PARTNERS IN ENVIRONMENTAL TECHNOLOGY

SERDP ESTCP

INFORMATION BULLETIN

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PARTNERS IN ENVIRONMENTAL TECHNOLOGY

TECHNICAL SYMPOSIUM & WORKSHOP

Meeting DoD's Environmental Challenges

December 1–3, 2009
Washington, D.C.

See insert for information on this year's Plenary Session and details about the 11 technical sessions and five short courses, for which PDHs will be available.

Register now at www.serdp-estcp.org/symposium.

DoD Policy Memo Points to ASETSDefense as Resource on Hexavalent Chromium Alternatives

The Under Secretary of Defense for Acquisition, Technology and Logistics has issued a new policy for all DoD systems directed at reducing the usage of hexavalent chromium across the Department. The April 8, 2009 memo, Minimizing the Use of Hexavalent Chromium (Cr^{6+}), calls out SERDP and ESTCP's ASETSDefense initiative as the primary source of information on environmentally preferable alternatives that maintain performance and are cost-effective. Hexavalent chromium, a known carcinogen, is used on most DoD weapons systems and platforms for its corrosion protection and other properties.

ASETSDefense—Advanced Surface Engineering Technologies for a Sustainable Defense—facilitates the implementation of new, environmentally friendly technologies for surface engineering (coatings and surface treatments) by providing ready access via a database to background information and technical data from research, development, test, and evaluation (RDT&E) efforts supported by DoD organizations and the private sector. ASETSDefense also provides access to information on the status of approvals and implementation of these alternative technologies. Defense organizations can apply this information and assistance to improve weapons system performance and life-cycle costs while reducing or eliminating environmental safety and occupational health (ESOH) impacts from coatings and treatment processes that use chemical compounds containing hexavalent chromium, coatings that contain cadmium, and coatings that contain volatile organic compounds (VOC).

Since their inception more than 14 years ago, SERDP and ESTCP have made substantial investments toward finding suitable replacements for Cr^{6+} for many DoD applications. An extensive amount of laboratory, component, and field testing has been conducted through numerous research, development, and demonstration projects. Examples of the resulting technologies now being implemented across DoD and the commercial sector include:

- The Hard Chrome Alternatives Team (HCAT), supported by ESTCP, validated high-velocity oxygen-fuel (HVOF) thermal spray coatings as a substitute for electroplated hard chrome, demonstrating improved performance and lower life-cycle costs. The HCAT program also showed the importance of assembling DoD-industry teams that would accelerate implementation of the alternative technology.
- Trivalent Chromium Pretreatment (TCP) has been developed to replace widely used chromate conversion coatings. (In this case, the oxidation state of the chromium is +3, with Cr^{3+} having significantly fewer environmental and worker safety issues than Cr^{6+}.) The technology, developed by Naval Air Systems Command (NAVAIR) and demonstrated with ESTCP support, pretreats aluminum surfaces prior to coating. Now one of the most successful Cr^{6+}-free treatments, TCP is available from several commercial vendors. It is finding applications beyond aluminum pretreatment, including sealing of coatings and possibly even pretreatment of steel and magnesium alloys.

See ASETSDefense, page 2

The ASETSDefense Surface Engineering Database provides access to engineering data and background documents and information on environmentally friendly coatings and surface treatment technologies. This tool will assist those responding to the recent DoD policy memo on minimizing the use of hexavalent chromium.

- Programs to develop and validate powder coatings and ultraviolet-curable paints, funded in part by SERDP and ESTCP, are leading to paint systems for vehicles and aircraft that not only eliminate Cr^{6+} but also cut down the drying time from days to hours. Aircraft and vehicles can be turned around and put back in service far faster and with a more protective, longer lasting coating.

In addition to ongoing efforts to develop Cr^{6+} alternatives, SERDP and ESTCP are funding projects that address other aspects of qualifying alternative coatings, such as developing accelerated corrosion and hydrogen embrittlement test methods that better simulate real-life conditions, environmentally friendly coating removal technologies, and methods for non-destructive inspection to detect corrosion beneath coatings.

For those charged with responding to the DoD policy memo, a central repository of information from these and other efforts is now available through the ASETSDefense Surface Engineering Database. This database is a relational database that provides access to documents and data required for making informed decisions on implementing clean coatings and surface treatments. It includes detailed engineering data, background documents, and information on processes and products that have been validated, authorized, or implemented. Database users can quickly identify which alternatives have been authorized, those that have been implemented, and the data underlying those decisions. The database contains information about alternatives to the following types of coatings: chromate conversion, chromate primers, hard chromium plating, chromic acid anodize, chromate metallic-ceramics, cadmium plating, chromate sealants, and high VOC materials.

