CBRNIAC Newsletter

Chemical, Biological, Radiological & Nuclear Defense Information Analysis Center

Volume 13 Number 1

2012

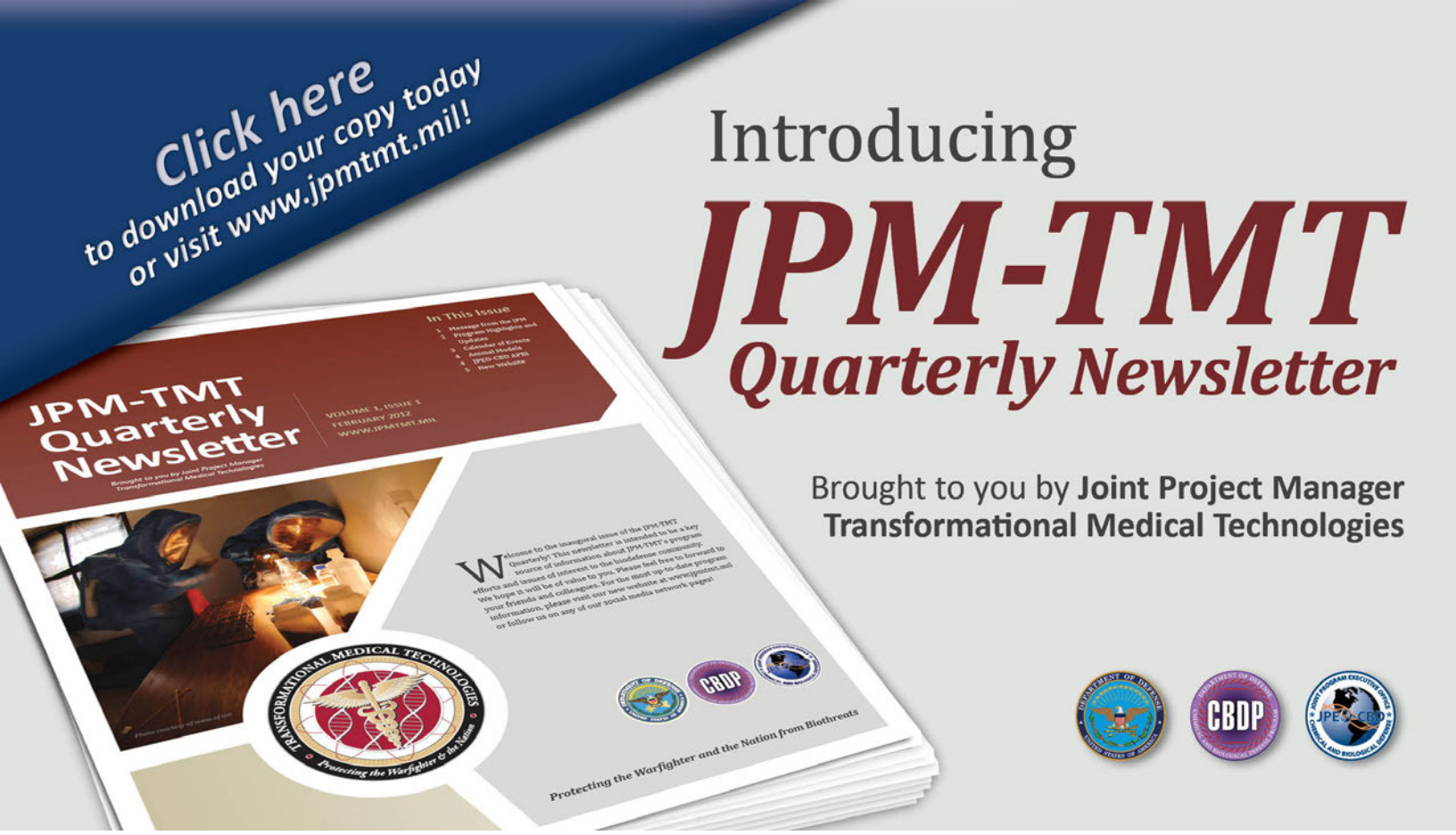
USS Mason Upgraded With New Chemical Agent Detection Capability as Navy Begins Massive Fleet-wide Initiative

Lawrence Livermore Laboratory Team Achieves Breakthrough Detecting Nuclear Materials

An Interagency Confederation: What is the NICBR?

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

Approved for Public Release; Distribution Unlimited



This premier issue features a message from our Joint Project Manager; updates from our Hemorrhagic Fever Virus-Therapeutics and Emerging Infectious Diseases-Influenza medical countermeasures acquisition programs; information about our efforts in the areas of animal models, response systems, and predictive systems; and a calendar of upcoming events where you can meet staff from JPM-TMT. Check it out and subscribe to receive future issues!

This issue can be accessed here:
http://www.jpmtmt.mil/resources/pdfs/Newsletter-201202-February.pdf

About JPM-TMT

Joint Project Manager Transformational Medical Technologies (JPM-TMT), an organization within the Joint Program Executive Office for Chemical and Biological Defense (JPEO-CBD) aims to protect the Warfighter from emerging infectious diseases, genetically altered and unknown biological threats. Through strategic investments and partnerships with innovative biotech firms, pharmaceutical corporations, other government agencies, and academic institutions, JPM-TMT facilitates the advanced development and acquisition of broad-spectrum medical countermeasures and systems to enhance our nation's biodefense response capability. For more information, visit www.jpmtmt.mil.

The **Chemical, Biological, Radiological and Nuclear Defense Information Analysis Center (CBRNIAC)** is a Department of Defense (DoD)-sponsored Information Analysis Center (IAC) operated by Battelle Memorial Institute and supported by Horne International, Innovative Emergency Management, Inc., MTS Technologies, Inc., QuickSilver Analytics, Inc., and SciTech, Inc., and administered by the Defense Technical Information Center (DTIC) under the DoD IAC Program Office (Contract No. SP0700-00-D-3180).

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.

CBRNIAC
1204 Technology Drive
Aberdeen, MD 21001-1228
410.676.9030 (phone) 614.458.0300 (fax)

General Information & Core Program:
cbrniac@battelle.org

Technical Area Task Program:
cbrniac-tat@battelle.org

Knowledge Management & Development Program:
cbrniac-kmd@battelle.org

http://www.cbrniac.apgea.army.mil/

Table of Contents

Volume 13 Number 1 2012

4 USS Mason Upgraded With New Chemical Agent Detection Capability as Navy Begins Massive Fleet-wide Initiative

6 Lawrence Livermore Laboratory Team Achieves Breakthrough Detecting Nuclear Materials

8 Contract Awards

9 An Interagency Confederation: What is the NICBR?

11 ECBC Scientists Develop Technology to Detect Explosives in Fingerprints

12 Calendar of Events

13 NSWC Dahlgren Employees Win NAVSEA Excellence Awards for Impact on Aircraft Carriers, Acquisition and "Real World" CBR Defense

15 ECBC Develops Modern Homemade Explosives Detection Kit

16 In the News

17 Cobalt Dragon Prepares Unit for Threat

19 New CBRNIAC Information Resources

20 CBRNIAC Information Products

On the Cover: The USS Mason is pictured departing Naval Station Norfolk. *(U.S. Navy photo by Mass Communication Specialist 2nd Class Eric S. Garst)*

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. For each issue, articles must be received by the following dates:

- First Quarter (Number 1) – November 15th
- Second Quarter (Number 2) – February 15th
- Third Quarter (Number 3) – May 15th
- Fourth Quarter (Number 4) – August 15th

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.

USS Mason Upgraded With New Chemical Agent Detection Capability as Navy Begins Massive Fleet-wide Initiative

By John J. Joyce, NSWC Dahlgren Division Corporate Communications

A new automated chemical warfare agent detection capability that successfully passed operational tests aboard USS Mason (DDG 87) will be installed on warships throughout the Fleet, Navy officials announced Feb. 15, 2012.

The Navy plans to install the new system—designed to quickly alert warfighters to the presence of chemical warfare agents—on all active guided missile destroyers and cruisers, aircraft carriers, large and small deck amphibious ships, littoral combat ships and dry cargo/ammunition ships by the end of 2018.

"IPDS-LR (Improved Point Detection System—Lifecycle Replacement) will provide the Navy continued chemical warfare agent detection, identification and alerting along with the high system reliability they need to perform their mission worldwide," said Bruce Corso, IPDS-LR System Manager, office of the Joint Project Manager for Nuclear, Biological and Chemical Contamination Avoidance (JPM NBCCA).

"This successful deployment of the IPDS-LR is a culmination of the work of some great scientists and engineers, collaboration with the Joint Community, and having waterfront locations that provide continuous fleet interaction," said Naval Surface Warfare Center Dahlgren Division (NSWCDD) Chemical, Biological and Radiological (CBR) Defense Division Head Mike Purello.

The USS Mason is pictured in 2006 approaching the Nimitz-class aircraft carrier USS Dwight D. Eisenhower (CVN 69) for a replenishment at sea. (U.S. Navy photo by Photographer's Mate 3rd Christopher B. Long)

Warfighters aboard USS Mason—the first guided missile destroyer (DDG) protected by IPDS-LR—are now relying on a better performing system that features ion mobility spectrometry. This chemical detection technology creates ions that separate by the time it takes the ion clusters to traverse a constant electric field drift region.

"I am excited to have the Improved Point Detection System—Lifecycle Replacement on board," said USS Mason Commanding Officer Cmdr. Adan Cruz after testing concluded Jan. 27. "As Captain, I hold the responsibility for the safety of the crew and this system provides enhanced chemical warfare defense to ensure our sailors will return home safely."

"The install went extremely well," said USS Mason Executive Officer Cmdr. Mike Briggs. "Having a reliable chemical detection system onboard to aid in ship's defense goes towards making Mason a more effective warship."

Teams based in Norfolk, Va., and San Diego, Calif., are prepared to install the new system on 35 ships in 2012.

USS William P. Lawrence (DDG-110), USS Howard (DDG-83) and USS Mesa Verde (LPD-19) are the next ships on NSWCDD CBR Defense Division's schedule for IPDS-LR installation.

"More DDGs will follow," said NSWCDD IPDS-LR Project Lead Brian Flaherty. "The sailor will see a system they can turn on and be confident it is protecting them. It samples air from outside the ship, evaluates it for the presence of chemical warfare agents and if there's an agent present—PDS-LR will alert them in an adequate amount of time to take precautionary measures."

IPDS-LR components located on the port and starboard sides of a ship sample air through external intakes in the hull. The system analyzes the external air for chemical agents.

Continued pg. 5

USS Mason *cont.*

"If the detector identifies a chemical agent, it sends a signal that displays an alert at both the ship's damage control central and the bridge," said Flaherty. "The system also interfaces directly to the ship's chemical alarm, which broadcasts an audible ship-wide alarm to alert the crew of a chemical warfare agent."

