



SPRING 2006
NUMBER 27

Land-Use Models Help DoD Assess Encroachment Pressures and Impacts of Recent BRAC Decisions

Changes in land use in the vicinity of Department of Defense (DoD) installations continue to threaten the military's capacity to sustain training and testing activities and to adapt to changing mission requirements. Encroachment pressures on military installations such as rapid development and urbanization can significantly reduce the effective training space available on these installations as well as increase the potential for nuisance lawsuits and noncompliance with environmental regulations. The undeveloped lands on DoD ranges buffer civilian populations from the unavoidable byproducts of military operations (noise, dust, smoke, etc.). In addition, these lands provide important habitat for wildlife and serve critical roles in regional

ecosystem processes – processes that also are essential for maintaining the realistic training environments that are vital to military readiness. Base Realignment and Closure (BRAC) decisions can further compound these issues by substantially increasing training tempos on the remaining active installations with corresponding increases in on- and off-base populations of military and support personnel. To address the current and future environmental impacts of encroachment on military installations, SERDP researchers are adapting and developing advanced land-use models capable of depicting, quantifying, and assessing the effects of regional land-use changes. These innovative models provide installation range and land managers with

INSIDE THIS ISSUE

3

ESTCP Demonstrates Success of Layered Approach for Wide Area Assessment of Unexploded Ordnance

4

New Weapons Systems and Platforms Efforts Awarded Funding

7

New Documents Posted in Online Library

See LAND-USE MODELS, page 2

PARTNERS IN ENVIRONMENTAL TECHNOLOGY TECHNICAL SYMPOSIUM & WORKSHOP

Meeting DoD's Environmental Challenges

November 28–30, 2006

Marriott Wardman Park Hotel ♦ Washington, D.C.

Sponsored by SERDP and ESTCP



This annual event is recognized for its unique networking opportunities.

This year's technical program will feature comprehensive sessions highlighting research and innovative technologies that are assisting the Department of Defense to address increasingly complex environmental challenges. The preliminary list of technical sessions includes the following:

- ♦ Meeting DoD's Energy Challenges: Energy Efficiency and Alternative Sources
- ♦ Invasive Species on Military Lands: Susceptibility and Resistance
- ♦ Metal Finishing: Addressing Emerging Regulatory Requirements
- ♦ Ecosystem Goods and Services on DoD Installations
- ♦ In Situ Management and Remediation of Contaminated Sediments
- ♦ Ecosystem Management: Thinking Outside the Base
- ♦ Recent Advances in Characterization and Remediation of DNAPL
- ♦ Military Munitions Response: UXO Wide Area Assessment
- ♦ Innovative Approaches to Remediating Emerging Contaminants
- ♦ Military Munitions Response: Emerging Detection and Discrimination Technologies for UXO
- ♦ Air Quality Challenges on Military Ranges
- ♦ Assessing and Managing Munitions Constituents on Military Ranges

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 conference information, visit www.serdp.org or www.estcp.org or call (703) 736-4548 for assistance.

PARTNERS IN ENVIRONMENTAL TECHNOLOGY

TECHNICAL SYMPOSIUM & WORKSHOP

CALL FOR POSTER ABSTRACTS

Both federal and non-federal submitters will be considered.

A limited number of spaces are available to display poster presentations of technologies that relate to the

Symposium & Workshop technical session topics. If you are interested in being considered for poster space in one of the poster sessions, please refer to the abstract guidelines that are posted at www.serdp.org or www.estcp.org.

Abstracts are due July 31, 2006.

There is no additional charge for poster space.

valuable tools for developing and managing their training and testing lands to meet mission, regulatory, and stewardship requirements. Equally important, these models are proving to be of great value as tools that can be used to evaluate the potential impacts of BRAC decisions.

