

SPONSORS & SUPPORTERS

SPONSORS

Adventus Americas
AMEC Geomatrix
American Petroleum
Institute
CETCO
Chevron
Groundwater &
Environmental
Services
International Society
of Environmental
Forensics
Kerfoot Technologies
Regenesis
Shell Oil Products
US EPA

SUPPORTERS

Cupolex Building
Systems
Geosyntec Consultants

STUDENT COMPETITION

SPONSOR:

Adventus Americas

WINE RECEPTION

SPONSOR:

Groundwater &
Environmental Services,
Inc. (GES)

CONFERENCE

COORDINATOR:

Brenna Lockwood
AEHS Foundation, Inc.
150 Fearing Street, Ste 21
Amherst, MA 01002
413-549-5170 Tel
413-549-0579 Fax
brenna@
aehsfoundation.org



photo provided by: Randy Morse, GoldenStateImages.com

• Over 200 Presentations • 12 Workshops • Socials • 45 Exhibitors •

The Association for Environmental Health and Sciences (AEHS) Foundation is proud to present

The 21st Annual International Conference on

SOIL, WATER, ENERGY, AND AIR

and AEHS Foundation Annual Meeting

March 14-17, 2011

Mission Valley Marriott, San Diego, California

CONFERENCE DIRECTORS: Paul Kostecki, Ph.D. and Edward Calabrese, Ph.D., University of Massachusetts, Amherst, MA

DIRECTORS EMERITI: John Hills, Irvine Ranch Water District, Irvine, CA
Stephen Eikenberry, PG, LPG, AEHS Foundation, Amherst, MA





Association for
Environmental
Health and Sciences
Foundation

**150 Fearing Street
Suite 21
Amherst, MA 01002
Tel: 413-549-5561
Fax: 413-549-0579
www.aehsfoundation.org**

Dear Conference Attendee,

Welcome to the **21st Annual International Conference on Soil, Water, Energy, and Air, March 14-17, 2011, San Diego, CA**. The conference, which had its beginnings in petroleum contaminated soils supported by a few interested parties when it first began in 1990, has evolved to encompass a broad range of important contaminants in different media. It has drawn interest from around the world and has been supported by an impressive array of dedicated professionals serving on the Scientific Advisory Board and from other organizations who have provided the necessary resources. Appreciation goes out to the many Sponsors and Supporters who have generously contributed to our conferences throughout the years.

In 2010 the AEHS Foundation assumed the conduct of the Annual International Conference on Soils, Sediments, Water, and Energy held on the campus of the University of Massachusetts, every Fall. Last October's conference, the 26th, was a tremendous success and we invite you to consider joining us next October in Amherst. Between the West Coast and East Coast conferences, the Foundation will reach over 1200 environmental professionals annually! You will see subtle changes as the two conferences co-evolve taking on the best aspects of each.

We are very excited about the Foundation's new online education program. The Foundation launched its first course in September 2010 and has 8 courses in development for 2011. We will continue to expand course offerings and are in discussion with several Universities to assign college credit to our courses. Check our website for course offerings and schedules.

Attendees who registered for the West Coast Conference before March 1st had the opportunity to become a member of the AEHS Foundation for the current calendar year. Members receive the *International Journal of Phytoremediation*, *Human & Ecological Risk Assessment*, or *Soil and Sediment Contamination* as a primary journal (as selected on your registration form). Please note that you have the option to add either or both of the other journals for a fee of \$65/ additional journal/ year. Members will automatically receive hard copies of their journal(s) and online access (including access to back issues). Please see the Foundation website (www.aehsfoundation.org) or contact the office for details.

The AEHS Foundation is pleased to announce the continuation of the *International Society of Environmental Forensics* (ISEF) whose mission is to provide an international forum dedicated to the consolidation and exchange of information related to environmental forensics. The Foundation and ISEF have presented fourteen highly successful workshops on environmental forensics over the past nine years. Members of ISEF receive the journal, *Environmental Forensics*, discounts to ISEF workshops, and other unique benefits. Please check our website for membership information and future workshop postings.

The Foundation and Society are committed to serving its membership and providing an essential forum for ideas, discussion, and debate as well as solutions to a wide array of environmental problems. I hope you find that this year's conference is one of the ways we fulfill this goal.

Sincerely,

Paul Kostecki, Ph.D.
President

CONFERENCE AT A GLANCE

Conference map located on last page of program

MONDAY, MARCH 14, 2011

7:00 am – 3:00 pm	Registration	Foyer
10:00 am – 10:30 am	Registration	Foyer
3:00 pm – 3:30 pm	Break	Foyer

WORKSHOPS

Workshop 1 (8:00 am – 12:00 pm)	Geochemical Evaluations of Metals in Environmental Media: How to Distinguish Naturally Elevated Concentrations from Site-Related Contamination	Sierra 5
Workshop 2 (8:00 am – 12:00 pm)	Advances in LNAPL Site Management - Management Options Resulting from Better Understanding	Sierra 6
Workshop 3 (9:00 am – 5:00 pm)	In-Situ Chemical Oxidation: Focus on Green Remediation	Santa Fe 3
Workshop 4 (1:00 pm – 4:00 pm)	California Goes Green – California's Green Chemistry Initiative	Salon G
Workshop 5 (1:00 pm – 5:00 pm)	Classic and Emerging Environmental Forensics Techniques and Cases	Salon H
Workshop 6 (2:00 pm – 5:00 pm)	Updated LUFT Manual: Risk Evaluation-Soil Screening Tables and Vapor Intrusion	Sierra 5
Workshop 7 (2:00 pm – 5:00 pm)	Environmental Fate of Hydrocarbons in Soils and Groundwater	Sierra 6

TUESDAY, MARCH 15, 2011

7:00 am – 7:00 pm	Registration	Foyer
9:00 am – 7:00 pm	Exhibit Hall	Salons A-F
10:00 am – 10:30 am	Break	Salons A-F
12:00 pm – 1:30 pm	Luncheon	Cabrillo

Lunch Speaker: **"The Role of Fuel Cells in the Energy Future"**

Scott Samuelsen, Mechanical, Aerospace, and Environmental Engineering, University of California, Irvine, CA

3:00 pm – 3:30 pm	Break	Salons A-F
-------------------	--------------	------------

MORNING PLATFORM SESSIONS

Session 1: Water Resources (8:30 am – 11:30 am)	Sierra 5
Session 2: Ozone Treatment Optimization (9:00 am – 12:00 pm)	Salon G

AFTERNOON PLATFORM SESSIONS

Session 1: In-Situ Chemical Reduction (1:30 pm – 5:00 pm)	Sierra 5
Session 2: Heavy Metals (1:30 pm – 4:30 pm)	Salon G

POSTER SESSION & SOCIAL

3:00 pm – 5:00 pm	Santa Fe 3-4 and Sunroom
-------------------	--------------------------

WELCOME RECEPTION/WINE AND CHEESE SOCIAL

5:00 pm – 7:00 pm (Free to all registered conference attendees)	Salons A-F (exhibit hall)
---	---------------------------

WORKSHOPS

Workshop 8 (8:30 am – 5:00 pm)	Addressing Regulatory Challenges in Vapor Intrusion: A State-of-the-Science Update	Pavilion
Workshop 9 (6:30 pm – 9:30 pm)	Assessment and Evaluation of Vapor Intrusion at Petroleum Release Sites	Sierra 5
Workshop 10 (7:00 pm – 9:00 pm)	Admissibility of Scientific Evidence in Court	Salon G

Workshops 2, 6, 8, 9, & 11 are FREE to state, federal, and municipal regulatory personnel. See registration desk to sign up.

WEDNESDAY, MARCH 16, 2011

7:00 am – 7:00 pm	Registration	Foyer
9:00 am – 7:00 pm	Exhibit Hall	Salons A-F
10:00 am – 10:30 am	Break	Salons A-F
12:00 pm – 1:30 pm	Luncheon	Cabrillo

Lunch Speaker: **"What Has Happened to the Deepwater Horizon Oil Plume in the Gulf of Mexico?"**

Gary Andersen, Lawrence Berkeley National Laboratory, Berkeley, CA

3:00 pm – 3:30 pm	Break	Salons A-F
3:00 pm – 3:30 pm	Online Courses Information Session	Balboa 2

MORNING PLATFORM SESSIONS

Session 1: Site Assessment/Field Sampling (8:00 am – 12:00 pm)	Sierra 5
Session 2: Special Federal Agencies Optimization: The Evolution and Future of Remediation Optimization (8:00 am – 12:00 pm)	Salon G
Session 3: Petroleum Hydrocarbon Vapor Intrusion I (8:30 am – 12:00 pm)	Pavilion

AFTERNOON PLATFORM SESSIONS

Session 1: Energy and the Environment (1:30 pm – 5:00 pm)	Sierra 5
Session 2: Principles and Application of Remediation Risk Management (RRM) at Contaminated Sites (1:30 pm – 5:00 pm)	Salon G
Session 3: Petroleum Hydrocarbon Vapor Intrusion II (1:30 pm – 4:30 pm)	Pavilion
Session 4: Integrated Site Remediation Approaches (1:30 pm – 4:30 pm)	Cabrillo 2

POSTER SESSION & SOCIAL

3:00 pm – 5:00 pm	Santa Fe 3-4 and Sunroom
-------------------	--------------------------

EVENING SOCIAL

5:00 pm – 7:00 pm (Free to all registered conference attendees)	Salons A-F (exhibit hall)
---	---------------------------

WORKSHOPS

Workshop 11 (6:00 pm – 9:00 pm)	Project Risk Management for Site Remediation	Sierra 5
Workshop 12 (6:30 pm – 9:30 pm)	Utilization of Stable Isotopes in Environmental and Forensic Geochemistry Studies	Salon G