Through periodic workshops, ASETSDefense facilitates information exchange leading to a more rapid qualification of alternative surface engineering technologies. These workshops bring together the entire supply chain and depot rework groups from all of the services to share experiences and data that will foster efforts to adopt alternative technologies and help determine the RDT&E still needed to improve technologies for DoD implementation. These workshops provide opportunities for individuals from government, industry, and academia to present key findings and results, encouraging open discussions among participants. ASETSDefense '09: Sustainable Surface Engineering for Aerospace and Defense is planned for September 1-3, 2009, in Denver. This workshop will cover all ESOH coating issues in new and legacy aircraft, vehicles, and ships although special emphasis will be given to Cr^{6+} in response to the recent DoD policy memo.

For more information about ASETSDefense, please visit www.asetsdefense.org. Technical questions can be directed to Mr. Bruce Sartwell, SERDP and ESTCP Weapons Systems and Platforms Program Manager, at bruce.sartwell@osd.mil or Dr. Keith Legg, ASETSDefense Technical Manager, at asetsdefense@rowantechnology.com. ◆

ASETSDefense '09 WORKSHOP

SUSTAINABLE SURFACE ENGINEERING FOR AEROSPACE AND DEFENSE

September 1-3, 2009
Denver, Colorado

ASETSDefense '09 will cover all ESOH coating issues in new and legacy aircraft, vehicles, and ships. Geared to authorizing agencies, SPOs, depot engineers, and the commercial supply chain, the workshop will focus on alternatives to hexavalent chromium to assist DoD organizations with meeting the requirements of the recent policy memo. The emphasis will be on the practical issues of what options are available, what has been approved and implemented, and what works best in different situations, while identifying the gaps in capabilities and knowledge.

Register now at www.asetsdefense.org/NextWorkshop.aspx.

Aqueous Amendment Injection Systems Simplified via User-Friendly Suite of Design Tools

In Situ Anaerobic Biodegradation (ISAB) technologies are currently being implemented at many commercial and military sites to stimulate anaerobic bioremediation of contaminants in groundwater. At some sites, ISAB is highly successful and can result in substantial reductions in contaminant concentration and mass, but at many sites, poor delivery of the chemical reagent or amendment can stifle the effectiveness of ISAB.

To reduce system design uncertainty, Dr. Robert Borden of North Carolina State University has developed a spreadsheet-based tool for remediation engineers. The design tool, developed under the ESTCP project *Development of a Design Tool for Planning Aqueous Amendment Injection Systems* (*ER-0626*), is intended to aid users in designing effective, reasonably efficient systems for distributing emulsified oil as an amendment, or substrate, to promote bioremediation.

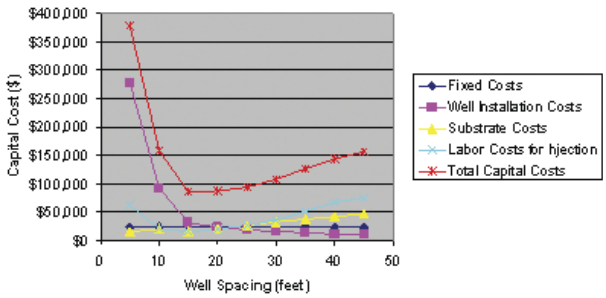
The design tool accomplishes this objective by using site data and injection costs to select appropriate substrate quantities and injection well spacing. Users enter information about the aquifer, contaminants, and the concentrations of background electron acceptors, and substrate demand calculations subsequently are performed. Users also enter information related to drilling and injection costs, selecting injection through direct push rods, direct push well installation, or well installation by conventional drilling.

Once the installation and injection information is entered, the user must determine if barrier treatment or area treatment is appropriate. The model then uses this information to evaluate the costs of various designs using different well spacing. Results of the complete analysis are given in terms of total fixed cost, dollars per injection point, injection rate, and injection costs per day. Graphical representations of the effect of well spacing on project costs are also generated.

The Emulsion Design Tool Kit includes an overview presentation to aid users in effectively implementing the spreadsheet-based tool. The User's Guide provides explicit details on how to calculate the necessary data and contains a discussion on the effects of different design parameters on contact efficiency. A tutorial with sample site characteristics is also included as an appendix to the User's Guide.

In addition to the emulsified oil tool, Dr. Borden also is developing design tools for distributing soluble substrates in ISAB systems and permanganate in In Situ Chemical Oxidation (ISCO) systems. These tools are anticipated to be available in 2010 and, like the Emulsion Design Tool Kit, should provide remediation engineers with easy-to-use tools for planning efficient aqueous amendment injection systems at reduced costs.

