SERDP
Strategic Environmental Research and Development Program
ESTCP

INFORMATION B•U•L•L•E•T•I•N

SPRING 2001
NUMBER 8

INSIDE THIS ISSUE

PARTNERS IN ENVIRONMENTAL TECHNOLOGY

TECHNICAL SYMPOSIUM & WORKSHOP

CALL FOR POSTER ABSTRACTS

Both federal and non-federal submitters will be considered.

There are a limited number of spaces available to display poster presentations of technologies that relate to the Symposium & Workshop technical session topics (See Symposium Announcement at right). If you are interested in being considered for poster space, please refer to the abstract guidelines that are posted at www.serdp.org or www.estcp.org.

Abstracts are due August 24, 2001.

There is no additional charge for poster space.

SERDP and ESTCP Teams Selected for Prestigious Awards

Joint Green Bullet Team Earns Hammer Award

With co-sponsorship from SERDP and ESTCP leveraged with Army funding, the Army's Green Bullet Program is seeking to eliminate lead completely from small caliber ammunition. Leadership and oversight of this Program rests with the Joint Working Group for Non-Toxic Ammunition. On January 30 in a Pentagon ceremony, Maj. Gen. Robert L. Van Antwerp, Jr., U.S. Army Assistant Chief of Staff for Installation Management, presented former Vice President Al Gore's Hammer Award to the Joint Working Group for its efforts in developing lead-free cores for small caliber projectiles. Joint Working Group members participating in the ceremony were the U.S. Army Tank-Automotive and Armaments Command (TACOM-ARDEC); U.S. Army Environmental Center; Department of Energy - Oak Ridge National Laboratory; Naval Surface Warfare Center-Crane, IN; U.S. Army Operations Support Command, Alliant Techsystems – Lake City Army Ammunition Plant; U.S. Army Center for Health Promotion & Preventive Medicine; U.S. Army Training Support Center; and U.S. Army Materiel Command. The Joint Working Group was honored for its contribution in developing bullets for 5.56mm, M855 ammunition which consist of a tungsten-nylon or tungsten-tin core and which are benign to the environment. The Army expects to transition completely the production of 5.56mm, M855 ammunition to lead-free projectiles by FY05. This success has resulted in plans to expand the technology to other small calibers such as 7.62mm and 9mm. The introduction of green ammo significantly supports installations by minimizing the environmental impacts of lead contamination on military ranges.

The Hammer Award recognizes teams of federal employees and their partners whose work shows results that make the government work better and cost less.

See AWARDS, page 4

THE PARTNERS IN ENVIRONMENTAL TECHNOLOGY TECHNICAL SYMPOSIUM & WORKSHOP

"Building on Past Successes to Address Emerging Issues"

November 27-29, 2001
Marriott Wardman Park Hotel ❖ Washington, D.C.

This year's technical program will feature comprehensive sessions that will illustrate how the Department of Defense is addressing emerging environmental issues by building on past successes in the development of innovative environmental technologies. Take a look at the list of planned technical sessions....

- **Demonstrations of Emerging Unexploded Ordnance (UXO) Technologies**
- **Novel Technologies and Data Processing to Locate and Discriminate Buried Unexploded Ordnance (UXO)**
- **Impact of Energetic Materials on Ranges**
- **Remediation/Site Characterization of Energetic Materials**
- **Remediation of Chlorinated Solvents: DNAPL Bioremediation**
- **Remediation of Chlorinated Solvents: Electron Donor Delivery Systems**
- **Cleaning and Inspection of Weapons Systems**
- **Estuarine Water and Sediment Quality**
- **Encroachment--Ecological Forecasting**
- **Marine Mammal Protection**
- **Design for Maintainability**
- **Environmentally Friendly Corrosion Protection**

For updated Symposium information, visit one of our web sites or call (703) 736-4548 for assistance.

