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Winter 2017/2018

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COMMANDER'S CORNER



BG James E. Bonner
Commander
U.S. Army 20th CBRNE Command



LEADERSHIP PERSPECTIVE

Frank S. Longoria
Assistant Director-Border Security
Office of Field Operations
U.S. Customs and Border Protection

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Texas' 6th WMD-CST, responsible for 18 million people across the "Texas Triangle", was instrumental in the response efforts from last year's Hurricane Harvey disaster.

By SFC William Gee
and CAPT Sean Thurmer

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COMMANDER'S CORNER

Countering the Threat through Maximized Readiness

BG James E. Bonner

Commander
U.S. Army 20th CBRNE Command
Aberdeen Proving Ground, MD

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LEADERSHIP PERSPECTIVE

Balancing Protection and Commerce

Mr. Frank S. Longoria

Assistant Director-Border Security
Office of Field Operations
U.S. Customs and Border Protection
Laredo, TX

Cover: An officer with the U.S. Customs and Border Protection Office of Field Operations guides a CBP x-ray inspection truck during inspections of commercial vehicles as they arrive at NRG Stadium in Houston, Texas. (U.S. Customs and Border Protection Photo by Glenn Fawcett)



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Adapting to Meet the Broader Threat

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By Bradley Kroner



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By Cindy Kronman



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Interview by Christian Sheehy

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INSIGHTS

As new capabilities for unmasking evolving threats to U.S. security enter the scene, so too do new criminal methods for infiltration across the borders. More than ever, we rely on the skill of professionals who define and protect the lines between community prosperity and calamity. Ensuring that the commerce of daily life remains free-flowing while simultaneously minimizing the effect of threatening forces, whether mass-casualty terror or Category 4 hurricane, is the business of first responders whose results can be measured by every "eventless" day of the calendar.

In the Winter 2017/18 issue of Security & Border and CST/CBRNE magazine, we delve into a complex world of varied field experience with efforts in land, air, and sea port of entry coordination by U.S. Customs and Border Protection (CBP), Office of Field Operations, Laredo TX. We also look at tactics in CBRN defense response and remediation as well as lessons learned from Hurricane Harvey relief. This issue's lead feature sheds light on the myriad responsibilities of a team of talented individuals that cover three large metropolitan areas and 18 million people. From day-to-day exercises in CBRN and mass casualty attack preparedness to the re-establishment of voice and data capabilities following wide infrastructure destruction during last year's Hurricane Harvey event, the 6th Weapons of Mass Destruction-Civil Support Team (WMD-CST), Texas Army National Guard, is at the ready.

The Army's 20th CBRNE Command, headquartered at Aberdeen Proving Ground, MD, and commanded by BG James Bonner, is reflective of the multi-threat nature of today's global battlefield. From chemical and biological agent neutralization to improvised explosive device (IED) detection and defeat to explosive ordnance disposal (EOD), 20th CBRNE Command is entrusted as the nation's first line of defense. In the purview of counter-terror preparedness, the National Center for Biomedical Research and Training/Academy of Counter-Terrorist Education at Louisiana State University (LSU-NCBRT/ACE) is leading many streams of new thought in dealing with emerging complex coordinated attack realities.

Finally, we look at some key advances in chemical agent detection with the Army's next-generation M4A1 Joint Chemical Agent Detector (JCAD), homemade explosives detection using x-ray analysis, and canine detection in chemical casualty response.

We welcome your feedback and thanks for your continued readership!

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¹Lurie KG, et al. *J Med Soc Toho*. 2012;59(6):304-315.

²Convertino VA, et al. *Resp Care*. 2011;56(6):846-857.

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SCALABLE TO ANY CONTINGENCY

The U.S. National Guard Weapons of Mass Destruction – Civil Support Team (WMD-CST) program, originally known as Rapid Assessment Initial Detection (RAID), was created to help face the increasing risk of WMD and other disaster-related events. Most recently, the 6th WMD-CST, Texas Army National Guard (TXARNG), was instrumental in response efforts from last summer's Hurricane Harvey event, a recovery that is still going on.

By SFC William Gee, 6th CST Information Systems Analyst, and CAPT Sean Thurmer, 6th CST Science Officer



6th CST supporting local response in Austin, TX after 63 birds were found dead in a localized area downtown. The CST assisted by providing hazardous material monitoring and sampling expertise and was able to rule out chemical and biological warfare agents as the cause of death. (6th WMD-CST)

The 6th WMD-CST, Texas Army National Guard (TXARNG), is one of the original ten Chemical, Biological, Radiological, and Nuclear (CBRN) response teams authorized and funded by Congress in 1998. The newly-created 6th CST was assigned to FEMA Region VI and officially certified for incident response operations in June 2001 and is strategically headquartered in the state's capital, Austin, at the center of the "Texas Triangle," a densely populated area including Houston, San Antonio, and Dallas-Fort Worth, totaling a combined census of more than 18 million people.

Sustaining Large-Scale Responsibility

Texas is the second largest U.S. state by population, land mass, and industry, and boasts the tenth largest economy in the world by GDP. The state hosts the nation's largest petroleum production and refinement capacity, fourth largest agriculture production, and massive medical, technology, and defense industries. To enable this \$1.5 trillion economy, Texas has three of the five largest land ports of entry, second busiest sea port of entry and one of the most active air ports of entry in the United States. There are dozens of smaller entry points along a lengthy international border and coastline. Thousands of radioactive material licensees and registrants throughout the state use radionuclides for medical and industrial applications. At current, TX also houses two active nuclear power plants and the nation's primary nuclear weapons depot (PANTEX).

In addition to the massive industrial infrastructure, Texas hosts some of the largest public events in the country with attendance often exceeding 100 thousand people. Some of the events include NFL and college football games, Super Bowls, NASCAR, NBA Final Four, Fiesta, and concerts. The volume of attendees coupled with multiple site venues sometimes creates challenges for public safety organizations. This presents the state of Texas with myriad arrays of extremely complex and constantly evolving threat environments, each susceptible to a variety of manmade or natural disasters. As such, the 6th CST augments local, state, and federal agencies routinely in order to help mitigate the risks associated with the threats and vulnerabilities.

Restoring Post-Disaster Normalcy

6th CST support missions often take place in areas where there is already a strain on local communication systems such as large sporting events and conversely areas where the infrastructure has been wiped out as in the case of Hurricanes Rita in 2005, Ike in 2008, and Harvey in 2017. In these situations, the CST C4I assets are still able to provide voice and data capabilities even with infrastructure saturation or loss. The 6th CST Communications Team (CT) works closely with local, state, and federal partners to pre-event plan and coordinate communications. The NDOW sprang from of the 2008 hurricane Ike response lessons learned and identified ways to better prepare for an incident. Through regular communications exercises with NDOW members, the 6th CST CT was able to coordinate and integrate our communications with partner agencies within minutes of arrival to ESF 3 & 10 during the Hurricane Harvey response. "Communications are



6th CST and 433rd AW in Joint Base San Antonio (Lackland) conduct air-load training on a C-5 Galaxy in order to ensure they are prepared to deploy anywhere in the U.S. and territories via air. (6th WMD-CST)



SFC William Gee



CAPT Sean Thurmer

always one of the first things affected by an incident and one of the most crucial elements of a successful incident response completion. The 6th CST communications team has supported numerous agencies for large events like Super Bowls and presidential inaugurations to natural disasters like hurricanes and chemical plant explosions.

During the emergency response to Hurricane Harvey, a Category 4 hurricane that hit the Texas Gulf coast in August 2017, rather than falling under a single incident commander, we integrated under a unified command in close support to our lead state agency, TCEQ. Along with the EPA, USCG, and several other agencies, TCEQ participates in the Natural Disaster Operations Workgroup in a true interagency effort. NDOW, formed after Hurricane Ike, provides standard operations procedures, objectives, and data management amongst agencies responding with diverse resources in support of essential support functions 3 & 10.

NDOW exercises in 2015 and 2016 paid huge dividends during the Harvey Response and directly contributed to our success. Through 648 completed Hazard Evaluations, the multi-agency combined effort helped clear affected areas of 1,055 orphaned hazardous material containers. The members of the 6th CST are proud of the accomplishments during the response period and appreciate the support lent by 61st CST (AR) and 63rd CST (OK).

