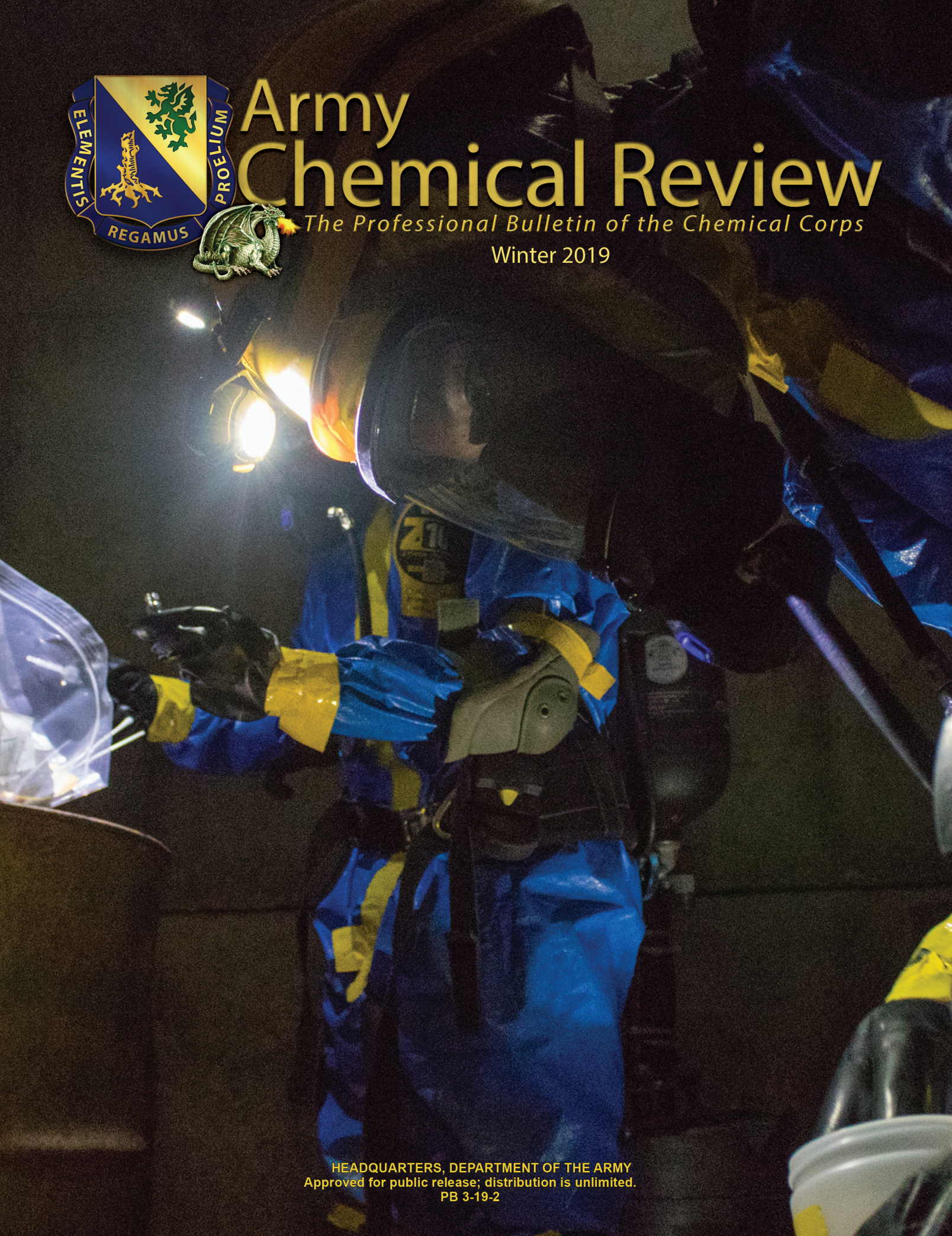




# Army Chemical Review

*The Professional Bulletin of the Chemical Corps*

Winter 2019



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By Order of the Secretary of the Army:

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# Army Chemical Review

*The Professional Bulletin of the Chemical Corps*

PB 3-19-2, Winter 2019

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## Chief of Chemical and Commandant, U.S. Army Chemical, Biological, Radiological, and Nuclear School

I am extremely honored to serve as the 31st Chief of Chemical and Commandant of the U.S. Army Chemical, Biological, Radiological, and Nuclear School (USACBRNS). I am humbled to follow in the footsteps of my predecessors and grateful to have served alongside them throughout my career. They have accomplished many great things for our Corps, and it is now my privilege to lead our Regiment forward into the next chapter.

I sincerely want to thank Brigadier General Andy Munera for his leadership during his tenure as the Commandant, USACBRNS. He focused on developing chemical, biological, radiological, and nuclear (CBRN) combined arms solutions and modernization strategies to win against peer threats in large-scale combat operations in CBRN environments. With this focus, the Chemical Corps is ready to execute our mission and fight, operate, and win in a complex CBRN environment.

As Chief of Chemical, I believe that this is an exciting time for our Regiment. We acknowledge that the Army's priorities are people, readiness, modernization, and reform.<sup>1</sup> The enduring priorities of the Chemical Corps are to care for our people and our profession, train CBRN Soldiers, develop Chemical Corps leaders, modernize CBRN capabilities, and serve as the Chemical Corps of tomorrow, today. In support of the Army, the joint force, and multinational efforts, we are changing the paradigm of CBRN operations, providing decision space for commanders, protecting the force through leadership and materiel and nonmateriel solutions, and enabling movement and maneuver forces to retain freedom of action in order to fight and win on future battlefields.

The Chemical Regiment is competent, agile, and adaptive. We are a team of more than 18,000 individuals across our components, 68 percent of whom are in the Reserve Component. We lead, train, maintain, and care for our people and equipment. We are ready to execute the Chemical Corps mission—to conduct operations to protect the force and Nation from weapons of mass destruction and CBRN threats and hazards.

Clarity regarding the Army priorities and how the Chemical Corps supports those priorities is a critical component for maintaining our readiness. I offer the following four points to help direct and maintain our focus as we move forward in alignment together as part of the larger Army team:

- **Large-scale combat operations.** While the intent is to achieve and maintain peace, we must be ready for war. We must sustain military engagements and security cooperation and assist with deterrence. The Chemical Corps exists to enable movement and maneuver to conduct large-scale combat operations in a CBRN environment. Friendly forces must retain freedom of action and be capable of employing the full breadth of capabilities within complex battlefield conditions, including CBRN environments.
- **Multidomain operations.** When addressing direct and indirect effects of CBRN threats as envisioned in multidomain operations, the focus is on the objectives of gaining real-time understanding, establishing inherent protection, and negating hazard effects. This approach is aimed at developing a cultural shift in the mindset of operations in a CBRN environment. The goal is to develop capabilities that allow warfighters to react faster, operate more freely, use fewer resources, and achieve dispersed autonomy.<sup>2</sup> Success in this venture will provide a level of overmatch in CBRN responsiveness that will allow the Army to exploit enemy use of weapons of mass destruction, obtaining positions of relative advantage while negating hazardous effects to the operational environment.
- **Army modernization strategy.** The "U.S. Army Modernization Strategy" defines six priorities (long-range precision fires, next-generation combat vehicles, future vertical lift, Army network, air and missile defense, and Soldier lethality); it also redefines how we pursue capability development with cross-functional teams and increased integration with industry in order to more quickly and effectively deliver combat capability to the Soldier.<sup>3</sup> CBRN considerations permeate all six of the priorities.
- **CBRN future modernization strategy.** Our strategy for future modernization recognizes the implications of the Army modernization strategy; internalizes the directives to attain capabilities; and infuses our CBRN core functions of assess, protect, and mitigate for the following purposes:
  - **Assess** CBRN threats and hazards to gain real-time understanding.



**Colonel  
Daryl O. Hood**

- **Protect** against CBRN incidents to achieve inherent survivability.
- **Mitigate** the consequences of CBRN hazards to negate hazard effects.

Our core functions have not changed much over time, but there has been one significant change: We don't seek to "avoid" anymore. We have consciously replaced "avoid" with "assess" to highlight our confidence and capabilities to protect and mitigate. If we appropriately assess the enemy's intent with weapons of mass destruction, our maneuver will not be impacted and we will fight through, if necessary. Our thinking has shifted from a reactive to proactive mindset, giving us a relative advantage over any enemy.

Two main priorities during my watch are—

- **CBRN reconnaissance and surveillance and integrated early warning.** At the forefront of our materiel efforts is the Nuclear, Biological, and Chemical Reconnaissance Vehicle sensor suite upgrade. This upgrade improves on every sensor, increases operational readiness rates, and significantly increases the standoff range by not only improving existing sensors, but also integrating unmanned aircraft systems and unmanned ground vehicle capabilities onto the platform.
- **Contamination mitigation.** Through several recent experiments and exercises, we have established that we must integrate and leverage advancements in assessment and protection to modernize contamination mitigation. I have signed the "Interdependent Contamination Mitigation White Paper," which serves as the conceptual framework to help guide modernization of this capability and establishes three objectives: gain real-time understanding, establish inherent protection, and negate hazard effects.<sup>4</sup>

Our near-term goals include a force design update, which will establish the groundwork for a component restructuring and equipment transition to provide a fixed-site/terrain decontamination capability in the Active Component and Army pre-positioned stocks in order to maintain access to our sea and air ports of debarkation in the opening hours and days of a campaign, and continued integration of Military Occupational Specialty 74Ds—CBRN Specialists back into brigade combat teams. Our long-term goals include building an organic crew level hazard mitigation capability and establishing procedures that allow first-line leaders to assess and mitigate contamination at the lowest level, focusing on reducing risk to their squads and crews without reliance on CBRN enablers. For the CBRN enablers, the focus is on developing automated and waterless mitigation capabilities to reduce the logistical burden and increase the responsiveness of our CBRN units. This includes an autonomous/semiautonomous mitigation capability to expeditiously reduce contamination on fixed sites and key terrain to ensure freedom of movement.

Dragon Soldiers: One day in the near future, you will be launching unmanned aerial systems and exploring numerous ways to quickly and effectively mitigate hazards. Today, we are ready; tomorrow, we will be better. You know how to win. Our future is bright. You have my full trust and confidence; I believe in you and in our team. I am immensely proud to be your commandant, and I look forward to visiting you and your units to observe and learn more about what you are doing for our Corps, at home and abroad. Thank you and your Families for all you do to serve our beloved Nation and the U.S. Army Chemical Corps.

*Victory through skill.  
Dragon Soldiers, CBRN warriors!  
Elementis regamus proelium!*

**Endnotes:**

<sup>1</sup>"40th Chief of Staff of the Army Initial Message to the Army Team," 12 August 2019, <[https://www.army.mil/article/225605/40th\\_chief\\_of\\_staff\\_of\\_the\\_army\\_initial\\_message\\_to\\_the\\_army\\_team](https://www.army.mil/article/225605/40th_chief_of_staff_of_the_army_initial_message_to_the_army_team)>, accessed on 13 November 2019.

<sup>2</sup>"Interdependent Contamination Mitigation White Paper," U.S. Army Maneuver Support Center of Excellence, 24 July 2019, <[https://home.army.mil/wood/application/files/3515/7010/8001/Encl\\_7\\_Contamination\\_Mitigation\\_White\\_Paper.pdf](https://home.army.mil/wood/application/files/3515/7010/8001/Encl_7_Contamination_Mitigation_White_Paper.pdf)>, accessed on 18 December 2019.

<sup>3</sup>"U.S. Army Modernization Strategy," Army Capability Integration Center, U.S. Army Training and Doctrine Command, 6 June 2018, <<https://www.army.mil/standto/2018-06-06>>, accessed on 30 September 2019.

<sup>4</sup>"Interdependent Contamination Mitigation White Paper."



## Regimental Command Sergeant Major



**A**s your Regimental Command Sergeant Major, I have been diligently working alongside the Personnel Development Office, U.S. Army Chemical, Biological, Radiological, and Nuclear School (USACBRNS), and with the Chemical Branch, U.S. Army Human Resources Command, to determine the best processes to ensure the effective management of our personnel and talent. As we discussed in the previous issue of *Army Chemical Review*, U.S. Army talent management is a deliberate planning process used to determine the right number and types of people needed to meet current and future Army talent demands. Talent management aligns individual capabilities with the Army's needs, while optimizing human performance and engagement.

For example, due to a deficit of sergeants major, we selected eight key development (leadership time) positions that could be filled by qualified first sergeants or master sergeants (E-8s) serving as division chemical, biological, radiological, and nuclear (CBRN) sergeants majors. This is important because leaders sometimes prematurely place non-commissioned officers (NCOs) in positions for which they are not ready. In order for Soldiers to be selected for these leadership positions of higher responsibility, they must first demonstrate that they have been successful at their current level.

The following E-8s were selected to fill sergeant major billets in these broadening assignments:

- Master Sergeant Vincent Green, Headquarters, 3d Infantry Division, Fort Stewart, Georgia.
- Master Sergeant Jeffery Howard, Headquarters, 25th Infantry Division, Schofield Barracks, Hawaii.
- Master Sergeant Jamey Jackson, Headquarters, XVIII Airborne Corps, Fort Bragg, North Carolina.
- Master Sergeant Elizandro Jimenez, Headquarters, 101st Airborne Division, Fort Campbell, Kentucky.
- Master Sergeant Joseph Mahoney, Headquarters, 10th Mountain Division, Fort Drum, New York.
- Master Sergeant Polly Schmidt, Headquarters, 1st Cavalry Division, Fort Hood, Texas.
- Master Sergeant Ricky Sierra, Headquarters, 82d Airborne Division, Fort Bragg, North Carolina.
- Master Sergeant Joshua Warehime, Headquarters, 1st Armored Division, Fort Bliss, Texas.

As we continue to move forward with the Military Occupational Specialty 74D—CBRN Specialists reimplementation at the company level, it is imperative that division CBRN sergeants major work with the command sergeant major of the 48th Chemical Brigade, the battalion command sergeant major, and the installation assistant chief of staff for personnel (G-1) to ensure that the right Soldiers have been selected for company level leadership positions.

According to the Chief of Staff of the Army, readiness is one of our top priorities.<sup>1</sup> As a united team, we must prepare Soldiers and their organizations for success. We will all play a vital role in the readiness of the brigade combat teams. We must ensure that all Soldiers are ready to fight, and their ability to fight in a chemically contaminated environment is paramount. We must ensure that all Soldiers and leaders understand the capabilities within their formations and the caliber of Soldiers within the Chemical Corps.

We must work together to develop our junior leaders, ensuring that they are aware of their commander's intent and that they understand how CBRN readiness can help them achieve their mission. We must show them how they can close with and destroy the enemy in any environment. We have the capability to mitigate hazards and push forward to the objectives, but we must train in that manner.

Leaders at all levels must constantly strive for excellence, which depends on diversity. We can no longer afford to leave junior enlisted Soldiers and NCOs in a U.S. Army Training and Doctrine Command (generating) position for more than 36 months or in a U.S. Army Forces Command (operational) position for more than 48 months. We must train and develop our Soldiers to ensure that they are ready to meet the next challenge and the readiness priorities of the Army; this may mean placing them on permanent change-of-station orders and moving them more frequently.

In my humble opinion, serving as a recruiter, drill sergeant, observer controller, small-group leader, or instructor is a huge honor. We need dedicated recruiters to recruit our future Soldiers, devoted drill sergeants to successfully train our recruits, observer controllers to ensure that they are trained to doctrine standards, small-group leaders to foster their development, and instructors to teach them. Leaders should be successful no matter where they are sent to serve.

As leaders, we must be able to give up our very best Soldiers from our units so that they can infuse other organizations with their incredible leadership traits. We must also ensure that when NCOs get promoted, there is a plan for them to progress according to their career maps, which lay out appropriate assignments.



**Command Sergeant Major  
Christopher Williams**

*(Continued on page 6)*



## Regimental Chief Warrant Officer



Greetings, Dragon Soldiers! It has been a busy and exciting several months since my last address to you!

**F**irst and foremost, we bid farewell to the 30th Chief of Chemical and Commandant, Brigadier General Antonio Munera and welcome the 31st Chief of Chemical and Commandant, Colonel Daryl Hood. My thanks and best wishes to the Muneras at their new post. I am excited to be a part of Colonel Hood's team as he leads the charge to modernize and optimize the U.S. Army Chemical Corps for large-scale combat operations in a multidomain battlefield.

We jumped straight from the change of commandant to this year's Best Chemical, Biological, Radiological, and Nuclear (CBRN) Warrior competition. It was, to say the least, an incredibly demanding event that definitely showcased the technical and tactical abilities and the resilience of the competitors. I was thoroughly impressed with all of the competitors; and in the end, it was a very close competition. Great job to the winners, Staff Sergeant Jarrod Gasiorowski and Staff Sergeant Donjuan Brown, for toughing it out and bringing home the hardware. We no longer address the 2019 Best CBRN Warriors as staff sergeants though; we now address them as warrant officers one, as they both reported to, and completed, the Warrant Officer Candidate Course at Fort Rucker, Alabama, directly after finishing the Best CBRN Warrior competition. I'd also like to mention and thank our French partners who joined in and fielded a team this year! Indeed, they were tough competitors!



**Chief Warrant Officer Three  
Robert A. Lockwood**

We transitioned from the Best CBRN Warrior competition into Regimental Week to celebrate the 101st Anniversary of our beloved Corps. During the week, we officially unveiled this year's theme of "How we Fight." Through discussions during the Warfighter Forum and the Joint Program Executive Office Quarterly, I believe that we achieved an understanding about how we have gone from concepts to strategies and, now, to implementation over the past several years as we work to modernize the Corps to be ready for the next fight.

The CBRN warrant officer cohort has continued to grow and thrive over the past several months; and when the flag goes up, we are sure to be prepared. Not only did we meet the mark of 98 percent strength in the Active Component, but we also made significant gains in strength in the Army National Guard and U.S. Army Reserve. Furthermore, shortly before penning this article, the Army released what proved to be the largest selection yet to our ranks of chief warrant officers three. I am extremely proud of the hard work that it took for these Soldiers to get to this point, and I offer congratulations to the following warrant officers who were selected for promotion:

- Chief Warrant Officer Two Mazie Benefield.
- Chief Warrant Officer Two Eric Burns.
- Chief Warrant Officer Two Philip Ellis.
- Chief Warrant Officer Two Jourel Gordon.
- Chief Warrant Officer Two Robert Hocog.
- Chief Warrant Officer Two Yesenia Ortiz.
- Chief Warrant Officer Two Daniel Otchere.
- Chief Warrant Officer Two Victoria Ramagegarcia.
- Chief Warrant Officer Two Theiry Semezier.
- Chief Warrant Officer Two Stephen Wagasky.
- Chief Warrant Officer Two Dante Wins.
- Chief Warrant Officer Two Jacquelin Wylie.

Now, as our second-largest year group (Year Group 14) prepares to go before the upcoming warrant officer board, I am hoping for similar results. Additionally, by the time of publication, we will have selected 12 additional future Active Component CBRN warrant officers, which will round out our numbers and allow members of the cohort to pursue developmental positions/opportunities for the first time since our inception in 2011.

I have been fortunate enough to have traveled to several installations over the past several months. At each of these locations, I have discussed our modernization efforts. As we move forward, we have prioritized these into two areas—reconnaissance and surveillance/integrated early warning and interdependent contamination mitigation. Two white papers describing these two concepts have been created.<sup>1,2</sup> As you read the white papers, you will realize that the concepts do not stand alone; instead, they overlap and support each other. The CBRN warrant officer is a big player in these realms. In multidomain, large-scale combat operations, requirements for commanders to have real-time battlefield visibility and information are only exacerbated when complex CBRN threats are introduced. As a master level systems integrator, the CBRN warrant officer must recommend an optimal sensor array across the battlefield and then integrate the sensors (which are not solely CBRN sensors) in support of CBRN intelligence preparation of the battlespace and other commander's information requirements. Warrant officers must ensure that the data obtained is routed through tactical information systems, allowing for real-time situational understanding and the enablement of support tools to aid in rapid decisions before and in response to CBRN events. These tools and the accompanying technical advice that CBRN warrant officers provide at echelon grant commanders the ability to exploit enemy CBRN use to seize the initiative and win. At the U.S. Army Chemical, Biological, Radiological, and Nuclear School (USACBRNS), we constantly refine our professional military education to answer the challenges of the next conflict and ensure that our warrant officers are armed with everything they need from the institutional domain. But there is much that must be done in the area of self-development in order for CBRN warrant officers to remain the Chemical Corps' undisputed technical experts in a rapidly changing world. I encourage all CBRN warrant officers to take this responsibility seriously and to ensure that we are always ready to lead the way to victory through technical skill. I look forward to seeing you in my travels over the next several months.

I am Rob Lockwood, and I am a Dragon Soldier—Competent, Brave, Ready and oN-point for our Nation.

***Dragon Soldiers! CBRN warriors!***  
***Elementis regamus proelium!***

**Endnotes:**

<sup>1</sup>“Integrated Early Warning White Paper,” USACBRNS, Headquarters, U.S. Army Maneuver Support Center of Excellence, 8 December 2017.

<sup>2</sup>“Interdependent Contamination Mitigation White Paper,” USACBRNS, U.S. Army Maneuver Support Center of Excellence, 24 July 2019, <[https://home.army.mil/wood/application/files/3515/7010/8001/Encl\\_7\\_Contamination\\_Mitigation\\_White\\_Paper.pdf](https://home.army.mil/wood/application/files/3515/7010/8001/Encl_7_Contamination_Mitigation_White_Paper.pdf)>, accessed on 18 December 2019.



*(“Regimental Command Sergeant Major,” continued from page 4)*

I sincerely appreciate all your hard work, dedication, and unwavering support. I expect all of you to understand my intent and to help with the promulgation of our team's messages. Our Soldiers, civilians and, ultimately, the Army team will benefit from this initiative.

**Endnote:**

<sup>1</sup>“40th Chief of Staff of the Army Initial Message to the Army Team,” 12 August 2019, <[https://www.army.mil/article/225605/40th\\_chief\\_of\\_staff\\_of\\_the\\_army\\_initial\\_message\\_to\\_the\\_army\\_team](https://www.army.mil/article/225605/40th_chief_of_staff_of_the_army_initial_message_to_the_army_team)>, accessed on 13 November 2019.

***Victory through skill.***  
***Dragon Soldiers, CBRN warriors!***  
***Elementis regamus proelium!***



# Why You are Here— A Message for Our New Recruits

By Mr. Damon M. Yourchisin

**S**o, how did we get here? How did the Nation arrive at needing a branch of the U.S. Army that was focused on chemical, biological, radiological, and nuclear (CBRN) defense and the countering of mass destruction?

Cosmo Gordon Lang, Archbishop of Canterbury, first used the term “weapons of mass destruction” (WMD) in 1937 in reference to the aerial bombardment of Guernica, Spain, stating, “Who can think at this present time, without a sickening of the heart, of the appalling slaughter, the suffering, the manifold misery brought by war to Spain and to China? Who can think, without horror, of what another widespread war would mean, waged as it would be with all the new [WMD]?”<sup>1</sup> Although this statement was not specific to CBRN weapons, it is easy to see how that usage quickly arose from the context. Chemical weapons were used on many battlefields during World War I, Japan’s Unit 731 conducted extensive research on biological weapons in World War II, and the first nuclear weapon was employed on 6 August 1945.<sup>2</sup>

***“Our country and the world now rely upon you and your expertise to counter WMD and defend against CBRN hazards—the most catastrophic threats to our Nation.”***

Let us fast-forward to something a little more tangible for you—today’s generation. Let us take a look at the conditions in the early to mid 1990s, just before you new recruits were born. The Cold War was over, and the Union of Soviet Socialist Republics (USSR) was in shambles. The first Gulf War had been waged in the Middle East. The World Wide Web had made its public debut as an Internet service. President Bill Clinton was in office. And the Oklahoma City bombing, the worst domestic terrorist incident in U.S. history, had occurred. That bombing was widely considered the event that led to the first public use of the term *WMD*, which was then embedded into our common vernacular.

Just before you typical recruits of today were born (in the early 2000s), the United States and the rest of the world

prepared for the possible effects of the year 2000 (Y2K) bug, which was expected to adversely impact computers worldwide. The infamous 11 September 2001 terrorist attacks occurred shortly thereafter, followed by anthrax attacks throughout the U.S. mail system. The United States immediately launched an offensive on Afghanistan, marking the start of Operation Enduring Freedom. In 2002, the Department of Homeland Security was created and in 2003, the United States, United Kingdom, Australia, and Poland occupied Iraq, marking the start of Operation Iraqi Freedom based on the premise of combating WMD proliferation. Oh, and by the way, Facebook® was launched in 2004.<sup>3</sup>

This brings us to today. According to the 2018 National Security Strategy of the United States of America, the No. 1 action necessary for the United States to secure its borders and territories is to “defend against [WMD].”<sup>4</sup> The key element that distinguishes WMD from other types of weapons is that WMD contains a CBRN component. At no time in recent history has the CBRN threat been so significant and so much in the public eye than it is right now. The average citizen of today recognizes the acronym *WMD*. Because of its prolific use and worldwide public profile, the American Dialect Society voted “weapons of mass destruction” the word of the year in 2002 and in 2003, Lake Superior State University, Sault Sainte Marie, Michigan, added WMD to its list of terms banished for “over-use.”<sup>5</sup> Just last year, there was a high-profile alleged assassination involving a suspected unique nerve agent—a WMD—in the United Kingdom.

