PARTNERS IN ENVIRONMENTAL TECHNOLOGY

SERDP
Strategic Environmental Research and Development Program

ESTCP

Information B•U•L•L•E•T•I•N

SPRING 2000
NUMBER 4

INSIDE THIS ISSUE

– 2 –
Success Stories

– 4 –
FY 2001 Program Development Update

– 6 –
FAQs

– 7 –
Program Notes

– 8 –
Calendar of Events

2000 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.

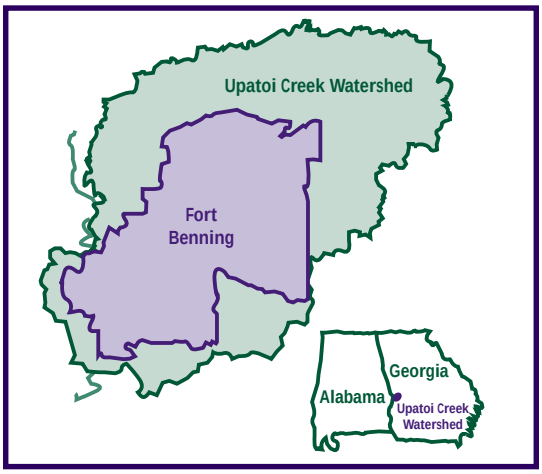
Abstracts are due September 1, 2000.

There is no additional charge for poster space.

SERDP Establishes Long-Term Ecological Monitoring and Research Program

The Department of Defense (DoD) remains committed to proactive ecosystem management of military lands and waterways. Installations in all of the Services manage lands using ecosystem principles, supporting both the sustainable mission use of military lands and stewardship of the valuable ecological resources on these lands. Through formal research requirements and other mechanisms, all of the DoD Services have expressed the need to better understand ecological processes and trends on military lands, the ecological relationship of military bases to their surrounding lands, and the interactions between mission activities and ecological processes.

In 1997, SERDP sponsored an Ecosystem Science Workshop, and the results of the workshop formed the basis of an initiative to address science and technology requirements for ecosystem management of DoD military installations. This initiative, the **SERDP Ecosystem Management Project (SEMP),** is hosted at Ft. Benning, GA, the home of the Army Infantry. Ft. Benning is situated in southwestern Georgia, along the Piedmont/ Southeast Coastal Plain Fall Line, along the sand hills region that extends from Alabama into North Carolina. SEMP's mission includes (1) the creation of long-term monitoring site(s) on DoD lands like Ft. Benning to observe



Location of Ft. Benning, GA, within hydrologic unit number 03130003 as defined by the U.S. Geological Survey

See SEMP, page 5

THE PARTNERS IN ENVIRONMENTAL TECHNOLOGY TECHNICAL SYMPOSIUM & WORKSHOP

"Environmental Challenges for the Next Decade"

NOVEMBER 28-30, 2000
HYATT REGENCY CRYSTAL CITY ◆ ARLINGTON, VIRGINIA

This year's technical program will feature comprehensive sessions that will address the challenging and pervasive environmental issues that face the Department of Defense in the first decade of the new millennium. Take a look at what's in store ◆ ◆ ◆

CLEANUP TECHNOLOGIES to mitigate the current and future liability of past activities through remediation.
- Novel Technologies to Locate Buried Unexploded Ordnance (UXO)
- Data Fusion and Processing Methods to Improve Discrimination of UXO
- Metals in Soils—Remediation and Bioavailability
- Perchlorate in Groundwater—Cleanup and Ecotoxicity Effects
- Remediation Site Long-Term Monitoring Optimization

COMPLIANCE TECHNOLOGIES to reduce the environmental impact of current activities.
- Training and Testing Ranges—Sustainability
- Air Emissions from DoD Operations

CONSERVATION TECHNOLOGIES to preserve natural resources while sustaining military operations.
- Detecting, Monitoring, and Managing Our Cultural Resources
- Outside the Fence—Impacts of Development/Growth on DoD/ DOE Facilities

