CBRNIAC Newsletter

Chemical, Biological, Radiological & Nuclear Defense Information Analysis Center

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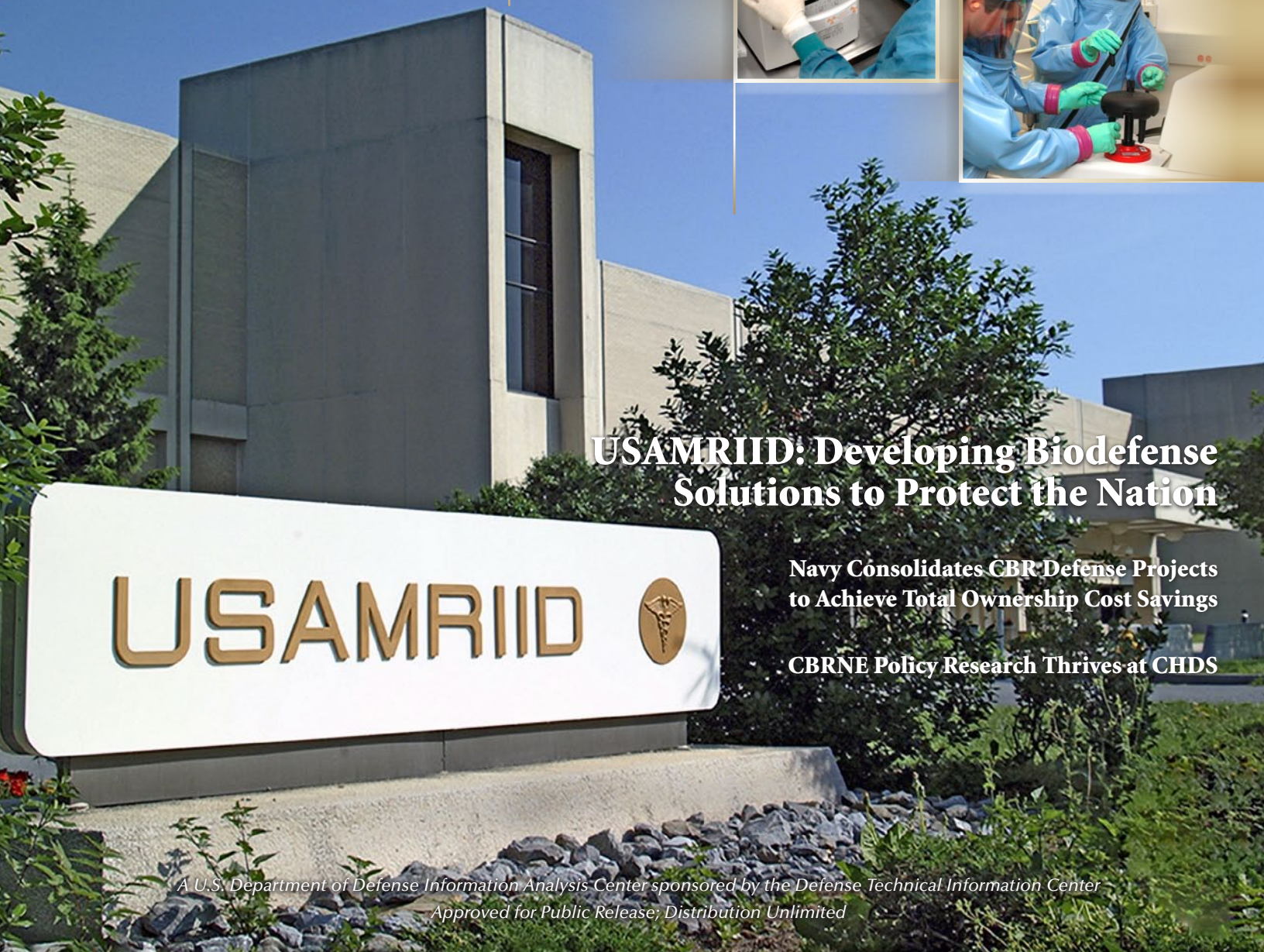

USAMRIID: Developing Biodefense Solutions to Protect the Nation

Navy Consolidates CBR Defense Projects to Achieve Total Ownership Cost Savings

CBRNE Policy Research Thrives at CHDS

A U.S. Department of Defense Information Analysis Center sponsored by the Defense Technical Information Center

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NEW TECHNOLOGIES | STANDARDS | TRAINING FOR EMERGENCY RESPONSE

PERSONAL PROTECTIVE EQUIPMENT WORKSHOP

27 November - 30 November | Hollywood, FL

The Technical Support Working Group (TSWG) conducts the U.S. national interagency research and development program for combating terrorism through rapid research, development, and prototyping. The Chemical, Biological, Radiological, and Nuclear Countermeasures (CBRNC) and the Personnel Protection (PP) subgroups within the TSWG are hosting PPE 2012 to further the research and development of new and innovative technologies. Sponsor support includes: the National Institute of Justice, the National Personal Protective Technology Laboratory, the International Association of Fire Fighters, and the National Fire Protection Association.

The PPE 2012 Workshop will provide the TSWG and its partners with a forum to highlight emerging technologies in the area of personal protective equipment. PPE 2012 will include an exhibition of new technologies from PPE vendors, focused briefings on emerging PPE capabilities, and a seminar series on standards and next-generation tools. Join us for extensive networking opportunities and break-out session discussions on the future directions for PPE research and design.

WORKSHOP DATES

November 26, 2012
Vendor set-up & speaker run-throughs
November 27 – 29, 2012
Exhibit Hall
November 27 – 30, 2012
General Session

WORKSHOP FEES

General: Includes admittance to the general session and exhibit hall: $250
Exhibitor Package: Includes 10 x 10 exhibit space + 2 free conference passes:
General Exhibitor: $2500
Government and Education Exhibitors: $1750

WHO SHOULD ATTEND?

- Fire Fighters
- Law Enforcement
- Hazardous Materials Technicians
- Bomb Technicians
- Special Weapons & Tactics Operators
- Tactical Rescue Operators
- Veterinary personnel
- Military personnel
- First Receivers
- Protective Services
- PPE Researchers/ Developers

RESERVATIONS

The Westin Diplomat
3555 South Ocean Drive
Hollywood FL 33019

Hotel reservations must be made by **November 13, 2012** in order to guarantee the current per diem rate. Call 1-888-627-9057 and state that you are with the CTTSO 2012 Workshop or online at www.starwoodmeeting.com/Book/cttso2012.

Registration opens July 2, 2012.
To register go to **www.cttso.gov** and click on the PPE Workshop banner.

Travel Information

AIRPORTS

Miami International Airport:
20 miles (Drive time 45 min)
Taxi $80.00

Fort Lauderdale International Airport:
9 miles (Drive time 15 min)
Taxi $27.00

RENTAL CAR

Available at both nearby airports. Hertz is also available across the street from the hotel. For information and reservations at this location call 954-454-8914.

You can also call Hertz directly and provide the conference code CV#04V50001. The code may provide a lower rate than government or AAA.

- In the U.S. and Canada: 1-800-654-2240
- Other: 1-405-749-4434

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

CDR USA RDECOM
Edgewood Chemical Biological Center
ATTN: AMSRD-ECB-AP-T (CBRNIAC 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 CBRNIAC for information products and services. CBRNIAC 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.

For further information or assistance, visit or contact the CBRNIAC.

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On the Cover: Current USAMRIID building. Insets: Biosafety Level (BSL) 2, 3 and 4 work is performed at USAMRIID labs. Photos courtesy of USAMRIID.

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

The CBRNIAC 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 CBRNIAC reserves the right to reject or edit submissions.

All announcements and articles are subject to the review and approval of the CBRNIAC COTR prior to publication. The appearance of an announcement, or article in the ***CBRNIAC Newsletter*** does not constitute endorsement by the DoD or the CBRNIAC.

USAMRIID: Developing Biodefense Solutions to Protect the Nation

by Caree Vander Linden, Public Affairs Officer, USAMRIID and Dr. Leonard Smith, Acting Science Director, USAMRIID

Since 1969, the U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID), Fort Detrick, Md., has been the Department of Defense's lead laboratory for medical biological defense research. While our core mission is to protect the war fighter from biological threats, we also investigate disease outbreaks and threats to public health. Research conducted at USAMRIID leads to medical solutions—therapeutics, vaccines, diagnostics, and information—that benefit both military personnel and civilians.

We support all phases of medical product development, from basic science to research/discovery, development, test and evaluation (RDT&E) of medical countermeasures, and we develop and refine diagnostic assays for biological agent identification. We also provide specialized education and training for military medical providers, laboratory personnel, first responders and the CBRN community.

As the only DoD laboratory equipped to safely study highly hazardous pathogens requiring maximum containment at Biosafety Level 4, USAMRIID is uniquely positioned to develop and maintain biological safety, security and surety standards to meet multiple levels of regulatory oversight. USAMRIID is a subordinate laboratory of the U.S. Army Medical Research and Materiel Command.

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Medical Product Development

USAMRIID's RDT&E efforts have resulted in the development of vaccines to protect against anthrax, botulism, plague, the Ebola and Marburg hemorrhagic fever viruses, Hantavirus, ricin, and Staphylococcal enterotoxin B, all of which are in various stages of clinical trials. We are continuing to develop new and improved vaccines, working with the Food and Drug Administration (FDA) to move medical products forward using the "animal rule." Under this rule, specifically designed for biodefense vaccines and drugs, products can be considered for FDA licensure using data from animal studies in cases where human clinical trials cannot ethically be conducted. USAMRIID continues to be a leader in developing animal models for a variety of biothreat agents and validating that these models adequately reproduce critical aspects of human disease.

Our proprietary technology for non-replicating, vector free virus-like particles (VLPs) has been licensed to Integrated Biotherapeutics for continued development of multivalent hemorrhagic fever vaccines to protect against the Ebola and Marburg filoviruses. This technology, initially developed at USAMRIID, has demonstrated high protective efficacy in nonhuman primates (NHPs). Another promising technology pioneered by USAMRIID is based on VEE Replicon Particles (VRPs). In this system, the infectious cDNA gene from Venezuelan equine encephalitis virus is cloned and inserted into a replicon construct so that its structural genes are replaced with a different gene of interest for immunization purposes. Multivalent VRPs are currently in advanced development for protection against filoviruses. The VRPs and VLPs will be compared and the best vaccine candidate will be forwarded for Milestone B development.