***“Always remember: You are not defined by your rank, your branch, your education, or your past; you are defined by your actions.”***

And this is where you are brought into the fold. The U.S. Army fields the only professional force of Soldiers (officers, warrant officers, noncommissioned officers, and junior enlisted Soldiers) whose sole job, or military occupational specialty, is to perform CBRN defense. As a new

*(Continued on page 9)*

# SUMMER CBRN EXPOSURE

*By Lieutenant Colonel Laura J. Skinner*

Something was sizzling at Fort Knox, Kentucky, this summer—and it wasn't just the heat! It was the Wood Chemical, Biological, Radiological, and Nuclear (CBRN) Range, where chlorobenzalmalononitrile (CS) (commonly known as tear gas) capsules sizzled and CBRN Soldiers demonstrated the unique capabilities of the Chemical Corps by training more than 9,000 U.S. Army Reserve Officers' Training Corps (ROTC) cadets from across the Nation on the critical tasks required to survive in a CBRN environment. This was the first time that many of the cadets had been exposed to a CBRN range—or, for that matter, anything CBRN-related—and my team was determined to make it a positive experience.



**A Soldier trains while wearing MOPP Level 4 protective equipment.**

I am currently serving as the professor of military science at the University of Southern California—Los Angeles; and in 2005, I served as an assistant professor of military science at Virginia Polytechnic Institute—Blacksburg. I've witnessed firsthand the lack of knowledge about the Chemical Corps within the Army ROTC ranks. This lack of knowledge makes sense, as there are very few CBRN officers serving in ROTC units, compared to our combat arms brethren. Due to this lack of knowledge about the Chemical Corps—essentially with the only exposure to the branch taking place at the Cadet Summer Training—many cadets correlate the Chemical Corps only with the CS chamber. Heck, I did—which is why I listed the Chemical Branch as Number 16 out of 16 (my very last choice) on my branch accessions dream sheet! The CS chamber is all that I was familiar with regarding the Chemical Corps prior to becoming a CBRN officer—and I hated it! However, with a desire to make a positive impact, educate thousands of cadets, and nullify all rumors about the Chemical Corps, I was provided an opportunity

to become the CBRN Committee chief this past summer at Cadet Summer Training.

You might be thinking, “How could assuming mission-oriented protective posture (MOPP) Level 4 or entering the CS chamber ever be a positive experience—especially in 90-plus degree weather at Fort Knox, Kentucky?” I can easily answer that question: Because that was not the focus! The focus was on not only exposing the cadets to CBRN skills and equipment, but also exposing them to the capabilities of the Chemical Corps by providing unique insights through demonstrations and static displays presented by on-site subject matter experts. Training consisted of eight critical common 10-Level tasks, with testing on donning the protective mask, assuming MOPP Level 4, and attempting to withstand the CS chamber. Additionally, subject matter experts from the Combat Readiness Training Team introduced cadets to sensitive-site exploitation prior to entering the CS chamber. Static displays consisted of the dismounted reconnaissance sets, kits, and outfits and the Nuclear, Biological, Chemical and Reconnaissance Vehicle. However, the true highlight occurred at the outset of the range training, setting the tone for the day.

Picture this: Suspenseful theme music plays in the background as an infantry team enters the site on patrol—then, there is a loud boom and yellow smoke. The infantry team dons masks and gives hand/arm signals; explosive ordnance detachment teams swoop in wearing Level A chemical protective suits, rendering the unexploded ordnance safe; a sampling team enters and conducts sampling operations; and finally, the team conducts personnel decontamination. This demonstration is just like a scene right out of a movie! WOW, right?

The Cadet Summer Training session, conducted by infantry rifle and combat readiness training teams and strategically narrated by the combat readiness training noncommissioned officer in charge, enthralled the cadets, opened their eyes to the criticality of the individual CBRN tasks required by all branches, emphasized the reality of combined arms operations, and highlighted the special expertise that the Chemical Corps brings to the fight. At the end of the demonstration, we introduced our team, which included seven recently commissioned CBRN second lieutenants; provided facts about the Chemical Corps; and conducted a question and answer session—and trust me, there were many questions! During this time, many cadets confirmed their



**Soldiers perform tasks while wearing Level B (splash resistant) personal protective equipment.**

misimpressions and/or lack of knowledge about the Chemical Corps, allowing my team to clarify and expound upon the missions and opportunities for officers within the Chemical Corps. Cadets left the training site with eyes opened (yes, even after receiving a dose of CS gas) and more informed about what the Chemical Corps has to offer and what it is all about.

So, instead of merely exposing 9,000 cadets to CS gas this past summer, my team exposed them to the greatness of the Chemical Corps. This could not have happened without our all-star team, consisting of—

- Major Brent Reno and instructors from 1st Brigade, 104th Training Division, Joint Base Lewis–McChord, Washington.
- Second Lieutenant Olaoluwa Douglas.
- Second Lieutenant Koby Eklund.
- Second Lieutenant Richard Flender.
- Second Lieutenant Eric Holloway.
- Second Lieutenant Christopher Kovatch.
- Second Lieutenant Johnathan Marcelli.
- Second Lieutenant Alexandra Ortiz.
- Second Lieutenant Jordan Sealey.
- Master Sergeant Jared Martin.
- Master Sergeant Reginald Pleasant
- The amazing CBRN warriors and Dragon Soldiers from the 110th, 22d, and 2d CBRN Battalions.
- Mr. David Jones.

Thank you all for your amazing hard work and dedication!

*Elementis regamus proelium!*

*Lieutenant Colonel Skinner is the professor of military science for ROTC at the University of Southern California—Los Angeles. She has 20 years of experience in the Chemical Corps. Her civilian education includes studies in pre-medicine, including a bachelor of arts degree in biology and a master of business administration degree.*

*(“Why You are Here . . .,” continued from page 7)*

recruit, you are now a part of that professional force. Take a moment to understand the full significance of that position. Our country and the world now rely upon you and your expertise to counter WMD and defend against CBRN hazards—the most catastrophic threats to our Nation.

Over a several-month period, the Army and the U.S. Army CBRN School have provided you with all of the tools that you need to be a successful Soldier. Most of you are at your first unit and are battalion CBRN specialists, focused on assisting a maneuver commander in retaining freedom of action in an operating environment where a WMD or CBRN threat may exist; and some of you are at units that have already received deployment orders. It doesn’t matter where you go; what matters is that when you are called upon, you execute your duties to the best of your ability. You make a difference, you represent value added to the organization, and you truly are a subject matter expert on CBRN defense and countering WMD.

Always remember: You are not defined by your rank, your branch, your education, or your past; you are defined by your actions. From this point forward, show your leaders and the organizations you support why no one else can do what you do. Show them that, while WMD is the No. 1 threat to the Nation, you are the No. 1 solution to the challenge.

Be prepared to be led by the greatest men and women this Nation has to offer and to learn from them so that you are prepared to lead when the time comes.

Good luck to you! I’m excited to see where this journey takes you. Welcome to the Army Chemical Corps Regiment!

#### **Endnotes:**

<sup>1</sup>Will Mallon, “WMD: Where Did the Phrase Come From?” History News Network, <<https://historynewsnetwork.org/article/1522>>, accessed on 11 September 2019.

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<sup>3</sup>Sarah Phillips, “A Brief History of Facebook,” *The Guardian*, 25 July 2007, <<https://www.theguardian.com/technology/2007/jul/25/media.newmedia>>, accessed on 11 September 2019.

<sup>4</sup>National Security Strategy of the United States of America, December 2017, <<https://www.whitehouse.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905.pdf>>, accessed on 11 September 2019.

<sup>5</sup>“Banished Word List Archive,” Lake Superior State University, <<https://www.lssu.edu/banished-words-list/banished-word-list-archive/#toggle-id-16>>, accessed on 11 September 2019.

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# NATO'S EXERCISE VIGOROUS WARRIOR 2019 MEDICAL CBRN TRAINING

By Major Michael T. Walkingstick

“... the experiences we gather during the exercise will inform NATO's medical realm for years to come.”  
—Colonel Laszlo Fazekas, director of the North Atlantic Treaty Organization Centre of Excellence for Military Medicine.<sup>1</sup>

## Background

The North Atlantic Treaty Organization (NATO) Centre of Excellence (COE) for Military Medicine (MILMED) serves as the primary military organization within NATO's international medical community. MILMED COE is responsible for ensuring that all nations are striving for interoperability among the vastly diverse joint medical services. The main goal/mission of the MILMED COE staff involves the advancement and integration of medical support for all NATO missions.<sup>2</sup> Chemical, biological, radiological, and nuclear (CBRN) equipment and medical response procedures vary between allied countries; hence, joint multinational training and exercises become a vital requirement for testing interoperability to ensure readiness and preparedness in facing global threats of terrorist attacks.

MILMED COE addresses this issue by supporting NATO's exercise Vigorous Warrior (VW) every 2 years. Three planning conferences and three scenario working group meetings were held over an 18-month period to plan and prepare for a successful VW 2019, which was conducted in four separate locations throughout Romania between 1 and 12 April 2019. The land component of VW 2019 was conducted in Cincu and Bucharest; the air component occurred in Campia Turzii; and the naval component took place at Constanta, near the Black Sea. More than 2,500 military and civilian trainees from 54 different units across 39 NATO and Partners for Peace nations participated in the largest NATO medical exercise to date.

The first week of VW 2019 entailed multiple tabletop exercises, academic lectures, experiments, and buildups of training audiences. The second week consisted of 5 days of 24-hour-a-day live exercise (LIVEX) play that included nearly 1,500 casualties and different real-world training scenarios that mimicked situations from natural disasters to wartime events. In conjunction with battle-related



**Romanian CBRN soldiers provide assistance to a simulated chemical attack victim.**

casualties, 10 chemical, biological, and radiological (CBR) force health protection events and scenarios were conducted, including chemical exposures, acute radiation sicknesses, and public health issues such as biological outbreaks and base camp and internally displaced persons (IDPs) assessments.

One type of threat that is currently on the rise involves CBR-related incidents and attacks. The conflict in Syria has included approximately 336 chemical attacks since 2012, with 91.5 percent of the attacks involving chlorine and the remaining involving sarin and sulfur mustard.<sup>3</sup> The recent 2018 nerve agent exposures in Salisbury and Amesbury, United Kingdom, reinforce the necessity for ongoing training exercises. Infectious diseases such as the Ebola virus, measles, and Lassa fever continue to occur and

should be viewed as biological threats due to their highly contagious nature and the difficulty in combatting the spread of the diseases.<sup>4</sup> The suspected 2006 radiological poisoning of former Russian *Komitet Gosudarstvennoy Bezopasnosti* (KGB) officer Alexander Litvinenko and the Fukushima nuclear accident in Japan in 2011 further highlight possible and plausible radiation and nuclear threats around the globe.<sup>5</sup> VW 2019 generated similar CBRN-type casualties. Specialized medical CBRN units and non-CBRN medical teams trained and worked alongside each other during VW 2019 to better prepare themselves for future CBR threats and events.

## Exercise Objectives

The main objective of VW 2019 was to further build upon the success of VW 2017 by executing a larger-scale exercise involving rigorous military medical training within a joint multinational military and civilian environment. MILMED COE developed 10 exercise objectives revolving around an interoperability and modular approach to joint multinational medical support systems. The exercise

objectives included medically evaluating the interoperability of NATO and Partnership for Peace nations during *The North Atlantic Treaty* (Articles 3 and 5) situations within civilian and military frameworks; providing training on medical command, control, communications, computers, and intelligence systems; establishing medical-specific logistics; rehearsing medical unit maneuverability; conducting combat search and rescue missions; studying the continuum of patient care through theater strategic evacuation (STRATEVAC); and responding to CBRN incidents and casualties.<sup>6</sup> Scenarios geared toward bioresponsiveness and the medical evacuation of highly contagious patients were also simultaneously trained and rehearsed at separate sites. A major goal of the Romanian civil units was to execute effective communication and synchronization between non-governmental organizations, such as the Red Cross and the Romanian Mobile Emergency Service for Resuscitation and Extrication, and military units, especially the CBRN assets.

### **Exercise Preparation Activities**

Training audiences could choose from a variety of training activities before the LIVEX phase of VW 2019. Over a period of 2 days, 54 training units were trained on topics such as overall military and political exercise scenarios, operations orders, exercise objectives, concept development and experimentation, bioresponsiveness, command, control, communications, computers, intelligence, and the lessons learned process. Three tabletop exercises executed during this academic phase centered on the concept development and experimentation themes of patient movement in relation to the patient evacuation coordination cell, medical logistics, and military medical bioresponsiveness.<sup>7</sup> A bioresponsiveness concept-of-operations experiment was conducted for the Estonian Role 2 unit (as described in Joint Publication [JP] 4-02, *Joint Health Services*) to prepare itself for the LIVEX biological scenarios.<sup>8</sup> The majority of units also participated in cross-training programs with other nations in order to prepare themselves for the interoperability requirements they were to face during the LIVEX phase. To ensure that the LIVEX phase ran smoothly, the exercise organization (EXORG) staff conducted several training events, such as the Case Manager's Course, miniature exercises to prepare role players and to test communications, and Joint Exercise Management Module simulations.

### **Exercise Management**

EXORG is a vital element for the only designated joint multinational NATO medical exercise, but it relies heavily on other nations to volunteer their subject matter experts (SMEs) and funding to ensure proper staffing. For a large-scale exercise like VW 2019, EXORG requires approximately 200 SMEs to operate in conjunction with one another to coordinate patient moulage, role-playng, case managers, exercise control staff, observer/trainers, Joint Exercise Management Module operators, exercise evaluators, and media relations. Interoperability and communication skills among the EXORG staff are exercised and evaluated to provide lessons learned for future VW iterations. The Joint Exercise Management Module

system enabled the EXORG to include the 1,500 casualties in a coherent manner. Thousands of volunteer hours were required from dedicated SMEs outside the MILMED COE, including SMEs in the areas of medical CBRN; military operations; veterinary services; public health; and command, control, communications, computers, and intelligence.

Exercise staff medical CBRN SMEs were challenged to develop realistic, rigorous, and interoperable exercise play for the broad range of training audience types. For VW 2019, the training audience consisted of nine JP 4-02 Role 1 and nine JP 4-02 Role 2 field medical units, one JP 4-02 Role 3 medical unit, medical evacuation and STRATEVAC units, veterinarian support units, civilian hospitals, and ambulances. Specific to medical CBRN scenarios, the units involved included a Hungarian biolaboratory, U.S. public health assets, Romanian decontamination teams, an Italian rapidly deployable outbreak investigation team, a Czech Republic mobile hospital isolation unit, a British air-transportable isolation unit, and a radiological advisory medical team from the United States. Approximately 15 medical CBRN SMEs from five nations (Belgium, Czech Republic, Germany, Romania, and the United States) representing the NATO CBRN Medical Training Team provided the exercise support for 40 CBR scenarios.

### **Medical CBRN Exercise Scenarios**

Exercise VW 2019 generated CBR casualties and events for 10 medical-related CBRN field units from the Czech Republic, Hungary, Italy, Romania, the United Kingdom, and the United States. All phases of casualty care from point of injury and initial response to STRATEVAC out of the theater were addressed. The 10 medical-related CBRN units also interacted with the traditional medical field units, which further highlighted the need for medical CBRN education and preparedness.

The first day of LIVEX role playing included radiological and biological scenarios. A radiological accident that occurred when a vehicle carrying radioactive material collided with a train resulted in the contamination of four individuals, who were exposed to various levels of radiation. The four role players were moulaged with open-wound injuries and were contaminated. For the biological component of the exercise, three role players were injected into the scenario with Role 1 medical units, with the signs and symptoms of a highly contagious infectious disease of unknown entity. This biological event continued for the next 2 days so that the isolation and treatment procedures required to STRATEVAC a casualty from the battlefield as the result of an Ebola type outbreak could be evaluated. The highly contagious patients required the coordination of several types of medical CBRN units, including the Hungarian biolaboratory, the Czech Republic mobile hospital isolation unit, the Italian rapidly deployable outbreak investigation team, STRATEVAC units, the U.S. public health team, and the British air-transportable isolation unit.

The second day began with two military role players reporting to their units claiming acute radiation sickness from exposure to the radiological patients of the



**Estonian Role 2 medical staff conducting assessment of a biological patient.**

vehicle/train accident of the previous day. The U.S. radiological advisory medical team was contacted for assistance regarding acute radiation sickness and radiological exposure risk management. The U.S. radiological advisory medical team provided on-site education about “the worried-well” and risk communication to the medical units. The biological scenario extended into the second day, with units utilizing the biolaboratory for identification and confirmation of biological agents and the mobile hospital isolation unit as a

casualty isolation and holding area while arranging medical evacuation from Cincu to Campia Turzii for STRATEVAC. Simulated monitoring of two of the biological role players was conducted for the 24-hour period at the mobile hospital isolation unit in order for the medical staff to train continued isolation care.


A chemical event in the form of an attack on an industrial factory that exposed civilians, military personnel, and military working dogs (MWDs) to phosgene occurred on the third day. The Romanian civilian CBRN unit provided decontamination, and a Norwegian medical evacuation unit responded for the medical treatment of approximately eight casualties. The Czech Republic and U.S. veterinarian units were requested for guidance and treatment of the MWDs. For the biological scenario of highly contagious patients, the Italian rapidly deployable outbreak investigation team and STRATEVAC units were challenged to coordinate with the British air-transportable isolation unit to safely transport one patient with the air-transportable isolation unit in an Italian aircraft.

The fourth day of LIVEX role playing involved two biological events and one chemical event. The biological events revolved around the spread of disease within the IDP camp and an Adenovirus outbreak within the Estonian Role 2 unit. The U.S. public health team provided guidance and risk communication to IDP leaders and the Estonian Role 2 commander. The U.S. public health team was simultaneously called upon to recommend guidance on chemically contaminated operational rations at British and U.S. Role 2 facilities. The sealed operational rations were

inspected, decontaminated, and approved for consumption.

The final day of the LIVEX phase was the Distinguished Visitor’s Day, and after action reviews were conducted for the training audiences.

## Conclusion

NATO’s exercise VW 2019 demonstrated the ongoing necessity for multinational exercises in a joint environment. The biannual VW exercise series allows NATO and Partnership for Peace nations to practice interoperability and civil/military response communications in order to obtain lessons learned to further improve NATO capabilities. By including medical CBRN scenarios alongside battle-related casualties, MILMED COE highlights the awareness of growing global CBRN threats on the battlefield. With the support of Italy as the host nation, the VW exercise will continue to challenge NATO medical units during 2021. The CBRN medical training team will continue to offer support and SME guidance to ensure that units are prepared to respond and treat CBRN casualties. 

## Endnotes:

<sup>1</sup>“Simulated Subway Attack in Romania for NATO Medical Exercise,” *The Associated Press News* Web site, 12 April 2019, <<https://www.apnews.com/0c7d773260714b0aaa200fc203df615c>>, accessed on 2 December 2019.

<sup>2</sup>“About Us,” NATO MILMED COE, <<https://www.coemed.org/about-us>>, accessed on 4 November 2019.

<sup>3</sup>Clare Lombardo, “More Than 300 Chemical Attacks Launched During Syrian Civil War, Study Says,” *National Public Radio* Web site, 17 February 2019, <<https://www.npr.org/2019/02/17/695545252/more-than-300-chemical-attacks-launched-during-syrian-civil-war-study-says>>, accessed on 2 December 2019.

<sup>4</sup>“Emergencies Preparedness, Response,” *World Health Organization*, <<https://www.who.int/csr/don/archive/year/2019/en/>>, accessed on 2 December 2019.

<sup>5</sup>John Harrison et al., “The Polonium-210 Poisoning of Mr. Alexander Litvinenko,” *Journal of Radiological Protection*, Vol. 37, No. 1, IOP Publishing Ltd., 2017, <<https://iopscience.iop.org/article/10.1088/1361-6498/aa58a7/pdf>>, accessed on 4 November 2019.

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<sup>8</sup>JP 4-02, *Joint Health Services*, 11 December 2017.

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# National Defense University Program for Emerging Leaders Seeks Talent

*By Major LeRhonda J. Washington*

Tackling national security issues requires a joint effort between layers of state, federal and, sometimes, global agencies. Relationships across U.S. agencies alone are critical in preventing and responding to weapons of mass destruction (WMD) attacks. The Federal Register lists 449 federal agencies, each with its own unique processes and language.<sup>1</sup> While WMD issues may directly pertain only to a fraction of these organizations, many of the issues are indirectly connected to national security. The size and complexity of the government make establishing interagency relationships in a complex operational environment challenging. In 2008, the Center for the Study of WMD, National Defense University (NDU), took on the challenge of cultivating these relationships by creating a group of government professionals with interests in WMD. This group, the Program for Emerging Leaders (PEL), and NDU are looking for the next community of professionals to guide the Nation's WMD policies. The goal is to get people who know a little about WMD to talk to people who know a lot about them and, together, to solve problems.

The PEL mission is to “foster a community of rising U.S. government leaders with the knowledge and skill set to respond to the dangers of WMD.” The program is designed to include early to mid-career national security professionals from across the government. PEL distinguishes itself by looking for a range of talent. Candidates must be U.S. civilian government employees in General Schedule Grade 11–13 or commissioned military officers who are grades 0-3 or 0-4. Candidates do not need to work in a chemical, biological, radiological, and nuclear (CBRN)-related field. Since WMD issues touch multiple facets of government, a range of specialties and disciplines is welcome in the program. Applicants need only have an interest in WMD. PEL Class 09-2016 consisted of government civilians from the Department of Energy, the Department of State, and the Department of Transportation as well as Service members from all five Services. Program members range from biologists with doctorate degrees to linguists and personnel from special operations.

PEL membership starts with 3 years of immersion into the WMD community and extends for life. For the first 3 years, members gain an education through workshops, seminars, and classes presented by WMD experts, legislators, and various other government leaders. Upon selection to the program, new members attend a weeklong summer immersion course that provides a baseline for WMD and national security knowledge. Preparation for the summer immersion course includes reading a variety of open-source articles and book excerpts that provide multiple, sometimes opposing, perspectives on WMD issues. PEL members are directed to consider the literature, current and historical events, and their experience and then contribute to discussions. For the next 3 years, members accumulate at least 90 hours of contact time by attending activities, such as lunches with legislators; visiting the U.S. State Department; or even touring Dugway Proving Ground, Utah. Every year, members are required to attend the Winter Workshop. The 2019 Winter Workshop focused on WMD policy making and explored interagency concepts. In 2018, PEL members competed in a WMD forum, pitching ideas for policy development to panel members.

PEL welcomes new ideas as long as they further the knowledge of the WMD community. Members have the opportunity to explore often-ignored aspects of WMD such as bioterrorism and biodefense. PEL members have also created ideas and led discussions on operationalizing the *National Biodefense Strategy, 2018*.<sup>2</sup> They have presented ideas on using insects as WMD, and some members have researched the WMD policy effects of the withdrawal of the United Kingdom from the European Union.

Valuable results of the educational opportunities associated with PEL include the relationships that develop and the lively discourse that occurs. Members are required to think and to question each other—and even to question processes that exist within their own agencies. Because NDU has a nonattribution policy, the debate is honest and intriguing. Another important result is that discussion leads to tangible

*(Continued on page 15)*

# HEAVY HERCULES: NBCRV Aerial Deployment in the Korean Theater

*By First Lieutenant Brittany M. MacRae and Chief Warrant Officer Two Joshua S. Hickman*

The “Lions” of the 23d Chemical, Biological, Radiological, and Nuclear (CBRN) Battalion, Camp Humphreys, Republic of Korea (ROK), routinely deploy, via tactical-vehicle convoys, in support of military operations in ROK. In the event of conflict, it is reasonable to believe that populations from dense, urban areas will spill out into limited useable roadways and movement corridors in South Korea. This scenario and the follow-on circumstances pose a problem for the CBRN warfighters: How will the CBRN Soldier and the necessary equipment get to the objective?

The Nuclear, Biological, and Chemical Reconnaissance Vehicle (NBCRV) provides critical CBRN defense capabilities to the maneuver commander. Specifically, the NBCRV is intended to augment reconnaissance task forces to conduct reconnaissance and security missions during unified land operations. A single use of CBRN weaponry has the potential to change the strategic fight. Commanders must use discretion when tasking and organizing units with NBCRV capabilities.