Multi-Threat CBRN Response

CSTs are highly trained, extremely agile entities and, by design, have a unique ability to adapt and respond in any environment across the chemical, biological, radiological, and nuclear (CBRN) threat spectrum. The ability for teams to swiftly adapt, combined with their extreme mobility, by land or air, provide quick response times and enable each CST to integrate and attune their capabilities to the specific threat environment of their respective area of responsibility. With that said, the ability for CSTs to conform to their assigned response areas and provide a skilled CBRN response asset tailorable to specific needs during an incident, is unmatched. Whether performing ship boarding



TSgt Donovan Garcia received >20% LEL on instrumentation while conducting a hazard evaluation mission alongside EPA and TCEQ in support of Hurricane Harvey response efforts. A displaced, leaking propane tank was identified as the source of the leak. The local fire department was notified and responded quickly, mitigating the leak to ensure life safety of nearby citizens and facilitate safe recovery of the tank. (6th WMD-CST)



SGT Reggie Book (left) and ISG Walter Sneed in Level B, decontaminating SSG Jay Rimel, SSG Anthony Buck, and Firefighter Jesse Ybarra after completing hydrazine fuel cell cleaning operations in East Texas in support of the Columbia Space Shuttle disaster response efforts. (6th WMD-CST)

operations with the U.S. Coast Guard, monitoring for CBRN threats at public venues for city fire departments, assisting the U.S. Department of Energy (DOE) in the search for lost radiological sources, providing incident commanders with emergency communications, or advising state agency partners on courses of action, WMD CSTs give any local,

state, or federal partner a unique capability that can be quickly called upon whenever and wherever needed for CBRN incidents.

To enhance CST proficiency beyond the baseline, the 6th CST regularly performs internal exercises and external full-scale exercises with local, state, and federal partners. Exercises serve not just to hone the team's skills, but build interagency partner confidence and cooperation. These actions facilitate an exchange of ideas, tactics, techniques, and procedures in order to better identify and fill the specific needs of supported agencies. Exercises are conducted utilizing training resources like Disaster City, located at a Texas A&M Engineering Extension Service (TEEX) facility in College Station. In world-class facilities like Disaster City, first responders are able to simulate real-world incidents ranging from train derailments to collapsed structures. First responders and CSTs across the country use the TEEX facility and facilitators to provide some of the most realistic training possible. These training exercises ensure that when the 6th CST is called upon, the team can easily integrate into the Incident Command structure to identify, assess, advise, and assist the Incident Commander (IC) across the full spectrum of CBRN threats.

Chemical Threat Preparedness

With the massive industrial sector in the state of Texas, the potential for chemical incidents are ever-present and unfortunately do happen. The 6th CST has responded to a number of small and large-scale chemical incidents across the state. The tragic space shuttle Columbia disaster in 2003 required an expansive search for components and chemical hazards – the 6th CST worked closely with local, state, and federal organizations during this effort. The team responded to the Waxahachie chemical plant fire, Bryan College Station and Athens fertilizer plant fires, and the tragic explosion in the City of West. In each of these incidents the CST provided monitoring and identification of hazards at the incident sites and surrounding areas. In 2014, the 6th CST assisted in the monitoring of Syrian chemical weapons and precursors as they were offloaded onto the TX shoreline for destruction, ensuring public safety and adequacy of the chemicals' containment. More recently, the team has supported homeland security investigators in responding to fentanyl narco-trafficking operations.

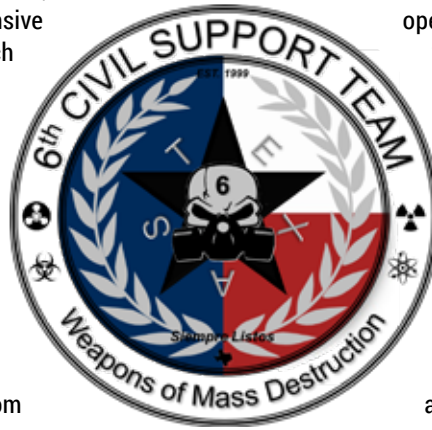
Biological Threat Preparedness

The CSTs are no strangers to the biological threat. Following the tragic events of 9-11, anthrax became one of the prominent biological threats in the United States. Since 2001, the 6th CST has responded to, and continues to support first responders and emergency responders during suspected anthrax incidents. To date, all of these incidents in Texas turned out to be either a hoax or benign substances called in by concerned citizens. However, in 2014, the deadly Ebola virus made an appearance in Texas. In the state response effort to prevent the spread of the virus, the 6th CST worked closely with state health officials to help train at higher risk of contact, and assisted with revising the state's emerging disease response plan.

Radiological and Nuclear Focus

Given the current geo-political climate, the threat of radiological or nuclear events are among some of the most feared. While the

likelihood of these types of events are extremely low, the impact can be high. The 6th CST provides extensive detection and identification capabilities which are commonly deployed to assist local, state, and federal partners at large events. The 6th CST members have refined the use of these capabilities to a point where an individual with a low dosage of a medical isotope can quickly be identified in a large crowd. The CST has also provided support to the Department of Energy (DOE) to help locate and recover stolen industrial radiological sources, and in 2015, assisted a county response effort in identifying smuggled radioactive material from Southeast Asia.



redundant ancillary systems, both secure and unsecure, operating in any environment, ensuring that the team and incident commander have reliable uninterrupted communications. The CST communications is a two-person section with a specialist in both Information Technology (IT) and Radio Frequency (RF) communications each cross trained extensively in the others role. The 6th CST communications section requires some of the most extensive technical training on the team and communicators must have the core acumen necessary to understand, adapt and integrate communications on the fly. The communications section for the 6th CST spends copious amounts of time developing and maintaining agency partner relationships to facilitate integration and support.

Emergency Communications

CSTs are equipped with cutting edge mobile communications platforms designed and built by the Special Communications Requirements (SCR) division at the Naval Air Warfare Center Aircraft Division (NAWCAD). The Unified Command Suite (UCS) and Advance Echelon Vehicle (ADVON) provide the core team assets necessary for tactical Command, Control, Communications, Computers, and Intelligence (C4I) on the move. The UCS provides a self-contained voice and data communications capability with

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COUNTERING THE THREAT THROUGH MAXIMIZED READINESS

Brigadier General James E. Bonner assumed command of the 20th Chemical, Biological, Radiological, Nuclear and Explosives (CBRNE) Command on July 19, 2017, at a ceremony on McBride Parade Field, Aberdeen Proving Ground-Edgewood Area. Brigadier General Bonner is the 7th commander of the U. S. Army 20th CBRNE Command. As the commander of the Army's and Department of Defense's premier CBRNE organization, he is responsible for the manning, equipping, and training of more than 3,400 Soldiers and civilians assigned across two Explosive Ordnance Disposal Groups, one Chemical Brigade, and a CBRNE Analytical and Remediation Activity.

Brigadier General Bonner is a native of Anna, Illinois and received a Regular Army commission in May 1988 as a Distinguished Military Graduate from Southern Illinois University. His military education includes the Chemical Officer's Basic and Advanced Courses, Basic Airborne School, Ranger School, Jumpmaster School, Pathfinder School, the United States Army Command and General Staff College and the United States Naval War College. He holds a Master's Degree in Administration from Central Michigan University and in National Security and Strategic Studies from the United States Naval War College.

Brigadier General Bonner has served in chemical officer positions at all levels from the tactical to the strategic level to include both command and staff positions. He has also served in a wide variety of units including assignments within the 75th Ranger Regiment, the Joint Special Operations Command and with the Federal Bureau of Investigation.

Previous general officer assignments include HQDA G8, Director of Materiel and 29th Chief of Chemical/Commandant, United States Army Chemical, Biological, Radiological, and Nuclear (CBRN) School, United States Army Maneuver Support Center of Excellence, Fort Leonard Wood, Missouri.

His combat experience includes a deployment to Panama with 1/75 Ranger Regiment as part of Task Force Red-Tango, where he participated in the night parachute assault and seizure of Torrijos-Tocumen Airfields during Operation Just Cause. As the commander for 23rd Chemical Battalion he deployed in support of Combined Joint Task Force 76 to Afghanistan during Operation Enduring Freedom 06-08. He was also selected to redeploy back to Afghanistan for Operation Enduring Freedom in order to assist with the establishment of the International Security Assistance Force Joint Command where he served as the Executive Officer for the Deputy Chief of Staff for Joint Operations.



**Brigadier General
James E. Bonner**

Commander
U.S. Army 20th CBRNE Command

CST/CBRNE: Please discuss the role of the 20th CBRNE Command and your role as Commander.

