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Chemical Defense Collaboration Helps Protect Warfighter, Nation

Capitol Hill Focus: Maj. Gen. Reeves Testifies Before U.S. Senate Panel Regarding Technologies to Combat WMD

Evaluation of Commercially-Available Radiological Decontamination Technologies on Concrete Surfaces

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On the Cover: A research scientist for the U.S. Army Medical Research and Materiel Command's Institute of Chemical Defense, works in the newly renovated Collaborative Research Facility at Aberdeen Proving Ground, Md. (Photo by Sarah Maxwell)

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- Second Quarter (Number 2) – January 15th
- Third Quarter (Number 3) – April 15th
- Fourth Quarter (Number 4) – July 15th

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Extend Research Into Radicalization and the Formation of Terrorist Groups in the U.S. and Abroad
(National Consortium for the Study of Terrorism and Responses to Terrorism [START])
University of Maryland
College Park, MD
$12,000,000 July 28, 2008
By U.S. Department of Homeland Security, Washington, DC

Operational Test and Evaluation of CBRN Defense Secure Battle Space Management Information And Warning And Reporting Systems
Battelle Memorial Institute
Columbus, OH
$12,693,336 July 17, 2008
By U.S. Marine Corps Operational Test and Evaluation Activity, Quantico, VA

Research Into Vaccines Against Agents of Bioterrorism
University of Calgary
Alberta, Canada
$1,700,000 July 10, 2008
By National Institute of Allergy and Infectious Diseases, Bethesda, MD

Influenza Vaccine Packages
MedImmune Vaccines, Inc.
Gaithersburg, MD
$28,379,470 July 8, 2008
By Defense Supply Center Philadelphia, Philadelphia, PA

Joint Service Lightweight Standoff Chemical Agent Detector
General Dynamics Armament and Technical Products
Charlotte, NC
$15,678,590 July 2, 2008
By U.S. Army Research and Development Command, Aberdeen Proving Ground, MD

Develop Bavituximab for Viral Hemorrhagic Fevers
Peregrine Pharmaceuticals
Tustin, CA
$44,400,000 July 1, 2008
By Defense Threat Reduction Agency, Fort Belvoir, VA

Research on Anti-Phosphatidylserine Antibodies
Peregrine Pharmaceuticals, Inc.
Tustin, CA
$22,336,307 June 30, 2008
By Defense Threat Reduction Agency, Fort Belvoir, VA

Development and Commercialization of a Real-Time Pathogen Detection Instrument
Northeastern Ohio Universities Colleges of Medicine and Pharmacy
Rootstown, OH
Kent State University
Kent, OH
$6,700,000 June 27, 2008
By $3,000,000 Wright Project grant from the Ohio Department of Development which will be matched by $3,700,000 from other sources

Develop and Test Nerve Agent Antidote Formulations That Can Be Administered as an Intramuscular Injection
Southwest Research Institute
San Antonio, TX
$1,300,000 June 24, 2008
By U.S. Army Space and Missile Defense Command, Huntsville, AL

Study Antibacterial Activity
East Carolina University
Greenville, NC
Walter Reed Army Institute of Research
Silver Springs, MD
$400,000 June 23, 2008
By Defense Threat Reduction Agency, Fort Belvoir, VA

Develop Therapeutic Antibodies Against Microbial Bioweapons
Morphotek, Inc.
Exton, PA
$1,700,000 June 17, 2008
By U.S. Department of Defense, Washington, DC

Chemical Defense Collaboration Helps Protect Warfighter, Nation

By Sarah Maxwell, U.S. Army Medical Research and Materiel Command (USAMRMC) Public Affairs

What was once a barn for goats is now a place where scientists on the forefront of chemical defense research try and test their theories to help protect and heal the nation's warfighters.

A sturdy 6,800 square foot structure made of cement blocks, the barn was transformed into the U.S. Army Medical Research Institute of Chemical Defense's (USAMRICD's) Collaborative Research Facility (CRF) at Aberdeen Proving Ground, Md., part of the USAMRMC.

The three new labs in the renovated building are within the scope of the USAMRICD's comprehensive Collaborate Research Program, which brings in ideas from scientists outside the institute that could develop improvements to help protect service members from possible chemical weapons attacks.

"The collaborative research here leads to countermeasures to protect the Soldiers and ultimately protects the nation," said Capt. Jeremy Goodin, Research Collaboration Program director.

The facility is expected to enhance the program's ability to accommodate work with other organizations, allowing a steady flow of scientific ingenuity. By using USAMRICD scientists, who are part of only a handful in the world certified to handle the strongest chemicals, they can get their theories tested, said Goodin.

The Army expertise is becoming more and more sought after in research communities around the country. Just five years ago, there were only 23 collaborations, and this year the chemical defense program already has 101 projects in the works from dozens of other groups.

"From 2003 to 2008 the collaboration program skyrocketed," said Goodin. "We stood up the CRF to accommodate the needs and interests of investigators."

Many times researchers at institutes like universities, government agencies and other military laboratories will have promising results in a bio-chemical experiment but will not have the authority to test their theories on chemical agents due to stringent safety requirements. That's where the collaboration program comes in. The other agency will coordinate with the principal investigators at the USAMRICD to safely perform the portion of their experiments that require chemical agent.

"I don't think collaborative research anywhere else in the military is like it is here. It's a really good deal for them and us," said Dr. Jack Baggett, chief of USAMRICD's Program Strategies and Operations Office. "Although the amount of time to get a project done is a little on the long end compared to the outside research facilities, it's because we are much more careful. We don't rush anything."

Baggett said the collaboration program as well as all the research conducted in USAMRICD's 10 other buildings and laboratories ensures science performed by the USAMRICD investigators is verifiable through rigorous testing and documentation. That way, the scientists who submitted their work will know that it can be published and shared with the broader scientific community.

"Collaboration is the way to go," said Goodin. "As a researcher, I've always worked with people in academia. It increases research exponentially and helps publish more papers."

But not everyone who wants their theories tested by USAMRICD will get the chance to use the principal investigators and facilities. Potential collaborators submit their request, and if the research is found beneficial for protecting or treating service members, it may get picked up. The other agencies also pay a fee for the Army's ability.

"We don't approve everything that comes through our door," said Baggett. "If it doesn't fit our mission, we're not going to do it." Since the program gets so many requests, the USAMRICD researchers can be very selective and concentrate on experiments that will have the broadest benefits to the country.

"We're not a for-profit laboratory," said Baggett. "I'd rather have someone doing one to three experiments extremely well than just getting six done."

Benefiting from collaboration on a number of projects with USAMRICD, Dr. Richard Gordon at USAMRMC's Walter Reed Army Institute of Research (WRAIR) in Silver Spring, Md., said he very much appreciates his more than 10-year-old working relationship.

As one of his partnership projects he and an USAMRICD investigator will be delving into decontaminating and detoxifying sponges for chemically exposed skin.

"We have a group of people who want to do some of the same research at USAMRICD as at WRAIR, but we can't work with the chemical agents," said Gordon. "We're on equal footing with the science but go there to execute."

Capitol Hill Focus:
Maj. Gen. Reeves Testifies Before U.S. Senate Panel Regarding Technologies to Combat WMD

By James Beauchamp, JPEO-CBD Congressional Liaison/Camber Corporation

The Joint Program Executive Officer for Chemical and Biological Defense, Maj. Gen. Stephen Reeves, testified on technologies to combat Weapons of Mass Destruction (WMD) before the Subcommittee on Emerging Threats and Capabilities of the United States Senate Committee on Armed Services, March 12, 2008. Prior to the testimony, a technology demonstration was held in the hearing room located in the Dirksen Senate Office Building on Capitol Hill. Testifying alongside Maj. Gen. Reeves on the three-witness panel were Dr. James A. Tegnelia, Director, Defense Threat Reduction Agency (DTRA) and Dr. T. Jan Cerveny, the Assistant Deputy Administrator for Nonproliferation Research and Engineering at the Department of Energy's National Nuclear Safety Administration (NNSA).

photos by Steve Lusher

The hearing was part of the Senate Armed Services Committee's consideration of the Fiscal Year 2009 Department of Defense (DoD) Budget Request and the Committee's formulation of the Fiscal Year 2009 National Defense Authorization Act (NDAA). Along with their House of Representatives counterpart, the House Committee on Armed Services, the Senate Armed Services Committee is responsible for drafting the NDAA, the annual authorizing legislation for all DoD and military service operations, offices, and programs. The Subcommittee on Emerging Threats and Capabilities has oversight responsibilities for, among other areas, DoD efforts concerning terrorism, homeland defense, chemical and biological warfare defense, chemical demilitarization, and non-proliferation programs, as well as Northern Command, the Defense Advanced Research Projects Agency (DARPA), and DTRA.

The emphasis for the technology demonstration was on those systems that constitute and enhance the DoD capability to manage the WMD threat to both military and civilian populations. The demonstration featured various Joint Program Executive Office for Chemical and Biological Defense (JPEO-CBD) systems to detect, protect against, and coordinate the response to a WMD event. Maj. Gen. Reeves guided House and Senate staff members and several senators through the JPEO-CBD exhibit, including Senator Elizabeth Dole (R-NC), Senator John Warner (R-VA), and Senator Jack Reed (D-RI). Senator Reed is the chairman of the Subcommittee on Emerging Threats and Capabilities, Senator Dole is the ranking member or senior Republican on the panel, and Senator Warner represents the state of Virginia where the headquarters of the JPEO-CBD, Joint Project Manager (JPM) Individual Protection, JPM Collective Protection, JPM Guardian, and JPM Decontamination are located. The Department of Energy, DTRA, and DARPA also participated in the demonstration. Other military services participating included the Air Force and the Navy.

Subject matter experts from the JPEO-CBD demonstrated for the senators and congressional staff members the current DoD Individual Protective Equipment, the current Civil Support Team Personal Protective Equipment, the Joint Service Chemical Environment Survivability Mask, the Next-Generation Mask-Helmet Concept, the Installation Protection Program Decision Support System Demonstrator, a CBRN Unmanned Ground Reconnaissance Vehicle, the Joint Chemical Agent Detector, the Expeditionary Biological Detector, and other products and systems used by the national defense and consequence management communities.