IPDS-LR's test and Evaluation involved extensive time both in the laboratory and aboard ship - with extensive time at sea as well as an independent underway evaluation by the Navy's Commander Operational Test and Evaluation Force.

"The new system is more maintainable and reliable," said Flaherty. "Warfighters will see improved false alarm performance and longer periods of time between repairs. It will be easier and cheaper to repair."

Based on a commercial-off-the-shelf concept, a joint team of NSWCDD and JPM NBCCA engineers evaluated IPDS-LR in reliability, availability, and maintainability (RAM) tests emphasizing a Navy shipboard maritime environment.

The team collected over 14,000 hours of underway and in-port test time supporting the RAM analysis with multiple ships—and ship classes—based in the Norfolk and San Diego areas. Additional data collection continued aboard ships in forward deployed locations.

"It's very rewarding to field this system to the Fleet," said Flaherty, noting that his team conducted "IPDS-LR tests on the Navy side—shock testing, vibration testing, electromagnetic interference—and worked with different groups over two-and-a-half years to make sure the system is ready to field to the warfighter."

"The Navy's CBR Defense Division exists to provide our warfighter with the tools and capabilities necessary to detect, protect, and if necessary, decontaminate threats resulting from a CBR attack," said Purello. "Our direct and active connection with the Fleet helps the warfighter and provides a wealth of valuable information for our scientists and engineers in the lab. This knowledge is immediately put to use as they work to create, develop, and provide updates and future solutions for our men and women in uniform."

A Navy leader in CBR Defense, NSWC Dahlgren's CBR Defense Division provides a full complement of capabilities that support the naval warfighter both on land and at sea as well as the joint and Homeland Defense communities.

*The **Naval Surface Warfare Center Dahlgren Division, Dahlgren Laboratory** is a premier research and development center that serves as a specialty site for weapon system integration. Our unique ability to rapidly introduce new technology into complex warfighting systems is based on our longstanding competencies in Science and Technology, Research and Development, and Test and Evaluation.*

Our capabilities are focused on both the present and future: We are meeting operational needs today, and we are fundamentally reshaping the way our Navy will fight and defend our country in the future.

Delivering Value to the Navy, the Next Navy and the Navy After Next

http://www.navsea.navy.mil/nswc/dahlgren/default.aspx

About NAVSEA

The **Naval Sea Systems Command** is comprised of command staff, headquarters directorates, affiliated Program Executive Offices (PEOs) and numerous field activities. Together, we engineer, build, buy and maintain ships, submarines and combat systems that meet the Fleet's current and future operational requirements.

Naval Sea Systems Command (NAVSEA) is the largest of the Navy's five system commands. With a fiscal year budget of nearly $30 billion, NAVSEA accounts for one quarter of the Navy's entire budget.

With a force of 60,000 civilian, military and contract support personnel, NAVSEA engineers, builds, buys and maintains the Navy's ships and submarines and their combat systems.

To accomplish this, NAVSEA manages 150 acquisition programs and manages foreign military sales cases that include billions of dollars in annual military sales to partner nations.

The origin of NAVSEA dates to 1794, when Commodore John Barry was charged to oversee the construction of a 44-gun frigate and ensure that all business "harmonized and conformed" to the public's interest.

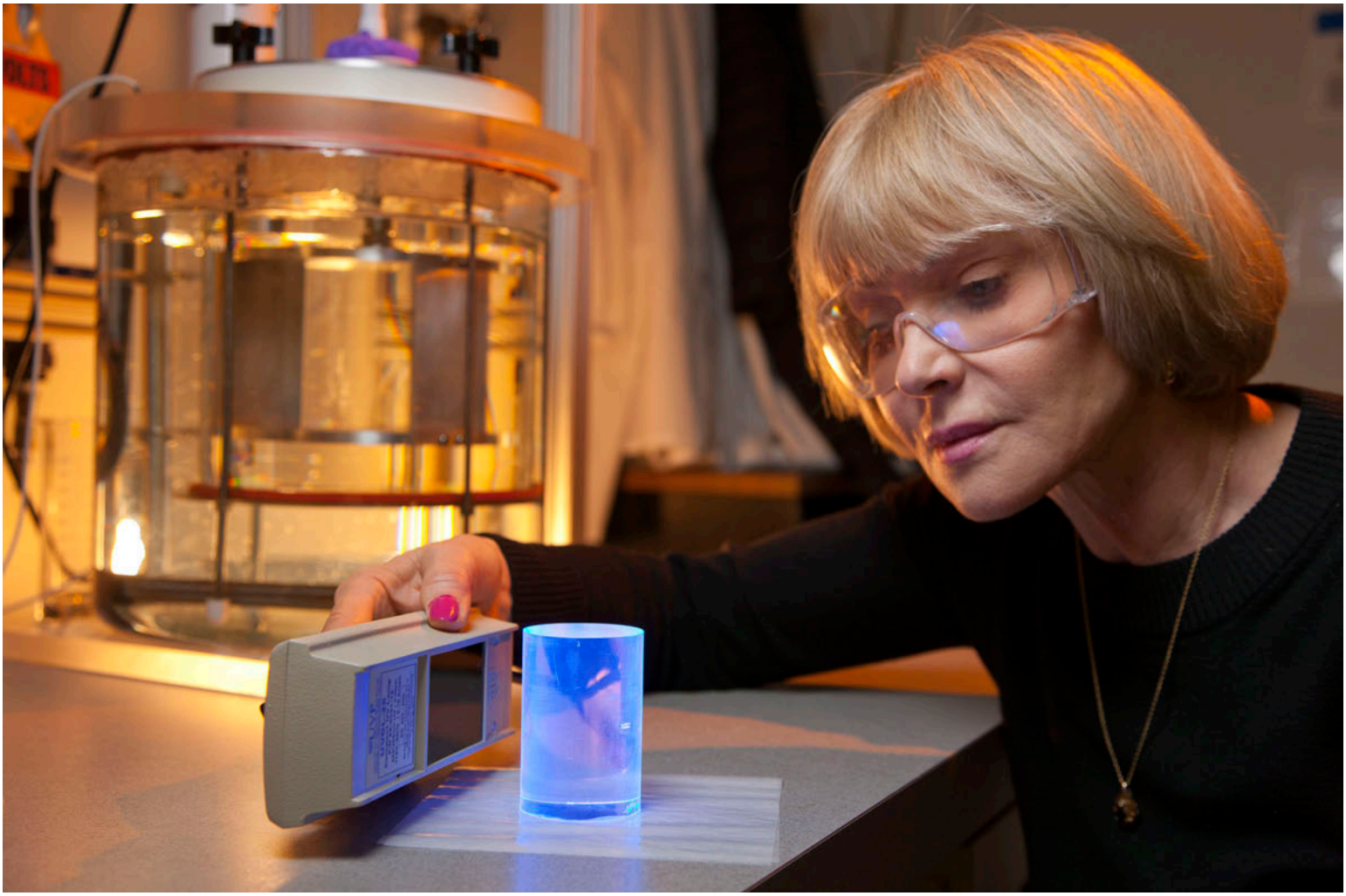
Today, the NAVSEA organization has 33 activities in 16 states. NAVSEA strives to be an efficient provider of defense resources for the nation, and it plays an important role in the Navy Enterprise. As a Provider Command, it has the responsibility of directing resource sponsors into the proper mix of manpower and resources to properly equip the fleet.

NAVSEA has the further responsibility of establishing and enforcing technical authority in combat system design and operation. These technical standards use the organization's technical expertise to ensure systems are engineered effectively, and that they operate safely and reliably.

Visit NAVSEA online at http://www.navsea.navy.mil/default.aspx *or visit NAVSEA on Facebook at* http://www.facebook.com/navsea.

Lawrence Livermore Laboratory Team Achieves Breakthrough Detecting Nuclear Materials

By Stephen P Wampler, LLNL



Natalia Zaitseva, an LLNL materials scientist, leads a team of Livermore researchers that has developed the first plastic material capable of efficiently distinguishing neutrons from gamma rays, something not thought possible for the past five decades or so. Photo by Jacqueline McBride

When a young man was advised to pursue a career in plastics in the 1967 movie, "The Graduate," people could not have envisioned one of the material's uses developed by Lawrence Livermore National Laboratory (LLNL) scientists.
In a key discovery, a team of LLNL researchers has developed the first plastic material capable of efficiently distinguishing neutrons from gamma rays, something not thought possible for the past five decades or so.

As a result, the new technology could assist in detecting nuclear substances such as plutonium and uranium that might be used in improvised nuclear devices by terrorists and could help in detecting neutrons in major scientific projects.

With the material's low cost, huge plastic sheets could be formed easily into dramatically larger surface areas than other neutron detectors currently used and could aid in the protection of ports, stadiums and other large facilities.

Their studies, detailed in an article appearing in the journal *Nuclear Instruments and Methods in Physics Research A*, was published online in late December.

"It has been established opinion since the 1950s that organic crystals and liquid scintillators can work for detecting neutrons, but that plastics are not suitable for neutron detection," said Natalia Zaitseva, the paper's lead author and an LLNL materials scientist. Scintillators are special materials that light up when excited by ionizing radiation.

For years, plastic materials have been used in large, low-cost detectors for portals and high-energy physics facilities, and while they could detect neutrons and gamma rays, they have been incapable of distinguishing one from the other, which is key to identifying nuclear substances such as uranium and plutonium from benign radioactive sources.

Continued pg. 7

"However, by studying mixed crystals and mixed liquids, we found that to achieve neutron discrimination from gamma rays, we had to increase the dye concentration in the plastics by at least ten-fold greater than would typically be used," Zaitseva said.

In their paper, the team wrote: "Efficient pulse shape discrimination (PSD) (between neutrons and gamma rays) combined with easy fabrication and advantages in deployment of plastics over liquids may lead to widespread use of new PSD materials as large-volume and low-cost neutron detectors."

Zaitseva's colleague, fellow LLNL materials scientist Steve Payne, noted that in some ways it is a particularly good time to develop a new method for detecting neutrons, given the advantages and drawbacks of current methods.

Organic crystals serve as one of the best neutron detectors, but the crystals can be difficult to grow and obtain in large volumes. Liquid scintillators present some hazards that hinder their use. Gas detectors that rely on helium-3, a byproduct of tritium's radioactive decay, have run into problems because the United States now produces markedly less tritium.

Plastics have more flexibility in their composition and structure than crystals, as well as having none of the hazards associated with liquid scintillators.

"On balance, the plastic scintillators may turn out to be best for detecting neutrons once the factors of usage in the field, cost, and performance are taken into consideration," Payne said.

In their work, Livermore scientists demonstrated a plastic scintillator that can discriminate between neutrons and gamma rays with a polyvinyltoluene (PVT) polymer matrix loaded with a scintillating dye, 2,5-diphenyloxazole (PPO).