BG Bonner: The role of the 20th CBRNE Command is to counter chemical, biological, radiological, and nuclear (CBRN), and explosive ordnance threats and hazards for our nation.

We are responsible for the majority of the active Army's explosive ordnance disposal (EOD) and CBRN units which includes approximately 3,400 Soldiers and civilians which are located across 19 installations in 16 states. The command includes two Ordnance Groups (EOD), one CBRN Brigade, one CBRNE Remediation Activity, one Medical Laboratory and multiple teams of CBRN and EOD experts who provide technical expertise to Geographic Combatant Commanders.

The 20th CBRNE Command has multiple mission sets, both in the homeland and overseas. Our homeland response missions include support to the Defense CBRN Response Force, the National Technical Nuclear Forensics Ground Collection Task Force, EOD emergency response, and the very important person protection support activity (VIPPSA) missions.

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Cpl. Alexander LeBlanc, an EOD technician with 774th Ordnance Company, 242nd OD BN, 71st OD GP, transports ECM equipment to the site of a simulated explosive device during a multi-day training exercise to be certified operators of the unit's electronic countermeasure equipment, at Fort Carson, Colo. (U.S. Army 71st Ordnance Group - EOD)

Our deployed operations consist of counter-IED operations, military to military operations in support of the theater security cooperation strategy, special operations, and recovered chemical warfare material. Our EOD Soldiers conduct counter-IED and IED defeat actions in support of operations in the Middle East; and they provide basic instruction to host nation forces on demolition operations, ordnance identification, explosive hazards, and minefield clearance

in support of the theater security cooperation plan in Africa and the Middle East. We also have CBRN and EOD units that provide support to special operations forces. The recovered chemical warfare material mission involves our CBRN Remediation element which is directed to conduct recovery of U.S. chemical munitions, technical escort of surety material by air and ground, and remediation of former chemical weapons burial sites.

As the commander of the 20th CBRNE Command, I ensure we are prepared to provide highly trained CBRN and EOD forces that can accomplish our diverse mission set and are "Ready Now" to support the Army's ability to conduct Unified Land Operations and joint forces' capabilities to execute unified action to protect and defend our nation, its people, and its interests.

CST/CBRNE: From a 21st-century threats perspective, can you speak to some areas of critical focus that 20th CBRNE is targeting going into 2018?

BG Bonner: My number one priority is readiness. The 20th CBRNE Command's focus is building readiness in our personnel and equipment to ensure we are prepared to accomplish our mission objectives.

We are increasing integration of CBRN defense training with maneuver and Special Forces during home-station training, warfighter exercises and combat training center rotations. We are working with our proponents to modernize our force to ensure our units have the best equipment available.

To achieve mission success, we will continue to ensure our Army CBRN and EOD units are manned, equipped and trained to meet the demands of operations in contaminated and hazardous environments. Readiness depends on our command's ability to develop lethal, resilient and adaptable units which train in realistic and challenging conditions, are equipped with the latest technology, and are integrated with combined arms while conducting full spectrum operations.

CST/CBRNE: In terms of Army Joint cooperation with other U.S. DoD/ Government partners tasked with CBRNE defense, how is 20th CBRNE addressing the need for greater integration of standards-based training and real-world readiness?

BG Bonner: We are focused on integrating with our joint force and interagency partners in support of the National Defense Strategy through both joint planning and realistic training events to ensure readiness.

Our senior leaders have tasked us to concentrate on overall troop readiness, and have directed that units at every echelon incorporate CBRN into individual and collective training as a condition of the battlefield. Due to the increased focus, our CBRN unit readiness is improving as CBRN defense training is integrated with unit's mission essential tasks during home station training, during warfighter exercises and at the combat training center rotations at the Joint Readiness Training Center and the National Training Center. The purpose of CBRN training is to ensure Soldiers, leaders, and units achieve and maintain combat operations proficiency during CBRN conditions. Standardized training of CBRN tasks provide the foundation to enable units and the commander to respond and operate within a specified CBRN condition allowing the achievement of their mission.

We also participate in joint and inter-agency training events throughout the year. The various exercises provide realistic and challenging training events which allow our troops to work with their

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joint, law enforcement and interagency partners. Our CBRN forces participate in exercises which provide scenarios preparing them for their multiple missions such as consequence management operations or responding to a nuclear event in the continental United States. There are also counter-IED exercises which focus on interoperability capabilities between public safety bomb squads and EOD units in operational environments.



and Doctrine Command proponents including the Maneuver Support Center of Excellence, the Army's CBRN School, and Ordnance School, as well as, the Joint Improvised Threat Defeat Organization to identify emerging capabilities and technologies that will improve safety for our Soldiers and joint warfighters and increase our overall capability. Another initiative developed in partnership with the Defense Threat Reduction Agency in 2015 is "Scientists in the Foxhole". This program links scientists working on CBRN and EOD solutions with the warfighters conducting CBRN and EOD operations to identify areas where technologies can be improved.

CST/CBRNE: As the threat of chemical and biological weapons remains high globally, how is 20th CBRNE addressing radiological and nuclear dangers to U.S. assets at home and abroad?

BG Bonner: The 20th CBRNE Command has a full-time focus on countering weapons of mass destruction and defeating the full range of CBRN and explosive ordnance hazards and threats. Regarding radiological and nuclear threats, the command maintains specialized capability to support counter-proliferation, counter WMD planning and providing support to our joint and interagency partners.

CST/CBRNE: How is 20th CBRNE working to maximize solution sets to U.S. Soldiers and Joint Warfighters?

BG Bonner: Modernization is a top priority across the Department of Defense and DOD is always looking for ways to increase the readiness and capabilities of our warfighters. As a command, we have been coordinating with the Joint Program Executive Office for Chemical and Biological Defense to inform CBRN and EOD initiatives and address modernization challenges in four focus areas – protection of our force, contamination mitigation, characterization of CBRN and EOD hazards, and communications and situational awareness tools. We also work closely with our Training

CST/CBRNE: Feel free to speak on anything else.

BG Bonner: The 20th CBRNE Command was created in 2004 to combat the proliferation of CBRN and EOD threats and hazards and has made substantial contributions to the Department of Defense, as well as our joint, interagency, and multinational partners since its inception. The 20th CBRNE Command is essential to the protection of the US public and DOD forces against existing and emerging CBRN and explosive ordnance threats. Our forces can be tailored for any CBRN and explosive ordnance response, modularly designed for seamless integration with military and civilian partners.

I am proud to lead the DOD's premier CBRN and EOD organization. The 20th CBRNE Command forces are combat-proven, with extensive CBRN and EOD operational experience and planning both in the homeland and abroad. I am confident that the 20th CBRNE Command is "Ready Now" to provide trained and ready forces to execute CBRN and EOD missions in support of deployed operations and homeland defense.

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BALANCING PROTECTION AND COMMERCE

Frank S. Longoria is the Assistant Director Field Operations (ADFO) for Border Security at the Laredo Field Office, having served as such since January 2015. As Laredo Field Office ADFO, Mr. Longoria oversees both, operation and enforcement activities at eight (8) international ports of entry where 58.5 million travelers, more than 21 million vehicles, nearly 3.1 million commercial trucks, and an excess of \$168 billion in international trade are processed, annually. (FY 2016)

ADFO Longoria began his Federal career with the U.S. Customs Service in May 1992, and he has held a number of official positions including that of Customs Inspector, Paralegal Specialist, Field Training Representative with the Office of Training and Development, Program Manager, Supervisory Program Manager. His stint with CBP also includes a temporary assignment in support of the U.S. Customs and Border Protection's South Texas Campaign where he served as Assistant Commander. Throughout his career, Mr. Longoria has thrived as an innovative and high impactful leader with a bevy of notable contributions thus meeting a critical need for U.S. Customs and Border Protection in the areas of anti-terrorism, Non-Intrusive Inspection (NII) Technology training, the development of the South Texas Campaign, and assisted with the development of a highly structured enforcement process that utilizes the applicable sections of the Immigration and Nationality Act (INA) that effectively degrades and disrupts Transnational Criminal Organizations' ability to exploit the non-immigrant visa.