S·U·C·C·E·S·S STORIES

SERDP-funded research and development efforts and ESTCP-funded demonstration and validation activities continue to provide a rapidly increasing number of outstanding technical advances. These developments are highly important and relevant to the Department of Defense (DoD), Department of Energy (DOE), Environmental Protection Agency (EPA), and many other user communities.

SERDP
Strategic Environmental Research and Development Program

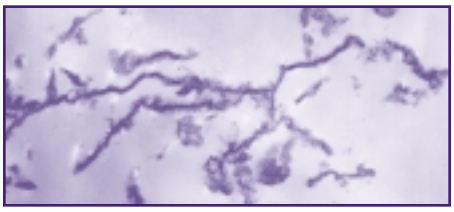
SUCCESS STORY

SERDP Project Taps Potential for Non-VOC Adhesives

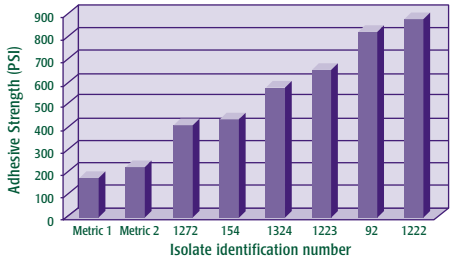
Polymeric adhesives are used in a variety of joining applications for both the military and civilian sectors. Common applications are the bonding of elastomeric components such as gaskets and seals to structures and the securing of identification tags to equipment. These adhesives often include 25–75 percent volatile organic compounds (VOC) for viscosity adjustment. However, VOCs pose significant environmental and health hazards. In 1995 in the United States, approximately 716,000 metric tons of toxic VOCs were released during the application of adhesives (EPA-600/R-98-055). As recent as 1996, federal facilities alone released more than one million pounds of three VOCs commonly used in adhesives—methyl ethyl ketone, toluene, and xylene.

Presidential Executive Order 12856 Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements mandated a significant reduction in toxic releases from federal facilities. The development of non-VOC adhesives would eliminate associated costs for compliance, clean up, and health care and the extra costs for handling the flammable VOC adhesives. To address this issue, SERDP has sponsored several projects under its Pollution Prevention Technology Thrust Area. One of these projects, PP-1139: *Non-Structural Adhesives Requiring No VOCs*, is evaluating VOC-free biological adhesives as alternatives to conventional formulations.

Adhesion is a process common in multi-cellular and communal organisms. Research on mussels and barnacles has revealed natural adhesives with remarkable properties. However, the multi-component, complex nature of these adhesives has stymied large-scale, economical production. Bacteria, however, offer simple systems with polymer production regulated by only a handful of genes. Through SERDP sponsorship, a research team led by the Montana Biotech Corporation is examining a large number of bacteria for their ability to produce non-VOC adhesives. To date, Montana Biotech researchers have identified six bacteria that produce materials with excellent adhesive properties.



Electron micrograph of adhesive



Flatwise tension test results for 2024 milled aluminum bolts joined with adhesive produced by six separate organisms. Two commercially available adhesives (Metric 1 and Metric 2) included for comparison.

Interaction of microscopic fibrils (see electron micrograph) provides strength to the adhesive (see bar graph). Tensile strength, as determined by flatwise tension testing, generally ranges from 400 to more than 800 psi and compares favorably with conventional adhesives. These values are dramatically increased from the maximum of 120 psi reported in the Spring 2000 *Information Bulletin*. Improvements may be attributed to the use of different organisms, new media formulation, and process development. Using inexpensive sources of nutrients, non-pathogenic bacteria provide an effective microbial adhesive production process with no harmful VOCs.

Until now, flatwise tension testing has been conducted primarily on aluminum-aluminum interfaces, but preliminary work on plastics, including diallylphthalate (DAP), acrylonitrile-butadiene-styrene (ABS), and chopped glass and glass laminate composites shows promising results. Shear and peel tests currently are under way. Shear testing is designed to investigate the properties of an adhesive in the plane of the bond, while peel testing will provide information about the behavior of an adhesive along a line of failure as two bonded materials are pulled apart.