Both Senator Reed and Senator Dole were grateful to Maj. Gen. Reeves, Dr. Tegnelia, and Dr. Cerveny for agreeing to testify and to the technology demonstration participants for providing their systems. Regarding the JPEO-CBD, Senator Reed noted at the outset of the hearing that, "[i]t is one of the less well-known success stories that the Department of Defense has a single joint program for all chemical and biological defense efforts." During the hearing, the Subcommittee directed questions to the three witnesses which focused on the WMD threat, the DoD response to the WMD threat, and ongoing challenges to capability development.

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In his remarks, Maj. Gen. Reeves emphasized that the JPEO-CBD works every day to "support the force in current operations," "improve our current field of capability," and "build for the future." He informed the Subcommittee that the JPEO-CBD fielded over 1.2 million individual items of equipment in Fiscal Year 2007 alone. Maj. Gen. Reeves reported that JPEO-CBD coordination with the Department of Health and Human Services has "provided anthrax and smallpox vaccines to both our Warfighters, as well as to the U.S. Strategic National Stockpile." On the issue of cooperation with civilian authorities, he stated that DoD "has strengthened its partnerships over the last five years with federal, state, and local agencies to ensure U.S. military installations are prepared to mutually support and interoperate in the civilian communities in which they reside."

With respect to technology transition toward capability development, Maj. Gen. Reeves described his approach as the material developer. He explained the formal process to ensure that DoD science and technology investments transition to advanced development and procurement. Looking ahead at future threats, Maj. Gen. Reeves stated his goal is to ensure that Warfighters are "never technologically surprised." He observed that uncertainty is "the defining characteristic of the present and future environment" and therefore DoD needed to prepare U.S. Forces "for a much broader array of threats, including toxic industrial chemicals and materials." The Joint Program Executive Officer stressed that "the emerging sciences of genomics and proteomics and the tools of genetic engineering" create the potential "for our adversaries to develop new and previously unknown toxins, viruses and bacteria." At the same time, however, the general noted the JPEO-CBD was working to leverage these emerging disciplines to develop genuine capability for rapid, broad-based identification of threats. Maj. Gen. Reeves also explained challenges the JPEO-CBD faces in developing new equipment. He described the challenges of standoff identification of chemical and biological agents, development of detection, protection, and decontaminant capabilities for all hazards, development of common test and performance standards across agencies and operations, and countering toxic industrial chemicals in the urban environment.

During his appearance, Dr. Tegnelia of DTRA emphasized the nuclear threat. Regarding 'loose' nuclear weapons, he stated the most "challenging research and development task" is developing nuclear detection technology with increased range, i.e., "hundreds of meters and kilometers." He indicated demilitarizing or disarming the weapon is obviously perilous since today it can only be done near the device. What is needed is a capability to disarm the device from a safe distance, he said. Lastly, Dr. Tegnelia stressed the importance of nuclear forensics. He stated that in the event of an actual detonation, the U.S. Government needs the ability to attribute the device to those responsible for the attack. He reported the U.S. Government is "just now at the point where the research and development is beginning to produce a product for which we can field a first nuclear forensics capability for the subject of attribution."

In her remarks, Dr. Cerveny of NNSA explained that her office (the Office of Nonproliferation Research and Development) supports NNSA by developing "the next generation of nuclear nonproliferation sensors and detection capabilities" using "a variety of high-tech institutions and organizations, such as leading universities, small businesses, industry and most importantly, the U.S. National Laboratories." She explained her organization is focused programmatically on detection for both "pre-detonation" and "post-detonation" scenarios. She stated that these efforts were "supported by enabling technology development in areas like remote sensing, advanced radiation detection materials, and simulation algorithms and modeling." Lastly, Dr. Cerveny described NNSA's cooperation with DoD and other federal entities, noting the collective approach seeks to ensure minimal redundancy across U.S. Government agencies and programs.

photos by Steve Lusher

After more than two hours for both the technology demonstration and the hearing itself, Sen. Reed gaveled the day's events to a close and thanked the witnesses "for excellent testimony and a wonderful demonstration." Chairman Reed stressed that the witnesses had outlined "significant challenges" and therefore continued cooperation between the Senate Armed Services Committee and the chemical, biological, radiological, and nuclear defense (CBRND) community was required.

The testimony and responses of Maj. Gen. Reeves, Dr. Tegnelia, and Dr. Cerveny were well-received by the Subcommittee. The hearing and technology demonstration provided a forum for DoD agencies and officials leading the CBRND effort to provide candid observations and analysis to the Subcommittee, the media, and the public. As the Senate Armed Services Committee continues its consideration of the FY09 DoD Budget Request and its formulation of the FY09 NDAA, the JPEO-CBD stands ready to provide additional information as appropriate concerning the WMD threat, the DoD response to the WMD threat, and ongoing challenges to capability development.

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Evaluation of Commercially-Available Radiological Decontamination Technologies on Concrete Surfaces

By Ryan R. James, Battelle, and John Drake, U.S. EPA National Homeland Security Research Center

INTRODUCTION

The Environmental Protection Agency's (EPA's) Office of Research and Development, National Homeland Security Research Center (NHSRC), is conducting decontamination technology evaluations through the Technology Testing and Evaluation Program (TTEP). Specifically, EPA has evaluated commercially available strippable coating technologies for their ability to remove radioactive cesium-137 (Cs-137) from the surface of concrete building material according to a test/QA plan[1] developed for this evaluation. The test procedure was designed to simulate some of the factors that may be most important to the performance of decontamination technologies selected for use following the detonation of a radiological dispersion device. The concrete used during the evaluation was standard building concrete positioned in both vertical (walls) and horizontal (walking surfaces) orientations. To determine if a rapid response would provide for better decontamination efficacy, the effectiveness of each of the technologies was determined after allowing the contaminant to reside on the concrete surface for both 7 and 30 day periods following application. To summarize the evaluation, the Cs-137 was applied to concrete coupons and measured to confirm the activity level. The coupons were then positioned in both vertical and horizontal orientations. The strippable coatings had a consistency similar to wall paint, and were applied to the concrete surfaces with an airless paint sprayer. Following application, the strippable coatings were allowed to dry overnight and then removed by first scoring an edge with a paint scraper as a starting place and then pulling the coating off the surface by hand. Following the removal of the strippable coatings, the residual activity on the coupons was measured. The decontamination efficacy was determined from the difference in activity before and after application of the decontamination technologies. In addition to the decontamination efficacy, qualitative factors such as amount of secondary waste, cost, ease of application and removal, health and safety issues, etc. were documented during the evaluation. The results from this evaluation will support decisions concerning the selection and use of decontamination technologies for large outdoor environments contaminated with radiological material.

EXPERIMENTAL METHODS

Preparation for Strippable Coating Evaluation

Concrete Coupons

The concrete coupons were prepared in a single batch of concrete made from Type II Portland cement[2]. The concrete was poured into 0.8 square meter (m^2) plywood forms. The surface was "floated" to bring the smaller aggregate and cement paste to the top, and then cured for 21 days. Following curing, square coupons were cut to the desired size with a laser guided rock saw. For this evaluation, the "floated" surface was used because of the possibility of chemical interferences due to mold release agents. The coupons were approximately 4 centimeters (cm) thick, 15 cm square, and had a surface finish that was consistent across all the coupons and representative of concrete structures typically found in an urban environment.

Coupon Contamination

Each coupon selected for contamination was spiked with 2.5 milliliters (mm) of an unbuffered, slightly acidic aqueous solution containing 137 parts per million (ppm) Cs-137 which corresponds to an activity level of of approximately 53 microcuries (μCi). The liquid spike was delivered to each coupon using an aerosolization technique. The aerosol delivery device was constructed of two syringes. The first syringe had the plunger removed and a nitrogen gas line attached to the rear of the syringe. The second syringe contained the aqueous contaminant solution and was equipped with a 27 gauge needle which penetrated through the plastic housing near the tip of the first syringe. Nitrogen gas was supplied at a flow rate of approximately 1 - 2 liters per minute creating a turbulent flow through the first syringe. The liquid spike in the second syringe was introduced and became nebulized by the turbulent gas flow. The result was a very fine aerosol ejected from the tip of the first syringe creating a controlled and uniform spray of fine liquid droplets onto the coupon surface. The contaminant spray was applied all the way to the edges of the coupon which was sealed with epoxy and masked with an impervious tape to insure that the contaminant was only applied to the working surface of the coupon.

Measurement of Activity on Coupon Surface

The level of gamma radiation emanating from the surface of concrete coupons was measured to evaluate the decontamination performance of the strippable coatings. These measurements were made using an intrinsic, high purity germanium detector which was regularly calibrated over the course of the tests. The detector calibrations were performed using standard instrument calibration procedures[3].

Surface Construction Using Test Stand

To evaluate the decontamination technologies on both vertical surfaces (simulating walls) as well as horizontal surfaces (simulating sidewalks and drives), a test stand was fabricated that held four rows of six concrete coupons to create surfaces that were approximately 90 cm wide × 60 cm deep (horizontal) or tall (vertical). The photos on the next page show the concrete coupons and the assembled test stand.

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Close-up of several concrete coupons and a loaded test stand

After the coupons were contaminated with cesium, some were allowed to age for seven days and some for 30 days prior to their placement in the test stand for application and removal of the strippable coatings. The two different timeframes were used in order to evaluate the effectiveness of decontamination technologies within one week of a radiological incident and also within one month. Within the surfaces on the test stand, the six contaminated coupons were arranged so that one coupon was located on each side and top edge, and several that were not on an edge at all.

Application and removal of both strippable coatings

Strippable Coating Evaluation

Application of Strippable Coatings

The strippable coatings were applied using a paint sprayer which followed the manufacturers' recommended procedures. Those procedures also recommended three successive application and removal sequences. The application occurred on one day and the strippable coatings were allowed to dry overnight and removed the following day. This process was repeated twice. Following the final removal of the coatings, the coupons were removed from the test stand and the residual activity on the surfaces of the coupons was measured. The comparison of the activity level following use of the strippable coatings to that measured prior to application provided the means to calculate decontamination factors achieved.

Calculation of Decontamination Efficacy

The decontamination efficacy calculated for each of the contaminated coupons is expressed in terms of percent removal (%R) and decontamination factor (DF) as defined by the following equations:

$$\%R = (1-Af/Ao) \times 100\%$$

$$DF = Ao/Af$$

where Ao is the radiological activity of the coupon before application of the strippable coating and Af is radiological activity of the coupon after removal of the strippable coating. The DF is reported in Table 1 followed by a narrative description of the results focused on %R.

