



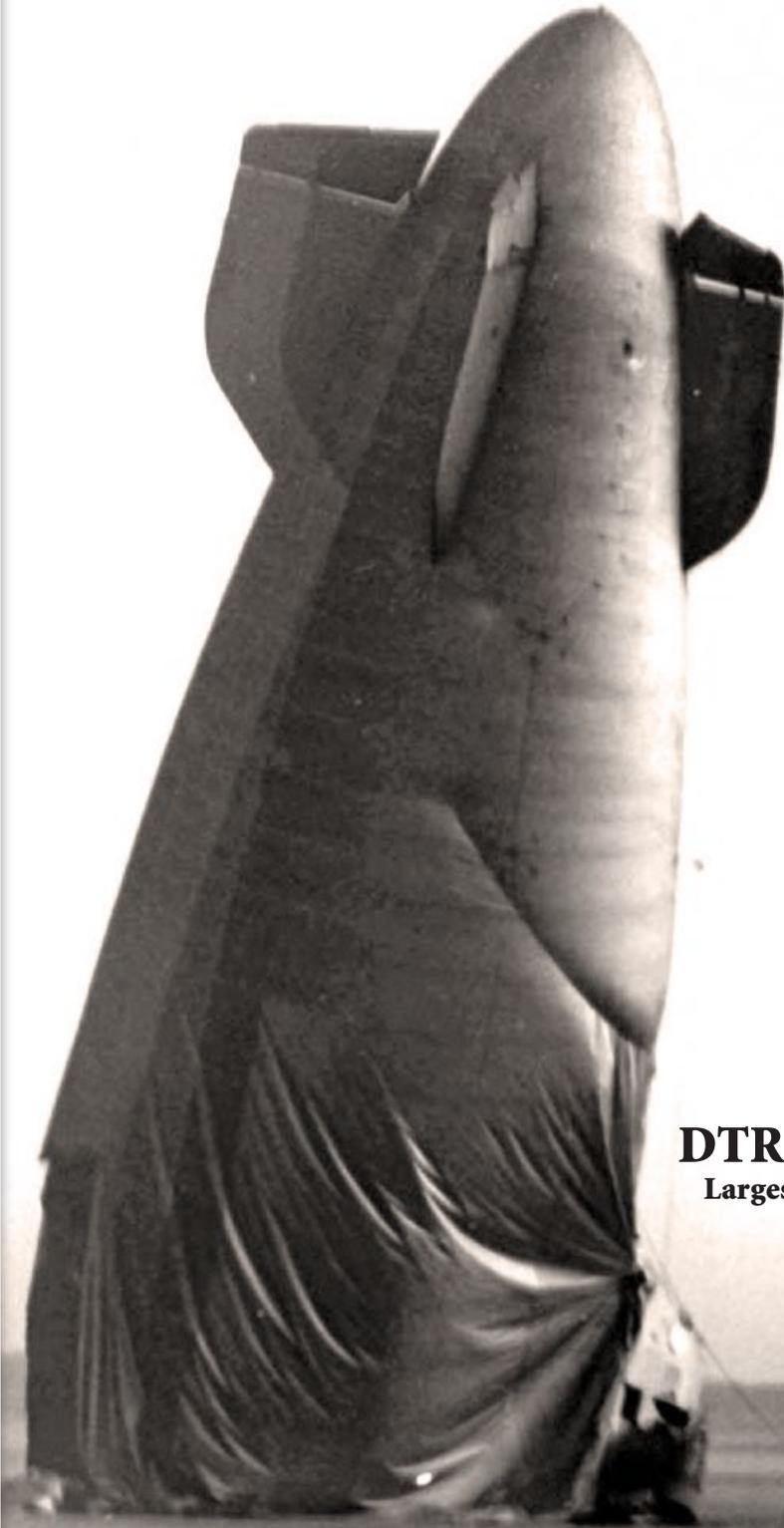
CBRN IAC

Newsletter



*Chemical, Biological, Radiological & Nuclear Defense
Information Analysis Center*

Volume 12 Number 3
2011



DTRIAC Celebrates 50th Anniversary Largest Nuclear Data Repository is a Vital National Resource

**Eager Lion 2011 Roaring Success
for 20th Support Command (CBRNE) Personnel**

**Charlotte Fire Dept. Haz-Mat & North Carolina
National Guard 42nd CST Exercise for WMD Events**



Your Program, Project, or Research can be highlighted in the *CBRNIAC Newsletter*!

The *CBRNIAC Newsletter* is your information forum linking chemical, biological, radiological, and nuclear (CBRN) defense research communities and providing information resources for the first responder community. Our readers are members of the CBRN Defense community and those tasked to provide Homeland Security and Defense, including State and local Government agencies and Emergency and First Responders.

CBRNIAC announces the most recently posted newsletter via email to over 8,000 members of the CBRN Defense and Homeland Security communities. The newsletters are also archived in PDF on our publicly available Web site.

For article guidelines, visit http://www.cbrniac.apgea.army.mil/products/newsletter_article.php or email newslettereditor@battelle.org.

Conference Announcements in the *CBRNIAC Newsletter*

Government agencies sponsoring CBRN Defense and/or Homeland Security events generally related to the mission and scope of the CBRNIAC may submit announcements for conferences, workshops, symposiums or courses to be published in the *CBRNIAC Newsletter*. Details and information about graphics and copy requirements can be found at <https://www.cbrniac.apgea.army.mil/Products/Newsletter/Advertise/Pages/default.aspx>.

The CBRNIAC reserves the right to edit submissions. All announcements are subject to the review and approval of the CBRNIAC management and COTR. Questions and copy can be sent to cbrniac@battelle.org or newslettereditor@battelle.org.



Photo by 100th Mobile Public Affairs Detachment, Army National Guard Spc. Suzanne Carter

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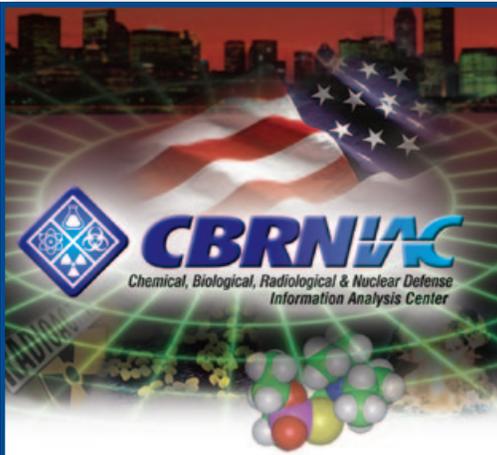
On the Cover: High-altitude balloon test, Stokes, conducted in 1957 at Nevada Test Site as part of Operation Plumbbob. These tests contributed to the development of warheads for intercontinental and intermediate range missiles. The tail, or "After" section of a U.S. Navy Blimp is shown with the Stokes cloud in background. The blimp was in temporary free flight in excess of five miles from ground zero when it was collapsed by the shock wave from the blast. The airship was unmanned and was used in military effects experiments on blast and head. Navy personnel on the ground in the vicinity of the experimental area were unhurt. On the ground to the left are remains of the forward section.

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

All advertisements 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.



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

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ATTN: AMSRD-ECB-AP-T (CBRNIAC COTR)
5183 Blackhawk Road
Aberdeen Proving Ground, MD 21010-5424

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

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

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





DTRIAC Celebrates 50th Anniversary

Largest Nuclear Data Repository is a Vital National Resource

By Patricia Chavez, DTRA Public Affairs

Would you believe that the largest collection of historical nuclear-related information is housed at Kirtland Air Force Base (KAFB), New Mexico?

Indeed it is. The Defense Threat Reduction Information Analysis Center (DTRIAC) is the Department of Defense (DoD)'s official repository for all scientific and technical data pertaining to nuclear weapons. It is one of the first and the largest of DoD's 19 Information Analysis Centers (IAC) and has been serving the nation for five decades.

The Defense Threat Reduction Agency celebrated the Defense Threat Reduction Information Analysis Center (DTRIAC) 50th anniversary at KAFB with a cake-cutting ceremony and a ribbon-cutting for their newly-renovated warehouse on July 21.

The DTRIAC's repository holds nearly 230,000 documents, 10 million linear feet of film and two million photos and is designed to store collections on nuclear effects, providing an accessible library of information.

"It is wonderful to be here today to recognize the outstanding work of the DTRIAC," said Kenneth Myers, DTRA Director, during a 50th Anniversary celebration held at the DTRA headquarters building. "It has built important partnerships across the community as a result of its outstanding work and service. The Air Force Institute of Technology, the Naval Post Graduate School, The Air Force Nuclear Weapons Center, the National Defense University and National Labs have all benefited from the work of DTRIAC and are better able to execute their missions as a result of the Center."

Myers also lauded the work done by DTRIAC personnel who aggressively sought orphaned collections of invaluable information on weapons effects, making it easily accessible by consolidating and cataloging information such as semi-truck sized loads of documents from the Air Force Weapons Lab and the Nevada Test Site.

For five decades, the DTRIAC has been a vital resource of nuclear and radiological information to the nation.

Past Data Helps Predict Future Performance

DTRIAC supports all of the Agency's mission areas. It maintains and expands the DTRA Scientific and Technical Information (STI) collection, responds to hundreds of technical inquiries annually, provides remote access to the digital collection through the Scientific Technical Information and Archival Research System (STARS), and mans the Agency STI Support Center.

"Today, the DTRIAC has a focused initiative in place to preserve and digitize the backlog of approximately 10 million feet of film and approximately 230,000 documents," according to Lt. Col Craig Hess, DTRIAC Program Manager. "A vast amount of digitized data is already available via STARS, and new system enhancements will soon make research efforts even easier for customers."