The modern battlefield is larger and more dynamic than ever before. Division commanders are faced with countering threats across vast areas and throughout the multidomain battlefield. They must put passive and active mitigation measures into action to counter future threats. Based on the operational environment, fighting can occur in the mountains, on the plains, across rivers, and forward of—and behind—the front lines. Host nation infrastructure, command posts, sustainment centers and, most critically, communication networks must be protected. To be successful, the division commander must have forces that dominate the enemy with overwhelming force and superior technology at the decisive point in time and space.



**Crew members loading an NBCRV onto a C-130J Hercules aircraft**

The 23d CBRN Battalion trains specifically to meet the stipulated requirement. In recent years, the 501st Technical Escort Company has become proficient in deploying light packages of chemical, biological, radiological, nuclear, and explosives (CBRNE) response teams and hazard assessment platoons via rotary-wing air frames [Chinook (CH-47), Blackhawk (UH-60)] in support of the assault and support force to counter weapons of mass destruction task forces during air assault operations. The one asset that has been unable to overcome the threat posed by communication network challenges (because of congested roads and movement corridors) is the NBCRV—until now.

In a recent training exercise, the C-130J Hercules aircraft transported one section of NBCRVs between U.S. installations and a ROK airbase. For the first time in history, the 23d CBRN Battalion demonstrated the capability to arrive anywhere in the Korean theater of operations and execute mounted CBRN reconnaissance and surveillance.

The C-130J Hercules is the U.S. Air Force response to the ground commander's requirement to transport heavy equipment to the forward edge of the battle area. Knowing this, the Army required that the NBCRV be built to fit within the Hercules airframe specifications. The producer, General Dynamics™, achieved the configuration expectation in spite of design challenges; and combined with unit personnel expertise, the producer was able to overcome the barriers. In joint training environments with the support of the Air Force, the NBCRV Reconnaissance Platoon, 4th CBRN Company, successfully loaded the NBCRV on the C-130J airframe a total of seven times.

Captain Zane Lindquist, the commander of the 4th CBRN Company, in consultation with Lieutenant Colonel Johannie San Miguel, the 23d CBRN Battalion Commander, and Colonel Roger Giraud, the 2d Infantry Division Sustainment Brigade Commander, developed the concept of flying NBCRVs via fixed-wing aircraft. First Lieutenant Brittany MacRae, platoon leader, CBRN Mounted Reconnaissance and Surveillance Platoon, 4th CBRN Company, created the plan and saw it through to fruition.

The proof of concept mission in January affected the Army, Air Force, ROK army and air force; U.S. Army installations; and special operations forces. Lessons learned from the operation served as catalysts for change to the operational plans for joint and combined partners, as well as the U.S. Army and 23d CBRN Battalion. The combined support and training demonstrated the capability of the battalion, the 36th Air Lift Squadron C-130J pilots and crew, and the air mobility liaison officers to conduct heavy lift operations from Camp Humphreys airfield to anywhere on the Korean Peninsula, including ROK airbases.

Due to the unique mission of the 23d CBRN Battalion, the unit is required to push the limits of Army, joint, and combined operations during realistic and aggressive training to ensure that if armistice fails, the United Nations mission is a success in the Korean theater. The aerial deployment of the NBCRV platform is a critical component of the 23d CBRN Battalion mission. While the battalion has demonstrated the ability to deploy the NBCRV via fixed wing, this is only the initial phase. In order to truly be ready to "Fight Tonight," the battalion is intent on building upon its past successes and further developing the fixed-wing deployment capability by executing similar operations in the future.

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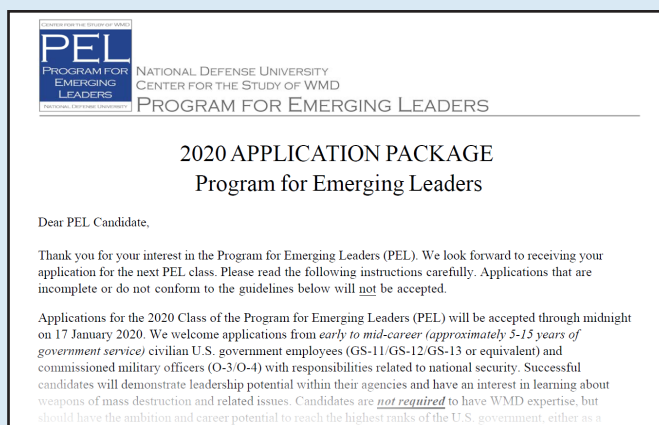
*Chief Warrant Officer Two Hickman is an assistant team leader with the 68th CBRNE Company, 2d CBRN Battalion, Fort Hood, Texas. He has more than 8 years of experience working in chemical companies. He holds an associate's degree from the American Military University.*

*("National Defense University Program . . .," continued from page 13)*

outputs such as new WMD policy to be introduced to legislators or the ability of members to call upon one another for help in solving issues. Newfound relationships open the door for intimate knowledge of organizational operations, bringing everyone steps closer to preventing WMD.

Once they have completed 90 contact hours over 3 years, PEL members receive a certificate of completion. However, members' contributions continue beyond receiving their certificates. They have a lifelong commitment to the program. Members are called back to conduct presentations and mentor upcoming members.

PEL is a highly competitive program with about 300 applicants and 25 slots available per year. The application season opened in October 2019. Learn more about the program and application process at <<https://wmdcenter.ndu.edu/education/pel/>>.



**Screenshot of the 2020 application package for PEL**

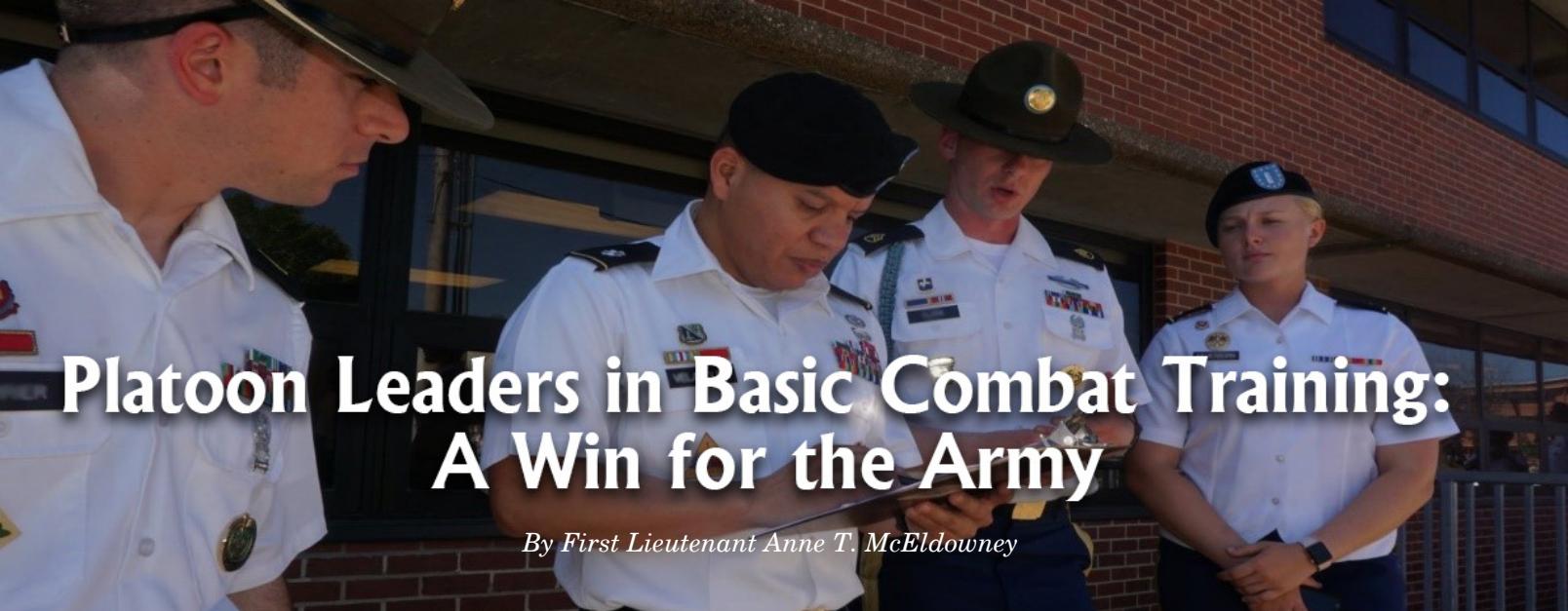


#### Endnote:

<sup>1</sup>*Federal Register: The Daily Journal of the United States Government*, <<https://www.federalregister.gov/agencies>>, accessed on 20 November 2019.

<sup>2</sup>*National Biodefense Strategy, 2018*, Departments of Defense, Health and Human Services, Homeland Security, and Agriculture, <<https://www.whitehouse.gov/wp-content/uploads/2018/09/National-Biodefense-Strategy.pdf>>, accessed on 20 November 2019.

*Major Washington is the executive officer of the 2d Battalion, 48th Infantry Regiment, 3d Chemical Brigade, Fort Leonard Wood, Missouri. She holds a bachelor's degree in biology and society from Cornell University, Ithaca, New York, and a master's degree in policy management from Georgetown University, Washington, D.C.*



# Platoon Leaders in Basic Combat Training: A Win for the Army

*By First Lieutenant Anne T. McElDowney*

**T**he U.S. Army is one of the most progressive organizations in the world, constantly seeking ways to adapt and prepare for the next threat, the next enemy, and a capricious and ever-changing world. Maintaining the largest and greatest ground force in the world while upholding the ethical and moral character of the American people is no easy task; nonetheless, it is a task that the Army aims to tackle head-on. One tenet of the U.S. Army that has never changed—and will never change—is the emphasis on training Soldiers, whose mission it is to stay ready to deploy, engage, and destroy the enemies of the United States of America in close combat. For instance, as the Army began to realize that sexual harassment and assault issues were widespread and far-reaching, it created innovative new programs such as sexual harassment/assault prevention and response training and added relevant requirements across the force. Given the great importance of molding the best possible Soldiers, it is no wonder that the spotlight is constantly focused on how we can improve initial-entry training (IET). The Army consistently seeks ways to add innovation into the IET environment to improve training and add rigor, all while reducing injuries and affording drill sergeants an improved work/life balance. One approach recently introduced by senior Army leaders is the addition of platoon leader positions to basic combat training (BCT).

The idea gained strong support from the highest echelons of the force, including then Army Chief of Staff General Mark Milley. General Milley mentioned the desire to improve BCT from top to bottom, “. . . in the quality and attention paid to each trainee.”<sup>1</sup> Based on statistics from across the Army, it became clear that Soldiers were arriving at their new units from BCT ill-prepared, injured, or generally not meeting the fitness standards expected of a U.S. Army Soldier. Noncommissioned officers (NCOs) are the backbone of the Army and, unsurprisingly, the driving force behind successful BCT companies—an observation that is not now, nor has it ever been, questioned. However, it was recognized that platoon leaders could serve as an invaluable support resource to drill sergeants, allowing NCOs to spend nearly all of their time focused on hands-on training with

BCT Soldiers. In an effort to alleviate some of the extra stressors of BCT and provide lieutenants with a unique opportunity to work with the top 10 percent of the NCO Corps (the drill sergeant cadre), platoon leaders were added to BCT as part of a pilot program between late 2018 and early 2019. One of the units that was hand-selected to spearhead the pilot program was the 2d Battalion, 10th Infantry Regiment (2-10 Infantry), within the 3d Chemical Brigade, Fort Leonard Wood, Missouri.

The 2-10 Infantry is one of four BCT battalions in 3d Chemical Brigade that conducts BCT and advanced individual training (AIT), with a special focus on chemical, biological, radiological, and nuclear (CBRN) operations. Although Soldiers of several different military occupational specialties (MOSs) attend the training, the environment does remain CBRN-based and is comprised largely of CBRN company commanders. Similar to drill sergeant cadre, the first platoon leaders to arrive in the 3d Chemical Brigade also represent various MOSs. The 2-10 Infantry received 16 lieutenants between November 2018 and February 2019, signifying the beginning of the pilot program for the 3d Chemical Brigade. The lieutenants selected for the platoon leader roles consisted of seasoned lieutenants who were awaiting orders to the Captain's Career Course (CCC) and junior lieutenants straight out of the Basic Officer Leader Course (BOLC). The officer branch and experience level were immaterial for the selection process; the mission was the same: Provide support and mentorship to the drill sergeants in a way that is mutually beneficial to the NCOs and officers alike.

This is not the first time in Army history that platoon leaders have been part of BCT; during World War II, BCT companies routinely included platoon leaders, but very little doctrine and very few guidelines existed. The overall mission revolves around lieutenants providing administrative, equipment, and moral support to their assigned drill sergeants; however, mission command is largely left up to the lieutenants. Leaving the responsibility of mission command to the lieutenants at this level has proven extremely

advantageous because they are more involved in the planning process and execution of missions. The BCT mission set ensures that junior leaders are empowered to meet their commander's intent without the need for hand holding along the way. As pioneers in the new pilot program, the companies and lieutenants involved developed standard operating procedures and best practices.

At inprocessing, each new platoon leader attended extensive classes on U.S. Army Training and Doctrine Command (TRADOC) Regulation 350-6, *Enlisted Initial Entry Training Policies and Administration*, regardless of their duty station, the specific branch affiliation of their unit, or their own background.<sup>2</sup> TRADOC Regulation 350-6 training provides substantial guidelines on the treatment of trainees and the purpose of BCT, but is somewhat limited with regard to platoon leader roles. As such, platoon leaders spend significant time observing and interacting with drill sergeants to get acclimated to the environment and the program of instruction (POI) for every training event, while following the guidance of their company and battalion command teams.

As lieutenants began arriving in the 3d Chemical Brigade in late 2018, there was an uncertainty among both the lieutenants and drill sergeants, while the command teams and higher-level leaders were generally quite happy with the new additions. Lieutenants felt out of place and unsure of their role, while drill sergeants worried that officers at the platoon level had no place in an NCO-led training organization. Many lieutenants with previous platoon leader time feared that this new role would hurt or, at the very least, not help their careers, while other, newer lieutenants worried that they were not meeting their full potential. These fears decreased over time, as lieutenants realized that there was value to be added and much to learn.


One of the lieutenants in the 2-10 Infantry Battalion pilot program, First Lieutenant Felix Derosin, an engineer by trade, was included with the first wave of the pilot program. He said, "The slightly more predictable [operational tempo] at BCT allows us to stress attention to detail and, in a way, go back to square one, spend more time practicing our brief[ings], [and] assess ourselves and our career goals, while getting to work with platoon sergeants from other MOSs. I did my engineer platoon time at Fort Riley, [Kansas], in an engineer unit, so working with an 88M [Motor Transport Operator] here has been good for broadening. I showed my platoon sergeant how things will be when she is a platoon sergeant in a FORSCOM [U.S. Army Forces Command] unit, and she did the same for me in at the BCT level." One exception to the common uncertainty of lieutenants came from CBRN lieutenants who often fought for coveted platoon leader roles (which are few and far between) at other units. This platoon leader pilot program gave CBRN officers the chance to gain platoon leader experience and offered a slightly easier transition, either in waiting for CCC or following on to BOLC. One CBRN lieutenant, First Lieutenant Rebecca Barrera, who arrived for the pilot program from a tour in Korea, said, "The idea of having the opportunity to be a platoon leader before my lieutenant time was over was very exciting to me. There were two jobs I wanted

in the Army more than anything; one was a platoon leader, and the other [was] company commander. I was unable to hold a platoon leader position in Korea, so I jumped at the chance to get that time at 2-10 Infantry Battalion." CBRN lieutenants felt at home within a chemical brigade, logging platoon time under a CBRN commander. Lieutenants from other MOSs, including engineer and military police, offered unique experiences and perspectives for the program and allowed more camaraderie within the units. The presence of officers from all walks of Army life also prevented feelings of separation between drill sergeants and officers. Although 2-10 Infantry Battalion is part of a larger chemical brigade, the cadre arrive from branches far and wide, with most of the command sergeants major serving as MOS 11Bs—Infantryman Soldiers.

Lieutenants filled multifaceted roles. Sometimes they acted as training officers in charge of scheduling and performing risk assessments; other times, they provided additional cadre presence, introducing trainees to the Officer Corps. With so few officers present in traditional BCT companies, trainees interacting with officers on a daily basis has been a significant change. Trainees involved in units such as 2-10 Infantry Battalion now have a better idea about how to conduct themselves around officers—something they will undoubtedly need to do immediately upon arrival at their units. The pilot program continued to receive focus and input from higher echelons well after its inception, with high-visibility events occurring weekly. Thus far, the positive results are intangible, but are quite evident to those involved. Lieutenants are mastering the basics—range qualifications, logistics processes, supply acquisition—while also gaining critical officer skills, such as the ability to brief their battalion command teams, and gaining insight into other branches of military Service from their drill sergeants. Lieutenants in the BCT environment have a chance to focus on the Army's "bread and butter" of warrior tasks and drills, which are emphasized at the BCT level. The knowledge base can fall to the wayside once the lieutenants arrive at their gaining units. One 2-10 Infantry Battalion lieutenant who has an engineering background, First Lieutenant Sarah Feuerborn, arrived at 2-10 Infantry Battalion, Fort Knox, Kentucky. She completed her platoon leader time in Kentucky, so she had insight into the basics. She said, "The difference between being a platoon leader in BCT and in a FORSCOM unit really boils down to the mission. In FORSCOM, you're trying to better train your platoon for the things [it will] encounter in a constantly evolving battlefield. You want your platoon to be flexible and even, at times, creative. In BCT, you have to make yourselves experts in the basics and fundamentals. You have to facilitate to ensure that the main focus is making those basic skills and disciplines you rely on to be instinctive. FORSCOM wants you to be dynamic; BCT wants you to build that rock-solid foundation."

After graduation, tracking the success of a BCT Soldier can be difficult because the graduates move to their AIT

*(Continued on page 19)*



# New Chemical Biological Center Statue Unveiled

By Ms. Gay P. Pinder

**T**he Chemical Biological Center, U.S. Army Combat Capabilities Development Command, Aberdeen Proving Ground, Maryland, unveiled a permanent reminder of the relationship between Soldiers and Army researchers on 17 June 2019.

More than 100 members of the facility workforce were gathered in front of the center's advanced chemistry laboratory as a shroud was removed from the statue titled *Cum Scientia Defendimus—With Science We Defend*. The statue's journey, which spanned more than 2 years, began in 2016 as the brainchild of Dr. Frederick J. Cox, Ph.D., the center's director of research and technology. He thought that there should be something in Centennial Circle, such as a statue or ceremonial focal point.

That notion was integrated into the 100-year anniversary celebration of the Chemical Biological Center. Senior research scientist for bioengineering, Mr. Peter Emanuel, had the idea to reach out to the employees of the center and ask them to vote on a few different designs.

Fulfilling Mr. Emanuel's suggestion, Mr. Jason Gitlin, senior 3-D artist, set to work creating three designs for which center employees could vote: a World War I Soldier in personal protective equipment; a dragon, representing the crest of the Army's Chemical Corps; and a modern-era Soldier in personal protective equipment.

Mr. Gitlin had approximately a week to complete the three different concepts. Mr. Gitlin said, "I did most of the work at home in the evenings, but I wanted to make sure that the statue would be worthy of the center's 100-year legacy."

Gitlin found himself focusing on the modern-era Soldier, but he wanted to put his own twist on the statue to make sure that it conveyed layers of meaning. He wanted to capture the key relationship that the center has with the warfighter. Gitlin said, "What better way to highlight the role and relationship the center has with the Soldier than by showing a warfighter outfitted in modern-era CBRN personal protective equipment and a scientist, back to back, standing strong together?"

Dr. Cox revealed more about that key relationship, stating, "Clearly, we are here to serve the Soldier and honor the Soldier's sacrifice, but a lot of people here have sacrificed and have given a lot to support the Soldier. Folks here have been injured. Folks died here during World War II in support of the Soldier."

Gitlin's dedication paid off. By mid-March 2017, the outcome rested in the hands of employees who voted electronically for the image that they felt best represented the center. With nearly 65 percent of the vote, the Soldier and scientist representation won hands down.

Gitlin expressed why the design resonated. "Together, we can overcome one of the greatest and most terrible threats mankind has ever known—chemical and biological warfare," he said, "Through innovation, research and perseverance, the center has been a critical entity over the course of a century in the chemical, biological, radiological and nuclear [CBRN] mission." Dr. Eric L. Moore, Ph.D., center director, along with Major John Williams and Dr. Cox, unveiled the statue. "We all want to work together to protect the Nation and the warfighter," Dr. Moore said. "I've always seen this, building capabilities to protect the warfighter, as a noble mission. The folks here at the center love supporting the warfighter and developing those capabilities; and despite all the challenges inherent with this type of work, you won't find a more committed, dedicated, and innovative work force to develop capabilities that the Soldier may not have even known they needed," he added.

As a seasoned warfighter, Major Williams agrees. "We win wars because we have scientists and engineers who do the hard work back here. And I think this is paying homage to them, as it should be," Williams said.

Major Williams has first-hand experience in recognizing the symbiotic relationship between the Soldier and the scientist. While deployed in Iraq, Williams said he was working with a new system; and because it was so new, he often needed to rely on the scientists who developed the system for insight on the equipment and what "right looked like."

Dr. Augustus W. Fountain III, Ph.D., senior research scientist for chemistry, saw the statue in its practical and



Statue designer Mr. Gitlin and center director Dr. Moore stand beside the statue honoring Soldier and scientist.

artistic terms. He found that the statue embodies the idea that the scientists at the Chemical Biological Center have the backs of Soldiers and that the use of the stylized double helix emphasizes that “defending our Nation is as baked into the civilian scientist’s DNA [deoxyribonucleic acid] as it is in the Soldier’s.”

Erected upon its granite base on 1 June 2019 and concealed until the official unveiling ceremony, the bronze statue and base weigh approximately 3 tons.

Gitlin said that his commitment to the statue didn’t end with the concept generation. “I wanted to ensure the execution and realization of the design was done correctly as well,” he said.

For more information about the Chemical Biological Center, visit <<https://www.ecbc.army.mil/>>.

*Ms. Pinder is a media relations and communication specialist. She is currently assigned as a contractor to the Chemical Biological Center, where she writes for the Solutions Newsletter. She holds bachelor’s and master’s degrees in mass communications from Towson University, Maryland.*

(“Platoon Leaders in Basic . . .,” continued from page 17)

locations and then, presumably, on to their first permanent-party assignments with no system currently in place to track progress, potential injuries, or overall abilities as Soldiers. Regardless of the tangibles, lieutenants are learning about a side of the Army that they most likely would not have otherwise experienced and drill sergeants are lightening their administrative task loads and freeing up time for more hands-on training, which equates to value added. The senior drill sergeant from 2-10 Infantry Battalion, Staff Sergeant David Logan, an infantryman, explained, “I had been a drill sergeant through two cycles [of trainees]; and in the beginning, I didn’t see a need for lieutenants here. However, since adding them, I believe I have become even more proficient not only in this job, but in future positions . . . because there is mentorship between the senior drill sergeant and [the] platoon leader, just like it will be in FORSCOM.” Although difficult to quantify, strides are being made. The units, such as the cadre at 2-10 Infantry Battalion involved in the pilot programs, now have the chance to make their small mark on the Army’s storied history. Tremendous success with its new lieutenants is not 100 percent guaranteed for every single unit, but the intent of higher echelons is being met: The trainer-to-trainee ratio has decreased significantly.

The lieutenants from the first group of the 3d Chemical Brigade pilot program went their separate ways in December 2019, and they will arrive at their next unit or school having inherited a wealth of knowledge and a distinctive skill set from the best NCOs in the Army. Given the extreme shortage of drill sergeants within the force, combined with a plethora of lieutenants, this solution is a huge win for the Army. Adding platoon leaders to BCT adds value to the lieutenants involved, while simultaneously adding value and much-needed support to the units involved, making the decision to continue this pilot program an easy one. The groundbreaking program is still in the initial phases, but has recently moved from a pilot program to the standard. It is safe to say that lieutenants will be part of BCT for the near future.

**Endnotes:**

<sup>1</sup>Meghann Meyers, *Army Times*, “More Drill Sergeants are Heading to Basic, AIT,” 29 October 2018.

<sup>2</sup>TRADOC Regulation 350-6, *Enlisted Initial Entry Training Policies and Administration*, 9 August 2019.