THURSDAY, MARCH 17, 2011

8:00 am – 2:00 pm	Registration	Foyer
9:00 am – 12:00 pm	Exhibit Hall	Salons A-F
10:00 am – 10:30 am	Break	Salons A-F
12:00 pm – 1:30 pm	Luncheon	Pavilion

Announcement: **Student Contest Winners**

Lunch Speaker: **"Contaminants, Compliance, and Caveats: Field Studies at Doe's Rifle Integrated Field Research Challenge (IFRC) Site"**

Kenneth Williams, Lawrence Berkeley National Laboratory, Berkeley, CA

3:00 pm – 3:30 pm	Break	Foyer
-------------------	--------------	-------

MORNING PLATFORM SESSIONS

Session 1: Bioremediation (9:00 am – 12:00 pm)	Sierra 5
Session 2: Air Environment Forensics (8:30 am – 12:00 pm)	Salon G
Session 3: Uses and Abuses of Modeling in Litigation and the Regulatory Decision Making Process (9:00 am – 12:00 pm)	Santa Fe 3

AFTERNOON PLATFORM SESSIONS

Session 1: Innovative Remedial Technologies (1:30 pm – 4:30 pm)	Sierra 5
Session 2: Vapor Intrusion (1:30 pm – 5:00 pm)	Salon G
Session 3: Environmental Forensics (1:30 pm – 4:30 pm)	Santa Fe 3

General Information

Exhibit Hours (Salons A-F and Foyer)

Tuesday, March 15	9:00 am – 7:00 pm
Wednesday, March 16	9:00 am – 7:00 pm
Thursday, March 17	9:00 am – 12:00 pm

Poster Sessions (Santa Fe 3-4 and Sunroom)

Tuesday, March 15	3:00 pm – 5:00 pm
Wednesday, March 16	3:00 pm – 5:00 pm

Socials

Tuesday, March 15 (Sunroom/Patio)	
Accompanies poster session	3:30 pm – 5:00 pm
Tuesday, March 15 (Salons A-F)	
Wine/welcome reception	5:00 pm – 7:00 pm
Wednesday, March 16 (Sunroom/Patio)	
Accompanies poster session	3:30 pm – 5:00 pm
Wednesday, March 16 (Salons A-F)	
Evening social	5:00 pm – 7:00 pm

Exhibitors (See floor plan handout for booth locations)

Accutest Laboratories	Cupolex Building Systems	McDaniel Lambert
Adventus Group	Dataforensics, LLC	Microbial Insights
Air Toxics	ETEC, LLC	Microseeps
AirSep Corporation	FMC Corporation	Orange Coast Analytical
AMEC Geomatrix	FRX	PerkinElmer
American Analytics	Geo-Cleanse International	Professional Technical Media
Beacon Environmental Services	Groundwater & Environmental Services (GES)	Regenesis
Blaine Tech Services	H&P Mobile GeoChemistry	RSI Drilling
Boart Longyear	In-Situ	SiREM
Calscience Environmental Laboratories	Interstate Technology and Regulatory Council	Stantec Consulting Corporation
Cascade Drilling	JRW Bioremediation, LLC	TestAmerica Drilling Corp.
Centek Laboratories, LLC	Kerfoot Technologies	USEPA /TIFSD
CETCO	MatCon	USEPA Office of Research and Development
Columbia Analytical Services	Maxxam Analytics	WDC Exploration & Wells
Confluence Environmental		Weck Laboratories
		Willowstick Technologies

MONDAY, MARCH 14, WORKSHOPS

Workshop 1 (8:00 am – 12:00 pm) Sierra 5 Geochemical Evaluations of Metals in Environmental Media: How to Distinguish Naturally Elevated Concentrations from Site-Related Contamination

Jonathan Myers, Ph.D., *Shaw Environmental, Inc., Albuquerque, NM*
Karen Thorbjornsen, P.G., *Shaw Environmental, Inc., Knoxville, TN*

Workshop 2 (8:00 am – 12:00 pm) Sierra 6 Advances in LNAPL Site Management - Management Options Resulting from Better Understanding

Dr. Tom Sale, *Colorado State University, Fort Collins, CO*
Mike Wang, *Western States Petroleum Assoc., Torrance, CA*
Andrew Kirkman, *AECOM, St. Paul, MN*
Rick Ahlers, *ARCADIS, Carlsbad, CA*
Paul Cho, *Los Angeles Regional Water Quality Control Board, Los Angeles, CA*
Paul Stock, *Minnesota Pollution Control Agency, Detroit Lakes, MN*
Mike Hawthorne, *H2A Environmental, Keller, TX*

Workshop #2 is FREE to municipal, state, and federal REGULATORY personnel registered for the conference.

Workshop 3 (9:00 am – 5:00 pm) Santa Fe 3 In-Situ Chemical Oxidation: Focus on Green Remediation

Matthew Dingens, *Carus Chemical Company, Peru, IL*
William Kerfoot, *Kerfoot Technologies, Inc., Mashpee, MA*
William Moody, *GeoCleanse International, Matawan, NJ*
Jennifer Lindsey, *FMC Corporation, Philadelphia, PA*
Craig Sandefur, *Regenesis, San Clemente, CA*

Workshop 4 (1:00 pm – 4:00 pm) Salon G California Goes Green – California's Green Chemistry Initiative

Art Fong, *IBM, San Ramon, CA*
Lynne Haroun, *ENVIRON, Emeryville, CA*
Liz Miesner, *ENVIRON, San Francisco, CA*
Karen Nardi, *Arnold & Porter LLP, San Francisco, CA*
Jeff Wong, *DTSC, Sacramento, CA*

Workshop 5 (1:00 pm – 5:00 pm) Salon H Classic and Emerging Environmental Forensics Techniques and Cases

Ioana G. Petrisor, *Haley & Aldrich, Costa Mesa, CA*
Helder Costa, *Haley & Aldrich, Inc., Boston, MA*
Michael J. Wade, *Wade Research, Inc., Marshfield, MA*
Jean Christophe Balouet, *Environmental International, Le Perreux-sur-Marne, France*
Jeffrey L. Caufield, *Caufield & James LLP, San Diego, CA*

Workshop 6 (2:00 pm – 5:00 pm) Sierra 5 Updated LUFT Manual: Risk Evaluation-Soil Screening Tables and Vapor Intrusion

Kevin Graves, *CA SWRCB, Sacramento, CA*
Lynn Spence, *Spence Environmental Engineering, Pleasanton, CA*
Blayne Hartman, *Independent Consultant, Solana Beach, CA*

Workshop #6 is FREE to municipal, state, and federal REGULATORY personnel registered for the conference.

Workshop 7 (2:00 pm – 5:00 pm) Sierra 6 Environmental Fate of Hydrocarbons in Soils and Groundwater

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

Announcing the 2nd Annual AEHS Foundation Achievement Awards

Presented at the Welcome Reception, Tuesday, March 15th, 5:00 pm – 7:00 pm

The Annual International Conference on Soil, Water, Energy, and Air is pleased to announce the recipients of the AEHS Foundation Achievement Award. This award is presented to individuals or organizations that have shown significant contributions to the field as well as outstanding environmental stewardship. This year's winners are Yue Rong, California Regional Water Quality Control Board, Los Angeles, CA; Susan Henry, UCI Extension, Irvine, CA; and Stephen E. Eikenberry, retired from Naval Facilities Engineering Service Center, Port Hueneme, CA.



Yue Rong (a.k.a. "Y.R.") is currently the Environmental Program Manager for the Underground Storage Tank Program at the California Regional Water Quality Control Board, Los Angeles Office. He has more than 20 years' experience with the Agency in dealing with groundwater contamination problems in the Los Angeles area of California, U.S.A. He is an Associate Editor for the peer-reviewed journal of *Soil and Sediment Contamination* and an Associate Editor for the Journal of *Environmental Forensics*. Dr. Rong was elected in 2006 and re-elected in 2008 as the president on the board of directors for the Southern California Chinese American Environmental Protection Association (SCCAEPA), serving the local minority community. He is also the Editor-in-Chief for the peer-reviewed SCCAEP Online Journal. Dr. Rong is the author or co-author for about 30 peer-reviewed publications, and the editor of the book entitled "Practical Environmental Statistics and Data Analysis." He was the recipient of the California Regional Water Quality Control Board Outstanding Achievement Award and Supervisory Performance Award. Dr. Yue Rong has his Ph.D. in Environmental Health Sciences from the University of California at Los Angeles (UCLA) and M.S. in Environmental Sciences from the University of Wisconsin.



Susan Henry enjoys a 30-year career in the environmental field that has included teaching, research, and consulting. Her early focus was environmental microbiology and bioremediation of xenobiotics, particularly chlorinated solvents, which expanded to include natural attenuation. The focus of more recent efforts has been assessment and remediation of soil and groundwater contamination, and she teaches an RI/FS remediation class through UCI Extension. Susan obtained a B.A. in Biology from Earlham College, an M.S. in Environmental Science from Virginia Tech, and a Ph.D. in Environmental Engineering from Stanford University. She has published and presented extensively, edited books, organized and chaired symposia, and is author of the famed "Bioreclamation Rap" which topped the charts in 1991.



Stephen Eikenberry has been an environmental professional for nearly 40 years with work ranging from evaluating acid mine drainage to advocating research and development programs. He was the head of the Naval Facilities Engineering Service Center Environmental Department where he was responsible for oversight of the Navy's environmental research and development efforts such as the Department of Defense's National Test Site, pollution prevention, and site cleanup programs. He also developed the Navy's site remediation and the chemical quality assurance programs. Steve has been active with AEHS since 1993 and serves on Science Advisory Board for the San Diego Conference. He is a Registered Geologist in California and a Licensed Professional Geologist in Indiana. Steve lives in Ventura, California, with his wife and two daughters.