The Montana Biotech team has been successful in laboratory scale-up. Large-scale preparation of microbial products involves well-established and inexpensive technologies widely used in such industries as food and fine chemicals. Therefore, the final product to help solve the VOC problem is expected to be cost competitive when

See NON-VOC ADHESIVES, page 3

SERDP
Strategic Environmental Research and Development Program

SUCCESS STORY

Passive Diffusion Membrane Sampler Technology Successfully Demonstrated at McClellan NETTS

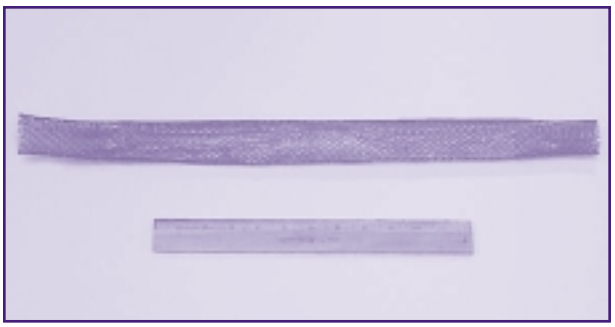
Researchers at SERDP's National Environmental Technology Test Site (NETTS) at McClellan Air Force Base (AFB) recently completed a full-scale demonstration of an innovative approach for collecting groundwater samples using passive diffusion membrane groundwater samplers developed by the U.S. Geological Survey (USGS). The technology uses a low-density, water-filled polyethylene diffusion membrane to collect groundwater samples for volatile organic compound (VOC) analysis. The membrane allows VOCs in contaminated groundwater to diffuse into the initially uncontaminated deionized water sealed within the membrane. The 1.5-foot long samplers are attached to a weighted rope, lowered into a groundwater monitoring well, and left in place for a minimum of 14 days to attain VOC equilibrium between well water and the deionized water within the samplers. Upon recovery, the samplers are cut open and samples poured into standard 40-milliliter sample vials for submission to a lab for VOC analysis.

Initially, the USGS conducted a limited field evaluation of its technology at the McClellan NETTS location. Based on the preliminary success of this demonstration, the McClellan staff developed a detailed experimental design and work plan to evaluate the cost and performance of the diffusion sampler technology. The evaluation consisted of a side-by-side comparison of the diffusion samplers to conventional purge-and-sample methods currently employed at most locations including McClellan AFB. The field work and laboratory analyses were performed concurrently with the McClellan AFB Second Quarter 1999 Groundwater Monitoring Program sampling event.

Overall, the evaluation concluded that the VOC concentrations reported in the diffusion samplers were statistically equivalent to the conventional sampling results. In many cases, the diffusion sampler results provided data that appear to be more representative of the true nature of VOC contamination in the groundwater immediately adjacent to the well screen. Since this is a passive sample collection technique, significant cost savings can be achieved primarily as a result of the decrease in labor required for purging during sampling events. When compared to conventional groundwater purge-and-sample collection techniques, the diffusion samplers have demonstrated the potential to save between $275 per sample, when purge water can be treated on-site, and $600 per sample when purge water must be disposed of off-site. It should be noted that these cost savings are applicable only to wells that do not require sampling for nonvolatile compounds such as metals.

The diffusion sampler devices tested at McClellan Air Force Base were provided by the USGS, but several vendors recently have been granted licensing rights to commercialize the samplers. Based upon the results of these two studies, McClellan NETTS staff have proven that the diffusion samplers are ready for commercialization. McClellan AFB has received approval to implement the use of diffusion samplers by Region IX of the U.S. Environmental Protection Agency, the State of California Department of Toxic Substances Control, and the State of California Central Valley Regional Water Quality Control Board. The first full-scale implementation of diffusion samplers at McClellan AFB occurred in August 2000. Results of the demonstration can be found on-line at http://www.afbca.hq.af.mil/mcclellanem.

