



Contamination Avoidance Detector Test Suite (CADTS)

by Lorraine C. Castillo and Arthur R. Maret Ph.D.

Several advanced standoff detector systems for both chemical and biological threats are being developed for the Armed Services. New testing technologies and evaluation methodologies must be developed for these emerging systems. The CADTS project is funded by the Central Test and Evaluation Investment Program (CTEIP) under the auspices of the Director for Operational Test and Evaluation (DOT&E). This agency is responsible to DoD and Congress for the adequate testing of any military hardware before release to the warfighter. CADTS is developing ten new capabilities with the goal of providing short term solutions to critical CB testing needs.

Table 1. CADTS Subproject Status

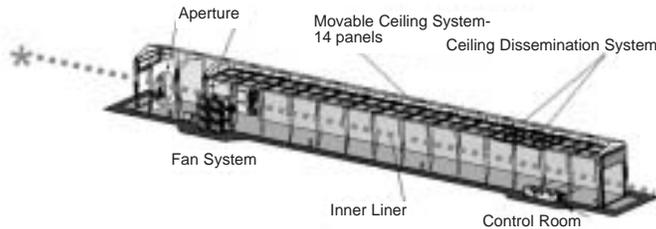
SUBPROJECT	PERFORMER	START‡	END
Biological Agent Inactivation Facility	DPG	4Q02	1Q05
Joint Ambient Breeze Tunnel	Battelle	2Q03	3Q05
Biological Simulant Optimization	DPG	1Q04	3Q05
PCR Biological Referee System	Battelle/DPG	4Q03	4Q05
Active Standoff Test Facility	Battelle	2Q03	1Q06
Passive Cloud Tracking	DPG	2Q04	4Q06**
Advanced LIDAR	APL*/DPG	1Q03	4Q07**
Active Dynamic Spectral Projector	ACM Systems†	1Q04	4Q07
Realistic Threat Generation	DPG	1Q04	4Q07
Portable Simulant CB Cloud Generator	DPG	1Q05	4Q07

* Applied Physics Laboratory of Johns Hopkins University.

** Partial capability in FY05.

† For Phase I Feasibility Study.

‡ All dates refer to the Federal Fiscal Year.



Artist Conception of the Joint Ambient Breeze Tunnel at Dugway Proving Ground, Utah

CADTS Coordinated Approach to Requirements Generation

The CADTS project team devoted considerable effort to coordinating its efforts with the entire DoD CB research and test community. The output of several workshops was the development of a Test Capability Requirements Document (TCRD) that focused on seven broad areas of opportunity:

- Area 1. Cloud tracking/field testing
- Area 2. Threat generation
- Area 3. Agent/simulant correlation
- Area 4. Chamber referee systems
- Area 5. Test fixtures
- Area 6. Data integration
- Area 7. Modeling and simulation.

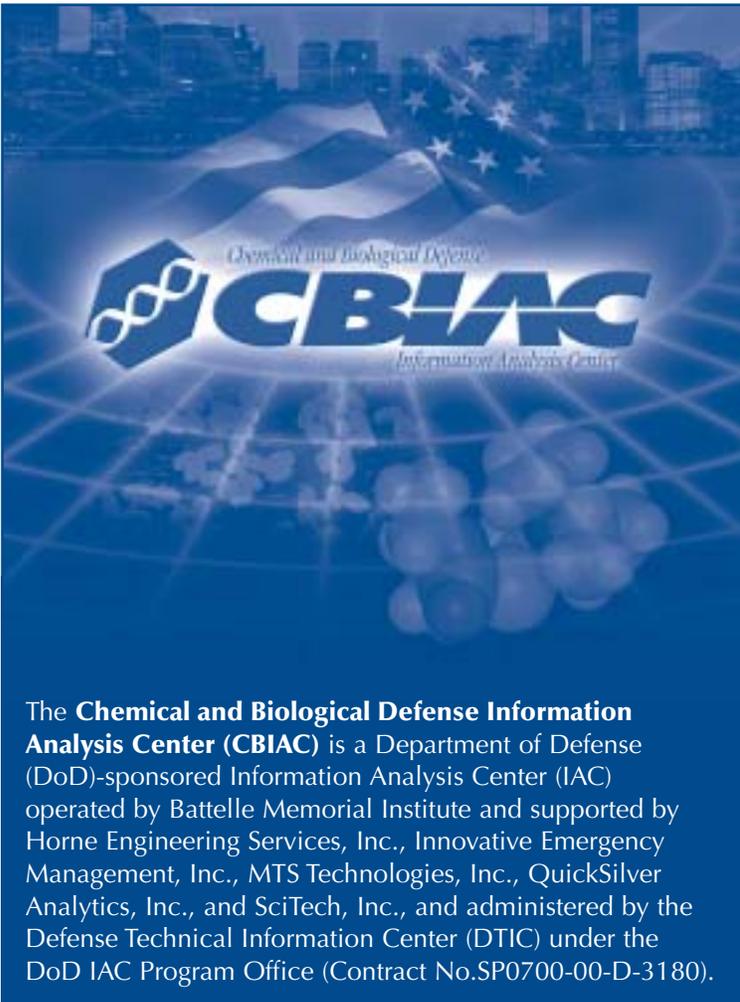
Fifty-one proposals were submitted by Dugway Proving Ground (DPG). A technical and economic Benefits Analysis resulted in the selection of ten subprojects for funding as shown in Table 1.

CADTS Will Deliver Four Capabilities in 2005

Contamination avoidance refers to the military doctrine of avoiding or minimizing the effects of Chemical and Biological (CB) threats. The location, identification and tracking of CB hazards are also a major concern for Homeland Security.

Biological Simulant Optimization (BSO) In this subproject, CADTS is working in conjunction with the Joint Biological Standoff Detector System (JBSDS) Program and Sandia National Laboratory to evaluate the spectral properties of over thirty varieties of live and irradiated (killed) biological agents and simulants. Accurate spectral characteristics are a key element in optimizing the alarm performance of any Light Detection and Ranging (LIDAR) standoff detector. All biological materials have been prepared and spectral measurements were completed last December.

Joint Ambient Breeze Tunnel (JABT) Field testing in the open air using simulant clouds is subject to many types of error due to atmospheric perturbations—and in addition is very expensive and time consuming.



The CBIAC Contracting Officer's Technical Representative (COTR) may be contacted at the following address:

CDR USA RDECOM
Edgewood Chemical Biological Center
ATTN: AMSRD-ECB-RT (CBIAC COTR)
5183 Blackhawk Road
Aberdeen Proving Ground, MD 21010-5424

U.S. Government agencies and private industry under contract to the U.S. Government can contact the CBIAC for information products and services. CBIAC services also extend to all state and local governments and the first responder community, to include local emergency planners, firefighters, medics and law enforcement personnel.

Approved for Public Release; Unlimited Distribution



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The **CBIAC Newsletter**, a quarterly publication of the CBIAC, is a public release, unlimited distribution forum for chemical and biological defense information. It is distributed in hardcopy format and posted in Portable Document Format (PDF) on the CBIAC Homepage.

