

The 20th Annual International Conference on

Soils, Sediments and Water

October 18-21, 2004
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

- **142 Presenters**
- **94 Posters**
- **14 Workshops**
- **46 Exhibitors**

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- 9:00 am – 5:00 pm 1) **Modeling Vapor Attenuation Workshop: A Study of Vapor Intrusion Modeling in the Context of EPA's Guidance** (*Campus Center Auditorium*)
- 10:00 am – 5:00 pm 2) **Theory and Use of Field Portable X-ray Fluorescence for Soil Analysis** (*804-08 Campus Center*)
- 10:00 am – 5:00 pm 3) **In Situ Chemical Oxidation Workshop** (*101 Campus Center*)
- 1:00 – 5:00 pm 4) **The Triad Approach to Managing Decision Uncertainty for Better Cleanup Projects** (*904-08 Campus Center*)
- 1:00 – 5:00 pm 5) **The Role of Anaerobic Biodegradation Process in Passive and Enhanced Monitored Natural Attenuation Programs** (*1109 Campus Center*)
- 2:00 – 5:00 pm 6) **Environmental Fate of Hydrocarbons in Soils and Groundwater** (*168C Campus Center*)

AM SESSIONS

Tuesday

Session 1: ENVIRONMENTAL BIOTECHNOLOGY

Campus Center Auditorium

Sponsored by **Regenesys Bioremediation Products**
 Moderator: **Stephen Koenigsberg, Regenesys Bioremediation Products, San Clemente, CA**

8:30 am
Monitoring Bioremediation by Analyzing In Situ Gene Expression

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

9:00 am
Case Study Applications of BioTraps for Streamlining Remedial Program

Susan L. Boyle, Glenn M. White, Paul M. Tornatore, *Haley & Aldrich, Inc., Rochester, NY*

9:30 am
Quantitative Detection of and Augmentation with Reductive Dechlorinators

Stephen S. Koenigsberg, Erin Rasch, *Regenesys Bioremediation Products, San Clemente, CA*

10:00 am Break

10:30 am
Functional and Taxonomic Microarrays for Profiling Natural Microbial Populations Involved in Bioremediation

Charles W. Greer, David F. Juck, Sylvie Sanschagrin, Diane Labbé, *National Research Council Canada, Montreal, Quebec, Canada*

John R. Lawrence, *Environment Canada, Saskatoon, Saskatchewan, Canada*

Lyle G. Whyte, *McGill University, Macdonald Campus, Ste-Anne-de-Bellevue, Quebec*

11:00 am
Kinetics and Microbial Ecology of Perchlorate-Reducing Bacteria: Implications for Remediation

Robert Nerenberg, *University of Notre Dame, Notre Dame, IN*
 Yasunori Kawagoshi, *Kumamoto University, Kumamoto, Japan*

Bruce E. Rittmann, *Northwestern University, Evanston, IL*

11:30 am
Preliminary Knowledge Base of the Association Between Molecular Techniques and Other Site Parameters for Better Evaluating Reductive Dechlorination Potential

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

Aaron Peacock, *Microbial Insights, Inc. Rockford, TN and Center for Biomarker Analysis, Knoxville, TN*

Dora Ogles, Debra McElroy, Josh Streufert, *Microbial Insights, Inc. Rockford, TN*

Session 2: HEAVY METALS AT TRAINING RANGES

101 Campus Center

Sponsored by **AMEC Earth and Environmental and the U.S. Army Engineer Research and Development Center**
 Moderators: **Steven L. Larson, US Army Engineer Research and Development Center (ERDC), Vicksburg, MS**

Michael F. Warminsky, AMEC Earth and Environmental, Inc., Somerset, NJ

8:30 am
Application of Geochemical Evaluation to Identify Metals Contamination in Soil at Firing Ranges

Jonathan Myers, Ph.D., *Shaw Environmental, Inc., Albuquerque, NM*

Karen Thorbjørnsen, *Shaw Environmental, Inc., Knoxville, TN*

9:00 am
Tungsten Effects on Soil Environments

TNikolay Strigul, Washington Braida, Dimitris Dermatas, Christos Christodoulatos, *Stevens Institute of Technology, Hoboken, NJ*

Michael Los, *TACOM-ARDEC, US Army Heavy Metals Office, Picatinny Arsenal, Picatinny, NJ*

9:30 am
Corrosion Behavior of Tungsten Alloys in the Environment

Abebayo Ogundipe, Washington Braida, Dimitris Dermatas, Christos Christodoulatos, *Stevens Institute of Technology, Hoboken, NJ*

Michael Los, *TACOM-ARDEC, US Army Heavy Metals Office, Picatinny Arsenal, Picatinny, NJ*

10:00 am Break

10:30 am
Evaluation of Phosphate Treatment Methods to Reduce Lead Mobility at Military Small Arms Training Ranges

Dr. R. Mark Bricka, Jason Darnell, *Mississippi State University, Mississippi State, MS*

Gene Fabian, *US Army Aberdeen Test Center, APG, MD*

11:00 am
Recovery and Recycling of Tungsten and Lead from Small Arms Firing Range Soils

Michael F. Warminsky, PE, *AMEC Earth and Environmental, Inc., Somerset, NJ*

Dr. Steven Larson, *U.S. Army Engineer Research and Development Center, Vicksburg, MS*

11:30 am
Vertical Distribution and Speciation of Lead at a Recreational Firing Range in Eastern Massachusetts

Jack Duggan, *Wentworth Institute of Technology, Boston, MA*
 Ankit Dhawan, *Massachusetts College of Pharmacy and Health Sciences, Boston, MA*

Session 3: SITE ASSESSMENT

168C Campus Center

Moderator: **Kevin Scully, EA Engineering, Science, and Technology, Southborough, MA**

8:30 am
Targeted Brownfields Assessment of a Former Power Plant Using the Triad Approach

Barbara Weir, *Metcalf & Eddy, Inc. Wakefield, MA*

James P. Byrne, *U.S. EPA Region I, Boston, MA*

Robert Howe, *Tetra Tech, Inc., Boulder, CO*

Denise M. Savageau, *Conservation Director, Town of Greenwich, Greenwich, CT*

Kathy Yager, *U.S. EPA, North Chelmsford, MA*

9:00 am
Plume Delineation and Monitoring of Natural Attenuation Processes Via In Situ Flux Measurement

Andre Tartre, *EcoRemediation Inc., Burlington, VT*

9:30 am
Unlimited Industrial Closure of Detroit Artillery Armory Using the State of Michigan's "Sampling Strategies and Statistics" Procedures

Michael Tuckey, Garth R. Colvin, Fred Pezeshk, Curt G. Roebuck, Alisa Williams, *DLZ Michigan, Inc., Lansing, MI*

Gary Hoffmaster, *Michigan Department of Military and Veterans Affairs, Lansing, MI*

Tina Williams, P.E., *United States Army Corps of Engineers - Detroit District, Detroit, MI*

10:00 am Break

10:30 am
Use of a GIS-Based Site Conceptual Model for Site Characterization, Regulatory Interaction and Feasibility Analysis, Harbor Point MGP Site, Utica, NY

Ernest Ashley, Amol Daxikar, *Camp Dresser & McKee Inc, Cambridge, MA*

Terry Young, *Niagara Mohawk/A National Grid Company, Syracuse, NY*

11:00 am
New Approaches in Data Visualization of LNAPL

Lester B. Engel, *The RETEC Group Inc., Atlanta, GA*
 Jeffrey A. Johnson, *The RETEC Group Inc., Houston, TX*

11:30 am
Case Study of TCE Attenuation from Groundwater to Indoor Air and Effects of Building Ventilation

Alborz A. Wozniak, P.E., Christopher Lawless, *Johnson Wright, Inc., Lafayette, CA*

Session 4: BIOREMEDIATION OF ACID MINE DRAINAGE AND REMOVAL OF METALS

STARTS AT 8:00AM *11th Floor, Campus Center*

Moderator: **Henry H. Tabak, US EPA, ORD, Cincinnati, OH**

8:00 am **Bioremediation of Acid Drainage by Means of a Passive Treatment System**

Stoyan N. Groudev, Plamen S. Georgiev, Irena I.

Spasova, Marina V. Nicolova, *University of Mining and Geology, Sofia, Bulgaria*

Ludo Diels, *VITO, Mol, Belgium*

8:30 am **Restoration of Ecosystems and Long-Term Stabilization of Initially Acidic Pit Lakes with a Case Study at the Gift Edge Mine Superfund Site, South Dakota**

Joseph G. Harrington, *ARCADIS, Inc., Highlands Ranch CO*

Kenneth Wangerud, *EPA Region VIII Superfund Group, Denver, CO*

Steven D. Fundingsland, *CDM Federal Programs Corp., Denver, CO*

9:00 am **A Geochemical Overview of the Berkeley Pit-lake, Butte, Montana, USA**

C. H. Gammons, D. A. Pellicori, *Montana Tech of the University of Montana, Butte, MT*

S. R. Poulson, *University of Nevada-Reno, Reno, NV*

J. Madison, P. Reed, *Montana Bureau of Mines and Geology, Butte, MT*

9:30 am **Treatment of Acid Mine Drainage Wastes in a Membrane Bioreactor**

Henry H. Tabak, *USEPA, Environmental Research Center, Cincinnati, OH*

Rakesh Govind, *University of Cincinnati, Cincinnati, OH*

10:00 am Break

10:30 am **Use of SRB in a Gravel Bed Reactor for Treatment of Acid Mine Drainage Water**

John D. Sheppard, Ph.D., *McGill University, Quebec, Canada*

Darwin Lyew, Ph.D., *Biotechnology Research Institute, Montreal, Quebec, Canada*

11:00 am **Algal Bioremediation of the Berkeley Pit Lake System-and an In Situ Test Using Limnocorrals**

Dr. Grant G. Mitman, *Montana Tech of The University of Montana, Butte, MT*

11:30 am **The Effect of Drainage Flow and Saturation Conditions on Microbial Pyrite Oxidation in Mine Waste Rock**

Joy Jenkins and JoAnn Silverstein, *Department of Civil, Environmental and Architectural Engineering, University of Colorado, Boulder, CO*