For additional information, please contact Mr. Tim Chapman, McClellan AFB NETTS, CA, at (916) 643-0830 Ext. 412 or via e-mail at timothy.chapman@mcclellan.af.mil. ◆



Diffusion membrane sampler size as compared to standard ruler pictured at bottom

NON-VOC ADHESIVES, from page 2

the benefits are calculated. In addition, numerous Department of Defense (DoD) facilities utilizing large amounts of high-VOC adhesives must use expensive air filtration and cleaning systems. Non-VOC alternatives will provide energy savings, decrease capital equipment expenditures, reduce health-care expenses, and cut the costs associated with environmental compliance.

Plans call for the analytical testing and laboratory-scale trials to be complete in about one year. In the meantime, Montana Biotech has begun to identify the most significant DoD applications where non-VOC adhesives would be most helpful. The goal is to ensure that the adhesives meet the appropriate Military Specifications and to initiate field testing.

For more information about this project, please contact Joan Combie, Montana Biotech Corporation, Belgrade, MT, at (406) 388-0942 or via e-mail at montana@montanabiotech.com. ◆

Program Development Update

Proposal activity is at its peak for both SERDP and ESTCP as each Program recently received proposals from a variety of solicitations that will be funded by both FY 2001 and 2002 appropriations.

SERDP

Congress added funds in FY 2001 to SERDP to improve our understanding of the impacts of energetic materials on our military training and testing ranges (Live Fire). Another Congressional addition was authorized for SERDP to examine the impact of perchlorate on ecosystems so as to assist Department of Defense (DoD) facilities in dealing with this difficult problem. SERDP has placed the Live Fire and Perchlorate proposal solicitation, review, and selection processes on a fast track to ensure that FY 2001 funds are obligated and expended in a timely manner.

Core proposals in response to the FY 2002 New Start solicitation have been received and are now in the final stages of independent peer review. SEED (**S**ERDP **E**xploratory **D**evelopment) proposals have been reviewed and will be evaluated along with the Core proposals at the multi-agency Technology Thrust Area Working Group (TTAWG) meetings in early June. Live Fire proposals have been peer reviewed and sent to the SERDP Scientific Advisory Board (SAB) for its final technical review prior to funding approval. Allowing for the contracting process, funding should be released for these new projects in June. Meanwhile, Perchlorate proposals are undergoing peer review and are scheduled to go before the SAB at its June meeting. (See the SERDP web site for all review meeting schedules.) Funding for these projects could be released by August.

The table below outlines proposals received versus Statements of Need (SON) for each solicitation.

Solicitation	Core	SEED	Live Fire	Perchlorate
Proposals Received	140	91	43	14
# of SONs	17	7	3	1

ESTCP

In three separate Calls for Proposals, ESTCP solicited proposals from DoD, non-DoD federal organizations, and non-federal organizations. Sixty-three preproposals were submitted by the non-DoD federal and non-federal sectors on March 15th. Each preproposal has been screened for relevance and submitted to the ESTCP Cleanup and UXO Review Committees for evaluation in June. Successful candidates will be provided DoD liaisons that can help identify a demonstration site at an appropriate DoD facility. These liaisons also help develop a responsive proposal that will be briefed to and reviewed by the appropriate ESTCP Review Committee in the August time frame.