Current human vaccines for anthrax are based on the protective antigen (PA) component of the anthrax toxins. However, concerns about reliance on a single antigen and vaccine-resistant anthrax strains have prompted the search for additional vaccine components. USAMRIID is working to develop the anthrax capsule, a naturally occurring component of the bacterium that causes the disease, as a vaccine candidate. We recently reported the first successful use of this capsule vaccine to protect NHPs from disease, and further studies are planned. Addition of the capsule to PA to create a

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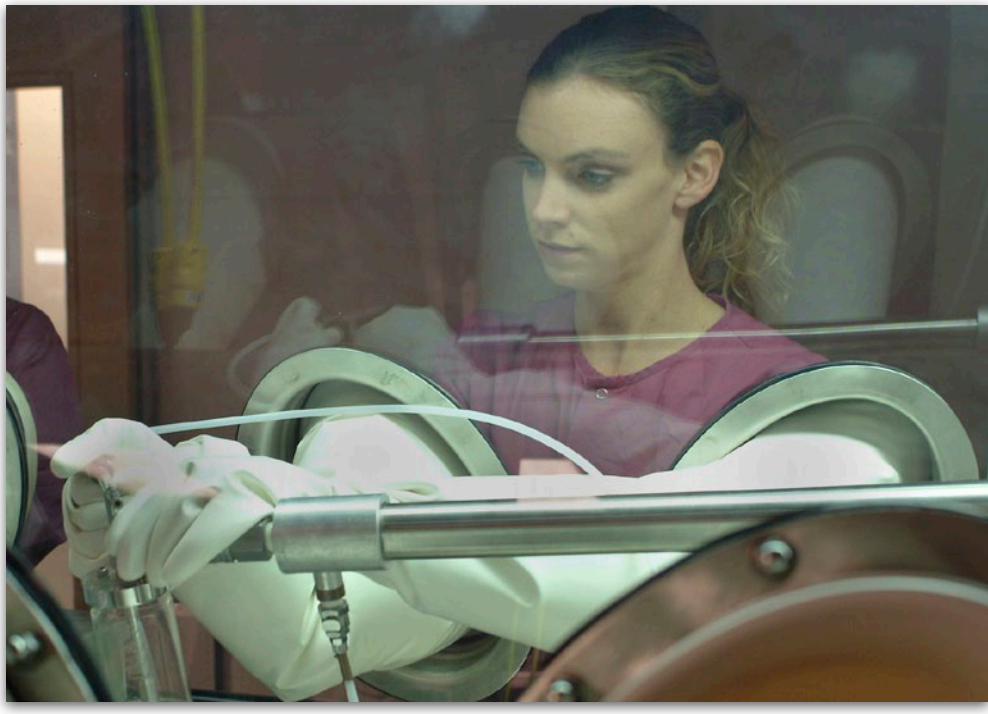
USAMRIID *cont.*

multi-component vaccine may broaden and enhance the protection afforded by PA-based vaccines.

USAMRIID's therapeutics program is focused on the RDT&E of broad-spectrum antiviral and antimicrobial drugs against multiple biothreat agents. We also continue to discover and develop therapeutic interventions for diseases caused by toxins such as botulinum neurotoxin.

In cooperation with the Defense Threat Reduction Agency (DTRA), USAMRIID has developed a state-of-the-art Genomics Center capable of high-speed and high-quality sequencing, comparative genetics and genotyping of diverse microbial pathogens that are considered potential biological warfare or bioterrorism agents. This capability will enable tracking of the emergence of pathogenic or drug-resistant strains and understanding of the molecular basis of virulence and pathogen-host interactions, allowing medical personnel to mount a broad-spectrum response to biological threats to the warfighter.



Rapid Diagnostic Technologies

USAMRIID develops new and improved affinity-based immunodiagnostic reagents using recombinant DNA technologies and molecular assays utilizing polymerase chain reaction (PCR) for identification of biological agents. This work allows for the development of new, faster assays for medical identification to protect the warfighter against biothreat agents.

We continue to evaluate and develop diagnostic instruments and technologies for use in forward field medical laboratories and with the Joint Biological Agent Identification and Detection System (JBAIDS). This includes evaluating the MSD multiplexing immunoassay platform and developing and evaluating the Block III expansion of the JBAIDS to include several new biothreat agents.

Thanks to a partnership with the Centers for Disease Control and Prevention (CDC) and the DoD Global Emerging Infections Surveillance and Response System, USAMRIID transitioned the CDC diagnostic assays for avian influenza and swine flu to the JBAIDS platform, enabling all military organizations with the JBAIDS platform to utilize the CDC assays for rapid detection of these viruses. In addition, we performed the necessary studies leading to an emergency use authorization (EUA) from the FDA for use of these assays on the JBAIDS platform.

That work has led to a new approach for pre-positioning critical diagnostic assay data packages for rapid EUAs in the event of an emerging biothreat. In collaboration with the FDA, the Chemical Biological Medical Systems (CBMS) Joint Project Management Office, and the U.S. Army Medical Materiel Development Agency, USAMRIID is developing data packages for pre-EUA of these assays. The packages support JBAIDS and ABI 7500 Fast Dx platforms used by DoD and public health/Laboratory Response Network (LRN) laboratories. Thus far, we have developed and prioritized 73 PCR assay data packages and submitted them to the FDA as candidates for pre-EUA package development.

If USAMRIID is called to assist with a disease outbreak investigation or a threat to public health, our Diagnostic Systems Division and Emergency Operations Center (EOC) will surge to meet the demand. As part of the nation's LRN, USAMRIID would collaborate with CDC to rapidly characterize suspected pathogens. Our EOC can reach into the Institute's RDT&E assets to consult the right subject matter experts for the most challenging cases. Whether the request comes from a Combatant Command or another federal agency, USAMRIID stands ready to assist in any biological contingency.

Training and Education Initiatives

Research performed at USAMRIID is translated into state-of-the-art information for medical providers, laboratory personnel and first responders through our training and education programs. USAMRIID and the U.S. Army Medical Research Institute of Chemical Defense jointly conduct the Medical Management of Chemical and Biological Casualties (MCBC) course to prepare military and civilian health care professionals to effectively manage casualties of chemical and biological agent exposure. Utilizing a mix of classroom instruction, laboratory work and field exercises, it is the only training of its kind. MCBC is offered as a six-day resident course each quarter and as an abbreviated "road course" for CONUS and

Continued pg. 6

OCONUS audiences several times per year. Materials are also available via several distance-learning and web-based training methods. Since its inception, over 110,000 health care providers have been trained through MCBC course offerings.

USAMRIID also sponsors the Field Identification of Biological Warfare Agents (FIBWA) course to train medical laboratory personnel in a realistic field setting, duplicating the austere conditions that might exist in war fighting theaters. Coursework is designed to certify technicians on fielded diagnostic systems, giving them hands-on training that culminates in a situational training exercise at the conclusion of the course. Materials and modules are tailored to student and unit requirements. In addition to the standard 4-week FIBWA course, training options are available for Civil Support Team (CST) personnel and laboratory managers/decision-makers. Since 1999, FIBWA has reached 645 personnel from the Army, Navy, Air Force, Marine Corps, National Guard, Federal Bureau of Investigation, Department of Health and Human Services/CDC and other countries.

Training and Education Initiatives at a Glance:

Medical Management of Chemical and Biological Casualties (MCBC) *Jointly conducted with U.S. Army Medical Research Institute of Chemical Defense*	Prepares military and civilian health care professionals to effectively manage casualties of chemical and biological agent exposure.
Field Identification of Biological Warfare Agents (FIBWA)	Trains medical laboratory personnel in a realistic field setting. Additional training options are available for Civil Support Team (CST) personnel and laboratory managers/ decision-makers.
Biological Agent Identification and Counterterrorism Training (BAIT)	Provides realistic training scenarios, facilities and subject matter experts to increase the ability of first responders to handle a biological threat event.

Our newest offering, the Biological Agent Identification and Counterterrorism Training (BAIT) course, provides realistic training scenarios, facilities and subject matter experts to increase the ability of first responders to handle a biological threat event. Training can be customized based on the organizations involved and projected threats. Since 2009, the BAIT course, held at our field training site at Fort Detrick, has reached 24 combined teams (156 personnel) from local, state and federal HAZMAT, CST and law enforcement agencies.

Setting the Standard for Biological Surety

Biological surety, or biosurety, is comprised of systems and procedures to properly safeguard Biological Select Agents and Toxins (BSAT) against theft, loss, diversion, or unauthorized access or use, and to ensure that operations are conducted in a safe, secure and reliable manner. USAMRIID's biosurety program is governed by a broad set of federal, DoD, U.S. Army and U.S. Army Medical Command regulations and policies, which have been either newly published or modified since 2001. Our program consists of four key areas: safety, physical security, personnel reliability and agent accountability.

The first priority is maintaining a safe and secure environment for our workforce and the surrounding community. USAMRIID's comprehensive safety program emphasizes safety training, risk management, environmental surveillance and occupational health screening. Our physical security program uses layered security measures to allow only authorized individuals access to the areas in which BSAT are stored or used. These individuals must satisfactorily complete laboratory safety training, physical examination screening and a security background investigation. Our personnel reliability program requires that all individuals who have completed the requirements for BSAT access also undergo a personnel records review, a medical evaluation, and an interview with the certifying official highlighting individual responsibilities, reliability standards and reporting requirements. Agent accountability involves inventory control, shipping, transfer and destruction records, and observation of laboratory procedures.

USAMRIID has led the nation in development and implementation of its biosurety program, setting the benchmark for other laboratories engaged in the national biodefense effort.

A Unique National Asset

For over 40 years, USAMRIID has responded to epidemics and developed protective medical countermeasures against the world's deadliest diseases. It provides DoD and the biodefense community with unique facilities and expertise to safely conduct critical research, testing and evaluation in regulated, high-level biocontainment laboratories. USAMRIID innovations continue to yield vaccines, drugs, diagnostics and information that protect military personnel and civilians from biological threats. In short, USAMRIID is a key national asset to the global war on terrorism—a cornerstone for medical biological defense.

A version of this article originally appeared in Military Medical/CBRN Technology magazine. Photos courtesy of USAMRIID.

Navy Consolidates CBR Defense Projects to Achieve Total Ownership Cost Savings

By John Joyce, Naval Surface Warfare Center Dahlgren Division Public Affairs

Two of the Navy's surface warfare centers responsible for chemical, biological and radiological (CBR) warfare agent detection have partnered together in an effort to streamline processes and reduce total ownership costs, Naval Surface Warfare (NSWC) Dahlgren Division officials announced Aug. 2.

The partnership transfers all CBR detection services from Naval Surface Warfare Center Crane, located in Indiana, to Dahlgren, which provides technical, engineering, test, evaluation, maintenance and logistics support to the fleet after installing the CBR detection systems.

"Our partnership with NSWC Crane to transfer the acquisition and in-service engineering work associated with chemical and biological detectors is significantly reducing the Navy's total ownership costs," said NSWC Dahlgren CBR Defense Division Head Mike Purello. "This is not only providing opportunities for us to better support the warfighter at Dahlgren and on the waterfront but it's also enabling our scientists and engineers to look for the most efficient ways to support potential next generation detection systems."

Prior to the consolidation, the Navy built and designated a new laboratory to streamline CBR defense work and accrue savings to help fund other required chemical and biological defense projects. Since its completion in August 2011, the CBR Fleet Support and Integration Laboratory has allowed engineers to perform diagnostics, overhaul, testing, and subsequent calibration required to provide systems and equipment to the fleet.

The new laboratory also allowed NSWC Dahlgren to apply for the Naval Radioactive Materials Permit necessary to maintain, store, stage and track all of the Navy's chemical detectors that contain radioactive sources. Navy Radiological Affairs Support Office (RASO) approval is expected by March 2013. Currently, NSWC Crane holds the only permit.

Once obtained, the permit will give Dahlgren the ability to receive and ship the Improved Point Detection System from its laboratory, which is expected to yield maintenance and cost savings from fiscal year 2013–2017.

Meanwhile, NSWC Dahlgren engineers' request for an exemption of the Improved Point Detection System—Lifecycle Replacement (IPDS-LR) permit Requirements over the lifecycle of the new detection equipment was approved by RASO.

IPDS-LR—replacing the IPDS currently installed on most Navy ships—is designed to quickly alert warfighters to the presence of chemical warfare agents, and is being installed on 22 ships in 2012.

The USS Mason is pictured in the Gulf of Aden supporting counter-piracy and maritime security operations as Sailors aboard an SH-60B Sea Hawk helicopter lower a bag to Mason Sailors during a vertical replenishment in June 2011. (U.S. Navy photo by Mass Communication Specialist 3rd Class Jeffry A. Willadsen/Released)

"We are tracking the IPDS-LR systems informally and performing all Exemption requirements with no additional manpower," said Nancy Haymes, NSWCDD Acquisition Engineering Agent.