The CBIAC welcomes unsolicited articles on topics that fall within its mission scope. All articles submitted for publication consideration must be cleared for public release prior to submission. The CBIAC reserves the right to reject or edit submissions. For each issue, articles must be received by the following dates: Winter (First Quarter) – October 15th; Spring (Second Quarter) – January 15th; Summer (Third Quarter) – April 15th; Fall (Fourth Quarter) – July 15th.

All paid advertisements and articles are subject to the review and approval of the CBIAC COTR prior to publication. The appearance of an advertisement or article in the **CBIAC Newsletter** does not constitute endorsement by the DoD or the CBIAC.

The CBIAC is located in building E3330, Room 150, Aberdeen Proving Ground-Edgewood Area, Maryland 21010. For further information or assistance, visit or contact the CBIAC.

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<http://www.cbiac.apgea.army.mil/>

Commander, 20th Support Command (CBRNE) Promoted To Brigadier General



By Barry Napp

The commander of 20th Support Command (Chemical, Biological, Radiological, Nuclear and high-yield Explosives or CBRNE), one of the Army's newest and most unique command and control headquarters elements, was promoted by Commanding General Dan K. McNeill, U.S. Army Forces Command.

Brig. Gen. Walter L. Davis is the first commander of the 20th Support Command (CBRNE). Activated last October at Aberdeen Proving Ground, Maryland, the new command is a U.S. Army Forces Command (FORSCOM) major subordinate command and brings together command and control of the Army's most specialized weapons of mass destruction operational assets. This new organization provides a single point of contact within the Army for the Department of Defense to call when a coordinated response to the threat or use of WMD is needed anywhere in the world.

"We are a changing Army and must remain flexible as we're at war," said McNeill. Walt Davis is a special person with demonstrated action leadership who will help to make this Army great during this change, not only today, but tomorrow as well."

Present subordinate units include 22d Chemical Battalion (formerly Technical Escort Unit) and 52d Ordnance Group (Explosive Ordnance Disposal), but future growth of the command will include activation of an additional explosive ordnance disposal group with three subordinate battalions, chemical brigade headquarters with an additional chemical battalion and an Analytical and Remediation Directorate. The Army Reserve Unit – Consequence Management is also under operational control of the 20th Support Command (CBRNE).

"This promotion is a special event for both me and my family. They have given me unwavering support and encouragement throughout my entire career," said Davis. "For sure, I have served with the Nation's finest soldiers, NCOs and officers; it is they that have directly impacted on any successes I may have had in the past, or will experience in the future. It is simply a privilege to continue to serve our nation during this critical time of war. "

The command is also responsible for managing DoD technical support to consequence management operations and provides CBRNE technical advice and subject matter expertise. The

organization can mitigate hazards resulting from an incident

involving the nation's chemical warfare stockpile;

recovery and disposal of legacy chemical and biological munitions

and materials from formerly used defense sites (FUDS); conduct

technical escort of chemical surety materiel in

support of the management of chemical stockpile and chemical

defense research and development. The

unique command has technical expertise to conduct sensitive site exploitation, disablement, disposition,

demilitarization and consequence management operations as well as support U.S. Secret Service and

Department of State operations protecting the president and other designated very important persons.

"When fully operational, this Headquarters will command and control existing and future programmed CBRNE response assets that can simultaneously respond to multiple incidents in support of combatant commanders and the joint team both at home and around the world," said Davis. "I'm excited and proud to be a member of this team of professionals."

Davis is a distinguished military graduate from the College of William and Mary where he was commissioned a regular Army officer in 1979. He holds a Bachelor of Science in Physical Education and a Master's Degree in National Resource Strategy. He is a graduate of the Command and General Staff College and the Industrial College of the Armed Forces.

His last assignment was Chief of Readiness Division, Deputy Directorate for Global Operations, Operations Directorate (J-3), Joint Staff, the Pentagon.

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Contract Awards • by Mary Frances Tracy

Provide a Full Range of Planning, Analysis, Exercise, and Information Technology Services for Chemical, Biological, Radiological, Nuclear, and High-Yield Explosive (CBRNE) Consequence Management Operations

Titan Corporation
San Diego, CA
\$163,900,000 (with options) January 12, 2005
By United States Northern Command for the U.S. Joint Task Force Civil Support, Ft. Monroe, VA

Japanese Encephalitis Vaccine

Aventis Pasteur, Inc.
Swiftwater, PA
\$16,956,500 January 31, 2005
By Defense Supply Center Philadelphia, Philadelphia, PA

Fox M93A1 Nuclear, Biological, Chemical Reconnaissance Vehicle

General Dynamics Land Systems, Inc.
Sterling Heights, MI
\$11,500,000 (part of a \$39,321,189 cost-plus-fixed-fee contract) January 31, 2005
By U.S. Army Tank-Automotive and Armaments Command, Rock Island, IL

New MWIR Sources for Standoff Detection

EIC Laboratories, Inc.
Norwood, MA
\$157,835 February 7, 2005
By U.S. Army Research, Development and Engineering Command Acquisition Center, Research Triangle Park, NC

Develop an Operational Experiment Prototype That Demonstrates the Feasibility and Performance of Integrating Relevant U.S. and International Military and Civilian Resources and Sensor Data for Pre-Engagement Planning

BAE Systems
San Diego, CA
\$9,847,509 February 14, 2005
By Missile Defense Agency, Washington, DC

23,711 M40A1 Masks

ILC Manufactured Products Division
Frederica, DE
\$4,583,336 (part of a \$56,655,524 firm-fixed-price contract) February 14, 2005
By U.S. Army Tank-Automotive and Armaments Command, Rock Island, IL

Studies to Evaluate the Toxicologic Potential of Selected Test Agents for the National Toxicology Program (NTP)

Battelle Memorial Institute
Columbus, OH
Base \$27,606,077 (options of \$61,581,410) February 16, 2005
By Department of Health and Human Services, National Institutes of Health, National Institute of Environmental Health Sciences, Research Triangle Park, NC

Anti-Toxin Aptamers for Anthrax Infection

Conceptual Mindworks, Inc.
San Antonio, TX
\$1,324,494 February 22, 2005
By USAF/AFMC, Wright-Patterson AFB, OH

Reactive Iodine Biocidal Air Filtration Membrane

Triosyn Corporation
Williston, VT
\$4,115,901 February 24, 2005
By U.S. Army Research, Development and Engineering Command Acquisition Center, Research Triangle Park, NC

Initial Fielding Packages and System Support Packages to Support the Joint Biological Point Detection System

General Dynamics Armament and Technical Products
Charlotte, NC
\$15,859,254 March 2, 2005
By U.S. Army Research, Development and Engineering Command, Aberdeen Proving Ground, MD



*Serving the CB Defense and
Homeland Security communities*

ABCDF Processes Final Batch of Mustard Agent Drained from Last Aberdeen Container

Public Affairs, Chemical Materials Agency

On March 11, 2005, workers at the Aberdeen Chemical Agent Disposal Facility (ABCDF), located at the Edgewood Area of Aberdeen Proving Ground (APG), MD, achieved a major milestone when the last batch of mustard agent was neutralized by the facility. This marks the end of draining and neutralizing APG's chemical agent stockpile.

Maryland is the first state in the continental United States to process the drained contents of its stockpile and to have the risk posed by a chemical agent stockpile eliminated.