They have found that plastic scintillators have a roughly 20 percent finer resolution for neutron-gamma ray discrimination than liquid scintillators. Crystals, in turn, are about 20 percent finer in resolution than plastics in their analysis.

"We do not see plastic scintillators as competitors with crystals because they serve different purposes. In another part of the program we are trying to grow crystals like stilbene in new ways," Zaitseva said. Stilbene is the only crystal used for neutron detection and is expensive and difficult to obtain.

"We see our work as being at the beginning. We're excited about where our research is heading. We would like to study and see whether the plastic scintillators can achieve results at the same level as the best crystals," Zaitseva added.

The thought that plastic scintillators might be made with efficient neutron-gamma ray discrimination came about, in part, from mixing a scintillating chemical–diphenylacetylene or DPAC–with a stilbene crystal.

"As we mixed DPAC with stilbene at 5 percent, 10 percent and 15 percent, there was nothing," Payne recalls. "Suddenly at 18 percent, we were able to distinguish neutrons from gamma rays. Once we hit 40 percent, we had the full function.

"It was a painful process and it took several months. Natalia was the one who made the connection between the stilbene/DPAC mixtures and saw a hypothetical route for the use of plastics. This insight was important and it was what we needed to make the breakthrough."

Along with discovering plastic scintillators with efficient neutron-gamma ray discrimination, the team also has found that this discrimination can be very sensitive to certain impurities in crystals.

"We had cases where we tested a crystal and it had pulse shape discrimination (PSD) between neutrons and gamma rays and then we tested the same type of crystal and it had no PSD," Zaitseva said.

"When we started this work, there was little understanding of how PSD was affected by the chemical composition of the scintillating materials. We have found some of the major principles of molecular interaction that determine the presence or absence of PSD properties in organic scintillators," Zaitseva said.

Zaitseva, who joined LLNL in 1993 after pioneering work on rapid crystal growth at Moscow State University, noted that her first work at Livermore was to produce large-scale potassium dihydrogen phosphate (KDP) crystals of high optical quality for the National Ignition Facility laser.

"Now we have applied these techniques for growing pure organic crystals for neutron detection. By studying these crystals, we are starting to understand new physical phenomena that can be applied to discover new plastic scintillators," she said.

The team's research to develop plastic scintillators has been funded by the National Nuclear Security Administration's (NNSA) Office of Nonproliferation and Verification Research and Development (NA-22), which recognized the importance of these materials while they were in an early, formative stage.

In addition to Zaitseva and Payne, other members of the LLNL multi-disciplinary team that achieved the advance are: materials scientists Nerine Cherepy and Leslie Carman, synthetic chemists Benjamin Rupert and Paul Martinez, nuclear scientists Andrew Glenn and Iwona Pawelczak, computer simulation scientist Sebastien Hamel, University of California, Davis graduate student Michelle Faust and mechanical technician Keith Lewis.

"Altogether, our technically diverse team has the capability and knowledge needed to come up with this breakthrough plastic scintillator," Zaitseva noted. "Everyone on the team added something necessary for our success."

One of the next steps for the team will be to find the right commercial partners. As Payne noted, "We're very good at inventing technologies, but we need commercial partners to bring our innovations to market." Currently, active negotiations to license the technology are under way with two companies, one of which is already engaged in process development. ◈

Contract Awards

Advanced Development of a Novel Antibiotic That Potentially Could Treat Illnesses Caused by Biological Threats, Such as Anthrax and Plague, as Well as Treat Bacterial Pneumonia
CUBRC Inc.
Buffalo, NY
$67,200,000 January 20, 2012
By Department of Health and Human Services, Washington, D.C.

Systems Engineering and Technical Assistance to DHS Domestic Nuclear Detection Office
Schafer Corporation
Chelmsford, MA
$40,000,000 January 13, 2012
By Department of Homeland Security Domestic Nuclear Detection Office, Washington, D.C.

U.S. Army Camouflage Improvement Effort
Atlantic Diving Supply, Inc.
Virginia Beach, VA
$613,165 January 10, 2012
Kryptek L.E.A.F., LLC
Fairbanks, AK
$6,453,000 January 9, 2012
Brookwood Companies Incorporated
New York, NY
$82,638 January 10, 2012
CRYE PRECISION, LLC
Brooklyn, NY
$639,864 January 10, 2012
By ACC-APG SCRT – Natick, Natick, MA

Study the Human Causes and Consequences of Terrorism
National Consortium for the Study of Terrorism and Responses to Terrorism (START)
University of Maryland College Park, MD
$3,600,000 December 20, 2011
By Department of Homeland Security, Washington, D.C.

Develop Gamma and Neutron Radiation Detectors
DYNASIL CORPORATION OF AMERICA - RMD Research Unit
Watertown, MA
$3,650,000 December 8, 2011
By Department of Homeland Security Domestic Nuclear Detection Office, Washington, D.C.

CBRNE Detection, Protection and Decontamination Equipment Sustainment Training and Technical Assistance for Firefighting, Medical and Law Enforcement Personnel Located on U.S. Army Military Installations Worldwide
General Physics Corporation
Elkridge, MD
$ Not Available November 21, 2011
By U.S. Army Pine Bluff Arsenal, Pine Bluff, AR

Develop New Antidotes for Nerve Agents Using Computational Chemistry
Ohio State University
Columbus, OH
$7,500,000 November 14, 2011
By National Institutes of Health, Bethesda, MD

Develop and Validate a Vapor Detection System That Quickly and Efficiently Detects Homemade Explosives, and Can Be Used as an Orthogonal Detection System With Imaging Equipment
SpectraFluidics Inc.
Santa Barbara, CA
$1,300,000 November 11, 2011
By Department of Homeland Security, Transportation Security Administration, Arlington, VA

Develop Assay Capable of Detecting Single Molecules of Botulinum Toxin (BoNT) Within Complex Environmental Samples
Quanterix Corporation
Cambridge, MA
$250,155 November 2, 2011
By Department of Homeland Security, Washington, D.C.

Topological Data Analysis and Wide Area Detection of Chemical and Biological Contamination
Folded Structures Company LLC
Ringoes, NJ
$749,929 October 27, 2011
By ACC-APG SCRT – Edgewood, Aberdeen Proving Ground, MD

Kepler Scientific Workflow System (Project to Harness Next-Generation DNA Sequencing and Analysis)
San Diego Supercomputer Center
La Jolla, CA
California Institute for Telecommunications and Information Technology
University of California
San Diego, CA
$1,400,000 October 18, 2011
By National Science Foundation, Arlington, VA

Development of Ricin Detection Assay
PositiveID Corporation
Delray Beach, FL
$ Not Available October 18, 2011
By U.S. Department of Homeland Security, Washington, D.C.

Improve Drug Development and Manufacturing
National Institute for Pharmaceutical Technology and Education
Chicago, IL
$35,000,000 October 18, 2011
By U.S. Food and Drug Administration, Silver Spring, MD

An Interagency Confederation: What is the NICBR?

By the Public Affairs and Community Relations Subcommittee Special to the Standard

It is hard to miss the cranes, construction, and congestion as we arrive at Fort Detrick to start a new work day. The construction of four new laboratory and research facilities within the National Interagency Biodefense Campus has been quite apparent. However, what is not as visible is the foresight and progress made by seven Federal agencies in building a partnership and collaborative environment here at Fort Detrick known as the National Interagency Confederation for Biological Research (NICBR, pronounced "Nick Burr").

The NICBR is a partnership of seven Federal agencies sharing a common vision, "Federal partners working in synergy to achieve a healthier and more secure nation."

The membership includes:

- U.S. Army Medical Research and Materiel Command, U.S. Army, U.S. Department of Defense
- National Institute of Allergy and Infectious Diseases, National Institutes of Health, U.S. Department of Health and Human Services
- National Cancer Institute, National Institutes of Health, U.S. Department of Health and Human Services
- Agricultural Research Service, U.S. Department of Agriculture
- Science and Technology Directorate, U.S. Department of Homeland Security
- Centers for Disease Control and Prevention, U.S. Department of Health and Human Services
- U.S. Navy, U.S. Department of Defense

Some NICBR laboratories are physically consolidated on the National Interagency Biodefense Campus. Essentially, the NIBC includes all NICBR partners except NCI, which maintains its own campus on the Rosemont Avenue side of Fort Detrick.

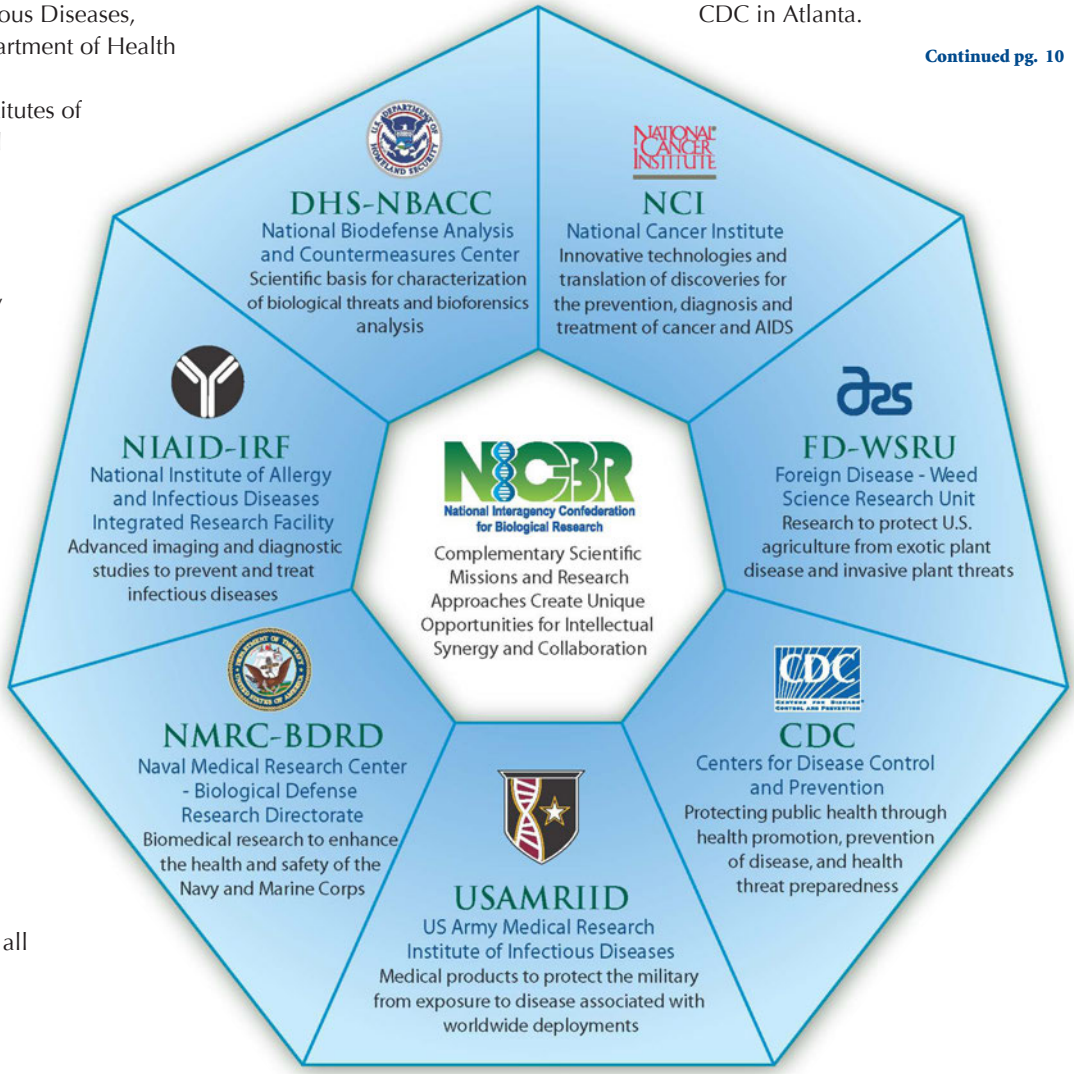
The Fort Detrick Interagency Coordinating Committee is the central hub of the NICBR governance structure, which is chaired by the Fort Detrick U.S. Army Garrison Commander (currently Col. A.J. Darden) and comprised of all NICBR partner representatives.

