond J. Cadorette, Lawrence Nesbitt, *Shaw Environmental, Inc., Hopkinton, MA*

**9:30am**

**Vapor Intrusion Attenuation Factors Based on Long-term Data**

David J. Folkes, Eric J. Wannamaker, Jeffrey P. Kurtz, *EnviroGroup Limited, Centennial, CO*

**10:00am Break**

**10:30am**

**The Use of Tracer Gas in Soil Vapor Intrusion Studies**

Peter Reynolds, *URS Corporation, Wayne, NJ*

**11:00am**

**Emerging Approaches for Weighing the Significance of the Vapor Intrusion Pathway at Petroleum Hydrocarbon Sites**

Harley H. Hopkins, *American Petroleum Institute (API), Washington, DC*

**11:30am**

**A Practical Guideline to Vapor Intrusion: ITRC's Perspective**

John E. Boyer, *New Jersey Department of Environmental Protection, Trenton, NJ*  
Bill Morris, *Kansas Department of Health and Environment, Topeka, KS*

## Session 2: IMPLEMENTING AGGRESSIVE REMEDIATION STRATEGIES

101 Campus Center

**Sponsored by Groundwater and Environmental Services, Inc.**

Moderator: **Christopher J. Mulry**, *Groundwater and Environmental Services, Inc., Crofton, MD*

**8:30am**

**Remediation Optimization Using Direct Sensing Technologies and SmartData Solutions® to Reduce Remediation Costs**

John Sohl, Ned Tillman, *Columbia Technologies, Baltimore, MD*

**9:00am**

**Applying Visualization, GIS, and Modeling Tools to Optimize System Design and O&M**

Mary Ann Parcher, *ES&T, a division of GES, Blacksburg, VA*

**9:30am**

**Real-Time Feasibility Testing to Properly Assess Multiple Remediation Technologies in One Event**

Charles Blanchard, *GES, Pleasant Hill, CA*

**10:00am Break**

**10:30am**

**Improving Well Efficiency to Enhance System Performance**

Bill Morrow, *Parratt-Wolff, Inc., East Syracuse, NY*

**11:00am**

**System Optimization During System Design and Operation to Enhance Conventional Remediation Technologies**

Charles Whisman, *GES, Exton, PA*

**11:30am**

**Optimization of Full-Scale Chemical Oxidation Systems to Improve Performance**

William "Tripp" Fischer, *DNREC, New Castle, DE*  
Peter Herlihy, *Applied Process Technology, Inc., Pleasant Hill, CA*

## Session 3: BIOREMEDIATION

168C Campus Center

Moderator: **Kevin T. Finneran**, *University of Illinois, Urbana, IL*

**8:30am**

**Combined Abiotic and Biotic Dechlorination of TCE in a Low Permeability Aerobic Aquifer**

Edward Sullivan, Daniel W. Elliott, Christopher DelMonico, *The Whitman Companies, Inc., East Brunswick, NJ*  
Eric C. Hince, *Geovation Consultants, Inc., Florida, NY*

**9:00am**

**Combined Use of EHC™ plus KB-1™ Dehalococoides Inoculant for Accelerated ISCR – First Full-Scale Field Application in Ohio, USA**

Josephine Molin, Jim Mueller, *Adventus Americas, Inc., Freeport, IL*  
Robin Corzatt, *Hull & Associates, Inc., Dublin, OH*  
James W. Smith, *T H Agriculture & Nutrition, L.L.C., Lenexa, KS*

**9:30am**

**Bioremediation of Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX) and 1,3,5,7-tetranitroperhydro-1,3,5,7-tetrazocine (HMX)-Contaminated Sediments**

Man Jae Kwon, Kevin T. Finneran, *University of Illinois at Urbana-Champaign, Urbana, IL*

**10:00am Break**

**10:30am**

**Bioremediation of Soil Contaminated with Organolead Compounds - Laboratory and Field Studies**

C. Gallert, Josef Winter, *Universität Karlsruhe, Karlsruhe, Germany*

**11:00am**

**Anaerobic Bioremediation Results Lead to Alternative Cleanup Levels for Chloroethene Contaminated Groundwater at Connecticut Site**

Michael E. Miller, Kevin P. Molloy, William K. Glynn, *Camp Dresser & McKee, Inc., Cambridge, MA*

**11:30am**

**Bioremediation of VPH and EPH Contaminated Groundwater Using in-situ Submerged Oxygen Curtain (iSOC) Technology**

Jacqueline Lees, *ENSTRAT, Inc., Marlboro, MA*  
James F. Begley, *MT Environmental Restoration, Plymouth, MA*

## Session 4: CONTAMINATED SITES RESEARCH IN CANADA & THE CONTAMINATED SITES ACTION PLAN

Student Union Ballroom

Moderator: **Paul A. White**, *Health Canada, Ottawa, ON, Canada*

**8:30am**

**Overview of Research Sponsored by Health Canada's Contaminated Sites Program/ Metal Concentrations in Indoor Dust**

Deborah Schoen, *Health Canada, Longueuil, QB, Canada*  
Pat Rasmussen, Nellie Roest, *Health Canada, Halifax, NS, Canada*

**9:00am**

**The Mutagenic Hazards of Complex PAH Mixtures in Contaminated Soils**

Paul White, Christine Lemieux, *Health Canada, Ottawa, ON, Canada*  
Iain Lambert, *Carleton University, Ottawa, ON, Canada*

Rémi Gagné, *Health Canada, Ottawa, Ontario*  
Mats Tysklind, *University of Umeå, Umeå, Sweden*

Staffan Lundstedt, George R. Douglas, *Health Canada, Ottawa, ON, Canada*

**9:30am**

**Dermal Penetration of Carcinogenic PAHs in Contaminated Soils**

Richard P. Moody, *Health Canada, Ottawa, ON, Canada*

**10:00am Break**

**10:30am**

**The Toxicity of Complex Metal Mixtures in Contaminated Soils**

Wayne J. Bowers, Philip W. Wall, Jamie S. Nakai, Al Yagminas, Rudi Mueller, Nanqin Li, Ih Chu, *Health Canada, Ottawa, ON, Canada*

**11:00am**

**Bioaccessibility: Improving Risk Assessments for Contaminated Sites**

Megan Lord-Hoyle, Louise Meunier, Ken Reimer, *Royal Military College of Canada, Kingston, ON, Canada*  
Chris Ollson, *Jacques Whitford Environment Limited, Ottawa, ON, Canada*  
Iris Koch, *Royal Military College of Canada, Kingston, ON, Canada*

**11:30am**

**The Assessment and Remediation of Contaminated Sites in Canada's Arctic**

Ken Reimer, Daniela Loock, *Royal Military College of Canada, Kingston, ON, Canada*

**Noon – Lunch** Luncheon Speaker, Thursday, October 19, 2006

Amherst Room, 10th Floor Campus Center

**The Importance of Proper Soils (Sediments) and Water in a 10,000 Acre Salt March Restorations in Delaware Bay**

John Teal, *Scientist Emeritus, Woods Hole Oceanographic Institution, Woods Hole, MA*



## Session 1: SEDIMENTS

Campus Center Auditorium

Moderator: **Todd Schwendeman, ENSR | AECOM, Albany, NY**

**1:30pm**

**Sampling Methods and Techniques for Quantifying AVS/SEM and Metals Bioavailability in Estuarine Sediments**  
Caryn E. Kiehl-Simpson, Parsons, Syracuse, NY  
Ken Jenkins, BBL Sciences, Petaluma, CA