"This is a great day for the people of Maryland and for the global chemical weapons disarmament effort," said U.S. Army Chemical Materials Agency (CMA) Director Michael Parker. He added, *"A stockpile of steel containers holding one of the world's most lethal substances since 1941 has now been safely destroyed. The safety threat to the local community is gone and the worldwide threat of chemical weapons further reduced."*

"We had to overcome a series of technical challenges starting up a first-of-a-kind plant, but a combined work force of 500 government and Bechtel team contractor personnel rose to the occasion and resolved each and every issue," explained Edgewood Chemical Activity (ECA) and ABCDF Commander Lt. Col. Gerald L. Gladney.

Workers at the facility began destroying the stockpile in April 2003. It took 18 months to drain and destroy the first half of the liquid agent; the second half took slightly more than four months.

The ABCDF work force had many partners in this effort, according to Army Site Project Manager Joe Lovrich. *"...many people...have worked tirelessly to convert a technology developed in an Army laboratory to a multi-acre industrial complex designed to safely destroy one of the nation's stockpiles of chemical weapons. Our success in reaching this milestone is a direct result of our partnerships with countless APG installation organizations, environmental regulators, emergency response agencies and the citizens of Maryland who endured the presence of the stockpile for more than 60 years."*

"At our groundbreaking ceremony, six years ago this June," recalled Bechtel Defense & Space President Jan Van

Prooyen, *"the Bechtel Aberdeen team committed itself to providing the community, the Army and our nation with safe, disciplined, environmentally compliant chemical disposal. Now, thanks to the dedication of several hundred men and women... I can acknowledge with pride that Bechtel Aberdeen has delivered on that commitment."*

The steel containers that held the agent continue to be cleaned of residual agent solids, cut in half and decontaminated at the ABCDF's Ton Container Cleanout Facility. The last remnants of the stockpile, agent residue in the ton containers, referred to as the heel, are being removed using a high-pressure spray wash in this facility. These operations are scheduled for completion next winter. The entire facility will then enter a closure phase in which plant equipment is dismantled and decontaminated.

CMA, Maryland, and the United States achieved another significant milestone on Tuesday, March 8, 2005, when inspectors from the Organisation for the Prohibition of Chemical Weapons (OPCW) completed a final inspection of ECA's Chemical Agent Storage Yard (CASY) and confirmed that all mustard agent-filled ton containers had been removed from storage. This completed ECA's obligations under the Chemical Weapons Convention treaty for CASY. No future inspections of the CASY by the OPCW are required.

Currently, chemical weapons disposal operations in Utah, Maryland, Alabama, Oregon, and on Johnston Island where operations were completed in November 2000, have resulted in the safe destruction of more than 35 percent of the nation's declared chemical weapons stockpile involving 42 percent of originally declared munitions. APG is the first of eight U.S. Army stockpile sites in the continental United States to have

emptied its stockpile storage area, eliminating the risk the stored agent posed to its surrounding communities during the past six decades. Disposal operations are set to begin in Arkansas and Indiana in the next couple of months.



Above: Edgewood Chemical Activity and 22d Chemical Battalion workers and officials look on as the last ton container is transported from the CASY to the ABCDF's Process Neutralization Bay.

Right: An ABCDF Control Room Operator logs the transfer of the last batch of neutralized mustard agent as it transferred to a storage tank as agent-free waste water.

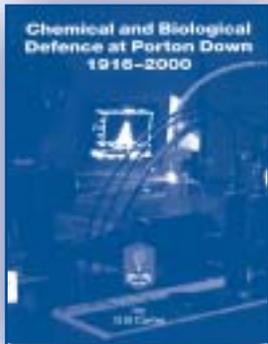


More information on these stockpile sites and the U.S. Army's chemical demilitarization program, as well as photographs of the final batch transfer can be found at <http://www.cma.army.mil>.

New CBIAC Information Resources • By Richard M. Gilman

Books

Carter, G.B. **Chemical and Biological Defence at Porton Down 1916-2000**. London: The Stationery Office, 2000.



The history of Porton Down as a CBD research and development facility is covered in seven chapters. Among the most interesting to students of CBD history are "The Second World War 1939-1945," "The Post-War Years," and "The Last Four Decades 1960-2000."

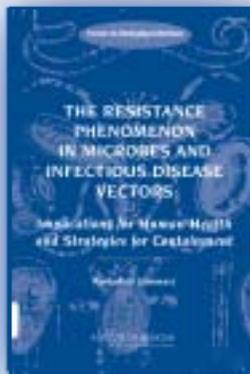
Includes numerous illustrations, an appendix describing the fundamentals of chemical and biological warfare, a selected bibliography, a general bibliography and an index.

CB-192367
ISBN 0-11-772377-7
The Stationery Office
P.O. Box 29, Norwich NR3 1GN
Phone: 0870 600 5522
Fax: 0870 600 5533

Forum on Emerging Infections, Institute of Medicine.
Resistance Phenomenon in Microbes and Infectious Disease Vectors: Implications for Human Health and Strategies for Containment. Washington, D.C.: National Academy Press, 2004.

Topics receiving chapter-length treatment include microbial resistance, vector resistance, "factors contributing to the emergence of resistance," and "emerging tools and technology for countering resistance." Includes numerous figures, tables and seven appendices.

CB-191840
ISBN 0-309-08854-2
National Academy Press
Box 285
2101 Constitution Ave., N.W.
Washington, D.C. 20055
Phone: 1-800-624-6242 or 202-334-3313
<http://www.nap.edu>

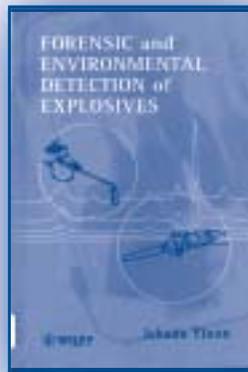


Walker, R.I., Cervený, T.J. (eds) **Textbook of Military Medicine: Medical Consequences of Nuclear Warfare**. Falls Church, VA: TMM Publications, Office of the Surgeon General, Department of the Army, United States of America, 1989.
<http://www.afrii.usuhs.mil/www/outreach/books.htm>

Topics receiving chapter-length treatments include "Acute radiation syndrome in humans," "Triage and treatment of

radiation-injured mass casualties," "Infectious complications of radiation injury," "Biological assessment of radiation damage," and "Long-term and low-level effects of ionizing radiation." Includes an index.

CB-027369
TMM Publications
Office of the Surgeon General
5109 Leesburg Pike
Falls Church, VA 22041



Yinon, Yehuda. **Forensic and Environmental Detection of Explosives**. New York: John Wiley, 1999.

Topics receiving chapter-length treatment include vapor detection methods, probing radiation detection technologies, systems integration and performance testing, tagging of explosives, and techniques for the environmental detection of explosives. Includes an index.

CB-192899
ISBN 0-471-98371-3
John Wiley & Sons
605 Third Avenue
New York, NY 10158
Phone: 877-762-2974
Fax: 800-597-3299

Documents

Research Advisory Committee on Gulf War Veterans' Illnesses.
Scientific Progress in Understanding Gulf War Veterans' Illnesses: Report and Recommendations. Washington, D.C.: Veterans Administration, 2004.
http://www1.va.gov/rac-gwvi/docs/ReportandRecommendations_2004.pdf

"This report provides the Committee's key findings and recommendations about the nature and scope of Gulf War veterans' illnesses and the urgent need for treatments that improve the health of ill veterans. It includes findings from the Committee's review of information regarding neurological aspects of veterans' illnesses and their potential linkages to neurotoxic exposures encountered during the Gulf War..." (Executive Summary).