"Dahlgren is committed to ensuring that our support infrastructure is in place to continuously improve business processes. This enables us to develop product improvements that reduce operational and support costs while enhancing the Navy's operational capability."

With the pending permit for IPDS, the exemption for IPDS-LR and the new laboratory, coupled with disposal and demilitarization initiatives, NSWCDD engineers are boosting fleet support and reducing total ownership costs.

"We are now providing all the expertise, knowledge, facilities, capital equipment, processes and skilled personnel to sustain the readiness of in-service warfare systems and equipment," said Haymes.

That includes the tracking, shipping and repairing of chemical detectors NSWC Dahlgren is releasing to the fleet.

"Only a determined steady effort with continuous cooperation across offices brought us to this point," said Jon Cofield, Navy Chemical and Biological Defense technical warrant holder. "The initiative that Dahlgren is spearheading saves the Navy funds at a time of significant belt tightening."

For more information on NAVSEA and its warfare centers, visit:
http://www.navsea.navy.mil/OnWatch/index.html

Contract Awards

Centers for Innovation in Advanced Development and Manufacturing Partnerships
Emergent Manufacturing Operations
Baltimore, MD
Michigan State University
East Lansing, MI
Kettering University
Flint, MI
University of Maryland at Baltimore
Baltimore, MD
$163,000,000 (8-year contract)
Novartis
Basel, Switzerland
North Carolina State University
Raleigh, NC
Duke University
Durham, NC
$60,000,000 (4-year contract)
Texas A&M University System
College Station, TX
GlaxoSmithKline Vaccines
Marietta, PA
Lonza
Houston, TX
Kalon Biotherapeutics
College Station, TX
$176,000,000 June 18, 2012
By U.S. Department of Health and Human Services, Washington, DC

Advance the Development of New MVA-BN® Based Vaccines
Bavarian Nordic A/S
Kvistgaard, Denmark
$17,900,000 June 18, 2012
By National Institutes of Health, Bethesda, MD

Development of Immunosignaturing for Rapid Detection of Exposure to Infectious Disease Agents Before Symptoms Occur
Arizona State University
Phoenix, AZ
$30,718,054 June 18, 2012
By Defense Threat Reduction Agency, Fort Belvoir, VA

Development of Genetically Engineered Mosquitoes that Produce Parasites for Sanaria's Malaria Vaccine Manufacturing Process
Sanaria
Rockville, MD
Institute for Bioscience and Biotechnology Research
University of Maryland College Park
College Park, MD
$3,000,000 June 14, 2012
By National Institute of Allergy and Infectious Diseases, Bethesda, MD

Anthrax Vaccine Trial
Emergent BioSolutions
Rockville, MD
$8,430,000 June 12, 2012
By U.S. Department of Health and Human Services, Washington, DC

Procurement of Bacterial Identification
University of Maryland College Park
College Park, MD
$149,775 June 5, 2012
By Centers for Disease Control and Prevention, Atlanta, GA

Post-Exposure Prophylaxis Indication for BioThrax
Emergent BioSolutions
Rockville, MD
$8,430,000 June 4, 2012
By Biomedical Advanced Research and Development Authority, Washington, DC

Domestic Nuclear Detection Office Support
TASC, Inc.
Chantilly, VA
$54,000,000 May 29, 2012
By U.S. Department of Homeland Security, Washington, DC

Expansion of a Phase 3 Study for Bavarian Nordic A/S's IMVAMUNE Smallpox Vaccine
Bavarian Nordic A/S
Kvistgaard, Denmark
$32,000,000 May 24, 2012
By U.S. Department of Health and Human Services, Washington, DC

Advanced Technologies for Bio-Surveillance
Azimuth Corporation
Dayton, OH
$4,766,636 May 24, 2012
By USAF/AFMC, DET 1 AF Research Laboratory, Wright-Patterson AFB, OH

ToxCast Follow-on Chemical Management Contract: Other Functions
Compound Focus, Inc.
San Francisco, CA
$ 10,162,191 May 11, 2012
By Environmental Protection Agency, Triangle Park, NC

Preclinical Development of Hendra Virus Soluble G (HeV–sG) as a Vaccine for Use in Humans Against Either Nipah or Hendra Virus Infection
Profectus Biosciences
Baltimore, MD
$5,600,000 May 9, 2012
By National Institute of Allergy and Infectious Diseases, Bethesda, MD

rVSV Vaccine Against Ebola and Marburg Viruses
Profectus Biosciences
Baltimore, MD
$5,400,000 May 3, 2012
By National Institute of Allergy and Infectious Diseases, Bethesda, MD

CBRNE Policy Research Thrives at CHDS

Joselito Ignacio, acting director of the Chemical Defense Branch with the Department of Homeland Security's Office of Health Affairs, believes that commuter train security had not kept pace with aviation security, noting that subway usage in New York City alone, at 1.6 million riders yearly, exceeds commercial air travel, at 713 million passengers annually, in the entirety of the United States.

Ignacio's research into chemical detection was benefitted as he pursued a master's degree at the Naval Postgraduate School Center for Homeland Defense and Security (CHDS). Ignacio's thesis was on the same topic—"Chemical Detection Architecture for a Subway System."

His research has produced a tangible result: A demonstration project in Baltimore backed by the Department of Homeland Security is testing a chemical detection system in its commuter train system.

CHDS, located at the Naval Postgraduate School (NPS), began teaching its first students in 2003. Master's degree students develop critical thinking, leadership and policy skills during a rigorous 18-month program. Graduates complete a thesis, and often write course papers, on a current issue facing their jurisdiction. The Center also offers a non-degree Executive Leaders Program for high-level executives from the government and private sector as well as the Fusion Center Leaders Program, which brings together fusion center leaders to campus twice yearly for a one-week educational seminar. Also, the center shares its curriculum free of charge with almost 300 colleges and universities.

The research and policy synergy at CHDS has resulted in students such as Ignacio providing a wealth of research into Chemical, Nuclear, Biological, Radiological and Explosive threats.

Current student Captain Bryon Marsh, science officer with the Georgia National Guard's 4th Civil Support Team, was motivated to enroll in CHDS to help craft his vision of a Civil Support—Joint Readiness Training Center for the military that would support training and education for responders to CBRNE events. The center would allow the military to train and exercise with a state's public health laboratory, their FBI WMD Coordinator and local first responders. In particular, he is interested in point-of-sample analytical testing of suspicious substance suspected of being a biological threat. The training would involve proficiency tests to ensure first responders are using their testing equipment appropriately.

"One of the reasons I wanted to come here (CHDS) is that I wanted an opportunity to pull these concepts together in an academic environment so I would be better able to market the idea to policy makers," Marsh said. Other examples include:

- CHDS graduate Tony Russell (MA 0703/0704), a former FCO who is now superintendent of the Emergency Management Institute, sought to clarify the roles and duties of FCOs in his thesis, "Preparing Federal Coordinating Officers (FCOs) to operate in Chemical, Biological, Radiological, and Nuclear (CBRN) Environments." His thesis is now being used to train FCOs on CBRN threats.

- Inspector Stephen Sund of the Metro (D.C.) Police Department studied efficient tracking of equipment, budget, training, medical evaluations and personnel certifications associated with operating the department's CNRNE and HAZ-MAT programs. In a course paper in Technology for Homeland Security, Sund explored ways to use technology to improve monitoring of resources associated with the program. Improved tracking methods would, in turn, improve security.

In August, FEMA launched a pilot program to develop a video gaming platform aimed at educating the 40 and younger set on nuclear preparedness. Chad Gorman, chief of FEMA's Chemical, Biological, Radiological, Nuclear and Explosives (CBRNE) Branch, wrote his thesis on the topic while at CHDS.

Combined with the collection of the Homeland Security Digital Library, the research work conducted at CHDS has provided a repository on policy challenges and opportunities in the CBRNE domain. The library is a repository of more than 100,000 of the most up-to-date strategy and policy documents, including research papers and theses from the Naval Postgraduate School.

Moreover, CHDS Self Study courses include a course titled "Technology for Homeland Security: Inspection and Detection Technologies which addresses Presidential Directive Number 8—"capability specific priority 3.2.3 Strengthen CBRNE Detection, Response, and Decontamination Capabilities." The course focuses on technologies that enable the early detection of the presence, import, or transport of CBRNE materials.

For more information, visit: www.chds.us; www.hsdl.org; www.chds.us/?special/info&pgm=Noncredit

About the Center for Homeland Defense and Security

CHDS, established in 2002 and located at the Naval Postgraduate School (NPS), is the nation's homeland security educator. Master's degree students develop critical thinking, leadership and policy skills during a rigorous 18-month program. Each graduate completes a thesis on a current issue facing his/her jurisdiction. These theses often translate into policy and practice. The Center has developed a cadre of education programs and resources which are shared with other academic institutions around the country as part of its University and Agency Partnership Initiative (UAPI). The CHDS is sponsored by the U.S. Department of Homeland Security (DHS), National Preparedness Directorate, within the Federal Emergency Management Agency (FEMA). For information, visit www.chds.us.

MRICD Hosts 18th Bioscience Review

The US Army Medical Research Institute of Chemical Defense hosted its 18th Biennial Medical Defense Bioscience Review from 20 to 24 May in Hunt Valley, Md. Sponsored by the US Army Medical Research and Materiel Command, MRICD's parent organization located at Ft. Detrick, Md., the conference highlighted the latest research to develop medical countermeasures to protect against the effects of chemical warfare agents, toxic industrial chemicals, and biological neurotoxins. The conference also featured discussions on the current strategies to manage and provide medical care to chemical casualties.

"Bioscience Review is significant in that it represents the only opportunity for the entire medical chemical defense (MCD) community to gather for focused scientific exchanges," said Dr. John Graham, who chaired this year's conference and serves as MRICD's deputy to the commander for research.

"A broad range of pertinent topics was discussed, in both platform and poster presentations," continued Graham. "There were plenty of opportunities for further discussion of experimental results and planning for future collaborative research efforts among the attendees."

Graham opened the meeting and then introduced a special lecture by Dr. John Petrali, a research anatomist who has worked at MRICD for over 50 years. Petrali presented a historical perspective of the institute entitled "Within These Hallowed Halls: A Personal History of USAMRICD." The opening morning session concluded with a keynote address, "Animal Welfare," by MRICD's commander, Col. Peter Schultheiss. Schultheiss, a Veterinary Corps officer, provided a historical overview of animal welfare regulations.

A highlight of each Bioscience conference is the presentation of the Clarence A. Broomfield Award and the award lecture. Dr. David Lenz, renowned in the medical chemical defense community for his research in the development of bioscavengers as a pretreatment to protect military personnel exposed to nerve agents, was this year's recipient of the award. His lecture, "Protein Drugs against Nerve Agent Poisoning: From A to B," was a historical overview of the bioscavenger program. Lenz discussed early attempts to generate antibodies to nerve agents. He then went on to describe the development of butyrylcholinesterase as the leading stoichiometric bioscavenger and the ongoing research on catalytic bioscavengers, which will one day replace the stoichiometric product, because they are less expensive, more readily available, more efficient at scavenging nerve agents in the blood, and require much less volume to be injected. Lenz retired from MRICD last fall after over 40 years of service.

A new session this year was a special working lunch with representatives from the Food and Drug Administration, who provided an overview of the agency's Medical Countermeasures Initiative (MCMi). The session also included discussions on the use of *in vitro*, *ex vivo*, *in vivo*, and *in silico* models during the development of medical countermeasures against drugs and biologics. Another topic was the development of *in vitro* diagnostics, and contact information for pre-investigational new drug (IND) discussions with FDA officials was provided.

