SECURITY & BORDER and CST/CBRNE

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STREAMLINING JOINT COMMUNICATIONS

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JTF-CS
USNORTHCOM

Lt. Col. Neal Rodak
Commander
9th WMD-CST
California National Guard

COMMANDER'S CORNER

MG Richard Gallant
Commander
Joint Task Force- Civil Support (JTF-CS)
U.S. Northern Command

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Lt. Col. Neal Rodak
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JOINT COORDINATION FOR REGIONAL RESPONSE

The 9th Weapons of Mass Destruction- Civil Support Team (WMD-CST), California National Guard (CNG), is improving Joint Hazard Assessment Team (JHAT) capabilities.

By Lt. Col. Neal Rodak

Features

COMMANDER'S CORNER

INTEGRATING INCIDENT COMMAND AND CONTROL

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LEADERSHIP PERSPECTIVE

COORDINATING RESPONSE THROUGH HOLISTIC VISION

COL Eric Oh
Director of Operations, Training, Readiness & Exercises (J3)
JTF-CS, USNORTHCOM

Departments

Cover: Servicemembers transport a simulated battlefield casualty during a simulated Chemical, Biological, Radiological, Nuclear and Explosive (CBRNE) attack at Operation Joint Recovery exercise on Joint Base McGuire-Dix-Lakehurst, N.J. The joint exercise featured members from the U.S. Army, Air Force, Navy and Marines as well as multiple civilian agencies. (U.S. Air Force photo by Tech. Sgt. Robert M. Trujillo)

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INSIGHTS

As threats to U.S. national interests at home and abroad abound, one truth seems to emerge - multiple emergency response organizations working together provide greater efficiency and effectiveness than any single organization or agency could provide alone.

The Spring 2018 issue of Security & Border and CST/CBRNE magazine focuses on the joint coordination requirement that pervades today's complex world of myriad organizational capabilities with the same goal: identifying, engaging, and defeating given threats to Americans and the important civic roles they perform. Straight from Headquaters, U.S. Northern Command (USNORTHCOM), Joint Task Force- Civil Support (JTF-CS), S&B spoke with MG Richard Gallant, JTF-CS Commander, and COL Eric Oh, JTF-CS Operations & Training, regarding the development of Common Operational Picture (COP) and Joint-Holistic Understanding Application (J-HUA) capabilities for bringing more coordinated "muscle" to national disaster response. From the national level to state, the 9th WMD-Civil Support Team, California National Guard, remains a critical emergency readiness entity for U.S. west coast regional response, employing Joint Hazard Assessment Team (JHAT) assets to defuse threats and mitigate the effects of mass casualty events. Coordination with other state, federal, and local response personnel under the Defense Support of Civilian Authorities (DSCA) mission set is at the core of the 9th CST's operational focus.

On the laboratory test front, the Spring issue offers an inside look at work being conducted at Edgewood Chemical Biological Center (ECBC) regarding self-decontaminating CBRN protective wear and a liquid applicable decontamination solution that neutralizes warfare agents on contact. Also up at Aberdeen, the newly-renamed Joint Program Executive Office for CBRN Defense, formerly JPEO-CBD, is taking a lead in partnering to advance efforts in Countering Weapons of Mass Destruction Other Transaction Agreement (CWMD OTA) to advance prototyping for accelerated capabilities acquisition. BG (Ret.) William King, former Army 20th CBRNE Commander, also spoke with CST/CBRNE on U.S. Special Operations Command's new role as the nation's CWMD lead in partnering with industry to fight growing threats to national security.

Rounding out this issue, we take a look at the latest in field DNA identification and an evolution in risk assessment for special weapons and tactics (SWAT) operations where target neutralization no longer equates to target elimination and where advanced capabilities in situational awareness are enabling greater tactical options.

As always, we welcome your feedback and appreciate your continued readership!

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[1]Lurie KG, et al. *J Med Soc Toho.* 2012;59(6):304-315.
[2]Convertino VA, et al. *Resp Care.* 2011;56(6):846-857.

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JOINT COORDINATION FOR REGIONAL RESPONSE

The 9th Weapons of Mass Destruction-Civil Support Team (WMD-CST), California National Guard (CNG), is focused on continued development of its enhanced capability for maritime domain and Joint Hazard Assessment Team (JHAT) Operations.

By Lt. Col. Neal Rodak, Commander, 9th WMD-CST

The California National Guard's 9th CST tests a platform and hoist system the team designed for the QinetiQ Talon robot during an exercise in San Diego focused on preventing international smuggling of radiation sources. The Los Alamitos-based CST specializes in responding to incidents involving a chemical, biological, radiological or nuclear contaminant. (Photo by Capt. Shane Foss)

Established in 1995 under Presidential Decision Directive 39 and certified on 29 August 2001, the 9th WMD CST's supports California civil authorities with a broad range of missions and primarily focuses on collaboration with state and local first responders to ensure a ready of CBRN capability for local and national level events. 9th CST has had multiple mission deployments in support of large-scale events most notably being selected to support two winter Olympics (Utah 2002, Washington 2010). The 9th CST's current focus is to continue developing our enhanced capability for maritime domain and Joint Hazard Assessment Team (JHAT) Operations. We identify these two areas as the most relevant and impactful areas to focus our readiness. The maritime domain requires specialized equipment and training to operate in this intensely physical and physiologically demanding environment. Focusing on this area will be challenging due to the depth of infrastructure and broad jurisdictional authorities. Continued collaboration with integrated strategies will significantly improve our responsiveness to the needs of the first responder community and enhance the functional areas of the All-Hazards/ CBRN Maritime operation. As we continue to plan and exercise together, the 9th CST and our civilian partners with maritime mission sets will continue to evolve in a manner that maximizes our collective response capabilities so that together we can best protect the citizens of the great state of California.

Lt. Col. Neal Rodak

Dual-Hat Responsibility

Our most significant challenge is that of serving two hands. California first responders (both law and fire) have had a tradition of leading the way nationally much through readiness learned at the California Specialized Training Institute, on developing best practices, doctrine and programs as

Staff Sgt. Zachary Liles of the North Carolina National Guard's 42nd Civil Support Team (CST) uses a QinetiQ Talon robot to detect non-hazardous radiation sources planted in a tunnel in the San Diego area for a multi-agency exercise focused on international smuggling. The California Guard and New Mexico Guard also contributed to the exercise with CSTs. (Photo by Capt. Shane Foss)

found with development and implementation of the Incident Command System (ICS) also referred to as National Incident Management System (NIMS). The 9th CST embraces our first responders leadership and innovation through focusing on strong collaboration and the integration of emerging and enhanced CBRN technology. The 9th CST has a simple concept of operation. We must remain as dynamic as the law enforcement (LE) branch and as methodical as fire/hazmat agencies that we support. This can only be done through intensive understanding of each other's capabilities. This does not magically occur, it happens over the course of years. A persistent and habitual presence and relationship is needed. That strong relationship between a state's CST and its local, state, and federal assets in the state is what optimizes the unity of effort that the National Guard and its civilian partners can bring to bear to respond to a CBRN event or prepare for a pre-planned large-scale/heightened visibility event such as the Super Bowl. Los Angeles, California metro region is an attractive destination and location for many national and international events. On the somewhat distant horizon, it will be the host of the 2022 Super Bowl and NFL Experience, as well as the Summer Olympics in 2028.

The 9th CST has also piloted the Joint CBRNE Characterization, Exploitation and Mitigation (J-CCEM) course to assist with the development of CST-First Responder Tactics Techniques and Procedures (TTPs) utilized by JHATs. A JHAT is typically comprised of multi-disciplinary capabilities incorporating distinct functions for CBRNE response, commonly utilized during National Special Security Events (NSSE). The 9th CST strives to support interagency development, synchronizing the core capabilities of the respective participating agencies thereby ensuring the best possible all-hazard JHAT operational capability is brought to bear when needed.

A constant challenge is maintaining strong relationships with all of our key partners. You cannot surge trust and we are building it one assist, stand-by mission or exercise at a time. As in any Defense Support of Civilian Authorities (DSCA) mission set, it is of critical importance that the key players on both the civilian and military side have a high fidelity of understating of how each respective entity operates to include strengths, weaknesses, mission sets, and capabilities. In my assessment, you strengthen these absolutely critical relationships over time. By training together and continuing to seek out new and innovative ways in which the CSTs can augment the CBRN capabilities of our civilian partners in the event of a situation where the CST's capabilities are needed to augment the civilians to respond to an all hazards or CBRN mission tasking request.