CB-161757
Veterans Administration
810 Vermont Ave., NW
Washington, D.C. 20420
Phone: 800-749-8387



Tests Confirm the Explosive Destruction System's (EDS) Ability to Destroy Biological Agents

By Mike Janes

From the beginning, researchers at the National Nuclear Security Administration's Sandia National Laboratories, the creators of the Army's Explosive Destruction System (EDS), suspected the system could, in addition to snuffing out chemical warfare material, treat and destroy biohazards such as those containing anthrax. Such a system could give homeland security personnel a tool for safely neutralizing a dormant terrorist device, or it could be used by the military to remove a land mine or canister shell without having to set off an open-air explosion.

A just-released study at Sandia confirms EDS's effectiveness against biological agents, bio-contaminated containers, and improvised biological devices. Sandia sponsored the study itself, spending \$60K in Laboratory-Directed Research and Development (LDRD) funds over the past year to confirm the capability. The report, says Sandia researchers, augments the system's already established capability to destroy explosively configured munitions containing chemical agents.

"There's high value in extending the EDS's successful track record into other areas — and bio came to mind right away," said Mary Clare Stoddard, a Sandia manager overseeing the research activity in Livermore. With the BioEDS project, said Stoddard, Sandia's goal was to generate the data to confirm that this already-robust technology could be readily adapted to destroy a bioagent. Now, noted Stoddard, *"that means that should the need arise, a solution stands ready."*

First delivered to the U.S. Army in 1998 and under the sponsorship of the U.S. Army Non-Stockpile Chemical Materiel

Project, the EDS is a proven, transportable system that has safely neutralized and discarded recovered chemical warfare material in an environmentally sound manner. It was originally conceived for use with World War I and World War II vintage chemical warfare materials.

In 2000, the EDS was first called to action when it was selected to destroy six sarin-filled nerve agent bomblets found in a pile of scrap metal at Rocky Mountain Arsenal near Denver, Colorado. In 2001, EDS safely destroyed an additional four sarin bomblets at the same site, while the following year it destroyed a 4.2-inch mortar containing phosgene that was found in a farmer's field in Gadsden, Alabama. The surrounding land was previously used as a former World War II Army training base.

The EDS, which weighs up to 55,000 pounds, mounts on an open flatbed trailer, making it easily transportable for rapid response to emergency recovery sites. Components of the system include:

- A rotating vessel that contains the blast, vapor and fragments generated by the munition treatment process and serves as the container for the chemical neutralizing process
- A system of linear and conical charges to open the munition
- A chemical storage and feed system that supplies reagents and water to the containment vessel
- A waste handling system for draining and storing the treated effluent.

The system operates by first explosively opening the casing and deactivating explosives, then neutralizing harmful agents.

The bioagent treatment system for the EDS platform was developed by Sandia, which performed tests with anthrax simulants such as *Bacillus thuringiensis* and *Bacillus stearothermophilus*. The test system was operated in steam autoclave, gas fumigation, and liquid decontamination modes of operation. Additional tests with chlorine dioxide and chlorine bleach solution were also performed, and the opening of a container explosively was demonstrated to expose the bacterial spores prior to treatment. Each of the three treatment processes used during testing resulted in complete neutralization of the bacterial spores based on no bacterial growth in post-treatment incubations.

Sandia has worked with the Army to build five EDS units, which were originally expected to treat one to



The Explosive Destruction System (EDS) can be transported to sites where material may not be safe to store or transport.

Calendar of Events

If you would like to have a Chemical and/or Biological Defense or Homeland Security course or event posted on the CBIAC Calendar of Events, submit the pertinent information via email to cbiac@battelle.org. Due to space limitations, the CBIAC will accept submissions on a first-come, first-served basis and reserves the right to reject submissions. For a more extensive list of events, visit our website at <http://www.cbic.apgea.army.mil/>.

May 18-19, 2005

2005 NCI-Frederick/Ft. Detrick Spring Research Festival

Frederick, MD

<http://web.ncifcrf.gov/events/springfest/>

May 22-25, 2005

16th Annual BCC Conference: Recent Advances in Flame Retardancy of Polymeric Materials

Stamford, CT

<http://www.bccresearch.com/conferences/flame2005>

May 23-26, 2005

Defense Procurement and Acquisition Policy, E-Business Conference

Orlando, FL

<http://www.dodebconference.com>

<http://www.acq.osd.mil/dpap/ebiz/ebconference2005.htm>

May 23-27, 2005

National OPSEC Conference & Exhibition

San Diego, CA

<http://www.iooss.gov/conf/noce.html>

May 24-25, 2005

Homeland Security Summit & Exposition

Washington, DC

<http://www.aviationnow.com/conferences/hssemmain.htm>

May 24-26, 2005

CPM 2005 WEST

Las Vegas, NV

<http://www.contingencyplanning.com/events/west/index.aspx>

May 24-26, 2005

World Pharmaceutical Congress

Philadelphia, PA

<http://www.worldpharmacongress.com>

May 24-27, 2005

Remediation of Chlorinated and Recalcitrant Compounds

Monterey, CA

<http://www.battelle.org/environment/er/conferences/chlorcon/default.stm>

May 24-27, 2005

TIEMS Annual Conference 2005

Faroe Islands

<http://www.tiems.org/>

May 25-26, 2005

READY!™

Washington, DC

<http://www.readyusainfo.com/>

May 25-26, 2005

GOVSEC™

Washington, DC

<http://www.govsecshow.com/>

May 25-26, 2005

US Law Enforcement™

Washington, DC

<http://www.uslawenforcement.com/>

May 25-26, 2005

Combating WMD: A National Architecture for a New Century

Washington, DC

<https://www.seeuthere.com/rsvp/invitation/invitation.asp?id=m2c640-830128729036>

May 26-27, 2005

Contamination Monitoring Technologies Seminar

Bellevue, WA

<http://www.awwa.org/education/seminars/index.cfm?SemID=47>

June 1-2, 2005

2005 Defense Medical and Procurement Conference and Exhibition

Washington, DC

<http://www.marketaccess.org/MEDCONF2005.asp>

June 1-2, 2005

Psycho-social Aspects of Catastrophic Disasters: Preparing Healthcare Professionals for New Challenges in the Medical Arena

Washington, DC

http://www.marketaccess.org/event_socialaspects.asp

June 2, 2005

Hospital Emergency Management: Concepts and Implications of WMD Terrorist Incidents

Los Alamitos, CA

<http://rohrbacher.house.gov/homelandsecurity/>

<http://rohrbacher.house.gov/UploadedFiles/Hospital%20EM%20june%202005.pdf>

June 2-5, 2005

2005 International Hazardous Materials Response Teams and Conferences (HAZMAT 2005)

Hunt Valley, MD

<http://www.iafc.org/conferences/hazmat/index.asp>

Calendar *cont.*

June 5-8, 2005

Advances in Structure-Based Drug Discovery

Philadelphia, PA

<http://www.chemistry.org/portal/a/c/s/1/acsdisplay.html?DOC=acsprospectives%5c05structurebased%5cindex.html>