The enormity of the DTRA mission, the DTRIAC collection, and the existence of other relevant non-DTRIAC resources often require significant technical and subject matter expertise to perform the required research and analysis support. The DTRIAC team is comprised

Continued pg. 5



Above, left: Bravo was the largest detonation conducted by the U.S. in Bikini Atoll as part of a high yield thermonuclear weapon design test series. Above, center: The first thermonuclear device, Mike, conducted in 1952 at Enewetak Toll as part of Operation Ivy. Above, right: Fireball from the MET (Military Effects Test), a 22 kiloton yield shot, was conducted in 1955 at the Nevada Test Site to study shock phenomena. DTRIAC provides an accessible library to the DoD community of historical nuclear-related information.

of both domain experts and information specialists who can effectively and efficiently research and analyze WMD data to support specific user needs.

“The staff prides themselves on superior customer service, as they have been for the last 50 years, and stand ready to continue to support the ever-evolving needs of the research development community and the warfighter,” says Hess.

Given its history, DTRIAC is uniquely poised as a growing data center for information on other threats, such as radiological weapons (“dirty bombs”), high-yield explosives, and related phenomenology associated with chemical or biological threats.

As new CBRNE threats continue to emerge as terrorists invent new means to accomplish their mission, DTRIAC continues to provide both information and technical analysis support across the full spectrum of all CBRNE threats. This support is often fulfilled through cooperative efforts with other agencies and IACs, such as CBRNIAC, to service the needs of the threat reduction community as a whole.

DTRIAC’s History throughout Five Decades

What is now DTRIAC began in July 1961 as the Data Center in the Defense Atomic Support Agency (DASA), an early predecessor of the Defense Threat Reduction Agency (DTRA). As a result of the 1958 moratorium on nuclear weapon testing, knowledgeable nuclear researchers began leaving the field. Thus, DTRIAC (formerly DASA Data Center) was established to collect early test results and provide access to and analysis of these data by knowledgeable personnel.

The DTRIAC’s major interest in the 1960’s was the effects of high-altitude nuclear bursts on telecommunications. In the 1970’s, the DTRIAC developed increased interest in x-ray and electromagnetic pulse (EMP) effects and considered blast and ground shock associated with low-altitude and surface detonations. The DTRIAC supported DTRA’s interest in simulation activities and testing and began publishing technical handbooks to provide weapons effects information in an authoritative form.

The DTRIAC continued with its traditional emphasis in the 1980’s, but began to branch out into other areas: Strategic Defense Initiative (SDI) research, policy analysis, and tactical nuclear warfare, as well as non-nuclear areas. It also began to conduct research related to treaty verification. During this period, the film collection increased significantly, consisting of still photos, motion picture films and videotapes from both atmospheric and underground nuclear tests and simulation programs. These media continue to provide documentary record of experiment setup, execution, and post-test analysis. They also provide record of explosion

phenomena that can affect military concepts and construction of physical structures.

The technical area task work increased significantly throughout the 1990’s, and its collection expanded as the staff began to search out and obtain “orphaned” nuclear and radiological data collections. During this period, a significant decision was made to develop, operate and maintain an electronic database—the Data Archival and Retrieval Enhancement (DARE) system—which contained all of the DTRIAC’s scientific and technical information (STI). The DTRIAC was the first DoD Information Analysis Center to embark on this capability, which provided data at approved users’ desktops, greatly increasing the value and utility of the DTRIAC to the government and the scientific community. DARE was upgraded and replaced with Scientific Technical Information and Archival Research System (STARS) in the late 1990s.

DTRA safeguards America’s interests from weapons of mass destruction (chemical, biological, radiological, nuclear and high explosives) by controlling and reducing the threat to the United States and its allies, and providing quality tools and services for the warfighter. This Department of Defense combat support agency is located at Fort Belvoir, Virginia, and operates field offices worldwide. ◆

For more information about DTRIAC, send an email to dtriac@dtra.mil or visit DTRIAC online at <http://www.dtriac.dtra.mil>.

DTRIAC has re-established its newsletter, *The Dispatch* to help educate and inform both current and potential new users of their archives and services. Read the first issue online at http://www.dtra.mil/DTRIAC/DTRIAC_Dispatch.aspx.



Above: Jeffrey Thomas, DTRA-ABQ Asst. Chief of Staff, and DTRA Facilities civilian and contractor personnel, cut the ribbon on the newly renovated DTRIAC warehouse. The renovation will significantly increase storage and working space.



Left: John Stocker, DTRA Inspections and Education Division Chief, and U.S. Army Maj. Gen. David Fastabend (Ret.), Advanced Information Systems/ITT Vice President, cut into the DTRIAC 50th Anniversary cake during the ceremony. [Photos by Patricia Chavez, DTRA Public Affairs]

Highlighting DTRIAC Technical Advisor

Byron Ristvet, Ph.D.

A Historian and True Advocate for Knowledge Preservation

By Patricia Chavez, DTRA Public Affairs

The Defense Threat Reduction Information Analysis Center (DTRIAC), formerly the Defense Atomic Support Agency Data Center (DASIAC), was moved in 1995 from Santa Barbara to the Defense Threat Reduction Agency (DTRA), formerly the Defense Nuclear Agency (DNA), located at Kirtland Air Force Base (KAFB), New Mexico. The move was made to make the center more cost effective, centrally located and more accessible to customers as the technical area task work increased significantly due to the increased focus in obtaining orphaned collections of scientific and technical data pertaining to nuclear weapons.

After the relocation, Dr. Byron Ristvet became the first DASIAC Project Manager at KAFB. He was ripe for the job, with decades of experience conducting underground nuclear and convention nuclear simulation tests and analyzing data as a nuclear containment scientist for DNA, and having served several years as the Defense Nuclear Weapons School's Academic Dean, directing the development of much of the school's "new" curriculum. In addition to assisting with DASIAC's relocation, he was instrumental in developing the current "business model" used by DTRIAC of "core activities" and "technical area tasks."

At the beginning of his career, he spent an extensive amount of time at the DASIAC in Santa Barbara looking for technical photography that would help in understanding weapons effects. After earning his Ph.D. in Geology at Northwestern, his first active duty assignment was with the Air Force Weapons Laboratory on a DNA program. This also began a big part of his life's work—the professional and personal quest for knowledge preservation of scientific and technical nuclear data.

"As a geologist, I was asked to investigate and understand the geology of cratering and ground shock resulting from nuclear detonations. Because I knew a lot about coral reefs, they sent me out to Enewetak Atoll and Bikini Atoll to understand the large-yield nuclear craters. At the time, we didn't understand the phenomenology of crater formation very well and a large uncertainty existed in crater size predictions. The craters produced by 1950's megaton yield near-surface nuclear testing showed a big disparity in the prediction in size versus calculations. "We needed to resolve this disparity as it affected the estimates of the survivability of our land-based missile systems and our ability to target enemy systems," said Ristvet.

During his search for nuclear data, he was, in part, directed to the DASIAC by a Los Alamos National Laboratory (Los Alamos) scientist after viewing photos archives at the lab. He discovered the work of the Air Force's 1352d Motion Picture Squadron at Lookout Mountain Air Force Station (Lookout Mountain), Los Angeles. The studio, which was referred to as the "top secret film studio", provided classified motion picture and still photographs of nuclear tests between 1947 and 1969 to the U.S. Department of Defense and the Atomic Energy Commission (now the Department of Energy). After the studio was deactivated in

1969, the films and photographs were sent to Norton AFB and later to Travis Air Force Base, California, and then finally to DASIAC, Santa Barbara for storage and cataloging.

"On my first visit to Santa Barbara, I went down to a dusty basement and with the help of Ed Martin was able to locate aerial photographs of craters right after the detonations, including lots of photos of the detonations that verified the liquefaction phenomenology that had occurred during the crater formation process". It took us another 10 years to fully understand this phenomenology, but the technical photography that had been taken was a great help in understanding the mystery of these craters," said Ristvet.

Subsequently, Ristvet began his campaign within DoD to preserve and track this historical documentation. Today, DTRIAC has cataloged and organized all the original caption books associated with these films. DTRIAC still has the original storage containers, silver aluminum "Hollywood" cans, for the B-rolls with the original markings. They are still in the process of doing an inventory on these films said Ristvet, who estimates that 65% of these films are still marked as classified, although many can be downgraded following review.

An expert in nuclear test readiness, Ristvet has distinguished himself as a historical expert and archivist on the subject also. His work includes extensive review and analysis of thousand of films, photographs, and documents relating to weapons effects testing. Because of his experience, he is one of two agency Scientific and Technical Information (STI) Deputy Managers for the review of all agency STI.

He continues to be a technical advisor to DTRIAC and is often sought after for his vast knowledge of historical testing and nuclear and conventional weapons effects. He has contributed to such works as the Nevada Test Site Oral History Project compiled by the University of Nevada. Earlier this year, the University of Illinois, in Champaign, invited Ristvet to hold a lecture on the history of Lookout Mountain.

There is a reason why the Lookout Mountain lab was established, said Ristvet during the lecture. "The U.S. started filming nuclear tests with the first test series, Operation Crossroads, in 1946 in Bikini. There were two events, both using the 23 kiloton Fat Man device. The first one was dropped by a B29—29,000 feet up—and the bomb was supposed to go off at 1800 feet above the *U.S.S. Nevada*. There was an array of target ships anchored out in the lagoon. They missed the target by 2500 feet. The bomb went right off on the *U.S.S. Gilliam*, a frigate, which held many of the cameras on it. All the 16 and 35mm film immediately went to the bottom, resulting in no post-mortem review. So with this lesson learned, the Army Air Corps was asked and made the decision to set up the studio site."

Continued pg. 7

Ristvet *cont.*

The Lookout Mountain studio produced millions of feet of classified film and hundreds of thousands of still photos. The facility located on Wonderland Ave. in Hollywood, California was just as equipped as a major film studio.

