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On January 12, ESTCP released its FY 2013 Environmental Technologies Solicitation, which is open to federal organizations, universities, and private industry. Pre-proposals are due March 15, 2012. Coming soon, on or about February 2, ESTCP will release an FY 2013 Installation Energy Solicitation. ESTCP demonstrations are conducted at DoD facilities and sites to document improved efficiency, reduced liability, improved environmental outcomes, improved energy security, and cost savings.

SERDP is seeking innovative science and technology proposals for the detection, classification, and remediation of military munitions underwater through its FY 2013 SERDP Exploratory Development (SEED) Solicitation. Proposals are due March 8, 2012.

More information on these funding opportunities is available at www.serdp-estcp.org/Funding-Opportunities.

DoD Study Finds 7,000 Megawatts of Solar Energy Potential on Installations in Mojave Desert

The Department of Defense could generate 7,000 megawatts of solar energy—equivalent to the output of seven nuclear power plants—on four military bases located in the California desert, according to a study released by DoD's Office of Installations and Environment. The year-long study, conducted by ICF International, looked at seven military bases in California and two in Nevada. It finds that, even though 96 percent of the surface area of the nine bases is unsuited for solar development because of military use, endangered species and other factors, the solar-compatible area is nevertheless large enough to generate more than 30 times the electricity consumed by the California bases or about 25 percent of the renewable energy that the State of California is requiring utilities to use by 2015. Developing solar, wind, geothermal, and other distributed energy sources on DoD's bases will reduce its $4 billion-a-year energy bill and its dependence on the commercial electricity grid. Full Article
DoD Announces New Installation Energy Technology Demonstrations for FY 2012

ESTCP has awarded 27 new projects to demonstrate emerging energy technologies on military installations through its Installation Energy Test Bed initiative. This initiative plays a key role in testing, evaluating, and scaling up innovative new energy technologies to improve the department's energy security and reduce its facility energy costs. The 27 projects were competitively selected from the 575 proposals submitted by private firms, universities, and federal organizations. The awards cover five areas: smart microgrids and energy storage to increase the energy security of DoD's installations; advanced component technologies to improve building energy efficiency; advanced building energy management and control technologies; tools and processes for design, assessment, and decision-making associated with energy use and management; and technologies for renewable energy generation on installations. Project Descriptions

Symposium Highlights Science and Technology Advances and Challenges for the Environment, Energy, and Security

"In short, the defense sector is a crucial player in the Obama administration's national strategy of innovation to address energy and climate challenges. What you are doing in this domain is immensely important. It is the leading edge, and the White House very much appreciates it." With these remarks, Dr. John Holdren, Assistant to the President for Science and Technology and Director of the White House Office of Science and Technology Policy, praised attendees at the Partners in Environmental Technology Technical Symposium & Workshop for their dedication and achievements.

Dr. Holdren was one of three distinguished speakers at the opening plenary session of the annual conference, which continues to draw more than 1,200 environmental professionals from the military, government agencies, academia, private industry, and the regulatory community. Joining him were The Honorable Terry Yonkers, Assistant Secretary of the Air Force for Installations, Environment, and Logistics, and Dr. Naomi
Oreskes, historian of science and author of Merchants of Doubt, How a Handful of Scientists Obscured the Truth on Issues from Tobacco to Global Warming.

L to R: The Honorable Terry Yonkers, Dr. John Holdren, and Dr. Naomi Oreskes

Four SERDP Project-of-the-Year Awards and one ESTCP Project-of-the-Year Award were presented at the conference in recognition of research and technology developments with significant benefits to DoD. Descriptions of these award-winning efforts spanning threatened and endangered species management, UXO discrimination, particulate matter emissions, vapor intrusion, and contaminated sediments are provided in the articles that follow. The principal investigators and their teams recognized with these awards along with more than 450 other poster presenters and 11 exhibitors were on hand during networking sessions held throughout the conference in the Exhibit Hall.

The Symposium technical program offered 15 technical sessions and four short courses. The technical sessions highlighted research and innovative technologies that are helping DoD address complex environmental challenges such as energy efficiency and security, emissions from gas turbine engines, controlling munitions constituents on operational ranges, classification of military munitions, and climate change vulnerabilities and impacts. Short courses in the environmental restoration and munitions response areas provided unique training opportunities on recent advances in science and technology.

Presentations from the plenary session, technical sessions, and short courses are available at http://symposium2011.serdp-estcp.org. Coming soon to the web site are on-demand videos from the four short courses—Implementing Classification on a Munitions Response Project, Estimating DNAPL Source Zone Natural Attenuation, Thermal Treatment Technologies: Lessons Learned, and Field Methods to Distinguish between Vapor Intrusion and Indoor Sources of VOCs.