**2:00pm**

**Application of the USEPA's Equilibrium Partitioning Sediment Benchmark (ESB) Methods for Evaluating Metal Bioavailability and Toxicity in Lower Hudson River Sediments**  
Kenneth D. Jenkins, BBL Sciences, Petaluma, CA  
Phillip E. Goodrum, BBL Sciences, Syracuse, NY  
Caryn E. Kiehl-Simpson, Parsons, Syracuse, NY  
Steven L. Huntley, BBL Sciences, Petaluma, CA

**2:30pm**

**Performance Comparisons of Geostatistical Approaches for Delineating Sediment Contamination**  
John Wolfe, Naomi Barabas, Limno-Tech, Inc., Ann Arbor, MI  
Todd Thornburg, Anchor Environmental, LLC, Portland, OR

**3:00pm Break**

**3:30pm**

**The Influence of Carbonaceous Organics on the Sampling, Analysis, and Remediation of PAH Contaminated Harbor Sediments**  
Lawrence M. Zanko, University of Minnesota Duluth, Duluth, MN  
J. Kenneth Wittle, Electro-Petroleum, Inc., Wayne, PA

**4:00pm**

**Sediment Equilibrium Partitioning Benchmarks for Energetic Compounds: A Cautionary Note and Alternate Approaches**  
Daniel S. Jones, ARCADIS G&M Inc., Knoxville, TN  
Christopher C. Lutes, ARCADIS G&M Inc., Durham NC

**4:30pm**

**Technical Challenges on the Marine Hydraulic Dredging Activities, New Bedford Harbor Superfund Site**  
Kenneth C. Gaynor, Jacobs Engineering Group, Inc., New Bedford, MA  
Caroline S. Roberts, Jacobs Engineering Group, Inc., Bourne MA  
Carl L. Wilson, Steven Fox, Jacobs Engineering Group, Inc., New Bedford, MA  
Michael D. Crystal, Severson Environmental Services, Inc., Niagara Falls, NY

**5:00pm**

**Subaqueous Capping Considerations for Coal Tar Contaminated Sediments**  
Brian B. Johnson, Sevee & Maher Engineers, Inc., Cumberland Center, ME  
Chad T. Jafvert, Purdue University, West Lafayette, IN  
Joe Ferry, NiSource Corporate Services Company, Merrillville, IN  
Byron Jenkinson, Jenkinson Environmental Services, LLC., West Lafayette, IN  
Seunghun Hyun, Purdue University, West Lafayette, IN  
Paul Exner, NiSource Corporate Service Company, Westborough, MA

## Session 2: ARSENIC

101 Campus Center

Moderator: **Christopher Teaf, Florida State University, Tallahassee, FL**

**1:30pm**

**Using Multiple Lines of Evidence to Demonstrate that Elevated Arsenic Groundwater Concentrations are Naturally Occurring**

John R. Nelson, Massachusetts Water Resources Authority, Charlestown Navy Yard, Boston, MA  
Gail L. Batchelder, Loureiro Engineering Associates, Inc., Plainville, CT  
Mark Radville, Massachusetts Water Resources Authority, Charlestown Navy Yard, Boston, MA  
Sherry A. Albert, Weston & Sampson Engineers, Inc., Peabody, MA

**2:00pm**

**Derivation of Site-Specific Arsenic Background in Soil: A Case Study**  
Matt Mortefolio, NYSDEC, Albany, NY  
James A. Ridenour, NYS Department of Health, Troy, NY

**2:30pm**

**Risk and Background Evaluation for Arsenic in Soil at a Planned Residential Development**  
Christopher M. Teaf, Florida State University, Tallahassee, FL  
Douglas J. Covert, R. Marie Coleman, Hazardous Substance & Waste Management Research, Inc., Tallahassee, FL  
Michael Petrovich, Hopping Green & Sams, P.A., Tallahassee, FL  
R.S. Murali, Vince Yarina, Langan Engineering, Miami, FL

**3:00pm Break**

**3:30pm**

**Living With Arsenic in Hawai'i – Case Study of a Former Sugar Cane Plantation**  
R. John Peard, Roger C. Brewer, Barbara A. Brooks, Hawai'i Department of Health, Honolulu, Hawai'i  
Bill Cutler, Environmental Resources Management, Honolulu, Hawai'i

**4:00pm**

**Novel Technique for Sustainable Brownfield Remediation of Arsenic Contaminated Soils**  
Vishnu Priya Gadepalle, Sabeha K. Ouki, René van Herwijnen, University of Surrey, Surrey, UK  
Tony R. Hutchings, Land Remediation and Urban Greening Group, Farnham Surrey, UK

## Session 3a: BROWNFIELDS

168C Campus Center

Moderator: **Michael B. Taylor**

**1:30pm**

**Cascades Park: Remediation and Beneficial Recreational Redevelopment of a Former Manufactured Gas Plant Site**  
Mark White, David Rountree, Kent Geis, Satish Kastury, WRS Infrastructure & Environment, Tallahassee, FL  
Koren Taylor, Jennette Curtis, City of Tallahassee, Tallahassee, FL  
Douglas J. Covert, Hazardous Substance & Waste Management Research, Tallahassee, FL  
Christopher M. Teaf, Florida State University, Tallahassee, FL

**2:00pm**

**Urban Fill Soil Characterization and Risk Based Management Decisions- A Practical Guide**  
Bill Swanson, Pam Lamie, CDM Inc., Cambridge, MA

**2:30pm**

**Regulatory Incentives to Promote Private Sector Brownfield Remediation and Reuse**  
Timothy J. Swickard, California Environmental Protection Agency, Sacramento, CA

**3:00pm Break**

## Session 3b: ENVIRONMENTAL FATE

168C Campus Center

Moderator: **James H. Vernon, ENSR | AECOM, Gilford, NH**

**3:30pm**

**Behavior of Alkyl Leads in Gasoline NAPL During Long Term Contact with Water**  
Gregory S. Douglas, Steven D. Emsbo-Mattingly, Scott A. Stout, Allen D. Uhler, Kevin J. McCarthy, NewFields Environmental Forensics Practice, Rockland, MA

**4:00pm**

**Pharmaceuticals and Personal Care Products in Solids: Analysis and Field Results for Sediment, Soil, and Biosolid Samples**  
Edward T. Furlong, U.S. Geological Survey, Denver, CO  
Chad A. Kinney, Eastern Washington University, Cheney, WA  
Imma Ferrer, Universidad de Almeria, Almeria, Espana  
Stephen L. Werner, Jeffery D. Cahill, U.S. Geological Survey, Denver, CO

**4:30pm**

**Detailed CVOC Source Area Investigation in the Context of a Fractured Bedrock Conceptual Site Model: A Case Study**  
James H. Vernon, Patricia Shattuck, ENSR International, Gilford, NH  
Mark D. Kauffman, ENSR International, Westford, MA  
Drew M. Clemens, Robert A. Leitch, US Army Corps of Engineers, Concord, MA  
Donald M. Maynard, The Johnson Company, Montpelier, VT

## Session 4: PESTICIDES

Student Union Ballroom

Moderator: **Eric Hince, Geovations Technologies, Inc., Florida, NY**

**1:30pm**

**The Elimination of PCB Congener Interference in Organochlorine Pesticide Analysis Using Mass Spectrometry**  
Jeff Grindstaff, Julie Gish, Jim Smith, Adam Bradbury, Columbia Analytical Services, Inc., Kelso, WA