Aberdeen Science and Mathematics Academy student Allison Opitz describes her Capstone project to MRICD's commander, Col. Peter Schultheiss (left), and Dr. John Graham, deputy to the commander for research. (Photo by Cary Sisolak, MRICD)

As part of the daily demonstrations conducted by MRICD's Chemical Casualty Care Division, Daniel Boehm begins to transform MRICD's Jennifer Devorak into a nerve-agent casualty. (Photo by Peter Hurst, MRICD)

Each day of the conference during the afternoon break, members of MRICD's Chemical Casualty Care Division, Field Training Team, gave a demonstration, "Between Hollywood and the Field Hospital," to "showcase the latest method for creating and staging ultra-realistic simulated CBRNE casualties." The demonstrations gave attendees, who were also invited to participate, the opportunity to see someone transformed into a severely injured simulated casualty. Over the course of the demonstrations injuries that would result from exposure to nerve, pulmonary and vesicant agents, as well as from lacerations and thermal burns, were simulated. The division has incorporated these moulage techniques, as well as the use of state-of-the-art computerized manikins, into its applied learning programs.

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MRICD *cont.*

For the first time in the history of the Bioscience Review, awards were presented to attendees for top scientific posters. Five posters were recognized for scientific merit. Maj. Shai Shrot, Israel Defense Forces, received the award for International Principal Investigator, for his poster "Early In Vivo MR Spectroscopy Findings in Organophosphate-Induced Brain Damage—Potential Biomarkers for Short-Term Survival." The Department of Defense Principal Investigator poster award went to MRICD's Donald Maxwell for "A Common Mechanism for Resistance of Agent-Inhibited Acetylcholinesterase to Oxime Reactivation Based on QSAR of Nerve Agent Analogues of Sarin, Cyclosarin and Tabun," and the Post-Doctoral Fellow award went to an MRICD investigator as well, as did the Young Investigator award: Dr. John Azeke, for "Comparative Assessment of Cutaneous Sulfur Mustard Injuries in Sinclair Miniature Versus Weanling Yorkshire Swine," and Cristin Rothwell, "Analysis of Micro RNA Expression in Human Keratinocytes Following Exposure to Sulfur Mustard" respectively. The US Non-DoD Principal Investigator award recipient was Dr. Stanton McHardy, Southwest Research Institute, for "Development of Novel, 'Non-Pyridinium' AChE Reactivators or Peripheral and Central Protection against CWA Poisoning." Graham presented each winner with a certificate and one of Schultheiss's commander coins.

Recognition was also given to five seniors from the Aberdeen High School Science and Mathematics Academy (SMA) who completed their Capstone projects under the mentorship of MRICD scientists. Each of their outstanding projects in medical chemical defense was presented in a poster at the meeting, and each student received a certificate acknowledging her efforts. Allison Opitz, mentored by Dr. Erik Johnson, presented "Urinary Biomarkers Detect Nephrotoxicity Following Soman (GD) Exposure." Alexandria Will-Cole's project was "Analysis of In Vitro Interactions Between Conventional Therapeutic Drugs and Bioscavenger Enzymes," mentored by Dr. Tamara Otto. Nia Alleyne worked with Dr. Benedict Capacio on her project, "Rapid Simultaneous Analysis of Alkyl Methylphosphonic Acids Using a Solid-Phase Extraction Technique." Kamini Mallick's mentor was Dr. Heidi Hoard-Fruchey; her project, "Getting to the Heart of the Matter: Molecular Alterations Following Nerve Agent-Induced Cardiotoxicity." Nickole's Kanyuch, mentored by Dr. John McDonough, presented her project, "Comparing the Neuroprotective Effects of Benzamide and Dantrolene Following Soman Exposure."

Representatives from 11 countries were among the 276 attendees at the conference. They presented their research in 132 posters and 55 platform talks.

"The meeting was quite successful," said Graham at the end of the week. "Feedback from the attendees on the entire meeting was very positive, with hopes of continuing this conference in the future." ◈

MRICD is the nation's center of excellence for medical chemical defense research. Visit the USAMRICD website at http://usamricd.apgea.army.mil/ *and their Facebook page at* http://www.facebook.com/USAMRICD.

Change of Command

Col. Bruce A. Schoneboom, seen here receiving the unit flag from Maj. Gen. James Gilman, assumed command of the US Army Medical Research Institute of Chemical Defense, Aberdeen Proving Ground, Md., on 12 July. Schoneboom is the first MRICD commander to be selected from not only the Nurse Corps, but also the Army Medical Department Centralized Selection List process. Photo by Cary Sisolak, MRICD

During a change of command ceremony July 12 at McBride Field on Aberdeen Proving Ground, Col. Bruce A. Schoneboom assumed command of USAMRICD from Col. Peter J. Schultheiss, who spent two years leading the organization.

Schoneboom was commissioned into the U.S. Army in 1985 after receiving a bachelor of science in nursing from Central State University in Edmond, Okla. He also holds a master of health sciences in anesthesia nursing from Wesleyan University in Fort Worth, Texas, and a master's degree in national security strategy from the National Defense University's National War College, Washington, D.C., and a doctor of philosophy in neuroscience from the Uniformed Services University of the Health Sciences in Bethesda, Md.

Schoneboom's past assignments include serving as an intensive care registered nurse in Landstuhl, Germany and a certified registered nurse anesthetist at Tripler Army Medical Center in Honolulu, Hawaii. He also deployed to Afghanistan in support of Operation Enduring Freedom and was the detachment commander for the 14th Combat Support Hospital.

Schoneboom has also served as a faculty member for the Uniformed Services University of the Health Sciences. He has held many key positions at USU including serving as the associate dean for Academic Affairs, Graduate School of Nursing. In this role, he was responsible for curriculum design and promoted faculty enrichment for the school's master's and doctoral programs. Schoneboom collaborated with other senior leadership to advance the mission of the university through education, research and service.

While at USU, Schoneboom was the principal investigator on numerous funded grants and had an established funding and publication record. His research interests include investigating neuro-immune responses of the central nervous system to viral pathogens with known bioterrorist capabilities and the development of new monitoring technologies with operational and garrison applications.

Schoneboom is recognized for his contributions to science and his exemplary service record. He is the recipient of the Defense Superior Service Medal, Bronze Star Medal, the Defense Meritorious Service Medal, the Meritorious Service Medal with two oak leaf clusters, and the Joint Service Commendation Medal. He was awarded the "A" Proficiency Designator—the highest award given in recognition of professional accomplishment within the Army Medical Department. Schoneboom has been inducted into the Order of Military Medical Merit, the National Academy of Practice, and as a fellow in the American Academy of Nursing.

Calendar of Events

Do you have a CBRN Defense or Homeland Security course or event to add to our Calendar? Submit the pertinent information via email to **cbrniac@battelle.org.** *The CBRNIAC reserves the right to reject submissions. For a more extensive list of events, view our online calendar at* **https://www.cbrniac.apgea.army.mil/Products/Events/Pages/default.aspx.**

Sep 1–Dec 31
International Food Safety Training Laboratory Training Courses
College Park, MD
http://ifstl.org/courses/

Oct 15–17
International Conference on Biothreats and Biodefense
Chicago, IL
http://www.omicsonline.org/biodefense2012/

Oct 15–19
COURSE: Chemistry: Microscopic and Chemical Identification of Botanicals
College Park, MD
http://ifstl.org/registration/

Oct 16–17
CyberMaryland
Baltimore, MD
http://www.fbcinc.com/e/cybermdconference/

Oct 16–18
XVth International CBRN Symposium
Shrivenham, UK
http://www.cranfield.ac.uk/cds/symposia/cbrn.html

Oct 16–19
IV Congress of the Society of Environmental Toxicology and Chemistry (SETAC)
Buenos Aires, Argentina
http://www.setacargentina.com.ar/en/setac_2012.pdf

Oct 17–19
Virginia Hazardous Materials Conference and Expo
Hampton, VA
http://www.virginiahazmat.org/displayconvention.cfm?conventionnbr=11359

Oct 18–19
Integrating SAMPLE PREPARATION 2012
Baltimore, MD
http://www.knowledgefoundation.com/viewevents.php?event_id=285&act=evt&utm_source=Sample+Preparation+%2712+Call+for+Speakers+053012&utm_campaign=Integrating+SAMPLE+PREPARATION+12+051612&utm_medium=email&utm_content=kingj%40battelle.org&utm_source=Vertical

Oct 18–21
HOTZONE Conference 2012
Houston, TX
http://www.hotzone.org/HotzoneMain.aspx

Oct 22–24
AUSA Annual Meeting & Exposition
Washington, DC
http://www.ausa.org/meetings/2012/annualmeeting/Pages/2012AUSAAnnualMeetingDefault.aspx

Oct 22–24
International Expo and Conference on Analytrix and HPLC 2012
Chicago, IL
http://www.omicsonline.org/analytrix2012/

Oct 22–24
Dynamics of Preparedness Conference
Pittsburgh, PA
https://midas.pitt.edu/index.php?option=com_content&view=article&id=269&Itemid=474

Oct 22–26
ASM Conference on Beneficial Microbes
San Antonio, TX
http://archive.asm.org/index.php/meetings/asm-conferences-landing-page.html

Oct 22–26
56th Annual Meeting of the Human Factors and Ergonomics Society
Boston, MA
https://www.hfes.org/Web/HFESMeetings/2012annualmeeting.html

Oct 23–25
Aircraft Survivability Syposium 2012
Monterey, CA
http://www.ndia.org/meetings/3940/Pages/default.aspx

Oct 24–25
SETAC Europe Special Science Symposium
Brussels, Belgium
http://sesss06.setac.eu/?contentid=506

Oct 24–25
Unmanned Aerial Systems Conference 2012
London, UK
http://www.smi-online.co.uk/defence/uk/unmanned-aerial-systems

Oct 24–25
Cyber Defence Forum 2012
Prague, Czech Republic
http://www.cyberdefenceforum.com/Event.aspx?id=770998

Oct 26–Nov 1
IAEM-USA Annual Conference & EMEX 2012
Orlando, FL
http://www.iaem.com/events/annual/intro.htm

Oct 27–31
140th Annual APHA Meeting & Exposition
San Francisco, CA
http://www.apha.org/meetings/AnnualMeeting/

Oct 28–Nov 2
Medical Management of Chemical and Biological Casualties (MCBC)
APG, MD and Fort Detrick, MD
https://ccc.apgea.army.mil/courses/In_house/MCBC.htm

Continued pg. 13

Oct 29–31 **PEMA's 2012 State Annual Emergency Management Conference**
Harrisburg, PA
http://www.kema-pa.org/index.php/conference

Oct 30–Nov 2 **CBRNe Convergence 2012**
Norfolk, VA
http://www.cbrneworld.com/events/convergence-2012

Oct 31–Nov 3 **2012 ASCP Annual Meeting**
Boston, MA
http://www.ascp.org/2012annualmeeting/

Nov 1–2 **Nuclear D&D Supply Chain Conference**
Charlotte, NC
http://www.nuclearenergyinsider.com/usdecom/conference-event-brochure.php?utm_source=NDReport&utm_medium=EnewsBanner&utm_campaign=2179

Nov 5–14 **Chemistry: Pesticide Residue Analysis**
(with a day focused on laboratory accreditation according to ISO 17025)
College Park, MD
http://ifstl.org/registration/