As an innovative leader, Mr. Longoria was recognized with the Commissioner's Excellence in Mission Support Award in 2004 for his contributions in the development and delivery of a number of diverse training programs that have helped augment CBP's capability to fight terrorism. He was again recognized with the Commissioner's Innovation Award for his efforts during 2005 that contributed significantly to the development of a training program that ensured that all CBP officers at the CBP Academy received extensive Non-Intrusive Inspection (NII) Technology training. Further, he was subsequently recognized with a Unit Citation Award in 2012 for outstanding enforcement efforts in overseeing the development of a structured enforcement process that effectively degrades and disrupts the TCO's ability to exploit the non-immigrant visa.

With a long dedicated career in public service, Mr. Longoria retired from the United States Air Force in 1991 after 20 years of honorable service. He also holds an Associate of Applied Sciences in Criminal Justice degree from the Community College of the Air Force.



Frank S. Longoria

Assistant Director-Field Operations
Office of Field Operations
U.S. Customs and Border Protection
Laredo, TX

Security & Border had the opportunity to speak with Frank S. Longoria, Assistant Director Field Operations – Border Security, U.S. Customs and Border Protection (CBP), Office of Field Operations, Laredo, TX, regarding some key challenges and focus areas that his office is presently addressing.

S&B: Please speak to the role and function of U.S. Customs and Border Protection.

Mr. Longoria: U.S. Customs and Border Protection (CBP) is one of the world's largest law enforcement organizations that safeguards America's borders, protecting the public from dangerous people and materials while enhancing the Nation's global economic competitiveness by enabling legitimate trade and travel. Within CBP there are three operational components: Office of Field Operations (OFO) which entails having officers working at ports of entry, U.S. Border Patrol (USBP) who is responsible for operations in-between ports of entry and Air and Marine Operations (AMO) who have resources in the air and sea. With that said, Laredo is the largest Field Office on the southwest border and covers more than 450 miles of the South Texas border, overlapping three U.S. Border Patrol Sectors and two Air and Marine Operations Branches.

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A CBP officer conducts canine inspections of arriving bus passengers at a Laredo Field Office port of entry. (DHS)

S&B: What is the role of an Assistant Director of Field Operations at CBP?

Mr. Longoria: I have served as the Assistant Director Field Operations (ADFO) for Border Security at the Laredo Field Office (LFO) since January 2015. My area of responsibility and oversight includes that of border security operations and enforcement activities at eight international ports of entry in Texas extending from Del Rio to Brownsville. CBP officers at these ports of entry have a complex mission of screening all foreign visitors, returning American citizens and imported cargo that enter the U.S. Amid the millions of travelers who interact with CBP officers, greater than 99% are law-abiding citizens who are traveling to and from our borders with legitimate documents for business or pleasure. Reasonably, one of our greatest challenges is finding that small percentage of “bad actors” who are attempting to enter illegally or with contraband.

S&B: From a southern border perspective, what are some primary focus areas for implementing improvements at the ports of entry?

Mr. Longoria: The Laredo Field Office has implemented an aggressive Counter Network Strategy that leverages federal, state and local law enforcement partners to enhance its intelligence and targeting efforts to degrade and disrupt the ability of transnational criminal organizations to exploit LFO ports of entry in furtherance of their criminal activity. Laredo is not only the largest Field Office on the southwest border, but also ranks high nationally in all aspects of CBP operations and interceptions.

S&B: As joint integration with state and local authorities has become a greater priority, how is your office working to streamline the methods that CBP field operations uses today?

Mr. Longoria: Before the creation of CBP, many of our components worked independently on their own missions. However, our current unified approach to improve how we protect the Homeland at our ports of entry harnesses an effective coordination of assets

and personnel of U.S. Customs and Border Protection (CBP), Homeland Security Investigations (HSI) and other resources of the Department of Homeland Security (DHS). This, along with our continued partnership with other federal, state, local and Mexican law enforcement counterparts enables us to accomplish our goals and mission. We look beyond the local scope of operations, collaborate and share information to maximize our efforts and results. Thus, during Fiscal Year 2017, the Laredo Field Office seized 156,452 pounds of narcotics that would have commanded a combined estimated street value of \$216 million. Specifically, 140,781 pounds of marijuana; 7,375 pounds of cocaine, up 25 percent from FY 2016; 7,560 pounds of methamphetamine, up 13 percent from FY 2016; 735 pounds of heroin, \$6.6 million in unreported currency, up 72 percent from FY 2016, 118 firearms and 48,663 rounds of ammunition.

S&B: With the increased focus on technological system applications to enhance hard border security elements, how is your office working to embrace this area of border protection?

Mr. Longoria: First and foremost, CBP uses a layered enforcement strategy to monitor, regulate, and facilitate the flow of goods, vehicles and persons at our ports of entry. A critical layer within this strategy is the use of Non-Intrusive Inspection (NII) systems and Radiation detection equipment (RDE) to thoroughly and quickly inspect/scan sea containers, rail cars, trucks, automobiles, pallets, and various packages and parcels to detect and interdict contraband without damaging the conveyance or its contents, nor resorting to more intrusive and time-consuming manual inspections, such as drilling and dismantling. Moreover, automated data inquiry systems allows for the immediate analysis and risk evaluation of vehicles and people crossing the U.S. at our ports of entry, providing officers with assessments of potentially higher risk travelers who require additional inspection. These technology tools and database systems which provide real-time information, coupled with our officers' training and experience, improves security at our border crossings and expands on our mission of protecting the American people.

S&B: Feel free to speak to challenges/goals moving forward.

Mr. Longoria: In looking towards the future and attempting to keep up with current trends and increase our officers' efficiency, targeting and interceptions at our ports, the Laredo Field Office is working on bringing together determined and skilled professionals within our ranks to battle threats from criminal organizations. The implementation of a Multi-Discipline Enforcement Process or MDEP concept brings together several specialized units whose subject matter expertise of different but complementary functions focus on conducting follow-up processes for all significant enforcement actions. This new transformation concept will unite CBP field personnel currently assigned to teams that specialize in different tactical enforcement and forensic disciplines to comprehensively and collaboratively work together and share information. The initiative will be a critical component in identifying immediate targets and augmenting the LFO Counter Network Strategy.

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ADAPTING TO MEET THE **BROADER THREAT**

The U.S. Army's latest iteration of the Joint Chemical Agent Detector (JCAD) is now capable of detecting explosive threats previously undetectable.

By Bradley Kroner, U.S. Army Edgewood Chemical Biological Center

In use for over 10 years, and with tens of thousands in service, the Joint Chemical Agent Detector (JCAD) has long been a critical aid to the warfighter for detecting chemical warfare agents.

For the first years of its use, the portable JCAD was used exclusively for real-time, automatic chemical warfare agent vapor detection, using ion mobility spectrometry, which identifies ionized molecules in the gas phase based on their mobility in a carrier buffer gas.

However, as chemical biological threats evolve, the warfighter's tools must evolve too. Six years ago, the original M4 JCAD was improved with better electronics and a built-in pre-concentrator, which better concentrates the sample before detection. This model is called the M4A1 JCAD.

Now, the M4A1 JCAD is under further development.

In 2010, the U.S. Army identified a need to determine whether any of its existing, fielded chemical agent detectors could be modified to detect homemade explosives and unknown bulk explosives – an increasing priority for land operations.

With funding from the Army Technology Objective Program, U.S. Army Edgewood Chemical and Biological Center (ECBC) found a solution: the JCAD. Used widely and well-known by the armed service branches, the JCAD was already in the hands of warfighters, making it a top choice for the project.

"Currently, distributing explosive detectors to warfighters would require them to carry an additional piece of equipment," said Vincent McHugh, a research chemist with the U.S. Army Chemical Biological Center (ECBC). "The objective was to use fielded equipment, like the JCAD, with a couple modifications to prevent the warfighter from having to carry a second detector."

Designed to detect the vapors emitted by chemical warfare agents, the JCAD had to be modified so that it could detect explosives – which have low vapor pressures – without losing its original functionality.

"One of our mandates going into this was that we couldn't change any of the hardware on the M4A1 JCAD itself," McHugh explained. "The only thing we could do was develop material add-ons or software changes. The only thing the user has to do is remove the rain cap from the JCAD and insert the detector into a cradle."

As a solution, scientists designed a separate JCAD accessory which consisted of add-on pieces: a cradle with a probe swab, and an inlet. When inserted into the cradle, the JCAD is considered an M4A1 JCAD Chemical Explosives Detector (CED). Upon removal, it's simply the M4A1 JCAD model.



Inside this white casing, referred to as a cradle, the M4A1 JCAD can detect explosives in addition to chemical agents. (ECBC)

While in the field, the cradle's probe swab heats and vaporizes explosive material. The JCAD CED can then detect the vapor emitted from the material to identify the explosive.

