

The 24th Annual International Conference on

# Soils, Sediments and Water

**October 20-23, 2008**  
University of Massachusetts at Amherst



**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

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

- **130 Presenters**
- **80 Posters**
- **9 Workshops**
- **48 Exhibitors**

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and Financial Services, LLC**  
**Kerfoot Technologies, Inc.**  
**LSPA**  
**The Dragun Corporation**

**Profiles of the 2008 Life Career Award Winners Included!**

- 8:00am – 5:00pm 1) **MCP Representativeness Evaluations & Data Usability Assessments**  
- LSP Course Number: 1348 (Reading Room, Campus Center)
- 9:00am – 5:00pm 2) **In-Situ Chemical Oxidation Workshop** (168C Campus Center)
- 1:00pm – 5:00pm 3) **Vapor Intrusion Workshop** (163C Campus Center)
- 2:00pm – 5:00pm 4) **Environmental Fate of Hydrocarbons in Soils and Groundwater** (101 Campus Center)

## AM SESSIONS

# Tuesday

### Session 1: ADVANCED DIAGNOSTICS FOR SITE DESIGN, MANAGEMENT AND CLOSURE

Sponsored by **ENVIRON**

#### International Corporation

163 C Campus Center

Moderator: **Stephen S. Koenigsberg**,

*ENVIRON International Corporation, Irvine, CA*

#### 8:30 am

##### Advanced Diagnostic Tools and Applications to Site Design, Management and Expedited Closure

Steve Koenigsberg, *ENVIRON International Corporation, Irvine, CA*

#### 9:00 am

##### Genomics, Metagenomics and Stable Isotope Probing: Applications to Understanding MTBE and TBA Biodegradation

Mike Hyman, *North Carolina State University, Raleigh, NC*

#### 9:30 am

##### Adaptive Evolution: A Strategy for Better Understanding and Optimizing Environmental Biotechnologies

Zarath M. Summers, Derek R. Lovley, *University of Massachusetts Amherst, Amherst, MA*

#### 10:00 am

##### Break

#### 10:30 am

##### Achieving National Paradigm Shifts: How ITRC Increases Regulatory Efficiency by Educating on Innovative Environmental Technologies

Anna Willett, *Interstate Technology and Regulatory Council (ITRC), Washington DC*

#### 11:00 am

##### Use of Advanced Passive Soil Gas Technology for Site Conceptualization and Closure Strategies

Harry O'Neill, *Beacon Environmental Services, Bel Air, MD*

Joseph E. Odencrantz, Ph.D, *Beacon*

*Environmental Services, Newport Beach, CA*

#### 11:30 am

##### Soil Water Potential Effects on Bio-inspired Sensor Response

C.M. Reynolds, K.L. Foley, D.B. Ringelberg, *USA Engineering Research & Development Center, Hanover, NH*

J.E. Anderson, *USA Engineering Research & Development Center, Alexandria, VA*

### Session 2: VAPOR INTRUSION

101 Campus Center

Moderator: **Frank Peduto**, *Spectra*

*Environmental Group, Latham, NY*

#### 8:30 am

##### An Overview of Current Vapor Sampling and Modeling Techniques into Indoor and Outdoor Air

Amanda Lee, Dr Martin Howell, Jackie Wright, Stephen Bowly, *URS Australia Pty Ltd, North Sydney, Australia*

#### 9:00 am

##### Squeaky Clean?: Updated Massachusetts Indoor Air Quality Standards and Their Effects on a Home Heating Oil Release

Rick Stromberg, Steven T. Gaito, Caitlin Bell, *LFRR Inc., Braintree, MA*

#### 9:30 am

##### Residential Indoor Air Comparative Study Near DoD Facility: Canisters v. Sorbent Tubes v. Passive Diffusion Samplers

Joseph E. Odencrantz, *Beacon Environmental Services, Newport Beach, CA*

Harry O'Neill, *Beacon Environmental Services, Bel Air, MD*

Shirley J. Steinmacher, *MWH Americas, Salt Lake City, UT*

Jarrold D. Case, *Hill Air Force Base, UT*

Paul C. Johnson, *Arizona State University, Tempe, AZ*

#### 10:00 am

##### Break

#### 10:30 am

##### Vapor Intrusion Pathway for a Commercial Facility at a Former Manufacturing Facility – Not the Typical Regulatory Conceptual Model

Michael J. Murphy, Phillip J. Muller, David E. Heislein, *MACTEC Engineering & Consulting, Inc., Wakefield, MA*

Rod R. Rustad, *MACTEC Engineering & Consulting, Inc., Portland, ME*

Greg Rotondi, *Pine & Swallow Associates, Groton, MA*

#### 11:00am

##### Panel Discussion: Grappling with Vapor Intrusion: The States' Points of View"

Moderator:

Ellen Moyer, *CH2M HILL, Montgomery, MA*

Panelists:

John Fitzgerald, *MA DEP, Boston, MA*

Robin Mongeon, *NH DES, Concord, NH*

William Wertz, *NY DEC, Albany, NY*

### Session 3a: ARSENIC

168C Campus Center

Moderator: **Scott Saroff**,

*CH2M Hill, Manlius, NY*

#### 8:30 am

##### Microorganisms Associated with Private Wells with High Levels of Arsenic Located in Northport, Maine

Jennifer M Weldon, Jean D. MacRae, *University of Maine, Orono, ME*

#### 9:00 am

##### Background versus Risk-Based Cleanup Goals - An Examination of Arsenic Background Concentrations in Seven States

Kelly A.S. Vosnakis, Karen Madsen, Lisa J.N. Bradley, *ENSR, Westford, MA*

#### 9:30 am

##### Arsenic in Historic Fill Soils, Consideration of the Occurrence and Impact of the Natural and Anthropogenic Components

William R. Swanson, *CDM Inc., Cambridge, MA*

#### 10:00 am

##### Break

#### 10:30 am

##### Variation of Total Arsenic in Playground Soil as a Function of Distance from CCA-Treated Wooden Structures

Cielito DeRamos King, *Bridgewater State College, Bridgewater, MA*

### Session 3b: TUNGSTEN

168C Campus Center

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

#### 11:00 am

##### Soil Microbial Community Response to Weathered Tungsten

David B. Ringelberg, *USACE Engineering Research & Development Center, Hanover, NH*

Anthony J. Bednar, Laura L. Inouye, David R. Johnson, *USACE Engineering Research & Development Center, Vicksburg, MS*

Charles M. Reynolds, *USACE Engineering Research & Development Center, Hanover, NH*

#### 11:30 am

##### Coupling of Oxygen and pH Requirements for Effective Microwave-assisted Digestion of Tungsten in Soils

Christopher S. Griggs, Steven L. Larson, *U.S. Army Corps of Engineers Engineer Research and Development Center, Vicksburg, MS*

Catherine C. Nestler, *Applied Research Associates, Vicksburg, MS*

## Session 4: HEAVY METALS

Reading Room, Campus Center  
Moderator: **Tracy L. Roth**, LFR Inc.,  
East Hartford, CT

### 8:30 am New Field Test for Lead (Pb 2+) in Contaminated Soil

Ivars Jaunakais, B. A., Maris Jaunakais, M. A.,  
Balaji Tatineni, Ph. D., *Industrial Test Systems,  
Inc., Rock Hill, SC*

### 9:00 am Mineral Phase and Groundwater Chemistry Characterization to Assess Natural Attenuation of Dissolved Nickel in Groundwater

Matthew J. Hammer, P.G., Paul P. Gallagher,  
P.G., *Sanborn, Head & Associates, Inc.,  
Akron, OH*  
Charles A. Crocetti, Ph.D., P.G., *Sanborn,  
Head & Associates, Inc., Concord, NH*

### 9:30 am Contributions to Diet from Natural Sources to Urinary Cadmium Levels among Indigenous Women from the Torres Strait

Michael R. Moore, Melissa Haswell-Elkins,  
Victor McGrath, Soisungwan Satarug, Maria  
Walmsby, Jack C Ng, *The University of  
Queensland, Queensland, Australia*

### 10:00 am Break

### 10:30 am Broadway Mercury Response

Alex Sherrin, *US EPA Region I New England,  
Boston, MA*

### 11:00 am In Situ Chemical Reduction of Hexavalent Chromium and Nickel in a Saturated Silty Clay Matrix Using Calcium Polysulfide

Matthew Burns, Gigi Beaulieu, Michael Brown,  
*WSP Environment & Energy, Boxborough, MA*  
Derek Chase, *Emerson, St. Louis, MO*

### 11:30 am Berry's Creek: A Glance Backward and a Look Forward

Robert P. Blauvelt, Victoria Wright, *EWMA,  
Parsippany, NJ*

# Life Achievement Award

The Annual International Conference on Soils Sediments and Water is pleased to announce the recipients of the **Life Achievement Award**. This award is given to individuals in the areas of industry, academia, government and military, who have made significant contributions to the understanding and solution of soil, sediment and groundwater pollution problems. This year's winners are **James Dragun**, Ph.D., The Dragun Corporation, in the area of industry, **Annie M. Jarabek**, Ph.D., National Center for Environmental Assessment, US EPA, in the area of government, Lieutenant Colonel **Wade H. Weisman, Jr.**, Office of the Deputy Assistant Secretary of the Air Force for Environment, Safety and Occupational Health, in the area of military and **Raymond S. H. Yang**, Ph.D., DABT, College of Veterinary Medicine and Biomedical Sciences, Colorado State University, in the area of academia.

The members of the Life Achievement Award Committee are

**Barbara Callahan**, University Research  
**Barry Johnson**, Assistant Surgeon General (ret.)  
**Dallas Wait**, Gradient Corporation  
**Peter Woodman**, Risk Management Incorporated



## JAMES DRAGUN, Ph.D

Dr. Dragun is a soil chemist with extensive experience dealing with soil investigations and remediation. He has addressed the extent, danger, and/or cleanup of chemicals at sites of national and international concern such as the oil lakes caused by the 1991 Persian Gulf War (Kuwait), VX chemical warfare agent for the U.N. Weapons Inspection Program (Iraq), malfunction of the Three Mile Island Nuclear Power Plant (USA), and dioxin in Missouri (USA). Twenty-four nations including Japan, Canada, the United Kingdom, Australia, Germany, Switzerland, Italy, France, Spain, Scandinavia, and the Netherlands have utilized his expertise.

He founded and built an environmental engineering-science consulting company. For over 20 years, he has led a team of specialists in chemical engineering, civil engineering, environmental engineering, geotechnical engineering, mechanical engineering, physics, plant engineering, environmental science, geology, hydrogeology, chemistry, biochemistry, toxicology, and biology. Dr. Dragun and his associates have solved environmental issues for major companies and governments in six continents (Africa, Asia, Australia, Europe, North America, and South America).

