



CBRN IAC

Newsletter



Chemical, Biological, Radiological & Nuclear Defense
Information Analysis Center

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Advance by Lawrence Livermore Scientists Makes Possible Near- Instantaneous DNA Analysis

**Building Trust through Verification:
NNSA's Office of Nonproliferation and
International Security Plays Key Role**

**Collaboration with the Department of
Homeland Security and Department of Commerce,
Released the National Strategy for CBRNE Standards**



AMERICA'S ARMY THE STRENGTH OF THE NATION



The United States Army Nuclear and Combating WMD Agency is going digital and will no longer distribute printed copies of the journal. The Spring/Summer 2011 Combating WMD Journal volume is now available at <https://www.cbrniac.apgea.army.mil/Products/Links/KeyDocs/Pages/USANCA.aspx>



For future email notification regarding the latest electronic issue, send an e-mail to: usarmy.belvoir.hdqa-dcs-g-3-5-7.mail.usanca-mailbox@mail.mil. In the subject line please state CWMD Journal electronic notification request.



TRADOC CULTURE CENTER ONE STOP SHOP FOR ALL THINGS CULTURE



Smart Books : Smart Cards : Pocket Guides : Interactive Training : Videos

The TRADOC Culture Center (TCC) is your culture center and the Army's One-Stop-Shop for all things culture related. Service Members are the customer, and the TCC tailors products and training to meet the needs of the customer. **You ask for it, we provide it!**



BG Gregg C. Potter
Commanding General,
United State Army
Intelligence Center
of Excellence,
Fort Huachuca

Cross-Cultural Competency (3C) is a critical combat multiplier for commanders at all levels that enables successful mission accomplishment. Possessing cultural understanding is one of the critical components for Soldiers who interface with the local population. At a minimum, cultural leaders must possess awareness; select cultural understanding with the apply cultural effectively to achieve objectives. The Culture Center (TCC) Infantryman gain this essential proficiency. Lessons learned from 10 years of operational deployments clearly indicate that 3C is a huge and indispensable combat multiplier.

WHY IS CULTURE IMPORTANT?
Soldiers at all levels use cultural awareness and understanding to more effectively complete missions.



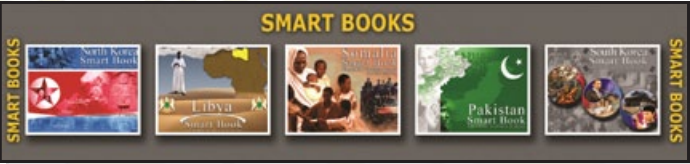
The TCC has developed several distance learning products available for facilitated instruction or individual student use. As an example, two seasons of "Army 360" that the TCC produced contain 19 episodes of missions run in six countries. "Army 360" is an interactive media instruction (IMI) training product which meets the Army Learning Concept 2015 learner-centric requirements. The TCC is in the process of turning the "Army 360" IMI into digital apps which will be easily accessible for all Soldiers. The TCC produced an Initial Military Trainee (IMT) training product for the initial entry level Soldier called "IMT-BCT What is Culture?" We are also producing a BOLG IMI product. Both products are or will be available via the TCC website. The TCC is expanding other products into the apps arena as well as developing additional distance learning products to provide new 3C training and sustainment.

OVER 160,000 SERVICE MEMBERS TRAINED

The TCC supports Soldiers and leaders throughout the Army and other services in numerous ways. It conducts ARFORGEN/predeployment training for any contingency; trains culture trainers; and produces professional military education (over 160,000 military personnel trained since 2004). The TCC will create or tailor any products deploying units require.



The TCC is your One-Stop-Shop to achieve individual and unit 3C. We will do whatever you require to help you accomplish your mission. Let us know what the TCC can do for you, your One-Stop-Shop for all things culture.



The TCC produces cargo pocket-sized training products to include smart books and smart cards, as well as digital downloads for smart devices. Areas covered include Iraq, Afghanistan, North Korea, Democratic Republic of Congo, and more. Let us know what we can produce for you.

For a complete list of materials, see: <https://ikn.army.mil/apps/tccv2/>.

REQUEST TRAINING NOW!
Request training from the TCC at <https://ikn.army.mil/apps/G3MTT/>
Specify what the unit needs are and we will deliver training that fits your objectives.
The TCC is your ONE STOP SHOP for all things CULTURE!
DOWNLOAD TRAINING TO YOUR SMART PHONE:
<https://ikn.army.mil/apps/tccv2/>



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5183 Blackhawk Road
Aberdeen Proving Ground, MD 21010-5424

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

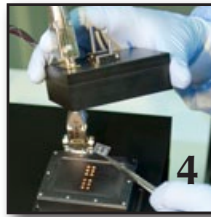
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On the Cover: Mechanical engineer Reg Beer (right) and electronics engineer Gary Johnson test a new polymerase chain reaction (PCR) instrument developed at Lawrence Livermore National Laboratory that can process biological samples in less than three minutes. Photo by Jacqueline McBride/LLNL

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 distributed in hardcopy format and 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

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Advance by Lawrence Livermore Scientists Makes Possible Near-Instantaneous DNA Analysis

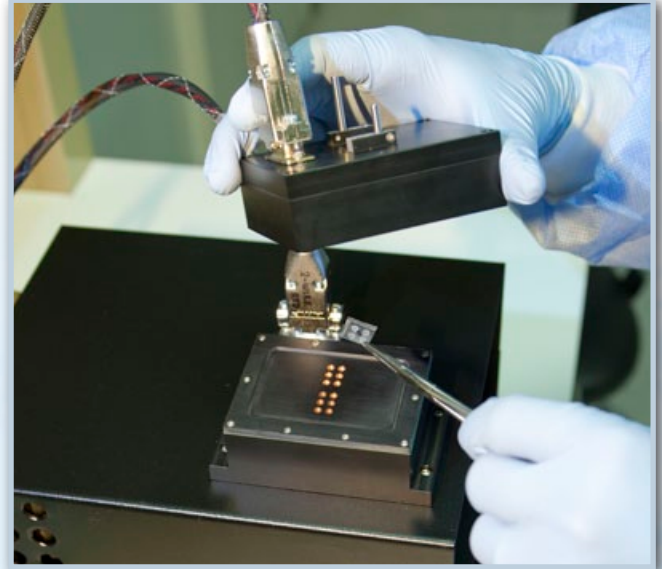
By Lauren de Vore, Lawrence Livermore National Laboratory

Picture this: You've brought your sick child to the doctor's office. After checking her pulse and blood pressure, he takes a nasal or throat swab and inserts it into a mysterious black box. Before the doctor finishes his examination, the black box beeps, indicating that the pathogen that's making your child sick has been identified.

Sound far-fetched? Actually, this scenario is closer to becoming a reality. Thanks to work by Reginald Beer and his team of scientists and engineers at Lawrence Livermore National Laboratory (LLNL), sub-three-minute amplification of nucleic acids (DNA and RNA) via polymerase chain reaction (PCR) is now possible.

With three school-age children of his own, Beer knows all too well the frustration of waiting 24 to 48 hours for lab results to learn whether his sick youngster can be treated with antibiotics. "I was sitting in the pediatrician's office with my daughter several years ago, and it struck me that if we could make PCR fast and easy enough for use in doctors' offices, it would have a huge impact."

PCR is an indispensable technique in medical and biological research laboratories around the world. It allows researchers and clinicians to produce millions of copies from a single piece of DNA or RNA for use in genome sequencing, gene analysis, heritable



A researcher loads a sample into Lawrence Livermore National Laboratory's new fast polymerase chain reaction (PCR) instrument. Photo by Jacqueline McBride/LLNL

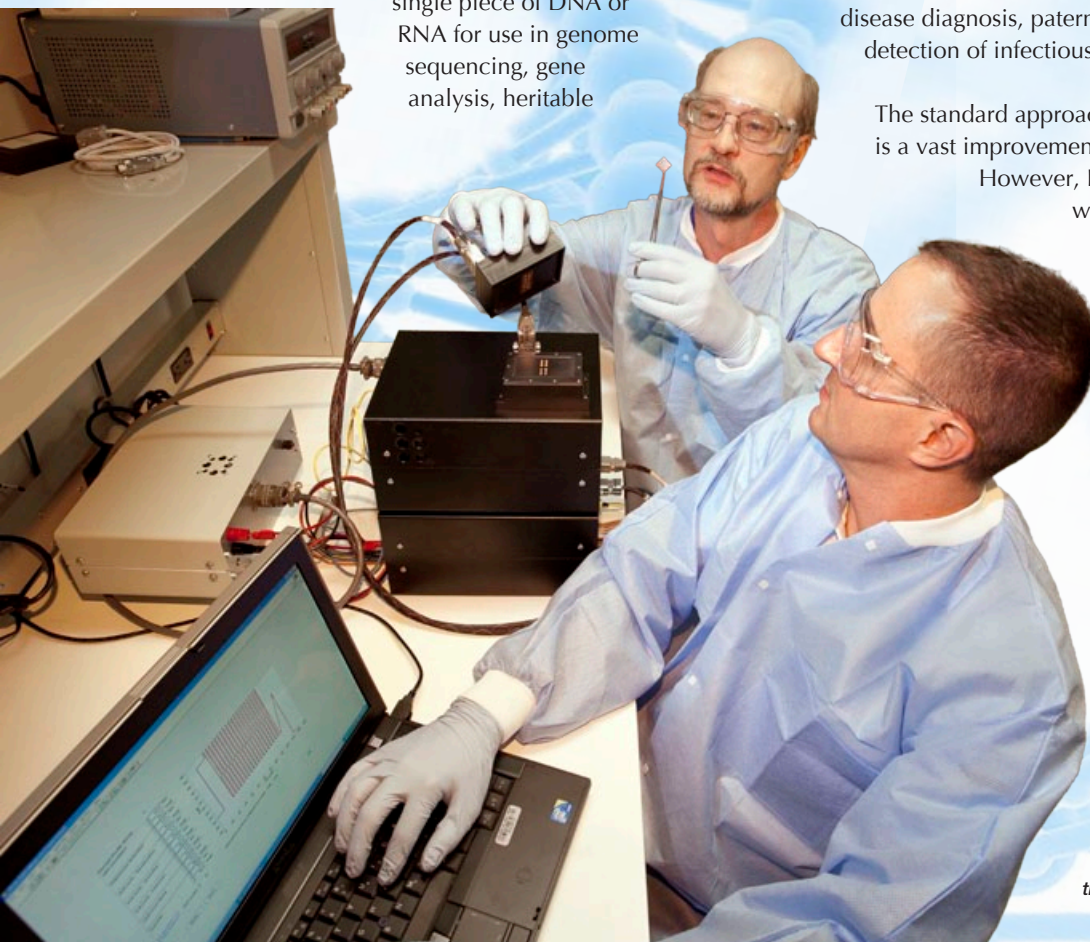
disease diagnosis, paternity testing, forensic identification, and the detection of infectious diseases.