"They set up a world-class studio, sending some of the military officers assigned there to USC film school to learn cinematography. They also recruited civilian personnel from major motion picture studios. They were real artists and excellent professionals who worked on over 1,000 documentary and training films," said Ristvet.

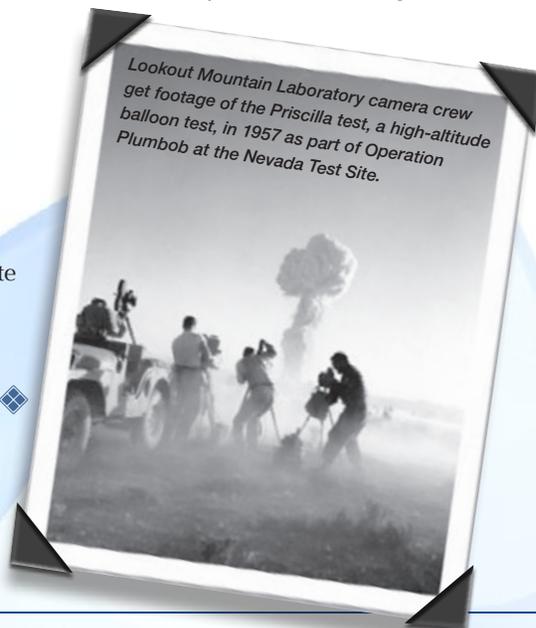
DTRIAC's vast collection includes photos and films from Lookout Mountain, critical in understanding weapons effects and documenting nuclear history. "One of the primary jobs of Lookout Mountain was to capture cloud rise photography on the initial detonation," shared Ristvet during the lecture. "The lab took a little over 600,000 still photographs for the atmospheric nuclear program. The photos were predominately used to document nuclear weapons effects experiments which were fielded under the sponsorship of the Armed Forces Special Weapons Project or the Defense Atomic Support Agency."

"As a nation, we continue to worry about nuclear proliferation. We still learn a lot from the data today, we re-analyze it and often look at the data in terms of terrorist threats," said Ristvet.

Ristvet holds an immeasurable amount of historical knowledge in his brain, which would take an entire library for a normal person to contain. Few have such knowledge, and he has devoted his life's work not only to the preservation of this knowledge but to sharing it as an educator and mentor. He continues to instruct Department of Defense military and government personnel in national security and nuclear matters. He also mentors students in formal programs such as the Sandia National Laboratories Weapons Intern Program, the Underground Nuclear Weapons Testing Orientation Program, and informally, providing access and guidance to researchers using this invaluable information.

Ristvet's impressive career includes over three and half decades of combating weapons of mass destruction including counterproliferation, nuclear and conventional weapons effects, hard and deeply buried target defeat, counter-terrorism, and nonproliferation through cooperative threat reduction.

Currently, Ristvet is devoting most of his time to nuclear remediation work at a former Russian Semipalatinsk test site in Kazakhstan as a part of the DTRA's Cooperative Threat Reduction program. 



About DTRA / SCC-WMD

DTRA is the U.S. Department of Defense's official Combat Support Agency for countering weapons of mass destruction. Our people are Subject Matter Experts on WMD, and we address the entire spectrum of chemical, biological, radiological, nuclear and high yield explosive threats.

DTRA's programs include basic science research and development, operational support to U.S. warfighters on the front line, and an in-house WMD think tank that aims to anticipate and mitigate future threats long before they have a chance to harm the United States and our allies. SCC-WMD, the U.S. Strategic Command Center for Combating Weapons of Mass Destruction, synchronizes Combating Weapons of Mass Destruction efforts across our military's geographic commands and leverages the people, programs and interagency relationships of DTRA at a strategic level. We work with the military services, other elements of the United States government, and countries across the planet on counterproliferation, nonproliferation and WMD reduction issues with one goal in mind: Making the World Safer.

Since DTRA stood up in October 1998 and SCC-WMD in August 2005, the Department of Defense and other federal agencies have increasingly looked to both for support and advice. Both organizations' responsibilities span the full range of activities necessary to combat and respond to WMD proliferation and use. At home and abroad, DTRA and SCC-WMD deliver mission success against a very real and growing threat.

Learn more about DTRA at the web site at www.dtra.mil.



Sculptural portrayal of the Defense Threat Reduction Agency's official seal, located at the Defense Threat Reduction Center, Ft. Belvoir, Virginia. (DTRA photo)



Contract Awards

Advanced Research and Development of Chemical, Biological, Radiological, and Nuclear Medical Countermeasures

Avaxia Biologics, Inc.
Wayland, MA

\$2,968,110

Apogee Biotechnology Corporation
Hummelstown, PA

\$2,095,095

August 2, 2011

By Department of Health and Human Services, Washington, DC

\$950,000,000 (potential)

July 5, 2011

By Defense Intelligence Agency, Washington, DC

Helmet Electronic and Display System - Upgradeable Protection (HEaDSUP) Army Technology Objective (ATO)

ARTISENT, INC.

Boston, MA

\$1,545,884

June 30, 2011

By U.S. Army Natick Contracting Division, Natick, MA

Help Expand and Improve the Nation's Bio-Surveillance Capability and Address Emerging Threats to the Intelligence Community National Consortium for the Study of Terrorism and Responses to Terrorism (START)

University of Maryland
College Park, MD

Georgetown University

Washington, DC

Harvard University

Cambridge, MA

University of Washington

Seattle, WA

Northrop Grumman

Los Angeles, CA

SAIC

McLean, VA

\$75,000,000 (baseline)

August 1, 2011

By Office of the Director for National Intelligence, Washington, DC

Develop Concepts for the U.S. Army Natick Soldier Research HEaDSUP ATO Program

REVISION MILITARY LTD.

Essex Junction, VT

\$1,990,340

June 30, 2011

By U.S. Army Natick Contracting Division, Natick, MA

Phase II of a Multi-Year, Multi-Phase Research and Development Contract to Develop a Mobile, Ruggedized Stand-Off Radiation Detection System With Identification Capabilities

FLIR Systems, Inc.

Portland, OR

\$1,100,000

June 17, 2011

By Defense Threat Reduction Agency, Fort Belvoir, VA

Research and Development Efforts in the Area of Modeling, Simulation, and Analysis for Chemical Biological Smoke and Obscurants

ITT Corporation

Alexandria, VA

\$9,000,000

June 17, 2011

By U.S. Army Contracting Command, Aberdeen Proving Ground, MD

Funding the Admiral Elmo R. Zumwalt Jr. National Program for Countermeasures to Biological and Chemical Threats

Institute of Environmental and Human Health (TIEHH) TexasTech
Lubbock, TX

\$1,100,000

July 13, 2011

By U.S. Army Research, Development and Engineering Command, Aberdeen Proving Ground, MD

Support Implementation and Compliance of International Treaties and Agreements, Arms Control Monitoring, and Space Policy Development

Science Applications International Corporation

McLean, VA

\$89,000,000

June 14, 2011

By U.S. General Services Administration Federal Systems Integration and Management Center, Washington, DC

High Efficiency Solid State Neutron Detector System

Curators of the University of Missouri Kansas City Office of Research
Administration

Kansas City, KS

\$50,000

July 7, 2011

By Department of the Navy, Office of Naval Research, Arlington, VA

Lead a Multi-Institution Consortium That Will Support the Nation's Nuclear Nonproliferation Mission Through the Training and Education of Experts in the Nuclear Security Field

University of California, Berkeley

Berkeley, CA

\$25,000,000

June 9, 2011

By National Nuclear Security Administration, Washington, DC

Assessing the Potential Consequences of Subsurface Bioremediation: Fe-Oxide Bioreductive Processes and the Propensity for Contaminant-Colloid Co-Transport and Media Structural Breakdown

University of Tennessee

Knoxville, TN

\$1,260,162

July 7, 2011

By USACE HEC, Ft. Belvoir, VA

29 Fully-Integrated Dual Sensor Persistent Threat Detection Systems (PTDS)

Lockheed Martin Mission Systems and Sensors

Akron, OH

\$184,000,000

June 3, 2011

By U.S. Army Contracting Command, Aberdeen Proving Ground, MD

CBAT (CBRNE and Biometrics Applications & Technologies) IDIQ

Battelle Memorial Institute

Columbus, OH



Eager Lion 2011 Roaring Success for 20th Support Command (CBRNE) Personnel

By Maj. Carol McClelland, 20th Support Command (CBRNE) Public Affairs

Fifteen Soldiers and civilians from the 20th Support Command recently travelled to Jordan to take part in a major bilateral exercise.

Eager Lion 2011, held June 11–30, 2011, was a bilateral strategic cooperation exercise between Jordan and the U.S. that focused on irregular warfare, special operations and counterinsurgency. Part of U.S. Central Command's Cooperative Defense Program, it was designed to help participants prepare for current security challenges during deployments in support of global contingency operations in joint and interagency environments.

The 20th Spt. CBRNE personnel, who participated in the exercise in Jordan from June 20–28, 2011, shared their chemical biological, radiological, nuclear and high yield explosives [CBRNE] experience and expertise with their Jordanian counterparts. They presented seminars and held capability and table-top exercises with Jordanian forces on CBRNE issues and provided counter-IED [Improvised Explosive Device] survivability.

“We demonstrated the 20th’s capability to cover the entire CBRNE spectrum from the national strategic level all the way down to the tactical,” said Lt. Col. James Parrack, Weapons of Mass Destruction Coordinating Element-4 chief and team lead for the exercise.

One tactical portion of the exercise the 20th team advised on was in the explosive ordnance disposal domain with a focus on IEDs.

“Soldiers from the 20th helped prepare the Jordanian EOD soldiers to survive in an IED environment,” Parrack said. “This professional development increases the Jordanian soldiers’ awareness of IEDs and ultimately increases their survival in a theater of operations where IEDs are a threat.”