Dr. Dragun is a full Professor at the University of Massachusetts and at Wayne State University, Detroit, MI. He has authored two college textbooks and co-authored/edited eight technical books. Also, Dr. Dragun has been the Editor-in-Chief of the International Journal of Soil and Sediment Contamination for over 17 years. His accomplishments are listed in Who's Who in the World, Who's Who in Science and Engineering (world compilation), and Who's Who in America. Dr. Dragun has received several honors and awards for his professional achievements and contributions to the community.



## LIEUTENANT COLONEL WADE H. WEISMAN JR.

Lt Col Weisman is the Deputy for Occupational and Force Health Protection, Office of the Deputy Assistant Secretary of the Air Force for Environment, Safety and Occupational Health, Pentagon, Washington D.C. He is responsible for providing senior policy and program oversight for Air Force occupational health programs worldwide.

Lt Col Weisman graduated with a Bachelor of Science degree in Biology from the US Air Force Academy in 1986. He earned a Master of Science in Public Health in Environmental Toxicology from the University of North Carolina, Chapel Hill in 1992. He has served as a toxicologist and industrial hygienist and has 22 years of experience in occupational health surveillance, industrial hygiene,

**Noon – Lunch** Luncheon Speakers,  
Tuesday, October 21, 2008  
Amherst Room,  
10th Floor Campus Center

## An Overview of the Patrick Administration's Goals and Priorities for Energy and the Environment

Ian A. Bowles, *MA Secretary of Energy and  
Environmental Affairs, Boston, MA*

## Emerging Contaminants – The New Frontier

Paul J. Yaroschak, P.E., *Office of the  
Secretary of Defense, Arlington, VA*



**Session 1: MECS**

163C Campus Center

Moderator: **Mark Begley**, *Environmental Management Commission, Camp Edwards, MA***1:30 pm****Small Arms Range Characterization Using the CRREL Multi-Increment Sampling (MIS) and Analysis by 8330B**Mark R. Koenig, *US Army Corps of Engineers, New England District, Concord, MA*  
Paul Nixon, Ben Gregson, *Impact Area Groundwater Study Program, Camp Edwards, MA*John Verban, *TetraTech, EC, Inc., Boston, MA*  
Brad Chrigwin, Jim Madison, *Test America Laboratory, South Burlington, VT*  
Alan Hewitt, Thomas F. Jenkins, Marianne Walsh, *US Army Engineer Research and Development Center, Hanover, NH***2:00 pm****Site Specific Sorption/Desorption Measurements for Nitroglycerin and Dinitrotoluene at Camp Edwards, MMR, Cape Cod, Massachusetts**Ian T. Osgerby, *USACE, Concord, MA*  
Jay Clausen, *USACE/ERDC/CRREL, Hanover, NH***2:30 pm****A Remedial Approach to Chemical Treatment of Nitroaromatic-Explosives Contaminated Soils via Alkaline Hydrolysis**Ronnie Britto, Mikael L. Spangberg, Frank Bogle, Larry Tyner, *Tetra Tech Inc., Oak Ridge, TN*Scott J. Bolton, *Volunteer Army Ammunition Plant, Chattanooga, TN*Doug Webb, *U.S. Army Corps of Engineers, Mobile District, Mobile, AL***3:00 pm****Break****3:30 pm****Redox Transformation of Nitroaromatic and Cyclic Nitramine Explosives in Aqueous Environments**Minori Uchimiya, *US Army Corps of Engineers, Vicksburg, MS***4:00 pm****Enzymatic and Bio-geochemical Factors that Affect RDX Degradation**Deborah R. Felt, Anthony Bednar, *US Army Engineer Research & Development Center, Vicksburg, MS*Clint Arnett, *US Army Construction Engineering Research Laboratory, Champaign, IL***4:30 pm****Evaluation and Selection of Technologies for the Removal of RDX from an Industrial Wastewater Stream**David B. Gent, Jared L Johnson, *US Army Engineer Research & Development Center, Vicksburg, MS*Greg O'Connor, *U.S. Army Armament Research, Development and Engineering Center, Picatinny, NJ*Deborah R. Felt, Steven L. Larson, *US Army Engineer Research & Development Center, Vicksburg, MS*Bob Winstead, *Ordnance Systems Inc., Kingsport, TN***Session 2: BIOREMEDIATION I**

101 Campus Center

Moderator: **Kevin Finneran**, *University of Illinois at Urbana/Champaign, Urbana, IL***1:30 pm****Enhanced Bioremediation of a TCE Plume Using Emulsified Oil**Steven F. Fesko, *Eaton Corporation, Cleveland, OH*Jeffrey T. Schick, Douglas R. Hunter, *Leggett, Brashears & Graham, Inc., Columbus, OH***2:00 pm****Anaerobic MTBE and TBA Biodegradation under Shifting Geochemical Conditions: Microbial Community Analysis and Novel, Anaerobic Liquid Enrichment Cultures**Na Wei, Kevin T. Finneran, *University of Illinois at Urbana/Champaign, Urbana, IL***2:30 pm****Stimulation of Anaerobic BTEX Bioremediation Using Epsom Salt (Magnesium Sulfate)**Richard A. Royer, Angela S. Fisher, Rachel L. Farnum, Angelo A. Bracco, *General Electric Global Research Center, Niskayuna NY*  
Damian D. Foti, *General Electric Energy, Schenectady, NY*Paul B. Hatzinger, Charles E. Schaefer, *Shaw Environmental, Inc., Lawrenceville, NJ*Stewart H. Abrams, *Langan Engineering & Environmental Services Inc., Elmwood Park, NJ***3:00 pm****Break****3:30 pm****Temporal Fluctuations in Soil Water Potential Alter Soil Biochemistry: Relationship to Taggant-based Sensor Performance**C.M. Reynolds, K.L. Foley, D.B. Ringelberg, *USA Engineering Research & Development Center, Hanover, NH*J.E. Anderson, J.D. Nelson, *USA Engineering Research & Development Center, Alexandria, VA***4:00 pm****Bioremediation of Organochlorine Pesticides in Soil via In-situ Chemical Reduction**Ravikumar Srirangam, Fayaz Lakhwala, *Adventus Americas, Inc. Union, NJ*David Hill, *The Adventus Group, Mississauga, ON, Canada***4:30 pm****1,4-Dioxane Cometabolic Biodegradation Treatability Results at an NPL Site With a Wide Range of Contaminants**Frank T. Barranco, Jr., Ph.D., *EA Engineering, Science, and Technology, Sparks, MD*Robert C. Borden, Ph.D. P.E., *North Carolina State University, Raleigh, NC*Scott R. Miller, P.E., *Clean Sites Environmental Services Inc., Potomac Falls, VA***5:00 pm****Membrane-Delivered Ethene to Stimulate Microbial Degradation of DCE**Nash A. Saleh, *Edwards Air Force Base, Edwards, CA*Aditi Bandyopadhyay, Avanti Kavathekar, Kumal Patel, and Lee Clapp, *Texas A&M University, Kingsville, TX***Session 3: RISK ASSESSMENT**

168C Campus Center

Moderator: **Millie Garcia-Serrano**, *MA DEP, Lakeville, MA***1:30 pm****Development of Normal Human Colonocyte Cultures to Identify a Carcinogenic Potential for Priority Disinfection Byproducts**Anthony DeAngelo, Carlton Jones, Michael George, Sheau-Fung Thai, Yue Ge, Ernest Winkfield, *US EPA, Research Triangle Park, NC***2:00 pm****Comparison Assessment of the Dermal Bioavailability of Soil-Aged Polycyclic Aromatic Hydrocarbons**Mohamed S. Abdel-Rahman, Gloria A. Skowronski, Rita M. Turkall, *New Jersey Medical School, Newark, NJ***2:30 pm****A Practical Approach to Addressing Urban Garden Soil Contamination**Wendy Heiger-Bernays, Alicia J Fraser, *Boston University, Boston, MA*Dan Brabander, *Wellesley College, Wellesley, MA*  
Valerie Burns, *Boston Natural Areas Network, Boston, MA*Robert Maxfield, Dan Boudreau, *EPA New England Regional Laboratory, North Chelmsford, MA*H. Patricia Hynes, *Boston University, Boston, MA***3:00 pm****Break****3:30 pm****Risk Assessment Provisions in the European REACH Regulation**Brian Magee, Ph.D., *AMEC Earth & Environmental, Westford, MA***4:00 pm****Benefits of Using Site-specific Measurements and Innovative Approaches in an Ecological Risk Assessment**Margaret E. McArdle, *Exponent, Inc., Winchester, MA*Pieter Booth, *Exponent, Inc., Bellevue, WA***4:30 pm****Environmental Sustainability of Various Remedial Alternatives**James F. Cuthbertson, P.E., *Delta Consultants, Novi, MI***5:00 pm****Development and Application of Recreational, Ecological and Conservation Reuse Risk Assessments for Contaminated Lands**Christopher S. Warren, *ExxonMobil Biomedical Sciences, Inc., Annandale, NJ*Gregory R. Biddinger, *ExxonMobil Biomedical Sciences Inc., Houston, TX*Rosemary T. Zaleski, *ExxonMobil Biomedical Sciences Inc., Annandale, NJ*Charles G. Johnson, *Colorado Department of Public Health and Environment, Denver, CO*

## Session 4a: ENVIRONMENTAL FATE

Reading Room, Campus Center  
 Moderator: **Kenneth Lee**, University of Massachusetts Lowell, Lowell, MA

**1:30 pm**  
**Environmental Fate of Natural and Synthetic Oestrogens in Effluents as Irrigation Waters**  
 Edriyana A. Aziz, Helen E. Keenan, University of Strathclyde, Glasgow, Scotland

**2:00 pm**  
**Characterization of Multiple Chlorinated Solvent Plumes due to the Impact of TCE Screening Level Reduction**

James R. Dickson, CTI and Associates Inc., Cleveland, WI  
 Andrew Lonergan, CTI and Associates Inc., Brighton, MI  
 Rob Stenson, CTI and Associates Inc., Cleveland, WI  
 Chris Winklejohn, CTI and Associates Inc., Brighton, MI

**2:30 pm**  
**Natural Attenuation of Detached Contaminated Groundwater Plumes: Application of Seasonal Kendal's Tau Analysis**

Joseph E. Haas II, NY DEC, Stony Brook, NY  
 Donald A. Trego, Environmental Assessment & Remediations, Patchogue, NY

**3:00pm**  
 Break

## Session 4b: ANALYSIS

Reading Room, Campus Center  
 Moderator: **Carol Bois**, Bois Consulting Company, Inc., Framingham, MA

**3:30 pm**  
**Determination of Sulfur Species in Acid Mine Drainage Studies Using X-ray Photoelectron Spectroscopy**

Hylton G. McWhinney, Prairie View A&M University, Prairie View, TX  
 Paul Behum, US Department of Interior  
 Jon E. Brandt, Railroad Commission of Texas, Austin, TX  
 Tameka Harney, Tony Grady, Prairie View A&M University, Prairie View, TX