RESULTS AND DISCUSSION

Decontamination Efficacy

7- and 30-Day Results

Table 1 documents the results of the evaluation in terms of the activity levels on the coupons before decontamination and after decontamination using the strippable coatings, as well as the calculated %R and DF for each of the time periods and coupon orientations.

Table 1: Decontamination Efficacy Results for 7- and 30 Day Tests

Strippable Coating	Day and Orientation	Pre-Decon Activity µCi / Coupon	Post-Decon Activity µCi / Coupon	% Removal	Decon Factor
Strippable Coating #1	7 H	56.8 ± 1.7	38.3 ± 4.5	32.5 ± 8.5	1.5 ± 1.2
	7 V	53.5 ± 1.7	38.5 ± 5.3	28.0 ± 9.8	1.4 ± 1.2
	30 H	53.2 ± 3.0	34.3 ± 5.8	35.8 ± 8.7	1.6 ± 0.2
	30 V	55.6 ± 1.4	37.8 ± 7.0	31.9 ± 13.0	1.5 ± 0.3
Strippable Coating #2	7 H	55.7 ± 1.3	11.3 ± 2.3	79.7 ± 4.1	5.1 ± 0.9
	7 V	53.6 ± 1.5	12.0 ± 2.6	77.5 ± 5.2	4.6 ± 0.9
	30 H	53.6 ± 1.8	12.9 ± 6.5	76.2 ± 11.2	4.8 ± 1.6
	30 V	53.3 ± 1.9	15.3 ± 3.8	71.5 ± 63	3.7 ± 0.8

H-Horizontal V-Vertical

Evaluating the strippable coatings for their effectiveness in both the horizontal and vertical orientations was an important objective of this evaluation. Because the strippable coatings were applied as liquids, it was important to find out if they would adhere adequately to a vertical surface in order to accomplish decontamination with similar efficiencies as in the horizontal orientation. For both technologies, the %R for each orientation was not determined to be significantly different through analysis by a paired t-test. However, the %R generated from Strippable Coating #1 and #2 were determined to be significantly different from one another.

In addition to the comparison of overall average, various paired t-tests were performed based on data from both the 7-day and 30-day experiments to determine whether or not location within the surface impacted the decontamination efficacy. All of the vertical and horizontal coupons (both edge and/or non-edge) from both tests were compared to determine if significant differences **Continued pg. 10**

Radiological Decontamination *cont.*

existed. From this analysis, only one t-test comparison generated a significant difference. The comparison included the results from the 7-day and 30-day vertical coupons on the edge of the surface versus the 7-day and 30-day vertical coupons not on the edge of the surface for Strippable Coating #2 only. Those two groups of coupons exhibited an average %R of 70.5 ± 6.2 and 78.5 ± 3.4, respectively, which were determined to be significantly different from one another at the 95% confidence interval (p=0.013). This suggested that the coupons on the edge of the surface were decontaminated slightly less effectively than those not on the edge of the surface.

Operational Factors

During the evaluation, detailed observations and measurement of the practical aspects of using these strippable coatings were made. These included deployment and operational factors including rate of surface area decontamination, applicability to irregular surfaces, skilled labor requirements, utilities requirements, extent of portability, set-up/tear-down time, shelf life of media, reliability of equipment, secondary waste management including the estimated amount and characteristics of the spent media, and itemization of the capital and operating costs.

Summary

The results of this evaluation indicate that the two strippable coatings tested produced significantly different levels of decontamination efficacy with Strippable Coating #1 achieving approximately 32%R and Strippable Coating #2 achieving approximately 76%R. Much practical knowledge of each of the strippable coatings was gained through this evaluation. For example, Strippable Coating #1 cured into a very elastic coating that could be removed across small gaps in the concrete surfaces. Strippable Coating #2 cured into a more rigid coating that was removed mostly one coupon at a time. Therefore, the removal rate of the former coating would be less dependent on surface characteristics that the latter. Overall, these coatings are useful for decontamination of surfaces that are not perfectly flat if the stated levels of decontamination efficiencies are adequate for a given need.

Acknowledgements

The authors would like to thank Dr. Bob Fox and his team at Idaho National Laboratory for their contribution to this work.

References

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3. Calibration and Use of Germanium Spectrometers for the Measurement of Gamma Emission Rates of Radionuclides, American National Standards Institute (ANSI) N42.14-1999. IEEE New York, NY (Rev. 2004).

About the authors:
Dr. Ryan James is a Principal Research Scientist at Battelle in Columbus, OH. Dr. James has supported EPA's Technology Testing and Evaluation Program as a test coordinator since its inception in 2004.

Mr. John Drake is an engineer in EPA's National Homeland Security Research Center, Decontamination and Consequence Management Division. Mr. Drake's current research interests are focused in the area of radiological decontamination.

Calendar of Events

Do you have a Chemical and/or Biological Defense or Homeland Security course or event to add to our Calendar? Submit the pertinent information via email to **cbrniac@battelle.org** *or online at* **http://www.cbrniac.apgea.army.mil/info/posting_request.php**. *The CBRNIAC reserves the right to reject submissions. For a more extensive list of events, view our online calendar at* **http://www.cbrniac.apgea.army.mil/info/calendar_06.php.**

October 15-16
COURSE: Hospital Disaster Life Support (HDLS)
Washington, DC
http://www.web.sitelms.org/view_event.php?event_id=2

October 15-16
All-Hazard Incident Management Team Training and Education Conference (AHIMT-TEC)
DeKalb, IL
http://www.ahimt.net/

October 16
STINFO Manager Overview 2008
Fort Belvoir, VA
http://www.dtic.mil/dtic/training/schedule.html

October 16-19
HotZone 2008
Houston, TX
http://www.hotzone.org/hotzone/default.htm

October 18-23
2008 S.W.A.T. Tactical World Cup
San Antonio, TX
http://www.tacticalcup.com/

October 19-24
COURSE: Medical Management of Chemical and Biological Casualties
Ft. Detrick and Aberdeen Proving Ground, MD
https://ccc.apgea.army.mil/courses/in_house/BrochureMCBC.htm

October 20-23
11th Annual Systems Engineering Conference
San Diego, CA
http://www.ndia.org/Template.cfm?Section=9870&Template=/ContentManagement/ContentDisplay.cfm&ContentID=12342

October 20-23
Discovery on Target 2008
Boston, MA
http://www.healthtech.com/DOT/overview.aspx?&c=494

October 25-29
APHA Annual Meeting & Expo
San Diego, CA
http://www.apha.org/meetings/

October 25-29
American Public Health Association Annual Meeting & Expo
San Diego, CA
http://www.apha.org/

Continued pg. 11

Calendar of Events *cont.*

October 26-29
U.S. EPA Emergency Preparedness and Prevention & Hazmat Spills Conference
Richmond, VA
http://www.2005conference.org/

October 27-28
Federal Information Assurance Conference 2008
Washington, DC
https://www.fbcinc.com/fiac/default.aspx

October 27-29
Biosecurity Conference
Amman, Jordan
http://www.acsis.org/announcements.asp

October 28-29
Managing the Threat of Suicide Bombers and Improvised Explosive Devices (IEDs) Workshop
Arlington, VA
http://www.homelanddefensejournal.com/hdl/Managing-Threat-Suicide-Bombers-IEDs.html

October 28-30
4th NBC International Conference & Exhibition
Brno, Czech Republic
http://www.cbrnevents.co.uk/

October 28-30
Clean Gulf 2008
San Antonio, TX
http://www.cleangulf.org/

October 28-30
National Homeland Defense Foundation (NHDF) Homeland Defense, Homeland Security Symposium
Colorado Springs, CO
http://www.nhdf.org/2008_symposium.php

October 29-31
10th Annual Technologies for Critical Incident Preparedness Conference and Exposition 2008
Chicago, IL
http://www.ctc.org/

November 3-6
COURSE: Hospital Security Preparedness
Washington, DC
http://www.web.sitelms.org/view_event.php?event_id=39

November 4-7
Aircraft Survivability Symposium 2008
Monterey, CA
http://www.ndia.org/Template.cfm?Section=9940&Template=/ContentManagement/ContentDisplay.cfm&ContentID=23562

November 6
NIOSH No Fit Test Respirator Workshop
Pittsburgh, PA
http://ustar.ahc.umn.edu/cpheo/catalog/main.cfm?event_id=4750&activity_id=8325

November 6-8
Emerging Infectious Diseases: Ethics, Law and Professional Obligation
Galveston, TX
http://research.utmb.edu/intramural_funding/sym09/

November 8-12
115th Annual IACP Conference & Exposition
San Diego, CA
http://www.theiacpconference.org/conference_program_legal.cfm

November 10-11
Biomarkers Europe 2008
Vienna, Austria
http://www.healthtech.com/bme/overview.aspx?c=581

November 13-14
13th International Conference Detection Technologies
Phoenix, AZ
http://www.knowledgefoundation.com/indexkf.php

November 13-14
How to Deal with New WMD Scenarios
Arlington, VA
http://www.homelanddefensejournal.com/hdl/Deal-With-New-WMD-Scenarios.html

November 13-14
7th International Bird Flu Summit
Las Vegas, NV
http://www.new-fields.com/birdflu7/

CBRN START Database

by John Campo, CBRNIAC Information Systems Manager

When CBRNIAC staff members begin their work day, they log into a highly customized web-based application that delivers nearly 150,000 CBRN bibliographic citations and over 136,000 fully-searchable CBRN documents. However, this extensive collection of CBRN references is only one of the capabilities of the **C**hemical, **B**iological, **R**adiological, and **N**uclear **S**cientific and **T**echnical **A**nalysis and **R**esearch **T**ool (CBRN START).

Developed by the Battelle Information Technology Systems Group in Aberdeen, MD, CBRN START was first deployed into production on November 1, 2005 following three years of development. For years prior to CBRN START, the CBRNIAC (formerly CBIAC) maintained a legacy system of bibliographic citations. Though the legacy system served the center well for many years, over time, the system became difficult to improve and maintain as needs grew and their collection expanded. As a result, a decision was made to invest the necessary funds to develop a new system to serve the CBRNIAC into the future.

