The Nineteenth Annual AEHS Meeting and West Coast Conference on
Soils, Sediments, and Water

March 9-12, 2009
Mission Valley Marriott, San Diego, California

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Student Competition – Adventus Group
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Dear Conference Attendee,

Welcome to the 19th Annual AEHS Meeting and West Coast Conference on Soils, Sediments, & Water in San Diego. The conference, which had its beginnings in petroleum contaminated soils supported by a few interested parties when we first began in 1990, has evolved to encompass a broad range of important contaminants in different media, drawing interest from around world, and supported by an impressive array of dedicated professionals serving on the Scientific Advisory Board and organizations providing the necessary resources. Appreciation goes out to the many Sponsors and Supporters who have generously contributed to our conferences throughout the years.

Attendees who registered before February 20th had the opportunity to become a member of AEHS for the current calendar year. Members receive either the 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 and online access (including access to back issues). Please see the AEHS website (www.aehs.com) or contact the office for details.

AEHS 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. AEHS and ISEF have presented thirteen highly successful workshops on environmental forensics over the past 7 years and are pleased to announce a new workshop in Italy:

AEHS and ISEF proudly present “Environmental Success in Treatment Objectives - Best Practices in Sustainable Soil, Sediment, and Groundwater Remediation: An Industry and Regulatory Perspective” to be held June 18-19, 2009 in Stresa, Italy. Please visit the AEHS or ISEF websites (www.aehs.com or www.environmentalforensics.org) for complete program download and workshop details.

The Association 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 T. Kostecki, Ph.D.
Executive Director
Conference at a Glance

Monday, March 9, 2009
10:00 am – 6:00 pm  Registration .................................................................Foyer
2:30 pm – 3:00 pm  Break .................................................................................Foyer
5:00 pm – 7:00 pm  Exhibit Hall Hours ..............................................................Salons A-F

AFTERNOON PLATFORM SESSIONS
Session 1: NAPL (1:00 pm - 4:00 pm) ................................................ Sierra 5
Session 2: Heavy Metals (1:00 pm - 5:00 pm) ...........................................Salon G
Session 3: Bioremediation (1:00 pm - 5:00 pm) .........................................Pavilion
WELCOME RECEPTION/WINE TASTING SOCIAL
5:00 pm - 7:00 pm  (Free to all registered conference attendees) ..............Salons A-F

Tuesday, March 10, 2009
7:00 am – 7:00 pm  Registration .................................................................Foyer
9:00 am – 4:00 pm  Exhibit Hall Hours ..............................................................Salons A-F
10:00 am – 10:30 am  Break ...........................................................................Salons A-F (exhibit hall)
12:00 pm – 1:30 pm  Luncheon (speaker) .........................................................Cabirio Salon
Lunch Speaker: “Endocrine Disruptors and Pharmaceuticals: Implications for Water Sustainability” Shane Snyder, Ph.D., R&D Project Manager, Southern Nevada Water Authority, Las Vegas, NV
3:00 pm – 3:30 pm  Break ..............................................................................Salons A-F (exhibit hall)

MORNING PLATFORM SESSIONS
Session 1: Sediments (8:00 am - 11:30 am) ......................................... Sierra 5
Session 2: In-Situ Ozone Remediation in Difficult Conditions (8:30 am - 11:30 am) ...........Salon G
Session 3: Remedy Optimization and Expedited Site Closure Strategies with Diagnostic Tool (8:00 am - 12:00 pm) ...........................................Pavilion

AFTERNOON PLATFORM SESSIONS
Session 1: Innovative Remedial Technologies (1:30 pm - 6:00 pm) .......... Sierra 5
Session 2: Regulatory Programs & Policies (1:30 pm - 5:00 pm) .............Salon G
Session 3: Pharmaceuticals in Water (1:30 pm - 4:30 pm) .........................Pavilion

POSTER SESSION & SOCIAL
3:00 pm – 6:00 pm  .................................................................Salons A-F (exhibit hall)

EVENING WORKSHOPS
Workshop 1 (7:00 pm – 9:00 pm) New California LUFT Field Manual: Findings from Recent Public Meetings ...................................................... Sierra 5
Workshop 2 (7:00 pm – 9:00 pm) Perchlorate Remediation Technologies ... Salon G
Workshop 3 (6:30 pm – 9:30 pm) Environmental Fate of Hydrocarbons in Soils and Groundwater .................................................................Pavilion

Wednesday, March 11, 2009
7:00 am – 7:00 pm  Registration .................................................................Foyer
9:00 am – 4:00 pm  Exhibit Hall Hours ..............................................................Salons A-F
10:00 am – 10:30 am  Break ...........................................................................Salons A-F (exhibit hall)
12:00 pm – 1:30 pm  Luncheon (speaker) .........................................................Cabirio Salon
Announcement: Student Contest Winners
Lunch Speaker: “US-Mexico Cooperation on Colorado River Management” Peter S. Silva, Executive Policy Advisor, Metropolitan Water District of Southern California, Los Angeles, CA
3:00 pm – 3:30 pm  Break ...........................................................................Salons A-F (exhibit hall)

MORNING PLATFORM SESSIONS
Session 1: Vapor Intrusion (8:00 am - 12:00 pm) .................................... Sierra 5
Session 2: MTBE/Oxidation (8:00 am - 11:30 am) ...............................Salon G
Session 3: Remediation of Mining Wastes (8:00 am - 12:00 pm) ..........Pavilion