Morning

Sessions are concurrent • 8:30 am - 12:00 pm

Session 1: WATER RESOURCES

(8:30 am – 11:30 am) Sierra 5

Moderator: John Hills, *Irvine Ranch Water District, Irvine, CA*

8:30 Pipe Flow Through Investigation of Potential Lead Leaching Associated with Chloraminated Drinking Water

Jason Heberling, *Birmingham Water Works Board, Birmingham, AL*

9:00 Testing Hydrogen Peroxide to Reduce Formation of Regulated Chlorinated Compounds in a Drinking Water Plant

Jeff Cochran, Patty Barron, and April Nabors, *Birmingham Water Works Board, Birmingham, AL*

9:30 An Evaluation of the Role of Coagulation on TOC and DBP Formation in Drinking Water

April Nabors, Patty Barron, and Wendell Cox, *Birmingham Water Works Board, Birmingham, AL*

10:00 Break

10:30 Groundwater Replenishment System

Mehul Patel, *Orange County Water District, Fountain Valley, CA*

11:00 Use of Normal Human Colon Cells to Assess Toxicities of Unregulated Disinfection By-Products and Mixtures

Anthony DeAngelo and Jane Ellen Simmons, *US EPA, Research Triangle Park, NC*; Bonnie Lyon and Howard Weinberg, *University of North Carolina-Chapel Hill, Chapel Hill, NC*; Mary P. Moyer, *INCELL Corporation, LLC, San Antonio, TX*

Session 2: OZONE TREATMENT OPTIMIZATION

(9:00 am – 12:00 pm) Salon G

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

9:00 Disinfection, Pharmaceutical, and VOC Removal with Coated Nanobubble Ozone

William Kerfoot, *Kerfoot Technologies, Mashpee, MA*

9:30 Bringing TBA Sites to Closure

Richard Vogl, *GeoHydrologic Consultants, Inc., Huntington Beach, CA*

10:00 Break

10:30 Retrofitting Air Sparge Systems with Ozone Oxidation to Meet MCLs


William Kerfoot, *Kerfoot Technologies, Mashpee, MA*

11:00 ISCO and ERD as Methods for TCE Plume Treatment at the PECO Facility Portland, Oregon

Paul Ecker and Paul McBeth, *PNG Environmental, Inc., Tigard, OR*

11:30 Treating Chloroethenes in Shallow Fractured Rock

Darko Strajin, *Trow Global, Brampton, ON, Canada*

Sponsored by 



Workshop 8

ADDRESSING REGULATORY CHALLENGES IN VAPOR INTRUSION: A STATE-OF-THE-SCIENCE UPDATE

All day workshop: 8:30 am - 12:00 pm & 1:30 pm - 5:00 pm (Pavilion)

The U.S. Environmental Protection Agency's (EPA's) Offices of Research and Development and Solid Waste and Emergency Response continue to collaborate on providing technical assistance and support to EPA regional offices, other federal agencies, state regulators, and other interested parties that are managing vapor intrusion (VI) risks from contaminated soil and groundwater. EPA's technical assistance often relies on information and data analyses from research studies, demonstration projects, field studies, and commercial cleanups. Contributors to these efforts have been investigating VI for nearly two decades and continue to advance the science of understanding VI. As a result, how this science is applied to determine, characterize, and manage VI risks is constantly evolving, and much more still needs to be done to transfer this knowledge so that regulators, consultants, and other decision makers can make informed and effective decisions. To address this need, EPA will hold a 1-day workshop that will provide information on the state-of-the-science for addressing challenges in investigating, assessing, and mitigating VI sites. This workshop will focus on the latest advances and significant findings associated with:

• **Vapor Attenuation:** Comparison of VI database observations to generic factors and model predictions, including the 2002 Guidance generic and semi-site-specific (Figure 3) attenuation factors.

• **VI Site Investigation:** Lessons learned from more than a decade of data collection, including

- Spatial and temporal variability observed at sites (and lessons from outlier site conditions)
- Case studies
- Processes affecting vapor fate and transport
- Approaches to sampling frequency and data collection, and impacts on conclusions.

• **VI Mitigation and Control:** New directions and issues, documented evidence, and case studies illustrating

- Pre-emptive actions: applicability, benefits, costs, and drivers
- Cost-effective operations maintenance and monitoring, including the use of tracers such as radon
- Termination criteria.

This year's program will include posters and will emphasize audience and practitioner input and feedback with opportunities for questions and answers and open discussion. The agenda will be available in January 2011 at <http://iaivi.rti.org>.

INVITED SPEAKERS:

Dr. Paul Johnson, Arizona State University, Tempe, AZ

Dr. Daniel Steck, Minnesota Radon Project, St. John's University, Collegeville, MN

Dr. Helen Dawson, U.S. EPA Office of Superfund Remediation and Technology Innovation, Washington, DC

Dr. Brian Schumacher, U.S. EPA Office of Research and Development, National Exposure Research Laboratory, Las Vegas, NV

Dr. William Wertz, formerly of New York State Department of Environmental Conservation, Albany, NY

Dr. Ian Hers, Golder Associates, Vancouver, BC, Canada

Mr. Todd McAlary, P.E., P.G., Geosyntec Consultants, Guelph, ON, Canada

Mr. Daniel Carr, P.E., P.G., Sanborn Head and Associates, Portland, ME

EPA SPONSORS/SPEAKERS:

Stiven Foster, U.S. EPA, Office of Solid Waste and Emergency Response, Washington, DC

Dr. Henry Schuver, U.S. EPA, Office of Solid Waste and Emergency Response, Office of Resource Conservation and Recovery, Washington, DC

Douglas Grosse, U.S. EPA, Office of Research and Development, National Risk Management Research Laboratory, Cincinnati, OH

CONTACT:

Robert S. Truesdale, RTI International, Research Triangle Park, NC

This workshop requires pre-registration – to sign up, see registration desk (free to regulators registered for conference)

Afternoon

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

Session 1: IN-SITU CHEMICAL REDUCTION (ISCR)

(1:30 pm – 5:00 pm) Sierra 5

Moderator: Stephen Koenigsberg, *Adventus Group, Corona Del Mar, CA*

- 1:30 In-Situ Reductive Immobilization of Dissolved Metals Using Zero Valent Iron and Organic Carbon Substrates**
Andrzej Przepiora, *Adventus Group, Mississauga, ON, Canada*; Alan Seech, *Adventus Americas, Inc., Irvine CA*
- 2:00 Microorganisms Pumping Iron: Anaerobic Microbial Iron Oxidation and Reduction**
John D. Coates, *University of California, Berkeley, CA*
- 2:30 In-Situ Chemical Reduction: A Discussion of ZVI and Combined ZVI-Carbon Technologies for Site Remediation**
Alan Seech and Stephen Koenigsberg, *Adventus Group, Corona Del Mar, CA*; Andrzej Przepiora, *Adventus Group, Mississauga, ON, Canada*

Sponsored by  **ADVENTUS**

- 3:00 Break**
- 3:30 Biogeochemical Transformation of Chlorinated Solvents**
Patrick J. Evans, *CDM, Bellevue, WA*
- 4:00 Rapid Response to DNAPL Detection During Remedial Activities**
Charles E. Robinson, *ARCADIS U.S., Inc., Costa Mesa, CA*
- 4:30 Full-Scale Daramend Treatment at a Toxaphene-Impacted Site**
Arnab Chakrabarti, *Geosyntec Consultants, Oakland, CA*

Session 2: HEAVY METALS

(1:30 pm – 4:30 pm) Salon G

Moderator: Rodney Crother, *Stantec, Lakewood, CA*

- 1:30 Laboratory and Field Experiments on Microbial Transformation of Arsenic**
Claudia Gallert, Dominik Freikowski, and Josef Winter, *KIT, Karlsruhe Institute of Technology, Karlsruhe, Germany*
- 2:00 In-Situ Chemical Reduction of Hexavalent Chromium in Soils and Groundwater Using Ferrous Sulfide (FeS) Nanotechnology**
Richard Christensen and Steven R. Irvin, *Acuity Environmental Solutions, Fishers, IN*; Jim V. Rouse, *MWH Americas, Inc., Golden, CO*
- 2:30 Decision Framework for Applying Natural Attenuation Processes to Metals and Radionuclides**
Carl Spreng, *Colorado Department of Public Health and Environment, Denver, CO*; Dib Goswami, *Washington State Department of Ecology, Richland, WA*
- 3:00 Break**
- 3:30 Forest Restoration Criteria: Zinc**
David Ludwig, Gwendolyn Gibson, and Timothy J. Iannuzzi, *ARCADIS-US, Annapolis, MD*; Penelope Hunter and Anne Thatcher, *ARCADIS, Lakewood, CO*
- 4:00 Evaluation of Arsenic in Central Eureka Gold Mine Tailings, Amador County, California**
Raymond Will and William E. Motzer, *Todd Engineers, Alameda, CA*

LUNCHEON

12:00 pm - 1:30 pm - Cabrillo

THE ROLE OF FUEL CELLS IN THE ENERGY FUTURE

Speaker: Scott Samuelsen
University of California, Irvine, CA

Henry Samuelli Endowed Chair, Professor of Mechanical, Aerospace, and Environmental Engineering;
Director, Advanced Power and Energy Program;
Director, National Fuel Cell Research Center

WORKSHOPS

Workshop 8 (8:30 am – 5:00 pm) Pavilion

Addressing Regulatory Challenges in Vapor Intrusion: A State-of-the-Science Update

Workshop #8 is FREE to municipal, state, and federal REGULATORY personnel registered for the conference.

