For more than 50 years, perchlorate has been used as an oxidizer component in rockets, missiles, and pyrotechnics by the Department of Defense (DoD), National Aeronautics and Space Administration (NASA), and defense contractors. Because of perchlorate’s high solubility and its chemical stability in water, these and other non-military sources of perchlorate have resulted in widespread contamination of drinking water in the United States. With increasing state and federal regulatory pressure to clean up perchlorate in groundwater and drinking water to low part-per-billion (ppb) levels, the potential costs associated with perchlorate remediation are estimated to be in the billions of dollars.

Through ESTCP support, an innovative ion exchange process using weak base anion (WBA) resin technology to remove perchlorate has demonstrated impressive results. The process completely removed perchlorate at commercial water treatment rates with the treated water meeting all drinking water quality guidelines. Moreover, the WBA resin was efficiently regenerated without degradation of performance, and an economical “zero-discharge” process for scavenging perchlorate was used to treat spent regenerant.

The perchlorate ion exchange process jointly developed by Applied Research Associates, B

PARTNERS IN ENVIRONMENTAL TECHNOLOGY

TECHNICAL SYMPOSIUM & WORKSHOP

Meeting DoD’s Environmental Challenges
December 4–6, 2007
Marriott Wardman Park Hotel ♦ Washington, D.C.
Sponsored by SERDP and ESTCP

Comprehensive technical sessions will highlight research and innovative technologies that assist the DoD in addressing increasingly complex environmental challenges. The preliminary list of technical sessions includes the following:

- Groundwater Remediation: Engineering In-Situ Delivery and Treatment
- Wellhead Treatment of Perchlorate
- Diagnostic Tools for Contaminant Remediation
- Near- and Long-Term Management Strategies for Range Contaminants
- Munitions Response: Innovative Sensor Technologies
- Munitions Response: Taking Technology to the Field
- Environmental Impact of Fuel Use in Military Engines (Parts I and II)
- Advances in Green Energetics and Processes
- Sustainable Forest Management on DoD Lands
- Umbrella Approaches to Species and Habitat Management
- Environmental Issues Associated with Deployed Bases and Forces

Online registration is now available, and a block of hotel rooms has been set aside for attendees at the government per diem rate. For details on registration and hotel reservations as well as the latest event information, visit http://www.serdp-estcp.org/symposium or call (703) 736-4548 for assistance.
Inc. (ARA) and The Purolite Company (patent-pending) uses Purolite WBA resin (D-4170), which is regenerable as well as perchlorate-selective. The ion exchange process takes advantage of the pH-dependent nature of WBA resins. At low pH, functional groups on these resins are ionized (R-NH\(_3^+\)) and capable of performing anion exchange. However, at high pH, the resin functional groups lose a proton and are uncharged (R-NH\(_2\)), permitting rapid and complete regeneration with very high chemical efficiency. As a result, regeneration of perchlorate-selective D-4170 resin is up to 50 times more efficient than regeneration of strong base anion (SBA) resin, which typically generates more than 1% (volume) perchlorate-contaminated waste brine that requires disposal.

The WBA resin technology was successfully demonstrated for groundwater remediation and drinking water applications at two sites under ESTCP project Perchlorate Removal, Destruction, and Field Monitoring Demonstration (ER-0312):

- At Redstone Arsenal in Huntsville, Alabama, the WBA resin ion exchange process effectively reduced perchlorate in groundwater from 2,200 ppb to less than 4 ppb during a 15-week demonstration and was not impacted by trichloroethene (TCE) present at concentrations up to 3,100 ppb. Multiple regenerations of the resins were conducted to demonstrate repeatable performance and minimization of spent regenerating solution to less than 0.02% to 0.05% of the treated water volume, representing a 20- to 50-fold improvement over state-of-the-art methods. The spent regenerating solution was treated with biodegradation and a zero-discharge scavenging process.

- At well site F17 in Fontana, California, the perchlorate concentration in treated drinking water was reduced from approximately 6 ppb to below the reporting limit (<0.10 ppb) of the analytical method. Commercial treatment rates were successfully demonstrated (3 and 4 gpm/ft\(^3\)). The ion exchange resin was regenerated using a volume of regenerating solution less than 0.05% of the treated water. Perchlorate in the spent regenerating solution was reduced to below detectable limits using the zero-discharge scavenging process.