NEUTRALIZED ON CONTACT

Edgewood Chemical Biological Center (ECBC), Aberdeen, MD, is working on a self-decontaminating combat uniform that uses sunlight to neutralize chemical warfare agents.

By Bradley Kroner, ECBC Communications

Ann Ploskonka, a contractor chemist, exposes MOFs to oxygen and light during an experiment. (ECBC)

New research being conducted at the U.S. Army Edgewood Chemical Biological Center (ECBC) is exploring whether chemical weapon-neutralizing substances can be incorporated into equipment worn by warfighters.

Discovered in 2000, metal-organic frameworks (MOFs) are a relatively new research area – their ability to neutralize chemical warfare agents was just discovered five years ago. A team of ECBC researchers is determining how to incorporate MOFs into fabrics and textiles to give decontamination capabilities to materials worn by warfighters.

Essentially, certain forms of MOFs catalyze the oxidation of chemical warfare agents, thereby neutralizing toxic substances. When exposed to light, these MOFs react with and excite oxygen. In turn, oxygen reacts with and combines with agent, effectively neutralizing the threat. While there are thousands of different MOFs, ECBC researchers have identified fewer than 10 with this capability.

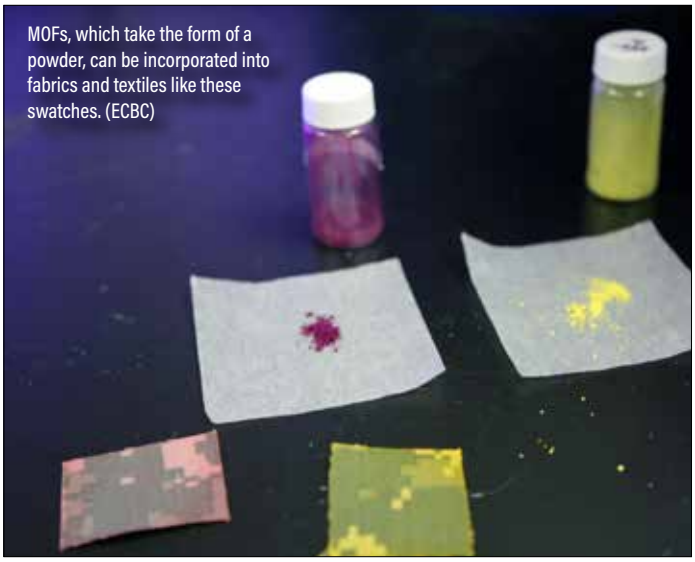
"This is a catalytic method that uses oxygen from the atmosphere as a reactant," said ECBC chemist Jared DeCoste, Ph.D., who leads ECBC's photocatalytic oxidation study. "The oxygen from the atmosphere is excited into a higher energy state by the MOF to make an active species that can then react with mustard (agent) and neutralize it."

Normally, oxygen does not react with chemical warfare agents. However, when MOFs absorb visible light, they can use this energy to convert oxygen into a more active state called the singlet state.

"The light comes in and interacts with the MOF, and it takes that light and converts oxygen in the air into an active oxygen species," Decoste explained. "This is all based around finding the easiest way to create singlet oxygen."

Metallic Approach to Decon

Composed of metal ions and organic compounds, MOFs take the form of powder. Decoste, along with Hui Wang, a National Research



MOFs, which take the form of a powder, can be incorporated into fabrics and textiles like these swatches. (ECBC)

Council postdoctoral associate, and Ann Ploskonka, a contractor chemist working at ECBC, are in the process of determining whether that powder could be infused with fabrics and textiles.

Specifically, Wang is researching whether other photosensitizers, such as boron-dipyrromethene analogs, can be incorporated into fabrics to improve the photooxidation process. While MOFs offer some advantages over other materials in that they are highly porous and can adsorb and potentially sequester large amounts of chemical warfare agents, the use of dyes has the potential of being a much simpler and cost-effective process.

Ploskonka is working on synthesizing and creating novel MOF structures that can increase the efficiency of the mustard agent photocatalysis degradation process. There are thousands of MOFs that have been reported to date, and they can be modified in many ways, so determining the optimal pore structure and density of functional features within the structure can be quite the laborious task.

When the capability is developed, the MOF-enhanced materials could be used for clothing or even as a filter for a gas mask, Decoste said. The next steps are determining that right combination of MOF and fiber to maintain optimum flexibility while retaining decontamination ability.

"There is no self-decontaminating fabric that's fielded or anything along those lines at this point," DeCoste said. "This is really basic research at this point. We're trying to determine the best nanomaterials to achieve decontamination, while in parallel working on methods to integrate these materials into textiles that can be fielded."

This research was prompted by a need to identify field-deployable methods of mustard agent decontamination. While some types of agent can be decontaminated using water from the atmosphere, mustard agent is less susceptible to that method.

Currently, this capability is only being tested for mustard agent decontamination. Some other types of agent, like VX, may be susceptible to this method. Others, like Sarin, are not.

"It's something that we plan on looking at," DeCoste said. "In a lot of these basic studies, we try to study one reaction as best we can. Once we can fully understand the process well, we can move faster later on."

As the technology is still in development, it's unclear when it will be completed, tested, and deployed in the field.

"When you hear about using sunlight to decontaminate, that sounds like a futuristic application, and it is," Decoste said. "It's one of those applications where the materials are really novel and require development."

Looking to Employ

The Defense Threat Reduction Agency (DTRA) is interested in the technology and has funded a program focused on up-scaling the production MOF materials.

"We're working with a pretty substantial program from DTRA to incorporate these active materials into more functional forms, such as textiles," DeCoste said. "We have been talking to DTRA about getting these types of materials into the next generation of combat uniforms that are going out to warfighters."

More info: ecbc.army.mil

WIDE-AREA RAPID DECONNING

A sprayable decontamination slurry, developed by scientists at Edgewood Chemical Biological Center (ECBC), is entering the next stage of its development and will soon be tested on a larger scale beyond the laboratory.

By Bradley Kroner, ECBC Communications

The decontamination slurry, a solid-liquid hybrid, resembles a thick paint. (ECBC)

Edgewood Chemical and Biological Center (ECBC), Aberdeen, MD, has approved a new sprayable decontamination technology as ready for field testing. The slurry is a highly effective decontaminant and works through multiple mechanisms: hydrolysis and oxidation. The slurry is designed for material decontamination of equipment and vehicles – like the fender of a Humvee – but not skin.

"This is designed for immediate, material decontamination," said Joseph Myers, a research chemist with ECBC's Decontamination Sciences Branch. "Theoretically, let's say there are Soldiers in the field and their Humvee is contaminated with chemical warfare agent. After getting to safety, they can mix up the decontaminant slurry, spray it on the vehicle, and drive back to the base."

Evolution in Application

Under the current methods of material decontamination, platforms and personnel would have to leave the fight and use vast amounts of water and resources to be rendered safe. When deployed, the decontamination slurry will provide more efficient and effective decontamination for vehicles and equipment on the battlefield.

"This new technology will decrease the time and resources needed to respond to an attack, allowing units to maintain their momentum and increase their effectiveness on the battlefield," explained Maj. John Williams, assistant product manager for science & technology portfolio integration. "Because of the versatility of the slurry and its effectiveness on multiple surfaces, this new technology will enable all future Army systems to operate in a contaminated environment, including new ground and air platforms."

In the coming months, the capability will be rigorously vetted to confirm that its laboratory-level efficacy is ensured in the field. In May, the slurry will undergo large-scale testing in ECBC's chemical agent and explosives test chambers. Then, in September, Myers is taking the slurry to Joint Base Lewis McChord for a demonstration where scientists put emerging technologies like the slurry directly in the hands of warfighters.

"They provide feedback, to say what they liked and what they didn't like," Myers said. "We're going to get actual end-user feedback, and then we'll be able to re-optimize what we're doing to better fit the needs of the warfighter."

Consistency in Coverage

Resembling a thick paint, the slurry is a solid-liquid hybrid and may require a special sprayer. Myers thinks the sprayer could resemble a pump-action pesticide sprayer or maybe a backpack sprayer similar to a fire extinguisher.

Thus far, the U.S. Army Research Laboratory has assisted by providing insight into paint formulation ingredients that would

make the slurry more paint-like. ECBC's Advanced Design and Manufacturing Division was recently able to take the slurry into its automotive spray booth and conduct a successful spray demonstration.

Thus far, Myers is confident in the slurry's effectiveness.