The FDICC meets twice a month and reports to the Executive Steering Committee, which is chaired by the Commander, U.S. Army Medical Research and Materiel Command (currently Maj. Gen. James K. Gilman, commanding general MRMC and Fort Detrick) and comprised of equivalents across the partner agencies, to include Dr. H. Clifford Lane, Dr. Craig Reynolds, Dr. Caird Rexroad, Mr. Jamie Johnson, Dr. Stephen Morse, and Rear Adm. Bruce Doll.

The ESC reports to the NICBR Board of Directors, consisting of the Chair, currently Army Surgeon General Lt. Gen. Patricia Horoho, and her equivalents across the partnership, to include Dr. Anthony Fauci, Dr. Harold Varmus, Dr. Edward Knipling, Dr. Daniel Gerstein, Dr. Thomas Frieden, and Rear Adm. Matthew Nathan.

The BOD gathers approximately every six months, and while FDICC and ESC meetings take place at Fort Detrick, the BOD rotates its meeting locations and hosts. For example, the summer 2011 meeting was hosted by CDC in Atlanta.

Continued pg. 10



NICBR *cont.*

Collectively, the NICBR governance bodies provide strategic direction and oversight to ensure that the NICBR mission, "to develop unique knowledge, tools, and products by leveraging advanced technologies and innovative discoveries to secure and defend the health of the American people," is carried out. To this end, all members of the NICBR embrace the core philosophy of "Trust and Teamwork," which is essential for understanding and respecting differences in each organization.

Reporting to the FDICC are seven subcommittees and two working groups: the Sustainment Subcommittee, the Financial and Business Planning Subcommittee, the Public Affairs and Community Relations Subcommittee, the Security Subcommittee, the Information Management & Information Technology Subcommittee, the Safety & Occupational Health Subcommittee, the Scientific Interaction Subcommittee, the Educational Outreach Working Group, reporting through the PACRS, and the Select Agent Program Working Group, reporting through the SIS.

A unique group in the organizational structure is the NICBR Partnership Office, which provides a staffing function and coordinating center for and under the direction of the FDICC. The NPO works closely with the subcommittees and working groups to facilitate execution of their individual charters and action items handed down by the governance bodies.

Importantly, every NICBR partner provides representatives to each subcommittee, working group, and the NPO to ensure coordinated interagency sharing of best practices and lessons learned. Decisions at every level of the NICBR are consensus-driven.

The goals of the NICBR are to enhance mission effectiveness of mission partners, to optimize NICBR as a sustainable community of scientific excellence while enhancing public trust and support, and to optimize governance to enhance performance. In support of these goals, the subcommittees and working groups foster interagency collaboration, maximize safety and productivity of biological research and technology development, and minimize duplication of effort, technology, and facilities among the signatories. These efforts are intended to improve the ability of signatory agencies to conduct research and develop products faster and better at minimum cost.

Moreover, this collaborative interagency approach assures the achievement of individual agency goals that cannot be singly accomplished. As articulated by the founders of the NICBR, "When you, as a scientist, get a new idea and can walk across the street to your neighbor to begin work on it in real time-this is the ultimate scientific collaboration."

With the NICBR and the NIBC, a new era of interagency collaboration, cooperation and synergy has been established to reach new heights in our scientific and medical endeavors in support of the health, safety and well-being of the American people. Together, the NICBR partners are building a path forward to achieve a healthier and more secure Nation.

NIBC/NICBR

Complementary Scientific Missions and Research Approaches Create Unique Opportunities for Intellectual Synergy and Collaboration

http://www.detrick.army.mil/nibc/scientificPartnerships.cfm

National Biodefense Analysis and Countermeasures Center

Scientific basis for characterization of biological threats and bioforensics analysis.
http://bnbi.org/

National Cancer Institute

Innovative technologies and translation of discoveries for the prevention, diagnosis and treatment of cancer and AIDS.
http://www.cancer.gov/

Foreign Disease—Weed Science Research Unit

Research to protect U.S. agriculture from exotic plant disease and invasive plant threats.
http://www.ars.usda.gov/main/site_main.htm?modecode=19-20-00-00

Centers for Disease Control and Prevention

Protecting public health through health promotion, prevention of disease, and health threat preparedness.
http://www.cdc.gov/

U.S. Army Medical Research Institute of Infectious Diseases

Medical products to protect the military from exposure to disease associated with worldwide deployments.
http://www.usamriid.army.mil/

Naval Medical Research Center—Biological Defense Research Directorate

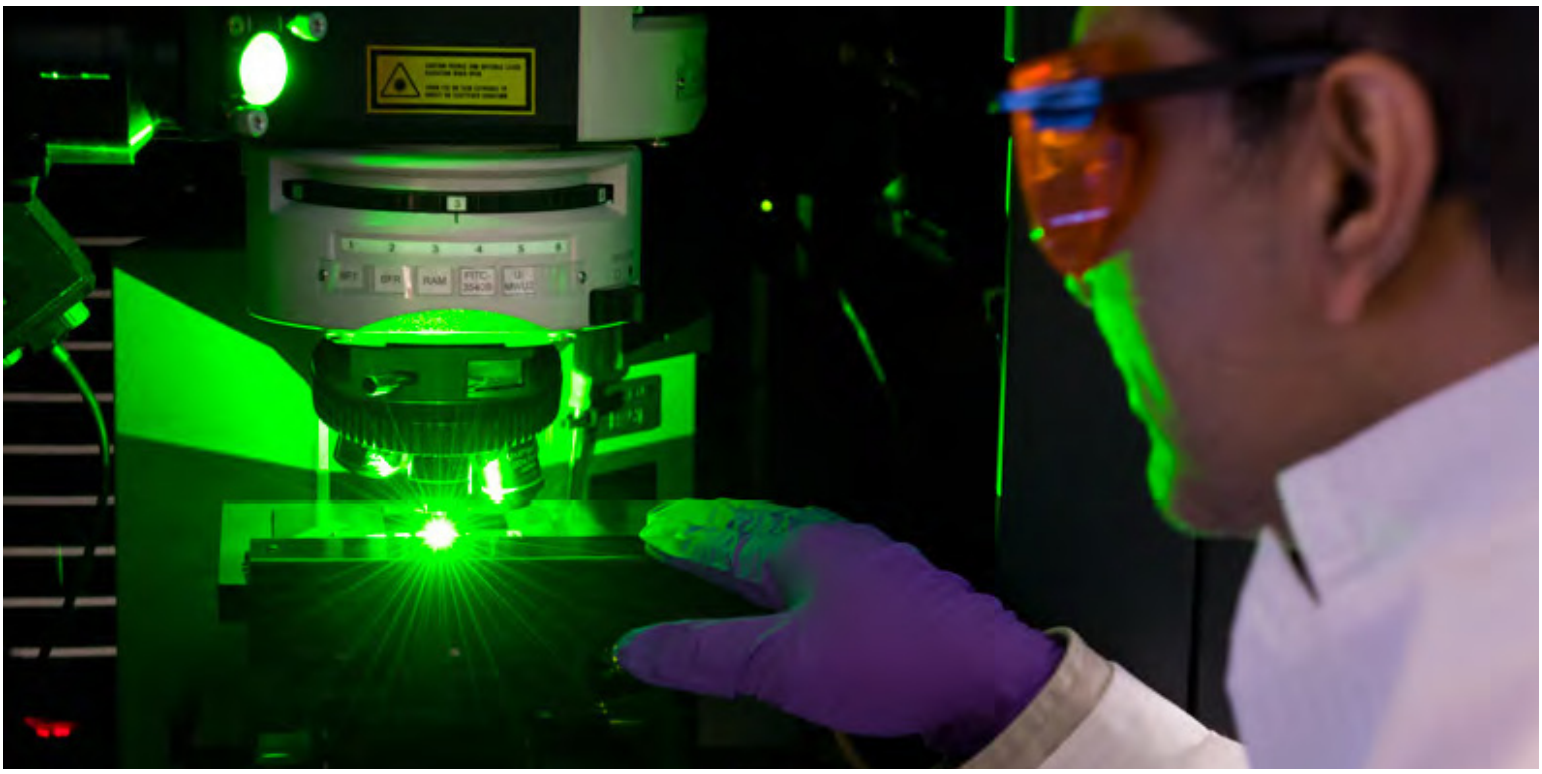
Biomedical research to enhance the health and safety of the Navy and Marine Corps.
http://www.cnic.navy.mil/Bethesda/About/TenantCommands/NavalMedicalResearchCenterNMRC/index.htm

National Institute of Allergy and Infectious Diseases Integrated Research Facility

Advanced imaging and diagnostics studies to prevent and treat infectious diseases.
http://www.niaid.nih.gov/about/organization/dcr/ocsirf/Pages/OCSIFR.aspx

ECBC Scientists Develop Technology to Detect Explosives in Fingerprints

By ECBC Public Affairs Office



As improvised explosive device (IED) attacks continue at home and abroad, linking trace evidence, such as explosive residues and other bomb-making materials, to a perpetrator has become increasingly essential in countering these terrorist events. Edgewood Chemical Biological Center (ECBC) scientists are developing the tools that enable simultaneous collection of chemical forensic information and biometric data, which could be the one-two punch that brings terrorists to justice before they can attack again.