Under the SERDP project *The Evolving Urban Community and Military Installations: A Dynamic Spatial Decision Support System for Sustainable Military Communities (SI-1257)*, Dr. Brian Deal of the University of Illinois at Urbana-Champaign and Dr. James Westervelt of the U.S. Army Corps of Engineers Engineer Research and Development Center (ERDC) Construction Engineering Research Laboratory (CERL) developed land-use models that can be used to improve the basic understanding of risks to military operations and training lands associated with land-use changes outside installation boundaries. The project team initiated this SERDP work by adapting the Land use Evolution and Assessment Modeling (LEAM) system to address military-specific issues, which resulted in a model referred to as military-LEAM, or mLEAM. The mLEAM system represents a suite of models that link current and proposed regional plans (e.g., land purchases, zoning, road and highway locations, economic projections) to potential development impact, including residential attractiveness, fiscal demands, and land-use change (e.g., changes in training opportunities, wildlife habitat fragmentation). mLEAM provides installation managers with inexpensive, rapid first-cut predictions of the impact of proposed regional planning on future training opportunities as well as detailed analyses and outcomes generated through close coordination with local stakeholders and community leaders.

Also as part of this SERDP-funded work, researchers linked mLEAM to the Sustainable Installations Regional

Resource Assessment (SIRRA) model, which uses a set of 56 indicators of regional land use to quickly identify those installations where development challenges are greatest. The SIRRA methodology characterizes regions surrounding military installations based on an evaluation of 10 themes: air, energy, urban development, threatened and endangered species, location, water, economy, quality of life, infrastructure, and security. SIRRA uses existing national data sets compiled by federal or other national organizations. Installation managers can use the land use indicators in SIRRA to identify potential issues that should be considered. This information can also be used to inform installation sustainability planning.

Both SIRRA and mLEAM have garnered widespread acceptance throughout DoD and continue to be used by Service and installation land and range managers in their management decisions. The BRAC offices used mLEAM analyses as part of a final assessment of the impact of base realignment decisions. Using input from the SIRRA model, BRAC authorities were able to assess the impact of selecting certain installations for closure and for identifying other installations that were capable of assuming new missions. Recently, SIRRA also was used to provide supporting information for the DoD Annual Report to Congress on the impacts of encroachment.

SIRRA's success, in particular, has captured the attention of many DoD offices and generated multiple follow-on development efforts with leveraged funds. SIRRA also is used by the National Aeronautics and Space Administration (NASA) to help site new mission activities at various facilities. To facilitate the use of these tools in installation plans that address encroachment, a Cooperative Research and Development Agreement (CRADA) was signed in March 2006 between the U.S. Army Corps of Engineers ERDC-CERL, Marstel-Day, LLC, and the LEAMgroup, Inc.

Under the related SERDP project, *A Regional Simulation (RSim) to Explore Impacts of Resource Use and Constraints (SI-1259)*, Dr. Virginia Dale of the Oak Ridge National Laboratory and her project team are developing a spatially explicit simulation model to help military and other planners in the area around Fort Benning, Georgia, understand the implications of land-use change, resource use, and future development policy on the sustainability of military lands and missions and their interrelations with the surrounding region. RSim is capable of addressing four land-use change scenarios related to urbanization—population growth, new road construction, hurricanes, and military expansion. Within each scenario, users can project the resulting changes in air and water quality, noise, and key species and their habitats. Unique to the RSim computer simulation model is its inclusion of on-base resource constraints resulting from increased pressures placed on military lands (e.g., as a result of BRAC decisions), as well as the capacity to assess land-cover changes and nutrient loadings resulting from hurricane activity. Dr. Dale has secured widespread buy-in from regional stakeholders for this holistic tool. Her project team's ongoing design of the RSim user interface has created new partnerships and strengthened existing relations among the military and regional planners and managers to address future challenges. For example, recent BRAC decisions include relocating the Armor School from Fort Knox, Kentucky, to Fort Benning. As a result, Fort Benning will receive hundreds of additional vehicles, including 70-ton M1A1 Abrams tanks, and thousands of soldiers and their families and require renovation or construction of ranges, housing, and other support facilities. RSim will assist Fort Benning with effectively managing its resources while responding to these

S • U • C • C • E • S • S S T O R I E S

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



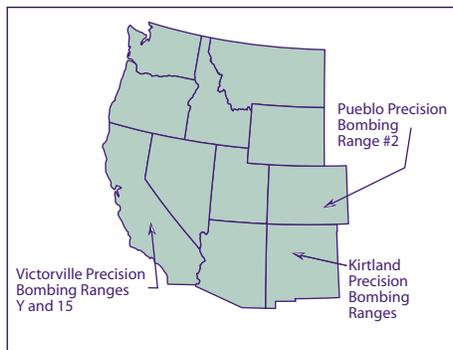
S U C C E S S O R Y

Initial Results from Wide Area Assessment Pilot Program Demonstrate Potential to Release Large Tracts of Land