**2:00pm**

**Degradation of Chlorinated Pesticides Using Stabilized Nanoscale Zero-Valent Iron Nanoparticles under Aerobic and Anaerobic Conditions**  
Sung Hee Joo, Dongye Zhao, Auburn University, Auburn, AL

**2:30pm**

**Anaerobic Bioremediation of DDT and Toxaphene in Soils via Simultaneous Stimulation of Anaerobic Oxidation and Reduction Processes**  
Robert L. Zimmer, Eric C. Hince, Geovation Consultants, Inc., Florida, NY



## TUESDAY, OCTOBER 17, 2006

### ACID MINE DRAINAGE

#### Short-term and Long-term Passive Treatment of Acid Mine Drainage in Bioreactors

Carmen M. Neculita, Gérald J. Zagury, Viktors Kulnieks, *École Polytechnique de Montréal, Montreal, QB, Canada*

#### An Overview of Occurrence and Evolution of Acid Mine Drainage in the Slovak Republic

Andrea Slesarova, Maria Kusnierova and Alena Luptakova, *Slovak Academy of Sciences, Kosice, Slovak Republic*  
Josef Zeman, *Masaryk University in Brno, Brno, Czech Republic*

### ANALYSIS

#### Sampling and Chemical Analysis of Cranberries Potentially Affected by the Localized Discharge of Groundwater Containing Ethylene Dibromide

Ronald Citterman, *CH2M HILL, Otis ANG Base, MA*  
Jon Davis, *Air Force Center for Environmental Excellence, Otis ANG Base, MA*

#### Improved PAH Field Screening Method & Fluorescence Fingerprinting Hydrocarbon Sites

Steve Greason, *Sitelab Corporation, West Newbury, MA*

### ENVIRONMENTAL FATE

#### Determining the Influence of Cranberry Bog Flooding on Plume Migration

Jason Dalrymple and Nigel Tindall, *CH2M HILL, Otis ANG Base, MA*  
Jon Davis, *Air Force Center for Environmental Excellence, Otis ANG Base, MA*  
John Glass, *CH2M HILL, Herndon, VA*

#### Contamination of Soil and Groundwater by Leaking Sewers

J. Hua, P. An, C. Gallert and Josef Winter, *Universität Karlsruhe, Karlsruhe, Germany*

### HEAVY METALS

#### Effect of pH on Partitioning and Leaching of Heavy Metals from Bottom Ash

Veysel Demir and Sazzad Bin-Shafique, *University of Texas at San Antonio, San Antonio, TX*

#### New Approach to Inactive Landfill Containing Wastes of Mercury and other Heavy Metals

Jan Jaremski, *Rzeszow University of Technology, Rzeszow, Poland*

#### Effect of Microwave Processing on the Leaching Characters of Sediment Sludge with Heavy Metals

Tian Yu, Fang Lin and Huang Jun Li, *Harbin Institute of Technology, Harbin, Heilongjiang, P.R. China*

#### Investigation of the Use of Mine Tailings for Unpaved Road Base Construction

Ali A. Mahmood and Catherine N. Mulligan, *Concordia University, Montreal, QB, Canada*

#### Reference Values for Heavy Metals Concentrations in Sediments of River Tietê Basin, Southeast of Brazil

Marcos R. L. Nascimento, *Comissão Nacional de Energia Nuclear, Poços de Caldas, Brazil*  
Antonio A. Mozeto, *Universidade Federal de São Carlos, São Carlos, Brazil*

#### Sites in the Republic of Slovenia Polluted by Heavy Metals and their Remediation

Branko Druzina, *University of Ljubljana, Ljubljana, Slovenia*  
Andrej Perc, *E-NET Environment, Ljubljana, Slovenia*

#### Mathematical Modeling and Experimental Studies on Biochemical Conversion of Cr+6 of Tannery Effluent to Cr+3 in a Chemostat

K. Samanta, P. Bhattacharya and R. Chowdhury, *Jadavpur University, Kolkata, India*

#### Absorption of Antimony in River Water by Weathered and Altered Rock

Sakae Sano, Masayuki Sakakibara, Etsuko Chiba and Rie S. Hori, *Ehime University, Matsuyama, Japan*

#### On Site Quantitative Evaluation of Heavy Metal in the Soil by New Micro Cartridge Type Heavy Metal Measuring System, Geo-REX™

Ryuji Takeda, Kazuaki Nakagawa, Kenichiro Inui, Yoshikazu Sakagami, Sadao Komemushi, Akiyoshi Sawabe, *Kinki University, Nara, Japan*  
Koichiro Iwasa, Satoshi Tamaki, Tetsuya Takekawa, *Sekisui Chemical Co., Ltd., Kyoto, Japan*

### INNOVATIVE TECHNOLOGIES

#### The Versatility of Organoclays for Permeable Barriers

George Alther, *Biomim, Inc., Ferndale, MI*

#### Remediation of a Clay Contaminated with Petroleum Hydrocarbons using Soil Reagent Mixing

Vito Schifano, *Arcadis Geraghty and Miller International Ltd, Newmarket, UK*  
Billie-Jo Thibault,

### LEGAL/REGULATORY

#### Will You Be Covered? – Professional Liability Insurance for Environmental Professionals

John G. Nevius, *Anderson Kill & Olick, P.C., New York, NY*

#### Pollution Exclusions Not Really Absolute

John G. Nevius, *Anderson Kill & Olick, P.C., New York, NY*

#### Wetlands: Federal Programs, Federal Policies, and Innovative Uses

William Schaal, *TN & Associates, Vacaville, CA*  
Daniel Servetas, *Shaw Environmental & Infrastructure, Latham, NY*  
Heide-Marie Dudek, *New York State Department of Environmental Conservation, Albany, NY*

### MISCELLANEOUS

#### Applied Environmental Forensics For Defining A Nutrient-Based TMDL Target And Reduction Goal

Joy C. Chen and Allan B. Chartrand, *Parsons, Seattle, WA*  
John G. Stockner, *EcoLogic Ltd., West Vancouver, BC, Canada*  
Harry X. Zhang, *Parsons, Fairfax, VA*

#### Communications with the Community: Picking the Right Strategy

Shannon B. Gleason, *ENSR International, Westford, MA*

#### Soy-derived Biofuels as Replacements for Petroleum-derived Fuels

George W. Mushrush and Douglas G. Mose, *George Mason University, Fairfax, VA*

### MODELING

#### Modeling of Pollutant Migration and its Immobilization in Porous Reactive Barrier

Anna Adach and Stanislaw Wroński, *Warsaw University of Technology, Warsaw, Poland*  
Marian Jacek Czorny and Sebastian Iwaszenko, *Central Mining Institute, Katowice, Poland*

#### Delineation of Three-Dimensional Zones of Contribution for Production Wells

Mary O'Reilly and Scott DeHainaut, *CH2M HILL, Otis ANG Base, MA*  
Rose Forbes, *Air Force Center for Environmental Excellence, Otis ANG Base, MA*

#### Extending the Utility of the Three-Dimensional Sediment Model

Dennis P. Callaghan, Joseph P. Kraycik and Kevin W. Frysinger, *Environmental Standards, Inc., Valley Forge, PA*

### PHYTOREMEDIATION

#### Phytoremediation of Arsenic and other Heavy Metals

Richard C. Bost, *Environmental Resources Management, Houston, TX*  
Martin L. McGregor and Georgia Bost, *Malvaceae Research Center, Houston, TX*

#### Brownfield Phytoremediation Using Salix Species and Herbaceous Plants

Michel Labrecque and Traian Ion Teodorescu, *Montreal Botanical Garden, Montreal, Quebec, Canada*