Using the WBA resin ion exchange process to treat perchlorate has proven efficient and economical, resulting in a 75% cost savings over current regenerable resin technology such as the ISEP process and up to a 50% savings over single-use resin processes. Treatment cost using the WBA resin process is less than $100 per acre-foot. Water quality parameters—alkalinity, perchlorate concentration, sulfate and nitrate concentration, and the required treated water alkalinity—can affect cost and performance.

Ion exchange using perchlorate-selective WBA resin is effective for remediating high concentrations of perchlorate contamination in groundwater and for treating drinking water. The WBA resin technology overcomes issues typically associated with regenerable ion exchange processes by greatly reducing the volume of spent regenerating solution produced, which permits use of the zero-discharge perchlorate scavenging process and results in lower operations and maintenance (O&M) costs.

Improved remediation technologies such as perchlorate-selective WBA resin ion exchange have the potential to provide significant cost savings for DoD at its perchlorate-impacted sites.

For additional information, please contact Mr. Edward Coppola (ecoppola@ara.com) or Ms. Andrea Davis (adavis@ara.com), Applied Research Associates, Inc., at (850) 914-3188.
Ultra-High-Strength Steel, Ferrium S53, Now Licensed for Production

In February 2007, Carpenter Technology Corporation and QuesTek Innovations LLC entered into a license agreement whereby Carpenter will produce and market QuesTek’s Ferrium S53 alloy ultra-high-strength steel developed with SERDP and ESTCP support. This stainless steel alloy has mechanical properties equivalent to 300M steel but does not require coatings containing cadmium, a human carcinogen, for corrosion protection. Being mechanically equivalent to current high-strength steel makes Ferrium S53 much stronger than any stainless steel currently on the market. Since Ferrium S53 is inherently corrosion resistant, occupational safety and health issues as well as production and maintenance costs associated with the use of cadmium are eliminated. Ferrium S53 is being demonstrated at Hill Air Force Base (AFB) in Utah for use on aircraft landing gear and gear actuators. The Ferrium S53 alloy also will be considered for other aerospace structural components and fasteners.

The challenge of identifying a steel alloy that provides the high strength necessary for aerospace applications and offers adequate corrosion protection was addressed through innovative research and technology demonstrations supported by SERDP and ESTCP. In 2000, SERDP initiated a proof-of-concept effort (WP-1149) to design and develop a prototype for a corrosion-resistant high-strength steel that would reduce DoD’s use of cadmium coatings. Using its Materials by Design® technology, QuesTek developed Ferrium S53, a stainless steel alloy that met U.S. Air Force specifications for use in aircraft landing gear. The Materials by Design® technology uses advanced computational materials modeling methods to support development of metal alloys in a fraction of the time and at substantially lower cost than traditional methods. Based on the success of the proof-of-concept effort, SERDP funded a follow-on project (WP-1224) that further characterized the mechanical properties of Ferrium S53 and its ability to function on structural aircraft components. In addition, researchers developed standards for producing the alloy and manufacturing parts as well as overhaul and repair processes. With ESTCP support, the technology is being demonstrated on aircraft landing gear (WP-0304) and rotary gear actuators (WP-0619) at Hill AFB. As an alternative to 300M steel for aircraft landing gear, tests have shown that the mechanical properties, machining and processing properties, and corrosion resistance of Ferrium S53 are meeting the requirements of the U.S. Air Force. Ferrium S53 landing gear components are currently in production for demonstration on A-10 aircraft.

For additional information on Ferrium S53, please refer to the SERDP and ESTCP Online Library at http://ldocs.serdp-estcp.org. Relevant fact sheets and reports can be accessed by entering “steel” as the Search Phrase.

Seed Production Under Way for Military-Resilient Grass Cultivars

Resilient cultivars of three western range grasses able to withstand disturbance by tracked and wheeled military vehicles and, in some cases, to resist invasive plants are now transitioning to field use. The new cultivars of the native slender and western wheatgrasses and introduced Siberian wheatgrass were developed by the U.S. Department of Agriculture-Agricultural Research Service (USDA-ARS) and the U.S. Army Corps of Engineers Engineer Research and Development Center (ERDC)-Cold Regions Research and Engineering Laboratory (CRREL) with support from SERDP (SI-1103). ESTCP provided additional funding for field demonstration, cost analysis, and seed production for use on military facilities (SI-0401). Free seed is available for military facilities, and commercial seed production has begun.