Nov 11–15 **SETAC North America—33rd Meeting**
Long Beach, CA
http://longbeach.setac.org/

Nov 12–13 **Military Robotics**
London, UK
http://www.smi-online.co.uk/defence/uk/military-robotics

Nov 13–14 **Genomics Research Asia**
Daejeon, South Korea
http://selectbiosciences.com/conferences/index.aspx?conf=GRA2012

Nov 13–14 **Homeland Security Symposium**
Arlington, VA
http://www.ndia.org/meetings/3490/Pages/default.aspx

Nov 13–15 **IEEE Conference on Technologies for Homeland Security (HST '12)**
Greater Boston, MA
http://www.ieee-hst.org/

Nov 13–15 **Clean Gulf 2012**
New Orleans, LA
http://www.cleangulf.org/

Nov 14–15 **SMi's Social Media within the Military and Defence Sector**
London, UK
http://www.smi-online.co.uk/defence/uk/social-media-within-the-military-and-defence-sector

Nov 26–28 **International Toxicology Summit & Expo**
San Antonio , TX
http://www.omicsonline.org/toxicology2012/

Nov 27–28 **European Antibody Congress**
Geneva, Switzerland
http://www.terrapinn.com/2012/european-antibody-congress/index.stm

Nov 27–30 **Personal Protective Equipment Workshop**
Hollywood, FL
http://www.cttso.gov/

Nov 28–29 **World Animal Health Congress**
Kansas City, MO
http://www.terrapinn.com/conference/world-animal-health-congress/

Nov 29–30 **2012 World Orphan Drug Congress—Europe**
Geneva, Switzerland
http://www.terrapinn.com/2012/world-orphan-drug-congress/

Dec 3–6 **I/ITSEC 2012**
Orlando,FL
http://www.iitsec.org/Pages/default.aspx

Dec 11 **Spirometry Refresher—(NIOSH-approved)**
Cincinnati, OH
http://www.drmckay.com./dates.htm#Respirator

Dec 15–18 **2012 Special Operations Medical Association (SOMA) Expo**
Tampa, FL
http://www.specialoperationsmedicine.org/

Dec 18–20 **BPS Winter Meeting**
London, UK
http://www.bps.ac.uk/details/meeting/984911/BPS-Winter-Meeting-London.html

Jan 8–10 **International Disaster Conference & Expo (IDCE) 2013**
New Orleans, LA
http://www.internationaldisasterconference.com/

Jan 12–16 **SLAS2013—2nd Annual Conference and Exhibition**
Orlando, FL
http://slas2013.org/

Jan 28–30 **24th Annual SO/LIC Symposium & Exhibition**
Washington, DC
http://www.ndia.org/meetings/Pages/default.aspx

Jan 30 **Combating Terrorism Technical Support Office Advance Planning Briefing for Industry**
Washington, DC
http://www.ndia.org/meetings/3090/Pages/default.aspx

In the News

Nuclear Information Goes Mobile
IAEA Staff Report
August 7, 2012
"Experts predict explosive growth in mobile computing in the coming years…The IAEA's International Nuclear Information System (INIS) is leveraging the increased use of these 'on-the-go' devices by recently launching a mobile version of its web site, thereby helping it target a new audience."
http://www.iaea.org/newscenter/news/2012/inis-goes-mobile.html?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+IaeaTopNews+%28IAEA+Top+News%29

New Approaches Needed for Uncovering, Identifying, and Treating Buried Chemical Warfare Material
Science Daily
August 6, 2012
"The current approach for identifying and destroying buried chemical munitions and related chemical warfare materials uncovered during environmental remediation projects is neither reliable enough nor has the capability to efficiently tackle large-scale projects…An alternative or modified approach is needed…"
http://www.sciencedaily.com/releases/2012/08/120806130857.htm

Vibrant Response 13 Trains Soldiers for Reality
Staff Sgt. Kelvin Ringold
U.S. Army News Release
August 5, 2012
"What would happen if a catastrophic event was to take place somewhere in the United States?... The 40th Expeditionary Signal Battalion is participating in Vibrant Response 13, a joint-service, mass-training exercise directed by U.S. Northern Command."
http://www.army.mil/article/84974/Vibrant_Response_13_trains_Soldiers_for_reality/

Test Results Show Unprecedented Achievement for Marburg Drug Candidate
Joint Project Manager Transformational Medical Technologies (JPM-TMT) Project Management Office Press Release
August 2, 2012
"A new study testing a drug candidate to treat Marburg virus demonstrated significant survival rates up to four days after exposure to the disease. Referred to as AVI-7288, the drug is a post-exposure prophylactic targeting the Marburg virus…"
http://www.jpmtmt.mil/pdf/press/Press-2012-TestResultsShowUnprecedentedAchievement.pdf

Nuclear Operations Halted at Y-12 National Security Complex
John Huotari
Oak Ridge Today
August 1, 2012
"All nuclear operations have been halted at the Y-12 National Security Complex in Oak Ridge, a federal spokesman said Wednesday. The unprecedented security 'stand down' occurred after three activists breached the plant's high-security area…"
http://oakridgetoday.com/2012/08/01/nuclear-operations-halted-at-y-12-national-security-complex/

Officials Want to Turn World War II Nuclear-Weapon Development Sites Into National Parks
Darryl Fears
The Washington Post
July 28, 2012
"Tennessee's Oak Ridge National Laboratory was such a well-kept secret during World War II that most Americans still don't know that it sits off one of busiest highways in the South… But a spotlight might shine soon on the Oak Ridge lab and two other largely forgotten Manhattan Project sites as the nation marks the 70th anniversary of the general order that established the world-shaking atomic research and development program."
http://www.washingtonpost.com/national/health-science/officials-want-to-turn-world-war-ii-nuclear-weapon-development-sites-into-national-parks/2012/07/28/gJQAWRATGX_story.html

NNSA Conducts Third Seismic Source Physics Experiment
National Nuclear Security Administration Press Release
July 24, 2012
"The National Nuclear Security Administration (NNSA) today announced that it has successfully conducted the third seismic Source Physics Experiment (SPE-3) at the Nevada National Security Site (NNSS)."
http://nnsa.energy.gov/print/mediaroom/pressreleases/spe3072412

Tea Could Counteract Bioterror Toxin
Paul Tinder
BioPrepWatch News
July 19, 2012
"Researchers from Cardiff University's School of Pharmacy and Pharmaceutical Sciences in Wales announced this week that a component in tea could deactivate the properties of ricin."
http://www.bioprepwatch.com/weapons_of_bioterrorism/tea-could-counteract-bioterror-toxin/324711/

Continued pg. 15

Issue 8 of USANCA's *Combating WMD Journal* is Now Available!

The latest issue of the U.S. Army Nuclear and Combating WMD Agency's (USANCA's) Combating WMD Journal (Issue 8, Winter/Spring 2012) has been posted to the CBRNIAC's website at https://www.cbrniac.apgea.army.mil/Products/Documents/USANCA%20Journals%20and%20Reports/CWMD_Journal_No_8_Aug12.pdf.

Previous issues of the Combating WMD Journal are available at:
https://www.cbrniac.apgea.army.mil/Products/Links/KeyDocs/Pages/USANCA.aspx.
Combating WMD Journals are large files and may take some time to download.

In the News *cont.*

UGA Researchers Develop Rapid Diagnostic Test For Pathogens, Contaminants
Sam Fahmy
University of Georgia News Release
July 19, 2012
"Using nanoscale materials, researchers at the University of Georgia have developed a single-step method to rapidly and accurately detect viruses, bacteria and chemical contaminants."
http://news.uga.edu/releases/article/rapid-diagnostic-test-for-pathogens-contaminants-071912/

NLM Launches iOS Version of WISER
Paul Purlain
BioPrepWatch News
July 10, 2012
"The United States National Library of Medicine recently announced the launch of WISER 3.0, an Apple iOS compatible version of its system designed to assist first responders in hazardous materials incidents."
http://www.bioprepwatch.com/weapons_of_bioterrorism/nlm-launches-ios-version-of-wiser/324621/

Northrop Grumman's Next Generation Automated Detection System Completes Field Test, Readies for Program's Next Phase
Northrop Grumman News Release
July 10, 2012
"Northrop Grumman Corporation (NYSE:NOC) announced today that its Next Generation Automated Detection System (NG-ADS) for homeland defense applications has successfully completed a rigorous field test and is ready for the program's next phase."
http://www.irconnect.com/noc/press/pages/news_releases.html?d=261683

NNSA Announces Elimination of 450 Metric Tons of Russian Weapons Highly Enriched Uranium
National Nuclear Security Administration Press Release
July 9, 2012
"The National Nuclear Security Administration (NNSA) today announced that it has monitored the elimination of more than 450 metric tons (MT) of Russian highly enriched uranium (HEU) under a landmark nuclear nonproliferation program."
http://nnsa.energy.gov/mediaroom/pressreleases/450tons070912

Central Asian Nations Address Uranium Mining Legacy
International Atomic Energy Agency News Release
July 1, 2012
"…A Regional Meeting on Safe Management of Uranium Production Legacy Sites has taken place June 12–15 in Vienna. Delegates and representatives from Central Asian countries, international organizations, donors, and other stakeholders discussed working together to develop measures to address the challenges of dealing with tailings from uranium mining in Kyrgyzstan, Kazakhstan, Uzbekistan and Tajikistan, in order to reduce the risks associated with these legacy sites."
http://www.iaea.org/newscenter/news/2012/uraniumlegacy.html?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+IaeaTopNews+%28IAEA+Top+News%29

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Whyne Decorated With Secretary of the Army's Top Award for Exceptional Service

The Department of the Army's highest civilian award, the Decoration for Exceptional Civilian Service, was presented to Conrad F. Whyne on June 19 by Deputy Assistant Secretary of the Army (Elimination of Chemical Weapons) Carmen J. Spencer.

Secretary of the Army John M. McHugh commended Whyne for "exceptional performance of duty" while serving as director of the U.S. Army Chemical Materials Agency from January 2008 through February 2012, citing his "proactive involvement and outstanding leadership" that "resulted in $2 billion in cost savings and many operational efficiencies, all of which had a direct effect on improving national security through the safe destruction of the Nation's munitions stockpile."

"Conrad epitomizes the highest qualities of the workforce he leads—modest, selfless and wholly dedicated to the successful accomplishment of the chemical demilitarization mission. I would say without qualification that he is a unique national resource, one whose exceptional service will long be remembered," said Spencer.
Whyne currently serves as program executive officer, the civilian equivalent to a major general, leading the Department of Defense's Assembled Chemical Weapons Alternatives program, where he oversees all aspects of the safe elimination of the remaining 10 percent of the original U.S. chemical weapons stockpile stored at Army installations in Colorado and Kentucky.

A native of Pennsylvania, Whyne holds a bachelor's degree in biology from the Pennsylvania State University, University Park, and a master's degree in biomedical engineering from Rutgers, The State University, Piscataway, N.J. He is married to the former Dianne M. Kaleta and the couple resides in Abingdon, MD.

NNSA Scientist Engagement Addresses Nuclear Security Challenges

The National Nuclear Security Administration (NNSA) today announced the approval of nearly $3 million in funding for collaborative research and development projects aimed at addressing nuclear security challenges. The projects, financed by NNSA's Global Initiatives for Proliferation Prevention (GIPP) program, will be managed jointly through the intergovernmental International Science and Technology Center (ISTC), located in the Russian Federation, and the Science and Technology Center (STCU) in Ukraine.