June 6-9, 2005

In Situ and On-Site Bioremediation

Baltimore, MD

<http://www.battelle.org/environment/er/conferences/biosymp/default.stm>

June 6-9, 2005

2005 Special Operations Forces Week and Advance Planning Briefing to Industry Conference

Tampa, FL

<http://soal.socom.mil>

June 6-9, 2005

Sensors Expo & Conference 2005

Rosemont, IL

<http://www.sensorexpo.com/spring04/V41/index.cvn?>

June 6-9, 2005

Obscurants 2005

Orlando, FL

<http://www.bah-abingdon.com/Obscurants2005/>

June 9-10, 2005

BioDetection Technologies 2005: Technical Responses to Biological Threats

Baltimore, MD

<http://www.knowledgefoundation.com>

June 20-22, 2005

CBRN Research and Technology Initiative (CRTI) Summer Symposium

Quebec, Canada

http://www.crti.drdc-rddc.gc.ca/symposium/symposium2005_e.html

June 21-23, 2005

Collective Protection Conference

Monterey, CA

http://register.ndia.org/interview/register.ndia?PID=Brochure&SID=_1GB0O9TB3&MID=5460

June 23, 2005 8:00 a.m. - 5:00 p.m.

Contamination Avoidance Detector Test Suite (CADTS) Results Symposium

Johns Hopkins University, Kossiakoff Conference Center, Laurel MD

Open to U.S. Government and its contractors

POC: arthur.maret@peostri.army.mil

Hospital Management of CBRNE Incidents Course

“Go Where the Experts Learn”

Hospital Management of Chemical, Biological, Radiological/Nuclear, and Explosive (HM-CBRNE) Incidents

is conducted jointly by the U.S. Army Medical Research Institute of Chemical Defense (USAMRICD), the U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID) and the Armed Forces Radiobiology Research Institute (AFRRI). This course is designed to equip military and civilian hospital-based medical and management professionals with skills, knowledge and information resources to carry out the full spectrum of health care facility responsibilities required by a CBRNE or mass casualty event. Classroom and practical application instruction focuses on diagnosis, treatment, and incident management in response to mass casualty events of all types, including incidents involving weapons of mass destruction. The course provides healthcare professionals with management skills necessary to deal with the medical, physical, economic and other challenges posed by such incidents.

Course content includes specific discussion of and compliance strategies related to the newest (January 2004) Joint Commission on Accreditation of Healthcare Organizations (JCAHO) Environment of Care standards, including requirements concerning hospital roles in response to terrorist incidents.

Teaching methodology includes lecture, field training exercise, demonstration/hands-on practice, multimedia presentation, group discussion, educational displays, and printed instructional and reference materials.

Date: August 15-19, 2005

Training Location: U.S. Army Medical Research Institute of Chemical Defense (USAMRICD), Chemical Casualty Care Division, Aberdeen Proving Ground – Edgewood Area, MD.

Cost: \$850.00

Target Audience: Hospital-based medical professionals, including physicians, nurses, dentists, paramedical professionals, hospital administrators, medical planners, and others who plan, conduct, or have responsibility for hospital management of mass casualty incidents and/or terrorism preparedness.

CME and CEU credits are available.

Interested in this course? Please go to <https://ccc.apgea.army.mil/courses/cbrne/> to obtain more information and register.

DoD IACs: Focused Scientific and Technical Information Resources

Introducing *SURVIAC*

Survivability/Vulnerability Information Analysis Center



SURVIAC is the DoD focal point for nonnuclear survivability/vulnerability data, information, methodologies, models and analysis relating to U.S. and foreign aeronautical and surface systems.

Scope

SURVIAC's scope covers the survivability of U.S. weapon systems to non-nuclear threat weapons as well as the effectiveness of U.S. weapons against foreign systems. Homeland Security/Homeland Defense has most recently been added to the SURVIAC technical scope. SURVIAC is administratively managed by the DDR&E, DTIC, and is sponsored by the Joint Aircraft Survivability Program Office (JASPO) and Joint Technical Coordinating Group on Munitions Effectiveness (JTTCG/ME).

Non-nuclear weapons include conventional missiles and guns, directed energy weapons, and chemical/biological weapons. Weapon systems include fixed and rotary-winged aircraft, both manned and unmanned, missiles, tanks, trucks, armored personnel carriers, artillery, radar vans, ships, and spacecraft. Data holdings include relevant survivability and lethality information on acquisition, detection, tracking, launch, fly-out and fuzing characteristics, the countermeasures and counter-countermeasures employed, and terminal effects. SURVIAC also holds data on system design, performance and operational information; acoustics, infrared, optical, electro-optical and radar signatures; combat damage and repair; and component probability of kill given a hit (Pk/h) data and combat history data.

Homeland Security (HLS) encompasses intelligence and warnings; border and transportation security; domestic counterterrorism; protecting critical infrastructures; defending against catastrophic threats, and emergency preparedness and response.

Technical Area Tasks

Technical area tasks originate from user requests for specialized expertise or quick reaction analyses beyond the scope of normal inquiry response. Special studies and tasks allow users to tap directly into SURVIAC as a center of survivability excellence and for the newest addition to our technical scope—Homeland Security.

The technical areas within the SURVIAC mission and charter include:

- Survivable conventional force requirements
- Survivability technologies
- Optimizing survivability
- Live fire testing
- Methodology advancement
- Support of combat operations
- Homeland Security/Homeland Defense

These areas encompass the full range of threats and targets in SURVIAC's technical area and address survivability and lethality issues throughout the weapon system acquisition cycle from concept formulation through deployment and employment.

Models

SURVIAC provides a focal point for distribution of and expert advice on the most widely used, up-to-date and accepted survivability and lethality models. SURVIAC maintains and disseminates the codes and documentation; provides technical advice regarding their use; conducts model user meetings for data exchange; and is the clearing house for changes and updates for these models in support of the model manager.

SURVIAC seeks to continue to build and maintain a complete set of survivability and lethality models as they qualify for entry within its technical charter. The SURVIAC Technical Coordinating Group reviews and approves additional models in response to community needs.

Continued pg. 11

SURVIAC *cont.*

Beyond the survivability and lethality domain of models, SURVIAC is familiar with and provides advice and recommendations on many other models in coordination with the Modeling and Simulation Information Analysis Center, MSIAC.

Libraries and Databases

SURVIAC information resources are maintained in computerized databases, original reports, and in computer-indexed reference libraries. SURVIAC databases contain thousands of items that span detailed combat incidents, damage repair and maintenance information and sophisticated system and subsystem test data. Additions are made continually to stay abreast of recent technology developments and to keep pace with community needs. SURVIAC has already started building its technical resources—libraries, data and expertise—to address HLS. SURVIAC continues to expand its data resources pertaining to non-nuclear survivability and lethality as applicable to present and projected aeronautical and surface targets and threats.

Products & Services

SURVIAC has staff experts to respond to user needs and the specifics of their inquiries. Specializing in survivability analysis, combat damage and loss, modeling and simulation, threat systems and weapon systems, SURVIAC personnel locate information from the center's extensive resource base, advise on problem-solving methodologies, or conduct original research in response to specific user requests. To augment the SURVIAC staff, SURVIAC also maintains an active subject matter expert database drawn throughout the community.