The standard approach to PCR typically takes about an hour, which is a vast improvement over pre-PCR techniques that required days.

However, PCR for point-of-care, emergency-response or widespread monitoring applications needs to be faster still—on the order of a few minutes.

Beer set out to find out just how fast PCR could go. His goal was to develop a device where the limiting factor would be enzyme kinetics or thermodynamics, not mechanical considerations. He also wanted to use "volumes that are easy to interact with," not microfluidic-scale, knowing that in a diagnostic setting multiple analyses are often needed and the ability to load samples by hand is vital.

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Mechanical engineer Reg Beer (right) and electronics engineer Gary Johnson test a new polymerase chain reaction (PCR) instrument developed at Lawrence Livermore National Laboratory that can process biological samples in less than three minutes. Photo by Jacqueline McBride/LLNL

As described in a recently published paper in the journal *Analyst* (<http://pubs.rsc.org/en/content/articlehtml/2011/an/c1an15365j>), Beer and his colleagues created such a device and demonstrated PCR times of less than three minutes. Their work was funded by the Defense Advanced Research Projects Agency and internal LLNL money.

The device achieves its extremely fast thermal cycling through the use of a porous material and a thin-film resistive heater, making possible heating and cooling rates of 45 degrees Celsius per second, for a thermal cycle speed of less than 2.5 seconds. "This device is unique in that it cools as fast as it heats," noted Beer.

With the device in hand, Beer's next challenge was to see if any commercially available polymerase enzymes could work rapidly enough. Out of a group of 10 polymerases advertised by their manufacturers to be compatible with fast thermal cycling, two enzymes worked in the LLNL device right out of the box.

"We were really encouraged by the fact that two off-the-shelf enzymes worked at these speeds," said Beer, "and there are a lot of parameters that can be adjusted to potentially go even faster."

The researchers demonstrated their PCR device by amplifying genomic DNA from an *Enterobacter* bacterium and a portion of SARS DNA. The first tested the device's ability to rapidly amplify a large DNA segment, and the second showed the device's utility in handling a public health threat virus. The device achieved 30-cycle (billion-fold) PCR amplification of the target DNA in as little as two minutes and 18 seconds.

"When I set out to do this, people said it would never work," Beer recounted. "They gave mechanical reasons or enzyme kinetic reasons. But I answered, 'nobody really knows.' "

Now that Beer and his team have demonstrated sub-three-minute PCR, they are working to develop a real-time-detection device. They envision a PCR instrument that can complete a test, from sample to results, in five to 10 minutes.

The market for such a device would be huge. In addition to the traditional public health and medical research applications, an easy-to-use real-time PCR device would be enormously useful in the livestock, poultry, agricultural and processed food industries for ensuring food safety.

"We have a lot of ideas for solving the scientific and technical challenges unique to these applications," said Beer. "But this next step would benefit from finding the right commercial partner. We're very good at inventing technologies, but we need commercial partners to bring our innovations to market." ♦

This article appears online at:
<https://www.llnl.gov/news/newsreleases/2011/Oct/NR-11-10-01.html>

Founded in 1952, Lawrence Livermore National Laboratory provides solutions to our nation's most important national security challenges through innovative science, engineering and technology. Lawrence Livermore National Laboratory is managed by Lawrence Livermore National Security, LLC for the U.S. Department of Energy's National Nuclear Security Administration.

Lawrence Livermore National Laboratory's Unique Facilities and Centers

In order to carry out its national security mission, LLNL has designed and constructed a host of one-of-a-kind experimental facilities and has collaborated with industry to develop and deploy successively more powerful and more capable supercomputers. These resources have been integrated to create a number of centers of excellence that provide unique capabilities for solving problems of scientific and national security importance. Some of LLNL's special facilities and centers are highlighted below.

National Ignition Facility (NIF). The 192-beam NIF is the largest and most energetic laser system in the world.

Terascale Simulation Facility (TSF). The Laboratory is home to 22 supercomputers, including three of the world's fastest.

Contained Firing Facility (CFF). Experiments using up to 60 kilograms of high explosive can be conducted in this modern hydrodynamic test facility.

High Explosives Application Facility (HEAF). HEAF is a state-of-the-art facility for the research and development, synthesis and formulation, and characterization and testing of explosives.

Joint Actinide Shock Physics Experimental Research (JASPER) Facility. Located at the Nevada Test Site, the 30-meter-long JASPER two-stage gas gun is used to study the fundamental properties of plutonium.

Jupiter Laser Facility. The Jupiter Laser Facility provides a unique platform for the use of ultra-intense and petawatt-class lasers to explore laser-matter interactions.

Superblock. LLNL's Superblock is a highly secure and safe facility that houses modern equipment for research and engineering testing of nuclear materials.

National Atmospheric Release Advisory Center (NARAC). NARAC is a national resource for predicting the spread of hazardous materials released, accidentally or intentionally, into the atmosphere.

Forensic Science Center (FSC). The FSC offers unmatched capabilities for analyzing ultra-trace levels of virtually any compound in any sample matrix.

Center for Accelerator Mass Spectrometry (CAMS). CAMS is the world's most versatile and productive accelerator mass spectrometry facility.

For more information, contact the LLNL Public Affairs Office, P.O. Box 808, Mail Stop L-3, Livermore, California 94551 (925-422-4599) or visit our website at www.llnl.gov.

Building Trust through Verification: NNSA's Office of Nonproliferation and International Security Plays Key Role in the New START Treaty

By Rebecca Longworth, Keen Management Solutions and Andrew Walker, CBRNIAC Subject Matter Expert

Earlier this year, the New START Treaty entered into force. This began at least a ten year process to reduce the number of U.S. and Russian deployed strategic nuclear warheads and delivery vehicles under an updated and simplified version of the proven inspection and verification regime deployed under the first START Treaty. U.S. President Obama and Russian President Medvedev signed the historic New START Treaty in Prague on April 8, 2010. The National Nuclear Security Administration (NNSA) Office of Nonproliferation and International Security (NIS) provided

- The Notifications Working Group was responsible for identifying and organizing all notifications required for treaty implementation and verification.
- The Telemetry Working Group was responsible for negotiating an exchange of telemetric information from ballistic missile flight tests, which the United States and Russia agreed to include in the Treaty as a transparency measure.

New START Specific Limitations

- 1 Deployed and non-deployed launchers of inter-continental ballistic missiles (ICBMs), submarine-launched ballistic missiles (SLBMs), and heavy bombers assigned to nuclear missions reduced to 800.
- 2 Deployed ICBMs, SLBMs, and heavy bombers assigned to nuclear missions reduced to 700.
- 3 Deployed strategic nuclear warheads reduced to 1,550.

significant assistance and made essential contributions throughout the development and negotiation of the Treaty, in conjunction with other key elements of the U.S. Government. New START replaces the 1991 START Treaty, which expired in December 2009, and supersedes the 2002 Strategic Offensive Reductions Treaty, or Moscow Treaty. New START will reduce the number of deployed strategic nuclear warheads by nearly 75 percent from the START-accountable limit of 6,000, and is a 30 percent reduction compared to Moscow Treaty limits. A treaty of this complexity takes time and careful effort to negotiate, ratify, and enter into force.

Treaty Negotiations

The U.S. New START Delegation was headed by Assistant Secretary of State for Arms Control, Verification, and Compliance, Rose Gottemoeller. Working primarily in Geneva, Switzerland, the United States and Russia required ten months to negotiate the Treaty. Throughout that time, NIS played a key role in the negotiations and participated in all aspects of U.S. policy development. NIS had lead responsibility for negotiating three of the seven major components of the Treaty: definitions, notifications, and telemetry.

- The Definitions Working Group was responsible for identifying and defining all key terms contained within the Treaty.



President Obama and President Medvedev of Russia sign the New START Treaty during a ceremony at Prague Castle in Prague, Czech Republic, April 8, 2010. (Official White House Photo by Chuck Kennedy)

Throughout the negotiations, the Geneva-based NIS team drew upon NIS Headquarters, NNSA's Office of Defense Programs, and National Laboratory experts to ensure that NNSA's expertise and knowledge base supported U.S. negotiating objectives, and NNSA interests were addressed. NIS helped to develop and coordinate positions, advocated NNSA positions within the U.S. Interagency Community, and prepared for the Treaty's eventual signature, ratification, and entry into force.