The recently released ‘FirstStrike’ slender wheatgrass was identified for persistence and overall plant vigor in response to drought. Slender wheatgrass is one of the first natives to become established after a mixed seeding, providing good early cover. The ‘FirstStrike’ cultivar originated in seed collections from Colorado and Wyoming and showed more favorable characteristics than other slender wheatgrass cultivars. It has been evaluated extensively on rangeland sites in the western United States and found to have seedling establishment superior to the most commonly available commercial cultivar, ‘Pryor.’

The new western wheatgrass cultivar was bred for rapid emergence and seedling vigor. Although western wheatgrasses often are limited by slow emergence rates, they are tolerant to military training activities; thus, the more rapid emergence of the new cultivar should make it more desirable for military training lands. A full release of the western wheatgrass cultivar is expected late in 2007, but seed is available now for use at military facilities.

The new Siberian wheatgrass cultivar originated from ‘Vavilov’ and collections from western Kazakhstan. It has more rapid seedling emergence and plant vigor compared to the original breeding population, making this new variety an ideal choice for areas that require annual rehabilitation because of intensive military training. Although an introduced species, the Siberian wheatgrass cultivar does not constitute a threat to behave as an invasive species. It has not yet been formally released, but seed is available for planting.

Seed for large-scale demonstrations on military installations is being grown at the USDA Plant Material Center in Aberdeen, Idaho, and is currently available for shipping to DoD facilities within the intermountain west. To expand implementation, seed for the ‘FirstStrike’ slender wheatgrass is now in commercial production. Similar production is anticipated for the other two cultivars. Using guidance developed at CRREL, military land managers will be able to seed less frequently because of increased establishment rates and better resiliency, enhance methods for controlling invasive species, arrange training schedules more effectively, and reduce cost and time requirements for maintaining and sustaining military training lands.

For additional information, please contact Mr. Antonio Palazzo, U.S. Army Corps of Engineers ERDC-CRREL, Hanover, New Hampshire, at (603) 646-4374 or via e-mail at antonio.j.palazzo@erdc.usace.army.mil.
SERDP and ESTCP initiatives for **Weapons Systems and Platforms** focus on characterizing and reducing the environmental impact of producing, maintaining, and using Department of Defense weapons systems. Researchers funded by SERDP in 2007 are developing environmentally friendly methods to reduce aircraft noise, produce energetics through biosynthesis, and repair high temperature composite materials, as well as improving our understanding of the formation of particulate matter emissions from high-performance aircraft engines. ESTCP investigators are demonstrating innovative alternatives to replace use of hexavalent chromium in coatings, lead and perchlorate in energetics, and traditional fuels in tactical vehicles. Results from these initiatives will provide DoD with several important benefits, including a reduction in hazardous waste from certain industrial and maintenance processes, increased performance of targeted weapons systems, cost savings from replacing environmentally harmful substances, and compliance with more stringent environmental regulations.

**SERDP Research**

Additional information on these efforts can be found at [www.serdp.org](http://www.serdp.org) under the Research Projects link.

**Predictive Chemical and Statistical Modeling of Particulate Matter Formation in Turbulent Combustion with Application to Aircraft Engines (WP-1574)**

Principal Investigator: Heinz Pitsch/Stanford University

The objective of this project is to advance the predictive capability of soot models with application to military-type aircraft gas turbine engines. The comprehensive soot model will be validated in large-eddy simulations of soot formation in actual aircraft engine combustor geometries. The availability of computational methods to predict soot formation in military aircraft engines will enhance understanding of soot formation and oxidation processes and lead to reduced emissions from future engines.

**Aromatic Radicals-Acetylene Particulate Matter Chemistry (WP-1575)**

Principal Investigator: Kenneth Brezinski/University of Illinois at Chicago

The objective of this project is to advance the predictive capability of soot models with application to military-type aircraft gas turbine engines. The comprehensive soot model will be validated in large-eddy simulations of soot formation in actual aircraft engine combustor geometries. The availability of computational methods to predict soot formation in military aircraft engines will enhance understanding of soot formation and oxidation processes and lead to reduced emissions from future engines.

**Effects of Soot Structure on Oxidation Kinetics (WP-1576)**

Principal Investigator: JoAnn Lighty/University of Utah

The objectives of this project are to (1) determine the effect of the structure of soot, as influenced by the fuel composition and soot temperature history, on the rate of soot oxidation; (2) quantify the role of internal surface area on the soot reactivity; and (3) develop power-law kinetic correlations for soot oxidation as a function of temperature, oxygen, and time for soots of different structures and porosity. Results will elucidate the kinetics as a function of soot structure and internal surface area, enabling more accurate model predictions of soot formation/oxidation in full-scale systems.