#### Metal Mobilization and Secretion of Short-chain Organic Acids by Rhizosphere Bacteria Associated with a Cd/Zn Hyperaccumulating Plant, *Sedum alfredii*

W.C. Li and M.H. Wong, *Hong Kong Baptist University, Hong Kong SAR, PR China*  
Z.H. Ye, *Sun Yat-sen (Zhongshan) University, Guangzhou, PR China*

#### Use of Conventional Crop Plants for the Removal of Heavy Metals from a Severely Contaminated Industrial Site

John Pichtel, *Ball State University, Muncie, IN*

#### Phytoextraction and Phytovolatilization of Arsenic From As-contaminated Soils by *Pteris vittata*

Masayuki Sakakibara, Aya Watanabe, Sakae Sano and Masahiro Inoue, *Ehime University, Matsuyama, Japan*  
Toshikazu Kaise, *Tokyo University of Pharmacy and Life Science, Hachioji, Japan*

#### A Full-Scale Phytoremediation Approach at a Former MGP: Objectives, Concept, Design and Implementation

Carl E. Tammi and David Macone, *ENSR, Westford, MA*  
Paul Exner and Robert Cleary, *Bay State Gas/Nisource, Westborough, MA*

#### Enhancing the Phytoremediation of RDX with Mycorrhizal Fungi

Phillip Thompson, *Seattle University, Seattle, WA*

### RADIONUCLIDES

#### Radioactive Soil Characterization of State of Sao Paulo-Brazil

Goro Hiromoto and Ana Claudia Peres, *Instituto de Pesquisas Energeticas e Nucleares, Sao Paulo, Brazil*  
Maria Helena Taddei, *Comissao Nacional de Energia Nuclear, Poços de Caldas, Brazil*  
Marcio Roberto Soares, *Universidade Federal de Sao Carlos, Araras, Brazil*  
Luís Reynaldo Ferraciu Alleoni, *Universidade de São Paulo/Escola Superior de Agricultura Luiz de Queiroz, Piracicaba, Brazil*

#### Indoor Radon: Short- and Long-Term Influence of Prolonged Precipitation

Douglas Mose, George Mushrush and George Siaway, *George Mason University, Fairfax, VA*

#### Determination of Screening Level for Soil Radioactive Contamination

Ana Claudia Peres and Goro Hiromoto, *Instituto de Pesquisas Energeticas e Nucleares, Sao Paulo, Brazil*

### RISK ASSESSMENT

#### A Comparison of EPA's Current and Proposed Toxicological Approach to Evaluating Risk from Asbestos

Lisa Bailey, *Menzie-Cura & Associates, Inc., Winchester, MA*

#### Evaluation of Ecological Risks to Amphibians Exposed to Metals-Contaminated Sediment and Soils

John A. Bleiler and Christine Archer, *ENSR, Westford, MA*  
Amy Hawkins, *United States Navy, Port Hueneme, CA*  
David Pillard, *ENSR, Fort Collins, CO*  
Mark S. Johnson, *United States Army, Aberdeen Proving Ground, Aberdeen, MD*  
David J. Barclift, *United States Geological Survey, Philadelphia, PA*  
Doris A. (Andy) Anders, *Toxicology and Risk Assessment, Brooks City-Base, TX*  
Jason A. Speicher, *United States Navy, Lester, PA*

#### Risk-Based Investigation and Assessment of Very Large Agricultural Areas- Strategies From Hawaii

Roger C. Brewer, R. John Peard and Ukris Wongse-Onst, *Hawaii Department of Health, Honolulu, HI*  
Daniel Ford, *Clayton Group Services, Kailua, HI*

#### Creative Solutions During Construction to Eliminate Hazard Exposures and Reduce Risk

James R. Fair and George D. Naslas, *Weston & Sampson Engineers, Inc., Peabody, MA*

#### The Distribution of Fish Advisories for Mercury in Massachusetts

Jane Rose and Alice Doyle, *Massachusetts Department of Environmental Protection, Boston, MA*

**Angler Survey at an Eastern Massachusetts Lake**  
Amy Rosenstein, Margaret McVey and Kevin Palala, *ICF Consulting, Inc., Lexington, MA*  
James Connolly, *U.S. Army Soldier Systems Center, Natick, MA*

## SITE ASSESSMENT

### Environmental vs. Forensic Investigations of Soil Contamination

Dennis L. Caputo and Coby A. Scher, *Quest Consulting, Inc., Bellaire, TX*

### Apparent versus Actual NAPL Thickness: How Much is Really There? Case Studies and Site Closure

Frank Ricciardi and Kelley Race, *Weston & Sampson Engineers, Inc., Peabody, MA*

### Difficult Site Characterization Due to Topographic Site Conditions and Historic Site Use

Ronald Richards, Lester Tyralla, Christen Sardano, *Shaw Environmental & Infrastructure, Stoughton, MA*  
John Zupkus, *Massachusetts Department of Environmental Protection, Wilmington, MA*

### Perfluorooctane Sulfonate and Perfluorooctanoate Concentrations in Yamato River Water System in Japan

Yoshiyuki Yokoyama, Ryuji Takeda, Kazuki Ikushima, Yoshikazu Sakagami, Sadao Komemushi and Akiyoshi Sawabe, *Kinki University, Nakamachi, Nara, Japan*

### Trace Metal Speciation by the Sequential Extraction Method in Sediments from Lis River (Portugal)

Judite S. Vieira, Cidália M. S. Botelho, Rui A. R. Boaventura and Fernando G. Martins, *University of Porto, Porto, Portugal*

## WEDNESDAY, OCTOBER 18, 2006

## ARSENIC

### Treating Arsenic - Contaminated Soil at a Former Herbicide Blending Facility

Ajit K. Chowdhury and Robert Stanforth, *RMT Inc., Madison, WI*  
Ross Overby, *URS Corporation, Oakland, CA*

### An Investigation of Arsenic Contamination from CCA-Treated Wood in a Local Playground in Bridgewater, Massachusetts

Cielito DeRamos King, Michael Grima and Eric D. Curry, *Bridgewater State College, Bridgewater, MA*

### Use of Native Organic-Rich Soil for Passive Removal of Arsenic from Groundwater

P. James Linton, *Blasland Bouck and Lee, Inc., Tampa, FL*  
Susan Tobin, *Task Remediation, Inc., Tampa, FL*

### Arsenic and Fluoride in Drinking Water in Some Parts of Eastern India: a Serious Threat to the Community

Gopal Pathak, *Birla Institute of Technology, Bihar, India*  
S.N. Singh, *UNICEF, Patna, Bihar, India*

### Sorption and Desorption Behavior of Arsenite, Arsenate and Diphenylarsinic Acid (DPAA) in Soils

Shuzo Tokunaga, *National Institute of Advanced Industrial Science and Technology, Tsukuba, Ibaraki, Japan*

## BIOREMEDIATION

### Enhanced Bioremediation of Chlorinated VOCs Using Sodium Lactate and Dibasic Ammonium Phosphate

Mark T. Becker, Fayaz Lakhwala and Anthony Kaufman, *URS Corporation, Cranford, NJ*

Vincent L. Pace, *Atlantic Richfield Company, Warrenville, IL*  
Stephanie Fiorenza, *Atlantic Richfield Company, Houston, TX*

### Extracellular Electron Shuttling (EES) Compounds in Bioremediation

Caitlin Bell and Kevin T. Finneran, *University of Illinois, Urbana, IL*

### The Effect of Aggregate and Initial Contaminant Concentration on the Biodegradation Rate of Total Petroleum Hydrocarbons