When the JCAD CED is fielded, its software will include a library of known explosives so that the device can use algorithms to identify the specific type of explosive encountered in the field. ECBC will complete its explosives library in a couple of months and the new JCAD's explosive detection capability will be fully functional.

Not only can the M4A1 JCAD CED detect explosives, it will also be able to detect nonexplosive compounds and pharmaceutical-based analogs – including illegal and dangerous drugs.

The M4A1 Joint Chemical Agent Detector, which detects vapor from chemical agents, is used by countless warfighters across the armed services branches. (ECBC)



"If a warfighter goes into a site for a sensitive site assessment or site exploitation and doesn't know if he's going into a lab where these compounds were used or stored, this detector can identify those compounds," McHugh said.

For now, the M4A1 JCAD CED is a prototype, with the design still not finalized. Development is ongoing with additional funding from the Joint Project Manager for Nuclear, Biological and Chemical Contamination Avoidance (JPM NBC-CA). It's expected to be fielded on a limited basis within a year.

More info: ecbc.army.mil



Vincent McHugh

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ADVANCES IN X-RAY TECHNOLOGY ARE MAKING THE JOB SAFER



Tim Nauslar

Tim Nauslar is planning to retire soon from the Michigan State Police after 23 years of service, 13 of those spent with the department's Bomb Squad Unit. Tim served in the US Navy starting in 1989 as a Gunner's Mate-Guns and was "Honorably Discharged" in 1993. Tim is a graduate of the F.B.I.-run "Hazardous Devices School" and Post Blast Investigator School as well as "Advanced Explosive Destruction Techniques" and "Home Made Explosives" courses run by the A.T.F.E. Tim also works part-time with SmartRayVision as a consultant.

Progress is good...and progress can be bad. This same good-and-bad assessment could be said about "technology."

Technology is ever-changing. It keeps evolving and becoming more sophisticated. As a bomb technician, the technology evolution represents a double-edged sword. As it gets better, so does the sophistication of improvised explosive devices (IEDs). Only outdone by this is the bomb-maker's creativity in concealment and design. The days of IEDs consisting only of a container and propellant are gone. Bomb technicians will still see these older attempts, but odds are they will see a lot more sophistication during their careers. Instead of dealing with propellants for explosive fillers, we now worry about peroxide-based explosives such as TATP or HMTD.

Homemade Explosive mixtures, like IEDs, are only limited by the creativity of their makers. But it doesn't stop there. Consider switching mechanisms. We now have to deal with electronic components which might be timed, victim-operated, command-controlled, or "all of the above," and that's in a single device!

Let's talk about the container. Here again, containers are up to the imagination of the bomb maker. The container(s) can serve several functions. One is to conceal and another is to "do work." What does it mean to "do work?" You don't have to look any further than the Boston Marathon to understand what kind of "work" an IED container can do. That particular container, a metal pressure cooker, provided a vessel for the explosive filler, which when initiated, offered ample containment to allow gas(es) to build up until violently rupturing, sending pieces of this pressure cooker (along with added fragmentation) in all directions at thousands of feet per second.

Another piece of the puzzle is the "initiator." If only these were as simple as a piece of "cannon fuse." Initiators in today's threats can be mechanical, chemical, homemade or commercially produced. And then there is the "power source"—9-volt batteries, AA batteries, car batteries—and it only gets more complex from there. Providing power to an electronic circuit can be accomplished many other ways.

Fortunately for me and all bomb technicians out there, technology can also work to our advantage. We have improved our response techniques and have better equipment for resolving situations. One of a bomb tech's most important tools is the X-Ray system.

X-Ray equipment gives users the ability to see inside packages without physically touching them. Let's face it, finding out what's inside a suspicious package without the availability of an X-Ray system could prove costly! Not so many years ago, military Explosive Ordnance Disposal (EOD) and civilian bomb technicians were developing X-Ray images using "Polaroid" film before transitioning to computed radiography (CR) X-Ray technology. CR technology gave the

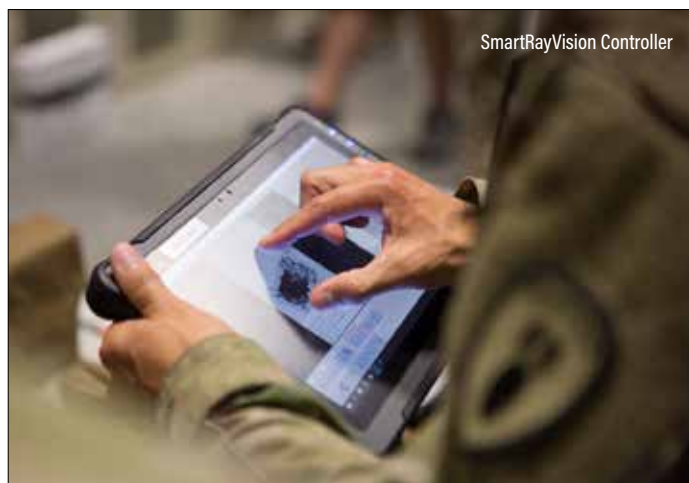
bomb tech the ability to digitally manipulate an image, improving image quality as well as allowing bomb techs to see through materials—an impossibility with film.

Technology has improved again as CR is giving way to DR, or digital radiography technology.

To bomb techs, this improvement in technology means they can spend less time near a suspicious package as well as requiring less X-Ray energy to produce a usable image. That's especially important since certain sensors are sensitive to X-Ray energy which can make getting a usable X-Ray image more dangerous and far more complicated. With some DR systems, this is no longer a problem as they can increase the bomb tech's ability to "see" through materials that CR technology could not view.

Another improved feature is portability thanks to the proclivity toward size reduction as technology advances. Bomb techs now have available to them entire X-Ray kits small enough to fit in backpacks. For the bomb tech, this is a welcome improvement! Especially considering a bomb tech who heads "down range" to diagnose a problem is wearing an 80-plus pound bomb suit and usually carries additional equipment besides X-Ray.

For me, I can't imagine a more challenging or rewarding career path. Most bomb techs are creative problem solvers and would do this job, regardless of the available technology. And yet, most bomb techs like me would also admit to being very thankful for the advances in detection technology!



UNSCRAMBLING THE TERROR THREAT



LSU-NCBRT/ACE instructors demonstrate one method of emergency breaching using a Halligan tool on a BTI breaching door during the "Law Enforcement Active Shooter Emergency Response" course. (LSU-NCBRT/ACE)

Security & Border had the pleasure of speaking with Mr. Jerry Monier, Associate Director-Research and Development, Louisiana State University-National Center for Biomedical Research and Training/Academy of Counter-Terrorist Education (LSU-NCBRT/ACE) and Mr. Sam Shurley, LSU-NCBRT/ACE SME/Lead Instructor, regarding the Center's training and some current focal areas for counter-terrorism tactics and readiness.

S&B: With the evolution of today's complex coordinated attack threat possibilities, can you describe the enhancements in LSU-NCBRT/ ACE training to combat these morphing threats?

Mr. Monier: This year, Louisiana State University's National Center for Biomedical Research and Training Academy of Counter-Terrorist Education, or LSU-NCBRT/ ACE, celebrates its 20th year as a member of the National Domestic Preparedness Consortium, or NDPC. The NDPC and LSU-NCBRT/ACE were originally created to support the Department of Justice's Office of Domestic



Jerry Monier



Sam Shurley

Preparedness in 1998. In 2002, after the creation of the U.S. Department of Homeland Security, the NDPC program was transferred to DHS and is now sponsored through a grant program managed through FEMA's National Training and Education Program.

The original course created by LSU-NCBRT/ACE was a Law Enforcement Response to Terrorist Events Course. Since 1998, LSU-NCBRT/ACE's training portfolio has expanded to include a number of CBRNE/WMD response courses. Those courses include Law Enforcement Active Shooter Emergency Response (LASER), Law Enforcement Prevention and Deterrence of Terrorist Acts, Site Protection through Observational Techniques, WMD Tactical Operations, Public Safety CBRNE Response -Sampling Techniques and Guidelines, Advanced Forensic Investigations for Hazardous Environments, our recently developed Critical Decision Making for Complex Coordinated Attacks (CCA) course, and the Active Threat Integrated Response Course (ATIRC).

Each of these courses addresses the complexities of responding to potential WMD/CBRNE events based on

the training level of the course: awareness, performance, or management. Many of these previously listed courses are performance level courses.