AFTERNOON PLATFORM SESSIONS
Session 1: Environmental Forensics/Legal Issues (1:30 pm - 6:00 pm) ..... Sierra 5
Session 2a: Site Assessment (1:30 pm - 4:00 pm) .....................................Salon G
Session 2b: Risk Assessment (4:00 pm - 5:30 pm) .....................................Salon G
Session 3a: Environmental Fate & Modeling (1:30 pm - 2:30 pm) ..........Pavilion
Session 3b: Phytoremediation (2:30 pm - 4:30 pm) ..................................Pavilion

POSTER SESSION & SOCIAL
3:00 pm – 6:00 pm  .................................................................Salons A-F (exhibit hall)

EVENING WORKSHOPS
Workshop 4 (7:00 pm – 9:00 pm) Greening the Remediation Industry .... Sierra 5
Workshop 5 (7:00 pm – 9:00 pm) Compound Specific Isotope Analysis and Stable Isotope Probing to Demonstrate Biodegradation of Groundwater Contaminants .............................................Salon G
Workshop 6 (7:00 pm – 9:00 pm) Remediation Risk Management: Concepts and Practices .........................................................Pavilion

Thursday, March 12, 2009
8:00 am – 12:00 pm  Registration .................................................................Foyer
10:00 am – 10:30 am  Break ...........................................................................Foyer

WORKSHOPS
Workshop 7 (8:00 am – 12:00 pm) RBCA Grows Up: Introduction to Environmental Hazard Evaluation and Advanced Approaches for Site Investigations ................................................................. Sierra 5
Workshop 8 (8:00 am – 12:00 pm) In-Situ Chemical Oxidation: Technology Advances in Treatment and Application .......................................Salon C
Workshop 9 (8:00 am – 12:00 pm) Geochemical Evaluations of Metals in Environmental Media: How to Distinguish Naturally Elevated Concentrations from Site-Related Contamination .......................................Salon A
Workshop 10 (8:00 am – 12:00 pm) Assessing Vapor Intrusion at Petroleum Release Sites .................................................................Salon H
Workshop 11 (9:00 am – 12:00 pm) Classic and Emerging Techniques in Environmental Forensics ..............................................................Salon F

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Helen Yu, San Diego RWQCB
Dawn Zemo, Zemo & Associates, LLC
Jerry Zimmerle, URS Corporation

AEHS 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.
SESSIoN 1: NaPL  (1:00 pm - 4:00 pm)  Sierra 5
Moderator: Richard Vogl, GeoHydrologic Consultants, Huntington Beach, CA
1:00  Combined Soil and Groundwater Remediation Strategies Using Electrical Resistance Heating
David Fleming, Thermal Remediation Services, Inc., Snoqualmie, WA
1:30  Surfactant Enhanced Remediation of DNAPL Contaminated Soil and Groundwater Refinery Site Case Study
John Sankey, True Blue Technologies, Richmond, BC, Canada; George A. Ivey, Ivey International, Inc., Campbell River, BC, Canada; Martin Beaudoin, Sanexen Environmental Services, Inc., Karires, Quebec, Canada
2:00  An Innovative Approach to LNAPL Distribution and Recoverability Assessment for a Large Industrial Site
Aklilu Tesfa miichael, Todd N. Creamer, and Robert Ettinger, Geosyntec Consultants, Santa Barbara, CA; Sanjay Garg, Shell Global Solutions (US), Houston, TX; Roy H. Patterson, URS Corporation, Santa Ana, CA

SESSION 2: HEAVY mETaLS  (1:00 pm - 5:00 pm)  Salon G
Moderator: Rodney Crother, Stantec, Cypress, CA
1:00  Perspective on Environmental Contamination from Seafloor Communication Cables
Leslie A. Karr and John Kornuc, Naval Facilities Engineering Service Center, Port Hueneme, CA
1:30  Transformation / Dissolution Studies of Tungsten Substances: Implications for Assessing Fate and Transport in the Environment
Michael J. Pardus, ARCADIS Inc., Pittsburgh, PA; Salvatore Giolando and Ranulfo Lemus-Olalde, ARCADIS Inc., Hamilton, OH
2:00  Tungsten Risk-Based Screening Values: a Preliminary Assessment and Benchmark Review
John D. Schell, Entrix, Inc., Houston, TX; Michael J. Pardus, ARCADIS Inc., Pittsburgh, PA

SESSION 3: BIorEmEDIaTIoN  (1:00 pm - 5:00 pm)  Pavilion
Moderator: Yue Rong, CA RWQCB, Los Angeles, CA
1:00  Ex-Situ Bioremediation of Vinyl Chloride
Deepa Gandhi, Peter Bennett, and Murray Einason, Geosyntec, Oakland, CA
1:30  Degradation Rate and Yield Data from Bench and Field Pilot Studies of ISCR-Enhanced Bioremediation
Alan Seech, Kerry Bolanos-Shaw, and David Hill, Adventus Group, Mississauga, ON, Canada; Joanna Moreno and Tracy Bellahmust, Adventus Group, Conifer, CO; Jim Mueller, Fazay Lakhwala, John Valkenburg, and Josephine Molin, Adventus Group, Freeport, IL
2:00  Bioremediation of Potential Chlorinated Solvent DNAPL through Passive Aggression
Brian Hitchens and Sam Williams, Geosyntec Consultants, San Diego, CA