Approximately 60 Jordanian Explosive Ordnance Disposal [EOD] technicians aligned with several Soldiers from the 71st Ordnance Group (EOD) from Ft. Carson, Colorado, to receive classroom instruction on the hazards of IEDs and listen to EOD technicians share recent combat experiences and lessons learned.



Staff Sgt. Eusbio Perez, the sample/analytcs NCO of B / 110th Chemical Battalion (Technical Escort), explains details of the equipment he and his team use to representatives of the Jordanian Defense Forces and the Jordanian Chemical Support Unit at their headquarters June 23 during Eager Lion exercise. (Courtesy photo)

“Eager Lion 11 has allowed the EOD camaraderie that’s found amongst all services in the U.S. to be extended to the Jordanians and expand the EOD brotherhood that all soldiers value and respect,” said Sgt. Maj. Juan Ponce, counter IED lead, following the exchange of information. “Bilateral exercises allow EOD soldiers of the world to come together in an effort to stay ahead of the ever changing and fast growing IED threats found within our own nations and theaters of war.”

With about 3,000 Jordanians and U.S. participants, in addition to contributors from 14 other countries spread across six different locations as part of the exercise, it might have been easy to get lost in the shuffle. But Ponce was proud of the impact the 20th Spt. CBRNE teams made in the exercise that was geared toward enhancing operational readiness, quick deployment and rapid response in crisis.

“We’re in the crawl phase of ‘crawl, walk, run,’ with some of the subject matter,” the sergeant major said. “Our intent was to expose the Jordanians to some of the CBRNE-related material. After each EOD obstacle, for example,” Ponce said, “we’d do an immediate after action review where we’d go over the actions their soldiers took, then said, ‘this is the way we do it.’” All the instructors involved have two to three deployments worth of experience already, he said.

Continued pg. 10

The 20th Spt. CBRNE Soldiers were also able to brief senior Jordanian Defense Force officials on different aspects of the CBRNE Response Team, the identification of biological agents and material, as well as a host of weapons of mass destruction-related issues.

Following an overview of the CBRNE Response Team's organization and capabilities, attendees were invited to examine and operate each of the equipment items, according to Elmore Smoak Sr., senior CRT lead, making the event at the King Abdullah Special Operations Training Center a "hands-on" experience. He said Jordanians from their army, police force, chemical support units, civil defense and Nuclear Regulatory Commission also attended a radiological table-top exercise where radiological subject matter experts from the 20th offered information on topics like the technical aspects of radiation decay and protection methods that included using robots and armored vehicles for detection and sampling operations, as attendees worked through the scenario.

In addition to the radiological table-top exercise, a biological one involved discovery of an unknown, powdery, white substance that had the Jordanians discussing everything from coordination of response from their Ministry of Defense and other civil authorities, to how to keep the public informed.

"The representatives from the different Jordanian organizations had lively exchanges on how to manage the situation from a unified approach," observed Col. Mark Lovell, 20th command surgeon.



Staff Sgt. Eusbio Perez, the sample/analytics NCO from B / 110th Chemical Battalion (Technical Escort), talks about identification of biological agents and material to representatives from the Jordanian Defense Forces and Jordanian Chemical Support Unit at their headquarters June 23. (U.S. Army photo)

After the interaction, which both countries deemed a success, the 20th teams conducted their post operation checks and inspections of all their equipment, repacked their gear, then returned to their duty stations— Ft. Lewis, Washington for the CBRNE Response Team; Ft. Carson, Colorado for the EOD Soldiers; and Aberdeen Proving Ground for the radiological, biological and headquarters subject matter experts. ♦

This article appears online at
<http://www.cbrne.army.mil/Eager%20Lion%202011.htm>

Jonathan Tucker, In Memoriam

On July 31, 2011, the chemical and biological defense and nonproliferation community suffered a tragic and unexpected week with the passing of Jonathan Tucker. His remarkable career was dedicated to diminishing the threats posed by these weapons and to understanding the science and technology challenges surrounding them. Few others now working in this field have been committed to these issues for the decades that Jonathan pursued them.

Jonathan was the founding director of the Chemical and Biological Weapons Nonproliferation Program of the James Martin Center for Nonproliferation Studies (CNS) at the Monterey Institute of International Studies in Monterey, CA, after starting there in 1996. Before working at CNS, Jonathan worked on arms control and nonproliferation issues at the State Department, the Congressional Office of Technology Assessment, and the Arms Control and Disarmament Agency. From 1993 to 1995, he served on the U.S. delegation to the Preparatory Commission for the Chemical Weapons Convention in The Hague, and in 1995 he was a United Nations biological weapons inspector in Iraq. In 2008, he served as a professional staff member for the bipartisan Commission on the Prevention of WMD Proliferation and Terrorism. In 2010, he was the George Zundel Professor of Science and Technology for Peace and Security at Darmstadt University of Technology in Darmstadt, Germany. Along the way, he held positions as visiting fellow at Stanford's Hoover Institution, the U.S. Institute of Peace, and the American Academy in Berlin, and as Fulbright Senior Scholar at the German Institute for International and Security Affairs. Most recently, he ran the Biosecurity Education Project for the Federation of American Scientists in Washington, DC.

Jonathan was a prolific author whose well-regarded books include *War of Nerves: Chemical Warfare from World War I to Al Qaeda* (Pantheon, 2006); *Scourge: The Once and Future Threat of Smallpox* (Grove/Atlantic, 2001); and, as editor, *Toxic Terror: Assessing the Terrorist Use of Chemical and Biological Weapons* (MIT Press, 2000). He made countless contributions to academic journals over the years as an author, editor, and reviewer.

His passing is a great loss to our ongoing understanding of the issues about which he cared so deeply. Our condolences go out to his family, his friends, and his broader professional community.

Memoriam was adapted and is reprinted with permission from the Center for Biosecurity of UPMC. Original article, posted August 4, 2011, can be viewed at http://www.upmc-biosecurity.org/website/resources/special-features/tucker-memoriam_8-04.html.

Additional memorial articles can be found at the following Web sites:

Washington Post: http://www.washingtonpost.com/local/obituaries/biological-weapons-expert-tucker-56-was-known-for-fluency-in-politics/2011/08/02/gIQAi-IV2sI_story.html

Federation of American Scientists: <http://www.fas.org/blog/president/2011/08/in-memoriam-jonathan-b-tucker/>

Bulletin of the Atomic Scientist: <http://www.thebulletin.org/content/media-center/announcements/2011/08/03/jonathan-b-tucker-noted-biosecurity-expert-1954-2011>

Boston Globe/Obituary Stories: <http://www.legacy.com/obituaries/bostonglobe/obituary.aspx?n=jonathan-brin-tucker&pid=153125008&fhid=2133>



New CBRNIAC Information Resources

Curling, Carl A., Burr, Julia K., Danakian, Lusine, Disraelly, Deena S., LaViolet, Lucas A., Walsh, Terri J. and Robert A. Zirkle. **Technical Reference Manual: NATO Planning Guide for the Estimation of Chemical, Biological, Radiological, and Nuclear (CBRN), Allied Medical Publication-8(C)**. Alexandria, VA: Institute for Defense Analyses, 2010.
<http://dodreports.com/pdf/ada536889.pdf>

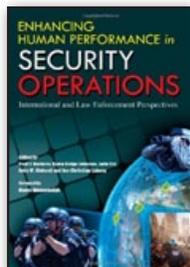


“The Technical Reference Manual (TRM) documents the development process, analyses, rationale, underlying data, and additional information utilized to establish the environments, the human response, and the casualty estimation methodologies which comprise the AMedP-8(C) methodology. ... The human response and casualty estimation methodologies employ profiles of injury severity over time to describe the human response to agents and effects and then result in an estimate of the casualty’s status.” (*Executive Summary*)

CB-194831
 Institute for Defense Analyses
 4850 Mark Center Drive
 Alexandria, Virginia 22311-1882
 Phone: (703) 845-2000

Bartone, Paul, Johnsen, Bjorn H., Eid, Jarle, Violanti, John M. and Jon C. Laberg, eds. **Enhancing Human Performance in Security Operations: International and Law Enforcement Perspectives**. Springfield, IL: Charles C. Thomas, 2010.

“In this age of terrorism, world and national security as well as policing the streets of our country have become an increasingly important objective. This book brings together international experts on stress, resiliency and performance. These experts draw on the latest research with military and police personnel to provide an integrated perspective on the psychological pressures involved in this type of work, as well as practical recommendations on how to optimize human performance in security operations.” (*Back Cover*)

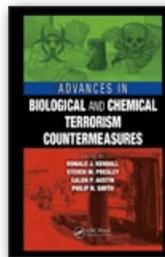


CB-158910
 Charles C. Thomas Publisher Ltd.
 P.O. Box 19265
 Springfield, IL 62794-9265
 Phone: (800) 258-8980 | ISBN: 978-0-398-07951-2

Kendall, Ronald J., Presley, Steven M., Austin, Galen P. and Philip N. Smith, eds. **Advances in Biological and Chemical Terrorism Countermeasures**. Boca Raton, FL: Taylor and Francis Group, 2008.
<http://www.scribd.com/doc/37288458/Advances-in-Biological-and-Chemical-Terrorism-Countermeasures>

“This textbook, *Advances in Biological and Chemical Terrorism Countermeasures*, is offered as a contribution to establish the state-of-the-science of research on countermeasures to biological and chemical

threat agents. Although the context of this book is heavily focused on the United States, its application should be considered global in nature.” (*Preface*)



CB-194158
 CRC Press
 Taylor and Francis Group
 6000 Broken Sound Parkway NW, Suite 300
 Boca Raton, FL 33487-2742
 Phone: (800) 272-7737