Ratification Process

NIS, working with other NNSA programs and Congressional Affairs, and other U.S. Government agencies, supported U.S. Senate consideration of the New START Treaty, which was submitted by the President to the Senate for its advice and consent on May 13, 2010. NIS prepared testimony for the Secretary of Energy and the NNSA Administrator in support of the Treaty. NIS also developed and coordinated responses to numerous questions for the record regarding the impact of New

Continued pg. 7

New START *cont.*

START and DOE/NNSA's future plans to maintain the nation's nuclear weapons stockpile. NIS' Director of the Office of Nuclear Verification spent the final weeks of the Senate's Treaty deliberation on location at the U.S. Capitol as part of the U.S. Interagency team that provided direct support to the Senate Foreign Relations Committee.

Senate advice and consent to the New START Treaty was provided on December 22, 2010. Significant effort across the U.S. Government was necessary to gain Senate support, including the preparation of information needed to understand and enable long-term planning and support for the nuclear weapons stockpile stewardship program and its required infrastructure. This work helped ensure New START's passage by the Senate. Sustained commitment by Congress will ensure the resources necessary to support the stockpile, and will develop and maintain the necessary infrastructure across the NNSA Nuclear Security Enterprise well into the next decade.

Following completion of the U.S. ratification process, the Russian Duma and Federation Council provided consent to ratification on January 25 and 26, 2011, respectively. The New START Treaty entered into force when the Treaty's instruments of ratification were exchanged on February 5, 2011.



President Obama signs the instrument of ratification of the New START Treaty in the Oval Office, Feb. 2, 2011. (Official White House Photo by Chuck Kennedy)

About the Authors

Rebecca Longworth is President of Keen Management Solutions and has extensive experience in nuclear non-proliferation, arms control, international security, and export control systems. Rebecca can be contacted at longworth1@verizon.net.

Andrew Walker, a CBRNIAC SME, works for Battelle and manages scientific and technical support provided to NNSA/NIS through the Communication and Involvement Program. Andrew can be contacted at Walkerja@battelle.org.



NIS played a key role throughout the signature and ratification process.

Treaty Implementation

Since entry into force, NIS has continued to play an integral role in Treaty implementation. NIS participated in the first meeting of the Bilateral Consultative Commission in April 2011 and supported the evaluation of Russian radiation detection equipment for use during inspections of deployed strategic delivery systems in the United States. This included coordinating with other NNSA elements, National Laboratory assets, and Department of Defense elements to develop and execute an integrated testing and evaluation plan during the thirty-day equipment evaluation period provided under the Treaty. Consequently, the United States was able to approve use of the Russian equipment in the United States in April 2011. The Russian Federation provided commensurate approval for use of U.S. radiation detection equipment, developed by Sandia National Laboratories, for use during inspection in the Russian Federation.

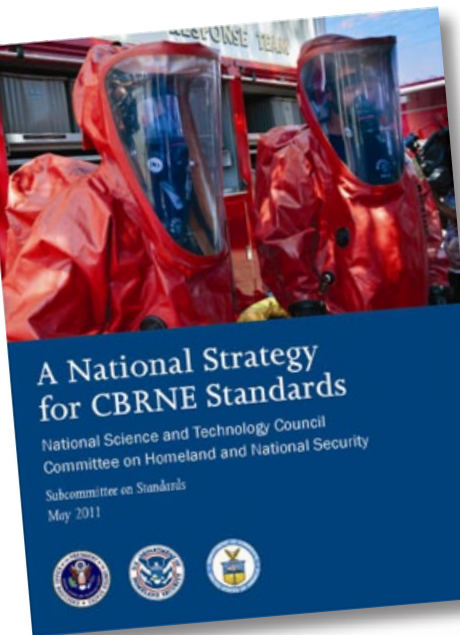
As Treaty implementation continues, NIS will remain an essential part of the New START Treaty implementation process. Looking ahead, NIS will continue to work within NNSA and the U.S. Government to consider and prepare for potential future arms control initiatives and ensure that United States' national security interests remain well represented.

For more information about this and other work being done by NIS, please e-mail NISPublications@battelle.org.

Technology Development for Future Nuclear Reductions

The New START verification regime relies upon an updated and simplified version of the proven verification and monitoring regime implemented under START I. For future arms control treaties, technology may be needed to count and monitor individual warheads. While counting large delivery vehicles and launchers (ICBMs, SLBMs, and heavy bombers) is relatively straightforward, determining if an item is a nuclear warhead and accounting for that item pose new challenges. Due to security requirements regulating nuclear weapons access, the identification, tagging, tracking, and locating task will require an extensive program of technology acceptance testing and procedural development. Over the coming years, NIS and other NNSA offices will perform rigorous tests at several NNSA sites to determine the feasibility of various technical and procedural approaches for this challenging new task.

Office of Science and Technology Policy, in Collaboration with the Department of Homeland Security and Department of Commerce, Released the *National Strategy for CBRNE Standards*



The events of 9/11 brought the fear of radiological exposure and chemical explosives to the public mind. Take for example, a facilities manager of a prominent company headquartered in New York. After 9/11, he recommends purchasing and installing a Chemical, Biological, Radiological, Nuclear, and Explosives (CBRNE) detection unit. The company's CEO approves the purchase and the facilities manager searches for the best option. Unable to find local, state, or federal standards for the CBRNE detection equipment, he converses with colleagues to make the best decision and then makes the purchase.

Very quickly the CBRNE equipment proves to work, setting off an alarm when chemical fumes are detected in the hallways of the company's building. The fumes, however, are from the solvents the cleaning crew uses to mop or polish the floors. The false alarm causes the local HAZMAT team to scramble to the company's location and assess the situation. For a few weeks this scenario plays out. Finally, New York State officials recognizes the problem—the faulty CBRNE detection unit—and puts a stop to the expensive nightly response.

Currently, the federal government is working to set CBRNE standards through the National Science and Technology Council (NSTC) Committee on Homeland & National Security Subcommittee on

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Standards (SOS). The SOS was chartered to serve as an interagency forum to gather CBRNE federal stakeholders.

The SOS interagency group is co-chaired by the Department of Homeland Security's (DHS) Science and Technology (S&T) Directorate and the Department Commerce's National Institute of Standards and Technology. The National Strategy for CBRNE Standards document is the first of a number of planned publications by SOS. The Strategy covers equipment used by Federal, State, local, and tribal responders for CBRNE detection, protection, and decontamination.

The 2011 *National Strategy for CBRNE Standards* is part of the Administration's sustained emphasis on interagency planning to define and achieve high-priority National R&D goals and objectives. It highlights areas in which stronger interagency coordination will enable improved productivity from important National investments in standards and T&E infrastructure. Innovative interagency management processes and policies will assist the Federal departments and agencies in achieving the goals and objectives in the *Strategy*, thus contributing to the economic growth and security of the Nation, while assuring its continued responsiveness to CBRNE threats.

Key to the success of the *Strategy* is the need for improved interagency collaboration to best manage and use the Nation's standards research, development, test, and evaluation (RDT&E) infrastructure. The creation of an implementation plan is the next step to achieving the goals and objectives in the *Strategy*.


The *Strategy* provides an outline to develop CBRNE standards by 2020 for:

- equipment,
- interoperability,
- training,
- standard operating procedures;
- National infrastructure for Test and Evaluation of CBRNE Equipment

The *Strategy* provides a framework for coordinated CBRNE investment activities among:

- agency leaders,
- program managers,
- research and testing community, and
- the private sector.



Learn more about the *National Strategy for CBRNE Standards* at http://www.whitehouse.gov/sites/default/files/microsites/ostp/chns_cbrne_standards_final_24_aug_11.pdf. 



Contract Awards

Filtering Mechanism That Will Integrate With Sensors for Refinement of Information

University of Vermont
Burlington, VT
\$500,000
October 2, 2011
By Defense Advanced Research Projects Agency, Arlington, VA

Research and Development on the Next Generation of Nuclear Technologies

Massachusetts Institute of Technology
Boston, MA
\$7,500,000
September 23, 2011
By Department of Energy, Washington, DC

Force Protection Omnibus

FLIR Systems, Inc.
Portland, OR
\$997,000,000
September 19, 2011
By U.S. Army Product Manager, Force Protection Systems, Washington, DC

Novel Anthrax Antitoxin

Elusys Therapeutics Inc.
Pine Brook, NJ
\$68,900,000
September 15, 2011
By Office of Biomedical Advanced Research and Development Authority, Washington, DC

Next Generation Anthrax Vaccine

Vaxin Inc.
Rockville, MD
\$21,700,000
September 15, 2011
By Office of Biomedical Advanced Research and Development Authority, Washington, DC

Provide Systems Engineering and Lifecycle Integration Support Science Applications International Corporation

McLean, VA
\$38,000,000
September 15, 2011
By U.S. Naval Surface Warfare Center Crane Division, Crane, IN

Research in the Development of Drugs to Treat Individuals Exposed to Mustard Gas

Rutgers University
Camden, NJ
University of Medicine and Dentistry of New Jersey (UMDNJ)-Robert Wood Johnson Medical School
Camden, NJ
\$23,200,000
September 13, 2011
By National Institutes of Health, Bethesda, MD

Build a Highly Sensitive Instrument That Will Detect Illicit Radioactive Materials With Pinpoint Accuracy From a Safe Distance

University of New Hampshire Space Science Center
Durham, NH
Michigan Aerospace Corporation
Ann Arbor, MI
\$303,000
September 7, 2011
By Defense Threat Reduction Agency, Fort Belvoir, VA