Welcome Reception
5:00 pm – 7:00 pm (Salons A-F)
Wine and Cheese Social • Hors d’ Oeuvres and Refreshments
Exhibit Hall Opens
Free to all registered conference attendees
The availability of safe freshwater is diminishing at an alarming rate globally. Increasing human population is stressing water supplies and contributing to water pollution. Population density increases and climate changes, including epic droughts in certain parts of the world, have led to the utilization of non-conventional water resources. These resources include desalinated sea water and recycled water to meet potable water needs. The water quality in many parts of the world is changing. The burgeoning human population taxes not only water resources but also food supplies, leading to rising demands for irrigation water and consequently to greater potential for water contamination by pesticides, fertilizers, and naturally occurring constituents. The public perception of water is shifting, with growing public awareness of certain groups of contaminants due to media coverage and non-government organization (NGO) concerns. Modern analytical technology has permitted the discovery that minute concentrations of contaminants of distinctly human origin occur in the water cycle. Many of these so-called “contaminants of emerging concern” have been, and will continue to be, detected in potable water supplies. Without question, the propensity for the contamination of fresh water will rise as human population continues to grow. This presentation will describe the history, current status, and future implications that the detection of endocrine disruptors and pharmaceuticals will have on water and energy sustainability.
SESSION 1: INNOVATIVE REMEDIAL TECHNOLOGIES (1:30 pm - 6:00 pm) Sierra 5

Moderator: Robert Moncrief, H2O Engineering, San Luis Obispo, CA

1:30 Weak Current Enhanced Abiotic Reductive Dechlorination of Trichloroethene in Satuated Clay
Paul H. Fallgren, Western Research Institute, Laramie, WY; Song Jin, MWH Americas, Inc., Fort Collins, CO

2:00 Ozone Oxidation of MTBE in Groundwater While Limiting Formation of Hexavalent Chromium
Jeffrey C. Bensch, Sierra West Consultants, Fair Oaks, CA; Song Jin, MWH Americas, Inc., Fort Collins, CO; Paul H. Fallgren, Western Research Institute, Laramie, WY

2:30 Use of Groundwater Push-Pull Technology for Maximizing Dispersion of Chemical Oxidants within a TCE Plume
Gary Cronk, JAG Consulting Group, Inc., Santa Ana, CA

3:00 Break

3:30 Assessment of Microbial Community Composition Throughout In-Situ Chemical Oxidation of Trichloroethylene with Permanganate
Bram Sercu and Patricia Holden, UCSB, Santa Barbara, CA; Carol L. Serlin, ENVIRON, Irvine, CA; Mauricio H. Escobar, ENVIRON, Los Angeles, CA; Antony D. G. Jones, ENVIRON International Corporation, Irvine, CA

4:00 Perchlorate Reduction in Water and Ion-exchange Brine Using Stabilized Zero-Valent Iron Nanoparticles
Zhong Xiong, AMEC Geomatix, Inc., Oakland, CA; Dongye Zhao, Auburn University, Auburn, AL; Gang Pan, Chinese Academy of Sciences, Beijing, China

SESSION 2: REGULATORY PROGRAMS & POLICIES (1:30 pm - 5:00 pm) Salon G

Moderator: Brendan Dooher, LFR an ARCADIS Company, Emeryville, CA

1:30 Using Historical Case Analysis Data in Support of Site Specific Decision Analysis
Brendan Dooher, LFR an ARCADIS Company, Emeryville, CA

2:00 Sources of Financing in Brownfield Redevelopment
Ed Morales, Environfinance Group, LLC, Sacramento, CA

2:30 The Salutory Tale of Statutory Guidance
Paul Nathaniel, University of Nottingham, Nottingham, UK

3:00 Break

3:30 The UST Cleanup Program Funded By the State of California
Walter Bahn, Division of Financial Assistance, Sacramento, CA

4:00 The California Department of Toxic Substances Control Risk Assessment Guidance for Agricultural Soils
Buzz Chernoff, Debbie Oudiz, and Mark Malinowski, California Environmental Protection Agency, Sacramento, CA

5:00 Deriving Land use Specific Values for Setting Maximal Values for Soil Management in Dutch policy
Johannes Lijzen, Elisabeth M. Dirven Van Bremen, Piet F. Otte, Peter van Vlaardingen, Job Spijker, Eric M.J. Verbruggen, Frank A. Swartjes, and M. Rutgers, National Institute for Public Health and the Environment (RIVM), Bilthoven, Netherlands; J.E. Groenenberg, Altera, Wageningen, The Netherlands

SESSION 3: PHARMACEUTICALS IN WATER (1:30 pm - 4:30 pm) Pavilion

Moderator: Steve Mezyk, California State University, Long Beach, CA

1:30 Removing Steroids from Contaminated Waters using Radical Reactions
Steve Mezyk, Katy L. Swancutt, and Edsel Abdur, California State University, Long Beach, CA; Dionysis D. Dionysiou, University of Cincinnati, Cincinnati, OH

2:00 Removal Efficiency of Pharmaceuticals in Primary and Secondary Wastewater Treatment
Samuel L. Mowbray, Orange County Sanitation District, Fountain Valley, CA

2:30 Free-Radical-Induced Oxidative and Reductive Degradation of Pharmaceutically Active Compounds (PhACs)
Weihua Song, Behnaz Razavi, Hanox Santeke, Jooneeon Jeong, and William J. Cooper, University of California, Irvine, CA

3:00 Break

3:30 Absolute Kinetic Parameters for Hydroxyl Radical and Hydrated Electron Reactions with Sulfa Drugs in Water
Thomas J. Neuhauser and Stephen P. Mezyk, California State University, Long Beach, CA; William J. Cooper, University of California, Irvine, CA; Julie R. Peller, Indiana University Northwest, Gary, IN

4:00 Removal of Sulfa Drugs in Treated Wastewaters and in Lake Michigan Water via Hydroxyl Radical Oxidation
Julie R. Peller and Lisa Caldelia, Indiana University Northwest, Gary, IN; Stephen P. Mezyk, California State University, Long Beach, CA; William J. Cooper, University of California, Irvine, CA

Workshop 1 Sierra 5 7:00 pm – 9:00 pm
New California LUFT Field Manual: Findings from Recent Public Meetings
Panel Members:
Joel Cottman, P.G., Underground Storage Tanks Program, US EPA Region 9, San Francisco, CA
Kevin L. Graves, P.E., Underground Storage Tank Program Manager, SWRCB, Sacramento, CA
Representatives from industry, the legal profession, and public interest groups
Moderator: Ravi Arulanantham, Ph.D., AMEC Geomatix, Inc., Oakland, CA
Workshop 1 is FREE to municipal, state, and federal REGULATORY personnel registered for the conference.