POLLUTION PREVENTION TECHNOLOGIES to reduce or eliminate environmental impacts in defense manufacturing through substitution, recycling, and resource conservation.
- Green Chemistry for Defense Applications
- Strategic P2—Designing for the Environment
- Total Environmental Cost Accounting

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.

success story

Cost and Performance Reports Promote Tech Transfer of Completed Demonstrations

The goal of ESTCP is to demonstrate and validate promising, innovative technologies that target the Department of Defense's (DoD) most urgent environmental needs and provide a return on investment through cost savings and improved efficiency. The current cost of environmental remediation and regulatory compliance in the Department is staggering. Thus, innovative technologies offer the opportunity to reduce costs and environmental risks. Since the inception of the Program, ESTCP has funded more than 90 demonstration projects, and within the last year the first set of these projects has graduated from the Program. Commonly asked questions following a project's completion include:

What are the cost savings that this new technology affords over existing technologies/methods?

How can the technology be scaled-up for full implementation?

Does the technology satisfy current regulatory requirements?

In an effort to answer these questions and help transfer technologies to DoD end-users, regulators, and private industry, ESTCP requires that as each demonstration comes to closure the project produce a Cost and Performance (C&P) Report that directly identifies the costs and performance associated with the demonstration. Each C&P Report enables comparison of technology cost and performance to evaluate the likelihood of successful, cost-effective, full-scale implementation. The report also highlights the impact of actual and potential factors affecting cost and performance, identifies improvements in data collection and distribution with unique site/facility conditions, and describes the unique activities associated with the new technology. By requiring this documentation, ESTCP enables potential end-users of the technology to determine when a technology is capable of providing significant cost savings over current technologies.

Each C&P Report is designed to provide the basic information an end-user will need to make an informed decision about using an ESTCP-funded technology. Within each C&P Report, potential end-users will find references that were used to develop the technology and point of contact information for all of the researchers on the project. If an end-user plans to use another available technology, then the particular C&P Report can be used for comparison purposes. From the regulatory perspective, each C&P Report helps the end-user determine if the technology will meet regulatory requirements more satisfactorily than another technology. This information is key in determining if the technology can be scaled-up for full implementation, since there are many regulatory factors associated with the full implementation of a technology. From the DoD point of view, a C&P Report serves as an initial tool to bring together an existing DoD environmental problem and an innovative technology/solution.The ultimate goal for DoD is to maintain mission readiness. Transitioning new technologies more expediently via ESTCP will enable the DoD to do so.

To make the C&P Reports readily available to all those who may benefit from such information, ESTCP posts each finalized C&P Report on the ESTCP web site **(www.estcp.org)** under the link *Technical Documents*. Each of the documents can be downloaded in a PDF format. Additionally, hard copies of the C&P Reports can be obtained by contacting the ESTCP Support Office at the following address:

ESTCP Support Office
c/o HydroGeoLogic, Inc.
1155 Herndon Parkway, Suite 900
Herndon, VA 20170
(703) 736-4549 ◆

success story

SERDP Sponsors Development of Environmentally Friendly Natural Non-Structural Adhesives

Polymeric adhesives are used in a variety of joining applications in the military and civilian sectors. Adhesives currently in use generally contain epoxy-polyamides, polyurethane, polysulfides, or alpha-cyanoacrylates. These adhesives require toxic volatile organic compounds (VOC) to apply and, therefore, pose a significant health hazard. The VOCs commonly utilized include toluene, acetone, methanol, ketone, and xylene. Based on Toxic Release Inventory information (1996) and data from manufacturers, it is estimated that 1.6 million pounds of VOCs are released annually through military use of solvent-based adhesives. Personnel at manufacturing and repair facilities are at particular risk since the toxic effects of VOCs are evident at concentrations less than parts per million. Any new adhesives will have to meet the minimum requirements of physical property performance and materials compatibility required by military specifications and standards.

