

PARTNERS IN ENVIRONMENTAL TECHNOLOGY TECHNICAL SYMPOSIUM & WORKSHOP

MEETING DoD's ENVIRONMENTAL CHALLENGES



Marriott Wardman Park Hotel
Washington, D.C.
December 2-4, 2008



Technical Program and Registration Brochure

ABOUT THE SPONSORS

Partners in Environmental Technology is the hallmark of the annual Technical Symposium & Workshop hosted by the **Strategic Environmental Research and Development Program (SERDP)** and the **Environmental Security Technology Certification Program (ESTCP)**. The concept reflects not only the partnership formed by the two host



organizations but, more significantly, highlights the many different partnerships that play a pivotal role in the success of federal technology development—the partnership between Department of Defense (DoD) research and development programs; the partnership between DoD and the Department of Energy (DOE), the Environmental Protection Agency (EPA), and other federal agencies; the partnership between federal agencies, private industry, and academia; and most importantly, the partnership between technology developers, the numerous end users of technology, and environmental regulators/policy developers.

The Symposium & Workshop assembles this nation’s best environmental researchers and technology developers with the defense user and regulatory communities to showcase cutting-edge environmental science and technologies, as well as communicate the most difficult challenges of our defense establishment. Through this process, **SERDP and ESTCP strive to provide a forum for users in the field to examine technologies that may offer solutions to their most pressing environmental problems.**



SERDP is DoD’s environmental science and technology program, planned and executed in full partnership with DOE and EPA, with participation by numerous other federal and non-federal

organizations. To address the highest priority issues confronting the Army, Navy, Air Force, and Marines, SERDP focuses on cross-service requirements and pursues high-risk/high-payoff solutions to the Department’s most intractable environmental problems. The development and application of innovative environmental technologies support the long-term sustainability of DoD’s training and testing ranges as well as significantly reduce current and future environmental liabilities.



ESTCP is DoD’s environmental technology demonstration and validation program. The goal of ESTCP is to identify, demonstrate, and transfer technologies that address DoD’s highest priority environmental requirements. The Program promotes innovative, cost-effective environmental technologies through demonstrations at

DoD facilities and sites. These technologies provide a return on investment through improved efficiency, reduced liability, and direct cost savings. ESTCP’s strategy is to select lab-proven technologies with broad DoD application and aggressively move them to the field for rigorous trials documenting their cost, performance, and market potential.

ABOUT THE THEME

MEETING DoD's ENVIRONMENTAL CHALLENGES

The environmental challenges faced by the Department of Defense fall into two broad categories—those that limit the use of DoD's training and testing ranges and those that represent current and future environmental liabilities. DoD is improving its



understanding of how military activities may affect neighboring communities as well as the natural resources on installations to ensure the continued use of these unique and realistic training environments. Improving the military's ability to monitor, reduce, or eliminate



emissions and waste discharges from DoD industrial operations and infrastructure support systems is equally important. Meeting these challenges with an improved scientific



understanding and innovative technologies often results in increased performance, reduced life-cycle costs, and reduced future liabilities for DoD—key elements to maintaining readiness and achieving sustainable military operations.

SERDP, ESTCP, and their partnering organizations are responding to these challenges with both an improved understanding of the underlying science and innovative technological advances. The 2008 Symposium & Workshop will highlight SERDP and ESTCP's focused efforts to reduce current and future environmental liabilities as well as ensure the sustainability of military training and testing ranges.



ABOUT THIS YEAR'S EVENT

PLENARY SESSION

The Symposium & Workshop will commence on Tuesday morning with presentations by our distinguished Plenary Session speakers, including a Department of Defense official, the General Counsel for CNA, and a renowned author, physicist, and expert on energy and the environment. Together, these Plenary Session speakers will offer attendees key insights into current and emerging environmental and national security issues.



Col. Cynthia A. Murphy is currently the Commander of the U.S. Army Garrison—Fort Lewis, Washington. Upon taking command at Fort Lewis in August 2006, she has supported and implemented many sustainability initiatives at the installation. One of the most notable has been the Sustainable Community Master Plan that creates true sustainable neighborhoods through expanded retail services, housing, and office space along a walkable main street. Col. Murphy is committed to a goal of zero net waste and has supported the installation's deconstruction program, which incentivizes building demolition contracts to bring about 100% reuse of deconstructed material, and the expansion of the installation's composting program, which now takes in commissary and dining facility food waste.