*First Lieutenant McEldowney is the executive officer for Company E, 2-10 Infantry Battalion, 3d Chemical Brigade, Fort Leonard Wood, Missouri. She holds bachelor of arts degrees in English and sociology from the University of Illinois, Urbana-Champaign and a master of arts degree in political and justice studies from Governors State University, University Park, Illinois.*



# Army Combat Fitness Test: The Guardian Battalion Perspective

By Lieutenant Colonel Jacy A. Park

**M**ost Soldiers are now aware that the U.S. Army will replace the current Army Physical Fitness Test (APFT) with the Army Combat Fitness Test (ACFT) as the test of record beginning in fiscal year 2021 “in order to keep pace with the demands of modern war.”<sup>1</sup> However, many are unaware that the ACFT is part of the Holistic Health and Fitness (H2F) Program, which focuses on the science of achieving the holistic fitness level consistent with the mission and tasks that each Soldier is expected to carry out on the battlefield. This program focuses not only on improving physical readiness, but also on reducing chronic injuries. The new ACFT is designed to improve the Soldier selection process, physical performance, and performance education and to transform and improve Soldier fitness/training centers.<sup>2</sup>

There is a three-phase implementation process for the ACFT:

- **Phase I—Initial Operating Capability.** This phase includes a limited user field test, which has been implemented across approximately 60 battalion size units from all Army components. For this phase, the test battalions are provided with various levels of support during the initial operational test to allow the Army to gauge the impact of full and partial implementation of the H2F Program.
- **Phase II—Full Operational Capability—Initial (FOC-Initial).** This phase will include all Army units obtaining ACFT equipment in accordance with Headquarters, Department of the Army, Executive Order 219-18, “Implementation of the Army Combat Fitness Test.”<sup>3</sup>
- **Phase III—Full Operational Capability (FOC).** Beginning on 1 October 2020, the Army will adopt the ACFT as the Army test of record according to Headquarters, Department of the Army, Executive Order 219-18.<sup>4</sup>

## How to Structure the H2F Lite Program

As part of Phase I of the ACFT, the 22d Chemical Battalion (Guardians) was selected as one of the H2F Lite (pilot) Program gold-resourced battalions, which means that the battalion receives additional personnel and equipment as part of the ACFT implementation initiative. The Guardian H2F Lite team is comprised of seven personnel, six of whom are currently resourced. Two of these positions are filled internally, with the battalion executive officer and the operations and training officer. Figure 1 is an organizational chart of the H2F Lite team.

The battalion executive officer also serves as the alternate contracting officer’s representative who manages all contractors and interacts with the U.S. Army Forces Command (FORSCOM) on all equipment and contractor issues. The battalion operations and training officer is the “manager,” and he or she integrates H2F Lite training within the battalion operations. The battalion physical therapist also serves as the H2F Lite coordinator. He or she executes the day-to-day operation and management of the strength and conditioning coaches and directly supervises the certified athletic trainer. The battalion is projected to receive a registered dietician later this year.

In support of the H2F Lite Program, the 22d Chemical Battalion converted an empty bay (approximately 5,000 square feet of space) within the battalion footprint into a Soldier readiness facility to house the H2F Lite team in one consolidated location that is central to all three companies. This area provides space for H2F Lite team offices and treatment areas. There is also a consolidated exercise room that houses all 20th Chemical, Biological, Radiological, Nuclear, and Explosives (CBRNE) Command-funded equipment as well as legacy exercise equipment acquired from all three companies at Fort Bliss, Texas.

During a typical month of training, the battalion H2F Lite team executes 48 regular physical training sessions and 25 additional sessions supporting the special conditioning program. These sessions include classes on techniques and proper form for deadlifting and running and various tactical strength and conditioning sessions. The battalion also focuses on Soldiers who are new to the unit and to this specialized training. The goal is to ensure that the number of injuries is reduced and that Soldiers are fully prepared for the rigors of this program.

The physical therapist and certified athletic trainer evaluate and treat Guardian Soldiers daily. Because both professionals work exclusively with the Guardian Soldiers, the Soldiers can be treated within days of their initial visit, as opposed to the weeks or months that it would take for them to receive similar services on Fort Bliss.

## What to Expect When You are Expecting the ACFT

Perhaps the most significant thing that Soldiers should consider when preparing for the ACFT is that, unlike the previous APFT, the ACFT is gender- and age-neutral.

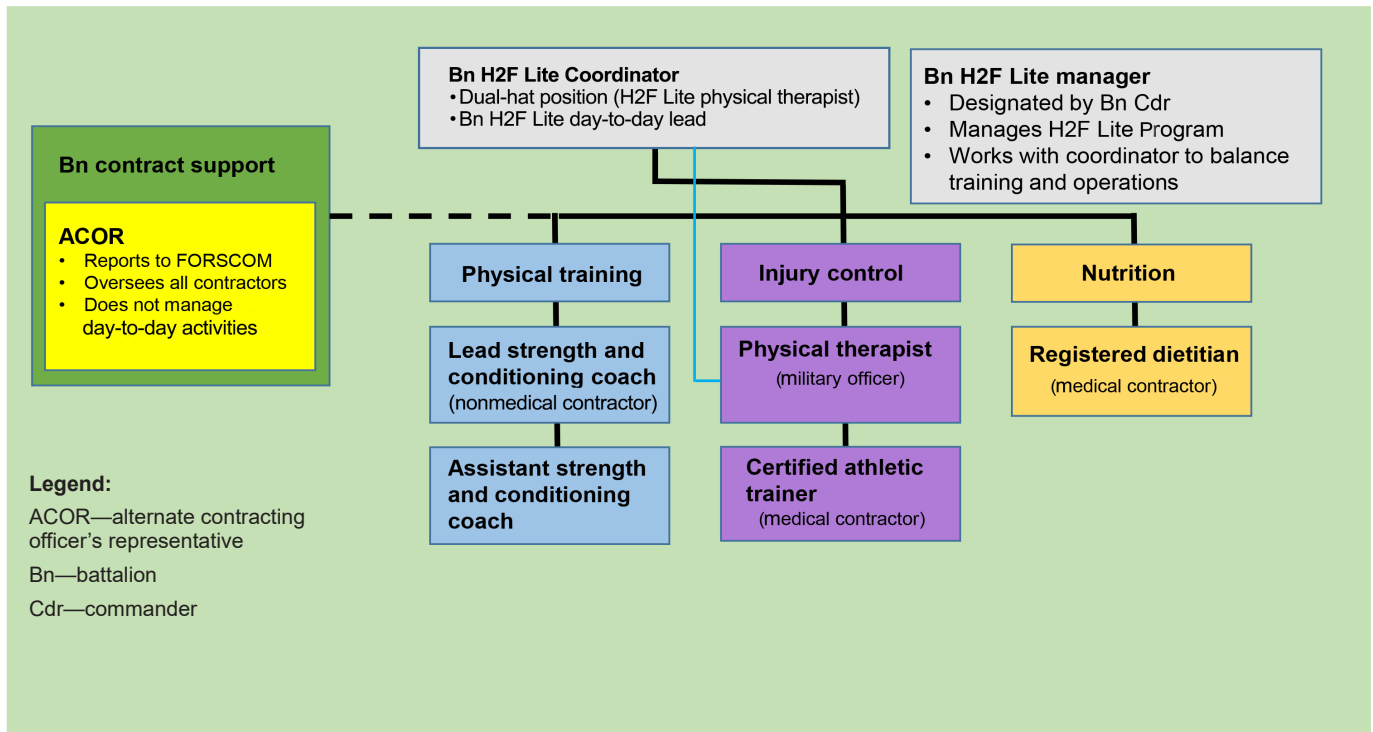


Figure 1. Organizational chart of the 22d Chemical Battalion H2F Lite team

However, the minimum requirement to pass the ACFT is dependent on the Soldier's physical demand category (PDC). The PDC is based on military occupational specialty (MOS), area of concentration, and functional area, with the task requirement submitted by the proponent. A PDC designation of Heavy (Black), Significant (Gray) or Moderate (Gold) is possible. As MOS duties and tasks change, PDCs can change as well.<sup>5</sup>

When the results of the Guardian ACFT are examined by event in accordance with the PDC point system—Heavy (80 points maximum), Significant (70 points maximum), and Moderate (60 points maximum)—individual and organizational effects of the PDC are illustrated with more clarity.

Three events in particular are highly impacted by body weight and/or height. The deadlift and sprint-drag-carry are the two events most impacted by individual weight, as it is generally more difficult for someone who weighs 120 pounds to lift 340 pounds than it is for someone who weighs 200 pounds to do so. The standing power throw event, which requires the Soldier to throw a 10-pound medicine ball backward as far as possible, is also impacted by body weight; height is also a big factor in this event. Although learning proper techniques can help mitigate some physiological differences, it does not eliminate the challenges associated with the lower release point of a shorter person since the

release point height is directly related to the distance the medicine ball can be thrown.

Formations can expect to see a reduction in repetitions for the hand-release push-up event versus the regular push-up event. The new standard no longer allows for rest positions that can relieve weight from the Soldier's back or arms and requires Soldiers to place their arms no more than shoulder



A Soldier executing the standing power throw event.



**A Soldier demonstrating the deadlift event.**

width apart, therefore demanding much stronger triceps to execute each repetition.

Statistical data confirms that more than two-thirds of the failures experienced are due to the leg tuck exercise. Those Soldiers who have done pull ups and core training in their routine workouts are much less challenged with this particular event. Additionally, the highest scoring difference between male and female occurs with this event—with nearly a 50-point variance.

The cumulative effect of the previously mentioned five events can impact Soldiers' times for the 2-mile run. Of all the events, the sprint-drag-carry event has the most impact



**A Soldier demonstrating the leg tuck event.**

on Soldiers' 2-mile run performances. Depending on a Soldier's ability to recover from the sprint-drag-carry event, up to 4-minute increases on the APFT 2-mile run time may be evident. Additionally, the population that has been passing the APFT 2-mile run event with greater than 21 minutes as a minimum run requirement (in line with previous gender/age considerations) is expected to have more difficulty with this event. For example, the current APFT 2-mile run requirement for females of ages 37–41 is 23:42, versus 21:00 under the ACFT for a Moderate PDC. Soldiers who fall under the Heavy PDC based on their MOS will be required to run as fast as 18 minutes in order to pass the ACFT.

Through the ACFT battalion analysis, some very interesting trends have been discovered:

- The top four performers in the battalion are 72–74 inches tall, weigh 200–215 pounds, are of athletic build, and are male.
- The top male score was 600, and the top female score was 474—a 126-point difference.
- The average male APFT score was 230, and the average female score was 219—an 11-point difference.
- The average male ACFT score was 483, and the average female score was 371—a 112-point difference.
- Soldiers in the Heavy and Significant PDC categories had a failure rate of approximately 50 percent.

### **What to Expect in the Future**

Since the 1 October 2018 implementation of the H2F Lite Program, the 22d Chemical Battalion has experienced significant ACFT performance improvement. The trends gathered from the first official ACFT (26–28 February 2019) to the battalion interim ACFT (4–6 June 2019) showed overall improvement in all areas. Specific details are as follows:

- The most significant improvement was the 18-point increase in overall average scores (450 to 468). In line with these results, the battalion also expects improved performance on the next official ACFT.
- Only 67 percent (174 of 258) of the battalion personnel were able to complete all six ACFT events, due to profiles, nonavailable personnel, and personnel who were within the mandatory acclimation period.
- Across the formation, lower back and lower extremity profiles are the most challenging issues for incorporation into the ACFT. Lower-body profiles generally prevent Soldiers from participating in five of six events (deadlift, power throw, sprint-drag-carry, leg tucks, and the 2-mile run).

- Approximately 10 percent of all Soldiers (9 percent male; 33 percent female) failed to meet the minimum scores for their individual categories.
- Leg tucks continue to produce the highest ACFT failure rate (76 percent of all failures).

Additionally, some very positive trends have been observed since the implementation of the H2F Lite Program. There has been approximately a 50 percent decrease in the number of Soldiers on the Army Body Composition Program and about a 40 percent decrease in the number of Soldiers on the Profile Review Board. Based on analysis, these reductions are attributed to the easy access to, and readily available care of, the H2F Lite team. Recognizing the possibility that the H2F team will not be sourced down to the battalion level by Phase II FOC-Initial, the battalion is already focusing on building an internal capability and is encouraging other units to follow this example.


The 22d Chemical Battalion is currently executing the FORSCOM-directed Tactical Strength and Conditioning-Facilitator (TSAC-F) training. Due to the hard work and dedication of the students and the strengthening coaches, 17 of 17 passed the preliminary course in preparation for the National Strength and Conditioning Association TSAC-F examination. To overcome the 50 percent failure rate of the TSAC-F examination, the battalion will continue to execute weekly study sessions to aid and prepare the students.

### How to Embrace the Change Because It's Coming

Despite the difficulty of some of these events, it is possible to receive a perfect score of 600 points.<sup>6</sup> Major Timothy Cox, the battalion executive officer, achieved the highest score ever recorded in July 2019. For Soldiers who might be worried about the new test, Major Cox advises them to “embrace the change because, like it or not, it’s coming.” He tells Soldiers who might not know where to begin training for the ACFT to empower themselves through research by checking out different training programs/applications and conducting self-assessments to determine their physical fitness levels. Major Cox focused primarily on strengthening his core, legs, and grip; he encourages Soldiers to start with those three areas.

In order to assist Soldiers and units in preparing for the ACFT, the Center for Army Lessons Learned, U.S. Army Combined Arms Center, Fort Leavenworth, Kansas, has published *The Army Combat Fitness Test*, which provides information about the intent and desired end state of ACFT implementation, details the standards for each event, describes how to administer the ACFT, offers tips, and recommends training.<sup>7</sup>

The Army needs to use the data and feedback collected from across the formations during Phase II (1 October 2019–30 September 2020) to work out a few more kinks before Phase III is initiated. On 30 October 2019, the Army published adjusted scores, alternate events, and procedures for Phase II that indicate that the Headquarters, Department

of the Army, is listening and paying attention to the data and feedback from the field.<sup>8</sup> The overall 22d Chemical Battalion assessment indicates that if the Army resources units that fully embrace the H2F Program, the result will be a decrease in the number of injuries and an increase in physical performance. This would directly impact the readiness of our Soldiers, our units, and our Army. 

#### Endnotes:

<sup>1</sup>Center for Army Lessons Learned No. 18-37, *The Army Combat Fitness Test*, September 2018, p. iii.

<sup>2</sup>Joseph Lacdan, “Army Launches Holistic Health and Fitness Initiative,” 27 July 2017, <[https://www.army.mil/article/191402/army\\_launches\\_holistic\\_health\\_and\\_fitness\\_initiative](https://www.army.mil/article/191402/army_launches_holistic_health_and_fitness_initiative)>, accessed on 31 October 2019.

<sup>3</sup>Center for Army Lessons Learned No. 18-37.

<sup>4</sup>Executive Order 219-18, <[https://g357.army.pentagon.mil/od/\\_layouts/15/WopiFrame.aspx?sourcedoc=/od/EXORD1/HQDA\\_EXORDS/FY18/HQDA%20EXORD%20219-18%20Implementation%20of%20Army%20Combat%20Fitness%20Test%20\(ACFT\)/HQDA%20EXORD%20219-18%20Implementation%20of%20Army%20Combat%20Fitness%20Test%20\(ACFT\)%20\(final\).docx&action=default](https://g357.army.pentagon.mil/od/_layouts/15/WopiFrame.aspx?sourcedoc=/od/EXORD1/HQDA_EXORDS/FY18/HQDA%20EXORD%20219-18%20Implementation%20of%20Army%20Combat%20Fitness%20Test%20(ACFT)/HQDA%20EXORD%20219-18%20Implementation%20of%20Army%20Combat%20Fitness%20Test%20(ACFT)%20(final).docx&action=default)>, accessed on 21 November 2019.

<sup>5</sup>Center for Army Lessons Learned No. 18-37.

<sup>6</sup>Briaira R. Tolbert, “Soldier Achieves Highest Score Ever Recorded For ACFT,” 26 August 2019, <[https://www.army.mil/article/226236/soldier\\_achieves\\_highest\\_score\\_ever\\_recorded\\_for\\_acft](https://www.army.mil/article/226236/soldier_achieves_highest_score_ever_recorded_for_acft)>, accessed on 31 October 2019.

<sup>7</sup>Center for Army Lessons Learned No. 18-37.

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# APPLYING INTERDEPENDENT CONTAMINATION MITIGATION TO LSCO

By Major Michael C. Moore

In the past, when the term *contamination mitigation* was used, it generally referred to chemical, biological, radiological, and nuclear (CBRN) defense activities. However, *contamination mitigation* is now defined as “the planning and actions taken to prepare for, respond to, and recover from contamination associated with all [CBRN] threats and hazards in order to continue military operations,” and according to Joint Publication (JP) 3-11, *Operations in Chemical, Biological, Radiological, and Nuclear Environments*—

- *The actual or threatened employment of weapons of mass destruction (WMD) or CBRN weapons can affect friendly forces by causing them to prepare for or conduct CBRN defense activities, contamination mitigation and, if directed, CBRN response operations . . . .*
- *As part of execution, contamination mitigation enables joint forces to sustain operations in a contaminated environment without prolonged interruption of operational tempo. It also enables the quick restoration of essential capabilities or combat power required to accomplish the current mission and achieve operational objectives.<sup>1</sup>*

One question is prevalent across several venues: How can academia, industry, and capability developers combine efforts to provide an interdependent solution to realize contamination mitigation across warfighting functions? This question has been posed well beyond the Chemical Regiment and has been asked during events facilitated by other centers of excellence. This has led the Army to articulate the contamination mitigation problem: How must the Army develop a contamination mitigation capability to negate the effects of CBRN threats without the reduction of combat power or unnecessary expenditure of time and readiness?

In July 2019, Major Lucas Hoffman authored a document entitled *Interdependent Contamination Mitigation: White Paper*.<sup>2</sup> The purpose of the document is to inform readers of future Army concepts and capabilities development efforts and serve as the conceptual basis for identifying and developing solutions across doctrine, organization, training, materiel, leadership and education, personnel, facilities, and policy (DOTMLPF-P) in support of future force requirements. The premise of the white paper is based on the objectives of gaining real-time understanding, achieving inherent survivability, and negating hazard effects when addressing direct and indirect effects of CBRN threats as envisioned in multidomain operations (MDO) and large-scale combat operations (LSCO). The new approach is aimed at developing

a cultural shift in the mindset regarding operations in a CBRN environment. The goal is to develop capabilities that allow warfighters to react faster, operate more freely, use fewer resources, and achieve dispersed autonomy. Success in this venture will provide a level of overmatch in CBRN responsiveness that will allow the Army to exploit the enemy’s use of weapons of mass destruction, obtaining positions of relative advantage while negating the hazardous effects to the operational environment. This article dissects the principles of interdependent contamination mitigation (ICM) by describing and allowing for the visualization of a multidomain environment where mitigation concepts will be crucial to winning against a CBRN-capable adversary in LSCO.<sup>3</sup>

Real-time understanding is focused toward an integrated framework that enables commanders to comprehend the contaminated environment as early as possible to aid with risk-based decisions that protect the force and allow freedom of action.<sup>4</sup> Information needs to be rapidly digested and simplified to allow commanders to make decisions about known threats on the ground. In an uncertain environment, exploiting opportunities and having the capability to take the initiative in CBRN conditions are key to gaining the tactical advantage. The ability to understand the CBRN environment through early warning technology and real-time predictive models would allow maneuver elements to gain the advantage when traversing through potentially contaminated areas. A real-time understanding of CBRN hazards at the lowest level would allow mission command to flourish because platoon level leaders need to be able to exercise disciplined initiative and take prudent risk in an environment where long-range communication with higher headquarters may be unavailable or compromised. Understanding the effects of degradation and weathering in the CBRN environment could open windows of opportunity and potentially make a the difference when determining mitigation resources to be deployed, upgrading protective posture, traversing partially contaminated routes, or altering convoy routes when navigating in the brigade close area.

Technology based on real-time understanding would enhance the ability of the military to conduct ICM through CBRN intelligence, surveillance, and reconnaissance assets. Overhead imagery of contaminated terrain provided through space, cyberspace, or aerial reconnaissance would allow maneuver elements to detect areas of friction along the battlefield. Mounted CBRN reconnaissance could be used to

shape the environment through surveillance of the enemy's CBRN obstacle belt to identify enemy defense seams that have been degraded through weathering or failed application. An understanding of enemy CBRN application across the battlefield through the lens of intelligence, surveillance, and reconnaissance assets would allow commanders to upgrade their protective posture when preparing to conduct a frontal attack, flanking weak points along a potentially contaminated area, or penetrating the periphery of a degraded CBRN obstacle. Failure to understand the complex environmental effects on CBRN application can lead to risk-adverse decisions; hesitation; and lost opportunities, as seen in historical large-scale combat vignettes.

Throughout military history, there are countless examples of opportunities that were lost due to a lack of real-time understanding in an uncertain environment. Examples from World War II, such as the Battle of the Falaise Pocket in Normandy, France, reinforce the difficulties of decision making when operating against an adaptive and thinking enemy. When an unplanned opportunity to encircle and destroy the German 7th Army arose, Lieutenant General Omar Bradley worried about fratricide of friendly forces, debated a wide or narrow encirclement, and was burdened by the unknown size and intentions of German forces. Despite the ability to encrypt German communications, the understanding of the battlefield became more nebulous as Allied forces moved east. Because of a time delay in the decision-making process, an opportunity was missed and Allied forces could not close the Falaise Pocket significantly enough to destroy the German 7th Army.<sup>5</sup> Now, 75 years later, the operational environment has become even more complex due to technological advancements in space, cyber, and electronic warfare. Multidomain threats accompanied by the employment of CBRN hazards will significantly challenge decision making. In addition, the "fog of war" may potentially cause unnecessary threat-based decisions or multiple dilemmas that result in missed opportunities. To prevent any reduction in tempo when operating in a CBRN environment, ground forces must have the tools necessary to provide real-time understanding in order to apply ICM risk-based decision making. Decision making without a real-time understanding of the CBRN threat will cause a delay in initiative, waste valuable resources, and hinder the operational tempo.

Inherent survivability refers to the ability of a unit or equipment to operate in a CBRN environment without degradation of combat power. Individual protective equipment, prophylaxes, and unmanned systems all serve as means of increasing desired survivability. Achieving the advantage in these areas allows friendly forces to operate in contaminated conditions where the enemy is unable to survive.<sup>6</sup> Employing ICM to operate in these environments can be crucial in securing a major intersection, staging deception operations, or advancing artillery assets forward to set conditions for forces maneuvering toward the deep area. Maintaining survivability prevents maneuver forces from losing tempo when exposed to hazardous conditions and concurrently provides opportunities to surprise the enemy by maneuvering to

contaminated areas that may be used to exploit a vulnerability.

Continued advancements in survivability equipment will allow units to operate unimpeded in a CBRN environment. Such survivability equipment includes vehicle platforms that are capable of operating in a contaminated area and ergonomic protective equipment that allows minimal to no physiological disturbance of Soldier activities. Demonstrating a dominant level of inherent survivability may be enough to prevent enemy forces from expending resources to employ CBRN hazards on the battlefield.

The negation of the effects of contamination, which applies to all warfighting functions, includes a set of actions that remove the ability of a CBRN hazard to further degrade combat power. This encompasses the removal of a hazard or the medical treatment of a contaminated individual.<sup>7</sup> Thorough decontamination procedures place the force at risk because they generate dense footprints, possibly increase primary route contamination, and require extensive resources to protect. Fast and resource-efficient decontamination options must be developed in order to maintain forward momentum in LSCO. The enemy cannot be given the opportunity to gain fire superiority or any tactical advantage. During the initial phases of conflict, it is imperative that U.S. forces maintain rapid lethal fire on enemy forces while concentrating all desired lethal and nonlethal effects on the target to support ground forces that are securing and seizing objectives. A disruption in fire assets (including suppression, neutralization, and destruction due to contamination) can slow operational tempo and cause mission failure. Neutralizing the effects of a CBRN strike on an airfield is vital to maintaining air superiority and resupply. Employing ICM options to the lowest level that allows friendly forces to rapidly move and disperse to evade enemy targeting and reassemble to mass (consolidate in one location) direct and indirect fire on the objective is decisive in conducting MDO in a CBRN environment. Main supply routes require immediate clearance of CBRN hazards to allow rapid maneuver and operational reach. Maneuver elements conducting battles and engagements within the close area may be at risk of culmination if they are separated from critical support area elements due to a contaminated route. Predicting and understanding these types of future LSCO scenarios are crucial to CBRN planners. As history has shown, future adversaries will take every opportunity possible to limit our ability to mass fire, deny command and control, and disrupt operational reach.

After the success of the Inchon landing during the Korean War, U.S. forces rapidly advanced toward the Yalu River. Despite Chinese threats to intervene, forces continued to advance at a tempo that overextended resources. The pursuit toward the Yalu River led to battlefield engagements with the Chinese. Enemy forces were able to encircle, isolate, and destroy the overextended U.S. forces. Roadblocks and destroyed bridges prevented withdrawal, leading to the destruction of units such as Task Force Faith.<sup>8</sup> Applying the historical vignette to a complex CBRN environment can lead

*(Continued on page 28)*

# Gas Stratification: A Hazard for Warfighters in SbT Environments

*By Captain Meaghan E. Kelly and Mr. Jeffrey S. King*

**T**he volume of subterranean (SbT) environments and the frequency with which they are encountered in combatant commander areas of responsibility are significant concerns. Major cities have significant underground components, more than 10,000 military SbT facilities currently exist worldwide, and most foreign weapons of mass destruction facilities include an underground component. There are four categories of subterranean operations (SbTO) hazards—environmental, personnel, material, and structural. Environmental SbTO hazards comprise the most dynamic and complex category and also pose the greatest threat. Units must proactively study the operational environment; otherwise, they may experience serious injury or death before making contact with the enemy.