Approximately 2,500 DoD sites, comprising over 10 million acres, are known or suspected to contain munitions. A typical site encompasses thousands of acres with many exceeding 10,000 acres, and a few are several hundred thousand acres. Most of these sites are Formerly Used Defense Sites (FUDS) for which DoD retains liability for munitions. Using current ground-based geophysics, complete characterization and remediation of such large areas would cost tens of billions of dollars. The Defense Science Board Task Force on Unexploded Ordnance (UXO) has estimated, however, that no more than 20% of those 10 million suspected acres are actually contaminated with UXO. Thus, identifying a technology or combination of technologies to accurately delineate the contaminated areas on each site would significantly reduce the area requiring site investigation and response and would allow limited cleanup resources to be used more judiciously.

To address this need, ESTCP initiated a Wide Area Assessment (WAA) Pilot Program in 2005. The goal of this program is to demonstrate the effectiveness of various technologies, either alone or in combination, as tools

for wide area assessment at DoD sites. Technologies selected for demonstration represent the three-layer approach to WAA from high altitude to ground surface. The highest altitude layer comprises aircraft-deployed sensors that can detect munitions-related features such as aiming circles, impact craters, and firing points. The high-altitude airborne sensors include Light Detection and Ranging (LiDAR) and high resolution orthophotography. The next layer, a low-altitude helicopter-borne magnetometer array, can detect surface and buried ferrous metal objects the size of mortars and



Through the ESTCP WAA Pilot Program, high-altitude airborne sensors, helicopter magnetometry, and ground-based sensor arrays for wide area assessment of UXO are being demonstrated at three DoD sites in the southwestern United States.

larger. Finally, vehicle-towed arrays of magnetometers or electromagnetic induction (EMI) sensors are used to survey statistically planned transects over the sites.

Three demonstration sites were selected for the WAA Pilot Program based on their size, benign terrain, limited vegetation, and low interference

from magnetic geology. A continuation of the WAA program will tackle sites with more difficult terrain and vegetation and a wider variety of munitions types. The current demonstration sites are located at the Pueblo Precision Bombing Range #2 in Colorado, the former Kirtland Precision Bombing Ranges in New Mexico, and Victorville Precision Bombing Ranges Y and 15 in California. Data collection for all three sites is complete, as is the preliminary analysis of the Pueblo and Kirtland data. Results from these sites have been outstanding, with the data from the former Kirtland Bombing Ranges serving as a good illustration.

The former Kirtland Bombing Ranges on the West Mesa of Albuquerque were used by the U.S. Army for precision bombing training missions between 1942 and 1945. The FUDS site comprises 15,246 acres of which a subset of roughly 5,000 acres was identified for the demonstration. The northern portion of the study area was known to contain three precision bombing targets—N-2, N-3, and the New Demolitions Impact Area (NDIA)—as well as a simulated oil refinery target (SORT). The specific location of the SORT was unknown, but it was thought to be somewhere in the north central portion of the study area. The Archive Search Report (ASR) for the site did not indicate any munitions-related activity in the southern portion of the study area, but this land is slated for industrial development shortly so it was included in the demonstration area.

See WIDE AREA ASSESSMENT, page 6

SERDP and ESTCP Award FY 2006 Initiatives for Weapons

Throughout 2006, new initiatives in all SERDP and ESTCP focus areas will be highlighted. This issue features recent

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 2006 are developing coatings systems that are environmentally benign, green processes for the synthesis of energetic materials, and a test method for characterizing particulate matter emissions from high-performance aircraft engines. ESTCP investigators are demonstrating alternatives to hexavalent chromium for corrosion protection as well as environmentally benign solvents, composite resins, sealants, and fire suppression compounds. 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

Information on these newly funded efforts can be found at www.serdp.org under the Research Projects link.

Environmentally Responsible Microbiological Production of Energetic Ingredients (WP-1515)

Principal Investigator: Vladimir Gilman/Infoscitex Corporation

This project will develop a biological process through which military-grade energetic materials (EM) can be produced without using strong acids and with minimal generation of hazardous or toxic by-products. It is anticipated that this process will reduce environmental burdens and their associated costs and will improve EM quality and yield.