Ms. Sherri W. Goodman is General Counsel at CNA, a nonprofit analysis and solutions organization for the Department of Defense and other public sector leaders. Ms. Goodman has led CNA's project on national security and climate change, whose report, *National Security and the Threat of Climate Change*, was released in April 2007. She served as Deputy Undersecretary of Defense (Environmental Security) from 1993 to 2001, where she was responsible for defense policies on climate change. Ms. Goodman has served on the staff of the Senate Armed Services Committee for Chairman Senator Sam Nunn and practiced law at Goodwin Procter. She is on the boards of the Atlantic Council, Woods Hole Oceanographic Institution, and the National Academy of Sciences Board on Environmental Studies and Toxicology.



Mr. Amory B. Lovins, a MacArthur Fellow and consultant physicist, has advised the energy and other industries for more than three decades as well as the U.S. Departments of Energy and Defense. He has led the redesign of \$30 billion worth of facilities in 29 sectors for radical energy and resource efficiency and is the Chairman and Chief Scientist of Rocky Mountain Institute, an independent, market-oriented, entrepreneurial, nonprofit, nonpartisan think-and-do tank that creates abundance by design. *The Wall Street Journal* named Mr. Lovins one of 39 people worldwide "most likely to change the course of business in the '90s," and *Newsweek* has praised him as "one of the Western world's most influential energy thinkers." His 28th book, *Small Is Profitable*, was published in 2002 and won *The Economist's* book-of-the-year award. His Pentagon-cosponsored 29th book, *Winning the Oil Endgame*, was published in 2004.

PROJECT-OF-THE-YEAR AWARDS

As part of the Plenary Session, SERDP and ESTCP will recognize their top researchers with the annual Project-of-the-Year Awards. **Dr. Jeffrey Marqusee**, Executive Director of SERDP and ESTCP, and **Dr. Anne Andrews**, Deputy Director of SERDP and ESTCP, will present these awards to Principal Investigators who have helped DoD achieve its mission while improving its environmental performance.

TECHNICAL SESSIONS AND SHORT COURSES

This year's Symposium & Workshop has been expanded to a full three-day format that will offer a more comprehensive technical program featuring 13 technical sessions and five short courses. Technical sessions will highlight research and innovative technologies that assist the Department of Defense in addressing increasingly complex environmental and mission sustainability challenges. Over the course of the three days, short courses on select technologies in environmental restoration and munitions management will provide unique training opportunities on recent advancements in science and technology. **New this year, Professional Development Hours (PDH) will be available for short courses, but register soon as space is limited.**

Be sure to review the technical program and listing of short courses on the pages that follow to identify those sessions and short courses that meet your areas of interest.



FUNDING OPPORTUNITIES BRIEFING

On Thursday afternoon, SERDP and ESTCP Executive Director **Dr. Jeffrey Marqusee** will provide attendees with a summary of the SERDP and ESTCP program development process and opportunities for interested scientists to conduct research and technology demonstrations. This “how to play” briefing will offer essential information for those who wish to understand **new funding opportunities within SERDP and ESTCP.**



EXHIBIT HALL

This year's Symposium & Workshop will continue the highly successful **poster and exhibit booth sessions** and will showcase a record number of technologies and scientific advancements from a variety of environmental research programs. This venue, **featuring two groups of posters over two days**, also provides the opportunity to learn first-hand about ongoing and recently completed SERDP research projects and ESTCP technology demonstrations.

EVENING TECHNICAL EXCHANGE RECEPTIONS

Join your colleagues on December 2 and 3 at **evening technical exchange receptions** that will offer opportunities for attendees to tour posters and exhibit booths while exchanging information and discussing opportunities for technology transfer and partnerships.



SYMPOSIUM TECHNICAL PROGRAM

TUESDAY, DECEMBER 2 (9:00–11:30 a.m.)

PLENARY SESSION

Symposium Opening

Dr. Jeffrey A. Marqusee

Executive Director, SERDP and ESTCP

Sustainable Fort Lewis: A Part of the Solution

Col. Cynthia A. Murphy

Commander of the U.S. Army Garrison—
Fort Lewis, Washington
U.S. Army

Energy and Environmental Security: National Security for the 21st Century

Ms. Sherri W. Goodman

General Counsel
CNA

How DoD Can Win the Oil and Coal Endgames: More Fight, Less Fuel, Lower Cost, Safer World

Mr. Amory B. Lovins

Chairman and Chief Scientist
Rocky Mountain Institute

Project-of-the-Year Awards

Dr. Jeffrey A. Marqusee and

Dr. Anne M. Andrews

Deputy Director, SERDP and ESTCP

Plenary Session Closing

Dr. Jeffrey A. Marqusee

TUESDAY, DECEMBER 2 (1:45–5:00 p.m.)