The Emulsion Design Tool Kit and User's Guide are available in the SERDP and ESTCP Online Library at http://docs.serdp-estcp.org using 0626 as the Search Phrase. Technical questions may be directed to Dr. Robert Borden, North Carolina State University, Raleigh, North Carolina, at (919) 515-1625 or rcborden@eos.ncsu.edu.



Effective amendment delivery is critical for successful in situ groundwater remediation. Developed with ESTCP support, an Emulsion Design Tool Kit is now available for designing emulsified oil delivery systems. Information on aquifer characteristics and well installation, injection, and substrate costs are used to help designers optimize in situ remediation systems. This graph shows the results of an analysis of capital cost versus injection well spacing.

DoD Environmental Technology Requirements Report Focuses on Mission and Warfighter

The environmental technology requirements process is a vital component of DoD's environmental program and supports the Department's investment in science and technology, demonstration and validation, and technology transfer efforts. To formally issue the Department's environmental technology requirements, the Office of the Secretary of Defense has released the "DoD Environmental Technology Program Research and Development Requirements Review." This report provides the baseline of environmental technology requirements across DoD and establishes a new framework for managing environmental technology requirements that focuses on the mission and the warfighter with consistency across the Department.

As part of this process, the Military Departments' (MILDEP) environmental technology requirements were compiled, consolidated, and reviewed; requirements common across DoD or unique to a MILDEP were identified; and a common framework with concurrence across the MILDEPs was developed and demonstrated. The MILDEPs submitted 229 requirements statements—127 from the Air Force, 46 from the Army, and 56 from the Navy. These requirements statements were then categorized to align with specific DoD mission focus areas and associated environmental contaminants and other stressors.

Common environmental technology requirements identified through this initiative will feed into DoD-wide R&D programs such as SERDP and ESTCP, while the MILDEP-unique requirements will support each program objective memorandum (POM). Senior DoD leadership, program and installation managers, and researchers can use this information in support of budget, investment, and research planning efforts.

The DoD Environmental Technology Requirements Report is available in the SERDP and ESTCP Online Library at http://docs.serdp-estcp.org using M-31 as the Search Phrase.

SPOTLIGHT on SERDP and ESTCP FY 2009

Throughout 2009, new initiatives in all SERDP and ESTCP focus areas

SERDP and ESTCP initiatives in **Munitions Management** (MM) focus on technologies to detect and remediate munitions on ranges, munitions burning and open detonation areas, and burial pits—one of the Department of Defense's most pressing environmental problems. In 2009, SERDP and ESTCP initiated efforts to develop and demonstrate sensors and data analysis approaches for land and underwater environments. Technologies include advanced electromagnetic induction (EMI), magnetometry, laser line scanning, sonar systems, and various data analysis and modeling approaches. Results from these initiatives will provide new capabilities to cost-effectively characterize and remediate munitions response sites through improved munitions detection, improved ability to distinguish munitions from other nonhazardous materials, and increased capabilities to deploy advanced technologies for a wide diversity of site conditions.

SERDP Research

Additional information on these efforts can be found at www.serdp.org under the Research Projects *link.*

Integration of Advanced Statistical Analysis Tools and Geophysical Modeling (MM-1657)

Principal Investigator: Lawrence Carin/Duke University

This project will integrate advanced Bayesian statistical models and classifiers with leading geophysical models. These statistical models will enhance the ability to extract information from limited sensor data, with the goal of improving unexploded ordnance (UXO) classification performance on complex munitions cleanup efforts.

Magnetic Surface Modes and UXO/Clutter Classification and Discrimination (MM-1658)

Principal Investigator: Thomas Bell/SAIC

The objective of this project is to develop an improved understanding of the fundamental physics of UXO/clutter discrimination. Specifically, researchers seek to establish a rational basis for the development and implementation of improved UXO/clutter discrimination processing and analysis. These techniques will be capable of exploiting the capabilities of newly developed EMI sensor technologies.

Exploiting EMI Signals During Active Transmission (MM-1659)

Principal Investigator: Gregory Schultz/Sky Research, Inc.

This **SE**RDP **E**xploratory **D**evelopment (SEED) project will evaluate the potential of on-time signals and quantify the value that this new information adds to current advanced sensor technology. The scope of the effort is limited to the physics and technology of time-domain induction while a transmitter is on. Researchers will determine the level to which it is possible to exploit features for improved detection and classification of UXO.