Radiological Emergency Preparedness Program

ICF International
Fairfax, VA
\$15,000,000
September 7, 2011
By Federal Emergency Management Agency, Washington, DC

Development of New Antibiotic Against Both Hospital Gram Negative and Biothreat Pathogens

GlaxoSmithKline
United Kingdom
\$38,500,000
September 6, 2011
By Office of Biomedical Advanced Research and Development Authority, Washington, DC

Repair and Maintenance Services for The Army's Force Protection Surveillance Systems

FLIR Systems, Inc.
Portland, OR
\$50,000,000
September 6, 2011
By U.S. Army, Washington, DC

Evaluate Effects of Battlefield Neurotoxins

Rhenovia Pharma
France
Army Biomedical Research Institute
France
\$1,700,000
September 2, 2011
By French Government (through the RHETOX Initiative), France

Development of Drugs to Treat Injuries From Chemical Bioterrorism

Countervail Corp.
Charlotte, NC
\$5,300,000
August 30, 2011
Southwest Research Institute
San Antonio, TX
\$4,400,000
August 30, 2011
By Office of Biomedical Advanced Research and Development Authority, Washington, DC

Develop Various Tools That Can Be Applied to Detect, Mitigate the Effects Of or Protect Against a Biological Terrorism Attack

Lawrence Livermore National Laboratory
Livermore, CA
\$2,400,000
August 19, 2011
By National Institutes of Health, Bethesda, MD

Nerve Agent Medical Countermeasure Program

PharmAthene, Inc.
Annapolis, MD
\$5,700,000
August 16, 2011
By Department of Defense, Washington, DC

Hands-On Training Showcases CDP Mass Casualty Exercise

By Shannon Arledge, Public Affairs Specialist, Center for Domestic Preparedness



The Center for Domestic Preparedness (CDP) in Anniston, Alabama is known for its realistic, emergency response exercises. Responders attending the Hands-On Training for CBRNE Incidents (HOT-I) course will now have an added level of realism thanks to a school bus CDP recently added to the simulated mass casualty exercise for each class.

Complete with smoke and child-size mannequins crowding seats and aisles, the school bus will resemble a potential emergency scene. This training element is typical of many

CDP courses, which remove first responders from the classroom for a unique hands-on training experience that focuses on response to a chemical, biological, radiological, nuclear, and explosive (CBRNE) incident.

"It was intense. When I first entered the bus visibility was good, but as the smoke thickened the level of difficulty increased," said Heather Jenkins, an Emergency Medical Technician (EMT) from California, after completing her training scenario. "My ultimate goal was to find the most critical patient, but it was not easy. This is something I have never experienced before, but it gave me an idea of what to expect—I feel more prepared. This is crucial knowledge anyone in emergency response should experience."

"Incorporation of the school bus into training scenarios lends an element of realism that keeps our student-participants motivated," said Mick Castillo, CDP technology integration specialist. "The scenario incorporates over 20 lifelike pediatric mannequins, an implementation that assists in simulating a mass casualty incident involving two dozen children. Whether caused by simple accident or at the hands of a terrorist, this scenario is as lifelike and realistic as we can make it."

At a recent training session, students prepared for the exercise as they received information explaining the circumstances and potential victims or survivors. As they departed the classroom setting a series of explosions were heard from the nearby fictional city known as "Northville." As the smoke rose, instructors commanded responders to "go on air," prompting the class to quickly don their breathing apparatus and divide into multiple response teams.

When the first team entered the bus they noticed child-size mannequins with a variety of symptoms. The students had to quickly assess the dangerous situation, triage victims, and remove survivors from the smoky bus. The first survivor was quickly passed through the bus'

emergency exit to waiting responders—only to find out from instructors the injured child was not viable. The response team inside the bus carefully re-examined the scene and symptoms of other passengers and discovered a survivor. The survivor was quickly passed through the emergency exit and emergency responders rushed the child away to a safe area to begin decontamination procedures.

"Where I work there is always a chance for a mass casualty event, and incorporating a training aid like the school bus creates a more realistic environment that requires students to perform," said Chris Dew, a fire fighter/paramedic from the District of Columbia. "There is a reason I have returned here five times. The training is invaluable. Experiencing triage like this and decontamination during a CBRNE response has increased my confidence 100 percent."

For more information regarding the HOT-I course, go to <http://cdp.dhs.gov/resident/cbrne.html> or find all CDP training courses at <http://cdp.dhs.gov>. The HOT-I course is an eight-hour course commonly combined with other CDP training allowing students to build on previous day's exercises in a CBRNE setting. As part of the course, the responder enters the CDP's toxic agent training facility and performs hazardous materials technician operations in a CBRNE response environment using nerve agents GB and VX.



Note:

The CDP is adding nonpathogenic biological materials to its specialized training at the Chemical, Ordnance, Biological and Radiological (COBRA) Training Facility. These new materials, *Bacillus anthracis delta Sterne* and *Ricin A-chain*, are expected to be used during live agent training starting sometime in February in the Technical Emergency Response Training for CBRNE Incidents (TERT) course and Hazard Assessment and Response Management for CBRNE Incidents (HARM) course. ♦

CDP training focuses on incident management, mass casualty response, and emergency response to a catastrophic natural disaster or terrorist act. CDP training for state, local, and tribal responders is fully funded by FEMA, a component of the U.S. Department of Homeland Security. Round-trip air and ground transportation, lodging, and meals are provided at no cost to responders or their agency.



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>.

- | | | | |
|-----------|---|--------------|--|
| Feb 4-8 | Society for Laboratory Automation and Screening (SLAS) 2012
San Diego, CA
http://www.slas2012.org/index.cfm | Feb 26-29 | 10th ASM Biodefense and Emerging Diseases Research Meeting
Washington, DC
http://www.asmbiodefense.org/ |
| Feb 5-8 | Health Physics Society 2012 Midyear Topical Meeting
Dallas, TX
http://hps.org/meetings/meeting32.html | Feb 27-Mar 2 | Field Management of Chemical and Biological Casualties (FCBC)
APG, MD
https://ccc.apgea.army.mil/courses/in_house/FCBC.htm |
| Feb 6-8 | 23rd Annual SO/LIC Symposium & Exhibition
Washington, DC
http://www.ndia.org/meetings/2880/Pages/default.aspx | Mar 8-11 | Joint Senior Leaders' Course (JSLC 02-12)
Fort Leonard Wood, MO
https://www.intelink.gov/wiki/Joint_Senior_Leader_Course |
| Feb 6-11 | Hospital Management of Chemical, Biological, Radiological, Nuclear & Explosive Incidents Course (HM-CBRNE)
APG, MD
https://ccc.apgea.army.mil/courses/In_house/cbrne.htm | Mar 11-15 | Pittcon 2012
Orlando, FL
http://www.pittcon.org/ |
| Feb 7-9 | National Evacuation Conference
New Orleans, LA
http://www.nationalevacuationconference.org/Paper_Submissions.html | Mar 12 | 2012 Joint CBRN Conference and Exhibition
Baltimore, MD
http://www.ndia.org/meetings/2300/Pages/default.aspx |
| Feb 8-9 | COURSE: Respiratory Selection and Development of Chemical Cartridge Change Out Schedules
Salt Lake City, UT
http://www.drmckay.com/ | Mar 13-14 | NavExFor 2012
Virginia Beach, VA
http://defensetradeshows.com/6th-annual-navexfor-2012/ |
| Feb 21-24 | Public Health Preparedness Summit
Anaheim, CA
http://www.phprep.org/2012/ | Mar 18-23 | Medical Management of Chemical and Biological Casualties (MCBC)
APG, MD and Ft. Detrick, MD
https://ccc.apgea.army.mil/courses/in_house/MCBC.htm |
| | | Mar 19-22 | 2012 Pacific Operational Science & Technology Conference
Honolulu, HI
http://www.ndia.org/meetings/2540/Pages/default.aspx |

Email Address Change for the Chemical Biological Radiological Nuclear - Information Resource Center (CBRN-IRC)

When you have a question regarding a CBRN item or program and do not know whom to ask, you can contact the CBRN-IRC to get the answer in a timely fashion. The CBRN-IRC has been designated by the Joint Program Executive Office for Chemical and Biological Defense (JPEO-CBD) as the single point of entry for all requests for information related to the Chemical and Biological Defense Program.

Due to the current migration by the U.S. Army to a new enterprise email system, the email address for CBRN-IRC has been changed to cbrn.irc@us.army.mil. This new address should be used for all email inquiries.

You can also contact the CBRN-IRC by telephone at (309) 782-7309 (DSN 793). Our toll-free numbers are 1-800-831-4408 (USA), 0130810280 (Germany), or 0078-14-800-0335 (Korea). Our staff are on duty 24/7 to answer your call.

If you have never called the CBRN-IRC, contact us the next time you have a CBRN question and are not sure where to get the answer. The information you need is just a click or phone call away!



5th National Bio-Threat Conference **DENVER**

MARCH 27-29, 2012
Sheraton Denver Downtown Hotel

The Department of Defense's Joint Program Executive Office for Chemical and Biological Defense, Joint Project Manager Chemical Biological Medical Systems, Joint Project Manager Biological Defense, Joint Project Manager Guardian, the Department of Homeland Security, and the Environmental Protection Agency have organized the Fifth National Bio-Threat Conference to provide a forum for dialogue between government, industry, academia, and first responders to address critical issues in environmental sampling, bio-detection, clinical diagnostics, biosurveillance, and more!