"If you were to apply this as an immediate decon – within 15 to 30 minutes – you let it sit on the material for four hours, you get 99.9 percent removal for blister and nerve agent," he said. "The slurry achieves this efficacy through its combination of hydrolysis and oxidation."

The decontamination slurry, in development for material decontamination, is sprayed during a test. (ECBC)

Some agent can be decontaminated through hydrolysis but not oxidation and vice versa, but by combining the processes, the slurry is more universally effective.

"Zirconium hydroxide works by a process called hydrolysis," Myers said. "Through the optimization process, we've added another chemical into the mix that promotes oxidation. With a blend of hydrolytic and oxidative chemistries, the slurry has the ability to detoxify a wide range of chemical warfare agents."

This blend was identified by experimenting with different ingredients to determine which would be most effective in the laboratory.

"The primary component of this slurry is called zirconium hydroxide," Myers said. "We took this substance, which is like a fluffy, white powder, and we mixed it in with kerosene, with the assumption that kerosene would be prevalent in the field. Mixed together, the components made a decontamination slurry."

Myers later found that sulfolane would make a better carrier liquid than kerosene, because it promotes the extraction of agent from materials. When agent is extracted, the slurry's other ingredients, like zirconium hydroxide, can begin to hydrolyze or oxidize with the agent. "We swapped out the kerosene for a new solvent, sulfolane, and that did a better job of removing agent that soaked into materials," Myers explained. Sulfolane is a high flashpoint solvent, which makes it logistically favorable for transport, Myers said.

Looking Ahead

Funded by the Defense Threat Reduction Agency, the capability is a year or two away from being deployed, Myers said. "This has a high probability of being provided to the warfighter," he said. "It's highly effective, it's easy to use, and none of the ingredients are particularly hazardous."

More info: ecbc.army.mil

INTEGRATING INCIDENT COMMAND AND CONTROL

Major General Richard J. Gallant is the Commanding General for Joint Task Force Civil Support, Joint Base Langley-Eustis, Va. He is responsible for leading the nation's only standing chemical, biological, radiological and nuclear joint task force ready to deploy within 24 hours. If called upon, JTF-CS provides command and control of 5,200 federal military forces located at more than 36 locations throughout the nation acting in support of civil authority response operations.

Prior to assuming his current position, he was the Army National Guard Directorate liaison to Headquarters, Department of the Army with responsibilities for Force Structure, Training, and Strategic Plans and Policy. General Gallant was commissioned as a second lieutenant of Infantry through the Officer Candidate School at the Massachusetts Military Academy in 1982. He has served in a variety of command and staff positions in the 53rd Infantry Brigade Combat Team. He also commanded the 2nd Battalion 124th Infantry Regiment, and deployed the unit in 2003 in support of Operation Iraqi Freedom and Operation Enduring Freedom.

While deployed, he also served as the senior mentor to the 1st Brigade of the Afghan National Army and as the commander of the 1st Brigade Embedded Training Team. He deployed again in 2010 in support of Operation Iraqi Freedom and Operation New Dawn as commander of the 53rd Infantry Brigade Combat Team, which performed combat operations as the Army Central Command Security Force Brigade. General Gallant has commanded at the Battalion and Brigade level in support of several hurricanes and civil support operations.

From 2013 to 2015, General Gallant served as Deputy Director of Operations, Headquarters, United States Northern Command, Peterson Air Force Base, Colo., as the principal advisor to the commander on all operational matters in the area of responsibility. He provided strategic guidance to plan and execute mission for land, maritime, and homeland defense air operations as well as defense support of civil authorities. General Gallant is an operationally qualified dual status commander. In 2012, he commanded Joint Task Force Republican National Convention in Tampa, Florida and as the Chief, National Guard Bureau liaison to Operation Sandy at Joint Base Maguire-Dix-Lakehurst.

Security & Border had the opportunity to speak recently with MG Richard J. Gallant, Commander, Joint Task Force-Civil Support (JTF-CS), U.S. Northern Command (USNORTHCOM), regarding efforts to streamline Common Operational Picture (COP)-based command and control in joint emergency response operations.

S&B: What is your role as Commander, JTF-CS, USNORTHCOM, and the mission set of JTF-CS?

MG Richard J. Gallant

Commander
Joint Task Force-Civil Support (JTF-CS)
U.S. Northern Command

MG Gallant: The JTF-CS mission is to operate as an expeditionary headquarters during a catastrophic event, rapidly establishing effective command and control of DoD forces in order to save lives and mitigate suffering. We are the nation's only standing Chemical, Biological, Radiological, and Nuclear Joint Task Force for Civil Support that is ready to deploy on a no-notice status, 24/7. As the commander, I would coordinate the employment of our personnel in support of the lead federal agency in support of a state or federal effort.

The task force is comprised of 5,200 personnel as part of a collaborative response capability. That capability includes chemical detection, engineering, search and rescue, patient decontamination, medical evacuation, line haul transportation and a host of other critical missions to enable community recovery. Our team has helped shape how the DoD's CBRN Response Enterprise would respond to a catastrophic event as part of the National Response Framework and in strict adherence with the Constitution and public law. The task force is comprised of about 200 active and reserve component service members from the Army, Navy, Air Force and Marines to include Department of the Air Force civilians. The headquarters is located at Fort Eustis in Newport News, VA, and our response force come from dozens of units located

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Chris Sabo, a Common Operational Picture (COP) manager at Joint Task Force-Civil Support (JTF-CS), conducts training on the new JTF-CS Holistic Understanding Application (J-HUA) in preparation for the annual disaster response exercises, Vibrant Response and Guardian Response. (U.S. Navy photo by Mass Communication Specialist 3rd Class Michael Redd/ released)

across the nation. We operate with strength, decisiveness, and professionalism in the face of a crisis.

S&B: Can you speak to how JTF-CS defines, builds, and shares a Common Operational Picture when coordinating for incident response?

MG Gallant: It's important to understand the power of a Common Operational Picture. You can compare the COP to an automobile's dashboard. There are many different gauges and indicators, each with a different source of information, which enables the operator to know if the vehicle is running as planned or if there is a deviation from normal operating levels so he or she can accomplish a mission. That harmonization of accurate, timely, easily understood data is critical to a commander when making critical decisions, especially when human life is at stake. My personal operational picture comes from various sources such as verbal briefings, official messages, in-person site visits, news reports and electronic tools which display unit locations and status. But I work as part of a larger team and the ultimate goal of a COP is for the collaborative, relevant information to be shared by all agencies and members responding to the crisis. This helps achieve unity of effort. Our task force COP is a web-based geospatial tool that gathers and integrates multiple data feeds and types from various sources.

It starts with information provided by our two higher headquarters. U.S. Northern Command and U.S. Army North use the Situational Awareness Geospatial Enterprise (SAGE) GeoPortal. After integrating the data provided by SAGE Geoportal, our JTF-CS Geospatial Information Services (GIS) team participates in interagency coordination. The team members participate in the Federal Emergency Management Agency's (FEMA) Modeling and Data Working Group monthly to better understand what data will be available in support of its mission.

JTF-CS uses a Geospatial portal to share our COP. Through this portal, we provide live data feeds via Open Geospatial Consortium (OGC) compliant services. COP data can be configured to interface with all industry standard platforms. Moreover, our data is available to other organizations through OGC-compliant services. Conversely, if their data is compliant with this industry standard, then JTF-CS can use their data sets. We believe that the important aspect of a COP is the ability to share data regardless of the program. Additionally, we make use of the best common practices of the geospatial response community and integrate those into our operations. Finally, my team works toward a balance of science and art to keep the information relevant. These highly-trained and competent people help me and other decision makers get the right capability to the right location at the right time.

S&B: What are some areas of current JTF-CS operational focus in addressing present threat levels to NORTHCOM security and can you tell us about readiness going forward?

MG Gallant: In coordination with other federal, state, and local agencies, JTF-CS is continuously preparing to respond to a broad spectrum of attacks - chemical, biological, radiological, nuclear, and high-yield explosive - anywhere in the United States. We work with the intelligence community to identify indications and warnings of foreign threats to the United States to provide situational awareness for the command and Defense CBRN Response Force to be prepared for any response.

We study city and state response plans to better understand the local response capabilities and the state's ability to supplement an affected area. In this manner, we identify potential mission gaps where Department of Defense capabilities may be asked to provide support and we plan our responses accordingly. We develop detailed force requirements for a variety of likely CBRN response contingencies, to include: communications and transportation assets, service support, engineers, medical, aviation, and specialty units. To further unity of effort among the variety of agencies that may potentially be involved in providing support to a CBRN incident, JTF-CS directly coordinates with a wide array of federal, state, local, and military organizations to conduct training and planning.