**Combustion Science to Reduce Particulate Matter Emissions for Military Platforms (WP-1577)**

Principal Investigator: Mel Roquemore/Air Force Research Laboratory

This project will establish the fundamental science needed to develop and validate soot models for realistic fuels and aid in obtaining substantial reductions of PM2.5 emissions from current and future military gas turbine engines. Results will include (1) an experimental database for validation of kinetic and soot models; (2) evaluations of three or more “full” chemistry/soot mechanisms for JP-8 and alternate fuels with identification of the most accurate mechanisms and refinement of the kinetics models for the best soot mechanism; and (3) two validated research codes, UNICORN (UNsteady Ignition and COmbustion using ReactioNs) for predictions based on “full” chemistry and a design code for predicting soot emissions from combustors burning practical fuels.

**Predicting the Effects of Fuel Composition and Flame Structure on Soot Generation in Turbulent Non-Premixed Flames (WP-1578)**

Principal Investigator: Christopher Shaddix/Sanda National Laboratories

Through an integrated measurement and modeling effort focused on turbulent, non-premixed flames relevant to military gas turbine engines, this project will develop a predictive capability to assess specific fuel composition and engine operation effects on soot formation. The reduced chemical and soot models to be developed can be used by engine manufacturers and DoD personnel using standard computational fluid dynamic (CFD) models to predict soot emissions from gas turbine engines.

**She1f-Stable Adhesive for Reduction of Composite Repair to Hazardous Waste (WP-1579)**

Principal Investigator: Robert Kovar/Infoscitex Corporation

The objective of this project is to demonstrate the feasibility of producing an extended shelf-life and environmentally compliant, epoxy-based composite repair material that can be engineered into films, resin pastes, and liquid shim adhesives. These composite repair materials will be shelf-stable at ambient temperature until intentionally activated immediately prior to use. A composite repair system using this technology will significantly minimize uncured and cured composite scrap waste, reduce regulatory compliant and expensive disposal of expired/uncured materials, provide further reduction in waste by not producing water-induced delamination and damaging parts that occur when repairs are made at high temperatures, and not release any volatile organic compounds (VOC) or hazardous air pollutants (HAP) during its application or use.

**Environmentally Benign Repair of Composites Using High Temperature Cyanate Ester Nanocomposites (WP-1580)**

Principal Investigator: Michael Kessler/Iowa State University

This project will design and evaluate a new class of environmentally benign, low viscosity resins reinforced with nanosize alumina particles for the repair of advanced composites. This technology will reduce the environmental hazards associated with current composite repairs and open up new repair opportunities specifically for high temperature composites, such as bismaleimide (BMI) matrix composites.

**Near-Infrared Radiation-Based Composite Repair Using Thermoplastics as Adhesives (WP-1581)**

Principal Investigator: Shridhar Varlagadda/University of Delaware

In support of composite joining and repair, the objective of this project is to evaluate the feasibility of using thermoplastics as adhesives instead of standard thermosets using near-infrared (NIR) PIWave welding technology.
Thermoplastics eliminate the generation of VOCs and HAPs, have infinite shelf lives, and have no storage restrictions or disposal issues. Thermoplastics provide the unique capability to bond and debond repair patches.

**Manufacture of TATB and TNT from Biosynthesized Phloroglucinols (WP-1582)**
Principal Investigator: John Frost/Draths Corporation
The objective of this project is to use biosynthesis techniques to synthesize TATB and TNT in an environmentally acceptable, cost-effective manner from domestically produced renewable feedstocks. Methylated phloroglucinols will be the starting materials for environmentally benign syntheses of TATB and TNT. Establishing these biosynthetic techniques will result in a reduced hazardous waste stream in the production of TNT and will provide DoD with a domestic production source for TATB.

**Reduction of Advanced Military Aircraft Noise (WP-1583)**
Principal Investigator: Philip Morris/Pennsylvania State University
This project will identify and test promising noise reduction concepts for military aircraft engines and develop an improved fundamental understanding of the source mechanisms in military aircraft engines. Benefits will include the evaluation of noise reduction concepts for advanced military aircraft engines, the development of a methodology for scaling military aircraft engine noise from models to full scale, and the establishment of design tools for high performance military aircraft noise reduction.