**4:00 pm**  
**Emerging Technology Key to Accurate and Rapid Analysis for Arsenic in Environmental Wastewater and Soil**

David K. Beck, Parker D. Lindstrom, Kevin T. Moran, Robert Strocko, Lancaster Laboratories, Inc., Lancaster, PA

**4:30 pm**  
**Comparison of Naphthalene Ambient Air Sampling & Analysis Methods at a Former Manufactured Gas Plant Site**

Alyson Fortune, Columbia Analytical Services Air Quality Laboratory, Simi Valley, CA  
 Leo Gendron, ENSR, Westford, MA  
 Michael Taday, Columbia Analytical Services Air Quality Laboratory, Simi Valley, CA

**5:00 pm**  
**Adding Method 6800 to the Hexavalent Chromium Analysis Toolbox**

Mark Bruce, PhD, TestAmerica, Canton, OH  
 Albert Vicinie III, William Reinheimer, TestAmerica, Pittsburgh, PA

- 7:00pm – 9:00pm 5) **Nanotechnology and the Environment** (163C Campus Center)  
 7:00pm – 10:00pm 6) **Environmental Forensics Workshop** (101 Campus Center)  
 7:00pm – 10:00pm 7) **Advanced Tools for In-Situ Remediation** (Reading Room, Campus Center)

## ANNOUNCEMENT

*This year we are proud to announce the*

## Adventus Group Student Award

*for*

*platform and poster presentation*

**\$1000 Awards will be given**

**to the best student**

**platform and poster presentations**



## List of Exhibitors

Booth	Affiliation
B1	AMEC Earth and Environmental, Inc.
B2	Regenesis
B3	EFI Global, Inc.
B4	In Situ Oxidative Technologies ISOTEC SM
B5	Thermo Scientific NITON Analyzers
B6	Ivey International, Inc.
B7	Vista Analytical Laboratory, Inc.
B8	Lancaster Laboratories, Inc.
B9	Waterloo Barrier Inc.
B10	Ground/Water Treatment and Technology
B12	US EPA Technology Innovation and Field Service Division
B13	Columbia Analytical Services, Inc.
B14	LSP Association
B15	Micah Group LLC
B16	Clean Harbors Environmental Services
B17	CL Solutions LLC
B18	Geotech Environmental Equipment
B19	ZEBRA Environmental Corp.
B20	Accutest Laboratories of New England
B21	TRS-Environmental
B22	ENSR
B23	Alpha Analytical, inc.
B24	Geo-Cleanse International, Inc.
B26	AirSep Corporation
B27	Kerfoot Technologies, Inc.
B28	Innov-X Systems
B29	Groundwater Analytical
B30	Adventus Group
B31	JRW Bioremediation, L.L.C.
B32	Microseeps, Inc.
B33	Microbial Insights, Inc.
B34	TerraTherm, Inc.
B35	GORE
B36	Thermal Remediation Services
B37	RJS Associates, Inc.
B38	Geotech Computer Systems, Inc.
B43	Eastern Analytical, Inc.
T1	Student Career Booth
T2	Industrial Test Systems, Inc.
T3	Bruker Optics
T4	EnChem Engineering, Inc.
T5	Biogenie Corporation

## Session 1: GROUNDWATER NRDA IN THE MODERN AGE

163C Campus Center

Moderator: **Vicky Peters**, *Consultant, Lakewood, CO*

**8:30 am**

### Quantifying Groundwater Injury and Service Loss in Natural Resource Damage Assessments

James Holmes, Ann Maest, Jennifer Peers, *Stratus Consulting Inc., Boulder, CO*

**9:00 am**

### New Mexico vs GE: Implications for Groundwater NRDA

Vicky L. Peters, *Consultant, Lakewood, CO*

**9:30 am**

### Identifying, Scaling, and Evaluating Groundwater Restoration Projects as Compensation for Groundwater Injuries

Diana Lane, *Stratus Consulting Inc., Middletown, CT*

Karen Carney, *Stratus Consulting Inc., Washington, DC*

Josh Lipton, *Stratus Consulting Inc., Boulder, CO*

**10:00 am**

### Break

**10:30 am**

### Economics of Groundwater Damage Assessment

David Chapman, *Stratus Consulting, Boulder, CO*

W. Michael Hanemann, *University of California at Berkeley, Berkeley, CA*

**11:00 am**

### The New Jersey Approach to Groundwater Natural Resource Damage Assessment

John K. Dema, *Law Offices of John K. Dema, Christiansted, St. Croix, USVI*

**11:30am**

### Panel Discussion: Where do the Trustees Go from Here?

## Session 2: NANOTECHNOLOGY

101 Campus Center

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

**8:30am**

### Competitive Adsorption of Endocrine Disrupting Chemicals on Carbon Nanotubes

Bo Pan, Ph.D., Baoshan Xing, Ph.D., *Department of Plant, Soil and Insect Sciences, University of Massachusetts, Amherst, MA*

**9:00am**

### Colloidal Behavior of Aluminum Oxide Nanoparticles as Affected by pH and Humic Acid (HA)

Saikat Ghosh, Bo Pan, Hamid Mashayekhi, Prasanta .C. Bhowmik, Baoshan Xing, *Department of Plant, Soil, and Insect Sciences, University of Massachusetts, Amherst, MA*

**9:30am**

### Influence of Sonochemical Oxidation on the Dispersion of Multi-Walled Carbon Nanotubes

Yingchen Bai, Daohui Lin, Baoshan Xing, *Department of Plant, Soil, and Insect Sciences, University of Massachusetts, Amherst, MA*

**10:00am**

### Break

**10:30am**

### Ozone Nanobubble Treatment of Complex Alkanes

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

**11:00am**

### The application of Stokesian principals to predict Nanoparticle Fate and Transport in Gaseous and Aqueous Environments

C. Mackay, *AMEC Earth and Environment, Portland, ME*

**11:30am**

### Massachusetts Government Perspectives on Nanotechnology

Sharon Weber, *MA DEP, Boston, MA*

## Session 3: PHYTOREMEDIATION

168C Campus Center

Moderators:

**Jason White**, *The Connecticut Agricultural Experiment Station, New Haven, CT*

**Om Parkash**, *University of Massachusetts Amherst, Amherst, MA*

**8:30 am**

### Hyperaccumulation of Cadmium by Wheat (*Triticum vulgare*) Plant- A Phytoremedial Approach

Rashmi Nigam, *Flushing, NY*

**9:00 am**

### Analysis of Arsenic-Induced Transcriptomal Response of *Crambe abyssinica* to Identify Genes Involved in Arsenic Metabolism

Bibin Paulose, Om Parkash, *University of Massachusetts Amherst, Amherst, MA*

**9:30 am**

### Phytoextraction of Heavy Metals with California Grass (*Brachiaria mutica*)

Jamie L. Anderson, *AMEC Earth & Environmental, Inc., Honolulu, HI*  
Eric E. Wetzstein, PG, *AMEC Earth & Environmental, Inc., Honolulu, HI*  
Kim Markillie, *Environmental Chemical Corporation, Aiea, HI*

**10:00 am**

### Break

**10:30 am**

### Dual Use of Energy Crops for Addressing Areawide Soil Lead

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

**11:00 am**

### Overcoming Current Limitations to Phytoremediation of Trichloroethene

Sarah M. Strycharz, *University of Massachusetts Amherst, Amherst, MA*  
Lucas Odom, *University of South Carolina, Columbia, SC*

Francesca Palomba, *University of Naples, Naples, Italy*

Lee Newman, *University of South Carolina, Columbia, SC*

## Session 4: DISTRIBUTION AND LONGEVITY ISSUES ASSOCIATED WITH INJECTABLE IN-SITU REMEDIATION TECHNOLOGIES

Reading Room, Campus Center

Sponsored by **Regenesis**

Moderator: **Ben Mork**, *Regenesis, San Clemente, CA*

**8:30am**

### The Impact of Electron Donor Zeta Potential and Hydrophile / Lipophile Balance on Subsurface Distribution

Ben Mork, *Regenesis, San Clemente, CA*

**9:00am**

### Amendment Distribution in the Subsurface: Myths and Realities

Matt Petersen, Mark Harkness, *GE Global Research, Schenectady, NY*

**9:30am**

### Reductive Dechlorination of VOCs by In-Situ Bioaugmentation: Four Case Studies of Success

Carl Elder, Douglas Larson, *Geosyntec Consultants, Acton, MA*

Brian Hitchens, Sam Williams, *Geosyntec Consultants, San Diego, CA*

**10:00am**

### Break

**10:30am**

### Effective Distribution and Longevity of Hydrogen Donors for Enhanced Reductive Dechlorination

Maureen Dooley, *Regenesis, Wakefield, MA*  
Drew Baird, *Regenesis, Greenville, SC*

**11:00am**

### Panel Discussion: Distribution and Longevity Issues Associated with Injectable In-Situ Remediation Technologies

**Noon – Lunch** Luncheon Speaker, **Wednesday, October 22, 2008**

*Amherst Room, 10th Floor Campus Center*

### Maple Ridge Windfarm

Mike Repholz, *Engineer, The Delaney Group, Gloversville, NY*



# Life Achievement Award

(continued from page 3)

## LIEUTENANT COLONEL WADE H. WEISMAN JR. (cont.)

public health assessments, and risk assessment and toxicology. He chaired an international working group (the Total Petroleum Hydrocarbon Criteria Working Group – TPHCWG) bringing military, industry, academia, and state and Federal regulatory agencies together to develop sound risk assessment methodologies for petroleum products released to the environment. At base level he has served as flight commander and has laboratory experience as director of research. He has been on both MAJCOM and HQ AF staff.

He has edited and published several books and peer-reviewed technical journals dealing with human health risk assessment of petroleum products and with toxicology of JP-8 jet fuel. He has been awarded the following major awards and decorations: Meritorious Service Medal with three oak leaf clusters, Air Force Commendation Medal, Air Force Achievement Medal, Air Force Outstanding Unit Award with one device, AF Organizational Excellence Award with one device, National Defense Service Medal with one device, Global War on Terrorism Service Medal.

*His effective dates of promotion have been:*

Second Lieutenant	28 May, 1986
First Lieutenant	28 May, 1988
Captain	28 May, 1990
Major	01 Jun, 1997
Lieutenant Colonel	01 Nov, 2002

*His work assignments have been as follows:*

Jun 1986 to Aug 1990	Chief, Bioenvironmental Engineering, Brooks AFB, TX
Aug 1990 to Jul 1992	AFIT Graduate Student, UNC-Chapel Hill, NC
Jul 1992 to Oct 1995	Environmental Toxicologist, Armstrong Laboratory, Brooks AFB, TX
Oct 1995 to Jun 1997	Chief, Fuels Toxicology Section, Armstrong Lab, Wright Patterson AFB, OH
Jun 1997 to Jul 1999	Director of Research Operations, AFRL, Wright Patterson AFB, OH
Jul 1999 to Jul 2002	Bioenvironmental Engineering Flight Commander, Elmendorf, AFB, AK
Jul 2002 to Aug 2004	Chief, Occupational Health Engineering, HQ AFMC, WPAFB, OH
Aug 2004 to Jan 2006	Chief, Occupational Health Policy, HQ AF, Bolling AFB, DC
Jan 2006 to Present	Chief, Occupational Health and Force Health Protection, SAF, Pentagon, DC

He is married and has four children.