Belief Theoretic Multi-Sensory Data Fusion for Underwater UXO Identification (MM-1660)

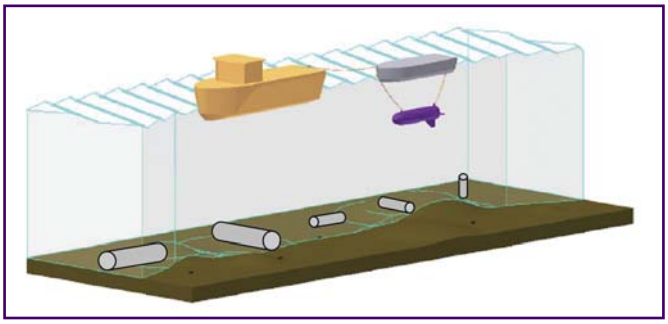
Principal Investigator: Shahriar Negahdaripour/Miami University

This SEED project will assess a novel data fusion paradigm that enables decision making based on imperfect heterogeneous data. Optical and acoustic sensing and processing technology data will be collected and existing magnetometer and electromagnetic array data utilized. Researchers will explore the performance of each sensing modality alone, assess each sensor's impact on UXO detection and discrimination, and establish a mapping strategy for operation in underwater environments.

Superconducting Magnetic Tensor Gradiometer System for Detection of Underwater Military Munitions (MM-1661)

Principal Investigator: Stephen Billings/Sky Research, Inc.

The objective of this project is to develop and fabricate a high-temperature superconducting (HTS) tensor gradiometer for detection and discrimination of ordnance in the marine environment (water depths up to 20 meters). This project also will develop and validate algorithms for wave-induced magneto-hydrodynamic noise and will perform underwater trials to demonstrate the feasibility of the system.



Analysis of Next Generation Sensor Data (MM-1662)

Principal Investigator: Dean Keiswetter/SAIC

The objective of this project is to develop methods that exploit the advantages offered by digital EMI sensors. Specific research areas of interest include multiple target environments, non-dipole effects, and parameter search issues. Parallel tests will be performed in a test bed in an effort to generate an overall improvement that is greater than the sum of the components. Results of this project will lead to improved target accuracy and discrimination, combined with fast robust data inversion.

Isolating and Discriminating Overlapping Signatures in Cluttered Environments (MM-1664)

Principal Investigator: Benjamin Barrowes/U.S. Army Corps of Engineers, Engineer Research and Development Center-Cold Regions Research and Engineering Laboratory

The objective of this project is to mitigate the effects of dispersed metallic clutter in an effort to resolve the difficulty in identifying independent or overlaid objects with composite EMI data, discriminating each object of interest based on its response under more realistic field conditions. Data from numerous SERDP projects will be run through a rigorous discrimination data model.

Initiatives in Munitions Management

are being highlighted. Munitions Management efforts are featured here.

Full-Scale Measurement and Modeling of the Acoustic Response of Proud and Buried Munitions at Frequencies from 1-30 kHz (MM-1665)

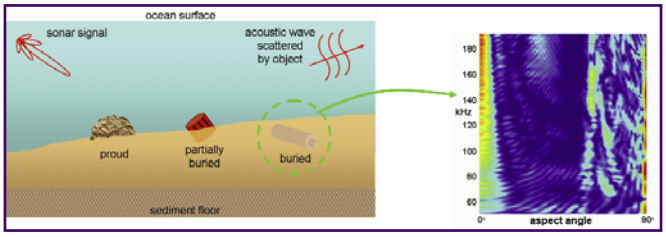
Principal Investigator: Kevin Williams/University of Washington

This project will use acoustic sonar in an underwater environment to acquire data on proud and buried munitions over a range of frequencies (1-30 kHz) and aspect angles. The acquired data will be used to develop an inventory of acoustic responses of munitions in an effort to validate propagation and scattering models, which will be implemented in finite element numerical codes. Results of this project will lead to improved acoustic sonar techniques for underwater UXO detection.

Sonar Detection and Classification of Underwater UXO and Environmental Parameters (MM-1666)

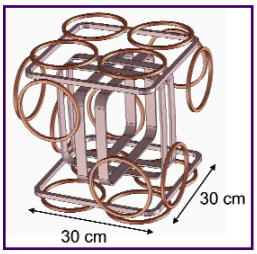
Principal Investigator: Raymond Lim/Naval Surface Warfare Center Panama City Division

Leveraging ongoing Navy-sponsored sonar tests, this project will collect data to further the model validation needed to keep the Navy's Personal Computer Shallow Water Acoustic Toolset (PCSWAT) up to date for underwater UXO applications. As part of the model validation, researchers will investigate environmental parameters required as model inputs, clues in sonar signals that could be used to classify detected UXO, and the influence of environmental factors on the robustness of these clues. Researchers also will develop classification and identification algorithms.