**Mechanical Chevrons and Fluidics for Advanced Military Aircraft Noise Reduction (WP-1584)**
Principal Investigator: Kazhikathra Kailasanath/Naval Research Laboratory
The objectives of this project are two fold—first, to develop a physical understanding of the mechanisms of noise production and identify noise sources when a military aircraft engine is operating at ideal and non-ideal conditions (over- and under-expanded nozzle exhaust) and second, to develop three fluidically based noise reduction techniques that can supplement or enhance the effects of mechanical chevrons. This project will significantly advance the understanding of noise production under non-ideal operating conditions of a supersonic jet. In addition, the potential for fluidic-based techniques to reduce the noise from supersonic aircraft will be quantified.

**New Reactive Diluents for an Environmentally Efficient Approach to Composite Repair (WP-1596)**
Principal Investigator: Michael Wright/Naval Air Weapons Station China Lake
This SEED project will demonstrate the feasibility of using phenyl ether-based reactive diluents to eliminate or reduce VOCs and reduce styrene content in vinyl polyester resins. In addition, this project will develop a photo-initiated curing process as a first step in increasing DoD’s flexibility in composite repair strategies. Elimination of styrene will make composite repair systems stronger, safer, and more environmentally benign.

**ESTCP Demonstrations**

Additional information on these efforts can be found at [www.estcp.org](http://www.estcp.org) under the Technologies link.

**Lead-Free Ballistic Modifier for Rocket Motor Propellants (WP-0727)**
Principal Investigator: Darren Thompson/Aviation and Missile Research, Development and Engineering Center
This project will demonstrate and validate a lead-free ballistic modifier for rocket motor propellants. The non-lead catalyst includes a combination of aluminum, bismuth, and carbon black compounds. Integration of a lead-free modifier will have a positive economic impact through a reduction in reporting cost, waste stream, and occupational exposure liabilities. Additionally, exposure to lead exhaust will be eliminated and DoD’s burden from disposal of excess propellant and out-of-shelf-life motors will be reduced.

**Demonstration of Biodiesel in Ground Tactical Vehicles and Equipment (WP-0728)**
Principal Investigator: David Cook/Naval Facilities Engineering Service Center
The use of biodiesel in selected tactical vehicles and equipment would improve fuel supply security and operational flexibility, reduce greenhouse gas and regulated air emissions, potentially reduce long-term fuel cost, and represent a first step toward developing sustainable tactical training operations. The objective of this project is to determine if existing fuel management technologies and procedures can satisfy the minimum engineering requirements for using biodiesel blends in DoD ground tactical vehicles and equipment. The project also will determine whether available technologies sufficiently manage biodiesel stability, high/low temperature properties, and water affinity concerns.

**Medium Caliber Lead-Free Electric Primer (WP-0729)**
Principal Investigator: Robert Brewer/Naval Air Systems Command, Weapons Division
This project will investigate the use of benign and non-harmful nanoparticle metastable interstitial composite (MIC) materials as alternatives to the lead found in currently operational electric primers used in medium caliber ammunition. Elimination of materials such as lead and barium will reduce health hazards, and the successful introduction of a lead-free primer into DoD’s ordnance inventory will lead to reductions in life-cycle costs.

**Elimination of Perchlorate Oxidizers from Pyrotechnic Flare Compositions (WP-0730)**
Principal Investigator: Robert Shortridge/Naval Surface Warfare Center, Crane Division
The objective of this project is to demonstrate improved, perchlorate-free pyrotechnic compositions for colored flares that produce equal or superior emission intensities in the appropriate spectral regions. These flare compositions will eliminate the adverse impact to the environment of perchlorate during manufacturing and testing. Elimination of perchlorate from these compositions also will enable the military to continue to train using flare devices and will lead to a reduction in future remediation costs.

**Joint DoD Demonstration and Validation of Magnesium Rich Primer Coating Technology (WP-0731)**
Principal Investigator: Joel Johnson/Air Force Research Laboratory
This project will evaluate and qualify the on-aircraft performance of a magnesium-rich primer as part of a complete non-chrome coating system for corrosion protection of DoD aircraft. Significant reductions in environmental impact will result from the elimination of toxic hexavalent chromium species in current painting and depainting operations. An additional benefit is the capability to meet new reductions in the hexavalent chromium personnel exposure limit by the Occupational Safety and Health Administration.
Program Development Update

SERDP
Following the independent peer review of the 177 full proposals received in response to the FY 2008 SERDP Core Solicitation, 95 were forwarded for review to the SERDP Technical Committees (STC) in May. The STCs reviewed these proposals in May and June, along with 17 of the 53 proposals received in response to the FY 2008 SERDP Exploratory Development (SEED) Solicitation. The STC downselect meetings were held in June, and recommendations have been made to the SERDP Executive Director for the FY 2008 Core and SEED efforts.