To enhance readiness we focus on three lines of effort: unit readiness, force responsiveness and relationships. Readiness means we engage monthly in exercises nationwide with other Federal forces, the National Guard and interagency partners either as participants, training expertise or observers. Responsiveness means shaping a culture of and assisting with a methodology to being trained, ready, resourced and resilient. Since we are a standing joint task force and conduct this mission year-round, we have the expertise and capacity to assist the response units rotating through this CBRN mission every two years. For example, we've coordinated a roadmap of when to conduct training, with whom and where, in relation to the efforts of agencies like FEMA so we are truly integrated with the National Response Framework. This helps our response forces focus on how to spend their precious time and resources to be most effective for the mission. Finally, relationships are essential and that means nurturing a spirit of cooperation and commitment toward an effective response as we support our civil authorities. Our task force hones the relationships through monthly visits to the ten FEMA regional offices, routine conferences attended by the interagency, weekly video and teleconference calls, and frequent email exchanges. Our goal is to get faster, lighter, more interoperable and more capable so that we provide the right force with the right response during a time of great need.

NDIA

CBRN DEFENSE CONFERENCE & EXHIBITION

Don't miss the opportunity to exchange technical and operational information related to defenses against weapons of mass destruction among the Department of Defense and other government agencies, industry and academia. Discover emerging national and international CBRN defense technologies, along with promising research and development opportunities. This year's event includes topics such as:

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COORDINATING RESPONSE THROUGH HOLISTIC VISION

COL Eric Oh is the Director of Operations, Training, Readiness, & Exercises (J3) for Joint Task Force-Civil Support, United States Northern Command. Prior to this assignment, he served as the Assistant Chief of Staff (Army National Guard), Army Capabilities Integration Center (ARCIC).

COL Oh commissioned as an Air Defense Second Lieutenant and received his BA Degree in Urban and Regional Planning from the University of Hawaii in 1993. He also holds a Master's Degree in Urban and Regional Planning from the University of Hawaii and a Master's of Science in Strategic Studies from the National War College. His military education includes the completion of the Air Defense Officers Basic Course, Infantry Advanced Course, the Command and General Staff College, and the National War College.

COL Oh served as a Stinger Platoon Leader and Brigade Air Defense Officer in the Headquarters and Headquarters Company 29th Infantry Brigade, Hawaii Army National Guard; Company Executive Officer and Commander of Headquarters and Headquarters Company 29th Infantry Brigade, Hawaii Army National Guard; Assistant S3 (Air) for the 29th Infantry Brigade; Assistant Professor of Military Science, University of Hawaii Army ROTC; Brigade Future Operations for the 29th Infantry Brigade (Operation Iraqi Freedom); Brigade Plans Officer, 196th Infantry Brigade, Fort Shafter, Hawaii; Brigade Executive Officer, 196th Infantry Brigade, Fort Shafter, Hawaii; Inspector General, Inspections Division, National Guard Bureau, Arlington, Virginia; Student National War College, Fort McNair, District of Columbia; Chief, Training Management, Army National Guard, Arlington, Virginia; Chief of Staff, Army National Guard, Combined Arms Center, Fort Leavenworth, Kansas; Senior Guard Advisor (Joint), US Pacific Command, Camp Smith, Hawaii; Assistant Chief of Staff (Army National Guard), Army Capabilities Integration Center, Fort Eustis, Virginia.

COL Eric Oh
Director of Operations
Training, Readiness, & Exercises (J3)
JTF-CS USNORTHCOM

S&B: What is the JTF-CS Holistic Understanding Application or J-HUA?

COL Oh: The Joint Task Force-Civil Support (JTF-CS) Holistic Understanding Application (J-HUA) is a suite of web-based geographic information system applications using commercial-off-the-shelf (COTS) software. This military-style battle command system enables personnel to communicate with unclassified data across systems used by the Department of Defense, federal, state, local, and non-governmental organizations (NGOs). All of these agencies are collecting and processing data which supports the visual depiction of an operational environment (OE). Delivering near real-time information to our subordinate units with the click of a button is critical to support planning and shared situational awareness. The information and dashboard capability of J-HUA is intended to provide a quick, focused breakdown of active and planned missions, their status and assigned capability, as well as the current location of assigned units, main supply routes (MSRs) and a model depicting hazard zones via a Defense Threat Reduction Agency (DTRA) model. This information is best used by a commander, chief of current operations, battle captain or assistant battle captain, to gain and maintain situational awareness in an area of operations.

S&B: Why is J-JHUA so critical to helping coordinate assets in today's complex emergency response environment?

COL Oh: For the past 7 years, JTF-CS has employed a different method from JHUA for obtaining a Common Operational Picture (COP) since the application still had security vulnerabilities due to open source availability. Mission partners not using the application experienced a reduced quantity and quality of geospatial data to visualize the OE through lack of interoperability. A gap created by delayed information negatively impacted the JTF-CS mission with regard to saving lives and rendering emergency aid in a timely manner. With J-HUA, time delay limitations can be overcome in communications with JTF-CS partners which expedites the flow of information in the hope of saving more lives and supplying citizens with much-needed aid in times of crisis. The web-based capability provides "Power to the Edge" for dozens of military units to contribute authenticated, timely and accurate data to the COP using a ground-up approach. A good example is in situations when Urban Search and Rescue need to radio into a Tactical Operations Center (TOC)

the status of a building or mission and the data can be entered into J-HUA which then shares it across all users in near real time. By pushing the tools to units operating at small echelons in a complex catastrophe, personnel have access to the most up to date information to support planning and decision-making. More timely information helps plan for future missions and the potential needs of local populations.

S&B: Can J-HUA become the future platform for our current mission?

COL Oh: For the past two years, JTF-CS has fielded its ArcGIS Portal to create web applications for national security special events (NSSE) and other planning efforts. The system has provided analytical tools and validated planning information with federal partners. The success of this initiative has helped realize the benefits of migrating J-HUA to a web-based domain for exercises and real-world emergency response. J-HUA is the first of many custom web apps disseminated across JTF-CS and the Defense CBRN Response Force (DCRF) to meet the planning requirements of various projects. Other web apps can be developed to meet specific objectives such as battle tracking, personnel accountability, logistics management, infrastructure impacts to operations, and improved information for command situational awareness.

Even though we are still in the initial phases of web implementation, J-HUA has shown increasing potential with smaller exercises conducted throughout recent months. The applications are continually becoming easier for personnel that don't have a background with GIS by setting up a standard set of widgets to help them create, modify, and publish vital information in a matter of seconds. There is a real understanding of how this application can be used emphasizing a "less is more" concept. We define this with how simple four to six widgets can display the most vital information not only at Fort Eustis, but to all surrounding coordinating units and emergency relief departments. The end state for J-HUA is powering a single application to create and maintain the various screens currently used in the majority of JTF-CS subordinate units.

S&B: What are some limitations of J-HUA?

COL Oh: As mentioned, the implementation of one system to do a variety of tasks done by multiple applications is a challenge. From an information management perspective, getting all networks to communicate and interact properly is one, if not the biggest concern. We strive to keep the integrity of our system security intact, so having an application without system integrity would be detrimental to the success of J-HUA.

Training requires time and attention at the unit level as expertise is acquired from experience. There is significant turnover in personnel which requires numerous training teams or exercises to sufficiently train the personnel to use the tool and understand the value. However, as our geospatial team continues to make improvements within the web application, ease of training will become more apparent due to the simplicity of widgets available to operators and the inclusion of computer-based aid training. With a quick "How To" guide for each widget, we hope the final application will function with ease like current smartphone applications on the Android and iOS markets.

S&B: What is the MA Editor Web App?

COL Oh: The MA Editor Web App is the tool used by JTF-CS personnel to input data into the J-HUA database such as missions, significant events, command and control (C2) locations, and other high value

Richie Richardson, geographic information systems coordinator at Joint Task Force Civil Support (JTF-CS) holds a cellular telephone set to the J-HUA web-based app to show how a crisis responder can learn and share mission-relevant data using its features designed to be user-friendly. (U.S. Navy photo by Mass Communication Specialist 3rd Class Michael Redd/released)

data. This web app provides analytical tools enabling users to extract a spreadsheet with database information, or add federal, state, and local partner mission-relevant data into the viewer. An example might be hospital status from Health and Human Services (HHS), shelter status from the Red Cross, road/bridge status from the State Department of Transportation or high-resolution post-damage imagery from the Civil Air Patrol.