Davis, Lois M., Pollard, Michael, Ward, Kevin, Wilson, Jeremy M., Varda, Danielle M., Hansell, Lydia and Paul Steinberg. **Long-Term Effects of Law Enforcement’s Post-9/11 Focus on Counterterrorism and Homeland Security**. Santa Monica, CA: Rand Corporation, 2010.
http://www.rand.org/content/dam/rand/pubs/monographs/2010/RAND_MG1031.pdf

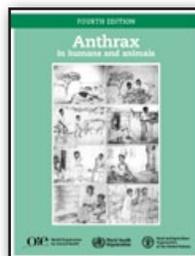
“The purpose of this study is to provide an in-depth understanding of the long-term adjustments that large urban [law enforcement agencies] LEAs have made to accommodate the renewed focus on [counterterrorism] CT and [homeland security] HS, as well as the advantages and challenges associated with it.” (*Summary*)



CB-166122
 Rand Corporation
 1776 Main Street
 P.O. Box 2138
 Santa Monica, CA 90407-2138
 Phone: (310) 451-7002

Anthrax in Humans and Animals. 4th ed. Geneva, Switzerland: World Health Organization, 2008.
http://www.who.int/csr/resources/publications/anthrax_webs.pdf

“The present fourth edition was commissioned in April 2001, initially as a simple update and expansion of the highly popular third edition. It was well on its way to completion when the notorious “anthrax letter events” took place in the USA in September to December that same year. Thus the fourth edition is now being issued seven years after it was commissioned, but it is certainly greatly improved as a result of the new information that emerged in the 3–4 years after the anthrax letter events.” (*Preface*)



CB-199168
 WHO Press
 World Health Organization
 20 Avenue Appia
 1211 Geneva 27
 Switzerland
 Phone: +41 22 791 3264



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>.

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|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Oct 17–18 | Social Media within Military and Defence 2011
London, United Kingdom
http://www.smi-online.co.uk/events/overview.asp?preview=1&is=1&ref=3793 | Oct 29–Nov 2 | APHA 139th Annual Meeting and Exposition
Washington, DC
http://www.apha.org/meetings.htm |
| Oct 17–19 | Tactical Nuclear Weapons and NATO (by invitation only)
Carlisle, PA
http://www.strategicstudiesinstitute.army.mil/events/details.cfm?q=150 | Oct 30–Nov 2 | 5th Annual EMAT Symposium
Odessa, TX
http://www.emat-tx.org/displayconvention.cfm?conventionnbr=9894 |
| Oct 17–21 | 2011 Virginia Hazardous Materials Conference & Expo
Hampton, VA
http://www.virginiahazmat.org/displayconvspecific.cfm?convnbr=9904 | Oct 31–Nov 2 | NHDF 2011 National Symposium
Colorado Springs, CO
http://www.nhdf.org/7-national-symposium/2011-program |
| Oct 20–23 | Joint Senior Leaders' Course (JSLC 01-12)
Fort Leonard Wood, MO
https://www.intelink.gov/wiki/Joint_Senior_Leader_Course | Nov 1–3 | Aircraft Survivability Symposium 2011
Monterey, CA
http://www.ndia.org/meetings/2940/Pages/default.aspx |
| Oct 21–23 | International Toxicology of Mixtures Conference
Arlington, VA
http://www.toxicologyofmixtures.com/conference-venue.html | Nov 1–4 | 4th Annual CBRNe Convergence Conference
Istanbul, Turkey
http://www.icbrnevents.com/ |
| Oct 23–28 | COURSE: Medical Management of Chemical and Biological Casualties
APG, MD and Ft. Detrick, MD
https://ccc.apgea.army.mil/courses/in_house/MCBC.htm | Nov 2 | All-Hazards/All-Stakeholders Summit 2011
Los Angeles, CA
http://www.emergencymgmt.com/events/Los-Angeles-All-HazardsAll-Stakeholders-Summit-2011.html?p=home |
| Oct 23–29 | The Homeland Security Laboratory
Tel Aviv, Israel
http://www.chameleonassociates.com/seminars/events.php?date=2011-10-23 | Nov 2–4 | Discovery on Target 2011
Boston, MA
http://www.discoveryontarget.com/ |
| Oct 24–26 | International Commission on Radiological Protection (ICRP) Symposium on the International System of Radiological Protection
North Bethesda, MD
http://www.icrp.org/ | Nov 8–9 | 8th Annual Destructive Technologies Conference
Washington, DC
http://www.ndia.org/meetings/2920/Pages/default.aspx |
| Oct 25–27 | 2011 Coast Guard Innovation Expo
Tampa, FL
http://www.ndia.org/meetings/2230/Pages/default.aspx | Nov 12–17 | IAEM 59th Annual Conference & EMEX 2011
Las Vegas, NV
http://www.iaem.com/ |
| Oct 29–Nov 2 | 2011 Emergency Preparedness & Hazmat Response Conference
Pittsburgh, PA
http://www.2011conference.net/ | Nov 14–16 | GovSec West
Phoenix, AZ
http://govsecinfo.com/events/govsec-west-2011/home.aspx |
| | | Nov 14–18 | COURSE: Field Management of Chemical and Biological Casualties
APG, MD
https://ccc.apgea.army.mil/courses/in_house/FCBC.htm |

Continued pg. 13

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|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Nov 14–18 | 2011 Chemical and Biological Defense Science and Technology (CBD S&T) Conference
Las Vegas, NV
http://cbdstconf2011.sainc.com/general_information/default.aspx | Nov 30–Dec 1 | CLEAN GULF Training & Exhibition
San Antonio, TX
http://www.cleangulf.org/ |
| Nov 15–17 | 2011 IEEE International Conference on Technologies for Homeland Security (IEEE HST 11)
Boston, MA
http://www.ieee-hst.org/ | Dec 6 | All-Hazards/All-Stakeholders Summit 2011
Miami, FL
http://www.emergencymgmt.com/events/Miami-All-HazardsAll-Stakeholders-Summit-2011.html |
| Nov 16–17 | Life Sciences Summit
New York, NY
http://www.lifesciencessummit.org/ | Dec 8 | All-Hazards/All-Stakeholders Summit 2011
Houston, TX
http://www.emergencymgmt.com/events/Houston-All-HazardsAll-Stakeholders-Summit-2011.html |
| Nov 16–18 | Immunogenicity Summit 2011
Bethesda, MD
http://www.healthtech.com/imm | Dec 8–9 | Emerging Technologies for Measuring Individual Exposomes
Washington, DC
http://dels-old.nas.edu/envirohealth/individualexposomes.shtml |
| Nov 28–Dec 1 | I/ITSEC 2011
Orlando, FL
http://www.iitsec.org/Pages/default.aspx | Dec 12–16 | 2011 International Congress on Modelling and Simulation (MODSIM 2011)
Perth, Western Australia
http://www.mssanz.org.au/modsim2011/ |

Save the Date!

JPM-TMT 2012 Partnership Symposium

May 22 – 24, 2012

Manchester Grand Hyatt | San Diego, CA

Innovate. Collaborate. Integrate.

JPM-TMT seeks innovative and collaborative partners from government agencies and laboratories, industry and academia. Our goal is to integrate cutting-edge biosurveillance models and technologies that facilitate the advanced development of broad-spectrum medical countermeasures and enhance our Warfighters' response capability to biothreats and emerging infectious diseases. This is a must-attend event! Attendees will hear valuable insights from biodefense experts, submit abstracts for presentations and funding consideration, network and exchange ideas at poster sessions and more! For more information, visit www.jpmtmt.mil.



Photo Courtesy of www.navy.mil



Joint Project Manager Transformational Medical Technologies (JPM-TMT)

Protecting the Warfighter & the Nation from Biothreats



Charlotte Fire Dept. Haz-Mat & North Carolina National Guard 42nd CST Exercise for WMD Events

*By Michael Tobin, Emergency Management Planner,
Charlotte-Mecklenburg, NC Emergency Management*



In addition, each agency had the opportunity to review the equipment inventory that is carried by the CFD Haz-Mat Team and 42nd CST. By comparing and contrasting the types of equipment used, it allows each agency to receive hands-on training on equipment that they may not use every day and to see what new equipment is available in the marketplace. By having a North Carolina State asset such as the 42nd CST train along the side of CFD Haz-Mat allows for greater sharing of abilities should these two teams meet in the future on a real incident.

The Charlotte Fire Department Hazardous Materials Team and the North Carolina National Guard 42nd Civil Support Team conducted three-days of training recently at the Charlotte Fire / Police Academy on May 3rd-5th. The purpose of the training was for both agencies to share information on response, operations capabilities and mitigation of hazardous materials and weapons of mass destruction incidents.

The training was conducted over three consecutive days to accommodate all three shifts for the CFD. Each day started with an overview of each organizations capabilities followed by an operations brief on the tasks that were to be completed during the exercise for that particular day. Multiple scenarios were conducted throughout each day which included the following scenarios: Command & Control, Chlorine Leak, Illegal Lab Operations, Radiological Detection and Decontamination Operations. Members of CFD Haz-Mat along with 42nd CST Members paired with each other to form integrated teams to respond to the various incidents. This allowed each agency to work with each other on the incident operations to mitigate a particular scenario.



Charlotte will be the host to the Democratic National Convention in September 2012 and this training is a prelude to additional training opportunities that will be held over the next year.

Agencies that participated in the exercise included the Charlotte Fire Department, NC Haz-Mat Regional Response Team 7, Charlotte-Mecklenburg Emergency Management, North Carolina Emergency Management Western Branch Office and the NC National Guard 42nd Civil Support Team. ♦

A Site to See in the History of CBRN Defense

The CBRNIAC will be spotlighting 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

U.S. Army Chemical Materials Agency- Johnston Island



The Johnston Atoll Chemical Agent Disposal System (JACADS), the Army's first full-scale chemical weapons disposal facility, was one of nine Army installations in the United States that stored chemical weapons. JACADS safely completed its mission in 2000. This mission was accomplished while protecting workers, the community and the remote island's delicate environment.