Workshop 9 (6:30 pm – 9:30 pm) Sierra 5

Assessment and Evaluation of Vapor Intrusion at Petroleum Release Sites

Robin Davis, *Utah Department of Environmental Quality, Salt Lake City, UT*
George DeVaul, *Shell Global Solutions, Houston, TX*
Blayne Hartman, *Hartman Environmental Geoscience, Solana Beach, CA*
Tom McHugh, *GSI, Houston, TX*
Todd Ririe, *BP, La Palma, CA*
Matthew Young, *US EPA Office of Underground Storage Tanks, Washington, DC*

Workshop #9 is FREE to municipal, state, and federal REGULATORY personnel registered for the conference.

Workshop 10 (7:00 pm – 9:00 pm) Salon G

Admissibility of Scientific Evidence in Court

Ioana G. Petrisor, Ph.D., *Haley & Aldrich, Costa Mesa, CA*
Kevin C. Mayer, Esq., *Crowell & Moring LLP*
Jeffrey L. Caulfield, Esq., *Caulfield & James LLP, San Diego, CA*

POSTER SESSION & SOCIAL

Tuesday 3:00 pm - 5:00 pm
Santa Fe 3-4 and Sunroom

AUTHORS WILL BE AVAILABLE FOR INDIVIDUAL DISCUSSION AT THEIR POSTERS

- Cash Bar • Refreshments
- Hors d'oeuvres

WELCOME RECEPTION

Tuesday 5:00 pm - 7:00 pm *Salons A-F (Exhibit Hall)*

Please join us for:

- Wine Tasting Social & Networking Reception
- Achievement Award Ceremony *(see page 4 for details)*
 - Hors d'oeuvres
- Free to all Registered Attendees
- Exhibits

Welcome Reception Sponsored by



Morning

Sessions are concurrent • 8:00 am – 12:00 pm

Session 1: SITE ASSESSMENT/FIELD SAMPLING

(8:00 am – 12:00 pm) Sierra 5

Moderator: Gary Foote, AMEC Earth & Environmental, Oakland, CA

- 8:00 Use of Bail-Down Tests to Estimate LNAPL Transmissivity**
Ranga Muthu and Atul M. Salhotra, RAM Group of Gannett Fleming, Houston, TX
- 8:30 A Minimally Invasive Method for Characterizing Contaminated Karst and Other Complex Groundwater Systems**
Val Gardner and Paul Rollins, Willowstick Technologies LLC, Draper, UT
- 9:00 Analytical Validity of Total Petroleum Hydrocarbon (TPH) Fractionation from Sub-Surface Samples**
Jace Jones and Steve Jones, Jones Environmental, Inc., Fullerton, CA; Teri L. Copeland, Environmental Toxicologist-Private Consultant, Agoura Hills, CA
- 9:30 Evaluation of Field Portable Gas Chromatographs for Groundwater Hydrocarbon Analysis**
Rachel Mohler, Chevron Energy Technology Company, Richmond, CA; Sheldon N. Nelson and Karen A. Synowiec, Chevron Energy Technology Company, San Ramon, CA

- 10:00 Break**
- 10:30 Robust Delineation of Contamination for Remedial Design Planning to Minimize Uncertainties for Project Execution**
Howard Cumberland, Geosyntec Consultants, Portland, OR; William J. Priore, Lynchburg, OH; Darrell Nicholas, Resource Engineering & Testing, Monterey, TN
- 11:00 Application of an Analytical Technique for Determining Alkyl PAHs, Saturated Hydrocarbons and Geochemical Biomarkers in Water, Soil, and Tissue**
Charles Neslund, Tim J. Trees, and Richard H. Karam, Lancaster Laboratories, Inc., Lancaster, PA
- 11:30 Greater Understanding of Sub-Surface Contamination Via Chromatographic Profiling**
Steve Jones and Jace W. Jones, Jones Environmental, Inc., Fullerton, CA; Ted Koelsch, K2 Enviro, Inc., Lake Forest, CA

Session 2: SPECIAL FEDERAL AGENCIES OPTIMIZATION: THE EVOLUTION AND FUTURE OF REMEDIATION OPTIMIZATION

(8:00 am – 12:00 pm) Salon G

Moderator: Kathy Yager, US EPA, North Chelmsford, MA

- 8:00 Optimization in the Superfund Program: It's Not Just for Pump and Treat Anymore!**
Kathy Yager, US EPA, North Chelmsford, MA
- 8:30 EPA Optimization Case Studies – Part I: Investigation and Design**
Doug Sutton, GeoTrans, Inc., A Tetra Tech Company, Freehold, NJ
- 9:00 EPA Optimization Case Studies – Part II: Remediation, LTMO and Green Remediation**
Doug Sutton, GeoTrans, Inc., A Tetra Tech Company, Freehold, NJ
- 9:30 USN - Green and Sustainable Remediation – Perspective and Case Study**
Karla Harre, Tanwir Chaudhry, and Amy Hawkins, US Navy, Port Hueneme, CA

- 10:00 Break**
- 10:30 USAF - Nationwide Optimization Program – Progress, Lessons Learned and Performance-Based Future**
Javier Santillan, AFCEE, Lackland AFB, TX; Sriram Madabhushi, Booz Allen Hamilton, San Antonio, TX
- 11:00 U.S. Army - Future Direction of Optimization**
Dave Becker, US Army Corps of Engineers, Omaha, NE
- 11:30 EPA's Proposed Nationwide Optimization Strategy**
Kathy Yager, US EPA, North Chelmsford, MA

Session 3: PETROLEUM HYDROCARBON VAPOR INTRUSION I

(8:30 am – 12:00 pm) Pavilion

Moderator: Todd Ririe, BP America, Inc., La Palma, CA

- 8:30 Sampling Considerations for Vapor Intrusion Assessments at Petroleum Hydrocarbon Sites**
Blayne Hartman, Hartman Environmental Geoscience, Solana Beach, CA
- 9:00 Transport and Biodegradation of Petroleum Hydrocarbon Vapor Components in the Subsurface; A Soil Column Study**
Elsy Escobar, Paul Dahlen, and Paul C. Johnson, Arizona State University, Tempe, AZ
- 9:30 Incorporating Barometric Pressure and Wind Effects into Vapor Intrusion Simulations**
Hong Luo and Paul C. Johnson, Arizona State University, Tempe, AZ

- 10:00 Break**
- 10:30 Vapor Cloud Model to Estimate Sub-Slab to Indoor Air Attenuation Factor**
Atul Salhotra and Venkat Sambana, RAM Group of Gannett Fleming, Houston, TX
- 11:00 A Static Chamber for Measurements of Benzene Vapor Fluxes for Risk Evaluation**
Federica Belloro and Giovanni Ferro, Ingegneria e Servizi Ambientali Ferro S.r.l., Savona, Italy
- 11:30 Empirical Data Supporting Groundwater Benzene Concentration Exclusion Criteria for Petroleum Vapor Intrusion Investigations**
Tom Pearnin, Chevron, San Ramon, CA; Ravi Kolhatkar, Chevron, Houston, TX



Professional Education Series

Wednesday, March 16, 3:00 pm – 3:30 pm, Balboa 2

Information Session:

AEHS ONLINE PROFESSIONAL EDUCATION SERIES

Please join Dr. Paul Kostecki, Executive Director, and Dr. David Ludwig, Director of Education and Training, AEHS Foundation, for a special information session to discuss the Foundation's latest endeavor: Professional Education and Online Learning. We will discuss upcoming courses and address questions related to online teaching and learning. We encourage anyone interested in gathering information about (or teaching for) AEHS Online Courses to attend.

This informal information session is during the scheduled session break. Please join us - refreshments will be served.

LUNCHEON

12:00 pm - 1:30 pm - Cabrillo

WHAT HAS HAPPENED TO THE DEEPWATER HORIZON OIL PLUME IN THE GULF OF MEXICO?

Speaker: **Gary Andersen**

Lawrence Berkeley National Laboratory, Berkeley, CA

Afternoon

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

Session 1: ENERGY AND THE ENVIRONMENT

(1:30 pm – 5:00 pm) Sierra 5

Moderators: Wally Hise, HDR, Salt Lake City, UT; Clay Sandidge, Sandidge Consulting, Rancho Santa Margarita, CA

- 1:30 The Critical Role of Fuel Cell Systems in Sustainable & Renewable Power Generation**
Jack Brouwer, Pere Margalef, and Scott Samuelsen, University of California, Irvine, CA
- 2:00 Hawaii Interisland Cable/Wind Initiative: Regulatory and Technical Challenges**
William Kucharski, AECOM, Honolulu, HI; Allen G. Kam, State Energy Office, Honolulu, HI
- 2:30 Siting and Permitting Utility-Scale Solar Energy Projects**
Henrik Christensen, HDR Engineering, Inc., Las Vegas, NV
- 3:00 Break**
- 3:30 Panel Discussion: "Port Sustainability Program"**
Dave Cameron, City National Bank, Long Beach, CA
Capt. Richard B. McKenna, Marine Exchange of Southern California, San Pedro, CA
Anthony Lumino, Chevron Energy Solutions, Pasadena, CA
John Powell, Advanced Cleanup Technologies, Inc., Rancho Dominguez, CA
Clay Sandidge, Sandidge Consulting, Rancho Santa Margarita, CA
Leo Rossi, Highway One Management, San Pedro, CA