DoD proposals were due on April 12. ESTCP received a variety of proposals from Army, Air Force, and Navy installations; Engineering Service Centers; and Service laboratories. The ESTCP Review Committees will evaluate these "Phase I" proposals in June, and successful bidders will be asked to present a detailed briefing to this Committee in August. ◆

AWARDS, from page 1

Composite Repair and Manufacturing Team Receives R&D Award

Under SERDP support, U.S. Army Research Laboratory (ARL) engineers have developed a new class of toughened E-beam resins that exceeds the properties of the existing thermally cured counterparts and offers the potential to reduce DoD hazardous wastes by 50 percent and VOC and NO_x emissions by up to 95 percent. On December 13, 2000, the ARL team of Dr. James Sands, Dr. Steven McKnight, and Dr. Bruce Fink received the Army's Research & Development Achievement Award for 2000 at the Army Science Conference held in Baltimore, MD, for the design of novel electron beam processed composite repair adhesives. The materials are known as interpenetrating polymer network (IPN) resins. The toughened-IPN resins were fashioned into an E-beam curable adhesive paste for metal-to-metal, composite-to-composite, and metal-to-composite bonding. By applying known toughening strategies to IPN formulations, the E-beam cured IPN adhesive performance was improved more than 100 percent compared to baseline, and aluminum-aluminum adhesive strengths reached 4800psi which exceeds the intra-laminar strength of IM7/977-3 composite test specimens. The IPN adhesive strength is on par with commercially available aerospace film adhesives, such as Cytec's FM300 and FM73. The IPN adhesives for advanced E-beam curing are one specific example of material product forms that can be generated from this new class of resins providing improved product shelf life. Experiments have shown that performance of the adhesive lasts 22 months when it is sealed and stored at ambient temperatures. These new materials will serve as the foundation for the manufacture of future lightweight composite structures. ◆

Ecological Modeling Workshop Provides Groundwork for Literary Endeavor

A group of senior ecological modelers and ecological resource managers from the Forest Service, Department of Defense, other federal and state agencies, universities, and the private sector met this past October to identify the necessary science and technology investments and approaches that are required to increase the usefulness of ecological modeling for management decisions. The workshop, *Effective Use of Ecological Modeling in Management*, was held in Oak Ridge, Tennessee, and was co-sponsored by SERDP, the Army Research Office, the Engineering Research and Development Center of the U.S. Army Corps of Engineers, and the U.S. Department of Agriculture Forest Service. The Department of Energy's Oak Ridge National Laboratory hosted the event.

An offshoot of the workshop was the framework for a book that will explore the role of ecological modeling in resource management. Many of the workshop discussions focused on the gaps between the state of the art in ecological modeling and the state of the practice in using the outcomes of models as decision aids for management deliberations. The design of the proposed book mirrors the layout of the workshop which consisted of an introduction that identifies the goals of the workshop/book and probes the sometimes unsuccessful interface between models and decision making, presentations of success stories, and a synopsis of breakout groups that address key aspects of integrating ecological modeling into resource management decision making.

During the workshop, the participants, who represented a cross-section of the ecological modeling community and users, articulated the need for models to address environmental management issues. They also discussed the importance of human values and patterns of resource use influencing the need for models to assist in the decision-making process. The presentation of success stories addressed common themes such as *How does the modeling effort appear to be a success from the perspective of the scientist, an on-the-ground resource manager, and a decision maker?* and *What aspects make it a success and what aspects do not?* Success stories included models dealing with (1) impacts on fish populations; (2) large-scale regional assessments as exemplified by the Southern Appalachian Assessment (SAA); (3) the recovery of the Gray Wolves in the Great Lakes Region; and (4) the development of alternative future scenarios for the Upper San Pedro River Watershed in Arizona and the Sonora Desert Region in Arizona and Mexico. These examples provide a means to integrate ecological modeling and policy decision making related to impacts from changing patterns in resource use.

The workshop format provided for five breakout groups focused on examining the future challenges in the use of models in environmental management and the ways to meet those challenges. Breakout groups addressed the following: science and management investments needed to enhance the use of ecological modeling and decision making; evolving approaches and technologies that will enhance the role of ecological modeling in decision making; barriers to the use of models in decision making; data issues; and the tool box concept or using a set of modeling tools to facilitate the use of ecological models for management.