Afternoon Concurrent Technical Sessions

TECHNICAL SESSION

Topic: *Military Munitions in the Underwater Environment*

Chair: **Mr. Harry Craig**

U.S. Environmental Protection
Agency, Region 10

Keynote: **Ms. Amy Walker**

Naval Facilities Engineering
Command

Military munitions and munitions constituents may be found in a large variety of conditions in the underwater environment. Presentations will

address what has been documented regarding site conditions and munitions and munitions constituent contamination, as well as the state of the science and technologies applicable to site assessment and characterization.

TECHNICAL SESSION

Topic: *Monitoring and Mitigation of Vapor Intrusion from Contaminated Groundwater*

Chair: **Dr. Paul Johnson**

Arizona State University/
Ira A. Fulton School of Engineering

Keynote: **Mr. Lenny Siegel**

Center for Public Environmental
Oversight

Increasing regulatory concern over the groundwater-to-indoor air pathway has prompted DoD to take a closer look at its contaminated groundwater sites, many of which include investigation of the vapor intrusion pathway. However, because of limited understanding of the vapor intrusion process, simple criteria for identifying potentially problematic sites are not available. This session will discuss the results of real-world vapor intrusion studies representing a range of soil, groundwater, and building conditions to characterize the chemical and physical mechanisms and site parameters controlling the transport of volatile organic compounds from groundwater to overlying structures.

TECHNICAL SESSION

Topic: *Alternative Fuels for DoD Weapons Systems*

Chair: **Mr. Michael McGhee**

U.S. Air Force/Office of Energy,
Environment, Safety and
Occupational Health

Keynote: **Dr. Brian Gleeson**

University of Pittsburgh/Department
of Mechanical Engineering and
Materials Science

Considering that it is the largest single consumer of fuels in the United States, the Department of Defense recognizes the current importance of ensuring reliable availability of fuels with acceptable performance. As part of an overall effort, SERDP and ESTCP are working to ensure that future energy from all sources, including bio-based and other alternative fuels, is developed and used in an environmentally conscious way. This session will present perspectives on issues of concern and provide overviews of current technical programs that are of interest.

TECHNICAL SESSION

- Topic:** *Net Zero Installations: Energy and Beyond*
Chair: **Cdr. Brad Hancock**
Office of the Secretary of Defense
Keynote: **Mr. Robert Westby**
National Renewable Energy Laboratory

A net zero installation should recycle, reuse, or convert to other useful purposes all of its nonhazardous solid wastes; use its water resources in a sustainable manner; emit no more carbon than it sequesters; and use no more energy than the amount of renewable energy it can import or produce onsite. This session will highlight the concept of a net zero installation, its implications for long-term mission sustainability, and emerging technologies and practices that can help lead the way toward net zero.

WEDNESDAY, DECEMBER 3 (8:30–11:45 a.m.)

Morning Concurrent Technical Sessions and Short Course

TECHNICAL SESSION

- Topic:** *Marine Mammals and Military Operations*
Chair: **Dr. Frank Stone**
Chief of Naval Operations (N45)
Keynote: **Dr. Brandon Southall**
National Oceanic and Atmospheric Administration/National Marine Fisheries Service/Ocean Acoustics Program

Achieving compatibility between the military's ability to train and test in coastal and marine waters while meeting DoD's stewardship responsibilities remains a significant challenge. This session will highlight recent research in the areas of marine mammal habitat and population modeling, as well as ongoing research conducted under a multi-organizational partnership that is focused on the behavioral responses of beaked whales to anthropogenic and natural sounds.

TECHNICAL SESSION

- Topic:** *Recent Advances in Characterization and Remediation of DNAPL Source Zones*
Chair: **Dr. James Mercer**
GeoTrans, Inc.
Keynote: **Mr. Richard Willey**
U.S. Environmental Protection Agency, Region 1

This session will highlight recent advances in the characterization and remediation of dense non-aqueous phase liquids (DNAPL). The session will begin with an examination of the relationship between the source zone architecture and plume response. Detailed analyses of the current state of the art for key remediation approaches will follow, including presentations on bioremediation and thermal treatment. In situ chemical oxidation (ISCO) will be addressed during a short course following this session. The session will conclude with an overview of a recent decision guide for selecting remedies for subsurface releases of chlorinated solvents.

TECHNICAL SESSION

- Topic:** *Replacement of Hexavalent Chromium in DoD Manufacturing and Maintenance Activities (Part I: Hard Chrome Plating and Surface Treatments)*
Chairs: **Mr. Stephen Gaydos**
The Boeing Company
Mr. Craig Matzdorf
Naval Air Systems Command/
Materials Engineering Division
Keynote: **Ms. Charla Wise**
Lockheed Martin Corporation

Hexavalent chromium (hex-Cr) is widely used in coatings and surface finishing operations on DoD weapons systems, principally to impart corrosion resistance, although it also has other beneficial performance attributes. However, hex-Cr is a known carcinogen and the Occupational Safety & Health Administration recently reduced its permissible exposure limit by an order of magnitude. New international regulations, such as RoHS and REACH, are expected to impact the use and availability of products that contain hex-Cr. In addition, hex-Cr has been placed on the Action List by the DoD Emerging Contaminants Directorate. This two-part session will highlight recent research and demonstration/validation efforts intended to develop, qualify, and implement alternative materials and processes that do not utilize hex-Cr. Part I covers hard chrome plating, conversion coatings, and pre-treatments. Part II covers primers and sealants.