## DR. RAYMOND S. H. YANG

Dr. Raymond S. H. Yang is currently a Professor of Toxicology and Cancer Biology, and the leader of the Quantitative and Computational Toxicology Group, at the College of Veterinary Medicine and Biomedical Sciences, Colorado State University (CSU). Between 1990 and 1995, Dr. Yang was Professor and Head, Department of Environmental Health, College of Veterinary

Medicine and Biomedical Sciences at CSU. Between 1991 and 2004, Dr. Yang also served as the Director of the Center for Environmental Toxicology and Technology, a multi-disciplinary research Center and one of the 14 Programs of Research and Scholarly Excellence at CSU. Scientifically, Dr. Yang enjoys an international reputation in the area of toxicological interactions of chemical mixtures, particularly the application of physiologically based pharmacokinetic/pharmacodynamic (PBPK/PD) modeling and other biologically-based computer simulation to chemical mixture toxicology.

Dr. Yang has had substantial research, teaching, outreach and administrative experience in chemical industry (Union Carbide Corp – Carnegie-Mellon University), federal government [National Institute of Environmental Health Sciences (NIEHS) and USEPA/National Center for Environmental Assessment (NCEA)], and academia (Cornell University, Albany Medical College, University of Pittsburgh, Colorado State University). Given below are a few highlights of Dr. Yang's accomplishments in more recent years at CSU:

Dr. Yang's research activities included the establishment and development of the Center for Environmental Toxicology and Technology (CETT), an interdisciplinary research center involving biomedical scientists and engineers. CETT was designated as one of the 14 Programs of Research and Scholarly Excellence at CSU between 1995 and 2003. Dr. Yang has either been directly responsible for or played an important role in approximately \$20 million extramural funding, mostly from the NIH including a Program Project and a Training Grant; Dr. Yang served as the Principal Investigator for most of that funding. Research productivity included the publication of two books: (1) *Toxicology of Chemical Mixtures. Case Studies, Mechanisms, and Novel Approaches* (sole editor, Academic Press, 1994); and (2) *Physiologically Based Pharmacokinetics: Science and Applications* (with three other editors, Wiley, 2005). Dr. Yang also published about 140 papers in toxicology and PBPK/PD and other biologically-based computer modeling.

Dr. Yang's training activities included the creation, development, and implementation of eight International Workshops on PBPK/PD Modeling and Risk/Safety Assessment in 1992, 1994, 1996, 1999, 2001, 2003, 2005, and 2008 at Colorado State University -- an intensive hands-on training for two to three weeks in summer. Over 250 international scientists from more than 10 countries were trained in these Workshops. Four additional PBPK Modeling Workshops for Beginners had been organized and taught by Dr. Yang or jointly with other colleagues at CalEPA/OEHHA, Oakland, CA (2000), Pfizer, Inc., Groton, CT (2002), the National Health Research Institutes in Taiwan (2006), and USEPA/NCEA-Cincinnati (2008). Dr. Yang also sponsored and mentored 6 junior faculty members and clinical scientists with successfully obtained NIH K-series Career Development Awards

(continued on page 9)

## Session 1: SEDIMENTS

163C Campus Center

Moderator: **Allison Nightingale**, AMEC Earth and Environmental, Westford, MA

**1:30 pm**

### Understanding Remediation at Contaminated Sediment Sites: Advantages, Limitations, and Risks Associated with Sediment Management Options

Steven C. Nadeau, Megan C. McCulloch, Honigman Miller Schwartz and Cohn LLP, Detroit, MI

**2:00 pm**

### A Simple Restoration-based Approach to Estimate Potential Natural Resource Damages at Contaminated Sediment Sites

Timothy R. Barber, ENVIRON International Corporation, Burton, OH

**2:30 pm**

### GE Hudson River Sediment Processing Facility Design Overview

Scott R. Blaha, General Electric Company, Ft. Edward, NY

Joseph J. Corrado, BCEE, ARCADIS, Mahwah, NJ

**3:00 pm**

### Break

**3:30 pm**

### Innovative Site Characterization Tools Establish Sediment Remediation Goals at a Former Manufactured Gas Plant Site

Russell A. Johnson, AMEC Earth & Environmental, Inc., Westford, MA

Robert Cleary, Peter LaGoy, Bay State Gas Company, Westborough, MA

**4:00 pm**

### Comparison of Site-Specific Sediment Benchmarks to Screening Criteria at a Former MGP Site in Massachusetts

Allison Nightingale, Paul Anderson, Kevin Haines, AMEC Earth & Environmental, Inc., Westford, MA

Robert Cleary, Peter LaGoy, Bay State Gas Company, Westborough, MA

Nick Azzolina, ENSR, Ithaca, NY

**4:30 pm**

### Quantifying the Bias in Sediment Concentration Monitoring in Surface Water Runoff

George D. Fowler, University of New Hampshire, Durham, NH

Sebastien Piney, Visiting Scholar

Robert M. Roseen- Director, Thomas P. Ballestero, James Houle- Facility Manager, University of New Hampshire, Durham, NH

**5:00 pm**

### The Microbial Degradation of Aromatic Hydrocarbons in Marine Sediments from the Thames Estuary UK

Eferhire Aganbi, Terence J. McGenity, University of Essex, Essex, United Kingdom

## Session 2: REMEDIATION I

101 Campus Center

Moderator: **Ernest Ashley**, CDM Inc., Cambridge, MA

**1:30 pm**

### Optimizing Solvent Extraction of PCBs in the Field

Maureen O'Connell, University of Waterloo, Waterloo ON, Canada

**2:00 pm**

### The ART Technology Success in Treating Petroleum & Chlorinated Compounds, MTBE and 1, 4 Dioxane....How Does it Work?

Marco M. Odah, Accelerated Remediation Technologies, Inc. Overland Park, KS

**2:30 pm**

### Pulsed Biosparging of a Residual Fuel Source Emplaced at CFB Borden

**3:00 pm**

### Break

**3:30 pm**

### Addition of 1,4-Dioxane Treatment to a Chlorinated Solvent Groundwater Extraction and Treatment System

David Dedian, Woodard & Curran, Portland, ME

Peter Herlihy, Applied Process Technology, Inc., West Chester, OH

**4:30 pm**

### Remediation of TCE Plume Discharging to a Stream

Paul M. Dombrowski, Metcalf & Eddy / AECOM, Wakefield, MA

Lucas A. Hellerich, Christopher A. Shores, John L. Albrecht, Metcalf & Eddy / AECOM, Wallingford, CT

Dave Hart, Noranda Metals Industries, Inc., New Madrid, MO

**5:00 pm**

### An Integrated Site Wide Approach Chlorinated Solvent Source Remediation in an Active Manufacturing Facility

James R. Dickson, Rob Stenson, CTI and Associates Inc., Cleveland, Wisconsin

Chris Winklejohn, CTI and Associates Inc., Brighton, Michigan

Drew Lonergan, CTI and Associates Inc., Michigan

## Session 3a: REGULATORY

168C Campus Center

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

**1:30 pm**

### The Active Army MMRP and How the Technical Project Planning Process Has Helped Us Succeed

Laura Paugh, US Army Environmental Command, APG, MD

**2:00 pm**

### AAI Compliant Regulatory Database Searches: Some Are More Equal Than Others

Robert P. Blauvelt, David Fullmer, EWMA, Parsippany, NJ

**2:30 pm**

### Changes to EPA's Spill Prevention, Control, and Countermeasure (SPCC) Program

Melanie Morash, U.S. EPA New England Oil Program, Boston, MA

**3:00 pm**

### Break

**3:30 pm**

### 1,4-Dioxane – Regulatory Developments, Uses, Properties, Assessment, and Remedial Options

Ellen E. Moyer, CH2M HILL, Montgomery, MA

**4:00 pm**

### Managing Asbestos in Soil Under the Massachusetts Contingency Plan (MCP)

Robert C. Atwood, Resource Control Associates, Inc., Pawtucket, RI

Steven Grevelis, Groundwater Analytical, Inc., Buzzards Bay, MA

## Session 3b: MODELING

168C Campus Center

Moderator: **Kenneth Lee**, University of Massachusetts Lowell, Lowell, MA

**4:30 pm**

### Spatial Modeling of Salinity Loading in Muddy Creek, Wyoming

Kelsa L. Anderson, Scott N. Miller, Ginger Paige, University of Wyoming, Laramie, WY

Paul Caffrey, WyGIS, Laramie, WY

**5:00 pm**

### A Parametric Model for Estimating Costs for Remediating Contaminated Sediment Sites Using a Dredging Method

John Rosengard, Jeff Wallace, Environmental Risk Communications Inc., San Francisco, CA

Mark Otten, Parsons Corporation, Louisville, KY

7:00pm – 10:00pm **8) The Evolving Standard of Care: What Does it Mean Today - or Tomorrow?** (163C Campus Center)

7:00pm – 10:00pm **9) In-Situ Thermal Remediation** (101 Campus Center)



(continued from page 7)

## Session 4: BIOREMEDIATION II

Reading Room, Campus Center  
Moderator: **Kevin T. Finneran**, *University of Illinois Urbana/Champaign, Urbana, IL*

### 1:30 pm DNAPL Characterization and Removal with Bioremediation Recirculation System and Electrical Resistance Heating

Vincent Chan, David Cacciatore, Dan Leigh, Mike Yurovsky, *Shaw Environmental, Inc., Concord, CA*  
Scott Anderson, *U.S. Navy, San Diego, CA*

### 2:00 pm Meeting Performance Goals in a D.N.A.P.L. Source Area using Enhanced Reductive Dechlorination

I. Richard Schaffner, Jr., Christopher B. Melby, *GZA GeoEnvironmental, Inc., Manchester, NH*  
Steven R. Lamb, *GZA GeoEnvironmental, Inc., Portland, ME*  
Donald N. Kirkland, *GZA GeoEnvironmental, Inc., Manchester, NH*

### 2:30 pm A Comparison of Laboratory and Field Data for Nutrient Amended Carbon Substrates

Michael R. Siczekowski, *JRW Bioremediation L.L.C., Lenexa, KS*

### 3:00 pm Break

### 3:30 pm Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX) Mechanisms and Kinetics of Extracellular Electron Shuttle Mediated Cyclic Nitramine - Biodegradation by a Novel Bacterial Isolate

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

### 4:00 pm The Effects of pH on Enhanced Reductive Dechlorination: Growth vs. Activity

Robert L. Kelley, *Regenesis, San Clemente, CA*  
William Farone, *Applied Power Concepts, Anaheim, CA*

### 4:30 pm Synchrotron Infrared Spectromicroscopy of Pyrene Degradation by *Pseudomonas fluorescens* 29L

Saleha Husain, *EnviroSolutions, Inc., Herndon, VA*  
Hoi-Ying Holman, *Lawrence Berkeley National Laboratory, Berkeley, CA*

### 5:00 pm Biodegradation of a MEK Ground Water Plume over a Nine-Year Period

Richard D. Britton, *The Whitman Companies, Inc. East Brunswick, NJ*  
Cheryl Coffee, *Congoleum Corporation, Trenton, NJ*  
Michael Percelay, Keith McDermott, *The Whitman Companies, Inc. East Brunswick, NJ*

## DR. RAYMOND S. H. YANG (cont.)

(one Howard Temin Award, two K08 and three K25 Awards). Dr. Yang also trained numerous graduate students and postdoctoral fellows.