Handheld UXO Discriminator (MM-1667)

Principal Investigator: Erika Gasperikova/Lawrence Berkeley National Laboratory



The objective of this project is to design and fabricate a prototype handheld UXO discriminator, including integrated data acquisition and interpretation software. The handheld discriminator will be based on the successful Berkley UXO Discriminator (BUD) cart-mounted system developed under ESTCP project MM-0437. The handheld BUD system will be well suited for areas with difficult terrain and vegetation or small areas where cart-mounted systems are impossible to use.

Detection and Classification of Buried UXO and Determination of Seafloor Parameters in Littoral Environments Using Resonance Scattering Sonar (MM-1668)

Principal Investigator: Roland Gritto/Array Information Technology, Inc.

This project will investigate the use of low-frequency resonance sonar for locating and characterizing UXO buried in the seafloor. Researchers initially will determine whether resonance-scattered waves can be observed in a small data set collected by a sonar platform in a controlled pond environment. If successful, this technique can be applied to field situations using current sonar technologies.

Advanced Signal Processing for Detailed Site Characterization and Target Discrimination (MM-1669)

Principal Investigator: Peter Weichman/BAE Systems

The objective of this project is to validate efficient physics-based forward and inverse modeling tools previously developed under SERDP project MM-1311. The modeling approach provides a detailed understanding of UXO-like target electrodynamics, clearly marking the fundamental modes of response at early, intermediate, and late times for a given transmitted field geometry. Discrimination algorithms also will be developed to make optimal use of the available data, reducing costs by decreasing false alarm rates.

ESTCP Demonstrations

Additional information on these efforts can be found at www.estcp.org under the Technologies *link.*

Next Generation Data Collection System for One-Pass Detection and Discrimination (MM-0908)

Principal Investigator: Stephen Billings/Sky Research, Inc.

This project will adapt the cued-interrogation array developed under ESTCP project MM-0601 (TEMTADS) for deployment in a one-pass detection and discrimination mode. Specific objectives include (1) determining the most effective transmitter configuration, sequence of transmitter excitations, and transmit waveform and decay period; (2) integrating TEMTADS and NovAtel Synchronized Position Attitude & Navigation (SPAN) positioning technology within a precision Data Acquisition System; (3) optimizing the processing, feature extraction, and discrimination of dynamically collected time-domain electromagnetic data; and (4) determining the cost-benefit trade-off between cued and one-pass detection and discrimination modes.

Man-Portable Electromagnetic Induction Array for UXO Detection and Discrimination (MM-0909)

Principal Investigator: Thomas Bell/SAIC

The objective of this project is to demonstrate and develop a dual mode (detection and classification) man-portable EMI sensor having the same physical configuration as the original EM61 (1 meter square, on wheels). In addition to detecting UXO as successfully as the EM61, the sensor will be able to reliably discriminate between UXO and clutter. Use of the dual mode sensor will lead to reductions in the false alarm rate and cost savings in UXO cleanup operations.

See FY 2009 MM INITIATIVES, page 6

FY 2009 Munitions Management Initiatives (continued)

Analysis of Multi-Axis, Multi-Coil Electromagnetic Induction Sensor Data for UXO Discrimination (MM-0910)
Principal Investigator: Dean Keiswetter/SAIC

Building on characterization and classification software for UXO applications designed, developed, and demonstrated under ESTCP project MM-0210, this project will demonstrate that data analysis routines embedded into commercial data processing and analysis software can utilize geophysical sensor data acquired by multi-axis and/or multi-coil EMI sensors to discriminate hazardous targets of interest (TOI) from nonhazardous non-TOI, based on inverted shape information. This project will enable calibration corrections to be developed for multiple state-of-the-art electromagnetic sensors.

Demonstration of the Laser Line Scan System for UXO Characterization (MM-0911)
Principal Investigator: Michael Putnam/Space and Naval Warfare Systems Center Pacific

The objective of this project is to demonstrate the ability of the SM-2000 Laser Line Scan System (LLSS) to produce high resolution images of the seafloor containing munitions and to provide ground truth data. The LLSS combines the efficiency and spatial coverage of a remote survey system with high underwater image resolution that optical imagers cannot produce. Conducting wide area assessment surveys of underwater munitions sites using this technology could lead to improved efficiencies.