SYMPOSIUM TECHNICAL PROGRAM

SHORT COURSE 1

Topic: *Introduction to Classification Methods for Military Munitions Response Projects*

(Refer to page 10 for more information.)

WEDNESDAY, DECEMBER 3 (1:45–5:00 p.m.)

Afternoon Concurrent Technical Sessions and Short Course

TECHNICAL SESSION

Topic: *Munitions Response: Taking Technology to the Field*

Chair: **Mr. Bryan Harre**
Naval Facilities Engineering Service Center

Keynote: **Mr. James Austreng**
California Department of Toxic Substances Control

ESTCP increasingly is performing demonstrations on real-world, munitions-contaminated sites. This session will highlight successes in recent demonstrations of emerging munitions response technologies on live sites.

TECHNICAL SESSION

Topic: *Approaches for Managing Contaminated Upland Soils*

Chair: **Dr. Roman Lanno**
The Ohio State University/
Department of Entomology

Keynote: **Dr. Rufus Chaney**
U.S. Department of Agriculture/
Agricultural Research Service/
Environmental Management and
Byproduct Utilization Laboratory

Military activities have led to the contamination of upland soils at DoD installations. This session will focus on innovative approaches and tools for managing munitions constituents and other contaminants in these soils. In addition, it will expound on the results from a recent SERDP- and ESTCP-sponsored workshop focused on understanding and assessing the bioavailability of contaminants in soils and how bioavailability measurements can be incorporated into risk-based remedial decisions.

TECHNICAL SESSION

Topic: *Replacement of Hexavalent Chromium in DoD Manufacturing and Maintenance Activities (Part II: Primers and Sealants)*

Chairs: **Mr. Stephen Gaydos**
The Boeing Company
Mr. Craig Matzdorf
Naval Air Systems Command/
Materials Engineering Division

Keynote: **Mr. Christian Richter**
The Policy Group

Please refer to the description for the Technical Session, *Replacement of Hexavalent Chromium in DoD Manufacturing and Maintenance Activities (Part I)* on page 7.

SHORT COURSE 2

Topic: *Principles and Practices of In Situ Chemical Oxidation*

(Refer to page 10 for more information.)

THURSDAY, DECEMBER 4 (8:30–11:45 a.m.)

Morning Concurrent Technical Sessions

TECHNICAL SESSION

Topic: *Science Underlying the Post-Recovery Management of Listed Species*

Chair: **Dr. Deborah Crouse**
U.S. Fish and Wildlife Service/
Division of Endangered Species

Keynote: **Dr. J. Michael Scott**
U.S. Geological Survey/University of Idaho-Department of Wildlife Biology

Under the Endangered Species Act, federal agencies, including the Department of Defense, are required to “recover” listed species to population levels that reduce the risk of extinction to acceptable levels. But what happens once a species is legally recovered under the Act? This session will look at the underlying science issues involved with the post-recovery management of listed species, from those that require little continued intervention to maintain their populations to those that might require long-term management attention.

TECHNICAL SESSION

- Topic:** *Management of Contaminated Sediments: The Path to Risk-Based Remedial Action Decisions*
- Chair:** **Dr. Todd Bridges**
U.S. Army Corps of Engineers/
Engineer Research and Development
Center/Environmental Laboratory
- Keynote:** **Ms. Beth Anderson**
U.S. Department of Health and
Human Services/National Institutes
of Health/National Institute of
Environmental Health Sciences

Traditionally, efforts to remediate contaminated sediments relied on ex-situ options. Through advances in research and recently fielded demonstrations, several in-situ treatment technologies provide the means to address the range of contaminants in sediments, while reducing overall costs and implementation time. This session will expound on the results from a recent SERDP- and ESTCP-sponsored workshop focused on understanding and assessing the bioavailability of contaminants in sediments. The session also will highlight recent research on sediment remediation through the use of amendments. The state of the art in capping and monitored natural recovery will be addressed during a short course following this session.

TECHNICAL SESSION

- Topic:** *Munitions Response: Advances in Science and Systems*
- Chair:** **Dr. Bonnie Packer**
U.S. Army Environmental Command
(Contract Support)
- Keynote:** **Mr. Roger Young**
U.S. Army Corps of Engineers/
Huntsville Center

Emerging sensors, signal processing, and other technologies are improving the detection, characterization, and cleanup of military munitions. This session will highlight recent advances that have promise both to improve the quality of munitions response actions and to reduce costs.