Session 3: PETROLEUM HYDROCARBON VAPOR INTRUSION II

(1:30 pm – 4:30 pm) Pavilion

Moderator: Todd Ririe, BP America, Inc., La Palma, CA

- 1:30 Seal Beach, CA Case Study on Petroleum Hydrocarbon Vapor Intrusion: Or Why Residential Street Soil Vapor Samples Should Not be Used as the Sole Basis for Risk Management Decisions**
Todd Ririe, BP America, Inc., La Palma, CA; Blayne Hartman, Hartman Environmental Geoscience, Solano Beach, CA; Chuck Lambert, McDaniel Lambert, Inc., Venice, CA
- 2:00 Spatial and Temporal Behavior of Subsurface Petroleum Hydrocarbon Vapors**
Robin V. Davis, Utah Department of Environmental Quality, Salt Lake City, UT
- 2:30 Site Conditions Conducive for Potential Petroleum Vapor Intrusion (PVI) Risk**
Robert E. Sweeney, Petroleum and Environmental Geochemistry, Etna, CA
- 3:00 Break**
- 3:30 Challenges to Multiple Lines of Evidence Vapor Intrusion Evaluations at Petroleum Release Sites**
Robert Ettinger, Geosyntec Consultants, Santa Barbara, CA
- 4:00 Cold Climate Vapor Intrusion Research Study - Seasonal Monitoring at Petroleum-Impacted Site in Saskatchewan, Canada**
Ian Hers, Golder Associates Ltd., Burnaby, BC, Canada; Matt Lahvis and George DeVaul, Shell Global Solutions US, Inc., Houston, TX; Paul Dahlen, Emma Hong Luo, and Paul Johnson, Arizona State University, Tempe, AZ

Sponsored by


Session 2: PRINCIPLES AND APPLICATION OF REMEDIATION RISK MANAGEMENT (RRM) AT CONTAMINATED SITES



(1:30 pm – 5:00 pm) Salon G

Moderator: Kathy Yager, US EPA, North Chelmsford, MA

- 1:30 Managing Project Risks in Site Remediation**
Ning-Wu Chang, DTSC/Cal EPA, Cypress, CA; Sriram Madabhushi, Booz Allen Hamilton, San Antonio, TX
- 2:00 RRM – Principles and Practices**
Keisha Long, SCDHEC, Columbia, SC
- 2:30 Alternative Endpoints for Groundwater Remediation at Complex Sites**
Elisabeth Hawley, Rula A. Deeb, and Robert O'Laskey, Malcolm Pirnie, Inc., Emeryville, CA
- 3:00 Break**
- 3:30 Air Force Restoration Performance Risk Management Case Studies**
Samuel Brock, AFCEE, Lackland AFB, TX; Douglas Downey, CH2M Hill, Evergreen, CO
- 4:00 Department of Energy's RRM Case Study**
Bob Ferry, Brown and Caldwell, Livermore, CA
- 4:30 RRM Next Steps – Green and Sustainable Remediations**
Sriram Madabhushi, Booz Allen Hamilton, San Antonio, TX; Tom O'Neill, NJ DEP, Trenton, NJ

Session 4: INTEGRATED SITE REMEDIATION APPROACHES

(1:30 pm – 4:30 pm) Cabrillo 2

Moderators: Rick Gillespie and Suzi Rosen, P.G., REGENESIS, San Clemente, CA

- 1:30 Pilot-Scale Biobarrier Using 3DMe™ in Fractured Granite**
Rebecca H. Mora, Holly Holbrook, Melissa Boysun, and Sarah Grossi, AECOM, Orange, CA; Patrice Hallman, U.S. Air Force 95th Air Base Wing, Edwards AFB, CA
- 2:00 Bench-Scale Evaluation of Biostimulation Versus Bioaugmentation of Chlorinated Solvents in Groundwater**
Laurie LaPat-Polasko and Nimisha Patel, AMEC Geomatrix, Scottsdale, AZ; Linda Conlan and Samantha Curtis, AMEC Geomatrix, Newport Beach, CA
- 2:30 Enhanced In-Situ Bioremediation in a Dense Residential Setting Using Re-Circulation to Remediate Recalcitrant Hydrocarbons**
Maya Key and Ed Childers, Kennedy Jenks Consultants, Rancho Cordova, CA
- 3:00 Break**
- 3:30 Combining ISCO Application & Enhanced Recovery Techniques for Weathered and Other Highly Sorbed Contaminants**
Craig Sandefur, REGENESIS, San Clemente, CA
- 4:00 Advancements in Vapor Mitigation Technology for Brownfield Redevelopment**
Peter Grant, Land Science Technologies, San Clemente, CA

Sponsored by


WORKSHOPS

Workshop 11 (6:00 pm – 9:00 pm) Sierra 5 Project Risk Management for Site Remediation

Ning-Wu Chang, DTSC, Cypress, CA
Sam Brock, AFCEE, Lackland AFB, TX
Dave Becker, US ACE, Omaha, NE
Rula Deeb, Malcolm Pirnie, Inc., Emeryville, CA
Sriram Madabhushi, BAH, San Antonio, TX

Workshop #11 is FREE to municipal, state, and federal REGULATORY personnel registered for the conference.

Workshop 12 (6:30 pm – 9:30 pm) Salon G Utilization of Stable Isotopes in Environmental and Forensic Geochemistry Studies

Paul Philp, University of Oklahoma, Norman, OK

POSTER SESSION & SOCIAL

Wednesday 3:00 pm - 5:00 pm

Santa Fe 3-4 and Sunroom

AUTHORS WILL BE AVAILABLE FOR INDIVIDUAL DISCUSSION AT THEIR POSTERS

- Cash Bar • Refreshments
- Hors d'oeuvres

EVENING SOCIAL

FREE TO ALL REGISTERED ATTENDEES

Wednesday 5:00 pm - 7:00 pm

Salons A-F, Exhibit Hall

Please join us for:

- Social & Networking Reception
- Hors d'oeuvres
- Open Bar (for limited duration)
- Exhibits

Morning

Sessions are concurrent • 8:30 am – 12:00 pm

Session 1: BIOREMEDIATION

(9:00 am – 12:00 pm) Sierra 5

Moderator: Song Jin, *University of Wyoming, Laramie, WY*

- 9:00 High-Volume Soluble Substrate Injection to Remediate Trichloroethene and Perchlorate Source Area**
David Springer and Joachim Eberharter, *Tetra Tech, Inc., Santa Barbara, CA*; Amena Atta, *Department of the United States Air Force, Vandenberg AFB, CA*
- 9:30 Evaluating Bioventing Scale-Up Factors for Petroleum Hydrocarbons**
Alamgir Khan and Dr. Richard G. Zytner, *University of Guelph, Guelph, ON, Canada*
- 10:00 Break**

- 10:30 Performance of Enhanced Anaerobic Dechlorination (EAD) via Groundwater Recirculation at Two PCE/TCE Sites**
Brian Timmins, *Etec, LLC, Portland, OR*
- 11:00 BP Oil Spill Evaluation: Aerobic Marine Degradation of Crude Oil in the Gulf of Mexico**
James Jacobs, *Environmental Bio-Systems, Inc., Mill Valley, CA*; Stephen M. Testa, *California State Mining and Geology Board, Sacramento, CA*
- 11:30 Side Effects of Shallow In-Situ Bioremediation**
Brian Hitchens and Sam Williams, *Geosyntec Consultants, San Diego, CA*

Session 2: AIR ENVIRONMENT FORENSICS

(8:30 am – 12:00 pm) Salon G

Moderator: Stephen Wall, *California Department of Public Health, Richmond, CA*

- 8:30 Advances in Single Particle Characterization by Microscope Spectroscopy for Air Environment Forensics Source Identification**
Stephen Wall, Jeff Wagner, Zhong-Min Wang, and Sutapa Ghosal, *California Department of Public Health, Richmond, CA*
- 9:00 Identification of Airborne Microbial Agents Utilizing Raman Micro-Spectroscopy**
Sutapa Ghosal, Janet Macher, and Stephen Wall, *California Department of Public Health, Richmond, CA*; Kadra Ahmed, *University of California, Berkeley, CA*
- 9:30 Identification of Airborne Particles and Dispersible Powders Using FTIR, Polarized Light, and Electron Microscopy**
Jeff Wagner, Donald Scales, Sutapa Ghosal, Zhong-Min Wang, Glenn Smith, and Stephen Wall, *California Department of Public Health, Richmond, CA*
- 10:00 Break**

- 10:30 Assessing Ambient Concentrations of PAHs to Determine Appropriate Clean-Up Levels**
Lisa Moretti and Matt Scheeline, *Environmental Resources Management, Sacramento, CA*; Benjamin Leslie-Bole, *Environmental Resources Management, Walnut Creek, CA*
- 11:00 Source Characterization of Automobile Brake Wear Emissions**
Zhong-Min Wang, Jeff Wagner, and Stephen Wall, *California Department of Public Health, Richmond, CA*
- 11:30 Phased Sequential Soil Gas Investigations to Delineate a Soil VOC Source of Underlying Groundwater Contamination**
Joachim Eberharter, David Springer, and Brian Dow, *Tetra Tech, Inc., Santa Barbara, CA*; Harry O'Neill, *Beacon Environmental Services, Inc., Bel Air, MD*; Craig Nathe, *Department of the United States Air Force, Vandenberg AFB, CA*

Session 3: USES AND ABUSES OF MODELING IN LITIGATION AND THE REGULATORY DECISION MAKING PROCESS

(9:00 am – 12:00 pm) Santa Fe 3

Moderator: Sam Williams, *Geosyntec Consultants, San Diego, CA*

- 9:00 Pitfalls of Statistical Analyses in Environmental Investigations**
Yue Rong, *Los Angeles Regional Water Quality Control Board, Los Angeles, CA*
- 9:30 Modeling: The Need for Transparency**
Eric Nichols, *ARCADIS U.S., Newfields, NH*; Thomas Johnson, *ARCADIS U.S., Inc., Emeryville, CA*; Scott T. Potter, *ARCADIS U.S., Inc., Newtown, PA*
- 10:00 Break**
- 10:30 Myths, Fables, Fairy Tales and Science: The Uses and Abuses of Modeling in Environmental Litigation**
Jim Derouin, *Gallagher & Kennedy, Phoenix, AZ*; Kevin C. Mayer, *Crowell & Moring LLP, Los Angeles, CA*
- 11:00 Remedy Evaluation and Optimization of Perchlorate Impacted Groundwater Using Fate and Transport Modeling**
Lansana Coulibaly, *SGIS-Salient, San Diego, CA*; Michael Foster, *Kleinfelder, San Diego, CA*
- 11:30 Uses and Abuses of Groundwater Models Developed for Litigation**
Sam Williams, *Geosyntec Consultants, San Diego, CA*; John Gallinatti, *Geosyntec Consultants, Oakland, CA*

LUNCHEON

12:00 pm - 1:30 pm - Pavilion

CONTAMINANTS, COMPLIANCE, AND CAVEATS: FIELD STUDIES AT DOE'S RIFLE INTEGRATED FIELD RESEARCH CHALLENGE (IFRC) SITE

Speaker: Kenneth Williams, Lawrence Berkeley National Laboratory, Berkeley, CA

STUDENT COMPETITION



We are proud to announce the 7th Annual Adventus Americas Student Competition at the AEHS Foundation West Coast Conference. \$500.00 (each) will be awarded to the two best student presentations. Winners will be announced at the Thursday luncheon.