Dr. Yang is a Fellow of the Academy of Toxicological Sciences and he had served on many prestigious international, national committees and expert panels including: USEPA Science Advisory Board/Panel (Consultant, 2002-2003; Member 2003-2004); NIEHS Study Section (Environmental Health Sciences Review Committee, 2001-2005) on Center Grants and Training Grants; NCI Innovative Toxicology Study Section (2003-2004); National Research Council (NRC)/National Academy of Sciences (NAS); Institute of Medicine (IOM)/NAS; Health Council of the Netherlands; Board of Scientific Counselors of ATSDR/CDC-NCEH.



## ANNIE M. JARABEK

**Office of Research and Development  
U.S. Environmental Protection Agency**

Ms. Annie M. Jarabek is a senior toxicologist and special assistant in the National Center for Environmental Assessment in the Office of Research and Development (ORD), U.S. EPA, in the area of government. Annie holds a B.S. in biology from the University of Notre Dame and matriculated in inhalation toxicology to an "A.B.D" at the University of Cincinnati Medical Center. Pursuing a nontraditional approach after almost two

decades of on-the-job experience, she is now completing a Ph.D. at the University of North Carolina at Chapel Hill in the risk assessment program of the Department of Environmental Sciences and Engineering in the School of Public Health.

Annie was instrumental in advancing dosimetry modeling in risk assessment methods employed by the Agency for both hazardous air pollutants and the National Ambient Air Quality Standards (NAAQS), and is now extending that work to encompass formalizing the value of mechanistic models to describe mode of action while on a detail to the National Health and Environmental Effects Research Laboratory (NHEERL). Her current research is focused on developing methods that integrate data at various levels of organization to describe the pathogenesis of inhaled chlorine in the respiratory tract. Annie has provided invited presentations on dosimetry methods, mode of action, and statistical considerations for dose-response assessment to the National Academy of Sciences, the EPA Science Advisory Board, the Toxicology Forum, and the EPA Risk Assessment Forum. Annie also currently consults on committees evaluating how to use biomarkers such as DNA adducts in risk assessment, the harmonization of assessment approaches for noncancer and cancer toxicity, and various case studies of how to use data on mode of action. She was the team leader for the ORD effort and architect of the conceptual model for the EPA's risk characterization of environmental perchlorate contamination. She also serves on the risk assessment committee to the National Occupational Research Agenda (NORA). Annie has received one gold, one silver and four bronze medals in recognition of her scientific contributions at the Agency, and received the "Risk Practitioner of the Year" award from the Society for Risk Analysis in 2006 for her significant contributions to the field. Since 1992, she has also received four different awards for outstanding presentation as well as one "top ten" selection and one winning award for "best manuscript demonstrating a risk assessment application" from the Risk Assessment Specialty Section (RASS) of the Society of Toxicology (SOT).

Annie is professionally active in both the Society of Toxicology (SOT) and the SRA, and in 2005 organized joint sponsorship for a symposium on advancing probabilistic approaches in various regulatory arenas. Annie stepped down in 1998 from a three-year term as an elected councilor to the SRA and has continued to serve on numerous annual meeting programs and the continuing education and workshops committee. She also served a 3-year appointment to the Communications Strategic Committee of the SOT and in 2005 completed elected terms on the Awards Committee and a four-year term as an officer of the RASS. She currently arranges a special regional interest symposium at the annual meeting of the SOT and serves as the host of the monthly teleconference series hosted by the RASS.

## Session 1: ECOLOGICAL RESTORATION

Campus Center Auditorium

Sponsored by **ENSR**

Moderators: **Michael J. Toohill**, *CE, PWS, New England Chapter of the Society for Ecological Restoration International*

**8:30am**

### Overcoming Challenges in Wetland Restoration and Mitigation: A Case Study"

David C Klinch, *ENSR Corporation, Westford, MA*

**9:00am**

### Replacing Variable Water Milfoil with Native Species in Lake Massasecum

Wendy Gendron, *ENSR, Westford, MA*

Kenneth J. Wagner, *ENSR, Willington, CT*

**9:30am**

### Beavers and Disinfection Byproduct Precursors in the Cobble Mountain Reservoir Watershed: Practical Management Techniques

Boning Liu, *Doctoral Student, University of Massachusetts Amherst, Amherst, MA*

Dana Hachigian, *Douglas Borgatti, Springfield Water and Sewer Commission, Springfield, MA*

**10:00am**

Break

**10:30am**

### Development of an Adaptive Management Approach and Success Criteria for the Hudson River PCBs Site Habitat Replacement and Replacement Program

Adam Ayers, *GE Corporate Environmental Programs, Albany, NY*

Ryan Davis, *Quantitative Environmental Analysis, Glens Falls NY*

**11:00am**

### Developing Post-Remediation Ecological Restoration Goals at the Sullivan's Ledge Superfund Site in New Bedford, MA

Christina Hoffman, *Metcalf & Eddy, Wakefield, MA*

**11:30am**

Panel Discussion on Ecological Restoration

## Session 2a: PHARMACEUTICALS IN THE ENVIRONMENT

101 Campus Center

Moderator: **Tim Verslycke**, *Gradient Corporation and Visiting Investigator, Woods Hole Oceanographic Institution., Cambridge, MA*

**8:30 am**

### Green Pharmacy: Minimizing the Potential Effects of Pharmaceuticals and Personal Care Products on the Environment

Nicholas D. Anastas, *Poseidon's Trident, Milton, MA*

**9:00 am**

### Do Pharmaceuticals in Water Pose a Risk to Human Health?

Edward V. Sargent, *UMDNJ School of Public Health, Clearwater, FL*

**9:30 am**

### Pharmaceuticals in the Environment: Environmental Risk Assessment

Manu Sharma, *Gradient Corporation, Cambridge, MA*

**10:00 am**

Break

**10:30 am**

### Are APIs EDCs?

Tim Verslycke, *Gradient Corporation and Visiting Investigator, Woods Hole Oceanographic Institution., Cambridge, MA*

## Session 2b: SITE ASSESSMENT I

101 Campus Center

Moderator: **Joe Robb**, *AMEC Earth and Environmental, Westford, MA*

**11:00 am**

### Challenges for Ethanol Fuels Contaminated Sites Assessment

Juliana G. de Freitas, *Waterloo, Waterloo, ON, Canada*

**11:30 am**

### Ambient Groundwater Quality in the Lower Hudson Valley of Southeastern NY State

Steven Parisio, *Eva M. Knoth, Michael Rispoli, NY DEC, New Paltz, NY*

## Session 3: CHEMICAL OXIDATION

Reading Room, Campus Center

Moderator: **Clifford Bruell**, *University of Massachusetts Lowell, Lowell, MA*

**8:30 am**

### Zero Valent Iron Activated Persulfate Oxidation of Trichloroethylene

Chenju Liang, *Ming-Chun Lai, National Chung Hsing University, Taichung, Taiwan*

**9:00 am**

### Fenton-like Oxidation of Pentachlorophenol in Iron-Rich Sandy Soil at Neutral pH

Roger J. Matta, *Serge Chiron, Laboratoire Chimie Provence, Marseille, France*

Khalil Hanna, *Laboratoire de Chimie Physique et Microbiologie pour l'Environnement, Villers-les Nancy, France*

**9:30 am**

### Ex-Situ ChemOX Remediation of Petroleum Contaminated Soils

Richard T. Cartwright, *MECX LP SDVOSB, East Amherst, NY*

Isaac M. Aboulafia, *MECX LP SDVOSB, Houston, TX*

**10:00 am**

Break

**10:30 am**

### Combining Chemical Oxidation with Aerobic Bioremediation – A Dual Prong Approach

Philip A. Block, *FMC Corporation, Philadelphia, PA*

**11:00 am**

### Comparison of ISCO and Bio Technologies for Reduction of TCE for Source and Plume Management

Ian T. Osgerby, *PhD PE, USACE, Concord, MA*  
Duane Root, *PhD, Douglas Jerger, PhD, Shaw Environmental Inc., Knoxville, TN*

## Session 4: RISK ASSESSMENT

Reading Room, Campus Center

Moderator: **Betsy Ruffle**, *ENSR, Westford, MA*

**8:30am**

### Health Effects of Exposure to Soils Contaminated by Hydrocarbon or Heavy Metal Compounds

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

Gloria A. Skowronski, *UMDNJ, New Jersey Medical School, Newark, NJ*

Rita M. Turkall, *UMDNJ, School of Health Related Professions, Newark, NJ*

**9:00am**

### Moss Point Community Exposure to Contaminants from a Releasing Facility

Paul Rosenfeld, *UCLA School of Public Health, Los Angeles, CA*

Rob Hesse, *Soil/ Water/ Air Protection Enterprise, Santa Monica, CA*

Amy Hensley, *UCLA School of Public Health, Los Angeles, CA*

Andrew Scott, *Soil/ Water/ Air Protection Enterprise, Santa Monica, CA*

**9:30am**

### Soil Vapor Intrusion Data – Planning and QA/QC Evaluation for Risk Assessment

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

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

**10:00am Break**

**10:30am**

### Application of Geostatistics and Risk Assessment to Property Divestitures

Betsy Ruffle, *Marcia Greenblatt, Kathleen Nolan, M.S., ENSR, Westford, MA*

J. Douglas Reid-Green, *BASF Corporation, Florham Park, NJ*

**11:00am**

### Unintended Environmental Risks from Processes and Products Intended to Reduce Environmental Risk

William A. Farone, *Applied Power Concepts, Inc., Anaheim, CA*

**11:30am**

### Quite a challenge: Assessment of the Human Health Risks of Asbestos in Soils. A Tiered Approach

Frank A. Swartjes, *National Institute of Public Health and the Environment (RIVM), Bilthoven, The Netherlands*