General Poster Session I & Social
3:00 pm – 6:00 pm
Location: Foyer, Sunroom, Santa Fe 3&4
Authors will be available at their posters for individual discussion. Refreshments available in the sunroom, beginning at 3:30 pm.

Workshop 2 Salon G 7:00 pm – 9:00 pm
Perchlorate Remediation Technologies
Paul Hatzinger Ph.D., Shaw Environmental & Infrastructure, Inc, Lawrenceville, NJ
Rose Knox, Massachusetts Department of Environmental Protection, Boston, MA
Bruce Robinson, ATC Associates, Mesa, AZ
Bob Barmwell, Alabama Department of Environmental Management, Montgomery, AL
R. Lee Lippincott Ph.D., New Jersey Department of Environmental Protection, Trenton, NJ
Workshop 2 is FREE to municipal, state, and federal REGULATORY personnel registered for the conference.

Workshop 3 Pavilion 6:30 pm – 9:30 pm
Environmental Fate of Hydrocarbons in Soils and Groundwater
James Dragan, The Dragan Corporation, Farmington Hills, MI
Platform Sessions

Wednesday, March 11, 2009

SESSION 1: VAPOR INTRUSION (8:00 am - 12:00 pm) Sierra 5
Moderator: George DeVaul, Shell Global Solutions US, Houston, TX

8:00  Knowledge (from High Quality Data) is Power: Vapor Intrusion Site Conceptual Models Really Work
Todd N. Creamer and Robert Ettinger, Geosyntec Consultants, Santa Barbara, CA; Todd McAlary, Geosyntec Consultants, Casper, WY, Canada

8:30  Vapor Removal System Efficacy in Residential Communities Surrounding Hill Air Force Base, Utah
Toni H Mehraban, Peter A. EerNisse, and Shirley J. Steinnacher, MWH Americas, Salt Lake City, UT; Rita Hanover, Westport Compass, Salt Lake City, UT; Jarrod D. Case, Air Force, Hill Air Force Base, UT

9:00  Vapor Intrusion and Methane: Criteria for Worker and Occupant Protection
Lindsay M. Breyer and James B. Cowart, Walsh Environmental Scientists and Engineers, LLC, Boulder, CO

9:30  Determination of the Significance of Subsurface Petroleum Vapor Intrusion Using Multiple Lines of Evidence
C.Y. Jeng and Steven Harimi, California Department of Toxic Substance Control, Cypress, CA; Rebecca Chou, California Regional Water Quality Control Board, Los Angeles, CA

SESSION 2: MTBE/OXYGENATES (8:00 am - 11:30 am) Salon G
Moderator: Brendan Doohoe, LFR an ARCADIS Company, Emeryville, CA

8:00  Remediation of a MTBE/BTEX Plume in a Fine-grained Aquifer in Northwestern Montana using Electrical Resistance Heating Technology
Patrick J. Skibicki and Jeffrey A. Kuhn, Montana Department of Environmental Quality, Helena, MT; Kenneth R. Manchester, MSE Technology Applications, Batte, MT

8:30  Pulsed Biosparging of a Residual Fuel Source Emplaced at CFB Borden
Jennifer M. Lambeth, Tianxiao Yang, Neil R. Thomson, and James F. Barker, University of Waterloo, Waterloo, ON, Canada

9:00  Air/Ozone Sparging & SVE Case Study- What is Ozone’s Contribution?
Dennis Beckmann, BP, Remediation Engineering and Technology, Houston, TX; Xiaomin Yang, BP, Warrenville, IL; Kyle Christie, BP, La Palma, CA

9:30  Occurrence of Lead and Lead Scavengers in Gasoline Leaked to the Subsurface
Matthew Small, US EPA, San Francisco, CA; James W. Weaver and David L. Spidle, US EPA, Athens, CA

SESSION 3: REMEDIATION OF MINING WASTES (8:00 am - 12:00 pm) Pavilion
Moderator: Song Jin, MWH Americas, Fort Collins, CO

8:00  Remediation using Mercury Removal Media
Hieu Nguyen, CETCO Liquid Bath Company, Santa Ana, CA; Jim Olsta and Zhen Wang, CETCO, Arlington Heights, IL

8:30  Iron Respiration by Acidiphilium cryptum: Effect of Microbial Organic Carbon
A. Azra Bilgin, Brown and Caldwell, Inc., Coleta, CA

9:00  Source Treatment of Acid Rock Drainage at a Backfilled Coal Mine and a Historic Gold Mine
Jeffrey M. Morris and Paul H. Fallgen, Western Research Institute, Laramie, WY; Michelle L. Sait, University of Colorado, Boulder, CO

9:30  Reclamation of the Panna Maria Uranium Mine and Mill Site: A Case Study
Clint L. Strachan, MWH Americas Inc., Fort Collins, CO; Kevin L. Raabe, Panna Maria Uranium Operations, Hobson, TX

10:00  Break

10:30  Biodegradation of Hydrocarbons from Sources with Different Ethanol Fractions
Juliana G. Freitas and James F. Barker, University of Waterloo, West Waterloo, ON, Canada; Mariah T. Mocanu, CH2M Hill, Santa Ana, CA; Jose Luiz G. Zoby, Agência Nacional de Águas (ANA), Brasilia/DF, Brasil; John W. Molson, Ecole Polytechnique Montréal, Montreal, QC, Canada