Meeting the Challenge: Standing up a Safety, Health, and Environmental Program at the Department of Homeland Security
 Juan J. Reyes, Director, Office of Safety and Environment, Management Directorate, Administrative Services, Department of Homeland Security

PM SESSIONS

Tuesday

Session 1: ENVIRONMENTAL TERRORISM

Campus Center Auditorium

Sponsored by **Security, Emergency Preparedness and Response Institute (SEPRI)**, UMASS, Amherst, MA
 Moderators: **Abhijit V. Deshmukh**, University of Massachusetts, Amherst, MA
Barbara Pearson, University of Massachusetts, Amherst, MA

1:30 pm
Environmental Detection of Microbial Weapons
 Klaus Nusslein, Dept of Microbiology, University of Massachusetts, Amherst, MA

2:00 pm
The Use of GIS to Coordinate Medical Response
 Richard Wait, Baystate Medical Center, Springfield, MA

2:30 pm
Coordination of Emergency Response Actions Using an Integrated Decision Framework
 Abhi Deshmukh, University of Massachusetts, Amherst, MA

3:00 pm Break

3:30 pm
National Guard Response to Environmental Terrorism – A Review of Homeland Defense Initiatives
 Lieutenant Colonel Thomas Hook, National Guard Bureau, Arlington, VA

4:00 pm
Wireless TeleCare for Mass Casualty Situations
 Aura Ganz, University of Massachusetts, Amherst, MA

4:30 pm
Next Generation Emergency Response: A Vision of the Future
A Round Table Discussion
 Aura Ganz, University of Massachusetts, Amherst, MA

Session 2: REMEDIATION I

11th Floor Campus Center

Moderator: **Ernest Ashley**, Camp, Dresser, McKee, Inc., Cambridge, MA

1:30 pm
Natural Attenuation of Acid Mine Drainage: Column Studies of Sulfate Reducing Bacteria
 Mercedita Monserrate, Sarina Ergas, University of Massachusetts, Amherst, MA

2:00 pm
Full-Scale Phase 1 Results of ISTD Treatment at Former Alhambra, California Wood Treatment Site
 John M. Bierschenk, Ralph S. Baker, Robert J. Bukowski, Ken Parker, Ron Young, TerraTherm, Inc., Fitchburg, MA
 Jenny King, Tony Landler, Southern California Edison Company, Rosemead, CA

2:30 pm
Monitored Natural Attenuation (MNA) – Where it Works and Where it Doesn't Using Case-History Examples
 Edward Van Doren, Olaf Westphalen, Shaw Environmental, Inc., Andover, MA

3:00 pm Break

3:30 pm
In Situ Thermal Destruction (ISTD) of MGP Waste in a Former Gasholder: Design and Operation
 Ralph S. Baker, John C. LaChance, Mark W. Kresge, James P. Galligan, TerraTherm, Inc., Fitchburg, MA
 Myron Kuhlman, MK Tech Solutions, Houston, TX
 Edward H. White Jr., National Grid USA, Westboro, MA

4:00 pm
In Situ Thermal Remediation of NAPL Using Electrical Resistance Heating at an Active U.S. Army Installation
 Pat Cossins, Thermal Remediation Services, Inc., Austin, TX
 Greg Beyke, P.E., Thermal Remediation Services, Inc., Memphis, TN
 Michael Dodson, Thermal Remediation Services, Inc., Longview, WA
 David Fleming, Thermal Remediation Services, Inc., Snoqualmie, WA
 Rich Wilson, Ft. Lewis Public Works, Ft. Lewis, WA

4:30 pm
Assessing the Performance of Thermal Conductive Heating for Remediation of Chlorinated VOCs in Saturated and Unsaturated Settings
 John C. LaChance, Ralph S. Baker, James P. Galligan, John M. Bierschenk, TerraTherm, Inc., Fitchburg, MA

5:00 pm
Remote Telemetry Board Performance
 Susan Sitkoff, BEM Systems, Inc., Orlando, FL

Session 3: PHYTOREMEDIATION

168C Campus Center

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

1:30 pm
Relation Among Subspecies of Cucurbita in Phyto-extraction of Field-Weathered p,p'-DDE and Exudation of Citric Acid from Roots
 Martin P.N. Gent, Zakia Parrish, Jason C. White, Connecticut Agricultural Experiment Station (CAES), New Haven CT

2:00 pm
Uptake of Polycyclic Aromatic Hydrocarbons in Spartina Alterniflora – Evaluating Risk in Salt Marsh Vegetation
 Alison W. Watts, Thomas P. Ballesterio, Kevin H. Gardner, University of New Hampshire, Durham, NH

2:30 pm
Phytoremediation of Lead Contaminated Soils in the Urban Residential Environment Using Seed Mustard
 Ilana S. Goldowitz, Cornell University, Ithaca NY
 Joshua Goldowitz, Rochester Institute of Technology, Rochester NY

3:00 pm Break

3:30 pm
Rhizodegradation of RDX Contaminated Soils Using Grass Exudates
 Afrachanna D. Butler, Jackson State University, Vicksburg, MS
 Victor F. Medina, U.S. Army Corps of Engineers-Engineer Research & Development Center, Vicksburg, MS

4:00 pm
Plant Assisted Bioremediation of Pollutants from Aquaculture Water
 Kishore K. Krishnani, Xiao Guang Meng, Stevens Institute of Technology, Hoboken, NJ

4:30 pm
Phytoremediation Applications for Arsenic in Northern Climates
 Michael J. Blaylock, Mark P. Elless, Charissa Y. Poynton, Edenspace Systems Corporation, Dulles, VA

5:00 pm
Can We Predict the Best Plants for the Phytoremediation of Organic Contaminants?
 Chris D. Collins, Imperial College, South Kensington, London
 Neil J. Willey, University of the West of England, Frenchay, Bristol

Session 4: HEAVY METALS

101 Campus Center

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

1:30 pm
Removal of Lead (II) from Drinking Water Using Plant Based Product
 Kishore K. Krishnani, Xiao Guang Meng, Reba Mukherjee, Stevens Institute of Technology, Hoboken, NJ

2:00 pm
Chitosan Immobilized on Sand – An Innovative Cu Adsorbent
 Meng-Wei Wan, University of Southern California, Los Angeles, CA
 Ioana G. Petrisor, DPRA Inc., San Marcos, CA
 Hsuan-Ting Lai, Daeik Kim, Teh Fu Yen, University of Southern California, Los Angeles, CA

2:30 pm
Gold Mining and Mercury Pollution in the Ghanaian Pra River Basin, West Africa
 Augustine K. Donkor, Jean-Claude J. Bonzongo, University of Florida, Gainesville, FL
 Vincent K. Nartey, University of Ghana, Legon-Accra, Ghana

3:00 pm Break

3:30 pm
Formation and Stability of Mixed Metal Hydroxide Phases in Contaminated Soils
 Edward Peltier, David H. McNear Jr., Donald L. Sparks, Plant and Soil Sciences, Newark, DE

4:00 pm
Electrokinetic Treatment of Copper, Chromium and Arsenic Contaminated Soil from Wood Preservative Industries
 Prashanth R. Buchireddy, Dr. Mark R. Bricka, Associate Professor, Mississippi State University, MS

4:30 pm
On-Line Monitoring of Mercury and Arsenic Below Regulatory Levels
 Carl Hensman, Hakan Gürleyük, Phil Kilner, Frontier Geosciences, Seattle, WA
 William T. Dietze, Vladimir Dozortsev, TraceDetect, Seattle, WA

7 pm – 10 pm

Tuesday

- 1) Modeling Vapor Attenuation Workshop: A Study of Vapor Intrusion Modeling in the Context of EPA's Guidance (Continued) (Campus Center Auditorium)
- 7) Asbestos and the MCP (101 Campus Center)
- 8) Policy Issues in Inter-Agency Coordination (904-08 Campus Center)
- 9) In Situ Thermal Remediation (917 Campus Center)

Session 1: IN SITU CHEMICAL OXIDATION

Campus Center Auditorium

Sponsored by **ENSR International**

Moderators: **Chris Mitchell**, ENSR, Westford
Ian T. Osgerby, US Army Corp of Engineers New England District, Concord, MA

8:30 am

Modified Ferrous Ion Activated Persulfate Oxidation for In Situ Remediation of Trichloroethylene

Chenju Liang, National Chung-Hsing University, Taichung, Taiwan

Clifford J. Bruell, University of Massachusetts Lowell, Lowell, MA

Michael C. Marley, Xpert Design Diagnostics, LLC., Stratham, NH

Kenneth L. Sperry, Xpert Design Diagnostics, LLC., Allentown, PA

9:00 am

Chemical Oxidation Using Ozone, Hydrogen Peroxide, and Air Injection Systems for BTEX, MTBE, and TBA

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

9:30 am

The Application of In Situ Chemical Oxidation for Treatment of Chlorinated Solvents in a Naturally Reducing Environment

Steven A. Dielman, Randall F. Martel, Ned Bolth, ENVIRON International Corporation, Arlington, VA

10:00 am Break

10:30 am

ISCO Technology Overview – Do You Really Understand the Chemistry

Ian T. Osgerby, USACE NewEngland District, Concord, MA

11:00 am

Rapid Controlled Oxidation and Biologic Enhancement of Petroleum Contaminants in Clayey, Silty, and Sandy Soils

Thomas D. Douglas, P.E., AET, LLC, Pensacola, FL

Ian T. Osgerby, Ph. D., P.E., US Army Corp of Engineers, Concord, MA

Thomas A. Reed, DeepEarth Technologies, Inc., Avarada, CO

11:30 am

COVC Source Identification through In Situ Chemical Oxidation in Fractured Bedrock

Mark D. Kauffman, P.E., James H. Vernon, Ph.D., P.G., ENSR International, Westford, MA

Session 2: OXYGENATES

101 Campus Center

Sponsored by **American Petroleum Institute**

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

8:30 am

Methyl tert-Butyl Ether (MTBE) in Public and Private Wells in Southeast New Hampshire

Joseph D. Ayotte, U.S. Denise M. Argue, U.S. Geological Survey, Pembroke, NH

Frederick J. McGarry, New Hampshire Dept. of Environmental Services, Waste Mgmt. Division, Concord, NH

9:00 am

Maine's Experiment with Gasoline Policy to Manage MTBE in Groundwater

John M. Peckenham, Jonathan Rubin, Cecilia Clavet, University of Maine, Orono, ME