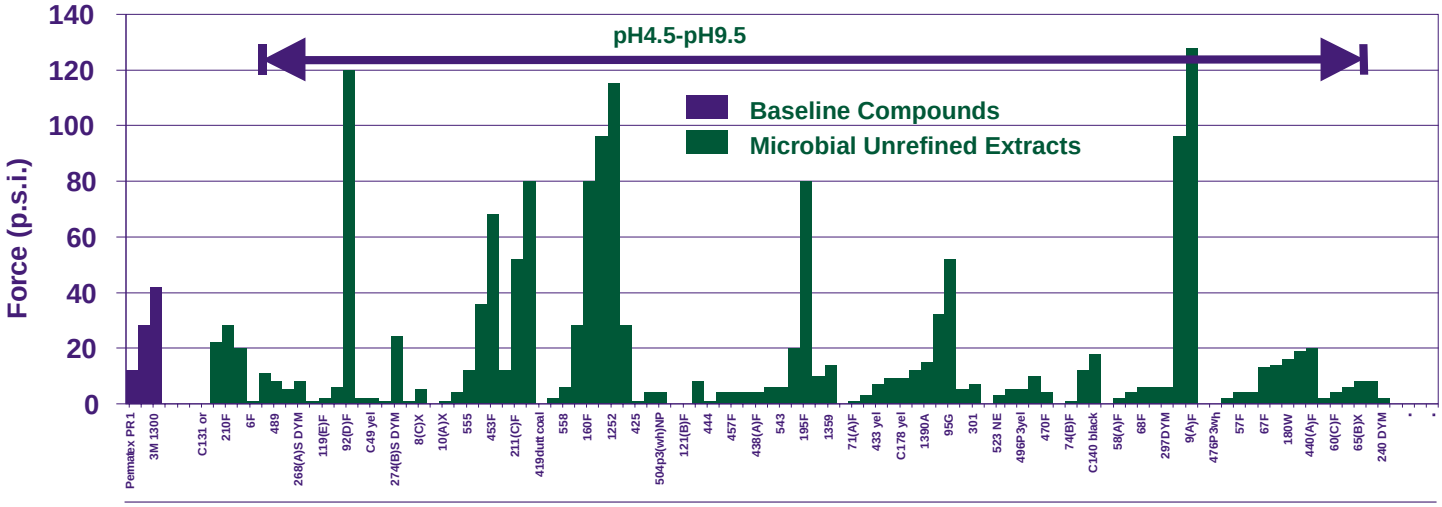
Natural biological sources of adhesives have been found in filamentous bacteria and thermal mat communities, and it has been demonstrated that cell-to-cell and cell-to-surface adhesion are basic processes common to all multi-cellular or communal organisms. Under SERDP sponsorship, a project team from Montana Biotech Corporation performing on the *Non-Structural Adhesives Containing No VOCs* project is investigating novel, environmentally benign, natural adhesive compounds as viable alternatives to current high-VOC solvent-borne non-structural adhesives. Adhesive polymers identified as part of Fiscal Year 1999 research are being derived from microorganisms isolated from extreme environments, such as natural hot springs or acid pools, and many cultures have demonstrated 5-15 cm long-fibrous morphology with remarkable tensile strength or biofilms with tenacious surface adhesion.

Currently, researchers are screening 500 microorganisms by applying unrefined extracellular polymers to milled aluminum 2024 bolt heads, allowing them to cure, and testing for flatwise adhesive strength by Instron analysis. The natural polymers identified during this project will be compared to commercially available adhesives used by the military. Thus far, 120 microbial extracts and the 3 commercially available adhesives have been tested. The chart below indicates that the adhesive strength of the baseline compounds (purple) is approximately 20-40 pounds per square inch (p.s.i.). The unrefined microbial extracts (green) are arranged according to the pH of the microorganisms native habitat. The adhesive strength of some of the microbial unrefined extracts exceeds that of the commercially available adhesives. Numerous unrefined microbial extracts have displayed adhesive strength that exceeds that of currently used high-VOC adhesives, and yet it is estimated that the concentration of adhesive compound in these unrefined extracts is less than 5 percent. Purification to homogeneity may result in far greater adhesive strength. Future studies will involve identification of the specific microbial adhesive compounds and testing under various environmental stresses, which will include exposure to heat and moisture cycling, solvent immersion, and exposure to ultraviolet light.