11:00  Modelling the Natural Attenuation of BTEX in Groundwater Impacted by Ethanol-Blended Fuels
Diego E. Gomez and Pedro J.J. Alvarez, Rice University, Houston, TX; William G. Risley, University of Houston, Houston, TX

LUNCHEON PRESENTATION

Luncheon 12:00–1:30 • Speaker 12:30–1:00 • Location: Cabrillo Salon

Peter S. Silva, Executive Policy Advisor, Metropolitan Water District of Southern California, Los Angeles, CA

US-MEXICO COOPERATION ON COLORADO RIVER MANAGEMENT

Because of the importance of the Colorado River to both the US and Mexico, the two countries agreed in August of 2007 to cooperate on management of that resource. A formal bi-national process has been set up through the International Boundary and Water Commission to facilitate cross border dialogue to advance the cooperative effort. Through this bi-national process, US and Mexican agencies are working together to plan and implement programs and projects to develop new water sources in the basin. The most promising projects are ocean and brackish water desalination plants and projects to conserve water used for agriculture in the Mexicali Valley in Baja California. Mr. Silva will discuss the overall bi-national process and the progress of the potential bi-national projects.
Platform Sessions

Wednesday, March 11, 2009

Afternoon Sessions

SESSION 1: ENVIRONMENTAL FORENSICS/LEGAL ISSUES
Moderator: Isaneta Petrisor, Haley & Aldrich, Costa Mesa, CA
1:30 Environmental Forensics in Judicial Context: Tips and Perspectives
Isaneta C. Petrisor, Haley & Aldrich, Costa Mesa, CA; Yvan Razzalinfalda, Adamas Law Firm, Paris, France

2:00 Comprehensive Fingerprinting of Chemical Mixtures for Environmental Forensics
Donald G. Patterson, Gwen O’Sullivan, and Court D. Sandau, TRIUM Environmental Solutions Inc., Cochrane, AB, Canada

2:30 Methane Forensic Geo-Gas Investigation: Building an Urban Reference Library
Gwen O’Sullivan, Court D. Sandau, and B.J. Min, TRIUM Environmental Solutions Inc., Cochrane, AB, Canada

3:00 Break

3:30 Reifenk Leak Detection using Petroleum Forensics
Alan W.A. Jeffrey, DPRA/Zynax Forensics, San Luis Obispo, CA

SESSION 2: SITE ASSESSMENT
Moderator: Gary Foote, AMEC Geomatix, Oakland, CA
1:30 Evaluation of Potential Influence of Borehole Fluids During In-Situ Groundwater Sampling Using Different Drilling Technologies
Frank Muramoto and Emiko Kobayashi, ENSR Corporation, Long Beach, CA; Mark Adamski, BP America, Houston, TX; Kateri Luka, Atlantic Richfield Company, Carson, CA

2:00 Use of Decision Support Tools to Evaluate Field Test Kits
Kirk O’Reilly, Waverly Thorsen, and Jaana Pietari, Exponent, Bellevue, WA; Thomas Hoelen, Chevon, Richmond, CA

2:30 The Importance of Proper Groundwater Characterization and Sampling Techniques Within Fine-Grained Clay Environment
Robert S. Taggerness and Jennifer Wilkinson, Central Valley Environmental Inc., Fair Oaks, CA; Misty Kaltreider, Solano County Department of Resource Management, Fairfield, CA

3:00 Break

3:30 The Importance of Site Characterization: Lessons Learned at a Small Solvent-Contaminated Site
John Hicks and Kevin Smith, Parsons Infrastructure & Technology Group, Inc., Denver, CO; Kathleen L. Kadiubak, Parsons Infrastructure & Technology Group, Inc., Pasadena, CA; Peter W. Forbes, Air Force Real Property Agency, Limestone, ME; Kay Grosinski, Air Force Center for Engineering and the Environment, Brooks City-Base, TX

SESSION 3: ENVIRONMENTAL FATE & MODELING
Moderator: Matt Small, US EPA, San Francisco, CA
1:30 Managing Groundwater and Other Data from the Field to the Map
David W. Rich, Geoecology Computer Systems, Inc., Centennial, CO

2:00 Enhanced Transport of Nanoiron in Field Soil for Reductive Dechlorination of Pentachlorophenol
Krishna R. Reddy, Amid P. Khodadoust, Kenneth Darko-Kagya, Srinivasa Varadhan, University of Illinois at Chicago, Chicago, IL

SESSION 4: PHYTOREMEDIATION
Moderator: Matt Small, US EPA, San Francisco, CA
2:30 Potential for Off-Site Transfer of 90Sr from Aphids Feeding on Willows Growing in Contaminated Sediment
Robert J. Fellows, John Fruchter, Crystal Driver, Danielle Saunders, and Ricky Herrington, Pacific Northwest National Laboratory, Richland, WA; Peter Landolt and Thomas Unruh, USDAR-ARS Yakima Agricultural Research Laboratory, Wapato, WA

3:00 Break

3:30 The Use of Hybrid Poplars in the Phytoremediation of a Contaminated Groundwater Plume Containing 1,4-Dioxane
Melanie P. Columbus, Anthony M. Silva, and Daniel D. Lefebvre, Queen’s University, Kingston, ON, Canada

4:00 Phytoremediation of Heavy Metals using Mycorrhizal Fungi
S. Sridharan, Thirugnanar College, Madurai, Tamil Nadu, India

General Poster Session II & Social
3:00 pm – 6:00 pm • Location: Foyer, Sunroom, Santa Fe 3&4
Authors will be available at their posters for individual discussion. Refreshments available in the sunroom, beginning at 3:30 pm.
Tuesday, March 10th