A team in the Center's Laser Standoff Detection Branch is using a detection technique called wide-field Raman chemical imaging (RCI) to detect and identify the presence of trace explosives in contaminated fingerprints on surfaces, such as plastics and painted metals. Because this technique is non-destructive, requires no sample preparation and gives a high degree of chemical specificity, explosive materials can be identified without compromising the fingerprint sample for further biometric analysis. If visual images of the fingerprint can also be obtained without modifying the sample, then identification of the person who handled the explosive could also be obtained non-destructively.

"We've used RCI to analyze fingerprints on five types of samples, including compact disks (CD), plastic CD cases and painted car door panels. So far, there is not a surface that we cannot analyze with our method," said Jason Guicheteau, Ph.D., of the Laser Standoff Detection Branch. "We've been able to accurately discriminate 25 different explosive materials from these surfaces, including materials commonly used in the construction of IEDs."

To perform RCI for the identification of explosives in fingerprints, a complete fingerprint montage image is constructed by obtaining a series of magnified images of the fingerprint on the investigated surface. From this montage, regions suspected of containing explosive crystals are identified by an automated program simply looking for contrasting visual indications of crystals. A laser is then used to optically excite the identified areas of interest in the fingerprint, resulting in a Raman spectrum. The spectrum is processed to remove interfering background spectral information and compared to a library database of approximately 25 explosive materials of interest. RCI requires no additional processing of the fingerprint, such as sampling with a piece of tape or with dusting with powder, which significantly reduces sample contamination and damage to the print, preserving valuable biometric data.

Recently, fingerprints generated by RCI were submitted to the U.S. Army Criminal Investigation Laboratory (USACIL) and run through the automated fingerprint identification system (AFIS). The high quality of the RCI fingerprints enabled researchers to search AFIS' 771,000-print database and confirm the fingerprints as matches to real people, proving that RCI can be used to produce accurate biometric information for forensic attribution. This recently patented method demonstrates the ability to non-destructively identify explosives of fingerprints present on commonly found surfaces such that the fingerprint remains intact for further biometric analysis.

Through continued engagement with USACIL, the team plans to expand the applications of RCI to detect and identify illegal drugs and gunshot residue from fingerprints.

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.**

Apr 15–17 **ASIS International 11th Annual European Security Conference & Exhibition**
London, United Kingdom
http://www.asisonline.org/education/programs/london/default.htm

Apr 15–20 **New Antibacterial Discovery & Development**
Lucca (Barga), Italy
http://www.grc.org/programs.aspx?year=2012&program=antibact

Apr 16–19 **Defence Services Asia Exhibition and Conference**
Kuala Lumpur, Malaysia
http://www.dsaexhibition.com/

Apr 16–19 **13th Annual Science & Engineering Technology Conference / DoD Tech Exposition**
North Charleston, SC
http://www.ndia.org/meetings/2720/Pages/default.aspx

Apr 16–20 **Field Management of Chemical and Biological Casualties (FCBC)**
APG, MD
https://ccc.apgea.army.mil/courses/in_house/FCBC.htm

Apr 16–26 **COURSE: Methods of Determination of Mycotoxins in Food**
College Park, MD
http://ifstl.org/registration/

Apr 17 **FAA Northwest Mountain Regional Facility IT/ISS Industry Day**
Renton, WA
http://www.fbcinc.com/event.aspx?eventid=Q6UJ9A00T4SU

Apr 17 **NIST IT Security Day**
Gaithersburg, MD
http://www.fbcinc.com/event.aspx/Q6UJ9A00SKI5

Apr 18–19 **Individual Variability**
Washington, DC
http://nas-sites.org/emergingscience/workshops/individual-variability/

Apr 23–26 **National Radiological Emergency Preparedness Conference**
St. Paul, MN
http://www.nationalrep.org/

Apr 23–27 **United States Society on Dams 2012 Annual Meeting and Conference**
New Orleans, LA
http://ussdams.org/2012conf.html

Apr 23–27 **SPIE Defense, Security, and Sensing 2012**
Baltimore, MD
http://spie.org/defense-security-sensing.xml?WT.mc_id=RCal-DSSW

Apr 25–26 **Counter Terror Expo**
London, UK
http://www.counterterrorexpo.com/

Apr 28–May 5 **Executive Seminar: Behind the Scenes Seminar of Israel's Counter-Terrorism and Security Operations**
Tel Aviv, Israel
http://chameleonassociates.com/SeminarTour12/accomodation.php

Apr 30–May 2 **Maritime Homeland Security Summit 2012**
Norfolk, VA
http://www.maritimehssummit.com/Event.aspx?id=678408

May 1 **FAA Mike Monroney Aeronautical Center IT/ISS Industry Day**
Oklahoma City, OK
http://fbcinc.com/event.aspx?eventid=Q6UJ9A00T08Y

May 2–3 **Global Explosive Ordnance Disposal Conference & Exhibition**
Ft. Walton Beach, FL
http://www.ndia.org/meetings/0950/Pages/default.aspx

May 3 **FBI Academy Law Enforcement Vendor Fair**
Quantico, VA
http://www.fbcinc.com/event.aspx/Q6UJ9A00SS7V

May 3–4 **Sample Prep 2012**
San Diego, CA
http://www.knowledgefoundation.com/viewevents.php?event_id=278&act=evt

May 4–8 **Fire-Rescue Med 2012**
Las Vegas, NV
http://s36.a2zinc.net/clients/IAFC/frm12/Public/enter.aspx

May 6–11 **Medical Management of Chemical and Biological Casualties (MCBC)**
APG, MD and Ft. Detrick, MD
https://ccc.apgea.army.mil/courses/in_house/MCBC.htm

NSWC Dahlgren Employees Win NAVSEA Excellence Awards for Impact on Aircraft Carriers, Acquisition and "Real World" CBR Defense

By NSWC Dahlgren Division Corporate Communications

Vice Adm. Kevin McCoy, commander, Naval Sea Systems Command, presented the 2011 NAVSEA excellence award to Naval Surface Warfare Center Dahlgren Division employees for their outstanding achievements at an award ceremony held at the Navy Yard in Washington, D.C. December 7.

NSWCDD employees specializing in chemical biological and radiological (CBR) defense, human systems integration (HSI) and acquisition were among individuals and teams from across the NAVSEA organization who received awards for their excellent contributions to the United States Navy and the employees' commands.

Vice Adm. Kevin McCoy, commander, Naval Sea Systems Command, presents the NAVSEA excellence award to six members of the NSWC Dahlgren Chemical, Biological and Radiological (CBR) Defense Division Operation Tomodachi Support Team at a Washington D.C. ceremony Dec. 7. Pictured left to right between Vice Adm. McCoy and NSWCDD CBR Defense Division Head Mike Purello: Jeanne Fravel-Meyers, Brian Liska, David Morad, Michael Pompeii, Richard "Chip" Warder and Julie Heflin (accepting the award for Paul Swayze, recently deceased).

The NSWCDD CBR Defense Division Operation Tomodachi Support Team was honored for mitigating initial fleet concerns and ensuring military personnel could operate safely in a radiological contaminated environment in the wake of an earthquake and tsunami that disabled the Fukushima nuclear power plant's reactor cooling systems, leading to massive leaks of nuclear radiation.

"The team quickly developed various specialized procedures for dealing with this specific type of contamination, then worked with NAVSEA and Pacific Fleet to deliver the procedures via naval message for the ships to use," said Michael Pompeii, NSWCDD CBR Defense Chief Engineer. "Some of our CBR team members deployed to Yokosuka to implement and perform these procedures on a contaminated ship. This was another real-world confirmation that our CBR procedures and equipment worked when the ships really needed them."

This high performing team—John Garmon, Tracy Delascasas, David Morad, Jeanne Fravel-Meyers, Jeff Smith, Richard "Chip" Warder, William Clark, Brian Liska, Charles Lansing, Ronald Roller, Jeffrey Renner, Paul Swayze and Pompeii—demonstrated NAVSEA's commitment to providing rapid, fully coordinated, technically sound support to the Fleet.

"This was a great real-world showing by our CBR defense systems on our ships," said Pompeii. "The countermeasure wash down system quickly removed the bulk of the contamination, just as it was designed to do. Our CBR Collective Protection System (CPS) performed flawlessly, as there was not one instance of any radiological contamination reported at any time in any CPS zone for the 13 ships equipped with CPS. But the ships without CPS or areas outside the CPS zones did not fare nearly as well."

CPS—originally designed by NSWC Dahlgren CBR Defense engineers to protect personnel and equipment inside ships from CBR attacks—works by using special filters to remove any contaminants from intake ventilation air and then providing a slight overpressure inside the CPS zone to prevent entry of contaminants through any leak paths.

NSWCDD HSI engineers Robyn Ryan, Alex Salunga, Isabel Anderson, Ajoy Muralidhar, Robert Hamburger, Jon Dachos, Dawn Chandler, Karen Holness and Christi Adams were honored for their superior support to the CVN 78 (Gerald R. Ford next generation carrier) Program as key players in the Warfare System Engineering Technical Team.

"We initially focused on determining manpower requirements for the new Ford Class Warfare System configuration," said Robyn Ryan, NSWCDD HSI Program Director. "Our team established a rigorous

Continued pg. 14

Jeff Renner (left) and Charles Lansing—members of the NSWC Dahlgren Chemical, Biological and Radiological (CBR) Defense Division Operation Tomodachi Support Team—use the IM-265 Multi Function Radiac (MFR) with a DT-304 probe to measure radiation aboard a ship in Yokosuka, Japan.

Charles Lansing (left) and Jeff Renner—members of the NSWC Dahlgren Chemical, Biological and Radiological (CBR) Defense Division Operation Tomodachi Support Team—check each other for radiation after changing out the Collective Protection System (CPS) prefilters aboard a ship in Yokosuka, Japan.

process to identify candidate manpower changes based on the anticipated warfare system elements and worked with the technical and active fleet subject matter experts to identify tasking and workload changes. This included documenting analysis and assumptions and reconciling proposed changes through all program and fleet stakeholders."

The team transitioned from focusing only on manpower requirements to include process improvements, according to the nomination letter. "The process and resulting artifacts allow for changes in the Ford class warfare system definition to be assessed for manpower impacts," said Ryan. "This analysis on the new class was also leveraged to realize savings where these changes were applied to in-service carriers."

Capitalizing on the investment made while assessing the Ford class of nuclear aircraft carriers, the team applied findings to the USS Nimitz (CVN-68) class of nuclear aircraft carriers—achieving manpower reductions of 25 percent, resulting in a savings of $17.7 million.

"Since all human systems integration domains are interrelated, the manpower requirements analysis work demonstrated the need for other domain analysis, said Ryan. "The team's HSI and human factors engineering efforts impacted both engineering integrated product teams' activities as well as warfare system related ship space designs. For example, we defined the concept of operations for a new centralized combat systems management center. The team also impacted ship space and equipment layout based on human factors analysis and fleet cognitive walkthroughs for the Command Decision Center and Surface Undersea Support Center spaces."