In addition to fully responding to user inquiries each year, SURVIAC maintains a comprehensive publications program, including a quarterly current awareness bulletin, white papers, special reports, engineering handbooks and data books. SURVIAC also hosts and sponsors symposia and workshops on pressing survivability issues. SURVIAC works to maintain currency and relevance with the community with an active outreach liaison program.

SURVIAC, operated by Booz Allen Hamilton, is a part of Aerospace Survivability and Safety Flight, USAF 46th Test Wing, Wright-Patterson AFB, Ohio.

For additional information, products and services, contact SURVIAC :
46 OG/OGM/OL-AC/SURVIAC
2700 D Street, Building 1661
Wright-Patterson AFB, Ohio 45433-7605
Com: (937) 255-4840 DSN: 785-4840
Fax: (937) 255-9673,
Web: <http://iac.dtic.mil/surviac>

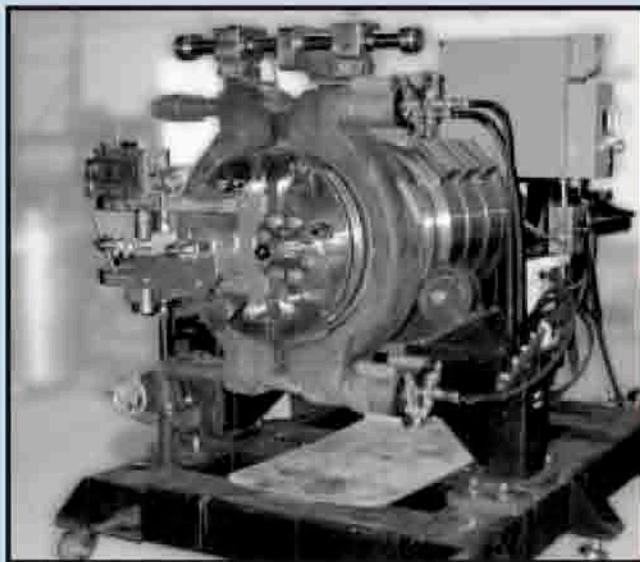
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EDS *cont.*

two munitions annually (generally aging, unstable recovered munitions). The system's usefulness and proven effectiveness has expanded demand for its services, resulting in the safe treatment of 228 items to date, with more use envisioned for sites such as Pine Bluff Arsenal in Arkansas, where the EDS was deemed to offer the quickest, safest and most affordable way to dispose of 1,200 non-stockpile munitions.



The EDS containment vessel is resistant to corrosion, allowing it to treat a wide variety of munitions. Recent tests showed its efficacy in treating simulated bio agents in addition to the originally envisioned use for chemical agents.

Sandia originally undertook creation of the EDS system at the request of the U.S. Army after examining a number of alternative approaches. The system, now patented by the Army, married existing technologies in a novel way so that recovered chemical munitions could be destroyed in a self-contained fashion without having to be transported. It offered an alternative to the previously used method of open burn/open detonation.

Sandia is a multiprogram laboratory operated by Sandia Corporation, a Lockheed Martin company, for the U.S. Department of Energy's National Nuclear Security Administration. Sandia has major R&D responsibilities in national security, energy and environmental technologies, and economic competitiveness.

For additional information contact Mike Janes: (925) 294-2447 or mejanes@sandia.gov



Serving the CB Defense and
Homeland Security communities

In the News • By Mary Frances Tracy

A Portable Detector For HIV-AIDS, Measles And Other Infectious Diseases Is The Object Of A New University-Industry Collaboration

Vanderbilt News Service

January 11, 2005

"A portable device similar to today's home pregnancy tests that can quickly detect the presence of infectious diseases, including HIV-AIDS and measles as well as biological agents such as ricin and anthrax, is the object of a new joint university-industry research project. Vanderbilt University's Institute for Integrative Biosystems Research and Education (VIIBRE) and Pria Diagnostics LLC, a privately held California company that specializes in miniaturized medical diagnostics, agreed to collaborate on the development before the holidays."

<http://www.vanderbilt.edu/news/releases?id=16724>

Genome Fully Mapped For Potential Biological Weapon

Umeå University

January 13, 2005

"The bacterium that causes the severe disease known as rabbit fever, *Francisella tularensis*, is a potential biological weapon of devastating force. Now scientists at Umeå, in collaboration with several international associates, have mapped the entire genome of the bacterium."

http://www.innovations-report.com/html/reports/life_sciences/report-38765.html

Emergent Biosolutions And HPA Announce Botulinum Vaccine Collaboration

Emergent Press Release

January 14, 2005

"Emergent BioSolutions and the British based Health Protection Agency (HPA) today announced a two-year collaboration for the development of vaccines to prevent botulism."

<http://www.emergentbiosolutions.com/newsroom/bioport/2005-Jan14.pdf>

DoD Appoints New Director of Defense Threat Reduction Agency

United States Department of Defense News Release

February 8, 2005

"The Department of Defense announced today the appointment of James A. Tegnella as the new director, Defense Threat Reduction Agency."

<http://www.defenselink.mil/releases/2005/nr20050208-2071.html>

FSIS Establishes Food Emergency Response Network Division

By April Demert

USDA News Release

February 15, 2005

"The U.S. Department of Agriculture's Food Safety and Inspection Service today announced the establishment of a new division that will play a major role in developing the Food Emergency Response Network (FERN), an integrated network of laboratories across America that can quickly respond to food-

related emergencies. The FSIS FERN Division will work with the Department of Health and Human Services' Food and Drug Administration (FDA) to expand and manage an existing group of more than 90 federal, state, and local laboratories with the capability to detect and identify biological, chemical and radiological agents in food."

http://www.fsis.usda.gov/News_&_Events/NR_021505_01/index.asp

USAMRIID Celebrates 50-Year Research Tradition

By Caree Vander Linden

Fort Detrick Standard

March 3, 2005

"With a birthday cake and a little fanfare, the U.S. Army Medical Research Institute of Infectious Diseases recently celebrated a milestone: 50 years of research to develop medical countermeasures for protecting military service members."

http://www.dcmilitary.com/army/standard/10_05/local_news/33582-1.html

Smiths Detection & DeltaNu Form Partnership to Introduce Raman Hand-Held Chemical Analyzer for Emergency Responders

Smiths Detection Press Release

March 18, 2005

"Smiths Detection, the world's leading provider of detection equipment, has formed a strategic partnership with DeltaNu to introduce a hand-held Raman spectroscopy system that will be used to identify unknown chemical substances. The new system is designed to complement Smiths Detection's widely deployed HazMatID FT-IR system and offers a confirming, independent analysis of unidentified liquids, powders and solids. The new system will be available for sale to emergency responders in the summer of 2005."

<http://www.smithsdetection.com/PressRelease.asp?autnum=62&bhcp=1>

Vol. 2 No. 2 of the Chem-Bio Defense Quarterly Magazine is Now Available!