WHY ATTEND:

A critical component of combating the biological threat is to ensure that our Warfighters, first responders, and laboratory technicians are prepared and equipped.

- » First responders from military and civil defense can exchange techniques, ideas, and lessons learned
- » Industry professionals will demonstrate new and innovative equipment and methodologies
- » Leaders in the sampling and detection communities can exchange strategies for defending our homeland

REGISTER TODAY!

www.sampling-conference.com

info@sampling-conference.com

(410) 297-2300





New CBRNIAC Information Resources

Davis, Michael J., Janke, Robert, and Thomas N. Taxon. **Assessing Potential Impacts Associated With Contamination Events in Water Distribution Systems: A Sensitivity Analysis.** Cincinnati, OH: U.S. Environmental Protection Agency, 2010.

http://oaspub.epa.gov/eims/eimscomm.getfile?p_download_id=500026



"This study examines the adverse effects of contamination events in water distribution systems using models for 12 actual systems that serve populations ranging from about 104 to over 106 persons. It extends previous work (Davis and Janke 2010) and provides an improved understanding of the nature of the adverse effects that could be associated with contamination events. The results presented support water utilities, their consultants, and researchers in conducting contaminant vulnerability analyses and designing and implementing contamination warning systems." (Summary)

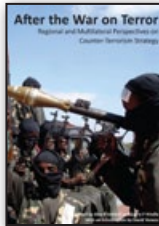
CB-197657

U.S. Environmental Protection Agency
National Homeland Security Research Center
26 West Martin Luther King Drive
Cincinnati, OH 45268
Phone: (513) 569-7907

Schmid, Alex P. and Garry F. Hindle. **After the War on Terror. Regional and Multilateral Perspectives on Counter-Terrorism Strategy.** London: RUSI Books, 2009.

http://www.rusi.org/downloads/assets/After_The_War_On_Terror.pdf

"After the War on Terror presents strategic expertise and detailed regional analyses to propose new directions for policy. The book is a joint initiative with the Centre for the Study of Terrorism and Political Violence (CSTPV) at the University of St Andrews and has been produced with the generous support of Lloyd's of London. It is a collection that demonstrates the complexity and nuance of the current threat from Islamist terrorism, highlighting current flaws in strategy and options for change." (Foreword)



CB-200978

The Royal United Services Institute
for Defence and Security Studies (RUSI)
Whitehall London SW1A 2ET United Kingdom
Phone: +44 (0)20 7747 2600

Offenhauer, Priscilla. **Defense Nuclear Facilities Safety Board: The First Twenty Years.** Washington, DC: Library of Congress, 2009.
<http://www.dnfsb.gov/sites/default/files/About/Attachments/DNFSB%20Twenty%20Year%20Report.pdf>



"This study captures how the [Defense Nuclear Facilities Safety] Board met the competing national security, health and safety, environmental, government, and public demands placed upon DOE's defense nuclear facilities, explicating the principles and techniques the Board employed to efficiently

function as a federal agency and effectively fulfill the Board's unique mandate under the Atomic Energy Act of 1954, as amended." (Preface)

CB-194653

Federal Research Division
Library of Congress
101 Independence Ave SE
Washington, DC 20540-4840
Phone: (202) 707-3900

Decker, Debra K. **Before the First Bomb Goes Off: Developing Nuclear Attribution Standards and Policies.** Cambridge, MA: Harvard Kennedy School, 2011.

http://belfercenter.ksg.harvard.edu/files/Decker_DP_2011_FINAL.pdf

"Nuclear forensics and attribution are the new "deterrence" concepts against illicit use of fissile material. Although the science is being developed, the required systems of policies and processes have not been fully analyzed. This paper attempts to show how nuclear attribution can advance from theory to practice by establishing multilaterally coordinated policies and procedures and by replicating systems that have worked in other disciplines." (Abstract)

CB-199891

Belfer Center for Science and International Affairs
Harvard Kennedy School
79 JFK Street
Cambridge, MA 02138
Phone: (617) 495-1914



Métivier, Henri. **Chernobyl: Assessment of Radiological and Health Impacts. 2002 Update of Chernobyl: Ten Years On.** Paris: OECD Nuclear Energy Agency, 2002.

<http://www.oecd-nea.org/rp/reports/2003/nea3508-chernobyl.pdf>

"On 26 April, 1986, the Chernobyl nuclear power station, ..., suffered a major accident which was followed by a prolonged release to the atmosphere of large quantities of radioactive substances...It now appears, therefore, the right moment to review our knowledge of the serious aspects of the accident's impact, to take stock of the information accumulated and the scientific studies underway e.g. the UNSCEAR 2000 document, IAEA documents, etc; as well as to assess the degree to which 10 national authorities and experts have implemented the numerous lessons that the Chernobyl accident taught us. ...This new report, prepared for the Committee on Radiation Protection and Public Health (CRPPH) of the OECD Nuclear Energy Agency, does not differ from the former description of the accident, but brings new data on the health status of the population and a new view on environmental contamination." (Executive Summary)

CB-198344

OECD Nuclear Energy Agency
Le Seine Saint-Germain
12, boulevard des Îles
92130 Issy-les-Moulineaux
France
Phone: + 33 1 45 24 82 00



Eminent MRICD Scientist Retires After 41 Years of Service

By Cindy Kronman, USAMRICD

Internationally known scientist, supportive mentor, and dedicated friend are how coworkers and colleagues describe Dr. David Lenz, who recently retired from the US Army Medical Research Institute of Chemical Defense (MRICD) after 41 years of federal service.

"What a wonderful career I have had as a result of working here," said Lenz, in a farewell email to coworkers.

"This is an institution filled with people with small egos and people with big compassion and concern for each other, truly wanting to work together for the success of the mission," continued Lenz. "It has been my good fortune to benefit from that atmosphere. I have learned much from everyone I worked with and that has enriched my scientific life as well as my personal life."

Lenz, a research chemist, came to work for the US Army Biomedical Laboratory, as MRICD used to be called, in November 1969. In the succeeding years, he made an indelible mark on the medical chemical defense research program through his innovative thinking, diplomacy, leadership, and management capabilities. In recognition of his achievements and dedication to the nation, upon his retirement Lenz received the Department of the Army Superior Civilian Service Award and the Department of the Army Decoration for Exceptional Civilian Service; the latter is the highest honorary award that can be given to civilians by, or on behalf of, the Secretary of the Army.

"Dr. Lenz's contributions are immeasurable," remarked Maj. Lee Lefkowitz, who until recently was Lenz's division chief and now serves as MRICD's executive officer. "He is one of the most educated, intelligent, outstanding scientists I know, and he is meticulous in applying scientific rigor to the research process."

Arriving at the lab with a background in the enzyme acetylcholinesterase, a primary target of chemical warfare nerve agents, Lenz eventually expanded his knowledge on inducing antibodies specific for nerve agents. According to Dr. John Petrali, of MRICD, Lenz's "positiveness" that antibodies to these chemicals could be developed inspired their team to pursue the research, and in the early 1980s, Lenz's collaborative efforts with Dr. K. W. Hunter Jr. of the Uniformed Services University of the Health Sciences led to the development of the first monoclonal antibodies to the nerve agent soman.

From the early 1990s onward, Lenz spent much of his career working on an innovative prophylactic approach to protection against the lethality of chemical warfare nerve agents: the use of enzymes that occur naturally in the human body to scavenge the agent. These bioscavengers attach to the nerve agents, preventing their toxicity and providing extended protection without causing side effects, behavioral effects, or the need for extensive therapy.

The big picture was always Lenz's focus when looking at a problem and how to solve it, explains institute researcher Donald Maxwell.



Dr. David Lenz (right) discusses a molecular model of the bioscavenger candidate human paraoxonase 1 with a nerve agent docked in the active site with co-investigator Dr. Douglas Cerasoli and Col. Brian Lukey, who was the commander of MRICD in 2006 when Lenz's research team received the Center of Excellence grant the NIH.

"Dave always said, 'Don't work on little things,'" recalled Maxwell, "Work on the big problems and the little ones will come along." Maxwell also described Lenz as having "a knack for working with groups of people." This knack, and Lenz's inherent diplomacy, was evident in the development of the bioscavenger program.

Lenz, along with coworkers at MRICD and colleagues at other government and private organizations, began exploring the use of stoichiometric bioscavengers, in which one molecule of enzyme binds one molecule of nerve agent. The result was the development of a first-generation bioscavenger called butyrylcholinesterase, a protein that was isolated from expired human blood. This was followed by a second generation recombinant form, expressed in the milk of transgenic goats. Both the plasma-derived and recombinant forms of human butyrylcholinesterase were selected for advanced development and transitioned to clinical trials. However, because the stoichiometric bioscavenger approach requires a large amount of enzyme to be effective, Lenz and his team began exploring the development of catalytic bioscavengers in which the enzyme can continuously destroy the nerve agent.

Initially, the research was funded predominantly by the Department of Defense. Then in 2006, the expertise of Lenz and his team at MRICD, as well as that of a team of collaborators at international and academic organizations, was recognized with the award of a five-year Center of Excellence grant, worth \$14,400,000, from the National Institutes of Health CounterACT program. The grant to develop novel bioscavengers consisted of six projects and two core functions. The partner organizations include the Human Biomolecular Research Institute, San Diego; The Weizmann Institute in Israel; the Department of Plant, Cellular, and Molecular Biology, The Ohio State University; The Biodesign Institute at Arizona State University; and the Department of Chemistry, The Ohio State University.