The team constructed three inexpensive full scale mock-ups replicating the USS Abraham Lincoln, CVN 72 Combat Direction Center (CDC), CVN 78 CDC, and CVN 78 Surface and Undersea Coordination Center. The mock-ups achieved efficiencies through identification of common practices and configurations for the CVN 72 and 78 CDC spaces.

Through the combination of Fleet feedback and human factors engineering analysis, the mock-ups identified several improvements including remote location of common display system (CDS) common electronics modules; a modified space design achieving all three-display CDS consoles; the location of critical equipment in closer proximity to the appropriate watch standers; the validation of existing manpower requirements; and identification of new manpower and equipment requirements. The team submitted their findings in coordination with shipyard and stakeholder milestones to achieve greatest savings.

Individual award recipients were recognized for their personal contributions and outstanding accomplishments—displaying a "do it right the first time" attitude—with outstanding customer satisfaction and in support of the NAVSEA mission, vision and goals.

Robert Ashley, NSWCDD Contracting Office Acquisition Policy Lead, was honored for his accomplishments to include the establishment of several best practices which have been implemented across the Contracting Competency.

Ashley used knowledge management tools to vastly improve acquisition service by disseminating a variety of searchable, user friendly products to the contracting and program management communities, according to the nomination letter. He ensures policies are openly shared with NSWCDD customers through the web based contract homepage.

In addition to his impact on acquisition training, process improvement, and the command's Product Data Reporting and Evaluation Program instruction, Ashley established the Dahlgren Policy Cliff Notes—a monthly acquisition product which supplements policy directives from NAVSEA headquarters. These notes, supplement policy implementation with easy to read disposition instructions permitting the quick identification of relevant areas of new policies and directives applicable to the work accomplished by the NSWC Dahlgren contracting office.

ECBC Develops Modern Homemade Explosives Detection Kit

By ECBC Public Affairs Office

With terrorist attacks occurring regularly across the globe, the need for an easy-to-use, lightweight and reliable homemade explosives (HME) detector is critical. Edgewood Chemical Biological Center (ECBC) has leveraged proven colorimetric technology and engaged an advanced rapid prototyping process to engineer, from the ground up, a purpose-designed prototype for screening HME precursors with the needs of the end-user in mind: the U.S. Army Infantry Squad Soldier.

The ECBC-developed Squad HME Screening/Cueing Kit is a field prototype based upon proven colorimetric chemistry designed to screen for certain materials that are commonly used to make HME across the current theaters of operation.

The kit is small, lightweight and doesn't require a power source. Chemical reagents stored within the device produce color changes in reaction with four select HME precursors: two fuels and two oxidizers. Materials that include both a fuel and an oxidizer could possibly be explosives. The capability to determine if either or both are present in a single sample with one quick test allows the warfighter to take action immediately.

The kit is a rapid development response to an urgent need expressed by user representatives at ECBC and the U.S. Army's Maneuver Support Center of Excellence and Maneuver Support Battle Lab (MSBL) in Fort Leonard Wood, Mo.

The ECBC prototype empowers Infantry Squads and similar organizations with a self-contained capability to screen unknown materials to determine if they are legitimate agricultural or industrial products, or prohibited chemical precursors suitable for fabrication of HME.

"The Army needs this capability," said Mike Cress, ECBC technical representative to the MSBL. "And to meet their need, ECBC has created a very lightweight product—less than one percent of soldier load—that is very easy to use, needing not more than a few minutes of training, is multi-functional and is reasonably inexpensive."

The first-generation model of the kit was successfully evaluated in a Military Utility Assessment conducted by the MSBL in June 2011. The lab concluded that the kit enabled soldiers to rapidly screen HME precursors, in samples presented to them as randomized blind trials, with accuracy and confidence after minimal training.

Once the kit is fully tested and fielded, it will not only be available to the warfighter but to first responders who—due to budget, storage and time constraints—will also benefit from the device's affordability, small size and usability.

With the ever-present threat of terrorism, "this kit is built with one intention, which is to save lives," shared James Genovese, chief of ECBC's Innovative Development Engineering Acquisition Team.

For more information about ECBC, visit http://www.ecbc.army.mil/.

ECBC is the Army's principal research and development center for chemical and biological defense technology, engineering and field operations. ECBC has achieved major technological advances for the warfighter and for our national defense, with a long and distinguished history of providing the Armed Forces with quality systems and outstanding customer service. ECBC is a U.S. Army Research, Development and Engineering Command laboratory located at the Edgewood Area of Aberdeen Proving Ground, Maryland. For more information about the Edgewood Chemical Biological Center, please visit our website at http://www.ecbc.army.mil *or call (410) 436-7118.*

Also Visit ECBC on Facebook at
http://www.facebook.com/EdgewoodChemBio

In the News

New Portable Chemical Detector For Military, First Responders
Homeland Security News Wire
January 19, 2012
"Smiths Detection is showing a next-generation chemical threat detector that combines speedy high-resolution gas chromatography (GC) and a miniaturized toroidal ion trap mass spectrometer (MS) in a portable device."
http://www.homelandsecuritynewswire.com/dr20120119-new-portable-chemical-detector-for-military-first-responders

Infectious Disease Lab Under Construction in Winnipeg
Journal of Commerce
January 17, 2012
"…Work is well underway on the Public Health Agency of Canada's (PHAC) new J.C. Wilt Infectious Diseases Research Centre. The impetus for the new project is that the National Microbiology Laboratory (NML), which is only a couple of blocks away, has run out of space. The new building will augment the work of the NML."
http://www.joconl.com/article/id48171

Idaho Technology Delivers 10 Target BioThreat Detection Kit for U.S. Military
army-technology.com
January 17, 2012
"Idaho Technology announced that it has delivered its first shipment of the RAZOR CRP BioThreat-X Kits to the Critical Reagents Program (CRP) which supplies test reagents to the US military."
http://www.army-technology.com/contractors/nbc/idaho-technology/pressbiothreat-detection-kit-military.html?WT.mc_id=DN_PR

Cobra Gold 2012 to Promote Partnership, Interoperability
American Forces Press Service
By Donna Miles
January 13, 2012
"Cobra Gold, the United States' longest-standing military exercise in the Pacific, kicks off this weekend, bringing together more than 10,000 members of the U.S. and six other militaries to focus on interoperability and multinational coordination and training."
http://www.defense.gov/news/newsarticle.aspx?id=66803

New Way to Detect Underground Nuclear Tests
Homeland Security News Wire
January 11, 2012
"A new analysis of satellite data from the late 1990s documents for the first time the "uplift" of ground above a site of underground nuclear testing, providing researchers a new tool for analyzing the strength of underground nuclear detonation."
http://www.homelandsecuritynewswire.com/dr20120111-new-way-to-detect-underground-nuclear-tests

Trading Spaces: Biosecurity Research Institute to House Plum Island's Pathogen Studies
Kansas State University News Release
January 5, 2012
"New York's aging Plum Island Animal Disease Center–a major biosafety level 3 animal disease research facility–is preparing to be phased out by the U.S. Department of Homeland Security's National Bio and Agro-Defense Facility, NBAF, currently being built in Manhattan, Kan."
http://www.k-state.edu/media/newsreleases/jan12/brinbaftransition10512.html

Nation's First Center for Advanced Emergency Response Opens on January 6
Rush University Medical Center News Release
January 4, 2012
"Emergency department of the future has capability to expand, diagnose, treat victims of pandemic outbreaks, hazardous materials."
http://www.rush.edu/webapps/MEDREL/servlet/NewsRelease?id=1549

Researchers Successfully Treat Previously Lethal Doses of Radiation
DARPA News Release
January 4, 2012
"Multiple scenarios exist where warfighters may be exposed to high levels of radiation. Scientists working on a DARPA-funded research effort have determined that an antibiotic and a protein fight radiation sickness more effectively when they are combined than when used separately."
http://www.darpa.mil/NewsEvents/Releases/2012/01/04.aspx

Bureau of Counterterrorism
U.S. Department of State Press Release
January 4, 2012
"The Department of State announces the establishment of the Bureau of Counterterrorism, fulfilling one of the key recommendations of the Quadrennial Diplomacy and Development Review concluded in December 2010."
http://www.state.gov/r/pa/prs/ps/2012/01/180136.htm

Vol. 8 No. 2 of the Chem-Bio Defense Magazine is Now Available!

The Chem-Bio Defense magazine strives to effectively bridge the world-class professionals who work to accomplish the JPEO-CBD's mission with our valued stakeholders.

To view the electronic version, visit: http://issuu.com/jpeo-cbd/docs/vol_8_issue_2

Cobalt Dragon Prepares Unit for Threat

By Sgt. 1st Class Michelle Conrad, 7th Civil Support Command, Public Affairs Office

Brig. Gen. Mark Hendrix (on gurney), the commanding general of the 7th Civil Support Command, rolls through the decontamination line where he is greeted with trained Chemical, Biological, Radiological and Nuclear specialists from the 773rd Civil Support Team from Kaiserslautern, Germany and the 12th Chemical Company from Schweinfurt, Germany, after a simulated injury during exercise Cobalt Dragon at a warehouse on Rhine Ordnance Barracks in Kaiserslautern, Germany Dec. 8. Cobalt Dragon is an interagency exercise designed to standardize all surveying operations for site-characterization analysis of CBRN agents. (Photo by Maj. Todd Buchhem, CBRN Officer, 21st Theater Sustainment Command)

The ever-present threat of without warning disasters and terrorist attacks necessitates the need for qualified Chemical, Biological, Radiological and Nuclear specialists to always be prepared to protect U.S. national interests. One such capability is the 773rd Civil Support Team (CST), 7th Civil Support Command, who put their expertise to the test during exercise Cobalt Dragon here at Rhine Ordnance Barracks, December 5–9 [2011].

Because time is of the essence when a CBRN-type incident occurs, unit training and readiness are essential. Cobalt Dragon, which is a joint, interagency exercise focusing on survey, decontamination, and analytical operations, combines the unique capabilities of various units and agencies. In addition to the 773rd CST, the Emergency Medical Assistance Team (EMAT), the 12th Chemical Company Reconnaissance Team, and members of the Defense Threat Reduction Agency combined to form Strike Team Dragon.

The exercise not only provided an opportunity for the 12th Chem. Co. Recon Team and 773rd CST a chance to work together, but also to standardize procedures. The exercise also serves another purpose in ensuring that U.S. Army Europe maintains an important CBRN capability even as the EMAT transfers its CBRN responsibilities to the 773rd CST.

"Standardizing all surveying operation procedures and training on specialized equipment for decontamination gives us the ability to do site-characterization analysis of the agent, which helps the incident commander and the host nation leadership make informed decisions on which course of action to take," said Sgt. 1st Class Jay C. Drucas, the 773rd CST operations non-commissioned officer.