The recent Symposium & Workshop was held November 29 - December 1, 2011, in Washington D.C. The 2012 event is scheduled for November 27-29 also in Washington. Full Article

Forecasting the Effects of Stressors on At-Risk Species
At-risk species often face multiple interacting threats or stressors, such as invasive species, pollution, habitat loss and fragmentation, and disease. In the coming years, climate change will be a significant additional stressor. To improve management of species facing multiple threats, SERDP investigators have developed a flexible, spatially explicit population model designed to simulate a wide range of species in complex and changing landscapes. They applied this model to three at-risk populations on three military installations—the red-cockaded woodpecker at Fort Benning, Georgia; the desert tortoise at Fort Irwin, California; and the black-capped vireo at Fort Hood, Texas. Importantly, the model advances the ability to forecast the effects of multiple, interacting stressors and, in so doing, will enhance the military's ability to manage plant and animal populations while sustaining training and other essential activities.

For this significant work, Dr. Joshua Lawler of the University of Washington and his team were selected to receive a SERDP Project-of-the-Year Award at the 2011 Partners in Environmental Technology Technical Symposium & Workshop. Full Article

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Advanced Signal Processing for UXO Discrimination

Recently developed advanced electromagnetic induction (EMI) sensors record detailed responses from buried targets and have the potential to improve classification of unexploded ordnance (UXO) from harmless pieces of metal. The traditional models used to analyze sensor data, however, are unable to exploit all the information available from these sensors. SERDP investigators have developed sophisticated, physically complete models that extract more meaningful parameters from advanced sensor data for classification. Using these models, demonstrators achieved near perfect classification at the former Camp Butner in North Carolina. These new models applied to advanced EMI sensor data significantly improve the ability to distinguish UXO from clutter, reducing munitions response costs and accelerating the cleanup process.

Dr. Fridon Shubitidze of Dartmouth College and Sky Research, Inc. along with his colleagues received a SERDP Project-of-the-Year Award at the 2011 Partners in Environmental Technology Technical Symposium & Workshop for this outstanding work. Full Article
Reducing Emissions for Jet Engines of the Future

Gas turbine engines are a source of particulate matter emissions, a substantial fraction of which consist of soot particles with diameters of less than 2.5 microns, or PM2.5, that are subject to regulation under the National Ambient Air Quality Standards. Designing engines in a way that reduces their emissions is a daunting challenge given the complexity of the underlying chemical and physical processes of soot formation. To advance the fundamental science relevant to the formation of PM2.5, SERDP investigators conducted experiments and simulations to understand the chemistry, fluid dynamics, and thermodynamics of particle formation in high-performance engines and validated models that can be used to estimate soot and other emissions for gas turbine combustors. This improved understanding of soot formation will ultimately enable jet engine manufacturers to design and build engines that emit less pollution.

For this groundbreaking work, Dr. Mel Roquemore of the Air Force Research Laboratory and his extensive team from academia, industry, and government laboratories were selected to receive a SERDP Project-of-the-Year Award at the 2011 Partners in Environmental Technology Technical Symposium & Workshop. Full Article

Assessing Vapor Intrusion at Chlorinated Solvent Sites

Military installations and surrounding communities across the nation are affected by groundwater contaminated with chlorinated solvents. In recent years, concerns have grown over the migration of contaminated vapors from these groundwater plumes into people’s homes. The risk from vapor intrusion, however, is a
complex process that can be influenced by many variables. Accurately predicting exposure is critical to protecting human health. SERDP investigators have successfully linked laboratory-scale research and modeling studies with an integrated field-scale assessment in a home next to Hill Air Force Base to understand and deal with the impacts of real-world issues affecting vapor intrusion. This research has generated the knowledge and methods needed to more accurately and cost-effectively assess the groundwater-to-indoor air pathway, the driver for many Department of Defense cleanup actions, and improve DoD's ability to protect the health of families living on or near bases contaminated with chlorinated solvents.

Dr. Paul Johnson of Arizona State University and his team received a SERDP Project-of-the-Year Award at the 2011 Partners in Environmental Technology Technical Symposium & Workshop for this significant work. Full Article

Passive Sampling of Contaminated Sediments

DoD manages hundreds of contaminated sediment sites in bays, harbors, lakes, wetlands, and rivers. Historically, regulators and site managers have assessed these sites by measuring how much of a specific chemical is present in the sediment. However, total concentrations are poorly correlated with toxic impacts. ESTCP investigators have demonstrated and validated a commercially viable, simple passive sampler that can measure the fraction of the chemical that can be taken up by an organism. This accurate and robust technique can be employed to characterize the risk of contaminants entering the food chain. It provides significant savings in manpower, number of days in the field, equipment, and shipping costs as compared to traditional sampling methods. Beyond cost reduction, it will help guide remediation efforts to target the real risk and thus improve the health of the environment at sediment sites across DoD and the nation.