The workshop results will form a book that will highlight the outcome of discussion from the workshop and, in addition, will offer a primer on ecological modeling to address the elements of modeling, functional types of models, major aspects of model development, and a brief history of ecological modeling. Such a book will be of interest to a wide audience, including members of the practitioner community; academia; students of resource management; government agency workers; policy and staff analysts; private landowners; and non-governmental associations (e.g., The Nature Conservancy, Audubon Society, League of Cities, and Association of Counties).

Central to the effort of the workshop and proposed book is the recognition that ecological models are a key component of environmental security. The goal of the workshop was to raise this awareness and offer background and vision to tackle the future challenges in ecological modeling and natural resource management. The proposed book will be an important contribution to the literature, building on existing work and offering the latest insights and approaches from leading experts in the field.

For additional information on the workshop and specific products resulting from the workshop, please contact Dr. Virginia H. Dale, Environmental Sciences Division, Oak Ridge National Laboratory, Oak Ridge, TN, at (865) 576-8043 or via e-mail at dalevh@ornl.gov. ◆

F ◆ A ◆ Q s

from SERDP and ESTCP Principal Investigators

SUBJECT: SERDP PEER-REVIEW PROCESS

Q: *How are peer reviewers utilized in SERDP?*

A: Each year SERDP has an open solicitation in multiple technical areas. As part of this solicitation process, SERDP conducts an independent external peer review of all proposals that assists in identifying and selecting state-of-the-art research for environmental technologies. This peer-review process begins with the submittal of proposals via the Broad Agency Announcement (BAA) as well as the Federal Call for Proposals. (For further information on the solicitation process, see the *Funding & Opportunities* link on the SERDP web site www.serdp.org.) After an initial down select based on the relevance of a proposal to Department of Defense requirements, each proposal is forwarded for review to noted experts in the topic area of each solicitation. Each peer reviewer is tasked with providing SERDP a written critique of the proposals within his or her scope of expertise and scoring them based on pre-defined criteria, including technical merit, qualifications of the proposed research team, and transition potential. These peer reviewer comments and scores then are used as an aid in ranking the proposals, allowing SERDP to select the best qualified research proposals in a competitive manner and consider them for funding.

SUBJECT: UXO TEST SITES

Q: *What is the availability of standardized test sites for technologies focused on the detection and discrimination of Unexploded Ordnance?*

A: ESTCP has sponsored the development of a series of standardized test sites to allow UXO-related researchers to evaluate their technologies. This effort is being pursued under *ESTCP Project: The Standardized UXO Technology Demonstration Site Program* and managed by the U.S. Army Environmental Center. Detection and discrimination technologies that support characterization of UXO on Department of Defense ranges are affected by weather conditions, geology, site terrain, and vegetative cover. Consequently, the formation of standardized demonstration test sites for UXO technology will provide a platform for gathering data from different sensors, testing system performance, and ultimately comparing results under standardized site conditions. The UXO test sites will include standardized targets, protocols, and screening guidelines to aid technology developers with sensor testing and demonstration.

In order to satisfy both the research and development community as well as the technology demonstration community, the standardized test sites will be a combination of a calibration lane, a blind grid, and an open field. In the calibration lane, developers can test their sensors, adjust to site-specific parameters, and define the strength of the signal. The blind grid will be established for demonstrating sensors on a system without the corresponding platform, coordinate system, or operational problems. Performance of the entire system will be defined utilizing actual range operations in the open field.

At present, two installations have been chosen to host the first two standardized tests sites, namely Aberdeen Proving Ground (APG) and the Massachusetts Military Reservation (MMR). Knowledge gained through the initial demonstration at APG will be utilized at the second test site at MMR. Subsequent demonstration test sites are being evaluated. Overall, this ESTCP-funded program will ensure that critical UXO technology performance parameters such as detection capability, false alarm rates, discrimination, reacquisition, and system efficiency are determined with standardized test methodologies, procedures, and facilities.