Ramona Boodoosingh, Christopher Swan and Anne-Marie Desmarais, *Tufts University, Medford, MA*  
Denise Beckles, *University of the West Indies, St. Augustine, Trinidad*

### Isolation and 16S rDNA Characterization of Two Soil Bacteria Capable of Degrading Quinalphos and Organophosphorus Insecticide

Sharunbam Geeta Devi and S.P. Kale, *Bhabha Atomic Research Centre, Mumbai, India*  
B.P. Kapadnis and R.L. Deopurkar, *University of Pune, Pune, India*

### Degradation of Oil-Derived Hydrocarbons by Bacteria Isolated from Oil-Contaminated Soils

F.G. Dias, R. Filho Lima and Lucia R. Durrant, *Universidade Estadual de Campinas (UNICAMP), Brazil*

### Degradation of Dyes by Bacteria Isolated from the Activated Sludge of a Textile Industry

E. Dias-Francisco and Lucia R. Durrant, *Universidade Estadual de Campinas (UNICAMP), Brazil*

### Physiological Approaches to Increase Molar Hydrogen Yield in Anaerobic, Fermentative Bacterial Cultures

Jennifer L. Hatch and Kevin T. Finneran, *University of Illinois, Urbana, IL*

### Enhancing Bioremediation of DNAPL TCE in Carbon-Poor, Slightly Oxidizing Groundwater within Glacial Soils

Lucas A. Hellerich and John L. Albrecht, *Metcalf & Eddy, Inc., Wallingford, CT*

Dave Hart, *Noranda Aluminum, New Madrid, MO*

### The Biodegradation of Petroleum Hydrocarbons in Three Ecuadorian Crude Oils

Bo Liu, Gregory S. Douglas and Jeffery H. Hardenstine, *NewFields Environmental Forensics Practice, LLC, Rockland, MA*

### Behavior of Autotrophic Perchlorate Reducing Bacteria and Analysis of Royal Demolition Explosive [RDX] in Water by High Performance Liquid Chromatography, HPLC/UV

José Roberto Rivera-Negrón, *University of Puerto Rico - Mayagüez Campus, Mayaguez, PR*  
Ashish K Sahu and Sarina Ergas, *University of Massachusetts, Amherst, MA*

### Natural Gene Transfer to Develop Resistance to Metal Toxicity in Microbial Communities at the Oak Ridge Reservation Field Research Center

Safiyh Taghavi, David Moreels, Craig Garafola, Garry Crosson, Jeffrey P. Fitts and Daniel van der Lelie, *Brookhaven National Laboratory, Upton, NY*

### The Effect of PCB Partitioning between Aqueous and Organic Phases on Rate and Extent of Biodegradation

Lars Rehmann and Andrew J. Daugulis, *Queen's University, Kingston, ON, Canada*

### Biodegradation of Weathered Oil in Soils with a Long History of TPH Contamination

Talaat Balba, Sophia Dore, Donald Pope, Jennifer Smith and Alan Weston, *Conestoga-Rovers & Associates, Niagara Falls, NY*

## BROWNFIELDS

### A Brownfields Success Story—Redevelopment of an Abandoned Contaminated Manufacturing Facility into a State-of-the-Art Warehouse in 12 months

Timothy W. Kemper, *Shaw Environmental, Inc. Hopkinton, MA*

## CHEMICAL OXIDATION

### Evaluation of Various Technologies to Remediate a Complex Chlorinated Solvent Source Area

Louis J. Burkhardt and Ronald Slager, *Raytheon, Sudbury, MA*

Michael R. Ravella and Rick Lewis, *ERM, Boston, MA*

### Influence of Heterogeneity on Effectiveness of ISCO Treatment: Step 1

James Ewart, *N.A. Water Systems, Airside Business Park, Moon Township, PA*

Philip T. Harte, *U.S. Geological Survey, NHVT Water Science Center, Pembroke, NH*

Richard Goehert, *U.S. Environmental Protection Agency, Boston, MA*

Thomas Andrews, *N.H. Department of Environmental Services, Concord, NH*

### Surfactant Enhanced In Situ Chemical Oxidation

Daniel W. Felten, *Environmental Compliance Services, Inc., Agawam MA*

Frederick W. Hostrop, *Environmental Compliance Services, Inc., Wakefield MA*

Stephen LaRoche, *The Westford Chemical Corporation/BioSolve® Group, Westford, MA*

### Principles and Practices with a Novel Chemical Oxidation System: RegenOx™

Robert Kelley, *Regenesis, Plainfield, IL*

### Case Studies: Gasoline and Fuel Oil Remediation Using Biologically Enhanced Chemical Oxidation

Lawrence H. Lessard and Melanie A. Head, *Lessard Environmental, Inc., Danvers, MA*

Christopher D. Glod, *Lessard Environmental, Inc., North Providence, RI*

## ENVIRONMENTAL FORENSICS

### Comparison of Two Methods for Estimating Time of Release for Diesel Fuel NAPL

Jeffery H. Hardenstine, Gregory S. Douglas and Kevin J. McCarthy, *NewFields Environmental Forensics Practice, LLC, Rockland, MA*

### Improved Chemical Fingerprinting of Heavy Petroleum Fuels, Residua, Lubricants, Asphalts, Waxes, and Acid Sludge Waste using Conventional and High Temperature Gas Chromatography

Edward Healey and Scott A. Stout, *NewFields, Rockland, MA*  
Dan C. Villalanti, *Triton Analytics Corporation, Houston, TX*

### Distinguishing Fuel from Non-Fuel Contamination in Soils at a Former Petroleum Terminal and Rail Yard using Chemical Fingerprinting

Scott A. Stout, *NewFields, Rockland, MA*  
Vincent Maresco, *Groundwater & Environmental Services, Inc., North Syracuse, NY*

### Environmental Stability of PAH Source Indices in Pyrogenic Tars

Allen D. Uhler, Stephen Emsbo-Mattingly and Bo S. Liu, *NewFields, Rockland, MA*

## MTBE

### Tert-Butyl Alcohol (TBA) Biodegradation by a Mixed Bacterial Culture YZ1 Enriched from Granular Activated Carbon (GAC)

Yang Zhang and Kevin T. Finneran, *University of Illinois, Urbana, IL*

Xiaomin Yang, *BP, Atlantic Richfield Company, Warrenville, IL*

## REMEDIATION

### River Remediation Utilizing Environmental Dredging Techniques in Response to Methylene Chloride Impacts

Timothy P. Ahrens and Jeffrey W. LaRock, *AMEC Earth and Environmental, Inc. Schenectady, NY*

Paul J. Kurzanski, *CSX Transportation, Inc. Jacksonville, FL*

### Heat Flow and Desaturation in Large-Scale Experiments of Thermal Remediation of DNAPL Sources in Aquifers

Ralph S. Baker, John C. LaChance, *TerraTherm, Inc., Fitchburg, MA*

Gorm Heron, *TerraTherm, Inc., Bakersfield, CA*

Myron Kuhlman, *MK Tech Solutions, Inc., Houston, TX*  
Uwe Hiestler, Arne M. Färber, Hans-Peter Koschitzky and Oliver Trötschler, *University of Stuttgart, Stuttgart, Germany*