9:30 am

Assessment, Control and Remediation of a Diving and Rapidly Moving MTBE/Benzene Plume to Prevent Impacts to Down-Gradient Public Water Supply Wells in the Town of Palmer Massachusetts

Michael Scherer, Massachusetts Department of Environmental, Springfield, MA

10:00 am Break

10:30 am

Electrical Resistance Heating Technology Coupled with Air Sparging and Soil Vapor Extraction for Remediation of MTBE and BTEX in Soils and Groundwater in Ronan, Montana

Jeffrey Kuhn, Montana DEQ, Butte, MT

Kenneth Manchester, MSE Technology Applications, Butte, MT

11:00 am

Ozone Sparging for In Situ Oxidation of MTBE

David H. Hull, J. Scott Seyfried, LFR Levine-Fricke, Granite Bay, CA

Steven J. Osborn, Kinder Morgan Energy Partners, Rocklin, CA

Cindy G. Schreiber, PRIMA Environmental, Sacramento, CA

11:30 am

Enhanced In Situ Groundwater Bioremediation of Petroleum Hydrocarbons and Oxygenates – Field Applications and Data Evaluation

Kostas Dovantzis, Handex Group, Inc., Naperville, IL

Thomas J. Marr, Handex Group, Inc., Mooresville, NC

Tim Foster, Handex Group, Inc., Bethel, CT

Ray Kassab, Handex Group, Inc., Indianapolis, IN

Session 3: BIOINDICATORS OF ENVIRONMENTAL HEALTH: CONCEPTS AND APPLICATION

168C Campus Center

Moderators: **James R. Newman**, Pandion Systems, Gainesville, FL

Edward J. Zillioux, FPL Environmental Services, Juno Beach, FL

8:30 am

Use of Bioindicators for Site Monitoring Requirements

J.R. Newman, Pandion Systems, Gainesville, FL

9:00 am

Immunological Alterations as Bioindicators of Environmental Health

Judith T. Zelikoff, Jessica Duffy, Elizabeth Berg, Erik Carlson, New York University School of Medicine, Tuxedo, NY

9:30 am

Field Bioindicators in Reptiles and Amphibians

John Schaffer, Tetra Tech, Morris Plains, NJ

10:00 am Break

10:30 am

Selenium as a Bioindicator of Susceptibility to Mercury Toxicity: The "Tonic to Target" Paradigm Shift

Nicholas V. C. Ralston, Laura J. Raymond, Energy and Environmental Research Center, Grand Forks, ND

11:00 am

Genomic Indicators of Environmental Health

Rebecca D. Klaper, University of Wisconsin-Milwaukee, Milwaukee, WI

11:30 am

Biological Indicators for Freshwater Flow in the Tampa Bay Estuary and Tidal Rivers.

David Wade and Anthony Janicki, Janicki Environmental, Inc., St. Petersburg, FL

Session 4: PAY-FOR-PERFORMANCE REMEDIATION TECHNOLOGIES – METHODS & CASE STUDIES OF SCIENCE & ECONOMICS

11th Floor Campus Center

Sponsored by **Environmental Remediation and Financial Services, LLC**

Moderator: **Ronald Scudato**, Environmental Remediation and Financial Services, LLC (ERFS)

8:30 am

Pay-for-Performance Use of Third Generation In situ Chemical Remediation as a Replacement for Obsolete, Best Effort / Well Based Fenton's Oxidation

Mark Vigneri, ERFS, Sea Girt, NJ

9:00 am

Pay-for-Performance In Situ Chemical Remediation – A Consultant and Client Perspective

Bruce Nelson, Malcolm Pirnie, Lantham, NY

David J. Glass, Malcolm Pirnie, Inc., Newport News, VA

9:30 am

Pay-for-Performance Site Management Utilizing BioAug with the On-Contact Remediation Model

Robert S. Steele, ERFS, Fairfax, VA

Dave Philbrook, BioAug, Raleigh, NC

10:00 am Break

10:30 am

Pay-for-Performance Contracting and Implementation of Embedded Technology Strategies

Matthew Burklew, Shaw Group, Clermont, FL

11:00 am

Advances in Attaining Closure Levels at Pay-for-Performance UST Sites Utilizing Solid Oxidizers

Rich Werner, Environmental Consulting Inc., Norristown, PA

11:30 am

On Site Configuration Via Instrumentation to Deliver Pay-for-Performance Remediation Technologies

Vince Barlock, Pelorus, Evergreen, CO

Ron Adams, ERFS, Ponte Vedra, FL

7 pm – 10 pm

Wednesday

- 10) An Introduction to the Use and Application of Gene Chips in Environmental Toxicology and Implications for Their Use as Biomarkers in Contaminated Sites Evaluations (804-08 Campus Center)
- 11) Latest Developments in Managing Perchlorate in Soils and Groundwater (168C Campus Center)
- 12) Vapor Intrusion into Indoor Air Workshop: MADEP Requirements, Background Levels, Case Studies and More (101 Campus Center)
- 13) Exploring Innovative and Cost-Effective Solutions to Contaminated Sediments to Achieve Ecological Restoration of the Lower Neponset River (917 Campus Center)
- 14) Environmental Forensics Workshop (904-08 Campus Center)

PM SESSIONS

Wednesday

Session 1: RISK ASSESSMENT AND REMEDIAL APPROACHES TOWARDS RESTORATION AND MANAGEMENT OF CONTAMINATED RIVERS

Campus Center Auditorium

Sponsored by *Massachusetts Riverways Program and BBL*

Moderators: **David Ludwig**, *Blasland, Bouck & Lee, Inc.*, Annapolis, MD

Karen Pelto, *Riverways Programs, Boston, MA*

1:30 pm

Characterization of Contaminated Sediments for Remediation Projects in Hamilton Harbour
Alex J. Zeman, Timothy S. Patterson, *Environment Canada, National Water Research Institute, Burlington, Canada*

2:00 pm

Development of Concentration Thresholds for the Hudson River PCBs Residuals Performance Standard

Claire Hunt, Ed Garvey, *TAMS Consultants, an Earth Tech Co.*, Bloomfield, NJ

Jonathan Butcher, *Tetra Tech, Inc.*, Research Triangle Park, NC

Alison Hess, *Hudson River PCBs Site, USEPA Region 2, New York, NY*

Don Hayes, *The University of Utah, Salt Lake City, UT*

Len Warner, *Malcolm Pirnie, Inc.*, White Plains, NY

Bruce Fidler, *Malcolm Pirnie, Inc.*, Fair Lawn, NJ

2:30 pm

A Spatially-Explicit Probabilistic Approach to Evaluating and Assessing Human and Ecological Risks Associated with PCB-Contaminated Sediments

Katherine von Stackelberg, Donna Vorhees, Jerome Cura, *Menzie-Cura & Associates, Inc.*, Winchester, MA

3:00 pm Break

3:30 pm

An Assessment and Remediation of the Fox River: A Case Study

Edward K. Lynch, PE, *Wisconsin Department of Natural Resources, Madison, WI*

Mark Velleux, PE, *Colorado State University, Fort Collins, CO*

4:00 pm

Overview of Sediment Remediation of Tannery Waste Contamination in Tannery Bay, White Lake, Michigan

Alisa A. Williams, Garth R. Colvin, Fred Pezeshk, Curtis G. Roebuck, *DLZ Michigan, Inc.*, Lansing, MI

4:30 pm

In-Pile Thermal Desorption of SVOCs in Riverine Sediments: In the Barge or on the Bank

Ralph Baker, *TerraTherm, Inc.*, Fitchburg, MA

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

John LaChance, *TerraTherm, Inc.*, Fitchburg, MA

5:00 pm

Optimizing River Cleanup Planning: Balancing PCB Exposure Risks and Remediation.

David Ludwig, *BBL Sciences, Annapolis, MD*

Stephen P. Truchon, Helder J. Costa, *BBL Sciences, New Bedford, MA*

Session 2: ARSENIC

101 Campus Center

Moderator: **Evan Johnson**, *Tighe & Bond, Westfield, MA*

1:30 pm

The Health Effects of Arsenic and Other Toxic Metals in Bangladesh's Drinking Water

Seth H. Frisbie, *Better Life Laboratories, East Calais, VT*

Richard Ortega, *Laboratoire de Chimie Nucléaire Analytique et Bioenvironnementale, Gragnan, France*

Erika J. Mitchell, *Better Life Laboratories, East Calais, VT*

Donald M. Maynard, *The Johnson Company, Montpelier, VT*

Bibudhendra Sarkar, *University of Toronto, Toronto, Ontario*

2:00 pm

Comparison of Long-term Availability of As at Between a CCA-Wood Treatment Site and CCA-treated Wood Test Site

Tait Chirenje, *The Richard Stockton College of New Jersey, Pomona, NJ*

Lena Q. Ma, Gina Kertulis, Richard Cardellino, *University of Florida, Gainesville, FL*

2:30 pm

Effects of Different Extraction and Analysis Techniques on the Determination of Arsenic Species in Soils

Hakan Gürleyük, Jeni Garcia, *Frontier Geosciences, Seattle, WA*

3:00 pm Break

3:30 pm

Phytofiltration of Arsenic: Demonstration of Laboratory and Field Flowthrough Systems

Mark P. Elless, Charissa Y. Poynton, Michael J. Blaylock, *Edenspace Systems Corporation, Dulles, VA*

4:00 pm

Understanding the Cause and the Permanent Solution of Groundwater Arsenic Poisoning in Bangladesh

Meer Husain, *Kansas Department of Health and Environment, Wichita, KS*

Thomas E. Bridge, *Emporia State University, Emporia, KS*

4:30 pm

The Nexus Between Groundwater Modeling, Pit Lake Arsenic Geochemistry and Ecological Risk in the Getchell Main Pit, Nevada, U.S.A.