The two most recent courses developed are the CCA and ATIRC courses. Both courses were funded through DHS/FEMA's National Training and Education Program. The CCA course was developed by LSU-NCBRT/ACE to train line level responders and supervisors to quickly identify an emerging complex coordinated attack. This course specifically addresses and builds capabilities to enhance a community's multi-disciplinary response to an emerging complex threat. Rather than focus on any one WMD/CBRNE agent, this curriculum was developed to provide first responders from multiple disciplines with skills to manage the initial response to a large-scale incident in a chaotic environment during a complex coordinated attack.

The curriculum for the CCA course works towards enhancing the performance of local responders by using a building block approach to understanding and responding to a CCA.

Modules include:

Characteristics of a CCA, Public Safety Response to Atypical Complex Incidents, Command of a CCA, Information Gathering and Sharing, Problem Solving, and a Practical Exercise. Throughout the two-day course, participants are asked to participate in a series of activities that culminate with a scripted scenario that takes the group from an initial dispatch all the way through the establishment of a Unified Command. At each step of play from the initial responding officer to the establishment of the Unified Command, participants are challenged to make intuitive decisions that require them to allocate resources to an emerging complex event.

The second course is the ATIRC Course. This course was developed under a separate Continued Training Grant awarded to the Advanced Law Enforcement Rapid Response Training (ALERT) Center at Texas State University. ALERT developed the curriculum and at the conclusion of the grant, LSU-NCBRT/ACE was authorized by DHS FEMA NTE to incorporate the training course into its DHS Training Catalog. The ATIRC course is designed to improve the safety and survivability of victims of active shooter events and increase effectiveness, coordination and resource integration between law enforcement, fire, and EMS when responding to these types of events.

While the CCA course focuses on recognizing and gaining control over a CCA event, the ATIRC course focuses on stopping the threat through engagement; integrating the initial response through the concept of a Rescue Task Force; establishing staging areas; providing medical care; and the transportation of victims from inside the hot zone to a casualty collection point. The goal is to effectively and swiftly triage a victim, stop the bleeding and prepare the victim for transport to a higher level of medical care. All medical procedures taught in this course are in accordance with national standards and established best practices including the use of Tactical Emergency Casualty Care (TECC) or Tactical Combat Casualty Care (TCCC) protocols. Although these concepts are based on national standards local jurisdictions receiving this training must have the necessary state/local certifications, the approval of the agency's medical director and in some instances, may be restricted by applicable laws. The course

introduces the participant to a number of medical interventions to control hemorrhages and other traumatic injuries.

Both the CCA and ATIRC courses place participants from varying professional backgrounds into training environments that require them to think outside of the box to secure the scene and save lives. No one discipline or professional background can do this alone during an active shooter/active threat situation that may be part of a more involved complex coordinated attack. Success in our communities relies on a developing an adaptive response system capable of working across disciplines.

Mr. Shurley: As the threat of terrorist and criminal attacks and violence increases both domestically and globally, LSU-NCBRT/ACE remains on the leading edge of training first responders in tactics, strategies, philosophy and model response to complex coordinated, active shooters, CBRNE, WMD and hybrid-violence attacks. As the primary integrated response training program for the National Domestic Preparedness Consortium, LSU-NCBRT/ACE is able to provide the best mobile on-site training available anywhere today.

The 3 main courses addressing these threats are LASER, CCA, and ATIRC. LASER provides foundational training for law enforcement responding to active shooter events. The concepts and principles that participants learn in this course are in keeping with the national standard, and best practices for the rapid response to and resolution of these events. The CCA (Decision Making for Complex Coordinated Attacks) course takes participants through the process of initial response, establishment of command, and management of multiple attack locations. Finally, the "capstone" course in this training suite is ATIRC- the Active Threat Integrated Response Course, which is a comprehensive 3-day course during which responders from the 3 main services (Law Enforcement, Fire, EMS) work together through integrating their response to stop the killing, stop the dying, and return the community to normal as soon as possible. This course takes students from the very 1st report of an attack, through the apprehension of suspect(s), treatment, and evacuation of all victims from the scene.

S&B: In what ways do LSU-NCBRT/ACE preparedness offerings address the biological attack-related threat envelope?

Mr. Monier: In addition to the previously mentioned law enforcement courses, LSU-NCBRT/ACE offers a number of courses on biological threats. These courses include: Biological Awareness, Emergency Response to Domestic Biological Incidents, and our Community Healthcare Planning and Response to Disasters course. Our history and experience is deeply rooted in the area of biological response. Many of our original subject matter experts brought with them a wealth of experience in the use of biological agents as an offensive or defensive weapon. Their experiences provided a strong foundation for us to continue to build and improve our biological courses to meet the changing threats posed by the intentional or unintentional use of a biological agent. During the Ebola crisis of 2014, LSU-NCBRT/ACE not only supported the development and delivery of training programs for state, local, territorial, and tribal responders but also





Students use tabletop scenarios to reinforce command concepts during the “Critical Decision Making for Complex Coordinated Attacks” course to manage multiple incidents. (LSU-NCBRT/ACE)

supported international efforts in western Africa to train those nations’ first responders.

At the awareness level, our Biological Incidents Awareness course introduces participants to historical and emerging biological threats. At the performance level, our Emergency Response to Domestic Biological Incidents course trains communities to prepare for and respond to any number of biological threats. Finally, at the management level, our Community Healthcare Planning and Response to Disasters course trains pre-hospital and hospital care providers how to work along with the local response community to integrate planning and response efforts during a healthcare crisis.

S&B: From a national, state and local level of law enforcement and emergency management services, how is the LSU-NCBRT/ACE course content touching on supportive readiness within the scope of CCA threats and the treatment of mass casualty incidents?

Mr. Monier: The threat of a significant active shooter or active threat situation is one that our communities continue to face on a daily basis. Although the CCA and ATIRC courses focus on active shooters/active threats, the curriculum provides a strong foundation to respond to any of the atypical or asymmetrical threats that we continue to observe. Regardless of the type of danger - CBRNE, active shooter, vehicles, knives, explosives - these events pose similar challenges to line level supervisors from all disciplines. How does one immediately recognize that something is wrong? How does one determine that an active threat exists? Is this threat potentially

a single event or part of a greater plot? What resources do I need and what resources will they allocate to the issue at hand?

The courses offered by LSU-NCBRT/ACE go beyond the elimination of a threat. These courses recognize that the event is not over once the threat ends. Rather there exists a continuum of care that requires the response community to integrate their response systems and protocols to maximize personnel and talent to provide immediate care to victims. This theory not only applies to the active shooter/active threat situation, but also to biological threats.

Mr. Shurley: LSU-NCBRT/ACE provides a comprehensive training package targeted at providing jurisdictions nationally with the knowledge, skills, and abilities to rapidly respond to attacks, neutralize attackers, secure the scene, insert medical personnel, treat, and quickly transport victims and casualties to higher levels of medical care. Using the tactics and response model from our courses will make it possible to work within ICS-compliant protocols to do all of this faster, more effectively, and safer than ever before. In short, these courses will give our response community the ability to save lives and stop attacks at all levels.

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PROTECTING RESPONSE BY CANINE

U.S. Army Medical Research Institute of Chemical Defense (USAMRICD) chemical casualty training addresses the medical treatment of military working dogs in responding to potential chemical attack mass casualty scenarios.

By Cindy Kronman, USAMRICD



During the field exercise of the Medical Management of Chemical and Biological Casualties course, a student practices administering an autoinjector treatment for nerve agent exposure in the thigh of a military working dog, using an automatic training device and a canine manikin. (Darrell Jenson, USAMRICD)

Working dogs are a vital asset to the fighting force, as well as to civilian emergency responders, and they face the same dangers as their human handlers, to include exposure to chemical warfare agents

on the battlefield or in a potential terrorist attack. In such a scenario, these canine victims would likely first be seen by forward medical teams that are unlikely to include a veterinarian.

Addressing the “Other” Responder

In 2013, when Veterinary Corps officer Maj. Matthew Wegner—then newly assigned to the U.S. Army Medical Research Institute of Chemical Defense (USAMRICD), at the Aberdeen Proving Ground, Md.—went through the USAMRICD’s Medical Management of Chemical and Biological Casualties course, he saw an opportunity within the institute’s training to provide instruction to members of the medical profession who may find themselves facing canine exposure casualties along with their human patients.