CBRN START implements a Model-View-Controller (MVC) architecture. The technology stack consists of Java Server Pages (JSP), within the Struts framework, and an Oracle database. In June 2008, CBRN START Version 7.0 went into operation running Java 5 and Oracle 11g. CBRN START is hosted at the CBRNIAC Data Center at the Aberdeen Proving Ground – Edgewood Area, MD using a multi-tier architecture. There are currently 90 active users of the system. These users are located at the CBRNIAC and the U.S. Army Medical Research Institute of Chemical Defense (USAMRICD) at Aberdeen Proving Ground, MD and the West Desert Technical Information Center, Dugway Proving Ground, UT.

Data Access Levels

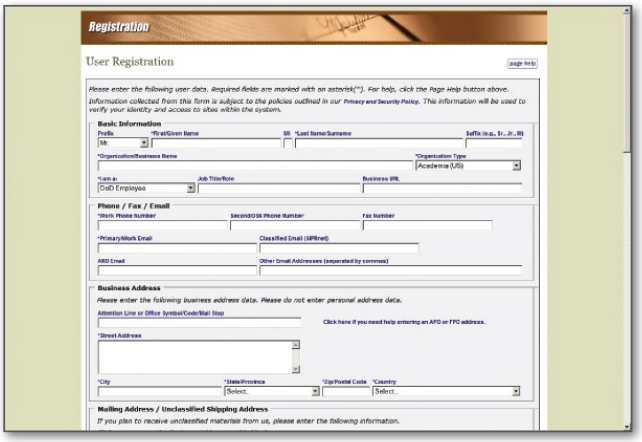
Data access levels (distribution limitation levels) are based on the user's access to government data (e.g. DoD, DoD Contractor, Other Government Agencies (OGA), etc.) and need-to-know. Information containing copyrighted or export-controlled technical data is also protected from unauthorized disclosure. CBRNIAC staff has the ability to emulate the access level of a patron when searching CBRNIAC collection(s) to satisfy an inquiry. The active access level at any point in time is always displayed on the search form and the search results page.

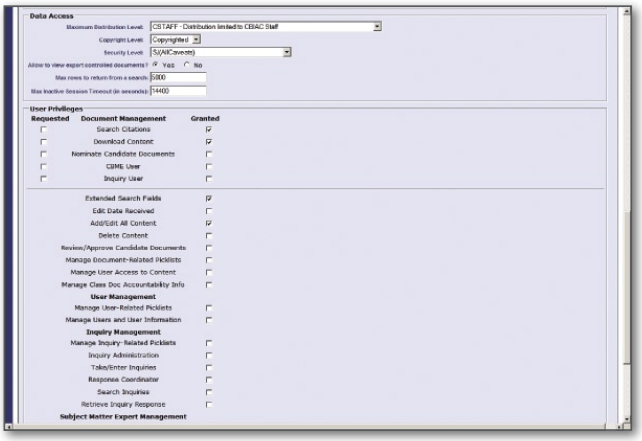
Searching

CBRN START provides four different types of searches: **Quick**, **Fielded**, **Advanced**, and **Public**.

Quick Search allows the user to search for words or phrases in any of three common text fields (Abstract, Title, Author) as well as the document text. Wildcard characters are supported.

Fielded Search allows the user to search for words or phrases in any fields including the document text (up to any six fields simultaneously). Each field's search criteria can be combined with the others using the





standard Boolean connectors (AND, OR, and AND NOT). Search criteria can be grouped for precedence by selecting parentheses.

Advanced Search allows the user to create a custom search using the CBRN START Query Language (STARTSQL).

Public Search allows the user to search for words or phrases in all text fields as well as the document text. Google-like syntax for search operators is supported.

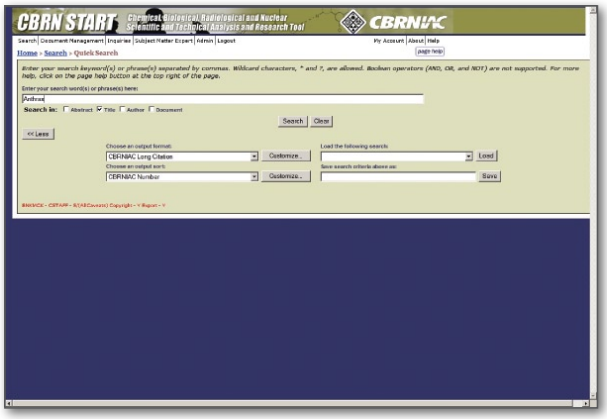
Except for Public Search, all searches provide the ability to sort by a desired field and the search can be saved for private or public use. Saved searches can be loaded and re-run. Except for Public Search, users can choose one of several pre-defined output formats or a custom output format can be created.

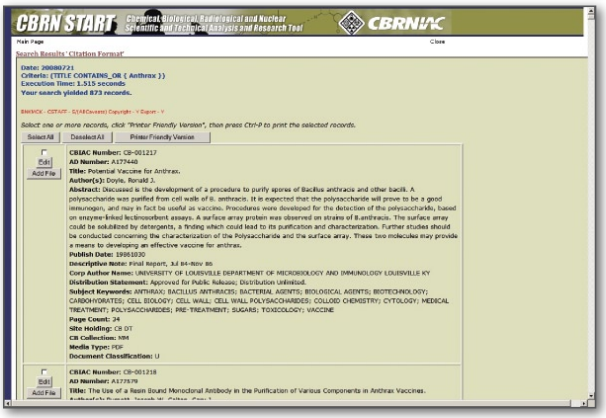
Finally, **Search History** allows the user to combine results to create more complex searches.

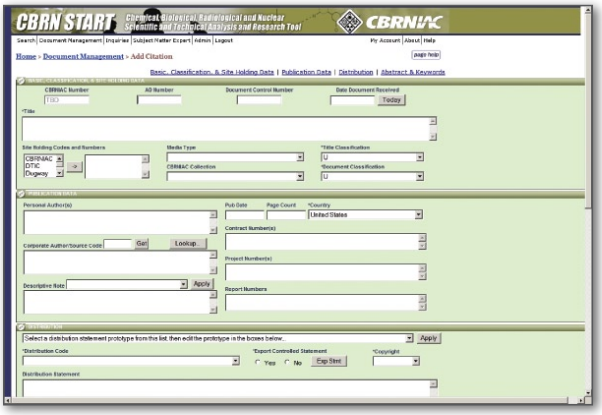
Document Management

CBRNIAC staff can use any of the above search methods to locate citations for editing or can create new citations. Data entry forms organize citation information into related groups and provide pick lists for fields with discrete valid values. If the corresponding document is available, it can be uploaded and linked to the citation.

Continued pg. 13







Documents that have been linked to a citation can be replaced with a new or updated version as they become available.

Inquiry Management

Technical inquiries can be submitted directly into CBRN START using the Inquiry entry form. Requestor information can be pre-populated for registered users or users who have previously submitted one or more inquiries. Inquiries can be retrieved from the system by inquiry coordinators for observation, editing, or response using a fielded search similar to the fielded citation search.

For each inquiry response, CBRNIAC staff include a response summary, a list of response items, one or more files, lessons learned, notes, keywords (for later retrieval), the name of a subject matter expert (if contacted), and whether an assessment was sent and/or received. Inquiry requestors receive an email when their inquiry is received and another email when their inquiry response is ready. Registered users can download and retrieve their inquiry response and submit an assessment (survey) on-line in CBRN START.

A set of pre-defined inquiry reports can be run by CBRNIAC staff to gather inquiry metrics. CBRNIAC staff can also administer inquiries by navigating a list of Inquiry numbers/Inquiry requestors filtered by the current status of the inquiry (outstanding, deferred, document, delivered, and completed).

Subject Matter Experts

Subject matter experts (SME) can create a profile by registering with CBRN START as an SME. A registered SME can, at any time, log into CBRN START and modify or update their profile. Registration as an SME is by invitation only. SMEs can be retrieved from the system by CBRNIAC staff using a fielded search similar to the fielded citation search.

Document Accountability

CBRNIAC staff can enter accountability information in CBRN START for CBRNIAC classified document holdings. Each base accountability record is identified by a unique document control number and contains all of the required classification meta-data. The status (sent, received, destroyed, etc.) of each document copy is also tracked to provide an audit trail. CBRN START also provides the ability to print transmittal documents and destruction receipts as well as generate annual data reduction reports.

Administration

CBRNIAC staff can administer users and pick-list values. User functions include approving new users, revalidating users, editing user privileges, locking and unlocking user accounts, and deleting user accounts.

TEMS and CBME

CBRN START is the source of CBRNIAC data supplied to the DTIC Total Electronic Management System (TEMS) Database. The Chemical and Biological Materials Effects Database (CBME), highlighted in last quarter's newsletter, is a client application that interfaces to CBRN START. CBME users are maintained in CBRN START and CBME data is provided through the CBRN START database. Access to CBRNIAC holdings is available through the DTIC TEMS Database.

CBRN START is designed for reusability and scalability. Citations and documents can also be added to CBRN START as separate collections that reuse the same features and functionality. User access to each collection is granted separately.

For more information about CBRN START, adding content to CBRN START, or how this software can be customized for your organization's needs, contact the CBRNIAC at cbrniac@battelle.org or John Campo at campo@battelle.org

About the Author:
John Campo is an IT Project Manager at the Battelle Eastern Science and Technology (BEST) Center in Aberdeen, MD Mr. Campo has provided IT support for the CBRNIAC for the past 13 years as both a software engineer and project manager.