S&B: What are some primary challenges J-HUA faces in evolving to meet future CBRN/emergency response needs?

COL Oh: A primary challenge facing J-HUA or ArcGIS Portal is trust. In general, relationships are the key to information sharing. The National Response Framework (NRF) addresses many of the traditional command relationship challenges that hinder response, but the requirement for information sharing and data synthesis hasn't matured at the same speed. Mission partners have focused their geospatial efforts on meeting the needs of their client, whether it be a state governor, The Adjutant General (TAG), commander, Incident Commander, or the public. The needs of clients are varied and requirements don't always align. Those needs have forced geospatial analysts to develop disparate client-based solutions. This places the focus on feeding these different systems instead of providing information to the community of response partners. We collect to answer a question asked and don't consider that information may be of interest to others. Only after the data has been transformed into a finished product is it shared with the community and then only as a final product.

In order to meet future emergency response needs, mission partners need to build relationships prior to incident occurrences. Trust through these relationships should be reflected in systems. Geospatial systems that are being used to visualize an operational environment need to adhere to industry standards and participate in mutually-beneficial collaborative environments. In this relationship, each system would allow users from partner systems to discover data and integrate it into that user's User-Defined Operating Picture (UDOP). A UDOP becomes the platform for data and information sharing.

This inherently builds shared understanding across the stakeholders, leveraging the power of the many to solve complex problems. Moreover, this "crowd sourcing" approach to data sharing leverages relationship-building and trust that transcends organizational boundaries, using the power of many to aid in critical life-saving and life sustaining relief efforts.

SEIZING THE POWER OF RAPID DNA

DNA identification that was once only possible in the lab, is now being used during field deployments for Sensitive Site Exploitation and Biometric Enrollment.

By Allen Carr, Managing Director

Recent scientific advances have made many technologies normally restricted to a laboratory environment, available to a wide range of field-based users. Traditionally, these lab-based systems were operated by highly-technical personnel. Now, these systems are more commonly used by non-technical field professionals. Some of the technologies have benefitted hazardous materials response teams, while others are used for drug identification in the field. Even the simple breathalyzer test once required a sophisticated laboratory, as opposed to the handheld devices routinely used on the roadside by law enforcement today.

The ability to rapidly process human DNA is one of the latest and most important technologies to make the move from lab to field. DNA is the most accurate form of human identification. Moving DNA analysis from trained technicians to field personnel represents a major shift in operational capability. Rapid DNA introduces a far more efficient system of analysis, interpretation, data basing, and data exchange than previously possible through remote DNA processing.

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ANDE® has developed a fully integrated, field-deployable, rapid system (90 minutes) for the automated generation of DNA IDs. Resulting from the joint efforts of programs in the U.S. Department of Defense, Department of Justice, and Department of Homeland Security, the ANDE® System is a fully automated Rapid DNA Identification™ system with an onboard Expert System Software for automated data analysis, allowing a non-technical operator to perform an integrated sample-in to results-out DNA profile development and comparison of a wide range of sample types.

Allen Carr

Applications for the Rapid DNA System

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Sensitive Site Exploitation and Biometric Enrollments – Rapid DNA can be used for field DNA biometric enrollments and forensic samples left behind at a CBRNe target sight. As a mobile platform, the system allows biometric enrollment and sensitive sites to be processed faster at the point of need.

Intelligence Operations – DNA for intelligence operations is a critical component to identifying individuals involved in act of terrorism and denying them the ability to remain anonymous. DNA allows an intelligence agency to collect DNA from a wide range of sources (e.g., coffee cups, cellular phones, cigarette butts, parts from an IED) This information can be stored in a database and used to connect an individual to an incident or activity,

Immigration Claim Relationships – DNA analysis is the only biometric technology that can be used to confirm or verify claimed kinship relationships between individuals, such as a parent-child relationship. The chemistry used in the ANDE® System significantly increases the ability to resolve relationships out to a 25% common DNA level (i.e., grandparent).

Mass Casualty Events – By taking advantage of the portable nature of the Rapid DNA system, the user can support responses to mass casualty events and support the identification of citizens, either through direct matches to a localized database or indirect matches to family members of the missing using the systems kinship/claimed relationship analysis software.

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PROMOTING NEXT-LEVEL ATTACK PREPAREDNESS

The Joint Program Executive Office for Chemical, Biological, Radiological, and Nuclear Defense (JPEO-CBRND) recently established an Other Transaction Agreement (OTA) for Countering Weapons of Mass Destruction (CWMD) to fulfill rapid prototyping requirements for the DoD and other federal agency partners with a CWMD mission.

By Gary Wright, Director, Contracting Management Office and Jeffrey Megargel, Senior Contract Support Analyst

The CWMD OTA will deliver cutting edge technology for troops and first responders engaged in CWMD operations. (JPEO-CBRND)

In a world where our adversaries actively seek and use weapons of mass destruction, the JPEO-CBRND, Aberdeen Proving Ground, MD, is adapting its acquisition processes to reduce procurement administrative lead time and speed delivery of critical capabilities into the hands of the warfighter. In particular, Other Transaction Authority promises to streamline access to potentially game-changing technologies that would allow the U.S. to counter the use of weapons of mass destruction. With a ten-year period of performance and estimated value of $10B, the CWMD OTA is set up to facilitate meaningful collaboration between industry, academia, and government throughout the life of a prototyping project. Government agencies now have one vehicle through which they can obtain rapid prototyping and modifications to existing technologies that qualify as prototypes under the Department of Defense prototyping guide.

Douglas Bryce
JPEO-CBRND

The CWMD OTA is based upon Section 815, Amendments to Other Transaction Authority, of the National Defense Authorization Act (NDAA) for Fiscal Year 2016, Section 2371b, Authority to carry out prototype projects. Section 2371b authorizes the Secretary of a military department to carry out certain prototype projects that are directly relevant to enhancing the mission effectiveness of military personnel and supporting platforms, systems, components, or materials proposed to be acquired or developed by DoD, or the improvement of platforms, systems, components, or materials in use by the Joint Forces.

Approach

The program management structure is composed of three arms: the CWMD OTA Program Management Office at JPEO-CBRND, Army

Contracting Command (ACC), New Jersey and the CWMD Consortium Management Firm, Advanced Technology International (ATI). Each is staffed to engage with all partners in the CWMD mission space.

The CWMD OTA is built upon a growing consortium of over 150 companies and academic institutions. Consortium members that wish to respond to prototyping requirements are encouraged to meet with government project teams to discuss the technical aspects of each project until receipt of the white paper or proposal. This communication reduces performance risk by allowing industry to mitigate issues early in the cycle, rather than postponing risk mitigation until post-award (a change from traditional contracting practices). Indeed, non-traditional defense contractors that would never accept a Federal Acquisition Regulation (FAR) based procurement contract are more likely to work within the Other Transaction space, and the CWMD Consortium is targeting true non-traditional defense contractors and academic institutions that have never worked with the DoD.

The JPEO-CBRND is seeking transformative technologies that will allow warfighters to continue the mission even after a WMD event. (JPEO-CBRND)

Responsiveness and Expedited Processes for Obtaining Prototypes

The CWMD OTA Program Management Office in Aberdeen Proving Ground, MD is configured to work closely with project teams to develop all required documentation. There are contracting subject matter experts matrixed to each subordinate project management office, and the PMO has its own technical experts who lead project teams through the completion of prototyping project documentation. The process is handled "in house" with the aim of quickly developing and finalizing other transaction prototyping packages that expedite the approval process at the contracting activity.

The CWMD OTA also tailors procurement processes to the maturity of the requirement, availability of technology, and end-user timelines. The typical project will begin with a request for white papers which encourages open collaboration between industry and government and allows the government to select the most promising

solutions for continuation to a request for full proposals. If the project teams have a fully developed requirement with a statement of work, a performance specification, and a clear understanding of industry or academia's technical capabilities, the team may elect to forgo the white paper phase and proceed directly to requests for full proposal.

Because the CWMD OTA is scoped to support the whole of government, the JPEO-CBRND is exploring the probability that extensive users of the OTA may want to manage their own usage without having to staff program documentation with the JPEO-CBRND. Under a memorandum of agreement framework, another agency could set up agency-specific processes and procedures that reflect organic rules related to approvals, funding, and priorities. Understandably, the approach would have to be in general compliance with the terms and conditions of the OTA program and have sufficient throughput to justify the effort.