Permeable Permeation Barriers
George R. Aller, Bionim, Inc., Ferndale, MI

Distribution of Heavy Metals in Water and Sediments from Lerm River, Mexico
Pedro Avila-Perez, Samuel Tejeda, and Graciela Zarazua, Instituto Nacional de Investigaciones Nucleares, Mexico; Icela Barcelo-Quintal, Universidad Autonoma Metropolitana, Reynosa Tamaulipas, Mexico; Carlos Diaz-Delgado, Universidad Autonoma del Estado de Mexico, Mexico

Short-Term Hydrogen Peroxide and Ozone Injection for Polishing BTEX and mTBE
West Yorkshire, UK; Nottingham, UK; Andy Fraser, Terra Vac (UK) Ltd, Steve Gleadall and Paul Nathanail, University of Nottingham, UK

Injection for Treatment of Diesel, Styrene, and Coal Tar
Charles E. Blanchard, Groundwater & Environmental Services, Inc., Concord, CA; Denis N. Good, PE, Groundwater & Environmental Services, Inc., Exton, PA

Secondary Benefits of Ozone Injection: Dissolved Oxygen Enhancement
Charles E. Blanchard, Groundwater & Environmental Services, Inc., Concord, CA; David J. Sheehan, PE, Groundwater & Environmental Services, Inc., Fort Lauderdale, FL

Total Mercury Distribution in Sediment Cores from Kuwait Bay
Firyal Bou-Rabee and Abdella Al-Zamel, Kuwait University, Safat, Kuwait; Ewa Lesniewska, Magdalena Dlugosz, and Henryk Bem, Technical University of Lodz, Lodz, Poland

The Regulation of Contaminated Groundwater in Fractured Coal Measures in Scotland
Neil Brown, University of Nottingham, UK

Radical Removal of B-Lactam Antibiotics from Contaminated Waters
Michelle K. Dail, California State University, Long Beach, CA; Stephen P. Mezyk, California State University, Long Beach, CA; Julie R. Peller, Indiana University Northwest, Gary, IN

In Situ Remediation of Contaminated Subsurface Environments – Assessing Industry Needs for Technical Innovations
Travis R. Doom, Arizona State University, Tempe, AZ; Rolf U. Halden, Biodesign Institute at Arizona State University, Tempe, AZ

Solid-Phase Tungsten Speciation by Differential Digestion
Christy Crofts, Mississippi College, Vicksburg, MS; Steve Larson, U.S. Army Engineer Research and Development Center, Vicksburg, MS; Cunying Liu, University of Notre Dame, Notre Dame, IN

Degradation of EDCs and PPCPs by Ozone and Hydrogen Peroxide
Yuansheng Huang and Andy Hong, University of Utah, Salt Lake City, UT; Jia-Ming Chiu and Cheng-Fang Lin, National Taiwan University, Taipei, Taiwan

Characterization of Leachate Produced from a Saline Bauxite Refining Residue Amended with Compost
Alfred Jauich, University of Quebec at Montreal, Montreal, QC, Canada; Antoine Karam, Laval University, Quebec, Canada

Effect of Eggshell and Cementitious Waste Material on Lead Sorption by an Acid Sandy Soil
Alfred Jauich, University of Quebec at Montreal, Montreal, QC, Canada; Antoine Karam, Laval University, Quebec, Canada

Free Radical Chemistry of Tetracycline Antibiotics in Aqueous Solution
Joosoon Jeong, William J. Cooper, and Weihua Song, University of California, Irvine, CA; Jinyoung Jung, Korea Institute of Science and Technology, Seoul, Korea

Mineralogical Treatment of Wastewater from Boron Mines
Song Jin, MWH Americas, Fort Collins, CO; Anhui Lu, Weizsun Li, and Yunhua Yan, Peking University, Beijing, China

Passive and Cost-Effective Full-Scale Treatment for Landfill Leachate
Yuliya Kalmykova, Chalmers University of Technology, Gothenburg, Sweden; Lia Dedterfelt, Renova, Gothenburg, Sweden

Evidence of Vadose Zone Bioattenuation of Chlorinated Solvents via Enzyme Activity Probes
M. Hope Lee, Idaho National Laboratory, Idaho Falls, ID; Dana Swift and Ann O’Hagan, North Wind, Inc., Idaho Falls, ID; Stephanie Fiorenza, BP North America, Houston, TX

Progress in and Barriers to the Regulation Required and Voluntary Remediation of Land Affected by Contamination in Scotland
Robin Mackenzie and Paul Nathanail, University of Nottingham, Nottingham, UK

Disposal of Saline Wastewater from Electrical Power Plants
Esmail Malek, Utah State University, Logan, UT; Lynn M. Dudley, Florida State University, Tallahassee, FL

Port of Portland Nearshore Cap Utilizing Organophilic Clay
Hieu Nguyen, CETCO Liquid Booth Company, Santa Ana, CA; Jim Olsta, CETCO, Arlington Heights, IL; Marcel Hermons, Port of Portland, Portland, OR

Variation of Plant Bioelectro Potential According to Optical Frequency
Takashi Oyabu and Masaki Futai, Kanazawa Seiryo University, Kanazawa City, Japan; Hirotsuka Nambu and Haruhiko Kimura, Kanazawa University, Kakuma, Kanazawa

Free-Radical-Induced Oxidative and Reductive Degradation of Fibrate Pharmaceuticals: Kinetic Studies and Degradation Mechanisms
Behnaz Razavi, Weihua Song, and William J. Cooper, University of California, Irvine, CA

Activated Persulfate Oxidation of Polychlorinated Biphenyls in Clayey Soils
Krishna R. Reddy, Wilz Yukselen-Aksoy, and Amiel P. Khodadoust, University of Illinois at Chicago, IL