The objective was getting the medical professionals and first responders who attend the institute’s medical and field management of chemical and biological casualty training to think about the issues and logistics involved in treating military working dogs (MWDs). Much of the information is applicable to other types of working dogs, service animals, and personal pets, which could be important in assisting municipal emergency preparedness teams in complying with the 2006 Pets Evacuation and Transportation Standards Act. The act requires that preparedness plans for major disasters or emergencies address the rescue, care and shelter of pets and service animals.

Wegner approached the USAMRICD’s Chemical Casualty Care Division (CCCD), which develops and provides both the Medical Management and Field Management of Chemical and Biological Casualty courses. The division was enthusiastic about adding MWD-focused instruction to the training, particularly since its staff had been fielding questions from the combatant commands about MWD exposures, and they suggested that Wegner prepare the lecture.

While the institute’s courses already packed a lot of information and exercises into the week-long training, with little room for additions, the presentation “Military Working Dogs and the CBRNE Environment” was worked in as a lunchtime lecture. In the four years since the initial lecture, several refinements have been made to the MWD-specific training, and to supplement the classroom instruction, a station on MWDs was eventually added to each course’s practical field exercise, complete with two canine manikins. Additionally, several of USAMRICD’s Veterinary Corps officers now rotate as the lecture presenter.

“Our medical and field management courses are continually evolving to answer the warfighter’s critical needs with the goal of meeting our Nation’s challenges,” said Timothy Byrne, director of CCCD’s courses. “This particular lecture and associated field training addresses the unique challenge of how the possible use of chemical warfare agents or toxic industrial chemicals during a terrorist incident or in a time of war could impact our Nation’s elite K9 working dogs.”

“The response from operators and medical personnel alike has been extremely positive,” continued Byrne. “One operator said to me about the course, ‘Just what we needed during this critical time in Afghanistan. Our dogs are at great risk from the opioid fields, pesticides, etc.!’”

Wide-Spectrum of Coverage

The training covers safety issues, special considerations, the effects of the agents in dogs, and decontamination. Students are reminded that an exposed MWD is experiencing stress like any other casualty, especially if its handler has been injured, so the first safety consideration is to muzzle the dog to avoid being bitten. Not only are dog bites painful, the lecture points out, but they can be serious enough to make the caregiver a patient, and further, to compromise the caregiver’s protective, or MOPP (Mission Oriented Protective Posture), clothing, thus exposing that individual to the contaminated environment. In the

field exercise, students learn how to use gauze to muzzle the dog, if its regular muzzle is not available.

The signs and symptoms of exposure in dogs are similar to those in humans, and while the only treatments that exist have been developed for humans, students learn how to adjust the doses of these antidotes when treating a MWD. The field exercise provides training in properly administering the fielded autoinjectors to the animal, using the simulated canine.

Additionally, students learn some notable differences between canine and human exposures. For example, a dog’s fur slows absorption of the chemical through its skin; however, the dog will be more sensitive to exposure on other areas, such as its paws, its axilla (or armpit) and on its belly. A dog can also be exposed by licking itself or the ground or by eating and drinking contaminated food and water.

Information on decontamination includes what products can and cannot be used on canines, the most efficient procedure (head to tail), and how to prevent re-contamination, for example, by placing the dog in a covered transportable kennel after it is decontaminated. The lecture also gives suggestions for providing protection for dogs that must work in a contaminated environment. These include using ponchos to cover the dog’s body or using specimen bags, MRE bags, or extra butyl rubber gloves wrapped with tape to cover the dog’s paws.

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New Spectrophotometer Line Launched

Thermo Scientific, Inc. has announced a newly designed GENESYS UV-Vis spectrophotometer family of robust UV-Visible spectrophotometers accessible, automated and network-ready with a flexible range of options. The Thermo Scientific GENESYS 50 UV-Vis spectrophotometer features a simplified user interface and a high-resolution, color touchscreen. The rugged exterior, built for repetitive and heavy use environments, is designed with sloping surfaces to shed spills. The GENESYS 50 spectrophotometer has a single cell configuration for low sample throughput needs, with a removable, washable sampling compartment.

The Spectrophotometer includes the same features as the GENESYS 50 spectrophotometer and provides automation for high-throughput options and room-light resistance, allowing lid-open operation designed for improved speed and convenience over previous generation instruments. The Thermo Scientific GENESYS 180 UV-Vis spectrophotometer includes all the capabilities of the GENESYS 150 spectrophotometer. It also includes an 8-cell changer for higher throughput environments and double-beam capability for advanced experiments with a changing reference. The device also includes all the benefits of the GENESYS 150 spectrophotometer and adds pre-programmed methods to expedite solution data.

A new line of accessories, including automated cell changers, a Peltier thermostat-equipped cell holder, a disposable microcell holder, a sipper and fiber optic probes, is designed to simplify sampling and accommodate high throughput and temperature control needs. "We designed the newest spectrophotometers in our GENESYS portfolio to meet the evolving demands of modern laboratories," said Phillip van de Werken, vice president and general manager, molecular spectroscopy for Thermo Fisher Scientific. "Whether in a university or industrial setting, users now require instruments that are more accessible and easily networked. We've expanded our line so that more customers, even those with unique or complex requirements, can readily take advantage of this important analytical technology and generate reproducible results."

With a modern design and compact footprint, the new instruments are designed to take maximum advantage of limited bench space. Other features include powerful onboard controls and an easy-to-use touchscreen interface, eliminating the need for an external computer. Additionally, users can create a printed record of their data via an optional snap-on thermal printer or a network printer using Ethernet or optional Wi-Fi.

More info: thermofisher.com/genesys

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Air Cargo Explosives Trace Detector

Smiths Detection's IONSCAN 600 is the first explosives trace detection system to be 'Approved' on the U.S. Transportation Security Administration (TSA) Air Cargo Screening Technology List (ACSTL) under the latest program requirements to ensure security of cargo aboard airplanes. These latest requirements, which came into effect in 2016, require a significantly higher level of explosives detection capability and software functionality.

The IONSCAN 600 is a portable desktop trace detection system that detects minute quantities of explosives, as well as narcotics such as fentanyl, within seconds. It is designed to be extremely flexible for use in dynamic screening environments and is fully operational on hot-swappable batteries to ensure continuous use.

It was submitted for ACSTL TSA testing in April 2017 and will also be submitted for evaluation to be used for trace detection at

U.S. airport checkpoints in the near future. IONSCAN 600 is similar in operation to previous generation systems, thereby minimizing the training needs as cargo companies bring the new product into operation. Additionally, the IONSCAN 600 is much easier to maintain which will help operations save time and money over its lifecycle.

"IONSCAN 600 becoming the first explosive trace detection system to make the 'approved' list for TSA's ACSTL reflects Smiths Detection's continued global leadership in aviation security technology," said Stephen Esposito, Vice President, Business Development and Sales of Smiths Detection. "We are working with the TSA to complete testing to move IONSCAN 600 to the 'qualified' air cargo list and look forward to completing that process within the next year."



More info: smithsdetection.com

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MAXIMIZING SAFE DETECTION DOWN RANGE

U.S. Army Yuma Proving Ground is conducting rapid and thorough testing of Standoff Robotic Explosive Hazard Detection (SREHD) system equipment in extreme natural environments.

By Mark Schauer, Yuma Proving Ground



SREHD can detonate a threat without the need for excavation or additional interrogation. A Soldier instead uses the robot to carefully place a shaped explosive charge over the threat, then remotely detonates it after having the SREHD retreat to a safe distance. (Mark Schauer, Yuma PG)

The Standoff Robotic Explosive Hazard Detection System (SREHD) is an explosive detecting semi-autonomous system that not only detects things like land mines and improvised explosive devices, but also neutralizes them.

"The way it is able to traverse the range and follow the contour of the ground is very good," said Jesus Estrada, test officer. "It is the most advanced system I have worked with."

Balancing Effect with Efficiency

Many places in the world where American Soldiers deploy to are contaminated by literally millions of decades-old mines. Detecting these threats with a handheld device is slow, dangerous, and fatiguing work with possibly deadly consequences in the event of a mistake.