For additional information, please contact Dr. Fred Albert, Montana Biotech Corporation, at (406) 388-0942 or via e-mail at mtbiotech@montana.net. ◆

Department of Defense Applications for Non-Structural Adhesives

- Instrumentation Panels
- Optical Assemblies
- Textiles/Fabrics
- Gaskets/Weather Stripping
- Packaging
- Labeling
- Soil Erosion Protection
- Shock Resistant Padding



Flatwise adhesive strength of first 100 microbial unrefined extracts

FY2001 Program Development Process Update

Development of the SERDP and ESTCP FY 2001 Programs is in full swing, and a significant level of interest is evident by the high number of responses.

SERDP

The **SERDP core Broad Agency Announcement (BAA)** via the Commerce Business Daily requested proposals for 15 Statements of Need (SON). These SONs generated 197 preproposals from which 83 full proposals were requested. Down-select of preproposals was based upon their response to the requirements as stated in each SON; whether the proposed work represented appropriate basic research (6.1), exploratory development (6.2), or advanced technology development (6.3); and their degree of technical innovation. Requests for full proposals were sent to all qualified preproposers, and these proposals were due March 16. Of the 81 proposals received, 28 were from industry and 53 were from academia. Concurrently, the Federal Call for Proposals resulted in 80 proposals being submitted resulting in a total of 161 Federal and non-Federal proposals. All of the above proposals will undergo a review by independent peer review teams during the April and May timeframe.

The **SERDP Exploratory Development (SEED)** solicitation, now in is second year, issued eight SONs. In early March, 106 SEED proposals were received and are currently under review. SEED proposals are evaluated for innovative technical merit and transition potential.

The most competitive of both the SERDP core and SEED proposals will be forwarded to the multi-agency Technology Thrust Area Working Groups (TTAWG) during their summer proposal evaluation meetings.

ESTCP

For the third year, ESTCP solicited preproposals from the private sector in the form of a **BAA.** Proposals were generated in the cleanup remediation and UXO technology topic areas. Concurrent with this process is a **Call for Proposals to Non-DoD Federal organizations.** Due on March 9, preproposals from both sources have been sent to a DoD review committee that will evaluate them. Of the 63 preproposals submitted, 34 came from industry, 14 from academia, and 15 preproposals were submitted in response to the Non-DoD Federal Call. Those that pass this first screening will be matched with a DoD partner to help identify a demonstration site and to ensure relevance is retained, and a full proposal will be requested. Evaluation of these revised proposals will occur later in the summer by a multi-agency review committee.

Complementing the ESTCP BAA is the **ESTCP Call for DoD Phase I Proposals** that requests proposals from all DoD organizations. Proposals were due on April 13 and have been sent to a multi-agency review group for evaluation. A total of 83 proposals was submitted in response to this Call.

For additional information on the SERDP SONs or ESTCP topic areas, please visit the SERDP or ESTCP web site, as appropriate, or contact the SERDP/ESTCP Program Office. ◆

FY 2001 SERDP SONs

CLEANUP

- Statistical Sampling for Unexploded Ordnance (UXO) Site Characterization
- Remediation Strategies to Enhance In-Situ Mixing of Contaminants and Chemical/Biological Additives
- In-Situ Containment/Remediation of Contaminated Marine Sediment
- Research and Development to Support the Development of Ecological Soil Screening Levels
- Microbial Processes for the Degradation of Nitroaromatic Contaminants
- Unexploded Ordnance (UXO) Detection and Discrimination Data Processing [SEED]
- Long-Term Monitoring (LTM) [SEED]

COMPLIANCE

- Measuring, Characterizing, and Control of Toxic Release Inventory Air Emissions from DoD Munitions
- Measuring, Monitoring, and Managing Non-Point Source Runoff at Military Installations
- Training/Testing Range Dust Emissions Characterization
- Analysis, Characterization, and Treatment of Energetic Residues on Scrap Materials at Military Training/Testing Installations [SEED]