For more information, please contact Mr. George Robitaille, U.S. Army Environmental Center, at (410) 436-6865 or via e-mail at George.Robitaille@aec.apgea.army.mil. ◆

Three New Members Join SERDP Scientific Advisory Board

SERDP recently welcomed three new members to its SAB–Dr. Ronald M. Heck, Dr. Carol J. Henry, and Dr. Michael C. Kavanaugh.

Dr. Heck is the Research & Development Manager for Environmental Technologies at Engelhard Corporation. He is actively involved in several professional organizations including the Society of Automotive Engineers and the American Institute of Chemical Engineers and has been a guest lecturer at Lehigh University, Tufts University, Rutgers University, and the New Jersey Institute of Technology. The 1999 recipient of the Society of Automotive Engineers' Forest R. McFarland Award and the author or co-author of 78 publications and 15 patents, Dr. Heck holds a Ph.D. in Chemical Engineering from the University of Maryland.

Dr. Henry is the Vice President of Science and Research for the American Chemistry Council formerly known as the Chemical Manufacturers Association. A past president of the American College of Toxicology, Dr. Henry's professional activities include membership on the National Research Council's Board on Environmental Studies and Toxicology and the Institute of Medicine's Roundtable on Environmental Health Sciences. The 1998 recipient of the Vice President's Hammer Award for the U.S. Department of Energy's Environmental Management Science Program, she is a diplomate of the American Board of Toxicology. The author or co-author of 14 book chapters, 24 journal articles, and more than 130 presentations and abstracts, Dr. Henry holds a Ph.D. in Microbiology from the University of Pittsburgh.

Dr. Kavanaugh is the Vice President of Malcolm Pirnie, Inc. In addition to his many professional affiliations, he was elected to the National Academy of Engineering in 1998, and in 1994, he was named as one of the top 25 news makers by *Engineering News Record*. Dr. Kavanaugh holds a Ph.D. in Civil Engineering from the University of California at Berkeley and is the author or co-author of more than 40 technical publications, two books, and more than 100 presentations. ◆

PROGRAM NOTES

- **MARK YOUR CALENDARS FOR SERDP AND ESTCP'S ANNUAL PARTNERS IN ENVIRONMENTAL TECHNOLOGY TECHNICAL SYMPOSIUM AND WORKSHOP SCHEDULED TO BE HELD NOVEMBER 27-29, 2001,** at a new location—the Marriott Wardman Park Hotel, Washington, D.C. The Call for Poster Abstracts will close on August 24, 2001. If you are not yet in our contact database, be sure to subscribe via one of our web sites so that you will receive the Registration & Program brochure that will be released late this summer.

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- **THE FY 2000 ANNUAL REPORT TO CONGRESS** has been published and submitted. This Program Annual Report provides a summary of SERDP's activities and most significant accomplishments during FY 2000, its plans for FY 2001, and new initiatives to be undertaken during FY 2001. This year, information describing SERDP's Scientific Advisory Board (SAB) events, actions, and recommendations during FY 2000 is included in the Annual Report rather than in a separate report. The Annual Report is available on the SERDP web site by selecting Publications & Products under the General Information link.
- **PROGRESS REPORT DATA** (i.e., a written summary of the quarter's technical accomplishments, updated completion dates for milestones, and any concerns regarding technical/financial progress) for the third quarter of Government FY 2001 is due July 15, 2001. For assistance, contact your Program Manager Assistant.
- **THE SERDP SCIENTIFIC ADVISORY BOARD (SAB)** is scheduled to meet June 13 and again August 8-9 in Arlington, Virginia. Contact Amy Kelly at (703) 696-2124 or via e-mail at amy.kelly@osd.mil for additional information.