**Noon – Lunch** Luncheon Speaker, Thursday, October 23, 2008

Amherst Room, 10th Floor Campus Center

## Breaking the Chemical and Engineering Barriers to Lignocellulosic Biofuels

George W. Huber, *Armstrong Professional Development Professor, Dept of Chemical Engineering, University of Massachusetts Amherst*

## PM SESSIONS

# Thursday

### Session 1: SITE ASSESSMENT II

163C Campus Center

Moderators: **Joe Robb**, *AMEC Earth and Environmental, Westford, MA*

#### 1:30 pm

#### DNAPL Source Zone Definition: A Blended Approach to Reduce Uncertainty for Remedial Decision-Making

Andrew Bittner, Kurt Herman, *Gradient Corporation, Cambridge, MA*

#### 2:00 pm

#### Characterization of a VOC Plume Migrating from Fractured Shale into a Karst Limestone Aquifer

Paul G. Landry, *Weston Solutions, Inc., W. Chester, PA*

Paul R. Stone, *U.S. Army Corps of Engineers, Chambersburg, PA*

Bryan L. Hoke, *Letterkenny Army Depot, Chambersburg, PA*

#### 2:30 pm

#### Geophysics for Fun and Profit: How to Manage Your Due Diligence Risk

Jesse N. Japitana, Robert M. Cataldo, *ENSR, Westford, MA*

#### 3:00 pm

#### Break

#### 3:30 pm

#### Optimization of the Removal of a Volatile Organic Compound (VOC)-Impacted Source Area through Pre-Characterization

Jeremy J. Picard, Jason D. Flattery, *Environmental Resources Management, Boston, MA*

Louis J. Burkhardt, *Raytheon Company, Billerica, MA*

#### 4:00 pm

#### Wavelets and Spectral Analysis, Powerful Tools for Estimating Aquifer Hydraulic Parameters without Extracting Water

Farid Achour, Carol Serlin, *ENVIRON International Corporation, Irvine, CA*

### Session 2: REMEDIATION II

101 Campus Center

Moderator: **David Ludwig**, *Arcadis U.S., Annapolis, MD*

#### 1:30 pm

#### Uncertainty in Stabilization/Solidification Effectiveness Using the Toxicity Characteristic Leaching Procedure

Robert W. Fuessle, Max. A. Taylor, *Bradley University, Peoria, IL*

#### 2:00 pm

#### Surfactant Enhanced Remediation of DNAPL Contaminated Soil and Groundwater Refinery Site Case Study

George A. Ivey, *Ivey International Inc., Campbell River, BC, Canada*

Martin Beaudoin, *Sanexen Environmental Services Inc., Varennes, Quebec, Canada*

#### 2:30 pm

#### Full Scale Implementation of Sulfate Enhanced Biodegradation to Remediate Petroleum Impacted Groundwater in Upstate New York

James F. Cuthbertson, *Delta Consultants, Novi, MI*

Mark Schumacher, *Delta Consultants, Syracuse, NY*

#### 3:00 pm

#### Break

#### 3:30 pm

#### Field Comparison of Four Technologies to Treat TCE in Groundwater

Jessica Skeeane, Christopher Bozzini, Monica Tiburzi, *CH2M HILL, Charlotte, NC*

Daniel Hood, *NAVFAC Mid-Atlantic, Norfolk, VA*

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

#### 4:00 pm

#### Comparison of Attenuation Rates for Benzene, Toluene, Ethylbenzene and Xylenes under Anaerobic Conditions

Lyle Bruce, *BP Remediation Management, Warrenville, IL*

#### 4:30 pm

#### Case Studies: Closing Solvent Sites Using Activated Carbon Impregnated with Iron

Thomas A. Harp, *LT Environmental, Inc., Arvada, CO*

### Session 3a: BROWNFIELDS

Reading Room, Campus Center

Moderator: **Dawn Oliveira**, *EFI Global, Inc., Fall River, MA*

#### 1:30 pm

#### Establishing Health Risk-Based Redevelopment Constraints at a Brownfield Site

Amy Goldberg Day, *LFR Inc., Emeryville, CA*

#### 2:00 pm

#### Benefits of Brownfields Cleanup and Redevelopment: Case Study of Lowell, MA

Aleksandra Simic, *ICF International, Fairfax, VA*

Bansari Saha, *ICF International, Lexington, MA*

Barry Galef, *ICF International, Fairfax, VA*

#### 2:30 pm

#### Real Estate Transaction Completed/No Further Action Achieved using Soil Mixing with In-Situ Chemical Oxidation for Chlorinated Solvents

Maureen Dooley, *Regenesys, Wakefield, MA*

Bob Kelley, Ph.D., *Regenesys, Plainfield, IL*

#### 3:00pm Break

### Session 3b: ENVIRONMENTAL FORENSICS

Reading Room, Campus Center

Moderator: **Tracey Roth**, *LFR, Newfields, NH*

#### 3:30 pm

#### Identifying Roadway Pavement in Proximal Soils and Sediments

Stephen Emsbo-Mattingly, Allen Uhler, Scott Stout, Gregory Douglas, Kevin McCarthy, *NewFields Environmental Forensics Practice, LLC, Rockland, MA*

#### 4:00 pm

#### Groundwater Plume Forensics using Minor Ions

Robert D. Mutch, Jr., *HydroQual, Inc., Mahwah, NJ*

Richard F. Carbonaro, *Manhattan College, Riverdale, NY*

#### 4:30 pm

#### Forensic NAPL Determination and Plume Differentiation – A Case Study

Nathan A. Stevens, Brian D. Moore, *CarriageHouse Consulting, Inc., Natick, MA*

Carrie A. Vinch, *Ryder Truck Rental, Inc., Lawrenceville, NJ*



**TUESDAY,**  
**October 21, 2008 and**  
**WEDNESDAY,**  
**October 22, 2008**

## ANALYSIS

### Analysis of Suspended Solids in the Muddy River Using XRF Instrumentation

Jesse Fejes, Amber Indoccio, Lauren Johnson, Sarah Rockwell, Mei Tan, Michael Berger, Simmons College, Boston, MA

### Preparation and Analysis of Total Mercury in Biological Tissue Samples Using Atomic Fluorescence Spectrometry

Leonard C. Pitts, Alpha Analytical, Mansfield, MA

### Continuous Profiling of Subsurface Pollutants

Albert Robbat and Thomas Considine, Tufts University, Medford, MA

### Why New Coal Tar and Petroleum Forensic Environmental Methods Are Needed

Albert Robbat and Christian Zeigler, Tufts University, Medford, MA

### Environmental Analysis and Water Quality Monitoring of Environmental Waters using an In Vitro Bioassay System in Nara

Akiyoshi Sawabe, Kazuki Ikushima, Ryuji Takeda, Shingen Matsushima, Yousuke Kouchi, Kinki University, Nakamachi, Nara, Japan

Shiho Kageyama, Ryo Kamata, Daisuke Nakajima, Fujio Shiraishi, National Institute for Environmental Studies, Onogawa, Tsukuba, Ibaraki, Japan

Sadao Komemushi, Kinki University, Nakamachi, Nara, Japan

## ARSENIC

### Arsenic Mobilization Near a Closed Landfill, Ayer MA: A Case Study

Christopher Abate, Kathleen Sellers, Michael J. Robinson, AMEC Earth and Environmental Inc., Westford, MA

Robert J. Simeone, Department of the Army, Base Realignment and Closure Division, Devens Reserve Forces Training Area, Devens, MA

### Microbial Transformation of Arsenic Compounds

D. Freikowsky, J. Winter, C. Gallert, Universität Karlsruhe, Karlsruhe, Germany

## BIOREMEDIATION

### Relative Quantitative of Gene Expression during Biodegradation to Select Reliable Reference Genes

Qing Chang, Yokohama National University, Yokohama, Japan and Chongqing Technology and Business University, Chongqing, China

Takashi Amemiya, PhD., Kiminori Itoh, PhD., Yokohama National University, Yokohama, Japan

### Biodegradation of Aromatic Compounds and PAHs by Halophilic Prokaryotes

Lucia R. Durrant, Maricy Bonfá, Francine Piubelli, Departamento de Ciência de Alimentos, FEA, Universidade Estadual de Campinas, Campinas, SP, Brazil  
Sara Cuadros-Orellana, Instituto de Tecnologia e Pesquisa, Universidade Tiradentes, Aracaju – SE, Brazil

### Degradation of Azo Dyes by Bacteria Isolated from a Textile Industry Effluent

Elisangela F. Dias, Fábio G. Dias, Isis S. Silva, Lucia R. Durrant, State University of Campinas, Sao Paulo, Brazil

### Bioremediation of Soils Contaminated with Transformer Oil in Brazil

Satya Ganti, Sarva Bio Remed, LLC, Trenton, NJ  
Eduardo Trindade, LACTEC, Curitiba, Parana, Brazil

Paulo Fernandes, SDM do Brazil Ltda, Sao Paulo, Brazil

### Surfactant Enhanced Bioremediation of F3 and F4 Contaminated Soils

George A. Ivey, Ivey International Inc. Campbell River, BC, Canada

Dan Stangroom, Veolia Environmental Services, Condell Park, Australia

### Investigation of Amendments on the Biodegradation of Perchlorate

Agnes B. Morrow, Jackson State University / U.S. Army Corps of Engineer, Vicksburg, MS  
Victor Medina, U.S. Army Corps of Engineer, Vicksburg, MS

### Biological Treatment of Pentachlorophenol Contaminated Soils Using a Biopile System

Michael Snyder, P.E., Biogenie Corporation, Quakertown, PA

LeeAnn Thomas, P.G. Canadian Pacific, Minneapolis, MN

Michael J. Borda, Ph.D., Golder Associates Inc., Mt. Laurel, NJ

### Dehalococoides Bioaugmentation Using Inter-Well Transfer of Bio-trap® Samplers

Edward Sullivan, P.G., The Whitman Companies, Inc., East Brunswick, NJ

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

Keith McDermott, The Whitman Companies, Inc., East Brunswick, NJ

## CHEMICAL OXIDATION

### Application of Catalyzed Persulfate of Chlorobenzenes in Glacial Till and Bedrock, Corinna, ME

Ian T. Osgerby, USACE, Concord, MA  
Brant Smith, Scott Crawford, XDD, Stratham, NH

Andrew J. Boeckeler, PG, Nobis Engineering Inc., Concord, NH

## ECOLOGICAL RESTORATION

### Design, Construction, and Performance of an Innovative, Full-scale Constructed Treatment Wetland to Effectively Treat Suspended Constituents in Stormwater at a Turkey Processing Facility

Carl E. Tammi, ENSR, Westford, MA  
Michael Richtig, Cargill Meat Solutions, Wichita, KS