Andy Davis, *Geomega, Boulder, CO*

G.G. Fennemore, *Placer Dome U.S., Crescent Valley, NV*

T. Bellehumeur, P. Hunter, *Geomega, Boulder, CO*

S.Schoen, *Placer Dome U.S., Crescent Valley, NV*

3:00 pm Break

3:30 pm

Evaluation of Biological Treatment Options for N-Nitrosodimethylamine (NDMA) in Groundwater

Paul B. Hatzinger, Sheryl Streger, Kevin McClay, Robert J. Steffan, *Shaw Environmental, Inc.*, Lawrenceville, NJ

4:00 pm

Treatment of Vinyl Chloride Contaminated Groundwater at a Landfill Site: Comparison of Biosparging and iSOC™ Bioremediation Systems for Plume Cut-Off

Christine R. LeBlanc, *East Coast Engineering, Inc.*, Marion, MA

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

4:30 pm

Treatment of PCP-Contaminated Soil Using an Engineered Ex Situ Biopile Process at a Superfund Site

Carl Rodzewich, *Biogenie Corporation, Quakertown, PA*

Nile Fellows, *Minnesota Pollution Control Agency, St. Paul, MN*

Nicolas Moreau, Michel Pouliot, *Biogenie Corporation, Quakertown, PA*

Session 3a: ANALYSIS

168C Campus Center

Moderator: **A. Dallas Wait**, *Gradient Corporation, Cambridge, MA*

1:30 pm

Characterization of Tentatively-Identified Compounds (TICs) and Data Usage Issues

Marilyn Hoyt, Barbara Pugh, Marie Wojtas, *AMEC Earth and Environmental, Westford, MA*

2:00 pm

Avoiding Overestimates of Chlordane and PCBs as Co-Contaminants by Methods 8081/8082

Dean Gouveia, Mary O'Connell Kozik, *ICF Consulting, Lexington, MA*

Andy Beliveau, *EPA OSRR, Boston, MA*

Peter Kane, *Woods Hole Group Environmental Laboratories, Raynham, MA*

Session 3b: PESTICIDES

168C Campus Center

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

2:30 pm

Pesticide and VOC Attenuation at Marzone Superfund Site

Ellen M. Haggerty, *Blasland, Bouck & Lee, Inc.*, Cranbury, NJ

Allen C. Just, P.E., *Blasland, Bouck & Lee, Inc.*, Irvine, CA

Karl Hoenke, *Chevron Environmental Management Company, San Ramon, CA*

3:00 pm Break

3:30 pm

A Novel Method to Attain Groundwater Compliance at a Former Pesticide Formulating Facility

K.A. Hoenke, *Chevron Environmental Management Company, San Ramon, CA*

Andy Davis, *Geomega, Boulder, CO*

Session 3c: INDOOR AIR

168C Campus Center

Moderator: **Ronald J. Marnicio**, *TetraTech FW, Inc.*, Boston, MA

4:00 pm

Indoor Air Background Subpopulations and Seasonality at the CDOT MTL Site, Denver, Colorado

Stephen J. Foster, *Swan-Foster Consulting, Boulder, CO*

Jeffrey P. Kurtz, *EMSI, Longmont, CO*

Anne Woodland, *Waterstone Environmental, Boulder, CO*

4:30 pm

Context-Based Benchmarks for Indoor Air Evaluation

Stephen G. Zemba, Ph.D., P.E., *Cambridge Environmental Inc.*, Cambridge, MA

Session 4: BIOREMEDIATION

11th Floor, Campus Center

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

1:30 pm

Bioremediation of Dual Contaminant Mixtures: TCE and RDx

Travis S.M. Young, Matthew C. Morley, Daniel D. Snow, *University of Nebraska Lincoln, Lincoln, NE*

2:00 pm

A Kinetic Model of Reductive TNT Transformation by Escherichia coli Resting Cells

Hong Yin, Thomas K. Wood, Barth F. Smets, *University of Connecticut, Storrs, CT*

2:30 pm

Combined Anaerobic Oxidation and Reductive Dechlorination for Optimizing Bioremediation of CVOCs: Theoretical and Practical Considerations

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

Session 1: ENVIRONMENTAL FORENSICS

Campus Center Auditorium

Moderator: **Ioana G. Petrisor, DPRA Inc, San Marcos, CA**

8:30 am
NAPL Source Chasing – A Forensics Evaluation
 Frank Ricciardi, Kelley Race, *Weston & Sampson Engineers, Inc., Peabody, MA*

9:00 am
Using Isoprenoid Hydrocarbon Ratios to Calculate Percentage Mixing Different Distillate Fuels in the Subsurface Environment
 Michael J. Wade, *Wade Research, Inc., Marshfield, MA*

9:30 am
Combining Passive Soil Gas Sampling, GC/MS Analysis, and Non-Conventional Interpretation to Identify Fuel Sources
 Joseph Wilson, *URS Corporation, Morrisville, NC*
 James E. Whetzel, Wayne W. Wells, *W. L. Gore and Associates, Elkton, MD*

10:00 am Break

10:30 am
Fingerprinting Dioxin-Furan Contamination in the Lower Roanoke River Basin
 Russell H. Plumb Jr., *Lockheed Martin, Las Vegas, NV*
 Beth Walden, *U.S. EPA Region 4, Atlanta, GA*

11:00 am
Applications of Forensic Chemistry for Contaminant Identification In Sediments Near an MGP Site, Wisconsin
 Diane L. Saber, *Gas Technology Institute, Des Plaines, IL*
 David Mauro, *META Environmental, Inc., Watertown*

11:30 am
The Application of the Federal On Road Diesel Fuel Sulfur Reduction Act of 1993 to the Age Dating of Diesel Fuels: A Case Study
 Gregory S. Douglas, *NewFields Environmental Forensics Practice, Rockland, MA*
 Scott Ziegler, *Atlantic Richfield Company, Austintown, Ohio*
 Charles Pinzone, *BP America Inc., Cleveland, OH*
 Jeff Hardenstine, Kevin McCarthy, *NewFields Environmental Forensics Practice, Rockland, MA*

Session 2: PERCHLORATE

101 Campus Center

Moderator: **Paul Rakowski, Naval Facilities Engineering Command, Norfolk, VA**

8:30 am
Perchlorate: Overview of Perchlorate Properties, Sources, & Chemistry
 William Ingersoll, *Navy Sea Systems Command (NAVSEA), Goose Creek, SC*

9:00 am
Analytical Methodologies for the Detection of Perchlorate
 William (Ed) Corl, *Naval Facilities Engineering Command (NAVFAC), Atlantic Division, Norfolk, VA*

9:30 am
The Determination of Perchlorate Anion in High Total Dissolved Solids Water Using LC/MS/MS
 Jim Krol, Senior Applications Chemist, *Waters Corp, Milford, MA*

10:00 am Break

10:30 am
Overview of In Situ and Ex Situ Bioremediation of Perchlorate in Groundwater
 Paul B. Hatzinger, A. Paul Togna, Ph.D., *Shaw Environmental, Inc., Lawrenceville, NJ*
 Jay Diebold, P.E., *Shaw Environmental, Inc., Pewaukee, WI*
 William J. Guarini, *Shaw Environmental, Inc., Lawrenceville, NJ*

11:00 am
Perchlorate Reduction in Soils Amended with PAC, HA and Peat
 Ellen Pyatt, Alan Jackman, *University of California Davis, Davis, CA*

11:30 am
Update of Remedial Technologies for Perchlorate-Impacted Sites
 Harry Van Den Berg, P.E., *ENSR International, Camarillo, CA*
 Kent Baugh, Ph.D., P.E., *ENSR International, Alameda, CA*

Session 3a: LEGAL ISSUES

168C Campus Center

STARTS AT 8:00AM

Moderator: **John Abraham, HLM Consultants, Marietta, GA**

8:00 am
Expert Opinions In Environmental Litigation – Practical Considerations
 David G. Ries, *Thorp Reed & Armstrong, LLP, Pittsburgh, PA*

8:30 am
Natural Resource Damages (NRD) Update
 Gail H. Allyn, *Pitney Hardin, LLP, Morristown, NJ*

Session 3b: MODELING

168C Campus Center

Moderator: **Joseph Robb, AMEC Earth & Environmental, Inc., Westford, MA**

9:00 am
Contaminant Fate and Transport in the Courtroom
 Michael Sklash, *Dragun Corporation, Farmington Hills, MI*
 Charles M. Denton, *Varnum, Riddering, Schmidt & Howlett LLP, Grand Rapids, MI*

9:30 am
Development and Application of a Multimedia Models to Assess Exposure to Persistent Organic Pollutants in South Texas
 V. Uddameri, Sriyakshmi K. Ramaraju, *Texas A&M University Kingsville, Kingsville, TX*

10:00 am Break

10:30 am
A New Method of Delineating Three-Dimensional Capture Zones with Models
 John Glass, *CH2M Hill, Herndon, VA*
 Scott DeHainaut, *CH2M HILL, Otis ANGB, MA*
 Rose Forbes, *Air Force Center for Environmental Excellence, Otis ANGB, MA*

11:00 am
Leaching of BTEX from Aged Crude Oil Contaminated Model Soils: Experimental and Modeling Results
 Michael H. Huesemann, Tom S. Hausmann, Tim J. Fortman, *Pacific Northwest National Laboratory, Sequim, WA*

11:30 am
Use of Brute Force Optimization Modeling for Design of Extraction Well Fields
 Christopher Abate, *AMEC Earth Environmental, Westford, MA*

Session 4: RISK ASSESSMENT AND BIOAVAILABILITY

11th Floor, Campus Center

Moderator: **Peter Woodman, Risk Management Incorporated, Acton, MA**

8:30 am
Detection of Potential Estrogenic Endocrine Disruptor Chemicals Using the LUMI-Cell™ ER Recombinant Bioassay
 John D. Gordon, Andrew C. Chu, Charlotte L. Taylor, George C. Clark, Mick Chu, *Xenobiotic Detection Systems Inc., Durham, NC*
 Michael S. Denison, *University of California Davis, Davis, CA*

9:00 am
The Presence of NDMA in a Drinking Water Supply in Massachusetts and its Potential Health Risks
 Daniel Huber, Christopher Pyott, Diane Manganaro, *Massachusetts Department of Environmental Protection, Boston, MA*

9:30 am
Updated Petroleum Hydrocarbon Fraction Toxicity Values for Use with VPH/EPH/APH Data
 Tsedash Zewdie, *Massachusetts Department of Environmental Protection, Boston, MA*