DoD's Chemical and Biological Defense Program mission is to ensure warfighters have the best chemical, biological, radiological and nuclear (CBRN) defense technology and equipment available. This issue discusses the Non-Standard Equipment Review Panel that reviews both developmental and commercial equipment that must be urgently fielded to meet immediate operational needs. NSERP implements DoD Policy that CBRN defense equipment purchased directly by units and the services be reviewed to ensure it meets minimum standards for safety and effectiveness.



http://www.jpeocbd.osd.mil/page_manager.asp?pg=4&sub=0



Computer Model Simulates Hypothetical Outbreak of Avian Flu— Example of MIDAS Capabilities

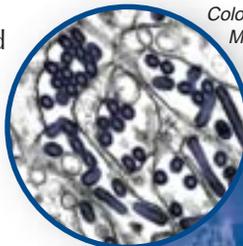
By Emily Carlson, NIGMS

A group of scientists who are developing computer models to combat infectious diseases have focused their attention on the H5N1 strain of the bird influenza virus. By simulating the outbreak of this potentially deadly avian flu in a hypothetical human community, the researchers hope to answer key questions about how best to contain the virus. The work is funded by the National Institute of General Medical Sciences (NIGMS), a component of the National Institutes of Health (NIH). Preliminary results from the models could be published later this spring.

"We need to take steps to prepare for the possibility of person-to-person transmission of the H5N1 virus," said Jeremy M. Berg, Ph.D., NIGMS director. *"This modeling project will provide a tool that policymakers, public health workers and researchers can use to test intervention strategies should such an outbreak emerge."*

The flu project is part of a national effort, called the Models of Infectious Disease Agent Study (MIDAS), to develop computational models of the interactions between infectious agents and their hosts, disease spread, prediction systems and response strategies. The participating research teams are led by scientists at Johns Hopkins Bloomberg School of Public Health in Baltimore, Maryland; Virginia Bioinformatics Institute in Blacksburg, Virginia; Emory University in Atlanta, Georgia; and Research Triangle Institute International in Research Triangle Park, North Carolina.

To simulate the spread of a possible avian flu outbreak that would become infectious between humans, the researchers are developing models of a hypothetical Southeast Asian community of about 500,000 people living in neighboring small towns. The computer simulations will incorporate data on population density and age structure, distribution of schools, locations of hospitals and clinics, travel and the infectiousness of the virus.



Colorized Transmission Electron Microscope image of Avian influenza A H5N1 viruses. Courtesy of C. Goldsmith, et al. CDC image #1841.



These simulation models will allow researchers to test different intervention strategies that may reduce the rate of transmission between people. The objective is to evaluate methods to locally contain the spread of disease.

"We can see what would happen if we take certain actions, like vaccinating specific groups, using antiviral medications, restricting travel or implementing other public health measures," said Irene Eckstrand, Ph.D., MIDAS program officer at NIGMS. *"Computer models let us envisage the impact of these decisions in a variety of scenarios."*

The ultimate goal of the project, added Eckstrand, is to identify disease prevention and control strategies that not only contain the virus, but also quickly drop the number of people infected to zero—basically eradicating H5N1 from the human community.

"We want to know how we can most effectively prevent the virus from spreading to other areas," said Eckstrand. *"These models will help policymakers design strategies to protect the public from a potentially deadly disease."*

For more information about MIDAS and other NIGMS-supported efforts to model infectious diseases, visit <http://www.nigms.nih.gov/research/midas.html>.

To arrange an interview with Jeremy M. Berg, Ph.D., or Irene Eckstrand, Ph.D., contact the NIGMS Office of Communications and Public Liaison at 301-496-7301.

NIGMS supports basic biomedical research that lays the foundation for advances in disease diagnosis, treatment and prevention. For NIGMS news releases, science education booklets and other materials, visit <http://www.nigms.nih.gov>. NIGMS is part of the National Institutes of Health, U.S. Department of Health and Human Services.

The MIDAS initiative appeared as the feature story in the Summer 2004 issue of the CBIAC Newsletter. The model of the Avian Flu is an example of how MIDAS can be used to track infectious diseases.

USAMRICD Scientists Receive Army Research And Development Achievement Award

By Cindy Kronman

Four individuals from the U.S. Army Medical Research Institute of Chemical Defense (USAMRICD), Dr. Ernest H. Braue, Jr., Dr. John S. Graham, Mr. Bryce F. Doxzon, and Mr. Horace L. Lumpkin, received a 2003 Army Research and Development Achievement (RDA) award for the development of a second-generation barrier skin cream, known as Active Topical Skin Protectant (aTSP). The RDA awards were presented at the 24th Army Science Conference, held November 29 to December 2, 2004 in Orlando, Florida.

The successful completion of the aTSP research effort moves this product towards advanced development with the ultimate goal of providing U.S. warfighters and civilians with complete protection against chemical warfare agents. The aTSP dramatically improves the protection provided by the first generation product, SERPACWA (Skin Exposure Reduction Paste Against Chemical Warfare Agents), fielded in 2003, by neutralizing the chemical agents into less toxic products as they try to pass through the barrier coating. The concept for further improvement of the aTSP is to develop a reactive matrix that will neutralize and decontaminate chemical warfare agents on contact when applied before or after exposure to these toxic chemicals.

"Our research group has spent the last 15 years working on developing barrier skin creams that will protect our warfighters and civilians from the harmful effects of chemical warfare agents," said Braue, the research coordinator for the development of the barrier creams.

Braue and his team identified over 150 active moieties and tested these in 500 formulations. The optimum formulations display excellent resistance against nerve agents and blister agents. This research program produced 14 peer-reviewed journal articles, 20 government reports, and 10 patents.



Seen here with USAMRICD's commander, the institute's winners of a 2003 Army RDA award received their plaques at this year's Army Science Conference. From left to right, Dr. Ernest Braue, Dr. John Graham, Col. Gennady Platoff, Mr. Horace Lumpkin, and Mr. Bryce Doxzon.

For more information about USAMRICD, please visit <http://usamricd.apgea.army.mil/>

Two ECBC Products Win Prestigious Award

By Richard Porter

Two products developed by the Edgewood Chemical Biological Center (ECBC) — the Biological Sampling Kit (BiSKit) and the Automated Decision-Aid System for Hazardous Incidents (ADASHI) — have been named winners of the prestigious 2005 Award for Excellence in Technology Transfer.

BiSKit is a portable, disposable device that will permit inspectors and forensic evidence specialists to collect biological contaminants from surfaces. The unit can be used to swab wet or dry surfaces. Testing has proven that it can effectively and safely collect bacteria, virus, and toxin material for later analysis and archiving. It will fill a vital role in the biodetection, nonproliferation and forensic analysis communities. The BiSKit was licensed by Quicksilver Analytics in Abingdon, MD for manufacture for both military and private sector customers.



Biological Sampling Kit (BiSKit)

ADASHI is a computer-based tool that allows emergency management authorities to manage a hazardous incident or Weapons of Mass Destruction (WMD) event. Those functions include, but are not limited to: initial hazard assessment, hazard source analysis, mitigation alternatives, physical protection requirements, decontamination methods, hazard area prediction, detection planning and sampling, medical treatment, and triage criteria. Specific functional inputs are integrated with



decision criteria, thus enhancing response management in a crisis situation. ADASHI is automatically monitoring the essential aspects of an event, whether it be a "what if" simulated event for training purposes, or a real event.