Cobalt Dragon tested the Soldiers' reaction to a scenario where terrorists release a chemical into the air during a holiday party. Strike Team Dragon quickly suited up and began surveying the office building

Continued pg. 18

Brig. Gen. Mark Hendrix (left), the commanding general of the 7th Civil Support Command, along with Spc. Arnold Daye, a reconnaissance team member of the 12th Chemical Company from Schweinfurt, Germany, conduct survey operations in order to determine whether the simulated office contains a Chemical, Biological, Radiological and Nuclear agent during exercise Cobalt Dragon. (Photo by Maj. Todd Buchhem, CBRN Officer, 21st Theater Sustainment Command)

Brig. Gen. Mark Hendrix (on ground), the commanding general of the 7th Civil Support Command, simulates an injury during exercise Cobalt Dragon while assisting the survey operations team chief, Staff Sgt. Ralph Lahens, in determining whether an agent is Chemical, Biological, Radiological and Nuclear. (Photo by Maj. Todd Buchhem, CBRN Officer, 21st Theater Sustainment Command)

to locate the source of the threat. Discretely hidden in a chest cooler was a simulated chemical bomb.

To experience first-hand the mission of the 773rd CST, Brig. Gen Mark S. Hendrix, the commanding general of the 7th CSC, took part in the exercise as a survey operations team member. While he and his two team members surveyed the contaminated site, Hendrix became a casualty. This presented another training opportunity for the 773rd CST team; evacuate a casualty from a dangerous contaminated site. The exercise observer/controllers instructed Hendrix to simulate a leg injury. This adds a degree of complexity to the scenario by requiring the team to evacuate an immobile casualty.

The hazardous material suit along with the oxygen tank weighs approximately 70 pounds. Within seconds, Hendrix's team members realized that he was down and immediately called for backup. Within a matter of minutes, two more team members had Hendrix on a gurney and raced him to the decontamination tent. After Hendrix was decontaminated, a medical crew opened the suit and pulled off all the gear while checking to make sure Hendrix was breathing. Fortunately, he was.

"The Soldiers who wear the suit have my respect and admiration," said Hendrix. "It is nice to know we have the best equipment for our Soldiers."

"Soldiers of the 773rd CST and 12th Chem. Co. Recon Team do what New York City firefighters did on 9/11 and that is run into a danger that everyone else is running away from," said Hendrix. "This is a new skill set and a new mission for U.S. Army Europe and we are very fortunate to have these officers, noncommissioned officers, and Soldiers."

About the 7th Civil Support Command

7th Civil Support Command provides trained and ready, forward-stationed Consequence Management Command and Control, Civil Support Team, Civil Affairs, and Enabler capabilities, as directed by U.S. Army Europe (USAREUR). Rapidly deploys immediate response capability and provides Title 10 responsibilities for European-based units as directed by USAREUR.

U.S. Army Europe's Army Reserve Civil Support Command is capable of simultaneously providing theater and expeditionary Consequence Management and Civil Affairs support, expertise, and capabilities, while providing a trained and ready force pool to support Overseas Contingency Operations.

Within European Command (USEUCOM) area of responsibility, U.S. Army Europe's (USAREUR) 7th Civil Support Command, an Army Reserve unit based in Kaiserslautern, Germany, provides USAREUR interface for consequence management between Host Nation authorities, the U.S. Department of State, and other U.S. organizations/services.

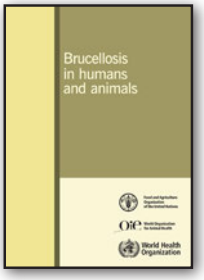
On order, the 7th Civil Support Command rapidly deploys a response and interface capability, which forms the core of Joint Task Force-Consequence Management Headquarters as part of the larger U.S. Government response to a foreign government assistance request.

Learn more about the 7th Civil Support Command at:
http://www.7csc.army.mil/

New CBRNIAC Information Resources

Corbel, M.J. **Brucellosis in humans and animals**. Geneva, Switzerland: WHO Press, 2006.
http://www.who.int/csr/resources/publications/Brucellosis.pdf

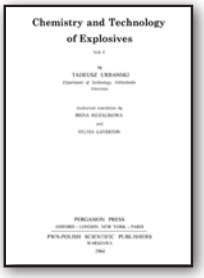
"Brucellosis, also known as "undulant fever", "Mediterranean fever" or "Malta fever" is a zoonosis and the infection is almost invariably transmitted by direct or indirect contact with infected animals or their products. It affects people of all age groups and of both sexes. Although there has been great progress in controlling the disease in many countries, there still remain regions where the infection persists in domestic animals and, consequently, transmission to the human population frequently occurs. It is an important human disease in many parts of the world especially in the Mediterranean countries of Europe, north and east Africa, the Middle East, south and central Asia and Central and South America and yet it is often unrecognized and frequently goes unreported." *(Introduction)*



CB-201781
WHO Press
World Health Organization
20 Avenue Appia
1211 Geneva 27
Switzerland
Phone: +41 22 791 3264

Urbanski, Tadeusz. **Chemistry and Technology of Explosives., Vol. 1**. New York: Pergamon Press, 1964.
http://knygos.sprogmenys.net/knygos-2/Explosives/Science%20of%20Explosives/Chemistry%20and%20Technology%20of%20Explosives%20-%20vol%201%20-%20Urbanski.pdf

"For quite a long time a reference book has been needed which would provide the reader with adequate information, both theoretical and practical, on the chemistry and technology of explosives. The objectives of the present book are to fill this gap in the chemical literature. The chemical, physical and physico-chemical properties of explosives are dealt with, and processes of manufacture are described whenever the substance in question is of practical importance." *(Preface)*



CB-202151
Pergamon Press
122 East 55th Street
New York, NY 10022

Decontamination of Residual VX on Indoor Surfaces using Liquid Commercial Cleaners: Investigation Report. Research Triangle Park, NC, 2010.
http://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=226648&fed_org_id=1253&address=nhsrc/&view=desc&sortBy=pubDateYear&showCriteria=1&count=25&searchall='indoor%20outdoor%20decontamination'

"Following the events of September 11, 2001, EPA's mission was expanded to address critical needs related to homeland security. Presidential Directives identify EPA as the primary federal agency responsible for the country's water supplies and for decontamination following a chemical, biological, and/or radiological (CBR) attack." *(Foreword)*

CB-201367
National Homeland Security Research Center
Office of Research and Development (NG16)
U.S. Environmental Protection Agency
Mail Code E343-06
Research Triangle Park, NC 27711
Phone: (919) 541-4531

Danzig, Richard, Sageman, Marc, Leighton, Terrance, Hough, Lloyd, Yuki, Hidemi, Kotani, Rui, and Zachary M. Hosford. **Aum Shinrikyo: Insights Into How Terrorists Develop Biological and Chemical Weapons.** Washington, DC: Center for a New American Security, 2011.
http://www.cnas.org/files/documents/publications/CNAS_AumShinrikyo_Danzig_1.pdf

"The use of chemical and biological weapons by terrorist groups remains a potent risk to the United States and countries around the world. As we attempt to prevent and plan for such a possibility, however, we have few historical lessons to guide us. This report examines a rare example—the most ambitious known effort to date of a terrorist group seeking to acquire chemical and biological weapons—and attempts to distill conclusions about the technical, organizational and psychological dynamics behind this effort." *(Preface)*

CB-203981
Center for a New American Security
1301 Pennsylvania Avenue, NW Suite 403
Washington, DC 20004
Phone: (202) 457-9400

Davis, Lynn E., Martini, Jeffrey, Nader, Alireza, Kaye, Dalia Dassa, Quinlivan, James T., and Paul Steinberg. **Iran's Nuclear Future: Critical U.S. Policy Choices.** Santa Monica, CA: RAND Corporation, 2011.
http://www.rand.org/content/dam/rand/pubs/monographs/2011/RAND_MG1087.pdf

"U.S. decisionmakers will confront a series of critical policy choices as Iran's nuclear program continues to evolve. The purpose of this study was to define these choices, describe the underlying complex considerations, assess their potential effectiveness, and uncover where policy trade-offs will be required… The research reported here is the product of a fiscal year 2010 RAND Project AIR FORCE research project, 'Aligning Nuclear Forces for the New Strategic Environment.'" *(Preface)*

CB-203059
1776 Main Street, P.O. Box 2138
Santa Monica, CA 90407-2138
Phone: (310) 451-7002

CBRNIAC Information Products

All products are unclassified unless otherwise noted.

CBRNIAC TECHNICAL FORUMS

CBRNIAC Forum: Food Protection From Rad Threats

U.S. Government Agencies and Their Contractors Only; For Official Use Only

CR-11-25 $10.00 September 2011

https://www.cbrniac.apgea.army.mil/Products/Catalog/Pages/ViewItem.aspx?ID=CR-11-25

CBRNIAC Forum: Biological Decontamination

U.S. Government Agencies and Their Contractors Only; For Official Use Only

CR-11-24 $10.00 February 2011

https://www.cbrniac.apgea.army.mil/Products/Catalog/Pages/ViewItem.aspx?ID=CR-11-24

CBRNIAC Forum: Bioforensics Resources and Repositories

U.S. Government Agencies and Their Contractors Only; For Official Use Only

CR-10-23 $10.00 March 2010

https://www.cbrniac.apgea.army.mil/Products/Catalog/Pages/ViewItem.aspx?ID=CR-10-23

Emerging CBRN Defense R&D Requirements

U.S. Government Agencies and Their Contractors Only; For Official Use Only

CR-09-22 $10.00 September 2009

https://www.cbrniac.apgea.army.mil/Products/Catalog/Pages/ViewItem.aspx?ID=CR-09-22

CBRN Scientific Information Collaboration

U.S. Government Agencies and Their Contractors Only; For Official Use Only

CR-09-21 $10.00 February 2009

https://www.cbrniac.apgea.army.mil/Products/Catalog/Pages/ViewItem.aspx?ID=CR-09-21

Trends in CBRN Field Analytics

U.S. Government Agencies and Their Contractors Only; For Official Use Only

CR-09-20 $10.00 December 2008

https://www.cbrniac.apgea.army.mil/Products/Catalog/Pages/ViewItem.aspx?ID=CR-09-20

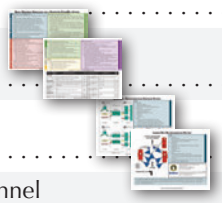
The Future of Toxicology in CB Defense

Approved for Public Release; Distribution Unlimited

CR-08-19 $10.00 June 2008

https://www.cbrniac.apgea.army.mil/Products/Catalog/Pages/ViewItem.aspx?ID=CR-08-19