Most of the projects funded by NNSA will partner U.S. and foreign scientists to collaborate in areas that directly support the goals announced at the 2012 Nuclear Security Summit in Seoul, South Korea, as well as related priorities under the Global Initiative to Combat Nuclear Terrorism, the G8 Global Partnership Against Weapons and Materials of Mass Destruction, and United Nations Security Council Resolution 1540.

"The NNSA Strategic Plan calls for partnering with the international community to impede the spread of nuclear weapons technology, materials and information," said Deputy Administrator for Defense Nuclear Nonproliferation Anne Harrington. "Our engagement of scientists around the world is an important tool in this international partnering effort. By leveraging our unique scientific knowledge and skills, we can advance our nuclear security agenda and directly support the international effort to fulfill the goals of the 2012 Seoul Nuclear Security Summit."

The GIPP program mitigates the risk of expertise proliferation through science and technology collaboration and partnerships among foreign research institutions, U.S. national laboratories and U. S. industry to develop innovative technology solutions in such priority areas as nonproliferation, counterterrorism and energy security. The program leverages private sector support involving more than 150 U.S. industry partners to date, which have collectively provided more than $280 million in matching, in-kind, and cash contributions to the projects.

The GIPP-sponsored projects approved at the recent ISTC and STCU Governing Board Meetings include:

- A project on enhancing national nuclear forensics capabilities and expertise, which partners Lawrence Livermore National Laboratory (LLNL) with institutes in Ukraine, Azerbaijan, Georgia and Moldova. This project will enhance the region's ability to counter illicit nuclear and radiological material trafficking—directly contributing to a key goal of the 2012 Nuclear Security Summit and the Global Initiative to Combat Nuclear Terrorism.

- A study of attribution signatures of uranium-bearing materials, to create a database of signatures to support nuclear forensics investigations of seized materials. In this initiative, LLNL will collaborate with four Ukrainian institutes to identify attribution signatures of different uranium-bearing material samples.

- A technology development project for a new portable biometric scanner with high-definition measurements that will provide unique personnel identification capabilities. In partnership with the U.S. company BIOPTid, NNSA's Kansas City Plant will team with Ukrainian institutes to develop, build and test a prototype of this biometric scanner technology.

Scientist engagement contributes to other Department of Energy objectives as well, such as energy technology development and environmental safety. The GIPP-sponsored cooperative science projects approved at the ISTC and STCU Governing Boards also include:

- A project with cost-share from U.S. companies American Energy Technologies and Apollo Energy Systems Inc. that will team Brookhaven National Laboratory with Ukrainian materials science experts to develop new high-temperature furnace technologies for recycling and reusing spent lithium-ion batteries from electric vehicles.

- A project that will partner LLNL with a Georgian (Tbilisi) biochemical institute to jointly investigate the institute's new technological approach, which uses a composite of natural materials and micro-organisms to clean up soils polluted with heavy metals, oil and other hydrocarbons, pesticides and other pollutants.

The ISTC and STCU are intergovernmental organizations, established in the mid-1990s, to deter the spread of WMD knowledge by engaging scientists and technicians in peaceful, cooperative research activities. The United States is a member of both organizations, and the combined membership of the two centers includes Armenia, Azerbaijan, Belarus, Canada, the European Union, Japan, Norway, Georgia, Kazakhstan, the Kyrgyz Republic, Moldova, the Republic of Korea, the Russian Federation, Ukraine and Uzbekistan.

View the original press release online at: http://nnsa.energy.gov/mediaroom/pressreleases/scientistengagement072612

Follow NNSA News on their Blog and on Facebook, Twitter, Tumblr, YouTube, and Flickr.

Established by Congress in 2000, NNSA is a semi-autonomous agency within the U.S. Department of Energy responsible for enhancing national security through the military application of nuclear science. NNSA maintains and enhances the safety, security, reliability and performance of the U.S. nuclear weapons stockpile without nuclear testing; works to reduce global danger from weapons of mass destruction; provides the U.S. Navy with safe and effective nuclear propulsion; and responds to nuclear and radiological emergencies in the U.S. and abroad.

Strategic National Stockpile Adds Seven Medical Treatments: HHS
Global Security Newswire
June 29, 2012
"The U.S. Strategic National Stockpile of drug treatments since 2007 has added seven key medicines for hazards including anthrax, smallpox and botulinum toxin…The readiness effort -- dubbed the Public Health Emergency Medical Countermeasures Enterprise -- would focus over the next half-decade on planning, refining, producing and obtaining important drugs…"
http://www.nti.org/gsn/article/us-seeks-streamline-wmd-treatment-preparation-practices/

More Effective Radiation Detection of Cargo, Baggage
Homeland Security News Wire
June 29, 2012
"A team of nanomaterials researchers at Sandia National Laboratories has developed a new technique for radiation detection that could make radiation detection in cargo and baggage more effective and less costly for homeland security inspectors."
http://www.homelandsecuritynewswire.com/dr20120629-more-effective-radiation-detection-of-cargo-baggage

Soligenix Announces Collaboration with Infectious Disease Research Institute to Develop Thermostabilized Biodefense Vaccines Utilizing Novel Adjuvants
Soligenix, Inc. News Release
June 27, 2012
"Soligenix, Inc…announced today that it has entered into a collaboration with the Infectious Disease Research Institute (IDRI) of Seattle, WA to develop select biodefense vaccines using IDRI's potent and safe synthetic adjuvants in conjunction with Soligenix's proprietary subunit proteins and thermostability platform (known as ThermoVax™)."
http://www.soligenix.com/news.aspx?titleId=389

Bomb Threat? An App Tor That, Too
Homeland Security News Release
June 26, 2012
"…The U.S. Department of Homeland Security's (DHS) Science and Technology Directorate (S&T) and its public and private sector partners have developed a must-have "app": the First Responder Support Tools (FiRST) for computers and smartphones."
http://www.dhs.gov/files/programs/st-smartphone-app-bomb-threats.shtm

New CDC Test For Dengue Approved
CDC News Release
June 20, 2012
"The Centers for Disease Control and Prevention has developed a new diagnostic test to detect the presence of dengue virus in people with symptoms of dengue fever or dengue hemorrhagic fever."
http://www.cdc.gov/media/releases/2012/p0620_dengue_test.html?s_cid=ccu070212_018

HHS Creates New Centers to Develop, Manufacture Medical Countermeasures
HHS Press Release
June 18, 2012
"The U.S. Department of Health and Human Services today established three new centers to develop and manufacture medical countermeasures, such as vaccines and medicines used to protect health in emergencies, and can transition quickly and cost effectively between products."
http://www.hhs.gov/news/press/2012pres/06/20120618a.html

Vaxin Receives Phase I SBIR Grant to Evaluate Promising New Anthrax Vaccine
Vaxin News Release
June 18, 2012
"Vaxin Inc., a clinical stage vaccine development company, announced the award of a Phase I Small Business Initiative Research (SBIR) grant… This six month grant will allow Vaxin scientists to continue to build our anthrax vaccine portfolio of technologies through the development of novel more effective vaccines against anthrax."
http://vaxin.com/Phase%201%20SBIR%20Grant%20June%202012.pdf

Last Fugitive in 1995 Tokyo Subway Gas Attack Arrested
Arata Yamamoto
NBC News in Tokyo
June 15, 2012
"After 17 years on the run, the last remaining member of the Japanese doomsday cult wanted for the deadly 1995 sarin gas attack on the Tokyo subway system was arrested by police Friday."
http://worldnews.msnbc.msn.com/_news/2012/06/14/12228997-last-fugitive-in-1995-tokyo-subway-gas-attack-arrested?lite

Air Force, Republic of Korea Allies Partner For Potential CBRN Attacks
Senior Airman Brigitte N. Brantley
8th Fighter Wing Public Affairs Press Release
"With the ever-present threat of North Korea so close, Pacific Air Forces and South Korean Airmen constantly train to respond to any potential attacks. A combined workshop June 7 and 8 gave the allies a chance to strengthen their partnership through demonstrations of the equipment each side uses…"
http://www.af.mil/news/story.asp?storyID=123305592

Threat Reduction Programs Shift Focus to Bioweapons
Jeffrey Bigongiari
Bio Prep Watch
June 14, 2012
"A two decade-long U.S. Department of Defense program designed to reduce the threat of weapons of mass destruction from the former Soviet Union is shifting its focus from nuclear to biological weapons and from Russia to Southeast Asia and Africa."
http://www.bioprepwatch.com/us_bioterror_policy/threat-reduction-programs-shift-focus-to-bioweapons/324380/

New Foot-And-Mouth Disease Vaccine Gets Licensed for Use on Cattle
Agri-View
June 13, 2012
"The U.S. Department of Homeland Security (DHS) announced recently that the world's first molecular foot-and-mouth (FMD) vaccine has been granted conditional license for use in cattle by the U.S. Department of Agriculture (USDA) Animal and Plant Health Inspection Service's Center for Veterinary Biologics…this is the first licensed FMD vaccine that can be manufactured on the U.S. mainland."
http://www.agriview.com/briefs/livestock/new-foot-and-mouth-disease-vaccine-gets-licensed-for-use/article_617ea396-b566-11e1-8d2f-0019bb2963f4.html

NNSA Conducts 100th WMD Counterterrorism Exercise

NNSA, FBI Conclude Radiological Security Exercise at University of Cincinnati

NNSA's Offices of Counterterrorism Policy and Cooperation and Global Threat Reduction and the FBI today announced the completion of the Bearcat Thunder counterterrorism table-top exercise at the University of Cincinnati (UC), the 100th exercise of its kind. The exercise is part of NNSA's Silent Thunder table-top series, which is aimed at giving federal, state and local officials, first responders and law enforcement critical, hands-on experience in responding to a terrorist attack involving radiological materials.

NNSA began the Weapons of Mass Destruction (WMD) Counterterrorism Exercise Program in 1999. It has grown to include both domestic Department of Energy facilities and private sector locations such as hospitals and universities. The exercises have been carried out primarily within the United States, but have included foreign participants as well. In a first for the Silent Thunder series, an official from the International Atomic Energy Agency observed the Bearcat Thunder exercise.

"The President has stated that the greatest threat to global security is the danger of nuclear terrorism," said Deputy Undersecretary and Associate Administrator for NNSA's Office of Counterterrorism and Counterproliferation Steven Aoki. "The Silent Thunder exercise program, developed and conducted in partnership by NNSA and the FBI, directly addresses this threat. We recognize that reducing the risk of radiological or nuclear terrorism requires a whole-of-community approach that brings together officials and responders from the federal, state, local and facility levels."

To date, NNSA and the FBI have conducted Silent Thunder exercises in 22 states and the District of Columbia, with plans to reach additional states in the future.

Today's Bearcat Thunder exercise played out a fictitious scenario with terrorists infiltrating a research facility and attempting to seize control of a high-activity radiological source that, in principle, could be used in radiological dispersal devices, commonly referred to as dirty bombs. The participating officials worked cooperatively to assess and respond to simulated facility alarms and then manage the crisis as if it were actually happening. The goal of these exercises is to provide first-hand crisis management experience, facilitate coordination between multiple agencies and improve both security and emergency response methods. Exercises take place in select locations across the country with facilities that house nuclear or high-activity radioactive materials.

"From the University of Cincinnati's perspective, this exercise allowed us to achieve a number of goals," said UC Assistant Police Chief Jeff Corcoran. "We were able to evaluate the school's procedures and tactical decision making, exercise our mutual aid and unified command structure, improve communication and interoperability between UC Police and surrounding jurisdictions and evaluate our emergency alert system and evacuation planning. Overall, this was an excellent experience that provided enormous benefit to the University's preparedness."