This facility served as a model of safe incineration operations, resulting in safety and process enhancements that are benefiting chemical weapons disposal efforts across the country and around the globe.

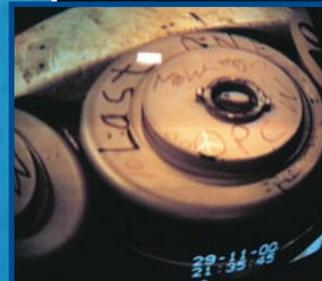
Safety and Environmental Protection

In addition to its chemical weapons disposal mission, JACADS also ensured environmental protection of the atoll. The Johnston Atoll Wildlife Refuge thrived throughout disposal operations and continues to support 13 nesting species of seabirds, five species of shorebirds, 32 species of coral and more than 300 species of fish.

Managed by the U.S. Fish and Wildlife Service, the U.S. Army sponsors research between the managing agency and the Boston University Marine Program to conduct long-term environmental studies and support continued protection of the atoll.

Public Participation and Community Relations

To learn more about the Army's chemical weapons disposal, call 410-436-3629, or call CMA's toll-free number 800-488-0648.



Top: Demolition of the explosion containment room. Above: Aerial view of Johnston Atoll, Johnston Island is prominently shown. Left: photograph of the last munition destroyed at JACADS—a nerve agent VX-filled land mine. Photos courtesy of CMA.

Continued pg. 16

History of Johnston Island

- Discovered in 1796 by Capt. Joseph Pierpont of Boston when his American brig "Sally" ran aground
- Johnston Island—one of four islands in the atoll—named for Capt. James Johnston who claimed official discovery on Dec. 10, 1807
- Annexed by both the Kingdom of Hawaii and United States in 1858
- U.S. mined guano deposits until depletion in 1890
- Officially annexed by the United States in 1898
- On July 29, 1926, President Coolidge establishes Johnston Atoll as a federal bird refuge
- Shelled by Japan shortly after the attack on Pearl Harbor
- Used as submarine supply point during WW II
- Supported airlift operations during Korean War
- Used for high altitude nuclear tests in the 1950s and 1960s
- Johnston Atoll Chemical Agent Disposal System or JACADS, the United States' first full-scale chemical weapons disposal facility, built in 1985 on Johnston Island
- JACADS disposed of approximately seven percent of the U.S. chemical weapons stockpile—more than 2,000 tons of chemical nerve and blister agents in more than 410,000 munitions

Learn more Johnston Island facts and figures at <http://www.cma.army.mil/fndocumentviewer.aspx?DocID=003673799>

BEFORE: 200-degree Fahrenheit steam coming from the pollution abatement system stack for the JACADS furnaces (photograph taken June 2001).



AFTER: The heat is off—with the permanent shut down of the last of four furnaces, JACADS personnel remove the pollution abatement system stack (photograph taken May 13, 2003).



before closure



after closure



Timeline

Executive Order 6935 transfers control of Johnston Atoll, located 825 miles southwest of Hawaii, to U.S. Navy.

U.S. Air Force assumes control.

The U.S. Army ships chemical weapons from Okinawa, Japan, to Johnston Island, one of four islands at Johnston Atoll.

Chemical weapons are stored safely on Johnston Island.

Johnston Atoll Chemical Agent Disposal System (JACADS) construction begins—the first full-scale facility in the U.S. constructed to get rid of chemical weapons. JACADS to use high heat and incineration as a disposal method.

U.S. chemical weapons are transferred to Johnston Island from former West Germany. U.S. Army begins disposal of Johnston Island chemical weapons stockpile.

Range-recovered chemical munitions received from Solomon Islands.



Continued pg. 17



NEWS RELEASE

U.S. Army Chemical Materials Agency

FOR IMMEDIATE RELEASE
Sept. 1, 2009
(410)

For more information contact:
Gregory J. Mahall, gregory.mahall@us.army.mil
436-3629

EPA Approves Army's Closure of Johnston Atoll Chemical Agent Disposal System

ABERDEEN PROVING GROUND, Md. – U.S. Army Chemical Materials Agency (CMA) officials announced today that the U.S. Environmental Protection Agency (EPA) has accepted the Army's closure of its former Johnston Atoll Chemical Agent Disposal System (JACADS). In a letter dated Aug. 18, 2009, EPA Region IX official John Beach wrote that "EPA finds that the Army has fulfilled the requirements of its JACADS Permit," and that the EPA, "accepts the Army's closure of the facility as a clean closure."

CMA Director Conrad F. Whyne said, "The official closing of JACADS has been a thorough and meticulous process. As a program, we have benefited from the lessons learned from working with the EPA." Mr. Whyne noted, "This is our first RCRA permitted lethal agent incineration facility to close and I offer my heartiest congratulations and a 'job well done' to the men and women of the JACADS team and our EPA partners. They have made the chemical weapons of Johnston Atoll history; they have made the world a safer place."

JACADS, the Army's first full-scale chemical weapons destruction facility, safely completed its mission of weapons destruction in 2000, facility demolition in 2003 and the last Army employees left Johnston Atoll by the end of 2003. This mission was accomplished while protecting the workers and the remote atoll's delicate environment.

Located on an atoll 800 miles southwest of Hawaii, JACADS represented a major milestone in CMA's history. During a 14-year period, more than four million pounds of nerve agents, GB and VX, as well as blister agent HD, were safely destroyed and the disposal facility was dismantled. Chemical agents contained in 412,798 munitions, including projectiles, rockets, bombs, and ton containers, were eliminated, reducing the overall U.S. stockpile by six percent.

The Army worked with the EPA to close the facility according to environmental standards. Closure activities involved cleaning and removing all hazardous wastes, equipment and systems used for disposal operations. Analyses were performed in all related areas to ensure that the Army met the EPA's stringent criteria.

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For more information about CMA, visit <http://www.cma.army.mil>.

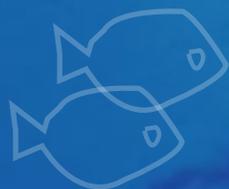
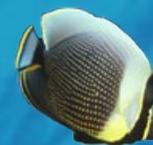
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Dedicated to environmental protection and safety of the atoll's teeming marine and wildlife, the Army arranged for scientists to monitor the atoll's bird and marine populations, beginning six years before the project started and running throughout the life of the project—20 years of extensive, continuous research and monitoring.

During the two decades of research, scientists did not observe any adverse effects from the project upon the wildlife and marine life on the atoll. Valuable experience gained at JACADS ensures success at other CMA chemical weapons disposal sites.

-from, "A Success Story, Johnston Atoll Chemical Agent Disposal System" brochure



Nerve agent VX campaign complete—destruction of all chemical weapons on Johnston Island complete on Nov. 29, 2000.
JACADS becomes the first chemical agent disposal facility in the U.S. to complete its destruction mission by destroying more than 410,000 chemical weapons.

JACADS closure starts.

JACADS destroys all legacy-contaminated charcoal.

JACADS completes stored-secondary waste destruction.

Last of four JACADS disposal furnaces/incinerators shut down.

JACADS Closure Ceremony held in Honolulu.

JACADS closure complete.

Nerve agent GB campaign complete.

Blister agent HD campaign complete.

1998

1999

2000

2001

2002

2003

2004

New MRICD Mass Spectrometry Lab Features the Latest in Technology

By Cindy Kronman, USAMRICD



Dr. Benedict Capacio (left, foreground) explains the unique capabilities of the SYNAPT G2 high definition mass spectrometer to Dr. Gerald Parker, the deputy assistant to the secretary of defense for chemical and biological defense, and Dr. Ben Petro, the principal director for chemical and biological defense, who happened to be visiting MRICD on the day the new lab opened. Col. Deborah Whitmer (background, left), MRICD's deputy commander, and Col. Peter Schultheiss, commander, accompanied the visitors. Inset: the simple, sleek design of the high definition mass spectrometer belies its powerful technology. (Photos by Darrell Jenson, MRICD)

Diagnostic and Chemical Branch as well as the spectrometer's principal operator.

"So if you want to trace the onset of some injury," explained Zydell, "and how that proteomic cascade happens throughout tissue—where it starts, where it ends, where it migrates to—a drug, a treatment, a pretreatment—you can do it [with this instrument]."

For Zydell, an important advantage to the new

The US Army Medical Research Institute of Chemical Defense [MRICD] recently introduced its newest mass spectrometry laboratory, housing a state-of-the-art Waters Corporation SYNAPT G2 high definition mass spectrometer (MS). The introduction of this new capability represents a giant leap in the institute's efforts to protect the warfighter and civilians against chemical and biological threat agents.

mass spectrometer will be its ability to enlighten investigators about mechanisms or pathways about which they were previously unaware.

Sometimes, admitted Zydell, "we don't know what we don't know, and techniques like this will help us dig into what we don't know."

The mass spectrometer is a hybrid quadrupole time-of-flight (Q-TOF) instrument combined with an ion mobility sector, which is capable of electrospray ionization or matrix-assisted laser desorption ionization (MALDI). The Q-TOF allows detection of high molecular weight compounds, and the ion mobility sector provides the unique capability of separating compounds that have identical molecular mass. This coupling of all the different MS techniques into one instrument makes this spectrometer a very versatile research tool and broadens the scope of projects possible. Additionally, the mass spectrometer can be coupled to either a nano liquid chromatograph (LC), for use with limited sample volume, or an ultraperformance LC, for use with samples in the microliter range.