The FY 2009 SERDP Core Solicitation and SEED Solicitation currently are under development and will be released on or around November 8. Refer to www.serdp.org under the Funding Opportunities link for specifics about the solicitations and deadlines.

ESTCP
Of the 287 pre-proposals received in response to the ESTCP FY 2008 Call for Proposals and Broad Agency Announcement, the ESTCP Technical Committees (ETC) reviewed 146 relevant pre-proposals during April and May. Their recommendations on pre-proposals that merit full proposal requests were made in May and early June. In June, 63 proposers were requested to submit full proposals due by August 9. In September, these proposers will be asked to present their proposals to the ETCs, which will make recommendations for funding to the ESTCP Director.

Bruce Sartwell Replaces Charles Pellerin as Weapons Systems and Platforms Program Manager

After more than 8 years with SERDP and ESTCP as Program Manager for Weapons Systems and Platforms (WP)—formerly Pollution Prevention—and 33 years with the United States Air Force, Mr. Charles (Chuck) Pellerin is retiring from federal service. Mr. Pellerin has been actively involved in SERDP since its inception, having served as the Air Force representative to what is now the WP SERDP Technical Committee (STC) before becoming the Program Manager. While he will certainly be missed, we wish him well in his future endeavors!

The role of Program Manager for Weapons Systems and Platforms will be filled by Mr. Bruce Sartwell. Mr. Sartwell joins SERDP and ESTCP from the Naval Research Laboratory where he has been a manager of environmental programs for the past 13 years. During that time, he was the lead principal investigator of several successful SERDP and ESTCP efforts. Mr. Sartwell earned his Master of Science Degree in Materials Engineering at the University of Maryland. He can be reached at (703) 696-2128 or at Bruce.Sartwell@osd.mil. Please join us in welcoming Bruce to the SERDP and ESTCP team.

Congratulations to . . .

SERDP Scientific Advisory Board Member Dr. Perry McCarty of Stanford University who was named the 2007 Stockholm Water Prize Laureate for “pioneering work in developing the scientific approach for the design and operation of water and wastewater systems.” The Stockholm Water Prize—a global award that annually recognizes an individual, organization, or institution for outstanding water-related activities—will be presented to Dr. McCarty on August 16 during the 2007 Water Week in Stockholm, Sweden. In its accolades, the award Citation further noted that “he has established the role of fundamental microbiology and chemistry in the design of bioreactors. Professor McCarty has defined the field of environmental biotechnology that is the basis for small-scale and large-scale pollution control and safe drinking water systems.”

ESTCP Principal Investigator Dr. El Sayed Arafat of the Naval Air Warfare Center Aircraft Division who was selected to receive the American Society of Naval Engineers’ (ASNE) 2006 Solberg Award for his significant contributions to naval engineering, including development of the high-performance corrosion preventive compound Navguard. Navguard reduces the use of hazardous materials and heavy metals during the maintenance of weapon systems, reduces the cost of maintaining aircraft systems, and extends the life of aging aircraft platforms. With ESTCP support, Dr. Arafat is now demonstrating Navguard on multiple aircraft platforms to facilitate implementation across the military Services. The 2006 Solberg Award was presented to Dr. Arafat on June 26 during the ASNE Annual Meeting in Arlington, Virginia.

Chuck Pellerin (right) welcomes Bruce Sartwell to the SERDP and ESTCP Program Office staff.
Recent Additions to the Online Library

The following are a sample of new publications now available in the SERDP and ESTCP Online Library (http://docs.serdp-estcp.org). Access them by entering the project number (e.g., 0125) under Search Phrase. Other documents may be accessed by entering a keyword or selecting the relevant search filters.