Green Synthesis of Energetic Materials (WP-1516)

Principal Investigator: Jeff Bottaro/SRI International

The objective of this project is to develop an innovative process for the synthesis of triaminotrinitrobenzene (TATB), an indispensable component of the explosive primer for nuclear weapons, by the selective trimerization of nitroacetonitrile. This process will reduce pollutants generated in the current TATB synthesis process and may lead to a purer grade of TATB.

Benzylamine-Free, Heavy Metal-Free Synthesis of CL-20 (WP-1518)

Principal Investigator: Robert Chapman/Naval Air Weapons Station China Lake

CL-20 is an important new ordnance ingredient for DoD applications, yet its production suffers from several economic and environmental disadvantages. The objective of this project is to develop an environmentally benign synthesis process by preparing the hexaazaisowurtzitane cage in a form that is directly nitrolyzable to CL-20 without a requirement for expensive benzylamine starting material or heavy metal catalysts.

Corrosion Finishing/Coating Systems for DoD Metallic Substrates Based on Non-Chromate Inhibitors and Ultraviolet-Curable, Zero-VOC Materials (WP-1519)

Principal Investigator: Matt O'Keefe/University of Missouri-Rolla

This project will research, develop, and evaluate an environmentally friendly, chromate-free, zero-Toxics Release Inventory (TRI) chemical/volatile organic compound (VOC)/hazardous air pollutant (HAP) two-layer coating system based on rare-earth inhibitors and ultraviolet-curable coatings that meet or exceed current military corrosion requirements for metallic substrates. In addition to its environmental benefits, the coating fully cures in seconds, resulting in faster throughput and labor savings.

Ultraviolet-Curable Non-Chrome Primer and Advanced Topcoat System (WP-1520)

Principal Investigator: Nese Orbey/Foster-Miller, Inc.

The objective of this project is to develop sprayable, ultraviolet-curable corrosion-inhibiting primers and high-performance topcoats that will provide superior protection to aluminum substrates even when nonchromated surface pretreatments are employed. The environmentally benign coating system will have a long shelf

life, will not require premixing, and will be applied using existing equipment. In addition, the coatings can be used for rapid repairs in the field and reduce costs associated with aircraft maintenance.

Non-Chromate/No-VOC Coating System for DoD Applications (WP-1521)

Principal Investigator: John La Scala/Army Research Laboratory

This project will develop an environmentally friendly coating system that has near zero VOCs and no HAP emissions. Coatings formulations will not use chromium or lead as a corrosion-inhibiting agent, thereby reducing health risks and environmental damage. This coating system, designed as a whole, will perform as well as or better than current systems, helping to increase service life, decrease maintenance, and reduce pollution.

Development of an EPA Interim Particulate Matter Test Method (WP-1538)

Principal Investigator: William Voorhees/Naval Air Station Patuxent River

The objective of this project is to develop an Environmental Protection Agency-approved interim particulate matter (PM) test method that will provide legally defensible emission data required for basing decisions. The new PM test method will provide accurate emissions data, while saving DoD time and money as compared to the current approved test method.

ESTCP Demonstrations

Information on these newly funded efforts soon will be available at www.estcp.org under the Technologies link.

Low Temperature Cure Powder Coatings (WP-0614)

Principal Investigator: Richard Buchi/Ogden Air Force Base

This project will demonstrate, validate, and implement a VOC/HAP-free low temperature cure powder coating on DoD weapon system components in a depot production environment. Low temperature cure powder coatings may be applied to heat-sensitive substrates to meet corrosion protection requirements without compromising the structural integrity of the component. The new low temperature cure powder coating has the potential to eliminate more than 95% of the toxic and hazardous materials currently being used for the targeted components and equipment.

Demonstration/Validation of High Performance Corrosion Preventive Compound for Interior Aircraft Applications (WP-0615)

Principal Investigator: El Sayed Arafat/Naval Air Warfare Center Aircraft Division, Patuxent River

The objective of this project is to demonstrate and validate the newly developed high performance corrosion preventive compound, Navguard, on multiple aircraft platforms for long-term protection to minimize the environmental effects on aging aircraft. Expected DoD benefits include decreased aircraft downtime due to fewer scheduled maintenance inspections and maintenance actions, increased aircraft availability, lower corrosion repair costs, and reduced hazardous materials.