Outreach & Training

The CWMD Consortium and ATI are responsible for recruiting and managing a large body of U.S. companies and academic institutions that have critical technical capabilities. This effort is focused on attracting non-traditional defense contractors that are not willing or able to accept FAR-based procurement contracts. In some cases, it may be necessary to recruit agency-specific companies or reach out to key academic partners to fulfill prototyping needs. In fact, the consortium management firm can recruit an entire set of companies that are currently supporting an agency or are focused in a particular technological area. All of this is easily done within the consortium construct. ATI conducts continuous web-based training sessions and in-person events for the members of the consortium. Likewise, the JPEO-CBRND has established one of the only OTA focused training programs within DoD. Any federal agency that desires executive level, basic, or advanced training as a precursor to using a JPEO-CBRND sponsored OTA is welcome to contact the program office for availability.

Security / International Traffic in Arms Regulation Compliance

Because the CWMD OTA was specifically designed to meet the prototyping requirements of all CWMD partners, classified projects up to Top Secret can be executed. The CWMD OTA has processes and procedures for handling classified and sensitive information while ensuring the effective collaboration can still occur between technology providers, laboratories and test facilities, and the OTA user community. This area includes methodologies that enable participation of foreign owned or controlled companies and institutions in accordance with the International Traffic in Arms Regulation.

Flexibility

Other Transaction Authority allows for flexibility that is simply not possible in a FAR-based procurement contract environment. Documentation and review requirements are readily adjusted based upon urgency of the end use and complexity of the each prototyping requirement. Nearly all Federal Acquisition Regulations are not mandatory but may still be incorporated in some form to protect the interests of the government and the industry / academic partner. Consortium members may propose fee positions that reflect the value that a prototype can deliver, and competition is obtained to the maximum extent practicable. OTAs are an ideal method for obtaining the technical capabilities of companies and institutions without the burden of compliance with the FAR.

The CWMD OTA has multiple novel approaches to obtaining prototypes, but the "Basket" provision may be the most innovative. This provision allows technical evaluation teams to set aside proposals that have merit but will not be funded at the present time. While in the "basket," a proposal remains in play for up to 36 months. The project team can elect to fund the program at a later date when funding is available, and it also serves as a risk mitigation technique in the event the most highly rated proposal does not perform to expectations or the need exceeds the abilities of the first awardee. In this event, the government need only pull the proposal out of the basket, refresh the terms and conditions, make an award, and proceed to the start of work.

In a period of reduced spending and enemies who innovate far faster than possible within traditional acquisition pathways, the JPEO-CBRND is enabling a whole of government approach to countering weapons of mass destruction. The CWMD Other Transaction is scoped to support a whole of government approach to countering WMD, and it has already produced potentially game-changing innovations. Given the rapid growth in industry, academic, and government interest, it promises to have a major impact upon the way the Federal Government acquires technologies that will keep our world safer.

MULTI-TIERED RESOURCING FOR MULTI-FACETED THREAT DETERRENCE

U.S. Special Operations Command (USSOCOM), the nation's new mission lead for Countering Weapons of Mass Destruction (CWMD), is adopting a coordinated, trans-regional approach to address today's dynamic and multi-dimensional threat.

By BG William King (USA Ret.), Executive Advisor, BAH, Inc.

Sgt. Darren Munhole, survey team member with Washington State's 10th Civil Support Team, oversees military from Thailand and active duty Soldiers from the 25th Infantry Division as they practice identifying radiological fields from test sources during a recent Joint CBRN exchange at the Hawaii Army National Guard's Regional Training Institute. (U.S. National Guard Photo By Tech. Sgt. Andrew Jackson)

BG William King (USA Ret.)

The U.S. military's enduring mission to counter threats posed by weapons of mass destruction (WMD) has taken on renewed urgency due to troubling developments in recent years that have contributed to a more volatile and complex threat landscape. As the 2018 Nuclear Posture Review (NPR) warns: "There now exists an unprecedented range and mix of threats, including major conventional, chemical, biological, nuclear, space, and cyber threats, and violent non-state actors. These developments have produced increased uncertainty and risk." That said, the Department of Defense has taken the tack that aligning all critical dimensions of the CWMD mission (policy, people, operations, engineering, and management) into an integrated whole of government and empowering them with a comprehensive view of the mission landscape will best position the United States and its mission partners and allies for maximum effectiveness.

Growing State-Sponsored Menace

Russia and China are acquiring new advanced types of nuclear capabilities and giving those nuclear forces increased prominence in their plans and strategies. North Korea, in defiance of international laws and condemnation, is developing and testing nuclear weapons and missiles that can deliver those weapons across continents. North Korea also continues to pursue chemical and biological weapons that could also be delivered by missile. And Iran, while it has paused its nuclear program, for now, is believed to possess the capacity necessary to develop a nuclear weapon within one year should it decide to resume its nuclear ambitions. Syria has continued its repeated and seemingly unashamed use of nerve agent against civilians in its own civil war.

Perhaps more troubling is a rising WMD threat from non-state actors, such as violent extremist organizations (VEOs). "The potential threat of non-state actors getting their hands on a nuclear weapon remains at the front of all of our minds. Nuclear terrorism is still a major threat in this century, and one we must work to mitigate at every opportunity," said Undersecretary of State for Political Affairs Thomas Shannon Jr. A particularly vexing challenge today is the fact that threats from non-state actors often include single individuals who are inspired by VEOs and can be more difficult to detect in advance. James McDonnell, acting Assistant Secretary for the Department of Homeland Security's (DHS) CWMD Office captured the issue well at a recent conference:

"The change, the dynamic that I've seen in my career is the shift from state actors being primarily who you're concerned with when it comes to WMD to nonstate actors and the proliferation of information through the Internet. Now you really have to worry about a microbiologist that has access to a laboratory in a community college, which, 10-15 years ago, that wasn't something that we were dealing with like we are today."

The evolving tactics and operations employed by terrorist organizations have compressed the time and space needed to plot and carry out attacks, further challenging traditional U.S. counter-terrorism approaches. "Now they have become highly networked online, allowing them to spread propaganda worldwide, recruit online, evade detection by plotting in virtual safe havens, and crowd-source attacks. The result is that our interagency partners and allies have tracked a record number of terrorism cases," said Acting Homeland Security Secretary Elaine Duke. As Homeland Security Department officials recently told lawmakers, "certain WMD, once viewed as out-of-reach for all but nation states, are now closer to being attained by non-state actors." Unfortunately, the WMD threat today is not strictly academic — chemical weapons have been employed repeatedly with devastating consequences by both state and non-state actors.

Further complicating the threat landscape is the fact that the know-how and materials needed to produce WMD continue to proliferate and commercial technologies that enable threat actors to obtain and deploy these weapons continue advancing.

Coordination and Information-Sharing Challenges

These troubling developments challenge traditional CWMD paradigms and test the ability of U.S. government organizations to keep pace. As DHS' Duke noted:

"We are rethinking homeland security for a new age. We sometimes speak of the 'home game' and 'away game' in protecting our country, with DHS especially focused on the former. But the line is now blurred. The

dangers we face are becoming more dispersed, and threat networks are proliferating across borders. The shifting landscape is challenging our security, so we need to move past traditional defense and non-defense thinking."

In response, the U.S. government is recalibrating its CWMD posture with agency reorganizations and reformulated strategies. In recent months, for example, the Department of Defense transferred the CWMD mission lead from the U.S. Strategic Command to the U.S. Special Operations Command (USSOCOM), signaling a shift in strategy that places greater emphasis on identifying and preventing threats before they metastasize into crises. In addition, the Department of Homeland Security established a CWMD Office, consolidating numerous offices and functions across the department. Strategies and plans to address WMD threats are being overhauled with new or updated versions of the National Security Strategy, National Defense Strategy, Nuclear Posture Review, Combined Arms CWMD doctrine, and National Biodefense Strategy and Implementation Plan.

These are positive steps that constitute a tipping point in the nation's mobilization around the WMD challenge. But these steps, by themselves, cannot sufficiently address the myriad challenges that come with countering today's emerging WMD threats. These include:

- A lack of coordination at the national level to ensure that centers of CWMD activity, authority, policy, planning, and expertise are operating cohesively, effectively, and efficiently. Several relevant national CWMD strategies with no implementation plan and no one designated as the lead.
- Limited situational awareness across the chemical, biological, radiological, nuclear and explosive (CBRNE) communities concerning threats and CWMD activities.
- A new lead DoD agency — USSOCOM — that must rapidly develop the infrastructure, partnerships, expertise, strategy and tactics needed to address this mission successfully.
- The inherent complexity of the CWMD mission in which each CBRNE pillar consists of different stakeholders, required skillsets, strategies and tactics.
- Threat actors that continue to evolve their resiliency, adaptability, strategies, tactics, and organizations, often by employing digital innovations.