CONSERVATION

- Advanced Techniques to Inventory and Monitor Threatened and Endangered Species in Inaccessible Areas
- Riparian Ecosystem Management and Restoration
- Marine Mammal Monitoring
- Unique Indicators of Stress on Threatened and Endangered Species [SEED]

POLLUTION PREVENTION

- Environmentally Innovative Technologies for Low Observable Coatings Applications—Removal and Repair
- Reduced PM Emissions for Military Gas Turbine Engine Applications
- Gaseous Emissions and Particle Formation in the Combustion Zone for DoD Gas Turbine and Diesel Engines
- Environmentally Acceptable Pyrotechnic Formulations
- Environmentally Benign Ceramic Materials for DoD Systems [SEED]
- Environmentally Benign Production, Maintenance and Repair of Military Composite Structures [SEED]
- Computational Chemistry Methods for Development of Environmentally Benign Materials and Processes [SEED]
- Environmentally Benign Primer/Igniter Systems [SEED]

Supplemental Workshops/Meetings Provide Symposium Attendees Unique Opportunities for Collaboration

During this past year's *Partners in Environmental Technology* Symposium, SERDP and ESTCP recognized the unique opportunity presented by assembling a large number of attendees from such a wide variety of organizations and backgrounds from across the country. To take full advantage of this opportunity, SERDP and ESTCP for the first time offered the venue for a number of groups to conduct meetings after the scheduled Symposium events. The goal was to provide the chance for attendees with similar technical interests to meet and discuss issues that were directly or indirectly related to Symposium technical sessions or other relevant topics.

Symposium planners queried a variety of organizations that were interested and presented them with the opportunity to conduct workshops in the evenings and after the Symposium had concluded. Once the appropriate organizations were identified, arrangements then were made for meeting space and audio visual equipment. More than a dozen organizations conducted workshops in the evenings or immediately following the Symposium to discuss research opportunities, coordinate research efforts between organizations, exchange information, convene technical advisory committee meetings, as well as offer training sessions. Specific subjects included Cultural Resources Workshop planning, Hard Chrome Alternative Team (HCAT), and Environmental Aspects of Energetics Materials, among others.

Based on the success of these Symposium-related workshops, SERDP and ESTCP are considering making this opportunity available again. If you would like to discuss the viability of conducting a related workshop during this year's Symposium, November 28-30 in Arlington, VA, please contact Amy Kelly (703) 696-2124 for further information. ◆

SEMP, from page 1

ecosystem trends over time and (2) the establishment of research projects aimed at gaining a better understanding of the roles of DoD military mission activities and land management practices at various spatial and temporal scales. Ultimately, the goals of SEMP are to provide knowledge, tools, and techniques to enhance sustainable mission use and stewardship of military installations and to contribute to understanding and enhancing the ecological role of military installations within their ecoregions.

The long-term monitoring component of SEMP at Ft. Benning focuses on data at three scales—with the broadest scale being the Upatoi Creek watershed that includes Ft. Benning (about one-half of the watershed) and the surrounding region. Single streams that feed into the Upatoi Creek represent the smallest unit scale. Data collection efforts include water quality sampling, vegetative cover, weather stations, and soil data from field sampling sites and imagery from various satellite sources. All field data collection will occur within Ft. Benning, but the satellite data will include information across the watershed. The monitoring component of SEMP is designed to support the research projects at all scales.

In accordance with the research component of SEMP, five individual research efforts are under way at Ft. Benning. Three projects are focusing on identifying ecosystem change indicators while two new projects are focusing on understanding the role of disturbance within the ecosystem, especially disturbances resulting from military mission activities and land management practices. Researchers are collaborating on strategies for selection of research sites, sharing common review forums, and contributing data into a common data repository. The long-term monitoring plan and the data repository, which houses all of the data related to SEMP, allow for information/findings to be disseminated and applied to all DoD installations as well as being made available to other research groups.

Disturbance to the landscape from military training operation

SEMP research projects are selected through SERDP's Broad Agency Announcement (BAA) and Call for Proposal selection process. The next proposal solicitation, specific to SEMP research needs, is expected in FY 2002. However, Ft. Benning also serves as a valuable research site for other potential research projects including other SERDP Statement of Needs and non-SERDP research efforts.