Code	Title/Distribution	Price
CR-07-18	Nanomaterials: New Capabilities for Chemical Biological Defense U.S. Government Agencies and their Contractors	$10.00
CR-07-17	Understanding Vapor Intrusion–A Guide to Key Concepts and Principles Unlimited	$10.00
CR-06-16	Development of a Colorimetric End-of-Service-Life Indicator (ESLI) for CBRN Mask Filters U.S. Government Agencies and their Contractors; Export Controlled	$25.00
CR-05-15	Technical Report on the Portable Airlock for Non-Procedural Entry or Exit of CSEPP Pressurized Shelters Unlimited	$10.00
CR-05-14	Dispatcher's Guide for WMD Incidents Unlimited	$10.00
CR-05-13	Biological Incident Operations: A Guide for Law Enforcement Unlimited	$25.00
CR-04-12	Emergency Decontamination Corridor and Ladder Pipe Decontamination Systems Unlimited	$2.00
CR-04-11	Quick Response Guidelines for a Suspected Chem/Bio Attack Unlimited	$2.00
CR-04-10	The Psychological Effects of Weapons of Mass Destruction (WMD) on Military and Civilian Personnel U.S. Government Agencies and their Contractors	$25.00



Continued pg. 21

Code	Title/Distribution	Price
CR-03-09	Law Enforcement Officers Guide for Responding to Chemical Terrorist Incidents Unlimited	$10.00
CR-03-08	Medical Aspects of Biological Agents Unlimited	$10.00
CR-03-07	WMD Reference CDs Unlimited	$25.00
CR-02-05	Chemical Agent Simulants and Associated Technologies U.S. Government Agencies	$25.00
CR-01-04	Joint Service Chemical and Biological Science and Technology Base Program in Decontamination U.S. Government Agencies and their Contractors	$25.00
CR-01-03	Air Purification Technologies U.S. Government Agencies and their Contractors	$25.00
CR-00-02	Critical Review on Anti-Crop Biological Agents and Associated Technologies U.S. Government Agencies and their Contractors	$25.00
CR-00-01	Chemical Biological/Smoke Modeling and Simulation (M&S) Newsletter Compilation U.S. Government Agencies and their M&S Contractors	$25.00
CR-99-10	Wide Area Decontamination: CB Decontamination Technologies, Equipment and Projects Unlimited	$25.00
CR-99-09	Determination of Optimum Sorbent Material for Collection and Air Desorption of Chemical Warfare Agents Unlimited	$20.00
CR-98-08	Demilitarization Technologies for Biological and Toxin Weapons U.S. Government Agencies	$25.00
CR-98-07	The Year 2000 Millennium Bug: A Chemical and Biological Defense Community Perspective Unlimited	$15.00
CR-98-06	The Emergency Responder's Ability to Detect Chemical Agents U.S. Government Agencies, their Contractors, State and Local Government Agencies	$15.00
CR-98-05	Critical Review of Surface Sampling Technologies for Volatilizing Liquid Chemical Agents Unlimited	$25.00
CR-98-04	Critical Review of Non-Lethal Grenade Technologies and Lethality Evaluation Criteria Unlimited	$25.00
CR-96-03	Critical Review of Sources of Chemical and Physical Properties Data for Militarily Significant Compounds Unlimited	$25.00
CR-95-02	A Critical Review of Sources of Spectral Data for Militarily Significant Compounds Unlimited	$20.00
CR-95-01	A Critical Review of Nuclear, Biological and Chemical Contamination Survivability (NBCCS) Unlimited	$20.00
DBK-06-01	CBIAC Newsletter Archive 1986-2005 Unlimited	$45.00
DBS-02-01	Chemical Sources Database and Databook: Toxicological Values for Catastrophic Release of Toxic Industrial Chemicals (Set) U.S. DoD Agencies	$125.00
DB-02-01	Chemical Sources Database: Toxicological Values for Catastrophic Release of Toxic Industrial Chemicals U.S. DoD Agencies	$75.00
DBK-02-01	Chemical Sources Databook: Toxicological Values for Catastrophic Release of Toxic Industrial Chemicals U.S. DoD Agencies	$75.00
DBK-99-02	Susceptibility of Aircraft Materials to Chemical Warfare Agents (Reprint) U.S. Government Agencies and their Contractors	$75.00
DB-97-01	Physiological and Psychological Effects of the Nuclear, Biological, and Chemical Environment and Sustained Operations on Systems in Combat (P^2NBC^2) Database U.S. DoD Agencies and their Contractors	$60.00
DBK-95-01	Chemical Defense Materials Databook U.S. DoD Agencies and their Contractors; Export Controlled	$10.00

Continued pg. 22

Code	Title/Distribution	Price
HB-09-05	BACWORTH 2 Encyclopedia version 7.1 U.S. Government Agencies and their Contractors; For Official Use Only	$75.00
HB-99-03	CB Terminology Handbook Unlimited	$25.00
HBS-98-03	Worldwide Chemical Detection Equipment Handbook and Worldwide NBC Mask Handbook (Set) Unlimited	$50.00
HB-95-02	Worldwide Chemical Detection Equipment Handbook Unlimited	$25.00
HB-92-01	Worldwide NBC Mask Handbook Unlimited	$25.00
SIMKIT-06-02	Explosive Simulant Kit Federal, State, and Local Government Agencies–Further Distribution Only as Authorized by TSWG	$810.00
SIMKIT-07-03	CBR Simulant Training Kit Federal, State, and Local Government Agencies–Further Distribution Only as Authorized by TSWG and NCTC	$750.00
SOAR-08-24	Proceedings of the 2007 Scientific Conference on Chemical and Biological Defense Research Unlimited	$25.00
SOAR-08-23	Environmental Toxicology U.S. Government Agencies Only; For Official Use Only	$25.00
SOAR-08-22	Chemical Biological Radiological (CBR) Warfare Dissemination Technologies U.S. Government Agencies Only; Export Controlled; Unclassified	$25.00
SOAR-07-21	Proceedings of the 7th Joint Conference on Standoff Detection for Chemical and Biological Defense Unlimited	$25.00
SOAR-07-20	Proceedings of the 2006 Scientific Conference on Chemical and Biological Defense Research Unlimited	$25.00
SOAR-06-19	Proceedings of the 2004 Scientific Conference on Chemical and Biological Defense Research Unlimited	$25.00
SOAR-06-18	Proceedings of the 2003 Joint Service Scientific Conference on Chemical and Biological Defense Research Unlimited	$25.00
SOAR-06-17	Proceedings of the 2005 Scientific Conference on Chemical and Biological Defense Research Unlimited	$25.00
SOAR-06-16	Proceedings of the 2nd DoD Sustainable Ranges Initiative Conference and Exhibition U.S. Government Agencies and their Contractors	$10.00
SOAR-06-15	Weapons of Mass Destruction Handbook–Terms and Operational Overview Unlimited	$10.00
SOAR-05-14	Chemical and Biological Medical Treatment Symposium - V Unlimited	$25.00
SOAR-05-13	Proceedings of the Scientific Conference on Obscuration and Aerosol Research 2004 Unlimited	$25.00
SOAR-04-12	Sensing of Chemical & Biological Agents U.S. DoD Agencies and their DoD Contractors; Export Controlled	$200.00
SOAR-04-11	Chemical and Biological Medical Treatment Symposium - III Unlimited	$25.00
SOAR-03-10	Best Practices and Guidelines for Mass Personnel Decontamination U.S. Government Agencies, their Contractors, State and Local Government Agencies	$20.00
SOAR-03-09	Criminal and Epidemiological Investigation Handbook Unlimited	$10.00
SOAR-02-08	Possible Terrorist Use of Modern Biotechnology Techniques U.S. Government Agencies; For Official Use Only	$25.00
SOAR-02-07	Joint Science and Technology Chemical and Biological Front End Analysis and Master Plan – Individual Protection U.S. Government Agencies	$25.00

Continued pg. 23

Code	Title/Distribution	Price
SOAR-02-06	Medical Risk Assessment of the Biological Threat U.S. Government Agencies and their Contractors; For Official Use Only	$25.00
SOAR-02-05	Tools to Minimize the Threat of Intentional Food/Water Contamination U.S. Government Agencies, their Contractors, State and Local Government Agencies	$50.00
SOAR-01-04	Weapons of Mass Destruction Level III Antiterrorism Training U.S. Government Agencies and their Contractors	$15.00
SOAR-01-03	Respirator Encumbrance Model U.S. Government Agencies and their Contractors	$125.00
SOAR-00-02	Weapons of Mass Destruction Force Protection Joint Service Training U.S. Government Agencies, their Contractors, State and Local Government Agencies	$25.00
SOAR-00-01	Medical NBC Battlebook Unlimited	N/A
SOAR-99-13	CB Decontamination Market Survey and Tool U.S. Government Agencies and their Contractors; Export Controlled	$50.00
SOAR-99-12	CBR-D Curricular Materials U.S. Government Agencies and their Contractors; Export Controlled	$25.00
SOAR-99-11	Disaster Preparedness Operation Specialist (DPO) Curricular Materials U.S. Government Agencies and their Contractors; Export Controlled	$25.00
SOAR-99-10	Tactical NBC Information Tool U.S. Government Agencies	$25.00
SOAR-98-09	Technical Approach Options for Indoor Air Modeling Unlimited	$25.00
SOAR-98-08	CINC NBC Information Tool U.S. Government Agencies	$25.00
SOAR-98-07	Disaster Preparedness Operation Specialist (DPO) Computer Aided Instruction U.S. Government Agencies and their Contractors; Export Controlled	$50.00
SOAR-98-06	CBR-D Computer Aided Instruction U.S. Government Agencies and their Contractors; Export Controlled	$50.00
SOAR-98-05	Assessment of Chemical Detection Equipment for HAZMAT Responders U.S. Government Agencies, their Contractors, State and Local Government Agencies	$25.00
SOAR-98-04	State-of-the-Art Report on the Australia Group Chemicals Unlimited	$25.00
SOAR-97-03	An Overview of U.S. Chemical and Biological Defensive Equipment Unlimited	$50.00
SOAR-95-02	State-of-the-Art Report on Biodetection Technologies U.S. Government Agencies and their Contractors; Export Controlled	$25.00
SOAR-95-01	Proceedings of the CB Medical Treatment Symposium: An Exploration of Present Capabilities and Future Requirements Unlimited	$25.00

Order CBRNIAC Information Products online

https://www.cbrniac.apgea.army.mil/Products/Catalog/Pages/default.aspx

Back issues of the CBRNIAC Newsletter in hardcopy format!

If back issues of the ***CBRNIAC Newsletter*** printed from 2008–2011 would be valuable to you for your marketing resources or classroom materials, you can obtain a limited number of hardcopies **free of charge** by sending an email to the NewsletterEditor@battelle.org with the following information:

- Year/volume/issue you would like to receive
- Quantity desired
- Your name
- Organization
- Street mailing address (for shipping)
- Phone number

Quantities are limited, so requests will be honored as long as supplies last.