Special Ops Lead a No Brainer

The transfer of the CWMD mission to USSOCOM, in particular, represents an important juncture that demands fresh thinking on how best to address these and other challenges. The policy decision to vest USSOCOM with this responsibility acknowledges that CWMD and counterterrorism share strong commonalities: Both missions face highly complex, multi-regional, and overlapping threats, and both call for a networked interagency and interorganizational response.

In addition, each of the five CBRNE domains within CWMD consists of different stakeholder communities, required skillsets, strategies and tactics. Moreover, the CWMD mission embodies non-proliferation, counter-proliferation, and consequence management responsibilities within each of those domains — and, likewise, each of those mission responsibilities consist of different stakeholder communities, skillsets, strategies and tactics.

To be sure, USSOCOM's experience in counterterrorism brings critical advantages — namely, the know-how needed to establish, coordinate, and leverage needed relationships and partnerships; develop agile operational models and tactics; and employ innovative technologies and capabilities in pursuit of mission goals. But the sheer scale and relative complexity of the WMD threat; the support needed to sustain a "unity of effort" approach to the mission; and the extreme stakes intrinsic to CWMD that demand zero tolerance for failure all require a more deliberate approach to the intelligence and coordination challenges needed to keep the command and its mission partners on the front foot. Furthermore, these coordination challenges extend not only to USSOCOM's many mission partners, but also to the fundamental components of the CWMD mission itself — people, policies, operations, management and technology need to be optimally integrated to deliver assured mission success, even as the threat intensifies.

Author Note

BG(R) William King has served in a wide variety of command, leadership, and staff positions across numerous levels of the U.S. Army, Joint Task Forces, Regional Commands, and most recently as the Commanding General 20th CBRNE Command before retiring on 19 July 2017 with 30+ years of active duty U.S. Army service. He joined Booz Allen Hamilton on 6 November 2017 as an Executive Advisor for the Defense Intelligence Group/ Joint Combatant Commands Account. He is responsible for assessing ongoing 'Whole of Government" and "International" Countering Weapons of Mass Destruction (CWMD) synchronization and integration activities, advising on challenges/opportunities, and providing strategic thinking to support analysis of and potential actions related to and requiring CBRNE policies, modernization, capability and capacity development.

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Next-Gen Biometric Screening

(Smartgates)

Smart Gates, a new electronic border control system to help facilitate faster and more secure travel between countries by performing passport control checks electronically, have been deployed at Dubai International Airport for UAE residents. Travelers need to bring their Emirates ID and they can use smart gates to speed through passport controls in a matter of seconds. Dubai Airport's Smart Gates are equipped with iris recognition camera to capture both facial and eye biometrics of the registered travelers. New Zealand Customs Service (NZCS) has also started deploying biometric smart gates in partnership with Morpho, a major biometric solution provider. The project, which initiated with Auckland International Airport, is expected to deploy new and replacement gates across major New Zealand airports by 2020.

In the United States, biometric smart gates are already on pilot under the U.S. Customs and Border Protection (CBP) Biometric Exit program, in which the agency is working with select airlines and technology firms to identify people travelling internationally. Currently non-U.S. citizens who are leaving the U.S. are being taken through biometric smart gates that use facial recognition to verify identify of the travelers. They can also read the travel documents of the passengers.

The systems are deployed in partnership with technology firms like NEC Corporation of America, SITA, etc., which are major players in the field of biometric solutions. These systems capture a photograph of the traveler and compare it against what they have provided to the airline. The process of identity verification on these systems does not take more than a couple of seconds and the traveler can move to the boarding area when done.

More info: dubaiairports.ae/smartgates
bayometric.com/smartgates

DARPA-Led CBRN Threat Detection

The Defense Advanced Research Projects Agency (DARPA) has kicked off a program to develop networks of sensors that can detect chemical, biological, radiological, nuclear and explosives threats. SIGMA+ is an expansion of DARPA's initiative to identify radiological and nuclear materials.

"The goal of SIGMA+ is to develop and demonstrate a real-time, persistent CBRNE early detection system by leveraging advances in sensing, data fusion, analytics, and social and behavioral modeling to address a spectrum of threats," said Vincent Tang, SIGMA+ program manager in DARPA's Defense Sciences Office.

Tang added that SIGMA+ researchers will work to show that distributed sensor networks combined with automated intelligence analytics and social science insights can be deployed and scaled to boost the probability of mitigating CBRNE weapons of mass destruction.

The program aims to build a long-range detection system that can help identify improvised chemical and explosive threats ahead of attacks.

Researchers will also create sensors designed to detect traces of pathogens in real time to alert officials of potential biological terror attacks, such as the release of anthrax or viruses.

DARPA plans to release a Broad Agency Announcement next month and a second BAA later this year.

Phase 1 of the program will focus on the development of novel sensors for chemicals, explosives and biological agents, while the second phase will cover network development, analytics and integration efforts.

More info: darpa.mil

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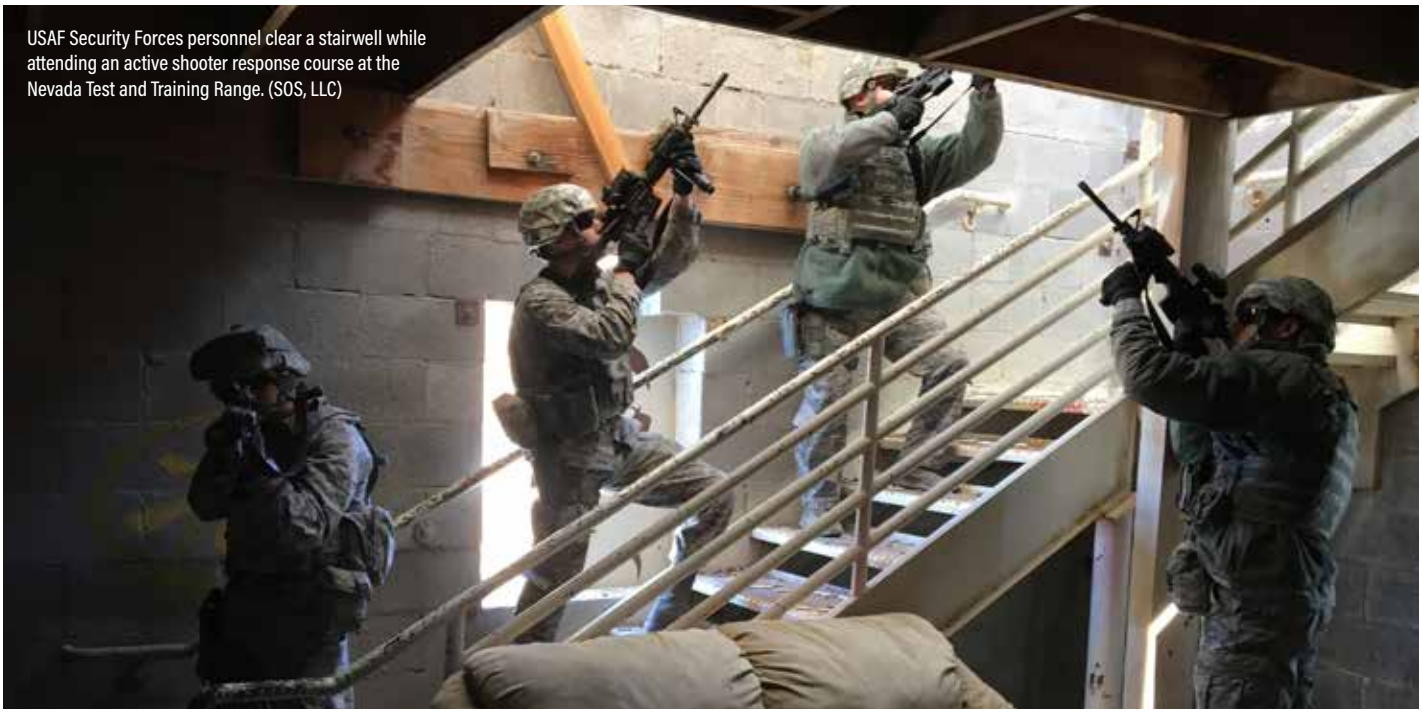
EVOLVING TACTICS FOR TOMORROW'S THREAT

Today's modern Special Weapons and Tactics (SWAT) training evolutions are centered around assessing risk to maximize desired outcomes.