### DNAPL Remediation at Camp Lejeune using Soil Mixing with ZVI-Clay Injection

Christopher Bozzini, *CH2M HILL, Charlotte, NC*

Tom Simpkin, *CH2M HILL, Englewood, CO*

Daniel Hood, *NAVFAC Atlantic, Norfolk, VA*

Bob Lowder, *Camp Lejeune EMD, Camp Lejeune, NC*

### Innovative Application of Full Scale Six-Phase Heating for DNAPL Source Removal

David A. Cacciatore and John McGuire, *Shaw Environmental, Inc., Concord, CA*

Glenna M. Clark, *Department of the Navy, San Diego, CA*

### The Evaluation of Extraction and Cleanup Methods for the Determination of PCB Aroclors in Caulking and Sealing Material

Ann C. Casey, Robert E. Wagner, Thomas E. Herold and Mike Glenn, *Northeast Analytical, Inc., Schenectady, NY*



**REMIEDIATION (cont)****PAH Bioremediation**

Michael L. Cook, *CJH Environmental, Inc., Sharon, MA*

**A Case Study of Innovative Organoclay Remedial Technology at a Former Railroad Creosote Treating Site**

Jerry Darlington and Jim Olsta, *CETCO, Arlington Heights, IL*

**Comparison of Three /in situ/ Treatment Technologies for the Remediation of Trichloroethylene Impacted Groundwater**

Eva Dmitrovic, *Adventus Remediation Technologies, Mississauga, ON*

Fayaz Lakhwala, *Adventus Americas, Inc., Union, NJ*

Jim Mueller, *Adventus Americas, Inc., Freeport, IL*

James G.D. Peale and Erik Bakkom, *Maul Foster & Alongi, Inc., Portland OR*

**Achieving Quality Installations of Deep Permeable Reactive Barriers for Treatment of Chlorinated Solvent-Contaminated Groundwater**

Stephen J. Druschel, *Golder Associates, Inc., Manchester, NH*

Nancy E. Kinner, *University of New Hampshire, Durham, NH*

**Case Study - Innovative In-Situ Anaerobic Remediation to Treat Fuel-Oil Contamination**

Alexander Easterday and Robert Wasserman, *ECC, Marlborough, MA*

Curt Varner, *TRC Environmental Corporation, Raleigh, NC*

Eric C. Hince, *Geovation, Inc., Florida, NY*

Antonio Leite, *US Navy, Groton, CT*

**Use of Electrical Imaging and Microscopy to Evaluate Distribution of Injected Nano-scale Zero Valent Iron**

Dan Elliott, Edward Sullivan and Christopher DelMonico, *The Whitman Companies, Inc., East Brunswick, NJ*

Eric C. Hince, *Geovation Consultants, Inc., Florida, NY*

**Combining Technologies for Source Area and Downgradient Contaminated Groundwater Remediation Using AS/SVE and iSOC Technology**

Craig Ellis and Jamie Smith, *Environmental Compliance Services, Inc., Wakefield, MA*

James F. Begley, *MT Environmental Restoration, Plymouth, MA*

**A Pilot Study using a Chemical Oxidant and Surfactant to Remediate Petroleum Hydrocarbons at an Active Gasoline Station**

Joseph Hayes, *ECS, Richmond, VT*

Maureen Dooley, *Regenesis, Wakefield, MA*

**Combined Chemical Oxidation and Volatilization Enhances Guaranteed Remediation Performance**

Patrick Hicks, *ATC Associates, Inc., Raleigh, NC*

**Combined Excavation and In-Situ Oxidation via KMnO4 Injection**

Patrick Hicks, *ATC Associates, Inc., Raleigh, NC*

**Permeable Sorption Barriers for Groundwater Protection Includes Organoclay, Clay, Bentonite Geotechnical Fabric and Anaerobic Treatment of Pesticide Contaminated Soils**

Eric C. Hince, *Geovation Consultants, Inc., Florida, NY*

George Alther, *Biomin, Inc., Ferndale, MI*

**Small Column Experiment to Evaluate Compost Materials as Filter Media to Remove Colloidal Particles**

Aiman Q. Jaradat, Thomas M. Holsen and Stefan J. Grimberg, *Clarkson University, Potsdam, NY*

**Retardation Properties of Clay Materials as Engineered Barriers in Repositories of High-level Waste**

Vera Jedinakova-Krizova, Hana Vinsova, and Petr Vecernik, *Institute of Chemical Technology, Prague, Czech Republic*

Eduard Hanslik, *T.G. Masaryk Water Research Institute, Prague, Czech Republic*

**Thermally Enhanced Soil Vapor Extraction: the HeatTrode™ System**

Kevin P. McGrath, *Earth Tech, Inc., Latham, NY*

Donald J. Geisel, *Donald J. Geisel & Associates, Inc., Clifton Park, NY*

Anne Lewis-Russ, *Earth Tech, Inc., Greenwood Village, CO*

**Remediation of a 2,000-Gallon Fuel Oil Release at a Private Residence via Soil Excavation, Groundwater Treatment, and Enhanced Bioremediation**

Anne McNeil and Geoffrey A. Brown, *ENPRO Services, Inc., Newburyport, MA*

**PCB Remediation of a High-Hazard Dam**

Frank Ricciardi, Mark, Mitsch and Prasanta Bhunia, *Weston & Sampson Engineers, Inc., Peabody, MA*

**High-Performance Attrition in a Wet-Mechanical Soil Washing Plant**

Friedrich Schaaff and Hilmar Tiefel, *AKW Apparate + Verfahren GmbH, Hirschau, Germany*

**Firing Range Closure to Prepare for Military Modernization**

Matthew M. Smith and Michael F. Conway, *GZA GeoEnvironmental, Inc., Norwood, MA*

Kim M. Plunkett, *Commonwealth of Massachusetts*

*Division of Capital Asset Management, Boston, MA*

**Enhanced Chlorinated Solvent Dechlorination Using Groundwater Re-circulation for Effective Substrate Delivery**

Brian Timmins and David Laughlin, *Enzyme Technologies, Portland, OR*

**Controlling Costs to Achieve Permanent Closure for a Quench Oil Site**

Paul Uzgriris, Frank Ricciardi and Kelley Race, *Weston & Sampson Engineers, Inc., Peabody, MA*

**Biosparging of a Smear-Zone Plume of Residual Diesel in the Sub-Arctic**

David B. Ward, *Jacobs Engineering Group, Anchorage, AK*

Mollie L. TeVrucht and Charley S. Peyton, *US Army*

*Engineer District, Elmendorf AFB, AK*

**SEDIMENTS****Applications of Electron Microscopy, ArcGIS Spatial Analyst and MINTQA2 Model to Predict Phosphate Minerals in River Sediments**

Asmare Atalay, *Virginia State University, Petersburg, VA*

Carol Bronick, *Postdoctoral Associate*

Kathleen Baker, *Western Michigan University*

**Low Density Dredge Residuals, a Significant Impact to offsite Surficial Sediments?**

Michael Bock and Erik Martin, *ENVIRON International Corporation, Portland, ME*

**Sediment Contamination in Cubatão River, Santos and São Vicente Estuaries, São Paulo, Brazil**

Marta C. Lamparelli, José Eduardo Bevilacqua, Valéria A. Prósperi, Rosalina P. A. Araujo, Marcelo P. Costa,

Geraldo J. Eysink and Sérgio Pompéia, *CETESB, São Paulo, Brazil*

**Post-Dredging Residual Contaminant Impacts are a Reality**

Chris Leuteritz, *Anchor Environmental, L.L.C., Andover, MA*

**Modeling Copper Transport in the Sediments of Torch Lake, Houghton County, MI**

Cory McDonald, *Michigan Technological University, Houghton, MI*

**An Application of the Triad Approach to Maximize the Efficiency and Effectiveness of Remediation of Sediments**

Jill Ann Parrett and Timothy Regan, *EA Engineering, Science, and Technology, Inc., Warwick, RI*

**Assessment and Interpretation of Field Duplicates-A Case Study of a Complex Sediment Investigation**

Stephen T. Zeiner, Joseph Kraycik, Dennis Callaghan and

Rock J. Vitale, *Environmental Standards, Inc., Valley Forge, PA*

**Call For Exhibitors**

We are happy to invite you to exhibit at the

**23rd Annual International Conference on Soils, Sediments and Water**  
**October 15 - 18, 2007**  
**University of Massachusetts, Amherst**

The Soils, Sediments and Water Conference has become a leading national/international conference in this important environmental area. The conference attracted nearly 800 attendees last year including a wide variety of representation from state and federal agencies; the military; various industries including railroad, petroleum, transportation and utilities; the environmental engineering and consulting community; and academia.