The exercise series is jointly organized and funded by NNSA's Global Threat Reduction Initiative (GTRI), NNSA's Office of Counterterrorism Policy and Cooperation, and the FBI. The federal agencies participating in Bearcat Thunder were joined by authorities representing the state, county and municipal agencies including the Cincinnati Fire Department, Cincinnati Police, Cincinnati Department of Public Health, Greater Cincinnati Health Council, Red Cross Disaster Services, Hamilton County Radiation Task Force, Ohio Department of Health, Ohio Department of Public Safety, Greater Cincinnati HazMat Team, Hamilton County Department of Health, Christ Hospital, St. Luke Hospital, UC and University Hospital.

NNSA's GTRI, in coordination with the Nuclear Regulatory Commission (NRC) and the Department of Homeland Security, installs voluntary security upgrades at hospitals and other civilian sites housing high-activity radiological sources that are commonly used in medical procedures and other commercial activities. Preceding the Bearcat Thunder exercise, the University of Cincinnati instituted these GTRI radiological security improvements. These security upgrades further reduce the potential for theft or misuse of radiological materials that could be used in a dirty bomb. These voluntary upgrades are in addition to increased security enhancements required by NRC and NRC agreement states since 2006. ◈

View the original press release online at: http://nnsa.energy.gov/mediaroom/pressreleases/bearcatexercise080912

Started in 1999, NNSA's Office of Counterterrorism Policy and Cooperation's WMD Counterterrorism Exercise Program took on an expanded role following the tragic events of Sept. 11, 2001. Since the program began, over 8,700 international, federal, state and local officials have participated in 100 different exercises. To promote full participation by state and local officials, Silent Thunder exercises are unclassified and utilize open source information for scenario development and are conducted in a no-fault environment.

Follow NNSA News on their Blog and on Facebook, Twitter, Tumblr, YouTube, and Flickr.

Established by Congress in 2000, NNSA is a semi-autonomous agency within the U.S. Department of Energy responsible for enhancing national security through the military application of nuclear science. NNSA maintains and enhances the safety, security, reliability and performance of the U.S. nuclear weapons stockpile without nuclear testing; works to reduce global danger from weapons of mass destruction; provides the U.S. Navy with safe and effective nuclear propulsion; and responds to nuclear and radiological emergencies in the U.S. and abroad.

Anthrax in the Air?

EPA Homeland Security researchers and their partners are studying the potential for anthrax to "reaerosolize" in outdoor, urban environments following a bio-terrorist incident.

It's not hard to imagine the immediate aftermath of a terrorist attack using *Bacillus anthracis* (anthrax) spores. Emergency crews in bio-hazard suits survey the scene. A perimeter is established around large, evacuated areas, while victims are tended to by health professionals.

But what next? As clean up is planned and executed, can decision makers count on any settled spores staying put? Do environmental factors cause the spores to become airborne from outdoor, urban surfaces, and potentially enter buildings, vehicles, or other occupied areas?

If spores do move about, how does this situation influence the choice of clean up approaches and public health responses (exposure of workers and the public, sampling strategies, immunizations, clean up technology, etc.)?

Answering the above questions is the focus of a new, coordinated set of studies called the *Scientific Program on Reaerosolization and Exposure (SPORE)*—conducted collaboratively by EPA's Homeland Security Research Program (HSRP), the Department of Homeland Security, the Department of Health and Human Services, the Department of Defense, and other research partners.

SPORE researchers have already found that reaerosolization of anthrax spores can occur; however, more studies are needed to fully understand reaerosolization and improve our ability to estimate exposures to responders and civilians under various scenarios.

Over the next several years, SPORE will study and evaluate the biological properties of anthrax spores, anthrax dispersion and reaerosolization in a simulated outdoor urban environment, and potential impacts on public health. The results of this research will better inform field activities in the event of an actual anthrax attack. Ultimately, the goal is to make communities more resilient to anthrax attacks by not only protecting public health but by returning contaminated areas to use more quickly and economically.

View the original article online at the EPA's web site at:
http://www.epa.gov/sciencematters/june2012/anthrax.htm

Wind Tunnel Tests

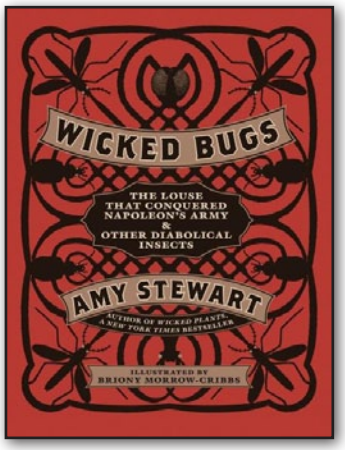
EPA researchers are testing many of the factors that influence reaersolization of anthrax surrogates in a specially designed wind tunnel using non infectious *B. thuringiensis* (Bt) spores.

Research partners from the U.S. Army will conduct similar tests with *B. anthracis* at the Dugway Proving Ground (DPG) using the methods and equipment developed by EPA and DPG to determine the best non-infectious surrogates to use in experiments in the place of *B. anthracis*.

Following these chamber studies, the multi-Agency SPORE will conduct additional experiments to track the potential inhalation threats of reaerosolized spores.

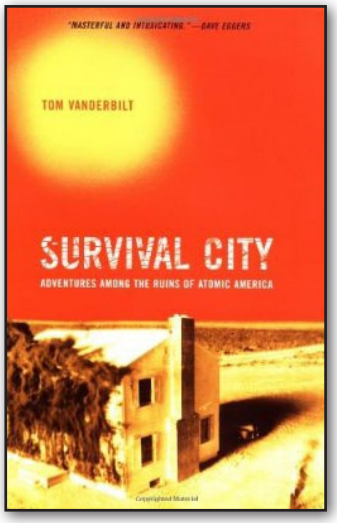
New CBRNIAC Information Resources

Stewart, Amy. **Wicked Bugs: The Louse That Conquered Napoleon's Army and Other Diabolical Insects**. Chapel Hill, NC: Algonquin Books of Chapel Hill, 2011.



"In this captivating look at the sinister side of the natural world, Amy Stewart uncovers more than one hundred of our worst insect enemies – creatures that infest, infect, and generally wreak havoc on human affairs. From the world's most painful hornet to millipedes that stop traffic, from "bookworms" that devour libraries to Japanese beetles that munch on our roses, *Wicked Bugs* tells the stories of bugs gone wild." *(Back Cover)*

CB-208021
Algonquin Books of Chapel Hill
PO Box 2225
Chapel Hill, NC 27515-2225
Phone: (919) 967-0108



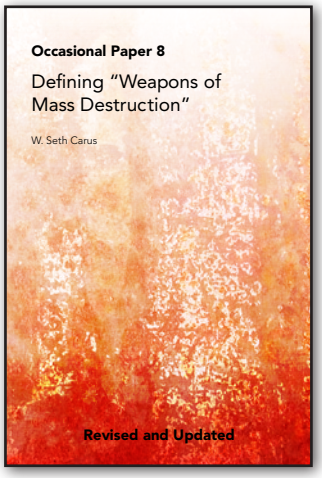
Vanderbilt, Tom. **Survival City: Adventures Among the Ruins of Atomic America**. New York, NY: Princeton Architectural Press, 2002.

"In this at turns frightening and comical travelog, Tom Vanderbilt roams the Interstate (itself a Cold War creation) in search of the ruins of atomic America. On the road to Survival City, Vanderbilt maps the visible and invisible legacies of the Cold War, exhumes the blueprints for the apocalypse we once envisioned, and chronicles a time in which we all lived at ground zero." *(Inner Cover)*

CB-204834
Princeton Architectural Press
37 East 7th Street
New York, NY 10003
Phone: (212) 995-9620

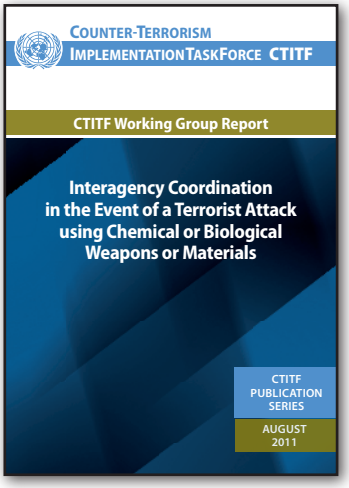
Carus, Seth W. **Defining "Weapons of Mass Destruction"**. Washington, DC: National Defense University Press, 2012.
http://wmdcenter.dodlive.mil/files/2006/01/OP8.pdf

"When the original version of this occasional paper appeared in January 2006, DOD was still debating how to revise its WMD definition. Accordingly, the paper focused on framing the issues that confronted DOD in selecting a new definition. This revised edition takes into account developments during the past 5 years, and it reduces the focus on DOD-specific considerations. The result is an updated and reorganized review of the topic intended for readers interested in better understanding issues related to the proliferation and control of weapons of mass destruction." *(Foreword)*



CB-207084
Center for the Study of Weapons of Mass Destruction
Abraham Lincoln Hall, Suite 2400
260 5th Avenue SW, Bldg 64
Fort Lesley J. McNair
Washington, DC 20319-5066
Phone: (202) 685-4210

United Nations Counter-Terrorism Implementation Task Force. **Interagency Coordination in the Event of a Terrorist Attack Using Chemical or Biological Weapons or Materials**. New York, NY: United Nations, 2011.
http://www.un.org/en/terrorism/ctitf/pdfs/ctitf_wmd_working_group_report_interagency_2011.pdf



"The Working Group on Preventing and Responding to Weapons of Mass Destruction Attacks (the Working Group) is one of the groups through which certain activities of the Counter-Terrorism Implementation Task Force (CTITF) are organized to support the implementation of the UN Global Counter-Terrorism Strategy. This report is the second put forward by the Working Group. It aims to familiarize Member States with existing mechanisms in individual entities of the Working Group, as well as interagency mechanisms, in the context of the preparedness for, prevention of and response to terrorist attacks using chemical or biological weapons and materials." *(Executive Summary)*

CB-208508
United Nations
Counter-Terrorism Implementation Task Force Office
One United Nations Plaza
New York, NY 10017
Phone: (212) 963-4664

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Fact Sheet on Dirty Bombs

Background
A "dirty bomb" is one type of a radiological dispersal device (RDD) that combines conventional explosives, such as dynamite, with radioactive material. The terms dirty bomb and RDD are often used interchangeably in the media. Most RDDs would not release enough radiation to kill people or cause severe illness—the conventional explosive itself would be more harmful to individuals than the radioactive material. However, depending on the situation, an RDD explosion could create fear and panic, contaminate property, and require potentially costly cleanup. Making prompt, accurate information available to the public may prevent the panic sought by terrorists.

A dirty bomb is in no way similar to a nuclear weapon or nuclear bomb. A nuclear bomb creates an explosion that is millions of times more powerful than that of a dirty bomb. The cloud of radiation from a nuclear bomb could spread tens to hundreds of square miles, whereas a dirty bomb's radiation could be dispersed within a few blocks or miles of the explosion. A dirty bomb is not a "Weapon of Mass Destruction" but a "Weapon of Mass *Disruption*," where contamination and anxiety are the terrorists' major objectives.

Impact of a Dirty Bomb
The extent of local contamination would depend on a number of factors, including the size of the explosive, the amount and type of radioactive material used, the means of dispersal, and weather conditions. Those closest to the RDD would be the most likely to sustain injuries due to the explosion. As radioactive material spreads, it becomes less concentrated and less harmful. Prompt detection of the type of radioactive material used will greatly assist local authorities in advising the community on protective measures, such as sheltering in place, or quickly leaving the immediate area. Radiation can be readily detected with equipment already carried by many emergency responders. Subsequent decontamination of the affected area may involve considerable time and expense.