In the News

UCF Professor Develops Vaccine to Protect Against Black Plague Bioterror Attack

Zenaida Gonzalez Kotala

UCF Newsroom

July 30, 2008

"A University of Central Florida researcher may have found a defense against the Black Plague. UCF Professor Henry Daniell and his team have developed a vaccine that early research shows is highly effective against the plague."

http://news.ucf.edu/UCFnews/index?page=article&id=00240041b3258d8011b74415fa5005636

DHS Aims for Faster Detection of Airborne Pathogens

Robert Roos

CIDRAP News

July 22, 2008

"The Department of Homeland Security (DHS) plans to adopt new automated equipment that will be able to detect dangerous airborne pathogens in major US cities in as little as 4 hours, with a goal of starting deployment in the fall of 2010…"

www.cidrap.umn.edu/cidrap/content/bt/bioprep/news/jul2208biowatch-jw.html

Killer Kevlar: Clothing That Shields From Germs

ScienceDaily

July 21, 2008

"Protective clothing worn by firemen and other emergency workers may soon get a germ-fighting upgrade. Researchers in South Dakota report progress toward the first Kevlar fabrics that can kill a wide range of infectious agents, including bacteria, viruses, and the spores that cause anthrax."

http://www.sciencedaily.com/releases/2008/07/080721092412.htm

Protective Garment Test Lab to Open at NC State

Chad Austin

NCSU News Release

July 17, 2008

"North Carolina State University will open a new state-of-the-art laboratory funded by a Department of Defense grant secured by U.S. Rep. Bob Etheridge that will enable researchers to test and enhance protective garments worn by first responders to protect against chemical and biological agents."

http://news.ncsu.edu/news/2008/07/mist-advisory.php

New 'Scrubber' Speeds Removal of Powerful Anthrax Clean-up Agent

ScienceDaily

July 15, 2008

"Researchers in New Jersey report discovery of a fast, efficient method for removing a powerful pesticide used to sterilize buildings and equipment following anthrax attacks… methyl bromide, is superior to chlorine dioxide for destroying anthrax causing bacteria and their spores."

http://www.sciencedaily.com/releases/2008/07/080714094453.htm

San Antonio Researchers Discover New Insight In Fighting Bioterrorism Agent

San Antonio Business Journal

July 1, 2008

"Scientists at the University of Texas at San Antonio and the University of Texas Health Science Center at San Antonio say they've discovered a cell type that one day may be useful in fighting bioterrorism… researchers have found that mast cells play a role in combating tularemia."

http://www.bizjournals.com/sanantonio/stories/2008/06/30/daily14.html

Gallium Nitride Photodetector Targets Bioterrorism

EE Times

July 10, 2008

"New sensors based on gallium nitride could improve the detection of bioterror agents like anthrax."

http://www.eetimes.com/news/latest/showArticle.jhtml?articleID=208801973

Continued pg. 17

Vol. 5 No. 3 of the Chem-Bio Defense Quarterly Magazine is Now Available!

Vol. 5 No. 3 Chem-Bio Defense Quarterly Magazine

Chemical warfare was not introduced on a large scale until World War I, but ever since, battlefield decontamination has been a high priority for military services worldwide. Having the capability to rapidly reconstitute forces after a chemical, biological, radiological, or nuclear (CBRN) attack has always been considered a critical deterrent for those who would attempt a CBRN attack. In this issue of Chem-Bio Defense Quarterly magazine highlights several phases of JPM Decontamination undertakings that seeks to build a family of decontamination systems.

To view the electronic version, visit: http://www.jpeocbd.osd.mil/page_manager.asp?pg=4&sub=0

Would you like to receive the link to upcoming issues or have a hard copy version for your office or organization? If so, complete the interactive form at http://www.jpeocbd.osd.mil/page_manager.asp?pg=0&sub=9.

Change of Command Ceremonies

Skvorak Assumes Command of the USAMRIID

By Caree Vander Linden, U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID) Public Affairs

Photo by Doug Valentine. Maj. Gen. George Weightman, the U.S. Army Medical Research and Materiel Command commander, hands over the colors and unit responsibilities to the new USAMRIID commander John Skvorak.

Colonel John P. Skvorak assumed command of the USAMRIID during a change of command ceremony Tuesday, June 24, 2008, at 10:00 a.m. on the Blue and Gray Field at Fort Detrick, Md.

Colonel Skvorak replaces Colonel George W. Korch, Jr., who has commanded the Institute since June 2005. Colonel Korch will retire from the U.S. Army in September with 22 years of military service.

Colonel Skvorak holds a Doctor of Veterinary Medicine degree from the University of Illinois and a Ph.D. in Physiology from the University of South Florida, College of Medicine. He was in private veterinary practice for six years prior to his direct commission into the U.S. Army Veterinary Corps in 1986.

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

Snow Assumes Command of 20th SUPCOM

By Yvonne Johnson, APG News

The 20th Support Command (SUPCOM), (Chemical, Biological, Radiological, Nuclear and High-yield Explosives (CBRNE)) hailed its incoming commander while bidding farewell to the outgoing commander during a change of command ceremony at McBride Parade Field, APG, Md, July 2, 2008. Col. Jeffrey J. Snow assumed command of the unit from Brig. Gen. Kevin R. Wendel who led the unit since its activation in 2004.

Photo by Scott Nieto, APG Photo Lab. Brig. Gen. Kevin R. Wendel, left, outgoing commander, passes the 20th SUPCOM colors to Gen. Charles C. Campbell, commander, U.S. Army Forces Command, as incoming commander Col. Jeffrey J. Snow, right, looks on during the unit's change of command ceremony.

The commander of U.S. Army Forces Command (FORSCOM), Gen. Charles C. Campbell, presided over the ceremony.

Snow is a graduate of the U.S. Military Academy at West Point. He was commissioned as an infantry officer. He holds a master's in social psychology from Michigan State University. His military education includes the Combined Arms Staff School, the Army War College and the Joint Forces Staff College. His past assignments include 1st Armored Division, Germany; Fort Drum, N.Y., USMA at West Point, Washington, D.C., and the Pentagon.

The full article, which appeared in the **APG News**, July 17, 2008, (Volume 52, Number 28), can be read online at http://apgnews.apg.army.mil/Archive/pdf2008/July1708/July1708_1.pdf; http://apgnews.apg.army.mil/Archive/pdf2008/July1708/July1708_12.pdf

Slife Takes Command of USAMRICD

By Cindy Kronman, U.S. Army Medical Research Institute of Chemical Defense (USAMRICD) Public Affairs

On July 10, 2008, Col. Harry F. Slife, Jr. assumed command of the USAMRICD from Col. Timothy K. Adams. Adams was recently selected to be the next chief of the Veterinary Corps, with promotion to brigadier general, as well as the next commander of the U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM). Slife has served as USAMRICD's deputy commander since 2006.

Photo by Cary Sisolak. USAMRICD's incoming commander, Col. Harry F. Slife, Jr., accepts the unit flag from Maj. Gen. George Weightman, commander, USAMRMC.

Maj. Gen. George Weightman, commander of the U.S. Army Medical Research and Materiel Command (USAMRMC), presided over the change of command ceremony.

Slife was first assigned to the 2nd Armored Division (FWD) in Garlstedt, Germany, where he served as a chemical specialty staff officer at both the battalion and brigade level, spending the majority of his time with the 4/3 Field Artillery. In 1986 Slife branch transferred to the Medical Service Corps and was reassigned to the 5th General Hospital in Bad Cannstatt, Germany, as the clinical laboratory manager. Subsequent assignments include assistant laboratory manager, Walter Reed Army Medical Center (1988-1989), chief of Clinical Chemistry, Fitzsimons Army Medical Center (1990-1994), deputy director of Laboratory Sciences, USACHPPM (1998-2000), Pharmacology Division chief, USAMRICD (2000-2003), and research area director (chemical and biological) at USAMRMC (2003-2006).

Slife is a graduate of the Chemical Corps Officer Basic Course, the AMEDD Officer Basic and Advanced Courses, The Combined Arms Services Staff School, and the Command and General Staff School.

His awards include the Meritorious Service Medal (4OLC), The Army Commendation Medal (1OLC), The Army Achievement Medal (2OLC), The National Defense Medal, and the Global War on Terrorism Service Medal. He has obtained the Expert Field Medical Badge, is a member of the Order of Military Medical Merit and has been awarded the Surgeon General's "A" Proficiency designator in Biochemistry.

Visit USAMRICD online at http://chemdef.apgea.army.mil/.

Nold Succeeds Rice as KUSAHC Commander

By Yvonne Johnson, APG News

Col. William A. Rice turned leadership of the Kirk U.S. Army Health Clinic (KUSAHC) over to Lt. Col. James M. Nold during a change of command ceremony on the clinic's front lawn July 11, 2008.

Continued pg. 16

Changes of Command *cont.*

Col. Laurie A. Cummings, commander, Fort George G. Meade Medical Activity, presided over the ceremony.

Col. William A. Rice, outgoing commander, left, looks on as Col. Laurie A. Cummings, commander, Fort George G. Meade Medical Activity, center, passes the KUSAHC colors to Lt. Col. James M. Nold, incoming commander, during the change of command ceremony. Photos by Sean Kief, APG Photo Lab

Nold holds a bachelor degree and doctorate from the University of South Alabama and he completed his Transitional Internship at Brooke Army Medical Center and his Emergency Medicine Residency at Madigan Army Medical Center.

He completed the U.S. Army-Baylor University Master of Health Care Administration Program and is board certified and a fellow of the American College of Emergency Physicians and the American College of Healthcare Executives.

His previous assignments include Winn Army Community Hospital; U.S. Army Medical Command; 3rd Special Forces Group (Airborne); Bagram, Afghanistan; 82nd Aviation Brigade; Kandahar, Afghanistan; Womack Army Medical Center.

The full article, which appeared in the **APG News** July 31, 2008, (Volume 52, Number 30) can be read online at http://apgnews.apg.army.mil/Archive/pdf2008/July3108/July3108_1.pdf; http://apgnews.apg.army.mil/Archive/pdf2008/July3108/July3108_12.pdf

9th AML Hails New Commander

By Steve Rochette, APG NEWS

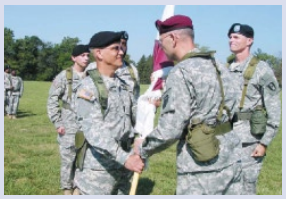


Photo by Yvonne Johnson, APG News Col. Terrell W. Blanchard, incoming commander of the 9th AML, left, accepts the unit colors from Col. Ronald A. Maul, commander of the 44th Medical Command, center, as outgoing commander Col. David W. Craft, right, looks on during the change of command ceremony.

The 9th Area Medical Laboratory (AML) welcomed its incoming commander and paid tribute to the departing commander during a ceremony at McBride Parade Field, APG, Md. On July 15, 2008.

Col. Terrell W. Blanchard assumed command of the 9th AML from Col. David W. Craft, who spent 2 years leading the unit.

Col. Ronald A. Maul, commander of the 44th Medical Command at Fort Bragg, N.C., oversaw the ceremony and presented Blanchard with the unit colors.