Among SbT environmental hazards, air quality (AQ) is arguably the most critical and dynamic consideration. Poor AQ can quickly result in casualties (including personnel killed in action) and can quickly cause an entire mission to be aborted or to fail. The stratification of gases within the air creates an even more difficult situation.

## Gas Stratification

Air is comprised of oxygen, nitrogen, and argon gases, each of which has a unique specific gravity. Entropy, or turbulence, created by air currents ensures that these gases are generally mixed in the atmosphere and in well-ventilated areas. However, poor ventilation in confined spaces such as SbT environments allows for gas stratification, which is a natural phenomenon that occurs when gases with different specific gravities settle into layers, or strata. Gases that are lighter than the surrounding air rise toward the ceiling, and gases that are heavier than the surrounding air settle closer to the floor or ground surface.<sup>1</sup>

In areas of limited entropy, gas stratification can result in dangerously high concentrations of toxic gases at a particular level or at multiple levels. For example, basements may contain dangerously high concentrations of argon, sewers may contain dangerously high concentrations of hydrogen sulfide, and mines may contain dangerously high concentrations of methane.<sup>2</sup> Although the air might be safe to breathe at one stratum, that might not be the case at another stratum. Even if AQ monitored at head/eye level is satisfactory, gases present above or below that level could render the air unbreathable and/or combustible—two hazardous conditions that are often imperceptible to human senses until it is too late. For example, if a heavier gas has settled to a lower height inside a confined space, movement as simple as changing from the standing to the prone position can

have dire consequences. Similarly, if hazardous gases in a confined environment rise to the ceiling, they can be unintentionally ignited, resulting in a greater negative blast effect on hearing and basic survivability. Therefore, confined spaces must be thoroughly monitored at varying heights to determine the presence of hazardous strata.

An explosion that occurred along 13 miles of a municipal storm sewer system near Louisville, Kentucky, in 1981 illustrates the potential catastrophic effect of gas stratification. Heavy hexane vapors within the sewer system were ignited by a spark from a car traveling over a sewer opening. Although air and gas monitors had been inserted through the manholes, they had not been placed deep enough to detect the flammable hexane vapors, which had settled near the lowest point in the sewer system.<sup>3</sup> The conditions that led to the sewer system explosion in Louisville can also exist in SbT spaces of today.

As SbTO become more prevalent, it is essential that maneuver and enabler Soldiers and units be aware of the potential for SbT AQ hazards; that they understand how to recognize and identify or confirm them; that they are familiar with the capabilities of brigade combat team chemical, biological, radiological, and nuclear (CBRN) reconnaissance platoons in addressing them; and ultimately, that they know how to protect Soldiers, units, and coalition partners from them. What does this mean to the SbTO warfighter? Simply put, Soldiers who are operating in an SbT environment cannot become complacent with AQ monitoring. Continuous AQ monitoring at various strata is the only effective way to protect the force against ever-changing atmospheric conditions.

Even after it has been determined that a confined space such as an SbT environment is safe for entry, conditions can unexpectedly change; therefore, the internal atmosphere of a confined space must be continuously monitored as long as that space is occupied. To ensure personnel safety, the Occupational Safety and Health Administration recommends that monitoring take place every 4 feet in all directions upon entry and that it be continuously conducted at different heights for the duration of the occupation.<sup>4</sup> This safeguards against dangers from stratified gases and ensures that clearing forces do not “outrun the sensors” (move farther or faster than the air/gas monitors can detect atmospheric changes).

Figure 1 lists some common hazardous gases of concern and categorizes them according to whether they rise, sink, or remain in the intermediate strata. For example, hydrogen sulfide is heavier than air and, as shown in the figure, sinks; therefore, it tends to settle toward the bottom of a space.

Thus, testing the air only at head/eye level at entry points could give the entrants a false sense of security and could pose a significant hazard if personnel need to work closer to the ground.<sup>5</sup>

Gases that rise	Gases that remain in the intermediate strata	Gases that sink
Natural gas	Carbon monoxide	Chlorine
Methane	Carbon dioxide	Propane
	Gases mixed from the top and bottom of the space	Gasoline/fuel vapor
		Hydrogen sulfide

**Note:** Temperatures can alter the specific gravity of gases, causing them to rise or sink.

- Heat can make heavier toxic contaminants rise.
- Cold conditions can cause contaminants to settle at floor level.

**Figure 1. Common gases of concern (across the three major strata)**

Toxic gases are a health concern not only due to their toxicity but also because they can displace oxygen or cause the atmosphere to combust. Additionally, a Soldier’s normal equipment load for an SbT environment can exacerbate the combustion hazard. For example, a flashlight or headlamp can become an ignition source in an atmosphere containing high concentrations of some dangerous gases. In certain cases, even a static discharge can ignite an atmosphere in a confined space.

### Equipment and Techniques to Identify and Mitigate Hazards

The brigade combat team CBRN reconnaissance platoon is equipped with one dismounted reconnaissance sets, kits, and outfits. Dismounted reconnaissance sets, kits, and outfits comprise mission-specific systems that provide a full-spectrum CBRN dismounted reconnaissance capability to help identify and mitigate hazards. These systems include air/gas monitors that detect, identify, and measure volatile organic compounds, toxic industrial chemicals/materials, oxygen levels, and combustible gases. They also include personal protective equipment such as self-contained breathing apparatuses (SCBAs).

#### Air/Gas Monitors

Dismounted reconnaissance sets, kits, and outfits contain MultiRae Pro™ (MRP) monitors—two of which are gas monitors (yellow covers) and two of which are toxic industrial chemical vapor monitors. MRP monitors, which can be hand-held or mounted onto robots or human-transportable robotic systems, measure the concentrations of combustible and flammable gases or vapors in the atmosphere. They are capable of detecting the lower explosive limit for the most reactive gas hazards present and allow for options to

simultaneously sense multiple other reactive hazards. They also monitor for low oxygen levels.

MRP monitors are particularly beneficial when mounted on robots and used to detect the presence of harmful gases prior to entry into an SbT environment. When Soldiers must enter an SbT environment, the use of hand-held/portable gas monitors is recommended since poor AQ can exist at any time during SbTO. Additionally, MRPs can be mounted on the Soldiers’ backs (or on the back of the lead Soldier of the clearing element) to provide an effective means of detecting harmful gases at hand/eye level while allowing the Soldiers to keep their hands free for marking equipment; breaching; and handling radios, shields, or weapons. A time-tested, reliable means of ensuring the protection of friendly forces involves programming MRP noise, light, or vibration alarms for minimum or maximum levels of specific substances. Because Soldiers are highly unlikely to feel vibrations through their basic combat load and personal protective equipment, they may need to carry MRPs in their hands when using vibration alarms. The tubing of the MRP probe can be extended in order to monitor spaces above hand/eye level; however, tube extension is associated with a limitation. When the tube is extended, gases must travel a greater distance to reach the sensors, which, in turn, lengthens the time necessary to detect any hazards. This time delay must be factored into atmospheric monitoring procedures to prevent the sensors from being outrun before adequate time has passed for the equipment to provide an updated reading.

Mission, enemy, terrain and weather, troops and support available—time available and civilian considerations must always be taken into account when choosing monitoring tactics, techniques, and procedures. Additional factors that should be considered when monitoring SbT environments include ventilation, height of the confined space, and possible sources and quantities of harmful gas(es).

#### Personal Protective Equipment


The primary protection against the absence of oxygen in the presence of hazardous gases or in the event of an SbT collapse is the breathing apparatus that is available on-site. Throughout the world, all groups that are required to enter and work in confined spaces (miners, military personnel, law enforcement officers, personnel recovery teams) use SCBAs.

For military personnel, if the oxygen level drops below that which is necessary to sustain life (19–23.5 percent) or a sensor detects the presence of hazardous gas, all friendly forces within a reasonable vicinity must don SCBAs. All dismounted reconnaissance sets, kits, and outfits contain spare oxygen tanks. Units can also obtain commercially available breathing devices that are compatible with CBRN protective masks. In addition, they can also obtain breathing filters to be used when working with tools such as cutting torches, welding equipment, and rescue saws; at demolition sites; in breaching environments; or outside SbT entrances when small particles that could be harmful to breathe might be present.

SCBA air usage rates vary greatly according to a Soldier’s

experience level, physical work intensity, enemy activity, psychological condition, types and properties of atmospheric hazards present, and distance inside an SbT environment or confined space. Under all conditions, SCBA will eventually need to be recharged or refilled—sometimes very rapidly and very frequently. The resupply of breathable air can be the difference between success and failure—or even life and death. Some units have special air compressors and/or AirJam™ systems on hand or can procure them; this equipment can be used to rapidly and repeatedly recharge SCBAs at SbT sites.

## The Way Ahead

Environmental hazards are the most dynamic and complex of the four categories of SbTO hazards, and they pose the greatest danger to military personnel. Atmospheric conditions, AQ, and gas stratification are critical considerations that can abruptly cause mass casualties and mission failure. Therefore, friendly forces must maintain a healthy respect for these considerations and perform early and continuous monitoring of the operational environment. Proactively incorporating the principles and associated tactics, techniques, and procedures of atmospheric monitoring into tactical SbTO standard operating procedures, training, equipping, and operations in deployed and combat environments will ensure that friendly forces and coalition partners will fight, survive, and win. 

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<sup>2</sup>Ibid.

<sup>3</sup>W. Williams, “Louisville’s Cleanup Begins in Wake of Sewer Explosion,” *The New York Times*, February 1981, p. 12.

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*(“Applying Interdependent . . .,” continued from page 25)*

a planner to implement ICM that prevents the enemy from potentially using CBRN tactics to contaminate areas and thereby isolate forces. The continued development of DOTMLPF-P requirements that support inherent survivability and the negation of contamination effects used on supply routes, lethal fire support assets, maneuver units, and command and control nodes will be crucial in LSCO as units maneuver toward the deep area and extend farther away from support nodes located within seaports and aerial ports of debarkation.

The ICM concept will impact how planners frame MDO within a CBRN environment. In the future, the Concepts Division, Capability Development and Integration Directorate, U.S. Army Maneuver Support Center of Excellence, will explore, research, and write additional articles on the effects that ICM has on enemy decision making and employment of CBRN within a complex CBRN environment. History has shown how difficult decision making in an uncertain environment can be and has provided a glimpse of how future adversaries may use CBRN to counter the American way of war. Technology that enables a real-time understanding of the CBRN environment will allow for proactive, risk-based decision making that affords the advantage in a compacted timeframe. Inherent survivability will enable our forces to operate and maintain an advantage in hazardous environments and prevent being deterred from fighting in unfavorable conditions. Negating the effects of contamination will ensure that maneuver, tempo, and massing of fire are not disrupted. Applying ICM principles to DOTMLPF-P development will close CBRN-related gaps across the joint services. ICM will aid in reducing uncertainty on the battlefield and enable commanders on the ground to make decisions that place their units in positions of advantage while minimizing the effects of a CBRN threat. The application of ICM will influence how CBRN practices are integrated within the warfighting functions and enable joint forces to assess, protect, and mitigate the CBRN threat within MDO. 

### Endnotes:

<sup>1</sup>JP 3-11, *Operations in Chemical, Biological, Radiological, and Nuclear Environments*, 29 October 2018.

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<sup>3</sup>Ibid, pp. 5–8.

<sup>4</sup>Ibid, p. 11.

<sup>5</sup>Martin Blumenson, *Battle of the Generals*, William Morrow and Company, New York City, New York, 1993.

<sup>6</sup>Hoffman, p.13.

<sup>7</sup>Hoffman, p.14.

<sup>8</sup>Bob Reilly, *Defeat From Victory: Korea 1950, M312 Reading A, Module III; Transition to the Offense*, Command and General Staff College, Fort Leavenworth, Kansas, pp. 6–8, 13–14, 18–25.

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# Destination Destruction: Blue Grass Chemical Activity Delivers

By Lieutenant Colonel Rodney D. McCutcheon and Ms. Angela L. Messinger

**T**he Blue Grass Army Depot (BGAD) military community recently celebrated the initial destruction of chemical weapons stored at the facility, located near Richmond, Kentucky.

Chemical weapons demilitarization operations began at the Blue Grass Chemical Agent-Destruction Pilot Plant (BGCAPP) this past summer with the safe and successful transport and destruction of mustard-filled munitions—the result of a strong partnership between BGAD, BGCAPP, and the Blue Grass Chemical Activity (BGCA). “We are now in the execution phase of demilitarization,” said Mr. James L. Hall, BGCA deputy commander. “We have a list of priorities and a shared vision with our mission partners to meet the chemical destruction requirements established by the Department of Defense,” he added.

The Army began shipping chemical weapons to the newly established BGAD in 1944. Throughout the following 2 decades, 523 tons of mustard and nerve agent contained in rockets and projectiles were stockpiled there.

In 1995, BGCA was created to take over the chemical storage mission from the depot. In 2002, the organization now known as the Program Executive Office, Assembled Chemical Weapons Alternatives was assigned responsibility

for the destruction of the chemical weapons stockpiles in Kentucky and Colorado. Each of the participating organizations has worked diligently to meet the Nation’s commitment to destroy chemical weapon stockpiles by the end of 2023. “The key leaders in these organizations have developed a team of trust that engages in open and transparent dialogue,” Mr. Hall said, “They have created an environment that encourages increased communications, which has resulted in improved procedures and operations.”

One challenge in preparing for chemical weapons destruction has been bringing key stakeholders together to synchronize fully developed processes and negotiate priorities for the best path forward. “The Blue Grass team has been able to come together and develop a very good working relationship to accomplish the demilitarization mission even though this team is comprised of several organizations with different chains of command,” said Mr. Karl E. Slauchaupt, then chief of operations, BGCA, “We work with BGCAPP, BGAD, the contractors, and our headquarters, the Chemical Materials Activity, just to name a few. We have developed effective communications and a unity of effort to ensure this mission is successfully completed.”

Communication is a key part of the Operations Directorate, BGCA, which is responsible for command and control of operations in the chemical limited area within the BGCA. The emergency operations center ensures that safety systems and measures are in place for daily operations and continuously monitors situations such as incoming storms that may result in unsafe conditions, possibly suspending operations.

The BGCA emergency operations center leads the development of first-responder protocols for joint operations with BGCAPP and BGAD. Weekly exercises involving the BGCAPP control room have led to a clear understanding and synchronization of reporting requirements for both chemical and nonchemical events. These exercises involve vapor detection in the explosive destruction technology service magazine by the static detonation chamber, the munitions transport vehicle (known as an enhanced on-site container), and areas of the



**BGCA personnel demonstrate how to containerize a leaking chemical munition during an inspection.**

main plant where agent should not be detected. Nonchemical events may include vehicle accidents in a controlled area, weather-related mishaps, or security breaches.

BGCA conducts quarterly chemical accident and/or incident response and assistance exercises, which include events in the storage area and within the demilitarization footprint. To accomplish training objectives and ensure readiness, exercise planners create a variety of scenarios, including such events as lightning strikes or equipment failures. These scenarios require that workers and responders “think on their feet” and take appropriate action to protect fellow employees, the community, and the environment. After every exercise, evaluators compile a list of best practices and areas of improvement for each function.

The Operations Directorate, BGCA, leads the planning and execution of the exercises to test emergency preparedness capabilities among the three primary mission partners and to continually improve and enhance response times and skills. Operations personnel also coordinate exercises with personnel and organizations off the depot site, such as local emergency responders, schools, hospitals, nearby counties, and the state of Kentucky. This helps ensure that in the unlikely event of a chemical accident or incident, all parties involved know how to effectively execute proper response protocols to protect the workforce, community, and environment.

Preventing a chemical event is a primary goal of the Project Management Directorate, BGCA. In addition to efforts to improve roads, buildings, igloo (earth-covered bunker where munitions are stored) access areas, and power in the chemical limited area, the project management team provides quality assurance specialists (ammunition

surveillance), who participate in chemical operations to ensure that toxic material handlers are safely moving munitions. The quality assurance specialists check on medical monitoring, inspect equipment, help ensure chemical munitions accountability, and ensure that workers wear proper personal protective equipment. “Our people are fully committed to the demilitarization process and will do what it takes to safely accomplish the mission,” said Mr. Thomas A. Enricco, chief of surveillance, “Our environmental staff also plays a big role to ensure the safety of our workers and the environment.”



**BGCA toxic material handlers load chemical munitions into an enhanced on-site container for movement to the demilitarization plant during an Army Materiel Command surety management review.**

The environmental team ensures that the organization complies with Army regulations; environmental permits; and local, state, and federal laws by conducting training and inspecting waste sites. It prepares solid and hazardous waste generated by the organization and ships it to treatment and disposal facilities in accordance with Resource Conservation and Recovery Act and U.S. Department of Transportation requirements.<sup>1</sup>

Solid and hazardous wastes are generated during routine chemical operations. The Chemical Operations Directorate monitors chemical weapons, moves them within the warehouse, and conducts isolation operations for leaking munitions. When a monitoring system detects agent emissions inside an igloo, toxic material handler crews don appropriate personal protective equipment before entering the igloo to identify and isolate the problematic munition(s). The personal protective equipment and items used to decontaminate the igloo must be properly disposed of as hazardous waste.

The Chemical Operations Directorate also moves chemical munitions out of storage to an enhanced on-site container for movement to the demilitarization plant for destruction. “We have been doing static storage for a long time,” said



**BGCA toxic material handlers strap inert M55 rockets to a pallet during a training exercise.**

Mr. David Velazquez, director of the Chemical Operations Directorate, “Demilitarization is now the priority. We have trained for this transition and have scheduled our storage requirements to fully support transporting munitions to the plant.”

Multiple systems are in place so that nothing “falls through the cracks.” Before each operation, chemical operation leaders review personnel and resources available, standard operating procedures, equipment, and regulations to ensure that there are no limiting conditions that would halt the day’s scheduled activities. Chemical operations leaders meet with BGAD and BGCAPP personnel to plan operations and discuss transportation details before each movement of munitions from storage to the plant.

BGCA has worked closely with partner organizations to build a cohesive team with security, medical, quality assurance (ammunition surveillance), laboratory, monitoring, toxic material handler, weapons accountability, and enhanced on-site container and seal test personnel. Rigorous training events and numerous exercises have helped to ensure that everyone involved in transporting munitions is fully trained and prepared to handle unexpected situations during operations. The success of this training partnership was apparent with the first enhanced on-site container transport of mustard projectiles to the BGCAPP footprint.

Once the chemical stockpile destruction mission is complete, BGCA is slated for deactivation which means that many skilled workers are looking for employment elsewhere. According to Mr. Velazquez, personnel turnover presents an added challenge because of the extensive training required for chemical operations workers to be productive members of the team; other BGCA leaders echoed this sentiment. “The Army’s greatest asset is our people,” Mr. Hall said, “Retention of quality personnel is certainly an area of concern. However, we have systems in place to take care of those who stay for the long haul. We will focus on maintaining morale, keeping people motivated, assisting with follow-on federal employment, and providing monetary incentives and retention bonuses as the Army allows.”

CMA provides extensive expertise to fill knowledge gaps resulting from personnel turnover. CMA personnel conduct surety assistance visits and participate in working groups and readiness, operations, and closure meetings to help BGCA create a path forward to complete its mission, transition the workforce, and close the activity. “Nearly everyone on the CMA staff has done chemical operations and closure activities,” Mr. Hall said, “Their contribution to the long-term success of operations here on the ground cannot be overstated. The institutional knowledge they offer is invaluable.” The CMA surety office provides oversight for security, safety, emergency response, and reliability programs to ensure that they are receiving the necessary emphasis and



**Newly hired toxic material handlers get accustomed to working in Level A protective gear during their initial training at BGCA.**

resources. Since BGCA is a compliance-based organization, adherence to multiple regulations, laws, checklists, policies, and standard operating procedures is vital. These control measures lead to the safe and secure storage of chemical munitions by trustworthy personnel until the munitions are destroyed.

“Organizations are successful because of their people,” Mr. Hall said, “This team has remained resilient and disciplined while preparing for demilitarization, understanding that they are working themselves out of a job. As an organizational leader, I take great satisfaction in this. This team on the ground will be etched into history as the folks who facilitated the destruction of the chemical stockpile.”

#### **Endnote:**

<sup>14</sup>“Resource Conservation and Recovery Act (RCRA) Laws and Regulations,” *Environmental Protection Agency*, <<https://www.epa.gov/rcra>>, accessed on 25 November 2018.

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*Lieutenant Colonel McCutcheon is the commander of the BGCA, Richmond, Kentucky. He holds a master’s degree in environmental management from Webster University.*

*Ms. Messinger is the public affairs officer for the BGCA, Richmond, Kentucky. She holds a master’s degree in military operational arts and science from the Air Command and Staff College, Maxwell Air Force Base, Montgomery, Alabama.*

# Chemical Reconnaissance Detachment and Chemical Decontamination Detachment History and Capabilities

*By Captain Trey W. Ferguson and Captain Tristan W. Obluck*



In 1989, at the request of the Special Operations Forces (SOF) community, the U.S. Army Chemical Corps created chemical reconnaissance detachments (CRDs). Shortly thereafter, the SOF community established chemical decontamination detachments (CDDs). In the beginning, CRDs conducted chemical, biological, radiological, and nuclear (CBRN) reconnaissance; site assessments; presumptive analyses; and technical escort functions. CDDs did exactly what their name describes—performed decontamination operations. Early on, both elements focused on providing training on their CBRN mission-essential task lists and supporting real-world operations. Today, these elements support SOF in more ways than solely with CBRN operations.

Over time, and with persistent engagements during Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF), both CRD and CDD elements experienced a change in mission. First, CDDs assumed control of exploitation analysis centers (EACs) and laboratory exploitation analysis in support of targeting cycles. With the EAC, CDDs provide technical reach-back, evidentiary triage, digital biometrics processing and analysis, latent biometrics processing and analysis, deoxyribonucleic acid (DNA) collection, document and media exploitation, narcotics interdiction, and homemade explosives processing and analysis. CDDs maintain the capability of operational decontamination using the Joint Service Transportable Decontamination System Small—Scale (M26) and personnel decontamination



**Soldiers use ultraviolet light to conduct fingerprint analysis.**

using the Expedient Personnel Decontamination System. They augment SOF battalion CBRN sections for operational decontamination training.

The mission focus of CRDs underwent a similar transformation. CRDs assumed control of the SOF site exploitation mission, supporting OEF, OIF, and other noncombat missions around the world. For SOF site exploitation, CRDs are responsible for the exploitation of all materials regarding a target (documents, digital media, cellular data), identification of explosive compounds and narcotics, examination of gunshot residue, and limited analysis of postblast residue. CRDs maintained the capability of detecting, characterizing, and identifying weapons of mass destruction agents, including identifying toxic industrial chemicals and toxic industrial materials, collecting samples, analyzing and reporting findings from a site, maintaining chain of custody, performing confined-space operations, and operating expedient personnel decontamination systems.

Due to emerging threats in multiple areas of operation, priorities have now reverted back for both detachments. For CRDs and CDDs, there is now a renewed interest in emphasizing training for CBRN specialists (74-series) and enhancing their technical knowledge and expertise while focusing on traditional CBRN mission-essential task lists as a primary mission. During this shift in priorities, 1st Special Forces Command (Airborne) was officially activated. CRDs and CDDs now have a higher element, with a CBRN section providing guidance and support. With the renewed focus,



**A Soldier analyzes a clandestine laboratory process to determine chemical threats.**


CRDs and CDDs have the resources to attend CBRN-specific schools, including technical escort courses at Fort Leonard Wood, Missouri; advanced chemical and biological courses through the U.S. Army Combat Capabilities Development Command, Chemical Biological Center, Edgewood, Maryland; nuclear and radiological training at the Defense Threat Reduction Agency, Kirtland Air Force Base, New Mexico; decontamination training at Dugway Proving Ground, Utah; and narcotics training at the Drug Enforcement Administration, Springfield, Virginia.

A CBRN validation exercise is a new training requirement. It is planned, coordinated, and executed by 1st Special Forces Command to validate that CRD and CDD teams are trained and capable of conducting their CBRN mission-essential task lists. The validation exercise encompasses all CBRN target sets from clandestine to state-sponsored laboratories. Teams execute scenarios in full-mission-profile style, with day and night targets, movement by foot, vehicle and airborne operations, and the use of special forces operational detachment alpha (ODA) teams. Senior noncommissioned officers who served on a CRD/CDD, in conjunction with a Dugway Proving Ground subject matter expert, evaluate the exercise. This provides both the technical and

tactical feedback necessary to properly assess each team.