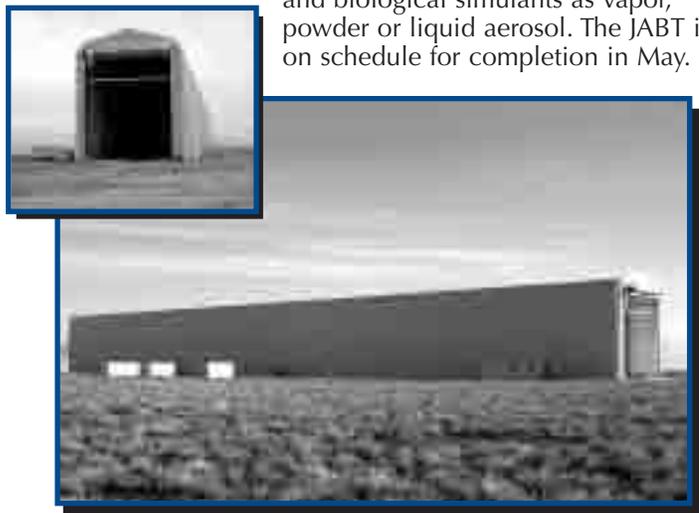
The award is sponsored by the Federal Laboratory Consortium for Technology Transfer. The ECBC inventors involved with both projects were honored at the award ceremony held on May 4th in Orlando.

For more information on BiSKit or ADASHI, and to schedule an interview, please contact Joan Michel (410.436.3610; 410.652.3912 – mobile).

For more information about the Edgewood Chemical Biological Center, please visit <http://www.ecbc.army.mil> or call (410) 436-3610.

CADTS *cont.*

The JABT was conceived to provide a controlled, yet dynamic simulant test cloud. This capability enables the detector developer to both evaluate and optimize the system under test (SUT). The JABT has an open-ended design so that a standoff SUT can view cloud movement throughout the length of the tunnel at up to 3 km distances. Point detectors can be placed inside the JABT for test. The working length of the JABT is 100 m and the cloud can be moved at speeds up to 6 m/s. The JABT has been designed to accommodate a wide range of chemical and biological simulants as vapor, powder or liquid aerosol. The JABT is on schedule for completion in May.



JABT

Biological Agent Inactivation Facility (BAIF) Since field testing is not permitted with live CB agents, simulants are used. However, it is impossible to replicate all the physical and chemical properties of an agent with a simulant. To resolve this problem for biological agents, CADTS has installed a γ -irradiator at DPG for the inactivation of “live” biological materials. The experimental objectives of the BAIF are to produce materials with zero biological activity while minimizing any negative effects on detector alarm characteristics. A series of methodology studies using various live agents and simulants have determined operating protocols. This subproject is complete.



BAIF Facility at DPG

PCR Biological Referee System

The classical method for quantifying biological particles involves incubation in a petri dish for 24 – 48 hours. This long time period is a major impediment in the goal of running several detector tests in a single day. CADTS is developing a method based on polymerase chain reaction (PCR) technology that can provide quantitative results to the detector PM in about two hours. This effort also includes the development of a novel high speed particle collector. All components of the PCR system have been proven under laboratory conditions. Additional collectors for use in field testing are being fabricated. This subproject will be completed in September 2005.

Perspective

As can be seen from Table 1, CADTS is moving ahead rapidly on many fronts. Our approach in project execution has been to emphasize the importance of proactive CB Community involvement/guidance. In this way, we expect to deliver new capabilities that are optimized and ready for immediate use.

The ten capabilities developed under the CADTS project will enable the test ranges to provide efficient and effective test support to the next generation of standoff and point CB detector systems. A Results Symposium for CADTS will be held on June 23 in Laurel, Maryland. Government staff and contractors are invited to attend. See **Calender of Events** on pg. 9 for conference details.

For further information contact: arthur.maret@peostri.army.mil.

About the Authors:

Lorraine Castillo is the Project Director of the CADTS effort. Lorraine has 15 years experience in Army development programs, including tenure in the Pentagon. Dr. Arthur Maret of ATSS Inc is the Chief Scientist on CADTS. Dr. Maret has over 30 years of R&D experience including Assistant Director at the Gas Research Institute and Deputy Director of the Washington Technology Center. Both authors are based in Orlando, Florida at the Army's Program Executive Office for Simulation, Training and Instrumentation. For more information on CADTS contact Lorraine at lorraine.castillo@peostri.army.mil.



*Serving the CB Defense and
Homeland Security communities*

CONFERENCE & EXHIBITION

22-25 August 2005 | San Antonio, Texas

Military ranges and training areas are used to test and evaluate weapon systems and to train DoD personnel. Increasingly, the military's goal to "train as we fight" is being challenged by various encroachment issues, which must be resolved in order to sustain the military's ability to conduct realistic training into the foreseeable future.

Call for Abstracts

Abstracts are welcome on any of the diverse issues related to sustaining military ranges and maneuver areas in the following topic areas: Infrastructure, Operations, Maintenance, Encroachment, Environmental Responsibility, Outreach, and New Technologies.

For more information contact Heather Gatta at telephone 410-306-8651, email rangecon@battelle.org or visit the conference web site.

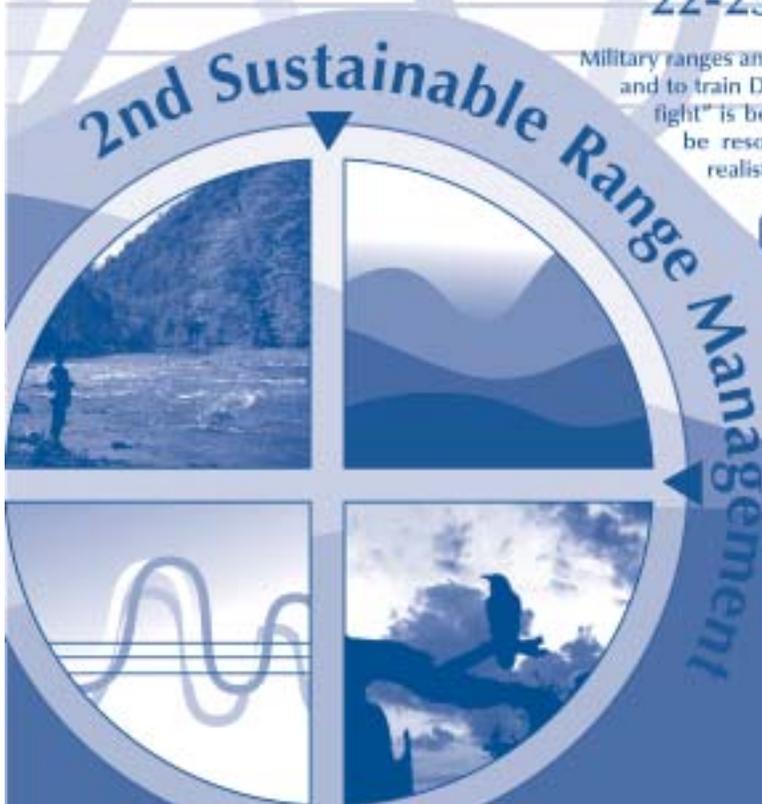
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