Blanchard comes to the unit from the Armed Forces Institute of Pathology. Blanchard earned a bachelor's degree in biochemistry in 1983 and a doctorate of veterinary medicine in 1987 from Oklahoma State University.

His military assignments include Fort Huachuca, Ariz.; Rota Naval Station in Spain; and SHAPE in Belgium. Since 2007, Blanchard has served as Chair of the Department at the Armed Forces Institute of Pathology (AFIP) and as the deputy director (Army) of the AFIP. Blanchard's awards include the Meritorious Service Medal (with two oak leaf clusters); the Army Commendation Medal (with one oak leaf cluster) and the Army Achievement Medal (with one leaf cluster).

The full article, which appeared in the **APG News**, July 24, 2008 (Volume 52, Number 29), can be read online at http://apgnews.apg.army.mil/Archive/pdf2008/July2408/July2408_1.pdf; http://apgnews.apg.army.mil/Archive/pdf2008/July2408/July2408_11.pdf

New CMA Commanders

By Chemical Materials Agency (CMA) Public Affairs

Four Chemical Materials Agency (CMA) commanders have assumed leadership in change of command ceremonies this summer.

Newport Chemical Depot - June 11
Lt. Col. William D. Hibner replaced Lt. Col. Brian M. Lynch.

Lt. Col. Hibner has served as Chemical Surety Officer at Headquarters, U.S. Army Materiel Command, Fort Belvoir, Va. He holds a master's degree in Management from Colorado Tech University and a bachelor's degree from Eastern Illinois University. Lt. Col. Hibner also graduated from the Chemical Officer Basic and Advanced Courses, John F. Kennedy School of Special Operations Courses in Psychological Operations, Civil Affairs, Regional Studies and the Command and General Staff College.

Anniston Chemical Activity - July 15
Lt. Col. Andrew M. Herbst replaced Lt. Col. Phillip M. Trued, Jr.

Lt. Col. Herbst served the last four years at Ft. Bragg, N.C., in a Special Operations unit as Chief of Chemical and Biological Defense. While there, he deployed twice as Chief of Operations in Iraq and Afghanistan and once as a liaison officer to the 1st Marine Expeditionary Force in Iraq. Lt. Col. Herbst earned a master's degree in Public Administration from Webster University and a bachelor's degree in Biological Sciences from Florida Atlantic University.

Blue Grass Chemical Activity - July 16
Lt. Col. David L. Musgrave replaced Lt. Col. Thomas J. Closs.

Lt. Col. Musgrave served as the Executive Officer to the Deputy Director and Senior Military Assistant to the Director, Defense Threat Reduction Agency/U.S. Strategic Command Center for Combating Weapons of Mass Destruction. He earned a master's degree in National Security and Strategic Studies from the Naval War College and a bachelor's degree from Middle Tennessee State University.

Deseret Chemical Depot - July 22
Col. Gerald L. Gladney replaced Col. Frederick D. Pellissier.

Col. Gladney most recently was the Director of Chemical Stockpile Operations with the CMA. He graduated from South Carolina State University with a bachelor's degree in Biology and Chemistry.

The original article appeared in the CMA NEWS (newsletter), August 2008 issue and can be viewed online at http://www.cma.army.mil/fndocumentviewer.aspx?docid=003678469.

Smiths Detection Launches Smart Trigger For Biological Detection

Smiths Detection Press Release

June 25, 2008

"Smiths Detection…announced the launch of SmartBio™ Sensor (SBS), a real-time detector for biological agents or airborne toxins. SBS provides a visual or audio alarm when a bio-threat is detected and classifies the agent by threat category."

http://www.smithsdetection.com/eng/1025_3859.php

Hanford Nuclear Services, Inc. (HNS) to Sell U.S. Patent 6805815, Unique "Dirty Bomb" Cleanup Polymer

STLtoday.com News Releases

June 25, 2008

"Hanford Nuclear Services, Inc. (HNS)… announces the sale of US Patent 6805815, "Composition For Shielding Radioactivity"… The sprayable polymer, produced from two liquid monomers, forms a highly viscous, rubber-like membrane that is non-biodegradable, non-combustible, non-toxic, radiation-proof, and resistant to chemical corrosion."

http://www.stltoday.com/pr/business/PR06250807471293/

Avalanche Photodiodes Target Bioterrorism Agents

Georgia Tech News Release

June 25, 2008

"Researchers have shown that a new class of ultraviolet photodiode could help meet the U.S. military's pressing requirement for compact, reliable and cost-effective sensors to detect anthrax and other bioterrorism agents in the air."

http://www.gatech.edu/newsroom/release.html?id=1955

Bioneutral Announces a Breakthrough In The Fight Against Bioterrorism

BioNeutral Laboratories Corporation, PR Newswire Association LLC

June 13, 2008

"BioNeutral announced today the results of tests utilizing its Ygiene™ formulation to kill anthrax spores on contact. This chemical technology is designed to be used…in conjunction with any suspected anthrax exposure."

http://findarticles.com/p/articles/mi_m4PRN/is_2008_June_12/ai_n26673111

Department of Defense Announces the Members of the Task Force on Nuclear Weapons Management

U.S. Department of Defense News Release

June 12, 2008

"The task force, announced by Gates June 5, will provide independent advice on the organizational, procedural and policy improvements necessary to ensure that the highest levels of accountability and control are maintained in the department's stewardship of nuclear weapons, delivery vehicles, sensitive components and basing procedures."

http://www.defenselink.mil/releases/release.aspx?releaseid=11986

Detection Instrument Can Sniff Out Airborne Terrorist Threats

Lawrence Livermore National Laboratory News Release

June 12, 2008

"Security and law enforcement officials may some day have a new ally– a universal detection system that can monitor the air for virtually all of the major threat agents that could be used by terrorists."

https://publicaffairs.llnl.gov/news/news_releases/2008/NR-08-06-05.html

Super-Sensitive and Small: New MIT Detector Uses Nanotubes to Sense Deadly Gases

Anne Trafton

MIT News Office

June 5, 2008

"Using carbon nanotubes, MIT chemical engineers have built the most sensitive electronic detector yet for sensing deadly gases such as the nerve agent sarin. The technology, which could also detect mustard gas, ammonia and VX nerve agents…"

http://web.mit.edu/newsoffice/2008/nanotube-0605.html

HHS Provides More Than $1 Billion to Improve All Hazards Public Health

HHS Press Office

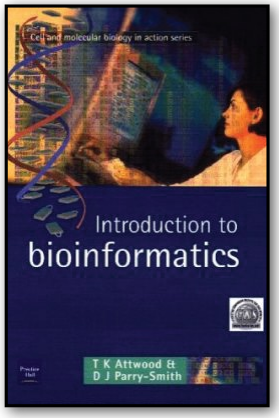
June 3, 2008

"HHS Secretary Mike Leavitt today announced that the department has made available nearly $1.1 billion to continue assisting public health departments, hospitals and other health care organizations to strengthen their ability to respond to public health and medical emergencies as a result of a terrorism attack or naturally occurring event."

http://www.hhs.gov/news/press/2008pres/06/20080603a.html

New CBRNIAC Information Resources

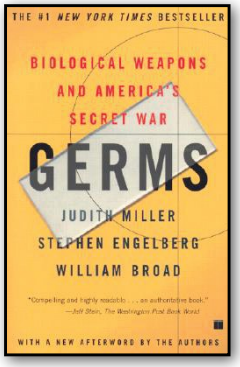
Attwood, Teresa K. and Parry-Smith, David J. **Introduction to Bioinformatics**. Upper Saddle River, NJ: Pearson Education, 1999.



"This book is about sequence analysis. It is an attempt to discuss what realistically can and cannot be achieved with today's computer programs in today's databases. …Computational methods merely provide clues; the challenge is to design analysis strategies that most effectively capture known biological knowledge and hence can offer insights that might ultimately suggest particular experiments. Thus, wisely used, sequence analysis is a valuable tool in the trade of modern molecular biology." *(Overview)*

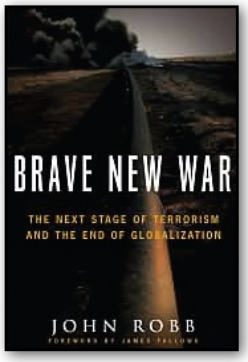
CB-066154
ISBN 0-582-327881
Pearson Education
One Lake Street
Upper Saddle River, NJ 07458
Phone: (201) 236-7000

Miller, Judith, Engelberg, Stephen and Broad, William. **Germs: Biological Weapons and America's Secret War**. New York, NY: Simon and Schuster, Inc., 2001.



"In this groundbreaking work of investigative journalism, Judith Miller, Stephen Engelberg, and William Broad of The New York Times uncover the truth about biological weapons and show why bio-warfare and bio-terrorism are fast becoming our worst national nightmare." *(Inside Cover)*

CB-066205
ISBN 0-684-87158-0
Simon and Schuster, Inc.
Rockefeller Center
1230 Avenue of the Americas
New York, NY 10020
Phone: (212) 658-7000

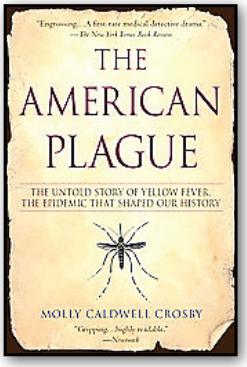


Robb, John. **Brave New War: The Next Stage of Terrorism and the End of Globalization**. Hoboken, NJ: John Wiley and Sons, Inc., 2007.

"In Brave New War, the counterterrorism expert John Robb reveals how the same technology that has enabled globalization also allows terrorists and criminals to join forces against larger adversaries with relative ease and to carry out small, inexpensive actions – like sabotaging an oil pipeline – that will generate a huge return." *(Back Cover)*

CB-070326
ISBN 978-0-471-78079-3
John Wiley and Sons, Inc.
111 River Street
Hoboken, NJ 07030-5774
Phone: (201) 748-6000

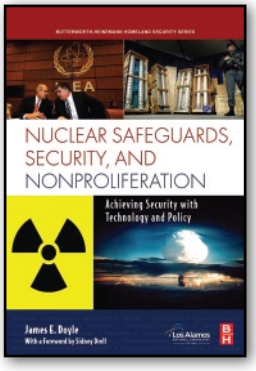
Crosby, Molly Caldwell. **The American Plague: The Untold Story of Yellow Fever, The Epidemic That Shaped Our History**. New York, NY: The Berkley Publishing Group, 2006.