LAST YEAR'S (2010) WINNERS:

- Kimberly Rickman, California State University at Long Beach, Department of Chemistry and Biochemistry, for her platform presentation on "Removing Pharmaceuticals from Contaminated Waters using Radical Reactions".
- Ryoji Naito, Kyoto University, Port and Airport Research Institute, Coastal and Estuarine Environment Research Group, for his poster presentation on "Environmental Fate of Polycyclic Aromatic Hydrocarbons in Sediments of Nagoya Port".

Must be entered prior to the conference in order to compete.

Afternoon

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

Session 1: INNOVATIVE REMEDIAL TECHNOLOGIES

(1:30 pm - 4:30 pm) Sierra 5

Moderator: Susan Henry, *UCI Extension, Irvine, CA*

- | | |
|---|--|
| <p>1:30 An Enzyme-Based Treatment Technology for Heavily Contaminated Dredged River Sediment
Nian She, <i>Seattle Environmental Science and Technology, Bellevue, WA</i></p> <p>2:00 Surfactant Enhanced Soil Washing of Oil and Gas Wastes Tank Bottom Sludge, Drilling Cuttings, Oil Sands and Impacted Soils with Associated Oil Recovery Opportunities North and South American Case Studies
George Ivey, <i>Ivey International, Inc., Campbell River, BC, Canada</i></p> <p>2:30 Superoxide Catalysts for In-Situ Reduction of VOCs
Will Moody and Dan Bryant, <i>Geo-Cleanse International, Inc., Matawan, NJ</i>;
John Vidumsky, <i>DuPont Corporate Remediation Group, Wilmington, DE</i></p> <p>3:00 Break</p> | <p>3:30 Maintaining High pH for Activation of Sodium Persulfate - A Critical Design Parameter
Gary Cronk, <i>JAG Consulting Group, Inc., Santa Ana, CA</i>; Jim Studer, <i>ChemRem International LLC, Albuquerque, NM</i></p> <p>4:00 Thermal Treatment in Urban Settings with Access Limitations: Challenges and Solutions
Steffen Nielsen and Gorm Heron, <i>TerraTherm, Inc., Keene, CA</i>; Niels Ploug, Max Jensen, Jesper Holm, <i>Krøger A/S, Søborg, Denmark</i>; Pia Juul Jensen, Henrik Engdal Steffensen, Tom Heron, <i>NIRAS A/S, Allerød, Denmark</i></p> |
|---|--|

Session 2: VAPOR INTRUSION

(1:30 pm – 5:00 pm) Salon G

Moderator: Elizabeth Miesner, *ENVIRON, San Francisco, CA*

- | | |
|---|--|
| <p>1:30 Application of Indoor Air Mitigation System Influent/Effluent to Mitigation System Termination at the CDOT MTL Site, Denver, Colorado
Jeffrey Kurtz and Jim Cowart, <i>EnviroGroup Limited, Centennial, CO</i></p> <p>2:00 Updated Results from an EPA Research Program on the Vertical & Temporal Variations on Soil Gas Concentrations Near and Under a Slab
Greg Swanson, <i>Tetrattech EMI, San Diego, CA</i>; Blayne Hartman, <i>Hartman Environmental Geoscience, Solana Beach, CA</i>; Brian Schumacher and John Zimmerman, <i>EPA-ORD NERL, Las Vegas, NV</i>; James Elliot, <i>Tetra Tech, Santa Barbara, CA</i></p> <p>2:30 Evaluating Paired Attenuation Factors for PCE and Radon: A Montana Case Study
Ben Martich, <i>CDM, Helena, MT</i>; Aimee Reynolds, <i>Montana Department of Environmental Quality, Helena, MT</i></p> <p>3:00 Break</p> | <p>3:30 Determining and Applying Diffusion Coefficient for High Performance Gas Vapor Barrier
Hieu Nguyen, <i>CETCO Remediation Technologies, Santa Ana, CA</i>; Jim Olsta, <i>CETCO Remediation Technologies, Hoffman Estates, IL</i></p> <p>4:00 Vapor Intrusion at Former MGP Sites: An Evaluation of Soil Gas and Sub-Slab Data
Diana Marquez, <i>Burns & McDonnell Engineering Company, Inc., Kansas City, MO</i>; Margaret H. Kelley, <i>Burns & McDonnell Engineering Company, Inc., Downer's Grove, IL</i></p> <p>4:30 Addressing VOC Vapor Intrusion at a Church
Seema Turner, Michelle L. Pompa, and Eddie Arslanian, <i>ENVIRON International Corporation, Los Angeles, CA</i>; George O. Linkletter, <i>ENVIRON International Corporation, Irvine, CA</i></p> |
|---|--|

Session 3: Environmental Forensics

(1:30 pm – 4:30 pm) Santa Fe 3

Moderator: Ioana Petrisor, *Haley & Aldrich, Inc., Costa Mesa, CA*

- | | |
|--|--|
| <p>1:30 Beyond Litigation - Environmental Forensics Application in Site Cleanup
Ioana Petrisor, <i>Haley & Aldrich, Inc., Costa Mesa, CA</i>; Yvan Razafindratandra, <i>Avocat au Barreau de Paris, Paris, France</i></p> <p>2:00 Is it Organic or Inorganic? – Evaluating Lead at a Former Refinery
Kanan Patel-Coleman, <i>URS Corporation, Los Angeles, CA</i>; William Ruoff, <i>URS Corporation, Denver, CO</i>; Andy Davis and Gregory G. Kipp, <i>Geomega, Inc., Boulder, CO</i>; Leslie Klinchuch, <i>Chevron Environmental Management Company, Bakersfield, CA</i></p> <p>2:30 Seeing Double: Statistical Evaluation of the Split Sediment Samples Analyzed for PCB Aroclors
Aklilu Tesfamichael, Brian R. Hitchens, and Sam Williams, <i>Geosyntec Consultants, San Diego, CA</i></p> | <p>3:00 Break</p> <p>3:30 Applying Weight of Evidence in Pyrogenic PAH Forensics
Helder Costa, <i>Haley & Aldrich, Inc., Boston, MA</i>; Aaron D. Peacock, <i>Haley & Aldrich, Inc., Lenexa, KS</i></p> <p>4:00 Environmental Isotope Forensics for Site Investigation and Remediation
Yi Wang, <i>ZymaX Forensics Isotope, Escondido, CA</i></p> |
|--|--|

POSTER PRESENTATIONS

Posters may be viewed throughout the day on Tuesday, March 15th and Wednesday, March 16th. Authors will be available for individual discussion at their posters from 3:00 pm – 5:00 pm on their assigned day. Please refer to the schedule below. Refreshments and light hors d'oeuvres will be served during the poster sessions.

TUESDAY, MARCH 15

Transport of Lead in Soils Treated with Municipal Solid Waste Ash (MSWA)

Saud S. Al-Oud, King Saud University, Riyadh, Saudi Arabia

Organoclay for Removing Trace Heavy Metals - An Alternative to Ion Exchange Resins

George Alther, Biomin, Inc., Ferndale, MI

Concentration Levels of Molybdenum and Selenium in Malaysian Sea Bass from the Straits of Malacca, Malaysia

Negar Banan and Mahyar Sakari, National University of Malaysia, Selangor, Malaysia

Hydropower & it's Production via Rkee's Simple Machine

Roshan Bhattarai, Tri-Chandra Multiple Campus, Kathmandu, Nepal; Rijan Karkee Nobel Academy Higher Secondary School, Kathmandu, Nepal

Results of In-Situ Chemical Oxidation Pilot Testing Using Sodium Permanganate

Chad Bird, Geosyntec Consultants, San Diego, CA; Bruce Marvin, Geosyntec Consultants, Oakland, CA

Variation of Metal Binding Fractions in Seriously and Slightly Contaminated River Sediment

Jing-song Chang, Li-chu Tsai, and Kuang-chung Yu, Chia-Nan University of Pharmacy and Science, Tainan, Taiwan

Rapid Removal of Perchlorate from Water Using Magnetic Permanently Confined Micelle Arrays

Kristin Clark and Arturo A. Keller, University of California, Santa Barbara, CA; John Tokarz III and Stanley Ostazeski, Edgewood Chemical and Biological Center, Edgewood, MD

Degradation of Water Quality Due to Heavy Metal Pollution in Haryana, India

J.S. Dhankhar, R.R. Dahiya, R.P. Narwal, and R.S. Malik, CCS Haryana Agricultural University, Haryana, India

Studying Operation of Artificial Neural Network in Anticipating Raining in Shiraz Region