The exhibit area is located in the center of the conference activity to assure maximum contact and exposure with interested conference participants and potential customers. Exhibition space is limited to 39 booths to insure a high ratio of attendees to exhibitors. The rental fee for an 8' by 10' exhibit booth space is \$995.00. Outdoor areas are available for equipment demonstrations at an additional cost.

**Presentation topics**

- chemical analysis
- hydrocarbon identification
- site assessment/field sampling
- regulatory programs and policies
- environmental fate and modeling
- soil chemistry
- hazard, exposure, and risk assessment
- standard remedial technologies/corrective actions
- innovative remedial technologies
- diesel fuel contamination
- contamination at military installations
- contamination at shipping ports
- chlorinated hydrocarbons, pesticides and heavy metals
- jet fuel contamination
- radioactive contamination

**Why should you exhibit**

Attendees buy products and services such as:

- analytical instruments and services
- environmental software
- monitoring equipment
- excavation equipment
- remediation equipment and services
- training and education products and services

**The price of your booth space includes**

- One conference pass for admission into general sessions
- List of conference attendees
- 2' by 5' table with table cloth and two chairs
- Side and backdrop curtains
- Electrical power outlet

**For more information or to reserve your booth space contact**

Denise Leonard  
 Northeast Regional  
 Environmental Health Center  
 N344, Morrill  
 University of Massachusetts  
 Amherst, MA 01003  
 Tel: (413) 545-1239 • Fax: (413) 545-4692  
 Email: dleonard@schoolph.umass.edu

**Conference Co-Directors:**

Paul Kostecki, Ph.D.  
 Edward J. Calabrese, Ph.D.  
 Clifford Bruell, Ph.D.





# Call For Papers

## 23rd Annual International Conference on Soils, Sediments and Water

October 15 - 18, 2007  
University of Massachusetts, Amherst

*Analysis, Site Assessment, Fate, Environmental and Human Risk Assessment, Remediation and Regulation*

### General topics

- bioremediation
- chemical analysis
- cleanup standard setting
- environmental fate and modeling
- hazard exposure and risk assessment
- heavy metals
- hydrocarbon identification
- innovative technologies
- jet fuel contamination
- regulatory programs and policies
- sediments
- site assessment/field sampling
- soil chemistry
- standard remedial technologies/corrective actions
- case studies on any of the above

### Special Topics

- acid mine drainage
- arsenic
- bioindicators
- biotechnology
- chlorinated hydrocarbons, pesticides (PCBs, etc.)
- contamination at military installations
- dioxin
- ecological risk assessments
- environmental forensics
- MTBE
- mercury
- phytoremediation
- radionuclides
- railroad sites
- risk based cleanups (RBCA)
- state regulatory programs
- UXOs

### Submission Information

For either a paper or poster to be considered please submit a one-page abstract containing:

- presentation title
  - 300 word narrative
  - and for each author, name, degree, title, affiliation and complete address and phone number.
- Please indicate your choice of either oral presentation or poster.

Publication of manuscripts from both platform and poster presentations will be considered for the general proceedings, *Contaminated Soils Vol. 13*

**Deadline for submissions is February 7, 2007**

### For more information contact

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Northeast Regional  
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## Scientific Advisory Boards

*The tremendous success of past conferences has been the result of the dedication and hard work of our Scientific Advisory Board (SAB) members and this year's conference is no exception. The SAB evaluates abstract submissions, recommends invited papers and presenters, advises on special sessions and activities and generally serves as conference ambassadors encouraging colleagues to participate and attend. The creation of the SAB is the first crucial step in conference development, and care is taken to insure philosophical, scientific, regulatory and geographical balance.*

### GENERAL

Nader Al-Awadhi, *Kuwait Institute for Scientific Research*  
Ralph S. Baker, *TerraTherm, Inc.*  
Bruce Bauman, *American Petroleum Institute*  
Mark Begley, *Environmental Management Commission*  
Scott R. Blaha, *GE*  
Carol de Groot Bois, *LSP, Bois Consulting Company*  
William Brah, *University of Maryland College Park*  
Clifford Bruell, Ph.D., *University of Massachusetts at Lowell*  
Barbara Callahan, Ph.D., *University Research*  
Robert H. Clemens, *AMEC Earth & Environmental, Inc.*  
Cynthia Cogan, *ENSR|AECOM*  
Andrew Coleman, Ph.D., *Electric Power Research Institute*  
Janine Commerford, *MA Department of Environmental Protection*  
Kathy Creighton, *Shaw Group*  
James Dragun, Ph.D., *The Dragun Corporation*  
John W. Duggan, *Wentworth Institute of Technology*  
Mohamed Elnabarawy, *3M (ret.)*  
Kevin T. Finneran, Ph.D., *University of Illinois at Urbana/Champaign*  
John Fitzgerald, *MA DEP*  
Millie Garcia-Surette, MPH, *MA DEP, South East Region*  
Steve Goodwin, *University of Massachusetts*  
Erin Gorman, *AMEC Earth and Environmental*  
Marc Grant, *AMEC Earth and Environmental*  
Dominico Grasso, *The University of Vermont*  
Peter R. Guest, *Parsons*  
Eric Hince, *Geovation Technologies, Inc.*  
Barry L. Johnson, *Assistant Surgeon General (ret.)*  
William B. Kerfoot, *Kerfoot Technologies, Inc.*  
Stephen S. Koenigsberg, *Regenesis Bioremediation Products*  
Bill Kucharski, *Ecology & Environment, Inc.*  
Lynn Kucharski, *AMEC Earth and Environmental*  
Fayaz Lakhawala, *Adventus Americas, Inc*  
Frank Lilley, *EA Engineering, Science and Technology, Inc.*  
David Ludwig, *Blasland, Bouck & Lee, Inc.*  
Rick McCullough, *MA Turnpike Authority*  
Chris Mitchell, *ENSR |AECOM*