Weapons Systems and Platforms

Recently awarded Weapons Systems and Platforms efforts.

Demonstration/Validation of Tertiary Butyl Acetate for Hand-Wipe Cleaning Applications (WP-0616)

Principal Investigator: Wayne Ziegler/Army Research Laboratory

This project will demonstrate and validate the use of tertiary butyl acetate (TBAC) in DoD applications as a replacement for current hand-wipe cleaning solvents that contain HAPs and VOCs. Implementation of environmentally friendly solvents such as TBAC will reduce HAP and VOC emissions, improve worker health and safety, and significantly reduce the record-keeping burden associated with the National Emissions Standard for Hazardous Air Pollutants (NESHA) regulations.

Low VOC/HAP Compliant Resins for Military Applications (WP-0617)

Principal Investigator: John La Scala/Army Research Laboratory

The objective of this project is to demonstrate and validate a low-VOC/HAP resin technology for use in DoD applications. If successful, this cost-effective, low-VOC/HAP resin technology could be used at all Army repair facilities, naval ship yards, original equipment manufacturers, and DoD-contracted companies that use vinyl ester and unsaturated polyester for composite material processing.

Qualification of an Acceptable Alternative for Halon 1211 DoD Flightline Extinguishers (WP-0618)

Principal Investigator: William Leach/Naval Air System Command-Lakehurst

This project seeks to identify an alternative to the Halon 1211 150-pound flightline fire extinguisher that is acceptable to all Navy, Air Force, and Marine Corps stakeholders. Such an alternative would enable DoD to execute an orderly and economically feasible transition to the alternative fire suppressant before the supply of Halon 1211 is exhausted and direct impacts to flightline fire safety are realized.

Replacement of Cadmium-Plated Steels with S53 Stainless Steel in Rotary-Geared Actuators (WP-0619)

Principal Investigator: Ryan Josephson/Ogden Air Force Base

The objective of this project is to replace cadmium-plated high-strength steel in Leading Edge Flap Actuator Systems and Wing Fold Actuator Systems with S53 high-strength corrosion-resistant steel. S53 can be directly substituted for the existing cadmium-plated HP 9-4-30 steel, either by using its full strength or by modifying the heat treat to reduce the ultimate strength and increase toughness. Use of S53 will lead to increases in performance and reductions in hazardous waste and worker exposure to cadmium, a known carcinogen.

Supersonic Particle Deposition for Repair of Magnesium Aircraft Components (WP-0620)

Principal Investigator: Bruce Sartwell/Naval Research Laboratory

This project will demonstrate and validate supersonic particle deposition of aluminum alloy coatings for surface protection on magnesium alloy components found on DoD helicopters and fixed-wing aircraft. Current coatings used in these applications contain hexavalent chromium, a known carcinogen, and their production leads to large quantities of hazardous waste.

Qualification, Demonstration, and Validation of Compliant Removers for Aircraft Sealants and Specialty Coatings (WP-0621)

Principal Investigator: Alan Fletcher/Air Force Research Laboratory

This project will conduct a multiservice demonstration and validation of commercial-off-the-shelf, environmentally friendly nonabrasive products for removing sealants and specialty coatings from the external and internal surfaces of military aircraft structures. Such products will eliminate the need for high-VOC and hazardous material removers currently used and are expected to lead to faster coating strip rates.

Program Development Update

SERDP

Of the 198 full proposals SERDP received in response to its Solicitation for FY 2007 funds, 109 were from federal organizations, 27 from the private sector, and 62 from academic institutions. All full proposals have undergone an independent peer review evaluation and will be reviewed by the SERDP Technical Committees (STC) during June and July.

SERDP also received 46 SERDP Exploratory Development (SEED) proposals—13 from federal organizations, 19 from the private sector, and 14 from academic institutions. SEED efforts test proof-of-principle concepts during a one-year effort and cost less than \$100,000. These proposals have undergone SERDP Staff review and are included in the STC proposal downselect meetings in June and July.