10:00 am Break

10:30 am
Impact of Aging in Soil on the Dermal Bioavailability of Phenol
 Mohamed S. Abdel-Rahman, Gloria A. Skowronski, Rita M. Turkall, *New Jersey Medical School, Newark, New Jersey*

11:00 am
Reducing the Bioavailability of Pb in Soil
 Rebecca A. Bevis, Jonathan L. Subacz, Jinling Zhuang, Dongye Zhao, Mark O. Barnett, *Auburn University, Auburn, AL*
 Melanie A. Stewart, Phil Jardine, *Oak Ridge National Lab, Oak Ridge, TN*

11:30 am
Decreasing Arsenic Bioavailability in Soil with Iron Amendments
 Jonathan Subacz, Jinling Zhuang, Dr. Mark O. Barnett, *Auburn University, Auburn, AL*
 Melanie A. Stewart, Phil Jardine, *Oak Ridge National Lab, Oak Ridge, TN*
 John Drexler, Ph.D., *University of Colorado at Boulder, Boulder, CO*

Noon – Lunch Luncheon Speaker, Thursday, October 21, 2004

Mass Pike Emergency Preparedness and Response to Environmental Incidents
 Rick McCullough, *Director of Environmental Engineering, Massachusetts Turnpike Authority*

Session 1: REMEDIATION II

Campus Center Auditorium

Moderator: **Janine Commerford**, MA Department of Environmental Protection, Boston, MA

1:30 pm

Remediation Optimization Achieved by Bundling Complementary Treatment Technologies

Richard T. Cartwright, MEC^x, LLC, East Amherst, NY
R. Thomas Numbers, MEC^x, LLC, Williamsburg, VA

2:00 pm

Novel Subsurface Biobarriers to Contain and Remediate Contaminated Ground Water

Robert Sharp, Manhattan College, Bronx, NY
Al Cunningham, Montana State University, Bozeman, MT
John Komlos, Jr., Princeton University, Princeton, NJ

2:30 pm

Degradation of Carbon Tetrachloride in a Reducing Groundwater Environment: Implications for Natural Attenuation

Andy Davis, Geomega, Boulder, CO
C. Peck, Chevron Environmental Management Co., San Ramon

3:00 pm Break

3:30 pm

Treatment of Contaminated Groundwater Using NanoFeTM Technology

Harch Gill, Kaiti Liao, PARS Environmental, Inc., Robbinsville, NJ

4:00 pm

Optimization of an Extraction Well Using Three-Dimensional Capture Zones

Mary O'Reilly, CH2M HILL, Otis ANG Base, MA
John Glass, CH2M HILL, Herndon, VA
Scott DeHainaut, CH2M HILL, Otis ANG Base, MA
Rose Forbes, Air Force Center for Environmental Excellence, Otis ANG Base, MA

4:30 pm

Remediation of Petroleum-Containing Soil and Groundwater at a Former Rail Yard Locomotive Fueling Area

Scott R. Compston, Bruce R. Nelson, Scott A. Underhill, Malcolm Pirnie, Inc., Latham, NY
LeeAnn Thomas, Canadian Pacific Railway, Minneapolis, MN

5:00 pm

MRCTM Treatment of a VOC and Metals Impacted Unconsolidated Aquifer

Jonathan K. Child, Timothy J. St. Germain, Fuss & O'Neill, Inc., West Springfield, MA

Session 3: SEDIMENTS

168C Campus Center

Moderator: **Henry H. Tabak**, US EPA, ORD, Cincinnati, OH

1:30 pm

Direct Measurement of the Sudden Uplift of a Low-Permeability Sediment Cap Due to Gas Entrapment

Robert D. Mutch, Jr., Egon Weber, Ph.D., HydroQual, Inc., Mahwah, NJ
David Kearney, P.E., Brown and Caldwell, Allendale, NJ

2:00 pm

Water Quality Implications of Contaminated Sediments Remediation

James W. Patterson, J. W. Patterson Environmental Consultants, Inc., Silverthorne, CO
Cecil Lue-Hing, Cecil Lue-Hing Associates, Inc., Burr Ridge, IL
Jeffrey C. Bates, Jeffrey C. Bates, McDermott, Will & Emery, Attorneys at Law, Boston, MA
Bud Harris, University of Wisconsin-Green Bay, Depare, WI
Danny D. Reible, Hazardous Substances Research Center, Louisiana State University, Baton Rouge, LA
Donald F. Hayes, University of Utah, Salt Lake City, UT

2:30 pm

Determining Background for Ecological Risk Parameters in Toxic Harbor Sediments

Christopher Leadon, Naval Facilities Engineering Command (NAVFAC), San Diego, CA
Tom McDonnell, Brown and Caldwell, Irvine, CA
Janet Lear, Brown and Caldwell, San Diego, CA
Dave Barclift, Naval Facilities Engineering Command (NAVFAC), Philadelphia, PA

Session 2: REGULATORY

101 Campus Center

Moderator: **Ellen Moyer**, Greenenvironment, LLC, Montgomery, MA

1:30 pm

Is "Presumptive Certainty" Generating Usable Data for Risk Assessment Under the Massachusetts Contingency Plan (MCP)?

Susan D. Chapnick, New Environmental Horizons, Inc., Arlington, MA
Elizabeth Denly, TRC Environmental Corporation, Lowell, MA
Nancy C. Rothman, New Environmental Horizons, Inc., Skillman, NJ

2:00 pm

New Jersey's Pursuit of Natural Resource Damages – Is Your State Next?

Douglas R. Beal, Anita O'Connor, BEM Systems, Inc., Chatham, NJ

2:30 pm

Risk Based Corrective Action in Florida

Kathryn S. Salvador, Florida Power & Light Company, Juno Beach, FL

3:00 pm Break

3:30 pm

Comprehensive Human Health Risk Assessment Shortforms, SF 2004, Developed by the Massachusetts Department of Environmental Protection: Efficiency, Consistency, and Transparency

Andrew S. Friedmann, Massachusetts Department of Environmental Protection, Boston, MA

4:00 pm

How Interstate Collaboration Can Improve Site Cleanups: Triad and the ITRC

Stuart J. Nagourney, New Jersey Department of Environmental Protection, Trenton, NJ
Ruth Chang, Ph.D., Hazardous Materials Laboratory, Berkeley, CA

3:00 pm Break

3:30 pm

Assessment of Bioavailability of PAH Contaminated Sediments Using XAD-Assisted Desorption

Henry H. Tabak, USEPA, Cincinnati, OH
Li Lei, Makram T. Suidan, University of Cincinnati, Cincinnati, OH

4:00 pm

Kinetics and Mechanisms of PAHs Sequestration in Freshwater and Marine Sediments

Denis Brion, Émilien Pelletier, University of Québec at Rimouski, Rimouski (Qc), Canada

4:30 pm

Sediment Quality Assessment in Four Suburban Massachusetts Rivers

Lisa M. McIntosh, R. Duff Collins, Woodard & Curran, Dedham, MA
Janet Robinson, Woodard & Curran, Portland, ME
Glen E. Breland, Alpha Analytical Labs, Westborough, MA

5:00 pm

Mycoremediation of PCB Contaminated Sediments

Jack Q. Word, MEC Analytical Systems, Inc., Sequim, WA
Scott Bodensteiner, Debra Collins, MEC Analytical Systems, Inc., Tiburon, CA
Paul Stamets, Fungi Perfecti, LLC, Olympia, WA

Booth	Affiliation
B1	Microbial Insights, Inc.
B2	Waterloo Barrier Inc.
B3	ISOTEC
B4	Remediation Service Int'l (RSI)
B5	Rock Ware, Inc.
B6	EA Engineering, Science, and Technology
B7	Alpha Analytical Labs
B8	Geovation Technologies, Inc.
B9	DEXSIL Corporation
B10	ENSR International
B11	Naval Facilities Engineering Command
B12	LSP Association
B13	AMEC Earth & Environmental
B14	Creamer Environmental, Inc.
B15	Regenesis Bioremediation
B16	Innov-X Systems, Inc.
B17	Kleinfelder Associates
B18	Technology Alliance Partnership (TAP)
B19	Prosonic Corporation
B20	Sheeting Solutions
B21	H&P Mobile GeoChemistry
B22	Dewind One-Pass Trenching
B23	Kerfoot Technologies, Inc.
B24	Solinst Canada, Ltd.
B25	inVenture Technologies
B26	Niton LLC
B27	US EPA Technology and Field Services Division
B28	Columbia Analytical Services, Inc.
B29	Eastern Analytical
B30	Microseeps, Inc.
B31	Rusmar Incorporated
B32	Environmental Remediation and Financial Services, LLC
B33	TerraTherm, Inc.
B34	ESS Laboratory
B35	W.L. Gore & Associates, Inc.
B36	Groundwater & Environmental Services, Inc. (GES)
B37	Panther Technologies, Inc.
B38	Titan Scientific
B39	Taylor & Francis, Inc.
T1	EnviroDirectory New England
T2	CEM Corporation
T3	State Geologist, University of Massachusetts
T4	ATC Associates, Inc.
T5	Strategic Diagnostics, Inc.
T6	Sandborn, Head & Associates, Inc.
T7	Adventus Americas

TUESDAY, OCTOBER 19, 2004

ACID MINE DRAINAGE

Acid Drainage from Rich-in-Pyrite Mining Wastes in a Uranium Deposit

I.I. Spasova, *University of Mining and Geology, Sofia, Bulgaria*

F. Veglio, *University of L'Aquila, L'Aquila, Italy*

M.V. Nicolova, S.N. Groudev, *University of Mining and Geology, Sofia, Bulgaria*

BIOINDICATORS OF ENVIRONMENTAL HEALTH

Wildlife Indicators of Environmental Mercury Contamination: Results of a SETAC Workshop

E.J. Zillioux, M.F. Wolfe, D. Evers, T. Atkeson, W.