Continued pg. 16

Retirement *cont.*

Lenz's deft management skills and diplomacy in leading this broad, highly coordinated international effort resulted in several significant achievements: the development of a new class of surrogate nerve agent compounds, the first example of a catalytic scavenger capable of affording protection against a broad spectrum of nerve agents, and the unique expression of recombinant proteins in plants.

Lenz also served as a permanent member, as well as study director, of the pyridostigmine bromide (PB) integrated product team (IPT). The team's purpose was to organize research projects to support the submission of post-marketing studies to the Food and Drug Administration in conjunction with a New Drug Application (NDA) authorizing the use of PB as a pretreatment in conjunction with currently fielded therapy for poisoning by the nerve agent soman.

"This effort over the last 3 years," said Capt. Robert Brodnick, chief of MRICD's Physiology and Immunology Branch, "represents the first Good Laboratory Practices study successfully completed at MRICD, and Dr. Lenz's invaluable experience and oversight of the study...resulted in the retention of PB as a drug for military use."

From late 2001, in addition to his research efforts and oversight of the NIH grant, Lenz served as the contracting officer's technical representative on a contract with Battelle Memorial Institute entitled "A Medical Research and Evaluation Facility and Studies Supporting the Medical Chemical Defense Program." The contract, with a current value of approximately \$36 million, includes 33 active research tasks, addressing studies to provide needed data for an FDA new drug submission for midazolam, the development of synthesis strategies for making current and new oximes, the evaluation of bioscavengers as a defense against inhalation exposure to nerve agents, the testing of new treatments of sulfur mustard burns, and late stage development testing of a new oxime.

Throughout his career, Lenz mentored high school and college students and post-doctoral fellows. He employed six National Research Council post-doctoral fellows in his lab, including Dr. Douglas Cerasoli, who transitioned to a civilian position and became his co-investigator on the NIH CounterACT Center of Excellence grant. Lenz was also MRICD's coordinator for the George Washington University Summer Science and Engineering Apprentice Program, from 1986-2001, under which he oversaw the placement of more than 130 high school students in the institute. Additionally, Lenz initiated MRICD's participation in the Oak Ridge Institute of Science and Engineering intern program and served as the program coordinator at the institute.

Lenz authored or coauthored over 90 open literature publications, 150 presentations, and 6 patents. He is the recipient of an Army Research and Development Achievement Award for 1999 for "Bioscavengers and Immobilized Enzymes for Protection against Chemical Warfare Agents," as well as of several Army Science Conference awards, including the 1972 Paul A. Siple award for best paper, first place for best paper in



In the 1990s Dr. David Lenz (right) and Dr. Clarence Broomfield, who retired in 2001, were pioneers of MRICD's program to develop bioscavenger protection against poisoning by chemical warfare nerve agents.



Dr. David Lenz was always a supportive mentor to students in his lab. For many years at the MRICD he managed the summer high school student apprentice program and the Oak Ridge Institute Science and Engineering intern program, which he introduced to MRICD.

the Life Sciences category in 1998, and a bronze award for a paper in 2004.

Lenz's recognized expertise led to his serving in numerous capacities on various scientific committees, panels, and conferences. For example, for five years Lenz served as the chair of the NATO Technical Group 004 (TG-004) on Prophylaxis and Therapy against Chemical Agents, and was a member of the International Scientific Committee for the 10th International Cholinesterase meeting in Croatia in 2009; Lenz was also an invited session chair for the meeting. In 2010, Lenz was the organizing chair for MRICD's biennial science conference, the Medical Defense Bioscience Review.

He is a member of numerous national scientific professional societies to include the American Chemical Society (ACS), Sigma Xi (The Scientific Research Society), and the American Society of Biological Chemistry and Molecular Biology. Additionally, Lenz served on the editorial boards of the journals *Biochemical Pharmacology*, *Toxicology and Applied Pharmacology*, *Analytical Biochemistry*, *Biochimica et Biophysica Acta*, *Life Sciences*, *Journal of Agricultural and Food Chemistry*, *Archives of Toxicology*, and *Journal of Pharmacology and Experimental Therapeutics*.

At a luncheon in his honor, Lenz received many accolades. Foreign colleagues sent letters expressing their gratitude and well wishes. There were also letters and notes from President Barack Obama, Lt. Gen. Eric Schoomaker, commander of the US Army Medical Command and The Army Surgeon General, Greg Stevens, the Army Medical Department (AMEDD) civilian corps chief, and past commanders. Schoomaker sent an AMEDD 30-year medallion to be presented to Lenz in recognition of his significant contributions to the overall success of the AMEDD. In addition, Lenz was appointed a Distinguished Member of the Army Medical Department Regiment, acknowledging his long career and many contributions to the Army and the AMEDD Regiment. Lenz's wife, Betty, was appointed an Honorary Member of the Regiment. Brig. Gen. Timothy Adams, commander of the Public Health Command (PHC) and a former MRICD commander, gave Lenz a Veterinary Corp and a PHC coin. Col. Peter Schultheiss, MRICD's commander, presented Lenz with one of his commander coins, and Stevens sent a civilian corps chief coin along with his letter. ♦

A Site to See in the History of CBRN Defense

The CBRNIAC will spotlight points of interest in the history of CBRN Defense.

If you would like your organization to be considered for this feature, please send text and graphics to newslettereditor@battelle.org

Dugway Proving Ground, Utah



Military and civilian groups of all types regularly take the Advanced Chemical and Biological Incident Response Course (ACBIRC) at Dugway Proving Ground, Utah. Part of the course involves authentic scenarios using a simulated hotel, post office and cafe. Participants may find a simple spill, or an elaborate lab, all replicated to show what a terrorist group or rogue nation might use. (Photo by Stacy Smenos / US Army)

The public land set aside in 1942 to create Dugway Proving Ground (DPG), in the remote desert of northwestern Utah, has a long pre-DPG history. Clovis-pattern stone projectiles were discovered on DPG in 2008, pushing back Paleo-Indian habitation in the area to at least 11,000 years ago. They may be ancestors of the Goshute Indians, who today have two reservations near DPG.

The first white men in the DPG area were fur trappers, passing through in 1826. After the discovery of gold in California in 1848, the area became more traveled. Most stuck to an established route just outside DPG's land, where freshwater springs were more common. This route, still open to public travel, crossed the Dugway Mountains from which DPG gets its name. Beginning in the 1850s, oxen teams hauled freight along the route. From 1860 to 1861, Pony Express riders carried the mail between Missouri and California. In 1861, the nation's first transcontinental telegraph line was laid along the route. An established stagecoach route, among its passengers were Mark Twain and Horace Greeley.

After the Civil War, the DPG area saw a little mining and ranching but its remoteness, lack of water and sparse resources dashed success. The nation's first transcontinental road, the Lincoln Highway (New York to San Francisco), crossed future DPG land in 1913. A wooden bridge of that highway remains standing on DPG, unused and protected. By 1935, the Lincoln Highway was replaced by a better highway, 40 miles north of DPG. The first U.S. Army transcontinental motorized convoy (Washington, D.C. to San Francisco) went across future DPG land in 1919; brevetted Lt. Col. Dwight D. Eisenhower was among its officers.

The remote, dry land was deemed ideal in 1942 for testing biological and chemical weapons because it had so little public use.

United States Army Dugway Proving Ground

The attack on Pearl Harbor in 1941 jarred the United States and its military forces. The Nation suddenly realized a need for increased military capability in many areas, which included expanded knowledge in chemical and biological warfare.

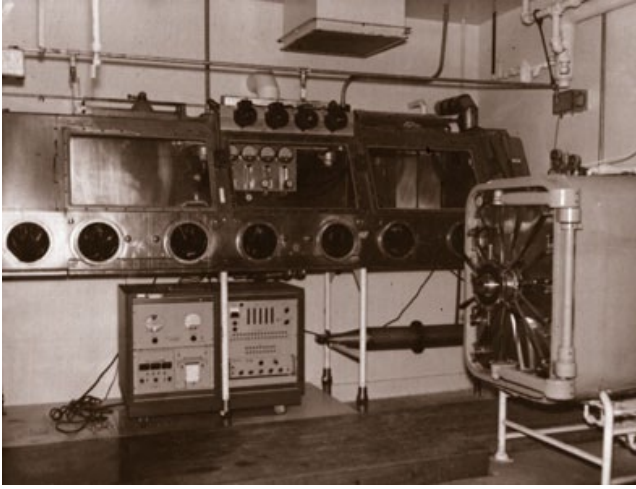
On February 6, 1942, President Franklin D. Roosevelt withdrew an initial 126,720 acres of Utah land from the public domain for use by the War Department. Six days later DPG was established, with official activation on March 1. Testing was under way by that summer.



DPG was authorized to fill the need for testing weapons and defenses against chemical and biological weapons of mass destruction. Important projects during this early period included testing incendiary bombs, chemical weapons, and modified agents as spray disseminated from aircraft. Testers also did pioneer work on mortars.

Continued pg. 18

Over the years, the proving ground underwent various name changes and periods of deactivation and reactivation. In 1943, the Army established biological warfare and testing facilities at DPG. The size of the installation was increased in 1945, when part of the Wendover Bombing Range was transferred to proving ground operations.



After the war, the proving ground combined with the Desert Chemical Depot to form a single Command called the Dugway Desert Command, later renamed the Western Chemical Center. The installation was then placed on a standby.

In 1950, the center resumed active status, and acquired an additional 279,000 acres of land for exclusive use. Work continued through the 1950s, with new responsibilities being added as defense weaponry evolved. In 1954, DPG was confirmed as a permanent installation.