The following elements and unit structures currently support SOF:

- CRDs (Figure 1) are comprised of four chemical detachment alpha teams, each consisting of four noncommissioned officers (two E-5s, an E-6, and an E-7). A captain (O-3) commands the detachment, and a master sergeant (E-8) serves as the detachment sergeant.
- CDDs (Figure 2) are comprised of four decontamination teams, each consisting of two E-4s and an E-5. The headquarters is comprised of an O-3, two E-6s, and an E-7.

CRD and CDD elements provide critical capabilities within the SOF community. SOF rely on CBRN specialists for their technical knowledge in both CBRN and SOF site exploitation at the tactical and operational levels. These elements will continue to serve as the tip of the spear. 

*Captain Ferguson is the commander of the combined CRD and CDD, 3d Special Forces Group (Airborne), Fort Bragg, North Carolina. He holds a bachelor of arts degree in English from the University of South Florida, Tampa.*

*Captain Obluck is the division CBRN officer for the 7th Infantry Division. He previously served as the CBRN/weapons of mass destruction/sensitive-site exploitation officer in charge, 1st Special Forces Command, where he created the CBRN validation exercise for CRDs and CDDs.*

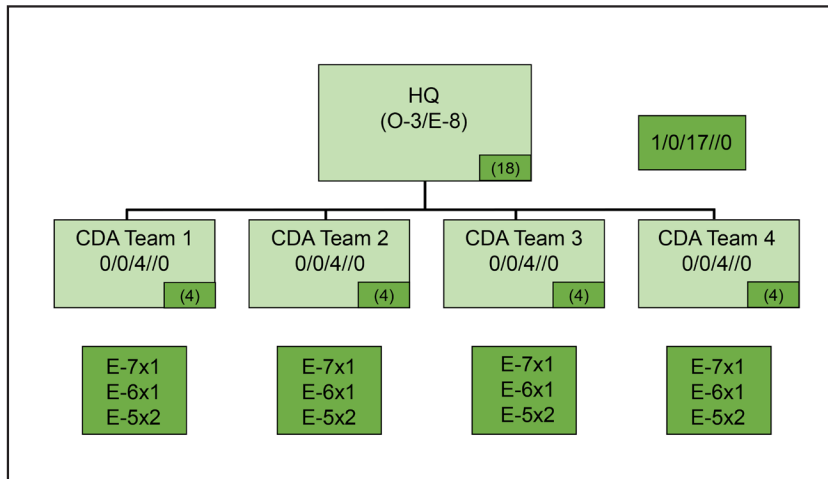


Figure 1. CRD structure

**Legend:**  
 CDA—chemical detachment alpha  
 E—enlisted  
 HQ—headquarters

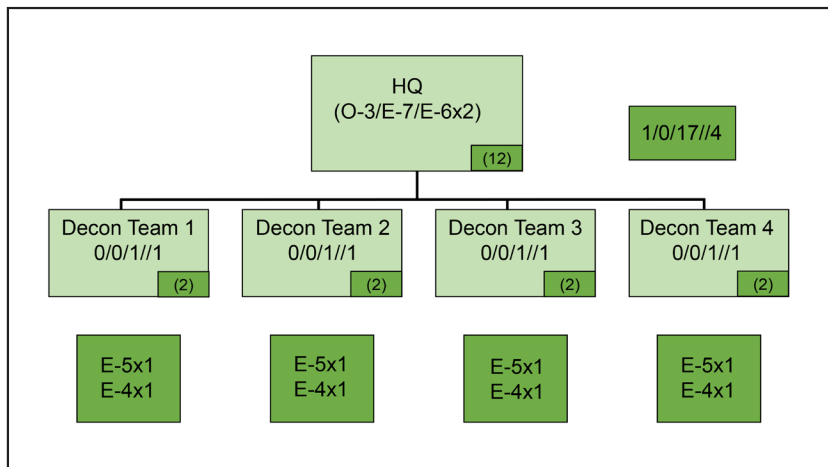


Figure 2. CDD structure

**Legend:**  
 CDA—chemical detachment alpha  
 Decon—decontamination  
 E—enlisted  
 HQ—headquarters

# Certified Emergency Managers for CBRN MOSSs

By Colonel Bill R. Crouse

Let's face it—none of us will be in the Army forever. Whether transitioning or retiring from military service, each of us must plan for life (and probably a follow-on career) after hanging up the uniform for the last time. We have gained valuable skills during our time in the Chemical Corps. We have earned competencies that can be used to take advantage of excellent employment opportunities in the private sector or to continue working in public service at the local, state, or federal level. However, some employers may require proof of a certain level of expertise; such proof is sometimes difficult to provide. Experience in career management field (CMF) 74—Chemical, Biological, Radiological, and Nuclear (CBRN) serves as a great start. And additional skill identifiers, including Civil Defense Officer (5Y), CBRN Reconnaissance and Surveillance (L1), Technical Escorting (L3), and CBRN Reconnaissance for Brigade Combat Teams (L6), build on that fine start. Soldiers who have been involved in the CBRN response enterprise are even better off. However, employers may also require—or at least desire—a number of professional certifications in order to offer employment.

The Associate Emergency Manager (AEM) and Certified Emergency Manager (CEM) designations are nationally and internationally recognized professional certifications for emergency managers, which many in the Chemical Corps may find useful, valuable, and within reach. Furthermore, the CEM designation is a major career-enhancing credential.

The International Association of Emergency Managers (IAEM) is the only organization that offers a certification for individual emergency managers, and the IAEM Uniformed Services Certification Task Force assists Service members in attaining the AEM or CEM certification by providing guidance and “language translation.” IAEM defines emergency management as “the managerial function charged with

creating the framework within which communities reduce vulnerability to hazards and cope with disasters.”<sup>1</sup> Emergency managers plan for, and respond to, incidents in their own communities. As CBRN Soldiers, you have likely conducted planning, managed a budget, understood logistics, worked with hazardous materials, and coped with stressful situations. As senior noncommissioned officers (NCOs) and officers, these are important aspects of emergency management with which you are already familiar. If you have enjoyed conducting these activities in the Army, the emergency management arena is a viable place to put that experience to work for yourself.

In order to obtain the AEM or CEM designation, a number of tasks must be accomplished. Some are relatively simple, while others are more challenging. There are mandatory requirements and a list of “electives.” The AEM requirements are far less stringent than the CEM requirements; nonetheless, the AEM designation is also a foot in the door to the emergency management field.

For the AEM designation, there is a training requirement. Generally speaking, the training or education must fit into one of two broad categories: general management or emergency management. A total of 200 hours of training is required, with 100 hours in each category. This may sound significant, but you likely already have the training—and then some. IAEM considers any training that has been completed within 10 years prior to submission. IAEM may consider granting credit for professional military education courses on a case-by-case basis to satisfy the required 100 classroom hours of general management training. The curriculum should indicate how the courses are substantially related to general management. IAEM may also allow credit for military courses, on a case-by-case basis, as to satisfy the required 100 classroom hours of emergency management training if you can provide an official catalog

***“We have earned competencies that can be used to take advantage of excellent employment opportunities in the private sector or to continue working in public service at the local, state, or federal level.”***

### Attributes of Emergency Managers:


- **Comprehensive.** Emergency managers consider all hazards, phases, stakeholders, and impacts relevant to disasters.
- **Progressive.** Emergency managers anticipate future disasters and take preventive and preparatory measures to build disaster-resistant and disaster-resilient communities.
- **Risk-driven.** Emergency managers use sound risk management principles (hazard identification, risk analysis, and impact analysis) in assigning priorities and resources.
- **Integrated.** Emergency managers ensure unity of effort among all levels of government and all elements of a community.
- **Collaborative.** Emergency managers create and sustain broad and sincere relationships among individuals and organizations to encourage trust, advocate a team atmosphere, build consensus, and facilitate communication.
- **Coordinated.** Emergency managers synchronize the activities of all relevant stakeholders to achieve a common purpose.
- **Flexible.** Emergency managers use creative and innovative approaches in solving disaster challenges.
- **Professional.** Emergency managers value a science- and knowledge-based approach based on education, training, experience, ethical practice, public stewardship, and continuous improvement.

description of the curriculum and a copy of your course certificate. IAEM uses a crosswalk that accounts for many different kinds of training and the equivalent number of hours that the courses represent.

To apply for the AEM certification, you must submit an essay that describes your knowledge, skills, and abilities in emergency management. In addition, you must provide a reference letter, on an official letterhead, signed by your current supervisor; contact information for two additional references; and—if you think it would be helpful for the application process—two additional signed letters of reference. I recommend that you write your supervisor's letter because your supervisor may not understand the field of emergency management. The final requirement for the successful AEM candidate is to pass a multiple-choice test. The test is a 100-question examination that includes core content questions about emergency management.

Requirements for the CEM designation include all of the requirements for the AEM designation plus requirements in three other broad categories. There is an educational requirement of a 4-year bachelor's degree (any subject). Next, there is a requirement of 3 years of experience in emergency management. It can be a challenge to translate Army jargon

into civilian terminology, but it is important to explain the contents of your military evaluations to someone without military experience. Using common terminology from the National Incident Management System helps immensely, and the letter from your supervisor can be used to validate the information. Mentioning awards to demonstrate experience may also be useful; but the applicant should be careful, as awards are also evidence of accomplishments, which can be used in another broad category. The 3 years of comprehensive experience must include participation in one of the following: a full-scale exercise; two functional exercises; or a response to an actual disaster or a major public event, such as a major sporting event, state visit, or special event. The experience must encompass all phases of emergency management (mitigation, preparedness/prevention, response, and recovery). Finally, obtaining the CEM designation also requires contributions to the profession. There are a number of ways to accomplish this requirement; but like training, the contributions must have occurred within the 10 years leading up to the application. For the most part, the contributions must be beyond the scope of the normal job requirements. IAEM requires six separate contributions from the following areas: professional organization membership, conference attendance (40 hours), service role (committee member, task force member, volunteer), leadership role (committee chair or task force leader), special assignment, speaking engagements (three separate engagements of at least 20 minutes each), teaching (3 hours of platform time), course development, professional publication, creation of audio-visual or interactive products, receipt of awards or special recognition, other professional certification related to emergency management (state level), or initiation of legislative contact regarding emergency management. Contributions can also be made from a category of "other," which allows great flexibility if the contribution can be justified. These may seem like unattainable requirements, but persistence and patience will ultimately pay off with a certification that is valuable in the emergency management community. In addition to the specified requirements, candidates must pay a fee and find a CEM mentor. There are programs that assist with the fee payment. For instance, the state of Utah offers veterans and Service members up to \$500 to help pay for certification. Finding a mentor for the process is not difficult; a list of possible mentors is available from IAEM.

The IAEM Uniform Services Certification Task Force is here to help you, whether you are still in uniform or not. Please visit the IAEM Web site at <[www.iaem.org](http://www.iaem.org)> for more information. 

### Endnote:

<sup>14</sup>"Principles of Emergency Management," IAEM Web site, <<https://www.iaem.com/documents/Principles-of-Emergency-Management-Flyer.pdf>>, accessed on 7 October 2019.

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*Colonel Crouse is the chief of staff of the 76th Operational Response Command and Task Force 76. He has been a CBRN officer for 26 years. He holds multiple masters degrees and is a CEM.*

# NBCRV Sensor Suite Upgrades

By Mr. Shawn D. Nesaw



A snowy, frigid February morning didn't stop leaders and stakeholders from turning out to view the highly anticipated Stryker Nuclear, Biological, and Chemical Reconnaissance Vehicle (NBCRV) Sensor Suite Upgrade Program demonstration at the Chemical Biological Center, U.S. Army Combat Capabilities Development Command (CCDC), Aberdeen Proving Ground, Maryland.

For many, the demonstration provided a first look at the brand new suite of chemical sensors deployed on the NBCRV. The sensor suite represents a huge leap forward in terms of capabilities not only for the vehicle but also for chemical, biological, radiological, and nuclear (CBRN) Soldiers tasked with operating and carrying out missions using the NBCRV.

"We're not writing about the future; we're not thinking about the future. We're building the future," Lieutenant Colonel Jeffrey Strauss, joint project manager for Nuclear, Biological, and Chemical Contamination Avoidance; Joint Program Executive Office for CBRN Defense, said during his opening remarks to the audience of more than 50 people.

## Upgrades With a Purpose

For years, Soldiers have used the Stryker—an eight-wheeled armored fighting vehicle and a true workhorse of the Army—to address CBRN threats on the battlefield. When modified with CBRN chemical detection sensors, the Stryker is known as the Stryker NBCRV.

CBRN Soldiers currently investigate potential CBRN threats at close range from slow-moving or completely stopped vehicles, sometimes directly exposing the vehicle to the threat in order to conduct sampling and often creating an easy target for the enemy. It was clear to many in the science and technology field of study; the chemical, biological, radiological, nuclear, and explosives (CBRNE) community; and the Army that there were opportunities for NBCRV modernization. "This capability is meant to operate outside the threat," said Mr. Scott Kimmel, U.S. Army CBRN School, "NBCRV has to operate with a cavalry squadron because the days of the NBCRV being left in the rear of the fight are over."

The team developing the sensor suite upgrade had three

main goals:

- To develop a stand-alone package allowing the sensor package to be placed anywhere.
- To allow for remote detection to increase Soldier safety.
- To provide a means of on-the-move detection.

With only 150 days to produce a working prototype, teams came together to design, develop, and build the sensor suite package prototype. The Chemical Biological Center leveraged the in-house rapid prototyping capability of its additive manufacturing facility to ensure timely delivery.



Photograph by Mr. Shawn Nesaw

The improved mobile chemical agent detector, which is part of the NBCRV sensor suite upgrade

## NBCRV Demonstration Highlights

The demonstration at the Chemical Biological Center additive manufacturing facility and test range site involved one NBCRV, one unmanned ground vehicle, and one Humvee. Sensor packages were mounted atop the NBCRV and unmanned ground vehicle. A sensor package was also loaded on a trailer towed behind a Humvee to illustrate the ability of the sensor package to be forward deployed in a variety of ways and on a variety of platforms.

As snow fell, visitors and sensor operators interacted with one another, asking questions and providing feedback

at a static display of technology. Following the static display event, the demonstration continued when the NBCRV and unmanned ground vehicle were sent to complete a field test. A nearby shelter offered a place for visitors to warm up and to observe, via monitors, two mock scenarios showcasing the new capabilities of the sensor package.

### A Collaborative Effort

The Stryker NBCRV marks a major milestone for the CBRNE community, not only in terms of the capability developed but also in terms of collaboration among so many organizations. “This has really been a tremendous effort to ensure we’re delivering the best capabilities to the warfighter,” Strauss said, “It’s been a team of teams, not a singular effort, to make this all come together.” “It’s taken a whole lot of folks to make this work,” added Mr. Douglas Bryce, executive officer of the Joint Program Executive Office for CBRN Defense, “Our requirements generator, our [science and technology] folks, our advanced development, and our testers all have to come together; and the success of the NBCRV is a great testament to everyone involved. This effort reinforces the importance of collaboration with our partners.”

### A Mentality Shift

Aside from illustrating what future warfighters may face in the field, the demonstration also revealed a shift in how the Army thinks about chemical and biological threat detection on the battlefield.

According to Mr. Peter Bryant, Chemical Biological Center project specialist, the goal of the sensor upgrades is to allow a transition from a modified Stryker to a Stryker with a sensor suite package. The mentality shift extends beyond how the technology is deployed. The center cannot develop capabilities to complete legacy missions; it must consider the future mission, stay out of the hazard, and allow maneuver commanders to make decisions through a better understanding of the CBRN environment.

“This is a first step toward realizing integrated early warning on the move,” said Mr. Daniel McCormick, Deputy Joint Program Executive Officer for Operations and Modernization at the Joint Program Executive Office for CBRN Defense. According to Mr. McCormick, the sensor suite upgrade gives commanders time and space to make decisions. “From last April at the Maneuver Support Sustainment Protection Integration Experiment at Fort Leonard Wood in Missouri to now, we’ve come a long way in short order. It’s absolutely amazing!” said Brigadier General Antonio Munera, “We’re all on the same sheet of music; we’re all headed in the right direction for the benefit of the warfighter. It’s the biggest technological leap forward I’ve seen in my 28 years in the Chemical Corps.”

### A Look Forward

The Army is headed toward the concept of an easily deployable sensor package for the NBCRV platform, but the overall setup and sensor package layout will inevitably go through further development and testing before final deci-




Photograph by Mr. Shawn D. Nesaw

**An NBCRV and an unmanned ground vehicle, outfitted with the new chemical detection sensor package, are positioned for the demonstration.**

sions are made on the design. “We’re developing a capability to reach the 21st century,” said Ron Hann, Ph.D., director of the Chemical and Biological Technologies Department, Defense Threat Reduction Agency. “There’s still work to do to improve the capability, but this is a solid step in the right direction,” he added.

Future upgrades to the sensor suite will include the addition of two new sensors to enable biological detection and assessment capabilities and modifications to the overall design to reduce the size, weight, and power needed.

According to sensor designer Bryant, the system is designed to be somewhat modular so that, depending on the needs of the mission, Soldiers can switch out certain sensor capabilities to ensure that the NBCRV is equipped with the right sensors and tools for the mission. “As we look to integrate [chemical/biological] defense, it’s examples like this that highlight the progress we’re making,” said Eric L. Moore, Ph.D., director of the Chemical Biological Center. “This rapid prototyping approach, along with working closely with the maneuver community, is the crux of our mission moving forward,” he added.

For more information about the Chemical Biological Center, visit <https://www.ecbc.army.mil/>. 

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*Mr. Nesaw is a communication specialist contractor supporting the Public Affairs Office, Chemical Biological Center, with story development, photography, and social media strategy and implementation.*

# 2019 Honorees of the U.S. Army Chemical Corps

Compiled by Ms. Christy L. Lindberg

## Hall of Fame Inductees

The U.S. Army Chemical Corps Hall of Fame award is the highest form of recognition offered by the Regiment. This coveted award honors those who have made landmark contributions to the overall history and traditions of the Chemical Corps. These individuals have distinguished themselves through advances in science and technology, a lifetime of service and devotion to the Corps, or gallantry in battle. Two individuals were inducted into the Hall of Fame on 27 June 2019.

### Lieutenant General Thomas W. Spoehr (Retired)

Lieutenant General Thomas W. Spoehr (Retired) began his military service in 1980, selflessly serving at every grade from second lieutenant to lieutenant general, culminating with his retirement in August 2016. Early military service included operational assignments in which he ensured that Army and joint forces were proficient in countering weapons of mass destruction, including chemical, biological, radiological, and nuclear (CBRN) weapons. As one of the Army's foremost uniformed experts in this area, Spoehr served as the Commandant of the U.S. Army Chemical, Biological, Radiological, and Nuclear School (USACBRNS), with responsibility for CBRN policy, training, and strategy. In the wake of a 2015 incident involving the shipment of live anthrax spores by Department of Defense (DOD) laboratories, he was asked by the Secretary of the Army to lead a task force which led to the 2016 approval of a comprehensive regime of corrective actions to prevent future incidents.



Spoehr also served in senior leadership positions at the Pentagon. He was responsible for charting the Army's future financial plans, developing equipment modernization strategies, and achieving business efficiencies and reform. His passion was to ensure that every dollar provided to the U.S. military was directly applied to improving readiness and was not wasted. Spoehr's analysis and recommendations have been used by the Secretary of the Army and other senior leaders to reduce or eliminate military headquarters, reduce budgets, and streamline lengthy bureaucratic processes—ultimately saving millions of taxpayer dollars. He has published articles describing methods to make the military more efficient and effective, and he is widely requested to speak on these topics.

Spoehr's operational experiences include service with combat units including the 82d Airborne Division and the 1st Armored Division. He participated in Operation Urgent Fury (the invasion of Grenada); and in 2011 during Operation New Dawn, he served as the Deputy Commanding General, U.S. Forces Iraq, where he successfully oversaw the safe withdrawal of all U.S. forces and equipment from Iraq (ahead of the scheduled timeline) in one of the most complex and logistically intensive operations ever attempted by the U.S. military.

Lieutenant General Spoehr (Retired) currently serves as the director of the Heritage Foundation's Center for National Defense, where he is responsible for supervising research on matters involving U.S. national defense. He remains an expert on national defense policy and strategy and has testified before the U.S. Congress on defense strategy, budgets, and equipment modernization. Spoehr's articles and commentary have been widely published in civilian and military media, and he is often called upon to provide expert commentary and analysis.

Spoehr earned a bachelor's degree in biology from the College of William and Mary, Williamsburg, Virginia, and master's of arts degrees in public administration from Webster University and strategic studies from the U.S. Army War College, Carlisle Barracks, Pennsylvania.

His awards include the Distinguished Service Medal, the Defense Superior Service Medal, the Legion of Merit (with two oak-leaf clusters), and the Defense Meritorious Service Medal.

### Command Sergeant Major Patrick Z. Alston (Retired)

Command Sergeant Major Patrick Z. Alston began his Army career as a medical specialist, enlisting at Fort Dix, New Jersey, and completing advanced individual training at Fort Sam Houston, Texas. In 1984, Alston reclassified into the U.S. Army Chemical Corps and attended the nuclear, biological, and chemical specialist/noncommissioned officer (NCO) transition course. Key positions that he held include drill sergeant; NCO in charge of the CBRN detachment for the White House under the President William Clinton administration; lead instructor for the Contingency On-Site Inspection Training Department, USACBRNS;



branch manager at the U.S. Army Human Resource Command; and acting command sergeant major for a technical escort unit in Edgewood, Maryland.

When he was promoted to the rank of sergeant major, Alston was assigned to the 23d Chemical Battalion in the Republic of Korea. At that location and time, his unit was the most forward-deployed chemical battalion in the Regiment. He went on to serve as the command sergeant major for the 23d Support Command before he was selected to become the Chemical Corps 10th Regimental Command Sergeant Major. As the Regimental Command Sergeant Major, Alston served the Regiment for 4 years under two commandants. During this time, he was responsible for the development of all CBRN Soldiers throughout the Regiment, a force strength of more than 25,000. He also started programs like the Best CBRN Warrior NCO/Soldier competition, provided guidance and input for the establishment of the Chemical Regiment Warrant Officer Program, and established programs throughout the Regiment to honor fallen Dragon warriors.

Command Sergeant Major Alston then went on to serve as the Defense Threat Reduction Agency senior enlisted leader. During his tenure there, he was responsible for advising the commander on the health, welfare, training, and readiness of the military personnel and DOD civilians whose missions included preparing for and combating weapons of mass destruction and improvised threats and ensuring nuclear deterrence.

Command Sergeant Major Alston's last duty assignment was as the senior enlisted leader for the U.S. Strategic Command, Offutt Air Force Base, Nebraska—one of the nine combatant commands within DOD. There, he advised the commander of U.S. Strategic Command, which is responsible for the global command and control of U.S. strategic forces to meet decisive national security objectives. Command Sergeant Major Alston, who was the first CBRN sergeant major ever to be selected to serve at the four-star level command, served in that capacity for more than 5 years. At that time, he was the longest-serving combatant command senior enlisted leader, serving under two commanders—a U.S. Air Force general and a U.S. Navy admiral.

Alston's awards and decorations include the Defense Superior Service Medal, the Legion of Merit (two oak-leaf clusters), the Defense Meritorious Service Medal, and the Meritorious Service Medal. In addition to his nearly 34 years of military service to our Nation and the Chemical Corps, Command Sergeant Major Alston (Retired) continues to serve our Nation as a civilian, functioning as the only DOD senior enlisted fellow for the National Defense University. In this role, he provides general and flag officers with mentorship and guidance concerning the roles and responsibilities of their senior enlisted leaders throughout different levels in DOD.

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## Distinguished Members of the Corps Inductees

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The award of the Distinguished Member of the Chemical Corps title signifies that an individual has not only contributed a lifetime of service in the Corps, but also supported the Chief of Chemical in implementing the Corps vision. Three individuals were inducted into the 2019 Distinguished Members of the Chemical Corps on 27 June 2019.

### Colonel Armando “Mandy” Lopez (Retired)

Colonel Armando “Mandy” Lopez (Retired) has devoted a lifetime of dedicated and continuous service to the Chemical Regiment. He served on active duty, with distinction at all levels, for more than 25 years and then served the Regiment for 12 more years as a leader in the CBRN defense industry. Today, he continues his service, volunteering in support of the Regiment and Dragon Soldiers.