Environmental Restoration

• Cost & Performance Report: Demonstration of Bioaugmentation at Kelly Air Force Base, Texas (ESTCP ER-9914)
• Cost & Performance Report: In-Situ Substrate Addition to Create Reactive Zones for Treatment of Chlorinated Aliphatic Hydrocarbons (ESTCP ER-9920)
• Final Report: In-Situ Enhancement of Anaerobic Microbial Dechlorination of Polychlorinated Dibenzo-p-dioxins and Dibenzofurans in Marine and Estuarine Sediments (SERDP ER-1208)
• Final Report: Pathway Ranking for In-Place Sediment Management (SERDP ER-1209)
• Final Report: Sequential Electrolytic Degradation of Energetic Compounds in Groundwater (SERDP ER-1234)
• Final Report: Reaction and Transport Processes Controlling In Situ Chemical Oxidation of DNAPLs (SERDP ER-1290)
• Final Report: Mass Transfer from Entrapped DNAPL Sources Undergoing Remediation: Characterization Methods and Prediction Tools (SERDP ER-1294)
• Final Report: Lanthanide-Containing Cyclophanes for the Detection of Explosives and Propellants (SERDP ER-1418)
• Final Report: Novel Electrochemical Process for Treatment of Perchlorate in Wastewater (SERDP ER-1433)

Munitions Management

• Final Report: A New Sensor Based Upon a Rotating-Coil Electromagnetic Induction Concept (SERDP MM-1447)
• Final Report: Dredging Equipment Modifications for Detection and Removal of Ordnance (ESTCP MM-0321)
• Final Report: Coaxial EMI Sensor for UXO Detection and Discrimination (ESTCP MM-0418)
• Interim Field Test Report: Predicting the Mobility and Burial of Underwater Unexploded Ordnance (UXO) Using the UXO Mobility Model (Field Research Facility in Duck, NC) (ESTCP MM-0417)

ESTCP Wide Area Assessment Pilot Program

• Conceptual Site Model: Pueblo Precision Bombing & Pattern Gunnery Range #2
• Conceptual Site Model: Victorville Precision Bombing Range—Demolition Bombing Target “Y” and Precision Bombing Range Target 15
• Interim Report: Application of Statistically Based Site Characterization Tools to the Pueblo Precision Bombing and Pattern Gunnery Range #2 (ESTCP MM-0325)
• Interim Report: Application of Statistically Based Site Characterization Tools to the Victorville Precision Bombing Range Y and 15 for the ESTCP Wide Area Assessment Demonstration (ESTCP MM-0325)
• Interim Report: WAA Man-Portable EM Demonstration Data Report—Wide Area UXO Contamination Evaluation by Transect Magnetometer Surveys at Victorville Precision Bombing Ranges Y and 15 (ESTCP MM-0533)

Weapons Systems and Platforms

• Final Report: Benzylamine-Free, Heavy Metal-Free Synthesis of CL-20 (SERDP WP-1518)
• Final Report: Replacement of Chromium Electroplating on Hydraulic Actuators Using HVOF Thermal Spray Technology (ESTCP WP-0038)
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<td><strong>August 9</strong></td>
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<td>Requested full proposals due for ESTCP FY 2008 solicitations</td>
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<tr>
<td>Weapons Systems and Platforms (WP) ESTCP Technical Committee (ETC) Proposal Selection Meeting (closed meeting)</td>
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<td><strong>September 11-13</strong></td>
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<tr>
<td>SERDP Scientific Advisory Board (SAB) Meeting Arlington, Virginia</td>
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<td><strong>September 17-19</strong></td>
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<td>Munitions Management (MM) ESTCP Technical Committee (ETC) Proposal Selection Meeting (closed meeting)</td>
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<td><strong>September 19-21</strong></td>
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<td>Sustainable Infrastructure (SI) ESTCP Technical Committee (ETC) Proposal Selection Meeting (closed meeting)</td>
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<td><strong>September 24-26</strong></td>
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<tr>
<td>Environmental Restoration (ER) ESTCP Technical Committee (ETC) Proposal Selection Meeting (closed meeting)</td>
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<tr>
<td><strong>August 5-10</strong></td>
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<tr>
<td>Ecological Society of America (ESA)/Society for Ecological Restoration (SER) International Joint Meeting San Jose, California For more information, visit <a href="http://www.esa.org/sanjose/registration.php">http://www.esa.org/sanjose/registration.php</a>.</td>
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<tr>
<td><strong>October 22-26</strong></td>
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<td>Interstate Technology &amp; Regulatory Council (ITRC) Fall Meeting San Antonio, Texas For more information, visit <a href="http://www.itrcweb.org/">http://www.itrcweb.org/</a>.</td>
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