Program Update

SERDP

SERDP released its FY 2010 Core Solicitation on November 6, 2008, and by the January 8, 2009 submission deadline, the Program Office received 276 private sector pre-proposals in response to the 14 Statements of Need (SON). The Program Office extended 115 requests for full proposals to the most qualified pre-proposals that met the relevance criterion. One hundred eleven full proposals from the private sector and 87 proposals responding to the federal Call for Proposals were received by March 12. In April, these private sector and federal proposals underwent an independent peer review evaluation with a subsequent review in June by the SERDP Technical Committees (STC).

SERDP also released its FY 2010 **S**ERDP **E**xploratory **D**evelopment (SEED) Solicitation on November 6. SEED efforts are high risk and potentially high payoff projects that last no longer than one year and cost less than $150,000. Thirty-nine SEED proposals responding to three SONs also were received by the March 12 deadline. These proposals underwent Staff review and were also reviewed at the STC proposal selection meetings in June. The STCs have made recommendations to the SERDP Executive Director for the FY 2010 Core and SEED efforts.

For further information on the SERDP solicitation process, visit www.serdp.org under *Funding Opportunities*.

ESTCP

The ESTCP FY 2010 Call for Proposals was issued on January 8, 2009, to DoD organizations soliciting pre-proposals in the four focus areas: Environmental Restoration, Munitions Management, Sustainable Infrastructure, and Weapons Systems and Platforms. A Call for Proposals to non-DoD federal organizations and a Broad Agency Announcement (BAA) for the private sector also solicited pre-proposals in five topics within the Environmental Restoration, Munitions Management, and Sustainable Infrastructure focus areas. By the March 5 deadline, 56 pre-proposals were submitted from DoD organizations, and 127 pre-proposals were received from non-DoD federal and private sector organizations. In June, the ESTCP Technical Committees (ETC) reviewed relevant pre-proposals and recommended successful proposers to submit full proposals in early August for further review by the ETCs in September.

For further information on the ESTCP solicitation process, visit www.estcp.org under *Opportunities*.

Recent Additions to the Online Library

New publications are now available in the SERDP and ESTCP Online Library (http://docs.serdp-estcp.org). Access them by entering the project number noted after the report title (e.g., 0125) under *Search Phrase*. Other documents may be accessed by entering an appropriate keyword or selecting relevant search filters.

Environmental Restoration

- Cost & Performance Report: Treatment of RDX & HMX Plumes Using Mulch Biowalls (ESTCP ER-0426)
- Cost & Performance Report: Demonstration of an Integrated Compliance Model for Predicting Copper Fate and Effects in DoD Harbors (ESTCP ER-0523)
- Final Report: Groundwater Chemistry and Microbial Ecology Effects on Explosives Biodegradation (SERDP ER-1378)
- Final Report: Biotic and Abiotic Attenuation of Nitrogenous Energetic Compounds (NEC) in Coastal Waters and Sediments (SERDP ER-1431)
- Final Report: Bioremediation Approaches for Treating Low Concentrations of N-Nitrosodimethylamine in Groundwater (SERDP ER-1456)
- Final Report: Direct Fixed-Bed Biological Perchlorate Destruction Demonstration (ESTCP ER-0544)
- User's Guide: Grenade Range Management Using Lime for Dual Role of Metals Immobilization and Explosives Transformation (ESTCP ER-0216)
- Emulsion Design Tool Kit and User's Guide: Development of a Design Tool for Planning Aqueous Amendment Injection Systems (ESTCP ER-0626)

Munitions Management

- Cost & Performance Report: Target Picking Methods for Magnetic Data (ESTCP MM-0502)
- Cost & Performance Report: Demonstration of an Enhanced Vertical Magnetic Gradient System for UXO (ESTCP MM-0633)
- Final Report: On-Time 3-D Time-Domain EMI and Tensor Magnetic Gradiometry for UXO Detection and Discrimination (SERDP MM-1328)
- Final Report: Active Tensor Magnetic Gradiometer System (SERDP MM-1514)
- Final Report: UXO Detection and Characterization in the Marine Environment (ESTCP MM-0324)
- Interim Report: Feature-Based UXO Detection and Discrimination at Badlands Bombing Range, South Dakota (ESTCP MM-0210)

ESTCP Wide Area Assessment Pilot Program

- Cost & Performance Report: Wide Area UXO Contamination Evaluation by Transect Magnetometer Surveys (ESTCP MM-0533)
- Cost & Performance Report: High-Density LiDAR and Orthophotography in UXO Wide Area Assessment (ESTCP MM-0534)
- Cost & Performance Report: Final Demonstration of Helicopter Multi-Towed Array Detection Systems (MTADS) Magnetometry Technology for the ESTCP Wide Area Assessment Pilot Program (ESTCP MM-0535)