SREHD is a semi-autonomous system, but human beings still control its use. "There is a big misperception about the word 'autonomous': people think it is a self-governing vehicle that does whatever it wants to do," said Maj. Lendrick James, deputy product manager. "In fact, an operator always has control of where it will go." (Photo by Mark Schauer)

Enter SREHD. Whereas previous mine-detecting robots only sported a single camera and a five-jointed mechanical arm for interrogating threats, the SREHD boasts stereoscopic cameras that provide a Soldier a three-dimensional representation of the terrain being scanned on a handheld computer device and sophisticated sensors that help them discriminate between threatening devices and innocuous pieces of debris. A microphone mounted to the robot enables an operator to hear sounds in the vicinity of the system, too.

The SREHD methodically scans an area and marks a cleared trail with blue dye. If a threat is detected, the robot sprays an X on the ground to mark the spot: the Soldier operating the device can choose to retreat to the vehicle and remotely detonate the discovered threat, or continue scanning before retreating and detonate multiple threats at once.

Enabling Environmental Adaptability

During a Reliability Availability Maintainability (RAM) test at YPG in early 2017, Soldiers from the 92nd Engineering Battalion at Fort Stewart, GA, put the SREHD through its paces as they would in a route clearance convoy in combat areas, running the platforms across sandy trails and rugged washes and steep terrain filled with stones and rocks, dead wood, thick brush, and other naturally occurring debris. The recommendations of the Soldiers and test officers were rapidly incorporated into the system, which is currently undergoing additional testing in the same punishing environment.

"Over 400 updates were made to the system since our last RAM period," said Maj. Lendrick James, deputy product manager. "For this RAM period we will run the new units for 40 additional hours to improve our reliability. This will increase our stakeholders' confidence in the system."

"When we came out of testing last time, we were seeing issues with intermittent sweeping, communication issues, and our carriage system not arming correctly," added Phillyp Lawson, project lead. "Based on the testing we looked at the problems and prioritized what was critical to increase our reliability."

All involved cited YPG's intense terrain as a major factor in testing the system here.

"Nothing can emulate what Soldiers experience in theater, but this is a very difficult course to get through," said Lawson. "YPG is relevant to our scenario. It has a lot of washes and rough terrain that we're looking for, as well as the ability to bury targets."

Likewise, they had high praise for YPG's personnel, institutional knowledge, and test infrastructure.

"YPG is a great test facility," said Roger Naschi, program manager for Carnegie Robotic Laboratories. "The terrain represents the environment that we're working in and the YPG team has been really good helping us develop our technology and learning what we can improve."

More info: yuma.army.mil

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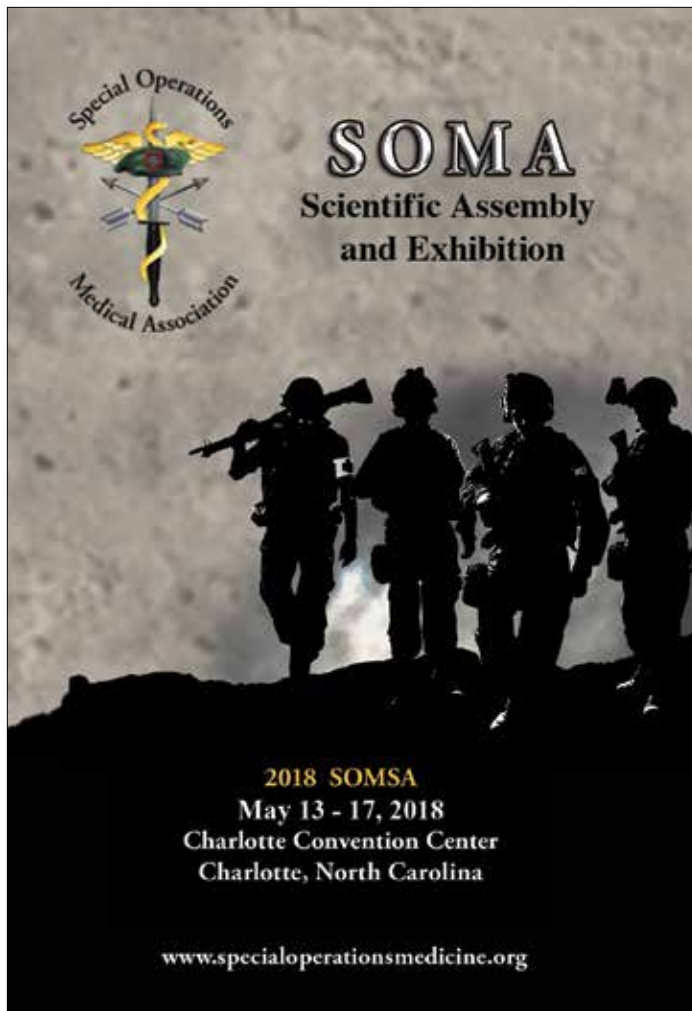


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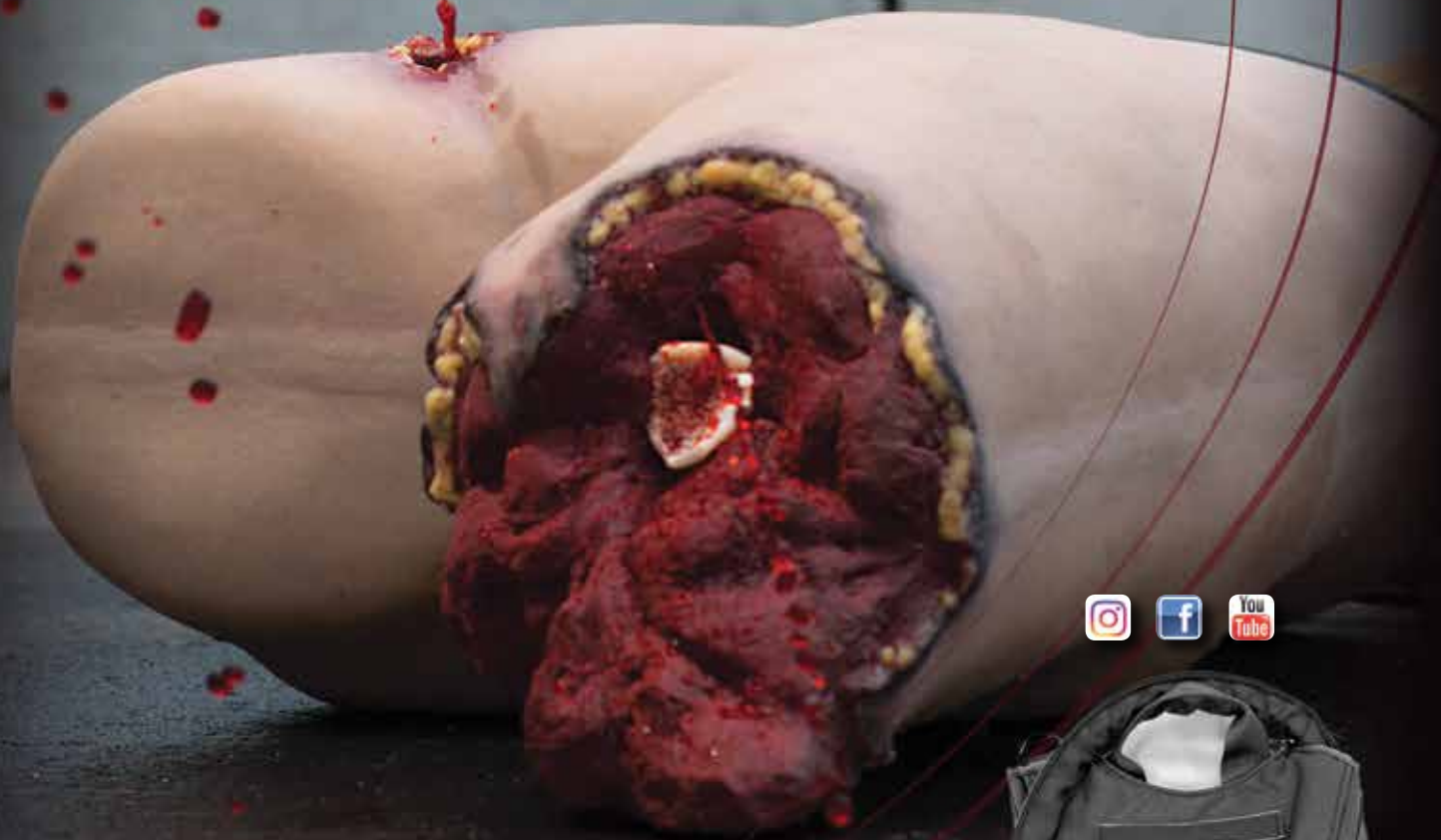
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