"The American Plague delves into America's not-so-distant past to recount one of the greatest epidemics of our time. It tells the story of the yellow fever epidemic in Memphis, Tennessee – one that would cost more lives than the Chicago Fire, San Francisco Earthquake, and Johnstown Flood combined – and it is a narrative journey into Cuba and West Africa, where a handful of doctors, including Walter Reed, would change medical history." *(Inside Cover)*

CB-068401
Berkley Books
375 Hudson Street
New York, NY 10014
Phone: (212) 366-2000

Doyle, James E. **Nuclear Safeguards, Security, and Nonproliferation: Achieving Security with Technology and Policy**. Burlington, MA: Butterworth-Heinemann-Elsevier, 2008.



"*Nuclear Safeguards, Security, and Nonproliferation: Achieving Security with Technology and Policy* provides an introduction for those who will toil on nuclear technology and policy issues for the future and provides a needed complement to traditional nuclear science and technology education as these fields grow in the future." *(Preface)*

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Fort Detrick Interagency Collaboration Protects Taxpayers' Pocket, Lives

By Sarah Maxwell, Fort Detrick Public Affairs

An Army medical research facility and the Department of Homeland Security (DHS) may seem like they have different operations, but when it comes to protecting the servicemembers and citizens of the United States, their mission is the same. This common goal fueled the interagency collaboration that led to the U.S. Army Medical Research Institute of Infectious Disease (USAMRIID), part of the U.S. Army Medical Research and Materiel Command (USAMRMC), streamlining their logistics and the DHS receiving a new laboratory.

While its future home as part of the National Interagency Biodefense Campus is under construction until 2009, the DHS needed a laboratory to house its bio-forensic analysis center. Opening its doors to help the DHS mission, USAMRIID offered one of its loading docks for space to build a lab in what most people involved call a win-win project.

"When there's interagency collaboration, it's the best value for the government," said Dr. Kevin Anderson, DHS's National Biodefense Analysis and Countermeasures Center deputy director. "We're working together to save the tax-payer's money while performing the mission." USAMRIID had two loading docks that were on separate ends of the building, which is about two football fields long. One was for bringing in lab supplies, the other for hardware, and the logistics center was caught in the middle. The agency gave up one of its docks, enlarged and upgraded the other one, and then consolidated it with logistics administration to make an organized operation.

According to Beverly Maultsby, USAMRIID's chief of logistics, many times equipment items would to take up to 10 days from the time it was unloaded to the time it made it to its destination. Now, most delivers are just a one-day process.

"The flow of materials is much easier for us," said Maultsby. "Being co-located with property management has made it better to serve our customers, which is everybody in USAMRIID."

Although the effort was about consolidation, by systematically arranging the logistics process it actually created more space. The efficiency also saved money and gave the building management an opportunity to improve the security by controlling the flow of materials.

"We don't want our deliveries coming into our assets," said Robert Koning, USAMRIID's facility manger, "It's much safer to consolidate all the logistics into one area and separate it from the labs."

The space that was left from the unused loading dock was renovated into a modular B-1 laboratory for the DHS's casework.

As federal law enforcement work, it involves experiments used to identify and characterize possible agents from suspected terrorist incidents, said Anderson.

Pfc. Jennifer Mrozek documents a package at the consolidated logistics center in the USAMRMC's USAMRIID. The institute's new loading dock was a result of collaboration between the DHS and the U.S. Army. Photo by Doug Valentine

With an "excellent" record of safety and the program achieving a "gold standard" from the World Health Organization, Anderson said the new lab is helping DHS to continue this success. It is also used to develop standardized operation procedures, or SOPs, that are crucial to quality assurance.

When a sample is collected from federal law enforcement and sent to the lab, the SOPs are used to find out what's in it and where it came from. They determine how good the process is that helps attribute the sample to the individuals or groups who could have made it, which strengthens law enforcement.

"Bio-forensic analysis is a very clean process," said Anderson. "When we conduct the casework analysis, it must be able to stand up in court."

In addition to being able to pin down who might have used an agent, there are even broader benefits to the USAMRIID and DHS collaborative effort.

"If we have a process established to be able to conduct analysis and provide it to the FBI," said Anderson, "it may serve as a future deterrent to those who would harm the American people."

History of the Army Chemical and Biological Decontamination– Part I

By Jeffery K. Smart, U.S. Army Research, Development and Engineering Command Historian

This article is Part I of a series of articles extracted from the ***History of Army Chemical and Biological Decontamination***, by Mr. Jeffery K. Smart, U.S. Army Research, Development and Engineering Command (RDECOM) Historian, July, 2007. This presentation is edited, with permission of the author, for the ***CBRNIAC Newsletter*** forum.

PRE-WORLD WAR I

Early Decontaminating Agents

Decontamination is the process of making any person, object, or area safe by absorbing, destroying, neutralizing, making harmless, or removing chemical or biological agents. [1] There are both naturally occurring decontaminants and manufactured decontaminants. Following the introduction of large-scale chemical warfare during World War I, the need to decontaminate after a chemical attack became a major concern of the Chemical Warfare Service, the forerunner of the Chemical Corps. Several of the key decontaminants identified during World War I and after were actually known long before the 20th century.

Water

Water was one of the earliest known decontaminants. Rain showers washed away ground pollutants while bathing eliminated bodily contamination. Water's capability to breakdown and decompose substances, called hydrolysis, was used to change toxic substances into usable products. Hot water was known for its cleansing capabilities. One of the earliest known attempts to use chemical weapons on the battlefield was foiled by water. During the Peloponnesian War in 429 BC, the Spartans and Thebans attempted to destroy the city of Plataea by creating a hot fire and adding brimstone and pitch. A thunderstorm, however, extinguished the fire before it did much damage. Water and steam are still considered natural decontaminants today for physically removing contamination, but neither neutralizes the contaminating chemical or biological agent. [2]

Methods of Decontamination. From Technical Manual 3-220, Decontamination (1953)

Fuller's Earth

Fuller's earth is a highly absorbent naturally occurring substance well known since at least 5,000 BC. The name came from the term "fulling" which meant to shrink or thicken materials by adding moisture. In ancient times in England, workers added clay materials to water and then soaked raw wool in it to remove dirt and lanolin. It was also used as a natural bleaching agent. Fuller's earth was actually a generic term that was applied to many different earthy substances that had the highly absorbent qualities. Most consisted of hydrated aluminum silicate from clay minerals calcium montmorillonite and palygorskite. Fuller's earth is often used today in pet litter. [3]

Calcium Oxide (Lime)

Calcium Oxide, also known as lime or quicklime, was recognized as a decontaminant in early times. Lime is a whitish powder created by removing carbon dioxide from calcium carbonate (also known as calcite, a naturally occurring mineral in limestone). An example of its use on the battlefield occurred in 1422 during the Hussite siege of Castle Karlstein near Prague. The Hussites used catapults to fling rotting bodies and other filth into the castle walls as an early form of biological warfare. The Catholic defenders, however, countered the attack by using lime on the caucuses and filth as a decontaminant. After five months, the Hussites gave up the siege and signed an armistice. Lime also has a caustic aspect. Finely pulverized lime was used as a weapon during the reign of Henry III (1216-1272) when the English fleet threw it onto French ships to blind and disorient the French crews. [4]

Continued pg.19

History *cont.*

Bleaching Powder

Bleaching powder, one of the first recognized decontaminants, was discovered during the 18th Century. In 1785, a French chemist, Claude Louis Bethollet, discovered that chlorine had strong bleaching capabilities. Several years later, in 1799, Charles Tennant, a Scottish chemist, discovered that calcium oxychloride, also known as bleaching powder or chloride of lime, had strong bleaching powers due to its chlorine content. It was made by the reaction of chlorine gas on lime. Bleaching powder became the standard bleaching agent to whiten or remove colors from items until the 1920s. [5]

Chlorine Dioxide

Chlorine dioxide is a greenish-yellow gas with a pungent odor that is normally prepared by adding dilute sulfuric acid to a solution of sodium chlorite. First identified in 1811, it was patented in 1985 as a quick and effective sterilizer for drinking water, food processing, and for medical waste. It was also used for paper pulp bleaching. Chlorine dioxide is corrosive and a health hazard that requires the use of the protective equipment. [6]




To be continued...

Endnotes

1. Field Manual (FM) 3-11.4, *Multiservice Tactics, Techniques, and Procedures for Nuclear, Biological, and Chemical (NBC) Protection*, June 2003, Glossary-11.
2. J. Mankowich, et. al., *Decontamination of Chemical Agents*, Edgewood Arsenal Special Publication 300-5, June 1970, 1:13; "Water," *The New Encyclopedia Britannica* (Chicago: Encyclopedia Britannica, Inc., 1987), 12:514-515; Thucydides, *The Peloponnesian War*, ed. David Grene (Chicago: The University of Chicago Press, 1989), 133-134; FM 3-5, 1993, p. F-9.
3. Robert H. S. Robertson, *Fuller's Earth: A History of Calcium Montmorillonite* (Hythe, Kent, U.K.: Volturna Press, 1986), 10; "Fuller's Earth," *McGraw-Hill Encyclopedia of Science and Technology* (New York: McGraw-Hill, 1997), 7:542-543; "Fuller's Earth," *The New Encyclopedia Britannica*, 5:47.
4. Julius Grant, ed., *Hackh's Chemical Dictionary* (New York: McGraw-Hill Book Company, 1965), 124; "Calcium," *The New Encyclopedia Britannica*, 2:733-734; C. H. Beebe, "Some Additional Instances of the Early Use of Gas Warfare," *Chemical Warfare 9*, no. 9 (15 Sep 23): 4; Albert Manucy, *Artillery Through the Ages* (Washington, D.C.: U.S. Government Printing Office, 1949, 1985 reprint), 70; Erhard Geissler and John Ellis van Courtland Moon, eds., *Biological and Toxin Weapons: Research, Development and Use from the Middle Ages to 1945* (New York: Oxford University Press, 1999), 15-16.
5. Grant, 102; Mankowich, 1:13; "Calcium," *The New Encyclopedia Britannica*, 2:278-279; "Bleaching," *Microsoft Encarta Reference Library 2002* (DVD-ROM).
6. U.S. Environmental Protection Agency (EPA), Information Paper, "Fact Sheet for the Hart Senate Office Building Cleanup," 20 Nov 01; "Chlorine Dioxide," *Encyclopedia of Chemical Technology* (New York: John Wiley & Sons, 1993), 5:969-980.