In 1968, the Fort Douglas-based Deseret Test Center and DPG combined and became known as the Deseret Test Center. This alliance lasted until 1973, when the present DPG became part of U.S. Army Test & Evaluation Command (TECOM) headquartered at Aberdeen Proving Ground, Md. In 1999, TECOM became the Developmental Test Command (DTC), aligned under the Army Test & Evaluation Command (ATEC) in Alexandria, Va.

The present day DPG now covers 798,214 acres. In addition to chemical and biological defensive testing, environmental characterization, and remediation technology testing Dugway is

the Defense Department's leader in testing battlefield smokes and obscurants. Testing now includes further determining the reliability and survivability of all types of military equipment in a chemical or biological environment. ♦

Learn more about Dugway Proving Ground and its role in CBRN Defense online at <http://www.dugway.army.mil/>

1942–1945

Dugway Proving Ground was established in 1942 during WWII as a proving ground for chemical weapons. Shortly after its establishment, biological warfare testing and evaluation were also being carried out at the facility. Both chemical and biological testing have continued since the establishment of DPG, although open-air tests were banned in 1969. During WWII, the work at DPG played an important role in the development of weapons used in battle (incendiary and smoke) and weapons that were to be used as important elements of military stratagems. After WWI, it was clear that enemy forces had access to and were developing new chemical weapons. Although chemical weapons did not play a large role in WWII, the Allies and Axis powers felt the need to continue developing weapons and defensive measures in order to be prepared in the event of a chemical weapon attack.

At DPG, into the 1960's, researchers carried out airplane spray tests of unthickened and thickened mustard at various altitudes to develop the technique of air-spraying; to determine the effect of the height and speed of the plane as well as meteorological conditions of the atmosphere, upon the spray; and to evaluate agents and apparatus. Planes dropped incendiaries on facsimile German and Japanese buildings to enable investigators to learn what happened when bombs of certain types struck enemy structures.

To learn more about the history of Dugway Proving Ground, visit <http://www.dugway.army.mil/index.php/index/content/id/19>



USAMRIID Welcomes New Leadership with Change of Command Ceremony

By Caree Vander Linden, USAMRIID

Fort Detrick said farewell to one outstanding officer and welcomed another as Col. Bernard L. DeKoning assumed command of the U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID) Sept. 27, 2011. He replaces Col. John P. Skvorak, who is retiring from the U.S. Army after more than 25 years of active duty service.

A board-certified family physician who received his Doctor of Medicine degree from Rush Medical College in Chicago, Ill., DeKoning most recently served as Director of Clinical & Healthcare Business Operations (J3B) Joint Task Force, National Capital Region-Medical, in Bethesda, Md.

"Never in my wildest dreams did I think I'd command such an internationally recognized organization," said DeKoning. "I'm excited about USAMRIID's future."

DeKoning has held a variety of military positions overseas, from his first assignment as Commander of the 6th General Dispensary in Brunssum, The Netherlands to leading the 30th Medical Command in Heidelberg, Germany. His numerous stateside posts have included Chief of Family Practice Service at Eisenhower Army Medical Center, Fort Gordon, Ga.; Combat Developer, Army Medical Dept. Center and School, Fort Sam Houston, Texas; Command Surgeon, U.S. Army Training and Doctrine Command, Ft. Monroe, Va.; and Assistant Surgeon General for Force Projection at the Pentagon. Prior to directing Clinical & Healthcare Business Operations for the Joint Task Force, DeKoning served as Command Surgeon for the Multi-National Security Transition Command-Iraq and as Senior Medical Advisor to the Iraq Ministry of Defense and Ministry of Interior.

During the change of command ceremony, Maj. Gen. James K. Gilman, commanding general, U.S. Army Medical Research and Materiel Command and Fort Detrick, praised DeKoning's experience, calling him an example of the quality leadership within the Army Medical Department.

Gilman also thanked Skvorak, who had served as commander since June 2008, for steering the Institute through its "toughest times" - a reference to the FBI's naming of USAMRIID scientist Dr. Bruce Ivins as its sole suspect in the anthrax mail attacks in July 2008. Dr. Ivins committed suicide before he was indicted, and USAMRIID was subsequently thrust into the national spotlight.

Under Skvorak's leadership, USAMRIID passed inspection after inspection, setting a new standard for the Army's biological surety program, Maj. Gen. Gilman noted. He also praised Col. Skvorak for his commitment to establishing and supporting the Containment Laboratory Community Advisory Committee, a local body formed at the recommendation of the National Academy of Sciences to improve communication between containment laboratories and local citizens.

"Over and over, he faced his toughest critics with factual information," Gilman said.

"Three years and three months is a long time to command, by any stretch. It was an extremely long time under these circumstance...Col. Skvorak has simply been the best."



He also commended USAMRIID's employees for their dedication, saying "their commitment to protect Americans...has never strayed" despite the controversy.

USAMRIID is a subordinate laboratory of the U.S. Army Medical Research and Materiel Command.

Visit USAMRIID online at <http://www.usamriid.army.mil/>

Visit USAMRMC online at <https://mrmc-www.army.mil/>

Total Electronic Migration System (TEMS) has Retired!

The Defense Technical Information Center (DTIC) announced the retirement of TEMS, effective Monday, Nov. 14, 2011. However, the entire TEMS collection and critical capabilities are now available through DTIC Online Access Controlled (DOAC), the gateway to DTIC's products and services.

We encourage you to bookmark DOAC (<https://www.dtic.mil>) for your searching needs. Through DOAC you can access nearly 1,300,000 TEMS records and almost 500,000 full text documents collected by the Information Analysis Centers (IACs). You can also broaden your search to include additional relevant resources DTIC offers.

If you need assistance while searching, contact us at dtic-online@dtic.mil or call 1-800-CAL-DTIC or 1-800-225-3842 (703-767-8274, DSN 427-8274).

Let your voice be heard! Visit DTIC CARES and provide feedback on your DTIC experience at <https://ca.dtic.mil/pubs/survey/caessuiteofservices.htm>



NRC to Inspect Fuel Cycle Facilities on Preparations for Natural Disasters

U.S. Nuclear Regulatory Commission

October 6, 2011

"The Nuclear Regulatory Commission has directed inspections of major fuel cycle facilities to verify that licensees are adequately prepared to cope with the consequences of natural phenomena such as earthquakes and floods."

<http://pbadupws.nrc.gov/docs/ML1127/ML11279A216.pdf>

CBR Defense Milestone Achieved with 50th Installation of Biological Detection System Aboard a Navy Surface Ship

By Chief Petty Officer John Joyce

Defense Video & Imagery Distribution System

October 5, 2011

"The U.S. Navy's initiative to protect 128 warships with a new Chemical, Biological and Radiological defense capability reached a significant milestone, a Navy CBR Defense official announced Oct. 5. The installation of the Joint Biological Point Detection System..."

<http://www.dvidshub.net/news/78061/cbr-defense-milestone-achieved-with-50th-installation-biological-detection-system-aboard-navy-surface-ship>

NNSA Assists with the Creation of New Emergency Operations Center in Mexico City

NNSA Press Release

October 4, 2011

"Officials from the Department of Energy's National Nuclear Security Administration (NNSA), the U.S. Embassy Mexico City and the Mexican National Commission for Nuclear Safety and Security (CNSNS) today dedicated a new emergency operations center in Mexico City. The emergency operations center will provide advanced communication technology to promote enhanced cooperation between the Government of Mexico and US agencies to detect and prevent nuclear or radiological emergencies."

<http://nnsa.energy.gov/mediaroom/pressreleases/mexicoeoc10411>

NNSA, Federal Customs Service of Russia Equip Every Border Crossing in the Russian Federation with Radiation Detection Systems

September 22, 2011

NNSA Press Release

"The National Nuclear Security Administration (NNSA) and the Federal Customs Service of Russia (FCS Russia) announced today the completion of their joint work on equipping all Russian border crossing points with sophisticated technology designed to stop nuclear and radiological smuggling."

<http://nnsa.energy.gov/mediaroom/pressreleases/fcsraddetect92211>

NNSA Completes Ion Beam Laboratory Ahead of Schedule, Under Budget

September 22, 2011

NNSA Press Release

"The National Nuclear Security Administration (NNSA) today announced that it has completed the Ion Beam Laboratory (IBL) in

Albuquerque, New Mexico...built at Sandia National Laboratories and was six months early and \$5.5 million under budget."

<http://nnsa.energy.gov/mediaroom/pressreleases/ionbeam92211>

Japanese Smallpox Vaccine Shows Promise in U.S. Testing

Global Security Newswire

September 20, 2011

"A decades-old smallpox vaccine created in Japan tested strongly in comparison with a licensed U.S. treatment, the Center for Infectious Disease Research and Policy reported on Friday."

http://gsn.nti.org/gsn/nw_20110919_9639.php

Siemens Quits the Nuclear Game

World Nuclear News

September 19, 2011

"The head of German industrial giant Siemens has said the company will withdraw its remaining nuclear power offerings and leave the industry."

<http://www.world-nuclear-news.org/print.aspx?id=30773>

St. Andrews University Promoting its Certificate in Terrorism Studies

Homeland Security Newswire

September 16, 2011

"The University of St. Andrews is promoting a program leading to a certificate in it terrorism studies (offered on-line)."

<http://www.homelandsecuritynewswire.com/st-andrews-university-promoting-its-certificate-terrorism-studies>

Lasers Could Be Used to Detect Roadside Bombs

Layne Cameron

Michigan State University News

September 16, 2011

"A research team at Michigan State University has developed a laser that could detect roadside bombs..."