Ashkan Firouzi, Foroogh Golkar, and Alireza Farahmand, Islamic Azad University, Tehran, Iran

Membrane Interface Probe Investigation Supplemented by Multiple Lines of Evidence to Define Extent of Chlorinated Solvents in Groundwater

Christopher Gale and Brian Hitchens, Geosyntec Consultants, San Diego, CA

Mitigating Vapor Intrusion for an Insurance Claim at a NJ Dry Cleaners Site

Sandra Gaurin, Tetra Tech, Inc., Morris Plains, NJ

Determine of Correlation Coefficient between EPM and MPSIAC Models and Preparation of Erosion Maps by Using GIS Techniques in Baghmalek Watershed

Yasser Ghobadi, Nafiseh Alifar, University Putra Malaysia, Selangor darul Ehsan, Malaysia; Mostafa Chorom, and Gholmabbas Sayyad, Shahid Chamran University, Ahvaz, Iran

Screening of Chromium Resistant-Bacteria for Plant Growth Promoting Activities

B. Hemambika, Balasubramanian V., Rajesh Kannan V., and Arthur James R., Bharathidasan University, Tamil Nadu, India

Surfactant Enhanced High Vacuum Dual Phase Extraction (HVDPE) Remediation of Petroleum Contaminated Fine Grain Soil and Fractured Bedrock Aquifer (In-Situ Case Study)

George Ivey, Ivey International, Inc., Campbell River, BC, Canada; Galen Kenoyer, Christopher D'Sa, and Gene McClinn, RMT, Inc., Los Angeles, CA

Surfactant Enhanced Ex-Situ Soil Washing of Oil and Gas Contaminated Solids Patagonia, Argentina Case Study

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

Simultaneous Oxidative Reductive Chemical Treatment of PAH Contaminated Soil at a Former Manufactured Gas Plant (MGP) Site Using I-ROX® Remediation Technology – Melbourne, Australia

George Ivey, Ivey International, Inc., Campbell River, BC, Canada; Andrew Wollen, ERR - Environmental Remediation Resources Pty Ltd, Moorabbin VIC, Australia

Nitrate Load Effects Drought Sensitivity, CO2 and Water Relations in a Key Riparian Tree Species

D.D. Levine and James H. Richards, University of California, Davis, CA

Remediation of the Copper-contaminated Industrial-Effluent-Irrigated Soils

C. M. Mathavan, Forest Research Institute, Dehra Dun, India; R.K. Rattan and S.P. Datta, Indian Agricultural Research Institute, New Delhi, India

Using GIS in Ecological Assessment of Ground Water Resource Use in Mississippi

Edmund Merem, Joan Wesley, Yaw A. Twumasi, Thia J. Walker and Benetta Robinson, Jackson State University, Jackson, MS

Design and Performance of an Aerated Floor System for Vapor Intrusion Mitigation Projects

Bill Morris, EnviroGroup Limited, Topeka, KS; David Folkes, EnviroGroup Limited, Centennial, CO

Estimation of NMR Log Derived Porosity & Permeability from Seismic Attributes Using Multiple Regression/Intelligent Solution

Mohammad Amin Mousavi and Seyed Reza Shadzadeh, Petroleum University of Technology, Abadan, Iran; Mohammad Ali Riahi, Geophysics Institute, Tehran, Iran

Combined Adsorption and Biodegradation of Synthetic Melanoidin

Aoyi Ochieng, Vaal University of Technology, Vanderbijlpark, South Africa; Vincent O. Ojijo, Maurice S. Onyango, Tshwane University of Technology, Pretoria, South Africa; Fred A.O. Otieno, Durban University of Technology, Durban, South Africa

Arsenic Contamination in Groundwater: A Serious Threat to the Community

Gopal Pathak, Birla Institute of Technology, Mesra Ranchi, Jharkhand, India

Organic Ligands Accelerated Phytoextraction of Cadmium by Hydroponically Grown Eucalyptus camaldulensis

Pareesh Rathod, University of Twente, Enschede, The Netherlands; Pinchas Fine, Institute of Soil, Water and Environmental Science, Bet-Dagan, Israel

GIS Based Land Suitability Evaluation for Selected Crops: A Case Study on Salt Affected Land of Badin District, Pakistan

Shabnam Rathore and Karl Stahr, University of Hohenheim, Stuttgart, Germany

Developing Remediation Levels to Address Ecological Risk at the United Heckathorn Superfund Site

Brad Sample, Ecological Risk, Inc., Rancho Murietta, CA; Cameron Irvine, CH2M Hill, Sacramento, CA; Karl Gustavson, USACE ERDC, Washington, DC; Sharon Lin, U.S. EPA, San Francisco, CA

Primary Screening of Heavy Metals Pollution in Boushehr, Iran

Ata Shakery, Zamin Payesh Research Center, Shiraz, Iran; Ladan Razikordmahalleh, Department of Environment, Teheran, Iran

Influence of Catechine on Copper Tolerance and Bioaccumulation by Zea mays

Alina Stingu, "Georgehe Asachi" Technical University of Iasi, Romania

Dispersion and Stabilization of Zerovalent Iron Nanoparticles via Gelatin, Alginate, and Sodium Alginate

Li-chu Tsai, Chia-Nan University of Pharmacy and Science, Tainan, Taiwan

Statistical Analysis of PCB Congener Patterns for Source Identification

Alan Weston, Sophia Dore, Donald Pope, Leah Pabst, and Christa Nunn, Conestoga-Rovers & Associates, Niagara Falls, NY

WEDNESDAY, MARCH 16

Quantifying the Responses of Urban Tree Species to Elevated Carbon Dioxide and Flooding

Kamran Abdollahi and Zhu H. Ning, Southern University Agricultural Research and Extension Center, Baton Rouge, LA

Effects of Atmospheric CO2 on NO3- Utilization in a Riparian Giant, Fremont Cottonwood (Populus fremontii)

Lisa Auchincloss and James H. Richards, University of California, Davis, CA

Profiles of Successful Site Remediation with California's UST Cleanup Funding

Walter Bahm, State Water Resources Control Board, Sacramento, CA

Oxidant Dispersal in Tight Clay Formations Using EK3 Technology

Jason Beaudin and Lori Johnston, Ground Effects Environmental Services, Inc., Regina, SK, Canada

Phytoremediation of Coal Ash by Selected Cereal Crops

Jerzy Bilski, Kyle McLean, Erin McLean, Fakira Soumaila, and Mardee Lander, Valley City State University, Valley City, ND

A Numerical Modeling Study of Saltwater Intrusion Processes into Coastal Aquifers

Boutaina Bouzouf and Zhi Chen, Concordia University, Quebec, Canada

Impacts of Lead Risk Characterization Methodology Changes on In-Progress Site Assessment and Decision Processes

Mark A. Bowland, ERM-West, Inc., Sacramento, CA; Joe Brusca, Raney Geotechnical, Inc., West Sacramento, CA

Need for Integration of Technologies to Optimize Remediation Solutions

Richard Cartwright, MECK LP, East Amherst, NY; Isaac Aboulafia, MECK LP, Houston, TX

Impact of Applying Age Sensitivity Factors (ASFs) on Risk Characterization

Gwendoline Caviness, ENVIRON International Corporation, Emeryville, CA; Elizabeth Miesner, ENVIRON International Corporation, San Francisco, CA; Michael Posson, Exponent, Inc., Oakland, CA

Characterization of Sulfurimonas denitrificans-like Bacteria Found in a Marine Sediment Under Bio-Remediation

Herbert Fang, The University of Hong Kong, China

Water Buffalo Remediation: The Water Buffalo as a Nutrient Exchange Pool in Phytoremediation Wetlands

Andrew Kanzler, Cal State Polytechnic University, Pomona, CA

A Cost-Effective Treatment Train Approach for Redevelopment-Focused NAPL and Chlorinated Solvent Remediation

Carl Lenker and Leo M. Rebele, Gannett Fleming, Inc., Irvine, CA

Atomic Absorption Determination of Cadmium in HNO3 Soil Digestions Extracted by Aliquate-336 and 2-Heptanone

Cen Li, King Abudullah University of Science and Technology, Jeddah, Kingdom of Saudi Arabia

Associations between Dioxins/Furans and Dioxin-Like PCBs in Sediment and Blue Crab in Anthropogenically Impacted Estuaries

Johan Liebens, Carl J. Mohrher, Natalie K. Karouna-Renier, Richard A. Snyder, and K. Ranga Rao, University of West Florida, Pensacola, FL

Characterization and Suitability Evaluation of Major Agricultural Soils Towards Rational Land Area Allocation for Biofuel Feedstocks Production Cagayan Valley, Philippines

Artemio A. Martin, Isabela State University, Isabela, Philippines; R. B. Badayos, University of the Philippines-Los Baños, Laguna, Philippines

A Sensitive and Selective Method for the Analysis of Hydrazines in Water and Soil

Charles Neslund, Lancaster Laboratories, Inc., Lancaster, PA; Jia Wang, Thermo Fisher Scientific, San Jose, CA

A Method for the Analysis of NDMA at the Low Part Per Trillion Level

Charles Neslund, Tim J. Trees, and Richard H. Karam, Lancaster Laboratories, Inc., Lancaster, PA

LC-MS/MS Analysis of Selected Perfluorinated Alkyl Acids in Drinking Water

Charles Neslund, Lancaster Laboratories, Inc., Lancaster, PA; Jia Wang, Thermo Fisher Scientific, San Jose, CA

Chelating Polymers for Heavy Metal Removal from Industrial Wastewaters

Lutfur Rahman, Maznah B. Kabeab, and Mashitah M. Yusoff, University Malaysia Pahang, Kuantan, Pahang Malaysia