As an example, future plans are to use the data from the 2-dimensional images produced by the MS to construct a 3-dimensional image, which, said Zydell, "you can literally rotate, look in and out of the tissue, so you can see what is going on where and when through time-course studies, to help us really identify what we don't know."

This newest hybrid ion mobility mass spectrometer will give the institute's investigators unprecedented capabilities to study the effects of chemical warfare agents on the molecular mechanisms and to subsequently identify potential pretreatment and therapeutic compounds.

According to Dr. Benedict Capacio, the team leader, the instrument is tuned for their first project, looking at protein digests to examine binding sites for various chemical warfare agents. Additionally, projects involving the MALDI imaging of brain slices are scheduled to determine the changes in protein that result from neuropathologic insult from nerve agents.

One of the instrument's most unique aspects is the capability to analyze intact tissue that has been mounted on a slide. Traditionally, MS studies analyze tissue samples that are prepared by techniques that disrupt the tissue's three-dimensional structure and can only confirm that the drug or analyte of interest is in the tissue.

While the Analytical Chemistry Team has already begun working with MRICD investigators to enhance various research studies, they're also looking for projects beyond the institute's doors. The MRICD is looking forward to this new research capability providing the groundwork to foster collaborations within APG as well as with academic institutes and industry partners, nationally and internationally, interested in studying the mechanisms of chemical warfare agent injury and identifying potential countermeasures for the warfighter. ♦

Maintaining the three-dimensional structure during MS analysis allows a researcher "to understand where in the tissue the drug of interest or the peptide or protein of interest is located," said Dr. Frank Zydell, who is a member of the institute's Analytical Chemistry Team in the Medical

MRICD is the nation's center of excellence for medical chemical defense research. Please visit our website at <http://usamricd.apgea.army.mil/> and our Facebook page at <http://www.facebook.com/USAMRICD>. Anyone interested in discussing collaborative research projects using the SYNAPT G2 high definition mass spectrometer can contact Dr. Benedict Capacio at Benedict.Capacio@us.army.mil or 410-436-1944.



In the News

Egypt, U.S. Delay 'Bright Star' Exercise

Agence France-Presse

August 17, 2011

"The United States and Egypt have decided to cancel a major military exercise this year due to the country's unsettled political climate, U.S. officials said Aug. 17. The exercise, dubbed "Bright Star," normally takes place every two years..."

<http://www.defensenews.com/story.php?i=7415310&c=AME&s=TOP>

1st Detect Awarded U.S. Patent for Chemical Detection Technology

1st Detect Press Release

August 8, 2011

"1st Detect Corporation, a subsidiary of Astrotech Corporation, announced today that the United States Patent and Trademark Office (USPTO) has issued a key patent for the company's unique method to drive a mass spectrometer ion trap used for chemical detection and identification."

http://www.1stdetect.com/PR_1st_Detect_Patent_Issued.pdf

U of M Researchers Discover a Natural Food Preservative That Kills Food-Borne Bacteria

University of Minnesota News Release

August 4, 2011

"University of Minnesota researchers have discovered and received a patent for a naturally occurring antibiotic—a peptide produced by a harmless bacteria—that could be added to food to kill harmful bacteria like salmonella, *E. coli* and listeria."

http://www1.umn.edu/news/news-releases/2011/UR_CONTENT_349919.html

U.S., Bangladesh Commence Operations to Prevent Nuclear Smuggling at Port of Chittagong

NNSA Press Release

August 4, 2011

"The National Nuclear Security Administration (NNSA) today announced the successful installation and start of operations of radiation detection equipment at the Port of Chittagong, Bangladesh, a significant milestone in cooperative efforts worldwide to prevent nuclear terrorism."

<http://www.nnsa.energy.gov/mediaroom/pressreleases/bangladeshmega8411>

Japan's Parliament Approves Tepco Compensation Plan

BBC News

August 3, 2011

"Japan's parliament has approved a plan to help the Tokyo Electric Power Company (Tepco) compensate victims of its tsunami-crippled nuclear plant."

<http://www.bbc.co.uk/news/business-14383832>

NNSA Provides Training to Emergency Responders In Mexico

NNSA Press Release

August 2, 2011

"The National Nuclear Security Administration (NNSA), in cooperation with Mexico's National Commission of Nuclear Safety and Safeguards and the National Center for Disaster Prevention, last week held a four-day workshop on radiological contamination and accident casualties aimed at further developing Mexico's strategic crisis response capabilities. The workshop comes as Mexico prepares for the 2011 Pan American Games to be held in Guadalajara, Mexico in October."

<http://nnsa.energy.gov/mediaroom/pressreleases/panamtraining8211>

Morphix Technologies Introduces Three New Chameleon Chemical Detection Kits

Domestic Preparedness Journal

July 25, 2011

"Morphix Technologies®...introduces three easy-to-use Chameleon chemical detection safety kits for law enforcement, first responders or fire personnel. Each convenient Chameleon kit is identified for a specific toxic gas situation."

http://www.domesticpreparedness.com/Industry/Industry_Updates/Morphix_Technologies_Introduces_Three_New_Chameleon_Chemical_Detection_Kits/

FDA, Federal Partners Develop Tools for Food-Emergency Readiness

FDA Press Release

July 20, 2011

"The U.S. Food and Drug Administration and federal partners today released the Food Related Emergency Exercise Boxed (FREE-B) set, a Web-based collection of scenarios that will help government regulators, public health organizations and the food industry test their readiness for food-related emergencies, such as a human health emergency caused by an unintentional contamination of produce with *E. coli* O157:H7."

<http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm263861.htm>

Continued pg. 20

Vol. 8 No. 1 of the Chem-Bio Defense Magazine is Now Available!

This issue of the Chem-Bio Defense magazine focuses on how the Joint Program Executive Office for Chemical and Biological Defense (JPEO-CBD) maintains its relevancy by continually adapting to change.

To view the electronic version, visit: <http://www.jpeocbd.osd.mil/packs/Magazine.aspx>



PGT Ships First Commercially Available Gamma – Neutron Scintillator Area Monitor Radiation Detection Solution

PGT News Release

July 15, 2011

“Until recently customers have relied on Helium-3 (He-3) for the detection of neutron radiation...PGT has developed and delivered the first commercially available detector package consisting of sodium iodide (NaI) for gamma detection and Lithium (Li-6) for neutron monitoring.”

<http://www.pgt.com/item/pgt-ships-first-commercially-available-gamma-neutron-scintillator-area-monitor-radiation-detection-solution.html>

Entry into Force of the U.S.-Russian Agreement to Dispose of Excess Weapon- Grade Plutonium

U.S. Department of State Fact Sheet

July 13, 2011

“Secretary of State Hillary Rodham Clinton and Foreign Minister Sergey Lavrov today exchanged diplomatic notes bringing the U.S.-Russian Plutonium Management and Disposition Agreement and its 2006 and 2010 Protocols into force. This marks another significant step in both countries’ efforts to eliminate nuclear-weapon-grade materials and to reduce nuclear dangers.”

<http://www.state.gov/r/pa/prs/ps/2011/07/168287.htm>

NRC Directs Staff to Examine Feasibility and Need of Study on Radiation Doses to Public from Nuclear Medicine

U.S. Nuclear Regulatory Commission News Release

July 13, 2011

“The Nuclear Regulatory Commission has directed the agency staff to evaluate the potential need for and feasibility of a study to determine radiation doses to members of the public due to the release of patients treated with medical radioisotopes.”

<http://pbadupws.nrc.gov/docs/ML1119/ML11194A278.pdf>

NNSA, INL Partner to Strengthen Training of U.S. Nuclear Inspectors Supporting IAEA

NNSA Press Release

July 12, 2011

“The National Nuclear Security Administration (NNSA), in partnership with Idaho National Laboratory (INL), today announced the completion of a new course aimed at strengthening the training of International Atomic Energy Agency (IAEA) inspectors from the United States.”

<http://www.nnsa.energy.gov/mediaroom/pressreleases/inspectortraining71211>

U.S. Army Center for Health Promotion and Preventive Medicine Reflagged as U.S. Army Public Health Command

APG LIVE

July 18, 2011

“The U.S. Army Center for Health Promotion and Preventive Medicine was reflagged as the U.S. Army Public Health Command during a July 11 ceremony at McBride Field on Aberdeen Proving Ground South (Edgewood). The redesignation ceremony is another step in the transformation to full operational capability of the USAPHC and in the transformation of Army Medicine to a focus on prevention, health promotion and sound lifestyle choices.”

<http://apg.armylive.dodlive.mil/2011/07/18/u-s-army-center-for-health-promotion-and-preventive-medicine-reflagged-as-u-s-army-public-health-command/>

Nuclear, Biological, and Chemical Industry Group Celebrates 15th Anniversary

The Nuclear, Biological, and Chemical (NBC) Industry Group is pleased to announce 15 years of service to the nation through fostering education, support, and unity regarding chemical, biological, nuclear, radiological, and explosive (CBRNe) matters. As the Group commemorates this important milestone it thanks its partners of the CBRNe government and corporate communities.

Since 1996 the NBC Industry Group has been dedicated to encouraging collaboration among its partners and enhancing timely solutions for the U.S. Armed Forces, other government agencies, and industry. In addition to military defense against CBRNe weapons of mass destruction (WMD), the NBC Industry Group’s interests encompass domestic preparedness against WMDs, the Chemical Weapons Convention and other treaties. Member organizations also are actively involved in CBRNe programs that include destruction of WMDs around the world.

The NBC Industry Group is a non-profit organization of 135 member companies that is dedicated to:

- Informing and educating the general public as well as Federal, State, and local Governments on NBC defense matters relating to combating Weapons of Mass Destruction, combating terrorism, and homeland security;
- Advancing the development of NBC defense capabilities that enable U.S. Armed Forces to carry out their global and domestic responsibilities; and
- Advancing the development of NBC defense capabilities that enable Federal, State, and local Governments to protect U.S. citizens and critical infrastructure from, and to respond to the effects of terrorist CBRN incidents.