Robert Morrison, Ph.D., *DPRA, Inc.*  
Ellen Moyer, Ph.D., P.E., *Greenenvironment, LLC*  
Jim Mueller, Ph.D., *Adventus Americas Inc.*  
Paul E Murphy, *Tufts University*  
Willard Murray, Ph.D., P.E.  
Lee Newman, Ph.D., *University of South Carolina*  
Eric Nichols, PE, *LFR/Levine-Fricke*  
David S. Page, Ph.D., *Bowdoin College*  
Om Parkash (Dhankher), *University of Massachusetts*  
Gopal Pathak, *Birla Institute of Technology*  
Frank Peduto, P.E., *Spectra Environmental Group*  
Ioana G. Petrisor, Ph.D., *DPRA Inc*  
Joseph Robb, *AMEC Earth & Environmental, Inc.*  
Brian D. Rogers, *Plexus Scientific Corporation*  
Corinne Schultz, *Unity Environmental Technologies, LLC*  
Julia Sechen, *MA DEP*  
Hamilton Smith, *ABB Ltd*  
Frank Sweet, *ENSR | AECOM*  
Christopher Teaf, Ph.D., *Florida State University*  
James C. Todaro, *Alpha Analytical Labs*  
Mark Vigneri, *Environmental Remediation and Financial Services, LLC*  
A. Dallas Wait, Ph.D., *Gradient Corporation*  
Richard Waterman, *EA Engineering, Science, and Technology, Inc.*  
Paul A. White, *Health Canada*  
Katie Winogroszki, *3M*  
Peter Woodman, Ph.D., *Risk Management Incorporated*  
Ed Zillioux, Ph.D., *FPL Environmental Services*

### FEDERAL

John Cullinane, *US Army Engineer Waterways Exp. Sta.*  
John Glaser, *US Environmental Protection Agency, ORD*  
Douglas W. Grosse, *US EPA*  
Leslie Karr, *Naval Facilities Engineering Service*  
Paul Rakowski, P.E. *DEE, Naval Facilities Engineering Command*  
Mike Reynolds, Ph.D., *USA - Cold Regions Research and Engineering Laboratory (CRREL)*  
Alex Sherrin, *US EPA Boston*  
Mike Sowinski, *DPRA, Inc.*  
Henry H. Tabak, *US EPA, ORD*

# Conference at a Glance

## Monday, October 16, 2006

### Workshops

- 8:30am – 5:00pm 1) **Evaluating Monitored Natural Attenuation of MTBE and TBA** (804-08 Campus Center)  
9:00am – 5:00pm 2) **Getting to Closure at LNAPL Sites** (101 Campus Center)  
10:00am – 5:00pm 3) **In-Situ Chemical Oxidation Workshop** (904-08 Campus Center)  
1:00pm – 5:00pm 4) **The Role of Anaerobic Biodegradation Processes in Passive and Enhanced Monitored Natural Attenuation Programs** (917 Campus Center)  
1:00pm – 5:00pm 5) **The 2006 MCP Audit – A Case Study Approach** (Campus Center Auditorium)  
1:00pm – 5:00pm 6) **Integrating the Remediation Strategy into the Lifecycle of a Contaminated Sediments Project** (168C Campus Center)  
1:00pm – 5:00pm 10) **Environmental Fate of Hydrocarbons in Soils and Groundwater** (174 Campus Center)

## Tuesday, October 17, 2006

8:30am – 9:00am **Conference Welcome and Overview** (Campus Center Auditorium)

### Platform Presentations

9:00am – Noon Sessions are concurrent

- Session 1: **Risk Assessment** (Campus Center Auditorium)  
Session 2: **Site Assessment** (101 Campus Center)  
Session 3: **Legal/Regulatory** (168C Campus Center)  
Session 4: **Heavy Metals** (Student Union Ballroom)  
Session 5: **Combining Chemical and Biological Technologies for Soil and Groundwater Remediation** (Bowker Auditorium)

1:30pm – 5:30pm Sessions are concurrent

- Session 1: **Environmental Biotechnology** (Campus Center Auditorium)  
Session 2: **Analysis** (101 Campus Center)  
Session 3: **Ozone Remedial Barrier and Clean-up systems for Fuel and Solvent Spills** (168C Campus Center)  
Session 4a: **Heavy Metals** (Student Union Ballroom)  
Session 4b: **Emerging Contaminants** (Student Union Ballroom)  
Session 5: **Phytoremediation** (Bowker Auditorium)

**Poster Session** 4:00pm – 6:00pm, Exhibit Area, First Floor, Campus Center

**Social** 4:30 – 6:00pm, Exhibit Area, First Floor, Campus Center

**Workshops** (Evening 7:00pm – 10:00pm)

- 7) **Applied Chemical Fingerprinting in Environmental Forensics** (101 Campus Center)  
8) **In-Situ Thermal Remediation** (168C Campus Center)

## Wednesday, October 18, 2006

### Platform Presentations

8:30am – Noon Sessions are concurrent

- Session 1: **Environmental Benefits and Risks of Nanomaterials** (Campus Center Auditorium)  
Session 2: **Chemical Oxidation** (101 Campus Center)  
Session 3: **Environmental Forensics** (168C Campus Center)  
\*Session 4a: **Oxygenates and Public Water Supplies** (Student Union Ballroom)  
\*Session 4b: **Evaluating and Management of Small Releases from USTs** (Student Union Ballroom)

1:30pm – 5:30pm Sessions are concurrent

- Session 1: **Remediation** (Campus Center Auditorium)  
Session 2: **Natural Resource Damage Assessments: Integrating Remediation and Restoration** (101 Campus Center)  
Session 3: **Perchlorate** (168C Campus Center)  
\*Session 4a: **Oxygenate Biodegradation** (Student Union Ballroom)  
\*Session 4b: **Ethanol Fuels** (Student Union Ballroom)  
\*Please note: Sessions 4a and 4b morning and afternoon will run concurrently with the other sessions, BUT the presentation times will be different from sessions 1, 2 and 3, morning and afternoon

**Poster Session** 4:00pm – 6:00pm, Exhibit Area, First Floor, Campus Center

**Social** 4:30 – 6:00pm Exhibit Area, First Floor, Campus Center

**Workshop** (Evening 7:00pm – 10:00pm) 9) **Down-Gradient Property Status: Practices and Pitfalls** (101 Campus Center)

## Thursday, October 19, 2006

### Platform Presentations

8:30am – Noon Sessions are concurrent

- Session 1: **Vapor Intrusion** (Campus Center Auditorium)  
Session 2: **Implementing Aggressive Remediation Strategies** (101 Campus Center)  
Session 3: **Bioremediation** (168C Campus Center)  
Session 4: **Contaminated Sites Research in Canada & the Contaminated Sites Action Plan** (Student Union Ballroom)

1:30pm – 5:30pm Sessions are concurrent

- Session 1: **Sediments** (Campus Center Auditorium)  
Session 2: **Arsenic** (101 Campus Center)  
Session 3a: **Brownfields** (168C Campus Center)  
Session 3b: **Environmental Fate** (168C Campus Center)  
Session 4: **Pesticides** (Student Union Ballroom)

### EXHIBITS

Throughout the First Floor Concourse.

### POSTER SESSION

Over 100 posters on display Tuesday and Wednesday 4:00-6:00pm, in back of Exhibit Area

### SOCIALS (CASH BAR)

Tuesday and Wednesday 4:30-6:00pm Exhibit Rooms – interact with poster presenters, exhibitors and other conferees

### JOB LISTING/ RESUME BOARD

Located outside the doors to the Campus Center Auditorium

### ADDITIONAL LISTINGS

See the Daily Activity Board beside the Registration Desk for additional listings of Breakfast Forums, Socials and other Special Events

### MESSAGES

Remember to check the Message Board just outside the doors to the Campus Center Auditorium. It's where you'll find your messages from other conferees, as well as those from home or home office.

### IF YOU NEED TO BE REACHED

during the conference, tell co-workers and family to call: (413) 545-2591 or fax (413) 545-0050

### BREAKFAST SEMINAR:

Amherst Room, 10th Floor Campus Center Using Environmental Informatics and Direct Sensing Technologies to Reduce the Cost of Remediation