Sustainable Infrastructure

- Cost & Performance Report: Low Impact Technologies to Reduce Pollution from Storm Water Runoff (ESTCP SI-0405)
- Final Report: An Integrated Approach to Understand Relationships Between Shallow Water Benthic Community Structure and Ecosystem Function (SERDP SI-1335)

Weapons Systems and Platforms

- Final Report: Electroactive Polymers as Environmentally Benign Coating Replacements for Cadmium Plating on High Strength Steels (SERDP WP-1411)
- Final Report: Infrared Reflectance Imaging for Environmentally Friendly Corrosion Inspection Through Organic Coatings (ESTCP WP-0407)

PARTNERS IN ENVIRONMENTAL TECHNOLOGY

STRATEGIC ENVIRONMENTAL RESEARCH AND DEVELOPMENT PROGRAM (SERDP)
&
ENVIRONMENTAL SECURITY TECHNOLOGY CERTIFICATION PROGRAM (ESTCP)

INFORMATION BULLETIN

SUMMER 2009 NUMBER 38

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FOR SERDP AND ESTCP

AUGUST 2009

August 6
Requested full proposals due for ESTCP FY 2010 solicitations

SEPTEMBER 2009

September 1-2
Munitions Management (MM) ESTCP Technical Committee (ETC) proposal selection meeting (closed meeting)

September 9-11
SERDP Scientific Advisory Board (SAB) meeting
Arlington, Virginia

September 15-17
Sustainable Infrastructure (SI) ETC proposal selection meeting (closed meeting)

September 21-22
Weapons Systems and Platforms (WP) ETC proposal selection meeting (closed meeting)

September 23-25
Environmental Restoration (ER) ETC proposal selection meeting (closed meeting)

RELATED CONFERENCES & EVENTS

August 2-7
94th Annual Ecological Society of America Meeting
Albuquerque, New Mexico
For more information, visit www.esa.org/albuquerque.

August 9-12
GovEnergy 2009
Providence, Rhode Island
For more information, visit www.govenergy.com.

August 9-14
2009 Sustaining Military Readiness Conference
Phoenix, Arizona
For more information, visit www.smrconference.com.

August 24-27
The UXO/Countermine/Range Forum™ 2009
Orlando, Florida
For more information, visit www.theforum2009.com.

INFORMATION BULLETIN

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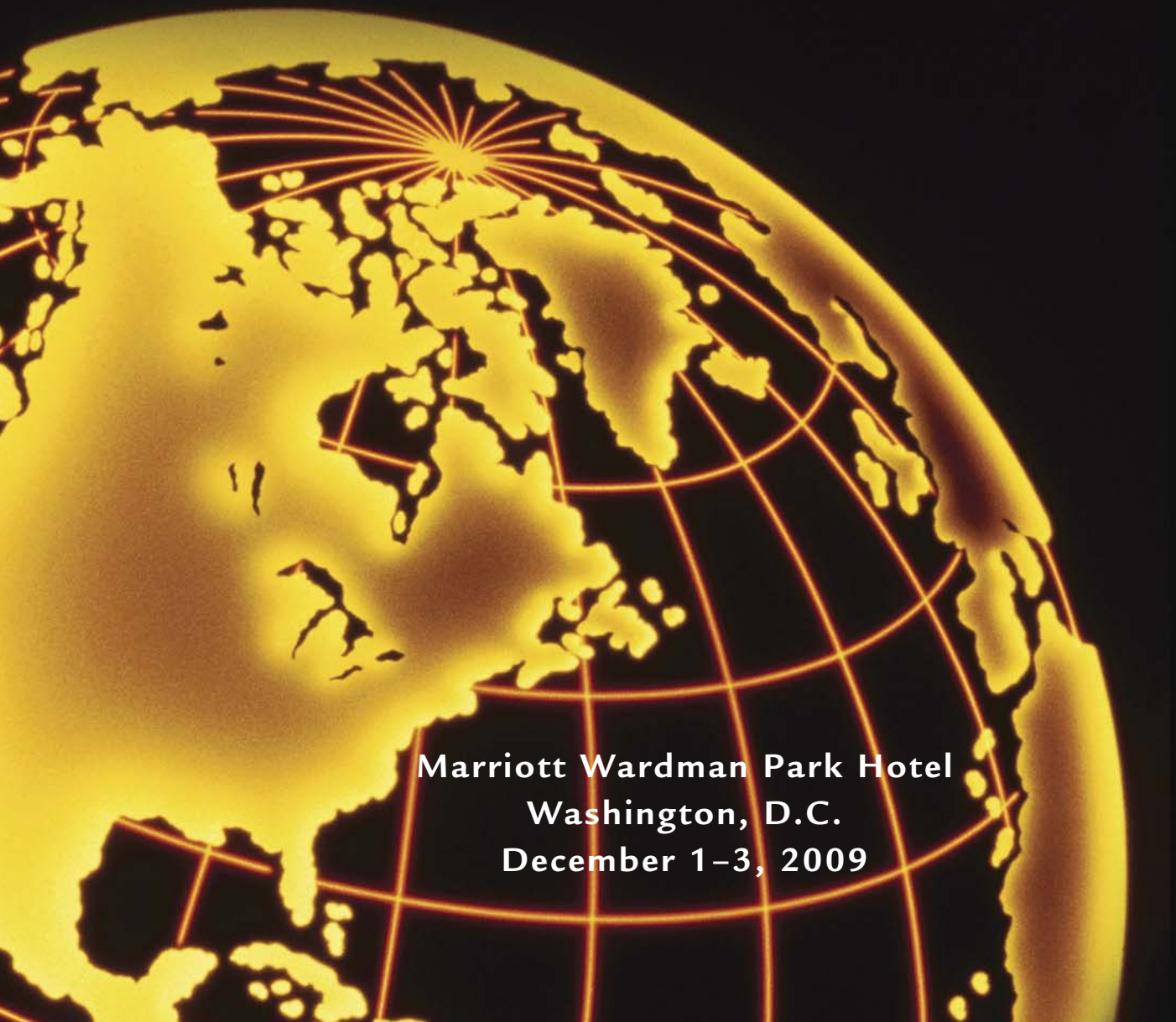
Partners in Environmental Technology Technical Symposium & Workshop