For more information on SEMP and research opportunities available at Ft. Benning, please reference the following web site http://www.denix.osd.mil/SEMP. ◆

f ◆ a ◆ q s

from SERDP and ESTCP Principal Investigators

SUBJECT: PROPOSALS FOR FUNDING

***Q:** How are SERDP and ESTCP proposals reviewed?*

A: SERDP uses a multi-step competitive process to select projects for funding, with the Statements of Need (SON) representing the core of each solicitation. Separate solicitations are provided to both the non-Federal and Federal sectors in November of each calendar year. The core Broad Agency Announcement (BAA) solicitation to the non-Federal sector is released via the Commerce Business Daily, and preproposals are requested for an initial screening process. Qualified non-Federal preproposers then are invited to submit full proposals. The Call for proposals to the Federal sector requests that full proposals be submitted after each partnering agency conducts an internal competitive down select of proposals. Once received, full proposals from both the Federal and non-Federal sectors then are subjected to an external peer review process which is currently under way for FY 2001 proposals. External peer review evaluates only Technical Merit and Personnel. Following the technical peer review, the top-ranked proposals from each thrust area are reviewed by panels of technical experts from the Department of Defense (DoD), Department of Energy (DOE), and the Environmental Protection Agency (EPA). Upon acceptance by the SERDP Executive Director, each proposed new start project is required to present an oral presentation before the SERDP Scientific Advisory Board (SAB). Assuming a positive recommendation by the SAB, projects then will receive formal approval by the SERDP Council.

ESTCP also uses a competitive process to select projects for funding. Solicitations for DoD, Federal (non-DoD), and non-Federal organizations are released in January of each year.

Preproposals are requested from both non-Federal and Federal (non-DoD) organizations. These preproposals then are down-selected by a review committee, and full proposals are requested from successful proposers. This proposal selection process is also under way for FY 2001 proposals.

A two-phase review process is used to select DoD projects for ESTCP funding. The request for Phase I proposals was distributed to the Services and Defense Agencies in December 1999. Four review committees, one for each technical area, evaluate Phase I proposals to recommend funding for projects that are of the highest technical quality and address priority DoD requirements. Reviewers are nominated to serve on these committees by the Army, Navy, and Air Force, and committee membership is augmented by Office of the Secretary of Defense (OSD) representatives and external reviewers from DOE and EPA. The review committees meet in June to review proposals and recommend projects that should advance to the next phase.

At this point, full proposals are requested from qualified proposers from all three sectors [DoD, Federal (non-DoD), and non-Federal organizations]. During the month of August, a Phase II review meeting is held during which all proposers present an oral briefing. Projects are selected for funding based on their readiness for demonstration/validation, technical merit, cost benefit, technology transfer potential, and level of cooperation.

SUBJECT: INTELLECTUAL PROPERTY

***Q:** How should intellectual property issues be addressed for SERDP-funded technologies?*

A: The development of SERDP-funded innovative technologies and subsequent transition to the private sector can involve issues of intellectual property rights. Generally, the PI retains the patent on a technology but provides the government a royalty-free license when the product is used. SERDP recommends that PIs familiarize themselves with potential intellectual property issues that may arise during the development of technologies. PIs should consult appropriate legal authorities and identify, as best as possible, potential intellectual property rights issues that may be associated with the application and/or commercialization of their technology.

SUBJECT: REPORTING

***Q:** How should SERDP and ESTCP documents from non-DoD organizations be submitted to the Defense Technical Information Center (DTIC)?*