Bowerman, J. Burger and M. Murray

ENVIRONMENTAL BIOTECHNOLOGY

New Strategies for the Development of Environmental Biosensors

Stephen S. Koenigsberg, *Regenesis, San Clemente, CA*

Lance Laing, *Regenesis, Belmont, MA*

David Weinkle, *Eran Associates, Cypress, CA*

HEAVY METALS

Treatment of Tungsten Contaminated Water Using Ti-based Sorbent: Column Studies

Kruti Oza, Washington Braida, Christos Christodoulatos, Dimitris Dermatas, *Stevens Institute of Technology, Hoboken, NJ*

Michael Los, *Picatinny Arsenal, Picatinny, NJ*

Use of Silica-Supported, Modified Silica Based Reagents in the Remediation of Cadmium(II), Nickel(II), Silver(I) and Lead(II) Ions: An Environmental Cleanup Technology

Craig A. Bove, *Saint Leo University, Saint Leo, FL*

Dean F. Martin, *University of South Florida, Tampa, FL*

Evaluation of Heavy Metal Availability in the Mining Areas of Bulgaria

Penka S. Zaprianova, *Institute of Tobacco and Tobacco Products, Markovo, Bulgaria*

Violina R. Angelova, Krasimir I. Ivanov, *University of Agriculture, Plovdiv, Bulgaria*

Apatite from Different Natural Sources and Its Suitability for Remediation of Contaminated Media

Anna S. Knox, D. I. Kaplan, *Westinghouse Savannah River Company, Aiken, SC*

Average Particle Size Ratios and Chemical Speciation of Copper and Zinc in Road Dust Samples

Adnan M. Massadeh, *Jordan University of Science and Technology, Irbid, Jordan*

Qasem M. Jarad, *Mutah University, Al-Karak, Jordan*

Management of Lead in Soil During Highway Construction or Urban Redevelopment Projects: A National Perspective.

Kathleen Sellers, PE, Maria Pologruto, *AMEC Earth and Environmental, Westford, MA*

The Pollution of Soils with Heavy Metals

Vasile Viman Ph.D., Anca Mihaly Cozmuta Ph.D., Gheorghe Vatca Ph.D. eng., Leonard Mihaly Cozmuta, Dorin Sutcau, *North University of Baia Msare, Baia Mare, Romania*

Metals Remediation Compound (MRC™): A New Slow-Release Product for In Situ Metals Remediation.

Anna Willett, Stephen S. Koenigsberg, *Regenesis, San Clemente, CA*

Roadside Accumulation of Heavy Metals in Soils in Franklin County, MA and Surrounding Towns

Trevor L. Woodard, *University of Massachusetts, Amherst, MA*

Dula Amarasiriwardena, *Hampshire College, Amherst, MA*
Baoshan Xing, *University of Massachusetts, Amherst, MA*

Effect of Sulfate and Phosphate on Adsorption of Molybdate and Tetrathiomolybdate by Pyrite

Nan Xu, Washington Braida, Dimitris Dermatas, Christos

Christodoulatos, *Stevens Institute of Technology, Hoboken, NJ*

Michael Los, *Picatinny Arsenal, Picatinny, NJ*

PHYTOREMEDIATION

Development of a Genetically Engineered Seaweed That Can Detoxify TNT in Marine Waters

Paula Bernasconi, Donald Cheney, *Northeastern University, Boston*

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

Neil Bruce, *Biology Dept., University of York, York, United Kingdom*

Metabolism and Breakdown of Methyl Tertiary Butyl Ether in Phytoremediation

Robert H. Kim, *Savannah River Ecology Laboratory, Aiken, SC*

Lee A. Newman, *University of South Carolina, Columbia, SC / Savannah River Ecology Laboratory, Aiken, SC*

Plant Response and Accumulation of Lead, Cadmium, and Barium from a Superfund Site Soil

Quentin M. Flory, John Pichtel, *Ball State University, Muncie, IN*

Development of a Genome-Wide Screening Method to Identify Gene Candidates Involved in the Degradation of Halogenated Hydrocarbons Using Ion Chromatography

Sarah Strycharz, *University of South Carolina, Columbia, SC*

Lee Newman, *University of South Carolina, Columbia, SC and Savannah River Ecology Lab, Aiken, SC*

Comparison of Native Southeastern Conifers to Hybrid Poplar for Suitability to Phytoremediate Trichloroethylene

Sarah Strycharz, Daniel Heenan, *University of South Carolina, Columbia, SC*

Lee Newman, *University of South Carolina, Columbia, SC and Savannah River Ecology Lab, Aiken, SC*

Phytoremediation to Oil Contaminated Wetland Soil Treatment by Aquatic Plant (*Typha orientalis Presl*)

Jui-Yann Wang, *Yung Ta Institute of Technology and Commerce, Pingtung County, Taiwan*

Hung-Ta Lin, Lei Yang, *Sun Yat-sen University, Kaohsiung, Taiwan*

RADIONUCLIDES

Influence of Home Size on the Risks from Soil-Gas and Waterborne Indoor Radon

George Saiway, Fiorella Simoni, *George Mason University, Fairfax, VA*

Douglas Mose, George Mushrush, *Center for Basic and Applied Science, Culpeper, VA*

Development of Radon Enrichment in Soil Gas Over Quartz-Mica Schist in Virginia

Charles Chrosniak, Paul DiBenedetto, *George Mason University, Fairfax, VA*

Douglas Mose, George Mushrush, *Center for Basic and Applied Science, Culpeper, VA*

REMEDIATION

Use of Organoclay at Military Installations

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

A Proposed Geochemical Barrier to Reduce Phosphorus Loading to a Kettle Hole Pond

Jonathan G. Blount, *CH2M Hill, Otis-ANG Base, MA*

Jon Davis, *Air Force Center for Environmental Excellence, Otis-ANG Base, MA*

DNAPL Remediation Combining Thermal Extraction and Reductive Dechlorination

Rob Bogert, P.E., Harlan Faircloth, Phil LaMori, *BEM Systems, Inc., Orlando, FL*

Mark Kershner, *Patrick AFB, FL*

An Overview of the Hydraulic Testing of the Final Fuel Spill-1 Remedial System Design at Massachusetts Military Reservation

Ronald J. Citterman, *CH2M Hill, Otis ANGB, MA*

John Glass, *CH2M Hill, Herndon, VA*

Frank Lewis, *CH2M Hill, Englewood, CO*

Jason Dalrymple, *CH2M Hill, Otis ANGB, MA*

Paul Clement, *CH2M Hill, Albuquerque, NM*

John Schoolfield, *Air Force Center for Environmental Excellence, Otis ANGB, MA*

Methodology for Integrating Direct Sensing Tools With In Situ Remediation Injection Technology to Facilitate Effective Treatment of Groundwater

Eliot Cooper, *University of Illinois, Vironex, Inc., Golden, CO*

Todd Hanna, Frank Stolfi, *Vironex, Inc., Santa Ana, CA*

Pilot Engineered Wetland for Treatment of Dilute Waste Streams

M. Talaat Balba, Darlene Coons, Sophia Dore, Alan Weston, *CRA, Inc., Niagara Falls, NY*

Cyclodextrin Enhanced Remediation at Patrick Air Force Base, Florida

Harlan Faircloth, Rob Bogert, *BEM Systems, Inc., Orlando, FL*

Michael Annable, *University of Florida, Gainesville, FL*

Mark Kershner, *45 CES/CEVR, Patrick AFB, FL*

Dean Goodin, *Shaw Group, Inc., Clermont, FL*

Installation Methods for Subsurface Placement of EHC™ (Solid) and EHC-L™ (Liquid) Amendments

David Hill, *Adventus Remediation Technologies Inc., Mississauga, Ontario, Canada*

James Mueller, *Adventus Americas Inc., Bloomington, IL*

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

Joanna Moreno, *Adventus Americas Inc., Denver, CO*

Alan Seech, *Adventus Remediation Technologies Inc., Mississauga, Ontario, Canada.*

In Situ Flushing Selective Phase Transfer Technology (SPTTTM) Cost Effective Soil & Groundwater NAPL Remediation Including NAPL and Chlorinated Solvents

George A. Ivey, *Ivey International Inc., Newtonton CT*

Monitoring Improvement in Water Quality Following Reclamation of Acidic Coal Refuse with Biosolids

Pauline V. Lindo, Thomas C. Granato, Richard. I. Pietz, *Metropolitan Water Reclamation District of Greater Chicago, Cicero, IL*

Carl Carlson, Jr, *Metropolitan Water Reclamation District of Greater Chicago, Cuba, IL*

Composition, Peculiarities and Methods of Utilization of Oil Wastes

Z.A. Mansurov, E.K. Ongarbayev, *Al-Farabi Kazakh National University, Almaty, Kazakhstan*

Reductive Dechlorination of Solvents in Groundwater using Controlled Release Carbon with ZVI

James Mueller, *Adventus Americas Inc., Bloomington, IL*

Scott MacFabe, *Malcolm Pirnie, Inc., Schaumburg, IL*

John Vogan, Michael Duchene, *EnviroMetal Technologies, Inc., Waterloo, Canada*

Alan Seech, David Hill and Kerry Bolanos-Shaw, *Adventus Remediation Technologies Inc., Mississauga, Canada*

REMIEDIATION (CONT.)