Meeting DoD's Environmental Challenges



Marriott Wardman Park Hotel
Washington, D.C.
December 1–3, 2009

Partners in Environmental Technology Technical Symposium & Workshop

This year's Symposium & Workshop will offer a dynamic opening Plenary Session, a comprehensive technical program that includes 11 technical sessions and five short courses, and an Exhibit Hall showcasing innovative environmental research and technology demonstrations. A special session providing a summary of SERDP and ESTCP funding opportunities will also be offered. Throughout the three-day event, attendees will have many opportunities to network with more than 1,000 environmental professionals from the government, academic, and private sectors.

PLENARY SESSION

The Symposium & Workshop will commence on Tuesday morning with presentations by distinguished Plenary Session speakers, including Lieutenant General Robert Van Antwerp, U.S. Army Chief of Engineers and Commanding General of the U.S. Army Corps of Engineers, and Dr. Peter Kareiva, Chief Scientist and Director of Science for The Nature Conservancy, who will discuss emerging environmental challenges facing DoD. Also, as part of the Plenary Session, SERDP and ESTCP Principal Investigators who have helped DoD achieve its mission while improving its environmental performance will be honored as the SERDP and ESTCP Project-of-the-Year Awards are announced.

TECHNICAL SESSIONS

Concurrent technical sessions will cover a variety of scientific and technical subjects. Following are this year's topics.

- Amendments for Contaminated Sediment Caps
- Field Applications of Advanced Diagnostic Tools
- Risk-Based Contaminant Management on Active Training Ranges
- Classification Methods for Military Munitions Response *(Two-Part Session)*
- Ecology and Management of DoD Coastal and Estuarine Ecosystems
- Challenges Associated with Regional Predictions of Climate Change Impacts
- DoD Greenhouse Gas Emissions: Land Use and the Installation Carbon Footprint
- Aircraft Emissions: Future Impacts and Alternative Fuels
- Emerging Contaminants – From Assessment to Action
- Environmentally Sustainable Energetics

SHORT COURSES

Short courses on select technologies and alternative approaches in environmental restoration and munitions management will offer unique training opportunities on recent advancements in science and technology. Following are this year's short course topics.

- Geophysical System Verification – Alternative to Geophysical Prove-Outs (GPO)
- Visual Sample Plan – Unexploded Ordnance Module
- Long-Term Monitoring Optimization
- Tools for Management of Chlorinated Solvent-Contaminated Sites
- Multi-Increment Sampling (MIS) Applications for Environmental Remediation

Professional Development Hours (PDH) will be available for short course attendance.

OTHER HIGHLIGHTS

Symposium & Workshop attendees will have access to:

- 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

Register Now!

Advance Registration Deadline is November 18

For the most up-to-date information on the technical program or to register, visit www.serdp-estcp.org/symposium.