A: Project annual and final technical reports received by SERDP and ESTCP are submitted to the DTIC. DTIC is a component of the DoD Defense Information Systems Agency (DISA). The goal of DTIC is to facilitate information exchange throughout the Defense establishment. When submitting publications/products to SERDP or ESTCP, the PI should provide a distribution statement outlining to whom the materials may be released (i.e., public release, restricted to Government agencies, restricted to Government agencies and their contractors, etc.). A review by the PI's Public Affairs office before release to DTIC also may be required. When submitting reports, please send three copies of the project publications/products to the SERDP and ESTCP Support Office at HydroGeoLogic, Inc., (1155 Herndon Parkway, Suite 900, Herndon, VA 20170) to the attention of Susan Walsh. If possible, please include the project number and a document date and acknowledge SERDP or ESTCP sponsorship. Additional information regarding the DTIC submission process can be found on the DTIC web site at http://www.dtic.mil/dtic/faq by clicking on the link for *General Information Q&As.*

***Q:** As a Principal Investigator, what project publications, products, and reports should I provide to SERDP/ESTCP?*

A: Copies of publications and products (i.e., scientific papers, published articles, reports, conference abstracts and presentations, patents, etc.) partially or wholly supported by SERDP and/or ESTCP need to be submitted to the Support Office in order to keep the staff current on Program results and to broaden all aspects of technology transfer. These products/reports should be sent to Susan Walsh at the SERDP and ESTCP Support Office at HydroGeoLogic, Inc., (1155 Herndon Parkway, Suite 900, Herndon, VA 20170). If you have questions, please contact Susan at (703) 326-7812 or via e-mail at swalsh@hgl.com.

SUBJECT: RELATED RESEARCH EFFORTS

***Q:** How can I learn more about similar research efforts in a particular field?*

A: With the rapid change in technology occurring in a number of research areas, it is crucial that PIs and researchers stay in tune with the new developments in their respective fields of study. Projects must be thought of in terms of the most recent developments in related fields of research. This view is supported by SERDP's SAB. In addition to keeping abreast with technical journals, PIs are encouraged to review the enormous volume of "gray" literature—that which can be found on the Web. ◆

PROGRAM NOTES

- **MARK YOUR CALENDARS FOR SERDP AND ESTCP'S ANNUAL PARTNERS IN ENVIRONMENTAL TECHNOLOGY TECHNICAL SYMPOSIUM AND WORKSHOP SCHEDULED TO BE HELD NOVEMBER 28-30, 2000,** at the Hyatt Regency Crystal City in Arlington, Virginia. The Call for Poster Abstracts will close on September 1, 2000. For Abstract Guidelines as well as for regular Symposium & Workshop updates, visit either the SERDP web site at **www.serdp.org** or the ESTCP web site at **www.estcp.org.** If you are not yet in our contact database, be sure to subscribe via one of the web sites so that you will receive the Registration & Program brochure that will be released late this summer.
- **COPIES OF ALL REPORTS PARTIALLY OR WHOLLY SUPPORTED BY SERDP OR ESTCP** should be sent to Susan Walsh at the Support Office at HydroGeoLogic, Inc., in order to keep Staff current on results and to broaden all aspects of technology transfer. These products include copies of papers, reports, abstracts, presentations, patents, etc. For more information, please contact Susan at (703) 326-7812 or via e-mail at swalsh@hgl.com.

S◆E◆R◆D◆P

- **THE FY 1999 ANNUAL REPORT TO CONGRESS AND THE FY 1999 SAB ANNUAL REPORT TO CONGRESS** have been published and submitted. The Program Annual Report provides a summary of SERDP's activities and most significant accomplishments during FY 1999, its plans for FY 2000, and new initiatives to be undertaken during FY 2000. The SAB Annual Report describes the events, actions, and recommendations of the SAB during FY 1999. The reports are available on the SERDP web site by selecting *Publications & Products* under the *General Information* link.
- **THE PROGRESS REPORT FOR THE THIRD QUARTER OF GOVERNMENT FY 2000 IS DUE ON JULY 31, 2000.** For assistance, please contact your Program Manager Assistant.
- **THE SERDP SCIENTIFIC ADVISORY BOARD (SAB)** is scheduled to meet August 9-10 in Arlington, Virginia. Contact Amy Kelly at (703) 696-2124 or via e-mail at kellya@acq.osd.mil for additional information.