Immediate health effects from exposure to the low radiation levels expected from an RDD would likely be minimal. The effects of radiation exposure would be determined by:
- the amount of radiation absorbed by the body;
- the type of radiation (gamma, beta, or alpha);
- the distance from the radiation to an individual;
- the means of exposure-external or internal (absorbed by the skin, inhaled, or ingested); and the length of time exposed.

The health effects of radiation tend to be directly proportional to radiation dose. In other words, the higher the radiation dose, the higher the risk of injury.

Protective Actions
In general, protection from radiation is afforded by:
- minimizing the time exposed to radioactive materials;
- maximizing the distance from the source of radiation; and
- shielding from external exposure and inhaling radioactive material.

Sources of Radioactive Material
Radioactive materials are routinely used at hospitals, research facilities, industrial activities, and construction sites. These radioactive materials are used for such purposes as diagnosing and treating illnesses, sterilizing equipment, and inspecting welding seams. The Nuclear Regulatory Commission together with 37 "Agreement" States, which also regulate radioactive material, administers more than 22,000 licenses of such materials. The vast majority of these materials are not useful as an RDD.

Control of Radioactive Material
NRC and state regulations require owners licensed to use or store radioactive material to secure it from theft and unauthorized access. These measures have been greatly strengthened since the attacks of September 11, 2001. Licensees must promptly report lost or stolen risk-significant radioactive material. "Risk-significant" refers to radioactive sources that may pose a significant risk to individuals, society and the environment if not properly used, protected, or secured. Local authorities also assist in making a determined effort to find and retrieve such sources. Most reports of lost or stolen material involve small or short-lived radioactive sources that are not useful for an RDD.

Past experience suggests there has not been a pattern of collecting such sources for the purpose of assembling an RDD. It is important to note that the radioactivity of the combined total of all unrecovered sources over the past 5 years (when corrected for radioactive decay) would not reach the threshold for one high-risk radioactive source. Unfortunately, the same cannot be said world-wide.

The U.S. Government is working to strengthen security for high-risk radioactive sources both at home and abroad. The NRC and its Agreement States—states who have been given authority to regulate nuclear materials within its borders—have worked together to create a strong and effective regulatory safety and security framework that includes licensing, inspection, and enforcement.

NRC also works with other Federal agencies, the International Atomic Energy Agency, and licensees to protect radioactive material from theft and unauthorized access. The agency has made improvements and upgrades to the joint NRC-DOE (Department of Energy) database that tracks the location and movement of certain forms and quantities of special nuclear material. In addition, in early 2009, NRC deployed its new National Source Tracking System, designed to track high-risk sources in the United States on a continuous basis.

Risk of Cancer
Just because a person is near a radioactive source for a short time or gets a small amount of radioactive dust on himself or herself does not mean he or she will get cancer. Any additional risk will likely be extremely small. Doctors specializing in radiation health effects will be able to assess the risks and suggest what medical treatment, if any, is needed, once the radioactive source and exposure levels have been determined.

There are some medical treatments available that help cleanse the body of certain radioactive materials following

Continued pg. 22

a radiological accident. Prussian blue has been proven effective for ingestion of cesium-137 (a radioactive isotope). In addition, potassium iodide (KI) can be used to protect against thyroid cancer caused by iodine-131 (radioactive iodine). However, KI, which is available "over the counter" offers no protection to other parts of the body or against other radioactive isotopes. Medical professionals are best qualified to determine how to best treat symptoms.

FREQUENTLY ASKED QUESTIONS ABOUT RDDs & DIRTY BOMBS

What is an RDD or "Dirty Bomb"?
A "dirty bomb" is one type of a "radiological dispersal device" (RDD) that combines a conventional explosive, such as dynamite, with radioactive material that may disperse when the device explodes. It is not the same as a nuclear weapon. If there are casualties, they will be caused by the initial blast of the conventional explosive. The radioactive particles that are scattered as a result of the explosion cause the "dirty" part. The explosives in such a bomb would still be more dangerous than the radioactive material.

What is radiation?
Radiation is a form of energy that is present all around us. Some of the Earth's background radiation comes from naturally occurring radioactive elements from space, the soil, and the sun, as well as from man-made sources, like x-ray machines. Different types of radiation exist, some of which have more energy than others, and some of which can be more harmful than others. The dose of radiation that a person receives is measured in a unit called a "rem." A rem is a measure of radiation dose, based on the amount of energy absorbed in a mass of tissue. For example, an average person gets about 1/3 of a rem from exposure to natural sources of radiation in one year, and approximately 1/100th of a rem from one chest x-ray.

Will an RDD make me sick?
The effects of an RDD can vary depending on what type of radioactive material is used and how much material is scattered. It is very difficult to design an RDD that would deliver radiation doses high enough to cause immediate health effects or fatalities in a large number of people. For the most part, an RDD would most likely be used to:

- contaminate facilities or places where people live and work, disrupting lives and livelihoods,
- cause anxiety in those who think they are being, or have been, exposed to radiation.

How can I protect myself in a radiation emergency?
If an explosion occurs, it may not be known immediately that radioactive material is involved. If you are made aware that you are near the site of an RDD or potential release of radioactive material, you should:

- Stay away from any obvious plume or dust cloud;
- Walk inside a building with closed doors and windows as quickly as possible and listen for information from emergency responders and authorities;
- If there is dust in the air, cover your mouth and nose with a tissue, filter, clothing or damp cloth to avoid inhaling or ingesting radioactive material;
- Remove contaminated clothing as soon as possible and place them in a sealed plastic bag. The clothing could be used later to estimate a person's exposure; and
- Gently wash skin to remove any possible contamination, making sure that no radioactive material enters the mouth or is transferred to areas of the face where it could be easily moved to the mouth and swallowed.

If you are advised to take shelter, whether it is at home or in an office, you should:

- Close all the doors and windows.
- Turn off ventilation, air conditioners, and forced air heating units that bring in fresh air from the outside. Only use units to re-circulate air that is already in the building.
- Close fireplace dampers.
- Move to an inner room.
- Keep your radio tuned to the emergency response network.

Questions such as when it's safe to leave a building or return home, what is safe to drink and when, along with how children will be cared for if they are separated from their parents, will be answered by authorities who will be making decisions on a case-by-case basis depending on the information available at the time.

If I'm told NOT to take public transportation when evacuating from an RDD attack, what about using my personal vehicle?
Depending on where you are with respect to the location of the explosion, if you drive a car or truck, some radioactive material may get inside your vehicle, and will have to be cleaned out. Listen to emergency broadcasts for instructions about cleaning your vehicle. If you drive a private vehicle, do not run the heater or air conditioner.

I was a mile from the explosion—am I going to be sick?
Listen to the emergency broadcast information. Instructions will be given based on the size of the attack, direction of the wind, and the components of the explosion. It is extremely unlikely that anyone who survives the explosion will become sick from radiation. In addition, your ability to have children will not be affected.

Will it be safe to clean my home and continue to live in it during and after such an RDD explosion?
Yes. Cleaning up the radioactive material (called decontamination) is certainly possible, and with reasonable effort and care, you should be able to return to a normal, safe life in your home or work.

Should I buy a radiation detector?
No. Unless you have been trained, you won't be able to interpret the readings. Many of the Geiger counters available commercially are uncalibrated and worthless.

Should I purchase potassium iodide tablets for protection against radiation?
Potassium iodide (KI), which is available over the counter, protects people from thyroid cancer caused by radioactive iodine, a type of radioactive material that can be released in nuclear explosions, and depending on the amount released, can later cause thyroid cancer. KI should only be taken in a radiation emergency that involves the release of radioactive iodine. Since the use or release of radioactive iodine from an RDD is highly unlikely, KI pills would not be useful. [August 2010]

For more information, visit: http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/fs-dirty-bombs.html

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"Designing for Survivability Throughout the Life of the Aircraft"

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- Development of Novel and Improved Countermeasures
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- Chemical, Biological, Radiological, and Nuclear Survivability
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MS. LAURA YUSKA, MEETING PLANNER, LYUSKA@NDIA.ORG OR (703) 247-2596

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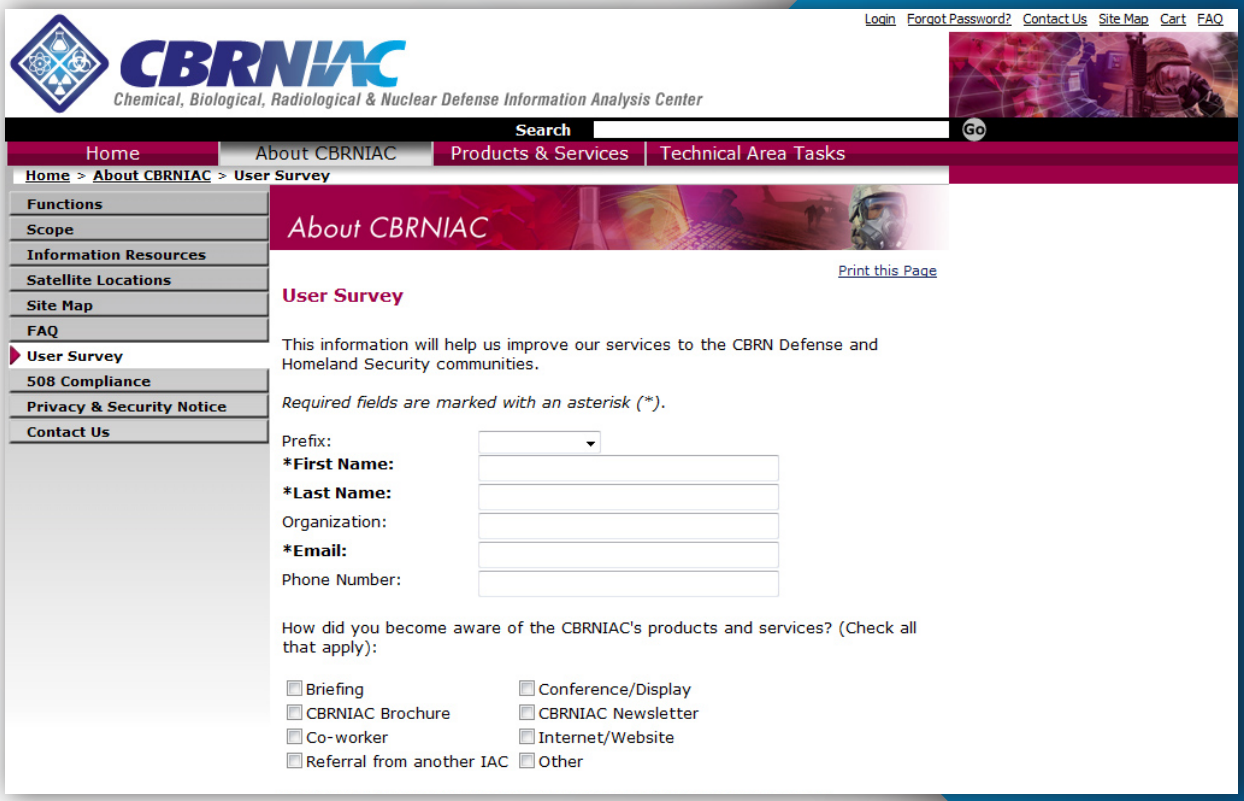
In 2013, the CBRNIAC will be transformed into the Homeland Defense and Security IAC. The people behind-the-scenes at the CBRNIAC would like to know if our products and services have been of value to you.



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https://www.cbrniac.apgea.army.mil/About/UserSurvey/Pages/default.aspx

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Thank you!