Darryl Engelhardt, Cargill Meat Solutions, California, MO

Jake Sanantonio, Matt Kennedy, Anthony Colella, ENSR, Westford, MA

## ENVIRONMENTAL FATE

### Characterizing a 1,4-Dioxane Groundwater Plume Upwelling into Wetlands Using the Triad Approach

Jackson Kiker, Al Easterday, Jeff Donovan, ECC, Marlborough, MA

Michael Rossi, David Crosby, Stone Environmental, Montpelier, VT

### Seasonal Fluctuations in the Phreatic Surface – Vadose and Saturated Zone Hydrologic Interaction

Alton Day Stone, Alton Engineering, Sterling, MA

Paul P. Mathisen, WPI, Worcester, MA

### Relationship between Hydrocarbon Residuals and Groundwater Concentrations Downgradient in the Borden Aquifer

Tianxiao Yang, Jennifer Lambert, James F. Barker, University of Waterloo, Waterloo, ON, Canada

## HEAVY METALS

### The Relationship between Soil Particle Size and Lead Concentration

Dana M. Abouelnasr, American University of Sharjah, Sharjah, UAE

### Global Mercury Project: Results of the Awareness Campaign and Technology Demonstration for Artisanal Gold Miners

Rebecca R. Chouinard, Marcello M. Veiga, University of British Columbia, Vancouver, BC

### Innovative Recycling of Municipal Biosolids: No Problem with Heavy Metals

Pauline V. Lindo, Thomas C. Granato, Albert E. Cox, Metropolitan Water Reclamation District of Greater Chicago, Cicero, IL

### Geo-REXTM. Easy Quantitative Evaluation of Heavy Metals in the Soils and Paddy-Rice

Kazuaki Nakagawa, Ryuji Takeda, Yuhei Wakabayashi, Kinki University, Nakamachi, Nara, Japan

Koichiro Iwasa, Satoshi Tamaki, Sekisui Chemical Co., Ltd., Kyoto, Japan

Sadao Komemushi, Akiyoshi Sawabe, Kinki University, Nakamachi, Nara, Japan

### Cd Accumulation of Phytolacca americana Hairy Root

Ryuji Takeda, Kayo Minami, Masato Tomita, Sadao Komemushi, Toshiyuki Wakatsuki, Akiyoshi Sawabe, Kinki University, Nakamachi, Nara, Japan

**MISCELLANEOUS****Lab Scale Production and Testing of Aerated Autoclave Concrete**

A. Aidan, Z. Shareefdeen, T.H. Ibrahim, D. Nasralla, AL-Kaabi, M. AL-Shiri, M. AL-Maraziq, P. Varijakshan, *American University of Sharjah, Sharjah, UAE*

**Communicating with the Community: Picking the Right Strategy**

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

**Off-Grid Photovoltaic System in a Temperate Climate Greenhouse in Virginia**

Douglas Mose, Ph.D., and Evans Mandes, Ph.D., *College of Science*, and James Metcalf, Ph.D., *College of Health and Human Services, George Mason University, Fairfax, VA*

**Nitrate Removal from Synthetic High Nitrate Waste by a Denitrifying Bacterium**

Rashmi R. Nair, Stanislaus F. D'Souza, *Bhabha Atomic Research Centre, Mumbai, India*

**Influence of Salinity on Uptake and Toxicity of Zinc in the Earthworm *Eisenia Fetida***

Olugbenga J. Owajori, MSc., Adriaan J.Reinecke, PhD, Andrei B. Rozanov, PhD, *Stellenbosch University, Matieland, South Africa*

**Contamination of Groundwater by Leaking Sewers – Role of the Unsaturated Zone and the Capillary Fringe**

J. Hua, P. An, C. Gallert, J. Winter, *University of Karlsruhe, Karlsruhe, Germany*

**PHYTOREMEDIATION****Toxicity and Uptake of Chlordane in Plants**

Afrachanna D. Butler, Victor F. Medina, Ph.D., *US Army Corps of Engineers, Vicksburg, MS*

**Understanding the Physiological and Molecular Mechanisms of Persistent Organic Pollutants (POPs) Uptake and detoxification in Cucurbit species (Zucchini and Squash)**

Sudesh Chhikara, Bibin Paulose, Om Parkash Dhankher, *University of Massachusetts Amherst, Amherst, MA*

Jason White, *The Connecticut Agricultural Experiment Station, New Haven, CT*

**Long-term Maintenance and Monitoring of a Phytoremediation Site and its Associated Reduction of Groundwater Contaminants**

George Prince, *US EPA Environmental Response Team, Edison, NJ*  
Christopher Gussman, Jianwei Huang, Ph.D., Stephen (Brett) Sovick, *Lockheed Martin/REAC, Edison, NJ*

**Assessing the Potential of Phytoremediation Techniques at the Superfund Site**

Julia Kuzovkina, Tom Morris, Dawn Pettinelli, Cristian Schulthess, Olena Zhivotovsky, *University of Connecticut, Storrs, CT*

**Isolation and Characterization of Chromium-Induced Genes from *Crambe abyssinica* for Phytoremediation of Chromium Contamination**

Asma Zulfiqar, Bibin Paulose, Om Parkash Dhankher, *University of Massachusetts Amherst, Amherst, MA*

**RADIONUCLIDES****Strategic Approach to the Nuclear Legacy Problem (by the Example of Techa Cascade of Reservoirs of the Mayak Plant)**

Sergey V. Kazakov, Sergey S. Utkin, *Federal Centre for Nuclear and Radiation Safety, Moscow, Russia*

**Assessment of Stream Fish Mortality from Short-term Exposure to Illite Clays Used as an In Situ Method for Remediating 137Cs Contaminated Wetlands**

Bon-Jun Koo, Ph.D., *California Baptist University, Riverside, CA*  
Dean E. Fletcher, M.Sc., Thomas G. Hinton, Ph.D., *University of Georgia, Aiken, SC*  
Christopher D. Barton, Ph.D., *University of Kentucky, Lexington, KY*  
Daniel I. Kaplan, Ph.D. *Savannah River National Laboratory, Aiken, SC*

**Development of a Uranium Transport Model for Assessment of Long Term Plume Stability**

Thomas J. Phelan, *Geosyntec Consultants, Inc., Acton, MA*  
Benjamin Bostick, *Dartmouth College, Hanover, NH*  
Doug Larson, Robin Swift, Peter Zeeb, *Geosyntec Consultants, Inc., Acton, MA*

**Evaluation of Indoor Radon Potential in Northern Virginia Using Spatial Autocorrelation, GIS Application and 3-D Visualization**

George Siaway, Vikas Chandhoke, George Mushrush, Douglas Mose, Ph.D., *George Mason University, Fairfax, VA*

**Features of Caesium-137 Distribution over Grain Size Fractions of Sandy and Loamy Soils**

Tatjana Paramonova, Evgenia Shamshurina, *Moscow State Lomonosov University, Moscow, Russia*

**Modeling Radionuclide Transfer in Bottom Sediments of Water Bodies**

Sergey V. Kazakov, Sergey S. Utkin, *Federal Centre for Nuclear and Radiation Safety, Moscow, Russia*

**REMEDICATION****Methods and Examples of Field Adjustments, without the Interruption of Work Plans and Contracts, after Major Data Discoveries during In-situ Pay-for-Performance Remediations**

Ron Adams, PE; Ron Scudato, PhD; David Spader, PG; Andrew Waring, CPG and Mark Vigneri, *Environmental Remediation and Financial Services, LLC*

**Permeable Sorption Barriers for Groundwater Protection Combined with Containment and Anaerobic Treatment of Pesticide Contaminated Soils**

Eric C. Hince, *Geovation Consultants, Inc., Florida, NY*  
George Alther, *Biomim, Inc., Ferndale, MI*

**Site Remediation Using Advanced Mixed Oxidation Technology**

Raymond G. Ball, Sandy Weymouth, James Eisenbeck, *EnChem Engineering, Inc., Newton, MA*

**Application of Ecological Risk-based Approach to the Remediation of a Former Manufacturing Plant Site**

Pieter Booth, *Exponent, Inc., Bellevue, WA*  
Margaret E. McArdle, *Exponent, Inc., Winchester, MA*

**Combined Soil and Groundwater Remediation Strategies Using Electrical Resistance Heating**

David Fleming, *Thermal Remediation Services, Inc., Snoqualmie, WA*

**Pemaco Superfund Site –Expediting a Complex Project to Site Closure**

David Fleming, *Thermal Remediation Services, Inc., Snoqualmie, WA*

**Surfactant Enhanced Remediation of Contaminated Soil and Groundwater (In-situ and Ex-situ Case Studies)**

George A. Ivey, *Ivey International Inc., BC, Canada*  
Paul V. Wierbicki, *Ivey International Inc., Newington, CT*

**Recent Advances & Lessons Learned in Surfactant-Enhanced Aquifer Remediation**

Mark Kluger, *Dajak, LLC, Wilmington, DE*  
Jeffrey H. Harwell, Ph.D., P.E., Ben Shiau, Ph.D., *University of Oklahoma, Norman, OK*

**RemOx® EC Catalyzed Permanganate for NAPL Stabilization and Flux Reduction**

Fayaz Lakhwala, Ravikumar Srirangam, *Adventus Americas, Inc. Union, NJ*  
Jim Mueller, *Adventus Americas Inc., Freeport, IL*  
Joanna Moreno, *Adventus Americas Inc.*  
Kelly Frasco and Matthew Dingsen, *Carus Corporation*

**EHC™ In Situ Chemical Reduction (ISCR) Technology for In Situ Treatment of Persistent Organic Compounds**

Fayaz Lakhwala, Ravikumar Srirangam, *Adventus Americas, Inc. Union, NJ*  
Jim Mueller, *Adventus Americas Inc., Freeport, IL*  
Josephine Molin, John Valkenburg, *The Adventus Group*

**EHC-M In Situ Chemical Reduction (ISCR) Technology for In Situ Treatment of Heavy Metals (and Persistent Organic Compounds)**

Fayaz Lakhwala, Ravikumar Srirangam, *Adventus Americas, Inc. Union, NJ*  
Jim Mueller, *Adventus Americas Inc., Freeport, IL*  
Andrzej Prezpiora, *The Adventus Group*

**PCB and Heavy Metal Soil Remediation, Former Concordia Boat Yard South Dartmouth, Massachusetts**

Michael E. Martin, *Tighe & Bond, Inc., Pocasset, MA*  
Marc J Richards, *Tighe & Bond, Inc., Worcester, MA*

**Remediation of Fuel Oil Release at a Historic Residence in Topsfield, MA**

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

**Presence and Effects on Sewage Treatment Efficiency of Aromatic Hydrocarbons**

Bozena Mrowiec, Jan Suschka, *University of Bielsko-Biala, Poland*



## REMEDIATION (cont.)

### Fluoride in Ground Water: Health Effects and Removal Strategy

Gopal Pathak, *Environmental Science and Engineering Group, India*

Peter Jaffe, *Princeton University, Princeton, NJ*

Kirti Avishek, *Environmental Science and Engineering Group, India*

Luke MacDonald, *Princeton University, Princeton, NJ*

### Environmental Assessment and Remediation Strategies for Aquifers Layers

Ioan Bica, Alexandru Dimache, Nicolae Alboiu, Iulian Iancu, *Technical University of Constructions Bucharest (UTCB), Romania*

Mugur Stefanescu, Anca Voicu, Mihaela Lazaroaie, Doina Cirstea, *Institute of Biology Bucharest (IBB), Romania*

Ioana Gloria Petrisor, *Haley & Aldrich, Costa Mesa, CA*

Sevastita Vraciu, Catalin Constantinoiu, *National Institute for Environmental Protection Bucharest (INCDPM), Romania*

Ciprian Dumitrescu, *National Institute for Industrial Ecology (ECOIND), Bucharest, Romania*

Ion Onutu, *Petroleum-Gas University of Ploiesti (UPG), Romania*

### Evaluation, Operation and Design of Deep Air Sparging Systems to Remediate Petroleum Impacted Groundwater

Jason Phillips, Lisa Noblet, James F.