Through an additional special solicitation for the Defense Coastal/Estuarine Research Program (DCERP), SERDP requested proposals for research to evaluate the effects of military activities on and to support the sustainable management of estuarine and coastal ecosystems using Marine Corps Base Camp Lejeune, North Carolina, and the New River estuary as a test site. Two proposals were received from federal organizations, one from the private sector, and two from academic institutions. These proposals have undergone review and are in the final stages of selection.

ESTCP

On January 5, 2006, ESTCP released both an FY 2007 Call for Proposals to non-DoD federal organizations and a Broad Agency Announcement to the private sector requesting pre-proposals under Environmental Restoration and Munitions Management focus areas. Also on January 5, a Call for Proposals was sent to DoD organizations soliciting pre-proposals in all four focus areas—Environmental Restoration, Munitions Management, Sustainable Infrastructure, and Weapons Systems and Platforms. Pre-proposals were due at the ESTCP Program Office by March 9.

Of the 100 pre-proposals received from non-DoD organizations, 12 were from federal organizations, 67 from the private sector, and 21 from academic institutions. DoD submissions totaled 101 pre-proposals. The ESTCP Technical Committees (ETC) are reviewing all pre-proposals submitted and will recommend proposers who should submit full proposals, which will be due in August.

For information about future solicitations, please visit www.serdp.org under the *Funding & Opportunities* link and www.estcp.org under the *Opportunities* link. ♦

WIDE AREA ASSESSMENT, from page 3

Data obtained using the high-altitude airborne sensors easily identified the aiming circles for the known targets as well as a number of previously unknown surface features. LiDAR detected features as low as 5 centimeters above the ground. In addition to the expected aiming circles around bombing target N-3, the LiDAR data also indicated a number of other features of interest including an elliptical-shaped ship target just to the east of the main target. At the NDIA, the LiDAR data revealed a number of craters indicating that bombs containing high explosives were used against that target.

The helicopter magnetometry and ground transect data complemented the high-altitude airborne data nicely. The magnetometry data showed magnetic anomalies that correspond to expected target areas in the northern portion of the site: target N-3 in the northwest corner and target N-2 in the east immediately stand out. In addition to the concentrations of buried ferrous metal within the aiming circles of target N-3, the helicopter magnetometry data showed anomalies clustered within and around the ship target but not in the area of the possible runways. These data can be used to bound the extent of the contaminated area around the target.

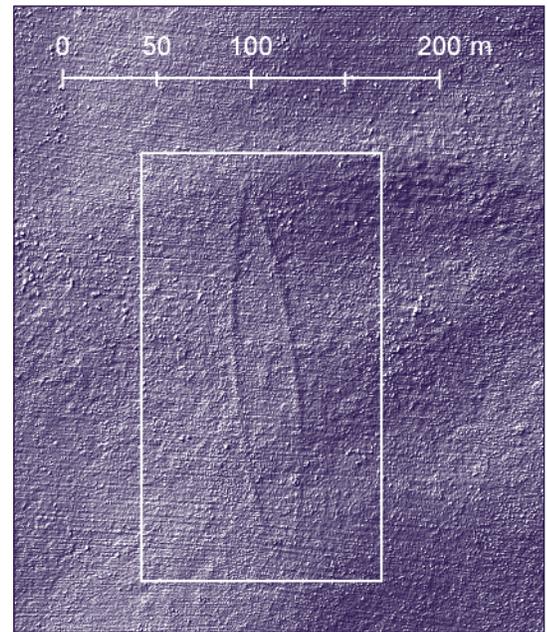
In addition, both helicopter magnetometry and ground transect data showed an area of concentrated ferrous

metal in the north central part of the site. The detail shows that there are hundreds of individual magnetic anomalies in this area. Combined with the surface features identified from the LiDAR data, this area was identified as the location of the SORT.

Central to WAA is identification of the absence or presence of munitions. The southern portion of the WAA study area at the former Kirtland Bombing Ranges was surveyed using all three technology layers. None of the data showed evidence of any munitions or munitions-related features. This is in contrast to identified target areas in other portions of the study area, which were all evident in multiple data layers.

The final phase of the demonstration at each site will consist of field reconnaissance and intrusive investigation such as digging some of the features and anomalies identified in the sensor data sets. This investigation will validate the survey results, provide information on types and distributions of munitions to guide planning, and confirm the absence of munitions-related material in the areas shown to be clear.