In-Situ Chemical Oxidation of Herbicides in Groundwater Using Klozur™ Activated Persulfate

Barry Rakewich and R.W. Dickie, Nichols Environmental (Canada) Ltd, Edmonton, AB, Canada

Column Test Evaluation of Petroleum Hydrocarbon Remediation in a Biowall Application

David Schroder, Stantec Consulting Corporation, Sylvania, OH; Marisa Patterson, Stantec Consulting Corporation, Okemos, MI

Experimental Study of Ground Water Contamination of Blended Fuel Containing Biodiesel

Adetola Tiemiyu and Gopal V. Kakani, Oklahoma State University, Stillwater, OK; David Werner, Newcastle University, Newcastle, UK

Control System for a Wind Turbine with Continuously Variable Transmission

Cristina Toma, Christopher Angus, and Ravneet Singh, Centennial College, Toronto, ON, Canada

Light, Water, and Heat Stress Effects on Fremont Cottonwood Photosynthesis

Emily Tozzi and James H. Richards, University of California, Davis, CA

"Real-Time" Treatment Optimization Utilizing In-Situ Chemical Oxidation

Stephanie Turkot, Will Moody, Dan Bryant, Geo-Cleanse International, Inc., Matawan, NJ; Eric Schlauch, Hudson Environmental Services, Inc., Somerville, NJ

Transport and Activity of Microorganisms in the Capillary Fringe

Josef Winter, Daniel Jost, and Claudia Gallert, KIT, Karlsruhe Institute of Technology, Karlsruhe, Germany

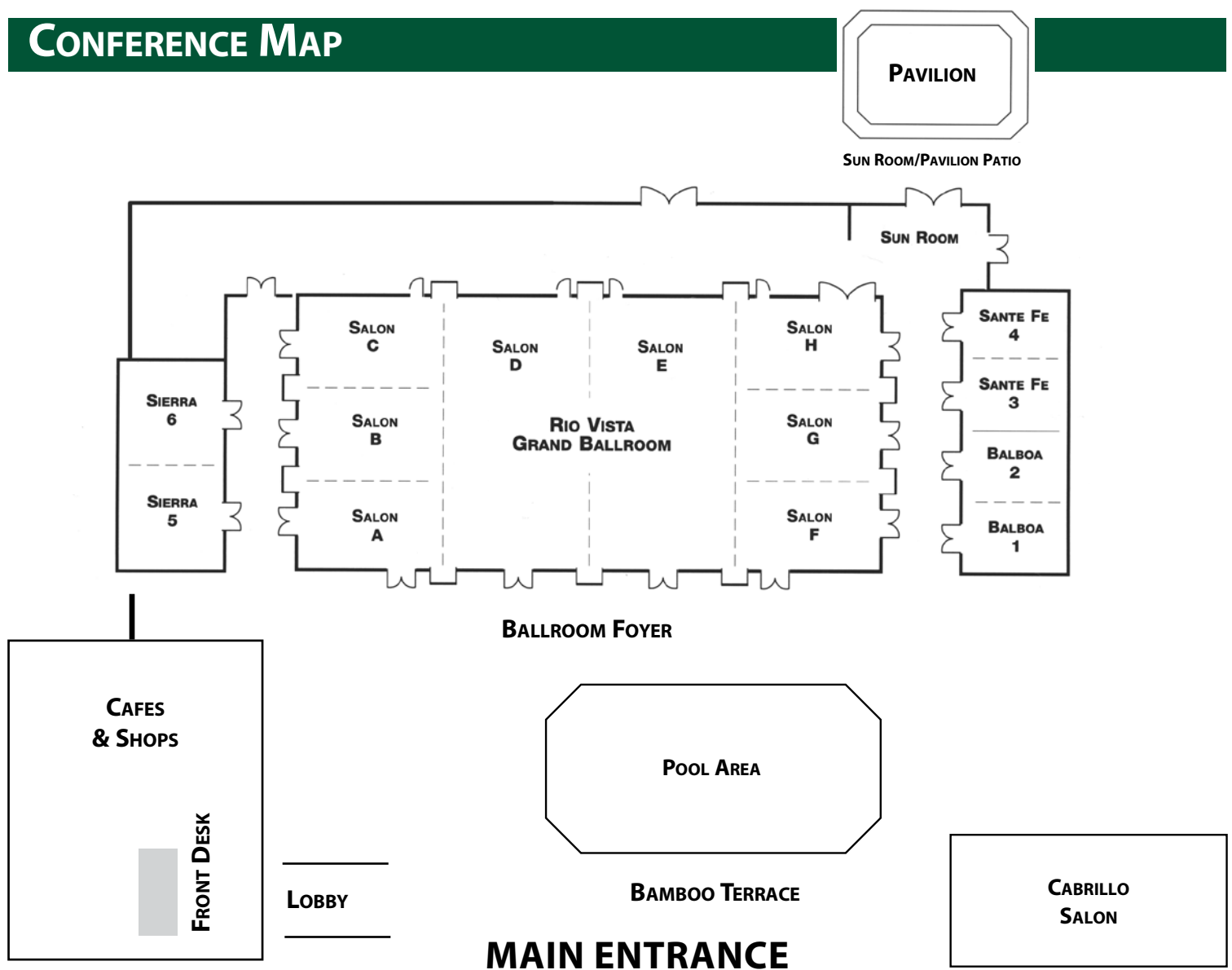
Phytoremediation: Cost-Benefit Analysis Comparing Current European Legislation and Economic Human Toxicological Risk Assessment

Nele Witters, Theo Thewys, Nele Weyens, Jaco Vangronsveld, Hasselt University, Diepenbeek, Belgium; Robert O. Mendelsohn, Yale University, New Haven, CT

Biopolymers Systems from Leather Wastes for Degraded Soils Remediation

Gabriel Zainescu, Rodica R.Constantinescu, National R&D Institute for Textile and Leather, Bucharest, Romania; Petre Voicu, Olga Gate, Research Institute for Soil Science and Agrochemistry, Bucharest, Romania; Lucia Sandru, Research Institute for Plant Protection, Bucharest, Romania

CONFERENCE MAP



SCIENTIFIC ADVISORY BOARD

The AEHS Foundation attributes the success of this conference, in large part, to a very dedicated and hard working Scientific Advisory Board (SAB). The SAB evaluates abstract submissions, recommends invited papers and presenters, advises with regard to session topics, and serves as conference ambassadors. The SAB is crucial to the conference development. Care is taken to create a board that represents philosophical, scientific, regulatory, and geographical balance.

ADVISORY BOARD MEMBERS

Rick Ahlers, *ARCADIS-US*
 Hossein Alimi, *Global Petroleum and Environmental Geochemistry*
 Y. Meriah Arias-Thode, *SPAWARSSYSCEN*
 Bruce Bauman, *American Petroleum Institute*
 G.D. Beckett, *AQUI-VER*
 Charles Blanchard, *GES*
 Allen Blodgett, *URS Corporation*
 Patrick Brady, *Sandia National Laboratory*
 George Brilis, *US EPA*
 Cristin Bruce, *Shell Global Solutions*
 William Cannizzaro, *Cupolex Building Systems*
 Leo Carden, *InfoPro Corporation*
 Rada Chanmugathas, *CA EPA, DTSC*
 William Cooper, *University of California Irvine*
 Rodney Crother, *Stantec*
 Dave Daze, *CETCO*
 Rula Deeb, *Malcolm Pirnie*
 Brendan Dooher, *LFR an ARCADIS Company*
 James Dragun, *The Dragun Corporation*
 Stephen E. Eikenberry, *AEHS Foundation*
 Gary Foote, *AMEC Geomatrix*

Kevin Graves, *CA SWRCB*
 David Griffin, *Protechnical Media*
 Paul Hadley, *CA EPA, DTSC*
 Susan Henry, *UCI Extension*
 John Hills, *Irvine Ranch Water District*
 Wallace Hise, *HDR*
 James Jacobs, *Environmental Bio-Systems*
 Song Jin, *University of Wyoming*
 Leslie Karr, *NAVFAC ESC*
 William Kerfoot, *Kerfoot Technologies*
 Steve Koenigsberg, *Adventus Group*
 Paul Kostecki, *AEHS Foundation*
 William Kucharski, *AECOM*
 Fayaz Lakhwala, *Adventus Americas*
 Jim Lingle, *Electric Power Research Institute*
 George Lockwood, *CA SWRCB*
 Dave Ludwig, *ARCADIS-US*
 Karen Lyons, *Shell Oil Products US*
 Kevin Mayer, *Crowell & Moring LLP*
 Elizabeth Miesner, *ENVIRON*
 Ben Mork, *Regenesis*
 Gopal Pathak, *Birla Institute of Technology*

Ioana Petrisor, *Haley & Aldrich*
 Lynne M. Preslo, *GeoEco*
 Paul Rakowski, *AGVIQ, LLC*
 Ram Ramanujam, *CA EPA, DTSC*
 Yue Rong, *CA RWQCB*
 Clay Sandidge, *Sandidge Consulting*
 Javier Santillan, *US Air Force, AFCEE*
 Lee Shull, *U.S. Science and Technology Corp.*
 Bob Skiba, *Chevron*
 Matthew Small, *US EPA*
 Richard Vogl, *GeoHydrologic Consultants*
 Everett Wakai, *US Commercial Service, Mexico City*
 Stephen Wall, *Cal Dept. of Public Health*
 Wade Weisman, *US Air Force*
 Jason White, *CT Agricultural Experiment Station*
 Robert Wilkenfeld, *Chevron Products Company*
 Anna Willett, *ITRC*
 Sam Williams, *Geosyntec Consultants*
 Jesse Yow, *Lawrence Livermore National Laboratory*
 Helen Yu, *San Diego RWQCB*
 Dawn Zemo, *Zemo & Associates*