By Don Adams, Special Operations Systems, LLC



USAF Security Forces personnel clear a stairwell while attending an active shooter response course at the Nevada Test and Training Range. (SOS, LLC)

Daryl Gates of the Los Angeles Police Department was considered the father of SWAT (Special Weapons And Tactics) law enforcement. In the late 1960's, Gates established the specialized unit in order to deal with hostage rescue and extreme situations involving armed and dangerous suspects. Throughout the 80s and 90s, more and more departments established SWAT units to tackle similar extreme situations. During this timeframe, teams found themselves tasked with a growing number of high-risk search warrant services related to the ongoing War on Drugs.

On April 20, 1999, the Columbine High School shooting caused law enforcement to rethink the way teams were being deployed and began to place more focus on training officers at the patrol level in tactical response topics. While most agencies within the U.S. are training patrol officers in active shooter tactics, there is still some variance in how teams are established and trained. Organizations like the National Tactical Officers Association (NTOA), in conjunction with state tactical officer associations, have worked to establish industry standards for teams to follow regarding officer selection, unit size, and basic training. In addition to standardization in tactical response protocol, technology is aiding in the evolution of team tactics. We now have robots, drones, and other high-tech equipment to aid in the intelligence and surveillance aspect of our duties. This increased situational awareness will prove to be a game changer as it relates to the safety of the public and the individual officer.

Training Tailored to Specific Need

Special Operations Systems, LLC provides for a variety of tactical training solutions for today's law enforcement officer, armed service-member, and protective security professional. Special Operations Systems offers training in Active Shooter Response, Basic and Advanced SWAT operations, Law Enforcement Observer / Marksman and more.

When developing curriculum for an agency, much is born of necessity. As an example, our High-Risk Tactical Operations course was designed for narcotics and fugitive task force officers who are responsible for conducting high-risk enforcement actions; many times, without SWAT support. As a former narcotics task force officer of over 13 years assigned to a multi-jurisdictional team, I recognized that when bringing other agencies together, it was paramount that we provide training on all aspects of our mission to ensure that the public is dealt with professionally and that our officers go home safely. Having a newly assigned investigator from a completely different agency adds a unique twist to these types of task force assignments. When conducting these types of investigations, the stakes were far too high to rely on an officer's basic academy training and varying street experience to get them by. We had to do something to prepare them for the road ahead.

This philosophy has driven Special Operations Systems, LLC to offer training on pre-deployment topics such as Combat Marksmanship, Breaching, VIP protection, surveillance detection, and high threat driving. To facilitate training, Special Operations Systems utilizes a purpose-built facility south of the Dallas/Fort Worth, TX metro area or can provide Mobile Training Teams to train personnel at your location. Our instructor cadre is made up of current and former law enforcement and military special operations personnel who bring recent and relevant experience directly to the end user.

When dealing with pre-planned events such as a tactical takedown or a search warrant service, teams learn to think about different service options and how to apply them both legally as well as tactically. The days of the one size fits all approach of breaching the door and flooding the structure are over. Much like our military counterpart's, law enforcement officers are trained in delivering a detailed operations order consisting of Situation, Mission, Execution, Administration, and Command / Signal,

as well as the completion of a threat matrix to determine the necessity for the response. Officers are taught to plan all phases of the operation as well as to account for contingencies such as alternate breach points and medical emergencies. Many of the elements of these pre-planned mission essential tasks cross over when conducting more complex operations such as active shooter response, hostage rescue, and the resolution of barricaded persons. Understanding mission planning and team roles is essential at all levels when switching from a proactive to a reactive posture. Officers must be surgical in their approach and courses of action must be legal, ethical, and within policy.

Texas Game Wardens apply tactical combat casualty care procedures on a simulated casualty in low light. (SOS, LLC)

Not Always a War of Attrition

In years past, teams placed a lot of emphasis on flooding the structure with bodies. While this is certainly a tactic, it is not a one size fits all option. For many teams, they were not trained in alternate options so when all you have is a hammer, everything looks like a nail. In a situation such as a lone barricaded/armed suspect, there is no need to push into their environment and become exposed to numerous unknown threats. Better understanding of tactics and the incorporation of K9s, robots, and drones onto teams have helped officers to safely resolve situations like this and mitigate the risk of being ambushed by the suspect on their terms.

When it comes to tactics, the military and law enforcement do share some parallels. As we move toward our 17th year at war, much has been learned from our military counterparts in developing counter-ambush tactics and treating battlefield injuries. These lessons learned by our armed service members have no doubt saved lives domestically. Understanding cover vs concealment, using angles to your advantage, filling the gaps, and the necessity to communicate are universal across both spectrums. Another similarity is that missions dictate the tactics to be utilized. Within the law enforcement spectrum, a mission conducted to retrieve evidence of a crime will certainly look different than that of a hostage rescue or active shooter event.

In law enforcement, use of force policies (rules of engagement) are driven by the constitution and state laws. It is a misconception that just because SWAT is deployed, the missions will end in a fatal officer-involved shooting. This is quite the opposite. Training and technology has helped SWAT a great deal in being able to find a peaceful resolution to even some of the most difficult situations. SWAT incorporates trained crisis negotiators into the team who are very well versed in de-escalation tactics. Many times, SWAT officers are cross-trained in these negotiation tactics as to not compromise the resolution the negotiator is working toward. SWAT also utilizes a myriad of less lethal projectiles, diversionary devices, and electronic control devices (i.e. tasers) which allow the officers to subdue the offender without immediately resorting to deadly force as their only option.

Looking Ahead

The future brings unique challenges that will be addressed by SWAT officers across the nation. We have watched as our international counterparts have faced complex coordinated terrorist attacks in events such as the Beslan School Siege in 2004, the Mumbai Attack in 2008, and the 2015 attacks on Paris. Here at home, our law enforcement officers have faced complex assaults from coast to coast; Boston, Orlando, Dallas, Las Vegas, and San Bernardino are just a few recent examples.

With the looming threat of IEDs and other methods of attack, teams have integrated CBRNE and tactical bomb technicians onto SWAT teams to further enhance response capabilities. Fire and EMS personnel are being tactically trained to form Rescue Task Forces who will augment a police response to a mass casualty producing incident such as an active shooter. As threats evolve, SWAT leads our nation's first responders in training to remain steps ahead.

Author Note

Don Adams – CEO, Special Operations Systems LLC. Don is a Master Peace Officer with over 19 years of full time law enforcement experience. For over 13 years, Don served as a SWAT officer and tactical team leader for a state organized task force responsible for conducting narcotics enforcement and high-risk operations. Don has served as an instructor with the U.S. Department of State's Anti-Terrorism Assistance Program and is currently the SWAT Commander for a mid-sized metropolitan police department.

CALENDAR OF EVENTS

APR 30 – MAY 3
Xponential
Denver, CO
Xponential.org

MAY 7 – 8
Navy Contracting Summit
Norfolk, VA
Defenseleadershipforum.org/navycontractingsummit

MAY 7 – 8
Great Lakes Homeland Security Conference & Expo
Grand Rapids, MI
Michiganchemistry.com/2018-glhs-expo

MAY 13 – 17
SOMSA
Charlotte, NC
Specialoperationsmedicine.org

MAY 22 – 24
SOFIC
Tampa, FL
Sofic.org

JUN 7 – 10
Int'l. HazMat Response Teams Conference
Baltimore, MD
Iafc.org/hazmat

JUN 19 – 20
Internat'l Summit on Borders
Washington, DC
Internationalsummitonborders.com

JUN 25 – 26
Mass Casualty Incidents: Response and Readiness
Orlando, FL
Insightxnetwork.com

JUN 25 – 27
Robotics and Autonomous Systems
Detroit, MI
Roboticsautonomoussystems.iqpc.com

JUN 26 – 27
Regional Emergency Healthcare Systems
San Antonio, TX
Strac.org

JUN 26 – 27
CBRN Exhibition
Ft Leonard Wood, MO
Cbrnexhibition.com

JUN 26 – 27
Police Security Expo
Atlantic City, NJ
Police-security.com

JUN 27 – 29
Biodefense World Summit
Bethesda, MD
Biodefenseworldsummit.com

JUL 9 – 12
Nat'l. Homeland Security Conference
New York, NY
Nationalhomelandsecurity.org

JUL 18 – 19
Mass Casualty Incidents: Response and Readiness
Los Angeles, CA
Insightxnetwork.com

JULY 24 – 25
CBRN Defense Conference and Expo
Wilmington, DE
Ndia.org

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