To date, the ESTCP WAA Pilot Program provides strong evidence for



LiDAR image showing raised earthen ship target at the former Kirtland Precision Bombing Ranges.

the benefits of wide area assessment. Initial results from the demonstrations clearly illustrate that the technologies are effective. If they are applied to suspected munitions sites, they have the potential to separate parcels with extensive munitions use from those that show no evidence of munitions activity, providing valuable information to support future investigation and remediation decisions.

For more information, please contact Dr. Herb Nelson, Naval Research Laboratory, Washington, DC, at (202) 767-3686 or via e-mail at herb.nelson@nrl.navy.mil. ♦

LAND-USE MODELS, from page 2

new mission requirements. Further, because RSim scenarios are run on widely available data, the model can be transferred to any region that has robust land-use and related datasets.

Successful ecosystem management on a regional scale requires a cooperative effort among stakeholders. The land-use models developed with SERDP support—mLEAM, SIRRA, and RSim—have been catalysts in opening lines of communication and

creating partnerships between military and non-military stakeholders. Through the continued development and use of these tools, regional managers will be able to direct growth in ways that minimize negative impacts to the military, the environment, and the local economy, ultimately sustaining the military's test and training activities.

For more information about the mLEAM or SIRRA models, please visit the Fort Future web site at

<https://ff.ccer.army.mil/ff/home.do> or contact Dr. James Westervelt, U.S. Army Corps of Engineers ERDC-CERL, Champaign, IL, at (217) 352-6511 or via e-mail at James.D.Westervelt@erdc.usace.army.mil. Additional information related to the RSim model is available at <http://www.esd.ornl.gov/programs/SERDP/RSim/index.html> or by contacting Dr. Virginia Dale, Oak Ridge National Laboratory, Oak Ridge, TN, at (865) 576-8043 or via e-mail at dalevh@ornl.gov. ♦

PROGRAM NOTES

S ♦ E ♦ R ♦ D ♦ P

- ◆ **THE SERDP SCIENTIFIC ADVISORY BOARD (SAB)** met in Aberdeen, Maryland, June 13-15 to review primarily ongoing proposals and next will meet in Arlington, Virginia, September 12-14 and October 17-19 to review primarily FY 2007 New Start proposals.

E ♦ S ♦ T ♦ C ♦ P

- ◆ **FULL PROPOSALS REQUESTED IN RESPONSE TO BOTH THE BROAD AGENCY ANNOUNCEMENT (BAA) AND THE DoD CALL FOR PROPOSALS ARE DUE TO THE ESTCP Program Office by 4:00 p.m. EDT on August 10, 2006.**

Recent Additions to the Online Library

The following new publications are 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

- White Paper: Bioaugmentation for Remediation of Chlorinated Solvents: Technology Development Status and Research Needs
- Cost & Performance Report: In Situ Remediation of a TCE-Contaminated Aquifer Using a Short Rotation Woody Crop Groundwater Treatment System (ESTCP ER-9519)
- Cost & Performance Report: Field Demonstration and Validation Dissolved Hydrogen Analyzer (ESTCP ER-0009)
- Final Report: Edible Oil Barriers for Treatment of Perchlorate-Contaminated Groundwater (ESTCP ER-0221)
- Interim Report: Results and Lessons Learned from Detailed Investigation of Vapor Intrusion at Altus AFB (ESTCP ER-0423)

Munitions Management

- Cost & Performance Report: Decontamination of Test Range Metal Debris Using a Transportable Flashing Furnace (ESTCP MM-0412)

Weapons Systems and Platforms

- Cost & Performance Report: Replacement of Chromium Electroplating on Gas Turbine Engine Components Using Thermal Spray Coatings (ESTCP WP-0023)
- Cost & Performance Report: Portable Handheld Laser Small Area Supplemental Coatings Removal System (ESTCP WP-0027)
- Final Report: Replacement of Non-Toxic Sealants for Standard Chromated Sealants (SERDP WP-1075)
- Final Report: Critical Factors for the Transition from Chromate to Chromate-Free Corrosion Protection (SERDP WP-1119)
- Final Report: All-Organic Supercapacitors as Alternatives to Lithium Batteries (SERDP WP-1359)
- Final Report: Replacement of Chromium Electroplating on Gas Turbine Engine (GTE) Components Using Advanced Thermal Spray Technologies (ESTCP WP-0023)