CBRNIAC Hosts Initial Scientific Research Council Meeting

The Chemical, Biological, Radiological and Nuclear Defense Information Analysis Center (CBRNIAC) hosted the initial meeting of its **S**cientific **R**esearch **C**ouncil (SRC) at the Edgewood Area of Aberdeen Proving Ground, MD on 16 July 2008. The SRC was established to provide a forum for feedback from scientific and technical users of CBRNIAC with emphasis on CBRNIAC Core Program operations. The SRC, chaired by Dr. Harry Salem, Edgewood Chemical and Biological Center (ECBC), includes representatives from Joint Staff Joint Requirements Office, Defense Threat Reduction Agency, ECBC, Air Force Research Laboratory, Centers for Disease Control, Environmental Protection Agency, Department of Homeland Security, and Department of Agriculture. The lively discussions resulted in a number of valuable suggestions and comments from the SRC; progress on implementation will be briefed at the next SRC meeting planned for late 4th Quarter FY08 or early 1st Quarter FY09.

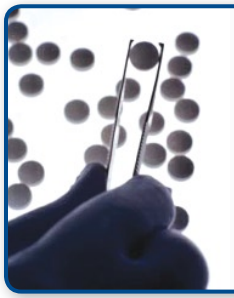
IAC PMA: Mr. Jim Adase/DTIC-I/703-767-9113
IAC POC: Dr. J. King/CBRNIAC/410-676-9030

CBRNIAC Inquiry Analysts Participate in "Operation Welcome Home-Maryland"

Two of the CBRNIAC Inquiry Analysts, Mary Frances Tracy and Megan Lynch, participated in "Operation Welcome Home-Maryland" on February 1, 2008 at the Baltimore-Washington International (BWI) Thurgood Marshall Airport. Volunteers, families, and friends gathered in the early morning hours to organize a warm welcome for troops returning from duties in Iraq.

Megan Lynch reported that "We helped bag goodies for the soldiers, and welcomed them when they came through… clapping, cheering, hand shakes, and hugs."

To see the photos and learn more about Operation Welcome Home efforts, see http://www.operationwelcomehomemd.org/



CBRNIAC FORUM

Panel of Experts Present "The Future of Toxicology in CB Defense"

On June 19, 2008, the CBRNIAC hosted its first "CBRNIAC Forum" from 10:00 a.m. to 12:00 p.m. in the Bernard Berger Laboratory (Building E3549) on Aberdeen Proving Ground, Maryland. Subject Matter Experts (SMEs) presented a concise and informative overview of key topics related to "The Future of Toxicology in CB Defense."

CBRNIAC Forum Host
James M. King, Ph.D.
Deputy Director of the CBRNIAC

Dr. King opened the Forum with a brief overview of the CBRNIAC and the Forum agenda. After presenting a brief introduction of each of the panel members and their respective topics, Dr. King turned the microphone over to the guest speakers. Dr. King orchestrated the Question and Answer session that followed the presentations, with the panelists responding to the questions directed at their particular topic. The proceedings of this Forum will be available as a CBRNIAC Product. The Question and Answer session will be included along with the proceedings.

Investigational Drug Development
David H. Moore, D.V.M., Ph.D,
CBRNIAC SME

Dr. Moore reviewed organizations that are involved in development and testing of medical countermeasures and toxicological heath risk assessments. After emphasizing that safety is a primary concern, Dr. Moore touched on the challenges of drug testing and evaluation in a clinical environment and highlighted six new products currently under advanced development. A concise explanation of the use of animal models in testing was presented. The minimum requirements for "first use" in man were identified.

Animal Rule in FDA Licensure
Dr. John V. Wade, D.V.M., Ph.D,
CBRNIAC SME

Dr. Wade reviewed the process required to move drugs through animal testing to human evaluation, reminding the audience that the animal rule governs the use of animal studies for approval of biological products (new drugs) when human efficacy studies can't be done. Dr. Wade provided a review of animal model selection criteria, pointing out that the cost of the animals is a big driver in this type of study. He also stressed the importance of including the U.S. Federal Drug Administration (FDA) from the onset of a new program.

Alternatives to Animal Testing
Dr. Harry Salem, Ph.D.
U.S. Army RDECOM

Dr. Salem's presentation contained valuable history regarding toxicology, toxicological studies, animal testing, and regulations that affect the use of animals in drug development. He reviewed the "Cruelty to Animal" laws, the "3R's" (Replacement, Reduction, and Refinement) and animal testing evolution in the FDA. He noted that scientists working in this field have embraced the 4th "R" of "Responsibility" proposed by DoD. Dr. Salem also discussed the development of the Interagency Coordination Committee on the Validation of Alternative Methods (ICCVAM), their goals, and accomplishments to date.

Continued pg. 23

The attendees represented over 10 organizations and agencies throughout the CBRN Defense and Homeland Security communities. The proceedings will be published as a CBRNIAC Product in the near future.

About the Subject Matter Experts

Dr. King spent over 22 years in the DoD serving in a variety of senior level management and research and development positions prior to assuming the position of Deputy Director, CBRNIAC. He was appointed Chief of the Pharmacology and the Research Operations Divisions at the U.S. Army Medical Research Institute of Chemical Defense. As Senior Staff Officer in the Army's Medical Chemical Defense Program, he was responsible for overseeing planning, budgeting, and execution of the Joint Medical Chemical Defense Program. While at the U.S. Army Aeromedical Research Laboratory and the U.S. Army Human Engineering Laboratory, Dr. King served as a Division Chief and Commander & Deputy Director. He has also been a research officer at the U.S. Army Health Care Studies and Clinical Investigation Activity and the U.S. Army Medical Research Institute of Chemical Defense. Dr. King holds a B.A. in History from New York University and an M.A. and Ph.D. in Psychology from the University of Texas at Arlington.

Dr. Moore has been with Battelle since retiring from the U.S. Army in 1997. In his last two Army assignments, he served as the Deputy Commander, U.S. Army Medical Research Institute of Chemical Defense and as the Director, Medical Chemical Defense Research, U.S. Army Medical Research and Materiel Command. He is a Diplomate, American College of Veterinary Preventive Medicine and a Diplomate, American Board of Toxicology. He is the Editor for the Antidote Development section of the quarterly Drug and Chemical Toxicology journal. Dr. Moore served from 1999-2006 as a member of the Committee on Toxicology of the National Research Council and has recently been nominated for membership to the U.S. Air Force Scientific Advisory Board. Dr. Moore holds a B.S. in Zoology from Georgia State University and a D.V.M from the University of Georgia, College of Veterinary Medicine. He earned his Ph.D. in Physiology from Emory University School of Medicine.

Dr. Wade received his D.V.M. from Michigan State University and began a 23-year Army career in 1977. While on active duty, he earned a Ph.D. in Toxicology from the University of Kansas, beginning a lifelong pursuit in research, management, and operational solutions in medical chemical and biological defense. He culminated his military career as Acting Deputy Assistant to the Secretary of Defense, Counterproliferation and Chemical & Biological Defense. Dr. Wade joined Battelle in 1999. He has served as the CBRNIAC Science Advisor since 2000.

Dr. Salem serves as the Chief Scientist for Life Sciences and was Acting Senior Team Leader for Biosciences for the Research and Technology Directorate of the U.S. Army Edgewood Chemical Biological Center (ECBC). He was previously the Chief of the Toxicology Division. His research interests and experience include inhalation and general pharmacology and toxicology, and in-vitro and molecular toxicology. In 2001, Dr. Salem was awarded the Society of Toxicology Congressional Science Fellowship, and served as the Science Advisor to Congressman Jim Greenwood. Dr. Salem has served on the Editorial Boards of several professional journals. He is currently on the Editorial Board of Toxicology Mechanisms and Methods, and was the Editor-in-Chief of the Journal of Applied Toxicology for 25 years. Dr. Salem has been elected a Fellow of the New York Academy of Sciences, the American College of Clinical Pharmacology, the American College of Toxicology, and the Academy of Toxicological Sciences, of which he is also a Diplomat in General Toxicology, and where he served on the Professional Standards Board and the Board of Directors. He served as President of the National Capital Area Chapter of the Society of Toxicology, the Association of Government Toxicologists, and Sigma Xi. He currently serves as the Chair of the Technical Committee of the Society of Toxicology, and on the Council of the International Society of Regulatory Toxicology and Pharmacology. Dr. Salem also served on the Society of Toxicology Task Force for a Chemical Biological Terrorism Resource Registry, and continues to serve the Society to validate Chemical Biological information responses to inquiries. In addition he serves on the Advisory Board of the Rocky Mountain Center for Homeland Defense. Dr. Salem is a licensed Pharmacist in the Commonwealth of Pennsylvania. He received a B. A. from the University of Western Ontario, a B.S. in Pharmacy from the University of Michigan, and Masters and a Doctorate degree in Pharmacology from the University of Toronto.

New CBRNIAC Product

CBR Simulant Training Kit

Distribution: Federal, State, and Local Government Agencies Only – Further Distribution Only as Authorized by TSWG and NCTC; Unclassified
CBRNIAC Number: SIMKIT-07-03
Publication Date: 08-2007
Media: Kit
Price: $750.00

The Comprehensive CBR Simulant Training Kit is an updated version of the previous CBR Simulant Kit, combining the non-hazardous visual and odor simulants available in the original with additional CBR simulants. The kit is designed to assist a wide range of security and response personnel in recognizing low-purity chemical, biological, and radiological (CBR) materials that fall within plausible terrorist production capabilities. The kit contains the visual and odor simulants.

The included user manual provides additional information on the properties and possible variations of the materials simulated in the kit. The kit also can include a CD-based reference tool with a variety of additional training publications and a DVD with a training video. All materials are contained in a rugged briefcase weighing approximately 10 lbs and has no transport restrictions.

This item has been approved by the National Counter Terrorism Center (NCTC), but has not been officially tested or approved by the Department of Defense Chemical Biological Defense Program (CBDP) The CBDP shall not accept liability of any kind related to this product. The CBDP makes no express or implied warranty as to the conditions of the product, merchantability, or fitness for a particular use.

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