On a monthly basis the NBC Industry Groups hosts a membership meeting located in the Washington DC-metropolitan area. These meetings serve as a venue to exchange information with government and commercial leaders on CBRNe current events and to discuss emerging trends, requirements, and how to conduct business with specific government organizations. Annually, the Group publishes a handbook highlighting member products and services that is widely distributed among government organizations.

“The Group provides a vibrant networking forum for collaboration and information sharing,” said Mr. Eric Reid, Chairman, NBC Industry Group. “The Group’s longevity, ever-increasing membership, and guest speaker participation and commitment over the past 15 years are all testimony to the value the organization brings to the CBRNe community.”

For more information and membership application, contact Mr. Manny Sanches, Executive Director at 703-875-0651, mannys34@aol.com or visit the Web site: <http://www.nbcindustrygroup.com>



Nuclear Disablement Team Prepped to Assume National Mission

By Maj. Carol McClelland, 20th Support Command (CBRNE) Public Affairs

A Nuclear Disablement Team from 20th Support Command (CBRNE), Aberdeen Proving Ground, Maryland, proved their readiness during an exercise that included live radiation July 24–28, 2011 at Idaho National Labs.

Nuclear Disablement Teams, or NDTs, are units made up of nuclear experts trained and equipped to disable nuclear weapons of mass destruction infrastructure; package, transport and safeguard nuclear and/or radiological materials that pose a threat to friendly forces; collect and transport samples of radiological material or nuclear WMD intelligence for forensic analysis; and conduct sensitive site exploitation operations on nuclear sites. The NDTs pull six-month rotations as part of the National Technical Nuclear Forensics task force which is made up of many different agencies including the Department of Energy, Defense Threat Reduction Agency, U.S. Strategic Command Center for Combating Weapons of Mass Destruction, Air Force Technical Application Center and the intelligence community, among others.

The exercise, held at the Idaho National Laboratory complex outside of the city of Idaho Falls, took place at a nearby forward operating base with limited facilities in a desert environment. Surrounded only by scrub vegetation, NDT 3's training led them to this exercise, the final validation test before assuming the mission from NDT 2 this fall.

"The exercise went very well especially considering this is the first time we've used real radiation and not stimulant materials," said Lt. Col. Michael Nelson, a nuclear engineer and team chief of NDT 3. He said the team went to the collection site and acquired samples using radiation detection equipment before bringing the samples back to the forward operating base. After turning the samples over to Department of Energy experts for analyzing, they peeled off layers of protective clothing and went through screening to ensure radioactive contamination was removed.



Capt. Aaron Thompson, a health physicist with NDT 3, has his vitals taken by a Federal Bureau of Investigation medic following a live radiation mission at Idaho National Laboratory. (U.S. Army photo)



Team members from Nuclear Disablement Team 3, Maj. Bryan Potts (standing), Capt. Jay Ross (on phone) and Maj. Leif Hansen plan a mission for live radiation during the team's validation exercise July 24–28 at the Idaho National Laboratory. The exercise marks the first time live radiation was used during this type of exercise. (U.S. Army photo)

These specialized teams are made up of officers and non-commissioned officers in nuclear science, health physics and chemical fields. Their primary functions are command and control, planning, and running the decontamination lines. The team is augmented by Soldiers who have other skill sets like communications, vehicle maintenance or sample collecting. Sgt. Ricardo Herrera, a Chemical, Biological, Radiological, Nuclear specialist with the 22nd Chemical Battalion (Technical Escort), is one of 11 people from his company augmenting the NDT to make up their total team of 22.

"We finally got to rely on our pieces of equipment and we're even more confident," the 27-year-old from Round Mountain, Nevada said about the different kinds of equipment used to detect alpha, beta, gamma, or neutron radiation. This time, rather than having someone next to them stating the equipment was calibrated, the readings actually showed what was being detected.

After gaining certification with this exercise, NDT 3 still has more internal training missions and another exercise ahead that will refine the team's procedures and techniques before they assume the NTNF mission in October.

"I think my team is well prepared and we're excited we got selected to do this mission," Herrera said. "It's a once in a lifetime opportunity; something we can look back on and say that we did." ♦

Single Protein, Key to Ebola Virus Infection, Could Aid in Drug Design

Caree Vander Linden, USAMRIID Public Affairs

Research published by two teams of Army scientists and collaborators has identified a cellular protein that plays a critical role in Ebola virus infection. The findings, published online August 24 in separate studies in the journal *Nature*, suggest a possible strategy for combating one of the world's most deadly viruses.

Ebola causes hemorrhagic fever with case fatality rates as high as 90 percent in humans. The virus is of concern both as a global public health threat and as a potential agent of biological terrorism. Currently there are no available vaccines or therapies to combat the disease. In addition, much is still unknown about the exact mechanism by which Ebola virus invades cells and causes infection.

In one *Nature* study, scientists from USAMRIID, Albert Einstein College of Medicine, the Whitehead Institute for Biomedical Research, and Harvard Medical School searched for proteins that Ebola virus might use to enter cells. One such cellular protein, known as Niemann-Pick C1 (NPC1), stood out: The team found that if cells don't make NPC1, they cannot be infected by Ebola virus.

According to the authors, the NPC1 protein is embedded within cell membranes, where it helps transport cholesterol within the cell. However, the absence of NPC1 due to gene mutations causes a rare degenerative disorder called Niemann-Pick disease, in which cells become clogged with cholesterol and eventually die.

To confirm the group's finding that NPC1 is crucial for Ebola virus infection, John M. Dye, Ph.D. and colleagues at USAMRIID used mice that were partially deficient in NPC1 expression, challenging the animals with lethal doses of Ebola virus. Remarkably, most of the mice survived the challenge. Other studies using cells from people with Niemann-Pick disease found that those cells also were resistant to Ebola virus infection. In addition, the researchers showed that treating cells with a compound that blocks NPC1 function inhibited infection.

In the second *Nature* article on this topic, another team of USAMRIID scientists, working with investigators from Brigham and Women's Hospital [BWH] and Harvard Medical School, independently arrived at the same conclusion—that Ebola virus needs NPC1 to enter the cell and cause infection.

The BWH group used a robotic method developed by Harvard's National Small Molecule Screening Laboratory to screen tens of thousands of compounds for activity against Ebola virus. They identified a novel small molecule that inhibits Ebola virus entry into cells by more than 99 percent.

Next, USAMRIID investigators Lisa Hensley, Ph.D. and Claire Marie Filone, Ph.D. verified that the newly identified inhibitor, or compound, blocked cell-to-cell transmission of Ebola virus. Using the inhibitor as a probe to investigate the pathway of infection, they found that the target of the inhibitor is NPC1—the same cell protein described by the other research team. The findings suggest that small molecules that

target NPC1 and inhibit Ebola virus infection have the potential to be developed into antiviral drugs.

"The fact that two groups identified the same protein, using two different experimental approaches, is significant," Dr. Dye commented. "This independent corroboration greatly increases our confidence in the findings."

Dr. Hensley said both studies represent the first step in a promising line of research that could make it possible for scientists to design therapeutics that impede the ability of the Ebola virus to infect and spread.

Both projects received funding support from the Defense Threat Reduction Agency (DTRA).

The work completed at USAMRIID using authentic Ebola virus was critical for validating the role of NPC1 in Ebola virus infection. This research can only be conducted in maximum containment Biosafety Level 4, or BSL-4, laboratories, where investigators wear positive-pressure suits and breathe filtered air as they work.

USAMRIID, located at Fort Detrick, Maryland, is the only Department of Defense laboratory with BSL-4 capability. The Institute is the lead military medical research laboratory for DTRA's Joint Science and Technology Office for Chemical and Biological Defense, and plays a key role in national defense and in infectious disease research.

USAMRIID's mission is to conduct basic and applied research on biological threats resulting in medical solutions (vaccines, drugs and diagnostics) to protect the warfighter, but its research often has applications that benefit society as a whole. USAMRIID is a subordinate laboratory of the U.S. Army Medical Research and Materiel Command. ◆

This article can be found online at:

http://www.usamriid.army.mil/press%20releases/Nature_FINAL_August_2011.pdf

For more information, visit www.usamriid.army.mil

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2. "Small molecule inhibitors reveal Niemann-Pick C1 is essential for Ebola virus infection." Marceline Co'te', Anna Bruchez, Qi Li and Kartik Chandran, Division of Hematology, Department of Medicine, Brigham and Women's Hospital, Boston, MA; John Misasi, Division of Hematology, Department of Medicine, Brigham and Women's Hospital, Boston, MA and Division of Infectious Disease, Department of Medicine, Children's Hospital, Boston, MA; Tao Ren and Kyungae Lee, New England Regional Center of Excellence for Biodefense and Emerging Infectious Diseases, Harvard Medical School, Boston, MA; Claire Marie Filone, Division of Hematology, Department of Medicine, Brigham and Women's Hospital, Boston, MA and USAMRIID, Frederick, Md.; Lisa Hensley, USAMRIID, Frederick, MD; Daniel Ory, Diabetic Cardiovascular Disease Center, Washington University School of Medicine, Saint Louis, MO; and James Cunningham, Division of Hematology, Department of Medicine, Brigham and Women's Hospital, Boston, MA and Department of Microbiology and Immunology, Harvard Medical School, Boston, MA.

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<http://www.usamriid.army.mil>; Commercial Phone: 301-619-4880

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- Interactive patient triage
- Field exercises I and II
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Meets the chemical/biological training requirements under MEDCOM OPORD 08-08 and AR 525-27

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23–28 October 2011

18–23 March 2012

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- Medical Specialist Corps
- Chemical Corps officers
- Medical/Chemical NCOs
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