THURSDAY, DECEMBER 4 (12:15–12:45 p.m.)

BRIEFING/Q&A SESSION

- Topic:** *SERDP/ESTCP Funding Opportunities*
- Speaker:** **Dr. Jeffrey Marqusee**
SERDP and ESTCP Executive Director

Dr. Marqusee will provide an overview of SERDP and ESTCP investment strategies, funding levels, and areas of emphasis, as well as a summary of opportunities for interested scientists to conduct research and technology demonstrations. This “how to play” briefing will offer essential information on the solicitation processes for those who wish to understand how to submit proposals for upcoming funding opportunities within SERDP and ESTCP.

THURSDAY, DECEMBER 4 (1:00–5:00 p.m.)

Afternoon Concurrent Short Courses

SHORT COURSE 3

- Topic:** *Introduction to the Visual Sample Plan Unexploded Ordnance (UXO) Module*

(Refer to page 10 for more information.)

SHORT COURSE 4

- Topic:** *Management of Contaminated Sediments: Capping and Monitored Natural Recovery Approaches*

(Refer to page 11 for more information.)

SHORT COURSE 5

- Topic:** *In Situ Bioremediation of Perchlorate in Groundwater*

(Refer to page 11 for more information.)

SHORT COURSE DESCRIPTIONS

SHORT COURSE 1

Introduction to Classification Methods for Military Munitions Response Projects

This short course will provide a tutorial on the sensors, methods, and status of the classification of military munitions using geophysical methods. The course will cover advanced processing of data collected with existing commercial instruments, as well as the promising results from emerging optimized systems.

Participants will receive three Professional Development Hours (PDH) upon completion of this short course.

Presenters include:

Dr. Thomas Bell (Science Applications International Corporation [SAIC]), **Dr. Stephen Billings** (Sky Research, Inc.), **Dr. Dean Keiswetter** (SAIC), and **Dr. Herb Nelson** (SERDP/ESTCP)



SHORT COURSE 2

Principles and Practices of In Situ Chemical Oxidation

This short course will introduce and demonstrate the application of a Technology Practices Manual (TPM), including protocols and decision-support tools being developed under ESTCP Project ER-0623. The TPM is designed to enhance the site-specific engineering of in situ chemical oxidation (ISCO) for remediation of contaminated groundwater and to help ensure more predictable, cost-effective performance. The short course will begin by providing an overview of ISCO as documented in the scientific literature, as revealed through an analysis of more than 200 field applications, and as developed through a technology practices workshop. Guidance and decision-support tools will then be shared regarding screening level decisions on the applicability of ISCO to varied contaminants and site conditions, conceptual design processes, detailed design considerations, and implementation and performance monitoring. A Frequently Asked Questions guide will be presented and used during the short course to convey the ISCO guidance and tools available.

Participants will receive three Professional Development Hours (PDH) upon completion of this short course.

Presenters include:

Dr. Michelle Crimi (East Tennessee State University), **Mr. Benjamin Petri** (Colorado School of Mines), **Dr. Robert Siegrist** (Colorado School of Mines), **Dr. Thomas Simpkin** (CH2M Hill, Inc.), and **Dr. Marvin Unger** (HydroGeoLogic, Inc.)

SHORT COURSE 3

Introduction to the Visual Sample Plan Unexploded Ordnance (UXO) Module

SERDP and ESTCP have supported development of several modules in the Visual Sample Plan (VSP) software focused on munitions response sites. In this short course, VSP methods for transect design, target area identification and delineation, anomaly density mapping and estimation, and final verification sampling will be presented and demonstrated through case studies. New target area delineation tools will also be presented.

Participants will receive four Professional Development Hours (PDH) upon completion of this short course.

Presenters include:

Mr. John Hathaway (Pacific Northwest National Laboratory), **Mr. Brent Pulsipher** (Pacific Northwest National Laboratory), and **Dr. Barry Roberts** (Sandia National Laboratories)



SHORT COURSE 4

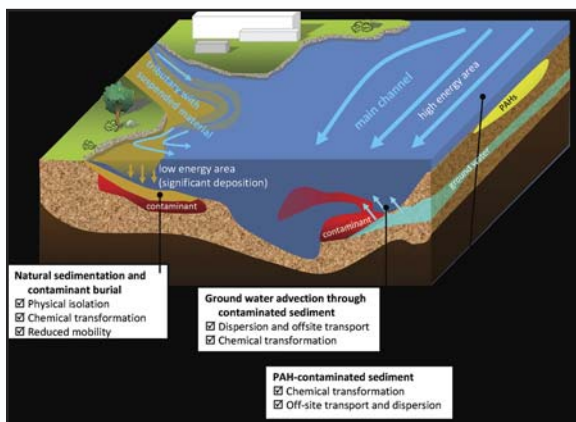
Management of Contaminated Sediments: Capping and Monitored Natural Recovery Approaches

This short course will offer attendees a summary of recent research and demonstrations that are providing new techniques and processes for implementing and evaluating capping and monitored natural recovery (MNR) remedies for contaminated sediments. The course will also cover assessment needs, design, and long-term effectiveness of these technologies. An overview of relevant case studies involving capping and MNR will be provided to illustrate key discussion points.