Modeling the Market for Long-Term Monitoring
Carlos Pachon, *U.S. EPA Office of Superfund Remediation & Technology Innovation, Washington, DC*
Danielle Gratton, Sashi Vissa, Peter Shields, *Tetra Tech EM Inc., Reston, VA*

Design/Build of an Emergency Multiphase Extraction System
Frank Ricciardi, Kelley Race, Ken Bisceglia, *Weston & Sampson Engineers, Inc., Peabody, MA*

Overcoming Site Challenges to Optimize an Inactive LNAPL Containment & Recovery System
Frank Ricciardi, Kelley Race, Ken Bisceglia, *Weston & Sampson Engineers, Inc., Peabody, MA*

Useful Design and Cost-Estimation Tool for Air Handling Systems on Temporary Structures for MGP Sites
Anthony Mazzoni, John Sherbondy, *TIGG Corporation, Bridgeville, PA*

Optimization of a Pump and Treat System at the Massachusetts Military Reservation
Nigel Tindall, *CH2M HILL, Otis ANG Base, MA*
Rose H. Forbes, *Air Force Center for Environmental Excellence, Otis ANG Base, MA*

Evaluating Monitored Natural Attenuation as a Possible Remedial Technology on a Contaminated Site
Neshia Wright, *University of South Carolina, Columbia SC*
Lee Newman, *University of South Carolina, Columbia SC and Savannah River Ecology Laboratory, Aiken SC*

SITE ASSESSMENT

Paraxylene Spill at a Petroleum Depot: Using 3D Visualization Results to Design Optimal Remedial Measures
Jacques Blanchet, *Biogenie S.R.D.C. Inc., Quebec, Canada*

Marc Guillemette, *Jean-Gaulin Valero/Ultramar Refinery, Quebec, Canada*
Pierre Ouellette, *Biogenie S.R.D.C. Inc., Lachenaie, Quebec, Canada*

Subtle Sampling Variations for Industrial Air Monitoring
Shannon Bouley, Susan Sitkoff, *BEM Systems, Inc., Orlando, FL*

Rapid Hydraulic Conductivity Tests Using Slug Test Accelerator Tool
Joshua Goldowitz, *Rochester Institute of Technology, Rochester NY*

An Optimization of a Bioassay for Toluene Analogs Using Bioluminescence Reporter Strain KG1206
In Chul Kong, Yunhoo Jung, Hyung Kyung Ko, Myunghee Kim, *Yeungnam University, Gyongsan-si, Kyungbuk, Korea*

Demonstrating Elimination of Nuisance Odors at Petroleum Contaminated Sites
Steven Low, Joanne Perwak, Olaf Westphalen, *Shaw Environmental, Inc., Andover, MA*

Fracture Characterization of Crystalline Bedrock for Groundwater Investigations: An Example from the Marlborough Quadrangle, Massachusetts
Stephen B. Mabee, *University of Massachusetts, Amherst, MA*
Scott A. Salamoff, *Colorado State University, Fort Collins, CO*
Joseph Kopera, Donald U. Wise, *University of Massachusetts, Amherst, MA*

A Preliminary Environmental Site Investigation for a Bridge Over the Mississippi River at Moline, Illinois
C. Brian Trask, *Illinois State Geological Survey, Champaign, IL*

LNAPL and Hydrogeological Characterization of a Tidally Influenced Petroleum Bulk Terminal in the Northeast, USA
Andrew D. Walker, Lynn Maybury, *Shaw Environmental, Inc., Hopkinton, MA*

TRAINING RANGE ISSUES

Characterization of Soil Contamination at Former Small Arms Training Ranges Utilizing a Triad Work Strategy
Elizabeth Chien, Gwyn Puckett, Kym Takasaki, *US Army Corps of Engineers, Seattle District, Seattle, WA*

A Metal Detector Study to Locate Inactive, Un-Maintained Small Arms Firing Range Impact Areas
W. Andy Martin, *Applied Research Associates, Inc., Vicksburg, MS*
Victor F. Medina, *U.S. Army Corps of Engineers-Engineer Research & Development Center, Vicksburg, MS*
Joseph R. Marsh, Kym Takasaki, *US Army Corps of Engineers, Seattle District, Seattle, WA*

WEDNESDAY, OCTOBER 20, 2004**ANALYSIS**

Recovery Determinations for Dioxin Analysis with the CALUX® Bioassay
George C. Clark, Andrew C. Chu, John D. Gordon, David Brown, Mick Chu, *Xenobiotic Detection Systems Inc., Durham, NC*

Masafum Nakamura, Hiroshi Murata, *Hiyoshi Corporation, Omihachiman, Shiga, Japan*
Michael S. Denison, *University of California Davis, Davis, CA*

Ultra High Throughput Microwave Digestion: A Novel Breakthrough Approach for Pressurized Dissolutions
David Barclay, Elaine Hasty, *CEM Corporation, Matthews, NC*
Bill MacLuckie, *CEM Corporation, Gilbertsville, PA*

Analysis of 1, 4-Dioxane – Technical Challenges and Observed Results
James F. Occhialini, James Todaro, Scott Enright, Joseph Watkins, *Alpha Analytical Labs, Eight Walkup Drive, Westborough, MA*

A Reevaluation of Antiquated Partitioning Coefficients and their Affect on Soil Clean-up Levels
Maryann H. Sapanara, *GZA GeoEnvironmental, Inc., Norwood, MA*
James J. Clark, Albert J. Ricciardelli, *GeoEnvironmental, Inc., Norwood, MA*
Kathryn Walsh, *GZA GeoEnvironmental, Inc., Norwood, MA*

Using Portable XRF to Solve Field Testing for Environmental Issues Relating to Using Tungsten Munitions.
Donald Sackett, *Innov-X Systems, Inc., Woburn, MA*

ARSENIC

Bioavailability of Arsenic to Edible Plants Grown in Poultry Litter Applied Soils
Jennifer Parker, Nicolas Bloom, Hakan Gürleyük, *Frontier Geosciences, Seattle, WA*

BIOREMEDIATION

Bioremediation of Contaminated Soil and Sediment by Composting
Dr. Zareen Khan, Prof. Y. Anjaneyulu, *Jawaharlal Nehru Technological University, Hyderabad, India*

Rapid Biological Treatment of Residual DNAPL With Slow Release Electron Donor HRC-X™
Stephen S. Koenigsberg, Anna Willett, *Regenesis, San Clemente, CA*

The Efficacy of Oxygen Release Compound (ORC®): A Nine-Year Review
Stephen S. Koenigsberg, Anna Willett, *Regenesis, San Clemente, CA*

Enhanced In Situ Bioremediation of a Complex Free-Phase Plume of No. 6 & No. 2 Fuel Oils and Motor Oils Below a Permanent Structure: Selecting the Remedy
Patrick Korths, William Mallio, *S E A Consultants Inc., Cambridge, MA*

Field Demonstration of Three Techniques for Bioremediation of Chlorinated Ethenes at Naval Station Treasure Island
Daniel P. Leigh, *Shaw Environmental and Infrastructure, Inc., Concord, CA*
Tarek Ladaa, *Shaw Environmental, Inc., Knoxville, TN*
Robert J. Steffan, *Shaw Environmental, Inc., Lawrenceville, NJ*

Aerobic In Situ Bioremediation (ISB) of Semi-Volatile Organic Compounds (SVOC) Via an Oxygen Gas Injection System
Kenneth L. Sperry, *Xpert Design and Diagnostics, Allentown, PA*
Omer J. Uppal, Dennis Keane, Matthew Nelson, Jaydeep Parikh, *Xpert Design and Diagnostics, LLC, Stratham, NH*
John L. Persico, *Blasland, Bouck & Lee, Inc., Cranbury, NJ*
Joseph J. Tota, *United Technologies Corporation, Hartford, CT*

Anaerobic Bioaugmentation Approaches for Treating Chlorinated Solvent Contaminated Aquifers
Paul B. Hatzinger, Robert Steffan, *Shaw Environmental, Inc., Lawrenceville, NJ*
Tarek Ladaa, *Shaw Environmental, Inc., Knoxville, TN*
Simon Vainberg, *Shaw Environmental, Inc., Lawrenceville, NJ*
Daniel Leigh, *Shaw Environmental and Infrastructure, Inc., Concord, CA*

Results of a Successful Enhanced Reductive Dechlorination Pilot Test Under the SITE Program
Anna Willett, Stephen S. Koenigsberg, *Regenesis, San Clemente, CA*
Robert D. Norris, *Brown and Caldwell, Golden, CO*
Willard Murray, *Gloucester, MA*

BROWNFIELDS

Brownfield Site Assessment and Remediation – City of Lawrence Gateway Bridge
Christen Sardano, Ronald Richards, Lester Tyralla, *Stone & Webster Massachusetts, Stoughton, MA*
John Zupkus, *Massachusetts Department of Environmental Protection, MA*

CHEMICAL OXIDATION

Field Pilot Testing for Chemical Oxidation at the Former Nitchequon Meteorological Station
Eric Bergeron, Christian Gosselin, *Golder Associates, MontrJal, QuJbec Canada*
Adriana Peisajovich, *Transport Canada, Dorval, QuJbec Canada*
Ginette Lajoie, *Cree Regional Authority, MontrJal, QuJbec Canada*

Case Study on the In Situ Destruction of Contaminants at a Dry Cleaner Site
Sunitha Chavali, Thomas R. Liebert, *Reardon Environmental, Inc., Houston, TX*

CHEMICAL OXIDATION (cont.)**In Situ Chemical Oxidation of Petroleum Contamination by Activated Persulfate – Field Study**

Scott C. Crawford, *Xpert Design and Diagnostics, LLC, Stratham, NH*
Kenneth L. Sperry, *Xpert Design and Diagnostics, LLC, Allentown, PA*

Expedited Remediation of a Brownfields Site Using the Modified Fenton's Process

Prasad Kakarla, Thomas Andrews, David Zervas, *In Situ Oxidative Technologies, Inc. (ISOTECSM), West Windsor, NJ*

Naphthalene Removal by Pulsed and Peroxide-Coated Microbubble Ozone Injection

William B. Kerfoot, *Kerfoot Technologies, Inc., Mashpee, MA*
Andrew Brolowski, *Streamline Environmental, East Falmouth, MA*

In Situ Chemical Oxidation (ISCO) Applications at MGP Sites

J. David Mannion, *Shaw Environmental, Inc., Hopkinton, MA*
Duane K. Root, Ph.D., *Shaw Environmental, Inc., Knoxville, TN*

Strategic Use of In Situ Ozonation to Achieve Expedited Site Closure

Steven D. Schroeder, P.E., *RMT, Inc., Greenville, SC*

**DATABASE/
DATA MANAGEMENT****Developing a Property Management System in Support of Department of Defense Superfund Remediation**

Scott DeHainaut, *CH2M HILL, Otis ANGB, MA*
Aaron Fischer, *CH2M HILL, Colorado Springs, CO*
Andy Carter, *CH2M HILL, Oak Ridge, TN*
Michelle Leab, *CH2M HILL, Otis ANG Base, MA*
Jon Davis, *Air Force Center For Environmental Excellence, Otis ANG Base, MA*

ENVIRONMENTAL FATE**The Fate and Behaviour of MTBE and BTEX in the Vadose Zone**

Ivonne Bravo-Lopez, Chris D. Collins, *Imperial College, South Kensington, London*

Mobility and Persistence of Petroleum Hydrocarbons in Peat Soils of Southeastern Mexico

Silke Cram, Christina Siebe, Rutilio Ortíz-Salinas, Andrea Herre, *Ciudad Universitaria, México, México*