<http://news.msu.edu/story/9780/>

Japan Accident Cuts Nuclear Power Growth in Half

Dave Flessner

Times Free Press

September 15, 2011

"The aftershocks from the March earthquake that crippled Japan's Fukushima nuclear plant are still rumbling across the global nuclear power industry, cutting in half previous projections about the number of new reactors to be built in the next two decades, a top industry leader said today."

<http://www.timesfreepress.com/news/2011/sep/15/japan-accident-cuts-nuclear-power-growth-half/>

FDA Establishes Foodborne Illness Outbreak Response Network

FDA NEWS RELEASE

September 14, 2011

"The U.S. Food and Drug Administration (FDA) announced today a streamlined, integrated approach to effectively and rapidly respond to human and animal foodborne illness outbreaks: the FDA Coordinated

Continued pg. 21

Outbreak Response and Evaluation (CORE) Network.”
<http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm271742.htm>

New Materials Hold Promise for Better Detection of Nuclear Weapons

Homeland Security Newswire

September 13, 2011

“Northwestern University scientists have developed new materials that can detect hard radiation...”

<http://www.homelandsecuritynewswire.com/new-materials-hold-promise-better-detection-nuclear-weapons>

NRC Allows Closure of Yucca Mountain Nuclear Dump

Matthew Daly

Associated Press

September 11, 2011

“A divided Nuclear Regulatory Commission on Friday allowed the Obama administration to continue plans to close the controversial Yucca Mountain nuclear waste dump in Nevada.”

<http://abcnews.go.com/Politics/wireStory?id=14482985>

Nature New Focus of USF Lab Targeting Biological Terror

Lindsay Peterson

Tampa Bay Online

September 10, 2011

“...the USF Center for Biological Defense is focused on a different kind of threat—the emerging infections cooked up by Mother Nature, whom lab supervisor Andrew Cannons called “a much better terrorist than man could ever be.”

<http://www2.tbo.com/member-center/share-this/print/?content=ar256686>

General Dynamics to Add Chemical-Threat Detection-On-A-Chip Technology to Infantry Software-Defined Radio

John Keller

Military & Aerospace Electronics

September 8, 2011

“U.S. Army researchers are asking military communications experts at General Dynamics C4 Systems in Scottsdale, Arizona, to install a chemical-detection and wireless-networking chip in an advanced infantry radio for rapid detection and warning of chemical, biological, radiological, and nuclear (CBRN) threats on the battlefield.”

http://www.militaryaerospace.com/index/display/article-display/4623324806/articles/military-aerospace-electronics/embedded-computing/2011/9/general-dynamics_to.html

UN Watchdog Says Libyan Chemical Weapons Secure

The Associated Press

September 7, 2011

“Libya’s remaining chemical weapon stockpiles are believed to be secure despite the turmoil that has roiled the country since February...”

<http://www.google.com/hostednews/ap/article/ALeqM5jZOn0Ekykw6bwZJGGskr6hcu5qmg?docId=1fbd2c83b44949f4ad9a93023a06bbf4>

Richard Price, In Memoriam

Richard Mayer Price, aged 78, of Kaneohe, Hawaii died on October 2, 2011 at the Veteran’s Community Living Center in Martinez, California after a struggle against brain cancer.



Richard was born on March 25, 1933 to Sam and Estelle Price in New Orleans, the oldest of five children including Sam Jr., Patricia, Lionel and Rebecca. He started college at Tulane University, but enlisted in the Navy at age 17, after attending Jefferson Military College in Natchez, Mississippi from 1943 through high school graduation, and served a combat tour in the Korean War. He joined the USAF’s Air Cadet program, graduated at the top of his class and traveled with assignments in the Military Airlift Command, the Philippines, Thailand, Germany and Spain. After 30 years of military service, he retired as a full Colonel in the USAF, with a BA in economics and an MA in communication. His first wife, Anne Ashford, with whom he had three daughters, Kathryn, Diane and Sandra, preceded Richard in death. In 1984, he married Barbara Breidenbach Saunders and became a wonderful stepfather to Evan and Jennie Saunders. Together Richard and Barbara started a business in international defense consulting, (Applied Science and Analysis, ASA) with the intent to combine his love of travel with opening and maintaining communications in defense. Richard made his mark both nationally and internationally as a professional devoted to improving international communications in chemical, biological and radiological (CBR) defense and counter terrorism. His hard work is memorialized in the Chemical Biological Medical Treatment Symposium (CBMTS) and the ASA Newsletter, which he worked so assiduously with Barbara to create and support. He will always be remembered as a man full of life and a loving husband, father and grandfather, who doted on his dogs. He is survived by his wife, five children, and ten grandchildren. As he would say, “OK, Gang. It’s time!” He will be missed by all.

Donations in Richard M. Price’s memory can be made to the International Institute for NonProliferation Studies, +1-703-319-2031 and www.CBMTS.org or The Musella Foundation For Brain Tumor Research & Information, Inc., 1100 Peninsula Blvd, Hewlett, NY 11557, www.virtualtrials.com/price, +1-516-295-4740. An award decided by a small board of specialists will be made in his name at the CBMTS IX meeting in May 2012 for innovations in nonproliferation communication.

The ASA Newsletter is available online at <http://www.asanltr.com/>

For more information about the Chemical Biological Medical Treatment Symposium, go to <http://cbmts.org/>

CBRNE Capabilities Showcase Promotes Networking Among Employees and Customers

The U.S. Army Edgewood Chemical Biological Center (ECBC) hosted the second annual Team Chemical, Biological, Radiological, Nuclear and Explosives (CBRNE) Showcase Sept. 22, 2011 at the Edgewood Area of Aberdeen Proving Ground, Md.

Approximately 750 individuals participated in the first day of the Showcase, offering Team CBRNE workforce members and community leaders the occasion to share valuable information with each other about their resources and capabilities. The Showcase incorporated a series of poster displays and exhibits focused on expanding the understanding of Team CBRNE's role in providing life-saving solutions to the warfighter.

Team CBRNE participating organizations included ECBC, Assembled Chemical Weapons Assessment, Chemical Materials Agency, Defense Threat Reduction Agency, Joint Program Executive Office, Medical Research Institute of Chemical Defense, U.S. Army Public Health Command and 20th Support Command.

To kick off the event, ECBC Technical Director Joseph D. Wienand said that the goal of the Showcase was to educate, inform and build partnerships among the eight participating organizations.



ECBC Technical Director Joseph D. Wienand welcomes participants to the Team CBRNE Showcase. Photo credit: U.S. Army Research, Development and Engineering Command Public Affairs Office



Exhibitors shared their technologies with the ECBC workforce and CBRNE community members. Photo credit: U.S. Army Research, Development and Engineering Command Public Affairs Office

The first day of the Showcase featured more than 40 exhibitor booths, as well as vehicles and mobile laboratories. The participants' exhibits and vehicles consisted of a number of CBRNE technologies, including mobile laboratories that have the ability to go anywhere in the world and test for chemical threats, an explosive ordnance disposal bomb suit to protect the warfighter and a Sentinel truck that provides the Army with a mobile communications center, including video teleconferencing capabilities and a secure computer network.

The showcase continued on Sept. 23, with a focus on science, technology, engineering and mathematics (STEM) education and its importance in the lives of today's youth. Nearly 400 local students from Harford and Cecil counties were invited to experience the exciting CBRNE technologies and research techniques that are usually beyond their reach. Exhibitors gave students a snapshot of their careers and engaged them in real-world hands-on activities in various STEM fields.

Wienand noted that "in sharing the important work that each CBRNE team does here at Edgewood, we are helping to better protect the nation against current and future chemical and biological threats." The success of the event gave Team CBRNE employees, customers and community members the opportunity to build relationships and work toward a safer future for the warfighter and the nation.

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

CBRNIAC Success Story

Risk Communication Guide for Air Force Bioenvironmental Engineers



Customer

Air Force Medical Support Agency, Bioenvironmental Engineering Directorate

Challenge

Air Force Bioenvironmental Engineering (BE) blends engineering and preventive medicine to identify and evaluate potentially hazardous environments and use data from these evaluations to help design measures that prevent illness and injury to Airmen, employees, and families. BE is responsible for clearly, accurately, and effectively communicating risk information in an understandable way about topics related to occupational and environmental health hazards that may cause concern about health, safety, and the environment. BE may be a frontline risk communicator or—more often—part of a team with other Air Force communicators providing essential information to Air Force leadership and stakeholders. Existing materials were not designed for the hazards and situations BE typically face. A method was needed to provide over 1,200 BE stationed worldwide with practical approaches tailored to their responsibilities for effectively communicating risk.

Approach

To effectively and efficiently meet the need, CBRNIAC subject matter experts (SMEs) in risk communication recommended a customized risk communication guide. The development of the guide took place

in two phases. In Phase One, CBRNIAC SMEs conducted background research and developed recommended content and an annotated outline for future full development of a customized risk communication guide. This phase included conducting case study interviews with Air Force personnel for six actual incidents or scenarios. Phase Two encompassed the full development of guide content including examples of all types of hazards BE face, such as chemical, nuclear, and radiological hazards. This phase also included conducting an additional 10 case study interviews.

Value

This guide provides foundational risk communication information, how-to tools and techniques, and reference material tailored specifically to the daily BE work environment in an easy-to-navigate format. It integrates practical tools, practices, and actual Air Force case studies to help in planning and executing proactive risk communication activities, positively reinforce the use of effective risk communication, and provide Air Force references and examples to promote relevancy. This guide is being distributed throughout the Air Force Bioenvironmental Engineering community.

For additional information, contact Andrew Walker at walkerja@battelle.org.

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