Participants will receive four Professional Development Hours (PDH) upon completion of this short course.

Presenters include:

Dr. Victor Magar (ENVIRON International Corporation) and **Dr. Danny Reible** (University of Texas at Austin)



SHORT COURSE 5

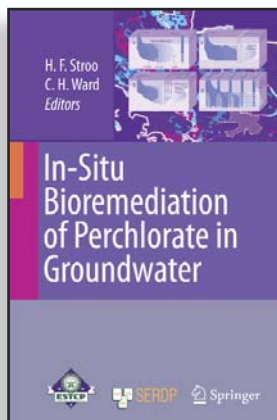
In Situ Bioremediation of Perchlorate in Groundwater

This short course presents an analysis and synthesis of the past decade of research, development, and demonstrations of the in situ bioremediation of perchlorate in groundwater. The course will include an overview of the current state of understanding perchlorate remediation, including the basic principles of microbial processes, abiotic processes, and the engineering and implementation issues underlying the technologies described. Different methods for implementing in situ bioremediation of perchlorate will then be described, with discussions of the advantages, performance, and relative costs of each of these technologies. Active, semi-passive, and passive in situ bioremediation approaches will be fully described and compared, with emphasis on field applications. Cost information for each technology will be presented, using case studies and analyses of several template sites, and key cost drivers will be identified. Costs for pump-and-treat systems will also be presented for each template site to illustrate the potential cost savings associated with the use of alternative approaches. Monitoring approaches also will be described, including the use of stable isotopes to distinguish potential sources. Finally, emerging technologies such as monitored natural attenuation, phytoremediation, and vadose zone bioremediation will be described briefly.

Participants will receive four Professional Development Hours (PDH) upon completion of this short course.

Presenters include:

Dr. Robert Borden (North Carolina State University), **Mr. Evan Cox** (Geosyntec Consultants), **Dr. Paul Hatzinger** (Shaw Environmental, Inc.), **Mr. Bruce Henry** (Parsons Corporation), **Dr. Andrew Jackson** (Texas Tech University), **Mr. Thomas Krug** (Geosyntec Consultants), and **Dr. Hans Stroo** (HydroGeoLogic, Inc.)



GENERAL SYMPOSIUM INFORMATION

SYMPOSIUM LOCATION

The Symposium & Workshop will be held December 2–4, 2008, at the Marriott Wardman Park Hotel in Washington, D.C.

REGISTRATION

For your convenience, we encourage you to **register for the Symposium online** now at **www.serdp-estcp.org/symposium** using your credit card. You may also register by mail by completing the registration form at the back of this brochure. Payment in full or a purchase order must accompany your mailed registration form. Please mail the registration form (or a photocopy of the form) along with payment to arrive **no later than Wednesday, November 19, 2008**.

Checks and purchase orders should be made payable to **HydroGeoLogic, Inc.** and mailed to:

HydroGeoLogic, Inc.
SERDP/ESTCP Registrar
11107 Sunset Hills Road, Suite 400
Reston, VA 20190

You may also register by sending a completed registration form with credit card information by **fax to (703) 478-0526**. All registrations received by November 19 will be confirmed via e-mail.

REGISTRATION FEE

The full three-day Symposium & Workshop registration fee (**\$290 through November 19, \$325 on site**) includes admission to the Plenary Session, all technical sessions, short courses, exhibit hall, poster receptions, morning coffees, and lunches. **There is a \$25 materials fee for each short course.** Symposium registration materials will include the final program agenda and an electronic program guide containing abstracts of all Symposium & Workshop technical, poster, and booth presentations. Speaker presentations and a final list of attendees will be made available to participants after the event. **A student fee (\$50) and a one-day registration fee (\$150 through November 19, \$165 on site) are also available.**

NOTE: Advance registration is available through November 19. Registrations received after November 19 will be processed at the on-site rate of \$325 for full three-day registration and \$165 for one-day registration. Please remember that attendance for short courses is limited, so register early.