Polyacrylic Aromatic Hydrocarbons in Peninsular Malaysia: A Historical Forensic Investigation in Sedimentary Cores
Mahyar Sakari, Mohamad Pauzi Zakaria, and Nordin Hai Lajis, National University of Malaysia (UKM), Sekar, Malaysia; Che Abd Rahim Mohamed, Malaysian National University (UKM), Selangor, Malaysia

Oxidative and Reductive Degradation of Fluoroquinolone Pharmaceuticals: Kinetic Studies and Degradation Mechanisms
Hance Santko, Weihua Song, and William J. Cooper, University of California, Irvine, CA

Characterisation of and Construction Through Old Municipal Waste Landfills
Tim Thorpe and Paul Nathanail, University of Nottingham, UK

Enhancement of Heavy Metals Adsorption with Chemically Modified Lignocellulosic Substrate
Laurie Viegas, Long-Song Yang, and Kuang-Chung Yu, Chia-Nan University of Pharmacy and Science, Tainan, Taiwan

Wednesday, March 11th

Optimal Sustainable Development Achieved Via Engineered Chem-Bio Remediation Systems
Isaac M. Aboulafia, MECX LP, Houston, TX; Richard T. Cartwright, MECX LP, East Amherst, NY

Successful UST Remediation Efforts Funded by California’s UST Cleanup Fund
Walter Balk, Division of Financial Assistance, Sacramento, CA

Massive Fish Death in Sinos River, Brazil: An Environmental Criminalistics Case Study
Cristina Barazzetti Barbieri and Pedro Augusto Loguercio Bittencour, Criminalistics Department, Porto Alegre, Brazil

Mysterious Detections of 1,3-Butadiene in Soil Vapor and Human Health Risk Implications – The “Phantom Menace?”
Mark A. Milam, Sandra A. Bond, and Bruce A. Lewis, ERM-West, Inc., Sacramento, CA

Remediation of the Station of Service Green Palos
Santiago Cardona Gallo, Universidad Nacional de Colombia, Medellin, Colombia

Use of Site Conceptual Model – Site Understanding and Lessons Learned
Camille Carter and James Ryan, ENSR Corporation, Long Beach, CA; Elizabeth Robbins, AECOM Environment, Long Beach, CA; Kateri Luka, Atlantic Richfield Company, Carson, CA

Vapor Intrusion Mitigation: Design & Operation at Large Commercial Buildings
James B. Cowart and Lindsay Breyer, Walsh Brown, Inc., Sacramento, CA

Activated Persulfate Oxidation (continued on next page)
**Wednesday, March 11 (continued)**

**Enhanced Biodegradation of Petroleum Hydrocarbons at a Former Gasoline Service Station Site using ORC Advanced®**
Stephanie Dobyns, Regenesis, San Clemente, CA; David Godling, Therbur Engineering Ltd, Calgary, AB, Canada

**Successful Remediation of Benzene and Trichloroethylene in Groundwater through Stimulation of In-Situ Bacterial Degradation**
Stephanie Dobyns, Regenesis, San Clemente, CA; Ira S. Merin and Todd Church, URS Corporation, Herndon, VA

**Impact of Flow and Vegetation on River Roughness Coefficient**
Manoochehr Fathi-Moghadam, Nader Ebrahim, and Mahmud Kashfiipour, Shahid Chamran University, Ahvaz, Iran

**Pemaco Superfund Site – Expediting a Complex Project to Site Closure**
David Fleming, Thermal Remediation Services, Inc., Snoqualmie, WA; Tim Carvey, TN & Associates, Ventura, CA

**Combined Steam and Conductive Heating for a PCE DNAPL Site**
Gorm Heron, TerraTherm, Inc., Keene, CA; Steffen Greipeke and Henrik Steffensen, Niras A/S, Odense, Denmark; Hans Skou, Region of Southern Denmark, Vejle, Denmark

**Removal of PCB and PAH from Sediment by Ozonation in Pressure Cycles**
Andy Hong, University of Utah, Salt Lake City, UT; Jimmy C.M. Kao, National Sun Yat-Sen University, Kaoshiung, Taiwan

**Cleanup Planning and Design Using Remedial Management Zones: Ozone with Enhanced Bioremediation Case Study**
James Jacobs, Environmental Bio-Systems, Inc., Mill Valley, CA; Roger Brewer, Hawai’i Department of Health, Honolulu, HI

**Chemical Oxidation of Organic Contaminant in High TOC Soils**
Ben Mork, Regenesis, San Clemente, CA; Paul H. Fallgren, Western Research Institute, Laramie, WY

**Chemical Oxidation of Contaminated Vadose Zone Soils Using In-Situ Soil Mixing**
Ben Mork, Regenesis, San Clemente, CA; Doug Davis, Regenesis, Columbus, OH

**Laboratory Scale Oxidative Degradation of Petroleum Hydrocarbons and Chlorinated Solvents in Soil/Water Systems by Activated Sodium Percarbonate**
Ben Mork, Regenesis, San Clemente, CA

**Surfactant Enhanced Remediation of Contaminated Soil and Groundwater (In-situ and Ex-situ Case Studies)**
John Sankey, True Blue Technologies, Richmond, BC, Canada; George A. Ivey, Ivey International Inc., Campbell River, BC, Canada; Martin Beaudouin, Sanexen Environmental Services Inc., Varennes, QC, Canada

**Surfactant Enhanced Bioremediation of F3 and F4 Contaminated Soils**
John Sankey, True Blue Technologies, Richmond, BC, Canada; George A. Ivey, Ivey International Inc., Campbell River, BC, Canada; Daniel Stangroom, Veola Environmental Services, Condell Park, NSW, Australia