Cuthbertson, P.E., *Delta Consultants, Novi, Michigan*

### Dredge Spoil Pozzolanic Stabilization/Solidification Using Industrial By-Products

Michael Schrock, Joel H. Beeghly, *Carmeuse Lime, Pittsburgh, PA*

### Innovative Injection Method for Sub-Slab Point Source PCE Remediation

Lyons Witten, PG, LSP, Alison L. Holmes, *New England Environmental, Inc., Amherst, MA*

## RISK ASSESSMENT

### Measurement of Volatile Organic Chemicals (VOCs) in Finfish and Shellfish Harvested from Commencement Bay, Washington

Marcia L. Bailey, *US EPA Region 10, Seattle, WA*

Michael Hiatt, *US EPA Las Vegas, NV*

Dave Terpening, Jean Zodrow, *US EPA Region 10, Seattle, WA*

### Bahamas Environmental Risk Assessment and Cleanup (BERC) Initiative: Development of Simplistic Analytical Methods and Tools for Ecological Risk Assessment and Remediation of Source Pollutants

Craig A. Bowe, *College of The Bahamas, Nassau, New Providence Island, The Bahamas*

### A Method of Developing Risk-based Cleanup Target Levels at Petroleum Release Sites in Korea

Gyeo-Bung Kim, Seok-Won Eom, *Seoul Metropolitan Government Research Institute of Public Health & Environment, Korea*

Seoung-Gu Ahn, *The University of Seoul, Korea*

### Chemical Concentration Trends and Amphibian Observations in Freshwater Wetlands Impacted by Coal Combustion Byproducts

Allison Nightingale, Joseph Robb, *AMEC Earth and Environmental, Westford, MA*

### Cost Benefit Analysis for Risk Management by Uncertainty Reduction: The Use of Site Specific Studies to Reduce Uncertainty in PRG Development

John Schaffer, *Tetra Tech EC Inc., Morris Plains, NJ*

### Toxicological Considerations, Microbial Issues and Health Risks Related to Field Application of Poultry Waste

Christopher M. Teaf, *Florida State University, Tallahassee, FL*

Roger L. Olsen, *Camp Dresser & McKee, Denver, CO*

J. Berton Fisher, *Lithochimeia, Tulsa, OK*

Valerie J. Harwood, *University of South Florida, Tampa, FL*

Michele M. Garber, *Hazardous Substance & Waste Management Research, Inc., Tallahassee, FL*

## SEDIMENTS

### Comparison of Bacterial Levels from Water and Sediment among Upper and Lower Areas of Guion Creek

Anna Yeung-Cheung, Peter Chu, Jetmira Dega, *Manhattanville College, Purchase, NY*

### Characterizing the Nature and Extent of Oil Releases to Freshwater Sediment and Assessing Ecological Risk

Janet Keating-Connolly, *Sanborn, Head & Associates, Inc., Westford, MA*

Jerome J. Cura, *The Science Collaborative, Winchester, MA*

### Chemical-physical Treatments of Marine Contaminated Sediments – a Comparison

Vincenzo Gente, *Sapienza Università di Roma, Roma, Italy*

Serena Geraldini, *ICRAM -Istituto Centrale per la Ricerca scientifica e tecnologica Applicata al Mare, Roma, Italy*

Floriana La Marca, Francesco Palombo, *Sapienza Università di Roma, Roma, Italy*

### Importance of Source Control: Recontamination of Completed Sediment Remedial Projects

Steven C. Nadeau, J.D., *Honigman Miller Schwartz and Cohn LLP, Detroit, MI*

Merton M. Skaggs, Jr., P.E., *InDepth Environmental Associates, Inc., Southlake, TX*

### Fluvial Sediments Characterization: Triad Approach and Field Determination of TPH Concentration with Hanby Environmental Test

Rudi Ruggeri, Paolo Pucillo, Giorgio Zecchini, Raffaele Pellegatta, *ENSR Italia, Milano, Italy*

### Heavy Metal Contaminated Soils Transported in surface Sediments in Three Ephemeral Washes, Nelson, Nevada (USA)

Douglas B. Sims, *Kingston University London, Surrey, UK*

### The Use of Calcium Peroxide CaO<sub>2</sub> for Biochemical Degradation of PAH's in the Bottom Sediments of Dam Reservoir

Jan Suschka, Maciej Kostecki, Jerzy Mazierski, *Institute of Environmental Engineering PAS, Zabrze, Poland*

## SITE ASSESSMENT

### Challenges Encountered During a Post Excavation Sampling Program for an Urban Brook Impacted with Polychlorinated Biphenyls

Jessica Danieli, *Shaw Environmental, Inc., Salem, NH*

Sheila Barry, John Mitchell, *Shaw Environmental, Inc., Hopkinton, MA*

Joanne Perwak, *Shaw Environmental, Inc., Salem, NH*

### Case Study: Site Assessment of a World War II Era TNT Manufacturing Facilities

Dean Gouveia, Steve Reichenbacher, Erin Healy, *ICF International, Lexington, MA*

Sher Zaman, *U.S. Army Corps of Engineers Baltimore District, Baltimore, MD*

### Web Based GIS for Improved Environmental Decision Making, Facilities Management, and Public Outreach

Dean Gouveia, Theodore Coogan, Mark Bethoney, Jeffrey Hoye, David Towle, *ICF International, Lexington, MA*

### Visualizing Subsurface Contaminants in 3-D

John Sohl, *Columbia Technologies, LLC, Baltimore, MD*

### Characterization of the Vadose Zone for Chlorinated Contaminated Sites in Japan and in Switzerland via In Situ Flux Measurement

Andre Tartre, *EcoRemediation Inc. Burlington, VT*

Stephen Koenigsberg, *WSP Environmental Strategies LLC, CA*

### Agriculture Non-point Source Phosphorus Loss Risk Assessment in Yellow River Basin by Modified Phosphorus Index

Xiao Wang, Fanghua Hao, Xuan Zhang, Lingfang Zheng, *Beijing Normal University, Beijing, China*

## VAPOR INTRUSION

### Investigation and Mitigation of a Complex Source of Vapor Intrusion Using an Iterative Investigative Approach

Christopher J. Milone, Scott D. MacMillin,

Stephen A. Kessel, Sharon M. Stecker, *Brown and Caldwell, Allendale, NJ*



# Call For Papers

## 25th Annual International Conference on Soils, Sediments and Water

October 19-22, 2009

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
- MECs
- MTBE
- mercury
- phytoremediation
- radionuclides
- railroad sites
- risk based cleanups (RBCA)
- state regulatory programs

### 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. 15

**Deadline for submissions is February 6, 2009**

### For more information contact

Denise Leonard  
Northeast Regional  
Environmental Health Center  
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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.  
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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.*

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Alex Sherrin, *US EPA Boston*

# Conference at a Glance

## MONDAY, OCTOBER 20, 2008

**Workshops:** workshop #1: 8:00am – 5:00pm, workshop #2: 9:00am – 5:00pm, workshop #3: 1:00 – 5:00pm, workshop #4: 2:00 – 5:00pm

- 1) **MCP Representativeness Evaluations & Data Usability Assessments** - LSP Course Number: 1348 (Reading Room, Campus Center)
- 2) **In-Situ Chemical Oxidation Workshop** (168C Campus Center)
- 3) **Vapor Intrusion Workshop** (163C Campus Center)
- 4) **Environmental Fate of Hydrocarbons in Soils and Groundwater** (101 Campus Center)

## TUESDAY, OCTOBER 21, 2008

*8:30am – Noon Sessions are concurrent*

Session 1: **Advanced Diagnostics for Site Design, Management and Closure** (163C Campus Center)

Session 2: **Vapor Intrusion** (101 Campus Center)

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

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

Session 4: **Heavy Metals** (Reading Room, Campus Center)

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

Session 1: **MECs** (163C Campus Center)

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

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

Session 4a: **Environmental Fate** (Reading Room, Campus Center)

Session 4b: **Analysis** (Reading Room, 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, Workshop #5: 7 – 9 pm, Workshop #6 & 7: 7:00 – 10:00pm)**

- 5) **Nanotechnology and the Environment** (163C Campus Center)
- 6) **Environmental Forensics Workshop** (101 Campus Center)
- 7) **Advanced Tools for In-Situ Remediation** (Reading Room, Campus Center)

## WEDNESDAY, OCTOBER 22, 2008

### Platform Presentations

*8:30am – Noon Sessions are concurrent*

Session 1: **Groundwater NRDA in the Modern Age** (163C Campus Center)

Session 2: **Nanotechnology** (starts at 9:00am) (101 Campus Center)

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

Session 4: **Distribution and Longevity Issues Associated With Injectable In-Situ Remediation Technologies** (Reading Room, Campus Center)

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

Session 1: **Sediments** (163C Campus Center)

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

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

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

Session 4: **Bioremediation II** (Reading Room, 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

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

- 8) **The Evolving Standard of Care: What Does it Mean Today - or Tomorrow?** (163C Campus Center)
- 9) **In-Situ Thermal Remediation** (101 Campus Center)

## THURSDAY, OCTOBER 23, 2008

### Platform Presentations

*8:30am – Noon Sessions are concurrent*

Session 1: **Ecological Restoration** (163C Campus Center)

Session 2a: **Pharmaceuticals in the Environment** (101 Campus Center)

Session 2b: **Site Assessment I** (101 Campus Center)

Session 3: **Chemical Oxidation** (Reading Room, Campus Center)

*1:30pm – 5:00pm Sessions are concurrent*

Session 1: **Remediation II** (163C Campus Center)

Session 2: **Site Assessment II** (101 Campus Center)

Session 3a: **Brownfields** (Reading Room, Campus Center)

Session 3b: **Environmental Forensics** (Reading Room, Campus Center)

### EXHIBITS

Throughout the First Floor Concourse.

### POSTER SESSION

Over 80 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