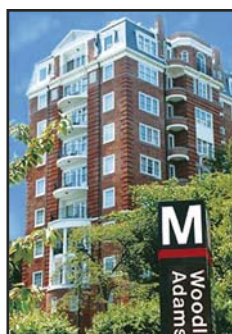
LIST OF ATTENDEES

A list of pre-registered attendees will be available upon check-in at the Symposium & Workshop. To be included in this listing, you must register no later than Wednesday, November 19. To receive the final attendee list as well as the speaker presentations following the Symposium, you must include your e-mail address on your registration form.

EXHIBITS

The Symposium & Workshop will feature more than 400 posters, half of which will exhibit on Tuesday and the other half on Wednesday. A select group of booths offering information about funding opportunities in related research programs also will be on display both days. The informal one-on-one format of the posters and booths provides a unique opportunity to network with colleagues and gather information on topics important to you. Exhibitors will be available to talk with you and answer your questions during scheduled exhibit times.

If you are unable to participate in the technical sessions but would like to tour the exhibits, you may do so free of charge on Tuesday, December 2, or Wednesday, December 3, between the hours of 12:30 and 4:00 p.m. Presenters will be on hand from 12:30–1:45 p.m. In order to have an entrance badge ready for you, please fill out and submit a registration form prior to the registration deadline.



HOTEL RESERVATIONS

A block of rooms for Symposium & Workshop participants has been set aside at the prevailing government per diem rate. To make reservations, please contact the hotel directly and identify yourself as a Partners in Environmental Technology Symposium & Workshop attendee (code "PETPETA"). Reservations may also be made online using the hotel web address listed below. **To receive this special rate, hotel reservations must be made no later than Monday, November 3, 2008. You are encouraged to make your reservations early as the hotel will sell out of rooms.**

Marriott Wardman Park Hotel

2660 Woodley Road, NW

Washington, DC 20008

Phone: (800) 228-9290

Web Site: <http://www.marriott.com/hotels/travel/wasdt>

Rate: \$209 (plus tax) or prevailing government rate

All hotel changes and cancellations must be made directly with the hotel. It is the responsibility of each participant to **make changes or cancellations no later than 7 days prior to scheduled arrival**. Rooms generally are not available for check-in until 3:00 p.m. on the day of arrival.

Special Note to Army Participants

A non-availability number is not required for conferences held in Washington, D.C.

TRAVEL

The Washington, D.C., metropolitan area is served by three major airports (Ronald Reagan Washington National, Washington Dulles International, and Baltimore-Washington International) and by Amtrak. Ronald Reagan Washington National Airport is the closest airport to the hotel. The efficient Metrorail system is a convenient mode of transportation from Ronald Reagan Washington National Airport and for local attendees. The hotel is located one block from the Woodley Park-Zoo/Adams Morgan Metro Station (on the Red Line).

PARKING

Self-parking is available at the hotel for approximately \$32 per day and/or overnight. Valet parking is available at the hotel for approximately \$37 per day and/or overnight.

CANCELLATIONS & SUBSTITUTIONS

All requests for refunds must be received in writing no later than Wednesday, November 19. The registration fee minus a \$25 processing charge will be refunded. No refunds will be made after November 19. However, if you must cancel after this date, you may send a substitute.

INQUIRIES

For additional information, please visit www.serdp-estcp.org/symposium, e-mail partners@hgl.com, or call our contact line at (703) 736-4548.

Specific questions about registration may be directed to **Ms. Jen Rusk** at (703) 326-7801 or via e-mail to jrusk@hgl.com.

Poster and booth questions may be directed to **Ms. Lucia Valentino** at (703) 736-4549 or via e-mail to lvalentino@hgl.com.

NOTE: The Call for Poster Abstracts deadline was July 31, 2008.



www.serdp-estcp.org/symposium

SYMPOSIUM REGISTRATION INFORMATION

SHORT COURSE REGISTRATION

Space is limited for short courses and will be made available on a first-come first-served basis. The list of short course titles is provided below to assist you in completing the Registration Form on page 15. When making your selections, note that the short courses offered on Wednesday run concurrently with technical sessions (see pages 6–9).

WEDNESDAY MORNING

8:30–11:45 a.m.

Short Course 1

Introduction to Classification Methods for Military Munitions Response Projects

WEDNESDAY AFTERNOON

1:45–5:00 p.m.

Short Course 2

Principles and Practices of In Situ Chemical Oxidation

THURSDAY AFTERNOON

1:00–5:00 p.m.

Short Course 3

Introduction to the Visual Sample Plan Unexploded Ordnance (UXO) Module

Short Course 4

Management of Contaminated Sediments: Capping and Monitored Natural Recovery Approaches

Short Course 5

In Situ Bioremediation of Perchlorate in Groundwater

Professional Development Hours (PDH) will be available for all short courses.