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- **QUARTERLY REPORTS FOR THE THIRD QUARTER OF GOVERNMENT FISCAL YEAR 2000 ARE DUE JULY 5, 2000.** 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 27, 2000.
- **NEW PUBLICATIONS NOW AVAILABLE ON THE ESTCP HOME PAGE www.estcp.org**

Cost and Performance Reports:

Cleanup

High Resolution Seismic Reflection to Characterize and Plan Remediation at Hazardous Waste Sites

Natural Attenuation of Explosives in Groundwater

Congratulations to . . .

Dr. Brad E. Forch, SERDP Principal Investigator from the U.S. Army Research Laboratory, who recently was selected to receive an Army Research & Development Achievement Award for the SERDP-funded Pollution Prevention project *Laser Ignition to Replace Chemical Igniters.* Through this effort, Dr. Forch and his research team demonstrated the feasibility of utilizing a laser-based ignition system to successfully fire 30mm ammunition in the M230 automatic cannon used on the Apache helicopter. Optical radiation from a pulsed laser was used to replace the lead-containing primer that currently is used to initiate 30mm ammunition. The laser ignition system is a technology that is expected to eliminate environmentally hazardous igniter material and also increase the safety of current and future armament systems.

The Army R&D Achievement Awards recognize scientific or engineering achievements that materially improve the Army's technical capability and contribute to the national welfare and acknowledge scientific or engineering leadership that significantly advances the state of a technology. ◆

PARTNERS IN ENVIRONMENTAL TECHNOLOGY

Information B◆U◆L◆L◆E◆T◆I◆N

SPRING 2000 ◆ NUMBER 4

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Information and ideas for future articles are always welcome. Address comments, suggestions, mailing list requests, and address changes to

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c◆a◆l◆e◆n◆d◆a◆r

for serdp and estcp

JUNE 2000

June 19-20
SERDP Conservation Technology Thrust Area Working Group (TTAWG) meeting

June 19-20
SERDP Pollution Prevention Technology Thrust Area Working Group (TTAWG) meeting

June 20-21
ESTCP Pollution Prevention Phase I Review Committee meeting

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

June 23
ESTCP Compliance Phase I Review Committee meeting

June 26-27
SERDP Cleanup Technology Thrust Area Working Group (TTAWG) meeting

June 28
ESTCP Cleanup Phase I Review Committee meeting

June 29
ESTCP UXO Phase I Review Committee meeting

JULY 2000

July 5
ESTCP quarterly reports for the third quarter of Government FY 2000 due

July 27
ESTCP requested full proposals in response to the Broad Agency Announcement (BAA) due

July 31
SERDP progress report for the third quarter of Government FY 2000 due

AUGUST 2000

August 9-10
SERDP Scientific Advisory Board (SAB) meeting

August 15-16
ESTCP Compliance Phase II Review Committee meetings

August 16-17
ESTCP Pollution Prevention Phase II Review Committee meetings

August 22-23
ESTCP Cleanup Phase II Review Committee meetings

August 24
ESTCP UXO Phase II Review Committee meetings

SEPTEMBER 2000

September 7 (tentative)
SERDP Executive Working Group (EWG) meeting

September 13-14
SERDP Scientific Advisory Board (SAB) meeting

September 18
Compliance In-Progress Review (IPR) meeting for New Start projects

September 19
SERDP Conservation In-Progress Review (IPR) meeting for New Start projects

September 21-22
Pollution Prevention In-Progress Review (IPR) meeting for New Start projects

September 27 (tentative)
SERDP Council meeting

RELATED CONFERENCES & EVENTS

May 22-25
Second International Conference on Remediation of Chlorinated and Recalcitrant Compounds
DoubleTree & Marriott Hotels/Monterey Conference Center
Monterey, CA

For more information, please call 800-783-6338.

June 5-7
International Environmental Technology EXPO 2000
Atlantic City Convention Center
Atlantic City, NJ

For more information, contact Expo Management at (609) 292-0952 or see www.state.nj.us/dep/expo2000.

August 21-24
5th Annual Joint Services Pollution Prevention & Hazardous Waste Management Conference & Exhibition
Henry B. Gonzalez Convention Center
San Antonio, Texas

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