Effects of Surfactants on Gas/Solid Partitioning of Herbicides

Wenli Yang, Britt A Holmén, *University of Connecticut, Storrs, CT*

Slow Desorption of Phenanthrene from Silica Particles: Influence of Pore Size, Pore Water, and Aging Time

Michael H. Huesemann, Timothy J. Fortman, Tom Hausmann, Robert G. Riley, Christopher J. Thompson, Zheming Wang, Michael J. Truex, *Pacific Northwest National Laboratory, Sequim, WA*
Brent Peyton, Ph.D., *Washington State University*

ENVIRONMENTAL FORENSICS**Why Sometimes it is a Good Idea to Bury Your Head in the Sand – A Case Study of Environmental Forensics**

Michael P. Flynn, William J. Mallio, *SEA Consultants Inc., Cambridge, MA*
David Knowlton, P.E., *Gloucester City Engineer, City of Gloucester, Gloucester, MA*

Evaluation of Solvent Plume Discharge to a Wetland Stream Using an Innovative Passive Diffusion Sampling Methodology

Lucas A. Hellerich, John L. Albrecht, *Metcalf & Eddy, Inc., Wallingford, CT*
Richard C. Schwenger, *Noranda Inc., Bathurst, N.B. Canada*

Determining the Source of Hydrocarbon Sheen Using Chromatogram Fingerprinting and Biomarker Source Ratio Analysis

P. James Linton, *Blasland Bouck and Lee, Inc., Tampa, Florida*

Historical and Chemical Determination of the Sources of PAHs in Soils at a Former Coal-Burning Power Plant, New Haven, Connecticut

Scott A. Stout, *Newfields – Environmental, Forensics Practice, LLC, Rockland, MA*
Timothy N. Wasielewski, *Advanced Environmental Interface, Inc., Middlefield, CT*

Use of Total Lead Concentrations in Environmental Forensics Age-Dating of Subsurface Gasoline Contamination.

Michael J. Wade, *Wade Research, Inc., Marshfield, MA*

LEGAL ISSUES**Liability Management at a Fuel Pipeline Release Site**

Kiran K. Srinivasan, Christina Robinson, *ENTRIX, Inc., Houston, Texas*

MISCELLANEOUS**Experimental Study of Nonreactive Solute Transport in Fine-Grained Soils Under Consolidation**

Guoping Tang, Akram N. Alshawabkeh, Thomas C. Sheahan, *Northeastern University, Boston, MA*

MTBE**The Half-Life of Gaseous Ozone Pulsed Soil Perfusion for MTBE and Other Oxygenate Removal**

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

Air Sparging Effectiveness in MTBE Removal from Water, Tested on an Intermediate Scale Laboratory Apparatus

Daniele Lausdei, *Golder Associates S.r.l., Roma, Italy*
Claudio Alimonti, *Università di Roma "La Sapienza", Roma, Italy*

RISK ASSESSMENT**A Review of Risk Assessment Methods to Demonstrate Potential Risk from Exposure to Asbestos in Soil**

Lisa Bailey, Miriam Weil, Deborah Murray, *Menzie-Cura & Associates, Inc., Winchester, MA*

Assessing the Toxic Risk of Polychlorinated Biphenyl (PCB) Congeners Using the Bluegill Sunfish Immune System

Jessica E. Duffy, Yun Li, Judith T. Zelikoff, *New York University School of Medicine, Tuxedo, NY*

Factors Affecting the Bioconcentration of DDE from Soil By 3 Earthworm Species

Jason W. Kelsey, Allison Colino, *Muhlenberg College, Allentown, PA*
Jason C. White, *The Connecticut Agricultural Experiment Station, New Haven, CT*

Applying a Spatially Explicit Wildlife Exposure Model to Improve Remedial Efficiency: The SEEM Case Study

Charles A. Menzie, *Menzie-Cura & Associates, Inc., Winchester, MA*
W. Theodore Wickwire, *Menzie-Cura & Associates, Inc., Portland, ME*
Dimitriy Burmistrov, *Menzie-Cura & Associates, Inc., Winchester, MA*
Mark S. Johnson, *US Army Center for Health Promotion and Preventive Medicine, Aberdeen Proving Ground, MD*

Human Health and Ecological Risk Assessment of a PCB-Impacted Former Radar Station in Atlantic Canada

Robert D. Willis, Christine E. Moore, *Cantox Environmental Inc., Halifax, Nova Scotia, Canada*
Eugene Lee, *AMEC Earth & Environmental, St. John's, Newfoundland, Canada*
Kevin Edwards, *Transport Canada, St. John's, Newfoundland, Canada*
Margaret Whyte, *Transport Canada, Moncton, New Brunswick, Canada*

RISK BASED CLEANUP**Status of Gasoline-Related Hazardous Waste Sites in Sensitive Groundwater Resource Areas in Massachusetts**

Darin R. Warner, Ralph Tella, Henry J. Lord, *Lord Associates, Norwood, MA*

SEDIMENTS**Site-Specific Equilibrium Partitioning Sediment Benchmarks for PAHs in Sediments at Manufactured Gas Plants**

Susan Kane Driscoll, Ben Amos, Meg McArdle, Charles A. Menzie, *Menzie-Cura & Assoc., Inc., Winchester, MA*
Andrew Coleman, *EPRI, Palo Alto, CA*

Monitoring of PCDD/Fs Distribution in Marine Sediments according to Different Particle Sizes

Se-Jin Lee, Ji-Hoon Kim, Yoon-Seok Chang, *Pohang University of Science and Technology, Pohang, Korea*
Myeong-Hee Moon, *Yonsei University, Seoul, Korea*

Preliminary Sediment Sampling at the Big Lost River Sinks

Christopher J. Martin, Douglas Halford, Dr. Richard Marty, *S. M. Stoller Corporation, Idaho Falls, ID*

Effects of Data Sampling in Geostatistical Modeling of Sediment Contaminant Concentrations

Kandiah Ramanitharan, *Tulane University, New Orleans, LA*

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GENERAL TOPICS

- bioremediation • chemical analysis
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- 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

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Conference at a Glance

Monday, October 18, 2004

Workshops

- 9:00 am – 5:00 pm 1) **Modeling Vapor Attenuation Workshop: A Study of Vapor Intrusion Modeling in the Context of EPA's Guidance** (Campus Center Auditorium)
10:00 am – 5:00 pm 2) **Theory and Use of Field Portable X-ray Fluorescence for Soil Analysis** (804-08 Campus Center)
10:00 am – 5:00 pm 3) **In Situ Chemical Oxidation Workshop** (101 Campus Center)
1:00 – 5:00 pm 4) **The Triad Approach to Managing Decision Uncertainty for Better Cleanup Projects** (904-08 Campus Center)
1:00 – 5:00 pm 5) **The Role of Anaerobic Biodegradation Process in Passive and Enhanced Monitored Natural Attenuation Programs** (1109 Campus Center)
2:00 – 5:00 pm 6) **Environmental Fate of Hydrocarbons in Soils and Groundwater** (168C Campus Center)

Tuesday, October 19, 2004

Platform Presentations

8:30am – Noon

Session 1: **Environmental Biotechnology** (Campus Center Auditorium)

Session 2: **Heavy Metals at Training Ranges** (101 Campus Center)

Session 3: **Site Assessment** (168C Campus Center)

Session 4: **Bioremediation of Acid Mine Drainage and Removal of Metals** (11th Floor, Campus Center) **Starts at 8:00am**

1:30pm – 5:30pm

Session 1: **Environmental Terrorism** (Campus Center Auditorium)

Session 2: **Remediation I** (101 Campus Center)

Session 3: **Phytoremediation** (168C Campus Center)

Session 4: **Heavy Metals** (11th Floor, Campus Center)

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)

- 1) **Modeling Vapor Attenuation Workshop: A Study of Vapor Intrusion Modeling in the Context of EPA's Guidance** (Continued) (Campus Center Auditorium)
7) **Asbestos and the MCP** (101 Campus Center)
8) **Policy Issues in Inter-Agency Coordination** (904-08 Campus Center)
9) **In Situ Thermal Remediation** (917 Campus Center)

Wednesday, October 20, 2004

Platform Presentations

8:30am – Noon

Session 1: **In Situ Chemical Oxidation** (Campus Center Auditorium)

Session 2: **Oxygenates** (101 Campus Center)

Session 3: **Bioindicators of Environmental Health: Concepts and Application** (168C Campus Center)

Session 4: **Pay-for-Performance Remediation Technologies – Methods & Case Studies of Science & Economics** (11th Floor Campus Center)

1:30pm – 5:30pm

Session 1: **Risk Assessment and Remedial Approaches towards Restoration and Management of Contaminated Rivers** (Campus Center Auditorium)

Session 2: **Arsenic** (101 Campus Center)

Session 3a: **Analysis** (168C Campus Center)

Session 3b: **Pesticides** (168C Campus Center)

Session 3c: **Indoor Air** (168C Campus Center)

Session 4: **Bioremediation** (11th Floor, Campus Center)

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)

- 10) **An Introduction to the Use and Application of Gene Chips in Environmental Toxicology and Implications for Their Use as Biomarkers in Contaminated Sites Evaluations** (804-08 Campus Center)
11) **Latest Developments in Managing Perchlorate in Soils and Groundwater** (168C Campus Center)
12) **Vapor Intrusion into Indoor Air Workshop: MADEP Requirements, Background Levels, Case Studies and More** (101 Campus Center)
13) **Exploring Innovative and Cost-Effective Solutions to Contaminated Sediments to Achieve Ecological Restoration of the Lower Neponset River** (917 Campus Center)
14) **Environmental Forensics Workshop** (904-08 Campus Center)

Thursday, October 21, 2004

Platform Presentations

8:30am – Noon

Session 1: **Environmental Forensics** (Campus Center Auditorium)

Session 2: **Perchlorate** (101 Campus Center)

Session 3a: **Legal Issues** (168C Campus Center) **Starts at 8:00am**

Session 3b: **Modeling** (168C Campus Center)

Session 4: **Risk Assessment / Bioavailability** (11th Floor, Campus Center)

1:30pm – 5:30pm

Session 1: **Remediation II** (Campus Center Auditorium)

Session 2: **Regulatory** (101 Campus Center)

Session 3: **Sediments** (168C Campus Center)

EXHIBITS

Throughout the First Floor Concourse.

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