**Investigating Floor Cracks, Support Columns and Building Corners as Potential Sources of PCE in Indoor Air**
Peter Scaramella, Mary Mortkin, Ravi Arulananthan, and Frank Szerdy, AMEC Geomatrix, Inc., Oakland, CA

**Application of Fourier Transform Infrared Spectroscopy (FTIR) in Forensic Analysis of Hydrocarbon Containing Materials**
Alina D. Sims, Ontario Ministry of the Environment, Etobicoke, ON, Canada

**In Well HiPox Reactors**

**The Effects of Meteorological Conditions on Residential Vapor Intrusion at Hill Air force Base, Utah**
Shelby J. Steinmacher and Peter A. EerNisse, MWH Americas, Salt Lake City, UT; Rita Hanover, Westport Compass, Salt Lake City, UT; Jarred D. Case, Department of the Air Force, Hill Air Force Base, UT

**Phenomenological Modeling of an Anaerobic - Biofilm Permeable Reactive Barrier System for the Treatment of Landfill Leachate**
Edgar Suarez and Santiago Cardona Gallo, Universidad Nacional de Colombia Sede Medellin, Colombia

**Development of a Conceptual Site Model for Contaminant Hydrology in Fractured Granitic Terrain in California**
Seema Sutarwala Turner and Alexander E Marr, ENVIRON, Los Angeles, CA; Carol L. Serlin, ENVIRON, Irvine, CA

**Factors Determining the Solubility of Metals in Groundwater**
Alan Weston, Talaat Balba, Sophia Dore, Donald Pope, and Jennifer Smith, Consenstrag-Rovers & Associates, Niagara Falls, NY

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**Thursday, March 12, 2009**

**Workshops 7, 8, 9, 10, & 11**

**Workshop 7** Sierra 5 8:00 am – 12:00 pm
**RBCA Grows Up: Introduction to Environmental Hazard Evaluation and Advanced Approaches for Site Investigations**
Roger Brewer, Hawai’i Department of Health, Honolulu, HI
Matt Small, US EPA, San Francisco, CA
Jason Brodersen, TetraTech, San Francisco, CA
Jim Jacobs, Environmental Bio-Systems, Inc., Mill Valley, CA

Workshop 7 is FREE to municipal, state, and federal REGULATORY personnel registered for the conference.

**Workshop 8** Salon C 8:00 am – 12:00 pm
**In-Situ Chemical Oxidation: Technology Advances in Treatment and Application**
Philip Block, FMC Corporation, Philadelphia, PA
Will Moody, GeoCleanse, Mattawan, NJ
William B. Kerfoot, Kerfoot Technologies, Inc., Mashpee, MA
Joe Tarka, Carus Chemical Company, Peru, IL

**Workshop 9** Salon A 8:00 am – 12:00 pm
**Geochemical Evaluations of Metals in Environmental Media: How to Distinguish Naturally Elevated Concentrations from Site-Related Contamination**
Karen Thorbjornsen, P.G., Shaw Environmental, Inc., Knoxville, TN
Jonathan Myers, Ph.D., Shaw Environmental, Inc., Albuquerque, NM
**Conference Map**

**General Information**

**Exhibit Hours (Salons A-F, Foyer)**
- Monday, March 9: 5:00 pm - 7:00 pm
- Tuesday, March 10: 9:00 am - 4:00 pm
- Wednesday, March 11: 9:00 am - 4:00 pm

**Poster Sessions (Foyer, Santa Fe, Sunroom)**
- Tuesday, March 10: 3:00 pm - 6:00 pm
- Wednesday, March 11: 3:00 pm - 6:00 pm

**Socials**
- Monday, March 9 (Salons A-F): Wine/welcome reception 5:00 pm - 7:00 pm
- Tuesday, March 10 (Sunroom): Accompanies poster session 3:30 pm - 6:00 pm
- Wednesday, March 11 (Sunroom): Accompanies poster session 3:30 pm - 6:00 pm

**Exhibitors**

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**Conference Map Diagram**
The Twentieth Annual AEHS Meeting and International Conference on Soils, Sediments, Water, and Energy

Analysis, Fate, Environmental and Public Health Effects, and Remediation

March 2010, San Diego, California

Please submit a ONE PAGE abstract containing: title, 300 word (maximum) narrative; and for each author: name, degree, affiliation, complete address, telephone, fax, and email. Be sure to follow the Abstract Submission Guidelines on our website (www.aehs.com) for correct submission format. Please note: The body of the abstract is to be no more than 300 words. Please remember to indicate whether you wish the abstract to be considered for platform presentation, poster presentation, or either. Correctly formatted abstracts may be emailed to brenna@aehs.com. Please send the abstract as a Microsoft Word attachment, saved as the presenting author's last name in lowercase letters.

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Port of Los Angeles
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WSP Environmental Strategies

The Association for Environmental Health and Sciences (AEHS) is soliciting platform and poster papers for presentation at the 20th Annual Meeting. Session Topics Include, but are not limited to the following areas:

- Bioavailability
- Bioremediation
- Chemical Analysis
- Chlorinated Compounds
- Cleanup Standard Setting
- Contamination at Military Installations
- Emerging Contaminants
- Environmental Forensics
- Environmental Fate and Modeling
- GIS/Data Visualization
- Heavy Metals
- Innovative Remedial Technologies
- MTBE/Oxygenates
- Natural Attenuation
- Perchlorate
- Pharmaceuticals in Water
- Phytoremediation
- Regulatory Programs and Policies
- Risk Communication
- Soil Chemistry
- Sediments
- Site Assessment/Field Sampling
- Vapor Intrusion
- Case Studies on any of the above