E◆S◆T◆C◆P

- **QUARTERLY REPORTS FOR THE THIRD QUARTER OF GOVERNMENT FY 2001 ARE DUE JULY 15, 2001.** For assistance, contact your Program Manager.
- **REQUESTED FULL PROPOSALS IN RESPONSE TO THE BROAD AGENCY ANNOUNCEMENT (BAA)** are due to the Program Office by 4:00 p.m. EST on July 26, 2001.
- **NEW PUBLICATIONS NOW AVAILABLE ON THE ESTCP HOME PAGE** www.estcp.org

Cost and Performance Reports:

Cleanup

Quantifying In-Situ Metal Contaminant Mobility in Marine Sediments

Tri-Service Site Characterization and Analysis System (SCAPS) Thermal Desorption Sampler for Volatile Organic Compounds

Compliance

Ammonium Perchlorate Biodegradation for Industrial Wastewater Treatment

Photocatalytic Destruction of Nitrate Esters in Air

Technical Assessments:

Cleanup

In-Situ Electrokinetic Remediation of Metal Contaminated Soils Technology Assessment Report

Technology Status Review: Bioremediation of Dinitrotoluene (DNT)

PARTNERS IN ENVIRONMENTAL TECHNOLOGY

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

INFORMATION BULLETIN

SPRING 2001 NUMBER 8

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C◆A◆L◆E◆N◆D◆A◆R

FOR SERDP AND ESTCP

JUNE 2001

June 13
SERDP Scientific Advisory Board (SAB) meeting

June 18-19
SERDP Conservation Technology Thrust Area Working Group (TTAWG) meeting

June 18-19
SERDP Pollution Prevention Technology Thrust Area Working Group (TTAWG) meeting

June 20
ESTCP Pollution Prevention Phase I Review Committee meeting

June 21
ESTCP Compliance Phase I Review Committee meeting

June 22
SERDP Compliance Technology Thrust Area Working Group (TTAWG) meeting

June 25
ESTCP UXO Phase I Review Committee meeting

June 26
SERDP UXO Sub-Thrust Area Review Group (SARG) meeting

June 27
SERDP Cleanup Technology Thrust Area Working Group (TTAWG) meeting

June 28
ESTCP Cleanup Phase I Review Committee meeting

JULY 2001

July 15
SERDP quarterly progress reports due for the third quarter of Government FY 2001

July 15
ESTCP quarterly reports due for the third quarter of Government FY 2001

July 26
ESTCP requested full proposals due in response to the Broad Agency Announcement (BAA)

RELATED CONFERENCES & EVENTS

May 31-June 1
Marine Environmental Engineering Technology Symposium (MEETS) 2001
Crystal City DoubleTree Hotel
Arlington, VA

For more information, contact Kelly Bentley at (703) 836-6727 or registrations@navalengineers.org or visit http://www.navalengineers.org/ENV01/MEETS.htm.

June 4-7
In-Situ & On-Site Bioremediation—The Sixth International Symposium
Sheraton San Diego Hotel & Marina
San Diego, CA

For more information, visit www.battelle.org/conferences.

June 10-13
2001 International Containment & Remediation Technology Conference and Exhibition
Radisson Hotel Universal Orlando
Orlando, FL

For more information, visit www.containment.fsu.edu.

June 13-15
(Immediately after the International Containment & Remediation Technology Conference)

DOE Subsurface Contaminant Focus Area Program's Long-Term Monitoring (LTM) Sensor/Analytical Methods Workshop
Orlando, FL

For more information, contact Caroline Purdy at (410) 263-1404.

June 18-20
Tri-Service Environmental Technology Symposium
Town and Country Hotel and Convention Center
San Diego, CA

For more information, visit www.ets-2001.com.

June 26-29
The First International Conference on Oxidation and Reduction Technologies for In-Situ Treatment of Soil and Groundwater

The Sixth International Conference on TiO_2 Photocatalytic Purification and Treatment of Water and Air

The Seventh International Conference on Advanced Oxidation Technologies for Water and Air Remediation

Sheraton Fallsview Hotel and Conference Centre
Niagara Falls, Ontario Canada

For more information, visit www.aotsconference.com.

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