For this important work, Dr. Philip Gschwend of the Massachusetts Institute of Technology and his team were selected to receive a SERDP Project-of-the-Year Award at the 2011 Partners in Environmental Technology Technical Symposium & Workshop. Full Article
ASETSDefense Workshop on Alternatives to Cadmium Plating Leads to Dem/Val Funding Opportunity

After decades of investments by the Department of Defense and aerospace companies, environmentally friendly alternatives to cadmium (Cd) plating used for corrosion protection of weapons systems components are now moving toward production. In August 2011, SERDP and ESTCP sponsored an ASETSDefense workshop to apprise attendees of the emerging Cd plating alternatives, arrive at a collective understanding of the related issues, define requirements for various applications, and help coordinate future RDT&E efforts to bring the best options to production. Based on the results of this workshop, ESTCP is now soliciting proposals for funding in FY 2013 for the demonstration and validation of alternatives to Cd plating in manufacturing and maintenance of weapons systems. [Full Article]

SERDP and ESTCP Program Update

SERDP

SERDP released a Federal Call for Proposals and a Broad Agency Announcement (BAA) for its FY 2013 Core Solicitation on October 27, 2011. By the January 5, 2012, deadline, the Program Office received 364 pre-proposals responding to 10 Statements of Need (SON). SERDP Staff have reviewed these pre-proposals and in early February will extend requests for full proposals to investigators who submitted the most qualified pre-proposals. Full proposals that are requested will be due March 8, 2012.

On October 27, SERDP also released its FY 2013 SERDP Exploratory Development (SEED) Solicitation with one SON in the Munitions Response program areaâ€”"Improvements in the Detection, Classification, and Remediation of Military Munitions Underwater. Full proposals responding to this SEED SON are due March 8, 2012. The SEED program is designed to investigate innovative approaches that entail high technical risk or require supporting data to provide proof
of concept. SEED projects are limited to not more than $150,000 and approximately one year in duration.

Visit www.serdp-estcp.org/Funding-Opportunities/SERDP-Solicitations for additional information.

**ESTCP**

The FY2013 ESTCP Environmental Technologies Solicitation was released on January 12, 2012, requesting proposals for demonstration of environmental technologies. The BAA and Non-DoD Federal Call for Proposals solicit pre-proposals in the following five topic areas:

- Management of Contaminated Groundwater
- Characterization, Control, and Treatment of Testing and Training Range Contamination
- Military Munitions Detection, Classification, and Remediation
- Watershed Management Models/Tools for DoD Installation Applications
- Demonstration/Validation of Alternatives to Cadmium Plating in Manufacturing and Maintenance of Weapons Systems

The DoD Call for Proposals solicits pre-proposals in Environmental Restoration, Munitions Response, Resource Conservation, and Weapons Systems and Platforms. **Pre-proposals are due March 15, 2012.**

**Coming Soon!** The FY 2013 ESTCP Installation Energy Solicitation will be released on or about February 2, 2012.

For details, visit www.serdp-estcp.org/Funding-Opportunities/ESTCP-Solicitations.

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**Coastal and Estuarine Research Federation Recognizes Dr. Hans Paerl with Lifetime Achievement Award**

Congratulations to SERDP Principal Investigator Dr. **Hans Paerl**, William R. Kenan Distinguished Professor of Marine and Environmental Sciences at The University of North Carolina's Institute of Marine Sciences, who was awarded the Coastal and Estuarine Research Federation's (CERF) Odum Award. This award recognizes the lifetime achievement of an outstanding estuarine scientist whose sustained accomplishments have made important contributions to the understanding of estuaries and coastal ecosystems. Dr. Paerl was recognized by CERF at its 21st Biennial Conference, held in Daytona Beach, Florida, for four decades of work to clarify the causes, consequences, and mitigation of harmful algal blooms in estuarine and coastal environments. His recent efforts have focused on global change. Dr. Paerl is engaged in SERDP's Defense Coastal/Estuarine Research Program at Marine Corps Base Camp Lejeune.
Congratulations to ESTCP investigators **Hua Cai**, **Alessia Eramo**, **Patrick Evans**, **Rodney Fricke**, and **Rachel Brennan** who were awarded the prestigious McKee Groundwater Protection, Restoration, or Sustainable Use Award by the Water Environment Federation (WEF). This award recognizes significant contributions to groundwater science or engineering research published in a WEF or WEF Member Association periodical. The team was recognized at the WEF 84th annual technical exhibition and conference in Los Angeles, California, for a thesis paper written by Hua Cai of The Pennsylvania State University that detailed work performed under ESTCP project **In Situ Bioremediation of Perchlorate in Vadose Zone Soil Using Gaseous Electron Donors (ER-200511)**. In this project, CDM used its patented gaseous electron donor injection technology to demonstrate that indigenous bacteria in soil will consume perchlorate and nitrate in the presence of injected hydrogen gas. Addressing source contamination in soil leaching to groundwater is key to effectively remediating perchlorate in the environment.