WHO SHOULD ATTEND THIS SYMPOSIUM

With approximately 1,000 participants last year, this annual event is a nationally recognized technical symposium and workshop focusing on priority environmental issues. Attendees represent the military services; academic and research institutions; private sector technology and environmental firms; and federal, state, and local regulatory/policymaking organizations.

By registering for this event, you will have access to

- Unparalleled networking opportunities with approximately 1,000 environmental professionals
- Thirteen technical sessions offering the latest in environmental research results and technical innovations
- Five short courses providing unique training opportunities on recent advancements in science and technology
- Information about world-class research and demonstrations being conducted on persistent environmental challenges
- More than 400 posters supporting the technical program theme
- Booths offering information about funding opportunities in related research programs

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Advance Registration
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SYMPOSIUM REGISTRATION FORM

(Please type or print clearly)

Mr. Ms. Mrs. Dr. Preferred salutation _____

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Company/Organization _____

Mailing Address _____

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Preferred Name for Badge _____

Is this the first time that you will be attending our Symposium & Workshop? Yes No

How did you first learn about this Symposium & Workshop?

- This mailing Another conference (please specify) _____
 The SERDP or ESTCP web site Colleague
 The SERDP/ESTCP Information Bulletin Other (please specify) _____

Type of Organization (check one)

- Government Employee Industry/Contractor Academia Press

Type of Registration (check as many as apply)

- Attendee Session Chair Poster Presenter Tuesday Exhibit Tour Only
 Technical Speaker Keynote Speaker Booth Presenter Wednesday Exhibit Tour Only

Have you made your hotel reservations? Yes No Not Applicable

If you have a special need that requires assistance, check here and we will contact you.

Symposium Registration (check one)

Check, credit card, or purchase order information must accompany your registration.

- Full Three-Day Registration (\$290) (through November 19) One-Day Registration (\$150) (through November 19) Student Registration (\$50) (Student ID required)
_____ Tues _____ Wed _____ Thur

Short Course Registration

There is a \$25 materials fee for each short course. Refer to page 14 for the schedule of short courses, and check below each course that you plan to attend.

- Short Course 1 Short Course 2 Short Course 3 Short Course 4 Short Course 5

Payment

Symposium Fee _____ + Total Short Course Materials Fee _____ = Total Due _____

Method of Payment (check one)

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(Checks must be drawn on a U.S. bank and payable in U.S. funds to **HydroGeoLogic, Inc.**, Federal ID # 54-1404852.)

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PARTNERS IN ENVIRONMENTAL TECHNOLOGY TECHNICAL SYMPOSIUM & WORKSHOP

Marriott Wardman Park Hotel • Washington, D.C.

December 2–4, 2008

SCHEDULE AT A GLANCE

MONDAY, DECEMBER 1	WEDNESDAY, DECEMBER 3	THURSDAY, DECEMBER 4
<p>3:00–6:00 p.m. Registration Desk Open</p>	<p>7:30–8:30 a.m. Morning Coffee Exhibits Open (Poster Group 2)</p>	<p>7:30–8:30 a.m. Morning Coffee</p>
<p>TUESDAY, DECEMBER 2</p>	<p>8:30–11:45 a.m. Morning Concurrent Technical Sessions and Short Course 1</p>	<p>8:30–11:45 a.m. Morning Concurrent Technical Sessions</p>
<p>7:30 a.m. Registration Desk Opens for Remainder of Symposium</p>	<p>11:45 a.m.–1:00 p.m. Buffet Lunch</p>	<p>11:45 a.m.–1:00 p.m. Buffet Lunch</p>
<p>7:30–8:45 a.m. Morning Coffee Exhibits Open (Poster Group 1)</p>	<p>12:30–1:45 p.m. Exhibits Open (Poster Group 2)</p>	<p>12:15–12:45 p.m. SERDP/ESTCP Funding Opportunities Briefing/Q&A</p>
<p>9:00–11:30 a.m. Plenary Session</p>	<p>1:45–5:00 p.m. Afternoon Concurrent Technical Sessions and Short Course 2</p>	<p>1:00 p.m.–5:00 p.m. Afternoon Concurrent Short Courses 3, 4, and 5</p>
<p>11:45 a.m.–1:00 p.m. Buffet Lunch</p>	<p>5:00–7:00 p.m. Poster Reception Exhibits Open (Poster Group 2)</p>	
<p>12:30–1:45 p.m. Exhibits Open (Poster Group 1)</p>		
<p>1:45–5:00 p.m. Afternoon Concurrent Technical Sessions</p>		
<p>5:00–7:00 p.m. Poster Reception Exhibits Open (Poster Group 1)</p>		

**For the most up-to-date
Symposium & Workshop
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