As the director of the CBRN Directorate, Pentagon Force Protection Agency, Colonel Lopez was instrumental in establishing CBRN defenses for the Pentagon following the terrorist attack on 11 September 2001. As the first director of the CBRN Directorate, Lopez developed, implemented, and executed the acquisition and operational strategies of the DOD chemical, biological, radiological, nuclear, and explosives (CBRNE) preparedness program for the entire Pentagon Reservation Complex and all DOD-leased facilities in the National Capital Region. He created and managed a program with a budget of more than \$220 million (and a 5-year life cycle) that still provides world-class protection against CBRNE threats to more than 50,000 military, DOD civilians, and contractor personnel. He also created and was responsible for the daily execution of the CBRN defense program that included CBRNE surveillance and protection of the Secretary of Defense, the Deputy Secretary of Defense, and the Chairman and Vice Chairman of the Joint Chiefs of Staff. His tireless dedication to this program set the standard for protecting U.S. military installations from CBRN threats and attacks.



Colonel Lopez also served as the commander of the U.S. Army Radford Ammunition Plant, which is a unique, 7,000-acre propellant manufacturing facility with more than 2,500 buildings and a replacement value of \$2.1 billion. There, Colonel Lopez administered a \$114.5 million annual government contract, under which facility contractors produced ammunition propellant for all DOD armed forces. The plant provided DOD with the replacement capacity of 85 million pounds of propellant and explosives per year and oversaw the production of more than 2 million pounds of tank, missile, and rocket propellant for worldwide customers each month. As the senior military leader of this highly complex and critical national asset, Colonel Lopez led more than 1,200 DOD military, civilian, and contracted workers.

Although Colonel Lopez retired from active duty, he continues to serve our Regiment as a civilian leader in the CBRN defense industry and as a role model for volunteer service to the Chemical Corps. As a leader in industry, Lopez's work at Tex-Shield™ has

directly benefited Dragon Soldiers and DOD in general through the development of state-of-the-art individual protection capabilities and delivery to the joint force. His expertise and unique skill set as a Dragon leader have been instrumental in informing leaders and overseeing the development and manufacture of vital protective equipment and items. Colonel Lopez's influence in the CBRN defense industry is exemplified by his voluntary leadership in two important industry associations—the National Defense Industry Association, where he leads the CBRN Defense Division, and the nonprofit nuclear, biological, and chemical industry group, where he served as a board member and as the chairman. He has been the primary driver in the planning and execution of the National Defense Industry Association's annual CBRN Defense Symposium, which brings together military, civilian, industry, and academia personnel to examine challenging CBRN defense problems and solutions each year.

Colonel Lopez's enduring contributions to the Chemical Corps are best demonstrated by his role in the Lieutenant General Thomas W. Spoehr Chapter of the Chemical Corps Regimental Association. He led the founding of this chapter (originally, the National Capital Region Chapter) in 2007 and became its first president. Since its inception, the chapter has raised more than \$75,000 for charities focused on veterans, active duty Soldiers and Families, and the Chemical Corps Regimental Association. In 2012, the National Chemical Corps Regimental Association awarded Lopez the Volunteer of the Year award for his direct role in establishing a relief fund (totaling more than \$18,000) for the Soldiers and Families of the Fort Leonard Wood, Missouri, area impacted by a devastating tornado.

Lopez holds a bachelor of science degree in biology from Stetson University, DeLand, Florida; a master's degree of administration in management and procurement from Webster University; and a master of science degree in national security and strategic studies from the National War College, National Defense University, Washington, D. C.

Colonel Lopez's awards include the Defense Superior Service Medal, the Defense Meritorious Service Medal, and the Army Meritorious Service Medal (five oak-leaf clusters).

### Colonel Robert Walk (Retired)



Colonel Robert Walk (Retired) comes from a patriotic family with a long tradition of honorable military service. After receiving a degree in chemical engineering from the University of New Hampshire–Durham, Colonel Walk served for 11 years in the Regular Army, where he met his wife Lieutenant Colonel Angela S. Walk (Retired). While on active duty, Colonel Walk served as the commander of the 184th Chemical Detachment and, later, as the Headquarters Company, 59th Ordnance Brigade, commander. Throughout his career, he served in various staff positions and, for 3 years, was responsible for training Chemical Corps units in the U.S. Army Reserve. Separating from the Regular Army during the drawdown in 1993, he continued to serve in the U.S. Army Reserve.

As a traditional Reserve officer, Colonel Walk served in staff positions and commanded an Army Reserve drill sergeant battalion. He was provided an opportunity to continue to work as a chemical officer and was ordered back to active duty to work in the Army Reserve Homeland Security Office as the lead trainer in the Nunn-Lugar-Dominici Domestic Preparedness Program, which provided select city first responders with training in dealing with the consequences of the terroristic use of weapons of mass destruction. Colonel Walk's voice was one of several that, in the 1990s, advocated the need to modify the Chemical Corps mission to include homeland defense. In 1998, Walk transitioned to Active Guard Reserve status. For the next 4 years, he helped develop consequence management doctrine and training for Army National Guard and Army Reserve forces and advocated for them to the Regular Army. After attending the Army War College, he served as an Army Assistant Chief of Staff for Resource Management (G-8) staff officer, leading the efforts in homeland security operations. While assigned as the senior Reserve officer at USACBRNS, he represented the Chemical Corps Branch in international meetings with French, Canadian, and German leaders; mentored young Soldiers and officers attending the school; and led the USACBRNS Homeland Security Office. His final position before retiring in May 2012 was a joint position as the chief of staff of the U.S. Strategic Commonad Center for Combating Weapons of Mass Destruction, Fort Belvoir, Virginia.

Colonel Walk's personal interest in Chemical Corps history and the collection of protective masks and other CBRN equipment has greatly benefited the Army Chemical Corps and the Army Center of Military History. In 1986, Colonel Walk began donating items to the Chemical Corps Museum, John B. Mahaffey Museum Complex, for the sole purpose of improving its material culture research collection. One of these donations, a production "Mickey Mouse" civilian gas mask from 1942, is the only one of its type in the collection. In addition to the 46 items that have been cataloged, he has donated countless other items, books, documents, and photographs to the Chemical Corps Museum. The only other Chemical Corps Soldier who has donated as many items or provided as much assistance to the museum over the past 4 decades has been Chemical Corps Hall of Fame inductee Command Sergeant Major George F. Murray (Retired). Colonel Walk has donated his time to personally survey the museum's protective-mask collection; his knowledge of mask types and variants has led to the correction of many previously incomplete or erroneous records. He has encouraged his fellow collectors to make similar donations of needed objects to the museum. He has also published many articles, and those dealing with protective masks and filters have become standard reference guides for the identification and cataloging of museum artifacts.

Since his retirement, Colonel Walk continues to provide the museum with the results of the Chemical Corps history research that he conducts at the National Archives Research Center, Washington, D.C. He has worked diligently with Staff Sergeant (Retired) and former Chemical Corps Hall of Fame inductee Dr. John Thiel to research and rebuild the organizational histories of the Chemical Corps units that served in Vietnam. He is always available to answer any research questions, and his expertise is a valued asset to the Chemical Corps Museum.

Colonel Walk holds a bachelor of science degree in chemical engineering from the University of New Hampshire, Durham; a master of business administration degree from Long Island University, Brookville, New York; and a master of science degree in civil engineering from the University of Oklahoma, Norman, Oklahoma.

Colonel Walk's awards include the Legion of Merit, the Meritorious Service Medal (6th award), and the Army Commendation Medal (two oak-leaf clusters).

### Command Sergeant Major Ted Lopez (Retired)

Command Sergeant Major Ted Lopez (Retired) has represented our Regiment for more than 35 years. He retired from active duty in June 2012, after serving as the 11th Regimental Command Sergeant Major. His first assignment as a command sergeant major was with the 23d Chemical Battalion in Korea. Command Sergeant Major Lopez then went on to serve at the O-6 level on two separate occasions—first as a staff sergeant major and later as the command sergeant major for the 2d Infantry Division in Korea. After serving in Korea, Lopez then became the 1st Maneuver Enhancement Brigade Command Sergeant Major at Fort Polk, Louisiana. During his time as the brigade command sergeant major, he demonstrated selfless service by deploying to Iraq with a subordinate engineer battalion when the command sergeant major for that unit was unable to deploy at the last minute.



Command Sergeant Major Lopez was selected to serve as the 11th Regimental Command Sergeant Major from 2008 to 2012. As the Regimental Command Sergeant Major, he served the Regiment for 4 years and during two different commandant regimes. During this time, he was responsible for the development of CBRN Soldiers in both components throughout the Regiment. He was responsible for the integration of CBRN NCOs into the Special Operations Command (including the Ranger Regiment), he oversaw the establishment of the One Army School System for the Maneuver Support Center of Excellence NCO Academy, and he provided valuable input and guidance regarding the establishment of the Regiment's Hazardous Operations Program.

After retirement, Command Sergeant Major Lopez went to work for the Department of the Army in a civilian capacity. He currently serves as the garrison mayor in Kandahar, Afghanistan. Also as a civilian, Lopez served as a division chief within Army North; in this role, he served as an observer controller/trainer, supervising more than 30 Department of the Army civilians in support of homeland defense operations. He was directly responsible for the development and execution of training and readiness evaluations for six battalion task forces accounting for more than 5,000 forces in support of the CBRN response force. Lopez was also responsible for training readiness oversight for state National Guard weapons of mass destruction–civil support teams and National Guard CBRNE enhanced response force packages within Army North.

Command Sergeant Major Lopez also served as the team chief of Command and Control CBRN Response Elements A and B and the consequence management of all CBRN, urban search and rescue, medical, and Reserve Component technical support forces in the CBRN response force. As the team chief, Lopez supervised 10 subject matter experts in the CBRN, security, search and extraction, and medical arenas and handled the command and control of brigade and battalion elements. He developed and executed the training and readiness evaluations and oversight for Active Component, Reserve Component, and state National Guard technical support forces in support of the CBRNE enterprise located in the Army North region. Lopez supervised and synchronized all activities for a team of observer controller/trainers that provided training and assessments to joint, Regular Army, and Reserve Component units performing domestic CBRNE consequence management response missions (CBRNE response enterprise) in support of local, state, tribal and/or federal leaders.

Aside from his previously mentioned contributions to the Chemical Regiment, Command Sergeant Major Lopez (Retired) and his wife, Tanya, also spend many hours of their free time volunteering in the San Antonio, Texas, area. They focus their volunteer efforts on organizations that support warriors and veterans such as the United Service Organization, the Wounded Warrior Fund, the Brooke Army Medical Facility, and the Chemical Corps Regimental Association.

Lopez's awards include the Legion of Merit, the Bronze Star Medal, the Meritorious Service Medal (with silver oak-leaf and bronze oak-leaf clusters), and the Army Commendation Medal (with silver oak-leaf and bronze oak-leaf clusters).

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*Ms. Lindberg is the regimental historian at USACBRNS, Fort Leonard Wood, Missouri.*

## 2020 Nominations for Hall of Fame and Distinguished Members of the Corps

This award is extended to chemical, biological, radiological and nuclear personnel (living or deceased) who spent their professional careers serving the Chemical Corps in an exceptional manner or who performed a significant act of heroism. Nominations are open to military and Department of Defense civilian personnel who have been retired from active federal service for at least 2 years. Their service to the Corps must have been extraordinary.

Nominations packets should be sent to—Commandant, USACBRNS, ATTN: ATSN-CM-H (Regimental Historian), 401 MSCoE Loop, Suite 1041, Fort Leonard Wood, MO 65473-8926

All packets must arrive on or before 28 February 2020. For more information, see the Chemical Corps Regimental Association Web site at <<http://www.ccrassn.org>>, call 573-563-7339, or e-mail <[christy.l.lindberg.civ@mail.mil](mailto:christy.l.lindberg.civ@mail.mil)>.

# Operations Lessons Learned and Best Practices

*By Master Sergeant Russell E. Gehrlein (Retired)*

**T**hroughout my career, many leaders have told me that the operations staff section is the heartbeat of an organization. I concur with that assessment.

I worked in the field of military operations from company to corps levels for 13 of my 20 years on active duty. And since March 2008, I have been employed as a Department of the Army (DA) civilian, working as an operations staff officer for the U.S. Army Chemical, Biological, Radiological, and Nuclear School (USACBRNS). During this time, I have served under eight commandants, six regimental command sergeants major, seven assistant commandants, three regimental chief warrant officers, and eleven chiefs of staff.

As a DA civilian, I have used my experience to take care of USACBRNS leaders and Dragon Soldiers around the world—all of whom are contributing to the defense of this Nation. In jest, I often claim that we sometimes support and defend the Constitution of the United States one PowerPoint® slide at a time. In all honesty, though, I consider it a true privilege to serve with USACBRNS every day. Perhaps it is time to share some operations lessons learned and best practices so that officers, noncommissioned officers (NCOs), and civilians who work at any level in the operations field can become more effective.

## Operations Standards and Questions

Let me begin by setting the bar for standards high. Because the operations section has high visibility, a fast-paced operational tempo, and high expectations from leaders, subordinate units, and customers, the operations section must establish some standards. Fairly early during my time as a USACBRNS operations officer, I developed a solid list of nonnegotiable standards by which all subordinates under my command—officers, noncommissioned officers, junior enlisted Soldiers, and civilians—would abide daily.

### Top 10 Standards

1. Exhibit all seven of the Army Values every day.
2. Always display a positive, professional, can-do attitude (in person, and on the telephone).
3. Strive for excellence in everything that you do (customer service, production, ceremony planning), which will maintain our excellent reputation.
4. Perform quick turn-arounds of all requests (within 24 hours).
5. Always ask yourself, “Who else needs to know?”
6. Handle things at the lowest level possible.
7. Know where to get help, and know who your counterparts are up, down, and around.
8. Watch your lane, but be aware of all other operations missions supported by the organization.
9. If you are less busy than the team member next to you, ask what you can do to help.
10. Always remember that whatever you do here contributes to taking care of chemical, biological, radiological, and nuclear (CBRN) leaders/Soldiers/units, the Army, and the defense of the Nation.

I also developed a list of top 10 useful questions that my team uses to work professionally and effectively. These are questions that we need to ask either ourselves or our customers (if they need assistance).

### Top 10 Useful Questions

1. “Who else needs to know?”
2. “How can I help you?”
3. “When do you need this to be complete?”

4. "What can I do to improve this next time?"
5. "What needs to be done right now?"
6. "What has been neglected lately?"
7. "What can I do to fix this?"
8. "How did I contribute to the defense of the Nation today?"
9. "How did I take care of Soldiers today?"
10. "When I leave here, what will be my legacy?"

Along with the top 10 standards, these questions are posted in everyone's workspace/cubicle.

### Team Building

Now, for the "meat and potatoes" of best practices. First, I will paint a picture of the organization of the USACBRNS Operations Section. Next, I will introduce the combinatorial theory, which I learned while earning a mathematics degree and which easily applies to team building in military organizations. Lastly, I will share what I have learned regarding the concept of 360-degree mentoring.

#### *The USACBRNS Operations Section*

I have been successful in this position only because of the great work of the professional officers, NCOs, junior enlisted Soldiers, DA civilians, contractors, and temporary augmentees who have been part of our operations team. I have excelled in the areas of adaptation and talent management. As personnel have come and gone and team membership has changed, mission success has been due to the constant fine tuning of efforts and adaptation.

We are authorized only one staff sergeant, one sergeant first class, one DA civilian security manager, and one civilian operations officer (my position), who work directly for the chief of staff. Enlisted personnel who have worked in the section have normally been assigned for a year or two—and some even less than 1 year. They have been the backbone of the section and have made the daily operations mission successful. Numerous lieutenants and captains have also worked in the section on a limited basis (as temporary augmentees) in unauthorized slots. These assistant operations officers have performed an amazing amount of work; we could not have accomplished the missions without their help. Their expertise has been used to create operations orders, update slides, write ceremony scripts, and carry out a host of other projects.

#### *Combinatorial Theory Applications*

Here, this article gets a little interesting; let me toss in a little mathematics. This will be helpful—believe me.

A minimum of four personnel have historically worked in the section. (There have been long periods of time with no augmentees). With only a four-person section, how many distinct relationships do you think there were within the section? Well, this can be calculated using a relatively simple mathematical formula:  $n \times (n - 1) / 2$ . To illustrate, if we take the four personnel ( $n = 4$ ), multiply that number by

three ( $n - 1 = 3$ ) (representing the three other personnel with which everyone needed to work), and divide that number by two (since you don't need to count personnel twice, as my relationship with you is the same as yours with me), we determine that there were six relationships. Every one of those relationships was important.

What if we were to add two new lieutenants to the mix? (I would be grateful for the help!) Now we would have six personnel on the team. How many relationships would we have? Using the formula,  $(6 \times 5 / 2)$ , we determine that we would have 15 relationships! So, adding just two more individuals to the team actually requires that the supervisor maintain nine additional relationships. (Each of the two additional personnel must relate to the previous four and also to each other.)

These calculations have some implications. It is clear that everyone must relate to each other—not just to the boss. Where there are more people, there is more potential for conflict. With so many relationships to maintain, we must all work hard to communicate positively with our coworkers and resolve conflicts at the lowest level possible.

Of course, our strength lies in our diversity. We serve alongside personnel of diverse races, ethnicities, cultures, genders, ages, military components, and military and/or civilian ranks. Good Army operations planners also coordinate with the other Services—the Marines, Navy, and Air Force. The operations section must set the example for the rest of USACBRNS; we strive to do the right thing based on the Army values.

#### *360-Degree Mentoring*

In terms of building a team, maintaining positive working relationships between team members is absolutely essential. However, there is an individual aspect of team-building that is equally important—process mentoring.

As leaders, we are taught to mentor those who are subordinate to us, make on-the-spot corrections, and develop character. Those things are all very important. However, I wonder if very busy leaders are doing them on a consistent basis. And who is mentoring those above us? I have observed that we cannot assume that someone is looking out for our boss—or our boss's boss—and helping him or her develop as a leader.

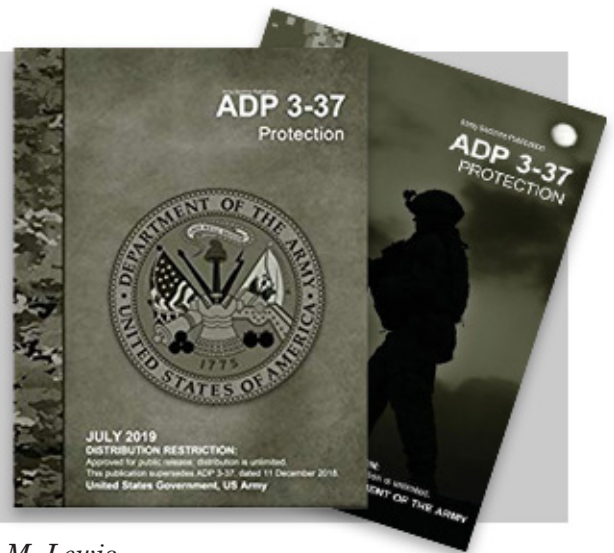
Over the years, I have developed a slightly unique approach to 360-degree mentoring—an approach in which everyone on the team consistently cares for everyone else and makes an effort to help develop those below us, above us, and right next to us. The goal is to improve the entire team. If we mentor our bosses, they can better mentor us. If our teammates mentor us, then we can take better care of them. Everyone benefits. Ask yourself how you can care for and develop your superior and who else around you also needs your mentorship.

#### **Collaboration with Counterparts**

We have discussed the process of building our team from within. But how do we relate to our counterparts from

*(Continued on page 45)*

# Revised ADP 3-37, *Protection*



By Lieutenant Colonel Roger M. Lewis

The revised version of Army Doctrine Publication (ADP) 3-37, *Protection*, is a consolidation of the previous version of ADP 3-37 and Army Doctrine Reference Publication (ADRP) 3-37, *Protection*, which was published in August 2012.<sup>1,2</sup> The updated ADP 3-37 focuses on expanding the concept of protection as a warfighting function and as an enduring activity of the operations process. Protection is described as the preservation of the effectiveness and survivability of mission-related military and non-military personnel, equipment, facilities, information, and infrastructure deployed or located within or outside the boundaries of a given operational area.<sup>3</sup> It is the protection warfighting function that establishes specific systems and tasks that must be synchronized and integrated throughout the operations process in order to preserve a commander's combat power.

There are eight elements of combat power: leadership, information, mission command, movement and maneuver, intelligence, fires, sustainment, and protection. The Army collectively describes the last six of these elements as the Army warfighting functions. A warfighting function is a group of tasks and systems (people, organizations, information, and processes) that are united by a common purpose and used by commanders to accomplish missions and training objectives. ADP 3-0, *Operations*, published in July 2019, defines the protection warfighting function, establishes the primary protection tasks, and addresses the challenges of today's operational environment.<sup>4</sup> Field Manual (FM) 3-0, *Operations*, which augments ADP 3-0, describes how the Army, as part of a larger joint force, provides strategic support to shape the operational environment, prevent conflict, and conduct large-scale ground combat operations and how it consolidates gains against peer and near-peer threats.<sup>5</sup>

The primary focus of the revision of ADP 3-37 was on aligning the coherent vision of warfare with ADP 3-0 and FM 3-0. ADP 3-37 specifically focuses on protection support to large-scale ground combat, while simultaneously supporting other types of operations around the world to prevent peer and near-peer adversaries from gaining positions of relative advantage. ADP 3-37 reinforces the concept that protection is not linear; planning, preparing, executing, and

assessing protection are continuous and enduring processes. The revised publication describes how protection is a significant contributor to the operational reach and explains the importance of endurance and momentum. Protection also contributes to the commander's ability to extend operations in time and space. ADP 3-37 discusses how synchronizing, integrating, and organizing protection capabilities and resources throughout the operations process preserves combat power and mitigates the effects of threats and hazards.

ADP 3-37 emphasizes the importance of planning and expanding protection priorities, to include protecting mission partners, civilian populations, equipment, resources, infrastructure, and cultural landmarks across the range of military operations. Chemical, biological, radiological, and nuclear (CBRN) defense measures are critical in protecting the force, preserving combat power, enabling freedom of action, and preventing or mitigating the effects of CBRN threats and hazards. Peer threats will employ CBRN threats and hazards in the operational environment during large-scale combat operations to gain positions of advantage against the United States and its allies. These threats and hazards will arrive in the form of weapons of mass destruction, improvised weapons and devices, and toxic industrial chemicals. Key CBRN forces activities that relate directly to the function of protecting against CBRN threats and hazards include understanding the environment, collecting CBRN information through reconnaissance and surveillance, conducting CBRN defense, establishing CBRN response efforts, and coordinating with all support partners. Conducting CBRN operations is a primary protection task. CBRN Soldiers execute this task through the entire range of CBRN threats and hazards. They support the countering of weapons of mass destruction with their ability to—

- Assess.
- Protect.
- Mitigate.

CBRN forces also play a major role in protection cells and working groups. The senior CBRN officer on a commander's staff at echelons of battalion and above normally serves as the principal advisor to the commander on all matters relating to CBRN threats and vulnerabilities.

The significant changes and additions in the revised version of ADP 3-37 include—

- Information explaining that the execution of protection is continuous and must occur throughout all operations in order to—
  - Shape.
  - Prevent.
  - Conduct large-scale ground combat.
  - Consolidate gains.
- A protection prioritization list, which is a key protection product that contains a ranking of protection priorities and is developed during initial assessments of criticality, vulnerability, and threat probability. The list is continuously assessed and revised throughout each transition of operation.
- Identification of four additional consideration protection tasks—area and local security activities, operations security, cyberspace operations, and electronic warfare operations—that support the primary protection task.
- Discussion about how commanders develop protection strategies and priorities for each phase or transition of an operation.

The prioritization of protection assets is situationally dependent and based on available resources. The goal of protection capabilities integration is to balance protection with freedom of action throughout the duration of military operations to enable commanders to apply maximum combat power to accomplish the mission. This is achieved by the integration of reinforcing or complementary protection capabilities to mitigate or assume risk for identified and prioritized vulnerabilities. The collaboration, integration, and synchronization between the warfighting function capabilities/tasks assist in identifying threats and hazards and mitigating the effects. Not all assets listed on the protection prioritization list receive continuous protection. Some critical assets receive protection assets based only on available resources. Commanders, with staff support, determine and direct protection priorities.

#### Endnotes:

<sup>1</sup>ADP 3-37, *Protection*, 31 July 2019.

<sup>2</sup>ADRP 3-37, *Protection*, 31 August 2012, (rescinded).

<sup>3</sup>ADP 3-37.

<sup>4</sup>ADP 3-0, *Operations*, 31 July 2019.

<sup>5</sup>FM 3-0, *Operations*, 6 October 2017.



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Lieutenant Colonel Lewis is the chief of CBRN Doctrine, G-3/Directorate of Training and Doctrine, Maneuver Support Center of Excellence, Fort Leonard Wood, Missouri. He holds a bachelor's degree in legal studies and a master's degree in intelligence operations with a concentration in terrorism studies.

(“Operations Lessons Learned . . .,” continued from page 43)


outside organizations? At every level at which I have served, I have found that these relationships also need to be maintained in order to be a successful operations leader.