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

INFORMATION BULLETIN

SPRING 2006

NUMBER 27

SERDP Executive Director	Bradley Smith
ESTCP Director and SERDP Technical Director	Dr. Jeffrey Marquese
Program Manager for Munitions Management	Dr. Anne Andrews
Program Manager for Sustainable Infrastructure	Dr. John Hall
Program Manager for Environmental Restoration	Dr. Andrea Leeson
Program Manager for Weapons Systems and Platforms	Charles Pellerin
Financial Specialist	Jina Banks
Communications and Publications Manager	Valerie Eisenstein

SERDP and ESTCP
Program Office 901 North Stuart Street
Suite 303
Arlington, Virginia 22203

Phone (703) 696-2117
Fax (703) 696-2114
www.serdp.org www.estcp.org
DSN 426-2117

The Partners in Environmental Technology Information Bulletin is written and published quarterly by HydroGeoLogic, Inc., under contract W9128F-04-D-0025. All written information contained in the Information Bulletin is public and not copyrighted.

Information and ideas for future articles are always welcome. Address comments and suggestions to

Valerie Eisenstein
SERDP and ESTCP Support Office
c/o HydroGeoLogic, Inc.
1155 Herndon Parkway
Suite 900
Herndon, Virginia 20170
e-mail: veisenstein@hgl.com
Phone (703) 736-4513
Fax (703) 478-0526

To be added to our mailing list or to request an address change, please send an e-mail to partners@hgl.com.

C ♦ A ♦ L ♦ E ♦ N ♦ D ♦ A ♦ R

F O R S E R D P A N D E S T C P

JUNE 2006

June 20

Weapons Systems and Platforms (WP) SERDP Technical Committee (STC) selection meeting (closed meeting)

June 21

Munitions Management (MM) SERDP Technical Committee (STC) selection meeting (closed meeting)

June 22

Sustainable Infrastructure (SI) SERDP Technical Committee (STC) selection meeting (closed meeting)

JULY 2006

July 6-7

Environmental Restoration (ER) SERDP Technical Committee (STC) selection meeting (closed meeting)

July 31

Call for Poster Abstracts closes for SERDP and ESTCP's Partners in Environmental Technology Technical Symposium & Workshop

AUGUST 2006

August 10

Requested full proposals due for ESTCP FY 2007 solicitation

SEPTEMBER 2006

September 7-8

Sustainable Infrastructure (SI) ESTCP Technical Committee (ETC) downselect meeting (closed meeting)

September 12-14

SERDP Scientific Advisory Board (SAB) meeting, Arlington, Virginia

Mid-September

SERDP Executive Working Group (EWG) meeting

September 18-20

Environmental Restoration (ER) ESTCP Technical Committee (ETC) downselect meeting (closed meeting)

September 21-22

Weapons Systems and Platforms (WP) ESTCP Technical Committee (ETC) downselect meeting (closed meeting)

September 26-27

Munitions Management (MM) ESTCP Technical Committee (ETC) downselect meeting (closed meeting)

Last Week in September

SERDP Council meeting

RELATED CONFERENCES & EVENTS

June 24-28

Society for Conservation Biology Annual Meeting
San Jose, California

*For more information, visit
<http://www.conbio.org/2006/>.*

July 10-13

UXO/Countermine/Range Forum 2006
Las Vegas, Nevada

*For more information, visit
<http://www.theforum2006.com/>.*

August 6-11

Ecological Society of America 91st Annual Meeting
Memphis, Tennessee

*For more information, visit
<http://www.esa.org/memphis/>.*

August 7-10

15th Annual Integrated Training Area Management (ITAM) Workshop
Manhattan, Kansas

*For more information, visit
<https://srp.army.mil/ITAM/Workshop/UpcomingWorkshop.aspx?Areald=5>.*

Printed on
recycled paper



Send an e-mail to partners@hgl.com
Address change?

SERDP and ESTCP
Support Office
c/o Hydrogeologic, Inc.
1155 Herndon Parkway
Suite 900
Herndon, VA 20170



B ♦ U ♦ L ♦ E ♦ T ♦ I ♦ N

INFORMATION

RESTON, VA
PERMIT NO. 6342
PAID
U.S. POSTAGE
PRESORT STD