Who are your counterparts? They are people who serve the same function as you do but within a different organization. They can be at the same rank or pay grade (on your right or left), or they can be at a higher or lower rank or pay grade (above or below you). Let me offer a few examples.

At USACBRNS, we have a taskings NCO who has counterparts on the right and left in the U.S. Army Engineer School and the U.S. Army Military Police School. Furthermore, our USACBRNS operations NCO has counterparts above and below at the Maneuver Support Center of Excellence level and at the brigade level. Another example is the battalion operations NCO, who has right and left counterparts within the other battalions in the brigade as well as counterparts on the brigade staff (above) and subordinate companies (below).

I pose this question: “What interaction do we have with our counterparts?” I have learned that we—

- Coordinate and share information with counterparts on our right and left.
- Coordinate and receive guidance from counterparts above.
- Coordinate and mentor counterparts below.
- Handle things at the lowest level (using operations channels versus command channels).
- Strive for an end state of the establishment and maintenance of trust and a good reputation with all counterparts.

As I have served in various levels of operations staff positions as a uniformed Service member and a DA civilian, I have learned a great deal. I am hoping that the insights I have shared will be helpful and that they will enable hard-working operations team members to more successfully complete seemingly unending and thankless jobs. Know this: Your work truly matters! 

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Master Sergeant Gehrlein (Retired) is the operations officer for USACBRNS. He holds a bachelor of science degree in mathematics from Colorado State University, Fort Collins, and a master of arts degree in Biblical Studies from Grand Rapids Theological Seminary, Grand Rapids, Michigan. During his 32 years of federal service, he served more than 20 years of active duty in a variety of staff and leadership positions within the Chemical Corps and has served nearly 12 years as a DA civilian.

## USACBRNS CATS Update

The table below lists the combined arms training strategies (CATSs) for which the Collective Training Division, Directorate of Training and Leader Development, U.S. Army Chemical, Biological, Radiological, and Nuclear School (USACBRNS) is responsible.

Unit Title	TOE/TDA Number	Date Published to DTMS
CBRNE Command	37800K000	20 June 2019
HHC, CBRNE Command	37801K000	13 June 2019
Nuclear Disablement Team	37611KA00	21 June 2019
WMD Coordination Team	37621KA00	21 June 2019
CBRN Brigade	03492R0FF	28 March 2019
CBRN Brigade	03492K0FF	29 March 2019
HHC, CBRN Brigade	03492R000	21 March 2019
HHC, CBRN Brigade	03492K000	29 March 2019
HHC, CBRN Battalion	03396K000	28 March 2019
CBRN Company (Area Support)	03420R300	21 May 2019
CBRN Company (Area Support)	03413K000	21 May 2019
CBRN Company (Biological)	03470R000	4 June 2019
CBRN Company (Biological)	03423K000	3 June 2019
CBRN Company (Hazard Response)	03310R000	17 May 2019
CBRN Company (Hazard Response)	03313K000	17 May 2019
CBRN Coordination Detachment	03579RA00	2 April 2019
CBRN Coordination Detachment	03453K000	2 April 2019
CBRN Reconnaissance Detachment (SF)	03520R000	5 June 2019
CBRN Reconnaissance Detachment (SF)	03817K000	5 June 2019
CBRNE Company	03323K000	29 May 2019
<p><b>Legend:</b></p> <p>CBRN—chemical, biological, radiological, and nuclear</p> <p>CBRNE—chemical, biological, radiological, nuclear, and explosives</p> <p>DTMS—Digital Training Management System</p> <p>HHC—headquarters and headquarters company</p> <p>SF—special forces</p> <p>TDA—table of distribution and allowances</p> <p>TOE—table of organization and equipment</p> <p>WMD—weapons of mass destruction</p> <p><b>Note:</b> CATSs are reviewed and updated on an annual basis to ensure that they include unit input and remain current.</p>		

# DOCTRINE UPDATE

U.S. Army Maneuver Support Center of Excellence G-3/Directorate of Training and Doctrine			
Number	Title	Date	Status
<b>Joint Publications</b>			
The U.S. Army Chemical, Biological, Radiological, and Nuclear School (USACBRNS) is not the proponent for joint publications (JPs). However, the Chemical, Biological, Radiological, and Nuclear (CBRN) Doctrine Branch; Doctrine Division; G-3/Directorate of Training and Doctrine; U.S. Army Maneuver Support Center of Excellence, Fort Leonard Wood, Missouri, is often a key stakeholder and sometimes the lead agent for a JP. Five JPs affect the development or revision of tactical-level CBRN publications.			
JP 3-11	<i>Operations in Chemical, Biological, Radiological, and Nuclear (CBRN) Environments</i>	29 Oct 18	Current.
JP 3-11 focuses on maintaining the joint force ability to conduct the range of military operations in a CBRN environment. JP 3-11 synchronizes and updates language with JP 3-40 and JP 3-41; recognizes the proponent change for global countering weapons of mass destruction (WMD) to the U.S. Special Operations Command; and updates, revises, or deletes definitions and discussions to synchronize with other doctrinal updates.			
JP 3-27	<i>Homeland Defense</i>	10 Apr 18	Current.
JP 3-27 discusses fundamentals of homeland defense (HD), to include threats; policy and legal considerations; active, layered defense; and the HD operational framework. It describes command relationships and interorganizational cooperation in HD. It outlines strategic guidance, operational factors, intelligence sharing, and joint functions considerations for planning and operations for HD. Finally, JP 3-27 updates the relationships between Homeland security, HD, and defense support of civil authorities (DSCA) reflected by the new National Defense Authorization Act for Fiscal Year 2017.			
JP 3-28	<i>Civil Support</i>	28 Oct 18	Current.
JP 3-28 provides overarching guidelines and principles to assist commanders and staffs in planning, conducting, and assessing DSCA. It describes the fundamentals of response and the federal role in supporting a comprehensive all-hazards response. JP 3-28 discusses planning to support and sustain DSCA, to include intelligence support, health services, mortuary affairs, and other support and sustainment considerations.			
JP 3-40	<i>Countering Weapons of Mass Destruction</i>	31 Oct 14	Under revision.
JP 3-40 provides an activities construct for countering WMD. Tasks to counter specific WMD threats are grouped within the activities of understand the operational environment, threats, and vulnerabilities; cooperate with and support partners; control, defeat, disable, and dispose of WMD threats; and safeguard the force and manage consequences.			
JP 3-41	<i>Chemical, Biological, Radiological, and Nuclear Response</i>	9 Sep 16	Current.
JP 3-41 describes CBRN response activities to highlight the unique Department of Defense (DOD) response capability and responsibility to minimize the effects of a CBRN incident. It incorporates the new DOD-integrated chemical, biological, radiological, and nuclear response enterprise (CRE) capabilities and joint force matrix and clarifies supporting roles during international CBRN response.			
<b>Multi-Service Publications</b>			
USACBRNS is the U.S. Army proponent and lead agent for eight tactical-level, multi-Service publications. Seven of the publications are sponsored by the Joint Requirements Office for CBRN Defense (J-8), Joint Chiefs of Staff.			
ATP 3-11.23 MCWP 3-37.7 NTTP 3-11.35 AFTTP 3-2.71	<i>Multi-Service Tactics, Techniques, and Procedures for Weapons of Mass Destruction Elimination Operations</i>	1 Nov 13	Current.
Army Techniques Publication (ATP) 3-11.23, describes the WMD–elimination isolation activity as the seam that links the battle handover from a conventional CBRN force conducting the assessment task to the technical CBRN force conducting exploitation and destruction tasks. It educates the reader on performing the entire process from cradle (reconnoitering) to grave (monitoring and redirecting) and on planning, preparing, executing, and assessing considerations throughout.			

Number	Title	Date	Status
ATP 3-11.32 MCWP 3-37.2 NTTP 3-11.37 AFTTP 3-2.46	<i>Multi-Service Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Passive Defense</i>	13 May 16	Current. Change 1 published May 2018.
ATP 3-11.32 contains information for conducting operations; performing tactics, techniques, and procedures (TTP); and understanding how to carry out CBRN passive defense. A complementary technical manual (TM) (TM 3-11.32/MCRP 10-10E.5/NTRP 3-11.25) contains reference material for CBRN warning, reporting, and hazard prediction procedures.			
ATP 3-11.36 MCRP 3-37B NTTP 3-11.34 AFTTP 3-2.70	<i>Multi-Service Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Planning</i>	24 Sep 18	Current.
ATP 3-11.36 includes the doctrinal employment of CBRN capabilities (organizations, personnel, technology, and information) to characterize CBRN threats and hazards, including toxic industrial material, for the commander and the force. This manual also incorporates the joint doctrine elements for combating WMD. It is designed to provide operational- and tactical-level commanders and staffs with capability employment planning data and considerations to shape military operations involving CBRN threats and hazards and operations in CBRN environments.			
ATP 3-11.37 MCWP 3-37.4 NTTP 3-11.29 AFTTP 3-2.44	<i>Multi-Service Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Reconnaissance and Surveillance</i>	25 Mar 13	Under revision. Final draft to be sent for review FY 20.
ATP 3-11.37 establishes forms, modes, and methods of (and tasks for) CBRN reconnaissance and surveillance. It also establishes four new CBRN hazard identification levels that have been accepted by combatant commanders and the medical community for environmental samples and clinical specimens. These hazard identification levels allow the conventional force to provide the commander with sample identification at higher levels of confidence. This, in turn, allows the commander to make timely, higher-level decisions that enhance force protection, improve mission accomplishment, and result in resource savings. ATP 3-11.37 establishes a sample management process and educates Soldiers on the protocols of the process, from sample collection through transfer. Finally, it instructs Soldiers on dismounted reconnaissance operations in urban environments.			
ATP 3-11.41 MCRP 3-37.2C NTTP 3-11.24 AFTTP(I) 3-2.37	<i>Multi-Service Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Consequence Management Operations</i>	30 Jul 15	Current. Under review with the creation of a new publication, ATP 3-11.42, <i>Multi-Service Tactics, Techniques, and Procedures for the Chemical, Biological, Radiological, and Nuclear Domestic Response</i> .
ATP 3-11.41 provides commanders, staffs, key agencies, and military members with a key reference for planning and conducting CBRN consequence management. This publication provides a reference for planning, resourcing, and executing CBRN consequence management in support of domestic or foreign agencies responding to a CBRN incident. The principal audience for this multi-Service publication consists of CBRN responders who plan and conduct CBRN consequence management operations in domestic, foreign, or theater operational environments, to include military installations.			
ATP 3-11.42	<i>Multi-Service Tactics, Techniques, and Procedures for the Chemical, Biological, Radiological, and Nuclear Domestic Response</i> .	TBD	New publication, under development.
ATP 3-11.42 will combine guiding principles to multi-Service forces within the CBRN response enterprise and conducting domestic CBRN response operations in support of DOD missions and national objectives. It will focus on planning, preparation, and execution at the tactical level. ATP 3-11.42 will incorporate changes in doctrine from updated JP 3-11, JP 3-28, and JP 3-41 and explain how the WMD–civil support team (CST) concept of operations is integrated into the CBRN response enterprise structure. It will incorporate key doctrinal elements from ATP 3-11.41, ATP 3-11.46, and ATP 3-11.47.			
ATP 3-11.46 AFTTP 3-2.81	<i>Weapons of Mass Destruction–Civil Support Team Operations</i>	20 May 14	Current. Under review with the creation of a new publication, ATP 3-11.42, <i>Multi-Service Tactics, Techniques, and Procedures for the Chemical, Biological, Radiological, and Nuclear Domestic Response</i> .
ATP 3-11.46 serves as the foundation for WMD-CST doctrine.			
ATP 3-11.47 AFTTP 3-2.79	<i>Chemical, Biological, Radiological, Nuclear, and High-Yield Explosives Enhanced Response Force Package (CERFP) and Homeland Response Force (HRF) Operations</i>	26 Apr 13	Current. Under review with the creation of a new publication, ATP 3-11.42, <i>Multi-Service Tactics, Techniques, and Procedures for the Chemical, Biological, Radiological, and Nuclear Domestic Response</i> .
ATP 3-11.47 contains detailed tactical doctrine and TTP and sets the foundation for the tactical employment of the CERFP and HRF.			

Number	Title	Date	Status
<b>Army-Only Publications</b>			
USACBRNS is the U.S. Army proponent for five tactical-level, Army-only publications.			
ATP 3-11.24	<i>Technical Chemical, Biological, Radiological, Nuclear, and High-Yield Explosives (CBRNE) Force Employment</i>	6 May 14	Current.
ATP 3-11.24 describes how CBRNE forces support combatant commanders through every phase of operations conducted in-theater and in the homeland. This is important in educating those who are outside the CBRN community with regard to the true capabilities of the technical CBRNE force. The appendixes include information about specific technical CBRNE force missions, organizations, capabilities, and employment considerations.			
ATP 3-90.40	<i>Combined Arms Countering Weapons of Mass Destruction</i>	29 Jun 17	Current.
ATP 3-90.40 provides tactical-level commanders, staffs, and key agencies with a primary reference for planning, synchronizing, integrating, and executing combined arms countering WMD.			
ATP 3-37.11	<i>Chemical, Biological, Radiological, Nuclear, and Explosives (CBRNE) Command</i>	28 Aug 18	Current.
ATP 3-37.11 provides doctrine to facilitate the operations and training requirements of the CBRNE command. It also provides commanders, staffs, key agencies, and Service members with a key reference on the CBRNE command for operational and tactical planning and CBRN and explosive ordnance disposal structure, capabilities, and principles of employment.			
FM 3-11	<i>Chemical, Biological, Radiological, and Nuclear Operations</i>	23 May 19	Current.
Field Manual (FM) 3-11 defines the core functions of the Chemical Corps and describes how they integrate into large-scale combat operations. FM 3-11 is an Army-only publication that provides doctrine for operations to assess CBRN hazards, protect the force, and mitigate the entire range of CBRN threats, hazards, and effects.			
<b>Technical Manuals</b>			
USACBRNS is the proponent and approving authority for three TMs.			
TM 3-11.32 MCRP 10-10E.5 NTRP 311.25 AFTTP 3-2.56	<i>Multi-Service Reference for Chemical, Biological, Radiological, and Nuclear (CBRN) Warning, Reporting, and Hazard Prediction Procedures</i>	15 May 17	Current. Change 1 published 21 Dec 2017.
TM 3-11.32 provides reference material for CBRN warning messages, incident reporting, and hazard prediction procedures.			
TM 3-11.42 MCWP 3-38.1 NTTP 3-11.36 AFTTP 3-2.82	<i>Multi-Service Tactics, Techniques, and Procedures for Installation Emergency Management</i>	23 Jun 14	Current.
TM 3-11.42 addresses the installation commander's response to an incident that takes place on an installation. The scope of this revision has been expanded from CBRN defense to all-hazards installation emergency management, which includes the management of CBRN events. The publication defines the roles of DOD installation commanders and staffs and provides the TTP associated with installation planning and preparedness for, response to, and recovery from all hazards in order to save lives, protect property, and sustain mission readiness.			
TM 3-11.91 MCRP 3-37.1B NTRP 3-11.32 AFTTP 3-2.55	<i>Chemical, Biological, Radiological, and Nuclear Threats and Hazards</i>	13 Dec 17	Current. Change 1 published 14 June 2018. Change 2 soon to be released.
TM 3-11.91 serves as a comprehensive manual for information to help understand the CBRN environment. It includes the technical aspects of CBRN threats and hazards, including information about the chemistry of homemade explosives. In addition to the technical information on CBRN threats and hazards, it also includes basic educational information and the field behavior of CBRN hazards (including riot control agents and herbicides). The appendixes contain scientific CBRN data. Change 1 adds Air Force designation.			



# Reserve Component Update



## Professional Military Education

Qualification training courses are listed and described in Table 1.

**Table 1. Qualification training courses**

Enlisted/Noncommissioned Officer (NCO) Qualification Training Courses	
<b>74D10 Chemical, Biological, Radiological, and Nuclear (CBRN) Specialist Course (School Code 031)</b>	
Phase I (Course 031-74D10 [R1] [dL])	Once Soldiers are enrolled in Phase I, they will receive e-mail instructions from the Army Training Resources Requirements System (ATTRS) via Army Enterprise e-mail. Students must complete Phase I before reporting for Phase II training. A Fort Leonard Wood training certificate of completion for Blackboard must be presented as proof of Phase I completion during Phase II in-processing. Soldiers who experience technical problems with Phase I should call Fort Leonard Wood Blackboard Technical Support at 1-887-208-1229. Those who experience content issues should contact Master Sergeant Jeremy Mann at 573-563-4026 or <jeremy.a.mann.mil@mail.mil> or Mr. Andrew Roden at 573-563-2716.
<b>74D10 CBRN Specialist Course (School Code L031)</b>	
Phases II and III (Course 031-74D10 [R1])	These phases consist of resident training conducted at Fort Leonard Wood, Missouri. Soldiers must have an e-mail printout indicating that they have completed Phase I. Soldiers who fail to provide the printout are returned to their units.
<b>74D 2/3/4 CBRN Transition Course (School Code L031)</b>	
This is a three-phase resident course. Soldiers attending the CBRN Transition Course (031-74D2/3/4[T]) must be graduates of a military occupational specialty (MOS) Advanced Leader Course (ALC). Soldiers who have not attended ALC must attend the CBRN Specialist Course (031-74D10) to become 74D10 MOS-qualified. Hazmat Awareness Training is now a prerequisite for all courses. Training can be completed at < <a href="http://totalforcevlc.golearnportal.org/">http://totalforcevlc.golearnportal.org/</a> >. (A common access card [CAC] is required.)	
<b>74D30 CBRN ALC (School Code L031, Course 031-74D30-C45)</b>	
CBRN ALC is a three-phase resident course. Phase I is waived for Soldiers who possess a certificate indicating that they have completed Department of Defense (DOD)-certified hazmat training at the technician level. Effective 1 October 2014, graduation from Structured Self-Development, Level II, is a prerequisite for attending CBRN ALC.	
<b>74D40 Senior Leader Course (SLC) (School Code L031, Course 031-74D40-C46)</b>	
This is a three-phase resident course conducted at Fort Leonard Wood. Graduation from Structured Self-Development is a prerequisite for attending CBRN ALC, CBRN SLC, and the CBRN Transition Course.	
Officer Qualification Training Courses	
<b>CBRN Captain's Career Course (C3) (School Code 031)</b>	
Phase I (Course 4-3-C23 [dL])	This branch-specific distributed learning (dL) phase consists of 75 hours of dL instruction, which must be completed within 60 days before attending Phase II. The successful completion of Phase I Federal Emergency Management Agency (FEMA) 100/200/700/800, Hazmat Awareness Training, and Defense Support of Civil Authorities (DSCA) Phase I are required for Phase II attendance. Unit trainers enroll Soldiers through ATTRS. Students receive e-mail instructions from the Army dL Program. Hazmat awareness training can be accessed at < <a href="http://totalforcevlc.golearnportal.org/">http://totalforcevlc.golearnportal.org/</a> > and completed by students prior to attending Phase II. Students who encounter problems should contact the U.S. Army Chemical, Biological, Radiological, and Nuclear School (USACBRNS) U.S. Army Reserve (USAR) CBRN Sergeant Major, Master Sergeant Jeremy Mann, at 573-563-4026 or <jeremy.a.mann.mil@mail.mil>.
Phase II (Course 4-3-C23)	This branch-specific resident phase consists of 2 weeks of training conducted at USACBRNS. This phase covers chemical and biological agent effects, defense concepts, radiological operations, consequence management, live toxic-agent training, and the basics of the Joint Warning and Reporting Network used within the Maneuver Control System.
Phase III (Course 4-3-C23 [dL])	This common-core (CC) phase consists of 59.2 hours of dL instruction. Unit trainers enroll Soldiers through ATRRS. Students receive e-mail instructions from the Army dL Program. Students must complete Phase III within 60 days before attending Phase IV. The successful completion of Phase III is a prerequisite for Phase IV attendance. Those who encounter problems should contact Master Sergeant Jeremy Mann at (573) 563-4026 or <jeremy.a.mann.mil@mail.mil>.
Phase IV (Course 4-3-C23)	This resident phase consists of 2 weeks of training conducted at USACBRNS. The focus is on a computer-aided exercise that includes additional Joint Warning and Reporting Network and Maneuver Control System training, culminating in a military decision-making process exercise using state-of-the-art battle simulation equipment.



# Reserve Component Update



## Joint SLC (Course 4K-74A/494-F18)

This is a 4-day course for senior leaders focusing on operational- and strategic-level aspects of countering weapons of mass destruction (WMD). Participants also receive toxic-agent training at the Chemical Defense Training Facility. In addition, the Joint SLC forum offers a unique opportunity for senior military leaders, civilian government agency leaders, and leaders representing allied and coalition partners to exchange ideas. You are required to register for the Joint SLC through the Joint SLC action officer, Mr. Brad Sanders at <bradley.w.sanders.ctr@mail.mil> or (573) 528-9491. Registration through ATRRS will not guarantee a seat; prospective students may be bumped from the course.

## CBRN Precommand Course (Course 4K0F4)

This is a 5-day course that prepares Regular Army and Reserve Component (RC) officers who have been selected for command of a CBRN battalion or brigade or a CBRN position in a division. Each student receives instruction in the application of Army Doctrine Publication (ADP) 7-0, *Training Units and Developing Leaders*, concepts to the battalion training management process.

**Note:** Additional information is available at <<https://www.atrrs.army.mil/>>.

The courses shown in Table 2 are required by command and control chemical, biological, radiological, and nuclear response element (C2CRE); chemical, biological, radiological, nuclear, and explosives enhanced response force package (CERFP); WMD–civil support team (CST); domestic response force; and homeland response force units for MOS qualification.

**Table 2. Functional training courses**

### CBRN Responder Operations Course (School Code 031, Course 4K-F30/494-F34[MC])

This 4-day course is appropriate for C2CRE members. All students attending the course must be International Fire Service Accreditation Congress (IFSAC) DOD Awareness-certified before arriving. Students who successfully complete the course receive certification at the operations level.

### CBRN Responder Technician Course (School Code 031, Course 4K-F24/494-F29)

This 6-day course is appropriate for C2CRE members. All students attending the course must be IFSAC DOD Awareness- and Operations-certified before arriving. Students who successfully complete the course receive certification at the technician level.

### Civil Support Skills Course (CSSC) (School Code 031, Course 4K-F20/494-28)

This 8-week course is appropriate for Army National Guard and USAR WMD-CST members. Students receive advanced training in hazmat technician and incident command and CBRN survey, point reconnaissance, sampling operations, personal protective equipment selection and certification, and decontamination. They also receive specialized training on a variety of military and commercial CBRN detection equipment.

**Note:** All students who successfully complete hazmat training are awarded certificates issued by IFSAC and DOD. Additional copies of certificates can be obtained at <<http://www.dodffcert.com>>.

A Soldier who arrives for any resident course without having first completed all appropriate dL requirements will be returned to his or her unit without action.

## USACBRNS RC Personnel

Officers (O-3 through O-5) and NCOs (E-7 through E-9) who are interested in available drilling individual mobilization augmentee positions throughout USACBRNS should contact the USAR training development NCO.

Field grade USAR officers who would like to transfer into the Chemical Corps should contact the USACBRNS Deputy Assistant Commandant–Army Reserve (DAC-AR) for specific branch qualification information.

The 3d Brigade (Chemical), 102d Division (Maneuver Support), is currently seeking instructors for various locations. An applicant should be an E-6 or E-7, should be qualified (or able to be trained) as an Army basic instructor, and should have completed the appropriate NCO Education System coursework. Interested Soldiers should contact the brigade senior operations NCO, Sergeant First Class Yabronda A. Battles at (573) 596-6205 or <[yabronda.a.battles@mail.mil](mailto:yabronda.a.battles@mail.mil)>.

### Contact Information

Colonel Sandy C. Sadler (DAC-AR), (573) 563-8050 or <[sandy.c.sadler@mail.mil](mailto:sandy.c.sadler@mail.mil)>

Master Sergeant Jeremy A. Mann (CBRN USAR Sergeant Major), (573) 563-4026 or <[jeremy.a.mann@mail.mil](mailto:jeremy.a.mann@mail.mil)>

VACANT (Training Development NCO-AR), (573) 563-7757

Major Audrey J. Dean (DAC-NG), (573) 563-7676 or <[audrey.j.dean@mail.mil](mailto:audrey.j.dean@mail.mil)>

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Sergeant First Class James W. Mars (Proponency NCO-NG), (573) 563-7667 or <[james.w.mars@mail.mil](mailto:james.w.mars@mail.mil)>

Sergeant First Class Walter W. Espinoza (RC-LNO), (573) 596-3226 or <[molina.w.espinoza@mail.mil](mailto:molina.w.espinoza@mail.mil)>

### Reference:

ADP 7-0, *Training Units and Developing Leaders*, 23 August 2012.



PIN: 205583-000